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

Network Monitor

Model No.: N1642WT

Serial No.: E2009040701

FCC ID : BEJN1642WT

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-F09029
Date of Test : Apr 08-09, 2009
Date of Report : Apr 13, 2009

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TEST REPORT FOR FCC CERTIFICATE

Applicant	:	LG Electronics U.S.A., Inc.
Manufacturer	:	LG Electronics Nanjing Display Co., Ltd.
EUT Description	:	Network Monitor
		(A) Model No. : N1642WT
		(B) Serial No. : E2009040701
		(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: N1642WT; S/N: E2009040701) which was tested in 3m anechoic chamber Apr 08-09, 2009 is technically compliance with the FCC official limits also.

This report applies to above tested sample only. This report shall not be reproduced in part without written approval of Audix Technology (Shanghai) Co., Ltd.

This report contains data that are not covered by the NVLAP accreditation.

This report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST, or any agency of the federal government.

Date of Test : Apr 08-09, 2009 Date of Report : Apr 13, 2009

Producer : Zeno Gu
ZENO GU / Assistant

Review : Dio Yang.
DIO YANG / Supervisor

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

Signatory : 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	:	Network Monitor
Type of EUT	:	☑ Production ☐ Pre-product ☐ Pro-type
Model No.	:	N1642WT
Serial No.	:	E2009040701
Real Power	:	17.00W
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 : BOE M/N : HT156WX1-100
Max Resolution	:	D-Sub 1360*768@60Hz X-PORT 1440*900@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
STP Cable	:	Shielded, Detachable, 5.00m, with two cores on cable
Power Cord	:	Unshielded, Detachable, 1.80m
Note	:	After evaluation, the D-Sub cable#1 was used in the test for it will cause the maximum emission.

Remark:

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

(1) One D-Sub Port
: Connected with PC

(2) One X-PORT
: Connected with PC (X550 Port on the PCI Card)

(3) One PS/2 Keyboard Port
: Connected with Keyboard

(4) One PS/2 Mouse Port
: Connected with Mouse

(5) One Earphone Port
: Connected with Earphone

(6) One AC In Port
: Connected with Power

2.2 Peripherals

2.2.1 PC

Manufacturer	:	HP
Model Number	:	dx6120MT
Serial Number	:	CNG53004J2
Power Cord	:	Unshielded, Detachable, 1.8m
Certificate	:	FCC DoC; CE/EMC; VCCI; C-Tick; UL BSMI (R33001) 3C (A000111) MIC (E-A011-04-2659(B)

2.2.2 Printer

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

2.2.3 Keyboard #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

2.2.4 Keyboard #2

Manufacturer	:	Logitech
Model Number	:	Y-SAM64
Serial Number	:	SY807UK
Data Cable	:	Shielded, Undetachable, 1.8m
Certificate	:	CE/EMC, FCC DoC, C-Tick, BSMI

2.2.5 Mouse #1

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

2.2.6 Mouse #2

Manufacturer	:	HP
Model Number	:	SBF96
Serial Number	:	417441-001
Data Cable	:	Shielded, Undetachable, 1.85m.
Certificate	:	FCC DoC, VCCI, CE/EMC, C-Tick, BSMI

2.2.7 Modem

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

2.2.8 Earphone

Manufacturer	:	SIOMY
Model Number	:	SM-430
Serial Number	:	N/A
Data Cable	:	Shielded, Detachable, 2.0m

2.2.9 X550 PCI Card (installed in the PC)

Manufacturer	:	NComputing Inc.
Model Number	:	X550 PCI Card (500-0035)
Serial Number	:	X550K8AB2 10009133
Certificate	:	FCC DoC, CE/EMC

