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Exhibit R-2, RDT&E Budget Item Justification: PB 2020 Navy										Date: March 2019		
Appropriation/Budget Activity 1319: Research, Development, Test & Evaluation, Navy / BA 7: Operational Systems Development					R-1 Program Element (Number/Name) PE 0204575N / Elect Warfare Readiness Supt							
COST (\$ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
Total Program Element	125.813	49.094	66.889	82.325	-	82.325	116.872	118.284	115.524	116.991	Continuing	Continuing
2263: Information Warfare System	125.813	31.492	47.049	38.709	-	38.709	50.589	51.613	49.495	50.542	Continuing	Continuing
2958: Cyberspace Activities	0.000	0.000	0.000	29.000	-	29.000	43.000	44.000	45.000	45.000	Continuing	Continuing
3426: Maritime Cyber	0.000	17.602	19.840	14.616	-	14.616	23.283	22.671	21.029	21.449	Continuing	Continuing

A. Mission Description and Budget Item Justification

Information Warfare Systems (2263) - This budget item funds: research and development (R&D) activities; vulnerability analysis and reverse engineering of emerging threats and targets; specialized technical, engineering and management capabilities; program office and program management support contracts, engineering support, modeling and simulation, administrative and security personnel; a classified administrative network that provides the capability to track and manage the Command's projects, contracts, and financials with appropriate security mechanisms to protect the information and data; focused radio frequency (RF) collection missions to expose potential vulnerabilities and identify new signals of interest for future countermeasure development; operation, sustainment and support of Development Network environment(s) and test environment enabling USN and USCC requirements; identification, development and testing of electronic attack countermeasures; Configuration Management Authority, delegated from Commander, TENTH Fleet, which reviews, validates, publishes, and maintains the standard for signal-specific software for tactical Navy RF collectors; support facilities and apparatus at various locations; logistics support costs associated with R&D activities. (Details held at a higher classification).

Cyberspace Activities (2958) - Navy is developing foundational tools in support of the Cyber Mission Force, in accordance with requirements, guidance, and previous work completed by USCYBERCOM Capabilities Development Group (CDG). This is a new project beginning in FY20 (Details held at a higher classification).

Maritime Cyber (3426) - This budget item funds: research and development activities; intelligence analysis and linguistic support; reverse engineering and vulnerability assessment; radio frequency (RF) testing; program office support; Agile development operations expertise and training. (Details held at a higher classification).

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Appropriation/Budget Activity 1319: Research, Development, Test & Evaluation, Navy I BA 7: Operational Systems Development		R-1 Program Element (Number/Name) PE 0204575N I Elect Warfare Readiness Supt			
B. Program Change Summary (\$ in Millions)	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Previous President's Budget	51.040	66.889	68.893	-	68.893
Current President's Budget	49.094	66.889	82.325	-	82.325
Total Adjustments	-1.946	0.000	13.432	-	13.432
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-1.946	0.000			
• Program Adjustments	0.000	0.000	-15.568	-	-15.568
• Rate/Misc Adjustments	0.000	0.000	29.000	-	29.000
Change Summary Explanation					
The FY 2020 funding request or project 2263, Information Warfare System, was reduced by \$7.556 million to account for the availability of prior year execution balances. Also, funding was decreased due to reduction of efforts to discover vulnerabilities in adversary systems as well as develop and field effective countermeasures, Electronic Support (ES), Electronic Attack (EA) and cyber capabilities against prioritized adversary signals, networks, and target sets.					
The FY 2020 funding request or project 3426, Maritime Cyber, was reduced by \$5.161 million to account for the availability of prior year execution balances.					

