![INTA logo]

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Explosives

Firearms

Drugs

Tobacco

Illegal immigrants

KL MRKS06   MUITINĖ CUSTOMS

STANDARD TEST CONTAINER (STC)

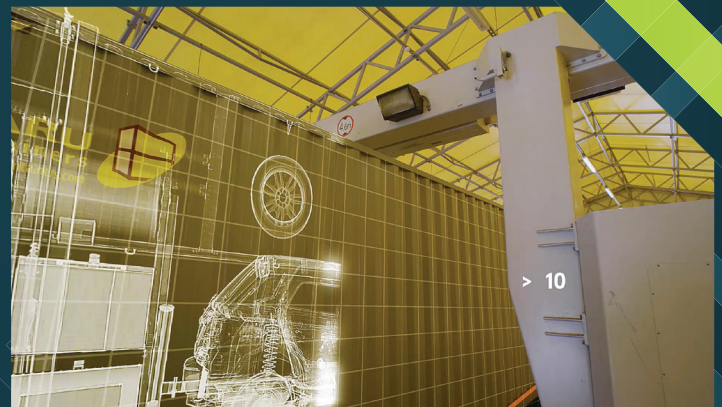## Cargo scanners images analysis and threat objects recognition training

Nowadays Customs agencies are looking for the ways to meet their objectives by using technical scanning equipment to increase the efficiency of examinations, but the equipment by itself is not enough to gain substantial results because the core activity in scanner project is x-ray image analysis. "The most sophisticated machines become worthless if the people who operate them and visually inspect the X-ray images are not qualified to do so (International Journal of Industrial Ergonomics, 2014.)."

In order to increase efficiency without sacrificing security we've created Cargo scanners images analysis and threat objects recognition training. All the tests and exercises are based on a 40 feet Standard test container (in short – STC). STC incorporate more than 150 different realistic smuggling situations.

The STC is divided in to four different sections: cargos and threat targets, passenger car and threat targets, individual objects and threat targets, along with a scanner performance test section.

After making over one hundred STC scans, we present different methodologies to interpret x-ray images and demonstrate how to recognize smuggled threats: tobacco, explosives, firearms, drugs, illegal immigrants, etc.

After the training, the customs personnel are ready to conduct image analysis effectively and precisely, detect threats and perform screenings more efficiently.

> 10

Cargo Scanners Images Analysis
and Threat Objects Recognition Training

STANDARD TEST CONTAINER (STC)

Key Features, Advantages and Benefits

The STC describes the method for evaluating commercially available x-ray systems, which can be used for screening different types of vehicles as well as evaluated skills level of x-ray systems operators.

Manufactured unique training tool – Standard Test Container (STC). STC is the first such type of x-ray cargo scanners images analysis training tool in the world. STC is dedicated to test scanner performance (penetration, contrast sensitivity and resolution) parameters and demonstrates many different smuggling situations.

Executed more than 100 scans of STC in 4 different types of cargo scanners and created STC library with 150 different situations of threat objects. STC was scanned by fixed dual view, mobile and relocatable cargo scanners that provides possibility to compare x-ray images with the same threat situations from different scanners.

Analyzed hundreds of real cases x-ray images, based on this information not only the most common but also the most difficult smuggling situations were designed inside STC.

Image analysis methodology is very important part of the STC training. Principles of objects recognition, spatial perception, attention to anomalies, color identification and etc. are the part of methodology, which will be demonstrated during the training.

It is tested and proved that in case operator faces new threat situation in x-ray image for the first time the positive evaluation rate (he indicates threat object correct) is much lower comparing with operator who has exercised same or similar threat situations before.

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