

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

LCD Monitor

Model No.: E2242VA

Serial No.: E1208992-01/01

FCC ID : BEJE2242VA

Prepared For : LG Electronics U.S.A., Inc.
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NJ 07632, United States

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Report No. : ACI-F12048A2
Date of Test : Aug 14 – 16, 2012
Date of Report : Aug 22, 2012

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.....	7
2.3 Description of Test Facility.....	8
2.4 Measurement Uncertainty.....	8
3 CONDUCTED EMISSION TEST.....	9
3.1 Test Equipment.....	9
3.2 Block Diagram of Test Setup.....	9
3.3 Conducted Emission Limit [FCC Part 15 Subpart B 15.107(a)].....	10
3.4 Test Configuration.....	10
3.5 Operating Condition of EUT.....	11
3.6 Test Procedures.....	12
3.7 Test Results.....	12
4 RADIATED EMISSION TEST.....	20
4.1 Test Equipment.....	20
4.2 Block Diagram of Test Setup.....	20
4.3 Radiated Emission Limit [FCC Part 15 Subpart B 15.109(a)].....	22
4.4 Test Configuration.....	22
4.5 Operating Condition of EUT.....	22
4.6 Test Procedures.....	23
4.7 Test Results.....	24
5 DEVIATION TO TEST SPECIFICATIONS.....	33

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. : E2242VA
(B) Serial No. : E1208992-01/01
(C) Power Supply : 120V/60Hz

Test Procedure Used:

*FCC RULES AND REGULATIONS PART 15 SUBPART B CLASS B OCTOBER 2011
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: E2242VA; S/N: E1208992-01/01) which was tested in 3m anechoic chamber Aug 14 – 16, 2012 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 : Aug 14 – 16, 2012 Date of Report : Aug 22, 2012

Producer : Yenny Yu
YENNY YU / Assistant

Review : Dio Yang
DIO YANG / Assistant Manager

 For and on behalf of
Audix Technology (Shanghai) Co., Ltd.

Signatory : Sammy Chen
Authorized Signature EMC SAMMY CHEN / Deputy 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 2011 AND ANSI C63.4-2003	15.107(a) Class B	Pass
Radiated Disturbance	FCC RULES AND REGULATIONS PART 15 SUBPART B OCTOBER 2011 AND ANSI C63.4-2003	15.109(a) Class B	Pass

2 GENERAL INFORMATION

2.1 Description of Equipment Under Test

Description : LCD Monitor

Model No. : E2242VA

Serial No. : E1208992-01/01

Note : The different list for all the models are as follows:

Report No.	Model No.	Rev. Summary	Edition No.	Data of Rev.
ACI-F12048	E2242VA	Original Report	0	Mar 27, 2012
ACI-F12048A1	E2242VA	To add a new Panel.	Rev. A1	May 22, 2012
ACI-F12048A2	E2242VA	1.To add a new Panel. 2.To add two new adapters.	Rev. A2	Aug 22, 2012

AC Adapter #1 : Manufacturer : LG
 Model Number : PSAB-L203A
 Input : 100-240V~, 50/60Hz 1.1A
 Output : 19V $\overline{\text{---}}$ 1.3A
 Output Cable : Unshielded, Undetachable, 1.8m, with one core

AC Adapter #2 : Manufacturer : LG
 Model Number : PSAB-L202*
 (* can be A, B, C, D, stand for different AC plug type.
 PSAB-L202C was selected as the test model.)
 Input : 100-240V~, 50/60Hz 1.1A
 Output : 19V $\overline{\text{---}}$ 1.3A
 Output Cable : Unshielded, Undetachable, 1.8m, with one core

Note #2 : The above adapters are all the same except for the different type of AC input.
 The Adapter PSAB-L202C was selected and recorded in the report.

Adapter :

Original Adapter	New Adapter
Manufacturer : HONOR M/N : ADS-40SG-19-3 19025G	Manufacturer : LG M/N : PSAB-L203A
Manufacturer : LIEN CHANG M/N : LCAP21	Manufacturer : LG M/N : PSAB-L202*
Manufacturer : LIEN CHANG M/N : LCAP26-*	--
Manufacturer : HONOR M/N : ADS-40FSG-19 19025G***-1	--

Real Power	: 24.00W						
Applicant	: LG Electronics U.S.A., Inc. No.346, YaoXin Road Economic&Technical Development Zone, Nanjing, China						
Manufacturer	: LG Electronics Nanjing Display Co., Ltd. No.346, YaoXin Road Economic&Technical Development Zone, Nanjing, China						
LCD Panel	<table border="1"> <tr> <th>Original Panel</th><th>New Panel</th></tr> <tr> <td>Manufacturer : AU Optronics M/N : M215HW03</td><td>Manufacturer : BOE M/N : HT215F01-100</td></tr> <tr> <td>Manufacturer : LG Display M/N : LM215WF4</td><td>--</td></tr> </table>	Original Panel	New Panel	Manufacturer : AU Optronics M/N : M215HW03	Manufacturer : BOE M/N : HT215F01-100	Manufacturer : LG Display M/N : LM215WF4	--
Original Panel	New Panel						
Manufacturer : AU Optronics M/N : M215HW03	Manufacturer : BOE M/N : HT215F01-100						
Manufacturer : LG Display M/N : LM215WF4	--						
Max Resolution	: 1920*1080@60Hz						
D-Sub Cable #1	: Shielded, Detachable, 1.50m, with two cores on cable						
D-Sub Cable #2	: Shielded, Detachable, 1.85m, with two cores in connector						
DVI Cable #1	: Shielded, Detachable, 1.50m, with two cores on cable						
DVI Cable #2	: Shielded, Detachable, 1.85m, with two cores in connector						
Power Cord	Unshielded, Detachable, 1.50m						
Note	: The D-Sub cable #2 and DVI cable #2 were selected to be used in the test.						

