

Big Blue Puts Stamp on RFID

IBM's Business Consulting Services will manage a multiyear project using tagged mail to measure the effectiveness of 23 of the world's biggest postal systems.

By Jonathan Collins

May 21, 2004—Looking to extend the reach as well as increase the value of RFID systems deployed throughout the postal operations of national mail carriers in Europe, North America and parts of Asia, the International Post Corp. (IPC) has turned to IBM's Business Consulting Services to manage a new multiyear project using RFID to measure the effectiveness of its members' postal operations.

Located in Brussels, Belgium, the IPC is a cooperative association of 23 national postal system operators. While most of the operators are in Europe, IPC members also include the postal services of the U.S., Canada and Australia. Together, IPC members handle 290 billion pieces of mail a year, about 65 percent of the world's postal traffic. The members have all already deployed RFID systems during the past 10 years as a way to track RFID-tagged mail through their postal systems to get better insight into their operations. Such information is also used to produce quality-measurement reports used to settle payment accounts between the countries for delivering mail.

The latest project will expand that measurement system by increasing the number of tagged letters sent as well as extending the system to include non-IPC member countries in Eastern Europe.

More than a half million test letters and parcels containing RFID tags will be sent annually between 36 countries during the seven years that IBM will manage the project. RFID readers already installed at each operator's international mail exchanges—where an operator sorts outgoing international before it leaves the country or incoming international mail when it first arrives—will track when tagged mail enters the system and how it progresses through a number of stages until leaving the international exchange at the country of delivery. IPC members have close to 4,000 readers already deployed.

The sheer scale of the operation and the number of tagged letters and parcels that will be sent will provide operators with an abundance of details about the operation of their mail systems, says IBM. "This is far larger than previous RFID tracking projects, and with that will come far greater granularity of information for the postal operators," says Leif Jensen, managing consultant at IBM Business Consulting in Copenhagen.

To record the location of tagged mail, IBM developed a software measurement system, dubbed UNEX, for the project. The company is currently testing the new software but aims to have the system fully operational by 2005. The project will use active tags developed and sold by Danish RFID specialists Lyngsoe Systems. Measuring 100mm by 150mm by 2mm and weighing 12 grams, each tag carries 256 bits of memory used to store a single unique ID number. When the tag enters a read field, a 125 KHz signal transmitted by an RFID reader wakes up the tag's transponder. When powered up, the tag's processor will start running and use the high-frequency 433.92 MHz band to transmit the tag's ID to the reader. After this, the transponder will shut down and not wake again until the transponder enters another read field.

Lyngsoe provided the 4,000 readers that are already being used throughout the IPC members' operations and will be used for the seven-year project. The IPC is using 433.92 MHz readers, according to Jensen, because it was the best frequency for the harsh environment of the mail centers and because it is available for use in most of the world. The Lyngsoe readers get a read range of 3 to 4 meters. When multiple transponders are in the same read field, the specification calls for at least 15 transponders being read from a receptacle (post bag, roll cage, etc.) when passing the field at the speed of approximately 5 km/h. In practice more transponders will normally be read without any problems, says Jensen.

Letters and parcels containing the RFID tags will be sent back and forth between IBM's test panel, which consists of approximately 3,000 people distributed among the 36 countries involved in the test. Using the Web-based tracking system, the test panel will enter the day and time they mail test letters and parcels and when mail arrives at their address. The RFID system will automatically track the tagged letters and parcels while they are in transit, and also help authenticate the accuracy of the data entered by the test panel.

"Using UNEX, we will be able to verify the test panels' entries to ensure that the data they enter is correct, so that, for example, the testers don't mistakenly enter that a letter has arrived when we know from RFID reads that it hasn't yet passed through the international mail exchange," says Jensen.

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