

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

LCD Monitor

Model No.: W2343TEV

Serial No.: E2009051501

FCC ID : BEJW2343TEV

Prepared For : LG Electronics U.S.A., Inc.
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Date of Test : May 18 – 26, 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. : W2343TEV
(B) Serial No. : E2009051501
(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: W2343TEV; S/N: E2009051501) which was tested in 3m anechoic chamber May 18 – 26, 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 : May 18 – 26, 2009 Date of Report : May 25, 2009

Producer : Zeno Gu
ZENO GU / Assistant

Review : Dio Yang
DIO YANG / Supervisor

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

Signatory : Emc Byron Kwo
Authorized Signature EMC BYRON KWO / 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.	:	W2343TEV
Serial No.	:	E2009051501
Real Power	:	27.00W
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) (D1)
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 : dx6120MT
Serial Number : CNG53004J2
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

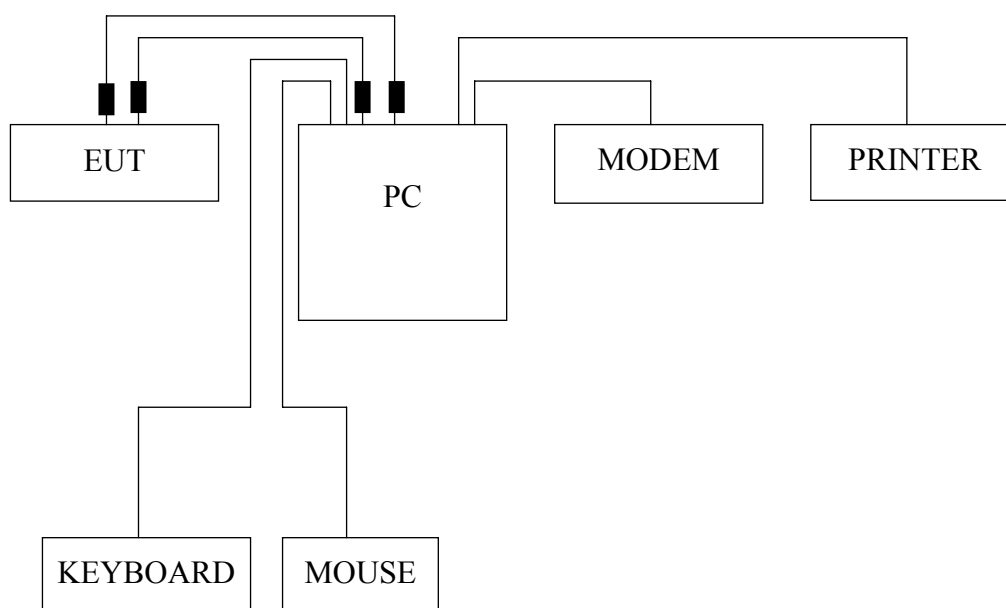
3.1.1 Test Equipment

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.	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	Mar 19, 2009	Sep 19, 2009
5.	50 Ω Terminator	Anritsu	BNC	001	Apr 02, 2009	Apr 02, 2010
6.	Software	Audix	E3	SET00200 9804M592	--	--

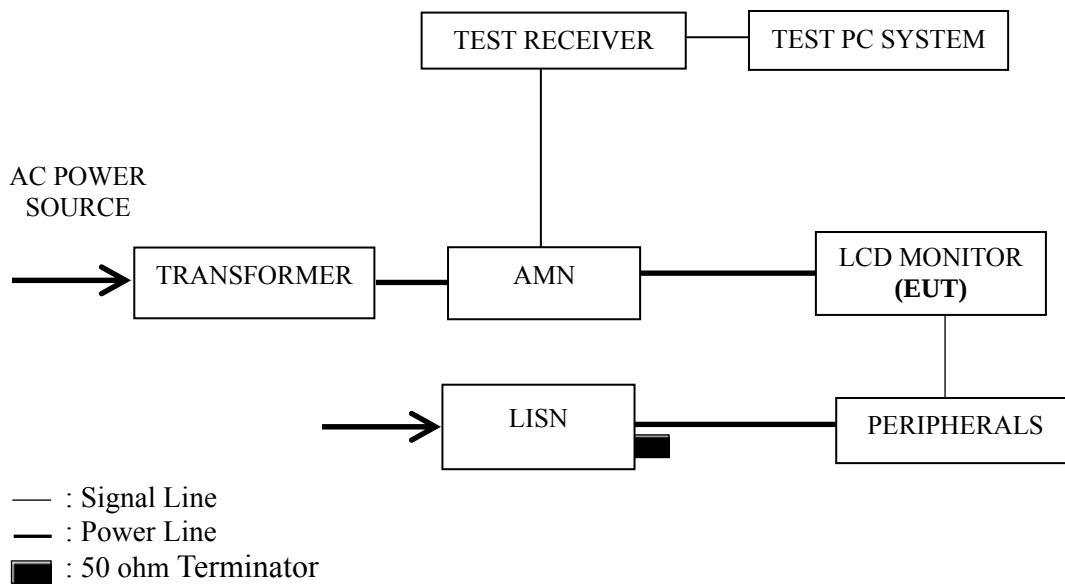
3.2 Block Diagram of Test Setup

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 & DVI Input).

