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Exhibit R-2, RDT&E Budget Item Justification: PB 2016 Air Force										Date: February 2015		
Appropriation/Budget Activity 3600: Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development					R-1 Program Element (Number/Name) PE 0305940F I Space Situation Awareness Operations							
COST (\$ in Millions)	Prior Years	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
Total Program Element	-	11.911	11.408	20.077	-	20.077	8.583	-	-	-	-	51.979
67A017: Sensor Service Life Extension Program	-	11.911	11.408	20.077	-	20.077	8.583	-	-	-	-	51.979
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

In FY 2016, Project 67A017, Sensor Service Life Extension Program, includes a new start effort for Space Situational Awareness (SSA) Ops Demo.

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 and sustainable 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 Eglin SLEP, and Ground-based Electro Optical Deep Space Surveillance (GEODSS) are representative of sensor systems 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.

In FY 2016, Project 67A017, Sensor Service Life Extension Program, includes a new start effort for SSA Ops Demo. The SSA Ops Demo creates a survivable architecture which provides overlapping, assured, and viable surveillance options for executing simultaneous safety of flight and event response. The demonstration develops software modifications to exploit data from legacy systems and demonstrates automated cross-sensor tipping and cueing around the globe.

This program is in Budget Activity 7, Operational System Development because this budget activity includes development efforts to upgrade systems that have been fielded or have received approval for full rate production and anticipate production funding in the current or subsequent fiscal year.

The FY2016 funding request was reduced by \$0.651 million to account for the availability of prior execution balances.

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B. Program Change Summary (\$ in Millions)		FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
Previous President's Budget		12.684	11.596	10.862	-	10.862
Current President's Budget		11.911	11.408	20.077	-	20.077
Total Adjustments		-0.773	-0.188	9.215	-	9.215
• Congressional General Reductions		-	-0.188			
• Congressional Directed Reductions		-	-			
• Congressional Rescissions		-	-			
• Congressional Adds		-	-			
• Congressional Directed Transfers		-	-			
• Reprogrammings		-	-			
• SBIR/STTR Transfer		-0.773	-			
• Other Adjustments		-	-	9.215	-	9.215
Change Summary Explanation						
The FY2016 funding request was reduced by \$.651 million to account for the availability of prior execution balances						
FY2016: Added SSA Operations Demonstration project (+\$6.0M)						
FY2016: Zero Based Transfer from Procurement to RDTE (+\$4.0M)						
C. Accomplishments/Planned Programs (\$ in Millions)				FY 2014	FY 2015	FY 2016
Title: Eglin SLEP				7.572	1.412	-
Description: The Eglin SLEP extends the operational life of the AN/FPS-85 Radar, located at Eglin AFB, through 2018. The program performs upgrades to 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 2014 Accomplishments: Completed build and integration of 15 CAT 1 deficiencies, updated and verified tech orders, and completed formal Developmental Test and Evaluation (DT&E).						
FY 2015 Plans: Correcting any deficiencies from DT&E. Conducting Force Development Evaluation (FDE) and Trial Period. Achieving Operational Acceptance and conduct contract closeout.						
Title: HUSIR				0.203	-	-

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C. Accomplishments/Planned Programs (\$ in Millions)		FY 2014	FY 2015	FY 2016
Description: The HUSIR program 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 2014 Accomplishments: Completed W-Band I&T Testing, performed AF Radar acceptance W-Band Military Utility Assessment (MUA). Engaged in dual-band trial period. J65 certification completed the project on 28 Feb 2014.				
Title: SSA Ops Demo Description: The SSA Operational Demonstration creates a survivable architecture which provides overlapping, assured, and viable surveillance options for executing simultaneous safety of flight and event response. The demonstration develops software modifications to exploit data from legacy systems and demonstrates automated cross-sensor tipping and cueing around the globe. FY 2016 Plans: Will develop tip and cue software upgrades and begin preparations for follow-on test/demonstration. This is a new start in FY16.		-	-	5.960
Title: GEODSS SLEP Description: The GEODSS effort extends the operational life of the Ground Based Electro-Optical Deep Space Surveillance System (GEODSS). It 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 2014 Accomplishments: Completed Phase I of the SLEP, which included replacing the Sensor Controller Group. FY 2015 Plans: Awarding contract for GEODSS SLEP Phase II, which includes replacing the DPG. FY 2016 Plans: Will continue software development, conduct integration and development testing for GEODSS SLEP Phase II.		4.136	9.996	14.117
Accomplishments/Planned Programs Subtotals		11.911	11.408	20.077

