

INTERNATIONAL  
STANDARD

**ISO/IEC**  
**7811-1**

Second edition  
1995-08-15

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**Identification cards — Recording technique —**

**Part 1:**  
Embossing

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*Cartes d'identification — Technique d'enregistrement —*

**Partie 1: Estampage**  
ISO/IEC 7811-1:1995

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INTERNATIONAL

**ISO/IEC**

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Reference number  
ISO/IEC 7811-1:1995(E)

## 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 the member 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 7811-1 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 7811-1:1985), of which it constitutes a technical revision.

ISO/IEC 7811 consists of the following parts, under the general title *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 tracks — Track 2*

Annexes A to C form an integral part of this part of ISO/IEC 7811.

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## Introduction

ISO/IEC 7811 is one of a series of standards describing the parameters for identification cards as defined in clause 4 and the use of such cards for international interchange.

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# Identification cards — Recording technique —

## Part 1: Embossing

### 1 Scope

This part of ISO/IEC 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.

ISO/IEC 10373, specifies the test procedures used to check cards against the parameters specified in this part of ISO/IEC 7811.

This part of ISO/IEC 7811 specifies the requirements for cards used for identification. It takes into consideration both human and machine aspects and states minimum requirements.

NOTE — Numeric values in the SI and/or Imperial measurement system in this part of ISO/IEC 7811 may have been rounded off and therefore are consistent with, but not exactly equal to, each other. Either system may be used, but the two should not be intermixed or reconverted. The original design was made using the Imperial measurement system.

### 2 Conformance

An identification card is in conformance with this part of ISO/IEC 7811 if it meets all mandatory requirements specified herein.

A prerequisite for conformance with this part of ISO/IEC 7811 is conformance with ISO/IEC 7810.

### 3 Normative references

The following standards contain provisions which, through reference in this text, constitute provisions of

this part of ISO/IEC 7811. 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 7811 are encouraged to investigate the possibility of applying the most recent editions of the standards indicated below. Members of IEC and ISO maintain registers of currently valid International Standards.

ISO 1073-1:1976, *Alphanumeric character sets for optical recognition — Part 1: Character set OCR-A — Shapes and dimensions of the printed image.*

ISO 1073-2:1976, *Alphanumeric character sets for optical recognition — Part 2: Character set OCR-B — Shapes and dimensions of the printed image.*

ISO 1831:1980, *Printing specifications for optical character recognition.*

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

ISO/IEC 7811-3:1995, *Identification cards — Recording technique — Part 3: Location of embossed characters on ID-1 cards.*

ISO/IEC 10373:1993, *Identification cards — Test methods.*

### 4 Definitions

For the purposes of this part of ISO/IEC 7811, the definition of "identification card" given in ISO/IEC 7810 and the following definitions apply.

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

**4.2 unused card:** Card which has been embossed with all the characters required for its intended purpose but has not been issued.

**4.3 returned card:** Embossed card after it has been issued to the card holder and returned for the purpose of testing.

## 5 Visually and machine readable characters

### 5.1 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 interchange partners.

Print specifications are given in ISO 1831.

### 5.2 Character spacing

The character spacing shall be:

3,63 mm ± 0,15 mm (0,143 in ± 0,006 in)

### 5.3 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)

### 5.4 Relief height of embossed characters

Relief height of imprinting character surfaces above the card surface as measured from the non-embossed surface of the card to the highest point on the embossed character is shown in table 1 for unused cards and table 2 for used cards.

## 6 Visually readable characters

(Not intended to be machine readable.)

### 6.1 Character set and type font

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 visually reading directly from the card or from card imprints.

### 6.2 Character spacing

The character spacing shall be:

2,54 mm ± 0,15 mm (0,100 in ± 0,006 in)

### 6.3 Relief height of embossed characters

Relief height of imprinting character surfaces above the card surface as measured from the non-embossed surface of the card to the highest point on the embossed character is shown in table 1 for unused cards and table 2 for returned cards.

NOTE — Table 2 shows only the limits within which cards will function normally, and does not imply any guarantee of relief height during the valid term for issued cards.

Table 1 — Relief height of unused embossed cards

Visually and machine readable characters mm (in)	Visually readable characters mm (in)
$0,48 \begin{smallmatrix} 0 \\ -0,08 \end{smallmatrix} (0,019 \begin{smallmatrix} 0 \\ -0,003 \end{smallmatrix})$	$0,46 \begin{smallmatrix} 0 \\ -0,1 \end{smallmatrix} (0,018 \begin{smallmatrix} 0 \\ -0,004 \end{smallmatrix})$

Table 2 — Relief height of returned embossed cards

Visually and machine readable characters mm (in)	Visually readable characters mm (in)
$0,48 \begin{smallmatrix} 0 \\ -0,18 \end{smallmatrix} (0,019 \begin{smallmatrix} 0 \\ -0,007 \end{smallmatrix})$	$0,46 \begin{smallmatrix} 0 \\ -0,2 \end{smallmatrix} (0,018 \begin{smallmatrix} 0 \\ -0,008 \end{smallmatrix})$

