

Soccer Fans Use RFID Cards to Gain Admission and Buy Food

The Manchester City Football Club is issuing season tickets containing 13.56 MHz RFID tags, enabling them to unlock the stadium's turnstiles, and to function as contactless PayPass payment cards.

By Claire Swedberg

March 25, 2008—The [Manchester City Football Club](#) is adding prepaid payment functionality to its RFID-enabled stadium membership cards, beginning with a trial of the MasterCard Prepaid Seasoncard. This card is unique because it includes RFID-enabled capabilities that let cardholders not only gain access to the stadium but also use MasterCard's contactless PayPass technology to buy food, beverages and other items during the games, as well as make purchases at retail locations elsewhere.

The trial, conducted in cooperation with [Altair Financial Services International](#), [MasterCard](#), [Bank of America](#) subsidiary [MBNA Europe](#) and RFID systems integrator [Fortress GB](#), began on March 16 with 3,800 ticket holders. The pilot will continue through the rest of the British football season—about six more games.

Following the trial's conclusion, Manchester City Stadium plans to review the results with the other participating companies and determine whether to deploy PayPass sales terminals throughout its 50,000-seat facility. The pilot is taking place in one stadium section, encompassing about 3,500 seats and 10 to 20 retail establishments, says Richard Wray, Altair's head of business development.

Provided by [Gemalto](#), the card has the Manchester football club logo, the cardholder's name and the MasterCard logo emblazoned on the front. It contains a single passive 13.56 MHz RFID tag that provides both access to stadium seats (via RFID-enabled turnstiles provide by Fortress GB) and PayPass transaction functionality. The tag contains an [NXP Semiconductors](#) Mifare RFID chip, which complies with the ISO 14443 international proximity device standard, as well as MasterCard's PayPass specification, which is based on ISO 14443.

Game attendees can use the card's RFID tag to unlock the appropriate turnstile to allow access to their section of the stadium. In addition, they can use it make contactless payments for food and drinks within the stadium, and to make purchases at both chip-and-PIN and contactless point-of-sale terminals at retail establishments outside the site. According to Wray, all three functions are powered by the card's RFID chip. In the case of the turnstile, the card's chip holds an ID number that is recognized by the turnstile system. Once the ID number is read by an RFID interrogator built into the entryway, the turnstile opens, allowing the sports fan to pass through.

For the past four years, Fortress GB has provided 13.56 MHz RFID membership cards (containing a Mifare chips) to Manchester Football Stadium season ticket holders. Season ticket holders use the cards to unlock turnstiles throughout the stadium, and can also present the cards at concession areas to receive discounts on purchases. Those without season passes can buy RFID-enabled paper tickets, which also unlock the turnstiles.

While pilot participants traded in their Fortress GB membership cards for the new PayPass-compliant cards, the new cards operate the same turnstiles, says Richard Pinnick, Fortress GB's head of strategic projects.

What makes the Manchester Football Club MasterCard Seasoncard different than the previous membership card is its prepay capabilities. While one portion of the chip stores Fortress GB's access and membership data, another portion holds a separate ID number linked to the cardholder's prepaid MasterCard account. Users can load a chosen amount of money from their bank account, which can be done either at a cash-loading terminal (similar to an ATM) or at the Manchester City Football Club's Web site.

After several purchases—either in the stadium or at other city locations—have been made offline using the card's contactless capabilities, the system may advise the user to switch to a chip-and-PIN transaction, in which they must key in a PIN number to update the prepaid monetary value stored on the card before it can be used again contactlessly. This security measure helps ensure that cardholders do not overextend their prepaid limit.

Upon leaving the stadium, cardholders can continue to use the prepaid card to make purchases. However, Wray points out, there are few PayPass terminals in the city of Manchester at present. Until that changes, he says, the cards can be used as contact prepaid payment cards, with a PIN entered at the time of transaction.

"It will be interesting to see whether members will use these cards outside of the stadium," Wray says. MasterCard and MBNA Europe hope the cards, with the cardholder's local team emblazoned on the front, will serve as a standard payment method outside of the club for many football fans.

Wray says he expects users to load about £100 (about \$200) or more on the prepaid card, but that the pilot will reveal the true average. "This is a great model," Wray says, "We've put access control and a payment application in a single piece of plastic, all running off one chip." The cards conform to the Europay, MasterCard and Visa (EMV) specification, which enables the updating of their stored data whenever the cards are used in a chip-and-PIN reader. The EMV standard, Wray says, is also designed to allow multiple applications on a chip.

RELATED_ARTICLES RFID-enabled stadium membership cards are already plentiful in Europe, Pinnick says, with 40 stadiums using the Fortress GB system to date. The Manchester pilot, he adds, is working very well technically. "Football fans are still entering the stadium the way they normally do," he says. "The next big wave in Europe is to switch on new applications," including the addition of payment functions.

If the pilot continues to go well technically, and if the payment portion of the card is also used successfully by pilot participants, Pinnick says Manchester City Football Club will deploy PayPass sales terminals throughout the entire stadium next season. "Every person who enters the stadium will have one of these (PayPass) cards," he says, "and the whole stadium can go cashless."

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