

TEST REPORT

Report No.: Z01C-02143

Issue Date: April 18, 2002

The device, as described herewith, was tested pursuant to applicable test procedure indicated below and complies with the requirements of;

FCC Part 15 Subpart B, Class B

The EUT complies with section 15.37 "Transition provision for compliance with the rules".

The test results are traceable to the international or national standards.

Applicant	: Sanyo Electric Co., Ltd. Optical Device Division 1-1-1, Sakata, Oizumi-machi Ora-gun, Gunma-ken 370-0596 Phone: +81-276-61-8006 Fax.: +81-276-61-8752
Equipment under test (EUT)	: CD-RW Drive
FCC ID	: JBQCDR027
Trade Name	: SANYO
Model Number	: CRD-BP1500U40X
Serial Number	: PL1700U035
EUT Condition	: Pre-production

Test procedure	: ANSI C63.4-1992
Date of test	: April 12, 13, 2002
Test place	: Site 2
Test results	: Complied

Zacta Technology Corporation certifies that no party to the application is subject to a denial of federal benefits, that include FCC benefits, pursuant to Section 5301 of the Anti-Drug Abuse Act of 1988, 21U.S.C. 853(a).

The results in this report are applicable only to the samples tested.

This report shall not be re-produced except in full without the written approval of ZACTA Technology Corporation.

Test performed by: Shigeo Senda
EMC engineer

Authorized by: Kiyoshi Endo
Manager of Technical Division

NVLAP[®]
NVLAP LAB CODE 200306-0

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1. Equipment description

1.1 EUT information

No.	EUT	Company	Model No.	Serial No.	FCC ID/DoC	Comment
1	CD-RW Drive	SANYO	CRD-BP1500U40X	PL1700U035	JBQCDR027	-

Max. used frequency : 290.00MHz (±25%)

Oscillator(s)/Crystal(s) : 25.00MHz, 30.00MHz, 33.86MHz, 290.00MHz (±25%)

Operating frequency

Power ratings : (Internal use)
DC +5V, +12V
[EUT is powered from Host PC .
Power supply for Host PC in testing was AC 120V 60Hz.]
(External use)
DC +5V, +12V
[EUT is powered from DC power supply.
Power supply for DC power supply in testing was AC 120V 60Hz.]

Port(s) : Headphones jack
Audio connector(For Internal Use Only)
Line Out jack (For External Use Only)
USB Type A connector
DC connector (From Internal DC input)
DC connector (From AC Adaptor)

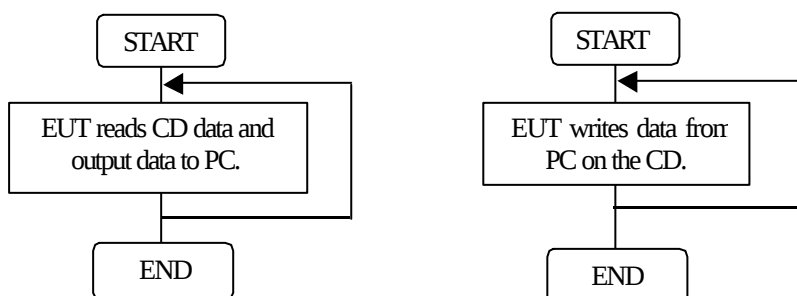
Size : (W) 146 x (D) 188.5 x (H) 41.3 mm

Operating mode : Internal CD Read mode
Internal CD Write mode
External CD Read mode
External CD Write mode

