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

LCD Monitor

Model No.: N225WUZ

Serial No.: 109NDTC66609

FCC ID : BEJN225WUZ

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

Prepared By : Audix Technology (Shanghai) Co., Ltd.
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Report No. : ACI-F11142
Date of Test : Sep 26, 2011
Date of Report : Sep 28, 2011

TABLE OF CONTENTS

Page

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. : N225WUZ
	(B) Serial No. : 109NDTC66609
	(C) Power Supply : 120V/60Hz

Test Procedure Used:

FCC RULES AND REGULATIONS PART 15 SUBPART B CLASS B OCTOBER 2010 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: N225WUZ; S/N: 109NDTC66609) which was tested in 3m anechoic chamber Sep 26, 2011 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 : Sep 26, 2011 Date of Report : Sep 28, 2011

Producer : Kathy Wang
KATHY WANG / Assistant

Review : Dio Yang
DIO YANG / Assistant Manager

AUDIX® 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 2010 AND ANSI C63.4-2003	15.107(a) Class B	Pass
Radiated Disturbance	FCC RULES AND REGULATIONS PART 15 SUBPART B OCTOBER 2010 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. : N225WUZ

Serial No. : 109NDTC66609

Real Power : 37.40W

AC Adapter : Manufacturer : LITE-ON TECHNOLOGY CORPORATION
Model Number : PA-1650-68
Input : 100-240V~, 50-60Hz 2.0A
Output : 19V ⎓ 3.42A

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 : LM215WF4 (TL)(E7)

Max Resolution : 1920*1080@60Hz

D-Sub Cable #1 : Shielded, Detachable, 1.50m, with two cores in connector

D-Sub Cable #2 : Shielded, Detachable, 1.80m, with two cores in connector

Power Cord : Unshielded, Detachable, 1.80m

Note : The D-Sub cable #2 was selected to be used in the test.

Remark:
The EUT is a LCD Monitor which input/output ports as follows:
Back Port
(1) One DC In Port
: Connected with AC Adapter
(2) One USB (HOST) Port
: Connected with PC
(3) One USB Port
: Connected with Keyboard #1
(4) One USB Port
: Connected with Mouse #1
(5) One D-Sub In Port
: Connected with PC
(6) One D-Sub Out Port
: Connected with LCD Monitor

Side Port
(1) Two USB Ports
: Connected with HDD #1/HDD #2
(2) One Earphone Port
: Connected with Earphone
(3) One Microphone Port
: Connected with Microphone

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 LCD Monitor

Manufacturer	:	HP
Model Number	:	L1506
Serial Number	:	CNC62206TK
Data Cable	:	Shielded, Detachable, 1.5m
Certificate	:	GS, CE/EMC, C-Tick, FCC DoC

2.2.4 Keyboard #1

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 Keyboard #2

Manufacturer	:	Microsoft
Model Number	:	SK-2880
Serial Number	:	BC346VN2N9
Data Cable	:	Shielded, Undetachable, 1.8m
Certificate	:	FCC DoC, CE/EMC, C-Tick, MIC VCCI

2.2.6 Mouse #1

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

2.2.7 Mouse #2

Manufacturer	:	HP
Model Number	:	SBF96
Serial Number	:	17441-00
Data Cable	:	Shielded, Undetachable, 1.8m.
Certificate	:	FCC DoC, CE/EMC, MIC, BSMI

2.2.8 Modem

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

2.2.9 HDD #1

Manufacturer	:	ACCOM
Model Number	:	F12-UF
Serial Number	:	A01002224A60007

2.2.10 HDD #2

Manufacturer	:	ACCOM
Model Number	:	F12-UF
Serial Number	:	A01002224860006

2.2.11 Earphone

Manufacturer	:	SONY
Model Number	:	MDR-E808
Serial Number	:	1808030805305506

2.2.12 Microphone

Manufacturer : Microsoft
Serial Number : 001

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 = 3.38 dB
Radiated Emission Expanded Uncertainty (30-200MHz):
U = 4.58 dB (horizontal)
U = 4.70 dB (vertical)
Radiated Emission Expanded Uncertainty (200M-1GHz):
U = 4.84 dB (horizontal)
U = 4.70 dB (vertical)
Radiated Emission Expanded Uncertainty (Above 1GHz) :
U= 4.60 dB (Horizontal)
U= 4.18 dB (Vertical)

