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Selected Acquisition Report (SAR)

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



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

As of FY 2020 President's Budget

Defense Acquisition Management
Information Retrieval
(DAMIR)

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Sensitivity Originator

No originator information is available at this time.

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 awarded its fourth full rate production contract (Lot 18) in December 2018, with the contract definitization anticipated in March 2019, for the procurement of United States Navy (USN), United States Air Force (USAF), and FMS missiles. The program met another key milestone this year with the release of Operational Flight Software (OFS) version 9.4 to test. OFS V9.4 provides improvements to pace the threat and fully utilize hardware capabilities; it will be incorporated into all Block II missiles in FY 2021.

FOC was declared in October 2016. The USN declared IOC in March 2015. The USAF fielded the missile in April 2016 and declared IOC in September 2016.

Integration of AIM-9X onto 5th generation aircraft continued this year. The USAF took two shots in support of F-22 integration activities culminating in an expanded employment envelope. F-22 also completed three Block II shots in support of 3.2B Operational Test (OT) and was cleared to employ AIM-9X Block II with the 9.317 Operational Flight Software. The F-35 Joint Program Office took 13 AIM-9X shots, completing OT for 9.317. The F-35A/B/C was cleared to employ AIM-9X Block II with 9.317 in October 2018.

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.

Since late FY 2015, the SIP III effort has experienced two major delays. The first was caused by a late contract award that came as the result of issues identified in the FY 2013 AIM-9X Block II Initial Operational Test and Evaluation and the resulting re-work. The second delay came as a result of difficulties in the integration of the replacement missile processor. Production cut-in of the replacement missile processor will occur in late FY 2020. These delays will not affect the AIM-9X production line and the program has sufficient hardware to endure an additional 12 months of delay with no production impact.

Due to the success of numerous readiness improvement initiatives, AIM-9X Captive Air Training Missile availability meets threshold requirements. Operations and Maintenance, Navy funding was adequate for missile depot inductions and the program has significantly closed the spares funding deficiency in the last two fiscal years. The program maintained a thirty percent increase to availability, and current initiatives executed on time, cost, and schedule. Initiatives focused on reductions in transit time, repair time, and Ready for Issue sell off time, while developing organic missile sectionalization options and alternate Package, Handling, Storage and Transportation solutions. The program is reverse engineering tooling for Letterkenny Munitions center and all required tooling will be in place prior to scheduled training no later than 3rd quarter FY 2019.

Following the submission of PB 2020, the AIM-9X Block II APB was revised on February 01, 2019 to increase total missile procurements from 6,000 to 11,635 missiles and to extend the program through CY 2035.

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

History of Significant Developments Since Program Initiation	
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

- Schedule
- Performance
- Cost
 - RDT&E
 - Procurement
 - MILCON
 - Acq O&M
- O&S Cost
- Unit Cost
 - PAUC
 - APUC

Nunn-McCurdy Breaches

- Current UCR Baseline
 - PAUC None
 - APUC None
- Original UCR Baseline
 - PAUC None
 - APUC None

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.

Ao- AUR

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
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(Ch-1)

Net Readiness

<p>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, and the principles and rules identified in the DoD IEA, excepting tactical and non-IP</p>	<p>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, and the principles and rules identified in the DoD IEA, excepting tactical and non-IP</p>	<p>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 tactical and non-IP communications. 3) Compliant with GIG Technical Guidance to include IT</p>	<p>Meets Threshold</p>	<p>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, and the</p>
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<p>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</p>	<p>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</p>	<p>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</p>	<p>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</p>
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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	0.88	No less than (.86) after 100,000 flight hours
Material Availability (Am)				
Threshold= Objective	Threshold= Objective	No less than (.82)	0.97	0.93

(Ch-2)

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

Requirements Reference

CPD dated May 20, 2011

Change Explanations

(Ch-1) Ao-AUR Current Estimate changed from No less than (.99) after 35,000 flight hours to ≥ 0.99 due to the program meeting the 35,000 flight hour requirement.

(Ch-2) Material Availability (Am) Current Estimate changed from 0.98 to 0.93 due to analysis of failure forecasts and current depot Work in Progress (WIP).