Variation of model(s) : Not applicable

1.2 Operating flow

<Internal CD Read, External CD Read> <Internal CD Write, External CD Write >



2. Configuration information

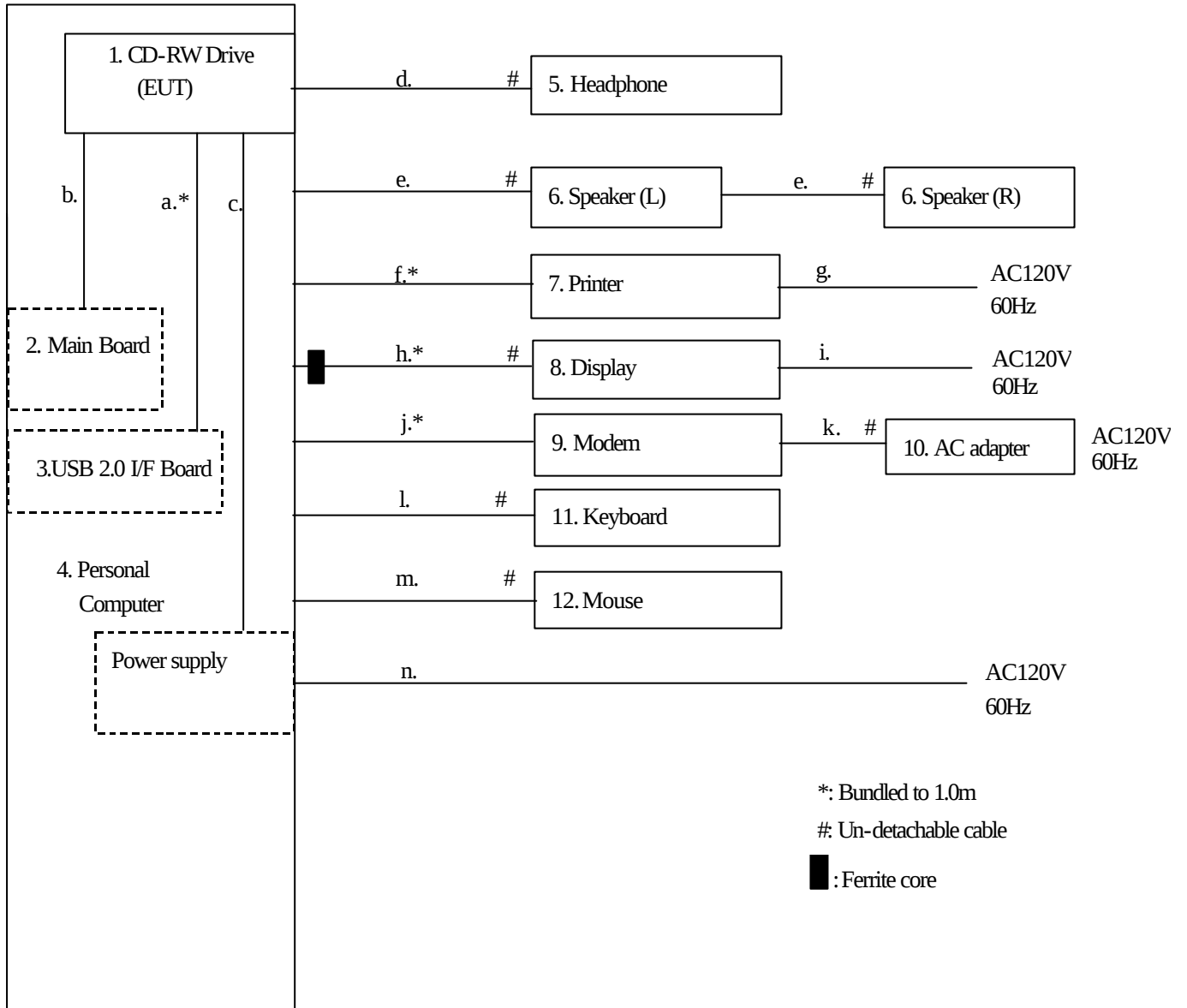
2.1 Peripheral(s) information (Internal Mode)

No.	Equipment	Company	Model No.	Serial No.	DoC / FCC ID	Comment
2	Main board	COMPAQ	N/A	N/A	N/A	-
3	USB 2.0 I/F Board	Adaptec	AUA-3100LP	-	DoC	-
4	Personal Computer	COMPAQ	Prosig 320 C500/ M1 JPN2	7016 CZLIPO116	DoC	-
5	Headphone	FISHER	N/A	N/A	N/A	-
6	Speaker	Panasonic	RP-SP30	N/A	N/A	-
7	Printer	HP	C4555A	SG69A1425N	B94C4555X	-
8	Display	Goldstar	Studio Works 56i	15005G 004966	BEJCS585	-
9	Modem	US Robotics	839	000839032BK6YV1T	DoC	-
10	AC adapter for Modem	US Robotics	N/A	N/A	N/A	-
11	Keyboard	COMPAQ	KB-9965	B13B00WBUJ6150	DoC	-
12	Mouse	COMPAQ	Intel liMouse	0805393-5	DoC	-

2.2 Cable(s) information (Internal Mode)

No.	Cable	Length [m]	Shield	Connector	From	To	Comment
a	USB Cable	1.4	Unshielded	Plastic	EUT	Main board	Bundled excess cable.
b	Audio cable	0.5	Unshielded	Plastic	EUT	Main board	-
c	DC cable	0.2	Unshielded	Plastic	EUT	Power supply	-
d	Headphone cable	1.1	Unshielded	Metal	EUT	Headphone	-
e	Speaker cable	1.0	Unshielded	Metal	PC	Speaker	-
f	Centronics cable	2.1	Shielded	Metal	PC	Printer	Bundled excess cable.
g	AC power cord for Printer	2.8	Unshielded	Plastic	Printer	AC outlet	-
h	RGB cable	1.5	Shielded	Metal	PC	Display	Bundled excess cable. With one ferrite core.
i	AC power cord for Display	1.7	Unshielded	Plastic	Display	AC outlet	-
j	RS232C cable	2.0	Shielded	Metal	PC	Modem	Bundled excess cable.
k	DC cable for Modem AC adapter	1.7	Unshielded	Metal	Modem	AC adapter	-
l	Keyboard cable	2.0	Unshielded	Metal	PC	Keyboard	-
m	Mouse cable	1.8	Unshielded	Metal	PC	Mouse	-
n	AC power cord for PC	1.9	Shielded	Plastic	PC	AC outlet	-

2.3 System configuration (Internal Mode)



Note 1: Numbers assigned to equipment or cables on this diagram are corresponded to the list in “1.1 EUT information”, “2.1 Peripheral(s) information” and “2.2 Cable(s) information”.

Note 2: RGB cable(No.h) with one ferrite core is un -detachable. Ferrite core is not added during testing.

