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Exhibit R-2, RDT&E Budget Item Justification: FY 2018 Air Force										Date: May 2017		
Appropriation/Budget Activity					R-1 Program Element (Number/Name)							
3600: Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development					PE 1203174F I Space Innovation, Integration and Rapid Technology Development							
COST (\$ in Millions)	Prior Years	FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total	FY 2019	FY 2020	FY 2021	FY 2022	Cost To Complete	Total Cost
Total Program Element	-	1.543	3.070	11.390	0.000	11.390	11.178	11.383	11.584	11.821	Continuing	Continuing
67A011: Space Analysis and Application Development	-	1.543	3.070	11.390	0.000	11.390	11.178	11.383	11.584	11.821	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

## Note

In FY2018, PE 0305174F, Space Innovation, Integration and Rapid Technology Development efforts were transferred to PE 1203174F, Space Innovation, Integration and Rapid Technology Development due to the creation of a new Major Force Program for Space. FY2016 and FY2017 funding is now documented in the exhibits for PE 1203174F.

## A. Mission Description and Budget Item Justification

Located at Peterson AFB, Colorado, the Space Innovation, Integration and Rapid Technology Development program develops and modifies modeling and simulation tools that Air Force Space Command's Space Analysis Center uses for operations research, military utility analyses, tradeoff studies, and other evaluations of space mission areas to guide planning, programming, requirements generation, analyses of alternatives, and other activities. Development activities incorporate changes in fielded and projected space operational capabilities, as well as technical improvements, into the group's software tools to ensure their data and technology remain current. Its innovation, education, and training activities foster solutions to operational deficiencies and enhance the integration of space systems into Air Force operations, thereby enabling service and joint warfighters to realize the full potential of existing and planned space capabilities.

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.

B. Program Change Summary (\$ in Millions)	FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total
Previous President's Budget	1.543	7.785	2.957	0.000	2.957
Current President's Budget	1.543	3.070	11.390	0.000	11.390
Total Adjustments	0.000	-4.715	8.433	0.000	8.433
• 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	0.000	0.000			
• Other Adjustments	0.000	-4.715	8.433	0.000	8.433

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Change Summary Explanation FY2018: \$8.433M increase to meet USSTRATCOM-led Joint Space Doctrine and Tactics Forum requirement to develop more accurate modeling and analytical tools for depicting space contributions across all phases of conflict. Funds subject matter expertise to develop space modeling, simulation and analysis tools at the engagement, mission and campaign levels for 15 different warfighter mission areas.				
C. Accomplishments/Planned Programs (\$ in Millions)		FY 2016	FY 2017	FY 2018
Title: Model/Tool Development and Capability Upgrades		0.741	1.474	5.484
Description: Develops, verifies, and validates models for space and cyber mission areas and modifies existing models to portray new capabilities. Advancing M&S tools to incorporate space effects at the campaign, mission and engagement levels with the goal of enhancing decision support, visualization, exercise and wargaming. The space and cyber MS&A Models are used for military utility analyses, trade studies, and other evaluations of space/cyber programs supporting program offices at the Space and Missile Center, HQ AFSPC and other activities with a space/cyber focus.				
FY 2016 Accomplishments: Developed and modified several models and tools in support of space and cyber analysis.				
SSNAM – Produced 180 days of simulated data on 100,000 satellites to support JMS testing and validation				
SEAS - Updated tool to support Warfighter Vignette Analysis efforts providing AFSPC leadership insights into the impact of space and cyberspace capabilities on military operations. Supported Space Enterprise Vision (SEV) and Joint Space Doctrine and Tactics Forum (JSDTF) analysis of the impact of space capabilities on warfighting operations in a contested environment.				
STORM – Updated tool to capture the impact of Space-Based Infrared System (SBIRS) capabilities on achieving Air Superiority in an Anti-Access/Area Denial (A2/AD) environment				
FY 2017 Plans: Develop and modify several models and tools in support of space and cyber analysis. Continue building on FY 2016 activities.				
SSNAM – Continue support to JMS and support analysis for changes to the Space Surveillance Network				
STORM - Improve space/cyber representation in STORM. Enhance STORM non-lethal effects modeling supporting JSDTF				
SEAS – Continued improvements for space/cyber representation enabling simulation of joint military force interactions utilizing these capabilities (JP 3-14, 64 Joint Mission Threads)				
Other model modifications as needed based on leadership questions and future AoAs				

