Exhibit R-2, RDT&E Budget Item Justification: PB 2013 Air Force										DATE: February 2012	
APPROPRIATION/BUDGET ACTIVITY 3600: *Research, Development, Test & Evaluation, Air Force* BA 4: *Advanced Component Development & Prototypes (ACD&P)*				R-1 ITEM NOMENCLATURE PE 0603438F: *Space Control Technology*							
COST ($ in Millions)	**FY 2011**	**FY 2012**	**FY 2013 Base**	**FY 2013 OCO**	**FY 2013 Total**	**FY 2014**	**FY 2015**	**FY 2016**	**FY 2017**	**Cost To Complete**	**Total Cost**
Total Program Element	63.310	44.635	25.144	-	25.144	25.159	26.190	27.053	27.882	Continuing	Continuing
642611: *Technology Insertion Planning and Analysis*	45.666	25.595	5.799	-	5.799	5.560	6.176	6.481	7.039	Continuing	Continuing
64A007: *Space Range*	17.644	19.040	19.345	-	19.345	19.599	20.014	20.572	20.843	Continuing	Continuing

Note

FY 2011 funding totals include $16.0M appropriated for Overseas Contingency Operations.

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 and Battle Management. For use in the Space Control mission area, SSA includes monitoring, detecting, identifying, tracking, assessing, verifying, categorizing, and characterizing, objects and events in space and 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 they provide, which may be used for purposes hostile to U.S. national security interests. Consistent with DOD policy, the negation efforts of this program currently focus on negation technologies which have temporary, localized, and reversible effects. Command & Control efforts include identifying technology solutions to enable fusion of data for use in multi-level security environments, near-real-time data delivery and decision support to war fighter needs. Rapid Reaction Capabilities in response to immediate war fighter needs are developed within this program.

Funding in FY11/12/13 also supports the development of the technology and infrastructure for space control elements of the Space Test and Trainging Range (STTR). This includes development and demonstration of test assets, special test equipment, capabilities and systems required to test, validate, and verify performance of integrated space control systems. Additionally, this program supports the development of test range assets required to support developmental and operational test, exercises, training, and tactics development for space control systems. A collaborative command & control capability will be integrated into several range systems to provide real time communications during test event scenarios.

Spacetrack Integration Node Global Enhanced Reporting (STINGER) project converts an enhanced processing capability developed for missile warning radar to use for the space situation awareness program radars.

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.

Exhibit R-2, RDT&E Budget Item Justification: PB 2013 Air Force		DATE: February 2012
APPROPRIATION/BUDGET ACTIVITY 3600: *Research, Development, Test & Evaluation, Air Force* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603438F: *Space Control Technology*	

B. Program Change Summary ($ in Millions)	FY 2011	FY 2012	FY 2013 Base	FY 2013 OCO	FY 2013 Total
Previous President's Budget	61.012	45.755	56.121	-	56.121
Current President's Budget	63.310	44.635	25.144	-	25.144
Total Adjustments	2.298	-1.120	-30.977	-	-30.977
• Congressional General Reductions	-	-1.120			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	2.528	-			
• SBIR/STTR Transfer	-	-			
• Other Adjustments	-0.230	-	-30.977	-	-30.977

Change Summary Explanation

Due to OSD DTIC rules, FY2011 adjustments are reflected in BY1 Other Adjustment Row.
FY11: -$0.230M for Congressional General Reductions
+$2.528M for Electromagnetic Interference Detection (EMI) JUON

FY12: -$1.120M for Congressional General Reductions

FY13: -$32.977M reallocation of funding to higher Department priorities
+$2.000M to transition Operationally Responsive Space architecture activities

Exhibit R-2A, RDT&E Project Justification: PB 2013 Air Force			DATE: February 2012
APPROPRIATION/BUDGET ACTIVITY 3600: *Research, Development, Test & Evaluation, Air Force* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603438F: *Space Control Technology*	PROJECT 642611: *Technology Insertion Planning and Analysis*	

COST ($ in Millions)	FY 2011	FY 2012	FY 2013 Base	FY 2013 OCO	FY 2013 Total	FY 2014	FY 2015	FY 2016	FY 2017	Cost To Complete	Total Cost
642611: *Technology Insertion Planning and Analysis*	45.666	25.595	5.799	-	5.799	5.560	6.176	6.481	7.039	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

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 for a responsive and resilient 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 and Battle Management. For use in the Space Control mission area, SSA includes monitoring, detecting, identifying, tracking, assessing, verifying, categorizing, and characterizing, objects and events in space and 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 they provide, which may be used for purposes hostile to U.S. national security interests. Analysis to support vulnerability and survivability studies and projects. Consistent with DOD policy, the negation efforts of this program currently focus on negation technologies which have temporary, localized, and reversible effects. Command & Control efforts include identifying technology solutions to enable fusion of data for use in multi-level security environments, near-real-time data delivery and decision support to war fighter needs. Rapid Reaction Capabilities in response to immediate war fighter needs are developed within this program.

