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

Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0302015F / <i>E-4B National Airborne Operations Center (NAOC)</i>
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COST (\$ in Millions)	Prior Years	FY 2023	FY 2024	FY 2025 Base	FY 2025 OCO	FY 2025 Total	FY 2026	FY 2027	FY 2028	FY 2029	Cost To Complete	Total Cost
Total Program Element	-	29.425	39.868	40.441	0.000	40.441	43.496	24.649	3.005	3.065	0.000	183.949
674777: <i>E-4B Aircraft Modernization</i>	-	29.425	39.868	40.441	0.000	40.441	43.496	24.649	3.005	3.065	0.000	183.949
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-	-	-

A. Mission Description and Budget Item Justification

The four (4) aircraft E-4B National Airborne Operations Center (NAOC) fleet satisfies the military need for an airborne operations center with communications capabilities permitting military and civilian leadership to monitor and control military and civil national assets during all phases of conflict (nuclear and non-nuclear) or natural disaster. The E-4B NAOC fleet also satisfies the military requirement to provide a highly survivable node of the National Military Command System (NMCS).

This program's developmental modifications include, but are not limited to, upgrades and enhancements to aircraft structures, propulsion system, fuel system, environmental control system, electrical generation and distribution systems, flight safety and navigation systems (with their associated communications equipment), and the Systems Integration Lab. Modifications may enhance the aircraft's mission capabilities necessary for the E-4B fleet to execute its mission, to include but not limited to those necessary for the Senior Leadership Command, Control and Communications System (SLC3S), National Leadership Command Capability (NLCC), and Nuclear Command, Control, and Communications (NC3). Funds may also be used to explore and develop modifications, upgrades, and future systems required to meet evolving mission requirements. This budget supports the following developmental modifications and studies/projects currently underway or planned for accomplishment:

- Survivable Super High Frequency (SSHF) will upgrade and replace portions of the E-4B's Jam-Resistant Secure Communications (JRSC) system to meet existing Presidential Policy Directive (PPD)-35 and National Security Presidential Directive (NSPD)-51/Homeland Security Presidential Directive (HSPD)-20 requirements and to ensure continued connectivity and interoperability as satellite and communications infrastructure evolves. Expected modifications include, but are not limited to, component and sub-system upgrades and replaces portions of the current Super High Frequency (SHF) system that are obsolete or near end of service life. A replacement to the SHF system is required as secure, survivable communications capability transitions from the Defense Satellite Communications System (DSCS). A risk-reduction study was completed in FY19 to further define the acquisition strategy of the SSHF program. The program will be acquired in 2 increments and each increment will be split into 2 installs to expedite fielding and reduce impact to Aircraft Availability. Increment 1A will upgrade the existing Ka-band system. Increment 1B will include technical solutions such as upgrading the existing modems and systems integration lab. Increment 2A will include new modem technology and common workstation. Increment 2B will include a new Ku-band system upgrades to the X-band system.

- The E-4B Systems Integration Laboratory (SIL) program will develop a test environment configured to represent the mission systems of the E-4B with connectivity to mission networks and services. E-4B SIL started as the Test Accreditation Integration Lab (TAIL) 5 for development of the E-4B SSHF program. The E-4B SIL program will expand the capabilities of TAIL 5 beyond SSHF to include the other mission communication systems within the E-4B. The E-4B SIL is necessary to minimize modernization and technical refresh schedules by reducing time on aircraft for install, test, ground connections/configurations, technical orders, redlines/rework, and

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training. Schedule reduction by the E-4B SIL will directly support increased Aircraft Availability (AA). The E-4B SIL will be developed in three blocks in FY24-FY27: Block 1 will focus on voice systems, Block 2 will focus on data systems, and Block 3 will integrate the remaining communication systems.

The total cost of the E-4B Survivable Super High Frequency Increment 2 Rapid Prototyping Middle Tier of Acquisition effort is 174.7 million, including RDT&E and procurement of prototype units. The E-4B SSHF Inc 2 RP program is not fully funded across the Future Years Defense Program. The Department of the Air Force is assessing all options to address the funding shortfalls for MTA programs including additional funding in a future budget request, performance trades based on technical maturity, or transition to alternative pathways.

