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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 7: Operational Systems Development					R-1 Program Element (Number/Name) PE 0101402N / Navy Strategic Comms							
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	452.510	16.121	17.218	18.221	-	18.221	20.326	18.265	17.981	18.342	Continuing	Continuing
1083: Shore To Ship Com System	184.152	15.341	16.235	17.125	-	17.125	19.278	17.206	17.155	17.499	Continuing	Continuing
3002: Navy Strategic Comm Project	268.358	0.780	0.983	1.096	-	1.096	1.048	1.059	0.826	0.843	Continuing	Continuing

A. Mission Description and Budget Item Justification

The Shore to Ship Communication System develops communication elements which support Navy Nuclear Command, Control, and Communications (NC3) strategic requirements, connecting the President of the United States (POTUS) to Ballistic Missile Submarines (SSBN) via the Fixed Submarine Broadcast System (FSBS). This portfolio of programs provides design and development for shore-to-ship transmit and receive communications systems. The portfolio also designs and develops shore-to-ship communications systems (i.e., Submarine Operating Authority Command, Control, and Communications (C3) Systems) in support of tactical communications with other submarine types (i.e., SSN & SSGN).

Realignment of funds from OPN to RD TEN for Nuclear Command, Control & Communications Nova Technical Change (NC3 NTC) to complete tech refresh and operational test and evaluation of the Nova software. The Nova software tech refresh will mitigate supply chain risk and comply with enhanced IA standards identified by National Security Agency (NSA) and Task Force Urgent Sentinel (TFUS).

The Navy Strategic Communications Project responds to emerging E-6B Airborne Strategic Command, Control and Communications capability requirements by performing technical evaluations, modeling and simulation, investigative ground and flight testing, enhanced software modifications and development of configuration modifications. The E-6B is a manned airborne platform that provides survivable, enduring and reliable Command, Control and Communications capability in support of the President, Secretary of Defense and United States strategic and non-strategic forces. These efforts support follow-on aircraft modification procurements necessary to ensure interoperability in information-assured network-centric strategic environments.

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B. Program Change Summary (\$ in Millions)	FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total
Previous President's Budget	16.558	17.218	16.020	-	16.020
Current President's Budget	16.121	17.218	18.221	-	18.221
Total Adjustments	-0.437	0.000	2.201	-	2.201
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-0.437	0.000			
• Program Adjustments	0.000	0.000	2.200	-	2.200
• Rate/Misc Adjustments	0.000	0.000	0.001	-	0.001
Change Summary Explanation					
Schedule Changes for Project 3002 - Upon completion of Studies & Analysis in FY16, Technical & Design Analysis and System Integration Lab Testing & Reporting will commence in FY 17 on advance technology development.					

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Appropriation/Budget Activity 1319 / 7					R-1 Program Element (Number/Name) PE 0101402N / Navy Strategic Comms				Project (Number/Name) 1083 / Shore To Ship Com System			
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
1083: Shore To Ship Com System	184.152	15.341	16.235	17.125	-	17.125	19.278	17.206	17.155	17.499	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The Shore to Ship Communications System develops communication elements which provide Nuclear Command, Control and Communications (NC3) between the President of the United States (POTUS) and Ballistic Missile Submarines (SSBN). This portfolio of programs provides design and development for shore-to-ship transmit and receive communications systems.

The Low Band Universal Communications System (LBUCS) is a modernization program that will upgrade the low-power transmit and receive subsystems of the Fixed Submarine Broadcast System (FSBS) which are approaching their operational end of life. LBUCS will ensure operational capability of the Very Low Frequency (VLF) architecture by providing system life extension and flexibility of submarine broadcast reception to submarines operating in a stealth posture. The flexibility includes enhanced throughput and anti-jam capability, ensuring more operational traffic is delivered to submarines without risking mast exposure. LBUCS will also deliver a simplified shore architecture, maintaining capability while maximizing use of shore infrastructure. Finally, LBUCS provides an upgrade to the VLF receive system, with all interoperable waveforms, to ensure continued compliance with Nuclear Command and Control System Technical Performance Criteria (NTPC).

