

UNCLASSIFIED

Exhibit R-2, RDT&E Budget Item Justification: PB 2019 Air Force										Date: February 2018		
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 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
Total Program Element	218.433	23.108	29.932	60.062	0.000	60.062	79.198	36.210	19.868	20.230	19.721	506.762
675356: JASSM Extended Range (JASSM-ER)	218.433	23.108	29.932	60.062	0.000	60.062	79.198	36.210	19.868	20.230	19.721	506.762
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Program MDAP/MAIS Code: 555

A. Mission Description and Budget Item Justification

This program provides a long range (over twice the range of JASSM Baseline), conventional air-to-surface, autonomous, precision-guided, low observable, standoff cruise missile compatible with fighter and bomber aircraft. The requirement is in the 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 development/integration efforts on the Intelligent Telemetry Instrumentation Kit (ITIK), the Electronic Safe Arm and Fuze (ESAF), the Military Code (M-Code) receiver, and Flight Termination System Telemetry Integration Kit (FTS-ITIK) batteries. FY16/17 studies led to survivability improvements via Wing Replacement/China Development/Integration and Warfighting Capability Enhancement (Software) to improve performance against emerging threats. Potential future efforts include Anti-Radiation Homing System (ARHS), improved Data Link capability for relocatable target attack, alternate payloads, improved Guidance Navigation Control (GNC), alternative FTS-ITIK power source evaluations, advanced JASSM survivability, and a smaller warhead. The program is also evaluating Diminishing Manufacturing Sources Material Shortages (DMSMS) and reviewing obsolescence issues.

This program element may include necessary civilian pay expenses required to manage, execute, and deliver JASSM weapon system 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.

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.

UNCLASSIFIED

Exhibit R-2, RDT&E Budget Item Justification: PB 2019 Air Force				Date: February 2018	
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)			
B. Program Change Summary (\$ in Millions)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Previous President's Budget	30.002	29.932	60.514	0.000	60.514
Current President's Budget	23.108	29.932	60.062	0.000	60.062
Total Adjustments	-6.894	0.000	-0.452	0.000	-0.452
• Congressional General Reductions	0.000	0.000			
• Congressional Directed Reductions	-8.100	0.000			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds	0.000	0.000			
• Congressional Directed Transfers	0.000	0.000			
• Reprogrammings	2.000	0.000			
• SBIR/STTR Transfer	-0.794	0.000			
• Other Adjustments	0.000	0.000	-0.452	0.000	-0.452
Change Summary Explanation FY17: -8.100M Congressional Directed Reduction for department requested realignment of M-Code funds and -\$794K for Small Business Innovative Research (SBIR) along with a \$2M reprogramming action.					
C. Accomplishments/Planned Programs (\$ in Millions)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Title: Warfighting Capability Enhancement	0.000	4.846	11.072	0.000	11.072
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 classified scenarios.					
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 classified scenarios.					
FY 2019 Base Plans: Continue design and development efforts for software and mission planning changes to enable the missile to maintain operational effectiveness in classified scenarios.					
FY 2019 OCO Plans: N/A					
FY 2018 to FY 2019 Increase/Decrease Statement:					

UNCLASSIFIED

Exhibit R-2, RDT&E Budget Item Justification: PB 2019 Air Force				Date: February 2018		
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)				
C. Accomplishments/Planned Programs (\$ in Millions)		FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
The increased funding is required for software coding of precision target module (PTM) and JASSM unique program component (UPC), both essential to the functionality of the enhanced software.						
<p>Title: Wing Replacement/Chine Development, survivability enhancement, and Integration</p> <p>Description: Provides increased standoff range, survivability, and improved vehicle stability/control across all operational scenarios.</p> <p>FY 2018 Plans: Continue to initiate design and development of replacement wings.</p> <p>FY 2019 Base Plans: Continue design and development efforts for wing sub-systems.</p> <p>FY 2019 OCO Plans: N/A</p> <p>FY 2018 to FY 2019 Increase/Decrease Statement: The increased funding is required to accelerate the Wing Replacement/Chine development, survivability enhancement and integration efforts, which are necessary to continue holding JASSM's current target set at risk. The reduced timeline for development and integration into production ensures more missiles are equipped with these improvements.</p>		0.000	8.251	22.157	0.000	22.157
<p>Title: JASSM ER Electronic Safe and Arm Fuze (ESAF) - Common to JASSM baseline and JASSM-ER (cost shared by both projects)</p> <p>Description: ESAF will resolve FMU-156 obsolescence and reliability issues, improve yield, and potentially lower costs.</p> <p>FY 2018 Plans: Continue ESAF environmental, safety, and qualification testing.</p> <p>FY 2019 Base Plans: Continue ESAF environmental, safety, and qualification testing.</p> <p>FY 2019 OCO Plans: N/A</p> <p>FY 2018 to FY 2019 Increase/Decrease Statement:</p>		4.159	6.783	6.365	0.000	6.365

