TEST REPORT

Reference No.	:	WTS16S0447525E V1
FCC ID	:	2AEE8LAVAIRIS870
Applicant	:	LAVA INTERNATIONAL (H.K) LIMITED
Address	:	UNIT L 1/F MAU LAM COMM BLDG 16-18 MAU LAM ST, JORDAN KL, HK.
Manufacturer	:	LAVA INTERNATIONAL (H.K) LIMITED
Address	:	UNIT L 1/F MAU LAM COMM BLDG 16-18 MAU LAM ST, JORDAN KL, HK.
Product Name	:	Mobile Phone
Model No.	:	iris 870
Brand	:	LAVA
Standards	:	FCC PART15 SUBPART B: 2015
Date of Receipt sample	:	Apr. 12, 2016
Date of Test	:	Apr. 13, 2016 – Apr. 21, 2016
Date of Issue	:	May. 16, 2016
Test Result	:	**Pass**

Remarks:
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 / Test Engineer

Approved by:

Philo Zhong / Manager

1 Test Summary

Test Item	Test Requirement	Class	Test Method	Test Result
Power Line Conducted Emission (150kHz to 30MHz)	FCC PART 15, SUBPART B: 2015	Class B	ANSI C63.4: 2009	Pass
Radiated Emission 30MHz to 1GHz)	FCC PART 15, SUBPART B: 2015	Class B	ANSI C63.4: 2009	Pass
Radiated Emission (Above 1GHz)	FCC PART 15, SUBPART B: 2015	Class B	ANSI C63.4: 2009	Pass

Remark:

Pass	Test item meets the requirement
Fail	Test item does not meet the requirement
N/A	Test case does not apply to the test object

2 Contents

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3 Report Revision History

Report No.	Report Version	Description	Issue Date
WTS16S0447525E	NONE	Original	Apr. 23, 2016
WTS16S0447525E	V1	Version 1	May. 16, 2016

4 General Information

4.1 General Description of E.U.T.

Product Name	:Mobile Phone
Model No.	: iris 870
Model Description	: N/A
GSM Band(s)	: GSM 850/900/1900MHz
GPRS/EGPRS Class	: 12
WCDMA Band(s)	: FDD Band II/V
LTE Bnad(s)	: LTE Band 2/4/7
Wi-Fi Specification	: 2.4G: 802.11b/g/n HT20/n HT40
Bluetooth Version	: Bluetooth v4.0 with BLE
GPS	: Support
NFC	: N/A
Hardware Version	: V2.0
Software Version	: LAVA_iris_870_MX_S102_20160327
Highest Operate Frequency	: 1.3GHz

4.2 Details of E.U.T.

Technical Data:	: Battery DC 3.8V 2700mAh DC 5V, 1A, charging from adapter (Adapter Input: 100-300V~50/60Hz 0.15A)
Adapter:	: Manufacture: Shenzhen Tianyin Electronics Co.,LTD. Model No.: CLV-14

4.3 Standards Applicable for Testing

The tests were performed according to following standards:

FCC PART 15, SUBPART B: Electronic Code of Federal Regulations- Unintentional Radiators 2015

4.4 Test Facility

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

- **IC – Registration No.: 7760A-1**

  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-1, October 15, 2015.

- **FCC Test Site 1#– 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, April 29, 2014.

- **FCC Test Site 2#– Registration No.: 328995**

  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 328995, December 3, 2014.

4.5 Subcontracted

Whether parts of tests for the product have been subcontracted to other labs:

☐ Yes ☒ No

If Yes, list the related test items and lab information:

Test Lab: N/A

Lab address: N/A

Test items: N/A

4.6 Abnormalities from Standard Conditions

None.

5 Equipment Used during Test

5.1 Equipment List

Conducted Emissions Test Site 1#						
Item	**Equipment**	**Manufacturer**	**Model No.**	**Serial No.**	**Last Calibration Date**	**Calibration Due Date**
1.	EMI Test Receiver	R&S	ESCI	100947	Sep.15,2015	Sep.14,2016
2.	LISN	R&S	ENV216	101215	Sep.15,2015	Sep.14,2016
3.	Cable	Top	TYPE16(3.5M)	-	Sep.15,2015	Sep.14,2016
Conducted Emissions Test Site 2#						
Item	**Equipment**	**Manufacturer**	**Model No.**	**Serial No.**	**Last Calibration Date**	**Calibration Due Date**
1.	EMI Test Receiver	R&S	ESCI	101155	Sep.15,2015	Sep.14,2016
2.	LISN	SCHWARZBECK	NSLK 8128	8128-289	Sep.15,2015	Sep.14,2016
3.	Limiter	York	MTS-IMP-136	261115-001-0024	Sep.15,2015	Sep.14,2016
4.	Cable	LARGE	RF300	-	Sep.15,2015	Sep.14,2016
3m Semi-anechoic Chamber for Radiation Emissions Test site 1#						
Item	**Equipment**	**Manufacturer**	**Model No.**	**Serial No.**	**Last Calibration Date**	**Calibration Due Date**
1	EMC Analyzer	Agilent	E7405A	MY45114943	Sep.15,2015	Sep.14,2016
2	Active Loop Antenna	Beijing Dazhi	ZN30900A	-	Sep.15,2015	Sep.14,2016
3	Trilog Broadband Antenna	SCHWARZBECK	VULB9163	336	Apr.19,2016	Apr.18,2017
4	Coaxial Cable (below 1GHz)	Top	TYPE16(13M)	-	Sep.15,2015	Sep.14,2016
5	Broad-band Horn Antenna	SCHWARZBECK	BBHA 9120 D	667	Apr.19,2016	Apr.18,2017
6	Broad-band Horn Antenna	SCHWARZBECK	BBHA 9170	335	Apr.19,2016	Apr.18,2017
7	Broadband Preamplifier	COMPLIANCE DIRECTION	PAP-1G18	2004	Mar.17,2016	Mar.16,2017
8	Coaxial Cable (above 1GHz)	Top	1GHz-25GHz	EW02014-7	Apr.10,2016	Apr.09,2017
3m Semi-anechoic Chamber for Radiation Emissions Test site 2#						
Item	**Equipment**	**Manufacturer**	**Model No.**	**Serial No**	**Last Calibration Date**	**Calibration Due Date**
1	Test Receiver	R&S	ESCI	101296	Sep.15,2015	Sep.14,2016
2	Trilog Broadband Antenna	SCHWARZBECK	VULB9160	9160-3325	Sep.15,2015	Sep.14,2016
3	Amplifier	Compliance pirection systems inc	PAP-0203	22024	Sep.15,2015	Sep.14,2016

