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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 I BA 5: System Development & Demonstration (SDD)					R-1 Program Element (Number/Name) PE 0701212F I Automated Test Systems							
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	-	17.850	13.653	2.787	0.000	2.787	17.200	9.918	2.886	23.000	Continuing	Continuing
6506TE: Test And Evaluation Support Budget Authority	-	17.850	13.653	2.787	0.000	2.787	17.200	9.918	2.886	23.000	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		
Program MDAP/MAIS Code: 6506												

Note

The Automatic Test System program office is responsible for developing, acquiring and sustain Automatic Test Systems for the United States Air Force (USAF).

The Bomber Armament Tester is replacing six legacy testers and combining their capabilities into one tester. The Bomber Armament Tester will support the B-2, B-1 and B-52 platforms.

The Common Aircraft Portable Reprogramming Equipment (CAPRE) is a secure common Memory Loader Verifier (MLV) that loads operational flight programs for 32 USAF weapons systems. Weapon Systems include but are not limited to A-10, B-1, B-52, C-5, C-17, C-130, CV-22, F-15, F-16, H-60 and KC-46.

A. Mission Description and Budget Item Justification

The Bomber Armament Tester will ensure that our USAF bomber fleet can conduct nuclear deterrence, global power projection and global strike operations to support the President of the United States and Combatant Commanders by providing a reliable, cyber secure, and sustainable tester. The tasks are to develop a common bomber armament tester and the Test Program Sets (Software, Hardware, and Documentation) to test the armament release equipment on the bombers.

RDT&E efforts support development, testing, and producibility of the Bomber Armament Tester and Test Program Sets. The program will utilize an incremental development approach with B-2 as Increment 1, B-1 as Increment 2, and B-52 as Increment 3.

The Common Aircraft Portable Reprogramming Equipment (CAPRE) Secure Memory Loader Verifier (SMLV) is a secure common memory loader verifier that loads operational flight programs to the weapon systems. . CAPRE leads the fleet on Cyber initiatives and is government owned and developed. CAPRE supports 32 USAF weapon systems including but not limited to A-10, B-1, B-52, C-5, C-17, C-130, CV-22, F-15, F-16, H-60 and KC-46.

RDT&E effort includes developing a Network Interface Module (NIM) that provides additional cyber hardening to the CAPRE system and redesigning the current CAPRE system to adapt to the NIM. RDT&E effort also includes software development for NIM interfaces and new weapons systems moving to the CAPRE system from other MLV systems. The goal is to provide one common cyber secure MLV for the Air Force that minimizes cyber vulnerabilities in weapon systems.

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This program element may include necessary civilian pay expenses required to manage, execute, and deliver Automatic Test Systems Program Office 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 element also includes program administrative cost for the Automatic Test Systems program office and funds the cost of studies and research to support the Automatic Test Systems fleet.						
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		18.528	13.653	0.000	0.000	0.000
Current President's Budget		17.850	13.653	2.787	0.000	2.787
Total Adjustments		-0.678	0.000	2.787	0.000	2.787
• 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		-0.678	0.000			
• Other Adjustments		0.000	0.000	2.787	0.000	2.787
Change Summary Explanation						
FY 2020 funding increase restores Automated Test System line						
C. Accomplishments/Planned Programs (\$ in Millions)				FY 2018	FY 2019	FY 2020
Title: Bomber Armament Tester				1.500	13.653	0.000
Description: New Common Bomber Armament Tester for B-1, B-2, and B-52.						
FY 2019 Plans:						

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C. Accomplishments/Planned Programs (\$ in Millions)							FY 2018	FY 2019	FY 2020		
- Continue to develop Bomber Armament Tester and Test Program Sets for use with B-2 - Conduct additional test with B-2 - Requirements analysis for increments 1 and 2. This will include the most complex B-1 and B-52 test program set development. FY 2020 Plans: No FY20 funding for Bomber Armament Tester FY 2019 to FY 2020 Increase/Decrease Statement: Funding ramp down. Will address in future budget requests											
Title: Common Aircraft Portable Reprogramming Equipment (CAPRE) Description: Development of a common cyber secure Memory Loader Verifier for the Air Force. FY 2019 Plans: N/A FY 2020 Plans: Development of Aircraft Adapter Group (AAG) software and cabling to re-host F-16 Viper and legacy CAPRE groups to the NIM FY 2019 to FY 2020 Increase/Decrease Statement: Funding restores CAPRE efforts							16.350	0.000	2.787		
Accomplishments/Planned Programs Subtotals							17.850	13.653	2.787		
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 07 00071: Replacement Support Equipment	7.782	12.000	-	-	-	-	-	-	-	0.000	19.782
Remarks Other program funding includes procurement funds for Bomber Armament Tester Program and the Common Aircraft Portable Reprogrammable Equipment.											
E. Acquisition Strategy Acquisition Strategy for the Bomber Armament Tester (BAT) was approved by AFPEO/ Agile Combat Support on 12 November 2015 . The BAT program will use an incremental approach based on customer needs to satisfy this requirement. Increment 1 includes the development of the core test set, the B-2A requirements and development of the most complex B-1B and B-52 test program sets. Increment 2 consist of the B-1B development and Increment 3 consists of the B-52H requirements.											

