EMISSION -- TEST REPORT

Test report file no. : [redacted] Date of issue : December 15, 2000

Kind of equipment	: CD-RW / DVD-ROM DRIVE
Model	: SD-R1102
FCC ID	: CJ6AT01-047
Applicant	: Toshiba Corporation Product Safety Group, Technology & Quality Management Division, Digital Media Network Company
Manufacturer	: Toshiba Multi Media Devices Co., Ltd. (Representative)
Applicant address	: 1-1, Shibaura 1-chome, Minato-ku, Tokyo, 105-8001, Japan

Test result according to the regulation(s) indicated : [redacted]

at page 3

This test report with appendix consists of 28 pages. The test result only responds to the tested sample. It is not allowed to copy this report even partly without the written allowance of the test laboratory. The report must not be used to claim products endorsement by the accreditation body (A2LA, NEMKO and TUV P.S.) or any government agency.

Nemko
Authorized Laboratory

ACCREDITED

Client Laboratory Recognized By TUV PRODUCT SERVICE

EMC Kashima Corporation as a TUV PRODUCT SERVICE (TUV PS) recognized laboratory is entitled to print the logo on its test reports. Reports approved by a TUV PS technical expert additionally must bear the TUV PS stamp and authorized signature.

EMC Kashima Corporation 1614, Mushinoda, Omigawa-machi, Chiba-ken, 289-0341 Japan TEL 81-478-82-0983 FAX 81-478-82-3373

DIRECTORY

A) Documentation

	Page
Directory	2
Test regulations	3
Test facilities	4
Environmental conditions, Power supply system utilized, Measurement uncertainty and Symbols definitions	5
Test conditions	6 - 11
Equipment under test	12
Test result	13 - 15
Summary	16
Configuration of equipment	17
Test - setups (Drawings and Photos)	18 - 20

B) Test data

Conducted emissions (Mains)	10/150/450 kHz - 30 MHz	21 - 24
Conducted emissions (Telecommunication)	150 kHz - 30 MHz	N/A
Radiated emissions	10/150 kHz - 30 MHz	N/A
Radiated emissions	30 MHz - 1000/2000 MHz	25 - 28
Interference power	30 MHz - 300 MHz	N/A
Equivalent radiated emissions	1 GHz - 18 GHz	N/A
Harmonic currents		N/A
Voltage fluctuations and flicker		N/A

C) Appendix

Constructional data form (CDF) for EMC-testing	none

N/A : Not Applicable

EMC Kashima Corporation 1614, Mushihata, Omigawa-machi, Chiba-ken, 289-0341 Japan TEL 81-478-82-0963 FAX 81-478-82-3373

TEST REGULATIONS

The tests were performed according to following regulations :

o - EN 50081-1	:1992		
o - EN 50081-2	:1993		
o - EN 55011	:1998	o - Group 1	o - Group 2
o - EN 55011	:1998 / A1:1999	o - Class A	o - Class B
o - EN 55014-1	:1993 / A1:1997	o - Household appliances and similar o - Tools o - Semiconductor devices	
o - EN 55022	:1998	o - Class A	o - Class B
o - EN 55022	:1994 / A2:1997	o - Class A	o - Class B
o - EN 60601-1-2	:1993		
o - EN 61326-1	:1997 / A1:1998	o - Class A	o - Class B
o - EN 61000-3-2	:1995 / A2:1998 - Harmonic current emission	o - Class A o - Class C	o - Class B o - Class D
o - EN 61000-3-3	:1995 - Voltage fluctuations and flicker		
- FCC Part 15 Subpart B Test Method : ANSI C63.4-1992		o - Class A	- Class B
o - FCC Part 15 Subpart B according to 15.107(e), 15.109(g)			
o - FCC Part 18 Subpart C Test Method : FCC/OST MP-5 (1985)			
- ICES-003	:1997	o - Class A	- Class B
o - AS/NZS 2064	:1997 / A1:1997	o - Group 1 o - Class A	o - Group 2 o - Class B
o - AS/NZS 1044	:1995 / A1:1997	o - Household appliances and similar o - Tools o - Semiconductor devices	
o - AS/NZS 3548	:1995 / A2:1997	o - Class A	o - Class B
o - VCCI		o - Class A	o - Class B
o - CISPR Pub. 11	:1997	o - Group 1	o - Group 2
o - CISPR Pub. 11	:1999	o - Class A	o - Class B
o - CISPR Pub. 14-1	:1993 / A1:1996	o - Household appliances and similar o - Tools o - Semiconductor devices	
o - CISPR Pub. 22	:1997	o - Class A	o - Class B
o - CISPR Pub. 22	:1993 / A2:1996	o - Class A	o - Class B

EMC Kashima Corporation 1614, Mushihata, Omigawa-machi, Chiba-ken, 289-0341 Japan TEL 81-478-82-0963 FAX 81-478-82-3373

TEST FACILITIES

All measurement facilities are located in 1614, Mushihata, Omigawa-machi, Katori-gun, Chiba-ken, 289-0341 Japan.

Accredited by American Association for Laboratory Accreditation(A2LA) for the emission and immunity tests stated in the scope of the certificate under Certificate Number 1266-01.

Authorized by NEMKO for the emission and immunity tests stated in the scope of the authorization under Authorization Number ELA172.

Approved by the Ministry of Commerce in New Zealand under ENG 3/9 AJD.

Recognized by TUV Product Service for the emission and immunity tests stated in the scope of the certificate under Certificate No. JPN9803C.

Registered by Federal Communications Commission for CFR47 Part 15 and 18 under 31040/SIT 1300F2.

Registered by Voluntary Control Council For Interference by Information Technology Equipment(VCCI) under Registered Numbers R-188 and C-785 for No. 1 open site, C-187 for No. 1 shielded room, R-189 for No. 2 open site, C-188 for No. 2 shielded room, R-656 for No. 3 open site and C-613 for No. 4 shielded room.

ENVIRONMENTAL CONDITIONS

Temperature	---	see test data
Humidity	--- %	see test data
Atmospheric pressure	--- hPa	see test data

POWER SUPPLY SYSTEM UTILIZED

Power supply system : DC5V, 12V
AC120V/60Hz/1 (AC line of PC)

MEASUREMENT UNCERTAINTY

The treatment of the measurement uncertainty shall be based on "Treatment of Uncertainty in EMC Measurement" by NAMAS NIS81.

The measurement result is : *y* dB V ¶ *U* dB
for a level of confidence of approximately 95%, (k=2)

DEFINITIONS FOR SYMBOLS USED IN THIS TEST REPORT

- Black box indicates that the listed condition, standard or equipment is applicable for this Report.

o - Blank box indicated that the listed condition, standard or equipment was not applicable for this Report.

EMC Kashima Corporation 1614, Mushihata, Omigawa-machi, Chiba-ken, 289-0341 Japan TEL 81-478-82-0963 FAX 81-478-82-3373

TEST CONDITIONS

The measurement of **the conducted emissions (10/150/450 KHz - 30 MHz)** was performed in **the mains** at :

[- Test applicable]

- in a shielded enclosure.	- Shielded room No. 1
	o - Shielded room No. 2
	o - Shielded room No. 4
	o - Shielded room No. 5
o - at a nonreflecting open site.	o - Open site No. 1
	o - Open site No. 2
	o - Open site No. 5

Used test instruments :

	Model	Name	Manufacturer	Code No.	Cal.date	Next cal.
o -	ESH2	Test Receiver	Rohde & Schwarz	RCH01	2000.10	2001.10
o -	ESHS10	Test Receiver	Rohde & Schwarz	RCH02	1999.12	2000.12
-	ESPC	Test Receiver	Rohde & Schwarz	RCV03	2000.6	2001.6
o -	ESCS30	Test Receiver	Rohde & Schwarz	RCV04	2000.4	2001.4
o -	ESH2-Z5	AMN	Rohde & Schwarz	LSN01	2000.8	2001.8
-	ESH3-Z5	AMN	Rohde & Schwarz	LSN02	2000.3	2001.3
-	ESH3-Z5	AMN	Rohde & Schwarz	LSN03	2000.1	2001.1
o -	ESH3-Z5	AMN	Rohde & Schwarz	LSN06	2000.7	2001.7
o -	ESH3-Z5	AMN	Rohde & Schwarz	LSN07	2000.5	2001.5
o -	ESH3-Z5	AMN	Rohde & Schwarz	LSN08	1999.12	2000.12
o -	ESH3-Z5	AMN	Rohde & Schwarz	LSN11	2000.5	2001.5
o -	ESH3-Z6	AMN	Rohde & Schwarz	LSN09	2000.2	2001.2
o -	ESH3-Z6	AMN	Rohde & Schwarz	LSN10	2000.2	2001.2
-	8567A(display)	Spectrum Analyzer	Hewlett Packard	SPD01	2000.6	2001.6
-	8567A(RF unit)	Spectrum Analyzer	Hewlett Packard	SPR01	2000.6	2001.6
-	85650A	Quasi Peak Adapter	Hewlett Packard	QPA01	2000.6	2001.6
o -	8567A(display)	Spectrum Analyzer	Hewlett Packard	SPD02	2000.3	2001.3
o -	8567A(RF unit)	Spectrum Analyzer	Hewlett Packard	SPR02	2000.3	2001.3
o -	85650A	Quasi Peak Adapter	Hewlett Packard	QPA02	2000.3	2001.3
o -	8567A(display)	Spectrum Analyzer	Hewlett Packard	SPD03	2000.9	2001.9
o -	8567A(RF unit)	Spectrum Analyzer	Hewlett Packard	SPR03	2000.9	2001.9
o -	85650A	Quasi Peak Adapter	Hewlett Packard	QPA03	2000.9	2001.9
o -	8568A(display)	Spectrum Analyzer	Hewlett Packard	SPD04	2000.9	2001.9
o -	8568A(RF unit)	Spectrum Analyzer	Hewlett Packard	SPR04	2000.9	2001.9
o -	85650A	Quasi Peak Adapter	Hewlett Packard	QPA04	2000.9	2001.9
o -	R3361B	Spectrum Analyzer	ADVANTEST	SPTG03	2000.4	2001.4
o -	E7405A	Spectrum Analyzer	Hewlett Packard	SPA05	2000.10	2001.10

note : The AMN code no. LSN02 was connected to the EUT during the test.
All used test-instruments are calibrated at least once a year.

