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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)								DATE February 2002			
BUDGET ACTIVITY 03 - Advanced Technology Development				PE NUMBER AND TITLE 0603410F Space Systems Environmental Interactions 2822 Technology				PROJECT			
COST (\$ in Thousands)		FY 2001 Actual	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	Cost to Complete	Total Cost	
2822	Space Environmental Impact Tests	3,240	0	0	0	0	0	0	Continuing	TBD	
	Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0	
<p>Note: In FY 2002, efforts were transferred from this PE into PE 0603401F, Advanced Spacecraft Technology, Project 4400, Spacecraft Protection, in order to align projects within the Air Force Research Laboratory (AFRL) organization.</p> <p>(U) <u>A. Mission Description</u> This program develops and demonstrates technologies to improve the survivability and reliability of current and future DoD space systems. It develops and demonstrates cost-effective solutions to mitigate hazardous space environmental interactions including electrical charge buildup and electronics failures due to both single radiation events and long-term radiation doses.</p> <p>(U) <u>FY 2001 (\$ in Thousands)</u></p> <p>(U) \$1,325 Completed ground testing of space environmental sensor for flight with the Communications/Navigation Outage Forecast System (C/NOFS). Supported integration, launch, and on-orbit operations of instrumentation to provide improved space radiation hazard specification and forecasting. Completed space test of plasma sensor prototype for C/NOFS spacecraft. Completed integration of space-based, all-sky camera to detect solar disturbances. Began integration of relativistic electron and proton detector for mission to map the dynamic radiation belts and quantify the hazards to space systems.</p> <p>(U) \$1,017 Advanced spacecraft survivability through collaborative experiments and development of design tools needed for advanced power, communications, and surveillance systems. Completed web-based spacecraft charging design tool. Began analysis of miniaturized charge control system and space power tether system performance.</p> <p>(U) \$898 Developed technology to warn of spacecraft charging, chemical contamination, and kinetic impact hazards to DoD and commercial spacecraft. Developed technologies to mitigate the effect of the space environment on DoD space systems. Technologies to control the level of spacecraft charging and high-energy radiation effects will significantly improve space system reliability and availability, reduce operational costs, and provide techniques to degrade hostile space assets. Continued compact environment anomaly sensor validation. Demonstrated new compact environment anomaly sensor capabilities for geosynchronous orbit environments on Air Force operational satellites. Began ground tests of global particle enhancement and depletion technologies.</p>											
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<p>(U) <u>C. Program Change Summary (\$ in Thousands) Continued</u></p> <p>(U) <u>Significant Program Changes:</u> In FY 2002, in order to align projects within the Air Force Research Laboratory organization, all efforts in this Program Element were transferred to PE 0603401F, Project 4400.</p> <p>(U) <u>D. Other Program Funding Summary (\$ in Thousands)</u></p> <p>(U) Related Activities:</p> <p>(U) PE 0602601F, Spacecraft Technology.</p> <p>(U) This project has been coordinated through the Reliance process to harmonize efforts and eliminate duplication.</p> <p>(U) <u>E. Acquisition Strategy</u> Not Applicable.</p> <p>(U) <u>F. Schedule Profile</u> Not Applicable.</p>		
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