June 2005

Forms for DVD Format Verification of

DVD-RAM Disc (2.6 Gbytes)

Form 1C to 18C Version 1.01

Notice:

- *These Forms will be revised on occasion for improvement or Version-up of the related Test Specification.*
- *The latest Forms shall be used to fill up the necessary information for application to Verification Lab, according to the related Test Specification.*
- *You can fill up the shaded space in every Form.*
- *"Adobe® Acrobat®" will be necessary for making your own files.*

Preliminary Information for DVD Format Verification

Application No. (Lab use)	:	
Application date (mm. dd, yyyy)	:	
Lab receipt date (mm. dd, yyyy)	:	
Lab name	:	

DVD-RAM Disc described below is for DVD Format Verification of the First Production Model.

Product name	Disc number	Note
Remarks:		

DVD-RAM Disc described above will be applied for Format Verification by the following applicant.

Name of applicant	
Title of applicant	
Company & Factory name	
Factory address	
Phone number	
Fax number	
E-mail	

Applicant's Signature:

Test Information of DVD Format Verification

DVD Format Verification Lab record (Verification Lab use only)

- Name of verification Lab :
- Name of inspector :
- Application date :
- Date of test completed :
- Verification number :

Information of applicant

- Applicant's name :
- Company name :
- Company address :
- Phone number :
- Fax number :

DVD-RAM Disc details

- Brand / Trade name :
- Model number :
- Disc name :
- Disc No. :
- Notes :
- Disc type : ☐ Single side ☐ Double side ☐ Others ( )
- Case type : ☐ Type 1 ☐ Type 2 ☐ Type 3(*) ☐ Without case
  (*)In case of cartridge test
- Label : ☐ Yes ☐ None
- Capacity : ☐ 2.6 Gbytes ☐ 5.2 Gbytes ☐ Others ( )
- Certification : ☐ Certified ☐ Uncertified

DVD-RAM Disc Case Details

- Brand / Trade name :
- Case name :
- Case No. :
- Notes :
- Case type : ☐ Type 1 ☐ Type 2 ☐ Type 3

Test result of the Mechanical Parameter characteristics

Paragraph*	Items		Specification	Measurement Value		Judgment (Lab use)
				Applicant	Lab	
2.4.2	Outer diameter(D5)**		120.0±0.3 mm			
2.4.4	Center-hole diameter (One sides of the disc)**		15.00~15.15 mm			
2.4.5	Center-hole diameter (Both side put together)		≥15.00 mm			
2.4.6	Edge shape**					
2.4.7	Thickness of a disc	R=25mm	1.14~1.50 mm			
		R=41mm				
		Outer edge				
2.4.11	Thickness of a disc in clamping area		1.10~1.40 mm			
2.4.12	Mass of a disc**		14.0~20.0 g			
2.4.13	Moment of Inertia**		≤0.040 g•m²			
2.4.14	Dynamic balance		≤0.010 g•m			

* : Refer to DVD Specification for Rewritable Disc (DVD-RAM) Part 1 V1.0.

** : The parameter indicated should be subject to checking for correctness by Class-A Lab verification.
In general these values can only be checked indirectly or via a destructive process or are only available during the production process. Licensee is requested to report on these issues.

Comments:

Test result of the Optical Parameter characteristics

Paragraph*	Items		Specification	Measurement Value		Judgment (Lab use)
				Applicant	Lab	
2.5.2	Refractive Index (RI) of substrate**		1.55±0.10			
2.5.3a	Angular deviation (Radial deviation)	Max.	±0.70 deg			
		Min.				
2.5.3b	Angular deviation (Tangential deviation)	Max.	±0.30 deg			
		Min.				
2.5.4	Birefringence of transparent substrate	Max.	≤60 nm			
		Min.				
2.5.5a	Reflectivity including birefringence (Rewritable data zone)	Max.	15~25 %			
		Min.				
2.5.5b	Reflectivity including birefringence (Embossed data zone)	Max.	15~25 %			
		Min.				

* : Refer to DVD Specification for Rewritable Disc (DVD-RAM) Part 1 V1.0.

** : The parameter indicated should be subject to checking for correctness by Class-A Lab verification. In general these values can only be checked indirectly or via a destructive process or are only available during the production process. Licensee is requested to report on these issues.