EMC Kashima Corporation 1614, Mushihata, Omigawa-machi, Chiba-ken, 289-0341 Japan TEL 81-478-82-0963 FAX 81-478-82-3373

The measurement of **the conducted emissions (150 KHz - 30 MHz)** was performed in **the Telecommunication ports** at :

o - Test applicable

o - in a shielded enclosure.	o - Shielded room No. 1
	o - Shielded room No. 2
	o - Shielded room No. 4
	o - Shielded room No. 5
o - at a nonreflecting open site.	o - Open site No. 1
	o - Open site No. 2
	o - Open site No. 5

Used test instruments :

Model	Name	Manufacturer	Code No.	Cal.date	Next cal.
o - ESH2	Test Receiver	Rohde & Schwarz	RCH01	2000.10	2001.10
o - ESHS10	Test Receiver	Rohde & Schwarz	RCH02	1999.12	2000.12
o - ESPC	Test Receiver	Rohde & Schwarz	RCV03	2000.6	2001.6
o - ESCS30	Test Receiver	Rohde & Schwarz	RCV04	2000.4	2001.4
o - ENY22(50dB)	ISN	Rohde & Schwarz	ISN201	2000.11	2001.11
o - ENY22(60dB)	ISN	Rohde & Schwarz	ISN201	2000.11	2001.11
o - ENY22(80dB)	ISN	Rohde & Schwarz	ISN201	2000.11	2001.11
o - ENY41(50dB)	ISN	Rohde & Schwarz	ISN401	2000.11	2001.11
o - ENY41(60dB)	ISN	Rohde & Schwarz	ISN401	2000.11	2001.11
o - ENY41(80dB)	ISN	Rohde & Schwarz	ISN401	2000.11	2001.11
o - EZ-17	Current Probe	Rohde & Schwarz	CPRB01	2000.11	2001.11
o - Direct	CDN	EMC Kashima	DIU02	2000.4	2001.4
o - FTC101	Ferrite Tube	Luthi Elektronik	FT01	2000.4	2001.4
o - FTC101	Ferrite Tube	Luthi Elektronik	FT02	2000.4	2001.4
o - FTC101	Ferrite Tube	Luthi Elektronik	FT03	2000.4	2001.4
o - 8567A(display)	Spectrum Analyzer	Hewlett Packard	SPD01	2000.6	2001.6
o - 8567A(RF unit)	Spectrum Analyzer	Hewlett Packard	SPR01	2000.6	2001.6
o - 85650A	Quasi Peak Adapter	Hewlett Packard	QPA01	2000.6	2001.6
o - 8567A(display)	Spectrum Analyzer	Hewlett Packard	SPD02	2000.3	2001.3
o - 8567A(RF unit)	Spectrum Analyzer	Hewlett Packard	SPR02	2000.3	2001.3
o - 85650A	Quasi Peak Adapter	Hewlett Packard	QPA02	2000.3	2001.3
o - 8567A(display)	Spectrum Analyzer	Hewlett Packard	SPD03	2000.9	2001.9
o - 8567A(RF unit)	Spectrum Analyzer	Hewlett Packard	SPR03	2000.9	2001.9
o - 85650A	Quasi Peak Adapter	Hewlett Packard	QPA03	2000.9	2001.9
o - 8568A(display)	Spectrum Analyzer	Hewlett Packard	SPD04	2000.9	2001.9
o - 8568A(RF unit)	Spectrum Analyzer	Hewlett Packard	SPR04	2000.9	2001.9
o - 85650A	Quasi Peak Adapter	Hewlett Packard	QPA04	2000.9	2001.9
o - R3361B	Spectrum Analyzer	ADVANTEST	SPTG03	2000.4	2001.4
o - E7405A	Spectrum Analyzer	Hewlett Packard	SPA05	2000.10	2001.10

All used test-instruments are calibrated at least once a year.

EMC Kashima Corporation 1614, Mushihata, Omigawa-machi, Chiba-ken, 289-0341 Japan TEL 81-478-82-0963 FAX 81-478-82-3373

The measurement of **the radiated emissions (10/150 KHz - 30 MHz)** was performed at a nonreflecting open site and test distance of :

o - Test applicable

o - Open site No. 1
o - Open site No. 2
o - Open site No. 5

o - 3 meters
o - 10 meters
o - 30 meters

Used test instruments :

Model	Name	Manufacturer	Code No.	Cal.date	Next cal.
o - ESH2	Test Receiver	Rohde & Schwarz	RCH01	2000.10	2001.10
o - ESHS10	Test Receiver	Rohde & Schwarz	RCH02	1999.12	2000.12
o - ESPC	Test Receiver	Rohde & Schwarz	RCV03	2000.6	2001.6
o - ESCS30	Test Receiver	Rohde & Schwarz	RCV04	2000.4	2001.4
o - HFH2-Z2	Loop Antenna	Rohde & Schwarz	LPA01	2000.2	2001.2
o - 8567A(display)	Spectrum Analyzer	Hewlett Packard	SPD01	2000.6	2001.6
o - 8567A(RF unit)	Spectrum Analyzer	Hewlett Packard	SPR01	2000.6	2001.6
o - 85650A	Quasi Peak Adapter	Hewlett Packard	QPA01	2000.6	2001.6
o - 8567A(display)	Spectrum Analyzer	Hewlett Packard	SPD02	2000.3	2001.3
o - 8567A(RF unit)	Spectrum Analyzer	Hewlett Packard	SPR02	2000.3	2001.3
o - 85650A	Quasi Peak Adapter	Hewlett Packard	QPA02	2000.3	2001.3
o - 8567A(display)	Spectrum Analyzer	Hewlett Packard	SPD03	2000.9	2001.9
o - 8567A(RF unit)	Spectrum Analyzer	Hewlett Packard	SPR03	2000.9	2001.9
o - 85650A	Quasi Peak Adapter	Hewlett Packard	QPA03	2000.9	2001.9
o - 8568A(display)	Spectrum Analyzer	Hewlett Packard	SPD04	2000.9	2001.9
o - 8568A(RF unit)	Spectrum Analyzer	Hewlett Packard	SPR04	2000.9	2001.9
o - 85650A	Quasi Peak Adapter	Hewlett Packard	QPA04	2000.9	2001.9
o - R3361B	Spectrum Analyzer	ADVANTEST	SPTG03	2000.4	2001.4
o - E7405A	Spectrum Analyzer	Hewlett Packard	SPA05	2000.10	2001.10
o - 8447D	Pre-Amplifier	Hewlett Packard	PRA01	2000.5	2001.5
o - 8447D	Pre-Amplifier	Hewlett Packard	PRA02	2000.5	2001.5
o - 8447D	Pre-Amplifier	Hewlett Packard	PRA03	2000.5	2001.5
o - 8447D	Pre-Amplifier	Hewlett Packard	PRA06	2000.10	2001.10
o - SAU-3018M	Pre-Amplifier	Sogo-Denshi	PRA04	2000.5	2001.5

All used test-instruments are calibrated at least once a year.

EMC Kashima Corporation 1614, Mushihata, Omigawa-machi, Chiba-ken, 289-0341 Japan TEL 81-478-82-0963 FAX 81-478-82-3373

The measurement of **the radiated emissions (30 MHz - 1000/2000 MHz)** was performed in a horizontal and vertical polarization at a nonreflecting open site and test distance of :

- Test applicable

- Open site No. 1
o - Open site No. 2
o - Open site No. 4
o - Open site No. 5

- 3 meters
o - 10 meters
o - 30 meters

Used test instruments :

	Model	Name	Manufacturer	Code No.	Cal.date	Next cal.
o -	ESV	Test Receiver	Rohde & Schwarz	RCV01	2000.4	2001.4
o -	ESVS10	Test Receiver	Rohde & Schwarz	RCV02	2000.1	2001.1
-	ESPC	Test Receiver	Rohde & Schwarz	RCV03	2000.6	2001.6
o -	ESCS30	Test Receiver	Rohde & Schwarz	RCV04	2000.4	2001.4
-	LPB-2520A	Biconi.-Logperi.	Antenna Research	BL01	2000.8	2001.8
o -	LPB-2520A	Biconi.-Logperi.	Antenna Research	BL02	2000.8	2001.8
o -	LPB-2520A	Biconi.-Logperi.	Antenna Research	BL03	2000.8	2001.8
o -	LPB-2520A	Biconi.-Logperi.	Antenna Research	BL04	2000.9	2001.9
o -	LPB-2520A	Biconi.-Logperi.	Antenna Research	BL05	2000.9	2001.9
o -	3115	Double Ridged Guide	EMCO	DRH01	2000.3	2001.3
-	8567A(display)	Spectrum Analyzer	Hewlett Packard	SPD01	2000.6	2001.6
-	8567A(RF unit)	Spectrum Analyzer	Hewlett Packard	SPR01	2000.6	2001.6
-	85650A	Quasi Peak Adapter	Hewlett Packard	QPA01	2000.6	2001.6
o -	8567A(display)	Spectrum Analyzer	Hewlett Packard	SPD02	2000.3	2001.3
o -	8567A(RF unit)	Spectrum Analyzer	Hewlett Packard	SPR02	2000.3	2001.3
o -	85650A	Quasi Peak Adapter	Hewlett Packard	QPA02	2000.3	2001.3
o -	8567A(display)	Spectrum Analyzer	Hewlett Packard	SPD03	2000.9	2001.9
o -	8567A(RF unit)	Spectrum Analyzer	Hewlett Packard	SPR03	2000.9	2001.9
o -	85650A	Quasi Peak Adapter	Hewlett Packard	QPA03	2000.9	2001.9
o -	8568A(display)	Spectrum Analyzer	Hewlett Packard	SPD04	2000.9	2001.9
o -	8568A(RF unit)	Spectrum Analyzer	Hewlett Packard	SPR04	2000.9	2001.9
o -	85650A	Quasi Peak Adapter	Hewlett Packard	QPA04	2000.9	2001.9
o -	R3361B	Spectrum Analyzer	ADVANTEST	SPTG03	2000.4	2001.4
-	E7405A	Spectrum Analyzer	Hewlett Packard	SPA05	2000.10	2001.10
o -	8447D	Pre-Amplifier	Hewlett Packard	PRA01	2000.5	2001.5
o -	8447D	Pre-Amplifier	Hewlett Packard	PRA02	2000.5	2001.5
-	8447D	Pre-Amplifier	Hewlett Packard	PRA03	2000.5	2001.5
o -	8447D	Pre-Amplifier	Hewlett Packard	PRA06	2000.10	2001.10
-	SAU-3018M	Pre-Amplifier	Sogo-Denshi	PRA04	2000.5	2001.5
o -	8449B	Pre-Amplifier	Hewlett Packard	PRA05	2000.11	2001.11
o -	SUCOFLEX 104	Micro Wave cable	Hewlett Packard	MWC-0.5m	2000.11	2001.11
o -	SUCOFLEX 104	Micro Wave cable	Hewlett Packard	MWC-5m	2000.11	2001.11
o -	ESH3-Z6	AMN	Rohde & Schwarz	LSN09	2000.2	2001.2
o -	ESH3-Z6	AMN	Rohde & Schwarz	LSN10	2000.2	2001.2