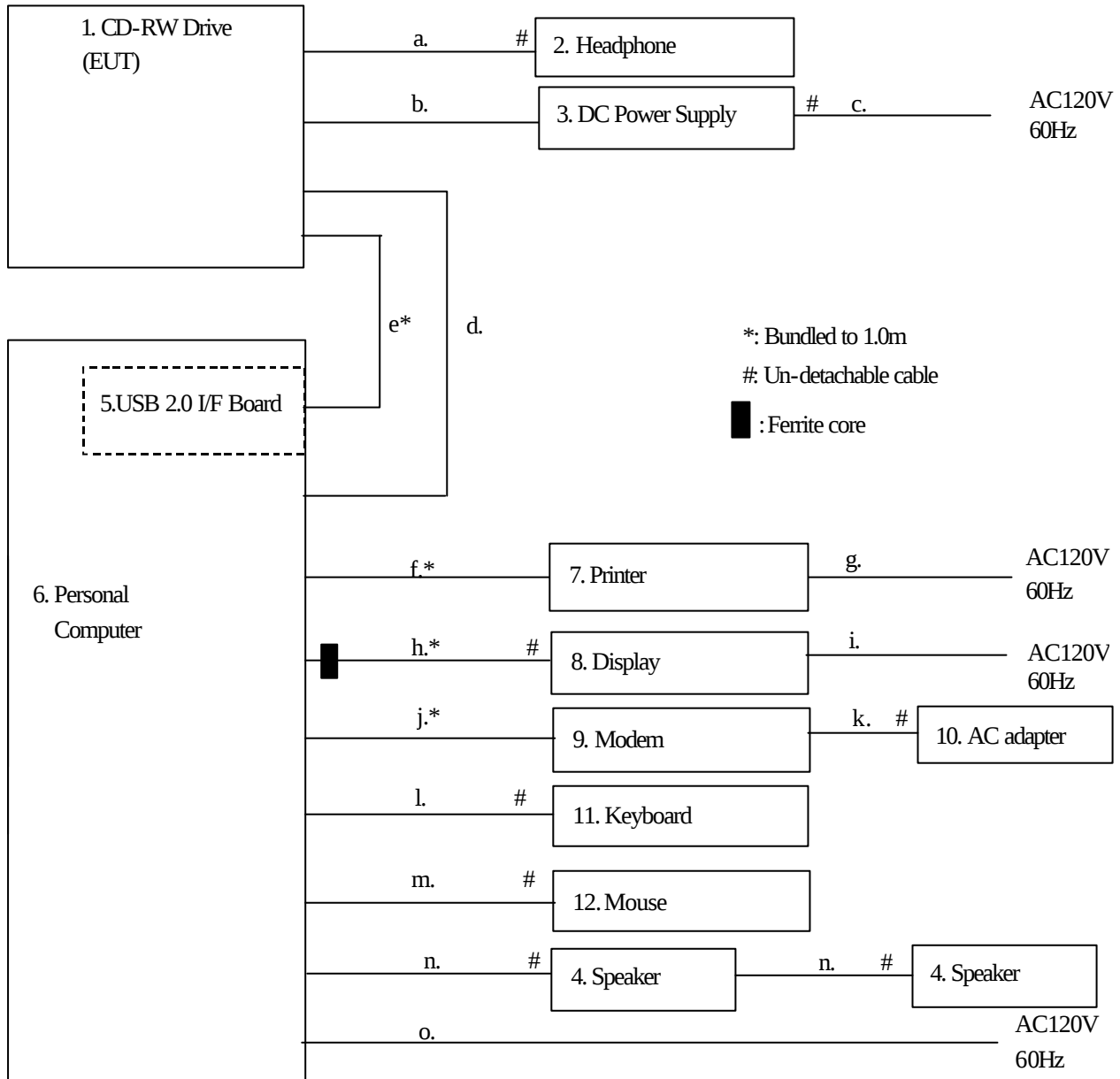
2.4 Peripheral(s) information (External Mode)

No.	Equipment	Company	Model No.	Serial No.	DoC / FCC ID	Comment
2	Headphone	FISHER	N/A	N/A	N/A	-
3	DC POWER SUPPLY	KENWOOD	PW18-1.8Q	6040064	N/A	-
4	Speaker	Panasonic	RP-SP30	N/A	N/A	-
5	USB 2.0 I/F Board	Adaptec	AUA-3100LP	-	DoC	-
6	Personal Computer	COMPAQ	Prosig 320 C500/ M1 JPN2	7016 CZLIP0116	DoC	-
7	Printer	HP	C4555A	SG69A1425N	B94C4555X	-
8	Display	Goldstar	Studio Works 56i	15005G 004966	BEJCS585	-
9	Modem	US Robotics	839	000839032BK6YV1T	DoC	-
10	AC adapter for Modem	US Robotics	N/A	N/A	N/A	-
11	Keyboard	COMPAQ	KB-9965	B13B00WBUJ6150	DoC	-
12	Mouse	COMPAQ	Intel liMouse	0805393-5	DoC	-

2.5 Cable(s) information (External Mode)

No.	Cable	Length [m]	Shield	Connector	From	To	Comment
a	Headphone cable	1.1	Unshielded	Metal	EUT	Headphone	-
b	DC cable	1.5	Unshielded	Plastic	EUT	Power supply	-
c	AC power cord for DC Power Supply	1.9	Unshielded	Plastic	DC Power Supply	AC outlet	-
d	Line cable	1.1	Unshielded	Metal	EUT	PC	-
e	USB cable	1.4	Unshielded	Plastic	EUT	Main board	Bundled excess cable.
f	Centronics cable	2.1	Shielded	Metal	PC	Printer	Bundled excess cable.
g	AC power cord for Printer	2.8	Unshielded	Plastic	Printer	AC outlet	-
h	RGB cable	1.5	Shielded	Metal	PC	Display	Bundled excess cable. With one ferrite core.
i	AC power cord for Display	1.7	Unshielded	Plastic	Display	AC outlet	-
j	RS232C cable	2.0	Shielded	Metal	PC	Modem	Bundled excess cable.
k	DC cable for Modem AC adapter	1.7	Unshielded	Metal	Modem	AC adapter	-
l	Keyboard cable	2.0	Unshielded	Metal	PC	Keyboard	-
m	Mouse cable	1.8	Unshielded	Metal	PC	Mouse	-
n	Speaker cable	1.0	Unshielded	Metal	PC	Speaker	-
o	AC power cord for PC	1.9	Shielded	Plastic	PC	AC outlet	-

2.6 System configuration (External Mode)



Note 1: Numbers assigned to equipment or cables on this diagram are corresponded to the list in “1.1 EUT information”, “2.4 Peripheral(s) information” and “2.5 Cable(s) information”.

