# RF TEST REPORT



Report No.: 17070504-FCC-R4
Supersede Report No.: N/A

A 11 4					
Applicant	INFINIX MOBILITY LIMITED				
Product Name	Mobile phone				
Model No.	X559				
Serial No.	N/A				
Test Standard	FCC Part 15.247: 2016, ANSI C63.10: 2013				
Test Date	June 27 to July 11, 2017				
Issue Date	July 12, 2017				
Test Result	Test Result Pass Fail				
Equipment compl	Equipment complied with the specification				
Equipment did no	Equipment did not comply with the specification				
Loven	WO David Huang				
Loren Lu Test Engir	10000000				

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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**

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### **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
17070504-FCC-R4	NONE	Original	July 12, 2017

# 2. Customer information

Applicant Name	INFINIX MOBILITY LIMITED
Applicant Add	RMS 05-15, 13A/F SOUTH TOWER WORLD FINANCE CTR HARBOUR CITY 17
	CANTON RD TST KLN HONG KONG
Manufacturer	SHENZHEN TECNO TECHNOLOGY CO.,LTD.
Manufacturer Add	1-4th Floor,3rd Building,Pacific Industrial Park,No.2088,Shenyan Road,Yantian
	District,Shenzhen,Guangdong,China

# 3. Test site information

Lab performing tests	SIEMIC (Shenzhen-China) LABORATORIES		
	Zone A, Floor 1, Building 2 Wan Ye Long Technology Park		
Lab Address	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 of	Dedicted Facinism Decayage To Observe and O		
Radiated Emission	Radiated Emission Program-To Shenzhen v2.0		
Test Software of	E7 FMO(100 100 0004)		
Conducted Emission	EZ-EMC(ver.lcp-03A1)		



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## 4. Equipment under Test (EUT) Information

Description of EUT: Mobile phone

Main Model: X559

Serial Model: N/A

Date EUT received: June 26, 2017

Test Date(s): June 27 to July 11, 2017

Equipment Category: DTS

Antenna Gain:

GSM850: -1.1dBi

PCS1900: -1dBi

UMTS-FDD Band V: -1.1dBi

UMTS-FDD Band IV: -1.4dBi

UMTS-FDD Band II: -1.1dBi

WIFI: -2.0dBi

Bluetooth/BLE: -2.0dBi

GPS: -2.0dBi

Antenna Type: PIFA antenna

GSM / GPRS: GMSK

EGPRS: GMSK

UMTS-FDD: QPSK

Type of Modulation: 802.11b/g/n: DSSS, OFDM

Bluetooth: GFSK,  $\pi$  /4DQPSK, 8DPSK

BLE: GFSK GPS:BPSK

GSM850 TX: 824.2 ~ 848.8 MHz; RX: 869.2 ~ 893.8 MHz

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

RF Operating Frequency (ies): UMTS-FDD Band IV TX:1712.4 ~ 1752.6 MHz;

RX: 2112.4 ~ 2152.6 MHz

UMTS-FDD Band II TX:1852.4 ~ 1907.6 MHz;

RX: 1932.4 ~ 1987.6 MHz



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WIFI: 802.11b/g/n(20M): 2412-2462 MHz WIFI: 802.11n(40M): 2422-2452 MHz Bluetooth& BLE: 2402-2480 MHz

GPS: 1575.42 MHz

802.11b: 15.55 dBm

Max. Output Power: 802.11g: 11.74 dBm

> 802.11n(20M): 11.82 dBm 802.11n(40M): 11.46 dBm

GSM 850: 124CH PCS1900: 299CH

UMTS-FDD Band V: 102CH UMTS-FDD Band IV: 202CH UMTS-FDD Band II: 277CH

Number of Channels: WIFI:802.11b/g/n(20M): 11CH

WIFI:802.11n(40M): 7CH

Bluetooth: 79CH

BLE: 40CH GPS:1CH

Port: USB Port, Earphone Port

Adapter:

Model: A88-502000

Input: AC100-240V~50/60Hz,0.35A

Output: DC 5.0V,2.0A

Input Power:

Battery:

Model: BL-39EX

Spec: 3.85V,3900mAh/4000mAh,15.01Wh/15.40Wh

Voltage: 4.4V

Trade Name: Infinix

FCC ID: 2AIZN-X559

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



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# 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&20 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 Restricted Frequency Bands	Compliance
§15.207 (a),	AC Power Line Conducted Emissions	Compliance
§15.205, §15.209, §15.247(d)	Radiated Emissions & Unwanted Emissions into Restricted Frequency Bands	Compliance

### **Measurement Uncertainty**

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



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### 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 3 antennas:

A permanently attached PIFA antenna for GSM /PCS/ UMTS-FDD Band V/ IV/ II, the gain is -1.1dBi for GSM/ UMTS-FDD Band V/II, the gain is -1dBi for PCS, the gain is -1.4dBi for UMTS-FDD Band IV.

A permanently attached PIFA antenna for Bluetooth/WIFI/BLE, the gain is -2.0dBi for Bluetooth/BLE/WIFI. A permanently attached PIFA antenna for GPS, the gain is -2dBi for GPS.

The antenna meets up with the ANTENNA REQUIREMENT.

Result: Compliance.



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# 6.2 DTS (6 dB&20 dB) Channel Bandwidth

Temperature	24 °C
Relative Humidity	51%
Atmospheric Pressure	1012mbar
Test date :	July 03, 2017
Tested By :	Loren Luo

			<u> </u>				
Spec	Item	Requirement	Applicable				
§ 15.247(a)(2)	a)	6dB BW≥ 500kHz;	<b>V</b>				
RSS Gen(4.6.1)	b)	99% BW: For FCC reference only; required by IC.					
Test Setup	Spectrum Analyzer EUT						
	55807	4 D01 DTS MEAS Guidance v03r03, 8.1 DTS bandwidth					
	6dB b	andwidth_					
	a) Se	t RBW = 100 kHz.					
	b) Set the video bandwidth (VBW) ≥ 3 × RBW.						
	c) Detector = Peak.						
	d) Trace mode = max hold.						
	e) Sweep = auto couple.						
	f) Allow the trace to stabilize.						
	g) Measure the maximum width of the emission that is constrained by the freq						
Test Procedure	uencies associated with the two outermost amplitude points (upper and lower fr						
restriocedure	equencies) that are attenuated by 6 dB relative to the maximum level measure						
	d in the fundamental emission.						
	20dB bandwidth						
	C63.10 Occupied Bandwidth (OBW=20dB bandwidth)						
	1. Set RBW = 1%-5% OBW.						
	2. Set the video bandwidth (VBW) ≥ 3 x RBW.						
	3. Set the span range between 2 times and 5 times of the OBW.						
	4. Sweep time=Auto, Detector=PK, Trace=Max hold.						
	5. Once the reference level is established, the equipment is conditioned with t						
	ypical modulating signals to produce the worst-						



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	case (i.e., the widest) bandwidth. Unless otherwise specified for an unlicensed
	wireless device, measure the bandwidth at the 20 dB levels with respect to the
	reference level.
Remark	
Result	Pass

