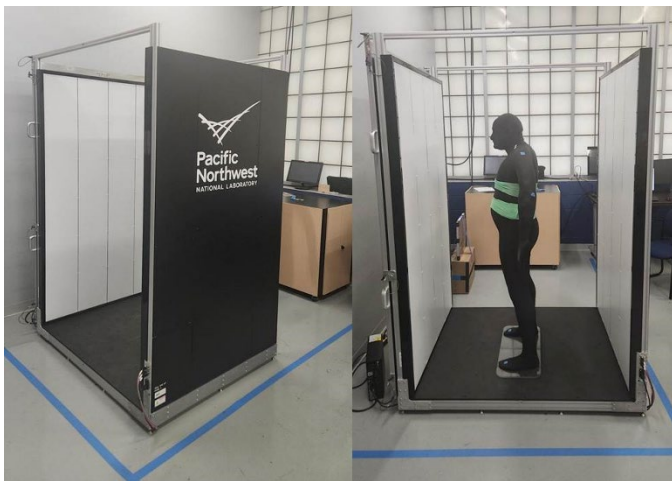


### THE FUTURE OF AVIATION SCREENING

The Department of Homeland Security (DHS) understands the importance of updating airport passenger screening systems to stay ahead of security risks, but also to accommodate the growing number of passengers who are traveling each year.

The DHS Science and Technology Directorate (S&T) is developing systems for the Transportation Security Administration (TSA) to increase efficiency and effectiveness, while improving the passenger experience. One of these development efforts is the Real-Time Advanced Imaging Technology (AIT) passenger screening panels that could enable walk-by passenger screening versus the current pause-and-pose process used for current systems.



Real-Time Advanced Imaging Technology passenger screening panels are tested with a mannequin at the Transportation Security Laboratory. Photo Credit: PNNL

### HIGH-DEFINITION SCREENING

The S&T Screening at Speed Program is developing the next generation of passenger screening for TSA and has partnered with the Department of Energy's Pacific Northwest National Laboratory (PNNL) to develop Real-Time AIT passenger screening panels. These screening panels capture high-resolution images at video rates, which is faster than current systems and enabling near-real-time screening results.

The system uses advanced millimeter-wave technology to detect contraband items through clothing and other materials in real-time, as a person moves in front of the screening panels. This could enable more effective threat detection, reduced false alarms, fewer secondary screenings and pat downs, and potentially shorter wait times.

The Real-Time AIT systems are also built on an open architecture. This enables rapid software updates and the use of third-party algorithms, which will allow TSA to solicit cutting-edge detection algorithms from the broader community. The higher-resolution data could also allow passengers to wear light outerwear in the passenger screening portal without having to remove them.

### PROGRESS TO DATE

The S&T Transportation Security Laboratory (TSL) is conducting technical evaluations on the Real-Time AIT passenger screening panels to revise and enhance performance, while also informing the development of a prototype detection algorithm.

### RECENT ACCOMPLISHMENTS

- Demonstrated an in-motion AIT prototype that enables next-generation concepts of operations such as passenger self-screening or high-throughput screening. (FY23 Q4)
- Delivered to TSL a Real-Time AIT with data quality suitable for certification readiness testing. (FY25 Q1)

### UPCOMING MILESTONES

- Begin Real-Time AIT algorithm development. (FY27 Q1)
- Complete certification readiness testing of real-time AIT. (FY28 Q4)

### HD-AIT DEVELOPMENT PARTNERS

- PNNL, Richland, WA
- Transportation Security Laboratory, Atlantic City, NJ
- TSA Requirements and Capabilities Analysis, Springfield, VA