

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

LCD Monitor

Model No.: W2244TV

Serial No.: 910NDRF3Q230

FCC ID : BEJW2244TV

Prepared For : LG Electronics U.S.A., Inc.
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NJ 07632, United States

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Report No. : ACI-F09103
Date of Test : Oct 22 – 23, 2009
Date of Report : Oct 28, 2009

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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. : W2244TV
(B) Serial No. : 910NDRF3Q230
(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: W2244TV; S/N: 910NDRF3Q230) which was tested in 3m anechoic chamber Oct 22 – 23, 2009 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 : Oct 22 – 23, 2009 Date of Report : Oct 28, 2009

Producer : Alan He
ALAN HE / Assistant

Review : Dio Yang
DIO YANG / Deputy Assistant Manager

 For and on behalf of
Audix Technology (Shanghai) Co., Ltd.

Signatory : Sammy Chen
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.	:	W2244TV
Serial No.	:	910NDRF3Q230
Real Power	:	40.00W
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 : AU Optronics M/N : M215HW01
Max Resolution	:	1920*1080@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
Apr 29, 2009 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

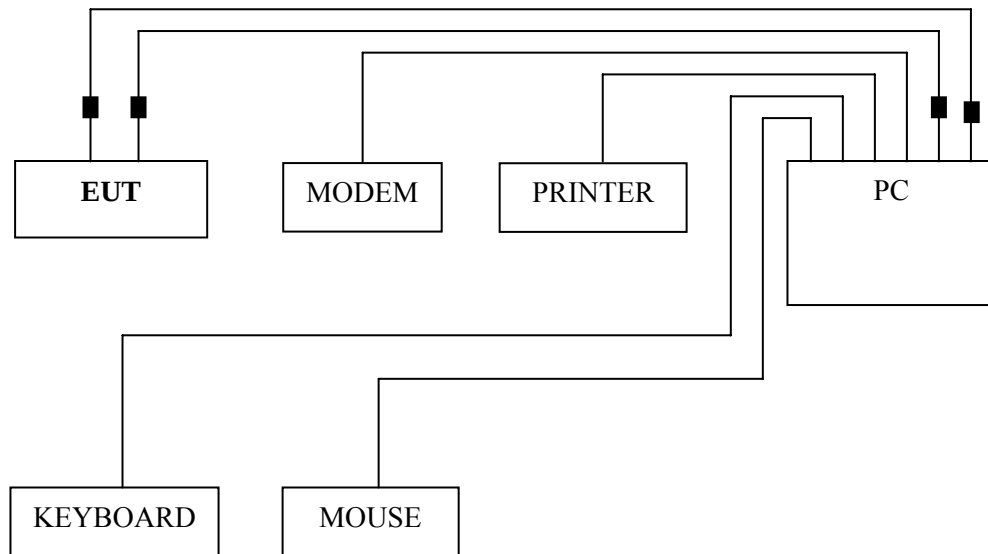
3.1 Test Equipment

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	ESCI	100841	Nov 21, 2008	Nov 21, 2009
2.	Line Impedance Stabilization Network (LISN #1)	Schwarzbeck	NNLK8129	8129-164	Apr 02, 2009	Apr 02, 2010
3.	Line Impedance Stabilization Network (LISN #2)	Kyoritsu	KNW-407	8-1280-4	Apr 02, 2009	Apr 02, 2010
4.	50 Ω Coaxial Switch	Anritsu	MP59B	6200426389	Sep 19, 2009	Mar 19, 2010
5.	50 Ω Terminator	Anritsu	BNC	001	Apr 02, 2009	Apr 02, 2010
6.	Software	Audix	E3	SET00200 9804M592	--	--