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

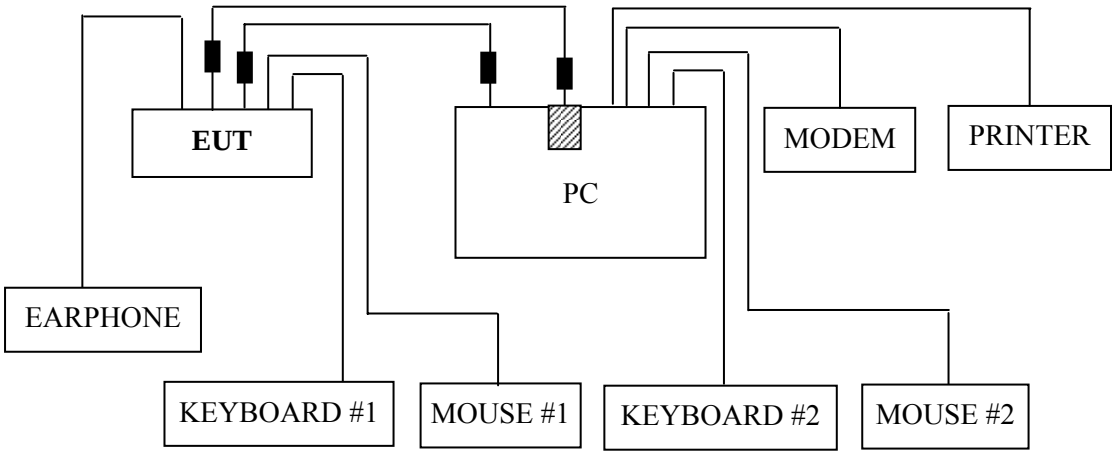
3.1.1 Test Equipment

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	ESCI	100841	Nov 21, 2008	Nov 21, 2009
2.	Artificial Mains Network (AMN)	R&S	ESH2-Z5	843890/011	Apr 02, 2009	Apr 02, 2010
3.	Line Impedance Stabilization Network (LISN)	Kyoritsu	KNW-407	8-1280-4	Apr 02, 2009	Apr 02, 2010
4.	50 Ω Coaxial Switch	Anritsu	MP59B	6200426389	Mar 19, 2009	Sep 19, 2009
5.	50Ω Terminator	Anritsu	BNC	001	Apr 02, 2009	Apr 02, 2010
6.	Software	Audix	E3	SET00200 9804M592	--	--

3.2 Block Diagram of Test Setup

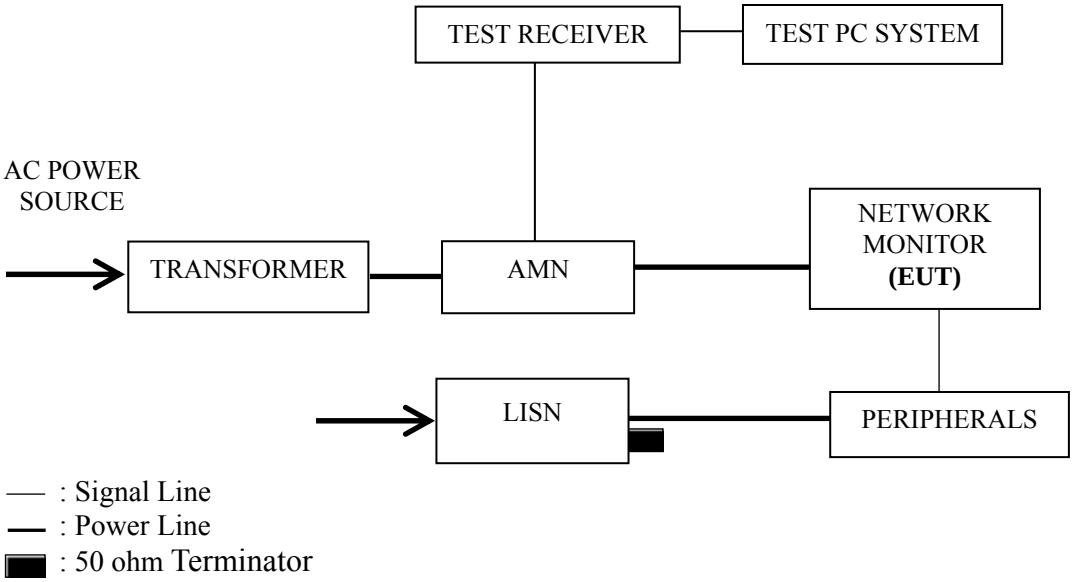
3.2.1 EUT & Peripherals



: Ferrite core

: X550 PCI Card

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, the EUT's screen displayed and filled with "H" pattern by its resolution (Via D-Sub & X-PORT Input).

3.5.5 In X- PORT mode, PC system played music and sent audio signal to EUT through the X- PORT of EUT.

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 1024*768@60Hz
D-Sub 1360*768@60Hz
X-PORT 800*600@72Hz
X-PORT 1024*768@60Hz
X-PORT 1440*900@60Hz

3.6 Test Procedures

The EUT and peripherals were connected to the power mains through an Artificial Mains Network (AMN). This provided a 50 ohm coupling impedance for the measuring equipment.

Both sides of AC line (Line & Neutral) were checked for maximum conducted interference. In order to find the maximum emission, the relative positions of equipment and all of the interface cables were changed or manipulated according to ANSI C63.4:2003 during conducted emission test.

The bandwidth of R&S Test Receiver ESCI was set at 9 kHz.

The frequency range from 150 kHz to 30 MHz was checked.

The test modes were done on conducted disturbance test and all the test results are listed in Sec. 3.7.

3.7 Test Results

< PASS >

The frequency and amplitude of the highest conducted emission relative to the limit is reported. All emissions not reported below are too low against the prescribed limits.

