



EMC UPDATE TEST REPORT

For

Compal Electronics Inc.

LCD Monitor

Model: LXB-L15C

FCC ID: GKRLXB-L15C

Trade Name: Lenovo

Date of Test: February 19 ~ 20, 2004

Revision: 01

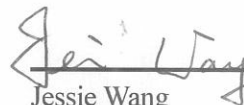
Description of Rev. 01:

1. Applicant adds one LCD Panel to re-test.
(Please refer to have ** mark items on this report)
2. Other information, please refer to the B30709204 and this test report.

Approved by:

Reviewed by:





Kurt Chen
Director of Linkou Laboratory
Compliance Certification Services Inc.

Jessie Wang
Section Manager of Linkou Laboratory
Compliance Certification Services Inc.

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1 TEST RESULT CERTIFICATION

Applicant: **Compal Electronics Inc.**
No. 581, Jui Kuang Rd., Neihu, Taipei, (114) Taiwan, R.O.C.

Manufacturer: **1.) Compal Electronics Inc.**
No. 8, Nan-Tung Rd., Pin-Cheng City, Tao-Yuan Hsien, Taiwan, R.O.C.
2.) Compal Electronics (China) Co., Ltd.
No. 988, Tung Fen East Rd., Economic & Technical Development Zone
Kunshan, Jiangsun, P.R. China

Equipment Under Test: LCD Monitor

Trade Name: Lenovo

Model: LXB-L15C

FCC ID: GKRLXB-L15C

Detailed EUT Description: See Item 2 of this report

Date of Test: February 19 ~ 20, 2004

Applicable Standard	Class / Limit	Test Result
FCC Part 15 Subpart B	Class B	No non-compliance noted
Deviation from Applicable Standard		
None		

The above equipment was tested by Compliance Certification Services Inc. for compliance with the requirements set forth in the FCC Rules and Regulations Part 15, Subpart B and the measurement procedures were according to ANSI C63.4 (2001). This said equipment in the configuration described in this report shows the maximum emission levels emanating from equipment are within the compliance requirements.



2 EUT DESCRIPTION

Product	LCD Monitor		
Trade Name	Lenovo		
Model	LXB-L15C		
FCC ID	GKRLXB-L15C		
Housing Type	Plastic		
EUT Power Rating	100-240VAC, 50/60Hz		
AC Power Cord Type	Unshielded, 1.8m (Non-detachable)		
OSC/Clock Frequencies	14.318MHz		
Power Board Manufacturer	Compal	Model	VP-575
Main Board Manufacturer	Compal	Model	VL-575
Key Board Manufacturer	Compal	Model	VK-575
LCD Panel Manufacturer	HannStar	Model	HSD150SX87
			** HSD150SX84-G
VGA Cable Type	Shielded, 1.8m (Non-detachable) with two cores		

I/O Port of EUT

I/O Port Type	Q'TY	TESTED WITH
1). Video Out Port (VGA)	1	1



3 TEST METHODOLOGY

3.1 DECISION OF FINAL TEST MODE

1. The following test mode(s) were scanned during the preliminary test:

Mode 1

1024 × 768 Resolution/ 75Hz

Mode 2

800 x 600 Resolution/ 75Hz

Mode 3

640 × 480 Resolution/ 75Hz

2. After preliminary test, found mode 1 producing the highest emission level, used this mode for all final test.

4 SETUP OF EQUIPMENT UNDER TEST

Setup Diagram

See test photographs attached in Appendix 1 for the actual connections between EUT and support equipment.

Support Equipment

No.	Equipment	Model No.	Serial No.	FCC ID	Trade Name	Data Cable	Power Cord
1	PC	D51C	7251 KN8Z 0014	FCC DoC	Compaq	N/A	Unshielded, 1.8m
2	Modem	DM-1414	0304012261	IFAXDM1414	ACEEX	Shielded, 1.5m	Unshielded, 1.8m
3	Printer	STYLUS C60	DR3K042012	FCC DoC	EPSON	Shielded, 1.8m	Unshielded, 1.8m
4	PS/2 Keyboard	KB-0133	N/A	FCC DoC	Compaq	Shielded, 1.8m	N/A
5	PS/2 Mouse	M-S69	N/A	FCC DoC	Compaq	Shielded, 1.8m	N/A

Note: All the above equipment/cables were placed in worse case positions to maximize emission signals during emission test.

Grounding: Grounding was in accordance with the manufacturer's requirements and conditions for the intended use.



5 INSTRUMENT AND CALIBRATION

5.1 MEASURING INSTRUMENT CALIBRATION

The measuring equipment utilized to perform the tests documented in this report has been calibrated once a year or in accordance with the manufacturer's recommendations, and is traceable to recognized national standards.

