

# RFID Heads for the End Zone

Testing of the technology at the Super Bowl showed promise for tracking video equipment.

By Claire Swedberg

March 8, 2007—RFID technology may be on its way to a touchdown. At the recent Super Bowl XLI game, the Sports Video Group (SVG)—an association of broadcasters, team owners, sports leagues and sports technology and equipment providers working to advance the creation, production and distribution of sports content—tested whether the technology could improve visibility into the whereabouts of expensive video equipment rented by broadcasters for the game. The pilot incorporated OATSystems' RFID software and video equipment from rental company Bexel. While the pilot produced positive results, some problems involving item-level tagging emerged, and it became clear that more than just a couple of handheld readers would be required for the tracking system to be truly effective.

The SVG's advisory board requested the pilot in 2006, says Martin Porter, the association's executive director. Its goal was to determine how well an RFID-based tracking system would operate at a large sporting event, and whether it could assist in tracking hundreds of pieces of expensive video equipment used by broadcasters at televised games.

Typically, a broadcaster uses some of its own video equipment for an event like the Super Bowl, renting the bulk of what it needs from Bexel and similar companies. Bexel trucks the equipment to the site, where it is unloaded several days before the game and dispersed to hundreds of production crew members from the television networks.

To keep track of the gear it rents out, Bexel has used bar-coded labels on equipment-storage cases. Often, many items are loaded into a single case, or one item might be divided into several parts in two or more cases. Workers at the Bexel warehouse would scan bar codes as the cases were loaded on trucks, says Lee Estroff, a technical sales representative at Bexel Broadcast Services Group, then scan them again as they were returned to the facility. At the site of the sporting event, broadcasters' video crews, most of whom work together on a regular basis, manually checked out the equipment needed.

"It's a very manual process," says Paul Cataldo, OATSystems' vice president of marketing. "The video crew has a very short window for getting set up before the game, and they need the right combination of equipment."

The RFID pilot included CBS, which used video equipment owned by Bexel, shipped to the game site from two of the rental agency's facilities. Bexel employees generated passive Alien Technology EPC Gen 2 UHF RFID tags at their offices by inputting details about each item before reading the tag's ID number, then printing the labels with these details on the front. Bexel employees at the Super Bowl site then attached the labels to the items, says Anurag Nagpal, OATSystems' program manager, as well as to about 300 cases. As production crews checked an item out and back in, workers used handheld interrogators to read the RFID label and view details about the item electronically.

At the Super Bowl site, SVG staff workers utilized two Motorola MC906R handheld computers, which have built-in RFID interrogators and a keypad for data entry, to capture the unique RFID number of each item or case. As operators interrogated each piece of equipment to be checked out, the MC906R's screen displayed the name of that equipment. The OAT user interface on the handheld reader then prompted the user to enter the initials of the person checking it out. The user entered this data via the keypad, and also selected the location where the equipment was being taken ("off-site," for example, or "to the stadium").

That data was then sent wirelessly via a Wi-Fi connection to a laptop computer on site. OATSystems' OAT Foundation Suite software was installed on the laptop to manage and track the equipment's RFID tag information. Using this software, Bexel personnel were able to determine who took a particular piece of equipment, and where it was located within the production compound, by searching data on the laptop. This process ensured that no expensive video equipment would end up missing.

The system certainly proved its worth in one way: Because it was raining on the days leading up to the game, equipment was loaded on pallets and stored under tarps. Normally, Nagpal explains, that situation would have required personnel to lift tarps and sort through all the items to find the correct piece of equipment for each crewmember. With the handheld, they were able to save time by interrogating items' tags without having to lift the tarp.

"It worked well enough," says Porter, though the SVG saw where it would need to make changes for the next pilot. One addition will be to add fixed RFID readers at chokepoints where equipment enters and leaves the storage area. "We will need readers at forklifts and gates," Porter says, explaining that "the handhelds didn't work well enough" because the crew did not always wait to have their equipment read by the interrogator. Production crews come through the space in a hurry, he adds, "and they don't want anything to get in their way." By having fixed RFID readers in addition to the handhelds, SVG will no longer need to make crews wait to have the equipment tags interrogated.

"We also had issues with some of the gear and tags," Porter recalls. The scanning worked on the cases, but not on the equipment itself through the cases. "In the next generation," he says, "we'll have to do more advanced testing for item-level tagging."

Ultimately, says Porter, "We learned it's doable, it will work and there is a high level of interest from the broadcasters." Still, he admits, there's one other unresolved issue: "Who's going to pay for it?" Nonetheless, Porter believes the cost of tags should not be a deterrent. "You're looking at very expensive equipment," he points out, including cameras and lenses that can cost more than \$100,000 each.

RELATED\_ARTICLES Bexel's Estroff agrees. "There's potential there," he says, adding that Bexel would like the system to track equipment in a server-based environment so he can see where an item is from his own office by logging onto a secure site. In the Super Bowl pilot, the laptop did not connect to a server.

This spring, SVG plans to publish a complete case study about the Super Bowl pilot in *Sports Technology Journal*, its industry engineering publication.

Copyright ©2005 RFID Journal, Inc. All Rights Reserved