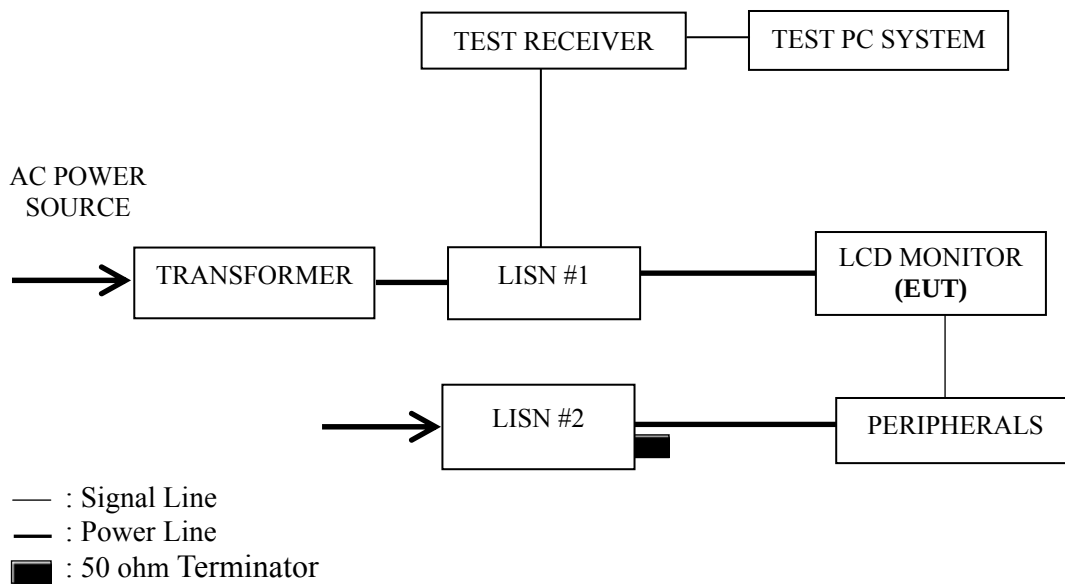
3.2 Block Diagram of Test Setup

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 or 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	DVI 640*480@60Hz
D-Sub 1280*1024@60Hz	DVI 1280*1024@60Hz
D-Sub 1920*1080@60Hz	DVI 1920*1080@60Hz

3.6 Test Procedures

The EUT and peripherals were connected to the power mains through a Line Impedance Stabilization Network (LISN). 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 ESCI was set at 9 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 1280*1024@60Hz	P13
D-Sub 1920*1080@60Hz	P14
DVI 640*480@60Hz	P15
DVI 1280*1024@60Hz	P16
DVI 1920*1080@60Hz	P17

NOTE 1 –The **bold test mode** listed above means the worst test mode.

NOTE 2 – Factor = Cable Loss + LISN Factor.

NOTE 3 – Emission Level = Meter Reading + Factor.

NOTE 4 – “QP” means “Quasi-Peak” values, “AV” means “Average” values.

NOTE 5 – The worst case is for DVI 1920*1080@60Hz test mode. The worst emission is detected at 0.211 MHz (Average Value) with corrected signal level of 46.35 dB (μV) (limit is 53.18dB (μV)), when the Line of the EUT is connected to LISN.

EUT : LCD Monitor Temperature : 21°C

Model No. : W2244TV Humidity : 50%RH

Serial No. : 910NDRF3Q230 Date of Test : Oct 22, 2009

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	0.213	51.36	0.18	51.54	63.10	11.56	QP
	0.352	38.92	0.17	39.09	58.91	19.82	
	0.665	35.25	0.18	35.43	56.00	20.57	
	3.985	32.88	0.33	33.21	56.00	22.79	
	6.285	38.05	0.34	38.39	60.00	21.61	
	26.558	44.30	0.54	44.84	60.00	15.16	
	0.213	43.88	0.18	44.06	53.10	9.04	AV
	0.352	32.09	0.17	32.26	48.91	16.65	
	0.665	31.37	0.18	31.55	46.00	14.45	
	3.985	24.08	0.33	24.41	46.00	21.59	
	6.285	27.06	0.34	27.40	50.00	22.60	
	26.558	32.81	0.54	33.35	50.00	16.65	
Neutral	0.160	50.16	0.19	50.35	65.47	15.12	QP
	0.348	38.99	0.18	39.17	59.00	19.83	
	0.665	36.02	0.20	36.22	56.00	19.78	
	3.985	31.23	0.34	31.57	56.00	24.43	
	6.285	30.48	0.35	30.83	60.00	29.17	
	26.139	32.67	0.58	33.25	60.00	26.75	
	0.160	39.87	0.19	40.06	55.47	15.41	AV
	0.348	34.03	0.18	34.21	49.00	14.79	
	0.665	29.10	0.20	29.30	46.00	16.70	
	3.985	18.21	0.34	18.55	46.00	27.45	
	6.285	18.20	0.35	18.55	50.00	31.45	
	26.139	19.07	0.58	19.65	50.00	30.35	