4	Cable	HUBER+SUHNER	CBL2	525178	Sep.15,2015	Sep.14,2016
RF Conducted Testing						
Item	**Equipment**	**Manufacturer**	**Model No.**	**Serial No.**	**Last Calibration Date**	**Calibration Due Date**
1.	EMC Analyzer (9k~26.5GHz)	Agilent	E7405A	MY45114943	Sep.15,2015	Sep.14,2016
2.	Spectrum Analyzer (9k-6GHz)	R&S	FSL6	100959	Sep.15,2015	Sep.14,2016
3.	Signal Analyzer (9k~26.5GHz)	Agilent	N9010A	MY50520207	Sep.15,2015	Sep.14,2016

5.2 Description of Support Units

Equipment	Manufacturer	Model No.	Series No.
MacBook Air	APPLE	A1465	C17KTQDNF5N7

5.3 Measurement Uncertainty

Test Item	Frequency Range	Uncertainty	Note
Conduction disturbance	150kHz~30MHz	±3.64dB	(1)
Radiation Emission	30MHz~1000MHz	±5.03dB	(1)
	1GHz~18GHz	±5.47dB	(1)

(1)This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.

6 Emission Test Results

6.1 Power Line Conducted Emission, 150kHz to 30MHz

Test Requirement ..... : FCC PART 15, SUBPART B

Test Method ..... : ANSI C63.4 2009

Test Result ..... : Pass

Frequency Range ..... : 150kHz to 30MHz

Class ..... : Class B

Limit ..... :

Frequency (MHz)	Limit (dBμV	
	Quasi-peak	Average
0.15 to 0.5	66 to 56*	56 to 46*
0.5 to 5	56	46
5 to 30	60	50

6.1.1 E.U.T. Operation

Operating Environment:

Temperature ..... : 23°C

Humidity ..... : 53.6%RH

Atmospheric Pressure ..... : 101kPa

EUT Operation:

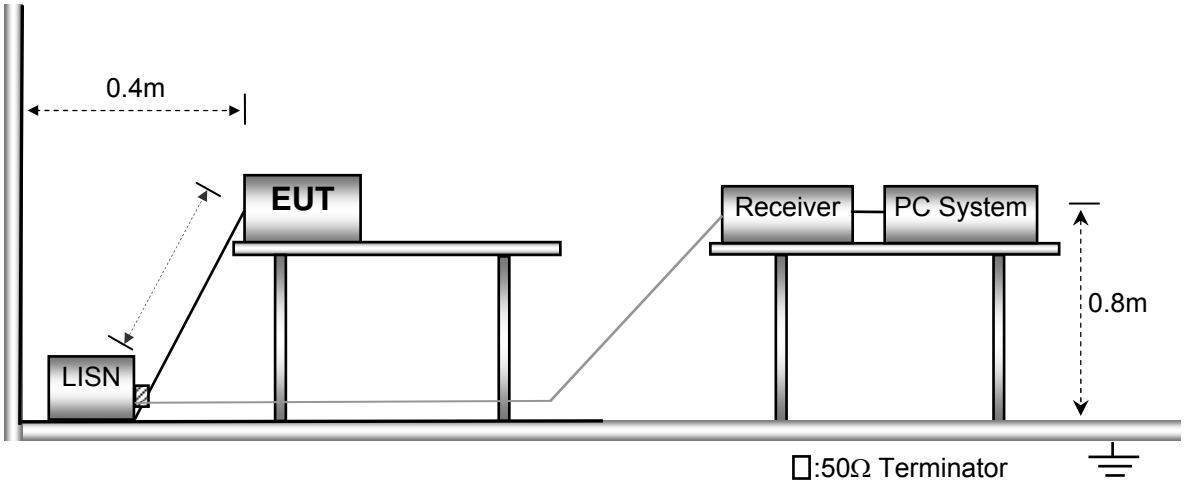
Input Voltage ..... : DC 5V by Adapter Input AC 120V/60Hz

Operating Mode ..... : Data transmitting +earphone+adapter mode

Remark ..... : The worse case(Data transmitting+earphone+adapter mode) is under the condition of AC 120V/60Hz adapter input and the data is shown as follow.

