FCC TEST REPORT

FCC ID	: 2AABNEQ276W
Applicant	: Ningbo Global Useful Electric Co., Ltd.
Address	: No.88 Kechuang South Road, Wangchun Industrial Zone, Ningbo 315000 P.R. China
Manufacturer	: The same as above
Address	: The same as above
Equipment Under Test (EUT) :	
Product Name	: 24 inch LED Monitor
Model No.	: EQ276W,ME2728L11,ME2728V11,ME2428Y11,LE27J01XXX (X chould be 0-9, A-Z or blank)EQ166L, EQ176P-1, EQ196L, EQ196P, EQ196P-1, EQ196L-1, EQ226L, EQ226P, EQ226L-1, EQ236L, EQ236P, EQ246P, EQ246L, EQ276L, EQ326P, EQ278C, EQ248C, EQ247C, EQ246W, EQ276W-1, EQ225T, EQ245T, EQ275T, EQ306W, EQ278CW, MPLE24QLM, MPLE27QPM, MPLE30QPM, LE27QOD, LE24OD, LD241610, LE27QHD, LE22T LE24T, LE27T, LC30Y18N13
Rules	: FCC CFR47 Part 15 Section 15.107:2010 FCC CFR47 Part 15 Section 15.109:2010
Date of Test	: April 19, 2013
Date of Issue	: May 07, 2013
Test Result	**: PASS ***

Remark:

* The sample described above has been tested to be in compliance with the requirements of ANSI C63.4:2003. The test results have been reviewed and comply with the rules listed above and found to meet their essential requirements.

The results shown in this test report refer only to the sample(s) tested, this test report cannot be reproduced, except in full, without prior written permission of the company.

The report would be invalid without specific stamp of test institute and the signatures of compiler and approver.

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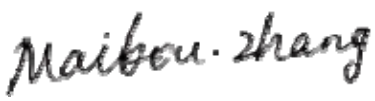
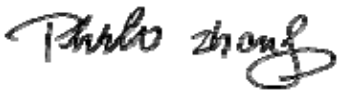
Compiled by:



Maikou Zhang / Project Engineer

Approved by:



Philo Zhong / Manager

2 Test Summary

Test Items	Test Requirement	Result
Conducted Emission	FCC Part 15.107:2010	PASS
Radiated Emission	FCC Part 15.109:2010	PASS

3 Contents

4 General Information

4.1 General Description of E.U.T.

Product Name	: 24 inch LED Monitor
Model No.	: EQ276W, ME2728L11, ME2728V11, ME2428Y11, LE27J01XXX (X chould be 0-9, A-Z or blank), EQ166L, EQ176P-1, EQ196L, EQ196P, EQ196P-1, EQ196L-1, EQ226L, EQ226P, EQ226L-1, EQ236L, EQ236P, EQ246P, EQ246L, EQ276L, EQ326P, EQ278C, EQ248C, EQ247C, EQ246W, EQ276W-1, EQ225T, EQ245T, EQ275T, EQ306W, EQ278CW, MPLE24QLM, MPLE27QPM, MPLE30QPM, LE27QOD, LE24OD, LD241610, LE27QHD, LE22T LE24T, LE27T, LC30Y18N13
Model Differences	: All the above models are identical product. Only the model name is different.
Highest Work Frequency	: 150MHz
Lowest Oscillator	: Crystal 14.318MHz

4.2 Details of E.U.T.

Technical Data	: DC 12V 3A powered by adapter (Adapter Input: AC 100-240V, 50-60Hz, 0.8A)
Adapter	: Manufacturer:COMING DATA M/N:CP1230A

4.3 Description of Support Units

Computer	Lenovo	T4900V	0100640332
Computer	Acer	Aspire AG1720	1300148096
Keyboard	shuangfeiyan	KB-8620D	-
Mouse	shuangfeiyan	OP-220	-
Printer	HP	LaserJet 1020 plus	CC418A

4.4 Test Facility

The test facility has a test site registered with the following organizations:

- **IC – Registration No.: 7760A**

  Waltek Services(Shenzhen) Co., Ltd. has been registered and fully described in a report filed with the Industry Canada. The acceptance letter from the Industry Canada is maintained in our files. Registration 7760A, July 12, 2012.

- **FCC – Registration No.: 880581**

  Waltek Services(Shenzhen) Co., Ltd. EMC Laboratory has been registered and fully described in a report filed with the (FCC) Federal Communications Commission. The acceptance letter from the FCC is maintained in our files. Registration 880581, May 26, 2011.

4.5 Test Location

All the tests were performed at:
Waltek Services(Shenzhen) Co., Ltd. at 1/F, Fukangtai Building, West Baima Rd.,Songgang Street, Baoan District, Shenzhen, China

5 Equipment Used during Test

Conducted Emissions						
Item	**Equipment**	**Manufacturer**	**Model No.**	**Serial No.**	**Last Calibration Date**	**Calibration Due Date**
1.	EMI Test Receiver	R&S	ESCI	101155	Aug. 13,2012	Aug. 13,2013
2.	LISN	SCHWARZBECK	NSLK 8128	8128-289	Aug. 13,2012	Aug. 13,2013
3.	Cable	LARGE	RF300	EW02014-3	Aug.14,2012	Aug. 14,2013
3m Semi-anechoic Chamber for Radiation Emissions (Test Frequency: 1GHz ~2GHz)						
Item	**Equipment**	**Manufacturer**	**Model No.**	**Serial No.**	**Last Calibration Date**	**Calibration Due Date**
1.	EMC Analyzer	Agilent	E7405A	MY45114943	Aug. 13,2012	Aug. 13,2013
4.	Broad-band Horn Antenna	SCHWARZBECK	BBHA 9120 D	667	Aug. 13,2012	Aug. 13,2013
5.	Broad-band Horn Antenna	SCHWARZBECK	BBHA 9170	399	Aug. 13,2012	Aug. 13,2013
6.	Broadband Preamplifier	COMPLIANCE DIRECTION	PAP-1G18	2004	Apr.07,2013	Apr.07,2014
7.	Broadband Preamplifier	SCHWARZBECK	BBV 9718	9718-148	Aug. 13,2012	Aug. 13,2013
8.	10m Coaxial Cable with N- plug	SCHWARZBECK	AK 9515 H	-	Aug. 13,2012	Aug. 13,2013
3m Semi-anechoic Chamber for Radiation(TDK) (Test Frequency: 14.318MHz ~1GHz)						
Item	**Equipment**	**Manufacturer**	**Model No.**	**Serial No**	**Last Calibration Date**	**Calibration Due Date**
1	Test Receiver	R&S	ESCI	101296	Aug.09,2012	Aug.09,2013
2	Active Loop Antenna	Beijing Dazhi	ZN30900A	-	Aug. 13,2012	Aug. 13,2013
3	Trilog Broadband Antenna	SCHWARZBECK	VULB9160	9160-3325	Aug.11,2012	Aug.11,2013
4	Amplifier	Compliance pirection systems inc	PAP-0203	22024	Apr.07,2013	Apr.07,2014
5	Cable	HUBER+SUHNER	CBL2	525178	Sep.15,2012	Sep.15,2013

6 Conducted Emission Data

Test Requirement:	FCC Part 15 Section 15.107
Test Method:	ANSI C63.4:2003
Test Result:	PASS
Frequency Range:	150kHz to 30MHz
Class:	Class B
Limit:	66-56 dBμV between 0.15MHz & 0.5MHz
	56 dBμV between 0.5MHz & 5MHz
	60 dBμV between 5MHz & 30MHz
	The tighter limit applies at the band edges.
Detector:	Peak for pre-scan (9kHz Resolution Bandwidth)
	Quasi-Peak & Average if maximised peak within 6dB of Average Limit

6.1 E.U.T. Operation

Operating Environment:

Temperature: 25.5 °C

Humidity: 51 % RH

Atmospheric Pressure: 1012 mbar

EUT Operation:

The test was performed in

VGA mode (test resolution: 1920*1080/60Hz, 1280*800/75Hz, 640*480/60Hz),

DVI mode (test resolution: 1920*1080/60Hz, 1280*1024/75Hz, 640*480/60Hz)