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	Project	Name
Navy	1319	07	0207161N	
			0457	AIM-9X
Air Force	3600	07	0207161F	
			674132	AIM-9 Product Improvement

Procurement

Appn	BA	PE	Line Item	Name
Navy	1507	02	0204162N	
			2209	Sidewinder
Navy	1507	02	0206138M	
			2209	Sidewinder
			Notes: USMC funding received as WPN	
Navy	1507	06	0204162N	
			6120	Spares and Repair Parts (Shared)
Air Force	3020	04	0207161F	
			000999	Initial Spares/Repair Parts (Shared)
Air Force	3020	02	0207161F	
			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	774.4	175.7	889.6	902.4
Procurement	3798.5	4811.5	5292.7	4770.3	4680.4	6140.8	6180.0
Flyaway	--	--	--	4569.2	--	--	5919.6
Recurring	--	--	--	4375.0	--	--	5683.2
Non Recurring	--	--	--	194.2	--	--	236.4
Support	--	--	--	201.1	--	--	260.4
Other Support	--	--	--	56.0	--	--	66.6
Initial Spares	--	--	--	145.1	--	--	193.8
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	5544.7	4856.1	7030.4	7082.4

Current APB Cost Estimate Reference

Updated FRP Joint Component Cost Position dated August 23, 2018

Cost Notes

The program cost estimate in the current APB is dated August 23, 2018. However, due to the timing of the APB approval, February 1, 2019, the PB 2020 budget request does not capture the current program cost estimate.

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 2020 President's Budget / December 2018 SAR (TY\$ M)									
Appropriation	Prior	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total
RDT&E	426.1	77.3	29.8	26.4	27.1	21.5	14.6	279.6	902.4
Procurement	1522.7	248.6	283.5	296.0	249.2	238.2	226.5	3115.3	6180.0
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 2020 Total	1948.8	325.9	313.3	322.4	276.3	259.7	241.1	3394.9	7082.4
PB 2019 Total	1978.3	282.6	298.3	285.0	221.9	237.0	104.5	258.7	3666.3
Delta	-29.5	43.3	15.0	37.4	54.4	22.7	136.6	3136.2	3416.1

Quantity Summary										
FY 2020 President's Budget / December 2018 SAR (TY\$ M)										
Quantity	Undistributed	Prior	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total
Development	0	0	0	0	0	0	0	0	0	0
Production	0	3267	567	647	652	454	427	373	5248	11635
PB 2020 Total	0	3267	567	647	652	454	427	373	5248	11635
PB 2019 Total	0	3267	448	553	539	376	341	159	317	6000
Delta	0	0	119	94	113	78	86	214	4931	5635

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	--	--	--	--	--	--	40.1
2020	--	--	--	--	--	--	19.5
2021	--	--	--	--	--	--	6.9
2022	--	--	--	--	--	--	0.3
2023	--	--	--	--	--	--	0.3
2024	--	--	--	--	--	--	0.3
2025	--	--	--	--	--	--	47.5
2026	--	--	--	--	--	--	71.8
2027	--	--	--	--	--	--	46.8
Subtotal	--	--	--	--	--	--	465.0

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	--	--	--	--	--	--	30.0
2019	--	--	--	--	--	--	34.6
2020	--	--	--	--	--	--	16.5
2021	--	--	--	--	--	--	5.7
2022	--	--	--	--	--	--	0.2
2023	--	--	--	--	--	--	0.2
2024	--	--	--	--	--	--	0.2
2025	--	--	--	--	--	--	36.4
2026	--	--	--	--	--	--	53.9
2027	--	--	--	--	--	--	34.4
Subtotal	--	--	--	--	--	--	397.7

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	--	--	--	--	--	--	37.2
2020	--	--	--	--	--	--	10.3
2021	--	--	--	--	--	--	19.5
2022	--	--	--	--	--	--	26.8
2023	--	--	--	--	--	--	21.2
2024	--	--	--	--	--	--	14.3
2025	--	--	--	--	--	--	58.0
2026	--	--	--	--	--	--	23.4
2027	--	--	--	--	--	--	32.1
Subtotal	--	--	--	--	--	--	437.4

