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**Exhibit R-2, RDT&E Budget Item Justification:** PB 2022 Air Force **Date:** May 2021

<b>Appropriation/Budget Activity</b> 3600: <i>Research, Development, Test &amp; Evaluation, Air Force / BA 5: System Development &amp; Demonstration (SDD)</i>	<b>R-1 Program Element (Number/Name)</b> PE 0207171F / F-15 EPAWSS
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COST (\$ in Millions)	Prior Years	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total	FY 2023	FY 2024	FY 2025	FY 2026	Cost To Complete	Total Cost
Total Program Element	803.500	46.040	170.368	112.012	0.000	112.012	-	-	-	-	-	-
657108: EPAWSS DEVELOPMENT	803.500	46.040	170.368	112.012	0.000	112.012	-	-	-	-	-	-
Quantity of RDT&E Articles	1	5	2	-	-	-	-	-	-	-		

**Program MDAP/MAIS Code:** 485

**Note**  
 In FY 2016, PE 0207171F, F-15 EPAWSS, Project 676038, EPAWSS, Budget Activity 07, Operational Systems Development was transferred to PE 0207171F, F-15 EPAWSS, Project 657108, EPAWSS Development, Budget Activity 05, System Development and Demonstration to align the program in the correct budget activity.  
  
 In FY 2015, PE 0207134F, F-15E Squadrons, Project 670131, Initial Operational Test and Evaluation, F-15 EPAWSS development efforts were transferred to PE 0207171F, F-15 EPAWSS, Project 676038, EPAWSS in order to provide budget transparency.  
  
 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.

**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 and infrared threat systems from detecting or acquiring accurate targeting information to complicate and/or negate an enemy threat targeting solution. Finally, EPAWSS will counter numerous threat systems at end-game via electronic countermeasures (jamming), chaff, and/or flares.  
  
 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 0605831F. In FY20 no funding was expended for civilian pay expenses in this program element, and in FY21 \$1.869M 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.

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<b>B. Program Change Summary (\$ in Millions)</b>	<b>FY 2020</b>	<b>FY 2021</b>	<b>FY 2022 Base</b>	<b>FY 2022 OCO</b>	<b>FY 2022 Total</b>
Previous President's Budget	47.322	170.679	12.251	0.000	12.251
Current President's Budget	46.040	170.368	112.012	0.000	112.012
Total Adjustments	-1.282	-0.311	99.761	0.000	99.761
• 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	-1.282	0.000			
• Other Adjustments	0.000	-0.311	99.761	0.000	99.761

**Change Summary Explanation**

FY 2020 reduction due to Small Business Innovation Research (SBIR). FY 2021 reduction due to inflation adjustment. FY 2022 increase to fund program to April 2021 Air Force Non-Advocate Cost Assessment (NACA).

**C. Accomplishments/Planned Programs (\$ in Millions)**

	<b>FY 2020</b>	<b>FY 2021</b>	<b>FY 2022 Base</b>	<b>FY 2022 OCO</b>	<b>FY 2022 Total</b>
<b>Title:</b> Eagle Passive/Active Warning Survivability System (EPAWSS)	46.040	170.368	112.012	0.000	112.012
<b>Description:</b> Planned replacement of the existing F-15 self-protection, Tactical Electronic Warfare System (TEWS). This includes technical and acquisition related studies.					
<b>FY 2021 Plans:</b> Completing test aircraft modifications and continuing qualification testing. Continue developmental ground and flight tests, software integration, and test program set development. Funds may be used to resolve emerging safety of flight issues, accommodate technology insertion and fulfill FAA or other mandates necessary to ensure continued aircrew safety and mission effectiveness.					
<b>FY 2022 Base Plans:</b> 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 technology insertion, resolve any hardware or software anomalies identified in developmental testing, address issues with developmental test aircraft, address required EPAWSS-specific					

