

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

LCD Monitor

Model No.: W2243TV

Serial No.: E2008121901

FCC ID : BEJW2243TV

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

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Report No. : ACI-F08078
Date of Test : Dec 19-26, 2008
Date of Report : Dec 29, 2008

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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. : W2243TV
(B) Serial No. : E2008121901
(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: W2243TV; S/N: E2008121901) which was tested in 3m anechoic chamber on Dec 19-26, 2008 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 19-26, 2008 Date of Report : Dec 29, 2008

Producer : Alan He
ALAN HE / Assistant

Review : Dio Yang
DIO YANG / Supervisor

 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.	:	W2243TV
Serial No.	:	E2008121901
Real Power	:	44.00W
Applicant	:	LG Electronics U.S.A., Inc. 1000 Sylvan Avenue, Englewood Cliffs, NJ 07632, United States
Manufacturer	:	LG Electronics Nanjing Display Co., Ltd. No.346, Yao Xin Road, Economic & Technical Development Zone, Nanjing, China
LCD Panel	:	Manufacturer : AU Optronics M/N : M215HW01
Max Resolution	:	1920*1080@60Hz
D-Sub Cable #1	:	Shielded, Detachable, 1.85m, with two cores on cable
D-Sub Cable #2	:	Shielded, Detachable, 1.85m, with two cores in connector
DVI Cable #1	:	Shielded, Detachable, 1.85m, with two cores on cable
DVI Cable #2	:	Shielded, Detachable, 1.85m, with two cores in connector
Power Cord	:	Unshielded, Detachable, 1.80m
Note	:	After evaluation, the D-Sub cable#1 and DVI cable#1 were used in the test for they will cause the maximum emission.

Remark:

The EUT is a LCD Monitor which input/output ports as follows:

- (1) One D-Sub Port : Connected with PC
- (2) One DVI Port : Connected with PC
- (3) One AC In Port : Connected with Power

2.2 Peripherals

2.2.1 PC

Manufacturer : HP
Model Number : dx7400MT
Serial Number : CNG8130K89
Power Cord : Unshielded, Detachable, 1.8m
Certificate : FCC DoC; CE/EMC; VCCI; C-Tick; UL
BSMI (R33001) 3C (A000111)
MIC (E-A011-04-2659(B))

2.2.2 Printer

Manufacturer : HP
Model Number : C3990A
Serial Number : JPZX020487
Data Cable : Shielded, Detachable, 1.5m
Certificate : GS, CE/EMC, C-Tick, FCC DoC

2.2.3 Keyboard

Manufacturer : Microsoft
Model Number : RT2300
Serial Number : 7668200662248
Data Cable : Shielded, Undetachable, 1.8m
Certificate : CE/EMC, FCC DoC, VCCI, MIC, C-Tick,
BSMI

2.2.4 Mouse

Manufacturer : Microsoft
Model Number : RT2300
Serial Number : 6965712071551
Data Cable : Shielded, Undetachable, 1.85m.
Certificate : FCC DoC, VCCI, CE/EMC, MIC, GS

2.2.5 Modem

Manufacturer : TP-LINK
Model Number : TM-EC5658V
Serial Number : 07123301053
Data Cable : Shielded, Detachable, 1.8m
Certificate : FCC DoC, CE/EMC, CCC

2.3 Description of Test Facility

Site Description (Semi-Anechoic Chamber) : Sept. 17, 1998 file on
July 26, 2006 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

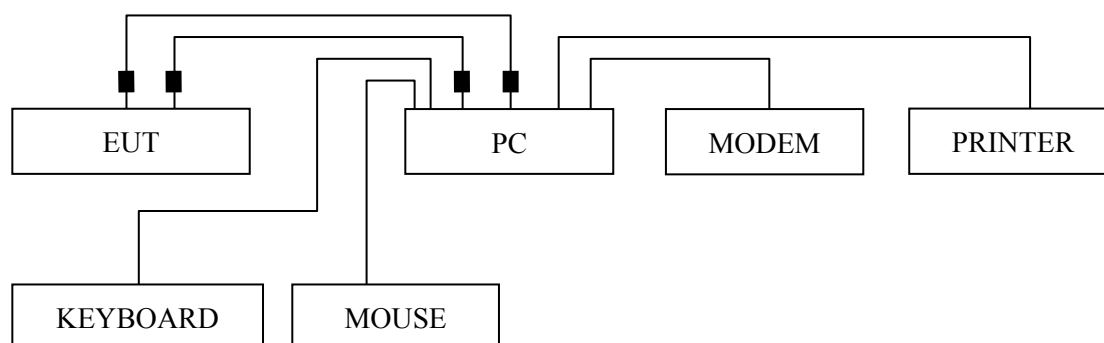
3.1.1 Test Equipment

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	ESHS10	830223/007	Apr 02, 2008	Apr 02, 2009
2.	Artificial Mains Network (AMN)	R&S	ESH2-Z5	843890/011	Apr 02, 2008	Apr 02, 2009
3.	Line Impedance Stabilization Network (LISN)	Kyoritsu	KNW-407	8-1280-4	Apr 02, 2008	Apr 02, 2009
4.	50 Ω Coaxial Switch	Anritsu	MP59B	6200426389	Sep 19, 2008	Mar 19, 2009
5.	50 Ω Terminator	Anritsu	BNC	001	Apr 02, 2008	Apr 02, 2009
6.	Software	Audix	E3	SET00200 9804M592	--	--

