Exhibit R-2, RDT&E Budget Item Justification: PB 2020 Navy											Date: March 2019	
Appropriation/Budget Activity 1319: *Research, Development, Test & Evaluation, Navy I* BA 5: *System Development & Demonstration (SDD)*					R-1 Program Element (Number/Name) PE 0304785N / *Tactical Cryptologic Systems*							
COST ($ in Millions)	**Prior Years**	**FY 2018**	**FY 2019**	**FY 2020 Base**	**FY 2020 OCO**	**FY 2020 Total**	**FY 2021**	**FY 2022**	**FY 2023**	**FY 2024**	**Cost To Complete**	**Total Cost**
Total Program Element	327.817	22.762	42.398	101.339	-	101.339	99.347	91.098	110.888	113.094	Continuing	Continuing
2134: *Shipboard IW Exploit*	327.817	22.762	42.398	53.496	-	53.496	56.440	48.802	57.618	58.775	Continuing	Continuing
2174: *Distributed Common Ground System-Navy (DCGS-N)*	0.000	0.000	0.000	0.583	-	0.583	0.589	0.669	0.675	0.678	Continuing	Continuing
2227: *Distributed Common Ground System (DCGS-N) Inc 2*	0.000	0.000	0.000	42.745	-	42.745	37.688	36.941	34.460	35.143	Continuing	Continuing
3091: *Advanced Cryptological Sys Eng (CCOP)*	0.000	0.000	0.000	4.515	-	4.515	4.630	4.686	4.835	4.932	Continuing	Continuing
3431: *Distributed Operations*	0.000	0.000	0.000	0.000	-	0.000	0.000	0.000	13.300	13.566	Continuing	Continuing

Note

To ensure resources are aligned to enable rapid capability delivery, funding has been realigned into PE 0304785N (Tactical Cryptologic System) from the following Program Elements/Projects as part of RDTEN PE Consolidation starting in FY 2020: PE 0305208N (Distributed Common Ground Sys) Project 2174 (Distributed Common Ground System-Navy (DCGS-N)) and Project 2227 (DCGS-N Increment 2), and PE 0204574N (Advanced Cryptologic Systems Engineering) Project 3091 (Advanced Cryptologic Carry On Program (CCOP)). There are no New Starts associated with PE Consolidation.

A. Mission Description and Budget Item Justification

The Shipboard Information Warfare (SIW) line includes the Ship's Signal Exploitation Equipment (SSEE) Family of Systems (FoS) which include Increment E, Increment F (and its variants), Spectral and Modifications, as well as the Integrated Communications Data System (ICADS) Increment I and Increment II. These programs are classified Information Warfare (IW) / Electronic Warfare (EW) tactical cryptologic systems supporting Command and Control, Battlespace Awareness, Electromagnetic Maneuver Warfare / Integrated Fires (EMW/IF) modes of global engagement. These systems enable power projection at the strategic level in any environment including communications challenged situations (previously referred to as Anti-Access, Area Denial (A2AD)) across the globe and provide offensive 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 systems 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 incremental acquisition programs designed to pace adversary communications technology development by using Research, Development, Test & 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 via a net-centric Service Oriented Architecture (SOA). Funding will 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) and communications challenged scenarios. ICADS Increment II is a mission critical system providing advanced simulation capability for naval platforms as well as back-up communications capabilities. Additional details for these programs are held at a higher classification level. The Advanced Cryptologic Systems Engineering

Exhibit R-2, RDT&E Budget Item Justification: PB 2020 Navy	Date: March 2019
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 Tactical Cryptologic Systems*

The Distributed Common Ground System - Navy (DCGS-N) is the Navy's portion of the Under Secretary of Defense, Intelligence (USD (I)) DCGS Family of Systems (FoS). The Department of Defense (DoD) has defined a DCGS architecture that will be compatible and interoperable across all of the Services' Intelligence, Surveillance and Reconnaissance (ISR) systems and operations. DCGS accesses and ingests data from spaceborne, airborne, subsurface, and surface ISR collection assets, intelligence databases and intelligence producers. This collected data is shared across a joint enterprise using the DCGS Integration Backbone (DIB) and in time, the Defense Intelligence Information Enterprise (DI2E) to enhance access and sharing of ISR information across Joint forces through the use of common enterprise standards and services. DCGS FoS supports Joint Task Force (JTF)-level and below combat operations with critical intelligence for battle management and information dominance across the full spectrum of operations, including peace, conflict, war, and Overseas Contingency Operations (OCO). DCGS is a cooperative effort between the services, agencies, and DoD to provide systems capable of receiving, processing, exploiting, and disseminating data from airborne and national reconnaissance platforms. DCGS-N core components include the analyst workstation from the Global Command and Control System (GCCS) - Integrated Imagery and Intelligence (I3), Generic Area Limitation Environment (GALE) Signals Intelligence (SIGINT), Common Geo-positioning Services (CGS), Image Product Library (IPL) or Information Store (iSToRE), Modernized Integrated Database (MIDB), Joint Concentrator Architecture (JCA) and Track Management Services (TMS).

The DCGS-N system represents the integration of 1) The processing and exploitation of tactical and Imagery Intelligence (IMINT) and SIGINT; 2) Precision target geopositioning, mensuration, and imagery dissemination capabilities; 3) Selected national IMINT requirements and processing capabilities from the National Geospatial-Intelligence Agency (NGA); and 4) Sharing of Intelligence, Surveillance, Reconnaissance and Targeting (ISR&T) and Command and Control information via DIB, DI2E, and Net-Centric Enterprise Services (NCES) standards with a wide range of customers (e.g., Global Command and Control System - Maritime (GCCS-M), Joint Mission Planning System (JMPS), and many others). The DCGS-N system efforts include investigation of emerging technologies through study, development, and associated testing for feasibility of program insertion.

The DCGS-N Enterprise Node (DEN), which incorporates current DIB standards and DI2E policy, facilitates interoperability and data sharing among the DCGS FoS. DCGS-N ensures compliance with the DoD DCGS network architecture.

The Navy is establishing an ISR Enterprise way ahead that will emphasize a reach back strategy to provide intelligence products to support deployed ship and shore operations. The Navy will also migrate to a Service Oriented Architecture (SOA) that requires the integration and testing of a Maritime ISR Enterprise capabilities, migration of ISR applications to a SOA environment, and integration to leverage a Common Computing Environment (CCE) and the Intelligence Community Information Technology Enterprise (IC ITE). DCGS-N will also become the focal point for migration of Maritime Domain Awareness (MDA) fusion and analysis Maritime Fusion & Analysis (MFAS) tool applications for the Navy. Additionally, Intelligence Surveillance and Reconnaissance (ISR) funding supports 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 and automatically provide to shipboard combat systems to support kinetic (bombs, mortars, missiles, bullets) and non-kinetic fires (electronic attack, lasers, cyber-attack) and more effective exploitation of the electromagnetic spectrum. ISR systems will play key roles in enabling the national-to-tactical integration necessary for an integrated maritime targeting capability in support of kinetic and non-kinetic fires.

Exhibit R-2, RDT&E Budget Item Justification: PB 2020 Navy	Date: March 2019
Appropriation/Budget Activity 1319: *Research, Development, Test & Evaluation, Navy I* BA 5: *System Development & Demonstration (SDD)*	**R-1 Program Element (Number/Name)** PE 0304785N / *Tactical Cryptologic Systems*

Distributed Common Ground System-Navy (DCGS-N) Increment 1 is the Navy's current in service DCGS ISR&T program of record. The system is actively used by Navy force level ships and shore sites in support of the mission. DCGS-N Increment 1 is currently performing technical refreshes to Windows 10 (WIN 10) per the Department of Defense's initiatives while enabling the long-term transition to DCGS-N Increment 2.

Intelligence Carry-On Program (ICOP) is a suite of multi-source intelligence and analytical capabilities which includes an integrated Three-Dimensional (3-D) operational picture displaying intelligence and other data sources to provide a richer and more complete picture of the battle space on Unit Level platforms. The system supports a full motion video capability that receives, processes, exploits, and disseminates organic and non-organic data as well as the ability to process and correlate Electronic Intelligence (ELINT) and external Communications Intelligence (COMINT Externals). It integrates mature Commercial Off-the-Shelf (COTS) and Government Off-the-Shelf (GOTS) applications with shared storage and communication paths to reach back to the DCGS-N Enterprise Node (DEN), and to provide data sharing to the Maritime Operations Centers (MOC) and national ISR systems, making tactical users a part of the larger ISR enterprise.

DCGS-N Increment 2 addresses a critical shortfall in Tasking, Collection, Processing, Exploitation, and Dissemination (TCPED) capability and capacity to support operational, tactical planning, and execution across the full range of joint military operations. Existing TCPED shortfalls will be exacerbated by planned Navy, Joint, and Allied fielding of new ISR platforms. Currently fielded systems provide localized processing capabilities that will be overwhelmed in future years without a significant change in the way the Navy processes, exploits and disseminates intelligence data. DCGS-N Increment 2 will perform quick and affordable integration of emergent transformational COTS and GOTS technologies in support of information warfare and overall efforts required to pace the threat. DCGS-N Increment 2 will deliver all source fusion and analytical capabilities; provide MDA capabilities and integrate TCPED capabilities to improve the use and analysis of sensor and platform data. DCGS-N Increment 2 will be based on an enterprise solution to share this information across commands, services, and agencies to promote shared situational awareness. DCGS-N Increment 2 consists of multiple releases. The first release (Fleet Capability Release 1 (FCR-1)) provides an enhanced Navy ISR enterprise that converges and builds on the DCGS-N Increment 1 Enterprise Node; leverages the Defense Intelligence Information Enterprise (DI2E); is compliant with the Common Computing Environment (CCE) and the Community Information Technology Enterprise (IC ITE); federates ISR and TCPED workflow and production; exploits new and evolving unmanned systems sensor data; provides Multi-Intelligence (Multi-INT) cross-queuing and modular tools. The second release (Fleet Capability Release 2 (FCR-2)), enhances afloat ISR capabilities by providing a set of software centric tools providing Multi-INT fusion and analysis, behavior prediction and intelligent knowledge management designed to operate in disconnected or denied communications environment. The third release (Fleet Capability Release 3 (FCR-3), enhances embedded training to include new modified capabilities, automatic exploitation of motion imagery, ability to define, detect, and display anomalies, ability to observe entities with target list items, fusion of observation reports to detect non-emitting vessels, enhanced alerting and enterprise connectivity detection. DCGS-N Increment 2 will insert new technology enhancements via incremental software & hardware upgrades and deliver as annual build release. Follow-on releases will be developed based on Fleet requirements.

The Cryptologic Carry-on Program (CCOP) rapidly develops and fields state-of-the-art signal acquisition capabilities in response to Combatant Command requirements for a quick-reaction surface cryptologic carry-on capability. 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 the tempo of operations. In addition, numerous Navy and Coast Guard platforms are other potential users.

Exhibit R-2, RDT&E Budget Item Justification: PB 2020 Navy	Date: March 2019
Appropriation/Budget Activity 1319: *Research, Development, Test & Evaluation, Navy I* BA 5: *System Development & Demonstration (SDD)*	**R-1 Program Element (Number/Name)** PE 0304785N / *Tactical Cryptologic Systems*

In FY 2020, SSEE Increment F (and its variants) will continue to develop, refine, and test new, unexplored and unexploited signal and cyber capabilities and integrate solutions to incorporate other Navy development investments to enhance the Fleet's ability to dominate and defend cyberspace mediums, insert new technology enhancements via incremental software and hardware upgrades and to deliver as required to maximize system effectiveness. Specifically, Increment F will continue development in support of software and hardware development for VITA 49 / VPX Next-Generation Chassis to deliver advanced capabilities in a dynamic environment while integrating hosting services to platforms, bringing an enhanced modular, mission-tailorable system infrastructure specifically required for National/Tactical integration. Funding will also finalize development for solutions intended to meet Joint interface and compliance standards (4.X). SSEE Increment F also continues to integrate capabilities able to operate in communications challenged environments into the system configuration.

In FY 2020, Spectral will continue acquisition, logistics, test planning, and contracting activities, while beginning development and engineering of capabilities and subsystems to be incorporated into Engineering Design Models (EDMs) required under Fleet Capability Release - 1 (FCR-1). FY 2020 for SSEE Modifications supports continued 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. It will continue development to integrate designs to bring advanced signal processing to the Next Generation-GRAYWING capability while migrating to meet future industry backplane standards to align with Common Core Architecture (CCA) strategies.

In FY 2020, Integrated Communications and Data Systems Increment II (ICADS Inc. II) will support EDM - 1 development, testing and demonstration of system capability running in accordance with Commander, U.S. Pacific Fleet (COMPACFLT) requirements as well as all the necessary technical, acquisition and contracting documentation to bring additional EDM's.

In FY 2020, DCGS-N Increment 1 will continue development, integration and regression testing required to remain aligned with national imagery standards to be incorporated into technology refreshes for Win 10 upgrades.

In FY 2020, Intelligence Carry-On Program (ICOP) will commence integration and testing events in support of F35 Block 3 and Triton. In addition, ICOP will perform interoperability testing with new capabilities such as minotaur and project maven to align with Integrated Fires (IF) / Electromagnetic Warfare (EMW) concepts.

In FY 2020, DCGS-N Increment 2 will award a Contract that will support the Government LSI for integration, assembly and test of commercial items, COTS, and GOTS components procured for the DCGS-N Increment 2 baseline. Currently this support is provided on several task orders on several contract vehicles. This contract will consolidate that work into a single contract to cover integration of capabilities in FCR-3 through Fleet Capability Release 5 (FCR-5), and ensure Distributed Common Ground System-Navy (DCGS-N) Increment 2 interoperability with the DCGS-N Family of System (FoS), the multi-service and Intelligence Community DCGS FoS, and the Consolidated Afloat Networks and Enterprise Services (CANES) system. DCGS-N Increment 2 will install one (1) unit for Initial Operational Test and Evaluation (IOT&E). DCGS-N Inc 2 will complete integration of Fleet Capability Release 3 (FCR-3) and conduct an In Progress Test Review and Integrated Test of the FCR-3 build including rigorous cyber security testing. DCGS-N Increment 2 will continue to integrate a standard software baseline for the DCGS Family of Systems (FoS). DCGS-N Increment 2 will begin planning for Fleet Capability Release 4 (FCR-4) including developing the Requirements Definition Package (RDP), preparing for the Build Technical Review and Build Decision. DCGS-N Increment 2 will continue Passive Targeting Efforts leveraging Office of Naval Research (ONR) Electromagnetic Battle Management (EMBM) Future Naval Capabilities (FNC) to network and fuse Passive Targeting Data. Intelligence Surveillance and Reconnaissance (ISR) funding

supports 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 and automatically provide to shipboard combat systems to support kinetic (bombs, mortars, missiles, bullets) and non-kinetic fires (electronic attack, lasers, cyber-attack) and more effective exploitation of the electromagnetic spectrum. Intelligence, Surveillance, Reconnaissance (ISR) systems will play key roles in enabling the national-to-tactical integration necessary for an integrated maritime targeting capability in support of kinetic and non-kinetic fires.