Comments:

Test result of the Recorded Parameter characteristics

Paragraph*	Items		Specification	Measurement Value		Judgment (Lab use)
				Applicant	Lab	
2.6.4	Starting diameter of Embossed data zone in Lead-in area		44.8~45.2 mm			
2.6.5	Starting diameter of Rewritable data zone in Lead-in area		47.6~48.0 mm			
2.6.6	Maximum diameter of Data area		115.2 mm			
2.6.8	Outer diameter of Lead-out area		116.8~117.2 mm			
2.6.10	Deviation from nominal value below the rotational frequency	Max.	±0.3 mm			
		Min.				
2.6.10b	Allowed error below 10KHz measured using the reference servo for axial tracking	Max.	±0.23 μm			
		Min.				
2.6.11a	Radial deviation (Radial run-out of tracks determined by the scanning velocity	Max.	≤50 μm(P-P)			
		Min.				
2.6.11b	Radial deviation (Allowed error below 1.7kHz)	Max.	±0.022 μm			
		Min.				
2.6.11c	Radial deviation / Embossed data zone (r.m.s.Noise value)	Max.	≤0.025 μm			
		Min.				
2.6.11d	Radial deviation / Rewritable data zone (r.m.s.Noise value)	Max.	≤0.016 μm			
		Min.				

* : Refer to DVD Specification for Rewritable Disc (DVD-RAM) Part 1 V1.0.

Comments:

Test result of the Signal from grooves characteristics (1)

Paragraph*	Items		Specification	Measurement Value		Judgment (Lab use)
				Applicant	Lab	
2.7.2.1	$(I_1-I_2)pp / (I_1+I_2)a$ Written recording field	Zone 0	0.35~1.05			
		Zone 12				
		Zone 23				
	$(I_1-I_2)pp / (I_1+I_2)a$ Unwritten recording field	Zone 0	0.35~1.05			
		Zone 12				
		Zone 23				
2.7.2.2	$[(I_1-I_2) / (I_1+I_2)]$ pp Written recording field	Zone 0	1.10~1.65			
		Zone 12				
		Zone 23				
	$[(I_1-I_2) / (I_1+I_2)]$ pp Unwritten recording field	Zone 0	1.10~1.65			
		Zone 12				
		Zone 23				
	$\{[(I_1-I_2) / (I_1+I_2)]$ pp$\}$min / $\{[(I_1-I_2)/ (I_1+I_2)]$pp$\}$max	Zone 0	≥0.70			
		Zone 12				
		Zone 23				
2.7.2.3a	On-track signal (on groove track)	Zone 0	0.56~0.84			
		Zone 12				
		Zone 23				
2.7.2.3b	On-track signal (on land track)	Zone 0	0.56~0.84			
		Zone 12				
		Zone 23				

* : Refer to DVD Specification for Rewritable Disc (DVD-RAM) Part 1 V1.0.

Comments:

 June 2005

Test result of the Signal from grooves characteristics (2)

Paragraph*	Items		Specification	Measurement Value		Judgment (Lab use)
				Applicant	Lab	
2.7.2.3b	On track signal (Iot)groove / (Iot)land	Zone 0	0.9~1.1			
		Zone 12				
		Zone 23				
2.7.2.5a	SNR of the wobble signal on unwritten groove track	Zone 0	≥20 dB			
		Zone 12				
		Zone 23				
	SNR of the wobble signal on unwritten land track	Zone 0	≥20 dB			
		Zone 12				
		Zone 23				
2.7.2.5b	SNR of the wobble signal on written groove track	Zone 0	≥20 dB			
		Zone 12				
		Zone 23				
	SNR of the wobble signal on written land track	Zone 0	≥20 dB			
		Zone 12				
		Zone 23				
2.7.2.5a	Wpp / $(I_1-I_2)pp$ on groove track	Zone 0	0.05~0.10			
		Zone 12				
		Zone 23				
2.7.2.5b	Wpp / $(I_1-I_2)pp$ on land track	Zone 0	0.05~0.10			
		Zone 12				
		Zone 23				

* : Refer to DVD Specification for Rewritable Disc (DVD-RAM) Part 1 V1.0.

