Exhibit R-2, RDT&E Budget Item Justification: PB 2020 Air Force											Date: February 2019	
Appropriation/Budget Activity 3600: *Research, Development, Test & Evaluation, Air Force* / BA 5: *System Development & Demonstration (SDD)*					R-1 Program Element (Number/Name) PE 1206432F / *Polar MILSATCOM (SPACE)*							
COST ($ in Millions)	**Prior Years**	**FY 2018**	**FY 2019**	**FY 2020 Base**	**FY 2020 OCO**	**FY 2020 Total**	**FY 2021**	**FY 2022**	**FY 2023**	**FY 2024**	**Cost To Complete**	**Total Cost**
Total Program Element	317.362	32.536	26.380	427.400	0.000	427.400	192.000	129.455	35.550	10.072	10.342	1,181.097
654215: *EPS Recap*	0.000	0.000	0.000	427.400	0.000	427.400	192.000	129.455	35.550	10.072	10.342	804.819
657105: *Polar Satellite Communications*	317.362	32.536	26.380	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	376.278
Program MDAP/MAIS Code: 121												

Note

In FY 2020, Project 654215, EPS Recap, efforts were transferred from PE 1206434F, Midterm Polar MILSATCOM System, Project 643720, EPS Recapitalization, in order to better align with the Enhanced Polar System (EPS) program.

A. Mission Description and Budget Item Justification

This program element acquires the Polar MILSATCOM system that provides protected communications (anti-jam and low probability of intercept and detection) for users in the north polar region.

Through FY 2005, Polar Satellite Communications funded three low data rate Milstar packages on three classified host satellites as an expedited, interim solution for protected connectivity requirements in the north polar region (i.e., Interim Polar System (IPS)). Two satellites with hosted packages are required to provide the necessary 24-hour coverage. The third package went into operations in November 2008 to sustain the 24-hour coverage.

In FY 2006, the DoD began funding the next generation Polar Satellite Communications capability with two more polar packages via the same host vehicle type (i.e., EPS). The host spacecraft and the polar communications packages required design modifications that replaced obsolete components and took advantage of the more capable Advanced Extremely High Frequency (AEHF) technology including the eXtended Data Rate (XDR) waveform. The EPS Capability Development Document (CDD), approved by the Joint Requirements Oversight Council in September 2006, is based on a two-package, hosted XDR program with operational availability in CY 2015 and CY 2017. EPS is comprised of four segments: Payload, Ground Control, Gateway, and Terminal (acquired by each Service's Terminal Program Office). Milestone B review was completed April 2, 2014.

Beginning FY 2020, the EPS-Recapitalization (EPS-R) effort transferred from Program Element 1206434F, Midterm Polar MILSATCOM System to Program Element 1206432F, Polar MILSATCOM (SPACE). In FY 2020, EPS-R continues to develop and acquire two Extremely High Frequency (EHF) payloads on hosted spacecraft and continues to upgrade/modify the existing EPS Ground Control and Gateway.

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 Polar MILSATCOM 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.

Synch Polar Satellite Communications (SATCOM) with Family of Beyond Line-of-Sight Terminal (FAB-T) saved $19.1M in FY 2020. Synch Polar SATCOM with FAB-T Description: A two-year delay in strategic communications upgrades to Enhanced Polar System C2 network is necessary to synchronize SATCOM capabilities with airborne terminal fielding. In alignment with the National Defense Strategy, funds were applied to classified programs, which improve lethality.

Funding in this exhibit was previously budgeted in PE 0605432F, Polar MILSATCOM (SPACE), and PE 1206434F, Midterm Polar MILSATCOM System.

As directed in the FY 2018 NDAA, Sec 825, amendment to PL 114-92 FY 2016 NDAA, Sec 828 Penalty for Cost Overruns, the FY 2018 Air Force penalty total is $14.373M. The calculated percentage reduction to each research, development, test and evaluation and procurement account will be allocated proportionally from all programs, projects, or activities under such account.