In FY 2020, Cryptologic Carry On Program (CCOP) will continue to integrate, test, and document identified COTS and GOTS technologies and subsystems that meet emergent and on-going Fleet requirements as specified in the SOI and target threat list, as well as, continue to develop upgrades to existing systems and subsystems according to Fleet requirements. Funds aid the development of new signal processing algorithms and software based solutions to enable rapid transition of capability to permanently installed SSES systems, including SSEE Family of Systems (FoS) and its variants, the research of self-contained small form factor systems for Patrol craft and other small units, and the research 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. Program Change Summary ($ in Millions)	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Previous President's Budget	28.311	44.098	47.173	-	47.173
Current President's Budget	22.762	42.398	101.339	-	101.339
Total Adjustments	-5.549	-1.700	54.166	-	54.166
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-1.700			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-0.007	0.000			
• SBIR/STTR Transfer	-	-			
• Program Adjustments	0.000	0.000	54.543	-	54.543
• Rate/Misc Adjustments	0.000	0.000	-0.377	-	-0.377
• Congressional Directed Reductions Adjustments	-5.542	-	-	-	-

Change Summary Explanation

The FY 2020 funding request was reduced by $1.736M to account for the availability of prior year execution balances.

The funding increased from FY 2019 to FY 2020 by $49.843M due to the PE consolidation, which transferred funding from PE 0305208N Project 2174, PE 0305208N Project 2227, and PE 0204574N Project 3091 into PE 0304785N.

Additionally, there was an increase from FY 2019 to FY 2020 of $8.548M due to support Spectral EDM development for both shore and afloat based systems and to support creating a Development Operations environment.

Exhibit R-2A, RDT&E Project Justification: PB 2020 Navy											Date: March 2019	
Appropriation/Budget Activity 1319 / 5					R-1 Program Element (Number/Name) PE 0304785N / *Tactical Cryptologic Systems*				Project (Number/Name) 2134 / *Shipboard IW Exploit*			
COST ($ in Millions)	**Prior Years**	**FY 2018**	**FY 2019**	**FY 2020 Base**	**FY 2020 OCO**	**FY 2020 Total**	**FY 2021**	**FY 2022**	**FY 2023**	**FY 2024**	**Cost To Complete**	**Total Cost**
2134: *Shipboard IW Exploit*	327.817	22.762	42.398	53.496	-	53.496	56.440	48.802	57.618	58.775	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The FY 2020 funding request was increased by $11.098M to support Ship's Signal Exploitation Equipment (SSEE) Family of Systems (FoS) (which includes SSEE Increment E, SSEE Increment F (and its variants), Spectral and SSEE Modifications), and Integrated Communications Data System (ICADS) (which includes ICADS Increment I and ICADS Increment II)). These programs are classified Information Warfare (IW) / Electronic Warfare (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 and provide both battle group and combatant commanders with real-time indications and warnings by acquisition ("Find") and localization ("Fix") of Signals of Interest (SOI) as well as provide the Surface Fleet's only EW non-kinetic capabilities ("Finish"). The SSEE Increment F 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 that integrates and interoperates with SSEE Increment F host system. SSEE Modifications is broken into two major components, Paragon which provides simultaneous detection, collection, processing, Information Operations (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 however, is the Navy's next-generation SIGINT, EMW, and IO weapons system to provide 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 any existing system could match. Spectral will rapidly deliver enhancements in spectrum coverage, advances in antenna technologies, and improvements in integration with other Radio Frequency (RF) systems, combat systems, and other data interfaces to bring a together a comprehensive integrated cryptologic intelligence picture. As an incremental acquisition program, Research, Development, Test & 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 and transition as Pre-Planned Product Improvement (P3I) upgrades into the system's hardware / software configuration 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. Funding also focuses on developing and delivering expanded non-kinetic EW capabilities and net-centric Service Oriented Architecture (SOA), as well as meeting intended interoperability objectives through Fleet defined Common Core Architectures (CCA) to enable application hosting services; all in accordance with Presidential direction and strategic objectives while also in support of multiple Operational Plans (OPLANS), Concepts of Operations (CONOPS) and communications challenged scenarios (previously known as Anti-Access Area Denial) (further details held at a higher classification level). SSEE FoS will continue development and integration of capabilities able to operate in those communications challenged environments solutions for the SSEE Increment F, SSEE Modifications, and Spectral systems as well as bring enhanced signals exploitation and expanded SOI processing capabilities to fielded systems. Funding 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 and provided to shipboard combat systems to support kinetic and non-kinetic fires. It can also be used to enable a more complete understanding and more agile and effective exploitation of the electromagnetic spectrum.

Exhibit R-2A, RDT&E Project Justification: PB 2020 Navy		Date: March 2019
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0304785N / *Tactical Cryptologic Systems*	**Project (Number/Name)** 2134 / *Shipboard IW Exploit*

FY 2020 funding for SSEE Increment F (and its variants) will continue to develop, refine, and test new, unexplored and unexploited signal and cyber capabilities and integrate solutions to incorporate other Navy development investments to enhance the Fleet's ability to dominate and defend cyberspace mediums, insert new technology enhancements via incremental software and hardware upgrades and to deliver as required to maximize system effectiveness. Specifically, Increment F will continue development in support of software and hardware development for VITA 49 / VPX Next-Generation Chassis to deliver advanced capabilities in a dynamic environment while integrating hosting services to platforms, bringing an enhanced modular, mission-tailorable system infrastructure specifically required for National/ Tactical integration. Funding will also finalize development for solutions intended to meet Joint interface and compliance standards (4.X). SSEE Increment F also continues to integrate capabilities able to operate in communications challenged environments into the system configuration.

FY 2020 funding for Spectral will continue acquisition, logistics, test planning, and contracting activities, while beginning development and engineering of capabilities and subsystems to be incorporated into Engineering Design Models (EDMs) required under Fleet Capability Release - 1 (FCR-1). FY 2020 for SSEE Modifications supports continued 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. It will continue development to integrate designs to bring advanced signal processing to the Next Generation-GRAYWING capability while migrating to meet future industry backplane standards to align with Common Core Architecture (CCA) strategies.

With finalized Spectral requirements and specifications, changes have been made to the schedule which include shifting Milestone B decision from QTR 3 FY 2018 to QTR 3 FY 2020, and Fleet Capability Release (FCR) Integration Test from QTR 2 FY 2020 to QTR 4 FY 2023. Production Representative/Engineering Design Model (EDM) development begins in QTR 2 FY 2020, and Fleet Capability Release (FCR)-1 begins in QTR 1 FY 2023. Additionally, it added an EDM Integration Test and Operational Assessment in QTR 3 and QTR 4 FY 2022 respectively.

FY 2020 funding for Integrated Communications and Data Systems Increment II (ICADS Inc. II) will support EDM - 1 development, testing and demonstration of system capability running in accordance with Commander, U.S. Pacific Fleet (COMPACFLT) requirements as well as all the necessary technical, acquisition and contracting documentation to bring additional EDM's.

Revised Fleet requirements for ICADS Inc. II coupled with a delayed start in acquisition and engineering, forced adopting a new hybrid acquisition model to ensure rapid system prototyping. The following changes have made to the ICADS schedule: Milestone C shifted from QTR 1 FY 2020 to QTR 4 FY 2021, Integration Test -1 moved from QTR 4 FY 2018 to QTR 4 FY 2021 and Production Representative -1 delivery from QTR 4 FY 2018 to QTR 1 FY 2021.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Title: Ship's Signal Exploitation Equipment Inc F (SSEE Inc F)	6.487	8.148	12.589	0.000	12.589
Articles:	-	-	-	-	-
FY 2019 Plans: Continue to develop Joint interface compliance standards (4.X) while creating netted sensor framework strategies and delivering enhanced automation capabilities to expedite sensor tasking and control and ease					

Exhibit R-2A, RDT&E Project Justification: PB 2020 Navy		Date: March 2019
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0304785N / *Tactical Cryptologic Systems*	**Project (Number/Name)** 2134 / *Shipboard IW Exploit*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
operator workflows. Continue Pre-Planned Product Improvements (P3I) to develop and deliver EW capabilities based upon the warfighter identified FY19 Signals of Interest (SOI) threats (annually-updated) for integration into the SSEE Increment F system and deliver as required to meet Fleet requirements. Develop, refine, and test new, unexplored and unexploited cyber capabilities as well as begin 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. Continue software and hardware development for VITA 49/ VPX Next-Generation Chassis designs and integrate capabilities operating in communications challenged environments into this new open architecture framework creating a modular, mission-tailorable capability specifically required for National / Tactical mission integration. Design system interfaces and data flow techniques to enable advanced National / Tactical Integration with U.S. Navy Surface Cryptologic Systems by deploying NSAnet afloat while adhering to national cybersecurity initiatives by bringing advanced inter-strike group network capabilities able to operate in any environment as well as develop, test and integrate advanced, targeted maritime IW capabilities and techniques in support of the Deputy Secretary of Defense Management Action Group (DMAG) Asia-Pacific Security Initiatives (APSI). Began initial requirements definition for integration and interoperability of SSEE to the Distributed Data Transfer Service, Cross Domain Systems and Common Tactical Manager as part of the Electromagnetic Maneuver Warfare / Integrated Fires (EMW/IF) concept.					
FY 2020 Base Plans: 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 as well as 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. Intent is to transition from annual software builds to delivering incremental software updates as required to maximize Fleet readiness and its cybersecurity posture. Finalize Joint interface development and compliance standards (4.X) to create a netted sensor framework strategy and deliver enhanced automation capabilities to expedite sensor tasking and control and ease operator workflows. Develop and deliver EW capabilities based upon the warfighter identified FY20 Signals of Interest (SOI) threats (annually-updated) for integration into the SSEE Increment F systems (including variants) and deliver as required to meet Fleet requirements. Continue VITA 49 / VPX Next-Generation Chassis development by including modifications to provide enhanced data processing, and greater exposure of existing system services while meeting constricting Space, Weight, Power and Cooling (SWPaC) requirements on ships. Also continue to integrate specialized signal processing capabilities (including MEDUSA, ACES and SILK					

Exhibit R-2A, RDT&E Project Justification: PB 2020 Navy		Date: March 2019
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0304785N / *Tactical Cryptologic Systems*	**Project (Number/Name)** 2134 / *Shipboard IW Exploit*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
THREAD functionality) into the new architecture to both modernize and increase performance to posture for future SIGINT threats, maximizing hosting environment utility. Continue to develop the architecture, network performance specifications, and hosting environment to bring NSAnet afloat by deploying Navy Tactical Data Network (NTDN) to Carrier Strike Group. This is done to adhere to national cybersecurity initiatives and 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. This also brings high-side fusion and battle management aids within the SSEE FoS. Begin necessary 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 additions and improvements to the system as required by National and Fleet stakeholders. It also supports increasing 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 2020 OCO Plans:*** N/A ***FY 2019 to FY 2020 Increase/Decrease Statement:*** The funding increase from FY 2019 to FY 2020 is for additional testing and demonstration for A2AD capabilities Navy Tactical Data Network (NTDN) initial capability roll-out. Additional details are held at a higher classification.					
Title: Spectral	9.319	18.731	27.279	0.000	27.279
Articles:	-	-	-	-	-
FY 2019 Plans: With re-phased and adjusted schedule capturing new acquisition strategy, Spectral will achieve programmatic development RFP Decision to solicit Spectral system development contract in FY 2019. Initial activity under the planned the Spectral development contract includes initial Engineering Design Models (EDM) system development, individual capability development within the Spectral requirement band, as well as establish a virtual Development Environment used to quickly engineer and integrate capability while having multiple vendors and engineering resources develop. Continue acquisition activities, systems engineering, logistics, test planning, finalizing the Test & Evaluation Master Plan (TEMP) and contracting activities in support of the Development RFP and subsequent Milestone B decision. With re-phased milestone, FY 2019 will initiate					

Exhibit R-2A, RDT&E Project Justification: PB 2020 Navy		Date: March 2019
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0304785N / *Tactical Cryptologic Systems*	**Project (Number/Name)** 2134 / *Shipboard IW Exploit*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
development efforts to build the initial EDMs (Ashore and Afloat). The initial EDMs are intended to be used for systems testing and lab-based capability integration, initial training, and to refine requirements, technical data packages and matrices in preparation for Requirements Development Plan (RDP) approval and Build Decision - 1 (BD-1). Refine advanced or next-generation SIGINT, cyber, IO, or EW capabilities that are beyond or exceed performance requirements scope of currently fielded systems including SSEE Increment F, to be incorporated into the Spectral baseline as well as make available for immediate Fleet introduction via fielded Capability Drops. Spectral Capability Drops brings developed capability in support of EDM development immediately to the Fleet by having the solution parsed and integrated into fielded systems. Continue afloat combat systems integration and execute studies, analysis and engineering efforts for market research to support Advanced Radio Frequency (RF) aperture development and integration. It also satisfies Fleet needs for multi-mission antennas and control modules as part of the Spectral requirement while also expanding upon the Information Warfare (IW) / Electronic Warfare (EW) and tactical Cryptologic system capability of exploiting signals throughout the RF spectrum.					
FY 2020 Base Plans: Complete documentation and acquisition activity to achieve programmatic Milestone B decision and award the prime system integrator and development contract towards delivering a EDM Ashore. Initiate procurement of the EDM hardware for below-deck equipment; continue to build, assemble, and integrate hardware as well as procure developmental equipment 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 SIGINT, cyber, IO, or EW capabilities beyond or in excess of performance requirements scope of currently fielded systems including SSEE Increment F. 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 Model (EDM) and Capability Drop development focusing on engineering efforts outlined in FY 2020 Fleet Integrated Priority and Integrated Priority Capability lists. FY20 EDM development establishes 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. As those capabilities mature and become available, they are made available to be immediately fielded via Capability Drops to satisfy any prioritized Fleet requirement. Initiate system design to include an expanded mission module hosting environment, advanced Information Warfare (IW) / Electronic Warfare (EW) cyberspace capabilities capable of exploiting signals throughout the RF spectrum. Initiate test plans to support Developmental and Operations					

