Revision of ANSI N42.46-2008
X-ray Imaging Performance Standard

Presentation at ADEPT4

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Nondestructive Characterization Institute

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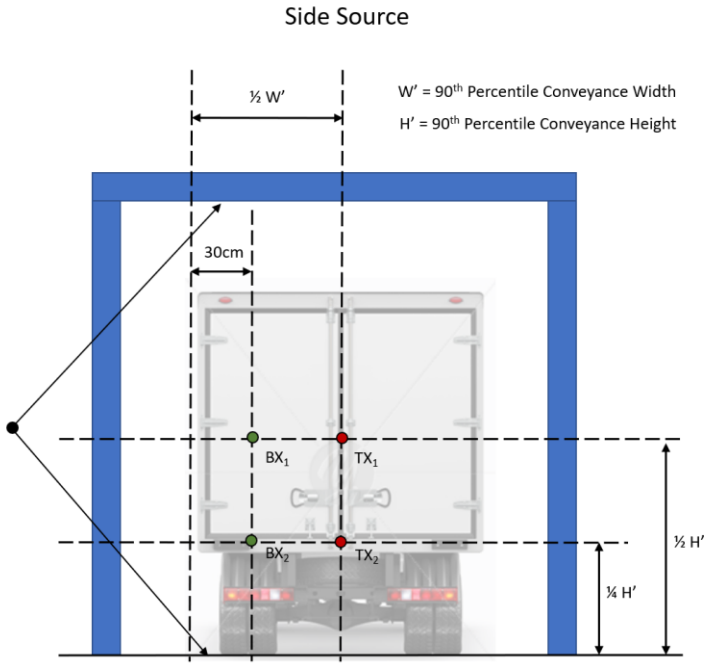
Revision of N42.46 - So What, Who Cares ?

- N42.46 was published in 2008 and reaffirmed in 2017
- N42.46 results show correlation to detection performance
- We need to revise N42.46 to
  - Reflect evolution of equipment
  - Incorporate lessons learned from application of the current standard
  - Reformat this standard to be an IEEE standard
- On 16 June 2021, the IEEE Standards Association (SA) Standards Board approved the project; it is to be completed by 31 Dec 2025
- Working group has started to update N42.46
  - Harry Martz, Chair
  - Tom Cassidy, Vice Chair
  - Steve Glenn, Secretary
  - Paul Bergstrom
  - Peter Rothschild