The Strategic Communications Assessment Program/Continued Evaluation Program (SCAP/CEP) provides continuous assessment of the effectiveness of the Navy NC3 network and analysis of system performance in various mission locations by evaluating and reporting results of strategic exercises to the Fleet. Expanded CEP to include NOVA NIXT automated data collection.

The High Voltage Improvement Program (HVIP) develops technologies to improve the high voltage insulators, bushings, antenna and transmitter components used in the high-power Low Frequency/Very Low Frequency (LF/VLF) transmit systems of the Fixed Submarine Broadcast System (FSBS). These components provide Nuclear Command, Control and Communications (NC3) and are beyond their operational life expectancy.

The Broadcast Control Authority (BCA) project researches and models future solutions to address network/system interoperability, provides enterprise lab facilities and cybersecurity challenges of the four regional Submarine Operating Authority (SUBOPAUTH) BCA communication and network operations centers.

Nuclear Command, Control and Communications Nova Technical Change (NC3 NTC) is the Shore to Ship Communication System that develops communication elements which support the Navy's NC3 requirements, providing various communications infrastructure and elements from the regional Submarine Operating Authority (SUBOPAUTH) to the deployed strategic platform (fleet ballistic missile submarines). This portfolio of programs designs and develops shore-to-ship transmit and receive communications systems (i.e., Fixed Submarine Broadcast System (FSBS) and SUBOPAUTH Command, Control, and Communications (C3) Systems) in support of communications with all submarine types (i.e., SSN, SSGN, and SSBN).

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Appropriation/Budget Activity 1319 / 7		R-1 Program Element (Number/Name) PE 0101402N / Navy Strategic Comms		Project (Number/Name) 1083 / Shore To Ship Com System		
B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)						
		FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total
Title: Low Band Universal Communication System (LBUCS)		8.619	7.481	4.510	0.000	4.510
Articles:		-	-	-	-	-
FY 2016 Accomplishments: -Commenced and completed LBUCS Transmit technical evaluation with EDM and completed LRIP units (DT-C1). -Completed development of a new Very Low Frequency (VLF) Mode which will be incorporated into the LBUCS Receive development effort. -Completed development of LBUCS Receive Engineering Development Model (EDM). -Continued LBUCS Transmit development. -Continued LBUCS Receive development. -Commenced development of statutory and regulatory acquisition documentation in preparation for LBUCS Receive deployment.						
FY 2017 Plans: -Complete LBUCS Transmit development. -Commence and complete LBUCS Transmit integrated test with completed LRIP units (DT-C2). -Commence and complete LBUCS Transmit Testing with completed LRIP units (IOT&E), with Commander, Operational Test and Evaluation Force(COMOPTEVFOR). -Commence and complete LBUCS Receive DT. -Commence and complete LBUCS Receive EDM program review. -Continue LBUCS Receive development. -Continue development of statutory and regulatory acquisition documentation in preparation for LBUCS Receive deployment. -Commence LBUCS Receive DT/OT. -Commence the development of the next generation VLF receiver.						
FY 2018 Base Plans: -Complete LBUCS Receive development, and continue development of LBUCS Receive sub-modes. -Complete development of statutory and regulatory acquisition documentation in preparation for LBUCS Receive deployment. -Complete LBUCS Receive DT/OT. -Continue the development of the next generation VLF receiver.						
FY 2018 OCO Plans:						

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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
N/A						
Title: Strategic Communications Assessment Program (SCAP)/Continuing Evaluation Program (CEP) Articles:		4.462	4.687	4.383	0.000	4.383
FY 2016 Accomplishments: -Continued development of automated data collection and analysis tools to reduce latency time between missions and results availability. -Continued reports on performance, adherence to delivery time requirements and shortfalls. -Continued mission analysis of SSBN Emergency Action Messages (EAM) reception for SSBN patrols. -Commenced mission-based analysis for cyber risk on Navy Nuclear Command, Control and Communications (NC3) systems. FY 2017 Plans: -Continue development of automated data collection and analysis tools to reduce latency time between missions and results availability. -Continue reports on performance, adherence to delivery time requirements and shortfalls. -Continue mission analysis of Shore and SSBN EAM reception for SSBN patrols. -Continue mission-based analysis for cyber risk on Navy Nuclear Command, Control and Communications (NC3) systems. FY 2018 Base Plans: -Continue development of automated data collection and analysis tools to reduce latency time between missions and results availability. -Continue reports on performance, adherence to delivery time requirements and shortfalls. -Continue mission analysis of Shore and SSBN EAM reception for SSBN patrols. -Continue mission-based analysis for cyber risk on Navy Nuclear Command, Control and Communications (NC3) systems. FY 2018 OCO Plans: N/A		-	-	-	-	-
Title: High Voltage Improvement Program (HVIP) Articles:		1.022	1.366	1.625	0.000	1.625
FY 2016 Accomplishments: -Completed analysis of High Voltage Test Facility (HVTF) improvement to reduce sparking and increase operational voltage output.		-	-	-	-	-

