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Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Air Force **Date:** March 2023

Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0207163F / <i>Advanced Medium Range Air-to-Air Missile (AMRAAM)</i>
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COST (\$ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
Total Program Element	759.705	49.686	52.704	53.679	0.000	53.679	54.041	51.903	52.966	54.883	380.611	1,510.178
673777: <i>AMRAAM</i>	759.705	49.686	52.704	53.679	0.000	53.679	54.041	51.903	52.966	54.883	380.611	1,510.178
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-	-	-

Program MDAP/MAIS Code: 185

A. Mission Description and Budget Item Justification

The Advanced Medium Range Air-to-Air Missile (AMRAAM) is a joint Air Force/Navy, Acquisition Category 1C program with Air Force as lead service. AMRAAM is the premier all-weather, all-environment, radar guided missile with improved capabilities against very low and high-altitude targets in an electronic attack environment. The current AMRAAM variant, the AIM-120D, delivers improved performance via Global Positioning System (GPS) aided navigation; two way datalink capability for enhanced aircrew survivability and improved network compatibility; and incorporates new guidance software that improves kinematic performance and weapon effectiveness.

This Air Force/Navy program is structured in response to the Joint Service Operational Requirement Document and Mission Element Need Statement to develop an air superiority air-to-air missile with significant improvements in operational utility and combat effectiveness. The development program enhances AMRAAM capability and operational flexibility against current and projected threats, incorporates high payoff technology development, performs risk reduction activities, and investigates new variants and/or alternate missions that may use AMRAAM attributes. To maximize effectiveness of existing inventory and address findings from the field, the Navy and Air Force also develop, test, and field improvements via software upgrades into fielded missiles and/or hardware upgrades inserted into the production line.

This program supports the integration of the Advanced Medium Range Air-to-Air Missile (AMRAAM) into Air Force aircraft with analysis of Air Force unique applications, aircraft missile integration tasks, product improvement efforts including missile software upgrade development and procurement of hardware to support Air Force test and evaluation tasks.

Leverages Digital acquisition tenets of open, agile and digital. This may include providing funds to prime contractors; program office contract support; facility, security and IT upgrades; common component development with other weapon systems to reduce redundant costs.

This program element may include necessary civilian pay expenses required to manage, execute, and deliver weapon system capability. The use of such programs funds would be in addition to the civilian pay expenses budgeted in program element 0605827F, 0605828F, 0605829F, 0605831F, 0605832F, 0605833F, 0605898F, or 0606398F. In FY22, \$0.00 were expended for civilian pay expenses in this program element and in FY23, \$0.00 are forecasted for civilian pay expenses in this program element.

This program is in Budget Activity 7, Operational System Development because this budget activity includes development efforts to upgrade systems that have been fielded or have received approval for full rate production and anticipate production funding in the current or subsequent fiscal year.

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B. Program Change Summary (\$ in Millions)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Previous President's Budget	51.288	52.704	33.557	0.000	33.557
Current President's Budget	49.686	52.704	53.679	0.000	53.679
Total Adjustments	-1.602	0.000	20.122	0.000	20.122
• 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	-1.602	0.000			
• Other Adjustments	0.000	0.000	20.122	0.000	20.122

Change Summary Explanation

In FY24, an addition of \$20.122M was added to the RDT&E effort to fix a prior year funding disparity during FYDP creation. This additional funding is required for SIP development and is necessary to keep the program on schedule.

C. Accomplishments/Planned Programs (\$ in Millions)	FY 2022	FY 2023	FY 2024
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Title: System Improvement Program (SIP)	23.620	29.196	28.998
Description: Continuation of System Improvement Program (SIP) / Risk Reduction (RR) efforts for the AMRAAM weapons system. These include systems engineering, program management, missile software and/or hardware upgrades to increase capability, survivability, lethality, as well as aircraft Operational Flight Program (OFP) updates on a recurring basis. SIP-3F will host AIM-120D SIP-3 software on AIM-120D3 hardware. AIM-120D3 SIP 4 will exploit new Form, Fit, Function (F3R) hardware to maximize missile performance. AIM-120D SIP 3 Tape 2 will address newly matured capabilities, emerging threats, and Operational Test (OT) deficiencies. AIM-120D3 SIP-5 will increase heart of the envelope performance and address an expanded threat space. Candidate Selection Process (CSP) analyzes warfighter priority deficiencies and enhancements to feed risk reduction efforts and future SIP efforts.			
FY 2023 Plans: Complete SIP 3F FCA and flight test requirements. Field SIP 3F with F3R hardware to maximize missile performance. Continue CSP. Continue SIP 4 software development and complete Minimum Viable Product (MVP) milestone demonstrating software maturity. Continue SIP-3 Tape 2 software development.			
FY 2024 Plans:			

