Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Air Force	Date: March 2023
Appropriation/Budget Activity 3600: *Research, Development, Test & Evaluation, Air Force* / BA 7: *Operational Systems Development*	**R-1 Program Element (Number/Name)** PE 0305207F / *Manned Reconnaissance Systems*

COST ($ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
Total Program Element	-	14.799	14.590	14.330	0.000	14.330	16.294	16.700	17.042	17.659	0.000	111.414
674754: *RC-135 Systems*	-	14.799	14.590	14.330	0.000	14.330	16.294	16.700	17.042	17.659	0.000	111.414
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

RC-135 operational systems development and enhancement activities support design studies, engineering analysis, non-recurring engineering and other efforts associated with the integration and modification of the RC-135 programs and their specialized mission systems, both air and ground. Associated ground systems include RIVET JOINT Ground Data Processing Systems (GDPS), Distributed Mission Shelters (DMS), Mission Crew Training Systems (MCTS), Airborne Capabilities Extension System (ACES), and the Operational Flight Trainers (OFT, a.k.a. flight deck simulators). RC-135 funding also supports innovation activities to include studies, analyses, requirements definition, and quick-reaction capability prototypes/demonstrations to accelerate planning for technology transition, technology insertion and future acquisition programs. Extensive utilization of Commercial-Off-The-Shelf (COTS) based solutions allows rapid fielding of needed capabilities through upgrades and supports Diminishing Manufacturing Sources (DMS)/Vanishing Vendor Items (VVI) logistics mitigation efforts. The results of these efforts provide for preliminary assessments of technical feasibility, operability, or military utility as well as specific engineering implementations for integration into the various systems baseline configurations.

These activities are managed by the 645th Aeronautical Systems Group (645 AESG). The 645 AESG (a.k.a. BIG SAFARI) manages engineering, ground and support systems modifications, integration, flight testing, product assurance, acceptance testing, logistics, and training activities.

Aircraft, sensor systems, and associated ground support system engineering planned for FY 2024 budget includes developmental planning, execution and support for the RC-135V/W RIVET JOINT Baselines 13 and 14 (BL-13 and BL-14), the RC-135U COMBAT SENT Baselines 6 and 7 (BL-6 and BL-7), and the RC-135S COBRA BALL BL-6 and BL-7 configurations. The world-wide challenge of keeping pace against technologically agile targets used by both nation and non-nation-state adversaries and the rapid evolution of COTS technologies demands a responsive and adaptive acquisition strategy for fielding incremental spiral upgrades and baseline capabilities that are logistically supportable at all locations. The 645 AESG uses an incremental baseline strategy to mitigate risk, find affordable solutions and field needed capabilities on the aircraft and associated ground support and training systems. Obsolescence and DMS/VVI logistical concerns are addressed with each baseline upgrade and assessed annually as part of the fleet sustainment responsibilities.

RIVET JOINT BL-14 upgrades consist of, but are not limited to, providing a continuous recording capability, High Probability of Intercept (HPOI) Receiver, Corvus Digital Receiver (CDR), Communications, Navigation, and Surveillance - Air Traffic Management (CNS-ATM) avionics upgrades such as new autopilot, automated data system-broadcast (ADS-B) and Mode 5 identify friendly or foe (IFF) systems. RIVET JOINT BL-15 upgrades consist of, but are not limited to, scalable processor improvements, Wideband Agile Receiver and Pulse Detector (WARPD), Expanded Steered Beam capability, and augmented Remote Maintenance.

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COMBAT SENT BL-6 and initial BL-7 developmental enhancements consist of, but are not limited to, steerable beams for the COMINT sub-system, improved High Probability of Intercept (HPOI) capability and specific emitter identification (SEI) electronic intelligence (ELINT) sub- system, Primary Sensor Measurement System (PRISMS) merge with manual precision collections, millimeter wave and low band capabilities with PRISMS, digitizing antennas, direction finding of High Frequency signals and expanded streaming audio services and 360 degree aircraft tracking system.

COBRA BALL BL-14 developmental enhancements consist of, but are not limited to, software updates to the MASINT collection system (MCS), high-gain steerable-beam K-band antenna array, high-band direction finding (DF) antenna, High Probability of Intercept (HPOI), enhanced Signals of Interest identification and classification, digitized collection antenna (Cerberus), enhanced time accuracy, coherent CFCS collections, integration of specific Quick Reaction Capabilities (QRC), migration of the common RIVET JOINT hardware and software,

Ground Systems Baseline upgrades add the capabilities found in the corresponding RIVET JOINT Baseline upgrades (i.e., RIVET JOINT BL-12 corresponds to Ground System BL-12, RIVET JOINT BL-13 corresponds to Ground System BL-13, RIVET JOINT BL-14 corresponds to Ground System BL-14) to the Ground Systems to ensure crews receive training on the appropriate mission system configurations.

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. In PY 0.00M was expended for civilian pay expenses in this program element, and in CY 0.00M is forecasted for civilian pay expenses in this program element.

The FY 2024 funding request was reduced by $0.959 million to account for the availability of prior year execution balances.

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.