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	--	--	--	--	--	--	32.2
2020	--	--	--	--	--	--	8.7
2021	--	--	--	--	--	--	16.2
2022	--	--	--	--	--	--	21.9
2023	--	--	--	--	--	--	17.0
2024	--	--	--	--	--	--	11.2
2025	--	--	--	--	--	--	44.6
2026	--	--	--	--	--	--	17.6
2027	--	--	--	--	--	--	23.7
Subtotal	--	--	--	--	--	--	376.7

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	76.5	--	6.3	82.8	3.3	86.1	
2017	152	67.0	--	3.8	70.8	0.2	71.0	
2018	185	72.5	--	2.9	75.4	4.7	80.1	
2019	311	117.1	--	2.9	120.0	3.0	123.0	
2020	292	114.8	--	3.0	117.8	4.9	122.7	
2021	299	122.6	--	3.2	125.8	3.3	129.1	
2022	236	110.2	--	3.0	113.2	4.7	117.9	
2023	177	95.1	--	3.1	98.2	4.3	102.5	
2024	135	91.1	--	9.3	100.4	3.6	104.0	
2025	396	177.2	--	3.4	180.6	7.4	188.0	
2026	355	171.9	--	3.5	175.4	7.4	182.8	
2027	310	158.7	--	3.6	162.3	7.0	169.3	
2028	205	118.4	--	3.7	122.1	5.7	127.8	
2029	165	100.4	--	3.7	104.1	5.5	109.6	
2030	165	102.1	--	3.8	105.9	5.6	111.5	
2031	170	105.8	--	3.9	109.7	5.9	115.6	
2032	198	124.6	--	4.0	128.6	6.8	135.4	
2033	170	109.7	--	4.0	113.7	6.7	120.4	
2034	242	123.8	--	4.1	127.9	7.0	134.9	
2035	302	168.3	--	4.2	172.5	7.2	179.7	
Subtotal	5326	2621.5	--	110.1	2731.6	123.9	2855.5	

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	68.9	--	5.6	74.5	3.0	77.5	
2017	152	59.1	--	3.3	62.4	0.2	62.6	
2018	185	62.7	--	2.5	65.2	4.1	69.3	
2019	311	99.3	--	2.4	101.7	2.6	104.3	
2020	292	95.4	--	2.5	97.9	4.1	102.0	
2021	299	99.9	--	2.6	102.5	2.7	105.2	
2022	236	88.0	--	2.4	90.4	3.8	94.2	
2023	177	74.5	--	2.4	76.9	3.4	80.3	
2024	135	70.0	--	7.1	77.1	2.8	79.9	
2025	396	133.4	--	2.6	136.0	5.5	141.5	
2026	355	126.9	--	2.6	129.5	5.4	134.9	
2027	310	114.8	--	2.6	117.4	5.1	122.5	
2028	205	84.0	--	2.6	86.6	4.1	90.7	
2029	165	69.8	--	2.5	72.3	3.9	76.2	
2030	165	69.6	--	2.6	72.2	3.8	76.0	
2031	170	70.7	--	2.6	73.3	4.0	77.3	
2032	198	81.7	--	2.6	84.3	4.4	88.7	
2033	170	70.5	--	2.6	73.1	4.3	77.4	
2034	242	78.0	--	2.6	80.6	4.4	85.0	
2035	302	103.9	--	2.6	106.5	4.5	111.0	
Subtotal	5326	1997.3	--	88.8	2086.1	94.9	2181.0	

Cost Quantity Information		
1507 Procurement Weapons Procurement, Navy		
Fiscal Year	Quantity	End Item Recurring Flyaway (Aligned With Quantity) BY 2011 \$M
2009	--	--
2010	--	--
2011	63	44.7
2012	69	37.5
2013	150	56.7
2014	216	82.4
2015	156	54.9
2016	207	68.9
2017	152	59.1
2018	185	62.7
2019	311	99.3
2020	292	95.4
2021	299	99.9
2022	236	88.0
2023	177	74.5
2024	135	70.0
2025	396	133.4
2026	355	126.9
2027	310	114.8
2028	205	84.0
2029	165	69.8
2030	165	69.3
2031	170	72.3
2032	198	81.3
2033	170	70.2
2034	242	77.7
2035	302	103.6
Subtotal	5326	1997.3

