

UNCLASSIFIED

Exhibit R-2, RDT&E Budget Item Justification: PB 2023 Air Force **Date:** April 2022

Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force / BA 5: System Development & Demonstration (SDD)</i>	R-1 Program Element (Number/Name) PE 0207171F / <i>F-15 EPAWSS</i>
---	--

COST (\$ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
Total Program Element	849.540	165.691	112.012	67.956	0.000	67.956	13.950	0.000	0.000	0.000	0.000	1,209.149
657108: <i>EPAWSS DEVELOPMENT</i>	849.540	165.691	112.012	67.956	0.000	67.956	13.950	0.000	0.000	0.000	0.000	1,209.149
Quantity of RDT&E Articles	6	2	-	-	-	-	-	-	-	-	-	

Program MDAP/MAIS Code: 485

A. Mission Description and Budget Item Justification

The legacy F-15 Tactical Electronic Warfare System (TEWS) is functionally obsolete. It uses 1970's analog technology to combat 1980s-era radar-based ground and air threats. In addition, this aging system is becoming more difficult and expensive to sustain. As a result, the Air Force is replacing TEWS with the F-15 Eagle Passive/Active Warning and Survivability System (EPAWSS). F-15 EPAWSS is an advanced digital electronic warfare system capable of detecting, identifying, locating, denying, degrading, disrupting, and defeating modern and emerging threat systems in contested airspace with dense radio-frequency (RF) background environments. F-15 EPAWSS will provide indication, type, and position of ground-based RF threats as well as the indication, type, and bearing of airborne threats with the situational awareness needed to avoid, engage, or negate the threat. It will also prevent RF threat systems from detecting or acquiring accurate targeting information to complicate and/or negate an enemy threat targeting solution. Finally, EPAWSS will counter RF and infrared threat systems at end-game via electronic countermeasures (jamming), chaff, and/or flares.

This program element may include necessary emergent or unanticipated civilian pay expenses required to manage, execute, and deliver F-15 EPAWSS for emergent or unanticipated weapon system capability. The use of such program funds would be in addition to the civilian pay expenses budgeted in program element 0605831F. : In FY2021 \$2.066M was expended for civilian pay expenses in this program element, and in FY2022 \$2.593M is forecasted for civilian pay expenses in this program element.

This program is in Budget Activity 5, System Development and Demonstration (SDD) because it has passed Milestone B approval and is conducting engineering and manufacturing development tasks aimed at meeting validated requirements prior to full rate production.

UNCLASSIFIED

Exhibit R-2, RDT&E Budget Item Justification: PB 2023 Air Force	Date: April 2022
--	-------------------------

Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 5: System Development & Demonstration (SDD)</i>	R-1 Program Element (Number/Name) PE 0207171F / F-15 EPAWSS
---	---

B. Program Change Summary (\$ in Millions)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
Previous President's Budget	170.368	112.012	0.000	0.000	0.000
Current President's Budget	165.691	112.012	67.956	0.000	67.956
Total Adjustments	-4.677	0.000	67.956	0.000	67.956
• 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	-4.677	0.000			
• Other Adjustments	0.000	0.000	67.956	0.000	67.956

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 FY2023 cannot be made in a relevant manner

C. Accomplishments/Planned Programs (\$ in Millions)	FY 2021	FY 2022	FY 2023
---	----------------	----------------	----------------

Title: Eagle Passive/Active Warning Survivability System (EPAWSS)	165.691	112.012	67.956
Description: Planned replacement of the existing F-15 Tactical Electronic Warfare System (TEWS).			
FY 2022 Plans: Complete qualification testing of EPAWSS hardware, developmental ground testing, software integration, and test program set development. Continue developmental flight test and logistics support planning efforts, such as development of Maintenance and Flight Tech Pubs. Funds may be used to resolve emerging safety of flight issues, accommodate EPAWSS enhancements, studies facilitating future tech insertion opportunities, and resolve any hardware or software anomalies identified in developmental testing. Additionally, funds may address issues with developmental test aircraft, address required EPAWSS-specific support from other systems on the F-15, and fulfill FAA or other mandates necessary to ensure continued aircrew safety and mission effectiveness.			
FY 2023 Plans: Complete software integration, flight test, cybersecurity verifications, and logistics support planning efforts, such as development of Technical Publications. These efforts enable the program to meet the Acquisition Program Baseline Objective for completion of Initial Operational Test & Evaluation. To that end, funds may be used to address operational effectiveness/suitability/survivability			

