

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

LCD Monitor

Model No.: W2040TV

Serial No.: E2009120802

FCC ID : BEJW2040TV

Prepared For : LG Electronics U.S.A., Inc.
1000 Sylvan Avenue, Englewood Cliffs,
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Report No. : ACI-F09140
Date of Test : Dec 29, 2009
Date of Report : Jan 04, 2010

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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. : W2040TV
(B) Serial No. : E2009120802
(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: Refer to Sec. 2.1; S/N: Refer to Sec. 2.1) which was tested in 3m anechoic chamber Dec 29, 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 : Dec 29, 2009 Date of Report : Jan 04, 2010

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.	:	W2040TV
Serial No.	:	E2009120802
Real Power	:	39.00W
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 : LM200WD1 (TL) (A5)
Max Resolution	:	1600*900@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

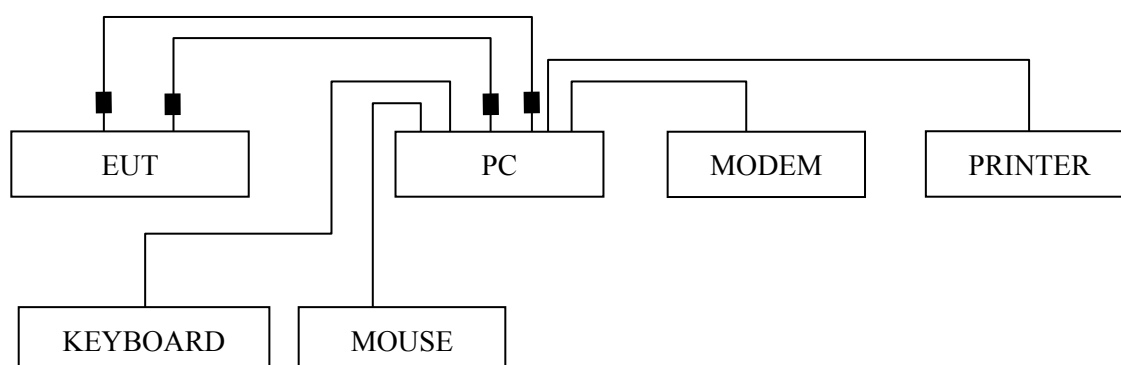
3.1 Test Equipment

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, 2009	Nov 21, 2010
2.	Artificial Mains Network (AMN)	R&S	ESH2-Z5	843890/011	Apr 02, 2009	Apr 02, 2010
3.	Line Impedance Stabilization Network (LISN)	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	--	--

