Exhibit R-2, PB 2010 Air Force RDT&E Budget Item Justification									DATE: May 2009	
APPROPRIATION/BUDGET ACTIVITY 3600 - Research, Development, Test & Evaluation, Air Force/BA 2 - Applied Research					R-1 ITEM NOMENCLATURE PE 0602605F DIRECTED ENERGY TECHNOLOGY					
COST ($ in Millions)	**FY 2008 Actual**	**FY 2009 Estimate**	**FY 2010 Estimate**	**FY 2011 Estimate**	**FY 2012 Estimate**	**FY 2013 Estimate**	**FY 2014 Estimate**	**FY 2015 Estimate**	**Cost To Complete**	**Total Cost**
Total Program Element	55.062	62.701	105.677						Continuing	Continuing
624866: Lasers & Imaging Technology	34.600	36.534	74.139						Continuing	Continuing
624867: Advanced Weapons & Survivability Technology	15.751	19.910	31.538						Continuing	Continuing
6255SP: Laser and Imaging Space Tech	4.711	6.257	0.000						Continuing	Continuing

A. Mission Description and Budget Item Justification

This program covers research in directed energy technologies, primarily lasers and high power microwaves. In lasers, this research includes moderate to high power laser devices (electric and chemical) and associated optical components and techniques. In imaging, this research includes long-range optical imaging for space situational awareness. In advanced weapons, this program examines technologies such as narrowband and wideband high power microwave devices and antennas. Vulnerability/lethality assessments of representative systems are done for both areas. This program is in Budget Activity 2, Applied Research, since it develops and determines the technical feasibility and military utility of evolutionary and revolutionary technologies.

Exhibit R-2, PB 2010 Air Force RDT&E Budget Item Justification	DATE: May 2009
APPROPRIATION/BUDGET ACTIVITY 3600 - Research, Development, Test & Evaluation, Air Force/BA 2 - Applied Research	R-1 ITEM NOMENCLATURE PE 0602605F DIRECTED ENERGY TECHNOLOGY

B. Program Change Summary ($ in Millions)

	FY 2008	FY 2009	FY 2010	FY 2011
Previous President's Budget	56.915	62.871	90.216	
Current BES/President's Budget	55.062	62.701	105.677	
Total Adjustments	-1.853	-0.170	0.000	
Congressional Program Reductions	0.000	0.000		
Congressional Rescissions	0.000	-0.170		
Total Congressional Increases	0.000	0.000		
Total Reprogrammings	-0.717	0.000		
SBIR/STTR Transfer	-1.136	0.000		

Change Summary Explanation

Funding was increased in FY 2009 for additional demonstrations leading to an earlier transition of tactical directed energy weapon technologies. In FY 2010, funds from Project 55SP, Laser and Imaging Space Technology, are being moved to Project 4866, Lasers & Imaging Technology, to better align efforts. Also in FY 2010, significant funding for electric laser, relay mirror, and space situational awareness (SSA) efforts in PE 0603605F, Advanced Weapons Technology, have been moved into this PE to better reflect the actual technology readiness level of the efforts.

C. Performance Metrics

Under Development.

Exhibit R-2a, PB 2010 Air Force RDT&E Project Justification								DATE: May 2009		
APPROPRIATION/BUDGET ACTIVITY 3600 - Research, Development, Test & Evaluation, Air Force/BA 2 - Applied Research				R-1 ITEM NOMENCLATURE PE 0602605F DIRECTED ENERGY TECHNOLOGY					PROJECT NUMBER 624866	
COST ($ in Millions)	**FY 2008 Actual**	**FY 2009 Estimate**	**FY 2010 Estimate**	**FY 2011 Estimate**	**FY 2012 Estimate**	**FY 2013 Estimate**	**FY 2014 Estimate**	**FY 2015 Estimate**	**Cost To Complete**	**Total Cost**
624866: Lasers & Imaging Technology	34.600	36.534	74.139						Continuing	Continuing

Note

Note: In FY 2010, the efforts that had been in Project 55SP, Laser and Imaging Space Technology have been moved to this project to allow better integration of directed energy efforts. Also in FY 2010 several electric laser, relay mirror, and space situational awareness efforts in PE 0603605F, Advanced Weapons Technology, have been moved into this project to better reflect the actual technology readiness level of the efforts.

