

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

LCD Monitor

Model No.: W2254TQV

Serial No.: E2008112704

FCC ID : BEJW2254TQV

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

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Report No. : ACI-F08070
Date of Test : Dec 02 – 03, 2008
Date of Report : Dec 08, 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	28
6 DEBUG DESCRIPTION	29

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. : W2254TQV
(B) Serial No. : E2008112704
(C) Power Supply : 120V/60Hz

Test Procedure Used:

*FCC RULES AND REGULATIONS PART 15 SUBPART B CLASS B OCTOBER 2008
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: W2254TQV; S/N: E2008112704) which was tested in 3m anechoic chamber on Dec 02 – 03, 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 : Dec 02 – 03, 2008 Date of Report : Dec 08, 2008

Producer : Kathy Wang
KATHY WANG / Assistant

Review : Dio Yang
DIO YANG / Supervisor

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

.....Sammy Chen
Signatory :
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 Terminal	FCC RULES AND REGULATIONS PART 15 SUBPART B OCTOBER 2008 AND ANSI C63.4-2003	15.107(a) Class B	Pass
Radiated Disturbance	FCC RULES AND REGULATIONS PART 15 SUBPART B OCTOBER 2008 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.	:	W2254TQV
Serial No.	:	E2008112704
Real Power	:	45.00W
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 Display M/N : LM220WE1 (TL) (E1)
Max Resolution	:	1680*1050@60Hz
D-Sub Cable #1	:	Shielded, Detachable, 1.85m, with two cores on cable
D-Sub Cable #2	:	Shielded, Detachable, 1.85m, with two cores in connector
DVI Cable #1	:	Shielded, Detachable, 1.85m, with two cores on cable
DVI Cable #2	:	Shielded, Detachable, 1.85m, with two cores in connector
Power Cord	:	Unshielded, Detachable, 1.80m
Note	:	After evaluation, the D-Sub cable#1 and DVI cable#1 were used in the test for they will cause the maximum emission.

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 AC In Port : Connected with Power

2.2 Peripherals

2.2.1 PC

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

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 = 1.26 dB
Radiated Emission Expanded Uncertainty : U = 3.02 dB

3 CONDUCTED EMISSION TEST

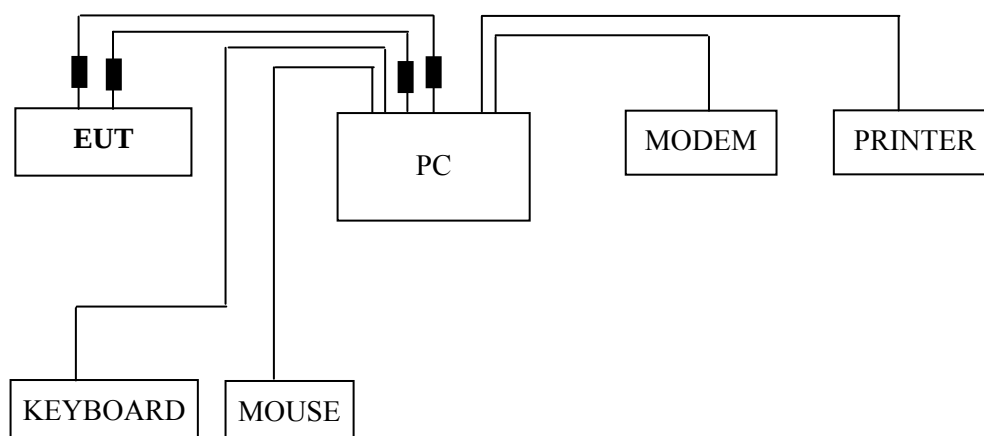
3.1.1 Test Equipment

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	Apr 02, 2008	Apr 02, 2009
2.	Artificial Mains Network (AMN)	R&S	ESH2-Z5	843890/011	Apr 02, 2008	Apr 02, 2009
3.	Line Impedance Stabilization Network (LISN)	Kyoritsu	KNW-407	8-1280-4	Apr 02, 2008	Apr 02, 2009
4.	50 Ω Coaxial Switch	Anritsu	MP59B	6200426389	Sep 19, 2008	Mar 19, 2009
5.	50 Ω Terminator	Anritsu	BNC	001	Apr 02, 2008	Apr 02, 2009
6.	Software	Audix	E3	SET00200 9804M592	--	--

