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Exhibit R-2, RDT&E Budget Item Justification: FY 2018 Navy Date: May 2017

Appropriation/Budget Activity 1319: Research, Development, Test & Evaluation, Navy / BA 5: System Development & Demonstration (SDD)					R-1 Program Element (Number/Name) PE 0304785N / Tactical Cryptologic Systems							
COST (\$ in Millions)	Prior Years	FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total	FY 2019	FY 2020	FY 2021	FY 2022	Cost To Complete	Total Cost
Total Program Element	275.994	17.785	36.747	28.311	-	28.311	37.850	34.765	46.945	49.378	Continuing	Continuing
2134.: Shipboard IW Exploit	275.994	17.785	36.747	28.311	-	28.311	37.850	34.765	46.945	49.378	Continuing	Continuing

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, F (and its variants), Spectral (Increment G) and Modifications, and also the Integrated Communications Data Systems (ICADS) Increment I and Increment II systems. These programs are classified Information Warfare (IW) / Electronic Warfare (EW) tactical cryptologic systems supporting Command and Control, Battlespace Awareness, Integrated Fires and Electromagnetic Maneuver Warfare (EMW) modes of global engagement. These systems enable power projection in any environment including Anti-Access, Area Denial (A2AD) situations and provide offensive EW capabilities 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). 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 Improvements (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 A2AD scenarios. ICADS Inc. II is a mission critical system providing advanced simulation capability for naval platforms as well as back-up communications capabilities. Additional details on this program are held at a higher classification level.

B. Program Change Summary (\$ in Millions)	FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total
Previous President's Budget	17.785	36.747	29.025	-	29.025
Current President's Budget	17.785	36.747	28.311	-	28.311
Total Adjustments	0.000	0.000	-0.714	-	-0.714
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-	-			
• Rate/Misc Adjustments	0.000	0.000	-0.714	-	-0.714

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<p><u>Change Summary Explanation</u></p> <p>Impacts resulting from operational ship availability of the test platforms for the SSEE Modifications Initial Operational Test & Evaluation (IOT&E) caused the Full Rate Production (FRP) decision to be re-phased to QTR 1 FY 18. The delays to the ship availability timeline also caused Initial Operational Capability (IOC) to be re-phased to QTR 3 FY 18 based on the definition in the program's Acquisition Strategy for Initial Operational Capability (IOC) declaration. Ship's Signal Exploitation Equipment (SSEE) Modifications Full Rate Production deliveries have been aligned with current ship availabilities. Impacts from prolonged service-level (Navy) requirements review of the Spectral Capability Development Document (CDD) and approval to build an Agile Acquisition model resulted in moving the Milestone B decision to QTR 3 FY18. The Agile Acquisition model includes transitioning capability requirements from the CDD into technical requirements to inform Requirements Development Package (RDP) 1. It also includes moving the development contract award to QTR 1 FY 19 and Build Technical Review 1 to QTR2 FY 19, with Fleet Capability Review to begin in QTR 2 FY 19 and Field Technical Review 1 beginning in QTR 1 FY 21. Funds are required to continue efforts to define, develop, and refine additional Navy and Joint requirements to integrate Ship Signal Exploitation Space with the rest of the shipboard combat systems, synthesizing inputs from all sensor areas for an Integrated Fires approach to naval warfare and integrating Anti-Access, Area Denial capabilities into the Spectral design, and build the technical requirements traceability matrices needed to inform the Technical Design Packages for Engineering Design Model (EDM) development.</p>		

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Exhibit R-2A, RDT&E Project Justification: FY 2018 Navy										Date: May 2017		
Appropriation/Budget Activity 1319 / 5					R-1 Program Element (Number/Name) PE 0304785N / <i>Tactical Cryptologic Systems</i>				Project (Number/Name) 2134. / <i>Shipboard IW Exploit</i>			
COST (\$ in Millions)	Prior Years	FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total	FY 2019	FY 2020	FY 2021	FY 2022	Cost To Complete	Total Cost
2134.: <i>Shipboard IW Exploit</i>	275.994	17.785	36.747	28.311	-	28.311	37.850	34.765	46.945	49.378	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

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, F (and its variants), Spectral (Increment G) and Modifications, and also the Integrated Communications Data Systems (ICADS) Increment I and Increment II systems. These programs are Classified Information Warfare (IW) / Electronic Warfare (EW) tactical cryptologic systems supporting all facets of Assured Command and Control, Battlespace Awareness, Integrated Fires and Electromagnetic Maneuver Warfare modes of global engagement. These systems, including their variants, provide 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 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 to legacy platforms while providing advanced scalability and modularity for mission planners to execute with. 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 Improvements (P3I) upgrades into the system's hardware/software configuration and deliver to fielded systems via annual build releases. This program's 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 meet 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 multiple operational plans (OPLANS), Concepts of Operations (CONOPS) and A2AD scenarios (further details held at a higher classification level). SIW will continue development and integration of Anti-Access, Area Denial (A2AD) solutions for the SSEE Increment F and Modifications 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 and can also be used to enable a more complete understanding and more agile and effective exploitation of the electromagnetic spectrum.