TEST ENGINEER: HUGH HUANG

EUT : LCD Monitor Temperature : 21°C

Model No. : W2244TV Humidity : 50%RH

Serial No. : 910NDRF3Q230 Date of Test : Oct 22, 2009

Test Mode : D-Sub 1280*1024@60Hz

Test Line	Frequency (MHz)	Meter Reading dB(μV)	Factor (dB)	Emission Level dB(μV)	Limits dB(μV)	Margin (dB)	Remark
Line	0.160	52.42	0.18	52.60	65.47	12.87	QP
	0.317	33.75	0.18	33.93	59.80	25.87	
	0.665	36.87	0.18	37.05	56.00	18.95	
	3.985	32.16	0.33	32.49	56.00	23.51	
	5.867	35.94	0.34	36.28	60.00	23.72	
	24.529	44.08	0.51	44.59	60.00	15.41	
	0.160	32.25	0.18	32.43	55.47	23.04	AV
	0.317	23.76	0.18	23.94	49.80	25.86	
	0.665	31.04	0.18	31.22	46.00	14.78	
	3.985	19.80	0.33	20.13	46.00	25.87	
	5.867	22.01	0.34	22.35	50.00	27.65	
	24.529	37.13	0.51	37.64	50.00	12.36	
Neutral	0.160	49.74	0.19	49.93	65.47	15.54	QP
	0.313	34.08	0.18	34.26	59.88	25.62	
	0.665	31.73	0.20	31.93	56.00	24.07	
	3.074	17.18	0.33	17.51	56.00	38.49	
	6.285	24.46	0.35	24.81	60.00	35.19	
	24.529	26.75	0.56	27.31	60.00	32.69	
	0.160	27.60	0.19	27.79	55.47	27.68	AV
	0.313	8.07	0.18	8.25	49.88	41.63	
	0.665	31.93	0.20	32.13	46.00	13.87	
	3.074	10.85	0.33	11.18	46.00	34.82	
	6.285	19.37	0.35	19.72	50.00	30.28	
	24.529	20.16	0.56	20.72	50.00	29.28	

TEST ENGINEER: HUGH HUANG

EUT : LCD Monitor Temperature : 21°C

Model No. : W2244TV Humidity : 50%RH

Serial No. : 910NDRF3Q230 Date of Test : Oct 22, 2009

Test Mode : D-Sub 1920*1080@60Hz

Test Line	Frequency (MHz)	Meter Reading dB(μV)	Factor (dB)	Emission Level dB(μV)	Limits dB(μV)	Margin (dB)	Remark
Line	0.160	51.29	0.18	51.47	65.47	14.00	QP
	0.313	33.47	0.18	33.65	59.88	26.23	
	0.665	35.20	0.18	35.38	56.00	20.62	
	3.985	32.30	0.33	32.63	56.00	23.37	
	5.867	34.80	0.34	35.14	60.00	24.86	
	24.790	41.55	0.51	42.06	60.00	17.94	
	0.160	27.88	0.18	28.06	55.47	27.41	AV
	0.313	20.12	0.18	20.30	49.88	29.58	
	0.665	30.38	0.18	30.56	46.00	15.44	
	3.985	20.41	0.33	20.74	46.00	25.26	
	5.867	23.45	0.34	23.79	50.00	26.21	
	24.790	29.47	0.51	29.98	50.00	20.02	
Neutral	0.160	50.01	0.19	50.20	65.47	15.27	QP
	0.313	34.93	0.18	35.11	59.88	24.77	
	0.665	36.82	0.20	37.02	56.00	18.98	
	3.985	28.92	0.34	29.26	56.00	26.74	
	5.594	28.65	0.35	29.00	60.00	31.00	
	23.387	31.01	0.55	31.56	60.00	28.44	
	0.160	33.82	0.19	34.01	55.47	21.46	AV
	0.313	21.98	0.18	22.16	49.88	27.72	
	0.665	32.76	0.20	32.96	46.00	13.04	
	3.985	20.38	0.34	20.72	46.00	25.28	
	5.594	23.52	0.35	23.87	50.00	26.13	
	23.387	19.03	0.55	19.58	50.00	30.42	

TEST ENGINEER: HUGH HUANG

EUT : LCD Monitor Temperature : 21°C

Model No. : W2244TV Humidity : 50%RH

Serial No. : 910NDRF3Q230 Date of Test : Oct 22, 2009

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	0.160	45.61	0.18	45.79	65.47	19.68	QP
	0.352	36.37	0.17	36.54	58.91	22.37	
	0.665	36.32	0.18	36.50	56.00	19.50	
	4.952	33.53	0.34	33.87	56.00	22.13	
	5.867	35.21	0.34	35.55	60.00	24.45	
	23.888	42.95	0.51	43.46	60.00	16.54	
	0.160	24.90	0.18	25.08	55.47	30.39	AV
	0.352	31.45	0.17	31.62	48.91	17.29	
	0.665	32.51	0.18	32.69	46.00	13.31	
	4.952	16.55	0.34	16.89	46.00	29.11	
	5.867	14.17	0.34	14.51	50.00	35.49	
	23.888	37.23	0.51	37.74	50.00	12.26	
Neutral	0.211	49.65	0.17	49.82	63.18	13.36	QP
	0.360	37.70	0.18	37.88	58.74	20.86	
	0.665	37.66	0.20	37.86	56.00	18.14	
	3.985	29.25	0.34	29.59	56.00	26.41	
	5.594	30.91	0.35	31.26	60.00	28.74	
	23.636	30.82	0.56	31.38	60.00	28.62	
	0.211	41.31	0.17	41.48	53.18	11.70	AV
	0.360	32.75	0.18	32.93	48.74	15.81	
	0.665	33.72	0.20	33.92	46.00	12.08	
	3.985	15.70	0.34	16.04	46.00	29.96	
	5.594	16.22	0.35	16.57	50.00	33.43	
	23.636	19.88	0.56	20.44	50.00	29.56	

