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## Selected Acquisition Report (SAR)

RCS: DD-A&T(Q&A)823-210



### Space Based Infrared System High (SBIRS High)

As of FY 2019 President's Budget

Defense Acquisition Management  
Information Retrieval  
(DAMIR)

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## **Sensitivity Originator**

No originator info 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)

## Program Information

**Program Name**

Space Based Infrared System High (SBIRS High)

**DoD Component**

Air Force

## Responsible Office

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## References

**SAR Baseline (Production Estimate)**

Defense Acquisition Executive (DAE) Approved Acquisition Program Baseline (APB) dated September 4, 2012

**Approved APB**

Defense Acquisition Executive (DAE) Approved Acquisition Program Baseline (APB) dated February 27, 2013



## Mission and Description

The Space Based Infrared System High (SBIRS High) program is intended to satisfy key requirements delineated in the SBIRS ORD dated August 15, 1996, with Annex 1 dated July 17, 1998, within the available budget and schedule. SBIRS High is an integrated system consisting of multiple space and ground elements, with incremental deployment phasing, simultaneously satisfying requirements in the following mission areas: Missile Warning, Missile Defense, Technical Intelligence and Battlespace Awareness. The constellation architecture for SBIRS High includes Highly Elliptical Orbit (HEO) sensors and Geosynchronous Earth Orbit (GEO) satellites, in addition to the following ground elements: a Continental United States-based Mission Control Station and Mission Control Station Backup, overseas Relay Ground Stations, Mobile Ground Stations, and associated communication links. The first increment of the SBIRS ground system was certified for operations in December 2001 and supports mission processing of the legacy Defense Support Program system satellites and fusion of HEO monotracks and other data. The SBIRS HEO system was certified for the Integrated Tactical Warning/Attack Assessment (ITW/AA) mission in November 2008 and technical intelligence mission in August 2009. The SBIRS GEO 1 and 2 systems were ITW/AA mission certified in August 2013 and December 2013, respectively.

The SBIRS High MDAP includes two subprograms: the Baseline subprogram, comprised of GEO satellites 1-4, HEO payloads 1-2 and associated ground elements; and the GEO 5-6 Satellites Replenishment Production "Block Buy" subprogram. The Baseline subprogram was 90% delivered by December 2015 and was last reported in the December 2015 SAR. Therefore, only the Block Buy GEO 5-6 subprogram is the subject of this SAR.



## Executive Summary

The SBIRS Block Buy (GEO 5-6) program is performing within budget and schedule although forecast data show the GEO 5 delivery date has zero margin to the APB threshold date. Production activities are 56.2% complete. Program risks identified with the GEO 5-6 Tech Refresh (TR) contract modification, converting the SBIRS-unique A2100 satellite bus to a modernized and modular A2100 TR bus are being closely managed. The SBIRS Bus Flight Software Critical Design Review (CDR) completed on March 1, 2017. The A2100TR Bus Flight Software completed the version 1.1 software acceptance review on July 17, 2017, and is the final baseline for the SBIRS Bus Flight Software development. The SBIRS Bootstrap, or initialization software, completed with the Software Acceptance Review on July 21, 2017. The Ground CDR completed on July 13, 2017. On September 7-8, 2017, Lockheed Martin conducted the System CDR for the GEO 5-6 program in Sunnyvale, CA. This System CDR culminated an 18-month effort of lower-level subsystem and segment-level CDRs. Four significant liens were levied against the review. The review chairs approved continuation of the production contract in concert with the liens being worked off.

During this reporting period, a negative program development was encountered due to structural manufacturing issues on the GEO 5 Cylinder, Cruciform/Mid-Deck Panels, and the Earth Pointing Platform all of which are creating delays contributing to declining schedule performance and a zero margin to APB threshold. The Government and Lockheed Martin are working in partnership to determine root causes, identify potential technical solutions, and decide on an appropriate way forward for each manufacturing issue. Lockheed Martin has developed recovery plans for the structural non-conformances, but these plans include associated schedule impacts and mitigation steps.

