



## Selected Acquisition Report (SAR)

RCS: DD-A&T(Q&A)823-185



### **AIM-120 Advanced Medium Range Air-to-Air Missile (AMRAAM)**

As of December 31, 2012

Defense Acquisition Management  
Information Retrieval  
(DAMIR)

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## Program Information

**Program Name**

AIM-120 Advanced Medium Range Air-to-Air Missile (AMRAAM)

**DoD Component**

Air Force

**Joint Participants**

Navy

## Responsible Office

**Responsible Office**

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**Date Assigned** August 1, 2011

## References

**SAR Baseline (Production Estimate)**

Defense Acquisition Executive (DAE) Approved Acquisition Program Baseline (APB) dated January 17, 1992

**Approved APB**

Air Force Acquisition Executive (AFAE) Approved Acquisition Program Baseline (APB) dated May 19, 2008

## **Mission and Description**

The Advanced Medium Range Air-to-Air Missile (AMRAAM) program provides for the acquisition of the most advanced all-weather, all-environment medium range air-to-air missile system in response to United States Air Force (USAF), United States Navy (USN), North Atlantic Treaty Organization (NATO), and other allied operational requirements through 2024. The system is an active radar guided intercept missile with inherent Electronic Protection (EP) capabilities for air-to-air applications against massed penetration aircraft and is designed to replace the AIM-7 Sparrow. The AIM-120D, planned to be fielded in FY 2014, will have improved accuracy via Global Positioning System (GPS) aided navigation, improved network compatibility, and enhanced aircrew survivability via a two-way datalink capability.

## Executive Summary

**AIM-120D Operational Testing (OT):** The System Program Office (SPO) has completed two successful OT launches. In mid-January 2013, the SPO and Operational Test Agencies (OTAs) provided the Director of Operational Test and Evaluation (DOT&E) with a detailed technical OT update. In February 2013, the Program Executive Office (PEO) sent a letter to the OTAs explaining the rationale for continuing the OT program in light of a pending new software release. The program continues to execute missile captive carriage reliability testing and participate in Large Force Exercises.

**AIM-120D System Improvement Program (SIP):** The program executed a successful SIP, Increment 1 (SIP-1) Preliminary Design Review (PDR) in April 2012, concluding the program was ready for entering the detailed design phase for the SIP-1 software performance improvements. Critical Design Review (CDR) was held on January 23-24, 2013.

**AIM-120C Electronic Protection Improvement Program (EPIP) Basic:** The AIM-120C-7 effort completed all planned integrated testing. The Functional Configuration Audit (FCA) of the AIM-120C-7 software was conducted on March 14, 2013. The AIM-120C3-C6 effort is ongoing. One launch was completed on March 8, 2013, the other two are forecasted to be completed during Third Quarter FY 2013.

**AIM-120C EPIP Advanced:** The Program Office awarded the AIM-120C-7 EPIP Advanced contract in June 2012. The team successfully executed a PDR for the required upgrade to the Hardware-in-the-Loop facility at China Lake, needed for key performance testing in the EPIP Advanced program.

**Processor Replacement Program (PRP):** In support of the Foreign Military Sales (FMS) PRP program, the second of three C7 PRP Live Fire (LF) shots was conducted to support a May 2013 AIM-120C7 PRP FCA. The AIM-120D PRP program completed its LF #1 software and an F-15 D PRP LF#1 shot is projected in May 2013.

**Form, Fit, Function Refresh (F3R):** Started in 2012, Phase 1 entails system requirement allocation and studies to identify tradeoffs between options which will have significant impact on cost, reliability, producibility, and product life span. The culmination of this phase in July 2013 is a completed Systems Requirements Review (SRR) and selection of architecture options to proceed forward with Phase 2.

**AIM-120D Production:** Lot 27 award is planned for April 2013. In December 2012, the Government and Raytheon Missiles System (RMS), Tucson, signed a contract modification restructuring the AIM-120C7, AIM-120D, and Base Line Rocket Motor (BLRM) schedules for Lots 22-25. The new delivery schedule has AIM-120D production catching up to the original schedule in mid Calendar Year 2014. As part of the restructure, RMS is providing consideration to the United States and FMS customers valued at ~\$30M. This contract modification also restructured the Performance Based Payments for Lot 23 and 24 to link them to actual missile deliveries with the larger payments occurring on the last missile built in each lot, thus limiting the upfront government liability. Finally, this restructure lifts the suspension of payments for Lot 24 that has been in place since February 2012. As of March 31, 2013, a total of 676 missiles have been delivered versus a contract requirement of 663. RMS continues to produce Guidance Sections (GSs) and presently has 103 awaiting rocket motors. Nordic Ammunition Group has begun deliveries of Limited Production Configuration (LPC) rocket motors and RMS is assembling all-up-round missiles. Alliant Techsystems is working on a re-formulation, using a modified sidewinder propellant, to produce BLRMs.

**AIM-120 Sustainment:** Joint missile availability as of March 1, 2013 is 89.2% against an Acquisition Program Baseline threshold of 82%.

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

### Threshold Breaches

APB Breaches		
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<b>Schedule</b>		<input checked="" type="checkbox"/>
<b>Performance</b>		<input type="checkbox"/>
<b>Cost</b>	RDT&E	<input type="checkbox"/>
	Procurement	<input type="checkbox"/>
	MILCON	<input type="checkbox"/>
	Acq O&M	<input type="checkbox"/>
<b>O&amp;S Cost</b>		<input type="checkbox"/>
<b>Unit Cost</b>	PAUC	<input type="checkbox"/>
	APUC	<input type="checkbox"/>

#### Explanation of Breach

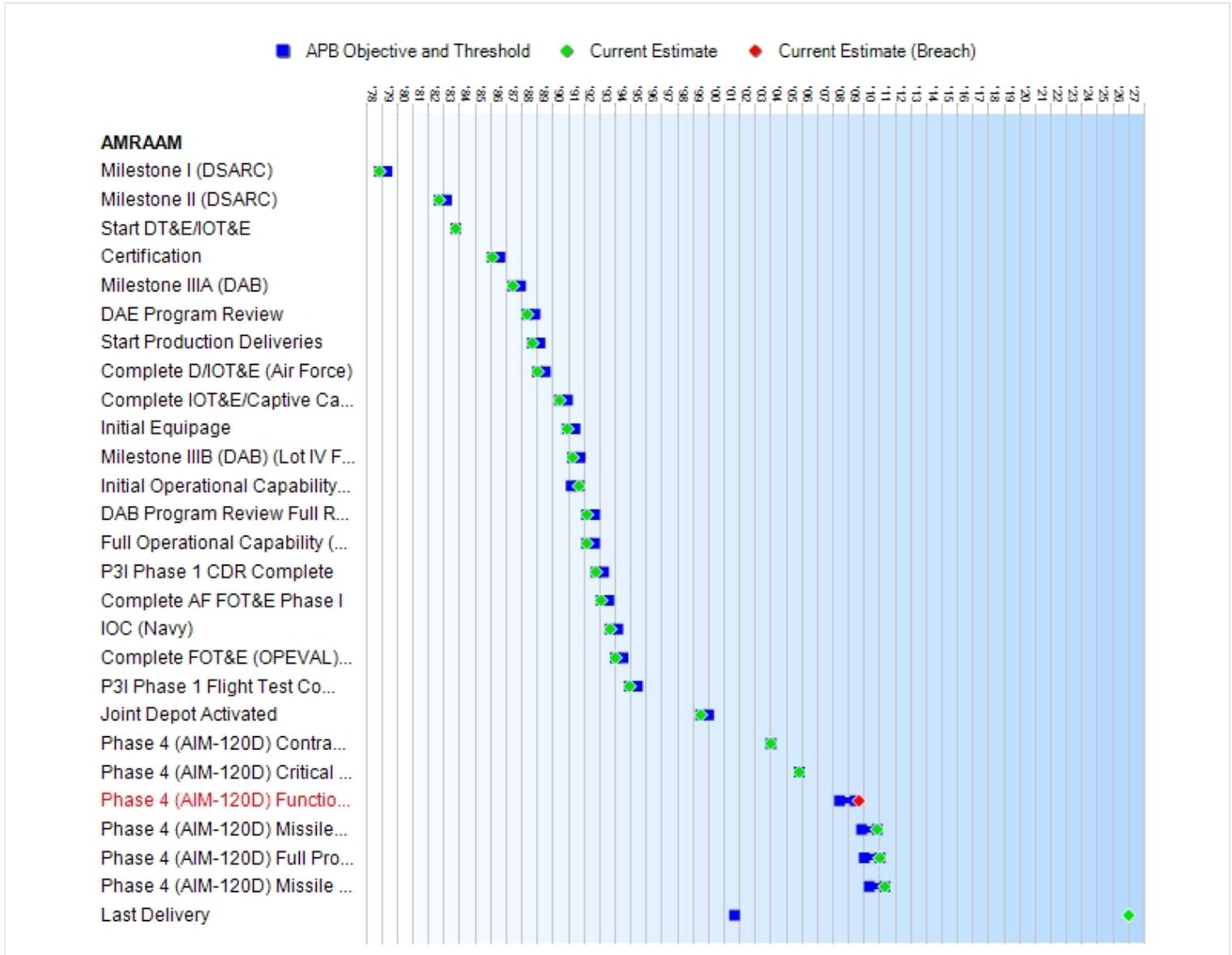
Schedule breach previously reported in the December 2009 and 2010 SARs.

