



FCC PART 15B, CLASS B

MEASUREMENT AND TEST REPORT

For

Xoopar Limited

Room 1608-09, Jin Wei Building 4051 Jiabin Road, Luohu Area, Shenzhen

Model: XG31009

Report Type: Original Report	Product Type: RING EARBUDS								
<table style="width: 100%;"> <tr> <td style="width: 30%;">Report Number:</td> <td>RSZ170216006-00A</td> </tr> <tr> <td>Report Date:</td> <td>2017-03-01</td> </tr> <tr> <td>Reviewed By:</td> <td> Rocky Kang <i>Rocky Kang</i> RF Engineer </td> </tr> <tr> <td>Prepared By:</td> <td> Bay Area Compliance Laboratories Corp. (Shenzhen) 6/F., West Wing, Third Phase of Wanli Industrial Building, Shihua Road, Futian Free Trade Zone, Shenzhen, Guangdong, China Tel: +86-755-33320018 Fax: +86-755-33320008 www.baclcorp.com.cn </td> </tr> </table>		Report Number:	RSZ170216006-00A	Report Date:	2017-03-01	Reviewed By:	Rocky Kang <i>Rocky Kang</i> RF Engineer	Prepared By:	Bay Area Compliance Laboratories Corp. (Shenzhen) 6/F., West Wing, Third Phase of Wanli Industrial Building, Shihua Road, Futian Free Trade Zone, Shenzhen, Guangdong, China Tel: +86-755-33320018 Fax: +86-755-33320008 www.baclcorp.com.cn
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GENERAL INFORMATION

Product Description for Equipment under Test (EUT)

The *Xoopar Limited's* product, model number: *XG31009 (FCC ID: YOAXG31009)* in this report is a *RING EARBUDS*, which was measured approximately: 22.66 mm (L) * 24.04 mm (W) * 4.0 mm (H), rated with input voltage: DC 3.7V. The highest operating frequency is 2480 MHz.

** All measurement and test data in this report was gathered from production sample serial number: 1700193 (Assigned by BACL, Shenzhen). The EUT supplied by the applicant was received on 2017-02-16.*

Objective

This test report is prepared on behalf of *Xoopar Limited* in accordance with Part 2-Subpart J, Part 15B Subparts A and B of the Federal Communication Commissions rules.

The objective of the manufacturer is to determine the compliance of the EUT with FCC Part 15B.

Related Submittal(s)/Grant(s)

No related submittal(s).

Test Methodology

All measurements contained in this report were conducted with ANSI C63.4-2014, American National Standard for Methods of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the range of 9 kHz to 40 GHz.

All radiated and conducted emissions measurement was performed at Bay Area Compliance Laboratories Corp. (Shenzhen). The radiated testing was performed at an antenna-to-EUT distance of 3 meters.

Measurement Uncertainty

All measurements involve certain levels of uncertainties, especially in field of EMC. The factors contributing to uncertainties are spectrum analyzer, cable loss, antenna factor calibration, antenna directivity, antenna factor variation with height, antenna phase center variation, antenna factor frequency interpolation, measurement distance variation, site imperfections, mismatch (average), and system repeatability.

Based on CISPR 16-4-2:2011, the expended combined standard uncertainty of conducted disturbance test at Bay Area Compliance Laboratories Corp. (Shenzhen) is shown as below. And the uncertainty will not be taken into consideration for the test data recorded in the report

Item			Expanded Measurement uncertainty
AC Power Line Conducted Emissions			2.20 dB (k=2, 95% level of confidence)
Radiated emission	30MHz~200MHz	Horizontal	4.58 dB (k=2, 95% level of confidence)
		Vertical	4.59 dB (k=2, 95% level of confidence)
	200MHz~1 GHz	Horizontal	4.83 dB (k=2, 95% level of confidence)
		Vertical	5.85 dB (k=2, 95% level of confidence)

Test Facility

The test site used by Bay Area Compliance Laboratories Corp. (Shenzhen) to collect test data is located on the 6/F., West Wing, Third Phase of Wanli Industrial Building, Shihua Road, Futian Free Trade Zone, Shenzhen, Guangdong, China

Test site at Bay Area Compliance Laboratories Corp. (Shenzhen) has been fully described in reports submitted to the Federal Communication Commission (FCC). The details of these reports have been found to be in compliance with the requirements of Section 2.948 of the FCC Rules on October 31, 2013. The facility also complies with the radiated and AC line conducted test site criteria set forth in ANSI C63.4-2014.

The Federal Communications Commission has the reports on file and is listed under FCC Registration No.: 382179. The test site has been approved by the FCC for public use and is listed in the FCC Public Access Link (PAL) database.

Additionally, Bay Area Compliance Laboratories Corp. (Shenzhen) is an ISO/IEC 17025 accredited laboratory, and is accredited by National Voluntary Laboratory Accredited Program (Lab Code 200707-0).

