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Exhibit R-2, RDT&E Budget Item Justification: FY 2018 Air Force										Date: May 2017		
Appropriation/Budget Activity					R-1 Program Element (Number/Name)							
3600: Research, Development, Test & Evaluation, Air Force I BA 1: Basic Research					PE 0601108F I High Energy Laser Research Initiatives							
COST (\$ in Millions)	Prior Years	FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total	FY 2019	FY 2020	FY 2021	FY 2022	Cost To Complete	Total Cost
Total Program Element	-	12.871	14.168	14.417	0.000	14.417	14.615	14.906	15.204	15.508	Continuing	Continuing
615097: High Energy Laser Research Initiatives	-	12.871	14.168	14.417	0.000	14.417	14.615	14.906	15.204	15.508	Continuing	Continuing
A. Mission Description and Budget Item Justification												
This program funds basic research aimed at developing fundamental scientific knowledge to support future Department of Defense (DoD) high energy laser (HEL) systems. This program funds multi-disciplinary research institutes to conduct research on laser and beam control technologies. In addition, this program supports educational grants to stimulate interest in HELs. These educational grants are used for educational tools, scholarships, and summer intern employees in military laboratories. Efforts in this program have been coordinated through the DoD Science and Technology (S&T) Executive Committee process to harmonize efforts and eliminate duplication.												
This program is in Budget Activity 1, Basic Research because this budget activity includes scientific study and experimentation directed toward increasing fundamental knowledge and understanding in those fields of the physical, engineering, environmental, and life sciences related to long-term national security needs.												
B. Program Change Summary (\$ in Millions)				FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total				
Previous President's Budget				13.778	14.168	14.417	0.000	14.417				
Current President's Budget				12.871	14.168	14.417	0.000	14.417				
Total Adjustments				-0.907	0.000	0.000	0.000	0.000				
• Congressional General Reductions				0.000	0.000							
• Congressional Directed Reductions				0.000	0.000							
• Congressional Rescissions				0.000	0.000							
• Congressional Adds				0.000	0.000							
• Congressional Directed Transfers				0.000	0.000							
• Reprogrammings				-0.413	0.000							
• SBIR/STTR Transfer				-0.494	0.000							
• Other Adjustments				0.000	0.000	0.000	0.000	0.000				
C. Accomplishments/Planned Programs (\$ in Millions)									FY 2016	FY 2017	FY 2018	
Title: HEL Devices									6.003	6.728	6.717	
Description: Improve the fundamental understanding of HEL sources, to include solid state, fiber, and gas laser technologies.												
FY 2016 Accomplishments:												

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C. Accomplishments/Planned Programs (\$ in Millions)		FY 2016	FY 2017	FY 2018
Continued innovative laser technologies in diode-pumped alkali, short-pulse, fiber, and solid state laser technologies. Continued overseas efforts to leverage international technology advancements. FY 2017 Plans: Continue innovative laser technologies in diode-pumped alkali, short-pulse, fiber, and solid state laser technologies. Continue overseas efforts to leverage international technology advancements. FY 2018 Plans: Continue innovative laser technologies in diode-pumped alkali, short-pulse, fiber, and solid state laser technologies. Continue overseas efforts to leverage international technology advancements.				
Title: HEL Beam Control Description: Improve the fundamental understanding of beam control technologies, as they relate to HEL applications. Conduct research in atmospheric characterization, metrology, control systems, algorithms, and beam control component technology. FY 2016 Accomplishments: Continued research on innovative beam control architectures. Continued overseas efforts to leverage international technology advancements. FY 2017 Plans: Continue research on innovative beam control architectures. Continue overseas efforts to leverage international technology advancements. FY 2018 Plans: Continue research on innovative beam control architectures. Continue overseas efforts to leverage international technology advancements.		5.768	6.240	6.500
Title: HEL Education Description: Fund educational grants intended to stimulate interest in HELs among students. FY 2016 Accomplishments: Provided scholarships and internships to support college students studying HEL degrees. Provided grants to Service Academies to stimulate HEL studies among military cadets. Funded publication of journals and support continuing education for professionals in the HEL field. FY 2017 Plans:		1.100	1.200	1.200

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C. Accomplishments/Planned Programs (\$ in Millions)		FY 2016	FY 2017	FY 2018
Provide scholarships and internships to support college students studying HEL degrees. Provide grants to Service Academies to stimulate HEL studies among military cadets. Fund publication of journals and support continuing education for professionals in the HEL field.				
FY 2018 Plans: Provide scholarships and internships to support college students studying HEL degrees. Provide grants to Service Academies to stimulate HEL studies among military cadets. Fund publication of journals and support continuing education for professionals in the HEL field.				
Accomplishments/Planned Programs Subtotals		12.871	14.168	14.417
D. Other Program Funding Summary (\$ in Millions) N/A				
Remarks				
E. Acquisition Strategy N/A				
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.				