

TECHNICAL STATEMENT

The subject of this application is a device having important public safety and homeland security applications -- specifically, for screening persons at safety-critical locations such as airports, government buildings, and correctional facilities.

The subject steps into a small chamber, waits two seconds, and steps out. Almost instantly, security officers have a three-dimensional image that clearly shows any weapons or contraband on the subject's person, including non-metallic objects carried in or under the clothing.

The Commission authorized certification of the device, *See In the Matter of Safeview, Inc.*, Order, 21 FCC Rcd. 8814 (OET 2006) and the device is certified under FCC ID number TUZ-S-100.

Certification is conditioned on operation indoors. The subject application seeks nationwide authorization of a temporary fixed device mounted in a trailer.

The device operates by measuring the reflections of near-millimeter radio waves at low levels. A vertical cylindrical shell extends around the subject, with openings for entrance and exit. Between the inner and outer wall of the shell are two vertical masts about two meters tall, each carrying 192 antenna elements arranged vertically. The two masts revolve stepwise 102 degrees around the subject in less than two seconds. While the masts are briefly stationary, a transmitter sequentially feeds the antenna elements. Only one element on each mast transmits at a time, sweeping between 24 and 30 GHz at a rate of 1.1 MHz/ns, so that each sweep takes 5.5 us. There is a pause of 2.6 us between sweeps. The sampling sequence proceeds from to top to bottom of the mast, with only a single element at a time transmitting the frequency sweep. The full scan cycle over all elements on both masts takes 3.1 ms. These vertical scans are triggered by the horizontal position of the mast, with an average time delay between scans of 5.5 mS. There are 210 vertical scans per mast as the masts swing through their arc.

Receivers collect reflected data from various angles. Within another few seconds, the data are processed into a holographic image of the subject that shows any hidden objects. Features include automatic object identification, privacy algorithms, remote viewing, and data logging. There are no further transmissions until the next subject enters the device.

The device is certified, but certification is conditioned on indoor operation. Experimental authorization is sought in order to operate trailer-mounted units at temporary fixed locations.