The Air Force has no plans to revise the Acquisition Program Baseline at this time. Schedule breach does not effect the execution of this program.

Nunn-McCurdy Breaches		
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<b>Current UCR Baseline</b>		
	PAUC	None
	APUC	None
<b>Original UCR Baseline</b>		
	PAUC	None
	APUC	None

# Schedule



Milestones	SAR Baseline Prod Est	Current APB Production Objective/Threshold		Current Estimate
Milestone I (DSARC)	NOV 1978	NOV 1978	MAY 1979	NOV 1978
Milestone II (DSARC)	SEP 1982	SEP 1982	MAR 1983	SEP 1982
Start DT&E/IOT&E	OCT 1983	N/A	N/A	OCT 1983
Certification	FEB 1986	FEB 1986	AUG 1986	FEB 1986
Milestone IIIA (DAB)	JUN 1987	JUN 1987	DEC 1987	JUN 1987
DAE Program Review	MAY 1988	MAY 1988	NOV 1988	MAY 1988
Start Production Deliveries	SEP 1988	SEP 1988	MAR 1989	SEP 1988
Complete D/IOT&E (Air Force)	JAN 1989	JAN 1989	JUL 1989	JAN 1989
Complete IOT&E/Captive Carry Reliability Program w/Lot 1 Assets (Air Force)	JUN 1990	JUN 1990	DEC 1990	JUN 1990
Initial Equipage	DEC 1990	DEC 1990	JUN 1991	DEC 1990
Milestone IIIB (DAB) (Lot IV Full Go-Ahead Rate Production)	APR 1991	APR 1991	OCT 1991	APR 1991
Initial Operational Capability (IOC) Air Force	MAR 1991	MAR 1991	SEP 1991	SEP 1991
DAB Program Review Full Rate Production Approval	MAR 1992	MAR 1992	SEP 1992	MAR 1992
Full Operational Capability (FOC) 1st F-16 Unit Fully Operational w/AMRAAMs	MAR 1992	MAR 1992	SEP 1992	MAR 1992
P3I Phase 1 CDR Complete	OCT 1992	OCT 1992	APR 1993	OCT 1992
Complete AF FOT&E Phase I	MAR 1992	FEB 1993	AUG 1993	FEB 1993
IOC (Navy)	SEP 1992	SEP 1993	MAR 1994	SEP 1993
Complete FOT&E (OPEVAL) (Navy)	MAR 1992	JAN 1994	JUL 1994	JAN 1994
P3I Phase 1 Flight Test Completed	DEC 1994	DEC 1994	JUN 1995	DEC 1994
Joint Depot Activated	SEP 1994	JUL 1999	JAN 2000	JUL 1999
Phase 4 (AIM-120D) Contract Award	N/A	JAN 2004	JAN 2004	JAN 2004
Phase 4 (AIM-120D) Critical Design Review (CDR)	N/A	NOV 2005	NOV 2005	NOV 2005
Phase 4 (AIM-120D) Functional Configuration Audit (FCA)	N/A	JUN 2008	JUN 2009	<b>SEP 2009</b> <sup>1</sup>
Phase 4 (AIM-120D) Missiles Deliveries to Meet F/A-18 RAA	N/A	NOV 2009	NOV 2010	NOV 2010
Phase 4 (AIM-120D) Full Production Go- ahead	N/A	JAN 2010	JAN 2011	JAN 2011
Phase 4 (AIM-120D) Missile Deliveries to Meet F-15C/D RAA	N/A	MAY 2010	MAY 2011	MAY 2011
Last Delivery	SEP 2001	N/A	N/A	JAN 2027

<sup>1</sup>APB Breach

**Acronyms And Abbreviations**

AF - Air Force  
CDR - Critical Design Review  
D/IOT&E - Development / Initial Operational Test & Evaluation  
DAB - Defense Acquisition Board  
DAE - Defense Acquisition Executive  
DSARC - Defense Systems Acquisition Review Council  
DT&E - Development Test and Evaluation  
FOT&E - Follow-on Test and Evaluation  
IOT&E - Initial Operational Test and Evaluation  
OPEVAL - Operational Evaluation  
P3I - Pre-Planned Product Improvement  
RAA - Required Assets Available

**Change Explanations**

None

## Performance

Characteristics	SAR Baseline Prod Est	Current APB Production Objective/Threshold		Demonstrated Performance	Current Estimate
Weight (lbs)	327	327	350	344	345
Reliability					
Ready Storage (hrs) (mature msl - 90K operational flight hours)	60000	60000	45000	45000	45000
Availability (%)	86	86	82	90.7	90
Captive-Carry (MTBM-Type I) (hrs)	600	600	450	1269	1,200
On Alert Storage MTBM	30000	30000	22500	N/A	30000
Aircraft Configure/ Load - 3 Man Load Crew					
Install 4 Rail Launchers (mins)	20	20	25	21	21
Load 4 Missiles from trailer (mins)	15	15	20	18	18
Load 4 Missiles from container (mins)	20	20	30	22	22
Missile checks (mins)	1	1	5	1	1
All Weather Capability	Day, Night, Rain, Clouds	Day, Night, Rain, Clouds	Day, Night, Rain, Clouds	Day, Night, Rain, Clouds	Day, Night, Rain, Clouds
Aircraft Compatibility	F-15, F-16, F-14, F/A-18	F-15, F-16, F-14, F/A-18	F-15, F-16, F-14, F/A-18	F-15, F-16, F-14, F/A-18	F-15, F-16, F-14, F/A-18
All-Up Round	Control Surfaces field installed	Control Surfaces field installed	Control Surfaces field installed	Control Surfaces field installed	Control Surfaces field installed
Net Ready	N/A	Satisfies NCOW-RM and GIG Information assurance reqmts	Satisfies 100% of enterprise level or critical information reqmts	Satisfies 100% of enterprise level or critical information reqmts	Satisfies 100% of enterprise level or critical information reqmts
Shipboard Survivability	N/A	Compatible in aircraft carrier electro-magnetic environment	Compatible in aircraft carrier electro-magnetic environment	Compatible in aircraft carrier electro-magnetic environment	Compatible in aircraft carrier electro-magnetic environment

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**Requirements Source:** Joint Service Operational Requirement (JSOR) dated May 22, 1991, Operational Requirements Document (ORD) (Combat Air Forces (CAF) 009-76-I/II/III-A) dated March 10, 1997 (revised January 21, 2004), and Capability Production Document (CPD) Phase 4 (AIM-120D) dated June 16, 2005

#### **Acronyms And Abbreviations**

GIG - Global Information Grid  
hrs - Hours  
K - thousand  
lbs - Pounds  
min - Minutes  
msl - missile  
MTBM - Mean Time Between Maintenance  
N/A - Not Applicable  
NCOW-RM - Net Centric Operations and Warfare Reference Model  
reqmts - Requirements

#### **Change Explanations**

None

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

#### **Memo**

Availability should increase when the Rocket Motor (RM) issues are resolved and the United States Navy (USN) RMs are replaced with new motors.

**Track To Budget****RDT&E**

APPN 1319	BA 07	PE 0207163N	(Navy)	
	Project 0981			
APPN 1319	BA 07	PE 0603370N	(Navy)	
		Beyond Visual Range, Air-to-Air Missile (BVRAAM), FY 1978-1981.		(Sunk)
APPN 1319	BA 07	PE 0604314N	(Navy)	
	Project W0981	(AMRAAM), FY 1982-1992		(Sunk)
APPN 3600	BA 07	PE 0207163F	(Air Force)	
	Project 673777			
APPN 3600	BA 07	PE 0603370F	(Air Force)	
	Project 2437	(AMRAAM), FY 1978-1982		(Sunk)
APPN 3600	BA 07	PE 0604314F	(Air Force)	
	Project 3096	(AMRAAM), FY 1982-1992		(Sunk)

**Procurement**

APPN 1507	BA 02	PE 0204162N	(Navy)	
	ICN 220600			
APPN 1507	BA 02	PE 0206138M	(Navy)	
	ICN 220600			
APPN 1507	BA 06	PE 0204162N	(Navy)	
	ICN 6120		(Shared)	

APPN 3020	BA 04	PE 0207163F	(Air Force)	
	ICN 000999		(Shared)	
	ICN 00099A			(Sunk)
	ICN 00099K			(Sunk)
APPN 3020	BA 01	PE 0207163F	(Air Force)	
	ICN 00099L		(Shared)	(Sunk)
APPN 3020	BA 02	PE 0207163F	(Air Force)	
	ICN MAMRAO			

