Exhibit R-2, RDT&E Budget Item Justification: PB 2025 Air Force											Date: March 2024	
Appropriation/Budget Activity 3600: *Research, Development, Test & Evaluation, Air Force* / BA 7: *Operational Systems Development*					R-1 Program Element (Number/Name) PE 0305206F / *Airborne Reconnaissance Systems*							
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	-	76.139	43.158	84.363	0.000	84.363	26.910	27.166	58.433	71.164	Continuing	Continuing
672001: *Next-Generation Sensors**	-	0.000	0.000	0.000	0.000	0.000	0.000	0.000	6.241	26.363	Continuing	Continuing
672002: *Agile ISR*	-	14.524	8.910	8.120	0.000	8.120	8.274	8.281	8.258	0.000	Continuing	Continuing
672003: *Sensors Open System Architecture*	-	10.782	5.948	5.854	0.000	5.854	6.068	6.058	0.000	0.000	Continuing	Continuing
674818: *Imaging and Targeting Support*	-	0.000	0.000	36.468	0.000	36.468	0.000	0.000	30.642	31.247	Continuing	Continuing
674820: *Sensor Development*	-	41.949	18.928	24.274	0.000	24.274	0.000	0.000	0.000	0.000	0.000	85.151
675092: *JTC/SIL MUSE*	-	3.784	3.869	3.963	0.000	3.963	4.061	4.145	4.295	4.380	Continuing	Continuing
675291: *Gorgon Stare*	-	5.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	5.000
676025: *Data Compression*	-	0.100	5.503	5.684	0.000	5.684	8.507	8.682	8.997	9.174	Continuing	Continuing

*This project's R-2a exhibit has been suppressed due to funding not beginning until after FY 2025

Note

This program, BA 7, PE 0305206F, project 672002, HALE, is a new start.

A. Mission Description and Budget Item Justification

The Airborne Reconnaissance System [ARS] Program develops and integrates next generation intelligence, surveillance, and reconnaissance [ISR] capabilities. ARS includes platform-agile sensor data processing; sensor products aiding assisted target recognition algorithms and other artificial intelligence activities [e.g. geolocation models, sensor-base exploitation tools, sensor networking capabilities]; and implementation of sensor open architecture standards. The ARS Program includes the following efforts: Agile ISR [672002], Sensors Open System Architecture [672003], Imaging and Targeting Support [674818], Sensor Development [674820], JTC/SIL MUSE [675092], and Data Compression [676025].

The ARS PE is integral to developing multi-domain, multi-intelligence [multi-INT] research, development, test and evaluation [RDT&E] Program of Record [PoR] efforts in support of the National Defense Strategy (NDS) and 2018 DoD Artificial Intelligence Strategy, as applied by the Air Force in the Next Generation ISR Dominance Flight Plan. Specifically, Program Element 0305206F provides authorized and appropriated funding to multi-INT RDT&E efforts for utilization on airborne platforms. This program traditionally provides a multi-INT venue for integration of technologies matured in both the Advanced Technology & Sensors [0604257F] and Airborne SIGINT Enterprise [0304260F] programs.

Exhibit R-2, RDT&E Budget Item Justification: PB 2025 Air Force	Date: March 2024
Appropriation/Budget Activity 3600: *Research, Development, Test & Evaluation, Air Force* / BA 7: *Operational Systems Development*	**R-1 Program Element (Number/Name)** PE 0305206F / *Airborne Reconnaissance Systems*

ARS is a platform-agile suite of sensor technologies defined for the best flexibility and capability for an ever-changing scale of ISR missions. Execution of the ARS activities are founded upon three pillars: Open Standards, Artificial Intelligence [AI]/Machine Learning [ML] algorithms, and Advanced Platform-Agile Sensors. The power behind the ARS programs is an open architectural system design that enables rapid third-party software and line replicable unit insertion/replacement allowing for DevSecOps execution, onboard multi-modal and multi-INT processing real-time, sensor cross-cueing, and AI/ML application. The AI/ML algorithms will be used to enable assisted target detection and identification. ARS will anticipate and more quickly counter adversaries' future improvements in their abilities to hide from and defeat ISR sensors.

In FY23, the Next Generation Sensor activities were moved to PE 0604257F BPAC 642001 for continued prototyping, technology maturation, and risk reduction.

In FY25 HALE is a new start.

The open standards pillar of next generation capabilities is supported through Sensors Open Systems Architecture [SOSA] which coordinates advanced technologies and open architecture development for multi-INT sensor modalities. The AI/ML algorithm pillar of next generation capabilities will be supported by the Agile ISR and Data Compression efforts. Detection, Removal and Characterization Operations [DRACO] supports the development of a robust image quality improvement capability for airborne synthetic aperture radar [SAR] products. Additionally, the Reduction of Data Using Compression Enhancement [RDUCE] develops data compression algorithms, addressing current and future systems' bandwidth limitations. Algorithms are multi-INT, sensor agnostic, solutions and are submitted for formal adoption by the DOD-Intelligence Community [IC] Joint Enterprise Standards Committee [JESC] GEOINT and SIGINT standards groups. The platform agile sensors pillar of next-generation capabilities will be supported by the Sensor Development effort, which includes the Advanced Synthetic Aperture Radar System [ASARS] front-end antenna array and receiver exciter advancements [ASARS-2B], and the ASARS-2C [back end] data processing efforts. ASARS-2B follow-on RDT&E extends range, enhances SAR performance and introduces maritime capability, while laying the framework for future use of open architectures. Additional efforts that support the next generation capabilities include the Multiple Unified Simulation Environment [MUSE] Joint Technology Center/Systems Integration Lab [JTC/SIL] by supporting ISR Training.

The I&TS Ultra Long-endurance Unmanned Reconnaissance Aircraft (ULTRA) is an Air Force-led technology and concept development effort to demonstrate an Unmanned Aerial System (UAS) that is capable of multiple-day duration flights while still being extremely affordable. ULTRA leverages commercial-off-the-shelf technologies to minimize expensive custom/proprietary items while at the same time simplifying maintenance and manpower costs. The payload integration for ULTRA maintains a modular and flexible architecture to allow for rapid integration of customer-driven payload options. In 2020 ULTRA performed limited operational test and evaluation over a six-month period, the results of which informed payload and system requirements to meet current and future needs. Future operational test and evaluation in relevant operational environments is a critical next step in developing ULTRA as an affordable ultra-long endurance ISR platform that is responsive to current and future needs. The ULTRA effort is not a new start. It is a flight demonstration of the ULTRA program, which was previously executed in FY24 under Program 0305205F Endurance Unmanned Aerial Vehicles; in FY23 and prior years under Program 0604555D8Z Operational Energy Prototyping, and under Section 219 authorities.

This program element may include necessary civilian pay expenses required to manage, execute, and deliver weapon system capability. The use of such programs funds would be in addition to the civilian pay expenses budgeted in program element 0605827F, 0605828F, 0605829F, 0605831F, 0605832F, 0605833F, 0605898F,

Exhibit R-2, RDT&E Budget Item Justification: PB 2025 Air Force	Date: March 2024
Appropriation/Budget Activity 3600: *Research, Development, Test & Evaluation, Air Force* / BA 7: *Operational Systems Development*	**R-1 Program Element (Number/Name)** PE 0305206F / *Airborne Reconnaissance Systems*

0606398F. In FY23, 0.209M was expended for civilian pay expenses in this program element, and in FY24 0.458M is forecasted for civilian pay expenses in this program element.

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. Program Change Summary ($ in Millions)	FY 2023	FY 2024	FY 2025 Base	FY 2025 OCO	FY 2025 Total
Previous President's Budget	70.048	43.158	47.810	0.000	47.810
Current President's Budget	76.139	43.158	84.363	0.000	84.363
Total Adjustments	6.091	0.000	36.553	0.000	36.553
• 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	6.091	0.000			
• SBIR/STTR Transfer	0.000	0.000			
• Other Adjustments	0.000	0.000	36.553	0.000	36.553

Congressional Add Details ($ in Millions, and Includes General Reductions)	FY 2023	FY 2024
Project: 675291: *Gorgon Stare*		
Congressional Add: *Wide Area Motion Imagery*	5.000	-
Congressional Add Subtotals for Project: 675291	5.000	-
Congressional Add Totals for all Projects	5.000	-

Change Summary Explanation

FY23 $5M Congressional Add for Gorgon Stare.

In FY23, PE 0304260F, Airborne SIGINT Enterprise, Project 675183, Common Development efforts were transferred to PE 0305206F, Airborne Reconnaissance Systems, Project 672002, Agile ISR, and Project 674820, Sensors Development, in order to prevent stop works.

The increase in FY25 from the previous President's Budget is due to the addition of Ultra in the I&TS BPAC and the transfer of ASARS-2C funding into the Sensors Development BPAC.

