McKesson Starts RFID Pilot for Viagra

The drug distributor is reading case and pallet tags on shipments of Viagra it receives from Pfizer, and will soon expand the project to read item-level tags.

By Mary Catherine O'Connor

Feb. 17, 2005—Pharmaceutical industry giant McKesson plans to test RFID by deploying a technology pilot that piggybacks on Pfizer's test of high-frequency (13.56 MHz) RFID to track and authenticate its counterfeit-prone drug Viagra (see Pfizer Using RFID to Fight Fake Viagra). At a distribution center it runs in Memphis, Tenn., McKesson is already reading and authenticating the ultrahigh-frequency (915 MHz) tags Pfizer attaches to cases and pallets of Viagra.

The primary initial goal of the tests is to evaluate how many of the pallet, case and item-level tags McKesson can successfully read, and to measure how much additional data it will collect through the RFID tag reads. "We're interested in seeing what kind of read rates we receive over time, as well as looking at our data capacity [how much RFID data can be collected and processed]," says Paul Fowler, McKesson's vice president of e-commerce and emerging technologies.

"We handle orders by line items, each of which has an average of seven individual bottles. So that's maybe seven bottles of drugs per line," Fowler says. Across its entire U.S. drug distribution network, McKesson handles up to 1.8 million line items per night, but each individual bottle of the drug product in that line item is identified by the same SKU. If each of those seven bottles in each single line item carried an RFID tag read by McKesson, those 1.8 million line items would be identified by more than 12 million EPCs per night, so McKesson's software systems would need to handle a tremendous amount of additional data.

Fowler declined to share the read rates from the Memphis test, because the company had received only one shipment and wanted to receive more before publicizing the results. On individual bottles of Viagra, Pfizer is attaching Tagsys' Flexible Module passive HF tags that comply with Philips' I-Code air-interface protocol. On cases and pallets, Pfizer is placing EPC Class 1, Gen 1 UHF tags from Alien Technology.

McKesson distributes a third of all the Viagra Pfizer sells through U.S. distribution channels. It receives all of its Viagra orders at the Memphis facility—which is a regional distribution center (RDC)—then uses a network of forwarding distribution centers (FDCs) to ship orders to pharmacies. Starting next month, at an FDC located in Sacramento, McKesson will begin reading both the UHF tags on cases of Viagra and the high-frequency tags, each encoded with a unique Electronic Product Code (EPC), that Pfizer attaches to the individual bottles and packs of the drug at the drugmaker's manufacturing plant. Once this test in Sacramento is under way, Fowler hopes to replicate it at a number of other FDCs.

The Memphis RDC receives weekly shipments of Viagra—about 150 pallets' worth—from Pfizer. For the Memphis pilot, which McKesson began last week, the case and pallet tags are read as the product is received into the caged area where it is stored (McKesson stores Viagra and other valuable product in secured areas). The company has installed an RFID interrogator and antennas across the portal to the cage. The interrogator sends the tag data to RFID device management software from BEA Systems (the software was developed by

ConnecTerra, which BEA Systems purchased last year). The software filters duplicate reads and aggregates the data, then sends it over a secure Internet link to the RxAuthentication Service, an online authentication tool created by Woburn, Mass., pharmaceutical supply chain software developer SupplyScape. RxAuthentication Service compares each item's EPC, along with an identifier encoded to the corresponding tag's chip, to verify that the EPCs encoded to the case and pallet tag were issued by Pfizer.

For the upcoming pilots, McKesson needed to deploy a system that can read the UHF tags on the cases, as well as the HF tags attached to the individual containers of Viagra. To that end, Fowler worked with Blue Vector Systems, a Mountain View, Calif., firm that offers sensor and RFID infrastructure solutions based on its network manager and edge manager appliances. Blue Vector enlisted the help of Venture Research, a systems integrator based in Plano, Texas, to help it design and build the physical infrastructure for the system.

Romen Kuloor, Blue Vector's vice president of business development, says McKesson is being forward-looking and innovative by testing RFID. "Paul Fowler is saying, 'Let's come together on this technology and look at the benefits and the pain points,'" says Kuloor.

Once the Sacramento FDC receives the Viagra sent from the Memphis RDC, McKesson moves it first to a bulk-inventory area, where unopened cases are stored, then to an open-stock area, where the cases are opened and orders are picked before being sent to pharmacies. Blue Vector and Venture Research needed to devise a means of reading both the case tags and the item-level tags on the Viagra. To do this, they have built two different cabinets, outfitted with both UHF and HF interrogators, in which McKesson will securely store the tagged Viagra. One cabinet is for the bulk area, the other for the open-stock area. The cabinets contain UHF and HF antennas, custom-designed by Venture Research and linked to interrogators from an undisclosed manufacturer. The interrogators are controlled by Blue Vector's Edge Manager appliance.

Kuloor says the biggest hurdle the companies faced in designing the cabinets involved the physics of interrogating two sets of tags using different frequencies and protocols within a confined area. The UHF and HF tags and readers, he explains, use different wattage levels and types of antennas that can cause conflicts. Additionally, the Tagsys 13.56 MHz tags attached to items use the Philips' I-Code air-interface protocol, while the 915 MHz tags on the cases follow the EPC Gen 1 protocol. Kuloor says Blue Vector considered the multiprotocol interrogators on the market, but none were "viable" because of low performance. "The RF issues were no a trivial matter," he says, "but we've hammered them out."

The system is currently being tested at the Sacramento FDC. Kuloor says the pilot there should begin during the first week of March, at which time he will be able to share more details about how the RFID data from the UHF and HF tags will be collected and analyzed. In the months following the launch of the Sacramento pilot, Fowler says he hopes to expand the project to a few other FDCs that distribute Viagra, and to add returns-processing. For this, the RFID tags attached to containers of Viagra sent back by pharmacies (because of expired sale dates, for instance) would be used to receive and process the returns.

McKesson is running the Memphis and Sacramento projects as standalone pilots. Therefore, the company will not integrate the RFID data with its existing software systems, such as its warehouse management and demand forecasting platforms, both provided by BEA Systems. When receiving the cases in Sacramento, however, the EPCs encoded to the case tags will be compared with those sent by the Memphis RDC, Kuloor says, to ensure that the entire shipment was accurately received.

Fowler says he does not have a firm end date for the McKesson Memphis and RDC pilots, which could last as long as Pfizer continues its Viagra pilot. In terms of potential internal benefits RFID could provide McKesson, Fowler says he's most interested in using RFID read events to quickly track the location of specific product within facilities, as well as using RFID as part of an alert system that would enable McKesson DC staff to divert expired or recalled product upon receipt. The scope of the current pilot in

Memphis, and of upcoming projects in other faculties, however, does not include these functions.