3 CONDUCTED EMISSION TEST

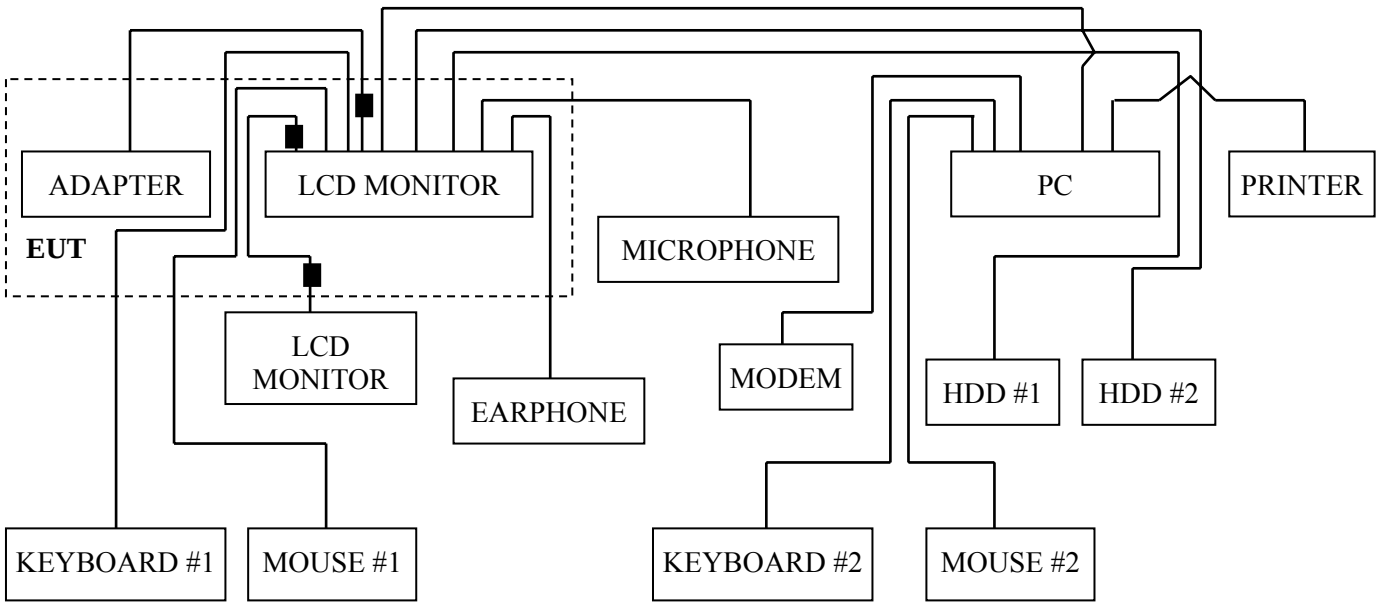
3.1 Test Equipment

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, 2011	Mar 22, 2012
2.	Artificial Mains Network (AMN #1)	R&S	ESH2-Z5	843890/011	Mar 22, 2011	Mar 22, 2012
3.	Artificial Mains Network (AMN #2)	R&S	ENV4200	100125	Mar 22, 2011	Mar 22, 2012
4.	50 Ω Coaxial Switch	Anritsu	MP59B	6200426389	Sep 18, 2011	Mar 18, 2012
5.	50Ω Terminator	Anritsu	BNC	001	Mar 22, 2011	Mar 22, 2012
6.	Software	Audix	E3	SET00200 9804M592	--	--

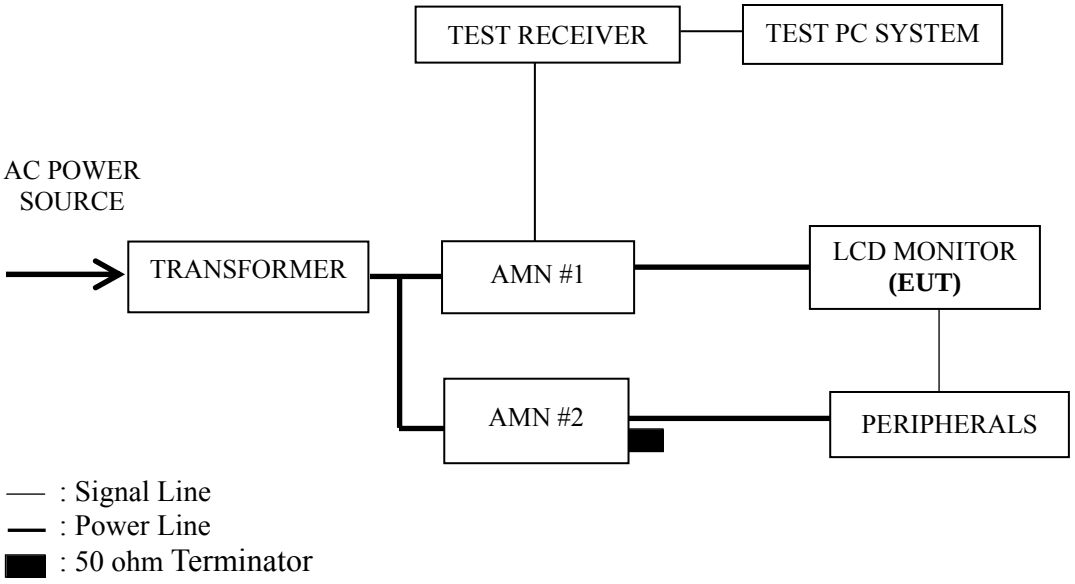
3.2 Block Diagram of Test Setup

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 (μV)	
	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 Input).

3.5.5 In USB+D-Sub OUT mode, the input signal from USB port to EUT and the EUT output the signal to another LCD Monitor through D-Sub OUT 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 640*480@60Hz
D-Sub 1366*768@60Hz
D-Sub 1680*1050@60Hz
D-Sub 1920*1080@60Hz
USB+D-Sub OUT

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 640*480@60Hz	**P13**
D-Sub 1366*768@60Hz	P14
D-Sub 1680*1050@60Hz	P15
D-Sub 1920*1080@60Hz	P16
USB+D-Sub OUT	P17

NOTE 1 – The **bold test mode** listed above means the worst test mode.
NOTE 2 – Factor = Cable Loss + AMN Factor.
NOTE 3 – Emission Level = Meter Reading + Factor.
NOTE 4 – "QP" means "Quasi-Peak" values, "AV" means "Average" values.
NOTE 5 – The worst case is for D-Sub 640*480@60Hz test mode. The worst emission is detected at 0.150 MHz (Average Value) with corrected signal level of 49.23 dB (μV) (limit is 56.00 dB (μV)), when the Line of the EUT is connected to AMN.