FY 18 funding for SSEE Increment F (and its variants) will continue to develop, refine, and test new, unexplored and unexploited cyber capabilities as well as begin integration of 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 and deliver as annual build releases. Specifically, it will finalize designs and testing in support of software and hardware development for VITA 49 / VPX Next-Generation Chassis designs to provide enhanced data processing, and greater exposure of existing system services while meeting constricting Space, Weight, Power and Cooling (SWPaC) requirements on ships and deliver advanced capabilities to integrate hosting services to platforms, bringing a modular, mission-tailorable capability specifically required for National/Tactical integration. It will also develop solutions to meet future Joint interface and compliance standards (4.X) to meet netted sensor framework strategies and deliver enhanced automation capabilities to expedite sensor

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tasking and control and ease operator workflows. It will also meet netted sensor framework strategies and deliver enhanced automation capabilities to expedite sensor tasking and control while easing operator workflows. Integrate Anti-Access, Area Denial (A2AD) capabilities into system configuration.						
FY 18 funding for Spectral will continue acquisition activities, systems engineering, logistics, test planning and contracting activities in support of a Milestone B decision. Development efforts will continue for Engineering Design Models (EDM)s and refine requirements, technical data packages and matrices for Requirements Development Package (RDP) approval and Build Decision (BD) 1. Spectral will integrate and improve upon all aspects of Ship's Signal Exploitation Equipment(SSEE)Increment F, leveraging SSEE Increment F software and technologies to increase automation and integration into Ships Signals Exploitation Space (SSES) while advancing and incorporating new technologies through open architecture for rapid integration and development of new capabilities with enhanced interfaces to Ship's Combat and Intelligence systems. Funding also executes studies, analysis and engineering efforts for market research to support Advanced Radio Frequency (RF) aperture development and integration to satisfy Fleet needs for multi-mission antennas and control modules as part of the Spectral requirement.						
FY 18 funding for SSEE Modifications support achieving the Initial Operating Capability (IOC) milestone as defined in the program acquisition strategies and will execute hardware and software development to bring advanced capability 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, as well as complete final designs and testing 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.						
Integrated Communications and Data Systems Increment II (ICADS Inc. II) is a mission critical system providing advanced simulation capabilities and back-up communications for naval platforms with additional details held at higher classification. To support Commander, US Pacific Fleet (COMPACFLT) requirements outlined in the Capability Production Document, FY 18 funding will continue acquisition activities and finalize engineering designs by delivering Engineering Design Model 1, executing Increment II Integration and Developmental Testing (IT/DT), and prepare for Operational Assessment (OA) in support of Low-Rate Initial Production (LRIP) decisions. Funding will also enable Technical Design Package (TDP) development for production contract award in FY 19.						
B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)		FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total
Title: Ship's Signal Exploitation Equipment Inc F (SSEE Inc F)		2.759	7.775	4.487	0.000	4.487
Articles:		-	-	-	-	-
FY 2016 Accomplishments:						
Continued pre-planned product improvements to provide enhanced and additional capabilities into the SSEE Increment F system. Expanded Signals of Interest (SOI) processing capabilities to allow collection of the newest high priority modern technology threat signals for tightly integrated 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. Developed and delivered Electronic Warfare (EW) capabilities based upon the warfighter identified FY16 SOI threats (annually-updated) for integration into the SSEE Increment F system. Developed enhanced Red Falcon systems to combat both current and future SOIs. Enhanced SSEE						

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B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)						
		FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total
Increment F remoting capabilities and usability by providing increased functionality and capabilities along with delivering streamlined user interfaces to remote and local users. Maintained cognizance of current warfighter-identified signal sets and made additions and improvements to the system as required by National and Fleet stakeholders.and improvements to the system as required by National and Fleet stakeholders.						
FY 2017 Plans: Continue pre-planned product improvements (P3I) to provide enhanced or additional capabilities into the Ship's Signal Exploitation Equipment (SSEE) Increment F system. Develop and deliver EW capabilities based upon the warfighter identified FY 17 SOI threats (annually-updated) for integration into the SSEE Increment F system and deliver into annual build release. Expand Signal of Interest (SOI) Directional Finding (DF), processing, and exploitation capabilities to allow collection of the newest high priority modern technology threat signals across multiple frequency bands for tightly integrated IO/non-kinetic capabilities while opening the SSEE system architecture for enhanced collaborative development and future capability integration. Initiate VITA 49 / VPX Next-Generation Chassis development designs to provide enhanced data processing, and greater exposure of existing system services while meeting constricting Space, Weight, Power and Cooling (SWaPC) requirements on ships and deliver advanced capabilities to integrate hosting services to platforms and bring an expanded modular, mission-tailorable capability specifically required for National/Tactical integration. Begin developing Anti-Access, Area Denial (A2AD) capabilities such as the enabling operations in Global Positioning System (GPS)-denied environments and bring Carrier Strike Group self-actualization tools such as Own Force Monitoring (OFM) and integrate into the SSEE Systems to enable maritime power projection and surface vessels to disrupt, deny, degrade and defeat adversary (state and non-state) use of the radio frequency spectrum, improving the Fleet's ability to communicate and operate therein - further details held at a higher classification level.						
FY 2018 Base Plans: Continue pre-planned product improvements (P3I) to develop and deliver Electronic Warfare (EW) capabilities based upon the warfighter identified FY18 SOI threats (annually-updated) for integration into the SSEE Increment F system and deliver into annual build release. 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. It will finalize designs and testing in support of software and hardware development for Next-Generation Chassis designs to meet constricting Space, Weight, Power and Cooling (SWPaC) requirements on ships while delivering advanced capabilities to integrate hosting services to platforms, bringing a modular, mission-tailorable capability specifically required for National/						