Exhibit R-2A, RDT&E Project Justification: PB 2025 Air Force			Date: March 2024
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0305206F / *Airborne Reconnaissance Systems*	Project (Number/Name) 672002 / *Agile ISR*	

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
672002: *Agile ISR*	-	14.524	8.910	8.120	0.000	8.120	8.274	8.281	8.258	0.000	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

This program, BA 7, PE 0305206F, project 672002, HALE, is a new start.

A. Mission Description and Budget Item Justification

The Agile ISR BPAC matures, develops, and deploys projects in support of current and future platform agnostic, non-proprietary, autonomous, multi-INT cross cueing ISR solutions based on DAF mission requirements in highly contested environments. This includes, but is not limited to, High Altitude Long Endurance (HALE) capability development, Detection Removal and Characterization Operations (DRACO), support and development of AgilePod, and other projects. Portions of the developmental efforts under Agile ISR are classified.

In FY25 HALE is a new start. The HALE program will begin acquisition activities and support High Altitude Balloon (HAB) demonstrations.

This program element may include necessary civilian pay expenses required to manage, execute, and deliver weapon system capability. The use of such programs funds would be in addition to the civilian pay expenses budgeted in program element 0605827F, 0605828F, 0605829F, 0605831F, 0605832F, 0605833F, 0605898F, 0606398F.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2023	FY 2024	FY 2025
Title: DRACO	12.088	6.910	6.020
Description: Detection Removal and Characterization Operations (DRACO) is a robust Image Quality improvement capability for Airborne Synthetic Aperture Radar (SAR) products. The software resides in multiple locations on the ground and future efforts will migrate algorithms to airborne platforms supporting the Air Force, Army, Navy and other customers. DRACO efforts include but are not limited to development, design, fabrication, integration, demonstration, test, and transition of image quality improvement capabilities. This project originated under the I&TS program. All other details are classified.			
FY 2024 Plans: - Initiate DRACO 7.0 efforts in 1QFY24. This development effort continues the maturation of the software with upgrades being pushed incrementally to numerous Users within the DoD (i.e. AF DCGS) and larger Intelligence Community (IC) architectures. - Continue to increase interoperability by developing common standards and interfaces.			

Exhibit R-2A, RDT&E Project Justification: PB 2025 Air Force		Date: March 2024
Appropriation/Budget Activity 3600 / 7	**R-1 Program Element (Number/Name)** PE 0305206F / *Airborne Reconnaissance Systems*	**Project (Number/Name)** 672002 / *Agile ISR*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2023	FY 2024	FY 2025
- Continue to respond to Warfighter operational needs to support shortfalls in multiple conflict zones. Recent events have increased IC interest in the capabilities that DRACO provides and additional requirements and funding from IC partners are expected in FY24. ***FY 2025 Plans:*** - Will continue with the DRACO 7.0 development effort initiated in early FY24. - Will continue to incorporate updates to address and mitigate emerging classified threats. ***FY 2024 to FY 2025 Increase/Decrease Statement:*** - Funding decreased due to the enhancements of the Machine Learning based tasks gained from the DRACO 6.0 prototype work.			
Title: AgilePod ***Description:*** AgilePod is a government-owned, open standards pod capable of multiple payloads including but not limited to ISR, communications, and EW. It consists of multiple variants and provides a rapid fielding capability for payloads to any aircraft in the DOD inventory that can carry an external store. ***FY 2024 Plans:*** - Continue to develop AgilePod variants to different phases of development including CDR and PDR to prepare for production capabilities. - Develop varieties of AgilePod 26 to accommodate (non)/conformal payloads. - Accelerate AgilePod 16HP CDR/PDR to support Navy Procurement to replace the current JSOW Solution. - Support Multiple Customers for production of AgilePod for mission use across various platforms. ***FY 2025 Plans:*** - Will develop all AgilePod variants to PDR for multi-platform use. - Will proceed to PDR with AgilePod 16V2, AgilePod 16HP and AgilePod 26. - Will continue to support multiservice operational needs via exercises & demos. ***FY 2024 to FY 2025 Increase/Decrease Statement:*** No increase/decrease.	2.436	2.000	2.000
Title: HALE ***Description:*** High Altitude Long Endurance (HALE) assets provide risk-reduction and alternative sensing capability employment options. This effort will initiate the pre-acquisition activity to develop a Family of Sensors constellation to provide wide area target detection and tracking in highly contested environments. ***FY 2024 Plans:***	0.000	0.000	0.100

Exhibit R-2A, RDT&E Project Justification: PB 2025 Air Force		Date: March 2024
Appropriation/Budget Activity 3600 / 7	**R-1 Program Element (Number/Name)** PE 0305206F / *Airborne Reconnaissance Systems*	**Project (Number/Name)** 672002 / *Agile ISR*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2023	FY 2024	FY 2025
N/A ***FY 2025 Plans:*** - Will initiate acquisition activity for HALE programs. - Will begin acquisition analyses to include long lead item evaluation of software, hardware, and spares to begin development. - Will complete industrial base analysis of HALE commercial off the shelf candidates. ***FY 2024 to FY 2025 Increase/Decrease Statement:*** Funding increase to initiate acquisition planning activity for HALE programs.			
Accomplishments/Planned Programs Subtotals	14.524	8.910	8.120

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

Capabilities will be developed and integrated onto various information systems and platforms using an agile software acquisition approach. The projects will be executed and contracted with appropriate vendor(s) to deliver capability while driving competition where possible.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2025 Air Force		Date: March 2024
Appropriation/Budget Activity 3600 / 7	**R-1 Program Element (Number/Name)** PE 0305206F / *Airborne Reconnaissance Systems*	**Project (Number/Name)** 672002 / *Agile ISR*

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2023 Cost	FY 2023 Award Date	FY 2024 Cost	FY 2024 Award Date	FY 2025 Base Cost	FY 2025 Base Award Date	FY 2025 OCO Cost	FY 2025 OCO Award Date	FY 2025 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
DRACO	SS/CPFF	Lockheed Martin : King of Prussisa, PA	-	11.528	Jan 2023	5.910	Jan 2024	6.020	Dec 2024	-		6.020	Continuing	Continuing	-
AgilePod	SS/CPFF	Jacobs/Leidos : Dayton, OH	-	2.436	Jan 2023	1.000	Jan 2024	0.500	Nov 2024	-		0.500	Continuing	Continuing	-
HALE	C/CPAF	Not specified. : TBD	-	0.000		0.000		0.100	Apr 2025	-		0.100	Continuing	Continuing	-
		Subtotal	-	13.964		6.910		6.620		-		6.620	Continuing	Continuing	N/A

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2023 Cost	FY 2023 Award Date	FY 2024 Cost	FY 2024 Award Date	FY 2025 Base Cost	FY 2025 Base Award Date	FY 2025 OCO Cost	FY 2025 OCO Award Date	FY 2025 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
PMA: Other Govt Cost	Various	Various: TBD : TBD	-	0.560	Jan 2023	2.000	Jan 2024	1.500	Nov 2024	-		1.500	Continuing	Continuing	-
		Subtotal	-	0.560		2.000		1.500		-		1.500	Continuing	Continuing	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
Project Cost Totals	-	14.524		8.910		8.120		-		8.120	Continuing	Continuing	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2025 Air Force		Date: March 2024
Appropriation/Budget Activity 3600 / 7	**R-1 Program Element (Number/Name)** PE 0305206F / *Airborne Reconnaissance Systems*	**Project (Number/Name)** 672002 / *Agile ISR*

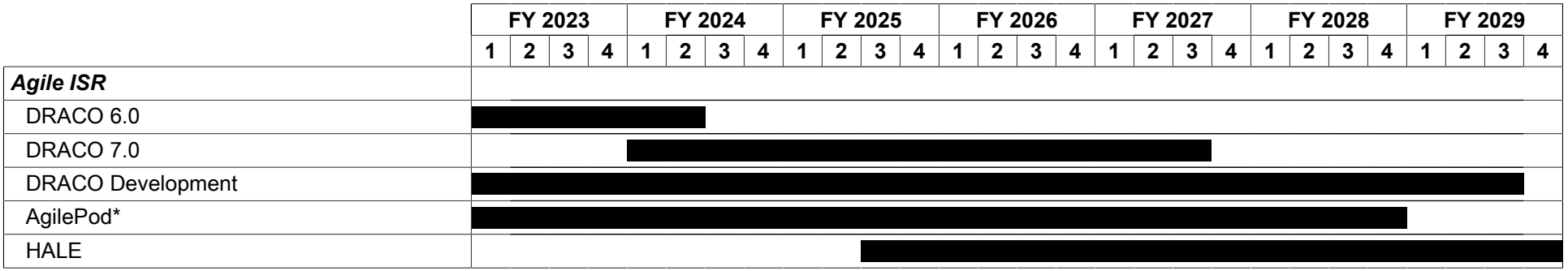

Exhibit R-4A, RDT&E Schedule Details: PB 2025 Air Force		Date: March 2024
Appropriation/Budget Activity 3600 / 7	**R-1 Program Element (Number/Name)** PE 0305206F / *Airborne Reconnaissance Systems*	**Project (Number/Name)** 672002 / *Agile ISR*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Agile ISR				
DRACO 6.0	1	2023	2	2024
DRACO 7.0	1	2024	3	2027
DRACO Development	1	2023	3	2029
AgilePod*	1	2023	4	2028
HALE	3	2025	4	2029