EUT	:	LCD Monitor	Temperature :	22℃	
Model No.	:	N225WUZ	Humidity	:	48%RH
Serial No.	:	109NDTC66609	Date of Test	:	Sep 26, 2011
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	0.150	57.81	0.22	58.03	66.00	7.97	QP
	0.444	34.09	0.31	34.40	56.98	22.58	
	1.262	24.05	0.39	24.44	56.00	31.56	
	2.261	26.38	0.45	26.83	56.00	29.17	
	4.549	31.91	0.55	32.46	56.00	23.54	
	15.552	34.31	0.86	35.17	60.00	24.83	
	0.150	**49.01**	**0.22**	**49.23**	**56.00**	**6.77**	AV
	0.444	24.50	0.31	24.81	46.98	22.17	
	1.262	14.25	0.39	14.64	46.00	31.36	
	2.261	16.90	0.45	17.35	46.00	28.65	
	4.549	21.16	0.55	21.71	46.00	24.29	
	15.552	24.49	0.86	25.35	50.00	24.65	
Neutral	0.150	57.86	0.18	58.04	66.00	7.96	QP
	0.444	34.43	0.24	34.67	56.98	22.31	
	1.262	22.68	0.46	23.14	56.00	32.86	
	2.707	27.26	0.58	27.84	56.00	28.16	
	4.549	34.43	0.76	35.19	56.00	20.81	
	15.718	35.80	1.16	36.96	60.00	23.04	
	0.150	47.89	0.18	48.07	56.00	7.93	AV
	0.444	24.15	0.24	24.39	46.98	22.59	
	1.262	12.94	0.46	13.40	46.00	32.60	
	2.707	17.60	0.58	18.18	46.00	27.82	
	4.549	24.17	0.76	24.93	46.00	21.07	
	15.718	25.64	1.16	26.80	50.00	23.20	

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EUT	:	LCD Monitor	Temperature :	22℃	
Model No.	:	N225WUZ	Humidity	:	48%RH
Serial No.	:	109NDTC66609	Date of Test	:	Sep 26, 2011
Test Mode	:	D-Sub 1366*768@60Hz			

Test Line	Frequency (MHz)	Meter Reading dB(μV)	Factor (dB)	Emission Level dB(μV)	Limits dB(μV)	Margin (dB)	Remark
Line	0.150	57.85	0.22	58.07	66.00	7.93	QP
	0.440	34.09	0.31	34.40	57.07	22.67	
	1.172	24.63	0.37	25.00	56.00	31.00	
	2.261	28.55	0.45	29.00	56.00	27.00	
	4.407	31.76	0.54	32.30	56.00	23.70	
	15.552	33.15	0.86	34.01	60.00	25.99	
	0.150	47.56	0.22	47.78	56.00	8.22	AV
	0.440	24.14	0.31	24.45	47.07	22.62	
	1.172	14.27	0.37	14.64	46.00	31.36	
	2.261	18.56	0.45	19.01	46.00	26.99	
	4.407	21.03	0.54	21.57	46.00	24.43	
	15.552	23.61	0.86	24.47	50.00	25.53	
Neutral	**0.150**	**57.99**	**0.18**	**58.17**	**66.00**	**7.83**	QP
	0.444	34.31	0.24	34.55	56.98	22.43	
	1.223	23.11	0.45	23.56	56.00	32.44	
	2.309	27.77	0.57	28.34	56.00	27.66	
	4.501	33.84	0.76	34.60	56.00	21.40	
	15.552	36.34	1.16	37.50	60.00	22.50	
	0.150	46.97	0.18	47.15	56.00	8.85	AV
	0.444	24.13	0.24	24.37	46.98	22.61	
	1.223	13.81	0.45	14.26	46.00	31.74	
	2.309	17.89	0.57	18.46	46.00	27.54	
	4.501	23.14	0.76	23.90	46.00	22.10	
	15.552	26.48	1.16	27.64	50.00	22.36	

TEST ENGINEER: WENCY YANG

EUT	:	LCD Monitor	Temperature	:	22℃
Model No.	:	N225WUZ	Humidity	:	48%RH
Serial No.	:	109NDTC66609	Date of Test	:	Sep 26, 2011
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	0.150	57.79	0.22	58.01	66.00	7.99	QP
	0.440	34.05	0.31	34.36	57.07	22.71	
	1.184	25.00	0.38	25.38	56.00	30.62	
	2.736	26.18	0.45	26.63	56.00	29.37	
	4.501	31.92	0.55	32.47	56.00	23.53	
	15.552	35.03	0.86	35.89	60.00	24.11	
	0.150	47.00	0.22	47.22	56.00	8.78	AV
	0.440	24.55	0.31	24.86	47.07	22.21	
	1.184	15.89	0.38	16.27	46.00	29.73	
	2.736	16.79	0.45	17.24	46.00	28.76	
	4.501	20.88	0.55	21.43	46.00	24.57	
	15.552	25.62	0.86	26.48	50.00	23.52	
Neutral	0.150	58.09	0.18	58.27	66.00	7.73	QP
	0.444	34.20	0.24	34.44	56.98	22.54	
	1.117	22.68	0.44	23.12	56.00	32.88	
	2.334	27.48	0.57	28.05	56.00	27.95	
	4.622	32.62	0.76	33.38	56.00	22.62	
	15.718	36.68	1.16	37.84	60.00	22.16	
	0.150	**48.90**	**0.18**	**49.08**	**56.00**	**6.92**	AV
	0.444	24.15	0.24	24.39	46.98	22.59	
	1.117	11.24	0.44	11.68	46.00	34.32	
	2.334	17.45	0.57	18.02	46.00	27.98	
	4.622	23.14	0.76	23.90	46.00	22.10	
	15.718	26.48	1.16	27.64	50.00	22.36	

