



# 29th IATA Ground Handling Conference

Enhancing, Developing and Innovating: Grounds for Success.

**Air Cargo - Innovation & Solutions for Security**

**16 May 2016**

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**Rapiscan**  
**systems**  
An OSI Systems Company



# EUROSKY Project

## Next-generation Detection System

www.euroskyproject.eu



**Rapiscan**<sup>®</sup>  
systems  
An OSI Systems Company



energie atomique • énergies alternatives

**mass spec**<sup>™</sup>  
EXPERT TRACE DETECTION



Co-funded by the  
European Commission within the  
Seventh Framework Programme

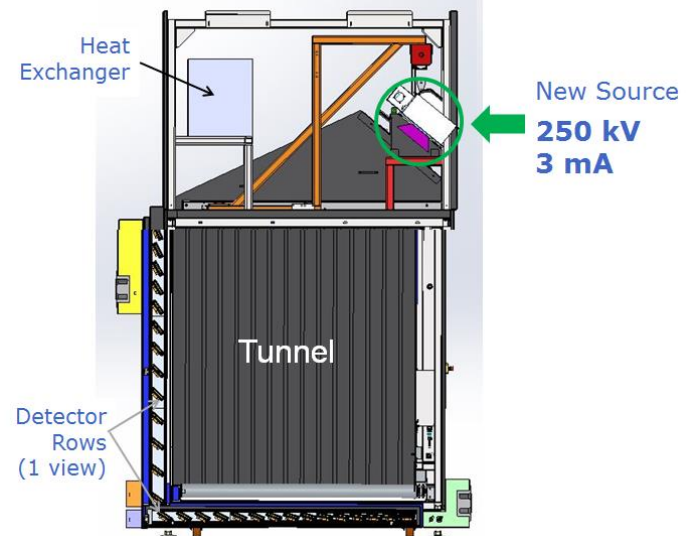
# Evolution of X-ray Penetrating Power

**320 kV**  
**3 mA**  
**1.8m x 1.8m**



**1000 kV**  
**3 mA**  
**3m x 3m**

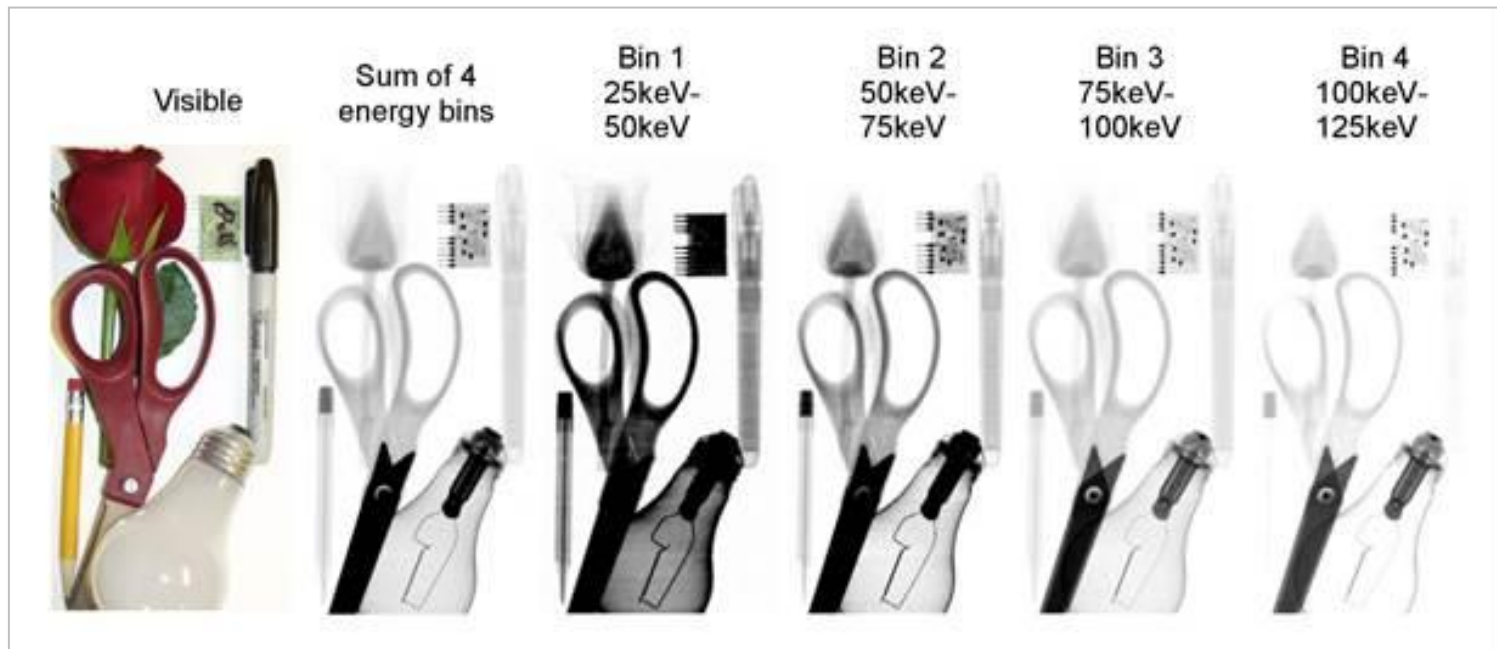
**200 kV**  
**1 mA**  
**1.8m x 1.8m**



# With Multi-energy Detectors, Commodity Type Can Drive the X-ray Data Analysis

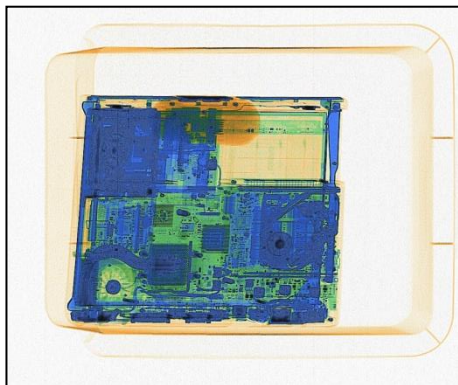


## Image Quality Depends on X-ray Energy and Material Type

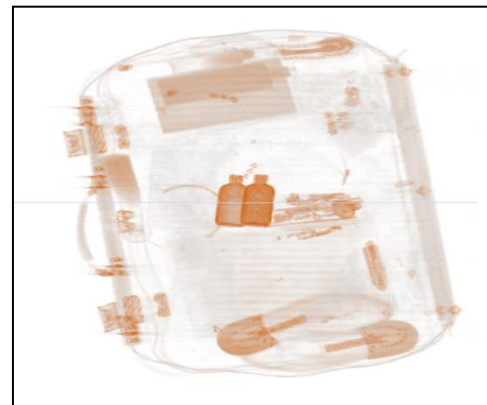


**kromek**<sup>+</sup>

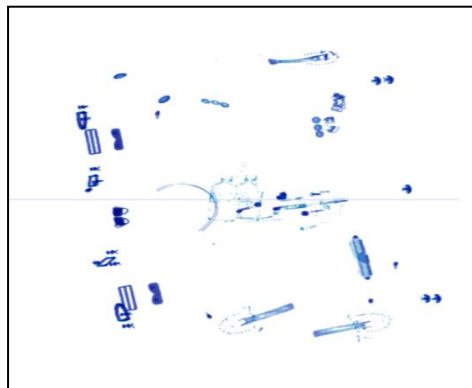
# Cargo Images for Human Inspection: Potential Advantages with Multi-energy Detectors



