

FAA William J. Hughes Technical Center

Aviation Security Research and Development

MISSION: Perform research and development (R&D) to eliminate civil aviation security incidents. The Federal Aviation Administration Aviation Security Research and Development Division is the lead organization within the FAA responsible for R&D programs related to civil aviation security.

AVIATION SECURITY LABORATORY

The mission is geared towards anticipating future threats to civil aviation security. In so doing, programs are conducted that accelerate and expand promising technologies to the point of operational test and evaluation. Technologies that have successfully gone through this process have been passed to the Security Equipment Integrated Product Team for deployment in our nation's airports. The research and development goal is to develop systems that are fully integrated into the aviation system; are highly automated, utilizing the strengths of a variety of technologies; and are geared to optimizing the screener's operational performance.



PROGRAM AREA STRUCTURE

The Aviation Security R&D Division has divided its functions into four interrelated program areas: Explosives and Weapons Detection, Aircraft Hardening, Human Factors, and Airport Security Technology Integration. Each program area makes a significant contribution toward achieving the goals of the aviation security system of the future.

The Division conducts R&D projects to develop technologies to protect three major entry points to the aircraft or vectors. The entry points are through checked luggage, the checkpoint (passenger or carry-on bag), and cargo. Other program areas each include Explosives Vulnerability and Mitigation Techniques, Human Factors, and Security of Civil Aviation Airports and Air Carriers.

No single technology can totally address the problem of aviation security. Technology development has not reached a point where it can operate autonomously,



i.e., totally without the human operator. Adopting a "systems" approach to security requirements and optimizing each component for low cost, but high performance allows the Division to produce cost-effective solutions for distinct security problems. This approach continues to balance the application of people, procedures, and technology to each threat classification.

RESEARCH AND DEVELOPMENT PARTNERSHIPS

The FAA Aviation Security R&D Program has been in effect since 1974. Since its inception, the Aviation Security R&D Program has fostered the establishment of productive relationships with many organizations. These organizations include U.S. government agencies, industry, academia, and foreign countries that promote technology development for improved aviation security. Each of the FAA's partnering organizations contributes to the Aviation Security R&D mission by providing information, R&D, equipment, and/or facilities. The FAA uses these partnership agreements to leverage its Aviation Security R&D project investments.

LONG-RANGE VIEW

The FAA's vision of an integrated aviation security system for the twenty-first century incorporates the strengths of a variety of technologies that are continuously being monitored and upgraded to respond to changes in the threat environment. This future system will enable aviation security professionals to perform at maximum levels of effectiveness. The application of automated detection technologies will enhance screener performance by providing detection that is constantly vigilant and not subject to distraction or fatigue as in the case of human or canine screeners. This understanding of the aviation security system of the future provides guidance and direction for future Aviation Security R&D efforts and supports decisions for today's FAA investments.

R&D Facilities



Terrorist capabilities and techniques will continue to increase and evolve. This ever-changing threat necessitates continued R&D for the foreseeable future. Aviation Security R&D efforts will continue to focus on modifications and other technical improvements to deployed explosives detection equipment. Identification and evaluation of explosive mitigation techniques will also continue. Efforts will continue to expand to include the complete aviation spectrum of airports, aircraft, and other airspace system components as necessary.

PROGRAM AREA OUTPUTS

The FAA, through the Aviation Security R&D Program, promotes the development of technologically improved products in explosives detection, aircraft hardening, airport security, and human factors. Program outputs include:

- A total airport security systems definition and concept of operations.
- Standard test protocols and performance criteria to aid in the operational deployment of improved aviation security systems.
- A list of approved explosive detection devices and certified explosives detection systems.
- Definitions of methods for airport security screener training and evaluation.
- Tests of explosive-resistant luggage containers and exploration of other blast mitigation techniques that will help ensure that potentially catastrophic terrorist acts do not result in the loss of an aircraft.
- Major products from Aviation Security R&D programs are systems, devices, technologies, specifications, and analysis tools.
- Support for the development of new products and systems.
- Support for the Security Equipment Integrated Product Team.

Airports, air carriers, and airframe manufacturers benefit from these products to advance public confidence in civil aviation security.

For further information, contact:
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Federal Aviation Administration
William J. Hughes Technical Center
Atlantic City International Airport, NJ 08405
Phone: (609) 485-4958
Fax: (609) 383-1973
www.tc.faa.gov

