

Application for FCC Certificate
On Behalf of
LG Electronics U.S.A., Inc.

LCD Monitor

Model No.: W2242PMT

Serial No.: 805NDCRAS075

FCC ID : BEJW2242TT

Prepared For : LG Electronics U.S.A., Inc.
1000 Sylvan Avenue, Englewood Cliffs,
NJ 07632, United States

Prepared By : Audix Technology (Shanghai) Co., Ltd.
3F 34Bldg 680 Guiping Rd,
Caohejing Hi-Tech Park,
Shanghai 200233, China

Tel: +86-21-64955500

Fax: +86-21-64955491

Report No. : ACI-F08047
Date of Test : Jun 30-Jul 02, 2008
Date of Report : Jul 07, 2008

TABLE OF CONTENTS

	Page
1 SUMMARY OF STANDARDS AND RESULTS.....	4
1.1 Description of Standards and Results.....	4
2 GENERAL INFORMATION.....	5
2.1 Description of Equipment Under Test.....	5
2.2 Peripherals.....	6
2.3 Description of Test Facility	7
2.4 Measurement Uncertainty	7
3 CONDUCTED EMISSION TEST	8
3.1 Test Equipment.....	8
3.2 Block Diagram of Test Setup	8
3.3 Conducted Emission Limit [FCC Part 15 Subpart B 15.107(a)].....	9
3.4 Test Configuration.....	9
3.5 Operating Condition of EUT	10
3.6 Test Procedures	10
3.7 Test Results	11
4 RADIATED EMISSION TEST	18
4.1 Test Equipment.....	18
4.2 Block Diagram of Test Setup	18
4.3 Radiated Emission Limit [FCC Part 15 Subpart B 15.109(a)].....	19
4.4 Test Configuration.....	19
4.5 Operating Condition of EUT	20
4.6 Test Procedures	20
4.7 Test Results	21
5 DEVIATION TO TEST SPECIFICATIONS	29
6 DEBUG DESCRIPTION	30

TEST REPORT FOR FCC CERTIFICATE

Applicant : LG Electronics U.S.A., Inc.
Manufacturer : LG Electronics Nanjing Display Co., Ltd.
EUT Description : LCD Monitor
(A) Model No. : W2242PMT
(B) Serial No. : 805NDCRAS075
(C) Power Supply : 120V/60Hz

Test Procedure Used:

*FCC RULES AND REGULATIONS PART 15 SUBPART B CLASS B 2007.10
AND ANSI C63.4-2003*

The device described above is tested by Audix Technology (Shanghai) Co., Ltd. to determine the maximum emission levels emanating from the device. The maximum emission levels are compared to the FCC Part 15 Subpart B (Class B) and ICES-003, Issue 4 February 2004 (CISPR 22:2002) limits both radiated and conducted emissions.

The test results are contained in this test report and Audix Technology (Shanghai) Co., Ltd. is assumed full responsibility for the accuracy and completeness of these measurements. This report shows that the EUT (M/N: W2242PMT; S/N: 805NDCRAS075) which was tested in 3m anechoic chamber on Jun 30-Jul 02, 2008 is technically compliance with the FCC official limits also.

This report applies to above tested sample only. This report shall not be reproduced in part without written approval of Audix Technology (Shanghai) Co., Ltd.

This report contains data that are not covered by the NVLAP accreditation.

This report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST, or any agency of the federal government.

Date of Test :

Jun 30-Jul 02, 2008

Prepared By:

Alan He 2008.07.08
ALAN HE / Assistant

Reviewer:

Dio Yang 2008.7.8
DIO YANG / Supervisor

AUDIX[®] For and on behalf of
Audix Technology (Shanghai) Co., Ltd.

Approved Signatory:

Sammy Chen 2008.07.08
Authorized Signature EMC SAMMY CHEN / Assistant Manager

1 SUMMARY OF STANDARDS AND RESULTS

1.1 Description of Standards and Results

The EUT have been tested according to the applicable standards as referenced below:

Description of Test Item	Standard	Limits	Results
EMISSION			
Conducted Disturbance at the Mains Terminals	FCC RULES AND REGULATIONS PART 15 SUBPART B 2007.10 AND ANSI C63.4-2003	15.107(a) Class B	Pass
Radiated Disturbance	FCC RULES AND REGULATIONS PART 15 SUBPART B 2007.10 AND ANSI C63.4-2003	15.109(a) Class B	Pass

2 GENERAL INFORMATION

2.1 Description of Equipment Under Test

Description	:	LCD Monitor
Type of EUT	:	☒ Production ☐ Pre-product ☐ Pro-type
Model No.	:	W2242PMT
Serial No.	:	805NDCRAS075
Real Power	:	44.00W
Note	:	The data of W2242PMT at rotate 90 degree condition (only radiated emission) is also tested and recorded in this report. The mode tested was the worst case of W2242PMT in normal condition.
Applicant	:	LG Electronics U.S.A., Inc. 1000 Sylvan Avenue, Englewood Cliffs, NJ 07632, United States
Manufacturer	:	LG Electronics Nanjing Display Co., Ltd. No.346, Yao Xin Road, Economic & Technical Development Zone, Nanjing, China
LCD Panel	:	Manufacturer: LG.PHILIPS LCD M/N : LM220WE1 (TL) (E1)
Max Resolution	:	1680*1050@60Hz
D-Sub Cable	:	Shielded, Detachable, 1.85m, with two cores
DVI Cable	:	Shielded, Detachable, 1.90m, with two cores
Audio Cable	:	Shielded, Detachable, 1.50m, with one core
Power Cord	:	Unshielded, Detachable, 1.80m

Remark:

The EUT is a LCD Monitor which input/output ports as follows:

- | | |
|-----------------------|------------------------|
| (1) One D-Sub Port | : Connected with PC |
| (2) One DVI Port | : Connected with PC |
| (3) One Audio In Port | : Connected with PC |
| (3) One AC In Port | : Connected with Power |

2.2 Peripherals

2.2.1 PC#1

Manufacturer : HP
Model Number : dx6120MT
Serial Number : CNG53004J2
Power Cord : Unshielded, Detachable, 1.8m
Certificate : FCC DoC; CE/EMC; VCCI; C-Tick; UL
BSMI (R33001) 3C (A000111)
MIC (E-A011-04-2659(B))

