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SS 518 : 2006

(ICS 35.240.15)

SPECIFICATION FOR

Contactless e-purse application

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Foreword

This Singapore Standard was prepared by the Cards and Personal Identification Technical Committee (CPITC), formerly known as Smart Card Technical Committee, under the purview of the IT Standards Committee. Its name was changed to Cards and Personal Identification to reflect its objective of mirroring the activities of ISO/IEC SC17.

This Singapore Standard is based on the current Singapore Standard SS 468 : 1999 "Specification for stored value card application" but substantially modified.

In preparing this standard, reference was also made to the following publications:

ISO/IEC 7816-4 : 2005	Identification cards – Integrated circuit cards – Organisation, security and commands for interchange
ISO/IEC 9797-1 : 1999	Information technology – Security techniques – Message Authentication Codes (MACs) – Mechanisms using a block cipher
SS 372 : -	Specification for identification cards – Integrated circuit(s) cards with contacts
	Part 3 : 2000 (ISO/IEC 7816-3 : 1997) Electronic signals and transmission protocols
	Part 4 : 1999 Interindustry commands for interchange
SS 467 : 2002	Specification for smart card reader APIs
SS 468 : 1999	Specification for stored value card application
SS 484 : 2000	Specification for debit and credit card applications on smart card

Acknowledgement is made for the use of information from the above ISO publications.

This specification describes the technical requirements for a smart card that can be used in a multi-Issuer deployment scenario. Each Issuer is responsible for the personalisation of their own card. Interoperability is achieved by multiple sets of keys residing in the terminal readers and in the card. For interoperability, smart card readers will contain debit keys of all the participating Issuers, but not their credit keys. Credit operation is thus limited to selected terminals (readers) that contain the required credit keys.

Key management is meant to be flexible and the final implementation choice is left with the card Issuer. The debit command requires 1 key reference while the credit command requires 2 key references. In the simplest case, all 3 references (1 for debit, and 2 for credit) could all refer to the same key.

The design allows *partial refund*, in contrast with a normal *credit*. The partial refund is limited to the most recent amount debited. There is no restriction for a credit operation.

Transaction logging can be performed as an integrated operation of debit and credit, instead of separate updates.

While the ISO/IEC 7816 series of standards provide a sophisticated and rich set of commands for smart cards, this specification makes use of only the relevant portions. In particular, since the standardisation of e-purse commands are not covered in the international standards, this specification is suitable for our local needs.

This specification is based on work done on the EZ-Cash trial run project.

The two main participants of the trial run were NETS and EZ-Link Pte Ltd.

The trial run was supported by Infocomm Development Authority of Singapore (IDA). The first meetings of the EZ-Cash project started in July 2002, and the first draft of the specification was submitted on 13 October 2002. After a number of revisions, a draft EZ-Cash specification was presented to industry for their participation at the end of 2002. Following that, successful laboratory test and demonstration were conducted at the end of September 2003, where compliant products were supplied by card vendors. The EZ-Cash specification was submitted to the standards committee on 11 February 2004, for further work and publication as a Singapore Standard.

This standard is expected to be used by electronic purse payment issuers and acquirers and smartcard vendors.

This standard has been developed with industry feedback and ISO conformance in mind, and the Work Group welcomes feedback/suggestions to make the smart card system a success.

Attention is drawn to the possibility that some of the elements of this Singapore Standard may be the subject of patent rights. SPRING Singapore shall not be held responsible for identifying any or all of such patent rights.

NOTE

1. *Singapore Standards are subject to periodic review to keep abreast of technological changes and new technical developments. The changes in Singapore Standards are documented through the issue of either amendments or revisions.*

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