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Exhibit R-2, RDT&E Budget Item Justification: PB 2015 Air Force **Date:** March 2014

Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 4: Advanced Component Development & Prototypes (ACD&P)</i>	R-1 Program Element (Number/Name) PE 0603830F / <i>Space Security and Defense Program</i>
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COST (\$ in Millions)	Prior Years	FY 2013	FY 2014	FY 2015 Base	FY 2015 OCO #	FY 2015 Total	FY 2016	FY 2017	FY 2018	FY 2019	Cost To Complete	Total Cost
Total Program Element	-	9.557	24.764	32.313	-	32.313	33.302	31.586	31.120	31.514	Continuing	Continuing
64A025: <i>Space Protection Program</i>	-	9.557	24.764	32.313	-	32.313	33.302	31.586	31.120	31.514	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

The FY 2015 OCO Request will be submitted at a later date.

A. Mission Description and Budget Item Justification

This Program Element funds the DoD/Air Force component of the Space Security and Defense Program (SSDP). The SSDP is a Joint Department of Defense (DoD) and Office of the Director of National Intelligence (ODNI) organization established to function as the center of excellence for options and strategies (materiel, non-materiel, cross-Title, cross-domain) leading to a more resilient and enduring National Security Space (NSS) Enterprise. Formerly known as the Space Protection Program (SPP), the SSDP was chartered by the DoD and ODNI to expand the existing authorities and roles/responsibilities of the SPP; effectively integrating and unifying space protection efforts on a National level to better meet the evolving threat to our NSS systems and capabilities.

The SSDP Operates under the authority of the Deputy Secretary of Defense (DEPSECDEF) and Principal Deputy Director of National Intelligence (PDDNI) to lead and collaborate on space protection vulnerability, susceptibility, and mitigation assessments of NSS services for the purpose of identifying and introducing protection recommendations into existing requirements, budgeting, acquisition, and operational development processes. This unique mission provides an ongoing and crucial core protection competency that advances specific projects/activities (including cyber) to deliver comprehensive, economical and actionable solutions for both programmatic and operational domains.

The SSDP scope spans multiple space missions and stakeholders including the DoD, Intelligence Community (IC), civil, commercial, and international space entities that support NSS missions in both peacetime and throughout all phases of conflict. The program works within existing processes spanning requirements, budgeting, acquisition, and operational development to carry-out its protection mission. It is focused on being responsive to NSS stakeholders in providing technical and operational assessments of emergent threat concepts, and developing near- and far-term plans to address strategies, threats, and vulnerabilities. In the context of its projects and activities, the SSDP employs a cooperative, objective, and enterprise-level approach to implement the capabilities, plans and options to deter, defend against, and if necessary, defeat efforts to interfere with or attack U.S. or allied space systems in an increasingly constrained and hostile environment.

SSDP projects/activities center on identifying solutions to current space protection needs with a common sense approach to balancing near-term results with long-term acquisition, architecture, and strategic objectives. Given the ever-changing elements of the space protection landscape, the SSDP is designed to remain flexible and responsive to fluctuating NSS priorities and objectives. Protection projects/activities in one year are typically dependent upon or advised by the results/findings or progress made on tasks in the preceding FY, and must remain responsive to annual DEPSECDEF and PDDNI - approved SSDP Work Plans that take such variability into consideration. As such, SSDP FY15 projects/activities will be structured to address the priorities and objectives of the SSDP Work Plan and meet the National space survivability and protection needs as directed by the DEPSECDEF and the PDDNI. In order to ensure resiliency in a contested space environment, FY15 efforts

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will leverage available resources to support NSS survivability requirements and address protection issues, options, and strategies in the priority articulated in the annual SSDP Work Plan. SSDP will translate resilience, protection, endurance, and survivability into protection strategy/policy and threat mitigation projects and/or activities in specific mission areas to inform/impact budget and program formulation, influence the development of system or segment requirements, provide technical parameters to systems and capabilities, improve Concept of Operations (CONOPS) / Tactics, Techniques and Procedures (TTP) for operational systems, shape and inform protection-related policies, and identify areas for additional collection and/or analysis by the IC to feed threat mitigation efforts.

The FY15 President Budget request represents the resources required to operate and execute a synchronized and effective space protection effort for the Nation; fulfilling a unique, objective and independent role that considers comprehensive, enterprise-level, space and non-space, material and non-material solutions across NSS systems and architectures. The FY15 request preserves the skill-set, knowledge base and multi-organizational construct required to remain ahead of the threat and to evolve programmatic direction and operational CONOPS across multiple orbital regimes in a way that minimizes duplication and inefficiency. This essentially enables the SSDP to deliver the research, analysis, studies, tools and capabilities necessary to identify, prioritize, develop, and implement the most effective and economical solutions to preserve NSS capabilities.