TEST ENGINEER: HUGH HUANG

EUT : LCD Monitor Temperature : 21°C

Model No. : W2244TV Humidity : 50%RH

Serial No. : 910NDRF3Q230 Date of Test : Oct 22, 2009

Test Mode : DVI 1280*1024@60Hz

Test Line	Frequency (MHz)	Meter Reading dB(μV)	Factor (dB)	Emission Level dB(μV)	Limits dB(μV)	Margin (dB)	Remark
Line	0.211	50.58	0.18	50.76	63.18	12.42	QP
	0.352	37.79	0.17	37.96	58.91	20.95	
	0.665	35.90	0.18	36.08	56.00	19.92	
	3.881	31.96	0.33	32.29	56.00	23.71	
	5.867	35.41	0.34	35.75	60.00	24.25	
	24.529	43.50	0.51	44.01	60.00	15.99	
	0.211	45.27	0.18	45.45	53.18	7.73	AV
	0.352	30.36	0.17	30.53	48.91	18.38	
	0.665	31.90	0.18	32.08	46.00	13.92	
	3.881	21.83	0.33	22.16	46.00	23.84	
	5.867	28.31	0.34	28.65	50.00	21.35	
	24.529	39.72	0.51	40.23	50.00	9.77	
Neutral	0.213	48.54	0.17	48.71	63.10	14.39	QP
	0.360	38.76	0.18	38.94	58.74	19.80	
	0.665	39.44	0.20	39.64	56.00	16.36	
	3.074	29.05	0.33	29.38	56.00	26.62	
	5.166	27.20	0.35	27.55	60.00	32.45	
	22.535	31.08	0.55	31.63	60.00	28.37	
	0.213	39.65	0.17	39.82	53.10	13.28	AV
	0.360	32.76	0.18	32.94	48.74	15.80	
	0.665	33.62	0.20	33.82	46.00	12.18	
	3.074	18.79	0.33	19.12	46.00	26.88	
	5.166	16.43	0.35	16.78	50.00	33.22	
	22.535	20.18	0.55	20.73	50.00	29.27	

TEST ENGINEER: HUGH HUANG

EUT : LCD Monitor Temperature : 21°C

Model No. : W2244TV Humidity : 50%RH

Serial No. : 910NDRF3Q230 Date of Test : Oct 22, 2009

Test Mode : DVI 1920*1080@60Hz

Test Line	Frequency (MHz)	Meter Reading dB(μV)	Factor (dB)	Emission Level dB(μV)	Limits dB(μV)	Margin (dB)	Remark
Line	0.150	52.25	0.18	52.43	66.00	13.57	QP
	0.211	51.20	0.18	51.38	63.18	11.80	
	0.665	35.54	0.18	35.72	56.00	20.28	
	3.985	30.22	0.33	30.55	56.00	25.45	
	5.867	35.73	0.34	36.07	60.00	23.93	
	24.790	37.57	0.51	38.08	60.00	21.92	
	0.150	33.58	0.18	33.76	56.00	22.24	AV
	0.211	46.17	0.18	46.35	53.18	6.83	
	0.665	32.58	0.18	32.76	46.00	13.24	
	3.985	17.39	0.33	17.72	46.00	28.28	
	5.867	27.81	0.34	28.15	50.00	21.85	
	24.790	29.20	0.51	29.71	50.00	20.29	
Neutral	0.164	47.78	0.19	47.97	65.25	17.28	QP
	0.352	37.67	0.18	37.85	58.91	21.06	
	0.665	35.60	0.20	35.80	56.00	20.20	
	3.985	26.65	0.34	26.99	56.00	29.01	
	5.867	25.64	0.35	25.99	60.00	34.01	
	25.321	30.89	0.56	31.45	60.00	28.55	
	0.164	32.84	0.19	33.03	55.25	22.22	AV
	0.352	32.95	0.18	33.13	48.91	15.78	
	0.665	32.84	0.20	33.04	46.00	12.96	
	3.985	11.39	0.34	11.73	46.00	34.27	
	5.867	13.31	0.35	13.66	50.00	36.34	
	25.321	16.79	0.56	17.35	50.00	32.65	

