

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

LCD Monitor

Model No.: W2344TV

Serial No.: 910NDDM3Q242

FCC ID : BEJW2344TV

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

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Report No. : ACI-F09101
Date of Test : Oct 22 – 23, 2009
Date of Report : Oct 27, 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. : W2344TV
(B) Serial No. : 910NDDM3Q242
(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: W2344TV; S/N: 910NDDM3Q242) 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 27, 2009

Producer : Kathy Wang
KATHY WANG / 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.	:	W2344TV
Serial No.	:	910NDDM3Q242
Real Power	:	47.00W
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 : LM230WF1 (TL) (A3)
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

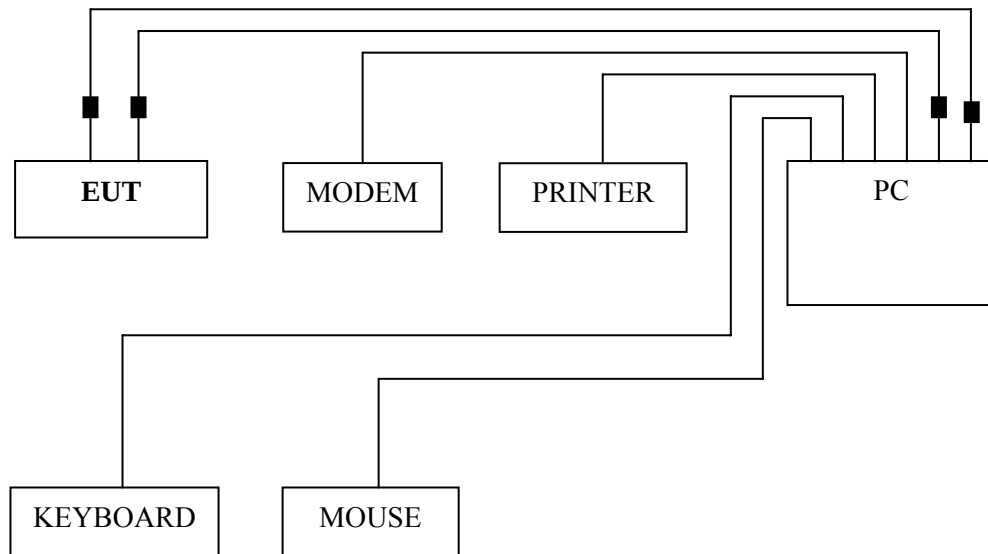
3.1 Test Equipment

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	--	--

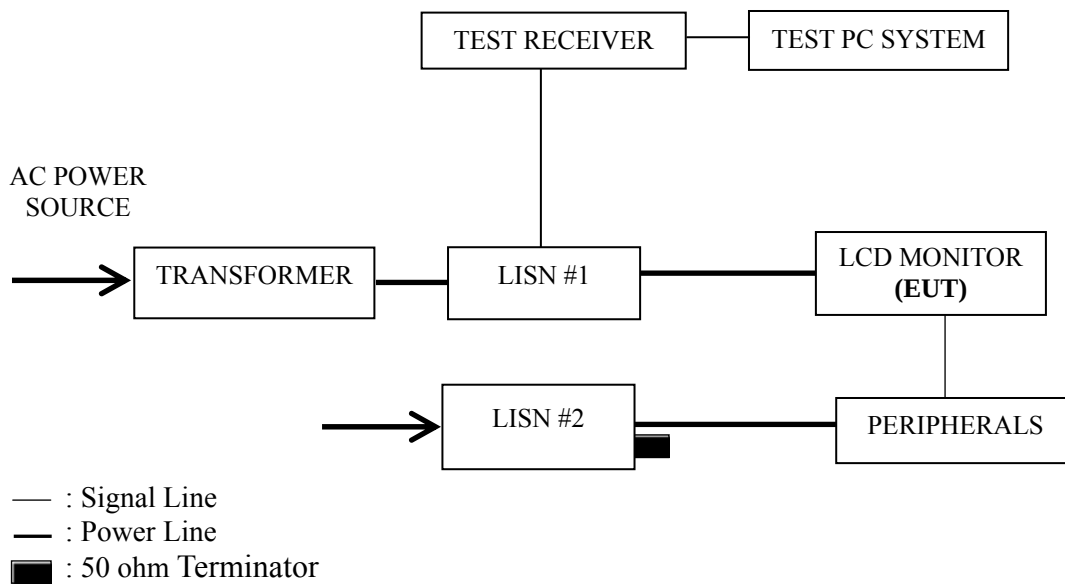
3.2 Block Diagram of Test Setup

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 D-Sub 1920*1080@60Hz test mode. The worst emission is detected at 0.211 MHz (Average Value) with corrected signal level of 44.08 dB (μV) (limit is 53.18dB (μV)), when the Neutral of the EUT is connected to LISN.

EUT : LCD Monitor Temperature : 21°C

Model No. : W2344TV Humidity : 50%RH

Serial No. : 910NDDM3Q242 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	0.160	45.55	0.18	45.73	65.47	19.74	QP
	0.348	37.66	0.17	37.83	59.00	21.17	
	0.641	30.89	0.18	31.07	56.00	24.93	
	3.840	34.60	0.33	34.93	56.00	21.07	
	5.653	33.87	0.34	34.21	60.00	25.79	
	23.888	39.86	0.51	40.37	60.00	19.63	
	0.160	27.55	0.18	27.73	55.47	27.74	AV