Comments:

 June 2005

Test result of the Signal from Header field in Rewritable data zone characteristics (1)

Paragraph*	Items	Measuring points			Specification	Measurement Value		Judgment (Lab use)
						Applicant	Lab	
2.7.3	Jitter	Zone 0	ID 1,2	G	≤ 8.5 %			
				L				
			ID 3,4	G				
				L				
		Zone 12	ID 1,2	G				
				L				
			ID 3,4	G				
				L				
		Zone 23	ID 1,2	G				
				L				
			ID 3,4	G				
				L				
2.7.3.1	I_{vfo} / I_o	Zone 0	ID 1,2	G	≥ 0.25			
				L				
			ID 3,4	G				
				L				
		Zone 12	ID 1,2	G				
				L				
			ID 3,4	G				
				L				
		Zone 23	ID 1,2	G				
				L				
			ID 3,4	G				
				L				

* : Refer to DVD Specification for Rewritable Disc (DVD-RAM) Part 1 V1.0.

Comments:

Test result of the Signal from Header field in Rewritable data zone characteristics (2)

Paragraph*	Items	Measuring points			Specification	Measurement Value		Judgement (Lab use)
						Applicant	Lab	
2.7.3.1	I_{vfo}/I_{hmax}	Zone 0	ID 1,2	G	≥ 0.50			
				L				
			ID 3,4	G				
				L				
		Zone 12	ID 1,2	G				
				L				
			ID 3,4	G				
				L				
		Zone 23	ID 1,2	G				
				L				
			ID 3,4	G				
				L				
2.7.3.2	I_{hmin}/I_o	Zone 0	ID 1,2	G	≥ 0.10			
				L				
			ID 3,4	G				
				L				
		Zone 12	ID 1,2	G				
				L				
			ID 3,4	G				
				L				
		Zone 23	ID 1,2	G				
				L				
			ID 3,4	G				
				L				

* : Refer to DVD Specification for Rewritable Disc (DVD-RAM) Part 1 V1.0.

Comments:

Test result of the Signal from Header field in Rewritable data zone characteristics (3)

Paragraph*	Items	Measuring points			Specification	Measurement Value		Judgment (Lab use)
						Applicant	Lab	
2.7.3.2	I_{hmax}/I_o	Zone 0	ID 1,2	G	≥ 0.30			
				L				
			ID 3,4	G				
				L				
		Zone 12	ID 1,2	G				
				L				
			ID 3,4	G				
				L				
		Zone 23	ID 1,2	G				
				L				
			ID 3,4	G				
				L				
	I_{hmin}/I_{hmax}	Zone 0	ID 1,2	G	≥ 0.30			
				L				
			ID 3,4	G				
				L				
		Zone 12	ID 1,2	G				
				L				
			ID 3,4	G				
				L				
		Zone 23	ID 1,2	G				
				L				
			ID 3,4	G				
				L				

* : Refer to DVD Specification for Rewritable Disc (DVD-RAM) Part 1 V1.0.

Comments:

Test result of the Signal from Header field in Rewritable data zone characteristics (4)

Paragraph*	Items	Measuring points		Specification	Measurement Value		Judgment (Lab use)
					Applicant	Lab	
2.7.3.3	$[(I_{HD1}+I_{HD2})-(I_{HD3}+I_{HD4})]/ 2I_o$	Zone 0	G	≤ 0.05			
			L				
		Zone 12	G				
			L				
		Zone 23	G				
			L				

* : Refer to DVD Specification for Rewritable Disc (DVD-RAM) Part 1 V1.0.

Comments:

Test result of the Signals from Embossed data zone characteristics

Paragraph*	Items	Specification	Measurement Value		Judgment (Lab use)
			Applicant	Lab	
2.7.4.1 a	Jitter	≤8.0 %			
2.7.4.1 b	$(I_{14Hmax}-I_{14Hmin}) / I_{14Hmax}$ Within one disc	≤0.33			
	$(I_{14Hmax}-I_{14Hmin}) / I_{14Hmax}$ Within one revolution	≤0.15			
2.7.4.1 c	$[(I_{14H}+I_{14L})/2-(I_{3H}+I_{3L})/2] / I_{14}$	−0.05~0.15			
2.7.4.1 d	It / Ih	≥0.10			
2.7.4.2 a	Δt / T	0.5~1.10			
	| (T1-T2) / (T1+T2) |	≤0.2			

* : Refer to DVD Specification for Rewritable Disc (DVD-RAM) Part 1 V1.0.