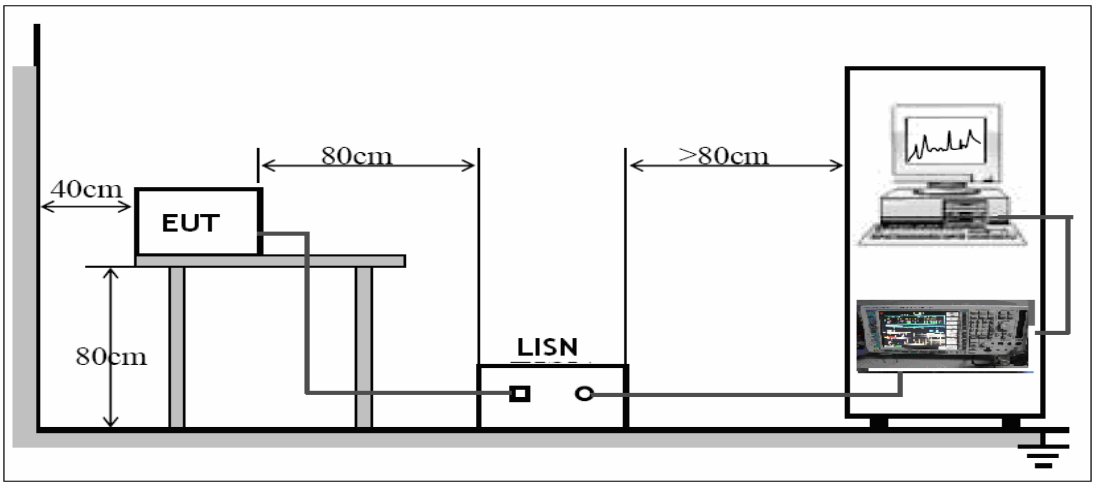
Both above working mode were performed under the condition of EUT mains and PC mains respectively. The worst case is VGA mode (test resolution: 640*480) which was tested under the condion of PC mains and the data is shown as follow.

The EUT was tested according to ANSI C63.4:2003. The frequency spectrum from 150kHz to 30MHz was investigated.

The maximised peak emissions from the EUT was scanned and measured for both the Live and Neutral Lines. Quasi-peak & average measurements were performed if peak emissions were within 6dB of the average limit line.

6.2 EUT Setup

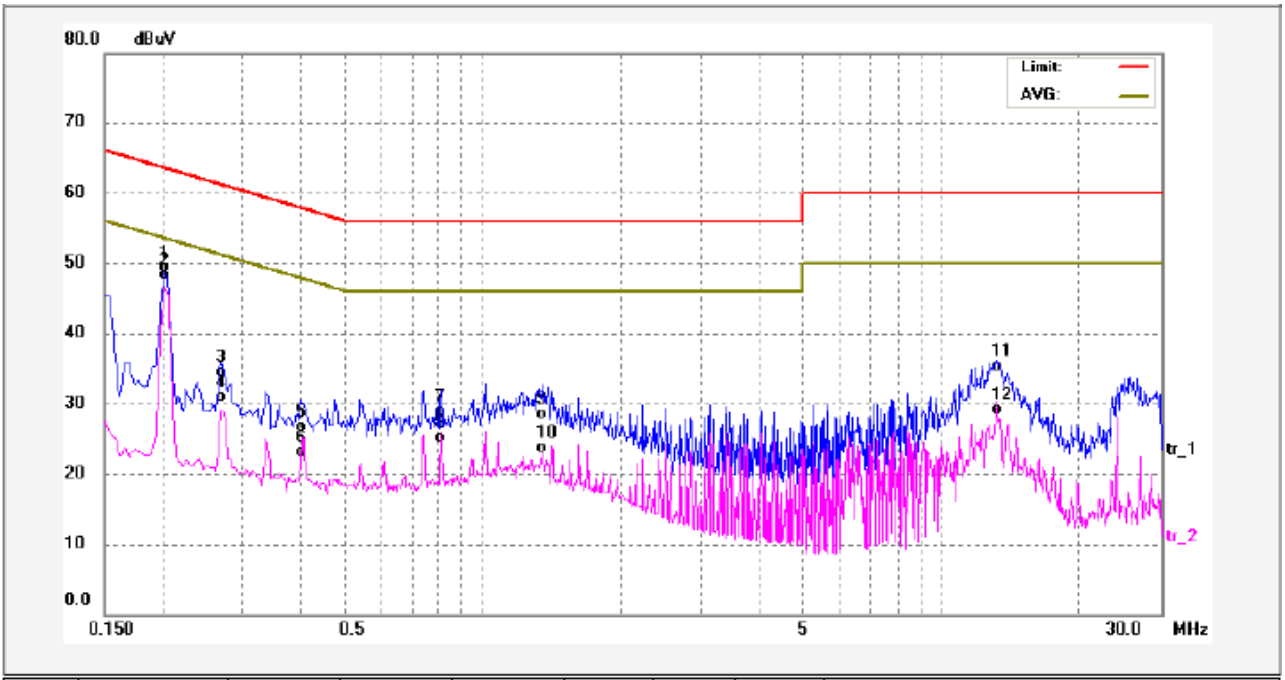
The EUT was placed on the test table in shielding room.



6.3 Conducted Emission Test Result

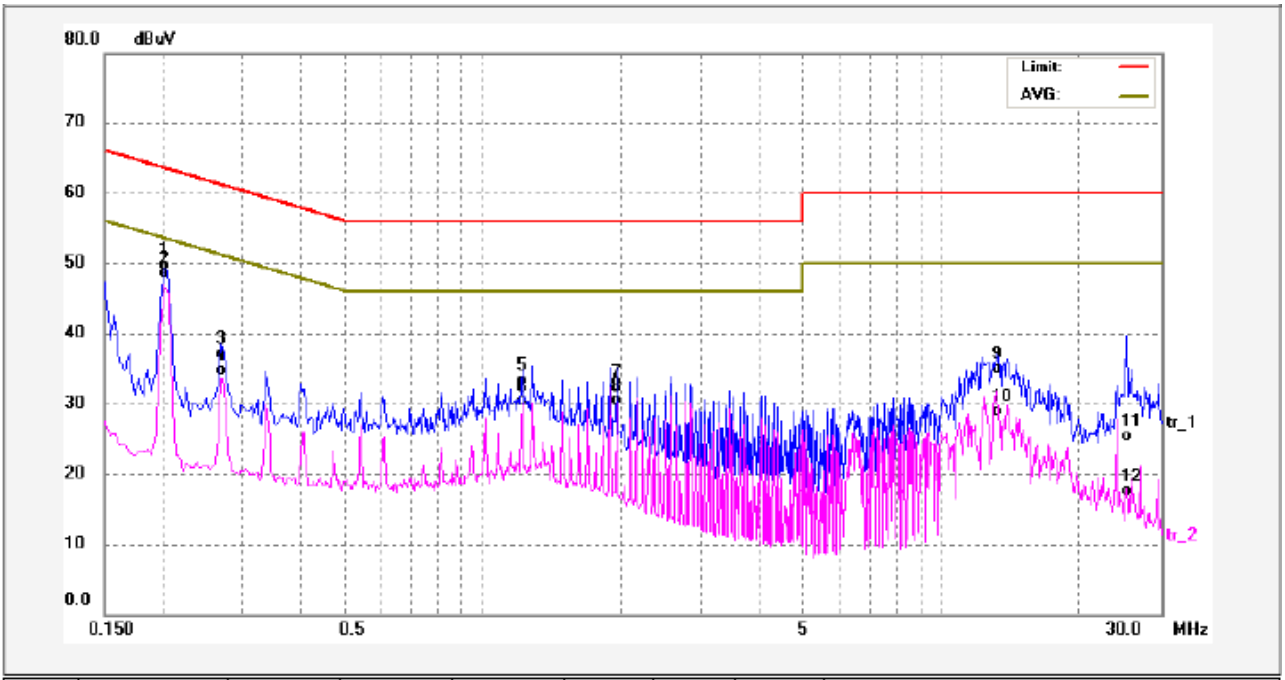
An initial pre-scan was performed on the live and neutral lines.

