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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 I BA 7: Operational Systems Development					R-1 Program Element (Number/Name) PE 1203173F I Space and Missile Test and Evaluation Center							
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	-	43.715	79.935	4.566	0.000	4.566	4.398	4.014	4.086	4.159	Continuing	Continuing
67A014: R&D Space & Missile Operations	-	43.715	2.626	4.566	0.000	4.566	4.398	4.014	4.086	4.159	Continuing	Continuing
673140: Enterprise Ground Services EGS	-	0.000	77.309	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing

Note

In FY 2020 and beyond, the Enterprise Ground Services (EGS) Project 673140 has been transferred to a dedicated Program Element (1206770F).

A. Mission Description and Budget Item Justification

The Research and Development Space and Missile Operations (RDSMO) program, executed by the Advanced Systems and Development Directorate at Kirtland AFB, NM, conducts space and missile Research and Developmental Test and Evaluation (RDT&E) and Initial Operational Test and Evaluation (IOT&E) in support of prototype experimental, demonstration, and operational satellites at the RDT&E Support Complex (RSC) and the Mobile Range Flight (MRF) at Kirtland, NM and at Schriever AFB, CO. The RDSMO program develops, acquires, delivers, integrates, tests, operates and sustains the Multi-Mission Satellite Operations Center (MMSOC) satellite command and control (C2) Ground System Enterprise (GSE) and fixed/deployable telemetry, tracking, and commanding (TT&C) antenna systems in support of AF and DoD missions. The RDSMO program is responsible for transitions of designated satellite missions to the operational command upon user needs. In addition, RDSMO supports the deployment and sustainment of Enterprise Ground Services (EGS) in multiple locations as AFSPC transitions to an Enterprise-based ground C2. Funds in the General Information Technology (Space) line procures Information Technology products to support RDSMO.

The primary objective of the MMSOC C2/GSE environment is to develop the capability to rapidly support R&D, prototype and operational systems and to transition R&D space vehicle technology with residual military utility to operational status for immediate warfighter support. MMSOC is a multiple mission operation system that uses standard hardware and software infrastructure to (1) perform satellite C2 in support of launch requirements; (2) develop and test tactics, techniques, procedures and concepts to conduct satellite operations;(3) provide a satellite C2 incremental block evolution resource for RDT&E of new satellite and C2 systems and concepts; and (4) deliver operational flexibility for new and legacy satellite missions. A secondary objective of MMSOC is to provide a foundational C2 platform and product line for the Enterprise Ground Services (EGS) effort to build upon and to meet the evolving initiatives of the current and future space enterprise.

This program previously contained the EGS project as part of the evolving current and future space domain. MMSOC capability will transition to become the EGS C2 product line. The EGS C2 product line will perform technology maturation, experiments, prototyping and operational mission transition for increased commonality and resiliency in space program ground systems. The RDSMO program will continue to support all mission sets described above as the EGS capability becomes the primary ground C2 system for AFSPC and other users.

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,

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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 may include necessary civilian pay expenses required to manage, execute, and deliver warfighting space capability. The use of such program funds would be in addition to the civilian pay expenses budgeted in program elements 1206392F and 1206398F.						
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 7, Operational System Development because this budget activity includes development efforts to upgrade systems that have been fielded or have received approval for full rate production and anticipate production funding in the current or subsequent fiscal year.						
B. Program Change Summary (\$ in Millions)		FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Previous President's Budget		25.051	59.935	34.343	0.000	34.343
Current President's Budget		43.715	79.935	4.566	0.000	4.566
Total Adjustments		18.664	20.000	-29.777	0.000	-29.777
• Congressional General Reductions		0.000	0.000			
• Congressional Directed Reductions		0.000	0.000			
• Congressional Rescissions		0.000	0.000			
• Congressional Adds		20.000	20.000			
• Congressional Directed Transfers		0.000	0.000			
• Reprogrammings		0.000	0.000			
• SBIR/STTR Transfer		-1.336	0.000			
• Other Adjustments		0.000	0.000	-29.777	0.000	-29.777
Congressional Add Details (\$ in Millions, and Includes General Reductions)						
Project: 67A014: R&D Space & Missile Operations				FY 2018	FY 2019	
Congressional Add: Space Enterprise Defense Implementation				19.407	-	
Congressional Add Subtotals for Project: 67A014				19.407	-	
Project: 673140: Enterprise Ground Services EGS						
Congressional Add: Space Enterprise Defense Implementation				-	20.000	

