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RCS: DD-A&T(Q&A)823-442



## **AIM-9X Block II Sidewinder (AIM-9X Blk II)**

As of FY 2021 President's Budget

Defense Acquisition Management  
Information Retrieval  
(DAMIR)

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## Common Acronyms and Abbreviations for MDAP Programs

Acq O&M - Acquisition-Related Operations and Maintenance  
ACAT - Acquisition Category  
ADM - Acquisition Decision Memorandum  
APB - Acquisition Program Baseline  
APPN - Appropriation  
APUC - Average Procurement Unit Cost  
\$B - Billions of Dollars  
BA - Budget Authority/Budget Activity  
Blk - Block  
BY - Base Year  
CAPE - Cost Assessment and Program Evaluation  
CARD - Cost Analysis Requirements Description  
CDD - Capability Development Document  
CLIN - Contract Line Item Number  
CPD - Capability Production Document  
CY - Calendar Year  
DAB - Defense Acquisition Board  
DAE - Defense Acquisition Executive  
DAMIR - Defense Acquisition Management Information Retrieval  
DoD - Department of Defense  
DSN - Defense Switched Network  
EMD - Engineering and Manufacturing Development  
EVM - Earned Value Management  
FOC - Full Operational Capability  
FMS - Foreign Military Sales  
FRP - Full Rate Production  
FY - Fiscal Year  
FYDP - Future Years Defense Program  
ICE - Independent Cost Estimate  
IOC - Initial Operational Capability  
Inc - Increment  
JROC - Joint Requirements Oversight Council  
\$K - Thousands of Dollars  
KPP - Key Performance Parameter  
LRIP - Low Rate Initial Production  
\$M - Millions of Dollars  
MDA - Milestone Decision Authority  
MDAP - Major Defense Acquisition Program  
MILCON - Military Construction  
N/A - Not Applicable  
O&M - Operations and Maintenance  
ORD - Operational Requirements Document  
OSD - Office of the Secretary of Defense  
O&S - Operating and Support  
PAUC - Program Acquisition Unit Cost

PB - President's Budget  
PE - Program Element  
PEO - Program Executive Officer  
PM - Program Manager  
POE - Program Office Estimate  
RDT&E - Research, Development, Test, and Evaluation  
SAR - Selected Acquisition Report  
SCP - Service Cost Position  
TBD - To Be Determined  
TY - Then Year  
UCR - Unit Cost Reporting  
U.S. - United States  
USD(AT&L) - Under Secretary of Defense (Acquisition, Technology and Logistics)  
USD(A&S) - Under Secretary of Defense (Acquisition and Sustainment)

## Program Information

**Program Name**

AIM-9X Block II Sidewinder (AIM-9X Blk II)

**DoD Component**

Navy

**Joint Participants**

Air Force

## Responsible Office

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**Date Assigned:** October 5, 2018

## References

### **SAR Baseline (Production Estimate)**

Navy Acquisition Executive (NAE) Approved Acquisition Program Baseline (APB) dated December 23, 2011

### **Approved APB**

Navy Acquisition Executive (NAE) Approved Acquisition Program Baseline (APB) dated February 1, 2019



## Mission and Description

The AIM-9X Block II Sidewinder (AIM-9X Blk II) short-range air-to-air missile is a long term evolution of the AIM-9 series of fielded missiles. The missile program provides a launch and leave, air combat munitions that uses passive Infrared (IR) energy for acquisition and tracking of enemy aircraft and complements the Advanced Medium Range Air-to-Air Missile. Air superiority in the short-range air-to-air missile arena is essential and includes first shot, first kill opportunity against enemy employing IR countermeasures. Anti-Tamper features have been incorporated to protect improvements inherent in this design.

## Executive Summary

### Program Highlights Since Last Report

The AIM-9X Block II program definitized a fourth full rate production contract (Lot 18) and awarded a fifth full rate production option (Lot 19) in April 2019 for the procurement of United States Navy (USN), United States Air Force (USAF), and FMS missiles. The program awarded a three-year sustainment contract in May 2019.

Operational Flight Software (OFS) version 9.317 (for correction of deficiencies) was approved for use and released to the USN and USAF in March 2019.

The program met another key milestone this year with the completion of OFS 9.4 Developmental Test (DT) in August 2019. OFS 9.4 provides improvements to pace the threat and to fully utilize hardware capabilities; following the completion of Operational Test (OT), it will be incorporated into all Block II missiles in FY 2021.

Follow-on development of the AIM-9X Block II missile continued with the System Improvement Program III (SIP III). This development includes hardware to address obsolescence and sustainability and a software load to improve performance. The missile software upgrades include increased performance in the presence of infra-red and electro-magnetic countermeasures and an Air-to-Ground capability.

The FY 2020 defense budget included an additional \$34.2M for the USN to procure additional AIM-9X All Up Rounds; the additional missiles will be included in Lot 20 which is planned for award in March 2020.

AIM-9X Captive Air Training Missile (CATM) Operational Availability (Ao) failed to meet the Capability Production Document (CPD) Key Performance Parameter (KPP) threshold requirement. This performance breach was primarily due to a limited supply of spare parts and the inconsistent timing of CATMs arriving at the depot for repair. The USN and USAF ordered the circuit card assemblies needed to meet current and future requirements on the Production Lots 17, 18, and 19 contracts. The first delivery of the needed circuit card assemblies is in third quarter FY 2020; however, the program is working with its vendors to accelerate delivery. As Lots 17, 18, and 19 spares and Block II Production CATMs are delivered, Ao will increase above CPD threshold requirements.

There are no significant software-related issues with this program at this time.

<b>History of Significant Developments Since Program Initiation</b>
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History of Significant Developments Since Program Initiation	
Date	Significant Development Description
June 2011	AIM-9X Block II was designated a separate ACAT IC program entering the acquisition process at Milestone C.
June 2011	AIM-9X Block II received approval for Milestone C LRIP I & II.
August 2012	AIM-9X Block II received LRIP III approval.
June 2014	AIM-9X Block II received approval for LRIP IV.
March 2015	The U.S. Navy declared IOC for AIM-9X Block II.
August 2015	AIM-9X Block II received approval to enter FRP.
September 2016	The U.S. Air Force declared IOC for AIM-9X Block II.
October 2016	The Program declared FOC for AIM-9X Block II.



## Threshold Breaches

APB Breaches			Explanation of Breach
Schedule		<input type="checkbox"/>	The AIM-9X Block II Captive Air Training Missile (CATM) Operational Availability (Ao) combined KPP threshold is no less than 0.86 after 100,000 flight hours. Currently, the combined United States Navy (USN) and United States Air Force (USAF) CATM Ao is 0.81.
Performance		<input checked="" type="checkbox"/>	
Cost	RDT&E	<input type="checkbox"/>	
	Procurement	<input type="checkbox"/>	
	MILCON	<input type="checkbox"/>	
	Acq O&M	<input type="checkbox"/>	This breach in performance is primarily due to a limited supply of spare parts and the inconsistent timing of CATMs arriving at the depot for repair. USN and USAF CATM failure rates average sixteen missiles a month; however, due to a limited supply of spare parts, the repair rate is limited to an average of eleven missiles a month. There are currently 86 Block II CATM guidance units inducted for repair at Raytheon Missile Systems (RMS) that are awaiting parts. Another 122 Block II CATMs are awaiting induction with a majority of those likely requiring circuit card assemblies. The USN and USAF have ordered the circuit card assemblies required to meet current and future requirements on the Production Lot 17, 18, and 19 Contracts. The first delivery of the circuit card assemblies is expected in third quarter 2020; however, RMS is working with its vendors to accelerate delivery of the contracted circuit cards. As Lot 17, 18, and 19 spares and Block II Production CATMs are delivered, Operational Availability will increase above CPD threshold requirements.
O&S Cost		<input type="checkbox"/>	
Unit Cost	PAUC	<input type="checkbox"/>	
	APUC	<input type="checkbox"/>	
Nunn-McCurdy Breaches			
Current UCR Baseline			
	PAUC	None	
	APUC	None	
Original UCR Baseline			
	PAUC	None	
	APUC	None	

Both services will continue to budget and procure the required spare parts to meet missile failure demands and are continuing to execute readiness initiatives to address Block II CATM Ao.

A Program Deviation Report is in routing.