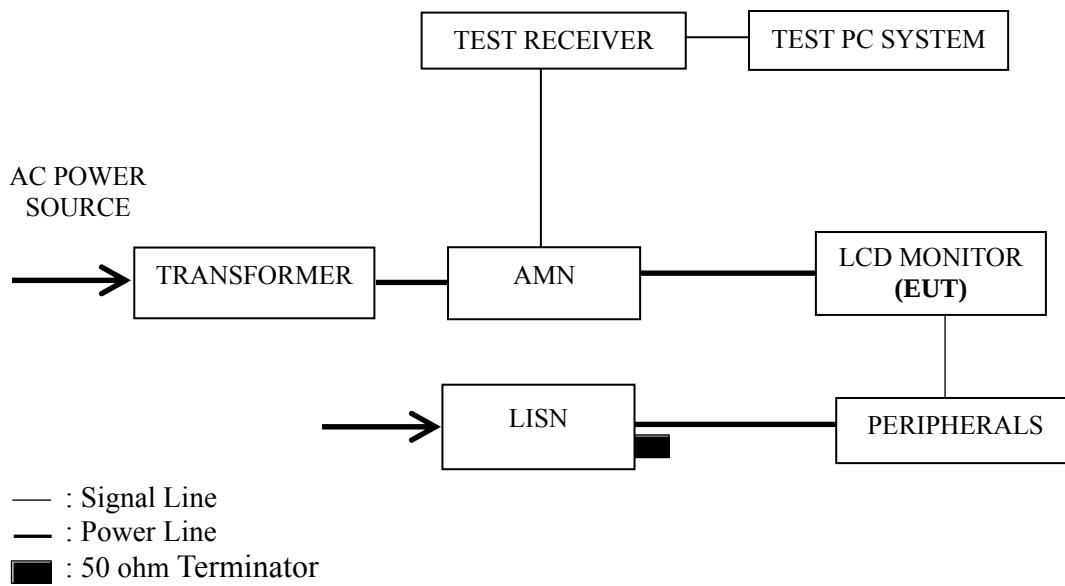
3.2 Block Diagram of Test Setup

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 Repeat above procedure from 3.5.3 to 3.5.4 for difference test mode.

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

3.5.7 The test modes are as follows:

Test Mode
D-Sub 640*480@60Hz
D-Sub 1024*768@60Hz
D-Sub 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
D-Sub 640*480@60Hz	P12
D-Sub 1024*768@60Hz	P13
D-Sub 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 D-Sub 640*480@60Hz test mode. The worst emission is detected at 25.591 MHz (Average Value) with corrected signal level of 43.27 dB (μV) (limit is 50.00 dB (μV)), when the Neutral of the EUT is connected to AMN.

EUT : LCD Monitor Temperature : 21°C

Model No. : W2254TQV Humidity : 50%RH

Serial No. : E2008112704 Date of Test : Dec 02, 2008

Test Mode : D-Sub 640*480@60Hz

Test Line	Frequency (MHz)	Meter Reading dB(μV)	Factor (dB)	Emission Level dB(μV)	Limits dB(μV)	Margin (dB)	Remark
Line	0.214	43.05	0.21	43.26	63.05	19.79	QP
	0.286	39.08	0.22	39.30	60.63	21.33	
	0.712	38.88	0.23	39.11	56.00	16.89	
	3.565	35.28	0.35	35.63	56.00	20.37	
	5.836	35.09	0.44	35.53	60.00	24.47	
	17.849	32.73	0.72	33.45	60.00	26.55	
	0.214	37.49	0.21	37.70	53.05	15.35	AV
	0.286	33.26	0.22	33.48	50.63	17.15	
	0.712	33.20	0.23	33.43	46.00	12.57	
	3.565	29.10	0.35	29.45	46.00	16.55	
	5.836	28.30	0.44	28.74	50.00	21.26	
	17.849	27.50	0.72	28.22	50.00	21.78	
Neutral	0.214	43.07	0.21	43.28	63.05	19.77	QP
	0.283	38.36	0.22	38.58	60.72	22.14	
	0.712	36.88	0.23	37.11	56.00	18.89	
	3.565	36.57	0.32	36.89	56.00	19.11	
	11.683	40.34	0.59	40.93	60.00	19.07	
	25.591	46.57	0.70	47.27	60.00	12.73	
	0.214	37.07	0.21	37.28	53.05	15.77	AV
	0.283	34.36	0.22	34.58	50.72	16.14	
	0.712	31.88	0.23	32.11	46.00	13.89	
	3.565	32.57	0.32	32.89	46.00	13.11	
	11.683	35.34	0.59	35.93	50.00	14.07	
	25.591	42.57	0.70	43.27	50.00	6.73	

