Specifications for MAM-A CD-R Media

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This document contains the media specification for CD-R supplied from MAM-A Inc.
All MAM 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 100 years (silver reflect layer) 300 years (gold reflect layer)

3. Product specification. Valid for 650 MB and 700 MB media. 4X - 52X speed

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	97m27s58f	
Lead out start ATIP time 700 MB	79m59s74f	
Lead in start ATIP time	97m27s58f	
Lead out start ATIP time 650 MB	74m05s13f	
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)	> 0.60
Reflectivity variation(ΔRtop)	< 3 %
Modulation(I3/Itop)	0.3 – 0.7
Modulation(I11/Itop)	> 0.6
BLER (avg)	< 100 cps
BLER (max)	<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

12-14 digit number

4-2) Local defect

Air bubble, diameter < 200 microns

Black spot, diameter < 300 microns

5. Others

5-1) Precautions

⑴ 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.

⑵ 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.

⑶ When labeling a disc for identification purpose, write only on the premarked label side using a soft felt tip marker.

⑷ 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.