Australian Standard®

INFORMATION PROCESSING

9-TRACK, 12.7 mm WIDE MAGNETIC TAPE FOR INFORMATION INTERCHANGE RECORDED AT 32 RPmm

This Australian standard was prepared by Committee MS/20, Information Processing Systems. It was approved on behalf of the Council of the Standards Association of Australia on 29 March 1983 and published on 9 May 1983.

The following interests are represented on Committee MS/20:

Australian Banks Payment Systems Committee
Australian Bureau of Statistics
Australian Computer Equipment Suppliers Association
Australian Computer Services Association
Australian Computer Users Association
Australian Electrical and Electronic Manufacturers Association
Australian Public Service Board
CSIRO, Division of Computing Research
Department of Defence
Life Insurance Federation of Australia
National Library of Australia
Office Equipment Industry Association of Australia
Public Service Board, N.S.W.
Qantas Airways Limited
Telecom Australia
Universities and Colleges

Australian Standard®

INFORMATION PROCESSING

9-TRACK, 12.7 mm WIDE MAGNETIC TAPE FOR INFORMATION INTERCHANGE RECORDED AT 32 RPmm

First published 1972
Second edition 1983

PUBLISHED BY STANDARDS AUSTRALIA
(STANDARDS ASSOCIATION OF AUSTRALIA)
1 THE CRESCENT, HOMEBUSH, NSW 2140

ISBN 0 7262 2977 6

PREFACE

This edition of this standard was prepared by the Association's Committee on Information Processing Systems, to supersede AS 1009—1972. It is identical with and has been reproduced from International Standard ISO 1863—1976, drawn up by ISO/TC 97, Information Processing Systems.

This edition is technically identical with the 1972 edition except that it incorporates Amendment No 1 to that edition which was issued in November 1976.

The purpose of this standard is to specify a 9-track, 32 rows per millimetres (rpmm) 12.7 mm wide magnetic tape for interchangeability of tape between information processing systems which utilize the 7-bit coded character set specified in AS 1776, or its 7-bit and 8-bit extensions specified in AS 1953.

For the purpose of this Australian standard, the text of the ISO standard given herein should be modified as follows:

(a) *Terminology:* The words'Australian standard' should replace the words 'International Standard' wherever they appear.

(b) *Decimal comma:* The decimal point should replace the decimal comma wherever it appears.

(c) *Cross-references:* The references to International Standards should be replaced by references to Australian Standards as follows:

Reference to International Standard	*Appropriate Australian Standard*
ISO 646, 7-bit coded character set for information processing interchange	AS 1776, Information processing—7-bit coded character set for information interchange
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	AS 2356.1, 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, Infomation processing—Magnetic tape labelling and file structure for information interchange	AS 1068, Information processing—Magnetic tape labelling and file structure for information interchange
ISO 2022, Information processing—ISO 7-bit coded character set—Code extension techniques	AS 1953, Code extension techniques for use with the standard 7-bit coded character set

CONTENTS

FOREWORD

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.

STANDARDS ASSOCIATION OF AUSTRALIA

Australian Standard

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

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