TEST ENGINEER: YONG XU

EUT : LCD Monitor Temperature : 21°C

Model No. : W2254TQV Humidity : 50%RH

Serial No. : E2008112704 Date of Test : Dec 02, 2008

Test Mode : D-Sub 1024*768@60Hz

Test Line	Frequency (MHz)	Meter Reading dB(μV)	Factor (dB)	Emission Level dB(μV)	Limits dB(μV)	Margin (dB)	Remark
Line	0.214	43.27	0.21	43.48	63.05	19.57	QP
	0.283	38.19	0.22	38.41	60.72	22.31	
	0.712	38.88	0.23	39.11	56.00	16.89	
	3.779	34.69	0.35	35.04	56.00	20.96	
	10.620	34.07	0.61	34.68	60.00	25.32	
	11.683	33.52	0.65	34.17	60.00	25.83	
	0.214	37.59	0.21	37.80	53.05	15.25	AV
	0.283	33.23	0.22	33.45	50.72	17.27	
	0.712	32.64	0.23	32.87	46.00	13.13	
	3.779	28.48	0.35	28.83	46.00	17.17	
	10.620	27.31	0.61	27.92	50.00	22.08	
	11.683	27.45	0.65	28.10	50.00	21.90	
Neutral	0.214	42.71	0.21	42.92	63.05	20.13	QP
	0.286	37.99	0.22	38.21	60.63	22.42	
	0.712	36.90	0.23	37.13	56.00	18.87	
	3.074	32.26	0.30	32.56	56.00	23.44	
	5.836	35.84	0.40	36.24	60.00	23.76	
	11.683	40.59	0.59	41.18	60.00	18.82	
	0.214	37.71	0.21	37.92	53.05	15.13	AV
	0.286	33.99	0.22	34.21	50.63	16.42	
	0.712	32.90	0.23	33.13	46.00	12.87	
	3.074	28.26	0.30	28.56	46.00	17.44	
	5.836	31.84	0.40	32.24	50.00	17.76	
	11.683	37.59	0.59	38.18	50.00	11.82	

TEST ENGINEER: YONG XU

EUT : LCD Monitor Temperature : 21°C

Model No. : W2254TQV Humidity : 50%RH

Serial No. : E2008112704 Date of Test : Dec 02, 2008

Test Mode : D-Sub 1680*1050@60Hz

Test Line	Frequency (MHz)	Meter Reading dB(μV)	Factor (dB)	Emission Level dB(μV)	Limits dB(μV)	Margin (dB)	Remark
Line	0.214	42.89	0.21	43.10	63.05	19.95	QP
	0.288	35.95	0.22	36.17	60.59	24.42	
	0.712	38.90	0.23	39.13	56.00	16.87	
	3.346	34.84	0.34	35.18	56.00	20.82	
	11.080	34.45	0.62	35.07	60.00	24.93	
	23.387	36.19	0.84	37.03	60.00	22.97	
	0.214	36.26	0.21	36.47	53.05	16.58	AV
	0.288	30.26	0.22	30.48	50.59	20.11	
	0.712	33.13	0.23	33.36	46.00	12.64	
	3.346	29.14	0.34	29.48	46.00	16.52	
	11.080	29.54	0.62	30.16	50.00	19.84	
	23.387	31.21	0.84	32.05	50.00	17.95	
Neutral	0.214	42.63	0.21	42.84	63.05	20.21	QP
	0.332	32.37	0.22	32.59	59.40	26.81	
	1.426	23.63	0.26	23.89	56.00	32.11	
	5.836	35.49	0.40	35.89	60.00	24.11	
	11.683	40.34	0.59	40.93	60.00	19.07	
	25.727	46.51	0.71	47.22	60.00	12.78	
	0.214	37.63	0.21	37.84	53.05	15.21	AV
	0.332	27.37	0.22	27.59	49.40	21.81	
	1.426	17.63	0.26	17.89	46.00	28.11	
	5.836	30.49	0.40	30.89	50.00	19.11	
	11.683	35.34	0.59	35.93	50.00	14.07	
	25.727	41.51	0.71	42.22	50.00	7.78	

