FCC TEST REPORT

FCC ID	: SJ8-M420
Applicant	: RDI Technology (Shenzhen) Co., Ltd.
Address	: Building C1 Xintang Industrial Park, East Baishixia, Fuyong, Baoan, Shenzhen, China
Manufacturer	: The same as above
Address	: The same as above
Equipment Under Test (EUT) :	
Product Name	: Digital Monitor
Model No.	: M420
Rules	: FCC CFR47 Part 15 Section 15.107:2010 FCC CFR47 Part 15 Section 15.109:2010
Date of Test	: April 9, 2013
Date of Issue	: April 19, 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.

Prepared By:

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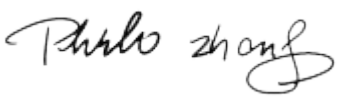
Compiled by:

Zero Zhou / 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	: Digital Monitor
Model No.	: M420
Operation Frequency	: 2402MHz ~ 2478MHz, 39 channels in total
Type of Modulation	: GFSK
Oscillator	: Crystal 32.768kHz and 27MHz for CPU,16MHz for RF module

4.2 Details of E.U.T.

Technical Data	: (1)Battery DC 3.7V 1500mAh (2)DC 5V 1.5A powered by adapter (CS9C050150FUF) (Input: 100 ~ 240VAC, 50/60Hz,500mA) (3)DC 5V 1.0A powered by adapter (CS6D050100FUF) (Input: 100 ~ 240VAC, 50/60Hz,200mA)
Adapter (1)	: Manufacturer:Csec, M/N:CS9C050150FUF
Adapter (2)	: Manufacturer:Csec, M/N:CS6D050100FUF
Remark	: This device can use with 2 kinds of adapter optionally.Only the worst data when using with adapter 1 were shown in this report

4.3 Description of Support Units

The EUT has been tested as an independent unit.

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 ~6GHz)						
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: 32.768kHz ~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
Associated Equipment						
1	Notebook	IBM	2672-39C	99-8D3W4	-	-

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:

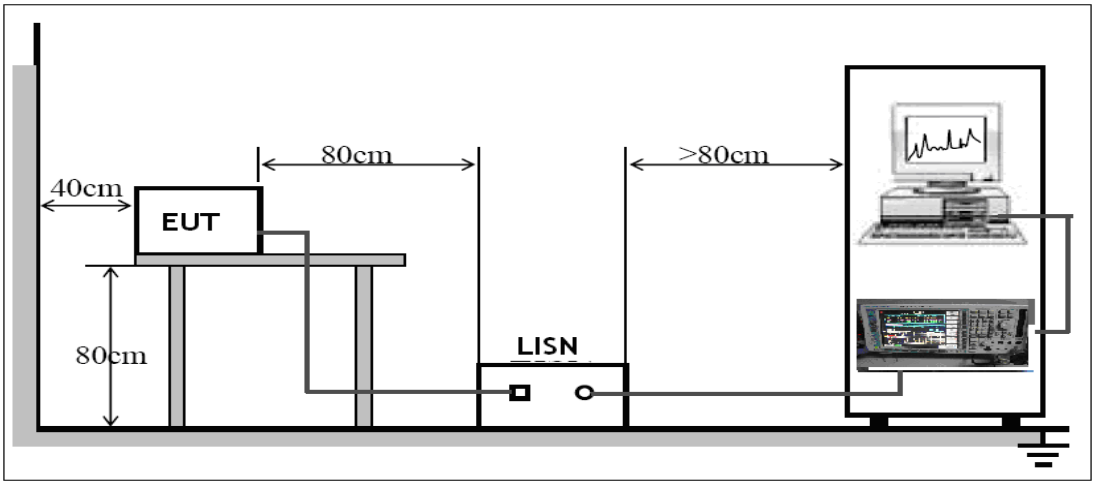
The test was performance on PC connecting mode.

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.