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 HDMI Port | : Connected with PC / DVD PLAYER |
| (4) One Earphone Port | : Connected with Earphone |
| (5) One DC In Port | : Connected with Adapter |

2.2 Peripherals

2.2.1 PC

Manufacturer : HP
Model Number : dx7200MT
Serial Number : CNG622017W
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 Graphics Card (Used in PC)

Manufacturer : Asus
Model Number : EAH6670
Output port : DVI, D-Sub, HDMI

2.2.3 Printer

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

2.2.4 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

2.2.5 Mouse

Manufacturer : Microsoft
Model Number : RT2300
Serial Number : 6965712071551
Data Cable : Shielded, Undetachable, 1.8m.
Certificate : CE/EMC, FCC DoC, VCCI, MIC,
C-Tick, BSMI

2.2.6 Modem

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

2.2.7 DVD PLAYER

Manufacturer : PHILIPS
Model Number : DVP3986K/93
Serial Number : KX1A0902120108
Data Cable : Shielded, Detachable, 1.80m
Certificate : FCC DoC, CE/EMC, CCC

2.2.8 Earphone

Manufacturer : SONY
Model Number : MDR-E808
Serial Number : 1808030805305506
Data Cable : Shielded, Detachable, 1.8m

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 = 3.42 dB

Radiated Emission Expanded Uncertainty (30-200MHz):
U = 4.14 dB (Horizontal)
U = 4.28 dB (Vertical)

Radiated Emission Expanded Uncertainty (200M-1GHz):
U = 4.18 dB (Horizontal)
U = 4.26 dB (Vertical)

Radiated Emission Expanded Uncertainty (Above 1GHz):
U = 4.50 dB (Horizontal)
U = 4.16 dB (Vertical)

3 CONDUCTED EMISSION TEST

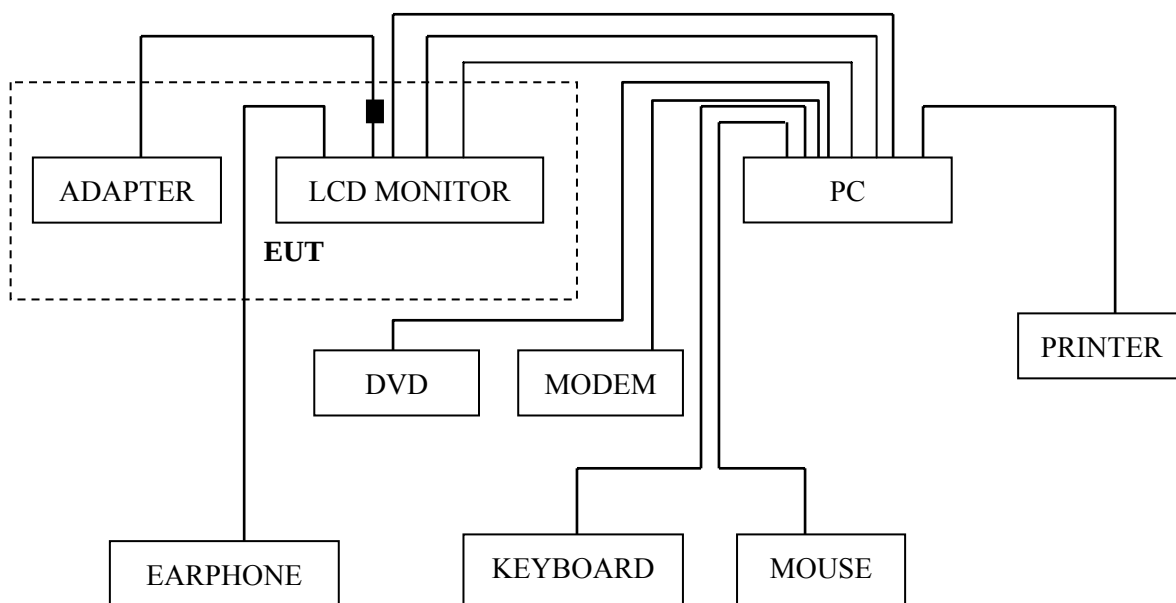
3.1 Test Equipment

The following test equipments are used during the conducted emission test in a shielded room:

Item	Type	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
1.	Test Receiver	R&S	ESCI	100841	Mar 22, 2012	Mar 22, 2013
2.	Artificial Mains Network (AMN #1)	R&S	ESH2-Z5	843890/011	Feb 13, 2012	Feb 13, 2013
3.	Artificial Mains Network (AMN #2)	R&S	ENV4200	100125	Mar 22, 2012	Mar 22, 2013
4.	50 Ω Coaxial Switch	Anritsu	MP59B	6200426389	Mar 18, 2012	Sep 18, 2012
5.	50 Ω Terminator	Anritsu	BNC	001	Mar 22, 2012	Mar 22, 2013
6.	Software	Audix	E3	SET00200 9804M592	--	--

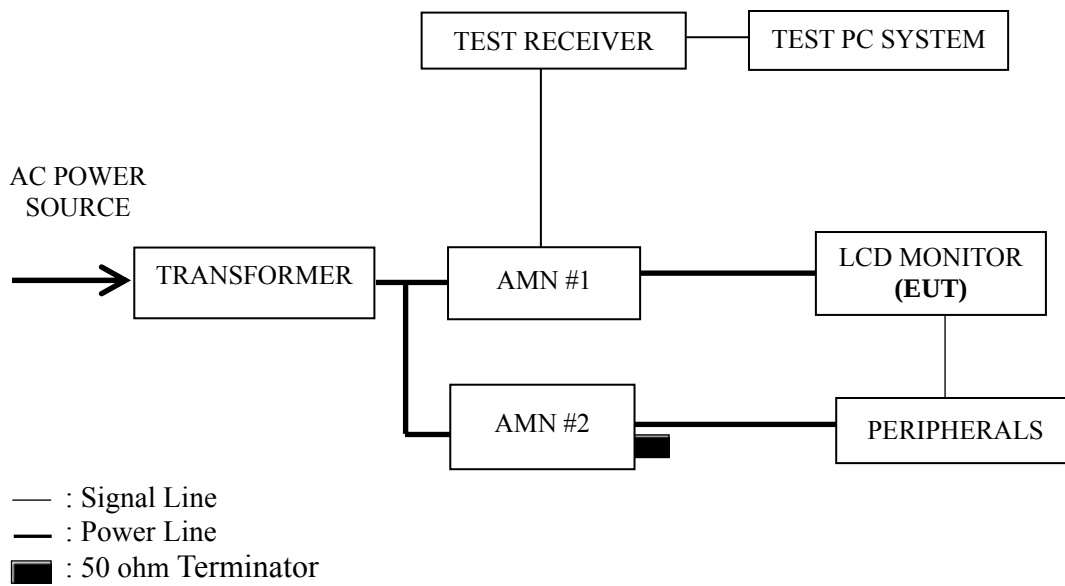
3.2 Block Diagram of Test Setup

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 (we use white letters on a black background to represent all colors), the EUT's screen displayed and filled with "H" pattern by its resolution (Via D-Sub/DVI Input).

