

RF TEST REPORT



Report No.: 15050054-FCC-R4

Supersede Report No.: N/A

Applicant	b mobile HK Limited	
Product Name	Mobile Phone	
Model No.	AX1010	
Serial No.	AX1005	
Test Standard	FCC Part 15.247: 2014, ANSI C63.10: 2013	
Test Date	November 24 to December 04, 2015	
Issue Date	December 08, 2015	
Test Result	<input checked="" type="checkbox"/> Pass <input type="checkbox"/> Fail	
Equipment complied with the specification		<input checked="" type="checkbox"/>
Equipment did not comply with the specification		<input type="checkbox"/>
Winnie. Zhang	David Huang	
Winnie Zhang Test Engineer	Checked By	
This test report may be reproduced in full only		
Test result presented in this test report is applicable to the tested sample only		

Issued by:

SIEMIC (SHENZHEN-CHINA) LABORATORIES

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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
15050054-FCC-R4	NONE	Original	December 08, 2015

2. Customer information

Applicant Name	b mobile HK Limited
Applicant Add	Flat 18; 14/F Block 1; Golden Industrial Building; 16-26 Kwai Tak Street; Kwai Chung; New Territories; Hong Kong
Manufacturer	b mobile HK Limited
Manufacturer Add	Flat 18; 14/F Block 1; Golden Industrial Building; 16-26 Kwai Tak Street; Kwai Chung; New Territories; Hong Kong

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:	Mobile Phone
Main Model:	AX1010
Serial Model:	AX1005
Date EUT received:	November 23,2015
Test Date(s):	November 24 to December 04, 2015
Equipment Category :	DTS
	GSM850: -3.3dBi
	PCS1900: -4.6dBi
	UMTS-FDD Band V: -3.4dBi
	UMTS-FDD Band II: -3.4dBi
	Bluetooth/BLE: -3.5dBi
Antenna Gain:	WIFI: -4.2dBi
	LTE Band 2: -5.2 dBi
	LTE Band 4: -4.1dBi
	LTE Band 5: -3.5dBi
	LTE Band 7: -2.9dBi
	GPS: -3.9dBi
	GSM / GPRS: GMSK
	EGPRS: GMSK, 8PSK
	UMTS-FDD: QPSK, 16QAM
Type of Modulation:	802.11b/g/n: DSSS, OFDM
	Bluetooth: GFSK, π /4DQPSK, 8DPSK
	BLE: GFSK
	LTE Band: QPSK, 16QAM
	GPS:BPSK
	GSM850 TX: 824.2 ~ 848.8 MHz; RX: 869.2 ~ 893.8 MHz
RF Operating Frequency (ies):	PCS1900 TX: 1850.2 ~ 1909.8 MHz; RX: 1930.2 ~ 1989.8 MHz
	UMTS-FDD Band V TX: 826.4 ~ 846.6 MHz; RX: 871.4 ~ 891.6 MHz
	UMTS-FDD Band II TX: 1852.4 ~ 1907.6 MHz;

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RX: 1932.4 ~ 1987.6 MHz

WIFI:802.11b/g/n(20M): 2412-2472 MHz

WIFI:802.11n(40M): 2422-2462 MHz

Bluetooth& BLE: 2402-2480 MHz

LTE Band 2 TX: 1852.5 ~ 1907.5 MHz; RX : 1932.5 ~ 1987.5 MHz

LTE Band 4 TX: 1712.5 ~ 1752.5 MHz; RX : 2112.5 ~ 2152.5 MHz

LTE Band 5 TX: 826.5 ~ 846.5 MHz; RX : 871.5 ~ 891.5 MHz

LTE Band 7 TX: 2502.5 ~ 2567.5 MHz; RX : 2622.5 ~ 2687.5 MHz

GPS RX:1575.42 MHz

Max. Output Power: -3.206dBm

GSM 850: 124CH

PCS1900: 299CH

UMTS-FDD Band V : 102CH

UMTS-FDD Band II : 277CH

Number of Channels: WIFI :802.11b/g/n(20M): 13CH

WIFI :802.11n(40M): 9CH

Bluetooth: 79CH

BLE: 40CH

GPS:1CH

Battery:

Model:AX1010

Standard Voltage:DC3.8V

Input Power: Rated Capacity:1450mAh,5.51Wh

Adapter:

Model:N/A

Input: AC100-240V; 50/60Hz; 0.15A

Output: DC 5.0V,700mA

Port: Power Port, Earphone Port, USB Port

Trade Name : Bmobile

GPRS/EGPRS Multi-slot class: 8/10/12

FCC ID: ZSW-30-021

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
§15.203	Antenna Requirement	Compliance
§15.247 (a)(2)	DTS (6 dB) CHANNEL BANDWIDTH	Compliance
§15.247(b)(3)	Conducted Maximum Output Power	Compliance
§15.247(e)	Power Spectral Density	Compliance
§15.247(d)	Band-Edge & Unwanted Emissions into Non-Restricted Frequency Bands	Compliance
§15.207 (a),	AC Power Line Conducted Emissions	Compliance
§15.205, §15.209, §15.247(d)	Radiated Spurious Emissions & Unwanted Emissions into Restricted Frequency Bands	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 Antenna Requirement

Applicable Standard

According to § 15.203, an intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the provisions of this section. The manufacturer may design the unit so that a broken antenna can be replaced by the user, but the user of a standard antenna jack or electrical connector is prohibited. The structure and application of the EUT were analyzed to determine compliance with section §15.203 of the rules. §15.203 state that the subject device must meet the following criteria:

- a. Antenna must be permanently attached to the unit.
- b. Antenna must use a unique type of connector to attach to the EUT.

Unit must be professionally installed, and installer shall be responsible for verifying that the correct antenna is employed with the unit.

And according to FCC 47 CFR section 15.247 (b), if the transmitting antennas of directional gain greater than 6dBi are used, the power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

Antenna Connector Construction

The EUT has 2 antennas:

A permanently attached PIFA antenna for Bluetooth/BLE/WIFI/GPS, the gain is -3.5dBi for Bluetooth and BLE, the gain is -4.2dBi for WIFI, the gain is -3.9dBi for GPS.

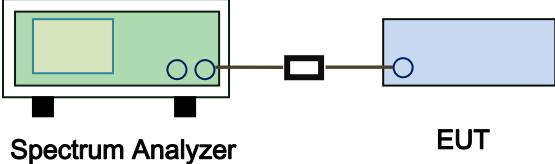
A permanently attached PIFA antenna for GSM /UMTS and LTE, the gain is -3.3dBi for GSM850, -4.6dBi for PCS1900, -3.4dBi for UMTS-FDD Band V and Band II, the gain is -5.2dBi for LTE Band 2, the gain is -4.1dBi for LTE Band 4, the gain is -3.5dBi for LTE Band 5, the gain is -2.9dBi for LTE Band 7.

The antenna meets up with the ANTENNA REQUIREMENT.

Result: Compliance.

6.2 DTS (6 dB) Channel Bandwidth

Temperature	25°C
Relative Humidity	57%
Atmospheric Pressure	1024mbar
Test date :	November 24, 2015
Tested By :	Winnie Zhang

Spec	Item	Requirement	Applicable
§ 15.247(a)(2)	a)	6dB BW \geq 500kHz;	<input checked="" type="checkbox"/>
	b)	99% BW: For FCC reference only; required by IC.	<input checked="" type="checkbox"/>
Test Setup	 Spectrum Analyzer EUT		
Test Procedure	<p>558074 D01 DTS MEAS Guidance v03r03, 8.1 DTS bandwidth</p> <p><u>6dB Emission bandwidth measurement procedure</u></p> <ul style="list-style-type: none"> - Set RBW = 100 kHz. - Set the video bandwidth (VBW) \geq 3 ' RBW. - Detector = Peak. - Trace mode = max hold. - Sweep = auto couple. - Allow the trace to stabilize. <p>Measure the maximum width of the emission that is constrained by the frequencies associated with the two outermost amplitude points (upper and lower frequencies) that are attenuated by 6 dB relative to the maximum level measured in the fundamental emission.</p>		
Remark			
Result	<input checked="" type="checkbox"/> Pass <input type="checkbox"/> Fail		

Test Data Yes N/A

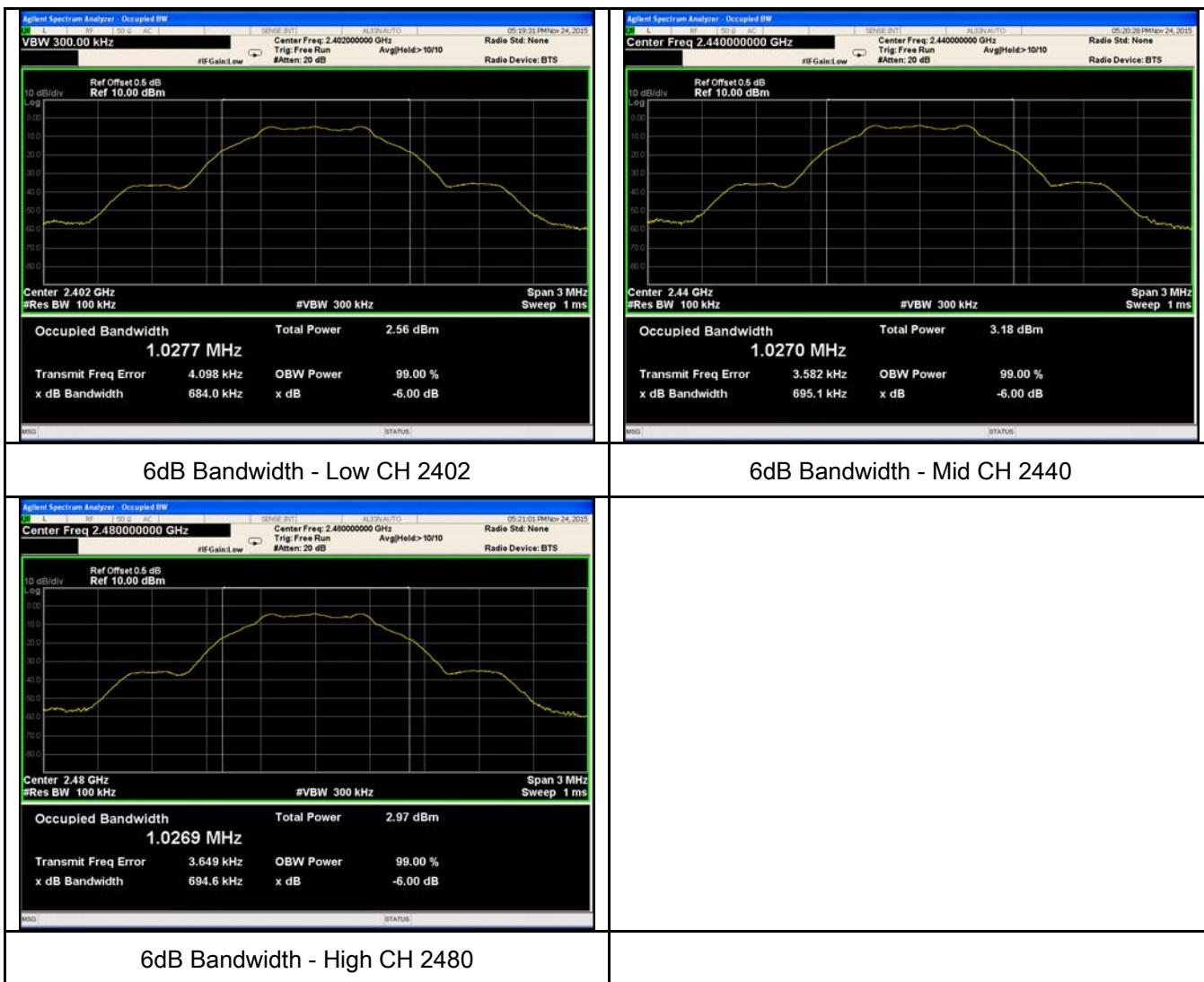
Test Plot Yes (See below) N/A

6dB Bandwidth measurement result

Test Data

CH	Freq (MHz)	6dB Bandwidth (kHz)	99% Occupied Bandwidth (MHz)
Low	2402	684.0	1.0277
Mid	2440	695.1	1.0270
High	2480	694.6	1.0269