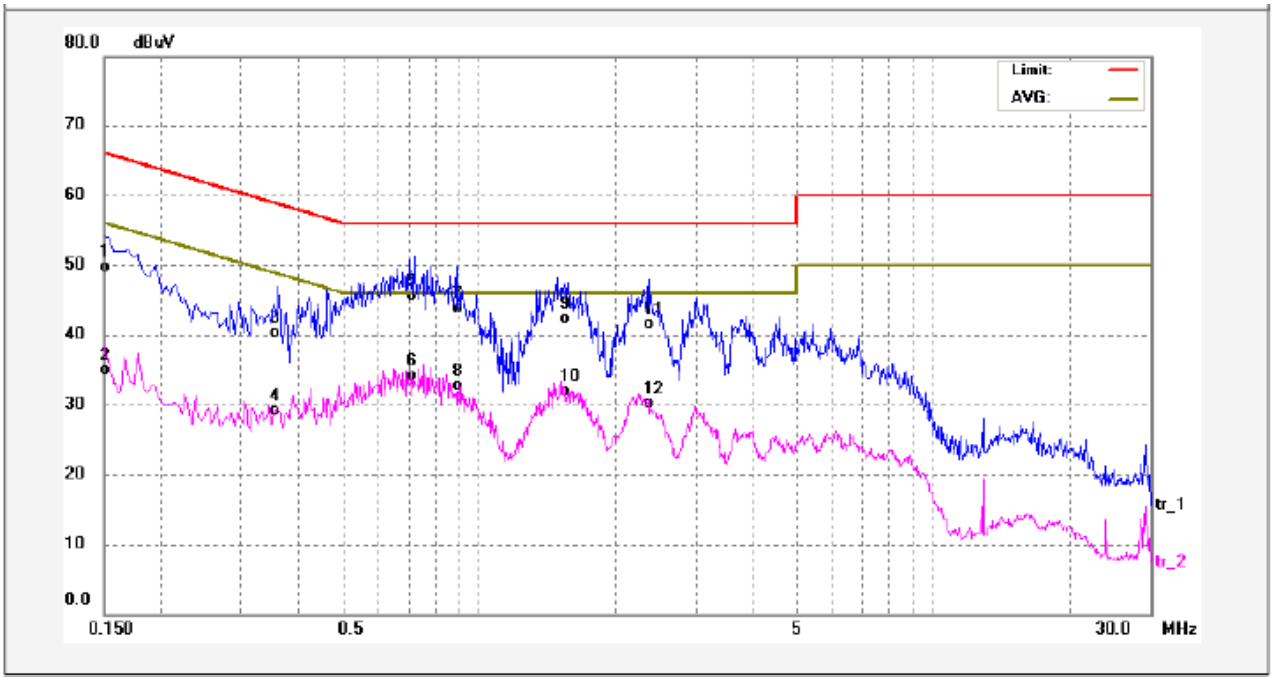


6.3 Conducted Emission Test Result

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

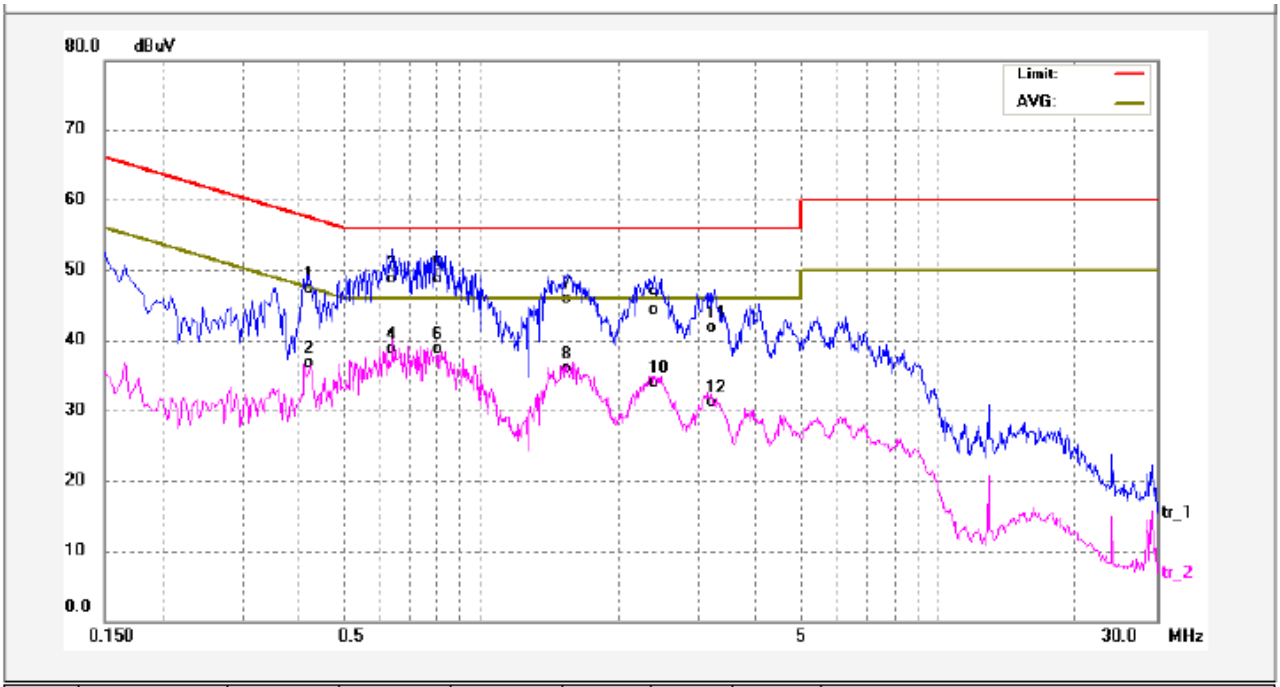
Test mode:working with PC(running skype video)

