

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

LCD Monitor

Model No.: W2252VQT

Serial No.: E08011001

FCC ID : BEJW2252VQT

Prepared For : LG Electronics U.S.A., Inc.
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Report No. : ACI-F08003
Date of Test : Jan 15-16, 2008
Date of Report : Jan 18, 2008

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TEST REPORT FOR FCC CERTIFICATE

Applicant : LG Electronics U.S.A., Inc.
Manufacturer : LG Electronics Nanjing Display Co., Ltd.
EUT Description : LCD Monitor
(A) Model No. : W2252VQT
(B) Serial No. : E08011001
(C) Power Supply : 120V/60Hz

Test Procedure Used:

*FCC RULES AND REGULATIONS PART 15 SUBPART B CLASS B 2007.09
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: W2252VQT; S/N: E08011001) which was tested in 3m anechoic chamber on Jan 15-16, 2008 is technically compliance with the FCC official limits also.

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

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

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

Date of Test : Jan 15-16, 2008

Prepared By:

Zeno Gu 2008.01.24
ZENO GU / Assistant

Reviewer:

Sammy Chen 2008.01.24
SAMMY CHEN / Deputy Assistant Manager

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

Approved Signatory:

Sammy Chen 2008.01.24
Authorized Signature EMC IAN CHIEN / 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 / Test Item	Test Standard	Results	Meets Limit
EMISSION			
Conducted Disturbance At main terminal	FCC RULES AND REGULATIONS PART 15 SUBPART B 2007.09 AND ANSI C63.4-2003	Pass	15.107(a) Class B
Radiated Disturbance	FCC RULES AND REGULATIONS PART 15 SUBPART B 2007.09 AND ANSI C63.4-2003	Pass	15.109(a) Class B

2 GENERAL INFORMATION

2.1 Description of Equipment Under Test

Description	:	LCD Monitor
Type of EUT	:	☒ Production ☐ Pre-product ☐ Pro-type
Model No.	:	W2252VQT
Serial No.	:	E08011001
Real Power	:	43.3W
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
Panel	:	Manufacturer: LG. PHILIPS LCD M/N : LM220WE1 (TL)(D1)
Max Resolution	:	1680*1050@60Hz.
D-Sub Cable	:	Shielded, Detachable, 1.85m, with one core
DVI Cable	:	Shielded, Detachable, 1.90m, with two cores
Power Cord	:	Unshielded, Detachable, 1.80m, with no core

Remark:

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

- | | |
|--------------------------|---------------------------|
| (1) One D-Sub Input Port | : Connected with PC |
| (2) One DVI Input Port | : Connected with PC |
| (3) One HDMI Port | : Connected with DVD |
| (4) Earphone Port | : Connected with Earphone |
| (5) Audio In Port | : Connected with PC |
| (6) AC In Port | : Connected with Power |

2.2 Peripherals

2.2.1 PC

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

2.2.2 Printer

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

2.2.3 Keyboard

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

2.2.4 Mouse

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

2.2.5 Modem

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

2.2.6 DVD

Manufacturer : LG
Model Number : DF9921N
Serial Number : 3850R-M846W
Power Cord : Unshielded, undetachable, 1.80m
Data Cable : Shielded, detachable, 1.80m
Ports : One HDMI Port (Shielded)
One S-Video Output Port (Shielded)
One Set L/R Audio Output Port (Unshielded)
One Video Output Port (Unshielded)
One Set Component Video Output Ports (Unshielded)
One Optical Digital Output Port (Unshielded)
One Coaxial Output Port (Shielded)
Certificate : CE/EMC, FCC Verification

2.2.7 Earphone

Manufacturer : FEIDIE
Model Number : SD-747

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, China 200233

NVLAP Lab Code : 200371-0

2.4 Measurement Uncertainty

Conducted Emission Expanded Uncertainty: U = 1.84 dB
Radiated Emission Expanded Uncertainty : U = 2.96 dB