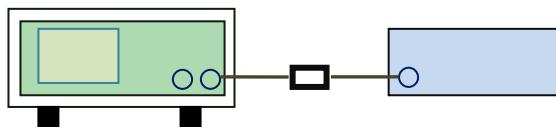
Test Plots



6.3 Maximum Output Power

Temperature	25°C
Relative Humidity	57%
Atmospheric Pressure	1024mbar
Test date :	November 24, 2015
Tested By :	Winnie Zhang

Requirement(s):

Spec	Item	Requirement	Applicable
§15.247(b) (2), RSS210 (A8.4)	a)	FHSS in 2400-2483.5MHz with \geq 75 channels: \leq 1 Watt	<input type="checkbox"/>
	b)	FHSS in 5725-5850MHz: \leq 1 Watt	<input type="checkbox"/>
	c)	For all other FHSS in the 2400-2483.5MHz band: \leq 0.125 Watt.	<input type="checkbox"/>
	d)	FHSS in 902-928MHz with \geq 50 channels: \leq 1 Watt	<input type="checkbox"/>
	e)	FHSS in 902-928MHz with \geq 25 & $<$ 50 channels: \leq 0.25 Watt	<input type="checkbox"/>
	f)	DTS in 902-928MHz, 2400-2483.5MHz \leq 1 Watt	<input checked="" type="checkbox"/>
Test Setup		 Spectrum Analyzer EUT	
Test Procedure		<p>558074 D01 DTS MEAS Guidance v03r03, 9.1.2 Integrated band power method</p> <p>Maximum output power measurement procedure</p> <ol style="list-style-type: none"> Set the RBW \geq DTS bandwidth. Set VBW \geq $3 \times$ RBW. Set span \geq $3 \times$ RBW Sweep time = auto couple. Detector = peak. Trace mode = max hold. Allow trace to fully stabilize. Use peak marker function to determine the peak amplitude level. 	
Remark			
Result	<input checked="" type="checkbox"/> Pass <input type="checkbox"/> Fail		

Test Data Yes N/A

Test Plot Yes (See below) N/A

Output Power measurement result

Test Data

Type	CH	Freq (MHz)	Conducted Power (dBm)	Limit (dBm)	Result
Output power	Low	2402	-3.786	30	Pass
	Mid	2440	-3.206	30	Pass
	High	2480	-3.344	30	Pass

Test Plots



AV Output power - Low CH 2402

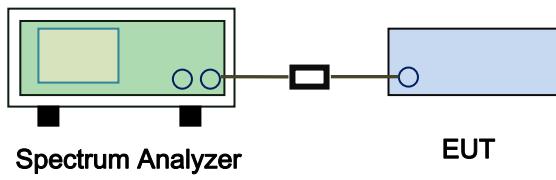
AV Output power - Mid CH 2440



AV Output power - High CH 2480

6.4 Power Spectral Density

Temperature	25°C
Relative Humidity	57%
Atmospheric Pressure	1024mbar
Test date :	November 24, 2015
Tested By :	Winnie Zhang

Spec	Item	Requirement	Applicable
§15.247(e)	a)	The power spectral density conducted from the intentional radiator to the antenna shall not be greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission.	<input checked="" type="checkbox"/>
Test Setup			
Test Procedure	<p>558074 D01 DTS MEAS Guidance v03r03, 10.2 power spectral density method power spectral density measurement procedure</p> <ul style="list-style-type: none"> - a) Set analyzer center frequency to DTS channel center frequency. - b) Set the span to 1.5 times the DTS bandwidth. - c) Set the RBW to: $3 \text{ kHz} \leq \text{RBW} \leq 100 \text{ kHz}$. - d) Set the VBW $\geq 3 \times \text{RBW}$. - e) Detector = peak. - f) Sweep time = auto couple. - g) Trace mode = max hold. - h) Allow trace to fully stabilize. - i) Use the peak marker function to determine the maximum amplitude level within the RBW. - j) If measured value exceeds limit, reduce RBW (no less than 3 kHz) and repeat. 		
Remark			
Result	<input checked="" type="checkbox"/> Pass <input type="checkbox"/> Fail		

Test Data Yes N/A
 Test Plot Yes (See below) N/A

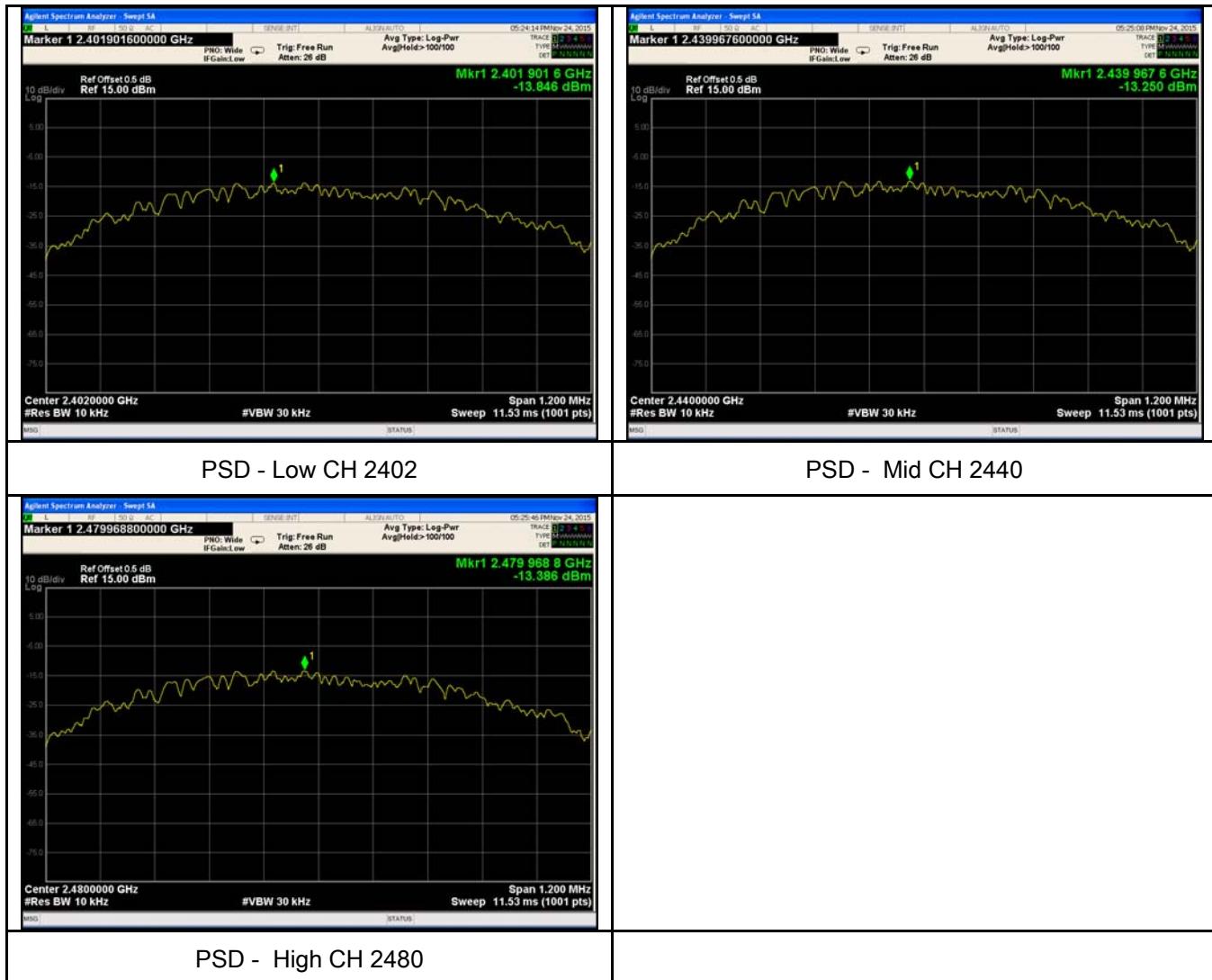
Power Spectral Density measurement result

Test Data

Type	CH	Freq (MHz)	PSD (dBm)	Factor (dB)	Result (dBm)	Limit (dBm)	Result
PSD	Low	2402	-13.846	-5.2	-19.046	8	Pass
	Mid	2440	-13.250	-5.2	-18.450	8	Pass
	High	2480	-13.386	-5.2	-18.586	8	Pass

Note: Factor= $10\log(3/10)\text{dB} = -5.2 \text{ dB}$ (b, g, n20 mode);

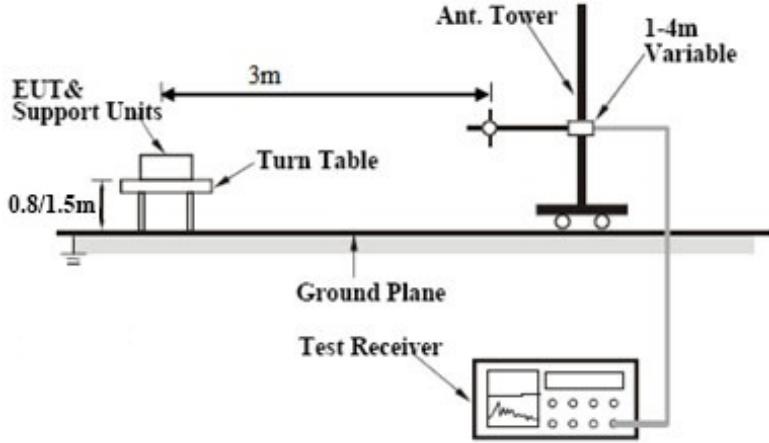
Test Plots



6.5 Band-Edge & Unwanted Emissions into Non-Restricted Frequency Bands

Temperature	23°C
Relative Humidity	59%
Atmospheric Pressure	1026mbar
Test date :	November 26, 2015
Tested By :	Winnie Zhang

Requirement(s):

Spec	Item	Requirement	Applicable
§15.247(d)	a)	In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits.	<input checked="" type="checkbox"/>
Test Setup			
Test Procedure	<p>Radiated Method Only</p> <ul style="list-style-type: none"> - 1. Check the calibration of the measuring instrument using either an internal calibrator or a known signal from an external generator. - 2. Position the EUT without connection to measurement instrument. Put it on the Rotated table and turn on the EUT and make it operate in transmitting mode. Then set it to Low Channel and High Channel within its operating range, and make sure the instrument is operated in its linear range. 		

