

Optical character recognition —

Part 3: Method of coding machine readable characters (MICR and OCR) for information processing

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Committees responsible for this British Standard

The preparation of this British Standard was entrusted by the Office and Information Standards Committee (OIS/-) to Technical Committee OIS/2 upon which the following bodies were represented:

- British Federation of Printing Machinery and Supplies Ltd.
- British Radio and Electronic Equipment Manufacturers' Association
- British Telecom
- Business Equipment Trade Association
- Computing Services Association
- Independent Broadcasting Authority
- Institution of Electrical Engineers
- National Computing Centre Ltd.
- Pira (The Research Association for the Paper and Board, Printing and Packaging Industries)
- Coopted experts

This British Standard, having been prepared under the direction of the Office and Information Standards Committee, was published under the authority of the Board of BSI and comes into effect on 30 December 1983

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Contents

	Page
Committees responsible	Inside front cover
National foreword	ii
1 Scope	1
2 Field of application	1
3 References	1
4 Coding	1
5 General considerations	7
6 Font CMC 7	7
7 Font OCR-A	7
8 Font OCR-B	8
9 Font E 13 B	10
Annex Main differences between ISO 2033:1972 and the present edition	11
Table 1 — 8-bit coding of the characters of all fonts	2
Table 2 — 7-bit coding of the characters of the CMC 7 font	3
Table 3 — 7-bit coding of the characters of the OCR-A font	4
Table 4 — 7-bit coding of the characters of the OCR-B font	5
Table 5 — 7-bit coding of the characters of the E 13 B font	6
Table 6 — Characters of the CMC 7 font and their assignment to positions in the code tables	7
Table 7 — Characters of the OCR-A font and their assignment to positions in the code tables	7
Table 8 — Characters of the OCR-B font and their assignment to positions in the code tables	8
Table 9 — Characters of the E 13 B font and their assignment to positions in the code tables	10
Publications referred to	Inside back cover

National foreword

This British Standard has been prepared under the direction of the Office and Information Standards Committee and is identical with ISO 2033:1983 “*Information processing — Coding of machine readable characters (MICR and OCR)*” published by the International Organization for Standardization (ISO). This British Standard supersedes BS 5464-3, first published as BS 4869-2 in 1972 and amended in 1977, which is withdrawn.

Terminology and conventions. The text of the International Standard has been approved as suitable for publication as a British Standard without deviation. Some terminology and certain conventions are not identical with those used in British Standards; attention is drawn especially to the following. Wherever the words “International Standard” appear, referring to this standard, they should be read as “British Standard”.

The forms of expression used throughout this standard are not consistent with those normally used for British Standards. In particular, wherever the auxiliary verb “will” is used (for example, in 5.2: “. . . will be coded”) this should be read as the auxiliary verb “shall” (for example: “shall be coded”) denoting a requirement.

Cross-references

International Standard	Corresponding British Standard
ISO 1004:1977	BS 4810:1980 <i>Specification for print for magnetic ink character recognition</i> (Identical) BS 5464 <i>Specification for optical character recognition</i>
ISO 1073-I:1976	Part 1:1977 <i>Character set OCR-A. Shapes and dimensions of the printed image</i> (Identical)
ISO 1073-II:1976	Part 2:1977 <i>Character set OCR-B. Shapes and dimensions of the printed image</i> (Identical)

The Technical Committee has reviewed the provisions of ISO 646:1983 and ISO 2022:1982, to which reference is made in the text, and has decided that they are acceptable for use in conjunction with this standard.

Additional information. A revision of BS 4730 is in course of preparation to implement ISO 646:1983 for use in the UK. The first edition of ISO 2022, published in 1973, is technically equivalent to BS 4953. It has been decided to withdraw BS 4953, pending further revision of ISO 2022:1982, and it is intended to publish a new British Standard when the next edition of ISO 2022 has been finalized.

A British Standard does not purport to include all the necessary provisions of a contract. Users of British Standards are responsible for their correct application.

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

Summary of pages

This document comprises a front cover, an inside front cover, pages i and ii, pages 1 to 12, an inside back cover and a back cover. This standard has been updated (see copyright date) and may have had amendments incorporated. This will be indicated in the amendment table on the inside front cover.