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Congressional Add Details (\$ in Millions, and Includes General Reductions)		FY 2018	FY 2019
Congressional Add Subtotals for Project: 673140		-	20.000
Congressional Add Totals for all Projects		19.407	20.000
<u>Change Summary Explanation</u> FY 2020: Decrease of \$29.77M, funding transferred to the EGS project (673140). EGS has been established as a separate PE (1206770F) for FY2020 and beyond. EGS project total for FY2020 is \$138.870M to support the increase in mission on-boarding to meet requirements.			

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Air Force										Date: February 2019		
Appropriation/Budget Activity 3600 / 7					R-1 Program Element (Number/Name) PE 1203173F / Space and Missile Test and Evaluation Center				Project (Number/Name) 67A014 / R&D Space & Missile Operations			
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
67A014: R&D Space & Missile Operations	-	43.715	2.626	4.566	0.000	4.566	4.398	4.014	4.086	4.159	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The Research and Development Space and Missile Operations (RDSMO) program, executed by the Advanced Systems and Development Directorate at Kirtland AFB, NM, conducts space and missile Research and Developmental Test and Evaluation (RDT&E) and Initial Operational Test and Evaluation (IOT&E) in support of prototype experimental, demonstration, and operational satellites at the RDT&E Support Complex (RSC) and the Mobile Range Flight (MRF) at Kirtland, NM and at Schriever AFB, CO. The RDSMO program develops, acquires, delivers, integrates, tests, operates and sustains the Multi-Mission Satellite Operations Center (MMSOC) satellite command and control (C2) Ground System Enterprise (GSE) and fixed/deployable telemetry, tracking, and commanding (TT&C) antenna systems in support of AF and DoD missions. The RDSMO program is responsible transitions for designated satellite missions to the operational command upon user needs. In addition, RDSMO supports the deployment and sustainment of Enterprise Ground Services (EGS) in multiple locations as AFSPC transitions to an Enterprise-based ground C2. Funds in the General Information Technology (Space) line procures Information Technology products to support RDSMO.

The primary objective of the MMSOC C2/GSE environment is to develop the capability to rapidly support R&D, prototype and operational systems and to transition R&D space vehicle technology with residual military utility to operational status for immediate warfighter support. MMSOC is a multiple mission operation system that uses standard hardware and software infrastructure to (1) perform satellite C2 in support of launch requirements; (2) develop and test tactics, techniques, procedures and concepts to conduct satellite operations;(3) provide a satellite C2 incremental block evolution resource for RDT&E of new satellite and C2 systems and concepts; and (4) deliver operational flexibility for new and legacy satellite missions. A secondary objective of MMSOC is to provide a foundational C2 platform and product line for the Enterprise Ground Services (EGS) effort to build upon and to meet the evolving initiatives of the current and future space enterprise.

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

	FY 2018	FY 2019	FY 2020
Title: MMSOC Development	3.967	2.626	4.566
Description: Multi-Mission Satellite Operations Center (MMSOC) development/integration/test.			
FY 2019 Plans: Continue providing capability to AFSPC for reduced cost of operations and maintenance through evolution of MMSOC C2 architecture and automated processes and integrate EGS backwards functionality into MMSOC. Support ORS-5 MMSOC 2.1 Ground System Sustainment at Schriever AFB. Transition Air Force Research Laboratory (AFRL)'s Evolved Expendable Launch Vehicle (EELV) Secondary Payload Adapter (ESPA) Augmented Geostationary Laboratory Experiment (EAGLE) and Mycroft Missions from Kirtland AFB to Schriever AFB.			