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. Program Change Summary (\$ in Millions)	FY 2013	FY 2014	FY 2015 Base	FY 2015 OCO	FY 2015 Total
Previous President's Budget	10.429	28.764	21.717	-	21.717
Current President's Budget	9.557	24.764	32.313	-	32.313
Total Adjustments	-0.872	-4.000	10.596	-	10.596
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-4.000			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-	-			
• Other Adjustments	-0.872	-	10.596	-	10.596

Change Summary Explanation

FY13: -\$0.872M for Sequestration

FY14: -\$4.00M due to Congressional reduction

FY15: +\$10.596M to increase capacity and for additional low-cost/high-impact protection projects/activities

C. Accomplishments/Planned Programs (\$ in Millions)	FY 2013	FY 2014	FY 2015
Title: Threat Mitigation Project and Activities	9.557	15.214	26.389

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C. Accomplishments/Planned Programs (\$ in Millions)	FY 2013	FY 2014	FY 2015
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<p>Description: Entails the prioritized, project-specific technical efforts and activities supporting SSDP mission objectives. Encompasses all SSDP efforts to deliver and implement actionable solutions based on methodical, data-driven systems engineering and technical analysis to inform/impact both programmatic and operational domains. Includes associated program support/infrastructure and operating costs to sustain a coherent program effort and adhere to the legal demands/requirements of executing a program-specific baseline.</p> <p>FY 2013 Accomplishments: Engaged in a disciplined methodology to prioritize efforts and execute priority protection projects under a constrained budget baseline. Completed efforts resulting in the delivery and implementation of actionable solutions for key mission areas (Operations, Satellite Communication (SATCOM), Position-Navigation and Timing (PNT), Missile Warning, Cyber/Non-Kinetic Operations, Space Situational Awareness (SSA), Indications and Warning (I&W), and Intelligence - Surveillance - Reconnaissance (ISR)), as well as the initiation of several space protection vulnerability, susceptibility, and mitigation assessment activities. Specifically, conducted a number of campaign-specific efforts which integrated intelligence with operations to ensure resiliency of space systems in a contested environment. Designed, developed, and delivered validated response options to Combatant Commanders (COCOM) for varied threats and fully incorporated a pathfinder process for integrating new/ revised space concepts into USSTRATCOM operations/plans. Identified, evaluated and implemented low-cost means to leverage current capabilities to significantly improve decision support. Completed a focused FY13 protection study and leveraged determinations to inform specific NSS architectures and enable protection-level response options. Delivered Space Based Space Surveillance (SBSS) analysis and metrics which influenced budget/program formulation and enabled architecture decisions to optimize sensor performance and better satisfy protection metrics at a lower cost. Tested and matured key alternatives and metrics from the final Geosynchronous Earth Orbit (GEO) SSA study; resulting in implementation of a common GEO threat baseline by the IC and the use of an alternative evaluation methodology for the SSA architecture. Made significant progress and provided initial solutions to the Joint Space Operations Center (JSpOC) for a functional Electromagnetic Interference (EMI) architecture. Completed Office of the Secretary of Defense (OSD)-directed study and began implementation of Cyber support to defensive space alternatives to mitigate threats against specific systems and architectures. Supported a limited number of wargames and exercises to help refine TTPs and CONOPS along a space protection-specific tenet; providing ongoing modifications to COCOM response options. Engaged in an expanded National protection role consistent with the approved SSDP charter with more comprehensive scope of analyses and multi-agency considerations and involvement. Began the enhancement of existing strategic protection capabilities to meet an expanded chartered responsibility in this arena beginning in FY14.</p> <p>FY 2014 Plans: FY14 projects/activities are structured to address the priorities and objectives of the SSDP work plan and meet the Nation's space survivability and protection needs as directed by the DEPSECDEF and the PDDNI. Projects/activities, as planned, increase the existing program's scope and capability to execute a more comprehensive National protection mission and make further progress</p>			
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C. Accomplishments/Planned Programs (\$ in Millions)		FY 2013	FY 2014	FY 2015
<p>on systematically developing, reviewing and integrating protection-specific measures into policy, requirements, acquisitions and operations. The targeted objectives of FY14 projects/activities allow SSDP to better understand and deliver what is expected from the NSS community with regard to the protection of space-enabled capabilities in specific mission areas including Operations, SATCOM, PNT, Missile Warning, Cyber/Non-Kinetic, SSA, I&W, ISR.</p> <p>FY 2015 Plans: FY15 projects/activities will be prioritized to be consistent with the annual work plan that represents the NSS community's interests, priorities, and equities as well as the priorities articulated by the DEPSECDEF and PDDNI. SSDP will increase project capacity in FY15 to address additional high-priority space protection issues; applying existing processes/methodology to add specific project efforts for Advanced Space Combat Tactics, Counter Network Exploitation Analysis, WGS Defense Exploration, and GEO Catalog Expansion. The entire compliment of planned FY15 projects will continue to be focused on meeting the demands for operational planning, ongoing coordination of Title 10/50 activities, and the advancement of specific efforts to actionable solutions that have operational and/or programmatic impact. FY15 projects/activities are focused on providing effective and timely deliverables that approach space protection today as if we are in tomorrow's conflict, offer solutions to real problems in a methodical way consistent with National guidance, maintain appropriate balance between mitigating near-term threats and pursuing foundational analytical activities, and operate within DoD and ODNI authorities to provide value added injections into existing and future processes. SSDP will continue to address protection within key mission areas and be flexible and responsive to the evolving protection needs and priorities throughout the NSS Enterprise.</p>				
<p>Title: Strategic Protection Activities and Products</p> <p>Description: Efforts within this category were identified in the SSDP charter as a specific thrust area beginning in FY14. This encompasses the program strategic efforts to evaluate architectures, develop and support protection-related policy, influence and integrate protection requirements, analyze impacts of various policy recommendations on mitigation options, and inform/assist policy-makers on opportunities to leverage policy actions to enhance the space protection posture across the NSS Enterprise. These efforts provide critical data and support to the Threat Mitigation Projects and Activities as outlined in the previous section.</p> <p>FY 2013 Accomplishments: This activity existed as an inherent function of the Threat Mitigation Projects and Activities through FY13. Identified as a specific enhanced thrust area beginning in FY14.</p> <p>FY 2014 Plans: Engage in amplified strategic protection efforts for the SSDP with a FY14 focus on establishing integrated activities to support space survivability and protection objectives across policy, requirements, threat analysis, and architecture evaluation regimes. Specifically, SSDP will provide specialized technical support to assess, propose, inform/influence and/or develop (if necessary) policies relating to defensive space control and resilience. Additionally, the program will formalize its function and process</p>		-	3.550	3.924

