Exhibit R-2, RDT&E Budget Item Justification: PB 2015 Air Force											Date: March 2014	
Appropriation/Budget Activity 3600: *Research, Development, Test & Evaluation, Air Force* / BA 5: *System Development & Demonstration (SDD)*					R-1 Program Element (Number/Name) PE 0604441F / *Space Based Infrared System (SBIRS) High EMD*							
COST ($ in Millions)	**Prior Years** (+)	**FY 2013**	**FY 2014**	**FY 2015 Base**	**FY 2015 OCO** #	**FY 2015 Total**	**FY 2016**	**FY 2017**	**FY 2018**	**FY 2019**	**Cost To Complete**	**Total Cost**
Total Program Element	8,968.993	486.647	322.399	319.501	-	319.501	274.826	200.357	483.856	613.999	Continuing	Continuing
653616: *SBIRS High Element EMD*	8,929.162	407.979	266.975	230.893	-	230.893	185.541	110.848	97.177	-	-	10,228.575
657009: *Space Modernization Initiative*	0.000	78.668	55.424	88.608	-	88.608	89.285	89.509	89.197	90.894	Continuing	Continuing
657106: *EVOLVED SBIRS*	0.000	-	-	-	-	-	-	-	297.482	523.105	Continuing	Continuing
MDAP/MAIS Code: 210												

(+) The sum of all Prior Years is $39.831 million less than the represented total due to several projects ending

The FY 2015 OCO Request will be submitted at a later date.

Note

Prior Years: Total Program Element above includes $39.831M for BPAC 65A040 Commercially Hosted Payload funded in FY11 and FY12.
MDAP PNO 210 includes only BPAC 653616 SBIRS High EMD.

A. Mission Description and Budget Item Justification

The SBIRS RDT&E FY15 budget justification exhibits describe three elements of the SBIRS program: 1) the SBIRS Engineering and Manufacturing Developement (EMD) program of record PNO 210 MDAP, 2) the Space Modernization Initiative (SMI) (non-MDAP) and the 3) Evolved SBIRS follow-on (non-MDAP).

1. SBIRS EMD: The Space-Based Infrared Systems (SBIRS) primary mission is to provide initial warning of a ballistic missile attack on the US, its deployed forces, and its allies. SBIRS will enhance detection and improve reporting of intercontinental ballistic missile launches, submarine launched ballistic missile launches, and tactical ballistic missile launches. SBIRS supports Missile Defense, Battlespace Awareness, and Technical Intelligence missions by providing reliable, accurate, and timely data to Unified Combatant Commanders, Joint Task Force (JTF) Commanders, the intelligence community, and other users. SBIRS provides increased detection and tracking performance in order to meet requirements in Air Force Space Command's Operational Requirements Document. The SBIRS system includes both space and ground elements. The space segment consists of Geosynchronous Earth Orbit (GEO) satellites, payloads hosted on satellites in Highly Elliptical Orbit (HEO), and Defense Support Program (DSP) satellites. The ground segment consists of both fixed and mobile data processing elements, communications infrastructure, and relay ground stations serving all SBIRS space elements. The HEO-1 and HEO-2 payloads are on-orbit and certified for Integrated Tactical Warning/Attack Assessment (ITW/AA) missile warning operations and technical intelligence operations. The GEO-1 and GEO-2 satellites have completed AFSPC and USSTRATCOM operational acceptance. GEO-1 received ITW/AA certification in August 2013 The GEO-2 satellite received ITW/AA certification in December 2013. Ground segment development continues through FY18. The baseline requirement document is the 1996 SBIRS ORD.

Exhibit R-2, RDT&E Budget Item Justification: PB 2015 Air Force	Date: March 2014
Appropriation/Budget Activity 3600: *Research, Development, Test & Evaluation, Air Force* / BA 5: *System Development & Demonstration (SDD)*	**R-1 Program Element (Number/Name)** PE 0604441F / *Space Based Infrared System (SBIRS) High EMD*

2. SMI: Future SBIRS Overhead Persistent Infrared (OPIR) satellites will be procured using the Department of Defense (DOD) Efficient Space Procurement (ESP) concept. ESP is an approach which seeks stable production and efficient sub-contractor product management through the block buy of two space vehicles at one time (please see SBIRS P-40 Exhibit). A portion of the savings realized from ESP block buys are programmed for investment into OPIR Space Modernization Initiative (SMI); the current OPIR SMI project was established in this manner in the FY12 President's Budget. The primary objective of SMI is to enable and inform future decisions to maintain and evolve a capable, resilient, and affordable OPIR architecture, by maturing technologies and mitigating risk areas to facilitate OPIR modernization to be executed within the Department's constrained resources. SMI supports the Program of Record by assessing future parts and material obsolescence and future affordability and capability design modifications. SMI funds engineering activities to reduce future system and production costs through manufacturing and producibility enhancements and through technology insertion. SMI will also mature potential technology upgrades at the component and system level for future space and ground architecture affordability and capability enhancements. The SBIRS OPIR SMI plan includes studies and risk reduction activities to evolve the current Program of Record SBIRS GEO satellites, reduce production schedules, and reduce system costs. SMI funded data exploitation efforts include OPIR mission data processing, data fusion, data publication, algorithm development, network connectivity, and sensor performance assessments. The data exploitation efforts will identify affordable, responsive, and resilient measures to improve battlespace awareness data dissemination to the warfighter. SMI Architecture and Component Study efforts will assess future architecture alternatives for viability, affordability, capability and resilience. The SMI Hosted Payloads and Wide Field of View Testbeds efforts will explore technology maturation, qualification of new components, and subsystem/component prototyping to evolve the OPIR architecture.

3. Evolved SBIRS Follow-on: Knowledge gained from the SBIRS SMI projects will inform a future Defense Acquisition Board(DAB)decision for the Evolved SBIRS effort. DAB alternatives are expected to include 1) continued production of SBIRS PoR design; 2) an evolved satellite and ground system derived from the SBIRS POR designs; 3) an evolved satellite and ground system that includes a combination of PoR derivatives and new systems; or 4)a disaggregated OPIR system. The Evolved SBIRS effort will implement the DAB directed program alternative begining with FY18 funding. The Evolved SBIRS efforts will also include the initial HEO 5-6 development anticipate to begin in FY19.

This program is in Budget Activity 5, System Development and Demonstration (SDD) because it has passed Milestone B approval and is conducting engineering and manufacturing development tasks aimed at meeting validated requirements prior to full-rate production.

