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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 I BA 4: Advanced Component Development & Prototypes (ACD&P)					R-1 Program Element (Number/Name) PE 1206434F I Midterm Polar MILSATCOM System							
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	0.000	63.092	0.000	63.092	189.075	220.570	218.901	195.412	Continuing	Continuing
643720: EPS Recapitalization	-	0.000	0.000	63.092	0.000	63.092	189.075	220.570	218.901	195.412	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

In FY 2018, Project 657104, MILSATCOM SMI, funds were transferred from PE 1205431F, Advanced EHF MILSATCOM (SPACE), in order to transition from MILSATCOM Space Modernization Initiative to a stand alone program.

A. Mission Description and Budget Item Justification

The Midterm Polar System (MPS) will provide continuous, protected, Low Probability of Intercept (LPI)/Low Probability of Detection (LPD) communications to tactical warfighters in the North Polar region in benign and contested environments. MPS will develop and acquire 1) two Extremely High Frequency (EHF) payloads, using Advanced EHF's eXtended Data Rate (XDR) waveform, on dedicated or hosted spacecraft, 2) upgrades/modifications to the existing Enhanced Polar System (EPS) Control and Planning Segment (CAPS) to provide command and control and XDR mission planning capability, and 3) upgrades/modifications to the existing EPS gateway to provide connectivity between polar and midlatitude users through the Global information Grid.

The MPS program is timed to prevent a gap in Arctic MILSATCOM coverage after EPS end of life. To ensure polar MILSATCOM continuity beyond FY25, the DoD will begin funding activities to bridge the gap between the current EPS program and future protected systems being planned for the late 2020s. The DoD is currently examining both "free-flier" and payload hosting options. The scope of potential hosts to be considered will include the US government, international partners, and commercial systems. MPS will reuse EPS Gateway and ground control elements to the greatest extent feasible.

To meet the warfighter requirements for protected tactical polar MILSATCOM, RDT&E funding is required to continue program office and other related support activities that may include, but are not limited to studies, technical analysis, architectural development, acquisition strategy development, system requirements and system trades analysis, risk reduction activities, technology maturation, System Engineering, Integration and Test (SEIT) of all polar MILSATCOM segments and hosted payloads.

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.

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Appropriation/Budget Activity		R-1 Program Element (Number/Name)				
3600: Research, Development, Test & Evaluation, Air Force I BA 4: Advanced Component Development & Prototypes (ACD&P)		PE 1206434F I Midterm Polar MILSATCOM System				
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	0.000	0.000	0.000	0.000	
Current President's Budget	0.000	0.000	63.092	0.000	63.092	
Total Adjustments	0.000	0.000	63.092	0.000	63.092	
• 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	0.000	63.092	0.000	63.092	
Change Summary Explanation						
+\$63.092M, funds transferred from PE 1206431F, BPAC 657104 for Midterm Polar MILSATCOM effort.						
C. Accomplishments/Planned Programs (\$ in Millions)				FY 2016	FY 2017	FY 2018
Title: Acquisition Strategy Development and Source Selection				0.000	0.000	35.931
Description: Conduct market research to inform the development of an acquisition strategy. Develop acquisition strategy and Request for Proposal. Release RFP to industry, conduct source selection, and award the development contract.						
FY 2016 Accomplishments:						
N/A						
FY 2017 Plans:						
N/A						
FY 2018 Plans:						
Develop acquisition strategy and associated documentation required for MPS milestone decisions to comply with statutory and regulatory requirements. Develop Request for Proposal (RFP). Release Midterm Polar RFP to industry and conduct source selection. Award development contract and provide design and development oversight. Begin program office and other related support activities that may include, but are not limited to studies, technical analysis, etc.						
Title: Technical Baseline and Architectural Engineering				0.000	0.000	27.161
Description: Develop Midterm Polar technical baseline and architectural engineering.						
FY 2016 Accomplishments:						

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C. Accomplishments/Planned Programs (\$ in Millions)										FY 2016	FY 2017	FY 2018
N/A FY 2017 Plans: N/A FY 2018 Plans: Develop technical baseline and system requirements. Conduct studies to identify necessary upgrades/modifications to the EPS CAPS and EPS Gateway segment; execute risk reduction efforts and upgrades/modifications to sustain/modify these segments for MPS. Purchase long lead parts to drive down schedule risk. Conduct system architecture and trade analyses. Begin program office and other related support activities that may include, but are not limited to studies, technical analysis, etc.												
Accomplishments/Planned Programs Subtotals										0.000	0.000	63.092
D. 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	
• RDTE:BA05:PE 1206432F: Polar MILSATCOM (Space)	71.867	50.815	33.644	0.000	33.644	0.000	0.000	0.000	0.000	0.00	1,335.851	
Remarks												
E. Acquisition Strategy Conduct market research to identify industry capabilities and acquisition concepts. This information will inform the development of a program acquisition strategy that will provide the lowest risk and best value to the government. The acquisition strategy will also incorporate lessons learned from the EPS program and other recent space acquisition programs.												
F. 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.												

