SLOVENSKI STANDARD
SIST EN 29529-2:1997

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Information processing systems - Data interchange on 90 mm (3,5 in) flexible disk cartridges using modified frequency modulation recordings at 15916 ftprad, on 80 tracks on each side - Part 2: Track format (ISO 9529-2:1989)

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Informationsverarbeitungssysteme - Datenaustausch auf 90 mm (3,5 in) Diskette mit modifizierter Wechseltaktschrift mit 15916 Flußwechsel/rad, auf 80 Spuren auf jeder Seite - Teil 2: Spurformat (ISO 9529-2:1989, Ausg. 1)

Systemes de traitement de l'information - Echange de données sur cartouches a disquette de 90 mm (3,5 in) utilisant un enregistrement a modulation de fréquence modifiée a 15916 ftprad sur 80 pistes sur chaque face - Partie 2: Schéma de piste (ISO 9529-2:1989, éd. 1)

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Descriptors: Data processing, information interchange, data recording devices, flexible disk cartridges, magnetic disks, track format, specifications.

English version

Information processing systems

Data interchange on 90 mm (3,5 in) flexible disk cartridges using modified frequency modulation recording at 15 916 ftprad, on 80 tracks on each side

Part 2: Track format
(ISO/IEC 9529-2 : 1989)

Systèmes de traitement de l'information; échange de données sur cartouches à disquette de 90 mm (3,5 in) utilisant un enregistrement à modulation de fréquence modifiée à 15 916 ftprad sur 80 pistes sur chaque face. Partie 2: Schéma de piste (ISO/IEC 9529-2 : 1989)

Informationsverarbeitungssysteme; Datenaustausch auf 90-mm-(3,5-in-)Disketten mit modifizierter Wechseltaktschrift mit 15 916 Flußwechsel/rad, auf 80 Spuren auf jeder Seite. Teil 2: Spurformat (ISO/IEC 9529-2 : 1989)

This European Standard was approved by CEN on 1991-11-16 and is identical to the ISO Standard as referred to.

CEN members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration.

Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the Central Secretariat or to any CEN member.

This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CEN member into its own language and notified to the Central Secretariat has the same status as the official versions.

CEN members are the national standards bodies of Austria, Belgium, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and United Kingdom.

CEN

European Committee for Standardization
Comité Européen de Normalisation
Europäisches Komitee für Normung

Central Secretariat: rue de Stassart 36, B-1050 Brussels

Foreword

CEN/BT decided to submit the International Standard

ISO/IEC 9529-2:1989 Information processing systems; data interchange on 90 mm (3,5 in) flexible disk cartridges using modified frequency modulation recording at 15 916 ftprad, on 80 tracks on each side; track format

to Formal Vote. The result was positive.

In accordance with the CEN/CENELEC Internal Regulations, the following countries are bound to implement this European Standard: Austria, Belgium, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and United Kingdom.

Endorsement notice

The text of the International Standard ISO/IEC 9529-2:1989 was approved by CEN as a European Standard without any modification.

Contents

Annexes

Introduction

ISO/IEC 9529 specifies the characteristics of 90 mm (3,5 in) flexible disk cartridges recorded at 15 916 ftprad using modified frequency modulation recording, on 80 tracks on each side. ISO/IEC 9529-1 specifies the dimensional, physical and magnetic characteristics of the cartridge, so as to provide physical interchangeability between data processing systems.

ISO/IEC 9529-1 and ISO/IEC 9529-2, together with the labelling scheme specified in ISO 9293, provide for full data interchange between data processing systems.

1 Scope

This part of ISO/IEC 9529 specifies the track layout, the track format and the characteristics of the recorded signals.

NOTE - Numeric values in the SI and/or Imperial measurement system in this part of ISO/IEC 9529 may have been rounded off and therefore are consistent with, but not exactly equal to, each other. Either system may be used, but the two should be neither intermixed nor reconverted. The original design was made using SI units.

2 Conformance

A 90 mm (3,5 in) flexible disk cartridge is in conformance with this Part of ISO/IEC 9529 if it meets all mandatory requirements specified herein.

A prerequisite for conformance with this part of ISO/IEC 9529 is conformance with ISO/IEC 9529-1.

3 Normative references

The following standards contain provisions which, through reference in this text, constitute provisions of this part of ISO/IEC 9529. At the time of publication, the editions indicated were valid. All standards are subject to revision, and parties to agreements based on this part of ISO/IEC 9529 are encouraged to investigate the possibility of applying the most recent editions of the standards listed below. Members of IEC and ISO maintain registers of currently valid International Standards.

ISO 646:1983, *Information processing - ISO 7-bit coded character set for information interchange.*
ISO 2022:1986, *Information processing - ISO 7-bit and 8-bit coded character sets - Code extension techniques.*
ISO 4873:1986, *Information processing - ISO 8-bit code for information interchange - Structure and rules for implementation.*
ISO 6429:1988, *Additional control functions for (7-bit and 8-bit coded) character-sets.*
ISO 8859:1987 *Information processing - 8-bit single-byte coded graphic character sets.*
ISO 9293:1987 *Information processing - Volume and file structure of flexible disk cartridges for information interchange.*

4 General requirements

4.1 Mode of recording

The mode of recording shall be Modified Frequency Modulation (MFM) for which the conditions are:

— a flux transition shall be written at the centre of each bit cell containing a ONE;
— a flux transition shall be written at each cell boundary between consecutive bit cells containing ZEROs.

