

UNCLASSIFIED

Exhibit R-2, RDT&E Budget Item Justification: PB 2025 Air Force **Date:** March 2024

Appropriation/Budget Activity 3620F: <i>Research, Development, Test & Evaluation, Space Force</i> / BA 1: <i>Basic Research</i>	R-1 Program Element (Number/Name) PE 0601102SF / <i>Defense Research Sciences</i>
---	---

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	-	24.359	0.000	21.349	0.000	21.349	22.820	24.584	26.866	27.820	Continuing	Continuing
610001: <i>Defense Research Sciences - Space</i>	-	24.359	0.000	21.349	0.000	21.349	22.820	24.584	26.866	27.820	Continuing	Continuing

Note

In FY 2023, Program Element began with CII funding. In FY 2025, some efforts from PE 0601102F/Defense Research Sciences, Project 613001/Physics and Electronics and Project 613004/Education and Outreach were transferred to PE 0601102SF/Defense Research Sciences, Project 610001/Defense Research Sciences - Space, for space-unique research.

A. Mission Description and Budget Item Justification

Defense Research Sciences consists of research activities in academia and industry along with research performed in the Department of the Air Force (DAF), including the Air Force Research Laboratory, Air Force Institute of Technology, and the United States Air Force Academy. This program supports basic broad-based scientific and engineering research in areas critical to the five core technical competencies of the United States Space Force: Space Security; Combat Power Projection; Space Mobility and Logistics; Information Mobility; and Space Domain Awareness, while simultaneously building capacity in academia and cultivating the Science, Technology, Engineering, and Mathematics (STEM) pipeline. All research areas are subject to long-range planning and technical review by both DAF and tri-Service scientific planning groups. Efforts in this program have been coordinated through the Department of Defense (DoD) Science and Technology (S&T) Executive Committee process to harmonize efforts and eliminate duplication.

In order to manage, execute, and deliver science and technology capabilities, this program element may include: necessary civilian pay expenses; expenses to support the operation and maintenance of facilities; as well as expenses related to travel, supplies, IT hardware, software and support, administrative contractor services, etc.

Funds in this program element may be used to investigate specified science advancements primarily targeted to challenges in the space domain and multi-domain research with space-domain application.

This program is in Budget Activity 1, Basic Research because this budget activity includes scientific study and experimentation 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.

UNCLASSIFIED

Exhibit R-2, RDT&E Budget Item Justification: PB 2025 Air Force **Date:** March 2024

Appropriation/Budget Activity 3620F: <i>Research, Development, Test & Evaluation, Space Force</i> / BA 1: <i>Basic Research</i>	R-1 Program Element (Number/Name) PE 0601102SF / <i>Defense Research Sciences</i>
---	---

B. Program Change Summary (\$ in Millions)	FY 2023	FY 2024	FY 2025 Base	FY 2025 OCO	FY 2025 Total
Previous President's Budget	25.000	0.000	0.000	0.000	0.000
Current President's Budget	24.359	0.000	21.349	0.000	21.349
Total Adjustments	-0.641	0.000	21.349	0.000	21.349
• Congressional General Reductions	0.000	0.000			
• Congressional Directed Reductions	0.000	0.000			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds	0.000	0.000			
• Congressional Directed Transfers	0.000	0.000			
• Reprogrammings	0.000	0.000			
• SBIR/STTR Transfer	-0.641	0.000			
• Other Adjustments	0.000	0.000	21.349	0.000	21.349

Congressional Add Details (\$ in Millions, and Includes General Reductions)

Project: 610001: *Defense Research Sciences - Space*

Congressional Add: *Program increase: Basic Research*

	FY 2023	FY 2024
	24.359	0.000
Congressional Add Subtotals for Project: 610001	24.359	0.000
Congressional Add Totals for all Projects	24.359	0.000

Change Summary Explanation

FY 2025 funding in the Current President's Budget increased compared to the Previous President's Budget by \$21.349M. Funding increased due to a transfer from the U.S. Air Force to the U.S. Space Force for space-unique research.

C. Accomplishments/Planned Programs (\$ in Millions)	FY 2023	FY 2024	FY 2025
Title: Space-focused Basic Research	0.000	0.000	18.575
Description: Foster basic research discovery in physical and biological sciences that enhance U.S. Space Force's ability to conduct global space operations.			
FY 2024 Plans: Not Applicable			
FY 2025 Plans: Basic research allows for endless exploration. Current basic research efforts include, but are not limited to, Space Physics, Astrodynamics, and Space Biosciences. Seek to further understand the solar terrestrial environment extending from the Sun			

