Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Air Force											Date: February 2016	
Appropriation/Budget Activity 3600: *Research, Development, Test & Evaluation, Air Force* / BA 7: *Operational Systems Development*					R-1 Program Element (Number/Name) PE 0305173F / *Space and Missile Test and Evaluation Center*							
COST ($ in Millions)	**Prior Years**	**FY 2015**	**FY 2016**	**FY 2017 Base**	**FY 2017 OCO**	**FY 2017 Total**	**FY 2018**	**FY 2019**	**FY 2020**	**FY 2021**	**Cost To Complete**	**Total Cost**
Total Program Element	-	3.490	3.152	3.989	0.000	3.989	3.955	3.821	3.891	3.960	Continuing	Continuing
67A014: *R&D Space and Missile Operations*	-	3.490	3.152	3.989	0.000	3.989	3.955	3.821	3.891	3.960	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 experimental, demonstration, and operational satellites. The program develops, acquires, and operates satellite command and control (C2) and fixed/deployable telemetry, tracking, and commanding (TT&C) antenna systems in support of AF and DoD missions. The RDSMO program is responsible for the design, development, integration, testing, sustainment, and operations of the Multi-Mission Satellite Operations Center (MMSOC) C2 systems installed in the RDT&E Support Complex (RSC) at Kirtland AFB, NM and at the Satellite Operations Center 11 (SOC 11) located at Schriever AFB, CO.

FY17 funds include incremental development and establishment of new capabilities for the MMSOC, systems engineering, special studies, integration and test efforts in support of demonstrations and operational architectures designed to increase operations and maintenance affordability, efficiency and resiliency for global satellite command and control through military and commercial capabilities.

The main objective of MMSOC is to develop the capability to rapidly support R&D 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 software to (1) perform satellite command and control (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 systems and concepts; and (4) deliver operational flexibility for new and currently flying assigned satellites. 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.

In FY17, this Program Element supports EGS. EGS is performing technology maturation, experiments and prototyping for increased commonality and resiliency in space program ground systems.

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.

Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Air Force	Date: February 2016
Appropriation/Budget Activity 3600: *Research, Development, Test & Evaluation, Air Force* / BA 7: *Operational Systems Development*	**R-1 Program Element (Number/Name)** PE 0305173F / *Space and Missile Test and Evaluation Center*

B. Program Change Summary ($ in Millions)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Previous President's Budget	3.674	3.162	4.028	0.000	4.028
Current President's Budget	3.490	3.152	3.989	0.000	3.989
Total Adjustments	-0.184	-0.010	-0.039	0.000	-0.039
• Congressional General Reductions	0.000	-0.010			
• 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	-0.184	0.000			
• Other Adjustments	0.000	0.000	-0.039	0.000	-0.039

Change Summary Explanation

FY15 -$.184M SBIR
FY16 -$.010M FFRDC FY16 Mark
FY17 -$.039M Inflation Rates for Non-Pay/Non-Fuel

C. Accomplishments/Planned Programs ($ in Millions)	FY 2015	FY 2016	FY 2017
Title: MMSOC Development	3.490	3.152	3.589
Description: Multi-Mission Satellite Operations Center (MMSOC) development/integration/test.			
FY 2015 Accomplishments: Provided capability to AFSPC for reduced cost of operations through use of MMSOC architecture. Continued to support operations of multiple satellites and enhance automation capability. Continued program office support and related support activities such as, but not limited to, mission support, special studies, Systems Engineering and Technical Assistance (SETA), Federally Funded Research and Development Centers (FFRDC), etc.			
FY 2016 Plans: Continue providing capability to AFSPC for reduced cost of operations and maintenance through evolution of MMSOC architecture and automated processes. Refine and continue to support operations of multiple satellites and enhance automation capability. Continue program office support and related support activities such as, but not limited to, mission support, special studies, Systems Engineering and Technical Assistance (SETA), Federally Funded Research and Development Centers (FFRDC), etc.			
FY 2017 Plans:			

Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Air Force	Date: February 2016
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C. Accomplishments/Planned Programs ($ in Millions)	FY 2015	FY 2016	FY 2017
Continue providing capability to AFSPC for reduced cost of operations and maintenance through evolution of MMSOC architecture and automated processes, which will support the objectives of the Enterprise Ground Services (EGS). Refine and continue to support operations of multiple satellites and enhance automation capability. Continue program office support and related support activities such as, but not limited to, mission support, special studies, Systems Engineering and Technical Assistance (SETA), Federally Funded Research and Development Centers (FFRDC), etc.			
Title: Enterprise Ground Services (EGS) ***Description:*** Enterprise Ground Services (EGS) is envisioned to provide a robust enterprise ground architecture for Air Force space systems, which leverages mission commonality and automation to reduce sustainment costs and re-focus manpower on warfighting capabilities. In addition, EGS will enable a near-real-time common operating picture of enterprise-wide tactical health, status, 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. Through early architecture studies and prototyping, the government will establish clear ownership of the technical baseline to meet Better Buying Power principles as the EGS effort evolves through development. This effort provides focus and expertise for the development, test, certification and enforcement of standards and interfaces for all AFSPC satellite ground systems to enable transition planning for legacy ground systems, new capability demonstrations, and systems acquisition leading to an enterprise ground architecture for Air Force space systems. ***FY 2015 Accomplishments:*** N/A ***FY 2016 Plans:*** N/A ***FY 2017 Plans:*** Conduct developmental planning, mature technologies, and develop initial small-scale prototype capability for the enterprise ground architecture. Efforts in 2017 will include, but are not limited to, systems engineering, special studies, cybersecurity planning and implementation, standards and interface development and codification, integration and test efforts in support of demonstrations, and operational architecture planning. In addition, this effort will build the technical and programmatic roadmap to enable a phased enterprise transition in the future.	0.000	0.000	0.400
Accomplishments/Planned Programs Subtotals	3.490	3.152	3.989

Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Air Force	Date: February 2016
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D. Other Program Funding Summary ($ in Millions)

Line Item	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
• RDTE:BA07 PE0305173F: *General Information Technology*	1.683	1.435	1.977	0.000	1.977	1.947	1.858	1.890	1.925	-	-

Remarks

E. Acquisition Strategy

The Air Force uses the competitively awarded Engineering, Development, and Sustainment (EDS) Contract, managed by Space and Missile System Center, Advanced Systems and Development Directorate, to modernize and sustain MMSOC.

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.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Air Force			Date: February 2016
Appropriation/Budget Activity 3600 / 7	**R-1 Program Element (Number/Name)** PE 0305173F / *Space and Missile Test and Evaluation Center*	**Project (Number/Name)** 67A014 / *R&D Space and Missile Operations*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2015 Cost	FY 2015 Award Date	FY 2016 Cost	FY 2016 Award Date	FY 2017 Base Cost	FY 2017 Base Award Date	FY 2017 OCO Cost	FY 2017 OCO Award Date	FY 2017 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Engineering, Development, and Sustainment (EDS) Follow-on Contract (MMSOC)	C/CPAF	Lockheed Martin : Santa Maria, CA	-	1.529	Oct 2014	1.162	Oct 2015	1.239	Oct 2016	0.000		1.239	Continuing	Continuing	TBD
Naval Research Lab	MIPR	Naval Research Lab : Washington, DC	-	0.546	Oct 2014	0.450	Oct 2015	0.600	Oct 2016	0.000		0.600	Continuing	Continuing	TBD
Service Bus Architecture Standards	MIPR	NASA Goddard : Greenbelt, MD	-	0.025	Oct 2014	0.050	Oct 2015	0.050	Oct 2016	0.000		0.050	Continuing	Continuing	TBD
Information Assurance (MMSOC)	Various	Various : TBD	-	0.300	Oct 2014	0.300	Oct 2015	0.300	Oct 2016	0.000		0.300	Continuing	Continuing	TBD
Enterprise Ground Services (EGS)	Various	Various : TBD	-	0.000		0.000		0.400	Jan 2017	0.000		0.400	Continuing	Continuing	TBD
		Subtotal	-	2.400		1.962		2.589		0.000		2.589	-	-	-

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2015 Cost	FY 2015 Award Date	FY 2016 Cost	FY 2016 Award Date	FY 2017 Base Cost	FY 2017 Base Award Date	FY 2017 OCO Cost	FY 2017 OCO Award Date	FY 2017 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
		Subtotal	-	-		-		-		-		-	-	-	-

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2015 Cost	FY 2015 Award Date	FY 2016 Cost	FY 2016 Award Date	FY 2017 Base Cost	FY 2017 Base Award Date	FY 2017 OCO Cost	FY 2017 OCO Award Date	FY 2017 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
System Test and Engineering Contract (STEC) (MMSOC)	C/CPAF	LINQUEST : Kirtland, AFB, NM	-	0.540	Oct 2014	0.300	Oct 2015	0.500	Oct 2016	0.000		0.500	Continuing	Continuing	TBD
		Subtotal	-	0.540		0.300		0.500		0.000		0.500	-	-	-

Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Air Force			Date: February 2016
Appropriation/Budget Activity 3600 / 7	**R-1 Program Element (Number/Name)** PE 0305173F / *Space and Missile Test and Evaluation Center*	**Project (Number/Name)** 67A014 / *R&D Space and Missile Operations*	

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2015 Cost	FY 2015 Award Date	FY 2016 Cost	FY 2016 Award Date	FY 2017 Base Cost	FY 2017 Base Award Date	FY 2017 OCO Cost	FY 2017 OCO Award Date	FY 2017 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
A&AS	Various	Various : TBD	-	0.550	Oct 2014	0.890	Oct 2015	0.900	Oct 2016	0.000		0.900	Continuing	Continuing	TBD
		Subtotal	-	0.550		0.890		0.900		0.000		0.900	-	-	-

