EMC TEST REPORT

Report No.: 16070217-FCC-E

Supersede Report No.: N/A

Applicant	Shenzhen Huafurui technology Co.,Ltd
Product Name	SmartBand
Model No.	CUBOT V1
Serial No.	N/A
Test Standard	FCC Part 15 Subpart B Class B:2015, ANSI C63.4: 2014
Test Date	April 07 to 21, 2016
Issue Date	April 22, 2016
Test Result	☑ Pass ☐ Fail
Equipment complied with the specification	☑
Equipment did not comply with the specification	☐

Winnie Zhang	David Huang	
Winnie Zhang Test Engineer	David Huang Checked By	

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Test result presented in this test report is applicable to the tested sample only

Issued by:

SIEMIC (SHENZHEN-CHINA) LABORATORIES

Zone A, Floor 1, Building 2 Wan Ye Long Technology Park

South Side of Zhoushi Road, Bao' an District, Shenzhen, Guangdong China 518108

Phone: +86 0755 2601 4629801 Email: China@siemic.com.cn

Laboratories Introduction

SIEMIC, headquartered in the heart of Silicon Valley, with superior facilities in US and Asia, is one of the leading independent testing and certification facilities providing customers with one-stop shop services for Compliance Testing and Global Certifications.

In addition to testing and certification, SIEMIC provides initial design reviews and compliance management throughout a project. Our extensive experience with China, Asia Pacific, North America, European, and International compliance requirements, assures the fastest, most cost effective way to attain regulatory compliance for the global markets.

Accreditations for Conformity Assessment

Country/Region	Scope
USA	EMC, RF/Wireless, SAR, Telecom
Canada	EMC, RF/Wireless, SAR, Telecom
Taiwan	EMC, RF, Telecom, SAR, Safety
Hong Kong	RF/Wireless, SAR, Telecom
Australia	EMC, RF, Telecom, SAR, Safety
Korea	EMI, EMS, RF, SAR, Telecom, Safety
Japan	EMI, RF/Wireless, SAR, Telecom
Singapore	EMC, RF, SAR, Telecom
Europe	EMC, RF, SAR, Telecom, Safety

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1. Report Revision History

Report No.	Report Version	Description	Issue Date
16070217-FCC-E	NONE	Original	April 22, 2016

2. Customer information

Applicant Name	Shenzhen Huafurui technology Co.,Ltd
Applicant Add	Unit A, Suite 7B, Window of the Modernization Building, Huaqiangbei Blvd. Futian District, Shenzhen, China
Manufacturer	Shenzhen Huafurui technology Co.,Ltd
Manufacturer Add	Unit A, Suite 7B, Window of the Modernization Building, Huaqiangbei Blvd. Futian District, Shenzhen, China

3. Test site information

Lab performing tests	SIEMIC (Shenzhen-China) LABORATORIES
Lab Address	Zone A, Floor 1, Building 2 Wan Ye Long Technology Park South Side of Zhoushi Road, Bao' an District, Shenzhen, Guangdong China 518108
FCC Test Site No.	718246
IC Test Site No.	4842E-1
Test Software	Radiated Emission Program-To Shenzhen v2.0

4. Equipment under Test (EUT) Information

Description of EUT:	SmartBand
Main Model:	CUBOT V1
Serial Model:	N/A
Date EUT received:	April 06, 2016
Test Date(s):	April 07 to 21, 2016
Equipment Category：	Class B
Antenna Gain:	-2.54dBi
Type of Modulation:	GFSK
RF Operating Frequency (ies):	2402-2480 MHz
Number of Channels:	BLE: 40CH
Port:	USB Port
Input Power:	Battery: Spec: 3.7Vdc,80mAh/0.3Wh
Trade Name :	CUBOT
FCC ID:	2AHZ5CUBOTV1

5. Test Summary

The product was tested in accordance with the following specifications.

All testing has been performed according to below product classification:

FCC Rules	Description of Test	Result
§15.107; ANSI C63.4: 2014	AC Power Line Conducted Emissions	Compliance
§15.109; ANSI C63.4: 2014	Radiated Emissions	Compliance

Measurement Uncertainty

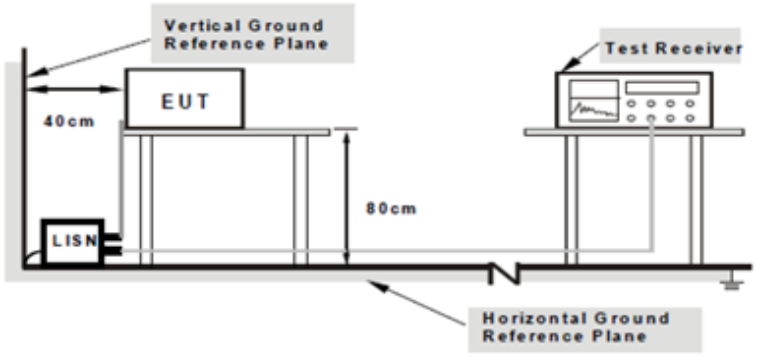
Emissions		
Test Item	**Description**	**Uncertainty**
Band Edge and Radiated Spurious Emissions	Confidence level of approximately 95% (in the case where distributions are normal), with a coverage factor of 2 (for EUTs < 0.5m X 0.5m X 0.5m)	+5.6dB/-4.5dB
-	-	-

6. Measurements, Examination And Derived Results

6.1 AC Power Line Conducted Emissions

Temperature	22°C
Relative Humidity	55%
Atmospheric Pressure	1013mbar
Test date :	April 13, 2016
Tested By :	Winnie Zhang

Requirement(s):

<table>
<tr><th>Spec</th><th>Item</th><th>Requirement</th><th>Applicable</th></tr>
<tr><td>47CFR§15.107</td><td>a)</td><td>For Low-power radio-frequency devices that is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies, within the band 150 kHz to 30 MHz, shall not exceed the limits in the following table, as measured using a 50 [mu] H/50 ohms line impedance stabilization network (LISN). The lower limit applies at the boundary between the frequencies ranges.
<table>
<tr><th rowspan="2">Frequency ranges (MHz)</th><th colspan="2">Limit (dBμV)</th></tr>
<tr><th>QP</th><th>Average</th></tr>
<tr><td>0.15 ~ 0.5</td><td>66 – 56</td><td>56 – 46</td></tr>
<tr><td>0.5 ~ 5</td><td>56</td><td>46</td></tr>
<tr><td>5 ~ 30</td><td>60</td><td>50</td></tr>
</table>
</td><td>☑</td></tr>
<tr><td>Test Setup</td><td colspan="3"> 