Live line:



No.	Freq. (MHz)	Reading (dBuV)	Factor (dB)	Result (dBuV)	Limit dBuV	Margin (dB)	Detector	Remark
1	0.2020	37.24	11.30	48.54	63.52	-14.98	QP	
2	0.2020	36.21	11.30	47.51	53.52	-6.01	AVG	
3	0.2700	22.45	11.30	33.75	61.12	-27.37	QP	
4	0.2700	18.77	11.30	30.07	51.12	-21.05	AVG	
5	0.4020	14.64	11.31	25.95	57.81	-31.86	QP	
6	0.4020	10.95	11.31	22.26	47.81	-25.55	AVG	
7	0.8139	16.92	11.28	28.20	56.00	-27.80	QP	
8	0.8139	13.07	11.28	24.35	46.00	-21.65	AVG	
9	1.3540	16.55	11.19	27.74	56.00	-28.26	QP	
10	1.3540	11.79	11.19	22.98	46.00	-23.02	AVG	
11	13.1820	23.19	11.41	34.60	60.00	-25.40	QP	
12	13.1820	16.83	11.41	28.24	50.00	-21.76	AVG	

Neutral line:



No.	Freq. (MHz)	Reading (dBuV)	Factor (dB)	Result (dBuV)	Limit dBuV	Margin (dB)	Detector	Remark
1	0.2020	37.64	11.30	48.94	63.52	-14.58	QP	
2	0.2020	36.42	11.30	47.72	53.52	-5.80	AVG	
3	0.2700	25.03	11.30	36.33	61.12	-24.79	QP	
4	0.2700	22.52	11.30	33.82	51.12	-17.30	AVG	
5	1.2180	21.31	11.18	32.49	56.00	-23.51	QP	
6	1.2180	18.25	11.18	29.43	46.00	-16.57	AVG	
7	1.9620	20.31	11.20	31.51	56.00	-24.49	QP	
8	1.9620	18.46	11.20	29.66	46.00	-16.34	AVG	
9	13.2500	22.66	11.41	34.07	60.00	-25.93	QP	
10	13.2500	16.68	11.41	28.09	50.00	-21.91	AVG	
11	25.2099	12.97	11.57	24.54	60.00	-35.46	QP	
12	25.2099	5.06	11.57	16.63	50.00	-33.37	AVG	

7 Radiation Emission Data

Test Requirement:	FCC Part 15 Section 15.109
Test Method:	ANSI C63.4:2003
Test Result:	PASS
Frequency Range:	14.318MHz to 2GHz
Measurement Distance:	3m
Class:	Class B
Limit:	40.0 dBμV/m between 30MHz & 88MHz for Quasi-Peak
	43.5 dBμV/m between 88MHz & 216MHz for Quasi-Peak
	46.0 dBμV/m between 216MHz & 960MHz for Quasi-Peak
	54.0 dBμV/m above 960MHz & 1GHz for Quasi-Peak
	54.0 dBuV/m above 1GHz for AV
	74.0 dBuV/m above 1GHz for Peak
	The tighter limit applies at the band edges.
Detector:	Peak for pre-scan (120kHz resolution bandwidth)
	Quasi-Peak if maximised peak within 6dB of limit

7.1 E.U.T. Operation

Operating Environment:

Temperature: 25.5 °C

Humidity: 51 % RH

Atmospheric Pressure: 1012 mbar

EUT Operation:

The test was performed in

VGA mode (test resolution: 1920*1080/60Hz, 1280*800/75Hz, 640*480/60Hz),

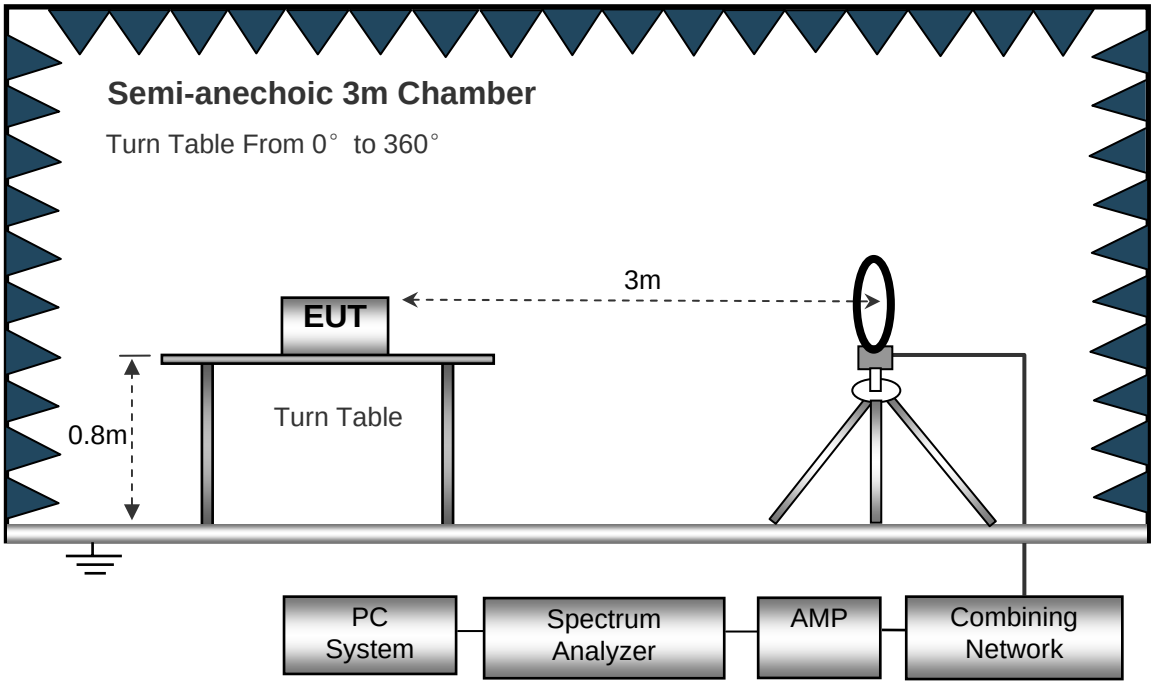
DVI mode (test resolution: 1920*1080/60Hz, 1280*1024/75Hz, 640*480/60Hz)

For below 1GHz, the worst case is DVI mode (test resolution:1280*1024) and the data is shown as follow.

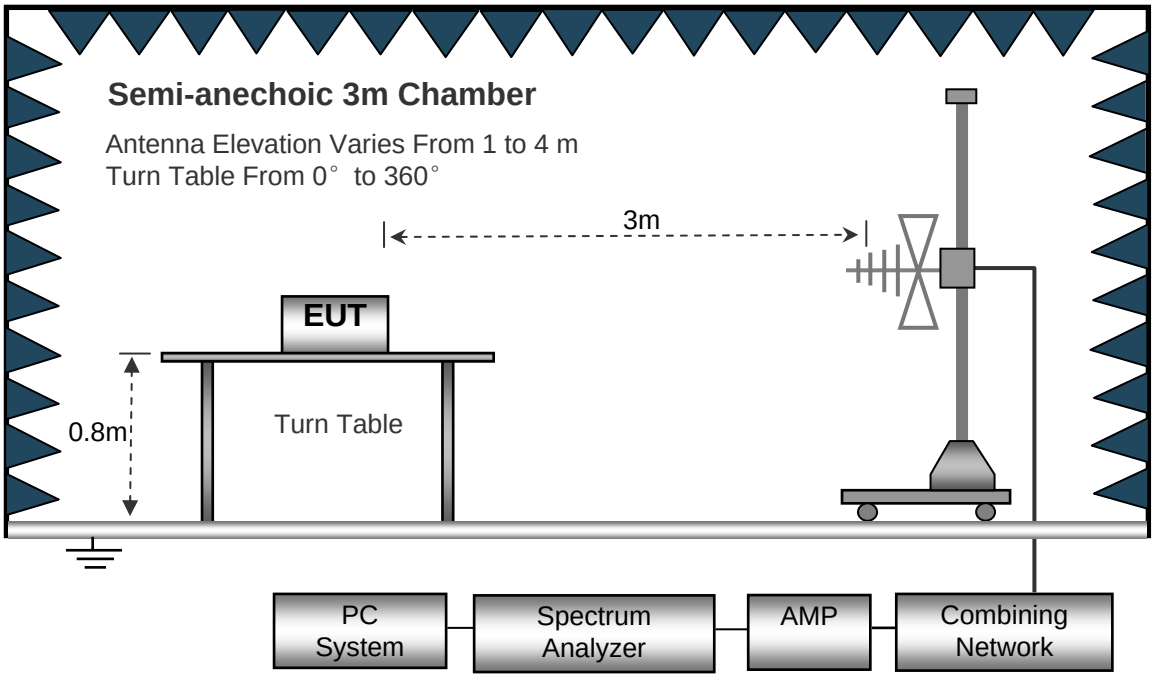
For above 1GHz, the worst case is DVI mode (test resolution:1920*1080) and the data is shown as follow.

