

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

LCD Monitor

Model No.: W1946TW

Serial No.: E2009101502

FCC ID : BEJW1946TW

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

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

Tel: +86-21-64955500
Fax: +86-21-64955491

Report No. : ACI-F09098
Date of Test : Oct 19, 2009
Date of Report : Oct 26, 2009

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
3.2 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

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. : W1946TW
(B) Serial No. : E2009101502
(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: W1946TW; S/N: E2009101502) which was tested in 3m anechoic chamber Oct 19, 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 19, 2009 Date of Report : Oct 26, 2009

Producer : Zeno Gu
ZENO GU / 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.	:	W1946TW
Serial No.	:	E2009101502
Real Power	:	20.00W
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 : LM185WH1 (TL) (D2)
Max Resolution	:	1360*768@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 : Sept. 17, 1998 file on
(Semi-Anechoic Chamber) 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

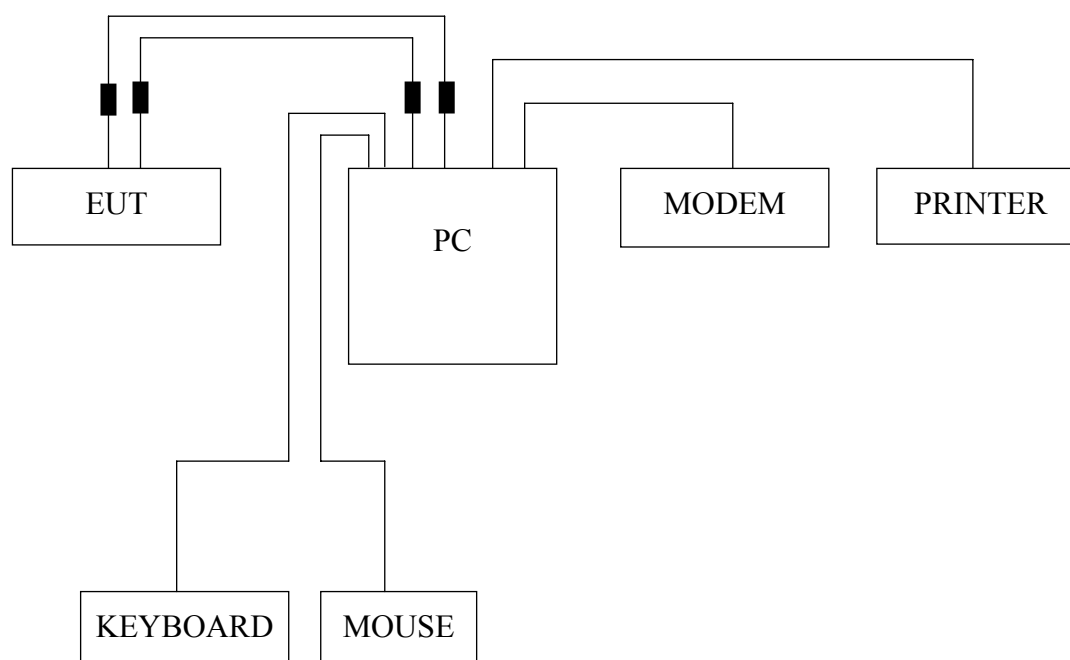
3.1.1 Test Equipment

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	--	--

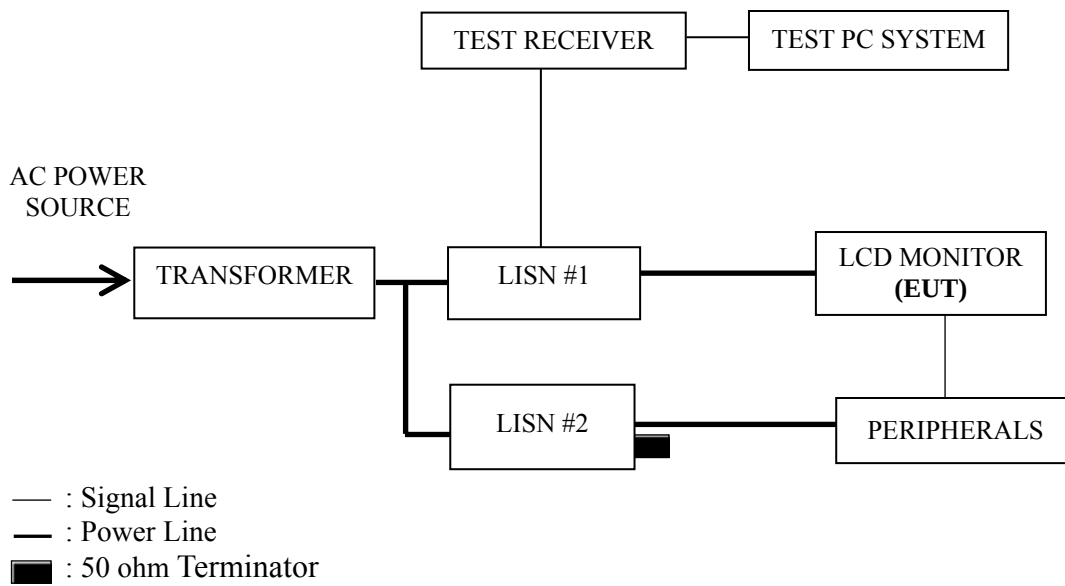
3.2 Block Diagram of Test Setup

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:

M/N	Test Mode
W1946TW	D-Sub 640*480@60Hz
	D-Sub 1024*768@60Hz
	D-Sub 1360*768@60Hz
	DVI 640*480@60Hz
	DVI 1024*768@60Hz
