



## Airport screening technology **Full exposure**

### **New methods to prevent terrorism on aeroplanes are being developed**

**D**ESPITE increased airport security since September 11th 2001, the technology to scan both passengers and baggage for weapons and bombs remains largely unchanged. Travellers walk through metal detectors and carry-on bags pass through x-ray machines that superimpose colour-coded highlights, but do little else. Checked-in luggage is screened by “computed tomography”, which peers inside a suitcase rather like a CAT scan of a brain. These systems can alert an operator to something suspicious, but they cannot tell what it is.

More sophisticated screening technologies are emerging, albeit slowly. There are three main approaches: enhanced x-rays to spot hidden objects, sensor technology to sniff dangerous chemicals, and radio frequencies that can identify liquids and solids.

A number of manufacturers are using “reflective” or “backscatter” x-rays that can be calibrated to see objects through clothing. They can spot things that a metal detector may not, such as a ceramic knife or plastic explosives. But some people think they can reveal too much. In America, civil-liberties groups have stalled the introduction of such equipment, arguing that it is too intrusive. To protect travellers’ modesty, filters have been created to blur genital areas.

Machines that can detect minute traces of explosive are also being tested. Passengers walk through a machine that blows a burst of air, intended to dislodge molecules of substances on a person’s

body and clothes. The air is sucked into a filter, which instantaneously analyses it to see whether it includes any suspect substances. The process can work for baggage as well. It is a vast improvement on today’s method, whereby carry-on items are occasionally swabbed and screened for traces of explosives. Because this is a manual operation, only a small share of bags are examined this way.

The most radical of the new approaches uses “quadrupole resonance technology”. This involves bombarding an object with radio waves. By reading the returning signals, the machines can identify the molecular structure of the materials it contains. Since every compound—solid, liquid or gas—creates a unique frequency, it can be read like a fingerprint. The system can be used to look for drugs as well as explosives.

For these technologies to make the jump from development labs and small trials to full deployment at airports they must be available at a price that airports are prepared to pay. They must also be easy to use, take up little space and provide quick results, says Chris Yates, a security expert with *Jane’s Airport Review*. Norman Shanks, an airport security expert, says adding the new technologies costs around \$100,000 per machine; he expects the systems to be rolled out commercially over the next 12 months. They might close off one route to destroying an airliner, but a cruel certainty is that terrorists will try to find others.