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

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

3.5.7 The test modes are as follows:

Test Mode
D-Sub 640*480@60Hz
D-Sub 1024*768@60Hz
D-Sub 1680*1050@60Hz
D-Sub 1920*1080@60Hz
DVI 640*480@60Hz
DVI 1024*768@60Hz
DVI 1680*1050@60Hz
DVI 1920*1080@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.

Test Mode	Data Page
D-Sub 640*480@60Hz	P12
D-Sub 1024*768@60Hz	P13
D-Sub 1680*1050@60Hz	P14
D-Sub 1920*1080@60Hz	P15
DVI 640*480@60Hz	P16
DVI 1024*768@60Hz	P17
DVI 1680*1050@60Hz	P18
DVI 1920*1080@60Hz	P19

NOTE 1 – Factor = Cable Loss + AMN Factor.

NOTE 2 – Emission Level = Meter Reading + Factor.

NOTE 3 – “QP” means “Quasi-Peak” values, “AV” means “Average” values.

NOTE 4 – The worst case is for DVI 640*480@60Hz test mode. The worst emission is detected at 10.452 MHz (Average) with corrected signal level of 39.66 dB (μV) (limit is 50.00 dB (μV)), when the Neutral of the EUT is connected to AMN.

EUT : LCD Monitor Temperature : 19°C

Model No. : W2343TEV Humidity : 50%RH

Serial No. : E2009051501 Date of Test : May 18, 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	0.197	50.55	0.64	51.19	63.76	12.57	QP
	0.262	46.84	0.62	47.46	61.38	13.92	
	0.524	38.75	0.56	39.31	56.00	16.69	
	1.568	34.42	0.43	34.85	56.00	21.15	
	7.100	40.61	0.58	41.19	60.00	18.81	
	18.232	41.40	0.84	42.24	60.00	17.76	
	0.197	41.51	0.64	42.15	53.76	11.61	AV
	0.262	36.54	0.62	37.16	51.38	14.22	
	0.524	28.67	0.56	29.23	46.00	16.77	
	1.568	24.51	0.43	24.94	46.00	21.06	
	7.100	31.27	0.58	31.85	50.00	18.15	
	18.232	31.28	0.84	32.12	50.00	17.88	
Neutral	0.197	50.23	0.56	50.79	63.76	12.97	QP
	0.417	40.12	0.57	40.69	57.51	16.82	
	1.153	33.77	0.47	34.24	56.00	21.76	
	6.420	41.10	0.63	41.73	60.00	18.27	
	8.323	41.32	0.71	42.03	60.00	17.97	
	23.140	39.16	0.91	40.07	60.00	19.93	
	0.197	41.55	0.56	42.11	53.76	11.65	AV
	0.417	31.24	0.57	31.81	47.51	15.70	
	1.153	23.63	0.47	24.10	46.00	21.90	
	6.420	31.22	0.63	31.85	50.00	18.15	
	8.323	31.48	0.71	32.19	50.00	17.81	
	23.140	29.68	0.91	30.59	50.00	19.41	

TEST ENGINEER: WENCY YANG

EUT : LCD Monitor Temperature : 19°C

Model No. : W2343TEV Humidity : 50%RH

Serial No. : E2009051501 Date of Test : May 18, 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	0.194	50.39	0.63	51.02	63.84	12.82	QP
	0.524	37.56	0.56	38.12	56.00	17.88	
	1.991	36.06	0.40	36.46	56.00	19.54	
	3.241	37.25	0.50	37.75	56.00	18.25	
	8.412	43.12	0.58	43.70	60.00	16.30	
	23.140	42.84	0.82	43.66	60.00	16.34	
	0.194	41.63	0.63	42.26	53.84	11.58	AV
	0.524	27.45	0.56	28.01	46.00	17.99	
	1.991	26.47	0.40	26.87	46.00	19.13	
	3.241	27.48	0.50	27.98	46.00	18.02	
	8.412	33.50	0.58	34.08	50.00	15.92	
	23.140	32.64	0.82	33.46	50.00	16.54	
Neutral	0.197	50.73	0.56	51.29	63.76	12.47	QP
	0.259	46.05	0.57	46.62	61.47	14.85	
	0.735	36.41	0.50	36.91	56.00	19.09	
	1.991	35.27	0.43	35.70	56.00	20.30	
	8.148	39.90	0.71	40.61	60.00	19.39	
	23.140	40.21	0.91	41.12	60.00	18.88	
	0.197	41.66	0.56	42.22	53.76	11.54	AV
	0.259	36.25	0.57	36.82	51.47	14.65	
	0.735	26.83	0.50	27.33	46.00	18.67	
	1.991	25.64	0.43	26.07	46.00	19.93	
	8.148	29.84	0.71	30.55	50.00	19.45	
	23.140	31.48	0.91	32.39	50.00	17.61	