	0.348	32.53	0.17	32.70	49.00	16.30	
	0.641	26.14	0.18	26.32	46.00	19.68	
	3.840	22.63	0.33	22.96	46.00	23.04	
	5.653	19.46	0.34	19.80	50.00	30.20	
	23.888	31.01	0.51	31.52	50.00	18.48	
Neutral	0.160	44.70	0.19	44.89	65.47	20.58	QP
	0.348	39.97	0.18	40.15	59.00	18.85	
	0.641	32.64	0.20	32.84	56.00	23.16	
	3.840	33.88	0.34	34.22	56.00	21.78	
	6.627	30.59	0.36	30.95	60.00	29.05	
	23.888	35.39	0.56	35.95	60.00	24.05	
	0.160	29.31	0.19	29.50	55.47	25.97	AV
	0.348	32.80	0.18	32.98	49.00	16.02	
	0.641	29.73	0.20	29.93	46.00	16.07	
	3.840	23.36	0.34	23.70	46.00	22.30	
	6.627	19.67	0.36	20.03	50.00	29.97	
	23.888	25.78	0.56	26.34	50.00	23.66	

TEST ENGINEER: HUGU HUANG

EUT : LCD Monitor Temperature : 21°C

Model No. : W2344TV Humidity : 50%RH

Serial No. : 910NDDM3Q242 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	47.84	0.18	48.02	65.47	17.45	QP
	0.348	38.66	0.17	38.83	59.00	20.17	
	0.564	26.96	0.18	27.14	56.00	28.86	
	3.901	32.63	0.33	32.96	56.00	23.04	
	5.993	33.27	0.34	33.61	60.00	26.39	
	24.142	44.17	0.51	44.68	60.00	15.32	
	0.160	28.30	0.18	28.48	55.47	26.99	AV
	0.348	33.84	0.17	34.01	49.00	14.99	
	0.564	21.21	0.18	21.39	46.00	24.61	
	3.901	19.77	0.33	20.10	46.00	25.90	
	5.993	20.59	0.34	20.93	50.00	29.07	
	24.142	38.14	0.51	38.65	50.00	11.35	
Neutral	0.160	48.57	0.19	48.76	65.47	16.71	QP
	0.348	40.23	0.18	40.41	59.00	18.59	
	0.641	33.45	0.20	33.65	56.00	22.35	
	3.840	29.10	0.34	29.44	56.00	26.56	
	6.627	28.07	0.36	28.43	60.00	31.57	
	23.387	34.11	0.55	34.66	60.00	25.34	
	0.160	28.05	0.19	28.24	55.47	27.23	AV
	0.348	33.73	0.18	33.91	49.00	15.09	
	0.641	28.64	0.20	28.84	46.00	17.16	
	3.840	20.99	0.34	21.33	46.00	24.67	
	6.627	16.39	0.36	16.75	50.00	33.25	
	23.387	23.37	0.55	23.92	50.00	26.08	