6.1.2 Block Diagram of Test Setup

The Mains Terminals Disturbance Voltage tests were performed in accordance with the ANSI C63.4 2009.

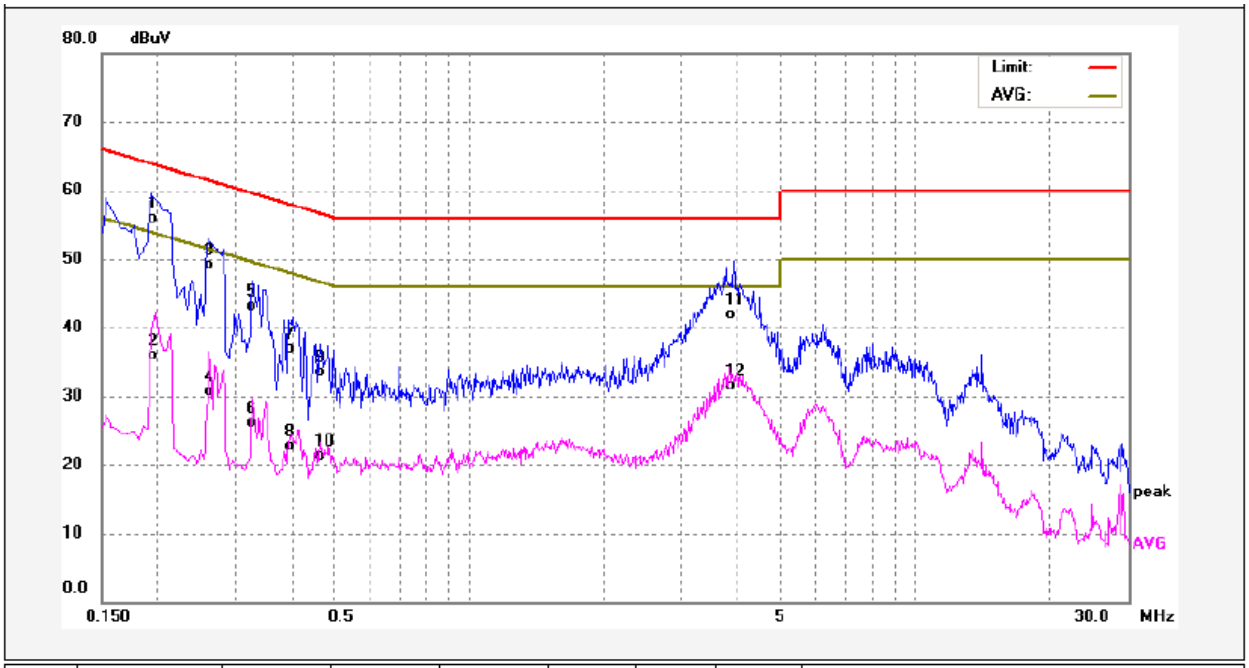


6.1.3 Measurement Data

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. According to the data in section 5.1.4, the EUT complied with the FCC PART 15, SUBPART B standards.

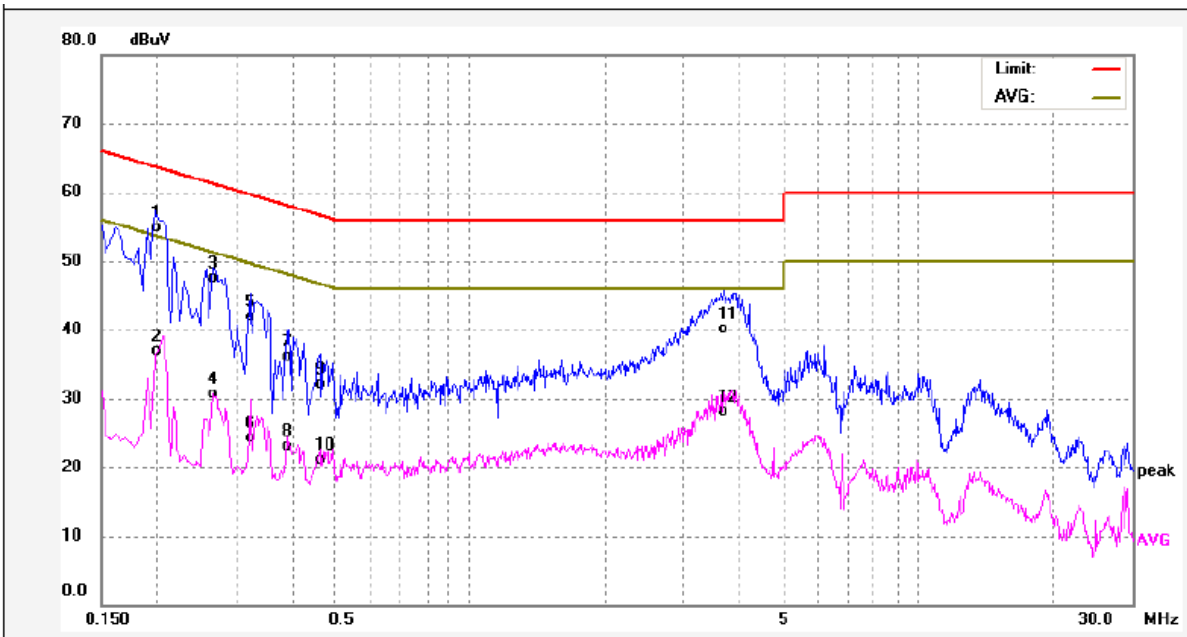
6.1.4 Power Line Conducted Emission Test Data