The current scope of accreditations can be found at <http://ts.nist.gov/Standards/scopes/2007070.htm>

SYSTEM TEST CONFIGURATION

Justification

The system was configured for testing in normal condition.

EUT exercise software

No exercise software was used.

Equipment Modifications

No modification was made to the EUT tested.

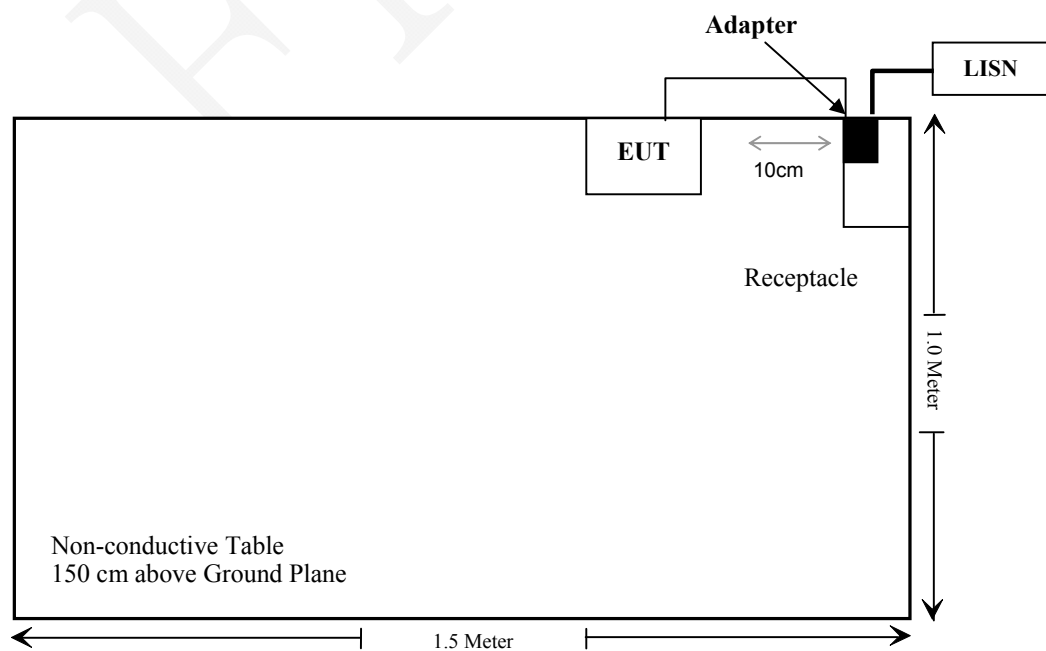
Support Equipment List and Details

Manufacturer	Description	Model	Serial Number
/	/	/	/

External I/O Cable

Cable Description	Length (m)	From/Port	To
Un-shielding Un-detachable Cable	1.5	Adapter	EUT

Block Diagram of Test Setup



SUMMARY OF TEST RESULTS

FCC Rules	Description of Test	Results
§15.107	AC Line Conducted Emissions	Compliance
§15.109	Radiated Emissions	Compliance

TEST EQUIPMENT LIST

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
AC Line Conducted Emission Test					
Rohde & Schwarz	EMI Test Receiver	ESCS30	100176	2016-10-19	2017-10-19
Rohde & Schwarz	LISN	ENV216	3560.6650.12-101613-Yb	2016-12-07	2017-12-07
Rohde & Schwarz	Transient Limiter	ESH3Z2	DE25985	2016-11-14	2017-05-15
Rohde & Schwarz	CE Test software	EMC 32	V8.53.0	NCR	NCR
Radiated Emission Test					
HP	Amplifier	HP8447E	1937A01046	2016-11-12	2017-05-13
Rohde & Schwarz	EMI Test Receiver	ESCI	101120	2016-12-07	2017-12-07
Sunol Sciences	Bi-log Antenna	JB1	A040904-2	2014-12-17	2017-12-16
TDK	Chamber	Chamber A	2#	2016-12-05	2019-12-05
R&S	Auto test Software	EMC32	V9.10	NCR	NCR
Rohde & Schwarz	Signal Analyzer	FSIQ26	8386001028	2016-04-14	2017-04-14
A.H.System	Horn Antenna	SAS-200/571	135	2015-08-18	2018-08-17
TDK	Chamber	Chamber B	1#	2016-12-06	2019-12-06