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C. Accomplishments/Planned Programs (\$ in Millions)		FY 2022	FY 2023	FY 2024
Continue CSP. Complete SIP-4 software development with Minimum Viability Capability Release (MVCR) and enter integrated test. Complete SIP-3 Tape 2 software development with MVCR and enter integrated test. Begin SIP-5 software development. FY 2023 to FY 2024 Increase/Decrease Statement: Funding decrease from FY23 to FY24 is negligible after the additional \$20.122M was added to the program to keep the SIP development efforts moving forward.				
Title: Test and Evaluation Description: Provides support to flight test efforts; develops test resources and equipment necessary to complete test events; provides contractor field team support personnel and services. FY 2023 Plans: Continue to develop and procure test resources required to meet test requirements and provide support personnel to complete AIM-120 test events. FY 2024 Plans: Continue to develop and procure test resources required to meet test requirements and provide support personnel to complete AIM-120 test events. FY 2023 to FY 2024 Increase/Decrease Statement: Funding increase due to ongoing test and evaluation efforts with various agencies in FY24 in support of AMRAAM.		21.900	19.258	20.347
Title: Aircraft Integration Description: Supports the integration of AIM-120 on multiple aircraft platforms as AIM-120 software/hardware is updated and as aircraft OFPs are updated. FY 2023 Plans: Continue integration and testing of AIM-120 on multiple aircraft platforms. FY 2024 Plans: Continue integration and testing of AIM-120 on multiple aircraft platforms. FY 2023 to FY 2024 Increase/Decrease Statement: Funding increased due to inflation from FY23 to FY24. Requirements remain unchanged.		4.166	4.250	4.334
Accomplishments/Planned Programs Subtotals		49.686	52.704	53.679

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

Line Item	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
• MPAF 02 Line Item MAMRA0: <i>Missile Procurement, Air Force</i>	326.350	320.056	701.459	-	701.459	446.386	666.198	115.527	39.899	965.706	3,581.581
• MPAF 04 Line Item 000999: <i>Initial Spares/Repair Parts</i>	3.003	3.165	2.273	-	2.273	2.314	2.343	2.381	2.429	0.000	17.908
• MPAF 04 Line Item 000999 <i>Replen: Replen Spares/Repair Parts</i>	0.873	0.925	0.945	-	0.945	0.963	0.974	0.990	1.010	0.000	6.680
• MPAF 02 Line Item 2206: <i>Weapons Procurement, Navy</i>	74.264	335.900	439.153	-	439.153	279.715	69.591	69.699	17.109	195.311	1,480.742

Remarks

E. Acquisition Strategy

AMRAAM Acquisition Strategy Report (ASR) was updated on 16 May 2018.

System Improvement Program (SIP) development efforts continually mature capabilities through software and/or hardware upgrades to maximize missile performance to address current and emerging threats. These missile performance improvements are incrementally fielded ensuring inventory viability into the future. SIP development contracts are cost type contract efforts.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Air Force **Date:** March 2023

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0207163F / <i>Advanced Medium Range Air-to-Air Missile (AMRAAM)</i>	Project (Number/Name) 673777 / <i>AMRAAM</i>
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Product Development (\$ in Millions)				FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 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			
Electronic Protection Improvement Program (EPIP)	Various	Raytheon : Tucson, AZ	86.959	-		-		-		-		-	0.000	86.959	86.959
System Improvement Program (SIP)	Various	Raytheon : Tucson, AZ	256.973	19.454	Jun 2022	24.946	Jun 2023	25.610	Jun 2024	-		25.610	254.470	581.453	405.098
F-22 Aircraft Integration	MIPR	Wright-Patterson AFB : Dayton, OH	114.890	-		-		-		-		-	0.000	114.890	114.890
Aircraft Integration Support	SS/CPFF	Raytheon : Tucson, AZ	22.459	4.167	May 2022	4.250	May 2023	4.335	May 2024	-		4.335	53.808	89.019	73.378
Subtotal			481.281	23.621		29.196		29.945		-		29.945	308.278	872.321	N/A

Test and Evaluation (\$ in Millions)				FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 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	Various	Various : Various	96.907	9.123	Jan 2022	6.048	Jan 2023	6.878	Jan 2024	-		6.878	61.271	180.227	35.169
Test Support	SS/CPFF	Raytheon : Various	158.651	12.777	Jan 2022	13.210	Jan 2023	13.469	Jan 2024	-		13.469	183.437	381.544	292.585
Subtotal			255.558	21.900		19.258		20.347		-		20.347	244.708	561.771	N/A

Remarks
 Total Cost amount consists of test cost other government agencies and small contracts not associated with the prime vendor, Raytheon. Test cost for manpower at Test Wing. Small various contracts such as Dept of Energy, MANTRAC, SURVICE, and DOTC.
 The Target Value of Contract amount consists of the small various contracts such as Dept of Energy, MANTRAC, SURVICE, and DOTC. This amount does not include the various costs sent to Test Wing for government test.