1 Scope

This International Standard defines the coded representation of printed characters recognized by reading equipment. It includes the fonts:

E 13 B	as covered in ISO 1004
CMC 7	as covered in ISO 1004
OCR-A	as covered in ISO 1073-1
OCR-B	as covered in ISO 1073-2

2 Field of application

This International Standard assigns bit-patterns to characters recognized by reading equipment. This coded information generated by the reading equipment is given to the recipient by different media, such as magnetic tape, by data transmission or a direct link. This coded representation can also be used by printing devices to print the information which shall later be read. It is not intended for general information interchange.

Two different applications are considered:

— Single-font reader:

The reading equipment is only capable of recognizing one font at a time.

— Multiple-font reader:

The reading equipment is capable of recognizing multiple fonts at the same time.

3 References

ISO 646, *Information processing — 7-bit coded character set for information interchange*.

ISO 1004, *Information processing — Magnetic ink character recognition — Print specifications*.

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 2022, *Information processing — ISO 7-bit and 8-bit coded character sets — Code extension techniques*.

4 Coding

The coding given in this International Standard is based on the 7-bit code described in ISO 646 and on its extension to 8 bits according to ISO 2022.

The empty positions in code Table 1 to Table 5 are reserved for future standardization.

This International Standard does not define the character set to be read by the reading equipment.

Two codings are shown. The 8-bit coding is primarily intended for use with multi-font readers in the case where the 7-bit coding is not sufficient to represent the needed characters.

Independent of the coding shown in this International Standard, the code extension techniques given in ISO 2022 are applicable, i.e. the 7-bit coding shown in this International Standard may be transformed into 8-bit coding and the 8-bit coding shown in this International Standard may be transformed into 7-bit coding according to the rules of ISO 2022. Furthermore, the characters of columns 10 to 15 can equally be designated as a G1, G2 or G3 set.

References to positions of Table 1 to Table 5 in Table 6 to Table 9 are given by the notation “column number/row number”. The column numbers for 7-bit coding consist of one digit and those for 8-bit coding consist of two digits. The notations b_1 to b_8 refer to the 7 bits or 8 bits of the coding whereby, b_1 is the low order bit.

Example

Capital letter F is shown in position 4/6 of the 7 bit table and 04/6 of the 8-bit table. This corresponds to bit pattern 1000110 and 01000110 respectively.

4.1 7-bit coding

The 7-bit coding can be used whenever the number of characters shown is sufficient for the application. This coding can also be used within an 8-bit environment by adding an eighth bit with the value 0, as defined in ISO 2022.

4.2 8-bit coding

The 8-bit coding can be used whenever the number of characters in a 7-bit table is insufficient for the application. The 8-bit coding can also be used within a 7-bit environment as defined in ISO 2022.

Table 1 — 8-bit coding of the characters of all fonts

				b ₇	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	
				b ₆	0	0	0	0	1	1	1	1	0	0	0	1	1	1	1	
				b ₅	0	0	1	1	0	0	1	1	0	0	1	1	0	0	1	1
				b ₄	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1
					00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15
b ₃	b ₂	b ₁	b ₀				SP	0	@	P		p							Ŕ	ŕ
0	0	0	0	0			!	1	A	Q	a	q							Æ	æ
0	0	1	0	2			"	2	B	R	b	r							Ä	ä
0	0	1	1	3			#	3	C	S	c	s			£					
0	1	0	0	4			¤	4	D	T	d	t			\$					
0	1	0	1	5			%	5	E	U	e	u			¥					
0	1	1	0	6			&	6	F	V	f	v							IJ	ij
0	1	1	1	7			'	7	G	W	g	w			§					
1	0	0	0	8			(	8	H	X	h	x							Ñ	
1	0	0	1	9			)	9	I	Y	i	y							Ø	ø
1	0	1	0	10	LF	SUB	*	:	J	Z	j	z						I	ö	ö
1	0	1	1	11			+	;	K	[	k	{								ß
1	1	0	0	12			,	<	L	\	l					¶				
1	1	0	1	13	CR		-	=	M	]	m	}				¥			Ü	ü
1	1	1	0	14			.	>	N	^	n					¶				
1	1	1	1	15			/	?	O	_	o	DEL								

NOTE The empty positions are reserved for future standardization.