## Cost and Funding

### Cost Summary

#### Total Acquisition Cost and Quantity

Appropriation	BY1992 \$M			BY1992 \$M	TY \$M		
	SAR Baseline Prod Est	Current APB Production Objective/Threshold		Current Estimate	SAR Baseline Prod Est	Current APB Production Objective	Current Estimate
RDT&E	1725.7	2481.6	2729.8	2718.3	1350.6	2355.4	2719.9
Procurement	10552.5	13231.6	14554.8	13502.5	11761.8	17061.9	17413.1
Flyaway	10038.3	--	--	12610.7	11190.8	--	16199.5
Recurring	10038.3	--	--	10731.6	11190.8	--	14300.6
Non Recurring	0.0	--	--	1879.1	0.0	--	1898.9
Support	514.2	--	--	891.8	571.0	--	1213.6
Other Support	378.2	--	--	773.9	420.0	--	1072.1
Initial Spares	136.0	--	--	117.9	151.0	--	141.5
MILCON	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
Total	12278.2	15713.2	N/A	16220.8	13112.4	19417.3	20133.0

Quantity	SAR Baseline Prod Est	Current APB Production	Current Estimate
RDT&E	0	0	0
Procurement	15450	17024	16253
Total	15450	17024	16253

## Cost and Funding

### Funding Summary

#### Appropriation and Quantity Summary FY2014 President's Budget / December 2012 SAR (TY\$ M)

Appropriation	Prior	FY2013	FY2014	FY2015	FY2016	FY2017	FY2018	To Complete	Total
RDT&E	2187.1	89.9	86.8	86.0	45.4	38.3	38.9	147.5	2719.9
Procurement	9994.7	333.3	436.7	485.6	537.4	563.0	596.0	4466.4	17413.1
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 2014 Total	12181.8	423.2	523.5	571.6	582.8	601.3	634.9	4613.9	20133.0
PB 2013 Total	12176.5	423.2	602.3	615.5	614.6	610.2	586.8	4579.1	20208.2
Delta	5.3	0.0	-78.8	-43.9	-31.8	-8.9	48.1	34.8	-75.2

Program funding and production quantities listed in this SAR are consistent with the FY 2014 President's Budget (PB). The FY 2014 PB did not reflect the enacted DoD appropriation for FY 2013, nor sequestration; it reflected the President's requested amounts for FY 2013.

Quantity	Undistributed	Prior	FY2013	FY2014	FY2015	FY2016	FY2017	FY2018	To Complete	Total
Development	0	0	0	0	0	0	0	0	0	0
Production	0	10816	180	253	298	348	368	453	3537	16253
PB 2014 Total	0	10816	180	253	298	348	368	453	3537	16253
PB 2013 Total	0	10842	180	300	324	350	349	434	3460	16239
Delta	0	-26	0	-47	-26	-2	19	19	77	14

## Cost and Funding

### Annual Funding By Appropriation

#### Annual Funding TY\$

#### 1319 | RDT&E | Research, Development, Test, and Evaluation, Navy

Fiscal Year	Quantity	End Item Recurring Flyaway TY \$M	Non End Item Recurring Flyaway TY \$M	Non Recurring Flyaway TY \$M	Total Flyaway TY \$M	Total Support TY \$M	Total Program TY \$M
1978	--	--	--	--	--	--	6.0
1979	--	--	--	--	--	--	18.3
1980	--	--	--	--	--	--	27.3
1981	--	--	--	--	--	--	24.2
1982	--	--	--	--	--	--	3.3
1983	--	--	--	--	--	--	4.3
1984	--	--	--	--	--	--	7.3
1985	--	--	--	--	--	--	7.8
1986	--	--	--	--	--	--	4.2
1987	--	--	--	--	--	--	5.0
1988	--	--	--	--	--	--	22.3
1989	--	--	--	--	--	--	12.4
1990	--	--	--	--	--	--	6.9
1991	--	--	--	--	--	--	3.5
1992	--	--	--	--	--	--	2.5
1993	--	--	--	--	--	--	3.1
1994	--	--	--	--	--	--	--
1995	--	--	--	--	--	--	7.8
1996	--	--	--	--	--	--	4.3
1997	--	--	--	--	--	--	2.1
1998	--	--	--	--	--	--	5.5
1999	--	--	--	--	--	--	4.5
2000	--	--	--	--	--	--	12.8
2001	--	--	--	--	--	--	11.3
2002	--	--	--	--	--	--	9.7
2003	--	--	--	--	--	--	7.7

2004	--	--	--	--	--	--	8.7
2005	--	--	--	--	--	--	8.5
2006	--	--	--	--	--	--	3.4
2007	--	--	--	--	--	--	6.1
2008	--	--	--	--	--	--	2.5
2009	--	--	--	--	--	--	6.7
2010	--	--	--	--	--	--	3.6
2011	--	--	--	--	--	--	2.6
2012	--	--	--	--	--	--	2.8
2013	--	--	--	--	--	--	2.9
2014	--	--	--	--	--	--	2.6
2015	--	--	--	--	--	--	2.8
2016	--	--	--	--	--	--	2.9
2017	--	--	--	--	--	--	3.0
2018	--	--	--	--	--	--	3.0
2019	--	--	--	--	--	--	3.1
2020	--	--	--	--	--	--	3.2
2021	--	--	--	--	--	--	3.2
2022	--	--	--	--	--	--	3.6
2023	--	--	--	--	--	--	3.7
2024	--	--	--	--	--	--	3.8
<b>Subtotal</b>	--	--	--	--	--	--	<b>306.8</b>

## Annual Funding BY\$

## 1319 | RDT&amp;E | Research, Development, Test, and Evaluation, Navy

Fiscal Year	Quantity	End Item Recurring Flyaway BY 1992 \$M	Non End Item Recurring Flyaway BY 1992 \$M	Non Recurring Flyaway BY 1992 \$M	Total Flyaway BY 1992 \$M	Total Support BY 1992 \$M	Total Program BY 1992 \$M
1978	--	--	--	--	--	--	11.7
1979	--	--	--	--	--	--	32.3
1980	--	--	--	--	--	--	43.5
1981	--	--	--	--	--	--	35.4
1982	--	--	--	--	--	--	4.6
1983	--	--	--	--	--	--	5.7
1984	--	--	--	--	--	--	9.4
1985	--	--	--	--	--	--	9.7
1986	--	--	--	--	--	--	5.1
1987	--	--	--	--	--	--	5.9
1988	--	--	--	--	--	--	25.3
1989	--	--	--	--	--	--	13.5
1990	--	--	--	--	--	--	7.2
1991	--	--	--	--	--	--	3.5
1992	--	--	--	--	--	--	2.5
1993	--	--	--	--	--	--	3.0
1994	--	--	--	--	--	--	--
1995	--	--	--	--	--	--	7.2
1996	--	--	--	--	--	--	3.9
1997	--	--	--	--	--	--	1.9
1998	--	--	--	--	--	--	4.9
1999	--	--	--	--	--	--	4.0
2000	--	--	--	--	--	--	11.1
2001	--	--	--	--	--	--	9.7
2002	--	--	--	--	--	--	8.2
2003	--	--	--	--	--	--	6.4
2004	--	--	--	--	--	--	7.1
2005	--	--	--	--	--	--	6.7
2006	--	--	--	--	--	--	2.6

2007	--	--	--	--	--	--	4.6
2008	--	--	--	--	--	--	1.8
2009	--	--	--	--	--	--	4.9
2010	--	--	--	--	--	--	2.6
2011	--	--	--	--	--	--	1.8
2012	--	--	--	--	--	--	1.9
2013	--	--	--	--	--	--	1.9
2014	--	--	--	--	--	--	1.7
2015	--	--	--	--	--	--	1.8
2016	--	--	--	--	--	--	1.8
2017	--	--	--	--	--	--	1.9
2018	--	--	--	--	--	--	1.8
2019	--	--	--	--	--	--	1.9
2020	--	--	--	--	--	--	1.9
2021	--	--	--	--	--	--	1.8
2022	--	--	--	--	--	--	2.0
2023	--	--	--	--	--	--	2.1
2024	--	--	--	--	--	--	2.1
<b>Subtotal</b>	--	--	--	--	--	--	<b>332.3</b>

