# A new standard for testing and evaluating cargo x-ray technologies

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# For my friend Carl – So what, who cares

**Customs and Cargo officials have revealed that they sometimes lack confidence that their expensive x-ray systems are revealing all the threats that they know are hidden within the containers they are inspecting …**

**So how do we give those officials more confidence …**

**First, a question – at today's US airports, what do TSA officers do every day to ensure their baggage x-ray systems are working properly to ensure the best detection?**


# They calibrate the x-ray device with an Image Quality Phantom suitcase as part of mandatory SOP …

- **Used at <u>all</u> 2400 checkpoints across 450 Airports in the US on a daily basis to calibrate systems**
- **Used for <u>all</u> CT checked baggage systems across the US**
- **Tests for OPTIMAL Imaging performance, i.e. <u>DETECTION!</u>**

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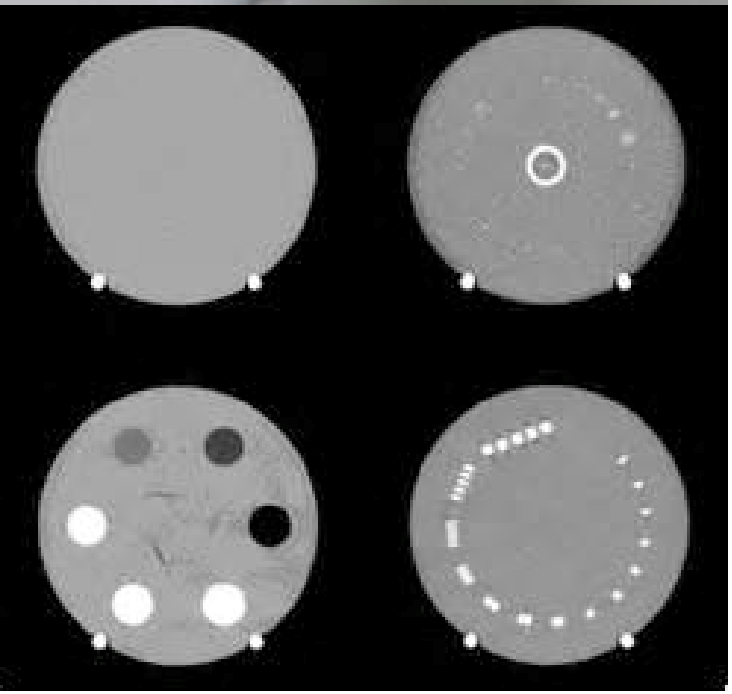
**What do Doctors do on a daily and weekly basis to ensure their X-rays are working to optimum performance?**

# They calibrate the x-ray device with an Image Quality Phantom



- **To check for optimal imaging performance**
- **To ensure appropriate radiation dosage**
- **To ensure image consistency**

***"The IQ Phantom is a critical quality assurance and control instrument tool ideal for physicians who want to ensure superior patient care …"***

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## Okay, what about CARGO inspection?


**Until**

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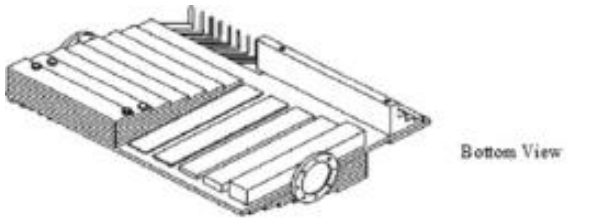
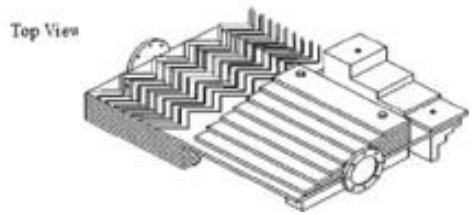
Came Along …

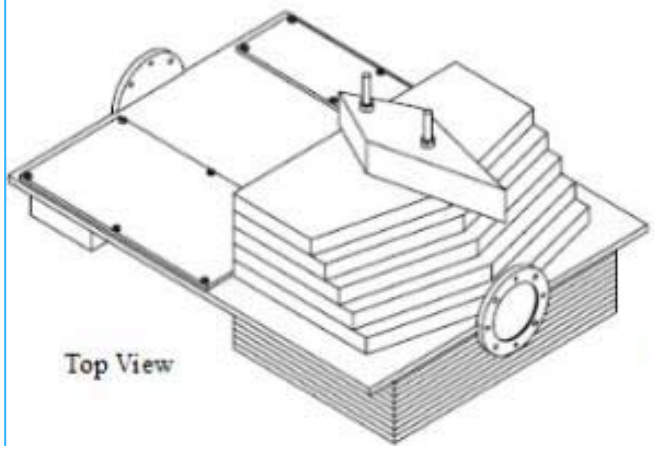
# Introducing the world's first comprehensive medium to large testing and evaluation system – XTE (the Image Quality Phantom now for CARGO Inspection)