TEST ENGINEER: WENCY YANG

EUT : LCD Monitor Temperature : 19°C

Model No. : W2343TEV Humidity : 50%RH

Serial No. : E2009051501 Date of Test : May 18, 2009

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

Test Line	Frequency (MHz)	Meter Reading dB(μV)	Factor (dB)	Emission Level dB(μV)	Limits dB(μV)	Margin (dB)	Remark
Line	0.194	49.82	0.63	50.45	63.84	13.39	QP
	0.417	39.65	0.59	40.24	57.51	17.27	
	1.991	35.32	0.40	35.72	56.00	20.28	
	2.396	31.73	0.45	32.18	56.00	23.82	
	7.977	41.06	0.58	41.64	60.00	18.36	
	17.568	41.47	0.86	42.33	60.00	17.67	
	0.194	39.15	0.63	39.78	53.84	14.06	AV
	0.417	29.62	0.59	30.21	47.51	17.30	
	1.991	25.61	0.40	26.01	46.00	19.99	
	2.396	21.63	0.45	22.08	46.00	23.92	
	7.977	31.64	0.58	32.22	50.00	17.78	
	17.568	31.26	0.86	32.12	50.00	17.88	
Neutral	0.194	51.67	0.56	52.23	63.84	11.61	QP
	0.524	37.87	0.55	38.42	56.00	17.58	
	1.367	36.10	0.46	36.56	56.00	19.44	
	3.881	35.46	0.46	35.92	56.00	20.08	
	8.323	39.32	0.71	40.03	60.00	19.97	
	22.655	40.74	0.91	41.65	60.00	18.35	
	0.194	41.62	0.56	42.18	53.84	11.66	AV
	0.524	27.61	0.55	28.16	46.00	17.84	
	1.367	26.35	0.46	26.81	46.00	19.19	
	3.881	25.69	0.46	26.15	46.00	19.85	
	8.323	29.64	0.71	30.35	50.00	19.65	
	22.655	31.23	0.91	32.14	50.00	17.86	

TEST ENGINEER: WENCY YANG

EUT : LCD Monitor Temperature : 19°C

Model No. : W2343TEV Humidity : 50%RH

Serial No. : E2009051501 Date of Test : May 18, 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	0.194	49.40	0.63	50.03	63.84	13.81	QP
	0.421	40.01	0.59	40.60	57.42	16.82	
	1.367	36.75	0.45	37.20	56.00	18.80	
	2.201	36.73	0.42	37.15	56.00	18.85	
	8.235	41.04	0.58	41.62	60.00	18.38	
	19.532	37.05	0.82	37.87	60.00	22.13	
	0.194	39.52	0.63	40.15	53.84	13.69	AV
	0.421	31.25	0.59	31.84	47.42	15.58	
	1.367	26.47	0.45	26.92	46.00	19.08	
	2.201	26.47	0.42	26.89	46.00	19.11	
	8.235	31.45	0.58	32.03	50.00	17.97	
	19.532	27.61	0.82	28.43	50.00	21.57	
Neutral	0.194	50.27	0.56	50.83	63.84	13.01	QP
	0.524	38.27	0.55	38.82	56.00	17.18	
	1.367	36.88	0.46	37.34	56.00	18.66	
	1.991	35.78	0.43	36.21	56.00	19.79	
	8.235	40.48	0.71	41.19	60.00	18.81	
	22.535	39.79	0.91	40.70	60.00	19.30	
	0.194	41.62	0.56	42.18	53.84	11.66	AV
	0.524	28.64	0.55	29.19	46.00	16.81	
	1.367	26.47	0.46	26.93	46.00	19.07	
	1.991	25.69	0.43	26.12	46.00	19.88	
	8.235	31.62	0.71	32.33	50.00	17.67	
	22.535	29.64	0.91	30.55	50.00	19.45	

TEST ENGINEER: WENCY YANG

EUT : LCD Monitor Temperature : 19°C

Model No. : W2343TEV Humidity : 50%RH

Serial No. : E2009051501 Date of Test : May 18, 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	0.190	48.77	0.63	49.40	64.02	14.62	QP
	0.393	44.01	0.59	44.60	57.99	13.39	
	1.153	36.63	0.47	37.10	56.00	18.90	
	4.407	37.03	0.56	37.59	56.00	18.41	
	10.452	46.49	0.61	47.10	60.00	12.90	
	18.232	41.34	0.84	42.18	60.00	17.82	
	0.190	38.64	0.63	39.27	54.02	14.75	AV
	0.393	34.61	0.59	35.20	47.99	12.79	
	1.153	26.63	0.47	27.10	46.00	18.90	
	4.407	27.64	0.56	28.20	46.00	17.80	
	10.452	36.40	0.61	37.01	50.00	12.99	
	18.232	31.64	0.84	32.48	50.00	17.52	
Neutral	0.190	49.21	0.55	49.76	64.02	14.26	QP
	0.524	37.62	0.55	38.17	56.00	17.83	
	1.141	34.09	0.47	34.56	56.00	21.44	
	2.201	35.11	0.44	35.55	56.00	20.45	
	10.452	48.24	0.72	48.96	60.00	11.04	
	20.594	41.64	0.92	42.56	60.00	17.44	
	0.190	39.61	0.55	40.16	54.02	13.86	AV
	0.524	27.61	0.55	28.16	46.00	17.84	
	1.141	24.60	0.47	25.07	46.00	20.93	
	2.201	25.67	0.44	26.11	46.00	19.89	
	10.452	38.94	0.72	39.66	50.00	10.34	
	20.594	31.64	0.92	32.56	50.00	17.44	