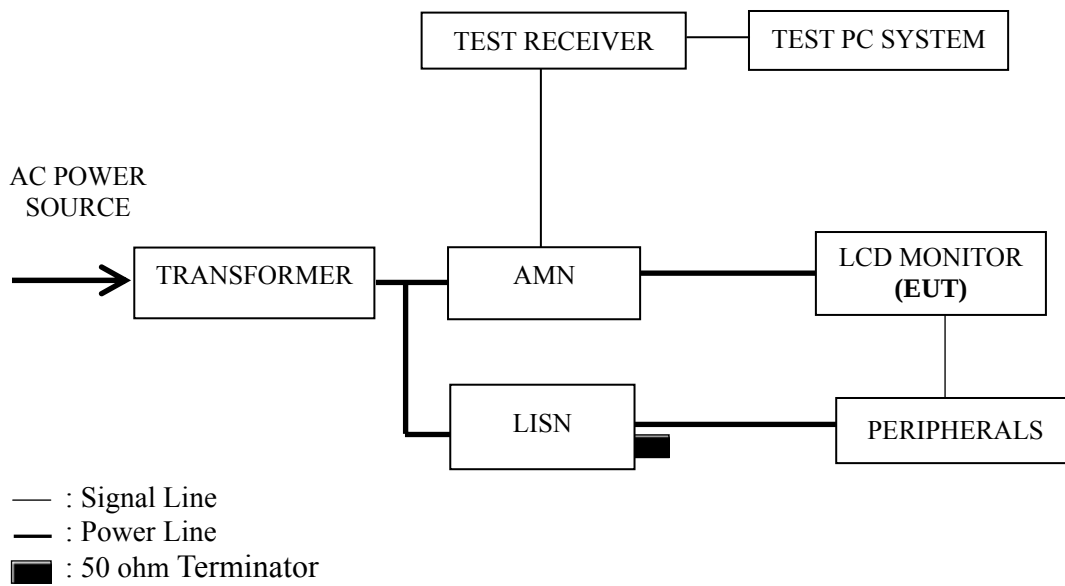
3.2 Block Diagram of Test Setup

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:

M/N	Test Mode
W2040TV	D-Sub 640*480@60Hz
	D-Sub 1024*768@60Hz
	D-Sub 1600*900@60Hz
	DVI 640*480@60Hz
	DVI 1024*768@60Hz
	DVI 1600*900@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 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.

M/N	Test Mode	Data Page
W2040TV	D-Sub 640*480@60Hz	P12
	D-Sub 1024*768@60Hz	P13
	D-Sub 1600*900@60Hz	P14
	DVI 640*480@60Hz	P15
	DVI 1024*768@60Hz	P16
	DVI 1600*900@60Hz	P17

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

NOTE 2 – Factor = Cable Loss + AMN 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 640*480@60Hz test mode. The worst emission is detected at 0.183 MHz (Average Value) with corrected signal level of 45.18 dB (μV) (limit is 54.33 dB (μV)), when the Line the EUT is connected to AMN.

EUT : LCD Monitor Temperature : 22°C

Model No. : W2040TV Humidity : 48%RH

Serial No. : E2009120802 Date of Test : Dec 29, 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	0.183	50.34	0.22	50.56	64.33	13.77	QP
	0.307	36.07	0.25	36.32	60.06	23.74	
	0.505	28.32	0.29	28.61	56.00	27.39	
	4.070	32.02	0.42	32.44	56.00	23.56	
	7.446	35.92	0.47	36.39	60.00	23.61	
	24.790	44.48	0.81	45.29	60.00	14.71	
	0.183	44.96	0.22	45.18	54.33	9.15	AV
	0.307	31.48	0.25	31.73	50.06	18.33	
	0.505	22.14	0.29	22.43	46.00	23.57	
	4.070	21.42	0.42	21.84	46.00	24.16	
	7.446	29.37	0.47	29.84	50.00	20.16	
	24.790	36.60	0.81	37.41	50.00	12.59	
Neutral	0.183	50.12	0.20	50.32	64.33	14.01	QP
	0.310	39.18	0.23	39.41	59.97	20.56	
	0.552	30.00	0.26	30.26	56.00	25.74	
	4.070	33.12	0.43	33.55	56.00	22.45	
	8.592	31.79	0.50	32.29	60.00	27.71	
	24.529	33.47	0.75	34.22	60.00	25.78	
	0.183	43.19	0.20	43.39	54.33	10.94	AV
	0.310	31.28	0.23	31.51	49.97	18.46	
	0.552	22.41	0.26	22.67	46.00	23.33	
	4.070	24.62	0.43	25.05	46.00	20.95	
	8.592	23.54	0.50	24.04	50.00	25.96	
	24.529	28.73	0.75	29.48	50.00	20.52	