	DVI 1360*768@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.

M/N	Test Mode	Data Page
W1946TW	D-Sub 640*480@60Hz	P12
	D-Sub 1024*768@60Hz	P13
	D-Sub 1360*768@60Hz	P14
	DVI 640*480@60Hz	P15
	DVI 1024*768@60Hz	P16
	DVI 1360*768@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 1024*768@60Hz test mode. The worst emission is detected at 20.594 MHz (Quasi-Peak) with corrected signal level of 41.95 dB (μV) (limit is 60.00 dB (μV)), when the Neutral of the EUT is connected to LISN.

EUT : LCD Monitor Temperature : 21°C

Model No. : W1946TW Humidity : 50%RH

Serial No. : E2009101502 Date of Test : Oct 19, 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	0.180	42.60	0.18	42.78	64.50	21.72	QP
	0.247	36.01	0.19	36.20	61.86	25.66	
	0.546	30.15	0.18	30.33	56.00	25.67	
	2.869	34.70	0.29	34.99	56.00	21.01	
	5.774	30.69	0.34	31.03	60.00	28.97	
	22.655	32.52	0.50	33.02	60.00	26.98	
	0.180	32.65	0.18	32.83	54.50	21.67	AV
	0.247	26.65	0.19	26.84	51.86	25.02	
	0.546	20.36	0.18	20.54	46.00	25.46	
	2.869	24.84	0.29	25.13	46.00	20.87	
	5.774	20.35	0.34	20.69	50.00	29.31	
	22.655	22.64	0.50	23.14	50.00	26.86	
Neutral	0.180	42.39	0.17	42.56	64.50	21.94	QP
	0.247	36.13	0.18	36.31	61.86	25.55	
	0.546	31.56	0.19	31.75	56.00	24.25	
	2.678	34.57	0.32	34.89	56.00	21.11	
	6.121	34.42	0.35	34.77	60.00	25.23	
	20.377	39.41	0.53	39.94	60.00	20.06	
	0.180	31.34	0.17	31.51	54.50	22.99	AV
	0.247	31.30	0.18	31.48	51.86	20.38	
	0.546	25.81	0.19	26.00	46.00	20.00	
	2.678	26.77	0.32	27.09	46.00	18.91	
	6.121	26.41	0.35	26.76	50.00	23.24	
	20.377	28.77	0.53	29.30	50.00	20.70	

