INTERNATIONAL STANDARD

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Information technology — Identification cards — Financial transaction cards

Technologies de l'information — Cartes d'identification — Cartes de transactions financières

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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.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 2.

The main task of the joint technical committee is to prepare International Standards. 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.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO and IEC shall not be held responsible for identifying any or all such patent rights.

ISO/IEC 7813 was prepared by Joint Technical Committee ISO/IEC JTC 1, *Information technology*, Subcommittee SC 17, *Cards and personal identification*.

This sixth edition cancels and replaces the fifth edition (ISO/IEC 7813:2001), which has been technically revised.

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Introduction

This International Standard is one of a series of standards describing the parameters for identification cards and the use of such cards for international interchange.

This International Standard addresses the structure and data content of financial transaction cards.

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Information technology — Identification cards — Financial transaction cards

1 Scope

This International Standard specifies the data structure and data content of track data used to initiate financial transactions. It takes into consideration both human and physical aspects and states minimum requirements of conformity. It references layout, recording techniques, numbering systems, registration procedures, but not security requirements.

ISO/IEC 10373 specifies the test procedures used to check ID-1 cards against the parameters specified in this International Standard.

2 Conformance

A financial transaction card is in conformance with this International Standard if it meets all mandatory requirements specified herein.

A prerequisite for conformance with this International Standard is conformance with ISO 4909, ISO/IEC 7810, ISO/IEC 7811, ISO/IEC 7812, ISO/IEC 7816, ISO/IEC 10536, ISO/IEC 14443 and ISO/IEC 15693, where appropriate.

3 Normative references

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO/IEC 4909:2006, *Identification cards — Financial transaction cards — Magnetic stripe data content for track 3*

ISO/IEC 7810, *Identification cards — Physical characteristics*

ISO/IEC 7811 (all parts), *Identification cards — Recording technique*

ISO/IEC 7812 (all parts), *Identification cards — Identification of issuers*

ISO/IEC 7816 (all parts), *Identification cards — Integrated circuit cards*

ISO/IEC 10373 (all parts), *Identification cards — Test methods*

ISO/IEC 10536 (all parts), *Identification cards — Contactless integrated circuit(s) cards*

ISO/IEC 14443 (all parts), *Identification cards — Contactless integrated circuit(s) cards — Proximity cards*

ISO/IEC 15693 (all parts), *Identification cards — Contactless integrated circuit(s) cards — Vicinity cards*

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4 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

4.1
automated teller machine
ATM
unattended electronic device that requires a customer verification method such as a card and personal identification number (PIN) to perform basic bank teller functions such as accepting deposits, cash withdrawal, account transfers, loan payments and balance enquiries

4.2
cash disbursement
action of withdrawing cash with a financial transaction card, either as a cash withdrawal at an ATM, a cash advance or as a cashback transaction at the point of sale

4.3
financial transaction card
any carrier of track data which contains issuer and cardholder information used to facilitate financial transactions by providing the necessary data content for processing such transactions

4.4
goods and services
range of financial transactions excluding cash disbursements

4.5
personal identification number
PIN
code or password that the cardholder possesses for verification of identity

4.6
PIN Entry Device
PED
device into which the cardholder enters the PIN

NOTE Also called a PIN pad (see ISO 9564).

4.7
service code
three-digit numeric value used to indicate the issuer's transaction acceptance parameters for the card

4.8
track data
mandatory and optional data elements defined for track 1 or track 2 (see Clause 7)

NOTE Track data may be on the magnetic stripe of a physical card, or be contained within an integrated circuit or other media.

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5 Abbreviated terms

For the purposes of this document, the following abbreviations apply.

EMV Europay, MasterCard, Visa

ICC Integrated circuit card

ID-1 Identification Card-1 (see ISO/IEC 7810)

IIN Issuer Identification Number

PAN Primary Account Number

PED PIN Entry Device

PIN Personal Identification Number

6 Physical characteristics for ID-1 cards

6.1 Embossed characters

The requirements for embossed characters are specified in ISO/IEC 7811. The embossed characters shall be on the front of the card, which is on the opposite side of the card from that with the magnetic stripe (when present).

6.2 Embossing of expiration date

When this field is embossed, it shall be in the format of the two-digit representation of the month (MM) followed by the last two digits of the year (YY). Separator character(s) shall be used to segregate the fields, for example MM/YY or MM-YY.

6.3 Magnetic stripe

If present, the magnetic stripe shall be located on the back of the card. Location and encoding techniques shall be as specified in the appropriate part of ISO/IEC 7811.

6.4 Integrated circuit with contacts

An ICC with contacts shall comply with the physical characteristics for ICCs as defined in ISO/IEC 7816-1.

6.5 Integrated circuit without contacts

An ICC without contacts shall conform to ISO/IEC 10536-1, ISO/IEC 14443-1 or ISO/IEC 15693-1, as applicable.