TEST ENGINEER: HUGH HUANG

EUT : LCD Monitor Temperature : 22°C

Model No. : W2040TV Humidity : 48%RH

Serial No. : E2009120802 Date of Test : Dec 29, 2009

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	0.183	49.46	0.22	49.68	64.33	14.65	QP
	0.310	35.76	0.25	36.01	59.97	23.96	
	0.505	29.21	0.29	29.50	56.00	26.50	
	4.874	31.41	0.44	31.85	56.00	24.15	
	7.175	34.85	0.47	35.32	60.00	24.68	
	25.055	44.18	0.80	44.98	60.00	15.02	
	0.183	42.45	0.22	42.67	54.33	11.66	AV
	0.310	29.99	0.25	30.24	49.97	19.73	
	0.505	24.33	0.29	24.62	46.00	21.38	
	4.874	24.45	0.44	24.89	46.00	21.11	
	7.175	28.10	0.47	28.57	50.00	21.43	
	25.055	37.11	0.80	37.91	50.00	12.09	
Neutral	0.183	49.87	0.20	50.07	64.33	14.26	QP
	0.303	39.12	0.23	39.35	60.15	20.80	
	0.552	31.19	0.26	31.45	56.00	24.55	
	4.202	33.75	0.43	34.18	56.00	21.82	
	8.592	32.25	0.50	32.75	60.00	27.25	
	24.400	33.43	0.75	34.18	60.00	25.82	
	0.183	43.98	0.20	44.18	54.33	10.15	AV
	0.303	29.47	0.23	29.70	50.15	20.45	
	0.552	23.99	0.26	24.25	46.00	21.75	
	4.202	23.61	0.43	24.04	46.00	21.96	
	8.592	26.47	0.50	26.97	50.00	23.03	
	24.400	30.28	0.75	31.03	50.00	18.97	

TEST ENGINEER: HUGH HUANG

EUT : LCD Monitor Temperature : 22°C

Model No. : W2040TV Humidity : 48%RH

Serial No. : E2009120802 Date of Test : Dec 29, 2009

Test Mode : D-Sub 1600*900@60Hz

Test Line	Frequency (MHz)	Meter Reading dB(μV)	Factor (dB)	Emission Level dB(μV)	Limits dB(μV)	Margin (dB)	Remark
Line	0.183	49.20	0.22	49.42	64.33	14.91	QP
	0.310	36.60	0.25	36.85	59.97	23.12	
	0.505	29.20	0.29	29.49	56.00	26.51	
	4.874	31.67	0.44	32.11	56.00	23.89	
	7.446	35.20	0.47	35.67	60.00	24.33	
	24.790	43.58	0.81	44.39	60.00	15.61	
	0.183	44.15	0.22	44.37	54.33	9.96	AV
	0.310	30.61	0.25	30.86	49.97	19.11	
	0.505	22.65	0.29	22.94	46.00	23.06	
	4.874	24.23	0.44	24.67	46.00	21.33	
	7.446	28.11	0.47	28.58	50.00	21.42	
	24.790	33.06	0.81	33.87	50.00	16.13	
Neutral	0.183	49.10	0.20	49.30	64.33	15.03	QP
	0.310	37.60	0.23	37.83	59.97	22.14	
	0.552	32.58	0.26	32.84	56.00	23.16	
	3.881	33.19	0.43	33.62	56.00	22.38	
	7.175	32.76	0.48	33.24	60.00	26.76	
	24.790	35.74	0.74	36.48	60.00	23.52	
	0.183	43.29	0.20	43.49	54.33	10.84	AV
	0.310	31.89	0.23	32.12	49.97	17.85	
	0.552	24.91	0.26	25.17	46.00	20.83	
	3.881	24.62	0.43	25.05	46.00	20.95	
	7.175	22.70	0.48	23.18	50.00	26.82	
	24.790	28.24	0.74	28.98	50.00	21.02	

