RFID JOURNAL
THE WORLD'S RFID AUTHORITY

Emirates RFID Bag-Tracking Pilot Takes Off

Topics/Verticals: Operations, Aerospace

The airline is using EPC RFID tags to track luggage on flights to and from airports in Dubai, London and Hong Kong, which recently RFID-enabled all its check-in counters.

By Mary Catherine O'Connor

Feb. 19, 2008—Emirates Airline has begun a six-month technology trial to test the use of RFID to improve the tracking of checked luggage. Instead of using the standard, bar-coded ID tags that airlines normally employ to identify baggage, Emirates is placing tags with embedded UHF EPC Gen 2 inlays onto each checked bag on five daily flights between London's Heathrow Airport and Dubai International Airport. Bags checked onto a daily Emirates flight to and from Hong Kong International Airport will also be tagged.

The airline hopes using RFID combined with automated bag sortation equipment will increase the amount of luggage it can accurately identify and sort, thereby decreasing the number of bags that fail to reach their destination on time. Emirates is also using a secure database to enable personnel at each airport to follow the tagged bags' movements from the point of intake to the time they are loaded onto a plane. The airline is investing more than a half million dollars in the six-month project and expects to place RFID-enabled tags on approximately half a million bags.

To track the bags from the point of departure to the point of arrival, RFID interrogators read the unique ID from the inlays in each luggage tag—which are otherwise identical to conventional tags and include a bar code—as the bags are moved through a number of chokepoints within each airport. Conventionally, bar-code scanners are employed to identify the tags, but because bar-code technology requires a clear line of sight between the scanner and a printed bar code, the read is often missed due to the orientation of the label to the scanner. The typical successful read rate of baggage bar codes is roughly 85 percent, says Pankaj Shukla, director of RFID business development for Motorola, whose RFID interrogators are being used in Heathrow Airport as part of the pilot program.

Past trials of RFID technology in baggage handling applications, Shukla says, show the percentage of successful read rates to range from the low 90s up to 99. Bags that aren't automatically identified through their bar code or RFID number are diverted and manually handled, thus increasing the likelihood that a bag will be delayed and not loaded onto the same flight as its owner. According to the International Air Transport Association (IATA), a trade group composed of airlines around the globe, the annual cost of mishandled baggage to the industry is more than $3 billion.

An IATA report published in 2007, however, maintains that RFID will not completely eliminate late luggage and its associated costs. According to the report, problems in reading the bar-code tags on luggage are responsible for only 9.7 percent of all mishandled luggage across the industry. "There are many reasons for the mishandling of baggage," the report indicates, "and not all of these may be addressed with RFID."

Still, some airports and airlines are embracing the technology. Hong Kong International Airport, for

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instance, announced last month that it had retrofitted all of its check-in counter baggage-tag printers to accommodate RFID-enabled tags, and also installed RFID readers in all of its baggage-handling equipment. The airport says 50 airlines that use its facility apply RFID tags to a total of 40,000 bags—90 percent of all the bags departing from the airport—each day. McCarran International Airport in Las Vegas has also converted its baggage-tracking system to RFID (see McCarran Airport RFID System Takes Off), and in 2007 RFID-tagged 20,000 to 40,000 checked bags per day (see RFID Takes Off in the Aerospace Industry).

If the Emirates trial proves the use of RFID to track bags is more reliable than bar codes and can lead to more efficient and accurate baggage handling, Heathrow may join these airports in installing an RFID infrastructure throughout the airport, according to BAA, which owns Heathrow, along with seven other airports in the United Kingdom and other parts of Europe.

Stephen Challis, BAA's head of product development, said in a statement that Heathrow is hopeful RFID may "significantly improve the efficiency of Heathrow's baggage system, delivering an improved service to both passengers and airlines alike. Upon successful introduction, and in partnership with the airline community, the technology could be extended across the airport, transforming the way airlines handle baggage."

Shukla says Motorola or Symbol (now Motorola's Enterprise Mobility Business division) has been involved in a number of previous RFID technology trials designed to improve luggage handling, including those in Las Vegas, Hong Kong and South Korea (see Asiana Deploying RFID at Six Airports). However, Shukla claims, this is the first in which it is working with several other RFID hardware and software providers.

While Motorola is providing the RFID readers used at Heathrow, with Fujitsu contributing the RFID printer-encoders for the baggage tags, the other airports are employing readers and printer-encoders from different manufacturers. All of the RFID inlays and readers used comply with the EPC Gen 2 UHF air-interface standard for passive RFID tags, he says, but Emirates wants to ensure that if it rolled out RFID technology across its system, it could utilize standard hardware from various makers. To test this goal, the airline opted to work with multiple RFID vendors.