Exhibit R-2A, RDT&E Project Justification: PB 2020 Navy		Date: March 2019
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0304785N / *Tactical Cryptologic Systems*	**Project (Number/Name)** 2134 / *Shipboard IW Exploit*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Assessments against the EDM systems. With finalized afloat combat systems integration studies, analysis, and engineering efforts to support Advanced Radio Frequency (RF) aperture development and integration complete, Advanced RF Aperture Development effort to match the expanded capability is required to meet future SOI threats. Engineering and design in topside maritime antennas enables execution of full functionality and scope of Spectral requirements. ***FY 2020 OCO Plans:*** N/A ***FY 2019 to FY 2020 Increase/Decrease Statement:*** The funding increase from FY 2019 to FY 2020 supports EDM development for both shore and afloat based systems in alignment with established U.S. Navy cryptologic requirements definition through the established initial software and hardware baselines. Efforts include engineering and design of hardware components, software configuration management, user interfaces, coordination and planning. It also funds support creating a Development Operations environment.					
Title: Ship's Signal Exploitation Equipment Modifications (SSEE Modifications)	4.498	5.682	5.328	0.000	5.328
Articles:	-	-	-	-	-
FY 2019 Plans: Continue to execute hardware and software development via annual software release to bring further advanced capability to the Fleet within the expanded Radio Frequency (RF) ranges such as delivering advanced Directional Finding (DF) algorithms to increase geolocation accuracy and integrating new exploitation techniques to address emerging signal threats, while delivering advanced capability to the Fleet through simultaneous detection, collection, processing, electronic warfare, and geographical display of communication intelligence data from hostile, high threat and adversary platforms. Continue designs to bring advanced signal processing to the Next Generation-GRAYWING capability. Begin engineering development and system designs to meet future industry backplane interconnectivity standards to align with CCA strategies. Continue development and integration of capabilities able to operate in communications challenged environments as well as deliver enhanced Signals exploitation and expanded SOI processing capabilities and signal acquisition algorithms to fielded systems. Complete Joint Interoperability Test Center (JITC) certification testing. ***FY 2020 Base Plans:*** Continue to execute hardware and software development via annual software release to bring further advanced capability to the Fleet within the expanded Radio Frequency (RF) ranges and integrate new exploitation techniques to address emerging signal threats, while delivering advanced capability to the Fleet through					

Exhibit R-2A, RDT&E Project Justification: PB 2020 Navy		Date: March 2019
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0304785N / *Tactical Cryptologic Systems*	**Project (Number/Name)** 2134 / *Shipboard IW Exploit*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
simultaneous detection, collection, processing, electronic warfare, and geographical display of communication intelligence data from hostile, high threat and adversary platforms. Restore any hardware or software discrepancies or system bugs stemming from Initial Operational Test & Evaluation test reports. Continue engineering to bring advanced signal processing to the Next Generation-GRAYWING capability to be integrated into the SSEE FoS hosting environments. Continue engineering development and system designs to meet future industry backplane interconnectivity standards to align with CCA strategies. Continue development and integration of capabilities able to operate in communications challenged environments as well as deliver enhanced Signals exploitation and expanded SOI processing capabilities and signal acquisition algorithms to fielded systems. ***FY 2020 OCO Plans:*** N/A ***FY 2019 to FY 2020 Increase/Decrease Statement:*** The funding decrease from FY 2019 to FY 2020 is due to a reduction in SSEE Modifications Software Problem Report (SPR) engineering development resolving software bugs and deficiencies.					
Title: Integrated Communications and Data Systems Increment II (ICADS Inc II)	2.458	9.837	8.300	0.000	8.300
Articles:	-	1	-	-	-
FY 2019 Plans: Continue acquisition and systems engineering activities associated with the development of the first ICADS Increment II Production Representative (PR). Complete ICADS Increment II design reviews including Preliminary Design Review (PDR) and begin preparation for Critical Design Review (CDR). Continue development of all necessary acquisition, systems engineering, logistics, training development activities and documentation in support of Request for Proposal (RFP) release. ***FY 2020 Base Plans:*** Finalize delivery of Production Representative (PR)-1. Complete CDR and RFP while complete all necessary acquisition, systems engineering, logistics, training development in support of the Low-Rate Initial Production (LRIP) / Milestone C decision. Complete development of all technical drawings and contractual documentation in preparation for Request for Proposal (RFP) contract release to support production of the ICADS LRIP and Full-Rate Production systems. ***FY 2020 OCO Plans:***					

Exhibit R-2A, RDT&E Project Justification: PB 2020 Navy		Date: March 2019
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0304785N / *Tactical Cryptologic Systems*	**Project (Number/Name)** 2134 / *Shipboard IW Exploit*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
N/A ***FY 2019 to FY 2020 Increase/Decrease Statement:*** The funding decrease from FY 2019 to FY 2020 is a result of completed engineering development, acquisition and technical documentation and preliminary design reviews supporting the completion of the first ICADS Increment II Production Representative system.					
Accomplishments/Planned Programs Subtotals	22.762	42.398	53.496	0.000	53.496

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
• OPN / 2360: *Shipboard IW Exploit*	216.615	218.103	194.758	-	194.758	235.478	286.193	344.917	297.453	Continuing	Continuing

Remarks

D. Acquisition Strategy

Acquisition, management and contracting strategies support engineering, manufacturing development and production by providing funds to a Prime Contractor and Space & Naval Warfare Systems Command (SPAWAR) Systems Center (SSC) - Atlantic, SPAWAR Systems Center - Pacific and miscellaneous contractors, with management and contract oversight by SPAWAR HQ.

E. Performance Metrics

Ship's Signal Exploitation Equipment (SSEE) Increment F will incorporate pre-planned product improvements to provide enhanced or additional capabilities into the system to increase performance and capability while maximizing value to the Navy. SSEE Increment F improvements along with the addition of the SSEE Modifications and Medusa capabilities will expand signals of interest processing capability to allow collection of the newest high priority modern technology threat signals for tightly integrated Information Operations (IO) / non-kinetic capabilities in support of time critical military strike operations and subsequent processing and analysis for timely and accurate situational awareness for force protection. Paragon is a classified Navy tactical signals intelligence frequency extension capability that will be integrated into Ship's Signal Exploitation Equipment Increment E and F programs. Spectral will expand upon the Information Warfare (IW) / Electronic Warfare (EW) and tactical cryptologic system capability of exploiting signals throughout the Radio Frequency (RF) spectrum, in addition to focusing new technologies towards new and previously unexplored and unexploited cyber capabilities as we integrate into the Electromagnetic Maneuver Warfare (EMW) Integrated Fires (IF) architecture.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2020 Navy		Date: March 2019
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0304785N / *Tactical Cryptologic Systems*	**Project (Number/Name)** 2134 / *Shipboard IW Exploit*

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2018 Cost	FY 2018 Award Date	FY 2019 Cost	FY 2019 Award Date	FY 2020 Base Cost	FY 2020 Base Award Date	FY 2020 OCO Cost	FY 2020 OCO Award Date	FY 2020 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Product Development Prior Years	Various	Various : Various	158.330	0.000		0.000		0.000		-		0.000	0.000	158.330	-
Systems Engineering	C/CPAF	Classified Contract : Classified Contract	12.318	1.670	Dec 2017	4.307	Dec 2018	4.431	Dec 2019	-		4.431	Continuing	Continuing	Continuing
Systems Engineering	WR	SSC PAC : San Diego, CA	5.403	0.889	Oct 2017	1.385	Oct 2018	1.385	Dec 2019	-		1.385	Continuing	Continuing	Continuing
Systems Engineering	WR	SSC LANT : Charleston, SC	6.867	0.616	Oct 2017	1.600	Oct 2018	1.248	Dec 2019	-		1.248	Continuing	Continuing	Continuing
Primary Hardware Development ICADS	C/CPFF	Classified Contracts : Classified Contracts	0.000	0.000		0.000		4.006	Dec 2019	-		4.006	0.000	4.006	-
Primary Hardware Development Spectral	C/CPFF	Classified Contracts : Classified Contracts	0.000	0.000		0.000		10.917	Dec 2019	-		10.917	0.000	10.917	-
Training Development	C/CPFF	Classified Contracts : Classified Contracts	0.000	0.265	Dec 2017	0.413	Dec 2018	0.421	Dec 2019	-		0.421	Continuing	Continuing	Continuing
Software Development ICADS	C/CPAF	Classified Contracts : Classified Contracts	0.000	0.000		0.000		2.136	Dec 2019	-		2.136	0.000	2.136	-
Configuration Management	WR	SSC LANT : Charleston, SC	0.000	0.316	Oct 2017	1.231	Oct 2018	1.269	Dec 2019	-		1.269	Continuing	Continuing	Continuing
Software Development Spectral	C/CPAF	Classified Contracts : Classified Contracts	0.000	0.000		0.000		6.814	Dec 2019	-		6.814	0.000	6.814	-
Training Development	WR	SSC LANT : Charleston, SC	0.000	0.168	Oct 2017	0.349	Oct 2018	0.356	Dec 2019	-		0.356	Continuing	Continuing	Continuing
Integrated Logistic Support	WR	SSC LANT : Charleston, SC	0.000	0.442	Oct 2017	0.984	Oct 2018	1.004	Dec 2019	-		1.004	Continuing	Continuing	Continuing
Requirements Analysis	WR	SSC LANT : Charleston, SC	0.000	0.395	Oct 2017	0.615	Oct 2018	0.627	Dec 2019	-		0.627	Continuing	Continuing	Continuing
Studies & Design	WR	SSC PAC : Charleston, SC	0.000	0.553	Oct 2017	1.231	Oct 2018	0.348	Dec 2019	-		0.348	Continuing	Continuing	Continuing
Requirements Analysis	C/CPFF	Classified Contracts : Classified Contracts	0.000	0.616	Dec 2017	1.600	Dec 2018	0.257	Dec 2019	-		0.257	Continuing	Continuing	Continuing
Government Engineering Support	WR	SSC LANT : Charleston, SC	0.000	0.218	Oct 2017	0.539	Oct 2018	1.058	Dec 2019	-		1.058	Continuing	Continuing	Continuing

Exhibit R-3, RDT&E Project Cost Analysis: PB 2020 Navy			Date: March 2019
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0304785N / *Tactical Cryptologic Systems*	Project (Number/Name) 2134 / *Shipboard IW Exploit*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2018 Cost	FY 2018 Award Date	FY 2019 Cost	FY 2019 Award Date	FY 2020 Base Cost	FY 2020 Base Award Date	FY 2020 OCO Cost	FY 2020 OCO Award Date	FY 2020 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Government Engineering Support	WR	SSC PAC : San Diego, CA	0.000	0.295	Oct 2017	0.460	Oct 2018	0.566	Dec 2019	-		0.566	Continuing	Continuing	Continuing
Integration, Assembly & Test (PMP Dev)	WR	SSC PAC : San Diego, CA	4.643	1.027	Oct 2017	1.600	Oct 2018	1.632	Dec 2019	-		1.632	Continuing	Continuing	Continuing
Primary Hardware Development	C/CPFF	Classified Contracts : Classified Contracts	0.510	1.026	Dec 2017	1.598	Dec 2018	1.531	Dec 2019	-		1.531	Continuing	Continuing	Continuing
Hardware/Software Development	WR	NRL : Washington, DC	2.810	0.435	Oct 2017	0.678	Oct 2018	0.732	Dec 2019	-		0.732	Continuing	Continuing	Continuing
Software Development	C/CPAF	Classified Contracts : Classified Contracts	45.584	8.926	Dec 2017	12.211	Dec 2018	4.330	Dec 2019	-		4.330	Continuing	Continuing	Continuing
Software Development	WR	SSC PAC : San Diego, CA	1.837	0.203	Oct 2017	0.316	Oct 2018	0.322	Dec 2019	-		0.322	Continuing	Continuing	Continuing
Integration, Assembly & Test	C/CPAF	Classified Contracts : Classified Contracts	3.234	0.230	Dec 2017	0.447	Dec 2018	0.456	Dec 2019	-		0.456	Continuing	Continuing	Continuing
Software Development	WR	SSC LANT : Charleston, SC	0.293	0.023	Oct 2017	0.181	Oct 2018	0.185	Dec 2019	-		0.185	Continuing	Continuing	Continuing
Integration, Assembly & Test (PMP Dev)	WR	SSC LANT : Charleston, SC	1.623	0.138	Oct 2017	0.861	Oct 2018	0.225	Dec 2019	-		0.225	Continuing	Continuing	Continuing
		Subtotal	243.452	18.451		32.606		46.256		-		46.256	Continuing	Continuing	N/A

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2018 Cost	FY 2018 Award Date	FY 2019 Cost	FY 2019 Award Date	FY 2020 Base Cost	FY 2020 Base Award Date	FY 2020 OCO Cost	FY 2020 OCO Award Date	FY 2020 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Support Prior Years	Various	Various : Various	17.898	0.000		0.000		0.000		-		0.000	0.000	17.898	-
Integrated Logistics Support	C/CPFF	Classified Contract : Classified Contract	1.049	0.593	Dec 2017	0.924	Dec 2018	0.942	Dec 2019	-		0.942	Continuing	Continuing	Continuing
Configuration Management	WR	SSC PAC : San Diego, CA	1.185	0.504	Oct 2017	1.047	Oct 2018	1.068	Dec 2019	-		1.068	Continuing	Continuing	Continuing
Contractor Engineering Support	C/CPFF	Classified Contract : Classified Contract	0.000	1.093	Dec 2017	2.838	Dec 2018	0.586	Dec 2019	-		0.586	Continuing	Continuing	Continuing

Exhibit R-3, RDT&E Project Cost Analysis: PB 2020 Navy			Date: March 2019
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Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2018 Cost	FY 2018 Award Date	FY 2019 Cost	FY 2019 Award Date	FY 2020 Base Cost	FY 2020 Base Award Date	FY 2020 OCO Cost	FY 2020 OCO Award Date	FY 2020 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Studies & Design	C/CPFF	Classified Contract : Classified Contract	1.326	0.379	Dec 2017	0.738	Dec 2018	0.000		-		0.000	Continuing	Continuing	Continuing
		Subtotal	21.458	2.569		5.547		2.596		-		2.596	Continuing	Continuing	N/A