TEST ENGINEER: WENCY YANG

EUT	:	LCD Monitor	Temperature :	22℃	
Model No.	:	N225WUZ	Humidity	:	48%RH
Serial No.	:	109NDTC66609	Date of Test	:	Sep 26, 2011
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	0.150	58.19	0.22	58.41	66.00	7.59	QP
	0.435	34.50	0.31	34.81	57.15	22.34	
	1.223	24.38	0.38	24.76	56.00	31.24	
	2.309	26.89	0.45	27.34	56.00	28.66	
	4.622	31.50	0.55	32.05	56.00	23.95	
	16.055	34.15	0.87	35.02	60.00	24.98	
	0.150	**48.60**	**0.22**	**48.82**	**56.00**	**7.18**	AV
	0.435	24.14	0.31	24.45	47.15	22.70	
	1.223	14.50	0.38	14.88	46.00	31.12	
	2.309	16.59	0.45	17.04	46.00	28.96	
	4.622	12.30	0.55	12.85	46.00	33.15	
	16.055	24.60	0.87	25.47	50.00	24.53	
Neutral	0.150	58.29	0.18	58.47	66.00	7.53	QP
	0.435	34.16	0.24	34.40	57.15	22.75	
	1.223	23.39	0.45	23.84	56.00	32.16	
	2.736	27.13	0.58	27.71	56.00	28.29	
	4.549	33.65	0.76	34.41	56.00	21.59	
	15.718	36.31	1.16	37.47	60.00	22.53	
	0.150	48.15	0.18	48.33	56.00	7.67	AV
	0.435	24.61	0.24	24.85	47.15	22.30	
	1.223	13.30	0.45	13.75	46.00	32.25	
	2.736	17.48	0.58	18.06	46.00	27.94	
	4.549	23.47	0.76	24.23	46.00	21.77	
	15.718	2.80	1.16	3.96	50.00	46.04	

TEST ENGINEER: WENCY YANG

EUT	:	LCD Monitor	Temperature	:	22℃
Model No.	:	N225WUZ	Humidity	:	48%RH
Serial No.	:	109NDTC66609	Date of Test	:	Sep 26, 2011
Test Mode	:	USB+D-Sub OUT			

Test Line	Frequency (MHz)	Meter Reading dB(μV)	Factor (dB)	Emission Level dB(μV)	Limits dB(μV)	Margin (dB)	Remark
Line	0.150	58.10	0.22	58.32	66.00	7.68	QP
	0.444	34.20	0.24	34.44	56.98	22.54	
	1.262	22.68	0.46	23.14	56.00	32.86	
	2.309	26.89	0.45	27.34	56.00	28.66	
	4.501	31.92	0.55	32.47	56.00	23.53	
	16.055	34.15	0.87	35.02	60.00	24.98	
	0.150	**48.56**	**0.22**	**48.78**	**56.00**	**7.22**	AV
	0.444	24.15	0.24	24.39	46.98	22.59	
	1.262	12.94	0.46	13.40	46.00	32.60	
	2.309	16.59	0.45	17.04	46.00	28.96	
	4.501	20.88	0.55	21.43	46.00	24.57	
	16.055	24.60	0.87	25.47	50.00	24.53	
Neutral	0.150	58.40	0.18	58.58	66.00	7.42	QP
	0.435	33.27	0.24	33.51	57.15	23.64	
	1.184	25.00	0.38	25.38	56.00	30.62	
	2.736	27.13	0.58	27.71	56.00	28.29	
	4.549	31.91	0.55	32.46	56.00	23.54	
	15.552	36.34	1.16	37.50	60.00	22.50	
	0.150	47.99	0.18	48.17	56.00	7.83	AV
	0.435	24.58	0.24	24.82	47.15	22.33	
	1.184	15.89	0.38	16.27	46.00	29.73	
	2.736	17.48	0.58	18.06	46.00	27.94	
	4.549	21.16	0.55	21.71	46.00	24.29	
	15.552	26.48	1.16	27.64	50.00	22.36	

