APPLICATION FOR CERTIFICATION
On Behalf of
LITE-ON IT Corp.
CD-R/RW DRIVE

Model : (1)LTR-52327S (2)AI-5201B

Brand：(1)LITE-ON (2)TDK

FCC ID： PPQRW1007

Prepared for : LITE-ON IT Corp.
6F, 16, Sec. 4, Nanking E. Rd.,
Taipei, Taiwan, R.O.C.

Prepared By : Audix Corporation
Technical Division EMC Department
No. 53-11, Tin-Fu Tsun, Lin-Kou,
Taipei Hsien, Taiwan, R.O.C.

Tel : (02) 2609-9301, 2609-2133
Fax : (02) 2609-9303

File Number	：	EM-G920248R9
Report No.	：	TTEMC-F92187
Date of Test	：	Mar. 07 ~ 10, 2003
Date of Report	：	Sep. 12, 2003

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APPENDIX I (List of the Differences in the Models)

TEST REPORT CERTIFICATION

Applicant	:	LITE-ON IT Corp.
Manufacturer #1	:	LITE-ON IT Corp.
Manufacturer #2	:	LITE-ON OPTO Technology (Guang Zhou) Ltd.
EUT Description	:	CD-R/RW DRIVE
FCC ID	:	PPQRW1007

(A) MODEL NO.：(1)LTR-52327S (2)AI-5201B
(B) SERIAL NO.：N/A
(C) BRAND NAME：(1)LITE-ON (2)TDK
(D) POWER SUPPLY：DC 5V 1.5A/12V 1.5A
(Test Voltage: AC 120V/60Hz, Via PC)

Measurement Standard Used:

FCC Part 15B/ Mar. 2003 and CISPR 22/1997
ANSI C63.4-1992

The device described above was tested by Audix Corp. to determine the maximum emission levels emanating from the device. The maximum emission levels were compared to the CISPR 22 Class B limits both radiated and conducted emissions. The measurement results are contained in this test report and Audix Corp. is assumed full responsibility for the accuracy and completeness of these measurements. Also, this report shows that the EUT to be technically compliance with the FCC official limits. This report applies to above tested sample only. This report shall not be reproduced in part without written approval of Audix Corp. This report must not be used by the applicant to claim product endorsement by NVLAP or any agency of the U.S. Government. The test results in this test report are traceable to national or international standards.

Date of Test : Mar. 07 ~ 10, 2003

Prepared by : Nita Lee Sep.19, 2003
(Nita Lee/Assistant Officer)

Test Engineer : Ben Cheng Sep.19.2003
(Ben Cheng/Assistant Manager)

Approve & Authorized Signer : Leon Liu Sep.19 2003
(Leon Liu/Manager)

1. GENERAL INFORMATION

1.1. Description of Device (EUT)

Description	:	CD-R/RW DRIVE
Model Number	:	(1)LTR-52327S (2)AI-5201B Above all models have the same circuits and PCB layout, the only difference is in brand. The details of information attached to Appendix I. The M/N LTR-52327S is representative selected in the test and included in this report.
Brand Name	:	(1)LITE-ON (2)TDK
FCC ID	:	PPQRW1007
Applicant	:	LITE-ON IT Corp. 6F, 16, Sec. 4, Nanking E. Rd., Taipei, Taiwan, R.O.C.
Manufacturer #1	:	LITE-ON IT Corp. 3F, 60, Park Avenue. II, Hsinchu Science-Based Ind. Park, Hsinchu City, Taiwan
Manufacturer #2	:	LITE-ON Electronic Technology (HK) Co., Ltd. North, San Heng Rd., Heng Jiao Ind. Zone, Xi Chen Zone, Shi Jie Town, Dong Guan City Guang Dong Province, China
Data of Receipt of Sample	:	Mar. 06, 2003
Date of Test	:	Mar. 07 ~ 10, 2003

1.2. Tested Supporting System Details

1.2.1. PERSONAL COMPUTER

Model Number	:	HP VECTRA XE320
Serial Number	:	SG21101988
FCC ID	:	By DoC
BSMI ID	:	3912A318
Brand	:	HP
Manufacturer	:	First International Computer, Inc.
CD-R/RW DRIVE (EUT)	**:**	**LITE-ON, M/N LTR-52327S**
VGA Card	:	CP, M/N CM64A, S/N C01H011207 FCC by DoC, BSMI ID 3892A413
Power Cord	:	Non-Shielded, Detachable, 1.8m

1.2.2. KEYBOARD

Model Number	:	SK-2502C
Serial Number	:	M020236414
FCC ID	:	By DoC
BSMI ID	:	3872F107
Manufacturer	:	Silitek (Brand: HP)
Data Cable	:	Non-Shielded, Undetachable, 1.8m

1.2.3. 15" LCD MONITOR

Model Number	:	D5063M
Serial Number	:	CN206A6578
FCC ID	:	By DoC
BSMI ID	:	R33037
Manufacturer	:	Top Victory Electronics (Fujian) Co., Ltd.
Data Cable (D-Sub)	:	Shielded, Detachable, 1.8m Bonded two ferrite cores
Audio Cable(*2EA)	:	Non-Shielded, Detachable, 1.2m
AC Adapter	:	Delta, M/N ADP-40TB BSMI ID 3892D142 Cord: Shielded, Undetachable, 1.8m Bonded a ferrite core
Power Cord	:	Non-Shielded, Detachable, 1.8m

1.2.4. PRINTER

Model Number	:	KX-P2135
Serial Number	:	8DMCN02139
FCC ID	:	ACJ5Z6KX-P2135
BSMI ID	:	3872A371
Manufacturer	:	Matsushita
Data Cable	:	Shielded, Detachable, 1.2m
Power Cord	:	Non-Shielded, Detachable, 1.8m

1.2.5. MODEM # 1

Model Number	:	DM-1414
Serial Number	:	980034398
FCC ID	:	IFAXDM1414
Manufacturer	:	Aceex
Data Cable	:	Shielded, Detachable, 1.2m
Power Adapter	:	Amigo, Model AM-91000A Non-Shielded, Undetachable, 1.8m

1.2.6. MODEM # 2

Model Number	:	DM-1414
Serial Number	:	980034394
FCC ID	:	IFAXDM1414
Manufacturer	:	Aceex
Data Cable	:	Shielded, Detachable, 1.2m
Power Adapter	:	Amigo, Model AM-91000A Non-Shielded, Undetachable, 1.8m

1.2.7. MOUSE

Model Number	:	M-S48a
Serial Number	:	LZE20501521
FCC ID	:	JNZ201213
BSMI ID	:	4882A001
Manufacturer	:	Logitech (Brand: HP)
Data Cable	:	Non-Shielded, Undetachable, 1.8m

1.2.8. USB MOUSE #1

Model Number	:	CREUBB
Serial Number	:	N/A
FCC ID	:	NHM-CREUBE
BSMI ID	:	3872F083
Manufacturer	:	CRE Technology Co., Ltd.
Data Cable	:	Shielded, Undetachable, 1.8m

1.2.9. USB MOUSE #2

Model Number	:	CREUBB
Serial Number	:	N/A
FCC ID	:	NHM-CREUBE
BSMI ID	:	3872F083
Manufacturer	:	CRE Technology Co., Ltd.
Data Cable	:	Shielded, Undetachable, 1.8m

1.2.10. EARPHONE (Link To EUT)

Model Number	:	N/A
Serial Number	:	N/A
Manufacturer	:	Panasonic
Data Cable	:	Non-Shielded, Undetachable, 1.1m