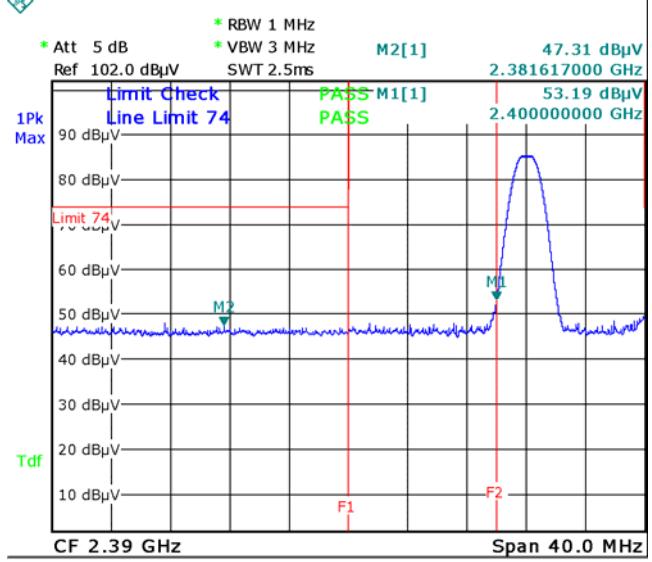
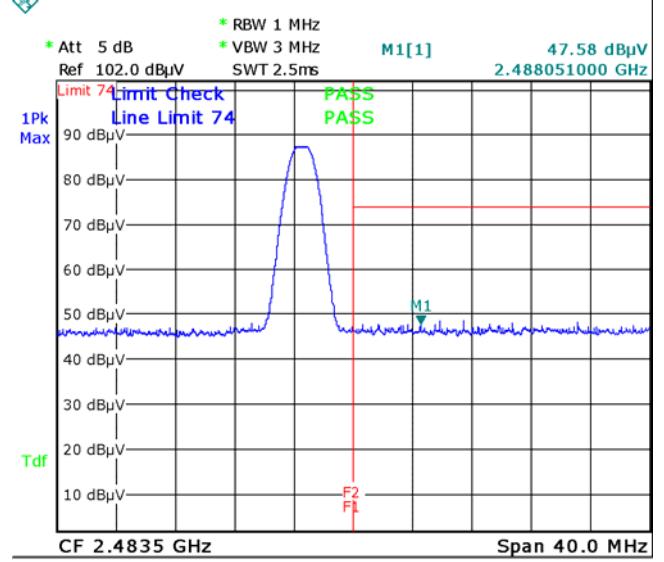
	<ul style="list-style-type: none"> - 3. First, set both RBW and VBW of spectrum analyzer to 100 kHz with a convenient frequency span including 100kHz bandwidth from band edge, check the emission of EUT, if pass then set Spectrum Analyzer as below: <ul style="list-style-type: none"> a. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120 kHz for Quasiy Peak detection at frequency below 1GHz. b. 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. c. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and the video bandwidth is 10Hz with Peak detection for Average Measurement as below at frequency above 1GHz. - 4. Measure the highest amplitude appearing on spectral display and set it as a reference level. Plot the graph with marking the highest point and edge frequency. - 5. Repeat above procedures until all measured frequencies were complete.
Remark	
Result	<input checked="" type="checkbox"/> Pass <input type="checkbox"/> Fail

Test Data Yes N/A

Test Plot Yes (See below) N/A

Test Plots

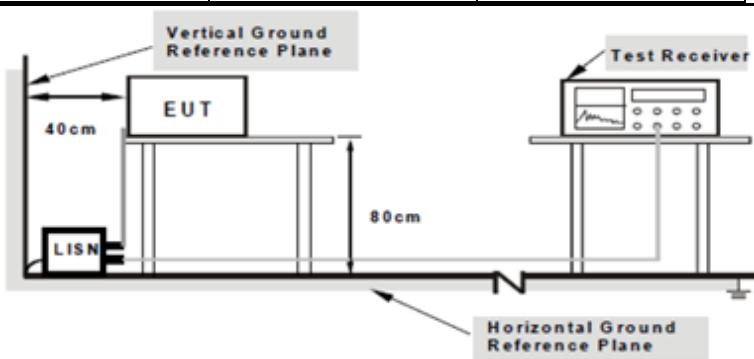
Band Edge measurement result

 <p>1Pk Max</p> <p>Tdf</p> <p>CF 2.39 GHz</p> <p>Span 40.0 MHz</p> <p>M2[1] 47.31 dBμV 2.381617000 GHz</p> <p>M1 53.19 dBμV 2.400000000 GHz</p> <p>Limit Check PASS</p> <p>Line Limit 74 PASS</p> <p>* Att 5 dB * RBW 1 MHz Ref 102.0 dBμV * VBW 3 MHz SWT 2.5ms</p>	 <p>1Pk Max</p> <p>Tdf</p> <p>CF 2.4835 GHz</p> <p>Span 40.0 MHz</p> <p>M1[1] 47.58 dBμV 2.488051000 GHz</p> <p>M2 53.19 dBμV 2.483550000 GHz</p> <p>Limit Check PASS</p> <p>Line Limit 74 PASS</p> <p>* Att 5 dB * RBW 1 MHz Ref 102.0 dBμV * VBW 3 MHz SWT 2.5ms</p>
<p>Date: 26.NOV.2015 09:46:31</p> <p>Band Edge, Left Side (Peak)</p> <p>Note: F1 is frequency 2390MHz; F2 is frequency 2400MHz</p>	<p>Date: 26.NOV.2015 09:49:39</p> <p>Band Edge, Right Side (Peak)</p> <p>Note: F1 is frequency 2483.5MHz</p>
<p>Note: (no need if PK value less than the AV limit)</p>	<p>Note: (no need if PK value less than the AV limit)</p>
<p>Band Edge, Left Side-AV</p>	<p>Band Edge, Right Side-AV</p>

6.6 AC Power Line Conducted Emissions

Temperature	25°C
Relative Humidity	57%
Atmospheric Pressure	1024mbar
Test date :	November 24, 2015
Tested By :	Winnie Zhang

Requirement(s):

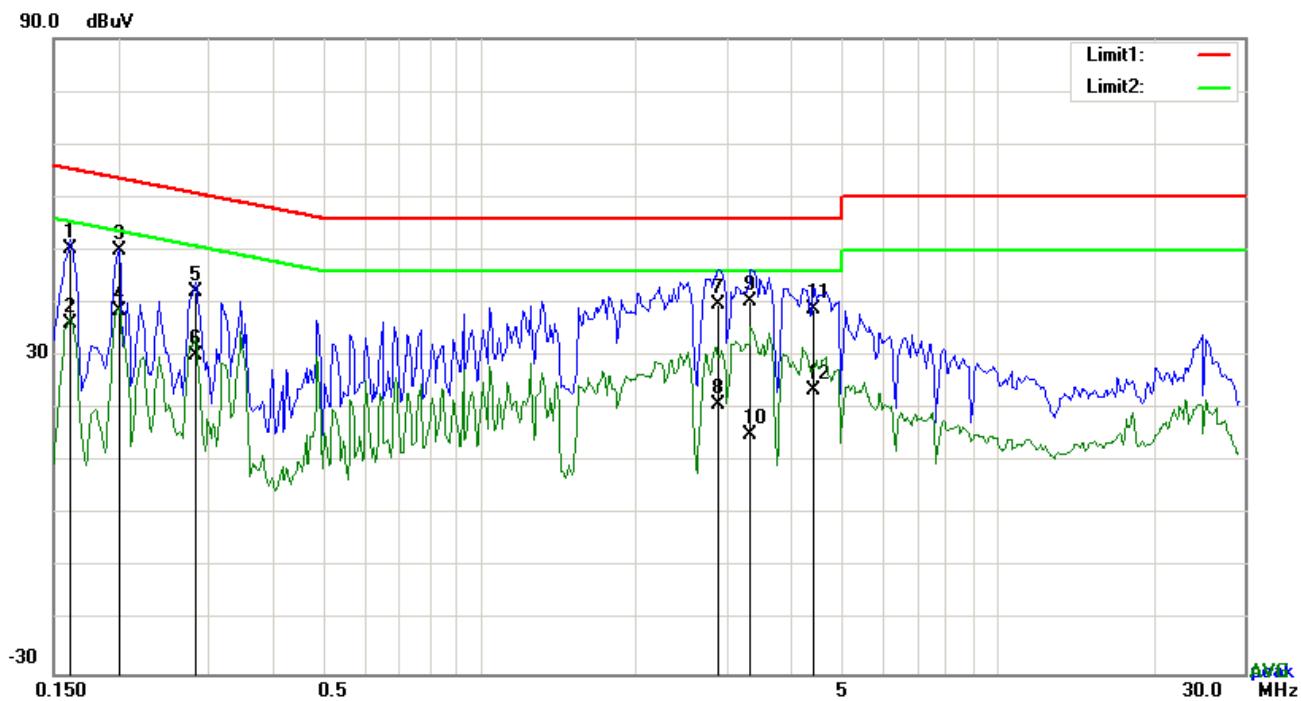
Spec	Item	Requirement	Applicable														
47CFR§15.207, RSS210 (A8.1)	a)	<p>For Low-power radio-frequency devices that is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies, within 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.</p> <table border="1"> <thead> <tr> <th rowspan="2">Frequency ranges (MHz)</th> <th colspan="2">Limit (dBμV)</th> </tr> <tr> <th>QP</th> <th>Average</th> </tr> </thead> <tbody> <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> </tbody> </table>	Frequency ranges (MHz)	Limit (dB μ V)		QP	Average	0.15 ~ 0.5	66 – 56	56 – 46	0.5 ~ 5	56	46	5 ~ 30	60	50	<input checked="" type="checkbox"/>
Frequency ranges (MHz)	Limit (dB μ V)																
	QP	Average															
0.15 ~ 0.5	66 – 56	56 – 46															
0.5 ~ 5	56	46															
5 ~ 30	60	50															
Test Setup	 <p>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.</p>																
Procedure	<ol style="list-style-type: none"> 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. The power supply for the EUT was fed through a 50W/50mH EUT LISN, connected to filtered mains. 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	<input checked="" type="checkbox"/> Pass <input type="checkbox"/> Fail