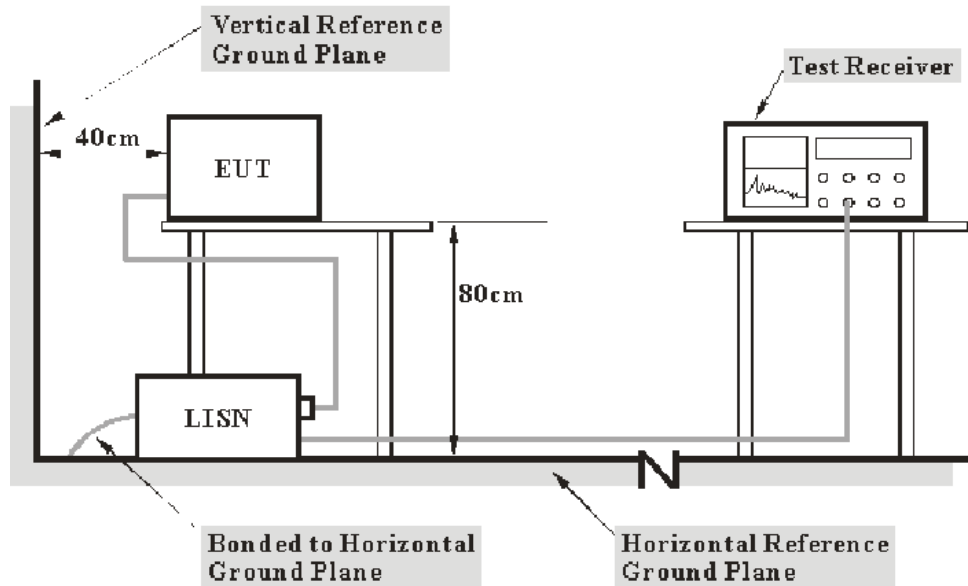
* **Statement of Traceability:** Bay Area Compliance Laboratories Corp. (Shenzhen) attests that all calibrations have been performed in accordance to requirements that traceable to National Primary Standards and International System of Units (SI).

FCC §15.107 – AC LINE CONDUCTED EMISSIONS

Applicable Standard

According to FCC§15.107

EUT Setup



- Note: 1. Support units were connected to second LISN.
2. Both of LISNs (AMN) 80 cm from EUT and at the least 80 cm from other units and other metal planes support units.

The measurement procedure of EUT setup is according with ANSI C63.4-2014. The related limit was specified in FCC Part 15.107 Class B.

The spacing between the peripherals was 10 cm.

EMI Test Receiver Setup

The EMI test receiver was set to investigate the spectrum from 150 kHz to 30 MHz.

During the conducted emission test, the EMI test receiver was set with the following configurations:

Frequency Range	IF B/W
150 kHz – 30 MHz	9 kHz

Test Procedure

Maximizing procedure was performed on the six (6) highest emissions of the EUT.

All final data was recorded in the Quasi-peak and average detection mode.

Corrected Factor & Margin Calculation

The Corrected factor is calculated by adding LISN/ISN VDF (Voltage Division Factor), Cable Loss and Transient Limiter Attenuation. The basic equation is as follows:

$$\text{Correction Factor} = \text{LISN/ISN VDF} + \text{Cable Loss} + \text{Transient Limiter Attenuation}$$

The “**Margin**” column of the following data tables indicates the degree of compliance with the applicable limit. For example, a margin of 7dB means the emission is 7 dB below the limit. The equation for margin calculation is as follows:

$$\text{Margin} = \text{Limit} - \text{Corrected Amplitude}$$

Test Results Summary

According to the recorded data in following table, the EUT complied with the FCC Part 15.107,

Refer to CISPR16-4-2:2011 and CISPR 16-4-1:2009, the measured level is in compliance with the limit if

$$L_m + U_{(Lm)} \leq L_{lim} + U_{cispr}$$

In BACL, $U_{(Lm)}$ is less than U_{cispr} , if L_m is less than L_{lim} , it implies that the EUT complies with the limit.

Test Data

Environmental Conditions

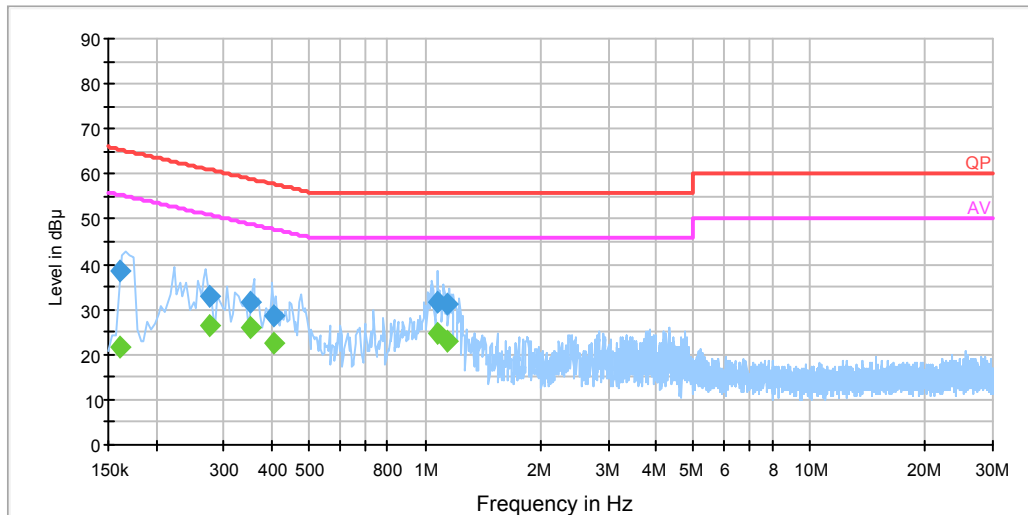
Temperature:	24 °C
Relative Humidity:	48 %
ATM Pressure:	101.0 kPa

The testing was performed by Tracy Hu on 2017-02-23.

