

Developing RFID-Enabled Phones

A report by ABI Research predicts that within a few years, as many as 50 percent of cell phones will incorporate RFID chips to enable near field communication.

By Claire Swedberg

July 9, 2004—Some major cell phone manufacturers are preparing the release communication devices incorporating RFID technology that they hope will change the way consumers buy products, services and use their credit cards. According to a new report from [ABI Research](#), within a few years, users of cell phones and other handheld devices will use near field communication (NFC) to access services and buy products simply by holding their own device close to another one.

NFC technology uses short-range RFID transmissions that provide easy and secure communications between various devices. That means that, for example, making a reservation could be as simple as holding your phone close (less than 20 centimeters) to a poster or advertising billboard. Without ever dialing a number or speaking to anyone on the phone, you'd be able to purchase concert tickets, book hotel rooms and make other types of reservations and have these transactions charged to a credit card using account information stored in the handheld device or phone.

These transactions can be done without user configuration. In other words, the RFID tag inside the device will automatically connect, via the cellular connection or through NFC-enabled Wi-Fi or Bluetooth to the appropriate Web site so you can learn about the product or service, transfer content such as audio or video files, or carry out a commercial transaction.

“NFC is interesting because it is a peer-to-peer communication protocol [a communication model in which devices link directly to each other, without the intervention of any intermediary device or system], enabling two [RFID] cards to talk, while also simultaneously being an active and passive RFID solution,” says Erik Michielsen, a director at ABI Research, which is based in Oyster Bay, N.Y. Since all devices are equipped with built-in RFID readers, two-way communication is possible. Depending on the type of NFC device, data transfer rates will be 106, 212, or 424 kbps. To make this work, an NFC chip embedded in a phone can act as an RFID reader when the phone is on and a passive smart label or RFID tag when the phone is off. NFC chips can hold 64 to 128 bits of memory. Data, which would be likely to include an identification number initially, would be encrypted before it is transmitted.

The lithium ion batteries within a cell phone or other device will provide power needed for the tag's active operation. Therefore, the active tag would not require its own internal power source. Rather, it would draw power from device's battery.

Manufacturers of the NFC chips would include the same companies that currently make RFID tags, labels or chips, including Philips, TI, Infineon, Sony, [ASK](#) and Inside Contactless. ABI Research sees NFC-enabled cell phones as the initial driver in the market. Consumers can expect the first NFC-equipped handsets to come on the market in 2005. By 2009, ABI estimates that up to 50 percent of the cell phones in use will be NFC-enabled.

Overseeing the new technology's emergence is the [NFC Forum](#), a group comprised of communications giants Nokia, Philips and Sony. In December 2002, when the general assembly of [ECMA International](#), an industry association dedicated to the standardization in Information technology and telecommunications, adopted the NFC Interface and Protocol-1 (NFCIP-1), also known as ECMA-340. Developed by the NFC Forum, this protocol enables two devices operating at 13.56 MHz to share data on a peer-to-peer configuration when brought within close proximity of each other. One year later, ECMA published NFCIP-2 (ECMA-352) as the proposed next generation of the protocol, and has submitted it for adoption to [Joint Technical Committee 1 \(JTC1\)](#), the information technology standardization committee of the International Standards Organization (ISO) and International Electrotechnical Commission (IEC).

According to Michielsen, Visa and Universal Music each have already done trials of NFC-enabled cell phones with Philips. In addition, Visa and Nokia recently completed a trial together involving NFC-enabled cell phones in Finland. These trials focused on payment and transaction security.

ABI's report, "Near Field Communications," can be purchased and accessed through ABI's Web site, www.abiresearch.com.

[RFID Journal Home](#)

Attend RFID Journal University

There is less than week left until [RFID Journal University](#) in Atlanta. This unbiased educational course, presented by *RFID Journal* and members of Auto-ID Labs, is designed to provide the in-depth understanding of RFID and EPC technologies needed to evaluate vendors and begin planning a successful implementation. [Register today](#), or to see complete course outlines, visit [RFID U](#).

Copyright ©2005 RFID Journal, Inc. All Rights Reserved