

BS 7106 : Part 1 : 1989
EN 27 811 : Part 1 : 1989
ISO 7811/1-1985

UDC 336.717.12 : 681.616.5

British Standard Guide to

Recording techniques for information on identification cards

Part 1. Embossing

Guide pour les techniques d'enregistrement pour les informations sur les cartes d'identification
Partie 1. Estampage

Leitfaden über die Aufzeichnungstechnik von Angaben auf Identifikationskarten
Teil 1. Prägen von Schriftzeichen

This European Standard EN 27 811 : Part 1 has the status of a British Standard.

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National foreword

This Part of BS 7106 has been prepared under the direction of the Information Systems Technology Standards Policy Committee. It is identical with ISO 7811/1-1985 'Identification cards-Recording technique-Part 1 : Embossing', published by the International Organization for Standardization (ISO), which has been endorsed by CEN as EN 27 811-1. The title of the British Standard differs from that of ISO 7811/1-1985 in order to reflect more accurately the actual contents of the text, taking into account also the features identified in the paragraphs below (headed 'Special attention') and in the other Parts of this British Standard.

The UK actively participated in the development of the international standard through BSI Technical Committee IST/17 and fully approved publication of the international standard.

The following list includes all Parts of the international standard. A number of related standards is listed at the end of this national foreword.

BS 7106 comprises the following Parts.

- 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.

This Part of BS 7106 implements the international standard without change for the reasons given below (see 'Reasons for implementation'), even though particular attention is drawn (see 'Special attention') to some features that may need special consideration when this standard is being used.

NOTE 1. UK participation in future development, revision or amendment of the international standard will include requests for attention to these points.

The information provided in this Part of BS 7106 (together with other relevant Parts) is considered sufficient to act in the UK as a basis for the design, implementation and use of identification cards of the types covered by the international standard.

There are no plans at present to supplement this British Standard with any additional guidance, and any comments or enquiries on the international standard or its application should be addressed to the Secretary to IST/17 at the BSI headquarters address.

Reasons for implementation. This Part of BS 7106 implements the international standard for the following reasons.

- (a) Because information technology equipment, services and systems tend to be, and generally need to be, designed, purchased and used in a world-wide context IST/- policy is to agree, wherever possible, standards at international level and not to prepare unique national standards. At the time of its approval, the text of the international standard was considered to be the best that could be achieved, taking into account the needs of the 'market place' and the 'state of the art' in this subject area, and the international standardization process.
- (b) Further development of the international text at international level has been accorded relatively low priority in relation to other projects in the same international committee.
- (c) The Commission of the European Communities has mandated CEN to produce European Standards (ENs) (or, where this cannot be achieved, Harmonization Documents (HDs) or Draft European Standards (ENVs)) in this subject area for application throughout the Common Market by 1992. ISO 7811/1-1985 has been adopted without change as the Reference Document for an EN, and publication of this British Standard fulfils the UK obligation under CEN/CENELEC Common Rules to implement nationally each agreed European standard.
- (d) Publication of British Standards corresponding to the international standards in which IST/- resources were invested will ensure that the BSI Catalogue becomes, and then remains, a comprehensive first source of information for UK users of IT equipment and services about the availability of international standards on IT subjects. In turn, this will facilitate UK use of, and access to, those standards.

Special attention. Special attention is drawn to the following features of the international standard that, ideally, require further consideration at international level, but it is emphasized that these features do not prevent use of this standard as a set of basic guidelines and, with appropriate care, products can be effectively standardized. Users of this British Standard, however, might need supplementary information on these features from the BSI Technical Committee or from experts in the field.

NOTE 2. Whilst agreements between individual trading or communicating partners can be made, and might suffice, additional care may be needed to avoid creating agreements that differ only slightly between different parties.

- (a) Tolerances on some dimensions (e.g. in clauses 4 and 5), precise compliance criteria and test methods are omitted.
- (b) Options are allowed (e.g. in clause 5) but no indication is given of the reasons for, or consequences of, particular choices being made by the user.
- (c) Although the international standard makes reference in 4.1 to ISO 1831, the intention was that the print specifications in that standard were to be met when a card embossed with OCR-A or OCR-B characters is used to print information. For UK use, therefore, the last sentence of 4.1 should be understood to mean 'Card imprints shall conform to the print specifications in ISO 1831'.
- (d) It is emphasized that clauses 4 and 5 are mutually exclusive, and embossed cards intended only for visual reading should conform to the requirements in clause 5, those intended for either visual reading or machine reading or both should conform to the requirements in clause 4, together with (in all cases) other relevant requirements.