All used test-instruments are calibrated at least once a year.

The measurement of **the interference power (30 MHz - 300 MHz)** was performed by using the absorbing clamp on the mains or interface cables at :

o - Test applicable

o - Open site No. 1
o - Open site No. 2
o - Open site No. 5
o - Shielded room No. 4

Used test instruments :

Model	Name	Manufacturer	Code No.	Cal.date	Next cal.
o - ESV	Test Receiver	Rohde & Schwarz	RCV01	2000.4	2001.4
o - ESVS10	Test Receiver	Rohde & Schwarz	RCV02	2000.1	2001.1
o - ESPC	Test Receiver	Rohde & Schwarz	RCV03	2000.6	2001.6
o - ESCS30	Test Receiver	Rohde & Schwarz	RCV04	2000.4	2001.4
o - MDS21	Absorbing Clamp	Rohde & Schwarz	CLP01	2000.8	2001.8
o - 8567A(display)	Spectrum Analyzer	Hewlett Packard	SPD01	2000.6	2001.6
o - 8567A(RF unit)	Spectrum Analyzer	Hewlett Packard	SPR01	2000.6	2001.6
o - 85650A	Quasi Peak Adapter	Hewlett Packard	QPA01	2000.6	2001.6
o - 8567A(display)	Spectrum Analyzer	Hewlett Packard	SPD02	2000.3	2001.3
o - 8567A(RF unit)	Spectrum Analyzer	Hewlett Packard	SPR02	2000.3	2001.3
o - 85650A	Quasi Peak Adapter	Hewlett Packard	QPA02	2000.3	2001.3
o - 8567A(display)	Spectrum Analyzer	Hewlett Packard	SPD03	2000.9	2001.9
o - 8567A(RF unit)	Spectrum Analyzer	Hewlett Packard	SPR03	2000.9	2001.9
o - 85650A	Quasi Peak Adapter	Hewlett Packard	QPA03	2000.9	2001.9
o - 8568A(display)	Spectrum Analyzer	Hewlett Packard	SPD04	2000.9	2001.9
o - 8568A(RF unit)	Spectrum Analyzer	Hewlett Packard	SPR04	2000.9	2001.9
o - 85650A	Quasi Peak Adapter	Hewlett Packard	QPA04	2000.9	2001.9
o - R3361B	Spectrum Analyzer	ADVANTEST	SPTG03	2000.4	2001.4
o - E7405A	Spectrum Analyzer	Hewlett Packard	SPA05	2000.10	2001.10
o - 8447D	Pre-Amplifier	Hewlett Packard	PRA01	2000.5	2001.5
o - 8447D	Pre-Amplifier	Hewlett Packard	PRA02	2000.5	2001.5
o - 8447D	Pre-Amplifier	Hewlett Packard	PRA03	2000.5	2001.5
o - 8447D	Pre-Amplifier	Hewlett Packard	PRA06	2000.10	2001.10
o - SAU-3018M	Pre-Amplifier	Sogo-Denshi	PRA04	2000.5	2001.5

All used test-instruments are calibrated at least once a year.

EMC Kashima Corporation 1614, Mushihata, Omigawa-machi, Chiba-ken, 289-0341 Japan TEL 81-478-82-0963 FAX 81-478-82-3373

The measurements of **the harmonic currents** and **voltage fluctuations / flicker** were performed in No. 4 shielded room.

o - Test applicable

Used test instruments :

	Model	Name	Manufacturer	Code No.	Cal.date	Next cal.
o -	PM3000A	Power Analyzer	Voltech	UPA01	2000.6	2001.6
o -	SIB-30	Ref. Impedance	DENKENSEIKI	RIN01	2000.6	2001.6
o -	RTI-N5kVA	Supply Source	DENKENSEIKI	CVC03	2000.6	2001.6

All used test-instruments are calibrated at least once a year.

EMC Kashima Corporation 1614, Mushihata, Omigawa-machi, Chiba-ken, 289-0341 Japan TEL 81-478-82-0963 FAX 81-478-82-3373

EQUIPMENT UNDER TEST

Type of the EUT :

o - Production
- Pre-Production
o - Prototype

Description of the EUT :

The EUT is a CD-RW / DVD-ROM DRIVE which is used for the H/H TYPE DRIVE storage desktop personal computer.

The highest frequency generated or used in the EUT is 400MHz. (Optical Pickup)

Operation - mode of the EUT :

The equipment under test was operated during the measurement under following conditions :

o - Standby
o - Test program (H - Pattern)
o - Test program (color bar)
o - Test program (customer specific)
- Continuous mode : EUT 1). Max. 8x speed random access read mode (DVD-ROM)
2). Max. 32x speed random access read mode (CD-ROM)
3). Max. 8x speed sequeutial write mode (CD-RW)
4). Standby mode (CD-RW)
CRT Display : "H" displayed
Printer : "H" printed

EMC Kashima Corporation 1614, Mushihata, Omigawa-machi, Chiba-ken, 289-0341 Japan TEL 81-478-82-0963 FAX 81-478-82-3373

TEST RESULT

The measurement data presented in this report reflects the worst case configuration.

Conducted emissions (Mains) 10/150/450 kHz - 30 MHz

[- Test applicable]

The requirements are - MET o - NOT MET

Min. limit margin :

Quasi-peak	3.8	dB	at 22.0652	MHz
Average		dB	at	MHz

Remarks : This data is from write at CD-RW and standby(CD-RW) modes.

Conducted emissions (Telecommunication ports) 150 kHz - 30 MHz

[o - Test applicable]

The requirements are o - MET o - NOT MET

Min. limit margin :

Quasi-peak		dB	at	MHz
Average		dB	at	MHz

Remarks : _____

Radiated emissions 10/150 kHz - 30 MHz

[o - Test applicable]

The requirements are o - MET o - NOT MET

Min. limit margin _____ dB at _____ MHz

Remarks : _____

EMC Kashima Corporation 1614, Mushihata, Omigawa-machi, Chiba-ken, 289-0341 Japan TEL 81-478-82-0963 FAX 81-478-82-3373

Radiated emissions 30 MHz - 1000/2000 MHz

[- Test applicable]

The requirements are - MET o - NOT MET

Min. limit margin 4.4 dB at 1245 MHz

Remarks : This data is from random access read at DVD-ROM mode.

Interference power at the mains and interface cables 30 MHz - 300 MHz

[o - Test applicable]

The requirements are o - MET o - NOT MET

Min. limit margin :

Quasi-peak _____ dB at _____ MHz

Average _____ dB at _____ MHz

Remarks : _____

Equivalent radiated emissions 1 GHz - 18 GHz

[o - Test applicable]

The requirements are o - MET o - NOT MET

Min. limit margin _____ dB at _____ MHz

Remarks : _____

note : The measuring receivers are in compliance with the requirements of CISPR 16.

Harmonic currents

o - Test applicable

The requirements are o - **MET** o - **NOT MET**

Remarks : _____

Voltage fluctuations and flicker

o - Test applicable

The requirements are o - **MET** o - **NOT MET**

relative voltage change characteristic : d(t) = _____ ms
maximum relative voltage change : dmax = _____ %
relative steady-state voltage change : dc = _____ %
short-term flicker indicator : Pst = _____

Remarks : _____

SUMMARY

GENERAL REMARKS :

FINAL JUDGMENT :

The requirements according to the technical regulations are

● - met
o - **not** met

The equipment under test does

● - **Fulfills** the general approval requirements mentioned on page 3.
o - **Does not** fulfill the general approval requirements mentioned on page 3.

The engineers of EMC Kashima Corporation were not involved in modification for the tested sample.