Comments:

Test result of the Recording layer characteristics (1)

Write power condition		Applicant	Lab
Condition A:	Operational Peak Power (PP_O)	mW	mW
	Operational Bias Power (PB_O)	mW	mW

Paragraph*	Items	Measuring points		Specification	Measurement Value		Judgment (Lab use)
					Applicant	Lab	
2.8.2 a	Jitter	Zone 0	G	< 8.5 %			
			L				
		Zone 12	G				
			L				
		Zone 23	G				
			L				
2.8.2 b	I_{14} / I_{14H}	Zone 0	G	≥0.43			
			L				
		Zone 12	G				
			L				
		Zone 23	G				
			L				
	I_3 / I_{14}	Zone 0	G	≥0.40			
			L				
		Zone 12	G				
			L				
		Zone 23	G				
			L				
	$(I_{14max} - I_{14min}) / I_{14max}$ Within one sector	Zone 0	G	≤0.10			
			L				
		Zone 12	G				
			L				
		Zone 23	G				
			L				

* : Refer to DVD Specification for Rewritable Disc (DVD-RAM) Part 1 V1.0.

Comments:

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Test result of the Recording layer characteristics (2)

Write power condition		Applicant	Lab
Condition A:	Operational Peak Power (PP_O)	mW	mW
	Operational Bias Power (PB_O)	mW	mW

Paragraph*	Items	Measuring points		Specification	Measurement Value		Judgement (Lab use)
					Applicant	Lab	
2.8.2 b	$(I_{14Hmax}-I_{14Hmin}) / I_{14Hmax}$ within one disc	Zone 0	G	≤ 0.33			
			L				
		Zone 12	G				
			L				
		Zone 23	G				
			L				
	$(I_{14Hmax}-I_{14Hmin}) / I_{14Hmax}$ within one track	Zone 0	G	≤ 0.15			
			L				
		Zone 12	G				
			L				
		Zone 23	G				
			L				
	$[(I_{14H}+I_{14L})/2-(I_{3H}+I_{3L})/2] / I_{14}$	Zone 0	G	−0.05 ~ 0.15			
			L				
		Zone 12	G				
			L				
		Zone 23	G				
			L				

* : Refered to DVD Specification for Rewritable Disc (DVD-RAM) Part 1 V1.0.

Comments:

 June 2005

Test result of the Cross Power Over-Write characteristics

Write power condition		Applicant	Lab
Condition A:	Operational Peak Power (PP_O)	mW	mW
	Operational Bias Power (PB_O)	mW	mW
Condition B:	(PP_O)×1.05	mW	mW
	(PB_O)×1.05	mW	mW
Condition C:	(PP_O)×0.90	mW	mW
	(PB_O)×0.90	mW	mW

Paragraph	Overwrite Cycles	Write Power Condition	G/L	Specification	Measurement Value		Judgment (Lab use)
					Applicant	Lab	
	1	Condition A	G	Recommended Specification Jitter≤13.0 %			
			L				
	2	Condition A	G				
			L				
	3	Condition A	G				
			L				
	4	Condition B	G				
			L				
	5	Condition A	G				
			L				
	6	Condition A	G				
			L				
	7	Condition A	G				
			L				
	8	Condition C	G				
			L				
	9	Condition A	G				
			L				
	10	Condition A	G				
			L				

Comments:

Paragraph	Overwrite Cycles	Write Power Condition	G/L	Specification	Measurement Value		Judgment (Lab use)
					Applicant	Lab	
	11	Condition A	G	Recommended Specification ≤13.0 %			
			L				
	12	Condition B	G				
			L				
	13	Condition C	G				
			L				
	14	Condition A	G				
			L				
	15	Condition A	G				
			L				
	16	Condition A	G				
			L				
	17	Condition C	G				
			L				
	18	Condition A	G				
			L				
	19	Condition A	G				
			L				
	20	Condition A	G				
			L				
	21	Condition A	G				
			L				

Comments:

Test result of the Cyclability characteristics

Write power condition		Applicant	Lab
Condition A:	Operational Peak Power (PP_O)	mW	mW
	Operational Bias Power (PB_O)	mW	mW

Paragraph	Items	Measuring points		Specification	Measurement Value		Judgment (Lab use)
					Applicant	Lab	
2.8.2 a	10 times Jitter	Zone 0	G	< 8.5 %			
			L				
		Zone 12	G				
			L				
		Zone 23	G				
			L				
	10000 times Jitter	Zone 0	G	Recommended Specification ≤12.0 %			
			L				
		Zone 12	G				
			L				
		Zone 23	G				
			L				
	50000 times Jitter	Zone 0	G	Recommended Specification ≤12.0 %			
			L				
		Zone 12	G				
			L				
		Zone 23	G				
			L				
	100000 times Jitter	Zone 0	G	Recommended Specification ≤12.0 %			
			L				
		Zone 12	G				
			L				
		Zone 23	G				
			L				

Comments:

List of the test result

Section	Judgment	
	Applicant	Lab
Form 3C : Test result of the mechanical parameter characteristics	☐ OK ☐ NG	☐ OK ☐ NG
Form 4C : Test result of the optical parameter characteristics	☐ OK ☐ NG	☐ OK ☐ NG
Form 5C : Test result of the recorded parameter characteristics	☐ OK ☐ NG	☐ OK ☐ NG
Form 6C : Test result of the signal from grooves characteristics (1)	☐ OK ☐ NG	☐ OK ☐ NG
Form 7C : Test result of the signal from grooves characteristics (2)	☐ OK ☐ NG	☐ OK ☐ NG
Form 8C : Test result of the signal from header field in rewritable data zone characteristics (1)	☐ OK ☐ NG	☐ OK ☐ NG
Form 9C : Test result of the signal from header field in rewritable data zone characteristics (2)	☐ OK ☐ NG	☐ OK ☐ NG
Form 10C : Test result of the signal from header field in rewritable data zone characteristics (3)	☐ OK ☐ NG	☐ OK ☐ NG
Form 11C : Test result of the signal from header field in rewritable data zone characteristics (4)	☐ OK ☐ NG	☐ OK ☐ NG
Form 12C : Test result of the signal from Embossed data zone characteristics	☐ OK ☐ NG	☐ OK ☐ NG
Form 13C : Test result of the recording layer characteristics (1)	☐ OK ☐ NG	☐ OK ☐ NG
Form 14C : Test result of the recording layer characteristics (2)	☐ OK ☐ NG	☐ OK ☐ NG
Form 15C : Test result of the cross power over-write characteristics	☐ OK ☐ NG	☐ OK ☐ NG
Form 16C : Test result of the cyclability characteristics	☐ OK ☐ NG	☐ OK ☐ NG
Information area format	☐ OK ☐ NG	☐ OK ☐ NG
Dimension of the DVD-RAM Disc Case	☐ OK ☐ NG	☐ OK ☐ NG

Comments:

Confirmation of DVD Format Verification

The following product is confirmed that it is on the strength of DVD Specifications for Rewritable Disc, Part 1 (version 1.0) by DVD Format Verification Laboratory of the Company: _____

1 Product Type name (DVD-RAM Disc)		:	
2. Disc number		:	
3. Application number		:	
4. Date of application (mm. dd, yyyy)		:	
5. Applicant:	Name	:	
	Company name	:	
	Address	:	
	Tel	:	/ Fax:
Date of issue (mm. dd, yyyy)		:	
Confirmed by:	Signature	:	
	Name	:	
	Lab name	:	
	Address	:	
	Tel	:	/ Fax:

Attachment : 1) Test result **Form 2C to 17C**.

2) Others: _____

Note: (1) The purpose of DVD Format Verification is to promote and enhance compatibility of DVD Product for DVD Industry based upon the minimum common specification requirements.

(2) The "Confirmation of DVD Format Verification", however, shall not be considered to guarantee the quality of product and the compatibility with a specific DVD disc or player/recorder.

(3) Information in this report shall be treated as confidential under the Non Disclosure Agreement executed between the applicant and DVD Format Verification Laboratory dated (mm. dd, yyyy) _____ .

 June 2005