TEST ENGINEER: YONG XU

EUT : LCD Monitor Temperature : 21°C

Model No. : W2254TQV Humidity : 50%RH

Serial No. : E2008112704 Date of Test : Dec 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	0.213	41.44	0.21	41.65	63.10	21.45	QP
	0.283	38.01	0.22	38.23	60.72	22.49	
	0.712	35.10	0.23	35.33	56.00	20.67	
	3.565	32.90	0.35	33.25	56.00	22.75	
	10.963	38.63	0.62	39.25	60.00	20.75	
	21.600	46.20	0.78	46.98	60.00	13.02	
	0.213	35.26	0.21	35.47	53.10	17.63	AV
	0.283	32.15	0.22	32.37	50.72	18.35	
	0.712	30.20	0.23	30.43	46.00	15.57	
	3.565	26.30	0.35	26.65	46.00	19.35	
	10.963	32.30	0.62	32.92	50.00	17.08	
	21.600	41.50	0.78	42.28	50.00	7.72	
Neutral	0.213	42.06	0.21	42.27	63.10	20.83	QP
	0.283	38.88	0.22	39.10	60.72	21.62	
	0.712	37.79	0.23	38.02	56.00	17.98	
	3.779	33.44	0.32	33.76	56.00	22.24	
	11.317	34.43	0.59	35.02	60.00	24.98	
	14.986	33.51	0.57	34.08	60.00	25.92	
	0.213	36.06	0.21	36.27	53.10	16.83	AV
	0.283	32.88	0.22	33.10	50.72	17.62	
	0.712	31.79	0.23	32.02	46.00	13.98	
	3.779	27.44	0.32	27.76	46.00	18.24	
	11.317	29.43	0.59	30.02	50.00	19.98	
	14.986	28.51	0.57	29.08	50.00	20.92	

TEST ENGINEER: YONG XU

EUT : LCD Monitor Temperature : 21°C

Model No. : W2254TQV Humidity : 50%RH

Serial No. : E2008112704 Date of Test : Dec 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	0.213	41.54	0.21	41.75	63.10	21.35	QP
	0.286	38.07	0.22	38.29	60.63	22.34	
	0.712	35.36	0.23	35.59	56.00	20.41	
	3.985	34.23	0.36	34.59	56.00	21.41	
	11.317	39.30	0.63	39.93	60.00	20.07	
	21.600	46.88	0.78	47.66	60.00	12.34	
	0.213	35.23	0.21	35.44	53.10	17.66	AV
	0.286	32.16	0.22	32.38	50.63	18.25	
	0.712	29.16	0.23	29.39	46.00	16.61	
	3.985	28.14	0.36	28.50	46.00	17.50	
	11.317	32.21	0.63	32.84	50.00	17.16	
	21.600	40.10	0.78	40.88	50.00	9.12	
Neutral	0.213	41.82	0.21	42.03	63.10	21.07	QP
	0.286	38.34	0.22	38.56	60.63	22.07	
	0.712	38.09	0.23	38.32	56.00	17.68	
	1.568	24.89	0.26	25.15	56.00	30.85	
	5.836	34.30	0.40	34.70	60.00	25.30	
	14.594	33.95	0.57	34.52	60.00	25.48	
	0.213	35.19	0.21	35.40	53.10	17.70	AV
	0.286	32.10	0.22	32.32	50.63	18.31	
	0.712	33.20	0.23	33.43	46.00	12.57	
	1.568	20.10	0.26	20.36	46.00	25.64	
	5.836	27.46	0.40	27.86	50.00	22.14	
	14.594	27.60	0.57	28.17	50.00	21.83	