**Annex A**  
(normative)

**Pictorial representation of numeric data**

0 1 2 3 4 5 6 7 8 9

OCR-A

0 1 2 3 4 5 6 7 8 9

OCR-B

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0 1 2 3 4 5 6 7 8 9

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Farrington 7 B

Not to scale

## Annex B (normative)

### 7 B Print specifications

#### 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 (0,15 in) (centreline)

Nominal character width

2,03 mm (0,08 in) (centreline)

Nominal stroke width

0,51 mm (0,02 in)

Maximum stroke width

0,76 mm (0,03 in)

Minimum stroke width

0,25 mm (0,01 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 mm<sup>2</sup> (0,000 3 in<sup>2</sup>) 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 (0,01 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).

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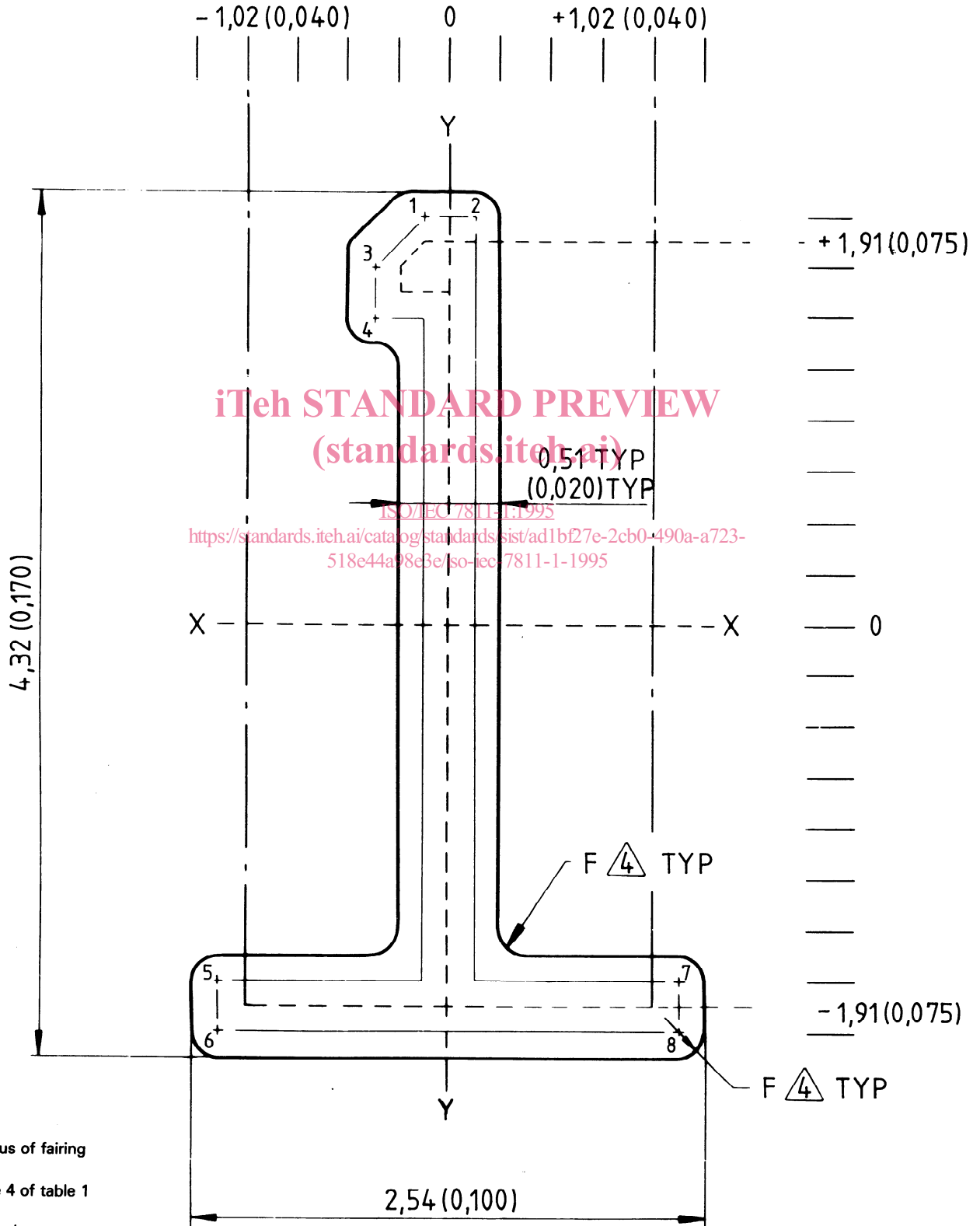
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**Annex C**  
(normative)

**Printed image of the 7 B font**

Dimensions in millimetres  
(Inches in parentheses)



Key:

F : Radius of fairing

$\triangle 4$  : Note 4 of table 1

TYP : Typical

## Numeral 1

Co-ordinates table 1

No.	X value from Y – Y		Y value from X – X	
	millimetres	inches	millimetres	inches
1	– 0,13	– 0.005	+ 2,03	+ 0.080
2	+ 0,13	+ 0.005	+ 2,03	+ 0.080
3	– 0,38	– 0.015	+ 1,78	+ 0.070
4	– 0,38	– 0.015	+ 1,52	+ 0.060
5	– 1,14	– 0.045	– 1,78	– 0.070
6	– 1,14	– 0.045	– 2,03	– 0.080
7	+ 1,14	+ 0.045	– 1,78	– 0.070
8	+ 1,14	+ 0.045	– 2,03	– 0.080

## NOTES

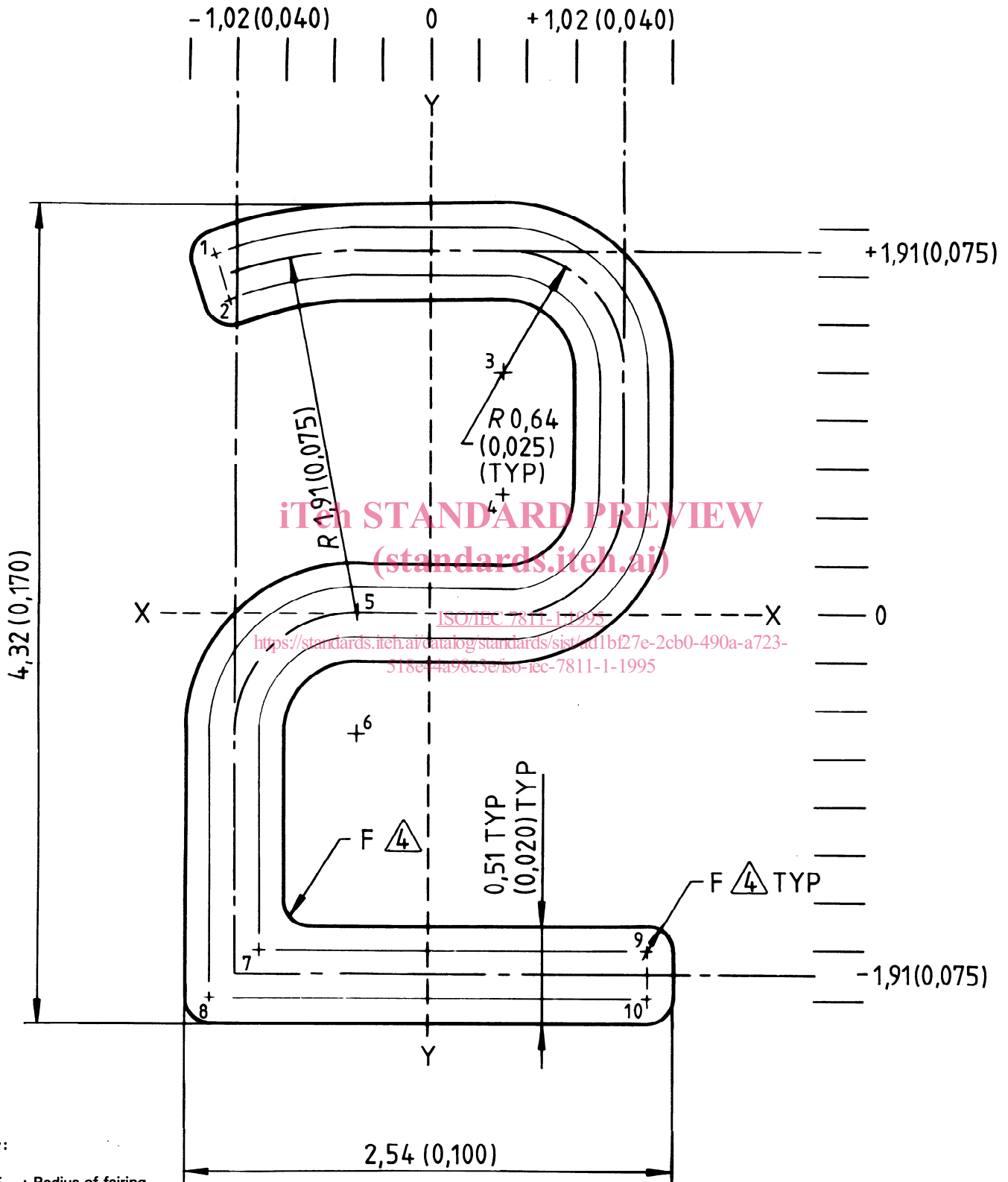
- 1 Closest nominal spacing 7 characters per 25,4 mm (1 in). Wider spacing is permissible.
- 2 Character shown as printed on document and not necessarily as engraved or embossed.
- 3 Tolerances: all character centreline dimensions are  $\pm 0,08$  mm ( $\pm 0.003$  in).
- 4 Radius of fairing (F) on stroke edges is 0,13 mm (0.005 in) nominal  $\pm 0,13$  mm ( $\pm 0.005$  in).

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Dimensions in millimetres  
(Inches in parentheses)



Key:

F : Radius of fairing

 : Note 4 of table 2

TYP : Typical