

UNCLASSIFIED

Exhibit R-2, RDT&E Budget Item Justification: PB 2014 Air Force **DATE:** April 2013

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>System Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0605213F: <i>F-22 Modernization Increment 3.2B</i>
---	---

COST (\$ in Millions)	All Prior Years	FY 2012	FY 2013 [#]	FY 2014 Base	FY 2014 OCO ^{##}	FY 2014 Total	FY 2015	FY 2016	FY 2017	FY 2018	Cost To Complete	Total Cost
Total Program Element	0.000	0.000	140.100	131.100	-	131.100	137.700	86.300	34.600	1.423	Continuing	Continuing
654785: <i>F-22 INCREMENT 3.2B</i>	0.000	0.000	140.100	131.100	-	131.100	137.700	86.300	34.600	1.423	Continuing	Continuing
Quantity of RDT&E Articles	9	0	0	0		0	0	0	0	0		

MDAP/MAIS Code(s): 474

[#] FY 2013 Program is from the FY 2013 President's Budget, submitted February 2012

^{##} The FY 2014 OCO Request will be submitted at a later date

Note

In FY13, a separate Program Element has been created, per direction of DoD, for Increment 3.2B in support of milestone B preparations. All Increment 3.2B efforts and funding prior to FY13 continue to be shown in the F-22 Squadrons Program documentation.

The Cost to Complete and Total Cost for MDAP projects in this program element are documented in the R3. The Cost to Complete and Total Cost on the R2 are entered as "Continuing" and not reflective of the total cost for MDAP projects since the R2 does not account for prior years funding.

A. Mission Description and Budget Item Justification

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-22s geolocation capability from the Increment 3.1 baseline with the addition of the Geolocation 2 candidate. Increment 3.2B will include the Enhanced Stores Management System (ESMS), as well as, an Intra-Flight Datalink (IFDL) improvement to increase IFDL bandwidth and enable cooperative functions required to realize Increment 3.2B candidates.

In addition to the aforementioned hardware modifications and integration requirements, 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.

The development program enhances the air vehicle and training system to improve/enhance F-22 weapons, communications, and Intelligence Surveillance Reconnaissance (ISR) capabilities.

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.

UNCLASSIFIED

Exhibit R-2, RDT&E Budget Item Justification: PB 2014 Air Force	DATE: April 2013
--	-------------------------

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>System Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0605213F: <i>F-22 Modernization Increment 3.2B</i>
---	---

B. Program Change Summary (\$ in Millions)	FY 2012	FY 2013	FY 2014 Base	FY 2014 OCO	FY 2014 Total
Previous President's Budget	0.000	140.100	174.700	-	174.700
Current President's Budget	0.000	140.100	131.100	-	131.100
Total Adjustments	0.000	0.000	-43.600	-	-43.600
• Congressional General Reductions	-	0.000			
• Congressional Directed Reductions	-	0.000			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds	-	0.000			
• Congressional Directed Transfers	-	0.000			
• Reprogrammings	0.000	0.000			
• SBIR/STTR Transfer	0.000	0.000			
• Other Adjustments	0.000	0.000	-43.600	-	-43.600

Change Summary Explanation

FY 2014: \$43.6M realigned to higher Air Force Priorities.

C. Accomplishments/Planned Programs (\$ in Millions)	FY 2012	FY 2013	FY 2014
---	----------------	----------------	----------------

Title: Increment 3.2B	0.000	132.839	114.825
Description: The F-22 Increment 3.2B Modernization Program consists of the hardware/software development necessary to provide Increment 3.2B capabilities including 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 and risk reduction program required to integrate any new weapons on the F-22 beyond Increment 3.1.			
FY 2012 Accomplishments: In FY12, \$112.5M in PE 0207138F: MDD will be accomplished. Work to prepare lab and test facilities for Development, Integration, and Test continues.			
Increment 3.2B will continue Design efforts;this effort will require all detailed design phase work necessary to start product development and to plan for the remaining phase efforts required to incorporate Increment 3.2 capabilities into the F-22 weapon system as described in teh Increment 3.2 Operational Capability Description Document.			
FY 2013 Plans:			