3.5.5 In HDMI mode, the EUT connected to PC or DVD PLAYER through HDMI port.

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

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

3.5.8 The test modes are as follows:

Test Mode
D-Sub 1920*1080@60Hz
DVI 1920*1080@60Hz
HDMI 1920*1080@60Hz
HDMI 1080P
DVI 1680*1050@60Hz
DVI 1280*1024@75Hz
DVI 640*480@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	Page
D-Sub 1920*1080@60Hz	P13
DVI 1920*1080@60Hz	P14
HDMI 1920*1080@60Hz	P15
HDMI 1080P	P16
DVI 1680*1050@60Hz	P17
DVI 1280*1024@75Hz	P18
DVI 640*480@60Hz	P19

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

NOTE 2 – Factor = Cable Loss + AMN Factor.

NOTE 3 – Emission Level = Meter Reading + Factor.

NOTE 4 – “QP” means “Quasi-Peak” values, “AV” means “Average” values.

NOTE 5 – The worst case is for DVI 1920*1080@60Hz test mode. The worst emission is detected at 0.188 MHz (Average Value) with corrected signal level of 40.76 dB (μV) (limit is 54.11 dB (μV)), when the Neutral of the EUT is connected to AMN.

EUT : LCD Monitor Temperature : 22°C

Model No. : E2242VA Humidity : 48%RH

Serial No. : E1208992-01/01 Date of Test : Aug 14, 2012

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	0.188	47.59	0.25	47.84	64.11	16.27	QP
	0.343	39.30	0.31	39.61	59.13	19.52	
	0.694	33.73	0.19	33.92	56.00	22.08	
	3.799	33.12	0.48	33.60	56.00	22.40	
	9.757	34.10	0.73	34.83	60.00	25.17	
	15.388	41.86	0.84	42.70	60.00	17.30	
	0.188	37.30	0.25	37.55	54.11	16.56	AV
	0.343	29.10	0.31	29.41	49.13	19.72	
	0.694	23.80	0.19	23.99	46.00	22.01	
	3.799	23.40	0.48	23.88	46.00	22.12	
	9.757	24.80	0.73	25.53	50.00	24.47	
	15.388	31.50	0.84	32.34	50.00	17.66	
Neutral	0.186	48.08	0.12	48.20	64.20	16.00	QP
	0.313	40.06	0.13	40.19	59.88	19.69	
	0.716	32.82	0.21	33.03	56.00	22.97	
	3.799	34.05	0.38	34.43	56.00	21.57	
	9.757	33.68	0.48	34.16	60.00	25.84	
	15.552	41.78	0.73	42.51	60.00	17.49	
	0.186	38.90	0.12	39.02	54.20	15.18	AV
	0.313	30.80	0.13	30.93	49.88	18.95	
	0.716	22.60	0.21	22.81	46.00	23.19	
	3.799	24.80	0.38	25.18	46.00	20.82	
	9.757	23.60	0.48	24.08	50.00	25.92	
	15.552	31.60	0.73	32.33	50.00	17.67	

TEST ENGINEER: SAWEN LI

EUT : LCD Monitor Temperature : 22°C

Model No. : E2242VA Humidity : 48%RH

Serial No. : E1208992-01/01 Date of Test : Aug 14, 2012

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	0.188	49.89	0.25	50.14	64.11	13.97	QP
	0.343	41.51	0.31	41.82	59.13	17.31	
	0.694	35.66	0.19	35.85	56.00	20.15	
	3.799	34.80	0.48	35.28	56.00	20.72	
	9.757	35.92	0.73	36.65	60.00	23.35	
	15.718	42.37	0.84	43.21	60.00	16.79	
	0.188	39.60	0.25	39.85	54.11	14.26	AV
	0.343	31.87	0.31	32.18	49.13	16.95	
	0.694	24.68	0.19	24.87	46.00	21.13	
	3.799	24.81	0.48	25.29	46.00	20.71	
	9.757	27.64	0.73	28.37	50.00	21.63	
	15.718	32.11	0.84	32.95	50.00	17.05	
Neutral	0.188	50.45	0.12	50.57	64.11	13.54	QP
	0.313	41.78	0.13	41.91	59.88	17.97	
	0.716	35.00	0.21	35.21	56.00	20.79	
	3.759	35.71	0.38	36.09	56.00	19.91	
	9.757	35.54	0.48	36.02	60.00	23.98	
	15.388	42.57	0.73	43.30	60.00	16.70	
	0.188	40.64	0.12	40.76	54.11	13.35	AV
	0.313	30.69	0.13	30.82	49.88	19.06	
	0.716	24.64	0.21	24.85	46.00	21.15	
	3.759	25.70	0.38	26.08	46.00	19.92	
	9.757	25.50	0.48	25.98	50.00	24.02	
	15.388	32.97	0.73	33.70	50.00	16.30	

