



**Providing Reliable Results.**  
Portable Detection  
and Analysis Tools



**Alert – ADSA12**

**One Resonance Sensors**

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**Checkpoint Technology  
Enabling Effective Screening  
of Bottles and Portable  
Electronics**

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# SUMMARY

- The Technology:
  - Integrated Bottles and Electronics Screening Systems
    - Hardware and software
- What benefit could TSA ( and RoW) obtain from my technology?
  - Improved threat detection
    - Tier 2 BLS (opaque liquid containers)
    - Screening personnel electronic items
  - Improved throughput and passenger facilitation
    - BLS and ES integrated into Automated Screening Lanes (Innovation Lanes)
    - Optimized operation and space utilization (search table)
- So What?
  - Increase security
  - Increased throughput
  - lower operating costs
- Who Cares?
  - Passengers (and Congress): Faster checkpoints, less aggravation
  - Airlines: More efficient, more on-time operation
  - TSA: More efficient checkpoints, lower staffing levels, can be done now



# Automated Screening Lanes (ASL)

- Larger property bins that hold 25% more.
- Automated belts that draw bags into the X-ray machines, so passengers do not have to wait for their bags to enter the scanners.
- Radio Frequency Identification (RFID) tags on the bins that allow TSA officers to track them as they pass through the system.
- Cameras that link a photo of each bag to an X-ray image of its contents.
- A separate area for problem bags, allowing other bags to pass through the system without delay.



**TSA Adds Automated Screening Lanes To Four Airports**

by [Daniel McCarthy](#) / July 06, 2016

# THE TECHNOLOGY

- The integration of bottled liquid (BLS) and electronics benchtop (ES) scanners with Automated Screening Lanes allows to increase safety while keeping a high passenger throughput.
- Adding an electronics scanner addresses a critical security gap: explosives concealed in electronics
- Integrating a BLS improves safety when liquids are allowed on board. Increased the probability of detection, keeping the False Alarm Rates low
- Simple mechanical integration with Automated Tray Return Systems
- Minimum or no impact to passenger throughput
- No additional operator is necessary
- Minimal training required



# TECHNOLOGY SUMMARY

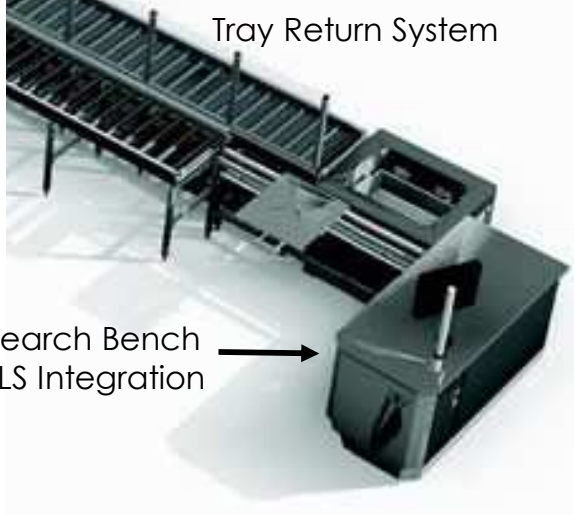
Integration of benchtop scanners with Automated Tray Return Systems

## Benchtop Scanners

- Quadrupole Resonance-based portable electronics screening: detects explosives concealed in phones, tablets and other electronics. Recently evaluated by DHS and UK DSTL. Trials in Doha and TelAviv
- NMR-based screening of bottled liquids: improves efficiencies to ban to travel with liquids. ECAC endorsed. Installation in Spain. Trials in Doha, Luton, Narita. Proposal for live trials in the US, Innovation Lanes integrated into a ASL

