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МЕЖДУНАРОДНАЯ ОРГАНИЗАЦИЯ ПО СТАНДАРТИЗАЦИИ

## Bank cards — Magnetic stripe data content for track 3

*Cartes bancaires — Zone magnétique — Contenu en données de la piste 3*



Reference number
ISO 4909 : 1987 (E)

## Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work.

Draft International Standards adopted by the technical committees are circulated to the member bodies for approval before their acceptance as International Standards by the ISO Council. They are approved in accordance with ISO procedures requiring at least 75 % approval by the member bodies voting.



International Standard ISO 4909 was prepared by Technical Committee ISO/TC 68, *Banking*.



This second edition cancels and replaces the first edition (ISO 4909-1978), of which it constitutes a minor revision.



Users should note that all International Standards undergo revision from time to time and that any reference made herein to any other International Standard implies its latest edition, unless otherwise stated.



Printed in Switzerland

# Bank cards — Magnetic stripe data content for track 3

## 0 Introduction

This International Standard recognizes the need for formats of track 3 which can be used independently of, or in conjunction with, track 2 as defined in ISO 7813. This approach is intended to permit the greatest degree of flexibility within the financial community in facilitating international interchange.

## 1 Scope and field of application

This International Standard establishes specifications for those cards issued by or acceptable to the banking industry and is intended to permit interchange based on the use of magnetic stripe encoded information. It specifies the data content and physical location of read/write information on track 3 and is to be used in conjunction with the relevant parts of those documents quoted in clause 2.

Using track 3 in conjunction with track 2 is a mode of operation in both on-line and off-line interchange environments. This mode of operation requires that the original encoded data on track 2 be read; the data on track 3 be read; and, if update is required, all the data on track 3 be rewritten.

Independent use of track 3 is an alternative mode of operation permitting both on-line interchange and off-line interchange based on mutual agreement between interested parties. It requires reading only of the data on track 3 and, if update is required, the rewriting of all the data on track 3.

## 2 References

ISO 3166, *Codes for the representation of names of countries.*

ISO 4217, *Codes for the representation of currencies and funds.*

ISO 7810, *Identification cards — Physical characteristics.*

ISO 7811, *Identification cards — Recording technique —*

— *Part 1: Embossing.*

— *Part 2: Magnetic stripe.*

— *Part 3: Location of embossed characters on ID-1 cards.*

— *Part 4: Location of read-only magnetic tracks — Tracks 1 and 2.*

— *Part 5: Location of read-write magnetic track — Track 3.*

ISO 7812, *Identification cards — Numbering system and registration procedure for issuer identifiers.*

ISO 7813, *Identification cards — Financial transaction cards.*

## 3 Definitions

For the purpose of this International Standard the following definitions apply.

**3.1 bank card**: A financial transaction card generally used to identify parties to a financial transaction, and to provide input data for a transaction.

**3.2 cycle period**: A fixed or predetermined period of time qualifying the validity of certain transactions.

**3.3 PAN (primary account number)**: The assigned number that identifies the card issuer and card holder. This number is composed of an issuer identification, individual account identification, and an accompanying check digit, as specified in ISO 7812, and supplemented by the annex to this International Standard.

Any number embossed on the account number line shall conform to ISO 7811-3.

NOTES

1 The PAN is equivalent to the identification number as defined in ISO 7812.

2 When the major industry identifier 59 is used, the PAN, followed by the numeric country code, may be embossed, left-adjusted in the uppermost line in the name and address area on the card and it shall be preceded by the printed letters MAG.

**3.3.1 issuer identification**: The major industry identifier and issuer identifier as described in ISO 7812 and the annex to this International Standard.

**3.3.2 individual account identification**: The individual account identification as described in ISO 7812, and the annex to this International Standard.

**3.3.3 check digit**: The check digit character as described in annex C to ISO 7812, and the annex to this International Standard.

**3.4 SAN-1**: The first optional subsidiary account identification held in addition to PAN (see 8.21).

**3.5 SAN-2**: The second optional subsidiary account identification held in addition to PAN and SAN-1 (see 8.23).

**3.6 PIN (personal identification number)**: The secret code used by a cardholder to authenticate card ownership.

## 4 Physical characteristics of the card

The card shall conform in all respects to the specifications in ISO 7810.