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2018 Cost	FY 2018 Award Date	FY 2019 Cost	FY 2019 Award Date	FY 2020 Base Cost	FY 2020 Base Award Date	FY 2020 OCO Cost	FY 2020 OCO Award Date	FY 2020 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Test & Evaluation Prior Years	Various	Various : Various	15.024	0.000		0.000		0.000		-		0.000	0.000	15.024	-
Developmental Test & Evaluation	WR	SSC PAC : San Diego, CA	4.329	0.550	Oct 2017	0.857	Oct 2018	0.874	Dec 2019	-		0.874	Continuing	Continuing	Continuing
Developmental Test & Evaluation	WR	SSC LANT : Charleston, SC	2.160	0.158	Oct 2017	0.329	Oct 2018	0.336	Dec 2019	-		0.336	Continuing	Continuing	Continuing
Developmental Test & Evaluation	C/CPFF	Classified Contracts : Classified Contracts	3.021	0.375	Dec 2017	0.779	Dec 2018	0.795	Dec 2019	-		0.795	Continuing	Continuing	Continuing
		Subtotal	24.534	1.083		1.965		2.005		-		2.005	Continuing	Continuing	N/A

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2018 Cost	FY 2018 Award Date	FY 2019 Cost	FY 2019 Award Date	FY 2020 Base Cost	FY 2020 Base Award Date	FY 2020 OCO Cost	FY 2020 OCO Award Date	FY 2020 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Management Services Prior Years	Various	Various : Various	31.103	0.000		0.000		0.000		-		0.000	0.000	31.103	-
Program Management Support	C/CPFF	Classified Contract : Classified Contract	3.127	0.213	Dec 2017	1.107	Dec 2018	1.415	Dec 2019	-		1.415	Continuing	Continuing	Continuing
Program Management Support	WR	SSC LANT : Charleston, SC	1.392	0.090	Oct 2017	0.618	Oct 2018	0.630	Oct 2019	-		0.630	Continuing	Continuing	Continuing
Travel	WR	SPAWAR : San Diego, CA	2.751	0.356	Oct 2017	0.555	Oct 2018	0.594	Oct 2019	-		0.594	Continuing	Continuing	Continuing
		Subtotal	38.373	0.659		2.280		2.639		-		2.639	Continuing	Continuing	N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2020 Navy			Date: March 2019
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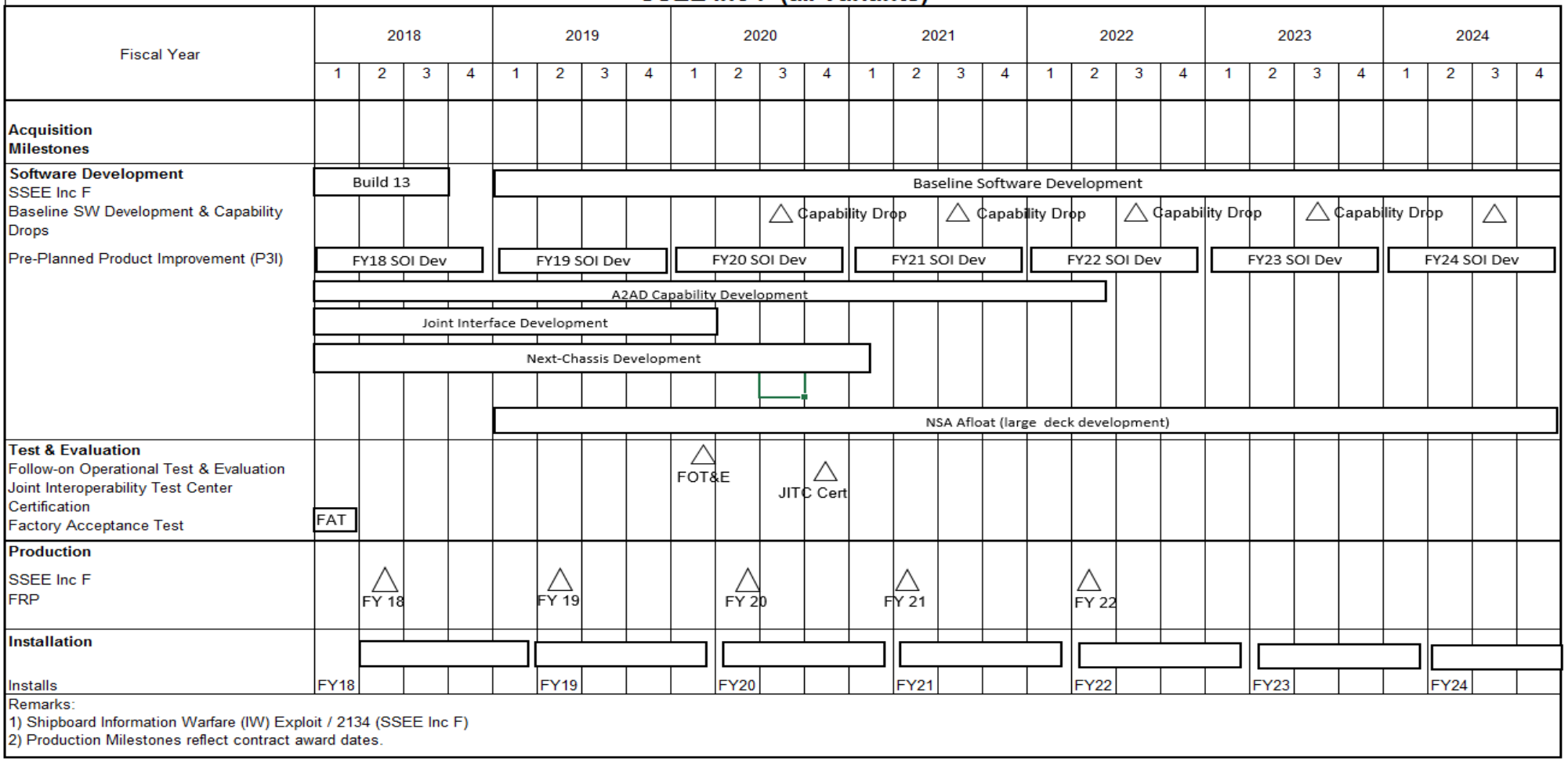
	Prior Years	FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	327.817	22.762		42.398		53.496		-		53.496	Continuing	Continuing	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2020 Navy		Date: March 2019
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0304785N / *Tactical Cryptologic Systems*	**Project (Number/Name)** 2134 / *Shipboard IW Exploit*

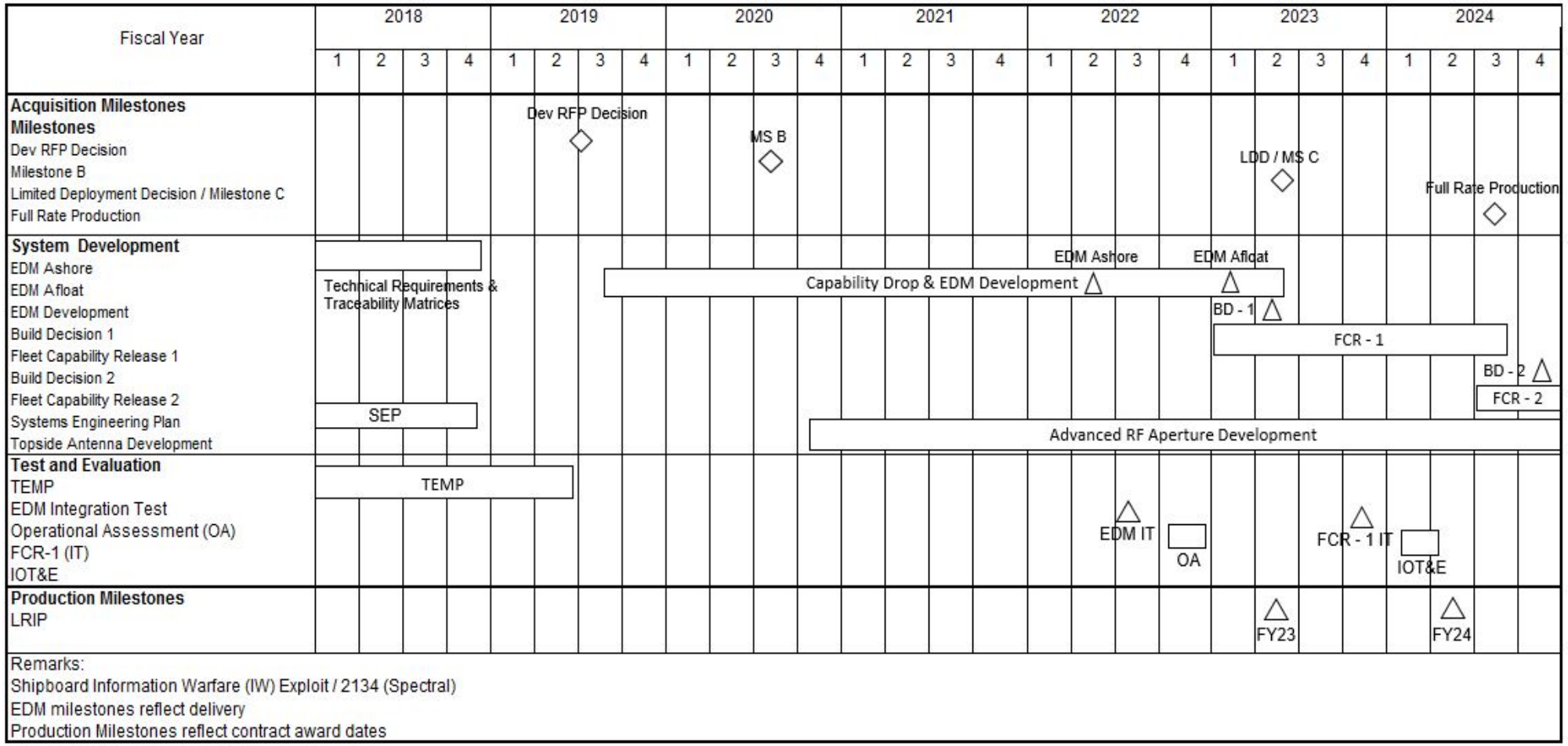
SSEE Inc F (all variants)



Remarks:
1) Shipboard Information Warfare (IW) Exploit / 2134 (SSEE Inc F)
2) Production Milestones reflect contract award dates.

Exhibit R-4, RDT&E Schedule Profile: PB 2020 Navy		Date: March 2019
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0304785N / *Tactical Cryptologic Systems*	**Project (Number/Name)** 2134 / *Shipboard IW Exploit*

Spectral



Remarks:
Shipboard Information Warfare (IW) Exploit / 2134 (Spectral)
EDM milestones reflect delivery
Production Milestones reflect contract award dates

Exhibit R-4, RDT&E Schedule Profile: PB 2020 Navy		Date: March 2019
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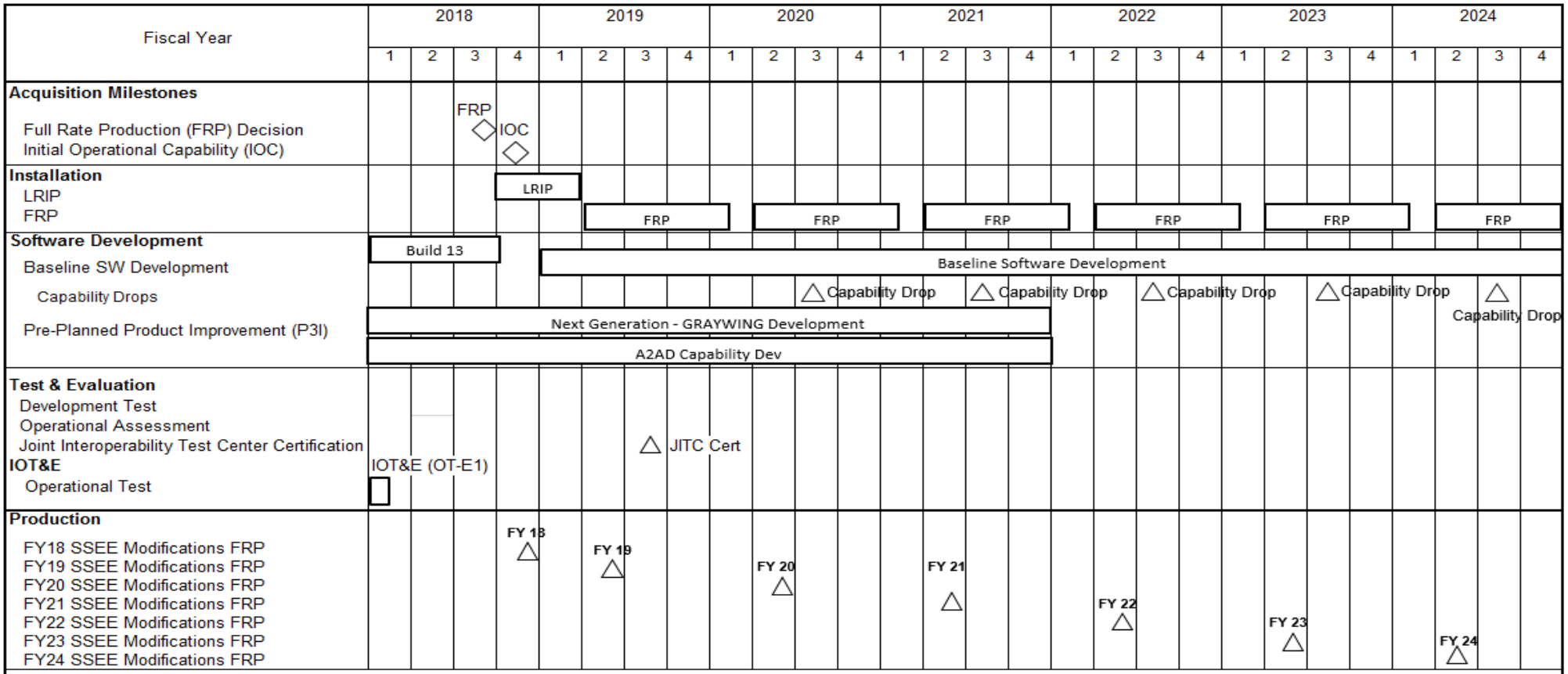
SSEE Mods



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 inconjunction with SSEE INC F Software builds