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<b>C. Accomplishments/Planned Programs (\$ in Millions)</b>	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total
support from other systems on the F-15, and fulfill FAA or other mandates necessary to ensure continued aircrew safety and mission effectiveness.					
<b>FY 2022 OCO Plans:</b> N/A					
<b>FY 2021 to FY 2022 Increase/Decrease Statement:</b> FY 2022 increase to fund program to April 2021 Air Force Non-Advocate Cost Assessment (NACA).					
<b>Accomplishments/Planned Programs Subtotals</b>	46.040	170.368	112.012	0.000	112.012

<b>D. Other Program Funding Summary (\$ in Millions)</b>											
<u>Line Item</u>	<u>FY 2020</u>	<u>FY 2021</u>	<u>FY 2022 Base</u>	<u>FY 2022 OCO</u>	<u>FY 2022 Total</u>	<u>FY 2023</u>	<u>FY 2024</u>	<u>FY 2025</u>	<u>FY 2026</u>	<u>Cost To Complete</u>	<u>Total Cost</u>
• APAF 05 Line Item	125.417	0.000	149.797	-	149.797	-	-	-	-	-	-
F15EWS: <i>Aircraft Modification</i>											
• APAF 07 Line Item 000999:	4.185	0.000	28.005	-	28.005	-	-	-	-	-	-
<i>Aircraft Spares and Repair Parts</i>											
• APAF 07 000075:	-	15.058	48.823	-	48.823	-	-	-	-	-	-
<i>OTHER PRODUCTION CHARGES (OVERVIEW)</i>											

**Remarks**

**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. (Note that Increment 2 is currently an unfunded CDD requirement.) F-15 EPAWSS technical approach is to leverage mature technology where possible from other Air Force or Foreign Military Sales electronic warfare programs. To rapidly field this capability, F-15 EPAWSS is using two decision points in-lieu of a single Milestone C. Decision Point #1 (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 will initiate installation activities. This tailoring provides the Milestone Decision Authority the ability to accelerate Initial Operational Capability by taking hardware procurement off the program critical path, reducing the schedule impact of kit lead times.

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**Exhibit R-3, RDT&E Project Cost Analysis: PB 2022 Air Force** **Date:** May 2021

<b>Appropriation/Budget Activity</b> 3600 / 5	<b>R-1 Program Element (Number/Name)</b> PE 0207171F / F-15 EPAWSS	<b>Project (Number/Name)</b> 657108 / EPAWSS DEVELOPMENT
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<b>Product Development (\$ in Millions)</b>				<b>FY 2020</b>		<b>FY 2021</b>		<b>FY 2022 Base</b>		<b>FY 2022 OCO</b>		<b>FY 2022 Total</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Prior Years</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>			
Product Development	C/CPAF	Not specified. : TBD	0.000	-		-		-		-		-	-	-	-
F-15 EPAWSS TMRR	SS/ Various	Boeing : St. Louis, MO	233.738	-		-		-		-		-	-	-	175.860
F-15 EPAWSS EMD	SS/ Various	Boeing : St. Louis, MO	509.706	28.314	Feb 2020	135.010	Feb 2021	92.487	Nov 2021	-		92.487	-	-	478.786
F-15 EPAWSS	Various	Various : Various	13.268	10.328	Feb 2020	14.104		10.000		-		10.000	-	-	115.854
<b>Subtotal</b>			756.712	38.642		149.114		102.487		-		102.487	-	-	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 individual program reference to "various" contract methods addresses other government costs for trainers, hardware, special studies, etc., that are required to meet F-15 EPAWSS program objectives. The execution vehicles between these DoD entities vary by effort.

<b>Test and Evaluation (\$ in Millions)</b>				<b>FY 2020</b>		<b>FY 2021</b>		<b>FY 2022 Base</b>		<b>FY 2022 OCO</b>		<b>FY 2022 Total</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Prior Years</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>			
Test and Evaluation	Various	Not specified. : TBD	46.788	-		4.892		2.300		-		2.300	-	-	-
Government Flight Test	Various	Various : Various	0.000	6.201	Jan 2020	14.480		6.725		-		6.725	-	-	72.735
<b>Subtotal</b>			46.788	6.201		19.372		9.025		-		9.025	-	-	N/A

**Remarks**  
 The individual program reference to "various" contract methods addresses other government costs for trainers, test, hardware, special studies, etc. that are required to meet F-15 EPAWSS program objectives. The execution vehicles between these DoD entities vary by effort.