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Currently increments 2 and 3 are unfunded through the FYDP. The BAT program will utilize full and open competition to award the contract. Contract awarded September 28, 2017.		
The Acquisition strategy for Common Aircraft Portable Reprogrammable Equipment (CAPRE) Secure Memory Loader Verifier. (SMLV) is to use the original government manufacturer to develop the NIM , software and hardware development. Acquisition Strategy for CAPRE was approved by the Milestone Decision Authority in June 2017.		
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 0701212F / Automated Test Systems				Project (Number/Name) 6506TE / Test And Evaluation Support Budget Authority					
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
CAPRE/CAPRE SMLV Development	PO	309th OO-ALC : UT	-	15.151	Jun 2018	-		0.877	Oct 2019	-		0.877	Continuing	Continuing	-
BAT Development	C/CPAF	Not specified. : CA	-	-		9.500	Jul 2019	-		-		-	Continuing	Continuing	-
Subtotal			-	15.151		9.500		0.877		-		0.877	Continuing	Continuing	N/A
Remarks															
Product Development Cost include the development of the Bomber Armament Test Sets (Units under test Software, hardware and Technical Data), Technical Data and maintenance of Government Furnished Equipment.															
Development efforts include developing a Network Interface Module (NIM) that provides additional cyber hardening to the CAPRE system and redesigning the current CAPRE system to adapt to the NIM. Development effort also include software development for NIM interfaces and new weapons systems moving to the CAPRE system from other MLV systems. The goal is to provide one common cyber secure MLV for the Air Force.															
Support (\$ 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
Logistic Support	C/CPIF	Not specified. : NV	-	0.688		-		-		-		-	Continuing	Continuing	-
Subtotal			-	0.688		-		-		-		-	Continuing	Continuing	N/A
Remarks															
Support Cost include Independent verification and validation support, Nuclear Certification Support and Cyber Security authority support.															
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
Development and Operation Testing support	C/CPIF	Not specified. : NV	-	0.393	Jan 2019	2.365		-		-		-	Continuing	Continuing	-
Subtotal			-	0.393		2.365		-		-		-	Continuing	Continuing	N/A

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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
Remarks Environmental testing of the Bomber Armament Tester and operational testing of the test program sets for the B-2 and most complex B-1 and B-52															

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
BAT Travel	Various	Not specified. : NV	-	0.100	Sep 2018	0.100	Sep 2019	0.100	Sep 2020	-		0.100	Continuing	Continuing	-
BAT Program Management Support	C/FFP	Not specified. : NV	-	1.268	May 2018	1.268	May 2019	1.268	May 2020	-		1.268	Continuing	Continuing	-
CAPRE/CAPRE SMLV Travel	Various	Not specified. : NV	-	0.100	Sep 2018	0.100	Sep 2019	0.050	Sep 2019	-		0.050	Continuing	Continuing	-
CAPRE/ CAPRE SMLV Program Management Support	C/FFP	Not specified. : NV	-	0.150	Jun 2018	0.320	May 2019	0.492	Jun 2020	-		0.492	Continuing	Continuing	-
Subtotal			-	1.618		1.788		1.910		-		1.910	Continuing	Continuing	N/A

Remarks PMA costs include travel to support the development of the Bomber Armament Tester. PMA cost also include an Information Assurance expert, Assistance and advisory service contractors to provide support to the program office during the development of the program. The program element may include necessary civilian pay expenses required to manage, execute and deliver Automatic Test System capability.															
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			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			-	17.850		13.653		2.787		-		2.787	Continuing	Continuing	N/A

Remarks															
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Exhibit R-4, RDT&E Schedule Profile: PB 2020 Air Force										Date: February 2019	
Appropriation/Budget Activity 3600 / 5					R-1 Program Element (Number/Name) PE 0701212F / Automated Test Systems					Project (Number/Name) 6506TE / Test And Evaluation Support Budget Authority	

	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
<i>Automatic Test Systems</i>																												
BAT Milestone C Decision																												
Inc 2 EMD - B-1B TPS																												
TPS FIAT (PCA/FCA)																												
CAPRE NIM Initial prototyping																												
CAPRE CDR																												
CAPRE NIM Baseline Design/Drawing and Software																												
CAPRE Software Development (Weapon Sytem Transition)																												
Cable Design																												

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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 0701212F / <i>Automated Test Systems</i>	Project (Number/Name) 6506TE / <i>Test And Evaluation Support Budget Authority</i>

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<i>Automatic Test Systems</i>				
BAT Milestone C Decision	4	2019	4	2019
Inc 2 EMD - B-1B TPS	3	2020	3	2021
TPS FIAT (PCA/FCA)	3	2020	4	2020
CAPRE NIM Initial prototyping	3	2018	4	2018
CAPRE CDR	3	2018	3	2018
CAPRE NIM Baseline Design/Drawing and Software	3	2018	2	2019
CAPRE Software Development (Weapon Sytem Transition)	3	2018	4	2019
Cable Design	3	2018	4	2019

Note

Schedule reflects increment one EMD. Increments two and three are currently unfunded.

CAPRE is government designed and development. Plan is to have original government manufacturer to handle this development effort.