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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
<div>-Continued analysis of sulfur hexafluoride (SF6) breakdown in high voltage fields.</div> <div>-Commenced testing of operational scale tuning reactor.</div> <div>-Commenced development of Base Arc Gap for Umbrella Top Loaded Monopole (UTLM) towers.</div> <div>-Commenced and completed assessment of tower light control box design in order to determine the best way forward on lighting control panels.</div> <div>FY 2017 Plans:</div> <div>-Complete analysis of sulfur hexafluoride (SF6) breakdown in high voltage fields.</div> <div>-Complete development of Base Arc Gap for Umbrella Top Loaded Monopole (UTLM) towers.</div> <div>-Continue testing of operational scale tuning reactor.</div> <div>-Commence Low Frequency/Very Low Frequency (LF/VLF) environmental degradation, life span, and materials analysis.</div> <div>FY 2018 Base Plans:</div> <div>- Complete testing of operational scale tuning reactor.</div> <div>- Continue Low Frequency/Very Low Frequency (LF/VLF) environmental degradation, life span, and materials analysis.</div> <div>- Commence study to determine most efficient and durable design for tower risers</div> <div>- Commence transmitter components analysis, testing, and specification development for the transmitter component of the Fixed Submarine Broadcast System (FSBS).</div> <div>FY 2018 OCO Plans:</div> <div>N/A</div>						
<div>Title: Nuclear Command & Control Nova Tech Change (NC3 NTC) Build 2</div> <div>Articles:</div> <div>FY 2016 Accomplishments:</div> <div>N/A</div> <div>FY 2017 Plans:</div> <div>-Commence system software development, integrate network monitoring and cybersecurity interfaces, conduct market research, and procure evaluation prototype equipment.</div> <div>-Commence lab infrastructure support and deliver initial system level design documentation.</div> <div>-Commence developer integration, software functional assessment, and functional integration testing.</div> <div>-Commence engineering management oversight of software development and evaluation testing.</div> <div>FY 2018 Base Plans:</div>		0.000 -	1.200 -	3.407 -	0.000 -	3.407 -

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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
<div>-Continue system software development, integrate network monitoring and cybersecurity interfaces, conduct market research, and procure evaluation prototype equipment.</div> <div>-Continue lab infrastructure support and deliver initial system level design documentation.</div> <div>-Continue developer integration, software functional assessment, and functional integration testing.</div> <div>-Continue engineering management oversight of software development and evaluation testing.</div> <div>FY 2018 OCO Plans:</div> <div>N/A</div>						
<div>Title: Broadcast Control Authority (BCA)</div> <div>Articles:</div> <div>FY 2016 Accomplishments:</div> <div>-Continued systems and security engineering support for cybersecurity improvements.</div> <div>-Commenced research and Model-Based Systems Engineering (MBSE) efforts to support the development and alignment of Computer Network Defense (CND) and Network Operations (NETOPS) monitoring initiatives within PEO C4I and other DoD organizations.</div> <div>FY 2017 Plans:</div> <div>-Continue systems and security engineering support for cybersecurity improvements.</div> <div>-Continue research and Model-Based Systems Engineering (MBSE) efforts to support the development and alignment of Computer Network Defense (CND) and Network Operations (NETOPS) monitoring initiatives within PEO DoD organizations.</div> <div>-Commence establishment of Integrated Test Facility (ITF) and interconnectivity between other labs for end-to-end testing of FSBS Low Power and supporting C3 systems.</div> <div>FY 2018 Base Plans:</div> <div>-Continue establishment of Integrated Test Facility (ITF) and interconnectivity between other labs for end-to-end testing of FSBS Low Power and supporting C3 systems.</div> <div>-Continue systems and security engineering support for cybersecurity improvements.</div> <div>-Continue research and Model-Based Systems Engineering (MBSE) efforts to support the development and alignment of Computer Network Defense (CND) and Network Operations (NETOPS) monitoring initiatives within PEO DoD organizations.</div> <div>FY 2018 OCO Plans:</div> <div>N/A</div>		1.238 -	1.501 -	3.200 -	0.000 -	3.200 -
Accomplishments/Planned Programs Subtotals		15.341	16.235	17.125	0.000	17.125

