
**Information technology — Data
interchange on 90 mm Flexible Disk
Cartridges 10 MByte capacity using sector
servo tracking — ISO Type 304**

*Technologies de l'information — Échange de données sur cartouches
pour disque souple de 90 mm de diamètre, de 10 Mbyte de capacité,
utilisant le servo-pistage sur secteur — Type ISO 304*

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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 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 13422 was prepared by the Japanese Industrial Standards Committee (as JIS X 6227-1992) 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 to D, G and H form an integral part of this International Standard. Annexes E, F, J, K and L are for information only.

Introduction

This International Standard specifies the characteristics of 90 mm Flexible Disk Cartridges recorded at 33 157 ftprad using modified frequency modulation recording, on 255 tracks at 16,9 tpm on each side using sector servo tracking.

This International Standard specifies the physical interchangeability of the unrecorded disk and the format interchangeability of recorded data tracks and servo tracks.

In reference to ISO/IEC 9983, Flexible Disk Cartridges conforming to this International Standard are designated as ISO Type 304.

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Information technology - Data interchange on 90 mm Flexible Disk Cartridges 10 MByte capacity using sector servo tracking - ISO Type 304

1 Scope

This International Standard specifies the characteristics of 90 mm Flexible Disk Cartridges of 10 MByte formatted capacity, recorded at 33 151 f/ps using modified frequency modulation recording and sector servo tracking on 255 data tracks on each side. Such Flexible Disk Cartridges are identified as ISO Type 304.

It specifies the mechanical, physical and magnetic characteristics of the cartridge, so as to provide physical interchangeability between data processing systems.

It also specifies the method of recording, the quality of the recorded signals, the track layout and the track format of data tracks and servo tracks.

Together with a standard for volume and file structure, for example International Standard ISO 9293, this International Standard provides for full data interchange between data processing systems.

2 Conformance

2.1 Flexible Disk Cartridge

A 90 mm Flexible Disk Cartridge is in conformance with this International Standard if it meets all mandatory requirements specified herein.

2.2 Generating systems

A system generating a Flexible Disk Cartridge for interchange shall be entitled to claim conformance with this International Standard if all recordings on the flexible disk meet the mandatory requirements of this International Standard.

2.3 Receiving systems

A system receiving a Flexible Disk 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 flexible disk according to this International Standard.

3 Normative references

The following International 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 International 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 8860-1:1987, *Information Processing - Data interchange on 90 mm(3,5 in) flexible disk cartridges using modified frequency modulation recording at 7 958 fiprad on 80 tracks on each side - Part 1: Dimensional, physical and magnetic characteristics.*

ISO 9293:1987, *Information processing - Volume and file structure of flexible disk cartridges for information interchange.*

ISO/IEC 9529-1:1989, *Information processing systems - Data interchange on 90 mm(3,5 in) flexible disk cartridges using modified frequency modulation recording at 15 916 fiprad, on 80 tracks on each side - Part 1: Dimensional, physical and magnetic characteristics.*

ISO/IEC 9983:1989, *Information processing systems - Designation of unrecorded flexible disk cartridges.*

ISO/IEC 10994:1992, *Information technology - Data interchange on 90 mm flexible disk cartridges using modified frequency modulation recording at 31 831 fiprad on 80 tracks on each side - ISO Type 303.*

4 Definitions

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

- 4.1 Average Signal Amplitude:** The Average Signal Amplitude for a track is the arithmetically averaged value of the output voltages measured peak-to-peak over the whole track.
- 4.2 case:** A protective enclosure including a shutter mechanism, identification holes and a write-inhibit hole.
- 4.3 data track:** A discrete concentric track on which data are recorded in the data sector areas.
- 4.4 Error Detecting Code:** A mathematical computation yielding check bytes used for the detection of errors.
- 4.5 Flexible Disk Cartridge:** A flexible information recording medium consisting of a case and a disk, which accepts and retains information for data processing and associated systems, on both recording surfaces.
- 4.6 flux transition frequency:** The number of flux transitions per second (ftps) used for testing on the rotating disk at a certain speed.
- 4.7 hub:** A centring and referencing device attached to the disk which allows torque to be transmitted to the disk. The hub is attached to the centre of the disk. It ensures centring of the disk on the drive shaft in a unique angular position.
- 4.8 liner:** Suitable material positioned between the case and the disk to provide cleaning action and protection from abrasion.
- 4.9 MFM recording mode:** A recording mode in which a flux transition shall be written at the centre of each bit cell containing a ONE, and at each cell boundary between consecutive bit cells containing ZEROS.