TEST ENGINEER: YONG XU

EUT : LCD Monitor Temperature : 21°C

Model No. : W2254TQV Humidity : 50%RH

Serial No. : E2008112704 Date of Test : Dec 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	0.213	41.64	0.21	41.85	63.10	21.25	QP
	0.283	38.13	0.22	38.35	60.72	22.37	
	0.617	30.78	0.22	31.00	56.00	25.00	
	3.276	30.59	0.34	30.93	56.00	25.07	
	11.317	39.66	0.63	40.29	60.00	19.71	
	20.594	44.14	0.74	44.88	60.00	15.12	
	0.213	33.64	0.21	33.85	53.10	19.25	AV
	0.283	33.13	0.22	33.35	50.72	17.37	
	0.617	23.78	0.22	24.00	46.00	22.00	
	3.276	24.59	0.34	24.93	46.00	21.07	
	11.317	35.66	0.63	36.29	50.00	13.71	
	20.594	40.14	0.74	40.88	50.00	9.12	
Neutral	0.213	41.76	0.21	41.97	63.10	21.13	QP
	0.286	38.48	0.22	38.70	60.63	21.93	
	0.712	38.09	0.23	38.32	56.00	17.68	
	3.985	33.21	0.33	33.54	56.00	22.46	
	11.317	35.52	0.59	36.11	60.00	23.89	
	14.986	33.53	0.57	34.10	60.00	25.90	
	0.213	36.76	0.21	36.97	53.10	16.13	AV
	0.286	34.48	0.22	34.70	50.63	15.93	
	0.712	32.09	0.23	32.32	46.00	13.68	
	3.985	28.21	0.33	28.54	46.00	17.46	
	11.317	29.52	0.59	30.11	50.00	19.89	
	14.986	28.53	0.57	29.10	50.00	20.90	

TEST ENGINEER: YONG XU

4 RADIATED EMISSION TEST

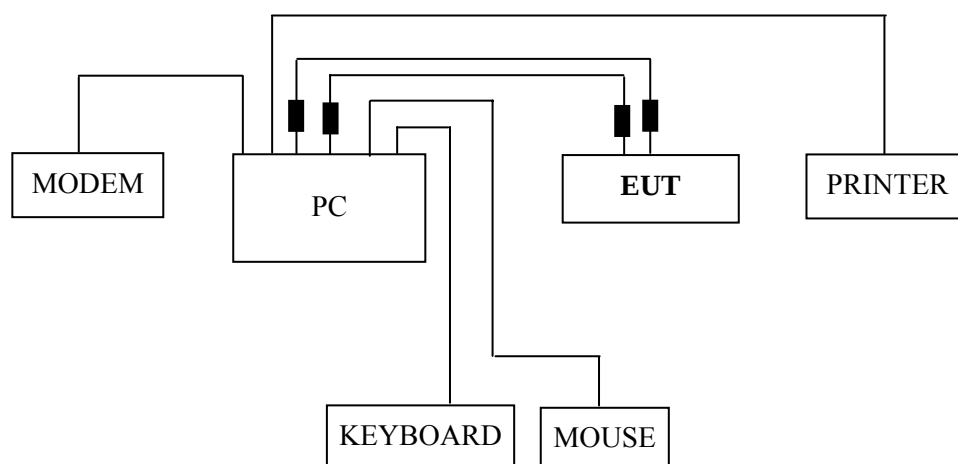
4.1 Test Equipment

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	Mar 07, 2008	Mar 07, 2009
2.	Preamplifier	Agilent	8447D	2944A10548	Sep 19, 2008	Mar 19, 2009
3.	Preamplifier	HP	8449B	3008A00864	May 19, 2008	May 19, 2009
4.	Bi-log Antenna	TESEQ	CBL6112D	23193	May 14, 2008	May 14, 2009
5.	Spectrum	Agilent	E7405A	MY45106600	May 19, 2008	May 19, 2009
6.	Software	Audix	E3	SET00200 9912M295-2	--	--

