



ANSI – ESO Conference
Transatlantic Standardization
Partnerships on E-Mobility/Electric
Vehicles, Energy, and Security

October 12, 2011



X-Ray Standards for Explosives Screening Systems in Aviation Security

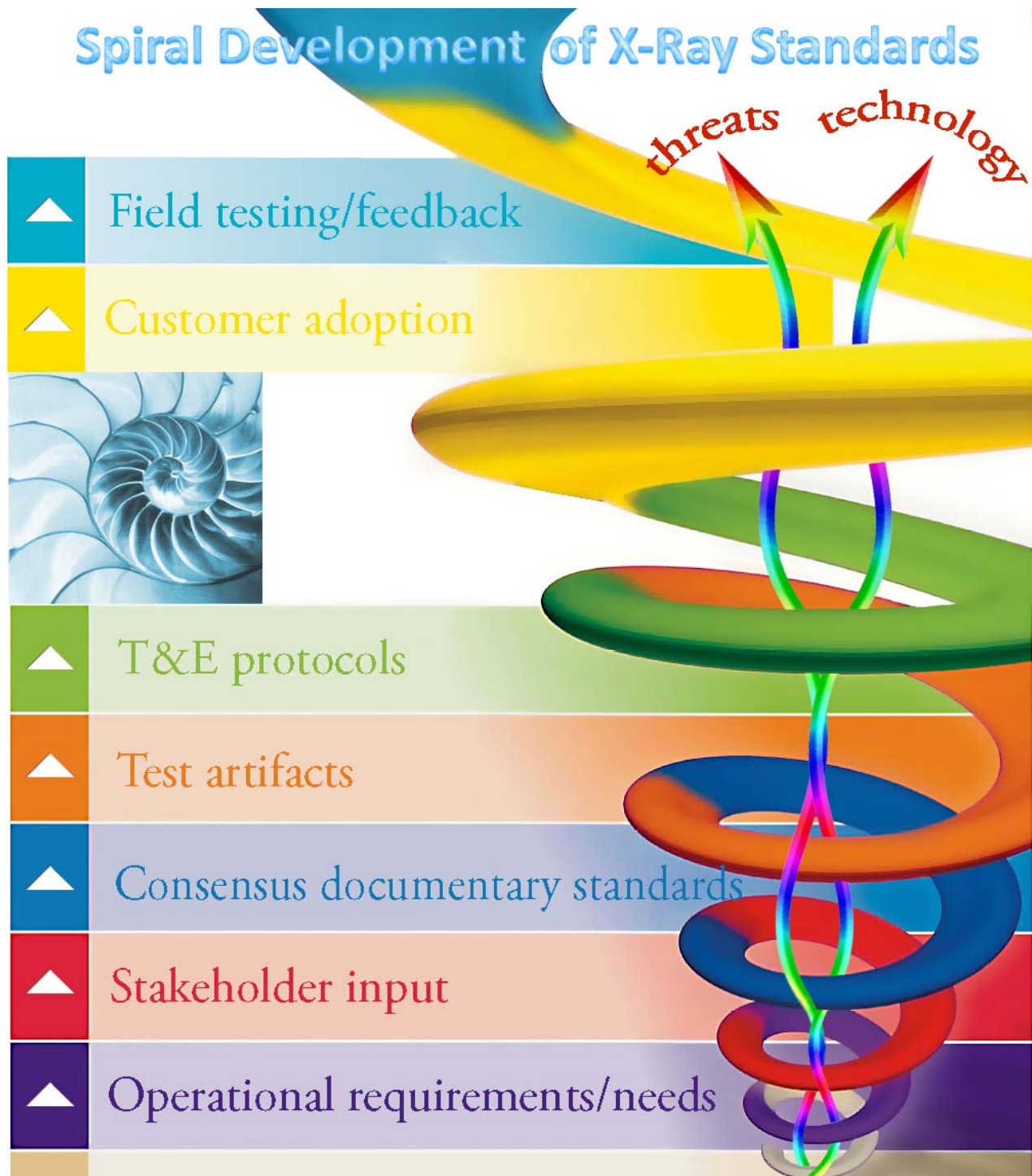
Presented by

Dr. Lawrence T. Hudson
NIST

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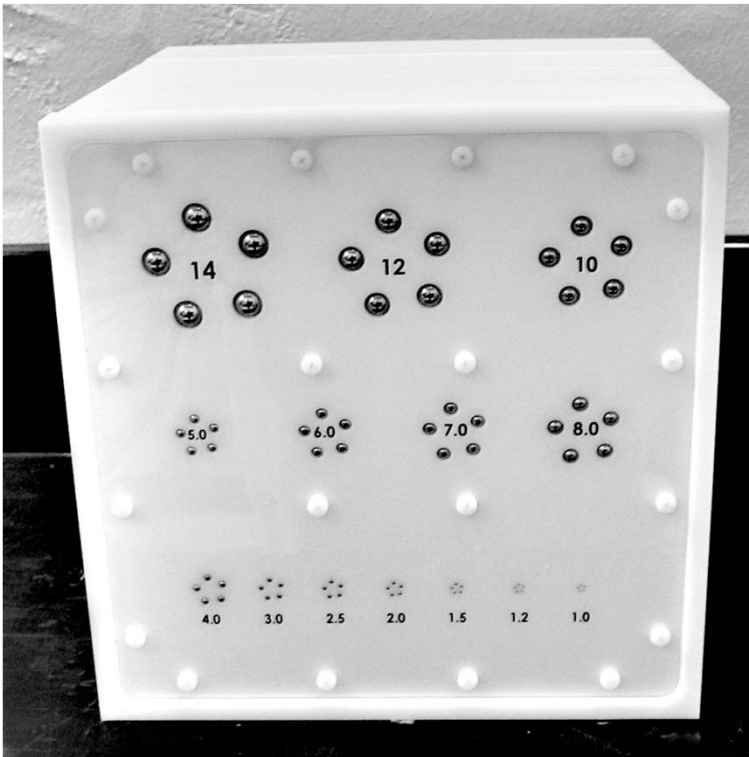
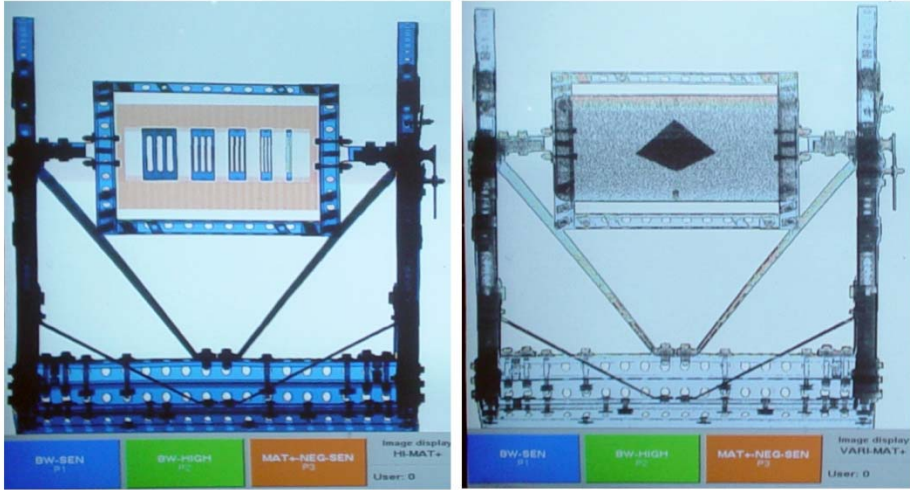
TECHNICAL APPROACH



