Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Air Force										DATE: February 2010	
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*							
COST ($ in Millions)	**FY 2009 Actual**	**FY 2010 Estimate**	**FY 2011 Base Estimate**	**FY 2011 OCO Estimate**	**FY 2011 Total Estimate**	**FY 2012 Estimate**	**FY 2013 Estimate**	**FY 2014 Estimate**	**FY 2015 Estimate**	**Cost To Complete**	**Total Cost**
Total Program Element	15.579	53.805	43.838	0.000	43.838	26.744	31.486	81.568	69.969	Continuing	Continuing
67A017: *Sensor Service Life Extension Programs*	15.579	53.805	43.838	0.000	43.838	26.744	31.486	81.568	69.969	Continuing	Continuing

A. Mission Description and Budget Item Justification

Space Situational Awareness (SSA) is knowledge of all aspects of space related to operational sensing. The foundation for space control, SSA encompasses intelligence on adversary space operations; surveillance of all space objects and activities; detailed reconnaissance of specific space assets; monitoring space environmental conditions; monitoring cooperative space assets; and conducting integrated command, control, communications, processing, analysis, dissemination, and archiving activities. This program element fields, upgrades, operates and maintains Air Force sensors and information integration capabilities within the SSA network while companion program element 0604425F, Space Situation Awareness Systems, develops new network sensors and improved information integration capabilities across the network. Activities funded in this 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 Life Extension Programs (SLEPs) project funds efforts to upgrade and extend the lifetimes of operational Space Situation Awareness (SSA) sensors, as needed. These SLEPs include, but are not limited to, programs which, when combined with routine technological renewal, 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 capabilities not currently realized. Our current on-going efforts, Eglin, Haystack Ultra-wideband Satellite Imaging Radar (HUSIR), Ground-based Electro Optics 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.

Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Air Force	DATE: February 2010
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*

B. Program Change Summary ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Previous President's Budget	15.579	54.648	0.000	0.000	0.000
Current President's Budget	15.579	53.805	43.838	0.000	43.838
Total Adjustments	0.000	-0.843	43.838	0.000	43.838
• Congressional General Reductions		0.000			
• Congressional Directed Reductions		0.000			
• Congressional Rescissions	0.000	-0.843			
• Congressional Adds		0.000			
• Congressional Directed Transfers		0.000			
• Reprogrammings	0.000	0.000			
• SBIR/STTR Transfer	0.000	0.000			
• Other Adjustments	0.000	0.000	43.838	0.000	43.838

Change Summary Explanation

FY11: The FY 2010 President's Budget submittal did not reflect FY 2011 through FY 2015 funding. Therefore, explanation of changes between the two budget positions cannot be made in a relevant manner.

Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force			DATE: February 2010
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 Programs*	

COST ($ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
67A017: *Sensor Service Life Extension Programs*	15.579	53.805	43.838	0.000	43.838	26.744	31.486	81.568	69.969	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

A. Mission Description and Budget Item Justification

Space Situational Awareness (SSA) is knowledge of all aspects of space related to operational sensing. The foundation for space control, SSA encompasses intelligence on adversary space operations; surveillance of all space objects and activities; detailed reconnaissance of specific space assets; monitoring space environmental conditions; monitoring cooperative space assets; and conducting integrated command, control, communications, processing, analysis, dissemination, and archiving activities. This program element fields, upgrades, operates and maintains Air Force sensors and information integration capabilities within the SSA network while companion program element 0604425F, Space Situation Awareness Systems, develops new network sensors and improved information integration capabilities across the network. Activities funded in this 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.

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These efforts are in Budget Activity 7, Operational System Development, because they develop modifications for operational SSA sensors.