1.2.11. 10/100 Fast Ethernet Switch

Model Number	:	DES-1005D
Serial Number	:	0212G1A06065
FCC ID	:	By DoC
Manufacturer	:	D-Link
AC-DC Adapter	:	DVE, M/N DV-0751AS Cord: Non-Shielded, Undetachable, 1.8m
LAN Cable	:	Shielded, Detachable, 1.8m

1.2.12. WALKMAN

Model Number	:	RQ-P35LT-K
Serial Number	:	HA08562
Manufacturer	:	Panasonic
Data Cable	:	Non-Shielded, Detachable, 1.8m

1.3. Description of Test Facility

Name of Firm	:	Audix Corporation. Technical Division EMC Department No. 53-11, Tin-Fu Tsun, Lin-Kou, Taipei Hsien, Taiwan, R.O.C.
Test Site	:	No. 4 Shielded Room & No. 3 Open Site
Site Description (No. 3 Open Site)	:	Feb. 10, 2003 Re-file on Federal Communication Commission Registration Number: 90996
Site Location #1	:	No. 53-11, Tin-Fu Tsun, Lin-Kou, Taipei Hsien, Taiwan, R.O.C.
Site Location #2	:	No. 67-4, Tin-Fu Tsun, Lin-Kou, Taipei Hsien, Taiwan, R.O.C.
NVLAP Lab Code	:	200077-0

(NVLAP is a NATA accredited body under Mutual Recognition Agreement)

DAR-Registration No.	:	TTI-P-G168/99-00e

1.4. Measurement Uncertainty

Test Item	Frequency Range	Uncertainty (dB)
Conduction Test	150KHz~30MHz	±2.66dB
Radiation Test (Distance: 10m)	30MHz~300MHz	+4.5dB / –4.5dB
	300MHz~1000MHz	+3.88dB / –3.84dB

Remark：Uncertainty = $ku_c(y)$

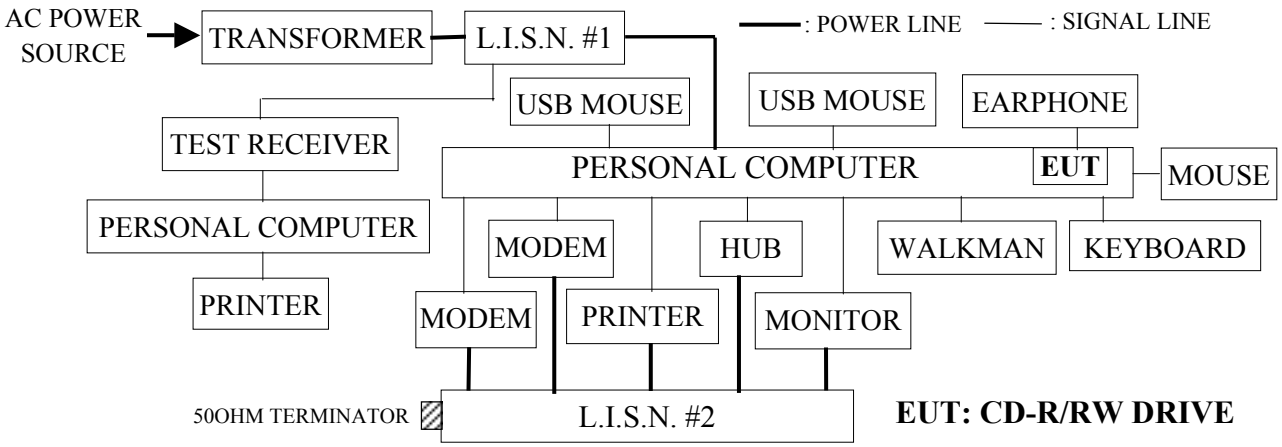
2. POWERLINE CONDUCTED EMISSION MEASUREMENT

2.1.Test Equipment

The following test equipments are used during the power line conducted tests：

Item	Type	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	Test Receiver	Rohde & Schwarz	ESCS 30	825442/020	Aug. 01, 02’	1 Year
2.	L.I.S.N. #1	Kyoritsu	KNW-407	8-1430-5	Nov.18, 02’	1 Year
3.	L.I.S.N. #2	Kyoritsu	KNW-407	8-1430-6	Nov.18, 02’	1 Year

2.2.Block Diagram of Test Setup



2.3.Conduction Limit (CISPR 22 Class B)

Frequency	Maximum RF Line Voltage	
	Quasi-Peak Level	Average Level
150KHz ~ 500KHz	66 ~ 56 dBμV	56 ~ 46 dBμV
500KHz ~ 5MHz	56 dBμV	46 dBμV
5MHz ~ 30MHz	60 dBμV	50 dBμV

Remark1.: If the average limit is met when using a Quasi-Peak detector, the EUT shall be deemed to meet both limits and measurement with the average detector is unnecessary.

2.: The lower limit applies at the band edges.

2.4. EUT's Configuration during Compliance Measurement

The following equipment were installed on RF LINE VOLTAGE measurement to meet the Commission requirement and operating in a manner which tended to maximize its emission characteristics in a normal application.

2.4.1. CD-R/RW DRIVE (EUT)

Model Number	:	LTR-52327S
Serial Number	:	N/A
Brand Name	:	LITE-ON
Manufacturer #1	:	LITE-ON IT Corp.
Manufacturer #2	:	LITE-ON Electronic Technology (HK) Co., Ltd.
Speed	:	52x32x52

2.4.2. Supporting System : As in Section 1.2

2.5. Operating Condition of EUT

2.5.1. Setup the EUT and simulator as shown on 2.2.

2.5.2. Turned on the power of all equipments.

2.5.3. Personal computer read and wrote data from CD-R/RW DRIVE (EUT).

2.5.4. Data Read Mode: The personal computer run command "Type H" under MS-DOS to make EUT "H" character though CD-disk and display "H" character on the monitor during all testing.

2.5.5. Data Write Mode: The personal computer sent the data file to EUT (CD-R/RW DRIVE) through "Nero" program. The EUT wrote down data during all testing.

2.5.6. The other peripheral devices were drove and operated in turn during all testing.

2.5.7. Repeat above procedure from 2.5.3. to 2.5.5.

2.6. Test Procedure

The EUT (within PC) and its simulators were put on table which was above the ground by 80cm and PC's power cord connected to the AC mains through the line impedance stabilization network (L.I.S.N.# 1). The other peripheral devices power cord connected to the power mains through a line impedance stabilization network (L.I.S.N. # 2). This provided a 50 ohm coupling impedance for the measuring equipment. (Please refer to the block diagram of the test setup and photographs.) Both sides of A.C. line were checked for maximum conducted interference. In order to find the maximum emission, the relative positions of equipment and all of the interface cables were changed according to FCC ANSI C63.4-1992 requirement.

The bandwidth of R&S Test Receiver ESCS 30 was set at 9KHz.

The frequency range from 150KHz to 30MHz is checked.

2.7. Test Results

PASSED. Please refer to the following pages.
(All the emissions not reported below are too low against the prescribed limits. Because the QP values have met both Q.P & Average limits, it's unnecessary to measure with Average detector.)

EUT with three kinds of test modes and with AC 120V/60Hz supplying voltage (via PC) were performed during this section testing and all the test results are listed in next pages.