Test Data	Yes	□ <sub>N/A</sub>
Test Plot	Yes (See below)	□ <sub>N/A</sub>

### Measurement result

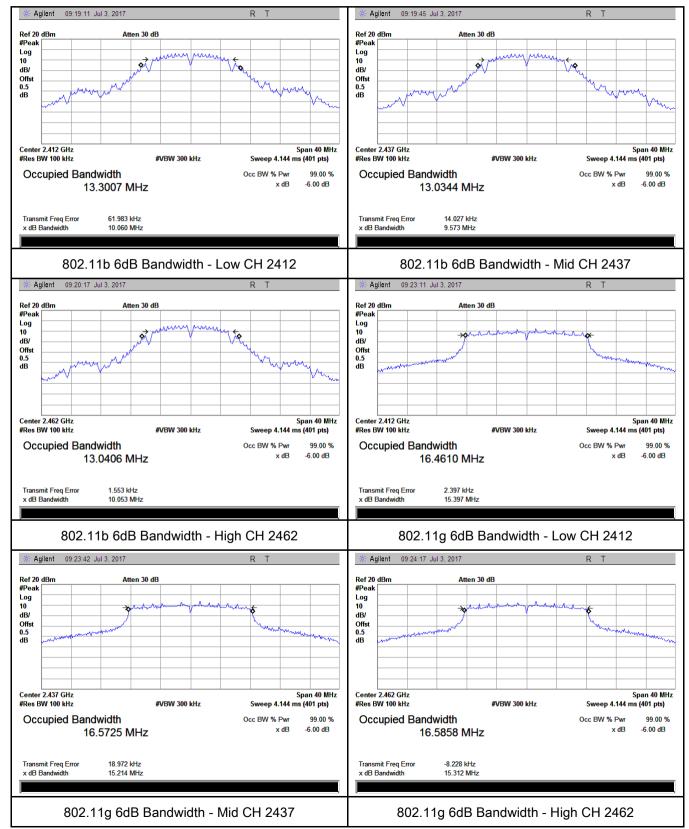
Test mode	СН	Freq (MHz)	6dB Bandwidth (MHz)	20dB Bandwidth (MHz)	Limit (MHz)
	Low	2412	10.060	15.375	≥ 0.5
802.11b	Mid	2437	9.573	15.281	≥ 0.5
	High	2462	10.053	15.235	≥ 0.5
	Low	2412	15.397	18.887	≥ 0.5
802.11g	Mid	2437	15.214	19.021	≥ 0.5
	High	2462	15.312	19.090	≥ 0.5
000 115	Low	2412	15.499	19.558	≥ 0.5
802.11n	Mid	2437	15.264	20.442	≥ 0.5
(20M)	High	2462	15.727	19.502	≥ 0.5
000 44=	Low	2422	35.369	39.805	≥ 0.5
802.11n	Mid	2437	35.367	39.675	≥ 0.5
(40M)	High	2452	35.34	39.704	≥ 0.5



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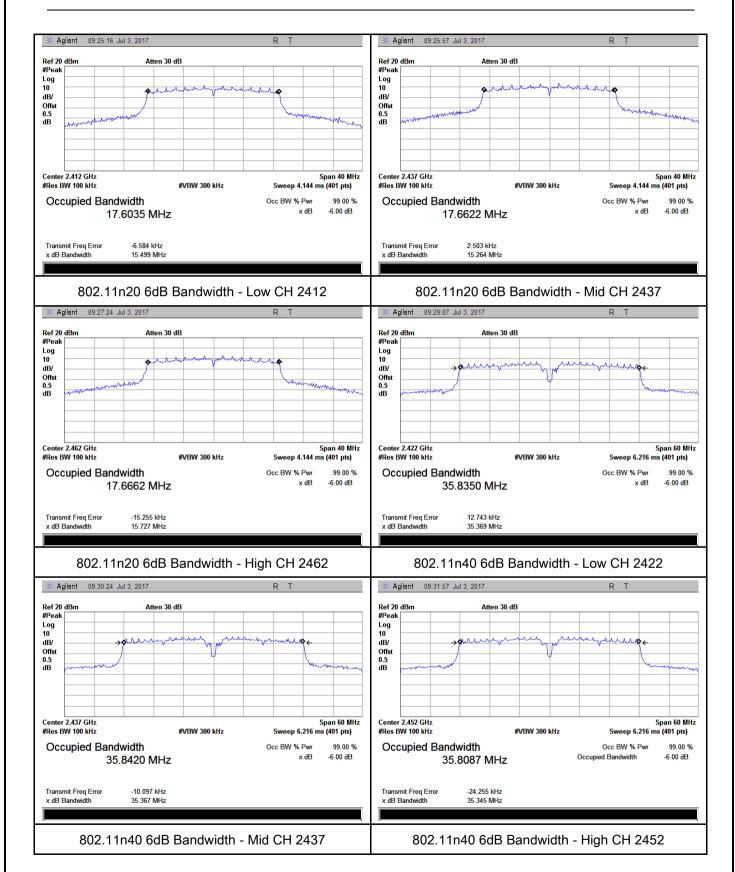
#### **Test Plots**

#### 6dB Bandwidth measurement result





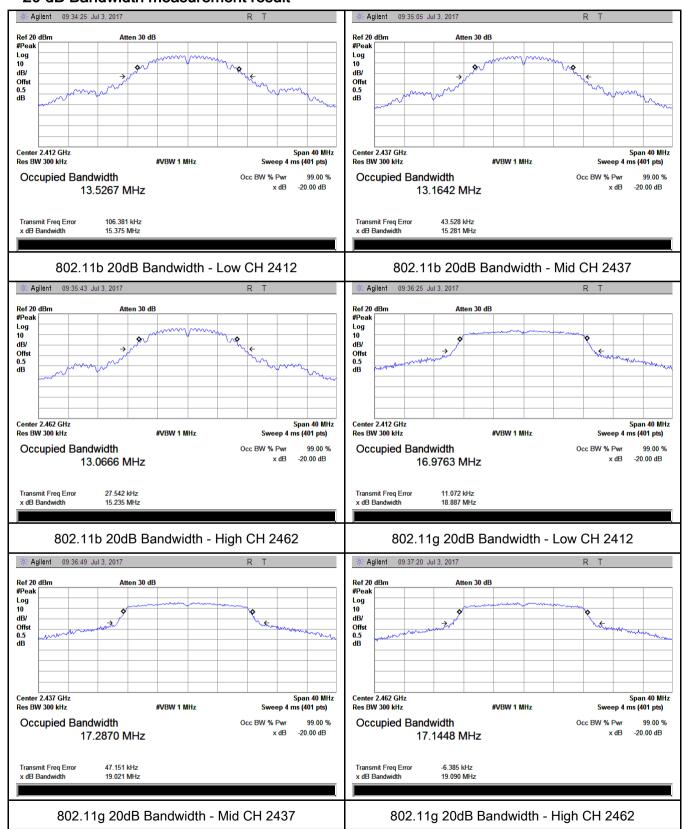
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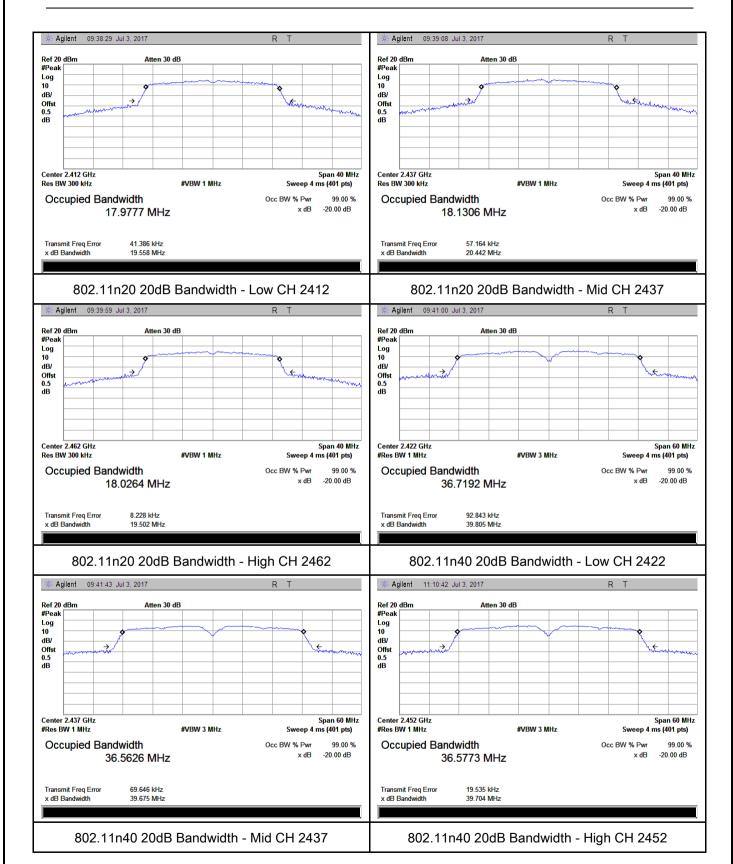
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#### 20 dB Bandwidth measurement result