Test Mode	Data Page
D-Sub 640*480@60Hz	P12
D-Sub 1024*768@60Hz	P13
D-Sub 1360*768@60Hz	P14
X-PORT 800*600@72Hz	P15
X-PORT 1024*768@60Hz	P16
X-PORT 1440*900@60Hz	P17

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 D-Sub 640*480@60Hz test mode. The worst emission is detected at 0.197 MHz (Quasi-Peak value) with corrected signal level of 50.25 dB (μV) (limit is 63.76 dB (μV)), when the Neutral of the EUT is connected to AMN.

EUT	:	Network Monitor	Temperature :	22℃
Model No.	:	N1642WT	Humidity :	48%RH
Serial No.	:	E2009040701	Date of Test :	Apr 08, 2009
Test Mode	:	D-Sub 640*480@60Hz		

Test Line	Frequency (MHz)	Meter Reading dB(μV)	Factor (dB)	Emission Level dB(μV)	Limits dB(μV)	Margin (dB)	Remark
Line	0.197	47.68	0.70	48.38	63.76	15.38	QP
	0.262	39.18	0.68	39.86	61.38	21.52	
	1.054	30.71	0.53	31.24	56.00	24.76	
	1.628	29.27	0.48	29.75	56.00	26.25	
	9.204	36.05	0.82	36.87	60.00	23.13	
	24.142	42.90	0.87	43.77	60.00	16.23	
	0.197	37.78	0.62	38.40	53.76	15.36	AV
	0.262	29.48	0.59	30.07	51.38	21.31	
	1.054	21.64	0.42	22.06	46.00	23.94	
	1.628	19.35	0.35	19.70	46.00	26.30	
	9.204	26.65	0.42	27.07	50.00	22.93	
	24.142	32.51	0.54	33.05	50.00	16.95	
Neutral	**0.197**	**49.63**	**0.62**	**50.25**	**63.76**	**13.51**	QP
	0.262	40.34	0.63	40.97	61.38	20.41	
	0.984	32.65	0.53	33.18	56.00	22.82	
	1.628	29.97	0.50	30.47	56.00	25.53	
	9.352	37.20	0.95	38.15	60.00	21.85	
	20.162	42.05	0.96	43.01	60.00	16.99	
	0.197	39.15	0.54	39.69	53.76	14.07	AV
	0.262	31.26	0.54	31.80	51.38	19.58	
	0.984	22.64	0.42	23.06	46.00	22.94	
	1.628	19.48	0.37	19.85	46.00	26.15	
	9.352	27.84	0.55	28.39	50.00	21.61	
	20.162	32.64	0.65	33.29	50.00	16.71	

TEST ENGINEER: WENCY YANG

EUT	:	Network Monitor	Temperature :	22℃	
Model No.	:	N1642WT	Humidity :	48%RH	
Serial No.	:	E2009040701	Date of Test :	Apr 08, 2009	
Test Mode	:	D-Sub 1024*768@60Hz			

Test Line	Frequency (MHz)	Meter Reading dB(μV)	Factor (dB)	Emission Level dB(μV)	Limits dB(μV)	Margin (dB)	Remark
Line	0.197	48.55	0.70	49.25	63.76	14.51	QP
	0.262	39.22	0.68	39.90	61.38	21.48	
	1.043	30.50	0.53	31.03	56.00	24.97	
	1.628	30.00	0.48	30.48	56.00	25.52	
	9.204	36.13	0.82	36.95	60.00	23.05	
	23.140	42.08	0.87	42.95	60.00	17.05	
	0.197	38.77	0.62	39.39	53.76	14.37	AV
	0.262	29.64	0.59	30.23	51.38	21.15	
	1.043	21.64	0.42	22.06	46.00	23.94	
	1.628	19.47	0.35	19.82	46.00	26.18	
	9.204	26.51	0.42	26.93	50.00	23.07	
	23.140	32.66	0.54	33.20	50.00	16.80	
Neutral	**0.197**	**49.21**	**0.62**	**49.83**	**63.76**	**13.93**	QP
	0.262	40.17	0.63	40.80	61.38	20.58	
	1.043	32.22	0.53	32.75	56.00	23.25	
	1.628	30.83	0.50	31.33	56.00	24.67	
	9.204	36.69	0.95	37.64	60.00	22.36	
	20.924	43.13	0.96	44.09	60.00	15.91	
	0.197	39.19	0.54	39.73	53.76	14.03	AV
	0.262	31.61	0.54	32.15	51.38	19.23	
	1.043	22.64	0.42	23.06	46.00	22.94	
	1.628	21.64	0.37	22.01	46.00	23.99	
	9.204	26.49	0.55	27.04	50.00	22.96	
	0.197	49.21	0.60	49.81	63.76	13.95	