## Schedule



Schedule Events					
Events	SAR Baseline Production Estimate	Current APB Production Objective/Threshold		Current Estimate	
MS C	Jun 2011	Jun 2011	Dec 2011	Jun 2011	
OT Start	Apr 2012	May 2012	May 2012	May 2012	
OT Complete	Apr 2013	Jan 2015	Jan 2015	Jan 2015	
IOC	Sep 2014	Mar 2015	Mar 2015	Mar 2015	
FRP Decision	Dec 2013	Aug 2015	Aug 2015	Aug 2015	
FOC	Oct 2015	Oct 2016	Oct 2016	Oct 2016	

### Change Explanations

None

### Acronyms and Abbreviations

MS - Milestone

OT - Operational Test



## Performance

Performance Characteristics				
SAR Baseline Production Estimate	Current APB Production Objective/Threshold		Demonstrated Performance	Current Estimate
AIM-9X Day/Night Capability				
Yes	Yes	Yes	Yes	Yes
AIM-9X Aircraft Interface/Interoperability Missile Weight (lbs.)				
≤ 192	≤ 192	≤ 210	186.2	≤ 192
AIM-9X Aircraft Interface/Interoperability Missile Length (in.)				
≤ 115	≤ 115	≤ 123	119.2	≤ 123
AIM-9X Aircraft Interface/Interoperability Missile Box Size (in.)				
≤ 12.5 X 12.5	≤ 12.5 X 12.5	≤ 12.5 X 12.5	12.5 X 12.5	≤ 12.5 X 12.5
AIM-9X Aircraft Interface/Interoperability Missile Diameter (in.)				
≤ 5	≤ 5	≤ 7	≤ 5	≤ 5
AIM-9X Aircraft Interface/Interoperability Interface				
Mid body umbilical only	Mid body umbilical only	Digital.	Digital	Mid body umbilical only
AIM-9X High Off Boresight Capability Cueing/Verification				
Interface with current/ planned aircraft radar systems and planned HMCS.	Interface with current/ planned aircraft radar systems and planned HMCS.	Interface with current/ planned aircraft radar systems and planned HMCS.	Yes	Interface with current/ planned aircraft radar systems and planned- HMCS
AIM-9X Captive Carry Reliability (MTBCCF) (hr.)				
>.or.=900	>.or.=900	>.or.=500	1890	>.or.=900
AIM-9X Detect Non-Operational Missile (BIT) All Components (%)				
>.or.=0.80	>.or.=0.80	>.or.=0.60	0.81	>.or.=0.60
AIM-9X Detect Non-Operational Missile (BIT-able Components) (%)				
>.or.=0.95	>.or.=0.95	>.or.=0.90	0.92	>.or.=0.90
AIM-9X Mean Time Between False Alarms (hr.)				
>.or.=25	>.or.=25	<.or.=16	>.or.=18	>.or.=16
AIM-9X BIT Time (sec.)				
≤ 20	≤ 20	≤ 20	≤ 15	≤ 20
EMI Compatibility				
Threshold= Objective	Threshold= Objective	Not incur damage to electrical components while in the electromagnetic	Yes	Threshold= Objective



		environment of an aircraft carried. The AIM-9X Block II missile shall be compatible with representative threshold hose aircraft weapon and sensor load-outs with regard to RFI, EMI, and MIL-STD-1533 or MIL-STD-1760 data bus message throughput constraints.		
<b>Ao- AUR</b>				
No less than (.98) after 35,000 flight hours	No less than (.98) after 35,000 flight hours	No less than (.93) after 35,000 flight hours	0.99	>=0.99
<b>Net Readiness</b>				
The capability, system, and/or service must fully support execution of joint critical operational activities and information exchanges identified in the DoD Enterprise Architecture and solution architectures based on integrated DoDAF content, and must satisfy the technical requirements for transition to Net-Centric military operations to include: 1) Solution architecture products compliant with DoD Enterprise Architecture based on integrated DoDAF content, including specified operationally effective information exchanges. 2) Compliant with Net-Centric Data Strategy and Net-Centric Services Strategy,	The capability, system, and/or service must fully support execution of joint critical operational activities and information exchanges identified in the DoD Enterprise Architecture and solution architectures based on integrated DoDAF content, and must satisfy the technical requirements for transition to Net-Centric military operations to include: 1) Solution architecture products compliant with DoD Enterprise Architecture based on integrated DoDAF content, including specified operationally effective information exchanges. 2) Compliant with Net-Centric Data Strategy and Net-Centric Services Strategy,	The capability, system, and/or service must fully support execution of all operational activities and information exchanges identified in DoD Enterprise Architecture and solution architectures based on integrated DoDAF content, and must satisfy the technical requirements for transition to Net-Centric military operations to include: 1) Solution architecture products compliant with DoD Enterprise Architecture based on integrated DoDAF content, including specified operationally effective information exchanges. 2) Compliant with Net-Centric Data Strategy and Net-Centric Services Strategy, and the principles and rules identified in the DoD IEA , excepting	Meets Threshold	The capability, system, and/or service must fully support execution of joint critical operational activities and information exchanges identified in the DoD Enterprise Architecture and solution architectures based on integrated DoDAF content, and must satisfy the technical requirements for transition to Net-Centric military operations to include: 1) Solution architecture products compliant with DoD Enterprise Architecture based on integrated DoDAF content, including specified operationally effective information



and the principles and rules identified in the DoD IEA, excepting tactical and non-IP communications. 3) Compliant with GIG Technical Guidance to include IT Standards identified in the TV-1 and implementation guidance of GIG GESPs necessary to meet all operational requirements specified in the DoD Enterprise Architecture and solution architecture views. 4) Information assurance requirements including availability, integrity, authentication, confidentiality, and non-repudiation, and issuance of an IATO or ATO by the DAA and 5) Supportability requirements to include SAASM Spectrum and JTRS requirements	and the principles and rules identified in the DoD IEA, excepting tactical and non-IP communications. 3) Compliant with GIG Technical Guidance to include IT Standards identified in the TV-1 and implementation guidance of GIG GESPs necessary to meet all operational requirements specified in the DoD Enterprise Architecture and solution architecture views. 4) Information assurance requirements including availability, integrity, authentication, confidentiality, and non-repudiation, and issuance of an IATO or ATO by the DAA and 5) Supportability requirements to include SAASM Spectrum and JTRS requirements	tactical and non-IP communications. 3) Compliant with GIG Technical Guidance to include IT Standards identified in the TV-1 and implementation guidance of GESPs, necessary to meet all operational requirements specified in the DoD Enterprise Architecture and solution architecture views. 4) Information assurance requirements including availability, integrity, authentication, confidentiality, and non-repudiation, and issuance of an IATO or ATO by the DAA and 5) Supportability requirements to include SAASM, Spectrum and JTRS necessary to meet all operational requirements specified in the DoD Enterprise Architecture and solution architecture views		exchanges. 2) Compliant with Net-Centric Data Strategy and Net-Centric Services Strategy, and the principles and rules identified in the DoD IEA, excepting tactical and non-IP communications. 3) Compliant with GIG Technical Guidance to include IT Standards identified in the TV-1 and implementation guidance of GIG GESPs necessary to meet all operational requirements specified in the DoD Enterprise Architecture and solution architecture views. 4) Information assurance requirements including availability, integrity, authentication, confidentiality and non-repudiation, and issuance of an IATO or ATO by the DAA and 5) Supportability requirements to include SAASM Spectrum and JTRS requirements
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**Ao- CATM**

No less than (.95) after 100,000 flight hours	No less than (.95) after 100,000 flight hours	No less than (.86) after 100,000 flight hours	0.81	<b>No less than (.86) after 100,000 flight hours<sup>1</sup></b>
<b>Material Availability (Am)</b>				
Threshold= Objective	Threshold= Objective	No less than (.82)	0.97	0.93

<sup>1</sup> APB Breach

(Ch-1)

Classified Performance information is provided in the classified annex to this submission.



**Requirements Reference**

CPD dated May 20, 2011

**Change Explanations**

(Ch-1) The Demonstrated Performance for Ao-CATM changed from 0.88 to 0.81 due to a limited supply of spare parts and the inconsistent timing of CATMs arriving at the depot for repair. This change does breach the KPP threshold.

**Notes**

Material Availability - Per the CPD, this requirement only pertains to AURs.