TEST ENGINEER: HUGU HUANG

EUT : LCD Monitor Temperature : 21°C

Model No. : W2344TV Humidity : 50%RH

Serial No. : 910NDDM3Q242 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	47.91	0.18	48.09	65.47	17.38	QP
	0.348	39.97	0.17	40.14	59.00	18.86	
	0.558	28.85	0.18	29.03	56.00	26.97	
	3.901	34.09	0.33	34.42	56.00	21.58	
	5.993	35.21	0.34	35.55	60.00	24.45	
	23.888	40.75	0.51	41.26	60.00	18.74	
	0.160	29.89	0.18	30.07	55.47	25.40	AV
	0.348	34.36	0.17	34.53	49.00	14.47	
	0.558	25.95	0.18	26.13	46.00	19.87	
	3.901	19.60	0.33	19.93	46.00	26.07	
	5.993	23.07	0.34	23.41	50.00	26.59	
	23.888	29.91	0.51	30.42	50.00	19.58	
Neutral	0.211	49.94	0.17	50.11	63.18	13.07	QP
	0.348	38.93	0.18	39.11	59.00	19.89	
	0.641	31.78	0.20	31.98	56.00	24.02	
	3.840	31.76	0.34	32.10	56.00	23.90	
	5.653	28.69	0.35	29.04	60.00	30.96	
	24.529	35.62	0.56	36.18	60.00	23.82	
	0.211	43.91	0.17	44.08	53.18	9.10	AV
	0.348	33.11	0.18	33.29	49.00	15.71	
	0.641	28.94	0.20	29.14	46.00	16.86	
	3.840	22.54	0.34	22.88	46.00	23.12	
	5.653	17.63	0.35	17.98	50.00	32.02	
	24.529	25.62	0.56	26.18	50.00	23.82	

TEST ENGINEER: HUGU HUANG

EUT : LCD Monitor Temperature : 21°C

Model No. : W2344TV Humidity : 50%RH

Serial No. : 910NDDM3Q242 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	0.150	50.03	0.18	50.21	66.00	15.79	QP
	0.348	38.46	0.17	38.63	59.00	20.37	
	0.558	28.51	0.18	28.69	56.00	27.31	
	3.901	29.31	0.33	29.64	56.00	26.36	
	5.653	31.69	0.34	32.03	60.00	27.97	
	24.529	40.45	0.51	40.96	60.00	19.04	
	0.150	34.21	0.18	34.39	56.00	21.61	AV
	0.348	32.43	0.17	32.6	49.00	16.40	
	0.558	26.36	0.18	26.54	46.00	19.46	
	3.901	18.48	0.33	18.81	46.00	27.19	
	5.653	22.19	0.34	22.53	50.00	27.47	
	24.529	31.66	0.51	32.17	50.00	17.83	
Neutral	0.160	43.56	0.19	43.75	65.47	21.72	QP
	0.160	18.6	0.19	18.79	55.47	36.68	
	0.348	38.35	0.18	38.53	59.00	20.47	
	0.348	33.59	0.18	33.77	49.00	15.23	
	0.641	29.63	0.2	29.83	56.00	26.17	
	0.641	29.88	0.2	30.08	46.00	15.92	
	3.840	26.96	0.34	27.30	56.00	28.70	AV
	3.840	14.39	0.34	14.73	46.00	31.27	
	6.557	27.45	0.36	27.81	60.00	32.19	
	6.557	12.24	0.36	12.60	50.00	37.40	
	22.535	33.79	0.55	34.34	60.00	25.66	
	22.535	25.59	0.55	26.14	50.00	23.86	