A. Mission Description and Budget Item Justification

This project explores the technical feasibility of moderate to high power lasers, including beam control, for applications such as aircraft protection, force protection, precision engagement, and Global War On Terrorism. It also explores the technical feasibility of long-range optical imaging for space situational awareness. New technologies will be developed and physics based modeling will be conducted that will enable: (1) compact, reliable, and affordable laser systems with good beam quality, scalability to high power, and high potential military utility; (2) optical and beam control systems to enhance space surveillance applications, laser beam propagation, and optical pointing and tracking. System concept assessment tools will be developed and used.

B. Accomplishments/Planned Program ($ in Millions)	FY 2008	FY 2009	FY 2010	FY 2011
MAJOR THRUST: Develop electric laser technologies for airborne tactical and strategic applications. Technologies include fiber, bulk solid state, and semiconductor lasers. Note: In FY 2010, some of the electric laser work in PE 0603605F, Advanced Weapons Technology, has been moved into this thrust to better reflect the actual technology readiness level of those efforts. In FY 2008: Refined laser sources to obtain higher efficiencies and improve ruggedness of designs. Continued development of system-level solutions to aero-optical issues involving airborne tactical laser weapon applications. Continued to scale electric lasers up to the weapons class power level. Refined technologies in effort to obtain suitable parameters in terms of size, weight, efficiency, affordability, reliability, maintainability, supportability, environmental acceptability, and ruggedness for next-generation applications. Performed further lethality assessment studies to assess the effectiveness of the various laser concepts in relevant scenarios. Continued coupon-level and mid-scale demonstration experiments to validate vulnerability assessment models.	15.311	16.378	32.014	

Exhibit R-2a, PB 2010 Air Force RDT&E Project Justification		DATE: May 2009			
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B. Accomplishments/Planned Program ($ in Millions)		**FY 2008**	**FY 2009**	**FY 2010**	**FY 2011**
In FY 2009: Improve design of laser sources for aircraft self-protection. Demonstrate system-level beam control solutions to aero-optical issues of tactical laser weapons applications on airborne platforms. Continue to assess the effectiveness of the various laser concepts in relevant scenarios. Continue to scale electric lasers up to the weapons class power level. Pursue higher power "eye-safer" electric laser concepts. Develop architectures that are suitable in terms of size, weight, efficiency, affordability, reliability, maintainability, supportability, environmental acceptability, and ruggedness for the next-generation applications. Perform damage/vulnerability tests against real or simulated systems. Use test results to verify models and assess laser effectiveness/system vulnerabilities. In FY 2010: Develop technologies, building on previous laser development efforts and incorporating joint service and agency technology advances, to support designing a weapon-class electric laser demonstrator for inclusion on a large aircraft. Enhance design of laser sources for aircraft self-protection and refine system packaging. Improve system architectures that are suitable in terms of size, weight, efficiency, affordability, reliability, maintainability, supportability, environmental acceptability, and ruggedness for the next-generation applications. Develop fiber laser technologies that can be used on a future airborne tactical laser system. Continue damage/vulnerability tests against real and/or simulated systems. Use test results to verify models and assess laser effectiveness/system vulnerabilities.					
MAJOR THRUST: Develop chemical, gas, and hybrid laser technologies (i.e. new fuel chemistry, fuel regeneration techniques, and nozzle designs) for scalable, high energy laser devices with improved efficiency. In FY 2008: Performed engineering analysis on enhanced-performance singlet delta oxygen generator coupled with advanced ejector nozzle concepts for airborne laser applications. Demonstrated advanced fuel chemistries. Continued scaling path demonstrations for electric discharge oxygen-iodine lasers and diode-pumped atomic lasers. In FY 2009: Demonstrate high-performance singlet delta oxygen generator and advanced ejector nozzle concepts for airborne laser applications based on results of previous analysis. Demonstrate scaled electric		5.824	5.204	5.885	