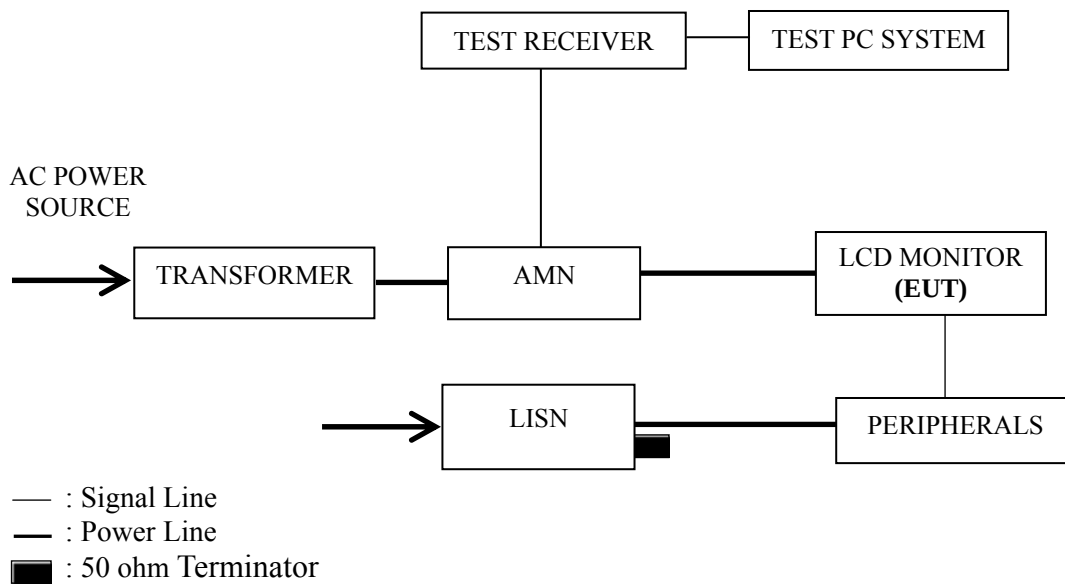
3.2 Block Diagram of Test Setup

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 ESHS10 was set at 10 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 1680*1050@60Hz test mode. The worst emission is detected at 0.156 MHz (Average Value) with corrected signal level of 48.86 dB (μV) (limit is 55.69 dB (μV)), when the Line of the EUT is connected to AMN.

EUT : LCD Monitor Temperature : 21°C

Model No. : W2243TV Humidity : 50%RH

Serial No. : E2008121901 Date of Test : Dec 19, 2008

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	0.153	57.62	0.22	57.84	65.82	7.98	QP
	0.232	45.29	0.21	45.50	62.39	16.89	
	0.310	40.00	0.22	40.22	59.97	19.75	
	4.874	37.06	0.38	37.44	56.00	18.56	
	10.905	39.34	0.62	39.96	60.00	20.04	
	21.147	40.85	0.77	41.62	60.00	18.38	
	0.153	47.89	0.22	48.11	55.82	7.71	AV
	0.232	35.18	0.21	35.39	52.39	17.00	
	0.310	31.49	0.22	31.71	49.97	18.26	
	4.874	28.49	0.38	28.87	46.00	17.13	
	10.905	29.87	0.62	30.49	50.00	19.51	
	21.147	31.24	0.77	32.01	50.00	17.99	
Neutral	0.153	58.05	0.19	58.24	65.82	7.58	QP
	0.232	46.08	0.21	46.29	62.39	16.10	
	0.701	32.59	0.22	32.81	56.00	23.19	
	4.092	31.93	0.33	32.26	56.00	23.74	
	6.089	33.19	0.41	33.60	60.00	26.40	
	11.317	33.93	0.59	34.52	60.00	25.48	
	0.153	48.26	0.19	48.45	55.82	7.37	AV
	0.232	36.48	0.21	36.69	52.39	15.70	
	0.701	23.15	0.22	23.37	46.00	22.63	
	4.092	21.48	0.33	21.81	46.00	24.19	
	6.089	23.19	0.41	23.60	50.00	26.40	
	11.317	23.15	0.59	23.74	50.00	26.26	

