

Specification for

Magnetic single-disk cartridges (top loading) for data processing —

Part 2: Track format

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Data Processing Management Association
 Department of the Environment
 Institution of Electronic and Radio Engineers
 Radio and Electronic Component Manufacturers' Federation
 Scientific Instrument Manufacturers' Association

This British Standard, having been prepared under the direction of the Data Processing Industry Standards Committee, was published under the authority of the Executive Board on
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The following BSI references relate to the work on this standard:
 Committee reference DPE/4
 Draft for comment 73/33646 DC
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Foreword

This British Standard has been authorized by the Data Processing Industry Standards Committee.

Work on magnetic disk packs began at the International Organization for Standardization (ISO) in 1968 with the setting up of a working group, now a subcommittee, under the secretariat of Germany. The first project to be undertaken, the standardization of a six-disk pack, has now been completed. Work on a British Standard for the six-disk pack went ahead simultaneously and resulted in the publication of BS 4850:1972 (Parts 1 and 2).

Attention was then turned to projects dealing with a magnetic eleven-disk pack and a magnetic single-disk cartridge of the type which is loaded onto its drive spindle from the top. BS 5356-1 (based on ISO 3562) specifies the physical and magnetic characteristics and BS 5356-2 (based on ISO 3563) specifies the track format of the single-disk cartridge; BS 5359 (based on ISO 3564) specifies the physical and magnetic characteristics of the eleven-disk pack.

This British Standard is based on ISO 3563, to which it conforms in all essential particulars. The principle adopted has been to specify those characteristics which are necessary for interchange, so that manufacturers will be able to retain some individual design features, whilst incorporating those essential for interchange. Although the parameters quoted have been based on existing materials and methods, wherever possible the use of alternatives which would maintain the original requirements has been permitted.

Part 1 incorporates the mechanical and magnetic characteristics. This Part (Part 2) specifies a track format, detailing the patterns of magnetization on the disk surfaces to be used to record data blocks. These blocks are of a fixed length of 256 bytes, providing a total data capacity of approximately 2×10^6 bytes per cartridge. The specified format is based on current practice; disks recorded according to this Part of the standard and also conforming to Part 1 of the standard may be used for data interchange.

Information within the data blocks is in 8-bit bytes. Use of the UK 7-bit data code (see BS 4730) is specified, but other codes structured in accordance with BS 4953 may be used by agreement. It should be noted that binary code in 8-bit groups is used for control characters (some groups are specified in hexadecimal notation for convenience). This may not be an ideal arrangement for some applications since control information is visible to operating system software, but it avoids the need to modify existing equipment; most control functions are usually implemented by hardware.

Certification. Attention is drawn to the certification facilities described on the inside back cover.

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 and ii, pages 1 to 8, 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

This Part of this British Standard specifies the mode of recording and a track format for interchange of data using magnetic single-disk cartridges (top loading).

NOTE Track location and dimensions and the mechanical and magnetic properties of the disks are specified in BS 5356-1.

2 References

The titles of the publications referred to in this standard are listed on page 8.

3 Definitions

For the purposes of this Part of BS 5356 the definitions of BS 3527 and BS 4953 apply, together with the following.

3.1 sector

a division of a track. A sector may be further subdivided

3.2 sector zero

a sector containing information which defines the physical location and characteristics of a track

3.3 data sector

a sector which is composed of an identifier and a data block

3.4 identifier

part of a sector containing information which defines the physical location and characteristics of a sector

3.5 data block

part of a sector in which information is recorded

3.6 gap

the space between the various divisions of a track

3.7 byte (or octet)

eight serial bits, identified as b_8 to b_1 with b_8 as the most significant and recorded first

$(00)_{16}$ denotes a byte (or octet) with b_8 to $b_1 = 00000000$

$(FF)_{16}$ denotes a byte (or octet) with b_8 to $b_1 = 11111111$

$(CC)_{16}$ denotes a byte (or octet) with b_8 to $b_1 = 11001100$

$(09)_{16}$ denotes a byte (or octet) with b_8 to $b_1 = 00001001$

$(0B)_{16}$ denotes a byte (or octet) with b_8 to $b_1 = 00001011$

$(OF)_{16}$ denotes a byte (or octet) with b_8 to $b_1 = 00001111$

$(F2)_{16}^*$ denotes a byte (or octet) with b_8 to $b_1 = 11110010$

For $(F2)_{16}^*$ the clock transitions of b_6 and b_5 are missing.

3.8 cyclic redundancy check (CRC)

two bytes which are the remainder formed by dividing the relevant bytes defined later in this standard by the polynomial $X^{16} + X^{15} + X^2 + 1$ (see Appendix A).

They can be used for error checking when reading.

4 General requirements

4.1 Rotation speed and clock frequency. The total tolerance on rotation speed and clock frequency shall not exceed $\pm 3\%$ (see Appendix B).

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

At a nominal rotation speed of 2 400 rev/min, the all zeros pattern shall consist of 2.50×10^6 transitions per second nominally, and the all ONES pattern shall consist of 5.0×10^6 transitions per second nominally.

4.3 Index. The index is the point which determines the beginning and the end of a track. The location of the index is specified as a true position in Part 1 of this standard.

4.4 Track capacity. The capacity of a track shall be $62\,500 + 1\,933 - 1\,821$ bits (see Appendix C).

4.5 Track layout. The general track layout shall be as shown in Figure 1.

5 Detailed description of track layout

5.1 Sector zero. The first sector following the index is unique in that it contains a track identifier and will therefore be described separately. Figure 2 shows the sector zero layout.