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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 I BA 7: Operational Systems Development					R-1 Program Element (Number/Name) PE 0207325F I Joint Air-to-Surface Standoff Missile (JASSM)							
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	209.212	9.221	30.002	29.932	0.000	29.932	60.514	79.794	36.482	20.012	24.245	499.414
675356: JASSM Extended Range (JASSM-ER)	209.212	9.221	30.002	29.932	0.000	29.932	60.514	79.794	36.482	20.012	24.245	499.414
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		
Program MDAP/MAIS Code: 555												
<b>Note</b> This program, BA 07 PE 0207325F, project 675356, Warfighting Capability Enhancement, is a new start.  Note: Procurement quantities can change based on negotiated options/pricing bands and available funding, in accordance with Title 10, U.S Code Section 2308 BUY-TO-BUDGET ACQUISITION.												
<b>A. Mission Description and Budget Item Justification</b> This project provides a long range (over twice the range of baseline JASSM), conventional air-to-surface, autonomous, precision-guided, low observable, standoff cruise missile compatible with fighter and bomber aircraft. The requirement for JASSM-ER is given in JASSM-ER Capability Production Document (CPD), dated 16 Apr 2010. Aircraft integration of JASSM-ER is complete on the B-1B. Objective aircraft are B-52H, F-16C/D (Block 40-52), B-2, and F-15E. JASSM-ER provides the capability to attack a variety of high value fixed or relocatable targets with precision, through preplanned missions or target-of-opportunity, deeper into enemy territory than JASSM Baseline while minimizing the threat to launch aircraft. The Air Force developed JASSM-ER based on a contractor-developed, government-approved System Performance Specification (SPS). The program continues its development/integration efforts on the Intelligent Telemetry Instrumentation Kit (ITIK), the Electronic Safe and Arm Fuze (ESAF), and the Military Code (M-Code) receiver, and FTS-TIK batteries. Our studies in FY16/17 led to safety/survivability via Wing Replacement/China Development/Integration, and Warfighting Capability Enhancement (Software) to enhance the aerodynamic performance against emerging threats. Future efforts added are Anti-Radiation Homing System (ARHS), improved Data Link capability for relocatable target attack, alternate payloads, and improved Guidance Navigation Control (GNC), and alternative FTS-TIK battery studies. The program is also evaluating Diminishing Manufacturing Sources Material Shortages (DMSMS) and reviewing obsolescence issues.  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.												

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B. Program Change Summary (\$ in Millions)		FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total
Previous President's Budget		9.793	30.002	20.297	0.000	20.297
Current President's Budget		9.221	30.002	29.932	0.000	29.932
Total Adjustments		-0.572	0.000	9.635	0.000	9.635
• 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		-0.572	0.000			
• Other Adjustments		0.000	0.000	9.635	0.000	9.635
Change Summary Explanation						
FY18 cost data updated to include Warfighting Capability Enhancement and Wing Replacement/ Chine Development and Integration						
C. Accomplishments/Planned Programs (\$ in Millions)				FY 2016	FY 2017	FY 2018
Title: Warfighting Capability Enhancement				0.000	0.000	6.646
Description: Begin design, development and preparation for a primary contract for software and mission planning changes to enable the missile to maintain operational effectiveness in certain operational scenarios.						
FY 2016 Accomplishments: N/A						
FY 2017 Plans: N/A						
FY 2018 Plans: Begin design, development and preparation for a primary contract for software and mission planning changes to enable the missile to maintain operational effectiveness in certain operational scenarios.						
Title: Wing Replacement/Chine Development, survivability enhancement, and Integration				0.000	0.000	11.457
Description: Provides increased standoff range, survivability, and improved vehicle stability/control across all operational scenarios.						
FY 2016 Accomplishments:						