TEST ENGINEER: WENCY YANG

4 RADIATED EMISSION TEST

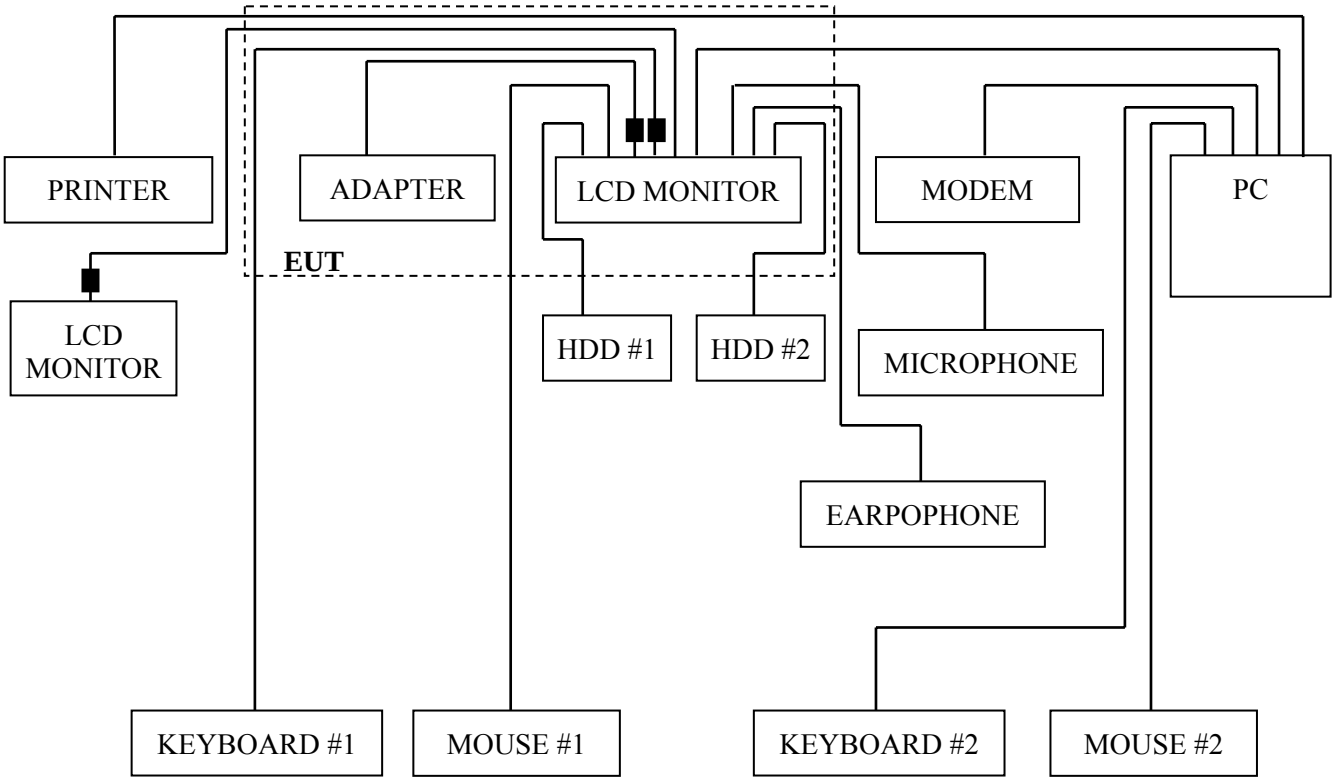
4.1 Test Equipment

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 22, 2011	Mar 22, 2012
2.	Preamplifier	Agilent	8447D	2944A10548	Sep 18, 2011	Mar 18, 2012
3.	Preamplifier	HP	8449B	3008A00864	Mar 22, 2011	Mar 22, 2012
4.	Bi-log Antenna	TESEQ	CBL6112D	23192	Dec 01, 2010	Dec 01, 2011
5.	Horn Antenna	EMCO	3115	9607-4878	May 06, 2011	May 06, 2012
6.	Spectrum	Agilent	E7405A	MY45106600	Mar 22, 2011	Mar 22, 2012
7.	50Ω Coaxial Switch	Anritsu	MP59B	6200426390	Sep 18, 2011	Mar 18, 2012
8.	Software	Audix	E3	SET00200 9912M295-2	--	--