TEST ENGINEER: WENCY YANG

EUT : LCD Monitor Temperature : 19°C

Model No. : W2343TEV Humidity : 50%RH

Serial No. : E2009051501 Date of Test : May 18, 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	0.190	48.52	0.63	49.15	64.02	14.87	QP
	0.417	38.79	0.59	39.38	57.51	18.13	
	0.735	36.11	0.51	36.62	56.00	19.38	
	1.991	35.07	0.40	35.47	56.00	20.53	
	10.452	47.94	0.61	48.55	60.00	11.45	
	20.924	40.25	0.81	41.06	60.00	18.94	
	0.190	38.95	0.63	39.58	54.02	14.44	AV
	0.417	28.63	0.59	29.22	47.51	18.29	
	0.735	26.63	0.51	27.14	46.00	18.86	
	1.991	25.63	0.40	26.03	46.00	19.97	
	10.452	37.15	0.61	37.76	50.00	12.24	
	20.924	31.65	0.81	32.46	50.00	17.54	
Neutral	0.190	49.21	0.55	49.76	64.02	14.26	QP
	0.426	37.34	0.57	37.91	57.33	19.42	
	0.524	36.83	0.55	37.38	56.00	18.62	
	1.585	38.44	0.44	38.88	56.00	17.12	
	2.931	35.21	0.45	35.66	56.00	20.34	
	10.564	47.62	0.72	48.34	60.00	11.66	
	0.190	39.64	0.55	40.19	54.02	13.83	AV
	0.426	27.63	0.57	28.20	47.33	19.13	
	0.524	26.54	0.55	27.09	46.00	18.91	
	1.585	28.95	0.44	29.39	46.00	16.61	
	2.931	25.64	0.45	26.09	46.00	19.91	
	10.564	37.61	0.72	38.33	50.00	11.67	

TEST ENGINEER: WENCY YANG

EUT : LCD Monitor Temperature : 19°C

Model No. : W2343TEV Humidity : 50%RH

Serial No. : E2009051501 Date of Test : May 18, 2009

Test Mode : DVI 1680*1050@60Hz

Test Line	Frequency (MHz)	Meter Reading dB(μV)	Factor (dB)	Emission Level dB(μV)	Limits dB(μV)	Margin (dB)	Remark
Line	0.190	48.46	0.63	49.09	64.02	14.93	QP
	0.417	39.09	0.59	39.68	57.51	17.83	
	1.367	35.92	0.45	36.37	56.00	19.63	
	1.991	37.06	0.40	37.46	56.00	18.54	
	5.653	38.65	0.58	39.23	60.00	20.77	
	10.452	46.61	0.61	47.22	60.00	12.78	
	0.190	38.64	0.63	39.27	54.02	14.75	AV
	0.417	29.64	0.59	30.23	47.51	17.28	
	1.367	25.64	0.45	26.09	46.00	19.91	
	1.991	27.16	0.40	27.56	46.00	18.44	
	5.653	28.94	0.58	29.52	50.00	20.48	
	10.452	36.94	0.61	37.55	50.00	12.45	
Neutral	0.190	48.95	0.55	49.50	64.02	14.52	QP
	0.417	38.78	0.57	39.35	57.51	18.16	
	1.367	34.28	0.46	34.74	56.00	21.26	
	2.931	34.85	0.45	35.30	56.00	20.70	
	10.452	47.64	0.72	48.36	60.00	11.64	
	20.594	39.32	0.92	40.24	60.00	19.76	
	0.190	38.64	0.55	39.19	54.02	14.83	AV
	0.417	28.93	0.57	29.50	47.51	18.01	
	1.367	24.63	0.46	25.09	46.00	20.91	
	2.931	24.61	0.45	25.06	46.00	20.94	
	10.452	37.61	0.72	38.33	50.00	11.67	
	20.594	29.64	0.92	30.56	50.00	19.44	

TEST ENGINEER: WENCY YANG

EUT : LCD Monitor Temperature : 19°C

Model No. : W2343TEV Humidity : 50%RH

Serial No. : E2009051501 Date of Test : May 18, 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	0.192	48.55	0.63	49.18	63.93	14.75	QP
	0.417	38.66	0.59	39.25	57.51	18.26	
	1.210	35.93	0.46	36.39	56.00	19.61	
	1.991	36.74	0.40	37.14	56.00	18.86	
	5.653	39.07	0.58	39.65	60.00	20.35	
	10.452	47.43	0.61	48.04	60.00	11.96	
	0.192	38.95	0.63	39.58	53.93	14.35	AV
	0.417	28.63	0.59	29.22	47.51	18.29	
	1.210	25.64	0.46	26.10	46.00	19.90	
	1.991	26.34	0.40	26.74	46.00	19.26	
Neutral	5.653	29.64	0.58	30.22	50.00	19.78	
	10.452	37.48	0.61	38.09	50.00	11.91	
	0.192	49.35	0.56	49.91	63.93	14.02	QP
	0.417	37.79	0.57	38.36	57.51	19.15	
	1.210	35.53	0.46	35.99	56.00	20.01	
	5.653	38.37	0.54	38.91	60.00	21.09	
	10.564	47.37	0.72	48.09	60.00	11.91	
	20.377	38.81	0.92	39.73	60.00	20.27	AV
	0.192	39.48	0.56	40.04	53.93	13.89	
	0.417	27.63	0.57	28.20	47.51	19.31	
	1.210	25.64	0.46	26.10	46.00	19.90	
	5.653	28.94	0.54	29.48	50.00	20.52	
	10.564	37.64	0.72	38.36	50.00	11.64	
	20.377	28.94	0.92	29.86	50.00	20.14	

