INTERNATIONAL STANDARD

ISO/IEC 11559

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Information technology — Data interchange on 12,7 mm wide 18-track magnetic tape cartridges — Extended format

Technologies de l'information — Échange de données sur cartouche de bande magnétique de 12,7 mm *de large à 18 pistes — Format étendu*

Reference number
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Contents **Page**

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 national 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 11559 was prepared by European Computer Manufacturers Associations (as ECMA-152) and was adopted, under a special "fast-track procedure", by Joint Technical Committee ISO/IEC JTC 1, *Information technology*, in parallel with its approval by national bodies of ISO and IEC.

Annexes C, E, F, G and K form an integral part of this International Standard. Annexes A, B, D, H and J are for information only.

Introduction

ISO/IEC 11559 incorporates all the specifications of ISO 9661, together with extensions and modifications which specify the additional features of an extended format that also allows higher capacities to be achieved. The specifications of the tape, cartridge, recorded signal, recording method and most of the recorded format are identical with those in ISO 9661.

It is not intended that this International Standard replaces ISO 9661. Existing drives and cartridges which conform to ISO 9661 will continue to do so and will not conform to all requirements of this International Standard . Drives conforming to this International Standard will be able to write on, and read from, cartridges conforming to ISO 9661.

Information technology — Data interchange on 12,7 mm wide 18-track magnetic tape cartridges — Extended format

Section 1 - General

1 Scope

This International Standard specifies the physical and magnetic characteristics of a 12,7 mm wide, 18-track magnetic tape cartridge, to enable interchangeability of such cartridges. It also specifies the quality of the recorded signals, the format and the recording method, thus allowing, together with ISO 1001, full data interchange by means of such magnetic tape cartridges.

The cartridge and recording method are identical with those described in ISO 9661. This International Standard specifies extensions to the transformation of data before it is formatted as in ISO 9661.

These extensions

- specify a method for increasing the utilization of the tape by combining smaller blocks of data into extended blocks;
- specify a method for identifying whether the recorded data has been processed and, if it has been processed, the algorithm used for processing;
- specify a method for including recorded data blocks conforming to this International Standard and recorded data blocks conforming to ISO 9661 on the same tape.

The permissible routes for the flow of data are shown in annex H.

2 Conformance

2.1 Magnetic tape cartridge

A magnetic tape cartridge shall be in conformance with this International Standard if

- the cartridge meets all the requirements of clauses 4 and 6 to 8;
- the recording on the tape meets the requirements of clauses 9 to 13;
- for each recorded packet the algorithm used for processing the data therein, if processed data has been recorded, has (have) been registered and the registered identification is included in Byte 13 of the Packet ID Block of this packet (see 11.2).
- Note 1 - If the algorithm has not been registered Byte 13 shall be set to (FF).

2.2 Generating system

A system generating a magnetic tape cartridge for interchange shall be entitled to claim conformance with this International Standard if all the recordings that it makes on a tape meet the mandatory requirements of this International Standard. A claim of conformance shall state whether or not one, or more, registered algorithms are implemented and, if so, the registered number(s) of all implemented algorithm(s).

2.3 Receiving system

A system receiving a magnetic tape cartridge for interchange shall be entitled to claim conformance with this International Standard if it is able to handle any recording made on the tape according to this International Standard. In particular it shall

- be able to recognize the occurrence of extended blocks and to identify and retrieve data from individual packets within the extended blocks;
- be able to recognize that the data has been processed, to identify the algorithm(s) used, and to indicate to the host if it cannot restore the data to its original form;

– be capable of restoring to its original form data which has been processed according to zero or more registered algorithms.

A claim of conformance shall state whether or not one, or more, registered algorithm(s) is (are) implemented and, if so, the registered number(s) of all implemented algorithms.

3 Normative references

The following standards contain provisions which, through reference in this text, constitute provisions of this International Standard. At the time of publication, the editions indicated were valid. All standards are subject to revision, and parties to agreements based on this International Standard are encouraged to investigate the possibility of applying the most recent edition of the standards listed below. Members of IEC and ISO maintain registers of currently valid International Standards.

ISO 683-13:1986, *Heat-treatable steels, alloy steels and free-cutting steels - Part 13: Wrought stainless steels.*

ISO 1001:1986, *Information processing - File structure and labelling of magnetic tapes for information interchange.*

ISO 1302:1992, *Technical drawings - Method of indicating surface texture on drawings.*

ISO 9661:1986, *Information processing - Data interchange on 12,7 mm (0.5 in) wide magnetic tape cartridges - 18-tracks, 1 491 data bytes per millimetre (37 871 data bytes per inch).*

ISO/IEC 11576:1993, *Information technology - Procedure for the registration of algorithms for the lossless compression of data.*

4 Definitions

For the purposes of this International Standard, the following definitions apply.

4.1 **algorithm:** A set of rules for transforming the logical representation of data.

4.2 **Average Signal Amplitude:** The average peak-to-peak value of the signal output of the read head measured over a minimum length of track of 25,4 mm exclusive of missing pulses.

4.3 **back surface:** The surface of the tape opposite the magnetic coating used to record data.

4.4 **Beginning of Tape (BOT):** The point along the length of the magnetic tape indicated by the start of the Density Identification Burst.

4.5 **byte:** An ordered set of eight bits acted upon as a unit.

4.6 **cartridge:** A container holding a supply reel of magnetic tape with an attached leader block.

4.7 **Cyclic Redundancy Check Character:** A character represented by two bytes, placed at the end of a byte string and used for error detection.

4.8 **Data Block:** The data entity resulting from concatenating one or more Packets, and appending control information.

4.9 **Data Records**

4.9.1 **Processed Data Record (PDR):** The data entity resulting from the application of an algorithm to a Logical Data Record.

4.9.2 **Host Data Record:** The data entity originally compiled by the host.