Exhibit R-4, RDT&E Schedule Profile: PB 2020 Navy		Date: March 2019
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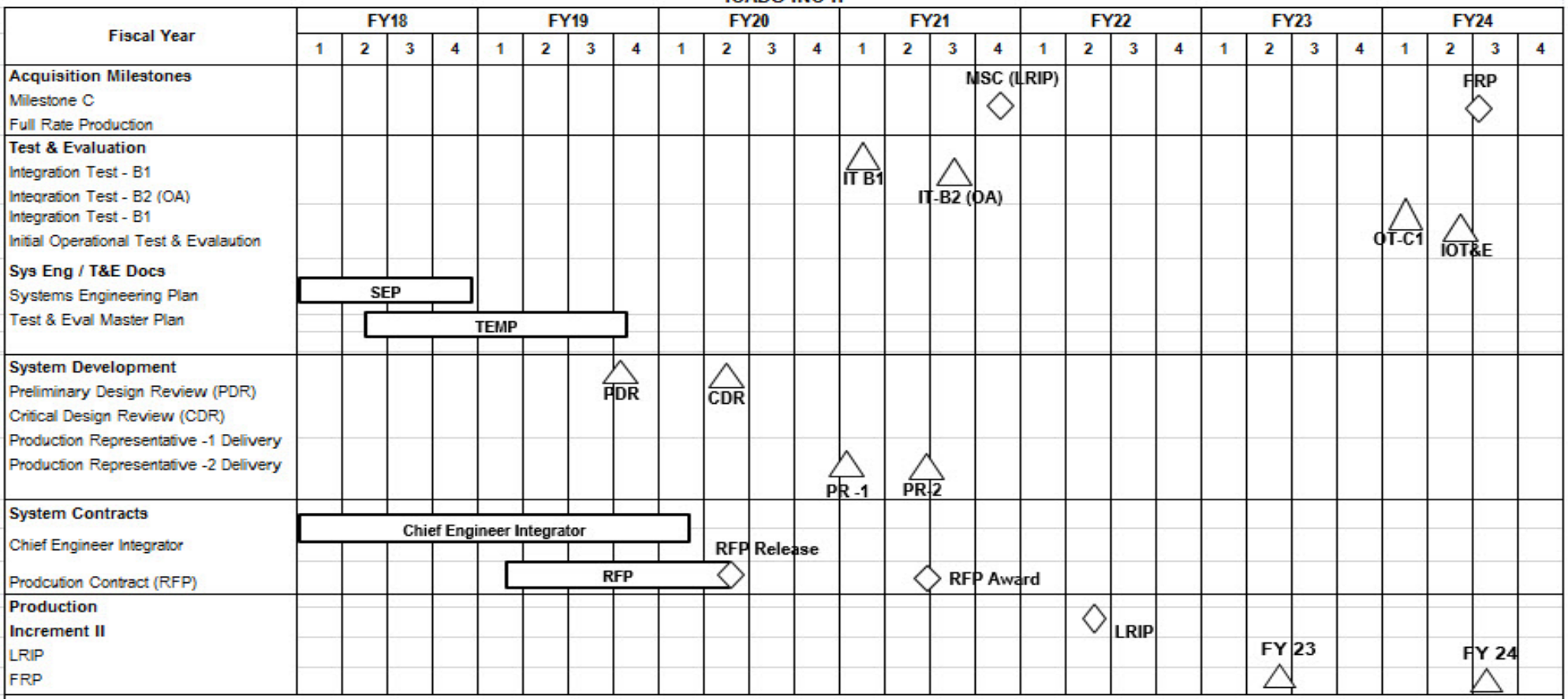
ICADS INC II



Remarks:

1) Shipboard Information Warfare (IW) Exploit / 2134 (ICADS Inc II)

2) Production Milestones reflect contract award dates

Exhibit R-4A, RDT&E Schedule Details: PB 2020 Navy		Date: March 2019
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Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
SSEE Inc F				
Inc F - Joint Integration Test Command (JITC) Certification (FY20)	4	2020	4	2020
Inc F - Factory Acceptance Test (Inc F Variant)	1	2018	1	2018
Inc F - Follow On Test and Evaluation (FOT&E)	1	2020	1	2020
Inc F - FY18 FRP Production Milestone	2	2018	2	2018
Inc F - FY19 FRP Production Milestone	2	2019	2	2019
Inc F - FY20 FRP Production Milestone	2	2020	2	2020
Inc F - FY21 FRP Production Milestone	2	2021	2	2021
Inc F - FY22 FRP Production Milestone	2	2022	2	2022
Inc F - Baseline Software Development	1	2018	4	2024
Inc F - FY18 SOI Development	1	2018	4	2018
Inc F - FY19 SOI Development	1	2019	4	2019
Inc F - FY20 SOI Development	1	2020	4	2020
Inc F - FY21 SOI Development	1	2021	4	2021
Inc F - FY22 SOI Development	1	2022	4	2022
Inc F - FY23 SOI Development	1	2023	4	2023
Inc F - FY24 SOI Development	1	2024	4	2024
Inc F - A2AD Capability Development	1	2018	2	2022
Inc F - Joint Interface Development	1	2018	1	2020
Inc F - Next-Gen Chassis Development	1	2018	1	2021
Inc F - NSA Afloat (Large Deck Development)	1	2019	4	2024
Inc F - FRP Installation FY18	2	2018	1	2019

Exhibit R-4A, RDT&E Schedule Details: PB 2020 Navy		Date: March 2019
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	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Inc F - FRP Installation FY19	2	2019	1	2020
Inc F - FRP Installation FY20	2	2020	1	2021
Inc F - FRP Installation FY21	2	2021	1	2022
Inc F - FRP Installation FY22	2	2022	1	2023
Inc F - FRP Installation FY23	2	2023	1	2024
Inc F - FRP Installation FY24	2	2024	4	2024
Spectral (Increment G)				
Spectral - Dev RFP Decision	3	2019	3	2019
Spectral - Milestone B	3	2020	3	2020
Spectral - Build Decision (BD) 1	2	2023	2	2023
Spectral - Build Decision (BD) 2	4	2024	4	2024
Spectral - Limitted Deployment Decision (LDD)/ Milestone C	2	2023	2	2023
Spectral - Full Rate Production	3	2024	3	2024
Spectral - Engieering Design Models (EDM) Ashore	2	2022	2	2022
Spectral - EDM Afloat	1	2023	1	2023
Spectral - EDM Development	3	2019	2	2023
Spectral - Capability Drop	3	2019	2	2023
Spectral - Advanced RF Aperture Development	4	2020	4	2024
Spectral - Fleet Capability Release 1	1	2023	3	2024
Spectral - Fleet Capability Release 2	3	2024	4	2024
Spectral - Technical Requirements & Traceability Matrices	1	2018	4	2018
Spectral - Systems Engineering Plan	1	2018	4	2018
Spectral - Test Evaluation Master Plan (TEMP)	1	2018	2	2019
Spectral - EDM Integration Test (EDM IT)	3	2022	3	2022
Spectral - FCR-1 (IT)	4	2023	4	2023

Exhibit R-4A, RDT&E Schedule Details: PB 2020 Navy		Date: March 2019
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0304785N / *Tactical Cryptologic Systems*	**Project (Number/Name)** 2134 / *Shipboard IW Exploit*

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Spectral - Initial Operational Test & Evaluation (IOT&E)	1	2024	2	2024
Spectral - Operational Assessment (OA)	4	2022	4	2022
Spectral - Low Rate Initial Production (LRIP) FY23	2	2023	2	2023
Spectral - Low Rate Initial Production (LRIP) FY24	2	2024	2	2024
SSEE Modifications				
SSEE Modifications - Full Rate Production (FRP) Decision	3	2018	3	2018
SSEE Modifications - Initial Operational Capability (IOC)	4	2018	4	2018
SSEE Modifications - LRIP Installation FY18	4	2018	1	2019
SSEE Modifications - FRP Installation FY19	2	2019	1	2020
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	1	2023
SSEE Modifications - FRP Installation FY23	2	2023	1	2024
SSEE Modifications - FRP Installation FY24	2	2024	4	2024
SSEE Modifications - Build 13	1	2018	4	2018
SSEE Modifications - Baseline Software Development	1	2019	4	2024
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 - FY23 Capability Drop	3	2023	3	2023
SSEE Modifications - FY24 Capability Drop	3	2024	3	2024
SSEE Modifications - Next Generation - Graywing Development	1	2018	4	2021
SSEE Modifications - A2AD Capability Development	1	2018	4	2021
SSEE Modifications - Joint Interoperability Test Center Certification (JITC Cert)	3	2019	3	2019
SSEE Modifications - Operational Testing (OT-E1)	1	2018	1	2018

Exhibit R-4A, RDT&E Schedule Details: PB 2020 Navy		Date: March 2019
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0304785N / *Tactical Cryptologic Systems*	**Project (Number/Name)** 2134 / *Shipboard IW Exploit*

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
SSEE Modifications - FY18 LRIP Production Modification	4	2018	4	2018
SSEE Modifications - FY19 FRP Production Modification	2	2019	2	2019
SSEE Modifications - FY20 FRP Production Modification	2	2020	2	2020
SSEE Modifications - FY21 FRP Production Modification	2	2021	2	2021
SSEE Modifications - FY22 FRP Production Modification	2	2022	2	2022
SSEE Modifications - FY23 FRP Production Modification	2	2023	2	2023
SSEE Modifications - FY24 FRP Production Modification	2	2024	2	2024
ICADS Inc II				
ICADS Inc II - Milestone C	4	2021	4	2021
ICADS Inc II - Full Rate Production (FRP)	3	2024	3	2024
ICADS Inc II - Integration Test - B1	1	2021	1	2021
ICADS Inc II - Integration Test - B2 (OA)	3	2021	3	2021
ICADS Inc II - Initial Operational Test & Evaluation (IOT&E)	2	2024	2	2024
ICADS Inc II - Systems Engineering Plan (SEP)	1	2018	4	2018
ICADS Inc II - Test Evaluation Master Plan (TEMP)	2	2018	4	2019
ICADS Inc II - OT C1	1	2024	1	2024
ICADS Inc II - Preliminary Design Review (PDR)	4	2019	4	2019
ICADS Inc II - Critical Design Review (CDR)	2	2020	2	2020
ICADS Inc II - Production Representative Delivery (PR) #1	1	2021	1	2021
ICADS Inc II - Production Representative Delivery (PR) #2	2	2021	2	2021
ICADS Inc II - Chief Engineer Integration	1	2018	1	2020
ICADS Inc II - Request for Proposal (RFP)	1	2019	2	2020
ICADS Inc II - RFP Release	2	2020	2	2020
ICADS Inc II - RFP Award	2	2021	2	2021
ICADS Inc II - Low Rate Initial Production (LRIP)	2	2022	2	2022

Exhibit R-4A, RDT&E Schedule Details: PB 2020 Navy		Date: March 2019
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0304785N / *Tactical Cryptologic Systems*	**Project (Number/Name)** 2134 / *Shipboard IW Exploit*

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
ICADS Inc II - FRP Production Milestone FY23	2	2023	2	2023
ICADS Inc II - FRP Production Milestone FY24	3	2024	3	2024

Exhibit R-2A, RDT&E Project Justification: PB 2020 Navy											Date: March 2019	
Appropriation/Budget Activity 1319 / 5					R-1 Program Element (Number/Name) PE 0304785N / *Tactical Cryptologic Systems*				Project (Number/Name) 2174 / *Distributed Common Ground System-Navy (DCGS-N)*			
COST ($ in Millions)	**Prior Years**	**FY 2018**	**FY 2019**	**FY 2020 Base**	**FY 2020 OCO**	**FY 2020 Total**	**FY 2021**	**FY 2022**	**FY 2023**	**FY 2024**	**Cost To Complete**	**Total Cost**
2174: *Distributed Common Ground System-Navy (DCGS-N)*	0.000	0.000	0.000	0.583	-	0.583	0.589	0.669	0.675	0.678	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

Note

Funding has been realigned into PE 0304785N (Tactical Cryptologic Systems) from PE 0305208N (Distributed Common Ground Sys) Project 2174 (Distributed Common Ground Systems DCGS-N)) as part of RDTEN PE Consolidation starting in FY 2020. There are no New Starts associated with this realignment. All budgeted efforts have been previously approved.

A. Mission Description and Budget Item Justification

The Distributed Common Ground System - Navy (DCGS-N) is the Navy's portion of the Under Secretary of Defense, Intelligence (USD (I)) DCGS Family of Systems (FoS). The Department of Defense (DoD) has defined a DCGS architecture that will be compatible and interoperable across all of the Services' Intelligence, Surveillance, Reconnaissance and Targeting (ISR&T) systems and operations. DCGS accesses and ingests data from space borne, airborne, subsurface, and surface Intelligence, Surveillance, Reconnaissance (ISR) collection assets, intelligence databases and intelligence producers. This collected data is shared across a Joint enterprise using the DCGS Integration Backbone (DIB) and in time, the Defense Intelligence Information Enterprise (DI2E) to enhance access and sharing of ISR information across Joint forces through the use of common enterprise standards and services. DCGS FoS supports Joint Task Force (JTF)-level and below combat operations with critical intelligence for battle management and information dominance across the full spectrum of operations, including peace, conflict, war, and Overseas Contingency Operations (OCO). DCGS is a cooperative effort between the services, agencies, and DoD to provide systems capable of receiving, processing, exploiting, and disseminating data from airborne and national reconnaissance platforms. DCGS-N core components include the analyst workstation from the Global Command and Control System - Maritime (GCCS-M) - Integrated Imagery and Intelligence (I3), Generic Area Limitation Environment (GALE) Signal Intelligence (SIGINT), Common Geo-positioning Services (CGS), Image Product Library (IPL), Modernized Integrated Database (MIDB), Joint Concentrator Architecture (JCA) and Track Management Services (TMS).

The DCGS-N system represents the integration of 1) The processing and exploitation of tactical and Imagery Intelligence (IMINT) and SIGINT; 2) Precision target geopositioning, mensuration, and imagery dissemination capabilities; 3) Selected national IMINT requirements and processing capabilities from the National Geospatial-Intelligence Agency (NGA); and 4) Sharing of Intelligence, Surveillance, Reconnaissance and Targeting (ISR&T) and Command and Control information via DIB, DI2E, and Net-Centric Enterprise Services (NCES) standards with a wide range of customers (e.g.,GCCS-M), Joint Mission Planning System (JMPS), and many others). The DCGS-N efforts include investigation of emerging technologies through study, development, and associated testing for feasibility of program insertion.

The DCGS-N Enterprise Node (DEN), which incorporates current DIB standards and DI2E policy, facilitates interoperability and data sharing among the DCGS FoS. DCGS-N ensures compliance with the DoD DCGS network architecture.

Exhibit R-2A, RDT&E Project Justification: PB 2020 Navy		Date: March 2019
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0304785N / *Tactical Cryptologic Systems*	**Project (Number/Name)** 2174 / *Distributed Common Ground System-Navy (DCGS-N)*

The Navy is establishing an ISR Enterprise way ahead that will emphasize a reach back strategy to provide intelligence products to support deployed ship and shore operations. The Navy will also migrate to a Service Oriented Architecture (SOA) that requires the integration and testing of Maritime ISR Enterprise capabilities, migration of ISR SOA applications, integration to leverage a Common Computing Environment (CCE) and the Intelligence Community Information Technology Enterprise (IC ITE). Additionally, DCGS-N will become the focal point for migration of Maritime Domain Awareness (MDA) fusion and analysis Maritime Fusion & Analysis (MFAS) tool applications for the Navy.