2.2.1 PC #2

Manufacturer : HP
Model Number : dx7400MT
Serial Number : CNG8130K89
Power Cord : Unshielded, Detachable, 1.8m
Certificate : FCC DoC; CE/EMC; VCCI; C-Tick; UL
BSMI (R33001) 3C (A000111)
MIC (E-A011-04-2659(B))

2.2.2 Printer

Manufacturer : HP
Model Number : C3990A
Serial Number : JPZX020487
Data Cable : Shielded, Detachable, 1.5m
Certificate : GS, CE/EMC, C-Tick, FCC DoC

2.2.3 Keyboard

Manufacturer : Microsoft
Model Number : RT2300
Serial Number : 7668200662248
Data Cable : Shielded, Undetachable, 1.8m
Certificate : CE/EMC, FCC DoC, VCCI, MIC, C-Tick,
BSMI

2.2.4 Mouse

Manufacturer : Microsoft
Model Number : RT2300
Serial Number : 6965712071551
Data Cable : Shielded, Undetachable, 1.85m.
Certificate : FCC DoC, VCCI, CE/EMC, MIC, GS

2.2.5 Modem

Manufacturer : TP-LINK
Model Number : TM-EC5658V
Serial Number : 07123301053
Data Cable : Shielded, Detachable, 1.8m
Certificate : FCC DoC, CE/EMC, CCC

Note: PC #1 was used in the Radiated Disturbance, and PC#2 was used in the Conducted Emission.

2.3 Description of Test Facility

Site Description (Semi-Anechoic Chamber)	:	Sept. 17, 1998 file on July 26, 2006 Renewed Federal Communications Commission FCC Engineering Laboratory 7435 Oakland Mills Road Columbia, MD 21046, USA
Name of Firm	:	Audix Technology (Shanghai) Co., Ltd.
Site Location	:	3F 34Bldg 680 Guiping Rd, Caohejing Hi-Tech Park, Shanghai 200233, China
NVLAP Lab Code	:	200371-0

2.4 Measurement Uncertainty

Conducted Emission Expanded Uncertainty:	U = 1.84 dB
Radiated Emission Expanded Uncertainty :	U = 2.96 dB

3 CONDUCTED EMISSION TEST

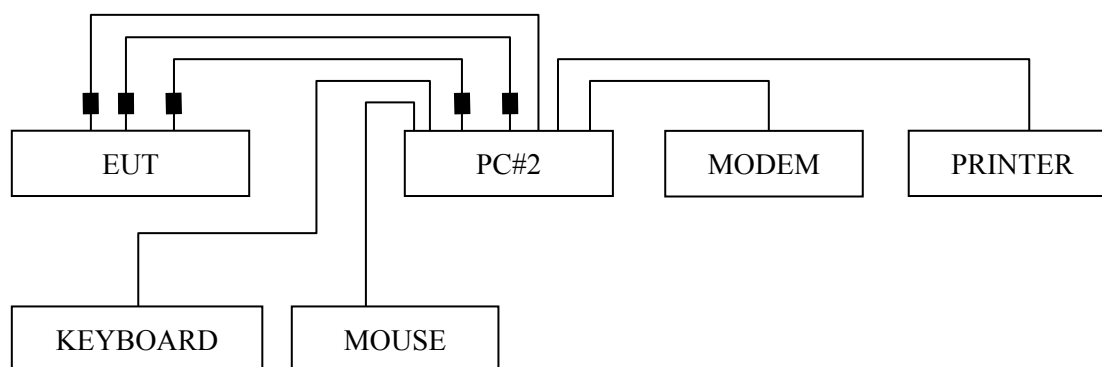
3.1 Test Equipment

The following test equipments are used during the conducted emission test in a shielded room:

Item	Type	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
1.	Test Receiver	R&S	ESHS10	830223/007	Oct 26, 2007	Oct 26, 2008
2.	Artificial Mains Network (AMN)	R&S	ESH2-Z5	843890/011	Apr 06, 2008	Apr 06, 2009
3.	Line Impedance Stabilization Network (LISN)	Kyoritsu	KNW-407	8-1280-4	Apr 06, 2008	Apr 06, 2009
4.	50 Ω Coaxial Switch	Anritsu	MP59B	6200426389	Mar 18, 2008	Sep 18, 2008
5.	50 Ω Terminator	Anritsu	BNC	001	Apr 06, 2008	Apr 06, 2009
6.	Software	Audix	E3	SET00200 9804M592	--	--