Cross-references

International standard	Corresponding British Standard
ISO 1073/1-1976	BS 5464 Specification for optical character recognition Part 1 : 1977 Character set OCR-A. Shapes and dimensions of the printed image (Identical)
ISO 1073/2-1976	Part 2 : 1977 Character set OCR-B. Shapes and dimensions of the printed image (Identical)
ISO 7810-1985	BS 7105 : 1989 Guide to the design, construction and use of identification cards (Identical)
ISO 7811/3-1985	BS 7106 Guide to recording techniques for information on identification cards Part 3 : 1989 Location of embossed characters on ID-1 cards (Identical)

The Technical Committee has reviewed the provisions of ISO 1831-1980, to which reference is made in the text, and has decided that they are acceptable for use in conjunction with this standard. Related British Standards to ISO 1831-1980 are BS 6616 : 1986 'Specification for paper and print for optical character recognition (OCR)' and BS 5477 : 1977 'Method for visual assessment, by grid assay, of dirt in paper for character recognition' (referenced in BS 6616 : 1986).

Related standards. In addition to the standards listed in the cross-references, the following standards are related to this standard or this subject area:

- ISO 4909 Bank cards—Magnetic stripe data content for Track 3
- ISO 7580 Identification cards—Card originated messages—Content for financial transactions
- ISO 7812 Identification cards—Numbering system and registration procedure for issuer identifiers
- ISO 7813 Identification cards—Financial transaction cards
- ISO 7816 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 exchange protocols
 - Part 4* Commands
- ISO 8484 Magnetic stripes on savings books
- ISO 8583 Bank card originated messages—Interchange message specifications—Content for financial transactions.

NOTE 3. It is not intended in the UK to implement ISO 7580 as an identical British Standard and ISO 8583 should be used instead. ISO 8583 will be implemented as an identical British Standard when the current proposals for amendment result in publication of a revision.

Information on the availability of interim ISO documents, as well as up-to-date information on existing and projected British Standards publications in the general area of Information Technology, is included in the 'BASIC LIST' and regular Newsletter published as part of the BSI Information Technology Services (BITS) initiative.

For details, contact: Marketing Department, BSI, Linford Wood, Milton Keynes MK14 6LE.

Compliance with a British Standard does not of itself confer immunity from legal obligations.

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Key words: Identification cards, data recording, drop forging, character sets, dimensions, coordinates, information interchange

English version

Identification cards. Recording technique. Part 1: Embossing (ISO 7811-1, 1st edition, 1985)

Cartes d'identification. Technique d'enregistrement.
Partie 1: Estampage (ISO 7811-1, 1ère édition, 1985)

Kennkarten. Aufzeichnungstechnik.
Teil 1: Prägung (ISO 7811-1, 1. Ausgabe, 1985)

This European Standard was accepted by CEN on 21 December 1988 and is identical to the ISO standard as referred to. CEN members are bound to comply with the requirements of the CEN/CENELEC Common Rules which stipulate the conditions for giving this European Standard the status of a national standard without any alteration.

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

This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CEN member into its own language and notified to CEN Central Secretariat has the same status as the official versions.

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CEN

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Brief history

The Technical Board has decided to submit the International Standard ISO 7811-1, 1st edition 1985 'Identification cards; Recording technique; Part 1 : Embossing' to the formal vote. The result of this vote was positive.

For the time being, this document exists only in the English and the French versions.

According to the CEN/CENELEC Common Rules, the following countries are bound to implement this standard: Austria, Belgium, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and United Kingdom.

Statement

The text of the International Standard ISO 7811-1, 1st edition, 1985, was approved by CEN as a European Standard without any modification.

Identification cards — Recording technique — Part 1: Embossing

0 Introduction

This International Standard is one of a series of standards describing the parameters for identification cards as defined in clause 3 below and the use of such cards for international interchange.

1 Scope and field of application

This part of ISO 7811 specifies requirements for embossed characters on identification cards. The embossed characters are intended for transfer of data either by use of imprinters or by visual or machine reading.

2 References

ISO 1073, *Alphanumeric character sets for optical recognition* —

Part 1: Character set OCR-A — Shapes and dimensions of the printed image.

Part 2: Character set OCR-B — Shapes and dimensions of the printed image.

ISO 1831, *Printing specifications for optical character recognition*.

ISO 7810, *Identification cards — Physical characteristics*.

ISO 7811/3, *Identification cards — Recording technique — Part 3: Location of embossed characters on ID-1 cards*.

3 Definitions

For the purpose of this part of ISO 7811 the definition of "identification card" given in ISO 7810 and the following definition apply.

embossing: To raise characters in relief from the front surface of a card.

4 Visually and machine readable characters

4.1 Character set and type font

The numeric characters of one of the following type fonts shall be used for embossed characters intended for visual and/or machine reading, either directly from the card or from card imprints (see annex A):

- ISO 1073/1, OCR-A, Sizes I and IV;
- ISO 1073/2, OCR-B, Sizes I and IV;
- Type font 7B as described in annexes B and C.

