

UNCLASSIFIED

Exhibit R-2, RDT&E Budget Item Justification: PB 2013 Air Force	DATE: February 2012
--	----------------------------

APPROPRIATION/BUDGET ACTIVITY				R-1 ITEM NOMENCLATURE							
3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>				PE 0604441F: <i>Spaced Based Infrared System (SBIRS) High</i>							
COST (\$ in Millions)	FY 2011	FY 2012	FY 2013 Base	FY 2013 OCO	FY 2013 Total	FY 2014	FY 2015	FY 2016	FY 2017	Cost To Complete	Total Cost
Total Program Element	523.788	621.629	448.594	-	448.594	357.532	241.303	225.734	147.051	Continuing	Continuing
653616: <i>SBIRS High Element EMD</i>	501.663	605.111	365.406	-	365.406	267.408	191.321	190.704	116.057	Continuing	Continuing
657009: <i>Space Modernizaion Initiative</i>	-	-	83.188	-	83.188	90.124	49.982	35.030	30.994	Continuing	Continuing
65A040: <i>Commercially Hosted Infrared Payload (CHIRP)</i>	22.125	16.518	-	-	-	-	-	-	-	Continuing	Continuing

Note

The Cost to Complete and Total Cost for MDAP projects in this program element are documented in the R3. The Cost to Complete and Total Cost on the R2 are entered as "Continuing" and not reflective of the total cost for MDAP projects since the R2 does not account for prior years funding.

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 incorporate new technologies to 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 satellite is on-orbit and is undergoing testing and calibration to prepare for operational acceptance. GEO-2 is scheduled for delivery in 3Q FY12 and launch in FY13. Ground segment development continues through the FYDP. Concept studies/activities may be implemented to investigate obsolescence issues, Overhead Persistent Infrared (OPIR) solutions to potential operational concerns, and future evolution paths of the ground and/or space segment.

Space Modernization Initiative (SMI) efforts will include enhancing the current SBIRS to increase transmission security (TranSec), to manage obsolescence, and to mitigate risk. Evolved SBIRS Architecture activities will investigate affordable ways to modify the pointing control assembly, simplify existing payload and potentially accelerate calibration activities enabling an early operational acceptance of on-orbit staring capabilities. Data exploitation activities include OPIR data processing, data publication, algorithm development, network connectivity, data archiving and sensor performance assessments. The efforts will identify affordable, responsive, and resilient measures to get critical battlespace awareness information to the warfighter. They will also investigate substantial reductions in sensor-to-shooter processing and transmittal times so that tactical commanders can respond to enemy threats more quickly and accurately. Hosted payload technology testbed efforts will explore

UNCLASSIFIED

Exhibit R-2, RDT&E Budget Item Justification: PB 2013 Air Force				DATE: February 2012		
APPROPRIATION/BUDGET ACTIVITY		R-1 ITEM NOMENCLATURE				
3600: Research, Development, Test & Evaluation, Air Force BA 5: Development & Demonstration (SDD)		PE 0604441F: Spaced Based Infrared System (SBIRS) High				
technology maturation, qualification of new components, and subsystem/component prototyping. These efforts will include demonstrations, architecture, system integration and testing, and data exploitation activities.						
The Department of Defense terminated the Third Generation Infrared Surveillance (3GIRS) program (PE 0604443F) beginning in FY11. 3GIRS included development efforts for the Commercially Hosted Infrared Payload (CHIRP) demonstration. FY11 and FY12 funds supporting the CHIRP demonstration for technology maturation of space and ground technologies were moved to the SBIRS RDT&E program element under a separate project number. CHIRP will perform risk reduction and evaluation of Wide-Field-of-View (WFOV) IR staring and data processing technology to potentially evolve future SBIRS staring sensors and processing algorithms. An on-orbit demonstration will quantify performance levels of a WFOV sensor in an operational environment. CHIRP sensor testing will also provide Focal Plane Array (FPA) performance/calibration characteristics, validate WFOV staring algorithm performance in an operational environment, and investigate compatibility with current Overhead Persistent Infrared (OPIR) ground systems for missile warning, missile defense, and other mission areas.						
This program is assigned to Budget Activity 5, System Development and Demonstration (SDD), because it funds the development and integration of mature systems, and the test, evaluation, and demonstration of those systems.						
B. Program Change Summary (\$ in Millions)		FY 2011	FY 2012	FY 2013 Base	FY 2013 OCO	FY 2013 Total
Previous President's Budget		530.047	621.629	572.960	-	572.960
Current President's Budget		523.788	621.629	448.594	-	448.594
Total Adjustments		-6.259	-	-124.366	-	-124.366
• Congressional General Reductions		-	-			
• Congressional Directed Reductions		-	-			
• Congressional Rescissions		-	-			
• Congressional Adds		-	-			
• Congressional Directed Transfers		-	-			
• Reprogrammings		-	-			
• SBIR/STTR Transfer		-	-			
• Other Adjustments		-6.259	-	-124.366	-	-124.366
Change Summary Explanation						
FY11: -\$6.259M Congressional General Reduction						
FY13: -\$83M decrease reflects adjustments to match the phasing of the EMD Service Cost Position (SCP) requirements.						
FY13: -\$43M reduction to SMI and a +\$2M increase to implement operationally responsive space technologies.						

