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 5: System

Development & Demonstration (SDD)

R-1 Program Element (Number/Name)
PF 0604618F I Joint Direct Attack Munition

	,											
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	0.000	9.901	0.000	15.787	0.000	15.787	0.000	7.941	0.000	0.000	0.000	33.629
653891: JDAM M-Code Integration	0.000	9.901	0.000	15.787	0.000	15.787	0.000	7.941	0.000	0.000	0.000	33.629
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

Military Code (M-Code) receivers with Enhanced Anti-Jam (EAJ) will be developed and integrated in order to provide advanced positioning, navigation, and timing (PNT) capabilities to allow operations in anti-access/area denial (A2/AD) environments. M-Code and EAJ also provide increased accuracy, better signal acquisition, and advanced security.

This program element may include necessary civilian pay expenses required to manage, execute, and deliver M-Code/EAJ 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 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 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Previous President's Budget	9.901	0.000	15.906	0.000	15.906
Current President's Budget	9.901	0.000	15.787	0.000	15.787
Total Adjustments	0.000	0.000	-0.119	0.000	-0.119
 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	0.000	0.000			
Other Adjustments	0.000	0.000	-0.119	0.000	-0.119

Change Summary Explanation

No Significant Changes

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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 5: System

Development & Demonstration (SDD)

R-1 Program Element (Number/Name)
PE 0604618F / Joint Direct Attack Munition

C. Accomplishments/Planned Programs (\$ in Millions)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Title: M-Code/Enhanced Anti-Jam (EAJ)	9.901	0.000	15.787	0.000	15.787
Description: Develop and integrate M-Code receivers with EAJ to provide advanced positioning, navigation, and timing (PNT) capabilities, providing the capability to operate in adversarial anti-access/area denial (A2/AD) environments. M-Code receivers with EAJ also provides increased accuracy, better signal acquisition, and advanced security.					
FY 2018 Plans: N/A					
FY 2019 Base Plans: Develop and integrate M-Code/EAJ across the AFPEO weapons portfolio.					
FY 2019 OCO Plans: N/A					
FY 2018 to FY 2019 Increase/Decrease Statement: Funding increase due to reduced funds in the specific receiver development PE.					
Accomplishments/Planned Programs Subtotals	9.901	0.000	15.787	0.000	15.787

D. Other Program Funding Summary (\$ in Millions)

			FY 2019	FY 2019	FY 2019					Cost To	
<u>Line Item</u>	FY 2017	FY 2018	Base	<u>000</u>	<u>Total</u>	FY 2020	FY 2021	FY 2022	FY 2023	Complete	Total Cost
RDTE 04 PE 0604201F: Integrated	-	60.444	15.006	-	15.006	-	-	-	-	0.000	75.450

Avionics Planning and Development

Remarks

E. Acquisition Strategy

M-Code/EAJ effort uses a Family of Systems approach where the three prime weapons contractors develop receivers capable of operating in any of their AF weapons. The receivers are based on a common, internally-developed IRS, TRD, and threat scenario. This approach uses a combination of contract types based on acquisition phase (TMRR, Development, Production) and risk. The Weapons SPOs share a common development PE to allow flexibility in funding and planning, switching to individual PEs for receiver integration, OT, and production. The M-Code/EAJ Weapons Receiver Development effort leverages technology currently under development by the GPS-D MGUE program and will provide the warfighter with unmatched capability to operate in future A2/AD environments.

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O.	TOLAGOII ILD	
exhibit R-2, RDT&E Budget Item Justification: PB 2019 Air Force		Date: February 2018
ppropriation/Budget Activity 600: Research, Development, Test & Evaluation, Air Force I BA 5: System evelopment & Demonstration (SDD)	R-1 Program Element (Number/Name) PE 0604618F I Joint Direct Attack Munition	
Performance Metrics Please refer to the Performance Base Budget Overview Book for information Force performance goals and most importantly, how they contribute to our mi		e resources are contributing to Air

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Exhibit R-3, RDT&E F	Project C	ost Analysis: PB 2	2019 Air F	orce								Date:	February	2018	
Appropriation/Budge 3600 / 5	t Activity	/			•	•	lumber/Na ct Attack N	Project (Number/Name) 653891 / JDAM M-Code Integration							
Product Developmen	opment (\$ in Millions)			FY 2	2017	FY 2018			2019 ase	FY 2	2019 CO	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	Total Cost	Target Value of Contract
M-Code/EAJ Receiver chip development	MIPR	DMEA : McClellan, CA	0.000	9.901	Dec 2017	0.000		14.487	Dec 2018	0.000		14.487	Continuing	Continuing	-
M-Code/EAJ Receiver Integration	Various	Not specified. : TBD	0.000	0.000		0.000		0.000		0.000		0.000	Continuing	Continuing	-
		Subtotal	0.000	9.901		0.000		14.487		0.000		14.487	Continuing	Continuing	N/A
Test and Evaluation ((\$ in Milli	ons)		FY 2	2017	FY 2	2018		2019 ase	FY 2	2019 CO	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	Total Cost	Target Value of Contract
Boeing M-Code	SS/TBD	Boeing : St Louis, MO	0.000	0.000		0.000		1.300	Jun 2019	0.000		1.300	Continuing	Continuing	-
		Subtotal	0.000	0.000		0.000		1.300		0.000		1.300	Continuing	Continuing	N/A
			Prior Years	FY 2	2017	FY 2	2018		2019 ase	FY 2	2019 CO	FY 2019 Total	Cost To	Total Cost	Target Value of Contract
		Project Cost Totals	0.000	9.901		0.000		15.787		0.000		15.787	Continuing	Continuing	N/A

Remarks

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Exhibit R-4, RDT&E Schedule Profile: PB 2019	Air F	orce																				Date	: Fe	bru	ary 2	2018	3	
Appropriation/Budget Activity 3600 / 5	R-1 Program Element (Number/N PE 0604618F / Joint Direct Attack														Project (Number/Name) 653891 / JDAM M-Code Integration													
		FY	2017	7		FY 2	2018			FY 2	2019	•		FY 2	2020			FY 2	2021			FY 2	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
M-Code/EAJ Receivers		,		,				·							·													
M-Code/EAJ Receiver chip development																												
M-Code/EAJ Receiver Integration																												
M-Code/EAJ Test and Evaluation																												_

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Exhibit R-4A, RDT&E Schedule Details: PB 2019 Air Force			Date: February 2018
1	, ,	, ,	umber/Name)
3600 / 5	PE 0604618F I Joint Direct Attack Munition	653891 <i>I J</i>	DAM M-Code Integration

Schedule Details

	St	art	Er	nd
Events by Sub Project	Quarter	Year	Quarter	Year
M-Code/EAJ Receivers				
M-Code/EAJ Receiver chip development	4	2017	4	2020
M-Code/EAJ Receiver Integration	1	2020	3	2022
M-Code/EAJ Test and Evaluation	2	2019	4	2020

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