



ANSI-HSSP Workshop on Non-Invasive Inspection Systems for Homeland Security

Summary of Standards and Conformity Assessment Needs Identified

Presented by

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Panel 1: Ionizing Radiation Technology Standards (X-Ray & Gamma Ray Technologies)



■ Imaging Performance

- Standard for measuring image quality of infrared AIT
- Standard for measuring image quality of mm-wave AIT
- Standard way to compare imaging performance of x-ray backscatter, mm-wave, and infrared across AIT modalities
- International standard(s) for AIT performance
- Standard training & evaluation methods for screeners
- Inclusiveness of passengers with disabilities and special needs
- Extensions of ANSI N42.46 (American National Standard for Measuring the Performance of Imaging X-ray and Gamma-ray Systems for Cargo and Vehicle Security Screening) needed, including: materials discrimination—high & low-Z tests, statistical scoring methods, downsizing of artifacts for air cargo, and safety
- Metrics that could relate x-ray power/geometry to field measureable quantities such as weight, dimensions, and composition of air cargo pieces (complement to OCAST)
- Bridging the gap between technical (e.g. image quality) performance and threat-detection performance

Panel 1: Ionizing Radiation Technology Standards (X-Ray & Gamma Ray Technologies)



■ Radiation Safety

- Closure needed on ANSI/HPS N43.16-20XX Radiation Safety for X and Gamma Ray Cargo and Vehicle Security Screening Systems, Energies Up To 10 MeV [draft nearly complete]
- New ASTM test method needed to measure external X-ray emissions from cabinet X-ray security screening systems
- Revision needed of ASTM F 1039 *Measurement of Ionizing Radiation Inside the Cabinet of X-Ray Security Screening Systems* (1st draft nearly finished)

Panel 2: Non-Ionizing Radiation Technology Standards (Millimeter Wave & Passive Infrared Technologies)



- Physics-based approach vs. “protocol”-based approach to standards
- Uniform safety standards
- Simplification in & quicker time to market in standards development
- Privacy (perception)
- Sensor fusion
- Metal detector gaps (e.g. explosives, liquids, gels, powders)
- CONOPS standards (domestic & international)
- Consistency in test methods
- Stand-off (controlled portal vs. uncontrolled distance)
- WMATA Comment - Would like to address a standard for packaging sensors intended for mass transit. New sensors being developed by labs are being assembled in enclosures that are nearly impossible to install in underground passenger stations. Looking inside the sensor, it appears they could be easily packaged in a transit friendly enclosure that could be installed within the existing advertising infrastructure.

Panel 3: Metal Detector Standards



- Higher sensitivity with better immunity
- Identification of type of metal in field (do not have research & development)
- Certification for outdoor units (mass screening)
- Resource for metal analysis
- Updates on medically implanted devices
- Standard for metal detector interference with PMEDS
- Standards are needed to be able to qualify manufactured units

Panel 4: Automated Target Recognition Software (ATR)



- Harmonization of standards efforts
- Standard box size should be set (box should be scaled to certain body height and allow multiple boxes)
- Consistent precision of measure
- Capability standards:
 - if you can't see the item how can an algorithm find it?
 - people are 3D and screening systems are 2D projection surface technology
 - illumination is key but difficult to determine
 - you need to know what you don't know- can't see
 - technology specific
- Image quality
- Data format
- ATR testing, detection & scoring Methods
- Standard format for describing body zones
- Standard test objects for daily quality assurance
- Standard poses
- Consistent divestiture
- Common nomenclature/definitions of terms
- Simulants and simulant validation

Further Information



- For additional information about the ANSI-HSSP
 - Website: www.ansi.org/hssp
 - Homeland Security Standards Database (HSSD): www.hssd.us
 - Submit comments to: hsspexplosives@gmail.com

 - Questions and/or requests can be directed to:
 - Karen Hughes
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