Exhibit R-2, RDT&E Budget Item Justification: PB 2019 Navy											Date: February 2018	
Appropriation/Budget Activity 1319: *Research, Development, Test & Evaluation, Navy I* BA 4: *Advanced Component Development & Prototypes (ACD&P)*					**R-1 Program Element (Number/Name)** PE 0603582N *I Combat System Integration*							
COST ($ in Millions)	**Prior Years**	**FY 2017**	**FY 2018**	**FY 2019 Base**	**FY 2019 OCO**	**FY 2019 Total**	**FY 2020**	**FY 2021**	**FY 2022**	**FY 2023**	**Cost To Complete**	**Total Cost**
Total Program Element	384.945	23.839	24.674	16.351	-	16.351	27.921	16.015	15.509	26.496	Continuing	Continuing
0164: *Combat System Integration*	384.945	23.839	20.274	16.351	-	16.351	27.921	16.015	15.509	26.496	Continuing	Continuing
3425: *Digital Warfare*	0.000	0.000	4.400	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	4.400

A. Mission Description and Budget Item Justification

Beginning in PB 19, Proj 3425 Digital Warfare (DW)MBE&DT Development moved to new RDT&EN PE 0603017N.

Chief of Naval Operations (CNO) created the Navy's Strike Force Interoperability (SFI) Program in 1998 in response to critical shortfalls in the introduction of integrated and interoperable System of Systems (SoS) to deploying Strike Forces. Naval Sea Systems Command (NAVSEA) acts as management lead for Joint System Command (SYSCOM) system certification policy and guidance and certifies platforms for interoperability within the platform and throughout the enterprise, in accordance with Commander, US Fleet Forces Command/Commander, Pacific Fleet COMUSFLTFORCOM/COMPACFLT) Inst. 4720.3B (OCT 2008), C5ISR Modernization Policy. COMUSFLTFORCOM/COMPACFLT Inst. 4720.3B also requires that NAVSEA act as administrative agent for NAVIFOR Command and Control, Communications, Computers, Combat Systems, and Intelligence Modernization Process (C5IMP) and execution agent for Navy Command and Control, Communications, Computers, and Combat Systems Integration (C5I) Modernization Conferences (NCMC). This program conducts Interoperability Assessments that are required to certify Aircraft Carriers, Amphibious Assault Ships, and Surface Combatants in accordance with the Naval Warfare System Certification Policy (NWSCP), NAVSEAINST 9410.2A, NAVAIR 5230.20, SPAWAR 5234.1.

The SFI Program ensures overall strike force interoperability is characterized and assessed. NAVSEA is assigned central United States Navy (USN) responsibility for interoperability, directing the development of policy and architecture for Strike Force warfare systems engineering and implementation of common warfare systems engineering processes and preliminary work to support the Digital Warfare (DW) mission area model based system engineering.

There are three priorities within the Strike Force Interoperability Program:

(1) Support Fleet "as-is" state which includes Navigation System Certification (NAVCERT), Interoperability Capabilities & Limitations, and Interoperability Tactical Information Coordinator Technical Aids (TIC TECHAIDs).

(2) Support Ship's system modernization (non-HME) including warfighting capability & other C5I upgrades including C5IMP Baseline Management.

(3) Support Ship Warfare System Certification & Force Level Assessments. This includes Warfare Systems Certification, Interoperability Certification, Force Level Interoperability Analysis, & Assessments, Cybersecurity Assessments and recommendations for improvements to the program offices for implementation at the systems level.

Exhibit R-2, **RDT&E Budget Item Justification:** PB 2019 Navy		**Date:** February 2018
Appropriation/Budget Activity 1319: *Research, Development, Test & Evaluation, Navy I* BA 4: *Advanced Component Development & Prototypes (ACD&P)*		**R-1 Program Element (Number/Name)** PE 0603582N *I Combat System Integration*

Project 0164 Combat System Integration: This project consists of five key Pillars executed within the Strike Force Interoperability (SFI) Program:

(1) Command & Control, Communications, Computer, Combat Systems, Intelligence, Surveillance and Reconnaissance (C5ISR) Modernization Process (C5IMP). The C5IMP validates the introduction of new systems into the fleet and ensures systems' maturity prior to shipboard installation thereby reducing risk and enhancing readiness and effectiveness of deploying ships and strike groups.

(2) Warfare Systems Certification (WSCERT), which is essential to validating the maturity and operational performance of warfare systems prior to Fleet delivery and deployment.

(3) The integrated Navigation System Certification (NAVCERT) program certifies the shipboard integrated navigation suite for safe navigation using the Electronic Charting and Display Information System Navy (ECDIS-N) as the primary plot. To support Strike Force Interoperability and ship's mission requirements, it ensures that the installed integration navigation suite provides accurate and timely navigation information (position, velocity, speed, heading, roll, and pitch) to all navigation data consumers. This supports the following mission critical functions: pre-launch aircraft alignment, safe aircraft precision approach and landing operations, and accurate warfare/weapon systems targeting.

(4) Interoperability Certification and Assessment (IOP C&A), the independent assessment of strike group warfare systems operational performance. Interoperability assessment examines force level engagement threads, aircraft control, air battle management, and operational displays. Assessments of deploying ships in strike force configurations are accomplished through the use of the Navy's Distributed Integration and Interoperability Assessment Capability (DIIAC) which supports the Deputy Assistant Secretary of the Navy (DASN) "shift to the left" policy by providing early interoperability testing in the acquisition lifecycle. It is a Commander, U.S. Fleet Forces Command (CFFC) and Commander U.S. Pacific Fleet (COMPACFLT) requirement that all strike forces undergo interoperability assessment testing in the DIIAC prior to deployment. Interoperability certification results are used to develop fleet tactical tools (Capabilities & Limitations (C&L) documentation and Tactical Information Coordinator Technical Aids (TIC TECHAIDS)), that ensure that systems' operators understand the interoperability capabilities and limitations of their combat systems and have the watch station tools necessary for the execution of their tactical responsibilities.

(5) Cybersecurity Certification and Assessment (CYBER C&A), the assessment of systems' cybersecurity, as directed by OPNAV memorandum 5400 Ser N2N6/4U1119089, including compliance with DODi 8500.01 for each warfare system element, identifies vulnerabilities at both the element, system and enclave levels, and assesses a ship's IT/IA Cybersecurity posture in support of Warfare Systems Certification IAW the NAVSEAINST 9410.2 (series). Assessments of deploying ships in strike force configurations for its Cybersafe Readiness are accomplished through the use of the Navy's USS Secure environment leveraging existing navy labs and DOD Cyber Ranges and Fleet exercises using the cyber table top technique, red team, blue team, and cyber specific metrics/measure analysis to evaluate the system's and enclaves' ability to protect, detect, react and response to achieve its warfare mission requirement. System commands and programs of record also use these cyber assessments to guide their development of specific procedures for immediate response to cyber threats while maintaining maximum operational effectiveness. The cyber assessment results and ship systems and enclaves response procedures are also used to develop Fleet Cyber Tactical Tools (Capabilities & Limitations (CC&L) documentation and Cyber Tactical Technical Aids (CYBER TECHAIDS)), to ensure that systems' operators understand the capabilities and limitations of their combat systems and have the watch station tools necessary for the execution of their tactical responsibilities under various cyber threat conditions.

Exhibit R-2, **RDT&E Budget Item Justification:** PB 2019 Navy		**Date:** February 2018
Appropriation/Budget Activity 1319: *Research, Development, Test & Evaluation, Navy I* BA 4: *Advanced Component Development & Prototypes (ACD&P)*		**R-1 Program Element (Number/Name)** PE 0603582N *I Combat System Integration*

Project 3312 Maritime Theater Missile Defense Forum (MTMD):

This project funds participation in Maritime Integrated Air and Missile Defense projects with other nations. Included is participation in the Maritime Missile Defense Projects Framework Memorandum of Understanding of 2004 (as amended 2009). Known as the Maritime Theater Missile Defense (MTMD) forum, it promotes interoperability with the Navies of ten participating nations (Australia, Canada, France, Germany, Italy, Netherlands, Norway, Spain, United Kingdom and the United States). This project funds participation in several Project Arrangements and includes maritime contribution to the NATO Active Layered Theater Ballistic Missile Defense (ALTBMD) project, now known as NATO Ballistic Missile Defense (BMD). Engineering analysis and recommendations from MTMD activities are provided to European, Pacific and Central Combatant Commands to influence present day operations. Specifically, the MTMD Forum is addressing challenges with "Maritime Allied Air Defense in Support of Ballistic Missile Defense Operations" that face the Combatant Commanders during present day operations.

The MTMD forum provides protection against the proliferation of short, medium and long-range Ballistic Missile (BM) and Advanced Anti-Ship Cruise Missile (ASCM) threats through the creation of an interoperable sea-based Integrated Air and Missile Defense (IAMD) capability among coalition nations. This includes protection across the full spectrum of these threats through the enhanced utilization of existing sea-based systems to protect against current threats while progressively improving and developing systems and system-of- systems to effectively counter evolving threats.

This project supports USN participation in several Maritime IAMD related Project Arrangements and Working Groups including:

(1) Battle Management Command, Control, Communications, Computers, and Intelligence (BMC4I) to define and develop architectures as well as to perform engineering to addresscoalition capability gaps.

(2) Modeling & Simulation (M&S) to establish and maintain a maritime coalition M&S testbed and to perform legacy and future systems simulation testing.

(3) Coalition Distributed Engineering Plant (CDEP) to establish and maintain a maritime coalition Hardware-in-the-Loop Testbed and to conduct CDEP testing.

(4) Open Architecture (OA) to develop Interface Standards and Data Models.

(5) Test Planning and Execution (TPEX) to develop Test Plans, oversee exercise participation and conduct post event data analysis and reporting.

(6) Operational Requirements (OR) to develop a Coalition Maritime Missile Defense Operational Concept Document and to identify operational constraints and tactical constructssurrounding coalition maritime missile defense activities.

(7) Reciprocal Use of Test Facilities agreements with other nations to support Maritime IAMD and MTMD related demonstrations.

Starting in FY17 and through the out-years, the MTMD project moves to Program Element 0605853N under Project Unit 3312: MTMD-Maritime Theater Missile Defense Forum.