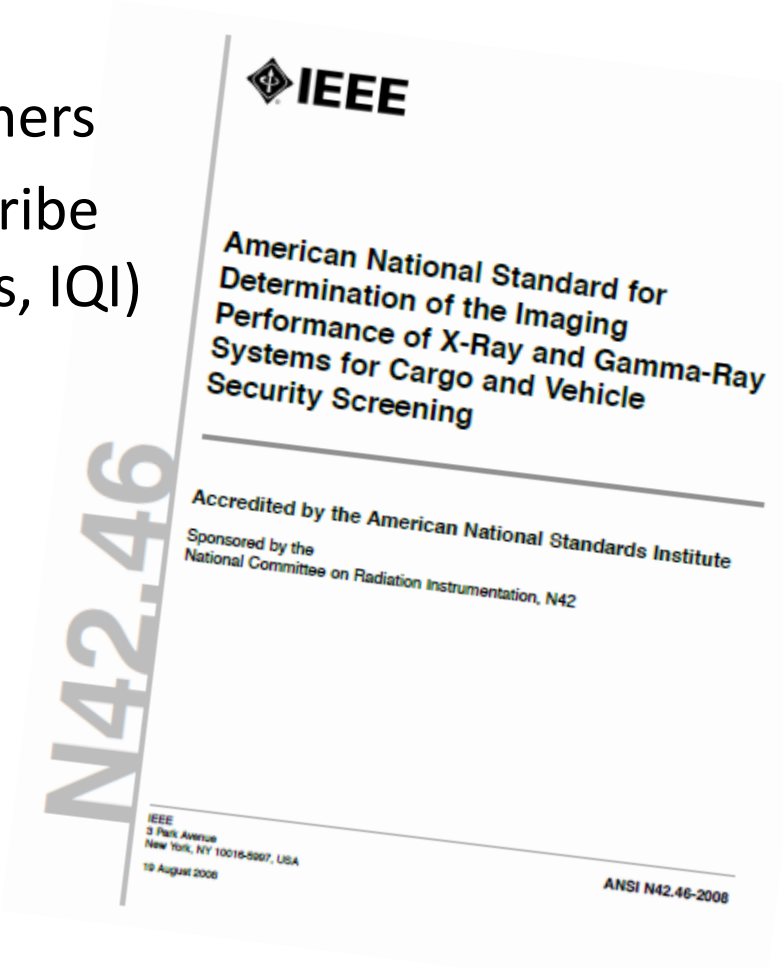


Revised drawing is more relevant to CBP Concept of Operations

Once we have a good first draft, we will be looking for committee members

N42.46-2008

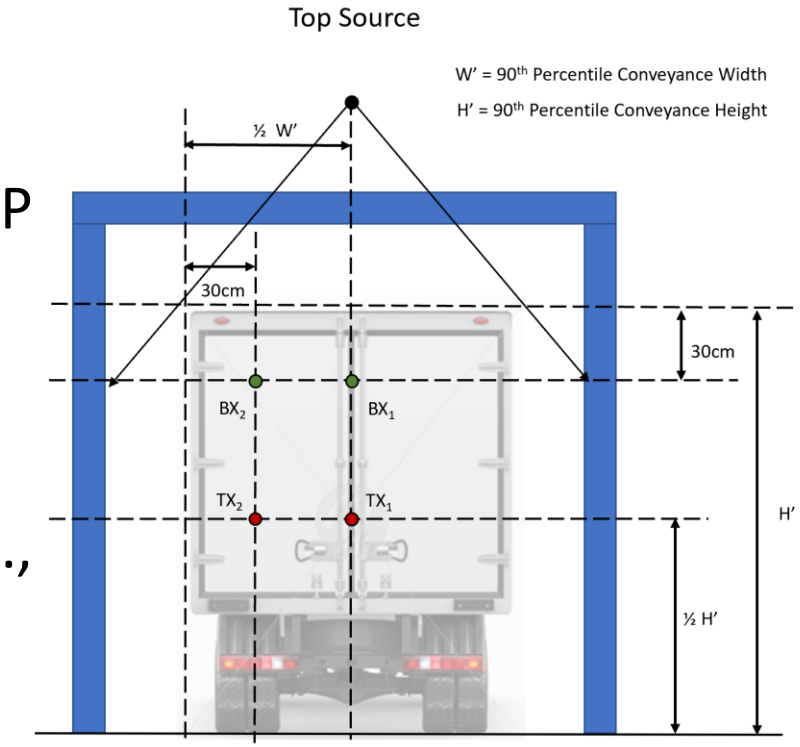
- N42.46 is used to determine the imaging performance of x-ray systems utilized to inspect loaded or empty vehicles and containers
- It provides standard, repeatable and verifiable methods to describe and measure imaging performance (aka image quality indicators, IQI)
- It specifies four characteristics of imaging performance
  - Penetration
  - Spatial resolution
  - Wire detection
  - Contrast sensitivity
- N42.46 is used by the government to assess and compare the performance of x-ray Non-Intrusive Inspection (NIIs) systems



ANSI N42.46-2008 Imaging Performance Standard is being revised

Changes Being Considered for Revision of N42.46

- Make detection of objects more defendable and repeatable through controls and statistics
- Redefine location of measurements to be more relevant to CBP concept of operations (CONOPS)
- Add recommendations for relevance of N42.46 measures to ensure application of this standard is relevant to CBP CONOPS
- Provide standard test piece descriptions for small systems, e.g., pallet scanners
- Add new measures, e.g., material discrimination and spatial resolution behind blocking material



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Please reach out to anyone on the working group if you are interested in being on the N42.46 committee

Backup slides…

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Why IEEE Standards Association vs. ANSI?

- ANSI instituted a policy that any committee developing standards under them had to be under a legal entity. The N42 main committee reviewed the options to either become their own legal entity or move under the IEEE and they voted to move under the IEEE. Any projects that had not started ANSI ballot by, I believe January 1, 2020 (?) would either have to be withdrawn or moved under the IEEE to complete their drafting/publication.

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