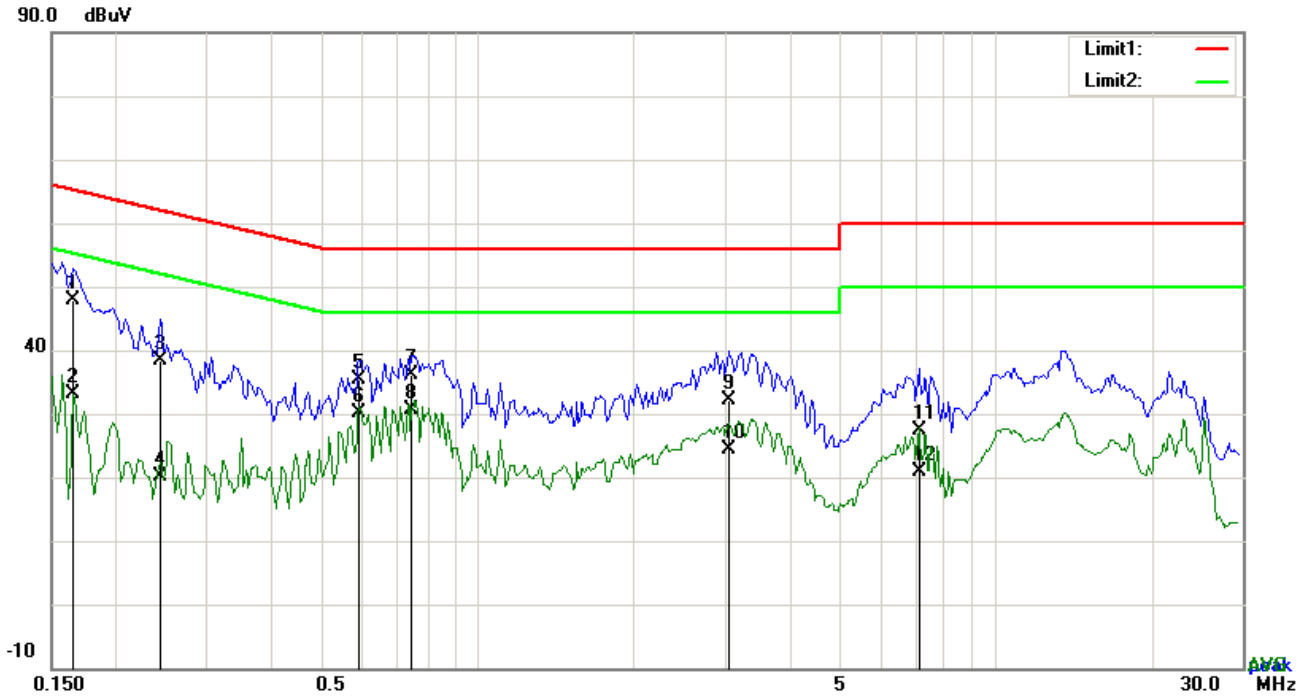
Note: 1.Support units were connected to second LISN.
2.Both of LISNs (AMN) are 80cm from EUT and at least 80cm from other units and other metal planes support units.</td></tr>
<tr><td>Procedure</td><td colspan="3">1. The EUT and supporting equipment were set up in accordance with the requirements of the standard on top of a 1.5m x 1m x 0.8m high, non-metallic table.
2. The power supply for the EUT was fed through a 50W/50mH EUT LISN, connected to filtered mains.</td></tr>
</table>

	3. The RF OUT of the EUT LISN was connected to the EMI test receiver via a low-loss coaxial cable. 4. All other supporting equipment were powered separately from another main supply. 5. The EUT was switched on and allowed to warm up to its normal operating condition. 6. A scan was made on the NEUTRAL line (for AC mains) or Earth line (for DC power) over the required frequency range using an EMI test receiver. 7. High peaks, relative to the limit line, The EMI test receiver was then tuned to the selected frequencies and the necessary measurements made with a receiver bandwidth setting of 10 kHz. 8. Step 7 was then repeated for the LIVE line (for AC mains) or DC line (for DC power).
Remark	
Result	☑ Pass ☐ Fail

Test Data ☑ Yes ☐ N/A

Test Plot ☑ Yes (See below) ☐ N/A

Test Mode:	Charge Mode

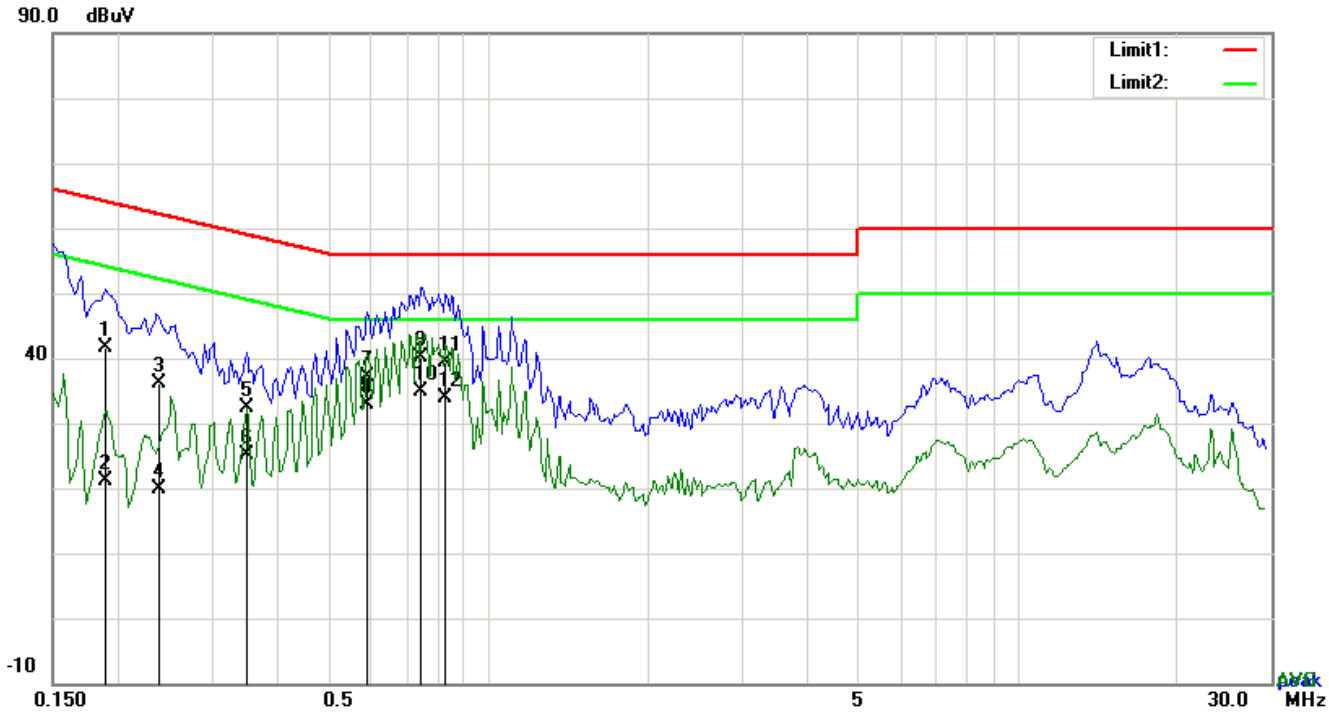


Test Data

Phase Line Plot at 120Vac, 60Hz

No.	P/L	Frequency	Reading	Detector	Corrected	Result	Limit	Margin
		(MHz)	(dBuV)		(dB}	(dBuV)	(dBuV)	(dB)
1	L1	0.1656	37.78	QP	10.03	47.81	65.18	-17.37
2	L1	0.1656	23.09	AVG	10.03	33.12	55.18	-22.06
3	L1	0.2436	28.23	QP	10.03	38.26	61.97	-23.71
4	L1	0.2436	10.19	AVG	10.03	20.22	51.97	-31.75
5	L1	0.5907	25.29	QP	10.03	35.32	56.00	-20.68
6	L1	0.5907	19.98	AVG	10.03	30.01	46.00	-15.99
7	L1	0.7467	25.99	QP	10.03	36.02	56.00	-19.98
8	L1	0.7467	20.59	AVG	10.03	30.62	46.00	-15.38
9	L1	3.0546	22.14	QP	10.06	32.20	56.00	-23.80
10	L1	3.0546	14.37	AVG	10.06	24.43	46.00	-21.57
11	L1	7.1028	17.24	QP	10.11	27.35	60.00	-32.65
12	L1	7.1028	10.65	AVG	10.11	20.76	50.00	-29.24