UNCLASSIFIED

Exhibit R-2, RDT&E Budget Item Justification: PB 2014 Air Force		DATE: April 2013		
APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>System Development & Demonstration (SDD)</i>		R-1 ITEM NOMENCLATURE PE 0605213F: <i>F-22 Modernization Increment 3.2B</i>		
C. Accomplishments/Planned Programs (\$ in Millions)		FY 2012	FY 2013	FY 2014
(U) In FY2013: A Preliminary Technical Review (PTR) was held February 2013, culminating the completion of the design work. Upon receiving authority to enter into Milestone B, Increment 3.2B will begin initial work in the Development, Code, and Integration and Test Phase. FY 2014 Plans: (U) In FY2014: Increment 3.2B will continue work in the Development, Code, and Integration and Test Phase.				
Title: Combined Test Force (CTF) Description: (U) 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 2012 Accomplishments: In FY2012: Combined Test Force (CTF) FY2012 Effort Description located in F-22 Squadrons Program Documentation, PE 0207138F. FY 2013 Plans: (U) In FY2013: The CTF will accomplish early Increment 3.2B test planning. CTF will begin testing of AIM-9X separations for a full AIM-9X integration in Increment 3.2B. FY 2014 Plans: (U) In FY2014: The CTF will accomplish detailed test planning of Increment 3.2B. CTF testing of AIM-9X separations will complete preparing for Increment 3.2B testing.		0.000	1.870	2.510
Title: Lab Test & Operations Description: Increment 3.2B Lab Test & Operations will plan and conduct Software build, integration & testing in the F-22 system integration at the laboratories: the Agile Integration Lab (AIL); the Raptor Integration Lab (Rall); the Air Combat Simulation (ACS) Lab; the Vehicle Management System (VMS) Vehicle Integration Facility (VIF); and the Vehicle System Simulator (VSS). FY 2012 Accomplishments: (U) In FY2012 Lab Test & Operations (LTO) Effort Description located in F-22 Squadrons Program Documentation PE 0207138F FY 2013 Plans:		0.000	1.695	9.023

UNCLASSIFIED

Exhibit R-2, RDT&E Budget Item Justification: PB 2014 Air Force	DATE: April 2013
--	-------------------------

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>System Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0605213F: <i>F-22 Modernization Increment 3.2B</i>
---	---

C. Accomplishments/Planned Programs (\$ in Millions)	FY 2012	FY 2013	FY 2014
(U) In FY2013: Increment 3.2B Lab Test & Operations will plan and conduct Software build, integration & testing in the F-22 system integration at the laboratories: the Agile Integration Lab (AIL); the Raptor Integration Lab (Rall); the Air Combat Simulation (ACS) Lab; the Vehicle Management System (VMS) Vehicle Integration Facility (VIF); and the Vehicle System Simulator (VSS). FY 2014 Plans: (U) In FY2014: Increment 3.2B Lab Test & Operations will continue to plan and conduct Software build, integration & testing in the F-22 system integration at the laboratories: the Agile Integration Lab (AIL); the Raptor Integration Lab (Rall); the Air Combat Simulation (ACS) Lab; the Vehicle Management System (VMS) Vehicle Integration Facility (VIF); and the Vehicle System Simulator (VSS).			
Title: Mission Support Description: Mission support of the F-22 Program Office; travel, computer costs, mis contracts, etc. FY 2012 Accomplishments: In FY2012: Mission Support FY2012 Effort Description located in F22 Squadrons Program Documentation, PE 0207138F. FY 2013 Plans: (U) In FY2013: Funds provide management and oversight activities in support of the F-22 Program Office. FY 2014 Plans: (U) In FY2014: Same as Prior Year.	0.000	3.696	4.742
Accomplishments/Planned Programs Subtotals	0.000	140.100	131.100

D. Other Program Funding Summary (\$ in Millions)										Cost To	
<u>Line Item</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u> <u>Base</u>	<u>FY 2014</u> <u>OCO</u>	<u>FY 2014</u> <u>Total</u>	<u>FY 2015</u>	<u>FY 2016</u>	<u>FY 2017</u>	<u>FY 2018</u>	<u>Complete</u>	<u>Total Cost</u>
• APAF: BA05: F02200: <i>F-22A Squadrons, APAF</i>	386.835	332.349	463.970		463.970	397.286	407.038	465.765	467.081	Continuing	Continuing
• RDT&E: BA07: PE 020163F: <i>AIM-120D (AMRAAM T&E) RDT&E</i>	10.515	18.990	23.830		23.830	23.940	5.820	0.000	0.000	Continuing	Continuing
Remarks NOTES:											

