

# Hong Kong's Airport to Tag Bags

This year, one of the world's busiest airports is deploying 120 RFID readers and buying 1.5 million smart labels to track luggage.

By Jonathan Collins

June 11, 2004—Hong Kong International Airport is deploying the largest RFID network undertaken so far in Asia and has awarded the contract for RFID equipment for tagging and tracking baggage to Matrics. The project, set to go live on Jan. 1, 2005, will use passive UHF (902 MHz to 928 MHz) RFID tags. Matrics will supply 120 of its AR 400 read/write readers, which will cost the airport \$3.5 million. In addition, the airport has already placed an initial order for 1.5 million of Matrics' EPC Class 0+ Read/Write Single Dipole smart labels. Over the next five years, the facility is expected to buy and use around 80 million of smart labels, which are 6 inches long and 3/4 inches wide and have a maximum read range of 25 feet.

Airport Authority Hong Kong, which operates the facility, believes RFID tracking will greatly improve customer satisfaction and security. It will also, according to Matrics, significantly cut the airport's operating costs.

"What is key about Hong Kong International is that it is deploying this system to also save money," says John Shoemaker, senior vice president of corporate development at Matrics, which is based in Rockville, Md.

Hong Kong International Airport is one of the busiest airports in the world, and a major hub for passengers transferring from flights to and from China. Approximately 35 million passengers use the airport annually, and 40 percent of the luggage handled there comes from transfer flights. Passenger numbers are also expected to grow significantly as the number of flights to and from the Chinese mainland continues to grow.

RFID technology will be deployed across Hong Kong airport's extensive baggage-handling facilities alongside the existing bar code system. All items of luggage (both those checked in at the airport and those transferred from incoming flights) will continue to be fitted with a bar-coded label bearing a 10-digit IATA (International Air Transport Association) number. However, as each item arrives at the luggage-handling conveyor, a machine will automatically stick a smart label to each piece of luggage, a bar code scanner will read the bag's bar-coded label, and the label's IATA number will be written to the bag's RFID tag. Whenever a bag's bar-coded label isn't read properly, that bag will be diverted and the process of writing the IATA number to the RFID tag will be handled manually.

One key aspect of deploying RFID is to improve the accuracy of the existing bar code system. "The current bar code system is 85 to 95 percent accurate," Shoemaker says. To convince airport officials that the RFID system could beat that level, Matrics had to complete a real-life deployment and performance test of its system at the airport's facilities. According to Matrics, its technology was chosen for deployment after achieving very close to 100 percent accuracy.

To identify luggage ready for loading onto planes, Matrics readers will be deployed on the luggage-holding system's four huge luggage carousels. Readers will be deployed also at the lateral conveyors, which take

luggage to loading piers where luggage is manually transferred to unit load devices (ULD)—large containers that are loaded onto the plane. An RFID reader will be clipped temporarily to each ULD to ensure that the correct luggage is loaded into the correct ULD, and then unclipped once loading is completed. The system will automatically create a manifest so that items of luggage can be traced to specific ULDs.

"At present, if a piece of baggage has to be removed, all the ULDs on the plane have to be removed and checked to find an individuals luggage," says Larry Blue, senior vice president of engineering at Matrics.

Matrics' strategic partner, Marubeni Corp., based in Tokyo, Japan, will be installing the RFID and providing support services, with help from EMSD Corp., which is the airport's electrical, and mechanical systems service provider. Lyngsoe Systems, the Danish company that supplied the control system for the original bar code-based sortation system, has been hired to adapt the control system for RFID.

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