INTERNATIONAL STANDARD 962

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Information processing — Implementation of the 7-bit coded character set and its 7-bit and 8-bit extensions on 9-track 12,7 mm (0.5 in) magnetic tape

Traitement de l'information — Matérialisation du jeu de caractères codés à 7 éléments et de ses extensions à 7 et 8 éléments sur bande magnétique à 9 pistes de 12,7 mm (0,5 in) de large

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FOREWORD

ISO (the International Organization for Standardization) is a worldwide federation of national standards institutes (ISO Member Bodies). The work of developing International Standards is carried out through ISO Technical Committees. Every Member Body interested in a subject for which a Technical Committee has been set up 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.

International Standard ISO 962 was drawn up by Technical Committee ISO/TC 97, *Computers and information processing,* and circulated to the Member Bodies in September 1973.

It has been approved by the Member Bodies of the following countries:

Australia	Ireland	Spain
Belgium	Italy	Sweden
Brazil	Japan	Switzerland
Bulgaria	Mexico	Thailand
Canada	Netherlands	Turkey
Czechoslovakia	New Zealand	United Kingdom
Denmark	Poland	U.S.A.
France	Portugal	U.S.S.R.
Germany	Romania	Yugoslavia
Hungary	South Africa, Rep. of	

No Member Body expressed disapproval of the document.

This International Standard cancels and replaces ISO Recommendation R 962-1969, of which it constitutes a technical revision.

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Information processing – Implementation of the 7-bit coded character set and its 7-bit and 8-bit extensions on 9-track 12,7 mm (0.5 in) magnetic tape

1 SCOPE AND FIELD OF APPLICATION

This International Standard specifies the implementation of the 7-bit coded character set and its 7-bit and 8-bit extensions on 9-track 12,7 mm (0.5 in) magnetic tape.

2 REFERENCES

2.1 This International Standard refers to the 7-bit coded character set which is the subject of ISO 646, *7-bit coded character set for information processing interchange*, and ISO 2022, *Code extension techniques for use with the ISO 7-bit coded character set.*

2.2 The magnetic tape on which this character set is implemented is specified in the following ISO publications :

ISO/R 1862, *9-track 8 rpmm (200 rpi) magnetic tape for information interchange;*

ISO/R 1863, *9-track 32 rpmm (800 rpi) magnetic tape for information interchange;*

ISO . . ., *9-track 63 rpmm (1 600 rpi) phase-encoded magnetic tape for information interchange.*[1]

2.3 The magnetic labelling is the subject of ISO/R 1001, *Magnetic tape labelling and file structure for information interchange.*

3 DEFINITIONS

(The figure on page 3 illustrates the following definitions.)

3.1 magnetic tape : A tape which will accept and retain magnetic signals intended for input, output and storage purposes on computers and associated equipment.[2]

3.2 track : A longitudinal area on the tape along which a series of magnetic signals may be recorded.[2]

3.3 reference edge : The edge farthest from an observer, or nearest the top of a page, when a tape is lying flat with the oxide side uppermost and the direction of movement for recording from left to right.[2] (See figure.)

3.4 row : A transverse area on the tape along which magnetic signals of tracks are recorded.

3.5 block : A series of rows, limited by suitable marks, to be recorded and read as a group.

3.6 gap : A space left unused between blocks.

3.7 8 position environment : A set of eight positions, each available to record one bit.

4 SPECIFICATIONS

4.1 Track identification

There shall be 9 tracks on the tape and they shall be numbered consecutively from 1 to 9, with track 1 adjacent to the reference edge (see figure).

4.2 Data content

Each row contains one character only, with its parity check bit.

1) At present at the stage of draft proposal.

2) Definitions in accordance with ISO/R 1864, *Unrecorded magnetic tape for information interchange – 8 and 32 rpmm (200 and 800 rpi), NRZI, and 63 rpmm (1 600 rpi), phase-encoded.*

4.3 Constitution of data blocks[1)]

All blocks for data interchange shall consist of not less than 18 data rows and not more than 2 048 data rows and, in addition, those checking characters and block framing characters as required by the relevant International Standard for recorded magnetic tape.

4.4 Error protection[1)]

4.4.1 *Parity of data rows*

The parity track shall be track 4 and the bit recorded on that track will be chosen so that the number of ONE bits recorded on the same row is odd.