Test Mode:	Charge Mode

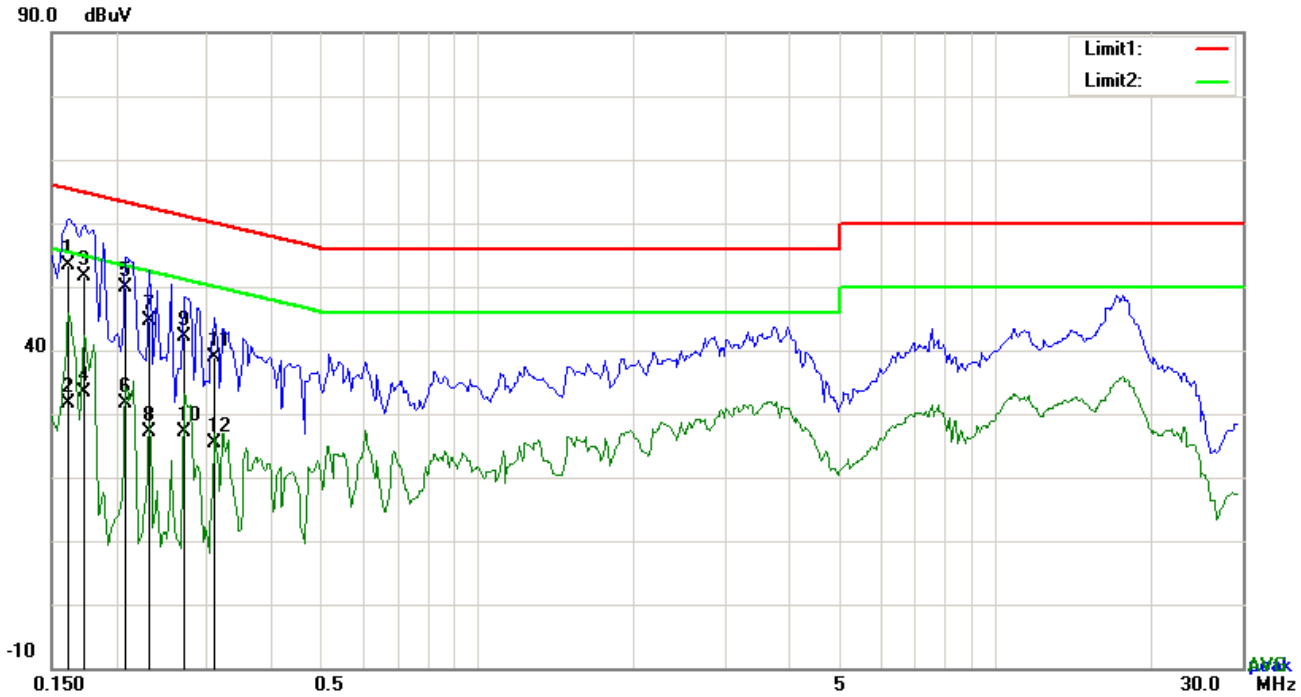


Test Data

Phase Neutral Plot at 120Vac, 60Hz

No.	P/L	Frequency	Reading	Detector	Corrected	Result	Limit	Margin
		(MHz)	(dBuV)		(dB}	(dBuV)	(dBuV)	(dB)
1	N	0.1890	31.65	QP	10.02	41.67	64.08	-22.41
2	N	0.1890	11.22	AVG	10.02	21.24	54.08	-32.84
3	N	0.2378	26.21	QP	10.02	36.23	62.17	-25.94
4	N	0.2378	9.92	AVG	10.02	19.94	52.17	-32.23
5	N	0.3489	22.31	QP	10.02	32.33	58.99	-26.66
6	N	0.3489	15.01	AVG	10.02	25.03	48.99	-23.96
7	N	0.5907	27.07	QP	10.02	37.09	56.00	-18.91
8	N	0.5907	22.96	AVG	10.02	32.98	46.00	-13.02
9	N	0.7467	29.99	QP	10.02	40.01	56.00	-15.99
10	N	0.7467	24.80	AVG	10.02	34.82	46.00	-11.18
11	N	0.8286	29.31	QP	10.03	39.34	56.00	-16.66
12	N	0.8286	23.73	AVG	10.03	33.76	46.00	-12.24