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

Threshold Breaches

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

Nunn-McCurdy Breaches		
Current UCR Baseline		
	PAUC	None
	APUC	None
Original UCR Baseline		
	PAUC	None
	APUC	None

## Schedule



Schedule Events				
Events	SAR Baseline Production Estimate	Current APB Production Objective/Threshold		Current Estimate
GEO Satellite 5 Available for Delivery	Sep 2019	Sep 2019	Sep 2020	Sep 2020
GEO Satellite 6 Available for Delivery	Sep 2020	Sep 2020	Sep 2021	Jul 2021

### Change Explanations

None

### Notes

GEO Satellite "Available for Delivery" is defined as the GEO satellite successfully completing Final Integrated System Test and the satellite is available such that if operational priorities require the satellite to launch at the earliest opportunity, then the satellite will continue Final Install processing to proceed to a Consent-to-Ship Review. If operational priorities indicate a later manifest, then the satellite will be configured for storage.

GEO 5 and 6 delivery dates reflect the as-negotiated dates.

The one-year period between the objective and threshold values addresses the schedule risk inherent in the first time production under a fixed price contract for a SBIRS satellite.

## Performance

No performance characteristics exist for Block Buy (GEO 5-6).

### Notes

Performance characteristics were addressed in the Baseline (GEO 1-4, HEO 1-2, and Ground) subprogram. Performance assessment is based on the full SBIRS constellation and Ground Segment.

Track to Budget

Procurement			
Appn	BA	PE	
Air Force	3020	05	0305915F
	Line Item	Name	
	MSSBIR	SBIRS High Missile Procurement	
			(Sunk)
Air Force	3021	01	0305915F
	Line Item	Name	
	MSSBIR	SBIRS High (Space)	
			(Sunk)
Air Force	3021	01	1203915F
	Line Item	Name	
	MSSBIR	SBIRS High (Space)	
			(Shared)



## Cost and Funding

### Cost Summary

Total Acquisition Cost							
Appropriation	BY 1995 \$M			BY 1995 \$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	0.0	0.0	--	0.0	0.0	0.0	0.0
Flyaway	--	--	--	0.0	--	--	0.0
Recurring	--	--	--	0.0	--	--	0.0
Non Recurring	--	--	--	0.0	--	--	0.0
Support	--	--	--	0.0	--	--	0.0
Procurement	2681.6	2681.6	2949.8	2364.5	3865.4	3865.4	3448.9
Flyaway	--	--	--	2174.7	--	--	3167.8
Recurring	--	--	--	1761.9	--	--	2580.6
Non Recurring	--	--	--	412.8	--	--	587.2
Support	--	--	--	189.8	--	--	281.1
Other Support	--	--	--	189.8	--	--	281.1
Initial Spares	--	--	--	0.0	--	--	0.0
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	2681.6	2681.6	N/A	2364.5	3865.4	3865.4	3448.9

#### Cost Notes

In accordance with Section 842 of the National Defense Authorization Act for FY 2017, which amended title 10 U.S.C. § 2334, the Director of Cost Assessment and Program Evaluation, and the Secretary of the military department concerned or the head of the Defense Agency concerned, must issue guidance requiring a discussion of risk, the potential impacts of risk on program costs, and approaches to mitigate risk in cost estimates for MDAPs and major subprograms. The information required by the guidance is to be reported in each SAR. This guidance is not yet available; therefore, the information on cost risk is not contained in this SAR.

The Procurement profile above reflects costs for the delivery of the GEO satellites 5 and 6, as documented in the FY 2019 PB.

Total Quantity			
Quantity	SAR Baseline Production Estimate	Current APB Production	Current Estimate
RDT&E	0	0	0
Procurement	2	2	2
Total	2	2	2

**Quantity Notes**

The above quantity represents two GEO satellites.



