Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Air Force												Date: March 2023
Appropriation/Budget Activity 3620F: *Research, Development, Test & Evaluation, Space Force* / BA 6: *RDT&E Management Support*					R-1 Program Element (Number/Name) PE 1206759SF / *Major T&E Investment - Space*							
COST ($ in Millions)	**Prior Years**	**FY 2022**	**FY 2023**	**FY 2024 Base**	**FY 2024 OCO**	**FY 2024 Total**	**FY 2025**	**FY 2026**	**FY 2027**	**FY 2028**	**Cost To Complete**	**Total Cost**
Total Program Element	-	83.336	173.974	146.797	0.000	146.797	167.087	177.362	183.983	184.458	0.000	1,116.997
660191: *Initial Operational Test and Eval*	-	1.442	1.512	9.565	0.000	9.565	9.774	9.961	10.167	10.387	0.000	52.808
664597: *Air Force Test Investments*	-	81.894	172.462	115.405	0.000	115.405	135.049	144.648	150.598	150.015	0.000	950.071
664598: *NSTTC-E*	-	0.000	0.000	21.827	0.000	21.827	22.264	22.753	23.218	24.056	0.000	114.118

A. Mission Description and Budget Item Justification

This program provides funds for the United States Space Force (USSF) Test Enterprise. Funds support enterprise-level, threat-relevant, and fully-integrated developmental and operational Space Test & Evaluation (T&E) activities and capabilities; the development of a professional space T&E workforce; and the organization, acquisitions, and operations of the National Space Test and Training Complex (NSTTC).

Space T&E activities and capabilities include the USSF Integrated Test Force (ITF) structures, USSF Operational Test Agency (OTA) test execution campaigns, and the workforce and activities required to conduct T&E to adequately assess the performance and survivability of Department of Defense (DoD) space systems, tactics, and technologies in contested environments.

Workforce development refers to the organizations, training, and activities required to develop a professional space T&E workforce including the development and operation of the Space Test Course at the United States Air Force (USAF) Test Pilot School (TPS).

Space T&E infrastructure encompasses the organization, acquisitions, operations, and associated activities as part of the NSTTC to develop, integrate, operate, and sustain the minimum technical capabilities required to test and evaluate the performance and survivability of critical DoD space systems in contested environments. The NSTTC delivers realistic test and training environments to support capability development by incorporating a mix of live and virtual capabilities to conduct threat emulation, advanced training, tactics development, and integrated testing.

This program is in Budget Activity 6, RDT&E Management Support because this budget activity includes research, development, test and evaluation efforts and funds to sustain and/or modernize the installations or operations required for general research, development, test and evaluation.

Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Air Force	Date: March 2023
Appropriation/Budget Activity 3620F: *Research, Development, Test & Evaluation, Space Force I* BA 6: *RDT&E Management Support*	**R-1 Program Element (Number/Name)** PE 1206759SF *I Major T&E Investment - Space*

B. Program Change Summary ($ in Millions)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Previous President's Budget	86.503	89.751	98.694	0.000	98.694
Current President's Budget	83.336	173.974	146.797	0.000	146.797
Total Adjustments	-3.167	84.223	48.103	0.000	48.103
• Congressional General Reductions	0.000	-1.477			
• Congressional Directed Reductions	0.000	0.000			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds	0.000	85.700			
• Congressional Directed Transfers	0.000	0.000			
• Reprogrammings	0.000	0.000			
• SBIR/STTR Transfer	-3.167	0.000			
• Other Adjustments	0.000	0.000	48.103	0.000	48.103

Congressional Add Details ($ in Millions, and Includes General Reductions)	FY 2022	FY 2023
Project: 664597: *Air Force Test Investments*		
Congressional Add: *Lab and test range upgrades for space*	14.451	-
Congressional Add: *Operational test and training infrastructure - Cyber Test/Evaluation and Aggressor Force Capabilities*	-	50.200
Congressional Add: *Operational test and training infrastructure - Ground-based radar in support of NSTTC*	-	35.500
Congressional Add Subtotals for Project: 664597	14.451	85.700
Congressional Add Totals for all Projects	14.451	85.700

Change Summary Explanation

FY 2024 increased due to added requirements for Weapon System Evaluation Program activities for systems under test, conducting integrated and operational test and evaluation activities, GBR-K (Ground Based Radar-Kwajalein) refurbishment (additional details classified), establishing a 1-year Space Test Course by CY26, and transfer of funding from PE 1206116SF, Space Test and Training Range Development, to consolidate all NSTTC development efforts.

