SLOVENSKI STANDARD
SIST EN 28630-2:1997

01-december-1997

Information processing - Data interchange on 130 mm (5.25 in) flexible disk cartridges using modified frequency modulation recording at 13 262 ftprad, on 80 tracks each side - Part 2: Track format A for 77 tracks (ISO 8630-2:1987)

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iTeh STANDARD PREVIEW

Informationsverarbeitung - Datenaustausch auf 130 mm (5,25 in) Disketten mit modifizierter Wechseltaktschrift bei zweiseitiger Aufzeichnung mit 13 262 Flußwechsel/rad und 80 Spuren auf jeder Seite - Teil 2: Spurformat A für 77 Spuren (ISO 8630-2:1987)

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Traitement de l'information - Echange de données sur cartouches a disquettes de 130 mm (5,25 in) utilisant un enregistrement a modulation de fréquence modifiée (MFM) a 13 262 ftprad sur 80 pistes sur chaque face - Partie 2: Schéma de piste A pour 77 pistes (ISO 8630-2:1987)

Ta slovenski standard je istoveten z: EN 28630-2:1992

ICS:

35.220.21	Magnetni diski	Magnetic disks

SIST EN 28630-2:1997   **en**

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EUROPEAN STANDARD

EN 28630-2:1992

NORME EUROPÉENNE

EUROPÄISCHE NORM

August 1992

UDC 681.327.63

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

English version

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REPUBLIKA SLOVENIJA
MINISTRSTVO ZA ZNANOST IN TEHNOLOGIJO
Urad RS za standardizacijo in meroslovje
LJUBLJANA

SIST..... EN 28630-2

PREVZET PO METODI RAZGLASITVE   -12- 1997

This European Standard was approved by CEN on 1992-08-13. 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.

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

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

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FOREWORD

The Technical Board has decided to submit the

International Standard 8630-2:1987 "Information processing - Data interchange on 130 mm (5.25 in) flexible disk cartridges using modified frequency modulation recording at 13 262 ftprad, on 80 tracks each side - Part 2: Track format A for 77 tracks"

for Formal Vote. The standard was accepted.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by February 1993 and conflicting national standards shall be withdrawn at the latest by February 1993.

According to the CEN/CENELEC Common Rules, the following countries are bound to implement this standard: Austria, Belgium, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland, United Kingdom.

ENDORSEMENT NOTICE

The text of the ISO 8630-2:1987 was approved by CEN as a European Standard without any modification.

INTERNATIONAL STANDARD

ISO
8630-2

First edition
1987-06-15

INTERNATIONAL ORGANIZATION FOR STANDARDIZATION
ORGANISATION INTERNATIONALE DE NORMALISATION
МЕЖДУНАРОДНАЯ ОРГАНИЗАЦИЯ ПО СТАНДАРТИЗАЦИИ

Information processing — Data interchange on 130 mm (5.25 in) flexible disk cartridges using modified frequency modulation recording at 13 262 ftprad, on 80 tracks on each side —

Part 2:
Track format A for 77 tracks

Reference number
ISO 8630-2 : 1987 (E)

Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work.

Draft International Standards adopted by the technical committees are circulated to the member bodies for approval before their acceptance as International Standards by the ISO Council. They are approved in accordance with ISO procedures requiring at least 75 % approval by the member bodies voting.

International Standard ISO 8630-2 was prepared by Technical Committee ISO/TC 97, *Information processing systems.*

Users should note that all International Standards undergo revision from time to time and that any reference made herein to any other International Standard implies its latest edition, unless otherwise stated.

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Printed in Switzerland

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0 Introduction

ISO 8630 specifies the characteristics of 130 mm (5.25 in) flexible disk cartridges recorded at 13 262 ftprad, using modified frequency modulation (MFM) recording, on 80 tracks on each side.

ISO 8630-1 specifies the dimensional, physical and magnetic characteristics of the cartridge, so as to provide physical interchangeability between data processing systems.

ISO 8630-3 specifies an alternative track format for data interchange.

ISO 8630-1 and ISO 8630-2, together with the labelling scheme specified in ISO 7665, provide for full data interchange between data processing systems.

1 Scope and field of application

This part of ISO 8630 specifies the quality of recorded signals, the track layout, and a track format to be used on 130 mm (5.25 in), 13 262 ftprad flexible disk cartridges intended for data interchange between data processing systems.

NOTE — Numeric values in the SI and/or Imperial measurement system in this part of ISO 8630 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 re-converted. The original design was made using Imperial units and further developments were made using SI units.

2 Conformance

A flexible disk cartridge shall be in conformance with ISO 8630 when it meets all the requirements of parts 1 and 2 of ISO 8630 and when it implements one of the three sector sizes specified in 4.11.

Data interchange is possible only when the interchange parties implement the same sector size.

NOTE — ISO 7665 specifies a field in the volume label in which the implemented sector size is identified.