TEST ENGINEER: HUGH HUANG

EUT : LCD Monitor Temperature : 21°C

Model No. : W1946TW Humidity : 50%RH

Serial No. : E2009101502 Date of Test : Oct 19, 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	0.180	44.10	0.18	44.28	64.50	20.22	QP
	0.247	37.34	0.19	37.53	61.86	24.33	
	0.546	29.71	0.18	29.89	56.00	26.11	
	2.736	35.37	0.28	35.65	56.00	20.35	
	13.989	31.30	0.45	31.75	60.00	28.25	
	20.594	33.37	0.48	33.85	60.00	26.15	
	0.180	29.16	0.18	29.34	54.50	25.16	AV
	0.247	30.96	0.19	31.15	51.86	20.71	
	0.546	26.37	0.18	26.55	46.00	19.45	
	2.736	23.97	0.28	24.25	46.00	21.75	
	13.989	22.93	0.45	23.38	50.00	26.62	
	20.594	23.48	0.48	23.96	50.00	26.04	
Neutral	0.183	43.24	0.17	43.41	64.33	20.92	QP
	0.247	36.10	0.18	36.28	61.86	25.58	
	0.546	31.93	0.19	32.12	56.00	23.88	
	2.707	33.60	0.32	33.92	56.00	22.08	
	6.285	31.66	0.35	32.01	60.00	27.99	
	20.594	41.42	0.53	41.95	60.00	18.05	
	0.183	31.81	0.17	31.98	54.33	22.35	AV
	0.247	31.26	0.18	31.44	51.86	20.42	
	0.546	26.55	0.19	26.74	46.00	19.26	
	2.707	23.24	0.32	23.56	46.00	22.44	
	6.285	22.95	0.35	23.30	50.00	26.70	
	20.594	28.15	0.53	28.68	50.00	21.32	

TEST ENGINEER: HUGH HUANG

EUT : LCD Monitor Temperature : 21°C

Model No. : W1946TW Humidity : 50%RH

Serial No. : E2009101502 Date of Test : Oct 19, 2009

Test Mode : D-Sub 1360*768@60Hz

Test Line	Frequency (MHz)	Meter Reading dB(μV)	Factor (dB)	Emission Level dB(μV)	Limits dB(μV)	Margin (dB)	Remark
Line	0.180	42.21	0.18	42.39	64.50	22.11	QP
	0.247	36.65	0.19	36.84	61.86	25.02	
	0.546	29.88	0.18	30.06	56.00	25.94	
	2.707	33.72	0.28	34.00	56.00	22.00	
	14.364	29.41	0.46	29.87	60.00	30.13	
	20.594	33.48	0.48	33.96	60.00	26.04	
	0.180	31.23	0.18	31.41	54.50	23.09	AV
	0.247	31.87	0.19	32.06	51.86	19.80	
	0.546	26.46	0.18	26.64	46.00	19.36	
	2.707	23.56	0.28	23.84	46.00	22.16	
	14.364	21.06	0.46	21.52	50.00	28.48	
	20.594	21.37	0.48	21.85	50.00	28.15	
Neutral	0.180	44.36	0.17	44.53	64.50	19.97	QP
	0.247	36.40	0.18	36.58	61.86	25.28	
	0.546	31.23	0.19	31.42	56.00	24.58	
	2.839	35.47	0.32	35.79	56.00	20.21	
	5.805	30.86	0.35	31.21	60.00	28.79	
	20.594	40.61	0.53	41.14	60.00	18.86	
	0.180	34.17	0.17	34.34	54.50	20.16	AV
	0.247	26.15	0.18	26.33	51.86	25.53	
	0.546	21.16	0.19	21.35	46.00	24.65	
	2.839	24.20	0.32	24.52	46.00	21.48	
	5.805	20.35	0.35	20.70	50.00	29.30	
	20.594	30.34	0.53	30.87	50.00	19.13	