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# 6.3 Maximum Output Power

Temperature	24 °C
Relative Humidity	51%
Atmospheric Pressure	1012mbar
Test date :	July 03, 2017
Tested By :	Loren Luo

#### Requirement(s):

Requirement(s):	Ite	Requirement	Applicable				
Spec	m	/ ipplicable					
	a)	FHSS in 2400-2483.5MHz with ≥ 75 channels: ≤ 1 Watt					
	b)	FHSS in 5725-5850MHz: ≤ 1 Watt					
§15.247(b) (3),RSS210	c)	For all other FHSS in the 2400-2483.5MHz band: ≤ 0.125 Watt.					
(3),133210 (A8.4)	d)	FHSS in 902-928MHz with ≥ 50 channels: ≤ 1 Watt					
(, 10.1)	e)	FHSS in 902-928MHz with ≥ 25 & <50 channels: ≤ 0.25 Watt					
	f)	DTS in 902-928MHz, 2400-2483.5MHz: ≤ 1 Watt	V				
Test Setup		Spectrum Analyzer EUT					
	558074 D01 DTS MEAS Guidance v03r03, 9.1.2 Integrated band power method						
	Maxim	Maximum output power measurement procedure					
	-	a) Set span to at least 1.5 times the OBW.					
	-	b) Set RBW = 1-5% of the OBW, not to exceed 1 MHz.					
	-	c) Set VBW ≥ 3 x RBW.					
Test	- d) Number of points in sweep ≥ 2 × span / RBW. (This gives bin-to-bin spacing ≤ RBW/2, so that narrowband signals are not lost between frequency bins.)						
Procedure							
	-	e) Sweep time = auto.					
	-	- f) Detector = RMS (i.e., power averaging), if available. Otherwise, use sample					
		detector mode.					
	- g) If transmit duty cycle < 98 %, use a sweep trigger with the level s						
	triggering only on full power pulses. The transmitter shall operate at maximum						



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r	
	power control level for the entire duration of every sweep. If the EUT transmits
	continuously (i.e., with no off intervals) or at duty cycle ≥ 98 %, and if each
	transmission is entirely at the maximum power control level, then the trigger shall
	be set to " free run".
	- h) Trace average at least 100 traces in power averaging (i.e., RMS) mode.
	- i) Compute power by integrating the spectrum across the OBW of the signal
	using the instrument's band power measurement function, with band limits set
	equal to the OBW band edges. If the instrument does not have a band power
	function, sum the spectrum levels (in power units) at intervals equal to the RBW
	extending across the entire OBW of the spectrum.
Remark	
Result	Pass Fail
·	

Test Data	Yes	□ <sub>N/A</sub>
Test Plot	Yes (See below)	□ <sub>N/A</sub>

### Output Power measurement result

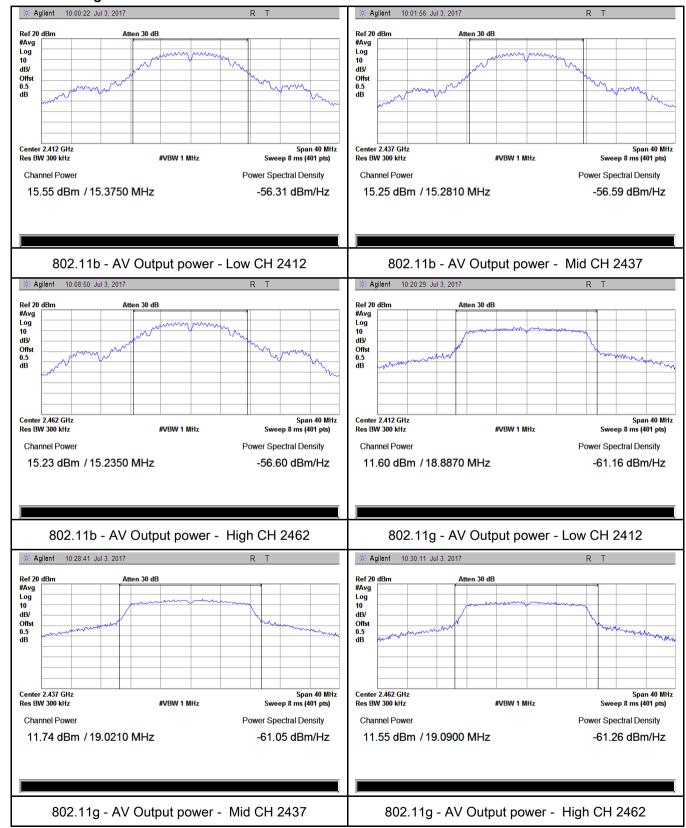
Tymo	Type Test mode		Frequency	Conducted	Limit	Result
Type	rest mode	СН	(MHz)	Power (dBm)	(dBm)	r\ <del>c</del> suit
		Low	2412	15.55	30	Pass
	802.11b	Mid	2437	15.25	30	Pass
		High	2462	15.23	30	Pass
		Low	2412	11.60	30	Pass
	802.11g	Mid	2437	11.74	30	Pass
Output		High	2462	11.55	30	Pass
power	802.11n (20M) 802.11n (40M)	Low	2412	11.14	30	Pass
		Mid	2437	11.82	30	Pass
		High	2462	11.28	30	Pass
		Low	2422	11.35	30	Pass
		Mid	2437	11.46	30	Pass
		High	2452	11.37	30	Pass



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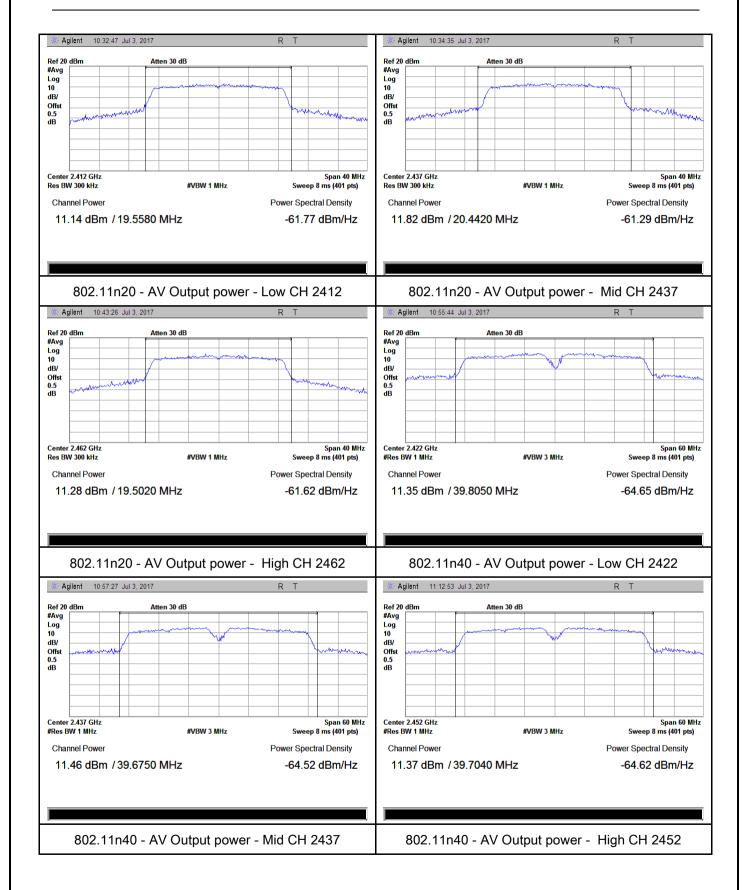
#### **Test Plots**

