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Exhibit R-2, RDT&E Budget Item Justification: PB 2016 Navy **Date:** February 2015

| 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 2014 | FY 2015 | FY 2016 Base | FY 2016 OCO | FY 2016 Total | FY 2017 | FY 2018 | FY 2019 | FY 2020 | Cost To Complete | Total Cost |
| Total Program Element | 15.424 | 2.703 | 1.627 | 1.915 | - | 1.915 | 1.185 | 1.253 | 2.313 | 2.360 | Continuing | Continuing |
| 3091: <i>Advanced Cryptological Sys Eng (CCOP)</i> | 15.424 | 2.703 | 1.627 | 1.915 | - | 1.915 | 1.185 | 1.253 | 2.313 | 2.360 | 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 software in response to Combatant Command requirements for a quick-reaction surface cryptologic carry-on capability. There are 124 cryptologic capable surface ships in the current Navy inventory. Each of these ships 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.

FY15 OCO funds (\$470K) required for the development of Red Falcon systems in order to combat future Signals of Interest (SOI).

| B. Program Change Summary (\$ in Millions) | FY 2014 | FY 2015 | FY 2016 Base | FY 2016 OCO | FY 2016 Total |
|---------------------------------------------------|----------------|----------------|---------------------|--------------------|----------------------|
| Previous President's Budget | 2.703 | 1.157 | 1.179 | - | 1.179 |
| Current President's Budget | 2.703 | 1.627 | 1.915 | - | 1.915 |
| Total Adjustments | - | 0.470 | 0.736 | - | 0.736 |
| • Congressional General Reductions | - | - | | | |
| • Congressional Directed Reductions | - | - | | | |
| • Congressional Rescissions | - | - | | | |
| • Congressional Adds | - | - | | | |
| • Congressional Directed Transfers | - | - | | | |
| • Reprogrammings | - | - | | | |
| • SBIR/STTR Transfer | - | - | | | |
| • Rate/Misc Adjustments | - | 0.470 | 0.736 | - | 0.736 |

Change Summary Explanation

Technical: Not applicable.
Schedule: Not applicable.

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| Exhibit R-2A, RDT&E Project Justification: PB 2016 Navy | | | | | | | | | | Date: February 2015 | | |
| 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 2014 | FY 2015 | FY 2016 Base | FY 2016 OCO | FY 2016 Total | FY 2017 | FY 2018 | FY 2019 | FY 2020 | Cost To Complete | Total Cost |
| 3091: <i>Advanced Cryptological Sys Eng (CCOP)</i> | 15.424 | 2.703 | 1.627 | 1.915 | - | 1.915 | 1.185 | 1.253 | 2.313 | 2.360 | 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 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.

FY16 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. Additional 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 and the research of self contained small form factor systems for Patrol craft and other small units.

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)

| | FY 2014 | FY 2015 | FY 2016 Base | FY 2016 OCO | FY 2016 Total |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|----------------|---------------------|--------------------|----------------------|
| Title: Advanced Cryptological Sys Eng - CCOP | 2.703 | 1.157 | 1.915 | - | 1.915 |
| Articles: | - | - | - | - | - |
| FY 2014 Accomplishments: | | | | | |
| Continued 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 continued to develop upgrades to existing systems and subsystems according to Fleet requirements. | | | | | |

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| Exhibit R-2A, RDT&E Project Justification: PB 2016 Navy | | | | Date: February 2015 | |
| 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> | |
| B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each) | | | | | |
| | | | | | |
| Additional funds aided in the development of new signal processing algorithms to meet emerging threat targets and to address creation of software based solutions for rapid transition to existing hardware. | | | | | |
| FY 2015 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 Signals of Interest (SOI) and target threat list. Funds will 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. | | | | | |
| FY 2016 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 Signals of Interest (SOI) and target threat list. Funds will 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. Develop enhanced Red Falcon systems to combat future SOI. | | | | | |
| FY 2016 OCO Plans: N/A | | | | | |
| Title: Advanced Cryptological Sys Eng - CCOP Red Falcon OCO | | | | | |
| Articles: | | | | | |
| | FY 2014 | FY 2015 | FY 2016 Base | FY 2016 OCO | FY 2016 Total |
| | - | 0.470 | - | - | - |
| | - | - | - | - | - |
| FY 2014 Accomplishments: N/A | | | | | |
| FY 2015 Plans: Develop enhanced Red Falcon systems which will provide additional processing and collection of simultaneous targets (additional details held at a higher classification). | | | | | |
| FY 2016 Base Plans: In FY16, Red Falcon requirements transition to baseline under the Advanced Cryptological Systems Engineering line. | | | | | |
| FY 2016 OCO Plans: | | | | | |