B. Accomplishments/Planned Program ($ in Millions)

Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force		DATE: February 2010
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 Programs*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
MAJOR THRUST Eglin SLEP: Extend the operational life of the AN/FPS-85 Radar, located at Eglin AFB, through 2018 by upgrading the hardware and software of the radar system to improve system operabi... *FY 2009 Accomplishments:* In FY 2009: Accomplished production and fielding of Eglin SLEP Phase I, Control and Signal Processor Upgrade (CSPU), which replaces radar system components that have become obsolete and are no longer available. *FY 2010 Plans:* In FY 2010: Complete CSPU production and fielding. Accomplish CSPU integration and test. Accomplish design and development of Eglin SLEP Phase II, Beam Steering Control Upgrade (BSCU), which replaces radar system components that have become obsolete and are no longer available. *FY 2011 Base Plans:* In FY 2011: Complete CSPU integration, test, and operational acceptance. CSPU will extend the radar system operational life to 2015. Complete BSCU design and development, and accomplish BSCU production and fielding. *FY 2011 OCO Plans:* In FY 2011 OCO: N/A	14.542	22.297	20.295	0.000	20.295
MAJOR THRUST Haystack Radar: upgrade X-band 1 MHz bandwidth Haystack Radar by adding W-band capability and enhancing imaging resolution. *FY 2009 Accomplishments:* In FY 2009: Fabricated antenna assemblies and Radome skin. Began connection of radar sub-assemblies.	1.037	21.087	5.840	0.000	5.840

Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force		DATE: February 2010
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B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
FY 2010 Plans: In FY 2010: Complete connection of sub-assemblies. Perform site preparation. Remove Radome, old antenna and equipment. Reskin the Radome and refurbish equipment to meet HUSIR requirements. Install back structure and assemblies, and perform yoke modifications. Replace the Radome and clean up site. *FY 2011 Base Plans:* In FY 2011: Complete installation of radar panels. Perform radar integration. Conduct and complete radar alignment, integration, and acceptance tests. Accept Radar. *FY 2011 OCO Plans:* In FY 2011 OCO: N/A					
MAJOR THRUST: Ground Based Electro-Optical Deep Space Surveillance System (GEODSS) Service Life Extension Program. Replace aging transmitter subsystems which are becoming unsupportable (some part... *FY 2009 Accomplishments:* In FY 2009: N/A *FY 2010 Plans:* In FY 2010: Award contract, conduct system requirements review, initiate system design and begin hardware and software trade studies. *FY 2011 Base Plans:* In FY 2011: Complete hardware and software trade studies, finish design and conduct design reviews, start software conversion and purchase hardware.	0.000	6.695	12.507	0.000	12.507

Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force		DATE: February 2010
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 Programs*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
FY 2011 OCO Plans: In FY 2011 OCO: N/A					
MAJOR THRUST: Globus II Service Life Extension Program. Replace aging and unsustainable hardware groups including the transmitter, mission critical computing resources (MCCR), and receiver-excite... *FY 2009 Accomplishments:* In FY 2009: N/A *FY 2010 Plans:* In FY 2010: Award contract for Increment I to replace the transmitter hardware/software group and initiate the design effort. *FY 2011 Base Plans:* In FY 2011: Continue Increment I and conduct design reviews. Prepare for initiation of Increment II in FY 2012. *FY 2011 OCO Plans:* In FY 2011 OCO: N/A	0.000	3.726	5.196	0.000	5.196
Accomplishments/Planned Programs Subtotals	15.579	53.805	43.838	0.000	43.838

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total	FY 2012	FY 2013	FY 2014	FY 2015	Cost To Complete	Total Cost
• PE Not Provided (7334): *Eglin Procurement*	0.000	0.200	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
• PE Not Provided (7346): *GEODSS Procurement*	0.000	0.000	2.248	0.000	2.248	0.000	5.391	0.000	1.659	0.000	0.000

Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force		DATE: February 2010
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 Programs*

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total	FY 2012	FY 2013	FY 2014	FY 2015	Cost To Complete	Total Cost
• PE Not Provided (7358): *Globus II Procurement*	0.000	0.000	0.000	0.000	0.000	5.759	0.000	0.000	32.872	0.000	0.000

D. Acquisition Strategy

The Eglin SLEP effort is replacing key radar items via an option on the System Engineering, Sustainment and Modernization (SENSOR) contract, competitively awarded to ITT Industries (now ITT Corporation) in 2002. The Air Force uses the SENSOR contract for sustaining and upgrading various Air Force radars, including the Eglin radar.