#### The Average Power





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# 6.4 Power Spectral Density

Temperature	24 °C
Relative Humidity	51%
Atmospheric Pressure	1012mbar
Test date :	July 03, 2017
Tested By :	Loren Luo

Spec	Item	Requirement	Applicable			
§15.247(e)	a)	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.				
Test Setup		Spectrum Analyzer EUT				
Test Procedure		558074 D01 DTS MEAS Guidance v03r03, 10.2 power spectral density method power spectral density measurement procedure				
Remark						
Result	Pas	ss Fail				



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Test Data	Yes	□ <sub>N/A</sub>
Test Plot	Yes (See below)	□ <sub>N/A</sub>

## Power Spectral Density measurement result

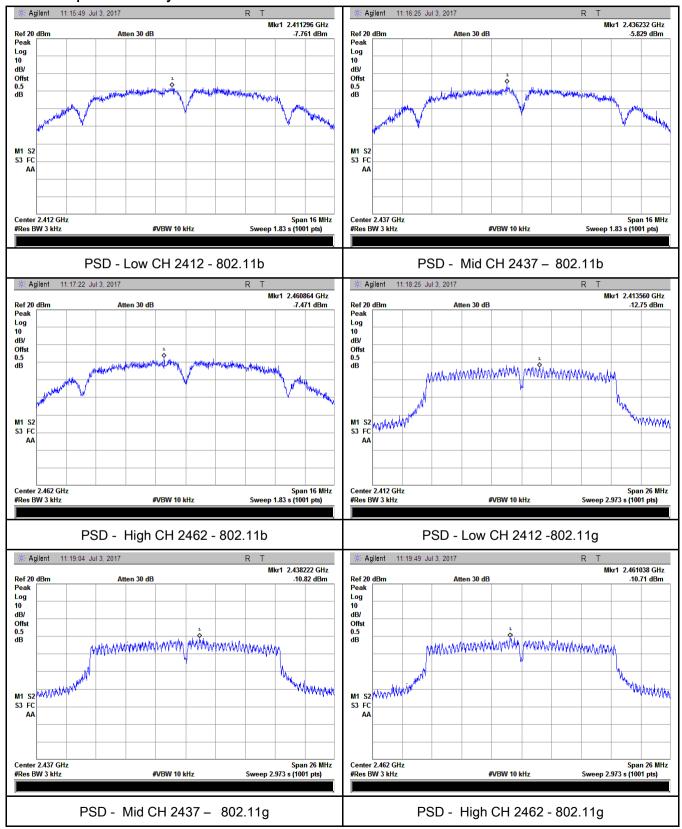
Type	Test mode	СН	Freq	PSD	Limit	Result
			(MHz)	(dBm)	(dBm)	
		Low	2412	-7.761	8	Pass
	802.11b	Mid	2437	-5.829	8	Pass
		High	2462	-7.471	8	Pass
		Low	2412	-12.75	8	Pass
	802.11g	Mid	2437	-10.82	8	Pass
DCD		High	2462	-10.71	8	Pass
PSD	802.11n (20M)	Low	2412	-10.88	8	Pass
		Mid	2437	-13.02	8	Pass
		High	2462	-11.60	8	Pass
	000 445	Low	2422	-14.65	8	Pass
	802.11n	Mid	2437	-15.58	8	Pass
	(40M)	High	2452	-14.09	8	Pass



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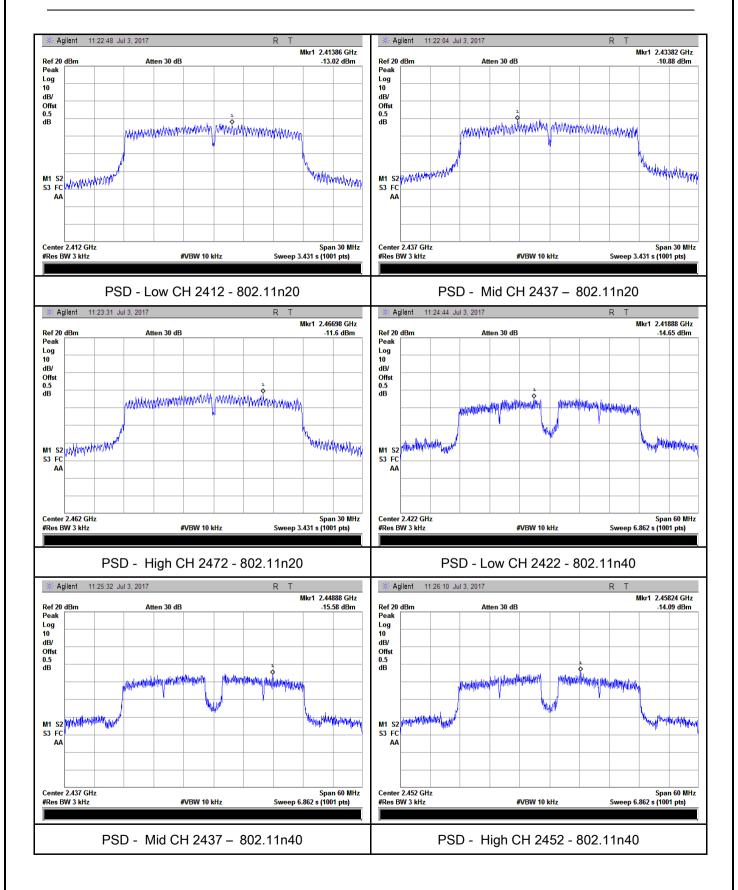
#### **Test Plots**

#### Power Spectral Density measurement result





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

Temperature	23 °C
Relative Humidity	54%
Atmospheric Pressure	1020mbar
Test date :	June 28, 2017
Tested By :	Loren Luo

## Requirement(s):

Spec	Item	em 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.		
Test Setup	Ant. Tower  Support Units  Ground Plane  Test Receiver			
Test Procedure	Radiated Method Only  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.			



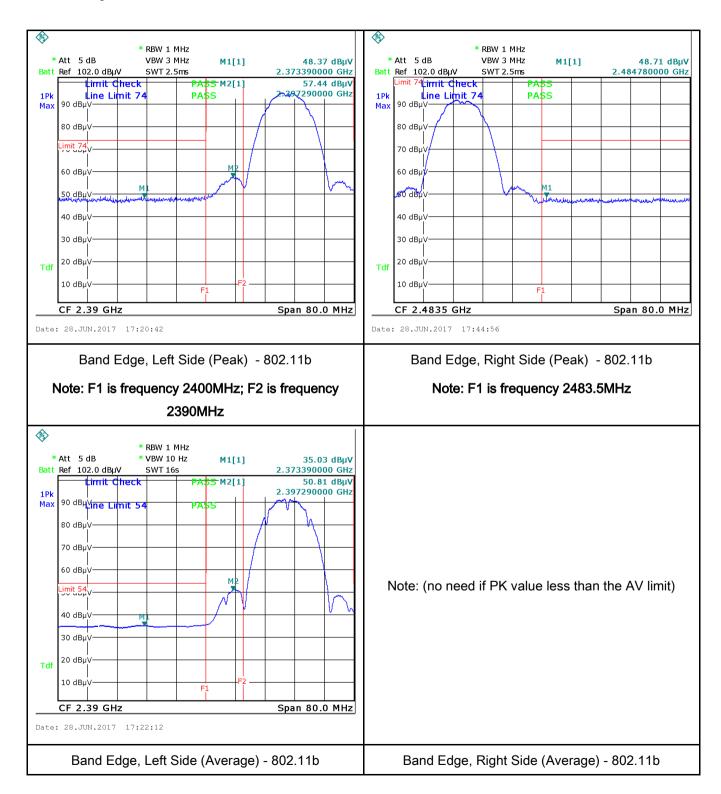
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		- 3. First, set both RBW and VBW of spectrum analyzer to 100 kHz with a		
		convenient frequency span including 100kHz bandwidth from band edge,		
		check the emission of EUT, if pass then set Spectrum Analyzer as below:		
		a. The resolution bandwidth 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		Pass Fail		
T4D 1	V.			
Test Data	Y	es N/A		
Test Plot	Y	es (See below)		



