

# Retailers See RFID's Potential to Fight Shrinkage

Store operators are beginning to explore new applications for radio frequency identification, including using it as a tool for preventing product theft—or for reducing its impact.

By Mary Catherine O'Connor

Aug. 15, 2008—A growing number of retailers are beginning to see RFID as a tool not only for improved product visibility, but also for preventing product theft—or, at least, for reducing the negative impacts of product shrinkage. That's one trend that emerged at *RFID Journal's* third annual RFID in Fashion conference, held this week in New York City.

A number of speakers at the event, representing three retailers that are either testing radio frequency identification or have already deployed it, noted that RFID as an electronic article surveillance (EAS) tool is a compelling use case. Earlier this week, Northland, an Austrian retailer of outdoor gear, revealed details about a pilot test it has started to evaluate the use of EPC Gen 2 RFID tags as EAS devices (see Outdoor Clothing and Equipment Retailer Tests RFID-EAS Tags).

Bill Hardgrave, director of the RFID Research Center, which is part of the Information Technology Research Center (ITRC) at the University of Arkansas, provided attendees with results of a study he carried out with the help of Justin Patton, the center's managing director, and a group of students. The team examined the feasibility of employing passive EPC Gen 2 tags to trigger an alarm when brought through a read portal. Hardgrave tested the tags alongside conventional EAS tags, read in parallel scenarios (for preliminary results, see University of Arkansas Study Finds RFID Can Add Value to EAS).

Hardgrave and his colleagues tested the tags within the lab, attaching RFID hangtags to a large number of garments and attempting to mimic, as closely as possible, seven real shoplifting scenarios. For instance, they stuffed 50 tagged items into a shopping bag lined with aluminum foil, tucked some items under their arms, or wore tagged products under clothing to see if an RFID interrogator could detect them. The results were good, he reported, but not always perfect.

In the test in which tagged goods were worn under a tester's clothes, for example, the RFID tag was read in only 63 percent of attempts to pass a security portal, whereas the conventional EAS tag was detected every time. But for the majority of the testing scenarios, the RFID tags performed as well as the EAS tags in terms of being detectable by the readers. And the advantage of reading an RFID tag at an exit portal is that if an item is stolen, the user will be able to ascertain exactly what was taken. This enables a retailer to adjust store inventory levels to reflect the theft.

When large populations of RFID tags were brought through a portal, Hardgrave said, many individual tags were identified. For instance, in a test in which a group of 50 tagged items were brought through the portal 30 times, using two types of EPC Gen 2 tags (a small model designed for item-level tagging and another with a larger footprint, more appropriate for case-level tracking), and moving through six distinct paths through the portal, nearly all (about 95 percent) of the 18,000 possible individual tag reads (50 tags x 30 passes x 6 paths x 2 tag types = 18,000) were successful. (To download the complete study, visit [itri.uark.edu/research](http://itri.uark.edu/research) and enter

"rfid" as the keyword.)

Hardgrave reminded attendees that even without reaching 100 percent read accuracy on the tests in which RFID was used as an EAS tag, the use case for employing RFID for EAS applications should have retailers jumping. "If retailers got visibility into even just 75 percent of lost [stolen] items—that is, knowing what was stolen, where and when—that would make the cost of deploying the technology worth it," he said. By knowing what has been stolen, a retailer can then make sure to replenish its stock, which should reduce the need for safety stock and also boost sales by ensuring that the products consumers want—and that store associates expect to have on site, based on inventory—are, in fact, available.

But the fact that retailers are beginning to explore new uses of RFID technology in their stores seems linked to something else mentioned a number of times during the event: that store operators are achieving the performance levels with RFID that they have been seeking. This has allowed them to start searching for other applications for the tags and readers, outside of using them for product tracking and for automating shipping and receiving operations.

Although the conference attendees acknowledge that earlier RFID hardware installations had faced some hurdles—such as poor read rates, eliminating sources of RF interference and filtering unwanted reads—the consensus was that the low read rates that stymied RFID test pilots as recently as two years ago are no longer occurring. Most users, in fact, cited read rates at or near 100 percent.

"The technology is mature," said James Stafford, head of RFID adoption at [Avery Dennison's](#) Information & Brand Management division. "We can take the discussion of technology off the table and start talking English to each other instead of talking technology." But technology—as well as business benefits—is what end users who spoke at the event focused on, many providing updates on various RFID pilot programs, in addition to some results from those tests.

Helmut Weinekotter, director of processes and logistics for German retailer [Karstadt Warenhaus](#), shared findings from a nine-month RFID pilot the company initiated in 2007 at a retail location in Düsseldorf. The goal of the project, in which men's jeans were tagged, was to determine how well radio frequency identification could optimize specific business processes, such as inventory counting and stock-checking (see [Kardtadt Readies for RFID](#)). The retailer also employed the iREAD RFID-enabled shelving system, developed by [ADT](#) (see [ADT Announces iREAD Network Antenna System](#)), as part of the project. In addition, readers were integrated at the checkout counter, so that as a tagged item was purchased, it was removed from the store's inventory database and its RFID tag was deactivated by an automatic kill command. (Karstadt did not test RFID as an EAS device, nor did it utilize the tag in the financial transaction; instead, the item's bar code was read to initiate a transaction.)

The pilot results Weinekotter shared included an 85 percent decrease in the amount of time staff members spent performing inventory counts, as compared to counting inventory by manually scanning a bar-code label attached to each item. The average time, he said, dropped from 60 minutes to 8. Handheld RFID interrogators were employed to perform the inventory in the store's back room, while tagged items on the sales floor were counted using a combination of the iREAD shelves and handheld devices (for such items as clothes hung on racks and not placed on shelves). The store also saw a 75 percent decrease, he said—from 80 seconds down to 20—in the amount of time spent checking stock for a specific type and size of jeans.

**RELATED\_ARTICLES** According to Weinekotter, the benefit that the RFID tags offered in the price-markdown process was that by merely being able to locate items more quickly than before, Karstadt Warenhaus was able to mark down its price tags more expediently.

Weinekotter said his company is currently in discussions with a handful of suppliers interested in participating

in a second, wider pilot by tagging product prior to shipping it to the retailer. "We'll conduct more tests in different departments, and involving our shipping suppliers," he said, having noted that DHL is the company's primary shipper.

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