Exhibit R-2A, RDT&E Project Justification: PB 2025 Air Force			Date: March 2024
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0305206F / *Airborne Reconnaissance Systems*	Project (Number/Name) 672003 / *Sensors Open System Architecture*	

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
672003: *Sensors Open System Architecture*	-	10.782	5.948	5.854	0.000	5.854	6.068	6.058	0.000	0.000	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The Sensors Open System Architecture (SOSA) project develops common open (non-proprietary) standards and associated software interfaces to support the development of sensors and embedded systems to enable various modalities. These modalities include, but not limited to: RADAR, SIGINT, Electronic Warfare (EW), Communications and Electro-Optical InfraRed (EO/IR) in support of airborne, space and ground systems. In collaboration with the SOSA Consortium, this program develops, demonstrates, supports research and development, and rapid integration of open systems. The program enables the development/modification of weapon systems to stay ahead of or respond to threat and technological advances from near-peer/peer adversaries.

This program will fund and support development of the SOSA Technical Standard, the development of prototype solutions, as well as fund and operate the Open Architecture SIL (System Integration Laboratory) to mature and verify the common hardware standards and associated software interfaces. The SOSA program will also fund other supporting efforts such as SOSA development/interoperability, verification, and conformance tools and provide training/awareness.

This program element may include necessary civilian pay expenses required to manage, execute, and deliver technology and sensor capabilities. The use of such program funds would be in addition to the civilian pay expenses budgeted in program element 0605831F.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2023	FY 2024	FY 2025
Title: Sensors Open System Architecture	10.782	5.948	5.854
Description: Description: The Sensors Open System Architecture (SOSA) project will execute activities to develop common hardware standards and associated software interfaces. ***FY 2024 Plans:*** - Continue to develop prototype of SOSA multi-INT capability. - Continue to develop AgilePod internal electrical/mechanical interfaces. - Continue to implement and execute multi-INT demonstrations. - Continue to support EO/IR, Comms and multi-INT article prototyping. - Continue to develop Small Form Factor hardware demonstrator for UAS and HALE. - Continue to support security development for SOSA secure solutions. - Continue to prepare and host open standards interoperability demonstrations.			

Exhibit R-2A, RDT&E Project Justification: PB 2025 Air Force		Date: March 2024
Appropriation/Budget Activity 3600 / 7	**R-1 Program Element (Number/Name)** PE 0305206F / *Airborne Reconnaissance Systems*	**Project (Number/Name)** 672003 / *Sensors Open System Architecture*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2023	FY 2024	FY 2025
- Continue to development of Conformance tooling for SOSA validation and verification. ***FY 2025 Plans:*** - Will continue to develop prototype of SOSA multi-INT capability. - Will continue to develop AgilePod internal electrical/mechanical interfaces. - Will continue to implement and execute hardware demonstrations. - Will continue to support EO/IR, Comms and multi-INT article prototyping. - Will continue to prepare and host open standard interoperability demonstrations. - Will continue to support security development for SOSA secure solutions. - Will continue to develop Small Form Factor hardware demonstrator for UAS and HALE. ***FY 2024 to FY 2025 Increase/Decrease Statement:*** Nominal funding decrease from FY24 to FY25 due to higher Air Force priorities.			
Accomplishments/Planned Programs Subtotals	10.782	5.948	5.854

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

SOSA development is achieved through The Open Group SOSA Consortium, which is a Coalition of Industry, DoD, and OGA partners which develop common hardware standards and associated software interfaces to support sensor requirements. The acquisition initiatives consist of prototyping activities, risk reduction activities, and demonstrations. There will continue to be various contracting strategies, including use of existing contracts to rapidly enhance the SOSA Technical Standard baseline.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2025 Air Force		Date: March 2024
Appropriation/Budget Activity 3600 / 7	**R-1 Program Element (Number/Name)** PE 0305206F / *Airborne Reconnaissance Systems*	**Project (Number/Name)** 672003 / *Sensors Open System Architecture*

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2023 Cost	FY 2023 Award Date	FY 2024 Cost	FY 2024 Award Date	FY 2025 Base Cost	FY 2025 Base Award Date	FY 2025 OCO Cost	FY 2025 OCO Award Date	FY 2025 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
SOSA Hardware Development	SS/FFP	Dynetics (JSIL) : Huntsville, AL	-	-		0.800	Nov 2023	0.800	Nov 2024	-		0.800	Continuing	Continuing	-
SOSA Hardware Development (1)	SS/CPFF	Skayl : DC & Arizona, AZ	-	-		0.524	Dec 2023	0.524	Dec 2024	-		0.524	Continuing	Continuing	-
SOSA Hardware Development (3)	SS/CPFF	CFD : Dayton, OH	-	0.687	Dec 2022	1.183	Mar 2024	1.112	Mar 2025	-		1.112	Continuing	Continuing	-
SOSA Hardware Development (4)	SS/CPFF	GTRI Conformance : Atlanta, GA	-	-		1.291	Jul 2024	1.268	Jan 2025	-		1.268	Continuing	Continuing	-
SOSA Hardware Development (8)	SS/FFP	Leidos : Dayton, OH	-	0.000	Dec 2022	1.406	Feb 2024	1.406	Feb 2025	-		1.406	Continuing	Continuing	-
SOSA Hardware Development (9)	SS/FFP	Spectranetix/Pacific Def : El Segundo, CA	-	10.000	Aug 2023	-		-		-		-	0.000	10.000	-
		Subtotal	-	10.687		5.204		5.110		-		5.110	Continuing	Continuing	N/A

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2023 Cost	FY 2023 Award Date	FY 2024 Cost	FY 2024 Award Date	FY 2025 Base Cost	FY 2025 Base Award Date	FY 2025 OCO Cost	FY 2025 OCO Award Date	FY 2025 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Program Management Administration (PMA)	Various	Not specified. : TBD	-	0.095	Aug 2023	0.744	Jan 2024	0.744	Jan 2025	-		0.744	Continuing	Continuing	-
		Subtotal	-	0.095		0.744		0.744		-		0.744	Continuing	Continuing	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
Project Cost Totals	-	10.782		5.948		5.854		-		5.854	Continuing	Continuing	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2025 Air Force		Date: March 2024
Appropriation/Budget Activity 3600 / 7	**R-1 Program Element (Number/Name)** PE 0305206F / *Airborne Reconnaissance Systems*	**Project (Number/Name)** 672003 / *Sensors Open System Architecture*

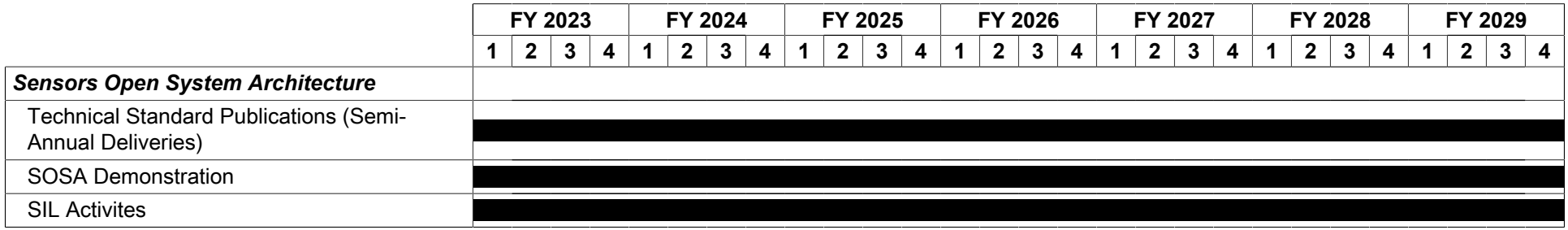

Exhibit R-4A, RDT&E Schedule Details: PB 2025 Air Force		Date: March 2024
Appropriation/Budget Activity 3600 / 7	**R-1 Program Element (Number/Name)** PE 0305206F / *Airborne Reconnaissance Systems*	**Project (Number/Name)** 672003 / *Sensors Open System Architecture*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Sensors Open System Architecture				
Technical Standard Publications (Semi-Annual Deliveries)	1	2023	4	2029
SOSA Demonstration	1	2023	4	2029
SIL Activites	1	2023	4	2029

Exhibit R-2A, RDT&E Project Justification: PB 2025 Air Force			Date: March 2024
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0305206F / *Airborne Reconnaissance Systems*	Project (Number/Name) 674818 / *Imaging and Targeting Support*	

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
674818: *Imaging and Targeting Support*	-	0.000	0.000	36.468	0.000	36.468	0.000	0.000	30.642	31.247	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The purpose is to develop, mature, demonstrate, and rapidly transition next-generation, persistent, wide area surveillance and common imagery reconnaissance sensor capabilities (active and passive systems), including sensor data processing for multiple airborne platforms, as well as sensor products to aid in rapid targeting (geolocation models, sensor-based exploitation tools, sensor networking capabilities).

