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Exhibit R-2, RDT&E Budget Item Justification: PB 2014 Air Force	DATE: April 2013
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APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 7: <i>Operational Systems Development</i>	R-1 ITEM NOMENCLATURE PE 0305940F: <i>Space Situation Awareness Operations</i>
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COST (\$ in Millions)	All Prior Years	FY 2012	FY 2013 [#]	FY 2014 Base	FY 2014 OCO ^{##}	FY 2014 Total	FY 2015	FY 2016	FY 2017	FY 2018	Cost To Complete	Total Cost
Total Program Element	-	29.720	19.586	18.807	-	18.807	11.740	10.988	0.000	0.000	Continuing	Continuing
67A017: <i>Sensor Service Life Extension Program</i>	-	29.720	19.586	18.807	-	18.807	11.740	10.988	0.000	0.000	Continuing	Continuing
Quantity of RDT&E Articles		0	0	0		0	0	0	0	0		

[#] FY 2013 Program is from the FY 2013 President's Budget, submitted February 2012

^{##} The FY 2014 OCO Request will be submitted at a later date

A. Mission Description and Budget Item Justification

Space Situational Awareness (SSA) is knowledge of all aspects of space related to operations. As the foundation for space control, SSA encompasses surveillance of all space objects and activities; detailed reconnaissance of specific space assets; monitoring space environmental conditions; monitoring cooperative space assets; intelligence on adversary space operations; and conducting integrated command, control, communications, processing, analysis, dissemination, and archiving activities. Program Element 0305940F, Space Situational Awareness Operations, fields, upgrades, operates and maintains Air Force sensors and information integration capabilities within the SSA network while companion program element 0604425F, Space Situational Awareness Systems, develops new network sensors and improved information integration capabilities across the network. Activities funded in the SSA Operations program element focus on surveillance of objects in earth orbit to aid tasks including satellite tracking; space object identification; tracking and cataloging; satellite attack warning; notification of satellite flyovers to U.S. forces; space treaty monitoring; and technical intelligence gathering.

The Sensor Service Life Extension Programs (SLEP) in this program element fund efforts to upgrade and extend the life of operational SSA sensors, as needed. These SLEPs include, but are not limited to, programs that extend the serviceable life of assets and maintain critical capability by replacing aging and increasingly unsustainable components with modern equipment. SLEPs may incorporate equipment which inherently includes technological advances resulting in enhanced or increased capabilities. In addition, the SLEP itself may be designed to increase certain capabilities. The current efforts of Eglin, Haystack Ultra-wideband Satellite Imaging Radar (HUSIR), Ground-based Electro Optical Deep Space Surveillance (GEODSS), and Globus II are representative of sensor systems upgraded in the SLEP project. As the need arises in the execution year, funds in this project may be used to begin sensor life extension programs on additional efforts. These efforts are in Budget Activity 7, Operational System Development, because they develop modifications for operational SSA sensors.

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3600: Research, Development, Test & Evaluation, Air Force		PE 0305940F: Space Situation Awareness Operations				
BA 7: Operational Systems Development						
B. Program Change Summary (\$ in Millions)	FY 2012	FY 2013	FY 2014 Base	FY 2014 OCO	FY 2014 Total	
Previous President's Budget	31.956	19.586	37.811	-	37.811	
Current President's Budget	29.720	19.586	18.807	-	18.807	
Total Adjustments	-2.236	0.000	-19.004	-	-19.004	
• Congressional General Reductions	-	0.000				
• Congressional Directed Reductions	-	0.000				
• Congressional Rescissions	0.000	0.000				
• Congressional Adds	-	0.000				
• Congressional Directed Transfers	-	0.000				
• Reprogrammings	0.000	0.000				
• SBIR/STTR Transfer	-2.236	0.000				
• Other Adjustments	0.000	0.000	-19.004	-	-19.004	
Change Summary Explanation						
FY12: -\$2.236M for SBIR						
FY14: -\$19.004M Globus II SLEP Program Element transfer to a different program element. Further detail is classified and may be provided upon request.						
C. Accomplishments/Planned Programs (\$ in Millions)				FY 2012	FY 2013	FY 2014
Title: Eglin SLEP				5.200	4.063	8.621
Description: Extends the operational life of the AN/FPS-85 Radar, located at Eglin AFB, through 2018. Upgrades the hardware and software of the radar system to maintain system performance, operability and sustainment to support USSTRATCOM's Space Surveillance Network (SSN) near earth and deep space metric tracking and space object identification (SOI) missions.						
FY 2012 Accomplishments:						
Completed Phase 1 of the SLEP-Control and System Processor Upgrade (CSPU) integration, test, for planned operational acceptance. Continued Beam Steering Control Unit (BSCU) design and development, and began Phase 2-BSCU production and fielding.						
FY 2013 Plans:						
Will continue BSCU production and fielding and begin BSCU integration and testing.						
FY 2014 Plans:						
Will complete Phase 1 of the SLEP-CSPU integration, test, and operational acceptance. The plan and schedule for the second phase of the SLEP (BSCU) will be updated to reflect the completion of the CSPU which had previously been delayed.						
Title: HUSIR				5.497	4.269	0.050