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Navy										Date: March 2019		
Appropriation/Budget Activity 1319 / 7					R-1 Program Element (Number/Name) PE 0204575N / <i>Elect Warfare Readiness Supt</i>				Project (Number/Name) 2263 / <i>Information Warfare System</i>			
COST (\$ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
2263: <i>Information Warfare System</i>	125.813	31.492	47.049	38.709	-	38.709	50.589	51.613	49.495	50.542	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		
A. Mission Description and Budget Item Justification												
The Information Warfare (IW) program office develops a deep understanding of potential adversaries and systems, identifies vulnerabilities, and conducts research and development efforts that lead to delivery of effects in support of Fleet Operations Plans. It uses iterative, flexible and adaptive processes that leverage intelligence, operations and acquisition authorities, projects and deliverables through Milestone B. The IW program office delivers capabilities at all classification levels that deny, degrade, deceive, disrupt or destroy adversaries' ability to find and target US systems and platforms. These deliverables contribute to the tactical, operational and strategic options available to Fleet and Combatant Commanders. (Details held at a higher classification).												
This budget item funds:												
- Research and Development (R&D) activities												
- Vulnerability analysis and reverse engineering of emerging threats and targets												
- Program office and program management support contracts, engineering support, modeling and simulation, administrative and security personnel												
- Specialized technical, engineering and management capabilities												
- A classified administrative network that provides the capability to track and manage the Command's projects, contracts, and financials with appropriate security mechanisms to protect the information and data												
- Focused radio frequency (RF) collection missions to expose potential vulnerabilities and identify new signals of interest for future countermeasure development												
- Operation, sustainment and support of Development Network environment(s) and test environment enabling USN and USCC requirements												
- Identification, development and testing of electronic attack countermeasures												
- Configuration Management Authority, delegated from Commander, TENTH Fleet, which reviews, validates, publishes, and maintains the standard for signal-specific software for tactical Navy RF collectors												
- Support facilities and apparatus at various locations												
- Logistics support costs associated with R&D activities												
B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)								FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Title: Electronic Warfare / Information and Computer Network Operations (IO & CNO) and Countermeasure Capability Research & Development								31.492	47.049	38.709	0.000	38.709
								-	-	-	-	-
Articles:												
FY 2019 Plans:												

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Appropriation/Budget Activity 1319 / 7		R-1 Program Element (Number/Name) PE 0204575N / Elect Warfare Readiness Supt		Project (Number/Name) 2263 / Information Warfare System				
B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)				FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
<p>Detailed information that is not normally collected and reported by the national intelligence apparatus is needed to conduct vulnerability assessments. Strategic and operational signals of interest require two terrestrial sites with large antennas to collect and process data. The site in CONUS is unique, and provides exquisite insights into potential adversary systems. (Details available at a higher classification.) The overseas site's capability is being expanded across radio frequency bands. (Details available at a higher classification.)</p> <p>Tactical R&D of signals of interest will be performed by the HAWKEYE systems, which underwent technology refresh annually to keep up with the dynamic and evolving signals environment. System upgrades and new capabilities will be added to expand collection for electronic and communications intelligence. (Details available at a higher classification.)</p> <p>Collect unknown or previously unrecorded signals will be processed by the Global Signals Analysis Lab for identification and reporting. Hardware and software upgrades to two labs will provide increased processing speed, shared bandwidth for data exchange between sites, and state of the art analysis capability as part of a phased technology refresh. As new signals are understood, maritime collection systems will be updated with software configuration files that drive the embedded software-defined radios to recognize and collect new targets. VIRTUAL SHOCKWAVE deliver a simulated environment for descriptor file development from multiple theaters simultaneously. Configuration management will be maintained by the command, and those signal files will be then leveraged to build a range of active techniques for non-kinetic fires. SHOCKWAVE III is a technology upgrade to develop fires that remain compatible with the afloat programs of record to continue to keep pace with the adversary.</p> <p>Vulnerability assessment require specific technical linguistic and engineering expertise in addition to general intelligence analysis. Contracting that expertise provides the needed flexibility to get the right focus on each project. (Details available at a higher classification.)</p> <p>VIRTUOSO will complete transition to SSEE program of record for deployment across the fleet. (Details available at a higher classification.)</p> <p>FY 2020 Base Plans: Investments will continue in intelligence discovery from terrestrial locations and afloat systems, with the intent of identifying adversary vulnerabilities and building Information Warfare (IW) capabilities. At the OCONUS site, equipment upgrades and mission and maintenance activities continue, keeping pace with adversary</p>								