Testing start date : December 12, 2000
Testing end date : December 12, 2000

EMC Kashima Corporation

Kenichi Suda
Director

Test engineer

Tadashi Kuroda
Engineer

EMC Kashima Corporation 1614 Mushisata, Omigawa-machi, Chiba-ken, 289-0341 Japan TEL 81-478-82-0963 FAX 81-478-82-3373

CONFIGURATION OF EQUIPMENT

EUT and Peripherals :

Equipment name	Model	Serial	Company	FCC ID
(A) CD-RW / DVD-ROM Drive (EUT)	**SD-R1102**	**2S2-1**	**TOSHIBA**	**CJ6AT01-047**
(B) Personal Computer	DTPC-17	SG94977261	HP	DoC*
(C) Keyboard	SK-D100M	M9508-007235	DELL	GYUR93SK
(D) Mouse	M-S34	LZE94400777	HP	DZL211029
(E) Microphone	MM-MO1	none	SANWA SUPPLY	N/A
(F) Cassette Player	WM-EQ7	46800	SONY	N/A
(G) Play Pad	PK-GP101E	9900018S	NEC	N/A
(H) Infrared Adapter	ESI-09680-7201	9834	Extended Systems	N/A
(I) CRT Display	EV500A	15052C019280	Gateway	BEJCB575B
(J) Printer	C4608A	SG77H1F1WX	HP	B94C2164X
(K) AC Adapter	C2178A	none	HP	N/A
(L) Headphone	MDR-E837	none	SONY	N/A

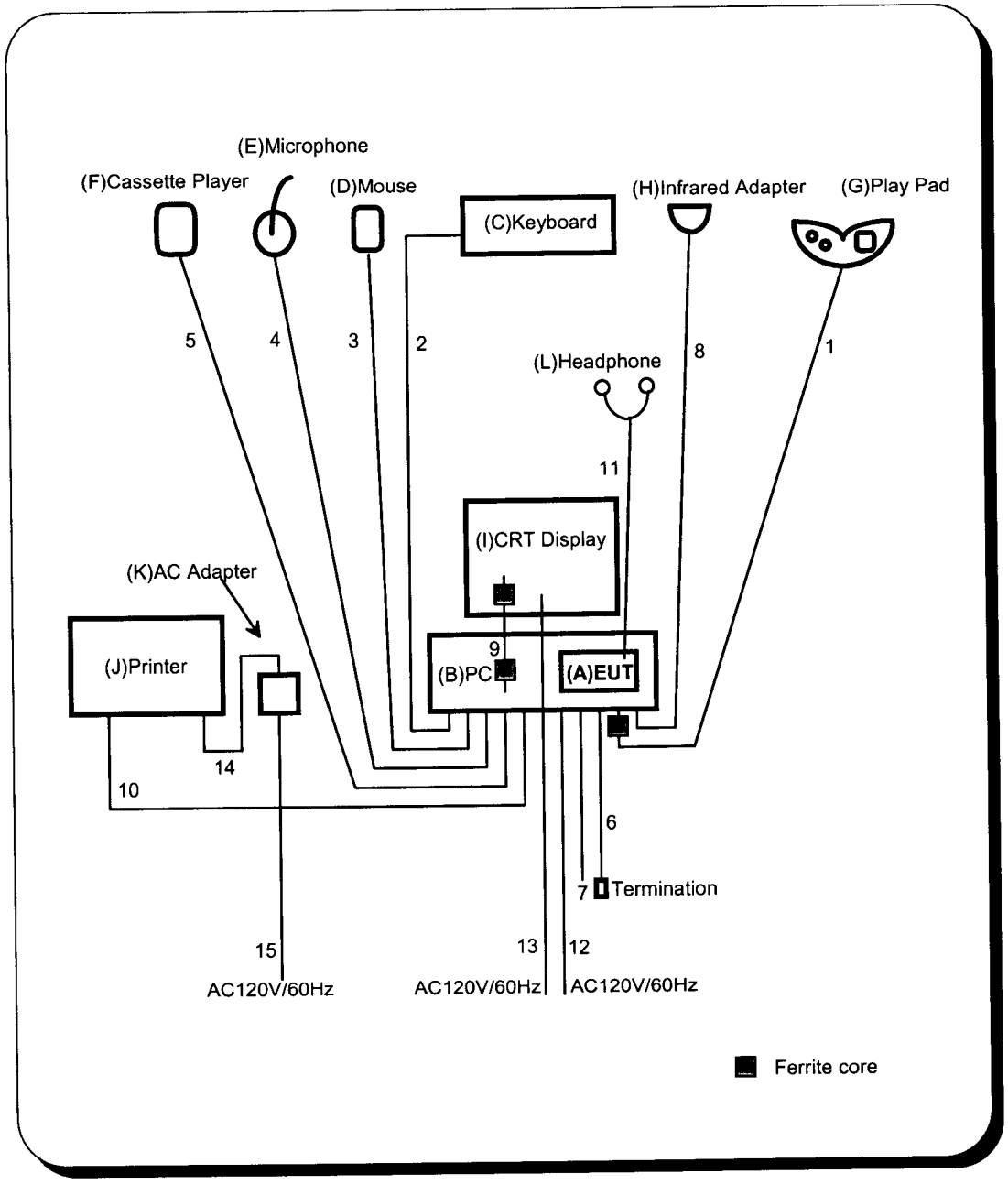
*note : Authorized under a Declaration of Conformity

Cable(s) used :

Cable name	Length	Shielded	Model	Remarks
(1) USB	2.5 m	Yes	none	
(2) Keyboard	1.4 m	Yes	none	
(3) Mouse	1.8 m	Yes	none	
(4) Microphone	2.2 m	no	none	
(5) Line IN cable	1.5 m	no	none	
(6) Line OUT cable	1.5 m	no	none	
(7) Network cable	3.0 m	no	none	
(8) Infrared Adapter cable	1.5 m	Yes	none	
(9) Video	1.8 m	Yes	none	
(10)Centronics	1.8 m	Yes	CPC-D	
(11)Headphone	1.8 m	no	none	
(12)AC Power (PC)	2.2 m	no	none	
(13)AC Power (Monitor)	1.8 m	no	none	
(14)DC Power (Printer)	1.8 m	no	none	
(15)AC Power (Printer)	0.9 m	no	none	

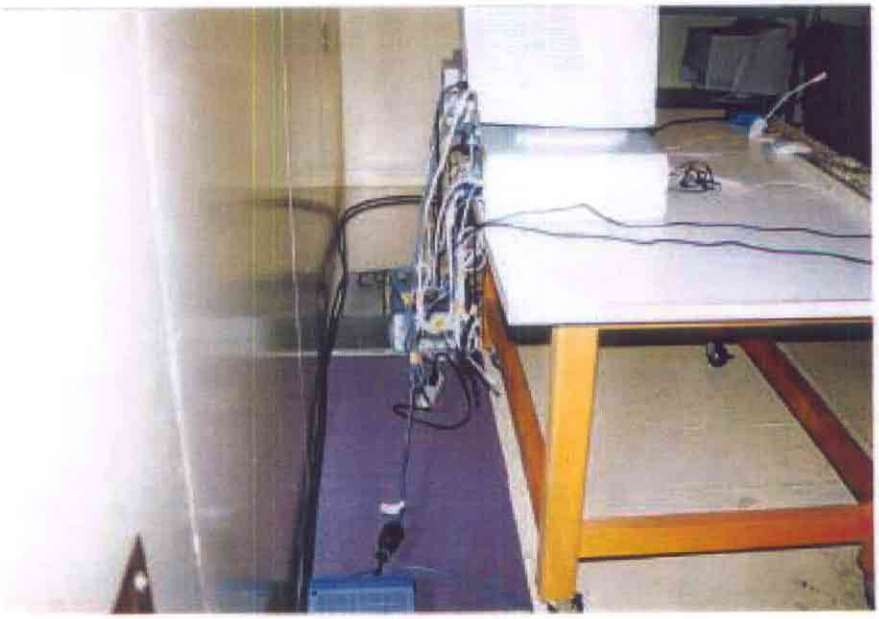
EMC Kashima Corporation 1614, Mushihata, Omigawa-machi, Chiba-ken, 289-0341 Japan TEL 81-478-82-0963 FAX 81-478-82-3373

TEST - SETUPS



EMC Kashima Corporation 1614, Mushihata, Omigawa-machi, Chiba-ken, 289-0341 Japan TEL 81-478-82-0963 FAX 81-478-82-3373

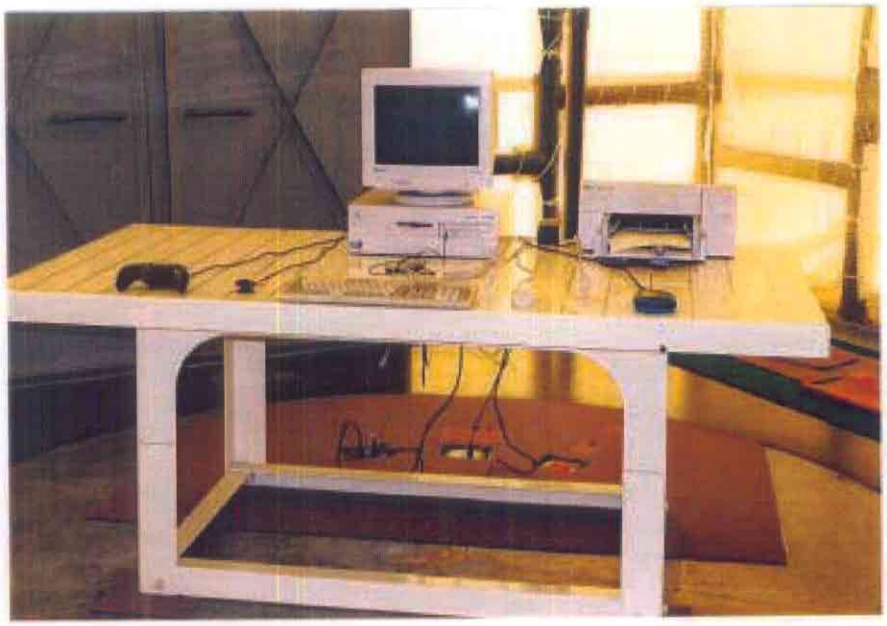
TEST - SETUPS

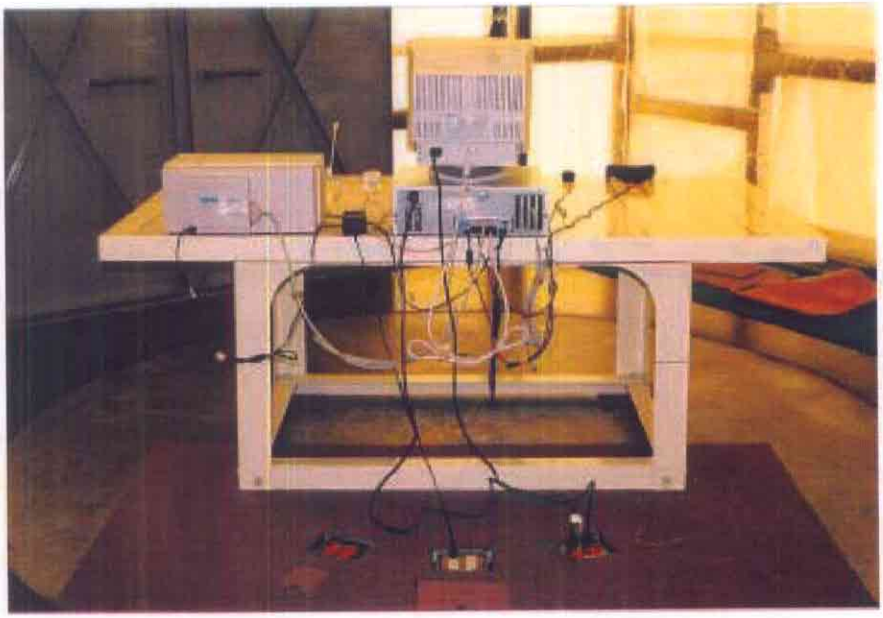


Conducted emission 10/150/450 kHz - 30 MHz (Mains)

