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Exhibit R-2, RDT&E Budget Item Justification: FY 2018 Air Force										Date: May 2017		
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 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total	FY 2019	FY 2020	FY 2021	FY 2022	Cost To Complete	Total Cost
Total Program Element	0.000	174.439	256.669	209.847	0.000	209.847	138.127	67.828	21.585	39.277	0.146	907.918
657108: EPAWSS DEVELOPMENT	0.000	174.439	256.669	209.847	0.000	209.847	138.127	67.828	21.585	39.277	0.146	907.918
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 F-15 is the most versatile fighter in the world today. The F-15C continues to provide air superiority with an undefeated and unmatched aerial combat record. The F-15E retains this air superiority capability and adds systems, such as advanced imaging and targeting systems, to meet the requirement for all-weather, deep penetration, and night / under-the-weather, air-to-surface attack. A mainstay in operations both domestic and abroad, upgrades to the F-15 (avionics, armament, airframe and engines) are critical to maintaining combat viability (lethality, survivability and supportability). Projected to remain in service past 2040, avionics modernization is key to long-term weapon system viability. This modernization is built on a foundation of technical and acquisition support studies (both internal to the Air Force and through outside contractors). The proliferation of fourth generation enemy aircraft, sophisticated "double-digit" anti-aircraft missile systems and other enemy systems pose a significant threat to F-15 survivability. The F-15 Eagle Passive Active Warning and Survivability System (EPAWSS) will replace the F-15's functionally obsolete self-defense Tactical Electronic Warfare System (TEWS) to enhance weapon system situational awareness and survivability against enemy threats. F-15 EPAWSS will also improve reliability and sustainability. F-15 EPAWSS is linked to an aircraft operational flight program update schedule that works to integrate new capabilities with the airframe. Incorporation of corresponding spiral and / or phased technology / equipment improvements that include support equipment, mission planning systems, and training device upgrades will improve performance, supportability and aircrew training.

The F-15 EPAWSS 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

**UNCLASSIFIED**

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within highly contested environments through 2040. The 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. The F-15 EPAWSS will 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.								
Increment 1 replaces the obsolete TEWS. Increment 2 adds a towed decoy/angled countermeasure capability.								
This program is in Budget Activity 5, System Development and Demonstration, passed Milestone B approval, and has begun engineering and manufacturing development activities. This program element provides funding for the development of the F-15 EPAWSS to address current and future threats.								
B. Program Change Summary (\$ in Millions)		FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total		
Previous President's Budget		180.681	256.669	194.843	0.000	194.843		
Current President's Budget		174.439	256.669	209.847	0.000	209.847		
Total Adjustments		-6.242	0.000	15.004	0.000	15.004		
• 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		-6.242	0.000					
• Other Adjustments		0.000	0.000	15.004	0.000	15.004		
Change Summary Explanation								
FY2018 Funding increased 15.004M to reconcile to EPAWSS Milestone B Service Cost Position.								
C. Accomplishments/Planned Programs (\$ in Millions)				FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total
Title: Eagle Passive/Active Warning Survivability System (EPAWSS)				174.439	256.669	209.847	0.000	209.847
Description: Planned replacement of the existing F-15 self-protection, Tactical Electronic Warfare System (TEWS). This includes technical and acquisition- related studies.								
FY 2016 Accomplishments:								

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Appropriation/Budget Activity 3600: Research, Development, Test & Evaluation, Air Force I BA 5: System Development & Demonstration (SDD)					R-1 Program Element (Number/Name) PE 0207171F / F-15 EPAWSS						
C. Accomplishments/Planned Programs (\$ in Millions)					FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total		
Completed Increment 1 TMRR PDR-level design to support Milestone B decision. Refined design for FY17 CDR. Continued acquisition planning for EMD and Milestone B. Awarded EMD development and test contract for Increment 1. This includes technical and acquisition-related studies.											
FY 2017 Plans: Complete Increment 1 TMRR CDR-level design. Continue acquisition planning for Milestone C. Execute Increment 1 EMD. Produce EMD test assets. Execute risk reduction, development test activities, and continue acquisition and technical-related studies for Increments 1 and 2. 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 2018 Base Plans: Continue acquisition planning for Milestone C. Execute Increment 1 EMD. Produce EMD test assets. Execute characterization flight test demo for Increment 2. Execute risk reduction, development test activities, and continue acquisition and technical-related studies for Increments 1 and 2. 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 2018 OCO Plans: N/A											
Accomplishments/Planned Programs Subtotals					174.439	256.669	209.847	0.000	209.847		
D. Other Program Funding Summary (\$ in Millions)											
Line Item	FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total	FY 2019	FY 2020	FY 2021	FY 2022	Cost To Complete	Total Cost
• APAF: BA05: Line Item # F15EWS: Aircraft Modification	0.000	0.000	0.000	0.000	0.000	186.096	31.998	116.693	311.421	1,395.100	2,041.308
• APAF: BA07: Line Item #000999: Aircraft Spares and Repair Parts	0.000	0.000	0.000	0.000	0.000	4.067	4.219	8.114	10.300	44.400	71.100
• RDT&E: BA07: PE0207171F: F-15 EPAWSS BA07	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	37.726
Remarks FY 19 - FY 21 funding is for F-15 C & F-15 E Procurement.											