Exhibit R-2, RDT&E Budget Item Justification: PB 2019 Navy				**Date:** February 2018	
Appropriation/Budget Activity 1319: *Research, Development, Test & Evaluation, Navy I* BA 4: *Advanced Component Development & Prototypes (ACD&P)*			**R-1 Program Element (Number/Name)** PE 0603582N *I Combat System Integration*		
B. Program Change Summary ($ in Millions)	**FY 2017**	**FY 2018**	**FY 2019 Base**	**FY 2019 OCO**	**FY 2019 Total**
Previous President's Budget	26.530	24.674	26.110	-	26.110
Current President's Budget	23.839	24.674	16.351	-	16.351
Total Adjustments	-2.691	0.000	-9.759	-	-9.759
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	0.750	0.000			
• SBIR/STTR Transfer	-0.421	0.000			
• Program Adjustments	-3.000	0.000	-9.471	-	-9.471
• Rate/Misc Adjustments	0.000	0.000	-0.288	-	-0.288
• Congressional General Reductions Adjustments	-0.020	-	-	-	-

Change Summary Explanation

Beginning in PB 19, Proj 3425 Digital Warfare (DW) moved to new RDT&EN PE 0603017N.

The FY 2019 funding request in Proj 0164 was reduced by $2.0 million to account for the availability of prior year execution balances.

Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy										Date: February 2018	

Appropriation/Budget Activity 1319 / 4				R-1 Program Element (Number/Name) PE 0603582N / Combat System Integration					Project (Number/Name) 0164 / Combat System Integration		

COST ($ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
0164: *Combat System Integration*	384.945	23.839	20.274	16.351	-	16.351	27.921	16.015	15.509	26.496	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

Project 0164: Combat System Integration:

This project consists of five key Pillars executed within the Strike Force Interoperability (SFI) Program:

(1) Command & Control, Communications, Computer, Combat Systems, Intelligence, Surveillance and Reconnaissance (C5ISR) Modernization Process (C5IMP). The C5IMP validates the introduction of new systems into the fleet and ensures systems' maturity prior to shipboard installation thereby reducing risk and enhancing readiness and effectiveness of deploying ships and strike groups.

(2) Warfare Systems Certification (WSCERT), which is essential to validating the maturity and operational performance of warfare systems prior to Fleet delivery and deployment.

(3) The integrated Navigation System Certification (NAVCERT) program certifies the shipboard integrated navigation suite for safe navigation using the Electronic Charting and Display Information System Navy (ECDIS-N) as the primary plot. To support Strike Force Interoperability and ship's mission requirements, it ensures that the installed integration navigation suite provides accurate and timely navigation information (position, velocity, speed, heading, roll, and pitch) to all navigation data consumers. This supports the following mission critical functions: pre-launch aircraft alignment, safe aircraft precision approach and landing operations, and accurate warfare/weapon systems targeting.

(4) Interoperability Certification and Assessment (IOP C&A), the independent assessment of strike group warfare systems operational performance. Interoperability assessment examines force level engagement threads, aircraft control, air battle management, and operational displays. Assessments of deploying ships in strike force configurations are accomplished through the use of the Navy's Distributed Integration and Interoperability Assessment Capability (DIIAC) which supports the Deputy Assistant Secretary of the Navy (DASN) "shift to the left" policy by providing early interoperability testing in the acquisition lifecycle. It is a Commander, U.S. Fleet Forces Command (CFFC) and Commander U.S. Pacific Fleet (COMPACFLT) requirement that all strike forces undergo interoperability assessment testing in the DIIAC prior to deployment. Interoperability certification results are used to develop fleet tactical tools (Capabilities & Limitations (C&L) documentation and Tactical Information Coordinator Technical Aids (TIC TECHAIDS)), that ensure that systems' operators understand the interoperability capabilities and limitations of their combat systems and have the watch station tools necessary for the execution of their tactical responsibilities.

(5) Cybersecurity Certification and Assessment (CYBER C&A), the assessment of systems' cybersecurity, as directed by OPNAV memorandum 5400 Ser N2N6/4U1119089, including compliance with DODi 8500.01 for each warfare system element, identifies vulnerabilities at both the element, system and enclave levels, and assesses a ship's IT/IA Cybersecurity posture in support of Warfare Systems Certification IAW the NAVSEAINST 9410.2 (series). Assessments of deploying

Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy		Date: February 2018
Appropriation/Budget Activity 1319 I 4	R-1 Program Element (Number/Name) PE 0603582N I Combat System Integration	Project (Number/Name) 0164 I Combat System Integration

ships in strike force configurations for its Cybersafe Readiness are accomplished through the use of the Navy's USS Secure environment leveraging existing navy labs and DOD Cyber Ranges and Fleet exercises using the cyber table top technique, red team, blue team, and cyber specific metrics/measure analysis to evaluate the system's and enclaves' ability to detect, react and response to achieve its warfare mission requirement. System commands and programs of record also use these cyber assessments to guide their development of specific procedures for immediate response to cyber threats while maintaining maximum operational effectiveness. The cyber assessment results and ship systems and enclaves response procedures are also used to develop Fleet Cyber Tactical Tools (Capabilities & Limitations (CC&L) documentation and Cyber Tactical Technical Aids (CYBER TECHAIDS)), to ensure that systems' operators understand the capabilities and limitations of their combat systems and have the watch station tools necessary for the execution of their tactical responsibilities under various cyber threat conditions.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Title: Navigation System Certification (NAVCERT)	1.583	1.567	1.335	0.000	1.335
Articles:	-	-	-	-	-

Description: The Navigation Certification (NAVCERT) program provides assurance to the ship, Immediate Superior in Command (ISIC) and Type Commander that the ship's integrated navigation suite operates as intended and meets performance requirements for safe navigation. The certification verifies the accuracy of the data originating from an array of sensors and validates its receipt by all users including Aircraft Inertial Alignment System and Integrated Warfare Systems. Certification is required at five-year intervals, following Chief of Naval Operations Availabilities greater than six months, or in support of Precision Approach and Landing System (PALS) operations. The scope of the certification includes all inertial navigation system equipment as well as the Electronic Chart Display and Information System - Navy (ECDIS- N). Forecasting the schedule for NAVCERT is based on the projection of schedule drivers (operational commitments, maintenance schedules) at the particular point in time. The scheduling realities associated with this process are such that in the face of frequent availability deferrals, cancellations, or delays, the supporting NAVCERT schedules adjust accordingly and those adjustments result in regular modifications to the numbers of certifications projected, period to period.

FY 2018 Plans:
(1) Conduct 36 NAVCERTs on U.S. Navy Surface Combatants, Aircraft Carriers, and Amphibious Ships. Achieve cost efficiencies by leveraging test results from conjunctive alterations to navigation systems during modernization periods. This includes 10 certifications scheduled for FY17 either deferred to or completing in FY18.

FY 2019 Base Plans:
(1) Conduct 18 scheduled NAVCERTs on Cruisers, Destroyers, Aircraft Carriers, and Amphibious Ships. Continue to achieve cost efficiencies by leveraging test results from conjunctive alterations to navigation systems during modernization

Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy		Date: February 2018
Appropriation/Budget Activity 1319 / 4	R-1 Program Element (Number/Name) PE 0603582N / Combat System Integration	Project (Number/Name) 0164 / Combat System Integration

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
periods. **FY 2019 OCO Plans:** N/A **FY 2018 to FY 2019 Increase/Decrease Statement:** Reduction due to DON19 RDTEN Underexecution Review and Inflation Rate Change.					
Title: Command , Control, Communications, Computers, Combat Systems, Intelligence, Surveillance and Reconnaissance (C5ISR) Modernization Process (C5IMP) **Articles:** **Description:** This project is required to support the Fleet C5I Modernization Policy (per COMUSFLTFORCOM/ COMPACFLT Inst. 4720.3) to manage operational risks associated with C5ISR modernization in both afloat and ashore units in support of the Optimized Fleet Response Plan (OFRP), ensuring deploying units receive improved, interoperable, and certified warfighting capabilities in order to meet theater operational requirements. This project funds engineering assessments of proposed C5I capability modernizations to determine maturity for installation and risk associated with installs of equipment outside of normal modernization windows. The deliverables of this project are created by determining the maturity, through engineering analysis, of the critical linchpins needed to achieve interoperability for each proposed C5IMP capability improvement item to be installed in a ship's baseline, developing installation recommendations of C5I system upgrades for the Fleet Commanders, and researching and analyzing installation or operating problems. Failure to achieve required maturity for one system that is part of a warfare system package can prevent this system from being installed, thus breaking the capability planned for the entire original warfare package, which will impact Strike Group warfighting capabilities. There is close coordination with the FLTCDRs and TYCOMs as well as other members of the C5IMP community to address, coordinate, and resolve C5IMP modernization issues thereby reducing risk and enhancing readiness and effectiveness of deploying ships and strike groups. Focus is on key milestones) such as Baseline Locking Events (BLEs) and a Planned Not Authorized (PNA) reviews, and SG/ARG Analysis Reports which are Fleet required events. The BLEs, PNA Reviews, and SG/ARG Analysis Reports are the primary work products in the C5IMP process. Forecasting C5ISR requirements and schedules is based on the projection of ships' operating/maintenance schedules at the particular point in time. Due to changing operational needs, these schedules frequently change causing availability extensions, deferrals, cancellations, or delays. Also, the length of availabilities vary and often extend past fiscal years. The supporting C5IMP/C5ISR schedules must adjust accordingly, resulting in regular modifications to the numbers of events/requirements projected for C5IMP/C5ISR from period to period.	2.003 -	2.506 -	2.093 -	0.000 -	2.093 -

Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy		Date: February 2018		
Appropriation/Budget Activity 1319 / 4	R-1 Program Element (Number/Name) PE 0603582N / Combat System Integration		Project (Number/Name) 0164 / Combat System Integration	

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
FY 2018 Plans: (1) Facilitate reviews, assessments, and execution of C5I installations during approximately seventy-two (72) CNO Availabilities. (2) Support two (2) NCMCs (3) Support twelve (12) Monthly Baseline Events where sixty-three (63) Ship's Baselines will be reviewed and locked and twelve (12) PNA monthly PNA Review Meetings where the fifty-seven (57) PNAs will be completed. (4) Provide two (2) SG/ARG Analysis Reports. (Note: Due to existing funding shortfalls, no O-FRP products are currently planned to be produced.) **FY 2019 Base Plans:** (1) Facilitate reviews, assessments, and execution of C5I installations during approximately seventy-four (74) CNO Availabilities. (2) Support two (2) NCMCs (3) Support twelve (12) Monthly Baseline Locking Events where sixty-five (65) Ships' Baselines will be reviewed and locked and twelve (12) monthly PNA Review Meetings where the PNA status of forty-nine (49) Ships will be reviewed. (4)Provide two (2) SG/ARG Analysis Reports (Note: Due to existing funding shortfalls, no O-FRP products are currently planned to be produced.) **FY 2019 OCO Plans:** N/A **FY 2018 to FY 2019 Increase/Decrease Statement:** Reduction due to DON19 RDTEN Underexecution Review and Inflation Rate Change.					
Title: Interoperability Certification and Assessment Articles:	13.355 -	12.274 -	10.469 -	0.000 -	10.469 -
Description: This project funds interoperability assessments via the Distributed Integration & Interoperability Assessment Capability (DIIAC), the technical assessment of interoperable systems to meet mission requirements, the updating of Strike Group Capabilities and Limitations (C&L) and the updating of the Tactical Information Coordinator Technical Aids (TIC TECHAIDs). The project ensures NAVSEA/PEOs are delivering mature and interoperable warfare systems at the platform and Strike Group levels, with NAVSEA providing Strike Force interoperability certification and assessments. This project focuses on new systems and platforms under development. Interoperability Assessments of deploying ships in Strike Force configurations are accomplished through the utilization of the Navy's DIIAC, located at multiple Navy land-based sites located					

Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy			Date: February 2018		
Appropriation/Budget Activity 1319 / 4		R-1 Program Element (Number/Name) PE 0603582N / Combat System Integration	Project (Number/Name) 0164 / Combat System Integration		

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
across the country and connected via networking technology, and that provides operational configurations for all naval combat systems. It is a U.S. Fleet Forces Command requirement that all Strike Forces undergo Interoperability Assessment Testing in the DIIAC prior to deployment. The DIIAC provides the only opportunity for comprehensive interoperability testing of combat system and C5I configuration items prior to shipboard delivery for operational use in surface combatant platforms and Strike Groups. DIIAC, with its ability to test systems in a Strike Group environment, is funded to support the warfare system's acquisition community to test their developmental items for interoperability. However, in this instance, while funds are provided to test the item in a Strike Group environment, funds are not provided for subsequent data analysis and risk assessment, as this is the cognizant acquisition program's responsibility. When the acquisition development is complete and corrections are made, DIIAC will then fund for the full interoperability certification testing of the baseline to include the requisite warfare system analysis and risk assessments needed to obtain an Interoperability Certification. Note, this effort also supports and feeds into the development of Fleet Tactical Tools such as Capabilities & Limitations (C&L) and Tactical Information Coordinator Technical Aids (TIC TECHAIDs), which ensure that operators understand the interoperability capabilities and limitations of their combat systems. C&Ls are published for all Strike Groups, Independent Deployers, and their Coalition and Joint partners. TIC TECHAIDS are delivered to deploying Strike Group ships prior to workups and then a final copy is provided prior to deployment. C&L and TIC TECHAIDS are the final report-out to Fleet operators of the acquisition community's efforts. They are used on a daily basis in every operational theater, as well as in every Navy and Joint Schoolhouse. Note, the DIIAC infrastructure is available, but not funded to support the surface Navy's participation in the Joint Testing Environments as well as the Maritime Theater Missile Defense (MTMD) Coalition Forces interoperability testing. This project also supports the stand-up and initial activities of the Digital Warfare (DW) to set Model Based Systems Engineering (MBSE) requirements, prioritize resources, and lead efforts on information interoperability and human/machine teaming. *FY 2018 Plans:* (1) Conduct two (2) Interoperability Land-Based test events including the following: -Development interoperability test to support for ACS 9.C2.0 (B24) ; ACS 9.A2.1 (B27) ; ACS 9.C2.1 (B27) ; AEGIS 5.4; SSDS 10.10.05 (CVN 78 Configuration) -Certification Interoperability test for ACS 9.A2.0A/9.A2.1B (B24) ; ACS 9.C2.0 (B24); ACS 9.A2.1 (B27) ; ACS 9.C2.1 (B27) -Certification Interoperability Risk assessment & Report for ACS ACS BL 9A2A/9A2B (B24) ; and SSDS 10.10.04 (LHD 2/CVN 72 Configuration) (2) Complete C&L, normally a near constant yearly demand requirement, also addressed AEGIS Ashore. This will result in updates to Interoperability C&L for:					

Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy		Date: February 2018
Appropriation/Budget Activity 1319 *I* 4	**R-1 Program Element (Number/Name)** PE 0603582N *I Combat System Integration*	**Project (Number/Name)** 0164 *I Combat System Integration*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
-Twenty-Three (23) Deploying Strike Group Ships (from a database containing 179 U.S. Surface Ships), -Ten (10) Naval Air Squadrons (covering F/A-18s, F-35, E-2Cs, E-2Ds, MH-60Ss, MH-60Rs, EA-6Bs, EA-18Gs, P-3Cs and P-8As), -AEGIS Ashore (Romania(update), Poland(initial) and Pacific Missile Range Facility (initial)). (3) Provide annual deliveries of Initial/Draft/Final TIC TECHAIDS to: -Four (4) Carrier Strike Groups (CSG's) Twenty Two (22) Ships -Three (3) Amphibious Ready Group's (ARG's) Six (6) Ships -Thirty (30) BMD Ships -Fourteen (14) Forward Deployed Naval Force (FDNF) Ships - Forty Nine (49) Independent Deployers (CVN, CG, DDG, LCC and LCS) -Aegis Ashore Site (Romania) -Four (4) Fleet Area Control and Surveillance Facilities (FACSFAC's) -Six (6) Fleet Maritime Operations Centers (MOC's) sites. (4) Plan to conduct engineering to support two (2) systems Verification and Validation Tests. ***FY 2019 Base Plans:*** 1) Conduct three (3) Interoperability Land-Based test events including the following: -Development interoperability test to support for ACS 9.C2.2 (B30), SSDS 10.10.05 (CVN 78 Configuration), DDG 1000 (B8.5) -Certification Interoperability test for ACS 9.C2.1 (B27), ACS 9.A2.1 (B27), AEGIS 5.4, LCS Freedom BL 3.2, DDG 1000 (B8.5) -Certification Interoperability Risk assessment & Report for ACS 9.C2.0 (B24) and LCS Independence 6.X (2) Complete C&L and TIC TECHAIDS, normally a near constant yearly demand requirement, also addressed AEGIS Ashore. This will result in updates to Interoperability C&L for: -Twenty three (23) Deploying Strike Group Ships (from a database containing 185 U.S. Surface Ships), -Ten (10) Naval Air Squadrons (covering F/A-18s, F-35, E-2Cs, E-2Ds, MH-60Ss, MH-60Rs, EA-6Bs, EA-18Gs, P-3Cs and P-8As), -AEGIS Ashore (Romania, Poland(update) and Pacific Missile Range Facility(update). (3) Provide annual deliveries of Initial/Draft/Final TIC TECHAIDS to: -Three (3) Carrier Strike Groups (CSG's) Sixteen (16) Ships -Four (4) Amphibious Ready Group's (ARG's) Eight (8) Ships					

Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy		Date: February 2018
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603582N / Combat System Integration	**Project (Number/Name)** 0164 / Combat System Integration

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
-Thirty-One (31) BMD Ships -Fourteen (14) Forward Deployed Naval Force (FDNF) Ships - Fifty-Three (53) Independent Deploying Ships (CVN, CG, DDG, LCCS and LCS) -Aegis Ashore Site (Romania) -Four (4) Fleet Area Control and Surveillance Facilities (FACSFAC's) -Six (6) Fleet Maritime Operations Centers (MOC's) sites. (4) Plan to conduct engineering to support two (2) systems Verification and Validation Tests. **FY 2019 OCO Plans:** N/A **FY 2018 to FY 2019 Increase/Decrease Statement:** Reduction due to DON 19 RDTEN Underexecution Review and Purchase Inflation Rate Change.					
Title: Warfare Systems Certification	4.019	2.954	2.454	0.000	2.454
Articles:	-	-	-	-	-
Description: This project funds the conduct of Warfare Systems Certifications against set evaluation criteria. The project includes providing operational risk assessments, using Objective Quality Evidence (OQE), to ensure installation readiness and deployment readiness of warfare systems and Navy surface ships. NAVSEA accomplishes these efforts through Warfare System Certification Plans (WSCP), Warfare Systems Certification Readiness Reviews (WSCRR), Warfare Systems Installation Assessment (WSIA), and Warfare Systems Certification Decisions (WSCD) to support the installation and deployment of warfare systems in Navy surface platforms. This also ensures that aggregate deficiencies and workarounds do not render the operator ineffective by conducting an analysis of all work-arounds documented in Tactics, Techniques, and Procedures (TTPs), Capabilities & Limitations (C&L), and Trouble Reports (TR). **FY 2018 Plans:** (1) Conduct Warfare Systems Certifications for subset of the twenty (20) criteria for one hundred one (101) ships efforts for approximately one hundred sixty three (157) Warfare Systems Certification Events (WSCRRs, WSIAs, and WSCDs) and fifty six (50) WSCPs for above ship classes. (2) Achieve significant WSCERT execution efficiencies through workforce streamlining initiatives related to WSCERT, criteria management and consolidation of WSCERT events. The program will be able to achieve significant WSCERT execution efficiencies thereby enabling completion of more events per investment dollar. **FY 2019 Base Plans:**					

Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy		Date: February 2018	
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603582N / Combat System Integration	**Project (Number/Name)** 0164 / Combat System Integration	

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
(1) Conduct Warfare Systems Certifications Events for a subset of twenty (20) criteria for one hundred one (101) ships efforts for approximately one hundred sixty three (163) Warfare Systems Certification Events (WSCRRs, WSIAs, and WSCDs) and fifty six (56) WSCPs for above ship classes. (2) Update the NWSCP and implement revised Naval Warfare Systems Certification Policy. (3) Continue to achieve significant WSCERT execution efficiencies through workforce streamlining initiatives related to WSCERT Criteria management and consolidation of WSCERT events thereby enabling completion of more events per investment dollar, thereby enabling sustainment of certification requirements amidst a shrinking budget. *FY 2019 OCO Plans:* N/A *FY 2018 to FY 2019 Increase/Decrease Statement:* Reduction due to DON19 RDTEN Underexecution Review and Inflation Rate Change.					
Title: Warfare Systems Cybersecurity **Articles:**	2.879 -	0.973 -	0.000 -	0.000 -	0.000 -
Description: The required assessment and characterization of aggregate levels of risk for ships is specified to be accomplished at the Warfare Systems System of Systems (SoS) level and will be part of the requirements identified in the Naval Warfare Systems Certification of Navy Aircraft Carriers and Surface Combatants. Cybersecurity assessment activities began FY16. Cybersecurity Assessment at the SoS level will entail: (1) Establishing and collecting metrics to characterize Warfare Systems ability to protect, detect, react, and restore capabilities, as well as analyze the mission effects induced by the cyber threat activity. (2) Maintain, improve and refine the methodologies, tools, and techniques used to conduct such risk assessments appropriate to ship warfare systems baselines and representative strike group interoperability requirements. (3) Conduct an assessment of developmental and operational warfare systems.					

