Exhibit R-2, RDT&E Budget Item Justification: PB 2016 Air Force											Date: February 2015	
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 0603438F / *Space Control Technology*							
COST ($ in Millions)	**Prior Years**	**FY 2014**	**FY 2015**	**FY 2016 Base**	**FY 2016 OCO**	**FY 2016 Total**	**FY 2017**	**FY 2018**	**FY 2019**	**FY 2020**	**Cost To Complete**	**Total Cost**
Total Program Element	-	22.862	6.075	4.070	-	4.070	5.509	5.495	5.263	5.362	Continuing	Continuing
642611: *Technology Insertion Planning and Analysis*	-	5.534	6.075	4.070	-	4.070	5.509	5.495	5.263	5.362	Continuing	Continuing
64A007: *Space Range*	-	17.328	-	-	-	-	-	-	-	-	-	17.328

Note

In FY 2015, PE 0603438F, Space Control Technology, Project 64A007, Space Range efforts were transferred to PE 0606116F, Space Test and Training Range Development, Project 666156 Space Test and Training Range Development in order to provide transparency in development funding.

A. Mission Description and Budget Item Justification

This program supports a range of activities including technology planning, development, demonstrations and prototyping, as well as modeling, simulations and exercises to support development of tactics and procedures in the Space Control mission area. The types of Space Control activities accomplished are Space Situational Awareness (SSA), Defensive Counterspace (DCS), Offensive Counterspace (OCS) and Command and Control (C2) and Battle Management. SSA includes monitoring, detecting, identifying, tracking, assessing, verifying, categorizing, and characterizing, objects and events in space and includes terrestrial based space capabilities. DCS includes defensive activities to protect U.S. and friendly space-systems assets, resources, and operations from enemy attempts to negate or interfere and prevention activities that limit or eliminate an adversary's ability to use U.S. space systems and services for purposes hostile to U.S. national security interests. OCS activities disrupt, deny, degrade or destroy space systems, or the information and the technology they provide, which may be used for purposes hostile to U.S. national security interests. Command & Control efforts include identifying technology solutions to enable fusion of data for use in multi-level security environments, and near-real-time data delivery and decision support to warfighter needs. This program supports the development of Rapid Reaction Capabilities in response to immediate warfighter needs, including Urgent Operational Needs (UONs) and Joint Urgent Operational Needs (JUONs), in the Space Control mission area.

These projects are 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.

The FY2016 funding request was reduced by -$.739M to account for the availability of prior execution balances.

Exhibit R-2, RDT&E Budget Item Justification: PB 2016 Air Force					Date: February 2015
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 0603438F / *Space Control Technology*			
B. Program Change Summary ($ in Millions)	**FY 2014**	**FY 2015**	**FY 2016 Base**	**FY 2016 OCO**	**FY 2016 Total**
Previous President's Budget	22.862	6.075	6.336	-	6.336
Current President's Budget	22.862	6.075	4.070	-	4.070
Total Adjustments	-	-	-2.266	-	-2.266
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-	-			
• Other Adjustments	-	-	-2.266	-	-2.266

Change Summary Explanation

The FY2016 funding request was reduced by -$.739M to account for the availability of prior execution balances.

FY2016 reduction of $1.5M due to higher department priorities.

Exhibit R-2A, RDT&E Project Justification: PB 2016 Air Force			Date: February 2015
Appropriation/Budget Activity 3600 / 4	R-1 Program Element (Number/Name) PE 0603438F / *Space Control Technology*	Project (Number/Name) 642611 / *Technology Insertion Planning and Analysis*	

COST ($ in Millions)	Prior Years	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
642611: *Technology Insertion Planning and Analysis*	-	5.534	6.075	4.070	-	4.070	5.509	5.495	5.263	5.362	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