This program is in Budget Activity 5, System Development and Demonstration (SDD) because it has passed Milestone B approval and is conducting engineering and manufacturing development tasks aimed at meeting validated requirements prior to full rate production.

B. Program Change Summary ($ in Millions)	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Previous President's Budget	33.644	27.337	0.000	0.000	0.000
Current President's Budget	32.536	26.380	427.400	0.000	427.400
Total Adjustments	-1.108	-0.957	427.400	0.000	427.400
• Congressional General Reductions	0.000	-0.957			
• 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	-1.108	0.000			
• Other Adjustments	0.000	0.000	427.400	0.000	427.400

Change Summary Explanation

FY 2020: +$446.461M, transferred from PE 1206434F, Midterm Polar MILSATCOM System, Project 643720, EPS Recapitalization; -$19.061M, to synchronize strategic requirements with the Force Element Terminal (FET) initial operational capability.

Exhibit R-2A, RDT&E Project Justification: PB 2020 Air Force			Date: February 2019
Appropriation/Budget Activity 3600 / 5	R-1 Program Element (Number/Name) PE 1206432F / *Polar MILSATCOM (SPACE)*	Project (Number/Name) 654215 / *EPS Recap*	

COST ($ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
654215: *EPS Recap*	0.000	0.000	0.000	427.400	0.000	427.400	192.000	129.455	35.550	10.072	10.342	804.819
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

In FY 2020, Project 654215, EPS Recap, efforts were transferred from PE 1206434F, Midterm Polar MILSATCOM System, Project 643720, EPS Recapitalization, in order to better align with the Enhanced Polar System (EPS) program.

A. Mission Description and Budget Item Justification

This program element acquires the Polar MILSATCOM system (EPS) and the continuation effort, EPS Recapitalization (EPS-R) providing protected communications (anti-jam and low probability of intercept and detection) for users in the north polar region and prevents a gap in Arctic MILSATCOM coverage in the mid to late 2020s.

In FY 2018, via PE 1206434F the DoD funded EPS-R to develop and acquire 1) two Extremely High Frequency (EHF) payloads, using Advanced EHF's (AEHF's) eXtended Data Rate (XDR) waveform, on hosted spacecraft, 2) upgrades/modifications to the existing 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 Department of Defense Information Networks (DODIN). EPS-R intends to host the payloads on a Space Norway bus scheduled to launch in CY 2022. EPS-R will reuse EPS Gateway and ground control elements to the greatest extent feasible.

To meet the warfighter requirements for protected tactical and strategic polar MILSATCOM, RDT&E funding is required to continue program office and other related support activities including, but are not limited to studies, technical analysis, architectural development, technology maturation, System Engineering, Integration and Test of all polar MILSATCOM segments and hosted payloads.

Programs and projects in the space warfighting enterprise are evaluating ways to maximize innovation, resiliency, and our ability to rapidly respond to known and emerging threats. Space enterprise efforts aim to execute technology risk reduction efforts, integration of new or repurposed capabilities, enterprise decision-making tools, experimentation, and rapid prototyping and fielding via all appropriate acquisition authorities and contract mechanisms.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2018	FY 2019	FY 2020
Title: Space Segment	0.000	0.000	366.432
Description: Develop and acquire two EHF payloads, using AEHF's XDR waveform, for integration on host spacecraft.			
FY 2019 Plans: N/A			
FY 2020 Plans:			