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D. Other Program Funding Summary (\$ in Millions)											
<u>Line Item</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>FY 2016</u> <u>Base</u>	<u>FY 2016</u> <u>OCO</u>	<u>FY 2016</u> <u>Total</u>	<u>FY 2017</u>	<u>FY 2018</u>	<u>FY 2019</u>	<u>FY 2020</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• OPAF: BA03: Line Item #: 836790: <i>Space Mods Space</i>	-	3.124	-	-	-	2.172	-	-	-	-	5.313
Remarks											
The procurement funds will be used to acquire, install and test, mod kits for sites 2 and 3 of the GEODSS SLEP.											
E. Acquisition Strategy											
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. The radar continues to be operational during the SLEP.											
The Massachusetts Institute of Technology's Lincoln Laboratory (MIT/LL), a non-profit Federally-Funded Research & Development Center, performed the HUSIR effort under a master contract with the Air Force Life Cycle Management Center, in conjunction with support from other agencies as required. This effort was considered 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 is responsible for operations and sustainment of the upgraded Haystack radar. The upgrade effort was completed on 28 Feb 2014.											
The GEODSS SLEP was awarded as an Engineering Change Proposal on the SENSOR contract. The GEODSS SLEP uses a phased development and deployment strategy to reduce risk. The system is in operation during the SLEP and is considered post-Milestone C.											
F. 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.											

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Air Force												Date: February 2015			
Appropriation/Budget Activity 3600 / 7						R-1 Program Element (Number/Name) PE 0305940F / Space Situation Awareness Operations				Project (Number/Name) 67A017 / Sensor Service Life Extension Program					
Product Development (\$ in Millions)				FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	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/CPAF	Exelis/TBD : Colorado Springs, CO	-	5.294	Jan 2014	0.627	Dec 2014	-		-		-	-	5.921	-
HUSIR design and build	SS/FP	MIT Lincoln Lab : Lexington, MA	-	0.203	Jan 2014	-		-		-		-	-	0.203	-
GEODSS design, development and life extension	C/CPIF	Exelis/TBD : Colorado Springs, CO	-	2.016	Feb 2015	8.792	Jan 2015	12.362	Nov 2015	-		12.362	Continuing	Continuing	-
Tip & Cue software updates	C/TBD	Exelis/TBD : Colorrado Springs, CO	-	-		-		4.524	Dec 2015	-		4.524	Continuing	Continuing	-
Globus II SLEP	C/CPAF	Exelis : Colorado Springs, CO	-	-		-		-		-		-	Continuing	Continuing	-
Subtotal			-	7.513		9.419		16.886		-		16.886	-	-	-
Support (\$ in Millions)				FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	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	-	-		-		-		-		-	-	-	-
Technical review and management/ETASS	C/CPAF	Jacobs Technology : Tullahoma, TN	-	0.822	Jan 2014	0.547	Jan 2015	0.997	Jan 2016	-		0.997	Continuing	Continuing	-
Technical engineering/ MISC/JPL/travel	Various	MITRE : Various,	-	1.739	Oct 2013	0.336	Jan 2015	-		-		-	-	2.075	-
Subtotal			-	2.561		0.883		0.997		-		0.997	-	-	-

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Test and Evaluation (\$ in Millions)				FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	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	-	0.194	Jan 2015	-		-		-		-	-	0.194	-
Subtotal			-	0.194		-		-		-		-	-	0.194	-
Management Services (\$ in Millions)				FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	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	-	0.620	Apr 2014	0.284	Jan 2015	0.300	Jan 2016	-		0.300	Continuing	Continuing	7.788
Specialized Cost Services (SCS)	C/FP	Tecolote : Lexington,MA ColSpgs,CO,	-	0.474	Oct 2013	0.472	Nov 2014	0.480	Jan 2016	-		0.480	-	1.426	3.561
Program Office Mgmnt/ Infrastructure (PMA)	Various	AFLCMC : Lexington,MA ColSpgs,CO,	-	0.549	Jul 2014	0.350	May 2015	0.400	Jan 2016	-		0.400	Continuing	Continuing	16.626
Technical Support (LL)	SS/FP	MIT Lincoln Laboratory : Lexington, MA	-	-		-		1.014	Dec 2015	-		1.014	Continuing	Continuing	-
Subtotal			-	1.643		1.106		2.194		-		2.194	-	-	-
			Prior Years	FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals			-	11.911		11.408		20.077		-		20.077	-	-	-
Remarks															

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Exhibit R-4, RDT&E Schedule Profile: PB 2016 Air Force			Date: February 2015		
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	FY 2014				FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Eglin Phase I CSPU IOC																												
HUSIR System Acceptance Test																												
HUSIR X and W Band Ops																												
GEODSS Phase II Development																												
SSA Ops Demo																												

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Exhibit R-4A, RDT&E Schedule Details: PB 2016 Air Force			Date: February 2015
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Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
Eglin Phase I CSPU IOC	1	2015	2	2015
HUSIR System Acceptance Test	1	2014	1	2014
HUSIR X and W Band Ops	1	2014	2	2014
GEODSS Phase II Development	2	2015	3	2017
SSA Ops Demo	2	2016	4	2017