Exhibit R-2, RDT&E Budget Item Justification: FY 2018 Air Force											Date: May 2017	
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 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	-	0.000	10.901	34.764	0.000	34.764	39.634	0.000	0.000	0.000	Continuing	Continuing
640290: *Deep Space Advanced Radar Concept*	-	0.000	10.901	34.764	0.000	34.764	39.634	0.000	0.000	0.000	Continuing	Continuing

A. Mission Description and Budget Item Justification

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 /or operations. 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). The DARC effort will coordinate with the Joint Space Operations Center (JSpOC) Mission System (JMS) program to ensure integration with enterprise data fusion and dissemination activities to support space battle management and command and control (BMC2).

This program 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 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total
Previous President's Budget	0.000	9.901	34.664	0.000	34.664
Current President's Budget	0.000	10.901	34.764	0.000	34.764
Total Adjustments	0.000	1.000	0.100	0.000	0.100
• 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	1.000	0.100	0.000	0.100

Change Summary Explanation

FY2017: $1.000M FY17 RAA for DARC.

Exhibit R-2A, RDT&E Project Justification: FY 2018 Air Force			Date: May 2017
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*	

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
640290: *Deep Space Advanced Radar Concept*	-	0.000	10.901	34.764	0.000	34.764	39.634	0.000	0.000	0.000	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

In FY2018, PE 0604425F, BA 04, Space Situational Awareness Systems efforts were transferred to PE 1206425F, BA 04, Space Situational Awareness Systems due to the creation of a new Major Force Program for Space. FY2016 and FY2017 funding is now documented in the exhibits for PE 1206425F BA 04.

A. Mission Description and Budget Item Justification

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 /or operations. 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). The DARC effort will coordinate with the JSpOC Mission System (JMS) program to ensure integration with enterprise data fusion and dissemination activities to support space battle management and command and control (BMC2). CY17 DARC was a new start.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2016	FY 2017	FY 2018
Title: DARC Technology maturation and prototype development	-	10.901	34.764
Description: 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. Provides technical support to oversee the design, development (PDR,CDR) and launch BAA of the DARC prototype.			
FY 2017 Plans: Identify and evaluate potential candidate radar concepts and technologies. Provide technical support to oversee design, development (Preliminary Design Review and Critical Design Review) and launch Broad Area Announcement (BAA) of the DARC prototype. Develop relevant technologies and conduct initial proof of concept demonstrations to inform future radar prototyping efforts.			
FY 2018 Plans: One of three DARC prototype developers will be selected, through a pre-established set of down-select criteria, to build their complete Critical Design Review for their proposed DARC prototype design. FY 2018 funds will support the purchase of prototype antenna apertures, preparations to bed down receiver and transmitter assets at the prototype development site, AFRL oversight of			

Exhibit R-2A, RDT&E Project Justification: FY 2018 Air Force		Date: May 2017
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B. Accomplishments/Planned Programs ($ in Millions)	FY 2016	FY 2017	FY 2018
the prototype build-out, infrastructure for the DARC prototype installation, and software development to facilitate the phase/timing of the DARC receive and transmit elements. Continue program office and other related support activities that may include, but are not limited to studies, technical analysis, etc.			
Accomplishments/Planned Programs Subtotals	-	10.901	34.764

C. Other Program Funding Summary ($ in Millions)

Line Item	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
• N/A: *N/A*	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	-	-

Remarks

D. 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, commence upon FY17 CRA end/New start approval. Broad agency announcement forms DARC Integrated SE Team. Following PDR & CDR down selects, prototype build, test & determination will occur.