7.2 EUT Setup

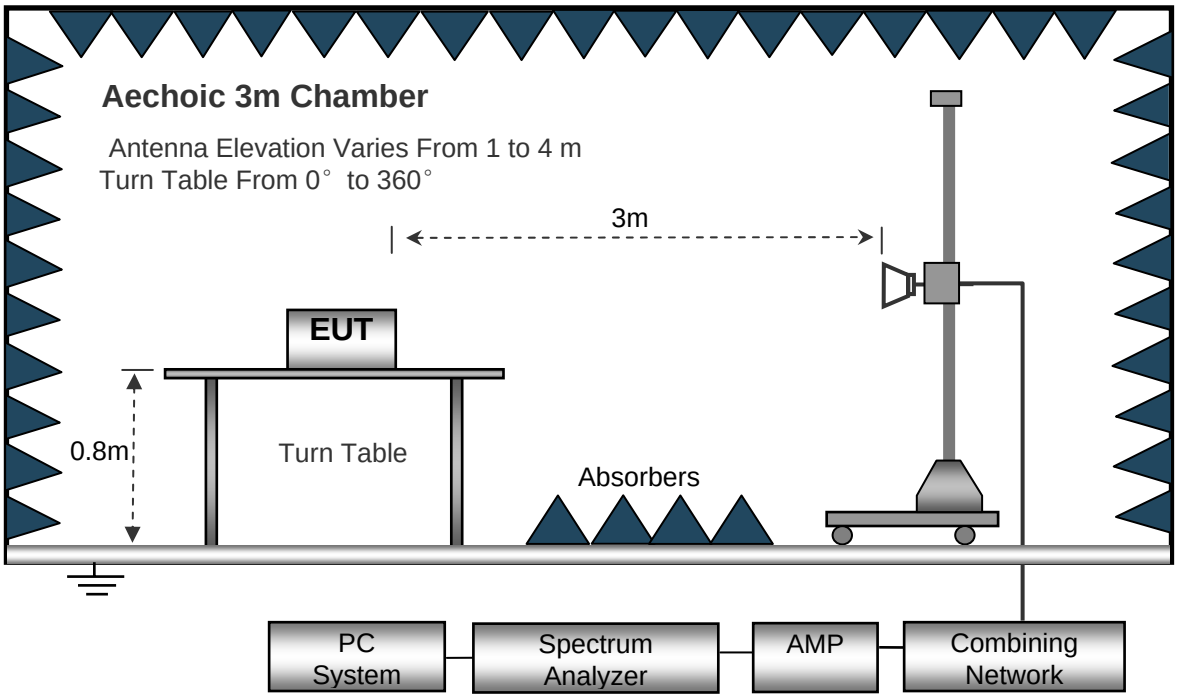
The radiated emission tests were performed in the 3m Semi- Anechoic Chamber test site.
The test setup for emission measurement below 30MHz.



The test setup for emission measurement from 30 MHz to 1 GHz.



The test setup for emission measurement above 1 GHz.



7.3 Spectrum Analyzer Setup

According to FCC Part15 B Rules, the system was tested from 9kHz to 2GHz.

Below 30MHz

Sweep Speed..... Auto
IF Bandwidth 10KHz
Video Bandwidth 10KHz

Resolution Bandwidth 10KHz

30MHz ~ 1GHz

Sweep Speed..... Auto
IF Bandwidth ..... 120 KHz
Video Bandwidth 100KHz
Quasi-Peak Adapter Bandwidth..... 120 KHz
Quasi-Peak Adapter Mode ..... Normal
Resolution Bandwidth 100KHz

Above 1GHz

Sweep Speed..... Auto
IF Bandwidth ..... 120 KHz
Video Bandwidth 3MHz
Quasi-Peak Adapter Bandwidth..... 120 KHz
Quasi-Peak Adapter Mode ..... Normal
Resolution Bandwidth 1MHz

7.4 Test Procedure

1. The EUT is placed on a turntable, which is 0.8m above ground plane.
2. The turntable shall be rotated for 360 degrees to determine the position of maximum emission level.
3. EUT is set 3m away from the receiving antenna, which is moved from 1m to 4m to find out the maximum emissions.
4. Maximum procedure was performed on the six highest emissions to ensure EUT compliance.
5. And also, each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical.
6. Repeat above procedures until the measurements for all frequencies are complete.
7. The radiation measurements are performed in X(normal uses) axis positioning.

7.5 Corrected Amplitude & Margin Calculation

The Corrected Amplitude is calculated by adding the Antenna Factor and Cable Factor, and subtracting the Amplifier Gain from the Amplitude reading. The basic equation is as follows:

Corr. Ampl. = Indicated Reading + Antenna Factor + Cable Factor - Amplifier Gain

The "**Margin**" column of the following data tables indicates the degree of compliance with the applicable limit. For example, a margin of -7dBμV means the emission is 7dBμV below the maximum limit for Class B. The equation for margin calculation is as follows:

Margin = Corr. Ampl. – Class B Limit

7.6 Summary of Test Results

Test Frequency :Below 30MHz

All emissions were more than 20dB below the limit and therefore not reported.

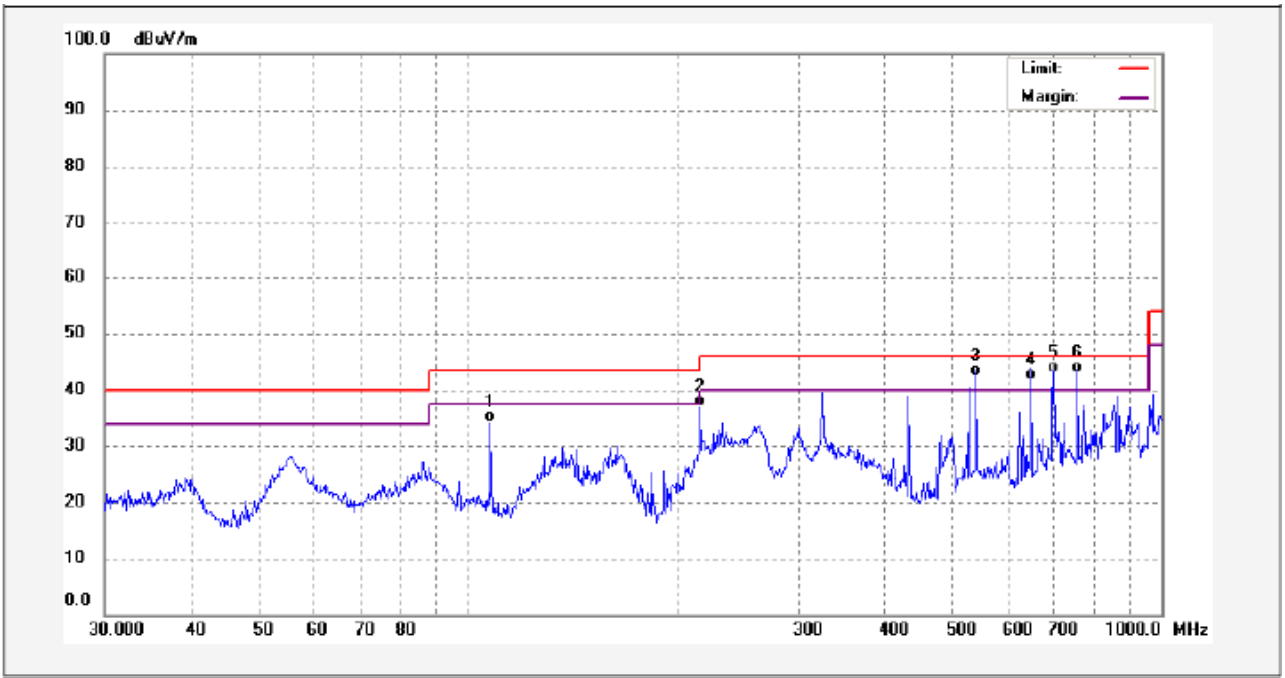
Test Frequency : 30MHz ~ 1000MHz

DVI mode (test resolution:1280*1024)

Antenna polarization: Vertical

No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Remark
1	55.4147	59.35	-23.21	36.14	40.00	-3.86	QP	
2	432.5456	58.03	-15.93	42.10	46.00	-3.90	QP	
3	541.3725	55.30	-13.15	42.15	46.00	-3.85	QP	
4	649.6596	51.68	-10.57	41.11	46.00	-4.89	QP	
5	699.3045	50.70	-9.70	41.00	46.00	-5.00	QP	
6	758.0407	49.43	-8.31	41.12	46.00	-4.88	QP	