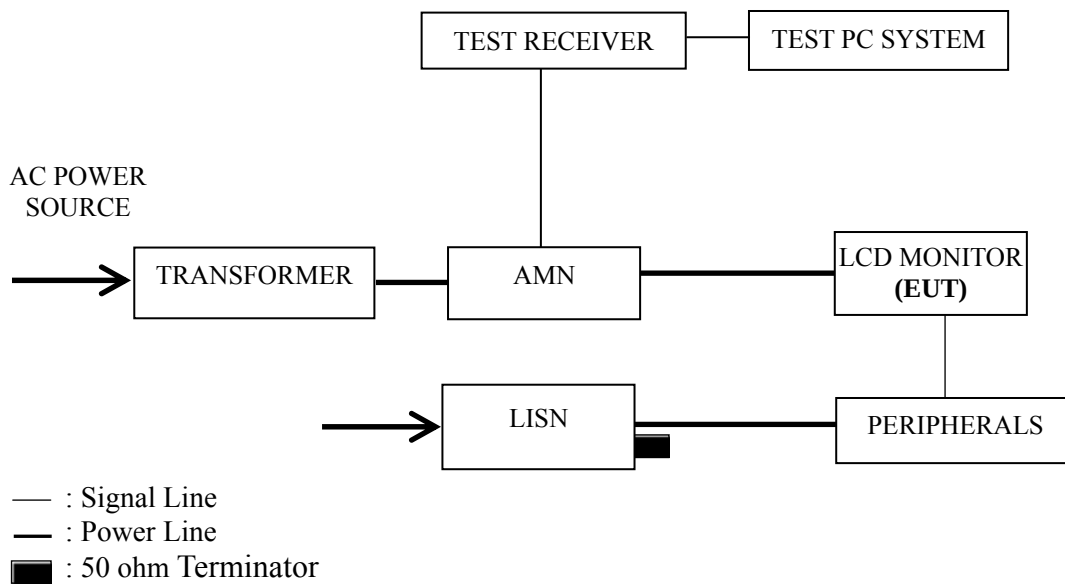
3.2 Block Diagram of Test Setup

3.2.1 EUT & Peripherals



■ : Ferrite core

3.2.2 Conducted Disturbance Test Setup



3.3 Conducted Emission Limit [FCC Part 15 Subpart B 15.107(a)]

Frequency Range (MHz)	Limits dB (μ V)	
	Quasi-peak	Average
0.15 ~ 0.5	66~56	56~46
0.5 ~ 5	56	46
5 ~ 30	60	50
NOTE 1 – The lower limit shall apply at the transition frequencies. NOTE 2 – The limit decreases linearly with the logarithm of the frequency in the range 0.15 MHz~0.50 MHz		

3.4 Test Configuration

The EUT (listed in Sec.2.1) and the peripherals (listed in Sec 2.2) were installed as shown on Sec.3.2 to meet FCC requirement and operating in a manner that tends to maximize its emission level in a normal application.

3.5 Operating Condition of EUT

3.5.1 Setup the EUT and peripherals as shown in Sec. 3.2.

3.5.2 Turn on the power of all equipments and the EUT.

3.5.3 Set the contrast & brightness of EUT to maximum.

3.5.4 PC system ran the self-test program “EMC Test” by windows XP and sent “H” characters to EUT through graphic card, the EUT’s screen displayed and filled with “H” pattern by its resolution (Via D-Sub & DVI Input).

3.5.5 PC system played music and sent audio signal to EUT through the audio in port of EUT.

3.5.6 Repeat above procedure from 3.5.3 to 3.5.5 for difference test mode.

3.5.7 The other peripherals devices were driven and operated during the test.

3.5.8 The test modes are as follows:

Test Mode
VGA 640*480@60Hz
VGA 1024*768@60Hz
VGA 1680*1050@60Hz
DVI 640*480@60Hz
DVI 1024*768@60Hz
DVI 1680*1050@60Hz

3.6 Test Procedures

The EUT and peripherals were connected to the power mains through an Artificial Mains Network (AMN). This provided a 50 ohm coupling impedance for the measuring equipment.

Both sides of AC line (Line & Neutral) 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 or manipulated according to ANSI C63.4:2003 during conducted emission test.

The bandwidth of R&S Test Receiver ESHS10 was set at 10 kHz.

The frequency range from 150 kHz to 30 MHz was checked.

The test modes were done on conducted disturbance test and all the test results are listed in Sec. 3.7.

3.7 Test Results

< PASS >

The frequency and amplitude of the highest conducted emission relative to the limit is reported. All emissions not reported below are too low against the prescribed limits.

Test Mode	Data Page
VGA 640*480@60Hz	P12
VGA 1024*768@60Hz	P13
VGA 1680*1050@60Hz	P14
DVI 640*480@60Hz	P15
DVI 1024*768@60Hz	P16
DVI 1680*1050@60Hz	P17

NOTE 1 – Factor = Cable Loss + AMN Factor.

NOTE 2 – Emission Level = Meter Reading + Factor.

NOTE 3 – “QP” means “Quasi-Peak” values, “AV” means “Average” values.

NOTE 4 – The worst case is for VGA 1024*768@60Hz test mode. The worst emission is detected at 4.746 MHz (Average Value) with corrected signal level of 34.23 dB (μV) (limit is 46.00 dB (μV)), when the Neutral of the EUT is connected to AMN.

EUT : LCD Monitor Temperature : 22°C

Model No. : W2242PMT Humidity : 60%RH

Serial No. : 805NDCRAS075 Date of Test : Jul 02, 2008

Test Mode : VGA 640*480@60Hz

Test Line	Frequency (MHz)	Meter Reading dB(μV)	Factor (dB)	Emission Level dB(μV)	Limits dB(μV)	Margin (dB)	Remark
Line	0.211	44.15	0.15	44.30	63.18	18.88	QP
	0.348	38.41	0.16	38.57	59.00	20.43	
	0.701	35.97	0.18	36.15	56.00	19.85	
	0.909	35.43	0.19	35.62	56.00	20.38	
	3.779	36.04	0.28	36.32	56.00	19.68	
	5.305	38.00	0.28	38.28	60.00	21.72	
	0.211	38.15	0.15	38.30	53.18	14.88	AV
	0.348	32.41	0.16	32.57	49.00	16.43	
	0.701	30.97	0.18	31.15	46.00	14.85	
	0.909	30.43	0.19	30.62	46.00	15.38	
	3.779	31.04	0.28	31.32	46.00	14.68	
	5.305	31.00	0.28	31.28	50.00	18.72	
Neutral	0.209	43.55	0.15	43.70	63.23	19.53	QP
	0.352	37.66	0.16	37.82	58.91	21.09	
	0.486	32.98	0.18	33.16	56.23	23.07	
	0.701	34.40	0.18	34.58	56.00	21.42	
	4.049	34.02	0.25	34.27	56.00	21.73	
	4.746	39.44	0.25	39.69	56.00	16.31	
	0.209	35.55	0.15	35.70	53.23	17.53	AV
	0.352	30.66	0.16	30.82	48.91	18.09	
	0.486	27.98	0.18	28.16	46.23	18.07	
	0.701	28.40	0.18	28.58	46.00	17.42	
	4.049	27.02	0.25	27.27	46.00	18.73	
	4.746	32.44	0.25	32.69	46.00	13.31	