TEST ENGINEER: YONG XU

EUT : LCD Monitor Temperature : 21°C

Model No. : W2243TV Humidity : 50%RH

Serial No. : E2008121901 Date of Test : Dec 19, 2008

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	0.156	55.53	0.22	55.75	65.65	9.90	QP
	0.232	43.93	0.21	44.14	62.39	18.25	
	0.701	29.79	0.22	30.01	56.00	25.99	
	5.194	36.36	0.39	36.75	60.00	23.25	
	11.139	38.62	0.63	39.25	60.00	20.75	
	21.600	41.11	0.78	41.89	60.00	18.11	
	0.156	45.78	0.22	46.00	55.65	9.65	AV
	0.232	33.45	0.21	33.66	52.39	18.73	
	0.701	20.19	0.22	20.41	46.00	25.59	
	5.194	26.50	0.39	26.89	50.00	23.11	
	11.139	28.97	0.63	29.60	50.00	20.40	
	21.600	31.25	0.78	32.03	50.00	17.97	
Neutral	0.155	55.90	0.19	56.09	65.74	9.65	QP
	0.232	43.93	0.21	44.14	62.39	18.25	
	0.312	37.43	0.22	37.65	59.93	22.28	
	0.701	32.67	0.22	32.89	56.00	23.11	
	6.285	32.75	0.42	33.17	60.00	26.83	
	10.564	33.34	0.60	33.94	60.00	26.06	
	0.155	45.78	0.19	45.97	55.74	9.77	AV
	0.232	33.49	0.21	33.70	52.39	18.69	
	0.312	27.98	0.22	28.20	49.93	21.73	
	0.701	22.49	0.22	22.71	46.00	23.29	
	6.285	22.49	0.42	22.91	50.00	27.09	
	10.564	23.45	0.60	24.05	50.00	25.95	

TEST ENGINEER: YONG XU

EUT : LCD Monitor Temperature : 21°C

Model No. : W2243TV Humidity : 50%RH

Serial No. : E2008121901 Date of Test : Dec 19, 2008

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	0.155	55.44	0.22	55.66	65.74	10.08	QP
	0.232	43.45	0.21	43.66	62.39	18.73	
	4.361	34.78	0.37	35.15	56.00	20.85	
	5.447	35.47	0.42	35.89	60.00	24.11	
	10.790	39.33	0.62	39.95	60.00	20.05	
	20.594	40.66	0.74	41.40	60.00	18.60	
	0.155	45.12	0.22	45.34	55.74	10.40	AV
	0.232	33.46	0.21	33.67	52.39	18.72	
	4.361	24.78	0.37	25.15	46.00	20.85	
	5.447	25.49	0.42	25.91	50.00	24.09	
	10.790	29.19	0.62	29.81	50.00	20.19	
	20.594	30.19	0.74	30.93	50.00	19.07	
Neutral	0.155	55.56	0.19	55.75	65.74	9.99	QP
	0.232	43.65	0.21	43.86	62.39	18.53	
	0.701	32.13	0.22	32.35	56.00	23.65	
	3.799	31.12	0.32	31.44	56.00	24.56	
	6.121	32.41	0.42	32.83	60.00	27.17	
	10.733	33.14	0.59	33.73	60.00	26.27	
	0.155	45.19	0.19	45.38	55.74	10.36	AV
	0.232	33.48	0.21	33.69	52.39	18.70	
	0.701	22.48	0.22	22.70	46.00	23.30	
	3.799	21.45	0.32	21.77	46.00	24.23	
	6.121	22.49	0.42	22.91	50.00	27.09	
	10.733	23.75	0.59	24.34	50.00	25.66	

TEST ENGINEER: YONG XU

EUT : LCD Monitor Temperature : 21°C

Model No. : W2243TV Humidity : 50%RH

Serial No. : E2008121901 Date of Test : Dec 19, 2008

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	0.155	54.34	0.22	54.56	65.74	11.18	QP
	0.232	43.27	0.21	43.48	62.39	18.91	
	0.701	33.80	0.22	34.02	56.00	21.98	
	3.661	33.58	0.35	33.93	56.00	22.07	
	10.905	39.08	0.62	39.70	60.00	20.30	
	20.924	39.49	0.76	40.25	60.00	19.75	
	0.155	45.13	0.22	45.35	55.74	10.39	AV
	0.232	33.15	0.21	33.36	52.39	19.03	
	0.701	23.16	0.22	23.38	46.00	22.62	
	3.661	23.14	0.35	23.49	46.00	22.51	
	10.905	29.48	0.62	30.10	50.00	19.90	
	20.924	29.18	0.76	29.94	50.00	20.06	
Neutral	0.157	54.60	0.19	54.79	65.60	10.81	QP
	0.232	43.71	0.21	43.92	62.39	18.47	
	0.701	32.69	0.22	32.91	56.00	23.09	
	3.661	30.32	0.32	30.64	56.00	25.36	
	5.744	30.40	0.40	30.80	60.00	29.20	
	10.963	32.27	0.59	32.86	60.00	27.14	
	0.157	44.16	0.19	44.35	55.60	11.25	AV
	0.232	33.14	0.21	33.35	52.39	19.04	
	0.701	22.16	0.22	22.38	46.00	23.62	
	3.661	20.79	0.32	21.11	46.00	24.89	
	5.744	20.15	0.40	20.55	50.00	29.45	
	10.963	22.48	0.59	23.07	50.00	26.93	