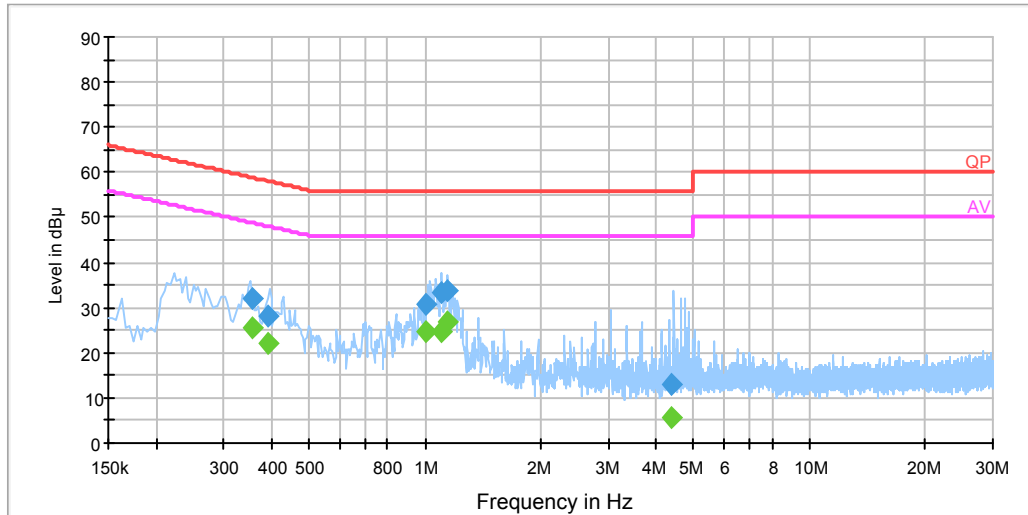
EUT Operation Mode: Charging

AC 120V/60 Hz, Line

EMI Auto Test L



Frequency (MHz)	Corrected Amplitude (dBμV)	Corrected Factor (dB)	Limit (dBμV)	Margin (dB)	Remark (PK/QP/Ave.)
0.161500	38.5	19.9	65.4	26.9	QP
0.274500	32.9	19.9	61.0	28.1	QP
0.352630	31.8	19.9	58.9	27.1	QP
0.403970	28.6	19.9	57.8	29.2	QP
1.073830	31.8	19.8	56.0	24.2	QP
1.144690	31.1	19.8	56.0	24.9	QP
0.161500	21.7	19.9	55.4	33.7	Ave.
0.274500	26.2	19.9	51.0	24.8	Ave.
0.352630	25.9	19.9	48.9	23.0	Ave.
0.403970	22.6	19.9	47.8	25.2	Ave.
1.073830	24.7	19.8	46.0	21.3	Ave.
1.144690	22.8	19.8	46.0	23.2	Ave.

AC 120V/60 Hz, Neutral**EMI Auto Test N**

Frequency (MHz)	Corrected Amplitude (dBμV)	Corrected Factor (dB)	Limit (dBμV)	Margin (dB)	Remark (PK/QP/Ave.)
0.355250	32.2	20.0	58.8	26.6	QP
0.392090	28.2	20.0	58.0	29.8	QP
1.010910	30.6	19.9	56.0	25.4	QP
1.109470	33.4	19.9	56.0	22.6	QP
1.136810	33.7	19.9	56.0	22.3	QP
4.391250	13.0	19.9	56.0	43.0	QP
0.355250	25.6	20.0	48.8	23.2	Ave.
0.392090	22.1	20.0	48.0	25.9	Ave.
1.010910	24.7	19.9	46.0	21.3	Ave.
1.109470	24.6	19.9	46.0	21.4	Ave.
1.136810	26.7	19.9	46.0	19.4	Ave.
4.391250	5.7	19.9	46.0	40.4	Ave.