TEST ENGINEER: HUGU HUANG

EUT : LCD Monitor Temperature : 21°C

Model No. : W2344TV Humidity : 50%RH

Serial No. : 910NDDM3Q242 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	48.10	0.18	48.28	63.18	14.90	QP
	0.348	37.82	0.17	37.99	59.00	21.01	
	0.641	28.07	0.18	28.25	56.00	27.75	
	3.840	30.05	0.33	30.38	56.00	25.62	
	5.653	33.42	0.34	33.76	60.00	26.24	
	23.387	37.96	0.50	38.46	60.00	21.54	
	0.211	40.63	0.18	40.81	53.18	12.37	AV
	0.348	31.59	0.17	31.76	49.00	17.24	
	0.641	28.34	0.18	28.52	46.00	17.48	
	3.840	18.69	0.33	19.02	46.00	26.98	
	5.653	20.98	0.34	21.32	50.00	28.68	
	23.387	29.38	0.50	29.88	50.00	20.12	
Neutral	0.160	43.47	0.19	43.66	65.47	21.81	QP
	0.348	38.35	0.18	38.53	59.00	20.47	
	0.641	29.77	0.20	29.97	56.00	26.03	
	3.840	27.71	0.34	28.05	56.00	27.95	
	6.557	27.77	0.36	28.13	60.00	31.87	
	24.142	36.86	0.56	37.42	60.00	22.58	
	0.160	17.87	0.19	18.06	55.47	37.41	AV
	0.348	32.54	0.18	32.72	49.00	16.28	
	0.641	30.08	0.20	30.28	46.00	15.72	
	3.840	16.68	0.34	17.02	46.00	28.98	
	6.557	15.11	0.36	15.47	50.00	34.53	
	24.142	29.89	0.56	30.45	50.00	19.55	

TEST ENGINEER: HUGU HUANG

EUT : LCD Monitor Temperature : 21°C

Model No. : W2344TV Humidity : 50%RH

Serial No. : 910NDDM3Q242 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	0.211	47.88	0.18	48.06	63.18	15.12	QP
	0.348	37.47	0.17	37.64	59.00	21.36	
	0.641	28.18	0.18	28.36	56.00	27.64	
	3.840	30.25	0.33	30.58	56.00	25.42	
	5.653	32.91	0.34	33.25	60.00	26.75	
	23.888	39.98	0.51	40.49	60.00	19.51	
	0.211	42.14	0.18	42.32	53.18	10.86	AV
	0.348	32.64	0.17	32.81	49.00	16.19	
	0.641	28.46	0.18	28.64	46.00	17.36	
	3.840	19.58	0.33	19.91	46.00	26.09	
	5.653	19.38	0.34	19.72	50.00	30.28	
	23.888	32.35	0.51	32.86	50.00	17.14	
Neutral	0.211	46.82	0.17	46.99	63.18	16.19	QP
	0.348	37.56	0.18	37.74	59.00	21.26	
	0.641	30.21	0.20	30.41	56.00	25.59	
	3.840	28.47	0.34	28.81	56.00	27.19	
	6.627	27.88	0.36	28.24	60.00	31.76	
	23.888	34.26	0.56	34.82	60.00	25.18	
	0.211	42.22	0.17	42.39	53.18	10.79	AV
	0.348	31.91	0.18	32.09	49.00	16.91	
	0.641	30.36	0.20	30.56	46.00	15.44	
	3.840	18.22	0.34	18.56	46.00	27.44	
	6.627	17.40	0.36	17.76	50.00	32.24	
	23.888	26.47	0.56	27.03	50.00	22.97	