3 CONDUCTED EMISSION TEST

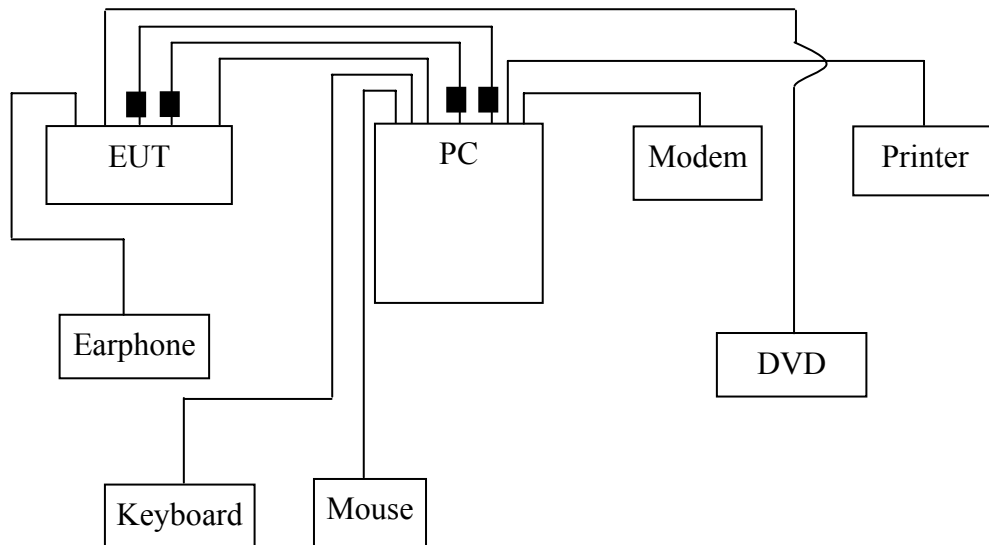
3.1 Test Equipment

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

Item	Type	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
1.	Test Receiver	R&S	ESHS10	830223/007	Apr 08, 2007	Apr 08, 2008
2.	Artificial Mains Network (AMN)	R&S	ESH2-Z5	843890/011	Apr 06, 2007	Apr 06, 2008
3.	Line Impedance Stabilization Network (LISN)	Kyoritsu	KNW-407	8-1280-4	Apr 06, 2007	Apr 06, 2008
4.	50 Ω Coaxial Switch	Anritsu	MP59B	6200426389	Sep 18, 2007	Mar 18, 2008
5.	50 Ω Terminator	Anritsu	BNC	001	May 11, 2007	May 11, 2008
6.	Software	Audix	E3	SET00200 9804M592	--	--

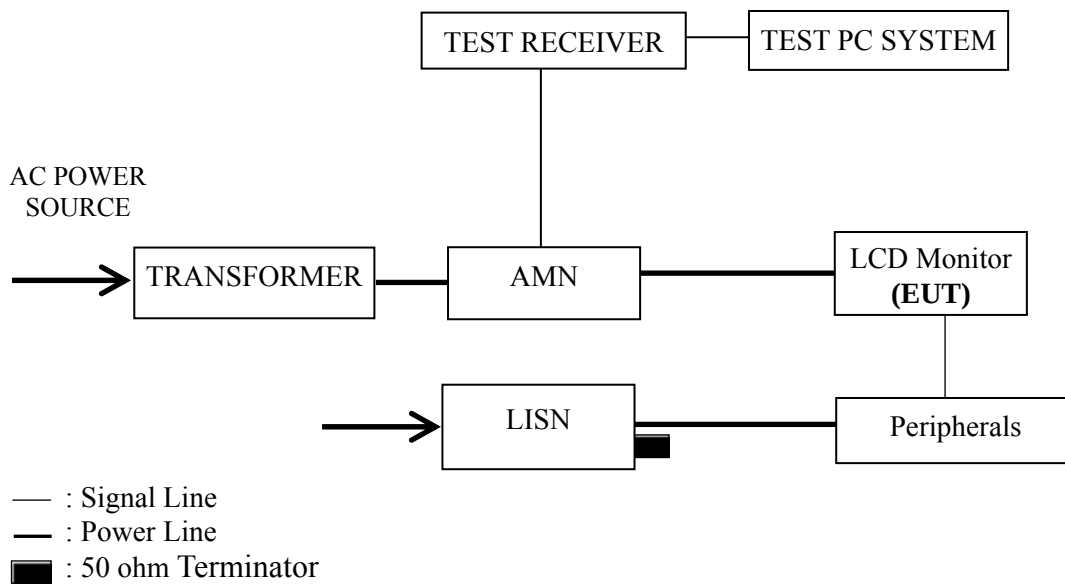
3.2 Block Diagram of Test Setup

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 equipment 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 set “H” characters to EUT through graphic card, the EUT’s screen displayed and filled with “H” pattern by it’s resolution. (Via D-Sub or DVI Input).
- 3.5.5 Repeat above procedure from 3.5.3 to 3.5.4 for difference test mode.
- 3.5.6 For HDMI test mode, the DVD play DVD disk and sent video to EUT through HDMI port.
- 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
HDMI
VGA 640*480@60Hz
VGA 1024*768@60Hz
VGA 1680*1050@60Hz
DVI 640*480@60Hz
DVI 1024*768@60Hz
DVI 1680*1050@60Hz

3.6 Test Procedures

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

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

The bandwidth of R&S Test Receiver ESHS10 was set at 10 kHz.

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

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

3.7 Test Results

< PASS >

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

Test Mode	Data Page
HDMI	P12
VGA 640*480@60Hz	P13
VGA 1024*768@60Hz	P14
VGA 1680*1050@60Hz	P15
DVI 640*480@60Hz	P16
DVI 1024*768@60Hz	P17
DVI 1680*1050@60Hz	P18

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 HDMI mode. The worst emission is detected at 4.840 MHz with corrected signal level of 43.35 (μV) (limit is 46.00 dB (μV)), when the Line (Quasi-Peak) of the EUT is connected to AMN.

EUT : LCD Monitor Temperature : 22°C

Model No. : W2252VQT Humidity : 60%

Serial No. : E08011001 Date of Test : Jan 15, 2008

Test Mode : HDMI

Test Line	Frequency (MHz)	Meter Reading dB(μV)	Factor (dB)	Emission Level dB(μV)	Limits dB(μV)	Margin (dB)	Remark
Line	1.426	37.20	0.51	37.71	56.00	18.29	QP
	3.547	42.90	0.60	43.50	56.00	12.50	
	4.570	47.59	0.65	48.24	56.00	7.76	
	4.840	47.49	0.66	48.15	56.00	7.85	
	14.870	51.00	0.94	51.94	60.00	8.06	
	15.490	51.10	0.95	52.05	60.00	7.95	
	1.4260	32.80	0.51	33.31	46.00	12.69	AV
	3.547	36.40	0.60	37.00	46.00	9.00	
	4.570	41.99	0.65	42.64	46.00	3.36	
	4.840	42.69	0.66	43.35	46.00	2.65	
	14.870	39.70	0.94	40.64	50.00	9.36	
	15.490	37.50	0.95	38.45	50.00	11.55	
Neutral	1.4260	38.30	0.52	38.82	56.00	17.18	QP
	4.500	45.40	0.54	45.94	56.00	10.06	
	4.910	44.70	0.54	45.24	56.00	10.76	
	13.240	48.10	0.82	48.92	60.00	11.08	
	14.820	51.80	0.82	52.62	60.00	7.38	
	15.300	52.00	0.83	52.83	60.00	7.17	
	1.426	33.60	0.52	34.12	46.00	11.88	AV
	4.500	41.00	0.54	41.54	46.00	4.46	
	4.910	39.90	0.54	40.44	46.00	5.56	
	13.240	35.90	0.82	36.72	50.00	13.28	
	14.820	40.70	0.82	41.52	50.00	8.48	
	15.300	39.60	0.83	40.43	50.00	9.57	

