British Standard

BRITISH STANDARD

BS EN
1387 : 1997

Machine readable cards — Health care applications — Cards: General characteristics

The European Standard EN 1387 : 1996 has the status of a British Standard

ICS 11.020; 24.240.15

Committees responsible for this British Standard

The preparation of this British Standard was entrusted to Technical Committee IST/17, Identification cards and related devices, upon which the following bodies were represented:

APACS (Barclaycard)
APACS (Co-operative Bank)
APACS (Lloyds Bank)
APACS (Midland Bank)
APACS (Nat West Bank)
Association for Payment Clearing Services (APACS)
BT Laboratories
Cellnet
Consumer Policy Committee of BSI
Electricity Association
GPT Card Technology
HMSO
Mondex International
Motorola Ltd.
Rochford Thompson Equipment
Shell UK
Thorn Transit Systems International
Vodafone Ltd.
Westinghouse Cubic Ltd.

This British Standard, having been prepared under the direction of the DISC Board, was published under the authority of the Standards Board and comes into effect on
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The following BSI references relate to the work on this Standard:
Committee reference IST/17
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Contents

National foreword

This British Standard has been prepared by Technical Committee IST/17 and is the English language version of EN 1387 : 1996 *Machine readable cards — Health care applications — Cards : General characteristics* published by the European Committee for Standardization (CEN).

This British Standard is published under the direction of the DISC Board whose Technical Committee IST/17 has the responsibility to:

– aid enquirers to understand the text;

– present to the responsible international/European committee any enquiries on interpretation, or proposals for change, and keep UK interests informed;

– monitor related international and European developments and promulgate them in the UK.

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Summary of pages

This document comprises a front cover, an inside front cover, pages i and ii, the EN title page, pages 2 to 8, an inside back cover and a back cover.

EUROPEAN STANDARD
NORME EUROPÉENNE
EUROPÄISCHE NORM

EN 1387

August 1996

ICS 35.240.60

Descriptors: Social welfare, identification cards, IC cards, physical properties, data recording, information interchange

English version

Machine readable cards — Health care applications — Cards: General characteristics

Cartes lisibles par machine — Applications pour la santé — Cartes: Caractéristiques générales

Maschinenlesbare Karten — Anwendungen im Gesundheitwesen — Karten: Allgemeine Eigenschaften

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Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the Central Secretariat or to any CEN member.

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CEN

European Committee for Standardization
Comité Européen de Normalisation
Europäisches Komitee für Normung

Central Secretariat: rue de Stassart 36, B-1050 Brussels

Foreword

This European Standard has been prepared by the Technical Committee CEN/TC 224, Machine readable cards, related device interfaces and operations, the secretariat of which is held by AFNOR.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by February 1997, and conflicting national standards shall be withdrawn at the latest by February 1997.

In accordance with the CEN/CENELEC Internal Regulations, the following countries are bound to implement this European Standard: Austria, Belgium, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and United Kingdom.

Contents

Introduction

This European Standard is one of a series of standards describing the characteristics of machine readable cards in the health care sector and the use of such cards for European interchange.

Other card technologies could be taken into account in the future.

Users can select from the technologies described in this standard to organize and store health care data in the card and to meet the security needs and functions of the card system.

1 Scope

This European Standard specifies directly or by reference the requirements for cards used for health care, health care coverage or health care entitlement.

This European Standard specifies the physical characteristics of cards and the recording techniques, but not the security requirements. It defines the area on each side of the surface of the card allocated to each type of media.

Test methods applying to this European Standard are as defined in ISO/IEC 10373.

2 Normative references

This European Standard incorporates by dated or undated reference, provisions from other publications. These normative references are cited at the appropriate places in the text and the publications are listed hereafter. For dated references, subsequent amendments to or revisions of any of these publications apply to this European Standard only when incorporated in it by amendment or revision. For undated references the latest edition of the publication referred to applies.