TEST ENGINEER: YONG XU

EUT : LCD Monitor Temperature : 21°C

Model No. : W2243TV Humidity : 50%RH

Serial No. : E2008121901 Date of Test : Dec 19, 2008

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	0.155	53.94	0.22	54.16	65.74	11.58	QP
	0.232	43.96	0.21	44.17	62.39	18.22	
	0.701	36.49	0.22	36.71	56.00	19.29	
	5.277	38.17	0.40	38.57	60.00	21.43	
	11.317	40.00	0.63	40.63	60.00	19.37	
	19.845	41.17	0.72	41.89	60.00	18.11	
	0.155	47.35	0.22	47.57	55.74	8.17	AV
	0.232	37.26	0.21	37.47	52.39	14.92	
	0.701	30.54	0.22	30.76	46.00	15.24	
	5.277	31.17	0.40	31.57	50.00	18.43	
	11.317	34.00	0.63	34.63	50.00	15.37	
	19.845	34.17	0.72	34.89	50.00	15.11	
Neutral	0.156	55.88	0.19	56.07	65.69	9.62	QP
	0.234	44.23	0.21	44.44	62.30	17.86	
	0.701	33.86	0.22	34.08	56.00	21.92	
	5.305	31.24	0.37	31.61	60.00	28.39	
	6.352	34.18	0.43	34.61	60.00	25.39	
	10.620	33.74	0.59	34.33	60.00	25.67	
	0.156	46.26	0.19	46.45	55.69	9.24	AV
	0.234	34.16	0.21	34.37	52.30	17.93	
	0.701	23.14	0.22	23.36	46.00	22.64	
	5.305	21.45	0.37	21.82	50.00	28.18	
	6.352	24.59	0.43	25.02	50.00	24.98	
	10.620	23.17	0.59	23.76	50.00	26.24	

TEST ENGINEER: YONG XU

EUT : LCD Monitor Temperature : 21°C

Model No. : W2243TV Humidity : 50%RH

Serial No. : E2008121901 Date of Test : Dec 19, 2008

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	0.156	55.48	0.22	55.70	65.69	9.99	QP
	0.234	43.64	0.21	43.85	62.30	18.45	
	0.701	34.57	0.22	34.79	56.00	21.21	
	4.384	36.72	0.37	37.09	56.00	18.91	
	11.080	38.72	0.62	39.34	60.00	20.66	
	21.260	40.45	0.77	41.22	60.00	18.78	
	0.156	46.38	0.22	46.60	55.69	9.09	AV
	0.234	36.96	0.21	37.17	52.30	15.13	
	0.701	27.57	0.22	27.79	46.00	18.21	
	4.384	28.72	0.37	29.09	46.00	16.91	
	11.080	30.72	0.62	31.34	50.00	18.66	
	21.260	31.49	0.77	32.26	50.00	17.74	
Neutral	0.157	55.39	0.19	55.58	65.60	10.02	QP
	0.235	44.06	0.21	44.27	62.26	17.99	
	0.701	33.92	0.22	34.14	56.00	21.86	
	3.681	31.03	0.32	31.35	56.00	24.65	
	10.963	32.89	0.59	33.48	60.00	26.52	
	13.695	32.42	0.58	33.00	60.00	27.00	
	0.157	47.63	0.19	47.82	55.60	7.78	AV
	0.235	37.29	0.21	37.50	52.26	14.76	
	0.701	23.92	0.22	24.14	46.00	21.86	
	3.681	24.03	0.32	24.35	46.00	21.65	
	10.963	25.89	0.59	26.48	50.00	23.52	
	13.695	24.42	0.58	25.00	50.00	25.00	

TEST ENGINEER: YONG XU

EUT : LCD Monitor Temperature : 21°C

Model No. : W2243TV Humidity : 50%RH

Serial No. : E2008121901 Date of Test : Dec 19, 2008

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	0.156	55.78	0.22	56.00	65.69	9.69	QP
	0.234	43.92	0.21	44.13	62.30	18.17	
	0.701	34.81	0.22	35.03	56.00	20.97	
	5.390	37.70	0.40	38.10	60.00	21.90	
	10.733	40.14	0.61	40.75	60.00	19.25	
	19.845	41.79	0.72	42.51	60.00	17.49	
	0.156	48.64	0.22	48.86	55.69	6.83	AV
	0.234	37.68	0.21	37.89	52.30	14.41	
	0.701	28.16	0.22	28.38	46.00	17.62	
	5.390	31.07	0.40	31.47	50.00	18.53	
	10.733	33.27	0.61	33.88	50.00	16.12	
	19.845	34.12	0.72	34.84	50.00	15.16	
Neutral	0.156	55.48	0.19	55.67	65.69	10.02	QP
	0.234	43.90	0.21	44.11	62.30	18.19	
	0.701	34.53	0.22	34.75	56.00	21.25	
	10.905	32.54	0.59	33.13	60.00	26.87	
	13.408	31.42	0.58	32.00	60.00	28.00	
	0.156	48.59	0.19	48.78	55.69	6.91	AV
	0.234	37.38	0.21	37.59	52.30	14.71	
	0.701	28.64	0.22	28.86	46.00	17.14	
	2.750	20.00	0.29	20.29	46.00	25.71	
	10.905	26.35	0.59	26.94	50.00	23.06	
	13.408	25.31	0.58	25.89	50.00	24.11	
	0.156	55.48	0.19	55.67	65.69	10.02	