(Test Date : Mar. 10, 2003, Temperature : 16℃, Humidity : 59%)

No.	Mode	Reference Data #
1.	Data Read	31 (32); 29 (30)
2.	Data Write	25 (26); 27 (28)
3.	CD Play	33 (34); 35 (36)

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Technical Division EMC Dept.
No.53-11, Tin-fu Tsun, Lin-kou Hsiang,
Taipei Country, Taiwan, R.O.C.
Tel:(02)2609-2133 Fax:(02)2609-9303
Email:ttemc@ttemc.com.tw

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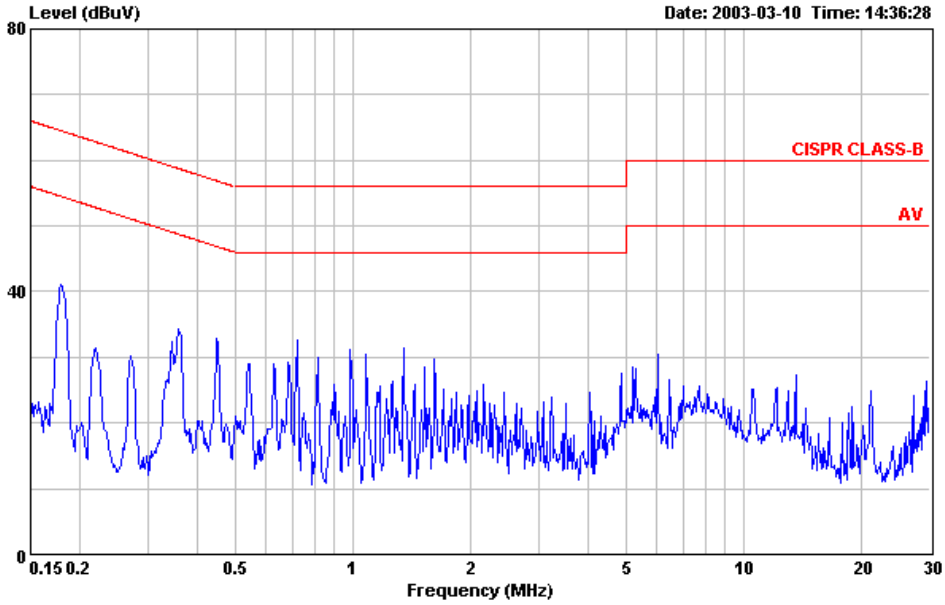

Site : No.4 Shielded room
Condition : CISPR CLASS-B KNW-407(SR4-021125) LINE
EUT : CD-R/RW DRIVE M/N:LTR-52327S
POWER : 120Vac / 60Hz
MEMO : READ
Environment : 16*C / 59%

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Technical Division EMC Dept.
No.53-11, Tin-fu Tsun, Lin-kou Hsiang,
Taipei Country, Taiwan, R.O.C.
Tel:(02)2609-2133 Fax:(02)2609-9303
Email:ttemc@ttemc.com.tw

Data#: 32 File#: D:\LITE-ON-G920248.EMI

Date: 2003-03-10 Time: 14:37:42

Site : No.4 Shielded room
Condition : CISPR CLASS-B KNW-407(SR4-021125) LINE
EUT : CD-R/RW DRIVE M/N:LTR-52327S
POWER : 120Vac / 60Hz
MEMO : READ
Environment : 16*C / 59%

	Freq	Level	Over Limit	Limit Line	Read Level	Cable Factor	Cable Loss	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	dB	
1	0.181	37.94	-26.52	64.46	37.61	0.33	0.09	QP
2	0.358	30.95	-27.83	58.78	30.75	0.20	0.08	QP
3	0.720	29.70	-26.30	56.00	29.50	0.20	0.10	QP
4	1.352	28.48	-27.52	56.00	28.28	0.20	0.10	QP
5	6.024	27.34	-32.66	60.00	27.08	0.26	0.16	QP
6	13.623	24.42	-35.58	60.00	24.04	0.38	0.20	QP

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Technical Division EMC Dept.
No.53-11, Tin-fu Tsun, Lin-kou Hsiang,
Taipei Country, Taiwan, R.O.C.
Tel:(02)2609-2133 Fax:(02)2609-9303
Email:ttemc@ttemc.com.tw

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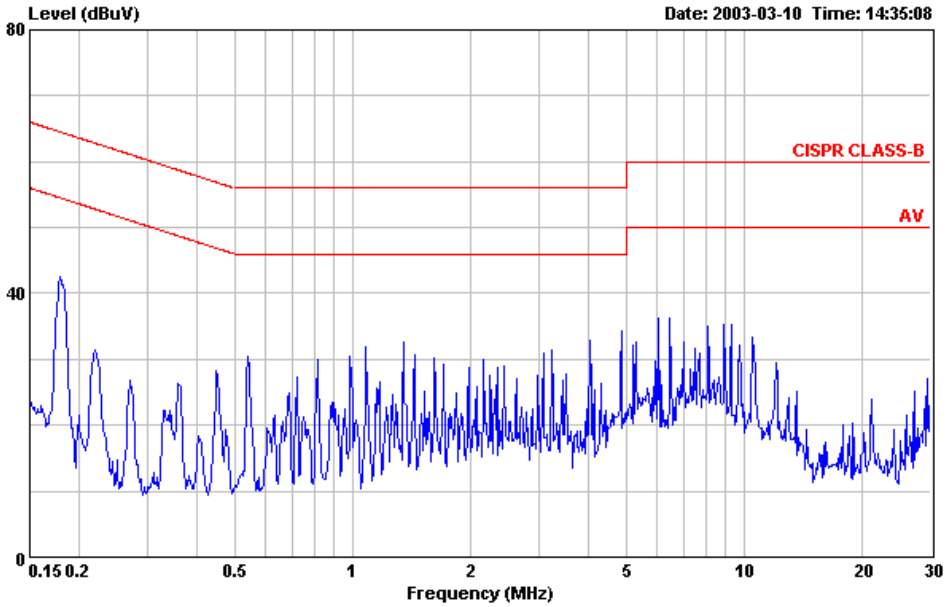

Site : No.4 Shielded room
Condition : CISPR CLASS-B KNW-407(SR4-021125) NEUTRAL
EUT : CD-R/RW DRIVE M/N:LTR-52327S
POWER : 120Vac / 60Hz
MEMO : READ
Environment : 16*C / 59%

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Technical Division EMC Dept.
No.53-11, Tin-fu Tsun, Lin-kou Hsiang,
Taipei Country, Taiwan, R.O.C.
Tel:(02)2609-2133 Fax:(02)2609-9303
Email:ttemc@ttemc.com.tw

Data#: 30 File#: D:\LITE-ON-G920248.EMI

Date: 2003-03-10 Time: 14:36:09

Site : No.4 Shielded room
Condition : CISPR CLASS-B KNW-407(SR4-021125) NEUTRAL
EUT : CD-R/RW DRIVE M/N:LTR-52327S
POWER : 120Vac / 60Hz
MEMO : READ
Environment : 16*C / 59%

	Freq	Level	Over Limit	Limit Line	Read Level	Cable Factor	Loss	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	dB	
1	0.179	39.56	-24.99	64.55	39.23	0.33	0.09	QP
2	0.221	28.13	-34.66	62.79	27.85	0.28	0.09	QP
3	0.541	27.40	-28.60	56.00	27.20	0.20	0.10	QP
4	1.352	29.66	-26.34	56.00	29.46	0.20	0.10	QP
5	6.024	33.16	-26.84	60.00	32.90	0.26	0.16	QP
6	9.302	32.34	-27.66	60.00	32.06	0.28	0.18	QP

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Technical Division EMC Dept.
No.53-11, Tin-fu Tsun, Lin-kou Hsiang,
Taipei Country, Taiwan, R.O.C.
Tel:(02)2609-2133 Fax:(02)2609-9303
Email:ttemc@ttemc.com.tw