**Acronyms and Abbreviations**

Ao - Operational Availability  
ATO - Authorization To Operate  
AUR - All Up Round  
BIT - Built In Test  
CATM - Captive Air Training Missile  
DAA - Designated Accrediting Authority  
DoDAF - Department of Defense Architecture Framework  
EMI - Electromagnetic Interference  
GESP - GIG Enterprise Service Profile  
GIG - Global Information Grid  
HMCS - Helmet Mounted Cueing System  
hr - hour  
IATO - Interim Authorization to Operate  
IEA - Information Enterprise Architecture  
in - Inches  
IP - Internet Protocol  
IT - Information Technology  
JTRS - Joint Test Requirement System  
lbs - Pounds  
Mid - Middle  
MIL - Military  
MTBCCF - Mean Time Between Captive Carry Failure  
RFI - Radio Frequency Interference  
SAASM - Selective Availability Anti-Spoofing Module  
sec - seconds  
STD - Standard  
TV - Technical View

## Track to Budget

### RDT&E

Appn	BA	PE
Navy	1319 07	0207161N
	<b>Project</b>	<b>Name</b>
	0457	AIM-9X
Air Force	3600 07	0207161F
	<b>Project</b>	<b>Name</b>
	674132	AIM-9 Product Improvement

### Procurement

Appn	BA	PE
Navy	1507 02	0204162N
	<b>Line Item</b>	<b>Name</b>
	2209	Sidewinder
Navy	1507 02	0206138M
	<b>Line Item</b>	<b>Name</b>
	2209	Sidewinder
	<b>Notes:</b> USMC funding received as WPN	
Navy	1507 06	0204162N
	<b>Line Item</b>	<b>Name</b>
	6120	Spares and Repair Parts (Shared)
Air Force	3020 04	0207161F
	<b>Line Item</b>	<b>Name</b>
	000999	Initial Spares/Repair Parts (Shared)
Air Force	3020 02	0207161F
	<b>Line Item</b>	<b>Name</b>
	M09HAI	Sidewinder (AIM-9X)

### Notes

Funding contained in the Shared Budget Line Items are shared with other non-AIM-9X Block II programs.

## Cost and Funding

### Cost Summary

Total Acquisition Cost							
Appropriation	BY 2011 \$M			BY 2011 \$M	TY \$M		
	SAR Baseline Production Estimate	Current APB Production Objective/Threshold		Current Estimate	SAR Baseline Production Estimate	Current APB Production Objective	Current Estimate
RDT&E	168.8	777.7	855.5	614.0	175.7	889.6	690.8
Procurement	3798.5	4811.5	5292.7	4739.0	4680.4	6140.8	6133.5
Flyaway	--	--	--	4568.1	--	--	5911.6
Recurring	--	--	--	4371.3	--	--	5673.0
Non Recurring	--	--	--	196.8	--	--	238.6
Support	--	--	--	170.9	--	--	221.9
Other Support	--	--	--	41.1	--	--	47.9
Initial Spares	--	--	--	129.8	--	--	174.0
MILCON	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Acq O&M	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total	3967.3	5589.2	N/A	5353.0	4856.1	7030.4	6824.3

#### Current APB Cost Estimate Reference

Updated FRP Joint Component Cost Position dated August 23, 2018

#### Cost Notes

CAPE Cost Risks: No cost estimate for program has been completed previous year.

Total Quantity			
Quantity	SAR Baseline Production Estimate	Current APB Production	Current Estimate
RDT&E	0	0	0
Procurement	6000	11635	11635
Total	6000	11635	11635



## Cost and Funding

### Funding Summary

Appropriation Summary									
FY 2021 President's Budget / December 2019 SAR (TY\$ M)									
Appropriation	Prior	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	To Complete	Total
RDT&E	491.5	29.8	25.3	32.8	25.1	15.9	14.9	55.5	690.8
Procurement	1767.0	312.1	297.8	234.3	225.0	250.5	255.3	2791.5	6133.5
MILCON	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Acq O&M	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
PB 2021 Total	2258.5	341.9	323.1	267.1	250.1	266.4	270.2	2847.0	6824.3
PB 2020 Total	2274.7	313.3	322.4	276.3	259.7	241.1	431.9	2963.0	7082.4
Delta	-16.2	28.6	0.7	-9.2	-9.6	25.3	-161.7	-116.0	-258.1

Quantity Summary										
FY 2021 President's Budget / December 2019 SAR (TY\$ M)										
Quantity	Undistributed	Prior	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	To Complete	Total
Development	0	0	0	0	0	0	0	0	0	0
Production	0	3884	720	601	458	424	479	489	4580	11635
PB 2021 Total	0	3884	720	601	458	424	479	489	4580	11635
PB 2020 Total	0	3834	647	652	454	427	373	671	4577	11635
Delta	0	50	73	-51	4	-3	106	-182	3	0

## Cost and Funding

### Annual Funding By Appropriation

Annual Funding							
1319   RDT&E   Research, Development, Test, and Evaluation, Navy							
Fiscal Year	Quantity	TY \$M					
		End Item Recurring Flyaway	Non End Item Recurring Flyaway	Non Recurring Flyaway	Total Flyaway	Total Support	Total Program
2004	--	--	--	--	--	--	1.3
2005	--	--	--	--	--	--	3.9
2006	--	--	--	--	--	--	7.7
2007	--	--	--	--	--	--	6.7
2008	--	--	--	--	--	--	0.5
2009	--	--	--	--	--	--	5.4
2010	--	--	--	--	--	--	--
2011	--	--	--	--	--	--	0.9
2012	--	--	--	--	--	--	8.4
2013	--	--	--	--	--	--	17.9
2014	--	--	--	--	--	--	16.5
2015	--	--	--	--	--	--	36.4
2016	--	--	--	--	--	--	37.1
2017	--	--	--	--	--	--	54.7
2018	--	--	--	--	--	--	34.1
2019	--	--	--	--	--	--	36.4
2020	--	--	--	--	--	--	19.5
2021	--	--	--	--	--	--	5.9
2022	--	--	--	--	--	--	6.0
2023	--	--	--	--	--	--	3.9
2024	--	--	--	--	--	--	1.6
2025	--	--	--	--	--	--	0.4
Subtotal	--	--	--	--	--	--	305.2



Annual Funding							
1319   RDT&E   Research, Development, Test, and Evaluation, Navy							
Fiscal Year	Quantity	BY 2011 \$M					
		End Item Recurring Flyaway	Non End Item Recurring Flyaway	Non Recurring Flyaway	Total Flyaway	Total Support	Total Program
2004	--	--	--	--	--	--	1.5
2005	--	--	--	--	--	--	4.3
2006	--	--	--	--	--	--	8.3
2007	--	--	--	--	--	--	7.0
2008	--	--	--	--	--	--	0.5
2009	--	--	--	--	--	--	5.5
2010	--	--	--	--	--	--	--
2011	--	--	--	--	--	--	0.9
2012	--	--	--	--	--	--	8.1
2013	--	--	--	--	--	--	17.1
2014	--	--	--	--	--	--	15.5
2015	--	--	--	--	--	--	33.9
2016	--	--	--	--	--	--	33.9
2017	--	--	--	--	--	--	49.1
2018	--	--	--	--	--	--	29.9
2019	--	--	--	--	--	--	31.3
2020	--	--	--	--	--	--	16.4
2021	--	--	--	--	--	--	4.9
2022	--	--	--	--	--	--	4.9
2023	--	--	--	--	--	--	3.1
2024	--	--	--	--	--	--	1.2
2025	--	--	--	--	--	--	0.3
Subtotal	--	--	--	--	--	--	277.6

Annual Funding 3600   RDT&E   Research, Development, Test, and Evaluation, Air Force								
Fiscal Year	Quantity	TY \$M						
		End Item Recurring Flyaway	Non End Item Recurring Flyaway	Non Recurring Flyaway	Total Flyaway	Total Support	Total Program	
2005	--	--	--	--	--	--	--	5.1
2006	--	--	--	--	--	--	--	10.9
2007	--	--	--	--	--	--	--	3.3
2008	--	--	--	--	--	--	--	5.5
2009	--	--	--	--	--	--	--	5.5
2010	--	--	--	--	--	--	--	3.7
2011	--	--	--	--	--	--	--	7.0
2012	--	--	--	--	--	--	--	7.9
2013	--	--	--	--	--	--	--	6.0
2014	--	--	--	--	--	--	--	12.4
2015	--	--	--	--	--	--	--	28.8
2016	--	--	--	--	--	--	--	26.0
2017	--	--	--	--	--	--	--	36.2
2018	--	--	--	--	--	--	--	36.3
2019	--	--	--	--	--	--	--	29.0
2020	--	--	--	--	--	--	--	10.3
2021	--	--	--	--	--	--	--	19.4
2022	--	--	--	--	--	--	--	26.8
2023	--	--	--	--	--	--	--	21.2
2024	--	--	--	--	--	--	--	14.3
2025	--	--	--	--	--	--	--	14.5
2026	--	--	--	--	--	--	--	23.4
2027	--	--	--	--	--	--	--	32.1
Subtotal	--	--	--	--	--	--	--	385.6

