

# A LAYERED SECURITY APPROACH

**Tony Kingham** discusses the role of low dosage Through Body X-Ray Scanners in airports, prisons, VIP Protection, government and commercial security.

**B**ad actors, whether they are terrorists, drug traffickers, smugglers or thieves, always have one advantage and that is, surprise. They can choose the time, the place and modus operandi for their nefarious activity, which they can change at a moment's notice.

They can turn up at an intended target one day, notice unexpected security measures and simply change their mind. They can change the day or even the target. If you are a terrorist and you are planning to blow up an aircraft or a drugs trafficker running mules, there are 117 international and 558 regional airports in the US alone. It is what the military would call, a target-rich environment. That means that the security community has the unenviable task of being ready everywhere, for all eventualities, all of the time!

Unfortunately, all too often, security measures are based on historical events, especially at airports where security is largely in the hands of airport operators. For instance, after several high-profile attempts to destroy aircraft by smuggling explosives on board, such as the 'shoe bomber' Richard Reid in 2001 and the 'underpants bomber' on Christmas day 2009, millimetre wave scanners were introduced in airports worldwide.

Millimetre wave scanners are a vital part of any layered security system and after some initial public concerns about privacy and safety, they are now accepted as routine. However, millimetre wave scanners are only able to detect items carried on the body, not in it. Which leaves aircraft vulnerable to attack from an IED carried inside a body cavity. Until the day we develop a safe standoff explosive detection technology, airliners will remain vulnerable. This might seem far fetched to some, but this method of attack has been used in the past. But more of that later.

The bizarre thing is that a technology to identify substances, organic and non-organic, hidden inside the body may well already be in use at the airport, but in arrivals, not departures. Customs officials have been using full body X-Ray scanners in arrivals for years, to find drug capsules ingested or inserted in body cavities by drug mules. Of course, these machines are not for mass scanning of passengers, but are a tool that is both quick and safe to be used when a trained customs official is suspicious of

a particular passenger. So, why are they not available to security teams in departures as well?

The real growth area for use of full body X-Ray scanners has been in prisons, custodial facilities, and detention centres. The escalation of drug use in prisons worldwide has reached epidemic proportions and has prompted the roll out of X-Ray scanners, as the only fool proof method of detecting contraband smuggled in body cavities without employing degrading body cavity searches. This technology enables the basic human rights of inmates (and visitors and staff) under the United Nations' Mandela rules, to be observed and their dignity preserved in what in the past has been an unpleasant and invasive process.

X-Ray scanners are equally effective in detecting mobile phones, sim cards, weapons and anything else that can possibly be inserted where it should not be. But there are other areas where this technology could prove invaluable and VIP Protection is one.

Back in 2009, a suicide bomber attempted to assassinate the Saudi Interior Minister, Prince Mohammed Bin Nayef. The bomb hidden in a body cavity was detonated by remote control, while the perpetrator was in a meeting with the Prince. The same method again in 2012 in an attempt to kill the Afghan Intelligence chief, Asadullah Khalid, resulting in Mr Khalid being seriously injured. On both occasions the would-be assassins passed through extensive security screening, but the IED's were carried internally and were not detected.

Through body X-Ray scanners would have easily identified an IED carried in body cavities, as well as any other weapons or objects carried on the body, making them far more effective than millimetre wave scanners for VIP protection.

State and corporate espionage is another critical area of concern that has been making headlines in recent years. Whether it is state actors like China, Russia or North Korea attempting to breach national security organisations or state and non-state actors attempting to steal commercial information or intellectual property.

Recent focus has been on cyber vulnerabilities, and many organisations have now created an air gap between their critical data and the internet as probably the only fool

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proof way to protect their secrets from cyber hackers. But insider threat remains a major concern for national security secrets and intellectual property for western governments and the commercial and industrial complex.

In 2013, Edward Snowden a computer intelligence consultant, copied and leaked highly classified information from the National Security Agency, when he was a Central Intelligence Agency employee and subcontractor. He stole thousands of documents using a USB flash drive. Given that you can buy drives with 1TB of capacity, if a foreign agent or disgruntled or criminal employee gained access to your system, that is an awful lot of data stolen.

Post Snowden, many government agencies have forbidden the use of USB drives and even banned them from being taken into a building (the NSA had all USB ports filled with liquid concrete). Less radically and more likely however is that IT departments will use IT solutions to block unauthorised human interface devices (HID's) such as flash drives, mice, etc. from the network. But there are other devices that can be used to steal data from computers with blocked HID's, such as USB drives that imitate an Ethernet adapter to gain access to the network.

Given the capacity of these drives and their small size, only by ring fencing critical data with an air gap and physically enforcing a "no unauthorised device" policy, can data ever really be secure. By way of experiment, I had a conversation with a colleague with a USB drive in the cheek of my mouth and they were none the wiser.

**MILLIMETRE WAVE SCANNERS ARE ONLY ABLE TO DETECT ITEMS CARRIED ON THE BODY, NOT IN IT**

An X-Ray scanner is the only way of enforcing a "no unauthorised device" policy. Instead of taking data out, critical infrastructure is vulnerable to insiders, visitors and contractors taking damaging data in, such as malware or introducing systems sabotage programmes. Even with an air gap and enforcing a no unauthorised device policy, the damage that could be done to the power grid or nuclear power station can be imagined! Once again, an X-Ray scanner is the only practical way of enforcing a "no unauthorised device" policy.