This project supports a range of activities including technology planning, development, demonstrations and prototyping, and testing, as well as modeling, simulations and exercises to support development of tactics and procedures for a responsive and resilient Space Control mission area. This incudes technology development and prototyping for Space Situational Awareness (SSA), Defensive Counterspace (DCS) and Offensive Counterspace (OCS). Specifically supported are OCS activities which include disruption, denial, or degradation of adversary space systems, or the information they provide, which may be used for purposes hostile to U.S. national security interests. Rapid Reaction Capabilities in response to immediate warfighter needs in the Space Control mission area are developed within this program.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2014	FY 2015	FY 2016
Title: Rapid Reaction Branch (RRB)	3.560	6.075	4.070
Description: Develops advanced capabilities for rapid prototyping and integration into space control programs of record and, if requested, to warfighter Urgent Operational Needs (UONs) and Joint Urgent Operational Needs (JUONs). Conducts prototyping, demonstration, testing, and rapid transition of technology and techniques to space control systems. ***FY 2014 Accomplishments:*** Tested and fielded quick reaction capability in support of warfighter UON requirements. Developed and performed worldwide development test program for additional rapid prototyping capabilities then integrated capabilities into space control programs of record. Designed and integrated initial Multi-Mission Processor (MMP) Increment 2 prototype. ***FY 2015 Plans:*** Complete development and testing for MMP Increment 2 prototype. Integrate Increment 2 architecture into space control programs of record. If requested, field quick reaction capabilities using MMP Increment 2 architecture. ***FY 2016 Plans:*** Complete integration and testing of MMP Increment 2 architecture into space control programs of record. Conduct worldwide development testing for additional rapid prototype capabilities. If requested, field quick reaction capabilities using MMP Increment 2 architecture. Begin development of MMP Increment 3.			
Title: Responsive, Resilient Space Architecture Support	1.974	-	-

Exhibit R-2A, RDT&E Project Justification: PB 2016 Air Force		Date: February 2015
Appropriation/Budget Activity 3600 / 4	**R-1 Program Element (Number/Name)** PE 0603438F / *Space Control Technology*	**Project (Number/Name)** 642611 / *Technology Insertion Planning and Analysis*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2014	FY 2015	FY 2016
Description: Assist space control programs to develop increasingly responsive, resilient and affordable capabilities via architectures emphasizing hostable payloads, small satellites, interface standards and government/commercial hosting opportunities. ***FY 2014 Accomplishments:*** Assisted space control programs to develop increasingly responsive, resilient and affordable capabilities via architectures emphasizing hostable payloads, small satellites, interface standards and government/commercial hosting opportunities. ***FY 2015 Plans:*** N/A ***FY 2016 Plans:*** N/A			
Accomplishments/Planned Programs Subtotals	5.534	6.075	4.070

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
• None: *None*	-	-	-	-	-	-	-	-	-	-	-

Remarks

D. Acquisition Strategy

All contracts funded in this program element will be awarded using competitive procedures to the maximum extent possible. Program consists of numerous small projects.

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 2016 Air Force		Date: February 2015
Appropriation/Budget Activity 3600 / 4	**R-1 Program Element (Number/Name)** PE 0603438F / *Space Control Technology*	**Project (Number/Name)** 642611 / *Technology Insertion Planning and Analysis*

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Counterspace Technology Prototyping/Rapid Reaction Branch	Various	Various : Various,	-	5.169	Jan 2014	5.657	Jan 2015	3.652	Jan 2016	-		3.652	Continuing	Continuing	TBD
		Subtotal	-	5.169		5.657		3.652		-		3.652	-	-	-

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Program Support	Various	Space and Missile Systems Center : El Segundo, CA	-	0.155	Jan 2014	0.208	Jan 2015	0.208	Jan 2016	-		0.208	Continuing	Continuing	TBD
		Subtotal	-	0.155		0.208		0.208		-		0.208	-	-	-

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 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 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Program Management Administration	Various	SMC : El Segundo, CA	-	0.210	Nov 2013	0.210	Jan 2015	0.210	Jan 2016	-		0.210	Continuing	Continuing	TBD
		Subtotal	-	0.210		0.210		0.210		-		0.210	-	-	-

Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Air Force			Date: February 2015
Appropriation/Budget Activity 3600 / 4	R-1 Program Element (Number/Name) PE 0603438F / *Space Control Technology*	Project (Number/Name) 642611 / *Technology Insertion Planning and Analysis*	

