



American National Standard for Determination of the Imaging Performance of X-Ray and Gamma-Ray Systems for Cargo and Vehicle Security Screening

Accredited by the American National Standards Institute

Sponsored by the
National Committee on Radiation Instrumentation, N42

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Secretariat

Institute of Electrical and Electronics Engineers, Inc.

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Abstract: This standard is intended to be used to determine the imaging performance of x-ray and gamma-ray systems utilized to inspect loaded or empty vehicles, including personal and commercial vehicles of any type; marine and air cargo containers of any size; railroad cars; and palletized or unpalletized cargo larger than 1 m × 1 m in cross-section.

Keywords: cargo/vehicle security screening, contrast sensitivity, gamma ray, imaging performance, penetration, spatial resolution, wire detection, x-ray

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1. Overview

This standard is organized according to the following list:

- Clause 1 provides the scope and purpose of this standard.
- Clause 2 provides definitions for those users not familiar with x-ray and gamma-ray systems and/or their application to cargo and vehicle security screening.
- Clause 3 sets forth the general considerations necessary for application of this standard, including special word usage, environmental factors, safety requirements and installation code compatibility.
- Clause 4 describes the requisite test conditions, documentation, test objects, test-object locations and test procedures to measure imaging performance in terms of penetration, spatial resolution, wire detection, and contrast sensitivity.
- Annex A provides an informative list of references.
- Annex B provides example data sheets to record the results of the imaging tests conducted according to this standard.
- Annex C illustrates test fixtures.