<b>Management Services (\$ in Millions)</b>				<b>FY 2020</b>		<b>FY 2021</b>		<b>FY 2022 Base</b>		<b>FY 2022 OCO</b>		<b>FY 2022 Total</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Prior Years</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>			
Management Services	C/CPAF	Not specified. : TBD	0.000	-		-		-		-		-	-	-	-

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**Exhibit R-3, RDT&E Project Cost Analysis: PB 2022 Air Force** **Date:** May 2021

<b>Appropriation/Budget Activity</b> 3600 / 5	<b>R-1 Program Element (Number/Name)</b> PE 0207171F / F-15 EPAWSS	<b>Project (Number/Name)</b> 657108 / EPAWSS DEVELOPMENT
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<b>Management Services (\$ in Millions)</b>				FY 2020		FY 2021		FY 2022 Base		FY 2022 OCO		FY 2022 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			
Program Management Support Costs	Various	Various : Various	0.000	1.197	Feb 2020	1.882		0.500		-		0.500	-	-	44.399
<b>Subtotal</b>			0.000	1.197		1.882		0.500		-		0.500	-	-	N/A

**Remarks**  
The individual program reference to "various" contract methods addresses other government costs for trainers, test, hardware, special studies, etc. that are required to meet F-15 EPAWSS program objectives. The execution vehicles between these DoD entities vary by effort.

	Prior Years	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total	Cost To Complete	Total Cost	Target Value of Contract
<b>Project Cost Totals</b>	803.500	46.040	170.368	112.012	-	112.012	-	-	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.

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**Exhibit R-4, RDT&E Schedule Profile: PB 2022 Air Force** **Date:** May 2021

<b>Appropriation/Budget Activity</b> 3600 / 5	<b>R-1 Program Element (Number/Name)</b> PE 0207171F / F-15 EPAWSS	<b>Project (Number/Name)</b> 657108 / EPAWSS DEVELOPMENT
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	FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				FY 2025				FY 2026			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
<b>F-15 EPAWSS</b>																												
Developmental Test																												
Group B Hardware Developmental Kits																												
Hardware Qualification Testing																												
Software Integration																												
Maintenance/Tech Pubs																												
EMD Jet mod #3 complete																												
EMD Jet mod #4 complete																												
EMD Jet mod #5 complete																												
EMD Jet mod #6 complete																												
EMD Jet mod #7 complete																												
EMD Jet mod #8 complete																												
Initial Operational Test & Evaluation (IOT&E)																												
Final System Verification Review (SVR)																												
EPAWSS Milestone C - Decision Point 1																												
EPAWSS Milestone C - Decision Point 2																												

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**Exhibit R-4A, RDT&E Schedule Details: PB 2022 Air Force** **Date:** May 2021

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

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<b>F-15 EPAWSS</b>				
Developmental Test	1	2020	1	2024
Group B Hardware Developmental Kits	1	2020	4	2020
Hardware Qualification Testing	1	2020	2	2022
Software Integration	1	2020	1	2023
Maintenance/Tech Pubs	1	2020	3	2023
EMD Jet mod #3 complete	1	2020	1	2020
EMD Jet mod #4 complete	2	2020	2	2020
EMD Jet mod #5 complete	3	2020	3	2020
EMD Jet mod #6 complete	3	2020	3	2020
EMD Jet mod #7 complete	2	2021	2	2021
EMD Jet mod #8 complete	4	2020	4	2020
Initial Operational Test & Evaluation (IOT&E)	3	2023	4	2023
Final System Verification Review (SVR)	3	2023	3	2023
EPAWSS Milestone C - Decision Point 1	1	2021	1	2021
EPAWSS Milestone C - Decision Point 2	3	2022	3	2022