Exhibit R-2A, RDT&E Project Justification: PB 2020 Air Force		Date: February 2019
Appropriation/Budget Activity 3600 / 5	**R-1 Program Element (Number/Name)** PE 1206432F / *Polar MILSATCOM (SPACE)*	**Project (Number/Name)** 654215 / *EPS Recap*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2018	FY 2019	FY 2020
In FY 2020 this thrust title was changed from Payload to Space Segment. Continue development, production, and testing of the two payloads that were initiated in FY 2018. Continue developing interface documentation and integration plans with international partner, Space Norway. Continue funding USAF share of Arctic Memorandum of Agreement (MOA) collaboration costs for hosting of the EPS-R payloads. Facilitate coordination between Space Norway, space vehicle developer, and payload contractor. Provide representation, technical expertise, and assistance at Space Norway and/or space vehicle developer facilities. Continue cyber certification efforts with the National Security Agency (NSA). Rapidly respond to implement system resiliency and situational awareness necessary to operate in the contested space domain. Activities may include, but are not limited to program office support, studies, technical analysis, experimentation, prototyping, etc. ***FY 2019 to FY 2020 Increase/Decrease Statement:*** FY 2020 increased compared to FY 2019 by $366.432M because funds were budgeted in Midterm Polar MILSATCOM System PE 1206434F in FY 2019.			
Title: Ground Updates ***Description:*** Modify and upgrade the existing EPS CAPS to provide command and control and XDR mission planning capability for the two new payloads. ***FY 2019 Plans:*** N/A ***FY 2020 Plans:*** Continue risk reduction efforts on and upgrade EPS CAPS Segment. Conduct ground Critical Design Review. Acquire Defense Information Systems Network (DISN) lines from Schriever AFB to the Space Norway Host Ground Station to ensure out-of-command connectivity to the payload. ***FY 2019 to FY 2020 Increase/Decrease Statement:*** FY 2020 increased compared to FY 2019 by $45.046M because funds were budgeted in Midterm Polar MILSATCOM System PE 1206434F in FY 2019.	0.000	0.000	45.046
Title: Gateway Updates ***Description:*** Modify and upgrade to the existing EPS Gateway Segment to support the two new payloads. ***FY 2019 Plans:*** N/A ***FY 2020 Plans:***	0.000	0.000	15.922

Exhibit R-2A, RDT&E Project Justification: PB 2020 Air Force		Date: February 2019
Appropriation/Budget Activity 3600 / 5	**R-1 Program Element (Number/Name)** PE 1206432F / *Polar MILSATCOM (SPACE)*	**Project (Number/Name)** 654215 / *EPS Recap*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2018	FY 2019	FY 2020
Continue risk reduction efforts on EPS Gateway Segment upgrades. Continue preparations for installing a second telemetry and control terminal. Purchase additional telemetry and control terminals to recapitalize equipment that is becoming obsolete. ***FY 2019 to FY 2020 Increase/Decrease Statement:*** FY 2020 increased compared to FY 2019 by $15.922M because funds were budgeted in Midterm Polar MILSATCOM System PE 1206434F in FY 2019.			
Accomplishments/Planned Programs Subtotals	0.000	0.000	427.400

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
• RDTE 04 1206434F: *Midterm Polar MILSATCOM System*	60.123	383.113	-	-	-	-	-	-	-	0.000	443.236

Remarks

D. Acquisition Strategy

Award payloads contract to Northrop Grumman Aerospace Systems (NGAS) and initiate production of two EPS functional equivalent payloads in FY 2018 (PE 1206434F). Conduct market research to identify industry capabilities and acquisition concepts. Award CAPS contract for EPS ground upgrade. Gateway updates will be accomplished by Space and Naval Warfare Systems Center Pacific, the EPS Gateway developer. The program office initiates the procurement of a replacement terminal for the Telemetry and Command Terminal. This acquisition strategy updates the EPS Ground Segment to accommodate the EPS functional equivalent payloads and extend operations and sustainment beyond 2028. The U.S. Government will retain the system integrator role, as it was for EPS program of record.