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<b>E. Acquisition Strategy</b> The MDA approved acquisition approach is to design a solution that leverages mature non-developmental components that integrate into the existing footprint on the F-15 aircraft left behind by the legacy F-15 electronic warfare system. To further improve schedule, affordability and program risk outcomes, and consistent with the JROC approved CDD, the F-15 EPAWSS program will pursue a two-increment acquisition approach. Increment 1 replaces the existing Radar Warning Receiver, Internal Countermeasures System and Countermeasures Dispenser System. Increment 2 adds a towed decoy / angle countermeasure capability.		
<b>F. Performance Metrics</b> 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: FY 2018 Air Force** **Date:** May 2017

<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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Product Development (\$ in Millions)				FY 2016		FY 2017		FY 2018 Base		FY 2018 OCO		FY 2018 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	0.000	97.404	Feb 2016	43.806	Oct 2016	0.000		0.000		0.000	0.000	141.210	177.341
F-15 EPAWSS EMD	SS/ Various	Boeing : St. Louis, MO	0.000	56.705	Sep 2016	163.992	Nov 2016	173.100	Oct 2017	0.000		173.100	172.689	566.486	625.830
F-15 EPAWSS	Various	Various : Various	0.000	18.934	Feb 2016	47.068	Dec 2017	28.133	Dec 2017	0.000		28.133	64.828	158.963	199.895
<b>Subtotal</b>			0.000	173.043		254.866		201.233		0.000		201.233	237.517	866.659	1,003.066

**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, 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.

F-15 EPAWSS EMD includes contractor costs for EPAWSS Increment 2 Characterization flight test demonstration effort starting in FY18.

Support (\$ in Millions)				FY 2016		FY 2017		FY 2018 Base		FY 2018 OCO		FY 2018 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
<b>Subtotal</b>			-	-		-		-		-		-	-	-	-

Test and Evaluation (\$ in Millions)				FY 2016		FY 2017		FY 2018 Base		FY 2018 OCO		FY 2018 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
<b>Subtotal</b>			-	-		-		-		-		-	-	-	-

Management Services (\$ in Millions)				FY 2016		FY 2017		FY 2018 Base		FY 2018 OCO		FY 2018 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	1.396	Jan 2016	1.803	Dec 2016	8.614	Oct 2017	0.000		8.614	29.446	41.259	40.655

**UNCLASSIFIED**

<b>Exhibit R-3, RDT&amp;E Project Cost Analysis: FY 2018 Air Force</b>												<b>Date:</b> May 2017		
<b>Appropriation/Budget Activity</b> 3600 / 5						<b>R-1 Program Element (Number/Name)</b> PE 0207171F / <i>F-15 EPAWSS</i>				<b>Project (Number/Name)</b> 657108 / <i>EPAWSS DEVELOPMENT</i>				

  

<b>Management Services (\$ in Millions)</b>				<b>FY 2016</b>		<b>FY 2017</b>		<b>FY 2018 Base</b>		<b>FY 2018 OCO</b>		<b>FY 2018 Total</b>				
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
<b>Subtotal</b>			0.000	1.396		1.803		8.614		0.000		8.614		29.446	41.259	40.655

  

**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>Prior Years</b>	<b>FY 2016</b>		<b>FY 2017</b>		<b>FY 2018 Base</b>		<b>FY 2018 OCO</b>		<b>FY 2018 Total</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
<b>Project Cost Totals</b>	0.000	174.439		256.669		209.847		0.000		209.847	266.963	907.918	-

  

**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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<b>Exhibit R-4, RDT&amp;E Schedule Profile:</b> FY 2018 Air Force	<b>Date:</b> May 2017
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<b>Appropriation/Budget Activity</b> 3600 / 5	<b>R-1 Program Element (Number/Name)</b> PE 0207171F / <i>F-15 EPAWSS</i>	<b>Project (Number/Name)</b> 657108 / <i>EPAWSS DEVELOPMENT</i>
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	FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021				FY 2022			
	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
EPAWSS MS B																												
EPAWSS EMD Contract Award																												
EPAWSS MS C																												
EPAWSS Increment 1 testing																												

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<b>Exhibit R-4A, RDT&amp;E Schedule Details:</b> FY 2018 Air Force			<b>Date:</b> May 2017
<b>Appropriation/Budget Activity</b> 3600 / 5	<b>R-1 Program Element (Number/Name)</b> PE 0207171F / <i>F-15 EPAWSS</i>	<b>Project (Number/Name)</b> 657108 / <i>EPAWSS DEVELOPMENT</i>	

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
EPAWSS MS B	4	2016	4	2016
EPAWSS EMD Contract Award	1	2017	1	2017
EPAWSS MS C	4	2019	4	2019
EPAWSS Increment 1 testing	1	2019	3	2021