## Cost and Funding

### Funding Summary

Appropriation Summary									
FY 2019 President's Budget / December 2017 SAR (TY\$ M)									
Appropriation	Prior	FY 2018	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	To Complete	Total
RDT&E	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Procurement	2147.9	938.0	130.0	128.0	105.0	0.0	0.0	0.0	3448.9
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 2019 Total	2147.9	938.0	130.0	128.0	105.0	0.0	0.0	0.0	3448.9
PB 2018 Total	2152.5	938.1	135.8	127.2	104.0	0.0	0.0	0.0	3457.6
Delta	-4.6	-0.1	-5.8	0.8	1.0	0.0	0.0	0.0	-8.7

Quantity Summary										
FY 2019 President's Budget / December 2017 SAR (TY\$ M)										
Quantity	Undistributed	Prior	FY 2018	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	To Complete	Total
Development	0	0	0	0	0	0	0	0	0	0
Production	0	2	0	0	0	0	0	0	0	2
PB 2019 Total	0	2	0	0	0	0	0	0	0	2
PB 2018 Total	0	2	0	0	0	0	0	0	0	2
Delta	0	0	0	0	0	0	0	0	0	0

## Cost and Funding

### Annual Funding By Appropriation

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
2011	--	103.6	--	139.7	243.3	--	243.3
2012	--	192.1	--	51.5	243.6	--	243.6
2013	2	196.2	--	89.8	286.0	22.1	308.1
2014	--	311.1	--	78.2	389.3	36.2	425.5
2015	--	222.9	--	60.5	283.4	31.0	314.4
Subtotal	2	1025.9	--	419.7	1445.6	89.3	1534.9

Annual Funding 3020   Procurement   Missile Procurement, Air Force							
Fiscal Year	Quantity	BY 1995 \$M					
		End Item Recurring Flyaway	Non End Item Recurring Flyaway	Non Recurring Flyaway	Total Flyaway	Total Support	Total Program
2011	--	77.0	--	103.7	180.7	--	180.7
2012	--	140.4	--	37.6	178.0	--	178.0
2013	2	140.2	--	64.1	204.3	15.8	220.1
2014	--	219.2	--	55.1	274.3	25.5	299.8
2015	--	155.3	--	42.2	197.5	21.6	219.1
Subtotal	2	732.1	--	302.7	1034.8	62.9	1097.7

The procurement profile above reflects procurement costs for the delivery of the GEO satellites 5 and 6, as documented in the FY 2019 PB. The costs above reflect the requirements for GEOs 5 and 6 production, launch, operations, checkout and support.

The following table reflects the End Item Recurring Flyaway costs associated with a 3020 quantity buy which occurred in FY 2013. The total of FY 2011-2015 End Item Recurring Flyaway BY costs from the previous page is reflected.

Cost Quantity Information		
3020   Procurement   Missile Procurement, Air Force		
Fiscal Year	Quantity	End Item Recurring Flyaway (Aligned With Quantity) BY 1995 \$M
2011	--	--
2012	--	--
2013	2	732.1
2014	--	--
2015	--	--
Subtotal	2	732.1



Annual Funding								
3021   Procurement   Space 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	
2013	--	--	--	--	--	--	--	--
2014	--	--	--	--	--	--	--	--
2015	--	--	--	--	--	--	--	--
2016	--	297.7	0.5	29.1	327.3	52.3	379.6	
2017	--	186.9	--	16.3	203.2	30.2	233.4	
2018	--	521.0	315.1	51.7	887.8	50.2	938.0	
2019	--	40.8	25.0	35.4	101.2	28.8	130.0	
2020	--	63.6	25.0	22.2	110.8	17.2	128.0	
2021	--	54.0	25.1	12.8	91.9	13.1	105.0	
Subtotal	--	1164.0	390.7	167.5	1722.2	191.8	1914.0	

Annual Funding							
3021   Procurement   Space Procurement, Air Force							
Fiscal Year	Quantity	BY 1995 \$M					
		End Item Recurring Flyaway	Non End Item Recurring Flyaway	Non Recurring Flyaway	Total Flyaway	Total Support	Total Program
2013	--	--	--	--	--	--	--
2014	--	--	--	--	--	--	--
2015	--	--	--	--	--	--	--
2016	--	204.2	0.3	20.0	224.5	35.9	260.4
2017	--	125.9	--	11.0	136.9	20.3	157.2
2018	--	343.6	207.8	34.1	585.5	33.1	618.6
2019	--	26.4	16.2	22.9	65.5	18.6	84.1
2020	--	40.4	15.8	14.1	70.3	10.9	81.2
2021	--	33.6	15.6	8.0	57.2	8.1	65.3
Subtotal	--	774.1	255.7	110.1	1139.9	126.9	1266.8

The procurement profile above reflects procurement costs for the delivery of the GEO satellites 5 and 6, as documented in the FY 2019 PB. The costs above reflect the requirements for GEOs 5 and 6 production, launch, operations, checkout and support.