TEST ENGINEER: HUGH HUANG

EUT : LCD Monitor Temperature : 22°C

Model No. : W2040TV Humidity : 48%RH

Serial No. : E2009120802 Date of Test : Dec 29, 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	0.183	45.59	0.22	45.81	64.33	18.52	QP
	0.303	33.26	0.25	33.51	60.15	26.64	
	0.499	27.55	0.29	27.84	56.01	28.17	
	4.269	35.39	0.43	35.82	56.00	20.18	
	9.654	36.27	0.49	36.76	60.00	23.24	
	22.896	42.65	0.83	43.48	60.00	16.52	
	0.183	20.53	0.22	20.75	54.33	33.58	AV
	0.303	17.19	0.25	17.44	50.15	32.71	
	0.499	17.59	0.29	17.88	46.01	28.13	
	4.269	25.22	0.43	25.65	46.00	20.35	
	9.654	24.84	0.49	25.33	50.00	24.67	
	22.896	34.44	0.83	35.27	50.00	14.73	
Neutral	0.183	46.93	0.20	47.13	64.33	17.20	QP
	0.303	35.26	0.23	35.49	60.15	24.66	
	0.552	31.43	0.26	31.69	56.00	24.31	
	3.759	33.89	0.43	34.32	56.00	21.68	
	7.769	32.68	0.49	33.17	60.00	26.83	
	23.140	34.02	0.77	34.79	60.00	25.21	
	0.183	30.37	0.20	30.57	54.33	23.76	AV
	0.303	19.75	0.23	19.98	50.15	30.17	
	0.552	26.25	0.26	26.51	46.00	19.49	
	3.759	22.11	0.43	22.54	46.00	23.46	
	7.769	21.76	0.49	22.25	50.00	27.75	
	23.140	22.53	0.77	23.30	50.00	26.70	

TEST ENGINEER: HUGH HUANG

EUT : LCD Monitor Temperature : 22°C

Model No. : W2040TV Humidity : 48%RH

Serial No. : E2009120802 Date of Test : Dec 29, 2009

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	0.183	45.65	0.22	45.87	64.33	18.46	QP
	0.313	34.16	0.25	34.41	59.88	25.47	
	0.499	26.46	0.29	26.75	56.01	29.26	
	4.202	32.49	0.43	32.92	56.00	23.08	
	9.654	35.19	0.49	35.68	60.00	24.32	
	22.896	42.75	0.83	43.58	60.00	16.42	
	0.183	29.40	0.22	29.62	54.33	24.71	AV
	0.313	21.88	0.25	22.13	49.88	27.75	
	0.499	18.53	0.29	18.82	46.01	27.19	
	4.202	17.77	0.43	18.20	46.00	27.80	
	9.654	23.91	0.49	24.40	50.00	25.60	
	22.896	35.27	0.83	36.10	50.00	13.90	
Neutral	0.184	47.15	0.20	47.35	64.28	16.93	QP
	0.310	36.65	0.23	36.88	59.97	23.09	
	0.552	31.51	0.26	31.77	56.00	24.23	
	3.759	33.95	0.43	34.38	56.00	21.62	
	8.323	32.75	0.49	33.24	60.00	26.76	
	24.142	33.30	0.76	34.06	60.00	25.94	
	0.184	28.51	0.20	28.71	54.28	25.57	AV
	0.310	23.32	0.23	23.55	49.97	26.42	
	0.552	25.70	0.26	25.96	46.00	20.04	
	3.759	20.84	0.43	21.27	46.00	24.73	
	8.323	22.62	0.49	23.11	50.00	26.89	
	24.142	21.73	0.76	22.49	50.00	27.51	

TEST ENGINEER: HUGH HUANG

EUT : LCD Monitor Temperature : 22°C

Model No. : W2040TV Humidity : 48%RH

Serial No. : E2009120802 Date of Test : Dec 29, 2009

Test Mode : DVI 1600*900@60Hz

Test Line	Frequency (MHz)	Meter Reading dB(μV)	Factor (dB)	Emission Level dB(μV)	Limits dB(μV)	Margin (dB)	Remark
Line	0.183	45.69	0.22	45.91	64.33	18.42	QP
	0.313	34.18	0.25	34.43	59.88	25.45	
	0.499	26.52	0.29	26.81	56.01	29.20	
	4.269	31.27	0.43	31.70	56.00	24.30	
	9.654	34.21	0.49	34.70	60.00	25.30	
	23.387	43.76	0.82	44.58	60.00	15.42	
	0.183	28.03	0.22	28.25	54.33	26.08	AV
	0.313	20.27	0.25	20.52	49.88	29.36	
	0.499	18.54	0.29	18.83	46.01	27.18	
	4.269	24.99	0.43	25.42	46.00	20.58	
	9.654	25.47	0.49	25.96	50.00	24.04	
	23.387	36.41	0.82	37.23	50.00	12.77	
Neutral	0.184	47.59	0.20	47.79	64.28	16.49	QP
	0.310	35.78	0.23	36.01	59.97	23.96	
	0.552	30.99	0.26	31.25	56.00	24.75	
	4.361	33.62	0.43	34.05	56.00	21.95	
	5.166	33.94	0.45	34.39	60.00	25.61	
	24.400	32.18	0.75	32.93	60.00	27.07	
	0.184	22.91	0.20	23.11	54.28	31.17	AV
	0.310	24.24	0.23	24.47	49.97	25.50	
	0.552	26.15	0.26	26.41	46.00	19.59	
	4.361	16.58	0.43	17.01	46.00	28.99	
	5.166	14.09	0.45	14.54	50.00	35.46	
	24.400	24.52	0.75	25.27	50.00	24.73	