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2013 Air Force									DATE: February 2012		
APPROPRIATION/BUDGET ACTIVITY 3600: Research, Development, Test & Evaluation, Air Force BA 5: Development & Demonstration (SDD)				R-1 ITEM NOMENCLATURE PE 0604441F: Spaced Based Infrared System (SBIRS) High				PROJECT 653616: SBIRS High Element EMD			
COST (\$ in Millions)	FY 2011	FY 2012	FY 2013 Base	FY 2013 OCO	FY 2013 Total	FY 2014	FY 2015	FY 2016	FY 2017	Cost To Complete	Total Cost
653616: SBIRS High Element EMD	501.663	605.111	365.406	-	365.406	267.408	191.321	190.704	116.057	Continuing	Continuing
Quantity of RDT&E Articles	1	1	0	0	0	0	0	0	0		

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 incorporate new technologies to 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 US Strategic Command's Capstone Requirements Document and 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 accepted and certified for Integrated Tactical Warning/Attack Assessment (ITW/AA) missile warning operations and technical intelligence operations. The GEO-1 satellite is on-orbit and is undergoing testing and calibration to prepare for operational acceptance. Concept studies/activities may be implemented to investigate obsolescence issues, Overhead Persistent Infrared (OPIR) solutions to potential operational concerns, and future evolution paths of the ground and/or space segment.

This program is assigned to Budget Activity 5, System Development and Demonstration (SDD), because it funds the development and integration of mature systems, and the test, evaluation, and demonstration of those systems.

B. Accomplishments/Planned Programs (\$ in Millions)

	FY 2011	FY 2012	FY 2013
Title: SBIRS EMD	501.663	605.111	365.406
Description: Continued EMD contracts for Space and Ground segment development, concept studies/activities for obsolescence issues.			
FY 2011 Accomplishments: Continued GEO development. Completed final GEO-1 flight software verification and hardware installs, executed GEO-1 launch campaign. Continued GEO-2 integration, assembly and test, design activities, Ground System Development (Block 10), System Engineering and Program Management, HEO host program office support, Technical Intelligence activities, Data Processing/Exploitation/ground integration activities, Combined Task Force (CTF) support activities, and continuation of systems integration			

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2013 Air Force							DATE: February 2012				
APPROPRIATION/BUDGET ACTIVITY 3600: Research, Development, Test & Evaluation, Air Force BA 5: Development & Demonstration (SDD)			R-1 ITEM NOMENCLATURE PE 0604441F: Spaced Based Infrared System (SBIRS) High			PROJECT 653616: SBIRS High Element EMD					
B. Accomplishments/Planned Programs (\$ in Millions)							FY 2011	FY 2012	FY 2013		
and test studies. Continued Program Office and related support activities (to include SETA), technical analysis and independent verification and validation of contractor. Continued Systems Engineering and Integration (SE&I).											
FY 2012 Plans: Continue GEO development. Continue GEO-1 on-orbit testing. Continue GEO-2 integration, assembly and test, design activities, Ground System Development (Block 10), System Engineering and Program Management, HEO host program office support, Technical Intelligence activities, Data Processing/ Exploitation/ground integration activities, CTF support activities, and continuation of systems integration and test studies. Store GEO-2 and be ready to execute GEO-2 launch campaign. Continue Program Office and related support activities (to include SETA), technical analysis and independent verification and validation of contractor. Continue SE&I.											
FY 2013 Plans: Continue GEO development. Complete GEO-1 operational user evaluation and certification. Store GEO-2 and then conduct launch and on-orbit testing. Continue Ground System Development (Block 10), System Engineering and Program Management, HEO host program office support, Technical Intelligence activities, Data Processing/ Exploitation/ground integration activities, CTF support activities, and continuation of systems integration and test studies. Continue Program Office and related support activities (to include SETA), technical analysis and independent verification and validation of contractor. Continue SE&I.											
Accomplishments/Planned Programs Subtotals							501.663	605.111	365.406		
C. Other Program Funding Summary (\$ in Millions)											
Line Item	FY 2011	FY 2012	FY 2013 Base	FY 2013 OCO	FY 2013 Total	FY 2014	FY 2015	FY 2016	FY 2017	Cost To Complete	Total Cost
• P-41: OPAF, PE 0305915F, Space Based Infrared System (SBIRS) High	24.667	49.570	47.135	0.000	47.135	28.235	26.332	7.725	7.703	Continuing	Continuing
• P-25: MPAF, PE 0305915F, Space Based Infrared System (SBIRS) High	938.975	324.889	454.251	0.000	454.251	583.220	580.879	537.929	570.776	1,330.491	8,003.147
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 deliver GEO-2 and the ground segment. Production contracts are discussed in the procurement budget exhibits.											