The Ultra Long-endurance Unmanned Reconnaissance Aircraft (ULTRA) is an Air Force-led technology and concept development effort to demonstrate an Unmanned Aerial System (UAS) that is capable of multiple-day duration flights while still being extremely affordable. ULTRA leverages commercial-off-the-shelf technologies to minimize expensive custom/proprietary items while at the same time simplifying maintenance and manpower costs. The payload integration for ULTRA maintains a modular and flexible architecture to allow for rapid integration of customer-driven payload options. The initial ULTRA UAS was developed in 2018 and flight-tested in 2019. In 2020 ULTRA performed limited operational test and evaluation over a six-month period, the results of which informed payload and system requirements to meet current and future needs. Future operational test and evaluation in relevant operational environments is a critical next step in developing ULTRA as an affordable ultra-long endurance ISR platform that is responsive to current and future needs.

This effort is not a new start. It is a flight demonstration of the ULTRA program, which was previously executed in FY24 under Program 0305205F Endurance Unmanned Aerial Vehicles; in FY23 and prior years under Program 0604555D8Z Operational Energy Prototyping, and under Section 219 authorities.

Activities also include studies and analysis to support both current program planning and execution and future program planning.

This program element may include necessary civilian pay expenses required to manage, execute, and deliver weapon system capability. The use of such programs funds would be in addition to the civilian pay expenses budgeted in program element 0605827F, 0605828F, 0605829F, 0605831F, 0605832F, 0605833F, 0605898F, 0606398F.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2023	FY 2024	FY 2025
Title: Ultra Long-endurance Unmanned Reconnaissance Aircraft (ULTRA)Flight Demonstration	-	0.000	36.468
Description: This effort is not a new start. It is a flight demonstration of the ULTRA program, which was previously executed in FY24 under Program 0305205F Endurance Unmanned Aerial Vehicles; in FY23 and prior years under Program 0604555D8Z Operational Energy Prototyping, and under Section 219 authorities. This effort conducts integration and preparation work required to prepare the ULTRA platform for flight demonstration in operationally relevant environments in response to an urgent operational			

Exhibit R-2A, RDT&E Project Justification: PB 2025 Air Force		Date: March 2024
Appropriation/Budget Activity 3600 / 7	**R-1 Program Element (Number/Name)** PE 0305206F / *Airborne Reconnaissance Systems*	**Project (Number/Name)** 674818 / *Imaging and Targeting Support*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2023	FY 2024	FY 2025
need. It leverages technologies and expertise from across all of the Air Force Research Laboratories, integrating and testing a variety of technologies. ***FY 2024 Plans:*** FY 2024 Plans were executed within Program 0305205F Endurance Unmanned Aerial Vehicles. ***FY 2025 Plans:*** - Will complete integration and test of commercial-off-the-shelf (COTS) turbo-charged engine to enable ULTRA altitude and airspeed for relevant geographically-constrained mission areas of interest. - Will initiate and complete integration and testing of COTS engine control unit. - Will initiate and complete integration and testing of RF SIGINT payload. - Will complete integration of ULTRA into the control system for common control of multiple unmanned aerial systems like Vigilant Spirit and flight test. - Will complete aircrew training to support extended operational testing and evaluation of ULTRA system and broaden to include sensor payloads. - Will complete development and refinement of training curriculum and documentation based on results from operational test and evaluation and adoption of Vigilant Spirit UAS command and control system. - Will complete sustainment analyses to include long lead item evaluation of hardware and spares and begin software and cyber assessments. - Will complete operational test and evaluation of ULTRA in operationally relevant environments. ***FY 2024 to FY 2025 Increase/Decrease Statement:*** Funding increased due to the $30.000M transfer of the ULTRA effort from Program Element 0305205F Endurance Unmanned Aerial Vehicles.			
Accomplishments/Planned Programs Subtotals	-	0.000	36.468

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

The acquisition strategy is to maximize commercial and national development efforts and investment through multiple contracting methods, including the use of engineering change proposals to modify existing contracts and new contracts that were awarded both competitively and on a sole source basis.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2025 Air Force			Date: March 2024
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0305206F / *Airborne Reconnaissance Systems*	Project (Number/Name) 674818 / *Imaging and Targeting Support*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2023 Cost	FY 2023 Award Date	FY 2024 Cost	FY 2024 Award Date	FY 2025 Base Cost	FY 2025 Base Award Date	FY 2025 OCO Cost	FY 2025 OCO Award Date	FY 2025 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
ULTRA Flight Demonstration	SS/CPFF	Air Force Research Labs : WPAFB, OH	-	-		-		36.468	Oct 2024	-		36.468	Continuing	Continuing	-
		Subtotal	-	-		-		36.468		-		36.468	Continuing	Continuing	N/A

	Prior Years	FY 2023 Cost	FY 2023 Award Date	FY 2024 Cost	FY 2024 Award Date	FY 2025 Base Cost	FY 2025 Base Award Date	FY 2025 OCO Cost	FY 2025 OCO Award Date	FY 2025 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	-	-		-		36.468		-		36.468	Continuing	Continuing	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2025 Air Force		Date: March 2024
Appropriation/Budget Activity 3600 / 7	**R-1 Program Element (Number/Name)** PE 0305206F / *Airborne Reconnaissance Systems*	**Project (Number/Name)** 674818 / *Imaging and Targeting Support*

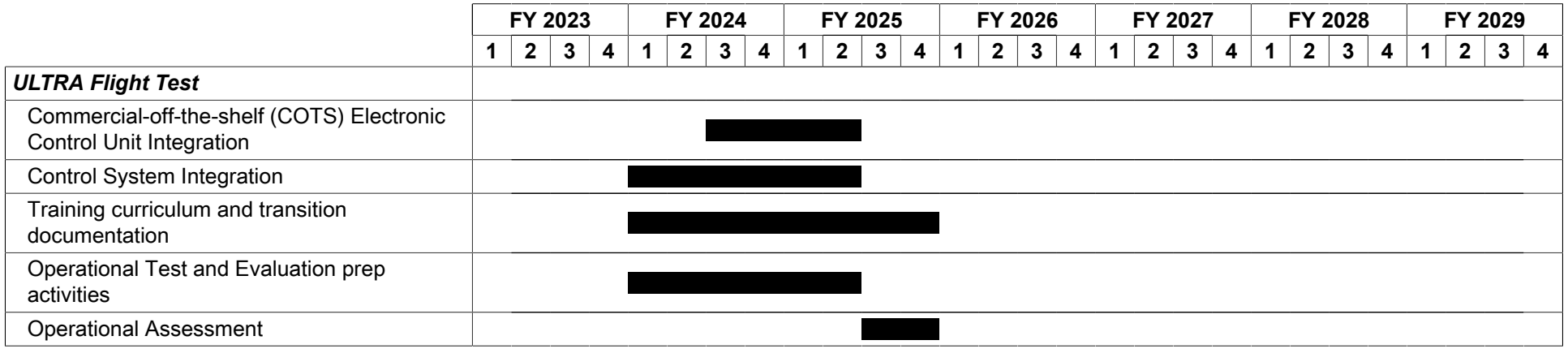

Exhibit R-4A, RDT&E Schedule Details: PB 2025 Air Force		Date: March 2024
Appropriation/Budget Activity 3600 / 7	**R-1 Program Element (Number/Name)** PE 0305206F / *Airborne Reconnaissance Systems*	**Project (Number/Name)** 674818 / *Imaging and Targeting Support*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
ULTRA Flight Test				
Commercial-off-the-shelf (COTS) Electronic Control Unit Integration	3	2024	2	2025
Control System Integration	1	2024	2	2025
Training curriculum and transition documentation	1	2024	4	2025
Operational Test and Evaluation prep activities	1	2024	2	2025
Operational Assessment	3	2025	4	2025

Exhibit R-2A, RDT&E Project Justification: PB 2025 Air Force			Date: March 2024
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0305206F / *Airborne Reconnaissance Systems*	Project (Number/Name) 674820 / *Sensor Development*	

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
674820: *Sensor Development*	-	41.949	18.928	24.274	0.000	24.274	0.000	0.000	0.000	0.000	0.000	85.151
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The Sensors Development project increases the range and collection capability, interoperability and processing of the Advanced Synthetic Aperture Radar Systems [ASARS] through design, development, testing, and fielding efforts. The Sensors Development efforts advance the capability of ASARS for U-2 and classified platform employment. ASARS-2B [front-end] & ASARS-2C [back-end] efforts provide critical advancements and risk reduction in SAR/Moving Target Indication capability to be implemented in the future multi-INT, platform agile capability that Next Generation Sensors will provide.