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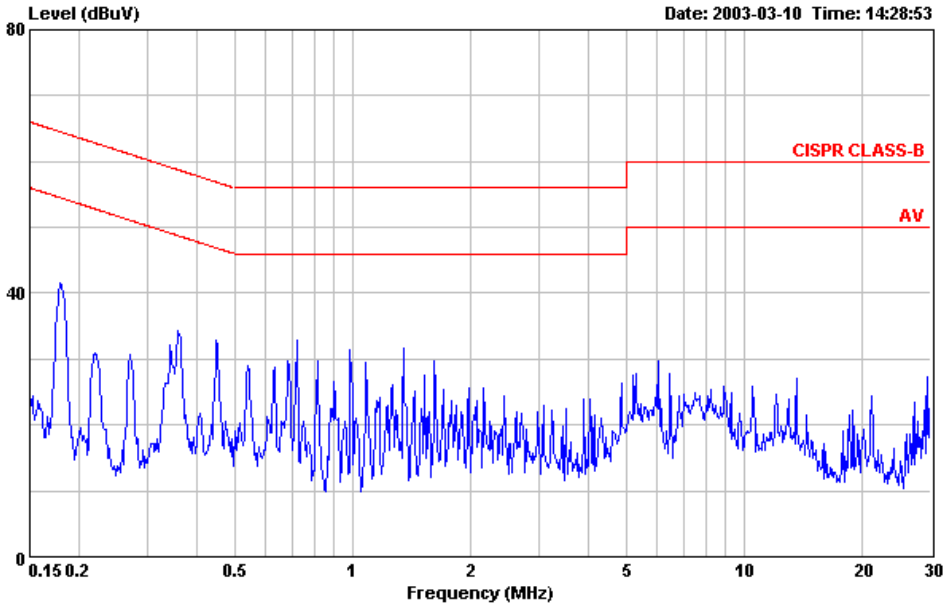

Site : No.4 Shielded room
Condition : CISPR CLASS-B KNW-407(SR4-021125) LINE
EUT : CD-R/RW DRIVE M/N:LTR-52327S
POWER : 120Vac / 60Hz
MEMO : WRITE
Environment : 16*C / 59%

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Technical Division EMC Dept.
No.53-11, Tin-fu Tsun, Lin-kou Hsiang,
Taipei Country, Taiwan, R.O.C.
Tel:(02)2609-2133 Fax:(02)2609-9303
Email:ttemc@ttemc.com.tw

Data#: 26 File#: D:\LITE-ON-G920248.EMI

Date: 2003-03-10 Time: 14:32:44

Site : No.4 Shielded room
Condition : CISPR CLASS-B KNW-407(SR4-021125) LINE
EUT : CD-R/RW DRIVE M/N:LTR-52327S
POWER : 120Vac / 60Hz
MEMO : WRITE
Environment : 16*C / 59%

	Freq	Level	Over Limit	Limit Line	Read Level	Cable Factor	Loss	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	dB	
1	0.180	38.67	-25.83	64.50	38.34	0.33	0.09	QP
2	0.360	31.31	-27.43	58.74	31.10	0.21	0.09	QP
3	0.720	29.78	-26.22	56.00	29.58	0.20	0.10	QP
4	1.352	30.76	-25.24	56.00	30.56	0.20	0.10	QP
5	6.024	26.75	-33.25	60.00	26.49	0.26	0.16	QP
6	13.623	24.04	-35.96	60.00	23.66	0.38	0.20	QP

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Technical Division EMC Dept.
No.53-11, Tin-fu Tsun, Lin-kou Hsiang,
Taipei Country, Taiwan, R.O.C.
Tel:(02)2609-2133 Fax:(02)2609-9303
Email:ttemc@ttemc.com.tw

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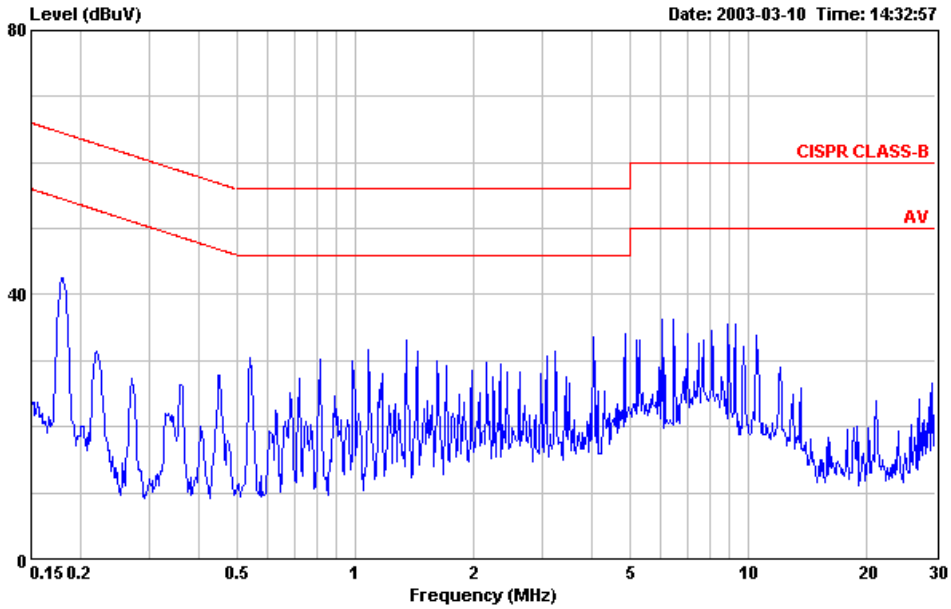

Site : No.4 Shielded room
Condition : CISPR CLASS-B KNW-407(SR4-021125) NEUTRAL
EUT : CD-R/RW DRIVE M/N:LTR-52327S
POWER : 120Vac / 60Hz
MEMO : WRITE
Environment : 16*C / 59%

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敦吉科技股份有限公司

Technical Division EMC Dept.
No.53-11, Tin-fu Tsun, Lin-kou Hsiang,
Taipei Country, Taiwan, R.O.C.
Tel:(02)2609-2133 Fax:(02)2609-9303
Email:ttemc@ttemc.com.tw

Data#: 28 File#: D:\LITE-ON-G920248.EMI

Date: 2003-03-10 Time: 14:34:08

Site : No.4 Shielded room
Condition : CISPR CLASS-B KNW-407(SR4-021125) NEUTRAL
EUT : CD-R/RW DRIVE M/N:LTR-52327S
POWER : 120Vac / 60Hz
MEMO : WRITE
Environment : 16*C / 59%

	Freq	Level	Over Limit	Limit Line	Read Level	Cable Factor	Cable Loss	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	dB	
1	0.181	39.45	-25.01	64.46	39.12	0.33	0.09	QP
2	0.222	28.00	-34.74	62.74	27.72	0.28	0.09	QP
3	0.541	27.42	-28.58	56.00	27.22	0.20	0.10	QP
4	1.352	30.12	-25.88	56.00	29.92	0.20	0.10	QP
5	6.024	33.30	-26.70	60.00	33.04	0.26	0.16	QP
6	8.916	32.58	-27.42	60.00	32.29	0.29	0.19	QP

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敦吉科技股份有限公司

Technical Division EMC Dept.
No.53-11, Tin-fu Tsun, Lin-kou Hsiang,
Taipei Country, Taiwan, R.O.C.
Tel:(02)2609-2133 Fax:(02)2609-9303
Email:ttemc@ttemc.com.tw