UNCLASSIFIED

Exhibit R-2, RDT&E Budget Item Justification: PB 2023 Air Force	Date: April 2022
--	-------------------------

Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 5: System Development & Demonstration (SDD)</i>	R-1 Program Element (Number/Name) PE 0207171F / <i>F-15 EPAWSS</i>
---	--

C. Accomplishments/Planned Programs (\$ in Millions)	FY 2021	FY 2022	FY 2023
anomalies or enhancements identified in developmental testing; conduct studies related to future modernization and technical insertion opportunities; assess new and emerging threat systems, and/or resolve emerging safety of flight issues.			
<i>FY 2022 to FY 2023 Increase/Decrease Statement:</i> FY 2023 decrease due to the majority of development efforts completing in FY22 and prior.			
Accomplishments/Planned Programs Subtotals	165.691	112.012	67.956

D. Other Program Funding Summary (\$ in Millions)											
Line Item	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
• APAF 05 Line Item F15EWS: <i>Aircraft Modification</i>	0.000	149.797	259.837	-	259.837	268.637	318.962	329.085	336.215	0.000	1,662.533
• APAF 07 Line Item 000999: <i>Aircraft Spares and Repair Parts</i>	0.000	28.005	19.796	-	19.796	11.206	13.434	27.716	28.316	0.000	128.473
• APAF 07 000075: <i>OTHER PRODUCTION CHARGES (OVERVIEW)</i>	15.058	48.823	-	-	-	-	2.022	-	-	0.000	65.903

Remarks
FY 2021 - FY 2027 funding is for F-15E Increment 1 Procurement.

E. Acquisition Strategy
F-15 EPAWSS is using an evolutionary acquisition model consisting of two increments. Increment 1 replaces the existing radar warning receiver, internal countermeasure system and countermeasure dispenser system. Increment 2 adds a towed decoy and monopulse angle countermeasure capability. (Increment 2 is currently an unfunded CDD requirement.) The F-15 EPAWSS technical approach is to leverage mature and proven hardware to field a critically-needed capability as soon as possible. In addition, the program tailored the Milestone C production decision into two decisions: Decision Point #1 (Production Decision, briefed 30 Oct 20 and approved via formal Acquisition Decision Memorandum 1 Dec 20) constituted formal entry into the production phase of the program and initiated procurement of the system hardware items and stand-up of the modification line. Decision Point #2 (Deployment Decision, 2Q CY22) will approve installation of the hardware on operational F-15E aircraft. This tailoring provides the Milestone Decision Authority the ability to accelerate Initial Operational Capability by taking long-lead hardware procurement off the program critical path, reducing the schedule impact of kit lead times.

UNCLASSIFIED

Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 Air Force **Date:** April 2022

Appropriation/Budget Activity 3600 / 5	R-1 Program Element (Number/Name) PE 0207171F / F-15 EPAWSS	Project (Number/Name) 657108 / EPAWSS DEVELOPMENT
--	---	---

Product Development (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Product Development	C/CPAF	Not specified. : TBD	0.000	-		-		-		-		-	0.000	0.000	-
F-15 EPAWSS TMRR	SS/ Various	Boeing : St. Louis, MO	233.738	-		-		-		-		-	0.000	233.738	175.860
F-15 EPAWSS EMD	SS/ Various	Boeing : St. Louis, MO	538.020	135.010	Feb 2021	92.487	Nov 2021	62.172	Jan 2023	-		62.172	13.950	841.639	478.786
F-15 EPAWSS	Various	Various : Various	23.596	9.427		6.208		0.000		-		0.000	0.000	39.231	115.854
Subtotal			795.354	144.437		98.695		62.172		-		62.172	13.950	1,114.608	N/A

Remarks
 FY16PB- EPAWSS efforts were transferred from Budget Activity 7, Operational Systems Development, PE 0207171F, Project Number 676038 to Budget Activity 5, Engineering and Manufacturing Development, PE 0207171F, Project Number 657108 per OSD direction.