UNCLASSIFIED

Exhibit R-2, RDT&E Budget Item Justification: PB 2014 Air Force	DATE: April 2013
--	-------------------------

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>System Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0605213F: <i>F-22 Modernization Increment 3.2B</i>
---	---

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

<u>Line Item</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u> <u>Base</u>	<u>FY 2014</u> <u>OCO</u>	<u>FY 2014</u> <u>Total</u>	<u>FY 2015</u>	<u>FY 2016</u>	<u>FY 2017</u>	<u>FY 2018</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
* PE 0207138F APAF includes BP's 11 (Aircraft Modifications), 12 (Age Equipment), 16 (Initial Spares), and 19 (Depot Activation); BP11/Aircraft Modification funds support Increment 3.2B retrofits											

**PE 0207163F AIM-120D RDT&E, portion of funds supports the Increment 3.2B effort.

E. Acquisition Strategy

The Raptor Enhancement Development & Integration (REDI) contract is an Indefinite Delivery/Indefinite Quantity Ordering contract that maximizes flexibility to start, stop, accelerate and decelerate projects as required. The REDI contract was established to be more responsive to evolving war fighter requirements. The REDI contract allows the issuance of orders for the highest priority war fighter capabilities in operationally meaningful capability increments, requirements analysis, contractor cost estimates and studies, development and demonstration of capability enhancements, and unanticipated future war fighter requirements. Each increment is broken into phases to initiate requirements analysis, the design phase and the development, integration and verification phase of a specific incremental development effort. The (REDI) II contract is a follow-on Indefinite Delivery/Indefinite Quantity contract to the current 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.

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 2014 Air Force **DATE:** April 2013

APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>System Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0605213F: <i>F-22 Modernization Increment 3.2B</i>	PROJECT 654785: <i>F-22 INCREMENT 3.2B</i>
---	---	--

Product Development (\$ in Millions)				FY 2012		FY 2013		FY 2014 Base		FY 2014 OCO		FY 2014 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Increment 3.2B	SS/CPIF	Lockheed Martin:Fort Worth, TX	0.000	0.000		132.839	Mar 2013	114.825	Oct 2013	-		114.825	229.326	476.990	
Subtotal			0.000	0.000		132.839		114.825		0.000		114.825	229.326	476.990	

Support (\$ in Millions)				FY 2012		FY 2013		FY 2014 Base		FY 2014 OCO		FY 2014 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Subtotal			0.000	0.000		0.000		0.000		0.000		0.000	0.000	0.000	0.000

Test and Evaluation (\$ in Millions)				FY 2012		FY 2013		FY 2014 Base		FY 2014 OCO		FY 2014 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Combined Test Force	Various	Various:Various,	0.000	0.000		1.870	Oct 2012	2.510	Oct 2013	-		2.510	78.100	82.480	
Laboratory Test Operations	SS/ Various	Lockheed Martin:Fort Worth, TX	0.000	0.000		1.695	Jan 2013	9.023	Jan 2014	-		9.023	76.450	87.168	
Subtotal			0.000	0.000		3.565		11.533		0.000		11.533	154.550	169.648	

