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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 5: System Development & Demonstration (SDD)</i>	R-1 Program Element (Number/Name) PE 1206431SF / <i>Advanced EHF MILSATCOM (SPACE)</i>
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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	-	11.419	4.068	1.020	0.000	1.020	1.023	1.044	1.082	1.103	Continuing	Continuing
657104: <i>MILSATCOM Space Modernization Initiative (SMI)</i>	-	11.419	4.068	1.020	0.000	1.020	1.023	1.044	1.082	1.103	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The Space Modernization Initiative (SMI) evolves current and future SATCOM systems to develop a more affordable and resilient integrated enterprise capable of meeting near-term and emerging requirements. Under this construct, SMI includes the Capabilities Insertion Program (CIP) to enhance the current Advanced Extremely High Frequency (AEHF) constellation and protected communications performance to improve system operational resiliency. Additionally, SMI will demonstrate technologies and Concepts of Operations (CONOPS) supporting the Protected Anti-jam Tactical SATCOM (PATs) family-of-systems capability that provides tactical-level military SATCOM (MILSATCOM) users protected, anti-jam SATCOM while operating in a contested environment. PATs is an integrated approach that includes the Protected Tactical Satellite Communications (PTS) and Protected Tactical Enterprise Service (PTES) programs to mitigate adversarial jamming effects by using the Protected Tactical Waveform (PTW). For this effort, SMI includes the Air Force - Army Anti-Jam Modem (A3M) to develop PTW-capable modems, providing high throughput and enhanced anti-jam capability in benign and contested environments. Finally, Global Broadcast Service (GBS) functionality will be added to the PATs modems. GBS implements a worldwide high-capacity satellite broadcast information system to provide a continuous, one-way, high-speed, high-volume flow of classified and unclassified intelligence products (full motion video, imagery, data) to garrisoned, deployed or moving forces. FY 2022 was the final year of funding for CIP. FY 2025 funding continues the GBS effort.

This program element may include necessary civilian pay expenses required to manage, execute, and deliver AEHF and SMI capability. The use of such program funds would be in addition to the civilian pay expenses budgeted in program elements 1206392SF and 1206398SF.

This program is in Budget Activity 5, System Development and Demonstration (SDD) because it has passed Milestone B approval and is conducting engineering and manufacturing development tasks aimed at meeting validated requirements prior to full rate production.

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B. Program Change Summary (\$ in Millions)	FY 2023	FY 2024	FY 2025 Base	FY 2025 OCO	FY 2025 Total
Previous President's Budget	11.651	4.068	1.018	0.000	1.018
Current President's Budget	11.419	4.068	1.020	0.000	1.020
Total Adjustments	-0.232	0.000	0.002	0.000	0.002
• 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	-0.232	0.000			
• Other Adjustments	0.000	0.000	0.002	0.000	0.002

Change Summary Explanation

FY 2025: +0.002M Inflation Rates for Non-Pay and Non-Fuel Purchases

C. Accomplishments/Planned Programs (\$ in Millions)	FY 2023	FY 2024	FY 2025
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Title: Global Broadcast Service (GBS)	11.419	4.068	1.020
Description: GBS continues A3M efforts towards meeting integration and mission requirements for Combat Communications users. This includes completing A3M software/firmware updates and integrating the modem into the GBS receive suites, which will allow the modem to be compatible with the GBS legacy Digital Video Broadcast - Second Generation Satellite (DVB-S2) broadcast and switchable between legacy DVB-S2 and PTW capabilities. This ensures the 2,000+ worldwide GBS users continue to have access to continuous, one-way, high-speed, high-volume flow of classified and unclassified intelligence products (full motion video, imagery, data, weather, etc.) during the 5-year fielding timeline. Upon fielding completion, GBS users will transition to a PATS broadcast. This will fulfill the GBS TRANSEC requirement in the GBS Joint Operational Requirements Document (JORD)-III (2005) and Committee on National Security Systems (CNSS) Policy No. 12/CNSS Instruction No.1200. This solution also supports the Chief Space Operations' SATCOM Vision for improved resiliency and agility.			
FY 2024 Plans: Continue A3M software/firmware updates through one of the current A3M Development vendors to add GBS legacy DVB-2 broadcast compatibility. Funding will also integrate A3M with GBS receive suites (physical integration, technical order updates, training package updates, software updates, etc.). Continue Satellite Broadcast Manager (SBM) architecture updates for PATS compatibility. Continue initial test activities to include planning and acquisition of test assets. Activities include, but are not limited to, program office support, studies, technical analysis, experimentation, prototyping, etc.			
FY 2025 Plans:			