TEST ENGINEER: TOM SI

EUT : LCD Monitor Temperature : 22°C

Model No. : W2252VQT Humidity : 60%

Serial No. : E08011001 Date of Test : Jan 15, 2008

Test Mode : VGA 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	43.20	0.66	43.86	66.00	22.14	QP
	0.217	40.80	0.73	41.53	62.93	21.40	
	0.353	35.41	0.68	36.09	58.89	22.80	
	0.502	28.40	0.66	29.06	56.00	26.94	
	2.790	30.80	0.56	31.36	56.00	24.64	
	6.440	40.00	0.67	40.67	60.00	19.33	
	0.150	26.90	0.66	27.56	56.00	28.44	AV
	0.217	32.50	0.73	33.23	52.93	19.70	
	0.353	30.11	0.68	30.79	48.89	18.10	
	0.502	27.50	0.66	28.16	46.00	17.84	
	2.790	21.70	0.56	22.26	46.00	23.74	
	6.440	37.50	0.67	38.17	50.00	11.83	
Neutral	0.152	44.90	0.54	45.44	65.87	20.43	QP
	0.211	43.19	0.67	43.86	63.18	19.32	
	0.360	35.61	0.65	36.26	58.74	22.48	
	0.658	30.71	0.59	31.30	56.00	24.70	
	1.928	31.30	0.51	31.81	56.00	24.19	
	6.454	34.89	0.74	35.63	60.00	24.37	
	0.152	32.80	0.54	33.34	55.87	22.53	AV
	0.211	37.59	0.67	38.26	53.18	14.92	
	0.360	30.41	0.65	31.06	48.74	17.68	
	0.658	29.41	0.59	30.00	46.00	16.00	
	1.928	27.40	0.51	27.91	46.00	18.09	
	6.454	28.89	0.74	29.63	50.00	20.37	

TEST ENGINEER: TOM SI

EUT : LCD Monitor Temperature : 22°C

Model No. : W2252VQT Humidity : 60%

Serial No. : E08011001 Date of Test : Jan 15, 2008

Test Mode : VGA 1024*768@60Hz

Test Line	Frequency (MHz)	Meter Reading dB(μV)	Factor (dB)	Emission Level dB(μV)	Limits dB(μV)	Margin (dB)	Remark
Line	0.152	44.90	0.54	45.44	65.87	20.43	QP
	0.211	43.19	0.67	43.86	63.18	19.32	
	0.360	35.61	0.65	36.26	58.74	22.48	
	0.658	30.71	0.59	31.30	56.00	24.70	
	1.928	31.30	0.51	31.81	56.00	24.19	
	6.454	34.89	0.74	35.63	60.00	24.37	
	0.152	32.80	0.54	33.34	55.87	22.53	AV
	0.211	37.59	0.67	38.26	53.18	14.92	
	0.360	30.41	0.65	31.06	48.74	17.68	
	0.658	29.41	0.59	30.00	46.00	16.00	
	1.928	27.40	0.51	27.91	46.00	18.09	
	6.454	28.89	0.74	29.63	50.00	20.37	
Neutral	0.150	43.20	0.66	43.86	66.00	22.14	QP
	0.217	40.80	0.73	41.53	62.93	21.40	
	0.353	35.41	0.68	36.09	58.89	22.80	
	0.502	28.40	0.66	29.06	56.00	26.94	
	2.790	30.80	0.56	31.36	56.00	24.64	
	6.440	40.00	0.67	40.67	60.00	19.33	
	0.150	26.90	0.66	27.56	56.00	28.44	AV
	0.217	32.50	0.73	33.23	52.93	19.70	
	0.353	30.11	0.68	30.79	48.89	18.10	
	0.502	27.50	0.66	28.16	46.00	17.84	
	2.790	21.70	0.56	22.26	46.00	23.74	
	6.440	37.50	0.67	38.17	50.00	11.83	

TEST ENGINEER: TOM SI

EUT : LCD Monitor Temperature : 22°C

Model No. : W2252VQT Humidity : 60%

Serial No. : E08011001 Date of Test : Jan 15, 2008

Test Mode : VGA 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	45.80	0.53	46.33	66.00	19.67	QP
	0.211	43.99	0.67	44.66	63.18	18.52	
	0.354	36.01	0.65	36.66	58.87	22.21	
	0.658	31.31	0.59	31.90	56.00	24.10	
	1.928	30.70	0.51	31.21	56.00	24.79	
	6.662	34.90	0.76	35.66	60.00	24.34	
	0.150	36.10	0.53	36.63	56.00	19.37	AV
	0.211	38.69	0.67	39.36	53.18	13.82	
	0.354	31.51	0.65	32.16	48.87	16.71	
	0.658	29.41	0.59	30.00	46.00	16.00	
	1.928	25.70	0.51	26.21	46.00	19.79	
	6.662	30.58	0.76	31.34	50.00	18.66	
Neutral	0.150	49.70	0.66	50.36	66.00	15.64	QP
	0.213	43.60	0.73	44.33	63.10	18.77	
	0.354	36.51	0.68	37.19	58.87	21.68	
	0.499	31.50	0.66	32.16	56.01	23.85	
	3.720	31.20	0.61	31.81	56.00	24.19	
	6.285	38.40	0.67	39.07	60.00	20.93	
	0.150	43.10	0.66	43.76	56.00	12.24	AV
	0.213	37.50	0.73	38.23	53.10	14.87	
	0.354	30.41	0.68	31.09	48.87	17.78	
	0.499	26.40	0.66	27.06	46.01	18.95	
	3.720	27.60	0.61	28.21	46.00	17.79	
	6.285	34.80	0.67	35.47	50.00	14.53	