Distributed Common Ground System-Navy (DCGS-N) Increment 1 is the Navy's current in service DCGS ISR&T program of record. The system is actively used by Navy force level ships and shore sites in support of the mission. Program is currently performing technical refreshes to Windows 10 per the Department of Defense's initiatives while enabling the long-term transition to DCGS-N INC 2.

Intelligence Carry-On Program (ICOP) is a suite of multi-source intelligence and analytical capabilities which includes an integrated Three-Dimensional (3-D) operational picture displaying intelligence and other data sources to provide a richer and more complete picture of the battle space on unit level platforms. The system supports a full motion video capability that receives, processes, exploits, and disseminates organic and non-organic data as well as the ability to process and correlate Electronic Intelligence (ELINT) and external Communications Intelligence (COMINT Externals). It integrates mature Commercial Off-the-Shelf (COTS) and Government Off-the-Shelf (GOTS) applications with shared storage and communication paths to reach back to the DCGS-N Enterprise Node (DEN), and to provide data sharing to the Maritime Operations Centers (MOC) and national ISR systems, making tactical users a part of the larger ISR enterprise.

In FY 2020, Distributed Common Ground System - Navy (DCGS-N) Increment 1 will continue development, integration and regression testing required to remain aligned with national imagery standards to be incorporated into technology refreshes for Windows 10 (WIN 10)upgrades.

In FY 2020, ICOP will commence integration and testing events in support of F35 Block 3 and Triton. In addition, ICOP will perform interoperability testing with new capabilities such as minotaur and project maven to align with Integrated Fires (IF) / Electromagnetic Warfare (EMW) concepts.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Title: Distributed Common Ground System-Navy (DCGS-N) Increment 1	0.000	0.000	0.133	0.000	0.133
Articles:	-	-	-	-	-
FY 2019 Plans: FY 2019 Plans funded under PE 0305208N, Project 2174.					
FY 2020 Base Plans: In FY 2020, DCGS-N Increment 1 will continue development, integration and regression testing that is required to remain aligned with emerging national imagery standards for tech refreshes and End-of-Life Upgrades.					
FY 2020 OCO Plans:					

Exhibit R-2A, RDT&E Project Justification: PB 2020 Navy		Date: March 2019
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0304785N / *Tactical Cryptologic Systems*	**Project (Number/Name)** 2174 / *Distributed Common Ground System-Navy (DCGS-N)*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
N/A ***FY 2019 to FY 2020 Increase/Decrease Statement:*** In FY 2019, DCGS-N Increment 1 funding under PE 0305208N, Project 2174 was $0.222M. Funding decreases by $0.089M to $0.133M in FY 2020. The funding decrease from FY 2019 to FY 2020 is attributed to efficiencies, Common Geospatial Services (CGS), and associated systems engineering services.					
Title: Intelligence Carry-On Program (ICOP) ***Articles:*** ***FY 2019 Plans:*** N/A ***FY 2020 Base Plans:*** In FY 2020, Intelligence Carry-On Program (ICOP) will commence integration and testing events in support of F35 Block 3 and Triton. In addition, ICOP will perform interoperability testing with new capabilities such as minotaur and project maven to align with Integrated Fires (IF) / Electromagnetic Warfare (EMW) concepts. ***FY 2020 OCO Plans:*** N/A ***FY 2019 to FY 2020 Increase/Decrease Statement:*** In FY 2019, Intelligence Carry-On Program (ICOP) funding under PE 0305208N, Project 2174 was $0M. Funding increases by $0.450M to $0.450M in FY 2020. The funding increase from FY 2019 to FY 2020 is attributed to ICOP wholeness efforts and will be utilized to commence integration and testing events and to perform interoperability testing of new capabilities.	0.000 -	0.000 -	0.450 -	0.000 -	0.450 -
Accomplishments/Planned Programs Subtotals	0.000	0.000	0.583	0.000	0.583

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
• OPN/2914: *Distributed Common Ground System-Navy (DCGS-N)*	19.012	10.219	21.788	-	21.788	22.422	17.307	17.565	17.953	212.550	594.942
• RDTEN/0305208N/2174: *Distributed Common Ground System-Navy (DCGS-N)*	0.325	0.222	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	207.388

Exhibit R-2A, RDT&E Project Justification: PB 2020 Navy		Date: March 2019
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0304785N / *Tactical Cryptologic Systems*	**Project (Number/Name)** 2174 / *Distributed Common Ground System-Navy (DCGS-N)*

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost

Remarks

0305208N/2914 is a shared Program Element (PE) with Distributed Common Ground System-Navy (DCGS-N) Increment 1, Increment 2, and Intelligence Carry-On Program (ICOP).

0305208N/2174 funding has been realigned out of PE 0305208N Project 2174 into PE 0304785N project 2174 as part of Program Element Consolidation starting in FY20.

D. Acquisition Strategy

DCGS-N Family of Systems (FoS) program utilizes 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 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) implements a cross-decking methodology that incorporates a two phased delivery, a permanent foundation kit which supports carry-on equipment to include workstation and CM3 antenna / receiver set. This methodology supports speed-to-fleet principles.

E. Performance Metrics

DCGS-N Increment 1 Goal: Meet national imagery standards.
DCGS-N Increment 1 Metric: Support development, integration and regression testing required to align with emerging national imagery standards.

ICOP Goal: Support unit-level Intelligence Surveillance Reconnaissance (ISR) processing, exploitation and dissemination for Surface Operations.
ICOP Metric: Rapidly employ new capabilities to deliver to first available afloat platform after receipt of successful test event / report.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2020 Navy		Date: March 2019
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0304785N / *Tactical Cryptologic Systems*	**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 2018 Cost	FY 2018 Award Date	FY 2019 Cost	FY 2019 Award Date	FY 2020 Base Cost	FY 2020 Base Award Date	FY 2020 OCO Cost	FY 2020 OCO Award Date	FY 2020 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Systems Engineering (ICOP)	WR	SSC PAC : San Diego, CA	0.000	0.000		0.000		0.450	Oct 2019	-		0.450	Continuing	Continuing	Continuing
Integration Assembly & Test	C/CPFF	NSWC China Lake : China Lake, CA	0.000	0.000		0.000		0.120	Jan 2020	-		0.120	Continuing	Continuing	Continuing
Government Technical Oversight (Dev)	WR	SSC LANT : Charleston, SC	0.000	0.000		0.000		0.013	Nov 2019	-		0.013	Continuing	Continuing	Continuing
		Subtotal	0.000	0.000		0.000		0.583		-		0.583	Continuing	Continuing	N/A

Remarks

All Prior Year, FY18 and FY19 cost data is provided under PE 0305208N Project 2174.

	Prior Years	FY 2018 Cost	FY 2018 Award Date	FY 2019 Cost	FY 2019 Award Date	FY 2020 Base Cost	FY 2020 Base Award Date	FY 2020 OCO Cost	FY 2020 OCO Award Date	FY 2020 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	0.000	0.000		0.000		0.583		-		0.583	Continuing	Continuing	N/A

Remarks

All Prior Year, FY18 and FY19 cost data is provided under PE 0305208N Project 2174.

Exhibit R-4, RDT&E Schedule Profile: PB 2020 Navy		Date: March 2019
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0304785N / *Tactical Cryptologic Systems*	**Project (Number/Name)** 2174 / *Distributed Common Ground System-Navy (DCGS-N)*

EXHIBIT R4, Schedule Profile

APPROPRIATION/BUDGET ACTIVITY

RDT&E, N / BA-7

Fiscal Year	2020				2021				2022				2023				2024			
2174 DCGS-N	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
DCGS-N Increment 1 Tech Refresh	△ FOL/ECP/FC As Req ▽				△ FOL/ECP/FC As Req ▽															
ICOP Systems Engineering	△ Engineering and Test Activities																			

Exhibit R-4A, RDT&E Schedule Details: PB 2020 Navy		Date: March 2019
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0304785N / *Tactical Cryptologic Systems*	**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 Tech Refresh	1	2020	4	2021
ICOP Systems Engineering and Test Activities	1	2020	4	2024

Exhibit R-2A, RDT&E Project Justification: PB 2020 Navy												Date: March 2019
Appropriation/Budget Activity 1319 / 5					R-1 Program Element (Number/Name) PE 0304785N / *Tactical Cryptologic Systems*				Project (Number/Name) *2227 / Distributed Common Ground System (DCGS-N) Inc 2*			
COST ($ in Millions)	**Prior Years**	**FY 2018**	**FY 2019**	**FY 2020 Base**	**FY 2020 OCO**	**FY 2020 Total**	**FY 2021**	**FY 2022**	**FY 2023**	**FY 2024**	**Cost To Complete**	**Total Cost**
2227: *Distributed Common Ground System (DCGS-N) Inc 2*	0.000	0.000	0.000	42.745	-	42.745	37.688	36.941	34.460	35.143	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

Note

Funding has been realigned into PE 0304785N (Tactical Cryptologic Systems) from PE 0305208N (Distributed Common Ground Sys) Project 2227 (Distributed Common Ground System (DCGS-N) Inc 2) as part of RDTEN PE Consolidation starting in FY 2020. There are no New Starts associated with this realignment. All budgeted efforts have been previously approved.

Cost-To-Complete reflects Distributed Common Ground System - Navy (DCGS-N) Increment 2 only. DCGS-N Increment 2 reflects Department of Navy Component Cost Position (CCP).

A. Mission Description and Budget Item Justification

Distributed Common Ground System-Navy (DCGS-N) Increment 2 addresses a critical shortfall in Tasking, Collection, Processing, Exploitation, and Dissemination (TCPED) capability and capacity to support operational, tactical planning, and execution across the full range of joint military operations. Existing TCPED shortfalls will be exacerbated by planned Navy, Joint, and Allied fielding of new ISR platforms. Currently fielded systems provide localized processing capabilities that will be overwhelmed in future years without a significant change in the way the Navy processes, exploits and disseminates intelligence data. DCGS-N INC 2 will perform technical analyses and engineering efforts associated with implementation of new technology to enable rapid introduction of new products and technology, prevent obsolescence, and end of support issues. DCGS-N Increment 2 will deliver all source fusion and analytical capabilities; provide Maritime Domain Awareness (MDA) capabilities and integrate TCPED capabilities to improve the use and analysis of sensor and platform data. DCGS-N Increment 2 will be based on an enterprise solution to share this information across commands, services, and agencies to promote shared situational awareness. DCGS-N Increment 2 consists of multiple releases. The first release (Fleet Capability Release 1 (FCR-1)) provides an enhanced Navy ISR enterprise that converges and builds on the DCGS-N Increment 1 and MDA Enterprise Nodes; leverages the Defense Intelligence Information Enterprise (DI2E); is compliant with the Common Computing Environment (CCE) and the Community Information Technology Enterprise (IC ITE); federates ISR and TCPED workflow and production improving throughout the automation; exploits new and evolving unmanned systems sensor data; provides Multi-Intelligence (Multi-INT) cross-queuing and modular tools. The second release (Fleet Capability Release 2 (FCR-2)), enhances afloat ISR capabilities by providing a set of software centric tools providing Multi-INT fusion and analysis, behavior prediction and intelligent knowledge management designed to operate in disconnected or denied communications environment. The third release (Fleet Capability Release 3 (FCR-3), enhances embedded training to include new modified capabilities, automatic exploitation of motion imagery, ability to define, detect, and display anomalies, ability to observe entities with target list items, fusion of observation reports to detect non-emitting vessels, enhanced alerting and enterprise connectivity detection. Follow-on releases will be developed in a threat based approach pacing advances in ISR data, analytics, and mission to meet fleet requirements.

In FY 2020, DCGS-N Increment 2 will award a Contract that will support the Government LSI for integration, assembly and test of commercial items, COTS, and GOTS components procured for the DCGS-N Increment 2 baseline. Currently this support is provided on several task orders on several contract vehicles. This contract will

Exhibit R-2A, RDT&E Project Justification: PB 2020 Navy		Date: March 2019
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0304785N / *Tactical Cryptologic Systems*	**Project (Number/Name)** 2227 / *Distributed Common Ground System (DCGS-N) Inc 2*

consolidate that work into a single contract to cover integration of capabilities in FCR-3 through Fleet Capability Release 5 (FCR-5), and ensure Distributed Common Ground System-Navy (DCGS-N) Increment 2 interoperability with the DCGS-N Family of System (FoS), the multi-service and Intelligence Community DCGS FoS, and the Consolidated Afloat Networks and Enterprise Services (CANES) system. DCGS-N Increment 2 will install one (1) unit for Initial Operational Test and Evaluation (IOT&E). DCGS-N Inc 2 will complete integration of Fleet Capability Release 3 (FCR-3) and conduct an In Progress Test Review and Integrated Test of the FCR-3 build including rigorous cyber security testing. DCGS-N Increment 2 will continue to integrate a standard software baseline for the DCGS Family of Systems (FoS). DCGS-N Increment 2 will begin planning for Fleet Capability Release 4 (FCR-4) including developing the Requirements Definition Package (RDP), preparing for the Build Technical Review and Build Decision. DCGS-N Increment 2 will continue Passive Targeting Efforts leveraging Office of Naval Research (ONR) Electromagnetic Battle Management (EMBM) Future Naval Capabilities (FNC) to network and fuse Passive Targeting Data. Intelligence Surveillance and Reconnaissance (ISR) funding supports 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 and automatically provide to shipboard combat systems to support kinetic (bombs, mortars, missiles, bullets) and non-kinetic fires (electronic attack, lasers, cyber-attack) and more effective exploitation of the electromagnetic spectrum. Intelligence, Surveillance, Reconnaissance (ISR) systems will play key roles in enabling the national-to-tactical integration necessary for an integrated maritime targeting capability in support of kinetic and non-kinetic fires.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Title: Distributed Common Ground System-Navy (DCGS-N) Increment 2	0.000	0.000	42.745	0.000	42.745
Articles:	-	-	-	-	-
FY 2019 Plans: FY 2019 Plans funded under PE 0305208N, Project 2227.					
FY 2020 Base Plans: In FY 2020, DCGS-N Increment 2 will award a Contract that will support the Government LSI for integration, assembly and test of commercial items, COTS, and GOTS components procured for the DCGS-N Increment 2 baseline. Currently this support is provided on several task orders on several contract vehicles. This contract will consolidate that work into a single contract to cover integration of capabilities in FCR-3 through Fleet Capability Release 5 (FCR-5), and ensure Distributed Common Ground System-Navy (DCGS-N) Increment 2 interoperability with the DCGS-N Family of System (FoS), the multi-service and Intelligence Community DCGS FoS, and the Consolidated Afloat Networks and Enterprise Services (CANES) system. DCGS-N Increment 2 will install one (1) unit for Initial Operational Test and Evaluation (IOT&E). DCGS-N Inc 2 will complete integration of Fleet Capability Release 3 (FCR-3) and conduct an In Progress Test Review and Integrated Test of the FCR-3 build including rigorous cyber security testing. DCGS-N Increment 2 will continue to integrate a standard software baseline for the DCGS Family of Systems (FoS). DCGS-N Increment 2 will begin planning for Fleet Capability Release 4 (FCR-4) including developing the Requirements Definition Package (RDP), preparing for the Build Technical Review and Build Decision. DCGS-N Increment 2 will continue Passive Targeting Efforts leveraging Office of Naval Research (ONR) Electromagnetic Battle Management (EMBM) Future Naval Capabilities (FNC) to network and fuse Passive Targeting Data. Intelligence Surveillance and Reconnaissance					

