

X-RAY CAT

Competency Assessment Test

Competency assessment test for X-ray screeners



According to the current EU regulation, it is mandatory for all X-ray screeners to be evaluated on a regular basis to ensure high competency when working with X-ray images. The **X-Ray Competency Assessment Test (X-Ray CAT)** provides a reliable and valid certification tool fully in compliance with the EU regulation 2015/1998.

FULLY COMPLIANT WITH EU REGULATIONS



The X-Ray CAT was developed according to the EU regulation 2008/300 and 2015/1998 as well as the ECAC Handbook and can be used for official certification of X-ray screeners.

Developed by former X-ray operators and psychologists in close collaboration with aviation security experts, it meets the claim of both being in step with operational experience and fulfilling high statistical quality standards.

HIGHLY RELIABLE AND VALID TEST RESULTS

Reliability Statistics		
Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
0.95	0.95	128

The images for the tests are manually created based on scientific criteria and go through pre-tests in order to adhere to the highest standards.

This results in excellent reliability coefficients with high Cronbach's Alpha ($>.85$) and split-half values ($>.85$) which guarantee highly reliable test results.

The tests are also validated and updated regularly to adhere to the latest standards and comply with regulations.

SIMPLE AND STANDARDIZED TEST PROCEDURE



The examinees are guided through the test by clear instructions and with a series of integrated exercises. This provides a fair and objective test environment with comparable results. Thanks to the immediate displaying of results, the administrator spots directly after completion if the examinee passed the test.

REPRESENTATIVE SELECTION OF IMAGES



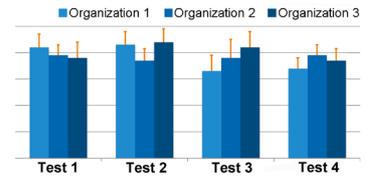
The tests contain a wide-ranging selection of representative X-ray images, whereas, by default, half of the images contain prohibited items. This is the ideal relation for statistical purposes.

BAG-TO-THREAT Merging ALGORITHM



Our unique merging algorithm allows for the production of large number of images and also enables a precise and flexible control over the difficulty of the images.

TOOL FOR SUPERVISION AND BENCHMARKING



Additionally to its function as a certification tool, X-Ray CAT offers the option to use it as a tool to determine individual weaknesses of the security officers. This performance benchmark based on the X-Ray CAT may also be established nationally or even internationally to discover potentials for improvement on a larger scope.

REAL-WORLD VIEWING OPTIONS

To make the training as realistic as possible, all common image enhancement and zoom functions have been integrated to provide the same viewing conditions as the security officer would have at the checkpoint.

<p>ORIGINAL Removes image enhancement filters</p>	<p>CONTRAST Calculates the best contrast for every pixel</p>	<p>OO Shows only organic materials</p>	<p>OS Removes all organic materials</p>	<p>NEG Creates a photo negative of the image</p>
<p>B/W Creates a greyscale image</p>	<p>HIGH LUM Increases the brightness</p>	<p>LOW LUM Decreases the brightness</p>	<p>METAL ONLY Shows only metallic materials</p>	<p>METAL S. Removes all metallic materials</p>

DIFFERENT TEST TYPES AVAILABLE

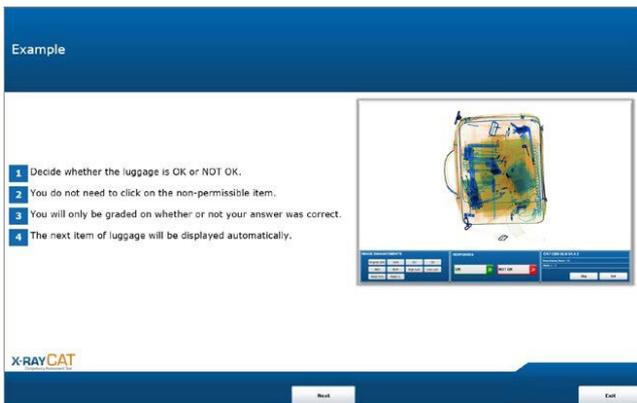
The X-Ray CAT is available in different test types for various fields of application and can be customized on request to meet individual requirements.

 CABIN	 HOLD	 CARGO	 MAIL	 PRISON
Includes guns, knives, IEDs (Improvised Explosive Devices) and other prohibited items (e.g. self-defense sprays, fireworks). ¹	This test contains a broad variety of IEDs made with different types of explosive materials in various shapes, with different detonators, triggering devices and power sources. ¹	The cargo test includes various types of IEDs made with different types of explosive materials in various shapes, with different detonators, triggering devices and power sources. ¹	This test features letter and parcel IEDs as well as general IEDs that are only inserted in logically suitable conditions. ¹	Besides images of guns, knives, IEDs, this library also contains items that are specifically prohibited in prison environments (e.g. cell phones). ²

¹ Fully compliant with the EU regulation 2015/1998

² Available on request

SOFTWARE INTERFACE



LEARN MORE

- › You can find a summary of a study as well as projects involving the X-Ray CAT in the CASRA newsletter issues 1, 11 and 17 [here](#).
- › If you would like to keep up-to-date about what is new in security science please subscribe to our newsletter [subscribe to our newsletter](#).