

DHL Expects to Launch "Sensor Tag" Service by Midyear

Pharmaceutical companies will be able to use the service to track the temperature and shelf life of their products as the shipping company transports them from warehouse to store.

By Claire Swedberg

Jan. 19, 2007—Global shipping company [DHL](#) says it intends to release its newly developed RFID sensor tag to its pharmaceutical customers by the second half of 2007. Announced last month, the sensor tag is being developed by DHL and a team of RFID technology vendors. The service will allow pharmaceutical companies to use RFID to track the temperature and shelf life of products being shipped via DHL from warehouse to store.

DHL, a division of [Deutsche Post World Net](#), began piloting the system last June and completed several tests with an unspecified global pharmaceutical company, shipping diagnostic material and vaccines from Europe to the United States in the second half of 2006. According to Keith Ulrich, head of technology and innovation management at Deutsche Post World Net, the group intends to continue testing further.

The sensor tag consists of a long narrow piece of paper with an embedded EPC Gen 2 RFID inlay and data-storing microchip wired to a temperature sensor. Mounted on one end is the sensor, while the opposite end contains the RFID inlay and data-storing microchip. The latter is intended for storing temperature readings and other information about the product, which can be downloaded by handheld readers along the supply chain. The company declines to reveal how much memory the microchip contains, or how many temperature readings it can hold.

DHL developed the tag as part of the DHL Innovation Initiative, in partnership with [IBM](#), [Intel](#), [NXP Semiconductor](#) and [SAP](#). The initiative, Ulrich says, is designed to develop solutions that will increase supply chain efficiency.

The initiative partners began working with a global pharmaceutical company in Europe in early 2006, says Ulrich, tagging specific boxes before shipping them from their location in Europe. They then tested reads of the boxes as they left the warehouse and arrived at the departing and arriving airports. The company had been utilizing a temperature data logger that would accompany some shipments by air, tracking temperature reads. The logger would then be sent back to the pharmaceutical company for interrogating. "The existing loggers were expensive and difficult to maintain," says Stefan Wilms, Deutsche Post World Net's technology and innovation manager. Moreover, he says, they did not provide real-time temperature information.

During the pilot tests, the pharmaceutical company loads a box of products onto a pallet in its warehouse. Because of the sensor tag's long shape, the company can place the sensor side inside the box, enabling it to more accurately track temperature changes. The company can then attach the tag's RFID side onto the pallet, where it is more accessible to an RFID interrogator and would be less affected by aluminum and other RF-unfriendly materials commonly found in the packaging of pharmaceutical products. The sensor tags can be manufactured up to 30 inches in length, depending on the size of the box being monitored.

The company first writes information onto the sensor tag's microchip, including a description of product being shipped; its serial number, shelf life, expiration date and temperature requirements; and how the shelf life would be reduced, based on specific temperature increases.

As the box leaves the facility, warehouse employees record its departure and temperature by interrogating the sensor tag. Employees At the airport, inspectors and other DHL employees do the same before the pallet is loaded onto a DHL plane. After capturing the temperature of the product, the interrogator sends that data wirelessly to the

pharmaceutical company's computer network. The DHL solution could instead include a hosted Web server if the customer requested it, though Ulrich is unwilling to elaborate on the specifics at this time. "This would be part of a detailed alignment with the customer and the dedicated DHL business unit," he explains.

The project includes handheld RFID interrogators from [Intermec](#); RFID consulting services from Intel; chip technology from NXP; temperature sensors from [Infratab](#); SAP software; and middleware, hardware and software from IBM.

Ulrich says DLH hopes to have solution available to any DHL pharmaceutical customer by the second half of this year. "We think it is very important to bring together the physical flow of goods and the flow of data," says Ulrich, adding that this will boost efficiency of the supply chain. He will not discuss the cost of the technology, pointing to a variety of solutions available at various prices, but says the solution will be cost-effective.