# Intermodal

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**TSA/ACC Security Capabilities Workshop**

**July 20, 2017**

Transportation Security Administration

# Agenda

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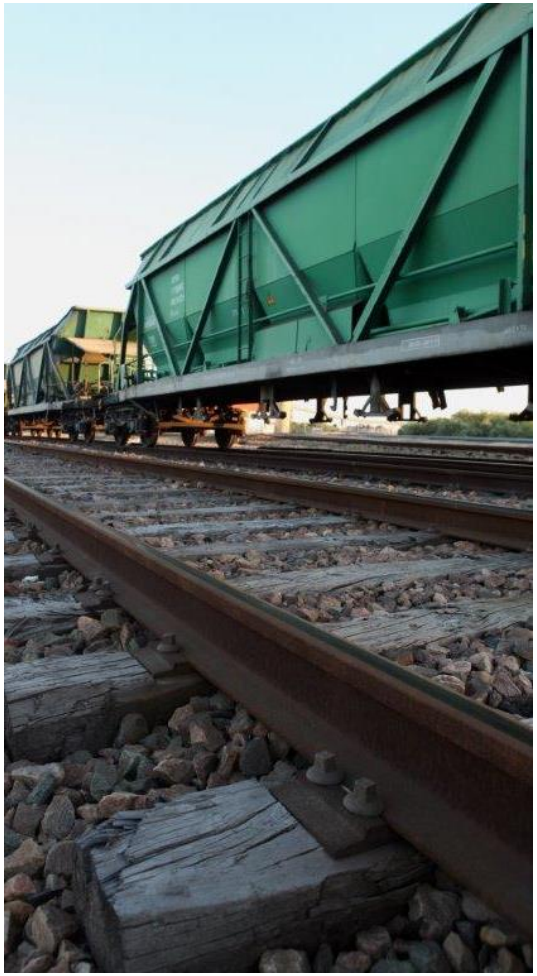


# Surface Security Technology Branch

# Surface Security Technology Branch

**The Surface Security Technology Branch (SSTB) develops requirements and evaluates security technologies for an extensive set of surface transportation modes and security missions:**

- **Analyzes** industry needs/requirements
- **Performs** market research
- **Conducts** demonstrations, studies, and assessments, scalable to meet threats
- **Manages** operational technology assessments (focused on COTS products)
- **Provides** security technology recommendations

**Areas of Operation within Surface:**

Mass Transit | Freight Rail | Highway Motor Carrier | Waterways | Pipeline | Infrastructure Protection

**SSTB partners with end-users to address stakeholder identified capability gaps and provide security technology options to stakeholders**

# Surface Capability Gaps by Mode

**SSTB collaborates with stakeholders to deliver technology solutions to fill Surface Capability Gaps directly related to transportation modes assessed in TSSRA 3.0:**

**2017 SSTB Capability Gaps**

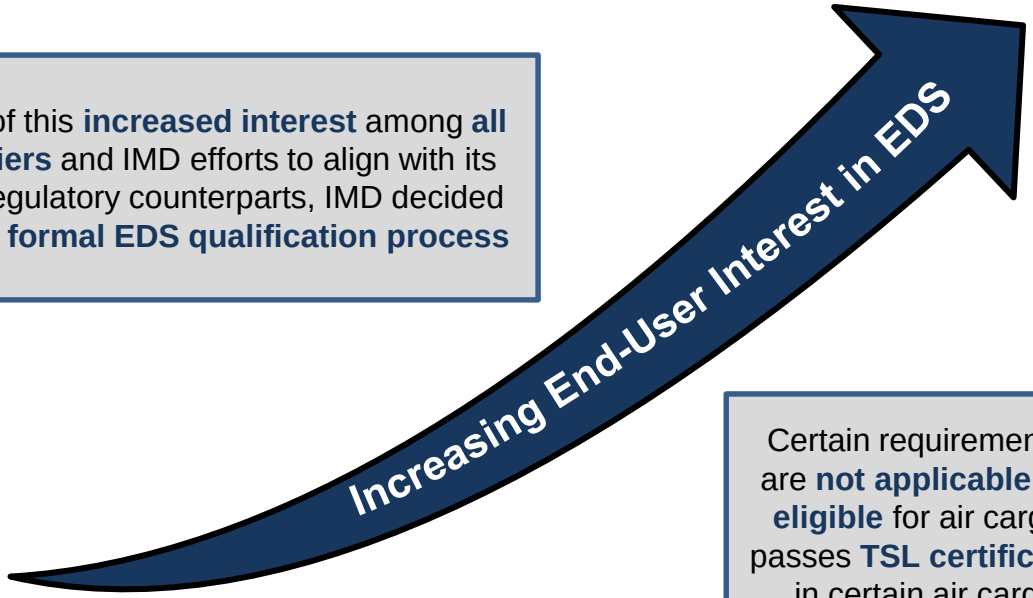
| | Anomaly/ Explosives Detection | Intrusion Detection | High TP Threat Detection | Behavior Detection & Biometric Identification | Freight Tamper Prevention & Detection | Blast Mitigation | Remote Disruption of Attack | System Resiliency & Recovery | Interoperable Information Systems | Chem/Bio Threat Security | Rad/Nuc Threat Security |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Mass Transit | ✓ | ✓ | ✓ | ✓ | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Pipeline | ✓ | ✓ | | ✓ | | ✓ | | ✓ | ✓ | | |
| Highway Motor Carrier | ✓ | ✓ | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Freight Rail | ✓ | ✓ | | ✓ | ✓ | ✓ | | ✓ | ✓ | ✓ | |