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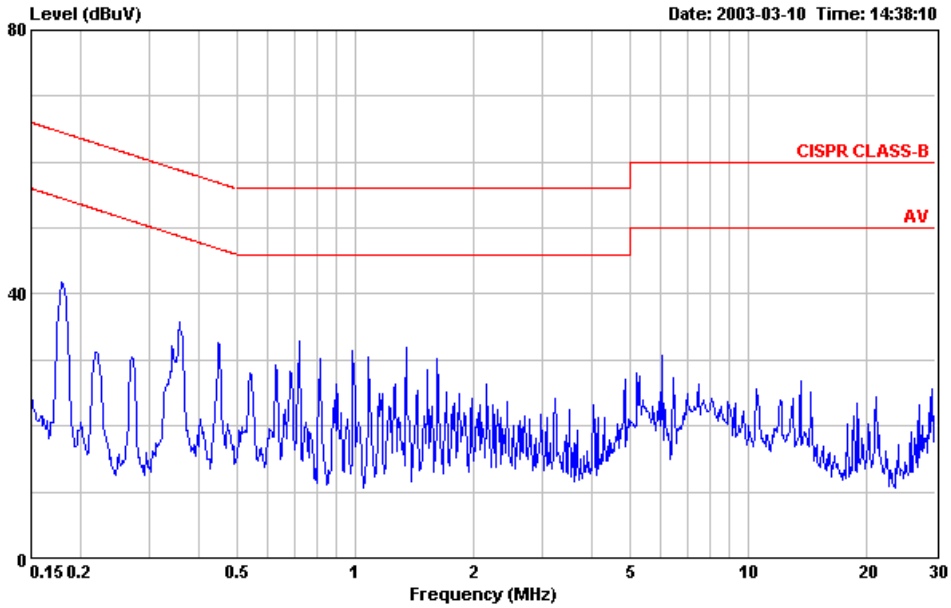


Site : No.4 Shielded room
Condition : CISPR CLASS-B KNW-407(SR4-021125) LINE
EUT : CD-R/RW DRIVE M/N:LTR-52327S
POWER : 120Vac / 60Hz
MEMO : CD PLAY
Environment : 16*C / 59%

Audix Corporation
敦吉科技股份有限公司

Technical Division EMC Dept.
No.53-11, Tin-fu Tsun, Lin-kou Hsiang,
Taipei Country, Taiwan, R.O.C.
Tel:(02)2609-2133 Fax:(02)2609-9303
Email:ttemc@ttemc.com.tw

Data#: 34 File#: D:\LITE-ON-G920248.EMI

Date: 2003-03-10 Time: 14:39:25

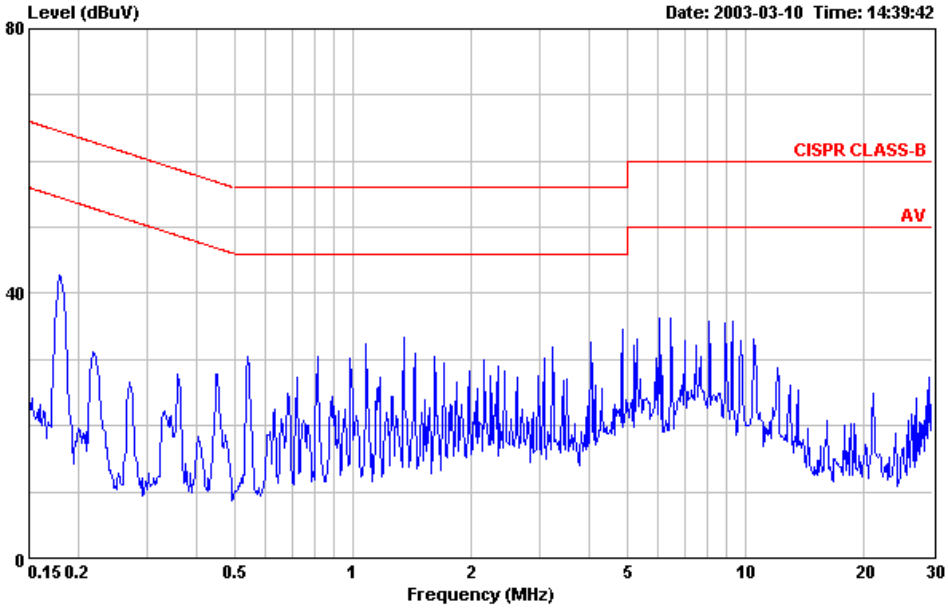
Site : No.4 Shielded room
Condition : CISPR CLASS-B KNW-407(SR4-021125) LINE
EUT : CD-R/RW DRIVE M/N:LTR-52327S
POWER : 120Vac / 60Hz
MEMO : CD PLAY
Environment : 16*C / 59%

	Freq	Level	Over Limit	Limit Line	Read Level	Cable Factor	Loss	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	dB	
1	0.180	38.75	-25.75	64.50	38.42	0.33	0.09	QP
2	0.358	32.66	-26.12	58.78	32.46	0.20	0.08	QP
3	0.720	29.82	-26.18	56.00	29.62	0.20	0.10	QP
4	1.352	28.88	-27.12	56.00	28.68	0.20	0.10	QP
5	6.024	27.59	-32.41	60.00	27.33	0.26	0.16	QP
6	13.623	23.89	-36.11	60.00	23.51	0.38	0.20	QP

Audix Corporation
敦吉科技股份有限公司

Technical Division EMC Dept.
No.53-11, Tin-fu Tsun, Lin-kou Hsiang,
Taipei Country, Taiwan, R.O.C.
Tel:(02)2609-2133 Fax:(02)2609-9303
Email:ttemc@ttemc.com.tw

Data#: 35 File#: D:\LITE-ON-G920248.EMI



Site : No.4 Shielded room
Condition : CISPR CLASS-B KNW-407(SR4-021125) NEUTRAL
EUT : CD-R/RW DRIVE M/N:LTR-52327S
POWER : 120Vac / 60Hz
MEMO : CD PLAY
Environment : 16*C / 59%

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敦吉科技股份有限公司

Technical Division EMC Dept.
No.53-11, Tin-fu Tsun, Lin-kou Hsiang,
Taipei Country, Taiwan, R.O.C.
Tel:(02)2609-2133 Fax:(02)2609-9303
Email:ttemc@ttemc.com.tw

Data#: 36 File#: D:\LITE-ON-G920248.EMI

Date: 2003-03-10 Time: 14:41:10

Site : No.4 Shielded room
Condition : CISPR CLASS-B KNW-407(SR4-021125) NEUTRAL
EUT : CD-R/RW DRIVE M/N:LTR-52327S
POWER : 120Vac / 60Hz
MEMO : CD PLAY
Environment : 16*C / 59%

	Freq	Level	Over Limit	Limit Line	Read Level	Cable Factor	Cable Loss	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	dB	
1	0.180	39.76	-24.74	64.50	39.43	0.33	0.09	QP
2	0.449	24.79	-32.10	56.89	24.59	0.20	0.10	QP
3	1.082	29.41	-26.59	56.00	29.21	0.20	0.10	QP
4	3.241	28.79	-27.21	56.00	28.58	0.21	0.11	QP
5	6.024	33.36	-26.64	60.00	33.10	0.26	0.16	QP
6	9.302	32.86	-27.14	60.00	32.58	0.28	0.18	QP