TEST ENGINEER: HUGH HUANG

4 RADIATED EMISSION TEST

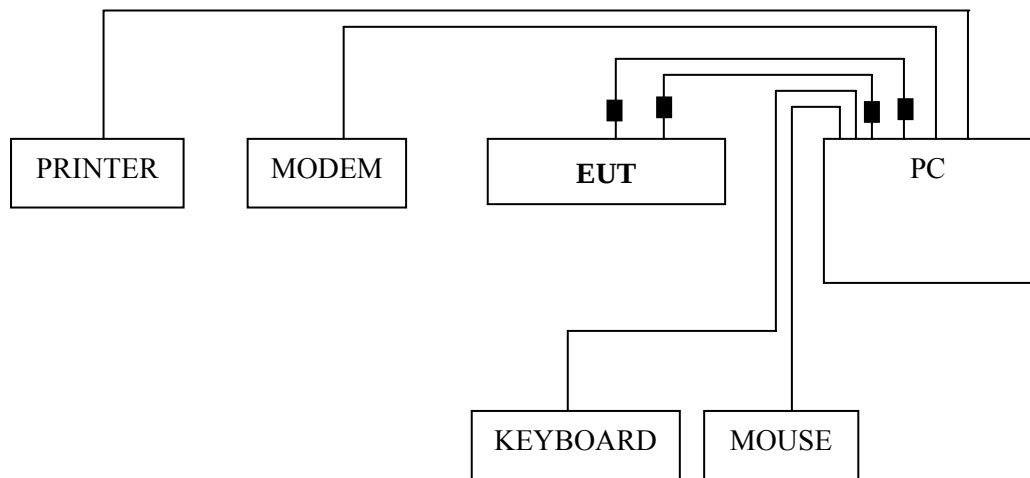
4.1 Test Equipment

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, 2009	Mar 07, 2010
2.	Preamplifier	Agilent	8447D	2944A10548	Sep 19, 2009	Mar 19, 2010
3.	Preamplifier	HP	8449B	3008A00864	May 19, 2009	May 19, 2010
4.	Bi-log Antenna	TESEQ	CBL6112D	23193	May 14, 2008	May 14, 2010
5.	Spectrum	Agilent	E7405A	MY45106600	May 19, 2009	May 19, 2010
6.	Software	Audix	E3	SET00200 9912M295-2	--	--

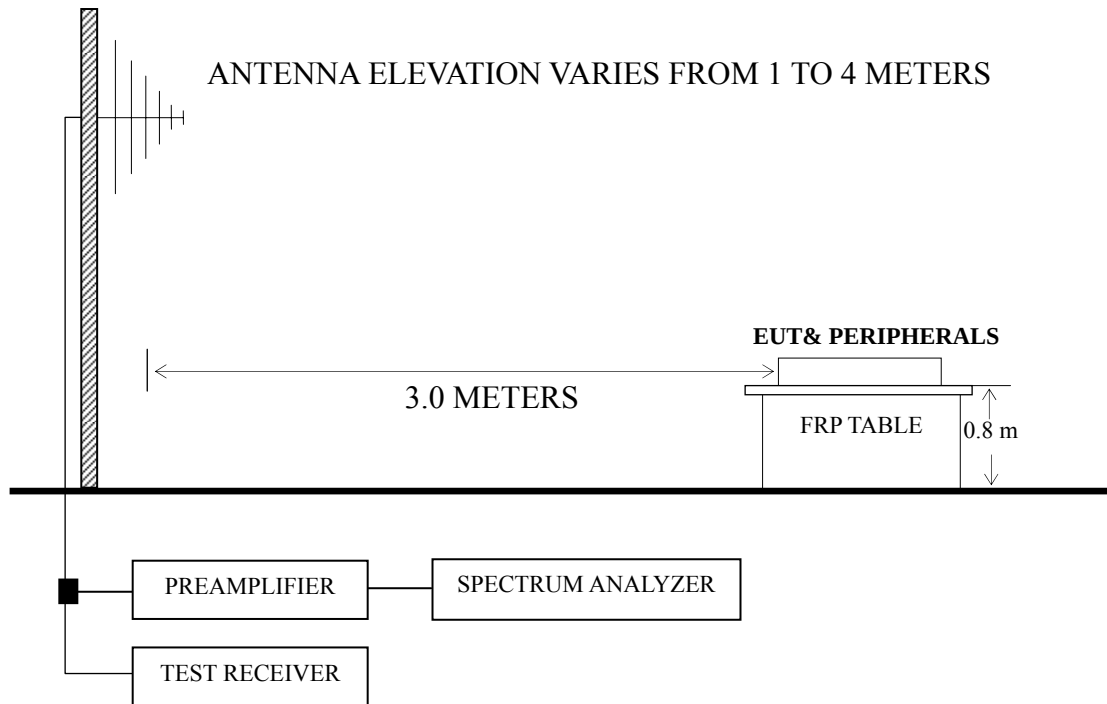
4.2 Block Diagram of Test Setup

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 1280*1024@60Hz and 1920*1080@60Hz mode.