TEST ENGINEER: TOM SI

EUT : LCD Monitor Temperature : 22°C

Model No. : W2252VQT Humidity : 60%

Serial No. : E08011001 Date of Test : Jan 15, 2008

Test Mode : DVI 640*480@60Hz

Test Line	Frequency (MHz)	Meter Reading dB(μV)	Factor (dB)	Emission Level dB(μV)	Limits dB(μV)	Margin (dB)	Remark
Line	0.150	49.10	0.66	49.76	66.00	16.24	QP
	0.213	42.70	0.73	43.43	63.10	19.67	
	0.358	34.91	0.68	35.59	58.78	23.19	
	0.499	30.60	0.66	31.26	56.01	24.75	
	2.581	32.74	0.55	33.29	56.00	22.71	
	6.454	39.70	0.67	40.37	60.00	19.63	
	0.150	38.90	0.66	39.56	56.00	16.44	AV
	0.213	36.70	0.73	37.43	53.10	15.67	
	0.358	28.71	0.68	29.39	48.78	19.39	
	0.499	26.40	0.66	27.06	46.01	18.95	
	2.581	25.90	0.55	26.45	46.00	19.55	
	6.454	32.80	0.67	33.47	50.00	16.53	
Neutral	0.151	48.60	0.53	49.13	65.96	16.83	QP
	0.216	43.89	0.67	44.56	62.96	18.40	
	0.291	36.80	0.66	37.46	60.50	23.04	
	0.358	35.71	0.65	36.36	58.78	22.42	
	1.928	31.60	0.51	32.11	56.00	23.89	
	6.454	36.09	0.74	36.83	60.00	23.17	
	0.151	35.70	0.53	36.23	55.96	19.73	AV
	0.216	36.49	0.67	37.16	52.96	15.80	
	0.291	24.70	0.66	25.36	50.50	25.14	
	0.358	26.91	0.65	27.56	48.78	21.22	
	1.928	27.80	0.51	28.31	46.00	17.69	
	6.454	30.19	0.74	30.93	50.00	19.07	

TEST ENGINEER: TOM SI

EUT : LCD Monitor Temperature : 22°C

Model No. : W2252VQT Humidity : 60%

Serial No. : E08011001 Date of Test : Jan 15, 2008

Test Mode : DVI 1024*768@60Hz

Test Line	Frequency (MHz)	Meter Reading dB(μV)	Factor (dB)	Emission Level dB(μV)	Limits dB(μV)	Margin (dB)	Remark
Line	0.150	48.10	0.66	48.76	66.00	17.24	QP
	0.214	43.80	0.73	44.53	63.05	18.52	
	0.358	36.11	0.68	36.79	58.78	21.99	
	0.499	31.20	0.66	31.86	56.01	24.15	
	2.500	32.00	0.54	32.54	56.00	23.46	
	6.285	39.10	0.67	39.77	60.00	20.23	
	0.150	38.20	0.66	38.86	56.00	17.14	AV
	0.214	36.70	0.73	37.43	53.05	15.62	
	0.358	31.41	0.68	32.09	48.78	16.69	
	0.499	25.70	0.66	26.36	46.01	19.65	
	2.500	26.40	0.54	26.94	46.00	19.06	
	6.285	30.10	0.67	30.77	50.00	19.23	
Neutral	0.151	48.70	0.53	49.23	65.96	16.73	QP
	0.211	43.39	0.67	44.06	63.18	19.12	
	0.288	35.90	0.66	36.56	60.59	24.03	
	0.358	35.41	0.65	36.06	58.78	22.72	
	3.720	33.60	0.54	34.14	56.00	21.86	
	6.662	34.80	0.76	35.56	60.00	24.44	
	0.151	39.40	0.53	39.93	55.96	16.03	AV
	0.211	37.49	0.67	38.16	53.18	15.02	
	0.288	29.40	0.66	30.06	50.59	20.53	
	0.358	27.61	0.65	28.26	48.78	20.52	
	3.720	26.40	0.54	26.94	46.00	19.06	
	6.662	28.30	0.76	29.06	50.00	20.94	