Antenna polarization: Horizontal

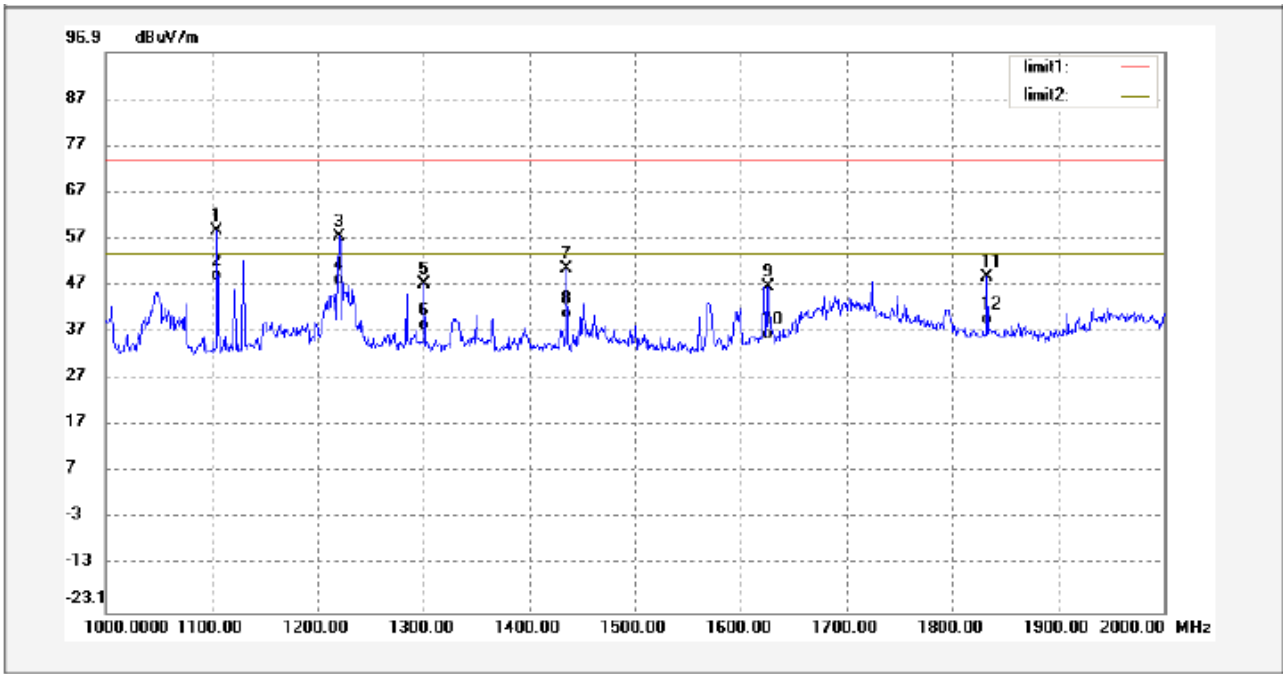


No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Remark
1	107.8877	58.23	-23.99	34.24	43.50	-9.26	QP	
2	216.0240	60.06	-23.26	36.80	46.00	-9.20	QP	
3	541.3725	55.81	-13.34	42.47	46.00	-3.53	QP	
4	649.6597	52.30	-10.62	41.68	46.00	-4.32	QP	
5	699.3046	52.48	-9.70	42.78	46.00	-3.22	QP	
6	758.0407	51.01	-8.01	43.00	46.00	-3.00	QP	

Test Frequency : Above 1GHz

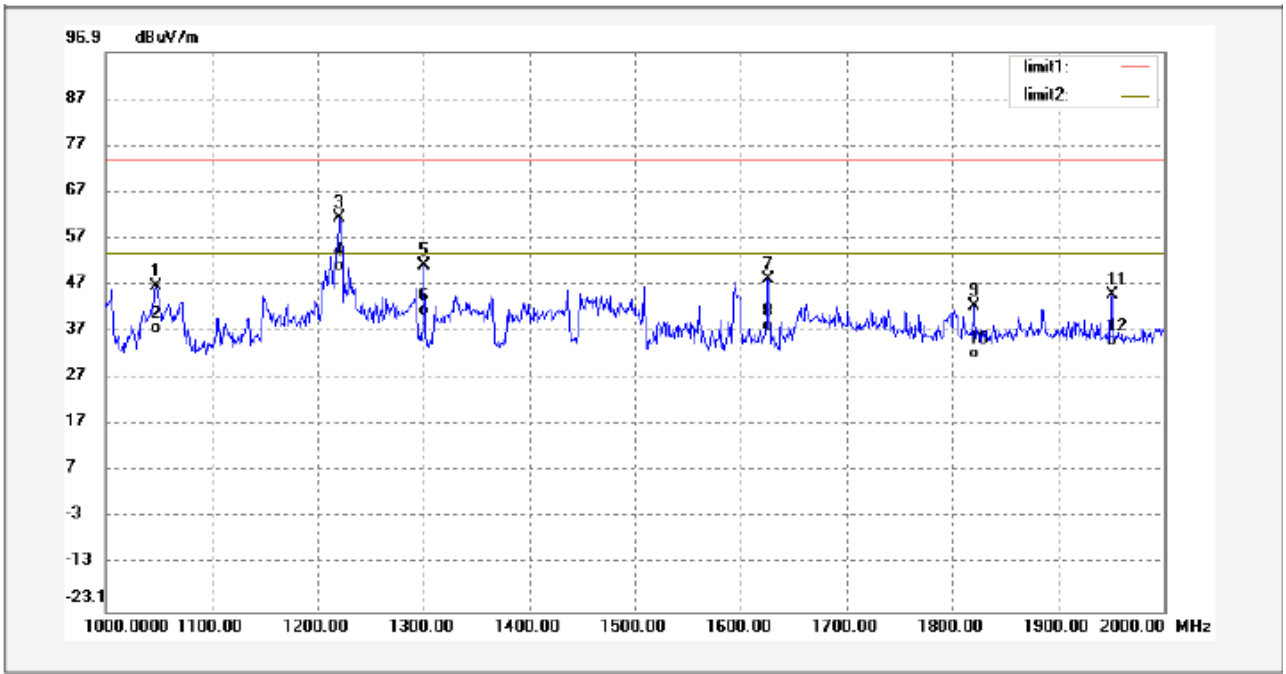
DVI mode (test resolution:1920*1080)

Antenna polarization: Vertical



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Remark
1	1105.000	72.65	-14.07	58.58	74.00	-15.42	peak	
2	1105.000	61.87	-14.07	47.80	54.00	-6.20	AVG	
3	1221.000	70.79	-13.25	57.54	74.00	-16.46	peak	
4	1221.000	60.29	-13.25	47.04	54.00	-6.96	AVG	
5	1301.000	60.06	-12.90	47.16	74.00	-26.84	peak	
6	1301.000	50.28	-12.90	37.38	54.00	-16.62	AVG	
7	1435.000	63.56	-12.93	50.63	74.00	-23.37	peak	
8	1435.000	52.62	-12.93	39.69	54.00	-14.31	AVG	
9	1626.000	59.96	-13.18	46.78	74.00	-27.22	peak	
10	1626.000	48.39	-13.18	35.21	54.00	-18.79	AVG	
11	1833.000	61.03	-12.33	48.70	74.00	-25.30	peak	
12	1833.000	51.02	-12.33	38.69	54.00	-15.31	AVG	