The ASARS effort is a fifth generation, deep-look, high-altitude, ISR radar that is the foundation for the radar component of the Next Generation Sensors [NGS] family of systems as outlined in the AFROC approved ASARS-2C draft Capabilities Development Document [CDD]. ASARS-2B [front-end] is the antenna and receiver exciter replacement. The ASARS-2C [back end] data processing efforts extend the ASARS-2B [front-end] radar capability using open architecture data processing and multi-platform integration. Open architecture improves performance and lowers cost by facilitating and enabling qualified third-party software vendors to incorporate future multi-ISR capability to advance interoperability across joint operations. ASARS increases current capability and addresses National Defense Strategy Key Operational Problems.

This program element may include necessary civilian pay expenses required to manage, execute, and deliver weapon system capability. The use of such programs funds would be in addition to the civilian pay expenses budgeted in program element 0605827F, 0605828F, 0605829F, 0605831F, 0605832F, 0605833F, 0605898F, 0606398F. In FY23 $0.209M was expended for civilian pay expenses in this program element, and in FY24 $0.458M is forecasted for civilian pay expenses in this program element.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2023	FY 2024	FY 2025
Title: Advanced Synthetic Aperture Radar System [ASARS]-2B (front-end)	41.949	15.128	0.000
Description: Develop, design, fabricate, integrate, test and field deep look high altitude ISR radar capabilities.			
FY 2024 Plans: Complete development, design, fabrication, integration and flight test for deep look high altitude ISR radar capabilities.			
FY 2025 Plans: N/A			
FY 2024 to FY 2025 Increase/Decrease Statement:			

Exhibit R-2A, RDT&E Project Justification: PB 2025 Air Force		Date: March 2024
Appropriation/Budget Activity 3600 / 7	**R-1 Program Element (Number/Name)** PE 0305206F / *Airborne Reconnaissance Systems*	**Project (Number/Name)** 674820 / *Sensor Development*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2023	FY 2024	FY 2025
Funding decrease due to the completion of the ASARS-2B development.			
Title: Advanced Synthetic Aperture Radar System [ASARS]-2C [back-end] ***Description:*** Integrate open radar processing architectures for enhanced RF capabilities and third party mode development. ***FY 2024 Plans:*** - Conduct development, design, fabrication, integration and flight test for deep look high altitude ISR radar capabilities. ***FY 2025 Plans:*** - Will continue to conduct and complete development, design, fabrication, integration and flight test for deep look high altitude ISR radar capabilities. ***FY 2024 to FY 2025 Increase/Decrease Statement:*** Funding increase due to $24.274M ASARS-2C funding realignment from U-2 PE 0305202F.	0.000	3.800	24.274
Accomplishments/Planned Programs Subtotals	41.949	18.928	24.274

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

ASARS / High Altitude SAR technology maturation is conducted by Air Force Life Cycle Management Center/Intelligence, Surveillance, and Reconnaissance and Special Operations Forces [AFLCMC/WIN], in conjunction and cooperation with AFLCMC/WIA [Robins AFB] for test support.

The acquisition strategy is to maximize commercial and national development efforts and investment through multiple contracting methods, including but not limited to the use of engineering change proposals to modify existing contracts and new contracts that were awarded both competitively or on a sole source basis.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2025 Air Force			Date: March 2024
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0305206F / *Airborne Reconnaissance Systems*	Project (Number/Name) 674820 / *Sensor Development*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2023 Cost	FY 2023 Award Date	FY 2024 Cost	FY 2024 Award Date	FY 2025 Base Cost	FY 2025 Base Award Date	FY 2025 OCO Cost	FY 2025 OCO Award Date	FY 2025 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
ASARS-2B (front-end)	SS/CPIF	Raytheon : El Segundo, CA	-	41.799	Nov 2022	10.596	Oct 2023	-		-		-	Continuing	Continuing	-
ASARS-2C (back-end)	SS/CPFF	Raytheon : El Segundo, CA	-	-		3.843	Oct 2023	19.274	Oct 2024	-		19.274	Continuing	Continuing	-
		Subtotal	-	41.799		14.439		19.274		-		19.274	Continuing	Continuing	N/A

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2023 Cost	FY 2023 Award Date	FY 2024 Cost	FY 2024 Award Date	FY 2025 Base Cost	FY 2025 Base Award Date	FY 2025 OCO Cost	FY 2025 OCO Award Date	FY 2025 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
PMA	Various	Not specified. : TBD	-	0.150	Jan 2023	4.489	Jan 2024	5.000	Jan 2025	-		5.000	Continuing	Continuing	-
		Subtotal	-	0.150		4.489		5.000		-		5.000	Continuing	Continuing	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
Project Cost Totals	-	41.949		18.928		24.274		-		24.274	Continuing	Continuing	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2025 Air Force		Date: March 2024
Appropriation/Budget Activity 3600 / 7	**R-1 Program Element (Number/Name)** PE 0305206F / *Airborne Reconnaissance Systems*	**Project (Number/Name)** 674820 / *Sensor Development*

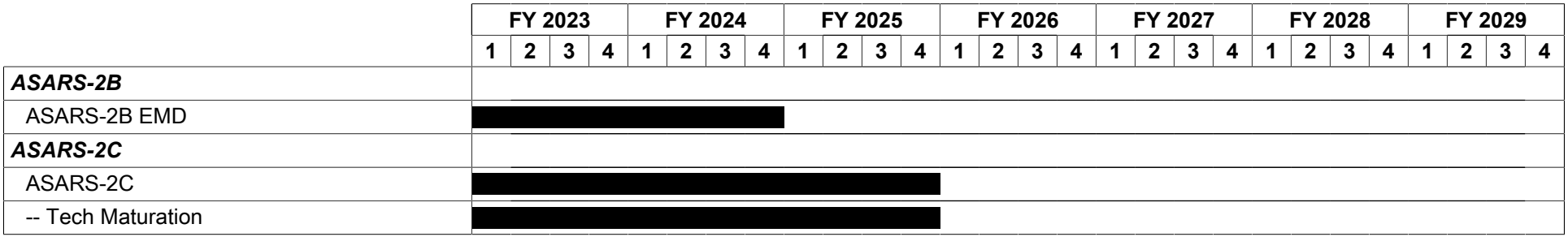

Exhibit R-4A, RDT&E Schedule Details: PB 2025 Air Force		Date: March 2024
Appropriation/Budget Activity 3600 / 7	**R-1 Program Element (Number/Name)** PE 0305206F / *Airborne Reconnaissance Systems*	**Project (Number/Name)** 674820 / *Sensor Development*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
ASARS-2B				
ASARS-2B EMD	1	2023	4	2024
ASARS-2C				
ASARS-2C	1	2023	4	2025
-- Tech Maturation	1	2023	4	2025

Exhibit R-2A, RDT&E Project Justification: PB 2025 Air Force										Date: March 2024		
Appropriation/Budget Activity 3600 / 7					R-1 Program Element (Number/Name) PE 0305206F / *Airborne Reconnaissance Systems*				Project (Number/Name) 675092 / *JTC/SIL MUSE*			
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**
675092: *JTC/SIL MUSE*	-	3.784	3.869	3.963	0.000	3.963	4.061	4.145	4.295	4.380	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The Multiple Unified Simulation Environment (MUSE) is the DoD flight simulation/training system of choice for many Unmanned Aircraft Systems (UAS), RPA, and airborne platforms. MUSE is also known as the Air Force Synthetic Environment for Reconnaissance and Surveillance (AFSERS) in its Air Force training application. The MUSE/AFSERS is a software suite that simulates UAS/RPA (e.g., MQ-9) systems, tailored air vehicle & data links, and visualization systems used for payload product outputs-including Full Motion Video (FMV), Fixed Frame Imagery (FFI), Ground Moving Target Indicator (GMTI) data, and Link 16 (J2.2 and J3.5) tracking messages. Outputs are compliant with applicable DoD standards and are continually tested against actual ground data processors to ensure DoD systems interoperability.

The Services and Combatant Commanders have a requirement for training with a system that provides a real-time simulation environment containing multiple domain systems that can be integrated with larger force-on-force simulations. The MUSE creates a realistic operational environment supporting military utility assessment, architecture, and employment concept development. Training, Tactics, Techniques and Procedures (TTP) refinement, practice Processing, Exploitation and Dissemination (PED) of multi-domain information. Conduct emerging concepts experimentation, optimizing Command, Control, Communications, and Computing (C4) with warfighting exercises and experiments. MUSE is the preferred UAS/RPA simulation system used by US Combatant Commanders and Joint Services to support command and battle staff C4 training.

The MUSE also creates a realistic operational environment that supports: an embedded training capability for new UAS/RPA system Program Managers; tools to minimize acquisition and life cycle cost and schedule impacts. MUSE conducts emerging concepts experimentation, future systems exploration, systems integration, and technology insertion; applications for Joint and Service-specific warfighting exercises; and C4 training optimization.