TEST ENGINEER: HUGU HUANG

4 RADIATED EMISSION TEST

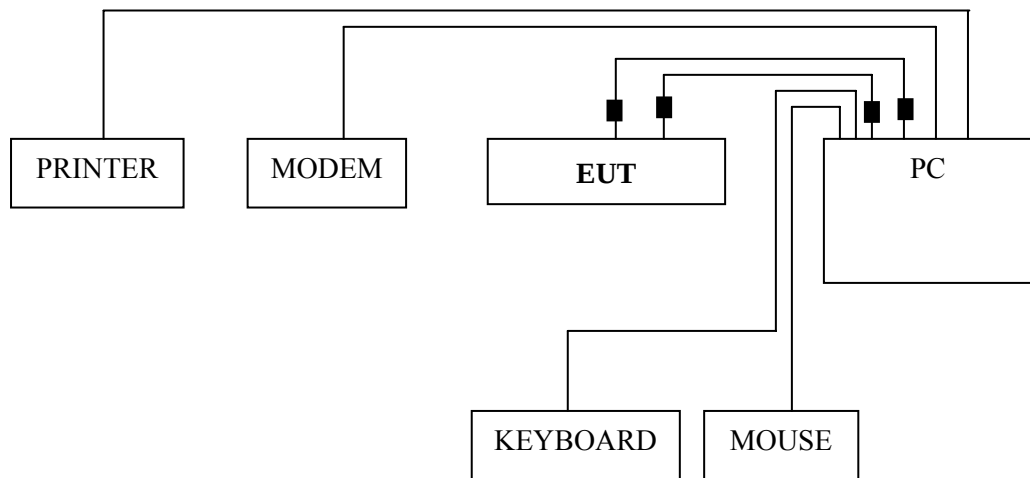
4.1 Test Equipment

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	--	--

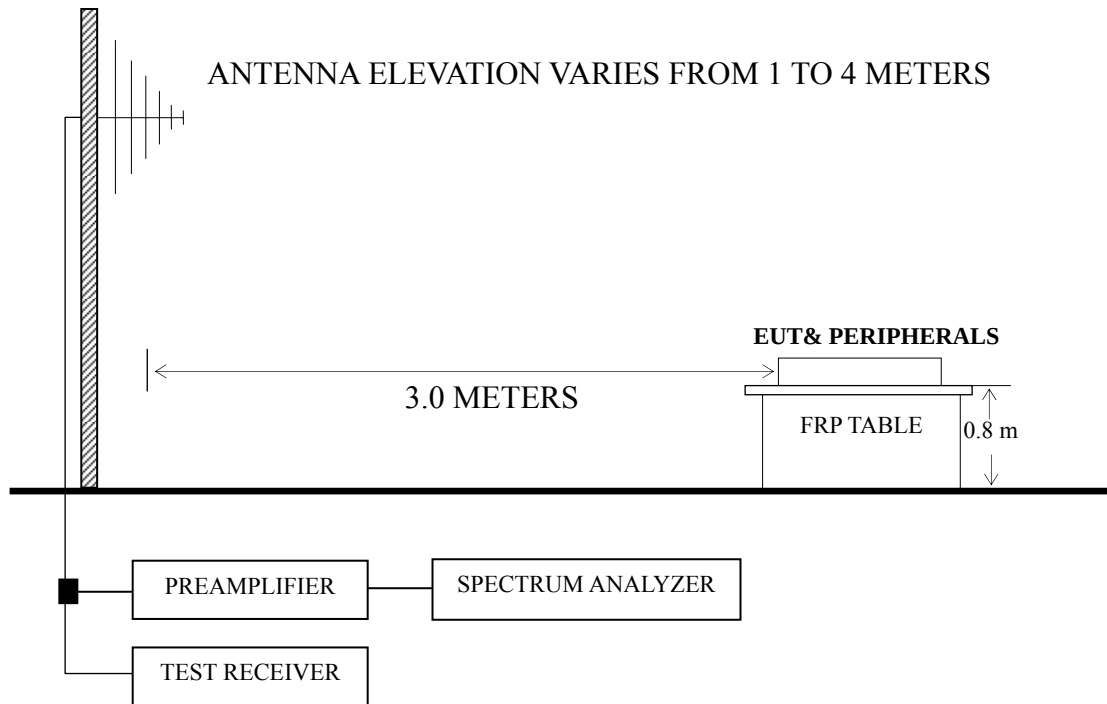
4.2 Block Diagram of Test Setup

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 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 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 1920*1080@60Hz test mode. The worst emission at horizontal polarization was detected at 306.450 MHz with corrected signal level of 40.70 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 45° . The worst emission at vertical polarization was detected at 41.640 MHz with corrected signal level of 36.69 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 240° .