E. 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.

Exhibit R-3, RDT&E Project Cost Analysis: FY 2018 Air Force			Date: May 2017
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 2016 Cost	FY 2016 Award Date	FY 2017 Cost	FY 2017 Award Date	FY 2018 Base Cost	FY 2018 Base Award Date	FY 2018 OCO Cost	FY 2018 OCO Award Date	FY 2018 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Concept Definition, Prototype Development and Analysis	Various	Various : Various	-	0.000		7.913	Mar 2017	27.650	Oct 2017	0.000		27.650	Continuing	Continuing	-
		Subtotal	-	0.000		7.913		27.650		0.000		27.650	-	-	-

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2016 Cost	FY 2016 Award Date	FY 2017 Cost	FY 2017 Award Date	FY 2018 Base Cost	FY 2018 Base Award Date	FY 2018 OCO Cost	FY 2018 OCO Award Date	FY 2018 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Prototype System and Sustainment Analyses	MIPR	AFRL : Albuquerque, NM	-	0.000		2.150	Mar 2017	4.000	Oct 2017	0.000		4.000	Continuing	Continuing	-
		Subtotal	-	0.000		2.150		4.000		0.000		4.000	-	-	-

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2016 Cost	FY 2016 Award Date	FY 2017 Cost	FY 2017 Award Date	FY 2018 Base Cost	FY 2018 Base Award Date	FY 2018 OCO Cost	FY 2018 OCO Award Date	FY 2018 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
		Subtotal	-	-		-		-		-		-	-	-	-

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2016 Cost	FY 2016 Award Date	FY 2017 Cost	FY 2017 Award Date	FY 2018 Base Cost	FY 2018 Base Award Date	FY 2018 OCO Cost	FY 2018 OCO Award Date	FY 2018 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
A&AS	Various	Various : Various	-	0.000		0.484	Mar 2017	1.400	Oct 2017	0.000		1.400	Continuing	Continuing	-
FFRDC	SS/FP	MITRE Corp : Colorado Springs, CO	-	0.000		0.329	Mar 2017	1.664	Oct 2017	0.000		1.664	Continuing	Continuing	-
Other Support	Various	SMC/SYG : Colorado Springs, CO	-	0.000		0.025	Mar 2017	0.050	Oct 2017	0.000		0.050	Continuing	Continuing	-
		Subtotal	-	0.000		0.838		3.114		0.000		3.114	-	-	-

Exhibit R-3, RDT&E Project Cost Analysis: FY 2018 Air Force			Date: May 2017
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 2016		FY 2017		FY 2018 Base		FY 2018 OCO		FY 2018 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	-	0.000		10.901		34.764		0.000		34.764	-	-	-

Remarks

Exhibit R-4, RDT&E Schedule Profile: FY 2018 Air Force		Date: May 2017
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*

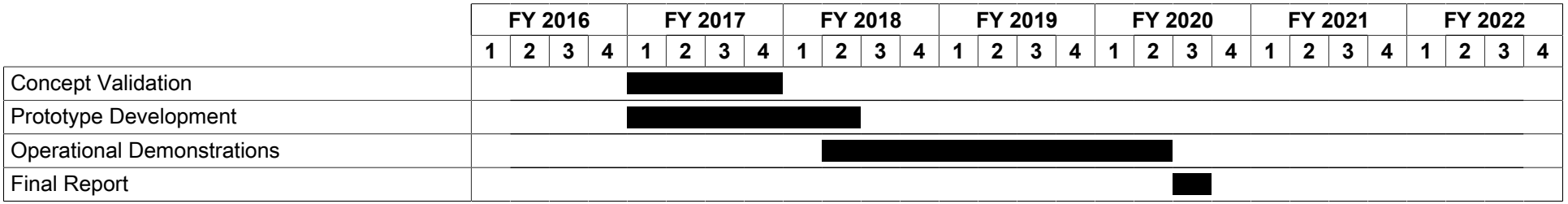

Exhibit R-4A, RDT&E Schedule Details: FY 2018 Air Force		Date: May 2017
Appropriation/Budget Activity 3600 / 4	**R-1 Program Element (Number/Name)** PE 1206425F / *Space Situation Awareness Systems*	**Project (Number/Name)** 640290 / *Deep Space Advanced Radar Concept*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
Concept Validation	1	2017	4	2017
Prototype Development	1	2017	2	2018
Operational Demonstrations	2	2018	2	2020
Final Report	3	2020	3	2020