B. Program Change Summary ($ in Millions)	FY 2013	FY 2014	FY 2015 Base	FY 2015 OCO	FY 2015 Total
Previous President's Budget	448.594	352.532	279.888	-	279.888
Current President's Budget	486.647	322.399	319.501	-	319.501
Total Adjustments	38.053	-30.133	39.613	-	39.613
• Congressional General Reductions	-0.702	-29.700			
• Congressional Directed Reductions	-15.000	-0.433			
• Congressional Rescissions	-	-			
• Congressional Adds	98.000	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-	-			
• Other Adjustments	-44.245	-	39.613	-	39.613

Exhibit R-2, RDT&E Budget Item Justification: PB 2015 Air Force	Date: March 2014
Appropriation/Budget Activity 3600: *Research, Development, Test & Evaluation, Air Force* / BA 5: *System Development & Demonstration (SDD)*	**R-1 Program Element (Number/Name)** PE 0604441F / *Space Based Infrared System (SBIRS) High EMD*

Congressional Add Details ($ in Millions, and Includes General Reductions)	FY 2013	FY 2014
Project: 653616: *SBIRS High Element EMD*		
Congressional Add: *Starer Acceleration ($40.000M add less $7.154 CGR/Sequestration)*	32.846	-
Congressional Add: *HEO Command and Control Ground Expansion*	40.000	-
Congressional Add Subtotals for Project: 653616	72.846	-
Project: 657009: *Space Modernization Initiative*		
Congressional Add: *SMI Program Increase*	18.000	-
Congressional Add Subtotals for Project: 657009	18.000	-
Congressional Add Totals for all Projects	90.846	-

Change Summary Explanation

FY13:
Congressional Directed Reductions: -$5.0M SBIRS SMI architecture studies, -$10.0M SBIRS evolution

Other Adjustments: -$44.245M sequestration reduction (base).

(Note: The Congressional Adds total of $98.000M above is comprised of: +$40.000M SBIRS ground expansion for HEO C2, +$40.000M SBIRS ground starer/ scanner integration acceleration, +$18.000M program increase Space Modernization Initiative)

FY14:
Congressional Directed Reductions: -$29.7M modernization projects execution
delays excluding exploitation efforts

FY15:
Other Adjustments: +$43.6M funded EMD ground shortfall, less -$2.881M EMD and -$1.106M SMI inflation adjustments

Exhibit R-2A, RDT&E Project Justification: PB 2015 Air Force			Date: March 2014
Appropriation/Budget Activity 3600 / 5	R-1 Program Element (Number/Name) PE 0604441F / *Space Based Infrared System (SBIRS) High EMD*	Project (Number/Name) 653616 / *SBIRS High Element EMD*	

COST ($ in Millions)	Prior Years	FY 2013	FY 2014	FY 2015 Base	FY 2015 OCO #	FY 2015 Total	FY 2016	FY 2017	FY 2018	FY 2019	Cost To Complete	Total Cost
653616: *SBIRS High Element EMD*	8,929.162	407.979	266.975	230.893	-	230.893	185.541	110.848	97.177	-	-	10,228.575
Quantity of RDT&E Articles	4.000	-	-	-	-	-	-	-	-	-		

The FY 2015 OCO Request will be submitted at a later date.

Note

Quantity of RDT&E articles above reflect delivery of GEO-1 in FY11 and GEO-2 in FY12. Both were developed under this project.

A. Mission Description and Budget Item Justification

The Space-Based Infrared Systems (SBIRS) primary mission is to provide initial warning of a ballistic missile attack on the US, its deployed forces, and its allies. SBIRS will enhance detection and improve reporting of intercontinental ballistic missile launches, submarine launched ballistic missile launches, and tactical ballistic missile launches. SBIRS supports Missile Defense, Battlespace Awareness, and Technical Intelligence missions by providing reliable, accurate, and timely data to Unified Combatant Commanders, Joint Task Force (JTF) Commanders, the intelligence community, and other users. SBIRS provides increased detection and tracking performance in order to meet requirements in Air Force Space Command's Operational Requirements Document. The SBIRS system includes both space and ground elements. The space segment consists of Geosynchronous Earth Orbit (GEO) satellites, payloads hosted on satellites in Highly Elliptical Orbit (HEO), and Defense Support Program (DSP) satellites. The ground segment consists of both fixed and mobile data processing elements, communications infrastructure, and relay ground stations serving all SBIRS space elements. The HEO-1 and HEO-2 payloads are on-orbit and certified for Integrated Tactical Warning/Attack Assessment (ITW/AA) missile warning operations and technical intelligence operations. The GEO-1 and GEO-2 satellites have completed AFSPC and USSTRATCOM operational acceptance. GEO-1 received ITW/AA certification in August 2013. The GEO-2 satellite received ITW/AA certification in December 2013. Ground segment development continues through FY18. Enterprise systems engineering and integration (SE&I) provides intra- and inter-program requirements development, enterprise master planning, validation and verification, specialty engineering, and architecture developement.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2013	FY 2014	FY 2015
Title: SBIRS EMD	335.133	266.975	230.893
Description: Continued EMD contracts for Space and Ground segment development, concept studies/activities for obsolescence issues. ***FY 2013 Accomplishments:*** Continued GEO development. Completed GEO-1 operational user evaluation and certification. Accelerated starer tuning and infrastructure improvements to make starer data available to battlespace awareness and technical intelligence users. Launched GEO-2 in March 2013, completed early orbit testing, and began accelerated Developmental Test & Evaluation. Continued Ground System Development (continued Block 10 and began Block 20), System Engineering and Program Management, HEO host			

Exhibit R-2A, RDT&E Project Justification: PB 2015 Air Force		Date: March 2014
Appropriation/Budget Activity 3600 / 5	**R-1 Program Element (Number/Name)** PE 0604441F / *Space Based Infrared System (SBIRS) High EMD*	**Project (Number/Name)** 653616 / *SBIRS High Element EMD*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2013	FY 2014	FY 2015
program office support, Technical Intelligence activities, Data Processing/Exploitation/ground integration activities, Combined Task Force (CTF) support activities, systems integration and test studies. Continued Program Office and related support activities (to include SETA), technical analysis and independent verification and validation of Contractor. Continued enterprise SE&I. ***FY 2014 Plans:*** Complete the first three (of four) Block 10 system deliveries. Complete development and delivery of the Block 10 Standard Space Trainer to support 460 OG training. Complete development and delivery of the Block 10 Launch and Anomaly Resolution Center to support SBIRS GEO-3 system test. Complete development of Ground mission processing risk reduction build, which includes starer processing for non-ITW/AA users. Complete GEO-2 operational user evaluation and certification. Continue Ground System Development (Block 10 and Block 20), System Engineering and Program Management, HEO host program office support, Technical Intelligence activities, Data Processing/ Exploitation/ground integration activities, CTF support activities, systems integration and test studies. Continue Program Office and related support activities, technical analysis and independent verification and validation of Contractor. Continue enterprise SE&I. ***FY 2015 Plans:*** Continue Ground System Development (Block 10) and begin Block 10 Operational Utility Evaluation. Continue Block 20 Ground System Development, System Engineering and Program Management, HEO host program office support, Technical Intelligence activities, Data Processing/ Exploitation/ground integration activities, CTF support activities, systems integration and test studies. Continue Program Office and related support activities, technical analysis and independent verification and validation of Contractor. Continue enterprise SE&I.			
Accomplishments/Planned Programs Subtotals	335.133	266.975	230.893