EN 23166	*Codes for the representation of names of countries* (ISO 3166:1993)
EN 27810	*Identification cards — Physical characteristics* (ISO 7810:1985, ed.1)
EN 27811-1	*Identification cards — Recording technique* — Part 1 : *Embossing* (ISO 7811-1 : 1985, ed.1)
EN 27811-2	*Identification cards — Recording technique* — Part 2 : *Magnetic stripe* (ISO 7811-2:1988, ed.1)
EN 27811-3	*Identification cards — Recording technique* — Part 3 : *Location of embossed characters on ID-1 cards* (ISO 7811-3:1985, ed.1)
EN 27811-4	*Identification cards — Recording technique* — Part 4 : *Location of read-only magnetic tracks — Tracks 1 and 2* (ISO 7811-4:1985, ed.1)
EN 27811-5	*Identification cards — Recording technique* — Part 5 : *Location of read-write magnetic track — Track 3* (ISO 7811-5:1985, ed.1)
EN 27816-1	*Identification cards — Integrated circuit(s) with contacts* — Part 1 : *Physical characteristics* (ISO 7816-1:1987, ed.1)
EN 27816-2	*Identification cards — Integrated circuit(s) with contacts* — Part 2 : *Dimensions and location of the contacts* (ISO 7816-2:1988, ed.1)
EN 27816-3	*Identification cards — Integrated circuit(s) cards with contacts* — Part 3 : *Electronic signals and transmission protocols* (ISO/IEC 7816-3:1989, edition 1)
EN 27816-3 : 1992/A1:1993	*Identification cards — Integrated circuit(s) cards with contacts* — Part 3 : *Electronic signals and transmission protocols — Amendment 1 : Protocol type T=1, asynchronous half duplex block transmission protocol* (ISO/IEC 7816-3:1989, Amendment 1:1992)
ISO 8859-1	*Information processing — 8-bit single-byte coded graphic character sets* — Part 1 : *Latin alphabet No. 1*
ISO/IEC 10373	*Identification cards — Test methods*
ISO/IEC 11693	*Identification cards — Optical memory cards — General characteristics*
ISO/IEC 11694-1	*Identification cards — Optical memory cards — Linear recording method* — Part 1 : *Physical characteristics*
ISO/IEC 11694-2	*Identification cards — Optical memory cards — Linear recording method* — Part 2 : *Dimensions and location of the accessible optical area*
ISO/IEC 11694-3	*Identification cards — Optical memory cards — Linear recording method* — Part 3 : *Optical properties and characteristics*

3 Definitions

For the purposes of this standard, the following definitions apply:

3.1 health care card

Personal portable record included in a card containing administrative and/or medical data to facilitate health care.

3.2 front side of the card

Face of the card carrying visual information containing numbers identifying the card and the card holder.

3.3 back side of the card

The opposite face from the front.

4 Abbreviations

IC Integrated circuit

5 Physical characteristics

The physical characteristics shall conform to EN 27810 and EN 27816-1.

6 Recording techniques

This European Standard refers to several different recording techniques. Depending on the particular combination of techniques chosen there may be conflicts in implementing them in one card. It is the responsibility of card issuers to detect and resolve any such conflicts within the standards concerned.

6.1 Embossing, engraving, printing

6.1.1 *Technical specification*

If embossing is used it shall be as specified in EN 27811-1 and EN 27811-3.

6.1.2 *Organization and location of the visually readable data*

NOTE. The visually readable information consist of 5 lines referred to as L1, L2, L3, L4 and L5, as given in table 1.

6.1.2.1 *L1 and L2*

L1 and L2 shall be included on all cards and shall be located on the front side of the card (see **3.2**).

If embossed, they shall comply with EN 27811-3.

If not embossed (printed, engraved etc.) their location and the size of their contents are at the discretion of the issuer.

L1 is made up of the following components:

– the industry identifier (2 characters);

– the country code, as defined in EN 23166 (3 characters);

– the issuer identifier (5 characters);

– the check digit (1 digit), calculated on all preceeding characters using the Luhn modulus 10 formula (see annex B).

Spaces, if used, shall separate the above components.

L2, the card holder identification number, consists of up to 27 characters. This string of characters shall represent a cardholder identifier provided by the card issuer.