Exhibit R-2A, **RDT&E Project Justification:** PB 2019 Navy		**Date:** February 2018
Appropriation/Budget Activity 1319 **/** 4	**R-1 Program Element (Number/Name)** PE 0603582N **/** *Combat System Integration*	**Project (Number/Name)** 0164 **/** *Combat System Integration*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	**FY 2017**	**FY 2018**	**FY 2019 Base**	**FY 2019 OCO**	**FY 2019 Total**
FY 2018 Plans: (1) Develop performance metrics for both Cyber PROTECT and RECOVER requirements. (2) Conduct Cybersecurity Assessments on Thirty (30) Ships. (3) Develop CYBER TECHAIDS for Thirty-Three (33) Ships. (4) Develop CYBER CAPS&LIMS for Thirty-Three (33) Ships. ***FY 2019 Base Plans:*** N/A ***FY 2019 OCO Plans:*** N/A ***FY 2018 to FY 2019 Increase/Decrease Statement:*** Reduction due to DON19 RDTEN Underexecution Review and Inflation Rate Change.					
Accomplishments/Planned Programs Subtotals	23.839	20.274	16.351	0.000	16.351

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
• OPN 2960: *ICSTF: Integrated Combat System Test Facility*	8.376	5.019	6.251	-	6.251	6.167	5.981	6.135	6.276	0.000	79.751

Remarks

D. Acquisition Strategy

RDTEN funding under this line supports independent certification of the integration of major capability upgrades acquired by Program Executive Offices (PEOs) into host Navy Platforms and Strike Forces. The RDTEN engineering and certification activities at field sites do not involve direct procurement of equipment or engineering services, and hence no acquisition strategy is required. The major capability upgrades evaluated under this program fall under their associated PEOs' acquisition strategies.

E. Performance Metrics

Quarterly Program Reviews and Baseline Assessments

Exhibit R-3, RDT&E Project Cost Analysis: PB 2019 Navy													Date: February 2018	
Appropriation/Budget Activity 1319 / 4						**R-1 Program Element (Number/Name)** PE 0603582N / Combat System Integration						**Project (Number/Name)** 0164 / Combat System Integration		

Product Development ($ in Millions)				FY 2017		FY 2018		FY 2019 Base		FY 2019 OCO		FY 2019 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**
SF Requirements Engineering & Analysis	WR	NSWCs : DN/PHD/Corona	5.157	0.000		0.000		0.000		-		0.000	0.000	5.157	-
SF Requirements Engineering & Analysis	WR	Non-NSWCs : Various	5.295	0.000		0.000		0.000		-		0.000	0.000	5.295	-
Platform/Strike Force Certification	WR	NSWCs : DD/ICSTD/DN/Corona	39.732	0.000		0.000		0.000		-		0.000	0.000	39.732	-
Platform/Strike Force Certification	WR	Non-NSWCs : Various	27.843	0.000		0.000		0.000		-		0.000	0.000	27.843	-
Fleet Response Plan (FRP)	WR	NSWCs : DD/PHD/DN	27.030	0.000		0.000		0.000		-		0.000	0.000	27.030	-
Fleet Response Plan (FRP)	WR	Non-NSWCs : Various	3.793	0.000		0.000		0.000		-		0.000	0.000	3.793	-
Combat Systems Cert ISO Platform Cert	WR	NSWCs : DN/DD/PHD/Corona	24.640	0.000		0.000		0.000		-		0.000	0.000	24.640	-
Combat Systems Cert ISO Platform Cert	WR	Non-NSWCs : Various	1.853	0.000		0.000		0.000		-		0.000	0.000	1.853	-
C5IMP & Fleet Readiness	WR	NSWCs : PHD	9.010	3.252	Nov 2016	3.036	Nov 2017	2.700	Nov 2018	-		2.700	Continuing	Continuing	Continuing
C5IMP & Fleet Readiness	C/CPFF	Non-NSWCs : Various	0.000	0.000		0.240	Dec 2017	0.209	Dec 2018	-		0.209	0.000	0.449	-
Warfare Systems Certification	WR	NSWCs : DD/Crane	17.413	0.719	Nov 2016	0.671	Nov 2017	0.308	Nov 2018	-		0.308	Continuing	Continuing	Continuing
Warfare Systems Certification	WR	Non-NSWCs : Various	3.500	0.000		0.000		0.000		-		0.000	Continuing	Continuing	Continuing
CNI/Design Agent	SS/CPAF	General Dynamics : Not Specified	47.926	0.000		0.000		0.000		-		0.000	0.000	47.926	-
CNI/Software Engineering	WR	NSWC : Dahlgren	8.383	0.000		0.000		0.000		-		0.000	0.000	8.383	-
CNI/Test and Evaluation	WR	CDSA : Not Specified	3.922	0.000		0.000		0.000		-		0.000	0.000	3.922	-
CNI/Systems Engineering	WR	NSWC : PHD	2.645	0.000		0.000		0.000		-		0.000	0.000	2.645	-
CNI/Miscellaneous	WR	Various : Not Specified	7.529	0.000		0.000		0.000		-		0.000	0.000	7.529	-
OA Automated Test and Retest	WR	NSWCs : Various	17.500	0.000		0.000		0.000		-		0.000	0.000	17.500	-

Exhibit R-3, RDT&E Project Cost Analysis: PB 2019 Navy												Date: February 2018

Appropriation/Budget Activity 1319 / 4	R-1 Program Element (Number/Name) PE 0603582N / Combat System Integration	Project (Number/Name) 0164 / Combat System Integration

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2017 Cost	FY 2017 Award Date	FY 2018 Cost	FY 2018 Award Date	FY 2019 Base Cost	FY 2019 Base Award Date	FY 2019 OCO Cost	FY 2019 OCO Award Date	FY 2019 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Contract Engineering Support	C/CPFF	Gryphon Technology : VA	30.891	5.093	Jan 2017	5.034	Jan 2018	4.410	Jan 2019	-		4.410	Continuing	Continuing	Continuing
Contract Program Management Support	C/CPFF	Delta Resources Inc. : VA	8.141	0.000		0.000		0.000		-		0.000	0.000	8.141	-
Travel	Allot	NAVSEA HQ : Washington, DC	2.330	0.021	Jan 2017	0.020	Jan 2018	0.019	Jan 2019	-		0.019	0.000	2.390	-
Interoperability Fixes	WR	NSWCs : Various	1.500	0.000		0.000		0.000		-		0.000	0.000	1.500	-
TIC TECHAIDS	WR	CSC : VA	0.000	0.000		0.000		0.000		-		0.000	Continuing	Continuing	Continuing
Warfare Systems Cybersecurity	WR	NSWCs : PHD, Dahlren & Corna	2.456	1.979	Jan 2017	0.973	Jan 2018	0.000	Jan 2019	-		0.000	0.000	5.408	-
Capabilities & Limitations	WR	NSWCs : PHD	5.292	3.332	Nov 2016	3.110	Nov 2017	2.642	Nov 2018	-		2.642	0.000	14.376	-
Cybersecurity IA	C/CPFF	CSC : VA	0.544	0.000		0.000		0.000		-		0.000	0.000	0.544	-
Subtotal			304.325	14.396		13.084		10.288		-		10.288	Continuing	Continuing	N/A

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2017 Cost	FY 2017 Award Date	FY 2018 Cost	FY 2018 Award Date	FY 2019 Base Cost	FY 2019 Base Award Date	FY 2019 OCO Cost	FY 2019 OCO Award Date	FY 2019 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Combat System Integration Testing (CSIT)	WR	NSWCs : DD/ICSTF	5.736	0.000		0.000		0.000		-		0.000	0.000	5.736	-
Interoperability Certification Assessment	WR	NSWCs : DD/ SPAWAR/San Diego	26.804	0.000		0.000		0.000		-		0.000	Continuing	Continuing	Continuing
Navigation System Certification	WR	SPAWAR : Charleston, SC	9.257	1.657	Nov 2016	1.547	Nov 2017	1.282	Nov 2018	-		1.282	0.000	13.743	-
DIIAC Engineering and Operations	WR	NSWCs : DD/DN/ SPAWAR	20.323	1.496	Jan 2017	2.050	Jan 2018	1.779	Jan 2019	-		1.779	Continuing	Continuing	Continuing
DEP Engineering and Operations	WR	NSWCs : Various	12.623	0.000		0.000		0.000		-		0.000	0.000	12.623	-
Interoperability Cert Assessment	WR	NSWCs : DD/DN/ Corona	4.159	2.024	Nov 2016	2.542	Nov 2017	2.058	Nov 2018	-		2.058	0.000	10.783	-
Interoperability Cert Assessment	C/CPFF	Non-NSWCS : CNA	1.249	1.268	Jan 2017	0.764	Jan 2018	0.730	Jan 2019	-		0.730	0.000	4.011	-

Exhibit R-3, **RDT&E Project Cost Analysis:** PB 2019 Navy											**Date:** February 2018		

Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603582N / Combat System Integration	**Project (Number/Name)** 0164 / Combat System Integration

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2017		FY 2018		FY 2019 Base		FY 2019 OCO		FY 2019 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Interoperability Cert Assessment	C/CPFF	CSC : Washington, DC	0.469	0.307	Jan 2017	0.287	Jan 2018	0.214	Jan 2019	-		0.214	0.000	1.277	-
Interoperability Cert Assessment	WR	NUWCs : Keyport	0.000	1.268	Jun 2017	0.000	Jun 2018	0.000	Jun 2019	-		0.000	0.000	1.268	-
Interoperability Cert Assessment	WR	NSWCs : Crane/ Dahlgren	0.000	0.771	Jun 2017	0.000	Jun 2018	0.000	Jun 2019	-		0.000	0.000	0.771	-
Interoperability Cert Assessment	C/CPFF	Various : Various	0.000	0.652	Sep 2017	0.000	Sep 2018	0.000	Sep 2019	-		0.000	0.000	0.652	-
Subtotal			80.620	9.443		7.190		6.063		-		6.063	Continuing	Continuing	N/A

	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	384.945	23.839	20.274	16.351	-	16.351	Continuing	Continuing	N/A

Remarks

Exhibit R-4, **RDT&E Schedule Profile:** PB 2019 Navy		**Date:** February 2018
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603582N / Combat System Integration	**Project (Number/Name)** 0164 / Combat System Integration