4.2 Block Diagram of Test Setup

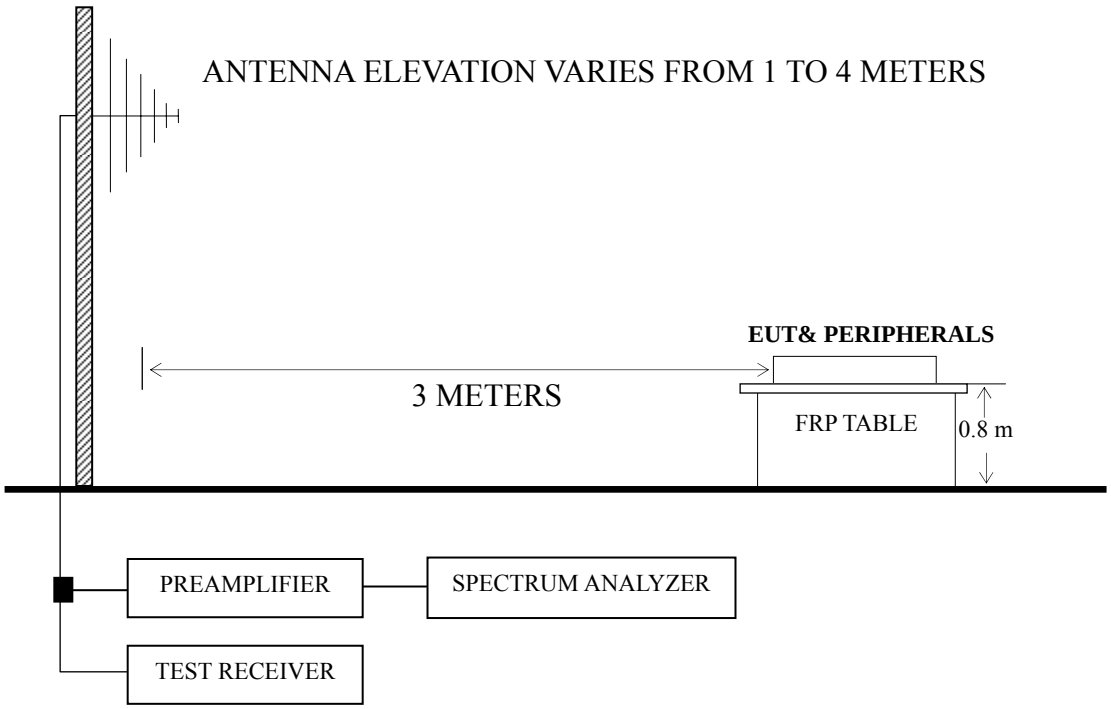
4.2.1 EUT and Peripherals



■ Ferrite core

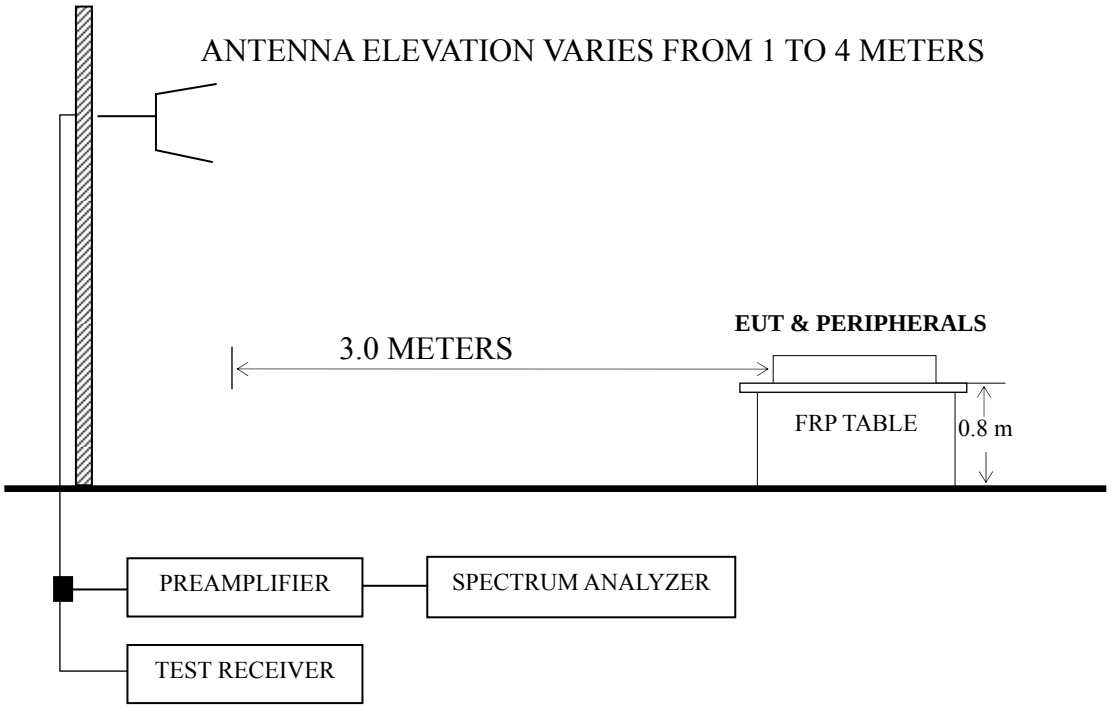
4.2.2 Radiated emission test setup

4.2.2.1 Below 1GHz



■ : 50 ohm Coaxial Switch

4.2.2.2 Above 1GHz



■ : 50 ohm Coaxial Switch

4.3 Radiated Emission Limit [FCC Part 15 Subpart B 15.109(a)]

Frequency (MHz)	Distance (m)	Field strength limits	
		(μV/m)	dB (μV/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 (μV/m) = 20 log Emission Level (μV/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 D-Sub 1680*1050@60Hz and 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	Page
D-Sub 640*480@60Hz	P23
D-Sub 1366*768@60Hz	P24
D-Sub 1680*1050@60Hz	P25 – P26
D-Sub 1920*1080@60Hz	**P27 – P28**
USB+D-Sub OUT	P29 – P30

NOTE 1 – **The bold test mode** listed above means the worst test mode.
NOTE 2 – Emission Level = Antenna Factor + Cable Loss + Meter Reading.(< 1GHz)
NOTE 3 – Emission Level = Antenna Factor + Cable Loss – Preamp Factor + Meter Reading.(> 1GHz)
NOTE 4 – 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 1920*1080@60Hz test mode. The worst emission at horizontal polarization was detected at 337.490 MHz with corrected signal level of 37.88 dB (μV/m) (limit is 46.00 dB (μV/m)), when the antenna was 1.00 m height and the turntable was at 175°. The worst emission at vertical polarization was detected at 184.230 MHz with corrected signal level of 35.70 dB (μV/m) (limit is 43.50 dB (μV/m)), when the antenna was 1.00 m height and the turntable was at 250°.

EUT	:	LCD Monitor	Temperature :	22℃
Model No.	:	N225WUZ	Humidity :	60%RH
Serial No.	:	109NDTC66609	Date of Test :	Sep 26, 2011
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	92.080	11.04	11.08	1.75	23.87	43.50	19.63
	145.430	15.43	10.50	2.20	28.13	43.50	15.37
	218.180	12.70	10.52	2.50	25.72	46.00	20.28
	284.140	17.45	13.24	2.71	33.40	46.00	12.60
	436.430	**17.46**	**16.79**	**3.09**	**37.34**	**46.00**	**8.66**
	667.290	11.55	19.12	3.62	34.29	46.00	11.71
Vertical	30.970	2.56	17.78	0.81	21.15	40.00	18.85
	153.190	11.76	10.36	2.24	24.36	43.50	19.14
	218.180	12.95	10.52	2.50	25.97	46.00	20.03
	284.140	11.96	13.24	2.71	27.91	46.00	18.09
	400.540	8.73	16.30	2.99	28.02	46.00	17.98
	870.990	**7.26**	**20.38**	**4.60**	**32.24**	**46.00**	**13.76**