Test Mode:	Charge Mode

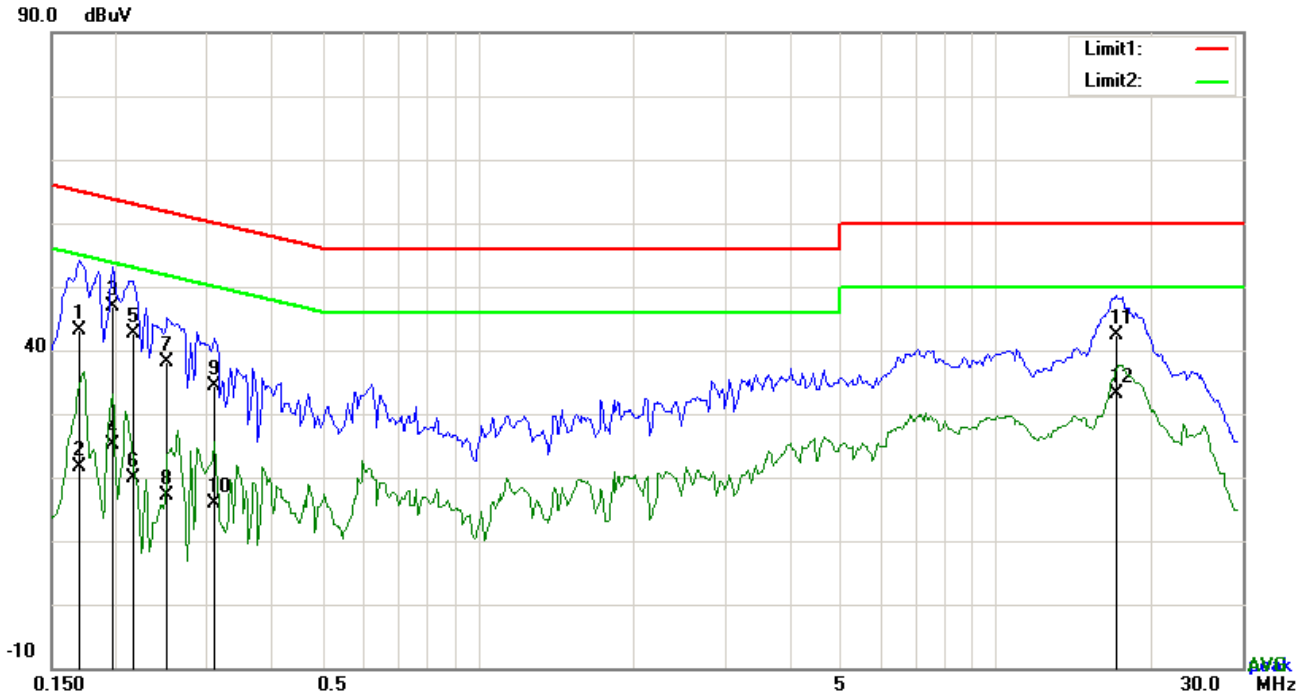


Test Data

Phase Line Plot at 240Vac, 60Hz

No.	P/L	Frequency	Reading	Detector	Corrected	Result	Limit	Margin
		(MHz)	(dBuV)		(dB}	(dBuV)	(dBuV)	(dB)
1	L1	0.1617	43.35	QP	10.03	53.38	65.38	-12.00
2	L1	0.1617	21.51	AVG	10.03	31.54	55.38	-23.84
3	L1	0.1734	41.49	QP	10.03	51.52	64.80	-13.28
4	L1	0.1734	23.33	AVG	10.03	33.36	54.80	-21.44
5	L1	0.2085	39.95	QP	10.03	49.98	63.26	-13.28
6	L1	0.2085	21.69	AVG	10.03	31.72	53.26	-21.54
7	L1	0.2319	34.67	QP	10.03	44.70	62.38	-17.68
8	L1	0.2319	16.98	AVG	10.03	27.01	52.38	-25.37
9	L1	0.2709	32.20	QP	10.03	42.23	61.09	-18.86
10	L1	0.2709	17.02	AVG	10.03	27.05	51.09	-24.04
11	L1	0.3099	28.76	QP	10.03	38.79	59.97	-21.18
12	L1	0.3099	15.45	AVG	10.03	25.48	49.97	-24.49

Test Mode:	Charge Mode



Test Data

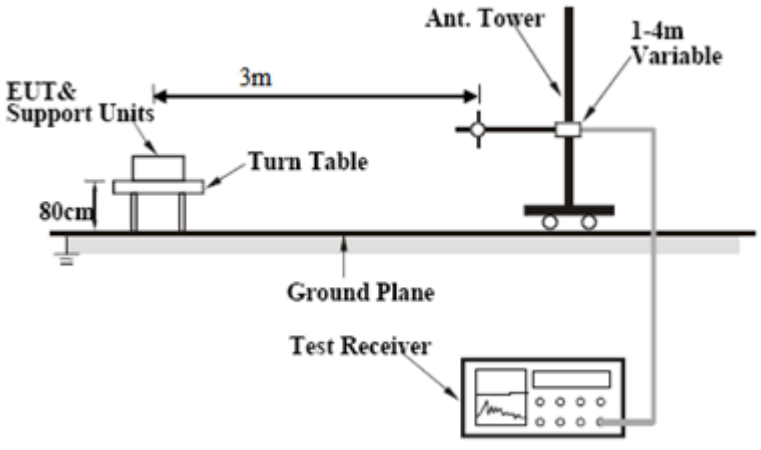
Phase Neutral Plot at 240Vac, 60Hz

No.	P/L	Frequency	Reading	Detector	Corrected	Result	Limit	Margin
		(MHz)	(dBuV)		(dB}	(dBuV)	(dBuV)	(dB)
1	N	0.1695	33.01	QP	10.02	43.03	64.98	-21.95
2	N	0.1695	11.72	AVG	10.02	21.74	54.98	-33.24
3	N	0.1968	36.84	QP	10.02	46.86	63.74	-16.88
4	N	0.1968	15.13	AVG	10.02	25.15	53.74	-28.59
5	N	0.2163	32.52	QP	10.02	42.54	62.96	-20.42
6	N	0.2163	9.76	AVG	10.02	19.78	52.96	-33.18
7	N	0.2514	28.09	QP	10.02	38.11	61.71	-23.60
8	N	0.2514	7.00	AVG	10.02	17.02	51.71	-34.69
9	N	0.3099	24.48	QP	10.02	34.50	59.97	-25.47
10	N	0.3099	5.77	AVG	10.02	15.79	49.97	-34.18
11	N	17.1726	32.16	QP	10.23	42.39	60.00	-17.61
12	N	17.1726	22.95	AVG	10.23	33.18	50.00	-16.82

6.2 Radiated Emissions

Temperature	22°C
Relative Humidity	55%
Atmospheric Pressure	1013mbar
Test date :	April 13, 2016
Tested By :	Winnie Zhang

Requirement(s):

<table>
<tr><th>Spec</th><th>Item</th><th>Requirement</th><th>Applicable</th></tr>
<tr><td>47CFR§15.107(d)</td><td>a)</td><td>Except higher limit as specified elsewhere in other section, the emissions from the low-power radio-frequency devices shall not exceed the field strength levels specified in the following table and the level of any unwanted emissions shall not exceed the level of the fundamental emission. The tighter limit applies at the band edges
<table>
<tr><th>Frequency range (MHz)</th><th>Field Strength (μV/m)</th></tr>
<tr><td>30 – 88</td><td>100</td></tr>
<tr><td>88 – 216</td><td>150</td></tr>
<tr><td>216 960</td><td>200</td></tr>
<tr><td>Above 960</td><td>500</td></tr>
</table></td><td>☑</td></tr>
<tr><td>Test Setup</td><td colspan="3"> 
</td></tr>
<tr><td>Procedure</td><td colspan="3">1. The EUT was switched on and allowed to warm up to its normal operating condition.
2. The test was carried out at the selected frequency points obtained from the EUT characterization. Maximization of the emissions, was carried out by rotating the EUT, changing the antenna polarization, and adjusting the antenna height in the following manner:
a. Vertical or horizontal polarization (whichever gave the higher emission level</td></tr>
</table>