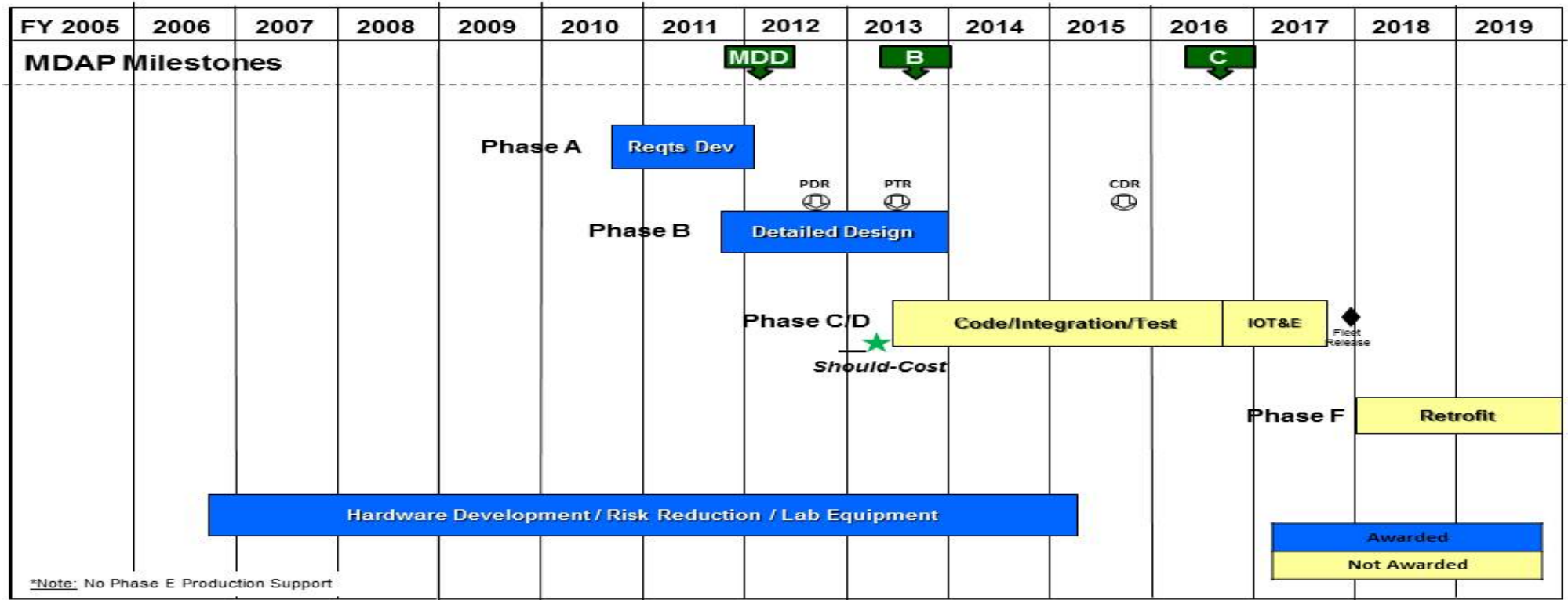
Remarks
FY12 and prior year costs for Increment 3.2B are shown under PE 0207138F. FY13 and later are shown under PE 0605213F.

Management Services (\$ in Millions)				FY 2012		FY 2013		FY 2014 Base		FY 2014 OCO		FY 2014 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Mission Support	C/Various	Various:Various,	0.000	0.000		3.696	Oct 2012	4.742	Oct 2013	-		4.742	8.853	17.291	
Subtotal			0.000	0.000		3.696		4.742		0.000		4.742	8.853	17.291	

UNCLASSIFIED

Exhibit R-4, RDT&E Schedule Profile: PB 2014 Air Force		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>System Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0605213F: <i>F-22 Modernization Increment 3.2B</i>	PROJECT 654785: <i>F-22 INCREMENT 3.2B</i>

F-22 Increment 3.2B Program Schedule Summary



UNCLASSIFIED

Exhibit R-4A, RDT&E Schedule Details: PB 2014 Air Force		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>System Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0605213F: <i>F-22 Modernization Increment 3.2B</i>	PROJECT 654785: <i>F-22 INCREMENT 3.2B</i>

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
Increment 3.2B System Requirements Review (SRR)*	1	2012	1	2012
Increment 3.2B System Design Review (SDR)*	1	2012	1	2012
Increment 3.2B Material Development Decision (MDD)*	1	2012	1	2012
Increment 3.2B Preliminary Design Review (PDR)*	3	2012	3	2012
Preliminary Technical Review (PTR)	2	2013	2	2013
Increment 3.2B Milestone B	3	2013	3	2013
Increment 3.2B Development, Integration, & Test	3	2013	3	2013
Increment 3.2B Critical Design Review	4	2015	4	2015
Increment 3.2B Milestone C	3	2016	3	2016