## 5 Location and dimensions of embossed data

If present, all embossed data on the card shall conform to the specifications in ISO 7811-3.

## 6 Physical and performance characteristics of the magnetic material



### 6.1 Physical characteristics

The physical characteristics and location of the magnetic material shall conform in all respects to the requirements of ISO 7811-2.



### 6.2 Performance characteristics

The performance characteristics of the magnetic materials for the card shall conform in all respects to the specifications contained in ISO 7811-2.

## 7 Encoding specifications

Encoding specifications shall conform in all respects to the requirements of ISO 7811-2.

## 8 Data content of track 3

The sequence and length of data fields shall be as shown in table 1 or 2 with details as follows.

### 8.1 Field 1: start sentinel

*Purpose:* To identify the start of data. The start sentinel is the first data character encoded on the track.

*Format:* One character.

*Content:* Row 11 of 9.2.2 of ISO 7811-2.

### 8.2 Field 2, format code

*Purpose:* To identify the data format on track 3.

*Format:* Two digits.

*Content:* 00 — Invalid for international interchange.

01 — The layout shall conform to table 1 of this International Standard.

02 — The layout shall conform to table 2 of this International Standard.

03-89 — Reserved for future allocation by ISO/TC 68.

90-99 — Available for use by individual card issuers but not for international interchange.

NOTE — Card issuers wishing to use codes in the range 03-89 shall apply, through their national standards organization, to ISO/TC 68.

### 8.3 Field 3: primary account number (PAN)

*Purpose:* To identify the card issuer to which the transaction is to be routed and to identify the card holder.

*Format:* As defined in 3.3 of this International Standard, and as further described in the annex.

*Content:* Issuer identification — variable from 3 to 11 characters.

Individual account identification — up to 23 characters.

Check digit — 1 character.

NOTE — In dual track operation, where the PAN is encoded on track 2, then the encoding of PAN on track 3 is optional. Where PAN is encoded on track 3, it is essential that all the components appear.

### 8.4 Field 4: field separator (FS)

*Purpose:* To indicate the end of the PAN (field 3), whether PAN is encoded or not.

*Format:* One character.

*Content:* Row 13 of 9.2.2 of ISO 7811-2.

### 8.5 Field 5, country code

*Purpose:* To identify the country to which transaction data generated by the card shall be routed.

*Format:* Three digits in the form CCC, where present, or a one-character FS.

*Content:* CCC — To conform with ISO 3166 for the designation of numeric country code.

FS — Row 13 of 9.2.2 of ISO 7811-2 indicates that no country code is present.

NOTE — Where PAN commences with major industry identifier 59, field 5 shall contain the country code; otherwise it shall contain only an FS.

### 8.6 Field 6: currency

*Purpose:* To denote the type of currency to be employed when calculating for update.

*Format:* Three digits.

*Content:* Three zeros in the currency field indicate that the card is not available for international interchange. All other codes shall signify the numeric currency code contained in ISO 4217.

### 8.7 Field 7: currency exponent

*Purpose:* To determine the base value of the amount authorized (8.8) and amount remaining (8.9) fields.

*Format:* One digit.

*Content:* A digit denoting the number of times the contents of the amount authorized (8.8) and the amount remaining (8.9) fields must be multiplied by 10 to express the value in the major currency unit of the currency specified in 8.6.

**Example**

If the currency exponent is 0, the value is equal to the content.

If the currency exponent is 1, the value is the content multiplied by 10.

If the currency exponent is 2, the value is the content multiplied by 100.

Thus 1 000 lira can be expressed as 1 000 with currency exponent = 0, as 100 with currency exponent = 1, and as 10 with currency exponent = 2.

### 8.8 Field 8: amount authorized per cycle period

*Purpose:* To denote the amount which is used to reset the amount remaining (8.9).

*Format:* Four digits.

*Content:* All zeros indicate that no debits are permitted.

### 8.9 Field 9: amount remaining this cycle

*Purpose:* To denote the remaining available balance of amount authorized for the current cycle period. It is expressed as the nearest unit of the currency in the amount authorized field (8.8).