Note:

- 1) Corrected Amplitude = Reading + Correction Factor
- 2) Correction Factor = LISN VDF + Cable Loss + Transient Limiter Attenuation
- 3) Margin = Limit – Corrected Amplitude

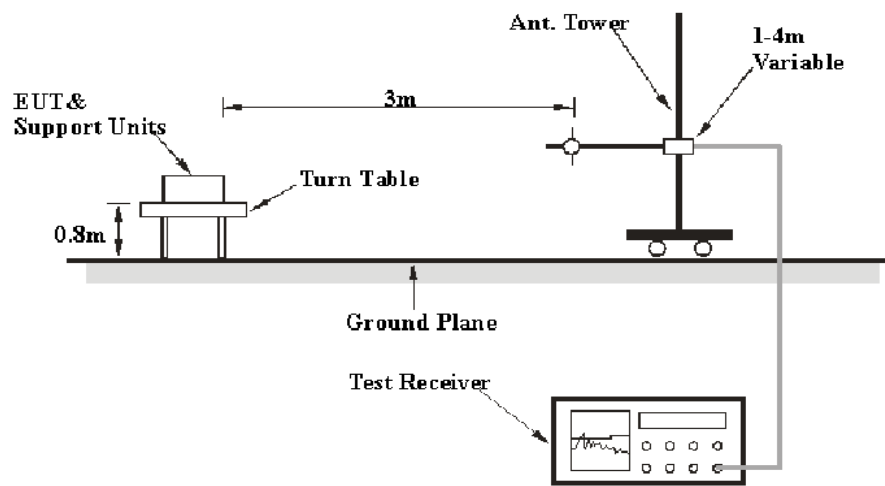
FCC§15.109 - RADIATED EMISSIONS

Applicable Standard

FCC §15.109

EUT Setup

Below 1 GHz:



Above 1GHz:

The radiated emission tests were performed in the 3 meters chamber test site, using the setup accordance with the ANSI C63.4-2014. The related limit was specified in FCC Part 15B.

The external I/O cables were draped along the test table and formed a bundle 30 to 40 cm long in the middle.

The spacing between the peripherals was 10 cm.

EMI Test Receiver Setup

The system was investigated from 30 MHz to 12.5 GHz.

During the radiated emission test, the EMI test receiver was set with the following configurations:

Frequency Range	RBW	Video B/W	IF B/W	Detector
30 MHz – 1000 MHz	100 kHz	300 kHz	120 kHz	QP
Above 1 GHz	1 MHz	3 MHz	/	Peak
Above 1 GHz	1 MHz	10 Hz	/	Average

Test Procedure

Maximizing procedure was performed on the highest emissions to ensure that the EUT complied with all installation combinations.

All data was recorded in the Quasi-peak detector mode from 30 MHz to 1 GHz and PK and average detector modes for frequencies above 1 GHz.

Corrected Amplitude & Margin Calculation

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

$$\text{Corrected Amplitude} = \text{Meter Reading} + \text{Antenna Factor} + \text{Cable Loss} - \text{Amplifier Gain}$$

The “**Margin**” column of the following data tables indicates the degree of compliance with the applicable limit. For example, a margin of 7dB means the emission is 7dB below the limit. The equation for margin calculation is as follows:

$$\text{Margin} = \text{Limit} - \text{Corrected Amplitude}$$

Test Results Summary

According to the data in the following table, the EUT complied with the FCC §15.109 Class B,

Refer to CISPR16-4-2:2011 and CISPR 16-4-1:2009, the measured level complies with the limit if

$$L_m + U_{(Lm)} \leq L_{lim} + U_{cispr}$$

In BACL, $U_{(Lm)}$ is less than U_{cispr} , if L_m is less than L_{lim} , it implies that the EUT complies with the limit.