EUT : LCD Monitor Temperature : 22°C

Model No. : W2344TV Humidity : 60%RH

Serial No. : 910NDDM3Q242 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	40.670	13.49	13.62	0.67	27.78	40.00	12.22
	85.290	22.55	8.66	0.99	32.20	40.00	7.80
	136.700	23.49	12.23	1.19	36.91	43.50	6.59
	215.270	21.28	11.39	1.59	34.26	43.50	9.24
	307.420	25.01	14.10	1.90	41.01	46.00	4.99
	454.860	14.40	17.29	2.33	34.02	46.00	11.98
Vertical	83.350	18.14	8.30	0.97	27.41	40.00	12.59
	135.730	25.19	12.28	1.19	38.66	43.50	4.84
	215.270	23.52	11.39	1.59	36.50	43.50	7.00
	307.420	24.05	14.10	1.90	40.05	46.00	5.95
	345.250	16.80	15.20	2.03	34.03	46.00	11.97
	702.210	11.66	19.73	2.94	34.33	46.00	11.67

TEST ENGINEER: RAVEN JIN

EUT : LCD Monitor Temperature : 22°C

Model No. : W2344TV Humidity : 60%RH

Serial No. : 910NDDM3Q242 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	53.280	21.78	8.14	0.73	--	30.65	40.00	9.35	QP
	135.730	23.95	12.28	1.19	--	37.42	43.50	6.08	
	284.140	25.34	13.62	1.82	--	40.78	46.00	5.22	
	306.450	25.94	14.07	1.90	--	41.91	46.00	4.09	
	505.300	13.41	17.95	2.44	--	33.80	46.00	12.20	
	702.210	13.70	19.73	2.94	--	36.37	46.00	9.63	
	1154.000	53.88	23.45	4.10	34.11	47.32	74.00	26.68	PK
	1400.000	46.08	25.20	4.60	34.14	41.74	74.00	32.26	
	1425.000	45.92	25.34	4.66	34.14	41.78	74.00	32.22	
	1573.000	45.91	26.26	4.95	34.16	42.96	74.00	31.04	
	1695.000	44.84	26.65	5.19	34.17	42.51	74.00	31.49	
	1836.000	42.64	27.12	5.43	34.18	41.01	74.00	32.99	
Vertical	72.680	11.06	6.85	0.88	--	18.79	40.00	21.21	QP
	134.760	21.46	12.30	1.19	--	34.95	43.50	8.55	
	220.120	23.30	11.66	1.61	--	36.57	46.00	9.43	
	306.450	25.14	14.07	1.90	--	41.11	46.00	4.89	
	344.280	18.18	15.16	2.03	--	35.37	46.00	10.63	
	496.570	10.13	17.85	2.42	--	30.40	46.00	15.60	
	1313.000	48.36	24.62	4.43	34.13	43.28	74.00	30.72	PK
	1400.000	47.68	25.20	4.60	34.14	43.34	74.00	30.66	
	1576.000	43.01	26.26	4.95	34.16	40.06	74.00	33.94	
	1663.000	42.21	26.56	5.12	34.17	39.72	74.00	34.28	
	1750.000	42.08	26.78	5.30	34.18	39.98	74.00	34.02	
	1858.000	42.70	27.21	5.46	34.19	41.18	74.00	32.82	

