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Exhibit R-2, RDT&E Budget Item Justification: PB 2020 Air Force										Date: February 2019		
Appropriation/Budget Activity 3600: Research, Development, Test & Evaluation, Air Force / BA 5: System Development & Demonstration (SDD)					R-1 Program Element (Number/Name) PE 0207171F / F-15 EPAWSS							
COST (\$ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
Total Program Element	467.900	202.167	137.095	47.322	0.000	47.322	23.942	12.269	0.000	0.000	0.000	890.695
657108: EPAWSS DEVELOPMENT	467.900	202.167	137.095	47.322	0.000	47.322	23.942	12.269	0.000	0.000	0.000	890.695
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		
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 current F-15's self-protection suite called the Tactical Electronic Warfare System (TEWS) is functionally obsolete. It uses 1970's analog technology designed for combat operations in environments defended by 1980s-era radar-based ground and air threats. In addition, this aging system is becoming more difficult and expensive to support. As a result, 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 up to contested environments. This upgrade will significantly improve the F-15's capability to autonomously and automatically detect, identify and locate radio frequency (RF) threats as well as provide the ability to deny, degrade, deceive, disrupt and defeat RF and electro-optical/infrared (EO/IR) threat systems in contested and unplanned operations within highly contested environments through 2040. 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 IR threat systems from detecting or acquiring accurate targeting information prior to threat engagement to complicate and/or negate an enemy threat targeting solution and effectively counter enemy missiles/weapons if adversary threat systems engage and employ weapons against friendly forces through components such as chaff, flares, decoys/angle countermeasures and jamming. This program element may include necessary civilian pay expenses required to manage, execute, and deliver F-15 EPAWSS capability. The use of such program funds would be in addition to the civilian pay expenses budgeted in program elements 0605826F, 0605827F, 0605828F, 0605829F, 0605830F, 0605831F, 0605832F, and 0605898F."												

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As directed in the FY 2018 NDAA, Sec 825, amendment to PL 114-92 FY 2016 NDAA, Sec 828 Penalty for Cost Overruns, the FY 2018 Air Force penalty total is \$14.373M. The calculated percentage reduction to each research, development, test and evaluation and procurement account will be allocated proportionally from all programs, projects, or activities under such account.						
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.						
B. Program Change Summary (\$ in Millions)		FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Previous President's Budget		209.847	137.095	67.322	0.000	67.322
Current President's Budget		202.167	137.095	47.322	0.000	47.322
Total Adjustments		-7.680	0.000	-20.000	0.000	-20.000
• 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		-7.680	0.000			
• Other Adjustments		0.000	0.000	-20.000	0.000	-20.000
Change Summary Explanation						
FY18 reduction of \$7.680M for SBIR						
FY20 decrease of \$20M for rephrased efforts to FY 2021 and 2022.						
C. Accomplishments/Planned Programs (\$ in Millions)				FY 2018	FY 2019	FY 2020
Title: Eagle Passive/Active Warning Survivability System (EPAWSS)				202.167	137.095	47.322
Description: Planned replacement of the existing F-15 self-protection, Tactical Electronic Warfare System (TEWS). This includes technical and acquisition related studies.						
FY 2019 Plans:						
Continue acquisition planning for Milestone C. Execute Increment 1 EMD. Execute Increment 1 flight tests. Continue to execute risk reduction, development test activities, and continue acquisition and technical-related studies for Increment 1. Funds may be						

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C. Accomplishments/Planned Programs (\$ in Millions)										FY 2018	FY 2019	FY 2020
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.												
FY 2020 Plans: Complete test aircraft modifications. Continue Increment 1 ground and flight tests. Continue to execute risk reduction, development test activities, and continue acquisition and technical related studies for Increment 1. 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.												
FY 2019 to FY 2020 Increase/Decrease Statement: FY 2019 to 2020 decrease \$89.773M due to completion of test aircraft activity and other efforts.												
Accomplishments/Planned Programs Subtotals										202.167	137.095	47.322
D. Other Program Funding Summary (\$ in Millions)												
Line Item	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost	
• APAF 05 Line Item	-	214.885	149.047	-	149.047	179.087	308.818	337.777	266.100	651.507	2,107.221	
F15EWS: Aircraft Modification												
• APAF 07 Line Item 000999:	-	-	4.185	-	4.185	8.046	10.214	19.605	11.100	11.679	64.829	
Aircraft Spares and Repair Parts												
Remarks												
FY 2019 - FY 2023 funding is for F-15 E 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. 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 will initiate production activities. Decision Point #2 will initiate installation activities. This tailoring provides the Milestone Decision Authority the ability to accelerate Initial Operating Capability by reducing the schedule impact of kit lead times.												
F. Performance Metrics												
Please refer to the Performance Base Budget Overview Book for information on how Air Force resources are applied and how those resources are contributing to Air Force performance goals and most importantly, how they contribute to our mission.												

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2020 Air Force												Date: February 2019			
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 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 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
F-15 EPAWSS TMRR	SS/ Various	Boeing : St. Louis, MO	86.375	-		-		-		-		-	0.000	86.375	175.860
F-15 EPAWSS EMD	SS/ Various	Boeing : St. Louis, MO	168.745	154.895	Oct 2017	112.923	Feb 2019	29.596	Feb 2020	-		29.596	16.841	483.000	478.786
F-15 EPAWSS	Various	Various : Various	212.780	11.953	Dec 2017	6.744	Mar 2019	10.328	Feb 2020	-		10.328	5.215	247.020	115.854
Subtotal			467.900	166.848		119.667		39.924		-		39.924	22.056	816.395	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.															
Test and Evaluation (\$ in Millions)				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 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
Government Flight Test	Various	Various : Various	0.000	18.531	Jan 2018	14.208	Jan 2019	6.201	Jan 2020	-		6.201	12.634	51.574	72.735
Subtotal			0.000	18.531		14.208		6.201		-		6.201	12.634	51.574	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.															
Management Services (\$ in Millions)				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 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
Program Management Support Costs	Various	Various : Various	0.000	16.788	Oct 2017	3.220	Feb 2019	1.197	Feb 2020	-		1.197	1.521	22.726	44.399
Subtotal			0.000	16.788		3.220		1.197		-		1.197	1.521	22.726	N/A

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Management Services (\$ in Millions)				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 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
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 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals			467.900	202.167		137.095		47.322		-		47.322	36.211	890.695	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 2020 Air Force										Date: February 2019									
Appropriation/Budget Activity										R-1 Program Element (Number/Name)									
3600 / 5										PE 0207171F / F-15 EPAWSS									
										Project (Number/Name)									
										657108 / EPAWSS DEVELOPMENT									

	FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024			
	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
F-15 EPAWSS																												
EPAWSS MS C																												
EPAWSS Increment 1 testing																												
EPAWSS Decision Point 1																												
EPAWSS Decision Point 2																												

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Exhibit R-4A, RDT&E Schedule Details: PB 2020 Air Force		Date: February 2019
Appropriation/Budget Activity 3600 / 5	R-1 Program Element (Number/Name) PE 0207171F / <i>F-15 EPAWSS</i>	Project (Number/Name) 657108 / <i>EPAWSS DEVELOPMENT</i>

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<i>F-15 EPAWSS</i>				
EPAWSS MS C	4	2019	4	2019
EPAWSS Increment 1 testing	1	2019	2	2021
EPAWSS Decision Point 1	4	2019	4	2019
EPAWSS Decision Point 2	4	2020	4	2020