

Hospital Gets Ultra-Wideband RFID

Washington Hospital Center will install a UWB real-time location system throughout the facility's emergency department.

By Jonathan Collins

Aug. 19, 2004—[Parco Wireless](#), a developer of an ultra-wideband RFID system for healthcare facilities, has sold its first commercial installation. In October, Parco will oversee the deployment of more than 20 readers and around 100 tags for patients and staff as well as tags for equipment throughout the emergency department of the Washington Hospital Center in Washington, D.C.

The installation follows trials at the hospital during the past year, with each trial focused on a specific zone, such as an emergency room or hallway.

“This deployment will cover about 10 zones centered on the emergency department. The data it delivers will be used for a whole range of decisions,” says Scott Cohen, CEO at Parco, which is based in Portland, Maine.

Parco's real-time location system uses tags and readers licensed from [Multispectral Solutions](#), an ultra-wideband (UWB) specialist based in Germantown, Md., combined with Parco's own asset management software. The system allows hospitals and clinics to track the status and exact location of patients, staff and essential equipment.

The Washington Hospital Center will use two types of UWB RFID active tags. Asset tags are 1-inch cubes that can be screwed or glued to equipment; patients and medical staff will wear credit card-size tags. Each tag can be detected by the readers at a range of 600 feet. The tags' battery can last from one to five years depending on how frequently reads are taken. A tag's read frequency can be set as high as four times a second, or it can be triggered by a specified activity, such as the movement of a tagged object.

UWB operates by emitting a series of extremely short pulses (billionths of a second or shorter) across a band of frequencies simultaneously. The FCC has cleared from 3.1 GHz to 10.6 GHz. Parco's Washington Hospital deployment will operate in 6.2 GHz band. Because the system uses UWB, Parco maintains, its equipment overcomes the potential for self-interference caused by the reflection of RF signals between readers and tags within a building. That is because UWB transmits short-duration radio waves that are finished before they can reflect off walls and ceilings, thus eliminating the opportunity for cancellation. UWB is also better suited to deployment in medical environments than conventional passive tags, says Parco, which maintains that passive systems operating in the low frequency (13.56 MHz) and ultra-high frequency (915 MHz) bands can interfere with the operation of medical telemetric equipment that use the same spectrum.

The tags are tracked by unique three-digit identification numbers emitted by each tag every second. With four UWB antennas placed at the perimeter of a room, Parco's system can track tags in three dimensions. Objects can be identified and located to within a sphere the size of a basketball.

Parco's UWB tags carry 32 bytes of data, which includes the unique ID number. The tags also transmit

information on battery status, whether the tag has been tampered with information, and the status of the medical device to which the tag is attached. Data is transmitted at a rate of 100 kilobits per second.

Parco expects several other healthcare providers currently trialing its UWB RFID system to announce similar deployments within the next few months.

Although Parco has pioneered the use UWB for healthcare RFID systems, it is not the only company to see RFID's potential in healthcare. [Agility Healthcare Solutions](#) is operating an RFID network to track mobile medical equipment at the three Virginia hospitals (see [Hospitals Get Healthy Dose of RFID](#)) while another startup, [Exavera](#), has developed a system that combines RFID and Wi-Fi technology to track hospital equipment as well as monitor patient treatment (see [RFID Remedy for Medical Errors](#)).

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