ISO/IEC 18810:2001-02 (E)

Information technology_- 8_mm wide magnetic tape cartridge for information interchange_- Helical scan recording AIT-2 with MIC format

Contents

Section 1 – General **1**

1 Scope **1**

2 Conformance **1**

2.1 Magnetic tape cartridge **1**
2.2 Generating drive **1**
2.3 Receiving drive **1**

3 Normative references **2**

4 Definitions **2**

4.1 Absolute Frame Number (AFN) **2**
4.2 a.c. erase **2**
4.3 Access **2**
4.4 algorithm **2**
4.5 Area ID **2**
4.6 Automatic Track Finding (ATF) **2**
4.7 Average Signal Amplitude **2**
4.8 azimuth **2**
4.9 back surface **2**
4.10 byte **2**
4.11 cartridge **2**
4.12 Channel bit **2**
4.13 Codeword **2**
4.14 Early Warning Point (EWP) **2**
4.15 End of Data (EOD) **2**
4.16 Entity **2**
4.17 Error Correcting Code (ECC) **2**
4.18 flux transition position **2**
4.19 flux transition spacing **2**
4.20 Frame **3**
4.21 Housekeeping Frame **3**
4.22 Logical Beginning of Tape (LBOT) **3**
4.23 magnetic tape **3**
4.24 Master Standard Amplitude Calibration Tape **3**
4.25 Master Standard Reference Tape **3**
4.26 Memory In Cartridge (MIC) **3**
4.27 Partition Boundary **3**
4.28 Physical Beginning of Tape (PBOT) **3**
4.29 Physical End of Tape (PEOT) **3**
4.30 physical recording density **3**
4.31 pre-recording condition **3**
4.32 processing **3**
4.33 processed data **3**
4.34 Processed Record **3**
4.35 record **3**
4.36 Reference Field **3**
4.37 Secondary Standard Amplitude Calibration Tape **3**
4.38 Secondary Standard Reference Tape **3**
4.39 Separator Mark **4**

4.40 Standard Reference Amplitude (SRA) **4**
4.41 Tape Reference Edge **4**
4.42 Typical Field **4**
4.43 Standard Reference Current **4**
4.44 Test Recording Current **4**
4.45 track **4**
4.46 unprocessed data **4**
4.47 Unprocessed Record **4**

5 Conventions and Notations **4**

5.1 Representation of numbers **4**
5.2 Names **4**

6 Acronyms **4**

7 Environment and safety **5**

7.1 Test environment **5**
7.2 Operating environment **5**
7.3 Storage environment **5**
7.4 Transportation **5**
7.5 Safety **5**
7.6 Flammability **5**

Section 2 - Requirements for the case **6**

8 Dimensional and mechanical characteristics of the case **6**

8.1 General **6**
8.2 Overall dimension **6**
8.3 Holding areas **7**
8.4 Cartridge insertion **7**
8.5 Window **8**
8.6 Loading grips **8**
8.7 Label areas **8**
8.8 Datum areas and Datum holes **8**
8.9 Support areas **9**
8.10 Recognition holes **10**
8.11 Write-inhibit hole **10**
8.12 Pre-positioning surfaces **11**
8.13 Cartridge lid **11**
8.14 Cartridge reel lock **13**
8.15 Reel access holes **13**
8.16 Interface between the reels and the drive spindles **14**
8.17 Light path **15**
8.18 Position of the tape in the case **15**
8.19 Tape path zone **16**
8.20 Tape access cavity **16**
8.21 Tape access cavity clearance **16**
8.22 Requirements for the MIC **16**
8.23 Recognition recesses **18**

Section 3 - Requirements for the unrecorded tape **38**

9 Mechanical, physical and dimensional characteristics of the tape **38**

9.1 Materials **38**
9.2 Tape length **38**

9.2.1 Length of magnetic tape **38**
9.2.2 Length of leader and trailer tapes **38**
9.2.3 Length of the splicing tapes **38**

9.3 Tape width **38**

9.3.1 Width of magnetic, leader and trailer tapes **38**

9.3.2 Width and position of the splicing tape **38**

9.4 Discontinuities **39**
9.5 Tape thickness **39**

9.5.1 Thickness of the magnetic tape **39**
9.5.2 Thickness of the leader and trailer tape **39**
9.5.3 Thickness of the splicing tape **39**