Antenna polarization: Horizontal

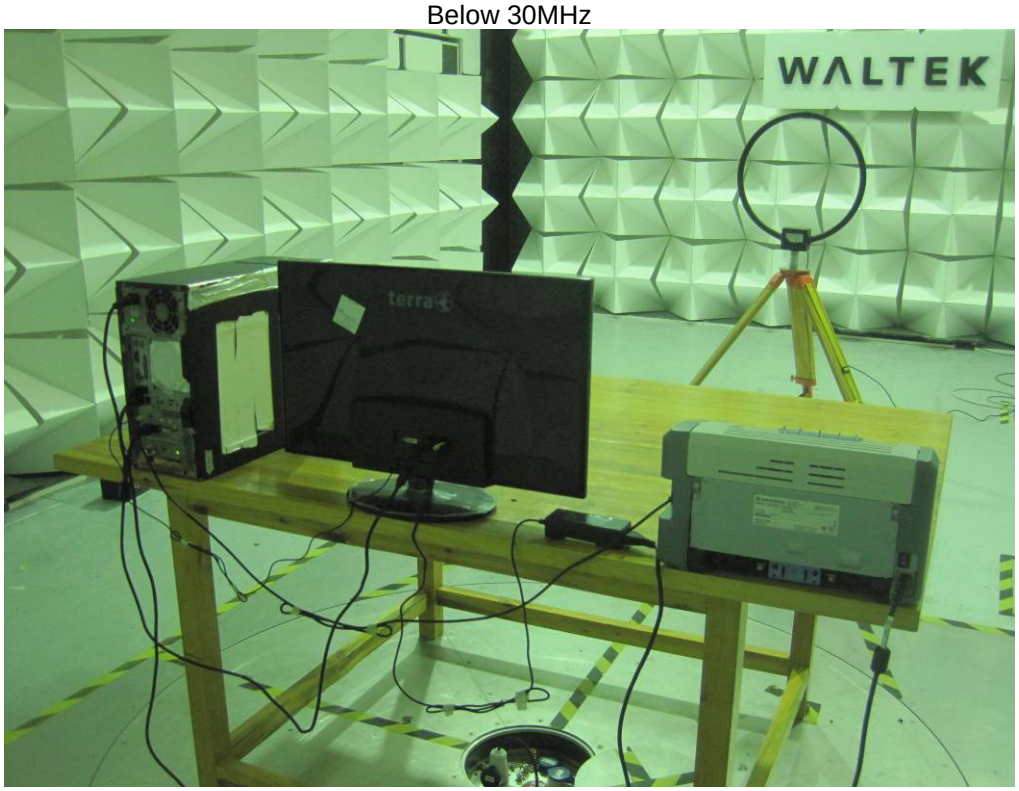


No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Remark
1	1047.000	60.99	-14.29	46.70	74.00	-27.30	peak	
2	1047.000	50.83	-14.29	36.54	54.00	-17.46	AVG	
3	1221.000	74.63	-13.25	61.38	74.00	-12.62	peak	
4	1221.000	63.25	-13.25	50.00	54.00	-4.00	AVG	
5	1300.000	64.10	-12.90	51.20	74.00	-22.80	peak	
6	1300.000	53.21	-12.90	40.31	54.00	-13.69	AVG	
7	1626.000	61.30	-13.18	48.12	74.00	-25.88	peak	
8	1626.000	50.26	-13.18	37.08	54.00	-16.92	AVG	
9	1820.000	54.76	-12.42	42.34	74.00	-31.66	peak	
10	1820.000	43.33	-12.42	30.91	54.00	-23.09	AVG	
11	1951.000	56.52	-11.65	44.87	74.00	-29.13	peak	
12	1951.000	45.28	-11.65	33.63	54.00	-20.37	AVG	