	FY 2013	FY 2014
Congressional Add: Starer Acceleration ($40.000M add less $7.154 CGR/Sequestration) ***FY 2013 Accomplishments:*** Accelerates development of ground processing of the GEO starer sensor in the program of record ground system.	32.846	-
Congressional Add: HEO Command and Control Ground Expansion ***FY 2013 Accomplishments:*** The $40 million for SBIRS Ground Expansion for HEO C2 will be used to increase the system capabilities to support HEO-4 Launch and Early On orbit Test (LEOT) and support HEO 3/4 State of Health monitoring prior to transition to operations and the Ground tuning required to enable the transition into operations.	40.000	-
Congressional Adds Subtotals	72.846	-

Exhibit R-2A, RDT&E Project Justification: PB 2015 Air Force		Date: March 2014
Appropriation/Budget Activity 3600 / 5	**R-1 Program Element (Number/Name)** PE 0604441F / *Space Based Infrared System (SBIRS) High EMD*	**Project (Number/Name)** 653616 / *SBIRS High Element EMD*

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2013	FY 2014	FY 2015 Base	FY 2015 OCO	FY 2015 Total	FY 2016	FY 2017	FY 2018	FY 2019	Cost To Complete	Total Cost
• OPAF: BA03: Line Item # 836720: *Space Based Ir Sensor Pgm Space*	39.582	25.408	26.100	-	26.100	7.683	7.663	7.799	7.939	-	-
• MPAF: BA05: Line Item # MSSBIR: *SBIR High (Space)*	392.271	524.587	450.884	-	450.884	434.162	384.134	984.178	100.074	220.174	7,433.600

Remarks

D. Acquisition Strategy

The pre-SDD SBIRS contracts were competed in full and open competition. Two contracts were awarded to Lockheed/Loral/Aerojet and Hughes/TRW in 1995 for the pre-SDD phase. A single contract was awarded to Lockheed Martin in 1996 for the SDD phase. This contract is still ongoing and will incrementally deliver the ground segment through FY18. Production contracts are discussed in the procurement budget exhibits.

E. Performance Metrics

Please refer to the Performance Base Budget Overview Book for information on how Air Force resources are applied and how those resources are contributing to Air Force performance goals and most importantly, how they contribute to our mission.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2015 Air Force		Date: March 2014
Appropriation/Budget Activity 3600 / 5	**R-1 Program Element (Number/Name)** PE 0604441F / *Space Based Infrared System (SBIRS) High EMD*	**Project (Number/Name)** 653616 / *SBIRS High Element EMD*

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2013 Cost	FY 2013 Award Date	FY 2014 Cost	FY 2014 Award Date	FY 2015 Base Cost	FY 2015 Base Award Date	FY 2015 OCO Cost	FY 2015 OCO Award Date	FY 2015 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Pre-EMD (LMMS & Hughes)	C/CPFF	Hughes Aircraft Company : El Segundo, CA	159.600	-		-		-		-		-	-	159.600	159.600
SBIRS EMD	Various	Prime: Lockheed Martin Sunnyvale, CA; Sub: Northrop Grumman, Azusa, CA : ,	8,040.774	317.415	Oct 2012	231.130	Oct 2013	200.203	Oct 2014	-		200.203	316.958	9,106.480	9,106.480
Enterprise Systems Engineering and Integration (SE&I)	C/CPAF	The Analytical Sciences Corporation : Andover, MA	33.999	8.682	Dec 2012	6.206	Dec 2013	5.194	Dec 2014	-		5.194	14.494	68.575	68.575
SBIRS Pre-SDD Contract Adjustment	Various	Various : ,	4.780	-		-		-		-		-	-	4.780	4.780
Technology	Various	Various : ,	11.600	-		-		-		-		-	-	11.600	11.600
Phenomenology	Various	Various : ,	17.350	-		-		-		-		-	-	17.350	17.350
Sensor Technology	Various	Sandia National Lab : Albuquerque, NM	10.000	-		-		-		-		-	-	10.000	10.000
HEO Command & Control (C2) Ground Expansion	SS/TBD	Lockheed Martin : Sunnyvale, CA	0.000	40.000	May 2014	-		-		-		-	-	40.000	40.000
		Subtotal	8,278.103	366.097		237.336		205.397		-		205.397	331.452	9,418.385	9,418.385

Remarks

SBIRS EMD includes SBIRS EMD prime contract with Lockheed Martin, Program/Mission Support and Host SPO efforts. Award dates represent date of first award of the funds for that fiscal year.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2015 Air Force			Date: March 2014
Appropriation/Budget Activity 3600 / 5	**R-1 Program Element (Number/Name)** PE 0604441F / *Space Based Infrared System (SBIRS) High EMD*	**Project (Number/Name)** 653616 / *SBIRS High Element EMD*	

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2013 Cost	FY 2013 Award Date	FY 2014 Cost	FY 2014 Award Date	FY 2015 Base Cost	FY 2015 Base Award Date	FY 2015 OCO Cost	FY 2015 OCO Award Date	FY 2015 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
WFOV Testbed Concept Study	MIPR	Millennium Space Systems : Torrance, CA	8.000	-		-		-		-		-	-	8.000	8.000
Various Program Support	Various	Various : ,	11.538	-		-		-		-		-	-	11.538	11.538
		Subtotal	19.538	-		-		-		-		-	-	19.538	19.538

Remarks

Award dates represent date of first award of the fiscal year.

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2013 Cost	FY 2013 Award Date	FY 2014 Cost	FY 2014 Award Date	FY 2015 Base Cost	FY 2015 Base Award Date	FY 2015 OCO Cost	FY 2015 OCO Award Date	FY 2015 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
		Subtotal	-	-		-		-		-		-	-	-	-

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2013 Cost	FY 2013 Award Date	FY 2014 Cost	FY 2014 Award Date	FY 2015 Base Cost	FY 2015 Base Award Date	FY 2015 OCO Cost	FY 2015 OCO Award Date	FY 2015 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Technical Support (FFRDC)	RO	Aerospace Corp. : El Segundo, CA	407.721	21.281	Dec 2012	13.702	Oct 2013	12.133	Oct 2014	-		12.133	32.940	487.777	487.777
SMC Admin Support (PMA)	C/FP	Quantech Services, Inc. : Lexington, MA	8.866	1.161	Dec 2012	1.819	Dec 2013	0.824	Dec 2014	-		0.824	2.200	14.870	14.870
SMC Technical Support (PMA)	C/FP	Scitor Corp. : El Segundo, CA	67.014	5.336	Dec 2012	3.758	Dec 2013	3.721	Dec 2014	-		3.721	7.785	87.614	87.614
SMC Financial Support (PMA)	C/FP	Tecolote, Inc. : Goleta, CA	15.930	1.448	Dec 2012	2.034	Dec 2013	0.998	Dec 2014	-		0.998	2.692	23.102	23.102
Various Management Support Services (PMA)	Various	Various : Various,	131.990	12.656	Oct 2012	8.326	Oct 2013	7.820	Oct 2014	-		7.820	16.497	177.289	177.289
		Subtotal	631.521	41.882		29.639		25.496		-		25.496	62.114	790.652	790.652

