
International Standard



7065/2

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

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

Traitement de l'information — Échange de données sur cartouches à disquette de 200 mm (8 in) utilisant un enregistrement à modulation de fréquence modifiée à 13 262 ftprad, 1,9 tpmm (48 tpi), sur deux faces — Partie 2: Schéma de piste

First edition — 1985-03-15

UDC 681.327.63

Ref. No. ISO 7065/2-1985 (E)

Descriptors : data processing, information interchange, data recording devices, magnetic disks, flexible disks, track formats, specifications.



Documents

Document Sharing Hub

Price based on 12 pages

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 7065/2 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, side 0	3
6 Track layout after the first formatting for all tracks excluding track 00, side 0	5
7 Track layout of a recorded flexible disk for data interchange	6
 Annexes	
A EDC implementation	9
B Procedure and equipment for measuring flux transition spacing	10
C Data separators for decoding MFM recording	12

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

0 Introduction

ISO 7065 specifies the characteristics of 200 mm (8 in) flexible disk cartridges recorded at 13 262 ftprad, 1,9 tpmm (48 tpi), on both sides using modified frequency modulation (MFM) recording.

ISO 7065/1 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 7065/1 and ISO 7065/2 provide for full data interchange between data processing systems.

1 Scope and field of application

This part of ISO 7065 specifies the magnetic characteristics, the track layout, and a track format to be used on a 200 mm (8 in) flexible disk cartridge, recorded at 13 262 ftprad on both sides using modified frequency modulation 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 are therefore 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 of this part of ISO 7065 was made using the Imperial measurement system.

2 Conformance

A flexible disk cartridge shall be in conformance with ISO 7065 when it meets all the requirements of parts 1 and 2 of ISO 7065 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 VOL 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 7065/1, *Information processing — Data interchange on 200 mm (8 in) flexible disk cartridge using modified frequency modulation recording at 13 262 ftprad, 1,9 tpmm (48 tpi), on both sides — 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

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 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 ZERO's.

Exceptions to this are defined in 4.12.

4.2 Track location tolerance of the recorded flexible disk cartridge

The centrelines of the recorded tracks shall be within $\pm 0,085\text{ mm}$ ($\pm 0.003\text{ 3 in}$) of the nominal positions over the range of operating environment specified in ISO 7065/1. 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 13 262 ftprad. The 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 $\pm 3\%$ of the nominal bit cell length.

NOTE — It is recognized that at extremes of supply frequency encountered on computer sites, the deviation may be $\pm 5\%$ in exceptional circumstances. Successful data interchange may then still be possible provided that formatting of the cartridge and subsequent writing of data are not carried out at the opposite limits of this range.

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.

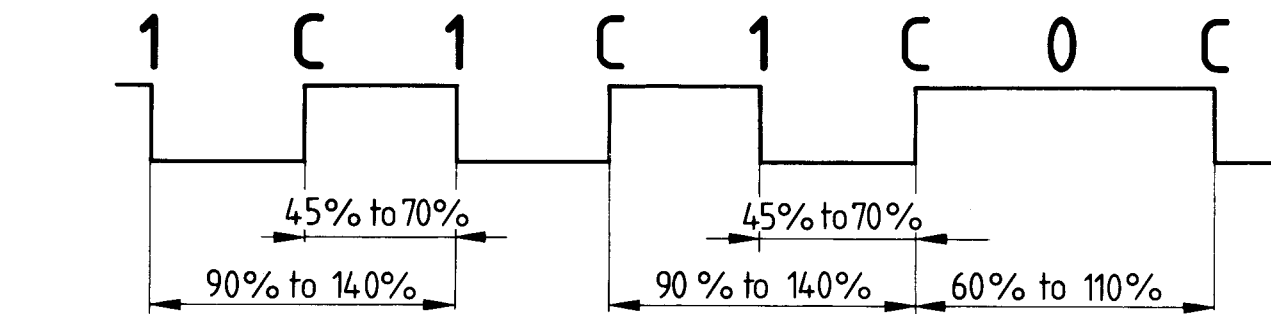


Figure 1

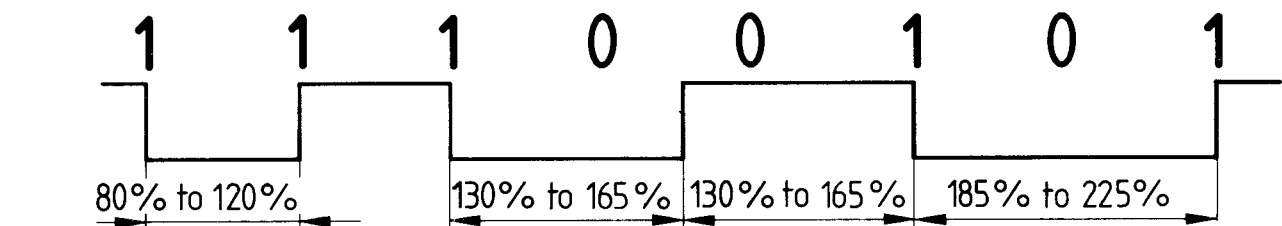


Figure 2

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 annex B).

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 on ONE's shall be between 80 % and 120 % of the short-term average bit cell length.