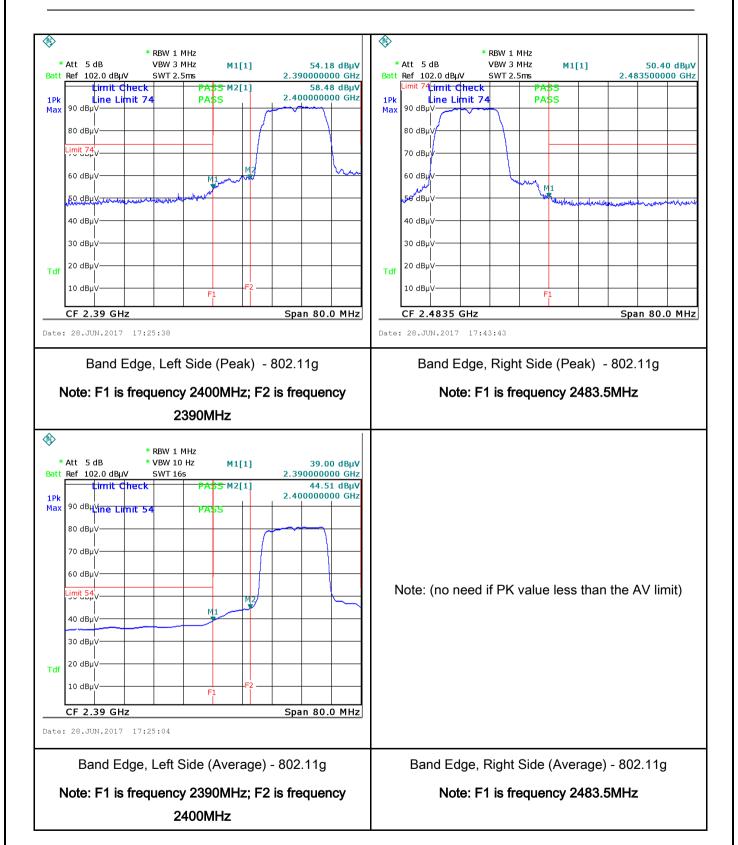
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# Test Plots Band Edge measurement result



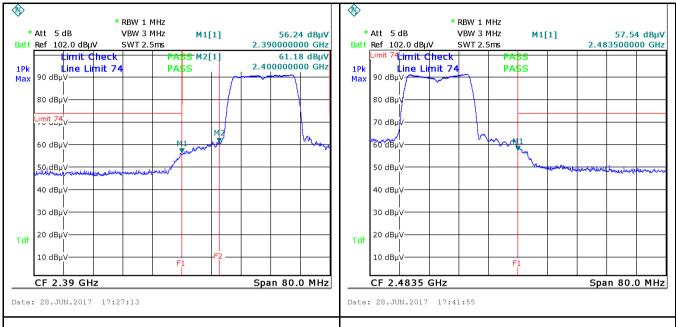


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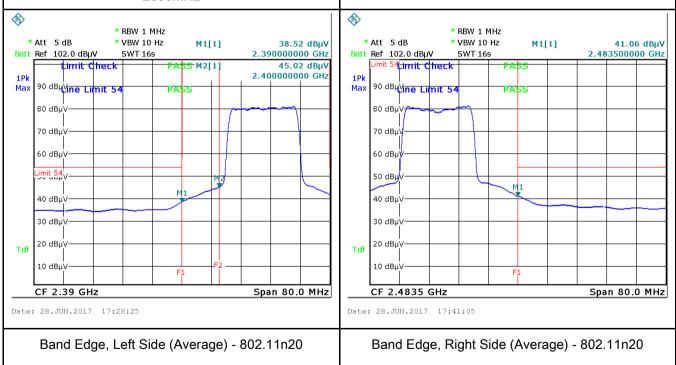


Band Edge, Left Side (Peak) - 802.11n20

Note: F1 is frequency 2400MHz; F2 is frequency 2390MHz

Band Edge, Right Side (Peak) - 802.11n20

Note: F1 is frequency 2483.5MHz

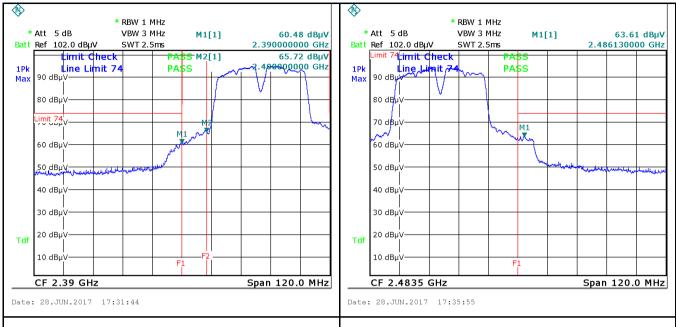


Note: F1 is frequency 2400MHz; F2 is frequency 2390MHz

Note: F1 is frequency 2483.5MHz



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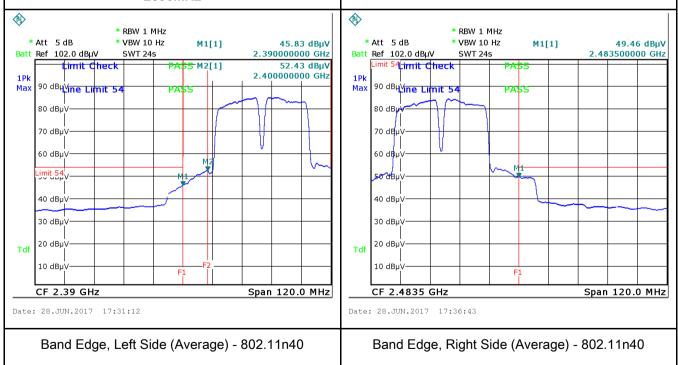


Band Edge, Left Side (Peak) - 802.11n40

Note: F1 is frequency 2400MHz; F2 is frequency 2390MHz

Band Edge, Right Side (Peak) - 802.11n40

Note: F1 is frequency 2483.5MHz



Note: F1 is frequency 2400MHz; F2 is frequency 2390MHz

Note: F1 is frequency 2483.5MHz



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# 6.6 AC Power Line Conducted Emissions

Temperature	25 °C
Relative Humidity	57%
Atmospheric Pressure	1023mbar
Test date :	June 27, 2017
Tested By :	Loren Luo

## Requirement(s):

Spec	Item	Requirement			Applicable
47CFR§15. 207, RSS210 (A8.1)	a)	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			
\ - /		(MHz)	QP	Average	
		0.15 ~ 0.5	66 – 56	56 – 46	
		0.5 ~ 5	56	46	
		5 ~ 30	60	50	
Test Setup	Vertical Ground Reference Plane  EUT  Horizontal Ground Reference Plane  Note: 1. Support units were connected to second LISN.				
<u> </u>	2.Both of LISNs (AMN) are 80cm from EUT and at least 80cm from other units and other metal planes support units.				
Procedure	<ol> <li>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.</li> <li>The power supply for the EUT was fed through a 50W/50mH EUT LISN, connected to filtered mains.</li> <li>The RF OUT of the EUT LISN was connected to the EMI test receiver via a low-loss</li> </ol>				