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2013 Air Force		DATE: February 2012
APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0604441F: <i>Spaced Based Infrared System (SBIRS) High</i>	PROJECT 653616: <i>SBIRS High Element EMD</i>
E. Performance Metrics <p>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.</p>		

UNCLASSIFIED

Exhibit R-3, RDT&E Project Cost Analysis: PB 2013 Air Force **DATE:** February 2012

APPROPRIATION/BUDGET ACTIVITY 3600: Research, Development, Test & Evaluation, Air Force BA 5: Development & Demonstration (SDD)	R-1 ITEM NOMENCLATURE PE 0604441F: Spaced Based Infrared System (SBIRS) High	PROJECT 653616: SBIRS High Element EMD
--	---	--

Product Development (\$ in Millions)				FY 2012		FY 2013 Base		FY 2013 OCO		FY 2013 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Pre-EMD (LMMS & Hughes)	C/CPFF	Hughes Aircraft Company:El Segundo, CA	159.600	-		-		-		-	0.000	159.600	159.600
SBIRS EMD	Various	Prime: Lockheed Martin Sunnyvale; Sub: Northrup Grumman;	7,523.671	535.291	Oct 2011	312.598	Oct 2012	-		312.598	825.491	9,197.051	9,197.051
Systems engineering and Integration (SEI)	C/CPAF	The Analytical Sciences Corporation:Andover, MA	22.024	11.613	Dec 2011	8.682	Dec 2012	-		8.682	19.082	61.401	61.401
SBIRS Pre-SDD Contract Adjustment	Various	Not specified.:Location not provided.	4.780	-		-		-		-	0.000	4.780	4.780
Technology	Various	Not specified.:Location not provided.	11.600	-		-		-		-	0.000	11.600	11.600
Phenomenology	Various	Not specified.:Location not provided.	17.350	-		-		-		-	0.000	17.350	17.350
Sensor Technology	Various	Sandia National Lab.;	10.000	-		-		-		-	0.000	10.000	10.000
Subtotal			7,749.025	546.904		321.280		-		321.280	844.573	9,461.782	9,461.782

Remarks

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

Support (\$ in Millions)				FY 2012		FY 2013 Base		FY 2013 OCO		FY 2013 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Technical Support (FFRDC)	RO	Aerospace Corp.:El Segundo, CA	388.415	26.793	Nov 2011	-		-		-	0.000	415.208	415.208
Various Program Support	Various	Various.;	87.196	20.231	Oct 2011	3.647	Mar 2013	-		3.647	8.561	119.635	119.635
SMC Admin Support	C/TBD	Quantech Services, Inc.:Lexington, MA	6.878	1.861	Dec 2011	-		-		-	0.000	8.739	8.739