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<b>Appropriation/Budget Activity</b> 3600: <i>Research, Development, Test &amp; Evaluation, Air Force I BA 7: Operational Systems Development</i>		<b>R-1 Program Element (Number/Name)</b> PE 1203174F <i>I Space Innovation, Integration and Rapid Technology Development</i>		
<b>C. Accomplishments/Planned Programs (\$ in Millions)</b>		<b>FY 2016</b>	<b>FY 2017</b>	<b>FY 2018</b>
<p>Jamming and Intercept Advance Notice Tool (JIANT):</p> <p>Develops defensive counterspace software tools to provide operational security/mission protection capabilities to counter near-peer investments in ground-based jammers/overhead collection assets. Provides enhanced overhead protection capability which can perform link-budget calculations to improve efficacy of collection vulnerability warnings to deployed troops and SATCOM centric capabilities. Provides timely analysis necessary to expedite countermeasures to enemy jamming activities.</p> <p>Tiny-Tattle:</p> <p>Modifies software on Low Probability of Intercept/ Detection (LPI/LPD)small Size Weight and Power (SWaP)Target, Tracking and Locating (TTL) devices used via AFSPC Space/Cyber-associated tools/assets supporting Joint/SOF National Mission Force. Project exploits the investment made in other Space Command developments and provides a TTL device that works world-wide without dependencies on other platforms. Upgrades will provide increased situational awareness and assist in reducing fratricide.</p> <p>Fly Swatter:</p> <p>Develops prototype sensor to detect small UAVs (commercial class) via AFSPC Space/Cyber-associated tools/assets supporting Joint/SOF National Mission Force that are used by insurgents. Provides engineering level testing of prototype sensors against a range of commercially available drones capable of ISR activities or deli...</p> <p><b>FY 2018 Plans:</b></p> <p>Develop and modify several models and tools in support of space and cyber analysis. Continue building on FY 2017 activities.</p> <p>SSNAM – Continue support to JMS and analysis and studies of the Space Surveillance Network</p> <p>SEAS/STORM – Continue to produce technically sound and responsive space/cyberspace analyses analyzing warfighter ops in a highly-contested environment in support of national and military needs (SEV and JSDTF)</p> <p>Other model modifications as needed based on leadership questions and future AoAs</p>				
<p><b>Title:</b> Model Verification</p> <p><b>Description:</b> Verification of changes made to models.</p> <p><b>FY 2016 Accomplishments:</b></p> <p>Verified model changes resulting from Model Development and Modification efforts.</p> <p><b>FY 2017 Plans:</b></p>		0.324	0.645	2.385

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<b>C. Accomplishments/Planned Programs (\$ in Millions)</b>	<b>FY 2016</b>	<b>FY 2017</b>	<b>FY 2018</b>
Verification of model changes resulting from Model Development and Modification efforts.			
<b>FY 2018 Plans:</b> Verification of model changes resulting from Model Development and Modification efforts.			
<b>Title:</b> Model Validation <b>Description:</b> Validated model change results.	0.478	0.951	3.521
<b>FY 2016 Accomplishments:</b> Validated model changes resulting from Model Development and Modification efforts.			
<b>FY 2017 Plans:</b> Validation of model changes resulting from Model Development and Modification efforts.			
<b>FY 2018 Plans:</b> Validation of model changes resulting from Model Development and Modification efforts.			
<b>Accomplishments/Planned Programs Subtotals</b>	1.543	3.070	11.390

  