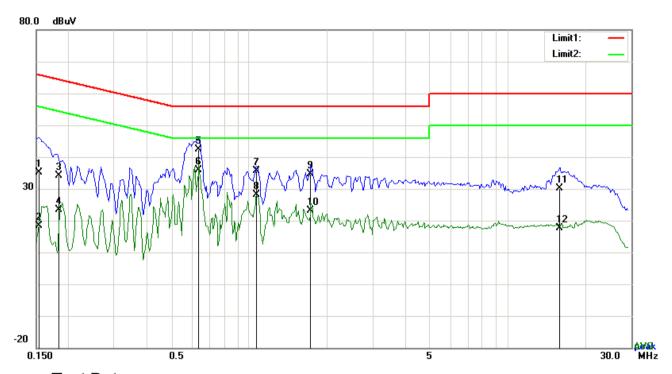


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	coaxial cable.		
	4. All other supporting equipment were powered separately from another main supply.		
	5. The EUT was switched on and allowed to warm up to its normal operating condition.		
	6. A scan was made on the NEUTRAL line (for AC mains) 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)		



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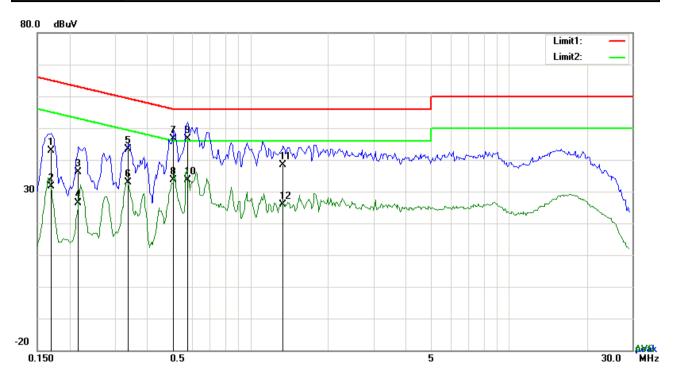
### Test Data

# Phase Line Plot at 120Vac, 60Hz

No.	P/L	Frequency (MHz)	Reading (dBµV)	Detector	Corrected (dB)	Result (dBµV)	Limit (dBµV)	Margin (dB)
1	L1	0.1539	25.14	QP	10.03	35.17	65.79	-30.62
2	L1	0.1539	8.28	AVG	10.03	18.31	55.79	-37.48
3	L1	0.1835	24.22	QP	10.03	34.25	64.33	-30.08
4	L1	0.1835	13.45	AVG	10.03	23.48	54.33	-30.85
5	L1	0.6375	32.45	QP	10.03	42.48	56.00	-13.52
6	L1	0.6375	25.97	AVG	10.03	36.00	46.00	-10.00
7	L1	1.0665	25.66	QP	10.03	35.69	56.00	-20.31
8	L1	1.0665	18.13	AVG	10.03	28.16	46.00	-17.84
9	L1	1.7295	24.59	QP	10.04	34.63	56.00	-21.37
10	L1	1.7295	13.03	AVG	10.04	23.07	46.00	-22.93
11	L1	15.8661	19.82	QP	10.24	30.06	60.00	-29.94
12	L1	15.8661	7.31	AVG	10.24	17.55	50.00	-32.45



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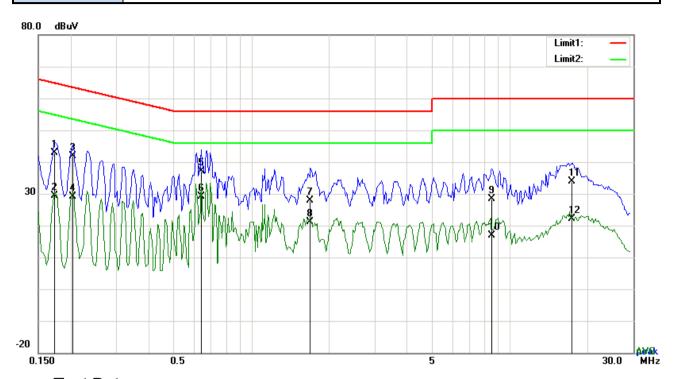
## Test Data

# Phase Neutral Plot at 120Vac, 60Hz

No.	P/L	Frequency (MHz)	Reading (dBµV)	Detector	Corrected (dB)	Result (dBµV)	Limit (dBµV)	Margin (dB)
1	N	0.1695	32.95	QP	10.02	42.97	64.98	-22.01
2	N	0.1695	21.69	AVG	10.02	31.71	54.98	-23.27
3	N	0.2163	26.15	QP	10.02	36.17	62.96	-26.79
4	N	0.2163	16.46	AVG	10.02	26.48	52.96	-26.48
5	N	0.3372	33.28	QP	10.02	43.30	59.27	-15.97
6	N	0.3372	22.96	AVG	10.02	32.98	49.27	-16.29
7	N	0.5049	36.58	QP	10.02	46.60	56.00	-9.40
8	N	0.5049	23.69	AVG	10.02	33.71	46.00	-12.29
9	N	0.5751	36.52	QP	10.02	46.54	56.00	-9.46
10	N	0.5751	23.69	AVG	10.02	33.71	46.00	-12.29
11	N	1.3434	28.27	QP	10.03	38.30	56.00	-17.70
12	N	1.3434	15.73	AVG	10.03	25.76	46.00	-20.24



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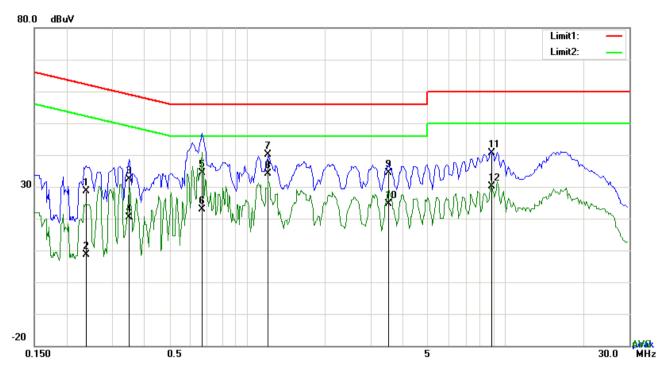
Test Data

# Phase Line Plot at 240Vac, 60Hz

No.	P/L	Frequency (MHz)	Reading (dBµV)	Detector	Corrected (dB)	Result (dBµV)	Limit (dBµV)	Margin (dB)
1	L1	0.1734	32.96	QP	10.03	42.99	64.80	-21.81
2	L1	0.1734	19.44	AVG	10.03	29.47	54.80	-25.33
3	L1	0.2046	31.79	QP	10.03	41.82	63.42	-21.60
4	L1	0.2046	19.19	AVG	10.03	29.22	53.42	-24.20
5	L1	0.6414	27.16	QP	10.03	37.19	56.00	-18.81
6	L1	0.6414	19.17	AVG	10.03	29.20	46.00	-16.80
7	L1	1.6944	17.87	QP	10.04	27.91	56.00	-28.09
8	L1	1.6944	10.97	AVG	10.04	21.01	46.00	-24.99
9	L1	8.5263	18.27	QP	10.13	28.40	60.00	-31.60
10	L1	8.5263	6.77	AVG	10.13	16.90	50.00	-33.10
11	L1	17.4573	23.63	QP	10.26	33.89	60.00	-26.11
12	L1	17.4573	11.82	AVG	10.26	22.08	50.00	-27.92



