

UNCLASSIFIED

PE NUMBER: 0305940F

PE TITLE: Space Situation Awareness Operations

Exhibit R-2, RDT&E Budget Item Justification	DATE February 2008
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BUDGET ACTIVITY 07 Operational System Development	PE NUMBER AND TITLE 0305940F Space Situation Awareness Operations
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Cost (\$ in Millions)	FY 2007 Actual	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	29.476	23.827	16.166	0.000	0.000	0.000	0.000	0.000	69.469
A017 Sensor Service Life Extension Programs	29.476	23.827	16.166	0.000	0.000	0.000	0.000	0.000	69.469

(U) A. Mission Description and Budget Item Justification

FY2008 funding totals do not include \$8.9M FY2008 GWOT requirements still pending Congressional consideration.

Space Situation Awareness (SSA) is knowledge of all aspects of space related to operations. The foundation for space control, it 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 sustains 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 Service Life Extension Programs (SLEPs) project funds efforts to upgrade and extend the lifetimes of operational Space Situation Awareness (SSA) sensors. The first of these, the Eglin SLEP, extends the lifetime of the one-of-a-kind AN/FPS-85 phased array radar at Eglin Air Force Base, Florida, dedicated to finding and tracking near Earth and deep space objects. Operational since 1968, this radar is the SSA network's largest tracker of objects in the manned flight region, and it tracks over half the objects in the Air Force space object catalog. The SLEP effort replaces aging, increasingly unsupportable radar components.

The second effort in this project, the Haystack Ultra-wideband Satellite Imaging Radar, upgrades the X-band Haystack radar at the Lincoln Space Surveillance Complex in Westford, Massachusetts. Haystack provides radar imagery, space object identification, and metric data to the Air Force to aid SSA operations. The upgrade effort builds a W-band high-power transmitter enabling object imaging with resolution significantly greater than that of the X-band system; it also replaces the existing antenna and processing equipment with more modern hardware and software compatible with W-band operations. The resulting architecture will enable seamless W- and X-band operations as well as easier switching between X-band space surveillance and radio astronomy activities. Greater radar resolution is necessary to maintain current levels of space object characterization since satellites are becoming smaller than ever, making X-band characterization of them increasingly difficult.

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

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(U) **B. Program Change Summary (\$ in Millions)**

	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Previous President's Budget	31.282	23.980	16.405
(U) Current PBR/President's Budget	29.476	23.827	16.166
(U) Total Adjustments	-1.806	-0.153	
(U) Congressional Program Reductions			
Congressional Rescissions		-0.153	
Congressional Increases			
Reprogrammings	-0.980		
SBIR/STTR Transfer	-0.826		
(U) <u>Significant Program Changes:</u>			
FY 2009: Reductions for higher Air Force priorities.			

Exhibit R-2a, RDT&E Project Justification

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Cost (\$ in Millions)	FY 2007 Actual	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total
A017 Sensor Service Life Extension Programs	29.476	23.827	16.166	0.000	0.000	0.000	0.000	0.000	69.469
Quantity of RDT&E Articles	0	0	0	0	0	0	0		

(U) **A. Mission Description and Budget Item Justification**

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Space Situation Awareness (SSA) is knowledge of all aspects of space related to operations. The foundation for space control, it 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 sustains 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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(U) <u>B. Accomplishments/Planned Program (\$ in Millions)</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Eglin radar life extension engineering design, development, and support	16.313	15.044	15.509
(U) Haystack radar upgrade engineering design, development, and support	13.163	8.783	0.657
(U) Total Cost	29.476	23.827	16.166

(U) <u>C. Other Program Funding Summary (\$ in Millions)</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U) Not Applicable									

(U) **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 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. 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.

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Exhibit R-3, RDT&E Project Cost Analysis

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BUDGET ACTIVITY				PE NUMBER AND TITLE					PROJECT NUMBER AND TITLE			
07 Operational System Development				0305940F Space Situation Awareness Operations					A017 Sensor Service Life Extension Programs			
(U) Cost Categories (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	Contract Method & Type	Performing Activity & Location	Total Prior to FY 2007 Cost	FY 2007 Cost	FY 2007 Award Date	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	Cost to Complete	Total Cost	Target Value of Contract
(U) <u>Product Development</u> Eglin architecture development and life extension	C/CPAF	ITT Industries, Colorado Springs, CO		13.184	Nov-06	12.652	Jun-07	12.879	Jun-07	0.000	38.715	
Haystack radar upgrade design and build	SS/FP-LOE	MIT Lincoln Laboratory, Lexington, MA		12.533	Oct-06	7.835	Oct-07	0.536	Oct-08	0.000	20.904	
Subtotal Product Development			0.000	25.717		20.487		13.415		0.000	59.619	0.000
Remarks:												
(U) <u>Support</u> Development review and management	C/FP-LOE	L3 / Engility, Billerica, MA		0.967	Nov-06	0.400	Nov-07	0.000	Nov-08	0.000	1.367	
Development review and management	C/FP-LOE	Odyssey Systems, Wakefield, MA	0.000	0.809	Jun-07	0.490	Jan-08	0.447	Nov-08		1.746	
Technical review and management	C/FP-LOE	Jacobs Technology, Tullahoma, TN	0.000	0.000		0.644	Jan-08	1.206	Jan-09		1.850	
Program Office Support	Various	Electronic Systems Center, Hanscom AFB, MA		1.983	Nov-06	1.806	Nov-07	1.098	Nov-08	0.000	4.887	
Subtotal Support			0.000	3.759		3.340		2.751		0.000	9.850	0.000
Remarks:												
(U) <u>Test & Evaluation</u> Not applicable											0.000	
Subtotal Test & Evaluation			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
(U) <u>Management</u> Not applicable											0.000	
Subtotal Management			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
(U) Total Cost			0.000	29.476		23.827		16.166		0.000	69.469	0.000