## Annual Funding TY\$

## 3600 | RDT&amp;E | Research, Development, Test, and Evaluation, Air Force

Fiscal Year	Quantity	End Item Recurring Flyaway TY \$M	Non End Item Recurring Flyaway TY \$M	Non Recurring Flyaway TY \$M	Total Flyaway TY \$M	Total Support TY \$M	Total Program TY \$M
1977	--	--	--	--	--	--	4.8
1978	--	--	--	--	--	--	6.7
1979	--	--	--	--	--	--	16.1
1980	--	--	--	--	--	--	26.2
1981	--	--	--	--	--	--	22.9
1982	--	--	--	--	--	--	137.9
1983	--	--	--	--	--	--	212.9
1984	--	--	--	--	--	--	197.3
1985	--	--	--	--	--	--	206.6
1986	--	--	--	--	--	--	91.1
1987	--	--	--	--	--	--	37.7
1988	--	--	--	--	--	--	26.7
1989	--	--	--	--	--	--	--
1990	--	--	--	--	--	--	11.9
1991	--	--	--	--	--	--	17.9
1992	--	--	--	--	--	--	30.3
1993	--	--	--	--	--	--	38.9
1994	--	--	--	--	--	--	64.8
1995	--	--	--	--	--	--	63.8
1996	--	--	--	--	--	--	44.2
1997	--	--	--	--	--	--	9.7
1998	--	--	--	--	--	--	39.2
1999	--	--	--	--	--	--	33.5
2000	--	--	--	--	--	--	49.4
2001	--	--	--	--	--	--	50.4
2002	--	--	--	--	--	--	53.5
2003	--	--	--	--	--	--	39.3
2004	--	--	--	--	--	--	31.0
2005	--	--	--	--	--	--	31.9

2006	--	--	--	--	--	--	25.1
2007	--	--	--	--	--	--	33.4
2008	--	--	--	--	--	--	36.4
2009	--	--	--	--	--	--	39.5
2010	--	--	--	--	--	--	49.8
2011	--	--	--	--	--	--	62.0
2012	--	--	--	--	--	--	75.3
2013	--	--	--	--	--	--	87.0
2014	--	--	--	--	--	--	84.2
2015	--	--	--	--	--	--	83.2
2016	--	--	--	--	--	--	42.5
2017	--	--	--	--	--	--	35.3
2018	--	--	--	--	--	--	35.9
2019	--	--	--	--	--	--	20.3
2020	--	--	--	--	--	--	20.6
2021	--	--	--	--	--	--	21.0
2022	--	--	--	--	--	--	21.4
2023	--	--	--	--	--	--	21.8
2024	--	--	--	--	--	--	21.8
<b>Subtotal</b>	--	--	--	--	--	--	<b>2413.1</b>

**Annual Funding BY\$****3600 | RDT&E | Research, Development, Test, and Evaluation, Air Force**

<b>Fiscal Year</b>	<b>Quantity</b>	<b>End Item Recurring Flyaway BY 1992 \$M</b>	<b>Non End Item Recurring Flyaway BY 1992 \$M</b>	<b>Non Recurring Flyaway BY 1992 \$M</b>	<b>Total Flyaway BY 1992 \$M</b>	<b>Total Support BY 1992 \$M</b>	<b>Total Program BY 1992 \$M</b>
1977	--	--	--	--	--	--	10.3
1978	--	--	--	--	--	--	13.2
1979	--	--	--	--	--	--	29.5
1980	--	--	--	--	--	--	43.2
1981	--	--	--	--	--	--	34.1
1982	--	--	--	--	--	--	192.0
1983	--	--	--	--	--	--	283.2
1984	--	--	--	--	--	--	252.7
1985	--	--	--	--	--	--	255.9
1986	--	--	--	--	--	--	110.2
1987	--	--	--	--	--	--	43.6
1988	--	--	--	--	--	--	30.1
1989	--	--	--	--	--	--	--
1990	--	--	--	--	--	--	12.4
1991	--	--	--	--	--	--	18.0
1992	--	--	--	--	--	--	29.6
1993	--	--	--	--	--	--	37.2
1994	--	--	--	--	--	--	60.9
1995	--	--	--	--	--	--	58.9
1996	--	--	--	--	--	--	40.1
1997	--	--	--	--	--	--	8.7
1998	--	--	--	--	--	--	34.8
1999	--	--	--	--	--	--	29.5
2000	--	--	--	--	--	--	42.8
2001	--	--	--	--	--	--	43.1
2002	--	--	--	--	--	--	45.2
2003	--	--	--	--	--	--	32.8
2004	--	--	--	--	--	--	25.2
2005	--	--	--	--	--	--	25.3

2006	--	--	--	--	--	--	19.3
2007	--	--	--	--	--	--	25.1
2008	--	--	--	--	--	--	26.8
2009	--	--	--	--	--	--	28.7
2010	--	--	--	--	--	--	35.7
2011	--	--	--	--	--	--	43.6
2012	--	--	--	--	--	--	51.9
2013	--	--	--	--	--	--	58.6
2014	--	--	--	--	--	--	55.7
2015	--	--	--	--	--	--	54.0
2016	--	--	--	--	--	--	27.1
2017	--	--	--	--	--	--	22.1
2018	--	--	--	--	--	--	22.0
2019	--	--	--	--	--	--	12.2
2020	--	--	--	--	--	--	12.2
2021	--	--	--	--	--	--	12.2
2022	--	--	--	--	--	--	12.2
2023	--	--	--	--	--	--	12.2
2024	--	--	--	--	--	--	11.9
<b>Subtotal</b>	--	--	--	--	--	--	<b>2386.0</b>

**Annual Funding TY\$**  
**1507 | Procurement | Weapons Procurement, Navy**

<b>Fiscal Year</b>	<b>Quantity</b>	<b>End Item Recurring Flyaway TY \$M</b>	<b>Non End Item Recurring Flyaway TY \$M</b>	<b>Non Recurring Flyaway TY \$M</b>	<b>Total Flyaway TY \$M</b>	<b>Total Support TY \$M</b>	<b>Total Program TY \$M</b>
1989	26	26.0	--	2.7	28.7	2.5	31.2
1990	85	61.5	--	18.7	80.2	4.9	85.1
1991	300	191.5	--	52.9	244.4	17.5	261.9
1992	191	115.3	--	38.0	153.3	41.2	194.5
1993	165	72.5	--	20.3	92.8	12.4	105.2
1994	75	26.7	--	21.5	48.2	8.6	56.8
1995	106	40.5	--	24.6	65.1	9.9	75.0
1996	115	35.2	--	28.5	63.7	10.0	73.7
1997	100	30.4	--	16.3	46.7	6.0	52.7
1998	120	38.1	--	10.1	48.2	6.3	54.5
1999	100	36.5	--	9.0	45.5	5.4	50.9
2000	91	33.5	--	10.0	43.5	2.5	46.0
2001	63	25.3	--	9.1	34.4	3.4	37.8
2002	55	20.4	--	12.9	33.3	3.5	36.8
2003	76	34.4	--	12.5	46.9	3.5	50.4
2004	42	18.5	--	15.0	33.5	3.8	37.3
2005	37	16.4	--	9.4	25.8	3.0	28.8
2006	48	40.4	--	30.2	70.6	3.2	73.8
2007	42	60.4	--	25.0	85.4	3.4	88.8
2008	52	75.8	--	7.5	83.3	2.7	86.0
2009	57	80.3	--	2.4	82.7	2.6	85.3
2010	71	135.3	--	--	135.3	3.3	138.6
2011	101	140.2	--	--	140.2	5.0	145.2
2012	67	100.2	--	--	100.2	5.5	105.7
2013	67	98.4	--	--	98.4	5.2	103.6
2014	54	88.5	--	1.5	90.0	6.6	96.6
2015	83	125.4	--	--	125.4	5.1	130.5
2016	108	155.7	--	--	155.7	7.8	163.5
2017	128	181.4	--	--	181.4	7.7	189.1

2018	170	206.9	--	2.0	208.9	6.5	215.4
2019	183	221.1	--	--	221.1	7.1	228.2
2020	218	257.0	--	--	257.0	8.1	265.1
2021	260	301.5	--	8.0	309.5	9.6	319.1
2022	310	354.3	--	--	354.3	10.8	365.1
2023	345	392.3	--	4.5	396.8	11.7	408.5
2024	350	428.0	--	--	428.0	20.7	448.7
<b>Subtotal</b>	<b>4461</b>	<b>4265.8</b>	<b>--</b>	<b>392.6</b>	<b>4658.4</b>	<b>277.0</b>	<b>4935.4</b>

