



Moser Baer India Ltd.  
Engineering Department  
Product: 120mm DVD+R  
Process DVD+R,16X/Version 4.1

Document No:MBI/DVD+R16X/01  
Effective: July 2004  
Version 00  
Page No: 1 of 6

## **PRODUCT SPECIFICATION**

### **Digital Versatile Disc (DVD+R), 4.7 Gbytes (1X-16X)**

**Approved By:**

**G.M (Technical)**

Moser Baer India Ltd.  
Engineering Department  
Product: 120mm DVD+R  
Process DVD+R,16X/Version 1.29

Document No:MBI/DVD+R16X/01  
Effective: July 2004  
Version 00  
Page No: 2 of 6

***Table of Contents*** ***Page***

---

1.0	PURPOSE.....	3
2.0	SCOPE.....	3
3.0	REVISION RECORD.....	3
4.0	APPLICABLE PRODUCT.....	3
5.0	ENVIRONMENTAL CONDITIONS .....	3
6.0	RAW MATERIAL DETAILS.....	4
7.0	PRODUCT CHARACTERISTICS AND SPECIFICATIONS.....	4

## 1.0 PURPOSE

- 1.1 To define and document the mechanical, physical , and optical characteristics of MBI's 16X DVD+R, 120mm recordable optical disc with capacity of 4.7G Bytes in its final form as shipped to the customer.

## 2.0 SCOPE

- 2.1 This document is in conformance with DVD specifications for recordable disc for general(DVDR for general). This is in compliance with DVD+R 4.7 Gbytes Basic Format Specifications version 1.29 dated May 28,2004. Disc manufactured with this process are designed to work at 1X-16X recording speed.

## 3.0 REVISION RECORD

Effect Date	Item(s) No(s)	Page No.	Change Made to Document	Name of requester
20.3.06	7.4(4)	5	Radial Run Out <40um in place of <70um	Customer Requirement
	7.2(11,12)	5	TE & FE Spec added	

## 4.0 APPLICABLE PRODUCT

- 4.1 Product Description  
16X Speed, 4.7 Gbytes DVD+R

## 5.0 ENVIRONMENT CONDITIONS

### 5.1 For Product Testing

1	Temperature	23 ± 2 deg C
2	Relative Humidity	45-55 % RH

There should be no condensation. Before testing, the disc should be conditioned to the testing environment for 48hrs minimum.

## 5.2 For Product Use

1	Temperature	-10 to 55 deg C
2	Absolute Humidity	1.0 ~ 30 gm/cu. M
3	Relative Humidity	3 ~ 90 % RH
4	Relative Temperature variations	< 10 deg C/hr
5	Relative Humidity variations	< 10% RH/hr

No condensation occurs on the disc.

## 5.3 For Reliability Test, Test Condition

1	Temperature	80 deg C
2	Humidity	85% RH
3	Duration Time	

After Climate test the disc should maintain the book specifications.

## 6.0 RAW MATERIAL DETAIL

1	Substrate	Polycarbonate
2	Recording Layer/ Dye	Azo Organic dye
3	Reflective Layer	Silver Alloy
4	Bonding Layer	UV Bonding resin

## 7.0 PRODUCT CHARACTERISTICS AND SPECIFICATIONS

### 7.1 DISC GEOMETRY

1	Outer diameter of disc	120 ± 0.3 mm
2	Center hole diameter	15.00 – 15.15 mm
3	Finished disc thickness	1.17 to 1.26 mm
4	Track pitch	0.74 ± 0.01 um
5	Scanning velocity	3.49 ± 0.03 m/s
6	Substrate Thickness	0.6 ± 0.02

## 7.2 MECHANICAL CHARACTERISTICS

1	Axial Run Out	±300um
2.	Axial Tracking Error	± 0.13um
3.	Axial Acceleration	±4m/s <sup>2</sup>
4.	Radial Run Out	<40um
5.	Radial Tracking Error	±0.015um
6.	RMS Noise	±0.016um
7.	Radial Acceleration	±1.1m/s <sup>2</sup>
8.	Radial Alpha	±0.7deg
9.	Radial PP	<0.8deg
10	Tangential Alpha	±0.30deg
11	Tracking Error (MBI Plx 716 tool)	<52
12	Focus Error (MBI Plx 716 tool)	<32

\* Calibrated Plx 716 drive in MBI.

## 7.3 ELECTRICAL UNRECORDED SIGNALS

1	Push Pull signal Before(PPb) Recording	0.3- 0.6
2	Push Pull variations before recording ( PPvar)	<0.15
3	Push Pull Ratio (PPr) after recording	0.6 – 1.0
4	TCa	>0.13
5	Normalized Wobble Signal (NWS)	0.15 – 0.25
6	NWSr	2.6
7	Birefringence	< 60 nm
8	WOb	>45 dB

#### 7.4 ELECTRICAL RECORDED SIGNALS \*\*

1	Rtop	45 – 85%
2	I14/I14H	>0.6
3	I3/I14	>0.15
4	Variation of I14/I14H within one disc	<0.25
5	Variation of I14/I14H within one revolution	<0.15
6	Asymmetry	-0.05 TO 0.15
7	PI Sum 8	<280
8	Jitter	<9%
9	DPT Amplitude	0.5-1.1
10	DPT Asymmetry	<0.2
11	TPP	<0.9
12	WOa	>38

\*\* Problematic drives excluded.

#### 7.5 QUALITY OF SIGNALS

1	Air Bubbles	<=100um
2	Black spot causing birefringence	<= 200 um
3	Black spot not causing birefringence	< 300 um
4	Number (/80mm) of defects larger than 30 um	< 6
5	The total length (/80mm) of defects larger than 30 um	<= 300 um