

Specifications for MAM-A CD-R Media

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Valid for 650 MB and 700 MB media, 2X to 52X speeds

This document contains the media specification for CD-R supplied from Mitsui Advanced Media, Inc.
 All Mitsui CD-R specifications meet or exceed Orange book Specifications
 Specifications not appearing in this document are in accordance with Orange Book Part 2 or Red Book.

1. Structure

The media is composed of substrate, organic dye layer (phthalocyanine), reflective layer, protective layer, and label printing.

2. Environmental Condition

1) Measuring condition	Temperature; Humidity; Atmospheric pressure; * Dew should be avoided.	15 - 35 C 45 - 75 %RH 86 -106 Pa
2) Recording condition	Temperature; Humidity; * Dew should be avoided.	-5 - 55 C 5 - 95%RH
3) Play back condition	Temperature; Humidity; * Dew should be avoided.	-40 - 70 C 5 - 95%RH
4) Transportation condition	Temperature Humidity Period * Dew should be avoided.	-20 - 60 C 5 - 95%RH 2 weeks
5) Storing condition	Temperature Humidity Period * Dew should be avoided.	5 - 30 C 8 - 60 %RH 50 years (silver reflect layer) 300 years (gold reflect layer)

3. Product specification

3-1) Dimension

Items	Specification
Outer diameter	120 ±0.3 mm
Inner diameter	15 +0.1/-0.0 mm
Disc weight	15 - 18 g
Disc thickness	1.2 +0.3/-0.1 mm
Clamping area	26 - 33 mm
Thickness in clamping area	1.2 +0.3/-0.1 mm
Start dia. of Information area	35 sec 65 frame before lead in
Max.dia.of Information area	118 mm
Start dia. of lead-in	46 +0.0/-0.2 mm

3-2) Mechanical properties

Items	Specification
Average deflection	± 0.2 mm
Deflection in one revolution	± 0.14 mm
TILT	< 0.4 Degrees
Eccentricity	<=35 microns

3-3) Optical properties

Items	Specification
Substrate thickness	1.2 ± 0.1 mm
Substrate refractive index	1.55 ± 0.1
Max. retardation(double pass)	< 100 nm

3-4) Track

Items	Specification
Track pitch	1.6 ± 0.1 microns
Scanning velocity	1.20 ± 0.01 m/s
Max. velocity variation	± 0.01 m/s

3-5) ATIP Information

Items	Specification
Optimum recording power	5.9 mW
Lead in start ATIP time	97:27:55
Lead out start ATIP time	74:05:10
Disc application code	1000000(unrestricted use)

3-6) Unrecorded performance

Items	Specification
Push-pull variation	< 15 %
Radial contrast(RCb)	> 0.05
Wobble frequency	22.05 kHz
CNR of wobble	> 35 dB
ATIP error rate	< 10 %
Max. local defect	does not cause track jump

3-7) Recorded performance

Items	Specification
Reflectivity(Rtop)	> 0.68
Reflectivity variation(?Rtop)	< 3 %
Modulation(I3/Itop)	0.3 - 0.7
Modulation(I11/Itop)	> 0.6
BLER (avg)	< 50 cps (Orange Book: <100 cps)
BLER (max)	<100 cps (Orange Book: <220 cps)
Cross talk (xt)	< 0.5
Jitter	< 35 ns
Push-pull (min, max)	0.04 - 0.105
NPPR	0.5 - 1.0
Radial contrast(RCa)	> 0.2
CNR of wobble	> 26 dB
3T pit deviation	-40 - +40 ns
3T land deviation	-40 - +40 ns
11T pit deviation	-60 - +60 ns
11T land deviation	-60 - +60 ns

4. Appearance

4-1) Lot number

12 digit number

4-2) Local defect

Air bubble, diameter < 100 microns

Black spot, diameter < 200 microns

Other defect < 100 microns

5. Others

5-1) Precautions

? To protect the (yellow green) recording surface of the disc from scratch, fingerprints, dust particles and smears, never touch the recording surface or place it face down on a hard surface. Hold the disc along the outer edges, or by placing the index finger in the center hole.

? Should the disc become dirty, use a soft, dry cloth to clean it. Commercially available CD cleaning liquid or ethyl alcohol can also be used. Do not use gasoline, kerosene, benzene, lacquer thinner, anti-static agents, or LP record cleaners as they may damage the recording surface.

? When labeling a disc for identification purpose, write only on the premarked label side using a soft felt tip marker.

? To prevent warping or accidental damage to the disc and recorded data, do not leave the disc in direct sunlight or in a hot, humid location.