Exhibit R-2, RDT&E Budget Item Justification: PB 2022 Air Force											Date: May 2021	
Appropriation/Budget Activity 3600: *Research, Development, Test & Evaluation, Air Force* / BA 4: *Advanced Component Development & Prototypes (ACD&P)*					R-1 Program Element (Number/Name) PE 1206425F / *Space Situation Awareness Systems*							
COST ($ in Millions)	**Prior Years**	**FY 2020**	**FY 2021**	**FY 2022 Base**	**FY 2022 OCO**	**FY 2022 Total**	**FY 2023**	**FY 2024**	**FY 2025**	**FY 2026**	**Cost To Complete**	**Total Cost**
Total Program Element	-	29.013	0.000	0.000	0.000	0.000	-	-	-	-	-	-
640290: *Deep Space Advanced Radar Concept*	-	29.013	0.000	0.000	0.000	0.000	-	-	-	-	-	-
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

In FY 2021, PE 1206425F, Deep Space Advanced Radar Concept efforts were transferred to Appropriation 3620, Research, Development, Test & Evaluation, Space Force, PE 1206425SF Deep Space Advanced Radar Concept from Appropriation 3600, Budget Activity 04 due to the creation of a new Appropriation for Space Force.

Deep Space Advanced Radar Concept (DARC) will leverage ongoing defense science and technology efforts to mature radar concepts and technologies to develop and evaluate prototypes that demonstrate increased sensitivity, capacity, search rates, and scalability to detect, track and maintain custody of objects in deep space orbit. This effort will analyze and select the most promising technologies to move forward into system development and operations and a program of record (PoR). DARC will augment the Space Surveillance Network (SSN) as an additional sensor with increased capacity and capability for deep space object custody at Geosynchronous Earth Orbit (GEO).

Space acquisition must respond with speed and agility to emerging adversary threats. Space & Missile Systems Center (SMC) is transforming the organization and implementation of space acquisition to an enterprise approach, maximizing innovation and resiliency, leveraging international, commercial, and mission partnerships, and managing program/project priorities according to an integrated unclassified/classified enterprise space architecture. Expanding the appropriate acquisition authorities and contract mechanisms to deliver capability sooner, SMC will strategically execute experimentation, prototyping, risk reduction, and other efforts to develop new or repurpose capabilities.

This program element may include necessary civilian pay expenses required to manage, execute, and deliver the weapon system capability. 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.

Exhibit R-2, RDT&E Budget Item Justification: PB 2022 Air Force		Date: May 2021
Appropriation/Budget Activity 3600: *Research, Development, Test & Evaluation, Air Force* / BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 Program Element (Number/Name)** PE 1206425F / *Space Situation Awareness Systems*	

B. Program Change Summary ($ in Millions)	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total
Previous President's Budget	29.776	0.000	0.000	0.000	0.000
Current President's Budget	29.013	0.000	0.000	0.000	0.000
Total Adjustments	-0.763	0.000	0.000	0.000	0.000
• 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	-0.763	0.000			
• Other Adjustments	0.000	0.000	0.000	0.000	0.000

C. Accomplishments/Planned Programs ($ in Millions)	FY 2020	FY 2021	FY 2022
Title: DARC Technology Maturation and Prototype Development	0.000	0.000	0.000
Description: Deep Space Advanced Radar Concept (DARC) will leverage ongoing defense science and technology efforts to mature radar concepts and technologies to develop and evaluate prototypes that demonstrate increased sensitivity, capacity, search rates, and scalability to detect, track and maintain custody of objects in deep space orbit. This effort will analyze and select the most promising technologies to move forward into system development and operations and a PoR. ***FY 2021 Plans:*** N/A ***FY 2022 Plans:*** N/A			
Title: DARC Site 1 Operational Capability	29.013	0.000	0.000
Description: The Deep Space Advance Radar Capability Middle Tier Acquisition (MTA) activity will use knowledge gained through the Deep Space Advanced Radar Concept technology demonstration to identify system specifications and a Government Reference Architecture (GRA). The specification and GRA will then support a competition for a global Deep Space Capability system. This MTA activity will use market research and a Government Reference Architecture developed previously to provide the knowledge to determine the acquisition approach through further prototyping and/or rapid acquisition. The MTA activity will develop, test, and deliver three radar sites located strategically around the world to provide a global Deep Space Radar Capability to support Space Situational Awareness (SSA). The system will be responsive to regularly scheduled and			

Exhibit R-2, RDT&E Budget Item Justification: PB 2022 Air Force	Date: May 2021
Appropriation/Budget Activity 3600: *Research, Development, Test & Evaluation, Air Force* / BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 Program Element (Number/Name)** PE 1206425F / *Space Situation Awareness Systems*

C. Accomplishments/Planned Programs ($ in Millions)	FY 2020	FY 2021	FY 2022
un-scheduled tasks to locate, identify, characterize deep space objects and report the results to the SSN and Battle Management Command and Control locations. Leverage ongoing DARC Technology Maturation and Prototype Development efforts and defense science and technology efforts to initiate PoR for the DARC global radar capability. Supports standup of the DARC program office, award of contract for the DARC global radar capability, and completion of the engineering, manufacturing, and development of the first site through Critical Design Review (CDR). ***FY 2021 Plans:*** N/A ***FY 2022 Plans:*** N/A			
Accomplishments/Planned Programs Subtotals	29.013	0.000	0.000

