

# Separating Hype from Performance: Four Key Criteria for Airport Employee Screening Technology

A Whitepaper from Thruvision  
September 2019

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THRUVISION  
PEOPLE-SCREENING



**FAST ▼ SAFE ▼ PROVEN**

Temperature Range

**Visualizing the threat**

Contrast

Palette

Snapshot

Record

24

8

Cold

Hot

Green

Red

# Separating Hype from Performance: Four Key Criteria for Airport Employee Screening Technology

## A Whitepaper from Thruvision

### Executive Summary

Recent high-profile incidents involving weapons, drugs and other contraband have demonstrated the need for effective security screening of US airport employees, suppliers and contractors. Federal legislation has now been proposed to address the problem, reflecting the increasing pressure on airports and regulators to address this challenge. Consequently, many airports are now evaluating a range of people screening technologies to help address this “insider-threat” problem.

But while multiple solutions are available, each airport environment is unique, and finding the right solution can be a challenge. This whitepaper presents common-sense criteria – threat detection performance foremost among them – that airport security managers should use to determine which employee screening technology best meets their operational and security requirements. We explain why we believe Thruvision’s stand-off passive terahertz technology offers the best overall solution to the airport employee screening challenge, and why airports such as Los Angeles International Airport and Seattle Tacoma International Airport have chosen Thruvision as part of their “insider threat” mitigation program.

### The Need for Better Airport Employee, Supplier and Contractor Screening

Nearly 2 million persons go to work each day at US airports. Many of these workers have access to the most sensitive areas of an airport including planes being readied for flight and passenger bags being held in transit areas. The overwhelming majority of these workers are trustworthy, hardworking individuals. However, recent security breaches by airport and airline employees, contractors, and suppliers involving firearms, drugs and other contraband, have highlighted the need for improved security. A 2018 report in International Airport Review shows the range of the problem:

- **Denver International Airport:** Airline employee arrested for stealing \$130,000 worth of jewelry from passenger baggage.
- **Los Angeles Airport:** TSA screeners charged with allowing drugs to pass through X-ray machines.
- **London Heathrow Airport:** British Airways cargo workers arrested for cocaine smuggling.
- **JFK International Airport:** Employee arrested for gun smuggling plot.
- **Wichita Airport:** Former airport worker arrested for attempted use of a weapon of mass destruction.
- **Atlanta Hartsfield Airport:** Airport employee arrested for trafficking firearms.

Employee screening standards vary from ‘full physical’ used widely in Europe to ‘random and continuous’ which is prevalent in the US. While US airport employees are subject to uniform background checks, how employees, contractors and suppliers are screened is currently the responsibility of the airport operator or airline. This lack of uniformity is one reason US policymakers have proposed legislation as part of the FAA Modernization Act addressing employee security screening.<sup>1</sup>





Thruvision TAC camera on Mobile Operator Station

## Key Criteria for Evaluating New Employee Screening Technology

Any employee screening technology is most effective when part of a multi-layered security program that includes hiring and vetting processes and employee training. Nor is there a one-size-fits all technology for every airport environment.

However, there are common-sense criteria airport and airline security managers should use to evaluate the various different types of technology now available for employee screening:

- **“Walk through” metal detectors** – a mature technology which cannot detect non-metallic items such as explosives, alcohol or drugs;
- **“Stand inside” active millimeter wave scanners** – widely used in US airports checkpoints for passengers. Offers proven detection performance but has low throughput and a large physical footprint;
- **“Walk through” active millimeter wave scanners** – a new technology that claims increased throughput but has limitations on detection performance;
- **Stand-off passive terahertz cameras** – a new, but already proven technology that provides detection performance comparable to “stand-inside” scanners as well as high throughput and a compact physical footprint.