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B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)						
		FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total
Tactical integration. It will also develop solutions to meet future Joint interface and compliance standards such as the Airborne Overhead Interoperability Office (AOIO) JICD 4.X standard and to meet netted sensor framework strategies and deliver enhanced automation capabilities to expedite sensor tasking and control and ease operator workflows. Integrate Anti-Access, Area Denial (A2AD) capabilities into system configuration. FY 2018 OCO Plans: N/A						
Title: Spectral (SSEE Inc G) Articles: FY 2016 Accomplishments: Completed service specific-level (Navy) requirements adjudication via the Capability Development Document (CDD) and continued acquisition documentation development to support Milestone B decision in FY18. Executed administrative activities in support of the development contract award. FY 2017 Plans: Continue efforts to center on synthesizing requirements into system designs to be developed under the first Fleet Capability Review (FCR). Complete Joint review of CDD requirements. Program will work to gain a viable Requirements Development Package (RDP) derived from the program CDD in support of the FCR. Initiate developing Technical Design Packages for design of the Engineering Design Models (EDM) and continue acquisition document preparation to support future FCR build cycles and future Milestone Decision reviews. Design efforts will focus on integrating Ship Signal Exploitation Space with the rest of the shipboard combat systems, synthesizing inputs from all sensor areas for an Integrated Fires approach to naval warfare. Funding will also support integrating Anti-Access, Area Denial capabilities into the Spectral design. FY 2018 Base Plans: Continue acquisition activities, systems engineering, logistics, test planning (including a finalized Test & Evaluation Master Plan (TEMP)) and contracting activities in support of a Milestone B decision activities as well as continue development efforts to create Engineering Design Models (EDM)s and refine requirements, technical data packages and matrices for Requirements Development Package (RDP) approval and Build Decision (BD) 1. Refine Anti-Access, Area Denial (A2AD) capabilities to be incorporated into future FCR baseline releases. Increase in FY18 funding to support studies, analysis and engineering efforts for market research to support Advanced RF aperture development and integration to satisfy Fleet needs for multi-mission antennas and control modules as part of the Spectral requirement. Increase in FY18 will also expand upon the Information Warfare (IW) / Electronic Warfare (EW) and tactical cryptologic system capability of exploiting signals throughout		4.787 -	9.418 -	11.026 -	0.000 -	11.026 -

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B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)						
		FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total
the Radio Frequency (RF) spectrum, in addition to focusing new technologies towards new and previously unexplored/unexploited cyber capabilities as we integrate into the Integrated Fires (IF) architecture and develop enhanced interfacing to interoperate with Ship's Combat and Intelligence systems.						
FY 2018 OCO Plans: N/A						
Title: Integrated Communications and Data Systems Increment II (ICADS Inc II) Articles:		0.000 -	9.500 -	8.000 1	0.000 -	8.000 1
FY 2016 Accomplishments: N/A						
FY 2017 Plans: Initiate Program of Record (POR) acquisition activities, begin development and design efforts for Increment II Engineering Design Models (EDM). Funding will develop, integrate and mature system design while executing requisite design reviews to support Commander US Pacific Fleet (COMPACFLT) requirements.						
FY 2018 Base Plans: Continue acquisition activities to support milestone decisions. Complete Increment II design and deliver EDM 1 for testing cycles and initiate Integrated Testing (IT) as part of the Engineering and Manufacturing Phase.						
FY 2018 OCO Plans: N/A						
Title: Ship's Signal Exploitation Equipment Modifications (SSEE Modifications) Articles:		10.239 -	10.054 -	4.798 -	0.000 -	4.798 -
FY 2016 Accomplishments: Completed Ship's Signal Exploitation Equipment (SSEE) Modifications Phase 3 hardware and software development to provide capabilities to the Fleet in support of "Ballistic Missile Defense (BMD) Executive Committee (EXCOM) Anti-Submarine Warfare (ASW) Chief of Naval Operations (CNO) Executive Board Information Operation (IO) Countermeasure Red Flash/Medusa" including additional Signals of Interest (SOI) in support of Fleet needs; and enhanced system capabilities for Graywing and Paragon to meet Full Rate Production (FRP) performance thresholds and provide P3I improvements. Continued to support development efforts enabling more robust signal exploitation and expanded integration with Ship's Signal Exploitation Equipment (SSEE) Increment F special capabilities. Provided test plans and procedures for follow on testing						

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B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)		FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total
and evaluation. Conducted Developmental Testing (DT) as well as Initial Operational Test & Evaluation (IOT&E). Attained Joint Integration Test Command (JITC) certification. Continued to conduct extensive integration and testing in support of the correction of deficiencies identified during test events.						
FY 2017 Plans: Complete SSEE Modifications Build 11 hardware and software development and release. SSEE Modifications will transition to annual Build releases post Full Rate Production decision to provide capabilities to the Fleet in support of "BMD EXCOM ASW CEB IO Countermeasure Red Flash" including additional SOIs in support of Fleet needs; and enhanced system capabilities for Graywing and Paragon in order to meet Full Rate Production performance thresholds and provide P3I improvement. Continue to support development efforts to enable more robust signal exploitation and expand integration with SSEE Increment F special capabilities. Initiate designs to bring advanced signal processing and exploitation to the Next Generation-GRAYWING capability. Begin development and integration of Anti-Access, Area Denial (A2AD) into the SSEE Systems to enable maritime power projection and surface vessels to disrupt, deny, degrade and defeat adversary (state and non-state) use of the radio frequency spectrum, improving the Fleet's ability to communicate and operate therein - further details held at a higher classification level.						
FY 2018 Base Plans: Achieve Initial Operating Capability (IOC) milestone as defined in the program acquisition strategies. Execute hardware and software development to bring advanced capability 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, as well as complete final designs and testing to bring advanced signal processing to the Next Generation-GRAYWING capability while migrating to meet future industry backplane interconnectivity standards to align with (Common Core Architecture (CCA) strategies. Continue development and integration of Anti-Access, Area Denial (A2AD) solutions as well as bring enhanced Signals exploitation and expanded SOI processing capabilities to fielded systems.						
FY 2018 OCO Plans: N/A						
Accomplishments/Planned Programs Subtotals		17.785	36.747	28.311	0.000	28.311

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C. Other Program Funding Summary (\$ in Millions)											
			FY 2018	FY 2018	FY 2018					Cost To	
Line Item	FY 2016	FY 2017	Base	OCO	Total	FY 2019	FY 2020	FY 2021	FY 2022	Complete	Total Cost
• OPN / 2360: <i>Shipboard IW Exploit</i>	138.002	170.733	175.007	-	175.007	216.842	213.507	262.806	293.953	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 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 IW / Electronic Warfare 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/unexploited cyber capabilities as we integrate into the Electromagnetic Maneuver Warfare (EMW) Integrated Fires (IF) architecture.											