Live line:



No.	Freq. (MHz)	Reading (dBuV)	Factor (dB)	Result (dBuV)	Limit dBuV	Margin (dB)	Detector	Remark
1	0.1500	37.64	11.17	48.81	65.99	-17.18	QP	
2	0.1500	22.86	11.17	34.03	55.99	-21.96	AVG	
3	0.3620	28.12	11.31	39.43	58.68	-19.25	QP	
4	0.3620	16.98	11.31	28.29	48.68	-20.39	AVG	
5	0.7220	33.38	11.33	44.71	56.00	-11.29	QP	
6	0.7220	22.04	11.33	33.37	46.00	-12.63	AVG	
7	0.8900	31.76	11.24	43.00	56.00	-13.00	QP	
8	0.8900	20.67	11.24	31.91	46.00	-14.09	AVG	
9	1.5700	30.40	11.19	41.59	56.00	-14.41	QP	
10	1.5700	19.92	11.19	31.11	46.00	-14.89	AVG	
11	2.3660	29.51	11.20	40.71	56.00	-15.29	QP	
12	2.3660	18.01	11.20	29.21	46.00	-16.79	AVG	

Neutral line:



No.	Freq. (MHz)	Reading (dBuV)	Factor (dB)	Result (dBuV)	Limit dBuV	Margin (dB)	Detector	Remark
1	0.4180	35.16	11.31	46.47	57.49	-11.02	QP	
2	0.4180	24.52	11.31	35.83	47.49	-11.66	AVG	
3	0.6380	36.65	11.33	47.98	56.00	-8.02	QP	
4	0.6380	26.67	11.33	38.00	46.00	-8.00	AVG	
5	0.7980	36.63	11.29	47.92	56.00	-8.08	QP	
6	0.7980	26.53	11.29	37.82	46.00	-8.18	AVG	
7	1.5420	33.84	11.19	45.03	56.00	-10.97	QP	
8	1.5420	23.94	11.19	35.13	46.00	-10.87	AVG	
9	2.3860	32.34	11.20	43.54	56.00	-12.46	QP	
10	2.3860	21.81	11.20	33.01	46.00	-12.99	AVG	
11	3.2300	29.74	11.22	40.96	56.00	-15.04	QP	
12	3.2300	19.05	11.22	30.27	46.00	-15.73	AVG	

7 Radiation Emission Data

Test Requirement:	FCC Part 15 Section 15.109
Test Method:	ANSI C63.4:2003
Test Result:	PASS
Frequency Range:	32.768kHz to 13GHz
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

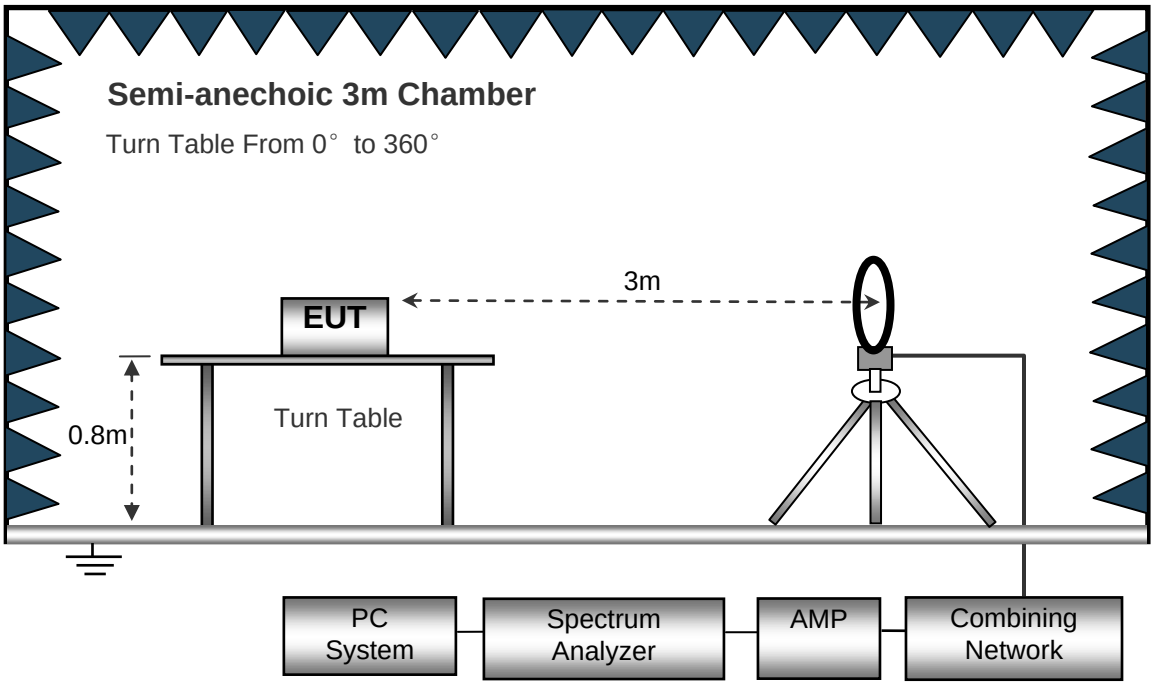
Atmospheric Pressure: 1012 mbar

EUT Operation:

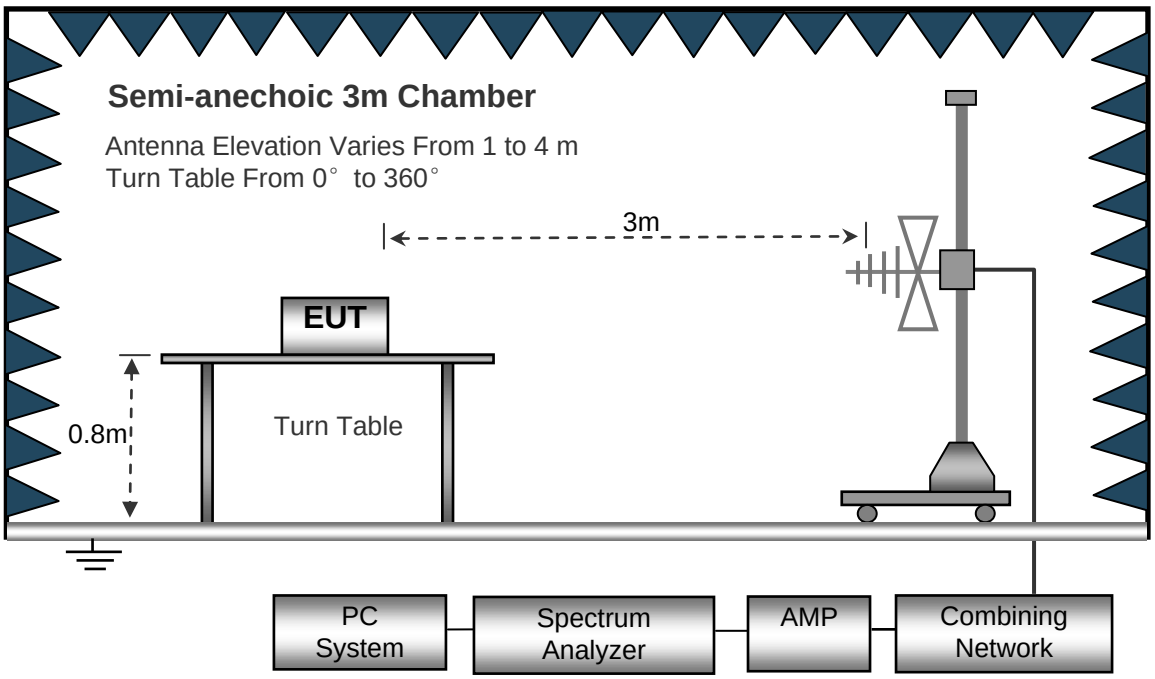
The pre-test was performance on PC connecting mode.

7.2 EUT Setup

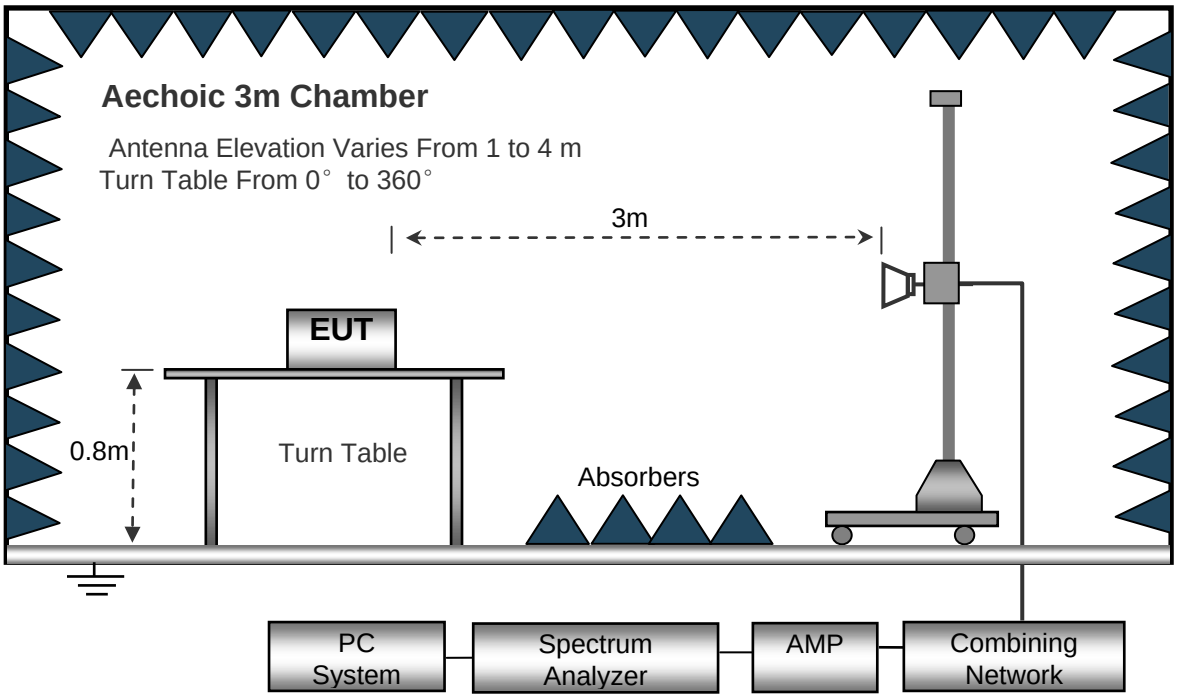
The radiated emission tests were performed in the 3m Semi- Anechoic Chamber test site.
The test setup for emission measurement below 30MHz.