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Air Force			Date: February 2019		
Appropriation/Budget Activity 3600 / 7		R-1 Program Element (Number/Name) PE 1203173F / <i>Space and Missile Test and Evaluation Center</i>		Project (Number/Name) 67A014 / <i>R&D Space & Missile Operations</i>	
B. Accomplishments/Planned Programs (\$ in Millions)			FY 2018	FY 2019	FY 2020
<p>Transition all missions from the MMSOC 2.0 baseline to the 2.1 baseline. Decommission and dispose of the MMSOC 2.0 baseline. Onboard Long Duration Propulsive ESPA (LDPE)-1 mission C2 and provide backup to EGS mission schedule. Continue program office support and other related support activities. 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, prototyping, etc.</p> <p>FY 2020 Plans: Continue providing capability to AFSPC for reduced cost of operations and maintenance through evolution of MMSOC C2 architecture and automated processes and integrate EGS backwards functionality into MMSOC C2. Decommission and dispose of the MMSOC 2.0 baseline. Continue LDPE-1 mission C2 and provide backup to EGS mission schedule. Begin support to the AFSPC-12 payload, Navigation Technology Satellite 3 (NTS-3) and Tetra prototyping projects. Continue program office support and other related support activities. 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, prototyping, etc.</p> <p>FY 2019 to FY 2020 Increase/Decrease Statement: FY 2020 increase compared to FY 2019 by \$1.941M. The program will continue to mature the MMSOC C2 architecture and add automated processes and integrate EGS functionalities.</p>					
<p>Title: Enterprise Ground Services (EGS)</p> <p>Description: Enterprise Ground Services (EGS) provides the Air Force with a robust enterprise ground architecture by creating a set of government standards and interfaces to flexibly manage and execute integrated and agile satellite operations (SATOPS) in a contested environment. EGS provides the complete operations solution for SATOPS at various classification levels with increased resiliency and capability, and improved cyber defense capabilities. EGS will enable a near-real-time common operating picture of enterprise-wide tactical health, status and indications, and warnings for Air Force satellites. The end-state will be a modern technical infrastructure which is cyber-secure and resilient against the Advanced Persistent Threat and employs streamlined architecting, acquisition, and operational processes. EGS operates as a key element of the current and future space domain, and leverages lessons learned, contracts and resources from the other elements of the Enterprise Space Battle Management Command and Control (ESBMC2) and Threat Warning and Response (TWAR).</p> <p>FY 2019 Plans: N/A</p> <p>FY 2020 Plans:</p>			20.341	0.000	0.000

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B. Accomplishments/Planned Programs (\$ in Millions)										FY 2018	FY 2019	FY 2020
N/A												
FY 2019 to FY 2020 Increase/Decrease Statement: N/A												
Accomplishments/Planned Programs Subtotals										24.308	2.626	4.566
										FY 2018	FY 2019	
Congressional Add: Space Enterprise Defense Implementation										19.407	-	
FY 2018 Accomplishments: The FY 2018 Congressional Add funds, less \$0.593 million SBIR transfer, were used to procure the initial EGS prototypes that built on the successful EGS demonstration of STPSat-2 in February 2018. The infrastructure supports multiple satellite missions at multiple classification levels and includes the initial delivery of a cyber monitoring capability to support defensive cyber operations. In addition to the infrastructure, EGS expanded its agile development scrum teams to provide cyber security, automation, coding, and established a development-to-operations pipeline so that EGS will be able to on-board at least 4 satellites/payloads in FY19.												
Congressional Adds Subtotals										19.407	-	
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	
• OPAF 03 834010 / 1203173F: <i>General Information Technology</i>	1.964	-	-	-	-	-	-	-	-	Continuing	Continuing	
• SPAF 01 BP23 GNRLIT / 1203173F: <i>General Information Technology</i>	-	1.361	1.894	-	1.894	1.928	1.964	2.001	2.037	Continuing	Continuing	
Remarks												
This effort was recategorized from appropriation 3080, Other Procurement Air Force (OPAF) to appropriation 3021, Space Procurement Air Force (SPAF) for FY 2019 and beyond, and is described in the SPAF P-1, BP23, GNRLIT, General Information Technology.												
D. Acquisition Strategy												
To modernize and sustain MMSOC; and to procure, integrate, and test EGS prototypes for the SBIRS, ORS-5, LDPE, EAGLE, Mycroft, AFSPC-12 payload, NTS-3 and Tetra prototyping projects, the Air Force is competitively awarding a new Engineering, Development, Integration, and Sustainment (EDIS) Contract to replace the existing Engineering, Development, and Sustainment (EDS) Follow-On Contract in support of MMSOC, MRF and EGS activities. Additionally, MMSOC is using a												

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<p>competitively awarded Space Test and Engineering Contract (STEC), and utilize Advisory & Assistance Support (A&AS) contract. These contracts are all managed by Space and Missile Systems Center (SMC).</p> <p>E. Performance Metrics</p> <p>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.</p>		