TEST ENGINEER: HUGH HUANG

4 RADIATED EMISSION TEST

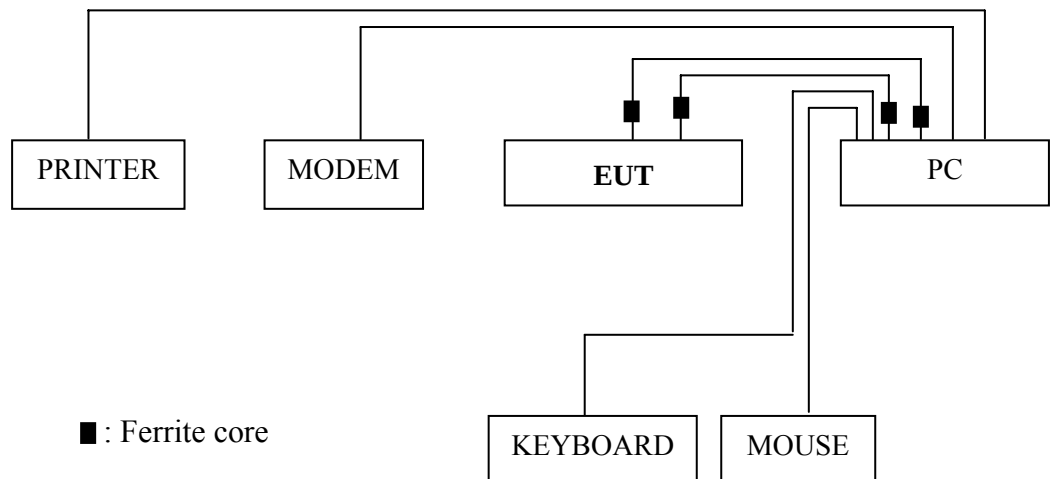
4.1 Test Equipment

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

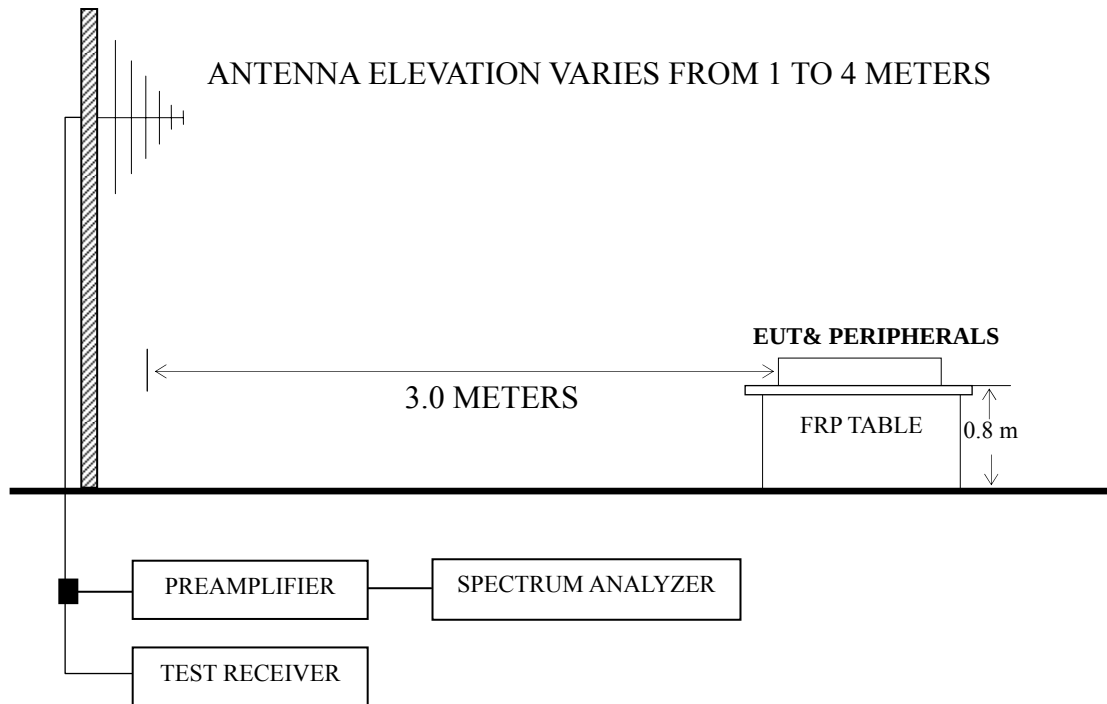
Item	Type	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
1.	Test Receiver	R&S	ESVS10	844594/001	Mar 07, 2009	Mar 07, 2010
2.	Preamplifier	Agilent	8447D	2944A10548	Sep 19, 2009	Mar 19, 2010
3.	Preamplifier	HP	8449B	3008A00864	Apr 29, 2009	Apr 29, 2010
4.	Bi-log Antenna	TESEQ	CBL6112D	23193	May 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



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

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 1600*900@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.

M/N	Test Mode	Data Page
W2040TV	D-Sub 640*480@60Hz	P22
	D-Sub 1024*768@60Hz	P23
	D-Sub 1600*900@60Hz	P24
	DVI 640*480@60Hz	P25
	DVI 1024*768@60Hz	P26
	DVI 1600*900@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. (< 1GHz)

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