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 1280*1024@60Hz	P23
D-Sub 1920*1080@60Hz	P24
DVI 640*480@60Hz	P25
DVI 1280*1024@60Hz	P26
DVI 1920*1080@60Hz	P27

NOTE 1 –The **bold test mode** listed above means the worst test mode.

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

NOTE 3 – Emission Level = Antenna Factor + Cable Loss – Preamp Factor + Meter Reading.($> 1\text{GHz}$)

NOTE 4 – The emission levels that are 20dB below the official limit are not reported.

NOTE 5 – 0° was the table front facing the antenna. Degree is calculated from 0° clockwise facing the antenna.

NOTE 6 – 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 7 – The worst case is for D-Sub 640*480@60Hz test mode. The worst emission at horizontal polarization was detected at 289.960 MHz with corrected signal level of 39.01 dB ($\mu\text{V/m}$) (limit is 46.00dB ($\mu\text{V/m}$)), when the antenna was 1.00 m height and the turntable was at 220° . The worst emission at vertical polarization was detected at 290.930 MHz with corrected signal level of 42.42 dB ($\mu\text{V/m}$) (limit is 46.00 dB ($\mu\text{V/m}$)), when the antenna was 1.00 m height and the turntable was at 40° .

EUT : LCD Monitor Temperature : 22°C

Model No. : W2244TV Humidity : 60%RH

Serial No. : 910NDRF3Q230 Date of Test : Oct 23, 2009

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	138.640	22.82	12.17	1.19	36.18	43.50	7.32
	238.550	19.97	12.48	1.67	34.12	46.00	11.88
	289.960	23.44	13.73	1.84	39.01	46.00	6.99
	319.060	20.84	14.43	1.94	37.21	46.00	8.79
	507.240	14.09	17.98	2.46	34.53	46.00	11.47
	870.020	6.17	21.42	3.37	30.96	46.00	15.04
Vertical	30.970	7.62	19.03	0.63	27.28	40.00	12.72
	137.670	21.43	12.19	1.19	34.81	43.50	8.69
	277.350	23.44	13.50	1.80	38.74	46.00	7.26
	290.930	26.82	13.75	1.85	42.42	46.00	3.58
	318.090	25.77	14.39	1.94	42.10	46.00	3.90
	507.240	16.57	17.98	2.46	37.01	46.00	8.99

TEST ENGINEER: RAVEN JIN

EUT : LCD Monitor Temperature : 22°C

Model No. : W2244TV Humidity : 60%RH

Serial No. : 910NDRF3Q230 Date of Test : Oct 23, 2009

Test Mode : D-Sub 1280*1024@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	23.43	12.12	1.20	--	36.75	43.50	6.75	QP
	244.370	16.75	12.68	1.68	--	31.11	46.00	14.89	
	280.260	22.18	13.55	1.81	--	37.54	46.00	8.46	
	320.030	19.95	14.46	1.94	--	36.35	46.00	9.65	
	429.640	7.73	16.92	2.27	--	26.92	46.00	19.08	
	702.210	9.40	19.73	2.94	--	32.07	46.00	13.93	
	1157.000	43.37	23.48	4.10	34.11	36.84	74.00	37.16	PK
	1275.000	41.91	24.32	4.35	34.13	36.45	74.00	37.55	
	1425.000	41.35	25.34	4.66	34.14	37.21	74.00	36.79	
	1572.000	39.61	26.26	4.95	34.16	36.66	74.00	37.34	
	1683.000	40.40	26.61	5.16	34.17	38.00	74.00	36.00	
	1905.000	38.45	27.50	5.51	34.19	37.27	74.00	36.73	
Vertical	40.670	10.30	13.62	0.67	--	24.59	40.00	15.41	QP
	138.640	23.02	12.17	1.19	--	36.38	43.50	7.12	
	275.410	22.87	13.45	1.79	--	38.11	46.00	7.89	
	292.870	23.04	13.79	1.85	--	38.68	46.00	7.32	
	319.060	24.44	14.43	1.94	--	40.81	46.00	5.19	
	488.810	14.70	17.78	2.41	--	34.89	46.00	11.11	
	1157.000	44.89	23.48	4.10	34.11	38.36	74.00	35.64	PK
	1255.000	46.77	24.14	4.31	34.12	41.10	74.00	32.90	
	1426.000	39.19	25.34	4.66	34.14	35.05	74.00	38.95	
	1564.000	38.43	26.19	4.93	34.16	35.39	74.00	38.61	
	1664.000	40.74	26.56	5.12	34.17	38.25	74.00	35.75	
	1857.000	40.48	27.21	5.46	34.19	38.96	74.00	35.04	