**Annual Funding BY\$**  
**1507 | Procurement | Weapons Procurement, Navy**

<b>Fiscal Year</b>	<b>Quantity</b>	<b>End Item Recurring Flyaway BY 1992 \$M</b>	<b>Non End Item Recurring Flyaway BY 1992 \$M</b>	<b>Non Recurring Flyaway BY 1992 \$M</b>	<b>Total Flyaway BY 1992 \$M</b>	<b>Total Support BY 1992 \$M</b>	<b>Total Program BY 1992 \$M</b>
1989	26	27.1	--	2.9	30.0	2.6	32.6
1990	85	62.0	--	18.9	80.9	4.9	85.8
1991	300	188.4	--	52.0	240.4	17.2	257.6
1992	191	110.6	--	36.5	147.1	39.5	186.6
1993	165	68.3	--	19.1	87.4	11.7	99.1
1994	75	24.7	--	19.9	44.6	7.9	52.5
1995	106	36.8	--	22.4	59.2	9.0	68.2
1996	115	31.6	--	25.6	57.2	9.0	66.2
1997	100	27.0	--	14.6	41.6	5.3	46.9
1998	120	33.5	--	8.9	42.4	5.5	47.9
1999	100	31.7	--	7.8	39.5	4.7	44.2
2000	91	28.7	--	8.5	37.2	2.2	39.4
2001	63	21.4	--	7.7	29.1	2.9	32.0
2002	55	17.1	--	10.7	27.8	3.0	30.8
2003	76	28.2	--	10.3	38.5	2.8	41.3
2004	42	14.7	--	12.0	26.7	3.0	29.7
2005	37	12.7	--	7.3	20.0	2.3	22.3
2006	48	30.6	--	22.8	53.4	2.4	55.8
2007	42	44.7	--	18.5	63.2	2.5	65.7
2008	52	55.2	--	5.5	60.7	1.9	62.6
2009	57	57.6	--	1.7	59.3	1.9	61.2
2010	71	95.4	--	--	95.4	2.3	97.7
2011	101	96.7	--	--	96.7	3.4	100.1
2012	67	67.8	--	--	67.8	3.7	71.5
2013	67	65.3	--	--	65.3	3.4	68.7
2014	54	57.6	--	1.0	58.6	4.3	62.9
2015	83	80.1	--	--	80.1	3.3	83.4
2016	108	97.6	--	--	97.6	4.9	102.5
2017	128	111.6	--	--	111.6	4.7	116.3

2018	170	124.9	--	1.2	126.1	4.0	130.1
2019	183	131.0	--	--	131.0	4.2	135.2
2020	218	149.4	--	--	149.4	4.8	154.2
2021	260	172.0	--	4.6	176.6	5.5	182.1
2022	310	198.4	--	--	198.4	6.1	204.5
2023	345	215.6	--	2.5	218.1	6.4	224.5
2024	350	230.8	--	--	230.8	11.2	242.0
<b>Subtotal</b>	<b>4461</b>	<b>2846.8</b>	<b>--</b>	<b>342.9</b>	<b>3189.7</b>	<b>214.4</b>	<b>3404.1</b>

**Annual Funding TY\$**  
**3020 | Procurement | Missile Procurement, Air Force**

Fiscal Year	Quantity	End Item Recurring Flyaway TY \$M	Non End Item Recurring Flyaway TY \$M	Non Recurring Flyaway TY \$M	Total Flyaway TY \$M	Total Support TY \$M	Total Program TY \$M
1984	--	--	--	29.2	29.2	--	29.2
1985	--	--	--	74.1	74.1	--	74.1
1986	--	--	--	193.8	193.8	4.1	197.9
1987	180	405.2	--	170.4	575.6	20.5	596.1
1988	400	535.5	--	160.6	696.1	15.2	711.3
1989	874	667.3	--	102.6	769.9	16.3	786.2
1990	803	576.3	--	88.4	664.7	17.9	682.6
1991	600	397.5	--	190.2	587.7	24.2	611.9
1992	700	438.5	--	73.2	511.7	18.1	529.8
1993	1000	422.2	--	140.5	562.7	30.6	593.3
1994	983	347.1	--	81.5	428.6	18.4	447.0
1995	412	123.3	--	75.5	198.8	31.7	230.5
1996	291	146.2	--	21.7	167.9	11.9	179.8
1997	133	93.6	--	10.8	104.4	8.2	112.6
1998	173	53.6	--	44.6	98.2	4.8	103.0
1999	180	67.0	--	22.4	89.4	1.0	90.4
2000	163	68.4	--	6.2	74.6	9.2	83.8
2001	170	75.3	--	9.4	84.7	10.6	95.3
2002	190	80.5	--	7.1	87.6	12.6	100.2
2003	124	69.9	--	4.1	74.0	11.0	85.0
2004	159	84.6	--	--	84.6	13.8	98.4
2005	159	87.7	--	--	87.7	19.2	106.9
2006	84	99.9	--	--	99.9	2.2	102.1
2007	59	103.9	--	--	103.9	11.6	115.5
2008	133	167.2	--	--	167.2	27.2	194.4
2009	133	161.3	--	--	161.3	45.8	207.1
2010	170	248.4	--	--	248.4	29.1	277.5
2011	246	321.3	--	--	321.3	25.2	346.5
2012	112	171.6	--	--	171.6	32.7	204.3

2013	113	193.1	--	--	193.1	36.6	229.7
2014	199	305.7	--	--	305.7	34.4	340.1
2015	215	318.6	--	--	318.6	36.5	355.1
2016	240	337.5	--	--	337.5	36.4	373.9
2017	240	336.7	--	--	336.7	37.2	373.9
2018	283	342.4	--	--	342.4	38.2	380.6
2019	290	348.5	--	--	348.5	38.9	387.4
2020	301	354.8	--	--	354.8	39.6	394.4
2021	309	361.2	--	--	361.2	40.3	401.5
2022	318	367.7	--	--	367.7	41.0	408.7
2023	324	374.3	--	--	374.3	41.8	416.1
2024	329	381.0	--	--	381.0	42.6	423.6
<b>Subtotal</b>	<b>11792</b>	<b>10034.8</b>	<b>--</b>	<b>1506.3</b>	<b>11541.1</b>	<b>936.6</b>	<b>12477.7</b>

**Annual Funding BY\$**  
**3020 | Procurement | Missile Procurement, Air Force**

<b>Fiscal Year</b>	<b>Quantity</b>	<b>End Item Recurring Flyaway BY 1992 \$M</b>	<b>Non End Item Recurring Flyaway BY 1992 \$M</b>	<b>Non Recurring Flyaway BY 1992 \$M</b>	<b>Total Flyaway BY 1992 \$M</b>	<b>Total Support BY 1992 \$M</b>	<b>Total Program BY 1992 \$M</b>
1984	--	--	--	36.0	36.0	--	36.0
1985	--	--	--	88.9	88.9	--	88.9
1986	--	--	--	222.1	222.1	4.7	226.8
1987	180	445.0	--	187.1	632.1	22.6	654.7
1988	400	567.6	--	170.2	737.8	16.1	753.9
1989	874	677.3	--	104.0	781.3	16.6	797.9
1990	803	574.4	--	88.1	662.5	17.8	680.3
1991	600	384.9	--	184.2	569.1	23.4	592.5
1992	700	419.5	--	70.0	489.5	17.3	506.8
1993	1000	395.9	--	131.8	527.7	28.7	556.4
1994	983	319.1	--	75.0	394.1	16.9	411.0
1995	412	112.3	--	68.7	181.0	28.9	209.9
1996	291	131.4	--	19.5	150.9	10.7	161.6
1997	133	83.0	--	9.5	92.5	7.3	99.8
1998	173	47.1	--	39.1	86.2	4.2	90.4
1999	180	58.1	--	19.4	77.5	0.9	78.4
2000	163	58.6	--	5.3	63.9	8.0	71.9
2001	170	63.9	--	8.0	71.9	8.9	80.8
2002	190	67.2	--	5.9	73.1	10.5	83.6
2003	124	57.6	--	3.4	61.0	9.1	70.1
2004	159	68.3	--	--	68.3	11.1	79.4
2005	159	68.8	--	--	68.8	15.1	83.9
2006	84	76.2	--	--	76.2	1.7	77.9
2007	59	77.3	--	--	77.3	8.6	85.9
2008	133	122.1	--	--	122.1	19.9	142.0
2009	133	116.1	--	--	116.1	33.0	149.1
2010	170	176.2	--	--	176.2	20.6	196.8
2011	246	222.9	--	--	222.9	17.4	240.3
2012	112	116.6	--	--	116.6	22.3	138.9

2013	113	127.3	--	--	127.3	24.1	151.4
2014	199	197.8	--	--	197.8	22.2	220.0
2015	215	202.3	--	--	202.3	23.2	225.5
2016	240	210.3	--	--	210.3	22.7	233.0
2017	240	205.9	--	--	205.9	22.7	228.6
2018	283	205.5	--	--	205.5	22.9	228.4
2019	290	205.2	--	--	205.2	22.9	228.1
2020	301	205.0	--	--	205.0	22.9	227.9
2021	309	204.9	--	--	204.9	22.8	227.7
2022	318	204.6	--	--	204.6	22.9	227.5
2023	324	204.4	--	--	204.4	22.9	227.3
2024	329	204.2	--	--	204.2	22.9	227.1
<b>Subtotal</b>	<b>11792</b>	<b>7884.8</b>	<b>--</b>	<b>1536.2</b>	<b>9421.0</b>	<b>677.4</b>	<b>10098.4</b>

## Low Rate Initial Production

	<b>Initial LRIP Decision</b>	<b>Current Total LRIP</b>
<b>Approval Date</b>	6/4/1987	5/23/1991
<b>Approved Quantity</b>	810	4159
<b>Reference</b>	Milestone IIIA	Milestone IIIB
<b>Start Year</b>	1987	1987
<b>End Year</b>	1989	1992

The Current Total LRIP Quantity is more than 10% of the total production quantity due to an original LRIP decision during the Milestone IIIA review by the Defense Acquisition Board (DAB) in June 1987 to procure 810 LRIP missiles which covered 2 lots. On May 23, 1991, the DAB for Milestone IIIB approved a procurement quantity of 4,159 missiles. The current total LRIP quantity is more than 10% of the total production quantity because of the LRIP extension to include 6 lots, FY 1987 through FY 1992. The follow-on DAB Program Review, held on April 23, 1992, approved Full-Rate Production for Lot VII (FY 1993) procurement.