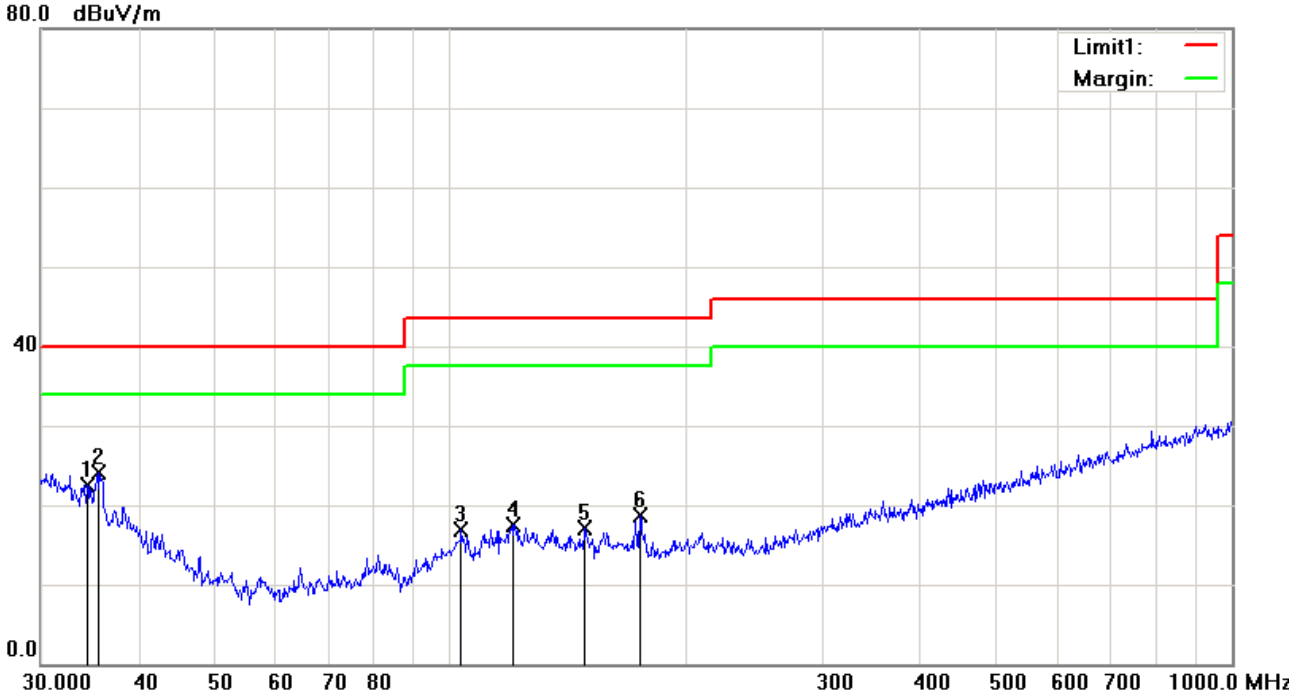
	over a full rotation of the EUT) was chosen. b. The EUT was then rotated to the direction that gave the maximum emission. c. Finally, the antenna height was adjusted to the height that gave the maximum emission. 3. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120 kHz for Quasiy Peak detection at frequency below 1GHz. 4. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and video bandwidth is 3MHz with Peak detection for Peak measurement at frequency above 1GHz. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and the video bandwidth with Peak detection for Average Measurement as below at frequency above 1GHz. ■ 1 kHz (Duty cycle < 98%) □ 10 Hz (Duty cycle > 98%) 5. Steps 2 and 3 were repeated for the next frequency point, until all selected frequency points were measured.
Remark	
Result	☑ Pass ☐ Fail

Test Data ☑ Yes ☐ N/A

Test Plot ☑ Yes (See below) ☐ N/A

Test Mode :	Charge Mode

Below 1GHz

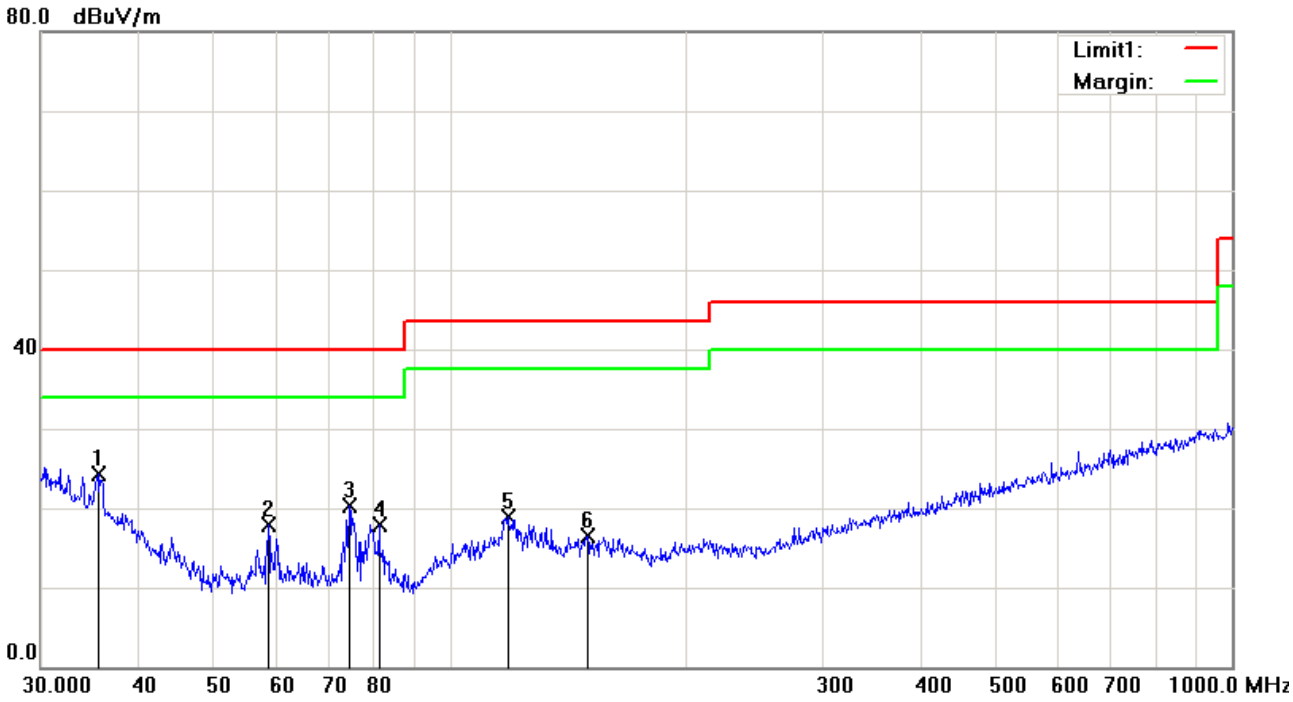


Test Data

Horizontal Polarity Plot @3m

No.	P/L	Frequency	Reading	Detector	Corrected	Result	Limit	Margin	Height	Degree
		(MHz)	(dBuV/m)		(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	(cm)	( )
1	H	34.3964	26.06	peak	-3.50	22.56	40.00	-17.44	100	104
2	H	35.4993	28.41	peak	-4.30	24.11	40.00	-15.89	100	340
3	H	103.4421	27.06	peak	-10.19	16.87	43.50	-26.63	100	216
4	H	120.2766	24.89	peak	-7.32	17.57	43.50	-25.93	100	10
5	H	148.9625	25.45	peak	-8.42	17.03	43.50	-26.47	100	209
6	H	175.0368	28.20	peak	-9.49	18.71	43.50	-24.79	100	104

Below 1GHz



Test Data

Vertical Polarity Plot @3m

No.	P/L	Frequency	Reading	Detector	Corrected	Result	Limit	Margin	Height	Degree
		(MHz)	(dBuV/m)		(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	(cm)	( )
1	V	35.4993	28.67	peak	-4.30	24.37	40.00	-15.63	100	105
2	V	58.6126	32.17	peak	-14.20	17.97	40.00	-22.03	100	221
3	V	74.3955	34.04	peak	-13.73	20.31	40.00	-19.69	100	248
4	V	81.2117	31.63	peak	-13.71	17.92	40.00	-22.08	100	296
5	V	118.6014	26.44	peak	-7.54	18.90	43.50	-24.60	100	319
6	V	150.0108	24.88	peak	-8.40	16.48	43.50	-27.02	100	259

Above 1GHz

Frequency (MHz)	Amplitude (dBμV/m)	Azimuth	Height (cm)	Polarity (H/V)	Factors (dB)	Limit (dBμV/m)	Margin (dB)	Detector (PK/AV)
1566.22	49.82	55	100	V	-21.14	74	-24.18	PK
2041.37	50.77	122	120	V	-22.47	74	-23.23	PK
1652.33	49.37	50	150	V	-22.72	74	-24.63	PK
2167.41	50.08	60	180	H	-21.66	74	-23.92	PK
2868.34	49.22	120	200	H	-22.55	74	-24.78	PK
1838.41	50.44	63	170	H	-21.88	74	-23.56	PK

*Note1: The highest frequency of the EUT is 2480 MHz, so the testing has been conformed to 5*2480MHz=12,400MHz.*

Note2: The frequency that above 3GHz is mainly from the environment noise.