	Prior Years	FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	-	5.534		6.075		4.070		-		4.070	-	-	-

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2016 Air Force		Date: February 2015
Appropriation/Budget Activity 3600 / 4	**R-1 Program Element (Number/Name)** PE 0603438F / *Space Control Technology*	**Project (Number/Name)** 642611 / *Technology Insertion Planning and Analysis*

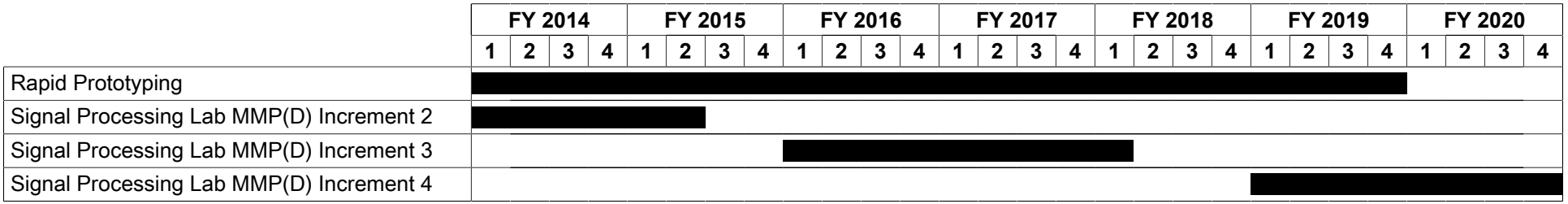

Exhibit R-4A, RDT&E Schedule Details: PB 2016 Air Force		Date: February 2015
Appropriation/Budget Activity 3600 / 4	**R-1 Program Element (Number/Name)** PE 0603438F / *Space Control Technology*	**Project (Number/Name)** 642611 / *Technology Insertion Planning and Analysis*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
Rapid Prototyping	1	2014	4	2019
Signal Processing Lab MMP(D) Increment 2	1	2014	2	2015
Signal Processing Lab MMP(D) Increment 3	1	2016	1	2018
Signal Processing Lab MMP(D) Increment 4	1	2019	4	2020

Exhibit R-2A, RDT&E Project Justification: PB 2016 Air Force			Date: February 2015
Appropriation/Budget Activity 3600 / 4	R-1 Program Element (Number/Name) PE 0603438F / *Space Control Technology*	Project (Number/Name) 64A007 / *Space Range*	

COST ($ in Millions)	Prior Years	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
64A007: *Space Range*	-	17.328	-	-	-	-	-	-	-	-	-	17.328
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

In FY 2015, PE 0603438F, Space Control Technology, Project 64A007 Space Range efforts were transferred to PE 0606116F, Space Test and Training Range Development, Project 666156, Space Test and Training Range Development in order to improve transparency for acquisition programs.

A. Mission Description and Budget Item Justification

This project supports the development of Space Test and Training Range (STTR) capabilities required to support developmental and operational test, training, exercises and tactics development for Space Control systems and related architecture. This includes development, demonstration and delivery of test assets, special test equipment, capabilities and systems required to test, validate, and verify performance of integrated space control systems. The objective of the STTR is to provide a safe, secure, controllable and repeatable environment for the testing and training of Space Control mission systems and operators that is both realistic and relevant. Additionally, this program supports the development of test range assets required to support developmental and operational test, exercises, training, and tactics development for Air Force and Joint-service space control systems/units. Included are both the fixed node Space Range Operation Center (SROC) at Schriever AFB and a deployable capability to support complex Joint and AF exercises. A space range Family of Systems (FoS) called Big Top is being developed to accomplish the STTR mission. The Big Top objective is integration into a Distributed Mission Architecture, tying into both the Information Operations (IO) and Air ranges for increased realism and complexity. This technology will allow for the first-ever use of a realistic signal environment to increase the realism and efficiency of space control squadron training. Satellite bandwidth is leased in this program for use in support of live testing and training events.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2014	FY 2015	FY 2016
Title: Range Control	15.483	-	-
Description: Development and acquisition of mobile, transportable, and fixed range monitoring and communications capabilities for the space range.			
FY 2014 Accomplishments: Completed initial delivery of the Deployable Range and SMU. Initiated Deployable Package 2. Initiated tech refresh activities for SROC Spiral 0. Completed SROC Spiral 1 upgrades and initiate Spiral 2 development. Continued development of advanced live, virtual and constructive environment and closed loop training capabilities via virtual packages and advanced software simulation tools.			
FY 2015 Plans: N/A			