*Format:* Four digits.

*Content:* On the first use after the commencement of each new cycle period, this field shall be reset to the value shown in the amount authorized field (8.8). Thereafter it shall contain the amount remaining this cycle.

### 8.10 Field 10: cycle begin

*Purpose:* To denote the date on which a new cycle period begins. This field may also be used to define the date on which the card becomes valid.

*Format:* Four digits in the form YDDD, where

Y is the least significant digit of the year;

DDD is the sequential number of the day within the year in the range 001 to 366.

*Content:* The field shall be updated to the current date when the value of the cycle begin field plus the value of the cycle length field (8.11) is less than or equal to the current date, unless the cycle length field (8.11) is set in the range 80-99.

### 8.11 Field 11: cycle length

*Purpose:* To denote the period of time during which the accumulated sum of all debit transactions shall not exceed the amount authorized (8.8).

*Format:* Two digits.

*Content:* 00 — A card on which the amount remaining this cycle field shall be decremented but shall not be reset.

01-79 — The number of days in the cycle period.

80 — The cycle period shall be of 7 days duration, and the cycle begin field (8.10) shall be updated only by the addition of multiples of 7.

81 — The cycle period shall be of 14 days duration, and the cycle begin field (8.10) shall be updated only by the addition of multiples of 14.

82 — The cycle period shall begin only on the first or fifteenth day of a calendar month, whichever is appropriate.

83 — The cycle period shall begin on the same date of every calendar month commencing on the date represented by the cycle begin field (8.10) which was set at card issue.

84 — The cycle period shall begin on the same date of every third calendar month commencing on the date represented by the cycle begin field (8.10) which was set at card issue.

85 — The cycle period shall begin on the same date every sixth calendar month commencing on the date represented by the cycle begin field (8.10) which was set at card issue.

86 — The cycle period shall begin on the anniversary of the date represented by the cycle begin field (8.10) which was set at card issue.

87-89 — Reserved for future allocation by ISO/TC 68.

90-99 — Available for use by individual card issuers but not for international interchange.

### 8.12 Field 12 : retry count

*Purpose:* To record the number of outstanding attempts available to enter the personal identification number (PIN) associated with the card.

*Format:* One digit.

*Content:* This field shall be set at card issue and subsequently reset after each successful entry of the PIN. It shall be decremented by one for each incorrect entry of the PIN.

In interchange the reset value shall be 3.

NOTE — The card shall be invalid for all interchange purposes if the content of this field is zero.

### 8.13 Field 13 : personal identification number control parameters (PINPARM)

*Purpose:* To provide an optional security feature in the form of an algorithm code and a verification value.

*Format:* With format code 01, six numeric digits in the form AAVVVV, where present, or a one-character FS, where

AA is the algorithm identification;

VVVV is the verification value.

With format code 02, six numeric digits in the form AKVVVV, where present, or a one-character FS, where

A is the algorithm identification;

K is the key identification;

VVVV is the verification value.

*Content:* With format code 01 :

AA — value 00-09 indicates that a private algorithm is used.

— value 10-19 indicates that DEA-1 is used.

— value 20-99 : Reserved for future allocation by ISO/TC 68.

VVVV — That number which, when used in conjunction with the algorithm calculation, will validate the personal identification number.

FS — Row 13 of 9.2.2 of ISO 7811-2 indicates that no PINPARM is present.

With format code 02 :

A — value 0 indicates that a private algorithm is used.

A — value 1 indicates that DEA-1 is used.

A — value 2-9 : Reserved for future allocation by ISO/TC 68.

K — value 0-9 at issuer's discretion or for bilateral agreement.

VVVV — That number which, when used in conjunction with the algorithm calculation, will validate the personal identification number.

FS — Row 13 of 9.2.2 of ISO 7811-2 indicates that no PINPARM is present.

### 8.14 Field 14 : interchange control

*Purpose:* To indicate whether interchange is permitted on this card.

*Format:* One digit.

*Content:* 0 — No restriction.

1 — Not available for international interchange.

2-8 — Interchange restricted.

9 — Interchange restricted; recommended for test cards.