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2020 Air Force												Date: February 2019			
Appropriation/Budget Activity 3600 / 7						R-1 Program Element (Number/Name) PE 1203173F / Space and Missile Test and Evaluation Center				Project (Number/Name) 67A014 / R&D Space & Missile Operations					
Product Development (\$ in Millions)				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 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
Engineering, Development, and Sustainment (EDS) Follow-on Contract Bridge (MMSOC)	C/CPAF	Lockheed Martin : Santa Maria, CA	-	1.532	Oct 2017	1.137	Jan 2019	-		-		-	Continuing	Continuing	-
Engineering, Development, Integration, and Sustainment (EDIS) Contract	C/FFP	TBD : TBD, NM	-	-		0.467	Jan 2019	1.449	Oct 2019	-		1.449	Continuing	Continuing	-
Neptune Common Ground Architecture	MIPR	Naval Research Lab : Washington, DC	-	1.030	Oct 2017	0.250	Oct 2018	1.100	Nov 2019	-		1.100	Continuing	Continuing	-
Service Bus Architecture Standards	MIPR	NASA Goddard : Greenbelt, MD	-	0.050	Oct 2017	0.050	May 2019	0.050	May 2020	-		0.050	Continuing	Continuing	-
Information Assurance-ISSE (MMSOC)	MIPR	SAF/FMBIB : Albuquerque, NM	-	0.120	Jan 2018	0.120	Jan 2019	0.250	Jan 2020	-		0.250	Continuing	Continuing	-
Enterprise Ground Services (EGS)	Various	Various : CA	-	39.748	Jan 2018	0.000		0.000		-		0.000	Continuing	Continuing	-
Subtotal			-	42.480		2.024		2.849		-		2.849	Continuing	Continuing	N/A
Test and Evaluation (\$ in Millions)				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 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
Space Test and Engineering Contract (STEC) (MMSOC)	C/CPAF	LINQUEST : Kirtland, AFB, NM	-	0.498	Oct 2017	0.256	Nov 2018	0.400	Nov 2019	-		0.400	Continuing	Continuing	-
Subtotal			-	0.498		0.256		0.400		-		0.400	Continuing	Continuing	N/A

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2020 Air Force												Date: February 2019			
Appropriation/Budget Activity 3600 / 7						R-1 Program Element (Number/Name) PE 1203173F / <i>Space and Missile Test and Evaluation Center</i>						Project (Number/Name) 67A014 / <i>R&D Space & Missile Operations</i>			

Management Services (\$ in Millions)				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 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
A&AS- METIS	Various	Various : Kirtland, AFB, NM	-	0.737	Oct 2017	0.346	Mar 2019	1.317	Mar 2020	-		1.317	Continuing	Continuing	-
Subtotal			-	0.737		0.346		1.317		-		1.317	Continuing	Continuing	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	-	43.715	2.626	4.566	-	4.566	Continuing	Continuing	N/A

Remarks

The costs for EGS for FY 2019 are under the EGS project (673140) within this program. The costs for EGS for FY 2020 are under the new EGS program (1206770F).

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Exhibit R-4, RDT&E Schedule Profile: PB 2020 Air Force

Date: February 2019

Appropriation/Budget Activity

3600 / 7

R-1 Program Element (Number/Name)

PE 1203173F / Space and Missile Test and Evaluation Center

Project (Number/Name)

67A014 / R&D Space & Missile Operations

	FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024			
	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
MMSOC Development																												
MMSOC Development & EGS Backwards Functionality																												
MMSOC 2.0 Decommission																												
MMSOC Space Test Program Satellite-2 (STPSat-2)																												
MMSOC Space Test Program Satellite-3 (STPSat-3) (Customer Funded)																												
MMSOC CloudSat Supt (Customer Funded)																												
MMSOC Automated Navigation and Guidance Experiment for Local Space (ANGELS) Support (Customer Funded)																												
MMSOC Green Propellant Infusion Mission (GPIM) Support (Customer Funded)																												
MMSOC Demonstration and Science Experiment (DSX) Support (Customer Funded)																												
MMSOC ORS-5 Support (Customer Funded)																												
Navigation Technology Satellite NTS-3																												
MMSOC Evolved Expendable Launch Vehicle (EELV) Secondary Payload Adapter (ESPA) Augmented Geostationary Laboratory Experiment (EAGLE) Support (Customer Funded)																												
MMSOC Mycroft Support (Customer Funded)																												
MMSOC Long Duration Propulsive ESPA-1 (Customer Funded)																												