Test Data

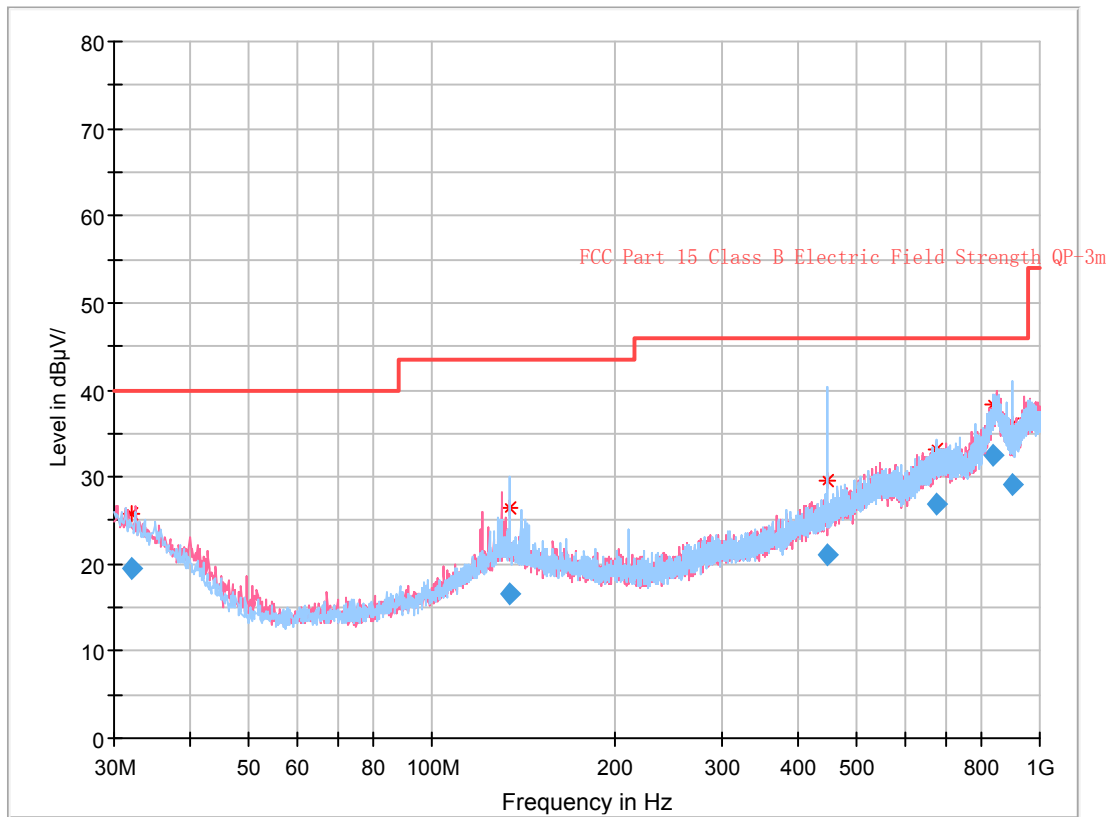
Environmental Conditions

Temperature:	24 °C
Relative Humidity:	48 %
ATM Pressure:	101.0 kPa

The testing was performed by Tracy Hu on 2017-02-23.

*EUT Operation Mode: Charging***30 MHz~1 GHz:**

Full Spectrum



Frequency (MHz)	Corrected Amplitude (dBμV/m)	Antenna height (cm)	Antenna Polarity	Turntable position (degree)	Correction Factor (dB/m)	Limit (dBμV/m)	Margin (dB)
32.119750	19.40	200.0	V	224.0	-3.0	40.00	20.60
133.914000	16.59	183.0	H	131.0	-5.9	43.50	26.91
446.002250	21.03	220.0	H	315.0	-1.5	46.00	24.97
678.458375	26.89	238.0	H	357.0	4.2	46.00	19.11
837.862375	32.39	292.0	H	267.0	10.0	46.00	13.61
903.461375	29.24	107.0	H	246.0	7.3	46.00	16.76

Above 1 GHz

Frequency (MHz)	Receiver		Turntable Degree	Rx Antenna		Corrected Factor (dB/m)	Corrected Amplitude (dBμV/m)	FCC Part 15B	
	Reading (dBμV)	Detector (PK/QP/Ave.)		Height (m)	Polar (H/V)			Limit (dBμV/m)	Margin (dB)
1388.74	35.87	PK	10	2.3	H	0.46	36.33	74	37.67
1388.74	21.47	Ave.	10	2.3	H	0.46	21.93	54	32.07
1619.26	35.48	PK	31	1.6	V	2.43	37.91	74	36.09
1619.26	20.77	Ave.	31	1.6	V	2.43	23.20	54	30.80

Note:

- 1) Corrected Amplitude = Meter Reading + Correction Factor
- 2) Correction Factor = Antenna Factor + Cable Loss - Amplifier Gain
- 3) Margin = Limit – Corrected Amplitude

FCC§15.19, §15.21, §15.27, §15.105 - PRODUCT LABELING

FCC Warning Statement

The FCC labels should contain FCC statement in FCC §15.19(a) (3). A sample of the statement is presented hereinafter as reference.

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Note: When the device is so small or for such use that it is not practicable to place the statement on it, the information required by this paragraph shall be placed in a prominent location in the instruction manual or pamphlet supplied to the user or, alternatively, shall be placed on the container in which the device is marketed.