# Capabilities Assessment and Qualification Branch

# Air Cargo Explosive Detection System Modernization Overview

**While Intermodal (IMD) has maintained a robust list of X-Rays, Explosive Trace Detection (ETD) Devices, and Electronic Metal Detectors (EMD), until recently there has not been as much emphasis on the use of Explosive Detection System (EDS) technology in air cargo.**

As a result of this **increased interest** among **all cargo carriers** and IMD efforts to align with its European regulatory counterparts, IMD decided **to revise** its **formal EDS qualification process**




Certain requirements of the EBSP qualification are **not applicable** to the ACSQT. EDS may be **eligible** for air cargo qualification if the device passes **TSL certification**, but could be **deficient** in certain air cargo functional requirements

**CAQB will have to complete a number of actions over the next couple of years to standardize EDS requirements – including using the latest European detection standards**

# EDS International Collaboration

**Collaboration with international screening authorities is an important factor in the success of IMD's further incorporation of EDS into air cargo screening.**

IMD will **be increasing global collaboration** by using the **ECAC 3.2 detection standard** rather than requiring vendors to meet a **unique TSA standard**. (The TSA EDS algorithm can neither be exported nor commercially sold)

Using the **ECAC standard** will decrease **technology development time** and redundancy, and will provide end-users with **more flexibility,** as well as meeting ECAC standard 3.2 **two years ahead** of the ECAC required date

**CAQB use of international standards will accelerate technology innovation and development and will increase world wide aviation security**

# Key EDS Initiatives by Fiscal Year

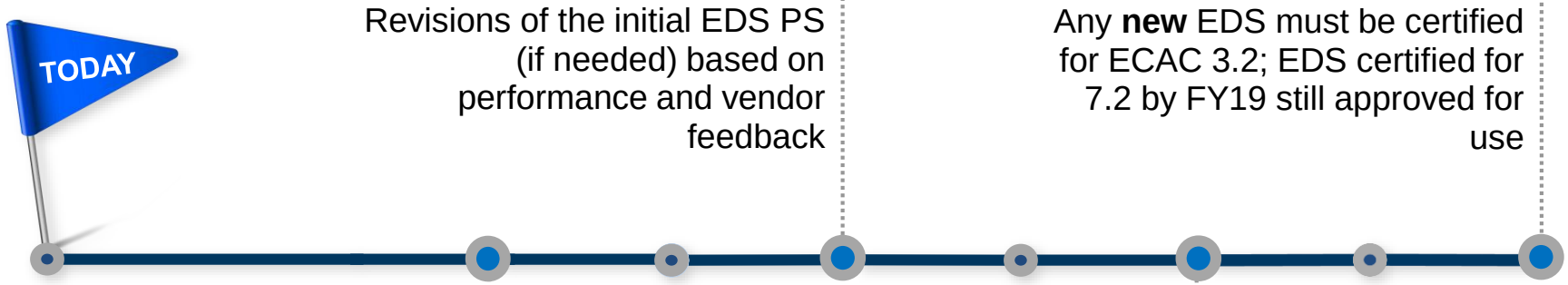
**IMD has planned a number of steps to fully incorporate EDS into air cargo screening.**