TEST ENGINEER: YONG XU

EUT : LCD Monitor Temperature : 21°C

Model No. : W2243TV Humidity : 50%RH

Serial No. : E2008121901 Date of Test : Dec 19, 2008

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	0.156	55.66	0.22	55.88	65.69	9.81	QP
	0.232	43.66	0.21	43.87	62.39	18.52	
	0.701	34.16	0.22	34.38	56.00	21.62	
	3.603	33.86	0.35	34.21	56.00	21.79	
	10.620	40.71	0.61	41.32	60.00	18.68	
	21.260	40.86	0.77	41.63	60.00	18.37	
	0.156	47.45	0.22	47.67	55.69	8.02	AV
	0.232	35.26	0.21	35.47	52.39	16.92	
	0.701	26.16	0.22	26.38	46.00	19.62	
	3.603	25.86	0.35	26.21	46.00	19.79	
	10.620	32.71	0.61	33.32	50.00	16.68	
	21.260	33.26	0.77	34.03	50.00	15.97	
Neutral	0.156	56.08	0.19	56.27	65.69	9.42	QP
	0.234	44.39	0.21	44.60	62.30	17.70	
	0.701	33.90	0.22	34.12	56.00	21.88	
	4.049	32.44	0.33	32.77	56.00	23.23	
	10.233	34.69	0.60	35.29	60.00	24.71	
	13.695	30.89	0.58	31.47	60.00	28.53	
	0.156	46.08	0.19	46.27	55.69	9.42	AV
	0.234	37.39	0.21	37.60	52.30	14.70	
	0.701	26.90	0.22	27.12	46.00	18.88	
	4.049	25.31	0.33	25.64	46.00	20.36	
	10.233	27.95	0.60	28.55	50.00	21.45	
	13.695	23.89	0.58	24.47	50.00	25.53	