Exhibit R-2A, RDT&E Project Justification: PB 2020 Navy		Date: March 2019
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0304785N / *Tactical Cryptologic Systems*	**Project (Number/Name)** *2227 / Distributed Common Ground System (DCGS-N) Inc 2*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
(ISR) funding supports 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 and automatically provide to shipboard combat systems to support kinetic (bombs, mortars, missiles, bullets) and non-kinetic fires (electronic attack, lasers, cyber-attack) and more effective exploitation of the electromagnetic spectrum. Intelligence, Surveillance, Reconnaissance (ISR) systems will play key roles in enabling the national-to-tactical integration necessary for an integrated maritime targeting capability in support of kinetic and non-kinetic fires. ***FY 2020 OCO Plans:*** N/A ***FY 2019 to FY 2020 Increase/Decrease Statement:*** In FY 2019 funding under PE 0305208N, Project 2227 was $42.624M. Funding increases by $0.121M to $42.745M in FY 2020. The funding increase from FY 2019 to FY 2020 is attributed to support additional security architecture requirements for the integration of kinetic and non-kinetic fires.					
Accomplishments/Planned Programs Subtotals	0.000	0.000	42.745	0.000	42.745

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
• OPN/2914: *Distributed Common Ground System-Navy (DCGS-N)*	19.012	10.219	21.788	-	21.788	22.422	17.307	17.565	17.953	212.550	594.942
• RDTEN/0305208N/2227: *Distributed Common Ground System-Navy (DCGS-N) Inc 2*	39.825	42.624	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	146.802

Remarks

0305208N/2914 is a shared Program Element (PE) with Distributed Common Ground System-Navy (DCGS-N) Increment 1, Increment 2, and Intelligence Carry-On Program (ICOP).

0305208N/2227 funding has been realigned out of PE 0305208N Project 2227 into PE 0304785N Project 2227 as part of Program Element Consolidation starting in FY20.

Exhibit R-2A, RDT&E Project Justification: PB 2020 Navy		Date: March 2019
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0304785N / *Tactical Cryptologic Systems*	**Project (Number/Name)** *2227 / Distributed Common Ground System (DCGS-N) Inc 2*

D. Acquisition Strategy

The Distributed Common Ground System-Navy (DCGS-N) Increment 2 acquisition is based on the Department of Defense Instruction (DODI) 5000.02, Model 3, for incrementally fielded software intensive programs.

E. Performance Metrics

DCGS-N Increment 2 Goal: Support afloat forces through a robust enterprise Intelligence Surveillance, Reconnaissance and Targeting (ISR&T) capability, satisfying maritime needs for processing, exploitation and dissemination.

DCGS-N Increment 2 Metric: Will complete integration capabilities Field Fleet Capability Release 3 (FCR-3) and begin integration of capabilities in Fleet Capability Release 4 (FCR-4).

Exhibit R-3, RDT&E Project Cost Analysis: PB 2020 Navy			Date: March 2019
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0304785N / *Tactical Cryptologic Systems*	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 2018 Cost	FY 2018 Award Date	FY 2019 Cost	FY 2019 Award Date	FY 2020 Base Cost	FY 2020 Base Award Date	FY 2020 OCO Cost	FY 2020 OCO Award Date	FY 2020 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Integration Assembly & Test	WR	SSC PAC : San Diego, CA	0.000	0.000		0.000		19.284	Oct 2019	-		19.284	Continuing	Continuing	Continuing
Primary Hardware Development	WR	SSC PAC : San Diego, CA	0.000	0.000		0.000		2.259	Oct 2019	-		2.259	Continuing	Continuing	Continuing
Integration Assembly & Test	C/CPFF	Unknown : Unknown	0.000	0.000		0.000		12.120	Nov 2019	-		12.120	Continuing	Continuing	Continuing
Integration Assembly & Test	C/CPFF	SSC LANT : Charleston, SC	0.000	0.000		0.000		1.762	Oct 2019	-		1.762	Continuing	Continuing	Continuing
Government Technical Oversite (Dev)	WR	SSC LANT : Charleston, SC	0.000	0.000		0.000		1.493	Oct 2019	-		1.493	Continuing	Continuing	Continuing
		Subtotal	0.000	0.000		0.000		36.918		-		36.918	Continuing	Continuing	N/A

Remarks

FY18 and FY19 cost data is provided under PE 0305208N Project 2227.

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2018 Cost	FY 2018 Award Date	FY 2019 Cost	FY 2019 Award Date	FY 2020 Base Cost	FY 2020 Base Award Date	FY 2020 OCO Cost	FY 2020 OCO Award Date	FY 2020 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Development Support	C/CPFF	SAIC : Columbia, MD	0.000	0.000		0.000		1.745	Dec 2019	-		1.745	Continuing	Continuing	Continuing
Development Support	WR	SSC LANT : Charleston, SC	0.000	0.000		0.000		0.171	Oct 2019	-		0.171	Continuing	Continuing	Continuing
Integrated Logistics Support	WR	SSC LANT : Charleston, SC	0.000	0.000		0.000		0.053	Oct 2019	-		0.053	Continuing	Continuing	Continuing
Integrated Logistics Support	C/CPFF	SAIC : Columbia, MD	0.000	0.000		0.000		0.330	Dec 2019	-		0.330	Continuing	Continuing	Continuing
		Subtotal	0.000	0.000		0.000		2.299		-		2.299	Continuing	Continuing	N/A

Remarks

FY18 and FY19 cost data is provided under PE 0305208N Project 2227.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2020 Navy			Date: March 2019
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0304785N / *Tactical Cryptologic Systems*	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 2018 Cost	FY 2018 Award Date	FY 2019 Cost	FY 2019 Award Date	FY 2020 Base Cost	FY 2020 Base Award Date	FY 2020 OCO Cost	FY 2020 OCO Award Date	FY 2020 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation	C/CPFF	SAIC : Columbia, MD	0.000	0.000		0.000		0.265	Dec 2019	-		0.265	Continuing	Continuing	Continuing
Developmental Test & Evaluation	WR	SSC LANT : Charleston, SC	0.000	0.000		0.000		0.451	Oct 2019	-		0.451	Continuing	Continuing	Continuing
Developmental Test & Evaluation	C/CPFF	JITC : Fort Meade, MD	0.000	0.000		0.000		0.209	Oct 2019	-		0.209	Continuing	Continuing	Continuing
Developmental Test & Evaluation	C/CPFF	COTF : Norfolk, VA	0.000	0.000		0.000		0.420	Nov 2019	-		0.420	Continuing	Continuing	Continuing
		Subtotal	0.000	0.000		0.000		1.345		-		1.345	Continuing	Continuing	N/A

Remarks

FY18 and FY19 cost data is provided under PE 0305208N Project 2227.

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2018 Cost	FY 2018 Award Date	FY 2019 Cost	FY 2019 Award Date	FY 2020 Base Cost	FY 2020 Base Award Date	FY 2020 OCO Cost	FY 2020 OCO Award Date	FY 2020 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Travel	Allot	SPAWAR : San Diego, CA	0.000	0.000		0.000		0.241	Nov 2019	-		0.241	Continuing	Continuing	Continuing
Government Engineering Support	WR	SSC LANT : Charleston, SC	0.000	0.000		0.000		0.200	Nov 2019	-		0.200	Continuing	Continuing	Continuing
Program Management Support	C/CPFF	BAH : San Diego, CA	0.000	0.000		0.000		1.159	Nov 2019	-		1.159	Continuing	Continuing	Continuing
Program Management Support	WR	SSC LANT : Charleston, SC	0.000	0.000		0.000		0.290	Oct 2019	-		0.290	8.165	8.455	-
Program Management Support	WR	SSC PAC : San Diego, CA	0.000	0.000		0.000		0.293	Oct 2019	-		0.293	Continuing	Continuing	Continuing
		Subtotal	0.000	0.000		0.000		2.183		-		2.183	Continuing	Continuing	N/A

Remarks

FY18 and FY19 cost data is provided under PE 0305208N Project 2227.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2020 Navy			Date: March 2019
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0304785N / *Tactical Cryptologic Systems*	Project (Number/Name) *2227 / Distributed Common Ground System (DCGS-N) Inc 2*	

	Prior Years	FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	0.000	0.000		0.000		42.745		-		42.745	Continuing	Continuing	N/A

Remarks

FY18 and FY19 cost data is provided under PE 0305208N Project 2227.

Exhibit R-4, RDT&E Schedule Profile: PB 2020 Navy		Date: March 2019
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0304785N / *Tactical Cryptologic Systems*	**Project (Number/Name)** *2227 / Distributed Common Ground System (DCGS-N) Inc 2*

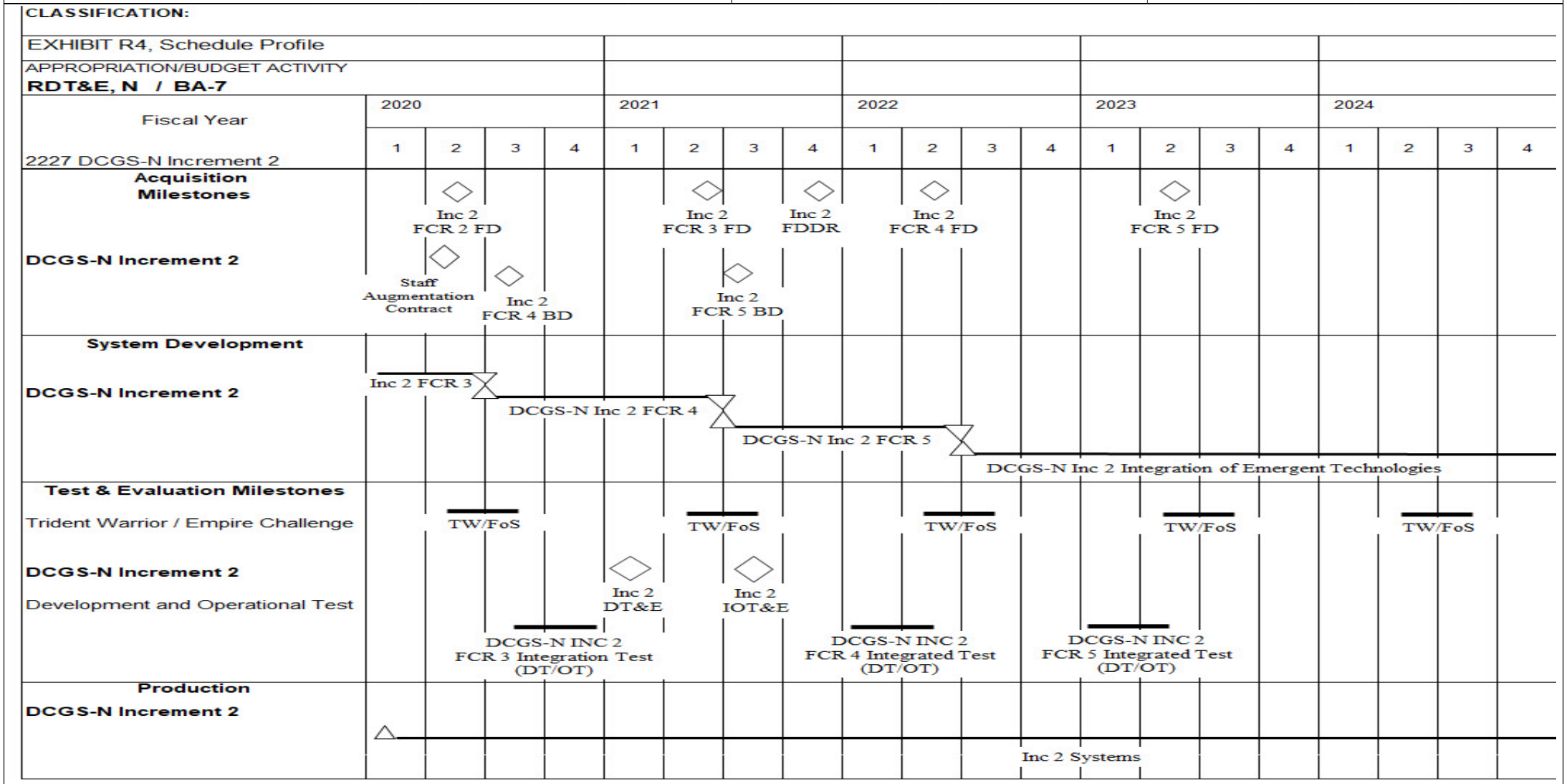

Exhibit R-4A, RDT&E Schedule Details: PB 2020 Navy		Date: March 2019
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0304785N / *Tactical Cryptologic Systems*	**Project (Number/Name)** *2227 / Distributed Common Ground System (DCGS-N) Inc 2*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Proj 2227				
Staff Augmentation Contract	2	2020	2	2020
DCGS-N Inc 2 FCR-2 Fielding Decision (FD)	2	2020	2	2020
DCGS-N Inc 2 FCR-4 Build Decision (BD)	3	2020	3	2020
DCGS-N Inc 2 FCR-3 Fielding Decision (FD)	2	2021	2	2021
DCGS-N Inc 2 FCR-5 Build Decision (BD)	3	2021	3	2021
DCGS-N Inc 2 FDDR	4	2021	4	2021
DCGS-N Inc 2 FCR-4 Fielding Decision (FD)	2	2022	2	2022
DCGS-N Inc 2 FCR-5 Fielding Decision (FD)	2	2023	2	2023
DCGS-N Inc 2 FCR-3 Development	1	2020	2	2020
DCGS-N Inc 2 FCR-4 Development	2	2020	2	2021
DCGS-N Inc 2 FCR-5 Development	2	2021	2	2022
DCGS-N Inc 2 Integration of Emergent Technologies	2	2022	4	2024
Trident Warrior/DCGS Family of Systems (FoS) 2020	2	2021	3	2021
DCGS-N Inc 2 FCR-3 Integrated Test (DT/OT)	3	2020	4	2020
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
DCGS-N Inc 2 FCR-4 Integrated Test (DT/OT)	1	2022	2	2022
Trident Warrior/DCGS Family of Systems (FoS) 2022	2	2022	3	2022
DCGS-N Inc 2 FCR-5 Integrated Test (DT/OT)	1	2023	2	2023
Trident Warrior/DCGS Family of Systems (FoS) 2023	2	2023	3	2023

Exhibit R-4A, RDT&E Schedule Details: PB 2020 Navy		Date: March 2019
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0304785N / *Tactical Cryptologic Systems*	**Project (Number/Name)** *2227 / Distributed Common Ground System (DCGS-N) Inc 2*

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Trident Warrior/DCGS Family of Systems (FoS) 2024	2	2024	3	2024
DCGS-N Inc 2 Procurement	1	2020	4	2024

Exhibit R-2A, RDT&E Project Justification: PB 2020 Navy			Date: March 2019
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0304785N / *Tactical Cryptologic Systems*	Project (Number/Name) 3091 / *Advanced Cryptological Sys Eng (CCOP)*	

COST ($ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
3091: *Advanced Cryptological Sys Eng (CCOP)*	0.000	0.000	0.000	4.515	-	4.515	4.630	4.686	4.835	4.932	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

Note

Funding has been realigned into PE 0304785N (Tactical Cryptologic Systems) from PE 0204574N (Advanced Cryptologic Systems Engineering) Project 3091 (Cryptologic Carry On Program (CCOP)) as part of RDTEN PE Consolidation starting in FY 2020. There are no New Starts associated with this realignment. All budgeted efforts have been previous approved.