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: PB 2020 Air Force			Date: February 2019
Appropriation/Budget Activity 3600 / 5	R-1 Program Element (Number/Name) PE 1206432F / *Polar MILSATCOM (SPACE)*	Project (Number/Name) 654215 / *EPS Recap*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2018 Cost	FY 2018 Award Date	FY 2019 Cost	FY 2019 Award Date	FY 2020 Base Cost	FY 2020 Base Award Date	FY 2020 OCO Cost	FY 2020 OCO Award Date	FY 2020 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
EPS-R Tactical Payloads 1-2	SS/CPAF	NGAS : Redondo Beach, CA	0.000	-		-		328.100	Nov 2019	-		328.100	221.836	549.936	-
Control and Planning Segment Upgrades	TBD	NGMS : Redondo Beach, CA	0.000	-		-		40.334	Nov 2019	-		40.334	77.000	117.334	-
Gateway Upgrades	Various	Various : Various, CA	0.000	-		-		14.256	Nov 2019	-		14.256	6.000	20.256	-
Technical Mission Analysis	MIPR	Aerospace : El Segundo, CA	0.000	-		-		8.851	Nov 2019	-		8.851	21.752	30.603	-
Enterprise SE&I	C/CPAF	LinQuest : Los Angeles, CA	0.000	-		-		24.823	Nov 2019	-		24.823	36.420	61.243	-
		Subtotal	0.000	-		-		416.364		-		416.364	363.008	779.372	N/A

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2018 Cost	FY 2018 Award Date	FY 2019 Cost	FY 2019 Award Date	FY 2020 Base Cost	FY 2020 Base Award Date	FY 2020 OCO Cost	FY 2020 OCO Award Date	FY 2020 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
FFRDC	MIPR	Aerospace : El Segundo, CA	0.000	-		-		2.338	Oct 2019	-		2.338	6.413	8.751	-
A&AS	Various	Various : Various	0.000	-		-		8.548	Oct 2019	-		8.548	7.548	16.096	-
Other Support	Various	Various : Various	0.000	-		-		0.150	Oct 2019	-		0.150	0.450	0.600	-
		Subtotal	0.000	-		-		11.036		-		11.036	14.411	25.447	N/A

	Prior Years	FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	0.000	-		0.000		427.400		-		427.400	377.419	804.819	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2020 Air Force		Date: February 2019
Appropriation/Budget Activity 3600 / 5	**R-1 Program Element (Number/Name)** PE 1206432F / *Polar MILSATCOM (SPACE)*	**Project (Number/Name)** 654215 / *EPS Recap*