The final line item reference to "various" contract methods and performing activity/location address other government costs for various EMD-specific hardware, equipment modification/installation/shipping efforts, special studies, travel and support personnel that are required to meet program objectives. The specific execution vehicles vary by effort.

Test and Evaluation (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Test and Evaluation	Various	Not specified. : TBD	46.788	4.892		6.092		3.270		-		3.270	0.000	61.042	-
Government Flight Test	Various	Various : Various	6.201	14.480		6.725		2.514		-		2.514	0.000	29.920	72.735
Subtotal			52.989	19.372		12.817		5.784		-		5.784	0.000	90.962	N/A

Remarks
 The final line item reference to "various" contract methods and performing activity/location addresses other government costs for T&E (both DT&E & IOT&E) specific test equipment/hardware, test event support, test-related special studies, travel and support personnel that are required to meet program objectives. The specific execution vehicles vary by effort.

UNCLASSIFIED

Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 Air Force **Date:** April 2022

Appropriation/Budget Activity 3600 / 5	R-1 Program Element (Number/Name) PE 0207171F / F-15 EPAWSS	Project (Number/Name) 657108 / EPAWSS DEVELOPMENT
--	---	---

Management Services (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Management Services	C/CPAF	Not specified. : TBD	0.000	-		-		-		-		-	0.000	0.000	-
Program Management Support Costs	Various	Various : Various	1.197	1.882		0.500		0.000		-		0.000	0.000	3.579	44.399
Subtotal			1.197	1.882		0.500		0.000		-		0.000	0.000	3.579	N/A

Remarks
The final line item reference to "various" contract methods and performing activity/location addresses other government costs for management support of EMD & T&E related activities, creation of special studies documentation, travel, and support personnel that are required to meet program objectives. The execution vehicles vary by effort.

	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	849.540	165.691	112.012	67.956	-	67.956	13.950	1,209.149	N/A

Remarks
Prior Years funding in FY 2013 and FY 2014 of \$15.100M was executed in PE 0207134F.
Prior Year funding in FY 2015 of \$37.726M was executed in PE 0207171F, Project 676038.

UNCLASSIFIED

Exhibit R-4, RDT&E Schedule Profile: PB 2023 Air Force **Date:** April 2022

Appropriation/Budget Activity 3600 / 5	R-1 Program Element (Number/Name) PE 0207171F / F-15 EPAWSS	Project (Number/Name) 657108 / EPAWSS DEVELOPMENT
--	---	---

FY 2021				FY 2022				FY 2023				FY 2024				FY 2025				FY 2026				FY 2027			
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

	FY 2021				FY 2022				FY 2023				FY 2024				FY 2025				FY 2026				FY 2027			
F-15 EPAWSS																												
Group B Hardware Developmental Kits																												
Hardware Qualification Testing																												
Software Integration																												
Maintenance/Tech Pubs																												
Integrated Test and Evaluation																												
Configuration Audits & System Verification																												
Developmental Test Aircraft Deliveries																												
EPAWSS Milestone C - Decision Point 1																												
EPAWSS Milestone C - Decision Point 2																												
Initial Operational Test & Evaluation																												
Hardware Test Support Cyber Controls and IT Refresh																												

UNCLASSIFIED

Exhibit R-4A, RDT&E Schedule Details: PB 2023 Air Force **Date:** April 2022

Appropriation/Budget Activity 3600 / 5	R-1 Program Element (Number/Name) PE 0207171F / F-15 EPAWSS	Project (Number/Name) 657108 / EPAWSS DEVELOPMENT
--	---	---

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
F-15 EPAWSS				
Group B Hardware Developmental Kits	1	2021	3	2021
Hardware Qualification Testing	1	2021	3	2022
Software Integration	1	2021	1	2023
Maintenance/Tech Pubs	1	2021	2	2023
Integrated Test and Evaluation	1	2021	1	2023
Configuration Audits & System Verification	3	2022	4	2023
Developmental Test Aircraft Deliveries	1	2021	4	2021
EPAWSS Milestone C - Decision Point 1	1	2021	1	2021
EPAWSS Milestone C - Decision Point 2	3	2022	3	2022
Initial Operational Test & Evaluation	3	2023	4	2023
Hardware Test Support Cyber Controls and IT Refresh	1	2023	4	2024