3 References

ISO 646, *Information processing — ISO 7-bit coded character set for information interchange.*

ISO 2022, *Information processing — ISO 7-bit and 8-bit coded character sets — Code extension techniques.*

ISO 4873, *Information processing — ISO 8-bit code for information interchange — Structure and rules for implementation.*

ISO 6429, *Information processing — ISO 7-bit and 8-bit character sets — Additional control functions for character-imaging devices.*

ISO 7065-2, *Information processing — Data interchange on 200 mm (8 in) flexible disk cartridges using modified frequency modulation recording at 13 262 ftprad, 1,9 tpmm (48 tpi), on both sides — Part 2: Track format.*

ISO 7665, *Information processing — File structure and labelling of flexible disk cartridges for information interchange.*

4 General requirements

4.1 Mode of recording

4.1.1 Track 00, side 0

The mode of recording shall be two-frequency where the start of every bit cell is a clock flux transition. A ONE is represented by a data flux transition between two clock flux transitions.

Exceptions to this are defined in 4.12.

4.1.2 All tracks excluding track 00, side 0

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

   a) a flux transition shall be written at the centre of each bit cell containing a ONE;

   b) a flux transition shall be written at each cell boundary between consecutive bit cells containing ZEROs.

Exceptions to this are defined in 4.12.

1

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4.2 Track location tolerance of the recorded flexible disk cartridge

The centrelines of the recorded tracks shall be within ± 0,042 5 mm (± 0.001 67 in) of the nominal positions, over the range of operating environment specified in ISO 8630-1.

4.3 Recording offset angle

At the instant of writing or reading a magnetic transition, the transition shall have an angle of 0° ± 18' with the radius.

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 13 262 ftprad*. The resulting nominal bit cell length for track 00, side 0 is 151 µrad, and for all the other tracks it is 75,5 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 ± 2,0 % 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 preceding eight bit cells. It shall be within ± 8 % of the long-term average bit cell length.

4.5 Flux transition spacing

The instantaneous spacing between flux transitions may be influenced by the reading and writing process, the bit sequence recorded (pulse crowding effects) and other factors.

The locations of the transitions are defined as the locations of the peaks in the signal when reading. Tests should be carried out using a peak-sensing read amplifier (see annexes B and C).

4.5.1 Flux transition spacing for track 00, side 0 (see figure 1)

4.5.1.1 The spacing between two clock flux transitions surrounding a data flux transition or between two data flux transitions surrounding a clock flux transition shall be between 90 % and 140 % of the nominal bit cell length.

4.5.1.2 The spacing between two clock flux transitions not surrounding a data flux transition or between two data flux transitions surrounding a missing clock flux transition shall be between 60 % and 110 % of the nominal bit cell length.

4.5.1.3 The spacing between a data flux transition and the preceding clock flux transition (when not missing) or between a clock flux transition and the preceding data flux transition (when not missing) shall be between 45 % and 70 % of the nominal bit cell length.

4.5.2 Flux transition spacing for all tracks excluding track 00, side 0 (see figure 2)

4.5.2.1 The spacing between the flux transitions in a sequence of ONEs shall be between 80 % and 120 % of the short-term average bit cell length.
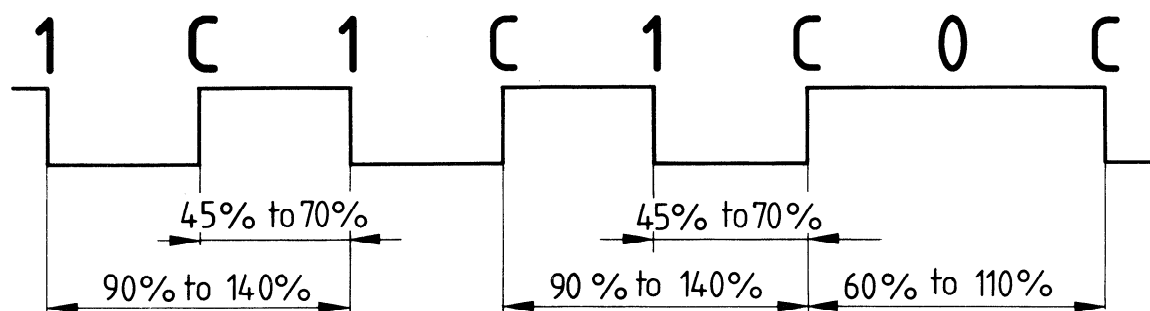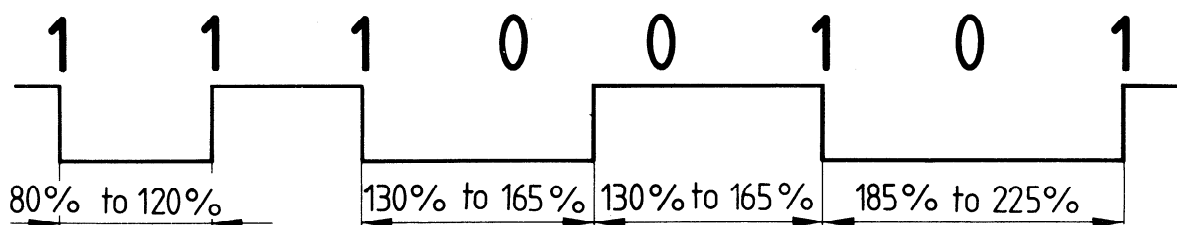
Figure 1

Figure 2

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* Flux transitions per radian

4.5.2.2 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.