4.4.2 *Longitudinal check row*

This row is written at the end of a block and its content is such that the number of ONE bits recorded on the same track is even for the whole block with this longitudinal check row.

4.4.3 *Cyclic redundancy checking*[1)]

4.5 Control blocks (Tape Mark)[1)]

For the purpose of separating data, a control block, known as the Tape Mark, shall be allowed. The exact use of the Tape Mark is described in ISO/R 1001. The Tape Mark configuration is defined in the relevant ISO publications[1)]. For certain recording modes, this block shall be accompanied by a longitudinal check row.

4.6 Representation of coded characters

4.6.1 *Sequence of coded characters*

Considering the recorded data as being in character form, the sequence of characters from the start towards the finish of a block shall correspond to the normal left-to-right sequence of a written line.

4.6.2 *Arrangement of 7-bit coded characters*

The relationship of the 7 bits to the 8 positions of the environment is as follows :

Bits of the 7-bit combination :	[0]	b_7	b_6	b_5	b_4	b_3	b_2	b_1
Position number of the environment :	8	7	6	5	4	3	2	1

[0] is a high order bit with value ZERO

4.6.3 *Arrangement of 8-bit coded characters*

The relationship of the 8 bits to the 8 positions of the environment is as follows :

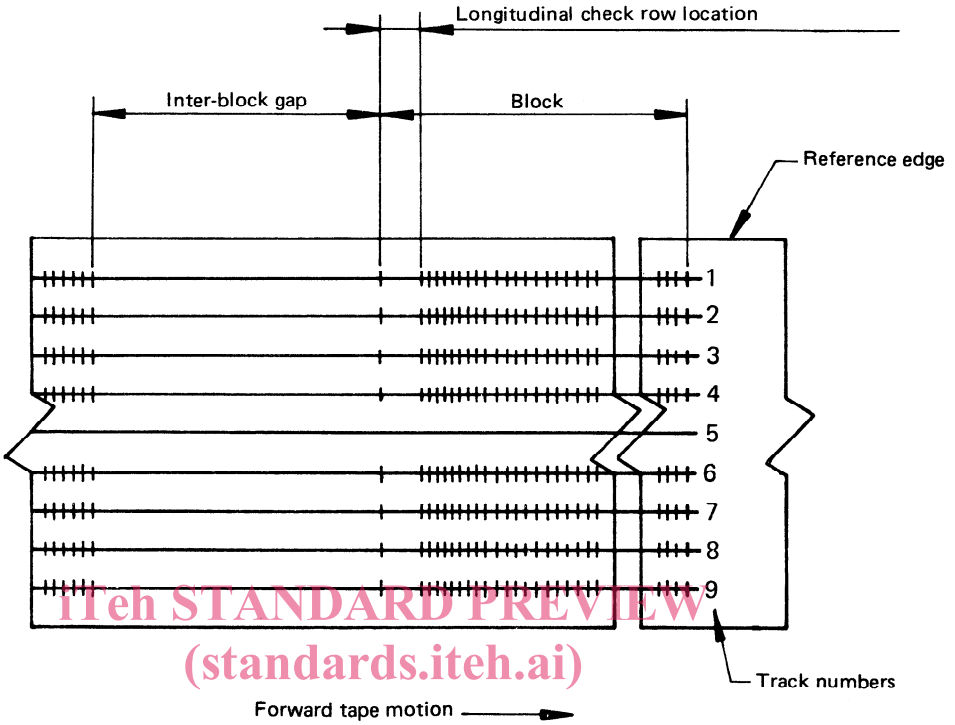
Bits of the 8-bit combination :	a_8	a_7	a_6	a_5	a_4	a_3	a_2	a_1
Position number of the environment :	8	7	6	5	4	3	2	1

4.6.4 *Environment relationship to tracks*

The relationship of the 8 positions of the environment and of the parity bit to the 9 tracks of the tape is as follows :

Parity (P) and position number of the environment :	P	8	7	6	5	4	3	2	1
Track number :	4	7	6	5	3	9	1	8	2

1) Block framing, error protection techniques and constitution of control blocks vary according to the recording mode and the packing density. See the documents referred to in 2.2.



NOTES

1 Tape is shown with oxide side towards observer.

2 Tape is shown representing bit ONE in all tracks.

FIGURE — **9-track magnetic tape**

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