TEST ENGINEER: SAWEN LI

EUT : LCD Monitor Temperature : 22°C

Model No. : E2242VA Humidity : 48%RH

Serial No. : E1208992-01/01 Date of Test : Aug 14, 2012

Test Mode : HDMI 1920*1080@60Hz

Test Line	Frequency (MHz)	Meter Reading dB(μV)	Factor (dB)	Emission Level dB(μV)	Limits dB(μV)	Margin (dB)	Remark
Line	0.188	48.98	0.25	49.23	64.11	14.88	QP
	0.343	39.82	0.31	40.13	59.13	19.00	
	0.686	33.42	0.19	33.61	56.00	22.39	
	3.840	31.48	0.48	31.96	56.00	24.04	
	9.966	32.11	0.73	32.84	60.00	27.16	
	15.146	39.79	0.84	40.63	60.00	19.37	
	0.188	38.40	0.25	38.65	54.11	15.46	AV
	0.343	29.50	0.31	29.81	49.13	19.32	
	0.686	23.40	0.19	23.59	46.00	22.41	
	3.840	21.30	0.48	21.78	46.00	24.22	
	9.966	22.90	0.73	23.63	50.00	26.37	
	15.146	29.50	0.84	30.34	50.00	19.66	
Neutral	0.188	49.22	0.12	49.34	64.11	14.77	QP
	0.270	40.02	0.12	40.14	61.12	20.98	
	0.686	33.32	0.20	33.52	56.00	22.48	
	3.840	32.18	0.38	32.56	56.00	23.44	
	9.966	32.33	0.48	32.81	60.00	27.19	
	15.552	39.81	0.73	40.54	60.00	19.46	
	0.188	39.40	0.12	39.52	54.11	14.59	AV
	0.270	30.70	0.12	30.82	51.12	20.30	
	0.686	23.80	0.20	24.00	46.00	22.00	
	3.840	22.61	0.38	22.99	46.00	23.01	
	9.966	22.30	0.48	22.78	50.00	27.22	
	15.552	29.40	0.73	30.13	50.00	19.87	

TEST ENGINEER: SAWEN LI

EUT : LCD Monitor Temperature : 22°C

Model No. : E2242VA Humidity : 48%RH

Serial No. : E1208992-01/01 Date of Test : Aug 14, 2012

Test Mode : HDMI 1080P

Test Line	Frequency (MHz)	Meter Reading dB(μV)	Factor (dB)	Emission Level dB(μV)	Limits dB(μV)	Margin (dB)	Remark
Line	0.186	47.43	0.25	47.68	64.20	16.52	QP
	0.343	39.46	0.31	39.77	59.13	19.36	
	0.694	33.66	0.19	33.85	56.00	22.15	
	3.759	32.79	0.48	33.27	56.00	22.73	
	10.676	33.24	0.73	33.97	60.00	26.03	
	15.552	41.11	0.84	41.95	60.00	18.05	
	0.186	37.80	0.25	38.05	54.20	16.15	AV
	0.343	29.70	0.31	30.01	49.13	19.12	
	0.694	23.90	0.19	24.09	46.00	21.91	
	3.759	22.60	0.48	23.08	46.00	22.92	
	10.676	23.41	0.73	24.14	50.00	25.86	
	15.552	31.50	0.84	32.34	50.00	17.66	
Neutral	0.186	48.04	0.12	48.16	64.20	16.04	QP
	0.343	39.91	0.14	40.05	59.13	19.08	
	0.694	33.09	0.20	33.29	56.00	22.71	
	3.799	34.26	0.38	34.64	56.00	21.36	
	9.302	33.79	0.49	34.28	60.00	25.72	
	15.885	41.62	0.74	42.36	60.00	17.64	
	0.186	38.00	0.12	38.12	54.20	16.08	AV
	0.343	29.40	0.14	29.54	49.13	19.59	
	0.694	23.10	0.20	23.30	46.00	22.70	
	3.799	24.30	0.38	24.68	46.00	21.32	
	9.302	23.30	0.49	23.79	50.00	26.21	
	15.885	31.50	0.74	32.24	50.00	17.76	

TEST ENGINEER: SAWEN LI

EUT : LCD Monitor Temperature : 22°C

Model No. : E2242VA Humidity : 48%RH

Serial No. : E1208992-01/01 Date of Test : Aug 14, 2012

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	0.188	48.02	0.25	48.27	64.11	15.84	QP
	0.343	39.57	0.31	39.88	59.13	19.25	
	0.694	33.51	0.19	33.70	56.00	22.30	
	3.720	31.99	0.48	32.47	56.00	23.53	
	9.757	33.87	0.73	34.60	60.00	25.40	
	15.552	40.98	0.84	41.82	60.00	18.18	
	0.188	38.40	0.25	38.65	54.11	15.46	AV
	0.343	29.28	0.31	29.59	49.13	19.54	
	0.694	23.64	0.19	23.83	46.00	22.17	
	3.720	19.40	0.48	19.88	46.00	26.12	
	9.757	25.60	0.73	26.33	50.00	23.67	
	15.552	32.50	0.84	33.34	50.00	16.66	
Neutral	0.186	48.40	0.12	48.52	64.20	15.68	QP
	0.325	40.06	0.14	40.20	59.57	19.37	
	0.708	33.01	0.20	33.21	56.00	22.79	
	3.799	33.55	0.38	33.93	56.00	22.07	
	9.757	34.82	0.48	35.30	60.00	24.70	
	15.552	41.34	0.73	42.07	60.00	17.93	
	0.186	38.64	0.12	38.76	54.20	15.44	AV
	0.325	31.57	0.14	31.71	49.57	17.86	
	0.708	23.95	0.20	24.15	46.00	21.85	
	3.799	23.97	0.38	24.35	46.00	21.65	
	9.757	23.69	0.48	24.17	50.00	25.83	
	15.552	31.93	0.73	32.66	50.00	17.34	