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B. Program Change Summary ($ in Millions)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Previous President's Budget	14.799	14.590	15.902	0.000	15.902
Current President's Budget	14.799	14.590	14.330	0.000	14.330
Total Adjustments	0.000	0.000	-1.572	0.000	-1.572
• 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	-1.572	0.000	-1.572

Change Summary Explanation

The FY 2022 President's Budget submittal did not reflect FY 2023 through FY 2026 funding. Therefore, an explanation of the change between the two budget positions for FY 2024 cannot be made in a relevant manner.

C. Accomplishments/Planned Programs ($ in Millions)	FY 2022	FY 2023	FY 2024
Title: Manned Reconnaissance Systems	14.799	14.590	14.330
Description: Non-recurring engineering (NRE) for Baseline system developments and enhancements to improve mission capabilities of the RIVET JOINT BL-14 and BL-15, COMBAT SENT BL-6, COBRA BALL BL-7, and Ground Systems BL-13 and BL-14. ***FY 2023 Plans:*** • Continue Engineering Analysis • Continue NRE and other efforts associated with the integration and modification of the RC-135 primary mission equipment • Continue Specialized Mission Systems development for the collection of both air and ground signals. ***FY 2024 Plans:*** Will initiate contracts to: • Continue Engineering Analysis • Continue NRE and other efforts associated with the integration and modification of the RC-135 primary mission equipment • Continue Specialized Mission Systems development for the collection of both air and ground signals. ***FY 2023 to FY 2024 Increase/Decrease Statement:***			

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C. Accomplishments/Planned Programs ($ in Millions)	FY 2022	FY 2023	FY 2024
Increase due to adjustment in inflation.			
Accomplishments/Planned Programs Subtotals	14.799	14.590	14.330

D. Other Program Funding Summary ($ in Millions)

Line Item	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
• APAF 05 Line Item DARP01: *RC-135*	207.596	213.428	220.138	-	220.138	222.554	225.912	231.006	235.814	0.000	1,556.448
• APAF 06 Line Item DARP01: *Initial Spares/Repair Parts*	51.305	44.461	55.614	-	55.614	56.304	57.214	58.514	59.731	0.000	383.143
• APAF 07 Line Item DARP01: *Aircraft Support Equipment & Facilities*	0.000	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	0.000
• OPAF 04 Line Item 846070: *DARP RC-135*	27.359	28.153	28.882	-	28.882	29.505	30.191	31.320	31.986	0.000	207.396
• RDTE 07 PE 0304260F: *Airborne SIGINT Enterprise*	45.274	42.439	43.443	-	43.443	41.843	45.673	46.714	48.404	0.000	313.790

Remarks

E. Acquisition Strategy

The RC-135 RIVET JOINT, COBRA BALL, and COMBAT SENT configured aircraft are maintained and kept technologically relevant through an incremental baseline upgrade acquisition strategy. Technology upgrades and Quick Reaction Capability (QRC) developments are acquired through the 645 AESG in accordance with the BIG SAFARI Program Management Directive (PMD) and Class Justification and Approval (J&A) document for acquisition of supplies and services using an "other than full and open competition" criteria. The supplies and services procured by 645 AESG satisfy National Security requirements (FAR 6.302-6) through the use of their standing J&A or address Unusual and Compelling Urgency requirements (FAR 6.302-2) through an individually prepared J&A supported by the BIG SAFARI Life Cycle Management Plan (LCMP) across the full spectrum of system life cycle management from developmental engineering to system retirement ("cradle to grave") support. Due to the ever changing threat and rapidly evolving electromagnetic combat environment encountered during our prolonged commitment to contingency operations, the acquisition program manager has the authority to redirect funding as necessary to meet current stated and emerging Combatant Command (CCMD) and/or Intelligence Community (IC) requirements to better meet the war fighting objectives.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Air Force		Date: March 2023
Appropriation/Budget Activity 3600 / 7	**R-1 Program Element (Number/Name)** PE 0305207F / *Manned Reconnaissance Systems*	**Project (Number/Name)** 674754 / *RC-135 Systems*

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Product Development	SS/CPAF	Not specified. : TBD	-	-		-		-		-		-	Continuing	Continuing	-
Operational Systems Development	SS/ Various	L3Harris Technologies : Greenville, TX	-	14.799	Dec 2021	14.590	Dec 2022	14.330	Dec 2023	-		14.330	Continuing	Continuing	-
		Subtotal	-	14.799		14.590		14.330		-		14.330	Continuing	Continuing	N/A

Remarks

All activity is based around the Programmed Depot Maintenance (PDM) airframe and missions systems schedule which includes multiple contracts and organizations with overlapping and continuous periods of performance. Due to the rapidly changing threat environment, the acquisition program manager has the authority to redirect funding as necessary to meet current stated and emerging Combatant Command (CCMD) and/or Intelligence Community (IC) requirements.