TEST ENGINEER: TOM SI

EUT : LCD Monitor Temperature : 22°C

Model No. : W2242PMT Humidity : 60%RH

Serial No. : 805NDCRAS075 Date of Test : Jul 02, 2008

Test Mode : VGA 1024*768@60Hz

Test Line	Frequency (MHz)	Meter Reading dB(μV)	Factor (dB)	Emission Level dB(μV)	Limits dB(μV)	Margin (dB)	Remark
Line	0.209	43.13	0.15	43.28	63.23	19.95	QP
	0.348	38.14	0.16	38.30	59.00	20.70	
	0.486	35.40	0.18	35.58	56.23	20.65	
	0.701	35.14	0.18	35.32	56.00	20.68	
	0.909	36.04	0.19	36.23	56.00	19.77	
	3.779	36.21	0.28	36.49	56.00	19.51	
	0.209	36.13	0.15	36.28	53.23	16.95	AV
	0.348	32.14	0.16	32.30	49.00	16.70	
	0.486	28.40	0.18	28.58	46.23	17.65	
	0.701	26.14	0.18	26.32	46.00	19.68	
	0.909	29.04	0.19	29.23	46.00	16.77	
	3.779	30.21	0.28	30.49	46.00	15.51	
Neutral	0.209	43.03	0.15	43.18	63.23	20.05	QP
	0.352	37.17	0.16	37.33	58.91	21.58	
	0.701	33.80	0.18	33.98	56.00	22.02	
	0.909	34.29	0.17	34.46	56.00	21.54	
	1.255	32.02	0.18	32.20	56.00	23.80	
	4.746	39.98	0.25	40.23	56.00	15.77	
	0.209	37.03	0.15	37.18	53.23	16.05	AV
	0.352	31.17	0.16	31.33	48.91	17.58	
	0.701	26.80	0.18	26.98	46.00	19.02	
	0.909	28.29	0.17	28.46	46.00	17.54	
	1.255	27.02	0.18	27.20	46.00	18.80	
	4.746	33.98	0.25	34.23	46.00	11.77	

TEST ENGINEER: TOM SI

EUT : LCD Monitor Temperature : 22°C

Model No. : W2242PMT Humidity : 60%RH

Serial No. : 805NDCRAS075 Date of Test : Jul 02, 2008

Test Mode : VGA 1680*1050@60Hz

Test Line	Frequency (MHz)	Meter Reading dB(μV)	Factor (dB)	Emission Level dB(μV)	Limits dB(μV)	Margin (dB)	Remark
Line	0.209	43.53	0.15	43.68	63.23	19.55	QP
	0.348	38.63	0.16	38.79	59.00	20.21	
	0.486	35.50	0.18	35.68	56.23	20.55	
	0.909	35.84	0.19	36.03	56.00	19.97	
	3.779	35.98	0.28	36.26	56.00	19.74	
	5.929	37.82	0.29	38.11	60.00	21.89	
	0.209	35.53	0.15	35.68	53.23	17.55	AV
	0.348	30.63	0.16	30.79	49.00	18.21	
	0.486	28.50	0.18	28.68	46.23	17.55	
	0.909	27.84	0.19	28.03	46.00	17.97	
	3.779	29.98	0.28	30.26	46.00	15.74	
	5.929	31.82	0.29	32.11	50.00	17.89	
Neutral	0.211	42.79	0.15	42.94	63.18	20.24	QP
	0.348	37.29	0.16	37.45	59.00	21.55	
	0.701	33.86	0.18	34.04	56.00	21.96	
	0.909	34.05	0.17	34.22	56.00	21.78	
	1.255	31.90	0.18	32.08	56.00	23.92	
	4.672	39.98	0.25	40.23	56.00	15.77	
	0.211	33.79	0.15	33.94	53.18	19.24	AV
	0.348	30.29	0.16	30.45	49.00	18.55	
	0.701	23.86	0.18	24.04	46.00	21.96	
	0.909	25.05	0.17	25.22	46.00	20.78	
	1.255	25.90	0.18	26.08	46.00	19.92	
	4.672	32.98	0.25	33.23	46.00	12.77	

TEST ENGINEER: TOM SI

EUT : LCD Monitor Temperature : 22°C

Model No. : W2242PMT Humidity : 60%RH

Serial No. : 805NDCRAS075 Date of Test : Jul 02, 2008

Test Mode : DVI 640*480@60Hz

Test Line	Frequency (MHz)	Meter Reading dB(μV)	Factor (dB)	Emission Level dB(μV)	Limits dB(μV)	Margin (dB)	Remark
Line	0.209	43.11	0.15	43.26	63.23	19.97	QP
	0.348	38.12	0.16	38.28	59.00	20.72	
	0.486	35.38	0.18	35.56	56.23	20.67	
	0.909	36.20	0.19	36.39	56.00	19.61	
	1.255	33.97	0.21	34.18	56.00	21.82	
	3.779	36.21	0.28	36.49	56.00	19.51	
	0.209	34.11	0.15	34.26	53.23	18.97	AV
	0.348	29.12	0.16	29.28	49.00	19.72	
	0.486	26.38	0.18	26.56	46.23	19.67	
	0.909	28.20	0.19	28.39	46.00	17.61	
	1.255	25.97	0.21	26.18	46.00	19.82	
	3.779	29.21	0.28	29.49	46.00	16.51	
Neutral	0.211	41.60	0.15	41.75	63.18	21.43	QP
	0.348	36.42	0.16	36.58	59.00	22.42	
	0.701	33.57	0.18	33.75	56.00	22.25	
	0.909	34.17	0.17	34.34	56.00	21.66	
	4.114	35.28	0.25	35.53	56.00	20.47	
	4.672	39.38	0.25	39.63	56.00	16.37	
	0.211	31.60	0.15	31.75	53.18	21.43	AV
	0.348	25.42	0.16	25.58	49.00	23.42	
	0.701	26.57	0.18	26.75	46.00	19.25	
	0.909	26.17	0.17	26.34	46.00	19.66	
	4.114	27.28	0.25	27.53	46.00	18.47	
	4.672	30.38	0.25	30.63	46.00	15.37	