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C. Accomplishments/Planned Programs (\$ in Millions)	FY 2023	FY 2024	FY 2025
<p>Continue A3M software/firmware updates through the selected A3M Development vendors to add GBS legacy DVB-S2 broadcast compatibility for garrisoned, deployed or moving forces with A3M modem and small form factor modem. Funding will also integrate A3M with GBS receive suites, concentrating on technical baseline updates for physical integration, technical order updates, training package updates, software updates, and other critical technical baseline updates in preparation for full rate production. Remaining RDT&E funding through the FYDP will support necessary software corrections, address cybersecurity considerations, and finalize integration efforts. Continue SBM architecture updates for PATS compatibility. Continue test activities to include planning, acquisition of test assets and test conduct.</p> <p>Rapidly respond to implement system resiliency and situational awareness necessary to operate in the contested space domain. Activities may include, but are not limited to program office support, studies, technical analysis, experimentation, prototyping, and activities that may leverage commercial and international opportunities.</p> <p>FY 2024 to FY 2025 Increase/Decrease Statement: FY 2025 decreased due to completion of the majority of the A3M modem software/firmware updates.</p>			
Accomplishments/Planned Programs Subtotals	11.419	4.068	1.020

D. Other Program Funding Summary (\$ in Millions)											
<u>Line Item</u>	<u>FY 2023</u>	<u>FY 2024</u>	<u>FY 2025</u> <u>Base</u>	<u>FY 2025</u> <u>OCO</u>	<u>FY 2025</u> <u>Total</u>	<u>FY 2026</u>	<u>FY 2027</u>	<u>FY 2028</u>	<u>FY 2029</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• SPSF 01 MILSAT: <i>MILSATCOM</i>	17.338	23.703	17.159	-	17.159	4.539	4.661	4.760	3.769	0.000	75.929

Remarks
The MILSATCOM Procurement Space Force (PSF) funds the production costs of the A3M for GBS.

The above costs reflect the GBS and PTW Modem line item totals (omitting the Air Force Wideband Enterprise Terminal (AFWET) line item costs) of the 3022F: Procurement, Space Force MILSAT / MILSATCOM document.

E. Acquisition Strategy
A3M is an ACAT III program and is a joint effort between SSC and the Program Manager (PM) Tactical Networks (TN), Aberdeen Proving Ground (APG), to develop a common modem for the United States Air Force Global Multi-band Terminal (GMT) and United States Army Satellite Transportable Terminal (STT).

The Space Force will utilize existing contracts to the fullest extent possible for all updates necessary. Those contracts include: Air Force Research Laboratory (AFRL) contracts for software/firmware updates; GBS receive suite contracts for terminal integration; GBS architecture sustaining engineering contract for SBM updates; and an existing service level agreement with the 520th Software Engineering Squadron (SWES) for receive suite and SBM software updates. Within the CIP effort, the W/V-

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band Satellite Communication Experiment Transponder (WSCE-T) program's W/V frequency utilization demonstration was a cost-shared venture between the Program Office and the AFRL.