Note 2: RGB cable(No.h) with one ferrite core is un-detachable. Ferrite core is not added during testing.

3. Test procedure

3.1 Description of Conducted Emission testing

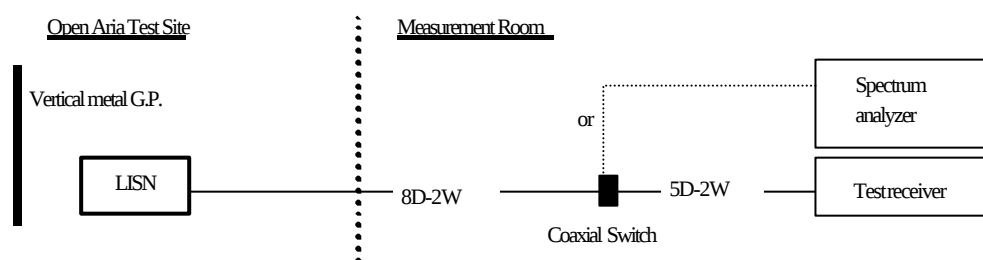
The conducted emission measurements are performed with the test receiver. The detector function of the test receiver is set to CISPR quasi-peak mode and the bandwidth is set to 9kHz. The frequency range from 450kHz to 30 MHz is scanned, and at least six highest emissions are reported. The test results represent the worst-case emission for each emission with manipulating the EUT, support equipment, interconnecting cables and varying the mode of operation.

EUT and support equipment are on a 1 meter x 2.3 meter surface, 0.8 meter height wooden table. EUT is placed 40 cm away from the vertical metal ground plane of 2.4 meter x 2.7 meter in size.

Conducted emission of Host PC and DC power supply was tested because EUT is powered from Host PC(Internal mode) or DC power supply(External mode). 50 Ω /50 μ H Line Impedance Stabilization Network (LISN) are 80cm away from the Host PC and placed on the conducting ground plane. LISN for peripheral is terminated in 50 Ω .

Sufficient time for the EUT, support equipment and test equipment are allowed in order for them to warm up to their normal operating condition.

Test Configuration for Conducted emission Test



3.2 Test equipment for Conducted emission

Equipment	Company	Model No.	Serial No.	Calibration date	Period
Spectrum analyzer	Agilent Technologies	8568B	3019A05148	Aug. 2001	1 year
Test Receiver	ROHDE&SCHWARZ	ESH3	891806/011	Feb. 2002	1 year
Line Impedance Stabilization Network for Host PC/DC power supply	Kyoritsu Electrical Works, Ltd.	KNW-407	8-693-20	Dec. 2001	1 year
Line Impedance Stabilization Network for Peripheral	CDI	8012-50-R-24-BNC	887113	Apr. 2001	1 year
50 Ω terminator	Agilent Technologies	11593A	N/A	Aug. 2001	1 year
Coaxial cable	FUJIKURA	8D-2W/15m 5D-2W/1m	YTCRFC#2C	May. 2001	1 year
Coaxial Switch	ANRITSU	MP59B	6100097264	May. 2001	1 year

* The calibrations of the above equipment are traceable to NIST or equivalent standards of the reference organizations.

3.3 Description of Radiated emission testing

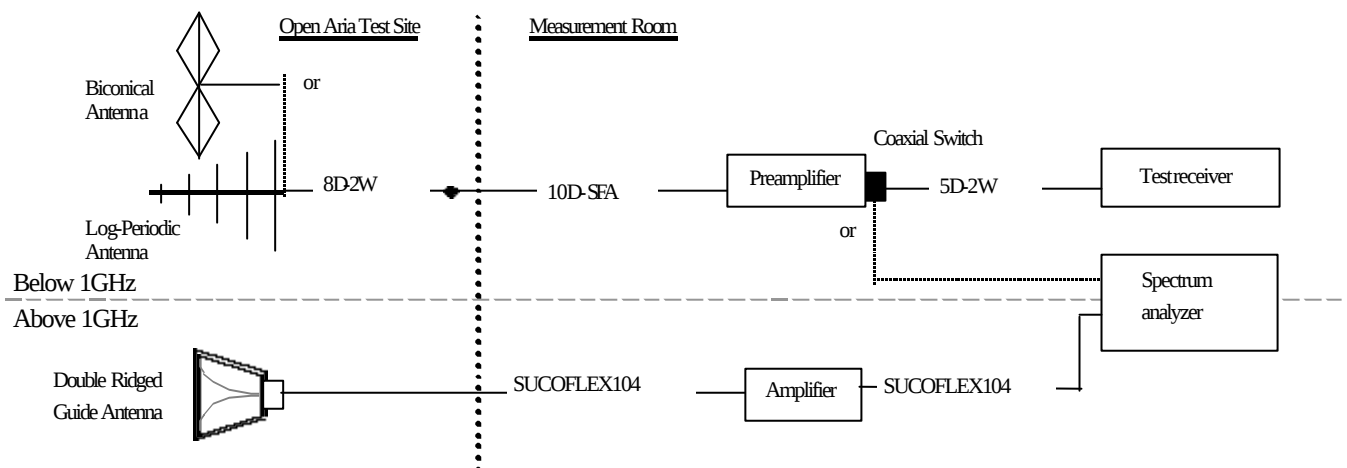
Radiated emission measurements are performed at 3m distance with the broadband antenna (Biconical antenna, log-periodic antenna and double-ridged guide antenna). The antenna is positioned both the horizontal and vertical planes of polarization and height is varied 1 to 4 meters and stopped at height producing the maximum emission. Frequency Range: 30MHz 1GHz is scanned and investigated with the test receiver, and above 1GHz, with the spectrum analyzer. The detector function of the test receiver is set to CISPR Quasi-peak mode and the bandwidth is set to 120kHz. Peak and average detectors are used for measurements above 1GHz. The bandwidth of the spectrum analyzer is set to 1MHz.