TEST ENGINEER: WENCY YANG

4 RADIATED EMISSION TEST

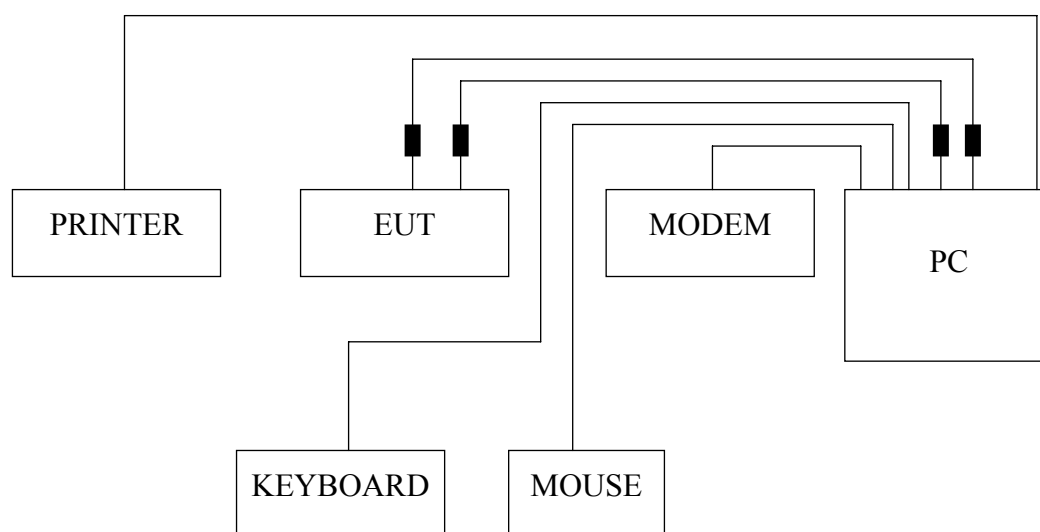
4.1 Test Equipment

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

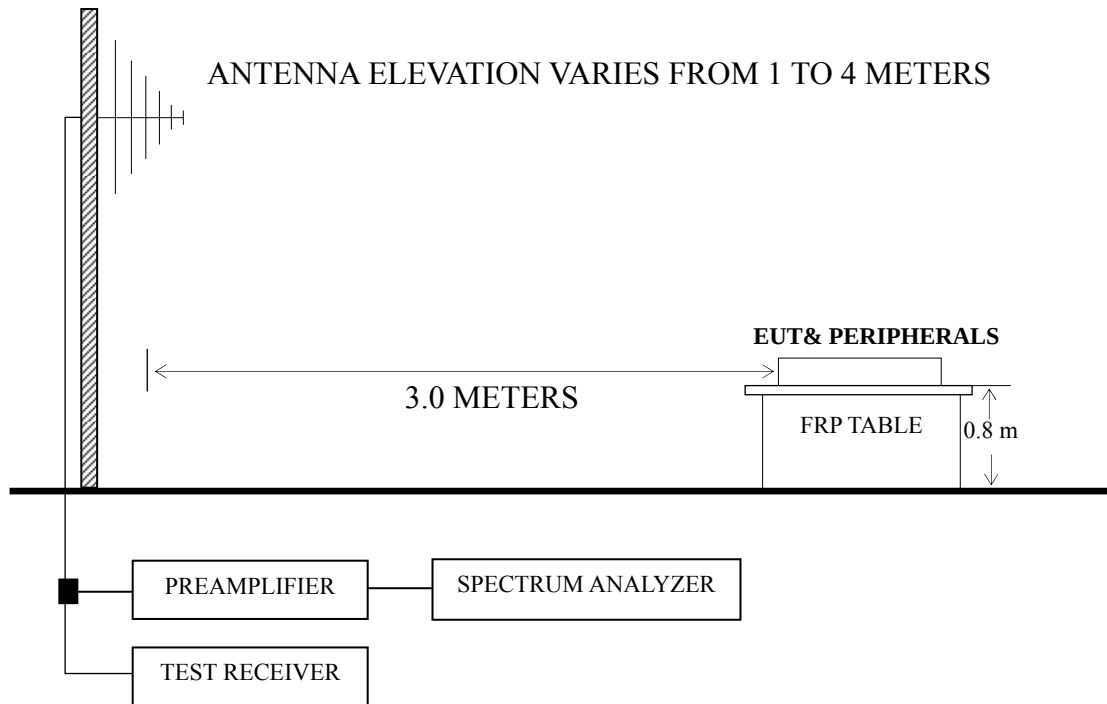
4.2 Block Diagram of Test Setup

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 1680*1050@60Hz and D-Sub/DVI 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	P24
D-Sub 1024*768@60Hz	P25
D-Sub 1680*1050@60Hz	P26
D-Sub 1920*1080@60Hz	P27
DVI 640*480@60Hz	P28
DVI 1024*768@60Hz	P29
DVI 1680*1050@60Hz	P30
DVI 1920*1080@60Hz	P31

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

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

NOTE 3 – The emission levels that are 20dB below the official limit are not reported.