**Traditional 3-color Image**



**Organic Image**



**Inorganic Image**



**Material Properties  
(Atomic Number Info)  
with  
Region of Interest  
Function**

# Automated Detection: Potential Advantages with Multi-energy Detectors

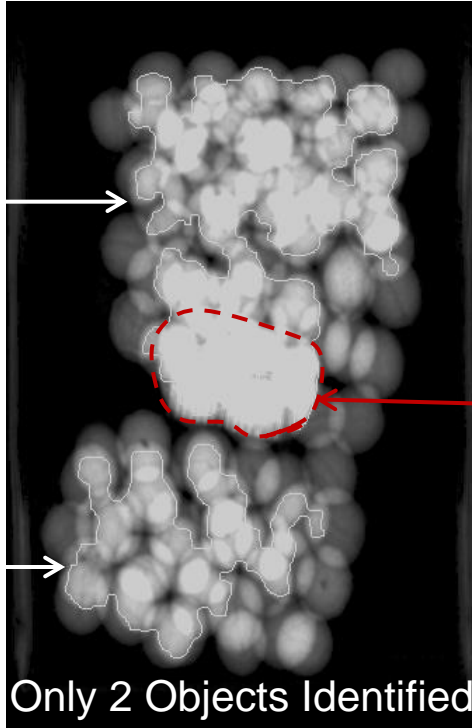


## An Explosive Simulant Hidden in a Crate of Limes

Dual-energy Image  
Segmented by DE Algorithm

Multi-energy Image  
Segmented by ME Algorithm

Object #1

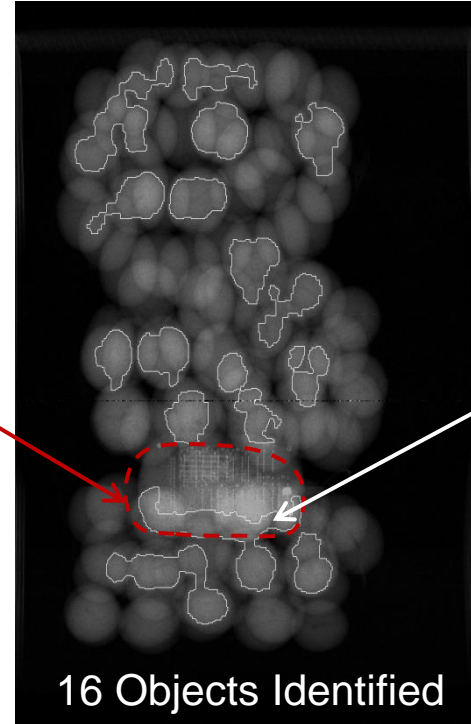


The simulant has only a minor influence on the measured features of the object

Object #2

Only 2 Objects Identified

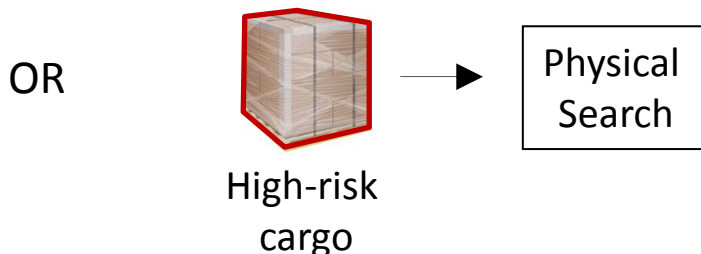
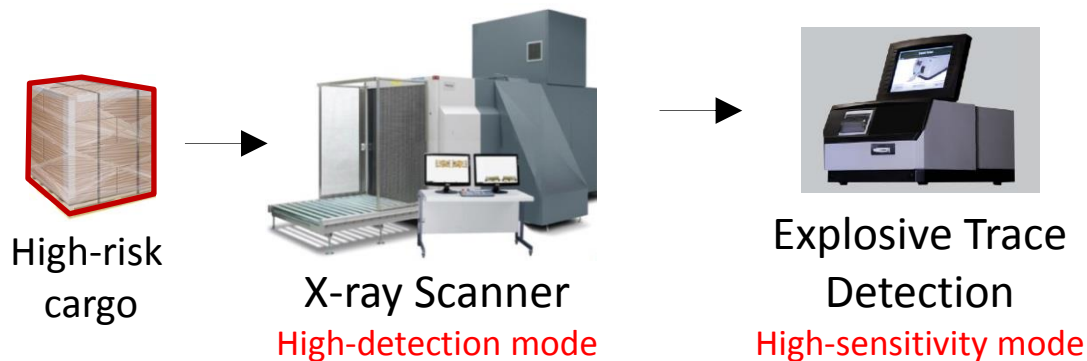
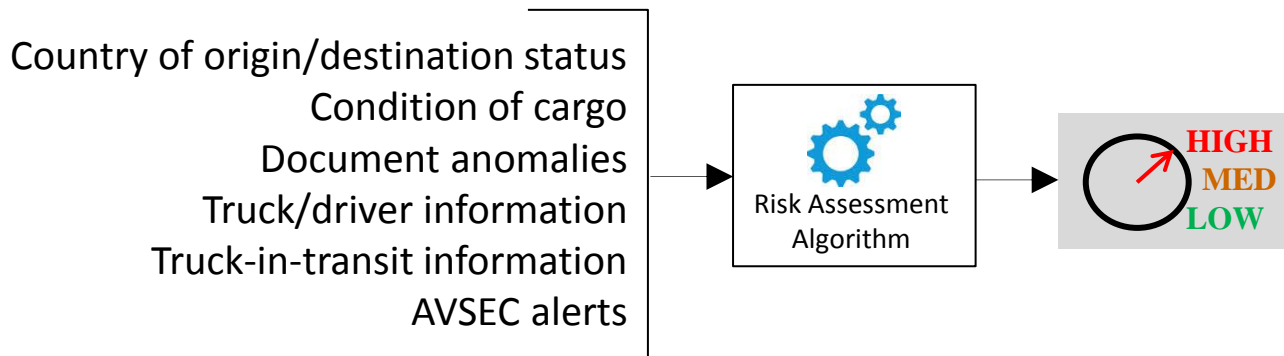
Explosive  
Simulant



The simulant has a major influence on the measured features of this object

16 Objects Identified

# Risk-based Screening



# Remote Monitoring for Quality Control



## Observing Screening Operations

The screenshot displays the Rapiscan systems remote monitoring interface. The main window shows a live video feed of an X-ray screening area. Below the video feed is a control panel with buttons for REV, ESTOP, FWD, and X-RAY2. To the right of the video feed, there is a detailed analysis window showing a color-coded X-ray image of a scanned object. The analysis window also displays technical data such as '0.5 mA' and '2 ms'. The interface includes a navigation menu on the left and a status bar at the bottom.