

PHANTOM - X-RAY EQUIPMENT IMAGE QUALITY ASSURANCE TOOL

X-TEST Product No.: SECUR008

ABOUT THIS KIT

The X-Ray Equipment Image Quality Assurance Tool (Phantom) is a briefcase containing a variety of tests arranged in a standardized manner. The Phantom allows an assessment of whether or not the equipment performs as expected according to the parameters described in the next page.

The Phantom was designed and tested according to Doc. 30 of European Civil Aviation Conference (ECAC) specifications.

TARGET AUDIENCE

X-Ray equipment owners and users: operators, supervisors and auditors.



Parameter	Description
Penetration	The radiation emitted from the X-Ray source attenuates while traveling through the screened substance due to the fact that some photons stop when hitting matter's nucleus while others bounce back or are deflected. The thickness of the substance determines the attenuation level.
Sensitivity of penetration	Radiation traveling through different thicknesses of material is attenuated to different extents and appears differently on the screen. This parameter measures whether the energy level is too high or too low to determine the sensitivity as a function of the substance's thickness.
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.
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 equipment using dual energy emission, the systems can estimate the zeff of the materials.
Sensitivity of resolution under penetration constraints	The resolution sensitivity of the system under penetration constraints combines two tests into one. The flux, after being attenuated by another substance, is measured to determine whether it is still sufficiently high to provide the required resolution.