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B. Accomplishments/Planned Program ($ in Millions)		**FY 2008**	**FY 2009**	**FY 2010**	**FY 2011**
discharge oxygen-iodine lasers and refined diode-pumped atomic laser concepts. Improve modeling and simulation of chemical, hybrid, and diode-pumped lasers. In FY 2010: Transition technologies to improve laser nozzle and generator designs to enhance performance of chemical oxygen-iodine lasers such as those on the Airborne Laser. Continue to improve modeling and simulation of chemical, hybrid, and diode-pumped lasers.					
MAJOR THRUST: Develop optical and imaging technologies including advanced beam control, atmospheric compensation, and pointing and tracking for future optical imaging/laser systems. Develop and demonstrate technologies integrating laser device and associated optical systems. Note: Funding was increased for FY 2009 for additional experiments leading to an earlier transition of tactical laser weapon beam control technologies. In FY 2008: Measured and characterized aero-optical disturbances using integrated adaptive optics hardware in a wind tunnel. Developed and analyzed advanced tactical beam control architectures and critical beam control components. Began development of lightweight optics and advanced tracking techniques and technologies. Assessed alternatives to improve compensation in long horizontal path propagation. Began long-lead parts procurement and subsystem integration of high efficiency sodium beacon adaptive optics system. Continued development of silicon carbide fast steering mirror and complete inner gimbals for tactical relay mirror demonstrator. In FY 2009: Complete initial demonstration of system-level solutions to aero-optical distortions associated with airborne tactical laser weapons systems in wind-tunnel environment. Analyze improvements for consideration of system performance and mission suitability for solid state laser systems on large aircraft. Select improved compensation concepts for laboratory demonstrations of long horizontal path propagation. Begin assembly of major subsystems for the tactical relay mirror demonstrator. Integrate second-generation sodium beacon adaptive optics system with 3.5 meter telescope and prepare for demonstrations of compensated imaging and detection of very dim objects at visible and near-infrared wavelengths. Complete detailed design of a		11.128	14.952	12.604	

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B. Accomplishments/Planned Program ($ in Millions)	FY 2008	FY 2009	FY 2010	FY 2011
demonstrator laser weapon system based on DARPA's High Energy Liquid Laser Area Defense System device. In FY 2010: Continue final tactical relay mirror assembly and begin laboratory testing of major subsystems for the demonstrator. Continue aero-optics wind tunnel tests. Demonstrate in the laboratory selected atmospheric compensation concepts for laboratory long horizontal path propagation.				
MAJOR THRUST: Develop advanced, long-range, optical technologies such as advanced beam control; beam acquisition, tracking, and pointing; adaptive optics; dual line-of-sight pointing; large, lightweight optics; and optical coatings that support future space situational awareness (SSA) systems. Note: In FY 2010, efforts from Project 55SP, Laser and Imaging Space Technology, are being moved to this thrust in order to better align efforts as well as SSA efforts from PE 0603605F, Advanced Weapons Technology, to better reflect the actual technology readiness level of those efforts. In FY 2008: Not Applicable. In FY 2009: Not Applicable. In FY 2010: Complete system tests of second-generation sodium beacon adaptive optics system on 3.5 meter telescope and perform demonstrations of compensated imaging and detection of very dim objects at visible and near-infrared wavelengths. Develop, integrate, and test component and system level technologies to advance space situational awareness. Investigate passive and active imaging techniques and demonstrate imaging and non-imaging space-object identification techniques. Develop assessment methodologies by incorporating new experimental data from laser illumination, tracking, and compensated imaging; from results of space materials properties and aging analysis; and from enhanced numerical techniques. Support operational SSA mission planning tools, algorithms, predictive avoidance databases and assessment capabilities with expanded software tools. Develop tools supporting analysis, modeling, and simulation.	0.000	0.000	23.636	

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B. Accomplishments/Planned Program ($ in Millions)	FY 2008	FY 2009	FY 2010	FY 2011
CONGRESSIONAL ADD: Ceramics for Next-Generation Tactical Laser Systems	2.337	0.000	0.000	
In FY 2008: Continued development of advanced ceramic materials for solid state lasers.				
In FY 2009: Not Applicable.				
In FY 2010: Not Applicable.				

