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**Exhibit R-2, RDT&E Budget Item Justification:** PB 2021 Air Force **Date:** February 2020

<b>Appropriation/Budget Activity</b> 3600: <i>Research, Development, Test &amp; Evaluation, Air Force I BA 7: Operational Systems Development</i>	<b>R-1 Program Element (Number/Name)</b> PE 1201017F / <i>Global Sensor Integrated on Network (GSIN)</i>
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COST (\$ in Millions)	Prior Years	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
Total Program Element	-	0.000	3.647	1.889	0.000	1.889	6.590	6.590	6.589	6.590	0.000	31.895
675368: <i>GSIN (Global Integrated Sensor Network)</i>	-	0.000	3.647	1.889	0.000	1.889	6.590	6.590	6.589	6.590	0.000	31.895
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-	-	-

**Note**  
 In FY 2020, PE 0301017F, Global Sensor Integrated on Network (GSIN), Project 675368, GSIN (Global Integrated Sensor Network), efforts were transferred to PE 1201017F, Global Sensor Integrated on Network (GSIN), Project Project 675368, GSIN (Global Integrated Sensor Network), for more accurate classification of work.

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

In FY 2021, PE 1201017F, Global Sensor Integrated on Network efforts were transferred to Appropriation 3620, Research, Development, Test & Evaluation, Space Force, PE 1201017SF Global Sensor Integrated on Network from Appropriation 3600, Budget Activity 07 due to the creation of a new Appropriation for Space Force.

\$1.889M is included in FY 2021 in this request for Appropriation 3600, Research, Development, Test & Evaluation, Air Force, PE 1201017F; these funds should have been requested under Appropriation 3620 Research, Development, Test & Evaluation, Space Force, PE 1201017SF. Justification and plans for these funds are included in PE 1201017SF, Global Sensor Integrated on Network (GSIN), R-1 Line #26.

The missions of USSPACECOM and USSTRATCOM include establishing and providing full-spectrum, global strike, coordinated space and information operations capabilities to meet both deterrent and decisive national security objectives and to provide operational space support, integrated missile defense, Global Command Control, Communications, and Computers Intelligence Surveillance and Reconnaissance (C4ISR), and specialized planning expertise to the joint warfighter.

The Nation's strategic C2 sensors, and mission planning programs cannot rapidly exchange information across multiple missions creating ambiguity that delays time critical national C2 decision making processes. GSIN developed and established a unified schema that integrates disparate Missile Warning/Missile Defense (MW/MD) data into a single, exposed data set, providing redundant and unambiguous MW/MD data to national leadership. GSIN also enables existing radars and sensors to provide data in net-centric formats consumable by other authorized systems and mission areas, thus reducing the need to acquire more systems. Activities also include studies and analysis to support current program planning, execution, and future program planning.

GSIN directly supports USSPACECOM, USSTRATCOM and other Combatant Command and MAJCOM mission sets. GSIN meshes together selected systems and sensors (from tactical to strategic), including the Nation's most modern and capable assets, taking advantage of their larger numbers, improved algorithms, mobility, and forward deployment to provide earlier cross-cueing and expanded decision space when every second counts. Repurposing these traditionally stove-piped systems and sensors, GSIN enables the warfighter in several ways. GSIN enables creation of a User Defined Operating Picture (UDOP) to provide a single, unambiguous missile event picture allowing realtime collaboration for nuclear C2 and improved senior leader situational awareness (SA) for effective decision-making. GSIN also improves Space Situational Awareness (SSA) by tapping additional sensor capability and provides this data for the larger space order of battle capabilities. GSIN

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dramatically improves the ingestion of nontraditional, but readily available, non-US government and commercial data to the United States Space Force (USSF) satellite catalog. GSIN addresses NORTHCOM/STRATCOM's signed Joint Emergent Operational Need (JEON) ST-0010 request for uninterrupted traditional and non-traditional sensor data integration and the Global Threat Characterization Assessment (GTCA) Operational Planning Team report. GSIN provides critical and unique data to the USSPACECOM SSA data repositories to facilitate the large Space Battle Management Command and Control (BMC2) suite of capabilities/programs. Finally, GSIN provides Machine Learner and Data Analysis functions to optimize and operate situational awareness in the field.