TEST ENGINEER: HUGH HUANG

EUT : LCD Monitor Temperature : 21°C

Model No. : W1946TW Humidity : 50%RH

Serial No. : E2009101502 Date of Test : Oct 19, 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	0.182	41.87	0.18	42.05	64.42	22.37	QP
	0.247	35.74	0.19	35.93	61.86	25.93	
	0.546	30.33	0.18	30.51	56.00	25.49	
	2.809	34.18	0.28	34.46	56.00	21.54	
	14.213	28.77	0.46	29.23	60.00	30.77	
	22.896	32.82	0.50	33.32	60.00	26.68	
	0.182	31.35	0.18	31.53	54.42	22.89	AV
	0.247	25.64	0.19	25.83	51.86	26.03	
	0.546	20.36	0.18	20.54	46.00	25.46	
	2.809	24.68	0.28	24.96	46.00	21.04	
	14.213	18.68	0.46	19.14	50.00	30.86	
	22.896	22.65	0.50	23.15	50.00	26.85	
Neutral	0.180	41.51	0.17	41.68	64.50	22.82	QP
	0.247	36.62	0.18	36.80	61.86	25.06	
	0.546	31.66	0.19	31.85	56.00	24.15	
	2.869	36.33	0.33	36.66	56.00	19.34	
	6.056	37.37	0.35	37.72	60.00	22.28	
	20.377	37.59	0.53	38.12	60.00	21.88	
	0.180	31.37	0.17	31.54	54.50	22.96	AV
	0.247	26.68	0.18	26.86	51.86	25.00	
	0.546	21.49	0.19	21.68	46.00	24.32	
	2.869	26.94	0.33	27.27	46.00	18.73	
	6.056	27.46	0.35	27.81	50.00	22.19	
	20.377	27.46	0.53	27.99	50.00	22.01	

TEST ENGINEER: HUGH HUANG

EUT : LCD Monitor Temperature : 21°C

Model No. : W1946TW Humidity : 50%RH

Serial No. : E2009101502 Date of Test : Oct 19, 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	0.182	40.73	0.18	40.91	64.42	23.51	QP
	0.247	36.83	0.19	37.02	61.86	24.84	
	0.546	29.02	0.18	29.20	56.00	26.80	
	2.809	34.71	0.28	34.99	56.00	21.01	
	6.056	34.83	0.34	35.17	60.00	24.83	
	22.896	32.26	0.50	32.76	60.00	27.24	
	0.182	30.36	0.18	30.54	54.42	23.88	AV
	0.247	26.64	0.19	26.83	51.86	25.03	
	0.546	19.64	0.18	19.82	46.00	26.18	
	2.809	24.68	0.28	24.96	46.00	21.04	
	6.056	27.16	0.34	27.50	50.00	22.50	
	22.896	22.64	0.50	23.14	50.00	26.86	
Neutral	0.180	41.88	0.17	42.05	64.50	22.45	QP
	0.247	35.41	0.18	35.59	61.86	26.27	
	0.641	31.18	0.20	31.38	56.00	24.62	
	2.839	36.64	0.32	36.96	56.00	19.04	
	6.056	37.27	0.35	37.62	60.00	22.38	
	20.377	39.06	0.53	39.59	60.00	20.41	
	0.180	31.65	0.17	31.82	54.50	22.68	AV
	0.247	25.49	0.18	25.67	51.86	26.19	
	0.641	21.64	0.20	21.84	46.00	24.16	
	2.839	26.64	0.32	26.96	46.00	19.04	
	6.056	27.94	0.35	28.29	50.00	21.71	
	20.377	29.47	0.53	30.00	50.00	20.00	

TEST ENGINEER: HUGH HUANG

EUT : LCD Monitor Temperature : 21°C

Model No. : W1946TW Humidity : 50%RH

Serial No. : E2009101502 Date of Test : Oct 19, 2009

Test Mode : DVI 1360*768@60Hz

Test Line	Frequency (MHz)	Meter Reading dB(μV)	Factor (dB)	Emission Level dB(μV)	Limits dB(μV)	Margin (dB)	Remark
Line	0.180	40.74	0.18	40.92	64.50	23.58	QP
	0.247	35.47	0.19	35.66	61.86	26.20	
	0.546	30.85	0.18	31.03	56.00	24.97	
	2.794	34.13	0.28	34.41	56.00	21.59	
	6.056	34.71	0.34	35.05	60.00	24.95	
	22.655	33.57	0.50	34.07	60.00	25.93	
	0.180	30.36	0.18	30.54	54.50	23.96	AV
	0.247	26.64	0.19	26.83	51.86	25.03	
	0.546	20.36	0.18	20.54	46.00	25.46	
	2.794	24.98	0.28	25.26	46.00	20.74	
	6.056	24.49	0.34	24.83	50.00	25.17	
	22.655	23.45	0.50	23.95	50.00	26.05	
Neutral	0.183	42.22	0.17	42.39	64.33	21.94	QP
	0.247	35.25	0.18	35.43	61.86	26.43	
	0.546	31.92	0.19	32.11	56.00	23.89	
	2.839	36.16	0.32	36.48	56.00	19.52	
	6.056	38.16	0.35	38.51	60.00	21.49	
	22.298	38.97	0.54	39.51	60.00	20.49	
	0.183	32.66	0.17	32.83	54.33	21.50	AV
	0.247	25.68	0.18	25.86	51.86	26.00	
	0.546	21.64	0.19	21.83	46.00	24.17	
	2.839	26.98	0.32	27.30	46.00	18.70	
	6.056	28.75	0.35	29.10	50.00	20.90	
	22.298	28.75	0.54	29.29	50.00	20.71	