Exhibit R-3, RDT&E Project Cost Analysis: PB 2015 Air Force			Date: March 2014
Appropriation/Budget Activity 3600 / 5	R-1 Program Element (Number/Name) PE 0604441F / *Space Based Infrared System (SBIRS) High EMD*	Project (Number/Name) 653616 / *SBIRS High Element EMD*	

	Prior Years	FY 2013		FY 2014		FY 2015 Base		FY 2015 OCO		FY 2015 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	8,929.162	407.979		266.975		230.893		-		230.893	393.566	10,228.575	10,228.575

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2015 Air Force		Date: March 2014
Appropriation/Budget Activity 3600 / 5	**R-1 Program Element (Number/Name)** PE 0604441F / *Space Based Infrared System (SBIRS) High EMD*	**Project (Number/Name)** 653616 / *SBIRS High Element EMD*

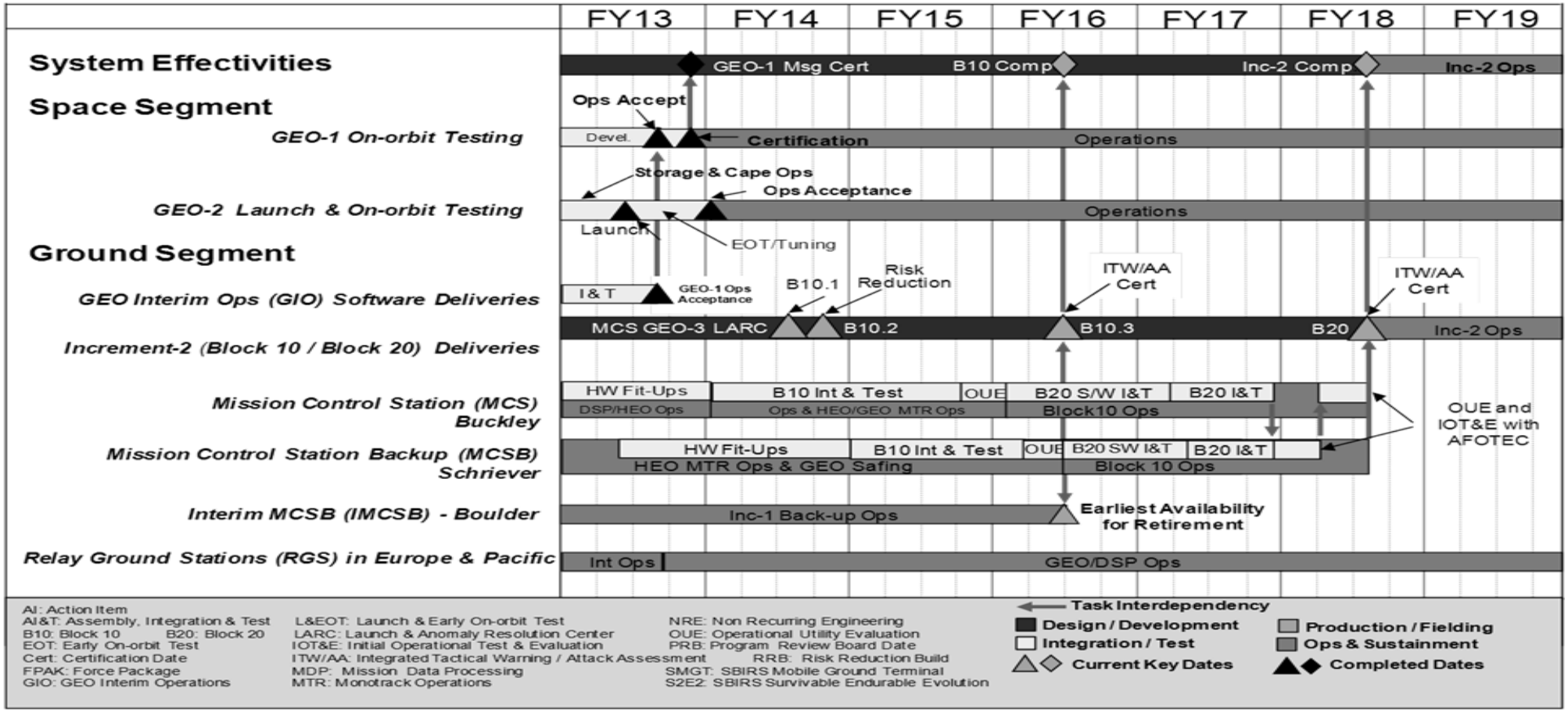

Exhibit R-4A, RDT&E Schedule Details: PB 2015 Air Force		Date: March 2014
Appropriation/Budget Activity 3600 / 5	**R-1 Program Element (Number/Name)** PE 0604441F / *Space Based Infrared System (SBIRS) High EMD*	**Project (Number/Name)** 653616 / *SBIRS High Element EMD*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
Block 10 Mission Control Station (MCS) Fit Up	1	2013	1	2014
GEO-1 Message Certification	4	2013	4	2013
GEO-2 Early Orbit Testing (EOT)/Tuning/Certification	2	2013	1	2014
Back-up Mission Control Station (MCSB) Fit Up	2	2013	4	2014
Block 10 Integration & Test at MCS	1	2014	4	2015
Block 10 Integration & Test at MCSB	1	2015	1	2016
MCS Launch and Anomaly Resolution Center (LARC) ready for GEO-3 launch and early on-orbit System Test	3	2014	3	2014
B10.3 Completed and ITW/AA Certified	2	2016	2	2016
B20 Completed and ITW/AA Certified	3	2018	3	2018

Exhibit R-2A, RDT&E Project Justification: PB 2015 Air Force			Date: March 2014
Appropriation/Budget Activity 3600 / 5	R-1 Program Element (Number/Name) PE 0604441F / *Space Based Infrared System (SBIRS) High EMD*	Project (Number/Name) 657009 / *Space Modernization Initiative*	

COST ($ in Millions)	Prior Years	FY 2013	FY 2014	FY 2015 Base	FY 2015 OCO #	FY 2015 Total	FY 2016	FY 2017	FY 2018	FY 2019	Cost To Complete	Total Cost
657009: *Space Modernization Initiative*	-	78.668	55.424	88.608	-	88.608	89.285	89.509	89.197	90.894	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

The FY 2015 OCO Request will be submitted at a later date.

