SINGAPORE STANDARD

SS 484 : 2000

(ICS 35.240.15; 35.240.40)

SPECIFICATION FOR

Debit and credit card applications on smart card

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Contents

Foreword

This Singapore Standard was prepared by the Smart Card Technical Committee under the direction of the IT Standards Committee.

The committee started out debating the merits of creating a new specification that is Singapore specific and quickly came to the conclusion that it is not the best way forward.

Creating a specification unique for Singapore will result in interoperability issues with the international credit and debit transactions that are common place today. Singapore unique application will also result in much higher cost of components. Cards, terminals and backend systems provided by vendors will have to be modified for Singapore implementation and will not be able to take advantage of the economy of scale associated with a worldwide market. This is particularly true for chip cards, whose price is made particularly favourable if large quantities are involved.

The approach taken was to review the following:

- card specification
- terminal specification
- application specification

against the relevant international and industry standards. In particular, those portions which are stated as optional or implementation dependent, taking into consideration what current technology can offer (if it means a more cost optimal implementation). Relevant standards and specification of particular importance that the committee reviewed were ISO 7816-3, EMV 96, VIS, M/CHIP, UKIS, etc.

Reference was made to the following standards:

EMV	Europay MasterCard Visa Specifications
M/CHIP	Master Card Chip Based Card Specifications
VIS	Visa Smart Debit and Smart Credit Specifications

Acknowledgement is made for the use of information from the above standards.

NOTE

1.   *Singapore Standards are subject to periodic review to keep abreast of technological changes and new technical developments. The revisions of Singapore Standards are announced through the issue of either amendment slips or revised editions.*

2.   *Compliance with a Singapore Standard does not exempt users form legal obligations.*

Specification for debit and credit card applications on smart card

1 Introduction

The Singapore Standards for debit and credit card application on smart cards is written to describe the key components necessary to implement debit and credit smart card systems.

While the standard is designed and configured to meet the requirements of our local banks, it is an open standard that complies to international and industry standards, thus achieving interoperability of front-end terminals and optimising implementation costs.

This standard focuses on the various standards used in organising and processing information in chip-based programs, namely the Visa Specifications, MasterCard Specifications and the Europay, MasterCard and Visa (EMV) Specifications.

This standard is targeted at potential vendors or individuals who are interested in the current practices and industry standards employed in Singapore

Wherever that is not possible in this standard to give in full details of certain relevant information, useful references will be provided.

This standard sets out the standards for the Debit and Credit Card Application on Smart Cards. It contains the following clauses:

(i)   Overview of Europay MasterCard Visa (EMV) Specifications;
(ii)   Overview of Master Card Chip-based Application (M/CHIP) Specifications;
(iii)   Overview of Visa Smart Debit and Visa Smart Credit (VIS) standards; and
(iv)   Comparison between EMV, M/CHIP and VIS.

Both M/CHIP and VIS are based on EMV. EMV set a base in certain parts of the specifications and left others to be defined by individual implementations. M/CHIP and VIS are implementations that have adopted certain parts of EMV wholesale, decided on certain options provided by EMV and fully defined certain portions to arrive at a complete specification for credit and debit applications.

MasterCard's and Visa International implementation of EMV '96 is adopted as one of Singapore national standard for chip-based debit and credit cards. When implementing debit and credit card applications, the organisation is likely to choose either the M/CHIP or the VIS standard to adopt. Members of both associations may decide to implement both.

2 Objectives

To define an implementation specification for debit and credit card applications on smart cards that meets the operational requirements of banks and yet is an open standard that is complying to international and industry standards and to achieve interoperability of front-end terminals and optimise implementation cost.

3 Scope

This standard contains explanations of the two specifications and is aimed at guiding new users in interpretation of the specifications.