UNCLASSIFIED

Exhibit R-2, RDT&E Budget Item Justification: PB 2019 Air Force				Date: February 2018		
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)				
C. Accomplishments/Planned Programs (\$ in Millions)		FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Funding decreased from FY2018 to FY2019 due to ramp down of environmental, safety, and qualification testing for Electronic Safe and Arm Fuze efforts.						
<p>Title: Military Code (M-Code) receiver</p> <p>Description: Development and integration of a GPS receiver capable of receiving Military Code (M-Code)</p> <p>FY 2018 Plans: Continue Pre-Engineering, Manufacturing and Development (EMD) efforts focused on risk reduction. EMD efforts will begin early design and integration work late FY18.</p> <p>FY 2019 Base Plans: Continue EMD early design and integration efforts.</p> <p>FY 2019 OCO Plans: N/A</p> <p>FY 2018 to FY 2019 Increase/Decrease Statement: Funding increased from FY2018 to FY2019 due to receiver development funding residing in a common PE. In FY19 funding transitioned to program PE.</p>		0.200	1.645	17.594	0.000	17.594
<p>Title: JASSM ER Other Development/Safety/Survivability</p> <p>Description: 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 safety certification, flight testing, DMSMS, improved Data Link, ARHS, improved GNC, alternate payloads, and obsolescence issues.</p> <p>FY 2018 Plans: Continue development/evaluations activities addressing JASSM's obsolescence plan directed activities: Improved GNC, anti-jam/anti-spoofing system, and survivability enhancements, evaluate smaller warhead. Support ground and flight test activity required to verify changed hardware before cutting into production. Evaluate long-term FTS-TIK alternate power source. Accomplish ITIK interoperability/compatibility testing and accomplish any remaining qualification efforts.</p> <p>FY 2019 Base Plans: Continue development/evaluations activities addressing JASSM's obsolescence plan directed activities: Improved GNC, anti-jam/anti-spoofing system, and survivability enhancements, evaluate smaller warhead.</p>		18.535	5.075	2.496	0.000	2.496

UNCLASSIFIED

Exhibit R-2, RDT&E Budget Item Justification: PB 2019 Air Force									Date: February 2018			
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)							
C. Accomplishments/Planned Programs (\$ in Millions)					FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total			
Support ground and flight test activity required to verify changed hardware before cutting into production. Continue evaluation for long-term FTS-TIK alternate power source. FY 2019 OCO Plans: N/A FY 2018 to FY 2019 Increase/Decrease Statement: Funding decreased from FY2018 to FY2019 due to ramp down of other development, safety, survivability efforts.												
Title: JASSM ER Test Support Description: Government Test Support for ESAF, Wing Replacement, and M-Code. Includes flight test equipment, targets, test wing and range support for threshold aircraft, and other ground/flight test support. FY 2018 Plans: Continue ESAF, Warfighting Capability Enhancement, and Wing Replacement/Chine development and Integration (Wind Tunnel Testing). Begin ESAF Qual, redesign, and flight test support to include test equipment, targets, range support, sled and cannon test, and other ground test support. FY 2019 Base Plans: Continue ESAF, Warfighting Capability Enhancement, and Wing Replacement/Chine development and Integration (Wind Tunnel Testing). Continue ESAF Qual, redesign, and flight test support to include test equipment, targets, range support, sled and cannon test, and other ground test support. FY 2019 OCO Plans: N/A FY 2018 to FY 2019 Increase/Decrease Statement: Funding decreased from FY2018 to FY2019 due to ramp down of qualification testing for Electronic Safe and Arm Fuze efforts.					0.214	3.332	0.378	0.000	0.378			
Accomplishments/Planned Programs Subtotals					23.108	29.932	60.062	0.000	60.062			
D. Other Program Funding Summary (\$ in Millions)												
Line Item	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost	
• MPAF 02 0207325F: JASSM	431.645	441.367	430.708	61.600	492.308	458.525	396.550	438.335	450.234	218.869	3,327.833	

UNCLASSIFIED

Exhibit R-2, RDT&E Budget Item Justification: PB 2019 Air Force								Date: February 2018			
Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>					R-1 Program Element (Number/Name) PE 0207325F <i>I Joint Air-to-Surface Standoff Missile (JASSM)</i>						
D. Other Program Funding Summary (\$ in Millions)											
<u>Line Item</u>	<u>FY 2017</u>	<u>FY 2018</u>	<u>FY 2019</u> <u>Base</u>	<u>FY 2019</u> <u>OCO</u>	<u>FY 2019</u> <u>Total</u>	<u>FY 2020</u>	<u>FY 2021</u>	<u>FY 2022</u>	<u>FY 2023</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
Remarks E. Acquisition Strategy JASSM's Acquisition Strategy was amended and approved on September 8, 2017. This amendment enables the JASSM program to introduce upgrades which ensure its viability as the threat environment evolves. All current development contracts utilize a Cost Plus type 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.											