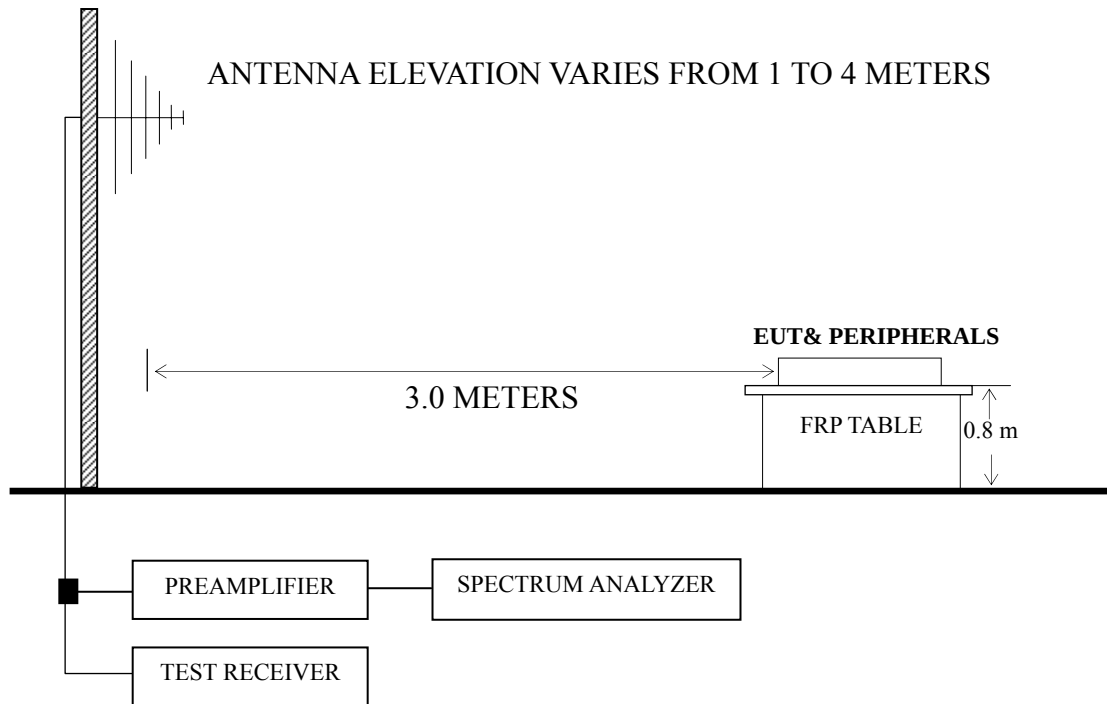
4.2 Block Diagram of Test Setup

4.2.1 EUT and Peripherals



■ : Ferrite core

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 D-Sub /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
D-Sub 640*480@60Hz	P22
D-Sub 1024*768@60Hz	P23
D-Sub 1680*1050@60Hz	P24
DVI 640*480@60Hz	P25
DVI 1024*768@60Hz	P26
DVI 1680*1050@60Hz	P27

- NOTE 1 – Emission Level = Antenna Factor + Cable Loss + Meter Reading.(< 1GHz)
- NOTE 2 – Emission Level = Antenna Factor + Cable Loss – Preamp Factor + Meter Reading.(> 1GHz)
- 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. For measurements above 1 GHz, the peak measured value complies with the average limit, it is unnecessary to perform an average measurement.
- NOTE 6 – The worst case is for D-Sub 1680*1050@60Hz test mode. The worst emission at horizontal polarization was detected at 159.010MHz with corrected signal level of 39.05 dB (μV/m) (limit is 43.50 dB (μV/m)), when the antenna was 1.20 m height and the turntable was at 120°. The worst emission at vertical polarization was detected at 159.010 MHz with corrected signal level of 40.25 dB (μV/m) (limit is 43.50 dB (μV/m)), when the antenna was 1.00 m height and the turntable was at 240°.

EUT : LCD Monitor Temperature : 22°C

Model No. : W2254TQV Humidity : 60%RH

Serial No. : E2008112704 Date of Test : Dec 03, 2008

Test Mode : D-Sub 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	93.050	15.32	10.09	0.85	26.26	43.50	17.24
	133.790	21.89	12.35	0.90	35.14	43.50	8.36
	200.720	26.00	10.74	1.08	37.82	43.50	5.68
	250.190	20.14	12.90	1.27	34.31	46.00	11.69
	338.460	19.96	14.98	1.75	36.69	46.00	9.31
	762.350	12.85	20.33	3.25	36.43	46.00	9.57
Vertical	57.160	28.64	7.18	0.81	36.63	40.00	3.37
	93.050	23.66	10.09	0.85	34.60	43.50	8.90
	200.720	25.39	10.74	1.08	37.21	43.50	6.29
	250.190	20.44	12.90	1.27	34.61	46.00	11.39
	602.300	17.38	19.21	2.59	39.18	46.00	6.82
	859.350	11.07	21.31	3.44	35.82	46.00	10.18