NOTE 4 – 0° was the table front facing the antenna. Degree is calculated from 0° clockwise facing the antenna.

NOTE 5 – All reading are Quasi-Peak values below or equal to 1GHz and Peak values above 1GHz. For measurements above 1 GHz, the peak measured value complies with the average limit, it is unnecessary to perform an average measurement.

NOTE 6 – The worst case is for DVI 1024*768@60Hz test mode. The worst emission at horizontal polarization was detected at 324.880 MHz with corrected signal level of 38.81 dB ($\mu\text{V/m}$) (limit is 46.00dB ($\mu\text{V/m}$)), when the antenna was 1.20 m height and the turntable was at 220° . The worst emission at vertical polarization was detected at 93.050 MHz with corrected signal level of 39.98 dB ($\mu\text{V/m}$) (limit is 43.50 dB ($\mu\text{V/m}$)), when the antenna was 1.00 m height and the turntable was at 130° .

EUT : LCD Monitor Temperature : 22°C

Model No. : W2343TEV Humidity : 60%RH

Serial No. : E2009051501 Date of Test : May 26, 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	89.170	17.79	9.24	1.01	28.04	43.50	15.46
	169.680	13.91	10.20	1.35	25.46	43.50	18.04
	221.090	13.00	11.71	1.61	26.32	46.00	19.68
	331.670	17.66	14.78	1.99	34.43	46.00	11.57
	579.990	7.44	18.97	2.68	29.09	46.00	16.91
	829.280	6.42	20.98	3.26	30.66	46.00	15.34
Vertical	33.880	11.91	17.44	0.64	29.99	40.00	10.01
	96.930	26.01	10.87	1.06	37.94	43.50	5.56
	140.580	16.64	12.05	1.20	29.89	43.50	13.61
	221.090	13.88	11.71	1.61	27.20	46.00	18.80
	332.640	19.31	14.82	1.99	36.12	46.00	9.88
	525.670	9.69	18.24	2.51	30.44	46.00	15.56

TEST ENGINEER: RAVEN JIN

EUT : LCD Monitor Temperature : 22°C

Model No. : W2343TEV Humidity : 60%RH

Serial No. : E2009051501 Date of Test : May 26, 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	2.24	19.03	0.63	21.90	40.00	18.10
	94.020	15.95	10.27	1.05	27.27	43.50	16.23
	169.680	14.49	10.20	1.35	26.04	43.50	17.46
	205.570	15.22	10.93	1.56	27.71	43.50	15.79
	331.670	13.88	14.78	1.99	30.65	46.00	15.35
	626.550	6.06	19.34	2.79	28.19	46.00	17.81
Vertical	32.910	13.61	17.95	0.64	32.20	40.00	7.80
	90.140	28.68	9.40	1.02	39.10	43.50	4.40
	139.610	16.93	12.12	1.20	30.25	43.50	13.25
	281.230	15.37	13.57	1.81	30.75	46.00	15.25
	331.670	10.89	14.78	1.99	27.66	46.00	18.34
	525.670	10.14	18.24	2.51	30.89	46.00	15.11

TEST ENGINEER: RAVEN JIN

EUT : LCD Monitor Temperature : 22°C

Model No. : W2343TEV Humidity : 60%RH

Serial No. : E2009051501 Date of Test : May 26, 2009

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

Polarization	Frequency (MHz)	Meter Reading dB (μV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamplifier Factor (dB)	Emission Level dB (μV/m)	Limits dB (μV/m)	Margin (dB)	Remark
Horizontal	84.320	14.77	8.48	0.98	--	24.23	40.00	15.77	QP
	94.990	15.56	10.45	1.05	--	27.06	43.50	16.44	
	165.800	17.07	10.33	1.32	--	28.72	43.50	14.78	
	331.670	17.42	14.78	1.99	--	34.19	46.00	11.81	
	626.550	6.28	19.34	2.79	--	28.41	46.00	17.59	
	833.160	7.80	21.01	3.29	--	32.10	46.00	13.90	
	1105.000	50.16	23.15	3.98	37.41	39.88	74.00	34.12	PK
	1285.000	50.12	24.40	4.38	36.97	41.93	74.00	32.07	
	1396.000	47.69	25.16	4.59	36.74	40.70	74.00	33.30	
	1614.000	44.04	26.43	5.03	36.31	39.19	74.00	34.81	
	1837.000	45.44	27.12	5.43	35.94	42.05	74.00	31.95	
	1969.000	49.69	27.91	5.57	35.74	47.43	74.00	26.57	
Vertical	32.910	14.34	17.95	0.64	--	32.93	40.00	7.07	QP
	94.990	27.39	10.45	1.05	--	38.89	43.50	4.61	
	139.610	16.31	12.12	1.20	--	29.63	43.50	13.87	
	221.090	15.38	11.71	1.61	--	28.70	46.00	17.30	
	331.670	15.39	14.78	1.99	--	32.16	46.00	13.84	
	580.960	9.94	19.00	2.68	--	31.62	46.00	14.38	
	1139.000	56.04	23.36	4.06	37.33	46.13	74.00	27.87	PK
	1219.000	51.84	23.86	4.24	37.13	42.81	74.00	31.19	
	1451.000	47.06	25.53	4.71	36.63	40.67	74.00	33.33	
	1578.000	51.21	26.29	4.96	36.38	46.08	74.00	27.92	
	1756.000	44.68	26.80	5.31	36.07	40.72	74.00	33.28	
	1886.000	48.68	27.40	5.49	35.86	45.71	74.00	28.29	