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### Test Data

# Phase Neutral Plot at 240Vac, 60Hz

No.	P/L	Frequency (MHz)	Reading (dBµV)	Detector	Corrected (dB)	Result (dBµV)	Limit (dBµV)	Margin (dB)
1	N	0.2378	18.63	QP	10.02	28.65	62.17	-33.52
2	N	0.2378	-1.35	AVG	10.02	8.67	52.17	-43.50
3	N	0.3489	22.47	QP	10.02	32.49	58.99	-26.50
4	N	0.3489	10.36	AVG	10.02	20.38	48.99	-28.61
5	N	0.6687	24.39	QP	10.02	34.41	56.00	-21.59
6	N	0.6687	12.95	AVG	10.02	22.97	46.00	-23.03
7	N	1.2069	30.10	QP	10.03	40.13	56.00	-15.87
8	N	1.2069	24.14	AVG	10.03	34.17	46.00	-11.83
9	N	3.5109	24.22	QP	10.06	34.28	56.00	-21.72
10	N	3.5109	14.68	AVG	10.06	24.74	46.00	-21.26
11	N	8.7954	30.61	QP	10.12	40.73	60.00	-19.27
12	N	8.7954	20.06	AVG	10.12	30.18	50.00	-19.82



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# 6.7 Radiated Spurious Emissions & Restricted Band

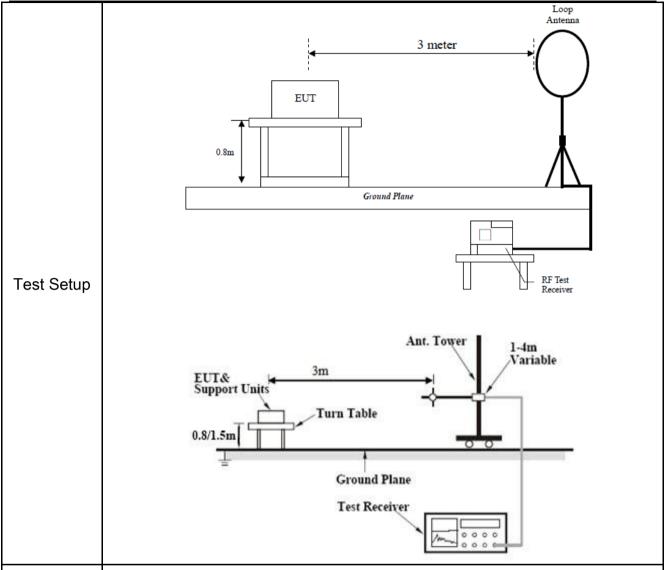
Temperature	25 °C
Relative Humidity	57%
Atmospheric Pressure	1023mbar
Test date :	June 27, 2017
Tested By :	Loren Luo

### Requirement(s):

Spec	Item	Applicable		
		Except higher limit as specified else emissions from the low-power radio exceed the field strength levels specified the level of any unwanted emission the fundamental emission. The tight edges		
		Frequency range (MHz)	Field Strength (μV/m)	
	a)	0.009~0.490	2400/F(KHz)	<b>V</b>
		0.490~1.705	24000/F(KHz)	
		1.705~30.0	30	1
		30 - 88	100	
47CFR§15.		88 – 216	150	
247(d),		216 960	200	
RSS210		Above 960	500	
(A8.5)	b)	For non-restricted band, In any 100 frequency band in which the spread modulated intentional radiator is oppower that is produced by the intentional radiator is oppower that is produced by the intentional radiator is oppower that is produced by the intention band that contains the highest level determined by the measurement mused. Attenuation below the general is not required  20 dB down  30	d spectrum or digitally perating, the radio frequency ational radiator shall be at least 0 kHz bandwidth within the desired power, sethod on output power to be	
	c)	or restricted band, emission must a emission limits specified in 15.209		V



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- 1. The EUT was switched on and allowed to warm up to its normal operating condition.
- 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 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.
- 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.

#### Procedure



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Test Data	Yes	□ <sub>N/A</sub>
Test Plot	Yes (See below)	□ <sub>N/A</sub>

#### **Test Result:**

Test Mode:	Transmitting Mode
------------	-------------------

Frequency range: 9KHz - 30MHz

Freq.	Detection	Factor	Reading	Result	Limit@3m	Margin
(MHz)	value	(dB/m)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dB)
						>20
	-1	-1		-1	1	>20

#### Note:

The amplitude of spurious emissions which are attenuated by more than 20dB below the permissible value has no need to be reported.

Distance extrapolation factor =40 log (specific distance/test distance)(dB);

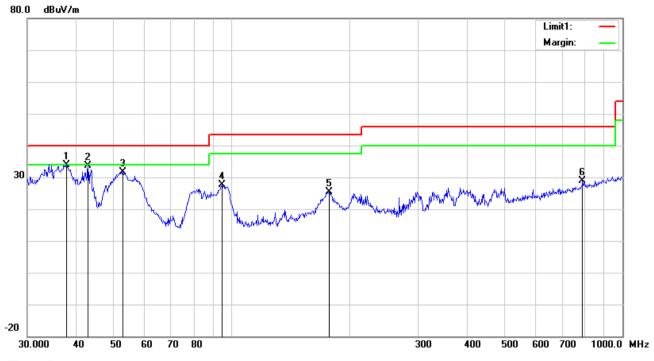
Limit line = specific limits(dBuv) + distance extrapolation factor.



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Test Mode: Transmitting Mode

#### 30MHz -1GHz



#### Test Data

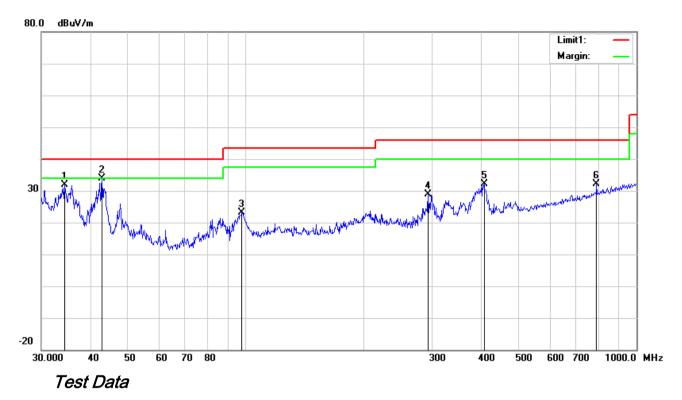
## Vertical Polarity Plot @3m

No.	P/L	Frequency	Reading	Detect or	Ant_F	PA_G	Cab_L	Result	Limit	Margin	Height	Degr ee
		(MHz)	(dBuV/m)		(dB/m)	(dB)	(dB)	(dBuV/m)	(dBuV/m)	(dB)	(cm)	()
1	>	37.8121	39.99	QP	15.50	22.27	0.78	34.00	40.00	-6.00	100	226
2	>	42.8998	43.10	QP	11.99	22.29	0.77	33.57	40.00	-6.43	100	195
3	>	52.5753	45.10	peak	8.12	22.39	0.79	31.62	40.00	-8.38	100	346
4	<b>V</b>	94.4284	39.89	peak	9.06	22.32	0.99	27.62	43.50	-15.88	200	259
5	V	177.5092	35.03	peak	11.20	22.25	1.36	25.34	43.50	-18.16	100	16
6	V	790.6188	25.87	peak	21.29	21.17	2.94	28.93	46.00	-17.07	100	177



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#### 30MHz -1GHz



Horizontal Polarity Plot @3m

No.	P/L	Frequency	Reading	Detect or	Ant_F	PA_G	Cab_L	Result	Limit	Margin	Height	Degr ee
		(MHz)	(dBuV/m)		(dB/m)	(dB)	(dB)	(dBuV/m)	(dBuV/m)	(dB)	(cm)	( )
1	Н	34.3964	35.35	peak	18.01	22.25	0.74	31.85	40.00	-8.15	100	154
2	Ι	42.8998	43.51	QP	11.99	22.29	0.77	33.98	40.00	-6.02	100	134
3	Τ	97.7983	34.52	peak	9.87	22.32	1.06	23.13	43.50	-20.37	100	336
4	Η	293.0842	36.06	peak	13.30	22.29	1.78	28.85	46.00	-17.15	100	126
5	Н	407.5145	36.15	peak	15.85	21.99	2.03	32.04	46.00	-13.96	100	333
6	Н	790.6188	29.11	peak	21.29	21.17	2.94	32.17	46.00	-13.83	100	340