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B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)						
		FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
improvements. IW program office will conduct approximately five target development afloat missions. When new signals are identified, IW program office will validate newly developed software for delivery to all afloat forces for prosecution, keeping pace with adversary capabilities. Program will maintain the database with all signal descriptor files for targets that afloat forces can prosecute. With this knowledge, IW program office will develop, test and field tactical electronic attack options based upon Fleet requirements and priorities for delivery to individual platforms. A study will leverage VIRTUOSO to determine the feasibility of expanding an existing IW technique against a more general set of targets in the same and other frequency bands. (Details available at higher classification.)						
Program office will begin to reconstitute a robust modeling and simulation capability that supports analysis, development and testing of Information Warfare capabilities throughout their lifecycle, beginning with physics and engineering models.						
Program office will continue to contract for information technology services. A specialized support team to operate and maintain the software development network environments used by the Navy's tool developers will mature. Rather than sustaining a Command network that allows processing of multiple classifications (SCI and limited access), program office will outsource our requirement, completing our transition to the U.S. Army's special access network.						
Program office will continue to deliver program management, acquisition management and systems engineering activities, as well as sustainment and operations of support facilities at various locations.						
FY 2020 OCO Plans: N/A						
FY 2019 to FY 2020 Increase/Decrease Statement: The FY 2020 funding request or project 2263, was reduced by \$7.556 million to account for the availability of prior year execution balances. Also, funding was decreased due to the reduction of efforts to discover vulnerabilities in adversary systems as well as develop and field effective countermeasures, Electronic Support (ES), Electronic Attack (EA) and cyber capabilities against prioritized adversary signals, networks, and target sets.						
Accomplishments/Planned Programs Subtotals		31.492	47.049	38.709	0.000	38.709

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C. Other Program Funding Summary (\$ in Millions) N/A		
Remarks		
D. Acquisition Strategy Projects under this program are designated non-ACAT. Defense Acquisition Program Models described in Department of Defense Instruction (DoDI) 5000.2 and guidance are the starting basis used with tailored approaches for the unique character of the product being acquired or the need for accelerated acquisition to streamline acquisition processes as appropriate.		
E. Performance Metrics Measures include quality and impact of new ideas and approaches; the success of the technology application in satisfying Combatant Commanders and Fleet requirements; and successful cost effective transition of capabilities to operational systems. The goal of these investments is to provide non-kinetic options to Commanders to influence adversaries and prevent escalation of crises. Qualitative measures are used initially, then through development of modeling and simulation scenarios and capabilities, transition to quantitative metrics. Success heavily depends upon insight and feedback obtained through various intelligence community efforts and results.		

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2020 Navy												Date: March 2019			
Appropriation/Budget Activity 1319 / 7						R-1 Program Element (Number/Name) PE 0204575N / <i>Elect Warfare Readiness Supt</i>				Project (Number/Name) 2263 / <i>Information Warfare System</i>					
Product Development (\$ in Millions)				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 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	Various	Classified : Classified	38.652	6.452	Oct 2017	16.830	Oct 2018	16.830	Oct 2019	-		16.830	Continuing	Continuing	Continuing
Engineering	MIPR	JHU APL : Not Specified	14.817	0.350	Oct 2017	0.661	Oct 2018	0.661	Oct 2019	-		0.661	Continuing	Continuing	Continuing
Development	WR	NRL : Washington, DC	13.923	8.669	Oct 2017	8.341	Oct 2018	8.341	Oct 2019	-		8.341	Continuing	Continuing	Continuing
Technical Data	C/CPFF	Various : various	0.400	0.355	Oct 2017	1.430	Oct 2018	1.157	Oct 2019	-		1.157	Continuing	Continuing	Continuing
Hardware/Equipment	Various	DLA, NSA, NAVAIR, GSA : NCR	5.500	1.393	Oct 2017	1.393	Oct 2018	1.384	Oct 2019	-		1.384	Continuing	Continuing	Continuing
System Engineering	WR	NRL : Washington, DC	19.750	1.153	Oct 2017	0.650	Oct 2018	0.650	Oct 2019	-		0.650	Continuing	Continuing	Continuing
Engineering	Various	Classified : Classified	9.053	1.903	Oct 2017	2.024	Oct 2018	2.024	Oct 2019	-		2.024	Continuing	Continuing	Continuing
Software	Various	Classified : Classified	2.743	0.200	Oct 2017	0.268	Oct 2018	0.000		-		0.000	Continuing	Continuing	Continuing
Program	C/CPFF	OakleaSimpson : Ft. Meade	0.000	0.237	May 2018	0.523	Oct 2018	0.523	Oct 2019	-		0.523	Continuing	Continuing	Continuing
Subtotal			104.838	20.712		32.120		31.570		-		31.570	Continuing	Continuing	N/A
Remarks															
Realigned items to product development which were previously incorrectly classified under Support, testing or Program Management.															
Support (\$ in Millions)				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Software	WR	NRL : Wash DC	0.956	0.139	Nov 2017	0.143	Nov 2018	0.143	Nov 2019	-		0.143	Continuing	Continuing	Continuing
Software	WR	SPAWAR : San Diego CA	1.221	0.900	Nov 2017	3.270	Nov 2018	0.000	Nov 2019	-		0.000	Continuing	Continuing	Continuing
Studies/Analysis	WR	NPS : Monterey CA	0.500	0.300	Nov 2017	0.300	Nov 2018	0.300	Nov 2019	-		0.300	Continuing	Continuing	Continuing
Program Support	MIPR	Army : Not Specified	2.100	2.500	Oct 2017	2.300	Oct 2018	1.600	Oct 2019	-		1.600	Continuing	Continuing	Continuing
Logistics	Various	NAVFAC : MIDLANT VA	0.359	0.102	Oct 2017	0.132	Oct 2018	0.111	Oct 2019	-		0.111	Continuing	Continuing	Continuing
Subtotal			5.136	3.941		6.145		2.154		-		2.154	Continuing	Continuing	N/A