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C. Other Program Funding Summary ($ in Millions)

	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014	FY 2015	Cost To Complete	Total Cost
Activity Not Provided/ Related Activities:	0.000	0.000							Continuing	Continuing
PE 0601108F/ High Energy Laser Research Initiatives.	0.000	0.000							Continuing	Continuing
PE 0602890F/ High Energy Laser Research.	0.000	0.000							Continuing	Continuing
PE 0603444F/ Maui Space Surveillance System.	0.000	0.000							Continuing	Continuing
PE 0603605F/ Advanced Weapons Technology.	0.000	0.000							Continuing	Continuing
PE 0603924F/ High Energy Laser Advanced Technology Program.	0.000	0.000							Continuing	Continuing
PE 0602120A/ Sensors and Electronic Survivability.	0.000	0.000							Continuing	Continuing
PE 0602307A/ Advanced Weapons Technology.	0.000	0.000							Continuing	Continuing
PE 0602624A/ Weapons and Munitions Technology.	0.000	0.000							Continuing	Continuing
PE 0603004A/ Weapons and Munitions Advanced Technology.	0.000	0.000							Continuing	Continuing
PE 0602114N/ Power Projection Applied Research.	0.000	0.000							Continuing	Continuing
	0.000	0.000							Continuing	Continuing

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PE 0602702E/ Tactical Technology.					
PE 0603175C/ Ballistic Missile Defense Technology.	0.000	0.000		Continuing	Continuing
PE 0603883C/ Ballistic Missile Defense Boost Phase Segment.	0.000	0.000		Continuing	Continuing
PE 0602651M/ Joint Non-Lethal Weapons Applied Research.	0.000	0.000		Continuing	Continuing
PE 0603651M/ Joint Non-Lethal Weapons Technology Development.	0.000	0.000		Continuing	Continuing
Activity Not Provided/ This project has been coordinated through the Reliance 21 process to harmonize efforts and eliminate	0.000	0.000		Continuing	Continuing

D. Acquisition Strategy

Not Applicable.

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-2a, PB 2010 Air Force RDT&E Project Justification								DATE: May 2009		
APPROPRIATION/BUDGET ACTIVITY 3600 - Research, Development, Test & Evaluation, Air Force/BA 2 - Applied Research				R-1 ITEM NOMENCLATURE PE 0602605F DIRECTED ENERGY TECHNOLOGY					PROJECT NUMBER 624867	
COST ($ in Millions)	**FY 2008 Actual**	**FY 2009 Estimate**	**FY 2010 Estimate**	**FY 2011 Estimate**	**FY 2012 Estimate**	**FY 2013 Estimate**	**FY 2014 Estimate**	**FY 2015 Estimate**	**Cost To Complete**	**Total Cost**
624867: Advanced Weapons & Survivability Technology	15.751	19.910	31.538						Continuing	Continuing

A. Mission Description and Budget Item Justification

This project explores high power microwave (HPM) and other unconventional weapon concepts using innovative technologies. Technologies are developed that support a wide range of Air Force missions such as the disruption and degradation of an adversary's electronic infrastructure and military capability. This research will allow the effect to be applied covertly and with no collateral structural or human damage. This project also provides for vulnerability assessments of representative U.S. strategic and tactical systems to HPM weapons, HPM weapon technology assessment for specific Air Force missions, and HPM weapon lethality assessments against foreign targets. Active Denial technologies are also developed and assessed for Air Force non-lethal force protection applications.