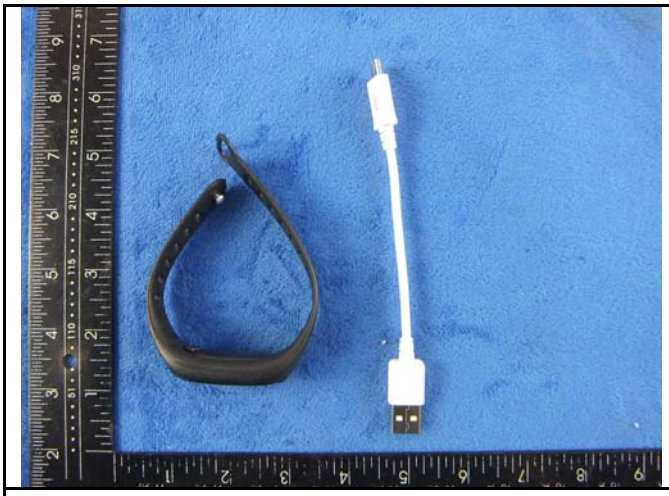
Note3: The AV measurement performed, more than 20dB below limit so AV test data was not presented.

Annex A. TEST INSTRUMENT

Instrument	Model	Serial #	Cal Date	Cal Due	In use
AC Line Conducted Emissions					
EMI test receiver	ESCS30	8471241027	09/17/2015	09/16/2016	☑
Line Impedance Stabilization Network	LI-125A	191106	09/25/2015	09/24/2016	☑
Line Impedance Stabilization Network	LI-125A	191107	09/25/2015	09/24/2016	☑
LISN	ISN T800	34373	09/25/2015	09/24/2016	☑
Transient Limiter	LIT-153	531118	09/01/2015	08/31/2016	☑
Radiated Emissions					
EMI test receiver	ESL6	100262	09/17/2015	09/16/2016	☑
OPT 010 AMPLIFIER (0.1-1300MHz)	8447E	2727A02430	09/01/2015	08/31/2016	☑
Microwave Preamplifier (1 ~ 26.5GHz)	8449B	3008A02402	03/24/2016	03/23/2017	☑
Bilog Antenna (30MHz~6GHz)	JB6	A110712	09/21/2015	09/20/2016	☑
Double Ridge Horn Antenna	AH-118	71259	09/24/2015	09/23/2016	☑