9.6 Longitudinal curvature **39**
9.7 Cupping **39**
9.8 Coating adhesion **39**
9.9 Layer-to-layer adhesion **40**
9.10 Tensile strength **40**

9.10.1 Breaking strength **40**
9.10.2 Yield strength **40**

9.11 Residual elongation **40**
9.12 Electrical resistance of the recording surface **40**
9.13 Tape winding **41**
9.14 Light transmittance of the tape **41**
9.15 Recognition stripe **41**

10 Magnetic recording characteristics **42**

10.1 Typical Field **42**
10.2 Signal Amplitude **42**
10.3 Resolution **42**
10.4 Overwrite **42**
10.5 Ease of erasure **43**
10.6 Tape quality **43**

10.6.1 Missing pulses **43**
10.6.2 Missing pulse zone **43**

10.7 Signal-to-Noise Ratio (SNR) characteristic **43**

Section 4 - Requirements for an interchanged tape **44**

11 Format **44**
11.1 General **44**
11.2 Basic Groups **44**

11.2.1 Entity **45**
11.2.2 Group Information Table **45**
11.2.3 Block Access Table (BAT) **47**

11.3 Sub-Groups **50**

11.3.1 G1 Sub-Group **50**
11.3.2 G2 Sub-Group - Randomizing **51**
11.3.3 G3 Sub-Group **52**

11.4 Data Block **52**

11.4.1 ID information **53**
11.4.2 Recording of the ID Information in the Data Block Headers **55**

12 Method of recording **61**

12.1 Physical recording density **62**
12.2 Long-term average bit cell length **62**
12.3 Short-term average bit cell length **62**
12.4 Rate of change **62**
12.5 Bit shift **62**
12.6 Read signal amplitude **62**
12.7 Maximum recorded levels **62**

13 Track geometry **62**

13.1 Track configuration **62**
13.2 Average track pitch **63**
13.3 Variations of the track pitch **63**
13.4 Track width **63**
13.5 Track angle **63**
13.6 Track edge straightness **63**
13.7 Track length **63**
13.8 Azimuth angles **63**

14 Recorded patterns **64**

14.1 Recorded Data Block **64**
14.2 Margin blocks **64**

15 Format of a track **64**

15.1 Track structure **64**
15.2 Positioning accuracy **65**
15.3 Tracking scheme **66**

16 Layout of the tape **66**

16.1 Device Area **67**
16.2 Reference Area **67**
16.3 Position Tolerance Band No. 1 **68**
16.4 System Area **68**

16.4.1 System Preamble **68**
16.4.2 System Log **68**
16.4.3 System Postamble **72**
16.4.4 Position Tolerance Band No. 2 **72**
16.4.5 Vendor Group Preamble **72**

16.5 Data Area **72**

16.5.1 Vendor Group **72**
16.5.2 Recorded Data Group **72**
16.5.3 ECC3 **72**
16.5.4 Multiple Recorded Instances **73**
16.5.5 Repeated Frames **73**
16.5.6 Appending and overwriting **74**

16.6 EOD Area **75**
16.7 Optional Device Area **75**
16.8 Logical End Of Tape (LEOT) **76**
16.9 Logical Beginning of Tape (LBOT) **76**
16.10 Early Warning Point - EWP **76**
16.11 Empty Partition **76**
16.12 Initialization **76**

17 Housekeeping Frames **77**

17.1 Amble Frames **77**
17.2 System Amble Frames **77**

18 Content of the MIC **78**

Annexes

A - Measurement of light transmittance **79**

B - Measurement of Signal-to-Noise Ratio **82**

C - Method for determining the nominal and the maximum allowable recorded levels (pre-recording condition) **83**

D - Representation of 16-bit words by 20-Channel bits patterns **84**

E - Measurement of bit shift **86**

F - Method of measuring the straightness of track edges **88**
G - ECC calculation **89**
H - Recommendations for transportation **92**
J - Read-After-Write **93**
K - Example of the content of a Basic Group No. 0 **94**
L - Examples of chip **95**