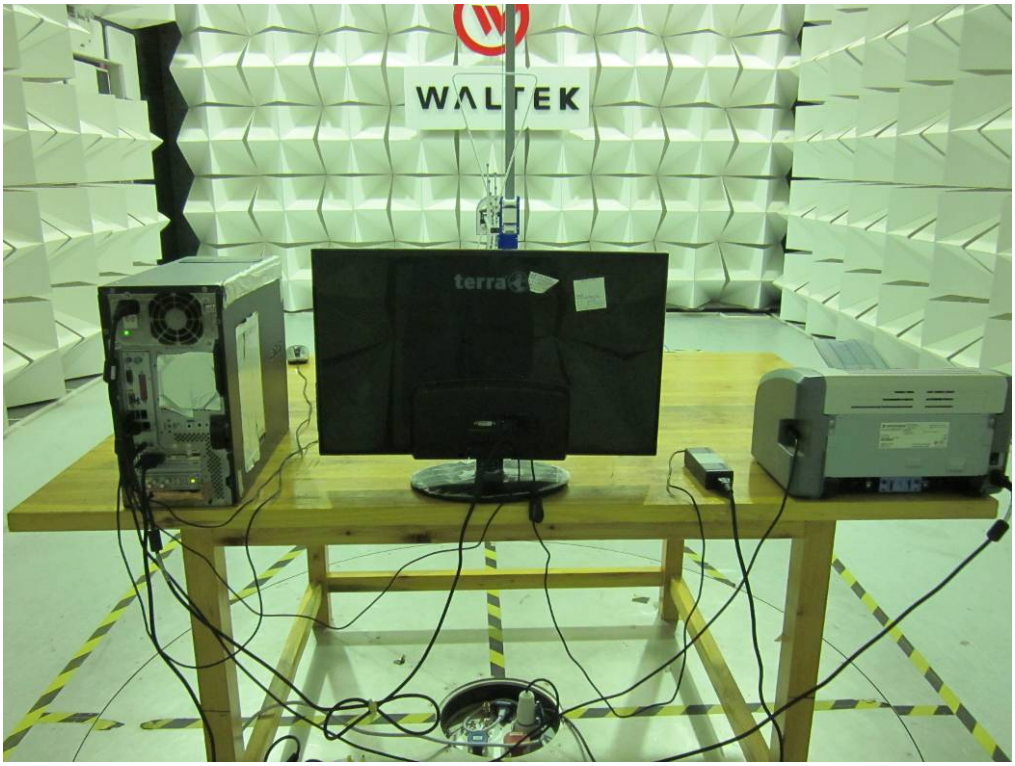
8 Photographs – Test Setup

8.1 Photograph – Radiation Emission Test Setup

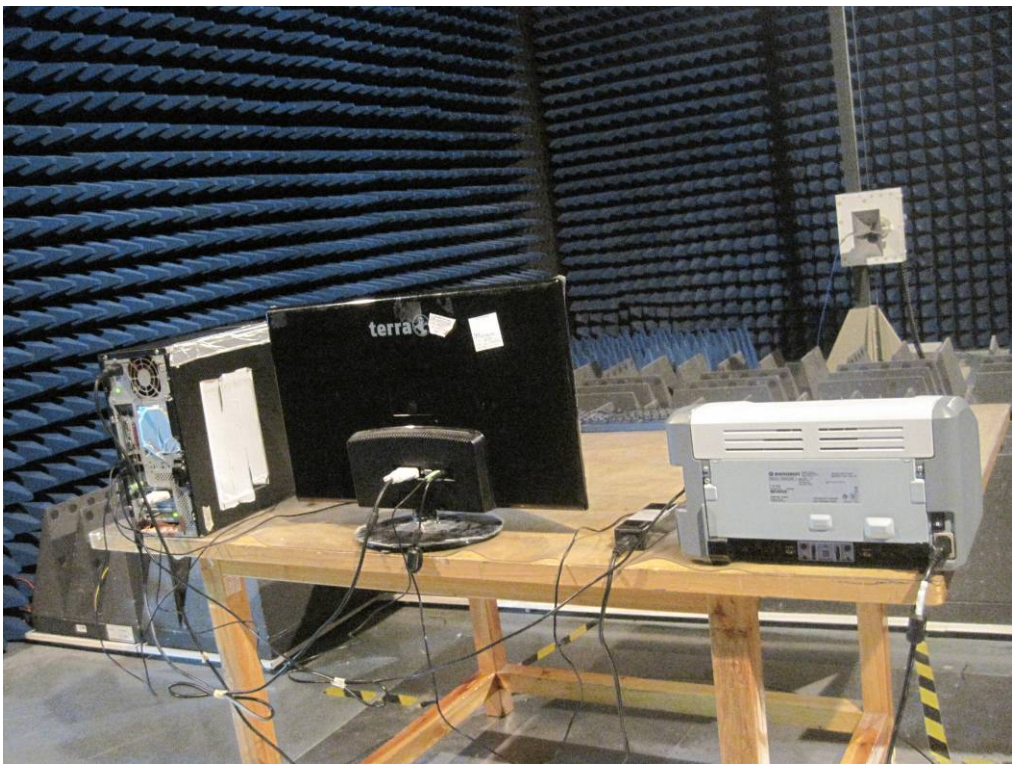
Below 30MHz

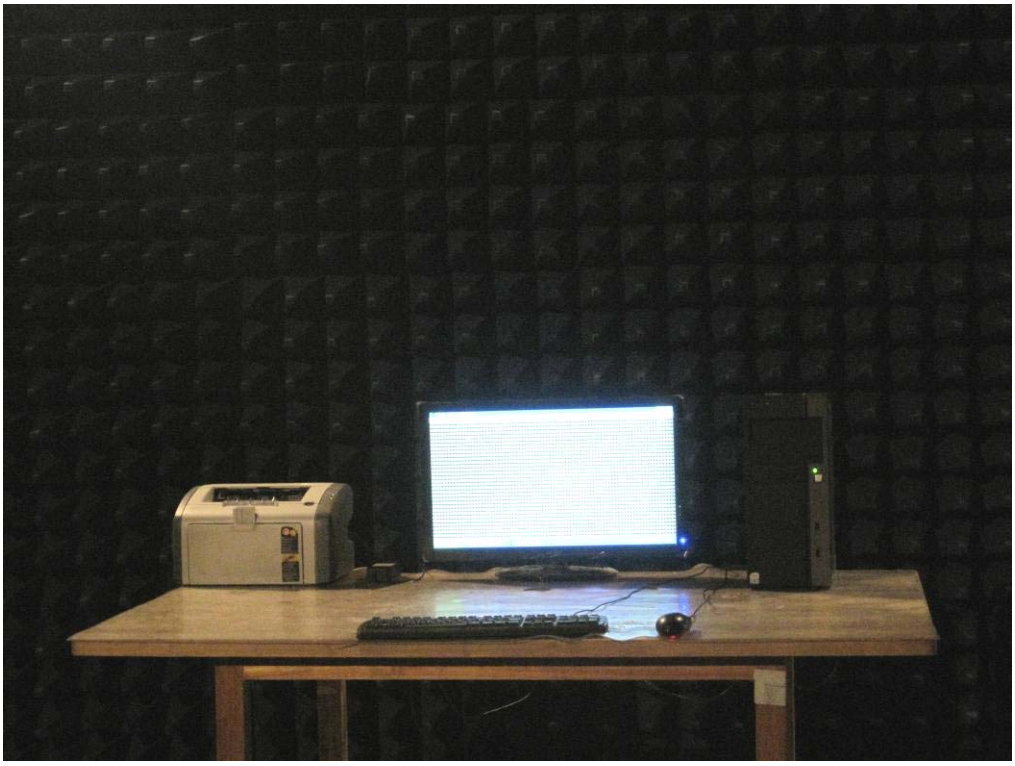


30MHz to 1GHz



1GHz to 2GHz





8.2 Photograph – Conducted Emission Test Setup

EUT mains

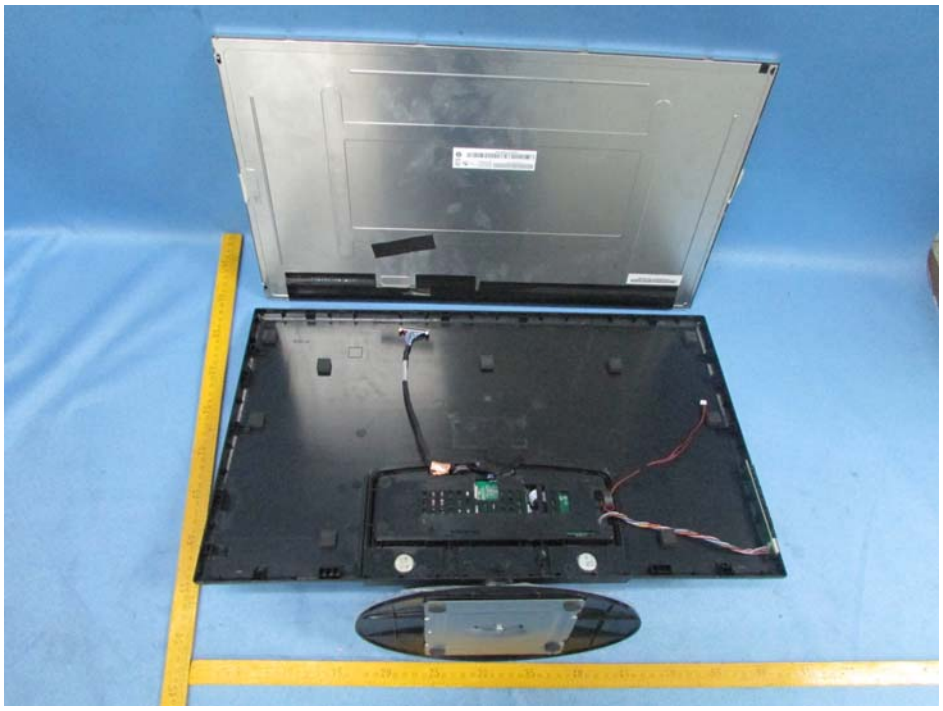
PC mains

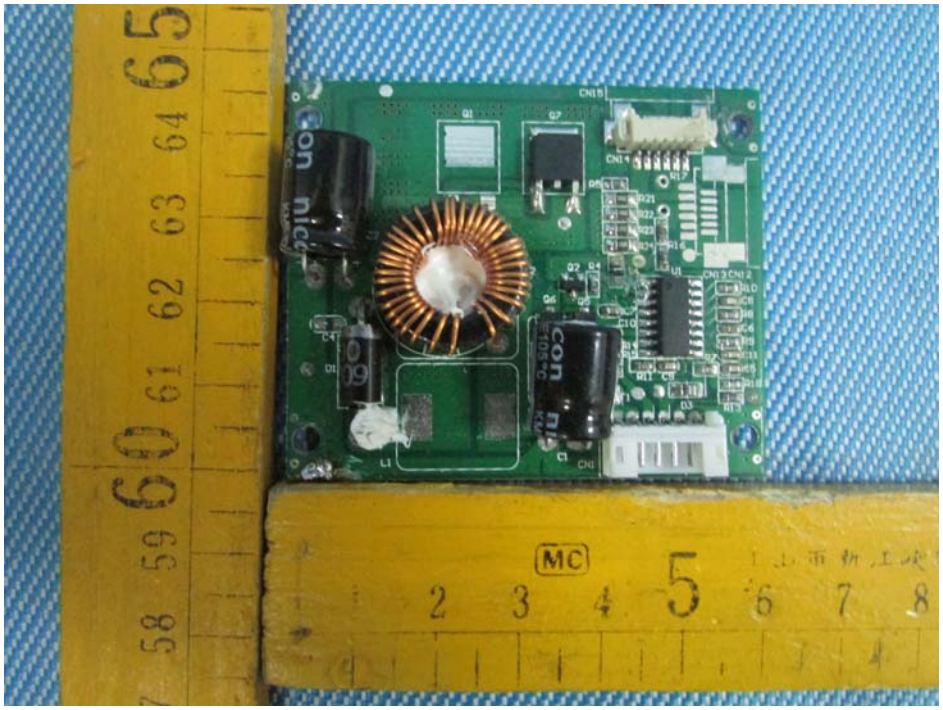
9 Photographs –Constructional Details

9.1 Photograph –External View

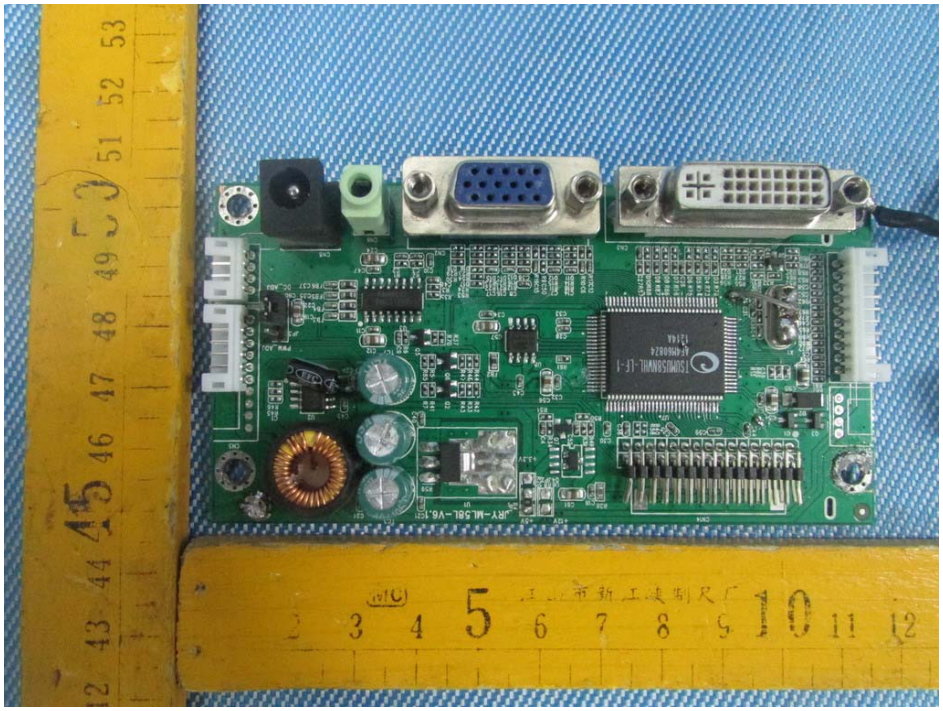