TEST ENGINEER: YONG XU

4 RADIATED EMISSION TEST

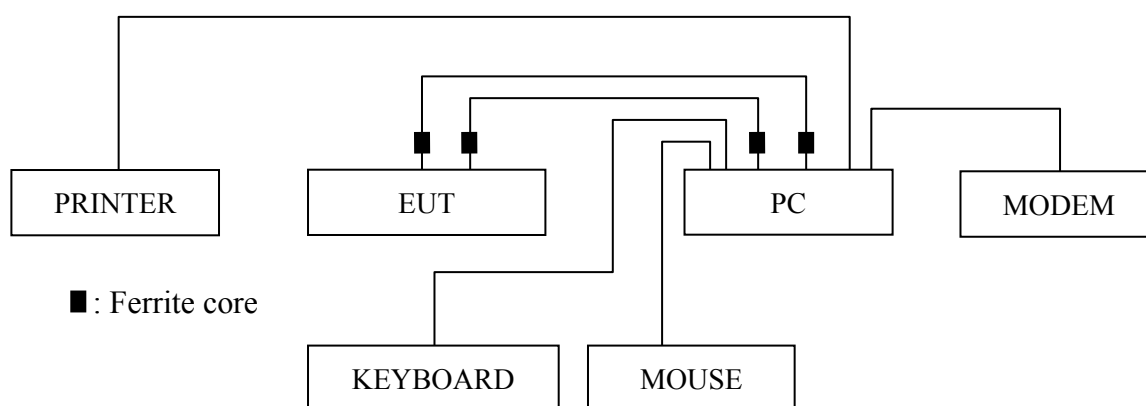
4.1 Test Equipment

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

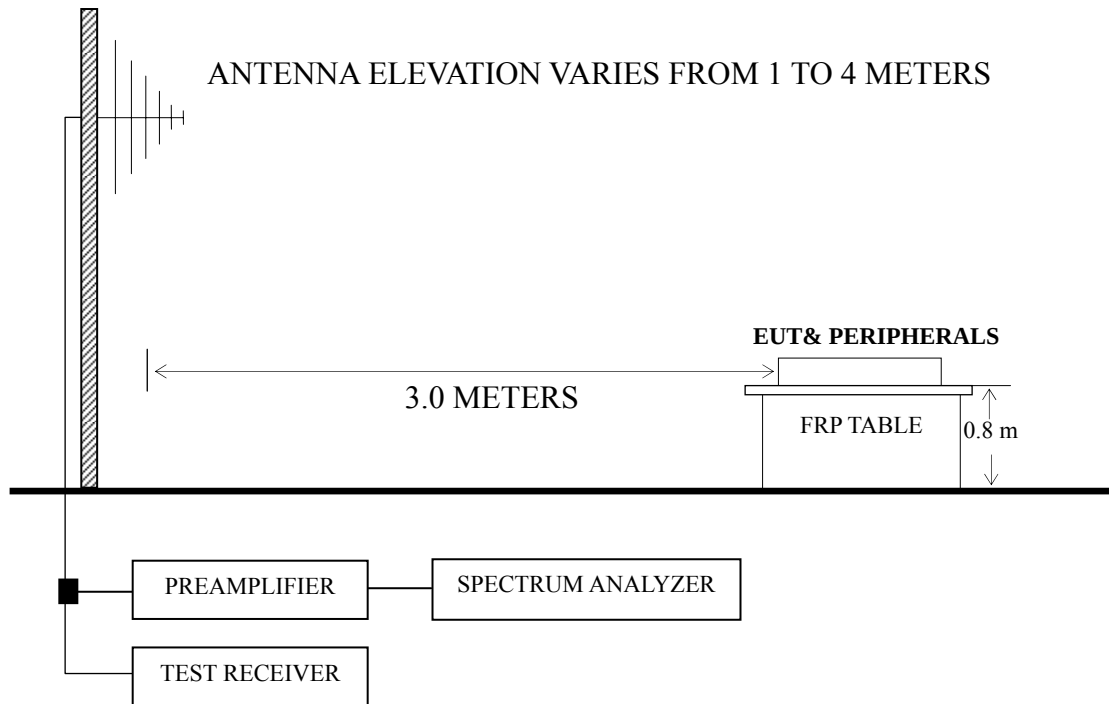
Item	Type	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
1.	Test Receiver	R&S	ESVS10	844594/001	Mar 07, 2008	Mar 07, 2009
2.	Preamplifier	Agilent	8447D	2944A10548	Sep 19, 2008	Mar 19, 2009
3.	Preamplifier	HP	8449B	3008A00864	May 19, 2008	May 19, 2009
4.	Bi-log Antenna	TESEQ	CBL6112D	23193	May 14, 2008	May 14, 2009
5.	Spectrum	Agilent	E7405A	MY45106600	May 19, 2008	May 19, 2009
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 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/DVI1680*1050@60Hz & 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 D-Sub 1920*1080@60Hz test mode. The worst emission at horizontal polarization was detected at 281.230 MHz with corrected signal level of 34.95 dB ($\mu\text{V/m}$) (limit is 46.00 dB ($\mu\text{V/m}$)), when the antenna was 1.00 m height and the turntable was at 280° . The worst emission at vertical polarization was detected at 83.350 MHz with corrected signal level of 36.56 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 130° .

EUT : LCD Monitor Temperature : 22°C

Model No. : W2243TV Humidity : 60%RH

Serial No. : E2008121901 Date of Test : Dec 26, 2008

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	145.430	17.33	11.66	0.92	29.91	43.50	13.59
	217.210	18.44	11.48	1.15	31.07	46.00	14.93
	289.960	19.82	13.73	1.48	35.03	46.00	10.97
	369.500	9.19	15.84	1.91	26.94	46.00	19.06
	517.910	6.61	18.12	2.42	27.15	46.00	18.85
	658.560	6.32	19.49	2.87	28.68	46.00	17.32
Vertical	33.880	17.53	17.44	0.61	35.58	40.00	4.42
	124.090	20.91	12.81	0.89	34.61	43.50	8.89
	146.400	18.76	11.61	0.92	31.29	43.50	12.21
	294.810	22.17	13.82	1.52	37.51	46.00	8.49
	429.640	14.78	16.92	2.14	33.84	46.00	12.16
	856.440	7.20	21.28	3.44	31.92	46.00	14.08

TEST ENGINEER: RAVEN JIN

EUT : LCD Monitor Temperature : 22°C

Model No. : W2243TV Humidity : 60%RH

Serial No. : E2008121901 Date of Test : Dec 26, 2008

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	138.640	18.28	12.17	0.91	31.36	43.50	12.14
	213.330	18.86	11.30	1.13	31.29	43.50	12.21
	278.320	20.43	13.50	1.42	35.35	46.00	10.65
	353.010	11.66	15.41	1.82	28.89	46.00	17.11
	486.870	14.69	17.75	2.33	34.77	46.00	11.23
	972.840	11.88	22.22	3.76	37.86	54.00	16.14
Vertical	33.880	18.00	17.44	0.61	36.05	40.00	3.95
	123.120	20.51	12.86	0.89	34.26	43.50	9.24
	141.550	22.51	12.01	0.91	35.43	43.50	8.07
	283.170	19.89	13.62	1.46	34.97	46.00	11.03
	486.870	18.78	17.75	2.33	38.86	46.00	7.14
	975.750	13.81	22.24	3.76	39.81	54.00	14.19