Annual Funding							
3600   RDT&E   Research, Development, Test, and Evaluation, Air Force							
Fiscal Year	Quantity	BY 2011 \$M					
		End Item Recurring Flyaway	Non End Item Recurring Flyaway	Non Recurring Flyaway	Total Flyaway	Total Support	Total Program
2005	--	--	--	--	--	--	5.7
2006	--	--	--	--	--	--	11.8
2007	--	--	--	--	--	--	3.5
2008	--	--	--	--	--	--	5.7
2009	--	--	--	--	--	--	5.6
2010	--	--	--	--	--	--	3.7
2011	--	--	--	--	--	--	6.9
2012	--	--	--	--	--	--	7.7
2013	--	--	--	--	--	--	5.7
2014	--	--	--	--	--	--	11.7
2015	--	--	--	--	--	--	26.9
2016	--	--	--	--	--	--	23.9
2017	--	--	--	--	--	--	32.7
2018	--	--	--	--	--	--	32.1
2019	--	--	--	--	--	--	25.1
2020	--	--	--	--	--	--	8.8
2021	--	--	--	--	--	--	16.2
2022	--	--	--	--	--	--	21.9
2023	--	--	--	--	--	--	17.0
2024	--	--	--	--	--	--	11.2
2025	--	--	--	--	--	--	11.2
2026	--	--	--	--	--	--	17.7
2027	--	--	--	--	--	--	23.7
Subtotal	--	--	--	--	--	--	336.4

Annual Funding 1507   Procurement   Weapons Procurement, Navy							
Fiscal Year	Quantity	TY \$M					
		End Item Recurring Flyaway	Non End Item Recurring Flyaway	Non Recurring Flyaway	Total Flyaway	Total Support	Total Program
2009	--	--	--	0.9	0.9	--	0.9
2010	--	--	--	11.4	11.4	--	11.4
2011	63	46.0	--	3.1	49.1	1.2	50.3
2012	69	39.2	--	7.6	46.8	1.7	48.5
2013	150	60.1	--	3.6	63.7	6.8	70.5
2014	216	88.5	--	2.3	90.8	6.6	97.4
2015	156	59.9	--	1.8	61.7	3.4	65.1
2016	207	76.4	--	6.3	82.7	3.3	86.0
2017	157	67.1	--	5.4	72.5	0.3	72.8
2018	193	72.7	--	4.2	76.9	3.2	80.1
2019	311	118.9	--	2.5	121.4	1.8	123.2
2020	365	142.3	--	5.4	147.7	4.2	151.9
2021	270	121.9	--	2.9	124.8	3.0	127.8
2022	229	106.0	--	3.1	109.1	4.0	113.1
2023	191	92.0	--	3.6	95.6	3.7	99.3
2024	247	119.9	--	3.3	123.2	3.0	126.2
2025	245	121.5	--	3.7	125.2	3.5	128.7
2026	366	175.6	--	3.5	179.1	7.7	186.8
2027	321	162.1	--	3.6	165.7	7.3	173.0
2028	216	123.9	--	3.7	127.6	5.9	133.5
2029	176	105.6	--	3.7	109.3	5.0	114.3
2030	176	107.7	--	3.8	111.5	5.1	116.6
2031	181	111.4	--	3.9	115.3	5.4	120.7
2032	209	130.3	--	4.0	134.3	6.3	140.6
2033	201	127.5	--	4.1	131.6	6.4	138.0
2034	248	138.6	--	4.1	142.7	7.0	149.7
2035	163	90.5	--	4.2	94.7	3.7	98.4
Subtotal	5326	2605.6	--	109.7	2715.3	109.5	2824.8



Annual Funding 1507   Procurement   Weapons Procurement, Navy							
Fiscal Year	Quantity	BY 2011 \$M					
		End Item Recurring Flyaway	Non End Item Recurring Flyaway	Non Recurring Flyaway	Total Flyaway	Total Support	Total Program
2009	--	--	--	0.9	0.9	--	0.9
2010	--	--	--	11.3	11.3	--	11.3
2011	63	44.7	--	3.0	47.7	1.2	48.9
2012	69	37.5	--	7.2	44.7	1.7	46.4
2013	150	56.7	--	3.4	60.1	6.5	66.6
2014	216	82.4	--	2.1	84.5	6.2	90.7
2015	156	54.9	--	1.6	56.5	3.2	59.7
2016	207	68.8	--	5.6	74.4	3.0	77.4
2017	157	59.2	--	4.8	64.0	0.3	64.3
2018	193	62.8	--	3.5	66.3	2.8	69.1
2019	311	100.6	--	2.2	102.8	1.5	104.3
2020	365	118.1	--	4.4	122.5	3.5	126.0
2021	270	99.2	--	2.4	101.6	2.4	104.0
2022	229	84.5	--	2.5	87.0	3.2	90.2
2023	191	71.9	--	2.8	74.7	2.9	77.6
2024	247	91.9	--	2.5	94.4	2.3	96.7
2025	245	91.3	--	2.7	94.0	2.7	96.7
2026	366	129.4	--	2.6	132.0	5.6	137.6
2027	321	117.1	--	2.6	119.7	5.3	125.0
2028	216	87.8	--	2.6	90.4	4.2	94.6
2029	176	73.3	--	2.6	75.9	3.5	79.4
2030	176	73.3	--	2.6	75.9	3.5	79.4
2031	181	74.3	--	2.6	76.9	3.7	80.6
2032	209	85.3	--	2.6	87.9	4.1	92.0
2033	201	81.8	--	2.6	84.4	4.1	88.5
2034	248	87.2	--	2.6	89.8	4.3	94.1
2035	163	55.8	--	2.6	58.4	2.3	60.7
Subtotal	5326	1989.8	--	88.9	2078.7	84.0	2162.7



Annual Funding							
3020   Procurement   Missile Procurement, Air Force							
Fiscal Year	Quantity	TY \$M					
		End Item Recurring Flyaway	Non End Item Recurring Flyaway	Non Recurring Flyaway	Total Flyaway	Total Support	Total Program
2009	--	--	--	1.9	1.9	--	1.9
2010	--	--	--	14.2	14.2	--	14.2
2011	106	60.5	--	3.7	64.2	1.4	65.6
2012	127	75.8	--	9.1	84.9	1.7	86.6
2013	150	62.3	--	4.2	66.5	7.4	73.9
2014	225	92.6	--	5.4	98.0	6.2	104.2
2015	333	125.7	--	3.4	129.1	1.7	130.8
2016	531	193.9	--	3.9	197.8	0.9	198.7
2017	313	113.3	--	14.0	127.3	7.8	135.1
2018	321	117.7	--	6.8	124.5	3.7	128.2
2019	256	110.3	--	7.8	118.1	3.5	121.6
2020	355	152.4	--	2.9	155.3	4.9	160.2
2021	331	161.8	--	2.9	164.7	5.3	170.0
2022	229	114.3	--	3.1	117.4	3.8	121.2
2023	233	118.7	--	3.0	121.7	4.0	125.7
2024	232	116.5	--	3.8	120.3	4.0	124.3
2025	244	118.9	--	3.5	122.4	4.2	126.6
2026	271	135.5	--	3.5	139.0	4.9	143.9
2027	285	136.9	--	3.6	140.5	5.0	145.5
2028	269	135.1	--	3.7	138.8	5.0	143.8
2029	238	134.3	--	3.7	138.0	5.1	143.1
2030	241	139.3	--	3.8	143.1	5.4	148.5
2031	238	141.3	--	3.9	145.2	5.6	150.8
2032	219	132.3	--	4.0	136.3	5.3	141.6
2033	198	128.5	--	4.0	132.5	5.2	137.7
2034	182	121.9	--	4.1	126.0	5.0	131.0
2035	182	127.6	--	1.0	128.6	5.4	134.0
Subtotal	6309	3067.4	--	128.9	3196.3	112.4	3308.7