The EUT and support equipment are placed on a 1 meter x 2.3 meter surface, 0.8 meter height wooden table. The turntable is rotated by 360 degrees and stopped at azimuth of producing the maximum emission.

Interconnecting cables, which hanging closer than 40cm to the horizontal metal ground plane are bundled its excess in center. The highest frequency used in the EUT is 290MHz, therefore, the frequency range is investigated from 30MHz up to the frequency 2GHz, as specified in CFR section 15.33, and at least six highest emissions are reported. The test results represent the worst-case emission for each emission with manipulating the EUT, support equipment, interconnecting cables and varying the mode of operation.

Sufficient time for the EUT, support equipment, and test equipment are allowed in order for them to warm up to their normal operating condition.

Test Configuration for Radiated emission Test



3.4 Test equipment for Radiated emission

[Testing below 1GHz]

Equipment	Company	Model No.	Serial No.	Calibration date	Period
Spectrum analyzer	Agilent Technologies	8568B	3019A05148	Aug. 2001	1 year
Preamplifier	Anritsu	MH648A	M96157	Aug. 2001	1 year
Test Receiver	ROHDE&SCHWARZ	ESVP	862773/019	Nov. 2001	1 year
Biconical Antenna	Schwarzbeck	VHA9103/BBA9106	1563	Jun. 2001	1 year
Log Periodic Antenna	Schwarzbeck	UHALP9108A	0437	Oct. 2001	1 year
Coaxial cable	FUJIKURA	8D-2W/8m 10D-SFA/29m 5D-2W/1m	YTCRFC#2R	May. 2001	1 year
Coaxial Switch	ANRITSU	MP59B	6100097264	May. 2001	1 year
Site attenuation	ZACTA Technology Corp.	Site 2	N/A	Nov. 2001	1 year

[Testing above 1GHz]

Equipment	Company	Model No.	Serial No.	Calibration date	Period
Spectrum Analyzer	ADVANTEST	R3271A	65050042	Jun. 2001	1 year
Preamplifier	Agilent Technologies	HP8449B	3008A00589	Jun. 2001	1 year
Double Ridged Guide Antenna	EMCO	3115	4327	Sep. 2001	1 year
Coaxial cable	SUHNER	SUCOFLEX 104/15m SUCOFLEX 104/1m	108014/4 108015/4	Jun. 2001	1 year

* The calibrations of the above equipment are traceable to NIST or equivalent standards of the reference organizations.

4. Laboratory description

4.1 Description for Test Site

1. Location: ZACTA Technology Corporation Yonezawa Testing Center

4149-7 Hachimanpara 5-chome Yonezawa-shi Yamagata 992-1128 Japan

Phone: +81-238-28-2880 Fax: +81-238-28-2888

2. The Number and Type of Site:

Site name: Site 1, Site 2 and Site 3 - Total 3 sites.

Site type : Whether protected site

*3m/10m Radiated emission & Conducted emission testing can be performed on each site

3. Facility filing information:

1) FCC site filing: Pursuant to CFR47 § 2.948

Site name	Final filing date (Terms of validity: 3 years)
Site 1, Site 2 and Site 3	March 6, 2000

2) Industry Canada Oats site filing: Pursuant to RSS 212, Issue 1(Provisional)

Site name	Sites on file: Oats 3m/10m	Filing date (Terms of validity: 3 years)
Site 1	4224-1	January 31, 2002
Site 2	4224-2	January 31, 2002
Site 3	4224-3	January 31, 2002

3) VCCI site filing: Pursuant to V-5/99.05 VCCI Regulations for Registration of measurement facilities

Site name	Radiated emission Registration No.	Conducted emission Registration No.	Duration of Registration
Site 1	R-136	C-132	September 30, 2003
Site 2	R-137	C-133	September 30, 2003
Site 3	R-138	C-134	September 30, 2003

4) NVLAP Accreditation:

NVLAP Lab. code: 200306-0

NVLAP information: NVLAP accreditation does not constitute any product endorsement by NVLAP or any agent of the U.S. Government

Scope of accreditation

Emission test methods: CISPR22, FCC Part 15-Digital Devices (Conducted / Radiated emission), AS/NZS3548.

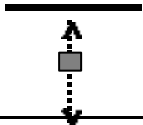
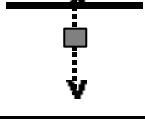
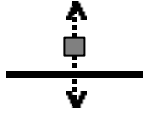
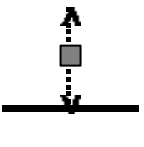
Immunity test methods: IEC61000-4-2, 4-3, 4-4, 4-5, 4-6, 4-8, 4-11

4.2 Uncertainty

Expanded Uncertainties stated were calculated with a coverage Factor $k=2$.