TEST ENGINEER: SAWEN LI

EUT : LCD Monitor Temperature : 22°C

Model No. : E2242VA Humidity : 48%RH

Serial No. : E1208992-01/01 Date of Test : Aug 14, 2012

Test Mode : DVI 1280*1024@75Hz

Test Line	Frequency (MHz)	Meter Reading dB(μV)	Factor (dB)	Emission Level dB(μV)	Limits dB(μV)	Margin (dB)	Remark
Line	0.188	48.35	0.25	48.60	64.11	15.51	QP
	0.343	39.69	0.31	40.00	59.13	19.13	
	0.694	33.31	0.19	33.50	56.00	22.50	
	3.759	31.89	0.48	32.37	56.00	23.63	
	9.757	33.31	0.73	34.04	60.00	25.96	
	15.885	40.78	0.85	41.63	60.00	18.37	
	0.188	38.90	0.25	39.15	54.11	14.96	AV
	0.343	28.60	0.31	28.91	49.13	20.22	
	0.694	23.70	0.19	23.89	46.00	22.11	
	3.759	21.90	0.48	22.38	46.00	23.62	
	9.757	23.90	0.73	24.63	50.00	25.37	
	15.885	30.70	0.85	31.55	50.00	18.45	
Neutral	0.186	48.86	0.12	48.98	64.20	15.22	QP
	0.267	39.91	0.12	40.03	61.20	21.17	
	0.716	33.06	0.21	33.27	56.00	22.73	
	3.759	32.90	0.38	33.28	56.00	22.72	
	9.757	34.74	0.48	35.22	60.00	24.78	
	15.885	40.71	0.74	41.45	60.00	18.55	
	0.186	37.60	0.12	37.72	54.20	16.48	AV
	0.267	29.40	0.12	29.52	51.20	21.68	
	0.716	23.90	0.21	24.11	46.00	21.89	
	3.759	22.80	0.38	23.18	46.00	22.82	
	9.757	23.60	0.48	24.08	50.00	25.92	
	15.885	30.60	0.74	31.34	50.00	18.66	

TEST ENGINEER: SAWEN LI

EUT : LCD Monitor Temperature : 22°C

Model No. : E2242VA Humidity : 48%RH

Serial No. : E1208992-01/01 Date of Test : Aug 14, 2012

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	0.188	48.06	0.25	48.31	64.11	15.80	QP
	0.339	39.51	0.31	39.82	59.22	19.40	
	0.686	33.49	0.19	33.68	56.00	22.32	
	3.799	31.88	0.48	32.36	56.00	23.64	
	9.757	33.65	0.73	34.38	60.00	25.62	
	15.388	40.36	0.84	41.20	60.00	18.80	
	0.188	37.29	0.25	37.54	54.11	16.57	AV
	0.339	29.40	0.31	29.71	49.22	19.51	
	0.686	22.50	0.19	22.69	46.00	23.31	
	3.799	21.50	0.48	21.98	46.00	24.02	
	9.757	21.20	0.73	21.93	50.00	28.07	
	15.388	31.30	0.84	32.14	50.00	17.86	
Neutral	0.188	48.83	0.12	48.95	64.11	15.16	QP
	0.313	39.84	0.13	39.97	59.88	19.91	
	0.716	32.67	0.21	32.88	56.00	23.12	
	3.759	33.04	0.38	33.42	56.00	22.58	
	9.757	34.34	0.48	34.82	60.00	25.18	
	15.388	41.04	0.73	41.77	60.00	18.23	
	0.188	38.60	0.12	38.72	54.11	15.39	AV
	0.313	27.64	0.13	27.77	49.88	22.11	
	0.716	21.50	0.21	21.71	46.00	24.29	
	3.759	23.50	0.38	23.88	46.00	22.12	
	9.757	26.50	0.48	26.98	50.00	23.02	
	15.388	31.00	0.73	31.73	50.00	18.27	

TEST ENGINEER: SAWEN LI

4 RADIATED EMISSION TEST

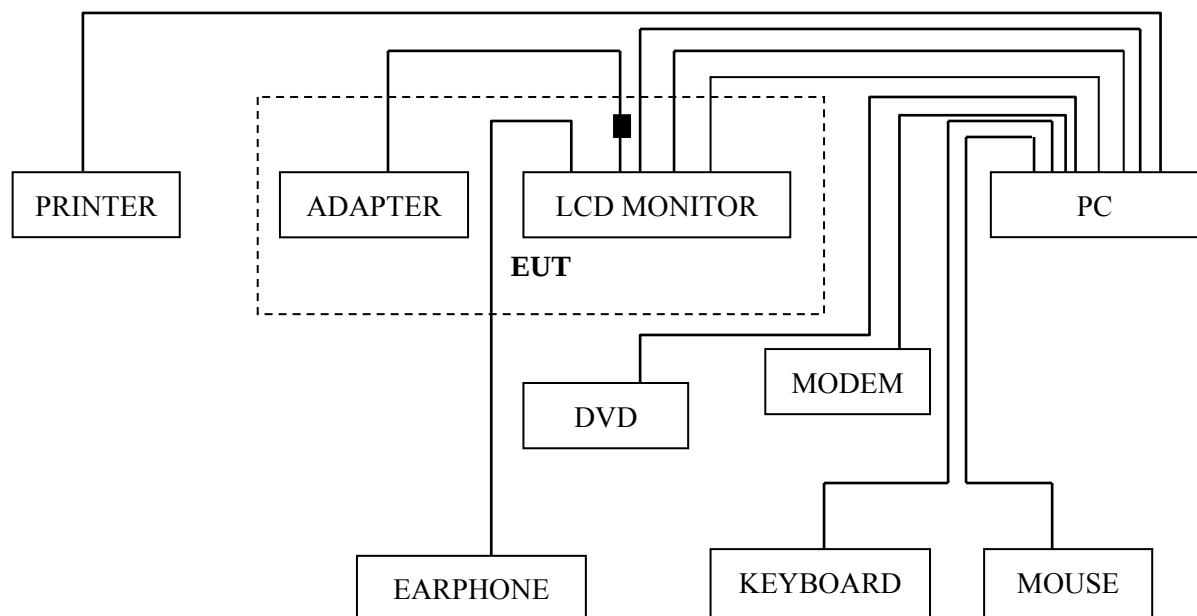
4.1 Test Equipment

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 22, 2012	Mar 22, 2013
2.	Preamplifier	Agilent	8447D	2944A10548	Mar 18, 2012	Sep 18, 2012
3.	Preamplifier	HP	8449B	3008A00864	Mar 22, 2012	Mar 22, 2013
4.	Bi-log Antenna	TESEQ	CBL6112D	23192	Dec 01, 2011	Dec 01, 2012
5.	Horn Antenna	EMCO	3115	9607-4878	May 03, 2012	May 03, 2013
6.	Spectrum	Agilent	E7405A	MY45106600	Mar 22, 2012	Mar 22, 2013
7.	50Ω Coaxial Switch	Anritsu	MP59B	6200426390	Mar 18, 2012	Sep 18, 2012
8.	Software	Audix	E3	SET00200 9912M295-2	--	--