UNCLASSIFIED

Exhibit R-3, RDT&E Project Cost Analysis: PB 2013 Air Force										DATE: February 2012			
APPROPRIATION/BUDGET ACTIVITY 3600: Research, Development, Test & Evaluation, Air Force BA 5: Development & Demonstration (SDD)					R-1 ITEM NOMENCLATURE PE 0604441F: Spaced Based Infrared System (SBIRS) High				PROJECT 653616: SBIRS High Element EMD				
Support (\$ in Millions)				FY 2012		FY 2013 Base		FY 2013 OCO		FY 2013 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Network Support	C/TBD	Northrop Grumman IT:McLean, VA	20.544	0.676	Nov 2011	-		-		-	0.000	21.220	21.220
SMC Technical Support	C/TBD	Scitor Corp.:El Segundo, CA	58.846	7.050	Dec 2011	-		-		-	0.000	65.896	65.896
SMC Financial Support	C/TBD	Tecolote, Inc.:Goleta, CA	14.335	1.596	Nov 2011	-		-		-	0.000	15.931	15.931
Subtotal			576.214	58.207		3.647		-		3.647	8.561	646.629	646.629
Remarks Award dates represent date of first award of the fiscal year.													
Test and Evaluation (\$ in Millions)				FY 2012		FY 2013 Base		FY 2013 OCO		FY 2013 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Subtotal			-	-		-		-		-	0.000	0.000	0.000
Management Services (\$ in Millions)				FY 2012		FY 2013 Base		FY 2013 OCO		FY 2013 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Technical Support (FFRDC)	RO	Aerospace Corp.:El Segundo, CA	-	-		23.423	Nov 2012	-		23.423	72.877	96.300	96.300
SMC Admin Support (PMA)	C/TBD	TBD:TBD,	-	-		1.562	Dec 2012	-		1.562	4.418	5.980	5.980
Network Support (PMA)	C/TBD	TBD:TBD,	-	-		0.700	Dec 2012	-		0.700	3.053	3.753	3.753
SMC Technical Support (PMA)	C/TBD	TBD:TBD,	-	-		5.323	Dec 2012	-		5.323	14.417	19.740	19.740
SMC Financial Support (PMA)	C/TBD	TBD:TBD,	-	-		1.301	Dec 2012	-		1.301	4.423	5.724	5.724
Various Management Support Services	Various	Various:Various,	-	-		8.170	Oct 2012	-		8.170	18.168	26.338	26.338
Subtotal			-	-		40.479		-		40.479	117.356	157.835	157.835

UNCLASSIFIED

Exhibit R-3, RDT&E Project Cost Analysis: PB 2013 Air Force										DATE: February 2012			
APPROPRIATION/BUDGET ACTIVITY 3600: Research, Development, Test & Evaluation, Air Force BA 5: Development & Demonstration (SDD)				R-1 ITEM NOMENCLATURE PE 0604441F: Spaced Based Infrared System (SBIRS) High				PROJECT 653616: SBIRS High Element EMD					
Management Services (\$ in Millions)				FY 2012		FY 2013 Base		FY 2013 OCO		FY 2013 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Remarks Management service contracts will be recompeted prior to FY13.													
			Total Prior Years Cost	FY 2012		FY 2013 Base		FY 2013 OCO		FY 2013 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals			8,325.239	605.111		365.406		-		365.406	970.490	10,266.246	10,266.246
Remarks The total EMD program cost estimate (to include cost to complete)is based on the 14 Apr 11 Service Cost Position.													

UNCLASSIFIED

Exhibit R-4, RDT&E Schedule Profile: PB 2013 Air Force		DATE: February 2012
APPROPRIATION/BUDGET ACTIVITY	R-1 ITEM NOMENCLATURE	PROJECT
3600: Research, Development, Test & Evaluation, Air Force BA 5: Development & Demonstration (SDD)	PE 0604441F: Spaced Based Infrared System (SBIRS) High	653616: SBIRS High Element EMD

UNCLASSIFIED

Exhibit R-4A, RDT&E Schedule Details: PB 2013 Air Force			DATE: February 2012
APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0604441F: <i>Spaced Based Infrared System (SBIRS) High</i>	PROJECT 653616: <i>SBIRS High Element EMD</i>	

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
GEO-1 Final Integrated System Test (FIST) Complete	1	2011	1	2011
GEO-2 Baseline Integrated System Test (BIST) 2	1	2011	2	2011
GEO-1 Satellite Delivery	2	2011	2	2011
GEO-2 Acoustic Test	3	2011	3	2011
GEO-1 Payload Calibration and Tuning	3	2011	3	2012
GEO Interim Operations (GIO) Software Final Delivery	3	2011	3	2011
GEO-2 Thermal Vacuum (TVAC) Closed Door Test	4	2011	4	2011
Block 10 Code and Unit Test	3	2012	4	2013
GEO-2 Satellite Available for Delivery	3	2012	3	2012
Block 10 Critical Design Review (CDR) Complete	3	2012	3	2012
OUE/GEO Message Cert	1	2013	2	2013
Block 10 Fit Up	1	2013	3	2014
MSC-2 Launch and Anomaly Resolution Center (LARC) ready for GEO-3 launch and early on-orbit System Test	4	2013	4	2013

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2013 Air Force									DATE: February 2012		
APPROPRIATION/BUDGET ACTIVITY 3600: Research, Development, Test & Evaluation, Air Force BA 5: Development & Demonstration (SDD)				R-1 ITEM NOMENCLATURE PE 0604441F: Spaced Based Infrared System (SBIRS) High				PROJECT 657009: Space Modernizaion Initiative			
COST (\$ in Millions)	FY 2011	FY 2012	FY 2013 Base	FY 2013 OCO	FY 2013 Total	FY 2014	FY 2015	FY 2016	FY 2017	Cost To Complete	Total Cost
657009: Space Modernizaion Initiative	-	-	83.188	-	83.188	90.124	49.982	35.030	30.994	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

Note

The SBIRS Space Modernization Initiative (SMI) is funded in PE 0604441, project 657009 and begins in FY13. In the FY12 PB, project 657009 funds were included in project 653616 from FY13 - FY16.