Exhibit R-2A, RDT&E Project Justification: PB 2024 Air Force			Date: March 2023
Appropriation/Budget Activity 3620F / 6	R-1 Program Element (Number/Name) PE 1206759SF / *Major T&E Investment - Space*	Project (Number/Name) 660191 / *Initial Operational Test and Eval*	

COST ($ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
660191: *Initial Operational Test and Eval*	-	1.442	1.512	9.565	0.000	9.565	9.774	9.961	10.167	10.387	0.000	52.808
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

Space Operational Test and Evaluation refers to Congressionally mandated Space Initial Operational Test and Evaluation (IOT&E) to support major weapon system acquisition decisions beyond Low-Rate Initial Production (LRIP), Milestone C, full rate production, fielding, and declaration of Initial Operational Capability (IOC). For Major Defense Acquisition Programs (MDAP), the law requires IOT&E be completed under realistic operating conditions before proceeding beyond LRIP. IOT&E will be planned to answer all critical operational issues (COI) as thoroughly as possible. IOT&E is conducted to determine the operational effectiveness and suitability and resolve overall mission capability of systems undergoing research and development (R&D) efforts. It is an evaluation of a system's performance when the complete system is tested and evaluated against operational criteria by personnel with the same qualifications as those who will operate, maintain and support the system when deployed. In general, IOT&E is performed on new systems in development, major modifications, and other systems as directed.

This funds the USSF Operational Test Agency's participation in Integrated Test and Evaluation (IT&E). Additionally, it funds the Multiservice Operational Test and Evaluation (MOT&E) and Follow-on Operational Test and Evaluation (FOT&E) when it is the continuation of IOT&E activities past the full rate production decision. FOT&E answers specific questions about unresolved COIs and test issues or completes areas not finished during the IOT&E. This effort also funds related operational test and evaluation (OT&E) activities such as Early Influence, Operational Utility Evaluations (OUE), Early Operational Assessments (EOA), and Operational Assessments (OA) which are independent OT&Es supporting major milestones and decision points, full rate production, fielding, or declaration of IOC for USSF programs. USSF schedules and executes tests according to the forecasted test readiness of the MDAP program offices.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2022	FY 2023	FY 2024
Title: Space Systems Operational Test and Evaluation (OT&E)	1.442	1.512	9.565
Description: Plan, execute and report OT&E for Space Systems			
FY 2023 Plans: Continue FY22 activities namely: - Advanced Extremely High Frequency Satellite Communications (Advanced EHF): Conduct FOT&E - Evolved Strategic SATCOM (ESS): Conduct OA - Military GPS User Equipment (GPS MGUE): Conduct OUE 3, 4 - GPS Next Generation Control Segment (GPS OCX): Plan/conduct MOT&E - Long-Range Discrimination Radar (LRDR): Conduct IOT&E - Next-Generation Overhead Persistent Infrared (Next-Gen OPIR): Conduct OA/plan OUE			

Exhibit R-2A, RDT&E Project Justification: PB 2024 Air Force		Date: March 2023
Appropriation/Budget Activity 3620F / 6	**R-1 Program Element (Number/Name)** PE 1206759SF / *Major T&E Investment - Space*	**Project (Number/Name)** 660191 / *Initial Operational Test and Eval*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2022	FY 2023	FY 2024
- Protected Tactical Enterprise Service (PTES): Conduct MOT&E - Protected Tactical SATCOM (PTS): Conduct EOA - Space Based Infrared System (SBIRS): Plan FOT&E - Space C2 (formerly JMS): Conduct periodic app T&E/plan integrated IOT&E - Weather System Follow-On Microwave (WSF-M): Plan MOT&E - Conduct other planning and operational testing for new space system programs as the requirement becomes known to USSF. ***FY 2024 Plans:*** Continue FY23 activities namely: - Advanced Extremely High Frequency Satellite Communications (Advanced EHF): Conduct FOT&E - Evolved Strategic SATCOM (ESS): Conduct early influence - Military GPS User Equipment (GPS MGUE): Conduct IOT&E - GPS Next Generation Control Segment (GPS OCX): Conduct MOT&E - Long-Range Discrimination Radar (LRDR): Conduct FOT&E - Next-Generation Overhead Persistent Infrared (Next-Gen OPIR): Conduct OUE - Protected Tactical Enterprise Service (PTES): Complete MOT&E - Protected Tactical SATCOM (PTS): Conduct OUE - Space Based Infrared System (SBIRS): Conduct OUE - SBIRS Survivable Endurable Evolution (S2E2): Conduct IOT&E - Space C2 (formerly JMS): Complete FOT&E - Tranche 1 Transport Layer (and accompanying Tranche 1 Tracking Layer): Conduct IOT&E - Conduct other planning and operational testing for new space system programs as the requirement becomes known to USSF. ***FY 2023 to FY 2024 Increase/Decrease Statement:*** FY 2024 increased due to rising number of STARCOM test program requirements; survivability testing; integrated system end-to-end and tactics and training system testing; increased test rigor required for all programs, including heightened cyber testing activities; and expanded management requirements to support these programs at the Delta and HQ levels.			
Accomplishments/Planned Programs Subtotals	1.442	1.512	9.565