Funding also supports the development of the technology and infrastructure for space control elements of the space test and training range. This includes development and demonstration of test assets, special test equipment, capabilities and systems required to test, validate, and verify performance of integrated space control systems. Additionally, this program supports the development of test range assets required to support developmental and operational test, exercises, training, and tactics development for space control systems. A collaborative command & control capability will be integrated into several range systems to provide real time communications during test event scenarios.

Spacetrack Integration Node Global Enhanced Reporting (STINGER) project converts an enhanced processing capability developed for missile warning radar to use for the space situation awareness program radars.

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.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2011	FY 2012	FY 2013
Title: SSA	3.526	10.112	-

Exhibit R-2A, RDT&E Project Justification: PB 2013 Air Force		DATE: February 2012
APPROPRIATION/BUDGET ACTIVITY 3600: *Research, Development, Test & Evaluation, Air Force* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603438F: *Space Control Technology*	PROJECT 642611: *Technology Insertion Planning and Analysis*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2011	FY 2012	FY 2013
Description: Space Situational Awareness efforts such as key space situational awareness enabling technologies, space sensor value modeling and architecture analysis for responsive and resilient SSA. ***FY 2011 Accomplishments:*** SSA- Continued optical sensor evaluations to augment the Space Surveillance Network, and Space Object identification missions. Develop proximity Indications and Warning (I & W) prototypes. Planning for qualification and flight testing. ***FY 2012 Plans:*** SSA- Continue optical sensor evaluations to augment the Space Surveillance Network, and Space Object identification missions. Develop proximity Indications and Warning prototypes. Planning for qualification and flight testing.			
Title: Survivability ***Description:*** Analysis to support vulnerability and survivability studies and projects. ***FY 2011 Accomplishments:*** Developed and delivered vulnerability report database. ***FY 2012 Plans:*** Developing and will release database improvements and conduct C2 analysis.	1.123	1.200	-
Title: DCS ***Description:*** Provides asymmetric threat vulnerability and analysis in support of Space and Missile Center and partnered acquisition developments. ***FY 2011 Accomplishments:*** Completed risk reduction for laser indications and warning (I&W) tecnology concept. Completed first fabrication run on test focal plane.	1.000	-	-
Title: C2 ***Description:*** Develop C2 technologies for the counterspace mission area. ***FY 2011 Accomplishments:*** Delivered prototype satellite tracking and orbit determination software. Completed analysis of space control mission needs for continued C2 efforts in support of the transition to operations.	0.584	-	-
Title: Rapid Reaction Branch (RRB)	22.151	5.206	3.470

Exhibit R-2A, RDT&E Project Justification: PB 2013 Air Force		DATE: February 2012
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B. Accomplishments/Planned Programs ($ in Millions)	FY 2011	FY 2012	FY 2013
Description: Developing advanced capabilities in response to the 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 in response to warfighter urgent needs. ***FY 2011 Accomplishments:*** Developed advanced capabilities in response to the warfighter JUONs. Integrated and tested new advanced techniques and technologies. Evaluated methods and techniques to answer new USSTRATCOM Evaluation Request Messages (EReqMs). Developed techniques and Technologies for further expansion of current warfighter capabilities. Replenished deployed assets with $16M of OCO funds. ***FY 2012 Plans:*** Developing and testing quick reaction capabilities to satify the UONs, JUONs and EReqMs received from USSTRATCOM and other warfighting commands. ***FY 2013 Plans:*** Develop and test quick reaction capabilities to satify the UONs, JUONs and EReqMs received from USSTRATCOM and other warfighting commands.			
Title: Electromagnetic Interference Detection (EMI) JUON ***Description:*** Develop a rapid reaction capability to satisfy the warfighter immediate need for EMI detection and geolocation. ***FY 2011 Accomplishments:*** Assisted in the development and fielding of a rapid reaction capability to satisfy the warfighter's urgent need for EMI detection and geolocation.	2.528	-	-
Title: SASSA ***Description:*** Self Awareness Space Situational Awareness (SASSA). Development of payload capability for an on-orbit demonstration of space protection capabilities. ***FY 2011 Accomplishments:*** Completed payload development for an on-orbit demonstration of space protection capabilities. Delivered SASSA payload for integration.	6.293	-	-
Title: STINGER	0.500	0.439	-

