Spotlight
Department of Homeland Security
Office of Inspector General
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TSA Penetration Testing of Advanced Imaging Technology

Unclassified Summary

Transportation Security Administration (TSA) began piloting advanced imaging technology (AIT) in 2007, and accelerated its deployment of AIT to provide greater explosives detection capabilities in order to identify materials such as those used in the attempted December 25, 2009 attack. The AIT screens passengers for metallic and nonmetallic threats including weapons, explosives and other objects concealed under layers of clothing without physical contact to help TSA keep the traveling public safe. Additionally, TSA uses pat-downs to resolve anomalies in the AIT images.

TSA uses two types of imaging technology, millimeter wave and backscatter. Millimeter wave technology bounces electromagnetic waves off the body to create a black and white three-dimensional image. Backscatter technology projects low level X-ray beams over the body to create a reflection of the body displayed on the monitor. AIT screening is optional for all passengers. Passengers who opt out of AIT screening will receive alternative screening, including a physical pat-down.

In February 2011, TSA piloted Automated Target Recognition (ATR), a software package for the millimeter wave AIT. ATR uses the same screening technology as the millimeter wave technology referenced above with one difference. The system performs all necessary image analysis to determine the location of anomalies found during a scan of the passenger, thereby removing the human factor from the image review process. The AIT with ATR then displays information regarding the location of the anomalies on an avatar to facilitate secondary screening.

As of January 2011, TSA has invested more than $87 million in the acquisition, installation, and maintenance of AIT technologies. Of the $87 million, approximately $77 million was for the purchase of backscatter and millimeter wave technologies and $10 million for installation and maintenance. Additionally, TSA is in the process of investing $7 million to upgrade AIT units with ATR capability.

We evaluated the effectiveness of TSA's AIT units used at passenger screening checkpoints and its specific screening procedures. We also determined whether Transportation Security Officers followed the established policies and procedures for the technology. The compilation of the number of tests conducted, the names of airports tested, and the quantitative and qualitative results of our testing are classified, or designated as Sensitive Security Information. We have shared the information with the Department, the TSA, and appropriate Congressional committees.

We identified vulnerabilities in the screening process at the passenger screening checkpoint at the domestic airports where we conducted testing. As a result of our testing, we made eight recommendations and TSA concurred with all the recommendations. When fully implemented, these recommendations should strengthen the overall effectiveness of the screening process at the passenger screening checkpoint. TSA appreciated the work done by the Office of Inspector General and will analyze the audit results as part of its ongoing efforts to assess and improve passenger checkpoint screening. The agency acknowledged that improvements can be made in the operation of new passenger screening technologies to prevent individuals with threat objects from entering airport sterile areas undetected. TSA will continue to take the necessary steps to increase the effectiveness of AIT.

For Further Information:
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