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	287	105.1	--	18.6	123.7	11.4	135.1	
2018	310	121.8	--	2.8	124.6	5.8	130.4	
2019	256	115.6	--	5.6	121.2	4.4	125.6	
2020	355	157.4	--	2.9	160.3	0.5	160.8	
2021	353	161.9	--	3.0	164.9	2.0	166.9	
2022	218	109.8	--	2.2	112.0	19.3	131.3	
2023	250	118.5	--	1.9	120.4	15.3	135.7	
2024	238	118.2	--	1.8	120.0	2.5	122.5	
2025	275	130.4	--	3.4	133.8	4.6	138.4	
2026	261	131.7	--	3.5	135.2	4.7	139.9	
2027	278	131.8	--	3.6	135.4	4.8	140.2	
2028	261	130.3	--	3.6	133.9	4.9	138.8	
2029	228	130.6	--	3.7	134.3	5.0	139.3	
2030	237	138.4	--	3.8	142.2	5.4	147.6	
2031	227	136.2	--	3.9	140.1	5.4	145.5	
2032	211	128.0	--	3.9	131.9	5.1	137.0	
2033	203	129.1	--	4.0	133.1	5.3	138.4	
2034	197	127.0	--	4.1	131.1	5.3	136.4	
2035	192	129.1	--	4.2	133.3	5.5	138.8	
Subtotal	6309	3061.7	--	126.3	3188.0	136.5	3324.5	

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	--	4.9	90.8	5.8	96.6
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	287	92.5	--	16.3	108.8	10.1	118.9
2018	310	105.0	--	2.4	107.4	5.1	112.5
2019	256	97.7	--	4.8	102.5	3.7	106.2
2020	355	130.5	--	2.4	132.9	0.4	133.3
2021	353	131.6	--	2.4	134.0	1.6	135.6
2022	218	87.5	--	1.8	89.3	15.3	104.6
2023	250	92.6	--	1.5	94.1	11.9	106.0
2024	238	90.5	--	1.4	91.9	1.9	93.8
2025	275	97.9	--	2.6	100.5	3.4	103.9
2026	261	96.9	--	2.6	99.5	3.5	103.0
2027	278	95.1	--	2.6	97.7	3.5	101.2
2028	261	92.2	--	2.5	94.7	3.5	98.2
2029	228	90.6	--	2.6	93.2	3.4	96.6
2030	237	94.1	--	2.6	96.7	3.7	100.4
2031	227	90.8	--	2.6	93.4	3.6	97.0
2032	211	83.7	--	2.5	86.2	3.3	89.5
2033	203	82.7	--	2.6	85.3	3.4	88.7
2034	197	79.8	--	2.6	82.4	3.3	85.7
2035	192	79.5	--	2.6	82.1	3.4	85.5
Subtotal	6309	2377.7	--	105.4	2483.1	106.2	2589.3

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
Slovakia	12/18/2018	108	62.5	FMS Case LO-P-LAH. 98 Tactical Missiles and 10 Captive Air Training Missiles.
Morocco	10/31/2018	50	21.3	FMS Case MO-P-AAK. 36 Tactical Missiles and 14 Captive Air Training Missiles.
United Arab Emirates	8/28/2018	340	259.0	FMS Case AE-P-ABJ. 300 Tactical Missiles and 40 Captive Air Training Missiles.
Denmark	5/23/2018	16	9.2	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	40.7	FMS Case KS-P-AMA. 60 Tactical Missiles.
Qatar	6/16/2017	240	116.5	FMS Case QA-P-AAG. 200 Tactical Missiles and 40 Captive Air Training Missiles.
Poland	12/22/2016	97	41.2	FMS Case PL-P-AAV. 93 Tactical Missiles and 4 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	114.7	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	12.7	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	52.3	FMS Case KS-P-ALE. 62 Tactical Missiles and 10 Captive Air Training Missiles
Norway	10/28/2015	120	58.1	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	34	13.7	FMS Case IS-P-AUH. 23 Tactical Missiles and 11 Captive Air Training Missiles
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

Singapore	12/18/2013	28	9.4	Captive Air Training Missiles. 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.