Test Data Yes N/A

Test Plot Yes (See below) N/A

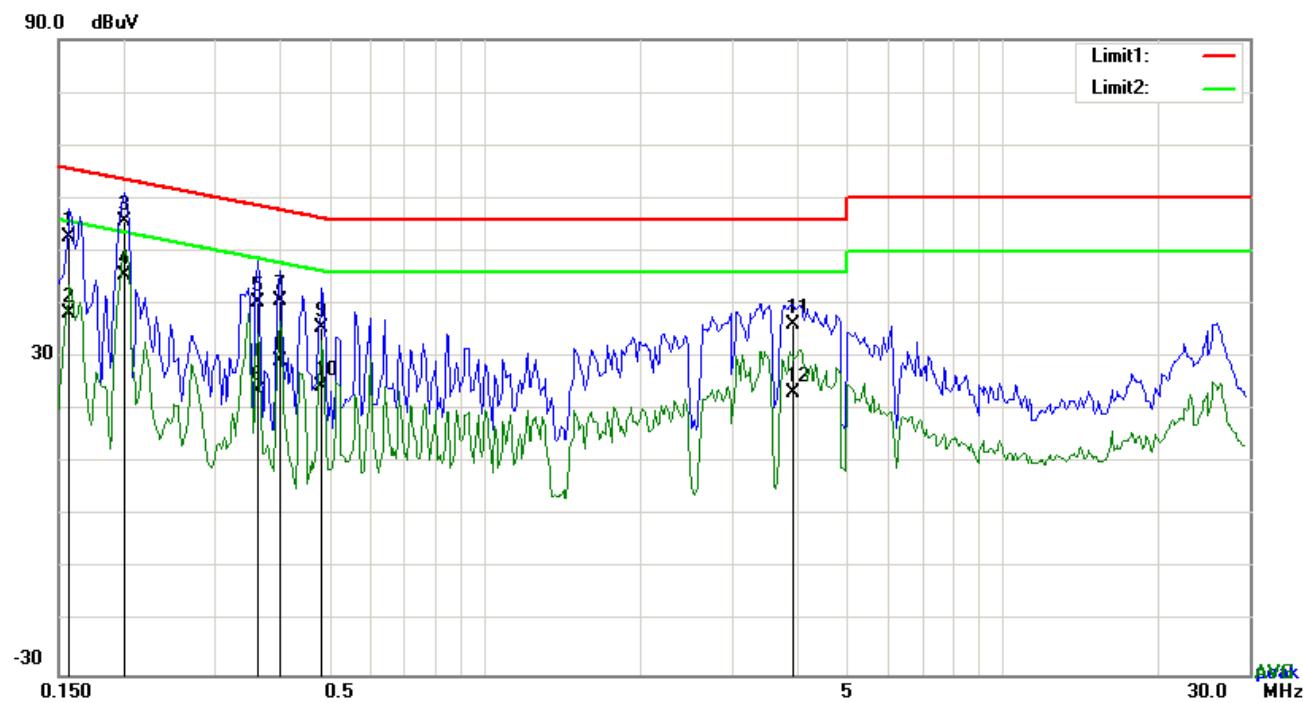
Test Mode: Transmitting Mode


Test Data

Phase Line Plot at 120Vac, 60Hz

No.	P/L	Frequency (MHz)	Reading (dB μ V)	Detector	Corrected (dB)	Result (dB μ V)	Limit (dB μ V)	Margin (dB)
1	L1	0.1617	40.24	QP	10.03	50.27	65.38	-15.11
2	L1	0.1617	26.03	AVG	10.03	36.06	55.38	-19.32
3	L1	0.2007	39.99	QP	10.03	50.02	63.58	-13.56
4	L1	0.2007	28.62	AVG	10.03	38.65	53.58	-14.93
5	L1	0.2826	32.15	QP	10.03	42.18	60.74	-18.56
6	L1	0.2826	20.21	AVG	10.03	30.24	50.74	-20.50
7	L1	2.8917	29.60	QP	10.05	39.65	56.00	-16.35
8	L1	2.8917	10.73	AVG	10.05	20.78	46.00	-25.22
9	L1	3.3315	30.36	QP	10.06	40.42	56.00	-15.58
10	L1	3.3315	5.10	AVG	10.06	15.16	46.00	-30.84
11	L1	4.4235	28.80	QP	10.07	38.87	56.00	-17.13
12	L1	4.4235	13.59	AVG	10.07	23.66	46.00	-22.34

Test Mode:	Transmitting Mode
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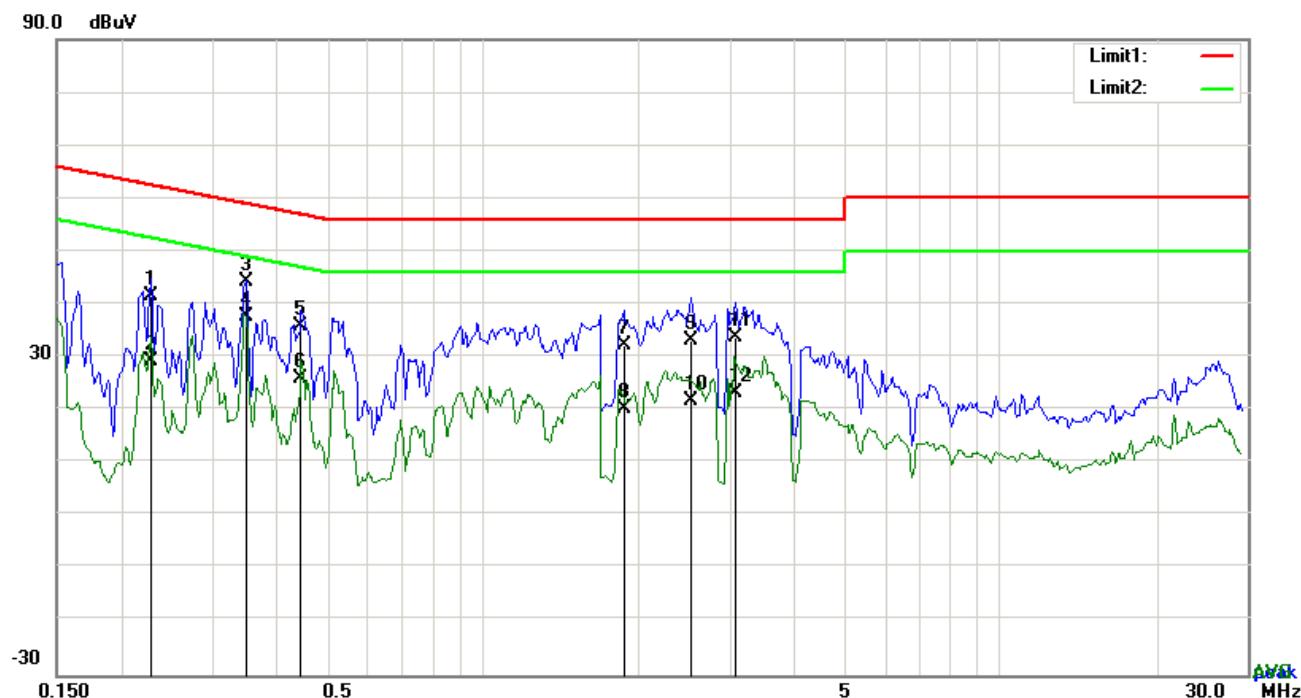


Test Data

Phase Neutral Plot at 120Vac, 60Hz

No.	P/L	Frequency (MHz)	Reading (dB μ V)	Detector	Corrected (dB)	Result (dB μ V)	Limit (dB μ V)	Margin (dB)
1	N	0.1578	42.58	QP	10.02	52.60	65.58	-12.98
2	N	0.1578	28.30	AVG	10.02	38.32	55.58	-17.26
3	N	0.2007	45.72	QP	10.02	55.74	63.58	-7.84
4	N	0.2007	35.38	AVG	10.02	45.40	53.58	-8.18
5	N	0.3645	30.45	QP	10.02	40.47	58.63	-18.16
6	N	0.3645	13.58	AVG	10.02	23.60	48.63	-25.03
7	N	0.4035	30.73	QP	10.02	40.75	57.78	-17.03
8	N	0.4035	19.38	AVG	10.02	29.40	47.78	-18.38
9	N	0.4854	25.47	QP	10.02	35.49	56.25	-20.76
10	N	0.4854	14.32	AVG	10.02	24.34	46.25	-21.91
11	N	3.9516	26.12	QP	10.06	36.18	56.00	-19.82
12	N	3.9516	13.09	AVG	10.06	23.15	46.00	-22.85

Test Mode:	Transmitting Mode
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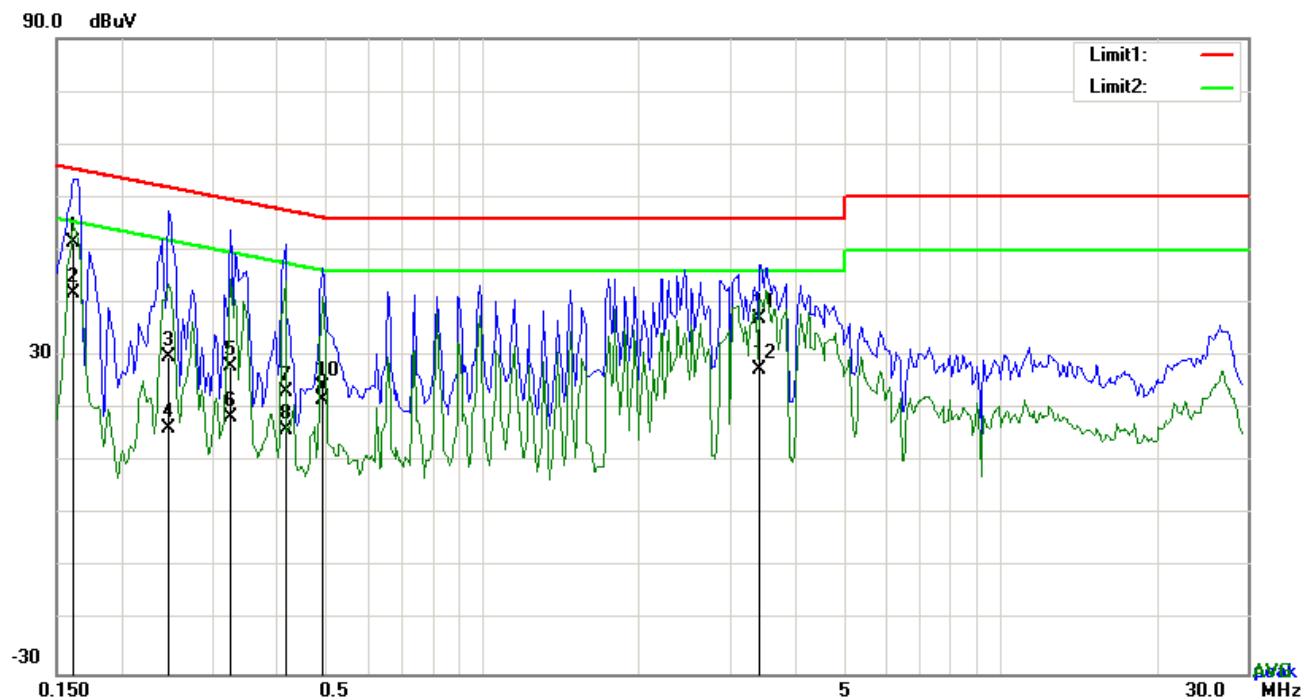