	FY 2017				FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4

COMBAT SYSTEM INTEGRATION

Activity	Schedule
NAVCERT: FY17 NAVCERTs (CG 67, CG 71, CVN 68, DDG 69, DDG 89)	FY2017 Q1
NAVCERT: FY17 NAVCERTs (CG 54, CG 66, DDG 62, DDG 79, DDG 88 ,DDG 97, LPD 19, LPD 21, LPD 23, LPD 24, MCM 8)	FY2017 Q1–Q2
NAVCERT: FY17 NAVCERT (CG 60, CVN 71, CVN 76, DDG 96, DDG 99, LCS 2, LHD 1, LHD 3, MCM 12)	FY2017 Q2–Q3
NAVCERT: FY17 NAVCERT (CG 53, CVN 74, CVN 75, DDG 65, DDG 81, DDG 84, DDG 93, DDG 101, DDG 106, ,LHD 2, MCM 6, MCM 10)	FY2017 Q3
NAVCERT: FY18 NAVCERT (CG 62, DDG 53, DDG, 59 , DDG 64, DDG 110, DDG 112, LCC 20, LCS 1, LCS 3, LSD 41, LSD 45, LSD 49)	FY2018 Q1
NAVCERT: FY18 NAVCERT (DDG 75, DDG 76, DDG 85, DDG 87, LCC 19, LHD 4 ,LPD 26, LSD 41, LSD 49)	FY2018 Q2
NAVCERT: FY18 NAVCERT (CG 56, CVN 69, DDG 55, DDG 81, DDG 82, DDG 94, LPD 17,LPD 18 , LPD 25)	FY2018 Q3
NAVCERT: FY18 NAVCERT (DDG 52, DDG 71, DDG 85, DDG 91, DDG 100, LHD 8, LPD 19, MCM 4)	FY2018 Q4
NAVCERT: FY19 NAVCERTs (CG 58, CVN 71, DDG 78, DDG 100, LHA 6, LPD 22)	FY2019 Q1
NAVCERT: FY19 NAVCERTs (LPD 22, LHA 6, DDG 105, DDG 103)	FY2019 Q2

Exhibit R-4, RDT&E Schedule Profile: PB 2019 Navy							Date: February 2018	
Appropriation/Budget Activity 1319 / 4				**R-1 Program Element (Number/Name)** PE 0603582N / Combat System Integration			**Project (Number/Name)** 0164 / Combat System Integration	

	FY 2017				FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
NAVCERT: FY19 NAVCERTs (CVN 68, DDG 52, DDG 78, MCM 3, MCM 9, LHD 7, DDG 90)											▄																	
NAVCERT: FY19 NAVCERTs (LSD 52, LPD 21, LHD 6, LSD 50, LHD 2, DDG 68, DDG 54, CVN 77 , MCM 8)												▄																
NAVCERT: FY20 NAVCERTs (CG 59, CVN 75, DDG 55, DDG 59, DDG 65. DDG 107, DDG 108)													▄															
NAVCERT: FY20 NAVCERTs (LHD 3, LPD 23, LSD 49, MCM 11, MCM 14)														▄														
NAVCERT: FY20 NAVCERTs (LHD 1, LPD 23)															▄													
NAVCERT: FY20 NAVCERTs (CVN 69, CVN 78, DDG 107, LHD 3)																▄												
NAVCERT: FY21 NAVCERTs (CVN 72, DDG 55, LCS 2, LHD 5, LPD 17, LPD 18, MCM 11)																	▄											
NAVCERT: FY21 NAVCERTs (CG 55, CG 57, DDG 104, DDG 109, LCS 4, LHD 4, LHD 8, LPD 19, LPD 25, LPD 26 LSD 44, LSD 51. LSD 52, MCM 4)																		▄										
NAVCERT: FY21 NAVCERTs (DDG 56, DDG 95, DDG 111, LCS 5, LCS 6, PC 2, PC 3, PC 5, PC 11)																			▄									
NAVCERT: FY21 NAVCERTs (CVN 78, DDG 57,DDG 65, DDG 98, LCS 7, LCS 8, LCS 9)																				▄								
NAVCERT: FY22 NAVCERTs (CG 54, CG 60. DDG 88, LPD 23, MCM 12, CVN 7, DDG 79, DDG 81, DDG 112)																					▄							

Exhibit R-4, RDT&E Schedule Profile: PB 2019 Navy		Date: February 2018
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603582N / Combat System Integration	**Project (Number/Name)** 0164 / Combat System Integration

	FY 2017				FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
NAVCERT: FY22 NAVCERTs (CVN 74, DDG 96, DDG 59, DDG 84, DDG, 99, LHD 3, LPD 24)																					▮							
NAVCERT: FY22 NAVCERTs (CVN 74, CVN 75, CVN 76, DDG 93, LHD 1, LHD 2, MCM 4, MCM 6, MCM 10)																						▮						
NAVCERT: FY22 NAVCERT (CG 62, DDG 53, DDG 82, DDG 101, DDG 106, DDG 110, LCC 19, LCS 3, LHD 4, CVN 71, DDG 63, 99, LPD 17 , LPD 21, PC 14)																							▮					
NAVCERT: FY23 NAVCERT (LHD 3, LHD 4, LPD 18)																								▮				
NAVCERT: FY23 NAVCERT (CG 60, CVN 78, DDG 55, DDG 61, LPD 21)																									▮			
NAVCERT: FY23 NAVCERT (LHD 2, LPD 23, LSD 41)																										▮		
NAVCERT: FY23 NAVCERT (CG 66, CG 70, LCS 8, LHA 7, LSD 43)																											▮	
C5IMP: FY17 C5IMP Monthly Baseline (12/ Year) (63 BLs planned)	▮	▮	▮																									
C5IMP: FY17 NCMC - 1	▮	▮	▮																									
C5IMP: FY17 NCMC - 2		▮																										
C5IMP: FY17 SG/ARG Analysis Report (2/ Year -Presented at NCMC)			▮																									
C5IMP: FY17 PNA Reviews (12/Year) (Supports Approx 71 ship availabilities with total 11 PNAs planned)	▮	▮																										
C5IMP: FY18 C5IMP Monthly Baseline (12/ Year) (63 BLs planned)					▮	▮																						
C5IMP: FY18 NCMC - 1					▮	▮																						

PE 0603582N: Combat System Integration
Navy

Exhibit R-4, RDT&E Schedule Profile: PB 2019 Navy		Date: February 2018
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603582N / Combat System Integration	**Project (Number/Name)** 0164 / Combat System Integration

Schedule (by Fiscal Year / Quarter):

Event	FY 2017 Q1	Q2	Q3	Q4	FY 2018 Q1	Q2	Q3	Q4	FY 2019 Q1	Q2	Q3	Q4	FY 2020 Q1	Q2	Q3	Q4	FY 2021 Q1	Q2	Q3	Q4	FY 2022 Q1	Q2	Q3	Q4	FY 2023 Q1	Q2	Q3	Q4
C5IMP: FY18 NCMC - 2						█																						
C5IMP: FY18 SG/ARG Analysis Report (2/Year -Presented at NCMC)								█																				
C5IMP: FY18 PNA Reviews (12/Year) (Supports Approx 72 ship availabilities with total 57 PNAs planned)							█	█																				
C5IMP: FY19 C5IMP Monthly Baseline (12/Year)									█	█																		
C5IMP: FY19 NCMC - 1									█	█																		
C5IMP: FY19 NCMC - 2										█																		
C5IMP: FY19 SG/ARG Analysis Report (2/Year - Presented at NCMC)											█																	
C5IMP: FY19 PNA Reviews (12/Year) (Supports Approx 74 ship availabilities with total 49 PNAs planned)									█	█																		
C5IMP: FY20 C5IMP Monthly Baseline (12/Year)													█	█														
C5IMP: FY20 NCMC - 1													█	█														
C5IMP: FY20 NCMC - 2													█	█														
C5IMP: FY20 SG/ARG Analysis Report (2/Year - Presented at NCMC)													█	█														
C5IMP: FY20 PNA Reviews (12/Year) (70 Ships)													█	█														
C5IMP: FY21 C5IMP Monthly Baseline (12/Year)																	█	█										
C5IMP: FY21 NCMC - 1																	█	█										
C5IMP: FY21 NCMC - 2																	█	█										
C5IMP: FY21 SG/ARG Analysis Report (2/Year - Presented at NCMC)																	█	█										

PE 0603582N: Combat System Integration
Navy

Exhibit R-4, RDT&E Schedule Profile: PB 2019 Navy		**Date:** February 2018
Appropriation/Budget Activity 1319 I 4	**R-1 Program Element (Number/Name)** PE 0603582N I Combat System Integration	**Project (Number/Name)** 0164 I Combat System Integration

	FY 2017				FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
C5IMP: FY21 PNA Reviews (12/Year) (69 Ships)																					▬	▬	▬					
C5IMP: FY22 C5IMP Monthly Baseline (12/Year)																					▬	▬	▬					
C5IMP: FY22 NCMC - 1																					▬	▬	▬					
C5IMP: FY22 NCMC - 2																					▬	▬	▬					
C5IMP: FY22 SG/ARG Analysis Report (2/Year - Presented at NCMC)																					▬	▬	▬					
C5IMP: FY22 PNA Reviews (12/Year) (69 ships)																					▬	▬	▬					
C5IMP: FY23 C5IMP Monthly Baseline (12/Year)																									▬	▬	▬	
C5IMP: FY23 NCMC - 1																									▬	▬	▬	
C5IMP: FY23 NCMC - 2																									▬	▬	▬	
C5IMP: FY23 SG/ARG Analysis Report (2/Year - Presented at NCMC)																									▬	▬	▬	
C5IMP: FY23 PNA Reviews (12/Year) (69 Ships)																									▬	▬	▬	
Interoperability Certification & Assessments: FY17 BL 9C2 Interoperability Certification/Development Tests (17-1): SSDS 10.10.02, AEGIS B/L 9A2 (Build 22); SSDS 9.08.05, LCS Freedom 3.1	▬																											
Interoperability Certification & Assessments: FY17 Interoperability Certification/Development Tests (17-2): AEGIS B/L 9C2.0 (Build 24), SSDS 10.10.04 (LHD 2,CVN72), LCS Independence 6.1, SSDS 10.1		▬																										
Interoperability Certification & Assessments: FY17 Interoperability Certification/			▬																									

Exhibit R-4, **RDT&E Schedule Profile:** PB 2019 Navy			**Date:** February 2018
Appropriation/Budget Activity 1319 / 4		**R-1 Program Element (Number/Name)** PE 0603582N / *Combat System Integration*	**Project (Number/Name)** 0164 / *Combat System Integration*