TEST ENGINEER: RAVEN JIN

EUT : LCD Monitor Temperature : 22°C

Model No. : W2344TV Humidity : 60%RH

Serial No. : 910NDDM3Q242 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	18.38	6.69	0.87	--	25.94	40.00	14.06	QP
	135.730	19.09	12.28	1.19	--	32.56	43.50	10.94	
	218.180	24.34	11.52	1.60	--	37.46	46.00	8.54	
	306.450	24.73	14.07	1.90	--	40.70	46.00	5.30	
	345.250	17.88	15.20	2.03	--	35.11	46.00	10.89	
	505.300	8.10	17.95	2.44	--	28.49	46.00	17.51	
	1083.000	46.07	22.98	3.91	34.11	38.85	74.00	35.15	PK
	1154.000	52.88	23.45	4.10	34.11	46.32	74.00	27.68	
	1425.000	44.92	25.34	4.66	34.14	40.78	74.00	33.22	
	1573.000	44.91	26.26	4.95	34.16	41.96	74.00	32.04	
	1695.000	43.84	26.65	5.19	34.17	41.51	74.00	32.49	
	1909.000	42.23	27.55	5.51	34.19	41.10	74.00	32.90	
Vertical	41.640	23.00	13.02	0.67	--	36.69	40.00	3.31	QP
	134.760	25.09	12.30	1.19	--	38.58	43.50	4.92	
	217.210	22.36	11.48	1.60	--	35.44	46.00	10.56	
	282.200	26.41	13.59	1.81	--	41.81	46.00	4.19	
	306.450	24.77	14.07	1.90	--	40.74	46.00	5.26	
	438.370	12.89	17.06	2.30	--	32.25	46.00	13.75	
	1157.000	50.35	23.48	4.10	34.11	43.82	74.00	30.18	PK
	1313.000	50.36	24.62	4.43	34.13	45.28	74.00	28.72	
	1400.000	49.68	25.20	4.60	34.14	45.34	74.00	28.66	
	1576.000	45.01	26.26	4.95	34.16	42.06	74.00	31.94	
	1663.000	44.21	26.56	5.12	34.17	41.72	74.00	32.28	
	1858.000	44.70	27.21	5.46	34.19	43.18	74.00	30.82	

TEST ENGINEER: RAVEN JIN

EUT : LCD Monitor Temperature : 22°C

Model No. : W2344TV Humidity : 60%RH

Serial No. : 910NDDM3Q242 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	53.280	16.09	8.14	0.73	24.96	40.00	15.04
	85.290	21.83	8.66	0.99	31.48	40.00	8.52
	135.730	26.27	12.28	1.19	39.74	43.50	3.76
	185.200	24.33	10.08	1.45	35.86	43.50	7.64
	286.080	26.03	13.66	1.82	41.51	46.00	4.49
	344.280	21.19	15.16	2.03	38.38	46.00	7.62
Vertical	84.320	15.44	8.48	0.98	24.90	40.00	15.10
	137.670	24.39	12.19	1.19	37.77	43.50	5.73
	187.140	23.33	10.17	1.47	34.97	43.50	8.53
	306.450	24.40	14.07	1.90	40.37	46.00	5.63
	501.420	10.98	17.93	2.44	31.35	46.00	14.65
	630.430	11.48	19.35	2.81	33.64	46.00	12.36

