Standards for X-Ray Inspection Systems

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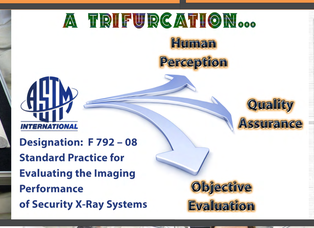
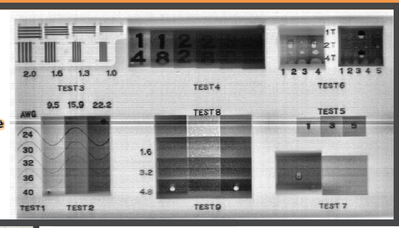
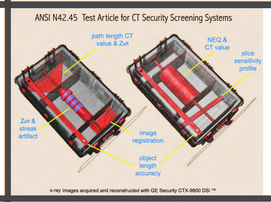
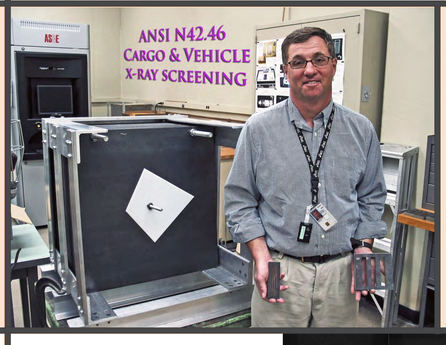
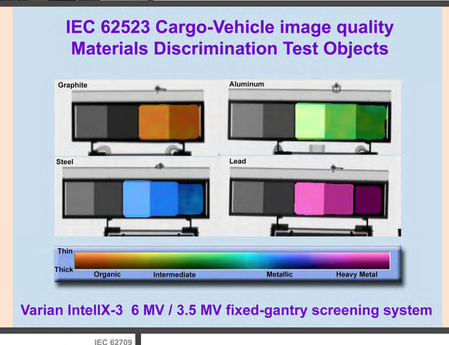
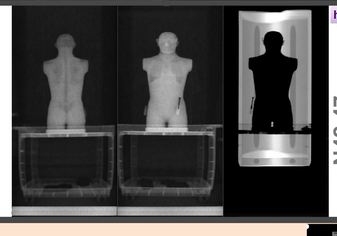
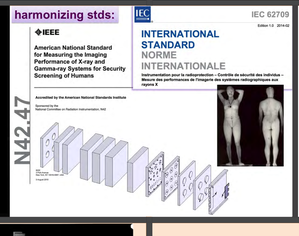
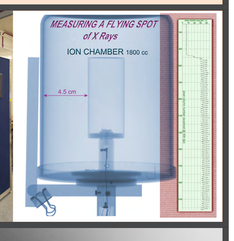
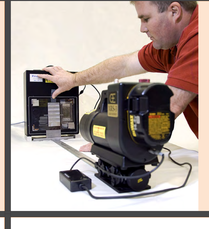
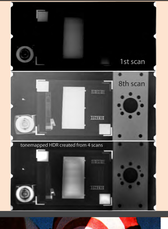
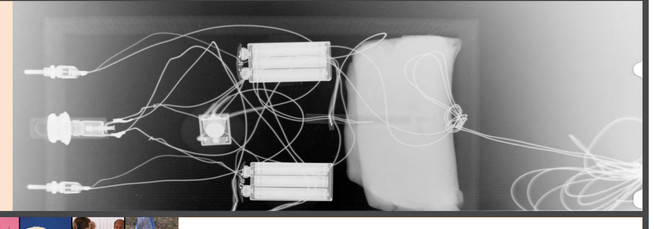
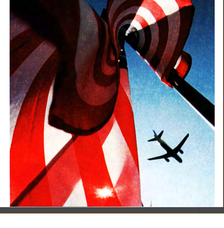
The DHS Office of Standards has tasked the NIST Radiation Physics Division to facilitate the development of national and international measurement standards needed to test and evaluate the technical performance and radiation safety of x-ray and gamma-ray inspection systems in all venues in which they are deployed. This is accomplished through a corpus of new standards, test methods, test artifacts, dosimetry protocols and technical guidance documents, supported by NIST measurement science and computational modeling. This work fills well-documented gaps in transportation and commercial security that have been highlighted in Executive and Legislative requirements for 100 % screening of baggage, cargo, and airline passengers.

Venue	Technical Performance		Radiation Safety
Checkpoint (cabinet x-ray systems)	**IEC 62963** ANSI N42.44 **ASTM F792**	  	**ASTM F1039** (21 CFR 1020.40)
CT / EDS (checked luggage)		**IEC 62945** ANSI N42.45 **IEC 62963**	 	**ASTM F1039** (21 CFR 1020.40)
Cargo / Vehicle (radiographic imaging & active interrogation systems)		ANSI N42.46 **IEC 62523** ANSI N42.41	 	ANSI N43.16 **IEC 62523** ANSI N43.14 (10 CFR 20)
Whole Body Imaging (AIT)	ANSI N42.47 **IEC 62709**	 	ANSI/HPS N43.17 **IEC 62463**	 
Bomb Squads (portable x-ray sources)		ANSI N42.55 NIJ 0603.01		[see list below]	
All Venues	[NEMA DICOS IIC 1 v02]	 	ANSI/HPS N43.3 ANSI/ANS 6.1.1 (29 CFR 1910)