TEST ENGINEER: RAVEN JIN

EUT : LCD Monitor Temperature : 22°C

Model No. : W2254TQV Humidity : 60%RH

Serial No. : E2008112704 Date of Test : Dec 03, 2008

Test Mode : D-Sub 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	107.600	19.68	12.10	0.86	32.64	43.50	10.86
	133.790	23.87	12.35	0.90	37.12	43.50	6.38
	200.720	27.00	10.74	1.08	38.82	43.50	4.68
	331.670	22.23	14.78	1.71	38.72	46.00	7.28
	602.300	15.67	19.21	2.59	37.47	46.00	8.53
	803.090	15.12	20.73	3.34	39.19	46.00	6.81
Vertical	57.160	26.67	7.18	0.81	34.66	40.00	5.34
	87.230	22.11	8.96	0.86	31.93	40.00	8.07
	152.220	23.42	11.09	0.93	35.44	43.50	8.06
	172.590	24.21	10.11	1.00	35.32	43.50	8.18
	200.720	23.45	10.74	1.08	35.27	43.50	8.23
	602.300	15.68	19.21	2.59	37.48	46.00	8.52

TEST ENGINEER: RAVEN JIN

EUT : LCD Monitor Temperature : 22°C

Model No. : W2254TQV Humidity : 60%RH

Serial No. : E2008112704 Date of Test : Dec 03, 2008

Test Mode : D-Sub 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	93.050	19.07	10.09	0.85	--	30.01	43.50	13.49	QP
	134.760	20.70	12.30	0.90	--	33.90	43.50	9.60	
	159.010	27.51	10.59	0.95	--	39.05	43.50	4.45	
	198.780	25.67	10.64	1.08	--	37.39	43.50	6.11	
	330.700	22.50	14.74	1.71	--	38.95	46.00	7.05	
	803.090	12.44	20.73	3.34	--	36.51	46.00	9.49	
	1316.000	52.02	24.62	4.42	36.90	44.16	74.00	29.84	PK
	1385.000	53.87	25.13	4.54	36.76	46.78	74.00	27.22	
	1497.000	51.20	25.80	4.71	36.53	45.18	74.00	28.82	
	1578.000	52.90	26.29	4.88	36.38	47.69	74.00	26.31	
	1637.000	51.96	26.49	4.99	36.27	47.17	74.00	26.83	
	1775.000	51.82	26.85	5.20	36.04	47.83	74.00	26.17	
Vertical	39.700	19.84	14.08	0.68	--	34.60	40.00	5.40	QP
	57.160	27.85	7.18	0.81	--	35.84	40.00	4.16	
	93.050	25.03	10.09	0.85	--	35.97	43.50	7.53	
	159.010	28.71	10.59	0.95	--	40.25	43.50	3.25	
	200.720	27.01	10.74	1.08	--	38.83	43.50	4.67	
	602.300	17.37	19.21	2.59	--	39.17	46.00	6.83	
	1321.000	56.28	24.66	4.42	36.89	48.47	74.00	25.53	PK
	1386.000	51.24	25.13	4.54	36.76	44.15	74.00	29.85	
	1497.000	52.65	25.80	4.71	36.53	46.63	74.00	27.37	
	1586.000	52.45	26.33	4.88	36.37	47.29	74.00	26.71	
	1638.000	51.89	26.49	5.02	36.27	47.13	74.00	26.87	
	1781.000	53.49	26.85	5.20	36.03	49.51	74.00	24.49	