Annex B. EUT And Test Setup Photographs

Annex B.i. Photograph: EUT External Photo



EUT -Whole View

EUT - Front View

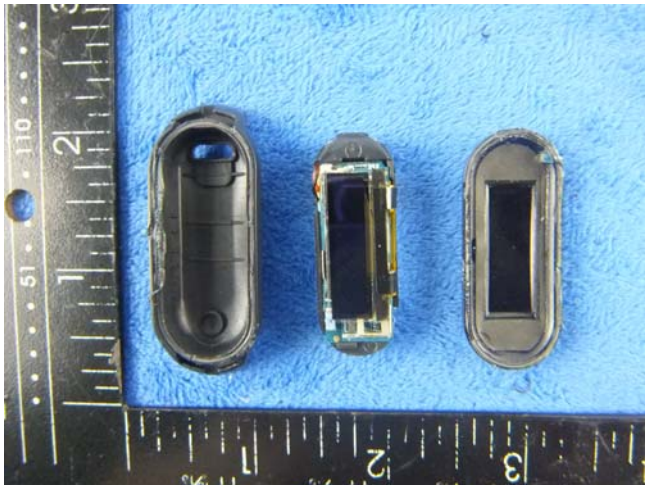
EUT - Rear View

EUT - Left View

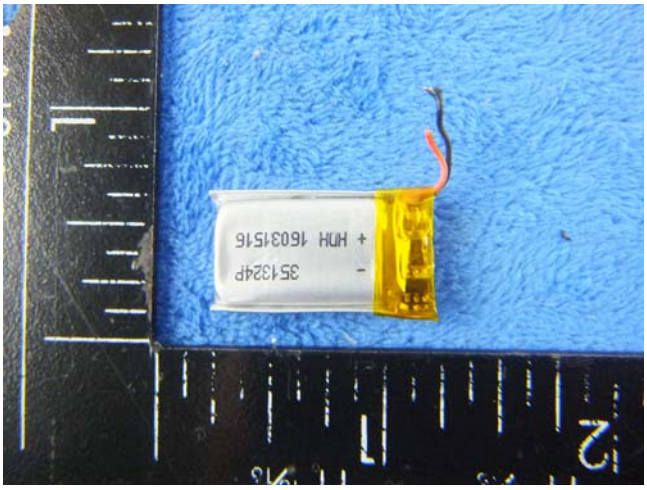
EUT - Right View

Annex B.ii. Photograph: EUT Internal Photo

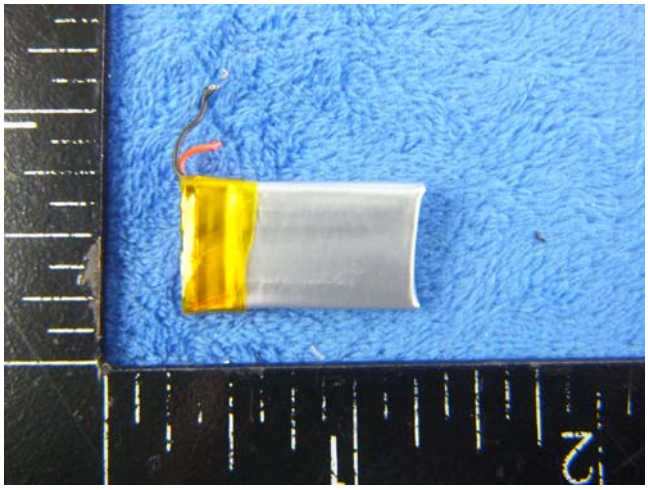
Cover Off - Top View 1



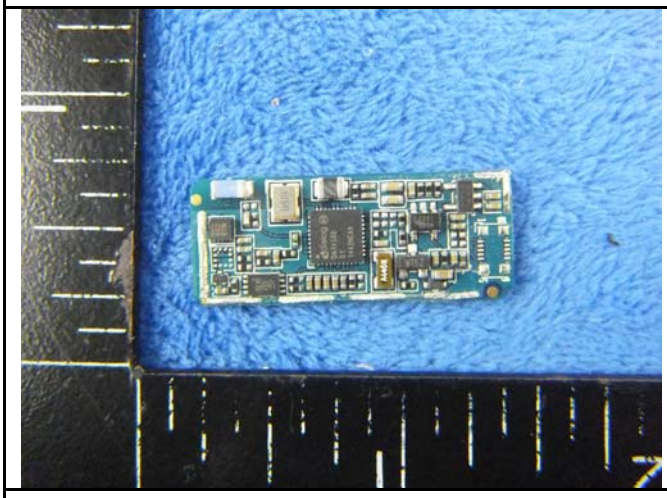
Cover Off - Top View 2



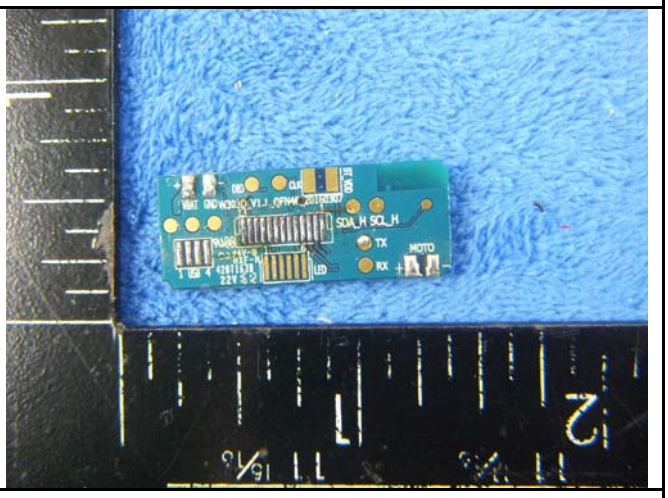
Battery - Front View



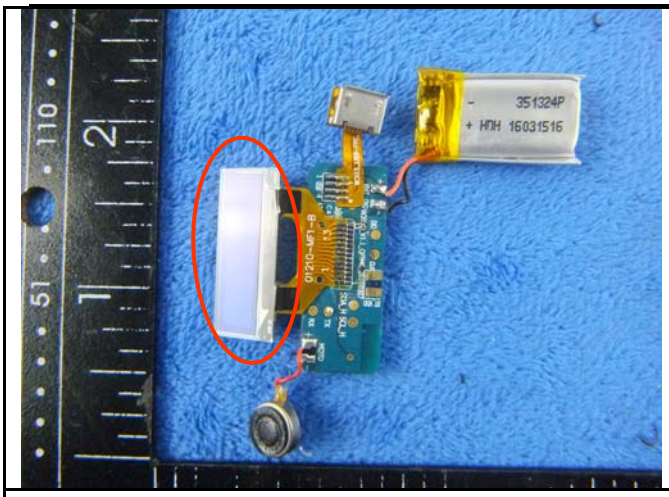
Battery - Rear View



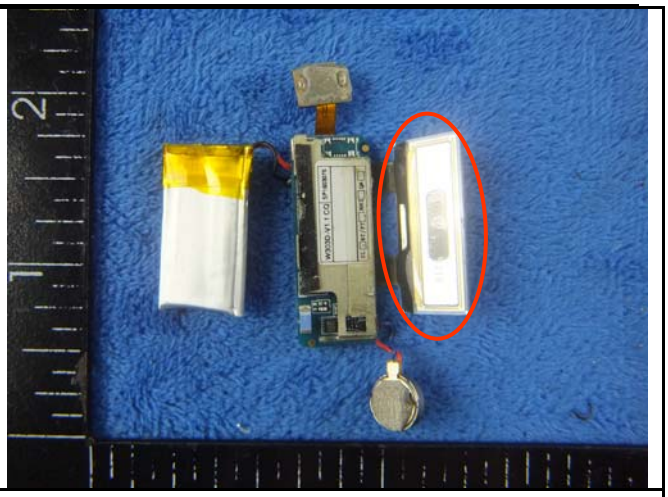
Mainboard - Front View



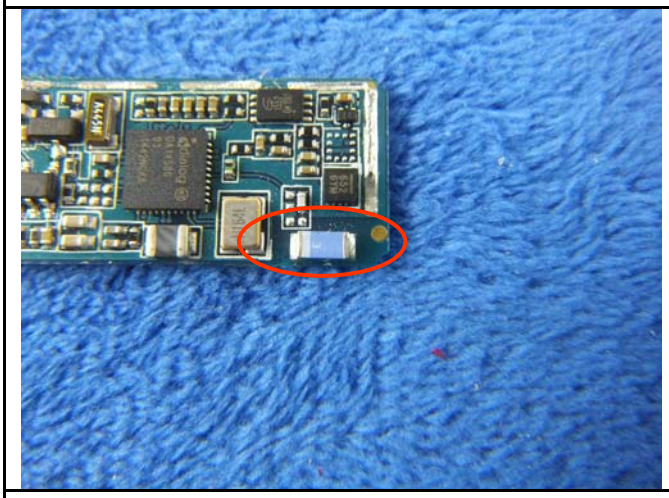
Mainboard - Rear View



LED - Front View

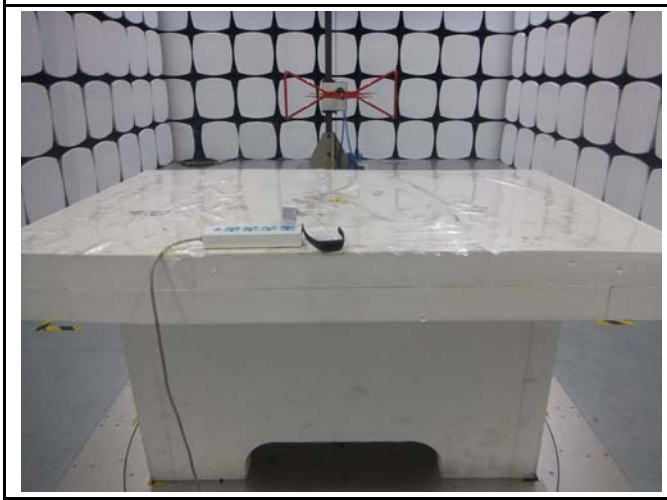


LED - Rear View



BLE - Antenna View

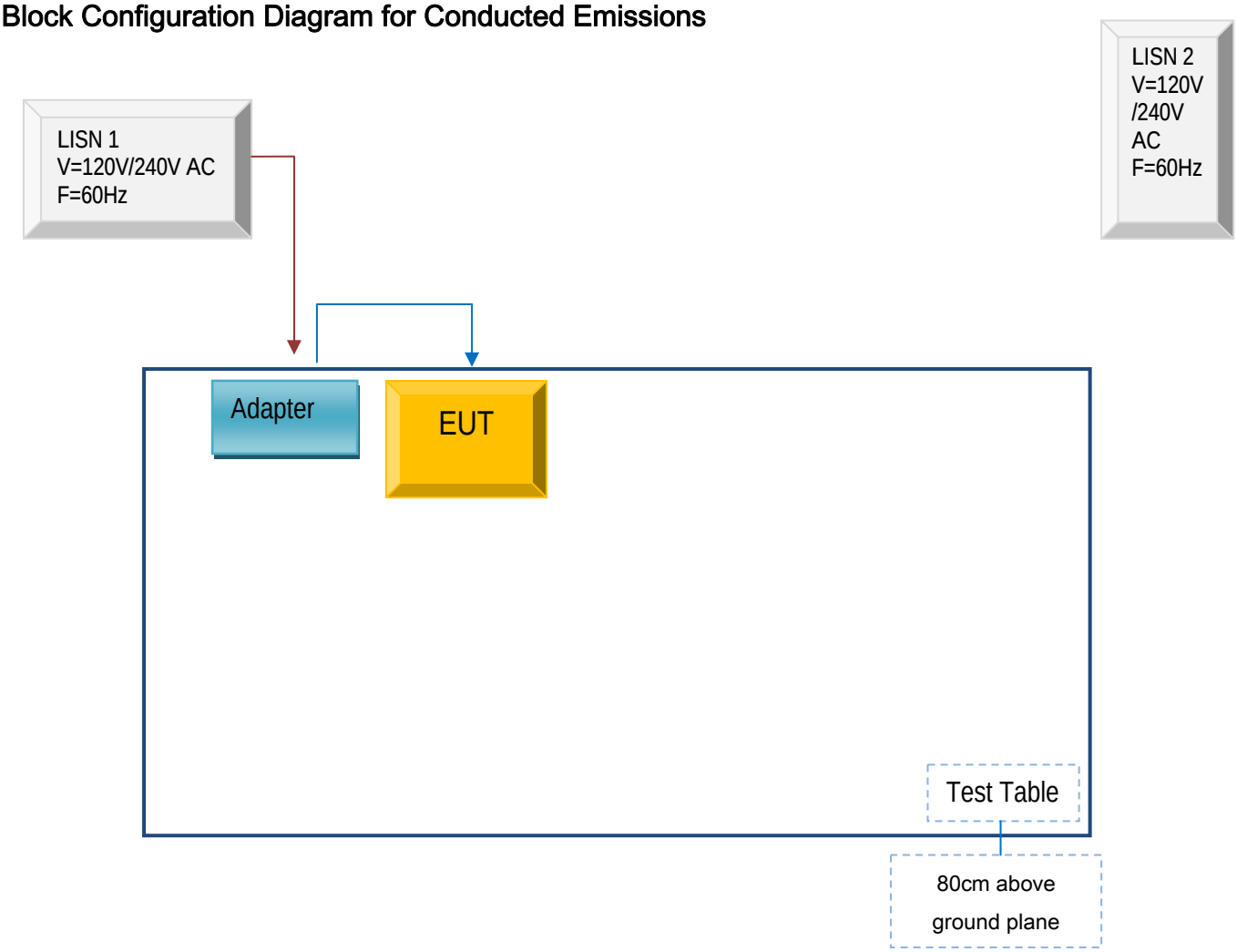
Annex B.iii. Photograph: Test Setup Photo

	