Finally, we come on to property theft. The great South African diamond house De Beers was the pioneer in the introduction of low dosage X-Ray scanners to prevent miners from going home at the end of a shift with more than they arrived with. Virtually anything small and valuable can be hidden in a body cavity. The higher the value, the more likely that a small number of staff members will be tempted to see theft as an easy opportunity to make big money and diamonds are worth big money.

Criminal gangs may also coerce staff through entrapment or threats to them or their families. Physical searches of hundreds of miners everyday was simply not a practical way of dealing with a problem that could have been costing the company millions. So, with local manufacturer Lodox Systems, they developed the first low dosage through body X-Ray scanner and deployed them at their mines with great success. Of course,

diamonds are not the only small, high-value items. There are all sorts of other precious stones mined, traded, and manufactured worldwide.

In addition, as more and more manufactured goods such as MEMS sensors (micro-electro-mechanical systems) are miniaturised for the transport and space industries, the more potential there is for this type of crime in other markets. This brings us full circle back to drugs and drug smuggling.

Not all drugs smuggled are illegal substances. The pharmaceutical industry is one the world's biggest industries, and produces manufactured drugs that are worth more than the illegal kind. Zolgensma, a treatment for spinal muscular atrophy is priced at a hefty \$2.1 million per dose. Actimmune is \$57,310 per 6ml vial. Acthar is \$40,000 per 5ml vial. Ravicti is \$5,017 for one bottle of 25ml. I could go on, but you get the point.

And that brings us right up to date and the COVID-19 vaccine. The United Nations Office on Drugs and Crime, UNODC issued a document entitled *COVID-19 Vaccines And Corruptions Risks: Preventing Corruption in the Manufacture, Allocation and Distribution of Vaccines*, which noted that secure storage and distributions systems are critical for the safe delivery of COVID-19 vaccines and the mitigation of the risk of vaccines being diverted from public supply to black markets.

In any crisis, there is opportunity for those unscrupulous enough to exploit it, and the Coronavirus pandemic is no exception. So inevitably COVID-19 vaccines have become a target for criminal gangs and individuals seeking to make a quick buck.

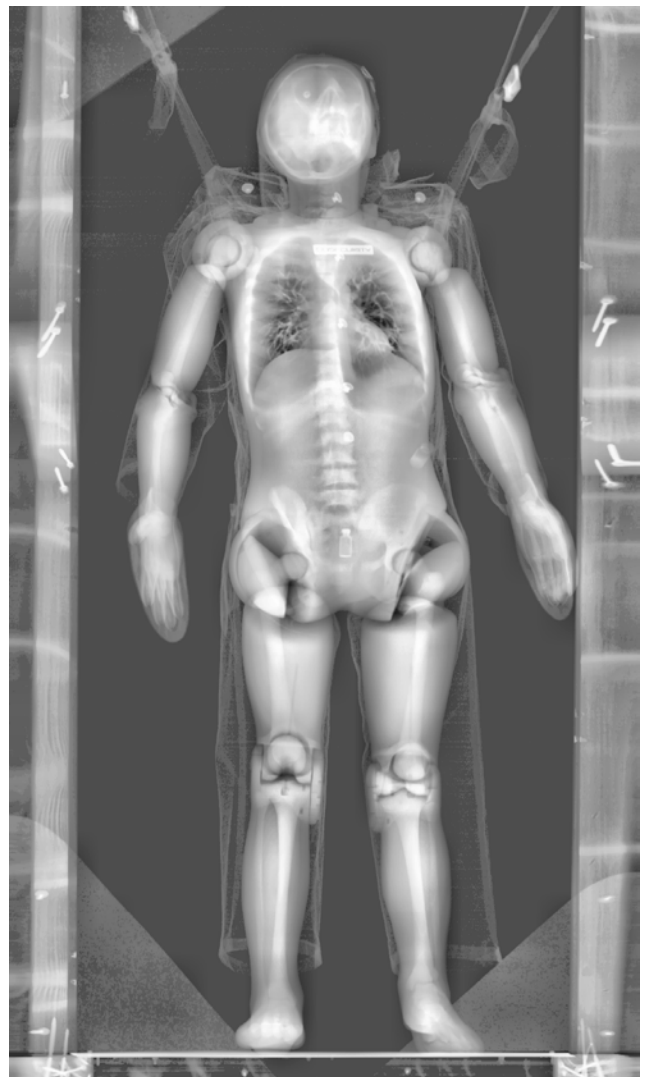
Manufacturer of Through Body X-Ray Scanners ODSecurity sells its systems primarily to the prison and airport markets and was recently contacted by a pharmaceutical company to investigate the possibility that its scanner – the Soter – could detect glass vials. The trial was highly successful.

Mr van der Veen of ODSecurity picks up the story: "We were recently contacted by a pharmaceutical company and tasked with investigating the possibility of installing a body scanner in their warehouse. We ran tests of various glass vials hidden within the body and on the body – full and empty. In each case the results were amazing. The scans showed 100 percent clarity of the glass vials shown on all scans taken by the Soter RS Full Body Scanner."

Sadly, the world we live in has plenty of people that do not share the values of you and I, and are prepared to go to any lengths to get what they want, whether that is in pursuit of their political aims by violence or profit from crime. There is no 'silver bullet' security technology, but Through Body X-Ray Scanners are key technology that address a range of security vulnerabilities and should be considered as a part of any effective layered security approach ●

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**X-Ray scanners are the only fool proof method of detecting contraband smuggled in body cavities aside from invasive body searches**



Picture credit: ODSecurity