TEST ENGINEER: RAVEN JIN

EUT	:	LCD Monitor	Temperature :	22℃
Model No.	:	N225WUZ	Humidity :	60%RH
Serial No.	:	109NDTC66609	Date of Test :	Sep 26, 2011
Test Mode	:	D-Sub 1366*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	2.96	17.78	0.81	21.55	40.00	18.45
	135.730	10.57	10.71	2.14	23.42	43.50	20.08
	155.130	13.31	10.33	2.25	25.89	43.50	17.61
	206.540	14.94	10.04	2.45	27.43	43.50	16.07
	344.280	11.80	14.96	2.86	29.62	46.00	16.38
	667.290	**12.32**	**19.12**	**3.62**	**35.06**	**46.00**	**10.94**
Vertical	33.880	11.03	16.26	0.83	28.12	40.00	11.88
	62.980	19.98	9.36	1.26	30.60	40.00	9.40
	135.730	16.39	10.71	2.14	29.24	43.50	14.26
	276.380	16.91	13.02	2.68	32.61	46.00	13.39
	337.490	**19.83**	**14.74**	**2.85**	**37.42**	**46.00**	**8.58**
	458.740	13.59	17.09	3.15	33.83	46.00	12.17

TEST ENGINEER: RAVEN JIN

EUT	:	LCD Monitor	Temperature :	22℃	
Model No.	:	N225WUZ	Humidity :	60%RH	
Serial No.	:	109NDTC66609	Date of Test :	Sep 26, 2011	
Test Mode	:	D-Sub 1680*1050@60Hz			

Polarization	Frequency (MHz)	Meter Reading dB (μV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Emission Level dB (μV/m)	Limits dB (μV/m)	Margin (dB)	Remark
Horizontal	33.880	10.34	16.26	0.83	--	27.43	40.00	12.57	QP
	62.980	16.26	9.36	1.26	--	26.88	40.00	13.12	
	140.580	13.43	10.60	2.18	--	26.21	43.50	17.29	
	279.290	15.65	13.09	2.70	--	31.44	46.00	14.56	
	337.490	**20.13**	**14.74**	**2.85**	**--**	**37.72**	**46.00**	**8.28**	
	470.380	12.85	17.24	3.19	--	33.28	46.00	12.72	
	1075.000	53.82	25.21	4.50	37.26	46.27	74.00	27.73	PK
	1250.000	51.58	26.08	4.52	36.90	45.28	74.00	28.72	
	1365.000	52.94	26.59	4.54	36.62	47.45	74.00	26.55	
	1595.000	49.76	27.08	4.56	36.11	45.29	74.00	28.71	
	1720.000	47.47	27.19	4.57	35.92	43.31	74.00	30.69	
	1850.000	46.84	27.30	4.64	35.75	43.03	74.00	30.97	
	1075.000	47.82	25.21	4.50	37.26	40.27	54.00	13.73	AV
	1250.000	36.58	26.08	4.52	36.90	30.28	54.00	23.72	
	1365.000	36.94	26.59	4.54	36.62	31.45	54.00	22.55	
	1595.000	37.76	27.08	4.56	36.11	33.29	54.00	20.71	
	1720.000	37.47	27.19	4.57	35.92	33.31	54.00	20.69	
	1850.000	36.84	27.30	4.64	35.75	33.03	54.00	20.97	

TEST ENGINEER: RAVEN JIN

EUT	:	LCD Monitor	Temperature :	22℃	
Model No.	:	N225WUZ	Humidity :	60%RH	
Serial No.	:	109NDTC66609	Date of Test :	Sep 26, 2011	
Test Mode	:	D-Sub 1680*1050@60Hz			

Polarization	Frequency (MHz)	Meter Reading dB (μV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Emission Level dB (μV/m)	Limits dB (μV/m)	Margin (dB)	Remark
Vertical	58.130	14.58	9.02	1.14	--	24.74	40.00	15.26	QP
	135.730	9.20	10.71	2.14	--	22.05	43.50	21.45	
	183.760	18.90	9.95	2.37	--	31.22	43.50	12.28	
	346.220	**14.19**	**15.00**	**2.88**	**--**	**32.07**	**46.00**	**13.93**	
	421.880	11.67	16.57	3.04	--	31.28	46.00	14.72	
	499.480	7.18	17.60	3.27	--	28.05	46.00	17.95	
	1080.000	49.23	25.24	4.50	37.25	41.72	74.00	32.28	PK
	1185.000	49.36	25.74	4.51	37.04	42.57	74.00	31.43	
	1315.000	52.23	26.39	4.53	36.75	46.40	74.00	27.60	
	1520.000	43.62	27.02	4.55	36.24	38.95	74.00	35.05	
	1600.000	48.55	27.08	4.56	36.10	44.09	74.00	29.91	
	1760.000	51.77	27.23	4.58	35.86	47.72	74.00	26.28	
	1080.000	45.23	25.24	4.50	37.25	37.72	54.00	16.28	AV
	1185.000	37.36	25.74	4.51	37.04	30.57	54.00	23.43	
	1315.000	39.23	26.39	4.53	36.75	33.40	54.00	20.60	
	1520.000	32.62	27.02	4.55	36.24	27.95	54.00	26.05	
	1600.000	38.55	27.08	4.56	36.10	34.09	54.00	19.91	
	1760.000	39.77	27.23	4.58	35.86	35.72	54.00	18.28	

TEST ENGINEER: RAVEN JIN

EUT	:	LCD Monitor	Temperature :		22℃
Model No.	:	N225WUZ	Humidity	:	60%RH
Serial No.	:	109NDTC66609	Date of Test	:	Sep 26, 2011
Test Mode	:	D-Sub 1920*1080@60Hz			