Live Line:



No.	Freq. (MHz)	Reading (dBuV)	Factor (dB)	Result (dBuV)	Limit dBuV	Margin (dB)	Detector	Remark
1	0.1940	45.74	10.26	56.00	63.86	-7.86	QP	
2	0.1940	25.73	10.26	35.99	53.86	-17.87	AVG	
3	0.2620	38.82	10.26	49.08	61.36	-12.28	QP	
4	0.2620	20.39	10.26	30.65	51.36	-20.71	AVG	
5	0.3260	32.79	10.28	43.07	59.55	-16.48	QP	
6	0.3260	15.88	10.28	26.16	49.55	-23.39	AVG	
7	0.4020	26.59	10.27	36.86	57.81	-20.95	QP	
8	0.4020	12.45	10.27	22.72	47.81	-25.09	AVG	
9	0.4620	23.20	10.26	33.46	56.66	-23.20	QP	
10	0.4620	11.02	10.26	21.28	46.66	-25.38	AVG	
11	3.9060	31.40	10.51	41.91	56.00	-14.09	QP	
12	3.9060	20.91	10.51	31.42	46.00	-14.58	AVG	

Neutral Line:



No.	Freq. (MHz)	Reading (dBuV)	Factor (dB)	Result (dBuV)	Limit dBuV	Margin (dB)	Detector	Remark
1	0.1980	44.58	10.26	54.84	63.69	-8.85	QP	
2	0.1980	26.67	10.26	36.93	53.69	-16.76	AVG	
3	0.2660	37.22	10.27	47.49	61.24	-13.75	QP	
4	0.2660	20.34	10.27	30.61	51.24	-20.63	AVG	
5	0.3220	31.72	10.28	42.00	59.65	-17.65	QP	
6	0.3220	14.11	10.28	24.39	49.65	-25.26	AVG	
7	0.3940	25.88	10.27	36.15	57.98	-21.83	QP	
8	0.3940	12.92	10.27	23.19	47.98	-24.79	AVG	
9	0.4620	21.87	10.26	32.13	56.66	-24.53	QP	
10	0.4620	10.85	10.26	21.11	46.66	-25.55	AVG	
11	3.6700	29.55	10.51	40.06	56.00	-15.94	QP	
12	3.6700	17.65	10.51	28.16	46.00	-17.84	AVG	

6.2 Radiation Emission, 30MHz to 1000MHz

Test Requirement ..... : FCC PART 15, SUBPART B

Test Method ..... : ANSI C63.4 2009

Test Result ..... : Pass

Frequency Range ..... : 30MHz to 1000MHz

Class. : Class B

Limit..... :

Frequency (MHz)	Distance (Meter)	Limit (dBμV/m Quasi-peak
30 to 88	3	40
88 to 21	3	43.5
216 to 960	3	46
960 to 1000	3	54

6.2.1 E.U.T. Operation

Operating Environment:

Temperature ..... : 22.5°C

Humidity ..... : 52.6%RH

Atmospheric Pressure..... : 101.2kPa

EUT Operation:

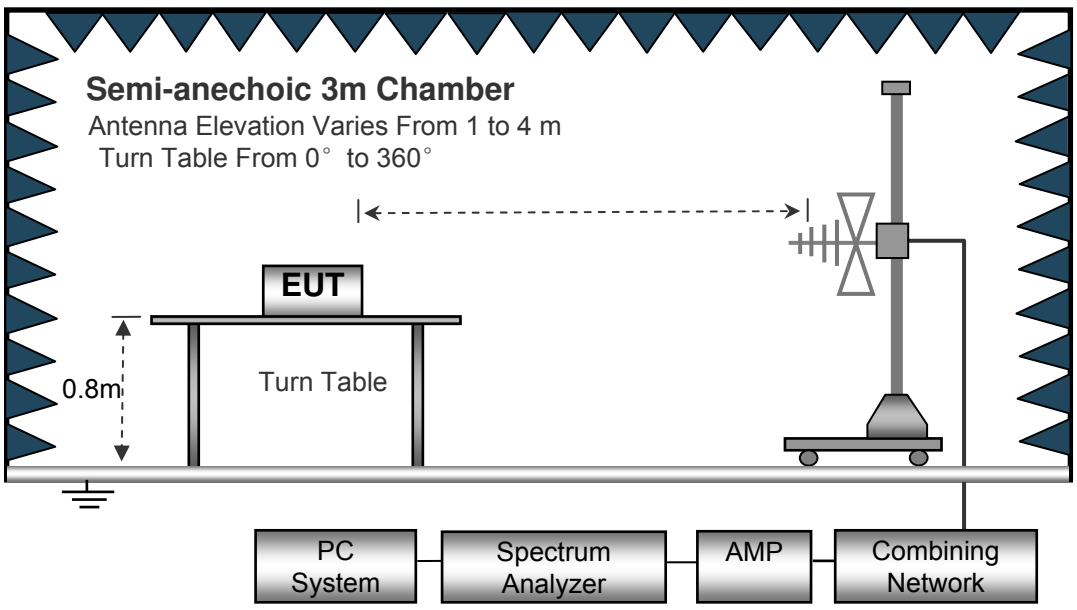
Input Voltage..... : DC 5V by Adapter Input AC 120V/60Hz

Operating Mode ..... : Data transmitting +earphone+adapter

Remark ..... : The worse case(Data transmitting +earphone+adapter) is under the condition of AC 120V/60Hz adapter input and the data is shown as follow.

