

Future Aviation Security Capabilities

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Requirements and Capabilities Analysis
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Transportation
Security
Administration



Capability Goals

- Establish walk-through screening for passengers
- Automate screening where possible
- Implement measurement processes that support improved screening performance (higher P_D , lower P_{FA})
- Improved system data collection and analytics

Technology and System Overview

Baggage/Cargo Screening

- Differential Phase Contrast (DPC), X-Ray Diffraction (XRD), Multi-energy Detectors (ME), Machine Learning/AI
- Advanced x-ray: few photon, quantum control, etc
- High resolution explosives trace detection with non-contact sampling

Passenger Screening

- Walk-through AIT, multimodal/chip based systems, low cost
- Biometrics
- Behavior Detection

System Performance Enhancement

- Information theory performance bounds: measurement and algorithms
- Standardized Screening System: Data/Communication/Interfaces/APIs
- Computing/Cybersecurity
- Automation: Machine Learning, Enhanced Screening Performance, Human Integration
- Stream of Commerce (SOC), Modeling and Simulation