Annual Funding 3020   Procurement   Missile Procurement, Air Force							
Fiscal Year	Quantity	BY 2011 \$M					
		End Item Recurring Flyaway	Non End Item Recurring Flyaway	Non Recurring Flyaway	Total Flyaway	Total Support	Total Program
2009	--	--	--	1.9	1.9	--	1.9
2010	--	--	--	14.2	14.2	--	14.2
2011	106	59.2	--	3.6	62.8	1.4	64.2
2012	127	73.0	--	8.8	81.8	1.6	83.4
2013	150	58.6	--	4.0	62.6	7.0	69.6
2014	225	85.9	--	5.0	90.9	5.8	96.7
2015	333	115.2	--	3.1	118.3	1.6	119.9
2016	531	174.6	--	3.5	178.1	0.8	178.9
2017	313	99.7	--	12.3	112.0	6.9	118.9
2018	321	101.6	--	5.8	107.4	3.2	110.6
2019	256	93.3	--	6.6	99.9	3.0	102.9
2020	355	126.3	--	2.4	128.7	4.1	132.8
2021	331	131.5	--	2.4	133.9	4.3	138.2
2022	229	91.1	--	2.5	93.6	3.0	96.6
2023	233	92.7	--	2.3	95.0	3.2	98.2
2024	232	89.2	--	2.9	92.1	3.1	95.2
2025	244	89.3	--	2.6	91.9	3.2	95.1
2026	271	99.7	--	2.6	102.3	3.6	105.9
2027	285	98.8	--	2.6	101.4	3.6	105.0
2028	269	95.6	--	2.6	98.2	3.5	101.7
2029	238	93.2	--	2.6	95.8	3.5	99.3
2030	241	94.7	--	2.6	97.3	3.7	101.0
2031	238	94.2	--	2.6	96.8	3.7	100.5
2032	219	86.5	--	2.6	89.1	3.5	92.6
2033	198	82.4	--	2.6	85.0	3.2	88.2
2034	182	76.6	--	2.6	79.2	3.1	82.3
2035	182	78.6	--	0.6	79.2	3.3	82.5
Subtotal	6309	2381.5	--	107.9	2489.4	86.9	2576.3

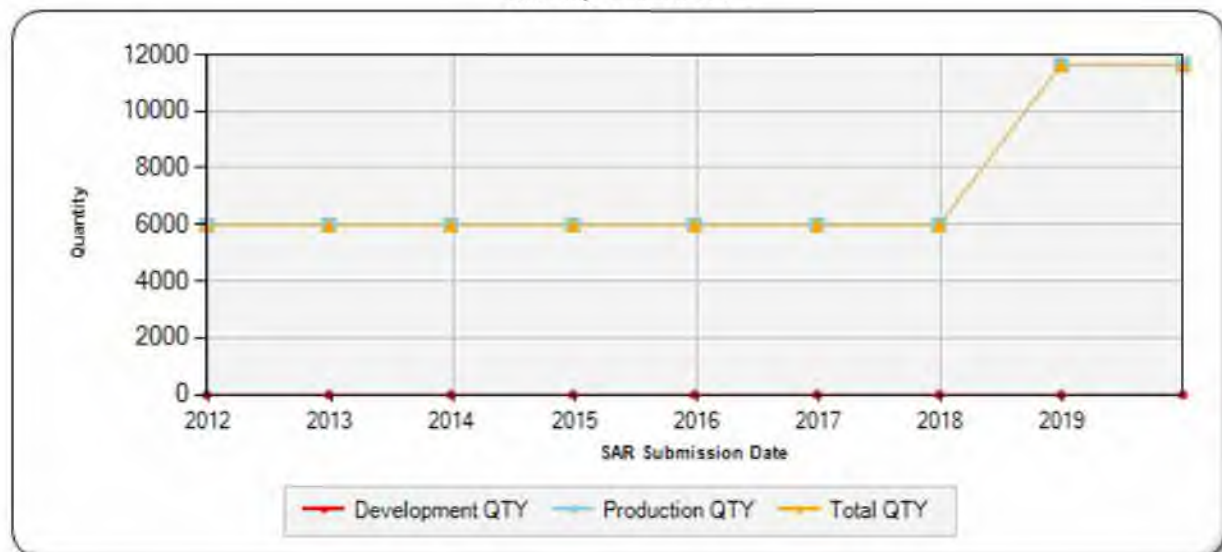
## Charts

### AIM-9X Blk II first began SAR reporting in December 2011

Program Acquisition Cost - AIM-9X Blk II  
Base Year 2011 \$M

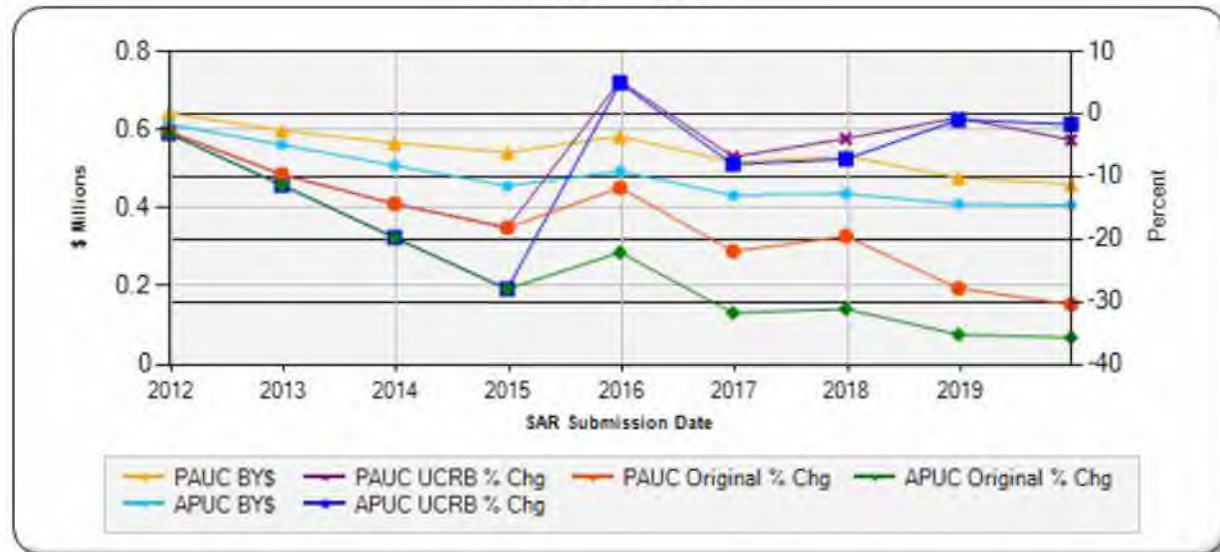


Quantity - AIM-9X Blk II





Unit Cost - AIM-9X B1k II  
Base Year 2011 \$M



## Risks

### Significant Schedule and Technical Risks

Significant Schedule and Technical Risks	
Milestone C (June 2011)	
1.	Block II limited reliability data on Active Optical Target Detector (AOTD) may impact readiness for All-up-Round (AUR) Operational Test Readiness Review (OTRR).
2.	Block II Cost Reduction Initiatives (CRIs) may not yield anticipated cost reductions.
Current Estimate (December 2019)	
1.	System Improvement Program (SIP III) Application Specific Integrated Circuit (ASIC) Processor delivery for production may not meet Lot 21 cut-in.

## Risks

### Risk and Sensitivity Analysis

Risks and Sensitivity Analysis	
Current Baseline Estimate (February 2019)	
1.	None.
Original Baseline Estimate (December 2011)	
1.	The original Total Acquisition Cost was \$3967.3M (BY 2011).
Revised Original Estimate (N/A)	
1.	N/A
Current Procurement Cost (December 2019)	
1.	Warhead and Processor development and schedule delays may effect Engineering Change Proposal (ECP) procurement cost.



**Low Rate Initial Production**

Item	Initial LRIP Decision	Current Total LRIP
Approval Date	6/30/2011	6/5/2014
Approved Quantity	361	1140
Reference	Milestone C ADM	LRIP IV ADM
Start Year	2011	2011
End Year	2012	2014