Polarization	Frequency (MHz)	Meter Reading dB (μV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Emission Level dB (μV/m)	Limits dB (μV/m)	Margin (dB)	Remark
Horizontal	61.040	16.78	9.21	1.21	--	27.20	40.00	12.80	QP
	92.080	11.95	11.08	1.75	--	24.78	43.50	18.72	
	135.730	13.02	10.71	2.14	--	25.87	43.50	17.63	
	276.380	17.00	13.02	2.68	--	32.70	46.00	13.30	
	337.490	**20.29**	**14.74**	**2.85**	**--**	**37.88**	**46.00**	**8.12**	
	473.290	11.59	17.29	3.19	--	32.07	46.00	13.93	
	1075.000	47.82	25.21	4.50	37.26	40.27	74.00	33.73	PK
	1250.000	44.58	26.08	4.52	36.90	38.28	74.00	35.72	
	1365.000	43.94	26.59	4.54	36.62	38.45	74.00	35.55	
	1520.000	35.65	27.02	4.55	36.24	30.98	74.00	43.02	
	1665.000	38.06	27.14	4.57	36.00	33.77	74.00	40.23	
	1760.000	39.87	27.23	4.58	35.86	35.82	74.00	38.18	
	1075.000	41.82	25.21	4.50	37.26	34.27	54.00	19.73	AV
	1250.000	32.58	26.08	4.52	36.90	26.28	54.00	27.72	
	1365.000	27.94	26.59	4.54	36.62	22.45	54.00	31.55	
	1520.000	21.65	27.02	4.55	36.24	16.98	54.00	37.02	
	1665.000	27.06	27.14	4.57	36.00	22.77	54.00	31.23	
	1760.000	29.87	27.23	4.58	35.86	25.82	54.00	28.18	

TEST ENGINEER: RAVEN JIN

EUT	: LCD Monitor	Temperature	:	22℃	
Model No.	: N225WUZ	Humidity	:	60%RH	
Serial No.	: 109NDTC66609	Date of Test	:	Sep 26, 2011	
Test Mode	: D-Sub 1920*1080@60Hz				

Polarization	Frequency (MHz)	Meter Reading dB (μV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Emission Level dB (μV/m)	Limits dB (μV/m)	Margin (dB)	Remark
Vertical	58.130	14.23	9.02	1.14	--	24.39	40.00	15.61	QP
	155.130	11.59	10.33	2.25	--	24.17	43.50	19.33	
	184.230	**23.38**	**9.95**	**2.37**	--	**35.70**	**43.50**	**7.80**	
	271.530	15.79	12.86	2.67	--	31.32	46.00	14.68	
	347.190	14.33	15.04	2.88	--	32.25	46.00	13.75	
	667.290	12.39	19.12	3.62	--	35.13	46.00	10.87	
	1080.000	50.23	25.24	4.50	37.25	42.72	74.00	31.28	PK
	1185.000	49.36	25.74	4.51	37.04	42.57	74.00	31.43	
	1315.000	49.23	26.39	4.53	36.75	43.40	74.00	30.60	
	1500.000	45.93	27.00	4.55	36.30	41.18	74.00	32.82	
	1600.000	51.55	27.08	4.56	36.10	47.09	74.00	26.91	
	1760.000	52.77	27.23	4.58	35.86	48.72	74.00	25.28	
	1080.000	40.23	25.24	4.50	37.25	32.72	54.00	21.28	AV
	1185.000	35.36	25.74	4.51	37.04	28.57	54.00	25.43	
	1315.000	37.23	26.39	4.53	36.75	31.40	54.00	22.60	
	1500.000	36.93	27.00	4.55	36.30	32.18	54.00	21.82	
	1600.000	38.55	27.08	4.56	36.10	34.09	54.00	19.91	
	1760.000	44.77	27.23	4.58	35.86	40.72	54.00	13.28	

TEST ENGINEER: RAVEN JIN

EUT	:	LCD Monitor	Temperature :		22℃
Model No.	:	N225WUZ	Humidity	:	60%RH
Serial No.	:	109NDTC66609	Date of Test	:	Sep 26, 2011
Test Mode	:	USB+D-Sub OUT			

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	87.230	19.81	10.88	0.98	31.67	40.00	8.33
	174.530	21.51	10.06	1.35	32.92	43.50	10.58
	218.180	23.44	10.52	1.51	35.47	46.00	10.53
	281.230	22.81	13.17	1.70	37.68	46.00	8.32
	303.540	**22.51**	**13.80**	**1.78**	**38.09**	**46.00**	**7.91**
	347.190	19.81	15.04	1.91	36.76	46.00	9.24
Vertical	33.880	14.39	16.26	0.67	31.32	40.00	8.68
	43.580	17.89	10.86	0.74	29.49	40.00	10.51
	167.740	**23.98**	**10.14**	**1.32**	**35.44**	**43.50**	**8.06**
	184.230	23.31	9.95	1.39	34.65	43.50	8.85
	547.980	16.96	17.90	2.35	37.21	46.00	8.79
	870.990	10.82	20.38	2.98	34.18	46.00	11.82

TEST ENGINEER: RAVEN JIN

5 DEVIATION TO TEST SPECIFICATIONS

None.

6 DEBUG DESCRIPTION

The following components are used during the countermeasure procedures:

Name	Specifications (mm)	Manufacturer	Location
SPONGE	225*10*1	EXPANElactronics SUZHOU Co., Ltd.	See Internal Photos Figure 14
SPONGE	120*10*1	EXPANElactronics SUZHOU Co., Ltd.	See Internal Photos Figure 14
SPONGE	60*10*1	EXPANElactronics SUZHOU Co., Ltd.	See Internal Photos Figure 14
SPONGE	55*10*1	EXPANElactronics SUZHOU Co., Ltd.	See Internal Photos Figure 15

Note: We had required the applicant and manufacturer that all electrical and mechanical devices employed for spurious radiation suppression, including any modifications made during certification testing, must be incorporated in each unit marked

TEST ENGINEER: Raven Jin

(RAVEN JIN)