

Specification for

File structure and labelling of flexible disk cartridges for information interchange —

**Part 1: Specification for sequential file
allocation structure**

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Committees responsible for this British Standard

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- British Computer Society Ltd.
- British Telecommunications
- Business Equipment Trade Association
- Committee of London Clearing Bankers on behalf of London and Scottish Clearing Banks and Yorkshire Bank
- Local Authorities Organizations
- National Computing Centre Ltd.

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National foreword

This Part of BS 6542 has been prepared under the direction of the Information Systems Technology Standards Committee. It is identical with ISO 7665:1983 “*Information processing — File structure and labelling of flexible disk cartridges for information interchange*”, published by the International Organization for Standardization (ISO), except that it includes National appendix A which is not part of the International Standard. National appendix A gives guidance for implementors.

Although the scope and field of application of this part of BS 6542 (see clause 1) are similar to those of BS 6542-2, this Part of BS 6542 is applicable to 200 mm flexible disk cartridges which are not covered by BS 6542-2.

Terminology and conventions. The text of the International Standard has been approved as suitable for publication as a British Standard without deviation. Some terminology and certain conventions are not identical with those used in British Standards; attention is drawn especially to the following.

The comma has been used as a decimal marker. In British Standards it is current practice to use a full point on the baseline as the decimal marker.

Wherever the words “International Standard” appear, referring to this standard, they should be read as Part of BS 6542.

Cross-references

International Standard	Corresponding British Standards
ISO 4873:1979	BS 6006:1980 <i>Specification for United Kingdom 8-bit data code</i> (Identical)

A revision of BS 4730 is in course of preparation to implement ISO 646:1983 for use in the UK.

The Technical Committee has reviewed the provisions of ISO 2022, ISO 5654-1 and ISO 5654-2, ISO 7065-1 and ISO 7065-2 and ISO 7487-1 and ISO 7487-2, to which reference is made in the text, and has decided that they are acceptable for use in conjunction with this standard.

Further clarification of the status of ISO 2022:1982 within the UK was given in a special announcement in *BSI News*, June 1983; there is no corresponding British Standard at present.

ECMA 59 and ECMA 78 are also referenced in this standard, although they are not essential for determining compliance with the standard. Copies of ECMA standards may be obtained from ECMA, 114 rue du Rhone, CH-1204 — Geneva, Switzerland.

Textual errors. When adopting the text of the International Standard, the textual errors given below were discovered. They have been marked in the text and have been reported to the Secretariat of ISO/TC 97/SC 15 in a proposal to amend the text of the International Standard.

Clause 3, line 15. In the title for ISO 6596-1, “characteristics” should be read as “characteristics”.

Annex A, example 6. There should be a broken line between the 55 and 457, as a downward extension of the solid line in the row above. This broken line should extend downwards to the solid horizontal line below the digits.

A British Standard does not purport to include all the necessary provisions of a contract. Users of British Standards are responsible for their correct application.

Compliance with a British Standard does not of itself confer immunity from legal obligations.

Summary of pages

This document comprises a front cover, an inside front cover, pages i to iv, pages 1 to 22, an inside back cover and a back cover.

This standard has been updated (see copyright date) and may have had amendments incorporated. This will be indicated in the amendment table on the inside front cover.

1 Scope and field of application

This International Standard specifies requirements for the file structure and the labelling of flexible disk cartridges for the interchange of information between users of different information processing systems.

This International Standard specifies

- a) recorded labels to identify files, file sections, and volumes of flexible disk cartridges;
- b) basic characteristics of the blocks containing the records constituting the file;
- c) the file structure.

This International Standard specifies three nested levels of interchange so that

- a) at the first level, called BASIC INTERCHANGE (BI), it is possible to interchange data by using a minimum set of the facilities provided;
- b) at the second level, called EXTENDED INTERCHANGE LEVEL 1 (E1), it is possible to interchange data using the minimum set together with blocks having a length greater than that of the physical records and with blocked fixed-length records;
- c) at the third level, called EXTENDED INTERCHANGE LEVEL 2 (E2), it is possible to interchange data using the facilities of levels BI and E1 together with variable-length records and segmented records.

Annex A describes examples but does not form part of this standard.

Annex B gives disk parameter values derived from flexible disk data interchange standards, but does not form part of this standard.

2 Conformance

A flexible disk cartridge conforms to this International Standard when all interchange files and all labels recorded on it conform to the specifications of this International Standard.

A statement of conformity shall identify the level or levels of interchange to which the contents of the flexible disk cartridge conform.

A prerequisite is conformance to the applicable flexible disk cartridge data interchange standards identified in this International Standard for the different types of flexible disks.

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 — 8-bit coded character set for information interchange*.

ISO 5654, *Information processing — Data interchange on 200 mm (8 in) flexible disk cartridges using two-frequency recording at 13 262 fthead on one side —*

— *Part 1: Dimensional, physical and magnetic characteristics:*

— *Part 2: Track format.*

ISO 6596, *Information processing — Data interchange on 130 mm (5.25 in) flexible disk cartridges using two-frequency recording at 7 958 fthead on one side —*

— *Part 1: Dimensional, physical and magnetic characteristics¹⁾:*

— *Part 2: Track format for 1,9 tpm (48 tpi)²⁾:*

ISO 7065, *Information processing — Data interchange on 200 mm (8 in) flexible disk cartridges using modified frequency modulation recording at 13 262 fthead on two sides —*

— *Part 1: Dimensional, physical and magnetic characteristics:*

— *Part 2: Track format for 1,9 tpm (48 tpi)²⁾:*

ISO 7487, *Information processing — Data interchange on 130 mm (5.25 in) flexible disk cartridges using modified frequency modulation recording at 7 958 fthead on two sides —*

— *Part 1: Dimensional, physical and magnetic characteristics²⁾:*

— *Part 2: Track format²⁾:*

ECMA-59, *Data interchange on 200 mm flexible disk cartridges using two-frequency recording at 13 262 fthead on both sides.*

ECMA-78, *Data interchange on 130 mm flexible disk cartridges using MFM recording at 7 958 fthead on both sides, 3,8 tracks per millimetre.*

¹⁾ See national foreword for details of textual errors.