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| Exhibit R-2A, RDT&E Project Justification: PB 2016 Navy | | Date: February 2015 |
| 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> |

| | | | | | |
|-----------------------------------------------------------------------------------------|----------------|----------------|---------------------|--------------------|----------------------|
| B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each) | FY 2014 | FY 2015 | FY 2016 Base | FY 2016 OCO | FY 2016 Total |
| N/A | | | | | |
| Accomplishments/Planned Programs Subtotals | 2.703 | 1.627 | 1.915 | - | 1.915 |

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

| <u>Line Item</u> | <u>FY 2014</u> | <u>FY 2015</u> | <u>FY 2016 Base</u> | <u>FY 2016 OCO</u> | <u>FY 2016 Total</u> | <u>FY 2017</u> | <u>FY 2018</u> | <u>FY 2019</u> | <u>FY 2020</u> | <u>Cost To Complete</u> | <u>Total Cost</u> |
|-----------------------------------------------------------|----------------|----------------|---------------------|--------------------|----------------------|----------------|----------------|----------------|----------------|-------------------------|-------------------|
| • OPN / 3501: <i>Cryptologic Communications Equipment</i> | 10.716 | 13.646 | 9.979 | - | 9.979 | 9.165 | 9.277 | 9.427 | 9.646 | Continuing | Continuing |

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. There are approximately 295 CCOP systems in inventory.

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| Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Navy | | | | | | | | | | | | Date: February 2015 | | | |
|--------------------------------------------------------|------------------------|----------------------------------------------|-------------|-------------------------------------------------------------------------------|------------|---------|------------|-----------------------------------------------------------------------|------------|-------------|------------|---------------------|------------------|------------|--------------------------|
| Appropriation/Budget Activity 1319 / 7 | | | | R-1 Program Element (Number/Name) PE 0204574N / Cryptologic Direct Support | | | | Project (Number/Name) 3091 / Advanced Cryptological Sys Eng (CCOP) | | | | | | | |
| Product Development (\$ in Millions) | | | | FY 2014 | | FY 2015 | | FY 2016 Base | | FY 2016 OCO | | FY 2016 Total | Cost To Complete | Total Cost | Target Value of Contract |
| Cost Category Item | Contract Method & Type | Performing Activity & Location | Prior Years | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | Cost To Complete | Total Cost | Target Value of Contract |
| Software Development | Various | Various : Various | 6.109 | - | | - | | - | | - | | - | Continuing | Continuing | Continuing |
| Software Development | C/CPFF | Classified Contract : Classified Contract | 2.189 | 1.032 | Jan 2014 | 1.011 | Dec 2014 | 1.252 | Dec 2015 | - | | 1.252 | Continuing | Continuing | Continuing |
| Software Development | WR | SSC PAC : San Diego, CA | 1.397 | 0.659 | Nov 2013 | 0.092 | Nov 2014 | 0.100 | Nov 2015 | - | | 0.100 | Continuing | Continuing | Continuing |
| Software Development | WR | SSC LANT : Charleston, SC | 0.748 | 0.457 | Nov 2013 | 0.204 | Nov 2014 | 0.205 | Nov 2015 | - | | 0.205 | Continuing | Continuing | Continuing |
| Subtotal | | | 10.443 | 2.148 | | 1.307 | | 1.557 | | - | | 1.557 | - | - | - |
| Support (\$ in Millions) | | | | FY 2014 | | FY 2015 | | FY 2016 Base | | FY 2016 OCO | | FY 2016 Total | Cost To Complete | Total Cost | Target Value of Contract |
| 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 |
| Systems Engineering | Various | Various : Various | 1.915 | - | | - | | - | | - | | - | Continuing | Continuing | Continuing |
| Systems Engineering | C/CPFF | Classified Contract : Classified Contract | 0.917 | 0.140 | Mar 2014 | 0.187 | Dec 2014 | 0.214 | Dec 2015 | - | | 0.214 | Continuing | Continuing | Continuing |
| Subtotal | | | 2.832 | 0.140 | | 0.187 | | 0.214 | | - | | 0.214 | - | - | - |
| Test and Evaluation (\$ in Millions) | | | | FY 2014 | | FY 2015 | | FY 2016 Base | | FY 2016 OCO | | FY 2016 Total | Cost To Complete | Total Cost | Target Value of Contract |
| 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 |
| Developmental Test & Evaluation | C/CPFF | Classified Contract : Classified Contract | 0.333 | 0.180 | Nov 2013 | - | | - | | - | | - | Continuing | Continuing | Continuing |
| Developmental Test & Evaluation | WR | NPGS : Monterey, CA | 0.104 | 0.055 | Apr 2014 | 0.032 | Apr 2015 | 0.035 | Apr 2016 | - | | 0.035 | Continuing | Continuing | Continuing |
| Developmental Test & Evaluation | WR | OPTEVFOR : Norfolk, VA | 0.079 | 0.060 | Apr 2014 | 0.032 | Apr 2015 | 0.035 | Apr 2016 | - | | 0.035 | Continuing | Continuing | Continuing |
| Subtotal | | | 0.516 | 0.295 | | 0.064 | | 0.070 | | - | | 0.070 | - | - | - |