5.2 TEST AND MEASUREMENT EQUIPMENT

The following list contains measurement equipment used for testing. The equipment conforms to the requirement of CISPR 16-1, ANSI C63.2 and other required standards.

Calibration of all test and measurement, including any accessories that may effect such calibration, is checked frequently to ensure the accuracy. Adjustments are made and correction factors are applied in accordance with the instructions contained in the respective manual.

Equipment Used for Emission Measurement

Conducted Emission Test Site # 4				
Name of Equipment	Manufacturer	Model	Serial Number	Calibration Due
EMI Test Receiver	R&S	ESCS30	847793/012	12/19/2004
LISN	R&S	ENV 4200	830326/016	03/04/2004
LISN	EMCO	3825/2	9003/1382	02/25/2004

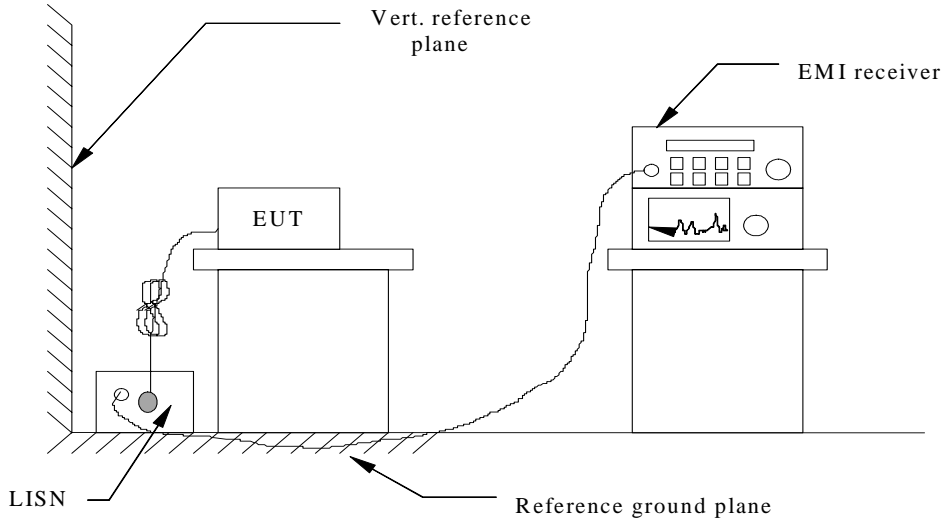
Note: The measurement uncertainty is less than +/- 2.83dB, which is evaluated as per the NAMAS NIS 81 and CISPR/A/291/CDV.

Open Area Test Site # 1				
Name of Equipment	Manufacturer	Model	Serial Number	Calibration Due
Spectrum Analyzer	ADVANTEST	R3261C	71720533	N.C.R
EMI Test Receiver	R&S	ESVS10	834468/006	04/14/2004
Pre-Amplifier	Anritsu	MH648A	M18767	08/31/2004
Bilog Antenna	CHASE	CBL6112A	2309	01/30/2005
Turn Table	EMCO	2081-1.21	N/A	N.C.R
Antenna Tower	EMCO	2075-2	9707-2604	N.C.R
Controller	EMCO	2090	N/A	N.C.R
RF Switch	Anritsu	MP59B	M54367	N.C.R
Site NSA	C&C	N/A	N/A	08/15/2004