NOTE — If interchange is restricted, card usage is limited to a specific locale, city or country and should not be accepted without prior arrangements with the card issuer.



### 8.15 Field 15 : type of account (TA) and service restriction (SR) — PAN



*Purpose:* To define TA and SR.

a) The TA digit defines the type of account recorded in the individual account identification in field 3.

b) The SR digit provides for control of interchange and control of debits, credits and transfers applied to the account number in field 3.

*Format:* Two digits.

*Content:* a) Type of account — first digit.

0 — PAN not encoded on track 3.

1 — Savings account.

2 — Current or checking account.

3 — Credit card account.

4 — A common number applicable to more than one type of account, for example universal account number.

5 — Interest-bearing current or checking account.

6-8 — Reserved for allocation by ISO/TC 68.

9 — Available for issuer's internal use and not for interchange.

b) Service restrictions — second digit.

0 — No restrictions.

1 — No cash dispense.

2 — No point of service (POS) transaction.

3 — No cash dispense and no POS transaction.

4 — Positive authorization required.

5-7 — Reserved for allocation by ISO/TC 68.

8-9 — Available for issuer's internal use.

NOTES

1 With service restrictions 8 and 9, card usage is limited to a specific locale, city or country and should not be accepted without prior arrangements with the card issuer.

2 Card issuers requiring codes in the ranges 5-7 shall apply, through their national standards organization, to ISO/TC 68.

### 8.16 Field 16: type of account and service restrictions — SAN-1

*Purpose:* As specified in 8.15 but the content of this field shall refer to the account number contained in the SAN-1 (8.21).

*Format:* Two digits.

*Content:* As specified in 8.15 except that TA with a value of zero indicates that SAN-1 (8.21) is not encoded on track 3.

### 8.17 Field 17: type of account and services restrictions — SAN-2

*Purpose:* As specified in 8.15 but the content of this field shall refer to the account number contained in the SAN-2 (8.23).

*Format:* Two digits.

*Content:* As specified in 8.15 except that TA with a value of zero indicates that SAN-2 (8.23) is not encoded on track 3.

### 8.18 Field 18: expiry date

*Purpose:* To indicate the date after which the card ceases to be valid.

*Format:* Four digits in the form YYMM, where present, or a one-character FS, where

YY is the year of expiry;

MM is the month of expiry;

*Content:* YY — Two digits to signify the year during which the card ceases to be valid.

MM — The numeric sequence of the month within the year. The card ceases to be valid after the last day of the month specified.

FS — Row 13 of 9.2.2 of ISO 7811-2 indicates that no expiry date is present.

### 8.19 Field 19: card sequence number

*Purpose:* To distinguish between separate cards (issued concurrently or consecutively) with the same PAN.

*Format:* One digit.

*Content:* Any numeric digit at issuer's discretion.

If format code 02 is used any numeric characters or FS. A field separator indicates that field 27.4, alternative card sequence number, is present.

NOTE — This field shall be set at original issue or at the renewal of the card following expiration. It should be incremented each time an additional or replacement card is issued.

### 8.20 Field 20: card security number

*Purpose:* To relate the data contained on the magnetic stripe to the physical card.

*Format:* Nine digits in the form MCCCCCCCC, where present, or a one-character FS, where

M is the security method identifier;

CCCCCCCC is the code which enables the relationship between data and card to be established.

*Content:* M-value 0-4 — Available for national use.

M-value 5-8 — Reserved for international security methods standardized by ISO/TC 68.

M-value 9 — Available for private use.

CCCCCCCC — To be determined by the security method.

FS — Row 13 of 9.2.2 of ISO 7811-2 indicates that no card security number is present.

### 8.21 Field 21: first subsidiary account number (SAN-1)

*Purpose:* To identify the first optional subsidiary account.

*Format:* Variable, including zero length.

*Content:* Any numeric value.

### 8.22 Field 22: field separator

*Purpose:* To terminate, or to indicate the absence of, SAN-1.

*Format:* One character.

*Content:* Row 13 of 9.2.2 of ISO 7811-2.

### 8.23 Field 23 : second subsidiary account number (SAN-2)

*Purpose:* To identify the second optional subsidiary account.

*Format:* Variable, including zero length.