4.2 Block Diagram of Test Setup

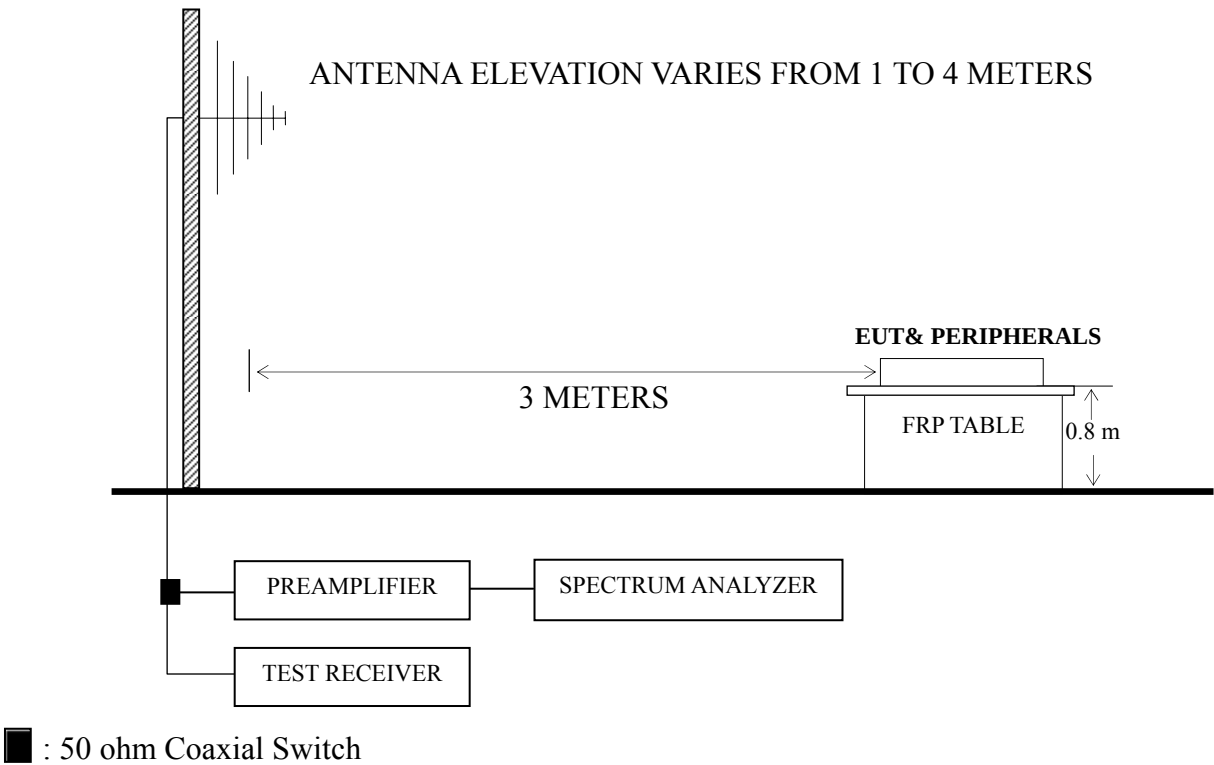
4.2.1 EUT and Peripherals



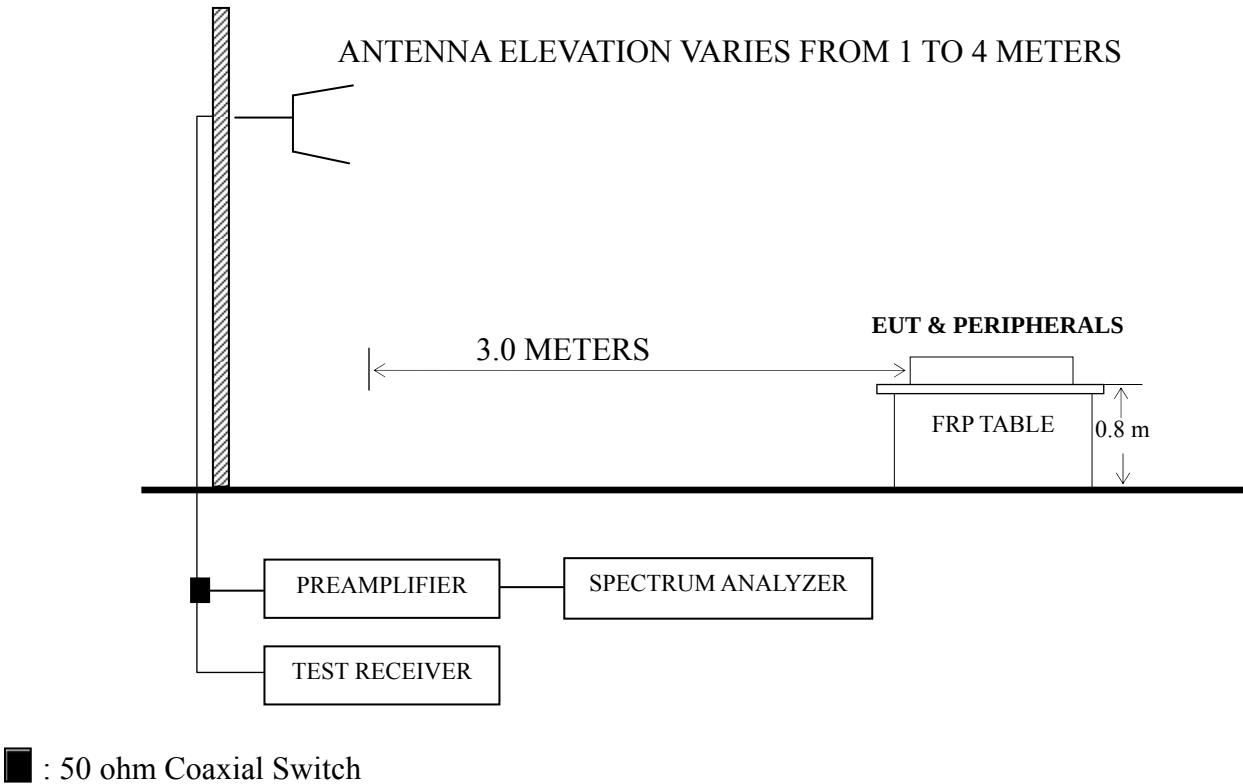
■ : Ferrite core

4.2.2 Radiated emission test setup

4.2.2.1 Below 1GHz



4.2.2.2 Above 1GHz



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) or Horn 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 I.F. 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 maximum resolution 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 1920*1080@60Hz	P25 – P26
DVI 1920*1080@60Hz	P27
HDMI 1920*1080@60Hz	P28
HDMI 1080P	P29
D-Sub 1680*1050@60Hz	P30
D-Sub 1280*1024@75Hz	P31
D-Sub 640*480@60Hz	P32