TEST ENGINEER: TOM SI

EUT : LCD Monitor Temperature : 22°C

Model No. : W2252VQT Humidity : 60%

Serial No. : E08011001 Date of Test : Jan 15, 2008

Test Mode : DVI 1680*1050@60Hz

Test Line	Frequency (MHz)	Meter Reading dB(μV)	Factor (dB)	Emission Level dB(μV)	Limits dB(μV)	Margin (dB)	Remark
Line	0.150	47.60	0.66	48.26	66.00	17.74	QP
	0.213	42.90	0.73	43.63	63.10	19.47	
	0.354	36.31	0.68	36.99	58.87	21.88	
	0.558	31.20	0.64	31.84	56.00	24.16	
	2.854	30.40	0.56	30.96	56.00	25.04	
	6.285	39.10	0.67	39.77	60.00	20.23	
	0.150	39.50	0.66	40.16	56.00	15.84	AV
	0.213	37.80	0.73	38.53	53.10	14.57	
	0.354	31.21	0.68	31.89	48.87	16.98	
	0.558	28.40	0.64	29.04	46.00	16.96	
	2.854	26.10	0.56	26.66	46.00	19.34	
	6.285	32.40	0.67	33.07	50.00	16.93	
Neutral	0.153	47.80	0.54	48.34	65.82	17.48	QP
	0.214	43.19	0.67	43.86	63.05	19.19	
	0.358	36.51	0.65	37.16	58.78	21.62	
	0.428	32.39	0.66	33.05	57.29	24.24	
	3.720	32.60	0.54	33.14	56.00	22.86	
	6.662	34.70	0.76	35.46	60.00	24.54	
	0.153	39.70	0.54	40.24	55.82	15.58	AV
	0.214	37.49	0.67	38.16	53.05	14.89	
	0.358	30.11	0.65	30.76	48.78	18.02	
	0.428	28.39	0.66	29.05	47.29	18.24	
	3.720	26.40	0.54	26.94	46.00	19.06	
	6.662	28.10	0.76	28.86	50.00	21.14	

TEST ENGINEER: TOM SI

4 RADIATED EMISSION TEST

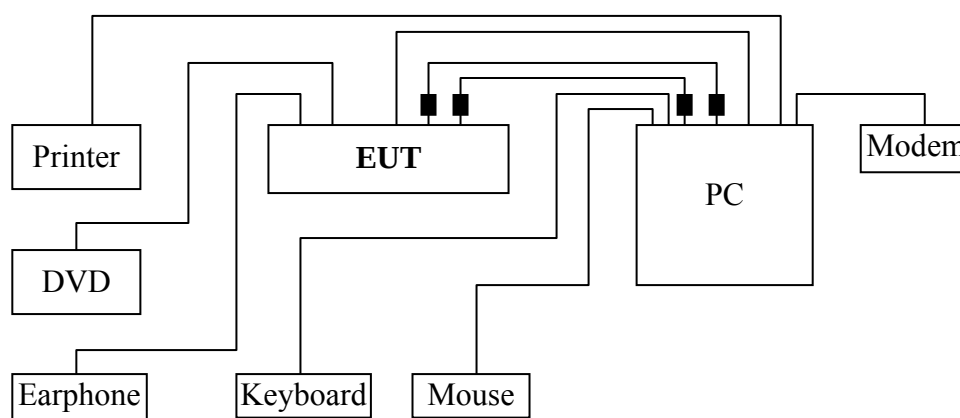
4.1 Test Equipment

The following test equipment 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	Apr 06, 2007	Apr 06, 2008
2.	Preamplifier	Agilent	8447D	2944A10548	Sep 19, 2007	Mar 19, 2008
3.	Preamplifier	HP	8449B	3008A00864	Apr 06, 2007	Apr 06, 2008
4.	Bi-log Antenna	TESEQ	CBL6112D	23193	Aug 16, 2007	Aug 16, 2008
5.	Spectrum	Agilent	E7405A	MY45106600	Apr 06, 2007	Apr 06, 2008
6.	Software	Audix	E3	SET00200 9912M295-2	--	--

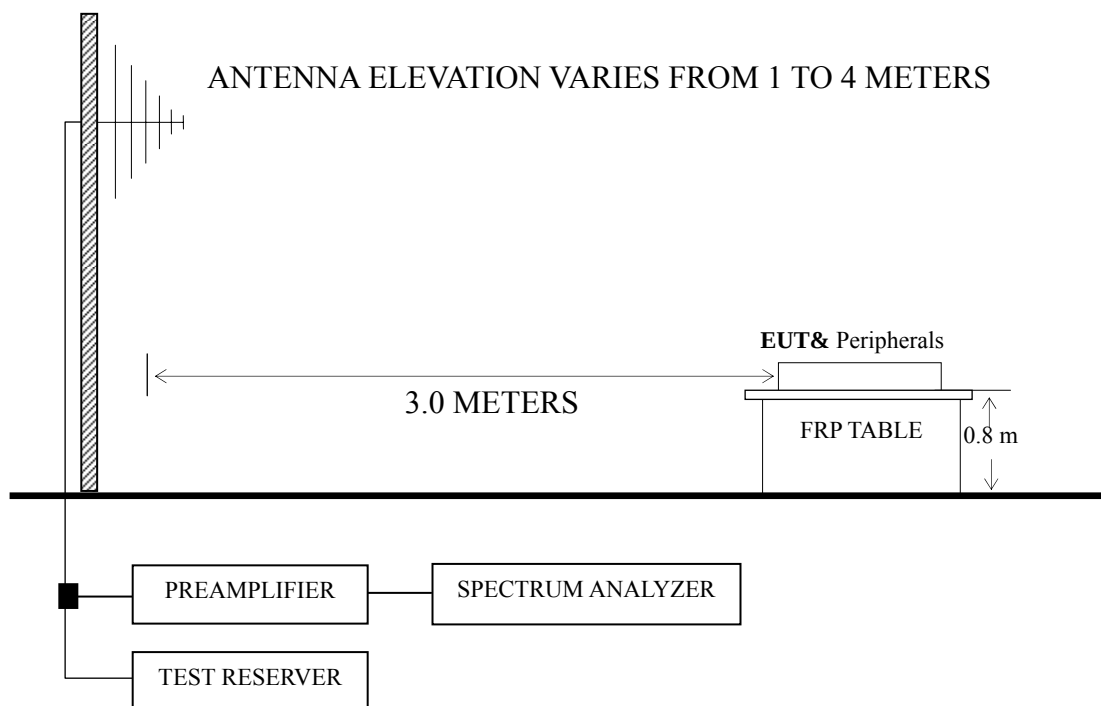
4.2 Block Diagram of Test Setup

4.2.1 EUT and Peripherals



■ : Ferrite core

4.2.2 Radiated emission test setup



■ : 50 ohm Coaxial Switch

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

Frequency (MHz)	Distance (m)	Field strength limits	
		($\mu\text{V/m}$)	dB ($\mu\text{V/m}$)
30 ~ 88	3	100	40.0
88 ~ 216	3	150	43.5
216 ~ 960	3	200	46.0
Above 960	3	500	54.0