TEST ENGINEER: TOM SI

EUT : LCD Monitor Temperature : 22°C

Model No. : W2242PMT Humidity : 60%RH

Serial No. : 805NDCRAS075 Date of Test : Jul 02, 2008

Test Mode : DVI 1024*768@60Hz

Test Line	Frequency (MHz)	Meter Reading dB(μV)	Factor (dB)	Emission Level dB(μV)	Limits dB(μV)	Margin (dB)	Remark
Line	0.209	43.15	0.15	43.30	63.23	19.93	QP
	0.348	38.16	0.16	38.32	59.00	20.68	
	0.486	35.32	0.18	35.50	56.23	20.73	
	0.909	36.02	0.19	36.21	56.00	19.79	
	3.779	36.49	0.28	36.77	56.00	19.23	
	5.805	37.11	0.29	37.40	60.00	22.60	
	0.209	33.15	0.15	33.30	53.23	19.93	AV
	0.348	32.16	0.16	32.32	49.00	16.68	
	0.486	30.32	0.18	30.50	46.23	15.73	
	0.909	30.02	0.19	30.21	46.00	15.79	
	3.779	32.49	0.28	32.77	46.00	13.23	
	5.805	30.11	0.29	30.40	50.00	19.60	
Neutral	0.209	42.10	0.15	42.25	63.23	20.98	QP
	0.348	36.60	0.16	36.76	59.00	22.24	
	0.701	32.96	0.18	33.14	56.00	22.86	
	0.909	34.01	0.17	34.18	56.00	21.82	
	1.255	32.06	0.18	32.24	56.00	23.76	
	4.672	38.70	0.25	38.95	56.00	17.05	
	0.209	33.10	0.15	33.25	53.23	19.98	AV
	0.348	28.60	0.16	28.76	49.00	20.24	
	0.701	24.96	0.18	25.14	46.00	20.86	
	0.909	25.01	0.17	25.18	46.00	20.82	
	1.255	25.06	0.18	25.24	46.00	20.76	
	4.672	30.70	0.25	30.95	46.00	15.05	

TEST ENGINEER: TOM SI

EUT : LCD Monitor Temperature : 22°C

Model No. : W2242PMT Humidity : 60%RH

Serial No. : 805NDCRAS075 Date of Test : Jul 02, 2008

Test Mode : DVI 1680*1050@60Hz

Test Line	Frequency (MHz)	Meter Reading dB(μV)	Factor (dB)	Emission Level dB(μV)	Limits dB(μV)	Margin (dB)	Remark
Line	0.211	43.17	0.15	43.32	63.18	19.86	QP
	0.348	38.37	0.16	38.53	59.00	20.47	
	0.486	35.22	0.18	35.40	56.23	20.83	
	0.909	35.88	0.19	36.07	56.00	19.93	
	3.779	36.06	0.28	36.34	56.00	19.66	
	5.929	37.63	0.29	37.92	60.00	22.08	
	0.211	36.17	0.15	36.32	53.18	16.86	AV
	0.348	30.37	0.16	30.53	49.00	18.47	
	0.486	29.22	0.18	29.40	46.23	16.83	
	0.909	29.88	0.19	30.07	46.00	15.93	
	3.779	30.06	0.28	30.34	46.00	15.66	
	5.929	31.63	0.29	31.92	50.00	18.08	
Neutral	0.211	42.62	0.15	42.77	63.18	20.41	QP
	0.348	36.80	0.16	36.96	59.00	22.04	
	0.701	33.53	0.18	33.71	56.00	22.29	
	0.909	34.13	0.17	34.30	56.00	21.70	
	4.049	34.83	0.25	35.08	56.00	20.92	
	4.672	39.54	0.25	39.79	56.00	16.21	
	0.211	36.62	0.15	36.77	53.18	16.41	AV
	0.348	29.80	0.16	29.96	49.00	19.04	
	0.701	27.53	0.18	27.71	46.00	18.29	
	0.909	27.13	0.17	27.30	46.00	18.70	
	4.049	29.83	0.25	30.08	46.00	15.92	
	4.672	32.54	0.25	32.79	46.00	13.21	

TEST ENGINEER: TOM SI

4 RADIATED EMISSION TEST

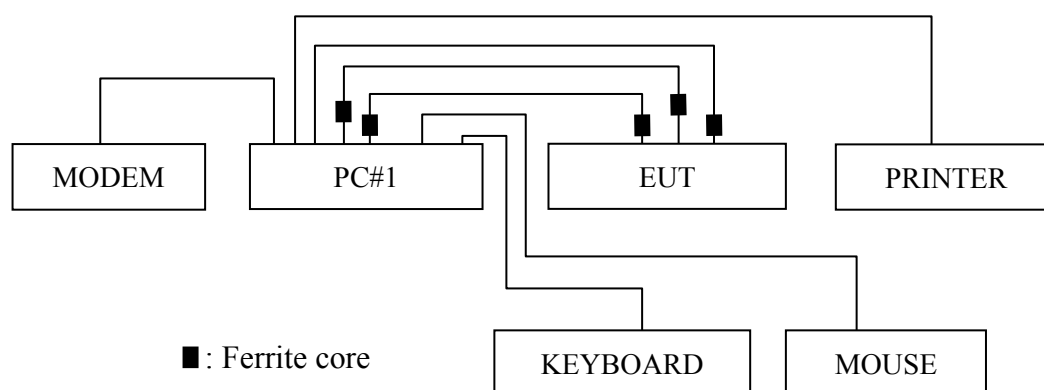
4.1 Test Equipment

The following test equipments are used during the radiated emission test in a semi-anechoic chamber:

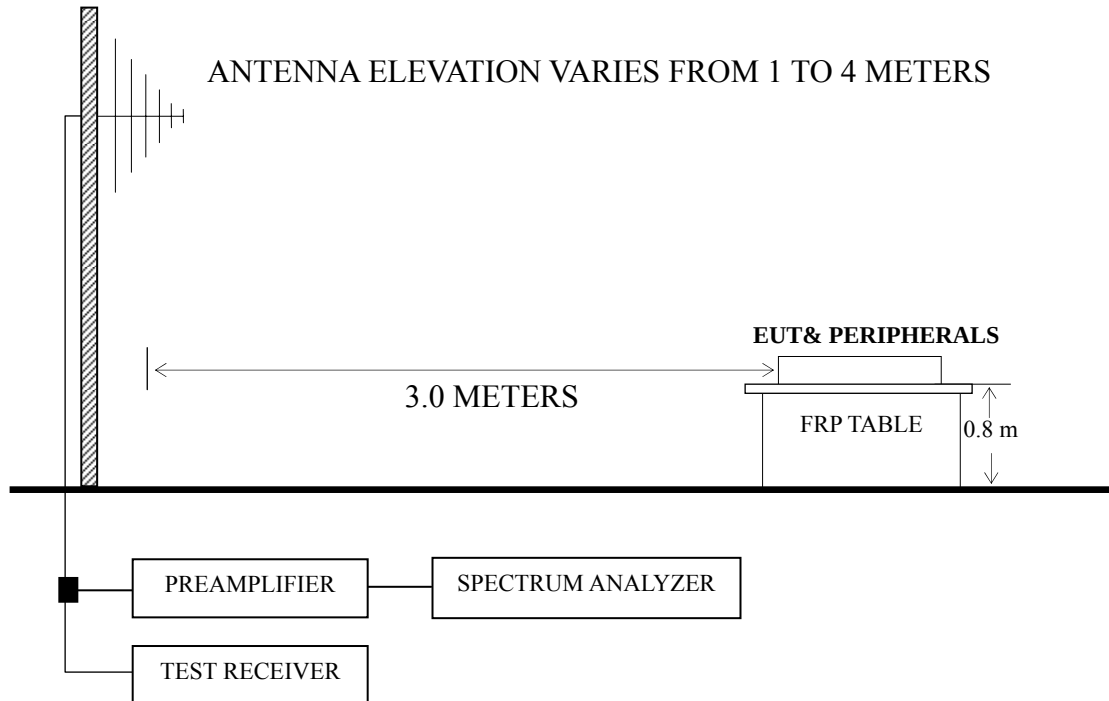
Item	Type	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
1.	Test Receiver	R&S	ESVS10	844594/001	Oct 26, 2007	Oct 26, 2008
2.	Preamplifier	Agilent	8447D	2944A10548	Mar 19, 2008	Sep 19, 2008
3.	Preamplifier	HP	8449B	3008A00864	Apr 06, 2008	Apr 06, 2009
4.	Bi-log Antenna	TESEQ	CBL6112D	23193	May 14, 2008	May 14, 2009
5.	Spectrum	Agilent	E7405A	MY45106600	Apr 06, 2008	Apr 06, 2009
6.	Software	Audix	E3	SET00200 9912M295-2	--	--

4.2 Block Diagram of Test Setup

4.2.1 EUT and Peripherals



4.2.2 Radiated emission test setup



■ : 50 ohm Coaxial Switch

4.3 Radiated Emission Limit [FCC Part 15 Subpart B 15.109(a)]

Frequency (MHz)	Distance (m)	Field strength limits	
		($\mu\text{V/m}$)	dB ($\mu\text{V/m}$)
30 ~ 88	3	100	40.0
88 ~ 216	3	150	43.5
216 ~ 960	3	200	46.0
Above 960	3	500	54.0

NOTE 1 - Emission Level dB ($\mu\text{V/m}$) = 20 log Emission Level ($\mu\text{V/m}$)

NOTE 2 - The tighter limit applies at the band edges.

NOTE 3 - Distance refers to the distance in meters between the measuring instrument antenna and the closed point of any part of the device or system.

NOTE 4 - The limits shown are based on Quasi-peak value detector below or equal to 1GHz and Average value detector above 1GHz.

NOTE 5 - Above 1 GHz, the limit on peak emission is 20 dB above the maximum permitted average emission limit applicable to the EUT

4.4 Test Configuration

The configuration of the EUT and peripherals are same as those used in conducted emission test.

Please refer to Sec.3.4.

4.5 Operating Condition of EUT

Same as conducted emission test which is listed in Sec.3.5, except for the test setup replaced by Sec.4.2.

4.6 Test Procedures

The EUT and peripherals were placed on a FRP turntable that is 0.8 meter above ground. The FRP turntable rotated 360 degrees to determine the position of the maximum emission level. The EUT was set 3 meters away from the receiving antenna, which was mounted on an antenna tower. Broadband antenna (Calibrated Bilog Antenna) was used as receiving antenna. The antenna moved up and down between 1 meter and 4 meters to find out the maximum emission level. Both horizontal and vertical polarizations of the antenna were set on measurement. In order to find the maximum emission, all of the interference cables were manipulated according to ANSI C63.4:2003 requirements during radiated emission test.

The bandwidth of Test Receiver R&S ESVS10 was set at 120 kHz below 1GHz and The Spectrum Agilent E7405A was set at 1MHz above 1GHz.

The frequency range from 30 MHz to 1000MHz was checked for all test modes.

The frequency range from 1 GHz to 2 GHz was checked for VGA/DVI 1680*1050@60Hz modes.

The test modes were done on radiated disturbance test and all the test results are listed in Sec.4.7.

4.7 Test Results

<PASS>

The frequency and amplitude of the highest radiated emission relative the limit is reported. All the emissions not reported below are too low against the FCC limit.

Test Mode	Data Page
VGA 640*480@60Hz	P22
VGA 1024*768@60Hz	P23
VGA 1680*1050@60Hz	P24
DVI 640*480@60Hz	P25
DVI 1024*768@60Hz	P26
DVI 1680*1050@60Hz	P27
DVI 640*480@60Hz (Rotate 90 degree)	P28

NOTE 1 – Emission Level = Antenna Factor + Cable Loss + Meter Reading.($< 1\text{GHz}$)

NOTE 2 – Emission Level = Antenna Factor + Cable Loss – Preamp Factor + Meter Reading.($> 1\text{GHz}$)

NOTE 3 – The emission levels that are 20dB below the official limit are not reported.

NOTE 4 – 0° was the table front facing the antenna. Degree is calculated from 0° clockwise facing the antenna.

NOTE 5 – All reading are Quasi-Peak values below or equal to 1GHz and Peak values above 1GHz.

NOTE 6 – The worst case is for DVI 640*480@60Hz test mode. The worst emission at horizontal polarization was detected at 900.090 MHz with corrected signal level of 38.65 dB ($\mu\text{V/m}$) (limit is 46.00 dB ($\mu\text{V/m}$)), when the antenna was 1.20 m height and the turntable was at 350° . The worst emission at vertical polarization was detected at 30.970 MHz with corrected signal level of 36.19 dB ($\mu\text{V/m}$) (limit is 40.00 dB ($\mu\text{V/m}$)), when the antenna was 1.00 m height and the turntable was at 85° .