Conducted Emissions Test Setup – Front View	Conducted Emissions Test Setup – Side View
	
Radiated Emissions Test Setup Below 1GHz - Front View	Radiated Emissions Test Setup Above 1GHz - Side View

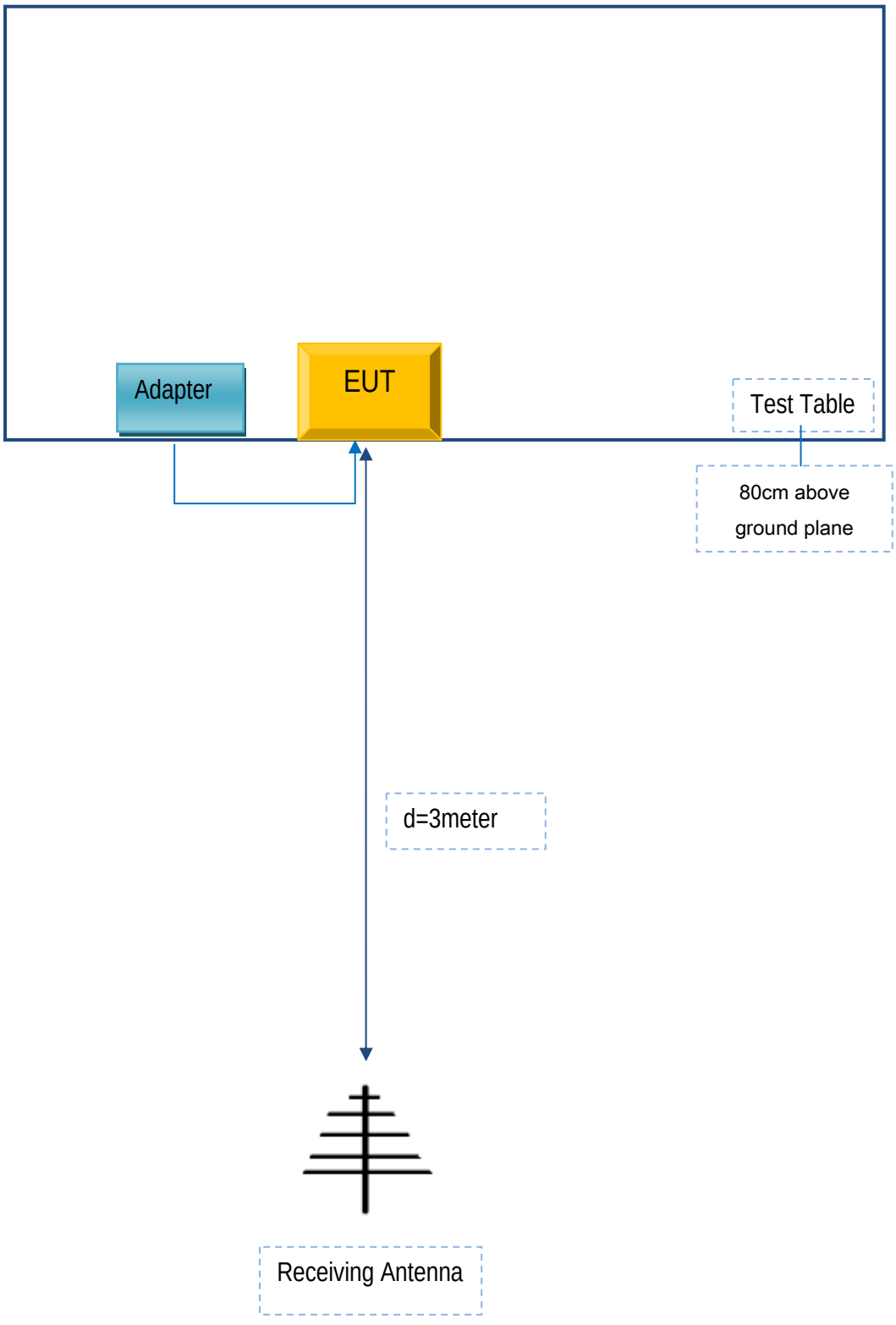
Annex C. TEST SETUP AND SUPPORTING EQUIPMENT

Annex C.ii. TEST SET UP BLOCK

Block Configuration Diagram for Conducted Emissions



Block Configuration Diagram for Radiated Emissions



Annex C. il. SUPPORTING EQUIPMENT DESCRIPTION

The following is a description of supporting equipment and details of cables used with the EUT.

Supporting equipment:

Manufacturer	Equipment Description	Model	Serial No
DCA	Adaptor	E2164A	Y20120311

Supporting Cable:

Cable type	Shield Type	Ferrite Core	Length	Serial No
USB Cable	Un-shielding	No	10cm	ZT201508

Annex D. User Manual / Block Diagram / Schematics / Partlist

N/A

Annex E. DECLARATION OF SIMILARITY

N/A