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<b>C. Accomplishments/Planned Programs (\$ in Millions)</b>		<b>FY 2016</b>	<b>FY 2017</b>	<b>FY 2018</b>
N/A				
<b>FY 2017 Plans:</b> N/A				
<b>FY 2018 Plans:</b> Continue to initiate design and development of replacement wings. This effort is not a new start. Survivability enhancements were addressed in FY17PB BPAC 675356.				
<b>Title:</b> JASSM ER Intelligent Telemetry Instrumentation Kit (ITIK) (cost shared by both projects) <b>Description:</b> ITIK replaces the current TIK used during flight testing. The ITIK is common to JASSM, JASSM-ER and Long Range Anti Ship Missile (LRASM). <b>FY 2016 Accomplishments:</b> Awarded ITIK development contract to support Critical Design Review (CDR), safety certification, and qualification testing. <b>FY 2017 Plans:</b> Complete ITIK development and testing in preparation for production. <b>FY 2018 Plans:</b> N/A		5.521	0.500	0.500
<b>Title:</b> JASSM ER Electronic Safe and Armed Fuze (ESAF) - Common to JASSM baseline and JASSM-ER (cost shared by both projects) <b>Description:</b> ESAF will resolve FMU-156 obsolescence and reliability issues, improve yield, and potentially lower costs. <b>FY 2016 Accomplishments:</b> Awarded ESAF prototype demonstration contract. Continued design work and pre-qualification testing to include cannon and sled testing. Began work on qualification follow-on effort. <b>FY 2017 Plans:</b> Award ESAF Qualification contract. Complete design verification and Insensitive Munitions testing. Conduct Critical Design Review. <b>FY 2018 Plans:</b> Complete ESAF environmental, safety, and aging qualification testing.		1.987	2.510	6.320
<b>Title:</b> Military Code (M-Code) receiver		0.005	12.175	1.600

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<b>C. Accomplishments/Planned Programs (\$ in Millions)</b>		<b>FY 2016</b>	<b>FY 2017</b>	<b>FY 2018</b>
<b>Description:</b> Development and integration of a GPS receiver capable of receiving Military Code (M-Code)  <b>FY 2016 Accomplishments:</b> Completed M-Code study.  <b>FY 2017 Plans:</b> Complete Brassboard development and testing. Award Pre-EMD contract with EMD option.  <b>FY 2018 Plans:</b> Continue Pre-EMD efforts.				
<b>Title:</b> JASSM ER Other Development/Safety/Survivability  <b>Description:</b> Develop and integrate advanced precision, navigation, and timing (PNT) capabilities (e.g. GPS, non-GPS, optical, passive, active, etc.), evaluations (study analysis), survivability enhancements to include Wing Replacement/ Chine Development and Integration, safety certification, flight testing, Diminishing Manufacturing Sources and Material Shortages (DMSMS), improved Data Link, ARHS, improved GNC, alternate payloads, and obsolescence issues.  <b>FY 2016 Accomplishments:</b> Other development contracts awarded for TIK/ITIK Flight Termination System (FTS) Lithium Ion battery, Bomb Impact Assessment (BIA) Weapons Portal, IT Dashboard Software Support, LM engineering support for Aviation and Missile Research, Development, and Engineering Center (AMRDEC).  <b>FY 2017 Plans:</b> Continue development/evaluations activities addressing JASSM's obsolescence plan directed activities: Improved GNC, anti-jam/anti-spoofing system, wing analysis, and other survivability enhancements. Continue Lithium Ion battery development, individual cell monitoring capability and qual testing. Support ground and flight tests required to verify hardware changes before introducing into production.  <b>FY 2018 Plans:</b> Continue development/evaluations activities addressing JASSM's obsolescence plan directed activities: Improved GNC, anti-jam/anti-spoofing system, and survivability enhancements. Support ground and flight test activity required to verify changed hardware before cutting into production. Continue study for long-term FTS-TIK battery development.		1.076	14.717	2.909
<b>Title:</b> JASSM ER Test Support  <b>Description:</b> Government Test Support for ESAF, ITIK, Wing Replacement, and M-Code. Includes flight test equipment, targets, test wing and range support, and other ground/flight test support.		0.632	0.100	0.500

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<b>Appropriation/Budget Activity</b> 3600: Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development				<b>R-1 Program Element (Number/Name)</b> PE 0207325F I Joint Air-to-Surface Standoff Missile (JASSM)					

  