EMC Kashima Corporation 1614, Mushinata, Omigawa-machi, Chiba-ken, 289-0341 Japan TEL 81-478-82-0983 FAX 81-478-82-3373

TEST - SETUPS





Radiated emission 30 MHz - 1000/2000 MHz

EMC Kashima Corporation 1614, Mushihata, Omigawa-machi, Chiba-ken, 289-0341 Japan TEL 81-478-82-0993 FAX 81-478-82-3373

Exhibit 6

Ver 3.5

No.1 Test Site

Conducted Emission Test

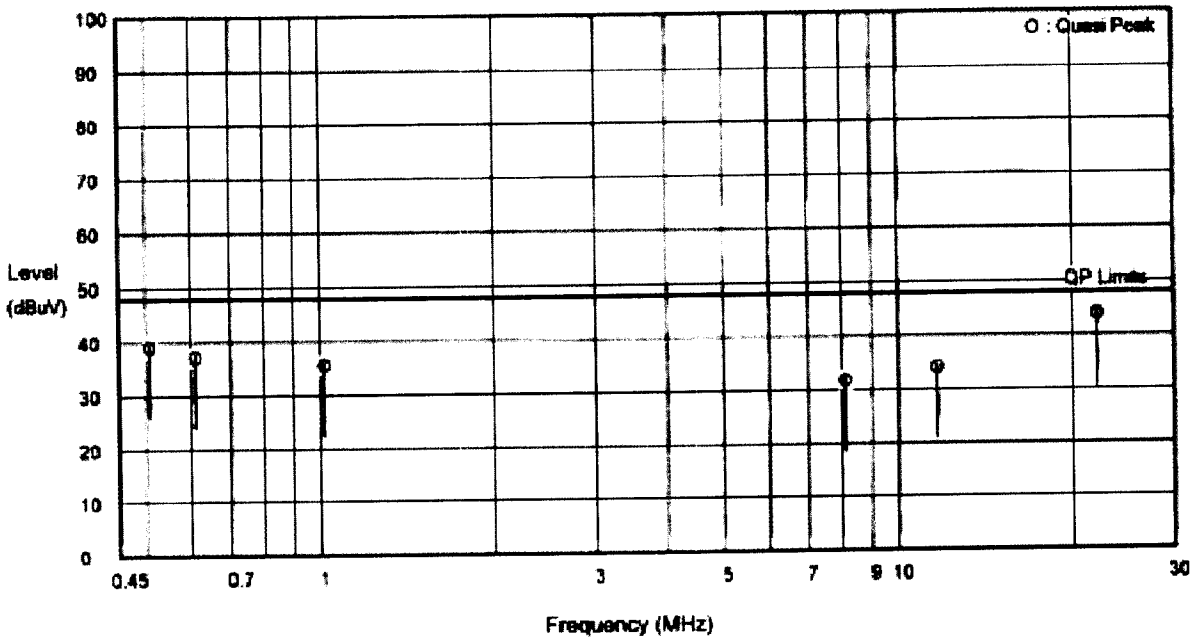
(0.45MHz - 30MHz at Mains Ports)

Company	: TOSHIBA CORPORATION	Report No.	: TR1-00649F
Equipment	: CD-RW / DVD-ROM DRIVE	Tested Date	: 2000/12/12
Model	: SD-R1102	Temperature	: 20℃
Power	: DC 5V, 12V (PC:AC120V/60Hz)	Humidity	: 40 %
Test Mode	: Random Access Read at DVD-ROM Disc	Atmos.Press.	: 1010 hPa
Remarks	: AC line of PC / FCC ID : CJ6AT01-047		
Regulation	: FCC Part15B Class B		

Engineer : Tadashi Kuroda

No.	Frequency (MHz)	N QP (dBuV)	N AV (dBuV)	L QP (dBuV)	L AV (dBuV)	Correction Factor (dB)	Result QP (dBuV)	Result AV (dBuV)	Limits QP (dBuV)	Limits AV (dBuV)	Margin QP (dB)	Margin AV (dB)
1	0.5091	39.0	-	38.5	-	0.4	39.4	-	48.0	-	8.6	-
2	0.6099	37.0	-	36.5	-	0.4	37.4	-	48.0	-	10.6	-
3	1.0170	35.5	-	32.5	-	0.4	35.9	-	48.0	-	12.1	-
4	8.1258	31.0	-	31.0	-	1.1	32.1	-	48.0	-	15.9	-
5	11.6819	33.0	-	32.0	-	1.5	34.5	-	48.0	-	13.5	-
6	22.0662	41.5	-	42.0	-	2.2	44.2	-	48.0	-	3.8	-

Result = Reading(higher data of N or L) + AMN factor + cable loss



EMC Kashima Corporation 1614, Mushiheta, Omigawa-machi, Katori-gun, Chiba-ken, 289-0341 Japan TEL 81-478-82-0883 FAX 81-478-82-3373

Exhibit 6

Ver 3.5

No.1 Test Site

Conducted Emission Test

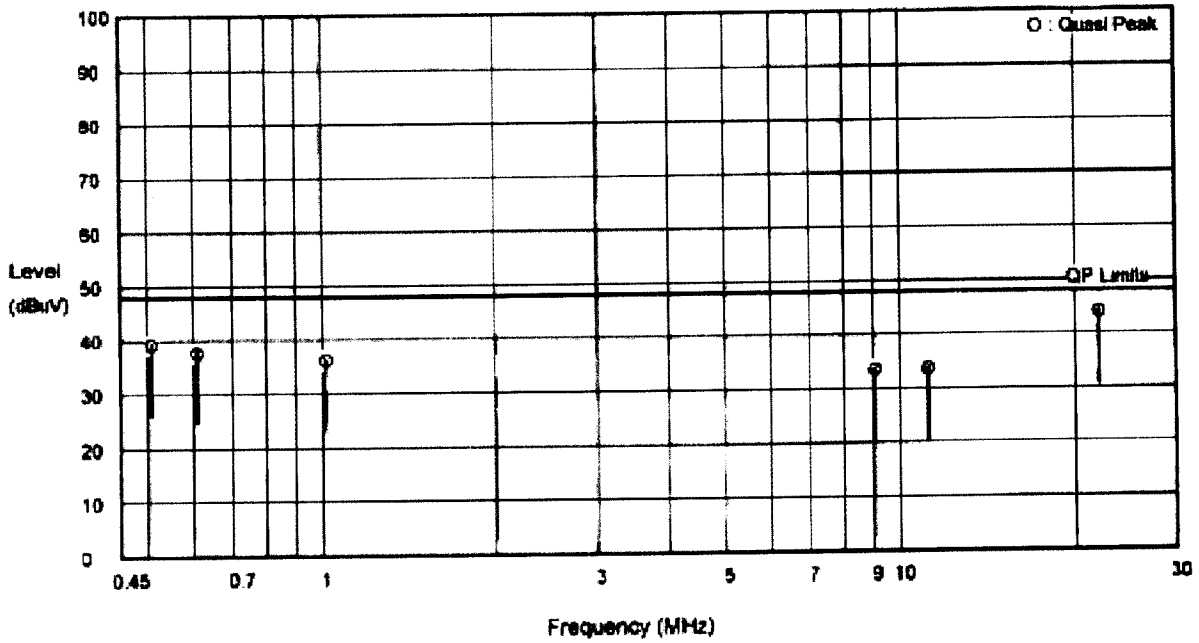
(0.45MHz - 30MHz at Mains Ports)

Company	: TOSHIBA CORPORATION	Report No.	: TR1-00849F
Equipment	: CD-RW / DVD-ROM DRIVE	Tested Date	: 2000/12/12
Model	: SD-R1102	Temperature	: 20℃
Power	: DC 5V, 12V (PC:AC120V/60Hz)	Humidity	: 40 %
Test Mode	: Random Access Read at CD-ROM Disc	Atmos.Press.	: 1010 hPa
Remarks	: AC line of PC / FCC ID : CJ6AT01-047		
Regulation	: FCC Part15B Class B		

Engineer : Tadashi Kuroda

No.	Frequency (MHz)	N QP (dBuV)	N AV (dBuV)	L QP (dBuV)	L AV (dBuV)	Correction Factor (dB)	Result QP (dBuV)	Result AV (dBuV)	Limits QP (dBuV)	Limits AV (dBuV)	Margin QP (dB)	Margin AV (dB)
1	0.5095	39.0	-	38.5	-	0.4	39.4	-	48.0	-	8.6	-
2	0.6102	37.5	-	37.0	-	0.4	37.9	-	48.0	-	10.1	-
3	1.0167	36.0	-	33.0	-	0.4	36.4	-	48.0	-	11.6	-
4	9.0508	32.5	-	32.0	-	1.2	33.7	-	48.0	-	14.3	-
5	11.1827	32.5	-	32.5	-	1.3	33.8	-	48.0	-	14.2	-
6	22.0662	41.5	-	42.0	-	2.2	44.2	-	48.0	-	3.8	-