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Project A017

Exhibit R-3 (PE 0305940F)

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Exhibit R-4, RDT&E Schedule Profile

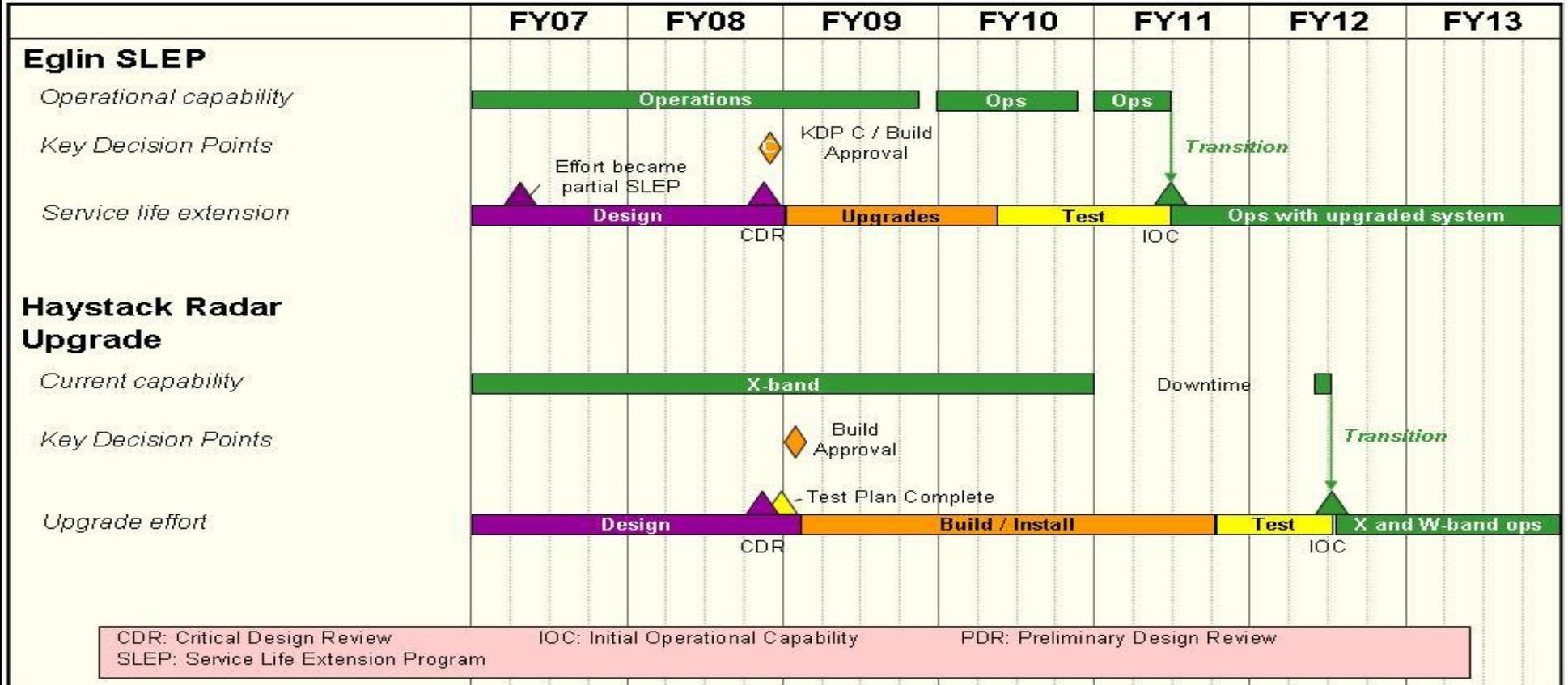
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PROJECT NUMBER AND TITLE
A017 Sensor Service Life Extension Programs



- Concept activities
- Design / development
- Production / fielding
- Operations / sustainment
- Integration / test
- Key events

Exhibit R-4a, RDT&E Schedule Detail

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(U) <u>Schedule Profile</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Eglin effort becomes partial SLEP	2Q		
(U) Eglin CDR		4Q	
(U) Eglin KDP C / Build Approval		4Q	
(U) Eglin - Build Upgraded Hardware			1-4Q
(U) Eglin Operations Acceptance			4Q
(U) Haystack CDR		4Q	
(U) Haystack Build Approval			1Q