
International Standard



6596/2

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

Information processing — Data interchange on 130 mm (5.25 in) flexible disk cartridges using two-frequency recording at 7 958 ftprad, 1,9 tpmm (48 tpi), on one side — Part 2 : Track format

Traitement de l'information — Échange de données sur cartouches à disquette de 130 mm (5,25) in) utilisant un enregistrement à deux fréquences à 7 958 ftprad, 1,9 tpmm (48 tpi), sur une face — Partie 2 : Schéma de piste

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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 6596/2 was prepared by Technical Committee ISO/TC 97, *Information processing systems*.

Contents

	Page
0 Introduction	1
1 Scope and field of application	1
2 Conformance	1
3 References	1
4 General requirements	1
5 Track layout after the first formatting for track 00	3
6 Track layout after the first formatting for tracks 01-34	4
7 Track layout of a recorded flexible disk for data interchange	5
Annexes	
A Use of additional tracks	8
B EDC implementation	9
C Procedure and equipment for measuring flux transition spacing	10

Information processing — Data interchange on 130 mm (5.25 in) flexible disk cartridges using two-frequency recording at 7 958 ftrpad, 1,9 tpmm (48 tpi), on one side — Part 2: Track format

0 Introduction

ISO 6596 specifies the characteristics of data interchange on 130 mm (5.25 in) flexible disk cartridges using two-frequency recording at 7 958 ftrpad, 1,9 tpmm (48 tpi), on one side.

ISO 6596/1 specifies the dimensional, physical, and magnetic characteristics of the cartridge so as to provide physical interchangeability between data processing systems.

Together with the labelling scheme specified in ISO 7665, ISO 6596/1 and ISO 6596/2 provide for full data interchange between data processing systems.

1 Scope and field of application

This part of ISO 6596 specifies the magnetic characteristics, the track layout, and a track format to be used on a 130 mm (5.25 in) flexible disk cartridge, recorded at 7 958 ftrpad on one side using two-frequency recording at a track density of 1,9 tracks per millimetre (tpmm) [48 tracks per inch (tpi)], which is intended for data interchange between data processing systems.

NOTE — Numeric values in the SI and/or Imperial measurement system in this International Standard 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 for this part of ISO 6596 was made using SI units.

2 Conformance

A flexible disk cartridge shall be in conformance with ISO 6596 when it meets all the requirements of parts 1 and 2 of ISO 6596.

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 6596/1, *Information processing — Data interchange on 130 mm (5.25 in) flexible disk cartridges using two-frequency recording at 7 958 ftrpad, 1,9 tpmm (48 tpi), on one side — Part 1: Dimensional, physical and magnetic characteristics*.

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

4 General requirements

4.1 Mode of recording

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 4.10.

4.2 Track location tolerance of the recorded flexible disk cartridge

The centrelines of the recorded tracks shall be within $\pm 0,085$ mm (± 0.003 3 in) of the nominal positions over the range of operating environment specified in ISO 6596/1. This tolerance corresponds to twice the standard deviation.

4.3 Recording offset angle

At the instant of writing or reading a magnetic transition, the transition may have an angle of $0^\circ \pm 18'$ with the radius. This tolerance corresponds to twice the standard deviation.

4.4 Density of recording

4.4.1 The nominal density of recording shall be 7 958 ftrpad. The resulting nominal spacing between two clock flux transitions, the nominal bit cell length, is 251 μ rad.

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 $\pm 3,5$ % 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 preceding eight bit cells. It shall be within $\pm 8\%$ of the long-term average bit cell length.

4.5 Flux transition spacing (see figure 1)

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 amplifier (see annex C).

4.5.1 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.

4.5.2 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.

4.5.3 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.

4.6 Average signal amplitude

The average signal amplitude on any non-defective track (see ISO 6596/1) of the interchanged flexible disk shall be less than 160 % of the standard reference amplitude for track 00 and more than 40 % of the standard reference amplitude for track 34.

4.7 Byte

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

The bit in each position shall be a ZERO or a ONE.

4.8 Sector

Track 00 is divided into 16 sectors. All other tracks are divided into 9 sectors.

4.9 Data capacity of a track

The data capacity of track 00 shall be 2 048 bytes. The data capacity of all other tracks shall be 2 304 bytes.

4.10 Hexadecimal notation

Hexadecimal notation shall be used to denote the following bytes:

- (00) for (B8 to B1) = 00000000
- (01) for (B8 to B1) = 00000001
- (FF) for (B8 to B1) = 11111111
- (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

4.11 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 B.)

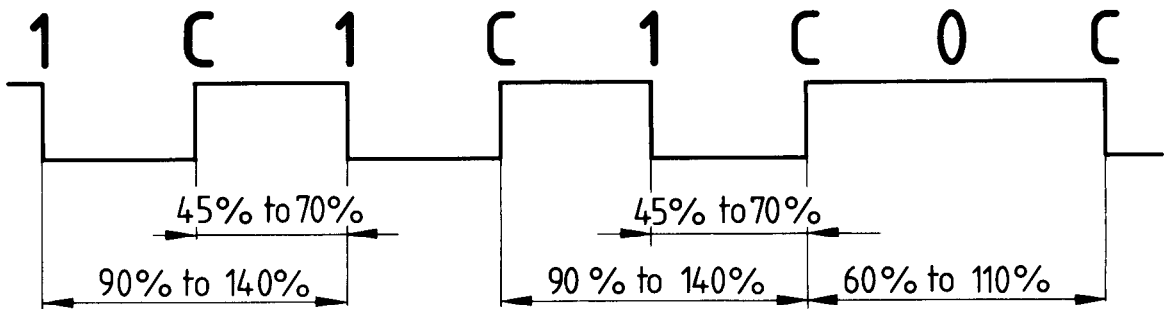


Figure 1