<b>C. Accomplishments/Planned Programs (\$ in Millions)</b>	<b>FY 2016</b>	<b>FY 2017</b>	<b>FY 2018</b>
<p><b><i>FY 2016 Accomplishments:</i></b> Completed ESAF Cannon (8) and Sled tests (4). Continue ITIK development and flight test support to include test equipment, targets, range support, and other ground test support.</p> <p><b><i>FY 2017 Plans:</i></b> Continue ESAF and ITIK development tests. Begin Qual and flight test support to include test equipment, targets, range support, and other ground test support.</p> <p><b><i>FY 2018 Plans:</i></b> Continue ESAF, Warfighting Capability Enhancement, and Wing Replacement/Chine development and Integration. Begin Qual and flight test support to include test equipment, targets, range support, and other ground test support.</p>			
<b>Accomplishments/Planned Programs Subtotals</b>	9.221	30.002	29.932

  

<b>D. Other Program Funding Summary (\$ in Millions)</b>											
<b>Line Item</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>FY 2019</b>	<b>FY 2020</b>	<b>FY 2021</b>	<b>FY 2022</b>	<b>Cost To Complete</b>	<b>Total Cost</b>
• MPAF: BA02 Line Item # JASSM0: JASSM	425.578	431.645	441.367	0.000	441.367	416.791	477.688	512.462	470.545	504.500	5,923.762

  

**Remarks**

**E. Acquisition Strategy**  
JASSM-ER is the extended range version of the JASSM baseline missile (currently in full rate production). The initial JASSM-ER development contract, awarded in 2004, was Cost-Plus-Award-Fee. In 2008, the program office awarded a Cost-Plus-Incentive-Fee (CPIF) contract with performance incentives to complete the development effort. Current contract for ESAF is a Cost Plus Fixed Fee (CPFF) contract. The ITIK contract is a Cost Plus Fixed Fee (CPFF) contract.

**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: FY 2018 Air Force												Date: May 2017			
Appropriation/Budget Activity 3600 / 7						R-1 Program Element (Number/Name) PE 0207325F / Joint Air-to-Surface Standoff Missile (JASSM)				Project (Number/Name) 675356 / JASSM Extended Range (JASSM-ER)					
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
Warfighting Capability Enhancement	SS/CPAF	Lockheed Martin : Orlando, FL	0.000	0.000		0.000		6.646	Jan 2018	0.000		6.646	57.778	64.424	67.724
Wing Replacement/Chine Development, survivability enhancements, and Integration	SS/CPFF	Lockheed Martin : Orlando, FL	0.000	0.000		0.000		11.457	Jan 2018	0.000		11.457	67.200	78.657	84.000
ITIK	SS/CPFF	Lockheed Martin : Orlando, FL	0.398	5.521	Jun 2016	0.500	Jun 2017	0.500		0.000		0.500	0.000	6.919	7.819
ESAF	SS/CPFF	Lockheed Martin : Orlando, FL	6.186	1.987	Jun 2016	2.510	Jan 2017	6.320	Nov 2017	0.000		6.320	0.000	17.003	18.872
Military Code (M code) receiver	SS/CPFF	Lockheed Martin : Orlando, FL	0.900	0.005		12.175	Nov 2016	1.600	Jul 2018	0.000		1.600	47.512	62.192	74.610
JASSM-ER Phase ,I/ II development Test Missile Procurement (for DT/IT), parts upgrade, software updates, product improvements, survivability enhancements, LTIK, and obsolescence.	Various	Lockheed Martin : Orlando, FL	136.778	0.943	Mar 2016	14.517	Mar 2017	2.609	Mar 2018	0.000		2.609	45.057	199.904	192.109
Subtotal			144.262	8.456		29.702		29.132		0.000		29.132	217.547	429.099	445.134
Remarks															
-Intelligent Telemetry Instrumentation Kit (ITIK) -Legacy Telemetry Instrumentation Kits (L-TIK) -Electronic Safe and Arm Fuze (ESAF)															
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
Subtotal			-	-		-		-		-		-	-	-	-