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 9kHz to 6GHz.

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

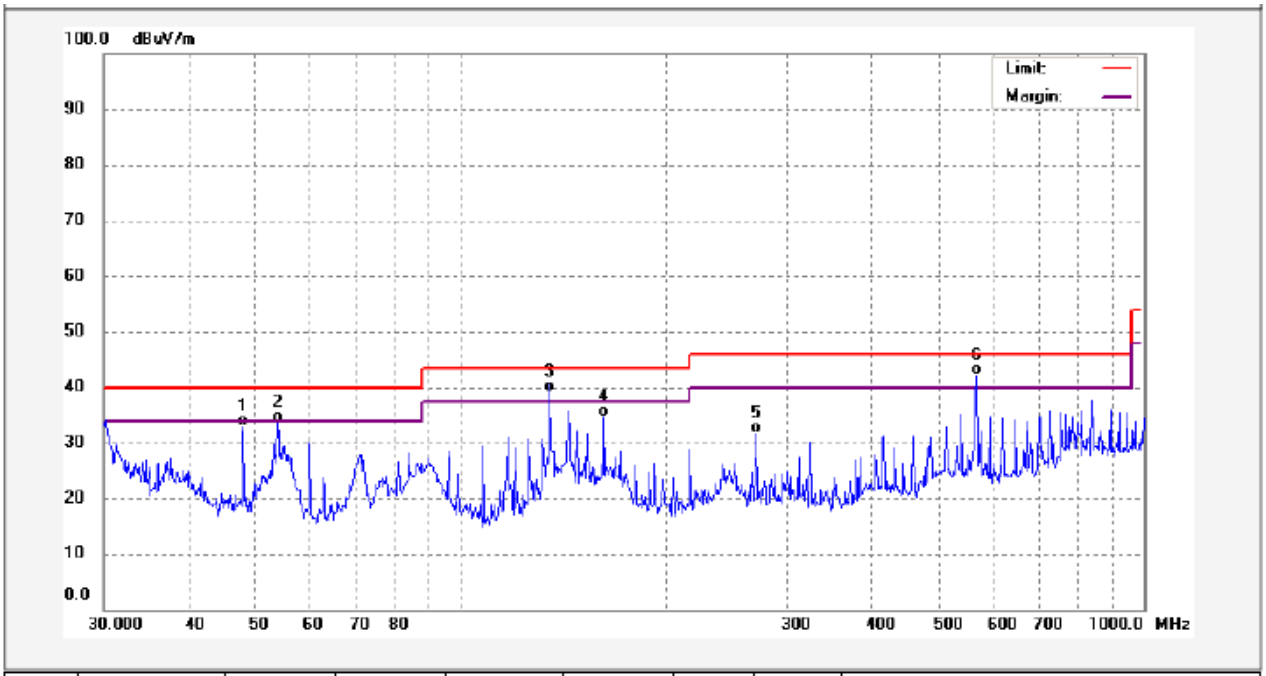
Test Frequency :Below 30MHz

After pretest,we found no higher emission than background level, the data does not been shown in the test report.

