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Exhibit R-2, RDT&E Budget Item Justification: PB 2021 Air Force **Date:** February 2020

Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 4: Advanced Component Development & Prototypes (ACD&P)</i>	R-1 Program Element (Number/Name) PE 1206857F / <i>Space Rapid Capabilities Office</i>
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COST (\$ in Millions)	Prior Years	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
Total Program Element	-	288.289	26.885	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
64A020: <i>AF Funded ORSSats</i>	-	288.289	26.885	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note
PE 1206857F, Space Rapid Capabilities Office, changed from Operationally Responsive Space

A. Mission Description and Budget Item Justification

In FY 2021, PE 1206857F, Space Rapid Capabilities Office efforts were transferred to Appropriation 3620, Research, Development, Test & Evaluation, Space Force, PE 1206857SF, Space Rapid Capabilities Office from Appropriation 3600, Budget Activity 04 due to the creation of a new Appropriation for Space Force.

The Space Rapid Capabilities Office (Space RCO) mission is to expedite the development and fielding of operationally focused capabilities for immediate and near-term needs as directed by the Space RCO Board of Directors (BoD). Key operating principles include a short and narrow chain of command, overarching programmatic insight, early and prominent war fighter involvement, and small integrated teams within a single office to rapidly augment existing space capabilities when needed, to expand operational capability, reconstitute/replenish/protect critical space capabilities to reserve "continuity of operations" capability, and exploit space technological or operational innovations to increase U.S. advantage.

The Space RCO is ready to develop, test, train, and equip war fighter needs as they are identified at any time. First, the requirements must be validated by the commander, USSTRATCOM, acting through U.S. Space Command; second, the project must be approved by the Space RCO BoD; third, the project will be executed by the Space RCO. If the effort is initiated during execution year, it will be described in the next year's budget exhibit.

Space RCO is supporting the Air Force Research Lab (AFRL) developed Space Solar Power project to collect solar energy and provide uninterrupted, assured, and logistically agile power to expeditionary forces operating in unimproved areas such as forward operating bases. AFRL formulated the Space Solar Power Incremental Demonstrations and Research (SSPIDR) project to rapidly demonstrate this innovative technology via a series of Integrated Demos and Technology Development/Maturation efforts.

Space RCO is supporting Special Operations Forces-Space (SOF-Space) for Joint Special Operations Command (JSOC) until it's transferred to JSOC in FY 2021. SOF developments include visionary, tailored, and future Space/Cyber projects as well as to plan, develop, test and transition advanced technologies into space system prototypes and capabilities to meet known and emerging threats. Conduct architecture studies, modeling and simulation, technical development, integration and test activities in preparation for transition of critical technologies into prototype or space program of record.

In addition, Space RCO will conduct studies and analysis for future programs to support the BoD.

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This program element may include necessary civilian pay expenses required to manage, execute, and deliver Space RCO weapon system capabilities. The use of such program funds would be in addition to the civilian pay expenses budgeted in program elements 1206392F and 1206398F.

This effort is in Budget Activity 4, Advanced Component Development and Prototypes (ACD&P), because efforts are necessary to evaluate integrated technologies, representative modes or prototype systems in a high fidelity and realistic operating environment.

B. Program Change Summary (\$ in Millions)	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total
Previous President's Budget	298.445	51.627	35.929	0.000	35.929
Current President's Budget	288.289	26.885	0.000	0.000	0.000
Total Adjustments	-10.156	-24.742	-35.929	0.000	-35.929
• Congressional General Reductions	0.000	0.000			
• Congressional Directed Reductions	0.000	-24.742			
• 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	-10.156	0.000			
• Other Adjustments	0.000	0.000	-35.929	0.000	-35.929

Congressional Add Details (\$ in Millions, and Includes General Reductions)

Project: 64A020: *AF Funded ORSSats*

Congressional Add: *Blackjack*

Congressional Add Subtotals for Project: 64A020

Congressional Add Totals for all Projects

	FY 2019	FY 2020
	24.112	-
	24.112	-
	24.112	-

Change Summary Explanation

FY2020: -\$24.742M congressional reduction due to termination of ORS-8 Program

FY2021: Funds were transferred from RDT&E, Air Force to RDT&E, Space Force.

C. Accomplishments/Planned Programs (\$ in Millions)

	FY 2019	FY 2020	FY 2021
Title: Space RCO Solar Power	160.977	0.000	0.000
Description: Space RCO is developing the Solar Power project to collect solar energy and provide uninterrupted, assured, and logistically agile power to expeditionary forces operating in unimproved areas such as forward operating bases.			

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C. Accomplishments/Planned Programs (\$ in Millions)		FY 2019	FY 2020	FY 2021
<p>FY 2020 Plans: N/A</p> <p>FY 2021 Plans: N/A</p> <p>FY 2020 to FY 2021 Increase/Decrease Statement: N/A</p>				
<p>Title: Space RCO Board of Directors (BoD) Projects, Studies, and Analysis</p> <p>Description: Execute projects, studies, and analysis under rapid acquisition authorities inherent to the Space RCO, that address emergent capabilities and respond to validated requirements and other BoD approved efforts to meet needs in year of execution. In addition, provide systems engineering, program management support and civilian pay across all the Space RCO activities as well as perform modeling, simulation, analysis, and assess alternative concepts and requirements.</p> <p>FY 2020 Plans: Continue to initiate rapid acquisition projects, studies, and analysis that address emergent capabilities requirements and other Space RCO BoD approved efforts to meet warfighter needs. These activities may include, but are not limited to studies, technical analysis, experimentation, prototyping, modeling, etc. Continue ongoing systems engineering support of future mission development as well as Program Office support and potentially including Civilian pay. Activities may include, but are not limited to program office support, facilities, and studies. This Major Thrust includes items formerly under Operational Capabilities, Development, Enablers, Integration and Rapid Assembly, Integration & Test as well as Space RCO Development for FY 2020.</p> <p>FY 2021 Plans: N/A</p> <p>FY 2020 to FY 2021 Increase/Decrease Statement: N/A</p>		16.405	9.000	0.000
<p>Title: Support EO/IR Weather Systems</p> <p>Description: Rapidly exploit and infuse space technological and operational innovations to increase U.S. advantage.</p> <p>FY 2020 Plans: N/A</p> <p>FY 2021 Plans:</p>		74.400	0.000	0.000