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Exhibit R-4, RDT&E Schedule Profile: PB 2020 Air Force																Date: February 2019												
Appropriation/Budget Activity 3600 / 7										R-1 Program Element (Number/Name) PE 1203173F / Space and Missile Test and Evaluation Center								Project (Number/Name) 67A014 / R&D Space & Missile Operations										
	FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024			
	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
Long Duration Propulsive ESPA (LDPE)-Tetra																												
AFSPC-12 Payload Support																												
Enterprise Ground Services (EGS)																												
Enterprise Ground Services (EGS)																												
EGS Space Based Infrared System (SBIRS) Highly Elliptical Orbit (HEO) and Geosynchronous Orbit (GEO) Support (Customer Funded)																												
EGS AFSPC-12 Support (Customer Funded)																												
Mission Partner Demonstration																												
EGS Tetra 1 (Customer Funded)																												
EGS ORS-8 Support (Customer Funded)																												

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Exhibit R-4A, RDT&E Schedule Details: PB 2020 Air Force			Date: February 2019
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 1203173F / <i>Space and Missile Test and Evaluation Center</i>	Project (Number/Name) 67A014 / <i>R&D Space & Missile Operations</i>	

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<i>MMSOC Development</i>				
MMSOC Development & EGS Backwards Functionality	1	2018	4	2023
MMSOC 2.0 Decommission	1	2019	2	2020
MMSOC Space Test Program Satellite-2 (STPSat-2)	1	2018	4	2020
MMSOC Space Test Program Satellite-3 (STPSat-3) (Customer Funded)	1	2018	4	2022
MMSOC CloudSat Supt (Customer Funded)	1	2018	4	2023
MMSOC Automated Navigation and Guidance Experiment for Local Space (ANGELS) Support (Customer Funded)	1	2018	1	2018
MMSOC Green Propellant Infusion Mission (GPIM) Support (Customer Funded)	1	2019	2	2022
MMSOC Demonstration and Science Experiment (DSX) Support (Customer Funded)	1	2019	2	2022
MMSOC ORS-5 Support (Customer Funded)	1	2018	4	2023
Navigation Technology Satellite NTS-3	1	2020	1	2024
MMSOC Evolved Expendable Launch Vehicle (EELV) Secondary Payload Adapter (ESPA) Augmented Geostationary Laboratory Experiment (EAGLE) Support (Customer Funded)	1	2018	4	2023
MMSOC Mycroft Support (Customer Funded)	1	2018	4	2023
MMSOC Long Duration Propulsive ESPA-1 (Customer Funded)	1	2018	3	2021
Long Duration Propulsive ESPA (LDPE)- Tetra	1	2018	3	2021
AFSPC-12 Payload Support	1	2020	4	2022
<i>Enterprise Ground Services (EGS)</i>				
Enterprise Ground Services (EGS)	1	2018	4	2018
EGS Space Based Infrared System (SBIRS) Highly Elliptical Orbit (HEO) and Geosynchronous Orbit (GEO) Support (Customer Funded)	1	2018	4	2018

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Exhibit R-4A, RDT&E Schedule Details: PB 2020 Air Force	Date: February 2019
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Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 1203173F / <i>Space and Missile Test and Evaluation Center</i>	Project (Number/Name) 67A014 / <i>R&D Space & Missile Operations</i>
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Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
EGS AFSPC-12 Support (Customer Funded)	2	2018	4	2018
Mission Partner Demonstration	2	2018	4	2018
EGS Tetra 1 (Customer Funded)	1	2018	4	2018
EGS ORS-8 Support (Customer Funded)	1	2018	4	2018

Note

Note: This schedule reflects RDSMO support to the customer funded missions and may not directly align with customer program office schedules.

The schedule for EGS for FY 2019 is under the EGS project (673140) within this program. The schedule for EGS for FY 2020 is under the new EGS program (1206770F).