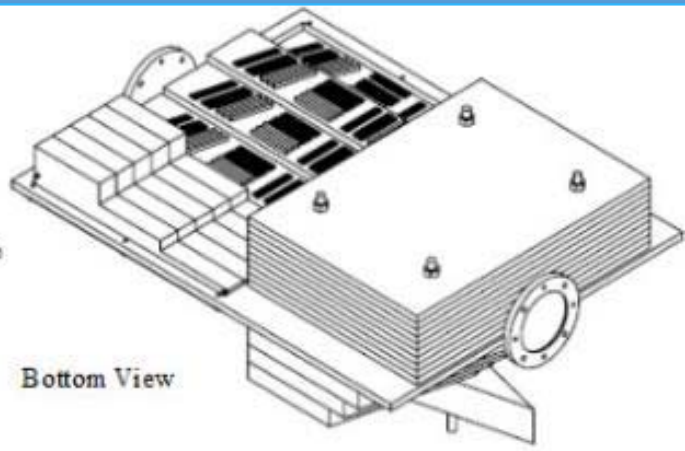
**XTE – 1**

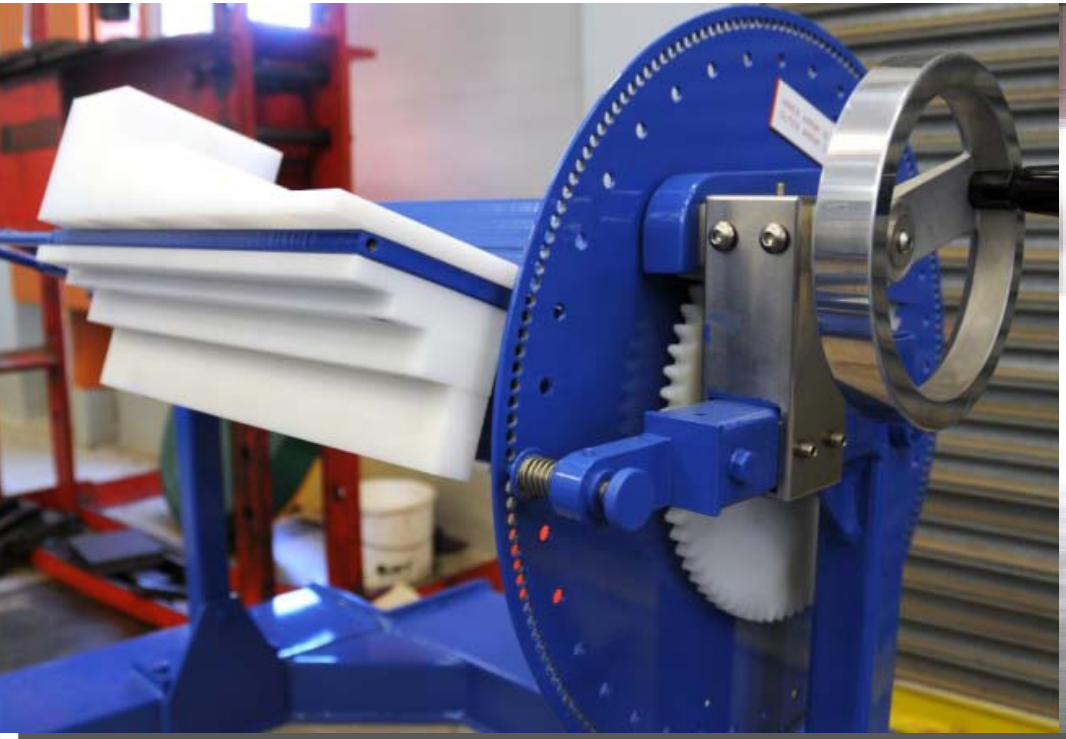
**XTE - 2**



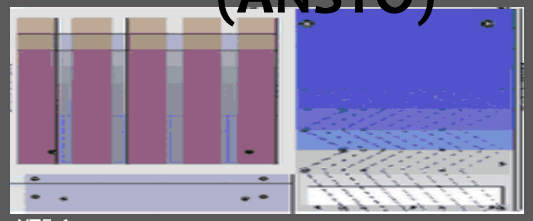


**Independently tested by:**

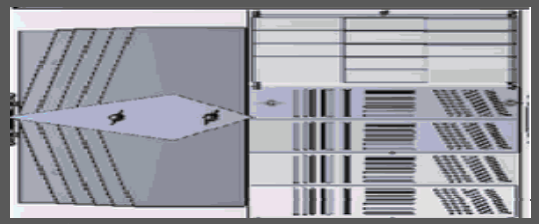
**US - (DHS – TSA)**

**UK - Defense Science & Technology Lab ((DSTL)**

**AUS – Australian Nuclear Standards Org (ANSTO)**



XTE-1



XTE-2

XTE-1 resolution test

XTE

# XTE-1 and XTE-2 together evaluate the performance of all scanners (from 120 keV and above)

**They provide:**

* 9 standard tests (Image resolution, material discrimination, spatial resolution, penetration, etc.)
* Fast and accurate evaluation (20 minutes)
* And compliant with ANSI and NIST standards

**First Customer:**

# How Australian Customs use XTE


- ✓ **Calibrate their many medium to large x-ray systems (120keV to 2.5MeV)**
- ✓ **Mitigate equipment failure**

  **Identify performance issues as x-ray generators and detectors degrade over time**
- ✓ **Make better purchase decisions**

  **Use XTE for acceptance testing**
  **Use it inclusively for RFP criteria**

AUSTRALIAN CUSTOMS AND BORDER PROTECTION + 威视 NUCTECH

# Summary -
# X-rays need to be calibrated

**If Airports and Doctors are using image quality phantoms on a daily basis ensuring their devices are performing at their optimal best, then why isn't every port using standardized calibration to ensure superior detection?**

**Now they can with** synergy4tech and **XTE**