TSA Endorses RFID for Airport Vehicles

In a newly released report, the U.S. Transportation Security Administration says I.D. Systems' Wireless Asset Net system can help ensure the secure operation of airplane fueling trucks and other maintenance vehicles.

By Claire Swedberg

Dec. 23, 2005—The U.S. Transportation Security Administration (TSA) has released a report based on the results of an RFID trial at Newark Liberty International Airport, intended to track baggage-loaders, fueling trucks and other maintenance vehicles as they travel around 20 to 30 percent of the airport's roadways and approach airplanes. According to that report, the TSA recommends the RFID system as a means to track the movement of an airport's ground vehicles, especially fueling trucks. Airports would use the system to increase security and protect airports from potential terrorism.

The report is based on a $4.1 million program the TSA funded to test RFID technology at Newark Airport, as well as at JAXPORT, the Jacksonville, Fla., seaport (see TSA Funds Tracking System for Seaport). I.D. Systems, a Hackensack, N.J., supplier of wireless solutions for tracking and managing enterprise assets, provided the hardware and software for the systems, which track where the vehicles go and allow only authorized personnel to operate them. While the system deployed at JAXPORT also tracks baggage, the one at Newark monitors only vehicles.

At Newark, I.D. Systems' RFID-based Wireless Asset Net system monitored 80 vehicles. The vehicles were equipped with an RFID reader (interrogator) known as a Vehicle Asset Communicator (VAC). Vehicle operators wore ID badges with embedded active RFID tags operating at 900 MHz. A vehicle's ignition would start only if the VAC detected that the driver was wearing an RFID-enabled badge.

To track where an employee drove, each vehicle had a GPS unit linked to its VAC. The VAC transmitted a 900 MHz signal identifying the vehicle's location to I.D. Systems' System Monitor gateways, which were linked to network nodes on the wireless 2.4 GHz LAN deployed around the airport. The maximum communication range between a gateway and a vehicle's VAC is 1,000 feet. According to the TSA report, the system in Newark accurately tracked the vehicles' locations 95 percent of the time. The research project was carried out under the auspices of the TSA, the U.S. Department of Homeland Security (DHS) and the TSA's Transportation Security Laboratory (TSL).

"The report was written in order to document the conditions, data and results obtained from the U.S. DHS/TSA/Transportation Security Laboratory Wireless Vehicle Tracking Project conducted at Newark Airport," says James Remer, TSA's communications technology lead. "It also provides a vehicle for transferring the technology developed to state and local governments and the commercial sector—which, by law, is one of the missions of federal laboratories."

The most important lesson of the trial was "the successful operation of an integrated real-world wireless vehicle tracking system—its functionality and reliability in an airport environment," Remer says. "Its ability to demonstrate secure operation of vehicles on the airport surface, in a medium-scale operation, was

conclusively established, as well as future areas for research and development."

The TSA report was intended to evaluate the use of the technology to meet a TSA requirement for providing security for aircraft-servicing equipment including fuel trucks, says TSA spokesperson Jennifer Peppin.

Ports and airports provide unique challenges because of the high amount of wireless data traffic and equipment such as high-powered radio transmitters, radar systems and air-to-ground communications systems already existing there, according to I.D. Systems' vice president of marketing, Greg Smith. At busy airports such as Newark, Smith says, wireless traffic at 900 MHZ and resident frequencies (different frequencies that can still disrupt other transmissions) offer much more of challenge in this regard than at smaller airports.

During the two-year trial at Newark Liberty International Airport, he says, "the system performed as expected, in a nonintrusive way, and coexisted within a high-RF traffic environment." He attributed that success to the system's low signal power (1 milliwatt), which was small enough to avoid interfering with other RF traffic.

Smith says he expects other airports and seaports to adopt the system, although it is currently in use only at Newark and JAXPORT.

The TSA report is available to the public through the National Technical Information Service (NTIS) of the U.S. Department of Commerce, Springfield, VA 22161. It is titled *The Newark Liberty International Airport (EWR) Vehicle Tracking Demonstration—Wireless Fleet Management System.* The author the report—also known by its document number, DHS/TSA/TSL-05/76—is Anthony Cerino.