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Exhibit R-2, RDT&E Budget Item Justification: PB 2023 Air Force **Date:** April 2022

Appropriation/Budget Activity 3620F: <i>Research, Development, Test & Evaluation, Space Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 1203174SF / <i>Space Innovation, Integration and Rapid Technology Development</i>
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COST (\$ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
Total Program Element	-	35.824	18.054	38.103	0.000	38.103	49.222	48.812	40.241	41.030	Continuing	Continuing
67A011: <i>Space Analysis and Application Development</i>	-	35.824	18.054	38.103	0.000	38.103	49.222	48.812	40.241	41.030	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

Located at Peterson SFB, Colorado, the Space Innovation, Integration and Rapid Technology Development (SIIRTD) program develops and modifies modeling and simulation tools that USSF/Space Operations Command's Space Analysis Center uses for operations research, military utility analyses, tradeoff studies, and other evaluations of space mission areas to guide planning, programming, requirements generation, analyses of alternatives, and other activities. Development activities incorporate changes in fielded and projected space operational capabilities, as well as technical improvements, into the group's software tools to ensure their data and technology remain current. The Space Training Simulators team develops and upgrades space training emulators such as the Standard Space Trainer (SST) to meet Space Mission Force (SMF) threat-based, advanced training requirements. Finally, its innovation, education, and training activities foster solutions to operational deficiencies and enhance the integration of space systems into Space Force operations, thereby enabling service and joint warfighters to realize the full potential of existing and planned space capabilities.

Programs and projects in the space warfighting enterprise are evaluating ways to increase innovation and resiliency to known and emerging threats. Space enterprise efforts aim to execute technology risk reduction efforts, integrate new capabilities or repurpose existing capabilities, implement enterprise decision-making tools/ experimentation/rapid prototyping and fielding via all appropriate acquisition authorities and contract mechanisms.

This program is in Budget Activity 7, Operational System Development because this budget activity includes development efforts to upgrade systems that have been fielded or have received approval for full rate production and anticipate production funding in the current or subsequent fiscal year.

UNCLASSIFIED

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B. Program Change Summary (\$ in Millions)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
Previous President's Budget	38.746	18.054	0.000	0.000	0.000
Current President's Budget	35.824	18.054	38.103	0.000	38.103
Total Adjustments	-2.922	0.000	38.103	0.000	38.103
• 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	0.000	0.000			
• Other Adjustments	-2.922	0.000	38.103	0.000	38.103

Change Summary Explanation

FY21: -\$1.608M reprogramming for higher space force priorities; -\$1.314M SBIR adjustment

The FY 2022 President's Budget submittal did not reflect FY 2023 through FY 2026 funding. Therefore, an explanation of the change between the two budget positions for FY 2023 cannot be made in a relevant manner.

C. Accomplishments/Planned Programs (\$ in Millions)	FY 2021	FY 2022	FY 2023
<p>Title: Model/Tool Development and Capability Upgrades</p> <p>Description: Develops, verifies, and validates models for space mission areas and modifies existing models to portray new capabilities that meet senior leader intent. Advancing Modeling & Simulation (M&S) tools to provide space linkages and impacts to the warfighter as constellations are degraded in a contested environment and incorporate space effects at the campaign, mission and engagement levels with the goal of enhancing decision support, visualization, exercise and wargaming. Rapidly meet downward-directed guidance implementing the system resiliency and situational awareness necessary to win in a contested space domain. Activities may include, but are not limited to, acquisition, program office support, studies, technical analysis, prototyping, etc. The space M&S is used for military utility analyses, trade studies, and other space program evaluations supporting OSD, Joint Staff, Headquarters Air Force, Headquarters United States Space Force, and the USSF Field Commands.</p> <p>FY 2022 Plans: Continue to produce technically sound and responsive space analyses models/tools, analyzing warfighter operations in a highly-contested environment in support of national and military needs. Focus will be on Space campaign model development by incorporating space effects in the AF campaign model, Synthetic Theater Operations Research Model (STORM), and increasing space effects in feeder models. Model verification and validation will also be conducted throughout the development process.</p>	9.605	5.829	9.581

UNCLASSIFIED

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C. Accomplishments/Planned Programs (\$ in Millions)		FY 2021	FY 2022	FY 2023
<p>M&S activities support the entire space enterprise of fielded & projected space operations capabilities, enable threat-based advanced training events, and continuous TTP improvement to prepare space forces to operate in a contested, degraded, operations (CDO) environment against changing threats.</p> <p>FY 2023 Plans: Continue supporting the SpOC field command to develop assessment strategies to assist with deliberate and contingency planning analyzing force structure for the USSF. Also, the funds will support space capability development and space systems delivery as well as strengthen the commander's "fight tonight" strategy with quick-turn senior leader ops assessment. Provides senior leaders with strategic and operational level analysis - converting data into decision quality information. Specifically, funds support for:</p> <ul style="list-style-type: none"> • Support Commander (CC) management (mgt) Headquarters (HQ) and Space Forces Forward (SFFOR) (Operation Order (OPORD direction)) missions; force status to COMSPACEFOR and CDR USSPACECOM • Identifies Space Force "fight tonight" risk in multi-domain warfight using specific scenarios and campaign plans • Developing SpOC and delta metrics as inputs to ops assessments • Campaign modeling initiative response to VCSO "go do"; ensure DoD accurately representing space <p>FY 2022 to FY 2023 Increase/Decrease Statement: FY23 funding increase represents new modifications of numerous campaign and mission plans/models to accurately model all warfighting domains by including space effects. Examples include the DoD endorsed STORM - Synthetic Theater Operations Research Model--campaign model and SEAS - System Effectiveness Analysis Simulation - mission model.</p>				
<p>Title: Standard Space Trainer Development</p> <p>Description: Develop/upgrade Standard Space Trainer (SST) simulators to meet Space Mission Force (SMF) threat-based, Advanced Training (AT) requirements as well as build connectivity to Distributed Mission Operations (DMO) training networks with integration of M&S tools for exercise support. Follows direction set out in USAF Operational Training Infrastructure (OTI) Flight Plan, as well as meets STRATCOM Integrated Priority List (IPL) priorities.</p> <p>FY 2022 Plans: Accelerate completion of SST development for the Upgraded Early Warning Radar (UEWR) mission and MILSATCOM AT capabilities. Continue development of SST functionality for Bounty Hunter, Orbital Warfare, and Perimeter Acquisition Radar Attack Characterization System (PARCS) missions, SST Architecture modernization, and Space-Based Infrared System (SBIRS) AT capabilities. Begin SST development of Space Command & Control (C2) and Eglin Radar missions. Continue ongoing</p>		26.219	12.225	28.522