9.2 Photograph –Adapter External View

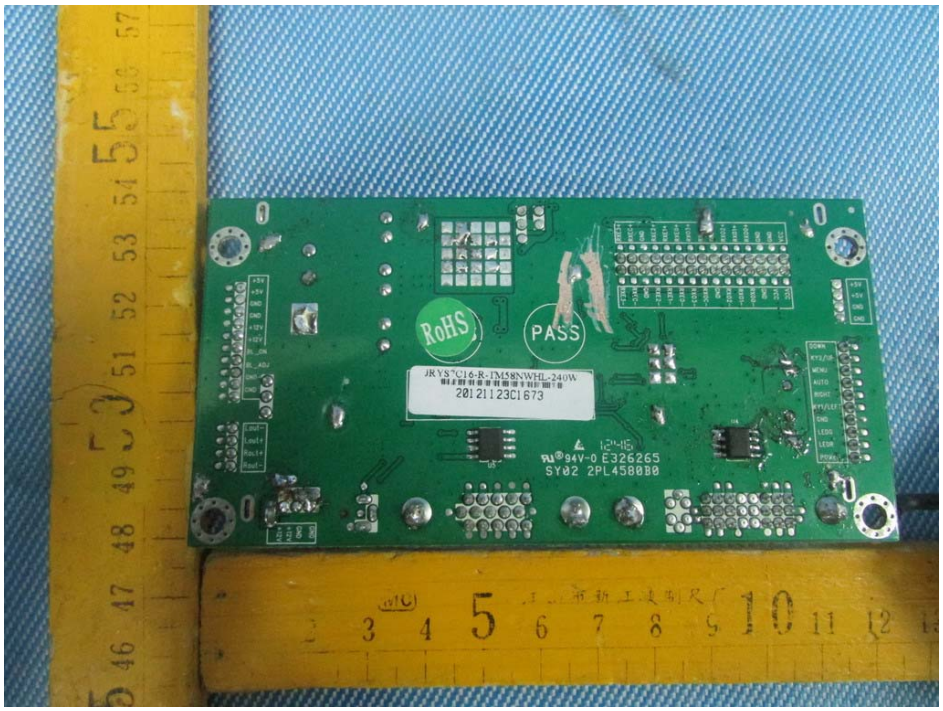
9.3 Photograph –LED TV Internal View



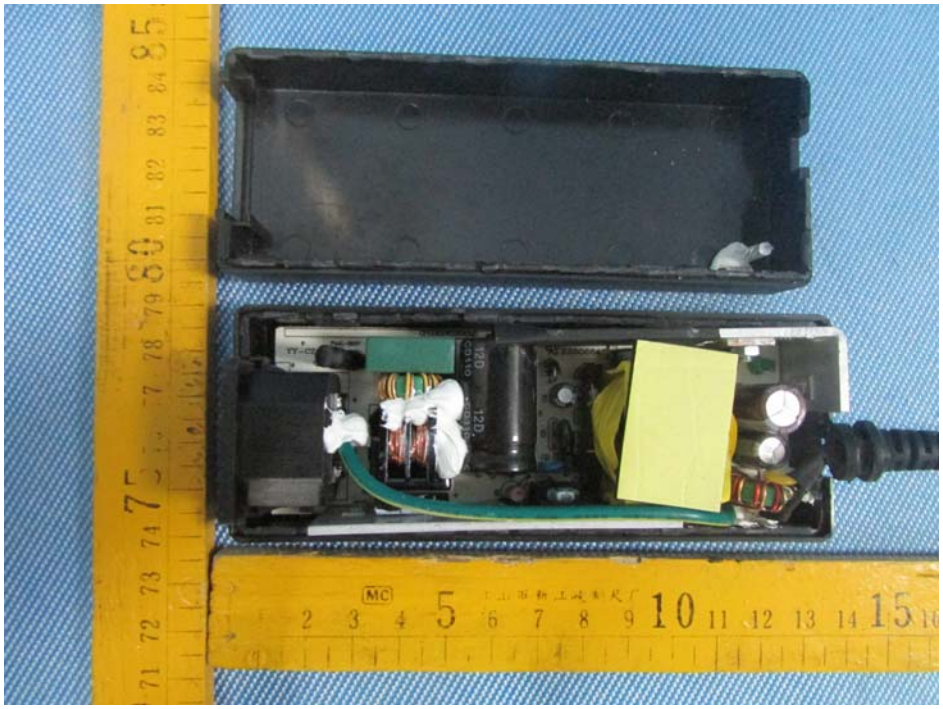


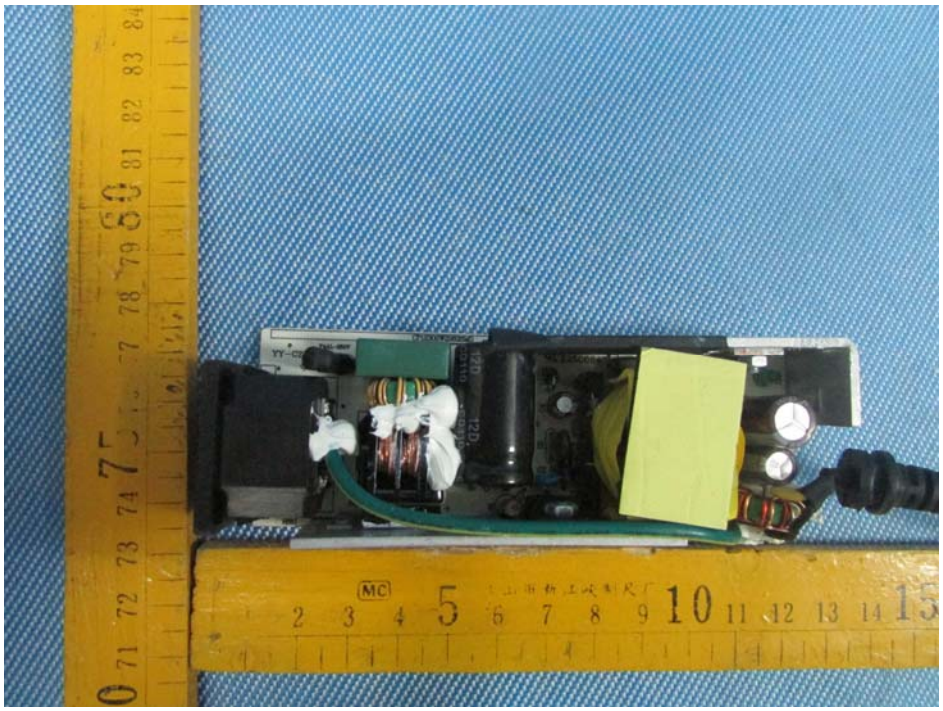

客户名称：宇斯澜
样品型号：HQ-LED89-01
配屏型号：M240HTNO1.0
深圳市环球众宇电子有限公司
www.zyglobal.com
HQ-LED89 REV1.0
RoHS
APC

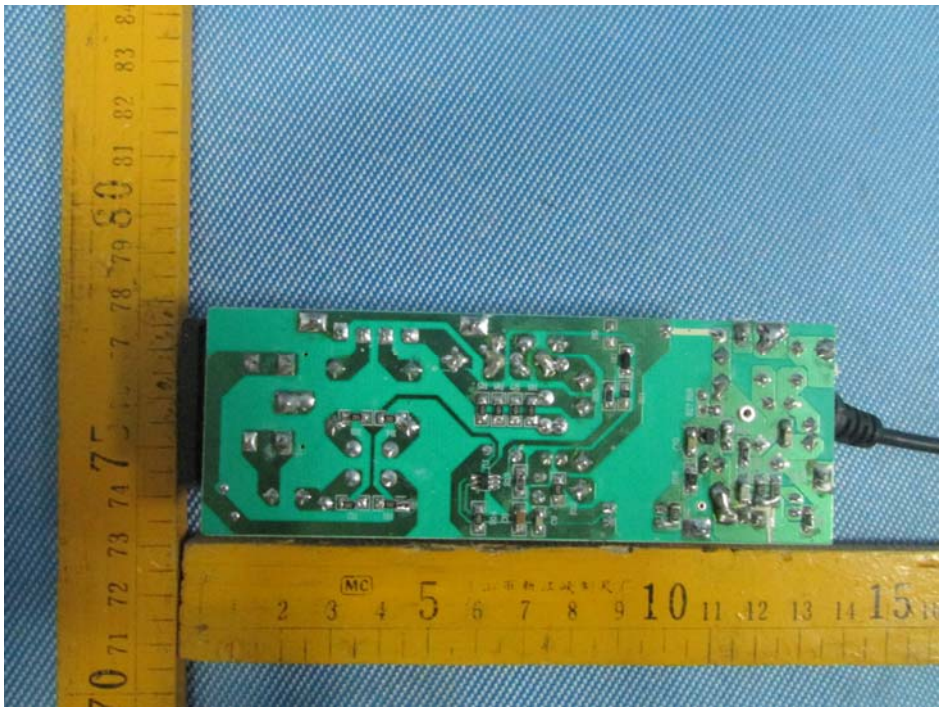



RoHS
PASS
94V-0 E326265

9.4 Photograph –Adapter Internal View







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