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 – The worst case is for DVI 1024*768@60Hz test mode. The worst emission at horizontal polarization was detected at 275.410 MHz with corrected signal level of 38.42 dB (μV/m) (limit is 46.00dB (μV/m)), when the antenna was 1.19 m height and the turntable was at 223°. The worst emission at vertical polarization was detected at 274.440 MHz with corrected signal level of 42.33 dB (μV/m) (limit is 46.00 dB (μV/m)), when the antenna was 1.20 m height and the turntable was at 322°.

EUT : LCD Monitor Temperature : 22°C

Model No. : W2040TV Humidity : 60%RH

Serial No. : E2009120802 Date of Test : Dec 29, 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	30.970	1.13	19.03	0.62	20.78	40.00	19.22
	93.050	4.33	10.09	1.01	15.43	43.50	28.07
	284.140	22.01	13.62	1.71	37.34	46.00	8.66
	495.600	8.54	17.85	2.25	28.64	46.00	17.36
	670.200	2.07	19.57	2.62	24.26	46.00	21.74
	907.850	7.36	21.76	3.05	32.17	46.00	13.83
Vertical	31.940	15.08	18.49	0.62	34.19	40.00	5.81
	97.900	8.54	11.11	1.02	20.67	43.50	22.83
	283.170	22.16	13.62	1.71	37.49	46.00	8.51
	457.770	17.17	17.35	2.15	36.67	46.00	9.33
	664.380	6.85	19.54	2.62	29.01	46.00	16.99
	851.590	9.55	21.24	2.96	33.75	46.00	12.25