Test Data

Phase Line Plot at 240Vac, 60Hz

No.	P/L	Frequency (MHz)	Reading (dB μ V)	Detector	Corrected (dB)	Result (dB μ V)	Limit (dB μ V)	Margin (dB)
1	L1	0.2280	31.48	QP	10.03	41.51	62.52	-21.01
2	L1	0.2280	19.23	AVG	10.03	29.26	52.52	-23.26
3	L1	0.3489	34.15	QP	10.03	44.18	58.99	-14.81
4	L1	0.3489	27.56	AVG	10.03	37.59	48.99	-11.40
5	L1	0.4464	25.67	QP	10.03	35.70	56.94	-21.24
6	L1	0.4464	16.00	AVG	10.03	26.03	46.94	-20.91
7	L1	1.8699	22.35	QP	10.04	32.39	56.00	-23.61
8	L1	1.8699	10.29	AVG	10.04	20.33	46.00	-25.67
9	L1	2.5251	23.00	QP	10.05	33.05	56.00	-22.95
10	L1	2.5251	11.73	AVG	10.05	21.78	46.00	-24.22
11	L1	3.0741	23.74	QP	10.06	33.80	56.00	-22.20
12	L1	3.0741	13.32	AVG	10.06	23.38	46.00	-22.62

Test Mode: **Transmitting Mode**



Test Data

Phase Neutral Plot at 240Vac, 60Hz

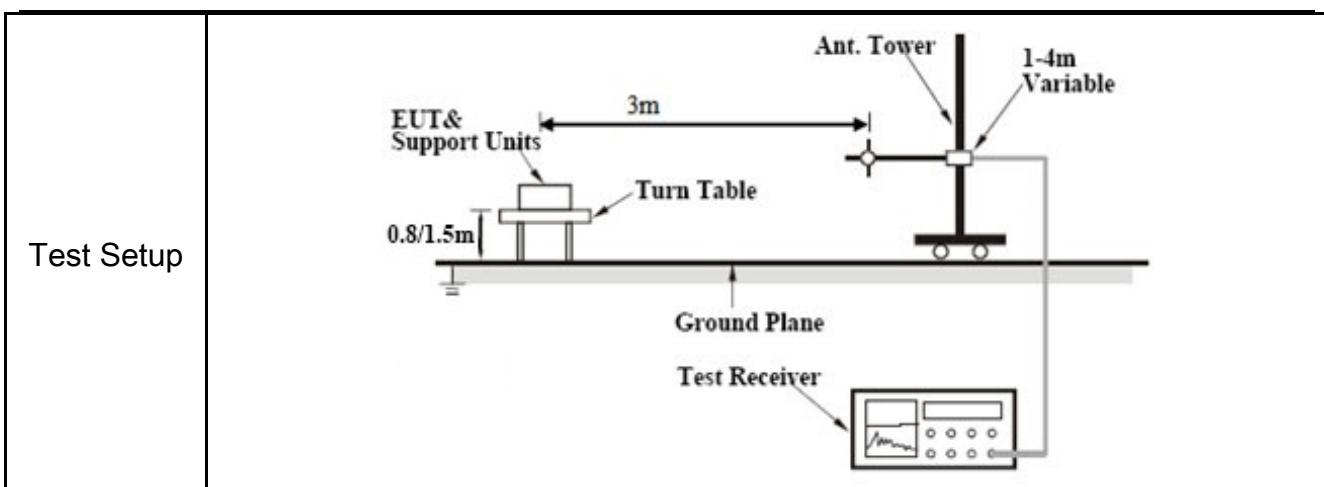
No.	P/L	Frequency (MHz)	Reading (dB μ V)	Detector	Corrected (dB)	Result (dB μ V)	Limit (dB μ V)	Margin (dB)
1	N	0.1617	41.34	QP	10.02	51.36	65.38	-14.02
2	N	0.1617	31.68	AVG	10.02	41.70	55.38	-13.68
3	N	0.2475	19.90	QP	10.02	29.92	61.84	-31.92
4	N	0.2475	6.31	AVG	10.02	16.33	51.84	-35.51
5	N	0.3255	18.03	QP	10.02	28.05	59.57	-31.52
6	N	0.3255	8.35	AVG	10.02	18.37	49.57	-31.20
7	N	0.4152	13.12	QP	10.02	23.14	57.54	-34.40
8	N	0.4152	6.07	AVG	10.02	16.09	47.54	-31.45
9	N	0.4893	11.64	QP	10.02	21.66	56.18	-34.52
10	N	0.4893	14.10	AVG	10.02	24.12	46.18	-22.06
11	N	3.4329	26.90	QP	10.05	36.95	56.00	-19.05
12	N	3.4329	17.29	AVG	10.05	27.34	46.00	-18.66

6.7 Radiated Emissions

Temperature	22°C
Relative Humidity	58%
Atmospheric Pressure	1025mbar
Test date :	November 25, 2015
Tested By :	Winnie Zhang

Requirement(s):

Spec	Item	Requirement	Applicable										
47CFR§15. 247(d), RSS210 (A8.5)	a)	<p>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</p> <table border="1"> <thead> <tr> <th>Frequency range (MHz)</th> <th>Field Strength (μV/m)</th> </tr> </thead> <tbody> <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> </tbody> </table>	Frequency range (MHz)	Field Strength (μ V/m)	30 – 88	100	88 – 216	150	216 – 960	200	Above 960	500	<input checked="" type="checkbox"/>
Frequency range (MHz)	Field Strength (μ V/m)												
30 – 88	100												
88 – 216	150												
216 – 960	200												
Above 960	500												
b)	<p>For non-restricted band, In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB or 30dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, determined by the measurement method on output power to be used. Attenuation below the general limits specified in § 15.209(a) is not required</p> <p><input checked="" type="checkbox"/> 20 dB down <input type="checkbox"/> 30 dB down</p>	<input checked="" type="checkbox"/>											
c)	or restricted band, emission must also comply with the radiated emission limits specified in 15.209	<input checked="" type="checkbox"/>											



Procedure	<ol style="list-style-type: none"> 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: <ol style="list-style-type: none"> a. Vertical or horizontal polarization (whichever gave the higher emission level 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 is 10Hz with Peak detection for Average Measurement as below at frequency above 1GHz. 5. Steps 2 and 3 were repeated for the next frequency point, until all selected frequency points were measured.
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Remark	Different RF configuration has been evaluated but not much difference was found. The data presented here is the worst case data with EUT under 802.11n – HT20-2437MHz mode.
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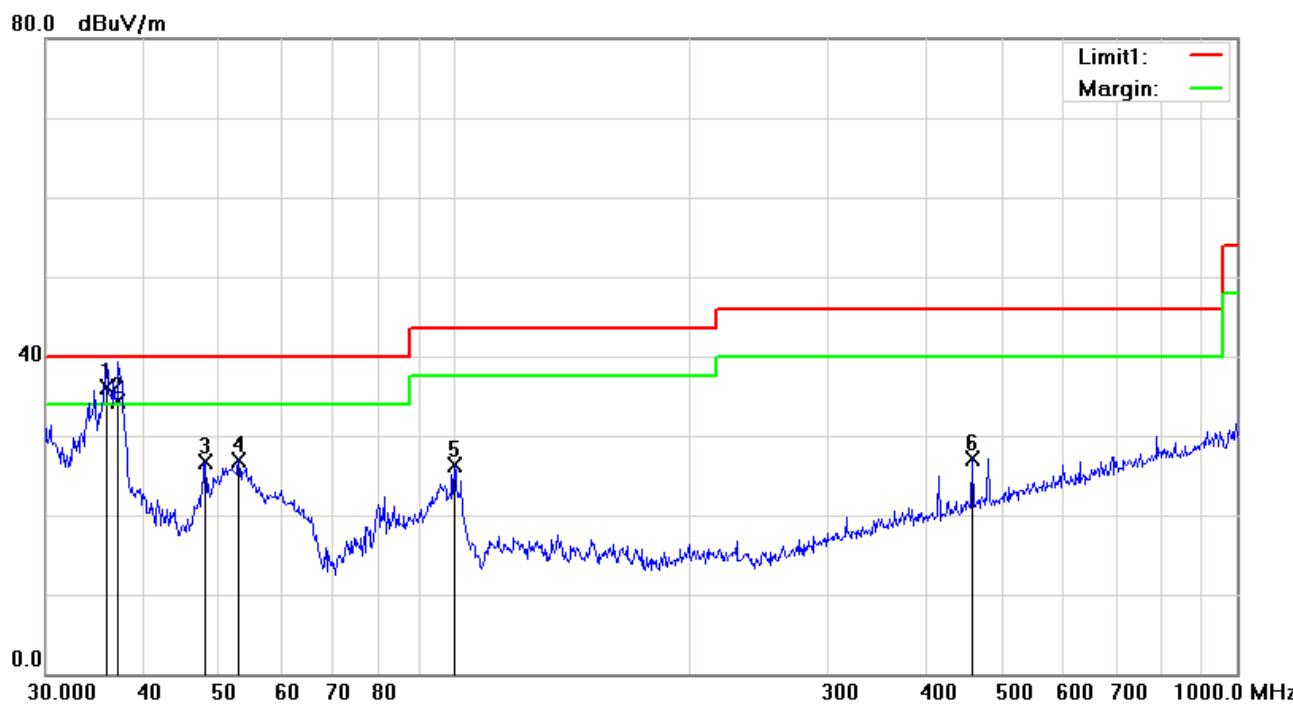
Result	<input checked="" type="checkbox"/> Pass <input type="checkbox"/> Fail
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Test Data	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> N/A
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Test Plot	<input checked="" type="checkbox"/> Yes (See below) <input type="checkbox"/> N/A
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Test Mode: Transmitting Mode