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Exhibit R-3, RDT&E Project Cost Analysis: FY 2018 Navy												Date: May 2017			
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Product Development (\$ in Millions)				FY 2016		FY 2017		FY 2018 Base		FY 2018 OCO		FY 2018 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	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	7.318	1.500	Jan 2016	3.500	Dec 2016	2.765	Dec 2017	-		2.765	Continuing	Continuing	Continuing
Systems Engineering	WR	SSC PAC : San Diego, CA	3.778	0.500	Nov 2015	1.125	Oct 2016	0.889	Oct 2017	-		0.889	Continuing	Continuing	Continuing
Systems Engineering	WR	SSC LANT : Charleston, SC	5.016	0.551	Nov 2015	1.300	Oct 2016	1.027	Oct 2017	-		1.027	Continuing	Continuing	Continuing
Training Development	C/CPFF	Classified Contracts : Classified Contracts	0.000	0.000		0.000		0.265	Dec 2017	-		0.265	Continuing	Continuing	Continuing
Configuration Management	WR	SSC LANT : Charleston, SC	0.000	0.000		0.000		0.790	Oct 2017	-		0.790	Continuing	Continuing	Continuing
Training Development	WR	SSC LANT : Charleston, SC	0.000	0.000		0.000		0.224	Oct 2017	-		0.224	Continuing	Continuing	Continuing
Integrated Logistic Support	WR	SSC LANT : Charleston, SC	0.000	0.000		0.000		0.632	Oct 2017	-		0.632	Continuing	Continuing	Continuing
Requirements Analysis	WR	SSC LANT : Charleston, SC	0.000	0.000		0.000		0.395	Oct 2017	-		0.395	Continuing	Continuing	Continuing
Studies & Design	WR	SSC PAC : Charleston, SC	0.000	0.000		0.000		0.790	Oct 2017	-		0.790	Continuing	Continuing	Continuing
Requirements Analysis	C/CPFF	Classified Contracts : Classified Contracts	0.000	0.000		0.000		1.027	Dec 2017	-		1.027	Continuing	Continuing	Continuing
Government Engineering Support	WR	SSC LANT : Charleston, SC	0.000	0.000		0.000		0.346	Oct 2017	-		0.346	Continuing	Continuing	Continuing
Government Engineering Support	WR	SSC PAC : San Diego, CA	0.000	0.000		0.000		0.295	Oct 2017	-		0.295	Continuing	Continuing	Continuing
Integration, Assembly & Test (PMP Dev)	WR	SSC PAC : San Diego, CA	2.675	0.668	Jan 2016	1.300	Oct 2016	1.027	Oct 2017	-		1.027	Continuing	Continuing	Continuing
Primary Hardware Development	C/CPFF	Classified Contracts : Classified Contracts	0.000	0.000		0.510	Dec 2016	1.026	Dec 2017	-		1.026	Continuing	Continuing	Continuing
Hardware/Software Development	WR	NRL : Washington, DC	2.010	0.250	Nov 2015	0.550	Oct 2016	0.435	Oct 2017	-		0.435	Continuing	Continuing	Continuing

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Product Development (\$ in Millions)				FY 2016		FY 2017		FY 2018 Base		FY 2018 OCO		FY 2018 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Software Development	C/CPAF	Classified Contracts : Classified Contracts	30.085	5.334	Mar 2016	12.874	Dec 2016	8.933	Dec 2017	-		8.933	Continuing	Continuing	Continuing
Software Development	WR	SSC PAC : San Diego, CA	1.439	0.141	Nov 2015	0.257	Oct 2016	0.203	Oct 2017	-		0.203	Continuing	Continuing	Continuing
Integration, Assembly & Test	C/CPAF	Classified Contracts : Classified Contracts	2.291	0.580	Jan 2016	0.363	Dec 2016	0.287	Dec 2017	-		0.287	Continuing	Continuing	Continuing
Software Development	WR	SSC LANT : Charleston, SC	0.060	0.086	Nov 2015	0.147	Oct 2016	0.116	Oct 2017	-		0.116	Continuing	Continuing	Continuing
Integration, Assembly & Test (PMP Dev)	WR	SSC LANT : Charleston, SC	0.462	0.461	Nov 2015	0.700	Oct 2016	0.553	Oct 2017	-		0.553	Continuing	Continuing	Continuing
Subtotal			213.464	10.071		22.626		22.025		-		22.025	-	-	-
Support (\$ in Millions)				FY 2016		FY 2017		FY 2018 Base		FY 2018 OCO		FY 2018 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Support Prior Years	Various	Various : Various	4.327	0.000		0.000		0.000		-		0.000	0.000	4.327	-
Training Development	C/CPFF	Classified Contract : Classified Contract	1.160	0.223	Jan 2016	0.335	Dec 2016	0.000		-		0.000	0.000	1.718	-
Integrated Logistics Support	C/CPFF	Classified Contract : Classified Contract	0.410	0.214	Jan 2016	0.425	Dec 2016	0.593	Dec 2017	-		0.593	Continuing	Continuing	Continuing
Configuration Management	WR	SSC Lant : Charleston, SC	1.779	0.181	Nov 2015	0.302	Oct 2016	0.000		-		0.000	0.000	2.262	-
Configuration Management	WR	SSC PAC : San Diego, CA	0.671	0.169	Nov 2015	0.345	Oct 2016	0.672	Oct 2017	-		0.672	Continuing	Continuing	Continuing
Technical Data	WR	SSC PAC : San Diego, CA	1.710	0.297	Nov 2015	0.500	Oct 2016	0.000		-		0.000	0.000	2.507	-
Training Development	WR	SSC LANT : Charleston, SC	0.278	0.110	Nov 2015	0.283	Oct 2016	0.000		-		0.000	0.000	0.671	-
Integrated Logistic Support	WR	SSC LANT : Charleston, SC	0.462	0.242	Nov 2015	0.510	Oct 2016	0.000		-		0.000	0.000	1.214	-