Proposed Location of Label on EUT



EXHIBIT A - EUT PHOTOGRAPHS

EUT – All View



EUT – Front View



EUT – Rear View



EUT – Top View



EUT – Bottom View



EUT – Left Side View



EUT – Right Side View



EUT – USB Port View



EUT – Cover off View 1



EUT – Left Cover off View 1



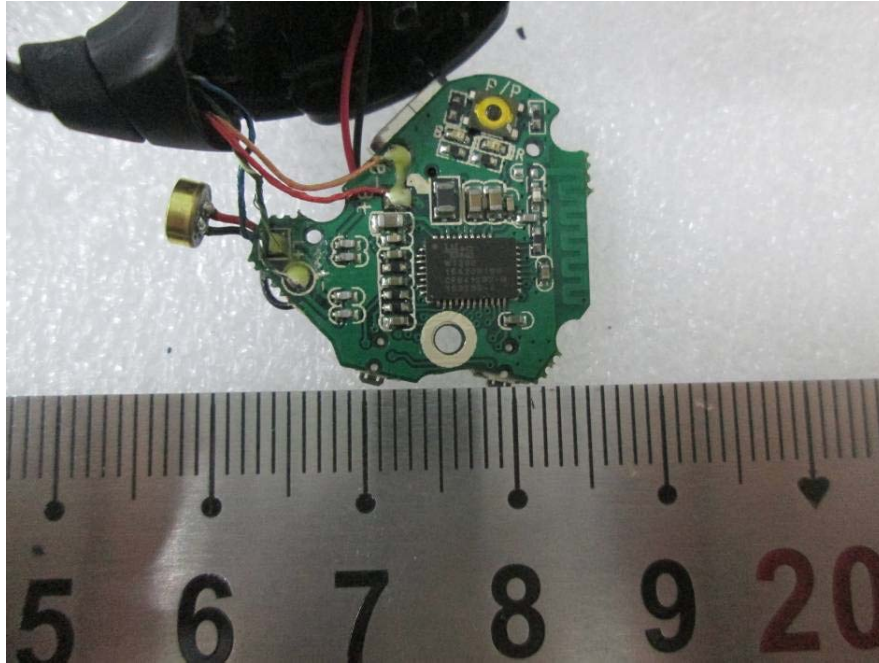
EUT – Left Cover off View 2



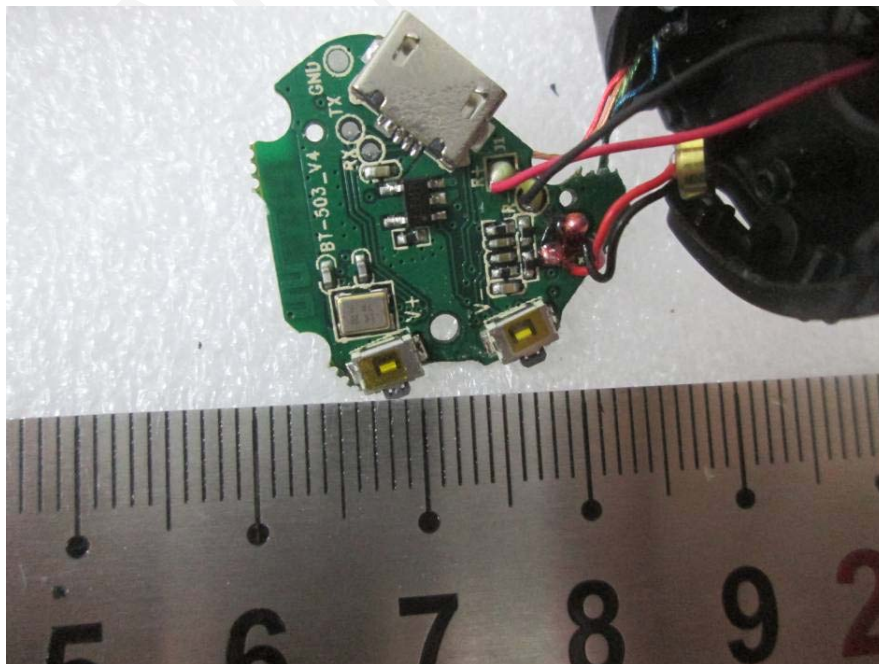
EUT – Right Cover off View 2



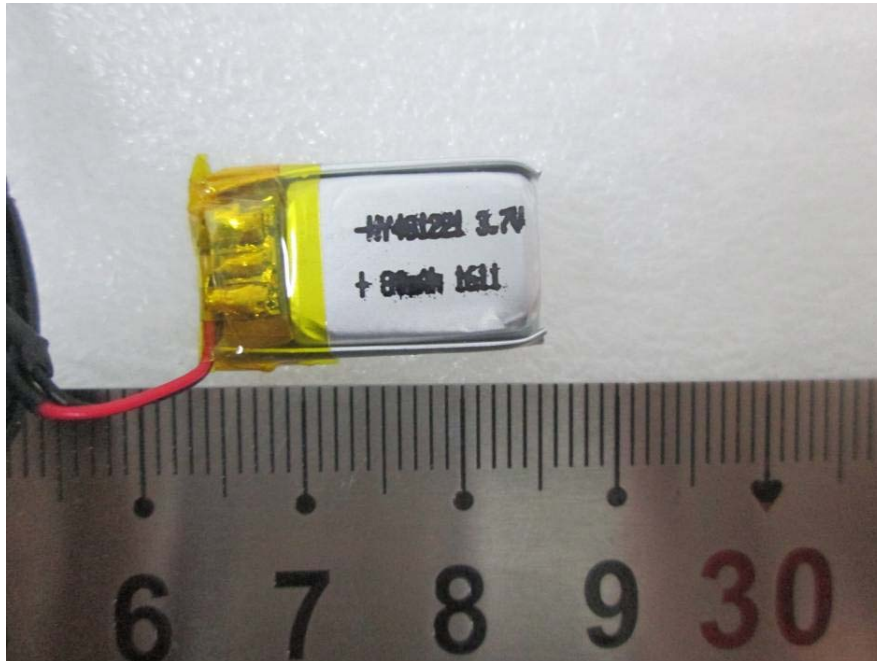
EUT – Main Board Top View



