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Exhibit R-2, RDT&E Budget Item Justification: PB 2019 Air Force										Date: February 2018		
Appropriation/Budget Activity 3600: Research, Development, Test & Evaluation, Air Force I BA 5: System Development & Demonstration (SDD)					R-1 Program Element (Number/Name) PE 1206426F I Space Fence							
COST (\$ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
Total Program Element	420.888	162.510	35.937	20.215	0.000	20.215	0.000	0.000	0.000	0.000	0.000	639.550
65A009: Space Fence	420.888	162.510	35.937	20.215	0.000	20.215	0.000	0.000	0.000	0.000	0.000	639.550
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		
Program MDAP/MAIS Code: 438												
<p>Note FY2015 through FY2017 budgeted in PE 0604426F.</p> <p>A. Mission Description and Budget Item Justification The Space Fence effort will develop a system of ground-based sensors to improve upon the former Air Force Space Surveillance System (AFSSS), a Very High Frequency (VHF) radar operational from 1961 to 2013. The Space Fence will provide a more accurate and timely detection capability of smaller orbiting objects, primarily in low-earth orbit (LEO). The system will use higher frequency S-band radars at globally dispersed sites. As a result, it will greatly expand the uncued detection and tracking capacity of the Space Surveillance Network, from around 20,000 to 100,000+ objects, while working in concert with other network sensors. Requirements are identified in the June 2012 approved Space Fence Capabilities Development Document (CDD).</p> <p>The current and future space domain demands that space systems be responsive to new and changing threats, and can rapidly integrate new capabilities to make our warfighting force more resilient in a contested battlespace. This agility, survivability, and rapid reconstitution must extend through the entire space warfighting enterprise, to include how we learn about the threat; develop solutions; acquire, test, deploy, train, operate and integrate new systems into the greater system of systems; and ensure our space mission force is ready to defeat a thinking adversary in a complex, multi-domain battlespace. The enterprise will use all of its elements to accelerate decision-making, prototype potential solutions, rapidly integrate decision-making tools and sustain a war-winning capability by delivering multi-domain effects in, from, and through space and cyberspace enabling battle management and resilience options to "fight through."</p> <p>This program element may include necessary civilian pay expenses required to manage, execute, and deliver Space Fence weapon system capability. The use of such program funds would be in addition to the civilian pay expenses budgeted in program elements 0605826F, 0605827F, 0605828F, 0605829F, 0605830F, 0605831F, 0605832F, and 0605898F.</p> <p>This program is in Budget Activity 5, System Development and Demonstration (SDD) because it has passed Milestone B approval and is conducting engineering and manufacturing development tasks aimed at meeting validated requirements prior to full-rate production.</p>												

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B. Program Change Summary (\$ in Millions)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	
Previous President's Budget	168.364	35.937	5.267	0.000	5.267	
Current President's Budget	162.510	35.937	20.215	0.000	20.215	
Total Adjustments	-5.854	0.000	14.948	0.000	14.948	
• Congressional General Reductions	0.000	0.000				
• Congressional Directed Reductions	0.000	0.000				
• Congressional Rescissions	0.000	0.000				
• Congressional Adds	0.000	0.000				
• Congressional Directed Transfers	0.000	0.000				
• Reprogrammings	0.000	0.000				
• SBIR/STTR Transfer	-5.854	0.000				
• Other Adjustments	0.000	0.000	14.948	0.000	14.948	
Change Summary Explanation						
FY2019: \$14.948M increase due to requirements for Risk Management Framework (RMF) and Coherent Integration.						
C. Accomplishments/Planned Programs (\$ in Millions)				FY 2017	FY 2018	FY 2019
Title: Space Fence				162.510	35.937	20.215
Description: Develops S-band SSA radar system to provide detection and tracking capability of objects in Low Earth Orbit.						
FY 2018 Plans: Complete commissioning of facility infrastructure and validation of facility requirements. Complete contractor installation, checkout and formal on-site contractor test of the system at the Kwajalein Atoll, Marshall Islands and the Space Fence Operations Center (SOC) at the Reagan Test Site Operations Center-Huntsville (ROC-H). Obtain Interim Authority to Test (IATT) and Authorization to Connect (ATC) from the Army for the Space Fence System. Obtain ATC from A6 for Integrated Test Bed (ITB) connection to SOC. Conduct 60 day Cyber Security Control Assessment. Conduct Developmental Test Readiness Review (DTRR) to confirm and certify readiness to enter Developmental Test and Evaluation (DT&E). Conduct government DT&E. Secure test assets and test support for government testing. Continue verification of technical data and parameters in an operational environment. Conduct Cyber Risk Assessment of the Sensor Site 1 (SS1) and SOC. Perform Cyber Penetration Testing at SS1. Conduct a formal Adversarial Cybersecurity DT&E Assessment at SS1 and SOC followed by a formal Cooperative Vulnerability Penetration Assessment (CVPA). Continue Functional Configuration Audit (FCA) and Physical Configuration Audit (PCA) progress. Continue organic depot maintenance activation planning. Initiate preparations for the second radar site, including studies, investigations, and site surveys in support of Full Operational Capability (FOC). Continue program office and other related support activities that may include, but are not limited to studies, technical analysis, etc.						
FY 2019 Plans:						