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Exhibit R-3, RDT&E Project Cost Analysis: FY 2018 Navy												Date: May 2017			
Appropriation/Budget Activity 1319 / 5						R-1 Program Element (Number/Name) PE 0304785N / <i>Tactical Cryptologic Systems</i>				Project (Number/Name) 2134. / <i>Shipboard IW Exploit</i>					
Support (\$ in Millions)				FY 2016		FY 2017		FY 2018 Base		FY 2018 OCO		FY 2018 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Contractor Engineering Support	C/CPFF	Classified Contract : Classified Contract	0.000	0.000		0.000		1.822	Dec 2017	-		1.822	Continuing	Continuing	Continuing
Requirements Analysis	WR	SSC LANT : Charleston, SC	0.085	0.169	Jan 2016	0.300	Oct 2016	0.000		-		0.000	0.000	0.554	-
Studies & Design	WR	SSC PAC : San Diego, CA	0.284	0.395	Nov 2015	1.000	Oct 2016	0.000		-		0.000	0.000	1.679	-
Studies & Design	C/CPFF	Classified Contract : Classified Contract	0.362	0.364	Mar 2016	0.600	Dec 2016	0.474	Dec 2017	-		0.474	Continuing	Continuing	Continuing
Studies & Design	WR	NAVSEA : NAVSEA	0.245	0.000		0.000		0.000		-		0.000	0.000	0.245	-
Requirements Analysis	C/CPFF	Classified Contract : Classified Contract	0.704	0.717	Mar 2016	1.300	Dec 2016	0.000		-		0.000	0.000	2.721	-
Subtotal			12.477	3.081		5.900		3.561		-		3.561	-	-	-
Test and Evaluation (\$ in Millions)				FY 2016		FY 2017		FY 2018 Base		FY 2018 OCO		FY 2018 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Test & Evaluation Prior Years	Various	Various : Various	14.537	0.000		0.000		0.000		-		0.000	0.000	14.537	-
Developmental Test & Evaluation	WR	SSC PAC : San Diego, CA	2.371	0.858	Nov 2015	1.100	Oct 2016	0.550	Oct 2017	-		0.550	Continuing	Continuing	Continuing
Developmental Test & Evaluation	WR	SSC LANT : Charleston, SC	1.490	0.249	Nov 2015	0.421	Oct 2016	0.211	Oct 2017	-		0.211	Continuing	Continuing	Continuing
Developmental Test & Evaluation	C/CPFF	Classified Contracts : Classified Contracts	1.423	0.598	Feb 2016	1.000	Dec 2016	0.500	Dec 2017	-		0.500	Continuing	Continuing	Continuing
Developmental Test & Evaluation	WR	NSWC Dahlgren : Dahlgren, VA	0.245	0.242	Nov 2015	0.000	Oct 2016	0.000		-		0.000	0.000	0.487	-
Subtotal			20.066	1.947		2.521		1.261		-		1.261	-	-	-

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Exhibit R-3, RDT&E Project Cost Analysis: FY 2018 Navy												Date: May 2017			
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Management Services (\$ in Millions)				FY 2016		FY 2017		FY 2018 Base		FY 2018 OCO		FY 2018 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Management Services Prior Years	Various	Various : Various	18.496	0.000		0.000		0.000		-		0.000	0.000	18.496	-
Contractor Engineering Support	C/CPFF	Classified Contract : Classified Contract	3.306	1.061	Nov 2015	2.306	Dec 2016	0.000		-		0.000	0.000	6.673	-
Government Engineering Support	WR	SSC LANT : Charleston, SC	1.563	0.170	Nov 2015	0.438	Oct 2016	0.000		-		0.000	0.000	2.171	-
Government Engineering Support	WR	SSC PAC : San Diego, CA	1.910	0.145	Nov 2015	0.374	Oct 2016	0.000		-		0.000	0.000	2.429	-
Program Management Support	C/CPFF	Classified Contract : Classified Contract	1.749	0.478	Nov 2015	0.900	Dec 2016	0.711	Dec 2017	-		0.711	Continuing	Continuing	Continuing
Program Management Support	WR	SSC LANT : Charleston, SC	0.702	0.193	Nov 2015	0.497	Oct 2016	0.397	Oct 2017	-		0.397	Continuing	Continuing	Continuing
Travel	WR	SPAWAR : San Diego, CA	2.261	0.040	Nov 2015	0.450	Oct 2016	0.356	Oct 2017	-		0.356	Continuing	Continuing	Continuing
Studies & Design	FFRDC	Classified Contracts : Pittsburgh, PA	0.000	0.599	Jul 2016	0.735	Dec 2016	0.000		-		0.000	0.000	1.334	-
Subtotal			29.987	2.686		5.700		1.464		-		1.464	-	-	-
			Prior Years	FY 2016		FY 2017		FY 2018 Base		FY 2018 OCO		FY 2018 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals			275.994	17.785		36.747		28.311		-		28.311	-	-	-
Remarks															

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PE 0304785N: *Tactical Cryptologic Systems*
Navy