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Appropriation/Budget Activity 1319 / 7				R-1 Program Element (Number/Name) PE 0204575N / Elect Warfare Readiness Supt						Project (Number/Name) 2263 / Information Warfare System					
Support (\$ in Millions)				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 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
Remarks															
CDLs are required for Command Personnel to drive Command Vehicles supporting the installation of mission hardware as part of logistics.															
Test and Evaluation (\$ in Millions)				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 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
Mod & Sim	Various	Contract : Classified	3.852	1.850	Oct 2017	2.275	Oct 2018	2.275	Oct 2019	-		2.275	Continuing	Continuing	Continuing
Operational Test & Evaluation	Various	Various : Various	0.427	0.355	Oct 2017	1.052	Oct 2018	0.000		-		0.000	Continuing	Continuing	Continuing
Subtotal			4.279	2.205		3.327		2.275		-		2.275	Continuing	Continuing	N/A
Management Services (\$ in Millions)				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 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
Program Management Services	Various	Classified : Classified	11.560	4.634	Oct 2017	5.457	Oct 2018	2.710	Oct 2019	-		2.710	Continuing	Continuing	Continuing
Subtotal			11.560	4.634		5.457		2.710		-		2.710	Continuing	Continuing	N/A
			Prior Years	FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals			125.813	31.492		47.049		38.709		-		38.709	Continuing	Continuing	N/A
Remarks															

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Exhibit R-4, RDT&E Schedule Profile: PB 2020 Navy			Date: March 2019		
Appropriation/Budget Activity 1319 / 7		R-1 Program Element (Number/Name) PE 0204575N / <i>Elect Warfare Readiness Supt</i>			Project (Number/Name) 2263 / <i>Information Warfare System</i>

	FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024			
	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 2263																												
Information Warfare System Activities: Quarterly Program Review: QPR																												
Information Warfare System Activities: Aperture upgrades: Aperture upgrades																												
Information Warfare System Activities: SPOONMAN Implementation: SPOONMAN Implementation																												
Information Warfare System Activities: Fleet Integration: UHF																												
Information Warfare System Activities: Fleet Integration: Ku-Band																												
Information Warfare System Activities: VIRTUOSO Testing Integration: VIRTUOSO Testing Integration																												
Information Warfare System Activities: ESE Activites: ESE Activites																												
Information Warfare System Activities: NPS Activities: NPS WR obligation																												
Information Warfare System Activities: DevOps Support: DevOps Support																												
Information Warfare System Activities: Program Management: Program Management Support																												
Information Warfare System Activities: Modeling and Simulation: Modelling and Simulation																												