TEST ENGINEER: WENCY YANG

EUT	:	Network Monitor	Temperature :	22℃
Model No.	:	N1642WT	Humidity :	48%RH
Serial No.	:	E2009040701	Date of Test :	Apr 08, 2009
Test Mode	:	D-Sub 1360*768@60Hz		

Test Line	Frequency (MHz)	Meter Reading dB(μV)	Factor (dB)	Emission Level dB(μV)	Limits dB(μV)	Margin (dB)	Remark
Line	0.197	47.31	0.70	48.01	63.76	15.75	QP
	0.262	38.46	0.68	39.14	61.38	22.24	
	1.043	30.36	0.53	30.89	56.00	25.11	
	1.628	29.83	0.48	30.31	56.00	25.69	
	9.204	36.21	0.82	37.03	60.00	22.97	
	23.888	42.65	0.87	43.52	60.00	16.48	
	0.197	37.12	0.62	37.74	53.76	16.02	AV
	0.262	28.49	0.59	29.08	51.38	22.30	
	1.043	21.64	0.42	22.06	46.00	23.94	
	1.628	19.45	0.35	19.80	46.00	26.20	
	9.204	26.35	0.42	26.77	50.00	23.23	
	23.888	32.66	0.54	33.20	50.00	16.80	
Neutral	**0.197**	**48.54**	**0.62**	**49.16**	**63.76**	**14.60**	QP
	0.262	39.16	0.63	39.79	61.38	21.59	
	1.043	31.38	0.53	31.91	56.00	24.09	
	1.698	29.55	0.50	30.05	56.00	25.95	
	20.594	42.12	0.96	43.08	60.00	16.92	
	23.888	42.50	0.96	43.46	60.00	16.54	
	0.197	38.52	0.54	39.06	53.76	14.70	AV
	0.262	29.64	0.54	30.18	51.38	21.20	
	1.043	21.61	0.42	22.03	46.00	23.97	
	1.698	19.52	0.37	19.89	46.00	26.11	
	20.594	32.62	0.65	33.27	50.00	16.73	
	23.888	32.51	0.63	33.14	50.00	16.86	

TEST ENGINEER: WENCY YANG

EUT	:	Network Monitor	Temperature :	22℃	
Model No.	:	N1642WT	Humidity	:	48%RH
Serial No.	:	E2009040701	Date of Test	:	Apr 08, 2009
Test Mode	:	X-PORT 800*600@72Hz			

Test Line	Frequency (MHz)	Meter Reading dB(μV)	Factor (dB)	Emission Level dB(μV)	Limits dB(μV)	Margin (dB)	Remark
Line	**0.197**	**48.58**	**0.70**	**49.28**	**63.76**	**14.48**	QP
	0.262	39.90	0.68	40.58	61.38	20.80	
	0.984	30.23	0.54	30.77	56.00	25.23	
	1.628	29.79	0.48	30.27	56.00	25.73	
	9.107	36.55	0.83	37.38	60.00	22.62	
	23.888	42.81	0.87	43.68	60.00	16.32	
	0.197	38.12	0.62	38.74	53.76	15.02	AV
	0.262	29.61	0.59	30.20	51.38	21.18	
	0.984	21.64	0.43	22.07	46.00	23.93	
	1.628	19.45	0.35	19.80	46.00	26.20	
	9.107	26.48	0.43	26.91	50.00	23.09	
	23.888	32.51	0.54	33.05	50.00	16.95	
Neutral	0.197	48.00	0.62	48.62	63.76	15.14	QP
	0.262	39.15	0.63	39.78	61.38	21.60	
	1.043	32.03	0.53	32.56	56.00	23.44	
	1.628	30.26	0.50	30.76	56.00	25.24	
	20.162	42.11	0.96	43.07	60.00	16.93	
	23.636	43.84	0.96	44.80	60.00	15.20	
	0.197	37.51	0.54	38.05	53.76	15.71	AV
	0.262	29.54	0.54	30.08	51.38	21.30	
	1.043	23.61	0.42	24.03	46.00	21.97	
	1.628	21.64	0.37	22.01	46.00	23.99	
	20.162	32.66	0.65	33.31	50.00	16.69	
	23.636	33.84	0.63	34.47	50.00	15.53	

TEST ENGINEER: WENCY YANG

EUT	:	Network Monitor	Temperature :	22℃
Model No.	:	N1642WT	Humidity :	48%RH
Serial No.	:	E2009040701	Date of Test :	Apr 08, 2009
Test Mode	:	X-PORT 1024*768@60Hz		