Below 1GHz

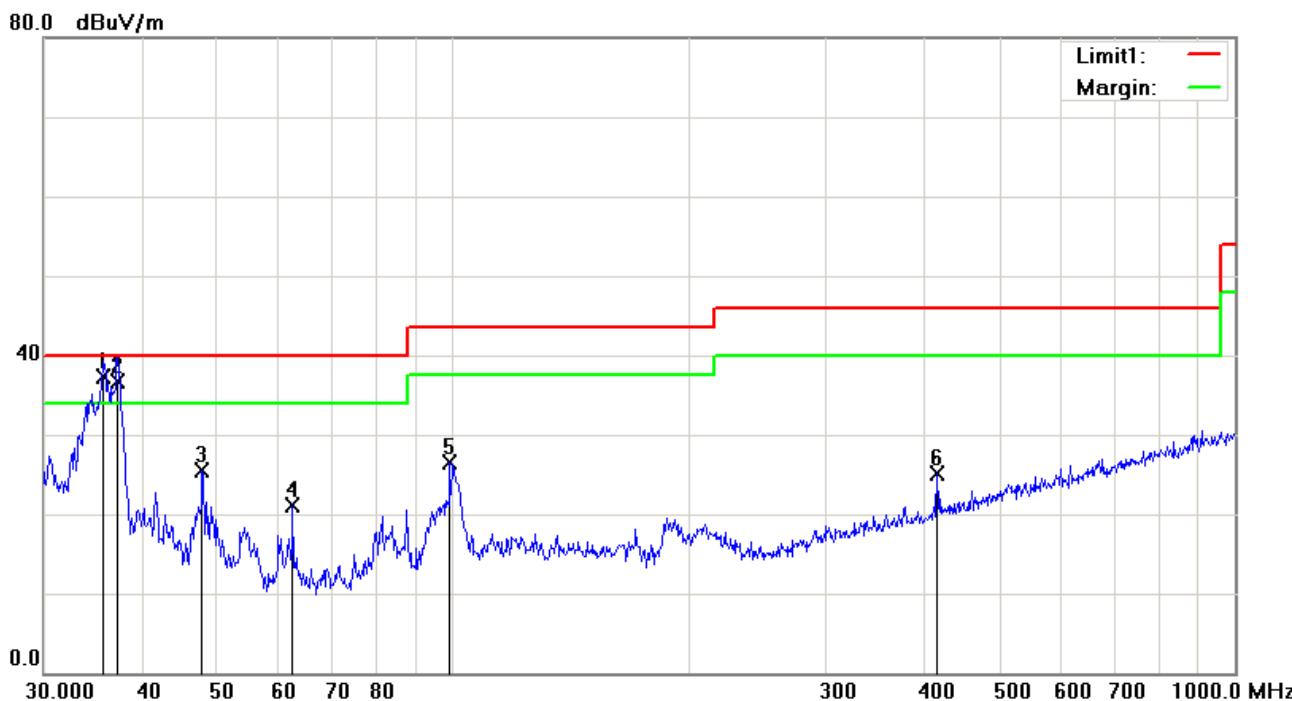


Test Data

Vertical Polarity Plot @3m

No	P/L	Frequency (MHz)	Reading (dB μ V)	Detector	Corrected (dB)	Result (dB μ V)	Limit (dB μ V)	Margin (dB)	Height	Degree
1	V	35.8747	40.66	QP	-4.58	36.08	40.00	-3.92	100	343
2	V	37.1550	39.91	QP	-5.51	34.40	40.00	-5.60	100	346
3	V	47.9940	38.99	peak	-12.28	26.71	40.00	-13.29	100	279
4	V	52.9453	40.36	peak	-13.52	26.84	40.00	-13.16	100	313
5	V	99.8777	37.04	peak	-10.83	26.21	43.50	-17.29	100	360
6	V	459.1144	29.95	peak	-2.83	27.12	46.00	-18.88	100	164

Below 1GHz



Test Data

Horizontal Polarity Plot @3m

No	P/L	Frequency (MHz)	Reading (dB μ V)	Detector	Corrected (dB)	Result (dB μ V)	Limit (dB μ V)	Margin (dB)	Height	Degree
1	H	35.7491	41.82	QP	-4.49	37.33	40.00	-2.67	100	99
2	H	37.2855	42.28	QP	-5.61	36.67	40.00	-3.33	100	28
3	H	47.8260	37.75	peak	-12.20	25.55	40.00	-14.45	100	359
4	H	62.4314	35.21	peak	-14.17	21.04	40.00	-18.96	100	167
5	H	99.1797	37.48	peak	-11.02	26.46	43.50	-17.04	100	167
6	H	416.1791	29.01	peak	-3.91	25.10	46.00	-20.90	100	359

Above 1GHz

Test Mode:	Transmitting Mode
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Low Channel (2402 MHz)

Frequency (MHz)	S.A. Reading (dB μ V)	Detector (PK/AV)	Polarity (H/V)	Ant. Factor (dB/m)	Cable Loss (dB)	Pre-Amp. Gain (dB)	Cord. Amp. (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)
4804	38.27	AV	V	33.83	6.86	31.72	47.24	54	-6.76
4804	38.14	AV	H	33.83	6.86	31.72	47.11	54	-6.89
4804	46.75	PK	V	33.83	6.86	31.72	55.72	74	-18.28
4804	46.52	PK	H	33.83	6.86	31.72	55.49	74	-18.51

Middle Channel (2440 MHz)

Frequency (MHz)	S.A. Reading (dB μ V)	Detector (PK/AV)	Polarity (H/V)	Ant. Factor (dB/m)	Cable Loss (dB)	Pre-Amp. Gain (dB)	Cord. Amp. (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)
4880	38.33	AV	V	33.86	6.82	31.82	47.19	54	-6.81
4880	38.19	AV	H	33.86	6.82	31.82	47.05	54	-6.95
4880	46.68	PK	V	33.86	6.82	31.82	55.54	74	-18.46
4880	46.45	PK	H	33.86	6.82	31.82	55.31	74	-18.69

High Channel (2480 MHz)

Frequency (MHz)	S.A. Reading (dB μ V)	Detector (PK/AV)	Polarity (H/V)	Ant. Factor (dB/m)	Cable Loss (dB)	Pre-Amp. Gain (dB)	Cord. Amp. (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)
4960	38.28	AV	V	33.9	6.76	31.92	47.02	54	-6.98
4960	38.22	AV	H	33.9	6.76	31.92	46.96	54	-7.04
4960	46.73	PK	V	33.9	6.76	31.92	55.47	74	-18.53
4960	46.51	PK	H	33.9	6.76	31.92	55.25	74	-18.75

Note:

- 1, The testing has been conformed to $10 \times 2480 \text{ MHz} = 24,800 \text{ MHz}$
- 2, All other emissions more than 30 dB below the limit

Annex A. TEST INSTRUMENT

Instrument	Model	Serial #	Cal Date	Cal Due	In use
AC Line Conducted					
EMI test receiver	ESCS30	8471241027	09/17/2015	09/16/2016	<input checked="" type="checkbox"/>
Line Impedance	LI-125A	191106	09/25/2015	09/24/2016	<input checked="" type="checkbox"/>
Line Impedance	LI-125A	191107	09/25/2015	09/24/2016	<input checked="" type="checkbox"/>
LISN	ISN T800	34373	09/25/2015	09/24/2016	<input checked="" type="checkbox"/>
Double Ridge Horn Antenna (1 ~18GHz)	AH-118	71283	09/24/2015	09/23/2016	<input checked="" type="checkbox"/>
Transient Limiter	LIT-153	531118	09/01/2015	08/31/2016	<input checked="" type="checkbox"/>
RF conducted test					
Agilent ESA-E SERIES	E4407B	MY45108319	09/17/2015	09/16/2016	<input checked="" type="checkbox"/>
Power Splitter	1#	1#	09/01/2015	08/31/2016	<input checked="" type="checkbox"/>
DC Power Supply	E3640A	MY40004013	09/17/2015	09/16/2016	<input checked="" type="checkbox"/>
Radiated Emissions					
EMI test receiver	ESL6	100262	09/17/2015	09/16/2016	<input checked="" type="checkbox"/>
Positioning Controller	UC3000	MF780208282	11/19/2015	11/18/2016	<input checked="" type="checkbox"/>
OPT 010 AMPLIFIER (0.1-1300MHz)	8447E	2727A02430	09/01/2015	08/31/2016	<input checked="" type="checkbox"/>
Microwave Preamplifier (1 ~ 26.5GHz)	8449B	3008A02402	03/25/2015	03/24/2016	<input checked="" type="checkbox"/>
Bilog Antenna (30MHz~6GHz)	JB6	A110712	09/21/2015	09/20/2016	<input checked="" type="checkbox"/>
Double Ridge Horn Antenna (1 ~18GHz)	AH-118	71283	09/24/2015	09/23/2016	<input checked="" type="checkbox"/>
Universal Radio Communication Tester	CMU200	121393	09/25/2015	09/23/2016	<input checked="" type="checkbox"/>

