

**The athletic shoe and apparel company's initial technology tests went well; now, the firm is planning a pilot.**

By Mary Catherine O'Connor

Aug. 23, 2006—If there's one thing all RFID technology vendors and integrators agree on, it's that before you can determine where and how to use RFID, you must first experiment with it. Many large footwear and apparel companies, however, are too busy trying to meet retailers' tagging mandates to deploy small-scale technology trials or to take a slow, studied approach to the technology.

Not so for [New Balance](#), a privately held running shoe and sports apparel company headquartered in Boston. Although its shoes may be a household name, none of the big-box retailers with RFID mandates sell New Balance products. New Balance manufactures its shoes in the United States and overseas, sourcing its apparel from overseas manufacturers. Curious about whether RFID could prove valuable to the firm, the company conducted a small technology trial last year. The results were positive enough to convince New Balance to run a second trial focusing on integrating RFID tag data with existing business systems.



*A readout station used to track items with RFID technology.*

New Balance started experimenting with RFID last summer, working with [Avery Dennison Retail Information Services](#), the company from which it sources the bar-code product labels it applies to its products. Avery Dennison runs an RFID testing center outside Atlanta. Frank Cornelius, advanced manufacturing engineer in New Balance's Advanced Engineering department, was sending cases full of tagged New Balance apparel to the center throughout last summer.

Initial tests with EPC Class 0 and Class 1 tags gave poor readability, with as few as 80 percent of the tagged goods in cases being read. These rates, however, shot up to around 95 percent once Cornelius started applying EPC Gen 2 tags to the garments in early 2006. The company decided to base the RFID technology trial on a real business process in need of improvement: its method of distributing product samples to its sales force.

Before retail stores place orders for New Balance apparel—which they do twice yearly—New Balance sales representatives show them the upcoming season's line. For these demonstrations, the company sends samples of each color, in each style. Workers at a third-party distribution center in California compile the sample collections and ship them out to roughly 100 New Balance sales reps around the country.

To do this, they must first process receipt of approximately 15,000 individual pieces, from which they pull each style in each color and sort them into the sample collections. This is a manual, time-consuming process that involves opening each case, counting the contents and comparing them with a corresponding packing slip—and in one out of 10 cases, the distribution center told New Balance, the contents indicated by packing slip doesn't match the actual contents of the box.

"What we were trying to do is improve the efficiency and accuracy of the sales samples collection receiving process," says Cornelius. He also wanted proof that RFID technology would work in the real world, outside of the Avery Dennison test center. To that end, Cornelius and his team worked with systems integrator [Markem Corp.](#) to construct an RFID interrogation station at the third-party distribution center in California.

Avery Dennison provided smart labels embedded with Avery's AD220 EPC Gen 2 inlays, which Cornelius sent to the 16 manufacturers that make New Balance apparel. One label was placed on the plastic bag in which each garment was shipped (each case contains a varying number of bagged garments). When cases containing the tagged garments arrived at the California DC, the team pushed the case through the RFID interrogation station's two separate sets of antennas, linked to two [ThingMagic](#) Mercury 4 EPC Gen 2 interrogators. The interrogators fed the tag data to a computer and printer, which generated a list of the EPCs and the SKUs they represented.

If the printout and packing slip matched, the case was sent to the pickers assembling the sample collections. If a discrepancy was found between a printout and a packing slip, however, the case was opened and its contents counted. Out of the 350 cases received, between 10 and 12 percent had to be counted. Of those, 1.5 percent of the discrepancies were due to nonfunctional, or "dead," tags on the

garments. One percent was due to missing smart labels, while the rest of the mismatched cases were packed with either too few or too many tagged garments. The team experienced no instances in which a functioning tag was missed as the cases were interrogated.

The pilot showed that RFID could be used to quicken the receiving of samples since workers would not have to hand-inspect each case—just those for which the printout and packing slip did not match. The pilot also served as an audit of the distribution center and its receiving accuracy, by showing definitively how many cases were wrongly packed overseas. New Balance can leverage this data to urge its suppliers overseas to improve packing accuracy.

While an early quote from another systems integrator—with, as Cornelius described it, "all the bells and whistles," was upwards of \$70,000—he says New Balance was looking to keep costs down. The equipment would run in a standalone mode, so no network connection was needed. To save money, Cornelius worked directly with the Markem team to design the reading station, and even made the structure to support the antennas himself. The firm decided to forgo a conveyor system and simply push each case through the read zone manually. In the end, Cornelius was able to set up the pilot with Markem for under \$35,000, including hardware and software but not the tag costs.

This fall, New Balance plans to take the pilot to another level. The manual receiving process at the California distribution center has been replaced with an automated warehouse-management system (WMS) provided by supply-chain solutions company [Manhattan Associates](#). The goal of the second pilot will be to determine whether RFID tag data can be integrated into the WMS software to automate the receipt of samples fully. In the pilot, the manual comparisons of the printout and the packing slip will be handled automatically by middleware linked to the WMS.