MUSE is currently used by all Services and most unified commands simulating MQ-1, MQ-9, RQ-4, MQ-1C, M/RQ-5, RQ-7, national and commercial satellite systems, P-3, E-8 and the U-2 during warfighting exercises. The AFSERS provides National Imagery Transmission Format (NITF) information for simulated data collection systems, supporting PED training. The MUSE is also used as a mission rehearsal tool for current, on-going military combat operations. Most of the MUSE/AFSERS software suite components are also used in multiple airborne platform system training devices. Including the MQ-9 [Medium Altitude Long Endurance Tactical (MALET) JSIL Aircrew Trainer (MJAT)] and RQ-4 [Global Hawk Sensor Operator Part Task Trainer (GHSOPTT), and Global Hawk Weapon System Trainer (WST)].

The Joint Technology Center/Systems Integration Laboratory (JTC/SIL) is the training center of excellence supporting UAS and RPA programs for the Services. JTC/SIL provides the system engineering, test and integration, interoperability, rapid technology insertion to address MUSE training requirements. The JTC/SIL combines the UAS/RPA knowledge of communications standards (such as STANAGs 4586, 4607, 4545 and 4609) with Hardware in the Loop (HIL) testing, MUSE, integrating with other DoD modeling and simulation (M&S) architectures. For those airborne assets normally not available for training, the JTC/SIL provides surrogate systems and interfaces. The JTC/SIL contributes to the distributed training environments, virtually linking participants from various locations worldwide, and are routinely supported

Exhibit R-2A, RDT&E Project Justification: PB 2025 Air Force		Date: March 2024
Appropriation/Budget Activity 3600 / 7	**R-1 Program Element (Number/Name)** PE 0305206F / *Airborne Reconnaissance Systems*	**Project (Number/Name)** 675092 / *JTC/SIL MUSE*

within the MUSE architecture. The JTC/SIL continues to develop leading edge technologies supporting the rapidly evolving UAS/RPA training requirements required to support NDS future fighting force.

MUSE project funds may be utilized to cover the GCWG Secretariat, studies and analysis activities, supporting current program planning, execution, and future program planning.

This program element may include necessary civilian pay expenses required to manage, execute, and deliver weapon system capability. The use of such programs funds would be in addition to the civilian pay expenses budgeted in program element 0605827F, 0605828F, 0605829F, 0605831F, 0605832F, 0605833F, 0605898F, 0606398F. In FY23 $0M was expended for civilian pay expenses in this program element, and in FY24 $0M is forecasted for civilian pay expenses in this program element.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2023	FY 2024	FY 2025
Title: Air Force Synthetic Environment for Reconnaissance and Surveillance (AFSERS) Development	3.784	3.869	3.963
Description: DoD's simulation/training system of choice for Intelligence Surveillance and Reconnaissance (ISR)systems, sensors, and platforms. Includes AFSERS, Common Ground Station Interface, and infrastructure support. ***FY 2024 Plans:*** - Update sensor models and release new MUSE/AFSERS versions to reflect evolving RPA and ISR improvements to support theater level exercises such as CCPT (formerly Ulchi Freedom Guardian and Key Resolve), Yama Sakura, Talisman Saber, Pacific Sentry/Fury, Austere Challenge, and associated events. - Rapidly respond to Cyber Security threats as they are identified. - Modify the MUSE/AFSERS to further compliance with all CAFDMO requirements. - Optimize software architecture and modularization to facilitate extensibility and scalability. - Integrate a new high fidelity SAR model into the MUSE/AFSERS baseline which provides realistic imagery based upon material encoded terrain. - Conduct integration testing with designated federations (such as ASCCE) to ensure joint interoperability with services. - Perform DMON Integration: Support CAFDMO SPRs for AFSERS; Integration/Testing at Distributed Training Centers. - Develop and integrate Electronic Warfare (EW) modeling and simulation capabilities to include GPS jamming effects. - Enhance and integrate UAS Swarming modeling and simulation. - Build new ISR platform simulations with multi-sensor capability to include P-3 ORION & P-8 POSEIDON. - Integrate new high fidelity MTI capabilities. ***FY 2025 Plans:*** - Will continue to develop and update sensor models and release new MUSE/AFSERS versions to reflect evolving RPA and ISR improvements to support theater level exercises such as Ulchi Freedom Shield (Korean Theater exercises), Yama Sakura, Keen Edge, Balikatan, Pacific Sentry, Austere Challenge, and associated events.			

Exhibit R-2A, RDT&E Project Justification: PB 2025 Air Force		Date: March 2024
Appropriation/Budget Activity 3600 / 7	**R-1 Program Element (Number/Name)** PE 0305206F / *Airborne Reconnaissance Systems*	**Project (Number/Name)** 675092 / *JTC/SIL MUSE*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2023	FY 2024	FY 2025
- Will continue to respond rapidly to Cyber Security threats as they are identified. - Will continue to update and optimize software architecture and modularization to facilitate extensibility and scalability. - Will continue to integrate a new high fidelity SAR model into the MUSE/AFSERS baseline which provides realistic imagery based upon material encoded terrain. - Will continue to conduct integration testing with designated federations (such as ASCCE) to ensure joint interoperability with services. - Will continue to perform DMON Integration: Support CAFDMO SPRs for AFSERS; Integration/Testing at Distributed Training Centers. - Will continue to develop Electronic Warfare (EW) jamming by MUSE/AFSERS upon other aircraft simulations. - Will continue to develop and integrate swarm and kinetic (Kamikaze) UAVs/RPAs capabilities. - Will continue to build new ISR platform simulations with multi-sensor capability to include P-3 ORION & P-8 POSEIDON. - Will continue to develop and integrate weather effects upon the MUSE/AFSERS flight characteristics and sensors. - Will continue to develop physics-based IR 3D models, targets, and terrain through the use of material encoding. - Will continue to develop cloud-based MUSE/AFSERS simulation capabilities. - Will support the deployment of the AFSERS Cloud Based Infrastructure. ***FY 2024 to FY 2025 Increase/Decrease Statement:*** Funding increased nominally due to inflation.			
Accomplishments/Planned Programs Subtotals	3.784	3.869	3.963

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

This is an enterprise services effort, jointly funded and centrally managed by the US Army. JTC/SIL falls under US Army Futures Command. US Army PE 0305204A funding ending after FY 2021. Additional continual Army funding expected from PEO STRI, JSJ7, exercise events, and other external Army users. AFLCMC/WIN MIPRs funds in support of Unmanned Aircraft Systems modeling and simulation efforts. The Air Force POC is Dr. Lillian-Campbell from AF Agency for Modeling & Simulation which falls under HAF/A3T.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2025 Air Force			Date: March 2024
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0305206F / *Airborne Reconnaissance Systems*	Project (Number/Name) 675092 / *JTC/SIL MUSE*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2023 Cost	FY 2023 Award Date	FY 2024 Cost	FY 2024 Award Date	FY 2025 Base Cost	FY 2025 Base Award Date	FY 2025 OCO Cost	FY 2025 OCO Award Date	FY 2025 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
AFSERS Development	MIPR	Redstone Arsenal : Huntsville, AL	-	3.564	Jul 2023	3.638	Dec 2023	3.720	Dec 2024	-		3.720	Continuing	Continuing	-
		Subtotal	-	3.564		3.638		3.720		-		3.720	Continuing	Continuing	N/A

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2023 Cost	FY 2023 Award Date	FY 2024 Cost	FY 2024 Award Date	FY 2025 Base Cost	FY 2025 Base Award Date	FY 2025 OCO Cost	FY 2025 OCO Award Date	FY 2025 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Management Services	C/Various	Not specified. : TBD	-	0.220	May 2023	0.231	May 2024	0.243	May 2025	-		0.243	Continuing	Continuing	-
		Subtotal	-	0.220		0.231		0.243		-		0.243	Continuing	Continuing	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
Project Cost Totals	-	3.784		3.869		3.963		-		3.963	Continuing	Continuing	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2025 Air Force		Date: March 2024
Appropriation/Budget Activity 3600 / 7	**R-1 Program Element (Number/Name)** PE 0305206F / *Airborne Reconnaissance Systems*	**Project (Number/Name)** 675092 / *JTC/SIL MUSE*

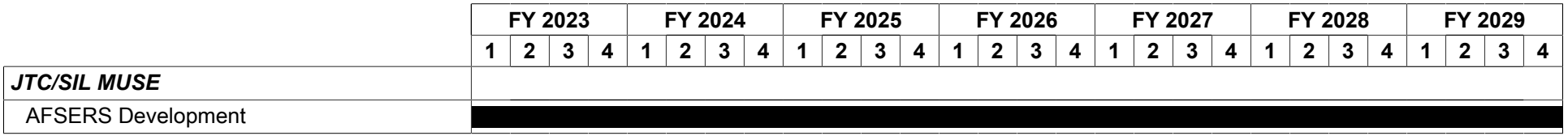

Exhibit R-4A, RDT&E Schedule Details: PB 2025 Air Force		Date: March 2024
Appropriation/Budget Activity 3600 / 7	**R-1 Program Element (Number/Name)** PE 0305206F / *Airborne Reconnaissance Systems*	**Project (Number/Name)** 675092 / *JTC/SIL MUSE*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
JTC/SIL MUSE				
AFSERS Development	1	2023	4	2029

Exhibit R-2A, RDT&E Project Justification: PB 2025 Air Force			Date: March 2024
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0305206F / *Airborne Reconnaissance Systems*	Project (Number/Name) 675291 / *Gorgon Stare*	

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
675291: *Gorgon Stare*	-	5.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	5.000
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The Gorgon Stare system is a podded airborne sensor suite that provides city-sized wide area airborne surveillance and was integrated on MQ-9 Reapers. The Air Force Requirements Oversight Council (AFROC) approved Air Combat Command's recommendation to transition Gorgon Stare from a Quick Reaction Capability (QRC) to an Air Force Enduring Capability in November 2014. Gorgon Stare's requirements are documented in the Gorgon Stare Wide Area Airborne Sensor draft Capabilities Development Document (CDD).