6.2.2 Block Diagram of Test Setup

The radiated emission tests were performed in the 3m Semi- Anechoic Chamber test site, using the setup accordance with the ANSI C63.4.

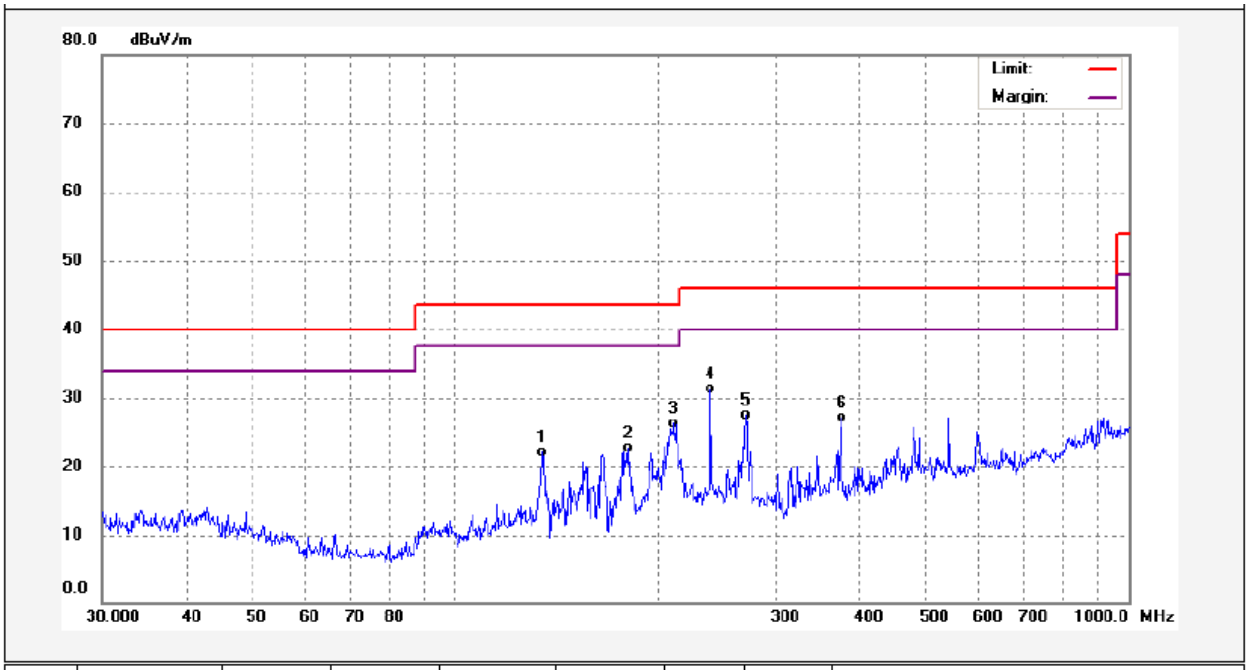


6.2.3 Measurement Data

The maximised peak emissions from the EUT was scanned and measured for both the Antenna Vertical Polarization and Antenna Horizontal Polarization. Quasi-peak measurements were performed if peak emissions were within 6dB of the Quasi-peak limit line.