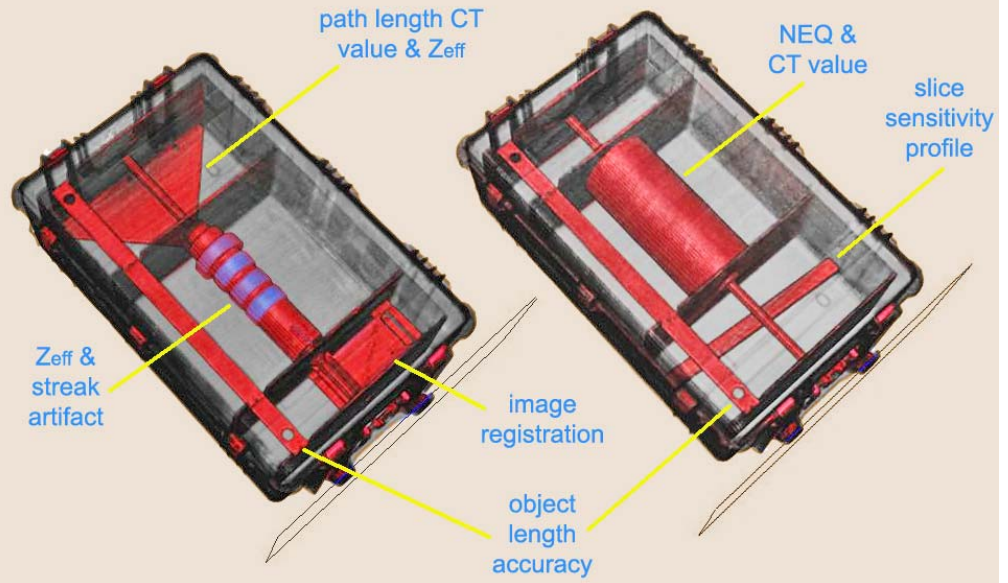
National & **International** X-Ray & γ -Ray Standards for Bulk Explosives Detection

| Venue | Technical Performance | Radiation Safety |
|-----------------------------------|---|---|
| Checkpoint | ANSI N42.44 – 2008 ASTM F 792 – 2008 | ASTM F 1039; W2002 (21 CFR 1020.40) |
| CT / EDS (checked luggage) | ANSI N42.45-2011 | ASTM F 1039; W2002 (21 CFR 1020.40) |
| Cargo / Vehicle | ANSI N42.46 – 2008 IEC 62523 – 2010 ANSI N42.41 – 2007 | ANSI N43.16 – draft IEC 62523 – 2010 ANSI N43.14 – 2011 |
| Whole Body Imaging (AIT) | ANSI N42.47 – 2010 IEC 62709 – CD1 | ANSI/HPS N43.17 – 2009 ANSI/ANS 6.1.1-1991; W2001 IEC 62463 – 2010 |
| Bomb Squads (portable sources) | NIJ 0603.01 ANSI N42.55 – draft | ANSI/HPS N43.3-2008 |
| Standard Data Format (DICOS) | NEMA IIC 1 v01– 2010 | N/A |