TEST ENGINEER: RAVEN JIN

EUT : LCD Monitor Temperature : 22°C

Model No. : W2243TV Humidity : 60%RH

Serial No. : E2008121901 Date of Test : Dec 26, 2008

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	97.900	15.11	11.11	0.85	--	27.07	43.50	16.43	QP
	136.700	14.70	12.23	0.91	--	27.84	43.50	15.66	
	210.420	18.99	11.18	1.12	--	31.29	43.50	12.21	
	279.290	20.63	13.52	1.42	--	35.57	46.00	10.43	
	350.100	14.37	15.33	1.80	--	31.50	46.00	14.50	
	978.660	8.05	22.27	3.76	--	34.08	54.00	19.92	
	1046.000	63.54	22.72	3.96	37.57	52.65	74.00	21.35	PK
	1122.000	59.80	23.24	4.07	37.37	49.74	74.00	24.26	
	1271.000	53.56	24.27	4.33	37.01	45.15	74.00	28.85	
	1544.000	54.31	26.07	4.81	36.44	48.75	74.00	25.25	
	1720.000	53.48	26.71	5.14	36.13	49.20	74.00	24.80	
	1983.000	47.19	28.00	5.29	35.72	44.76	74.00	29.24	
Vertical	32.910	15.63	17.95	0.60	--	34.18	40.00	5.82	QP
	81.410	26.55	8.02	0.86	--	35.43	40.00	4.57	
	97.900	23.70	11.11	0.85	--	35.66	43.50	7.84	
	136.700	21.62	12.23	0.91	--	34.76	43.50	8.74	
	292.870	21.07	13.79	1.50	--	36.36	46.00	9.64	
	488.810	17.86	17.78	2.35	--	37.99	46.00	8.01	
	1046.000	61.41	22.72	3.96	37.57	50.52	74.00	23.48	PK
	1122.000	60.35	23.24	4.07	37.37	50.29	74.00	23.71	
	1196.000	59.63	23.70	4.21	37.18	50.36	74.00	23.64	
	1533.000	56.49	26.04	4.78	36.46	50.85	74.00	23.15	
	1644.000	56.14	26.50	5.02	36.26	51.40	74.00	22.60	
	1756.000	52.90	26.80	5.18	36.07	48.81	74.00	25.19	

TEST ENGINEER: RAVEN JIN

EUT : LCD Monitor Temperature : 22°C

Model No. : W2243TV Humidity : 60%RH

Serial No. : E2008121901 Date of Test : Dec 26, 2008

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	137.670	18.77	12.19	0.91	--	31.87	43.50	11.63	QP
	197.810	20.56	10.60	1.07	--	32.23	43.50	11.27	
	281.230	19.94	13.57	1.44	--	34.95	46.00	11.05	
	344.280	12.62	15.16	1.77	--	29.55	46.00	16.45	
	658.560	5.68	19.49	2.87	--	28.04	46.00	17.96	
	981.570	9.13	22.30	3.80	--	35.23	54.00	18.77	
	1046.000	63.67	22.72	3.96	37.57	52.78	74.00	21.22	PK
	1122.000	61.10	23.24	4.07	37.37	51.04	74.00	22.96	
	1196.000	60.09	23.70	4.21	37.18	50.82	74.00	23.18	
	1533.000	58.33	26.04	4.78	36.46	52.69	74.00	21.31	
	1644.000	57.07	26.50	5.02	36.26	52.33	74.00	21.67	
	1720.000	56.51	26.71	5.14	36.13	52.23	74.00	21.77	
Vertical	33.880	16.48	17.44	0.61	--	34.53	40.00	5.47	QP
	50.370	25.16	8.85	0.77	--	34.78	40.00	5.22	
	65.890	25.95	6.54	0.86	--	33.35	40.00	6.65	
	83.350	27.40	8.30	0.86	--	36.56	40.00	3.44	
	98.870	23.71	11.27	0.85	--	35.83	43.50	7.67	
	982.540	13.43	22.30	3.80	--	39.53	54.00	14.47	
	1046.000	61.38	22.72	3.96	37.57	50.49	74.00	23.51	PK
	1122.000	58.88	23.24	4.07	37.37	48.82	74.00	25.18	
	1196.000	59.82	23.70	4.21	37.18	50.55	74.00	23.45	
	1498.000	54.87	25.80	4.71	36.53	48.85	74.00	25.15	
	1690.000	54.92	26.63	5.11	36.18	50.48	74.00	23.52	
	1756.000	54.66	26.80	5.18	36.07	50.57	74.00	23.43	

TEST ENGINEER: RAVEN JIN

EUT : LCD Monitor Temperature : 22°C

Model No. : W2243TV Humidity : 60%RH

Serial No. : E2008121901 Date of Test : Dec 26, 2008

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	147.370	16.93	11.51	0.92	29.36	43.50	14.14
	222.060	16.21	11.75	1.16	29.12	46.00	16.88
	250.190	15.23	12.90	1.27	29.40	46.00	16.60
	289.960	20.30	13.73	1.48	35.51	46.00	10.49
	429.640	12.69	16.92	2.14	31.75	46.00	14.25
	658.560	8.02	19.49	2.87	30.38	46.00	15.62
Vertical	34.850	16.14	16.97	0.62	33.73	40.00	6.27
	126.030	16.17	12.71	0.89	29.77	43.50	13.73
	145.430	18.43	11.66	0.92	31.01	43.50	12.49
	222.060	18.63	11.75	1.16	31.54	46.00	14.46
	295.780	24.23	13.84	1.52	39.59	46.00	6.41
	508.210	11.03	18.01	2.40	31.44	46.00	14.56

TEST ENGINEER: RAVEN JIN

EUT : LCD Monitor Temperature : 22°C

Model No. : W2243TV Humidity : 60%RH

Serial No. : E2008121901 Date of Test : Dec 26, 2008

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	141.550	14.01	12.01	0.91	26.93	43.50	16.57
	233.700	15.48	12.28	1.21	28.97	46.00	17.03
	284.140	19.80	13.62	1.46	34.88	46.00	11.12
	324.880	19.28	14.58	1.66	35.52	46.00	10.48
	429.640	12.48	16.92	2.14	31.54	46.00	14.46
	844.800	10.11	21.16	3.42	34.69	46.00	11.31
Vertical	34.850	16.64	16.97	0.62	34.23	40.00	5.77
	141.550	19.00	12.01	0.91	31.92	43.50	11.58
	213.330	17.46	11.30	1.13	29.89	43.50	13.61
	283.170	16.77	13.62	1.46	31.85	46.00	14.15
	485.900	11.54	17.73	2.33	31.60	46.00	14.40
	993.210	12.31	22.35	3.84	38.50	54.00	15.50

