



In this article Moshe Cohen examines the need and the requirements for the use of X-ray testing systems to test X-ray operators continually throughout their employ-

ment. Moshe Cohen has spent 24 years working in the aviation security sector, commencing his career in Ben Gurion airport. After moving to the U.K., he was employed as Director of Security Training for Trans World Airlines (TWA) and its subsidiary International Aviation Security (IAS). In 1994 Moshe established Renful Premier Technologies, which is based in the UK and is dedicated to the development of CBT and Simulation Testing Programs, as well as Consultancy for Government Agencies, Airports and Airlines. In 1988 Moshe led the development and marketing of the first X-ray Simulator and in 2000, Renful Premier Technologies introduced the Simfox Threat Image Processor and Simulator X-ray Training/Testing System. Simfox is currently the chosen system for many reputable organizations and is one of the leading programmes worldwide for training, testing and X-ray operation evaluation.

Effective Testing of X-ray Operators

Many published articles have concluded that the human factor, i.e. the X-ray screener, is the weakest link in detection of threat items. In this article, I have chosen to highlight the characteristics of an ideal testing and simulation system that will provide X-ray operators continually with the necessary experience and skills to excel in their job.

Through the use of the Simfox system in airports and high security installations, we have learned that weaknesses in detection do not relate exclusively to the training and testing of X-ray screeners, but also to the architectural design of search areas and the processing time given to the operators to identify threat items.

Presentation of Threat Images to Screeners
The process of qualifying X-ray screeners includes theoretical training on the use of an X-ray machine, its features, safe use, operation and the identification of threat items. On completion of this section, screeners need to gain experience in identifying threat items in the

realistic operational time of about five seconds. While the first part of the training can be handled by a computer based training (CBT) system, the second part is not being properly addressed by conventional CBT systems. During many visits to customers who acquired CBT systems, I have frequently heard that screeners remember the items pre-



sented to them during training. Therefore, their progression cannot be necessarily attributed to an increase in image interpretational skills, but by their ability to visually memorize previously seen threat items. Furthermore, screeners who gained their experience through on-the-job training, i.e. sitting next to an X-ray screener during the operation, have only increased their interpretational skills if this type of training exceeds three to four weeks.

The design of the Simfox Threat Image Processor addresses this issue by including a feature that enables the trainer to create endless numbers of bags, with a creation time of around 15 seconds per bag. This feature provides a supply of fresh bags for testing screeners, thus ensuring that they are never tested twice on the same bag. The implementation of this feature has highlighted another issue which relates to various complexities of concealment and modus operandi of terrorist organizations. On a normal CBT system, clients usually compromise their detection training level by matching it to the level of the CBT provider, who prepared the bags for training. By using Simfox, the client trainer can create endless levels of concealment and can exchange bags with Simfox users around the world. The exchange of bags brings a new dimension in

X-ray training, where screeners are challenged by threat items that were prepared in different parts of the world and by different organizations.

Simulation Testing

Upon completion of initial training, X-ray screeners frequently lack the required interpretational skills and the assertiveness to confidently identify threat items and so stop the conveyor belt and the passenger. This issue should be addressed by the introduction of simulation technology whereby the screener devotes ten minutes per working day, throughout their employment, to practise identification skills using the Simfox simulator. The simulator, equipped with freshly-prepared bag testing sessions, registers the employee's abilities in threat identification, threat item classification, detection time and correct use of image enhancement features. By providing automated feedback reports and registration of results, Simfox contributes to the understanding of screener workforce abilities and limitations.

Training & Operational Research Module

The Training & Operational Research Module within Simfox, for data acquisition and analysis, collects and stores performance data from every aspect of the operation, from

screener threat recognition ability to individual bag statistics. It provides valuable data on operators' capabilities, including X-ray interpretation skills, bag processing time, employee group categorization and employee group performance. In addition, it assists in establishing performance standards and scientific norms for various concealment complexities and for groups, bags, and the overall screening operation.

Operational improvement

For many years, nobody challenged the X-ray manufacturers on the speed of the conveyer belt (which speeds bags at intervals of only 5 seconds for each bag) or the inclusion of various unnecessary image enhancement features on X-ray machines. It is worthwhile to note that detection time varies in accordance with the size of the threat item, its geometrical pattern and level of concealment. Results generated by Simfox suggest that the X-ray operator is not currently the only weak link. It is not only training and testing of operators that will increase detection but the setup of the entire X-ray operation. Correct setup and an adequate number of X-ray machines, queue management and procedures will maximize detection. Simfox contributes by creating norms for detection, upon which operational setup should be adjusted.

An example of it is the detection standards before September 11th compared with afterwards. In many countries screeners were trained to detect a knife with 4" length of blade within the 5 second screening time; after September 11th the requirement changed to detection of knives with any length of blade, without the allowance of additional screening time. Simfox testing shows that detection time for certain concealment of knives varies from 3-22 seconds, thus creating various norms for detection which need to be addressed by lengthening the screening time process. Detection levels for each threat item should always be identified and operational setup should be adjusted accordingly.

Summary

Simfox is currently used in various airports, high-security installations, Houses of Parliament and government agencies in 15 countries. More than a CBT system, it is a comprehensive training & testing system that enables its users not only to train their staff but to analyze their entire operation.

Renful Technologies · mc@simfox.com
Please find complete contact details in the section  category Terminal Solutions

www.renful.com