The Massachusetts Institute of Technology's Lincoln Laboratory (MIT/LL), a non-profit Federally-Funded Research & Development Center, performs the Haystack upgrade effort under a master contract with the Electronics System 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 per contract with the Air Force. MIT/LL will be responsible for operations and sustainment of the upgraded Haystack radar.

The GEODSS SLEP will be awarded as an option on the System Engineering and Sustainment Integrator (SENSOR) contract, competitively awarded to ITT Industries (now ITT Corporation) in 2002. The GEODSS SLEP will use an incremental development and deployment strategy to reduce risk.

The Globus II SLEP will be awarded as an option on the System Engineering and Sustainment Integrator (SENSOR) contract, competitively awarded to ITT Industries (now ITT Corporation) in 2002. The Globus II SLEP will use an incremental development and deployment strategy to reduce risk.

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 2011 Air Force			DATE: February 2010
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 Programs*	

Product Development ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 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
Eglin architecture development and life extension	C/CPAF	ITT Corporation Colorado Springs, CO	36.226	18.831	Oct 2009	16.949	Oct 2010	0.000		16.949	Continuing	Continuing	0.000
Haystack radar upgrade design and build	SS/FP	MIT Lincoln Laboratory Lexington, MA	35.841	18.793	Oct 2009	3.518	Oct 2010	0.000		3.518	Continuing	Continuing	0.000
GEODSS design, development and life extension	C/CPAF	ITT Corporation Colorado Springs, CO	0.000	4.507	May 2010	6.906	Oct 2010	0.000		6.906	Continuing	Continuing	0.000
Globus II development and life extension	C/CPAF	ITT Corporation Colorado Springs, CO	0.000	2.977	Jul 2010	4.011	Oct 2011	0.000		4.011	Continuing	Continuing	0.000
Eglin Lincoln Lab technical support	SS/FP	MIT Lincoln Laboratory Lexington, MA	0.270	0.125	Nov 2009	0.125	Nov 2010	0.000		0.125	Continuing	Continuing	0.000
		Subtotal	72.337	45.233		31.509		0.000		31.509			0.000

Remarks

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Air Force		DATE: February 2010
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 Programs*

Support ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 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
Development review and management/L3	C/FP	L3 Engility Billerica, MA	1.335	0.000		0.000		0.000		0.000	Continuing	Continuing	0.000
Development review and management/PASS	C/FP	Odyssey Systems Wakefield, MA	2.067	1.187	Feb 2010	1.234	Feb 2011	0.000		1.234	Continuing	Continuing	0.000
Technical review and management/ETASS	C/FP	Jacobs Technology Tullahoma, TN	2.563	1.736	Jan 2010	2.128	Jan 2011	0.000		2.128	Continuing	Continuing	0.000
Specialized Cost Services	C/FP	Tecolote Research Inc Goleta, CA	0.000	0.218	Mar 2010	0.222	Mar 2011	0.000		0.222	Continuing	Continuing	0.000
Program Office Support	Various/ Various	Electronic Systems Center Hanscom AFB, MA and Peterson AFB, CO	4.360	5.431	Nov 2009	8.745	Nov 2010	0.000		8.745	Continuing	Continuing	0.000
		Subtotal	10.325	8.572		12.329		0.000		12.329			0.000

Remarks

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Air Force		DATE: February 2010
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 Programs*

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010 Cost	FY 2010 Award Date	FY 2011 Base Cost	FY 2011 Base Award Date	FY 2011 OCO Cost	FY 2011 OCO Award Date	FY 2011 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Test Support	Various/ Various	17th Test SQ SAFB, CO	0.074	0.000		0.000		0.000		0.000	0.000	0.074	0.000
		Subtotal	0.074	0.000		0.000		0.000		0.000	0.000	0.074	0.000

Remarks

	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	82.736	53.805		43.838		0.000		43.838			0.000

Remarks

Total Prior Years Cost may include only FY 2009 data.