TEST ENGINEER: RAVEN JIN

EUT : LCD Monitor Temperature : 22°C

Model No. : W2243TV Humidity : 60%RH

Serial No. : E2008121901 Date of Test : Dec 26, 2008

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	139.610	15.50	12.12	0.91	--	28.53	43.50	14.97	QP
	280.260	21.54	13.55	1.44	--	36.53	46.00	9.47	
	349.130	13.72	15.29	1.80	--	30.81	46.00	15.19	
	584.840	9.12	19.03	2.56	--	30.71	46.00	15.29	
	731.310	15.78	20.00	3.14	--	38.92	46.00	7.08	
	978.660	9.74	22.27	3.76	--	35.77	54.00	18.23	
	1041.000	60.26	22.69	3.93	37.59	49.29	74.00	24.71	PK
	1122.000	59.80	23.24	4.07	37.37	49.74	74.00	24.26	
	1271.000	53.56	24.27	4.33	37.01	45.15	74.00	28.85	
	1386.000	50.90	25.13	4.54	36.76	43.81	74.00	30.19	
	1544.000	54.31	26.07	4.81	36.44	48.75	74.00	25.25	
	1720.000	53.48	26.71	5.14	36.13	49.20	74.00	24.80	
Vertical	33.880	15.83	17.44	0.61	--	33.88	40.00	6.12	QP
	81.410	20.14	8.02	0.86	--	29.02	40.00	10.98	
	136.700	20.45	12.23	0.91	--	33.59	43.50	9.91	
	274.440	17.02	13.43	1.40	--	31.85	46.00	14.15	
	439.340	12.57	17.06	2.18	--	31.81	46.00	14.19	
	980.600	14.99	22.27	3.80	--	41.06	54.00	12.94	
	1046.000	61.41	22.72	3.96	37.57	50.52	74.00	23.48	PK
	1122.000	60.35	23.24	4.07	37.37	50.29	74.00	23.71	
	1196.000	59.63	23.70	4.21	37.18	50.36	74.00	23.64	
	1533.000	56.49	26.04	4.78	36.46	50.85	74.00	23.15	
	1644.000	56.14	26.50	5.02	36.26	51.40	74.00	22.60	
	1679.000	55.59	26.59	5.08	36.20	51.06	74.00	22.94	

TEST ENGINEER: RAVEN JIN

EUT : LCD Monitor Temperature : 22°C

Model No. : W2243TV Humidity : 60%RH

Serial No. : E2008121901 Date of Test : Dec 26, 2008

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	140.580	14.43	12.05	0.91	--	27.39	43.50	16.11	QP
	232.730	15.59	12.24	1.21	--	29.04	46.00	16.96	
	282.200	19.25	13.59	1.44	--	34.28	46.00	11.72	
	429.640	10.73	16.92	2.14	--	29.79	46.00	16.21	
	593.570	14.33	19.14	2.58	--	36.05	46.00	9.95	
	987.390	9.41	22.32	3.80	--	35.53	54.00	18.47	
	1023.000	62.69	22.54	3.88	37.63	51.48	74.00	22.52	PK
	1122.000	61.10	23.24	4.07	37.37	51.04	74.00	22.96	
	1196.000	60.09	23.70	4.21	37.18	50.82	74.00	23.18	
	1556.000	54.20	26.15	4.85	36.42	48.78	74.00	25.22	
	1628.000	54.43	26.47	4.99	36.29	49.60	74.00	24.40	
	1689.000	55.74	26.63	5.11	36.18	51.30	74.00	22.70	
Vertical	33.880	15.40	17.44	0.61	--	33.45	40.00	6.55	QP
	137.670	19.00	12.19	0.91	--	32.10	43.50	11.40	
	295.780	16.27	13.84	1.52	--	31.63	46.00	14.37	
	486.870	11.14	17.75	2.33	--	31.22	46.00	14.78	
	742.950	15.48	20.13	3.19	--	38.80	46.00	7.20	
	987.390	13.92	22.32	3.80	--	40.04	54.00	13.96	
	1041.000	58.34	22.69	3.93	37.59	47.37	74.00	26.63	PK
	1122.000	58.88	23.24	4.07	37.37	48.82	74.00	25.18	
	1168.000	57.68	23.54	4.16	37.25	48.13	74.00	25.87	
	1498.000	54.87	25.80	4.71	36.53	48.85	74.00	25.15	
	1690.000	54.92	26.63	5.11	36.18	50.48	74.00	23.52	
	1756.000	54.66	26.80	5.18	36.07	50.57	74.00	23.43	

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 Internal Photos 1, 2, 15, 16