Test Frequency : 30MHz ~ 1000MHz

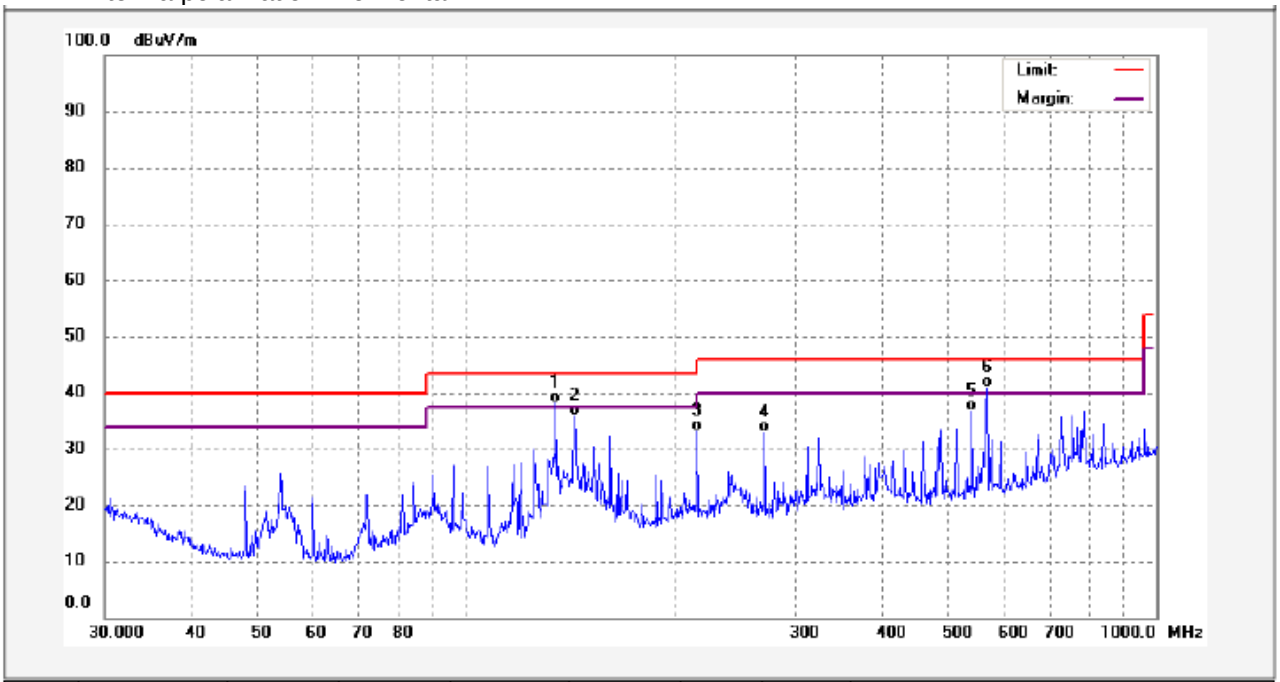
Test mode:working with PC

Antenna polarization: Vertical



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Remark
1	47.9940	53.51	-20.65	32.86	40.00	-7.14	QP	
2	53.8818	54.98	-21.38	33.60	40.00	-6.40	QP	
3	135.0319	60.87	-21.72	39.15	43.50	-4.35	QP	
4	162.0414	55.53	-20.80	34.73	43.50	-8.77	QP	
5	270.3748	52.40	-20.73	31.67	46.00	-14.33	QP	
6	568.6127	54.66	-12.48	42.18	46.00	-3.82	QP	