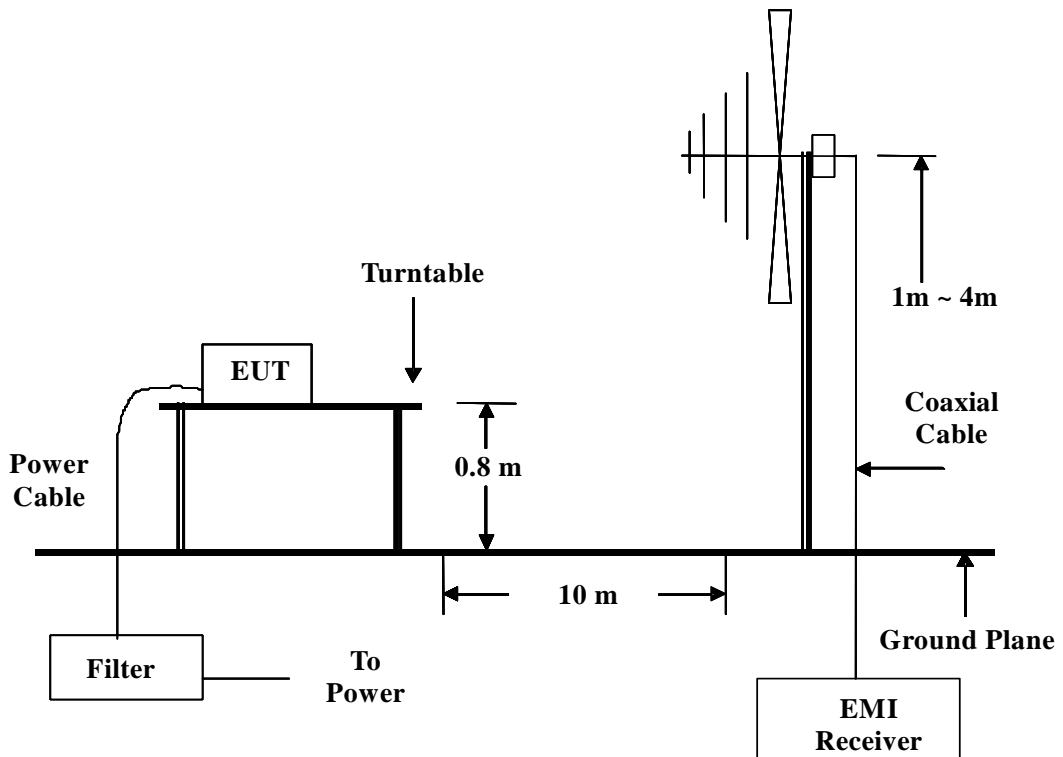
Note: The measurement uncertainty is less than +/- 3.36dB, which is evaluated as per the NAMAS NIS 81 and CISPR/A/291/CDV.

6 TEST CONFIGURATION

6.1 AC MAINS LINE CONDUCTED EMISSION



6.2 RADIATED EMISSION





7 TEST RESULTS

Line Conducted Emission

Model: LXB-L15C

Test Mode: Mode 1

Temperature: 27°C

Humidity: 64% RH

Tested by: Michael Chen

Test Results: Pass

(The chart below shows the highest readings taken from the final data)

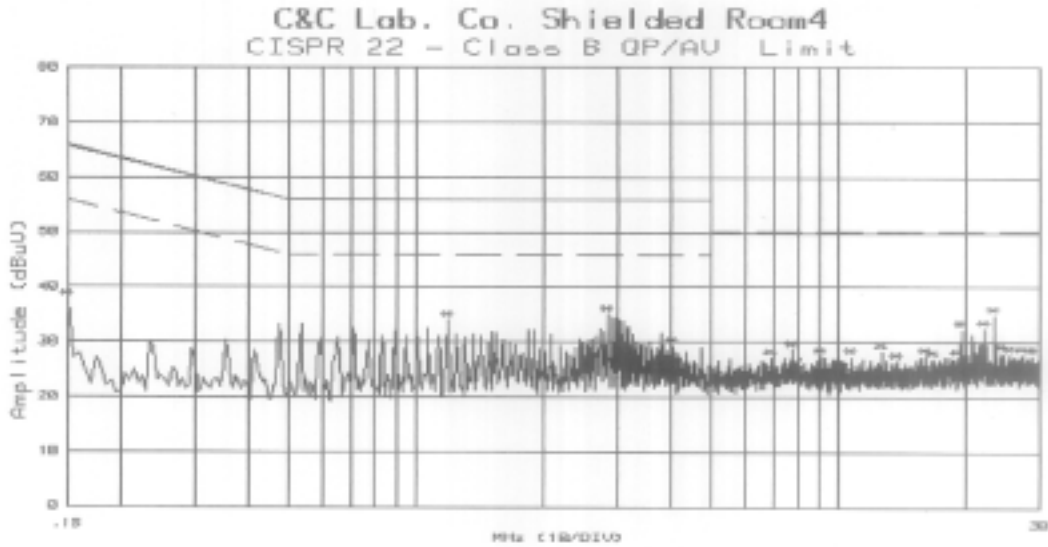
Freq. (MHz)	Q.P. Raw (dBuV)	AVG Raw (dBuV)	Q.P. Limit (dBuV)	AVG Limit (dBuV)	Q.P. Margin (dB)	AVG Margin (dB)	NOTE
0.150	35.20	---	66.00	56.00	-30.80	---	L1
1.190	31.70	---	56.00	46.00	-24.30	---	L1
2.850	32.50	---	56.00	46.00	-23.50	---	L1
4.040	27.10	---	56.00	46.00	-28.90	---	L1
19.500	30.00	---	60.00	50.00	-30.00	---	L1
22.180	30.10	---	60.00	50.00	-29.90	---	L1
0.150	31.90	---	66.00	56.00	-34.10	---	L2
2.850	35.10	---	56.00	46.00	-20.90	---	L2
4.160	29.20	---	56.00	46.00	-26.80	---	L2
17.640	29.10	---	60.00	50.00	-30.90	---	L2
18.150	41.80	---	60.00	50.00	-18.20	---	L2
21.820	30.30	---	60.00	50.00	-29.70	---	L2

L1 = Line One (Live Line) / L2 = Line Two (Neutral Line)

Note: “---” denotes the emission level was or more than 2dB below the Average limit, so no re-check anymore.