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C. Accomplishments/Planned Programs (\$ in Millions)		FY 2012	FY 2013	FY 2014
Description: Upgrades the Haystack radar's X-band 1 MHz bandwidth system by adding a W-band 8GHz capability and enhancing imaging resolution to support SSN object characterization and tracking. FY 2012 Accomplishments: Performed analysis and assessment of repair alternatives for the antenna structure that mechanically seized during initial testing. Conducted in-situ repair including updated hydraulics, ride height instrumentation with fail safe interlocks, antenna surface stiffeners, antenna anti-deformation struts, and thermal sensors. FY 2013 Plans: Complete refurbished bearing characterization, commence control system tuning/testing, begin radar integration and test with X-band initially, verify antenna surface alignment with holography/laser radar measurements, begin W-band testing. FY 2014 Plans: Will verify surface alignment through surface panel holography, will complete W-Band testing and perform W-Band Military Utility Assessment (MUA) which will complete the project.				
Title: GEODSS SLEP Description: Extends the operational life of the Ground Based Electro-Optical Deep Space Surveillance System (GEODSS). Replaces the aging Sensor Controller Group (SCG), Data Processing Group (DPG), Data Communications Group (DCG), and other unsupportable subsystems as required to maintain SSN tracking capabilities for objects in deep space and geosynchronous orbits. FY 2012 Accomplishments: Conducted Phase I CDR and purchase of developmental hardware for SCG effort. Completed software code and unit testing. FY 2013 Plans: Will integrate, assemble, test, and install SCG equipment for Site 1. FY 2014 Plans: Will award contract for Phase II of SLEP to upgrade subsystems with sustainability issues, such as the DPG and DCG.		8.676	1.549	10.136
Title: GLOBUS II SLEP Description: Extends the operational life of the GLOBUS II Radar, located in Vardo, Norway. Replaces aging and unsustainable hardware groups including the transmitter, mission critical computing resources (MCCR), receiver-exciter (REX) subsystems, and other unsupportable subsystems as required. FY 2012 Accomplishments:		10.347	9.705	0.000

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C. Accomplishments/Planned Programs (\$ in Millions)								FY 2012	FY 2013	FY 2014
Conducted Phase I System Requirements Review and Preliminary Design Review, and purchased long lead items.										
FY 2013 Plans: Will conduct Critical Design Review. Will purchase hardware and complete in-plant testing, integration, and system assessments.										
FY 2014 Plans: Project funding is transferred to a new Program Element.										
Accomplishments/Planned Programs Subtotals								29.720	19.586	18.807

D. Other Program Funding Summary (\$ in Millions)											
<u>Line Item</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u> <u>Base</u>	<u>FY 2014</u> <u>OCO</u>	<u>FY 2014</u> <u>Total</u>	<u>FY 2015</u>	<u>FY 2016</u>	<u>FY 2017</u>	<u>FY 2018</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• OPAF: BA03: 836790: <i>Space Mods Space</i>	0.000	3.391	0.000		0.000	3.152	4.003	2.200	0.000	0.000	7.050
Remarks											
E. Acquisition Strategy											
<p>The Eglin SLEP effort is replacing key radar items via an option on the Systems Engineering and Sustainment Integrator (SENSOR) contract, competitively awarded to ITT Corporation (now Exelis) in 2002. The Air Force uses the SENSOR contract for sustaining and upgrading various Air Force systems, including the Eglin radar.</p> <p>The Massachusetts Institute of Technology's Lincoln Laboratory (MIT/LL), a non-profit Federally-Funded Research & Development Center, performs the HUSIR effort under a master contract with the Electronic Systems Center, in conjunction with support from other agencies as required. This effort is classified as applied research under that contract. MIT/LL transferred ownership of the radar to the Air Force but continues to operate it as part of its Lincoln Space Surveillance Complex as per contract with the Air Force. MIT/LL will be responsible for operations and sustainment of the upgraded Haystack radar. The upgrade effort is scheduled to complete in FY14.</p> <p>The GEODSS SLEP was awarded as an option on the SENSOR contract. The GEODSS SLEP uses a phased development and deployment strategy to reduce risk.</p> <p>The Globus II SLEP was also awarded as an option on the SENSOR contract. The Globus II SLEP uses a phased development and deployment strategy to reduce risk. Phase I is under contract (transmitter replacement). Phase II will replace the MCCR and REX subsystems. An assessment was completed on the MCCR and REX subsystems and additional requirements are being refined to be potentially incorporated into the second phase. In FY14, this project is being transferred to a new Program Element.</p>											

