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Tek84 Ready to Introduce Integrated Body and Shoe Scanner

Tek84 Engineering Group, the small engineering firm established earlier this year, expects to have an operational prototype available later this summer of an advanced whole body imaging system that features a smaller footprint than the current systems the Transportation Security Administration (TSA) is deploying at airport checkpoints and technology that allows people to keep their shoes on during the screening process.

Ultimately, if successful, Tek84 hopes to sell the rights to the Ait84 body imager to another company that has the scale to produce and market the system in volume to customers in the U.S. and globally, Steven Smith, the president of Tek84, tells *TR2*. There is already plenty of interest in the system from other companies but if the price isn't right there is the possibility of Tek84 going public, he says.

The Ait84 body imager is an ultra low dose system that combines backscatter X-Ray with transmission X-Ray to scan for objects that may be hidden beneath a person's clothing. The company says the passenger dose limits are within those set by the TSA.

The backscatter capability is "extremely" good for imaging the front and back surfaces of the body and the transmission capability is good for around the edges of the body and on the feet "where the tissue is thin enough you actually can look directly through like a medical X-Ray," Smith says. The current Advanced Imaging Technology (AIT) systems that TSA is deploying to the nation's airports require passengers to remove their shoes before entering the portals.

In addition, the transmission X-Ray capabilities allow more effective searches of a person's groin and armpit areas, Tek84 says. This makes it more difficult for someone to try to conceal a bomb in a private area, as did the would-be Christmas day underwear bomber. And with the Ait84 people don't have to raise their arms above their heads as they do with the systems TSA operates now.

The Ait84 consists of two upright imaging panels that a passenger would stand between for 8 seconds while the image is obtained, the same time as current systems require, Smith says. An operator will also get two backscatter images and two transmission images of a person's front and back and additional images of the shoes to check for explosives, he says.

The current AIT systems TSA is purchasing, the backscatter-based Secure 1000 from **OSI Systems** [OSIS] and the millimeter wave-based ProVision from **L-3**

Communications [LLL], each supply an operator with two images of a person based on their respective technology.

Ready for Sale Soon

Smith says that the Ait84 will be ready for sale to the TSA when the agency goes to purchase its planned tranche of 500 systems using FY '11 budget funds, which Congress must still approve. He expects that acquisition to occur early in 2011 but before then, the company must still complete its engineering and prototype development, have the system tested and blessed by the Department of Homeland Security Transportation Security Laboratory, and likely field tested by TSA at an airport. If all goes well, then TSA could put the system on its Qualified Products List.

These are all challenges that Smith believes Tek84 can overcome. Smith invented the Secure 1000, which he sold to OSI's Rapiscan division in 1998, and has gone through TSA's certification and acquisition process with CastScope, a backscatter-based system used for screening persons with casts and prosthetic limbs at airport checkpoints. One of Tek84's engineers and its Director of Government Affairs, Amit Verma, was product manager for the Secure 1000 when he was employed with Rapiscan and helped usher that system through the TSA test and approval process, Smith says.

More recently, Smith and his colleagues earlier this year sold the rights for a low-dose vehicle scanning system to **Science Applications International Corp.** [SAI] called CarSCAN that allows occupants to remain inside a vehicle while it is being scanned by a dual-energy system that checks for explosives, weapons and contraband (*TR2*, Jan. 6 and Jan. 20).

Real Estate

Another key selling point that Smith believes will give the Ait84 a leg up on its competition is its relatively compact size. The system is 5-feet wide versus 9-feet for the Secure 1000. The ProVision system is just shy of 6.5-feet wide.

TSA has said that the 450 new AIT systems being deployed to airports this year will fit into existing aviation security checkpoints without requiring significant modifications to the airports. Beyond that, Smith says that TSA will have to confront whether to put the current larger AIT systems in purchase smaller systems like the Ait84 to fit into existing checkpoints. If the Ait84 and even other relatively small AIT systems such as one that **Smiths Detection** is developing aren't ready for TSA to purchase later this year, TSA will have to decide whether to delay its FY '11 purchase, he says.

On its website Tek84 says that the Ait84 is serviced from the inside, which means it can be put up against a wall or baggage screening system, potentially saving more space because it doesn't require leaving room for a technician to work on the machine from the outside.

Smith says the Ait84 will sell for around \$180,000, comparable in price to current AIT systems.

Tek84 was created earlier this year when Smith and his partners sold CarSCAN to SAIC. Smith says his engineers made enough money from that sale to retire but that they decided to take up the challenge of advancing whole body imaging technology. Whether Tek84 sticks around once it sells Ait84 will depend on whether Smith and his team decide that there is another engineering challenge they want to tackle.

Smith says the Ait84 will not have any advances in automatic threat recognition (ATR) technology, which has “enormous” development challenges. ATR algorithms can work for easy for large hidden objects such as guns are a lot of explosives but not with smaller items and quantities hidden in areas like the groin, he says.

The key challenge that remains in the Ait84 development is doing “a lot of engineering in a short amount of time,” Smith says. That short amount of time refers to having the technology ready for DHS and TSA to test prior to the next purchase of AIT systems. On the other hand, Smith says his team knows the technology intimately well and expects to do very little in the way of lab experimentation.

There is “essentially no technical risk,” Smith says.