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 0.0M was expended for civilian pay expenses in this program element, and in FY24 0.0M 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	25.701	39.868	26.767	0.000	26.767
Current President's Budget	29.425	39.868	40.441	0.000	40.441
Total Adjustments	3.724	0.000	13.674	0.000	13.674
• 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	3.724	0.000			
• SBIR/STTR Transfer	0.000	0.000			
• Other Adjustments	0.000	0.000	13.674	0.000	13.674

Change Summary Explanation

FY23 increase from a Below Threshold Reprogramming for E-4B SHF +\$3.724M
 FY25 increase associated with ongoing SSHF Increment 2 design and development activities.

C. Accomplishments/Planned Programs (\$ in Millions)	FY 2023	FY 2024	FY 2025
Title: Survivable SHF	29.425	24.868	28.417

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C. Accomplishments/Planned Programs (\$ in Millions)		FY 2023	FY 2024	FY 2025
<p>Description: Survivable Super High Frequency (SSHF) will upgrade and replace portions of the E-4B's Jam-Resistant Secure Communications (JRSC) system to meet existing Presidential Policy Directive (PPD)-35 and National Security Presidential Directive (NSPD)-51/Homeland Security Presidential Directive (HSPD)-20 requirements and to ensure continued connectivity and interoperability as satellite and communications infrastructure evolves. Expected modifications include, but are not limited to, component and sub-system upgrades and replaces of portions of the current SHF system that are obsolete or near end of service life. A replacement to the SHF system is required as secure, survivable communications capability transitions from the Defense Satellite Communications System (DSCS). A risk-reduction study was completed in FY19 to further define the acquisition strategy of the SSHF program. The program will be acquired in 2 increments and each increment will be split into 2 installs to expedite fielding and reduce impact to Aircraft Availability. Increment 1A will upgrade the existing Ka-band system. Increment 1B will include technical solutions such as upgrading the existing modems and systems integration lab. Increment 2A will include new modem technology and common workstation. Increment 2B will include a new Ku-band system upgrades to the X-band system.</p> <p>FY 2024 Plans:</p> <ul style="list-style-type: none"> - Continue Increment 2 development activities. - Continue design of common workstation. - Continue development of new modem technology. <p>FY 2025 Plans:</p> <ul style="list-style-type: none"> - Continue Increment 2 development activities. - Begin design of Ku-band system. - Begin development of X-band upgrades. <p>FY 2024 to FY 2025 Increase/Decrease Statement: Increase due to start of Ku-band design and X-band upgrades.</p>				
<p>Title: E-4B Systems Integration Laboratory (SIL)</p> <p>Description: The E-4B Systems Integration Laboratory (SIL) program will develop a test environment configured to represent the mission systems of the E-4B with connectivity with mission networks and services. E-4B SIL started as the Test Accreditation Integration Lab (TAIL) 5 for development of the E-4B SSHF program. The E-4B SIL program will expand the capabilities of TAIL 5 beyond SSHF to include the other mission communication systems within the E-4B. The E-4B SIL is necessary to minimize modernization and technical refresh schedules by reducing time on aircraft for install, test, ground connections/configurations, technical orders, redlines/rework, and training. Schedule reduction by the E-4B SIL will directly support increased Aircraft Availability (AA). The E-4B SIL will be developed in three blocks in FY24-FY27 to support AA: Block 1 will focus on voice systems, Block 2 will focus on data systems, and Block 3 will integrate the remaining communication systems.</p>		0.000	15.000	12.024

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C. Accomplishments/Planned Programs (\$ in Millions)	FY 2023	FY 2024	FY 2025
<p><i>FY 2024 Plans:</i> - Begin Block 1 (voice system) development</p> <p><i>FY 2025 Plans:</i> - Continue Block 1 (voice systems) development - Begin Block 2 (data systems) development</p> <p><i>FY 2024 to FY 2025 Increase/Decrease Statement:</i> Decrease due to cost equipment required for Block 1 development.</p>			
Accomplishments/Planned Programs Subtotals	29.425	39.868	40.441

D. Other Program Funding Summary (\$ in Millions)											
<u>Line Item</u>	<u>FY 2023</u>	<u>FY 2024</u>	<u>FY 2025</u> <u>Base</u>	<u>FY 2025</u> <u>OCO</u>	<u>FY 2025</u> <u>Total</u>	<u>FY 2026</u>	<u>FY 2027</u>	<u>FY 2028</u>	<u>FY 2029</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• APAF 05 Line Item E00400: <i>E-4B Nat Airborne Ops Center (NAOC)</i>	5.973	13.055	28.728	-	28.728	36.835	44.487	45.414	46.316	0.000	220.808
• APAF 06 Line Item 000999: <i>Initial Spares/Repair Parts</i>	4.523	0.364	0.373	-	0.373	0.379	0.388	0.396	0.403	0.000	6.826

Remarks

E. Acquisition Strategy
 Acquisition Strategy: The acquisition strategy for each specific modification differs based on the urgency of the requirement, definition of the capability, and technology readiness level of the components.