Space Acquisition must respond with speed and agility to emerging adversary threats. Space & Missile Systems Center (SMC) is transforming the organization and implementation of space acquisition to an enterprise approach, maximizing innovation and resiliency, leveraging international, commercial, and mission partnerships, and managing program/project priorities according to an integrated unclassified/classified enterprise space architecture. Expanding the appropriate acquisition authorities and contract mechanisms to deliver capability sooner, SMC will strategically execute experimentation, prototyping, risk reduction, and other efforts to develop new or repurpose capabilities.

This program element may include necessary civilian pay expenses required to manage, execute, and deliver GSIN weapon system capability. The use of such program funds would be in addition to the civilian pay expenses budgeted in program elements 0605826F, 0605827F, 0605828F, 0605829F, 0605830F, 0605831F, 0605832F, and 0605898F.

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.

<b>B. Program Change Summary (\$ in Millions)</b>	<b>FY 2019</b>	<b>FY 2020</b>	<b>FY 2021 Base</b>	<b>FY 2021 OCO</b>	<b>FY 2021 Total</b>
Previous President's Budget	0.000	3.647	3.709	0.000	3.709
Current President's Budget	0.000	3.647	1.889	0.000	1.889
Total Adjustments	0.000	0.000	-1.820	0.000	-1.820
• 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	0.000	0.000	-1.820	0.000	-1.820

**Change Summary Explanation**

FY2021: -\$1.820M; funds starting in FY 2021 were transferred from RDT&E, Air Force to RDT&E, Space Force.

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<b>C. Accomplishments/Planned Programs (\$ in Millions)</b>		<b>FY 2019</b>	<b>FY 2020</b>	<b>FY 2021</b>
<p><b>Title:</b> Radar, sensor, technical intelligence (TI), and Allied Systems</p> <p><b>Description:</b> Radar, sensor, technical intelligence and Allied Systems: Designs, develops, exposes and integrates data from radar, sensors and technical intelligence systems in regions of the world where potential GSIN users currently do not have coverage. Provide real time data from systems that previously reported in hours or days after critical events. Conduct studies/surveys/meetings as necessary to continually identify systems meeting GSIN user data exposure needs. Space Situational Awareness (SSA): Designs, develops, tests, exposes, and integrates SSA data from previously untapped systems into space production systems and the Global Information Grid (GIG). Develop implementation plans to mature data exposure capabilities.</p> <p><b>FY 2020 Plans:</b></p> <ul style="list-style-type: none"> <li>- Begin Implementing Strategic Study</li> <li>- Complete deployment and testing of Radar/Sensor/TI Project 4 and transition to PoR</li> <li>- Identify and begin development of Radar/Sensor/TI Project 5.</li> </ul> <p><b>FY 2021 Plans:</b> N/A</p> <p><b>FY 2020 to FY 2021 Increase/Decrease Statement:</b> N/A</p>		0.000	2.200	0.000
<p><b>Title:</b> Data Services, Net Centric Integration and Configuration Control, and program outreach</p> <p><b>Description:</b> Develop common XML net-enabled data schemas and configuration management processes and procedures for Missile Warning, Missile Defense, Space, MASINT/Technical Intelligence, and Sensor data to manage the XML schema and associated XML messaging and services. Develop technical outreach for potential new GSIN data consumers and providers who require GSIN sensor data. Upgrade GSIN capabilities as DISA Enterprise Services evolve. Continue modifications to data services. Support integration of GSIN sensor data into appropriate registries/catalogs. Continue development of GSIN data services to enable visualization in a common operating picture. Conduct studies and demonstrations of SSA capabilities, data correlation, and assessment services for risk reduction evaluations.</p> <p><b>FY 2020 Plans:</b></p> <ul style="list-style-type: none"> <li>- Continue developing plans to address NORTHCOM/USSTRATCOM JEON GTCA. Advocate and secure additional RDT&amp;E funding if necessary.</li> <li>- Begin development of a record capability of GSIN exposed data and play it back in real time through a visualization tool.</li> <li>- Continue developing and releasing periodic configuration control processes.</li> <li>- Continue technical outreach processes for new GSIN data consumers and providers.</li> <li>- Deliver new GSIN capabilities to match evolving DISA Enterprise Service updates.</li> </ul>		0.000	1.447	1.889