Exhibit R-2A, RDT&E Project Justification: PB 2016 Air Force		Date: February 2015
Appropriation/Budget Activity 3600 / 4	**R-1 Program Element (Number/Name)** PE 0603438F / *Space Control Technology*	**Project (Number/Name)** 64A007 / *Space Range*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2014	FY 2015	FY 2016
N/A ***FY 2016 Plans:*** N/A			
Title: Live Fire Training In Degraded Environments ***Description:*** Development of closed loop trainers that joint forces will use to simulate operating through denied GPS and SATCOM environments. ***FY 2014 Accomplishments:*** Began development for delivery closed loop trainer capability for the STTR that joint forces will use to simulate operating though denied GPS and SATCOM environments. ***FY 2015 Plans:*** N/A ***FY 2016 Plans:*** N/A	1.000	-	-
Title: Bandwidth Support ***Description:*** Provides for leased SATCOM bandwidth for STTR operations. ***FY 2014 Accomplishments:*** Provided required space range satellite communications bandwidth for exercise, testing and training of both offensive and defensive space control systems on the space range. ***FY 2015 Plans:*** N/A ***FY 2016 Plans:*** N/A	0.845	-	-
Accomplishments/Planned Programs Subtotals	17.328	-	-

Exhibit R-2A, RDT&E Project Justification: PB 2016 Air Force		Date: February 2015
Appropriation/Budget Activity 3600 / 4	**R-1 Program Element (Number/Name)** PE 0603438F / *Space Control Technology*	**Project (Number/Name)** 64A007 / *Space Range*

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
• RDTE: BA06: PE 0606116F: *Space Test and Training Range Development*	-	19.512	18.997	-	18.997	19.167	19.504	19.912	20.264	-	-

Remarks

D. Acquisition Strategy

All contracts funded in this program element will be awarded using competitive procedures to the maximum extent possible.

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 2016 Air Force			Date: February 2015
Appropriation/Budget Activity 3600 / 4	R-1 Program Element (Number/Name) PE 0603438F / *Space Control Technology*	Project (Number/Name) 64A007 / *Space Range*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Leased Bandwidth	SS/FFP	DISA : Arlington, VA	-	0.845	Jan 2014	-		-		-		-	Continuing	Continuing	-
Space Range Operations Center	C/CPAF	Harris Corp : Melbourne, FL	-	3.698	Feb 2014	-		-		-		-	Continuing	Continuing	-
Joint Closed Loop Trainer	MIPR	Various : Various,	-	1.000	Jan 2014	-		-		-		-	Continuing	Continuing	-
STTR Transportable	C/TBD	TBD : TBD,	-	2.483	Jan 2014	-		-		-		-	Continuing	Continuing	-
Signal Generation, Monitoring and Collection	Various	SMC : Los Angeles AFB, CA	-	-		-		-		-		-	-	-	15.000
Range Scheduling Tool	Various	Various : Various,	-	-		-		-		-		-	-	-	1.000
Advanced Capabilities Environment (ACE)	C/CPAF	Harris Corp : Melbourne, FL	-	4.517	Jan 2014	-		-		-		-	Continuing	Continuing	-
Training Systems Requirements Analysis	C/CPAF	Spiral Solutions Tech : Omaha, NE	-	-		-		-		-		-	-	-	0.808
Interim Contractor Support	C/CPAF	Harris Corp : Melbourne, FL	-	-		-		-		-		-	-	-	4.300
Managment Operations	Various	TBD : TBD,	-	-		-		-		-		-	Continuing	Continuing	-
		Subtotal	-	12.543		-		-		-		-	-	-	-