X-RAY TEST OBJECTS



ANSI N42.45 Test Article for CT Security Screening Systems

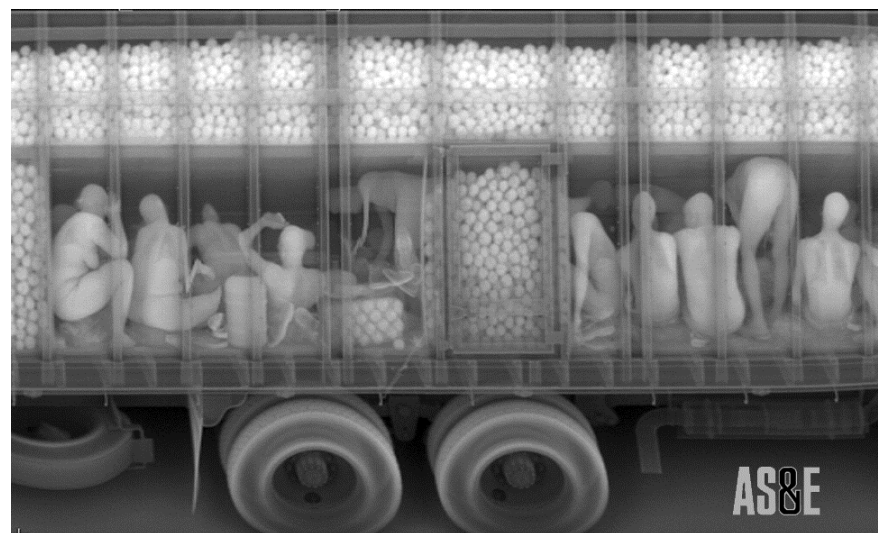


x-ray images acquired and reconstructed with GE Security CTX-9800 DSI™

RADIATION SAFETY



prototype brass-wall ion chamber
to measure high-E beams (cargo)



INTERNATIONAL STANDARDS HARMONIZATION



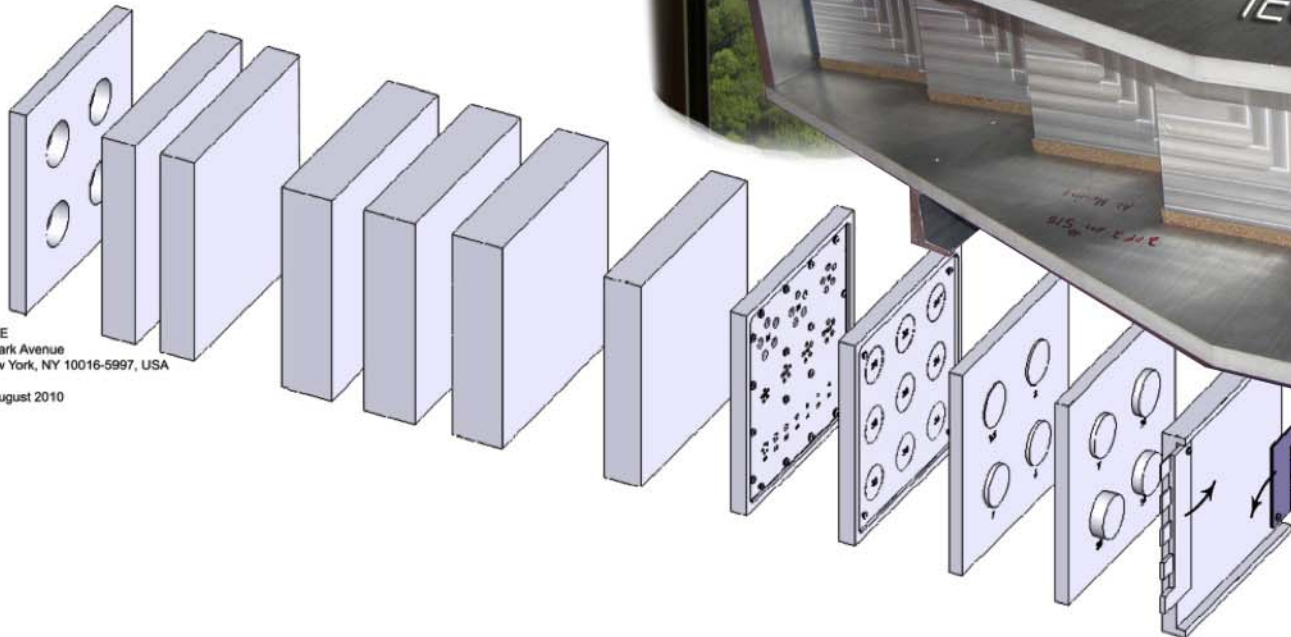
American National Standard for Measuring the Imaging Performance of X-ray and Gamma-ray Systems for Security Screening of Humans

Accredited by the American National Standards Institute

Sponsored by the
National Committee on Radiation Instrumentation, N42



N42.47



IEEE
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