NOTE 1 - Emission Level dB ($\mu\text{V/m}$) = 20 log Emission Level ($\mu\text{V/m}$)

NOTE 2 - The tighter limit applies at the band edges.

NOTE 3 - Distance refers to the distance in meters between the measuring instrument antenna and the closed point of any part of the device or system.

NOTE 4 - The limits shown are based on Quasi-peak value detector below or equal to 1GHz and Average value detector above 1GHz.

NOTE 5 - Above 1 GHz, the limit on peak emission is 20 dB above the maximum permitted average emission limit applicable to the EUT

4.4 Test Configuration

The configuration of the EUT and Peripherals are same as those used in conducted emission test.

Please refer to Sec.3.4.

4.5 Operating Condition of EUT

Same as conducted emission test which is listed in Sec.3.5, except the test setup replaced by Sec.4.2.

4.6 Test Procedures

The EUT and Peripherals were placed on a FRP turntable that is 0.8 meter above ground. The FRP turntable rotated 360 degrees to determine the position of the maximum emission level. The EUT was set 3 meters away from the receiving antenna, which was mounted on an antenna tower. Broadband antenna (Calibrated Bilog Antenna) was used as receiving antenna. The antenna moved up and down between 1 meter and 4 meters to find out the maximum emission level. Both horizontal and vertical polarizations of the antenna were set on measurement. In order to find the maximum emission, all of the interference cables were manipulated according to ANSI C63.4:2003 requirements during radiated emission test.

The bandwidth of Test Receiver R&S ESVS10 was set at 120 kHz below 1GHz and The Spectrum Agilent E7405A was set at 1MHz above 1GHz.

The frequency range from 30 MHz to 2000 MHz was checked.

The frequency range from 1 GHz to 2 GHz was checked for HDMI and VGA 1680*1050@60Hz and DVI 1680*1050@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
HDMI	P23
VGA 640*480@60Hz	P24
VGA 1024*768@60Hz	P25
VGA 1680*1050@60Hz	P26
DVI 640*480@60Hz	P27
DVI 1024*768@60Hz	P28
DVI 1680*1050@60Hz	P29

- NOTE 1 – Emission Level = Antenna Factor + Cable Loss + Meter Reading.($< 1\text{GHz}$)
- NOTE 2 – Emission Level = Antenna Factor + Cable Loss – Preamp Factor + Meter Reading.($> 1\text{GHz}$)
- NOTE 3 – The emission levels that are 20dB below the official limit are not reported.
- NOTE 4 – 0° was the table front facing the antenna. Degree is calculated from 0° clockwise facing the antenna.
- NOTE 5 – All reading are Quasi-Peak values below or equal to 1GHz and Peak values above 1GHz.
- NOTE 6 – The worst case is for VGA 1024*768@60Hz. The worst emission at horizontal polarization was detected at 856.44 MHz with corrected signal level of 39.45 dB ($\mu\text{V/m}$) (limit is 46.00 dB ($\mu\text{V/m}$)), when the antenna was 1.00 m height and the turntable was at 65° . The worst emission at vertical polarization was detected at 671.17 MHz with corrected signal level of 42.38 dB ($\mu\text{V/m}$) (limit is 46.00 dB ($\mu\text{V/m}$)), when the antenna was 1.00 m height and the turntable was at 155° .

EUT : LCD Monitor Temperature : 22°C

Model No. : W2252VQT Humidity : 60%

Serial No. : E08011001 Date of Test : Jan 16, 2008

Test Mode : HDMI

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	62.010	17.23	4.90	1.26	--	23.39	40.00	16.61	QP
	125.06	20.45	11.50	1.90	--	33.85	43.50	9.65	
	184.23	25.45	8.00	2.26	--	35.71	43.50	7.79	
	248.25	23.13	11.85	2.79	--	37.77	46.00	8.23	
	371.44	19.48	14.82	3.48	--	37.78	46.00	8.22	
	747.80	12.36	19.97	5.11	--	37.44	46.00	8.56	
	1051.00	46.04	22.45	6.79	37.55	37.73	74.00	36.27	PK
	1217.00	44.66	22.95	7.16	37.13	37.64	74.00	36.36	
	1338.00	46.83	23.77	7.75	36.86	41.49	74.00	32.51	
	1515.00	44.81	25.20	8.43	36.50	41.94	74.00	32.06	
	1741.00	43.85	25.94	9.15	36.10	42.84	74.00	31.16	
	1892.00	44.50	26.97	9.65	35.86	45.26	74.00	28.74	
Vertical	62.010	16.29	4.90	1.26	--	22.45	40.00	17.55	QP
	122.15	18.64	11.38	1.88	--	31.90	43.50	11.60	
	184.23	25.51	8.00	2.26	--	35.77	43.50	7.73	
	249.22	23.58	11.93	2.79	--	38.30	46.00	7.70	
	312.27	22.26	13.30	3.18	--	38.74	46.00	7.26	
	549.92	12.68	18.45	4.12	--	35.25	46.00	10.75	
	1095.00	51.42	22.32	6.89	37.44	43.19	74.00	30.81	PK
	1196.00	52.47	22.75	7.07	37.18	45.11	74.00	28.89	
	1356.00	46.07	23.97	7.84	36.82	41.06	74.00	32.94	
	1547.00	46.91	25.17	8.57	36.44	44.21	74.00	29.79	
	1702.00	50.17	26.23	8.99	36.16	49.23	74.00	24.77	
	1880.00	45.43	26.80	9.57	35.87	45.93	74.00	28.07	