A. Mission Description and Budget Item Justification

Future Overhead Persistent Infrared (OPIR) satellites will be procured using the Department of Defense (DOD) Evolutionary Acquisition for Space Efficiency (EASE) concept. The EASE concept is a procurement 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). In addition, the EASE concept includes use of RDT&E funding for SBIRS Space Modernization Initiative (SMI)(formerly referred to as Capability and Affordability Improvement Program (CAIP)) to fund engineering activities to reduce future production costs through manufacturing and producibility enhancements and to improve capabilities through insertion of new technologies to replace obsolete parts and materials. The SMI efforts will provide opportunities for competition to develop potential technology upgrades at the component and system level for future satellites of the current or any future follow-on system. SMI efforts will include enhancing the current SBIRS to increase transmission security (TranSec), to manage obsolescence, and to mitigate risk. Evolved SBIRS Architecture activities will investigate affordable ways to modify the pointing control assembly, simplify existing payload and potentially accelerate calibration activities enabling an early operational acceptance of on-orbit staring capabilities. Data exploitation activities include OPIR data processing, data publication, algorithm development, network connectivity, data archiving and sensor performance assessments. The efforts will identify affordable, responsive, and resilient measures to get critical battlespace awareness information to the warfighter. They will also investigate substantial reductions in sensor-to-shooter processing and transmittal times so that tactical commanders can respond to enemy threats more quickly and accurately. Hosted payload technology testbed efforts will explore technology maturation, qualification of new components, and subsystem/component prototyping. These efforts will include demonstrations, architecture, system integration and testing, and data exploitation activities.

This program is assigned to Budget Activity 5, System Development and Demonstration (SDD), because it funds the development and integration of mature systems, and the test, evaluation, and demonstration of those systems.

B. Accomplishments/Planned Programs (\$ in Millions)

	FY 2011	FY 2012	FY 2013
Title: OPIR SMI	-	-	83.188
Description: SMI seeks to improve affordability through producibility enhancements and increase resiliency through obsolescence mitigation.			

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2013 Air Force							DATE: February 2012				
APPROPRIATION/BUDGET ACTIVITY 3600: Research, Development, Test & Evaluation, Air Force BA 5: Development & Demonstration (SDD)			R-1 ITEM NOMENCLATURE PE 0604441F: Spaced Based Infrared System (SBIRS) High			PROJECT 657009: Space Modernizaion Initiative					
B. Accomplishments/Planned Programs (\$ in Millions)							FY 2011	FY 2012	FY 2013		
SMI will also fund engineering activities for technology maturation, qualification of new replacement components, subsystem and component prototyping, architecture and system concept studies, and data exploitation to increase responsive operations.											
FY 2013 Plans: Improve Transmission Security and assess promising new components and systems to confirm their suitability for the OPIR mission (affordable, responsive, and resilient). Pursue evolutionary or alternative OPIR technologies and concepts to reduce obsolescence risks and improve affordability, to include focal plane evolution, simplified pointing control, hosted payload concepts studies, and test bed development to demonstrate proof of concept for future program alternatives. Pursue early exploitation of the SBIRS staring sensor data. Investigate methods to fuse staring sensor data with existing operational and experimental assets. Develop data standards to incorporate Joint OPIR Ground (JOG) recommendations. Create a data archive on the classified network along with application tools to enable better exploitation of collected OPIR data. Team with a hosted payload office (HPO) to identify relevant commercial opportunities for proof of concept to develop/integrate system concepts. Conduct System Engineering and Program Management to include Program Office support such as Federally Funded Research and Development Center (FFRDC) analyses, System Engineering Technical Assistance (SETA) and Systems Engineering and Integration (SE&I).											
Accomplishments/Planned Programs Subtotals							-	-	83.188		
C. Other Program Funding Summary (\$ in Millions)											
Line Item	FY 2011	FY 2012	FY 2013 Base	FY 2013 OCO	FY 2013 Total	FY 2014	FY 2015	FY 2016	FY 2017	Cost To Complete	Total Cost
• P-41: OPAF, PE 0305915F, Space Based Infrared System (SBIRS) High	24.667	49.570	47.135	0.000	47.135	28.235	26.332	7.725	7.703	Continuing	Continuing
• P-25: MPAF, PE 0305915F, Space Based Infrared System (SBIRS) High	938.975	324.889	454.251	0.000	454.251	583.220	580.879	537.929	570.766	1,330.491	8,003.147
D. Acquisition Strategy											
Activities such as obsolescence management and producibility improvements will be awarded sole source to the current SBIRS prime contractor. Replacement component prototyping and/or qualification will leverage existing contracts where practical but may require competition. These activities will be managed by the program office. Replacement component and system designs will be acquired with government data rights to allow their incorporation into any future OPIR satellite production or system development. Alternative architecture and concept studies will primarily be performed on FFRDC and SE&I contracts.											