$\pm 2.97\text{dB}$	... For Conducted Emission
$\pm 5.23\text{dB}$	... For 3m Radiated Emission
$\pm 4.26\text{dB}$	... For 10m Radiated Emission

Judgment of Uncertainty under the measurement data and the scope of permission

Example A	Example B	Example C	Example D
			
Judgment: Complied	Judgment: Complied	Judgment: Not complied	Judgment: Not complied
The result of measurement is compliance with the limit in 95% or more confidence probability.	The result of measurement is compliance with the limit with less extent of uncertainty of the measurement. It is impossible to consider it complies with the limit in 95% confidence probability, but the result satisfies the limit in high probability.	The result of measurement is not compliance with the limit with less extent of uncertainty of the measurement. It is impossible to consider it complies with the limit in 95% confidence probability, but the result does not satisfy the limit in high probability.	The result of measurement is not compliance with the limit.

———— : Limit ■ : Result of the measurements - - - - - : Uncertainty

5. Results of the measurements

5.1 Results of the measurements

The minimum margins to the limits are as follows.

Conducted emission	Margin	Frequency	Detector	Phase	Operating mode	Data sheet
	10.0dB	1.292MHz	Quasi-peak	L1	Internal CD Read mode	No. 1

Radiated emission	Margin	Frequency	Antenna Polarity	Antenna Height	Table degree	Operating mode	Data sheet
	2.1dB	895.42MHz	Vertical	1.5m	0°	Internal CD Write mode	No. 6

5.2 Deviation from the standard

Not applicable.

5.3 Sample of field strength calculation

Conducted Emission [Sample Calculation] $\text{dBuV} = 20\log_{10}(\text{uV})$

Class B
Limit @3.332MHz = 250uV = 48.0dBuV
Reading = 41.6dBuV Cable Loss + LISN Factor = 0.2 + 0.5 = 0.7dB Total = 41.6 + 0.7 = 42.3dBuV Margin = 48.0 - 42.3 = <u>5.7dB</u>

Radiated Emission [Sample Calculation] $\text{dBuV/m} = 20\log_{10}(\text{uV/m})$

Class B
Limit @147.6MHz = 150uV/m = 43.5dBuV/m
Reading = 42.8dBuV Ant. Factor + Cable Loss - Amp. Gain = 14.2 + 3.0 - 30.0 = -12.8dB Total = 42.8 - 12.8 = 30.0dBuV/m Margin = 43.5 - 30.0 = <u>13.5dB</u>

6. Test Data

***** CONDUCTED EMISSION *****

Standard : FCC Part15 SubpartB
Class : B

Sheet Number : 1

Date of test : 2002/4/13
Test Site : 2
Temperature [℃] : 23.6
Humidity [%] : 28.6
Operator : S.Senda
Company Name : SANYO Electric Co., Ltd.
EUT : CD-RW Drive
Model Number : CRD-BP1500U40X
Serial Number : PL1700U035
Test Mode : Internal CD Read
Comment :

Signature :

Shigeo S

Phase	Frequency [MHz]	Reading		Factor [dB]	Emission Level		Limit		Margin		Comment
		QP [dB μV]	AV [dB μV]		QP [dB μV]	AV [dB μV]	QP [dB μV]	AV [dB μV]	QP [dB]	AV [dB]	
L1	0.478	34.9		0.3	35.2		48.0		12.8		
L1	0.596	35.9		0.3	36.2		48.0		11.8		
L1	0.680	34.7		0.3	35.0		48.0		13.0		
L1	0.887	34.9		0.3	35.2		48.0		12.8		
L1	1.089	35.5		0.3	35.8		48.0		12.2		
L1	1.292	37.7		0.3	38.0		48.0		10.0		*
L2	0.475	35.1		0.3	35.4		48.0		12.6		
L2	0.592	33.4		0.3	33.7		48.0		14.3		
L2	0.680	35.2		0.3	35.5		48.0		12.5		
L2	0.887	33.1		0.3	33.4		48.0		14.6		
L2	1.089	35.0		0.3	35.3		48.0		12.7		
L2	1.291	37.2		0.3	37.5		48.0		10.5		

*:The worst emission.

Factor: LISN Factor + Cable Loss

Ver.2.20 F2#005

***** CONDUCTED EMISSION *****

Standard : FCC Part15 SubpartB
Class : B

Sheet Number : 2

Date of test : 2002/4/13
Test Site : 2
Temperature [°C] : 23.6
Humidity [%] : 28.6
Operator : S.Senda
Company Name : SANYO Electric Co., Ltd.
EUT : CD-RW Drive
Model Number : CRD-BP1500U40X
Serial Number : PL1700U035
Test Mode : Internal CD Write
Comment :

Signature :

Shigeo S

Phase	Frequency [MHz]	Reading		Factor [dB]	Emission Level		Limit		Margin		Comment
		QP [dB μ V]	AV [dB μ V]		QP [dB μ V]	AV [dB μ V]	QP [dB μ V]	AV [dB μ V]	QP [dB]	AV [dB]	
L1	0.476	34.8		0.3	35.1		48.0		12.9		
L1	0.592	36.1		0.3	36.4		48.0		11.6		
L1	0.680	34.7		0.3	35.0		48.0		13.0		
L1	0.886	34.6		0.3	34.9		48.0		13.1		
L1	1.089	34.7		0.3	35.0		48.0		13.0		
L1	1.290	36.9		0.3	37.2		48.0		10.8		*
L2	0.476	35.0		0.3	35.3		48.0		12.7		
L2	0.592	33.5		0.3	33.8		48.0		14.2		
L2	0.680	35.3		0.3	35.6		48.0		12.4		
L2	0.887	34.0		0.3	34.3		48.0		13.7		
L2	1.088	34.7		0.3	35.0		48.0		13.0		
L2	1.291	35.8		0.3	36.1		48.0		11.9		