TEST ENGINEER: HUGH HUANG

4 RADIATED EMISSION TEST

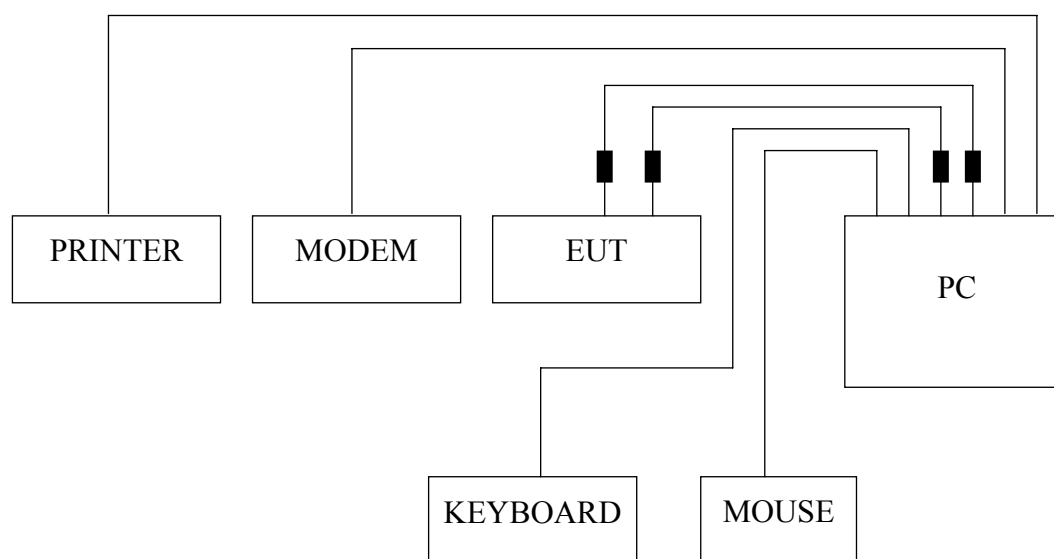
4.1 Test Equipment

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.	Bi-log Antenna	TESEQ	CBL6112D	23193	May 14, 2008	May 14, 2010
4.	Spectrum	Agilent	E7405A	MY45106600	May 19, 2009	May 19, 2010
5.	Software	Audix	E3	SET00200 9912M295-2	--	--