Test Line	Frequency (MHz)	Meter Reading dB(μV)	Factor (dB)	Emission Level dB(μV)	Limits dB(μV)	Margin (dB)	Remark
Line	0.197	47.34	0.70	48.04	63.76	15.72	QP
	0.259	39.33	0.68	40.01	61.47	21.46	
	1.054	28.66	0.53	29.19	56.00	26.81	
	1.628	29.63	0.48	30.11	56.00	25.89	
	24.400	43.26	0.88	44.14	60.00	15.86	
	28.003	43.15	0.88	44.03	60.00	15.97	
	0.197	37.14	0.62	37.76	53.76	16.00	AV
	0.259	29.75	0.59	30.34	51.47	21.13	
	1.054	18.45	0.42	18.87	46.00	27.13	
	1.628	19.47	0.35	19.82	46.00	26.18	
	24.400	33.25	0.54	33.79	50.00	16.21	
	28.003	33.12	0.55	33.67	50.00	16.33	
Neutral	**0.197**	**48.89**	**0.62**	**49.51**	**63.76**	**14.25**	QP
	0.262	40.10	0.63	40.73	61.38	20.65	
	1.054	32.66	0.53	33.19	56.00	22.81	
	1.628	31.54	0.50	32.04	56.00	23.96	
	9.107	37.16	0.95	38.11	60.00	21.89	
	23.888	42.91	0.96	43.87	60.00	16.13	
	0.197	38.54	0.54	39.08	53.76	14.68	AV
	0.262	31.52	0.54	32.06	51.38	19.32	
	1.054	23.64	0.42	24.06	46.00	21.94	
	1.628	21.61	0.37	21.98	46.00	24.02	
	9.107	27.14	0.55	27.69	50.00	22.31	
	23.888	32.14	0.63	32.77	50.00	17.23	

TEST ENGINEER: WENCY YANG

EUT	:	Network Monitor	Temperature :	22℃
Model No.	:	N1642WT	Humidity :	48%RH
Serial No.	:	E2009040701	Date of Test :	Apr 08, 2009
Test Mode	:	X-PORT 1440*900@60Hz		

Test Line	Frequency (MHz)	Meter Reading dB(μV)	Factor (dB)	Emission Level dB(μV)	Limits dB(μV)	Margin (dB)	Remark
Line	**0.197**	**47.98**	**0.70**	**48.68**	**63.76**	**15.08**	QP
	0.262	39.08	0.68	39.76	61.38	21.62	
	0.984	31.44	0.54	31.98	56.00	24.02	
	1.628	30.93	0.48	31.41	56.00	24.59	
	9.107	35.77	0.83	36.60	60.00	23.40	
	23.888	42.90	0.87	43.77	60.00	16.23	
	0.197	37.14	0.62	37.76	53.76	16.00	AV
	0.262	29.84	0.59	30.43	51.38	20.95	
	0.984	21.51	0.43	21.94	46.00	24.06	
	1.628	21.35	0.35	21.70	46.00	24.30	
	9.107	25.63	0.43	26.06	50.00	23.94	
	23.888	32.16	0.54	32.70	50.00	17.30	
Neutral	0.197	47.76	0.62	48.38	63.76	15.38	QP
	0.262	39.10	0.63	39.73	61.38	21.65	
	1.054	31.90	0.53	32.43	56.00	23.57	
	1.628	30.32	0.50	30.82	56.00	25.18	
	9.302	37.85	0.95	38.80	60.00	21.20	
	20.594	43.61	0.96	44.57	60.00	15.43	
	0.197	37.48	0.54	38.02	53.76	15.74	AV
	0.262	29.16	0.54	29.70	51.38	21.68	
	1.054	21.16	0.42	21.58	46.00	24.42	
	1.628	21.13	0.37	21.50	46.00	24.50	
	9.302	27.62	0.55	28.17	50.00	21.83	
	20.594	33.31	0.65	33.96	50.00	16.04	