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<u>F. Performance Metrics</u> <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>		

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2014 Air Force												DATE: April 2013			
APPROPRIATION/BUDGET ACTIVITY 3600: Research, Development, Test & Evaluation, Air Force BA 7: Operational Systems Development						R-1 ITEM NOMENCLATURE PE 0305940F: Space Situation Awareness Operations				PROJECT 67A017: Sensor Service Life Extension Program					
Product Development (\$ in Millions)				FY 2012		FY 2013		FY 2014 Base		FY 2014 OCO		FY 2014 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Eglin architecture development and life extension	C/Various	Exelis/TBD:Colorado Springs, CO	-	3.097	Jan 2012	1.742	Jan 2013	7.393	Jan 2014	-		7.393	Continuing	Continuing	
HUSIR design and build	SS/FP	MIT Lincoln Lab:Lexington, MA	-	4.325	Oct 2011	3.459	Oct 2012	0.000		-		0.000	0.000	7.784	
GEODSS design, development and life extension	C/CPIF	Exelis/TBD:Colorado Springs, CO	-	7.472	Feb 2012	0.635	May 2013	8.998	Jun 2014	-		8.998	Continuing	Continuing	
Globus II development and life extension	C/CPIF	Exelis/TBD:Colorado Springs, CO	-	9.585	Feb 2012	8.758	Apr 2013	0.000		-		0.000	0.000	18.343	
Subtotal			0.000	24.479		14.594		16.391		0.000		16.391			
Support (\$ in Millions)				FY 2012		FY 2013		FY 2014 Base		FY 2014 OCO		FY 2014 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Development review and management/L3	C/FP	L3:Billerica, MA	-	0.000		0.000		0.000		-		0.000	Continuing	Continuing	
Technical Support/LL	SS/FP	MIT Lincoln Laboratory:Lexington, MA	-	0.000		0.125	Oct 2012	0.079	Oct 2013	-		0.079	Continuing	Continuing	
Technical review and management/ETASS	C/CPAF	Jacobs Technology:Tullehoma, TN	-	1.621	Jan 2012	1.402	Jan 2013	0.714	Jan 2014	-		0.714	Continuing	Continuing	
MITRE(technical egineering)/MISC/JPL/ travel	Various	Various:Various,	-	0.715	Oct 2011	1.025	Oct 2012	0.320	Oct 2013	-		0.320	Continuing	Continuing	
Subtotal			0.000	2.336		2.552		1.113		0.000		1.113			

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Test and Evaluation (\$ in Millions)				FY 2012		FY 2013		FY 2014 Base		FY 2014 OCO		FY 2014 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Test Support	Various	17th Test Squadron:SAFB, CO	-	0.069	Jan 2013	0.181	Jan 2014	0.052	Jan 2015	-		0.052	Continuing	Continuing	
Subtotal			0.000	0.069		0.181		0.052		0.000		0.052			
Management Services (\$ in Millions)				FY 2012		FY 2013		FY 2014 Base		FY 2014 OCO		FY 2014 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Development review and managemnet/PASS	C/FP	Odyssey Systems:Wakefield, MA	-	1.374	Apr 2012	0.981	Apr 2013	0.621	Apr 2014	-		0.621	Continuing	Continuing	7.788
Specialized Cost Services (SCS)	C/FP	Tecolote:Lexington,MA ColSpgs,CO,	-	0.551	Oct 2011	0.472	Oct 2012	0.352	Oct 2013	-		0.352	Continuing	Continuing	3.561
Program Office Mgmnt/ Infrastructure (PMA)	Various	AFLCMC:Lexington,MA ColSpgs,CO,	-	0.911	Jul 2012	0.806	Jul 2013	0.278	Jul 2014	-		0.278	Continuing	Continuing	16.626
Subtotal			0.000	2.836		2.259		1.251		0.000		1.251			27.975
Project Cost Totals			0.000	29.720		19.586		18.807		0.000		18.807			
Remarks															