Result = Reading(higher data of N or L) + AMN factor + cable loss



EMC Kashima Corporation 1614, Mushiheta, Omigawa-machi, Katon-gun, Chiba-ken, 289-0341 Japan TEL 81-478-82-0863 FAX 81-478-82-3373

Exhibit 6

Ver 3.5

No.1 Test Site

Conducted Emission Test

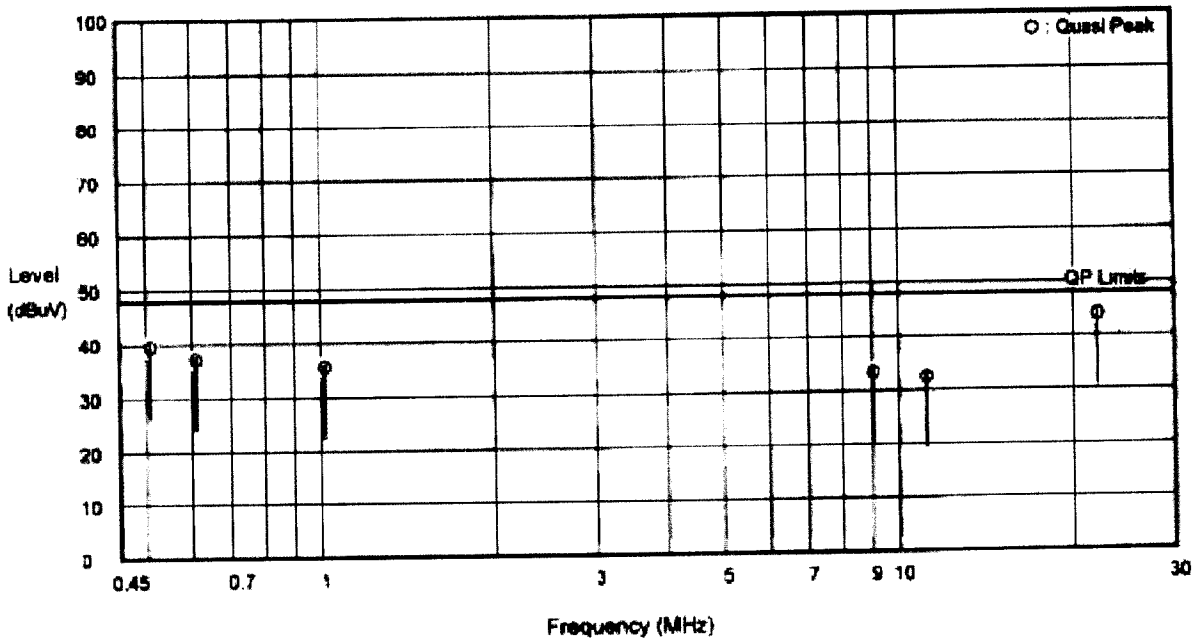
(0.45MHz - 30MHz at Mains Ports)

Company	: TOSHIBA CORPORATION	Report No.	: TR1-00649F
Equipment	: CD-RW / DVD-ROM DRIVE	Tested Date	: 2000/12/12
Model	: SD-R1102	Temperature	: 20℃
Power	: DC 5V, 12V (PC:AC120V/60Hz)	Humidity	: 40 %
Test Mode	: Write at CD-RW Disc	Atmos.Press.	: 1010 hPa
Remarks	: AC line of PC / FCC ID : CJ6AT01-047		
Regulation	: FCC Part15B Class B		

Engineer : Tadashi Kuroda

No.	Frequency (MHz)	N QP (dBuV)	N AV (dBuV)	L QP (dBuV)	L AV (dBuV)	Correction Factor (dB)	Result QP (dBuV)	Result AV (dBuV)	Limits QP (dBuV)	Limits AV (dBuV)	Margin QP (dB)	Margin AV (dB)
1	0.5094	39.3	-	38.5	-	0.4	39.7	-	48.0	-	8.3	-
2	0.6104	37.0	-	36.5	-	0.4	37.4	-	48.0	-	10.6	-
3	1.0171	35.5	-	30.5	-	0.4	35.9	-	48.0	-	12.1	-
4	9.0543	32.5	-	31.5	-	1.2	33.7	-	48.0	-	14.3	-
5	11.1824	31.5	-	31.0	-	1.3	32.8	-	48.0	-	15.2	-
6	22.0652	41.7	-	42.0	-	2.2	44.2	-	48.0	-	3.8	-

Result = Reading(higher data of N or L) + AMN factor + cable loss



EMC Kashima Corporation 1614, Mushihata, Omigawa-mach, Katori-gun, Chiba-ken, 289-0341 Japan TEL 81-478-82-0063 FAX 81-478-82-3373

Exhibit 6

Ver 3.5

No.1 Test Site

Conducted Emission Test

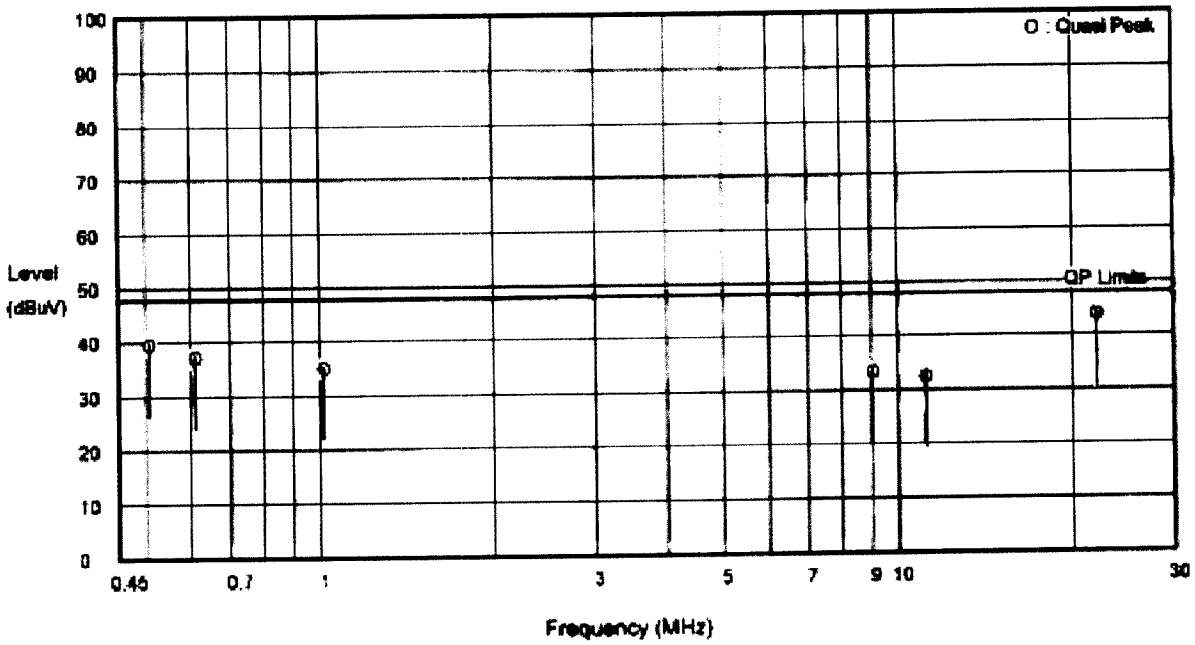
(0.45MHz - 30MHz at Mains Ports)

Company	: TOSHIBA CORPORATION	Report No.	: TR1-00649F
Equipment	: CD-RW / DVD-ROM DRIVE	Tested Date	: 2000/12/12
Model	: SD-R1102	Temperature	: 20℃
Power	: DC 5V, 12V (PC:AC120V/60Hz)	Humidity	: 40 %
Test Mode	: Standby(CD-RW)	Atmos.Press.	: 1010 hPa
Remarks	: AC line of PC / FCC ID : CJ6AT01-047		
Regulation	: FCC Part15B Class B		

Engineer : Tadashi Kuroda

No.	Frequency (MHz)	N QP (dBuV)	N AV (dBuV)	L QP (dBuV)	L AV (dBuV)	Correction Factor (dB)	Result QP (dBuV)	Result AV (dBuV)	Limits QP (dBuV)	Limits AV (dBuV)	Margin QP (dB)	Margin AV (dB)
1	0.5092	39.3	-	38.5	-	0.4	39.7	-	48.0	-	8.3	-
2	0.6106	37.0	-	35.7	-	0.4	37.4	-	48.0	-	10.6	-
3	1.0173	35.0	-	30.5	-	0.4	35.4	-	48.0	-	12.6	-
4	9.0543	32.5	-	31.5	-	1.2	33.7	-	48.0	-	14.3	-
5	11.1824	31.5	-	31.0	-	1.3	32.8	-	48.0	-	15.2	-
6	22.0652	41.7	-	42.0	-	2.2	44.2	-	48.0	-	3.8	-

Result = Reading(higher data of N or L) + AMN factor + cable loss



EMC Kashima Corporation 1614, Mushihata, Omigawa-machi, Katori-gun, Chiba-ken, 289-0341 Japan TEL 81-478-82-0883 FAX 81-478-82-3373