Annex B. EUT And Test Setup Photographs

Annex B.i. Photograph: EUT External Photo

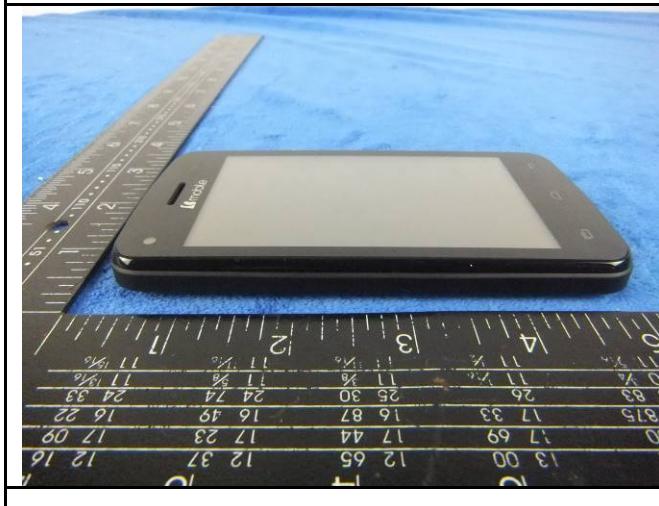




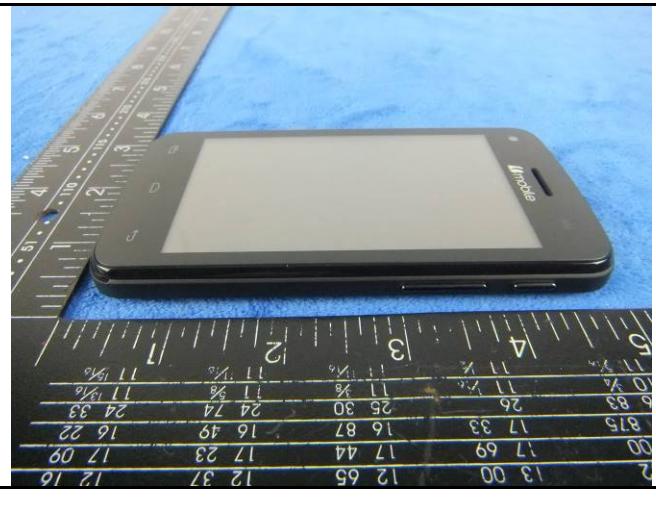
EUT - Top View



EUT - Bottom View

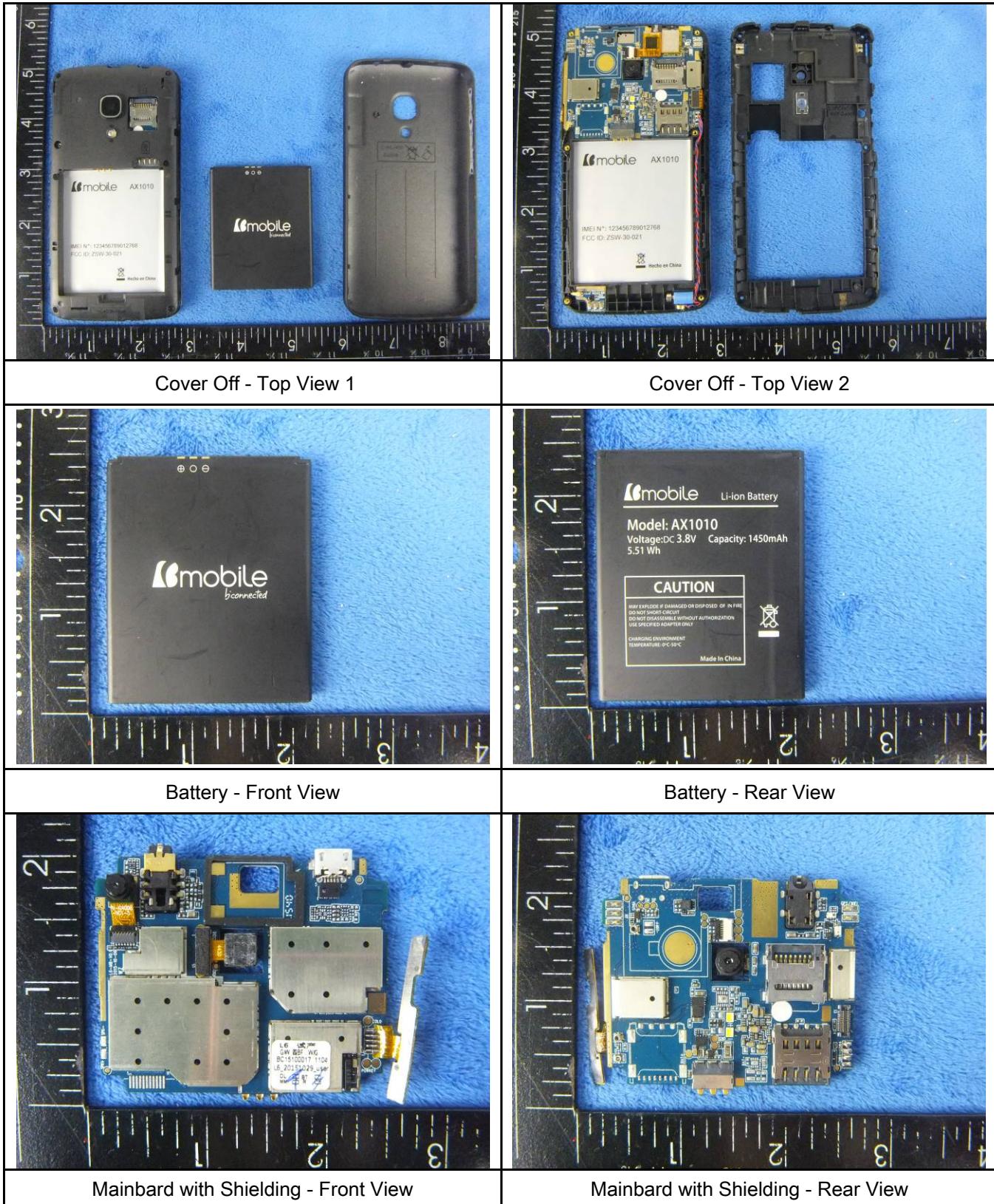


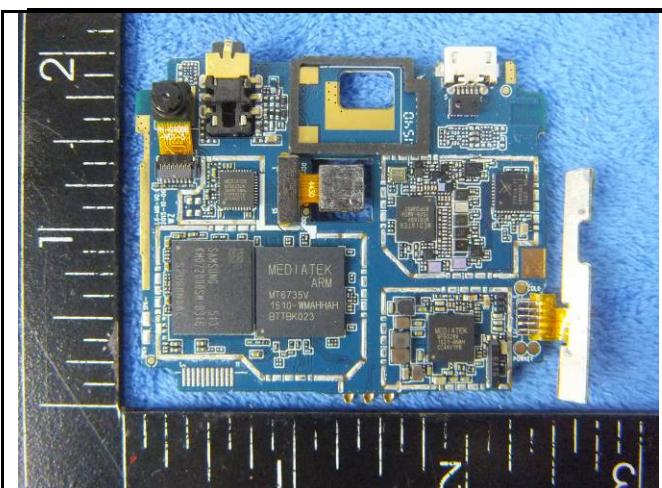
EUT - Left View



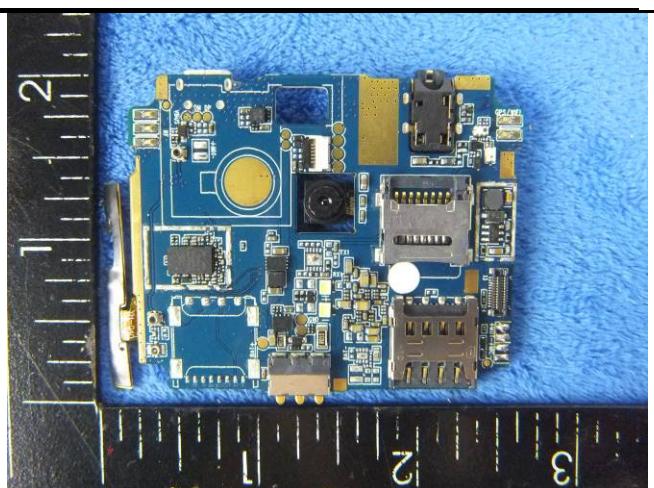
EUT - Right View

Annex B.ii. Photograph: EUT Internal Photo





Mainboard without shielding - Front View



Mainboard without Shielding - Rear View



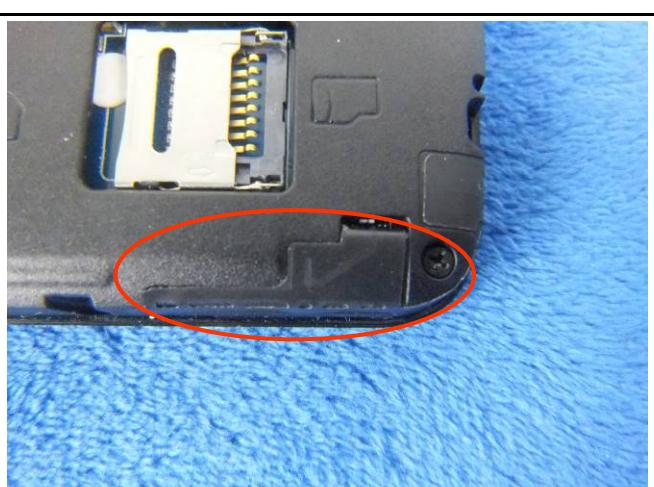
LCD – Front View



LCD – Rear View

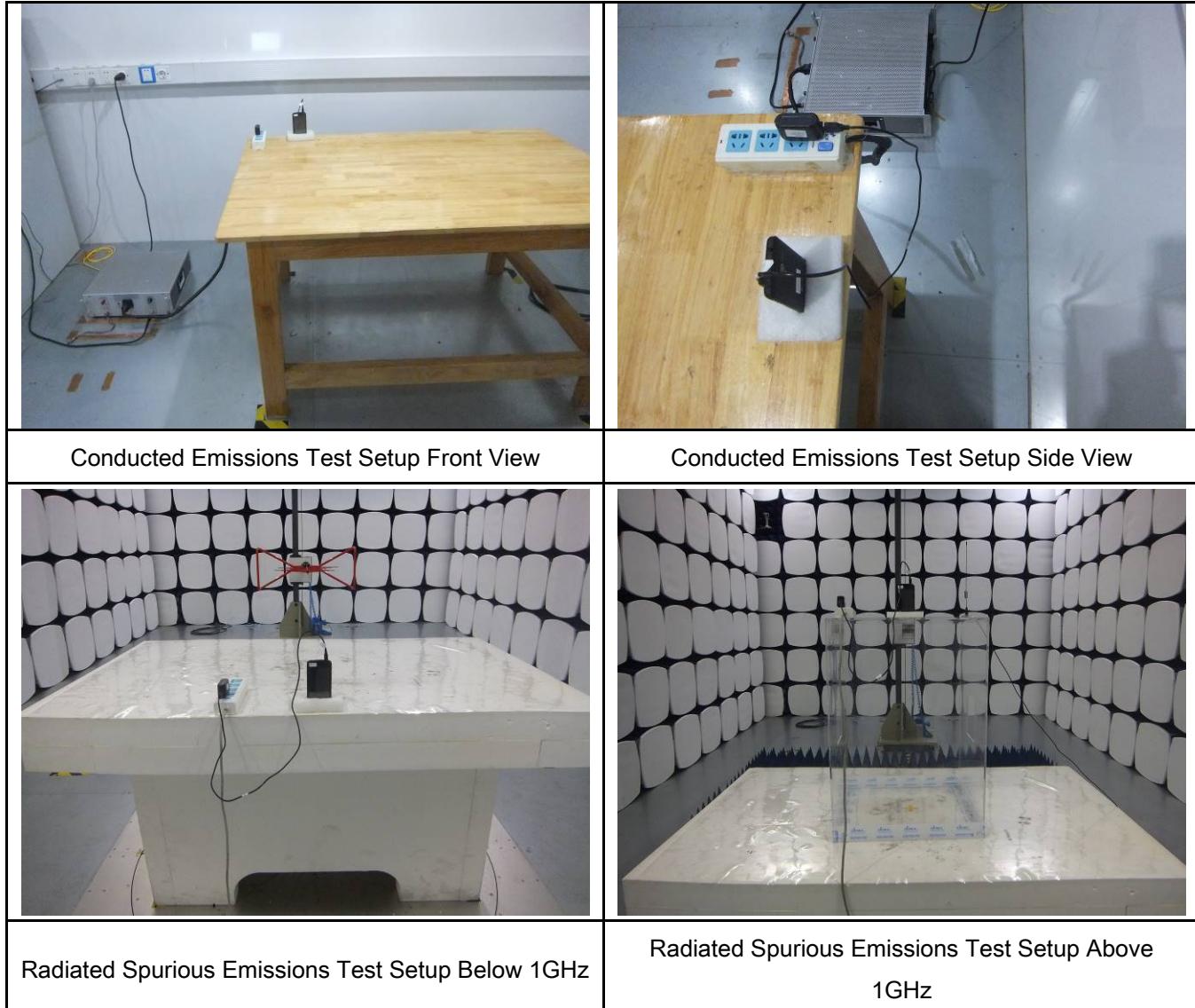


GSM/PCS/UMTS-FDD/LTE - Antenna View



WIFI/BT/BLE/GPS - Antenna View

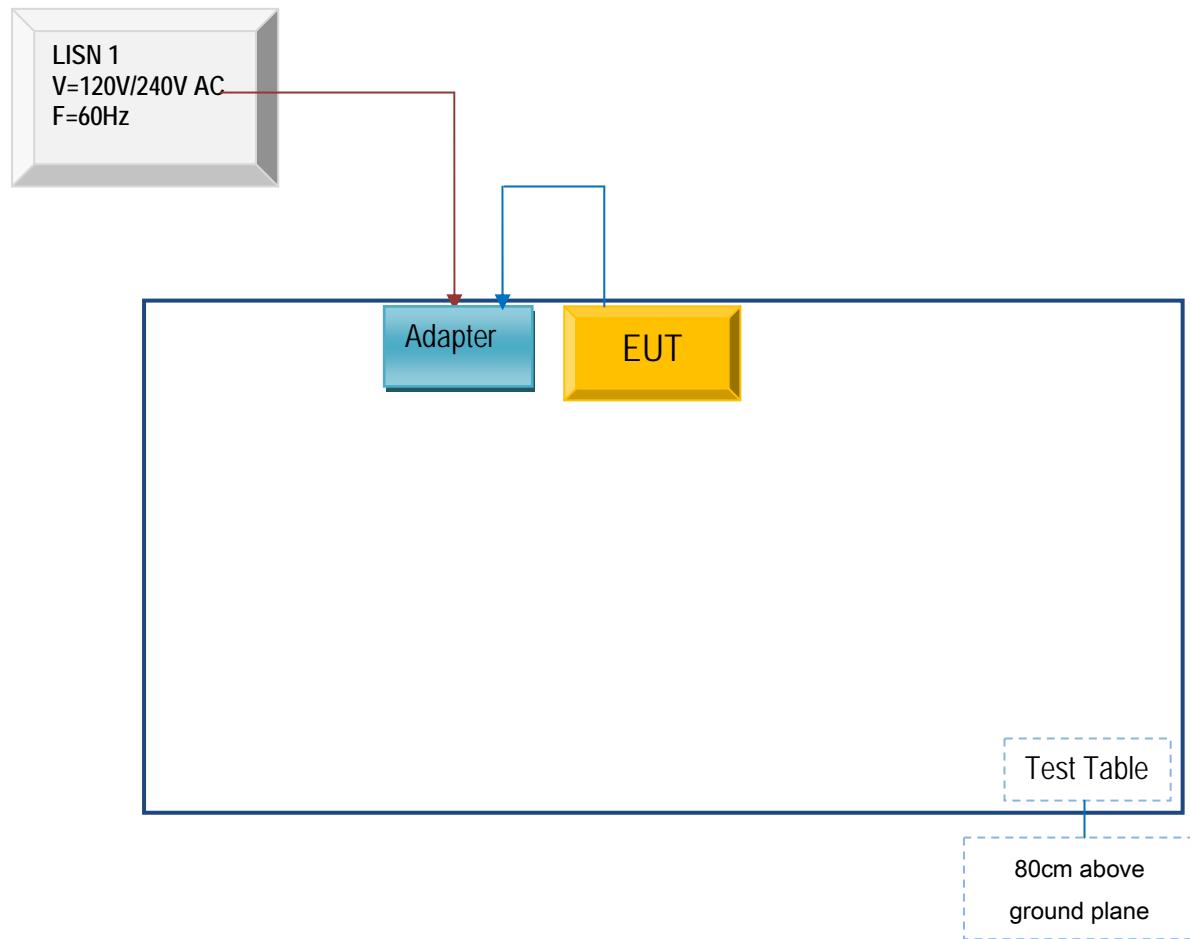
Annex B.iii. Photograph: Test Setup Photo



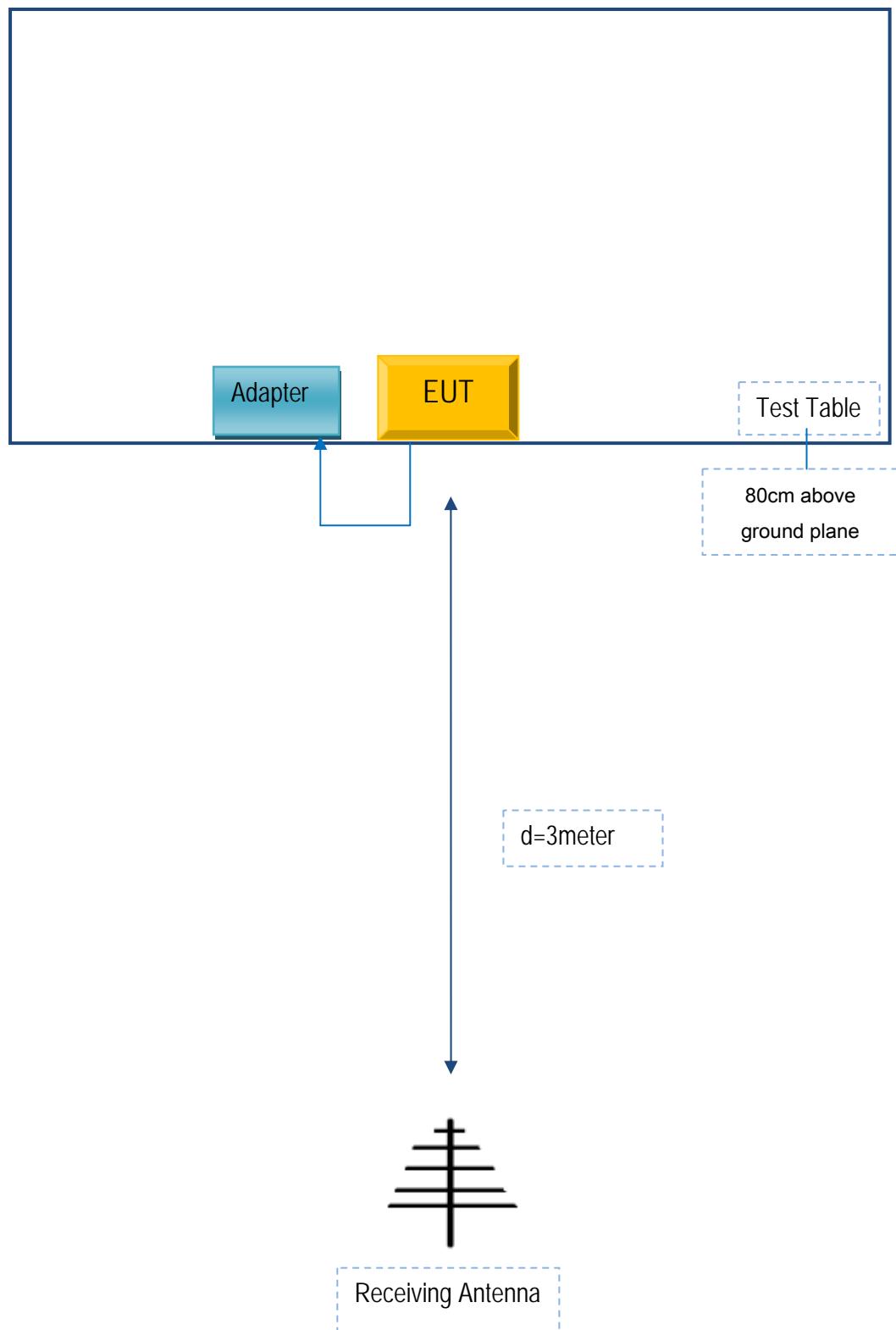
Annex C. TEST SETUP AND SUPPORTING EQUIPMENT

Annex C.ii. TEST SET UP BLOCK

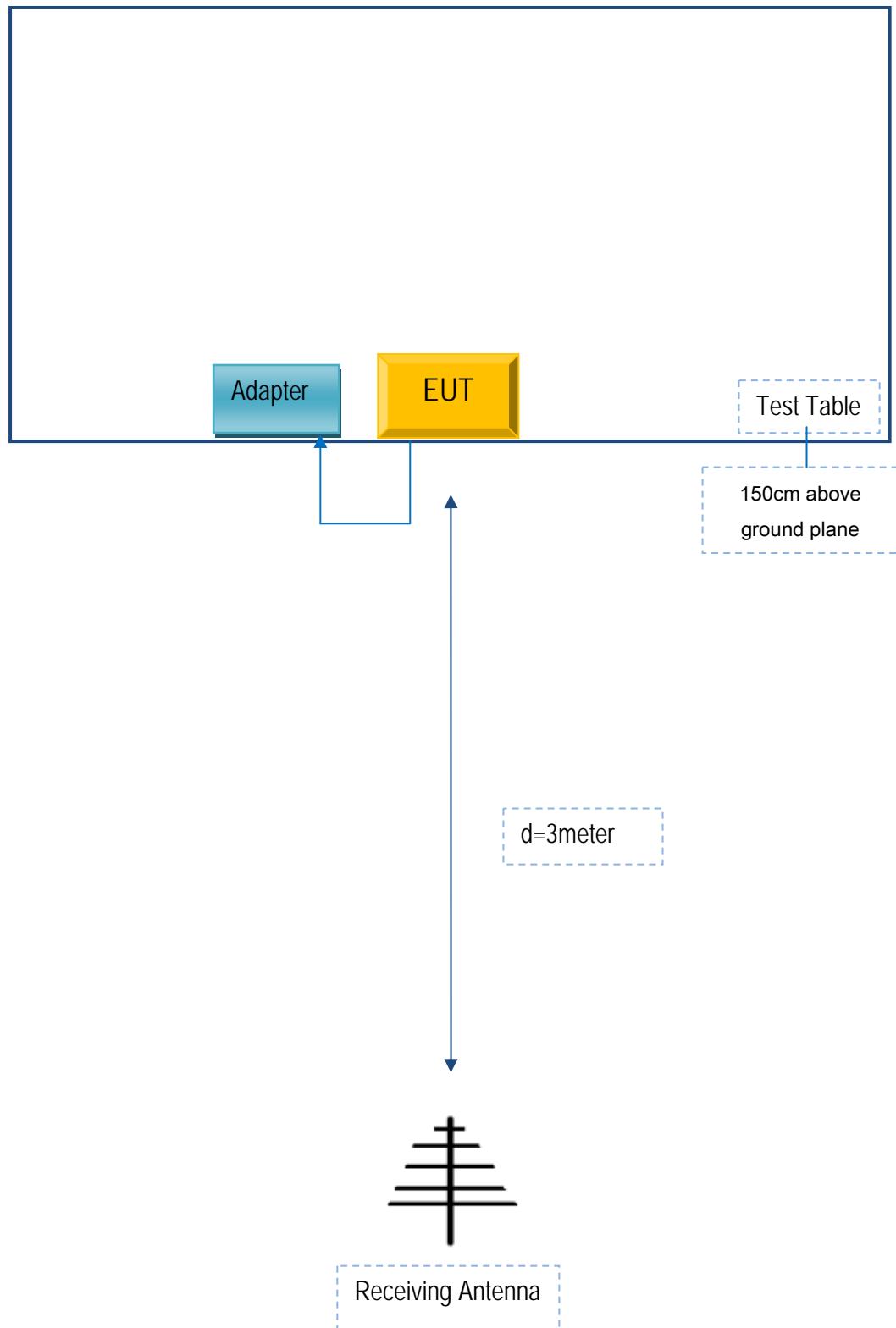
Block Configuration Diagram for AC Line Conducted Emissions



Block Configuration Diagram for Radiated Emissions (Below 1GHz) .



Block Configuration Diagram for Radiated Emissions (Above 1GHz) .