²⁾ At present at the stage of draft.

4 Definitions

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

4.1 block

a group of characters treated as a logical unit

4.2 blocked

an attribute of records and record segments that indicates that they may begin at a byte that is not the first byte of a block

4.3 byte

a string of eight binary digits operated upon as a unit

4.4 cylinder

a pair of tracks, one on each side, having the same track number

NOTE 1 The cylinder number is a two-digit number identical to the track number.

NOTE 2 On flexible disk cartridges that are recorded only on one side, cylinders comprise one track only.

4.5 extent

a set of physical records the addresses of which form a continuous ascending sequence

4.6 file

a named collection of information consisting of records pertaining to a single subject

4.7 file section

for a file recorded over more than one volume, that part of the file that is recorded in any one volume

4.8 fixed-length record

A record contained in a file in which all the records have the same length

4.9 formatting

writing the proper control information establishing the cylinders and designating addresses of physical records on the surfaces of the flexible disk

4.10 initialization

writing of the Volume Label, the ERMAP Label, and any other information initially required to be on the flexible disk cartridge, prior to the commencement of general processing or use

4.11 label

a record that identifies, characterizes and/or delimits a volume, a file or a file section on that volume

4.12 natural order

an ascending sequence of integers starting with the lowest allowed value and proceeding, in increments of one, to the highest allowed value

4.13 physical record

a fixed-length field containing the data of a sector

4.14 physical record address

a five-digit number in which the cylinder address provides the two most significant digits, the side number provides the next most significant digit, and the sector number provides the two least significant digits

4.15 record

related data treated as a unit of information

4.16 sector

that part of a track on a flexible disk cartridge that can be accessed by the magnetic heads in the course of predetermined angular displacements of the disk

4.17 segmented record

a record contained in a file in which each record consists of one or more consecutive record segments

4.18 track

that part of a flexible disk that can be accessed by a single magnetic head that is stationary while the disk makes a complete revolution

4.19 variable-length record

a record contained in a file in which the records may have different lengths

4.20 volume

a dismountable physical unit of storage medium, for example a flexible disk cartridge

5 Notation

5.1 Specification of label content

5.1.1 In references to label contents throughout the following clauses of this International Standard, a notation is used with the significance shown in Table 1.

Table 1 — Notation

Notation	Significance
CP	Character position within the label
L	Length of the field in number of characters
a-character	Any of the characters complying with the requirements of 8.1 for use in labels
Digit(s)	Any digit(s) from 0 to 9

5.1.2 With the exception of SPACE, a group of capital letters in the “content” column of a table specifying label contents indicates that the corresponding characters shall appear in the order given and in the corresponding character positions of the field specified [for example, VOL in CP 1 to CP 3 of the Volume Label (see Table 6)]. In the tables and throughout this International Standard, SPACE signifies the character coded in position 2/0 of ISO 646.

5.2 Label fields

Where the words of this International Standard are used to signify a specific label or label field (for example “Sector Sequence Indicator”), the words are printed with initial capitals throughout (except for prepositions).

6 Arrangement of labels and files

6.1 Applicability of this International Standard to identified types of flexible disk cartridge

The requirements of this International Standard are applicable to several types of flexible disk cartridge. Each type of cartridge is the subject of a separate data interchange standard. These standards are identified in Table 3, together with the corresponding values of a parameter Recording-Type. The parameter Recording-Type is used in this International Standard to identify the data interchange standard to which the cartridge conforms, within the set of standards that apply to cartridges having the same physical dimensions.

Table 2 identifies those numerical parameters that characterize the differences, between the types of cartridge, that are significant for the requirements of this International Standard.

Table 2 — Parameters for data interchange standards

Number-Of-Sides
Cylinder-Limit
Index-Sector-Limit
Data-Sector-Limit
Data-Physical-Record-Length
Track-Data-Capacity

The values of the parameters listed in Table 2 shall be obtained from data interchange standards as specified below. The values applicable to the data interchange standards listed in Table 3 are quoted in Annex B.

Number-Of-Sides: The number of sides of the disk on which recorded tracks shall be present.

Cylinder-Limit: The specified minimum number of good cylinders that shall be present from cylinder 01 to the cylinder having the highest specified cylinder number.

Index-Sector-Limit: The number of usable sectors on Track 00, Side 0, or on Track 00, Side 1.

NOTE These numbers shall be the same on both sides.

Data-Sector-Limit: The number of usable sectors on each track other than Track 00, on Side 0 or Side 1.

Data-Physical-Record-Length: The number of bytes in the Data Field of a Data Block on each track other than Track 00, on Side 0 or Side 1.

Track-Data-Capacity: The numerical product of the parameters Data-Sector-Limit and Data-Physical-Record-Length.

Table 3 — Data interchange standards and parameter Recording-Type

Data interchange standard	Parameter Recording-Type
ISO 5654	1
ECMA-59	2
ISO 7065	M
ISO 6596	1
ISO 7487	M
ECMA-78	3

6.2 Number of sides

Where this International Standard specifies requirements for labels and files on side 0, such requirements shall always apply.

Where this International Standard specifies requirements for labels and files on side 1, such requirements shall apply to those types of flexible disk cartridge for which the parameter Number-Of-Sides in Table 2 has the value 2, and shall not apply to those types of flexible disk cartridge for which the parameter has the value 1.