

TRANSPORTATION SECURITY LABORATORY

Accelerating AIT Certification Tests



**Homeland
Security**

Science and Technology

LEE SPANIER

IT&E Division

16 NOVEMBER 2016

So What? Who Cares?

**FOCUS: PASSENGER SCREENING SYSTEMS (AIT)
DETECTION CERTIFICATION @ 2 TIERS**

1st TIME DURATION

- EXISTING Standard 4.5 months +/- 1 month
- NEW Standard 7.5 months +/- 1 month

SCHEDULE DRIVERS

- Simulant & Body Phantom Development & Validation
- Comprehensive Target Detection Test

3 Tools for Acceleration

TOOLS FOR ACCELERATION

'TEST MODE' and EMULATOR – **IN USE**

- TRIMS *REPEATED* DURATION TO <1.5 months

IMAGE QUALITY STD (ANSI N42.59) – **DEVELOPMENT**

- TO SPEED ECP APPROVALS & REGRESSION TESTS

'INSTRUMENT MODE'

DESIGN IN – Your Role

'INSTRUMENT MODE'

BINARY – ORDINAL – INTERVAL – **CONTINUOUS**

- **STRENGTH OF SIGNAL: Detection Decision Variables**
- **On-Board Diagnostics (OBD) *Analog***
- **PCB **TEST ACCESS** *Analog* – Topology Constraints**
 - **IN CIRCUIT TEST (ICT) - **IEEE 1149.1** FAMILY of STDs**
 - **BED-OF-NAILS**
 - **SILICON TEST NAILS / BOUNDARY SCAN**

ENABLING

INSTRUMENT MODE – *ENABLES:*

- MORE EFFICIENT TEST DESIGN
- Real-Time DATA INTEGRITY DISPLAY
- **VARIANCE PLOT OF BODY**
 - CHOROPLETH or HEAT MAP
 - Reliability & Repeatability
 - Discover **CHAOTIC** Behavior
 - Underdeveloped Sample for Machine Learning

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