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Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0304785N / <i>Tactical Cryptologic Systems</i>
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Project (Number/Name)	2134. <i>I Shipboard IW Exploit</i>
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PE 0304785N: *Tactical Cryptologic Systems*
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Exhibit R-4, RDT&E Schedule Profile: FY 2018 Navy

Date: May 2017

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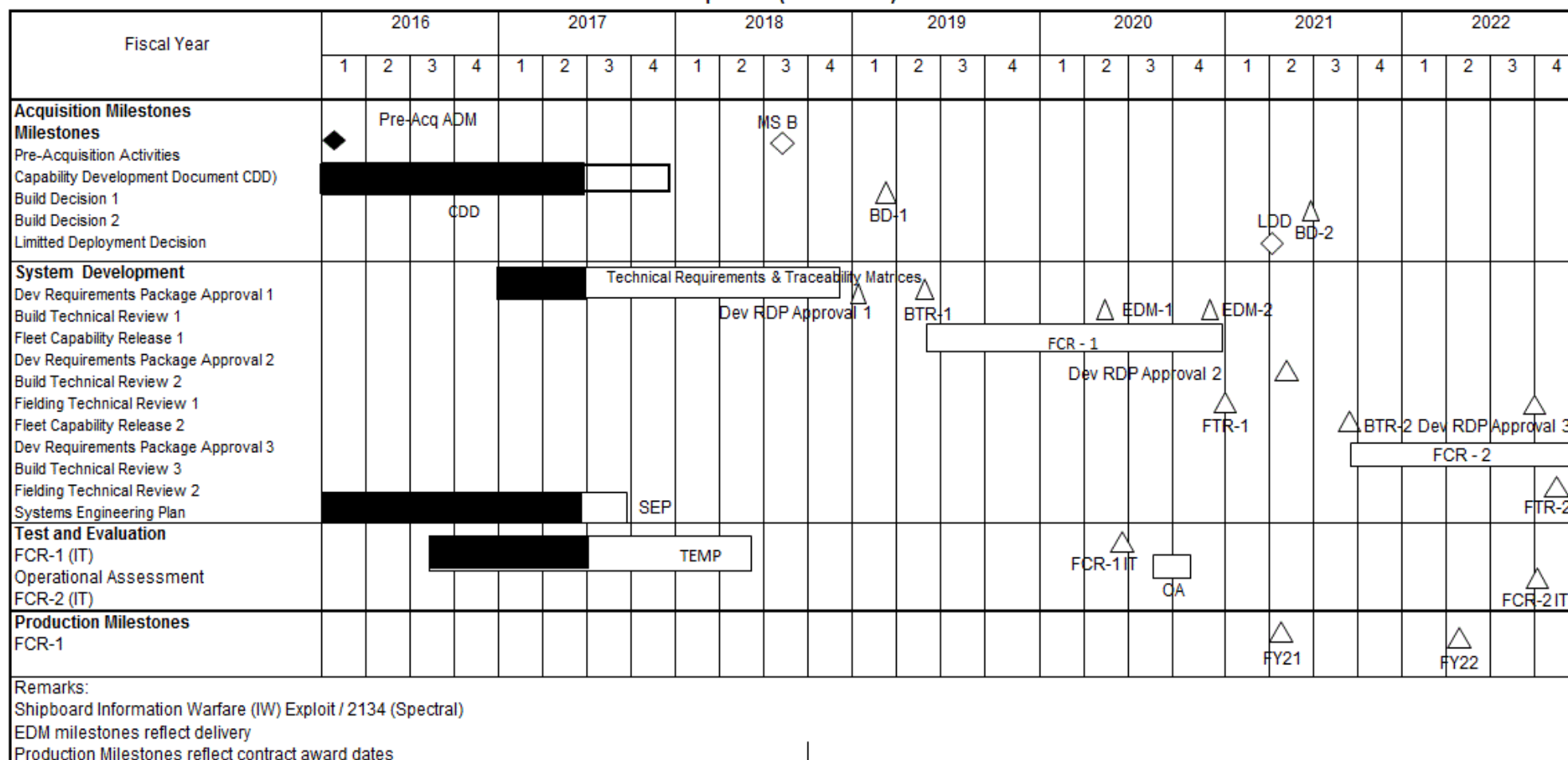
R-1 Program Element (Number/Name)

PE 0304785N / *Tactical Cryptologic Systems*

Project (Number/Name)

2134. / *Shipboard IW Exploit*

Spectral (SSEE Inc G)



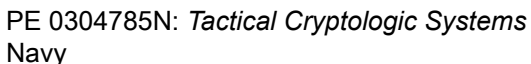
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PE 0304785N: *Tactical Cryptologic Systems*
Navy

R-1 Line #168

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0304785N / <i>Tactical Cryptologic Systems</i>
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Project (Number/Name)	2134. <i>I Shipboard IW Exploit</i>
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Exhibit R-4, RDT&E Schedule Profile: FY 2018 Navy