TEST ENGINEER: WENCY YANG

4 RADIATED EMISSION TEST

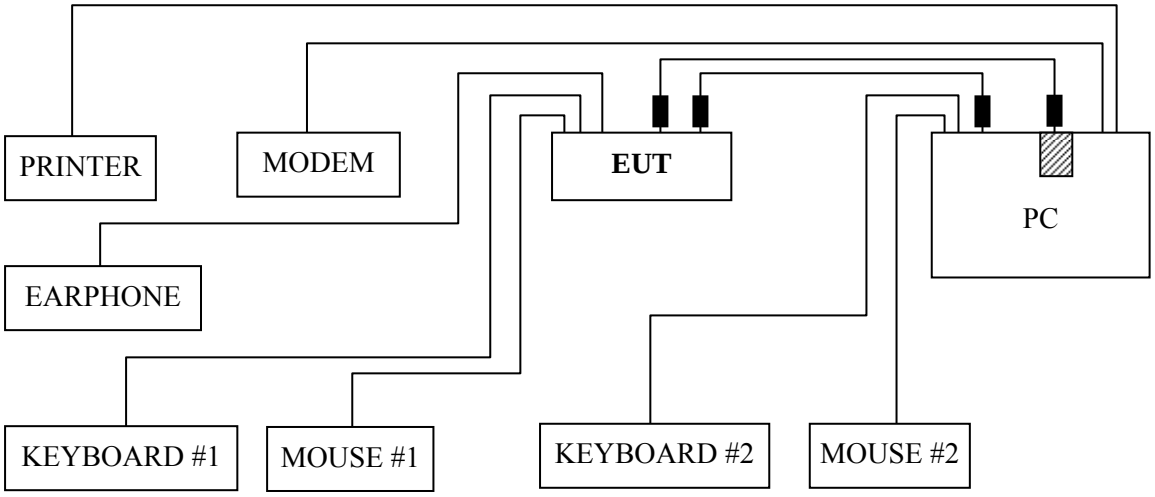
4.1 Test Equipment

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

Item	Type	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
1.	Test Receiver	R&S	ESVS10	844594/001	Mar 07, 2009	Mar 07, 2010
2.	Preamplifier	Agilent	8447D	2944A10548	Mar 19, 2009	Sep 19, 2009
3.	Preamplifier	HP	8449B	3008A00864	May 19, 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

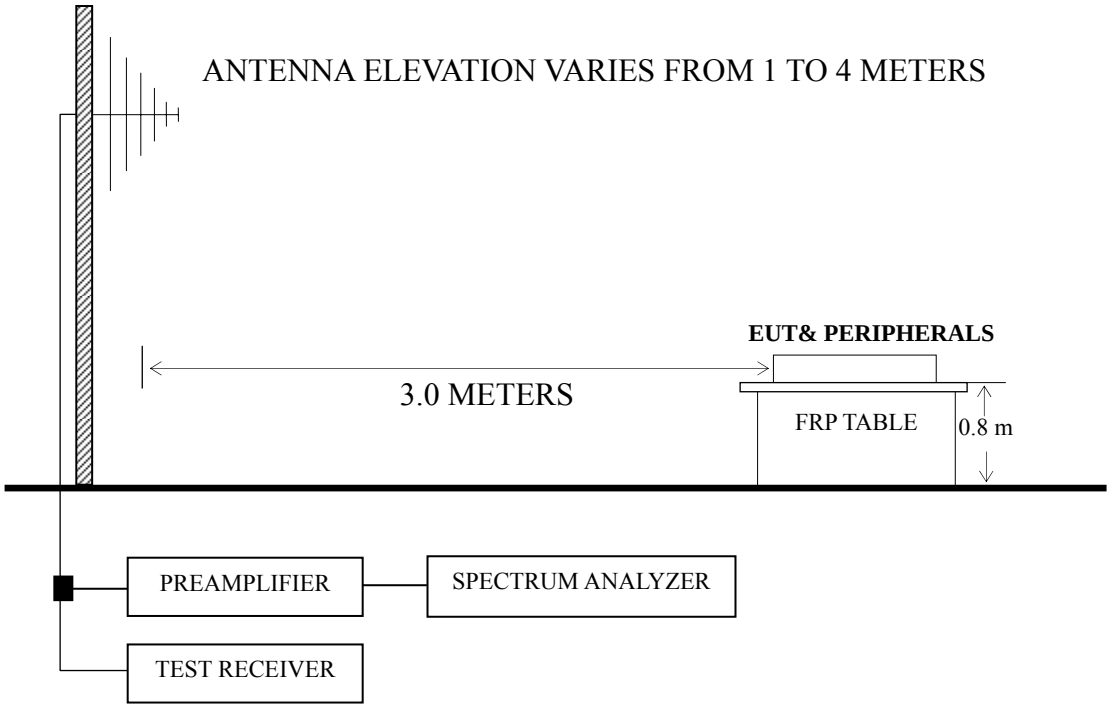
4.2.1 EUT and Peripherals



▮ : Ferrite core

▨ : X550 PCI Card

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	
		(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) 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 X-PORT 1440*900@60Hz mode.

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	P22
D-Sub 1024*768@60Hz	P23
D-Sub 1360*768@60Hz	P24
X-PORT 800*600@72Hz	P25
X-PORT 1024*768@60Hz	P26
X-PORT 1440*900@60Hz	P27

NOTE 1 – Emission Level = Antenna Factor + Cable Loss + Meter Reading. (< 1GHz)

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

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 1360*768@60Hz test mode. The worst emission at horizontal polarization was detected at 74.620 MHz with corrected signal level of 29.78 dB (μV/m) (limit is 40.00dB (μV/m)), when the antenna was 1.00 m height and the turntable was at 230°. The worst emission at vertical polarization was detected at 523.730 MHz with corrected signal level of 42.99 dB (μV/m) (limit is 46.00 dB (μV/m)), when the antenna was 1.00 m height and the turntable was at 330°.

