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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 0605213F / F-22 Modernization Increment 3.2B							
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	470.897	67.717	13.600	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	552.214
654785: F-22 INCREMENT 3.2B	470.897	67.717	13.600	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	552.214
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		
Program MDAP/MAIS Code: 474												
<p>Note</p> <p>All Increment 3.2B efforts and associated funding prior to FY 2013 are included in the F-22A Squadrons budget documentation, PE 0207138F and other outside funding Program Elements (PE). Prior year funding includes: PE 0207138F (FY 2004-FY 2012) \$422.4M; PE 0207163F (FY 2010-FY 2013) \$39.8M; PE 0207445F (FY 2007-FY 2010) \$39.6M; PE 0200001F (FY 2007) \$32.9M</p> <p>A. Mission Description and Budget Item Justification</p> <p>Increment 3.2B will integrate the newest air-to-air intercept missiles (i.e., AIM-9X and AIM-120D), further improve the Electronic Protection (EP) capability over Increment 3.2A, and enhance the F-22's geolocation capability from the Increment 3.1 baseline with the addition of Geolocation 2. Increment 3.2B will include the Enhanced Stores Management System (ESMS), as well as Common Weapon Engagement Zone (WEZ), and an Intra-Flight Datalink (IFDL) improvement to increase IFDL bandwidth and enable cooperative functions required to realize Increment 3.2B capabilities.</p> <p>Increment 3.2B will develop, certify and integrate a new platform operational flight program to ensure the system interoperability and performance of all increment-level developments.</p> <p>The development program includes development, studies, and analysis to enhance the air vehicle and training system to improve/enhance F-22 weapons, communications, Electronic Warfare, and Intelligence Surveillance Reconnaissance (ISR) capabilities.</p> <p>Funds may be used to resolve emerging safety of flight and diminishing manufacturing sources issues, accommodate technology insertion and fulfill Federal Aviation Administration (FAA) or other mandates necessary to ensure continued aircrew safety and mission effectiveness. Additionally, this program element may include necessary civilian pay expenses required to manage, execute, and deliver F-22 weapon system capability.</p> <p>This program element may include necessary civilian pay expenses required to manage, execute, and deliver F-22 Increment 3.2B 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.</p> <p>BA5 - This program is in Budget Activity 5, System Development and Demonstration (SDD) because it has pass Milestone B approval and is conducting engineering and manufacturing development tasks aimed at meeting validated requirements prior to full rate production</p>												

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B. Program Change Summary (\$ in Millions)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	
Previous President's Budget	70.290	13.600	0.000	0.000	0.000	
Current President's Budget	67.717	13.600	0.000	0.000	0.000	
Total Adjustments	-2.573	0.000	0.000	0.000	0.000	
• 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	-2.573	0.000				
• Other Adjustments	0.000	0.000	0.000	0.000	0.000	
Change Summary Explanation FY17 reduction of -\$2.573M for Small Business Innovative Research (SBIR)						
C. Accomplishments/Planned Programs (\$ in Millions)				FY 2017	FY 2018	FY 2019
Title: F-22 Increment 3.2B				38.707	1.148	0.000
Description: The F-22 Increment 3.2B Modernization Program consists of the studies, analysis, demonstrations, and hardware/ software development necessary to provide Intra-Flight Data Link improvements, Electronic Protection, AIM-9X and AIM-120D integration with Common Weapon Engagement Zone, Geolocate 2.0 and Stores Management System Common Split Bus. The Enhanced Stores Management System (ESMS) program is a hardware development program required to integrate any new weapons on the F-22 beyond Increment 3.1. Includes mission support of the F-22 Program Office: travel, computer costs, and other miscellaneous contract support.						
FY 2018 Plans: F-22 Increment 3.2B will complete its software development, coding integration, and testing.						
FY 2019 Plans: N/A						
FY 2018 to FY 2019 Increase/Decrease Statement: n/a						
Title: Combined Test Force (CTF)				21.100	12.452	0.000

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C. Accomplishments/Planned Programs (\$ in Millions)										FY 2017	FY 2018	FY 2019
Description: The F-22 Combined Test Force (CTF), located at Edwards Air Force Base, conducts testing to assess performance and military utility of Increment 3.2B. The CTF uses operationally relevant ground and flight test scenarios to identify Increment 3.2B performance deficiencies. This funds Inc 3.2B unique test costs.												
FY 2018 Plans: The CTF will complete final developmental flight test for Increment 3.2B Flight Test execution.												
FY 2019 Plans: N/A												
FY 2018 to FY 2019 Increase/Decrease Statement: N/A												
Title: Lab Test & Operations										7.910	0.000	0.000
Description: Increment 3.2B Lab Test & Operations plans and conducts system integration and testing of software builds within the suite of F-22 system integration laboratories: the Agile Integration Lab (AIL); the Raptor Integration Lab (RaIL); the Air Combat Simulation (ACS) Lab; the Vehicle Management System (VMS); Vehicle Integration Facility (VIF); and the Vehicle System Simulator (VSS).												
FY 2018 Plans: N/A												
FY 2019 Plans: N/A												
FY 2018 to FY 2019 Increase/Decrease Statement: N/A												
Accomplishments/Planned Programs Subtotals										67.717	13.600	0.000
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	
• RDTE 07 PE 0207138F: F-22A Squadrons, RDT&E*	286.270	413.149	315.587	-	315.587	423.296	485.152	476.668	-	Continuing	Continuing	
• APAF 05 Line Item F2232B: Increment 3.2B**	78.410	105.756	13.081	-	13.081	20.373	6.013	-	-	0.000	340.617	

