

EPC Gen 2 tags are being deployed at millions of homes across the kingdom of Saudi Arabia, helping postal carriers to monitor service and verify that mail was correctly delivered.

By Rhea Wessel

May 5, 2009—After participating in the first phases of an ongoing project using active RFID tags to monitor the performance of Saudi Arabia's postal service, [Saudi Post](#) is rolling out RFID-based mailboxes for citizens across the kingdom. This rollout is part of an overall IT and service upgrade that includes an active RFID-based system to monitor quality at the nation's mail-sorting centers.

Each of the 10 million mailboxes that will be installed at homes in Saudi Arabia is fitted with a passive ultrahigh-frequency (UHF) EPC Gen 2 RFID tag that uniquely identifies it. Postal carriers employ [Intermec](#) handheld CN3 computers with built-in RFID IP30 interrogators to identify the mailboxes before slipping letters into them. After a letter is inserted into a mailbox, the tag is read once more so that Saudi Post's system can verify when mail was delivered to that particular home. The handhelds, containing GPS and wireless data communication modules, are used to provide real-time updates to managers regarding postal carriers' locations and activities.



Saudi postal carriers use handheld RFID interrogators to identify the mailboxes before slipping letters into them.

Before the RFID-based mailboxes were installed, Saudi citizens picked up their mail at post offices, where they could also take care of banking, the payment of utility bills and other tasks. Homes did not have mailboxes at all, and the country lacked a single, unified addressing system. That limitation has resulted in various entities, such as electric companies or private logistics firms, creating their own grids and zones and utilizing different addressing systems for the same location—and, thus, causing confusion and delays for the delivery of packages and mail. To rectify this problem, the government-run Saudi Post implemented uniform addresses in 2004, simultaneous with the planning of the RFID-based mailbox project. At the end of 2005, Saudi Post launched the mailbox rollout in Riyadh.

To date, millions of steel government-owned mailboxes bearing RFID tags have been installed across multiple cities, as part of the so-called Wasel project (*wasel* is the Arabic word for "reachable"). The mailboxes, which resemble those widely used in Europe, are attached to the exterior walls of homes and buildings.

Saudi Post Adds Intelligence to Mailboxes

Topics/Verticals: [EPC Technology](#), [Asset Tracking](#)



At every home, Saudi Post is installing a mailbox with an embedded EPC Gen 2 RFID tag.

"Saudi Arabia is a greenfield for such technologies," explains Tariq Enaya, [Cisco's](#) regional sales manager for the public sector in Saudi Arabia. "Since we did not have mailboxes, we said, 'Why not go forward with the latest technology?'" Cisco has been assisting Saudi Post with a broad IT infrastructure upgrade, to help the organization better compete with courier services offered by private logistics companies, such as [DHL](#) or [Federal Express](#), and to prepare it for eventual privatization.

The tags—which have 96 bits of programmable memory and function at 915 MHz—are embedded in a plastic housing attached to the steel mailbox, manufactured by a local company. The housing keeps the metal from interfering with the tag, and also protects the tags from Saudi Arabia's sand, as well as windstorms and other harsh weather. Summers are brutally hot in the kingdom, with temperatures reaching 50 degrees Celsius (122 degrees Fahrenheit) and humidity approaching 100 percent in seaside cities. The tags can operate at temperatures between -25 degrees and +70 degrees Celsius (-13 degrees and +158 degrees Fahrenheit).

In addition to providing the intelligent mailboxes at homes, Saudi Post is continuing to offer post-office boxes to its citizens. The postal carrier is leaving it up to each individual to decide if he or she wants to use both systems, or to switch completely to home-based delivery.



The Intermec CN3 mobile computer and add-on IP30 RFID interrogator

Majed M. Al Esmail, Saudi Post's general manager for IT, says the agency is planning a pilot to use the RFID mailboxes together with bar-coded ID numbers printed on mailed items, in order to monitor the performance of the country's mail-sorting centers. The monitoring system currently features semi-active RFID tags attached to regular-mail test letters (see [U.N.'s Universal Postal Union Gears Up for Large RFID Pilot](#)).

The letters are mailed from random locations, and are tracked at key postal-sorting centers in Riyadh, Jeddah and Dammam. Saudi Post also has three mobile reading systems that can be set up in any facility in which it wants to track mail for quality measurement. Each mobile system contains a special computer that operates as a controller, as well as an interrogator and two units for exciting the tags. The units connect to Saudi Post's main servers via a GSM connection, and the carrier moves them around as needed to conduct

quality tests.



Cisco's Tariq Enaya

In the new pilot, which will take place until approximately the end of July 2009, Saudi Post is utilizing the infrastructure already set up to track a total of 500 bags of secure government mail carrying semi-active tags. The entire system and the tags are provided by [Lyngsoe Systems](#). Each piece of government mail in the sack is printed with a unique ID number in bar-code form, enabling Saudi Post to know which items are in a particular bag. As part of the pilot, the mail carrier plans to expand the reader infrastructure to three additional postal sorting centers.

Once the government mail is delivered to the RFID-based mailboxes, and after a letter carrier has scanned the mailbox tag, the information will serve as an electronic proof-of-delivery receipt.

According to Al Esmail, the system's main benefits are its ability to ensure that the correct mail is delivered to the proper mailbox, and to serve as proof of delivery for registered and official government mail. If the test of semi-active tags on sacks of mail becomes an ongoing project and is used together with the RFID-based mailbox system, Saudi Post will also be able to track the time required for express home deliveries.