## **Foreign Military Sales**

Classified Foreign Military Sales information is provided in the classified annex to this submission.

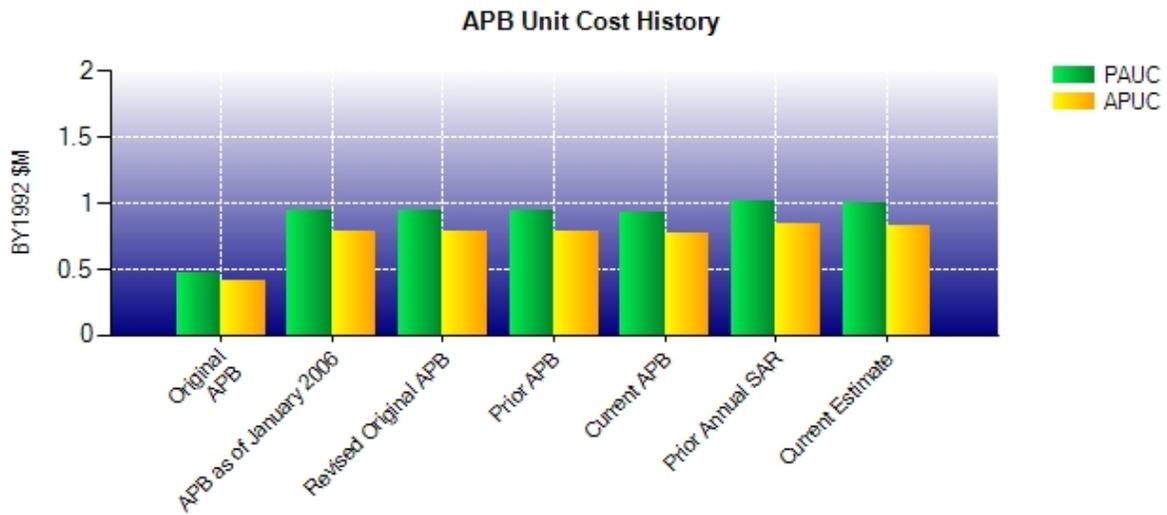
## **Nuclear Cost**

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

**Unit Cost****Unit Cost Report**

	BY1992 \$M	BY1992 \$M	
Unit Cost	Current UCR Baseline (MAY 2008 APB)	Current Estimate (DEC 2012 SAR)	BY % Change
<b>Program Acquisition Unit Cost (PAUC)</b>			
Cost	15713.2	16220.8	
Quantity	17024	16253	
Unit Cost	0.923	0.998	+8.13
<b>Average Procurement Unit Cost (APUC)</b>			
Cost	13231.6	13502.5	
Quantity	17024	16253	
Unit Cost	0.777	0.831	+6.95
	BY1992 \$M	BY1992 \$M	
Unit Cost	Revised Original UCR Baseline (SEP 1996 APB)	Current Estimate (DEC 2012 SAR)	BY % Change
<b>Program Acquisition Unit Cost (PAUC)</b>			
Cost	12302.9	16220.8	
Quantity	13038	16253	
Unit Cost	0.944	0.998	+5.72
<b>Average Procurement Unit Cost (APUC)</b>			
Cost	10205.7	13502.5	
Quantity	13038	16253	
Unit Cost	0.783	0.831	+6.13

### Unit Cost History



	Date	BY1992 \$M		TY \$M	
		PAUC	APUC	PAUC	APUC
<b>Original APB</b>	DEC 1988	0.471	0.409	0.460	0.413
<b>APB as of January 2006</b>	SEP 1996	0.944	0.783	1.022	0.883
<b>Revised Original APB</b>	SEP 1996	0.944	0.783	1.022	0.883
<b>Prior APB</b>	SEP 1996	0.944	0.783	1.022	0.883
<b>Current APB</b>	MAY 2008	0.923	0.777	1.141	1.002
<b>Prior Annual SAR</b>	DEC 2011	1.008	0.841	1.244	1.078
<b>Current Estimate</b>	DEC 2012	0.998	0.831	1.239	1.071

### SAR Unit Cost History

#### Current SAR Baseline to Current Estimate (TY \$M)

Initial PAUC Prod Est	Changes								PAUC Current Est
	Econ	Qty	Sch	Eng	Est	Oth	Spt	Total	
0.849	-0.007	0.003	0.163	0.070	0.121	0.000	0.040	0.390	1.239

## Current SAR Baseline to Current Estimate (TY \$M)

Initial APUC Prod Est	Changes								APUC Current Est
	Econ	Qty	Sch	Eng	Est	Oth	Spt	Total	
0.761	-0.005	0.007	0.161	0.031	0.076	0.000	0.040	0.310	1.071

## SAR Baseline History

Item/Event	SAR Planning Estimate (PE)	SAR Development Estimate (DE)	SAR Production Estimate (PdE)	Current Estimate
Milestone I	N/A	NOV 1978	NOV 1978	NOV 1978
Milestone II	N/A	NOV 1982	SEP 1982	SEP 1982
Milestone III	N/A	DEC 1984	APR 1991	APR 1991
IOC	N/A	SEP 1986	SEP 1992	SEP 1993
Total Cost (TY \$M)	N/A	11591.6	13112.4	20133.0
Total Quantity	N/A	24335	15450	16253
Prog. Acq. Unit Cost (PAUC)	N/A	0.476	0.849	1.239

**Cost Variance**

<b>Summary Then Year \$M</b>				
	<b>RDT&amp;E</b>	<b>Proc</b>	<b>MILCON</b>	<b>Total</b>
SAR Baseline (Prod Est)	1350.6	11761.8	--	13112.4
Previous Changes				
Economic	-39.6	-247.6	--	-287.2
Quantity	--	+719.5	--	+719.5
Schedule	+26.2	+3001.2	--	+3027.4
Engineering	+643.8	+500.2	--	+1144.0
Estimating	+727.2	+1116.0	--	+1843.2
Other	--	--	--	--
Support	--	+648.9	--	+648.9
Subtotal	+1357.6	+5738.2	--	+7095.8
Current Changes				
Economic	+6.6	+166.1	--	+172.7
Quantity	--	+9.7	--	+9.7
Schedule	+1.3	-386.8	--	-385.5
Engineering	--	+0.6	--	+0.6
Estimating	+3.8	+119.5	--	+123.3
Other	--	--	--	--
Support	--	+4.0	--	+4.0
Subtotal	+11.7	-86.9	--	-75.2
Total Changes	+1369.3	+5651.3	--	+7020.6
CE - Cost Variance	2719.9	17413.1	--	20133.0
CE - Cost & Funding	2719.9	17413.1	--	20133.0

<b>Summary Base Year 1992 \$M</b>				
	<b>RDT&amp;E</b>	<b>Proc</b>	<b>MILCON</b>	<b>Total</b>
SAR Baseline (Prod Est)	1725.7	10552.5	--	12278.2
Previous Changes				
Economic	--	--	--	--
Quantity	--	+486.3	--	+486.3
Schedule	+13.5	+1365.3	--	+1378.8
Engineering	+510.9	+370.8	--	+881.7
Estimating	+465.2	+509.1	--	+974.3
Other	--	--	--	--
Support	--	+376.6	--	+376.6
Subtotal	+989.6	+3108.1	--	+4097.7
Current Changes				
Economic	--	--	--	--
Quantity	--	+5.2	--	+5.2
Schedule	+0.8	-224.6	--	-223.8
Engineering	--	+0.3	--	+0.3
Estimating	+2.2	+60.0	--	+62.2
Other	--	--	--	--
Support	--	+1.0	--	+1.0
Subtotal	+3.0	-158.1	--	-155.1
Total Changes	+992.6	+2950.0	--	+3942.6
CE - Cost Variance	2718.3	13502.5	--	16220.8
CE - Cost & Funding	2718.3	13502.5	--	16220.8