A. Mission Description and Budget Item Justification

Future SBIRS Overhead Persistent Infrared (OPIR) satellites will be procured using the Department of Defense (DOD) Efficient Space Procurement (ESP) concept. ESP is an approach which seeks stable production and efficient sub-contractor product management through the block buy of two space vehicles at one time (please see SBIRS P-40 Exhibit). A portion of the savings realized from ESP block buys are programmed for investment into OPIR Space Modernization Initiative (SMI); the current OPIR SMI project was established in this manner in the FY12 President's Budget. The primary objective of SMI is to enable and inform future decisions to maintain and evolve a capable, resilient, and affordable OPIR architecture, by maturing technologies and mitigating risk areas to facilitate OPIR modernization to be executed within the Department's constrained resources. SMI supports the Program of Record by assessing future parts and material obsolescence and future affordability and capability design modifications. SMI funds engineering activities to reduce future system and production costs through manufacturing and producibility enhancements and through technology insertion. SMI will also mature potential technology upgrades at the component and system level for future space and ground architecture affordability and capability enhancements. The SBIRS OPIR SMI plan includes studies and risk reduction activities to evolve the current Program of Record SBIRS GEO satellites, reduce production schedules, and reduce system costs. SMI funded data exploitation efforts include OPIR mission data processing, data fusion, data publication, algorithm development, network connectivity, and sensor performance assessments. The data exploitation efforts will identify affordable, responsive, and resilient measures to improve battlespace awareness data dissemination to the warfighter. SMI Architecture and Component Study efforts will assess future architecture alternatives for viability, affordability, capability and resilience. The SMI Hosted Payloads and Wide Field of View Testbeds efforts will explore technology maturation, qualification of new components, and subsystem/component prototyping to evolve the OPIR architecture.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2013	FY 2014	FY 2015
Title: Evolved SBIRS	-	5.110	11.597
Description: Assess obsolescence, affordability, capability design modifications, and SBIRS Follow-on Analysis of Alternatives.			
FY 2013 Accomplishments: Not applicable.			
FY 2014 Plans: Initiate and complete design trade studies with the incumbent SBIRS contractor to 1) identify obsolescence issues and corresponding hardware/software design modifications to mitigate future spacecraft/payload production risks; 2) identify payload and spacecraft modifications to improve affordability of the current satellite; and 3) identify design modifications required to			

Exhibit R-2A, RDT&E Project Justification: PB 2015 Air Force		Date: March 2014
Appropriation/Budget Activity 3600 / 5	**R-1 Program Element (Number/Name)** PE 0604441F / *Space Based Infrared System (SBIRS) High EMD*	**Project (Number/Name)** 657009 / *Space Modernization Initiative*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2013	FY 2014	FY 2015
segregate the scanning and staring payload hardware, software, and functionality to enable evolution of the Program of Record SBIRS satellite. Initiate SBIRS Follow-on Analysis of Alternatives. ***FY 2015 Plans:*** Initiate detailed design studies and hardware/software risk reduction efforts (e.g., brassboards/breadboards/engineering model testing) to implement approved recommendations from FY14 design trade studies. Continue SBIRS Follow-on Analysis of Alternatives.			
Title: Data Exploitation ***Description:*** Exploit existing OPIR data (Defense Support Program (DSP), SBIRS, Commercially Hosted InfraRed Payload (CHIRP), other classified sources) through data processing, data publication, algorithm development, network connectivity and sensor performance assessments. ***FY 2013 Accomplishments:*** Extended data collection and analysis from the on-orbit CHIRP payload throughout the entire FY 13. Provided near real-time weather alerts over data-sparse Areas of Interest (AOI) in support of Air Force Weather Agency (AFWA) and CENTCOM. Provided second wide band connection to Spacecraft Payloads Orbital Test Station (SPOTS) in support upgrades to Space Awareness and Global Exploitation (SAGE). Continued development and testing of WVOF detection algorithms. Provided enhanced ground segment capabilities for command and control, data collection, mission processing, and data dissemination. Provided post mission analysis of OPIR events using SAGE to process multiple OPIR sensors (DSP, SBIRS, CHIRP, other classified sources). Provided Wide Field of View starer data and demonstrated ability to aid in the detection of forest fires. ***FY 2014 Plans:*** Continue to provide enhanced ground segment capabilities for command and control, data collection, mission processing, and data dissemination. Continue development, testing, and maturation of WFOV detection algorithms. Initiate development of an open architecture ground processing capability for WFOV sensors to evolve the current SBIRS Program of Record ground system. ***FY 2015 Plans:*** Continue to provide enhanced ground segment capability for command and control, data collection, mission processing, and data dissemination. Continue development, testing, and maturation of WFOV detection algorithms. Continue development of an open architecture ground processing capability for WFOV sensors to support future evolution of the current SBIRS Program of Record ground system.	20.867	19.754	23.159
Title: Hosted Payloads ***Description:*** Explore Wide Field of View (WFOV) payload technology maturation, qualification of new components, and subsystem/component prototyping to evolve SBIRS and the OPIR architecture.	7.139	23.252	21.612

Exhibit R-2A, RDT&E Project Justification: PB 2015 Air Force		Date: March 2014
Appropriation/Budget Activity 3600 / 5	**R-1 Program Element (Number/Name)** PE 0604441F / *Space Based Infrared System (SBIRS) High EMD*	**Project (Number/Name)** 657009 / *Space Modernization Initiative*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2013	FY 2014	FY 2015
FY 2013 Accomplishments: Awarded six contracts for Tactical WFOV Payload development to include Preliminary Design Review (PDR). Initiated new 4Kx4K Sensor Chip space qualification. Initiated WFOV payload test and calibration planning activities. Note: FY13 funding includes $7.139M plus the $18.000M Congressional Add below for a total of $25.139M. ***FY 2014 Plans:*** Continue development of Tactical WFOV Payload. Award new contract for single payload vendor to complete payload development and build prototype sensor for operational flight demonstration (launch in Dec 2016). Complete payload Critical Design Review (CDR) and order long lead parts/materials. Complete Sensor Chip qualification tests and determine feasibility for use on the flight demo. Initiate Strategic on-board processing demonstration to support Strategic WFOV payload on-board exceedance generation requirements. Continue WFOV payload test planning. ***FY 2015 Plans:*** Continue development of Tactical WFOV Payload. Continue Strategic on-board processing demonstration and initiate Strategic WFOV payload development. Continue WFOV payload test planning.			
Title: WFOV Testbeds ***Description:*** Explore spacecraft technology maturation, qualification of new components, and subsystem/component prototyping to evolve the OPIR architecture. Explore international, commercial, or other rideshare opportunities for an on-orbit WFOV payload demonstration. ***FY 2013 Accomplishments:*** Completed concept and design trade studies for a small GEO spacecraft. Initiated design and build phase of the spacecraft to support the Tactical WFOV Payload on-orbit demonstration. Completed spacecraft PDR. ***FY 2014 Plans:*** Continue development of spacecraft for the Tactical WFOV Payload. Complete CDR and order long lead parts/materials. ***FY 2015 Plans:*** Continue development of spacecraft for the Tactical WFOV payload. Integrate and test spacecraft subsystems and components. Initiate launch vehicle integration planning for December 2016 launch. Initiate Host-Payload Office studies to evaluate Government, international, and commercial rideshare opportunities for the Alternative WFOV Strategic Payload on-orbit demonstration.	29.400	3.500	29.747
Title: Management Services	3.262	3.808	2.493