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Exhibit R-4, RDT&E Schedule Profile: PB 2014 Air Force

DATE: April 2013

APPROPRIATION/BUDGET ACTIVITY

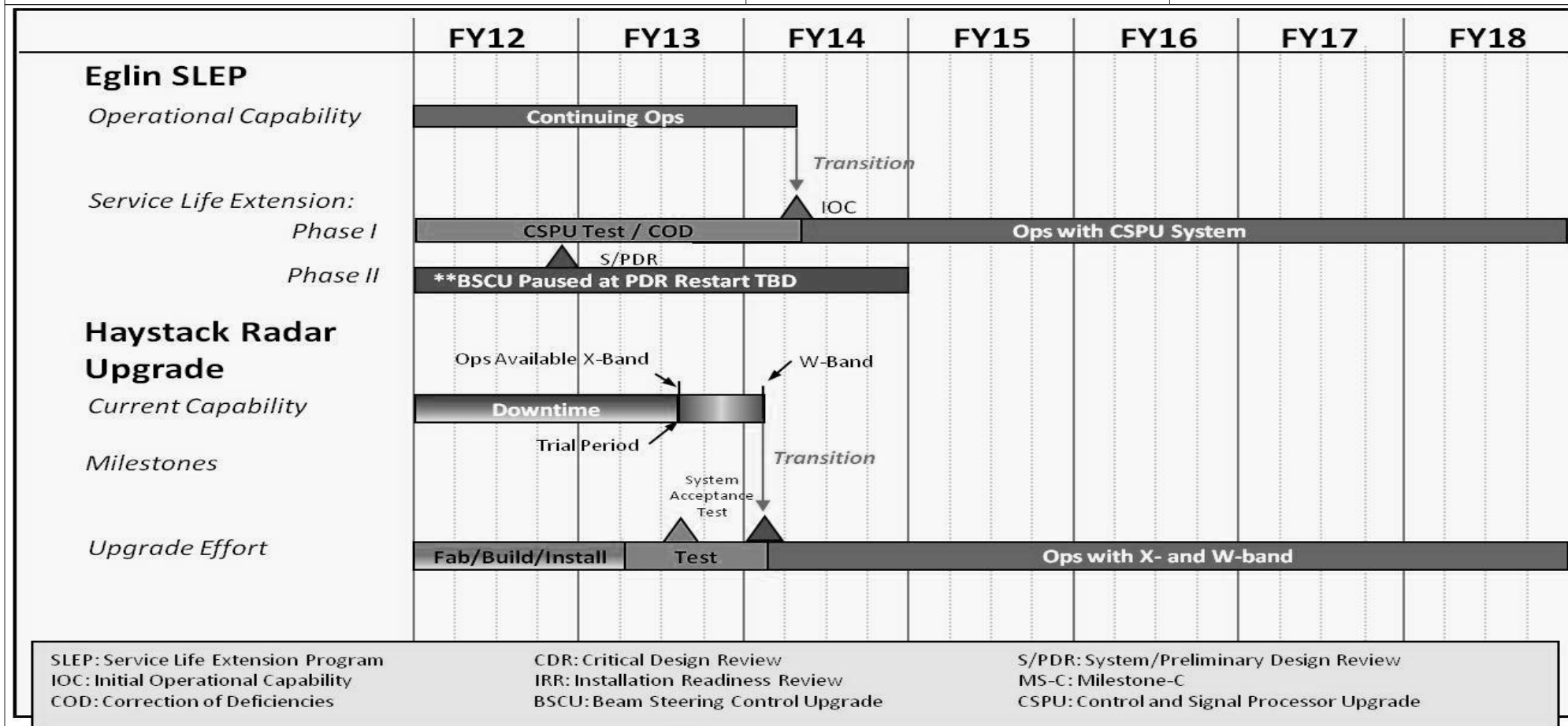
3600: Research, Development, Test & Evaluation, Air Force
BA 7: Operational Systems Development

R-1 ITEM NOMENCLATURE

PE 0305940F: Space Situation Awareness Operations

PROJECT

67A017: Sensor Service Life Extension Program



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Exhibit R-4, RDT&E Schedule Profile: PB 2014 Air Force