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Exhibit R-4, RDT&E Schedule Profile: PB 2020 Navy																				Date: March 2019																	
Appropriation/Budget Activity 1319 / 7										R-1 Program Element (Number/Name) PE 0204575N / Elect Warfare Readiness Supt								Project (Number/Name) 2263 / Information Warfare System																			
										FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024			
										1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4				
Information Warfare System Activities: Development Work: ATO Sustainment/ Continuous Monitoring																																					
Information Warfare System Activities: Development Work: System Engineering																																					
Information Warfare System Activities: Hardware Upgrades: Hardware Upgrades																																					
Information Warfare System Activities: Logistic support: Logistic support																																					
Information Warfare System Activities: ASEP: ASEP																																					

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Exhibit R-4A, RDT&E Schedule Details: PB 2020 Navy			Date: March 2019
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0204575N / <i>Elect Warfare Readiness Supt</i>	Project (Number/Name) 2263 / <i>Information Warfare System</i>	

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
Proj 2263				
Information Warfare System Activities: Quarterly Program Review: QPR	1	2018	4	2024
Information Warfare System Activities: Aperture upgrades: Aperture upgrades	1	2018	4	2019
Information Warfare System Activities: SPOONMAN Implementation: SPOONMAN Implementation	3	2018	3	2018
Information Warfare System Activities: Fleet Integration: UHF	1	2018	4	2019
Information Warfare System Activities: Fleet Integration: Ku-Band	2	2018	4	2019
Information Warfare System Activities: VIRTUOSO Testing Integration: VIRTUOSO Testing Integration	1	2018	4	2019
Information Warfare System Activities: ESE Activites: ESE Activites	1	2018	4	2024
Information Warfare System Activities: NPS Activities: NPS WR obligation	1	2018	4	2024
Information Warfare System Activities: DevOps Support: DevOps Support	1	2018	4	2024
Information Warfare System Activities: Program Management: Program Management Support	1	2018	4	2024
Information Warfare System Activities: Modeling and Simulation: Modelling and Simulation	1	2018	4	2024
Information Warfare System Activities: Development Work: ATO Sustainment/ Continous Monitoring	1	2018	4	2024
Information Warfare System Activities: Development Work: System Engineering	1	2018	4	2024
Information Warfare System Activities: Hardware Upgrades: Hardware Upgrades	1	2018	4	2024
Information Warfare System Activities: Logistic support: Logistic support	1	2018	4	2024
Information Warfare System Activities: ASEP: ASEP	1	2018	4	2024

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Appropriation/Budget Activity 1319 / 7					R-1 Program Element (Number/Name) PE 0204575N / <i>Elect Warfare Readiness Supt</i>				Project (Number/Name) 2958 / <i>Cyberspace Activities</i>			
COST (\$ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
2958: <i>Cyberspace Activities</i>	0.000	0.000	0.000	29.000	-	29.000	43.000	44.000	45.000	45.000	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		
A. Mission Description and Budget Item Justification												
Navy is developing foundational tools in support of the Cyber Mission Force in accordance with requirements, guidance, and previous work completed. (Details held at a higher classification).												
This budget item funds:												
- Cyberspace support facilities, infrastructure lease and fit-up of additional space												
- Program office and program management support contracts, engineering support, administrative and security personnel												
- Specialized Cyberspace technical, engineering and management capabilities												
- Expand Cyberspace Activities development network and network support												
- Cyberspace hardware and software reverse engineering activities												
- Research and Development (R&D) activities												
- Cyberspace tool development												
- Cyberspace activity logistics support costs associated with R&D activities												
B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)												
							FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	
Title: Cyberspace Activities							0.000	0.000	29.000	0.000	29.000	
Articles:							-	-	-	-	-	
FY 2019 Plans: N/A												
FY 2020 Base Plans: Cyberspace Activities investments in infrastructure, support, and research to begin developing foundational tools in support of the Cyber Mission Force in accordance with requirements, guidance, and previous work completed. Initiate expansion and establishment of Cyberspace tool support facilities, infrastructure fit-up of space with required hardware, software, network, and network support. Initiate Program office and program management support contracts, engineering, administrative and security personnel support. Begin specialized Cyberspace technical, engineering, and management capabilities development and expand Cyberspace Activities development network and network support. Begin Cyberspace hardware and software reverse engineering activities and research to develop Cyberspace tools.												