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<b>C. Accomplishments/Planned Programs (\$ in Millions)</b>		<b>FY 2019</b>	<b>FY 2020</b>	<b>FY 2021</b>
<p>- Continue development of new and improved data services.</p> <p>-- Complete deployment and integration of Radar/Sensor/TI Project 4 into DISA Enterprise Services.</p> <p>-- Begin development and integration of Radar/Sensor/TI Project 5 into DISA Enterprise Services.</p> <p>-- Begin development and integration of Radar/Sensor/TI Project 6 into DISA Enterprise Services.</p> <p><b>FY 2021 Plans:</b> \$1.889M is incorrectly requested in PE 1201017F for FY 2021; these funds should have transferred to 1201017SF. Justification and plans for these funds are documented in PE 1201017SF, Global Sensor Integrated on Network (GSIN) R-1 Line #26.</p> <p><b>FY 2020 to FY 2021 Increase/Decrease Statement:</b> N/A</p>				
<b>Accomplishments/Planned Programs Subtotals</b>		0.000	3.647	1.889
<b>D. Other Program Funding Summary (\$ in Millions)</b> N/A				
<b>Remarks</b>				
<b>E. Acquisition Strategy</b> GSIN uses existing government contract vehicles, from agencies such as Missile Defense Agency (MDA) or Air Force Life Cycle Management Center (AFLCMC); to develop and modernize the combined SSA/MW/MD/MASINT/TI data exposure architecture and solution. The contracts are managed by the relevant organization's contracting office. GSIN does not award or manage any contracts. The AFLCMC at Hanscom AFB (AFLCMC/HB) and SMC at Los Angeles AFB provide necessary program management, financial management, and other support as may be applicable for GSIN.				

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**Exhibit R-3, RDT&E Project Cost Analysis: PB 2021 Air Force** **Date:** February 2020

<b>Appropriation/Budget Activity</b> 3600 / 7	<b>R-1 Program Element (Number/Name)</b> PE 1201017F / <i>Global Sensor Integrated on Network (GSIN)</i>	<b>Project (Number/Name)</b> 675368 / <i>GSIN (Global Integrated Sensor Network)</i>
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<b>Product Development (\$ in Millions)</b>				FY 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 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			
GSIN Space Situational Awareness Data Exposure - Radar/Sensor/TI Project 5	C/CPAF	RAYTHEON : Colorado Springs, CO	-	-		1.417	Jan 2020	-		-		-	Continuing	Continuing	-
GSIN Space Situational Awareness Data Exposure - Radar/Sensor/TI Project 6	C/CPAF	RAYTHEON : Boston, MA	-	-		1.200	Jan 2020	1.889	Dec 2020	-		1.889	Continuing	Continuing	-
GSIN Strategic Study	C/CPAF	KBR Wyle : Omaha, NE	-	-		0.500	Nov 2019	-		-		-	Continuing	Continuing	-
<b>Subtotal</b>			-	-		3.117		1.889		-		1.889	Continuing	Continuing	N/A

<b>Management Services (\$ in Millions)</b>				FY 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 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	C/FFP	Various : Omaha, NE	-	-		0.530	Oct 2019	-		-		-	Continuing	Continuing	-
<b>Subtotal</b>			-	-		0.530		-		-		-	Continuing	Continuing	N/A

	Prior Years	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	Cost To Complete	Total Cost	Target Value of Contract
<b>Project Cost Totals</b>		-	-	3.647	1.889	1.889	Continuing	Continuing	N/A

**Remarks**

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<b>Exhibit R-4, RDT&amp;E Schedule Profile:</b> PB 2021 Air Force		<b>Date:</b> February 2020
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	FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				FY 2025			
	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
<b>GSIN Data Exposure</b>																												
(MASINT 4) Production/Fielding					■																							
(MASINT 4) Integration and Testing								■																				
(MASINT 4) Operational																												
(MASINT 5) Design and Development								■																				
(Radar/MASINT 6) Design and Development																												

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<b>Exhibit R-4A, RDT&amp;E Schedule Details:</b> PB 2021 Air Force		<b>Date:</b> February 2020
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Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<b>GSIN Data Exposure</b>				
(MASINT 4) Production/Fielding	1	2020	1	2020
(MASINT 4) Integration and Testing	3	2020	3	2020
(MASINT 4) Operational	4	2020	4	2020
(MASINT 5) Design and Development	3	2020	4	2020
(Radar/MASINT 6) Design and Development	4	2020	4	2021