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2013 Air Force		DATE: February 2012
APPROPRIATION/BUDGET ACTIVITY 3600: Research, Development, Test & Evaluation, Air Force BA 5: Development & Demonstration (SDD)	R-1 ITEM NOMENCLATURE PE 0604441F: Spaced Based Infrared System (SBIRS) High	PROJECT 657009: Space Modernizaion Initiative

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.

UNCLASSIFIED

Exhibit R-3, RDT&E Project Cost Analysis: PB 2013 Air Force										DATE: February 2012				
APPROPRIATION/BUDGET ACTIVITY 3600: Research, Development, Test & Evaluation, Air Force BA 5: Development & Demonstration (SDD)					R-1 ITEM NOMENCLATURE PE 0604441F: Spaced Based Infrared System (SBIRS) High				PROJECT 657009: Space Modernizaion Initiative					
Product Development (\$ in Millions)					FY 2012		FY 2013 Base		FY 2013 OCO		FY 2013 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract	
Evolved SBIRS	TBD	TBD:,	-	-		24.475	Feb 2013	-		24.475	75.434	99.909	99.909	
Data Exploitation	TBD	TBD:,	-	-		23.723	Feb 2013	-		23.723	4.015	27.738	27.738	
Architecture Studies	TBD	TBD:,	-	-		9.350	Feb 2013	-		9.350	12.007	21.357	21.357	
Hosted Payloads	TBD	TBD:,	-	-		12.588	Feb 2013	-		12.588	58.133	70.721	70.721	
WFOV Testbed	TBD	TBD:,	-	-		7.410	Feb 2013	-		7.410	38.212	45.622	45.622	
System Engineering and Integration (SE&I)	Various	Various:,	-	-		1.591	Dec 2012	-		1.591	4.882	6.473	6.473	
Subtotal			-	-		79.137		-		79.137	192.683	271.820	271.820	
Support (\$ in Millions)					FY 2012		FY 2013 Base		FY 2013 OCO		FY 2013 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract	
Program Support	Various	Various:,	-	-		0.832	Mar 2013	-		0.832	2.561	3.393	3.393	
Subtotal			-	-		0.832		-		0.832	2.561	3.393	3.393	
Test and Evaluation (\$ in Millions)					FY 2012		FY 2013 Base		FY 2013 OCO		FY 2013 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract	
Subtotal			-	-		-		-		-	0.000	0.000	0.000	
Management Services (\$ in Millions)					FY 2012		FY 2013 Base		FY 2013 OCO		FY 2013 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract	
Various Management Support Services	Various	Various:,	-	-		3.219	Oct 2012	-		3.219	10.886	14.105	14.105	
Subtotal			-	-		3.219		-		3.219	10.886	14.105	14.105	

UNCLASSIFIED

Exhibit R-3, RDT&E Project Cost Analysis: PB 2013 Air Force								DATE: February 2012			
APPROPRIATION/BUDGET ACTIVITY 3600: Research, Development, Test & Evaluation, Air Force BA 5: Development & Demonstration (SDD)				R-1 ITEM NOMENCLATURE PE 0604441F: Spaced Based Infrared System (SBIRS) High				PROJECT 657009: Space Modernizaion Initiative			
	Total Prior Years Cost	FY 2012		FY 2013 Base		FY 2013 OCO		FY 2013 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	-	-		83.188		-		83.188	206.130	289.318	289.318

Remarks

Multiple contracts will be used beginning in early FY2013 – specific contractors and other organizations are still TBD