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C. Accomplishments/Planned Programs (\$ in Millions)		FY 2013	FY 2014	FY 2015
to recommend policy considerations related to space protection and analyze the impacts of such proposals on mitigation development options. FY 2015 Plans: Continue dedicating strategic protection and policy integration efforts across all facets of the NSS Enterprise. Complete the evolution of this function to be fully integrated into the strategic protection aspect of all SSDP stakeholder processes and responsibilities. Focus in FY15 will evolve to provide more comprehensive technical assistance, advice, and strategic solutions in support of policy-related processes across the NSS Enterprise. Moreover, SSDP will inform and assist policy makers at every level on opportunities to shape policy to enhance space protection posture. Policy makers will also receive specialized technical assistance, protection-specific data/findings, and validated recommendations regarding the impacts that policy/strategy changes may/can have on our protection of NSS capabilities.				
Title: SATCOM Resiliency Enhancement Description: This is a protection-related enhancement funded through and advised/informed by the SSDP. It is a four-year incremental effort to enhance the ground-based software and associated operating/processing procedures used to plan WGS operations. It will leverage current system capabilities and planned software updates to improve code that will make a manually-intensive build cycle more automated/responsive. FY 2013 Accomplishments: N/A FY 2014 Plans: Kicks off a four-year incremental effort to implement a software code improvement to the ground based software used to plan WGS operations. As a protection-related enhancement, this effort is being funded through and overseen by the SSDP to have PM DCATS (Project Manager Defense Communications and Army Transmission Systems) execute specific software code improvements (within the framework of the existing system) to process data more efficiently. The effort encompasses improving code within the scope of the current ground processing contract to automate aspects of the planning software to make it more tactically responsive. The effort will also entail technique development and operational integration through the wideband architecture by exploring enabling infrastructure such as spectrum monitoring for electromagnetic interference. FY 2015 Plans: Efforts will lead to a planned initial software code update in early FY15 and planned implementation of the enhancement (to include revised operational techniques) by FY17. FY15 activities will encompass initial implementation tasks, testing and		-	6.000	2.000

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C. Accomplishments/Planned Programs (\$ in Millions)	FY 2013	FY 2014	FY 2015
amending the proposed code, and ongoing efforts to seamlessly integrate the enhancement into the ground-based WGS planning process.			
Accomplishments/Planned Programs Subtotals	9.557	24.764	32.313

D. Other Program Funding Summary (\$ in Millions)											
<u>Line Item</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u> <u>Base</u>	<u>FY 2015</u> <u>OCO</u>	<u>FY 2015</u> <u>Total</u>	<u>FY 2016</u>	<u>FY 2017</u>	<u>FY 2018</u>	<u>FY 2019</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• none: N/A	-	-	-	-	-	-	-	-	-	-	-

Remarks
 Note: The AF/DoD portion of the SSDP is funded entirely from this Program Element. Funding to support the complimentary/partnership National Reconnaissance Office (NRO) activities (as part of the joint/integrated program effort between AFSPC and the NRO) are programmed in the NRO classified funding request.