EUT	:	Network Monitor	Temperature :	22℃
Model No.	:	N1642WT	Humidity :	60%RH
Serial No.	:	E2009040701	Date of Test :	Apr 09, 2009
Test Mode	:	D-Sub 640*480@60Hz		

Polarization	Frequency (MHz)	Meter Reading dB (μV)	Antenna Factor (dB/m)	Cable Loss (dB)	Emission Level dB (μV/m)	Limits dB (μV/m)	Margin (dB)
Horizontal	66.860	25.87	6.53	0.86	33.26	40.00	6.74
	74.620	25.00	7.11	0.87	32.98	40.00	7.02
	232.730	19.08	12.24	1.21	32.53	46.00	13.47
	373.380	15.26	15.92	1.91	33.09	46.00	12.91
	521.790	17.71	18.18	2.43	38.32	46.00	7.68
	730.340	**16.36**	**20.00**	**3.14**	**39.50**	**46.00**	**6.50**
Vertical	62.980	25.75	6.57	0.84	33.16	40.00	6.84
	66.860	**28.11**	**6.53**	**0.86**	**35.50**	**40.00**	**4.50**
	107.600	18.11	12.10	0.86	31.07	43.50	12.43
	115.360	14.84	12.71	0.88	28.43	43.50	15.07
	454.860	17.17	17.29	2.24	36.70	46.00	9.30
	730.340	15.37	20.00	3.14	38.51	46.00	7.49

TEST ENGINEER: TOM SI

EUT	:	Network Monitor	Temperature :	22℃
Model No.	:	N1642WT	Humidity :	60%RH
Serial No.	:	E2009040701	Date of Test :	Apr 09, 2009
Test Mode	:	D-Sub 1024*768@60Hz		

Polarization	Frequency (MHz)	Meter Reading dB (μV)	Antenna Factor (dB/m)	Cable Loss (dB)	Emission Level dB (μV/m)	Limits dB (μV/m)	Margin (dB)
Horizontal	**70.740**	**22.82**	**6.58**	**0.87**	**30.27**	**40.00**	**9.73**
	232.730	17.46	12.24	1.21	30.91	46.00	15.09
	454.860	14.21	17.29	2.24	33.74	46.00	12.26
	673.110	11.02	19.58	2.95	33.55	46.00	12.45
	730.340	8.85	20.00	3.14	31.99	46.00	14.01
	833.160	5.57	21.01	3.40	29.98	46.00	16.02
Vertical	59.100	25.07	6.80	0.82	32.69	40.00	7.31
	66.860	26.81	6.53	0.86	34.20	40.00	5.80
	87.230	21.09	8.96	0.86	30.91	40.00	9.09
	107.600	16.34	12.10	0.86	29.30	43.50	14.20
	673.110	15.21	19.58	2.95	37.74	46.00	8.26
	730.340	**18.75**	**20.00**	**3.14**	**41.89**	**46.00**	**4.11**

TEST ENGINEER: TOM SI

EUT	:	Network Monitor	Temperature :	22℃
Model No.	:	N1642WT	Humidity :	60%RH
Serial No.	:	E2009040701	Date of Test :	Apr 09, 2009
Test Mode	:	D-Sub 1360*768@60Hz		

Polarization	Frequency (MHz)	Meter Reading dB (μV)	Antenna Factor (dB/m)	Cable Loss (dB)	Emission Level dB (μV/m)	Limits dB (μV/m)	Margin (dB)
Horizontal	**74.620**	**21.80**	**7.11**	**0.87**	**29.78**	**40.00**	**10.22**
	521.790	10.33	18.18	2.43	30.94	46.00	15.06
	600.360	7.78	19.20	2.59	29.57	46.00	16.43
	730.340	7.28	20.00	3.14	30.42	46.00	15.58
	908.820	6.21	21.76	3.56	31.53	46.00	14.47
	971.870	6.60	22.22	3.76	32.58	54.00	21.42
Vertical	66.860	28.18	6.53	0.86	35.57	40.00	4.43
	453.890	17.11	17.29	2.24	36.64	46.00	9.36
	523.730	**22.35**	**18.21**	**2.43**	**42.99**	**46.00**	**3.01**
	598.420	11.88	19.20	2.59	33.67	46.00	12.33
	730.340	15.14	20.00	3.14	38.28	46.00	7.72
	759.440	11.76	20.30	3.22	35.28	46.00	10.72

TEST ENGINEER: TOM SI

EUT	:	Network Monitor	Temperature :	22℃
Model No.	:	N1642WT	Humidity :	60%RH
Serial No.	:	E2009040701	Date of Test :	Apr 09, 2009
Test Mode	:	X-PORT 800*600@72Hz		