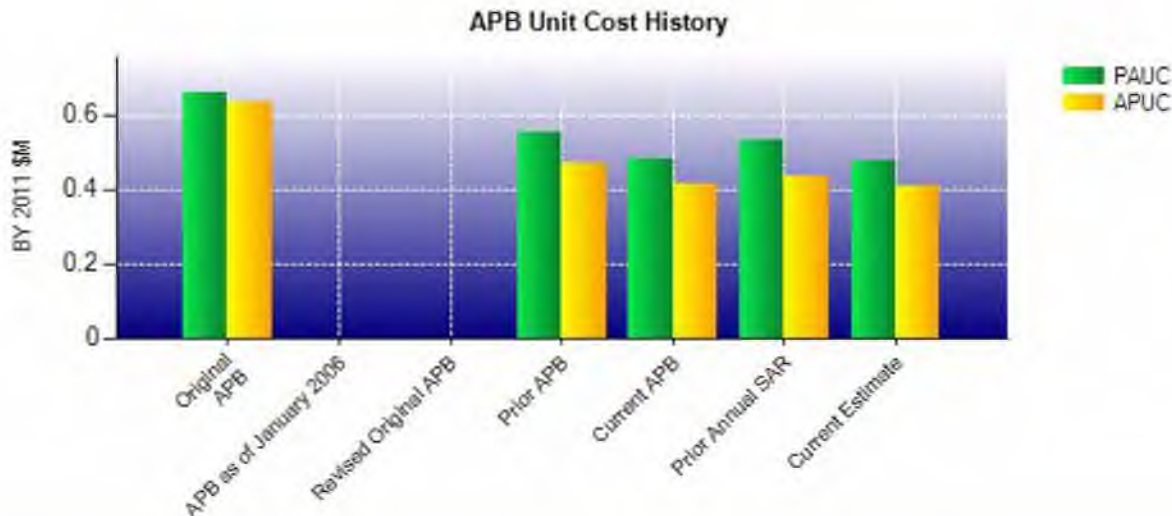
To date, all AIM-9X FMS missiles have been sold under FMS procedures with waivers for NC recoupment charges.

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 2018 SAR)	
Program Acquisition Unit Cost			
Cost	5589.2	5544.7	
Quantity	11635	11635	
Unit Cost	0.480	0.477	-0.62
Average Procurement Unit Cost			
Cost	4811.5	4770.3	
Quantity	11635	11635	
Unit Cost	0.414	0.410	-0.97
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 2018 SAR)	
Program Acquisition Unit Cost			
Cost	3967.3	5544.7	
Quantity	6000	11635	
Unit Cost	0.661	0.477	-27.84
Average Procurement Unit Cost			
Cost	3798.5	4770.3	
Quantity	6000	11635	
Unit Cost	0.633	0.410	-35.23



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 2017	0.532	0.436	0.611	0.506
Current Estimate	Dec 2018	0.477	0.410	0.609	0.531

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	-0.135	0.026	-0.158	0.000	0.004	-0.200	0.609

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	-0.141	-0.001	-0.187	0.000	0.004	-0.249	0.531

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	7082.4
Total Quantity	N/A	N/A	6000	11635
PAUC	N/A	N/A	0.809	0.609

Cost Variance

Summary TY \$M				
Item	RDT&E	Procurement	MILCON	Total
SAR Baseline (Production Estimate)	175.7	4680.4	--	4856.1
Previous Changes				
Economic	-4.8	+96.9	--	+92.1
Quantity	--	--	--	--
Schedule	+72.3	-820.2	--	-747.9
Engineering	+316.2	-7.8	--	+308.4
Estimating	+73.1	-815.6	--	-742.5
Other	--	--	--	--
Support	--	-99.9	--	-99.9
Subtotal	+456.8	-1646.6	--	-1189.8
Current Changes				
Economic	+2.3	+19.9	--	+22.2
Quantity	--	+5163.7	--	+5163.7
Schedule	--	-818.9	--	-818.9
Engineering	--	-7.6	--	-7.6
Estimating	+267.6	-1359.3	--	-1091.7
Other	--	--	--	--
Support	--	+148.4	--	+148.4
Subtotal	+269.9	+3146.2	--	+3416.1
Total Changes	+726.7	+1499.6	--	+2226.3
CE - Cost Variance	902.4	6180.0	--	7082.4
CE - Cost & Funding	902.4	6180.0	--	7082.4