B. Accomplishments/Planned Program ($ in Millions)	FY 2008	FY 2009	FY 2010	FY 2011
MAJOR THRUST: Investigate technologies for narrowband and wideband HPM components to support multiple Air Force applications such as the disruption of electronic systems and subsystems. Investigate other unconventional weapon concepts using innovative technologies. Note: FY 2010 funding increase allows enhanced development of HPM technologies. In FY 2008: Continued testing of the compact repetitively pulsed gigawatt-class HPM demonstration unit. Continued to improve the compact HPM source and conformal antenna such that they can be integrated into an airborne platform. Performed design studies for disk generators to further reduce the size of single shot devices. Analyzed the results from the HPM system source code that reflects multiple options for high power subsystem components. Investigated operation of advanced HPM power combining technology. Investigated state-of-the-art components such as fluid-filled HPM switch. In FY 2009: Enhance the compact repetitively pulsed gigawatt-class HPM testbed. Integrate and demonstrate a conformal antenna and command and control system for the compact HPM testbed. Design and develop narrowband HPM components that will be integrated into a demonstration aerial platform. Demonstrate maturing HPM source materials and assess the applicability of solid state subsystem designs supporting ruggedized high power airborne systems. Improve the wideband antenna and high voltage switch and	7.911	11.929	15.329	

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B. Accomplishments/Planned Program ($ in Millions)		**FY 2008**	**FY 2009**	**FY 2010**	**FY 2011**
demonstrate the effectiveness during field tests. Develop apparatus capable of correctly delivering gas into interaction region of HPM tubes. Investigate HPM concepts related to cyber warfare and determine new HPM waveforms that can be optimized for a counter-electronics application. Implement the enhanced options for high power subsystem components based on the results of the HPM system source code. Design/develop state-of-the-art energy storage power components. In FY 2010: Develop and evaluate components of the narrowband HPM aerial demonstrator. Investigate electromagnetic interference/electromagnetic capability of narrowband HPM components. Continue investigations of integrating a wideband HPM system into small unmanned aerial vehicles. Conduct laboratory experiments using new types of HPM waveforms for counter-electronics applications. Develop refined and specific application of flux-compression generators. Advance and utilize state-of-the-art energy storage components within pulsed-power components.					
MAJOR THRUST: Assess the effects/lethality of HPM directed energy weapon technologies against representative air and ground systems. Develop and apply sophisticated models to enhance the development of HPM and related technology. In FY 2008: Incorporated elemental modeling into predictive code for use in targeting and war gaming. Continued susceptibility testing of electronic targets. Applied hardening techniques and technology to identified platforms. Identified and mitigated HPM susceptibility for military systems of interest to HPM sources. Continued to investigate battle damage assessment technologies for use with HPM. Applied virtual modeling for HPM system enhancement. Continued to investigate and integrate improved material models into HPM tube simulations. Continued development of automatic design enhancement. In FY 2009: Apply physics-based understanding and models to predict target effects and incorporate capability into an engagement model. Continue verification and validation of engagement model software. Expand microwave effects mitigation effort to harden additional Air Force systems against red systems, including air defense systems. Verify linkages between components in an HPM system. Integrate, verify, and improve		5.863	6.030	6.816	