Exhibit R-2A, RDT&E Project Justification: PB 2015 Air Force		Date: March 2014
Appropriation/Budget Activity 3600 / 5	**R-1 Program Element (Number/Name)** PE 0604441F / *Space Based Infrared System (SBIRS) High EMD*	**Project (Number/Name)** 657009 / *Space Modernization Initiative*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2013	FY 2014	FY 2015
Description: Conduct System Engineering and Program Management to include Program Office support such as Federally Funded Research and Development Center (FFRDC) analyses and System Engineering Technical Assistance (SETA). ***FY 2013 Accomplishments:*** Funded Program Office support for SMI projects ***FY 2014 Plans:*** Provide Program Office support for all SMI projects. ***FY 2015 Plans:*** Provide Program Office support for SMI projects.			
Accomplishments/Planned Programs Subtotals	60.668	55.424	88.608

	FY 2013	FY 2014
Congressional Add: SMI Program Increase	18.000	-
FY 2013 Accomplishments: This Congressional Add was incorporated into Hosted Payloads. Please refer to the Hosted Payloads FY13 Accomplishments above for content.		
Congressional Adds Subtotals	18.000	-

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2013	FY 2014	FY 2015 Base	FY 2015 OCO	FY 2015 Total	FY 2016	FY 2017	FY 2018	FY 2019	Cost To Complete	Total Cost
• RDTE: BA05: PE 0604441F: *Evolved SBIRS*	-	-	-	-	-	-	-	297.482	523.105	Continuing	Continuing

Remarks

D. Acquisition Strategy

The program office will use a variety acquisition approaches to execute various concept studies, technology maturation efforts, testbed/prototype demonstrations, and data exploitation initiatives and projects. The program office will collaborate with appropriate contracting agencies to support each individual effort. Activities such as SBIRS GEO obsolescence and affordability enhancements to the existing satellite design will leverage existing Program of Record contracts. Technology maturation and component prototyping and/or qualification could leverage existing contracts, but where practical could be competed. New technology, replacement components and system designs will be acquired with government data rights to a maximum extent to allow their incorporation into any future OPIR satellite production or system

Exhibit R-2A, RDT&E Project Justification: PB 2015 Air Force		Date: March 2014
Appropriation/Budget Activity 3600 / 5	**R-1 Program Element (Number/Name)** PE 0604441F / *Space Based Infrared System (SBIRS) High EMD*	**Project (Number/Name)** 657009 / *Space Modernization Initiative*

development. Contracting partnerships with other agencies will also be used to study, develop and demonstrate and prove emerging capabilities. FFRDC and SETA contractors will also be used to conduct and support studies.

E. Performance Metrics

Please refer to the Performance Base Budget Overview Book for information on how Air Force resources are applied and how those resources are contributing to Air Force performance goals and most importantly, how they contribute to our mission.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2015 Air Force			Date: March 2014
Appropriation/Budget Activity 3600 / 5	**R-1 Program Element (Number/Name)** PE 0604441F / *Space Based Infrared System (SBIRS) High EMD*	**Project (Number/Name)** 657009 / *Space Modernization Initiative*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2013 Cost	FY 2013 Award Date	FY 2014 Cost	FY 2014 Award Date	FY 2015 Base Cost	FY 2015 Base Award Date	FY 2015 OCO Cost	FY 2015 OCO Award Date	FY 2015 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Evolved SBIRS	TBD	TBD : ,	0.000	-		5.110	Mar 2014	11.597	Oct 2014	-		11.597	Continuing	Continuing	-
Data Exploitation	Various	Americom Government Services Mclean VA; Northrop Grumman Boulder, CO; Others : ,	0.000	20.867	Oct 2012	19.754	Nov 2013	23.159	Oct 2014	-		23.159	Continuing	Continuing	-
Hosted Payloads	Various	Various : ,	0.000	25.139	Jul 2013	23.252	Dec 2013	21.612	Oct 2014	-		21.612	Continuing	Continuing	-
WFOV Testbeds	MIPR	Millenium Space Systems : Torrance, CA	0.000	29.400	Dec 2012	3.500	Dec 2013	29.747	Oct 2014	-		29.747	Continuing	Continuing	-
		Subtotal	0.000	75.406		51.616		86.115		-		86.115	-	-	-

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2013 Cost	FY 2013 Award Date	FY 2014 Cost	FY 2014 Award Date	FY 2015 Base Cost	FY 2015 Base Award Date	FY 2015 OCO Cost	FY 2015 OCO Award Date	FY 2015 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
		Subtotal	-	-		-		-		-		-	-	-	-

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2013 Cost	FY 2013 Award Date	FY 2014 Cost	FY 2014 Award Date	FY 2015 Base Cost	FY 2015 Base Award Date	FY 2015 OCO Cost	FY 2015 OCO Award Date	FY 2015 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
		Subtotal	-	-		-		-		-		-	-	-	-

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2013 Cost	FY 2013 Award Date	FY 2014 Cost	FY 2014 Award Date	FY 2015 Base Cost	FY 2015 Base Award Date	FY 2015 OCO Cost	FY 2015 OCO Award Date	FY 2015 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Various Management Support Services (PMA)	Various	Various : ,	0.000	3.262	Oct 2012	3.808	Oct 2013	2.493	Oct 2014	-		2.493	Continuing	Continuing	-

Exhibit R-3, RDT&E Project Cost Analysis: PB 2015 Air Force		Date: March 2014
Appropriation/Budget Activity 3600 / 5	**R-1 Program Element (Number/Name)** PE 0604441F / *Space Based Infrared System (SBIRS) High EMD*	**Project (Number/Name)** 657009 / *Space Modernization Initiative*

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2013 Cost	FY 2013 Award Date	FY 2014 Cost	FY 2014 Award Date	FY 2015 Base Cost	FY 2015 Base Award Date	FY 2015 OCO Cost	FY 2015 OCO Award Date	FY 2015 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
		Subtotal	0.000	3.262		3.808		2.493		-		2.493	-	-	-

	Prior Years	FY 2013		FY 2014		FY 2015 Base		FY 2015 OCO		FY 2015 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	0.000	78.668		55.424		88.608		-		88.608	-	-	-

Remarks

Each Cost Category Item with "TBD" or "Various" annotated contains several contract elements with some contracts still TBD.
Under Hosted Payload the BAA Contractors are Ball, L3, Northrop Grumman, Raytheon, SAIC, and Lockheed Martin.