Management Services (\$ in Millions)				FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 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			
Program Management Administration	Various	Various : Various	22.866	4.165	Jan 2022	4.250	Jan 2023	3.387	Jan 2024	-		3.387	41.418	76.086	0.000
Subtotal			22.866	4.165		4.250		3.387		-		3.387	41.418	76.086	N/A

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Exhibit R-4, RDT&E Schedule Profile: PB 2024 Air Force		Date: March 2023
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0207163F / <i>Advanced Medium Range Air-to-Air Missile (AMRAAM)</i>	Project (Number/Name) 673777 / AMRAAM

	FY 2022				FY 2023				FY 2024				FY 2025				FY 2026				FY 2027				FY 2028							
	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				
AMRAAM Development Program																																
AIM-120C CET Dev	████████																															
AIM-120C CET Test	████████																															
AIM-120C CET FCA			██																													
AIM-120C CET IOC				██																												
AIM-120D SIP-3 IOC	██																															
AIM-120D SIP-3 Tape 2 Development			████████████████████																													
AIM-120D SIP-3 Tape 2 Test																																
AIM-120D SIP-3 Tape 2 FCA																																
AIM-120D SIP-3 Tape 2 IOC																																
AIM-120D3 SIP-3F FCA						██																										
AIM-120D3 SIP-3F IOC							██																									
AIM-120D3 SIP-4 Development	████████████████████																															
AIM-120D3 SIP-4 Test																																
AIM-120D3 SIP-4 FCA																																
AIM-120D3 SIP-4 IOC																																
AIM-120D3 SIP-5 Development																																
AIM-120D3 SIP-5 Test																																
AIM-120D3 SIP-6 Development																																

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Exhibit R-4A, RDT&E Schedule Details: PB 2024 Air Force		Date: March 2023
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0207163F / <i>Advanced Medium Range Air-to-Air Missile (AMRAAM)</i>	Project (Number/Name) 673777 / AMRAAM

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
AMRAAM Development Program				
AIM-120C CET Dev	1	2022	3	2022
AIM-120C CET Test	1	2022	4	2022
AIM-120C CET FCA	3	2022	3	2022
AIM-120C CET IOC	1	2023	1	2023
AIM-120D SIP-3 IOC	2	2022	2	2022
AIM-120D SIP-3 Tape 2 Development	4	2022	1	2025
AIM-120D SIP-3 Tape 2 Test	4	2024	1	2025
AIM-120D SIP-3 Tape 2 FCA	1	2025	1	2025
AIM-120D SIP-3 Tape 2 IOC	2	2025	2	2025
AIM-120D3 SIP-3F FCA	2	2023	2	2023
AIM-120D3 SIP-3F IOC	3	2023	3	2023
AIM-120D3 SIP-4 Development	1	2022	3	2025
AIM-120D3 SIP-4 Test	3	2024	3	2025
AIM-120D3 SIP-4 FCA	2	2025	2	2025
AIM-120D3 SIP-4 IOC	3	2025	3	2025
AIM-120D3 SIP-5 Development	3	2024	4	2027
AIM-120D3 SIP-5 Test	1	2027	4	2027
AIM-120D3 SIP-6 Development	4	2026	4	2028

Note

Actual Dates:

AIM-120D SIP-3 EMD began 05 Sep 2017

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Exhibit R-4A, RDT&E Schedule Details: PB 2024 Air Force **Date:** March 2023

Appropriation/Budget Activity	R-1 Program Element (Number/Name)	Project (Number/Name)
3600 / 7	PE 0207163F / <i>Advanced Medium Range Air-to-Air Missile (AMRAAM)</i>	673777 / <i>AMRAAM</i>

The following project titles were removed during FY24 BES Update due to start prior to FY22: SIP-3 EMD, SIP-3 Test, SIP-3F Development, and SIP-3F Test. Some of these efforts may be ongoing.