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Exhibit R-2, RDT&E Budget Item Justification: PB 2016 Air Force **Date:** February 2015

Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 5: System Development & Demonstration (SDD)</i>	R-1 Program Element (Number/Name) PE 0605931F / <i>B-2 Defensive Management System</i>
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COST (\$ in Millions)	Prior Years	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
Total Program Element	381.849	248.971	98.768	271.961	-	271.961	247.860	199.285	128.834	93.303	-	1,670.831
653844: <i>B-2 DMS</i>	381.849	248.971	98.768	271.961	-	271.961	247.860	199.285	128.834	93.303	-	1,670.831
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-	-	-

Program MDAP/MAIS Code: 431

A. Mission Description and Budget Item Justification

The Defensive Management System Modernization(DMS-M)program enhances the B-2 direct attack capability by addressing emerging and future 21st century threats and robust modern Integrated Air Defense Systems. By leveraging modern "state-of-the-art" electronic warfare antennae, processors, controllers and displays, B-2 aircrews will realize unprecedented situational battlespace awareness and dynamic, real-time threat avoidance in the most complex radio frequency emitter environments. The inherent increased sensitivity of the modernized DMS over the legacy system, with increased processing power, will build a battlespace picture that could be shared with joint force platforms by on-board communication systems. The current B-2 DMS was designed in the 1980s and has not received any upgrades to date. Also, many components of the legacy DMS are not supportable and will severely impact aircraft availability without significant investment in reliability and maintainability upgrades.

During development, the engineering baseline will be finalized and four production representative kits will be procured to support integrated development/operational test and a pre-Milestone C Operational Assessment, as well as B-2 Nuclear Certification testing. After completion of the Milestone C decision in 2019, Low Rate Initial Production will begin in early FY20. After a successful Operational Test and Evaluation, the Full Rate Production decision will occur in 2020. FY19 aircraft modification funds will be used to procure long lead components. Life of type buys may be implemented, when appropriate, to address diminishing manufacturing sources and materiel shortages for affected components and subassemblies to protect the planned production program by mitigating unplanned part redesign and requalification risks.

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.

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B. Program Change Summary (\$ in Millions)	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
Previous President's Budget	257.500	98.768	227.668	-	227.668
Current President's Budget	248.971	98.768	271.961	-	271.961
Total Adjustments	-8.529	-	44.293	-	44.293
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-8.529	-			
• Other Adjustments	-	-	44.293	-	44.293

Change Summary Explanation

FY16 \$44.293M funds DMS-M to the revised Program Office Estimate following reductions in years FY13-FY15.

C. Accomplishments/Planned Programs (\$ in Millions)	FY 2014	FY 2015	FY 2016
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<p>Title: B-2 Defensive Management System Modernization (DMS-M) Tech Development Ph 2</p> <p>Description: DMS Modernization program develops improved aircrew situational awareness through replacement of passive antennas, receiver/processors, and display processors. DMS-M also addresses critical system shortfalls, and improves legacy DMS component repair issues.</p> <p>FY 2014 Accomplishments: Conducted Preliminary Design Review and continued preparation for a Milestone B decision in FY-2015 to enter Engineering and Manufacturing Development.</p> <p>FY 2015 Plans: Complete DMS Modernization Technology Development. Conduct Milestone B decision.</p>	248.971	98.768	-
<p>Title: B-2 Defensive Management System Modernization (DMS-M) EMD</p> <p>Description: DMS Modernization program develops improved aircrew situational awareness through replacement of passive antennas, receiver/processors, and display processors. DMS-M also addresses critical system shortfalls, and improves legacy DMS component repair issues.</p> <p>FY 2016 Plans:</p>	-	-	271.961

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C. Accomplishments/Planned Programs (\$ in Millions)	FY 2014	FY 2015	FY 2016
Begin DMS Modernization Engineering and Manufacturing Development (EMD) Phase.			
Accomplishments/Planned Programs Subtotals	248.971	98.768	271.961