	Prior Years	FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	-	3.490		3.152		3.989		0.000		3.989	-	-	-

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2017 Air Force		Date: February 2016
Appropriation/Budget Activity 3600 / 7	**R-1 Program Element (Number/Name)** PE 0305173F / *Space and Missile Test and Evaluation Center*	**Project (Number/Name)** 67A014 / *R&D Space and Missile Operations*

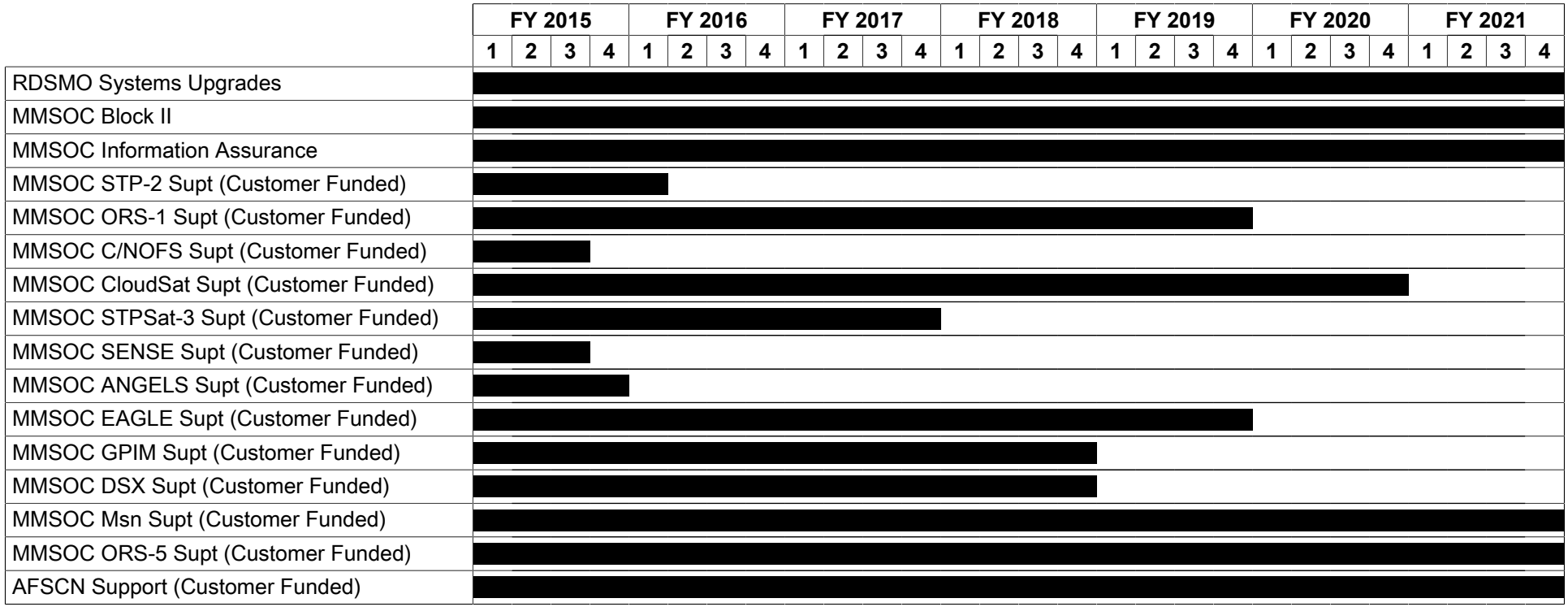

Exhibit R-4A, RDT&E Schedule Details: PB 2017 Air Force		Date: February 2016
Appropriation/Budget Activity 3600 / 7	**R-1 Program Element (Number/Name)** PE 0305173F / *Space and Missile Test and Evaluation Center*	**Project (Number/Name)** 67A014 / *R&D Space and Missile Operations*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
RDSMO Systems Upgrades	1	2015	4	2021
MMSOC Block II	1	2015	4	2021
MMSOC Information Assurance	1	2015	4	2021
MMSOC STP-2 Supt (Customer Funded)	1	2015	1	2016
MMSOC ORS-1 Supt (Customer Funded)	1	2015	4	2019
MMSOC C/NOFS Supt (Customer Funded)	1	2015	3	2015
MMSOC CloudSat Supt (Customer Funded)	1	2015	4	2020
MMSOC STPSat-3 Supt (Customer Funded)	1	2015	4	2017
MMSOC SENSE Supt (Customer Funded)	1	2015	3	2015
MMSOC ANGELS Supt (Customer Funded)	1	2015	4	2015
MMSOC EAGLE Supt (Customer Funded)	1	2015	4	2019
MMSOC GPIM Supt (Customer Funded)	1	2015	4	2018
MMSOC DSX Supt (Customer Funded)	1	2015	4	2018
MMSOC Msn Supt (Customer Funded)	1	2015	4	2021
MMSOC ORS-5 Supt (Customer Funded)	1	2015	4	2021
AFSCN Support (Customer Funded)	1	2015	4	2021