TEST ENGINEER: RAVEN JIN

EUT : LCD Monitor Temperature : 22°C

Model No. : W2343TEV Humidity : 60%RH

Serial No. : E2009051501 Date of Test : May 26, 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	94.020	19.61	10.27	1.05	--	30.93	43.50	12.57	QP
	165.800	14.73	10.33	1.32	--	26.38	43.50	17.12	
	224.970	14.56	11.89	1.62	--	28.07	46.00	17.93	
	333.610	15.80	14.86	1.99	--	32.65	46.00	13.35	
	415.090	6.46	16.72	2.24	--	25.42	46.00	20.58	
	626.550	6.17	19.34	2.79	--	28.30	46.00	17.70	
	1101.000	51.49	23.11	3.96	37.42	41.14	74.00	32.86	PK
	1261.000	47.00	24.19	4.32	37.03	38.48	74.00	35.52	
	1302.000	44.96	24.54	4.41	36.94	36.97	74.00	37.03	
	1449.000	45.04	25.49	4.70	36.63	38.60	74.00	35.40	
	1630.000	43.65	26.47	5.05	36.29	38.88	74.00	35.12	
	1783.000	44.75	26.87	5.37	36.03	40.96	74.00	33.04	
Vertical	33.880	13.54	17.44	0.64	--	31.62	40.00	8.38	QP
	95.960	27.99	10.70	1.05	--	39.74	43.50	3.76	
	140.580	16.81	12.05	1.20	--	30.06	43.50	13.44	
	331.670	17.96	14.78	1.99	--	34.73	46.00	11.27	
	525.670	8.64	18.24	2.51	--	29.39	46.00	16.61	
	829.280	10.40	20.98	3.26	--	34.64	46.00	11.36	
	1035.000	51.75	22.63	3.79	37.60	40.57	74.00	33.43	PK
	1172.000	48.20	23.56	4.14	37.24	38.66	74.00	35.34	
	1255.000	50.85	24.14	4.31	37.04	42.26	74.00	31.74	
	1363.000	51.68	24.98	4.54	36.81	44.39	74.00	29.61	
	1557.000	43.47	26.15	4.91	36.42	38.11	74.00	35.89	
	1699.000	45.79	26.65	5.19	36.17	41.46	74.00	32.54	

TEST ENGINEER: RAVEN JIN

EUT : LCD Monitor Temperature : 22°C

Model No. : W2343TEV Humidity : 60%RH

Serial No. : E2009051501 Date of Test : May 26, 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	93.050	15.49	10.09	1.04	26.62	43.50	16.88
	149.310	19.25	11.35	1.22	31.82	43.50	11.68
	194.900	19.31	10.51	1.51	31.33	43.50	12.17
	291.900	15.34	13.77	1.85	30.96	46.00	15.04
	324.880	23.31	14.58	1.96	39.85	46.00	6.15
	592.600	4.66	19.11	2.72	26.49	46.00	19.51
Vertical	30.970	13.00	19.03	0.63	32.66	40.00	7.34
	94.020	28.56	10.27	1.05	39.88	43.50	3.62
	141.550	14.05	12.01	1.20	27.26	43.50	16.24
	221.090	12.16	11.71	1.61	25.48	46.00	20.52
	290.930	15.35	13.75	1.85	30.95	46.00	15.05
	511.120	14.54	18.04	2.46	35.04	46.00	10.96

TEST ENGINEER: RAVEN JIN

EUT : LCD Monitor Temperature : 22°C

Model No. : W2343TEV Humidity : 60%RH

Serial No. : E2009051501 Date of Test : May 26, 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	73.650	12.86	6.98	0.89	20.73	40.00	19.27
	89.170	19.01	9.24	1.01	29.26	43.50	14.24
	194.900	19.81	10.51	1.51	31.83	43.50	11.67
	324.880	22.27	14.58	1.96	38.81	46.00	7.19
	520.820	6.73	18.18	2.51	27.42	46.00	18.58
	844.800	5.35	21.16	3.32	29.83	46.00	16.17
Vertical	33.880	15.37	17.44	0.64	33.45	40.00	6.55
	93.050	28.85	10.09	1.04	39.98	43.50	3.52
	138.640	16.83	12.17	1.19	30.19	43.50	13.31
	220.120	18.28	11.66	1.61	31.55	46.00	14.45
	324.880	16.69	14.58	1.96	33.23	46.00	12.77
	512.090	14.44	18.06	2.46	34.96	46.00	11.04