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	232.730	16.15	12.24	1.21	29.60	46.00	16.40
	335.550	12.51	14.90	1.73	29.14	46.00	16.86
	529.550	12.09	18.30	2.45	32.84	46.00	13.16
	730.340	**13.82**	**20.00**	**3.14**	**36.96**	**46.00**	**9.04**
	759.440	9.72	20.30	3.22	33.24	46.00	12.76
	787.570	9.06	20.58	3.30	32.94	46.00	13.06
Vertical	**66.860**	**28.53**	**6.53**	**0.86**	**35.92**	**40.00**	**4.08**
	70.740	26.59	6.58	0.87	34.04	40.00	5.96
	74.620	23.45	7.11	0.87	31.43	40.00	8.57
	105.660	18.25	11.95	0.86	31.06	43.50	12.44
	529.550	15.28	18.30	2.45	36.03	46.00	9.97
	730.340	15.28	20.00	3.14	38.42	46.00	7.58

TEST ENGINEER: TOM SI

EUT	:	Network Monitor	Temperature :	22℃
Model No.	:	N1642WT	Humidity :	60%RH
Serial No.	:	E2009040701	Date of Test :	Apr 09, 2009
Test Mode	:	X-PORT 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	373.380	10.99	15.92	1.91	28.82	46.00	17.18
	454.860	9.95	17.29	2.24	29.48	46.00	16.52
	521.790	9.03	18.18	2.43	29.64	46.00	16.36
	597.450	7.23	19.17	2.58	28.98	46.00	17.02
	702.210	8.99	19.73	3.07	31.79	46.00	14.21
	730.340	**11.61**	**20.00**	**3.14**	**34.75**	**46.00**	**11.25**
Vertical	59.100	26.33	6.80	0.82	33.95	40.00	6.05
	66.860	27.26	6.53	0.86	34.65	40.00	5.35
	70.740	25.32	6.58	0.87	32.77	40.00	7.23
	104.690	19.04	11.88	0.86	31.78	43.50	11.72
	448.070	19.94	17.20	2.22	39.36	46.00	6.64
	521.790	**21.92**	**18.18**	**2.43**	**42.53**	**46.00**	**3.47**

TEST ENGINEER: TOM SI

EUT	:	Network Monitor	Temperature :	22℃
Model No.	:	N1642WT	Humidity :	60%RH
Serial No.	:	E2009040701	Date of Test :	Apr 09, 2009
Test Mode	:	X-PORT 1440*900@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	373.380	11.39	15.92	1.91	--	29.22	46.00	16.78	QP
	686.690	10.22	19.63	2.99	--	32.84	46.00	13.16	
	702.210	**14.27**	**19.73**	**3.07**	--	**37.07**	**46.00**	**8.93**	
	730.340	13.35	20.00	3.14	--	36.49	46.00	9.51	
	759.440	11.93	20.30	3.22	--	35.45	46.00	10.55	
	787.570	10.14	20.58	3.30	--	34.02	46.00	11.98	
	1269.000	57.85	24.27	4.33	37.01	49.44	74.00	24.56	PK
	1457.000	50.56	25.56	4.66	36.61	44.17	74.00	29.83	
	1557.000	53.53	26.15	4.85	36.42	48.11	74.00	25.89	
	1642.000	54.46	26.50	5.02	36.26	49.72	74.00	24.28	
	1825.000	50.99	27.03	5.22	35.96	47.28	74.00	26.72	
	1877.000	54.85	27.35	5.24	35.88	51.56	74.00	22.44	
Vertical	59.100	26.19	6.80	0.82	--	33.81	40.00	6.19	QP
	66.860	27.13	6.53	0.86	--	34.52	40.00	5.48	
	106.630	18.31	12.02	0.86	--	31.19	43.50	12.31	
	120.210	16.82	12.98	0.88	--	30.68	43.50	12.82	
	521.790	18.07	18.18	2.43	--	38.68	46.00	7.32	
	730.340	**19.29**	**20.00**	**3.14**	--	**42.43**	**46.00**	**3.57**	
	1247.000	54.95	24.10	4.30	37.06	46.29	74.00	27.71	PK
	1487.000	48.15	25.72	4.71	36.56	42.02	74.00	31.98	
	1548.000	50.18	26.11	4.81	36.44	44.66	74.00	29.34	
	1680.000	48.94	26.59	5.08	36.20	44.41	74.00	29.59	
	1854.000	49.90	27.21	5.23	35.92	46.42	74.00	27.58	
	1987.000	50.94	28.00	5.29	35.72	48.51	74.00	25.49	

TEST ENGINEER: TOM SI

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
Sponge	3940TKK094W	90*10*1	EXPAN	See External Photo Figure 02