3. RADIATED EMISSION MEASUREMENT

3.1.Test Equipment

The following test equipments are used during the radiated emission tests：

3.1.1. For 30MHz~1000MHz frequency (at No. 3 Open Test Site)

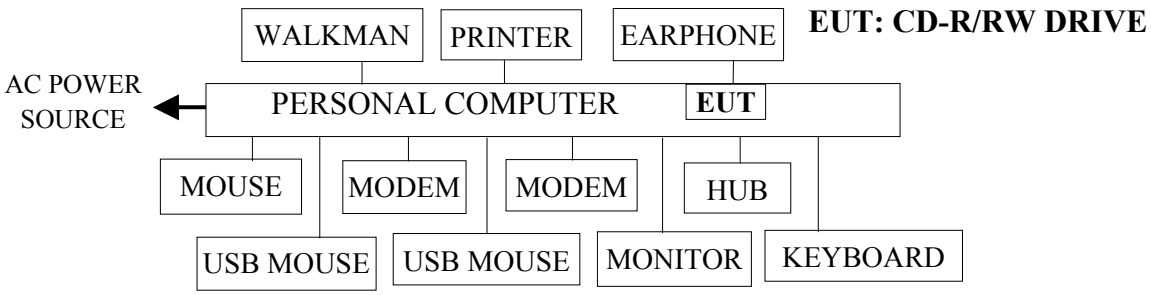
Item	Type	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	Spectrum Analyzer	Anritsu	MS2601A	MT28657	Aug.23, 01’	1 Year
2.	Test Receiver	R & S	ESVS10	845165/002	Feb.11, 03’	1 Year
3.	Biconical Antenna	Chase	VBA6106A	1231	Mar. 16, 02’	1 Year
4.	Log Periodic Antenna	Chase	UPA6109	1027	Mar. 16, 02’	1 Year

3.1.2. For 1GHz~7GHz frequency (at No. 3 Open Test Site)

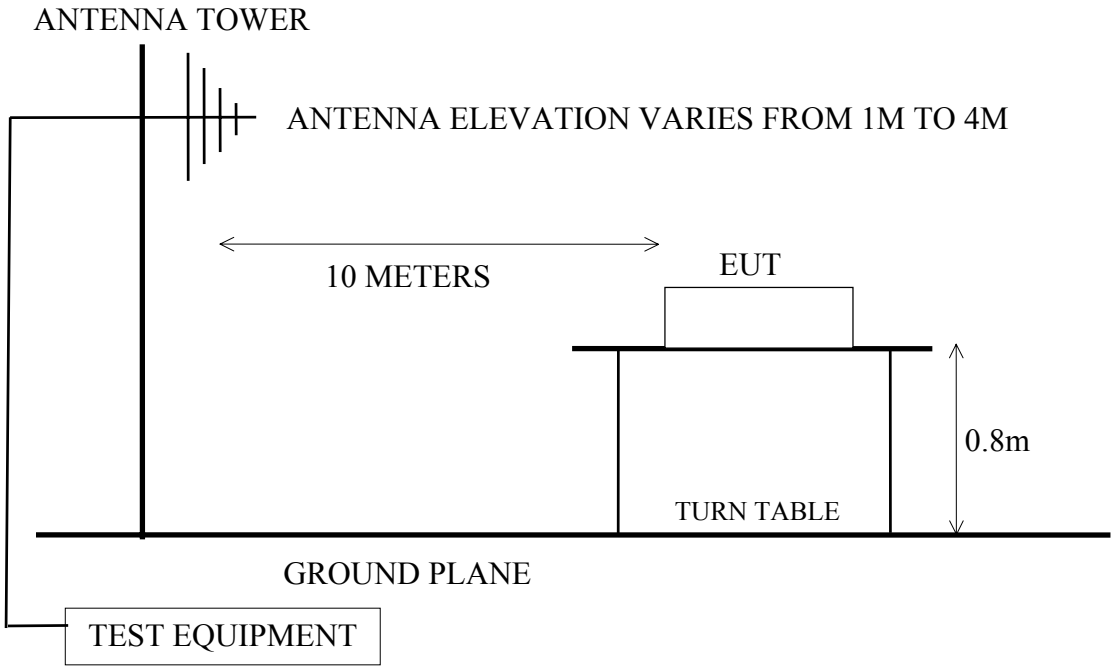
Item	Type	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	Spectrum Analyzer	HP	8595E	3829A03489	Jan. 24, 02’	1 Year
2.	Amplifier	HP	8449B	3008A00529	Jan.05, 02’	1 Year
3.	Horn Antenna	EMCO	3115	9112-3775	Apr. 16, 02’	1 Year

3.2.Block Diagram of Test Setup

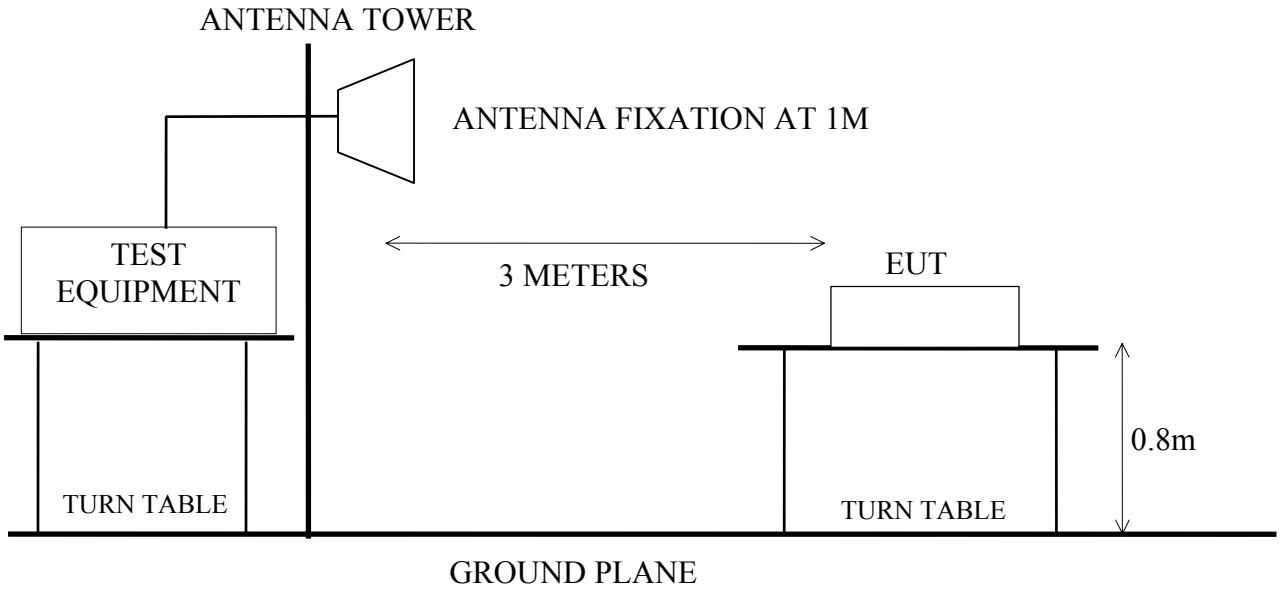
3.2.1. Block Diagram of connection between EUT and simulators



3.2.2. Open Field Test Site (10m) Setup Diagram for 30MHz~ 1000MHz



3.2.3. Open Field Test Site (3m) Setup Diagram for 1GHz~7GHz



3.3. Radiation Limit (CISPR 22 Class B)

All emanations from a class B computing devices or system, including any network of conductors and apparatus connected thereto, shall not exceed the level of field strengths specified below:

FREQUENCY (MHz)	DISTANCE (Meters)	FIELD STRENGTHS LIMITS (dBμV/m)
30 ~ 230	10	30
230 ~ 1000	10	37
1000 ~ 7000	3	74.0(Peak)
1000 ~ 7000	3	54.0(Average)

Notes：(1) The tighter limit applies at the edge between two frequency bands.

(2) Distance refers to the distance in meters between the measuring instrument antenna and the closed point of any part of the E.U.T.

(3) There is no over 1GHz limits in CISPR 22 standard. Therefor, a FCC limit is used based on CFR 47 Part 15.35 (b) and Part 15.109 (g).

(4) The 3m limit apply relation: L2 = L1(d1/d2)

3.4. EUT's Configuration during Compliance Measurement

The configuration of EUT and its simulators were the same as those used in conducted measurement. Please refer to 2.4.

