
INTERNATIONAL STANDARD



1863

INTERNATIONAL ORGANIZATION FOR STANDARDIZATION · МЕЖДУНАРОДНАЯ ОРГАНИЗАЦИЯ ПО СТАНДАРТИЗАЦИИ · ORGANISATION INTERNATIONALE DE NORMALISATION

Information processing — 9-track, 12,7 mm (0.5 in) wide magnetic tape for information interchange recorded at 32 rpmm (800 rpi)

Traitement de l'information — Bande magnétique à 9 pistes, de 12,7 mm (0,5 in) de large, pour l'échange d'information, enregistrée à 32 rangées par millimètre (800 rpi)

First edition — 1976-05-01

UDC 681.327.64

Ref. No. ISO 1863-1976 (E)

Descriptors : data processing, data recording, data layout, magnetic tapes, half-inch magnetic tape, 9-tracks, recording characteristics.

Price based on 8 pages

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 1863 was drawn up by Technical Committee ISO/TC 97, *Computers and information processing*, and circulated to the Member Bodies in February 1975.

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

Australia	Japan	Switzerland
Canada	Mexico	Turkey
Czechoslovakia	Netherlands	United Kingdom
France	New Zealand	U.S.A.
Germany	Poland	Yugoslavia
Hungary	Romania	
Italy	South Africa, Rep. of	

The Member Body of the following country expressed disapproval of the document on technical grounds :

Belgium

This International Standard cancels and replaces ISO Recommendation R 1863-1971, of which it constitutes a technical revision.

This International Standard presents the standard technique for recording the ISO 7-bit coded character set for information processing interchange on 9-track magnetic tape at 32 rows per millimetre (rpmm) [800 rows per inch (rpi)] using the "non-return to zero mark" (NRZI) recording technique. It is one of a series of International Standards concerning implementation of 6- and 7-bit codes in media.

In the development of this International Standard, careful consideration was given to current practices, existing equipment and supplies, and the broadest possible acceptance while providing a basis for future improvement in the use of the medium.

In previous standards for the interchange of data on magnetic tape, the problems encountered due to packing density of 8 rows per millimetre (rpmm) [200 rows per inch (rpi)] have not created any serious difficulty with respect to the definitions or the quantitative values assigned to the various parameters.

Some of the difficulties and technical shortcomings which had to be faced in the preparation of this International Standard are listed below :

- a) the positioning of the data on the tape is very dependent on the particular guidance geometry of the tape transport;
- b) the coating thickness of the tape has an appreciable effect on the position of bits due to the pulse crowding factor on the tape as specified;
- c) the characteristics of the head and in particular the crosstalk factor;
- d) the initial transient conditions as the tape is started from rest;
- e) the problem of defining and utilizing the reference edge;
- f) speed variations at the time of writing and reading which could also include different nominal speeds;
- g) timing constraints due to coding and pattern sensitivity.

It is important to recognize, in the light of these difficulties, that the write-check by the control device is the most practical method of measuring the quality of the written tape. This International Standard therefore includes certain definitions and quantitative values which represent the most meaningful checks that can be provided at the present time.

When magnetic tape is read by the recipient, certain additional factors of tape dynamics will have to be considered.

This document is a preview generated by EVS

Information processing — 9-track, 12,7 mm (0.5 in) wide magnetic tape for information interchange recorded at 32 rpm (800 rpi)

1 SCOPE AND FIELD OF APPLICATION

This International Standard provides a format and recording standard for 9-track, 12,7 mm (0.5 in) wide magnetic tape and reels to be used for information interchange among information processing systems, communication systems, and associated equipment utilizing the 7-bit coded character set specified in ISO 646 or its 7-bit or 8-bit extensions specified in ISO 2022.

NOTES

1 Certain other aspects of coding requirements, such as significance of binary digits, sequence of characters, filling of unused positions and magnetic labelling for use on magnetic tape, are the subject of ISO 962 and ISO 1001.

2 Details of unrecorded tape and reels are specified in the complementary publication, ISO 1864.

2 REFERENCES

ISO 962, *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.*

ISO 1001, *Information processing — Magnetic tape labelling and file structure for information interchange.*¹⁾

ISO 1864, *Information processing — Unrecorded 12,7 mm (0.5 in) wide magnetic tape for information interchange — 8 and 32 rpm (200 and 800 rpi), NRZI, and 63 rpm (1 600 rpi), phase-encoded.*

3 DEFINITIONS

NOTE — The material contained in clauses 3 and 4 and in 17.3 of this International Standard is duplicated from ISO 1864 for unrecorded magnetic tape. The latter document shall be considered to be correct, that is, the primary document, so far as any differences between the comparable clauses of the two documents are concerned.

For the purpose of this International Standard, the following definitions apply :

3.1 magnetic tape : Tape which will accept and retain the magnetic signals intended for input, output and storage purposes on computers and associated equipment.

3.2 reference tape : A tape which has been selected for given properties for use in calibration.

3.3 secondary reference tape : A tape intended for routine calibrating purposes, whose performance is known and stated in relation to that of a reference tape.

3.4 signal amplitude reference tape : A reference tape selected as a standard for signal amplitude.

NOTE — A master standard (computer amplitude reference) has been established at the U.S. National Bureau of Standards (NBS), based on reference tapes and heads. Secondary signal amplitude reference tapes are available from NBS under the part number SRM 3200.

3.5 reference field : For any specified packing density, the minimum field applied to a signal amplitude reference tape which causes an output signal equal to 95 % of the maximum output.

3.6 reference edge : The edge further from an observer, when a tape is lying flat with the magnetic surface uppermost and the direction of movement for recording from left to right. (See figures 1, 2 and 3.)

3.7 in contact : An operating condition in which the magnetic surface of a tape is in contact with a magnetic head.

3.8 track : A longitudinal area on the tape along which a series of magnetic signals may be recorded.

3.9 packing density : The number of bits of recorded information per unit length of track.

3.10 inter-block gap : A DC-erased section of tape separating blocks of information.

1) At present at the stage of draft. (Revision of ISO/R 1001-1969.)