*Content:* Any numeric value.

### 8.24 Field 24 : field separator

*Purpose:* To terminate, or to indicate the absence of, SAN-2.

*Format:* One character.

*Content:* Row 13 of 9.2.2 of ISO 7811-2.

### 8.25 Field 25 : relay marker

*Purpose:* To provide the facility whereby the length of interchange messages passing between banks' computer centres may be reduced. An indicator will show whether or not the interchange message is to include the contents of the additional data field (8.27).

*Format:* One digit.

*Content:* 0 — Include all discretionary data.

1 — Do not include additional data.

2 — Do not include discretionary data (8.27.5).

3-9 — Invalid.



### 8.26 Field 26 : crypto check digits (CCD)

*Purpose:* To provide a means of verifying the integrity of the data elements on track 3 through application of a cryptographic formula.

*Format:* Six digits, where present, or a one-character FS.

*Content:* Six digits to be defined by ISO/TC 68.

FS : Row 13 of 9.2.2 of ISO 7811-2 indicates that no CCD is present.

### 8.27 Field 27 : additional data

If format code 01 is used the following definition applies :

*Purpose:* To contain discretionary data meaningful to the card issuer. The contents of this field shall be contained in the interchange message passing between the device operator and the card issuer if the relay marker (8.25) is zero.

*Format:* Variable, including zero length.

*Content:* Any numeric value.

If format 02 is used the following subfields are required.

#### 8.27.1 Field 27.1 : transaction date

*Purpose:* To recognize the date of last cash dispense.

*Format:* Four digits in the form YDDD or a one-character FS, where

Y is the least significant digit of the year;

DDD is the sequential number of the day within the year in the range 001-366.

*Content:* In an interchange environment this field shall be updated to the current date after each cash dispense.

FS : Row 13 of 9.2.2 of ISO 7811-2 indicates that no transaction date is present.

#### 8.27.2 Field 27.2 : additional verification value(s)

*Purpose:* To provide the validation of the PIN or a relation between two PIN-verification procedures of the same procedure with different keys.

*Format:* Eight numeric digits or a one-character FS.

*Content:* By bilateral agreement this field may be used for two four-digit verification values or an eight-digit verification value; or, in connection with the last four characters of field 13, these two fields may be used for two six-digit verification values.

FS : Row 13 of 9.2.2 of ISO 7811-2 indicates that no additional verification value is present.

#### 8.27.3 Field 27.3 : alternative card sequence number

*Purpose:* To distinguish between separate cards (issued concurrently or consecutively) with the same PAN and to allow a maximum of 999 card sequence numbers if there are more than nine cards.

*Format:* Three numeric digits "nnn".

*Content:* At issuer's discretion.

NOTE — If this field is present, it is essential that field 19 contain an FS (Row 13 of 9.2.2 of ISO 7811-2).

#### 8.27.4 Field 27.4 : international network identification code

*Purpose:* Code identifying an international grouping of card issuers providing a reciprocal service. This code is designed to permit the identification of groupings, when the preferred use of Issuer Identification Number (IIN) as defined in ISO 7812 is not possible.

*Format:* Three numeric digits or a one-character FS.

*Content:* Numeric code as registered or FS.

FS : Row 13 of 9.2.2 of ISO 7811-2 indicates that no international network identification code is present.

Applicants wishing to register a network code shall apply through their national standards body to ISO/TC 68.

NOTE — This is equivalent to the term Network International Identifier used in ISO 8583.

#### 8.27.5 Field 27.5 : discretionary data

*Purpose :* To contain discretionary data meaningful to the card issuer. The contents of this field shall be contained in the interchange message passing between the device operator and the card issuer if the relay marker (8.25) is zero.

*Format :* Variable, including zero length.

*Content :* Any numeric value.

### 8.28 Field 28 : end sentinel

*Purpose :* To indicate the termination of meaningful data on track 3.

*Format :* One character.

*Content :* Row 15 of 9.2.2 of ISO 7811-2.

### 8.29 Field 29 : longitudinal redundancy check (LRC)

*Purpose/Content :* The LRC character shall conform in all respects to the specification contained in 9.2.2 of ISO 7811-2.

*Format :* One character.