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C. Accomplishments/Planned Programs (\$ in Millions)		FY 2019	FY 2020	FY 2021
N/A				
FY 2020 to FY 2021 Increase/Decrease Statement: N/A				
Title: Space Related Tactical Communications and Cyber Enhancements for SOF		12.395	17.885	0.000
Description: Provides enhanced communication and cyber capabilities to support tactical operations by Quick Reaction Forces (QRF) and Special Operations Forces (SOF).				
FY 2020 Plans:				
- ARAGORN - Extends limited comm capability in forward locations				
- IC CHAT - PKI capability for network chatting for deployed users with limited comm				
- Ka Band AIRCRAFT GEOLOCATION (KAG) - Improving SATCOM tracking and locating of enemy asset				
- EW SENSOR INTEGRATION (EWSI) - Adds additional customer sensors to JICD 4.2 fabric				
- AVALON - Determine feasibility of space-enabled cyber operations capability generation				
- CASIO - Improving geolocation capabilities for sensors and merged into COTS radios				
- SIDEWINDER - BANK of DETECTORS - Providing integration of deployed sensors into an operational architecture				
- Advanced TTL Handsets - Enabling operators to efficiently communicate regarding sensitive operations				
- Denied GPS Capabilities - Providing backup capability in GPS-denied areas				
- Friendly Force Tracking (FFT) Ground equipment - Create newer FFT devices needed to accept covert waveforms				
FY 2021 Plans: N/A				
FY 2020 to FY 2021 Increase/Decrease Statement:				

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C. Accomplishments/Planned Programs (\$ in Millions)	FY 2019	FY 2020	FY 2021
N/A			
Accomplishments/Planned Programs Subtotals	264.177	26.885	0.000

	FY 2019	FY 2020
Congressional Add: Blackjack	24.112	-
FY 2019 Accomplishments: Blackjack objectives are to demonstrate the military utility of lower cost payloads, leverage commercial architectures, and demonstrate on-orbit data processing and autonomy. Funds are being used to support DARPA in developing payload concepts to Preliminary Design Review, understanding of commercial networks, and initial ground capabilities.		
Congressional Adds Subtotals	24.112	-

D. Other Program Funding Summary (\$ in Millions)
N/A

Remarks

E. Acquisition Strategy

Expediently award contracts through Space RCO or partner organizations.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2021 Air Force **Date:** February 2020

Appropriation/Budget Activity 3600 / 4	R-1 Program Element (Number/Name) PE 1206857F / <i>Space Rapid Capabilities Office</i>	Project (Number/Name) 64A020 / <i>AF Funded ORSSats</i>
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Product Development (\$ in Millions)				FY 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Space RCO Solar Power	SS/CPFF	Northrop Grumman : Linthicum, MD	-	160.977	Jun 2019	-		-		-		-	Continuing	Continuing	-
Support EO/IR Weather	TBD	TBD : TBD	-	74.400	Sep 2019	-		-		-		-	Continuing	Continuing	-
Space RCO Board of Directors (BoD) Projects, Studies, and Analysis	TBD	Various : Various	-	7.357	Sep 2019	2.577	Mar 2020	-		-		-	Continuing	Continuing	-
Space Related Tactical Communications and Cyber Enhancements for SOF	C/TBD	Various : Various	-	12.395	Jul 2019	17.885	Jul 2020	-		-		-	0.000	30.280	30.280
Blackjack	MIPR	DARPA : Various	-	24.112	Jan 2019	-		-		-		-	Continuing	Continuing	-
Subtotal			-	279.241		20.462		-		-		-	Continuing	Continuing	N/A

Management Services (\$ in Millions)				FY 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
A&AS	Various	Various : Various	-	4.111	Dec 2018	0.898	Dec 2019	-		-		-	Continuing	Continuing	-
FFRDC	Various	Various : Various	-	4.937	Dec 2018	5.525	Dec 2019	-		-		-	Continuing	Continuing	-
Subtotal			-	9.048		6.423		-		-		-	Continuing	Continuing	N/A

			Prior Years	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals			-	288.289	26.885	-	-	-	Continuing	Continuing	N/A

Remarks

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Exhibit R-4A, RDT&E Schedule Details: PB 2021 Air Force		Date: February 2020
Appropriation/Budget Activity 3600 / 4	R-1 Program Element (Number/Name) PE 1206857F / <i>Space Rapid Capabilities Office</i>	Project (Number/Name) 64A020 / <i>AF Funded ORSSats</i>

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<i>Space Rapid Capabilities Office</i>				
Space RCO Solar Power	1	2019	4	2023
Space RCO Board of Directors (BoD) Projects, Studies, and Analysis	2	2019	4	2025
Blackjack	2	2019	4	2019
Support EO/IR Weather Systems	2	2019	4	2019
Space Related Tactical Communications and Cyber Enhancements for SOF	3	2019	4	2020