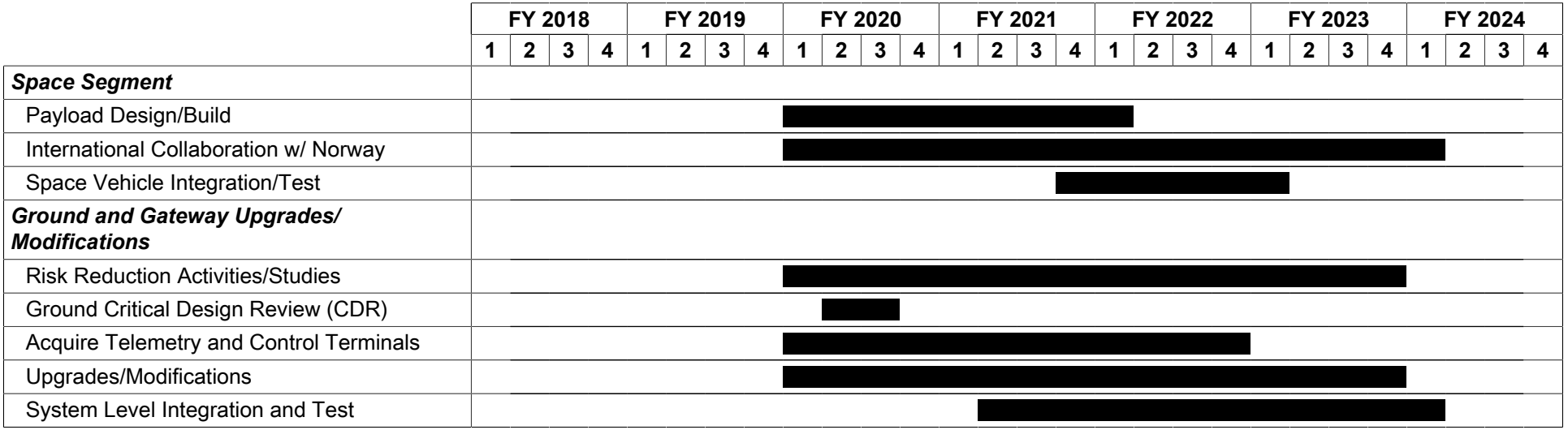

Exhibit R-4A, RDT&E Schedule Details: PB 2020 Air Force		Date: February 2019
Appropriation/Budget Activity 3600 / 5	**R-1 Program Element (Number/Name)** PE 1206432F / *Polar MILSATCOM (SPACE)*	**Project (Number/Name)** 654215 / *EPS Recap*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Space Segment				
Payload Design/Build	1	2020	1	2022
International Collaboration w/ Norway	1	2020	1	2024
Space Vehicle Integration/Test	4	2021	1	2023
Ground and Gateway Upgrades/Modifications				
Risk Reduction Activities/Studies	1	2020	4	2023
Ground Critical Design Review (CDR)	2	2020	3	2020
Acquire Telemetry and Control Terminals	1	2020	4	2022
Upgrades/Modifications	1	2020	4	2023
System Level Integration and Test	2	2021	1	2024

Exhibit R-2A, RDT&E Project Justification: PB 2020 Air Force			Date: February 2019
Appropriation/Budget Activity 3600 / 5	R-1 Program Element (Number/Name) PE 1206432F / *Polar MILSATCOM (SPACE)*	Project (Number/Name) 657105 / *Polar Satellite Communications*	

COST ($ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
657105: *Polar Satellite Communications*	317.362	32.536	26.380	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	376.278
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

This program element acquires the Polar MILSATCOM system that provides protected communications (anti-jam and low probability of intercept and detection) for users in the north polar region.

Through FY 2005, Polar Satellite Communications funded three low data rate Milstar packages on three classified host satellites as an expedited, interim solution for protected connectivity requirements in the north polar region (i.e., Interim Polar System (IPS)). Two satellites with hosted packages are required to provide the necessary 24-hour coverage. The third package went into operations in November 2008 to sustain the 24-hour coverage.

In FY 2006, the DoD began funding the next generation Polar Satellite Communications capability with two more polar packages via the same host vehicle type (i.e., Enhanced Polar System (EPS)). The host spacecraft and the polar communications packages required design modifications that replaced obsolete components and took advantage of the more capable Advanced Extremely High Frequency (AEHF) technology including the eXtended Data Rate (XDR) waveform. The EPS Capability Development Document (CDD), approved by the Joint Requirements Oversight Council in September 2006, is based on a two-package, hosted XDR program with operational availability in CY 2015 and CY 2017. EPS is comprised of four segments: Payload, Ground Control, Gateway, and Terminal (acquired by each Service's Terminal Program Office). Milestone B review was completed 2 April 2014.

Programs and projects in the space warfighting enterprise are evaluating ways to maximize innovation, resiliency, and our ability to rapidly respond to known and emerging threats. Space enterprise efforts aim to execute technology risk reduction efforts, integration of new or repurposed capabilities, enterprise decision-making tools, experimentation, and rapid prototyping and fielding via all appropriate acquisition authorities and contract mechanisms.

This program element may include necessary civilian pay expenses required to manage, execute, and deliver Polar MILSATCOM 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.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2018	FY 2019	FY 2020
Title: EPS	32.536	26.380	0.000
Description: Develop and acquire EPS MILSATCOM which consists of: 1) two Extremely High Frequency payloads, using AEHF's XDR waveform, on hosted spacecraft; 2) a standalone Control and Planning Segment (CAPS) to provide command and control and XDR mission planning capability; and 3) one gateway to provide connectivity between polar and mid-latitude users through the Global Information Grid.			