### Criteria #1 – Health, Safety, and Privacy

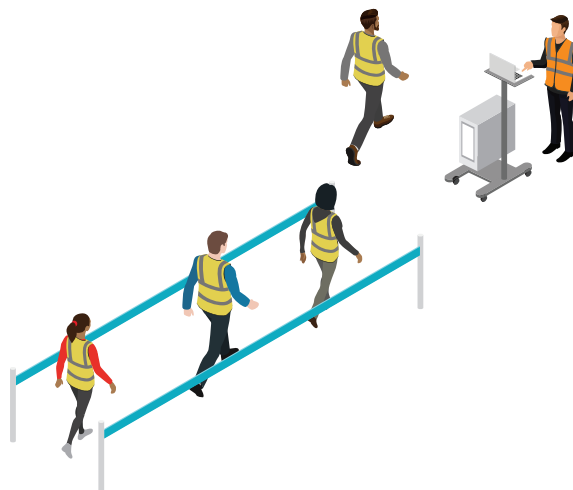
*Does the system emit radiation? Does the system enhance privacy?*



Fixed airport housing for Thruvision camera

From an employee morale and acceptance standpoint, health safety and privacy are very important considerations. “Stand inside” body scanners, used widely today in airport security checkpoints, have struggled to gain broader market acceptance in part because they “actively” emit millimeter wave radiation during the screening process to create a high-resolution image of the person screened. Other “walk through” people screening solutions, also use active millimeter wave technology. And like walk-through metal detectors, these systems can require a physical inspection or “pat down” to resolve an alarm.

By contrast, people screening solutions that use **passive terahertz technology**, such as Thruvision, **emit no radiation**, making employee health and safety concerns a non-issue. Thruvision measures the thermal contrast between heat emitted by a person’s body, and objects concealed in a person’s clothing. This information is presented as the outline of a person from which a security operator cannot distinguish the age, gender or ethnicity of the individual in question, but does allow operators to see, in real-time, the size, shape and location of concealed objects. This safety and privacy enhancing capability reduces false alarms and **enables non-intrusive, no-touch ‘virtual pat-downs’**. Individuals can remove and show any suspicious concealed item without a physical search.



**Walk through employee screening for low risk areas using single Thruvision camera**



Thruvision TS4-SC camera on Mobile Operator Station

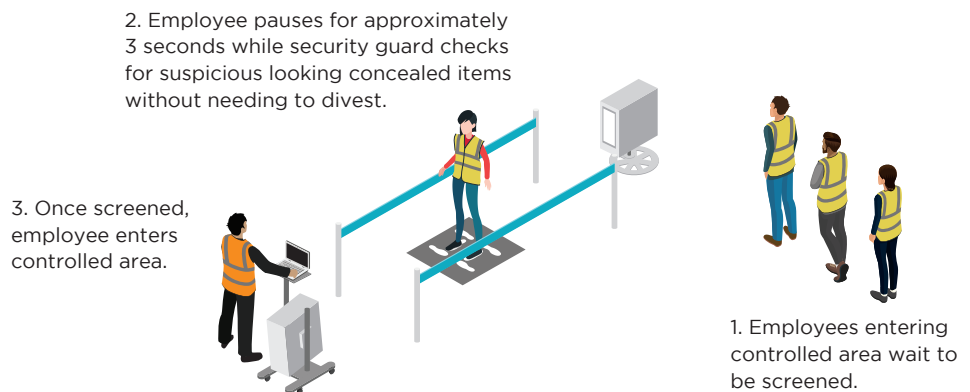


## Criteria #2 - Throughput

*Does the employee screening technology minimize divestment?*

Airport employees, suppliers and contractors need to get to their work quickly. No matter what the screening technology, the most important factor impacting screening throughput is divestment – whether an individual needs to remove concealed items before scanning to avoid false alarms or a time-consuming and physically intrusive secondary pat down search. As anyone who has gone through a US TSA checkpoint knows, this is a drawback for both metal detectors and “Stand inside” body scanners.

Thruvision’s technology minimizes divestment and secondary search. It allows security operators to immediately see the size, shape and location of concealed items and determine if the concealed item needs further investigation, or whether the individual can proceed. Because of this capability, Thruvision can screen up to 600 airport employees per hour.



