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Exhibit R-2, RDT&E Budget Item Justification: PB 2019 The Joint Staff **Date:** February 2018

Appropriation/Budget Activity	R-1 Program Element (Number/Name)											
0400: <i>Research, Development, Test & Evaluation, Defense-Wide I BA 6: RDT&E Management Support</i>	PE 0303166J I <i>Support to Information Operations (IO) Capabilities</i>											
COST (\$ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
Total Program Element	34.279	0.857	0.673	0.652	-	0.652	0.650	0.754	0.754	0.754	Continuing	Continuing
001: <i>Joint Information Operations Range</i>	34.279	0.857	0.673	0.652	-	0.652	0.650	0.754	0.754	0.754	Continuing	Continuing

A. Mission Description and Budget Item Justification

The Joint Information Operations Range (JIOR) provides DoD with a closed-loop, persistent, geographically distributed network to support Combatant Command (CCMD), Service, and other government agencies (C/S/A) training, testing, and experimentation within threat representative environments with realistic and relevant targets and command and control systems of interest. JIOR provides C/S/A's and key allied partners the ability to test deployment and collaboratively gain insights into advanced cyberspace and Electronic Warfare (EW) capabilities under current and future operational environments. JIOR integrates available cyberspace ranges with the training/test audience providing access to low density/high demand test and training resources including critical infrastructure, cyber targets, internet traffic, and opposing forces. JIOR supports Presidential policy and CJCS mandates for training, certification, and recertification of 6000+ cyber mission forces and DoD/Interagency cyber vulnerability assessments. The JIOR security construct allows users to develop, test, and secure their military capabilities and protect their identity and capabilities during range activities. C/S/A's conduct hundreds of mission rehearsal, training, testing, and experimentation events on the JIOR annually many of which take place simultaneously via secure virtual local area networks engineered and provided by JIOR.

B. Program Change Summary (\$ in Millions)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Previous President's Budget	0.857	0.673	0.673	-	0.673
Current President's Budget	0.857	0.673	0.652	-	0.652
Total Adjustments	0.000	0.000	-0.021	-	-0.021
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-	-			
• Revised economic assumption	-	-	-0.021	-	-0.021

Change Summary Explanation

FY 2019 - 2023: Reflects changes in economic assumptions for non-fuel and non-pay inflation.

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Exhibit R-2A, RDT&E Project Justification: PB 2019 The Joint Staff										Date: February 2018		
Appropriation/Budget Activity 0400 / 6					R-1 Program Element (Number/Name) PE 0303166J / Support to Information Operations (IO) Capabilities					Project (Number/Name) 001 / Joint Information Operations Range		
COST (\$ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
001: Joint Information Operations Range	34.279	0.857	0.673	0.652	-	0.652	0.650	0.754	0.754	0.754	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The Joint Information Operations Range (JIOR) provides DoD with a closed-loop, persistent, geographically distributed network to support Combatant Command (CCMD), Service, and other government agencies (C/S/A) training, testing, and experimentation within threat representative environments with realistic and relevant targets and command and control systems of interest. JIOR provides C/S/A's and key allied partners the ability to test deployment and collaboratively gain insights into advanced cyberspace and Electronic Warfare (EW) capabilities under current and future operational environments. JIOR integrates available cyberspace ranges with the training/test audience providing access to low density/high demand test and training resources including critical infrastructure, cyber targets, internet traffic, and opposing forces. JIOR supports Presidential policy and CJCS mandates for training, certification, and recertification of 6000+ cyber mission forces and DoD/Interagency cyber vulnerability assessments. The JIOR security construct allows users to develop, test, and secure their military capabilities and protect their identity and capabilities during range activities. C/S/A's conduct hundreds of mission rehearsal, training, testing, and experimentation events on the JIOR annually many of which take place simultaneously via secure virtual local area networks engineered and provided by JIOR.

B. Accomplishments/Planned Programs (\$ in Millions)

	FY 2017	FY 2018	FY 2019
Title: Joint Information Operations Range	0.857	0.673	0.652
<p>Description: The Joint Information Operations Range (JIOR) is a closed-loop network that forms a live-fire, distributed range utilizing encrypted tunneling to conduct training, testing, and experimentation in a threat representative environment to support Cyberspace and Electronic Warfare mission areas. This project is 100 percent cyber.</p> <p>FY 2018 Plans: Evaluate network automation tools (for potential deployment) to better manage the JIOR, increase JIOR cybersecurity, and reduce integration time prior to executing test and training periods.</p> <p>Evaluate four specific hardware/software courses of action, including multiprotocol label switching for potential future technology insertion on the JIOR network.</p> <p>FY 2019 Plans: Operationally test and evaluate selected JIOR network modernization courses of action.</p> <p>FY 2018 to FY 2019 Increase/Decrease Statement:</p>			

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Appropriation/Budget Activity 0400 / 6	R-1 Program Element (Number/Name) PE 0303166J / <i>Support to Information Operations (IO) Capabilities</i>	Project (Number/Name) 001 / <i>Joint Information Operations Range</i>

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2017	FY 2018	FY 2019
Revised economic assumption for non-fuel and non-pay inflation.			
Accomplishments/Planned Programs Subtotals	0.857	0.673	0.652

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

N/A

Remarks

D. Acquisition Strategy

N/A

E. Performance Metrics

The metrics below reflect JIOR research and development goals to test newly available hardware and software (including automation software) that supports selection of a modernized network architecture for the future JIOR.

1. Reduction in network configuration/reconfiguration time for use/reuse of DoD designated cyber ranges and available capability providers due to JIOR modernization and technology insertion.
2. Estimated man-hours saved due to transforming manual integration of ranges, capability providers and users to automated integration.
3. Sufficient capacity & agility to support Cyber Mission Forces force development and systems cybersecurity assessments & testing (outcomes).
4. Improved rapid response for short-notice mission rehearsal requirements from days to on-demand (outcomes).