Exhibit R-4, RDT&E Schedule Profile: PB 2015 Air Force		Date: March 2014
Appropriation/Budget Activity 3600 / 5	**R-1 Program Element (Number/Name)** PE 0604441F / *Space Based Infrared System (SBIRS) High EMD*	**Project (Number/Name)** 657009 / *Space Modernization Initiative*

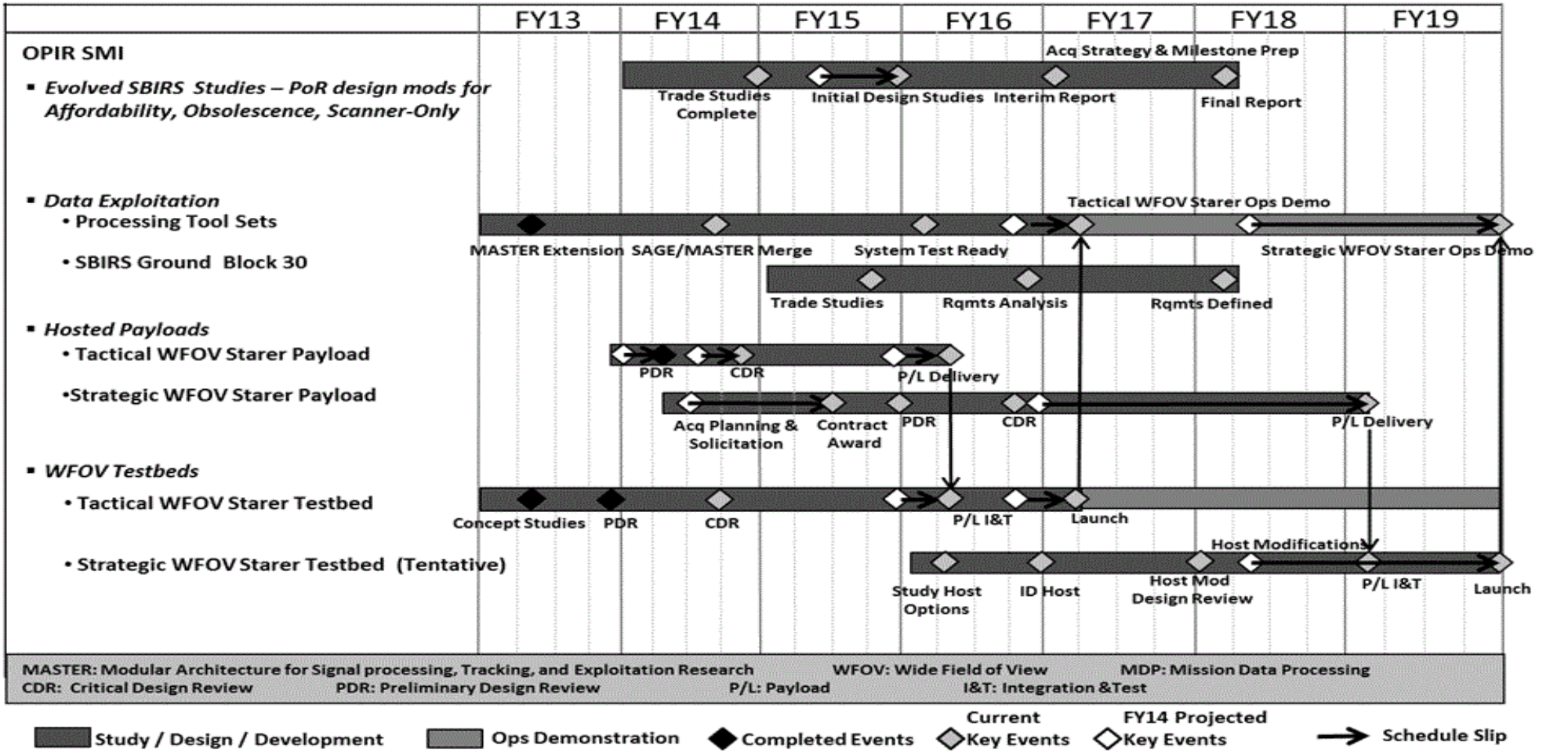

Exhibit R-4A, RDT&E Schedule Details: PB 2015 Air Force		Date: March 2014
Appropriation/Budget Activity 3600 / 5	**R-1 Program Element (Number/Name)** PE 0604441F / *Space Based Infrared System (SBIRS) High EMD*	**Project (Number/Name)** 657009 / *Space Modernization Initiative*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
WFOV Testbeds	2	2013	4	2019
Hosted Payloads	4	2013	1	2019
OPIR Data Exploitation	1	2013	4	2019

Exhibit R-2A, RDT&E Project Justification: PB 2015 Air Force			Date: March 2014
Appropriation/Budget Activity 3600 / 5	R-1 Program Element (Number/Name) PE 0604441F / *Space Based Infrared System (SBIRS) High EMD*	Project (Number/Name) 657106 / *EVOLVED SBIRS*	

COST ($ in Millions)	Prior Years	FY 2013	FY 2014	FY 2015 Base	FY 2015 OCO #	FY 2015 Total	FY 2016	FY 2017	FY 2018	FY 2019	Cost To Complete	Total Cost
657106: *EVOLVED SBIRS*	-	-	-	-	-	-	-	-	297.482	523.105	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

The FY 2015 OCO Request will be submitted at a later date.

A. Mission Description and Budget Item Justification

Knowledge gained from the SBIRS SMI projects will inform a future Defense Acquisition Board (DAB) decision for the Evolved SBIRS effort. DAB alternatives are expected to include 1) continued production of SBIRS PoR design; 2) an evolved satellite and ground system derived from the SBIRS POR designs; 3) an evolved satellite and ground system that includes a combination of PoR derivatives and new systems; or 4) a disaggregated OPIR system. The Evolved SBIRS effort will implement the DAB directed program alternative begining with FY18 funding. The Evolved SBIRS efforts will also include the initial HEO 5-6 development (anticipate to begin in FY19).

The "cost to complete" and "total cost" fields above will be populated after completion of the formal cost estimate in support of the DAB decision.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2013	FY 2014	FY 2015
Title: Evolved SBIRS	-	-	-
Description: Development effort for the Evolved SBIRS space and ground systems. Initial development program is expected to be for a new or derivative follow-on system(s) for the SBIRS GEO and HEO systems. Evolved SBIRS will also include development of ground system modifications to accommodate evolved SBIRS satellite design changes for GEO and HEO. ***FY 2013 Accomplishments:*** N/A, Evolved SBIRS funding starts in FY18. ***FY 2014 Plans:*** N/A, Evolved SBIRS funding starts in FY18. ***FY 2015 Plans:*** N/A, Evolved SBIRS funding starts in FY18.			
Accomplishments/Planned Programs Subtotals	-	-	-

Exhibit R-2A, RDT&E Project Justification: PB 2015 Air Force		Date: March 2014
Appropriation/Budget Activity 3600 / 5	**R-1 Program Element (Number/Name)** PE 0604441F / *Space Based Infrared System (SBIRS) High EMD*	**Project (Number/Name)** 657106 / *EVOLVED SBIRS*

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2013	FY 2014	FY 2015 Base	FY 2015 OCO	FY 2015 Total	FY 2016	FY 2017	FY 2018	FY 2019	Cost To Complete	Total Cost
• RDTE: BA05: PE 0604441F: *Space Modernization Initiative*	78.668	55.424	88.608	-	88.608	89.285	89.509	89.197	90.894	Continuing	Continuing

Remarks

D. Acquisition Strategy

TBD until Milestone Decision in the FY16-17 timeframe.