	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	-	14.799		14.590		14.330		-		14.330	Continuing	Continuing	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2024 Air Force		Date: March 2023
Appropriation/Budget Activity 3600 / 7	**R-1 Program Element (Number/Name)** PE 0305207F / *Manned Reconnaissance Systems*	**Project (Number/Name)** 674754 / *RC-135 Systems*

Exhibit R-4, RDT&E Schedule Profile: PB 2024 Air Force		Date: March 2023
Appropriation/Budget Activity 3600 / 7	**R-1 Program Element (Number/Name)** PE 0305207F / *Manned Reconnaissance Systems*	**Project (Number/Name)** 674754 / *RC-135 Systems*

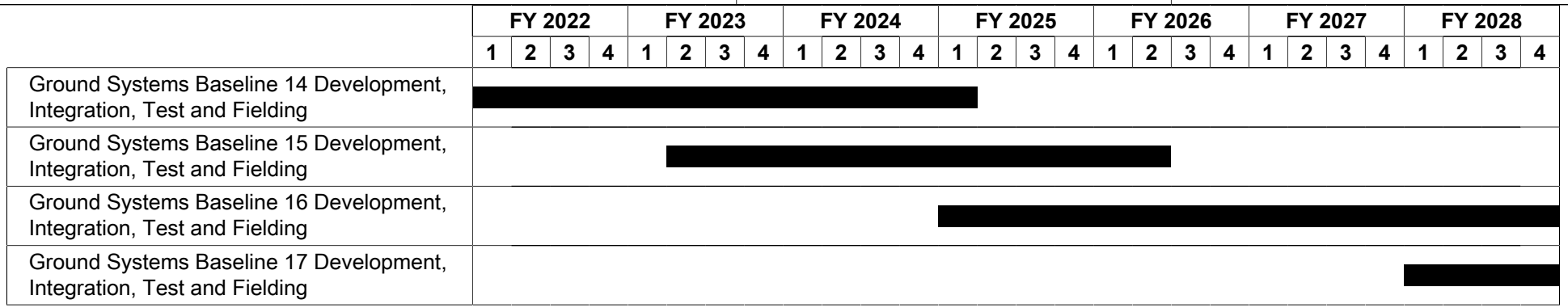

Exhibit R-4A, RDT&E Schedule Details: PB 2024 Air Force		Date: March 2023
Appropriation/Budget Activity 3600 / 7	**R-1 Program Element (Number/Name)** PE 0305207F / *Manned Reconnaissance Systems*	**Project (Number/Name)** 674754 / *RC-135 Systems*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Baseline Spiral Development				
RIVET JOINT Baseline 13 Integration, Test and Fielding	1	2022	4	2023
RIVET JOINT Baseline 14 Development	1	2022	3	2022
RIVET JOINT Baseline 14 Integration, Test and Fielding	2	2022	3	2026
RIVET JOINT Baseline 15 Development	2	2023	2	2025
RIVET JOINT Baseline 15 Integration, Test and Fielding	2	2025	4	2028
RIVET JOINT Baseline 16 Development	1	2025	1	2028
RIVET JOINT Baseline 16 Integration, Test and Fielding	1	2027	4	2028
RIVET JOINT Baseline 17 Development	1	2028	4	2028
COMBAT SENT Baseline 6 Integration, Test and Fielding	1	2022	1	2024
COMBAT SENT Baseline 7 Development	2	2025	4	2026
COMBAT SENT Baseline 7 Integration, Test and Fielding	4	2026	4	2028
COBRA BALL Baseline 7 Integration, Test and Fielding	1	2022	3	2024
COBRA BALL Baseline 14 Development	1	2022	2	2024
COBRA BALL Baseline 14 Integration, Test and Fielding	2	2024	2	2026
COBRA BALL Baseline 15 Development	1	2024	3	2026
COBRA BALL Baseline 15 Integration, Test and Fielding	3	2026	4	2028
Ground Systems Baseline 14 Development, Integration, Test and Fielding	1	2022	1	2025
Ground Systems Baseline 15 Development, Integration, Test and Fielding	2	2023	2	2026
Ground Systems Baseline 16 Development, Integration, Test and Fielding	1	2025	4	2028
Ground Systems Baseline 17 Development, Integration, Test and Fielding	1	2028	4	2028

Exhibit R-4A, RDT&E Schedule Details: PB 2024 Air Force		Date: March 2023
Appropriation/Budget Activity 3600 / 7	**R-1 Program Element (Number/Name)** PE 0305207F / *Manned Reconnaissance Systems*	**Project (Number/Name)** 674754 / *RC-135 Systems*

Note

Ground systems include the RIVET JOINT Mission Crew Training Systems (MCTS), Ground Data Processing System (GDPS), Modular Processing System (MPS), Airborne Capabilities Extension Systems (ACES) and Operational Flight Trainers (OFT). Baseline upgrades are determined by the aircraft programmed depot maintenance schedule. Hardware, firmware or software enhancements to the ground systems are set up to match the aircraft baseline upgrades. Typically, baseline configuration changes and enhancements are incorporated first into the MCTSs and OFTs, and then integrated into GDPS, MPS, and ACES. Delivery of the enhancements to the MCTSs and OFTs are planned to arrive concurrently, if not slightly prior, to the delivery of the first aircraft with an upgraded cockpit or mission system in a given baseline configuration to allow for aircrew and ground personnel training and qualification.