R-UIM

QUALCOMM'S System Solutions to Support Removable User Identity Module Smart Cards

There is no doubt that wireless technology continues to improve the functionality of mobile phones at an astonishing rate. Yet international travelers are still at a disadvantage when they roam across CDMA and GSM networks, without access to their personal information. Each time users upgrade handsets, they are faced with the tiresome chore of reprogramming their address book and other functions. With developments by QUALCOMM CDMA Technologies (QCT) to support Removable User Identity Module (R-UIM) technology, the ability to use R-UIM-based smart cards in CDMA- and GSM-based handsets to overcome this burden has become a reality.

About R-UIM

A smart card, the size of a standard plastic credit card, contains an embedded computer chip holding information in electronic form with sophisticated security mechanisms. The R-UIM smart card stores subscription data, including identity, phone book addresses, feature-specific information, network settings and supplementary services for CDMA handsets.

The R-UIM provides "plastic" roaming capability for users across CDMA and GSM networks as a dual-mode smart card. Standardized as IS-820, R-UIM is built on GSM 11.11 by adding CDMA Directory Files (DF) populated with Elementary Files (EF) and functions. The microcomputer chips used in smart cards are available in 8-, 16- and 32-bit architectures, with data storage capacity ranging from 300 bytes to 32 kilobytes. The industry is moving quickly to develop smart cards with increased storage capacity up to 64 kilobytes.

R-UIM-enabled CDMA handsets must have physical possession of the R-UIM to use the subscribed data and security services. Users can upgrade to a new handset with ease, and international travelers now have a new level of access to their personal information when they roam between CDMA and GSM networks. Simply by removing the R-UIM and inserting it into a new GSM phone, CDMA users will instantly have access to a GSM network, with all of their subscription data. When used with a GSM handset, the R-UIM operates like a GS 11.11 Subscriber Identity Module (SIM). As multimode CDMA/GSM handsets become available, the R-UIM will provide data and functions to allow global roaming across both CDMA and GSM networks using the same multimode terminal.

QUALCOMM has collaborated with GemPlus and SchlumbergerSema, two of the world's leading smart-card manufacturers. Together we have created complete solutions to provide QCT CDMA handset manufacturers with R-UIM systems for QCT CDMA Mobile Station Modem™ (MSM™) chipsets and system software to operate with the R-UIM smart cards.

- **Compatibility**

  With GemPlus and SchlumbergerSema, QCT has developed an interface between the R-UIM card and MSM IS-95 and CDMA2000 1X CDMA ASICs.

  To date, the solutions have been tested for the MSM3000™ and MSM3100™ for CDMA IS-95A/B, and the MSM5105™, MSM5100™, MSM5500™, MSM6000™ and MSM6050™ for CDMA2000 1X chipsets and system software solutions.

- **Applications**

  R-UIM can provide carriers with value-added services for their subscribers and applications built on SIM Toolkit specifications. Possible applications and services currently center around Mobile Banking, Mobile Commerce, Mobile Internet or Information on Demand. For example, personal financial transactions—checking stock prices, managing personal stock portfolios, having access to personal banks to monitor account balances or make payments—can now be done directly and securely from R-UIM-enabled handsets.

- **Security**

  The smart-card products can support all standard authentication/encryption protocols like RSA® and Data Encryption Standard (DES and 3-DES).

Wireless carriers are already seeing an increase in 3G-2G roaming between CDMA and GSM networks. With the introduction of multimode terminals in the near future, the mobile terminal smart-card market is expected to grow at rates in excess of 30% by 2004. QCT is committed to continue working with its smart-card manufacturers to roll out leading-edge R-UIM system solutions for its chipsets and system software. Our terminal manufacturer partners will be able to meet the market's need for these smart-card solutions and applications in the most cost-effective manner for the next generation of CDMA and multimode terminals.