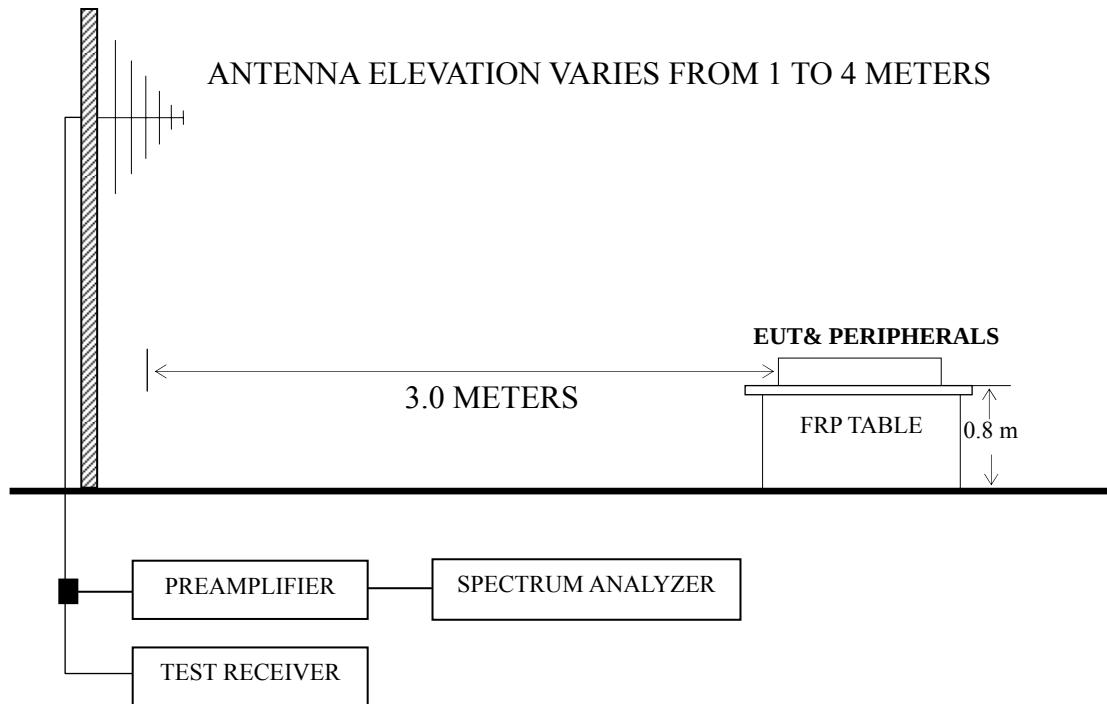
4.2 Block Diagram of Test Setup

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.

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 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
W1946TW	D-Sub 640*480@60Hz	P22
	D-Sub 1024*768@60Hz	P23
	D-Sub 1360*768@60Hz	P24
	DVI 640*480@60Hz	P25
	DVI 1024*768@60Hz	P26
	DVI 1360*768@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.

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 269.590 MHz with corrected signal level of 38.72 dB (μV/m) (limit is 46.00dB (μV/m)), when the antenna was 1.00 m height and the turntable was at 45°. The worst emission at vertical polarization was detected at 31.940 MHz with corrected signal level of 35.93 dB (μV/m) (limit is 40.00 dB (μV/m)), when the antenna was 1.00 m height and the turntable was at 250°.

EUT : LCD Monitor Temperature : 22°C

Model No. : W1946TW Humidity : 60%RH

Serial No. : E2009101502 Date of Test : Oct 19, 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	31.940	8.66	18.49	0.64	27.79	40.00	12.21
	80.440	17.33	7.85	0.95	26.13	40.00	13.87
	150.280	16.73	11.25	1.23	29.21	43.50	14.29
	201.690	18.86	10.78	1.55	31.19	43.50	12.31
	259.890	18.77	13.10	1.74	33.61	46.00	12.39
	601.330	10.93	19.21	2.74	32.88	46.00	13.12
Vertical	30.970	15.93	19.03	0.63	35.59	40.00	4.41
	53.280	26.25	8.14	0.73	35.12	40.00	4.88
	85.290	20.90	8.66	0.99	30.55	40.00	9.45
	201.690	23.36	10.78	1.55	35.69	43.50	7.81
	276.380	21.88	13.47	1.80	37.15	46.00	8.85
	329.730	18.91	14.74	1.99	35.64	46.00	10.36

TEST ENGINEER: RAVEN JIN

EUT : LCD Monitor Temperature : 22°C

Model No. : W1946TW Humidity : 60%RH

Serial No. : E2009101502 Date of Test : Oct 19, 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	30.000	7.70	19.60	0.63	27.93	40.00	12.07
	79.470	14.39	7.72	0.94	23.05	40.00	16.95
	145.430	14.83	11.66	1.21	27.70	43.50	15.80
	189.080	16.66	10.24	1.48	28.38	43.50	15.12
	274.440	22.60	13.43	1.79	37.82	46.00	8.18
	701.240	8.94	19.70	2.94	31.58	46.00	14.42
Vertical	53.280	25.95	8.14	0.73	34.82	40.00	5.18
	87.230	25.09	8.96	1.00	35.05	40.00	4.95
	109.540	18.56	12.25	1.11	31.92	43.50	11.58
	201.690	23.72	10.78	1.55	36.05	43.50	7.45
	276.380	19.58	13.47	1.80	34.85	46.00	11.15
	851.590	11.75	21.24	3.32	36.31	46.00	9.69