UNCLASSIFIED

Exhibit R-3, RDT&E Project Cost Analysis: PB 2019 Air Force												Date: February 2018			
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 2017		FY 2018		FY 2019 Base		FY 2019 OCO		FY 2019 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		4.846	May 2018	11.072	Nov 2018	0.000		11.072	43.470	59.388	67.724
Wing Replacement/Chine Development, survivability enhancements, and Integration	SS/CPFF	Lockheed Martin : Orlando, FL	-	0.000		8.251	Jan 2018	21.857	Nov 2018	-		21.857	67.200	97.308	84.000
ESAF	SS/CPFF	Lockheed Martin : Orlando, FL	8.173	4.159	Dec 2016	6.783	Nov 2017	6.365	Nov 2018	-		6.365	6.305	31.785	18.872
Military Code (M code)	SS/CPFF	Lockheed Martin : Orlando, FL	0.905	0.200	Mar 2017	1.645	Nov 2017	17.594	Nov 2018	-		17.594	48.979	69.323	74.610
JASSM-ER Phase ,/I development Test Missile Procurement (for DT/IT), parts upgrade, software updates, product improvements, survivability enhancements, LTIK, ITIK, and obsolescence.	Various	Lockheed Martin : Orlando, FL	143.757	18.391	Apr 2017	4.775	Mar 2018	2.496	Mar 2018	-		2.496	5.773	175.192	192.109
Subtotal			152.835	22.750		26.300		59.384		0.000		59.384	171.727	432.996	N/A
Remarks -Intelligent Telemetry Instrumentation Kit (ITIK) -Legacy Telemetry Instrumentation Kits (L-TIK) -Electronic Safe and Arm Fuze (ESAF)															
Test and Evaluation (\$ in Millions)				FY 2017		FY 2018		FY 2019 Base		FY 2019 OCO		FY 2019 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	Various	96 TW : Eglin AFB, FL	26.489	0.214		3.332	Feb 2018	0.378	Mar 2019	-		0.378	2.100	32.513	31.644

UNCLASSIFIED

Exhibit R-3, RDT&E Project Cost Analysis: PB 2019 Air Force													Date: February 2018		
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 2017		FY 2018		FY 2019 Base		FY 2019 OCO		FY 2019 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
support, and other ground/flight test support as necessary.															
6 IT/6 OT assets	SS/CPAF	Lockheed Martin : Orlando, FL	12.733	0.000		-		-		-		-	0.000	12.733	12.733
12 Operational Test (OT) assets	SS/FFP	Lockheed Martin : Orlando, FL	24.642	0.000		-		-		-		-	0.000	24.642	24.643
Subtotal			63.864	0.214		3.332		0.378		-		0.378	2.100	69.888	N/A
Remarks AEDC: Arnold Engineering Development Complex located at Arnold AFB, TN															
Management Services (\$ in Millions)				FY 2017		FY 2018		FY 2019 Base		FY 2019 OCO		FY 2019 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	1.734	0.144	Mar 2017	0.300	Mar 2018	0.300	Mar 2019	-		0.300	1.400	3.878	3.771
Subtotal			1.734	0.144		0.300		0.300		-		0.300	1.400	3.878	N/A
			Prior Years	FY 2017		FY 2018		FY 2019 Base		FY 2019 OCO		FY 2019 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals			218.433	23.108		29.932		60.062		0.000		60.062	175.227	506.762	N/A
Remarks															

UNCLASSIFIED

Exhibit R-4, RDT&E Schedule Profile: PB 2019 Air Force

Date: February 2018

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 2017				FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023			
	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
<i>RDT&E Schedule Details</i>																												
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 EMI																												
ITIK Flight Testing (LRASM)																												
ESAF Prototyping																												
ESAF Critical Design Review (CDR)																												
ESAF Sled Testing																												
ESAF Qualification Testing																												
ESAF Flight Testing																												
ESAF Production Readiness Review (PRR)																												
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																												

UNCLASSIFIED

Exhibit R-4A, RDT&E Schedule Details: PB 2019 Air Force			Date: February 2018
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)	

Schedule Details

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

Note

Prototype development/component level testing.