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

This project title will be renamed in a future cycle to reflect current scope and direction of the project.

Exhibit R-2A, RDT&E Project Justification: PB 2024 Air Force		Date: March 2023
Appropriation/Budget Activity 3620F / 6	**R-1 Program Element (Number/Name)** PE 1206759SF / *Major T&E Investment - Space*	**Project (Number/Name)** 660191 / *Initial Operational Test and Eval*

D. Acquisition Strategy

N/A

Exhibit R-2A, RDT&E Project Justification: PB 2024 Air Force			Date: March 2023
Appropriation/Budget Activity 3620F / 6	R-1 Program Element (Number/Name) PE 1206759SF / *Major T&E Investment - Space*	Project (Number/Name) 664597 / *Air Force Test Investments*	

COST ($ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
664597: *Air Force Test Investments*	-	81.894	172.462	115.405	0.000	115.405	135.049	144.648	150.598	150.015	0.000	950.071
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

Space Force Test Investments refers to the space T&E activities, workforce development, and space T&E infrastructure required for the development, operation, and sustainment of the USSF Test Enterprise required to conduct threat emulation, advanced training, tactics development, and integrated testing.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2022	FY 2023	FY 2024
Title: Space Force Test Investments	67.443	86.762	115.405
Description: Develop, operate, and sustain the USSF Test Enterprise. ***FY 2023 Plans:*** - Invest in previously identified technical capabilities to include survivability infrastructure, on-orbit range development, physics-based modeling, data infrastructure, facility upgrades and contractor support. - Continue previous USSF Test Enterprise efforts under this PE including development and operation of the NSTTC. - Develop digital NSTTC and Space T&E capabilities based on an MBSE baseline. - Continue software development for NSTTC on-orbit capabilities and begin development and acquisition of terrestrial and on-orbit sensor capabilities. - Begin to fund the Space Force Foreign Materiel Program in accordance with the prioritized Space Force Foreign Materiel List. - Progress the technical baseline for the NSTTC's on-orbit, digital, electromagnetic spectrum, and cyber infrastructure and develop more robust test and training capabilities. - Continue to develop and conduct the Space Test Course (STC) at the USAF TPS. ***FY 2024 Plans:*** - Continue to develop and conduct the STC at the USAF TPS. Prepare transition of STC to a 1-year curriculum. - Continue previous Space T&E Infrastructure investments in NSTTC On-Orbit, Digital, Cyber, and Electromagnetic pillars including development of foundational infrastructure as well as modernization and improvement (I&M) of existing capabilities to keep current with military priorities, evolving threats, and Space T&E and advanced training involving USSF and joint systems and operations. - Integrate on-orbit and digital NSTTC elements to facilitate live, virtual, and constructive systems-of-systems Space T&E and advanced training activities.			

Exhibit R-2A, RDT&E Project Justification: PB 2024 Air Force		Date: March 2023
Appropriation/Budget Activity 3620F / 6	**R-1 Program Element (Number/Name)** PE 1206759SF / *Major T&E Investment - Space*	**Project (Number/Name)** 664597 / *Air Force Test Investments*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2022	FY 2023	FY 2024
- Develop dedicated USSF cyber infrastructure and environments to support enduring training of USSF Mission Defense Teams (MDTs) and operators as well as support cybersecurity and resilience objectives in Space T&E. ***FY 2023 to FY 2024 Increase/Decrease Statement:*** FY 2024 increased due to increased Weapon System Evaluation Program requirements, Ground Based Radar-Kwajalein (GBR-K) refurbishment to support integration testing, training and data validation (additional details classified), and to establish the 1-year Space Test Course by CY26.			
Accomplishments/Planned Programs Subtotals	67.443	86.762	115.405