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Air Force										Date: February 2019		
Appropriation/Budget Activity 3600 / 7					R-1 Program Element (Number/Name) PE 1203173F / Space and Missile Test and Evaluation Center				Project (Number/Name) 673140 / Enterprise Ground Services EGS			
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
673140: Enterprise Ground Services EGS	-	0.000	77.309	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

In FY 2020 and beyond, the Enterprise Ground Services (EGS) Project 673140 has been transferred to a dedicated Program Element (1206770F).

The Enterprise Ground Services (EGS) program is part of the evolving current and future space domain demands. MMSOC capability will transition to become the EGS command and control (C2) product line. The EGS C2 product line will perform technology maturation, experiments, prototyping and operational mission transition for increased commonality and resiliency in space program ground systems. The EGS capability will become the primary ground C2 system for AFSPC and other users.

The main objective of the EGS is to provide a robust enterprise ground architecture for Air Force space systems. EGS will focus efforts on developing and integrating data centers in laboratories at three separate sites, advanced concept exploration, prototype development and demonstrations, user experience maturation, training and Concept of Operations (CONOPS) refinement, cyber operations and operational mission training support. These efforts will require support such as systems engineering, integration and test, standards and interface development, architecture development, enhanced cybersecurity development and implementation.

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

	FY 2018	FY 2019	FY 2020
Title: Enterprise Ground Services (EGS)	-	57.309	0.000
Description: Enterprise Ground Services (EGS) provides the Air Force with a robust enterprise ground architecture by creating a set of government standards and interfaces to flexibly manage and execute integrated and agile satellite operations (SATOPS) in a contested environment. EGS provides the complete operations solution for SATOPS at various classification levels with increased resiliency and capability, and improved cyber defense capabilities. EGS will enable a near-real-time common operating picture of enterprise-wide tactical health, status and indications, and warnings for Air Force satellites. The end-state will be a modern technical infrastructure which is cyber-secure and resilient against the Advanced Persistent Threat and employs streamlined architecting, acquisition, and operational processes. EGS operates as a key element of the current and future space domain, and leverages lessons learned, contracts and resources from the other elements of the Enterprise Space Battle Management Command and Control (ESBMC2) and Threat Warning and Response (TWAR).			
FY 2019 Plans: Continue to enhance MMSOC capabilities in support of ongoing missions as EGS C2 matures and continue to develop the prototype capabilities and sustain for a robust enterprise ground architecture. Continue developing the programmatic, technical, and architectural roadmap to enable the phased transition of mission partners to EGS. Continue maturation of EGS laboratories,			

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Air Force								Date: February 2019			
Appropriation/Budget Activity 3600 / 7				R-1 Program Element (Number/Name) PE 1203173F / <i>Space and Missile Test and Evaluation Center</i>				Project (Number/Name) 673140 / <i>Enterprise Ground Services EGS</i>			
B. Accomplishments/Planned Programs (\$ in Millions)								FY 2018	FY 2019	FY 2020	
<p>data centers, networks, and links. Continue prototype Mission Partner Demonstrations. Continue transition planning and prototype development to include but not limited to the SBIRS Geosynchronous Earth Orbit (GEO) satellite systems, EGS AFSPC-12 Support, Weather System Follow-on-Microwave, Tetra 1-3, ORS-8, and Long Duration Propulsive ESPA-2 vehicles. Continue cybersecurity development and implementation, standards and interface refinement, training and CONOPS refinement, advanced concept maturation, integration and test of mission unique software, and integration of common applications and services, Integrated Product Support, and integration efforts with current and future space domain capabilities. 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, prototyping, etc.</p> <p>FY 2020 Plans: N/A</p> <p>FY 2019 to FY 2020 Increase/Decrease Statement: N/A</p>											
Accomplishments/Planned Programs Subtotals								-	57.309	0.000	
								FY 2018	FY 2019		
Congressional Add: Space Enterprise Defense Implementation								-	20.000		
<p>FY 2019 Plans: The Congressional Add supports EGS expanding on the prototypes to scale services to support more missions. The funds will be used to develop and to field operational services consistent with incremental deliveries and agile development. Specific areas include: adding additional software developers, documenting development for mission partners to enable adoption of EGS services, transitioning services into an operational environment to prototype agile Ops Acceptance of individual services, and increased accreditation and security support to the project office.</p>											
Congressional Adds Subtotals								-	20.000		
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 07 1206770F: <i>Enterprise Ground Services</i>	-	-	138.870	-	138.870	116.830	194.090	165.500	158.320	Continuing	Continuing
Remarks											

