INTERNATIONAL STANDARD

ISO/IEC 13923

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Information technology — 3,81 mm wide magnetic tape cartridge for information interchange — Helical scan recording — DDS-2 format using 120 m length tape

Technologies de l'information — Cartouche de bande magnétique de 3,81 mm *de large pour l'échange d'information — Enregistrement par balayage en spirale — Format DDS-2 utilisant une bande de* 120 m *de long*

Reference number
ISO/IEC 13923:1996(E)

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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 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.

This International Standard was prepared by JISC (as Standard JIS X.6129-1993) with document support and contribution from ECMA 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 A, D, E, F, G, H and K form an integral part of this International Standard. Annexes B, C, J, L and M are for information only.

Introduction

Numerous International Standards for cassettes and cartridges containing magnetic tapes of different width and characteristics have been published. Of these, the following relate to helical scan recording.

ISO/IEC 10777:1991 *Information technology - 3,81 mm wide magnetic tape cartridge for information interchange - Helical Scan Recording - DDS format*

ISO/IEC 11319:1993 *Information technology - 8 mm wide magnetic tape cartridge for information interchange - Helical scan recording*

ISO/IEC 11321:1992 *Information technology - 3,81 mm wide magnetic tape cartridge for information interchange - Helical scan recording - DATA/DAT format*

ISO/IEC 11557:1992 *Information technology - 3,81 mm wide magnetic tape cartridge for information interchange - Helical scan recording - DDS-DC format using 60 m and 90 m length tapes*

ISO/IEC 12246:1993 *Information technology - 8 mm wide magnetic tape cartridge dual azimuth format for information interchange- Helical scan recording*

ISO/IEC 12247:1993 *Information technology - 3,81 mm wide magnetic tape cartridge for information interchange - Helical scan recording - DDS format using 60 m and 90 m length tapes*

ISO/IEC 12248:1993 *Information technology - 3,81 mm wide magnetic tape cartridge for information interchange - Helical scan recording - DATA/DAT-DC format using 60 m and 90 m length tapes*

ISO/IEC 10777 defines a specification for data interchange using 3,81 mm wide magnetic tape cartridges, with the DDS format.

A derivative International Standard ISO/IEC 11557 defines another data interchange specification for the same cartridges, but with a recorded format, namely DDS-DC, which enables data to be compressed by the drive before being recorded.

This International Standard defines a specification, based on the features of both of these, which offers a further increase in data capacity. The primary change to the recorded format is an increase in the track density by a factor of 1,5. This produces a corresponding increase in data capacity for a cartridge of a given tape length. Such a track density, when recorded on a cartridge tape whose tape length is 125 metres, will provide a storage capacity of 4 Gigabytes of uncompressed user data and typically 8 to 16 Gigabytes of compressed user data.

The design philosophy is one of minimum change to the track format which is common to DDS and DDS-DC. This will aid the development of drives that support this DDS-2 format by derivation from existing products. It will also ease the development of drives that are able to support both previous formats as well as this format, thus providing the backwards compatibility which the market demands. However, it is not a requirement for compliance to this International Standard that a drive also reads and writes either the DDS format or the DDS-DC format. Nor is it a requirement for compliance to this International Standard that a drive compresses data and writes it in entities on the tape, or that a drive decompresses data contained within entities on the tape. All the recording on one cartridge will be at the same track density, either that of DDS and DDS-DC, or that of DDS-2. The media coating and the track density are indicated by the combination of the states of the Recognition Holes on the cartridge case.

This International Standard also includes the specifications of the Media Recognition System, namely a striped splicing tape.

Information technology - 3,81 mm wide magnetic tape cartridge for information interchange - Helical scan recording - DDS-2 format using 120 m length tape

Section 1 - General

1 Scope

This International Standard specifies the physical and magnetic characteristics of a 3,81 mm wide magnetic tape cartridge to enable physical interchangeability of such cartridges between drives. It also specifies the quality of the recorded signals, the recording method and the recorded format, thereby allowing data interchange between drives by means of such magnetic tape cartridges.

The recorded format, known as DDS-2, includes all the features of the DDS recorded format specified in ISO/IEC 12247 and of the DDS-DC recorded format specified in ISO/IEC 11557. The principal difference between this recorded format and those recorded formats is the use of a greater track density by this format.

Information interchange between systems utilising this International Standard also requires the use, as a minimum, of a labelling specification, e.g. ISO 1001:1986, *Information processing - File structure and labelling of magnetic tapes for information interchange*, and an interchange code which shall be agreed upon by the interchange parties.

Under information interchange circumstances in which a processing algorithm is applied to the host data prior to recording on the tape and a complementary reprocessing algorithm is applied after the data is read from the tape, agreement upon the algorithms employed by the interchange parties is also required. It is outside the scope of this International Standard to specify any of these.

2 Conformance

2.1 Magnetic tape cartridge

A tape cartridge shall be in conformance with this International Standard if it meets all the mandatory requirements specified herein. The tape requirements shall be satisfied throughout the extent of the tape.

For each recorded Entity any algorithm used for Processing the data therein shall have been registered, and the registration identification shall be included, when appropriate, in Byte No. 3 of the Entity Header.

A recorded tape shall be either a Single Data Space Tape or a Partitioned Tape.

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 recordings on the tape meet the mandatory requirements of this International Standard, and if either or both methods of appending and overwriting are implemented.

A claim of conformance shall state which of the following optional features are implemented and which are not

- the performing of a Read-After-Write check and the recording of any necessary repeated frames;
- the recording of multiple representations of the same Basic Group;
- the generation of ECC3 Frames.

In addition a claim of conformance shall state

- whether or not one, or more, registered algorithm(s) are implemented within the system and are able to process data received from the host prior to collecting the data into Basic Groups, and
- the algorithm registration identification number(s) of the implemented algorithm(s).

2.3 Receiving system

A system receiving a magnetic tape cartridge for interchange shall be entitled to claim full 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 repeated Frames and to make available to the host, data and Separator Marks from only one of these Frames;
- be able to recognize multiple representations of the same Basic Group, and to make available to the host, data and Separator Marks from only one of these representations;
- be able to recognize an ECC3 Frame, and ignore it if the system is not capable of using ECC3 check bytes in a process of error correction;
- be able to update the System Log(s) if the Write-inhibit Hole state so permits;
- be able to recognize processed data within an Entity, identify the algorithm used, and make the algorithm registration number available to the host;
- be able to make processed data available to the host.

In addition a claim of conformance shall state

- whether or not the system is capable of using ECC3 check bytes in a process of error correction;
- whether or not one or more Reprocessing algorithm(s) are implemented within the system, and are able to be applied to Processed Data prior to making such data available to the host;
- the algorithm registration number(s) of the processing algorithm(s) for which a complementary Reprocessing algorithm is implemented.

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 editions of the standards indicated below. Members of IEC and ISO maintain regesters of currently valid international standards.

ISO/R 527:1966,	*Plastics - Determination of tensile properties.*
ISO 1302:1992,	*Technical drawings - Method of indicating surface texture.*
ISO/IEC 11576:1994,	*Information technology - Procedure for the registration of algorithms for the lossless compression of data.*
IEC 950 :1991,	*Safety of information technology equipment including electrical business equipment.*