Exhibit R-4, RDT&E Schedule Profile: PB 2011 Air Force		DATE: February 2010
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 Programs*

SSA Programs
GEODSS SLEP Schedule

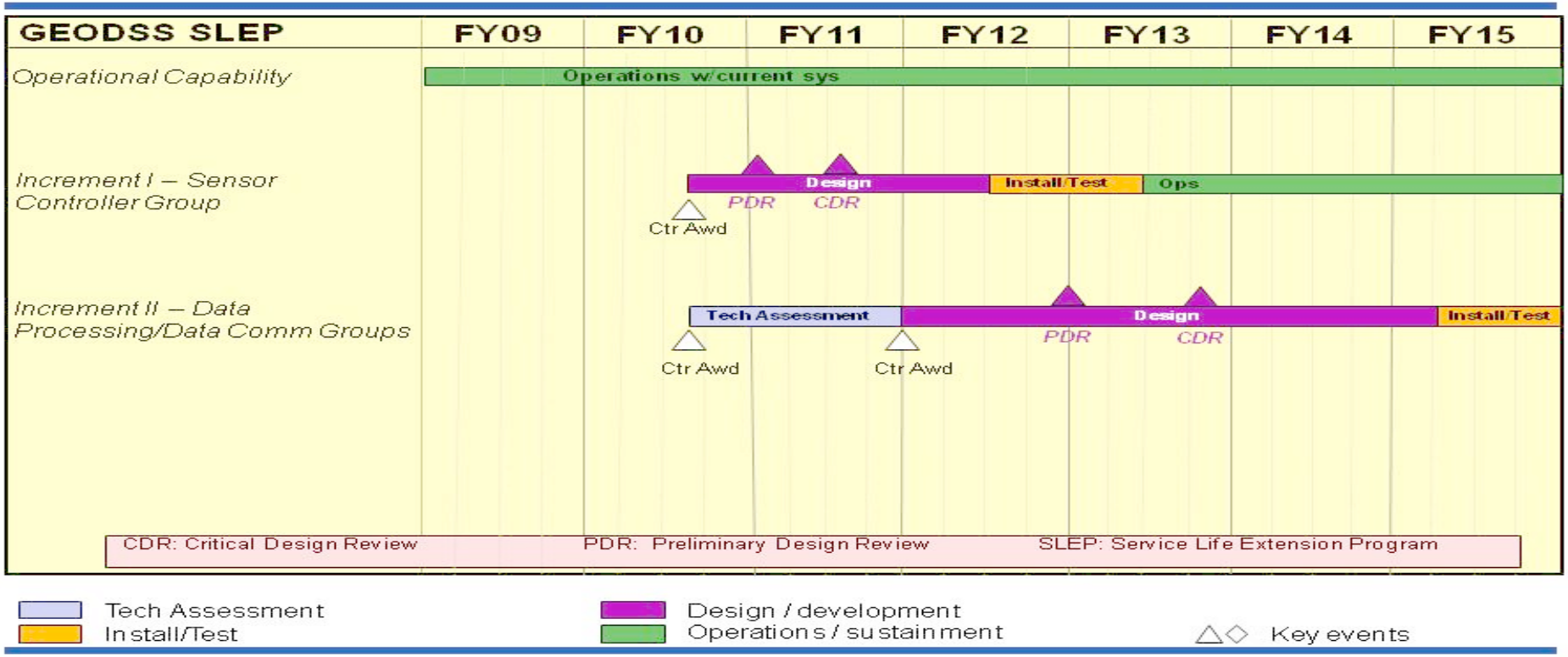

Exhibit R-4, RDT&E Schedule Profile: PB 2011 Air Force		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 3600: *Research, Development, Test & Evaluation, Air Force* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0305940F: *Space Situation Awareness Operations*	**PROJECT** 67A017: *Sensor Service Life Extension Programs*