Exhibit R-2A, RDT&E Project Justification: PB 2020 Air Force		Date: February 2019
Appropriation/Budget Activity 3600 / 5	**R-1 Program Element (Number/Name)** PE 1206432F / *Polar MILSATCOM (SPACE)*	**Project (Number/Name)** 657105 / *Polar Satellite Communications*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2018	FY 2019	FY 2020
FY 2019 Plans: Complete software sustainment builds, cyber security updates, and Operational Test and Evaluation (OT&E) report. Funds Preoperational Support (PS)/Interim Contractor Support (ICS) in order to support final O&M contract award. Continue to appropriately staff contractor-operated protected communications satellite system for operational trial period and troubleshoot system anomalies during PS/ICS period. Continue program office support and other related support activities that may include, but are not limited to studies, technical analysis, prototyping, etc. ***FY 2020 Plans:*** N/A. ***FY 2019 to FY 2020 Increase/Decrease Statement:*** FY 2020 decreased compared to FY 2019 by $26.380M. Justification for this decrease is described in plans above.			
Accomplishments/Planned Programs Subtotals	32.536	26.380	0.000

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

The EPS is the follow-on to the currently operational IPS and is a component of the Extremely High Frequency SATCOM architecture providing secure, protected communications to worldwide users. The EPS acquisition consists of four segments (Payload, Ground Control, Gateway, and Terminal) acquired by separate procurement actions. Each EPS payload and its integration onto classified host satellites is funded by the EPS program while the development and integration is performed by the host organization. The MILSATCOM Systems Directorate will procure the Ground Control and Planning Segment. The Ground Gateway segment, funded by the EPS program, will be organically developed by the Navy's Space and Naval Warfare Systems Center Pacific, San Diego, CA. The MILSATCOM Systems Directorate is the prime systems integrator for the EPS payload, ground control, and gateway segments. The Terminals that will use EPS will be acquired by each Service's Terminal Program Office.

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: PB 2020 Air Force			Date: February 2019
Appropriation/Budget Activity 3600 / 5	R-1 Program Element (Number/Name) PE 1206432F / *Polar MILSATCOM (SPACE)*	Project (Number/Name) 657105 / *Polar Satellite Communications*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2018 Cost	FY 2018 Award Date	FY 2019 Cost	FY 2019 Award Date	FY 2020 Base Cost	FY 2020 Base Award Date	FY 2020 OCO Cost	FY 2020 OCO Award Date	FY 2020 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Control and Planning Segment	C/CPIF	NGMS : Redondo Beach, CA	154.992	13.527	Nov 2017	10.755	Nov 2018	-		-		-	0.000	179.274	148.600
Gateway architecture development	MIPR	Space and Naval Warfare Systems Command (SPAWAR) Systems Center - Pacific : San Diego, CA	46.940	6.818	Jan 2018	5.700	Nov 2018	-		-		-	0.000	59.458	75.454
EPS Design/Development Contract	SS/CPAF	NGAS : Redondo Beach, CA	9.014	2.265	Apr 2018	2.265	Nov 2018	-		-		-	0.000	13.544	606.693
T&C-T Development	MIPR	Lincoln Labs : Boston, MA	9.357	2.055	Nov 2017	1.595	Nov 2018	-		-		-	0.000	13.007	-
Technical Mission Analysis	Various	Various : Various	13.085	4.123	Oct 2017	1.245	Nov 2018	-		-		-	0.000	18.453	-
Enterprise SE&I	Various	Various : Various	35.690	2.709	Jun 2018	2.505	Nov 2018	-		-		-	0.000	40.904	-
		Subtotal	269.078	31.497		24.065		-		-		-	0.000	324.640	N/A