*: The worst emission. Factor: LISN Factor + Cable Loss

Ver.2.20 F2#005

***** CONDUCTED EMISSION *****

Standard : FCC Part15 SubpartB
Class : B

Sheet Number : 3

Date of test : 2002/4/13
Test Site : 2
Temperature [℃] : 23.6
Humidity [%] : 28.6
Operator : S.Senda
Company Name : SANYO Electric Co., Ltd.
EUT : CD-RW Drive
Model Number : CRD-BP1500U40X
Serial Number : PL1700U035
Test Mode : External CD Read
Comment :

Signature :

Shigeo S

Phase	Frequency [MHz]	Reading		Factor [dB]	Emission Level		Limit		Margin		Comment
		QP [dB μV]	AV [dB μV]		QP [dB μV]	AV [dB μV]	QP [dB μV]	AV [dB μV]	QP [dB]	AV [dB]	
L1	0.987	20.0		0.3	20.3		48.0		27.7		
L1	1.076	22.1		0.3	22.4		48.0		25.6		
L1	1.883	18.0		0.3	18.3		48.0		29.7		
L1	2.121	19.5		0.3	19.8		48.0		28.2		
L1	3.937	24.8		0.3	25.1		48.0		22.9		
L1	4.556	18.2		0.4	18.6		48.0		29.4		
L2	0.988	22.3		0.3	22.6		48.0		25.4		
L2	1.075	23.0		0.3	23.3		48.0		24.7		
L2	1.882	17.5		0.3	17.8		48.0		30.2		
L2	2.121	15.8		0.3	16.1		48.0		31.9		
L2	3.936	27.2		0.3	27.5		48.0		20.5		*
L2	4.556	18.1		0.4	18.5		48.0		29.5		

*: The worst emission. Factor: LISN Factor + Cable Loss

Ver.2.20 F2#005

***** CONDUCTED EMISSION *****

Standard : FCC Part15 SubpartB
Class : B

Sheet Number : 4

Date of test : 2002/4/13
Test Site : 2
Temperature [°C] : 23.6
Humidity [%] : 28.6
Operator : S.Senda
Company Name : SANYO Electric Co., Ltd.
EUT : CD-RW Drive
Model Number : CRD-BP1500U40X
Serial Number : PL1700U035
Test Mode : External CD Write
Comment :

Signature : Shigeo-S

Phase	Frequency [MHz]	Reading		Factor	Emission Level		Limit		Margin		Comment
		QP [dB μ V]	AV [dB μ V]		QP [dB μ V]	AV [dB μ V]	QP [dB μ V]	AV [dB μ V]	QP [dB]	AV [dB]	
L1	0.990	19.6		0.3	19.9		48.0		28.1		
L1	1.078	20.6		0.3	20.9		48.0		27.1		
L1	1.883	17.9		0.3	18.2		48.0		29.8		
L1	2.122	19.4		0.3	19.7		48.0		28.3		
L1	3.937	25.2		0.3	25.5		48.0		22.5		
L1	4.557	18.1		0.4	18.5		48.0		29.5		
L2	0.992	23.3		0.3	23.6		48.0		24.4		
L2	1.079	25.5		0.3	25.8		48.0		22.2		
L2	1.880	18.7		0.3	19.0		48.0		29.0		
L2	2.123	15.3		0.3	15.6		48.0		32.4		
L2	3.937	27.2		0.3	27.5		48.0		20.5		*
L2	4.556	18.0		0.4	18.4		48.0		29.6		

* : The worst emission

Factor: LISN Factor + Cable Loss

Ver.2.20 F2#005

***** RADIATED EMISSION *****

Standard : FCC Part15 SubpartB
Class : B
Distance [m] : 3
Date of test : 2002/4/12
Test Site : 2
Temperature [°C] : 26.3
Humidity [%] : 27.3
Operator : S.Senda
Company Name : SANYO Electric Co., Ltd.
EUT : CD-RW Drive
Model Number : CRD-BP1500U40X
Serial Number : PL1700U035
Test Mode : Internal CD Read
Comment :

Sheet Number : 5

Signature : Shigeo.S

Antenna Pol.	Height	Table Radian	Reading Frequency	Level	Factor	Emission Level	Limit	Margin	Comment
HOR/VER	[m]	[Deg.]	[MHz]	[dB μ V]	[dB/m]	[dB μ V/m]	[dB μ V/m]	[dB]	
VER	1.0	60	50.55	43.0	-16.7	26.3	40.0	13.7	
HOR	1.8	15	89.79	52.5	-20.6	31.9	43.5	11.6	
VER	1.0	155	142.75	43.8	-14.1	29.7	43.5	13.8	
VER	1.0	195	166.54	42.8	-12.6	30.2	43.5	13.3	
HOR	1.7	105	196.76	45.8	-11.3	34.5	43.5	9.0	
HOR	1.4	100	208.45	45.0	-11.0	34.0	43.5	9.5	
HOR	1.0	340	432.11	45.4	-10.7	34.7	46.0	11.3	
HOR	1.0	290	465.84	42.7	-10.0	32.7	46.0	13.3	
HOR	1.0	210	895.32	39.7	-2.0	37.7	46.0	8.3	
VER	1.7	330	895.68	43.7	-2.0	41.7	46.0	4.3	*
HOR	1.4	220	1130.00	39.2	-7.1	32.1	54.0	21.9	Average
VER	1.5	40	1293.04	42.0	-6.8	35.2	54.0	18.8	Average

* : The worst emission.

