



## WATERMARK MAGNETICS® - APPLICATIONS

# Watermark Magnetics® in the banking sector

Implementation of Watermark Magnetics in the Swedish ATM networks has effectively eliminated the incidence of counterfeit bank card transactions.

This secure magnetic stripe technology was adopted by all 13 commercial banks in Sweden, and has set new standards in the level of protection afforded to both bank and customer.

### HISTORY

For many years the commercial banks in Sweden have operated a joint ATM network. The off-line network was run by a specially created administrative company Bankomatcentralen AB (BmC), owned by the 13 participating banks. In order to define the technical and operating requirements of the new system a project group was set up with representation from the member banks.

The growing risk posed by the use of counterfeit cards was realised at an early stage. Some form of copy protection technique was considered essential and available methods were analysed and compared. Professor Ingemar Ingmarsson of Linköping University was contracted to undertake theoretical and practical evaluations of potential technologies.

It was at this stage that Watermark Magnetics emerged as the most promising method for combatting the threat of counterfeit cards.

Installation of Philips/Chubb ATM's commenced before the decision to adopt Watermark as the card protection technology was taken. As a result some ATM's had to be retrofitted with hardware capable of reading Watermark track 0 as well as ISO standard tracks 1 and 2. All new issue bankcards incorporated the 12 digit unique Watermark tape, to maximise their security.

Watermark now provides the Swedish ATM system with a level of security against counterfeit cards, which is unequalled.

## IMPLEMENTATION

During the card personalisation process the Watermark number is read and the data stored, along with the account information in the database of the issuing bank. On insertion into an ATM, the Watermark number is read in addition to the standard data encoded in track 1 and 2. After encryption the data is sent to the host computer.

In its initial implementation the transaction proceeds when a valid Watermark number is detected. This is recorded by the host system. In the event of a customer query over a withdrawal, the Watermark number for each transaction is examined and compared to a central database. If the numbers do not match a further investigation is performed.

An additional level of protection can be implemented by comparing, on line, the Watermark number read in the ATM with that stored in the central database. If a mismatch occurs the transaction is denied and the card is retained by the ATM. The software performing this comparison has an option, which enables the number of Watermark digits, which must match to be set between 1 and 12. This makes it possible to gradually increase the security associated with the transaction.

## THE FUTURE

Tests to establish the operational criteria for a new generation of ATM's from NCR have shown the readers to be capable of consistently discriminating between correctly encoded cards, and those with deliberate errors. 100% accuracy was achieved in tests randomly selected cards containing correct and incorrect data. These results have demonstrated the reliability of reading Watermark data, and enable full implementation of on-line checking. Sweden's continuing commitment to Watermark is demonstrated by its incorporation into the latest installation of ATM equipment.

## SUMMARY

Sweden has not suffered any attacks from counterfeit cards over the past 15 years. Watermark has proved to be a valuable tool in protecting the integrity of the ATM system against fraudsters, and maintains a high level of confidence in the system for the customers of Bankomatcentralen. The Swedish banks have benefited from implementing Watermark Magnetics by:

- Eliminating the risk of financial losses
- Protecting the credibility of their ATM system
- Maintaining compatibility with all international ATM's



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