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

<b>Appropriation/Budget Activity</b> 3620F: <i>Research, Development, Test &amp; Evaluation, Space Force I BA 5: System Development &amp; Demonstration (SDD)</i>	<b>R-1 Program Element (Number/Name)</b> PE 1203940SF / <i>Space Situation Awareness Operations</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	-	55.517	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	55.517
65A037: <i>Ground Based Optical Sensor</i>	-	55.517	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	55.517
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-	-	-

**A. Mission Description and Budget Item Justification**

Space Domain Awareness (SDA) is one of five core competencies of the Space Force and is the effective identification, characterization, and understanding of any factor, passive or active, associated with the space domain that could affect space operations and thereby impact the security, safety, economy, or environment of our nation. As the foundation for space control, SDA encompasses surveillance of all space objects and activities; detailed surveillance of specific space assets; monitoring space environmental conditions; monitoring cooperative space assets; gathering indications and warning on adversary space operations; and conducting integrated command, control, communications, processing, analysis, dissemination, and archiving activities.

This program element fields, upgrades, operationalizes, operates and maintains Space Force sensors and information integration capabilities within the SDA network while companion program element 1206425SF, Space Situational Awareness Systems, develops new network sensors and improved information integration capabilities across the network. Activities funded in this program element (1203940SF) focus on surveillance of objects in earth orbit to aid tasks including satellite tracking; space object identification; tracking and cataloging; satellite attack warning; notification of satellite flyovers to U.S. forces; space treaty monitoring; and technical intelligence gathering.

The Ground-Based Optical Sensor System (GBOSS) Program is an upgrade to the Ground-based Electro-Optical Deep Space Surveillance (GEODSS) system that enables GEODSS to monitor small, closely-spaced, and advanced threats in low, mid, high, and geostationary orbits. The upgraded system will discover currently undetectable space threats, reduce an adversary's tactical surprise and deliver the data required to support accurate, timely, actionable SDA. This facilitates decision-making within the compressed timelines dictated by the realities of the congested, contested, competitive space domain. The program delivers a combination of performance upgrades to existing GEODSS sites, including advanced data exploitation and rapid data dissemination, and will incorporate coalition data, commercial data and/or new GEODSS sites to provide a global capability to positively ID an adversary committing an orbital attack. The program includes updates to the GEODSS image processing and optical subsystems that will enhance the sensitivity and search rate, and fields new multi-spectral advanced technology sensors supporting extended operations, high-fidelity characterization, enhanced indications and warnings (I&W), and attribution.

In FY 2024, Ground Based Optical Sensor efforts were transferred to PE 1206425SF, Space Situation Awareness Systems, Project 65A037, Ground Based Optical Sensor, in order to align it with other developmental SDA programs.

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

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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.

<b>B. Program Change Summary (\$ in Millions)</b>	<b>FY 2023</b>	<b>FY 2024</b>	<b>FY 2025 Base</b>	<b>FY 2025 OCO</b>	<b>FY 2025 Total</b>
Previous President's Budget	57.478	0.000	0.000	0.000	0.000
Current President's Budget	55.517	0.000	0.000	0.000	0.000
Total Adjustments	-1.961	0.000	0.000	0.000	0.000
• 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	-1.961	0.000			
• Other Adjustments	0.000	0.000	0.000	0.000	0.000

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

**Project:** 65A037: *Ground Based Optical Sensor*

Congressional Add: *Artificial Intelligence and Autonomy for Data Analytics and Sensor Systems*

Congressional Add Subtotals for Project: 65A037

Congressional Add Totals for all Projects

	<b>FY 2023</b>	<b>FY 2024</b>
	7.727	-
	7.727	-
	7.727	-

**C. Accomplishments/Planned Programs (\$ in Millions)**

	<b>FY 2023</b>	<b>FY 2024</b>	<b>FY 2025</b>
<b>Title:</b> Ground Based Optical Sensor System (GBOSS)	47.790	0.000	0.000
<b>Description:</b> GBOSS provides a global, ground-based, optical sensor capability for Space Domain Awareness (SDA). The program implements advanced capabilities that may leverage coalition data, commercial data, and sophisticated exploitation algorithms to enhance system response and resiliency to operate in the contested space domain based on aggressive threats by our pacing-competitors, China and Russia. GBOSS improves sensitivity, search rate, tracking of non-cooperative launches, precise tagging of clustered objects, detection of closely spaced dim objects, attribution of orbital attackers and delivers foundational technology to support data exploitation for advanced indications and warnings. This effort includes upgrading existing sensors, dissemination of all data to DoD and IC stakeholders via the Unified Data Library (UDL), and may field GBOSS-enhanced GEODSS capabilities to new locations in accordance with USSF Leadership direction. The program will also acquire			