| | |
|---|---|
| **FY18** | • Vendors will be able to submit new EDS technology that conforms to detection standard (DS) 5.8<br>• Any newly qualified system that conforms to DS 5.8, but cannot ultimately accept a software upgrade to ECAC DS 3.2, will not be allowed to proceed through the qualification process |
| **FY19** | • CAQB will advance the screening capabilities of air cargo by requiring all cargo EDS to meet DS 7.2 **or** be certified for ECAC DS 3.2 |
| **FY20** | • Any new EDS submitted for qualification in FY20 must adhere to ECAC DS 3.2<br>• All EDS that were qualified for DS 7.2 will still be approved for use; any future software changes must adhere to ECAC DS 3.2<br>• EDS systems that are qualified for DS 5.8 will no longer be allowed to be used for cargo screening. All 5.8 systems will be required to have a software upgrade to ECAC DS 3.2 |

**The proposed plan to further incorporate EDS into air cargo screening will allow vendors a gradual transition from current standards to ECAC standards**

# EDS Timeline

**The following timeline represents the plan for EDS qualification in air cargo:**




**2017**
EDS PS Updates;
EDS must meet DS 5.8 – Immediately Grandfathered

**2018**
Revisions of the initial EDS PS (if needed) based on performance and vendor feedback

**2019**
ALL EDS must meet DS 7.2 **or** be certified for ECAC 3.2

**2020**
Any **new** EDS must be certified for ECAC 3.2; EDS certified for 7.2 by FY19 still approved for use

**By 2020, the TSA EDS requirement will mirror the ECAC 3.2 standard, increasing global security collaboration**

# X-Ray vs. ETD

**X-Ray and ETD devices are the most commonly used technologies for air cargo screening.**

## X-Ray

**Pros**

- Able to scan wide variety of Commodities
- Dual/multi-view systems provide increased security

**Cons**

- Requires visual interpretation by operator
- Single-views grandfathered (2020)
- Homogeneous Skid
- Automated Target Recognition (ATR) not approved for use

## ETD

- Lower cost than other screening technologies
- Machinery is portable
- Approved consumables
- Disposal/resale

- Grandfathered (2021)
- 3rd party maintenance
- Office of Security Operations (OSO) Inspector assessments

**These technologies allow end-users to screen a wide range of commodities and provide end-users with flexibility for designing cargo screening facilities**

# X-Ray Initiatives

**The following corresponds to background information and key activities associated with X-Ray:**

Background

Non-Computed Tomography (Non-CT) Transmission **X-Ray** Constructs **two dimensional X-Ray images** of the cargo item being screened

There are currently **37 systems** qualified on the ACSTL

Key Activities

| | |
|---|---|
| Technology Grandfathering | Mandate for dual view only systems starting in 2020 |
| Commodities Studies | Verification of dual view requirement, validated through Perishables Study |
| Performance Specification | Refinement of performance specification to meet updated operational and technology requirements |
| Test Articles | Development of operationally representative test articles |
| Technology Studies | Investigation into operator assist algorithms supporting enhanced detection capabilities |

**The Air Cargo X-Ray Performance Specification has been reviewed by Industry, and will Be published during the summer of FY17**

# ETD Initiatives

**The following corresponds to background information and key activities associated with ETD devices:**

Background

An ETD device analyzes **collected samples** for the presence of **explosive residue**

There are currently **3 systems** grandfathered on the ACSTL

| | Key Activities |
|---|---|
| ETD Test Beds | Regular assessment of device operation and health analysis. Concept exploration to determine if useful lifetime of devices can inform acquisition and disposition decisions |
| Background Contamination | Examination of background contamination sources, to mitigate false alarms in conjunction with forensics analysis and other visits |
| Performance Specification | Implementation of updated performance specification to meet new and emergent threats, based on device testing and test bed results |
| Test Articles | Development of operationally representative test articles |
| Quality Control | Establishment of quality assurance/quality control protocols to ensure testing rigor |

**The ACSQT is initiating the Stage I testing process for both the Smiths IONSCAN 600 and the Morpho 4DX**

# Q&A and Open Discussion