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B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)						
		FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
<p>The focus will be expeditionary cyber capability and non-recurring engineering begin with developing the necessary hardware and software for collection of unique targets in the maritime domain by expeditionary forces. (Details available at a higher classification.)</p> <p><i>FY 2020 OCO Plans:</i> N/A</p> <p><i>FY 2019 to FY 2020 Increase/Decrease Statement:</i> This is a new project beginning in FY20.</p>						
Accomplishments/Planned Programs Subtotals		0.000	0.000	29.000	0.000	29.000
C. Other Program Funding Summary (\$ in Millions) N/A						
Remarks						
D. Acquisition Strategy Projects under this program are designated non-ACAT. Defense Acquisition Program Models described in Department of Defense Instruction (DoDI) 5000.2 and guidance are the starting basis used with tailored approaches for the unique character of the product being acquired or the need for accelerated acquisition to streamline acquisition processes as appropriate.						
E. Performance Metrics Measures include quality and impact of new ideas and approaches; the success of the technology application in satisfying Combatant Commanders and Fleet requirements; and successful cost effective transition of capabilities to operational systems. The goal of these investments is to provide non-kinetic options to Commanders to influence adversaries and prevent escalation of crises. Qualitative measures are used initially, then through development of modeling and simulation scenarios and capabilities, transition to quantitative metrics. Success heavily depends upon insight and feedback obtained through various intelligence community efforts and results.						

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2020 Navy												Date: March 2019			
Appropriation/Budget Activity 1319 / 7						R-1 Program Element (Number/Name) PE 0204575N / <i>Elect Warfare Readiness Supt</i>				Project (Number/Name) 2958 / <i>Cyberspace Activities</i>					
Product Development (\$ in Millions)				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 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	Various	Various : Various	0.000	0.000		0.000		9.701	Oct 2019	-		9.701	Continuing	Continuing	Continuing
Engineering	C/CPFF	Classified : Classified	0.000	0.000		0.000		3.500	Oct 2019	-		3.500	Continuing	Continuing	Continuing
Hardware/Equipment	C/CPFF	Classified : Classified	0.000	0.000		0.000		1.200	Oct 2019	-		1.200	Continuing	Continuing	Continuing
System Engineering	C/CPFF	Classified : Classified	0.000	0.000		0.000		0.500	Oct 2019	-		0.500	Continuing	Continuing	Continuing
Program	C/CPFF	Classified : Classified	0.000	0.000		0.000		0.450	Oct 2019	-		0.450	Continuing	Continuing	Continuing
Software	C/CPFF	Classified : Classified	0.000	0.000		0.000		0.200	Oct 2019	-		0.200	Continuing	Continuing	Continuing
Subtotal			0.000	0.000		0.000		15.551		-		15.551	Continuing	Continuing	N/A
Support (\$ in Millions)				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 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
Program Support	Various	Various : Various	0.000	0.000		0.000		1.613	Oct 2019	-		1.613	Continuing	Continuing	Continuing
Program Infrastructure Support	C/BA	Not Specified : Not Specified	0.000	0.000		0.000		9.254	Oct 2019	-		9.254	0.000	9.254	-
Logistics	Various	Classified : Classified	0.000	0.000		0.000		0.200	Oct 2019	-		0.200	Continuing	Continuing	Continuing
Subtotal			0.000	0.000		0.000		11.067		-		11.067	Continuing	Continuing	N/A
Test and Evaluation (\$ in Millions)				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 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
Mod, Sim, and Testing	Various	Contract : Various	0.000	0.000		0.000		0.850	Oct 2019	-		0.850	Continuing	Continuing	Continuing
Subtotal			0.000	0.000		0.000		0.850		-		0.850	Continuing	Continuing	N/A

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2020 Navy												Date: March 2019		
Appropriation/Budget Activity 1319 / 7						R-1 Program Element (Number/Name) PE 0204575N / <i>Elect Warfare Readiness Supt</i>				Project (Number/Name) 2958 / <i>Cyberspace Activities</i>				

Management Services (\$ in Millions)				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 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
Program Mgmt Servies	Various	Classified : Classified	0.000	0.000		0.000		1.532	Oct 2019	-		1.532	Continuing	Continuing	Continuing
Subtotal			0.000	0.000		0.000		1.532		-		1.532	Continuing	Continuing	N/A

			Prior Years	FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals			0.000	0.000		0.000		29.000		-		29.000	Continuing	Continuing	N/A