TEST ENGINEER: RAVEN JIN

EUT : LCD Monitor Temperature : 22°C

Model No. : W1946TW Humidity : 60%RH

Serial No. : E2009101502 Date of Test : Oct 19, 2009

Test Mode : D-Sub 1360*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	4.93	19.60	0.63	25.16	40.00	14.84
	72.680	17.88	6.85	0.88	25.61	40.00	14.39
	145.430	16.88	11.66	1.21	29.75	43.50	13.75
	218.180	14.94	11.52	1.60	28.06	46.00	17.94
	274.440	22.11	13.43	1.79	37.33	46.00	8.67
	577.080	6.38	18.94	2.68	28.00	46.00	18.00
Vertical	31.940	16.66	18.49	0.64	35.79	40.00	4.21
	48.430	24.18	9.62	0.70	34.50	40.00	5.50
	145.430	22.01	11.66	1.21	34.88	43.50	8.62
	201.690	23.45	10.78	1.55	35.78	43.50	7.72
	274.440	19.59	13.43	1.79	34.81	46.00	11.19
	458.740	14.10	17.35	2.35	33.80	46.00	12.20

TEST ENGINEER: RAVEN JIN

EUT : LCD Monitor Temperature : 22°C

Model No. : W1946TW Humidity : 60%RH

Serial No. : E2009101502 Date of Test : Oct 19, 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	30.970	4.94	19.03	0.63	24.60	40.00	15.40
	75.590	15.00	7.24	0.91	23.15	40.00	16.85
	145.430	14.52	11.66	1.21	27.39	43.50	16.11
	206.540	18.70	10.97	1.57	31.24	43.50	12.26
	271.530	23.78	13.37	1.77	38.92	46.00	7.08
	730.340	9.92	20.00	3.01	32.93	46.00	13.07
Vertical	30.970	15.90	19.03	0.63	35.56	40.00	4.44
	53.280	25.44	8.14	0.73	34.31	40.00	5.69
	138.640	17.11	12.17	1.19	30.47	43.50	13.03
	201.690	23.51	10.78	1.55	35.84	43.50	7.66
	274.440	19.64	13.43	1.79	34.86	46.00	11.14
	492.690	11.07	17.80	2.41	31.28	46.00	14.72

TEST ENGINEER: RAVEN JIN

EUT : LCD Monitor Temperature : 22°C

Model No. : W1946TW Humidity : 60%RH

Serial No. : E2009101502 Date of Test : Oct 19, 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	7.17	19.60	0.63	27.40	40.00	12.60
	53.280	11.63	8.14	0.73	20.50	40.00	19.50
	145.430	14.24	11.66	1.21	27.11	43.50	16.39
	206.540	17.86	10.97	1.57	30.40	43.50	13.10
	269.590	23.63	13.32	1.77	38.72	46.00	7.28
	730.340	9.99	20.00	3.01	33.00	46.00	13.00
Vertical	31.940	16.80	18.49	0.64	35.93	40.00	4.07
	53.280	25.15	8.14	0.73	34.02	40.00	5.98
	87.230	23.17	8.96	1.00	33.13	40.00	6.87
	140.580	17.04	12.05	1.20	30.29	43.50	13.21
	201.690	23.06	10.78	1.55	35.39	43.50	8.11
	269.590	20.42	13.32	1.77	35.51	46.00	10.49

TEST ENGINEER: RAVEN JIN

EUT : LCD Monitor Temperature : 22°C

Model No. : W1946TW Humidity : 60%RH

Serial No. : E2009101502 Date of Test : Oct 19, 2009

Test Mode : DVI 1360*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	5.61	19.03	0.63	25.27	40.00	14.73
	72.680	22.36	6.85	0.88	30.09	40.00	9.91
	111.480	10.34	12.43	1.12	23.89	43.50	19.61
	145.430	15.79	11.66	1.21	28.66	43.50	14.84
	208.480	17.57	11.09	1.57	30.23	43.50	13.27
	276.380	22.98	13.47	1.80	38.25	46.00	7.75
Vertical	30.970	14.90	19.03	0.63	34.56	40.00	5.44
	61.040	27.35	6.59	0.80	34.74	40.00	5.26
	72.680	27.64	6.85	0.88	35.37	40.00	4.63
	145.430	20.68	11.66	1.21	33.55	43.50	9.95
	198.780	21.61	10.64	1.54	33.79	43.50	9.71
	271.530	19.86	13.37	1.77	35.00	46.00	11.00

TEST ENGINEER: RAVEN JIN

5 DEVIATION TO TEST SPECIFICATIONS

None.