UNCLASSIFIED

Exhibit R-4, RDT&E Schedule Profile: PB 2013 Air Force		DATE: February 2012
APPROPRIATION/BUDGET ACTIVITY	R-1 ITEM NOMENCLATURE	PROJECT
3600: Research, Development, Test & Evaluation, Air Force BA 5: Development & Demonstration (SDD)	PE 0604441F: Spaced Based Infrared System (SBIRS) High	657009: Space Modernizaion Initiative

UNCLASSIFIED

Exhibit R-4A, RDT&E Schedule Details: PB 2013 Air Force			DATE: February 2012
APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0604441F: <i>Spaced Based Infrared System (SBIRS) High</i>	PROJECT 657009: <i>Space Modernizaion Initiative</i>	

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
TRANSEC Non-recurring End Items	1	2013	4	2015
Architecture & Component Studies	1	2013	2	2014
Hosted Payload Tech Maturation	1	2013	2	2016
WFOV Test Bed	1	2013	2	2016
OPIR Data Processing/Data Archiving	1	2013	4	2017

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2013 Air Force									DATE: February 2012		
APPROPRIATION/BUDGET ACTIVITY 3600: Research, Development, Test & Evaluation, Air Force BA 5: Development & Demonstration (SDD)				R-1 ITEM NOMENCLATURE PE 0604441F: Spaced Based Infrared System (SBIRS) High				PROJECT 65A040: Commercially Hosted Infrared Payload (CHIRP)			
COST (\$ in Millions)	FY 2011	FY 2012	FY 2013 Base	FY 2013 OCO	FY 2013 Total	FY 2014	FY 2015	FY 2016	FY 2017	Cost To Complete	Total Cost
65A040: Commercially Hosted Infrared Payload (CHIRP)	22.125	16.518	-	-	-	-	-	-	-	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

A. Mission Description and Budget Item Justification

The Department of Defense terminated the Third Generation Infrared Surveillance (3GIRS) program (PE 0604443F) beginning in FY11. 3GIRS included development efforts for the Commercially Hosted Infrared Payload (CHIRP) demonstration. FY11 and FY12 funds supporting the CHIRP demonstration for technology maturation of space and ground technologies were moved to the SBIRS RDT&E PE under a separate project number.

CHIRP will perform risk reduction and evaluation of Wide-Field-of-View (WFOV) IR staring and data processing technology to potentially evolve future SBIRS staring sensors and processing algorithms. An on-orbit demonstration will quantify performance levels of a prototype WFOV sensor in an operational environment. CHIRP sensor testing will also provide Focal Plane Array (FPA) performance/calibration characteristics, validate WFOV staring algorithm performance in an operational environment, and investigate compatibility with current Overhead Persistent Infrared (OPIR) ground systems for missile warning, missile defense, and other mission areas.

This program is assigned to Budget Activity 5, System Development and Demonstration (SDD) because it funds the development and integration of mature systems, and the test, evaluation, and demonstration of those systems.

B. Accomplishments/Planned Programs (\$ in Millions)

	FY 2011	FY 2012	FY 2013
Title: CHIRP	22.125	16.518	-
Description: Continue contracts for Commercially Hosted Infrared Payload (CHIRP) demonstration and related support activities.			
FY 2011 Accomplishments: Successfully launched CHIRP Payload into orbit. Received first light and executing on orbit operations to collect various targets. Continued to develop and test mission data processing and ground infrastructure to mature WFOV algorithms and technologies. Developed lessons learned for future commercial hosted payload for military applications. Demonstrated CHIRP on-orbit capabilities to include fusion of CHIRP data with other OPIR systems. Collected, archived and analyzed on-orbit data against cooperative targets and continued to mature WFOV algorithms. Continued Program Office and related support activities.			
FY 2012 Plans: Continue development and test of mission data processing and ground infrastructure to mature WFOV algorithms and technologies. Demonstrate CHIRP on-orbit capabilities to include fusion of CHIRP data with other OPIR systems. Collect, archive			

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2013 Air Force							DATE: February 2012				
APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>			R-1 ITEM NOMENCLATURE PE 0604441F: <i>Spaced Based Infrared System (SBIRS) High</i>			PROJECT 65A040: <i>Commercially Hosted Infrared Payload (CHIRP)</i>					
B. Accomplishments/Planned Programs (\$ in Millions)							FY 2011	FY 2012	FY 2013		
and analyze on-orbit data against cooperative targets and continue to mature WFOV algorithms. Continue Program Office and related support activities.											
Accomplishments/Planned Programs Subtotals							22.125	16.518	-		
C. Other Program Funding Summary (\$ in Millions)											
Line Item	FY 2011	FY 2012	FY 2013 Base	FY 2013 OCO	FY 2013 Total	FY 2014	FY 2015	FY 2016	FY 2017	Cost To Complete	Total Cost
• 3GIRS, PE 0604443F: <i>Third Generation Infrared Surveillance</i>	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	78.420
D. Acquisition Strategy											
Continuation of risk reduction and evaluation of WFOV IR staring and data processing technology within CHIRP will be performed through contracts previously funded and initiated by the Third Generation Infrared Surveillance (3GIRS) program. In FY2010, within the 3GIRS program, CHIRP completed and delivered the flight demonstration payload to commercial host for integration and testing.											
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.											

