

ISO/IEC 10089:1991-05 (E)

Information technology; 130 mm rewritable optical disk cartridge for information interchange

Contents		Page
1	Scope.....	1
2	Conformance	1
3	Normative references.....	1
4	Conventions and notations	1
5	List of acronyms.....	2
6	Definitions	2
6.1	case.....	2
6.2	Clamping Zone.....	2
6.3	Control Track	2
6.4	cyclic redundancy check (CRC).....	2
6.5	defect management.....	2
6.6	disk reference plane.....	2
6.7	entrance surface.....	2
6.8	error correction code (ECC)	2
6.9	format	2
6.10	hub	3
6.11	interleaving	3
6.12	Kerr rotation.....	3
6.13	land and groove.....	3
6.14	mark	3
6.15	optical disk.....	3
6.16	optical disk cartridge (ODC).....	3
6.17	polarization	3
6.18	pre-recorded mark.....	3
6.19	read power	3
6.20	recording layer.....	3
6.21	Reed-Solomon code.....	3
6.22	rewritable optical disk.....	3
6.23	spindle	3
6.24	substrate	3
6.25	track	3
6.26	track pitch	3
6.27	write-inhibit hole.....	3
7	General description.....	4
8	Environments.....	4
8.1	Testing environment	4
8.2	Operating environment.....	4
8.3	Storage environment	4
8.3.1	Short-term storage	5
8.3.2	Long-term storage.....	5
8.4	Transportation	5
9	Safety requirements	5
10	Dimensional and mechanical characteristics of the case	5

10.1	General.....	5
10.2	Case drawings	5
10.3	Sides, reference axes and reference planes.....	6
10.3.1	Relationship of Sides A and B.....	6
10.3.2	Reference axes and case reference planes	6
10.4	Materials	6
10.5	Mass	6
10.6	Overall dimensions (see figure 3)	6
10.7	Location hole (see figure 3).....	7
10.8	Alignment hole (see figure 3)	7
10.9	Surfaces on reference planes P (see figures 4 and 4a)	8
10.10	Insertion slots and detent features (see figure 5)	9
10.1	1 Gripper slots (see figure 6).....	9
10.12	Write-inhibit holes (see figure 7).....	10
10.13	Media sensor holes (see figure 8).....	10
10.14	Head and motor window (see figure 10).....	11
10.15	Shutter (see figure 11).....	11
10.16	Slot for shutter opener (see figure 11)	11
10.17	Shutter sensor notch (see figure 9).....	12
10.18	User label areas (see figure 13).....	12
11	Dimensional and physical characteristics of the disk.....	13
11.1	Dimensions of the disk	13
11.1.1	Outer diameter	13
11.1.2	Thickness	13
11.1.3	Clamping zone (see figure 1).....	13
11.1.4	Clearance zone	13
11.2	Mass	13
11.3	Moment of inertia.....	13
11.4	Imbalance	13
11.5	Axial deflection	13
11.6	Axial acceleration	13
11.7	Dynamic radial runout.....	13
11.8	Radial acceleration	14
11.9	Tilt.....	14
12	Drop test	14
13	Interface between disk and drive	14
13.1	Clamping technique	14
13.2	Dimensions of the hub (see figure 1)	14
13.2.1	Outer diameter of the hub.....	14
13.2.2	Height of the hub	14
13.2.3	Diameter of the centre hole	14
13.2.4	Height of the top of the centre hole at diameter D9	14
13.2.5	Centring length at diameter D9	15
13.2.6	Chamfer at diameter D9	15
13.2.7	Chamfer at diameter D8	15
13.2.8	Outer diameter of the magnetizable ring.....	15
13.2.9	Inner diameter of the magnetizable ring	15
13.2.10	Thickness of the magnetizable material.....	15
13.2.11	Position of the top of the magnetizable ring relative to the disk reference plane	15
13.3	Magnetizable material	15
13.4	Clamping force.....	15
13.5	Capture cylinder for the hub (see figure 12).....	15
13.6	Disk Position in the operating condition (see figure 12)	16
14	Characteristics of the substrate.....	31
14.1	Index of refraction	31
14.2	Thickness	31
15	Characteristics of the recording layer.....	31

15.1	Test conditions	31
15.1.1	General	31
15.1.2	Read conditions.....	31
15.1.3	Write conditions	32
15.1.4	Erase conditions.....	32
15.2	Baseline reflectance.....	33
15.2.1	General	33
15.2.2	Actual value	33
15.2.3	Requirement.....	33
15.3	Magneto-optical recording in the User Zone.....	33
15.3.1	Resolution	33
15.3.2	Imbalance of magneto-optical signal	34
15.3.3	Figure of merit for magneto-optical signal	34
15.3.4	Narrow-band signal-to-noise ratio.....	34
15.3.5	Cross-talk ratio	35
15.3.6	Ease of erasure.....	35
16.	Features common to both formats.....	36
16.1	Track geometry.....	36
16.1.1	Track shape.....	36
16.1.2	Direction of rotation	36
16.1.3	Track pitch	36
16.1.4	Track number.....	36
16.2	Formatted Zone	36
16.3	Control tracks	37
16.4	Control Track PEF [^] Zone	37
16.4.1	Recording in the PEP Zone	37
16.4.2	Cross-track loss	38
16.4.3	Format of the tracks of the PEP Zone	39
16.5	Control Track SFP Zones	42
16.5.1	Duplicate of the PEP information	43
16.5.2	Media information	43
16.5.3	System Information.....	51
16.5.4	Unspecified content.....	51
16.6	Requirements for interchange of a user-recorded cartridge.....	51
16.6.1	Requirements for reading.....	51
16.6.2	Requirements for writing and erasing	51
17	Format A.....	51
17.1	Track layout	51
17.1.1	Tracking.....	51
17.1.2	Characteristics of pre-recorded information.....	52
17.2	Sector format	54
17.2.1	Sector Mark (SM)	56
17.2.2	VFO areas.....	56
17.2.3	Address Mark (AM).....	56
17.2.4	ID and CRC.....	56
17.2.5	Postamble (PA).....	57
17.2.6	Offset Detection Flag (ODF)	57
17.2.7	Gap.....	57
17.2.8	Flag	57
17.2.9	Auto Laser Power Control (ALPC).....	57
17.2.10	Sync 57	
17.2.11	Data field 57	
17.2.12	Buffer	58
17.3	Recording Code.....	58
17.4	Defect management	59
17.4.1	Media initialization	59
17.4.2	Write and read procedure.....	60
17.4.3	Layout of the User Zone	60
17.4.4	Summary of the location of the zones on the disk	64

18	Format B	66
18.1	Track layout.....	66
18.1.1	Servo format.....	66
18.1.2	Properties of pre-recorded signals	67
18.2	Data structure	67
18.2.1	Track format	67
18.2.2	Sector format	67
18.2.3	Error detection and correction	69
18.2.4	Recording method	70
18.2.5	Defect management.....	73
Annexes A Optical systems for measuring write, read and erase characteristics		79
B Definition of write and erase pulse width		81
C Measurement of figure of merit		82
D Values to be implemented in future Standards.....		83
E Pointer fields.....		84
F CRC for ID fields		85
G Interleave, CRC, ECC, Resync for the Data field		86
H Sector retirement guidelines.....		93
1	Office environment.....	93
J Transportation.....		94
K Requirements for interchange		95