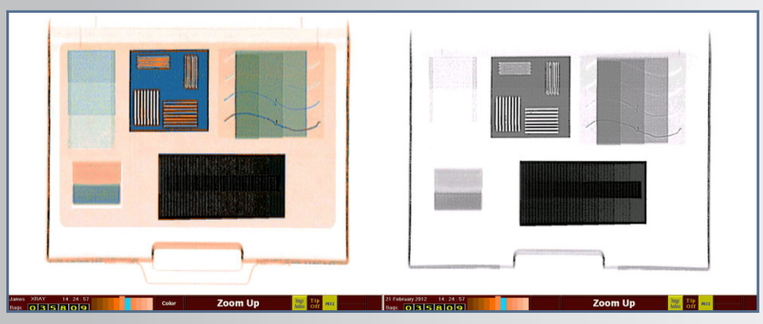
June
2012

Enhancing your security

Counter Terror News and Solutions

Phantom - X-Ray Machine Image Quality Assurance Tool

The Phantom is a suitcase containing a variety of materials arranged in a standardized manner, to support security X-ray machine operators in the performance of qualification testing covering the parameters detailed below:



1. Penetration

The radiation emitted from the source attenuates while traveling through the screened substance, due to the fact that some photons stop when hitting matter nucleus, while others bounce back or are deflected. The thickness of the substance determines the attenuation level.

2. Sensitivity of penetration

This test will evaluate the sensitivity to the change in the substance's thickness and will establish whether the energy level is too high or too low to determine such changes. Radiation traveling through different thicknesses of material will be attenuated to different extents and will appear differently on the screen.

3. Resolution

The resolution of a system is controlled by two factors: The number of detectors that have been distributed to receive the emission (this is determined by the manufacturer and cannot be controlled); and the flux of photons of the radiation source.

4. Spectrographic abilities

Vendors may state that the imaging system has limited spectrographic abilities. These abilities are usually expressed in the capacity to differentiate between organic and non-organic materials. In X-ray systems using dual energy emission, the systems can estimate the zeff of the materials.

5. Sensitivity of resolution under penetration constraints

This test in performed to review the resolution sensitivity of the system under penetration constraints – and basically combines two tests into one. This allows examining whether the flux, after being attenuated by another substance, is still sufficiently high to supply us with the required resolution.

X-Test™ manufactures Phantom suitcases (SECUR008) in accordance with international standards.

Please feel free to contact us with any question.

E-mail: info@x-test.com | Tel: +972-9-7466680 | Web site: www.x-test.com