The following table reflects the End Item Recurring Flyaway costs associated with a 3020 quantity buy which occurred in FY 2013. The total of FY 2016-2021 End Item Recurring Flyaway BY costs from the previous page is reflected.

Cost Quantity Information		
3021   Procurement   Space Procurement, Air Force		
Fiscal Year	Quantity	End Item Recurring Flyaway (Aligned With Quantity) BY 1995 \$M
2013	--	774.1
2014	--	--
2015	--	--
2016	--	--
2017	--	--
2018	--	--
2019	--	--
2020	--	--
2021	--	--
Subtotal	--	774.1



## **Low Rate Initial Production**

There is no LRIP for this program.

## Foreign Military Sales

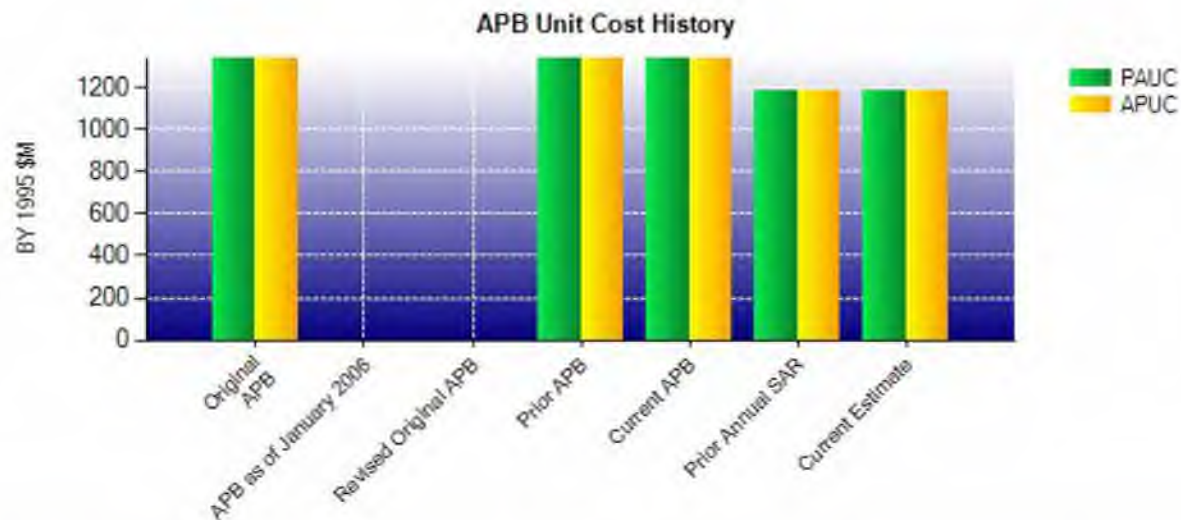
None

## Nuclear Costs

None

**Unit Cost**

Current UCR Baseline and Current Estimate (Base-Year Dollars)			
Item	BY 1995 \$M	BY 1995 \$M	% Change
	Current UCR Baseline (Feb 2013 APB)	Current Estimate (Dec 2017 SAR)	
Program Acquisition Unit Cost			
Cost	2681.6	2364.5	
Quantity	2	2	
Unit Cost	1340.800	1182.250	-11.83
Average Procurement Unit Cost			
Cost	2681.6	2364.5	
Quantity	2	2	
Unit Cost	1340.800	1182.250	-11.83
Original UCR Baseline and Current Estimate (Base-Year Dollars)			
Item	BY 1995 \$M	BY 1995 \$M	% Change
	Original UCR Baseline (Sep 2012 APB)	Current Estimate (Dec 2017 SAR)	
Program Acquisition Unit Cost			
Cost	2681.6	2364.5	
Quantity	2	2	
Unit Cost	1340.800	1182.250	-11.83
Average Procurement Unit Cost			
Cost	2681.6	2364.5	
Quantity	2	2	
Unit Cost	1340.800	1182.250	-11.83