## Foreign Military Sales

Country	Date of Sale	Quantity	Total Cost \$M	Description
Bahrain	12/15/2019	32	21.2	FMS Case BA-P-AAX. 32 Tactical Missiles.
Netherlands	11/27/2019	23	21.2	FMS Case NE-P-AGJ. 23 Tactical Missiles.
Bulgaria	8/12/2019	20	10.9	FMS Case BU-P-AAD. 12 Tactical Missiles and 8 Captive Air Training Missiles.
Slovakia	12/18/2018	108	58.9	FMS Case LO-P-LAH. 98 Tactical Missiles and 10 Captive Air Training Missiles.
Morocco	10/31/2018	50	15.5	FMS Case MO-P-AAK.(plus Amend #2). 36 Tactical Missiles and 14 Captive Air Training Missiles.
United Arab Emirates	8/28/2018	340	151.0	FMS Case AE-P-ABJ. 300 Tactical Missiles and 40 Captive Air Training Missiles.
Denmark	5/23/2018	16	8.6	FMS Case DE-P-AEC. 16 Tactical Missiles.
Netherlands	12/14/2017	17	12.0	FMS Case NE-P-AGE-A3. 17 Tactical Missiles.
South Korea	9/24/2017	60	23.9	FMS Case KS-P-AMA. 60 Tactical Missiles.
Qatar	6/16/2017	240	102.3	FMS Case QA-P-AAG. 200 Tactical Missiles and 40 Captive Air Training Missiles.
Poland	12/22/2016	121	41.2	FMS Case PL-P-AAV (plus Amend #2). 105 Tactical Missiles and 16 Captive Air Training Missiles.
Romania	12/16/2016	34	12.8	FMS Case RO-P-AAA. 22 Tactical Missiles and 12 Captive Air Training Missiles.
Belgium	11/28/2016	3	1.3	FMS Case BE-P-QBA. 3 Tactical Missiles.
Australia	7/11/2016	192	97.1	FMS Case AT-P-AYY. 177 Tactical Missiles and 15 Special Air Training Missiles.
Indonesia	5/4/2016	34	10.2	FMS Case ID-P-AAU. 14 Tactical Missiles and 20 Captive Air Training Missiles.
Netherlands	2/16/2016	71	20.2	FMS Case NE-P-AGE. 28 Tactical Missiles, 40 Captive Air Training Missiles and 3 Special Air Training Missiles.
Australia	12/22/2015	32	10.4	FMS Case AT-P-AYW. 12 Tactical Missiles, 14 Captive Air Training Missiles and 6 Special Air Training Missiles.
Japan	12/11/2015	10	2.9	FMS Case JA-P-ASL. 4 Tactical Missiles and 6 Captive Air Training Missiles
Turkey	12/10/2015	18	3.6	FMS Case TK-P-AHX-A6. 18 Captive Air Training Missiles
South Korea	10/30/2015	72	29.4	FMS Case KS-P-ALE. 62 Tactical Missiles and 10 Captive Air Training Missiles
Norway	10/28/2015	120	47.9	FMS Case NO-P-AHV. 90 Tactical Missiles and 30 Captive Air Training Missiles
Taiwan	9/10/2015	85	27.0	FMS Case TW-D-QBZ. 40 Tactical Missiles, 40 Captive Air Training Missiles and 5 Special Air Training Missiles.
Australia	2/9/2015	78	17.7	FMS Case AT-P-AZT. 68 Captive Air Training Missiles and 10 Special Air Training Missiles.



Israel	12/17/2014	35	12.4	FMS Case IS-P-AUH (plus Amend #2, #3). 23 Tactical Missiles, 11 Captive Air Training Missiles and 1 Special Air Training Missile
Japan	12/1/2014	9	4.4	FMS Case JA-P-LZB. 9 Tactical Missiles.
South Korea	8/27/2014	78	37.8	FMS Case KS-P-ALC. 76 Tactical Missiles and 2 Captive Air Training Missiles
Belgium	1/6/2014	60	24.6	FMS Case BE-P-ACX. 30 Tactical Missiles and 30 Captive Air Training Missiles.
Singapore	12/18/2013	28	9.4	FMS Case SN-P-ADF. 20 Tactical Missiles and 8 Captive Air Training Missiles.
Turkey	9/3/2013	117	45.7	FMS Case TK-P-AHX-A5. 117 Tactical Missiles.
Oman	3/11/2013	74	20.7	FMS Case MU-P-LAO. 50 Tactical Missiles and 24 Captive Air Training Missiles.
Kuwait	2/28/2013	100	29.1	FMS Case KU-P-ABI. 80 Tactical Missiles and 20 Captive Air Training Missiles.
Malaysia	5/29/2012	28	22.8	FMS Case MF-P-AAD. 20 Tactical Missiles and 8 Captive Air Training Missiles.
Saudi Arabia	12/25/2011	154	67.7	FMS Case SR-D-SAI. 120 Tactical Missiles and 34 Captive Air Training Missiles.
South Korea	12/20/2011	19	9.0	FMS Case KS-P-AKR. 19 Tactical Missiles.

### Notes

Some AIM-9X Block II (AIM-9X-2) FMS missiles were procured with Yockey waiver USD (AT&L) approval to offer a weapon system under development. Effective August 2015, Yockey approval for FMS AIM-9X Block II missiles is no longer required because AIM-9X is in FRP.

The first FMS Block II missile shipments to international partners began in 1st quarter FY 2017.

The DoD Nonrecurring Cost (NC) recoupment charges for the AIM-9X Block II Sidewinder missile and Guidance Units, to include the AIM-9X Block II+ (AIM-9X-3) Tactical missile, was established on January 17, 2017 by Defense Security Cooperation Agency. Block II+ will only be offered to nations that operate JSF. The first FMS Block II+ missile Letters of Offer and Acceptance were offered in CY 2017 and are included in the FY 2018 missile procurement contract; deliveries will occur no later than March 2022.

To date, all AIM-9X FMS missiles have been sold under FMS procedures with waivers for NC recoupment charges.

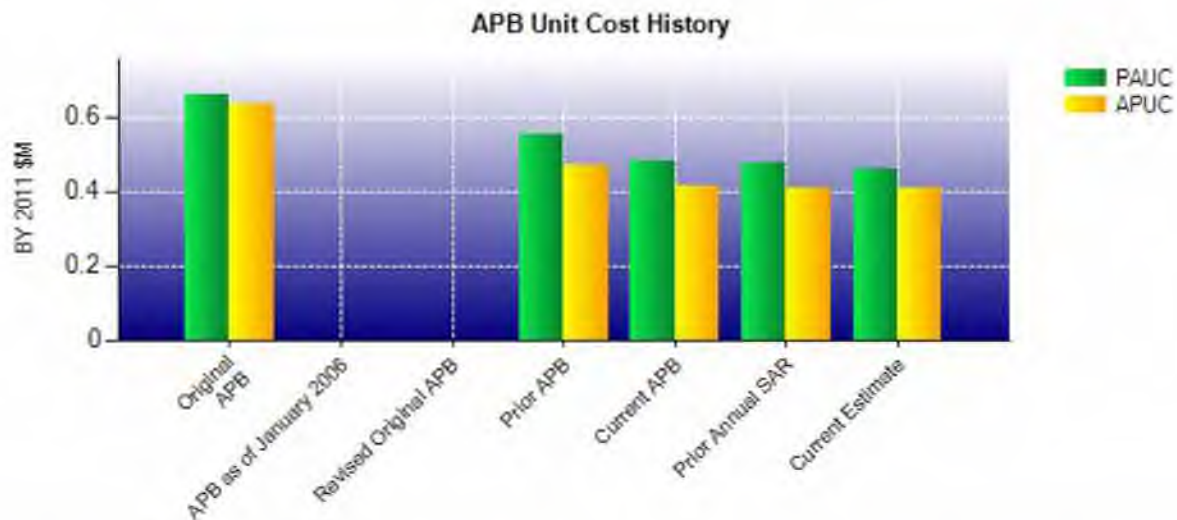


**Nuclear Costs**

None

## Unit Cost

Current UCR Baseline and Current Estimate (Base-Year Dollars)			
Item	BY 2011 \$M	BY 2011 \$M	% Change
	Current UCR Baseline (Feb 2019 APB)	Current Estimate (Dec 2019 SAR)	
Program Acquisition Unit Cost			
Cost	5589.2	5353.0	
Quantity	11635	11635	
Unit Cost	0.480	0.460	-4.17
Average Procurement Unit Cost			
Cost	4811.5	4739.0	
Quantity	11635	11635	
Unit Cost	0.414	0.407	-1.69
Original UCR Baseline and Current Estimate (Base-Year Dollars)			
Item	BY 2011 \$M	BY 2011 \$M	% Change
	Original UCR Baseline (Dec 2011 APB)	Current Estimate (Dec 2019 SAR)	
Program Acquisition Unit Cost			
Cost	3967.3	5353.0	
Quantity	6000	11635	
Unit Cost	0.661	0.460	-30.41
Average Procurement Unit Cost			
Cost	3798.5	4739.0	
Quantity	6000	11635	
Unit Cost	0.633	0.407	-35.70



APB Unit Cost History					
Item	Date	BY 2011 \$M		TY \$M	
		PAUC	APUC	PAUC	APUC
Original APB	Dec 2011	0.661	0.633	0.809	0.780
APB as of January 2006	N/A	N/A	N/A	N/A	N/A
Revised Original APB	N/A	N/A	N/A	N/A	N/A
Prior APB	Aug 2015	0.554	0.470	0.645	0.554
Current APB	Feb 2019	0.480	0.414	0.604	0.528
Prior Annual SAR	Dec 2018	0.477	0.410	0.609	0.531
Current Estimate	Dec 2019	0.460	0.407	0.587	0.527