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Air Force		Date: February 2019
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 1203173F / <i>Space and Missile Test and Evaluation Center</i>	Project (Number/Name) 673140 / <i>Enterprise Ground Services EGS</i>
<p><u>D. Acquisition Strategy</u></p> <p>The EGS acquisition strategy focuses on rapidly delivering C2 prototypes and operational capabilities to warfighters, while leveraging industry best practices for agile development and continuous integration /deliver (CI/CD). One of the key tenets of the EGS acquisition strategy is to maintain government ownership of the technical baseline. As a result, EGS uses a combination of existing and new contracts, and agreements with industry and academia to procure prototypes, platform as a service (PaaS) capabilities, system engineering services, and pre-operations support for mission users. Leverage existing contracts in FY19 and continue consolidation of contracts into FY 2020.</p> <p><u>E. Performance Metrics</u></p> <p>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.</p>		

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2020 Air Force												Date: February 2019			
Appropriation/Budget Activity 3600 / 7						R-1 Program Element (Number/Name) PE 1203173F / Space and Missile Test and Evaluation Center				Project (Number/Name) 673140 / Enterprise Ground Services EGS					
Product Development (\$ in Millions)				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 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
Pre-Ops Support	Various	Various : Various	-	-		8.573	Jan 2019	-		-		-	Continuing	Continuing	-
H/W, S/W and Integration	Various	Various : TBD	-	-		16.374	Dec 2018	-		-		-	Continuing	Continuing	-
Technical Mission Analysis (FFRDC Aerospace Direct Costs)	MIPR	Aerospace : El Segundo, CA	-	-		3.420	Nov 2018	-		-		-	Continuing	Continuing	-
Development	Various	Various : TBD	-	-		26.867	Dec 2018	-		-		-	Continuing	Continuing	-
Space Engineering & Integration	Various	Various : Various	-	-		12.568	Nov 2018	-		-		-	Continuing	Continuing	-
Subtotal			-	-		67.802		-		-		-	Continuing	Continuing	N/A
Management Services (\$ in Millions)				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 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 (Aerospace)	MIPR	Aerospace : Los Angeles, CA	-	-		2.361	Oct 2018	-		-		-	Continuing	Continuing	-
Other	Various	Various : Los Angeles, CA	-	-		0.400	Oct 2018	-		-		-	Continuing	Continuing	-
A&AS Support	Various	Various : Los Angeles, CA	-	-		6.746	Oct 2018	-		-		-	Continuing	Continuing	-
Subtotal			-	-		9.507		-		-		-	Continuing	Continuing	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			-	-		77.309		-		-		-	Continuing	Continuing	N/A
Remarks The costs for EGS for FY2018 are under the RDSMO project (67A014) within this program. The costs for EGS for FY 2020 are under the new EGS program (1206770F).															

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Exhibit R-4, RDT&E Schedule Profile: PB 2020 Air Force										Date: February 2019									
Appropriation/Budget Activity 3600 / 7					R-1 Program Element (Number/Name) PE 1203173F / Space and Missile Test and Evaluation Center					Project (Number/Name) 673140 / Enterprise Ground Services EGS									

	FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024			
	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
EGS																												
System Integration Lab (SIL)																												
Space Management Battle Lab (SMBL)																												
Development to Operations (DevOps)																												
BAFB																												
SAFB																												
KAFB																												
EGS Pre-Ops Support																												

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Exhibit R-4A, RDT&E Schedule Details: PB 2020 Air Force			Date: February 2019
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 1203173F / <i>Space and Missile Test and Evaluation Center</i>	Project (Number/Name) 673140 / <i>Enterprise Ground Services EGS</i>	

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
EGS				
System Integration Lab (SIL)	1	2019	4	2019
Space Management Battle Lab (SMBL)	1	2019	4	2019
Development to Operations (DevOps)	1	2019	4	2019
BAFB	1	2019	4	2019
SAFB	1	2019	4	2019
KAFB	1	2019	4	2019
EGS Pre-Ops Support	1	2019	4	2019

Note

The schedule for EGS for FY2018 is under the RDSMO project (67A014) within this program. The schedule for EGS for FY 2020 is under the new EGS program (1206770F).