D. Other Program Funding Summary (\$ in Millions)											
Line Item	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
• APAF: BA07: Line Item #b2dms0: <i>B-2 DMS</i>	-	-	-	-	-	-	-	81.088	211.307	513.693	806.088
• APAF: BA07: Line Item #751: <i>Other Production Charges</i>	-	-	-	-	-	-	-	-	6.535	-	-

Remarks

E. Acquisition Strategy

Key elements of the overall acquisition strategy include: use of sole source contract with a prime/integrating contractor (Northrop Grumman) who will perform subsystem and component competitions where appropriate, use of cost plus incentive fee (CPIF) development contracts, and the combination of developmental upgrades with software sustainment blocks to minimize the number of software releases, aircraft downtime, and differences in fielded configurations. The government will encourage the prime contractor to compete subsystems and key components to reduce cost and risk.

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 2016 Air Force **Date:** February 2015

Appropriation/Budget Activity 3600 / 5	R-1 Program Element (Number/Name) PE 0605931F / B-2 Defensive Management System	Project (Number/Name) 653844 / B-2 DMS
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Product Development (\$ in Millions)				FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Air Vehicle - Technology Development Ph1	SS/CPIF	Various : Various,	127.333	-		-		-		-		-	-	127.333	-
Air Vehicle - Technology Development Ph 2	SS/CPFF	Various : Various,	242.673	238.207	Dec 2013	94.427	Mar 2015	-		-		-	-	575.307	-
Air Vehicle - Engineering and Manufacturing Development (EMD)	SS/CPIF	Various : Various,	0.000	-		-		257.869	Nov 2015	-		257.869	586.645	844.514	TBD
Subtotal			370.006	238.207		94.427		257.869		-		257.869	586.645	1,547.154	-

Remarks
Northrop-Grumman, El Segundo, CA is the prime contractor and integrator.

Major subsystem vendors are:
Electronic Support Measures: BAE, Nashua NH
Advanced Graphics Processor: Lockheed-Martin, Owego, NY
Band 1 - 3 antennas: Randtron, Menlo Park CA
Band 4 antenna: Ball Aerospace, Westminster, CO

Support (\$ in Millions)				FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Subtotal			-	-		-		-		-		-	-	-	-

Test and Evaluation (\$ in Millions)				FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Government Test	MIPR	AFFTC : Various,	1.239	1.985	Mar 2014	0.895	Jan 2015	5.695	Dec 2015	-		5.695	45.983	55.797	TBD
Subtotal			1.239	1.985		0.895		5.695		-		5.695	45.983	55.797	-

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Management Services (\$ in Millions)				FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
PMA	Various	Various : Various,	10.604	8.779	Dec 2013	3.446	Dec 2014	8.397	Dec 2015	-		8.397	36.654	67.880	-
Subtotal			10.604	8.779		3.446		8.397		-		8.397	36.654	67.880	-
Project Cost Totals			381.849	248.971		98.768		271.961		-		271.961	669.282	1,670.831	-

Remarks
Northrop-Grumman, the prime contractor for the B-2 weapon system, is the integrator and major contractor for B-2 DMS activities.

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Exhibit R-4, RDT&E Schedule Profile: PB 2016 Air Force			Date: February 2015
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	FY 2014				FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020			
	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
DMS-M Preliminary Design Review				■																								
DMS-M Milestone B Decision								■																				
DMS-M EMD Contract Award												■																
DMS-M Critical Design Review																■												
DMS-M EMD																												
DMS-M Milestone C																												
DMS-M Advance Procurement (AP)																												
DMS-M Low Rate Initial Production (LRIP)																												

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Exhibit R-4A, RDT&E Schedule Details: PB 2016 Air Force		Date: February 2015
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Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
DMS-M Preliminary Design Review	4	2014	4	2014
DMS-M Milestone B Decision	4	2015	4	2015
DMS-M EMD Contract Award	1	2016	1	2016
DMS-M Critical Design Review	4	2016	4	2016
DMS-M EMD	1	2016	2	2019
DMS-M Milestone C	2	2019	2	2019
DMS-M Advance Procurement (AP)	1	2019	1	2019
DMS-M Low Rate Initial Production (LRIP)	1	2020	4	2020