

Boeing Demonstrates Aerospace Relay Mirror System-- Presentation (Postprint)

**Maria McCullough
Marc Selinger**

07 August 2006

Technical Paper

APPROVED FOR PUBLIC RELEASE; DISTRIBUTION IS UNLIMITED.



**AIR FORCE RESEARCH LABORATORY
Directed Energy Directorate
3550 Aberdeen Ave SE
AIR FORCE MATERIEL COMMAND
KIRTLAND AIR FORCE BASE, NM 87117-5776**

REPORT DOCUMENTATION PAGE*Form Approved*
OMB No. 0704-0188

Public reporting burden for this collection of information is estimated to average 1 hour per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing this collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden to Department of Defense, Washington Headquarters Services, Directorate for Information Operations and Reports (0704-0188), 1215 Jefferson Davis Highway, Suite 1204, Arlington, VA 22202-4302. Respondents should be aware that notwithstanding any other provision of law, no person shall be subject to any penalty for failing to comply with a collection of information if it does not display a currently valid OMB control number. **PLEASE DO NOT RETURN YOUR FORM TO THE ABOVE ADDRESS.**

1. REPORT DATE (DD-MM-YYYY) 07-08-2006		2. REPORT TYPE Technical Paper		3. DATES COVERED (From - To) OCT 01, 2003- AUG 07, 2006	
4. TITLE AND SUBTITLE BOEING DEMONSTRATES AEROSPACE RELAY MIRROR SYSTEM-- PRESENTATION (Postprint)				5a. CONTRACT NUMBER In House- DF299965	
				5b. GRANT NUMBER	
				5c. PROGRAM ELEMENT NUMBER 063500F	
6. AUTHOR(S) Maria McCullough Marc Selinger				5d. PROJECT NUMBER 5031	
				5e. TASK NUMBER SH	
				5f. WORK UNIT NUMBER 01	
7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES) AFRL/RDS 3550 ABERDEEN AVE SE KIRTLAND AFB, NM 87117				8. PERFORMING ORGANIZATION REPORT NUMBER	
9. SPONSORING / MONITORING AGENCY NAME(S) AND ADDRESS(ES) AIR FORCE RESEARCH LABORATORY 3550 ABERDEEN AVE SE				10. SPONSOR/MONITOR'S ACRONYM(S) AFRL/RDSO	
				11. SPONSOR/MONITOR'S REPORT NUMBER(S) AFRL-RD-PS-TP-2008-1009	
12. DISTRIBUTION / AVAILABILITY STATEMENT APPROVED FOR PUBLIC RELEASE; DISTRIBUTION IS UNLIMITED.					
13. SUPPLEMENTARY NOTES PUBLISHED ON BOEING WEBSITE http://www.boeing.com/news/releases/2006/q3/060807a_nr.html . AUGUST 7, 2006. "GOVERNMENT PURPOSE RIGHTS"					
14. ABSTRACT NEWS RELEASE: BOEING [NYSE: BA] AND THE U.S. AIR FORCE ACHIEVED MAJOR PROGRESS IN THEIR RELAY SYSTEM DEVELOPMENT PROGRAM BY SUCCESSFULLY REDIRECTING A LASER BEAM TO A TARGET USING THEIR AEROSPACE RELAY MIRROR SYSTEM (ARMS).					
15. SUBJECT TERMS					
16. SECURITY CLASSIFICATION OF:			17. LIMITATION OF ABSTRACT	18. NUMBER OF PAGES	19a. NAME OF RESPONSIBLE PERSON
a. REPORT UNCLASSIFIED	b. ABSTRACT UNCLASSIFIED	c. THIS PAGE UNCLASSIFIED			LAURIE KNORR
			SAR	4	19b. TELEPHONE NUMBER (include area code) 505- 846-2711

Standard Form 298 (Rev. 8-98)
Prescribed by ANSI Std. Z39.18

Boeing Demonstrates Aerospace Relay Mirror System



Click image to view Photo Release.

These images are available for editorial use by news media on: boeingmedia.com

ST. LOUIS, Aug. 07, 2006 -- Boeing [NYSE: BA] and the U.S. Air Force achieved major progress in their relay system development program by successfully redirecting a laser beam to a target using their Aerospace Relay Mirror System (ARMS).

The demonstration, conducted recently at U.S. Air Force Research Laboratory facilities at Kirtland Air Force Base, N.M., used a half-scale version of a strategic relay mirror payload that ultimately could be packaged and carried to high altitudes on airships, long-endurance aircraft or spacecraft. The payload could be used with airborne, ground-based or sea-based high-energy lasers to destroy ballistic missiles and other targets. Relay mirror systems will greatly enhance laser weapon system performance by reducing the atmosphere's effects on laser beams and extending their range beyond line of sight.

"This demonstration is a major step in the development of relay technology because it shows that a relay mirror system can receive laser energy and redirect it to a target, extending the laser's range," said Pat Shanahan, vice president and general manager of Boeing Missile Defense Systems.

During the demonstration, Boeing suspended the 15-foot-high ARMS hardware 100 feet above the ground using a mechanical crane. Testers fired a low-power, sub-kilowatt-class ground laser from several miles away at one of the ARMS payload's two 75-centimeter mirrors. The other mirror relayed the non-lethal beam to a ground-based target board about two miles away from the ARMS.

Boeing began its ARMS work four years ago under a \$20 million Air Force contract. Now that the work is completed, the Air Force plans to use the ARMS hardware to establish a permanent test bed for relay system technology development.

Boeing Missile Defense Systems conducts its relay system work through its Directed Energy Systems unit, formerly called Laser & Electro-Optical Systems.

A unit of The Boeing Company, Boeing Integrated Defense Systems is one of the world's largest space and defense businesses. Headquartered in St. Louis, Boeing Integrated Defense Systems is a \$30.8 billion business. It provides network-centric system solutions to its global military, government and commercial customers. It is a leading provider of intelligence, surveillance and reconnaissance systems; the world's largest military aircraft manufacturer; the world's largest satellite manufacturer; a foremost developer of

advanced concepts and technologies; a leading provider of space-based communications; the primary systems integrator for U.S. missile defense; NASA's largest contractor; and a global leader in sustainment solutions and launch services.

###

Contact Info:

Maria McCullough

Boeing Missile Defense Systems

office: (703) 414-6158

maria.mccullough@boeing.com

Marc Selinger

Boeing Missile Defense Systems

office: (703) 414-6138

marc.selinger@boeing.com