Development efforts in FY 2023 included completing Image Quality Enhancements Phase III efforts and MQ-9 Block 5 Integration, and additional improvements to Wide Area Motion Imagery technology.

The acquisition program manager has the authority to redirect funding as necessary to meet Gorgon Stare current and emerging Combatant Commander requirements to better meet the war fighting objectives.

There is no budget year FY25 funding requested for this project.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2023	FY 2024
Congressional Add: Wide Area Motion Imagery	5.000	-
FY 2023 Accomplishments: Development efforts in FY 2023 include completing Image Quality Enhancements Phase III efforts and MQ-9 Block 5 Integration, and additional improvements to Wide Area Motion Imagery technology.		
Congressional Adds Subtotals	5.000	-

C. Other Program Funding Summary ($ in Millions)

Line Item	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
• APAF 05 PRDTB3: *MQ-9 UAS Payloads*	0.000	0.000	0.000	-	0.000	0.000	0.000	0.000	-	0.000	0.000
• APAF 06 PRDTB3: *Gorgon Stare*	0.000	0.000	0.000	-	0.000	0.000	0.000	0.000	-	0.000	0.000

Exhibit R-2A, RDT&E Project Justification: PB 2025 Air Force		Date: March 2024
Appropriation/Budget Activity 3600 / 7	**R-1 Program Element (Number/Name)** PE 0305206F / *Airborne Reconnaissance Systems*	**Project (Number/Name)** 675291 / *Gorgon Stare*

C. Other Program Funding Summary ($ in Millions)

Line Item	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

Remarks

D. Acquisition Strategy

The wide area airborne surveillance requirement is being delivered via the Gorgon Stare podded wide area motion imagery sensor suite integrated on the MQ-9 Reaper RPA. Gorgon Stare transitioned from a QRC to an Air Force Enduring Capability under AFROC authority in November 2014. The program is executed by the 645th Aeronautical Systems Group, Intelligence, Surveillance, and Reconnaissance and Special Operations Forces Directorate as a post-Milestone C program. The sensor suite will be sustained in its current configuration.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2025 Air Force			Date: March 2024
Appropriation/Budget Activity 3600 / 7	**R-1 Program Element (Number/Name)** PE 0305206F / *Airborne Reconnaissance Systems*	**Project (Number/Name)** 675291 / *Gorgon Stare*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2023 Cost	FY 2023 Award Date	FY 2024 Cost	FY 2024 Award Date	FY 2025 Base Cost	FY 2025 Base Award Date	FY 2025 OCO Cost	FY 2025 OCO Award Date	FY 2025 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Gorgon Stare System Development	SS/CPFF	Sierra Nevada Corporation : Sparks, NV	-	5.000	Apr 2023	-		-		-		-	0.000	5.000	12.500
		Subtotal	-	5.000		-		-		-		-	0.000	5.000	N/A

	Prior Years	FY 2023 Cost	FY 2023 Award Date	FY 2024 Cost	FY 2024 Award Date	FY 2025 Base Cost	FY 2025 Base Award Date	FY 2025 OCO Cost	FY 2025 OCO Award Date	FY 2025 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	-	5.000		-		-		-		-	0.000	5.000	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2025 Air Force		Date: March 2024
Appropriation/Budget Activity 3600 / 7	**R-1 Program Element (Number/Name)** PE 0305206F / *Airborne Reconnaissance Systems*	**Project (Number/Name)** 675291 / *Gorgon Stare*

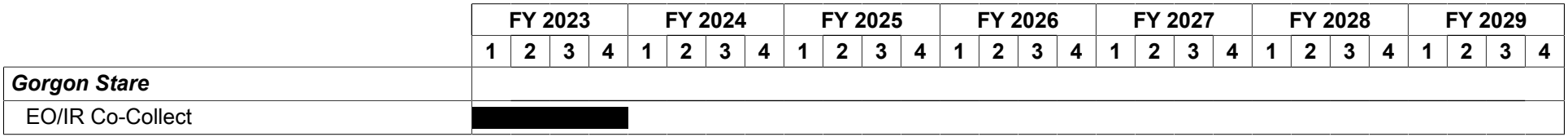

Exhibit R-4A, RDT&E Schedule Details: PB 2025 Air Force		Date: March 2024
Appropriation/Budget Activity 3600 / 7	**R-1 Program Element (Number/Name)** PE 0305206F / *Airborne Reconnaissance Systems*	**Project (Number/Name)** 675291 / *Gorgon Stare*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Gorgon Stare				
EO/IR Co-Collect	1	2023	4	2023

Exhibit R-2A, RDT&E Project Justification: PB 2025 Air Force			Date: March 2024
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0305206F / *Airborne Reconnaissance Systems*	Project (Number/Name) 676025 / *Data Compression*	

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
676025: *Data Compression*	-	0.100	5.503	5.684	0.000	5.684	8.507	8.682	8.997	9.174	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

Reduction of Data Using Compression Enhancement (RDUCE) provides efficient and integrated compression of Intelligence, Surveillance, and Reconnaissance (ISR) sensor data. RDUCE develops, tests, and integrates new sensor data compression software and hardware for current and emerging airborne and space-based ISR sensors. The program develops compression capabilities for manned and unmanned platforms, associated ground stations, and the Distributed Common Ground Systems (DCGS). RDUCE data products meet standard certification for use within the Department of Defense and Intelligence Community (IC) Geospatial Intelligence (GEOINT), Signals Intelligence (SIGINT), and Measurement and Signatures Intelligence (MASINT) collection disciplines. RDUCE compression also allows for maximizing the use of limited bandwidth and delivering more data, faster to the tactical user in the field.

RDUCE activities include continuous studies, analysis, and updates to support program planning and execution. RDUCE also seeks to acquire certification of its data compression algorithms which includes acceptance into the DoD Information Technology Standards Registry (DISR). By ensuring compliance with appropriate standards governing bodies, RDUCE is always ready to satisfy new operational requirements.

This program element may include necessary civilian pay expenses required to manage, execute, and deliver weapon system capability. The use of such programs funds would be in addition to the civilian pay expenses budgeted in program element 0605827F, 0605828F, 0605829F, 0605831F, 0605832F, 0605833F, 0605898F, 0606398F. In FY23 $0.000M was expended for civilian pay expenses in this program element, and in FY24 $0.000M is forecasted for civilian pay expenses in this program element.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2023	FY 2024	FY 2025
Title: Data Compression	0.100	5.503	5.684
Description: The Data Compression effort provides the warfighter capabilities to efficiently compress ISR data and to enable dissemination in near-real time to tactical, operational, and strategic users through bandwidth-limited dissemination systems, overcoming limited data storage space, and accelerating data transmission. The program focuses on current and emerging ISR sensors, including incorporation into open architectures like Common Open Architecture Radar Programs (COARPs), Future Airborne Capability Environment (FACE), and Sensor Open System Architecture (SOSA). The algorithms can be leveraged for any platform. For example, the Hyperspectral Imaging (HSI) algorithm was selected by NASA to be included in an experimental system on the ISS. Outputs will meet standards certification for use within the DoD Geospatial, Measurement and Signature, and Signals Intelligence collection disciplines.			
FY 2024 Plans:			