TEST ENGINEER: RAVEN JIN

EUT : LCD Monitor Temperature : 22°C

Model No. : W2244TV Humidity : 60%RH

Serial No. : 910NDRF3Q230 Date of Test : Oct 23, 2009

Test Mode : D-Sub 1920*1080@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	71.710	19.51	6.69	0.87	--	27.07	40.00	12.93	QP
	137.670	23.58	12.19	1.19	--	36.96	43.50	6.54	
	281.230	22.27	13.57	1.81	--	37.65	46.00	8.35	
	320.030	20.04	14.46	1.94	--	36.44	46.00	9.56	
	486.870	6.90	17.75	2.40	--	27.05	46.00	18.95	
	888.450	2.06	21.60	3.42	--	27.08	46.00	18.92	
	1058.000	44.61	22.79	3.85	34.10	37.15	74.00	36.85	PK
	1157.000	41.83	23.48	4.10	34.11	35.30	74.00	38.70	
	1274.000	42.73	24.32	4.35	34.13	37.27	74.00	36.73	
	1425.000	41.91	25.34	4.66	34.14	37.77	74.00	36.23	
	1562.000	42.36	26.19	4.92	34.16	39.31	74.00	34.69	
	1649.000	43.65	26.52	5.09	34.17	41.09	74.00	32.91	
Vertical	41.640	9.74	13.02	0.67	--	23.43	40.00	16.57	QP
	139.610	23.21	12.12	1.20	--	36.53	43.50	6.97	
	277.350	22.63	13.50	1.80	--	37.93	46.00	8.07	
	290.930	24.37	13.75	1.85	--	39.97	46.00	6.03	
	320.030	23.91	14.46	1.94	--	40.31	46.00	5.69	
	493.660	13.91	17.83	2.41	--	34.15	46.00	11.85	
	1157.000	41.70	23.48	4.10	34.11	35.17	74.00	38.83	PK
	1263.000	45.10	24.23	4.33	34.13	39.53	74.00	34.47	
	1427.000	42.26	25.38	4.66	34.14	38.16	74.00	35.84	
	1549.000	40.02	26.11	4.89	34.16	36.86	74.00	37.14	
	1693.000	40.35	26.63	5.18	34.17	37.99	74.00	36.01	
	1834.000	37.56	27.08	5.43	34.18	35.89	74.00	38.11	

TEST ENGINEER: RAVEN JIN

EUT : LCD Monitor Temperature : 22°C

Model No. : W2244TV Humidity : 60%RH

Serial No. : 910NDRF3Q230 Date of Test : Oct 23, 2009

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	140.580	21.94	12.05	1.20	35.19	43.50	8.31
	241.460	20.78	12.60	1.67	35.05	46.00	10.95
	289.960	26.30	13.73	1.84	41.87	46.00	4.13
	319.060	20.69	14.43	1.94	37.06	46.00	8.94
	491.720	11.04	17.80	2.41	31.25	46.00	14.75
	886.510	7.48	21.56	3.42	32.46	46.00	13.54
Vertical	84.320	19.20	8.48	0.98	28.66	40.00	11.34
	139.610	23.90	12.12	1.20	37.22	43.50	6.28
	278.320	23.80	13.50	1.80	39.10	46.00	6.90
	291.900	26.28	13.77	1.85	41.90	46.00	4.10
	319.060	25.41	14.43	1.94	41.78	46.00	4.22
	508.210	14.85	18.01	2.46	35.32	46.00	10.68