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C. Other Program Funding Summary (\$ in Millions)

<u>Line Item</u>	<u>FY 2016</u>	<u>FY 2017</u>	<u>FY 2018</u> <u>Base</u>	<u>FY 2018</u> <u>OCO</u>	<u>FY 2018</u> <u>Total</u>	<u>FY 2019</u>	<u>FY 2020</u>	<u>FY 2021</u>	<u>FY 2022</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• OPN/3107: Submarine Broadcast	15.485	34.151	29.669	-	29.669	29.666	30.227	32.351	32.986	Continuing	Continuing

Remarks

D. Acquisition Strategy

Low Band Universal Communications System (LBUCS): LBUCS is the modernization program that will upgrade the low power Transmit and Receive subsystems of the Fixed Submarine Broadcast System which are approaching their operational end of life. The program achieved Milestone C in FY14. The Full Deployment Decision for Transmit is in FY17. The testing of LBUCS completes in FY18. The Full Fielding Program Review for Receive is in FY18.

E. Performance Metrics

LBUCS FY18: Complete Full Fielding Decisions and Operational Testing.

Strategic Communications Assessment Program (SCAP)/Continuing Evaluation Program (CEP) FY18: Delivery of Submersible Ballistic Nuclear Submarine (SSBN) patrol reports.

High Voltage Improvement (HVIP) Program FY18: Complete testing of operational scale tuning reactor.

Broadcast Control Authority (BCA) FY18: Continue establishment of Broadcast Control Authority (BCA) Integrated Test Facility (ITF) and interconnectivity between other labs. Continue research and Model-Based Systems Engineering (MBSE) efforts to support the development and alignment of Computer Network Defense (CND) and Network Operations (NETOPS) monitoring initiatives within PEO C4I and other DoD organizations.

Nuclear Command, Control and Communications Nova Technical Change (NC3 NTC) FY18: Complete development and engineering efforts for the transition of Navy NC3 NTC Software (Build 2) into the program of record.

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Appropriation/Budget Activity 1319 / 7						R-1 Program Element (Number/Name) PE 0101402N / Navy Strategic Comms				Project (Number/Name) 1083 / Shore To Ship Com System					
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
Development Support	WR	SSC PAC : San Diego, CA	9.727	0.000		0.000		0.000		-		0.000	0.000	9.727	-
Software Development	WR	SSC PAC : San Diego, CA	12.956	0.000		0.000		0.000		-		0.000	0.000	12.956	-
LBUCS: Systems Engineering	WR	SSC LANT : Charleston, SC	9.123	0.854	Nov 2015	0.250	Nov 2016	0.000		-		0.000	0.000	10.227	-
LBUCS: Primary Hardware Development	WR	SSC LANT : Charleston, SC	0.000	0.356	Nov 2015	0.113	Nov 2016	0.000		-		0.000	0.000	0.469	-
LBUCS: Systems Engineering	WR	SSC PAC : San Diego, CA	1.860	0.839	Nov 2015	1.646	Nov 2016	0.554	Nov 2017	-		0.554	Continuing	Continuing	Continuing
LBUCS: Software Development	WR	SSC PAC : San Diego, CA	4.556	0.555	Nov 2015	0.713	Nov 2016	0.417	Nov 2017	-		0.417	Continuing	Continuing	Continuing
LBUCS: Software Development (DC)	C/IDIQ	SSC PAC : San Diego, CA	0.923	0.942	Nov 2015	1.080	Nov 2016	0.566	Nov 2017	-		0.566	Continuing	Continuing	Continuing
NC3 NTC - Software Development	WR	SSC PAC : San Diego	0.000	0.000		0.700	May 2017	0.700	Nov 2017	-		0.700	0.000	1.400	-
NC3 NTC - Contractor Engineering Support	C/FPIF	Various : Various	0.000	0.000		0.000		2.200	Jan 2018	-		2.200	0.000	2.200	-
Product Development Prior Years	Various	Various : Various	66.297	0.000		0.000		0.000		-		0.000	0.000	66.297	66.297
Subtotal			105.442	3.546		4.502		4.437		-		4.437	-	-	-
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
Acquisition/Program Development	WR	SSC PAC : San Diego, CA	3.200	0.115	Nov 2015	0.066	Nov 2016	0.066	Nov 2017	-		0.066	Continuing	Continuing	Continuing
LBUCS: Acquisition/Program Development/Logistics	C/CPFF	CSA : San Diego, CA	0.000	0.000		0.200	Feb 2017	0.211	Nov 2017	-		0.211	0.000	0.411	-
LBUCS: Information Assurance	C/CPFF	Merdan Group : San Diego, CA	1.306	0.000		0.000		0.000		-		0.000	0.000	1.306	-