EUT –Main Board Bottom View



EUT – Battery Front View



EUT – Battery Rear View

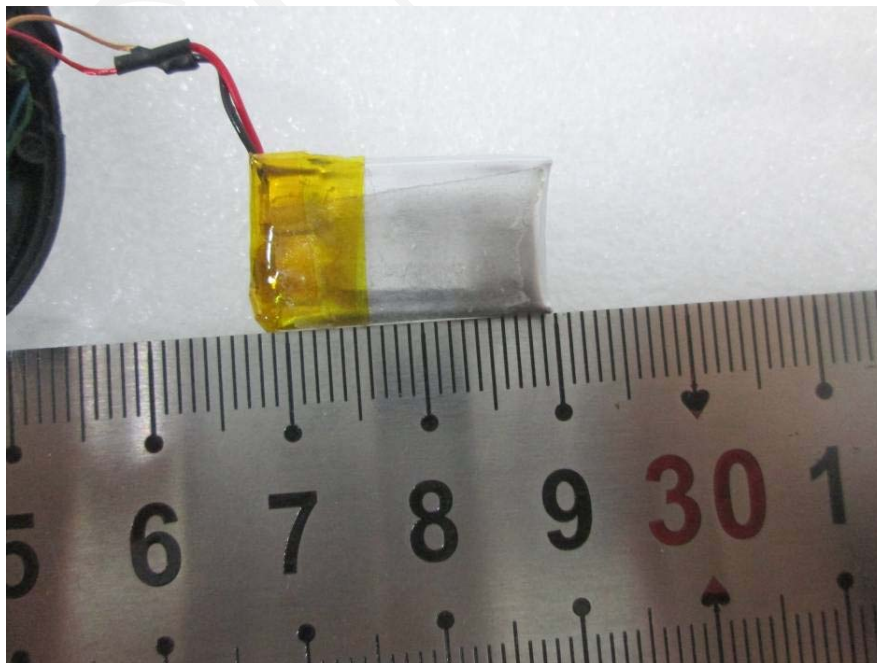
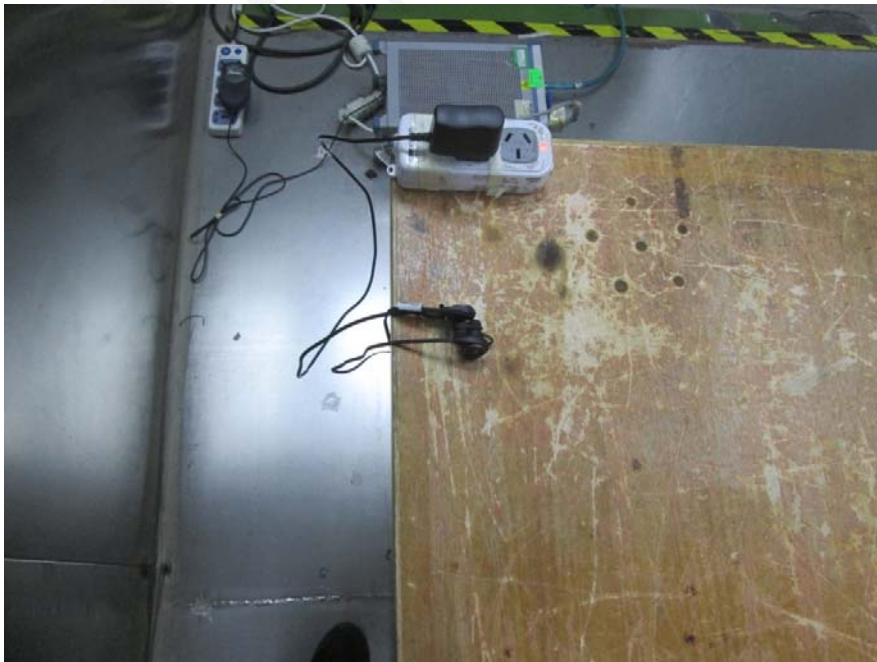


EXHIBIT B - TEST SETUP PHOTOGRAPHS

AC Line Conducted Emissions - Front View



AC Line Conducted Emissions - Side View



Radiated Emissions – Front View (30 MHz~1000 MHz)



Radiated Emissions – Rear View (30 MHz~1000 MHz)



Radiated Emissions – Front View (Above 1 GHz)



Radiated Emissions – Rear View (Above 1 GHz)



******* END OF REPORT *******