APB Unit Cost History					
Item	Date	BY 1995 \$M		TY \$M	
		PAUC	APUC	PAUC	APUC
Original APB	Sep 2012	1340.800	1340.800	1932.700	1932.700
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	Sep 2012	1340.800	1340.800	1932.700	1932.700
Current APB	Feb 2013	1340.800	1340.800	1932.700	1932.700
Prior Annual SAR	Dec 2016	1181.850	1181.850	1728.800	1728.800
Current Estimate	Dec 2017	1182.250	1182.250	1724.450	1724.450

### 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	
1932.700	23.850	0.000	0.000	0.000	-98.750	0.000	-133.350	-208.250	1724.450

Current SAR Baseline to Current Estimate (TY \$M)									
Initial APUC Production Estimate	Changes								APUC Current Estimate
	Econ	Qty	Sch	Eng	Est	Oth	Spt	Total	
1932.700	23.850	0.000	0.000	0.000	-98.750	0.000	-133.350	-208.250	1724.450

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	N/A	N/A
IOC	N/A	N/A	N/A	N/A
Total Cost (TY \$M)	N/A	N/A	3865.4	3448.9
Total Quantity	N/A	N/A	2	2
PAUC	N/A	N/A	1932.700	1724.450



**Cost Variance**

Summary TY \$M				
Item	RDT&E	Procurement	MILCON	Total
SAR Baseline (Production Estimate)	--	3865.4	--	3865.4
Previous Changes				
Economic	--	+57.7	--	+57.7
Quantity	--	--	--	--
Schedule	--	--	--	--
Engineering	--	--	--	--
Estimating	--	-210.4	--	-210.4
Other	--	--	--	--
Support	--	-255.1	--	-255.1
Subtotal	--	-407.8	--	-407.8
Current Changes				
Economic	--	-10.0	--	-10.0
Quantity	--	--	--	--
Schedule	--	--	--	--
Engineering	--	--	--	--
Estimating	--	+12.9	--	+12.9
Other	--	--	--	--
Support	--	-11.6	--	-11.6
Subtotal	--	-8.7	--	-8.7
Total Changes	--	-416.5	--	-416.5
CE - Cost Variance	--	3448.9	--	3448.9
CE - Cost & Funding	--	3448.9	--	3448.9

Summary BY 1995 \$M				
Item	RDT&E	Procurement	MILCON	Total
SAR Baseline (Production Estimate)	--	2681.6	--	2681.6
Previous Changes				
Economic	--	--	--	--
Quantity	--	--	--	--
Schedule	--	--	--	--
Engineering	--	--	--	--
Estimating	--	-150.9	--	-150.9
Other	--	--	--	--
Support	--	-167.0	--	-167.0
Subtotal	--	-317.9	--	-317.9
Current Changes				
Economic	--	--	--	--
Quantity	--	--	--	--
Schedule	--	--	--	--
Engineering	--	--	--	--
Estimating	--	+8.8	--	+8.8
Other	--	--	--	--
Support	--	-8.0	--	-8.0
Subtotal	--	+0.8	--	+0.8
Total Changes	--	-317.1	--	-317.1
CE - Cost Variance	--	2364.5	--	2364.5
CE - Cost & Funding	--	2364.5	--	2364.5