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C. Accomplishments/Planned Programs (\$ in Millions)		FY 2017	FY 2018
<p>Conduct weapon system enhancement development. Complete government DT&E. Obtain Authority to Operate (ATO). Enter into and complete dedicated Initial Operational Test and Evaluation (IOT&E). Conduct Trial Period. Receive certified/verified technical orders and manuals from Original Equipment Manufacturer (OEM). Continue organic depot maintenance activation planning to execute turnover of hardware and software depot maintenance support in mid FY 2021. Complete FCA and PCA. Complete government material inspection and receipt of SS1 and SOC. Continue preparations for the second radar site, including studies, investigations, and site surveys in support of FOC. Continue program office support and other activities that may include, but are not limited to studies, technical analysis, etc. Rapidly respond to implement system resiliency and situational awareness necessary to operate in the contested space domain. Activities may include, but are not limited to program office support, studies, technical analysis, prototyping, etc.</p> <p><i>FY 2018 to FY 2019 Increase/Decrease Statement:</i> FY 2019 decreased compared to FY 2018 by \$15.722M. Justification for this decrease is described in plans above.</p>			
Accomplishments/Planned Programs Subtotals		162.510	35.937
D. Other Program Funding Summary (\$ in Millions)			
Line Item	FY 2017	FY 2018	FY 2019 Base OCO FY 2019 Total FY 2020 FY 2021 FY 2022 FY 2023 Cost To Complete Total Cost
• SPAF 01 Line Item SPCFNC: <i>Space Fence</i>	-	-	51.361 - 51.361 55.760 - - - 0.000 107.121
Remarks			
E. Acquisition Strategy			
<p>A single Engineering Manufacturing and Development (EMD) Production and Deployment contract was awarded on 2 June 2014 to Lockheed Martin Mission Systems and Training. The contract will take the contractor through Critical Design Review (CDR), fabrication, integration, test, production and deployment, with up to two years of Interim Contractor Support (ICS). The program will utilize a two increment approach. Increment 1/Initial Operational Capability (IOC) will consist of successful operations at the first radar site located on the Kwajalein Atoll and the SOC at ROC-H. Increment 2 (contract option)/FOC will include completion of the second radar at a location which is to be determined pending a separate Memorandum of Agreement (MOA) decision approval and negotiations with the proposed host nation.</p>			
F. 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>			

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2019 Air Force												Date: February 2018			
Appropriation/Budget Activity 3600 / 5						R-1 Program Element (Number/Name) PE 1206426F / Space Fence				Project (Number/Name) 65A009 / Space Fence					
Product Development (\$ in Millions)				FY 2017		FY 2018		FY 2019 Base		FY 2019 OCO		FY 2019 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
Space Fence Development	C/FPIF	Lockheed Martin : Moorestown, NJ	387.916	134.781	Nov 2016	23.064	Aug 2018	16.960	Feb 2019	-		16.960	0.000	562.721	911.115
Various (Independent Program Assessment, site survey, software, Site Activation Task Force (SATAF), Space Fence Operations Center (SOC))	Various	Various : Various	6.844	10.579	Jan 2017	1.501	Nov 2017	0.094	Nov 2018	-		0.094	0.000	19.018	-
Space Fence Design Oversight and Management	SS/FP	MIT Lincoln Laboratory : Lexington, MA	2.300	0.488	Jan 2017	0.640	Dec 2017	0.000		-		0.000	0.000	3.428	-
Subtotal			397.060	145.848		25.205		17.054		-		17.054	0.000	585.167	N/A
Remarks															
Prior to FY15 all funds were executed and reported in PE 0604425F (Space Situational Awareness Systems)															
Product Development: \$774.994M															
Test and Evaluation (\$ in Millions)				FY 2017		FY 2018		FY 2019 Base		FY 2019 OCO		FY 2019 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 - 96th Cyberspace Test Group (CTG)	PO	96th CTG : Eglin AFB, FL	2.644	1.880	Dec 2016	2.365	Dec 2017	0.000		-		0.000	0.000	6.889	-
Test - Joint Interoperability Test Command	MIPR	Joint Interoperability Test Command : Fort Huachuca, AZ	0.049	0.064	Feb 2017	0.185	Jan 2018	0.000		-		0.000	0.000	0.298	-
Subtotal			2.693	1.944		2.550		0.000		-		0.000	0.000	7.187	N/A
Remarks															
Prior to FY15 all funds were executed and reported in PE 0604425F (Space Situational Awareness Systems)															
Test and Evaluation: \$1.366M															

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PE 1206426F: *Space Fence* **UNCLASSIFIED**
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Exhibit R-4, RDT&E Schedule Profile: PB 2019 Air Force	Date: February 2018
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Appropriation/Budget Activity 3600 / 5	R-1 Program Element (Number/Name) PE 1206426F / <i>Space Fence</i>	Project (Number/Name) 65A009 / <i>Space Fence</i>
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	FY 2017				FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023			
	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
<i>Space Fence</i>																												
Increment 1 EMD																												
Development Test and Evaluation																												
Initial Operational Test and Evaluation																												
Initial Operational Capability (IOC) Increment 1																												

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Exhibit R-4A, RDT&E Schedule Details: PB 2019 Air Force			Date: February 2018
Appropriation/Budget Activity 3600 / 5	R-1 Program Element (Number/Name) PE 1206426F / <i>Space Fence</i>	Project (Number/Name) 65A009 / <i>Space Fence</i>	

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<i>Space Fence</i>				
Increment 1 EMD	1	2017	3	2019
Development Test and Evaluation	4	2018	1	2019
Initial Operational Test and Evaluation	2	2019	3	2019
Initial Operational Capability (IOC) Increment 1	3	2019	3	2019