SINGAPORE STANDARD

SS 372 : Part 3 : 2000

ISO/IEC 7816-3 : 1997

(ICS 35.240.15)

SPECIFICATION FOR

Identification cards – Integrated circuit(s) cards with contacts

Part 3 : Electronic signals and transmission protocols

Published by
SPRING Singapore
2 Bukit Merah Central
Singapore 159835
SPRING Singapore Website: www.spring.gov.sg
Standards Website: www.standards.org.sg

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ISBN 9971-67-826-8

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National Foreword

This Singapore Standard was prepared by the Smart Card Technical Committee under the direction of the Information Technology Standards Committee. It is a revision of SS 372 : Part 3 : 1995. This revised standard is identical to ISO/IEC 7816-3 : 1997.

Attention is also drawn to the following:

1. Where the words 'International Standard' appear, they should be read as 'Singapore Standard'.

2. The comma has been used throughout as a decimal marker whereas in Singapore Standards, it is a practice to use a full point on the baseline as the decimal marker.

3. The reference to International Standards shall be replaced by the following Singapore Standards:

International Standard	Corresponding Singapore Standard
ISO 7816-1 : 1987	SS 372 : Part 1 : 1994 Specification for identification cards – Integrated circuit(s) cards with contacts, Part 1 : Physical characteristics
(note : this standard has been cancelled and replaced by ISO 7816-1 : 1998)	(note : this standard has been cancelled and replaced by SS 372 : Part 1 : 2000)
ISO 7816-1 : 1998	SS 372 : Part 1 : 2000 Specification for identification cards – Integrated circuit(s) cards with contacts, Part 1 : Physical characteristics
ISO 7816-2 : 1988	SS ISO 7816-2 : 1988 (confirmed 2000) Specification for identification cards – Integrated circuit(s) cards with contacts, Part 2 : Dimensions and location of the contacts

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 from legal obligations.

Foreword

ISO (the International Organization for Standardization) and IEC (the International Electrotechnical Commission) form the specialized system for worldwide standardization. National bodies that are members of ISO or IEC participate in the development of International Standards through technical committees established by the respective organization to deal with particular fields of technical activity. ISO and IEC technical committees collaborate in fields of mutual interest. Other international organizations, governmental and non-governmental, in liaison with ISO and IEC, also take part in the work.

In the field of information technology, ISO and IEC have established a joint technical committee, ISO/IEC JTC 1. Draft International Standards adopted by the joint technical committee are circulated to national bodies for voting. Publication as an International Standard requires approval by at least 75 % of the national bodies casting a vote.

International Standard ISO/IEC 7816-3 was prepared by Joint Technical Committee ISO/IEC JTC 1, *Information technology*, Subcommittee SC 17, *Identification cards and related devices.*

This second edition cancels and replaces the first edition (ISO/IEC 7816-3:1989), which has been technically revised. It also incorporates Amendment 1:1992 and Amendment 2:1994.

ISO/IEC 7816 consists of the following parts, under the general title *Information technology — Identification cards — Integrated circuit(s) cards with contacts*:

— *Part 1: Physical characteristics*

— *Part 2: Dimensions and location of the contacts*

— *Part 3: Electronic signals and transmission protocols*

— *Part 4: Interindustry commands for interchange*

— *Part 5: Numbering system and registration procedure for application identifiers*

— *Part 6: Interindustry data elements*

— *Part 7: Interindustry commands for structured card query language*

Annex A of this part of ISO/IEC 7816 is for information only.

Specification for identification cards – Integrated circuit(s) cards with contacts – Part 3 : Electronic signals and transmission protocols

1 Scope

This part of ISO/IEC 7816 specifies the power and signal structures, and information exchange between an integrated circuit(s) card and an interface device such as a terminal.

It also covers signal rates, voltage levels, current values, parity convention, operating procedure, transmission mechanisms and communication with the card.

It does not cover information and instruction content, such as identification of issuers and users, services and limits, security features, journaling and instruction definitions.

2 Normative references

The following standards contain provisions which, through reference in this text, constitute provisions of this part of ISO/IEC 7816. At the time of publication, the editions indicated were valid. All standards are subject to revision, and parties to agreements based on this part of ISO/IEC 7816 are encouraged to investigate the possibility of applying the most recent editions of the standards listed below. Members of ISO and IEC maintain registers of currently valid International Standards.

ISO 1177:1985, *Information processing — Character structure for start/stop and synchronous character oriented transmission.*

ISO/IEC 3309:1993, *Information technology — Telecommunications and information exchange between systems — High-level data link control (HDLC) procedures — Frame structure.*

ISO/IEC 7810:1995, *Identification cards — Physical characteristics.*

ISO 7816-1:1987[1)], *Identification cards — Integrated circuit(s) cards with contacts — Part 1: Physical characteristics.*

ISO 7816-2:1988[1)], *Identification cards — Integrated circuit(s) cards with contacts — Part 2: Dimensions and location of the contacts.*

ISO/IEC 7816-4:1995, *Information technology — Identification cards — Integrated circuit(s) cards with contacts — Part 4: Interindustry commands for interchange.*

[1)] Currently under revision.

3 Terms and definitions

The term "identification card" is defined in ISO/IEC 7810. For the purposes of this part of ISO/IEC 7816, the following definitions apply.

3.1 devices

3.1.1
interface device
terminal, communication device or machine to which the card is electrically connected during operation

3.1.2
operating card
card which can correctly carry out all its functions

3.2
etu (abbreviation for "elementary time unit")
nominal duration of a moment on contact I/O

3.3 resets

3.3.1
cold reset
first reset occurring after activation

3.3.2
warm reset
any reset which is not a cold reset