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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>
• APAF 05 Line Item F02200: <i>F-22A***</i>	163.008	176.630	257.891	-	257.891	257.310	347.665	457.265	-	Continuing	Continuing
• APAF 000999: <i>Initial Spares</i>	4.431	7.732	0.000	-	0.000	0.000	-	-	-	0.000	14.973
• RDTE 07 PE 0207163F: <i>AIM-120D, AMRAAM</i> <i>T&E, RDT&E****</i>	-	-	0.000	-	0.000	0.000	0.000	-	-	0.000	50.450

Remarks

NOTES:

*F-22A Squadrons, RDT&E/PE 0207138F includes F-22A Squadrons modernization and development. Both PEs 0207138F and 0605213F share lab and Combined OTF Test Force infrastructure support costs across the F-22 enterprise.

**Increment 3.2B, APAF/PE 0207138F, F2232B includes BP11 (Aircraft Modifications) for Increment 3.2B only.

***F-22A Squadrons, APAF/PE 0207138F, F02200 includes BPs 11 (Aircraft Modifications), 13 (Post-Production Support), 16 (Initial Spares), and 19 (Depot Activation) for F-22 Squadrons only.

****AIM-120D, AMRAAM RDT&E/PE 0207163F, funding provides for the AIM-120D development as a part of the F-22 Increment 3.2B effort.

E. Acquisition Strategy

The Raptor Enhancement Development & Integration II (REDI II) contract is an Indefinite Delivery/Indefinite Quantity Ordering (ID/IQ) contract that maximizes flexibility to start, stop, accelerate and decelerate projects as required. The REDI II contract is a follow-on to the initial REDI contract. REDI II provides maximum flexibility to manage various modernization projects. The REDI II contract allows for the issuance of orders for efforts associated with the planning, analysis, design, development, qualification, test and documentation of F-22 weapon system performance enhancements, life-cycle improvements, Operational Flight Program (OFP) upgrades, and associated efforts essential to accomplishing the F-22 mission.

Overall the F-22 program is managed with the F-22 SPO leveraging Department of Defense and Air Force guidance and policies to evaluate impacts to performance, schedule, and cost, working closely with key stakeholders to affirm the baseline schedule supporting the initial Increment 3.2B program Initial Operational Capability (IOC) in FY 2019. The F-22 SPO, prime contractors, supporting program offices, and Air Combat Command (ACC) are key stakeholders in risk management.

The F-22 program is transitioning to organic management of major sustainment functions to include: customer services, field support, and fleet management.

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<u>F. Performance Metrics</u> <p>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.</p>		

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2019 Air Force												Date: February 2018			
Appropriation/Budget Activity 3600 / 5						R-1 Program Element (Number/Name) PE 0605213F / F-22 Modernization Increment 3.2B				Project (Number/Name) 654785 / F-22 INCREMENT 3.2B					
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
Increment 3.2B	Various	Lockheed Martin : Ft. Worth, TX	445.607	38.707	Nov 2016	1.148	Nov 2017	-		-		-	0.000	485.462	488.035
Subtotal			445.607	38.707		1.148		-		-		-	0.000	485.462	N/A
Remarks															
Target Value of Contract includes only active REDI/REDI II delivery orders DO 0070, DO 0071, and DO 0004. Target Value of Contract and Total cost do not match due to prior year costs executed in F-22 Squadrons PE 0207138F and other outside funded PE's as documented in the R-2A.															
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
Combined Test Force	Various	Various : Various	25.290	21.100	Dec 2016	12.452	Oct 2017	-		-		-	0.000	58.842	-
Laboratory Test Operations	SS/ Various	Lockheed Martin : Fort Worth, TX	-	7.910	Dec 2016	-		-		-		-	0.000	7.910	-
Subtotal			25.290	29.010		12.452		-		-		-	0.000	66.752	N/A
Remarks															
FY12 and prior year costs for Increment 3.2B are shown under PE 0207138F. FY13 and later are shown under PE 0605213F.															
			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			470.897	67.717		13.600		-		-		-	0.000	552.214	N/A
Remarks															

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Exhibit R-4, RDT&E Schedule Profile: PB 2019 Air Force																				Date: February 2018													
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Exhibit R-4A, RDT&E Schedule Details: PB 2019 Air Force			Date: February 2018
Appropriation/Budget Activity 3600 / 5	R-1 Program Element (Number/Name) PE 0605213F / <i>F-22 Modernization Increment 3.2B</i>	Project (Number/Name) 654785 / <i>F-22 INCREMENT 3.2B</i>	

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<i>F-22 Increment 3.2B</i>				
FY17: Continue to develop software capabilities, fix software related issues, and perform ground lab tests to support Developmental Test & Operational Test	1	2017	3	2017
FY18: Continue to resolve software relates issues, complete Air Combat Simulation accreditation, perform live fire and weapons flight tests for Operational Test	4	2017	3	2018

Note

~ Increment 3.2B efforts funded prior to FY13 are reflected in the F-22A Squadrons documentation, PE 0207138F.

~ Increment 3.2B HW Development/Risk Reduction/Lab Equipment began FY2006.