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Exhibit R-2, RDT&E Budget Item Justification: FY 2018 Navy										Date: May 2017		
Appropriation/Budget Activity 1319: <i>Research, Development, Test & Evaluation, Navy / BA 7: Operational Systems Development</i>					R-1 Program Element (Number/Name) PE 0204574N / <i>Cryptologic Direct Support</i>							
COST (\$ in Millions)	Prior Years	FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total	FY 2019	FY 2020	FY 2021	FY 2022	Cost To Complete	Total Cost
Total Program Element	19.754	1.915	1.122	1.155	1.200	2.355	2.328	2.362	2.378	2.427	Continuing	Continuing
3091: <i>Advanced Cryptological Sys Eng (CCOP)</i>	19.754	1.915	1.122	1.155	1.200	2.355	2.328	2.362	2.378	2.427	Continuing	Continuing

A. Mission Description and Budget Item Justification

The Advanced Cryptologic Systems Engineering - The Cryptologic Carry-on Program develops state-of-the-art signal acquisition systems and software in response to Combatant Command requirements for a quick-reaction surface cryptologic carry-on capability. There are 124 cryptologic capable surface ships and shore sites in the current Navy inventory; each of these is a potential user of this carry-on equipment, depending on deployment schedules and the tempo of operations. In addition, numerous other Navy and Coast Guard platforms are potential users.

B. Program Change Summary (\$ in Millions)

	<u>FY 2016</u>	<u>FY 2017</u>	<u>FY 2018 Base</u>	<u>FY 2018 OCO</u>	<u>FY 2018 Total</u>
Previous President's Budget	1.915	1.122	1.236	-	1.236
Current President's Budget	1.915	1.122	1.155	1.200	2.355
Total Adjustments	0.000	0.000	-0.081	1.200	1.119
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-	-			
• Program Adjustments	0.000	0.000	-0.085	1.200	1.115
• Rate/Misc Adjustments	0.000	0.000	0.004	-	0.004

Change Summary Explanation

Technical: Not applicable.
Schedule: Not applicable.

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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 0204574N / <i>Cryptologic Direct Support</i>				Project (Number/Name) 3091 / <i>Advanced Cryptological Sys Eng (CCOP)</i>			
COST (\$ in Millions)	Prior Years	FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total	FY 2019	FY 2020	FY 2021	FY 2022	Cost To Complete	Total Cost
3091: <i>Advanced Cryptological Sys Eng (CCOP)</i>	19.754	1.915	1.122	1.155	1.200	2.355	2.328	2.362	2.378	2.427	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The Advanced Cryptologic Systems Engineering - Cryptologic Carry On Program (CCOP) develops state-of-the-art signal acquisition systems and software in response to Combatant Command requirements for a quick-reaction surface, subsurface and airborne cryptologic carry-on capability. There are approximately 124 cryptologic capable surface ships and shore sites in the current Navy inventory; each is a potential user of this carry-on equipment, depending on deployment schedules and the tempo of operations. In addition, there are numerous subsurface and air platforms that are also potential users. This funding line will provide the resources to enable rapid transition of available Commercial Off-The-Shelf (COTS) and Government Off -The-Shelf (GOTS) technologies that apply to Fleet requirements for carry-on system functionalities. These technologies typically require various levels of integration to leverage on-board systems that provide system and mission management, product reporting, and data analysis. COTS/GOTS system documentation and training materials usually require adaptation or modification to meet fleet operator requirements, or entirely new training materials may need to be developed. Before deployment for operational use, systems must be systematically tested to ensure suitable and reliable operation, tested for network vulnerabilities if connected to shipboard Local Area Networks, and tested relative to interoperability requirements. Certification testing is conducted to meet Office of Naval Intelligence security requirements, and network testing is conducted in accordance with Information Technology (IT) requirements to allow connection to Navy networks. Funding will also provide resources to address rapid deployment of enhancements or improvements to the common hardware and/or software baseline of all other carry-on subsystems to meet emergent requirements.

Funding will support development and integration efforts to fuse data produced and distributed by Shipboard IW/Information Operations (IO) systems with other intelligence data at multiple classification levels and provided to shipboard combat systems to support kinetic and non-kinetic fires and can also be used to enable a more complete understanding and more agile and effective exploitation of the electromagnetic spectrum.

FY18 funds will continue to integrate, test, and document identified COTS and GOTS technologies and subsystems that meet emergent and on-going Fleet requirements as specified in the Signals of Interest (SOI) and target threat list. Funds will continue to develop upgrades to existing systems and subsystems according to Fleet requirements. Funds will aid the development of new signal processing algorithms and software based solutions to enable rapid transition to permanently installed Ship's Signal Exploitation Space (SSES) systems, the research of self contained small form factor systems for Patrol craft and other small units, and the research of Adaptive Mission Modules for rapid insertion to counter specific threats or provide intelligence in specific areas of operation.

FY18 OCO funds will develop target signal files in order to counter the latest threats. New threat signal files must be developed and fielded to forward deployed platforms.

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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
<p>Title: Advanced Cryptological Sys Eng - CCOP</p> <p align="right">Articles:</p> <p>FY 2016 Accomplishments: Continued to integrate, test and document identified COTS and GOTS technologies and subsystems that met emergent and on-going Fleet requirements as specified in the SOI and targeted threat list. Continued to develop upgrades to existing systems and subsystems according to Fleet requirements. Continued the development of new signal processing algorithms and software based solutions to enable rapid transition to permanently installed SSES systems and the research of self contained small form factor systems for Patrol craft and other small units. Continued to develop enhanced Red Falcon systems to combat future SOI.</p> <p>FY 2017 Plans: Continue to integrate, test and document identified Commercial Off-The-Shelf (COTS) and Government Off -The-Shelf (GOTS) technologies and subsystems that meet emergent and on-going Fleet requirements as specified in the Signals of Interest (SOI) and target threat list. Continue to develop upgrades to existing systems and subsystems according to Fleet requirements. Continue the development of new signal processing algorithms and software based solutions to enable rapid transition to permanently installed Ship's Signal Exploitation Space (SSES) systems and the research of self contained small form factor systems for Patrol craft and other small units. Continue to develop enhanced Red Falcon systems to combat future SOIs. Research Adaptive Mission Modules for specific threats/areas.</p> <p>FY 2018 Base Plans: Continue to integrate, test and document identified COTS and GOTS technologies and subsystems that meet emergent and on-going Fleet requirements as specified in the SOI and target threat list. Continue to develop upgrades to existing systems and subsystems according to Fleet requirements. Continue the development of new signal processing algorithms and software based solutions to enable rapid transition to permanently installed Ship's Signal Exploitation Space (SSES) systems and the research of self-contained small form factor systems for Patrol craft and other small units. Continue to develop enhanced Red Falcon systems to combat future SOI. Continue to research Adaptive Mission Modules for specific threats/areas.</p> <p>FY 2018 OCO Plans: FY18 OCO funds will develop target signal files in order to counter the latest threats. New threat signal files must be developed and fielded to forward deployed platforms.</p>	1.915	1.122	1.155	1.200	2.355
Accomplishments/Planned Programs Subtotals	1.915	1.122	1.155	1.200	2.355

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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 / 3501: <i>Cryptologic Communications Equipment</i>	11.433	21.098	25.487	2.280	27.767	24.748	25.808	29.236	29.158	0.000	229.802

Remarks

D. Acquisition Strategy

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

E. Performance Metrics

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