TEST ENGINEER: RAVEN JIN

EUT : LCD Monitor Temperature : 22°C

Model No. : W2244TV Humidity : 60%RH

Serial No. : 910NDRF3Q230 Date of Test : Oct 23, 2009

Test Mode : DVI 1280*1024@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	138.640	23.31	12.17	1.19	--	36.67	43.50	6.83	QP
	242.430	22.98	12.64	1.67	--	37.29	46.00	8.71	
	281.230	25.70	13.57	1.81	--	41.08	46.00	4.92	
	318.090	21.20	14.39	1.94	--	37.53	46.00	8.47	
	540.220	13.72	18.42	2.58	--	34.72	46.00	11.28	
	755.560	10.97	20.27	3.09	--	34.33	46.00	11.67	
	1144.000	40.65	23.39	4.08	34.11	34.01	74.00	39.99	PK
	1262.000	44.93	24.19	4.33	34.12	39.33	74.00	34.67	
	1427.000	40.82	25.38	4.66	34.14	36.72	74.00	37.28	
	1607.000	39.90	26.42	5.01	34.16	37.17	74.00	36.83	
	1698.000	40.12	26.65	5.19	34.17	37.79	74.00	36.21	
	1860.000	38.82	27.26	5.46	34.19	37.35	74.00	36.65	
Vertical	30.000	7.95	19.60	0.63	--	28.18	40.00	11.82	QP
	39.700	12.77	14.08	0.67	--	27.52	40.00	12.48	
	139.610	21.99	12.12	1.20	--	35.31	43.50	8.19	
	289.960	25.42	13.73	1.84	--	40.99	46.00	5.01	
	318.090	23.97	14.39	1.94	--	40.30	46.00	5.70	
	482.990	11.48	17.70	2.40	--	31.58	46.00	14.42	
	1155.000	40.40	23.45	4.10	34.11	33.84	74.00	40.16	PK
	1255.000	43.05	24.14	4.31	34.12	37.38	74.00	36.62	
	1426.000	42.24	25.34	4.66	34.14	38.10	74.00	35.90	
	1629.000	40.07	26.47	5.05	34.16	37.43	74.00	36.57	
	1752.000	37.80	26.78	5.30	34.18	35.70	74.00	38.30	
	1954.000	36.00	27.81	5.56	34.20	35.17	74.00	38.83	

TEST ENGINEER: RAVEN JIN

EUT : LCD Monitor Temperature : 22°C

Model No. : W2244TV Humidity : 60%RH

Serial No. : 910NDRF3Q230 Date of Test : Oct 23, 2009

Test Mode : DVI 1920*1080@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	137.670	22.71	12.19	1.19	--	36.09	43.50	7.41	QP
	278.320	26.00	13.50	1.80	--	41.30	46.00	4.70	
	319.060	21.34	14.43	1.94	--	37.71	46.00	8.29	
	417.030	16.89	16.74	2.24	--	35.87	46.00	10.13	
	695.420	12.84	19.67	2.92	--	35.43	46.00	10.57	
	833.160	17.43	21.01	3.29	--	41.73	46.00	4.27	
	1154.000	47.88	23.45	4.10	34.11	41.32	74.00	32.68	PK
	1261.000	49.43	24.19	4.32	34.12	43.82	74.00	30.18	
	1425.000	42.92	25.34	4.66	34.14	38.78	74.00	35.22	
	1573.000	42.91	26.26	4.95	34.16	39.96	74.00	34.04	
	1695.000	44.84	26.65	5.19	34.17	42.51	74.00	31.49	
	1902.000	41.30	27.50	5.50	34.19	40.11	74.00	33.89	
Vertical	30.000	7.66	19.60	0.63	--	27.89	40.00	12.11	QP
	137.670	23.62	12.19	1.19	--	37.00	43.50	6.50	
	290.930	26.48	13.75	1.85	--	42.08	46.00	3.92	
	318.090	24.88	14.39	1.94	--	41.21	46.00	4.79	
	394.720	10.57	16.40	2.19	--	29.16	46.00	16.84	
	694.450	19.21	19.67	2.92	--	41.80	46.00	4.20	
	1102.000	51.30	23.11	3.97	34.11	44.27	74.00	29.73	PK
	1255.000	49.29	24.14	4.31	34.12	43.62	74.00	30.38	
	1503.000	46.40	25.84	4.81	34.15	42.90	74.00	31.10	
	1608.000	46.49	26.42	5.01	34.16	43.76	74.00	30.24	
	1696.000	43.57	26.65	5.19	34.17	41.24	74.00	32.76	
	1968.000	40.12	27.91	5.57	34.20	39.40	74.00	34.60	

TEST ENGINEER: RAVEN JIN

5 DEVIATION TO TEST SPECIFICATIONS

None.

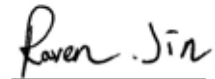
6 DEBUG DESCRIPTION

The following components are used during the countermeasure procedures:

Name	M/N	Specifications	Manufacturer	Location
Aluminum foil	T-308	50*30 mm	DAEHUNG SUBSIDIARY MATERIALS.	See Internal Photo Figure 13, 14

Note: We had required the applicant and manufacturer that all electrical and mechanical devices employed for spurious radiation suppression, including any modifications made during certification testing, must be incorporated in each unit marked

TEST ENGINEER:



(RAVEN JIN)