

ISO/IEC 22051:2002-10 (E)

Information technology_- Data interchange on 12,7_mm, 448-track magnetic tape cartridges_- SDLT1_format

Contents

1	Scope	1
2	Conformance	1
2.1	Magnetic tape cartridges	1
2.2	Generating systems	1
2.3	Receiving systems	1
3	Normative references	1
4	Terms and definitions	1
4.1	back surface	1
4.2	Beginning-Of-Tape marker (BOT)	1
4.3	block	2
4.4	byte	2
4.5	cartridge	2
4.6	Cyclic Redundancy Check (CRC) character	2
4.7	Error-Detecting Code (EDC)	2
4.8	End-Of-Tape marker (EOT)	2
4.9	Entity	2
4.10	Error-Correcting Code (ECC)	2
4.11	Envelope	2
4.12	Envelope size	2
4.13	flux transition position	2
4.14	flux transition spacing	2
4.15	logical track	2
4.16	magnetic tape	2
4.17	Master Standard Reference Tape	2
4.18	object	2
4.19	page	2
4.20	recording density	2
4.21	physical track	2
4.22	Record	3
4.23	Reference Edge	3
4.24	Reference Field	3
4.25	Secondary Standard Reference Tape	3
4.26	Standard Reference Amplitude (SRA)	3
4.27	Standard Reference Current	3
4.28	Test Recording Current	3
4.29	Typical Field	3
5	Conventions and notations	3
5.1	Representation of numbers	3
5.2	Dimensions	3
5.3	Names	3
5.4	Acronyms	3
6	Environment and safety	4
6.1	Cartridge and tape testing environment	4
6.2	Cartridge operating environment	4
6.3	Cartridge storage environment	4
6.4	Safety	4
6.5	Flammability	4
6.6	Transportation	4

Section 2 - Requirements for the unrecorded tape	5
7 Mechanical and electrical requirements	5
7.1 Material	5
7.2 Tape length	5
7.3 Tape width	5
7.4 Tape thickness	5
7.5 Discontinuity	5
7.6 Longitudinal curvature	5
7.6.1 Requirements	5
7.6.2 Procedure	5
7.7 Out-of-Plane distortions	5
7.8 Cupping	5
7.9 Roughness of the coating surfaces	6
7.9.1 Roughness of the back coating surface	6
7.9.2 Roughness of the magnetic coating surface	6
7.10 Coating adhesion	6
7.11 Layer-to-layer adhesion	6
7.11.1 Requirements	6
7.11.2 Procedure	6
7.12 Modulus of elasticity	7
7.12.1 Requirement	7
7.12.2 Procedure	7
7.13 Flexural rigidity	8
7.13.1 Requirement	8
7.13.2 Procedure	8
7.14 Tensile yield force	8
7.14.1 Procedure	8
7.15 Electrical resistance	8
7.15.1 Requirement	8
7.15.2 Procedure	8
7.16 Inhibitor tape	9
7.17 Light transmittance of the tape and the leader	9
7.18 Abrasivity	9
7.19 Coefficient of dynamic friction	9
7.19.1 Requirements	9
7.19.2 Procedure for the measurement of the friction between the magnetic surface and the back surface	9
7.19.3 Procedure for the measurement of the friction between the magnetic surface or the back surface and calcium titanate ceramic	10
7.20 Servo	10
7.20.1 Servo Bands	10
7.20.2 Servo Tracks	11
7.20.3 Signal	11
7.20.4 Signal-to Noise Ratio	11
7.20.5 Missing servo mark	11
8 Magnetic recording characteristics	12

8.1	Typical Field	13
8.2	Signal amplitude	13
8.3	Resolution	13
8.4	Overwrite	13
8.4.1	Requirement	13
9	Tape quality	13
9.1	Missing pulses	13
9.1.1	Requirement	13
9.2	Missing pulse zone	13
9.2.1	Requirement	13
9.3	Tape durability	13
Section 3 - Mechanical specifications of the tape cartridge		14
10	General	14
10.1	Bottom side and right side	14
10.2	Back side and left side	15
10.3	Tape reel	16
10.4	Tape leader	17
10.5	Front side	18
10.6	Operation of the cartridge	18
10.7	Tape winding	19
10.8	Moment of inertia	19
10.9	Material	19
Section 4 - Requirements for an interchanged tape		29
11	Tape format	29
11.1	Reference Edge	29
11.2	Direction of recording	29
11.3	Tape layout	29
11.3.1	Data Area	29
11.3.2	Forward Alignment and Directory Area	31
11.3.3	Reverse Alignment Area at EOT	32
12	Data format	33
12.1	Record	33
12.2	Data Bytes	33
12.3	Data Field	33
12.3.1	Pages	34
12.3.2	Pad Bytes	34
12.3.3	Page layout	34
12.3.4	MAP entries	34
12.3.5	EDC	35
12.4	Data Blocks	35
12.4.1	Control Field 1 (CF1)	36
12.4.2	Control Field 2 (CF2)	37
12.4.3	CRC	39
13	Method of recording	39
13.1	Physical recording density	40
13.2	Channel bit cell length	40

13.2.1	Average Channel bit cell length	40
13.2.2	Long-term average Channel bit cell length	40
13.2.3	Short-term average Channel bit cell length	40
13.3	Read signal amplitude	40
13.4	Channel skew	40
14	Block Recording Format	41
14.1	Scrambler	41
14.2	Modulation	41
14.2.1	Modulation process	41
14.2.2	Modulated Data Group	42
14.3	Precoder	42
14.4	Recording Data Block	43
14.4.1	Preamble	43
14.4.2	Sync	43
15	Types and Use of Blocks	43
15.1	Types of Blocks	43
15.2	Use of blocks	43
15.2.1	Track ID Start Blocks	43
15.2.2	End of Track Blocks (EOTR)	44
15.2.3	End of Data of Data Blocks (EOD)	44
15.2.4	ECC Blocks	44
15.2.5	Track ID End Blocks	44
16	Format of Entities	44
17	Format of Envelopes	44
18	Error handling	44
Annexes		
A	Measurement of light transmittance	45
B	Procedure for the measurement of abrasivity	48
C	Generation of the Data Block CRCs	50
D	Generation of page CRCs	51
E	ECC generation	52
F	Allocation of Physical Tracks to Logical Tracks	55
G	Recommendations for transportation	56
H	Inhibitor tape	57
J	Recommendations on tape durability	58
K	Handling guidelines	59