7 Track data structure and information content

7.1 Track 1 structure and information content

7.1.1 Structure A

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7.1.2 Structure B

Table 1 — Track 1 structure

Symbol	Description	Character code / Number of characters
STX	Start sentinel	%
FC	Format code	B
PAN	Primary Account Number (see 7.4.1)	up to 19 digits
FS	Separator	^
NM	Name (see 7.4.2) surname surname separator first name or initial space when required middle name or initial period (when followed by title) title (when used)	2 to 26 characters / space .
FS	Separator	^
ED	Expiration date (see 7.4.3)	four digits or ^
SC	Service code (see 7.4.4)	three digits or ^
DD	Discretionary data	balance of characters
ETX	End sentinel	?
LRC	Longitudinal redundancy check (see ISO/IEC 7811-2)	1 character
	Maximum record length	**79 alphanumeric characters**

7.1.2.1 Character codes

Character codes are based on a 7 bit modified ASCII format and are described in the appropriate section of the magnetic stripe parts of ISO/IEC 7811. Identical codes are used in each part of ISO/IEC 7811.

7.2 Track 2 structure and information content

Table 2 — Track 2 structure

Symbol	Description	Character code / Number of characters
STX	Start sentinel	;
PAN	Primary Account Number (see 7.4.1)	up to 19 digits
FS	Separator	=
ED	Expiration date (see 7.4.3)	four digits or =
SC	Service code (see 7.4.4)	three digits or =
DD	Discretionary data	balance of available digits
ETX	End sentinel	?
LRC	Longitudinal redundancy check (see ISO/IEC 7811-2)	1 digit
	Maximum record length	**40 numeric digits**

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7.2.1 Character codes

Character codes are based on a 5 bit modified ASCII format and are described in the appropriate section of the magnetic stripe parts of ISO/IEC 7811. Identical codes are used in each part of ISO/IEC 7811.

7.3 Track 3 structure and information content

Where present, the structure and information content of track 3 shall be as defined in ISO 4909.

7.4 Data elements

7.4.1 Primary Account Number

The Primary Account Number (PAN) comprises a six-digit Issuer Identification Number (IIN), a variable length (maximum 12 digits) individual account number and a check digit, and is as defined in ISO/IEC 7812-1. ISO/IEC 7812-2 describes the application and registration procedures for IINs.

7.4.2 Name

Minimum encoded data shall be a single alpha character (as surname) and the surname separator.

The space character is required to separate the logical elements of the name field other than the surname. The separator terminating the name field should be encoded following the last logical element of the name field. If only the surname is encoded, the Field Separator (FS) will follow the surname separator.

7.4.3 Expiration date

Format YYMM, where YY represents the last two digits of the year and MM is the numeric representation of the month.

7.4.4 Service code

The service code is a numeric field with three sub-fields represented by individual digits.

It is used to indicate the issuer's acceptance criteria for magnetic stripe transactions and whether a related integrated circuit supporting the equivalent application as identified by the magnetic stripe or embossing is present on the card.

Each sub-field is identified by its position (position 1, 2 and 3) and operates independently, allowing judgements on its separate functions. Terminals and other card-accepting devices act on each sub-field individually (see Table 3).

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7.5 Service code assignments

Table 3 — Service code assignments

Value	Position 1		Position 2	Position 3	
	Interchange	Technology	Authorization processing	Allowed services	PIN requirements
0	—	—	Normal [e]	No restrictions	PIN required
1	International [a]	—	—	No restrictions	—
2	International [a]	Integrated circuit card [b]	By issuer [f]	Goods and services only	—
3	—	—	—	ATM only	PIN required
4	—	—	By issuer [f] unless explicit bilateral agreement applies	Cash only	—
5	National [c]	—	—	Goods and services only	PIN required
6	National [c]	Integrated circuit card [b]	—	No restrictions	Prompt for PIN if PED present [g]
7	Private [d]	—	—	Goods and services only	Prompt for PIN if PED present [g]
8	—	—	—	—	—
9	Test	—	—	—	—

NOTE All undefined values are reserved for future use by ISO.

[a] Position 1, values 1 and 2 indicate international interchange.

[b] Position 1, values 2 and 6 indicate that the card contains an integrated circuit and that the financial transaction shall be processed from the integrated circuit, if feasible.

[c] Position 1, values 5 and 6 indicate interchange only in the country of issue, although specific bilateral agreements may override this restriction.

[d] Position 1, value 7 indicates private use, although specific bilateral agreements may override this restriction.

[e] Position 2, value 0 indicates that transactions are authorized according to the requirements specified in the merchant agreement and/or the card scheme's established rules governing acceptance at the particular point of sale.

[f] Position 2, values 2 and 4 indicate that transactions are processed online and approved by the issuer or the issuer's processing agent.

[g] Position 3, values 6 and 7 indicate that merchants are to follow the rules in their merchant agreements and/or the card scheme's established rules if the PED is inoperable, or in the case where the PIN prompt was given but the PIN was not supplied by the cardholder.

8 Integrated circuit structure and information content

The structure and general information content of an integrated circuit card are defined in ISO/IEC 7816, which contains a number of options; for interoperability, it is strongly recommended that implementers of financial applications on ICCs follow the EMV specification, where possible.

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[1] EMV Integrated Circuit Card (ICC) Specifications for Payment Systems:

- Book 1 - Application Independent ICC to Terminal Interface Requirements
- Book 2 - Security and Key Management
- Book 3 - Application Specification
- Book 4 - Cardholder, Attendant, and Acquirer Interface Requirements

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