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

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.

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Exhibit R-4, RDT&E Schedule Profile: PB 2015 Air Force		Date: March 2014
Appropriation/Budget Activity 3600 / 4	R-1 Program Element (Number/Name) PE 0603830F / Space Security and Defense Program	Project (Number/Name) 64A025 / Space Protection Program



**SPACE SECURITY AND DEFENSE PROGRAM (SSDP)
SCHEDULE - Part I -**

Mission Area	FOCUS AREAS	FY13	FY14	FY15	FY16	FY17	FY18	FY19
Missile Warning	Defensive Protection Initiatives		SBIRS Resiliency Project		MW System Investigation			
	MW Assessments & Solutions	Mitigation Investigations	SBIRS Alt TTP #1	SBIRS Alt TTP #2	SBIRS Protection Solution #3	SBIRS Protection Solution #4		MW Solution
PNT	Assessments & Solutions (all realms – space, terrestrial, cyber)	Vulnerability Assessments	Cyber Risk Assessment	GPS Threat Characterization & Modeling		Space Segment Risk Assessment		GPS Protection Solutions
					Live Fire Ops Assessments			
Satellite Comm	Assured Communications		SATCOM Resiliency Part 1: RFI Part 2: TEST		Counterspace Techniques		COMSAT Resiliency	
					Contested Environment Training / Exercises			
	Vulnerability Assessments/ Mitigation Solutions	Geo Location & Rqt's Development	Wideband Defense Exploration	Commercial SATCOM		UHF Jamming		
		WGS Ops/ TTPs	EMI		Adversary EHF			
Solution Implementation (Advocacy / Oversight)			Comc'I Protection Solutions				UHF Solutions	
			EMI Protection Solutions				EHF Solutions	
Ops Engagement	Wargames & Exercises		SATCOM Protection Enhancement SW Code Update	Test, Integration, Automation				
	COCOM Operational Planning		Planning, Participation & COA Implementation (for up to five events per FY)					
			COCOM Oplans / ConPlans					
Operational Products and Analytical Engagement		Analytical COA Development / Delivery of Tailored COCOM Products						
		DARK HORIZONS	Dark Legion → Implement	WGM → Implement	Dark Guardians → Implement	TBD Tactic/COA → Implement		

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Date: March 2014

Appropriation/Budget Activity
3600 / 4

R-1 Program Element (Number/Name)
PE 0603830F / Space Security and Defense Program

Project (Number/Name)
64A025 / Space Protection Program



SPACE SECURITY AND DEFENSE PROGRAM (SSDP)
SCHEDULE - Part II -

Mission Area	FOCUS AREAS	FY13	FY14	FY15	FY16	FY17	FY18	FY19
Cyber	Cyber Protection (of blue space capabilities)	Space Mission Threat Assessment	Protection Project "DC"		Protection Project "DC Phase II"			
			MW Risk Assessment	SATCOM Vulnerability Assessment				
	Cyber Prevention (of adversary space threats)		AFSCN Follow-On	Missile Warning Follow-On				
			C2 and Information Systems and Sensors					
SSA	SSA Enterprise Requirements	SBSS Follow-On Analysis	Quantitative Assessment Capability		NSS Enterprise Survivability			
			GEO Rqt's	Protection-Level Requirements, Metrics and Analysis				
	Defensive Protection Initiatives	ZIMA Pt. I	ZIMA Pt. II	Initiative X	Initiative Y	Initiative Z		
	SSA Assessments and Solutions	GEO Study	Hosted Sensor Study	Other Sensors	Protection COAs & Response Options			
Strategic Protection	SSA Indications and Warning		JSpOC Integration & Support Plan	SSA Data Fusion & Sensor Employment		IC Data Cloud Fusion and Employment		
	Space Protection Policy and Strategy		Technical Spt for Policies/Strategies Relating to Nat'l Space Protection					
	Requirements and Acquisition Integration		Strategic Narrative Development & Execution					
Strategic Resiliency	Strategic Resiliency	Spt for Enterprise & System Level Requirements and Acquisitions to Address Vulnerabilities <i>Threat Mitigation Strategies Independent Program Assessments Req'ts/Acq Reviews Advise, Influence and Monitor Protection-Related Solutions Early in Req'ts/Acq Processes</i>						
			TREC	Resiliency Project TBD		Threat Interface Activity and Assessments		