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<b>C. Accomplishments/Planned Programs (\$ in Millions)</b>	FY 2023	FY 2024	FY 2025
new advanced technology sensors to improve persistence and advanced multi-spectral data collection, enabling high-fidelity characterization and rapid attribution. The program will collaborate with Combined Space Operations Center (CSpOC), National Space Defense Center (NSDC), and National Air and Space Intelligence Center (NASIC) efforts to ensure enterprise data fusion and dissemination supporting Enterprise Space Battle Management Command, and Control (ESBMC2).			
<b>FY 2024 Plans:</b> N/A			
<b>FY 2025 Plans:</b> N/A			
<b>FY 2024 to FY 2025 Increase/Decrease Statement:</b> N/A			
<b>Accomplishments/Planned Programs Subtotals</b>	47.790	0.000	0.000

	FY 2023	FY 2024
<b>Congressional Add:</b> Artificial Intelligence and Autonomy for Data Analytics and Sensor Systems	7.727	-
<b>FY 2023 Accomplishments:</b> This effort will develop and demonstrate a prototype of a distributed Artificial Intelligence-driven autonomous SDA sensor management system and associated modular hosting system.		
<b>Congressional Adds Subtotals</b>	7.727	-

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

N/A

**Remarks**

**E. Acquisition Strategy**

This program began in FY 2018 to address ground-based optical SDA gaps and shortfalls. The acquisition strategy, approved in March 2018, accelerates the development and fielding of the solution, minimizing the time to address the requirements in light of current and emerging threats. Initial TMRR activities were executed using existing defense, intelligence, and lab contracts. EMD activities are being executed on the Maintenance of Space Situational Awareness Integrated Capabilities (MOSSAIC) contract awarded through full and open competition.

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**Exhibit R-3, RDT&E Project Cost Analysis: PB 2025 Air Force** **Date:** March 2024

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<b>Product Development (\$ in Millions)</b>				FY 2023		FY 2024		FY 2025 Base		FY 2025 OCO		FY 2025 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
GBOSS design, development and life extension	Various	L3Harris : Colorado Springs, CO	-	31.435	Nov 2022	-		-		-		-	0.000	31.435	-
GBOSS Test and Training, Materials Development	C/CPIF	Various : Various	-	7.029	Nov 2022	-		-		-		-	0.000	7.029	-
GBOSS Technical Mission Analysis	RO	Various : Various	-	4.401	Nov 2022	-		-		-		-	0.000	4.401	-
GBOSS AI and Autonomy for Data Analytics and Sensor Systems	Various	Various : Various	-	7.727	Apr 2023	-		-		-		-	0.000	7.727	-
<b>Subtotal</b>			-	50.592		-		-		-		-	0.000	50.592	N/A

<b>Management Services (\$ in Millions)</b>				FY 2023		FY 2024		FY 2025 Base		FY 2025 OCO		FY 2025 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
A&AS	Various	Various : Various	-	2.800	Nov 2022	-		-		-		-	0.000	2.800	-
FFRDC	Various	Various : Various	-	2.000	Nov 2022	-		-		-		-	0.000	2.000	-
Other Support	C/CPAF	Various : Various	-	0.125	Nov 2022	-		-		-		-	0.000	0.125	-
<b>Subtotal</b>			-	4.925		-		-		-		-	0.000	4.925	N/A

	Prior Years	FY 2023	FY 2024	FY 2025 Base	FY 2025 OCO	FY 2025 Total	Cost To Complete	Total Cost	Target Value of Contract
	<b>Project Cost Totals</b>		-	55.517	-	-	-	0.000	55.517

**Remarks**



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<b>Exhibit R-4A, RDT&amp;E Schedule Details:</b> PB 2025 Air Force		<b>Date:</b> March 2024
<b>Appropriation/Budget Activity</b> 3620F / 5	<b>R-1 Program Element (Number/Name)</b> PE 1203940SF / <i>Space Situation Awareness Operations</i>	<b>Project (Number/Name)</b> 65A037 / <i>Ground Based Optical Sensors Operations</i>

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<b>GBOSS EMD</b>				
GBOSS EMD	1	2023	4	2023
AI & Autonomy	3	2023	4	2023