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2018 Cost	FY 2018 Award Date	FY 2019 Cost	FY 2019 Award Date	FY 2020 Base Cost	FY 2020 Base Award Date	FY 2020 OCO Cost	FY 2020 OCO Award Date	FY 2020 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Planning/Management Support for T&E	MIPR	Various : Various	1.279	-		-		-		-		-	0.000	1.279	-
		Subtotal	1.279	-		-		-		-		-	0.000	1.279	N/A

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2018 Cost	FY 2018 Award Date	FY 2019 Cost	FY 2019 Award Date	FY 2020 Base Cost	FY 2020 Base Award Date	FY 2020 OCO Cost	FY 2020 OCO Award Date	FY 2020 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
FFRDC	Various	Various : Various	18.648	0.719	Oct 2017	0.124	Nov 2018	-		-		-	0.000	19.491	-
A&AS	Various	Various : Various	27.597	-		1.921	Nov 2018	-		-		-	0.000	29.518	-
Other Support	Various	Various : Various	0.760	0.320	Nov 2017	0.270	Nov 2018	-		-		-	0.000	1.350	-
		Subtotal	47.005	1.039		2.315		-		-		-	0.000	50.359	N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2020 Air Force			Date: February 2019
Appropriation/Budget Activity 3600 / 5	R-1 Program Element (Number/Name) PE 1206432F / *Polar MILSATCOM (SPACE)*	Project (Number/Name) 657105 / *Polar Satellite Communications*	

	Prior Years	FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	317.362	32.536		26.380		-		-		-	0.000	376.278	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2020 Air Force		Date: February 2019
Appropriation/Budget Activity 3600 / 5	**R-1 Program Element (Number/Name)** PE 1206432F / *Polar MILSATCOM (SPACE)*	**Project (Number/Name)** 657105 / *Polar Satellite Communications*

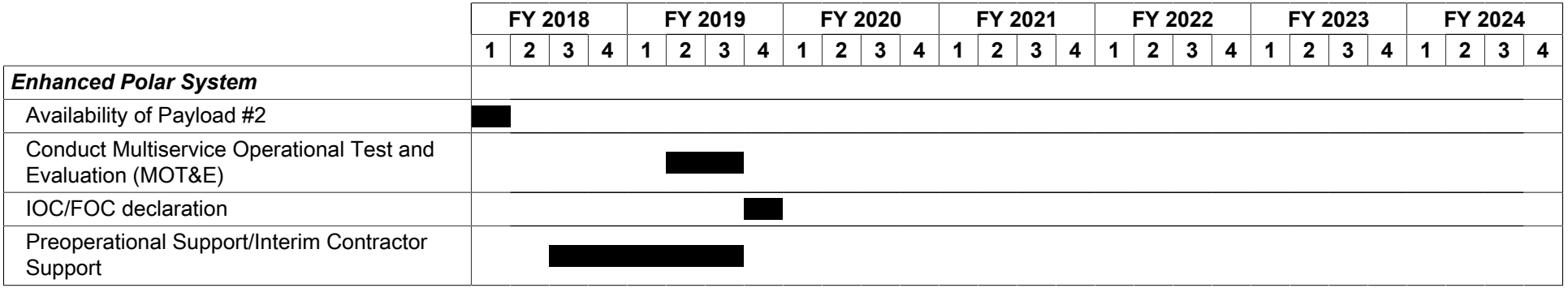

Exhibit R-4A, RDT&E Schedule Details: PB 2020 Air Force		Date: February 2019
Appropriation/Budget Activity 3600 / 5	**R-1 Program Element (Number/Name)** PE 1206432F / *Polar MILSATCOM (SPACE)*	**Project (Number/Name)** 657105 / *Polar Satellite Communications*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Enhanced Polar System				
Availability of Payload #2	1	2018	1	2018
Conduct Multiservice Operational Test and Evaluation (MOT&E)	2	2019	3	2019
IOC/FOC declaration	4	2019	4	2019
Preoperational Support/Interim Contractor Support	3	2018	3	2019