Previous Estimate: December 2016



Procurement		\$M	
Current Change Explanations		Base Year	Then Year
Revised escalation indices. (Economic)		N/A	-10.0
Revised estimate due to Congressional mark in FY 2017 (Space Procurement, Air Force (SPAF)). (Estimating)		-3.4	-5.0
Revised estimate due to reduction to actuals (SPAF). (Estimating)		-1.6	-2.4
Revised estimate due to the application of new outyear escalation indices (Missile Procurement, Air Force (MPAF)). (Estimating)		+0.1	0.0
Adjustment for current and prior escalation. (Estimating)		+5.0	+7.4
Revised estimate due to the application of new outyear escalation indices (SPAF). (Estimating)		-1.3	-2.1
Revised estimate due to internal adjustments from Support to Flyaway (SPAF). (Estimating)		-5.2	-7.7
Revised estimate due to rephase of funds to outyears (SPAF). (Estimating)		+0.5	+0.8
Revised estimate due to internal adjustments to Flyaway from Support (SPAF). (Estimating)		+14.7	+21.9
Adjustment for current and prior escalation. (Support)		+0.5	+0.7
Increase in Other Support to account for increased cost share of Other Government Costs (MPAF). (Support)		+0.3	+0.6
Decrease in Other Support due to shifting of funds to Flyaway for revised requirements (SPAF). (Support)		-8.8	-12.9
Procurement Subtotal		+0.8	-8.7

## Contracts

### Contract Identification

**Appropriation:** Procurement  
**Contract Name:** SBIRS GEO 5-6 Advance Procurement/Production  
**Contractor:** Lockheed Martin Corporation  
**Contractor Location:** Sunnyvale, CA 94089  
**Contract Number:** FA8810-13-C-0001  
**Contract Type:** Fixed Price Incentive(Firm Target) (FPIF)  
**Award Date:** February 19, 2013  
**Definitization Date:** February 19, 2013

### Contract Price

Initial Contract Price (\$M)			Current Contract Price (\$M)			Estimated Price At Completion (\$M)	
Target	Ceiling	Qty	Target	Ceiling	Qty	Contractor	Program Manager
284.4	N/A	0	2024.9	2024.9	2	2197.1	2197.1

### Target Price Change Explanation

The difference between the Initial Contract Price Target and the Current Contract Price Target is due to added scope. The initial contract price included the Geosynchronous Earth Orbit (GEO)-5-6 Advance Procurement (AP) effort which awarded on February 19, 2013. The program office added an Engineering Change Proposal (ECP) in September 2013, and the full Production effort awarded on June 24, 2014. The entire GEO 5-6 contract consists of AP (plus the ECP) and Production efforts. This is a Fixed Price Incentive Fee contract that includes Cost Plus funding Contract Line Item Numbers (CLINs) (Cost Plus CLINs are not included in the Ceiling Price). The target price increased in CY 2017 primarily due to the Hydrazine Bi-Propellant Thruster (HBT) Modification awarded on September 12, 2017. The Current Contract Target Price (all CLINs) is \$2,125.9M and the current Contract Price Ceiling (FPIF CLINs only) is \$2,024.9M.

There is no contract quantity associated with the AP portion of this contract. The quantity of two reflects the award of the GEO 5-6 full Production effort. The Contractor Estimated Price at Completion is \$2,197.1M, which represents the initial Advance Procurement (plus ECP) & Production award. The Government Estimated Price at Completion is \$2,197.1M (all CLINs).

### Contract Variance

Item	Cost Variance	Schedule Variance
Cumulative Variances To Date (1/28/2018)	+10.3	-82.4
Previous Cumulative Variances	+25.2	-22.2
Net Change	-14.9	-60.2

**Cost and Schedule Variance Explanations**

The unfavorable net change in the cost variance is due to structural issues and surge labor experienced by the prime contractor. The sub-contractor has experienced efficiencies with their payload efforts, which continue to keep the overall favorable. The cost variance decreased by \$14.9M since the 2016 Annual SAR.

The unfavorable net change in the schedule variance is due to Space Segment structural issues experienced by the prime contractor. The Schedule variance decreased by \$60.2M since the 2016 Annual SAR.



## Deliveries and Expenditures

Deliveries				
Delivered to Date	Planned to Date	Actual to Date	Total Quantity	Percent Delivered
Development	0	0	0	--
Production	0	0	2	0.00%
Total Program Quantity Delivered	0	0	2	0.00%

Expended and Appropriated (TY \$M)			
Total Acquisition Cost	3448.9	Years Appropriated	8
Expended to Date	1440.9	Percent Years Appropriated	72.73%
Percent Expended	41.78%	Appropriated to Date	3085.9
Total Funding Years	11	Percent Appropriated	89.47%

The above data is current as of February 12, 2018.