6.1.2.2 *L3, L4 and L5*

The use of lines L3, L4 and L5 is at the discretion of the issuer but if these lines are used for the name of the card holder the following rules should be followed:

a) the name shall be the first data to appear after L2 ;

b) the name can appear on one or several lines with the most significant part (usually the surname) coming first, followed by the least significant part (usually the given names). If there is ambiguity in separation between the two parts, only a separator in the form of a forward oblique (/) may be introduced.

If not embossed (printed, engraved etc.), their location and their size are at the discretion of the issuer.

Table 1. Organization of the visually readable data

Line	Data name	Length	Character set
L1	Card issuer identifier	11 characters	Decimal characters and spaces only
L2	Card holder identification number	Up to 27 characters	Latin alphabet n° 1[1)]
L3	Reserved for issuer	Not specified	Not specified
L4	Reserved for issuer	Not specified	Not specified
L5	Reserved for issuer	Not specified	Specified

[1)] As defined in ISO 8859-1.

6.2 Integrated circuit(s)

6.2.1 *Technical specification*

The communication protocol of the IC card shall be the asynchronous half duplex character protocol (T = 0) or the block protocol (T = 1) as defined in EN 27816-3 and EN 27816-3:1992/A 1: 1993.

6.2.2 *IC contact area*

If used, dimension and position of contacts shall conform to EN 27816-2.

For engraved and printed cards it may be on either side of the card.

6.3 Photograph

6.3.1 *Technical specification*

The recording technique as well as the size of the photograph shall be compatible with the other technologies implemented on the card.

6.3.2 *Photograph area*

If used, the photograph shall be located on the upper right corner of the front side of the card.

6.4 Bar codes

6.4.1 *Technical specification*

The recording techniques as well as the size of the bar codes shall be compatible with the other technologies implemented on the card.

6.4.2 *Bar codes area*

If used it is recommended that the bar codes be located on the upper left corner of the front side of the card.

6.5 Magnetic stripe

6.5.1 *Technical specification*

The magnetic stripe shall conform to EN 27811-2, EN 27811-4 and EN 27811-5.

6.5.2 *Magnetic stripe area*

If used, the magnetic stripe area shall be located on the back side of the card as specified in EN 27811-2, EN 27811-4 and EN 27811-5.

6.6 Signature panel

If used, a signature panel for a handwritten signature shall be located on the back side of the card below the magnetic stripe area. If a reproduced signature image is used, it should be located on the upper front to the left of the photograph area, or alternatively on the back side of the card below the magnetic stripe area.

6.7 High density storage techniques

If used, high density storage media shall be located on the back side of the card and conform to the relevant International Standards: ISO/IEC 11693, ISO/IEC 11694-1, ISO/IEC 11694-2 and ISO/IEC 11694-3.

Annex A (informative)

Possible locations of technologies on health care cards

Figure A.1 illustrates the position of the fields with visually readable data and examples of various machine readable technologies that may appear on a health care card. Except for lines 1 and 2, none of these fields is mandatory and this European Standard does not require that more than one technology should be present on the same card.

This European Standard does not add new dimensional constraints to those already incorporated by the normative references shown in clause **2**, so dimensions are not shown in the illustration. Some fields shown are not dimensionally constrained.

Figure A.1 illustrates the preferred appearance of line 1, which appears first as a logical header to the cardholder identification number, but which may in accordance with this standard be right-justified and represented in smaller type than line 2, so that line 2 has greater visual prominence for users.