E. Performance Metrics

Please refer to the Performance Base Budget Overview Book for information on how Air Force resources are applied and how those resources are contributing to Air Force performance goals and most importantly, how they contribute to our mission.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2015 Air Force			Date: March 2014
Appropriation/Budget Activity 3600 / 5	R-1 Program Element (Number/Name) PE 0604441F / *Space Based Infrared System (SBIRS) High EMD*	Project (Number/Name) 657106 / *EVOLVED SBIRS*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2013 Cost	FY 2013 Award Date	FY 2014 Cost	FY 2014 Award Date	FY 2015 Base Cost	FY 2015 Base Award Date	FY 2015 OCO Cost	FY 2015 OCO Award Date	FY 2015 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Evolved SBIRS	TBD	Not specified. : ,	0.000	-		-		-		-		-	Continuing	Continuing	-
		Subtotal	0.000	-		-		-		-		-	-	-	-

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2013 Cost	FY 2013 Award Date	FY 2014 Cost	FY 2014 Award Date	FY 2015 Base Cost	FY 2015 Base Award Date	FY 2015 OCO Cost	FY 2015 OCO Award Date	FY 2015 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
		Subtotal	-	-		-		-		-		-	-	-	-

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2013 Cost	FY 2013 Award Date	FY 2014 Cost	FY 2014 Award Date	FY 2015 Base Cost	FY 2015 Base Award Date	FY 2015 OCO Cost	FY 2015 OCO Award Date	FY 2015 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
		Subtotal	-	-		-		-		-		-	-	-	-

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2013 Cost	FY 2013 Award Date	FY 2014 Cost	FY 2014 Award Date	FY 2015 Base Cost	FY 2015 Base Award Date	FY 2015 OCO Cost	FY 2015 OCO Award Date	FY 2015 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Program Management and Administration	TBD	TBD : TBD,	0.000	-		-		-		-		-	Continuing	Continuing	-
		Subtotal	0.000	-		-		-		-		-	-	-	-

	Prior Years	FY 2013 Cost	FY 2013 Award Date	FY 2014 Cost	FY 2014 Award Date	FY 2015 Base Cost	FY 2015 Base Award Date	FY 2015 OCO Cost	FY 2015 OCO Award Date	FY 2015 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	0.000	-		-		-		-		-	-	-	-

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2015 Air Force		Date: March 2014
Appropriation/Budget Activity 3600 / 5	**R-1 Program Element (Number/Name)** PE 0604441F / *Space Based Infrared System (SBIRS) High EMD*	**Project (Number/Name)** 657106 / *EVOLVED SBIRS*

Evolved SBIRS Schedule

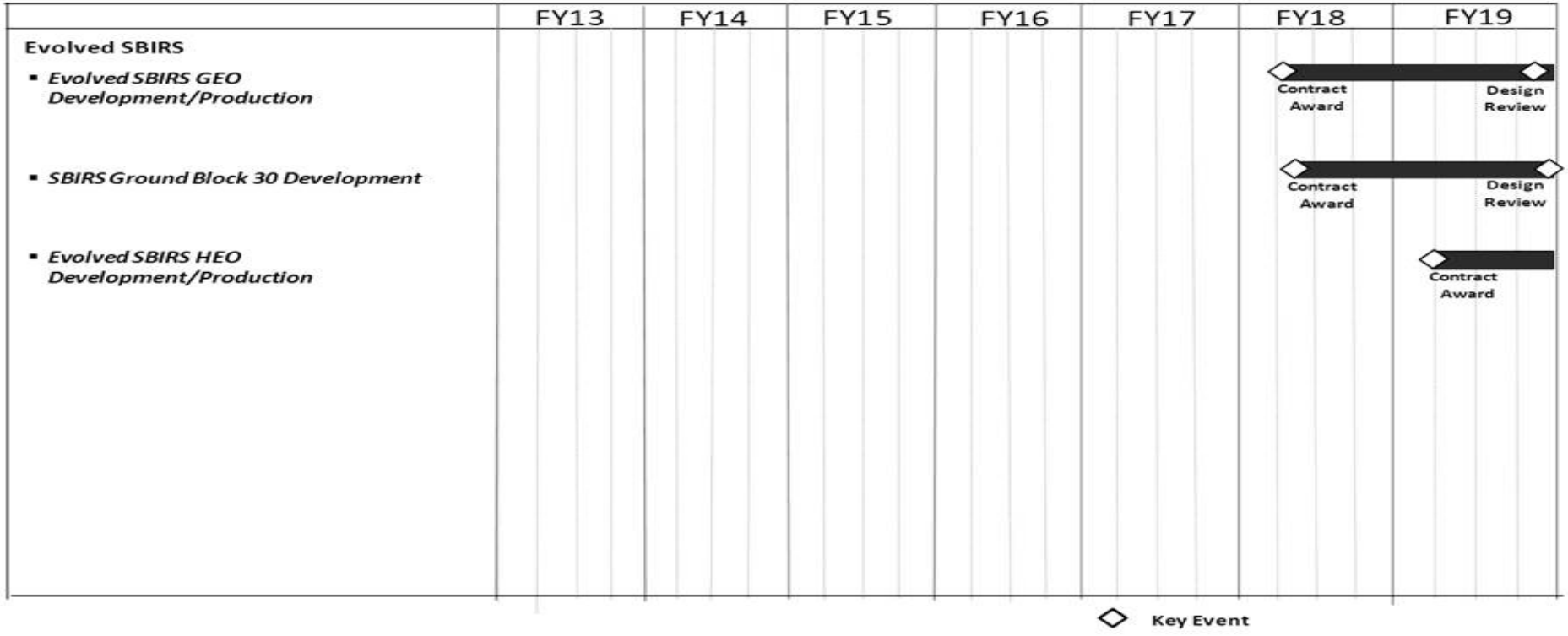

Exhibit R-4A, RDT&E Schedule Details: PB 2015 Air Force		Date: March 2014
Appropriation/Budget Activity 3600 / 5	**R-1 Program Element (Number/Name)** PE 0604441F / *Space Based Infrared System (SBIRS) High EMD*	**Project (Number/Name)** 657106 / *EVOLVED SBIRS*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
Evolved SBIRS GEO Development/Production	2	2018	4	2019
SBIRS Ground Block 30 Development	2	2018	4	2019
Evolved SBIRS HEO Development/Production	2	2019	4	2019