Antenna polarization: Horizontal

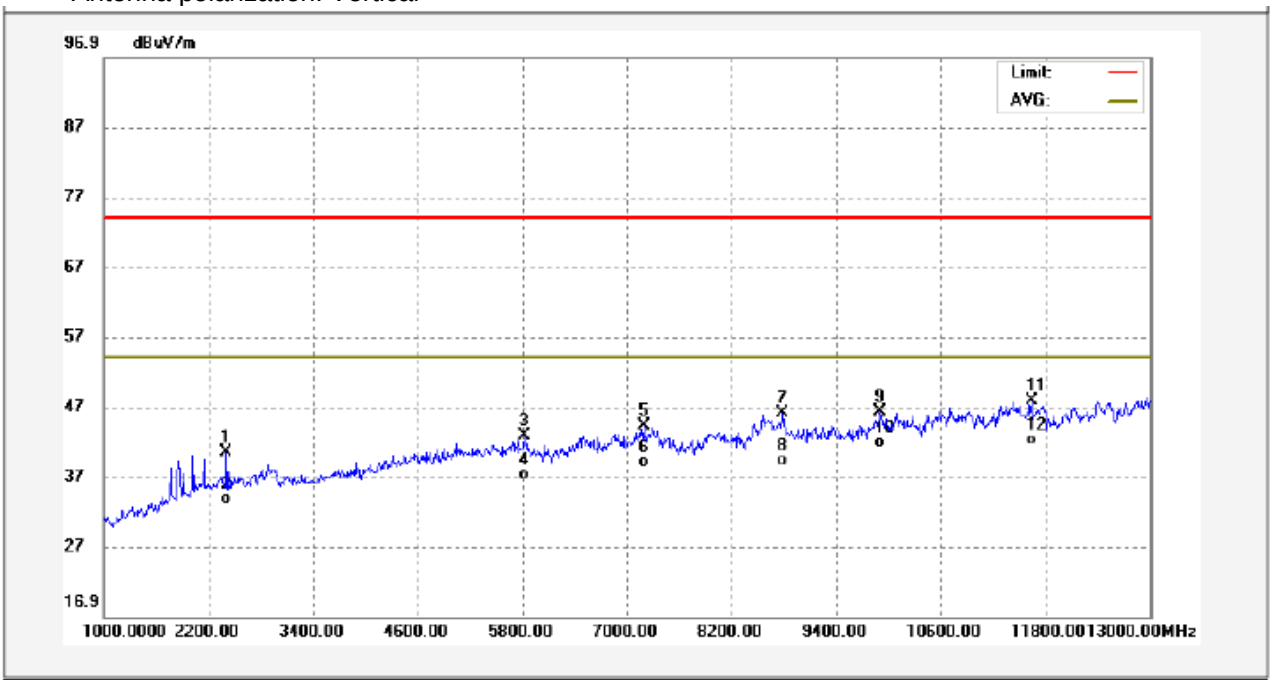


No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Remark
1	135.0319	59.94	-21.72	38.22	43.50	-5.28	QP	
2	143.8295	56.95	-21.09	35.86	43.50	-7.64	QP	
3	216.0240	56.38	-23.26	33.12	46.00	-12.88	QP	
4	270.3748	53.51	-20.73	32.78	46.00	-13.22	QP	
5	541.3725	49.86	-13.34	36.52	46.00	-9.48	QP	
6	568.6127	53.47	-12.48	40.99	46.00	-5.01	QP	