	FY 2022	FY 2023
Congressional Add: Lab and test range upgrades for space ***FY 2022 Accomplishments:*** Accelerated development activities and acquisitions of the NSTTC's On-Orbit, Digital, and Cyber T&E infrastructure.	14.451	-
Congressional Add: Operational test and training infrastructure - Cyber Test/Evaluation and Aggressor Force Capabilities ***FY 2023 Plans:*** Funds will be used to build cyber range and lab capability for T&E of space systems, defensive cyber tools, cyber aggressors, and cyber test training in secure environments. The cyber range(s) will be built as operationally representative environments to conduct T&E and training and can include blue and red models	-	50.200
Congressional Add: Operational test and training infrastructure - Ground-based radar in support of NSTTC ***FY 2023 Plans:*** Funds will be leveraged to upgrade the existing backend of the Ground Based Radar-Kwajalein as well as invest in long lead parts to replace the Radome so that the Ground Based Radar-Kwajalein can become an effective NSTTC Range Asset.	-	35.500
Congressional Adds Subtotals	14.451	85.700

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A

Exhibit R-2A, RDT&E Project Justification: PB 2024 Air Force			Date: March 2023
Appropriation/Budget Activity 3620F / 6	R-1 Program Element (Number/Name) PE 1206759SF / *Major T&E Investment - Space*	Project (Number/Name) 664598 / *NSTTC-E*	

COST ($ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
664598: *NSTTC-E*	-	0.000	0.000	21.827	0.000	21.827	22.264	22.753	23.218	24.056	0.000	114.118
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

In FY 2024, PE 1206116SF, (Space Test and Training Range Development), Project 666156, (Space Test and Training Range Development) efforts were transferred to PE 1206759SF, (Major T&E Investment - Space), Project 664598, (NSTTC-E), in order to consolidate and provide transparency for overall National Space Test and Training Complex (NSTTC) efforts. It is not a New Start.

A. Mission Description and Budget Item Justification

Supports the development of National Space Test and Training Complex Electromagnetic (NSTTC-E) test environments that are critical for developmental and operational test, training, exercises and tactics development for space systems. Includes development, demonstration and delivery of test assets, special test equipment, capabilities and systems required to test, validate, and verify performance of integrated space systems. Provides a safe, secure, controllable and repeatable environment for the testing of space systems and training operators in both realistic and relevant electromagnetic environments.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2022	FY 2023	FY 2024
Title: NSTTC-E	0.000	0.000	21.827
Description: Development of virtual range integration with cyber and air ranges hosting network emulators and other environments allowing tactics, techniques, and procedures (TTP) development, realistic operational testing, and enable more realistic exercises integrating joint air, space and cyber effects. Continue overhaul of fixed range capabilities, replacement of obsolete equipment, outdated servers, and performing software upgrades focusing on updating signal monitoring hardware with visualization tools and new monitoring capabilities and cybersecurity automation. Implement system resiliency and situational awareness necessary to operate in the contested space domain. Acquire additional system capability to enable and enhance training against new and emerging adversarial assets, to integrate mission scenarios into one graphic user interface, to develop transportable range operations center to provide flexible range control capability for multiple sites, to reduce size, weight, and power, and to replace software defined radio cards. Integrate joint DoD solutions for counterspace and space superiority effects.			
FY 2023 Plans: N/A			
FY 2024 Plans: - Continue development of test and evaluation electronic spectrum environment command and control. - Continue support to warfighting community of electronic warfare advanced training environment.			

Exhibit R-2A, RDT&E Project Justification: PB 2024 Air Force		Date: March 2023
Appropriation/Budget Activity 3620F / 6	**R-1 Program Element (Number/Name)** PE 1206759SF / *Major T&E Investment - Space*	**Project (Number/Name)** 664598 / *NSTTC-E*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2022	FY 2023	FY 2024
- Develop integrated data transport architecture with NSTTC. ***FY 2023 to FY 2024 Increase/Decrease Statement:*** FY 2024 increased due to transfer of STTRD effort from PE 1206116SF, Space Test and Training Range Development, Project 666156, Space Test and Training Range Development.			
Accomplishments/Planned Programs Subtotals	0.000	0.000	21.827

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A

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