Previous Estimate: December 2011

<b>RDT&amp;E</b>	<b>\$M</b>	
<b>Current Change Explanations</b>	<b>Base Year</b>	<b>Then Year</b>
Revised escalation indices. (Economic)	N/A	+6.6
Rephased Operational Test (OT) schedule (Air Force). (Schedule)	0.0	+0.1
Rephased F-22 Increment 3.2 schedule (Air Force). (Schedule)	+0.8	+1.2
Adjustment for current and prior escalation. (Estimating)	-0.6	-0.9
Adjustment to Working Capital Fund rate for product development, Test and Evaluation (Navy). (Estimating)	-1.4	-2.0
Reduction to Small Business Innovation Research in FY 2012 (Air Force). (Estimating)	-1.6	-2.3
Revised estimate to reflect the application of new out-year escalation indices (Air Force). (Estimating)	-3.8	-6.7
Baseline extension to System Improvement Program (SIP) (Air Force). (Estimating)	+9.7	+15.9
Reduction for alternative fuel sources (Air Force). (Estimating)	-0.1	-0.2
<b>RDT&amp;E Subtotal</b>	<b>+3.0</b>	<b>+11.7</b>

<b>Procurement</b>	<b>\$M</b>	
<b>Current Change Explanations</b>	<b>Base Year</b>	<b>Then Year</b>
Revised escalation indices. (Economic)	N/A	+166.1
Total Quantity variance resulting from an increase of 14 missiles from 11778 to 11792 (Air Force). (Subtotal)	+7.9	+14.7
Quantity variance resulting from an increase of 14 missiles from 11778 to 11792 (Air Force). (Quantity) (QR)	(+5.2)	(+9.7)
Allocation to Schedule resulting from Quantity change. (Schedule) (QR)	(+1.8)	(+3.4)
Allocation to Engineering resulting from Quantity change. (Engineering) (QR)	(+0.3)	(+0.6)
Allocation to Estimating resulting from Quantity change. (Estimating) (QR)	(+0.6)	(+1.0)
Increase due to schedule variance resulting from realignment of missile buy profile from FY 2013 through FY 2024 (Navy). (Schedule)	0.0	+9.3
Increase due to schedule variance resulting from realignment of missile buy profile from FY 2013 through FY 2024 (Air Force). (Schedule)	0.0	+2.3
Additional Schedule variance resulting from realignment of missile buy profile from FY 2013 through FY 2024 (Air Force). (Schedule)	-94.0	-168.2
Additional Schedule variance resulting from realignment of missile buy profile from FY 2013 through FY 2024 (Navy). (Schedule)	-132.4	-233.6
Adjustment for current and prior escalation. (Estimating)	-4.4	-7.3
Decrease in factory Tooling and Test Equipment due to increased Foreign Military Sales (FMS) quantities and reallocation of shared costs (Air Force). (Estimating)	-11.5	-18.1
Increase in factory Tooling and Test Equipment due to fulfillment of unfunded requirement (Air Force). (Estimating)	+1.7	+2.5
Increase in Diminishing Manufacturing Sources (DMS) costs due to updated estimate methodology and realization of actual costs (Air Force). (Estimating)	+34.5	+67.0
Increase in Production test and technical support requirements and realization of actual costs (Air Force). (Estimating)	+19.3	+28.5

Decrease in factory Tooling and Test Equipment due to increased FMS quantities and reallocation of shared cost (Navy). (Estimating)	-3.3	-4.8
Decrease in factory Tooling and Test Equipment due to realization of actual costs (Navy). (Estimating)	-2.0	-2.9
Increase in DMS costs due to updated estimate methodology and realization of actual costs (Navy). (Estimating)	+20.0	+43.3
Increase in Production test and technical support requirements and realization of actual costs (Navy). (Estimating)	+5.1	+10.3
Adjustment for current and prior escalation. (Support)	-1.0	-0.9
Increase in Other Support due to increase in training equipment requirements (Navy). (Support)	+4.4	+8.5
Increase in Initial Spares due to increase in requirements (Navy). (Support)	+17.4	+30.4
Decrease in Other Support due to reduction of training equipment requirements (Air Force). (Support)	-22.8	-38.2
Increase in Initial Spares due below threshold reprogramming of prior year funds (Air Force). (Support)	+3.0	+4.2
Procurement Subtotal	-158.1	-86.9

(QR) Quantity Related

## Contracts

### Appropriation: RDT&E

Contract Name	<b>Raytheon Lot 21</b>
Contractor	Raytheon Company
Contractor Location	1151 East Hermans Road Tucson, AZ 85706
Contract Number, Type	FA8675-07-C-0055, FFP
Award Date	April 13, 2007
Definitization Date	April 13, 2007

Initial Contract Price (\$M)			Current Contract Price (\$M)			Estimated Price At Completion (\$M)	
Target	Ceiling	Qty	Target	Ceiling	Qty	Contractor	Program Manager
194.1	N/A	104	378.7	N/A	244	378.7	378.7

### Cost And Schedule Variance Explanations

Cost and Schedule variance reporting is not required on this FFP contract.

### Contract Comments

The difference between the Initial Contract Price Target and the Current Contract Price Target is due to the addition of the Integrated Test Vehicle and Guidance Section in June 2007; procurement of Captive Air Training Missiles and Navy Rocket Motors in September 2007; the addition of 140 AIM-120C-7 Foreign Military Sales (FMS) requirements and Processor Replacement Program (PRP) Phase I in July 2008; the addition of Guided Weapons Test Set in November 2008; FMS Offset Administration in December 2008, and PRP Phase II in February 2009.

This contract is more than 90% complete; therefore, this is the final report for this contract.

**Appropriation: Procurement**

Contract Name	<b>Raytheon Lot 22</b>
Contractor	Raytheon Company
Contractor Location	Tucson, AZ 85706
Contract Number, Type	FA8675-08-C-0049, FFP
Award Date	May 28, 2008
Definitization Date	May 28, 2008

Initial Contract Price (\$M)			Current Contract Price (\$M)			Estimated Price At Completion (\$M)	
Target	Ceiling	Qty	Target	Ceiling	Qty	Contractor	Program Manager
416.4	N/A	413	444.3	N/A	413	444.3	444.3

**Cost And Schedule Variance Explanations**

Cost and Schedule variance reporting is not required on this FFP contract.

**Contract Comments**

The difference between the Initial Contract Price Target and the Current Contract Price Target is due to the purchase of additional Telemetry units in July 2008, the addition of Rocket Motors for Foreign Military Sales and United States customers in January 2009, and the addition of Lean Cost Reduction Initiatives to qualify lower cost components for future missiles in April 2009. Missile deliveries were completed in September 2012. On December 11, 2012, the Government and Raytheon Missiles System, Tucson, signed a contract modification restructuring the AIM-120C7, AIM-120D, and Baseline Rocket Motor schedules for Lots 22-25. Replacement rocket motors are projected to be completed in December 2014.

This contract is more than 90% complete; therefore, this is the final report for this contract.

**Appropriation: Procurement**

Contract Name	<b>Raytheon Lot 23</b>
Contractor	Raytheon Company
Contractor Location	Tucson, AZ 85706
Contract Number, Type	FA8675-09-C-0052, FFP
Award Date	April 28, 2009
Definitization Date	April 28, 2009

Initial Contract Price (\$M)			Current Contract Price (\$M)			Estimated Price At Completion (\$M)	
Target	Ceiling	Qty	Target	Ceiling	Qty	Contractor	Program Manager
521.2	N/A	685	717.8	N/A	689	717.8	717.8

**Cost And Schedule Variance Explanations**

Cost and Schedule variance reporting is not required on this FFP contract.

**Contract Comments**

The difference between the Initial Contract Price Target and the Current Contract Price Target is due to the addition of Navy F-18 missiles, Government Furnished Equipment requirements, and Telemetry units in July 2009; the addition of Foreign Military Sales (FMS) Rocket Motors in September 2009; the procurement of the AIM-120D AMRAAM Captive Equipment Pod and the FMS Offset Administration in December 2009. In Calendar Year (CY) 2010, added Processor Replacement Program (PRP) FMS overarching software; 4 months of System Engineering Program Management (SEPM) to cover the delay in awarding Lot 24; PRP Phase 3; and a Radome Phase 2 AMRAAM Pyroceram Restart. In CY 2011, added an effort to modify FMS software tapes to be compliant with PRP configured FMS AIM-120C-7 missiles. In October 2012, Gulf Range Drone Control System (GRDCS) Phase II Study was added. On December 11, 2012, the Government and Raytheon Missiles System (RMS), Tucson, signed a contract modification restructuring the AIM-120C7, AIM-120D, and Baseline Rocket Motor schedules for Lots 22-25. The new delivery schedule has AIM-120D production catching up to the original schedule in mid 2014. Missile deliveries for Lot 23 are projected to be completed by September 2013.

**Appropriation: Procurement**

Contract Name	<b>Raytheon Lot 24</b>
Contractor	Raytheon Company
Contractor Location	Tucson, AZ 85706
Contract Number, Type	FA8675-10-C-0014, FFP
Award Date	August 05, 2010
Definitization Date	August 05, 2010

Initial Contract Price (\$M)			Current Contract Price (\$M)			Estimated Price At Completion (\$M)	
Target	Ceiling	Qty	Target	Ceiling	Qty	Contractor	Program Manager
492.4	N/A	505	562.6	N/A	523	562.6	562.6

**Cost And Schedule Variance Explanations**

Cost and Schedule variance reporting is not required on this FFP contract.