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

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

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

NOTE 4 – All readings are Quasi-Peak values below or equal to 1GHz, Peak and average values above 1GHz

NOTE 5 – The emission levels that are 20dB below the official limit are not reported.

NOTE 6 – 0° was the table front facing the antenna. Degree is calculated from 0° clockwise facing the antenna.

NOTE 7 – The worst case is for D-Sub 640*480@60Hz test mode. The worst emission at horizontal polarization was detected at 191.990 MHz with corrected signal level of 41.17 dB ($\mu\text{V/m}$) (limit is 43.50 dB ($\mu\text{V/m}$)), when the antenna was 1.20 m height and the turntable was at 250° . The worst emission at vertical polarization was detected at 87.230 MHz with corrected signal level of 35.07 dB ($\mu\text{V/m}$) (limit is 40.00 dB ($\mu\text{V/m}$)), when the antenna was 1.20 m height and the turntable was at 150° .

EUT : LCD Monitor Temperature : 22°C

Model No. : E2242VA Humidity : 60%RH

Serial No. : E1208992-01/01 Date of Test : Aug 16, 2012

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	88.200	22.81	10.93	1.70	--	35.44	43.50	8.06	QP
	191.990	22.58	9.87	2.40	--	34.85	43.50	8.65	
	244.370	20.18	11.70	2.60	--	34.48	46.00	11.52	
	292.870	21.70	13.53	2.74	--	37.97	46.00	8.03	
	439.340	20.77	16.82	3.09	--	40.68	46.00	5.32	
	731.310	17.50	19.83	3.75	--	41.08	46.00	4.92	
	1075.000	53.83	25.21	5.27	38.04	46.27	74.00	27.73	PK
	1180.000	48.13	25.71	5.34	37.81	41.37	74.00	32.63	
	1365.000	50.64	26.59	5.55	37.33	45.45	74.00	28.55	
	1465.000	46.41	26.90	5.72	37.06	41.97	74.00	32.03	
	1595.000	48.05	27.08	5.93	36.77	44.29	74.00	29.71	
	1760.000	50.91	27.23	6.17	36.49	47.82	74.00	26.18	
	1075.000	44.83	25.21	5.27	38.04	37.27	54.00	16.73	AV
	1180.000	35.13	25.71	5.34	37.81	28.37	54.00	25.63	
	1365.000	38.64	26.59	5.55	37.33	33.45	54.00	20.55	
	1465.000	35.41	26.90	5.72	37.06	30.97	54.00	23.03	
	1595.000	39.05	27.08	5.93	36.77	35.29	54.00	18.71	
	1760.000	34.91	27.23	6.17	36.49	31.82	54.00	22.18	

TEST ENGINEER: RAVEN JIN

EUT : LCD Monitor Temperature : 22°C

Model No. : E2242VA Humidity : 60%RH

Serial No. : E1208992-01/01 Date of Test : Aug 16, 2012

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
Vertical	65.890	17.35	9.55	1.32	--	28.22	40.00	11.78	QP
	124.090	20.96	10.93	2.05	--	33.94	43.50	9.56	
	241.460	27.18	11.60	2.58	--	41.36	46.00	4.64	
	292.870	23.15	13.53	2.74	--	39.42	46.00	6.58	
	439.340	22.73	16.82	3.09	--	42.64	46.00	3.36	
	639.160	18.87	18.70	3.55	--	41.12	46.00	4.88	
	1080.000	53.24	25.24	5.27	38.03	45.72	74.00	28.28	PK
	1170.000	52.19	25.66	5.34	37.83	45.36	74.00	28.64	
	1315.000	54.98	26.39	5.51	37.48	49.40	74.00	24.60	
	1465.000	50.47	26.90	5.72	37.06	46.03	74.00	27.97	
	1600.000	53.84	27.08	5.93	36.76	50.09	74.00	23.91	
	1670.000	52.15	27.14	6.03	36.63	48.69	74.00	25.31	
	1080.000	45.24	25.24	5.27	38.03	37.72	54.00	16.28	AV
	1170.000	41.19	25.66	5.34	37.83	34.36	54.00	19.64	
	1315.000	40.98	26.39	5.51	37.48	35.40	54.00	18.60	
	1465.000	40.47	26.90	5.72	37.06	36.03	54.00	17.97	
	1600.000	45.84	27.08	5.93	36.76	42.09	54.00	11.91	
	1670.000	38.15	27.14	6.03	36.63	34.69	54.00	19.31	

TEST ENGINEER: RAVEN JIN

EUT : LCD Monitor Temperature : 22°C

Model No. : E2242VA Humidity : 60%RH

Serial No. : E1208992-01/01 Date of Test : Aug 16, 2012

Test Mode : DVI 1920*1080@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	36.790	8.19	14.57	0.85	23.61	40.00	16.39
	72.680	14.86	10.08	1.47	26.41	40.00	13.59
	216.240	20.24	10.45	2.49	33.18	46.00	12.82
	289.960	21.46	13.42	2.72	37.60	46.00	8.40
	431.580	21.84	16.72	3.08	41.64	46.00	4.36
	647.890	15.88	18.85	3.58	38.31	46.00	7.69
Vertical	72.680	21.65	10.08	1.47	33.20	40.00	6.80
	144.460	22.28	10.52	2.19	34.99	43.50	8.51
	289.960	21.46	13.42	2.72	37.60	46.00	8.40
	431.580	21.84	16.72	3.08	41.64	46.00	4.36
	540.220	17.39	17.84	3.34	38.57	46.00	7.43
	871.960	16.30	20.38	4.60	41.28	46.00	4.72