Annex C. ii. SUPPORTING EQUIPMENT DESCRIPTION

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

Manufacturer	Equipment Description	Model	Serial No
b mobile HK Limited	Adapter	N/A	CX12503647

Supporting Cable:

Cable type	Shield Type	Ferrite Core	Length	Serial No
USB Cable	Un-shielding	No	0.8m	KH13054266

Test Report No.	15050054-FCC-R4
Page	40 of 41

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

Please see attachment

Annex E. DECLARATION OF SIMILARITY

b Mobile HK Limited

To SIEMIC Inc
775 Montague Expressway
Milpitas, CA 95035.

Statement

We, b Mobile HK limited apply a multiple-listing certification for the below models.

Product Name: Mobile phone

Model number: AX1010/AX1005

FCC ID: ZSW-30-021

We hereby state that these models are identical in interior structure, electrical circuits and components, and just model name is different for the marketing requirement.

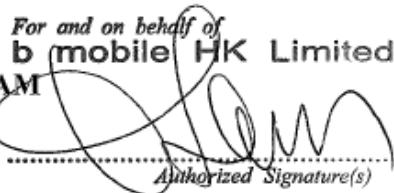
Your assistance on this matter is highly appreciated.

Sincerely,

Name: KA SHING LAM

Title: Director

Signature:

For and on behalf of
b mobile HK Limited

Authorized Signature(s)