A. Mission Description and Budget Item Justification

The Advanced Cryptologic Systems Engineering - Cryptologic Carry On Program (CCOP) rapidly develops and fields state-of-the-art signal acquisition capabilities in response to Combatant Command requirements for a quick-reaction surface, subsurface and airborne cryptologic carry-on capability. There are approximately 124 cryptologic capable surface ships and shore sites in the current Navy inventory; each is 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 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.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Title: Advanced Cryptological Sys Eng - CCOP	0.000	0.000	4.515	0.000	4.515
Articles:	-	-	-	-	-
FY 2019 Plans:					

Exhibit R-2A, RDT&E Project Justification: PB 2020 Navy		Date: March 2019
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0304785N / *Tactical Cryptologic Systems*	**Project (Number/Name)** 3091 / *Advanced Cryptological Sys Eng (CCOP)*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
FY 2019 Plans funded under PE 0204574N, Project 3091 ***FY 2020 Base Plans:*** In FY 2020, Cryptologic Carry On Program (CCOP) will continue to integrate, test, and document identified COTS and GOTS technologies and subsystems that meet emergent and on-going Fleet requirements as specified in the SOI and target threat list, as well as, continue to develop upgrades to existing systems and subsystems according to Fleet requirements. Funds aid the development of new signal processing algorithms and software based solutions to enable rapid transition of capability to permanently installed SSES systems, including SSEE Family of Systems (FoS) and its variants, the research of self-contained small form factor systems for Patrol craft and other small units, and the research 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 2020 OCO Plans:*** N/A ***FY 2019 to FY 2020 Increase/Decrease Statement:*** In FY 2019 funding under PE 0204574N, Project 3091 was $4.544M. Funding decreased by $0.029M to $4.515M in FY 2020. the funding decrease from FY 2019 to FY 2020 is due to reducing integration and testing efforts.					
Accomplishments/Planned Programs Subtotals	0.000	0.000	4.515	0.000	4.515

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
• OPN/3501: *Cryptologic Communications Equipment*	26.167	19.009	13.090	-	13.090	15.818	18.351	18.505	18.882	0.000	222.551
• RDTEN/0204574N/3091: *Cryptologic Direct Support*	2.355	4.544	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	29.690

Remarks

D. Acquisition Strategy

Acquisition, management, and contracting strategies support engineering and manufacturing development by providing funds to Space and Naval Warfare Systems Centers Atlantic and Pacific (SPAWARSYSCTR), and miscellaneous contractors with management oversight by SPAWAR.

Exhibit R-2A, RDT&E Project Justification: PB 2020 Navy		Date: March 2019
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0304785N / *Tactical Cryptologic Systems*	**Project (Number/Name)** 3091 / *Advanced Cryptological Sys Eng (CCOP)*

E. Performance Metrics

Cryptologic Carry On Program (CCOP) 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 2020 Navy			Date: March 2019
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0304785N / *Tactical Cryptologic Systems*	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 2018 Cost	FY 2018 Award Date	FY 2019 Cost	FY 2019 Award Date	FY 2020 Base Cost	FY 2020 Base Award Date	FY 2020 OCO Cost	FY 2020 OCO Award Date	FY 2020 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Software Development	C/CPFF	Classified Contract : Classified Contract	0.000	0.000		0.000		2.838	Jan 2020	-		2.838	Continuing	Continuing	Continuing
Software Development	WR	SSC PAC : San Diego, CA	0.000	0.000		0.000		0.556	Nov 2019	-		0.556	0.000	0.556	-
Software Development	WR	SSC LANT : Charleston, SC	0.000	0.000		0.000		0.287	Nov 2019	-		0.287	0.000	0.287	-
		Subtotal	0.000	0.000		0.000		3.681		-		3.681	Continuing	Continuing	N/A

Remarks

FY18 and FY19 cost data is provided under PE 0204574N Project 3091

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2018 Cost	FY 2018 Award Date	FY 2019 Cost	FY 2019 Award Date	FY 2020 Base Cost	FY 2020 Base Award Date	FY 2020 OCO Cost	FY 2020 OCO Award Date	FY 2020 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Systems Engineering	C/CPFF	Classified Contract : Classified Contract	0.000	0.000		0.000		0.441	Jan 2020	-		0.441	0.000	0.441	-
		Subtotal	0.000	0.000		0.000		0.441		-		0.441	0.000	0.441	N/A

Remarks

FY18 and FY19 cost data is provided under PE 0204574N Project 3091

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2018 Cost	FY 2018 Award Date	FY 2019 Cost	FY 2019 Award Date	FY 2020 Base Cost	FY 2020 Base Award Date	FY 2020 OCO Cost	FY 2020 OCO Award Date	FY 2020 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation	WR	SSC LANT : Charleston, SC	0.000	0.000		0.000		0.182	Nov 2019	-		0.182	0.000	0.182	-
		Subtotal	0.000	0.000		0.000		0.182		-		0.182	0.000	0.182	N/A

Remarks

FY18 and FY19 cost data is provided under PE 0204574N Project 3091

Exhibit R-3, RDT&E Project Cost Analysis: PB 2020 Navy		Date: March 2019
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0304785N / *Tactical Cryptologic Systems*	**Project (Number/Name)** 3091 / *Advanced Cryptological Sys Eng (CCOP)*

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2018 Cost	FY 2018 Award Date	FY 2019 Cost	FY 2019 Award Date	FY 2020 Base Cost	FY 2020 Base Award Date	FY 2020 OCO Cost	FY 2020 OCO Award Date	FY 2020 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Program Management Support	WR	SSC PAC : San Diego, CA	0.000	0.000		0.000		0.211	Nov 2019	-		0.211	0.000	0.211	-
		Subtotal	0.000	0.000		0.000		0.211		-		0.211	0.000	0.211	N/A

Remarks

FY18 and FY19 cost data is provided under PE 0204574N Project 3091

	Prior Years	FY 2018 Cost	FY 2018 Award Date	FY 2019 Cost	FY 2019 Award Date	FY 2020 Base Cost	FY 2020 Base Award Date	FY 2020 OCO Cost	FY 2020 OCO Award Date	FY 2020 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	0.000	0.000		0.000		4.515		-		4.515	Continuing	Continuing	N/A

Remarks

FY18 and FY19 cost data is provided under PE 0204574N Project 3091

Exhibit R-4, **RDT&E Schedule Profile:** PB 2020 Navy		**Date:** March 2019
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0304785N / *Tactical Cryptologic Systems*	**Project (Number/Name)** 3091 / *Advanced Cryptological Sys Eng (CCOP)*

Exhibit R-4, RDT&E Program Schedule Profile DATE: Aug 2018

Appropriation/Budget Activity	Program Element Name and Number	Project Name and Number
RDT&E,N / BA 05	0304785N Cryptologic Direct Support	Advanced Cryptologic Systems Engineering (CCOP) / 3091

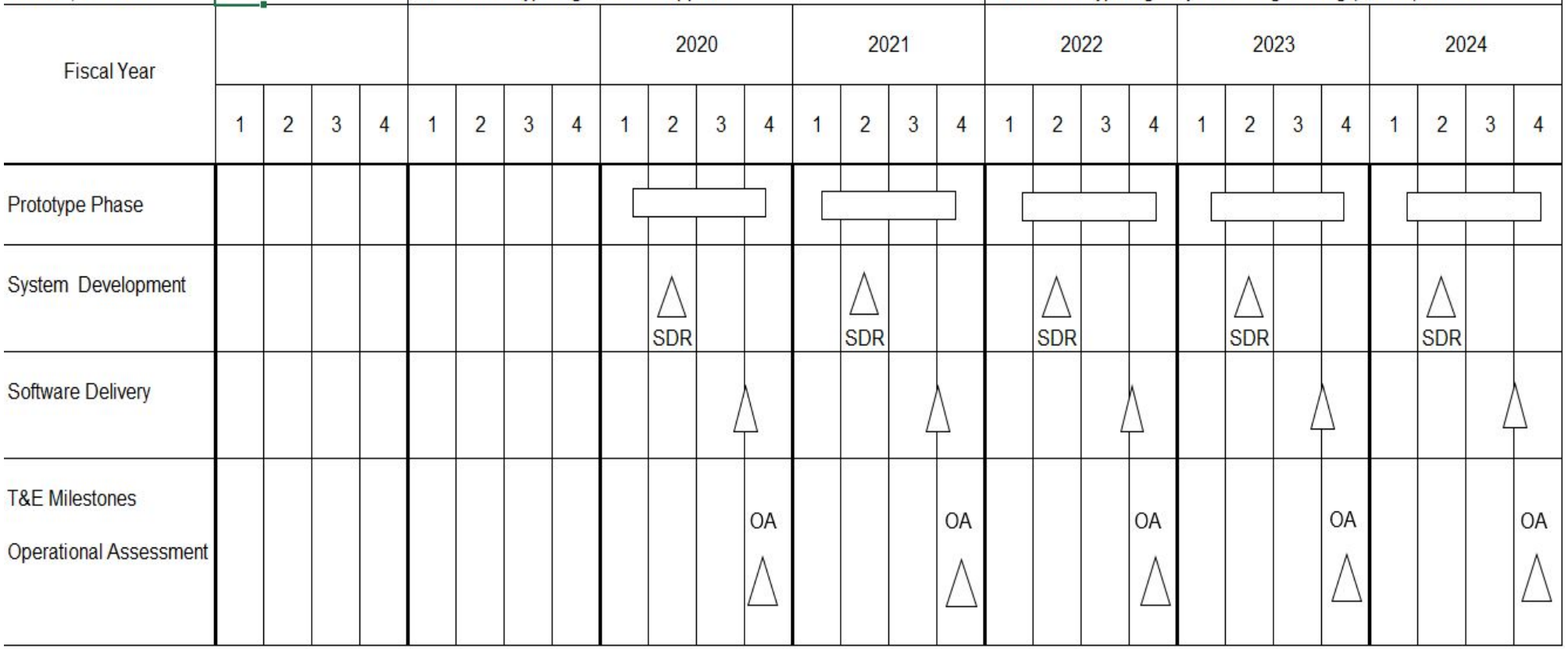

Exhibit R-4, Program Schedule Profile

Exhibit R-4A, RDT&E Schedule Details: PB 2020 Navy		Date: March 2019
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0304785N / *Tactical Cryptologic Systems*	**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
Prototype Phase - 2023	1	2023	4	2023
Prototype Phase -2024	1	2024	4	2024
System Design Review (SDR) - 2020	1	2020	1	2020
System Design Review (SDR) - 2021	1	2021	1	2021
System Design Review (SDR) - 2022	1	2022	1	2022
System Design Review (SDR) - 2023	1	2023	1	2023
System Design Review (SDR) - 2024	1	2024	1	2024
Software Delivery - 2020	3	2020	4	2020
Software Delivery - 2021	3	2021	4	2021
Software Delivery - 2022	3	2022	4	2022
Software Delivery - 2023	3	2023	4	2023
Software Delivery - 2024	3	2024	4	2024
Operational Assessment (OA) - 2020	4	2020	4	2020
Operational Assessment (OA) - 2021	4	2021	4	2021
Operational Assessment (OA) - 2022	4	2022	4	2022
Operational Assessment (OA) - 2023	4	2023	4	2023
Operational Assessment (OA) - 2024	4	2024	4	2024

Exhibit R-2A, RDT&E Project Justification: PB 2020 Navy												Date: March 2019
Appropriation/Budget Activity 1319 / 5					R-1 Program Element (Number/Name) PE 0304785N / *Tactical Cryptologic Systems*				Project (Number/Name) 3431 / *Distributed Operations*			
COST ($ in Millions)	**Prior Years**	**FY 2018**	**FY 2019**	**FY 2020 Base**	**FY 2020 OCO**	**FY 2020 Total**	**FY 2021**	**FY 2022**	**FY 2023**	**FY 2024**	**Cost To Complete**	**Total Cost**
3431: *Distributed Operations*	0.000	0.000	0.000	0.000	-	0.000	0.000	0.000	13.300	13.566	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

Funds develop/integrate services into the DO Architecture: mission planning & tasking, maintenance IO, sensor networking, signal acquisition, geolocation, MOPs, remote management, sensor CM, IO support, multi-sensor tasking, and frequency extension while integrating a common operating picture via Integrated Fires and bringing in UAV data (e.g. MQ-4) in both the distributed sensor network and common operating picture giving afloat battle commanders a combined strategic and tactical intelligence information. Program funding commences in 2023.