D. Other Program Funding Summary ($ in Millions)

N/A

Remarks

E. Acquisition Strategy

Project utilizes existing DoD engineering and study contracts and activities to conduct science and technology development and data analysis activities. Preliminary/ critical design effort for the technology maturation and prototype commenced in FY 2017. A Broad Agency Announcement (BAA) was used to award seven Integrated System Engineering Team (ISET) contracts which allow for organizations to participate, advise the government, and gain insight into the prototype design and build. In May of 2019 DARC was designated as an Middle Tier Acquisition under Section 804 of the 2016 National Defense Authorization Act (NDAA). DARC PoR will be a full and open industry competition combining both University Affiliated Research Centers (UARC) and industry. The PoR will consist of three global, incrementally fielded, and simultaneously constructed sites during the years FY 2023 through FY 2025.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2022 Air Force			Date: May 2021
Appropriation/Budget Activity 3600 / 4	R-1 Program Element (Number/Name) PE 1206425F / *Space Situation Awareness Systems*	Project (Number/Name) 640290 / *Deep Space Advanced Radar Concept*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2020 Cost	FY 2020 Award Date	FY 2021 Cost	FY 2021 Award Date	FY 2022 Base Cost	FY 2022 Base Award Date	FY 2022 OCO Cost	FY 2022 OCO Award Date	FY 2022 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
DARC Concept Definition, Prototype Development and Analysis	SS/CPAF	JHL-APL : Laurel, MD	-	16.710	Jul 2020	-		-		-		-	-	-	-
DARC Concept Definition, Prototype Development and Analysis (1)	TBD	TBD : TBD	-	0.300	Feb 2020	-		-		-		-	-	-	-
		Subtotal	-	17.010		-		-		-		-	-	-	N/A

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2020 Cost	FY 2020 Award Date	FY 2021 Cost	FY 2021 Award Date	FY 2022 Base Cost	FY 2022 Base Award Date	FY 2022 OCO Cost	FY 2022 OCO Award Date	FY 2022 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Prototype System and Sustainment Analyses	PO	AFRL : Albuquerque, NM	-	0.010	Jan 2020	-		-		-		-	-	-	-
		Subtotal	-	0.010		-		-		-		-	-	-	N/A

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2020 Cost	FY 2020 Award Date	FY 2021 Cost	FY 2021 Award Date	FY 2022 Base Cost	FY 2022 Base Award Date	FY 2022 OCO Cost	FY 2022 OCO Award Date	FY 2022 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
A&AS	Various	Various : Various	-	5.350	Jul 2020	-		-		-		-	-	-	-
FFRDC	SS/FP	MITRE Corp : Colorado Springs, CO	-	6.100	Jul 2020	-		-		-		-	-	-	-
Other Support	Various	Various : Colorado Springs, CO	-	0.543	Jul 2020	-		-		-		-	-	-	-
		Subtotal	-	11.993		-		-		-		-	-	-	N/A

	Prior Years	FY 2020 Cost	FY 2020 Award Date	FY 2021 Cost	FY 2021 Award Date	FY 2022 Base Cost	FY 2022 Base Award Date	FY 2022 OCO Cost	FY 2022 OCO Award Date	FY 2022 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	-	29.013		0.000		-		-		-	-	-	N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2022 Air Force			Date: May 2021
Appropriation/Budget Activity 3600 / 4	R-1 Program Element (Number/Name) PE 1206425F / *Space Situation Awareness Systems*	Project (Number/Name) 640290 / *Deep Space Advanced Radar Concept*	

	Prior Years	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total	Cost To Complete	Total Cost	Target Value of Contract

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2022 Air Force		Date: May 2021
Appropriation/Budget Activity 3600 / 4	**R-1 Program Element (Number/Name)** PE 1206425F / *Space Situation Awareness Systems*	**Project (Number/Name)** 640290 / *Deep Space Advanced Radar Concept*

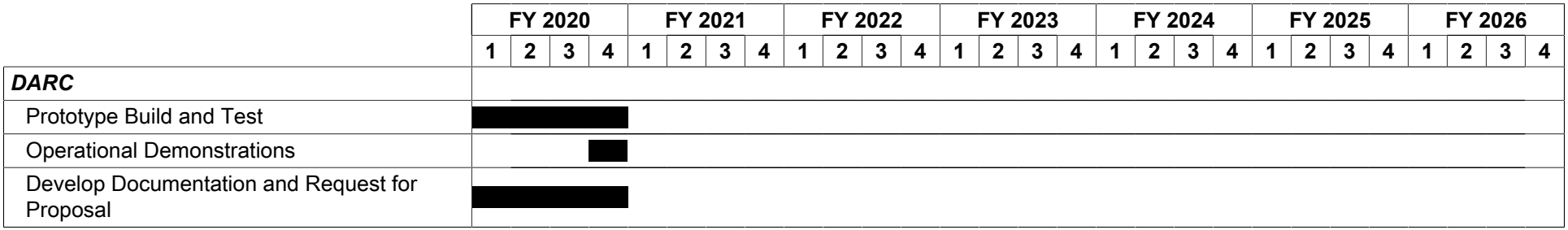

Exhibit R-4A, RDT&E Schedule Details: PB 2022 Air Force		Date: May 2021
Appropriation/Budget Activity 3600 / 4	**R-1 Program Element (Number/Name)** PE 1206425F / *Space Situation Awareness Systems*	**Project (Number/Name)** 640290 / *Deep Space Advanced Radar Concept*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
DARC				
Prototype Build and Test	1	2020	4	2020
Operational Demonstrations	4	2020	4	2020
Develop Documentation and Request for Proposal	1	2020	4	2020

Note

DARC Site 1 estimated completion date and Initial Operating Capability (IOC) is FY 2025.