Exhibit R-2A, RDT&E Project Justification: PB 2013 Air Force		DATE: February 2012
APPROPRIATION/BUDGET ACTIVITY 3600: *Research, Development, Test & Evaluation, Air Force* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603438F: *Space Control Technology*	PROJECT 642611: *Technology Insertion Planning and Analysis*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2011	FY 2012	FY 2013
Description: Spacetrack Integration Node Global Enhanced Reporting (STINGER). Conversion of enhanced processing capability, developed for missile warning radar to use for the Space Situational Awareness program radars. ***FY 2011 Accomplishments:*** Began conversion of enhanced processing capability, developed for missile warning radar to use for the Space Situational Awareness program radars. ***FY 2012 Plans:*** Continuing conversion of enhance processing capability, developed for missile warning radar to use for the Space Situational Awareness program radars.			
Title: Other Program, Architecture and Program Office Support ***Description:*** Provide program office and other technical support including system engineering and architectural support. ***FY 2011 Accomplishments:*** Provided program office and other technical support including system engineering and architectural support. ***FY 2012 Plans:*** Provide program office and other technical support including system engineering and architectural support. ***FY 2013 Plans:*** Provide program office and other technical support including system engineering and architectural support. 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.	7.961	8.638	2.329
Accomplishments/Planned Programs Subtotals	45.666	25.595	5.799

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2011	FY 2012	FY 2013 Base	FY 2013 OCO	FY 2013 Total	FY 2014	FY 2015	FY 2016	FY 2017	Cost To Complete	Total Cost
• None: *N/A*	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing

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.

Exhibit R-2A, RDT&E Project Justification: PB 2013 Air Force		DATE: February 2012
APPROPRIATION/BUDGET ACTIVITY 3600: *Research, Development, Test & Evaluation, Air Force* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603438F: *Space Control Technology*	PROJECT 642611: *Technology Insertion Planning and Analysis*

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-4, RDT&E Schedule Profile: PB 2013 Air Force		DATE: February 2012
APPROPRIATION/BUDGET ACTIVITY 3600: *Research, Development, Test & Evaluation, Air Force* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 ITEM NOMENCLATURE** PE 0603438F: *Space Control Technology*	**PROJECT** 642611: *Technology Insertion Planning and Analysis*

Exhibit R-4A, RDT&E Schedule Details: PB 2013 Air Force		DATE: February 2012
APPROPRIATION/BUDGET ACTIVITY 3600: *Research, Development, Test & Evaluation, Air Force* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 ITEM NOMENCLATURE** PE 0603438F: *Space Control Technology*	**PROJECT** 642611: *Technology Insertion Planning and Analysis*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
SSA - Continue sensor development	1	2011	4	2012
SSA - Sensor development Critical Design Review	1	2013	1	2013
DCS - DCS technology development and evaluation	1	2011	4	2011
Command and Control	1	2011	4	2011
Command and Control Delivery	4	2011	4	2011
Survivability - Vulnerability Assessments/Technology Analysis	1	2011	4	2012
Rapid Prototyping	1	2011	4	2017
Architecture Development	1	2011	4	2017

Exhibit R-2A, RDT&E Project Justification: PB 2013 Air Force			DATE: February 2012
APPROPRIATION/BUDGET ACTIVITY 3600: *Research, Development, Test & Evaluation, Air Force* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603438F: *Space Control Technology*	PROJECT 64A007: *Space Range*	

COST ($ in Millions)	FY 2011	FY 2012	FY 2013 Base	FY 2013 OCO	FY 2013 Total	FY 2014	FY 2015	FY 2016	FY 2017	Cost To Complete	Total Cost
64A007: *Space Range*	17.644	19.040	19.345	-	19.345	19.599	20.014	20.572	20.843	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

A. Mission Description and Budget Item Justification

This program 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 and demonstration of test assets, special test equipment, capabilities and systems required to test, validate, and verify performance of integrated space control systems. Additionally, this program supports the development of test range assets required to support developmental and operational test, exercises, training, and tactics development for space control systems. A collaborative command & control capability will be integrated into several range systems to provide real time communications during test event scenarios.

