Exhibit R-2, RDT&E Budget Item Justification: PB 2015 Air Force											Date: March 2014	
Appropriation/Budget Activity 3600: *Research, Development, Test & Evaluation, Air Force* / BA 3: *Advanced Technology Development (ATD)*					R-1 Program Element (Number/Name) PE 0603605F / *Advanced Weapons Technology*							
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	-	16.994	19.000	23.542	-	23.542	32.295	33.811	38.999	30.493	Continuing	Continuing
633151: *Lasers and Imaging Development and Integration*	-	10.918	9.518	16.011	-	16.011	13.474	12.926	12.087	12.340	Continuing	Continuing
633152: *High Power Microwave Development and Integration*	-	6.076	9.482	7.531	-	7.531	18.821	20.885	26.912	18.153	Continuing	Continuing

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

A. Mission Description and Budget Item Justification

This program provides for the development, integration, demonstration, and detailed assessment of directed energy weapon technologies including high energy laser (HEL), high power electromagnetics (HPEM), and other unconventional weapon generation and transmission technologies, which can support a wide range of Air Force applications. The program develops a corresponding susceptibility, vulnerability, and lethality database for directed energy weapons. Efforts in this program have been coordinated through the Department of Defense (DoD) Science and Technology (S&T) Executive Committee process to harmonize efforts and eliminate duplication. This program is in Budget Activity 3, Advanced Technology Development, since it develops and demonstrates technologies for existing system upgrades and/or new system developments that have military utility and address warfighter needs.

B. Program Change Summary ($ in Millions)	FY 2013	FY 2014	FY 2015 Base	FY 2015 OCO	FY 2015 Total
Previous President's Budget	19.004	19.000	25.374	-	25.374
Current President's Budget	16.994	19.000	23.542	-	23.542
Total Adjustments	-2.010	-	-1.832	-	-1.832
• Congressional General Reductions	-0.025	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-0.402	-			
• Other Adjustments	-1.583	-	-1.832	-	-1.832

Change Summary Explanation

Decrease in FY13 Other Adjustments was due to Sequestration.
Decrease in FY15 is due to higher DoD priorities.

Exhibit R-2A, RDT&E Project Justification: PB 2015 Air Force			Date: March 2014
Appropriation/Budget Activity 3600 / 3	R-1 Program Element (Number/Name) PE 0603605F / *Advanced Weapons Technology*	Project (Number/Name) 633151 / *Lasers and Imaging Development and Integration*	

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
633151: *Lasers and Imaging Development and Integration*	-	10.918	9.518	16.011	-	16.011	13.474	12.926	12.087	12.340	Continuing	Continuing

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

A. Mission Description and Budget Item Justification

This project provides for the development, integration, demonstration, and detailed assessment of HEL device and beam control technologies needed for applications such as force protection, force application, precision engagement, and aircraft self-protection. Laser system concept assessments to include vulnerability assessments and target effect testing are performed.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2013	FY 2014	FY 2015
Title: High Energy Laser/Beam Control	10.918	9.518	16.011
Description: Develop and demonstrate advanced beam control technologies, integrated laser systems, and aircraft self-protection laser technologies. Demonstrate beam control components integrated with HELs for military utility. ***FY 2013 Accomplishments:*** Continued to build-up and characterize the beam control system, completed the acquisition tracker interface, and completed the command and control code for the Air Force/DARPA demonstration of an integrated high energy electric laser device with a beam control subsystem on the ground. Investigated subsystem and system level capability concepts that integrate technologies for aircraft self-protection. Developed aero-effects predictive capability for airborne HEL platforms. Tested and characterized a wide-field-of-regard, transonic, tactical laser turret. ***FY 2014 Plans:*** With DARPA, integrate their high energy electric laser device and the Air Force beam control system on level ground and prepare to conduct high energy laser tests against various targets including rockets, artillery, and mortars (RAM). Continue to investigate concepts and technology requirements for future HEL applications such as aircraft self-protection ***FY 2015 Plans:*** With DARPA, conduct high power testing against counter-RAM targets using the integrated high energy electric laser device and beam control system on level ground and prepare to conduct high energy laser tests from a 3000 foot peak against various targets including ground targets and surface-to-air missiles. Document field lethality data, modeling and simulation tools, and lessons learned on the tests. Begin design of a full scale turret with aero-effects mitigation.			
Accomplishments/Planned Programs Subtotals	10.918	9.518	16.011

Exhibit R-2A, RDT&E Project Justification: PB 2015 Air Force		Date: March 2014
Appropriation/Budget Activity 3600 / 3	**R-1 Program Element (Number/Name)** PE 0603605F / *Advanced Weapons Technology*	**Project (Number/Name)** 633151 / *Lasers and Imaging Development and Integration*

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A

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, RDT&E Project Justification: PB 2015 Air Force			Date: March 2014
Appropriation/Budget Activity 3600 / 3	R-1 Program Element (Number/Name) PE 0603605F / *Advanced Weapons Technology*	Project (Number/Name) 633152 / *High Power Microwave Development and Integration*	

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
633152: *High Power Microwave Development and Integration*	-	6.076	9.482	7.531	-	7.531	18.821	20.885	26.912	18.153	Continuing	Continuing

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

A. Mission Description and Budget Item Justification

This project develops and demonstrates HPEM and other unconventional weapon generation and transmission technologies that support a wide range of Air Force missions such as the potential disruption, degradation, damage, or destruction of an adversary's electronic infrastructure and military capability. It also provides inputs to the susceptibility, vulnerability, and lethality databases.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2013	FY 2014	FY 2015
Title: HPEM Technologies	6.076	9.482	7.531
Description: Develop and evaluate HPEM and other unconventional weapon technologies for various platforms, including aerial, for applications such as counter-electronics. Develop and evaluate HPEM technologies for non-lethal, anti-personnel weapon applications. ***FY 2013 Accomplishments:*** Conducted a very successful flight test of the high power microwave (HPM) payload for the Counter-electronic High Power Microwave Advanced Missile Project. Analyzed the large amount of data from the flight test. Began development and evaluation of technologies to reduce size, weight, and power consumption for compact multi-pulse HPM system in an integrated platform with anti-tamper and battle damage assessment capabilities. ***FY 2014 Plans:*** Evaluate four candidate source technologies for potential use in a multi-target, reusable HPM counter-electronics munition demonstrator. Develop and evaluate technologies to reduce size, weight, and power consumption for a compact multi-pulse system in an integrated platform with anti-tamper and battle damage assessment capabilities. ***FY 2015 Plans:*** Begin design of a class of reusable, multi-pulse, multi-target counter-electronics payloads capable of being hosted in various advanced platforms. Characterize, model, test and evaluate Red directed energy threats on Blue assets.			
Accomplishments/Planned Programs Subtotals	6.076	9.482	7.531

C. Other Program Funding Summary ($ in Millions)

N/A

Exhibit R-2A, RDT&E Project Justification: PB 2015 Air Force		Date: March 2014
Appropriation/Budget Activity 3600 / 3	**R-1 Program Element (Number/Name)** PE 0603605F / *Advanced Weapons Technology*	**Project (Number/Name)** 633152 / *High Power Microwave Development and Integration*

C. Other Program Funding Summary ($ in Millions)

Remarks

D. Acquisition Strategy

N/A

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.