TEST ENGINEER: RAVEN JIN

EUT : LCD Monitor Temperature : 22°C

Model No. : W2040TV Humidity : 60%RH

Serial No. : E2009120802 Date of Test : Dec 29, 2009

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	30.970	1.25	19.03	0.62	20.90	40.00	19.10
	97.900	8.88	11.11	1.02	21.01	43.50	22.49
	283.170	22.36	13.62	1.71	37.69	46.00	8.31
	492.690	9.57	17.80	2.24	29.61	46.00	16.39
	686.690	11.96	19.63	2.67	34.26	46.00	11.74
	930.160	5.61	21.93	3.10	30.64	46.00	15.36
Vertical	32.910	15.47	17.95	0.62	34.04	40.00	5.96
	97.900	11.29	11.11	1.02	23.42	43.50	20.08
	285.110	23.26	13.64	1.71	38.61	46.00	7.39
	457.770	16.06	17.35	2.15	35.56	46.00	10.44
	702.210	11.38	19.73	2.71	33.82	46.00	12.18
	856.440	9.24	21.28	2.98	33.50	46.00	12.50

TEST ENGINEER: RAVEN JIN

EUT : LCD Monitor Temperature : 22°C

Model No. : W2040TV Humidity : 60%RH

Serial No. : E2009120802 Date of Test : Dec 29, 2009

Test Mode : D-Sub 1600*900@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	30.970	1.57	19.03	0.62	--	21.22	40.00	18.78	QP
	95.960	7.40	10.70	1.01	--	19.11	43.50	24.39	
	284.140	22.57	13.62	1.71	--	37.90	46.00	8.10	
	501.420	10.27	17.93	2.27	--	30.47	46.00	15.53	
	687.660	3.57	19.65	2.66	--	25.88	46.00	20.12	
	959.260	3.03	22.13	3.15	--	28.31	46.00	17.69	
	1157.000	46.37	23.48	4.10	34.11	39.84	74.00	34.16	PK
	1255.000	46.47	24.14	4.31	34.12	40.80	74.00	33.20	
	1422.000	43.89	25.34	4.65	34.14	39.74	74.00	34.26	
	1683.000	44.40	26.61	5.16	34.17	42.00	74.00	32.00	
	1797.000	40.93	26.90	5.40	34.18	39.05	74.00	34.95	
	1948.000	44.86	27.81	5.55	34.20	44.02	74.00	29.98	
Vertical	31.940	14.98	18.49	0.62	--	34.09	40.00	5.91	QP
	71.710	17.07	6.69	0.90	--	24.66	40.00	15.34	
	283.170	22.74	13.62	1.71	--	38.07	46.00	7.93	
	457.770	13.25	17.35	2.15	--	32.75	46.00	13.25	
	677.960	2.12	19.59	2.62	--	24.33	46.00	21.67	
	856.440	9.71	21.28	2.98	--	33.97	46.00	12.03	
	1020.000	41.89	22.54	3.75	34.10	34.08	74.00	39.92	PK
	1072.000	40.45	22.92	3.88	34.11	33.14	74.00	40.86	
	1150.000	44.21	23.42	4.09	34.11	37.61	74.00	36.39	
	1245.000	46.43	24.06	4.29	34.12	40.66	74.00	33.34	
	1313.000	42.18	24.62	4.43	34.13	37.10	74.00	36.90	
	1426.000	45.19	25.34	4.66	34.14	41.05	74.00	32.95	

TEST ENGINEER: RAVEN JIN

EUT : LCD Monitor Temperature : 22°C

Model No. : W2040TV Humidity : 60%RH

Serial No. : E2009120802 Date of Test : Dec 29, 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	30.000	0.59	19.60	0.62	20.81	40.00	19.19
	87.230	9.08	8.96	0.99	19.03	40.00	20.97
	283.170	21.89	13.62	1.71	37.22	46.00	8.78
	502.390	8.41	17.93	2.27	28.61	46.00	17.39
	679.900	4.09	19.61	2.65	26.35	46.00	19.65
	857.410	3.86	21.28	2.98	28.12	46.00	17.88
Vertical	32.910	15.58	17.95	0.62	34.15	40.00	5.85
	75.590	15.47	7.24	0.91	23.62	40.00	16.38
	273.470	25.88	13.40	1.68	40.96	46.00	5.04
	457.770	17.06	17.35	2.15	36.56	46.00	9.44
	680.870	2.61	19.61	2.67	24.89	46.00	21.11
	856.440	10.06	21.28	2.98	34.32	46.00	11.68