3.5. Operating Condition of EUT

Same as conducted measurement which was listed in 2.5. except the test set up replaced by section 3.2.

3.6. Test Procedure

The EUT(within PC) and its simulators were placed on a turn table which was 0.8 meter above the ground. The turn table rotated 360 degrees to determine the position of the maximum emission level. For 30MHz to 1000MHz frequency range, EUT was set 10 meters and for 1GHz to 7GHz frequency range, EUT was set at 3 meters away from the receiving antenna which was mounted on a antenna tower. The antenna moved up and down between 1 to 4 meters for 30MHz to 1000MHz frequency range or fixed at 1 meter high above the ground for 1GHz to 7GHz frequency range to find out the maximum emission level. Broadband antenna such as calibrated biconical and log- periodical antenna or horn antenna were used as a receiving antenna. Both horizontal and vertical polarization of the antenna were set on measurement. In order to find the maximum emission, all of the interface cables were manipulated according to ANSI C63.4-1992 regulation.

The bandwidth of the R&S Test Receiver ESVS10 was set at 120KHz. (For 30MHz~1000MHz)
The bandwidth of the HP Spectrum Analyzer 8595E was set at 1MHz. (For 1~7GHz)
The frequency range from 30MHz to 7GHz was checked.

EUT with three kinds of test modes and with AC 120V/60Hz supplying voltage (via PC) were performed during 30MHz~1000MHz frequency range radiated measurement and all the test results are listed in section 3.7.1.

(1) Data Read
(2) Data Write
(3) CD Play

Finally, re-measured a worst test mode "Data Read" was done during 1GHz~7GHz frequency range radiated measurement and all the test results are listed in section 3.7.2.

3.7. Radiated Emission Measurement Results

PASSED. All emissions not reported below are too low against the prescribed limits.

3.7.1. 30MHz to 1000GHz Frequency Range Measurement Results

Distance: 10Meters

Date of Test：	Mar. 07, 2003	Temperature：	17℃
EUT：	CD-R/RW DRIVE	Humidity：	73 %
Test Mode：	Data Read	Test Model：	LTR-52327S

	Frequency MHz	Antenna Factor dB/m	Cable Loss dB	Meter Reading Horizontal dBuV	Emission Level Horizontal dBuV/m	Limits dBuV/m	Margin dB
	56.596	12.89	1.44	7.36	21.69	30.00	8.31
	81.846	14.29	1.65	3.27	19.21	30.00	10.79
*	**132.204**	**19.59**	**2.20**	**2.59**	**24.38**	**30.00**	**5.62**
	157.371	20.14	2.40	- 1.62	20.92	30.00	9.08
	195.142	20.59	2.75	- 2.44	20.90	30.00	9.10
	203.361	20.64	2.80	- 2.63	20.81	30.00	9.19
	220.213	21.51	3.00	- 2.81	21.70	30.00	8.30
	245.437	22.39	3.10	- 0.57	24.92	37.00	12.08
	320.116	14.24	3.60	10.41	28.25	37.00	8.75
	433.416	16.62	4.40	6.83	27.85	37.00	9.15
	458.592	16.87	4.80	5.21	26.88	37.00	10.12
	546.719	19.42	5.20	0.91	25.53	37.00	11.47
	660.015	20.70	5.60	- 1.21	25.09	37.00	11.91
	747.770	21.99	6.20	- 0.97	27.22	37.00	9.78
	848.434	23.99	6.60	- 1.24	29.35	37.00	7.65

Remark：
1. All reading are Quasi-Peak values.
2. '*' The worst emission was detected at 132.204MHz with corrected signal level of 24.38dBμV/m (limit was 30dBμV/m) when the antenna was at horizontal polarization and was at 4m high and the turn table was at 45°.
3. Emission Level= Antenna Factor + Cable Loss + Meter Reading.
4. 0 °was the table front facing the antenna. Degree is calculated from 0 °clockwise facing the antenna.

Date of Test：	Mar. 07, 2003	Temperature：	17℃
EUT：	CD-R/RW DRIVE	Humidity：	73 %
Test Mode：	Data Read	Test Model：	LTR-52327S

	Frequency MHz	Antenna Factor dB/m	Cable Loss dB	Meter Reading Vertical dBuV	Emission Level Vertical dBuV/m	Limits dBuV/m	Margin dB
	56.664	14.58	1.44	3.19	19.21	30.00	10.79
	81.846	13.98	1.65	7.35	22.98	30.00	7.02
*	**132.204**	**18.85**	**2.20**	**3.18**	**24.23**	**30.00**	**5.77**
	157.371	19.63	2.40	- 2.00	20.03	30.00	9.97
	195.142	21.73	2.75	- 3.07	21.41	30.00	8.59
	203.361	21.64	2.80	- 3.07	21.37	30.00	8.63
	220.251	21.70	3.00	- 2.77	21.93	30.00	8.07
	245.430	21.11	3.10	0.33	24.54	37.00	12.46
	320.116	14.53	3.60	9.47	27.60	37.00	9.40
	433.414	17.06	4.40	6.91	28.37	37.00	8.63
	458.592	17.62	4.80	5.17	27.59	37.00	9.41
	546.719	19.31	5.20	1.87	26.38	37.00	10.62
	660.015	20.86	5.60	0.81	27.27	37.00	9.73
	747.770	22.04	6.20	- 0.95	27.29	37.00	9.71
	848.485	23.99	6.60	- 1.24	29.35	37.00	7.65

Remark：
1. All reading are Quasi-Peak values.
2. '*' The worst emission was detected at 132.204MHz with corrected signal level of 24.23dBμV/m (limit was 30dBμV/m) when the antenna was at vertical polarization and was at 1m high and the turn table was at 325°.
3. Emission Level= Antenna Factor + Cable Loss + Meter Reading.
4. 0 °was the table front facing the antenna. Degree is calculated from 0 °clockwise facing the antenna.

Date of Test：	Mar. 07, 2003	Temperature：	17℃
EUT：	CD-R/RW DRIVE	Humidity：	73 %
Test Mode：	Data Write	Test Model：	LTR-52327S

Frequency MHz	Antenna Factor dB/m	Cable Loss dB	Meter Reading Horizontal dBuV	Emission Level Horizontal dBuV/m	Limits dBuV/m	Margin dB
60.363	12.26	1.40	6.09	19.75	30.00	10.25
77.927	13.21	1.80	1.86	16.87	30.00	13.13
127.883	19.39	2.40	- 0.69	21.10	30.00	8.90
155.603	20.19	2.45	- 1.71	20.93	30.00	9.07
194.994	20.57	2.60	- 0.38	22.79	30.00	7.21
211.938	21.06	3.00	- 2.74	21.32	30.00	8.68
245.427	22.39	3.10	1.66	27.15	37.00	9.85
330.574	14.56	3.80	7.30	25.66	37.00	11.34
400.184	16.44	4.20	7.28	27.92	37.00	9.08
440.706	16.60	4.40	6.07	27.07	37.00	9.93
483.296	17.84	4.80	0.81	23.45	37.00	13.55
570.252	20.06	5.30	0.06	25.42	37.00	11.58
720.292	21.12	6.00	3.20	30.32	37.00	6.68
818.864	22.74	6.40	1.05	30.19	37.00	6.81

Frequency MHz	Antenna Factor dB/m	Cable Loss dB	Meter Reading Vertical dBuV	Emission Level Vertical dBuV/m	Limits dBuV/m	Margin dB
60.353	13.32	1.40	8.29	23.01	30.00	6.99
77.927	13.60	1.80	3.64	19.04	30.00	10.96
127.870	18.51	2.40	- 1.67	19.24	30.00	10.76
155.603	20.22	2.45	- 1.59	21.08	30.00	8.92
194.994	21.71	2.60	- 1.56	22.75	30.00	7.25
211.938	21.81	3.00	- 2.68	22.13	30.00	7.87
245.427	21.11	3.10	3.41	27.62	37.00	9.38
330.574	14.76	3.80	7.34	25.90	37.00	11.10
440.158	17.14	4.40	6.11	27.65	37.00	9.35
483.296	18.43	4.80	3.83	27.06	37.00	9.94
570.252	20.00	5.30	3.98	29.28	37.00	7.72
720.318	21.22	6.00	2.10	29.32	37.00	7.68
818.902	22.77	6.40	0.05	29.22	37.00	7.78

Remark： 1. All reading are Quasi-Peak values.
2. Emission Level= Antenna Factor + Cable Loss + Meter Reading.