EUT : LCD Monitor Temperature : 22°C

Model No. : W2242PMT Humidity : 60%RH

Serial No. : 805NDCRAS075 Date of Test : Jun 26, 2008

Test Mode : VGA 640*480@60Hz

Polarization	Frequency (MHz)	Meter Reading dB (μV)	Antenna Factor (dB/m)	Cable Loss (dB)	Emission Level dB (μV/m)	Limits dB (μV/m)	Margin (dB)
Horizontal	149.310	18.54	11.35	2.07	31.96	43.50	11.54
	224.000	16.60	11.85	2.58	31.03	46.00	14.97
	266.680	7.36	13.25	2.91	23.52	46.00	22.48
	371.440	5.62	15.88	3.48	24.98	46.00	21.02
	520.820	2.71	18.18	4.04	24.93	46.00	21.07
	856.440	5.61	21.28	5.55	32.44	46.00	13.56
Vertical	30.970	15.92	19.03	0.91	35.86	40.00	4.14
	147.370	12.29	11.51	2.06	25.86	43.50	17.64
	180.350	14.68	9.90	2.24	26.82	43.50	16.68
	220.120	11.94	11.66	2.54	26.14	46.00	19.86
	526.640	3.65	18.24	4.06	25.95	46.00	20.05
	860.320	4.39	21.31	5.57	31.27	46.00	14.73

TEST ENGINEER: JACKY CHEN

EUT : LCD Monitor Temperature : 22°C

Model No. : W2242PMT Humidity : 60%RH

Serial No. : 805NDCRAS075 Date of Test : Jun 26, 2008

Test Mode : VGA 1024*768@60Hz

Polarization	Frequency (MHz)	Meter Reading dB (μV)	Antenna Factor (dB/m)	Cable Loss (dB)	Emission Level dB (μV/m)	Limits dB (μV/m)	Margin (dB)
Horizontal	150.280	17.94	11.25	2.08	31.27	43.50	12.23
	156.100	15.29	10.79	2.11	28.19	43.50	15.31
	223.030	15.48	11.80	2.56	29.84	46.00	16.16
	269.590	11.52	13.32	2.93	27.77	46.00	18.23
	611.030	3.00	19.26	4.30	26.56	46.00	19.44
	856.440	6.39	21.28	5.55	33.22	46.00	12.78
Vertical	30.970	16.17	19.03	0.91	36.11	40.00	3.89
	44.550	13.98	11.38	0.97	26.33	40.00	13.67
	60.070	15.78	6.60	1.22	23.60	40.00	16.40
	90.140	18.75	9.40	1.61	29.76	43.50	13.74
	104.690	8.91	11.88	1.73	22.52	43.50	20.98
	150.280	11.69	11.25	2.08	25.02	43.50	18.48

TEST ENGINEER: JACKY CHEN

EUT : LCD Monitor Temperature : 22°C

Model No. : W2242PMT Humidity : 60%RH

Serial No. : 805NDCRAS075 Date of Test : Jun 26, 2008

Test Mode : VGA 1680*1050@60Hz

Polarization	Frequency (MHz)	Meter Reading dB (μV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamplifier Factor (dB)	Emission Level dB (μV/m)	Limits dB (μV/m)	Margin (dB)	Remark
Horizontal	149.310	21.09	11.35	2.07	--	34.51	43.50	8.99	QP
	164.830	17.75	10.35	2.16	--	30.26	43.50	13.24	
	207.510	15.12	11.05	2.41	--	28.58	43.50	14.92	
	224.970	17.80	11.89	2.58	--	32.27	46.00	13.73	
	269.590	14.07	13.32	2.93	--	30.32	46.00	15.68	
	374.350	8.84	15.95	3.50	--	28.29	46.00	17.71	
	1150.000	47.75	22.47	6.59	37.29	39.52	74.00	34.48	PK
	1169.000	48.67	23.00	6.67	37.25	41.09	74.00	32.91	
	1550.000	48.27	25.17	7.48	36.44	44.48	74.00	29.52	
	1670.000	46.06	25.92	8.12	36.22	43.88	74.00	30.12	
	1789.000	49.73	25.85	8.58	36.02	48.14	74.00	25.86	
	1908.000	49.48	27.18	8.98	35.83	49.81	74.00	24.19	
Vertical	60.070	16.43	6.60	1.22	--	24.25	40.00	15.75	QP
	90.140	16.41	9.40	1.61	--	27.42	43.50	16.08	
	150.280	15.13	11.25	2.08	--	28.46	43.50	15.04	
	221.090	18.53	11.71	2.54	--	32.78	46.00	13.22	
	526.640	4.50	18.24	4.06	--	26.80	46.00	19.20	
	860.320	6.01	21.31	5.57	--	32.89	46.00	13.11	
	1152.000	47.37	22.51	6.59	37.29	39.18	74.00	34.82	PK
	1219.000	47.31	22.95	6.80	37.13	39.93	74.00	34.07	
	1616.000	45.42	25.45	7.85	36.31	42.41	74.00	31.59	
	1720.000	43.92	26.30	8.36	36.13	42.45	74.00	31.55	
	1789.000	45.84	25.85	8.58	36.02	44.25	74.00	29.75	
	1915.000	44.63	27.31	8.98	35.82	45.10	74.00	28.90	

TEST ENGINEER: JACKY CHEN

EUT : LCD Monitor Temperature : 22°C

Model No. : W2242PMT Humidity : 60%RH

Serial No. : 805NDCRAS075 Date of Test : Jun 26, 2008

Test Mode : DVI 640*480@60Hz

Polarization	Frequency (MHz)	Meter Reading dB (μV)	Antenna Factor (dB/m)	Cable Loss (dB)	Emission Level dB (μV/m)	Limits dB (μV/m)	Margin (dB)
Horizontal	30.970	6.05	19.03	0.91	25.99	40.00	14.01
	150.280	19.68	11.25	2.08	33.01	43.50	10.49
	221.090	21.63	11.71	2.54	35.88	46.00	10.12
	733.250	8.21	20.04	5.03	33.28	46.00	12.72
	856.440	9.64	21.28	5.55	36.47	46.00	9.53
	900.090	11.28	21.70	5.67	38.65	46.00	7.35
Vertical	30.970	16.25	19.03	0.91	36.19	40.00	3.81
	90.140	23.57	9.40	1.61	34.58	43.50	8.92
	98.870	13.50	11.27	1.68	26.45	43.50	17.05
	104.690	12.84	11.88	1.73	26.45	43.50	17.05
	150.280	12.65	11.25	2.08	25.98	43.50	17.52
	180.350	14.99	9.90	2.24	27.13	43.50	16.37

