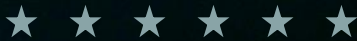


ADSA12

**TSA Third
Party Advanced
Technology
(AT) X-ray
Market
Research**



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TSIF Test Lead



**Transportation
Security
Administration**



Summary

- TSA seeks to increase efficiency and improve detection at checkpoints with currently available technology.
 - Conducting industry days and other market research activities to identify innovative solutions and improvements.
 - Conducting testing of selected solutions to determine the technical readiness level and capabilities and limitations.

OSC and Roles

- **Office of Security Capabilities (OSC):** Safeguard our nation's transportation systems through the qualification and delivery of innovative security capabilities and solutions.
- **Brian Whitty:** Test and Evaluation Developmental Lead. Focuses on developmental and qualification lab testing technology prior to operational testing in the field.
- **Jon Glickhouse:** Acquisitions and Program Management for Advanced Technology X-ray.

Goals

- TSA is assessing various ways to increase efficiency and throughput, as well as, improve detection at the checkpoint with no negative impact to detection capability or staffing levels.
 - Conducting industry days and other market research activities to identify innovative solutions and improvements.
 - Conducting testing of selected solutions to determine the readiness level.

Market Research Testing

- TSA has performed market research testing* on third party add-ons to AT X-ray technology, including:
 - Third Party detection algorithms
 - Third Party graphical user interface (GUI)
 - Remote Screening
 - Baggage Handling Systems
 - Automated bag diverter
 - Automated bin return
 - Parallel divesting

* Testing provides overview of technology and is not an official qualification test with pass/fail criteria.

Results

- **Detection algorithms**

- Verified the ability to integrate third party detection algorithms with the host X-ray system, however additional detection algorithms resulted in an increase in bounding boxes per image and an increased false alarm rate.

- **Remote Screening**

- Remote screening reduced the noise and distractions and allowed Transportation Security Officers (TSO) to focus on screening X-ray images. However, there is concern over the lack of communication between the X-ray screener and the bag check, the inability to match baggage to passenger types (i.e. crew luggage), and the inability to easily request a bag/item be re-ran through the X-ray.

Results

- **Baggage Handling Systems**

- Automated bin/bag diverters have shown the potential to decrease TSO workloads at the checkpoint, however additional verification would be required before fielding this type of system to ensure the risk of a breach of a suspected bag is mitigated.
- The current requirements do not allow for any AT baggage handling system that requires bins be used for every passenger item.
- Parallel divest lanes showed the potential to decrease the starvation rate of the X-ray system, which potentially could increase throughput. However, it would require an active divest officer at every AT system and a change in passenger behavior, which has been problematic in limited field tests.
- Additionally, the large footprint of AT baggage handling systems limits the number of U.S. airports in which they could reasonable fit.

Next Steps

- Possible field testing and pilots.
- If interim fix is desired, possible rapid deployment before next generation is ready.
- Incorporate into next generation AT requirements.