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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 5: System Development & Demonstration (SDD)					R-1 Program Element (Number/Name) PE 0605213F I F-22 Modernization Increment 3.2B							
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	362.577	115.603	70.290	13.600	0.000	13.600	0.000	0.000	0.000	0.000	0.000	562.070
654785: F-22 INCREMENT 3.2B	362.577	115.603	70.290	13.600	0.000	13.600	0.000	0.000	0.000	0.000	0.000	562.070
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>BA5 - 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.</p>												

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3600: Research, Development, Test & Evaluation, Air Force I BA 5: System Development & Demonstration (SDD)		PE 0605213F / F-22 Modernization Increment 3.2B				
B. Program Change Summary (\$ in Millions)	FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total	
Previous President's Budget	140.640	70.290	0.000	0.000	0.000	
Current President's Budget	115.603	70.290	13.600	0.000	13.600	
Total Adjustments	-25.037	0.000	13.600	0.000	13.600	
• 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	-20.000	0.000				
• SBIR/STTR Transfer	-5.037	0.000				
• Other Adjustments	0.000	0.000	13.600	0.000	13.600	
Change Summary Explanation						
2016: The F-22 identified \$20M for higher Air Force priorities.						
2018: Increased funds will allow the 3.2B RDT&E efforts to complete.						
C. Accomplishments/Planned Programs (\$ in Millions)				FY 2016	FY 2017	FY 2018
Title: F-22 Increment 3.2B				95.820	41.280	1.148
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 2016 Accomplishments: F-22 Increment 3.2B software development, coding, integration, and testing. Milestone C approved on 2 Aug 2016.						
FY 2017 Plans: F-22 Increment 3.2B will continue its software development, coding integration, and testing.						
FY 2018 Plans: F-22 Increment 3.2B will complete its software development, coding integration, and testing.						
Title: Combined Test Force (CTF)				12.700	21.100	12.452

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C. Accomplishments/Planned Programs (\$ in Millions)		FY 2016	FY 2017	FY 2018
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 2016 Accomplishments: The CTF completed developmental flight test in preparation for the Low Rate Initial Production (LRIP) decision, Milestone C, which was 2 Aug 2016. FY 2017 Plans: The CTF will continue developmental flight test for Increment 3.2B Flight Test execution. FY 2018 Plans: The CTF will complete final developmental flight test for Increment 3.2B Flight Test execution.				
Title: Lab Test & Operations 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 2016 Accomplishments: Increment 3.2B Lab Test & Operations planned and conducted testing for software build-up and integration on production representative hardware in the F-22 system integration laboratories that include: the AIL, the RaIL, the ACS lab, the VMS, the VIF, and the VSS. To enhance software maturation, the developmental software labs delivered several planned software versions to support developmental flight test execution. Increment 3.2B Lab Test & Operations delivered the fully integrated Operational Flight Program (OFP) required to continue developmental flight test and resolve performance deficiencies. FY 2017 Plans: Increment 3.2B Lab Test & Operations will conclude testing on production representative hardware in the F-22 system integration laboratories. Increment 3.2B Lab Test & Operations will deliver the fully integrated OFPs required to complete developmental flight test and resolve performance deficiencies in preparation for Air Force Operational Flight Test Evaluation.		7.083	7.910	-
Accomplishments/Planned Programs Subtotals		115.603	70.290	13.600

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D. Other Program Funding Summary (\$ in Millions)											
Line Item	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
• RDT&E: BA07: PE 0207138F: F-22A Squadrons, RDT&E*	172.848	286.270	413.149	0.000	413.149	315.587	423.296	485.152	476.668	Continuing	Continuing
• APAF: BA05: Line Item # F2232B: Increment 3.2B**	64.325	78.410	105.756	0.000	105.756	13.081	20.373	6.013	0.000	0.000	340.617
• APAF: BA05: Line Item # F02200: F-22A***	111.077	163.008	176.630	0.000	176.630	257.891	257.310	347.665	457.265	Continuing	Continuing
• APAF: BA056: 000999: Initial Spares	2.822	4.431	7.732	0.000	7.732	0.000	0.000	0.000	0.000	0.000	14.973
• RDT&E: BA07: PE 0207163F: AIM-120D, AMRAAM T&E, RDT&E****	5.820	0.000	0.000	0.000	0.000	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.											

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<p>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.</p> <p>The F-22 program is transitioning to organic management of major sustainment functions to include: customer services, field support, and fleet management.</p> <p>F. Performance Metrics</p> <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: FY 2018 Air Force												Date: May 2017			
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 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
Increment 3.2B	Various	Lockheed Martin : Ft. Worth, TX	303.082	95.820	Nov 2015	41.280	Nov 2016	1.148	Nov 2017	0.000		1.148	0.000	441.330	488.035
Subtotal			303.082	95.820		41.280		1.148		0.000		1.148	0.000	441.330	488.035
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.															
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			-	-		-		-		-		-	-	-	-
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
Combined Test Force	Various	Various : Various	12.590	12.700	Dec 2015	21.100	Dec 2016	12.452	Oct 2017	0.000		12.452	0.000	58.842	-
Laboratory Test Operations	SS/ Various	Lockheed Martin : Fort Worth, TX	46.905	7.083	Nov 2015	7.910	Dec 2016	0.000		0.000		0.000	0.000	61.898	-
Subtotal			59.495	19.783		29.010		12.452		0.000		12.452	0.000	120.740	-
Remarks															
FY12 and prior year costs for Increment 3.2B are shown under PE 0207138F. FY13 and later are shown under PE 0605213F.															
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
Subtotal			-	-		-		-		-		-	-	-	-

UNCLASSIFIED

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			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			362.577	115.603		70.290		13.600		0.000		13.600	0.000	562.070	-

Remarks

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Exhibit R-4, RDT&E Schedule Profile: FY 2018 Air Force			Date: May 2017		
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	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
Increment 3.2B Code, Integration, and Test																												
Increment 3.2B Critical Design Review (CDR)																												
Increment 3.2B Milestone C																												
Increment 3.2B Initial Operational Test & Evaluation (IOT&E)																												

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Exhibit R-4A, RDT&E Schedule Details: FY 2018 Air Force			Date: May 2017
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Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
Increment 3.2B Code, Integration, and Test	1	2016	1	2018
Increment 3.2B Critical Design Review (CDR)	1	2016	1	2016
Increment 3.2B Milestone C	4	2016	4	2016
Increment 3.2B Initial Operational Test & Evaluation (IOT&E)	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.