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Program Support	Various	SMC : El Segundo, CA	-	-		-		-		-		-	Continuing	Continuing	-
		Subtotal	-	-		-		-		-		-	-	-	-

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
		Subtotal	-	-		-		-		-		-	-	-	-

Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Air Force			Date: February 2015
Appropriation/Budget Activity 3600 / 4	R-1 Program Element (Number/Name) PE 0603438F / *Space Control Technology*	Project (Number/Name) 64A007 / *Space Range*	

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Program Management Administration	Various	Space and Missile Systems Center : El Segundo, CA	-	2.265	Jan 2014	-		-		-		-	Continuing	Continuing	-
Logistics Support	C/CPAF	AT&T : El Segundo, CA	-	1.319	Nov 2013	-		-		-		-	Continuing	Continuing	-
Engineering and Technical Services	C/CPAF	AT&T : El Segundo, CA	-	1.201	Dec 2013	-		-		-		-	Continuing	Continuing	-
		Subtotal	-	4.785		-		-		-		-	-	-	-

	Prior Years	FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	-	17.328		-		-		-		-	-	-	-

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2016 Air Force		Date: February 2015
Appropriation/Budget Activity 3600 / 4	**R-1 Program Element (Number/Name)** PE 0603438F / *Space Control Technology*	**Project (Number/Name)** 64A007 / *Space Range*

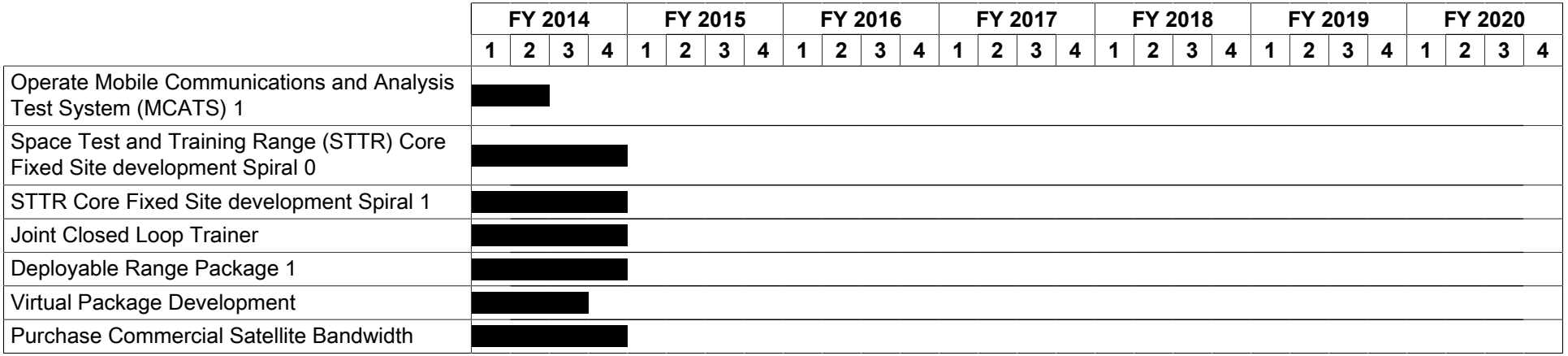

Exhibit R-4A, RDT&E Schedule Details: PB 2016 Air Force		Date: February 2015
Appropriation/Budget Activity 3600 / 4	**R-1 Program Element (Number/Name)** PE 0603438F / *Space Control Technology*	**Project (Number/Name)** 64A007 / *Space Range*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
Operate Mobile Communications and Analysis Test System (MCATS) 1	1	2014	2	2014
Space Test and Training Range (STTR) Core Fixed Site development Spiral 0	1	2014	4	2014
STTR Core Fixed Site development Spiral 1	1	2014	4	2014
Joint Closed Loop Trainer	1	2014	4	2014
Deployable Range Package 1	1	2014	4	2014
Virtual Package Development	1	2014	3	2014
Purchase Commercial Satellite Bandwidth	1	2014	4	2014