Exhibit R-2, RDT&E Budget Item Justification: PB 2025 Office of the Secretary Of Defense	Date: March 2024
Appropriation/Budget Activity 0400: *Research, Development, Test & Evaluation, Defense-Wide* / BA 1: *Basic Research*	**R-1 Program Element (Number/Name)** PE 0601108D8Z / *High Energy Laser Research Initiatives*

COST ($ in Millions)	Prior Years	FY 2023	FY 2024	FY 2025 Base	FY 2025 OCO	FY 2025 Total	FY 2026	FY 2027	FY 2028	FY 2029	Cost To Complete	Total Cost
Total Program Element	19.708	20.789	16.329	16.518	-	16.518	16.867	17.218	17.594	17.946	Continuing	Continuing
108: *Joint Directed Energy Basic Research*	19.708	20.789	16.329	16.518	-	16.518	16.867	17.218	17.594	17.946	Continuing	Continuing

Note

New Start (Y/N): No

A. Mission Description and Budget Item Justification

This program supports the Department's initiatives to defend the homeland, deter aggression and prevail in conflict, and build sustainable and long-term advantage.

This program focuses on fundamental science supporting future directed-energy technologies divided into (1) directed energy sources and (2) beam control and propagation. As a result, this program provides fundamental scientific knowledge to support future Department of Defense directed energy weapon systems. This program funds multi-disciplinary research institutes through the Joint Directed Energy Transition Office to conduct research on high energy laser and high power microwave technologies. Additionally, this program supports research efforts with academia to stimulate student interest in directed energy and encourage graduate research in topics related to high energy laser and high power microwave technologies. Efforts in this program have been coordinated through the Department of Defense Science and Technology Executive Committee process to harmonize efforts and eliminate duplication.

This program supports scientific study directed toward increasing fundamental knowledge and understanding in those fields of the physical, engineering, environmental, and life sciences related to long-term national security needs.

B. Program Change Summary ($ in Millions)	FY 2023	FY 2024	FY 2025 Base	FY 2025 OCO	FY 2025 Total
Previous President's Budget	20.789	16.329	16.652	-	16.652
Current President's Budget	20.789	16.329	16.518	-	16.518
Total Adjustments	0.000	0.000	-0.134	-	-0.134
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-	-			
• Program Adjustment	0.000	-	-0.134	-	-0.134

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Congressional Add Details ($ in Millions, and Includes General Reductions)	FY 2023	FY 2024
Project: 108: *Joint Directed Energy Basic Research*		
Congressional Add: *High Energy Laser Research*	5.000	-
Congressional Add Subtotals for Project: 108	5.000	-
Congressional Add Totals for all Projects	5.000	-

Change Summary Explanation

A reduction of $0.167 million was applied to meet DoD overall funding reductions, which was spread to mitigate impact.

The increase of $0.033 is due to economic assumptions

C. Accomplishments/Planned Programs ($ in Millions)	FY 2023	FY 2024	FY 2025
Title: Directed Energy Foundational Research	15.789	16.329	16.518

Description: Improve the fundamental understanding and modeling of high energy laser and high power microwave sources and devices. Improve the fundamental understanding and modeling of beam control technologies as they relate to high energy laser applications and high power microwaves. Conduct research in atmospheric characterization, metrology, control systems, algorithms, waveguides, antennas and beam control component technology.

FY 2024 Plans:

- Investigate innovative laser technologies that show potential in power scalability for high energy laser applications, alternative defense capabilities, counter capabilities, and counter-counter capabilities. Monitor national and international efforts to leverage technology advancements. Conduct foundational research on laser technologies to gain more understanding on scalability and utility.

- Investigate innovative microwave technologies, in microwave sources, antennas, and related microwave component technologies. Perform overseas efforts to leverage international microwave technology advancements. Continue the investigation into innovative high power microwave technologies.

- Investigate innovative high energy laser beam control phenomenology and methods of measuring, modeling, and manipulating laser beam propagation. Investigate high power microwave antenna architectures with potential to revolutionize performance. Leverage international research developments and technology advancements where possible.

FY 2025 Plans:

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C. Accomplishments/Planned Programs ($ in Millions)	FY 2023	FY 2024	FY 2025
- Investigate innovative laser technologies that show potential in power scalability for high energy laser applications. Monitor national and international efforts to leverage technology advancements. Conduct foundational research on laser technologies to gain more understanding on scalability and utility. - Investigate innovative microwave technologies that show potential in power scalability for high power microwave applications. Monitor national and international efforts to leverage technology advancements. Conduct foundational research on microwave technologies to gain more understanding on scalability and utility. - Investigate innovative beam control phenomenology and methods of measuring, modeling, and manipulating laser and microwave beam propagation. Investigate high energy laser and high power microwave architectures with the potential to revolutionize performance. Leverage international research developments and technology advancements where possible. ***FY 2024 to FY 2025 Increase/Decrease Statement:*** The increase of $0.156 million between FY 2024 and FY 2025 reflects an inflationary adjustment.			
Accomplishments/Planned Programs Subtotals	15.789	16.329	16.518

	FY 2023	FY 2024
Congressional Add: High Energy Laser Research	5.000	-
FY 2023 Accomplishments: Funds will be used to establish a Directed Energy Center of Excellence under the Joint Directed Energy Transition Office to conduct basic research in high energy lasers and high power microwaves.		
Congressional Adds Subtotals	5.000	-

D. Other Program Funding Summary ($ in Millions)

N/A

Remarks

NA

E. Acquisition Strategy

NA