NOTE — To ensure system compatibility in the choice of font, the attention of intending users is drawn to the necessity of agreement with their potential interchanging partners.

Print specifications are given in ISO 1831.

4.2 Character spacing

The character spacing shall be as follows:

- a) nominal spacing : 3,63 mm (0.143 in)
- b) minimum spacing between two consecutive characters : 3,48 mm (0.137 in)

4.3 Character height

Maximum height at the printing surface of the embossed characters, encompassing centreline skew and character misalignment shall be

4,32 mm (0.170 in)

4.4 Relief height of embossed characters

Relief height of imprinting character surfaces above the card surface shall be

0,48 $\begin{smallmatrix} 0 \\ -0,05 \end{smallmatrix}$ mm (0.019 $\begin{smallmatrix} 0 \\ -0,002 \end{smallmatrix}$ in)

5 Visually readable characters

(Not intended to be machine readable.)

5.1 Character set and font type

A type font such as the alphanumeric, capital characters in ISO 1073/2, OCR-B, Size I, should be used for embossed characters intended for visual reading either directly from the card or from card imprints.

5.2 Character spacing

The character spacing shall be as follows:

- a) nominal spacing : 2,54 mm (0.100 in)
- b) minimum spacing between two consecutive characters : 2,46 mm (0.097 in)

5.3 Relief height of embossed characters

Relief height of imprinting character surfaces above the card surface shall be

$0,46 \begin{smallmatrix} 0 \\ -0,05 \end{smallmatrix}$ mm ($0.018 \begin{smallmatrix} 0 \\ -0.002 \end{smallmatrix}$ in)

Annex A

Pictorial representation of numeric data

(This annex forms part of the standard.)

0 1 2 3 4 5 6 7 8 9

OCR-A

0 1 2 3 4 5 6 7 8 9

OCR-B

0 1 2 3 4 5 6 7 8 9

Farrington 7 B

Not to scale

Annex B

7 B Print specifications

(This annex forms part of the standard.)

B.1 Character set — 7 B Font

The 7 B font consists of the following characters:

The numerals 0 to 9 inclusive.

B.2 Character dimensions — Printed image

Nominal character height
3,81 mm (0.150 in) (centreline)

Nominal character width
2,03 mm (0.080 in) (centreline)

Nominal stroke width
0,51 mm (0.020 in)

Maximum stroke width
0,76 mm (0.030 in)

Minimum stroke width
0,25 mm (0.010 in)

B.3 Character spacing and alignment

The nominal spacing of the characters as printed is 7 to the inch.

The minimum horizontal separation between adjacent characters is 0,38 mm (0.015 in).

Vertical misalignment between adjacent characters shall not exceed 2,03 mm (0,080 in).

Character skew shall not exceed 3°.

Total line skew shall not exceed the limits of the print zone as defined in ISO 7811/3.

B.4 Printing characteristics

B.4.1 Ink density

For optimum performance, the ink (carbon) density of the printed character shall be such that its reflectance is not more than 20 % of the average reflectance of the document on which the character is printed. At worst, the ink density of the

printed character must be such that its reflectance is not more than 60 % of the average reflectance of the document on which the character is printed.

NOTE — Reflectance is measured with an incident illumination of 45° and a viewing angle of 90° to the surface of the document, and using an aperture of measurement 0,20 mm² (0.000 3 in²) on the document.

Acceptable voids and acceptable extraneous marks as defined in B.4.2 and B.4.3 are exceptions to the ink density requirement.

B.4.2 Voids

A void is any area within the maximum stroke width dimension of a printed character in which the reflectance exceeds 60 % of the average reflectance of the document on which a character is printed.

Voids can be acceptable provided they can be entirely contained within a circle of 0,25 mm (0.010 in) diameter, there is a minimum separation of 0,71 mm (0.28 in) centre to centre between the voids, and provided the resulting minimum effective stroke width dimension is not less than 0,20 mm (0.008 in).

No unacceptable voids can be permitted.

B.4.3 Extraneous marks

An extraneous mark is any mark within either the printing or clear zone, but not within the printed character area, in which the reflectance is less than 60 % of the average reflectance of the document on which the marks occur.

Extraneous marks can be acceptable provided they can be entirely contained within a circle of 0,25 mm (0.010 in) diameter, and provided there is a minimum separation between the marks of 0,71 mm (0.028 in) centre to centre.

No unacceptable extraneous marks can be permitted.

B.4.4 Embossing

Deformation of the document surface as a result of printing shall not exceed 0,13 mm (0.005 in).