UNCLASSIFIED

Exhibit R-3, RDT&E Project Cost Analysis: PB 2013 Air Force										DATE: February 2012			
APPROPRIATION/BUDGET ACTIVITY				R-1 ITEM NOMENCLATURE				PROJECT					
3600: Research, Development, Test & Evaluation, Air Force BA 5: Development & Demonstration (SDD)				PE 0604441F: Spaced Based Infrared System (SBIRS) High				65A040: Commercially Hosted Infrared Payload (CHIRP)					
Product Development (\$ in Millions)				FY 2012		FY 2013 Base		FY 2013 OCO		FY 2013 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
WFOV IR staring technologies risk reduction activities	Various	*See Remarks:Various,	14.797	7.003	Nov 2011	-		-		-	0.000	21.800	21.800
Subtotal			14.797	7.003		-		-		-	0.000	21.800	21.800
Remarks													
*Performing Activities: System Dynamics Lab (Logan, UT), American Government Services (McLean, VA), Northrop Grumman Electronic Systems (Azusa, CA).													
Support (\$ in Millions)				FY 2012		FY 2013 Base		FY 2013 OCO		FY 2013 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Various Program Support	Various	Various:Various,	0.712	0.640	Oct 2011	-		-		-	0.000	1.352	1.352
Technical Engineering	C/TBD	Cobham Analytic Solutions:Lake Forest, CA	2.783	2.360	Jan 2012	-		-		-	0.000	5.143	5.143
Technical Support (FFRDC)	RO	Aerospace Corp.:El Segundo, CA	3.833	6.515	Nov 2011	-		-		-	0.000	10.348	10.348
Subtotal			7.328	9.515		-		-		-	0.000	16.843	16.843
Test and Evaluation (\$ in Millions)				FY 2012		FY 2013 Base		FY 2013 OCO		FY 2013 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Subtotal			-	-		-		-		-	0.000	0.000	0.000
Management Services (\$ in Millions)				FY 2012		FY 2013 Base		FY 2013 OCO		FY 2013 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Subtotal			-	-		-		-		-	0.000	0.000	0.000

UNCLASSIFIED

Exhibit R-3, RDT&E Project Cost Analysis: PB 2013 Air Force									DATE: February 2012		
APPROPRIATION/BUDGET ACTIVITY 3600: Research, Development, Test & Evaluation, Air Force BA 5: Development & Demonstration (SDD)				R-1 ITEM NOMENCLATURE PE 0604441F: Spaced Based Infrared System (SBIRS) High				PROJECT 65A040: Commercially Hosted Infrared Payload (CHIRP)			
	Total Prior Years Cost	FY 2012		FY 2013 Base		FY 2013 OCO		FY 2013 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	22.125	16.518		-		-		-	0.000	38.643	38.643

Remarks

UNCLASSIFIED

Exhibit R-4, RDT&E Schedule Profile: PB 2013 Air Force		DATE: February 2012
APPROPRIATION/BUDGET ACTIVITY	R-1 ITEM NOMENCLATURE	PROJECT
3600: Research, Development, Test & Evaluation, Air Force BA 5: Development & Demonstration (SDD)	PE 0604441F: Spaced Based Infrared System (SBIRS) High	65A040: Commercially Hosted Infrared Payload (CHIRP)

UNCLASSIFIED

Exhibit R-4A, RDT&E Schedule Details: PB 2013 Air Force		DATE: February 2012
APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 5: <i>Development & Demonstration (SDD)</i>	R-1 ITEM NOMENCLATURE PE 0604441F: <i>Spaced Based Infrared System (SBIRS) High</i>	PROJECT 65A040: <i>Commercially Hosted Infrared Payload (CHIRP)</i>

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
Commercially Hosted IR Payload (CHIRP) Launch	4	2011	4	2011
CHIRP Flight Demo (On-orbit Test)	4	2011	3	2012
Algorithm DT&D Deliveries (Mission Data Processing)	1	2011	3	2012