

Paris Transit to Test Phones as Fare Cards

The city's public transportation authority will carry out a trial enabling Paris subway and bus riders to use RFID-enabled cell phones as contactless transit cards.

By Jonathan Collins

Nov. 11, 2005—French wireless telecom company [Bouygues Telecom](#) and Paris' public transportation authority, [Régie Autonome des Transports Parisiens](#) (RATP), are preparing a trial that will allow riders of the city's subway and bus systems to use RFID-enabled cell phones as contactless transit cards.

Starting in March, 150 commuters will use new wireless phones instead of their RATP Navigo contactless transit cards to prepurchase fare for travel on the RATP network. To pay for a ride, participants will need only wave their cell phones past one of the Navigo RFID-enabled readers already installed at 800 Metro subway stations and on 8,000 buses. The trial's participants will have the option of using the cell phones to add additional money to their Navigo account, by means of a Web site accessed through Bouygues' i-mode wireless data service site. Navigo customers cannot currently renew their accounts online.

According to Bouygues, the trial will test if the technology works, while also gauging interest or demand for the application from its subscribers. If commuters use their mobile handsets to renew their Navigo accounts, the practice could help Bouygues drive use of its i-mode wireless data service. This could also provide additional revenue to Bouygues, which would receive a commission for any transit fare its customers purchase by means of their phones.

[NEC](#) will supply GSM phones created especially for the trial. The handsets will contain a passive 13.56 MHz RFID chip from [INSIDE Contactless](#), an RFID chip designer in Aix en Provence, France. INSIDE's PicoRead chip, which the company also calls Enhanced Near Field Communication (eNFC), interoperates with ISO 14443B, the standard used for the RATP application, as well as the ISO 14443A, ISO 15693 and FeliCa standards.

The phones will also have a new SIM card designed by [Axalto](#), a provider of smart card products and microprocessors for mobile communications systems. The new SIM card, called Proximera, will contain the transit fare application (dubbed Calypso) as well as encryption keys the amount of money credited to the customer's Navigo account. It will use Single-Wire Protocol technology to transmit that data to the eNFC chip. The protocol enables the chip and card to communicate securely over a single wire connection and, thus, use only one of the limited number of connectors on the SIM card. The eNFC chip will then communicate wirelessly with the RATP reader. "We are using the eNFC system as a modem to communicate between the phone and the reader," says Laurent Jullien, director of contactless services at Bouygues. At this early stage, however, Bouygues is running the trial to ensure the technology will work.

When considering which technology to adopt for the RFID-enabled handsets, Bouygues rejected a system using the Near Field Communication (NFC) standard, based on ISO 14443A, because the equipment couldn't meet two criteria. [Philips](#) and [Nokia](#), which have played major roles in developing NFC standards, had proposed the rejected system. According to Bouygues, it opted against using the Philips-Nokia solution

because it didn't support the ISO 14443B air interface used by RATP. In addition, the wireless operator wanted a technology that could work without the phone being switched on, or its battery charged—a feature that ISO 14443B supports, but ISO 14443A does not.

"The system must work when the cell phone battery is dead or the phone is turned off," Jullien says. "There is no use having a system that says, 'Too bad. Go home and charge your phone.'" Eventually, the phone company hopes, the NFC standard will be extended to support the ISO 14443B air interface standard, as well.

This trial is the first for INSIDE Contactless and Axalto since the two companies announced plans to combine Axalto's SIM card with INSIDE's PicoRead chip in order to provide a range of services to GSM phone carriers (see [INSIDE and Axalto Collaborating on Mobile RFID](#)).

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