Remarks

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Exhibit R-4, RDT&E Schedule Profile: PB 2020 Navy			Date: March 2019		
Appropriation/Budget Activity 1319 / 7		R-1 Program Element (Number/Name) PE 0204575N / <i>Elect Warfare Readiness Supt</i>			Project (Number/Name) 2958 / <i>Cyberspace Activities</i>

	FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024			
	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
<i>Proj 2958</i>																												
Cyberspace Tool Development Activities																												

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Exhibit R-4A, RDT&E Schedule Details: PB 2020 Navy		Date: March 2019
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0204575N / <i>Elect Warfare Readiness Supt</i>	Project (Number/Name) 2958 / <i>Cyberspace Activities</i>

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<i>Proj 2958</i>				
Cyberspace Tool Development Activities	1	2020	4	2024

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Navy										Date: March 2019		
Appropriation/Budget Activity 1319 / 7					R-1 Program Element (Number/Name) PE 0204575N / <i>Elect Warfare Readiness Supt</i>				Project (Number/Name) 3426 / <i>Maritime Cyber</i>			
COST (\$ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
3426: <i>Maritime Cyber</i>	0.000	17.602	19.840	14.616	-	14.616	23.283	22.671	21.029	21.449	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		
A. Mission Description and Budget Item Justification												
For effective and efficient Information Warfare (IW) software development and constant professional development, software developers require a dynamic and agile workspace and equipment that keeps pace with emerging technology. Development and testing networks at all classifications are required.												
Driven by intelligence analysis, vulnerability identification and reverse engineering in a laboratory environment that makes use of virtual, emulated and live systems is the necessary first step to developing any capability. Agile development processes deliver usable capabilities after short sprint cycles. Capabilities are tested in controlled environments ranging from a lab to Fleet exercises and demonstrations.												
This budget item funds:												
- research and development activities												
- intelligence analysis and linguistic support												
- reverse engineering and vulnerability assessment												
- radio frequency (RF) testing												
- program office support												
- Agile/development operations expertise and training												
B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)												
							FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	
Title: Maritime Cyber							17.602	19.840	14.616	0.000	14.616	
Articles:							-	-	-	-	-	
FY 2019 Plans:												
Maritime cyber effects development requires a state of the art facility equipped with a reconfigurable space, a hardware lab, and software development capacity at multiple classification levels. Industry standard practices for software development, risk assessment, and collateral impact require a development network at each classification level, a separate test network with the ability to generate a representative environment, and the ability to conduct testing with hardware in the loop. Extension of a Title 10 network allows for future cyber reconnaissance and surveillance, and provides the Navy a basic capability against which to maintain readiness for future cyber warfare. (Details available at a higher classification.)												

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Navy				Date: March 2019	
Appropriation/Budget Activity 1319 / 7		R-1 Program Element (Number/Name) PE 0204575N / <i>Elect Warfare Readiness Supt</i>		Project (Number/Name) 3426 / <i>Maritime Cyber</i>	
B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)					
	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
<p>Contract additional expertise which enable capability development and delivery. In support of standing requirements, efforts focus on delivery and sustainment of a non-kinetic effect that can potentially hold a target at risk during all phase of operations. (Details available at a higher classification.)</p> <p><i>FY 2020 Base Plans:</i> Reverse engineering efforts will ramp up, focus on a variety of cyber physical systems. Research will begin to identify system characteristics and vulnerabilities, develop executable codes to perform objective operations, and explore options for data collection and transmission to fully utilize spectrums and methods not intended by users in the communication bands and systems. (Details available at higher classification.)</p> <p>All capabilities will be tested in lab and representative environments in an agile development environment on an approximately monthly sprint cycle. Research will continue into future options for Navy's Title X network and alignment with Unified Platform. (Details available at higher classification.)</p> <p>Intelligence analysis and linguistic contracts continue to facilitate engineering and operational understanding of adversary capabilities, and software developers will augment Command forces pending successful recruitment, training and retention initiatives. (Details available at higher classification.)</p> <p>Software capabilities are being developed and delivered to operational forces to assist in further development or to hold potential targets at risk. (Details available at higher classification.)</p> <p><i>FY 2020 OCO Plans:</i> N/A</p> <p><i>FY 2019 to FY 2020 Increase/Decrease Statement:</i> The FY 2020 funding request or project 3426, Maritime Cyber, was reduced by \$5.161 million to account for the availability of prior year execution balances.</p>					
Accomplishments/Planned Programs Subtotals	17.602	19.840	14.616	0.000	14.616
C. Other Program Funding Summary (\$ in Millions)					
N/A					
Remarks					