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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
LBUCS: Security Engineering	C/CPFF	G2 OPS : Virginia Beach, VA	0.000	0.127	Jan 2016	0.126	Nov 2016	0.129	Nov 2017	-		0.129	0.000	0.382	-
LBUCS: Information Assurance	WR	SSC PAC : San Diego, CA	1.333	0.234	Nov 2015	0.120	Nov 2016	0.000		-		0.000	0.000	1.687	-
LBUCS: Acquisition/ Program Development	C/CPFF	CSA : San Diego, CA	3.556	0.690	Nov 2015	0.000		0.000		-		0.000	0.000	4.246	-
LBUCS: Systems Engineering	C/CPFF	FSI : San Diego, CA	1.530	0.334	Nov 2015	0.000		0.000		-		0.000	0.000	1.864	-
LBUCS: Systems Engineering	C/CPFF	G2 OPS : San Diego, CA	0.000	0.000		0.130	Nov 2016	0.167	Nov 2017	-		0.167	Continuing	Continuing	Continuing
Shore to Ship: Broadcast Control Authority	C/CPFF	FSI : San Diego, CA	0.680	1.238	Nov 2015	0.000		0.000		-		0.000	0.000	1.918	-
LBUCS: Logistics Support	C/CPFF	CSA : San Diego, CA	1.022	0.607	Nov 2015	0.000		0.000		-		0.000	0.000	1.629	-
LBUCS: Cost Estimating	C/CPFF	TASC : San Diego, CA	0.330	0.216	Nov 2015	0.000		0.000		-		0.000	0.000	0.546	-
Shore to Ship: High Voltage Improvement Program (HVIP) Studies and Design	WR	SSC PAC : San Diego, CA	3.985	1.022	Nov 2015	1.366	Nov 2016	1.290	Nov 2017	-		1.290	Continuing	Continuing	Continuing
Shore to Ship: High Voltage Improvement Program (HVIP) Studies and Design	WR	SSC LANT : Charleston, SC	0.000	0.000		0.000		0.335	Jan 2018	-		0.335	Continuing	Continuing	Continuing
Shore to Ship: BCA: Systems Engineering	WR	SSC LANT : Charleston, SC	0.000	0.000		1.501	Nov 2016	1.555	Nov 2017	-		1.555	Continuing	Continuing	Continuing
NC3 NTC - Technical Design Documentation	WR	SSC PAC : San Diego	0.000	0.000		0.150	May 2017	0.150	Nov 2017	-		0.150	0.000	0.300	-
Support Prior Years	Various	Various : Various	5.592	0.000		0.000		0.000		-		0.000	0.000	5.592	5.592
Subtotal			22.534	4.583		3.659		3.903		-		3.903	-	-	-