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Exhibit R-4, RDT&E Schedule Profile: PB 2016 Navy **Date:** February 2015

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| 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> |
|--------------------------------------------------|---------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|

| Fiscal Year | 2014 | | | | 2015 | | | | 2016 | | | | 2017 | | | | 2018 | | | | 2019 | | | | 2020 | | | |
|------------------------|----------|---|---|---|----------|---|---|---|----------|---|---|---|----------|---|---|---|----------|---|---|---|----------|---|---|---|----------|---|---|---|
| | 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 |
| Prototype Phase | ■ | | | | ■ | | | | □ | | | | □ | | | | □ | | | | □ | | | | □ | | | |
| System Development | ▲ SDR | | | | △ SDR | | | | △ SDR | | | | △ SDR | | | | △ SDR | | | | △ SDR | | | | △ SDR | | | |
| Software Delivery | | | | | ▲ | | | | △ | | | | △ | | | | △ | | | | △ | | | | △ | | | |
| T&E Milestones | | | | | OA | | | | OA | | | | OA | | | | OA | | | | OA | | | | OA | | | |
| Operational Assessment | | | | | ▲ | | | | △ | | | | △ | | | | △ | | | | △ | | | | △ | | | |

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| Exhibit R-4A, RDT&E Schedule Details: PB 2016 Navy | | Date: February 2015 |
| 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> |

Schedule Details

| Events by Sub Project | Start | | End | |
|-----------------------------------|---------|------|---------|------|
| | Quarter | Year | Quarter | Year |
| Proj 3091 | | | | |
| Prototype Phase - 2014 | 1 | 2014 | 4 | 2014 |
| Prototype Phase - 2015 | 1 | 2015 | 4 | 2015 |
| Prototype Phase - 2016 | 1 | 2016 | 4 | 2016 |
| Prototype Phase - 2017 | 1 | 2017 | 4 | 2017 |
| Prototype Phase - 2018 | 1 | 2018 | 4 | 2018 |
| Prototype Phase - 2019 | 1 | 2019 | 4 | 2019 |
| Prototype Phase - 2020 | 1 | 2020 | 4 | 2020 |
| System Design Review (SDR) - 2014 | 2 | 2014 | 2 | 2014 |
| System Design Review (SDR) - 2015 | 2 | 2015 | 2 | 2015 |
| System Design Review (SDR) - 2016 | 2 | 2016 | 2 | 2016 |
| System Design Review (SDR) - 2017 | 2 | 2017 | 2 | 2017 |
| System Design Review (SDR) - 2018 | 2 | 2018 | 2 | 2018 |
| System Design Review (SDR) - 2019 | 2 | 2019 | 2 | 2019 |
| System Design Review (SDR) - 2020 | 2 | 2020 | 2 | 2020 |
| Software Delivery - 2014 | 3 | 2014 | 4 | 2014 |
| Software Delivery - 2015 | 3 | 2015 | 4 | 2015 |
| Software Delivery - 2016 | 3 | 2016 | 4 | 2016 |
| Software Delivery - 2017 | 3 | 2017 | 4 | 2017 |
| Software Delivery - 2018 | 3 | 2018 | 4 | 2018 |
| Software Delivery - 2019 | 3 | 2019 | 4 | 2019 |
| Software Delivery - 2020 | 3 | 2020 | 4 | 2020 |

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Exhibit R-4A, RDT&E Schedule Details: PB 2016 Navy **Date:** February 2015

| | | |
|--------------------------------------------------|---------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| 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> |
|--------------------------------------------------|---------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|

| Events by Sub Project | Start | | End | |
|------------------------------------|----------------|-------------|----------------|-------------|
| | Quarter | Year | Quarter | Year |
| Operational Assessment (OA) - 2014 | 4 | 2014 | 4 | 2014 |
| Operational Assessment (OA) - 2015 | 4 | 2015 | 4 | 2015 |
| Operational Assessment (OA) - 2016 | 4 | 2016 | 4 | 2016 |
| Operational Assessment (OA) - 2017 | 4 | 2017 | 4 | 2017 |
| Operational Assessment (OA) - 2018 | 4 | 2018 | 4 | 2018 |
| Operational Assessment (OA) - 2019 | 4 | 2019 | 4 | 2019 |
| Operational Assessment (OA) - 2020 | 4 | 2020 | 4 | 2020 |