DATE: April 2013

APPROPRIATION/BUDGET ACTIVITY

3600: Research, Development, Test & Evaluation, Air Force
BA 7: Operational Systems Development

R-1 ITEM NOMENCLATURE

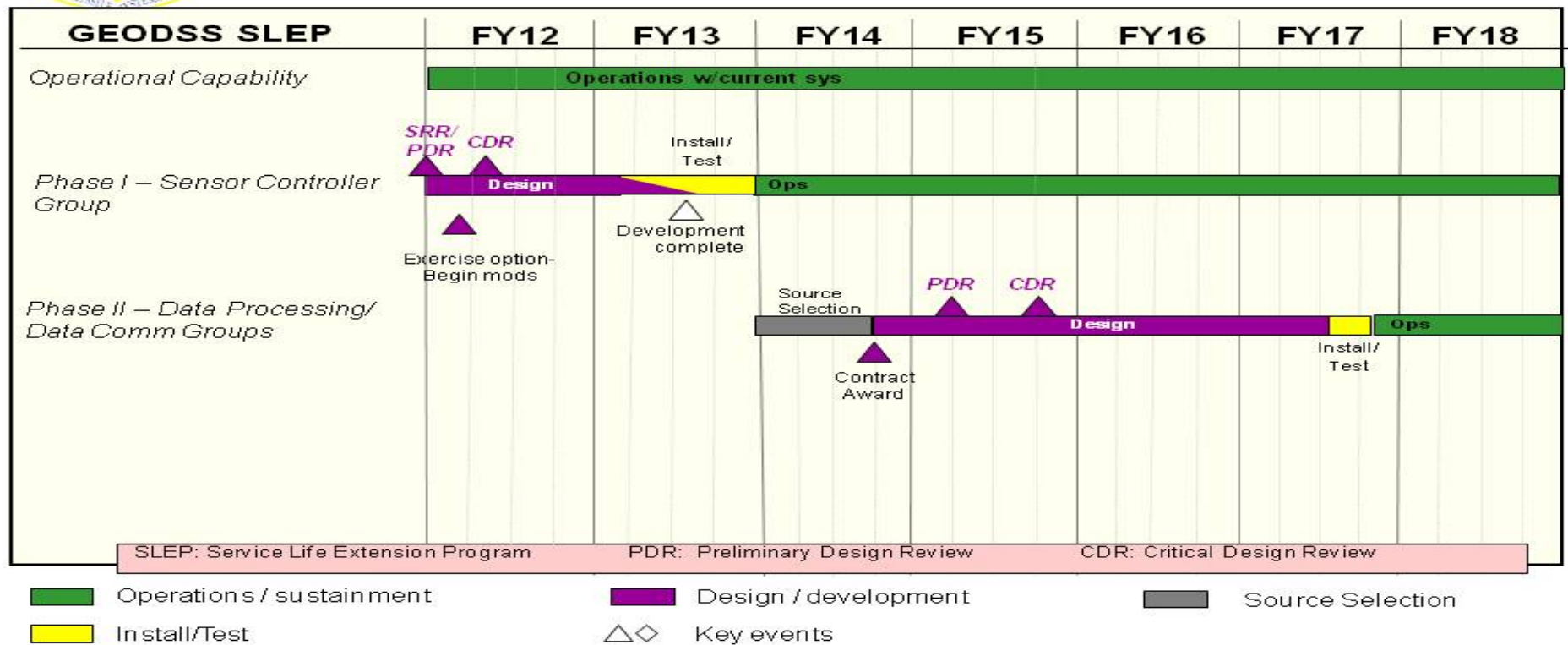
PE 0305940F: Space Situation Awareness Operations

PROJECT

67A017: Sensor Service Life Extension Program



GEODSS SLEP Schedule



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Exhibit R-4, RDT&E Schedule Profile: PB 2014 Air Force