An exception to this is defined in 4.12.

4.2 Track location tolerance of the recorded flexible disk cartridge

For the purposes of this part of ISO/IEC 9529 the nominal track locations specified in sub clause 9.2.3.1 of ISO/IEC 9529-1 require compensation for the actual temperature using the nominal value of the thermal coefficient of expansion specified in sub clause 8.2 of ISO/IEC 9529-1. Over the range of operating environment specified in sub clause 6.1.2 of ISO/IEC 9529-1, the centrelines of the recorded tracks shall be within ± 0,028 mm (± 0,001 1 in) of these compensated nominal track locations.

4.3 Recording offset angle

At the instant of writing or reading a magnetic transition, the transition shall have an angle of

$$\theta = \text{arc sin} \left(\frac{d}{Rn} \right) \pm 0°18'$$

where Rn is the radius through that transition (see ISO/IEC 9529-1, 9.2.3.1).

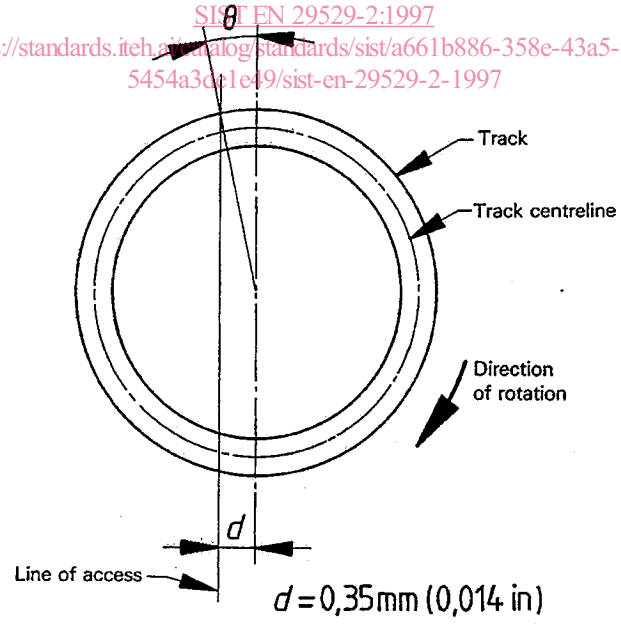

Figure 1

NOTE - As tracks may be written and overwritten at extremes of the tolerances given in 4.2 and 4.3, a band of old information may be left at one edge of the newly written data and would constitute unwanted noise when reading. It is therefore necessary to trim the edges of the tracks by erasure after writing.

4.4 Density of recording

4.4.1 The nominal density of recording shall be 15 916 ftprad. The resulting nominal bit cell length is 62,8 µrad.

4.4.2 The long term average bit cell length shall be the average bit cell length measured over a sector. It shall be within ± 2,5% of the nominal bit cell length.

4.4.3 The short term average bit cell length, referred to a particular bit cell, shall be the average of the lengths of the eight preceding bit cells. It shall be within ± 8% of the long-term average bit cell length.

4.5 Flux transition spacing

The instantaneous spacings between flux transitions are influenced by the reading and writing process, the bit sequence (pulse crowding effects) and other factors. The locations of the transitions are defined as the locations of the peaks in the signal when reading (see annexes A and B).

4.5.1 The spacing between the flux transitions of a sequence of ONEs shall be between 80% and 120% of the short-term average bit cell length.

4.5.2 The spacing between the flux transition for a ONE and that between two ZEROs preceding or following it shall be between 130% and 165% of the short-term average bit cell length.

4.5.3 The spacing between the flux transitions of two ONEs surrounding a ZERO shall be between 185% and 225% of the short-term average bit cell length.

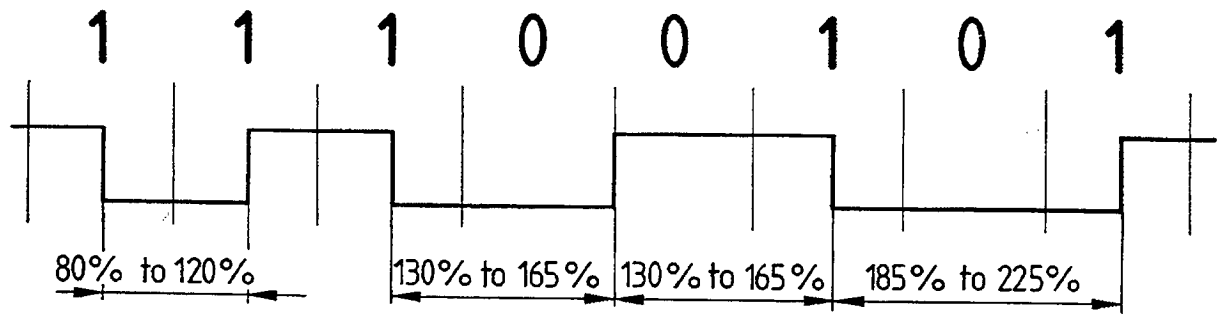

Figure 2

4.6 Average Signal Amplitude

For each side the Average Signal Amplitude on any track of the interchanged flexible disk cartridge shall be less than 160% of SRA_{1f} and more than 40% of SRA_{2f} (see 4.12 in ISO/IEC 9529-1).