TEST ENGINEER: JACKY CHEN

EUT : LCD Monitor Temperature : 22°C

Model No. : W2242PMT Humidity : 60%RH

Serial No. : 805NDCRAS075 Date of Test : Jun 26, 2008

Test Mode : DVI 1024*768@60Hz

Polarization	Frequency (MHz)	Meter Reading dB (μV)	Antenna Factor (dB/m)	Cable Loss (dB)	Emission Level dB (μV/m)	Limits dB (μV/m)	Margin (dB)
Horizontal	30.970	3.19	19.03	0.91	23.13	40.00	16.87
	133.790	8.59	12.35	1.97	22.91	43.50	20.59
	148.340	16.89	11.41	2.07	30.37	43.50	13.13
	221.090	14.64	11.71	2.54	28.89	46.00	17.11
	375.320	5.45	15.99	3.50	24.94	46.00	21.06
	658.560	1.55	19.49	4.60	25.64	46.00	20.36
Vertical	30.970	16.19	19.03	0.91	36.13	40.00	3.87
	44.550	14.77	11.38	0.97	27.12	40.00	12.88
	60.070	16.52	6.60	1.22	24.34	40.00	15.66
	74.620	11.73	7.11	1.46	20.30	40.00	19.70
	220.120	12.08	11.66	2.54	26.28	46.00	19.72
	851.590	5.51	21.24	5.55	32.30	46.00	13.70

TEST ENGINEER: JACKY CHEN

EUT : LCD Monitor Temperature : 22°C

Model No. : W2242PMT Humidity : 60%RH

Serial No. : 805NDCRAS075 Date of Test : Jun 26, 2008

Test Mode : DVI 1680*1050@60Hz

Polarization	Frequency (MHz)	Meter Reading dB (μV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamplifier Factor (dB)	Emission Level dB (μV/m)	Limits dB (μV/m)	Margin (dB)	Remark
Horizontal	150.280	18.20	11.25	2.08	--	31.53	43.50	11.97	QP
	220.120	14.99	11.66	2.54	--	29.19	46.00	16.81	
	315.180	7.55	14.32	3.20	--	25.07	46.00	20.93	
	375.320	7.10	15.99	3.50	--	26.59	46.00	19.41	
	440.310	6.10	17.09	3.77	--	26.96	46.00	19.04	
	702.210	10.39	19.73	4.82	--	34.94	46.00	11.06	
	1229.000	51.86	23.05	6.82	37.10	44.63	74.00	29.37	PK
	1550.000	48.59	25.17	7.48	36.44	44.80	74.00	29.20	
	1667.000	46.96	25.92	8.12	36.22	44.78	74.00	29.22	
	1696.000	46.57	26.20	8.30	36.18	44.89	74.00	29.11	
	1789.000	49.94	25.85	8.58	36.02	48.35	74.00	25.65	
	1908.000	49.24	27.18	8.98	35.83	49.57	74.00	24.43	
Vertical	44.550	16.95	11.38	0.97	--	29.30	40.00	10.70	QP
	60.070	16.72	6.60	1.22	--	24.54	40.00	15.46	
	62.980	16.98	6.57	1.28	--	24.83	40.00	15.17	
	90.140	18.13	9.40	1.61	--	29.14	43.50	14.36	
	147.370	15.15	11.51	2.06	--	28.72	43.50	14.78	
	180.350	13.50	9.90	2.24	--	25.64	43.50	17.86	
	1229.000	51.86	23.05	6.82	37.10	44.63	74.00	29.37	PK
	1550.000	48.59	25.17	7.48	36.44	44.80	74.00	29.20	
	1667.000	46.96	25.92	8.12	36.22	44.78	74.00	29.22	
	1696.000	46.57	26.20	8.30	36.18	44.89	74.00	29.11	
	1789.000	49.94	25.85	8.58	36.02	48.35	74.00	25.65	
	1908.000	49.24	27.18	8.98	35.83	49.57	74.00	24.43	

TEST ENGINEER: JACKY CHEN

EUT : LCD Monitor Temperature : 22°C

Model No. : W2242PMT Humidity : 60%RH

Serial No. : 805NDCRAS075 Date of Test : Jun 26, 2008

Test Mode : DVI 640*480@60Hz
(Rotate 90 degree)

Polarization	Frequency (MHz)	Meter Reading dB (μV)	Antenna Factor (dB/m)	Cable Loss (dB)	Emission Level dB (μV/m)	Limits dB (μV/m)	Margin (dB)
Horizontal	30.970	13.30	17.55	0.91	31.76	40.00	8.24
	95.960	17.74	9.60	1.66	29.00	43.50	14.50
	190.050	24.30	8.25	2.29	34.84	43.50	8.66
	497.540	16.53	17.36	3.97	37.86	46.00	8.14
	683.780	17.92	18.98	4.75	41.65	46.00	4.35
	871.960	14.60	20.24	5.60	40.44	46.00	5.56
Vertical	71.710	22.29	5.57	1.43	29.29	40.00	10.71
	127.000	17.28	11.45	1.92	30.65	43.50	12.85
	190.050	26.40	8.25	2.29	36.94	43.50	6.56
	315.180	13.59	13.40	3.20	30.19	46.00	15.81
	443.220	18.52	16.33	3.79	38.64	46.00	7.36
	683.780	18.17	18.98	4.75	41.90	46.00	4.10

TEST ENGINEER: JACKY CHEN

5 DEVIATION TO TEST SPECIFICATIONS

None.

6 DEBUG DESCRIPTION

The following components are used during the countermeasure procedures:

Name	M/N	Specifications (mm)	Manufacturer	Location
Aluminum foil	T-308	50mm*30mm	DAEHUNG	See Internal Photos 20
Conductive Tape	3940TKK09	45*80*0.5	Yisipan	See Internal Photos 21