Test Frequency : Above 1GHz

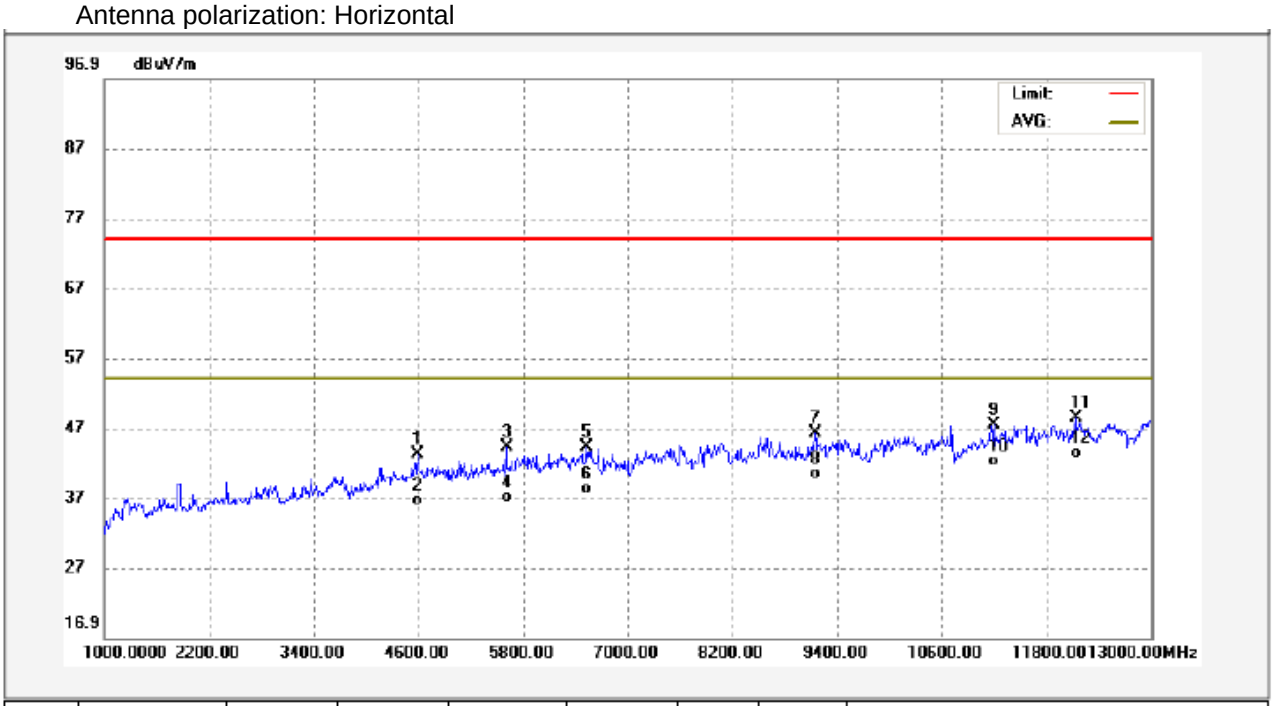
Test mode:working with PC

Antenna polarization: Vertical



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Remark
1	2404.000	49.62	-9.28	40.34	74.00	-33.66	peak	
2	2404.000	42.32	-9.28	33.04	54.00	-20.96	AVG	
3	5824.000	43.95	-1.13	42.82	74.00	-31.18	peak	
4	5824.000	37.52	-1.13	36.39	54.00	-17.61	AVG	
5	7192.000	40.22	3.96	44.18	74.00	-29.82	peak	
6	7192.000	34.23	3.96	38.19	54.00	-15.81	AVG	
7	8788.000	39.71	6.25	45.96	74.00	-28.04	peak	
8	8788.000	32.25	6.25	38.50	54.00	-15.50	AVG	
9	9904.000	37.44	8.78	46.22	74.00	-27.78	peak	
10	9904.000	32.24	8.78	41.02	54.00	-12.98	AVG	
11	11644.000	36.50	11.22	47.72	74.00	-26.28	peak	
12	11644.000	30.21	11.22	41.43	54.00	-12.57	AVG	

Antenna polarization: Horizontal

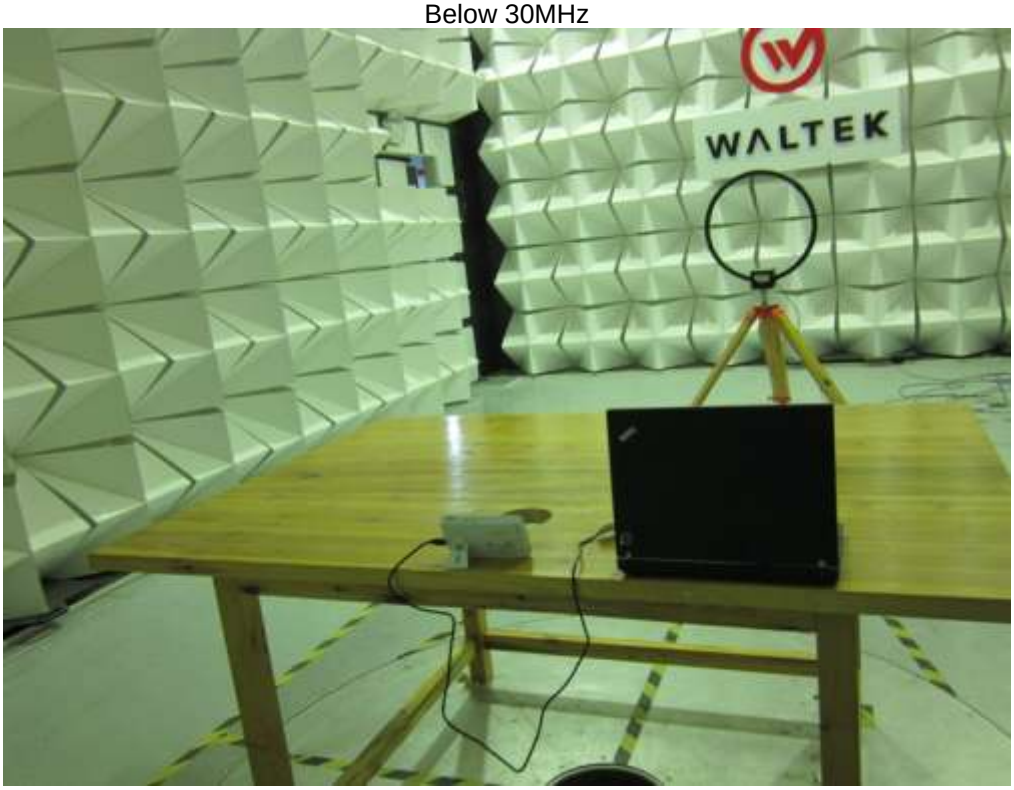


No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Remark
1	4588.000	47.21	-3.91	43.30	74.00	-30.70	peak	
2	4588.000	39.65	-3.91	35.74	54.00	-18.26	AVG	
3	5608.000	46.12	-1.96	44.16	74.00	-29.84	peak	
4	5608.000	38.21	-1.96	36.25	54.00	-17.75	AVG	
5	6520.000	41.96	2.19	44.15	74.00	-29.85	peak	
6	6520.000	35.23	2.19	37.42	54.00	-16.58	AVG	
7	9148.000	39.24	7.01	46.25	74.00	-27.75	peak	
8	9148.000	32.52	7.01	39.53	54.00	-14.47	AVG	
9	11200.000	36.19	11.13	47.32	74.00	-26.68	peak	
10	11200.000	30.21	11.13	41.34	54.00	-12.66	AVG	
11	12136.000	37.10	11.37	48.47	74.00	-25.53	peak	
12	12136.000	31.24	11.37	42.61	54.00	-11.39	AVG	

8 Photographs – Test Setup

8.1 Photograph – Radiation Emission Test Setup

Below 30MHz



30MHz to 1GHz

1GHz to 6GHz

8.2 Photograph – Conducted Emission Test Setup

9 Photographs –Constructional Details

Refer to test report No.: WTF13S0402554E

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