TEST ENGINEER: RAVEN JIN

EUT : LCD Monitor Temperature : 22°C

Model No. : W2343TEV Humidity : 60%RH

Serial No. : E2009051501 Date of Test : May 26, 2009

Test Mode : DVI 1680*1050@60Hz

Polarization	Frequency (MHz)	Meter Reading dB (μV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamplifier Factor (dB)	Emission Level dB (μV/m)	Limits dB (μV/m)	Margin (dB)	Remark
Horizontal	94.990	15.03	10.45	1.05	--	26.53	43.50	16.97	QP
	149.310	19.49	11.35	1.22	--	32.06	43.50	11.44	
	194.900	16.59	10.51	1.51	--	28.61	43.50	14.89	
	324.880	24.99	14.58	1.96	--	41.53	46.00	4.47	
	389.870	14.37	16.30	2.18	--	32.85	46.00	13.15	
	520.820	8.18	18.18	2.51	--	28.87	46.00	17.13	
	1100.000	53.38	23.11	3.96	37.42	43.03	74.00	30.97	PK
	1216.000	50.25	23.86	4.23	37.14	41.20	74.00	32.80	
	1324.000	47.75	24.70	4.46	36.89	40.02	74.00	33.98	
	1500.000	48.20	25.80	4.80	36.53	42.27	74.00	31.73	
	1719.000	46.43	26.71	5.23	36.13	42.24	74.00	31.76	
	1847.000	45.51	27.17	5.45	35.93	42.20	74.00	31.80	
Vertical	32.910	14.83	17.95	0.64	--	33.42	40.00	6.58	QP
	94.020	28.02	10.27	1.05	--	39.34	43.50	4.16	
	139.610	19.93	12.12	1.20	--	33.25	43.50	10.25	
	194.900	19.21	10.51	1.51	--	31.23	43.50	12.27	
	324.880	16.46	14.58	1.96	--	33.00	46.00	13.00	
	519.850	18.00	18.15	2.49	--	38.64	46.00	7.36	
	1142.000	53.50	23.39	4.07	37.32	43.64	74.00	30.36	PK
	1232.000	52.19	23.98	4.26	37.09	43.34	74.00	30.66	
	1408.000	51.05	25.24	4.62	36.71	44.20	74.00	29.80	
	1540.000	46.26	26.07	4.87	36.45	40.75	74.00	33.25	
	1660.000	45.27	26.56	5.11	36.24	40.70	74.00	33.30	
	1829.000	45.67	27.08	5.43	35.95	42.23	74.00	31.77	

TEST ENGINEER: RAVEN JIN

EUT : LCD Monitor Temperature : 22°C

Model No. : W2343TEV Humidity : 60%RH

Serial No. : E2009051501 Date of Test : May 26, 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	88.200	14.83	9.13	1.01	--	24.97	43.50	18.53	QP
	149.310	21.60	11.35	1.22	--	34.17	43.50	9.33	
	194.900	17.28	10.51	1.51	--	29.30	43.50	14.20	
	290.930	22.49	13.75	1.85	--	38.09	46.00	7.91	
	324.880	23.91	14.58	1.96	--	40.45	46.00	5.55	
	649.830	9.55	19.45	2.84	--	31.84	46.00	14.16	PK
	1093.000	52.42	23.05	3.94	37.44	41.97	74.00	32.03	
	1312.000	48.06	24.62	4.43	36.91	40.20	74.00	33.80	
	1434.000	49.13	25.41	4.67	36.66	42.55	74.00	31.45	
	1673.000	45.99	26.58	5.14	36.21	41.50	74.00	32.50	
	1801.000	47.26	26.90	5.40	36.00	43.56	74.00	30.44	
	1922.000	43.87	27.66	5.52	35.81	41.24	74.00	32.76	
Vertical	32.910	14.38	17.95	0.64	--	32.97	40.00	7.03	QP
	94.020	28.07	10.27	1.05	--	39.39	43.50	4.11	
	221.090	15.08	11.71	1.61	--	28.40	46.00	17.60	
	324.880	16.00	14.58	1.96	--	32.54	46.00	13.46	
	518.880	12.28	18.15	2.49	--	32.92	46.00	13.08	
	844.800	6.21	21.16	3.32	--	30.69	46.00	15.31	PK
	1085.000	53.70	22.98	3.91	37.47	43.12	74.00	30.88	
	1209.000	43.55	23.78	4.22	37.15	34.40	74.00	39.60	
	1338.000	50.26	24.78	4.49	36.86	42.67	74.00	31.33	
	1460.000	51.83	25.56	4.73	36.61	45.51	74.00	28.49	
	1552.000	45.68	26.15	4.90	36.43	40.30	74.00	33.70	
	1882.000	41.52	27.40	5.48	35.87	38.53	74.00	35.47	

TEST ENGINEER: RAVEN JIN

5 DEVIATION TO TEST SPECIFICATIONS

None.

6 DEBUG DESCRIPTION

The following components are used during the countermeasure procedures:

Name	M/N	Specifications (mm)	Manufacturer	Location
Aluminum foil	T-308	50*30	DAEHUNG SUBSIDIARY MATERIALS.	See External Photo Figure 15