TEST ENGINEER: RAVEN JIN

EUT : LCD Monitor Temperature : 22°C

Model No. : E2242VA Humidity : 60%RH

Serial No. : E1208992-01/01 Date of Test : Aug 16, 2012

Test Mode : HDMI 1920*1080@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	62.010	20.12	9.28	1.23	30.63	40.00	9.37
	87.230	22.60	10.88	1.70	35.18	40.00	4.82
	191.990	23.58	9.87	2.40	35.85	43.50	7.65
	296.750	25.51	13.63	2.75	41.89	46.00	4.11
	445.160	19.05	16.90	3.11	39.06	46.00	6.94
	593.570	15.59	18.17	3.45	37.21	46.00	8.79
Vertical	36.790	9.99	14.57	0.85	25.41	40.00	14.59
	126.030	17.15	10.89	2.07	30.11	43.50	13.39
	221.090	28.50	10.68	2.51	41.69	46.00	4.31
	296.750	24.66	13.63	2.75	41.04	46.00	4.96
	445.160	20.65	16.90	3.11	40.66	46.00	5.34
	593.570	17.41	18.17	3.45	39.03	46.00	6.97

TEST ENGINEER: RAVEN JIN

EUT : LCD Monitor Temperature : 22°C

Model No. : E2242VA Humidity : 60%RH

Serial No. : E1208992-01/01 Date of Test : Aug 16, 2012

Test Mode : HDMI 1080P

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	35.820	11.26	15.19	0.68	27.13	40.00	12.87
	101.780	12.64	11.32	1.05	25.01	43.50	18.49
	163.860	13.41	10.20	1.30	24.91	43.50	18.59
	336.520	11.59	14.74	1.88	28.21	46.00	17.79
	431.580	8.24	16.72	2.13	27.09	46.00	18.91
	800.180	6.71	20.60	2.89	30.20	46.00	15.80
Vertical	30.970	0.26	17.78	0.64	18.68	40.00	21.32
	104.690	7.52	11.27	1.06	19.85	43.50	23.65
	200.720	19.35	9.83	1.45	30.63	43.50	12.87
	257.950	16.65	12.31	1.62	30.58	46.00	15.42
	338.460	21.28	14.78	1.88	37.94	46.00	8.06
	375.320	14.56	15.79	1.99	32.34	46.00	13.66

TEST ENGINEER: RAVEN JIN

EUT : LCD Monitor Temperature : 22°C

Model No. : E2242VA Humidity : 60%RH

Serial No. : E1208992-01/01 Date of Test : Aug 16, 2012

Test Mode : D-Sub 1680*1050@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	50.370	27.31	8.51	0.93	36.75	40.00	3.25
	88.200	22.33	10.93	1.70	34.96	43.50	8.54
	230.790	23.49	11.10	2.55	37.14	46.00	8.86
	347.190	19.34	15.04	2.88	37.26	46.00	8.74
	395.690	20.61	16.20	2.98	39.79	46.00	6.21
	494.630	15.14	17.53	3.25	35.92	46.00	10.08
Vertical	72.680	17.81	10.08	1.47	29.36	40.00	10.64
	131.850	18.43	10.78	2.11	31.32	43.50	12.18
	230.790	22.71	11.10	2.55	36.36	46.00	9.64
	347.190	17.16	15.04	2.88	35.08	46.00	10.92
	395.690	17.96	16.20	2.98	37.14	46.00	8.86
	494.630	15.66	17.53	3.25	36.44	46.00	9.56

TEST ENGINEER: RAVEN JIN

EUT : LCD Monitor Temperature : 22°C

Model No. : E2242VA Humidity : 60%RH

Serial No. : E1208992-01/01 Date of Test : Aug 16, 2012

Test Mode : D-Sub 1280*1024@75Hz

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	72.680	16.21	10.08	1.47	27.76	40.00	12.24
	116.330	16.64	11.07	2.00	29.71	43.50	13.79
	146.400	22.92	10.49	2.20	35.61	43.50	7.89
	296.750	17.18	13.63	2.75	33.56	46.00	12.44
	446.130	20.34	16.92	3.11	40.37	46.00	5.63
	742.950	10.58	19.98	3.78	34.34	46.00	11.66
Vertical	88.200	22.95	10.93	1.70	35.58	43.50	7.92
	149.310	20.77	10.43	2.23	33.43	43.50	10.07
	296.750	18.73	13.63	2.75	35.11	46.00	10.89
	446.130	17.63	16.92	3.11	37.66	46.00	8.34
	593.570	16.31	18.17	3.45	37.93	46.00	8.07
	742.950	14.72	19.98	3.78	38.48	46.00	7.52

TEST ENGINEER: RAVEN JIN

EUT : LCD Monitor Temperature : 22°C

Model No. : E2242VA Humidity : 60%RH

Serial No. : E1208992-01/01 Date of Test : Aug 16, 2012

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	74.620	15.70	10.21	1.51	27.42	40.00	12.58
	141.550	20.71	10.59	2.18	33.48	43.50	10.02
	191.990	28.90	9.87	2.40	41.17	43.50	2.33
	294.810	22.02	13.56	2.75	38.33	46.00	7.67
	378.230	13.51	15.83	2.95	32.29	46.00	13.71
	647.890	8.57	18.85	3.58	31.00	46.00	15.00
Vertical	87.230	22.49	10.88	1.70	35.07	40.00	4.93
	144.460	23.10	10.52	2.19	35.81	43.50	7.69
	191.990	23.40	9.87	2.40	35.67	43.50	7.83
	228.850	21.20	11.01	2.53	34.74	46.00	11.26
	378.230	17.67	15.83	2.95	36.45	46.00	9.55
	604.240	13.16	18.26	3.47	34.89	46.00	11.11

TEST ENGINEER: RAVEN JIN

5 DEVIATION TO TEST SPECIFICATIONS

None.