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Appropriation/Budget Activity 1319 / 7						R-1 Program Element (Number/Name) PE 0101402N / Navy Strategic Comms				Project (Number/Name) 1083 / Shore To Ship Com System					
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
SCAP/CEP: Strategic OP Systems Performance Evaluation	C/CPFF	APL/JHU : Baltimore, MD	37.223	4.462	Jan 2016	4.687	Jan 2017	4.383	Jan 2018	-		4.383	Continuing	Continuing	Continuing
LBUCS: System Testing	WR	COTF : Norfolk, VA	1.664	0.525	Nov 2015	0.250	Nov 2016	0.699	Nov 2017	-		0.699	Continuing	Continuing	Continuing
LBUCS: System Testing	WR	SSC PAC : San Diego, CA	3.305	1.247	Nov 2015	1.074	Nov 2016	1.109	Nov 2017	-		1.109	Continuing	Continuing	Continuing
LBUCS: System Testing	WR	JITC : Fort Huachuca, AZ	0.203	0.207	Nov 2015	0.225	Nov 2016	0.335	Nov 2017	-		0.335	Continuing	Continuing	Continuing
LBUCS: Hardware Support for Testing	WR	SSC LANT : Charleston, SC	0.054	0.058	Nov 2015	0.929	Nov 2016	0.000		-		0.000	0.000	1.041	-
Shore to Ship: BCA Hardware Support for Testing	WR	SSC LANT : Charleston, SC	0.000	0.000		0.000		1.646	Nov 2017	-		1.646	Continuing	Continuing	Continuing
NC3 NTC - System Testing	TBD	SSC PAC : San Diego	0.000	0.000		0.290	May 2017	0.290	Nov 2017	-		0.290	0.000	0.580	-
Subtotal			42.449	6.499		7.455		8.462		-		8.462	-	-	-
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
LBUCS: Program Management	WR	SSC PAC : San Diego, CA	9.381	0.386	Nov 2015	0.225	Nov 2016	0.066	Nov 2017	-		0.066	Continuing	Continuing	Continuing
Contractor Engineering Support	MIPR	MITRE : San Diego, CA	3.930	0.327	Nov 2015	0.334	Nov 2016	0.197	Nov 2017	-		0.197	Continuing	Continuing	Continuing
LBUCS: Travel	WR	SSC PAC : San Diego, CA	0.416	0.000		0.000		0.000		-		0.000	0.000	0.416	-
NC3 NTC - Program Management	TBD	SSC PAC : San Diego	0.000	0.000		0.060	May 2017	0.060	Nov 2017	-		0.060	0.000	0.120	-
Subtotal			13.727	0.713		0.619		0.323		-		0.323	-	-	-

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	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	184.152	15.341		16.235		17.125		-		17.125	-	-	-
Remarks													

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

Date: May 2017

Appropriation/Budget Activity

1319 / 7

R-1 Program Element (Number/Name)

PE 0101402N / Navy Strategic Comms

Project (Number/Name)

1083 / Shore To Ship Com System

Fiscal Year	2016				2017				2018				2019				2020				2021				2022			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Acquisition Milestones Low Band Universal Communications System (LBUCS) <i>Transmit</i>			▲				▲					△																
			ADM (FY16 Hardware Procurement)				ADM (FY17-18 H/W Procurements)					Full Deployment Decision △ IOC																
Test & Evaluation	▲						▲																					
	Tech Eval (DT-C1)						Integrated Test (DT-C2)																					
Equipment Procurement				▲			▲																					
				FY16 Procurement			FY17 Procurement					△																
Equipment Installation				▲																								
				Installation LRIP																								
												△																
												Installation																

Note 1: IOC is achieved following EAM testing in IOT&E.

Note 2: The ADMs provide hardware acquisition authority by Milestone Decision Authority prior to the IOT&E report.

Note 3: LBUCS Transmit equipment and cables will be installed in racks and must go through acceptance and integration testing prior to installation. Timeframe varies due to complexity of each site's unique system configuration.

Acronym Legend:

ADM: Acquisition Decision Memorandum

BCA: Broadcast Control Authority

BTS: Broadcast Transmitter Station

CPD: Capability Production Document

DT: Developmental Testing

FRP: Full Rate Production

IOC: Initial Operational Capability

IOT&E: Initial Operational Test and Evaluation

LRIP: Low-Rate Initial Production

MS-C: Milestone C

OT: Operational Testing

OTRR: Operational Test Readiness Review

Tech Eval: Technical Evaluation

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Note 2: EDM program review will result in procurement authority.

