TRANSPORTATION SECURITY ADMINISTRATION

Advanced Imaging Technology
Safety and Health Program

August 3, 2011
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And
Canadian Organization of Medical Physicists
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TSA Mission & Vision

Mission: The Transportation Security Administration protects the Nation’s transportation systems to ensure freedom of movement for people and commerce.

Vision: The Transportation Security Administration will continuously set the standard for excellence in transportation security through its people, processes, and technology.

Evolving Threats

- TSA has continuously enhanced layers of security since 9/11:
  - Cockpit doors
  - Improved baggage, carry-on, and passenger screening procedures and technologies
  - Behavior detection programs
- As a result, the threat is being driven to smaller items artfully concealed on persons with informed adversaries exploiting our social norms
- Home-made explosives
- Non-metallic threats

The Benefits of Advanced Imaging Technology

- Improves security effectiveness by displaying metallic and non-metallic anomalies.
- Enhances passenger experience by minimizing need for physical pat-downs.
- Ensures privacy by placing the security officer viewing the image in a remote location, using privacy filters, and not having capability to store or transfer images.
- Improves security effectiveness by reducing physical fatigue of security personnel and improving their effectiveness through training and image detection technique.
- Is a highly effective security tool. In fact, the technology has led to the detection of more than 300 prohibited, illegal or dangerous items at checkpoints nationwide since January 2010.
50 Years of Advanced Imaging Technology

- National Academy of Science published book that includes AIT safety
- Test trials conducted at airports in Australia
- National Labs and the FAA study AIT for use in passenger screening
- Manufacturers line up AIT technology to compete against CT scans.
- TSL testing
- JHU/APL validates the Rapiscan Secure 1000 SP is below the radiation dose per screening requirements
- TSIF Dosimetry Study & FDA Study
- American College of Radiology says scans are "negligible dose"
- TSA accelerates nationwide AIT rollout & independent radiation surveys
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- Active Millimeter Wave Technology

- Uses non-ionizing electromagnetic radiation to generate an image based on the energy reflected from the body.
- The three-dimensional image of the body is displayed on a remote monitor for analysis.
- Ideal for identifying both metallic and non-metallic threats.
- TSA has deployed nearly 250 systems.
- Millimeter wave technology that TSA uses is safe for passengers. In fact, the energy emitted is 1000 times less than limits set by the International Commission on Non-Ionizing Radiation Protection (ICNIRP).

General-Use Backscatter X-ray

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Automatic Target Recognition (ATR)

TSA recently began installing new software, also referred to as Automated Target Recognition (ATR) on every millimeter wave machine in U.S. airports. The software is designed to enhance privacy by eliminating passenger-specific images and instead depicting anomalies detected during the screening process on a generic outline of a person that is identical for all passengers.

By eliminating the image of an actual passenger and replacing it with a generic outline of a person, passengers are able to view the same outline that the TSA officer sees. Further, a separate TSA officer will no longer be required to view the image in a remotely located viewing room. By removing this step of the process, AIT screening will become more efficient, expanding the throughput capability of the technology.

Operators are presented with a clear message when anomalies are NOT detected.

Qualified Technology

• Before TSA purchases technology, TSA communicates safety and health requirements to manufacturers through procurement specifications and engineering reviews.

• The advanced imaging technology (AIT) meets national safety and consensus standards and has been validated by third parties.

• Systems are tested prior to deployment, upon installation, and while deployed, tested in accordance with applicable standards.

Operations and Maintenance

• Once installed, TSA ensures the required manufacturer’s preventive maintenance is performed by qualified personnel.

• Only trained operators are authorized to perform AIT screening functions.

• System and Image quality checks are performed:
  • Daily
  • After power is restored
  • After system maintenance

TSA - Public Communications

AIT safety related information is posted to the TSA public website at:
http://www.tsa.gov/research/reading/index.shtm

• Response to Center for Study of Responsive Law inquiry on people screening, Center for Devices and Radiological Health, Food and Drug Administration, November 5, 2010

• White House Office of Science and Technology Policy Statement on AIT Safety

• TSA AIT Safety Study Memo

• Johns Hopkins University Applied Physics Laboratory, Radiation Safety Engineering Assessment Report for the Rapiscan Secure 1000 in Single Pose Configuration, October 2009 and August 2010

• Assessment of the Rapiscan Secure 1000 Body Scanner for Conformance with Radiological Safety Standards, July 21, 2006

• Radiation Surveys for the Rapiscan Secure 1000 Single Pose
Learn more about AIT safety:
http://www.tsa.gov/approach/tech/ait/safety.shtm

Since TSA began using imaging technology over 98 percent of passengers have chosen to be screened by the technology over alternative procedures.