## Operating and Support Cost

### Cost Estimate Details

<b>Date of Estimate:</b>	October 01, 2014
<b>Source of Estimate:</b>	POE
<b>Quantity to Sustain:</b>	1
<b>Unit of Measure:</b>	Integrated System
<b>Service Life per Unit:</b>	35.00 Years
<b>Fiscal Years in Service:</b>	FY 1999 - FY 2033

O&M funds support the activation of the SBIRS High System, including Component ground operating and training facilities at worldwide sites. The SBIRS Increment 1 ground system was operational in December 2001. These funds purchase temporary facilities, minor construction, office equipment, furniture, travel, supplies, and communication links necessary for the activation of the SBIRS Mission Control Station, the Mission Control Station Backup, Outside Continental United States Relay Ground Stations, Initial Qualification Training facility, and repair and transportation of Government Furnished Equipment and Temporary Duty costs for training of the initial cadre of operators. Also included in this estimate are all manpower and indirect costs required to operate and sustain the SBIRS system.

The Quantity to Sustain of one Integrated System encompasses the four GEO satellites, two HEO payloads and the associated ground infrastructure. The mission and the sustainment costs cannot be assigned to individual satellites. There are two different satellites and one sensor (three constellations) supported by the same Level I and II maintenance/operations and on-orbit sustainment costs. All pieces together are required to meet the mission.

O&S costs are estimated for the total SBIRS High program, which spans both the Baseline (no longer required to report SARs) and Block Buy. The sustainment costs cannot be assigned to individual Satellites but are supported by the same Level I and II maintenance/operations and on-orbit sustainment costs.

Ground Rules and Assumptions: 35 years service life start date (1999) is based upon increment 1 entry into Development Test/Operational Test and end date (2033) is based upon final GEO 6 satellite and 12 year service life for SBIRS system.

### Sustainment Strategy

The current SBIRS sustainment strategy is Contractor Logistics Support (CLS) under one contract with a balanced fee structure of performance and cost incentives with limited organic depot partnership.

The SBIRS High Baseline subprogram profile reflects the first 30 years of the 35 year SBIRS High Life Cycle Cost, from 1999-2028. The average annual costs are based on the entire 35 year life cycle.

### Antecedent Information

The Antecedent System is the Defense Support Program. Comparable O&S cost estimates for this system are not available.



Annual O&S Costs BY1995 \$M			
Cost Element	Block Buy (GEO 5-6) Average Annual Cost Per Integrated System	Defense Support Program (Antecedent) N/A	
Unit-Level Manpower	64.200		0.000
Unit Operations	2.900		0.000
Maintenance	34.200		0.000
Sustaining Support	37.900		0.000
Continuing System Improvements	6.400		0.000
Indirect Support	4.400		0.000
Other	0.000		0.000
Total	150.000		--

Unitized costs reflect the Average Annual O&S cost for the SBIRS High system.

Item	Total O&S Cost \$M			
	Block Buy (GEO 5-6)			Defense Support Program (Antecedent)
	Current Production APB Objective/Threshold		Current Estimate	
Base Year	795.3	874.8	861.8	N/A
Then Year	1551.1	N/A	1748.2	0.0

#### Equation to Translate Annual Cost to Total Cost

Average annual O&S cost of SBIRS High System = (Total O&S cost of SBIRS High Baseline + Total O&S cost of SBIRS High Block Buy)/service life of system = (\$4390.2M + \$861.8M) / 35Yrs = \$150.06M (\$0.06M delta from Unitized cost total due to rounding).

O&S Cost Variance		
Category	BY 1995 \$M	Change Explanations
Prior SAR Total O&S Estimates - Dec 2016 SAR	861.8	
Programmatic/Planning Factors	0.0	
Cost Estimating Methodology	0.0	
Cost Data Update	0.0	
Labor Rate	0.0	
Energy Rate	0.0	
Technical Input	0.0	
Other	0.0	
Total Changes	0.0	
Current Estimate	861.8	

#### Disposal Estimate Details

SBIRS High

December 2017 SAR

**Date of Estimate:****Source of Estimate:****Disposal/Demilitarization Total Cost (BY 1995 \$M):**

Disposal costs have not been estimated at this time.