UNCLASSIFIED

Exhibit R-2, RDT&E Budget Item Justification: PB 2025 Air Force		Date: March 2024		
Appropriation/Budget Activity 3620F: <i>Research, Development, Test & Evaluation, Space Force</i> / BA 1: <i>Basic Research</i>		R-1 Program Element (Number/Name) PE 0601102SF / <i>Defense Research Sciences</i>		
C. Accomplishments/Planned Programs (\$ in Millions)		FY 2023	FY 2024	FY 2025
<p>through Earth's magnetosphere and radiation belts to the mesosphere and lower thermosphere region to improve operational space weather forecasting. Advance the fundamental understanding of the physical processes that impact the motion and control of both natural and artificial objects moving in the gravity fields associated with the Earth/Moon/Sun system needed to enable future operations beyond geostationary earth orbits (X-GEO) operations. Conduct research in life sciences such as synthetic biology, biologically produced components, and biological processes to understand and mitigate the impacts of harsh and remote environments on future operations and future assets. Explore theories, principles, and practical concepts of physical and biological sciences in harsh and remote environments to identify solutions to current and future U.S. Space Force mission needs. Science discovered in this effort will have a profound impact on future long-term, large-scale military operations in space as well as applications to other emerging DAF mission needs such as missions to remote regions in Antarctica and very high-altitude air missions. Explore novel ideas that may bridge these major efforts and enhance global space operations.</p> <p>FY 2024 to FY 2025 Increase/Decrease Statement: FY 2025 increased compared to FY 2024 by 18.575M. Increase is a result of a transfer from USAF Program Element PE 0601102F/ Defense Research Sciences, Project 613001/Physics and Electronics and Project 613004/Education and Outreach into this USSF Program Element 0601102SF/Defense Research Sciences, Project 610001/Defense Research Sciences - Space, for space-unique research.</p>				
<p>Title: Outreach to International S&T Community</p> <p>Description: Foster international basic research discovery by supporting direct interchanges with a broad range of key international researchers and communities. Identify and leverage international scientific advances when appropriate.</p> <p>FY 2024 Plans: Not Applicable</p> <p>FY 2025 Plans: Leverage international expertise to identify and maintain awareness of foreign scientific developments. Explore foreign investments and influence world-class scientific research on specific topics of interest to the U.S. Space Force. Pursue access to fundamental scientific discoveries outside the U.S. that are relevant to the U.S. Space Force. Support international visits by scientists and high-level DoD fundamental science delegations, providing primary interface to coordinate international science and technology participation among DoD organizations.</p> <p>FY 2024 to FY 2025 Increase/Decrease Statement: FY 2025 increased compared to FY 2024 by .816M. Increase is a result of a transfer from USAF Program Element PE 0601102F/ Defense Research Sciences, Project 613001/Physics and Electronics and Project 613004/Education and Outreach into this USSF</p>		0.000	0.000	0.816

UNCLASSIFIED

Exhibit R-2, RDT&E Budget Item Justification: PB 2025 Air Force	Date: March 2024
--	-------------------------

Appropriation/Budget Activity 3620F: <i>Research, Development, Test & Evaluation, Space Force</i> / BA 1: <i>Basic Research</i>	R-1 Program Element (Number/Name) PE 0601102SF / <i>Defense Research Sciences</i>
---	---

C. Accomplishments/Planned Programs (\$ in Millions)	FY 2023	FY 2024	FY 2025
Program Element 0601102SF/Defense Research Sciences, Project 610001/Defense Research Sciences - Space, for space-unique research.			
Title: Outreach to U.S. S&T Workforce	0.000	0.000	1.958
Description: Strengthen science, mathematics, and engineering research and infrastructure in the U.S., thereby strengthening current and future U.S. Space Force S&T capabilities.			
FY 2024 Plans: Not Applicable			
FY 2025 Plans: Identify and increase opportunities for scientists and engineers to participate in critical U.S. Space Force research. Provide hands-on exposure to cutting-edge research to prepare future generations of scientists and engineers in fields critical to maintaining the technological superiority of the U.S. Space Force.			
FY 2024 to FY 2025 Increase/Decrease Statement: FY 2025 increased compared to FY 2024 by 1.958M. Increase is a result of a transfer from USAF Program Element PE 0601102F/ Defense Research Sciences, Project 613001/Physics and Electronics and Project 613004/Education and Outreach into this USSF Program Element 0601102SF/Defense Research Sciences, Project 610001/Defense Research Sciences - Space, for space-unique research.			
Accomplishments/Planned Programs Subtotals	0.000	0.000	21.349

	FY 2023	FY 2024
Congressional Add: Program increase: Basic Research	24.359	0.000
FY 2023 Accomplishments: Conducted Congressionally directed effort		
FY 2024 Plans: Not Applicable		
Congressional Adds Subtotals	24.359	0.000

D. Other Program Funding Summary (\$ in Millions)
N/A

Remarks

E. Acquisition Strategy
Not Applicable