Date: May 2017

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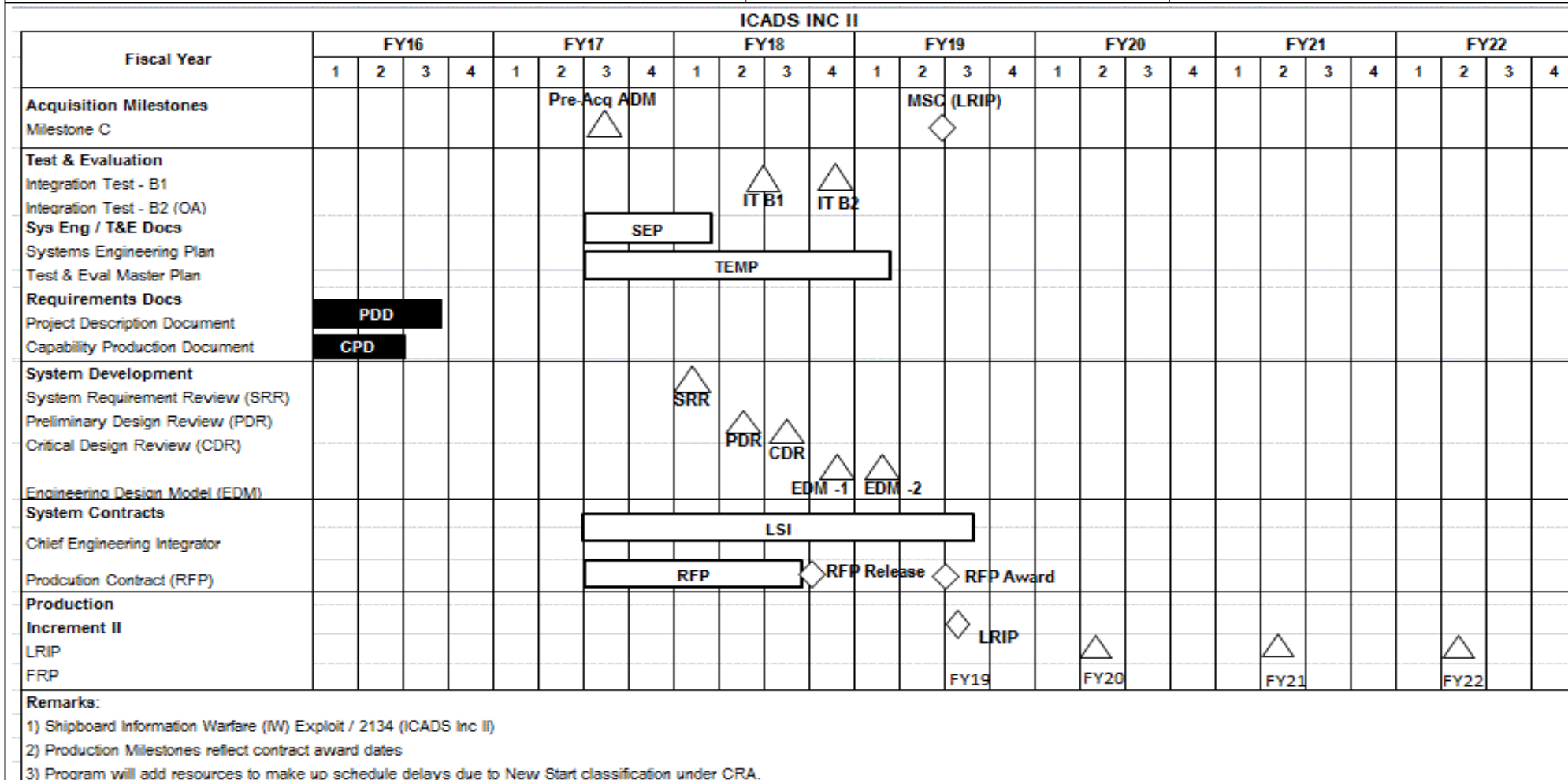
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PE 0304785N / Tactical Cryptologic Systems

Project (Number/Name)

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Exhibit R-4A, RDT&E Schedule Details: FY 2018 Navy			Date: May 2017
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Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
SSEE Inc F				
Inc F - Joint Integration Test Command (JITC) Certification (FY16)	4	2016	4	2016
Inc F - Joint Integration Test Command (JITC) Certification (FY20)	4	2020	4	2020
Inc F - Factory Acceptance Test (Inc F Variant)	4	2017	1	2018
Inc F - Follow On Test and Evaluation (FOT&E)	3	2019	3	2019
Inc F - FY16 FRP Production Milestone	4	2016	4	2016
Inc F - FY17 FRP Production Milestone	2	2017	2	2017
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 - Software Development (FRP Build 11/12)	1	2016	2	2017
Inc F - Software Development (FRP Build 13)	2	2017	2	2018
Inc F - Software Development (FRP Build 14)	2	2018	2	2019
Inc F - Software Development (FRP Build 15)	2	2019	2	2020
Inc F - Software Development (FRP Build 16)	2	2020	2	2021
Inc F - Software Development (FRP Build 17)	2	2021	2	2022
Inc F - FY16 SOI Development	1	2016	4	2016
Inc F - FY17 SOI Development	1	2017	4	2017
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

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Exhibit R-4A, RDT&E Schedule Details: FY 2018 Navy

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R-1 Program Element (Number/Name)

PE 0304785N / Tactical Cryptologic
Systems

Project (Number/Name)

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Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
Inc F - FY21 SOI Development	1	2021	4	2021
Inc F - FY22 SOI Development	1	2022	4	2022
Inc F - A2AD Capability Development	1	2017	4	2021
Inc F - Joint Interface Development	1	2018	2	2019
Inc F - Next-Gen Chassis Development	1	2017	2	2018
Inc F - FRP Installation FY16	1	2016	1	2017
Inc F - FRP Installation FY17	2	2017	1	2018
Inc F - FRP Installation FY18	2	2018	1	2019
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	4	2022
Spectral (Increment G)				
Spectral - Milestone B	3	2018	3	2018
Spectral - Pre - Acquisition ADM	1	2016	1	2016
Spectral - Capability Development Document	1	2016	4	2017
Spectral - Build Decision 1	1	2019	1	2019
Spectral - Build Decision 2	2	2021	2	2021
Spectral - Limited Deployment Decision (LDD)	2	2021	2	2021
Spectral - Technical Requirements & Traceability Matrices	1	2017	4	2018
Spectral - Development Requirements Package Approval 1	1	2019	1	2019
Spectral - Development Requirements Package Approval 2	2	2021	2	2021
Spectral - Development Requirements Package Approval 3	3	2022	3	2022
Spectral - Build Technical Review 1	2	2019	2	2019
Spectral - Build Technical Review 2	3	2021	3	2021