	FY 2017				FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Development Tests (17-3): SSDS 10.10.05, LCS 3.1, AEGIS B/L 9A2.0/9C2.0 (Build 24)																												
Interoperability Certification & Assessments: FY18 Interoperability Certification/ Developmental Tests (18-1): SSDS 10.10.05, AEGIS B/L 9C2.0 (Build 24)					▮																							
Interoperability Certification & Assessments: Interoperability Certification & Assessments: FY18 Interoperability Certification/ Developmental Tests (18-2): AEGIS B/L 9A2.1/9C2.1 (Build 27); AE						▮																						
Interoperability Certification & Assessments: FY18 Interoperability Certification/ Developmental Tests (18-3): AEGIS B/L 9A2.1/9C2.1 (Build 27), AEGIS 5.4; LCS Independence 6.X							▮																					
Interoperability Certification & Assessments: FY19 Interoperability Development/ Certification Test (19-1): DDG1000 (Build 8.4)									▮																			
Interoperability Certification & Assessments: FY19 Interoperability Development/ Certification Test (19-2): AEGIS B/L 9A2.1/9C2.1 (Build 27); AEGIS 5.4										▮																		
Interoperability Certification & Assessments: FY19 Interoperability Development/ Certification Test (19-3): AEGIS B/L 9C2.2 (Build 30); DDG1000 (Build 8.4)											▮																	
Interoperability Certification & Assessments: FY19 TBD Interoperability Development/ Certification Test (19-4): AEGIS B/L 9A2.2 (Build 30)											▮																	

Exhibit R-4, RDT&E Schedule Profile: PB 2019 Navy		Date: February 2018
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603582N / Combat System Integration	**Project (Number/Name)** 0164 / Combat System Integration

Activity	FY 2017				FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Interoperability Certification & Assessments: FY20 Interoperability Development/ Certification Test (20-1): AEGIS B/L 9A2.2/9C2.2 (Build 30); SSDS 11.X													■															
Interoperability Certification & Assessments: FY20 Interoperability Development/ Certification Test (20-2): SSDS B/L 11.X (ACB 20)														■														
Interoperability Certification & Assessments: FY20 Interoperability Development/ Certification Test (20-3): AEGIS B/L 9A2.2/9C2.2 (Build 30); SSDS B/L 11.X															■													
Interoperability Certification & Assessments: FY20 Interoperability Development/ Certification Test (20-4): SSDS B/L 11.X (ACB 20)																■												
Interoperability Certification & Assessments: FY 21 Interoperability Certification & Assessments: FY21 Event (21-1)																	■											
Interoperability Certification & Assessments: FY 21 nteroperability Certification & Assessments: FY21 Event (21-2)																		■										
Interoperability Certification & Assessments: FY 21 Interoperability Certification & Assessments: FY21 Event (21-3)																			■									
Interoperability Certification & Assessments: FY 21 Interoperability Certification & Assessments: FY21 Event (21-4)																				■								
Interoperability Certification & Assessments: FY 22 Interoperability Certification & Assessments: FY22 Event (22-1)																					■							

Exhibit R-4, RDT&E Schedule Profile: PB 2019 Navy		Date: February 2018
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603582N / Combat System Integration	**Project (Number/Name)** 0164 / Combat System Integration

	FY 2017				FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Interoperability Certification & Assessments: FY 22 Interoperability Certification & Assessments: FY22 Event (22-2)																						■						
Interoperability Certification & Assessments: FY 22 Interoperability Certification & Assessments: FY22 Event (22-3)																							■					
Interoperability Certification & Assessments: FY 22 Interoperability Certification & Assessments: FY22 Event (22-4)																								■				
Interoperability Certification & Assessments: FY 23 Interoperability Certification & Assessments: FY22 Event (23-1)																									■			
Interoperability Certification & Assessments: FY 23 Interoperability Certification & Assessments: FY22 Event (23-2)																										■		
Interoperability Certification & Assessments: FY 23 Interoperability Certification & Assessments: FY22 Event (23-3)																											■	
Interoperability Certification & Assessments: FY 23 Interoperability Certification & Assessments: FY22 Event (23-4)																												■
Warfare Systems Certification: FY17 Warfare Systems Cert (145 Certification Events + 50 WSCPs)	■	■																										
Warfare Systems Certification: FY18 Warfare Systems Cert (157 Certification Events + 56 WSCPs)					■	■																						
Warfare Systems Certification: FY19 Warfare Systems Cert (163 Certification Events + 56 WSCPs)									■	■																		

Exhibit R-4, RDT&E Schedule Profile: PB 2019 Navy	Date: February 2018

Appropriation/Budget Activity 1319 I 4	R-1 Program Element (Number/Name) PE 0603582N I *Combat System Integration*	Project (Number/Name) 0164 I *Combat System Integration*

	FY 2017				FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Warfare Systems Certification: FY20 Warfare Systems Cert (146 Certification Events + 0 WSCPs)														▬	▬													
Warfare Systems Certification: FY21 Warfare Systems Cert (146 Certification Events + 0 WSCPs)																		▬	▬									
Warfare Systems Certification: FY22 Warfare Systems Cert (146 Certification Events + 0 WSCPs)																						▬	▬					
Warfare Systems Certification: FY23 Warfare Systems Cert (146 Certification Events + 0 WSCPs)																										▬	▬	
Warfare Systems Cybersecurity: Assessment development, codification, and refinement (metrics & methodology)	▬	▬	▬	▬	▬	▬																						
Warfare Systems Cybersecurity: Align Cyber testing leveraging DIIAC & SFI lab infrastructures and DOD Range where feasible	▬	▬																										
Warfare Systems Cybersecurity: Follow-on Testing Event (AEGIS BMD CS)		▬	▬																									
Warfare Systems Cybersecurity: Assessment refinement and maintenance (metrics & methodology)			▬																									
Warfare Systems Cybersecurity: FY17 Testing Events (Risk reduction LCS)	▬	▬	▬																									
Warfare Systems Cybersecurity: FY18 Testing Events (0)				▬	▬	▬																						

Exhibit R-4A, **RDT&E Schedule Details:** PB 2019 Navy		**Date:** February 2018
Appropriation/Budget Activity 1319 **/** 4	**R-1 Program Element (Number/Name)** PE 0603582N **/** *Combat System Integration*	**Project (Number/Name)** 0164 **/** *Combat System Integration*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
COMBAT SYSTEM INTEGRATION				
NAVCERT: FY17 NAVCERTs (CG 67, CG 71, CVN 68, DDG 69, DDG 89)	1	2017	1	2017
NAVCERT: FY17 NAVCERTs (CG 54, CG 66, DDG 62, DDG 79, DDG 88 ,DDG 97, LPD 19, LPD 21, LPD 23, LPD 24, MCM 8)	2	2017	2	2017
NAVCERT: FY17 NAVCERT (CG 60, CVN 71, CVN 76, DDG 96, DDG 99, LCS 2, LHD 1, LHD 3, MCM 12)	3	2017	3	2017
NAVCERT: FY17 NAVCERT (CG 53, CVN 74, CVN 75, DDG 65, DDG 81, DDG 84, DDG 93, DDG 101, DDG 106, ,LHD 2, MCM 6, MCM 10)	4	2017	4	2017
NAVCERT: FY18 NAVCERT (CG 62, DDG 53, DDG, 59 , DDG 64, DDG 110, DDG 112, LCC 20, LCS 1, LCS 3, LSD 41, LSD 45, LSD 49)	1	2018	1	2018
NAVCERT: FY18 NAVCERT (DDG 75, DDG 76, DDG 85, DDG 87, LCC 19, LHD 4 ,LPD 26, LSD 41, LSD 49)	2	2018	2	2018
NAVCERT: FY18 NAVCERT (CG 56, CVN 69, DDG 55, DDG 81, DDG 82, DDG 94, LPD 17,LPD 18 , LPD 25)	3	2018	3	2018
NAVCERT: FY18 NAVCERT (DDG 52, DDG 71, DDG 85, DDG 91, DDG 100, LHD 8, LPD 19, MCM 4)	4	2018	4	2018
NAVCERT: FY19 NAVCERTs (CG 58, CVN 71, DDG 78, DDG 100, LHA 6, LPD 22)	1	2019	1	2019
NAVCERT: FY19 NAVCERTs (LPD 22, LHA 6, DDG 105, DDG 103)	2	2019	2	2019
NAVCERT: FY19 NAVCERTs (CVN 68, DDG 52, DDG 78, MCM 3, MCM 9, LHD 7, DDG 90)	3	2019	3	2019
NAVCERT: FY19 NAVCERTs (LSD 52, LPD 21, LHD 6, LSD 50, LHD 2, DDG 68, DDG 54, CVN 77 , MCM 8)	4	2019	4	2019
NAVCERT: FY20 NAVCERTs (CG 59, CVN 75, DDG 55, DDG 59, DDG 65. DDG 107, DDG 108)	1	2020	1	2020
NAVCERT: FY20 NAVCERTs (LHD 3, LPD 23, LSD 49, MCM 11, MCM 14)	2	2020	2	2020

Exhibit R-4A, RDT&E Schedule Details: PB 2019 Navy				Date: February 2018	
Appropriation/Budget Activity 1319 / 4		**R-1 Program Element (Number/Name)** PE 0603582N / Combat System Integration		**Project (Number/Name)** 0164 / Combat System Integration	

	Start		**End**	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
NAVCERT: FY20 NAVCERTs (LHD 1, LPD 23)	3	2020	3	2020
NAVCERT: FY20 NAVCERTs (CVN 69, CVN 78, DDG 107, LHD 3)	4	2020	4	2020
NAVCERT: FY21 NAVCERTs (CVN 72, DDG 55, LCS 2, LHD 5, LPD 17, LPD 18, MCM 11)	1	2021	1	2021
NAVCERT: FY21 NAVCERTs (CG 55, CG 57, DDG 104, DDG 109, LCS 4, LHD 4, LHD 8, LPD 19, LPD 25, LPD 26 LSD 44, LSD 51. LSD 52, MCM 4)	2	2021	2	2021
NAVCERT: FY21 NAVCERTs (DDG 56, DDG 95, DDG 111, LCS 5, LCS 6, PC 2, PC 3, PC 5, PC 11)	3	2021	3	2021
NAVCERT: FY21 NAVCERTs (CVN 78, DDG 57,DDG 65, DDG 98, LCS 7, LCS 8, LCS 9)	4	2021	4	2021
NAVCERT: FY22 NAVCERTs (CG 54, CG 60. DDG 88, LPD 23, MCM 12, CVN 7, DDG 79, DDG 81, DDG 112)	1	2022	1	2022
NAVCERT: FY22 NAVCERTs (CVN 74, DDG 96, DDG 59, DDG 84, DDG, 99, LHD 3, LPD 24)	2	2022	2	2022
NAVCERT: FY22 NAVCERTs (CVN 74, CVN 75, CVN 76, DDG 93, LHD 1, LHD 2, MCM 4, MCM 6, MCM 10)	3	2022	3	2022
NAVCERT: FY22 NAVCERT (CG 62, DDG 53, DDG 82, DDG 101, DDG 106, DDG 110, LCC 19, LCS 3, LHD 4, CVN 71, DDG 63, 99, LPD 17 , LPD 21, PC 14)	4	2022	4	2022
NAVCERT: FY23 NAVCERT (LHD 3, LHD 4, LPD 18)	1	2023	1	2023
NAVCERT: FY23 NAVCERT (CG 60, CVN 78, DDG 55, DDG 61, LPD 21)	2	2023	2	2023
NAVCERT: FY23 NAVCERT (LHD 2, LPD 23, LSD 41)	3	2023	3	2023
NAVCERT: FY23 NAVCERT (CG 66, CG 70, LCS 8, LHA 7, LSD 43)	4	2023	4	2023
C5IMP: FY17 C5IMP Monthly Baseline (12/Year) (63 BLs planned)	1	2017	4	2017
C5IMP: FY17 NCMC - 1	1	2017	4	2017
C5IMP: FY17 NCMC - 2	2	2017	2	2017
C5IMP: FY17 SG/ARG Analysis Report (2/Year -Presented at NCMC)	4	2017	4	2017
C5IMP: FY17 PNA Reviews (12/Year) (Supports Approx 71 ship availabilities with total 11 PNAs planned)	2	2017	4	2017