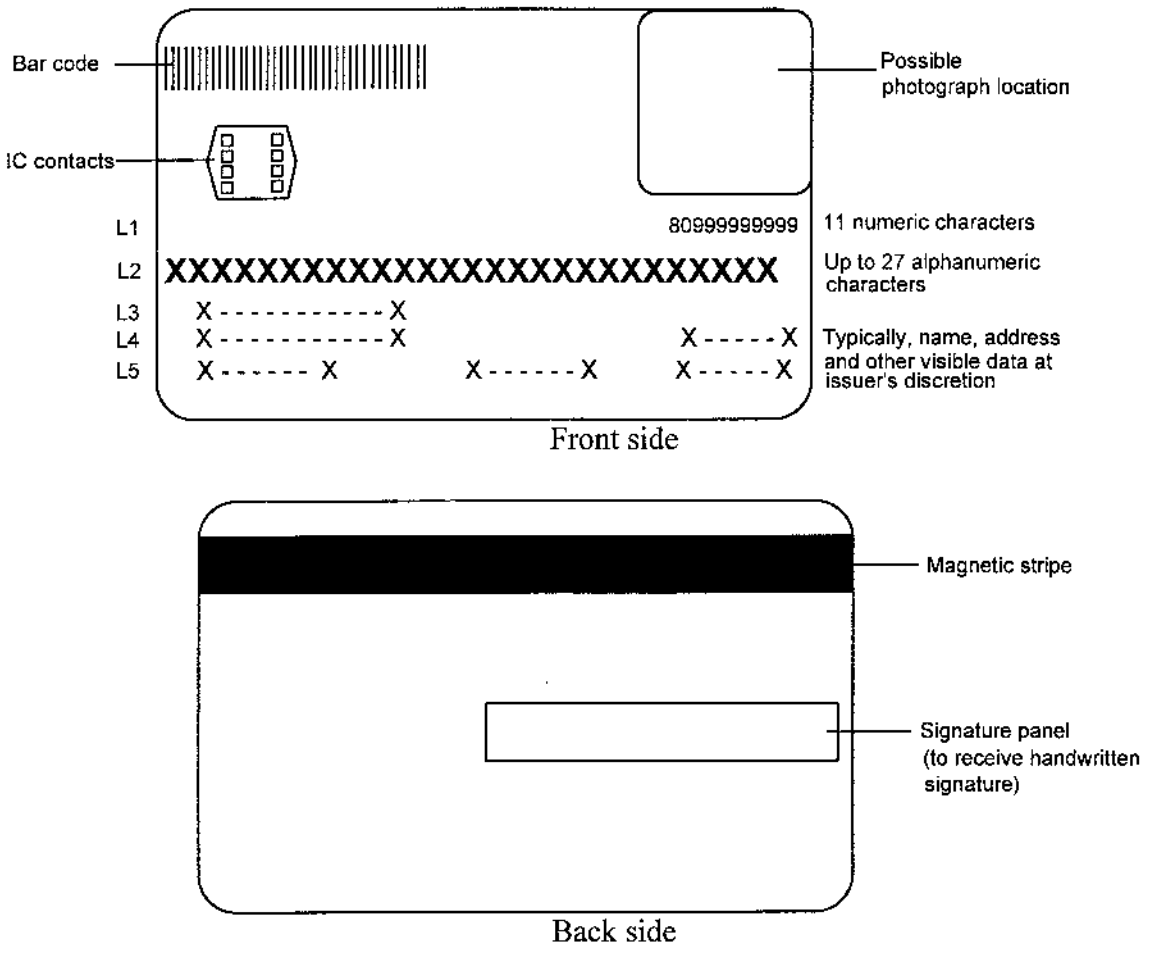

Figure A.1. Possible locations of technologies on health care cards

Annex B (normative)

Luhn formula for computing modulus 10 'double-add-double' check digit

The following steps are involved in this calculation:

Step 1 : Double the value of alternate digits beginning with the first right-hand digit (low order).

Step 2 : Add the individual digits comprising the products obtained in Step 1 to each of the unaffected digits in the original number.

Step 3 : Subtract the total obtained in Step 2 from the next higher number ending in 0 (this is the equivalent of calculating the 'tens complement' of the low order digit (unit digit) of the total). If the total obtained in Step 2 is a number ending in zero (30, 40, etc.), the check digit is 0.

EXAMPLE:

Account number without check digit 4992 73 9871

										Steps
4	9	9	2	7	3	9	8	7	1	1
	X2		X2		X2		X2		X2	
	18		4		6		16		2	

4 + 1 + 8 + 9 + 4 + 7 + 6 + 9 + 1 + 6 + 7 + 2 = 64 2

70 − 64 = 6 3

Account number with check digit 4992 73 9871 6

blank

List of references

See national foreword.

BSI — British Standards Institution

BSI is the independent national body responsible for preparing British Standards. It presents the UK view on standards in Europe and at the international level. It is incorporated by Royal Charter.

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British Standards are updated by amendment or revision. Users of British Standards should make sure that they possess the latest amendments or editions.

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