TEST ENGINEER: KEN XU

EUT : LCD Monitor Temperature : 22°C

Model No. : W2252VQT Humidity : 60%

Serial No. : E08011001 Date of Test : Jan 16, 2008

Test Mode : VGA 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	127.97	22.27	11.44	1.93	35.64	43.50	7.86
	191.02	22.67	8.30	2.29	33.26	43.50	10.24
	255.04	18.85	12.50	2.84	34.19	46.00	11.81
	318.09	24.39	13.50	3.21	41.10	46.00	4.90
	496.57	18.25	17.33	3.97	39.55	46.00	6.45
	763.32	15.48	19.80	5.19	40.47	46.00	5.53
Vertical	38.24	21.50	13.37	0.95	35.82	40.00	4.18
	127.00	24.44	11.45	1.92	37.81	43.50	5.69
	320.03	23.34	13.60	3.23	40.17	46.00	5.83
	429.64	18.57	16.45	3.74	38.76	46.00	7.24
	710.94	17.10	19.72	4.90	41.72	46.00	4.28
	856.44	16.21	20.38	5.55	42.14	46.00	3.86

TEST ENGINEER: KEN XU

EUT : LCD Monitor Temperature : 22°C

Model No. : W2252VQT Humidity : 60%

Serial No. : E08011001 Date of Test : Jan 16, 2008

Test Mode : VGA 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	124.09	18.84	11.46	1.90	32.20	43.50	11.30
	187.14	21.60	8.12	2.27	31.99	43.50	11.51
	245.34	21.18	11.55	2.77	35.50	46.00	10.50
	306.45	21.03	13.05	3.15	37.23	46.00	8.77
	515.00	12.00	17.47	4.03	33.05	46.00	12.50
	856.44	13.52	20.38	5.55	39.45	46.00	6.55
Vertical	38.25	22.00	13.37	0.95	36.32	40.00	3.68
	129.91	21.66	11.40	1.94	35.00	43.50	8.50
	249.22	19.81	11.93	2.79	34.53	46.00	11.47
	306.45	18.53	13.05	3.15	34.73	46.00	11.27
	429.64	18.18	16.45	3.74	38.37	46.00	7.63
	671.17	18.77	18.94	4.67	42.38	46.00	3.62

TEST ENGINEER: KEN XU

EUT : LCD Monitor Temperature : 22°C

Model No. : W2252VQT Humidity : 60%

Serial No. : E08011001 Date of Test : Jan 16, 2008

Test Mode : VGA 1680*1050@60Hz

Polarization	Frequency (MHz)	Meter Reading dB (μV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamplifier Factor (dB)	Emission Level dB (μV/m)	Limits dB (μV/m)	Margin (dB)	Remark
Horizontal	95.96	16.77	9.60	1.66	--	28.03	43.50	15.47	QP
	127.00	17.20	11.45	1.92	--	30.57	43.50	12.93	
	181.32	25.12	8.00	2.24	--	35.36	43.50	8.14	
	239.52	24.63	10.90	2.71	--	38.24	46.00	7.76	
	306.45	23.80	13.05	3.15	--	40.00	46.00	6.00	
	859.35	13.98	20.39	5.57	--	39.94	46.00	6.06	
	1034.00	53.07	22.18	6.76	37.60	44.41	74.00	29.59	PK
	1194.00	52.39	22.92	7.07	37.19	45.19	74.00	28.81	
	1387.00	47.96	24.20	7.92	36.76	43.32	74.00	30.68	
	1550.00	46.48	25.17	8.57	36.44	43.78	74.00	30.22	
	1755.00	45.38	26.01	9.24	36.07	44.56	74.00	29.44	
	1905.00	46.34	27.05	9.65	35.84	47.20	74.00	26.80	
Vertical	38.20	20.90	13.37	0.95	--	35.22	40.00	4.78	QP
	122.15	21.65	11.38	1.88	--	34.91	43.50	8.59	
	180.35	26.67	8.00	2.24	--	36.91	43.50	6.59	
	239.52	23.37	10.90	2.71	--	36.98	46.00	9.02	
	306.45	21.50	13.05	3.15	--	37.70	46.00	8.30	
	647.89	17.64	18.95	4.53	--	41.12	46.00	4.88	
	1110.00	45.80	22.33	6.92	37.40	37.65	74.00	36.35	PK
	1216.00	48.36	22.95	7.16	37.14	41.33	74.00	32.67	
	1387.00	46.17	24.20	7.92	36.76	41.53	74.00	32.47	
	1556.00	46.40	25.27	8.57	36.42	43.82	74.00	30.18	
	1742.00	45.59	25.94	9.15	36.10	44.58	74.00	29.42	
	1889.00	44.22	26.88	9.65	35.86	44.89	74.00	29.11	