6.2.4 Radiated Emission Test Data, 30MHz to 1000MHz

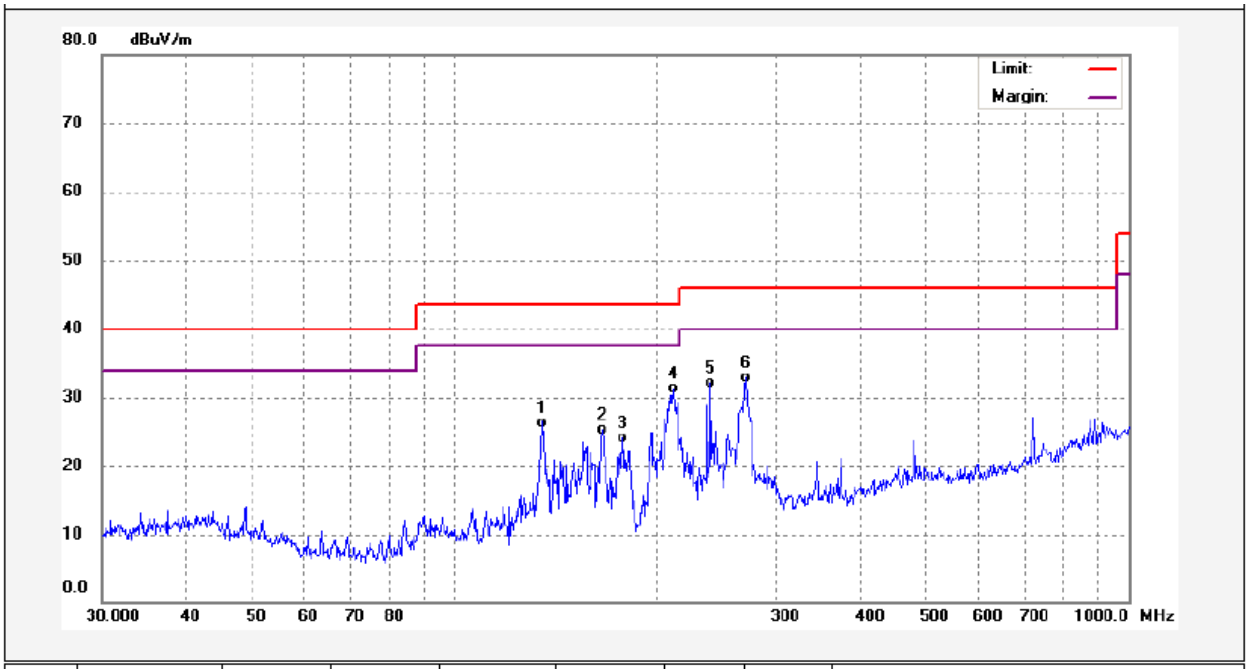
Antenna Polarization: Vertical



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Remark
1	135.0319	41.02	-18.83	22.19	43.50	-21.31	QP	
2	180.6488	41.16	-18.42	22.74	43.50	-20.76	QP	
3	211.5265	43.41	-17.17	26.24	43.50	-17.26	QP	
4	239.9873	47.37	-16.10	31.27	46.00	-14.73	QP	
5	270.3748	43.26	-15.85	27.41	46.00	-18.59	QP	
6	374.6225	40.23	-13.21	27.02	46.00	-18.98	QP	

Factor= antenna factor + cable loss - preamplifier factor

Antenna Polarization: Horizontal



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Remark
1	135.0319	45.23	-18.83	26.40	43.50	-17.10	QP	
2	165.4866	44.07	-18.70	25.37	43.50	-18.13	QP	
3	177.5092	42.46	-18.42	24.04	43.50	-19.46	QP	
4	210.7860	48.53	-17.20	31.33	43.50	-12.17	QP	
5	239.9873	48.29	-16.10	32.19	46.00	-13.81	QP	
6	270.3748	48.75	-15.85	32.90	46.00	-13.10	QP	

Factor= antenna factor + cable loss - preamplifier factor

6.3 Radiation Emission, Above 1000MHz

Test Requirement ..... : FCC PART 15, SUBPART B

Test Method ..... : ANSI C63.4 2009

Test Result ..... : Pass

Frequency Range ..... : 1GHz~18GHz

Class. : Class B

Limit. ..... :

Frequency Range (MHz)	Distance (Meter)	Average Limit dB(uV/m)	Peak Limit (dBuV/m)
Above 1GHz	3	54	74

6.3.1 E.U.T. Operation

Operating Environment:

Temperature..... : 22.4°C

Humidity ..... : 52.3%RH

Atmospheric Pressure ..... : 101.3kPa

EUT Operation:

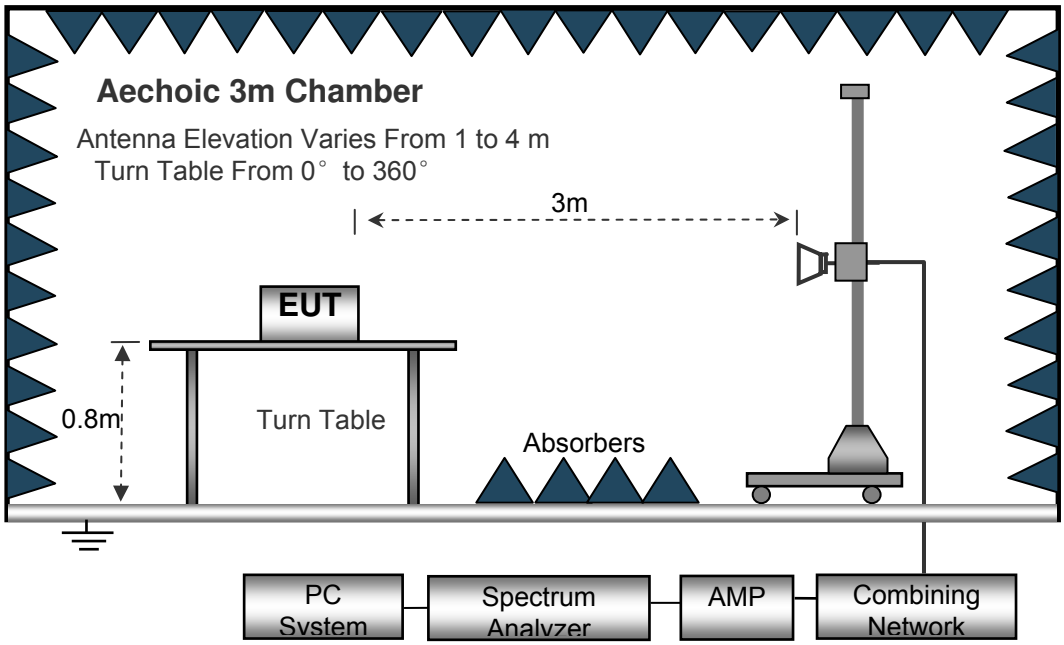
Input Voltage ..... : DC 5V by Adapter Input AC 120V/60Hz

Operating Mode ..... : Data transmitting+adapter+earphone mode

Remark..... : The worse case(Data transmitting+adapter+earphone mode) is under the condition of AC 120V/60Hz adapter input and the data is shown as follow.

