The Biometric EMV Payment Card – the Next Technology Leap

From contact chip-and-PIN cards to dual-interface contact/contactless cards, chip technology has evolved rapidly over the last two decades. From large, slow and expensive single-application chips with limited memory capacity, today's chips are the opposite.

Contactless EMV transactions have become the norm in many developed countries, with their speed and convenience. With 12 Billion EMV cards in circulation and a growth rate of 10%*, the main concern now is around cardholder authentication. Possession of the card is not enough.

The challenge is to provide cardholder authentication without requiring changes to the EMV payment terminals, the transaction networks or the convenient cardholder interface. Preferably, the cardholder authentication should be carried out in the card itself.

The biometric EMV card alone meets these challenges. So what are EMVCo, the EMV card schemes, the card issuers the card suppliers and the chip suppliers doing? Actually, quite a lot.

EMVCo has recently (October 2022) published the latest version (4.4) of its original ICC specification – the previous version was published in 2011. The new version includes provision for a variety of biometric verification methods, both on-card and off-card. EMVCo has also published the specification of an EMV standard contactless software module for EMV terminals – to replace, over time, the current set of six scheme-specific contactless modules. The leading card-schemes – Visa and Mastercard – are approving biometric EMV cards, and supporting the initial pilot and roll-out projects. Following many pilot schemes, major EMV card issuers have started commercial launches, albeit only to their premium cardholders.

** In addition to the EMV card market, the cards are also being prepared for the access control and identity card markets*

The main EMV chip supplier, Infineon with 50% of the market, started development several years ago, has recently announced a new chip architecture for its next range of biometric EMV chips, offering smaller chips, no wiring between the two chips, and a simplified and cheaper card manufacturing process.

Major EMV card suppliers Thales/Gemalto and IDEMIA have already supplied cards for the current roll-outs. They are now joined by G&D, STMicro, NXP and Samsung.

The recent TRUSTECH 2022 and APSCA* Next-Generation Cards 2022 exhibitions and conferences (29 November --1 December and 16-17 November respectively) have given all the above companies international platforms to announce and demonstrate their latest biometric card products.

The President of the Smart Payment Association has released an overview article entitled “Biometric cards: The next evolution in secure contactless transactions” (5 December 2022). This says it all.

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