UNCLASSIFIED

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C. Accomplishments/Planned Programs (\$ in Millions)	FY 2021	FY 2022	FY 2023
<p>enterprise mission training and DMO for Space (DMO-S) M&S development for Blue/White/Red consoles based on evolving mission requirements, and threat analyses.</p> <p>FY 2023 Plans: Accelerate completion of SST development for Bounty Hunter SST, PARCS SST development, and SBIRS AT capabilities. Continue development of SST functionality for Space C2, IROC SSTs at Eglin AFB, Space Domain Awareness (SDA) and Orbital Warfare (OW) missions as well as SST Architecture modernization. Begin development of AT capabilities across the USSF portfolio as well as MILSATCOM SSTs to support new Delta 8 units. Continue ongoing enterprise M&S development for Blue/White/Red consoles and begin transition from the DMO-S to the Virtual Space Range (VSR).</p> <p>Continue developing SST into an advanced/warfighter training capability. Incorporating SSTs into VSR M&S toolset and developing additional products to support USSF and Mission Partner AT events across distributed networks including Red Console (Threat M&S), Event Visualization, and Exercise Control. VSR projects will also include upgrades to integrate M&S tools into a cloud-based training environment. Without these improvements, interoperability with Joint/Coalition partners and AT capabilities (i.e. Threat M&S) within a virtual training environment will not be possible, limiting the SST's training capability to basic (peacetime) weapon system operation and prohibit mission readiness objectives to "Train as You Fight" in a Contested, Degraded, and Operationally-limited (CDO) space domain.</p> <p>Implement system resiliency and situational awareness necessary to operate in a CDO environment. Activities may include, but are not limited to, program office support, studies, technical analyses, experimentation, prototyping, etc.</p> <p>FY 2022 to FY 2023 Increase/Decrease Statement: FY2023 increase is due to new development of an SST for both the GPS OCX ground station, and the Upgraded Early Warning Radars (UEWR) portfolio including radars. In addition, it supports a new SST for classified programs in the Space Domain Awareness (SDA) and Orbital Warfare (OW) major warfighting functions. In FY23, integration of capabilities from other SSTs into the DMO-S environment is also being accelerated.</p>			
Accomplishments/Planned Programs Subtotals	35.824	18.054	38.103

D. Other Program Funding Summary (\$ in Millions)										
<u>Line Item</u>	<u>FY 2021</u>	<u>FY 2022</u>	<u>FY 2023</u> <u>Base</u>	<u>FY 2023</u> <u>OCO</u>	<u>FY 2023</u> <u>Total</u>	<u>FY 2024</u>	<u>FY 2025</u>	<u>FY 2026</u>	<u>FY 2027</u>	<u>Cost To Complete</u> <u>Total Cost</u>
• SPAF 01 GNRLIT: <i>General Information Tech - Space</i>	-	-	-	-	-	-	-	-	-	-

UNCLASSIFIED

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

Line Item	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
• SPSF 01 GNRLIT: <i>General Information Tech - Space</i>	1.373	1.378	0.412	-	0.412	0.420	0.427	0.436	0.000	Continuing	Continuing

Remarks
Funding and content procures equipment for the SIIRTD USSF Virtual Analysis Capability system. Supports space and cyber modeling & analysis using a variety of Linux and Windows based hardware and software suites. Also procures Information Technology (IT) hardware and software infrastructure for the Distributed Communications Architecture for HQ ACC.

E. Acquisition Strategy

Any new project funded in this program will be awarded using competitive procedures to the maximum extent possible.

UNCLASSIFIED

Exhibit R-4, RDT&E Schedule Profile: PB 2023 Air Force		Date: April 2022
Appropriation/Budget Activity 3620F / 7	R-1 Program Element (Number/Name) PE 1203174SF / <i>Space Innovation, Integration and Rapid Technology Development</i>	Project (Number/Name) 67A011 / <i>Space Analysis and Application Development</i>

FY 2021				FY 2022				FY 2023				FY 2024				FY 2025				FY 2026				FY 2027			
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

SIIRTD	
Model Development/Modification, verification & validation	
Space Training Simulators	
DMO-S - Development and Integration	

UNCLASSIFIED

Exhibit R-4A, RDT&E Schedule Details: PB 2023 Air Force		Date: April 2022
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Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
SIIRTD				
Model Development/Modification, verification & validation	1	2021	4	2027
Space Training Simulators	1	2021	4	2027
DMO-S - Development and Integration	1	2021	4	2027