SSA Programs
GLOBUS II SLEP Schedule

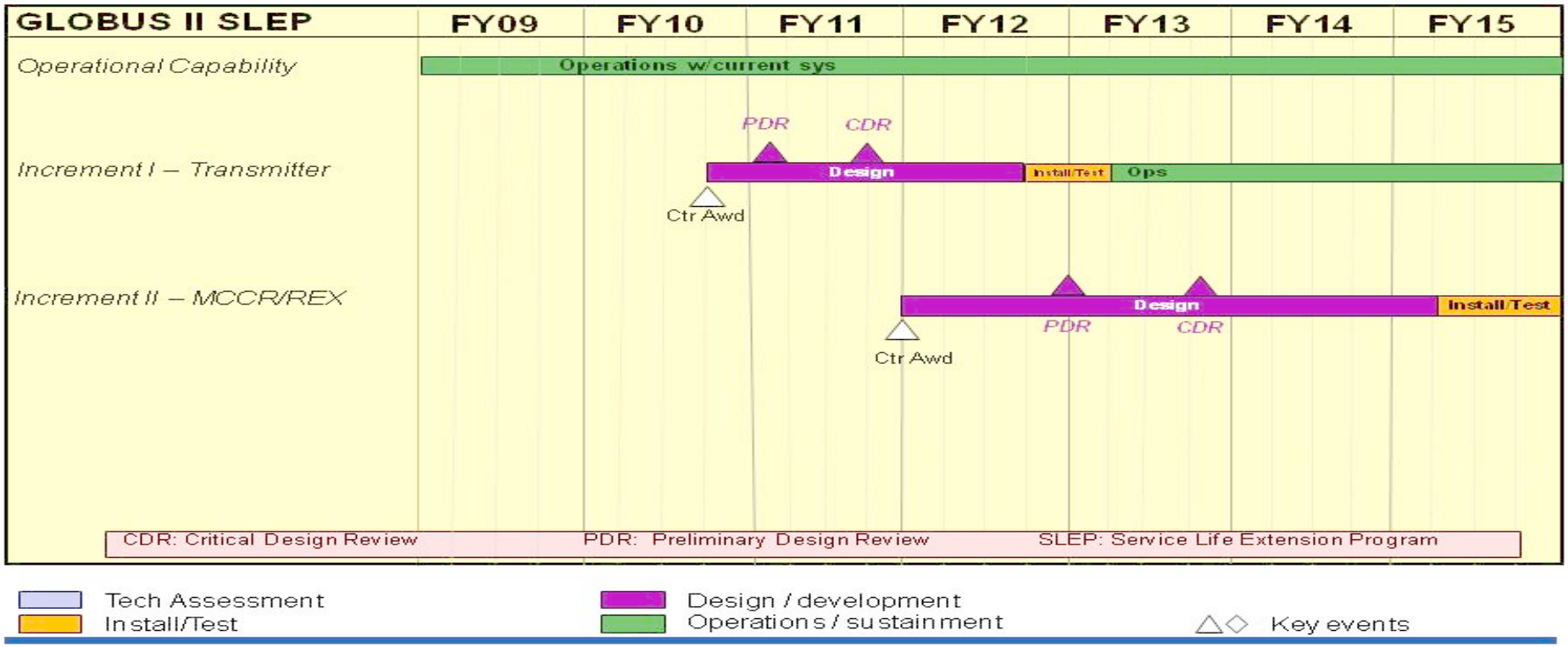

Exhibit R-4, RDT&E Schedule Profile: PB 2011 Air Force		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 3600: *Research, Development, Test & Evaluation, Air Force* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0305940F: *Space Situation Awareness Operations*	PROJECT 67A017: *Sensor Service Life Extension Programs*