Acronym Legend:

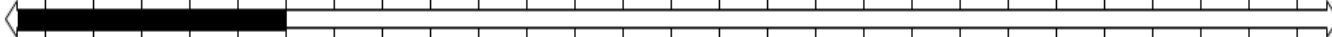

CDR: Critical Design Review

DT: Developmental Testing

EDM: Engineering Development Model

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Exhibit R-4, RDT&E Schedule Profile: FY 2018 Navy			Date: May 2017		
Appropriation/Budget Activity 1319 / 7		R-1 Program Element (Number/Name) PE 0101402N / Navy Strategic Comms		Project (Number/Name) 1083 / Shore To Ship Com System	

Exhibit R-4, RDT&E Schedule Profile: FMB 2018 Navy																				DATE:																	
Strategic Communications Assessment Program (SCAP) Continuing Evaluation Program (CEP)/Expanded Continuing Evaluation Program (ECEP)																				March 2017																	
APPROPRIATION/BUDGET ACTIVITY										PROGRAM ELEMENT NUMBER AND NAME										PROJECT NUMBER AND NAME																	
RESEARCH DEVELOPMENT TEST & EVALUATION, NAVY / BA-7										PE 0101402N / Navy Strategic Comms										1083 SCAP/CEP																	
Fiscal Year										2016				2017				2018				2019				2020				2021				2022			
										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
Studies and Analysis																																					
Strategic Communications Assessment Program (SCAP) Continuing Evaluation Program (CEP)/ECEP																																					
Milestones and Deliverables										 <div>Analysis Automation</div>																											
Contractual Milestones/Timelines																																					

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Exhibit R-4A, RDT&E Schedule Details: FY 2018 Navy			Date: May 2017
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0101402N / Navy Strategic Comms	Project (Number/Name) 1083 / Shore To Ship Com System	

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
Proj 1083				
LBUCS: LRIP Installation - Transmit	1	2016	4	2016
LBUCS: Developmental Test (DT-C1)/Technical Evaluation - Transmit	1	2016	1	2016
LBUCS: Acquisition Decision Memorandum (ADM) (FY16 Hardware Procurement) - Transmit	3	2016	3	2016
LBUCS: FY16 Hardware Procurement - Transmit	4	2016	2	2017
LBUCS: Integrated Test (DT-C2) - Transmit	2	2017	2	2017
LBUCS: ADM (FY17-18 H/W Procurements) - Transmit	2	2017	2	2017
LBUCS: FY17 Procurement - Transmit	2	2017	4	2017
LBUCS: Operational Test Readiness Review (OTRR) - Transmit	3	2017	3	2017
LBUCS: Operational Test (IOT&E) - Transmit	4	2017	4	2017
LBUCS: Initial Operational Capability (IOC) - Transmit	4	2017	4	2017
LBUCS: Full Deployment Decision - Transmit	4	2017	4	2017
LBUCS: Installation - Transmit	4	2017	4	2018
LBUCS: Engineering Design Model (EDM) - Receive	1	2016	4	2016
LBUCS: Developmental Test (DT) - Receive	3	2017	3	2017
LBUCS: EDM Program Review - Receive	3	2017	3	2017
LBUCS: Developmental Testing/Operational Testing (DT/OT) - Receive	3	2017	3	2018
LBUCS: Full Fielding Program Review - Receive	3	2018	3	2018
LBUCS: Procurement - Receive	3	2017	4	2021
LBUCS: Installation - Receive	3	2018	4	2022
CEP: Studies and Analysis	1	2016	4	2022
CEP: Analysis Automation	1	2016	4	2017

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Exhibit R-4A, RDT&E Schedule Details: FY 2018 Navy	Date: May 2017
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Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0101402N / <i>Navy Strategic Comms</i>	Project (Number/Name) 1083 / <i>Shore To Ship Com System</i>
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Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
NC3 NTC: Acquisition MS - Milestone C Decision Review (MSC)	2	2019	2	2019
NC3 NTC: Acquisition MS - Full Development Deployment (FDD)	4	2020	4	2020
NC3 NTC: Acquisition MS - Initial Operational Capability (IOC)	2	2020	2	2020
NC3 NTC: Acquisition MS - Full Operational Capability (FOC)	3	2021	3	2021
NC3 NTC: Acquisition MS - Contract Award (CA)	1	2018	1	2018
NC3 NTC: Engineering & Manufacturing Development - B2 SW Dev	3	2017	2	2019
NC3 NTC: Engineering & Manufacturing Development - Independent Verification & Validation (IV&V)	2	2019	4	2019
NC3 NTC: Test & Evaluation MS Development - DT	3	2020	3	2020
NC3 NTC: Test & Evaluation MS Development - Final Operational Test & Evaluation (FOT&E)	4	2020	4	2020
NC3 NTC: Production MS - Tech Refresh	2	2020	3	2021
NC3 NTC: Deliverables - Limited Deployment (LD)	2	2020	2	2020
NC3 NTC: Deliverables - Full Deployment (FD)	1	2021	3	2021