DATE: April 2013

APPROPRIATION/BUDGET ACTIVITY

3600: Research, Development, Test & Evaluation, Air Force

BA 7: Operational Systems Development

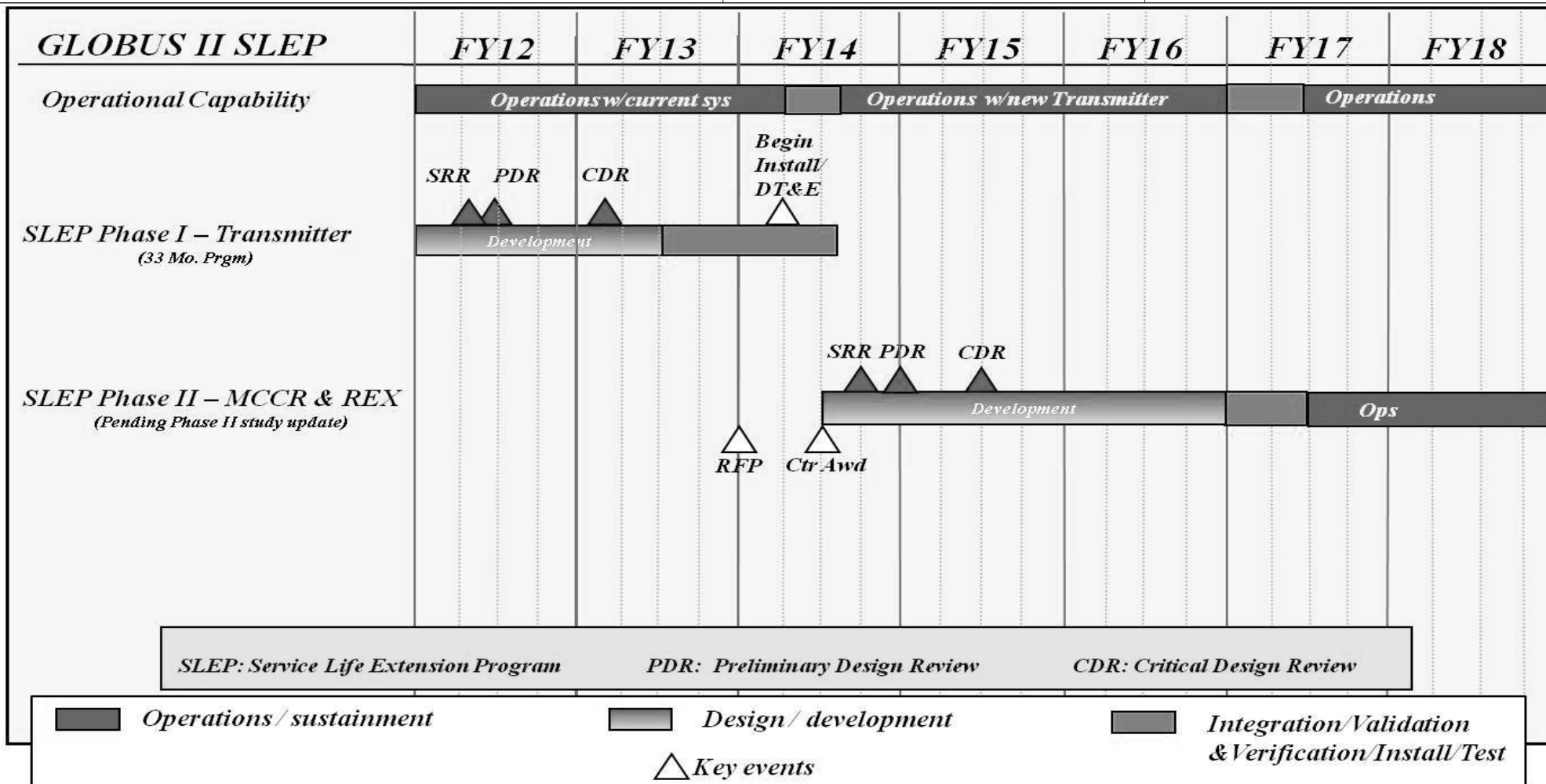
R-1 ITEM NOMENCLATURE

PE 0305940F: Space Situation Awareness

Operations

PROJECT

67A017: Sensor Service Life Extension Program



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Exhibit R-4A, RDT&E Schedule Details: PB 2014 Air Force			DATE: April 2013
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Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
Eglin Phase I CSPU IOC	2	2014	2	2014
Eglin Phase II PDR	4	2012	4	2012
HUSIR Antenna Complete/X-Band Ops Available	2	2013	3	2013
HUSIR System Acceptance Test	3	2013	1	2014
HUSIR X and W Band Ops	1	2014	1	2014
GEODSS Phase I PDR	1	2012	1	2012
GEODSS Phase I CDR	2	2012	2	2012
GEODSS Phase II Development Contract Award	3	2014	3	2014
Globus II Phase I PDR	2	2012	2	2012
Globus II Phase I CDR	1	2013	1	2013
Globus II Phase II Development Contract Award	3	2014	3	2014