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Exhibit R-4A, RDT&E Schedule Details: FY 2018 Navy

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PE 0304785N / Tactical Cryptologic
Systems

Project (Number/Name)

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Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
Spectral - EDM - 1	2	2020	2	2020
Spectral - EDM - 2	4	2020	4	2020
Spectral - Fleet Capability Release 1	2	2019	4	2020
Spectral - Fleet Capability Release 2	3	2021	4	2022
Spectral - Fielding Technical Review 1	4	2020	4	2020
Spectral - Fielding Technical Review 2	4	2022	4	2022
Spectral - Systems Engineering Plan	1	2016	3	2017
Spectral - FCR-1 (IT)	2	2020	2	2020
Spectral - FCR-2 (IT)	4	2022	4	2022
Spectral - Operational Assessment (OA)	3	2020	4	2020
Spectral - Test Evaluation Master Plan	3	2016	2	2018
Spectral - FCR-1 Production Milestone (FY21)	2	2021	2	2021
Spectral - FCR-1 Production Milestone (FY22)	2	2022	2	2022
SSEE Modifications				
SSEE Modifications - ILA	4	2016	1	2017
SSEE Modifications - Fielding Decision (FRP)	1	2018	1	2018
SSEE Modifications - Initial Operating Capability (IOC)	3	2018	3	2018
SSEE Modifications - LRIP Installation FY16	2	2016	4	2016
SSEE Modifications - LRIP Installation FY17	2	2017	4	2017
SSEE Modifications - LRIP Installation FY18	2	2018	4	2018
SSEE Modifications - FRP Installation FY19	2	2019	4	2019
SSEE Modifications - FRP Installation FY20	2	2020	4	2020
SSEE Modifications - FRP Installation FY21	2	2021	4	2021
SSEE Modifications - FRP Installation FY22	2	2022	4	2022
SSEE Modifications - Software Development (LRIP Phase 3)	1	2016	3	2016

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Exhibit R-4A, RDT&E Schedule Details: FY 2018 Navy

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R-1 Program Element (Number/Name)

PE 0304785N / Tactical Cryptologic
Systems

Project (Number/Name)

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Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
SSEE Modifications - Software Development (FRP Build 11)	3	2016	2	2017
SSEE Modifications - Software Development (FRP Build 12)	2	2017	2	2018
SSEE Modifications - Software Development (FRP Build 13)	2	2018	2	2019
SSEE Modifications - Software Development (FRP Build 14)	2	2019	2	2020
SSEE Modifications - Software Development (FRP Build 15)	2	2020	2	2021
SSEE Modifications - Software Development (FRP Build 16)	2	2021	2	2022
SSEE Modifications - Software Development (FRP Build 17)	2	2022	4	2022
SSEE Modifications - Next Generation GRAYWING Development	1	2017	4	2020
SSEE Modifications - Development Testing (IT-E1/E2)	4	2017	4	2017
SSEE Modifications - A2AD Capability Development	1	2017	4	2021
SSEE Modifications - Joint Integration Test Command (JITC) Certification FY16	4	2016	4	2016
SSEE Modifications - Operational Testing (OT-E1)	4	2017	4	2017
SSEE Modifications - Joint Integration Test Command (JITC) Certification FY19	3	2019	3	2019
SSEE Modifications - FY16 LRIP Production Milestone	4	2016	4	2016
SSEE Modifications - FY17 LRIP Production Milestone	4	2017	4	2017
SSEE Modifications - FY18 FRP Production Milestone	2	2018	2	2018
SSEE Modifications - FY19 FRP Production Milestone	2	2019	2	2019
SSEE Modifications - FY20 FRP Production Milestone	2	2020	2	2020
SSEE Modifications - FY21 FRP Production Milestone	2	2021	2	2021
SSEE Modifications - FY22 FRP Production Milestone	2	2022	2	2022
ICADS Inc II				
ICADS Inc II - Pre-Acquisition ADM	3	2017	3	2017
ICADS Inc II - Milestone C (LRIP)	2	2019	2	2019
ICADS Inc II - Integration Test - B1	3	2018	3	2018
ICADS Inc II - Integration Test - B2	4	2018	4	2018

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Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
ICADS Inc II - Systems Engineering Plan (SEP)	3	2017	1	2018
ICADS Inc II - Test Evaluation Master Plan (TEMP)	3	2017	1	2019
ICADS Inc II - Project Description Document (PDD)	1	2016	3	2016
ICADS Inc II - Capability Production Document (CPD)	1	2016	2	2016
ICADS Inc II - System Requirements Review (SRR)	1	2018	1	2018
ICADS Inc II - Preliminary Design Review (PDR)	2	2018	2	2018
ICADS Inc II - Critical Design Review (CDR)	3	2018	3	2018
ICADS Inc II - Engineering Design Model (EDM) #1	4	2018	4	2018
ICADS Inc II - Engineering Design Model (EDM) #2	1	2019	1	2019
ICADS Inc II - Lead System Integration (LSI)	3	2017	3	2019
ICADS Inc II - Request for Proposal (RFP)	3	2017	3	2018
ICADS Inc II - RFP Release	3	2018	3	2018
ICADS Inc II - Low Rate Initial Production (LRIP)	3	2019	3	2019
ICADS Inc II - FY20 FRP Production Milestone	2	2020	2	2020
ICADS Inc II - FY21 FRP Production Milestone	2	2021	2	2021
ICADS Inc II - FY22 FRP Production Milestone	2	2022	2	2022