### SAR Unit Cost History

Current SAR Baseline to Current Estimate (TY \$M)									
PAUC Production Estimate	Changes								PAUC Current Estimate
	Econ	Qty	Sch	Eng	Est	Oth	Spt	Total	
0.809	0.010	0.053	-0.136	0.026	-0.176	0.000	0.001	-0.222	0.587

Current SAR Baseline to Current Estimate (TY \$M)									
Initial APUC Production Estimate	Changes								APUC Current Estimate
	Econ	Qty	Sch	Eng	Est	Oth	Spt	Total	
0.780	0.010	0.066	-0.142	-0.001	-0.187	0.000	0.001	-0.253	0.527



SAR Baseline History				
Item	SAR Planning Estimate	SAR Development Estimate	SAR Production Estimate	Current Estimate
Milestone A	N/A	N/A	N/A	N/A
Milestone B	N/A	N/A	N/A	N/A
Milestone C	N/A	N/A	Jun 2011	Jun 2011
IOC	N/A	N/A	Sep 2014	Mar 2015
Total Cost (TY \$M)	N/A	N/A	4856.1	6824.3
Total Quantity	N/A	N/A	6000	11635
PAUC	N/A	N/A	0.809	0.587

**Cost Variance**

Summary TY \$M				
Item	RDT&E	Procurement	MILCON	Total
SAR Baseline (Production Estimate)	175.7	4680.4	--	4856.1
Previous Changes				
Economic	-2.5	+116.8	--	+114.3
Quantity	--	+5163.7	--	+5163.7
Schedule	+72.3	-1639.1	--	-1566.8
Engineering	+316.2	-15.4	--	+300.8
Estimating	+340.7	-2174.9	--	-1834.2
Other	--	--	--	--
Support	--	+48.5	--	+48.5
Subtotal	+726.7	+1499.6	--	+2226.3
Current Changes				
Economic	+0.7	+3.5	--	+4.2
Quantity	--	--	--	--
Schedule	--	-15.2	--	-15.2
Engineering	--	--	--	--
Estimating	-212.3	+3.8	--	-208.5
Other	--	--	--	--
Support	--	-38.6	--	-38.6
Subtotal	-211.6	-46.5	--	-258.1
Total Changes	+515.1	+1453.1	--	+1968.2
Current Estimate	690.8	6133.5	--	6824.3

Summary BY 2011 \$M				
Item	RDT&E	Procurement	MILCON	Total
SAR Baseline (Production Estimate)	168.8	3798.5	--	3967.3
Previous Changes				
Economic	--	--	--	--
Quantity	--	+3564.6	--	+3564.6
Schedule	+61.1	-957.1	--	-896.0
Engineering	+281.3	-12.6	--	+268.7
Estimating	+263.2	-1659.5	--	-1396.3
Other	--	--	--	--
Support	--	+36.4	--	+36.4
Subtotal	+605.6	+971.8	--	+1577.4
Current Changes				
Economic	--	--	--	--
Quantity	--	--	--	--
Schedule	--	--	--	--
Engineering	--	--	--	--
Estimating	-160.4	-1.1	--	-161.5
Other	--	--	--	--
Support	--	-30.2	--	-30.2
Subtotal	-160.4	-31.3	--	-191.7
Total Changes	+445.2	+940.5	--	+1385.7
Current Estimate	614.0	4739.0	--	5353.0

Previous Estimate: December 2018



RDT&E		\$M	
Current Change Explanations		Base Year	Then Year
Revised escalation indices. (Economic)		N/A	+0.7
Revised estimate due to re-phasing for higher Navy priorities (Navy). (Estimating)		+4.7	+5.9
Revised estimate due to re-phasing for higher Air Force priorities (Air Force). (Estimating)		-6.5	-7.4
Revised estimate due to SIP IV requirements not fully funded (Navy). (Estimating)		-124.3	-166.4
Revised estimate due to SIP IV requirements not fully funded (Air Force). (Estimating)		-33.4	-43.4
Revised estimate due to Small Business Innovation Research (SBIR) reduction (Air Force). (Estimating)		-0.8	-0.9
Adjustment for current and prior escalation. (Estimating)		-0.1	-0.1
RDT&E Subtotal		-160.4	-211.6

Procurement		\$M	
Current Change Explanations		Base Year	Then Year
Revised escalation indices. (Economic)		N/A	+3.5
Acceleration of procurement buy profile of 185 missiles from FY 2025 through FY 2035 to FY 2017 through FY2024 (Navy). (Schedule)		0.0	-13.0
Acceleration of procurement buy profile of 48 missiles from FY 2023 through FY 2025 to FY 2017 through FY 2022 (Air Force). (Schedule)		0.0	-2.2
Revised estimate due to updated hardware based on contract negotiation data (Navy). (Estimating)		-7.1	-6.8
Revised estimate due to updated hardware based on contract negotiation data (Air Force). (Estimating)		+6.3	+11.0
Adjustment for current and prior escalation. (Estimating)		-0.3	-0.4
Adjustment for current and prior escalation. (Support)		0.0	+0.1
Decrease in Other Support due to change in Telemetry Unit requirements (Navy). (Support)		-5.8	-7.6
Decrease in Other Support due to change in training missile requirements (Air Force). (Support)		-9.1	-11.1
Decrease in Initial Spares due to change in procurement profile (Navy). (Support)		-5.0	-6.8
Decrease in Initial Spares due to change in procurement profile (Air Force). (Support)		-10.3	-13.2
Procurement Subtotal		-31.3	-46.5

## Contracts

### Contract Identification

**Appropriation:** Procurement  
**Contract Name:** AIM-9X Block II Lot 15-17 Production  
**Contractor:** Raytheon  
**Contractor Location:** 1151 East Hermans Road  
 Tucson, AZ 85756  
**Contract Number:** N00019-15-C-0092  
**Contract Type:** Fixed Price Incentive(Firm Target) (FPIF)  
**Award Date:** March 26, 2015  
**Definitization Date:** March 26, 2015

Contract Price							
Initial Contract Price (\$M)			Current Contract Price (\$M)			Estimated Price At Completion (\$M)	
Target	Ceiling	Qty	Target	Ceiling	Qty	Contractor	Program Manager
26.0	26.0	0	881.2	901.9	2266	881.2	881.2

### Target Price Change Explanation

The difference between the Initial Contract Price Target and the Current Contract Price Target is due to awarding the final Lot 15 quantities, Lot 16, Lot 17, the Lot 17 Option, additional FMS quantities, Guidance Units, Programmable Advanced System Interface Simulator Plus (PASIS+), spares and a production line for Dummy Air Training Missiles (DATM), Classroom Explosive Systems Trainer (CEST), and Practical Explosive Systems Trainer (PEST) training missiles for AIM-9X Block II Full Rate Production which includes missiles, containers and spare parts in support of the United States Navy, United States Air Force and several FMS customers.

### Cost and Schedule Variance Explanations

Cost and Schedule Variance reporting is not required on this (FPIF) contract.

### General Contract Variance Explanation

Cost and schedule variances are not reported for this contract, because an earned value management waiver was granted by Office of the Assistant Secretary of the Navy (Research, Development and Acquisition) Deputy Assistant of the Navy (Acquisition and Procurement) on May 26, 2015 due to the utilization of other methods to monitor contract performance (i.e., a Cost and Software Data Reporting requirement).

### Notes

Quantities reflects Tactical Missiles and Captive Air Training Missiles (CATMs).



**Contract Identification**

**Appropriation:** RDT&E  
**Contract Name:** AIM-9X Block II System Improvement Plan III  
**Contractor:** Raytheon  
**Contractor Location:** 1151 East Hermans Road  
 Tucson, AZ 85756  
**Contract Number:** N00019-15-C-0121/1  
**Contract Type:** Cost Plus Fixed Fee (CPFF)  
**Award Date:** September 25, 2015  
**Definitization Date:** September 25, 2015

Contract Price							
Initial Contract Price (\$M)			Current Contract Price (\$M)			Estimated Price At Completion (\$M)	
Target	Ceiling	Qty	Target	Ceiling	Qty	Contractor	Program Manager
264.8	N/A	0	319.7	N/A	0	319.7	319.7

**Target Price Change Explanation**

The difference between the Initial Contract Price Target and the Current Contract Price Target is due to adding Circuit Card Assemblies for Environmental Qualification, missile qualification on EA-18G and Australian Growlers and the procurement of test missiles and components for testing of FMS software and AV-8B integration efforts.