This program is in Budget Activity 4, Advanced Component Development and Prototypes (ACD&P) because efforts are necessary to evaluate integrated technologies, representative modes or prototype systems in a high fidelity and realistic operating environment.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2011	FY 2012	FY 2013
Title: Range Control	12.442	14.575	13.410
Description: Range Control -- Development and acquisition of mobile, transportable, and fixed range monitoring and communications capabilities for the space range. ***FY 2011 Accomplishments:*** Transitioned from Space Range Operations Center (SROC) test-bed into the SROC. Conducted DT and integrated the capability to prepare the new system for operational test. Delivered the fixed range Signal Monitoring Unit (SMU) test-bed prototype. Delivered the first phase of the Space-Center Scheduling Enterprise (S-CSE). ***FY 2012 Plans:*** Conducting SROC Operational Test and preparing to make the new system operational. Transitioning from the SMU test-bed into fully operationally tested and accepted COTS/GOTS inside the SROC. Kicking off SROC Spiral II for X- and Ka-band capabilities. Beginning work on the deployable range/deployable SMU effort to deliver 4 deployable Signal Monitoring Unit systems. ***FY 2013 Plans:*** Continues progress toward initial delivery of transportable range system and signal monitoring units. Continues second phase of S-CSE implementation.			
Title: Bandwidth Support	2.094	1.357	3.160

Exhibit R-2A, RDT&E Project Justification: PB 2013 Air Force		DATE: February 2012
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B. Accomplishments/Planned Programs ($ in Millions)	FY 2011	FY 2012	FY 2013
Description: Space Test and Training Range (STTR) Leased Bandwidth ***FY 2011 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 2012 Plans:*** Providing required space range satellite communications bandwidth for exercise, testing and training of both offensive and defensive space control systems on the space range. ***FY 2013 Plans:*** Will provide required space range satellite communications bandwidth for exercise, testing and training of both offensive and defensive space control systems on the space range			
Title: Program Office Support ***Description:*** Provides Program Office and other technical support including systems engineering and architectural support. ***FY 2011 Accomplishments:*** Provided Program Office and other technical support including systems engineering and architectural support. ***FY 2012 Plans:*** Providing Program Office and other technical support including systems engineering and architectural support. ***FY 2013 Plans:*** Will provide Program Office and other technical support including systems engineering and architectural support.	3.108	3.108	2.775
Accomplishments/Planned Programs Subtotals	17.644	19.040	19.345

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2011	FY 2012	FY 2013 Base	FY 2013 OCO	FY 2013 Total	FY 2014	FY 2015	FY 2016	FY 2017	Cost To Complete	Total Cost
• N/A: *None*	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing

D. Acquisition Strategy

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

Exhibit R-2A, RDT&E Project Justification: PB 2013 Air Force		DATE: February 2012
APPROPRIATION/BUDGET ACTIVITY 3600: *Research, Development, Test & Evaluation, Air Force* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603438F: *Space Control Technology*	PROJECT 64A007: *Space Range*

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-4, RDT&E Schedule Profile: PB 2013 Air Force		DATE: February 2012
APPROPRIATION/BUDGET ACTIVITY 3600: *Research, Development, Test & Evaluation, Air Force* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 ITEM NOMENCLATURE** PE 0603438F: *Space Control Technology*	**PROJECT** 64A007: *Space Range*

Exhibit R-4A, RDT&E Schedule Details: PB 2013 Air Force		DATE: February 2012
APPROPRIATION/BUDGET ACTIVITY 3600: *Research, Development, Test & Evaluation, Air Force* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603438F: *Space Control Technology*	PROJECT 64A007: *Space Range*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
Operate Mobile Communications and Analysis Test System (MCATS) 1	1	2011	4	2013
Space Test and Training Range (STTR) Core Fixed Site development Spiral 0	1	2011	2	2012
STTR Core Fixed Site development Spiral 1	3	2011	4	2013
STTR Core Fixed Site development Spiral 2	3	2013	4	2015
Deployable Range Development	4	2011	3	2017
Deployable Range 1 Delivery	4	2013	4	2013
Deployable Range 2 Delivery	1	2016	1	2016
Deployable Range 3 Delivery	1	2016	1	2016
Deployable Range 4 Delivery	3	2017	3	2017
Virtual Package Development	1	2014	4	2017
Virtual Package 1 Delivery	1	2015	1	2015
Virtual Package 2 Delivery	1	2016	1	2016
Virtual Package 3 Delivery	1	2017	1	2017
Virtual Package 4 Delivery	4	2017	4	2017
Purchase Commercial Satellite Bandwidth	1	2011	4	2017