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Exhibit R-3, RDT&E Project Cost Analysis: FY 2018 Air Force												Date: May 2017			
Appropriation/Budget Activity 3600 / 7						R-1 Program Element (Number/Name) PE 0207325F / Joint Air-to-Surface Standoff Missile (JASSM)				Project (Number/Name) 675356 / JASSM Extended Range (JASSM-ER)					
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
Government Test Support. Includes flight test equipment, targets, 96th Test Wing and Range support, AEDC test support, and other ground/flight test support as necessary.	Various	96 TW : Eglin AFB, FL	25.962	0.632	Jun 2016	0.100	Jun 2017	0.500	Jun 2018	0.000		0.500	2.100	29.294	31.644
6 IT/6 OT assets	SS/CPAF	Lockheed Martin : Orlando, FL	12.733	0.000		0.000		0.000		0.000		0.000	0.000	12.733	12.733
12 Operational Test (OT) assets	SS/FFP	Lockheed Martin : Orlando, FL	24.643	0.000		0.000		0.000		0.000		0.000	0.000	24.643	24.643
Subtotal			63.338	0.632		0.100		0.500		0.000		0.500	2.100	66.670	69.020
Remarks															
AEDC: Arnold Engineering Development Complex located at Arnold AFB, TN															
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 Administration (PMA). Provides program office oversight of development and upgrade activities.	Various	PMA : Eglin AFB, FL	1.612	0.133	Jul 2016	0.200	Jul 2017	0.300	Jul 2018	0.000		0.300	1.400	3.645	3.771
Subtotal			1.612	0.133		0.200		0.300		0.000		0.300	1.400	3.645	3.771
			Prior Years	FY 2016		FY 2017		FY 2018 Base		FY 2018 OCO		FY 2018 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals			209.212	9.221		30.002		29.932		0.000		29.932	221.047	499.414	-
Remarks															

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Exhibit R-4, RDT&amp;E Schedule Profile: FY 2018 Air Force

Date: May 2017

## Appropriation/Budget Activity

3600 / 7

## R-1 Program Element (Number/Name)

PE 0207325F / Joint Air-to-Surface Standoff  
Missile (JASSM)

## Project (Number/Name)

675356 / JASSM Extended Range (JASSM-  
ER)

	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
Warfighting Capability Enhancement																												
Wing Replacement/Chine Development, survivability enhancements, and Integration																												
ITIK Battery Development and Qualification (Phase 1,2, and 3)																												
ITIK Integration with JASSM and Test Equipment Development																												
ITIK Critical Design Review (CDR)																												
ITIK EMI																												
ITIK Flight Testing (LRASM)																												
ESAF Prototyping																												
ESAF Cannon Testing																												
ESAF Critical Design Review (CDR)																												
ESAF Sled Testing																												
ESAF Qualification Testing																												
ESAF Flight Testing																												
ESAF Production Readiness Review (PRR)																												
M-Code Study																												
M-Code brass board development and testing																												
M-Code Pre-EMD																												
M-Code Engineering and Manufacturing Development (EMD)																												
Diminishing Manufacture Sources and Obsolescence Evaluation/Development																												



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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 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0207325F / Joint Air-to-Surface Standoff Missile (JASSM)	<b>Project (Number/Name)</b> 675356 / JASSM Extended Range (JASSM-ER)	

**Schedule Details**

<b>Events</b>	<b>Start</b>		<b>End</b>	
	<b>Quarter</b>	<b>Year</b>	<b>Quarter</b>	<b>Year</b>
Warfighting Capability Enhancement	3	2018	4	2020
Wing Replacement/Chine Development, survivability enhancements, and Integration	3	2017	3	2020
ITIK Battery Development and Qualification (Phase 1,2, and 3)	1	2016	1	2020
ITIK Integration with JASSM and Test Equipment Development	3	2017	3	2018
ITIK Critical Design Review (CDR)	2	2016	2	2016
ITIK EMI	4	2016	3	2017
ITIK Flight Testing (LRASM)	3	2017	3	2017
ESAF Prototyping	1	2016	3	2017
ESAF Cannon Testing	3	2016	3	2016
ESAF Critical Design Review (CDR)	1	2018	3	2018
ESAF Sled Testing	4	2016	1	2017
ESAF Qualification Testing	2	2017	2	2020
ESAF Flight Testing	4	2019	2	2020
ESAF Production Readiness Review (PRR)	2	2019	2	2019
M-Code Study	1	2016	4	2016
M-Code brass board development and testing	1	2017	4	2017
M-Code Pre-EMD	4	2017	3	2019
M-Code Engineering and Manufacturing Development (EMD)	3	2019	3	2021
Diminishing Manufacture Sources and Obsolescence Evaluation/Development	1	2016	3	2022

**Note**

Prototype development/component level testing.