Exhibit R-2A, RDT&E Project Justification: PB 2025 Air Force		Date: March 2024
Appropriation/Budget Activity 3600 / 7	**R-1 Program Element (Number/Name)** PE 0305206F / *Airborne Reconnaissance Systems*	**Project (Number/Name)** 676025 / *Data Compression*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2023	FY 2024	FY 2025
- Provide continued updates and integration support for the mature Technology Readiness Levels (TRL) modalities (Synthetic Aperture Radar (SAR), HSI, SAR Phase History, Radio Frequency (RF). - Continue Field Programmable Gate Array (FPGA) hardware development to support SAR and HSI compression solutions. - Identify platform/sensor partners for initial test/integration across all sensor modes. - Update compression algorithms to address any issues or previously uncaptured use cases to ensure they are operationally relevant. - Research and develop Artificial Intelligence (AI) and Machine Learning (ML) compression techniques. - Develop Compression as a Service (CaaS) to accelerate integration efforts. - Continue development of Light Detection and Ranging (LIDAR) compression solution. - Explore Electro-Optical (EO) and Infra-red (IR) modality compression technologies. ***FY 2025 Plans:*** - Will provide continued updates and integration support for the mature TRL modalities: SAR, HSI, SAR Phase History, RF. - Will continue to identify platform/sensor partners for initial test/integration across all sensor modes. - Will continue to update compression algorithms to address any issues or previously uncaptured use cases to ensure they are operationally relevant. - Will continue development of Compression as a Service (CaaS) to accelerate integration efforts. - Will continue research and development of AI/ML compression techniques. ***FY 2024 to FY 2025 Increase/Decrease Statement:*** Funding increased due to minor inflationary adjustments.			
Accomplishments/Planned Programs Subtotals	0.100	5.503	5.684

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

Data Compression program is conducted by Air Force Life Cycle Management Center/ Intelligence, Surveillance, and Reconnaissance and Special Operations Forces (AFLCMC/WIN). Acquisition strategy is to develop data compression hardware/software, and data compression standards for various ISR applications to include airborne, space, ground stations, data storage facilities, and exploitation tools. RDUCE will utilize existing contracts with full and open competition where appropriate. Integration will be accomplished by the requisite program offices.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2025 Air Force			Date: March 2024
Appropriation/Budget Activity 3600 / 7	**R-1 Program Element (Number/Name)** PE 0305206F / *Airborne Reconnaissance Systems*	**Project (Number/Name)** 676025 / *Data Compression*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2023 Cost	FY 2023 Award Date	FY 2024 Cost	FY 2024 Award Date	FY 2025 Base Cost	FY 2025 Base Award Date	FY 2025 OCO Cost	FY 2025 OCO Award Date	FY 2025 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Compression Solution Development	Various	Various : Various	-	-		0.950	Dec 2023	0.634	Dec 2024	-		0.634	Continuing	Continuing	-
SIGzip	Various	Various : Various	-	-		-		-		-		-	Continuing	Continuing	-
		Subtotal	-	-		0.950		0.634		-		0.634	Continuing	Continuing	N/A

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2023 Cost	FY 2023 Award Date	FY 2024 Cost	FY 2024 Award Date	FY 2025 Base Cost	FY 2025 Base Award Date	FY 2025 OCO Cost	FY 2025 OCO Award Date	FY 2025 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Standardization Development	C/CPAF	Various : Various	-	0.100	Mar 2023	0.250	Dec 2023	0.250	Dec 2024	-		0.250	0.000	0.600	-
Standardization Development (FLEX)	C/CPAF	Various : Various	-	-		0.300	Dec 2023	0.300	Dec 2024	-		0.300	Continuing	Continuing	-
Standardization Development (SARzip)	C/CPAF	Various : Various	-	-		0.250	Dec 2023	0.300	Dec 2024	-		0.300	Continuing	Continuing	-
Standardization Development (zPHD)	C/CPAF	Various : Various	-	-		0.250	Dec 2023	0.300	Dec 2024	-		0.300	Continuing	Continuing	-
Standardization Development (SIGzip)	C/CPAF	Various : Various	-	-		0.250	Dec 2023	0.300	Dec 2024	-		0.300	Continuing	Continuing	-
		Subtotal	-	0.100		1.300		1.450		-		1.450	Continuing	Continuing	N/A

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2023 Cost	FY 2023 Award Date	FY 2024 Cost	FY 2024 Award Date	FY 2025 Base Cost	FY 2025 Base Award Date	FY 2025 OCO Cost	FY 2025 OCO Award Date	FY 2025 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
ADDA Lab	C/CPAF	Various : Various	-	-		1.000	Dec 2023	1.300	Dec 2024	-		1.300	Continuing	Continuing	-
Integration Activities	C/CPAF	Various : Various	-	-		1.253	Dec 2023	1.300	Dec 2024	-		1.300	Continuing	Continuing	-
COMPASE Lab	C/CPAF	Various : Various	-	-		-		-		-		-	Continuing	Continuing	-
Not Specified	C/TBD	Not specified. : TBD	-	-		-		-		-		-	Continuing	Continuing	-
		Subtotal	-	-		2.253		2.600		-		2.600	Continuing	Continuing	N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2025 Air Force		Date: March 2024
Appropriation/Budget Activity 3600 / 7	**R-1 Program Element (Number/Name)** PE 0305206F / *Airborne Reconnaissance Systems*	**Project (Number/Name)** 676025 / *Data Compression*

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2023 Cost	FY 2023 Award Date	FY 2024 Cost	FY 2024 Award Date	FY 2025 Base Cost	FY 2025 Base Award Date	FY 2025 OCO Cost	FY 2025 OCO Award Date	FY 2025 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
PMA: Other Govt Cost	Various	Not specified. : TBD	-	0.000	Oct 2022	1.000	Oct 2023	1.000	Dec 2024	-		1.000	Continuing	Continuing	-
		Subtotal	-	0.000		1.000		1.000		-		1.000	Continuing	Continuing	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
Project Cost Totals	-	0.100		5.503		5.684		-		5.684	Continuing	Continuing	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2025 Air Force		Date: March 2024
Appropriation/Budget Activity 3600 / 7	**R-1 Program Element (Number/Name)** PE 0305206F / *Airborne Reconnaissance Systems*	**Project (Number/Name)** 676025 / *Data Compression*

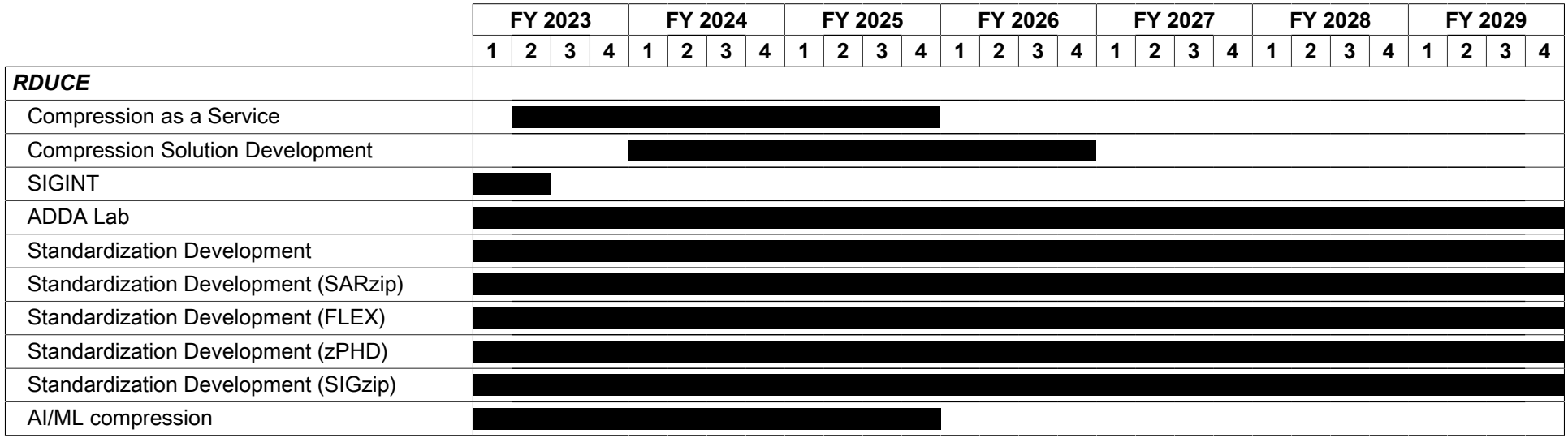

Exhibit R-4A, RDT&E Schedule Details: PB 2025 Air Force		Date: March 2024
Appropriation/Budget Activity 3600 / 7	**R-1 Program Element (Number/Name)** PE 0305206F / *Airborne Reconnaissance Systems*	**Project (Number/Name)** 676025 / *Data Compression*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
RDUCE				
Compression as a Service	2	2023	4	2025
Compression Solution Development	1	2024	4	2026
SIGINT	1	2023	2	2023
ADDA Lab	1	2023	4	2029
Standardization Development	1	2023	4	2029
Standardization Development (SARzip)	1	2023	4	2029
Standardization Development (FLEX)	1	2023	4	2029
Standardization Development (zPHD)	1	2023	4	2029
Standardization Development (SIGzip)	1	2023	4	2029
AI/ML compression	1	2023	4	2025