Factor: Antenna Factor + Cable Loss - Amp Gain

Ver.2.20 F2#005

***** RADIATED EMISSION *****

Standard : FCC Part15 SubpartB
Class : B
Distance [m] : 3
Date of test : 2002/4/12
Test Site : 2
Temperature [°C] : 26.3
Humidity [%] : 27.3
Operator : S.Senda
Company Name : SANYO Electric Co., Ltd.
EUT : CD-RW Drive
Model Number : CRD-BP1500U40X
Serial Number : PL1700U035
Test Mode : Internal CD Write
Comment :

Sheet Number : 6

Signature :

Shigeo S

Antenna Pol.	Antenna Height	Table Radian	Reading Frequency	Reading Level	Factor	Emission Level	Limit	Margin	Comment
HOR/VER	[m]	[Deg.]	[MHz]	[dB μ V]	[dB/m]	[dB μ V/m]	[dB μ V/m]	[dB]	
HOR	1.9	30	90.18	48.6	-20.4	28.2	43.5	15.3	
VER	1.0	235	114.40	46.2	-17.3	28.9	43.5	14.6	
HOR	2.1	135	174.60	45.8	-12.3	33.5	43.5	10.0	
HOR	1.9	135	185.94	45.8	-11.7	34.1	43.5	9.4	
VER	1.3	145	465.97	37.8	-10.0	27.8	46.0	18.2	
VER	1.0	165	479.80	44.8	-9.8	35.0	46.0	11.0	
HOR	1.0	270	895.32	35.3	-2.0	33.3	46.0	12.7	
VER	1.5	0	895.42	45.9	-2.0	43.9	46.0	2.1	*
HOR	1.3	220	1131.42	40.7	-7.1	33.6	54.0	20.4	Average

*: The worst emission.

Factor: Antenna Factor + Cable Loss - Amp Gain

Ver.2.20 F2#005

***** RADIATED EMISSION *****

Standard : FCC Part15 SubpartB
Class : B
Distance [m] : 3
Date of test : 2002/4/12
Test Site : 2
Temperature [°C] : 26.3
Humidity [%] : 27.3
Operator : S.Senda
Company Name : SANYO Electric Co., Ltd.
EUT : CD-RW Drive
Model Number : CRD-BP1500U40X
Serial Number : PL1700U035
Test Mode : External CD Read
Comment :

Sheet Number : 7

Signature : Shigeo. S

Antenna Pol.	Height	Table Radian	Reading Frequency	Level	Factor	Emission Level	Limit	Margin	Comment
HOR/VER	[m]	[Deg.]	[MHz]	[dB μ V]	[dB/m]	[dB μ V/m]	[dB μ V/m]	[dB]	
VER	1.0	320	99.68	52.2	-19.0	33.2	43.5	10.3	
HOR	2.3	90	142.73	47.4	-14.1	33.3	43.5	10.2	
HOR	1.2	5	399.43	48.1	-11.4	36.7	46.0	9.3	
VER	1.2	300	399.47	48.3	-11.4	36.9	46.0	9.1	
VER	1.2	30	696.38	48.8	-6.0	42.8	46.0	3.2	
HOR	1.0	170	699.02	44.1	-6.0	38.1	46.0	7.9	
VER	1.0	0	895.34	45.5	-2.0	43.5	46.0	2.5	*
HOR	1.0	150	895.41	39.6	-2.0	37.6	46.0	8.4	
VER	1.0	0	1304.87	43.5	-6.4	37.1	54.0	16.9	Average

* : The worst emission.

Factor: Antenna Factor + Cable Loss - Amp Gain

Ver.2.20 F2#005

***** RADIATED EMISSION *****

Standard : FCC Part15 SubpartB
Class : B
Distance [m] : 3
Date of test : 2002/4/12
Test Site : 2
Temperature [°C] : 26.3
Humidity [%] : 27.3
Operator : S.Senda
Company Name : SANYO Electric Co., Ltd.
EUT : CD-RW Drive
Model Number : CRD-BP1500U40X
Serial Number : PL1700U035
Test Mode : External CD Write
Comment :

Sheet Number : 8

Signature :

Shigeo. S

Antenna Pol.	Height [m]	Table Radian [Deg.]	Reading Frequency [MHz]	Reading Level [dB μ V]	Factor [dB/m]	Emission Level [dB μ V/m]	Limit [dB μ V/m]	Margin [dB]	Comment
VER	1.0	250	99.31	55.1	-19.0	36.1	43.5	7.4	
HOR	2.0	5	157.46	46.2	-13.1	33.1	43.5	10.4	
HOR	1.7	0	196.89	45.4	-11.3	34.1	43.5	9.4	
HOR	1.7	335	208.14	44.2	-11.0	33.2	43.5	10.3	
HOR	1.0	55	397.94	54.6	-11.4	43.2	46.0	2.8	*
VER	1.0	10	397.95	52.9	-11.4	41.5	46.0	4.5	
HOR	1.0	55	399.37	49.4	-11.4	38.0	46.0	8.0	
VER	1.3	15	696.43	46.4	-6.0	40.4	46.0	5.6	
VER	1.0	0	895.35	41.9	-2.0	39.9	46.0	6.1	
HOR	1.0	190	895.38	41.3	-2.0	39.3	46.0	6.7	
VER	1.0	0	1298.57	37.6	-6.8	30.8	54.0	23.2	Average

* : The worst emission.

Factor: Antenna Factor + Cable Loss - Amp Gain

Ver.2.20 F2#005