Summary BY 2011 \$M				
Item	RDT&E	Procurement	MILCON	Total
SAR Baseline (Production Estimate)	168.8	3798.5	--	3967.3
Previous Changes				
Economic	--	--	--	--
Quantity	--	--	--	--
Schedule	+61.1	-407.6	--	-346.5
Engineering	+281.3	-7.4	--	+273.9
Estimating	+65.7	-698.5	--	-632.8
Other	--	--	--	--
Support	--	-67.7	--	-67.7
Subtotal	+408.1	-1181.2	--	-773.1
Current Changes				
Economic	--	--	--	--
Quantity	--	+3564.6	--	+3564.6
Schedule	--	-549.5	--	-549.5
Engineering	--	-5.2	--	-5.2
Estimating	+197.5	-961.0	--	-763.5
Other	--	--	--	--
Support	--	+104.1	--	+104.1
Subtotal	+197.5	+2153.0	--	+2350.5
Total Changes	+605.6	+971.8	--	+1577.4
CE - Cost Variance	774.4	4770.3	--	5544.7
CE - Cost & Funding	774.4	4770.3	--	5544.7

Previous Estimate: December 2017

RDT&E	\$M	
	Base Year	Then Year
Current Change Explanations		
Revised escalation indices. (Economic)	N/A	+2.3
Adjustment for current and prior escalation. (Estimating)	-1.4	-1.4
Revised estimate due to new APB (Navy). (Estimating)	+124.7	+166.1
Revised estimate due to new APB (Air Force). (Estimating)	+85.9	+113.5
Revised estimate due to Congressional reductions associated with SIP III in FY 2018 (Navy). (Estimating)	-1.7	-1.9
Revised estimate due to Congressional reduction associated with SIP III test delay in FY 2018 (Navy). (Estimating)	-3.3	-4.0
Revised estimate due to Below Threshold Reprogramming (BTR) (Navy). (Estimating)	-2.8	-3.1
Revised estimate due to BTR (Air Force). (Estimating)	-13.8	-15.3
Revised estimate due to Small Business Innovation Research (SBIR) reduction (Navy). (Estimating)	-1.0	-1.1
Revised estimate to reflect re-phasing for higher Air Force priorities (Air Force). (Estimating)	+9.8	+13.5
Additional funding for Flight Termination System funding (Air Force). (Estimating)	+1.1	+1.3
RDT&E Subtotal	+197.5	+269.9

Procurement	\$M	
	Base Year	Then Year
Current Change Explanations		
Revised escalation indices. (Economic)	N/A	+19.9
Total Quantity variance resulting from an increase of 2,678 missiles from 2,648 to 5,326 (Navy). (Subtotal)	+1170.7	+1703.6
Quantity variance resulting from an increase of 2,678 missiles from 2,648 to 5,326 (Navy). (Quantity)	(+1695.8)	(+2469.9)
Allocation to Schedule resulting from Quantity change. (Schedule) (QR)	(-262.1)	(-382.5)
Allocation to Engineering resulting from Quantity change. (Engineering) (QR)	(-2.6)	(-3.8)
Allocation to Estimating resulting from Quantity change. (Estimating) (QR)	(-260.4)	(-380.0)
Total Quantity variance resulting from an increase of 2,957 missiles from 3,352 to 6,309 (Air Force). (Subtotal)	+1293.2	+1862.5
Quantity variance resulting from an increase of 2,957 missiles from 3,352 to 6,309 (Air Force). (Quantity)	(+1868.8)	(+2693.8)
Allocation to Schedule resulting from Quantity change. (Schedule) (QR)	(-287.4)	(-415.3)
Allocation to Engineering resulting from Quantity change. (Engineering) (QR)	(-2.6)	(-3.8)
Allocation to Estimating resulting from Quantity change. (Estimating) (QR)	(-285.6)	(-412.2)
Acceleration of procurement buy profile of 317 missiles from FY 2023 through FY 2028 to FY 2019 through FY 2022 (Navy). (Schedule)	0.0	-20.4
Acceleration of procurement buy profile from FY 2022 to FY 2021 (Air Force). (Schedule)	0.0	-0.7
Revised hardware estimates based on contract negotiation data (Navy). (Estimating)	-215.3	-298.7
Revised hardware estimates based on contract negotiation data (Air Force). (Estimating)	-193.3	-261.5
Adjustment for current and prior escalation. (Estimating)	-6.4	-6.9
Adjustment for current and prior escalation. (Support)	+0.2	-0.2
Increase in Other Support due to the change in procurement profile (Navy). (Support)	+8.9	+13.2