Contract Variance		
Item	Cost Variance	Schedule Variance
Cumulative Variances To Date (12/31/2019)	-3.9	-5.5
Previous Cumulative Variances	-2.4	-3.9
Net Change	-1.5	-1.6

**Cost and Schedule Variance Explanations**

The unfavorable net change in the cost variance is due to schedule slips and late deliveries from the Active Optical Target Detector (ASIC) supplier, a key technology component in the Phase 2 hardware and 10.4 Operational Flight Software (OFS) development efforts.

The unfavorable net change in the schedule variance is due to the unplanned Block II+ primer investigation, Control Actuation System (CAS) battery development test failures, a late start in material receipts that impacted the Lot 17 Block II+ Program Readiness Review (PRR), Missile Processor Unit (MPU) power and thermal challenges, delays in OFS 9.4 Phase 3 software development (which caused a subsequent challenge to Phase 4 and Phase 5 software development), and technical challenges related to the Nano Composite Optical Ceramic (NCOC) Dome.



**Contract Identification**

**Appropriation:** Procurement  
**Contract Name:** AIM-9X Block Lots 18-20 Production  
**Contractor:** Raytheon  
**Contractor Location:** 1151 East Hermans Road  
 Tucson, AZ 85756  
**Contract Number:** N00019-18-C-1068/1  
**Contract Type:** Fixed Price Incentive(Firm Target) (FPIF)  
**Award Date:** September 13, 2018  
**Definitization Date:** April 15, 2019

Contract Price							
Initial Contract Price (\$M)			Current Contract Price (\$M)			Estimated Price At Completion (\$M)	
Target	Ceiling	Qty	Target	Ceiling	Qty	Contractor	Program Manager
20.3	N/A	0	915.1	N/A	2043	915.1	915.1

**Target Price Change Explanation**

The difference between the Initial Contract Price Target and the Current Contract Price Target is due to the addition of Lot 18 and 19 quantities.

**Cost and Schedule Variance Explanations**

Cost and Schedule Variance reporting is not required on this (FPIF) contract.

**General Contract Variance Explanation**

Cost and schedule variances are not reported for this contract, because an earned value management waiver was granted by Office of the Assistant Secretary of the Navy (Research, Development and Acquisition) Deputy Assistant of the Navy (Acquisition and Procurement) on June 07, 2018 due to the utilization of other methods to monitor contract performance (i.e., a Cost and Software Data Reporting requirement).

**Notes**

Quantities reflects Tactical Missiles and CATMs.

## Deliveries and Expenditures

Deliveries				
Delivered to Date	Planned to Date	Actual to Date	Total Quantity	Percent Delivered
Development	0	0	0	--
Production	2278	2821	11635	24.25%
Total Program Quantity Delivered	2278	2821	11635	24.25%

Expended and Appropriated (TY \$M)			
Total Acquisition Cost	6824.3	Years Appropriated	17
Expended to Date	1907.6	Percent Years Appropriated	53.13%
Percent Expended	27.95%	Appropriated to Date	2600.4
Total Funding Years	32	Percent Appropriated	38.11%

The above data is current as of February 10, 2020.

### Notes

Planned to date reflects actual contractual obligation for United States Navy & United States Air Force Tactical and Captive Air Training Missiles through March 2019.

The delta between planned to date and actual to date is that Raytheon is delivering Lot 17 and Lot 18 missiles ahead of contract requirement. The Lot 17 missiles are due in March 2020 and September 2020. Lot 18 is not due until March 2021.



## Operating and Support Cost

### Cost Estimate Details

<b>Date of Estimate:</b>	January 09, 2020
<b>Source of Estimate:</b>	POE
<b>Quantity to Sustain:</b>	11635
<b>Unit of Measure:</b>	Total Quantity
<b>Service Life per Unit:</b>	20.00 Years
<b>Fiscal Years in Service:</b>	FY 2014 - FY 2067

The sustaining support consists of systems engineering, program management support, failure analysis, and surveillance/quality/obsolescence evaluation program. The cost estimate considers a service life stated in the service life letter 8810 dated July 24, 2013 for the All Up Round (AUR) and letter dated September 15, 2010 for the Captive Air Training Missile (CATM). The estimate assumes operational utilization AURs and CATMs as indicated in the following table:

Type	Service	Yearly Qty In-Use	Yearly Flight Hours
CATM	USN	All	281
	USAF	All	275
AUR	USN	250	227
	USAF	300	33

### Sustainment Strategy

The sustainment strategy for the AIM-9X Block II is essentially the same as the previous AIM-9X missile configurations. In 1996, Hughes Missile Systems Company (HMSC) (subsequently acquired by Raytheon Missile Systems (Raytheon)) was competitively selected as the designer, developer, manufacturer, and integrator of the AIM-9X-2 missile. As a cost-savings initiative, the Government did not procure a Level III Technical Data Package (TDP) for procurement purposes and required Raytheon to retain configuration control of items not affecting the system specification as AIM-9X was intended to be sustained under a "wooden round" concept (O to D). Raytheon Missile Systems is the sole source of Depot repairs of the AIM-9X-2 missile. The average turnaround time for Raytheon Depot repairs is over 270 days. In order to reduce turnaround times and decrease the Raytheon Depot backlog, and proved through a follow-on Product Support BCA, PMA-259 funded the stand up and training of AIM-9X Intermediate Plus (I+) Sectionalization repair capability forward in the 7th Fleet AOR (NAWMU-1) and Organic Intermediate Repair Capability at Letterkenny Munitions Center (LEMC). NAWMU-1 and LEMC have the ability to perform sectionalization maintenance to remove and replace AIM-9X-2 Guidance Units and return AIM-9X-2 missiles back to a Ready For Issue status. The predicted organic site turnaround times are 9 times faster than the commercial site (270+ days commercial versus less than 30 organic); however, consistent throughput of missiles back to the Fleet is dependent on an adequate spares pool for major 8E COG assemblies - of which the Guidance Unit accounts for 95% of all failures. The Program Office's Return to Readiness (R2R) initiatives are focused on improving velocity through the supply chain at all phases; however, the most recent Product Support Business Case Analysis for AIM-9X-2 shows the most Return On Investment (ROI) both financially and in terms of readiness by relieving capacity restraints at the commercial repair site at the AUR level by maximizing AUR repair through NAWMU-1 and LEMC.



### Antecedent Information

The AIM-9X Block I is the antecedent system to the AIM-9X Block II. Antecedent costs were derived based on historical data collected via the Naval Visibility and Management of Operating and Support Costs database and estimated through the remainder of the life (FY 2032). A total of 3,097 AIM-9X Block I missiles were procured. The last year of procurement was FY 2010. There is a 20-year service life assumption for the AIM-9X Block I AUR and a 13-year service life assumption for the CATM. The AIM-9X Block I system included a warranty period that accounted for missile repair costs. The AIM-9X Block II system does not include a warranty and was estimated accordingly.

Annual O&S Costs BY2011 \$M			
Cost Element	AIM-9X Blk II Average Annual Cost Per Total Quantity		AIM-9X Block I (Antecedent) Average Annual Cost Per Total Quantity
Unit-Level Manpower	0.000		0.000
Unit Operations	0.000		2.200
Maintenance	12.040		5.300
Sustaining Support	7.540		5.800
Continuing System Improvements	5.130		5.000
Indirect Support	0.000		0.100
Other	0.000		0.000
Total	24.710		18.400

Item	Total O&S Cost \$M			
	AIM-9X Blk II			AIM-9X Block I (Antecedent)
	Current Production APB Objective/Threshold	Current Estimate		
Base Year	1343.8	1478.2	1334.5	531.9
Then Year	2390.0	N/A	2384.2	N/A

Disposal Cost is included in the Operating and Support Cost of the current APB objective and threshold for this program.

### Equation to Translate Annual Cost to Total Cost

Average Annual Cost is calculated using the total cost divided by the number of years for sustainment.

Total Cost / Total Years of Sustainment = Average Annual Cost.

\$1,334.53M / 54 years = \$24.71 \$M/Y

O&S Cost Variance		
Category	BY 2011 \$M	Change Explanations

Prior SAR Total O&S Estimates - Dec 2018 SAR	1333.5
Programmatic/Planning Factors	1.0 increase due to change in procurement
Cost Estimating Methodology	0.0
Cost Data Update	0.0
Labor Rate	0.0
Energy Rate	0.0
Technical Input	0.0
Other	0.0
Total Changes	1.0
Current Estimate	1334.5

#### Disposal Estimate Details

**Date of Estimate:** January 09, 2020  
**Source of Estimate:** POE  
**Disposal/Demilitarization Total Cost (BY 2011 \$M):** 5.3