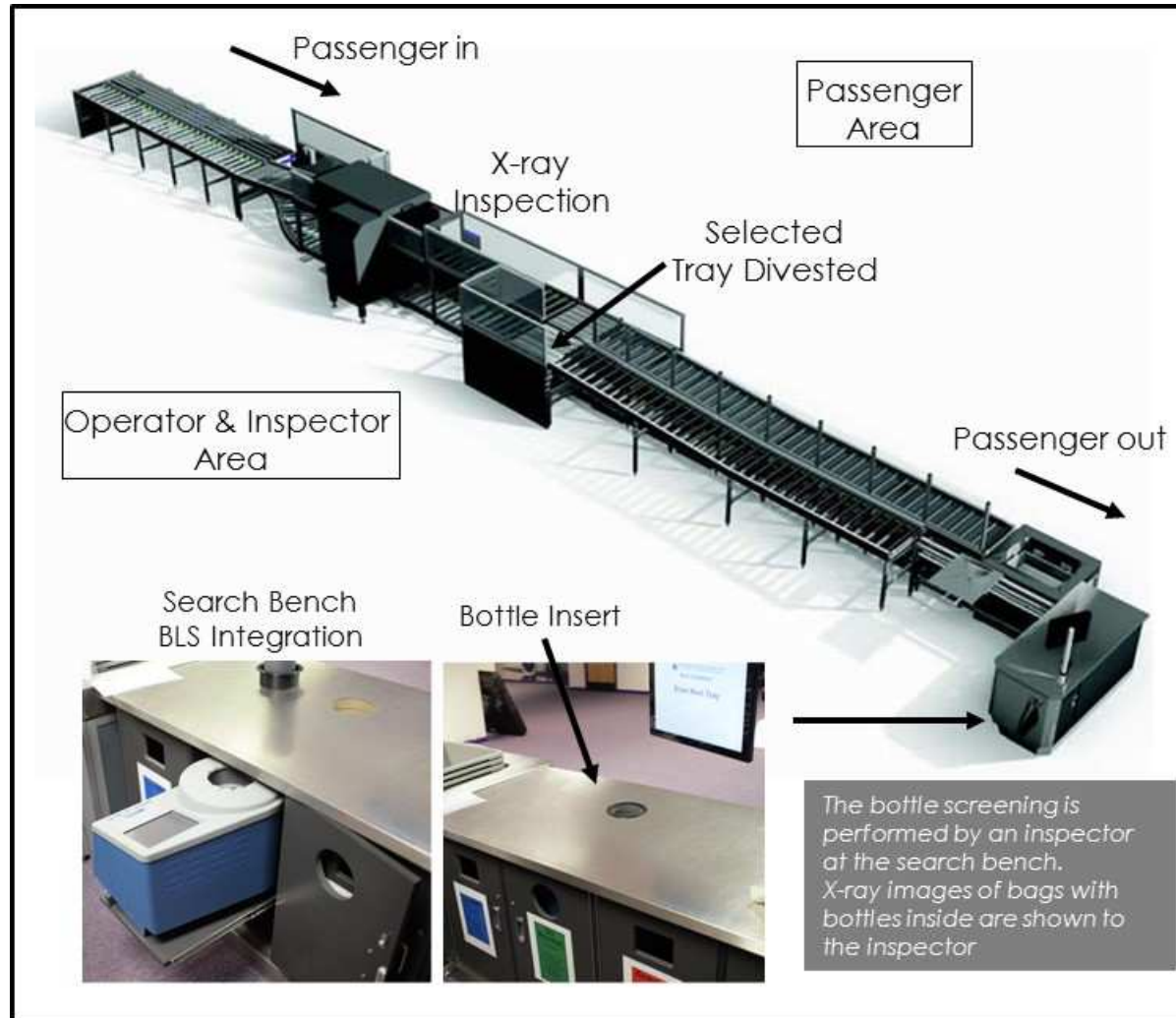


# BOTTLED LIQUID SCANNER INTEGRATION



"Hole" in the Search Table

# INNOVATION LANE ASL WITH BOTTLED LIQUID SCANNER



# ASL Conops Details

- Who is responsible for scanning liquids?
  - The appropriate authority, in the US the TSA
- Non-Declared LAGs
  - These are removed and screened if they are exempt (medical essentials, baby food and duty free items (transparent only) in compliant STEBS. If not they are confiscated.
- 3-1-1 bags?
  - Currently they are removed for non-Pre-Check lanes
- How are alarms from the BLS resolved?
  - The BLS is the final step, resolution normally centers around an interview.
  - In the EU another BLS can be used based on a different technology.
- How is the info from the RFID and video camera used?
  - The RFID and the video camera ensure the TSO doing the bag search knows what he is looking for. The image and photo of bag is present to the searcher.
- How is RBS handled in an ASL?
  - Currently the ASL just receives image/threat data from the sensor.
  - Under OTAP or similar, algorithm resides with the ASL and implements RBS in that way.
- Is a TSO capable of reviewing 720 images per hour?
  - This number of images per hour requires a matrixed operator implementation.
- What is the role of ATR at the checkpoint?
  - Apart from improved security to reduce the number of images presented to the operator.





# ELECTRONICS SCANNER INTEGRATION: CONCEPT

Integrated with Checkpoint Search Bench



# Summary

- Automated Screening Lanes combine the requirement for security the needs of the airline, airport and passenger for improved facilitation.
  - TSA Innovation lanes are demonstrating improvements already!
- The improvements in facilitation gained by the use of ASLs is due to optimization of every step.
  - For example, the number of button presses an x-ray operator has to do.
- The concept of integrating alarm resolution and secondary search into the ASL is key.
  - Hardware integration: Efficient use of space, more search table space
  - Software integration: Improved operation, tracking and compliance
- Design for integration is now a priority