TEST ENGINEER: RAVEN JIN

EUT : LCD Monitor Temperature : 22°C

Model No. : W2040TV Humidity : 60%RH

Serial No. : E2009120802 Date of Test : Dec 29, 2009

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	30.000	3.85	19.60	0.62	24.07	40.00	15.93
	171.620	20.44	10.15	1.33	31.92	43.50	11.58
	275.410	23.29	13.45	1.68	38.42	46.00	7.58
	502.390	9.08	17.93	2.27	29.28	46.00	16.72
	687.660	13.44	19.65	2.66	35.75	46.00	10.25
	974.780	13.27	22.24	3.16	38.67	54.00	15.33
Vertical	30.000	10.54	19.60	0.62	30.76	40.00	9.24
	171.620	18.23	10.15	1.33	29.71	43.50	13.79
	274.440	27.22	13.43	1.68	42.33	46.00	3.67
	400.540	19.59	16.50	1.99	38.08	46.00	7.92
	685.720	13.55	19.63	2.67	35.85	46.00	10.15
	974.780	15.77	22.24	3.16	41.17	54.00	12.83

TEST ENGINEER: RAVEN JIN

EUT : LCD Monitor Temperature : 22°C

Model No. : W2040TV Humidity : 60%RH

Serial No. : E2009120802 Date of Test : Dec 29, 2009

Test Mode : DVI 1600*900@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	32.910	2.74	17.95	0.62	--	21.31	40.00	18.69	QP
	95.960	6.81	10.70	1.01	--	18.52	43.50	24.98	
	282.200	22.05	13.59	1.69	--	37.33	46.00	8.67	
	540.220	21.07	18.42	2.35	--	41.84	46.00	4.16	
	696.390	7.40	19.69	2.69	--	29.78	46.00	16.22	
	971.870	7.16	22.22	3.16	--	32.54	54.00	21.46	
	1076.000	44.61	22.92	3.89	34.11	37.31	74.00	36.69	PK
	1191.000	45.38	23.67	4.18	34.12	39.11	74.00	34.89	
	1427.000	44.82	25.38	4.66	34.14	40.72	74.00	33.28	
	1543.000	43.57	26.07	4.88	34.16	40.36	74.00	33.64	
	1699.000	41.94	26.65	5.19	34.17	39.61	74.00	34.39	
	1860.000	41.82	27.26	5.46	34.19	40.35	74.00	33.65	
Vertical	32.910	17.40	17.95	0.62	--	35.97	40.00	4.03	QP
	95.960	10.31	10.70	1.01	--	22.02	43.50	21.48	
	274.440	26.31	13.43	1.68	--	41.42	46.00	4.58	
	457.770	17.12	17.35	2.15	--	36.62	46.00	9.38	
	683.780	4.81	19.62	2.67	--	27.10	46.00	18.90	
	971.870	11.72	22.22	3.16	--	37.10	54.00	16.90	
	1101.000	44.62	23.11	3.96	34.11	37.58	74.00	36.42	PK
	1198.000	42.92	23.70	4.20	34.12	36.70	74.00	37.30	
	1321.000	40.87	24.66	4.45	34.13	35.85	74.00	38.15	
	1445.000	41.56	25.49	4.69	34.14	37.60	74.00	36.40	
	1581.000	40.13	26.29	4.96	34.16	37.22	74.00	36.78	
	1876.000	38.52	27.35	5.48	34.19	37.16	74.00	36.84	

TEST ENGINEER: RAVEN JIN

5 DEVIATION TO TEST SPECIFICATIONS

None.

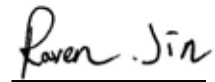
6 DEBUG DESCRIPTION

The following components are used during the countermeasure procedures:

Name	M/N	Specifications (mm)	Manufacturer	Location
Gasket	T-308	50*30	DAEHUNG SUBSIDIARY MATERIALS.	See Internal Photo Figure 13

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)