Exhibit 6

Ver 8.5

No.1 Test Site

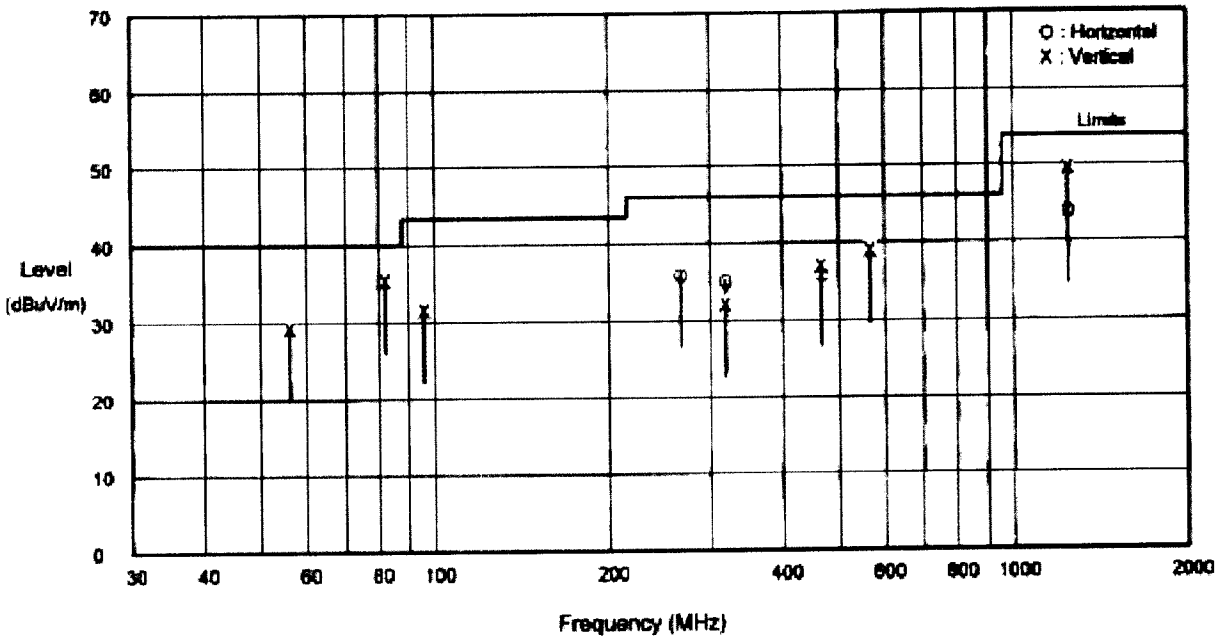
Radiated Emission Test

(30MHz - 2000MHz)

Company	: TOSHIBA CORPORATION	Report No.	: TR1-00649F
Equipment	: CD-RW / DVD-ROM DRIVE	Tested Date	: 2000/12/12
Model	: SD-R1102	Temperature	: 20℃
Power	: DC 5V, 12V (PC:AC120V/60Hz)	Humidity	: 40 %
Test Mode	: Random Access Read at DVD-ROM Disc	Atmos.Press.	: 1010 hPa
Remarks	: FCC ID : CJ6AT01-047		
Regulation	: FCC Part15B Class B (30MHz-2GHz)		
Test Distance	: 3 m		
Attenuator	: 6 dB	Engineer	: Tadashi Kuroda

No	Freq	Horizontal			Vertical			Ant.	Cable	Preamp	Result		Limits	Margin	
		Read	T/T	A/M	Read	T/T	A/M	Factor	Loss	Gain	Hor	Ver		Hor	Ver
	(MHz)	(dBuV)	(degr)	(cm)	(dBuV)	(degr)	(cm)	(dB/m)	(dB)	(dB)	(dBuV/m)		(dBuV/m) 3 m	(dB)	
1	56.27	-	-	-	37.5	210	100	11.5	1.8	27.4	-	29.4	40.0	-	10.6
2	82.26	-	-	-	48.0	205	150	6.7	2.2	27.4	-	35.5	40.0	-	4.5
3	96.00	-	-	-	41.0	140	125	9.7	2.4	27.4	-	31.7	43.5	-	11.8
4	267.49	39.5	65	110	-	-	-	12.7	4.4	26.6	36.0	-	46.0	10.0	-
5	319.99	37.0	305	100	34.0	300	100	13.9	5.1	26.8	35.2	32.2	46.0	10.8	13.8
6	468.14	34.0	300	100	35.0	240	130	17.3	6.6	27.9	36.0	37.0	46.0	10.0	9.0
7	568.48	-	-	-	36.0	280	115	18.1	7.1	28.2	-	39.0	46.0	-	7.0
8	1245.00	37.5	300	100	43.0	0	100	24.9	10.9	35.2	44.1	49.6	54.0	9.9	4.4

Result = Reading Level + Antenna Factor + Cable Loss - Preamp Gain + Attenuator + 20xLog(Test Distance / Standard Distance)
Antenna Type : Biconical Logperiodic(30MHz-2GHz)



EMC Kashima Corporation 1614, Mushiheta, Omigawa-machi, Katori-gun, Chiba-ken, 289-0341 Japan TEL 81-478-82-0983 FAX 81-478-82-3373

Exhibit 6

Ver 8.5

No.1 Test Site

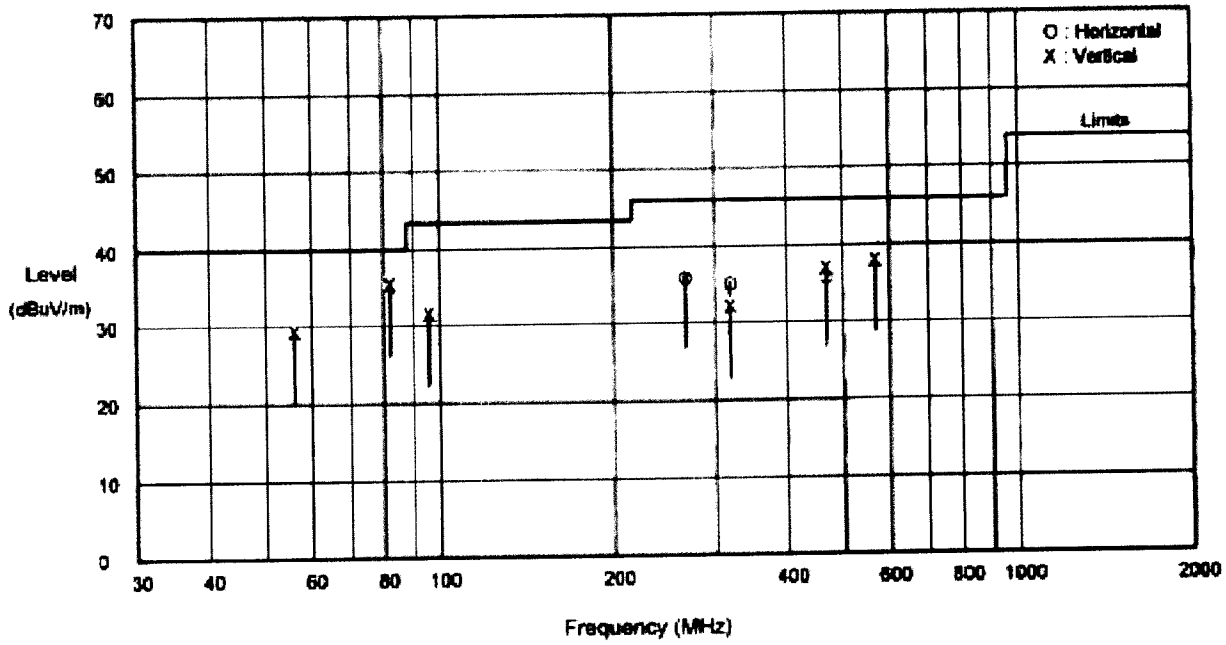
Radiated Emission Test

(30MHz - 2000MHz)

Company	: TOSHIBA CORPORATION	Report No.	: TR1-00649F
Equipment	: CD-RW / DVD-ROM DRIVE	Tested Date	: 2000/12/12
Model	: SD-R1102	Temperature	: 20℃
Power	: DC 5V, 12V (PC:AC120V/60Hz)	Humidity	: 40 %
Test Mode	: Random Access Read at CD-ROM Disc	Atmos.Press.	: 1010 hPa
Remarks	: FCC ID : CJ6AT01-047		
Regulation	: FCC Part15B Class B (30MHz-2GHz)		
Test Distance	: 3 m		
Attenuator	: 6 dB	Engineer	: Tadashi Kuroda

No.	Freq (MHz)	Horizontal Read (dBuV)	T/T (degr)	A/M (cm)	Vertical Read (dBuV)	T/T (degr)	A/M (cm)	Ant. Factor (dB/m)	Cable Loss (dB)	Preamp Gain (dB)	Result Hor (dBuV/m)	Result Ver (dBuV/m)	Limits (dBuV/m) 3 m	Margin Hor (dB)	Margin Ver (dB)
1	56.27	-	-	-	37.5	210	100	11.5	1.8	27.4	-	29.4	40.0	-	10.6
2	82.26	-	-	-	48.0	205	135	6.7	2.2	27.4	-	35.5	40.0	-	4.5
3	96.00	-	-	-	41.0	140	125	9.7	2.4	27.4	-	31.7	43.5	-	11.8
4	267.49	39.5	65	110	-	-	-	12.7	4.4	26.6	30.0	-	46.0	10.0	-
5	319.99	37.0	305	100	34.0	300	100	13.9	5.1	26.8	35.2	32.2	46.0	10.8	13.8
6	468.14	34.0	295	100	35.0	235	130	17.3	6.6	27.9	36.0	37.0	46.0	10.0	9.0
7	568.48	-	-	-	35.0	275	115	18.1	7.1	28.2	-	38.0	46.0	-	8.0

Result = Reading Level + Antenna Factor + Cable Loss - Preamp Gain + Attenuator + 20xLog(Test Distance / Standard Distance)
Antenna Type : Biconical Logperiodic(30MHz-2GHz)



EMC Kashima Corporation 1614, Mushineta, Omigawa-machi, Katori-gun, Chiba-ken, 289-0341 Japan TEL 81-478-82-0983 FAX 81-478-82-3373

Exhibit 6

Ver 8.5

No.1 Test Site

Radiated Emission Test

(30MHz - 2000MHz)