TEST ENGINEER: RAVEN JIN

EUT : LCD Monitor Temperature : 22°C

Model No. : W2344TV Humidity : 60%RH

Serial No. : 910NDDM3Q242 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)	Preamp Factor (dB)	Emission Level dB (μV/m)	Limits dB (μV/m)	Margin (dB)	Remark
Horizontal	83.350	18.49	8.30	0.97	--	27.76	40.00	12.24	QP
	134.760	23.65	12.30	1.19	--	37.14	43.50	6.36	
	217.210	22.58	11.48	1.60	--	35.66	46.00	10.34	
	307.420	23.38	14.10	1.90	--	39.38	46.00	6.62	
	431.580	13.97	16.95	2.28	--	33.20	46.00	12.80	
	540.220	15.43	18.42	2.58	--	36.43	46.00	9.57	
	1069.000	51.27	22.88	3.87	34.11	43.91	74.00	30.09	PK
	1215.000	53.03	23.82	4.23	34.12	46.96	74.00	27.04	
	1318.000	52.71	24.66	4.45	34.13	47.69	74.00	26.31	
	1467.000	49.94	25.60	4.74	34.15	46.13	74.00	27.87	
	1603.000	50.56	26.40	5.00	34.16	47.80	74.00	26.20	
	1839.000	48.56	27.12	5.44	34.19	46.93	74.00	27.07	
Vertical	85.290	24.03	8.66	0.99	--	33.68	40.00	6.32	QP
	139.610	25.04	12.12	1.20	--	38.36	43.50	5.14	
	216.240	21.37	11.43	1.59	--	34.39	46.00	11.61	
	282.200	25.55	13.59	1.81	--	40.95	46.00	5.05	
	431.580	15.29	16.95	2.28	--	34.52	46.00	11.48	
	647.890	17.85	19.45	2.84	--	40.14	46.00	5.86	
	1073.000	54.25	22.92	3.88	34.11	46.94	74.00	27.06	PK
	1167.000	51.21	23.54	4.13	34.12	44.76	74.00	29.24	
	1218.000	50.41	23.86	4.23	34.12	44.38	74.00	29.62	
	1269.000	56.11	24.27	4.34	34.13	50.59	74.00	23.41	
	1418.000	54.57	25.31	4.64	34.14	50.38	74.00	23.62	
	1647.000	48.53	26.52	5.09	34.17	45.97	74.00	28.03	

TEST ENGINEER: RAVEN JIN

EUT : LCD Monitor Temperature : 22°C

Model No. : W2344TV Humidity : 60%RH

Serial No. : 910NDDM3Q242 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	52.310	17.63	8.41	0.72	--	26.76	40.00	13.24	QP
	84.320	24.09	8.48	0.98	--	33.55	40.00	6.45	
	141.550	25.18	12.01	1.20	--	38.39	43.50	5.11	
	185.200	22.86	10.08	1.45	--	34.39	43.50	9.11	
	286.080	26.72	13.66	1.82	--	42.20	46.00	3.80	
	694.450	17.22	19.67	2.92	--	39.81	46.00	6.19	PK
	1122.000	52.65	23.24	4.02	34.11	45.80	74.00	28.20	
	1215.000	54.03	23.82	4.23	34.12	47.96	74.00	26.04	
	1318.000	53.71	24.66	4.45	34.13	48.69	74.00	25.31	
	1467.000	50.94	25.60	4.74	34.15	47.13	74.00	26.87	
	1603.000	51.56	26.40	5.00	34.16	48.80	74.00	25.20	
	1729.000	50.72	26.72	5.25	34.17	48.52	74.00	25.48	
Vertical	83.350	17.70	8.30	0.97	--	26.97	40.00	13.03	QP
	140.580	24.35	12.05	1.20	--	37.60	43.50	5.90	
	218.180	22.52	11.52	1.60	--	35.64	46.00	10.36	
	306.450	24.27	14.07	1.90	--	40.24	46.00	5.76	
	417.030	17.28	16.74	2.24	--	36.26	46.00	9.74	
	633.340	16.78	19.37	2.81	--	38.96	46.00	7.04	PK
	1073.000	52.25	22.92	3.88	34.11	44.94	74.00	29.06	
	1167.000	49.21	23.54	4.13	34.12	42.76	74.00	31.24	
	1269.000	54.11	24.27	4.34	34.13	48.59	74.00	25.41	
	1418.000	52.57	25.31	4.64	34.14	48.38	74.00	25.62	
	1647.000	46.53	26.52	5.09	34.17	43.97	74.00	30.03	
	1746.000	45.86	26.78	5.29	34.18	43.75	74.00	30.25	

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 Appendix 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)