6.3.2 Block Diagram of Test Setup

The radiated emission tests were performed in the 3m Semi- Anechoic Chamber test site, using the setup accordance with the ANSI C63.4.

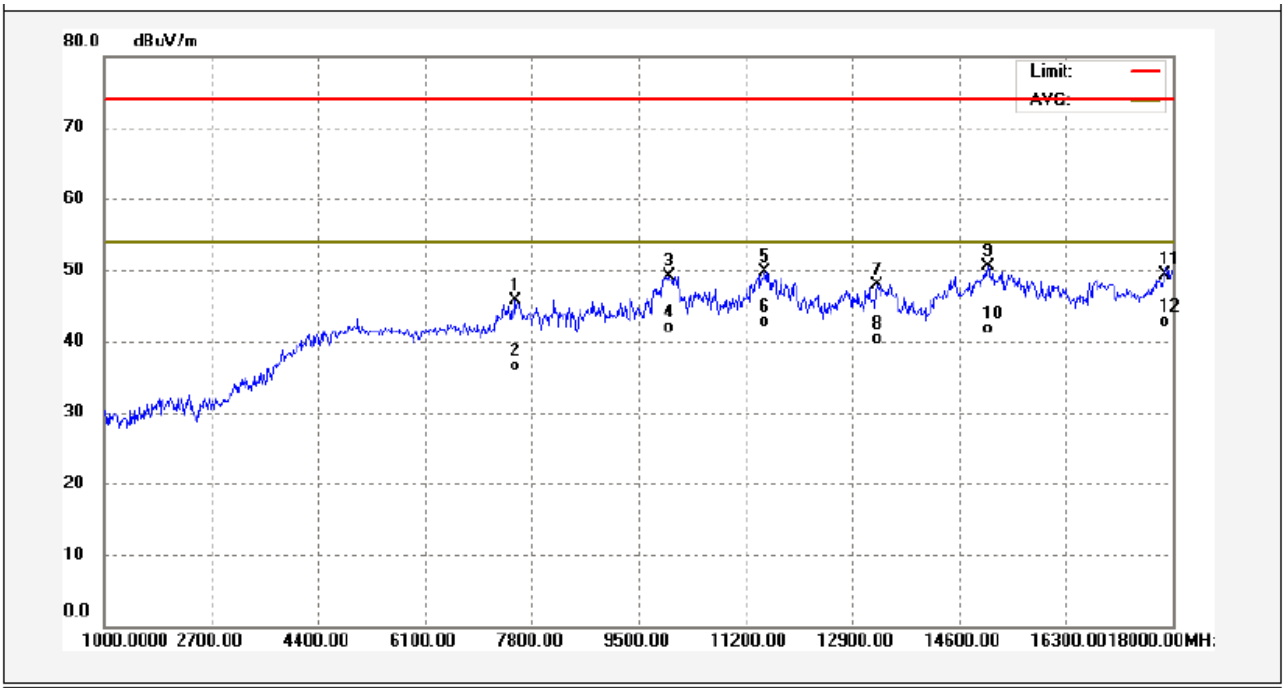


6.3.3 Measurement Data

The maximised peak emissions from the EUT was scanned and measured for both the Antenna Vertical Polarization and Antenna Horizontal Polarization. Average measurements were performed if peak emissions were within 6dB of the average limit line