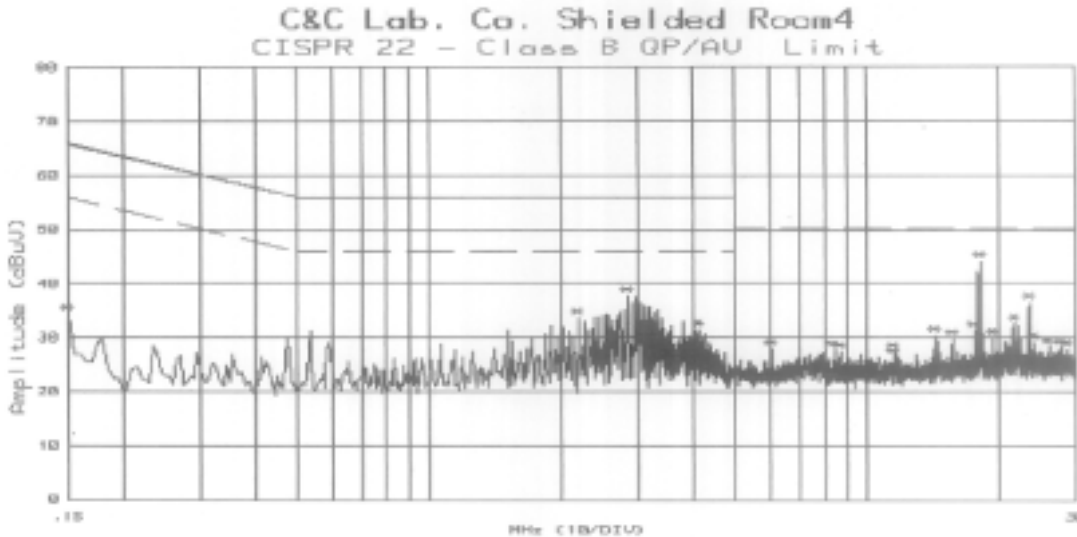


Test Plot (Line 1)



Customer:Lenovo File#: 168 Date :20 Feb 2004 13:06:19
Model :LXB-L15C Humd.:64 (%) Temp. :27 (C)
Mode : Port :L1 Tester:Michael Chen
Reading :Peak (R&S Receiver)
Remark :1024*768 75Hz

Test Plot (Line 2)



Customer:Lenovo File#: 169 Date :20 Feb 2004 13:19:22
Model :LXB-L15C Humd.:64 (%) Temp. :27 (C)
Mode : Port :L2 Tester:Michael Chen
Reading :Peak (R&S Receiver)
Remark :1024*768 75Hz



Radiated Emission (A)

Model: LXB-L15C

Test Mode: Mode 1

Temperature: 23°C

Humidity: 67% RH

Detector Function: Quasi-peak.

Antenna: Vertical at 10m

Tested by: Ethan Huang

Test Results: Pass

(The chart below shows the highest readings taken from the final data)

Freq. (MHz)	Raw Data (dBuV)	Corr. Factor (dB/m)	Emiss. Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)
146.12	15.4	11.5	26.9	30.0	-3.1
164.21	13.1	10.2	23.3	30.0	-6.7
179.81	16.1	11.5	27.6	30.0	-2.4
229.16	10.9	10.8	21.7	30.0	-8.3
357.21	14.9	18.1	33.0	37.0	-4.0
649.09	4.0	23.6	27.6	37.0	-9.4



Radiated Emission (B)

Model: LXB-L15C

Test Mode: Mode 1

Temperature: 23°C

Humidity: 67% RH

Detector Function: Quasi-peak.

Antenna: Horizontal at 10m

Tested by: Ethan Huang

Test Results: Pass

(The chart below shows the highest readings taken from the final data)

Freq. (MHz)	Raw Data (dBuV)	Corr. Factor (dB/m)	Emiss. Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)
178.32	10.0	11.4	21.4	30.0	-8.6
229.16	15.1	10.8	25.9	30.0	-4.1
304.85	5.2	15.8	21.0	37.0	-16.0
355.94	7.8	18.0	25.8	37.0	-11.2
394.95	1.3	19.8	21.1	37.0	-15.9
595.87	3.4	22.1	25.5	37.0	-11.5