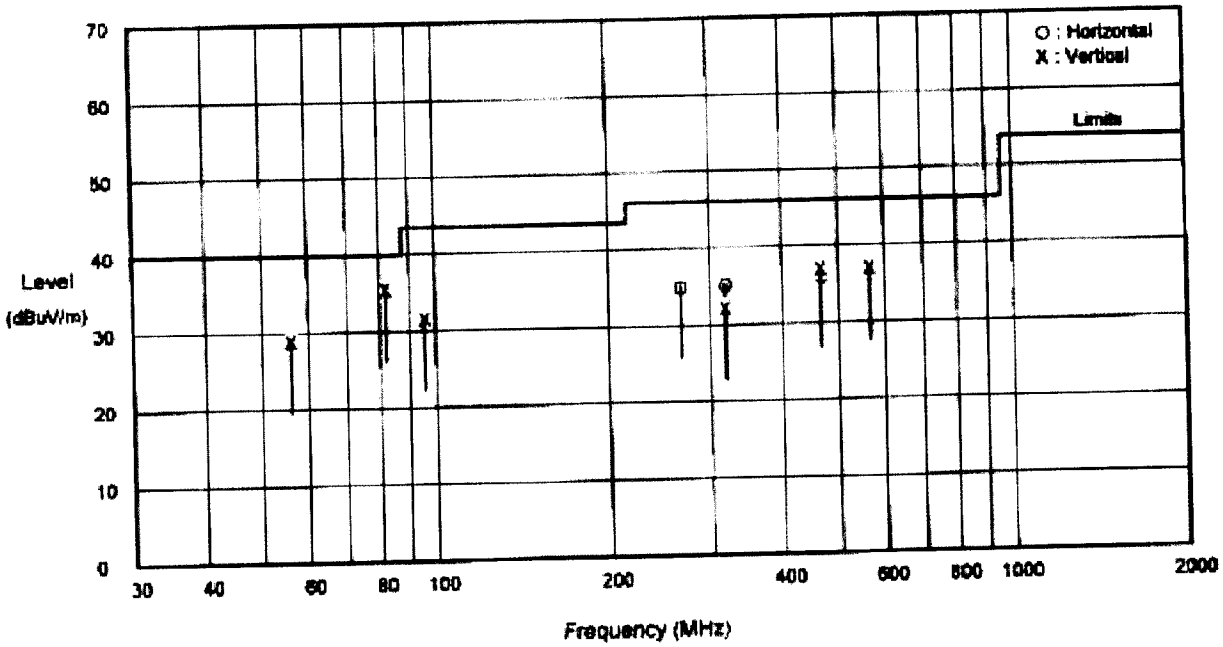
Company	: TOSHIBA CORPORATION
Equipment	: CD-RW / DVD-ROM DRIVE
Model	: SD-R1102
Power	: DC 5V, 12V (PC:AC120V/60Hz)
Test Mode	: Write at CD-RW Disc
Remarks	: FCC ID : CJ6AT01-047
Regulation	: FCC Part15B Class B (30MHz-2GHz)
Test Distance	: 3 m
Attenuator	: 6 dB

Report No.	: TR1-00649F
Tested Date	: 2000/12/12
Temperature	: 20℃
Humidity	: 40 %
Atmos.Press.	: 1010 hPa

Engineer : Tadashi Kuroda

No.	Freq	Horizontal Read	T/T	A/M	Vertical Read	T/T	A/M	Ant. Factor	Cable Loss	Preamp Gain	Result Hor	Result Ver	Limits	Margin Hor	Margin Ver
	(MHz)	(dBuV)	(degr)	(cm)	(dBuV)	(degr)	(cm)	(dB/m)	(dB)	(dB)	(dBuV/m)		(dBuV/m) 3 m	(dB)	
1	56.27	-	-	-	37.0	220	100	11.5	1.8	27.4	-	28.9	40.0	-	11.1
2	82.26	-	-	-	48.0	215	135	6.7	2.2	27.4	-	35.5	40.0	-	4.5
3	96.00	-	-	-	41.0	140	110	9.7	2.4	27.4	-	31.7	43.5	-	11.8
4	267.49	38.5	65	110	-	-	-	12.7	4.4	26.6	35.0	-	46.0	11.0	-
5	319.99	37.0	305	100	34.0	300	100	13.9	5.1	26.8	35.2	32.2	46.0	10.8	13.8
6	468.14	34.0	295	100	35.0	235	130	17.3	6.6	27.9	36.0	37.0	46.0	10.0	9.0
7	568.48	-	-	-	34.0	275	115	18.1	7.1	28.2	-	37.0	46.0	-	9.0

Result = Reading Level + Antenna Factor + Cable Loss - Preamp Gain + Attenuator + 20xLog(Test Distance / Standard Distance)
Antenna Type : Biconical Logperiodic(30MHz-2GHz)



EMC Kashima Corporation 1614, Nushishata, Omigawa-machi, Katori-gun, Chiba-ken, 289-0341 Japan TEL 81-478-82-0983 FAX 81-478-82-3373

Exhibit 6

Ver 8.5

No.1 Test Site

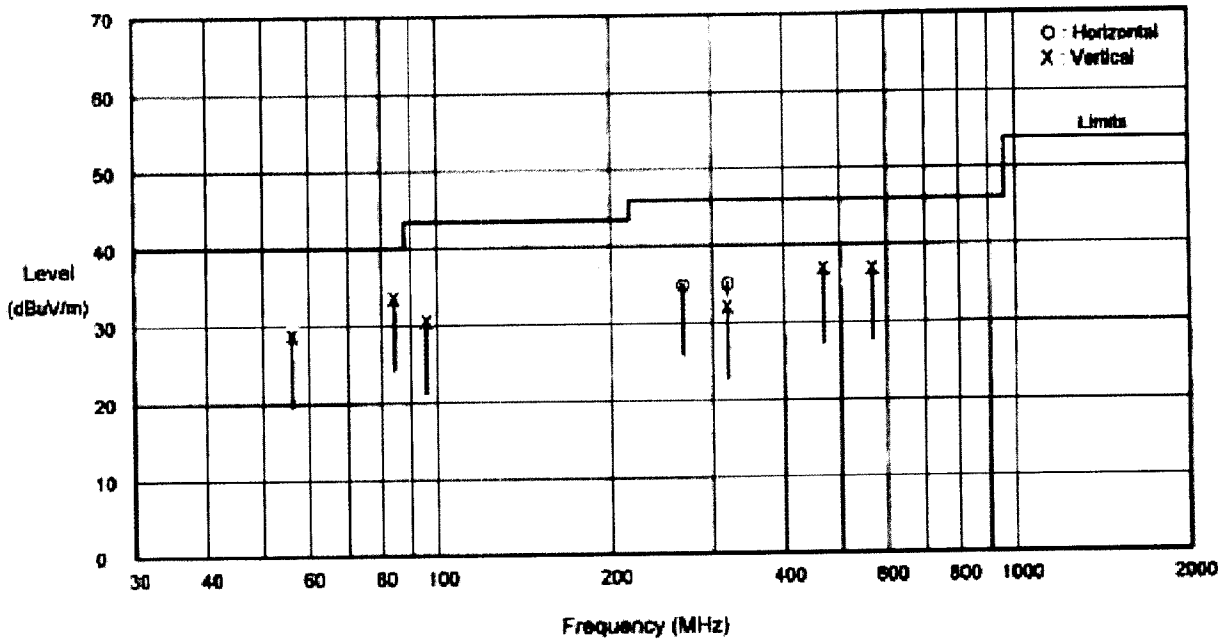
Radiated Emission Test

(30MHz - 2000MHz)

Company	: TOSHIBA CORPORATION	Report No.	: TR1-00649F
Equipment	: CD-RW / DVD-ROM DRIVE	Tested Date	: 2000/12/12
Model	: SD-R1102	Temperature	: 20℃
Power	: DC 5V, 12V (PC:AC120V/60Hz)	Humidity	: 40 %
Test Mode	: Standby at CD-RW Disc	Atmos.Press.	: 1010 hPa
Remarks	: FCC ID : CJ6AT01-047		
Regulation	: FCC Part15B Class B (30MHz-2GHz)		
Test Distance	: 3 m		
Attenuator	: 6 dB	Engineer	: Tadashi Kuroda

No.	Freq	Horizontal			Vertical			Ant.	Cable	Preamp	Result		Limits	Margin	
		Read	T/T	A/M	Read	T/T	A/M	Factor	Loss	Gain	Hor	Ver		Hor	Ver
	(MHz)	(dBuV)	(degr)	(cm)	(dBuV)	(degr)	(cm)	(dB/m)	(dB)	(dB)	(dBuV/m)		(dBuV/m) 3 m	(dB)	
1	56.27	-	-	-	37.0	220	100	11.5	1.8	27.4	-	28.9	40.0	-	11.1
2	84.38	-	-	-	45.5	215	140	7.3	2.3	27.4	-	33.7	40.0	-	6.3
3	96.00	-	-	-	40.0	130	110	9.7	2.4	27.4	-	30.7	43.5	-	12.8
4	267.49	38.5	65	110	-	-	-	12.7	4.4	26.6	35.0	-	46.0	11.0	-
5	319.99	37.0	310	100	34.0	300	100	13.9	5.1	26.8	35.2	32.2	46.0	10.8	13.8
6	468.14	34.5	295	100	35.0	235	130	17.3	6.6	27.9	36.5	37.0	46.0	9.5	9.0
7	568.48	-	-	-	34.0	265	110	18.1	7.1	28.2	-	37.0	46.0	-	9.0

Result = Reading Level + Antenna Factor + Cable Loss - Preamp Gain - Attenuator + 20xLog(Test Distance / Standard Distance)
Antenna Type : Biconical Logperiodic(30MHz-2GHz)



EMC Kashima Corporation 1614, Mushihata, Omigawa-machi, Katori-gun, Chiba-ken, 289-0341 Japan TEL 81-478-82-0963 FAX 81-478-82-3373