### Short pause employee screening for high risk areas using two Thruvision cameras



## Criteria #3 - Independently Validated Detection Performance

*Has detection performance been validated by US TSA and other third parties?*

Threat detection performance is the most important criteria. After all, any people screening solution can achieve excellent throughput – if it does not detect concealed threats on a consistent basis!

While all people screening systems claim excellent threat detection capabilities, airport security managers need to rely on more than just glossy marketing material. They need consider what types of concealed objects they need to detect and ask detailed questions:

- Has the system been evaluated by US TSA, generally considered the “gold standard” for security testing?
- Which other airports have purchased, and are operationally using, the technology ?
- Does it detect non-metallic items, such as narcotics, alcohol and plastic explosives?
- Can it be configured to provide a 360° inspection for threat items?
- Can the company provide threat detection test data to validate its performance?

A technology should have independently validated data – ideally from multiple sources – showing how well the technology detects concealed items of different types of material (metal, plastic, ceramic, gel, liquid, powder and paper), at different sizes, and concealed in different locations on the body. Detecting a large improvised explosive device (IED) on the torso of a person is far easier than detecting stolen contraband on the inside of a person's thigh. Given background HR checking, it is highly unlikely an employee could ever be radicalized to the point of becoming a potential suicide bomber.

Thruvision's passive terahertz technology is industry leading in this regard. The system has been extensively tested by US TSA, and the UK Government. It was 'vetted and approved'<sup>2</sup> for use by TSA before deployment by customers such as the Los Angeles Metropolitan Transit Authority. In addition, Thruvision has conducted extensive internal testing of its technology. These results – as well as customer references – are readily available to customers evaluating its solution.

## **\$\$\$ Criteria #4 - Cost** *What is the true cost of ownership?*

Airports are busy, dynamic environments. Airport real estate is a precious commodity and time, literally is, money. Walk through metal detectors have high hidden costs because false alarms and divestment create long lines and because they are hard to move and redeploy. Stand-inside active millimeter wave body-scanners are often large, heavy and unsuitable for mobile security screening operations. Many "walk through" active millimeter wave solutions are still unproven and have not had their detection versus false alarm performance independently validated, making it difficult for customers to assess their true total costs.

Thruvision provides a proven and low cost of ownership people screening solution. It has a smaller physical footprint than leading active millimeter wave systems, can be battery-powered, and is easily moved to meet changing security requirements. It requires fewer staff than other solutions – in many configurations, a single person can both operate the system and resolve alarms quickly.

### **Summary**

#### **Thruvision Meets The Airport Employee Screening Challenge**

Airport security managers have an unenviable job, balancing security requirements with employee morale and cost considerations. Fortunately, Thruvision's passive terahertz people screening technology offers these managers an independently validated and operationally proven solution that is effective, affordable and respectful of individual privacy, safety and health concerns. Over 250 Thruvision screening systems have been deployed successfully for a wide range of people screening applications worldwide.

**In the US, after detailed evaluation of all available technology solutions, leading airports including Los Angeles and Seattle have chosen Thruvision technology as the best solution to meet their security, operational and employee experience requirements.**

**Thruvision can help design an effective employee screening program.**

**Email Kevin Gramer, VP Thruvision Americas ([kevin.gramer@thruvision.com](mailto:kevin.gramer@thruvision.com)) or call +1 (571) 252 7022**

*More than 250 Thruvision units have been deployed worldwide in 19 countries over the last five years for applications including mass transit and aviation security, customs, and border control.*

### **About Thruvision**

Thruvision is the leading provider of next-generation people-screening technology. Using patented passive terahertz technology, Thruvision is uniquely capable of detecting metallic and non-metallic threats including weapons, explosives and contraband items that are hidden under clothing at distances up to 25ft. Addressing the growing need for fast, safe and effective security, Thruvision has been vetted and approved by the U.S. Transportation Security Administration. More than 250 units have been deployed worldwide in 19 countries over the last five years for applications including mass transit and aviation security, facilities and public area protection, customs, and border control and supply chain loss prevention. Thruvision has offices in Oxford, Washington DC and Sydney. To learn more, visit [www.thruvision.com](http://www.thruvision.com).

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