UNCLASSIFIED

Exhibit R-4A, **RDT&E Schedule Details:** PB 2019 Navy				**Date:** February 2018	
Appropriation/Budget Activity 1319 / 4			**R-1 Program Element (Number/Name)** PE 0603582N *I Combat System Integration*	**Project (Number/Name)** 0164 *I Combat System Integration*	

Events by Sub Project	Start Quarter	Start Year	End Quarter	End Year
C5IMP: FY18 C5IMP Monthly Baseline (12/Year) (63 BLs planned)	1	2018	4	2018
C5IMP: FY18 NCMC - 1	1	2018	4	2018
C5IMP: FY18 NCMC - 2	2	2018	2	2018
C5IMP: FY18 SG/ARG Analysis Report (2/Year -Presented at NCMC)	4	2018	4	2018
C5IMP: FY18 PNA Reviews (12/Year) (Supports Approx 72 ship availabilities with total 57 PNAs planned)	2	2018	4	2018
C5IMP: FY19 C5IMP Monthly Baseline (12/Year)	1	2019	4	2019
C5IMP: FY19 NCMC - 1	1	2019	4	2019
C5IMP: FY19 NCMC - 2	2	2019	2	2019
C5IMP: FY19 SG/ARG Analysis Report (2/Year - Presented at NCMC)	4	2019	4	2019
C5IMP: FY19 PNA Reviews (12/Year) (Supports Approx 74 ship availabilities with total 49 PNAs planned)	2	2019	4	2019
C5IMP: FY20 C5IMP Monthly Baseline (12/Year)	1	2020	4	2020
C5IMP: FY20 NCMC - 1	1	2020	4	2020
C5IMP: FY20 NCMC - 2	1	2020	4	2020
C5IMP: FY20 SG/ARG Analysis Report (2/Year - Presented at NCMC)	1	2020	4	2020
C5IMP: FY20 PNA Reviews (12/Year) (70 Ships)	1	2020	4	2020
C5IMP: FY21 C5IMP Monthly Baseline (12/Year)	1	2021	4	2021
C5IMP: FY21 NCMC - 1	1	2021	4	2021
C5IMP: FY21 NCMC - 2	1	2021	4	2021
C5IMP: FY21 SG/ARG Analysis Report (2/Year - Presented at NCMC)	1	2021	4	2021
C5IMP: FY21 PNA Reviews (12/Year) (69 Ships)	1	2022	4	2022
C5IMP: FY22 C5IMP Monthly Baseline (12/Year)	1	2022	4	2022
C5IMP: FY22 NCMC - 1	1	2022	4	2022
C5IMP: FY22 NCMC - 2	1	2022	4	2022
C5IMP: FY22 SG/ARG Analysis Report (2/Year - Presented at NCMC)	1	2022	4	2022
C5IMP: FY22 PNA Reviews (12/Year) (69 ships)	1	2022	4	2022

Exhibit R-4A, **RDT&E Schedule Details:** PB 2019 Navy		**Date:** February 2018	
Appropriation/Budget Activity 1319 **/** 4	**R-1 Program Element (Number/Name)** PE 0603582N **/** *Combat System Integration*	**Project (Number/Name)** 0164 **/** *Combat System Integration*	

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
C5IMP: FY23 C5IMP Monthly Baseline (12/Year)	1	2023	4	2023
C5IMP: FY23 NCMC - 1	1	2023	4	2023
C5IMP: FY23 NCMC - 2	1	2023	4	2023
C5IMP: FY23 SG/ARG Analysis Report (2/Year - Presented at NCMC)	1	2023	4	2023
C5IMP: FY23 PNA Reviews (12/Year) (69 Ships)	1	2023	4	2023
Interoperability Certification & Assessments: FY17 BL 9C2 Interoperability Certification/ Development Tests (17-1): SSDS 10.10.02, AEGIS B/L 9A2 (Build 22); SSDS 9.08.05, LCS Freedom 3.1	1	2017	1	2017
Interoperability Certification & Assessments: FY17 Interoperability Certification/ Development Tests (17-2): AEGIS B/L 9C2.0 (Build 24), SSDS 10.10.04 (LHD 2,CVN72), LCS Independence 6.1, SSDS 10.1	2	2017	2	2017
Interoperability Certification & Assessments: FY17 Interoperability Certification/ Development Tests (17-3): SSDS 10.10.05, LCS 3.1, AEGIS B/L 9A2.0/9C2.0 (Build 24)	3	2017	3	2017
Interoperability Certification & Assessments: FY18 Interoperability Certification/ Developmental Tests (18-1): SSDS 10.10.05, AEGIS B/L 9C2.0 (Build 24)	1	2018	1	2018
Interoperability Certification & Assessments: Interoperability Certification & Assessments: FY18 Interoperability Certification/Developmental Tests (18-2): AEGIS B/L 9A2.1/9C2.1 (Build 27); AE	2	2018	2	2018
Interoperability Certification & Assessments: FY18 Interoperability Certification/ Developmental Tests (18-3): AEGIS B/L 9A2.1/9C2.1 (Build 27), AEGIS 5.4; LCS Independence 6.X	3	2018	3	2018
Interoperability Certification & Assessments: FY19 Interoperability Development/ Certification Test (19-1): DDG1000 (Build 8.4)	1	2019	1	2019
Interoperability Certification & Assessments: FY19 Interoperability Development/ Certification Test (19-2): AEGIS B/L 9A2.1/9C2.1 (Build 27); AEGIS 5.4	2	2019	2	2019
Interoperability Certification & Assessments: FY19 Interoperability Development/ Certification Test (19-3): AEGIS B/L 9C2.2 (Build 30); DDG1000 (Build 8.4)	3	2019	3	2019
Interoperability Certification & Assessments: FY19 TBD Interoperability Development/ Certification Test (19-4): AEGIS B/L 9A2.2 (Build 30)	4	2019	4	2019

Exhibit R-4A, **RDT&E Schedule Details:** PB 2019 Navy | **Date:** February 2018

Appropriation/Budget Activity 1319 / 4	R-1 Program Element (Number/Name) PE 0603582N / Combat System Integration	Project (Number/Name) 0164 / Combat System Integration

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
Interoperability Certification & Assessments: FY20 Interoperability Development/ Certification Test (20-1): AEGIS B/L 9A2.2/9C2.2 (Build 30); SSDS 11.X	1	2020	1	2020
Interoperability Certification & Assessments: FY20 Interoperability Development/ Certification Test (20-2): SSDS B/L 11.X (ACB 20)	2	2020	2	2020
Interoperability Certification & Assessments: FY20 Interoperability Development/ Certification Test (20-3): AEGIS B/L 9A2.2/9C2.2 (Build 30); SSDS B/L 11.X	3	2020	3	2020
Interoperability Certification & Assessments: FY20 Interoperability Development/ Certification Test (20-4): SSDS B/L 11.X (ACB 20)	4	2020	4	2020
Interoperability Certification & Assessments: FY 21 Interoperability Certification & Assessments: FY21 Event (21-1)	1	2021	1	2021
Interoperability Certification & Assessments: FY 21 nteroperability Certification & Assessments: FY21 Event (21-2)	2	2021	2	2021
Interoperability Certification & Assessments: FY 21 Interoperability Certification & Assessments: FY21 Event (21-3)	3	2021	3	2021
Interoperability Certification & Assessments: FY 21 Interoperability Certification & Assessments: FY21 Event (21-4)	4	2021	4	2021
Interoperability Certification & Assessments: FY 22 Interoperability Certification & Assessments: FY22 Event (22-1)	1	2022	1	2022
Interoperability Certification & Assessments: FY 22 Interoperability Certification & Assessments: FY22 Event (22-2)	2	2022	2	2022
Interoperability Certification & Assessments: FY 22 Interoperability Certification & Assessments: FY22 Event (22-3)	3	2022	3	2022
Interoperability Certification & Assessments: FY 22 Interoperability Certification & Assessments: FY22 Event (22-4)	4	2022	4	2022
Interoperability Certification & Assessments: FY 23 Interoperability Certification & Assessments: FY22 Event (23-1)	1	2023	1	2023
Interoperability Certification & Assessments: FY 23 Interoperability Certification & Assessments: FY22 Event (23-2)	2	2023	2	2023
Interoperability Certification & Assessments: FY 23 Interoperability Certification & Assessments: FY22 Event (23-3)	3	2023	3	2023

Exhibit R-4A, **RDT&E Schedule Details:** PB 2019 Navy				**Date:** February 2018	
Appropriation/Budget Activity 1319 *I* 4		**R-1 Program Element (Number/Name)** PE 0603582N *I Combat System Integration*		**Project (Number/Name)** 0164 *I Combat System Integration*	

Events by Sub Project	**Start**		**End**	
	Quarter	**Year**	**Quarter**	**Year**
Interoperability Certification & Assessments: FY 23 Interoperability Certification & Assessments: FY22 Event (23-4)	4	2023	4	2023
Warfare Systems Certification: FY17 Warfare Systems Cert (145 Certification Events + 50 WSCPs)	1	2017	4	2017
Warfare Systems Certification: FY18 Warfare Systems Cert (157 Certification Events + 56 WSCPs)	1	2018	4	2018
Warfare Systems Certification: FY19 Warfare Systems Cert (163 Certification Events + 56 WSCPs)	1	2019	4	2019
Warfare Systems Certification: FY20 Warfare Systems Cert (146 Certification Events + 0 WSCPs)	1	2020	4	2020
Warfare Systems Certification: FY21 Warfare Systems Cert (146 Certification Events + 0 WSCPs)	1	2021	4	2021
Warfare Systems Certification: FY22 Warfare Systems Cert (146 Certification Events + 0 WSCPs)	1	2022	4	2022
Warfare Systems Certification: FY23 Warfare Systems Cert (146 Certification Events + 0 WSCPs)	1	2023	4	2023
Warfare Systems Cybersecurity: Assessment development, codification, and refinement (metrics & methodology)	1	2017	4	2018
Warfare Systems Cybersecurity: Align Cyber testing leveraging DIIAC & SFI lab infrastructures and DOD Range where feasible	1	2017	4	2017
Warfare Systems Cybersecurity: Follow-on Testing Event (AEGIS BMD CS)	3	2017	4	2017
Warfare Systems Cybersecurity: Assessment refinement and maintenance (metrics & methodology)	4	2017	4	2017
Warfare Systems Cybersecurity: FY17 Testing Events (Risk reduction LCS)	1	2017	4	2017
Warfare Systems Cybersecurity: FY18 Testing Events (0)	1	2018	4	2018

Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy										**Date:** February 2018	
Appropriation/Budget Activity 1319 / 4				**R-1 Program Element (Number/Name)** PE 0603582N / *Combat System Integration*					**Project (Number/Name)** 3425 / *Digital Warfare*		
COST ($ in Millions)	**Prior Years**	**FY 2017**	**FY 2018**	**FY 2019 Base**	**FY 2019 OCO**	**FY 2019 Total**	**FY 2020**	**FY 2021**	**FY 2022**	**FY 2023**	**Cost To Complete**	**Total Cost**
3425: *Digital Warfare*	0.000	0.000	4.400	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	4.400
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

New Project: Digital Warfare

The Chief of Naval Operations concurred with the Task Force Netted Navy recommendation to stand up the Digital Warfare (DW) to set requirements, prioritize resources, and lead efforts on information interoperability and human/machine teaming.