Increase in Other Support due change in procurement profile (Air Force). (Support)	+9.8	+11.7
Increase in Initial Spares due to change in procurement profile (Navy). (Support)	+31.8	+47.1
Increase in Initial Spares due to change in procurement profile (Air Force). (Support)	+53.4	+76.6
Procurement Subtotal	+2153.0	+3146.2

(QR) Quantity Related

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	880.4	901.9	2203	880.4	880.4

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	303.7	N/A	0	303.7	303.7

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 (1/27/2019)	-2.4	-3.9
Previous Cumulative Variances	-6.5	-6.7
Net Change	+4.1	+2.8

Cost and Schedule Variance Explanations

The favorable net change in the cost variance is due to rate changes and efficiencies in 9.4 and 9.15 software development (early release efforts executed in parallel).

The favorable net change in the schedule variance is due to efficiencies in 9.4 and 9.15 software development (early release efforts executed in parallel) and early delivery of missile level hardware.

Contract Identification

Appropriation: Procurement
Contract Name: AIM-9X Block Lot 18 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:

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	459.1	N/A	1096	459.1	459.1

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 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

This is the first time this contract is being reported.

Contract was awarded as an Undefined Contract Action (UCA). Definitization is planned for March 2019.

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	1565	2485	11635	21.36%
Total Program Quantity Delivered	1565	2485	11635	21.36%

Expended and Appropriated (TY \$M)			
Total Acquisition Cost	7082.4	Years Appropriated	16
Expended to Date	1497.3	Percent Years Appropriated	50.00%
Percent Expended	21.14%	Appropriated to Date	2274.7
Total Funding Years	32	Percent Appropriated	32.12%

The above data is current as of March 11, 2019.

Notes

Planned to date reflects actual contractual obligation for United States Navy & United States Air Force Tactical and Captive Air Training Missiles through March 2018.

The delta between planned to date and actual to date is that Raytheon is delivering Lot 16 and Lot 17 missiles ahead of contract requirement. The final Lot 16 missiles are due March 2019. Lot 17 is not due until March 2020.

Operating and Support Cost

Cost Estimate Details

Date of Estimate:	January 10, 2019
Source of Estimate:	POE
Quantity to Sustain:	11635
Unit of Measure:	Total Quantity
Service Life per Unit:	20.00 Years
Fiscal Years in Service:	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	12.060	5.300	
Sustaining Support	7.510	5.800	
Continuing System Improvements	5.130	5.000	
Indirect Support	0.000	0.100	
Other	0.000	0.000	
Total	24.700	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	1333.5	531.9
Then Year	2390.0	N/A	2370.5	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.

\$1,333.49M / 54 years = \$24.69

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

Prior SAR Total O&S Estimates - Dec 2017 SAR	887.3	
Programmatic/Planning Factors	233.6	Increase due to change in procurement profile and increase in years of service.
Cost Estimating Methodology	0.0	
Cost Data Update	212.6	Increase due to Block II cost actuals and cost factor updates.
Labor Rate	0.0	
Energy Rate	0.0	
Technical Input	0.0	
Other	0.0	
Total Changes	446.2	
Current Estimate	1333.5	

Disposal Estimate Details

Date of Estimate:	March 21, 2019
Source of Estimate:	POE
Disposal/Demilitarization Total Cost (BY 2011 \$M):	5.3