SSA Programs
Sensor SLEPs Schedule

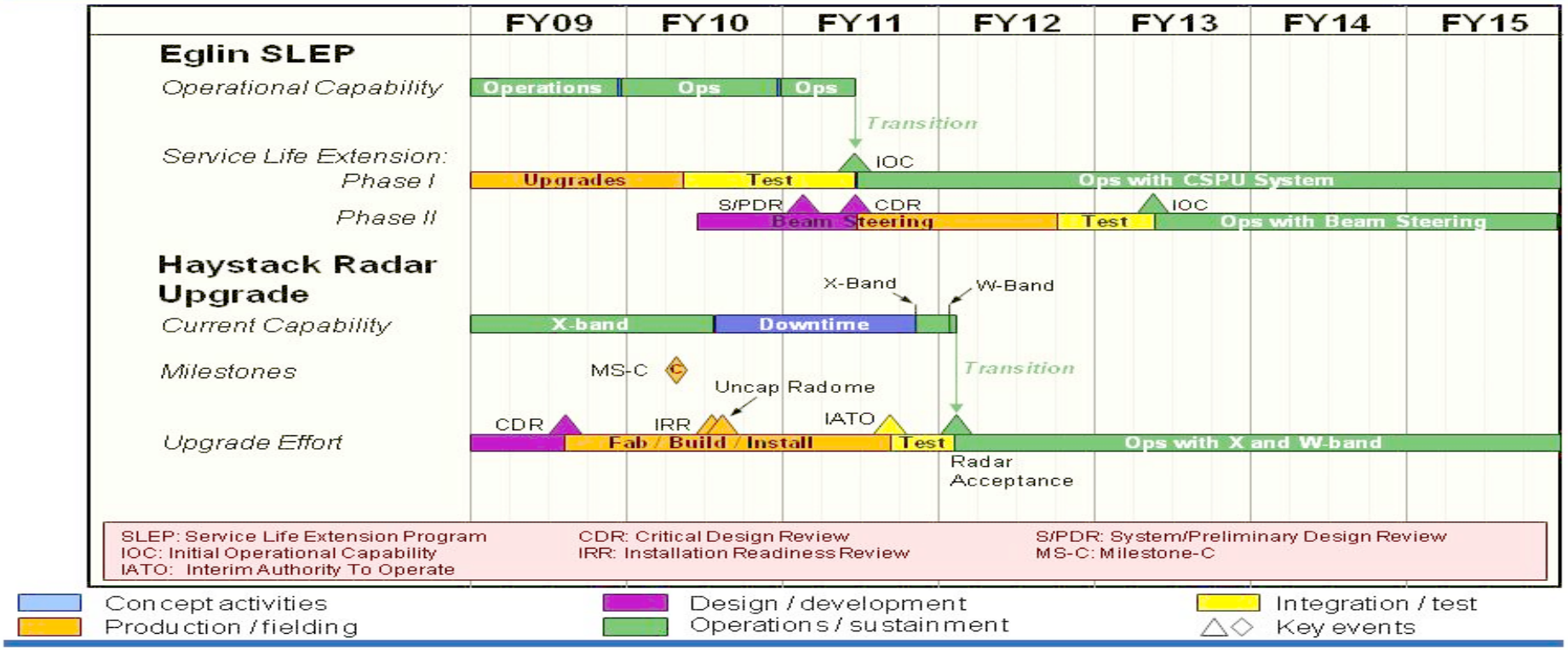

Exhibit R-4A, RDT&E Schedule Details: PB 2011 Air Force		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 3600: *Research, Development, Test & Evaluation, Air Force* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0305940F: *Space Situation Awareness Operations*	**PROJECT** 67A017: *Sensor Service Life Extension Programs*

Schedule Details

	Start		End	
Event	**Quarter**	**Year**	**Quarter**	**Year**
Eglin Phase II PDR	1	2011	1	2011
Eglin Phase II CDR	2	2011	2	2011
Eglin Phase I CSPU IOC	2	2011	2	2011
HUSIR CDR	1	2009	3	2009
HUSIR Milestone C	2	2010	2	2010
HUSIR Installation Readiness Review	3	2010	3	2010
Uncap Haystack Radome	3	2010	3	2010
HUSIR Antenna Complete	4	2011	4	2011
HUSIR FAB/Build/Install	3	2009	3	2011
HUSIR Test	3	2011	4	2011
GEODSS Contract Awards	3	2010	3	2010
GEODSS Increment I PDR	1	2011	1	2011
GEODSS Increment I CDR	3	2011	3	2011
Globus II Increment 1 Contract Award	4	2010	4	2010
Globus II Increment I PDR	1	2011	1	2011
Globus II Increment I CDR	4	2011	4	2011