

# Moscow Metro Tries RFID-Enabled Ticketing

The transit agency has been relying on magnetic-stripe fare cards and is now testing paper tickets with embedded 13.56 MHz RFID tags. The goal is to reduce equipment failures and ticket fraud.

By Claire Swedberg

Feb. 15, 2007—The Moscow Metro underground transit system in Russia has begun using an RFID ticketing system to improve efficiency and reduce ticket fraud. RFID tag and inlay manufacturer UPM Raflatac is initially supplying the agency 5 million RFID-enabled ticket inlays per month, though that number may increase, according to Marcus Vaenerberg, vice president of sales, RFID, at UPM Raflatac.

Launched last month, the trial is expected to run until summer's end, Vaenerberg says, after which Raflatac expects to supply about 30 million inlays per month. Raflatac is working with Moscow-based Comvision Russland to provide tickets with RFID chips made by JSC Mikron, a subsidiary of Sitronics JSC, Moscow, which also provided the system's data integration.

The Moscow Metro, one of the world's busiest transit systems, typically carries 8.2 million passengers daily. With 12 lines and 172 stations, the system has an average journey length of 13 kilometers (8.08 miles) per passenger, and charges 17 Russian rubles (about \$.70) per ride. The RFID system is being installed in all 172 stations.

Until now, passengers have used magnetic-stripe cards prepaid for a specific length of time—usually one month. In some cases, however, these tickets were being counterfeited and used fraudulently. About two years ago, Moscow Metro began employing contactless RFID plastic smart cards for students and other special fares, which the metro found increased the rate of entry for those passengers.

Drawing upon the success of that deployment, Moscow Metro is adopting a wider system for all its riders, using RFID technology but less expensive disposable paper tickets. Sitronics produces these paper tickets using components and consumables supplied by Comvision Russland, explains Natalia Foteeva, Comvision's CEO.

With the new RFID system, riders can buy a multiple-trip paper ticket embedded with a 13.56 MHz RFID tag compliant with the ISO 14443A air-interface standard. Riders prepay for a chosen number of rides at the Moscow Metro station and are given an RFID ticket corresponding with that purchase. As they enter the boarding area, the riders pass through a gate containing an RFID interrogator.

Reliability has been the greatest concern for Moscow Metro, Foteeva explains. Magnetic-stripe card readers often break because of high usage. With the RFID interrogators in place, Moscow Metro hopes to have greater reliability and fewer delays caused by mechanical failures.

RELATED ARTICLES Riders using the plastic RFID student and special fare tickets will continue to use this form factor, at the same frequency and ISO standard as the new paper tickets, and using the same RFID interrogators.

Moscow Metro declines to discuss specific details regarding how the card system works. Although the agency has not used the tickets long enough to analyze its success, Foteeva says, "The first feedbacks are quite positive."

Copyright ©2005 RFID Journal, Inc. All Rights Reserved