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B. Accomplishments/Planned Program ($ in Millions)		**FY 2008**	**FY 2009**	**FY 2010**	**FY 2011**
material models for field and thermal emission models. Begin upgrade of infrastructure to accommodate HPM effects testing at frequencies as high as 35 gigahertz. In FY 2010: Expand modeling capabilities to include accurate prediction of effects with minimal inputs. Continue effects mitigation efforts on systems of interest and expand into new systems to include modern tactical aircraft. Unite multiple HPM-related models for end-to-end simulation and design efforts. Complete infrastructure updates to enable representative effects testing on subsystems to cover all HPM frequencies currently of interest.					
MAJOR THRUST: Investigate advanced technologies that support force protection tactical applications, including non-lethal counterpersonnel applications from an airborne platform. Note: Funding was increased in FY 2010 to speed development of a next generation Active Denial demonstrator. In FY 2008: Continued development of test stand for full power non-lethal source for long range/airborne applications. Transitioned work on millimeter wave diagnostic techniques to testing and evaluation community. Began physics code modification to facilitate more compact next generation nonlethal system development. In FY 2009: Complete main design work for test stand for full power non-lethal radiating system demonstration. Continue development of advanced modeling codes that incorporate ability to model harmonic sources. Complete next phase of harmonic source development study. In FY 2010: Continue design and research work for test stand for full power non-lethal radiating system demonstration for airborne application. Continue development and use of advanced modeling codes that incorporate ability to model harmonic sources. Develop key source and thermal subsystems technologies for next generation Active Denial demonstrator. Begin harmonic source development.		1.977	1.951	9.393	

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C. Other Program Funding Summary ($ in Millions)

	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014	FY 2015	Cost To Complete	Total Cost
Activity Not Provided/ Related Activities:	0.000	0.000							Continuing	Continuing
PE 0602202F/ Human Systems Technology.	0.000	0.000							Continuing	Continuing
PE 0603605F/ Advanced Weapons Technology.	0.000	0.000							Continuing	Continuing
PE 0602120A/ Sensors and Electronic Survivability	0.000	0.000							Continuing	Continuing
PE 0602624A/ Weapons and Munitions Technology	0.000	0.000							Continuing	Continuing
PE 0602114N/ Power Projection	0.000	0.000							Continuing	Continuing
PE 0602651M/ Joint Non-Lethal Weapons Applied Research.	0.000	0.000							Continuing	Continuing
PE 0603851M/ Nonlethal Weapons	0.000	0.000							Continuing	Continuing
Activity Not Provided/ This project has been coordinated through the Reliance 21 process to harmonize efforts and eliminate	0.000	0.000							Continuing	Continuing

D. Acquisition Strategy

Not Applicable.

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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-2a, PB 2010 Air Force RDT&E Project Justification								DATE: May 2009		
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COST ($ in Millions)	**FY 2008 Actual**	**FY 2009 Estimate**	**FY 2010 Estimate**	**FY 2011 Estimate**	**FY 2012 Estimate**	**FY 2013 Estimate**	**FY 2014 Estimate**	**FY 2015 Estimate**	**Cost To Complete**	**Total Cost**
6255SP: Laser and Imaging Space Tech	4.711	6.257	0.000						Continuing	Continuing

Note

Note: In FY 2010, the efforts in this project are being moved to Project 4866, Lasers & Imaging Technology to better align efforts.

A. Mission Description and Budget Item Justification

Develop advanced, long-range, optical technologies such as advanced beam control; beam acquisition, tracking, and pointing; adaptive optics; dual line-of-sight pointing; large, lightweight optics; and optical coatings that support future space-object imaging systems. Assess the vulnerability of satellites to the effects of high-energy laser weapons and update catalogued satellites.

B. Accomplishments/Planned Program ($ in Millions)	FY 2008	FY 2009	FY 2010	FY 2011
MAJOR THRUST: Develop advanced, long-range, optical technologies such as advanced beam control; beam acquisition, tracking, and pointing; adaptive optics; dual line-of-sight pointing; large, lightweight optics; and optical coatings that support future space-object imaging systems. In FY 2008: Investigated the bandwidth, movement, and resolution limits of various adaptive optics concepts, correlated the attributes to user needs to include aero-optic compensation. Demonstrated the functionality of sharing each sub-aperture of a phased array for both transmit and receive. Demonstrated high resolution phased array imaging. Demonstrated spatial heterodyne interferometry in a coherent beam combining concept. In FY 2009: Continue testing of electrostatic deformable mirror technologies to determine maturity and utility for Air Force applications. Develop and demonstrate a high energy fiber laser phased array transceiver system level brassboard concept that includes high resolution pupil plane imaging, coherent beam combining, shared transmit/receive sub-apertures, and initial acquisition, pointing, and tracking investigation. In FY 2010: This thrust has been moved to Project 4866, Laser and Imaging Technology, in order to better align efforts.	2.394	2.544	0.000	