Leveraging similar mission and environmental requirements enables selection of the high water mark requirements to meet both mission parameters with greater efficiency while reducing risk and lifecycle cost. A3M leverages the PTS Field Demonstration technology maturation resulting in a low-risk development effort delivering pre-production modems with 100% production-ready components. This will include certified End Cryptographic Units (ECUs) for full-scope operational and cyber testing, operator and maintainer training materials, and all required intellectual property rights and provisioning documentation to enable swift terminal modification for operational use and sustainment. The development phase will deliver pre-production PTW-capable modems ready for "build-to-print" production. Blended developmental and operational testing is expected to include full environmental, blue, and red team testing prior to the production decision.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2025 Air Force												Date: March 2024			
Appropriation/Budget Activity				R-1 Program Element (Number/Name)				Project (Number/Name)							
3620F / 5				PE 1206431SF / Advanced EHF MILSATC OM (SPACE)				657104 / MILSATCOM Space Modernization Initiative (SMI)							
Product Development (\$ in Millions)				FY 2023		FY 2024		FY 2025 Base		FY 2025 OCO		FY 2025 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
GBS-A3M Software/Firmware Design Changes	C/CPFF	Various : Various	-	8.701	May 2023	1.500	Nov 2023	0.783	Nov 2024	-		0.783	Continuing	Continuing	-
GBS Receive Suite Integration	C/Various	Various : Various	-	0.673	May 2023	2.355	Oct 2023	0.200	Oct 2024	-		0.200	Continuing	Continuing	-
GBS SBIR/STTR	Various	Various : Various	-	-		0.142	Mar 2024	0.037	Mar 2025	-		0.037	Continuing	Continuing	-
GBS Enterprise SE&I	C/CPAF	Linquest : Los Angeles, CA	-	0.600	May 2023	-		-		-		-	0.000	0.600	-
Subtotal			-	9.974		3.997		1.020		-		1.020	Continuing	Continuing	N/A
Test and Evaluation (\$ in Millions)				FY 2023		FY 2024		FY 2025 Base		FY 2025 OCO		FY 2025 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
GBS DT/IT/OT Resources	Various	Peterson / Schriever SFB : CO Springs, CO	-	1.268	Jun 2023	-		-		-		-	Continuing	Continuing	-
Subtotal			-	1.268		-		-		-		-	Continuing	Continuing	N/A
Management Services (\$ in Millions)				FY 2023		FY 2024		FY 2025 Base		FY 2025 OCO		FY 2025 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
GBS A&AS	Various	Various : Various	-	0.177	Apr 2023	0.053	Jan 2024	-		-		-	Continuing	Continuing	-
GBS Other Support	Various	Various : Various	-	-		0.018		-		-		-	Continuing	Continuing	-
Subtotal			-	0.177		0.071		-		-		-	Continuing	Continuing	N/A
Project Cost Totals			-	11.419		4.068		1.020		-		1.020	Continuing	Continuing	N/A

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Exhibit R-4, RDT&E Schedule Profile: PB 2025 Air Force		Date: March 2024
Appropriation/Budget Activity 3620F / 5	R-1 Program Element (Number/Name) PE 1206431SF / <i>Advanced EHF MILSATCOM (SPACE)</i>	Project (Number/Name) 657104 / <i>MILSATCOM Space Modernization Initiative (SMI)</i>

	FY 2023				FY 2024				FY 2025				FY 2026				FY 2027				FY 2028				FY 2029			
	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
<i>MILSATCOM Space Modernization Initiative</i>																												
A3M PTW Modem Development																												
GBS-A3M SW/FW design changes																												
GBS Test Planning and DT/IT/OT																												
GBS SBM and TGRS Integration (Receive Suite Integration)																												
GBS PRS Integration																												
GBS DR Resolution																												

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Exhibit R-4A, RDT&E Schedule Details: PB 2025 Air Force		Date: March 2024
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Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<i>MILSATCOM Space Modernization Initiative</i>				
A3M PTW Modem Development	1	2023	1	2024
GBS-A3M SW/FW design changes	1	2024	2	2025
GBS Test Planning and DT/IT/OT	3	2023	4	2029
GBS SBM and TGRS Integration (Receive Suite Integration)	3	2023	4	2029
GBS PRS Integration	3	2024	2	2026
GBS DR Resolution	3	2025	2	2028