Environmental Concerns Lead Deutsche Post to RFID

The courier is considering switching to passive RFID labels with integrated display screens to avoid consuming 500 million paper labels per year.

By Rhea Wessel

Dec 20, 2006—Deutsche Post World Net (DPWN) has launched a project to develop passive RFID tags incorporating a small, rewriteable display for use on mail containers. The D-RFID tags, as they're called, will be used as part of an RFID application under development to track DPWN's 6 million yellow shipping containers. The company utilizes the crates to hold the 70 million letters that pass through its 84 distribution centers each day.

At present, each container carries a thick paper label noting, in typed text, the contents of the box and the distribution center or mail truck for which it is destined. It also carries a bar code with the same information that is read by conveyor systems.

DPWN currently throws away about 500 million of these paper labels per year. Printing 500 million labels annually is still the cheapest way for it to label the reusable plastic bins, however, so the company initiated a project called Pariflex (Passive RFID with Flexible Bistable Display) to eliminate this environmental waste. D-RFID tags are high-frequency passive RFID tags with displays powered by the tags, which draw their energy from the magnetic field of the RFID interrogator.

If all goes well with the Pariflex trial, DPWM could replace its paper labels with D-RFID labels measuring 60x160 millimeters (2.3x6.3 inches) and including electronic-ink bistable displays that are only 1.5 millimeters (0.06 inches) thick. Text on a bistable display remains on-screen after the power is removed, and doesn't change until power is restored and the image is refreshed. As such, destination details would be available on the display until an RFID interrogator rewrote them.

The Pariflex project got rolling in October 2005 and will run until September 2008, funded with €2.5 million ($3.3 million) from the German Federal Ministry and Research (BMBF). The companies involved will also contribute to the budget if government funds don't cover expenses, said Gerhard Stönner, DPWN's head of engineering in the mail division and a manager of the D-RFID project. So far, the partners have developed demonstration tags with the full functionality needed by the application, though these tags contain batteries.

These other partners include the Fraunhofer Institute for Reliability and Micro-integration (IZM), which is codeveloping the RFID tag with the University of Paderborn. The university is also working on a custom RFID interrogator for the system, though no vendors have yet been selected to produce it. Vossloh Information Technologies is developing the display, while Inspire is working to identify other applications for the D-RFID tag. Spree Hybrid & Kommunikationstechnik will produce the D-RFID tag for testing.

Tags located on bins would be exposed to rain, snow, bumps, heat and washing, so their displays must be

easily read from all angles without a glare. In addition, they would have to last about four or five years for such a system to be cheaper than paper labeling. "Before such an RFID-based system would be put into place, it would have to make economic sense," said Stönner.

RELATED_ARTICLES DPWN hopes to test about 100 passive RFID tags with displays before the conclusion of the project. Initially, the tags will include 13.56 MHz chips from Atmel that conform to the ISO 14443A/B and ISO 15693 standards.

Since Atmel will discontinue production of the chip, later D-RFID tags for the project will use chips yet to be brought to market by Melexis. The University of Paderborn is working with these vendors.

DPWN is testing RFID in other parts of the company, as well (see DHL to Test Tags on Returns).