NAVAIR, NAVSEA, SPAWAR, associated Program Executive Offices, warfare and system centers and University Affiliated Research Centers/Federally Funded Research and Development Centers will support the Model Based Engineering, Technical Design, and Requirements branches in the new DW under OPNAV N2N6. In order to develop capability from the top down, the DW will develop requirements for the system of systems to include all of the associated interoperability requirements. Due to the complexity of this work, the DW will evolve the traditional requirements development methodology to a model based systems engineering environment that will include associated model extensions, reports, views, configuration management, help desk support, and documentation. This work will be completed by a series of teams, each focused on a separate threat domain, and made up of system modelers, fleet representatives, program of record representatives, architecture and interoperability experts, etc. The products generated by these teams will include data technical baselines for domain areas with individual profiles for each program of record, coordinated requirements recommendations, and potential areas for S&T and experimentation to fill gaps. The DW will also explore emerging digital technologies including human/machine teaming.

Each SYSCOM will be involved in creating Data Technical Baseline (DTB) profiles specific for each program of record. DTBs may consist of interfaces, protocols, content, information quality, architectural aspects, and knowledge base frameworks. SYSCOMs will exercise technical authority to assess Program of Record compliance to DTBs and Key Performance Parameters in support of gate reviews and system engineering technical reviews.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	**FY 2017**	**FY 2018**	**FY 2019 Base**	**FY 2019 OCO**	**FY 2019 Total**
Title: SYSCOM/PEO DW Support	0.000	4.400	0.000	0.000	0.000
Articles:	-	-	-	-	-
Description: The Digital Warfare (DW) will develop requirements, prioritize resources, and lead efforts on information interoperability and human/machine teaming in support of evolution to a digital Navy. NAVAIR, NAVSEA, SPAWAR, associated Program Executive Offices, warfare and system centers and university affiliated research centers (UARCs)/federally funded research and development centers (FFRDCs) will support the Model Based Engineering, Technical Design, and Requirements branches in the new DW under OPNAV N2N6. The work scope includes supporting development of a requirements modeling environment to include associated					

Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy		Date: February 2018		
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603582N / *Combat System Integration*	**Project (Number/Name)** 3425 / *Digital Warfare*		

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	**FY 2017**	**FY 2018**	**FY 2019 Base**	**FY 2019 OCO**	**FY 2019 Total**
model extensions, reports, views, configuration management, help desk support, and documentation; providing subject matter expert support for mission area model-based engineering teams; development of digital technical baselines for programs as well as associated baselines; exploration of emerging technologies including human/ machine teaming; and developing and participating in workforce training in model-based systems engineering. ***FY 2018 Plans:*** Provide SME support for the domain functional decomposition for prioritized mission areas. Support the analytical agenda from OPNAV N81 and N9I for the specific mission area capabilities. Provide modeling and documentation support for JCIDS, OPNAV POM process, ASN (RD&A) Acquisition Process. Coordinate Program Executive Office (PEO) requirements allocation process. Participate in the definition of MBSE tool functionality and views based on Echelon I stakeholder requirements. Collaboratively develop tool extensions to complement JCIDS and POM processes. Support development of cross-SYSCOM Modeling Standards and Policies for S&T and PoRs. Curate models in the modeling environment. Provide subject matter export support for data science teams in the exploration of data analysis, information and knowledge extraction techniques and application to mission area requirements. Provide engineering inputs to and review NICCs for data architecture consistencies. Explore Machine Learning techniques to support human/machine teaming for decision making. Develop DTBs for PORs under SYSCOM cognizance. Assess DTBs for all SETR events and gate reviews. Provide common infrastructure for MBSE and DTB environments, to include access management, configuration management, and help desk support. ***FY 2019 Base Plans:*** -Provide Subject Matter Expert (SME) support for the domain functional decomposition based on prioritized mission areas to include Anti-Submarine Warfare, Surface Warfare, Electronic Warfare and Air Warfare. -Continue to establish and implement required extensions to model requirements trace and reports that will be used in the JCIDS process. -Continue to validate current standards across the SYSCOMs to form the overarching Navy DTB in order to facilitate tailoring of each standard for the PoR DTB.					

Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy		Date: February 2018
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603582N / *Combat System Integration*	**Project (Number/Name)** 3425 / *Digital Warfare*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
-Continue to validate different SYSCOM architectures and guidance to produce a Navy-wide high level architectural framework. -Continue to develop functional baseline architecture of Navy capabilities that maps back to mission threads. -Tune configuration of, and cyber monitor, the distributed MBSE and data science prototype environment for remote accessibility over a given network enclave, including but not limited to NIPR, SIPR, and JWICS. Investigate cloud computing with respect to the modeling environment. -Continue to integrate cyber requirements across all DW architecture and standard efforts and verify cyber requirements are captured as part of the modeling process. -Continue to provide subject matter expert support for data science teams in the exploration of data analysis, information and knowledge extraction techniques and application to mission area requirements. -Continue to participate in the definition of Model Based Systems Engineering (MBSE) tool functionality and views based on Echelon I stakeholder requirements. Collaboratively develop tool extensions to complement Joint Capabilities Integration and Development System (JCIDS) and Program Objective Memorandum (POM) processes. -Curate models in the modeling environment and support development across Systems Commands (SYSCOMs) in Modeling Standards and Policies for Science and Technology (S&T) and Programs of Record (PoRs). -Develop an overarching Data Technical Baseline (DTB) and DTB profiles for PoRs under SYSCOM cognizance. Assess PoRs against their DTB profile during all Systems Engineering Technical Review events and gate reviews. ***FY 2019 OCO Plans:*** N/A ***FY 2018 to FY 2019 Increase/Decrease Statement:*** Funding decreased due Proj 3425 Digital Warfare (DW) MBE&DT Development moved to new RDT&EN PE 0603017N.					
Accomplishments/Planned Programs Subtotals	0.000	4.400	0.000	0.000	0.000

C. Other Program Funding Summary ($ in Millions)
 N/A
Remarks

D. Acquisition Strategy
 N/A

Exhibit R-2A, **RDT&E Project Justification:** PB 2019 Navy		**Date:** February 2018
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603582N / *Combat System Integration*	**Project (Number/Name)** 3425 / *Digital Warfare*
E. Performance Metrics TBD		

Exhibit R-3, **RDT&E Project Cost Analysis:** PB 2019 Navy												**Date:** February 2018		

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Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2017		FY 2018		FY 2019 Base		FY 2019 OCO		FY 2019 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
DW	WR	NSWCs : Various	0.000	0.000		1.700	Dec 2017	0.000	Dec 2018	-		0.000	0.000	1.700	-
DW	WR	NUWC : Keport	0.000	0.000		1.480	Dec 2017	0.000	Dec 2018	-		0.000	0.000	1.480	-
DW	C/CPFF	Various : Various	0.000	0.000		1.220	Dec 2017	0.000	Dec 2018	-		0.000	0.000	1.220	-
		Subtotal	0.000	0.000		4.400		0.000		-		0.000	0.000	4.400	N/A

	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	0.000	0.000	4.400	0.000	-	0.000	0.000	4.400	N/A

Remarks

Exhibit R-4, **RDT&E Schedule Profile:** PB 2019 Navy		**Date:** February 2018
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603582N / Combat System Integration	**Project (Number/Name)** 3425 / Digital Warfare

	FY 2017				FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4

Proj 3425

Task
DW: NIPR Cloud/SIPR Compute admin and cyber security
DW: Navy Data Technical Baseline for TASW,Surface, Air and IW
DW: Surface Functional Gap Analysis
DW: Develop Surface Requirements
DW: Model Air Capabilities/Req
DW: Air Functional Gap Analysis
DW: Develop Air Requirements
DW: Model IW Capabilities/Req
DW: IW Functional Gap Analysis
DW: Develop IW Requirements
DW: Undersea Domain DTB updates
DW: Migrate to shared SIPR Cloud
DW: Surface Domain DTB

Exhibit R-4A, RDT&E Schedule Details: PB 2019 Navy				Date: February 2018	
Appropriation/Budget Activity 1319 / 4		**R-1 Program Element (Number/Name)** PE 0603582N / *Combat System Integration*		**Project (Number/Name)** 3425 / *Digital Warfare*	

Schedule Details

Events by Sub Project	Start		End	
	Quarter	**Year**	**Quarter**	**Year**
Proj 3425				
DW: NIPR Cloud/SIPR Compute admin and cyber security	1	2018	4	2018
DW: Navy Data Technical Baseline for TASW,Surface, Air and IW	1	2018	4	2018
DW: Surface Functional Gap Analysis	1	2018	3	2018
DW: Develop Surface Requirements	2	2018	1	2019
DW: Model Air Capabilities/Req	1	2018	4	2018
DW: Air Functional Gap Analysis	3	2018	1	2019
DW: Develop Air Requirements	4	2018	3	2019
DW: Model IW Capabilities/Req	2	2018	1	2019
DW: IW Functional Gap Analysis	4	2018	2	2019
DW: Develop IW Requirements	2	2019	1	2020
DW: Undersea Domain DTB updates	1	2018	3	2018
DW: Migrate to shared SIPR Cloud	2	2018	3	2018
DW: Surface Domain DTB	2	2018	4	2018