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B. Accomplishments/Planned Program ($ in Millions)	FY 2008	FY 2009	FY 2010	FY 2011
MAJOR THRUST: Assess the vulnerability of U.S. satellites to the effects of high-energy laser weapons and update catalogued satellites. In FY 2008: Explored new methods to develop and apply improved algorithms and hardware for satellite characterization and assessment. Continued to refine assessment methodology by incorporating new data into modeling tools, including results of laser illumination, tracking, and compensated imaging; and applying new techniques. Assessed the survivability and vulnerability of evolving aerospace systems to the effects of directed energy weapons. Integrated developed space material properties and aging effects data and algorithms into assessments. Continued to improve and mature capabilities to rapidly fuse existing sensor data to assess the operational health and status of aerospace systems while working to begin transition of these capabilities to U.S. Strategic Command and other users. In FY 2009: Expand analysis capabilities to provide assessments of effects on aerospace systems from new and emerging directed energy concepts. Continue to refine and broaden assessment methodologies by incorporating new experimental data from laser illumination, tracking, and compensated imaging; results of space materials properties and aging analysis; and enhanced numerical techniques. Continue support of operational mission planning tools, algorithms, predictive avoidance, and space situational awareness by updating and transitioning databases and assessment capabilities. Integrate and test advanced optical and infrared sensor systems with 3.5 meter telescope and second generation sodium beacon adaptive optics for dim space object tracking, detection, and imaging. In FY 2010: This thrust has been moved to Project 4866, Laser and Imaging Technology, in order to better align efforts.	2.317	3.713	0.000	

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C. Other Program Funding Summary ($ in Millions)

	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014	FY 2015	Cost To Complete	Total Cost
Activity Not Provided/ Related Activities:	0.000	0.000							Continuing	Continuing
PE 0603444F/ Maui Space Surveillance Systems.	0.000	0.000							Continuing	Continuing
PE 0603605F/ Advanced Weapons Technology.	0.000	0.000							Continuing	Continuing
PE 0601108F/ High Energy Laser Research Initiatives.	0.000	0.000							Continuing	Continuing
PE 0602890F/ High Energy Laser Research.	0.000	0.000							Continuing	Continuing
PE 0603924F/ High Energy Laser Advanced Technology Program.	0.000	0.000							Continuing	Continuing
PE 0603883C/ Ballistic Missile Defense Boost Phase Segment.	0.000	0.000							Continuing	Continuing
PE 0602120A/ Sensors and Electronic Survivability.	0.000	0.000							Continuing	Continuing
PE 0602307A/ Advanced Weapons Technology.	0.000	0.000							Continuing	Continuing
PE 0602624A/ Weapons and Munitions Technology.	0.000	0.000							Continuing	Continuing
PE 0603004A/ Weapons and Munitions Advanced Technology.	0.000	0.000							Continuing	Continuing
	0.000	0.000							Continuing	Continuing

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PE 0602114N/ Power Projection Applied Research.					
PE 0602702E/ Tactical Technology.	0.000	0.000		Continuing	Continuing
PE 0603175C/ Ballistic Missile Defense Technology.	0.000	0.000		Continuing	Continuing
PE 0603883C/ Ballistic Missile Defense Boost Phase Segment.	0.000	0.000		Continuing	Continuing
PE 0602651M/ Joint Non-Lethal Weapons Applied Research.	0.000	0.000		Continuing	Continuing
PE 0602651M/ Joint Non-Lethal Weapons Applied Research.	0.000	0.000		Continuing	Continuing
Activity Not Provided/ This project has been coordinated through the Reliance 21 process to harmonize the efforts and elimi	0.000	0.000		Continuing	Continuing

D. Acquisition Strategy

Not Applicable.

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.