6.3.4 Radiated Emission Test Data, Above 1000MHz

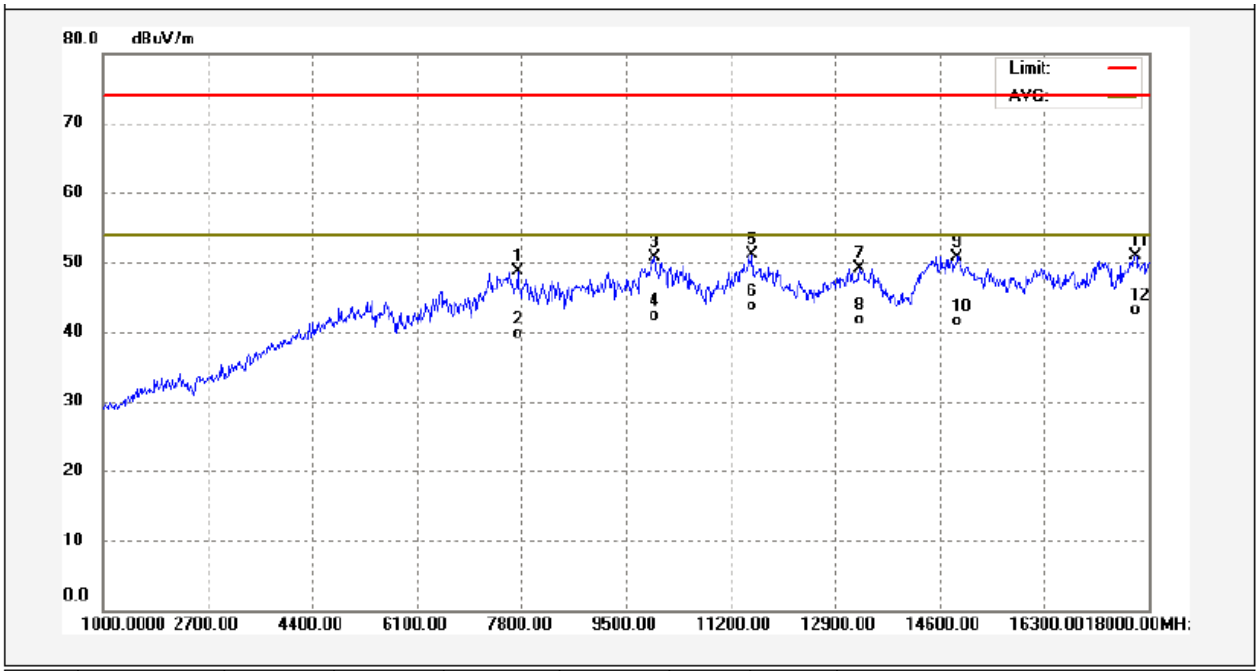
Antenna Polarization: Vertical



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Remark
1	7528.000	42.02	3.62	45.64	74.00	-28.36	peak	
2	7528.000	32.89	3.62	36.51	54.00	-17.49	AVG	
3	9976.000	42.52	6.62	49.14	74.00	-24.86	peak	
4	9976.000	35.33	6.62	41.95	54.00	-12.05	AVG	
5	11506.000	40.48	9.25	49.73	74.00	-24.27	peak	
6	11506.000	33.40	9.25	42.65	54.00	-11.35	AVG	
7	13291.000	41.28	6.64	47.92	74.00	-26.08	peak	
8	13291.000	33.57	6.64	40.21	54.00	-13.79	AVG	
9	15059.000	41.39	9.21	50.60	74.00	-23.40	peak	
10	15059.000	32.40	9.21	41.61	54.00	-12.39	AVG	
11	17864.000	32.31	16.96	49.27	74.00	-24.73	peak	
12	17864.000	25.69	16.96	42.65	54.00	-11.35	AVG	

Factor= antenna factor + cable loss - preamplifier factor

Antenna Polarization: Horizontal



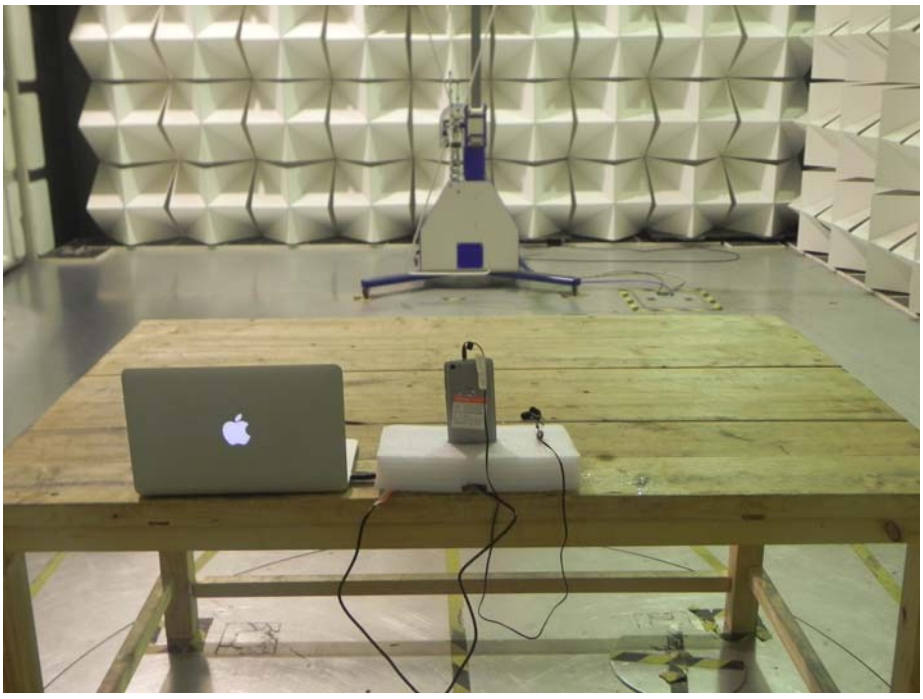
No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Remark
1	7732.000	45.57	3.05	48.62	74.00	-25.38	peak	
2	7732.000	36.73	3.05	39.78	54.00	-14.22	AVG	
3	9959.000	44.21	6.52	50.73	74.00	-23.27	peak	
4	9959.000	35.69	6.52	42.21	54.00	-11.79	AVG	
5	11557.000	42.11	8.97	51.08	74.00	-22.92	peak	
6	11557.000	34.68	8.97	43.65	54.00	-10.35	AVG	
7	13291.000	42.49	6.64	49.13	74.00	-24.87	peak	
8	13291.000	34.98	6.64	41.62	54.00	-12.38	AVG	
9	14889.000	41.36	9.44	50.80	74.00	-23.20	peak	
10	14889.000	32.10	9.44	41.54	54.00	-12.46	AVG	
11	17779.000	34.35	16.47	50.82	74.00	-23.18	peak	
12	17779.000	26.68	16.47	43.15	54.00	-10.85	AVG	

Factor= antenna factor + cable loss - preamplifier factor

7 Photographs – Test Setup

7.1 Photograph –Power Line Conducted Emission Test Setup at Test Site 1#

7.2 Photograph – Radiated Emission Test Setup for 30~1000MHz at Test Site 2#



7.3 Photograph – Radiated Emission Test Setup for Above 1GHz at Test Site 1#

======End of Report======