TEST ENGINEER: KEN XU

EUT : LCD Monitor Temperature : 22°C

Model No. : W2252VQT Humidity : 60%

Serial No. : E08011001 Date of Test : Jan 16, 2008

Test Mode : DVI 640*480@60Hz

Polarization	Frequency (MHz)	Meter Reading dB (μV)	Antenna Factor (dB/m)	Cable Loss (dB)	Emission Level dB (μV/m)	Limits dB (μV/m)	Margin (dB)
Horizontal	128.940	20.16	11.42	1.94	33.52	43.50	9.98
	191.020	22.75	8.30	2.29	33.34	43.50	10.16
	257.950	19.74	12.70	2.86	35.30	46.00	10.70
	318.090	22.15	13.50	3.21	38.86	46.00	7.14
	450.980	14.82	16.30	3.80	34.92	46.00	11.08
	859.350	13.75	20.39	5.57	39.71	46.00	6.29
Vertical	38.240	20.60	13.37	0.95	34.92	40.00	5.08
	129.910	23.14	11.40	1.94	36.48	43.50	7.02
	257.950	20.77	12.70	2.86	36.33	46.00	9.67
	322.940	25.79	13.64	3.25	42.68	46.00	3.32
	582.900	16.63	18.62	4.19	39.44	46.00	6.56
	856.440	15.18	20.38	5.55	41.11	46.00	4.89

TEST ENGINEER: KEN XU

EUT : LCD Monitor Temperature : 22°C

Model No. : W2252VQT Humidity : 60%

Serial No. : E08011001 Date of Test : Jan 16, 2008

Test Mode : DVI 1024*768@60Hz

Polarization	Frequency (MHz)	Meter Reading dB (μV)	Antenna Factor (dB/m)	Cable Loss (dB)	Emission Level dB (μV/m)	Limits dB (μV/m)	Margin (dB)
Horizontal	124.09	17.08	11.46	1.90	30.44	43.50	13.06
	187.14	22.65	8.12	2.27	33.04	43.50	10.46
	245.34	20.81	11.55	2.77	35.13	46.00	10.87
	310.33	20.36	13.20	3.18	36.74	46.00	9.26
	429.64	13.47	16.45	3.74	33.66	46.00	12.34
	550.89	12.35	18.45	4.12	34.92	46.00	11.08
Vertical	38.73	20.00	13.09	0.95	34.04	40.00	5.96
	125.06	19.95	11.50	1.90	33.35	43.50	10.15
	245.34	23.01	11.55	2.77	37.33	46.00	8.67
	307.42	24.19	13.10	3.16	40.45	46.00	5.55
	429.64	19.32	16.45	3.74	39.51	46.00	6.49
	559.62	15.79	18.45	4.14	38.38	46.00	7.62

TEST ENGINEER: KEN XU

EUT : LCD Monitor Temperature : 22°C

Model No. : W2252VQT Humidity : 60%

Serial No. : E08011001 Date of Test : Jan 16, 2008

Test Mode : DVI 1680*1050@60Hz

Polarization	Frequency (MHz)	Meter Reading dB (μV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamplifier Factor (dB)	Emission Level dB (μV/m)	Limits dB (μV/m)	Margin (dB)	Remark
Horizontal	127.00	16.44	11.45	1.92	--	29.81	43.50	13.69	QP
	182.29	22.08	8.00	2.25	--	32.33	43.50	11.17	
	238.55	25.48	10.79	2.71	--	38.98	46.00	7.02	
	356.89	17.88	14.58	3.42	--	35.88	46.00	10.12	
	476.20	15.39	17.10	3.91	--	36.40	46.00	9.60	
	594.54	18.64	18.75	4.22	--	41.61	46.00	4.39	
	1062.00	51.75	22.50	6.82	37.53	43.54	74.00	30.46	PK
	1271.00	46.43	23.42	7.41	37.01	40.25	74.00	33.75	
	1428.00	46.10	24.94	8.09	36.67	42.46	74.00	31.54	
	1666.00	45.12	25.83	8.92	36.23	43.64	74.00	30.36	
	1820.00	44.80	26.14	9.40	35.97	44.37	74.00	29.63	
	1944.00	44.40	27.08	9.81	35.78	45.51	74.00	28.49	
Vertical	38.02	19.00	13.55	0.95	--	33.50	40.00	6.50	QP
	58.13	24.57	5.25	1.18	--	31.00	40.00	9.00	
	128.94	19.11	11.42	1.94	--	32.47	43.50	11.03	
	243.40	22.91	11.23	2.75	--	36.89	46.00	9.11	
	298.69	19.73	12.79	3.11	--	35.63	46.00	10.37	
	429.64	16.64	16.45	3.74	--	36.83	46.00	9.17	
	1038.00	49.46	22.35	6.76	37.60	40.97	74.00	33.03	PK
	1171.00	46.60	23.23	7.04	37.24	39.63	74.00	34.37	
	1393.00	45.57	24.25	8.01	36.74	41.09	74.00	32.91	
	1537.00	45.40	25.09	8.50	36.46	42.53	74.00	31.47	
	1787.00	48.45	25.85	9.32	36.02	47.60	74.00	26.40	
	1911.00	45.18	27.18	9.65	35.83	46.18	74.00	27.82	

TEST ENGINEER: KEN XU

5 DEVIATION TO TEST SPECIFICATIONS

None.

6 DEBUG DESCRIPTION

Name	M/N	Specifications (mm)	Manufacturer	Location
Aluminum foil	T-308	30mm*50mm	DAEHUNG SUBSIDIARY MATERIALS.	See Intpho Figure 21
Aluminum foil	T-308	20mm*40mm	DAEHUNG SUBSIDIARY MATERIALS.	See Intpho Figure 22
Gasket	--	8mm*12mm*9T	EXPAN	See Intpho Figure 23
Gasket	3940TKK 084A	45.2*23mm	EXPAN	See Intpho Figure 24