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Aussie scientists set universal customs X-ray standard

The first international standards for testing equipment used to examine large cargo objects has been designed and developed by scientists from ANSTO* and the University of Canberra and promises to help increase border security.

The standards originated in a conceptual design by the University of Canberra's Professor Dudley Creagh during an Australian Government project managed by the Office of Transport Security, in which the performance of large scale X-ray equipment used in major Australian ports and airports was evaluated. The project involved collaboration with the Australian Customs Service (ACS) and a number of parcel and freight forwarding firms, such as QANTAS and DHL.

The new standards, which are currently in the patent process, are also being tested in the United States and China. It is expected that more Customs authorities worldwide will follow this lead to ensure that their equipment remains in excellent operational condition in a world in which tight security must be maintained.

These standards are designed to test X-ray equipment used to scan air cargo and shipping pallets and large shipping containers. An international standard already exists for small-tunnel X-ray scanners similar to those used at most airports.

ANSTO's Ned Blagojevic said it was the first time an independent scientific standard has been set to determine the best X-ray equipment for air and sea cargo examination around the world.

"The key role of the project was to test manufacturers' claims about how good their machines are. This will lead to improvements to equipment and therefore better border security," he said.

"Bearing in mind that the United States government will require 100 percent inspection of cargo entering the country by 2012, having the correct standards for X-ray machines is vital. Currently only about 10 percent or less of all maritime cargo is examined by any technology so throughput is a major challenge facing cargo security."

The ANSTO-University of Canberra collaboration designed two test pieces— called AUS1 and AUS2 – which contain materials mimicking shapes and composition of what might normally be found in cargo and as well, contraband and security threats, such as narcotics and explosives.

Ned Blagojevic's collaborator, Professor Dudley Creagh, was the Commonwealth Scientific Advisor for the project. He said that recognising contraband and threats using X-rays relied on the sharp imaging of the object under examination so that anomalies could be readily recognised.

"A good X-ray system will highlight shapes that are inconsistent with shapes of items expected to be in the container: for example cartons of cigarettes mixed in with cartons of ceramic items. Clear images make it easier for Customs officers to detect anomalies in a shipment. To maintain the required excellent performance regular testing is essential," said Professor Creagh.

"A significant feature of the ANSTO standards is that they substantially reduce the amount of time Customs officers must take to ensure their X-ray equipment is working properly," he said. "In the past it would take a working shift to undertake the performance testing. Now it takes only a matter of minutes. Any time lost in testing is time lost from the essential activity of container examination: the detection of contraband and explosives."

So far ANSTO has built 15 test standards, with 10 currently in use by Australian Customs Services, and it envisages demand will increase over time.

For more information and to arrange interviews please call Sharon Kelly, Media Relations Manager on (02) 9717 9575 or 0400 394 085

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