The Acquisition Strategy for Survivable SHF is a Section 804 Middle Tier Acquisition (MTA). Increment 1 Rapid Prototype MTA was approved in April 2019. Increment 2 Rapid Prototype MTA was approved in December 2021.

Management Strategy: Program management for all aircraft modifications is executed by the Commercial Derivative Aircraft Division at Tinker AFB, Oklahoma. The Program Executive Officer (PEO) for Presidential and Executive Airlift, at Wright Patterson, Ohio provides management oversight.

Contracting Strategy: The contracting strategy differs for each individual modification, but normally includes an initial engineering study contract followed by a development contract. Production installations and sustainment are typically accomplished with the E-4B Contractor Logistics Support (CLS) contract.

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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 0302015F / E-4B National Airborne Operations Center (NAOC)						Project (Number/Name) 674777 / E-4B Aircraft Modernization			
Product Development (\$ in Millions)				FY 2023		FY 2024		FY 2025 Base		FY 2025 OCO		FY 2025 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Survivable SHF	C/CPFF	L-3 : SLC, UT	-	29.425	Jan 2023	24.868	Jan 2024	28.417	Jan 2025	-		28.417	0.000	82.710	120.000
E-4B SIL	SS/CPFF	L-3 : SLC, UT	-	-		15.000	Apr 2024	12.024	Jan 2025	-		12.024	0.000	27.024	50.000
Subtotal			-	29.425		39.868		40.441		-		40.441	0.000	109.734	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			-	29.425		39.868		40.441		-		40.441	0.000	109.734	N/A
Remarks															
FY23, FY24, & FY25 SSHF funding supports development, integration, and test of prototype SSHF system under L-3Harris contract.															
FY24, FY25 SIL funding supports Block 1 development efforts.															
FY25 SIL funding supports Block 2 development efforts.															

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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 0302015F / E-4B National Airborne Operations Center (NAOC)	Project (Number/Name) 674777 / E-4B Aircraft Modernization

FY 2023				FY 2024				FY 2025				FY 2026				FY 2027				FY 2028				FY 2029			
1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4

E-4B Aircraft Modernization	
MUOS Modification Integration and Testing	██████████
MUOS Modification Milestone Decision C	████
Survivable SHF Inc 1 Rapid Fielding Decision	████
Survivable SHF Inc 2A Integration and Testing	████████████████████
Survivable SHF Inc 2A Prototype Modification Decision	████
Survivable SHF Inc 2A Rapid Fielding Decision	████
Survivable SHF Inc 2B Integration and Testing	██
Survivable SHF Inc 2B Prototype Modification Decision	████
Survivable SHF Inc 2B Rapid Fielding Decision	████
E-4B SIL Block 1 Development	██
E-4B SIL Block 2 Development	██
E-4B SIL Block 3 Development	██

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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 0302015F / <i>E-4B National Airborne Operations Center (NAOC)</i>	Project (Number/Name) 674777 / <i>E-4B Aircraft Modernization</i>

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<i>E-4B Aircraft Modernization</i>				
MUOS Modification Integration and Testing	2	2023	1	2024
MUOS Modification Milestone Decision C	2	2024	2	2024
Survivable SHF Inc 1 Rapid Fielding Decision	4	2023	4	2023
Survivable SHF Inc 2A Integration and Testing	1	2023	4	2024
Survivable SHF Inc 2A Prototype Modification Decision	1	2024	1	2024
Survivable SHF Inc 2A Rapid Fielding Decision	4	2024	4	2024
Survivable SHF Inc 2B Integration and Testing	1	2025	1	2027
Survivable SHF Inc 2B Prototype Modification Decision	4	2026	4	2026
Survivable SHF Inc 2B Rapid Fielding Decision	2	2027	2	2027
E-4B SIL Block 1 Development	3	2024	4	2025
E-4B SIL Block 2 Development	2	2025	3	2026
E-4B SIL Block 3 Development	2	2026	3	2027