TEST ENGINEER: RAVEN JIN

EUT : LCD Monitor Temperature : 22°C

Model No. : W2254TQV Humidity : 60%RH

Serial No. : E2008112704 Date of Test : Dec 03, 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	133.790	20.34	12.35	0.90	33.59	43.50	9.91
	200.720	23.48	10.74	1.08	35.30	43.50	8.20
	231.760	20.53	12.20	1.21	33.94	46.00	12.06
	343.310	17.86	15.11	1.77	34.74	46.00	11.26
	762.350	12.04	20.33	3.25	35.62	46.00	10.38
	885.540	15.63	21.56	3.48	40.67	46.00	5.33
Vertical	57.160	27.23	7.18	0.81	35.22	40.00	4.78
	139.610	20.05	12.12	0.91	33.08	43.50	10.42
	190.050	23.51	10.30	1.05	34.86	43.50	8.64
	350.100	17.98	15.33	1.80	35.11	46.00	10.89
	602.300	16.02	19.21	2.59	37.82	46.00	8.18
	859.350	13.80	21.31	3.44	38.55	46.00	7.45

TEST ENGINEER: RAVEN JIN

EUT : LCD Monitor Temperature : 22°C

Model No. : W2254TQV Humidity : 60%RH

Serial No. : E2008112704 Date of Test : Dec 03, 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	132.820	19.39	12.40	0.90	32.69	43.50	10.81
	141.550	22.35	12.01	0.91	35.27	43.50	8.23
	200.720	23.75	10.74	1.08	35.57	43.50	7.93
	343.310	18.34	15.11	1.77	35.22	46.00	10.78
	763.320	12.46	20.36	3.25	36.07	46.00	9.93
	886.510	17.33	21.56	3.50	42.39	46.00	3.61
Vertical	30.970	16.82	19.03	0.57	36.42	40.00	3.58
	56.190	28.20	7.46	0.80	36.46	40.00	3.54
	140.580	22.15	12.05	0.91	35.11	43.50	8.39
	200.720	26.11	10.74	1.08	37.93	43.50	5.57
	602.300	16.75	19.21	2.59	38.55	46.00	7.45
	886.510	13.03	21.56	3.50	38.09	46.00	7.91

TEST ENGINEER: RAVEN JIN

EUT : LCD Monitor Temperature : 22°C

Model No. : W2254TQV Humidity : 60%RH

Serial No. : E2008112704 Date of Test : Dec 03, 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	139.610	23.13	12.12	0.91	--	36.16	43.50	7.34	QP
	153.190	22.66	11.04	0.93	--	34.63	43.50	8.87	
	200.720	23.55	10.74	1.08	--	35.37	43.50	8.13	
	602.300	16.89	19.21	2.59	--	38.69	46.00	7.31	
	763.320	10.98	20.36	3.25	--	34.59	46.00	11.41	
	856.440	10.04	21.28	3.44	--	34.76	46.00	11.24	
	1313.000	49.73	24.62	4.39	36.91	41.83	74.00	32.17	PK
	1385.000	52.37	25.13	4.54	36.76	45.28	74.00	28.72	
	1436.000	50.08	25.41	4.63	36.65	43.47	74.00	30.53	
	1577.000	52.91	26.26	4.88	36.38	47.67	74.00	26.33	
	1639.000	52.01	26.50	5.02	36.27	47.26	74.00	26.74	
	1781.000	53.50	26.85	5.20	36.03	49.52	74.00	24.48	
Vertical	30.970	16.48	19.03	0.57	--	36.08	40.00	3.92	QP
	57.160	28.63	7.18	0.81	--	36.62	40.00	3.38	
	140.580	21.91	12.05	0.91	--	34.87	43.50	8.63	
	195.870	24.73	10.54	1.07	--	36.34	43.50	7.16	
	602.300	16.05	19.21	2.59	--	37.85	46.00	8.15	
	886.510	15.18	21.56	3.50	--	40.24	46.00	5.76	
	1309.000	58.34	24.58	4.39	36.92	50.39	74.00	23.61	PK
	1385.000	53.85	25.13	4.54	36.76	46.76	74.00	27.24	
	1575.000	52.63	26.26	4.88	36.38	47.39	74.00	26.61	
	1638.000	52.60	26.49	5.02	36.27	47.84	74.00	26.16	
	1781.000	55.26	26.85	5.20	36.03	51.28	74.00	22.72	
	1845.000	49.06	27.17	5.23	35.93	45.53	74.00	28.47	

TEST ENGINEER: RAVEN JIN

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	50*30	DAEHUNG SUBSIDIARY MATERIALS.	See Internal Photos Figure 1, 2, 15, 16