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

4.6 Average Signal Amplitude

For each side the Average Signal Amplitude on any non-defective track (see ISO 8630-1) of the interchanged flexible disk cartridge shall be less than 160 % of SRA_{1f} and more than 40 % of SRA_{2f}.

4.7 Byte

A byte is a group of eight bit-positions, identified B1 to B8, with B8 most significant and recorded first.

The bit in each position is a ZERO or a ONE.

4.8 Sector

Track 00, side 0 and side 1 is divided into 26 sectors. All other tracks of the flexible disk cartridge shall have the same number of sectors, which can be 8, 15 or 26.

4.9 Cylinder

A pair of tracks, one on each side of the disk, having the same track number.

4.10 Cylinder Number

The Cylinder Number shall be a two-digit number identical with the track number of the tracks of the cylinder.

4.11 Data capacity of a track

The data capacity of track 00, side 0 shall be 3 328 bytes.

The data capacity of track 00, side 1 shall be 6 656 bytes.

The data capacity of all other tracks shall be as shown in table 1.

Table 1

Number of sectors	Number of data bytes in the sector	Data capacity of a track
26	256	6 656 bytes
15	512	7 680 bytes
8	1 024	8 192 bytes

4.12 Hexadecimal notation

Hexadecimal notation is used hereafter to denote the following bytes:

(00)	for (B8 to B1) =	00000000
(01)	for (B8 to B1) =	00000001
(02)	for (B8 to B1) =	00000010
(03)	for (B8 to B1) =	00000011
(FF)	for (B8 to B1) =	11111111
(FC)*	for (B8 to B1) =	11111100

where the clock transitions of B6 and B4 are missing

(FE)*	for (B8 to B1) =	11111110

where the clock transitions of B6, B5 and B4 are missing

(FB)*	for (B8 to B1) =	11111011

where the clock transitions of B6, B5 and B4 are missing

(F8)*	for (B8 to B1) =	11111000

where the clock transitions of B6, B5 and B4 are missing

(4E)	for (B8 to B1) =	01001110
(FC)	for (B8 to B1) =	11111100
(FE)	for (B8 to B1) =	11111110
(FB)	for (B8 to B1) =	11111011
(F8)	for (B8 to B1) =	11111000
(A1)*	for (B8 to B1) =	10100001

where the boundary transition between B3 and B4 is missing

(C2)*	for (B8 to B1) =	11000010

where the boundary transition between B4 and B5 is missing

4.13 Error Detection Characters (EDC)

The two EDC-bytes are hardware generated by shifting serially the relevant bits, specified later for each part of the track, through a 16-bit shift register described by the generator polynomial:

$$X^{16} + X^{12} + X^5 + 1$$

(See also annex A.)

5 Track layout after the first formatting for track 00, side 0

After the first formatting there shall be 26 usable sectors on the track. The layout of the track shall be as shown in figure 3.
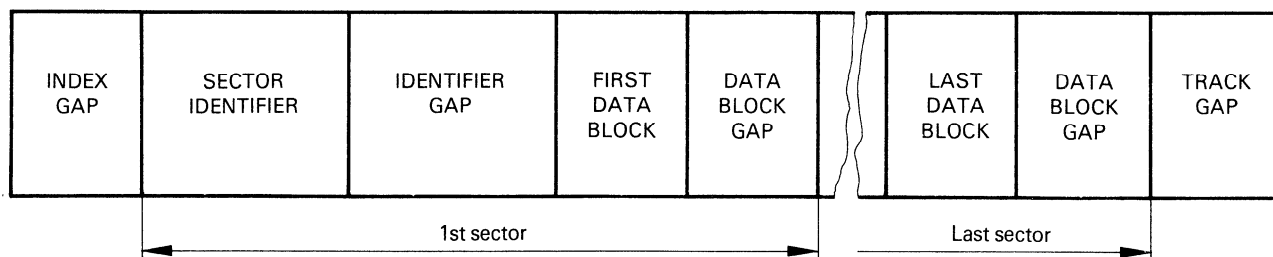

| INDEX GAP | SECTOR IDENTIFIER | IDENTIFIER GAP | FIRST DATA BLOCK | DATA BLOCK GAP | LAST DATA BLOCK | DATA BLOCK GAP | TRACK GAP |

1st sector — Last sector

Figure 3