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Navy		Date: March 2019
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0204575N / <i>Elect Warfare Readiness Supt</i>	Project (Number/Name) 3426 / <i>Maritime Cyber</i>
D. Acquisition Strategy Projects under this program are designated non-ACAT. Defense Acquisition Program Models described in Department of Defense Instruction (DoDI) 5000.2 and guidance are the starting basis used with tailored approaches for the unique character of the product being acquired or the need for accelerated acquisition to streamline acquisition processes as appropriate.		
E. Performance Metrics Measures include quality and impact of new ideas and approaches; the success of the technology application in satisfying Combatant Commanders and Fleet requirements; and successful cost effective transition of capabilities to operational systems. The goal of these investments is to provide non-kinetic options to Commanders to influence adversaries and prevent escalation of crises. Qualitative measures are used initially, then through development of modeling and simulation scenarios and capabilities, transition to quantitative metrics. Success heavily depends upon insight and feedback obtained through various intelligence community efforts and results.		

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2020 Navy												Date: March 2019			
Appropriation/Budget Activity 1319 / 7						R-1 Program Element (Number/Name) PE 0204575N / Elect Warfare Readiness Supt						Project (Number/Name) 3426 / Maritime Cyber			
Product Development (\$ in Millions)				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 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
Primary Hardware Development	Various	Classified : Classified	0.000	8.400	Nov 2017	8.400	Nov 2018	3.464	Nov 2019	-		3.464	Continuing	Continuing	Continuing
System Engineering	Various	APL, DOE, NRL, INL : Various	0.000	4.923	Dec 2017	3.961	Dec 2018	2.646	Dec 2019	-		2.646	Continuing	Continuing	Continuing
Subtotal			0.000	13.323		12.361		6.110		-		6.110	Continuing	Continuing	N/A
Support (\$ in Millions)				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 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
Program	C/CPFF	Classified : Classified	0.000	0.288	Nov 2017	0.297	Nov 2018	0.306	Nov 2019	-		0.306	Continuing	Continuing	Continuing
Studies & Analysis	Various	Various : Classified	0.000	3.991	Nov 2017	7.182	Nov 2018	8.200	Nov 2019	-		8.200	Continuing	Continuing	Continuing
Subtotal			0.000	4.279		7.479		8.506		-		8.506	Continuing	Continuing	N/A
			Prior Years	FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals			0.000	17.602		19.840		14.616		-		14.616	Continuing	Continuing	N/A
Remarks															

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Exhibit R-4, RDT&E Schedule Profile: PB 2020 Navy										Date: March 2019	
Appropriation/Budget Activity 1319 / 7					R-1 Program Element (Number/Name) PE 0204575N / <i>Elect Warfare Readiness Supt</i>					Project (Number/Name) 3426 / <i>Maritime Cyber</i>	

	FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024			
	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 3426																												
Product Development: Primary Hardware Phase 1: Product Development: Primary Hardware Phase 1																												
Product Development: Primary Hardware Phase 2: Product Development: Primary Hardware Phase 2																												
Product Development: Systems Engineering: Product Development: Systems Engineering																												
Studies & Analysis: Reports: Studies & Analysis Reports																												
Program Support: Support																												

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Exhibit R-4A, RDT&E Schedule Details: PB 2020 Navy			Date: March 2019
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0204575N / <i>Elect Warfare Readiness Supt</i>	Project (Number/Name) 3426 / <i>Maritime Cyber</i>	

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<i>Proj 3426</i>				
Product Development: Primary Hardware Phase 1: Product Development: Primary Hardware Phase 1	2	2018	1	2019
Product Development: Primary Hardware Phase 2: Product Development: Primary Hardware Phase 2	2	2019	4	2021
Product Development: Systems Engineering: Product Development: Systems Engineering	2	2018	4	2024
Studies & Analysis: Reports: Studies & Analysis Reports	2	2018	4	2024
Program Support: Support	1	2018	4	2024