Date of Test：	Mar. 07, 2003	Temperature：	17℃
EUT：	CD-R/RW DRIVE	Humidity：	73 %
Test Mode：	CD Play	Test Model：	LTR-52327S

Frequency MHz	Antenna Factor dB/m	Cable Loss dB	Meter Reading Horizontal dBuV	Emission Level Horizontal dBuV/m	Limits dBuV/m	Margin dB
56.694	12.89	1.44	6.77	21.10	30.00	8.90
81.853	14.29	1.65	6.48	22.42	30.00	7.58
132.199	19.59	2.20	- 2.56	19.23	30.00	10.77
157.370	20.14	2.40	- 2.70	19.84	30.00	10.16
195.145	20.59	2.75	- 0.72	22.62	30.00	7.38
203.365	20.64	2.80	- 2.73	20.71	30.00	9.29
332.733	14.65	3.80	10.33	28.78	37.00	8.22
408.259	16.31	4.30	4.32	24.93	37.00	12.07
508.981	18.61	4.80	3.40	26.81	37.00	10.19
571.922	20.23	5.40	- 0.98	24.65	37.00	12.35
660.046	20.70	5.60	- 0.97	25.33	37.00	11.67
773.347	22.29	6.40	- 3.92	24.77	37.00	12.23
848.883	23.99	6.60	- 5.03	25.56	37.00	11.44

Frequency MHz	Antenna Factor dB/m	Cable Loss dB	Meter Reading Vertical dBuV	Emission Level Vertical dBuV/m	Limits dBuV/m	Margin dB
56.694	14.58	1.44	2.54	18.56	30.00	11.44
81.853	13.98	1.65	6.78	22.41	30.00	7.59
132.199	18.85	2.20	- 0.52	20.53	30.00	9.47
157.357	19.63	2.40	- 1.70	20.33	30.00	9.67
195.145	21.73	2.75	- 1.42	23.06	30.00	6.94
203.365	21.64	2.80	- 2.59	21.85	30.00	8.15
332.733	14.90	3.80	7.29	25.99	37.00	11.01
408.259	16.84	4.30	4.40	25.54	37.00	11.46
508.965	19.04	4.80	2.53	26.37	37.00	10.63
571.922	20.32	5.40	- 0.92	24.80	37.00	12.20
660.046	20.86	5.60	- 0.93	25.53	37.00	11.47
773.352	22.14	6.40	- 1.02	27.52	37.00	9.48
848.845	23.99	6.60	- 3.22	27.37	37.00	9.63

Remark： 1. All reading are Quasi-Peak values.
2. Emission Level= Antenna Factor + Cable Loss + Meter Reading.

3.7.2. 1GHz ~ 7GHz Frequency Range Measurement Results

Distance: 3Meters

Date of Test：	Mar. 20, 2003	Temperature：	15℃
EUT：	CD-R/RW DRIVE	Humidity：	66 %
Test Mode：	Data Read	Test Model：	LTR-52327S

Frequency MHz	Antenna Factor dB/m	Cable Loss dB	Meter Reading Horizontal dBuV	Emission Level Horizontal dBuV/m	(Peak) Limits dBuV/m	Margin dB
1376.774	25.00	2.05	16.06	43.11	74.00	30.89
1839.667	26.79	2.09	16.58	45.46	74.00	28.54
2291.594	28.07	2.13	20.63	50.83	74.00	23.17
2749.530	29.38	2.16	16.44	47.98	74.00	26.02
3216.162	30.70	2.18	15.85	48.73	74.00	25.27
4125.313	32.82	2.22	15.46	50.50	74.00	23.50
5048.551	33.41	2.25	15.29	50.95	74.00	23.05
6423.284	34.05	2.29	15.37	51.71	74.00	22.29

Frequency MHz	Antenna Factor dB/m	Cable Loss dB	Meter Reading Vertical dBuV	Emission Level Vertical dBuV/m	(Peak) Limits dBuV/m	Margin dB
1376.774	25.00	2.05	18.06	45.11	74.00	28.89
1839.667	26.79	2.09	17.08	45.96	74.00	28.04
2291.594	28.07	2.13	23.03	53.23	74.00	20.77
2749.530	29.38	2.16	17.64	49.18	74.00	24.82
3216.162	30.70	2.18	16.45	49.33	74.00	24.67
4125.313	32.82	2.22	15.96	51.00	74.00	23.00
5048.551	33.41	2.25	15.39	51.05	74.00	22.95
6423.284	34.05	2.29	15.97	52.31	74.00	21.69

Remark： 1. All reading are Peak values.

2. Emission Level= Antenna Factor + Cable Loss + Meter Reading.

Date of Test：	Mar. 20, 2003	Temperature：	15℃
EUT：	CD-R/RW DRIVE	Humidity：	66 %
Test Mode：	Data Read	Test Model：	LTR-52327S

Frequency MHz	Antenna Factor dB/m	Cable Loss dB	Meter Reading Horizontal dBuV	Emission Level Horizontal dBuV/m	(Average) Limits dBuV/m	Margin dB
1376.774	25.00	2.05	6.96	34.01	54.00	19.99
1839.667	26.79	2.09	6.58	35.46	54.00	18.54
2291.594	28.07	2.13	10.53	40.73	54.00	13.27
2749.530	29.38	2.16	7.34	38.88	54.00	15.12
3216.162	30.70	2.18	5.85	38.73	54.00	15.27
4125.313	32.82	2.22	6.56	41.60	54.00	12.40
5048.551	33.41	2.25	6.19	41.85	54.00	12.15
6423.284	34.05	2.29	5.07	41.41	54.00	12.59

Frequency MHz	Antenna Factor dB/m	Cable Loss dB	Meter Reading Vertical dBuV	Emission Level Vertical dBuV/m	(Average) Limits dBuV/m	Margin dB
1376.774	25.00	2.05	7.46	34.51	54.00	19.49
1839.667	26.79	2.09	7.58	36.46	54.00	17.54
2291.594	28.07	2.13	13.73	43.93	54.00	10.07
2749.530	29.38	2.16	6.34	37.88	54.00	16.12
3216.162	30.70	2.18	5.45	38.33	54.00	15.67
4125.313	32.82	2.22	5.76	40.80	54.00	13.20
5048.551	33.41	2.25	5.29	40.95	54.00	13.05
6423.284	34.05	2.29	6.07	42.41	54.00	11.59

Remark： 1. All reading are Average values.
2. Emission Level= Antenna Factor + Cable Loss + Meter Reading.

4. DEVIATION TO TEST SPECIFICATIONS

During 1GHz to 7GHz frequency range measurement, due to low loss cable length limitation, the horn antenna couldn‘t move up and down between 1 to 4 meters. But the test result was not affected due to the worst receiving condition of horn antenna should be at 1 meter high for above 1 GHz radiation measurement.