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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 1206434F / Midterm Polar MILSATCOM System				Project (Number/Name) 643720 / EPS Recapitalization					
Product Development (\$ in Millions)				FY 2016		FY 2017		FY 2018 Base		FY 2018 OCO		FY 2018 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
Mid-term Polar Tactical SV 1-2	TBD	TBD : TBD	-	0.000		0.000		22.968	Jul 2018	0.000		22.968	Continuing	Continuing	-
Long Lead Parts	Various	Various : TBD	-	0.000		0.000		10.000	Dec 2017	0.000		10.000	Continuing	Continuing	-
Gateway Upgrades	Various	Various : TBD	-	0.000		0.000		5.000	Apr 2018	0.000		5.000	Continuing	Continuing	-
Control and Planning Segment pgrades	TBD	Northrop Grumman Information Systems : Redondo Beach, CA	-	0.000		0.000		10.000	Apr 2018	0.000		10.000	Continuing	Continuing	-
Technical Mission Analysis	MIPR	Aerospace : El Segundo, CA	-	0.000		0.000		2.161	Jan 2018	0.000		2.161	Continuing	Continuing	-
Enterprise SE&I	C/CPAF	LinQuest : Los Angeles, CA	-	0.000		0.000		5.704	Jan 2018	0.000		5.704	Continuing	Continuing	-
Subtotal			-	0.000		0.000		55.833		0.000		55.833	-	-	-
Support (\$ in Millions)				FY 2016		FY 2017		FY 2018 Base		FY 2018 OCO		FY 2018 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
Subtotal			-	-		-		-		-		-	-	-	-
Test and Evaluation (\$ in Millions)				FY 2016		FY 2017		FY 2018 Base		FY 2018 OCO		FY 2018 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
Subtotal			-	-		-		-		-		-	-	-	-
Management Services (\$ in Millions)				FY 2016		FY 2017		FY 2018 Base		FY 2018 OCO		FY 2018 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
FFRDC	Various	Various : TBD	-	0.000		0.000		2.162	Jan 2018	0.000		2.162	Continuing	Continuing	-

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Appropriation/Budget Activity 3600 / 4						R-1 Program Element (Number/Name) PE 1206434F / <i>Midterm Polar MILSATCOM System</i>				Project (Number/Name) 643720 / <i>EPS Recapitalization</i>				

Management Services (\$ in Millions)				FY 2016		FY 2017		FY 2018 Base		FY 2018 OCO		FY 2018 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
Other Support	Various	Various : TBD	-	0.000		0.000		0.050	Jan 2018	0.000		0.050	Continuing	Continuing	-
A&AS	Various	Various : TBD	-	0.000		0.000		5.047	Jan 2018	0.000		5.047	Continuing	Continuing	-
Subtotal			-	0.000		0.000		7.259		0.000		7.259	-	-	-

	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	0.000	63.092	0.000	63.092	-	-	-

Remarks

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Exhibit R-4, RDT&E Schedule Profile: FY 2018 Air Force			Date: May 2017		
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	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
Risk Reduction Activities																												
Ground Segments Study																												
Long Lead Parts																												
Market Research																												
Release Request for Proposal (RFP)																												
Source Selection																												
CAPS & Gateway Modifications																												
Contract Award																												
Preliminary Design Review (PDR)																												
Critical Design Review (CDR)																												
Space Segment Design																												

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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 1206434F / <i>Midterm Polar MILSATCOM System</i>	Project (Number/Name) 643720 / <i>EPS Recapitalization</i>	

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
Risk Reduction Activities	1	2018	1	2019
Ground Segments Study	1	2018	1	2019
Long Lead Parts	1	2018	4	2019
Market Research	1	2018	1	2018
Release Request for Proposal (RFP)	2	2018	2	2018
Source Selection	3	2018	4	2018
CAPS & Gateway Modifications	3	2018	4	2021
Contract Award	4	2018	4	2018
Preliminary Design Review (PDR)	2	2020	2	2020
Critical Design Review (CDR)	2	2021	2	2021
Space Segment Design	4	2018	4	2022