<b>D. Other Program Funding Summary (\$ in Millions)</b>											
<b>Line Item</b>	<b>FY 2016</b>	<b>FY 2017</b>	<b>FY 2018 Base</b>	<b>FY 2018 OCO</b>	<b>FY 2018 Total</b>	<b>FY 2019</b>	<b>FY 2020</b>	<b>FY 2021</b>	<b>FY 2022</b>	<b>Cost To Complete</b>	<b>Total Cost</b>
• OPAF: BA03: Line Item # 834010: <i>General Information Technology</i>	1.221	1.481	0.709	0.000	0.709	0.617	0.627	0.639	0.000	Continuing	Continuing
<b>Remarks</b> Funding and content procures equipment for the SIIRTD AFSPC Virtual Analysis Capability (AVAC) system. Supports space and cyber modeling and analysis using a variety of Linux and Windows based hardware and software suites.											
<b>E. Acquisition Strategy</b> Any new projects funded in this program will be awarded using competitive procedures to the maximum extent possible.											
<b>F. Performance Metrics</b> 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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<b>Exhibit R-3, RDT&amp;E Project Cost Analysis: FY 2018 Air Force</b>													<b>Date: May 2017</b>		
<b>Appropriation/Budget Activity</b> 3600 / 7						<b>R-1 Program Element (Number/Name)</b> PE 1203174F / <i>Space Innovation, Integration and Rapid Technology Development</i>					<b>Project (Number/Name)</b> 67A011 / <i>Space Analysis and Application Development</i>				

  

<b>Product Development (\$ in Millions)</b>				<b>FY 2016</b>		<b>FY 2017</b>		<b>FY 2018 Base</b>		<b>FY 2018 OCO</b>		<b>FY 2018 Total</b>			
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Prior Years</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
Develop/modify software tools/models	C/FP	Various : Various	-	0.602	Nov 2015	1.220	Mar 2017	4.576	Mar 2018	0.000		4.576	Continuing	Continuing	-
Develop/modify software tools and models	C/FP	Various : Various	-	0.941	Nov 2015	1.850	Jan 2017	6.814	Jan 2018	0.000		6.814	Continuing	Continuing	-
<b>Subtotal</b>			-	1.543		3.070		11.390		0.000		11.390	-	-	-

  

<b>Support (\$ in Millions)</b>				<b>FY 2016</b>		<b>FY 2017</b>		<b>FY 2018 Base</b>		<b>FY 2018 OCO</b>		<b>FY 2018 Total</b>			
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Prior Years</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
<b>Subtotal</b>			-	-		-		-		-		-	-	-	-

  

<b>Test and Evaluation (\$ in Millions)</b>				<b>FY 2016</b>		<b>FY 2017</b>		<b>FY 2018 Base</b>		<b>FY 2018 OCO</b>		<b>FY 2018 Total</b>			
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Prior Years</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
<b>Subtotal</b>			-	-		-		-		-		-	-	-	-

  

<b>Management Services (\$ in Millions)</b>				<b>FY 2016</b>		<b>FY 2017</b>		<b>FY 2018 Base</b>		<b>FY 2018 OCO</b>		<b>FY 2018 Total</b>			
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Prior Years</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
<b>Subtotal</b>			-	-		-		-		-		-	-	-	-

  

			<b>Prior Years</b>	<b>FY 2016</b>		<b>FY 2017</b>		<b>FY 2018 Base</b>		<b>FY 2018 OCO</b>		<b>FY 2018 Total</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
<b>Project Cost Totals</b>			-	1.543		3.070		11.390		0.000		11.390	-	-	-

  

<b>Remarks</b>															
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Exhibit R-4, RDT&E Schedule Profile: FY 2018 Air Force			Date: May 2017
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 1203174F / <i>Space Innovation, Integration and Rapid Technology Development</i>	Project (Number/Name) 67A011 / <i>Space Analysis and Application Development</i>	

	FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021				FY 2022			
	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
Model development/modification, verification, and validation																												

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Exhibit R-4A, RDT&E Schedule Details: FY 2018 Air Force		Date: May 2017
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 1203174F / <i>Space Innovation, Integration and Rapid Technology Development</i>	Project (Number/Name) 67A011 / <i>Space Analysis and Application Development</i>

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
Model development/modification, verification, and validation	1	2016	4	2022