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Exhibit R-2A, RDT&E Project Justification: FY 2018 Navy										Date: May 2017		
Appropriation/Budget Activity 1319 / 7					R-1 Program Element (Number/Name) PE 0101402N / Navy Strategic Comms				Project (Number/Name) 3002 / Navy Strategic Comm Project			
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
3002: Navy Strategic Comm Project	268.358	0.780	0.983	1.096	-	1.096	1.048	1.059	0.826	0.843	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		
A. Mission Description and Budget Item Justification												
The E-6 is a manned airborne platform that provides survivable, enduring and reliable Command, Control and Communications capability in support of the President, Secretary of Defense and United States strategic and non-strategic forces. In order to respond effectively to emerging capability requirements, continued effort is needed to perform technical evaluations, modeling and simulation, investigative ground and flight testing, enhanced software modifications and development of configuration modifications. Funding is for engineering and analysis of hardware/software required to optimize E-6 systems for interoperability in a strategic environment.												
B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)								FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total
Title: Operational System Development, Studies and Demonstrations Articles: FY 2016 Accomplishments: Performed and conducted advanced simulations, integrations and demonstrations using the E-6B Systems Integration Laboratory and contractor assets of newly developed commercial technology to address system obsolescence and potential upgrades to ensure survivability and reliability of the E-6B platform. FY 2017 Plans: Perform and conduct demonstrations of moderate technical readiness level hardware as tailored for E-6B weapons systems usage. Anticipated demonstrations will be in support of development of fiber optic transmission and control and power system upgrades and efficiencies. FY 2018 Base Plans: Perform and conduct advanced simulations, integrations and demonstrations using the E-6B Systems Integration Laboratory and contractor assets to address system obsolescence and potential upgrades to ensure interoperability of the E-6B platform. FY 2018 OCO Plans: N/A								0.780	0.983	1.096	0.000	1.096
								-	-	-	-	-
Accomplishments/Planned Programs Subtotals								0.780	0.983	1.096	0.000	1.096

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Exhibit R-2A, RDT&E Project Justification: FY 2018 Navy										Date: May 2017	
Appropriation/Budget Activity 1319 / 7				R-1 Program Element (Number/Name) PE 0101402N / Navy Strategic Comms				Project (Number/Name) 3002 / Navy Strategic Comm Project			
C. Other Program Funding Summary (\$ in Millions)											
			<u>FY 2018</u>	<u>FY 2018</u>	<u>FY 2018</u>					<u>Cost To</u>	
<u>Line Item</u>	<u>FY 2016</u>	<u>FY 2017</u>	<u>Base</u>	<u>OCO</u>	<u>Total</u>	<u>FY 2019</u>	<u>FY 2020</u>	<u>FY 2021</u>	<u>FY 2022</u>	<u>Complete</u>	<u>Total Cost</u>
• APN 056400: E-6 Series	178.987	222.077	223.508	-	223.508	203.495	132.476	150.854	153.857	375.346	2,763.689
Remarks											
D. Acquisition Strategy											
"Research, Development, Test & Evaluation, Navy (RDT&E,N) funds continuing efforts to perform technical evaluations, modeling & simulation and investigative ground and flight testing. Aircraft Procurement, Navy, Modification of Aircraft (APN-5) funds integration, procurement and installation of aircraft modifications."											
E. Performance Metrics											
Mission Systems Evaluation; Technical Analysis 1st Qtr FY18, Design Analysis 2nd Qtr FY18, Systems Integration Lab (SIL) Test and Reporting 4th Qtr FY18.											