**Contract Comments**

The difference between the Initial Contract Price Target and the Current Contract Price Target is due to the addition of AIM-120D missiles for United States, a guidance section test asset, and additional telemetry devices. Also, testing, studies and plans for all Advance Telemetry (ARTM) are in the initial phase. In May 2012, the Central Processor Unit (CPA) Circuit Card Assembly (CCA) was added. On December 11, 2012, the Government and Raytheon Missiles System (RMS), Tucson, signed a contract modification restructuring the AIM-120C7, AIM-120D, and Baseline Rocket Motor schedules for Lots 22-25. The new delivery schedule has AIM-120D production catching up to the original schedule in mid 2014.

**Appropriation: Procurement**

Contract Name	<b>Raytheon Lot 25</b>
Contractor	Raytheon Company
Contractor Location	1151 East Hermans Road Tucson, AZ 85706
Contract Number, Type	FA8675-11-C-0030, FFP
Award Date	August 31, 2011
Definitization Date	August 31, 2011

Initial Contract Price (\$M)			Current Contract Price (\$M)			Estimated Price At Completion (\$M)	
Target	Ceiling	Qty	Target	Ceiling	Qty	Contractor	Program Manager
569.0	N/A	469	652.7	N/A	550	652.7	652.7

**Cost And Schedule Variance Explanations**

Cost and Schedule variance reporting is not required on this FFP contract.

**Contract Comments**

The difference between the Initial Contract Price Target and the Current Contract Price Target is due to additional telemetry devices and the addition of AIM-120C-7 missiles for Foreign Military Sales (FMS). In May 2012, an administrative offset for AIM-120C-7 FMS was added. Also, in November 2012, additional surface launch fires were added. On December 11, 2012, the Government and Raytheon Missiles System (RMS), Tucson, signed a contract modification restructuring the AIM-120C7, AIM-120D, and Baseline Rocket Motor schedules for Lots 22-25. The new delivery schedule has AIM-120D production catching up to the original schedule in mid 2014.

**Appropriation: RDT&E**

Contract Name	<b>Raytheon Lot 26</b>
Contractor	Raytheon Company
Contractor Location	1151 East Hermans Road Tuscon, AZ 85706
Contract Number, Type	FA8675-12-C-0011, FFP
Award Date	March 30, 2012
Definitization Date	March 30, 2012

Initial Contract Price (\$M)			Current Contract Price (\$M)			Estimated Price At Completion (\$M)	
Target	Ceiling	Qty	Target	Ceiling	Qty	Contractor	Program Manager
497.1	N/A	404	501.0	N/A	404	501.0	501.0

**Cost And Schedule Variance Explanations**

Cost and Schedule variance reporting is not required on this FFP contract.

**Contract Comments**

This is the first time this contract is being reported.

The difference between the Initial Contract Price Target and the Current Contract Price Target is due to addition of a Lean Cost Reduction Initiative, Life-of-Type buys for the Shortened Control Actuation System and a Final Assembly Test Station in Calendar Year 2012.

## Deliveries and Expenditures

Deliveries To Date	Plan To Date	Actual To Date	Total Quantity	Percent Delivered
Development	0	0	0	--
Production	10146	10117	16253	62.25%
Total Program Quantities Delivered	10146	10117	16253	62.25%

Expenditures and Appropriations (TY \$M)			
Total Acquisition Cost	20133.0	Years Appropriated	37
Expenditures To Date	11421.2	Percent Years Appropriated	77.08%
Percent Expended	56.73%	Appropriated to Date	12605.0
Total Funding Years	48	Percent Appropriated	62.61%

The above data is current as of 3/31/2013.

On December 11, 2012, the Government and Raytheon Missiles Systems, Tucson signed a contract modification restructuring missiles and Baseline Rocket Motor schedules for Lots 23 - 25.

## Operating and Support Cost

### AMRAAM

#### Assumptions and Ground Rules

##### Cost Estimate Reference:

The program calculates Operating & Support (O&S) cost on a yearly basis for the respective categories requested in the SAR. These categories are then annualized by dividing their totals by the total number of years of sustainment, 40. The total O&S Base Year (BY) costs are calculated by multiplying the average annual cost by the total number of sustainment years. Rounding error, if present, exists, due to varying decimal points used in each of these calculations.

The O&S Cost includes:

- 1) Contractor Logistics Support (CLS) labor and material. CLS covers the repair cost after the warranty period has expired.
- 2) Maintenance: includes inspections, periodic tests, and 30-day function check.
- 3) Second Destination Transportation (SDT).
- 4) Material management / item entry.
- 5) Container maintenance.
- 6) Sustaining engineering support.
- 7) Travel (TDY) test costs at Weapons System Evaluation Program (WSEP).
- 8) Miscellaneous personnel support costs.

O&S Cost does not include warranty costs; however, the number of years for warranty is used to adjust detected failures by lot. The warranty costs are included in the production costs.

The O&S cost estimate was updated January 2013. The Production Air Force and Navy quantities were updated to be consistent with the FY 2014 President's Budget (PB).

AIM-7 is AMRAAM's antecedent system; however, O&S costs for this system are not available.

##### Sustainment Strategy:

The AMRAAM All-Up-Round (AUR) maintenance concept calls for aircraft loading/unloading, removal/replacement of wings and fins and missile Built-In-Test (BIT). A missile failing BIT will be sent to the Intermediate-Level Shop for test verification on the Missile Bit Test Set (MBTS – Air Force only), Common Field-Level Memory Reprogramming Equipment (CFMRE), or Common Munitions BIT Reprogramming Equipment Plus (CMBRE). Failed missiles will be returned to the contractor AMRAAM depot for repair.

The O&S costs are the direct costs for the tactical missile and the Captive Carry Missile (CCM) associated with operating, supporting, and maintaining the AMRAAM missile over a 30-year deployment phase starting in FY 1991 for the Air Force and FY 1992 for the Navy. The Air Force estimate covers base operations including CCM, AUR fault verification, operational firings, depot repairs (seven year Interim Contractor Support (ICS)), supply/item management, transportation, replenishment spares, and field software updates. The Navy estimate includes AMRAAM fleet operations and support, depot rework (five years ICS), technical support (fleet support, engineering services, quality surveillance, program management), supply support, replenishment spares, and contractor augmented support. The Total Acquisition Cost includes Development for the Air Force and United States Navy (FY 1977-2024), Air Force Production (FY 1984-2024), and Navy Production (FY 1989-2024).

As of the PB, the total number of AMRAAMs to be procured totals 16,253.

Antecedent Information:

The AMRAAM replaced the AIM-7 and was integrated and maintained using existing support resources with no additional manpower requirements. AIM-7 is AMRAAM's antecedent system; however, no complete O&S costs for this system are available.

<b>Unitized O&amp;S Costs BY1992 \$M</b>		
<b>Cost Element</b>	<b>AMRAAM Average Annual Cost For All Missiles</b>	<b>AIM-7 (Antecedent) Average Annual Cost For All Missiles</b>
Unit-Level Manpower	0.3	0.0
Unit Operations	0.9	0.0
Maintenance	6.0	0.0
Sustaining Support	13.6	0.0
Continuing System Improvements	1.4	0.0
Indirect Support	0.1	0.0
Other	0.0	0.0
<b>Total</b>	<b>22.3</b>	<b>--</b>

Unitized Cost Comments:

Average annual costs for the individual elements are calculated by dividing the total individual elements by the number of estimated years of support. In the case of AMRAAM, the number of years estimated equates to 40.

	Total O&S Cost \$M			
	Current Production APB Objective/Threshold		Current Estimate	
	AMRAAM		AMRAAM	AIM-7 (Antecedent)
<b>Base Year</b>	0.0	0.0	893.3	0.0
<b>Then Year</b>	0.0	N/A	1308.1	0.0

Total O&S Costs Comments:

O&S cost is not included in AMRAAM's Acquisition Program Baseline.

The O&S costs are the direct costs for the tactical missile and the CCM associated with operating, supporting, and maintaining the AMRAAM missile over a 25-year deployment phase starting in FY 1991 for the Air Force and FY 1992 for the Navy.

The O&S cost estimate was updated January 2013. The Production Air Force quantities were updated to be consistent with the PB.

The O&S Cost of \$1,308.1M (TY\$M), \$893.3M (BY92\$M) is for 40 years (through 2030 for the AMRAAM service life). The Total Acquisition Cost includes Development and Production for Air Force and Navy.

**Disposal Costs**

Disposal costs are not included in the O&S estimate.

Letterkenny Munitions Center is utilized to demilitarize AMRAAM. The decision to demilitarize individual missiles or entire lots in lieu of refurbishment or retrofit will be made by Air Combat Command (ACC) for the Air Force and Navy Resource Sponsor for the Navy. Total estimated cost for demilitarization is \$23.1M (TY\$M), \$10.8M (BY92 \$M).