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### Above 1GHz

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### Low Channel (2412 MHz) (b mode worst case)

Frequency (MHz)	S.A. Reading (dBµV)	Detector (PK/AV)	Polarity (H/V)	Ant. Factor (dB/m)	Cable Loss (dB)	Pre-Amp. Gain (dB)	Cord Amp. (dBµV/m)	Limit (dBµV/m)	Margin (dB)
4824	41.06	AV	V	33.39	7.22	48.46	33.21	54	-20.79
4824	39.87	AV	Н	33.39	7.22	48.46	32.02	54	-21.98
4824	56.21	PK	V	33.39	7.22	48.46	48.36	74	-25.64
4824	54.83	PK	Н	33.39	7.22	48.46	46.98	74	-27.02
6011	37.56	AV	٧	34.81	7.21	48.35	31.23	54	-22.77
6011	36.54	AV	Н	34.81	7.21	48.35	30.21	54	-23.79
6011	59.13	PK	V	34.81	7.21	48.35	52.8	74	-21.2
6011	57.62	PK	Н	34.81	7.21	48.35	51.29	74	-22.71

### Middle Channel (2437 MHz) (b mode worst case)

Frequency (MHz)	S.A. Reading (dBµV)	Detector (PK/AV)	Polarity (H/V)	Ant. Factor (dB/m)	Cable Loss (dB)	Pre-Amp. Gain (dB)	Cord Amp. (dBµV/m)	Limit (dBµV/m)	Margin (dB)
4874	37.46	AV	V	33.62	7.53	48.36	30.25	54	-23.75
4874	36.2	AV	Ι	33.62	7.53	48.36	28.99	54	-25.01
4874	58.16	PK	<b>V</b>	33.62	7.53	48.36	50.95	74	-23.05
4874	56.31	PK	Ι	33.62	7.53	48.36	49.1	74	-24.9
11532	35.94	AV	<b>V</b>	39.93	12.47	46.83	41.51	54	-12.49
11532	32.56	AV	Ι	39.93	12.47	46.83	38.13	54	-15.87
11532	44.78	PK	V	39.93	12.47	46.83	50.35	74	-23.65
11532	42.15	PK	Н	39.93	12.47	46.83	47.72	74	-26.28



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#### High Channel (2462 MHz) (b mode worst case)

Frequency (MHz)	S.A. Reading (dBµV)	Detector (PK/AV)	Polarity (H/V)	Ant. Factor (dB/m)	Cable Loss (dB)	Pre-Amp. Gain (dB)	Cord Amp. (dBµV/m)	Limit (dBµV/m)	Margin (dB)
4924	36.45	AV	<b>V</b>	33.74	7.78	48.34	29.63	54	-24.37
4924	34.21	AV	Н	33.74	7.78	48.34	27.39	54	-26.61
4924	54.92	PK	V	33.74	7.78	48.34	48.1	74	-25.9
4924	53.62	PK	Н	33.74	7.78	48.34	46.8	74	-27.2
17089	26.15	AV	V	40.17	16.78	45.66	37.44	54	-16.56
17089	24.81	AV	Н	40.17	16.78	45.66	36.1	54	-17.9
17089	43.17	PK	V	40.17	16.78	45.66	54.46	74	-19.54
17089	41.29	PK	Н	40.17	16.78	45.66	52.58	74	-21.42

#### Note:

- 1, The testing has been conformed to 10\*2462MHz=24,620MHz
- 2, All other emissions more than 30 dB below the limit
- 3, X-Axis, Y-Axis and Z-Axis were investigated. The results above show only the worst case.



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# Annex A. TEST INSTRUMENT

Instrument	Model	Serial#	Cal Date	Cal Due	In use
				0	
AC Line Conducted					_
EMI test receiver	ESCS30	8471241027	09/16/2016	09/15/2017	<b>V</b>
Line Impedance	LI-125A	191106	09/24/2016	09/23/2017	~
Line Impedance	LI-125A	191107	09/24/2016	09/23/2017	~
ISN	ISN T800	34373	09/24/2016	09/23/2017	
Double Ridge Horn Antenna (1 ~18GHz)	AH-118	71283	09/23/2016	09/22/2017	•
Transient Limiter	LIT-153	531118	08/31/2016	08/30/2017	✓
RF conducted test					
Agilent ESA-E SERIES	E4407B	MY45108319	09/16/2016	09/15/2017	~
Power Splitter	1#	1#	08/31/2016	08/30/2017	~
DC Power Supply	E3640A	MY40004013	09/16/2016	09/15/2017	~
Radiated Emissions					
EMI test receiver	ESL6	100262	09/16/2016	09/15/2017	~
Positioning Controller	UC3000	MF780208282	11/18/2016	11/17/2017	~
OPT 010 AMPLIFIER (0.1-1300MHz)	8447E	2727A02430	08/31/2016	08/30/2017	V
Microwave Preamplifier (1 ~ 26.5GHz)	8449B	3008A02402	03/23/2017	03/22/2018	✓
Active Antenna (9kHz-30MHz)	AL-130	121031	10/13/2016	10/12/2017	✓
Bilog Antenna (30MHz~6GHz)	JB6	A110712	09/20/2016	09/19/2017	✓
Double Ridge Horn Antenna (1 ~18GHz)	AH-118	71283	09/23/2016	09/22/2017	~
Universal Radio Communication Tester	CMU200	121393	09/24/2016	09/23/2017	V



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## Annex B. EUT and Test Setup Photographs

## Annex B.i. Photograph: EUT External Photo





Adapter - Front View





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**EUT - Front View** 



**EUT - Rear View** 





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EUT - Top View



**EUT - Bottom View** 





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EUT - Left View



EUT - Right View





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### Annex B.ii. Photograph: EUT Internal Photo

Cover Off - Top View 1



Cover Off - Top View 2





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Battery - Front View



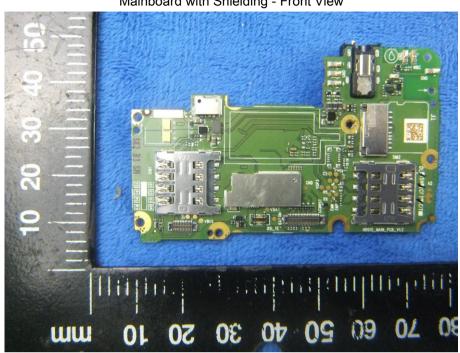
Battery - Rear View



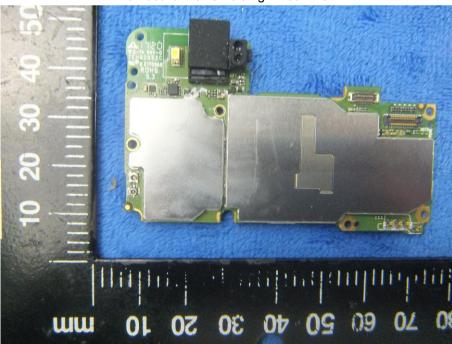


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#### Mainboard with Shielding - Front View



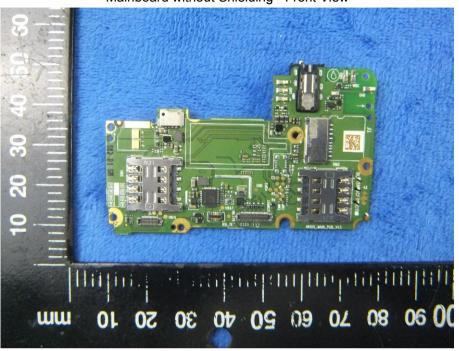
Mainboard with Shielding - Rear View



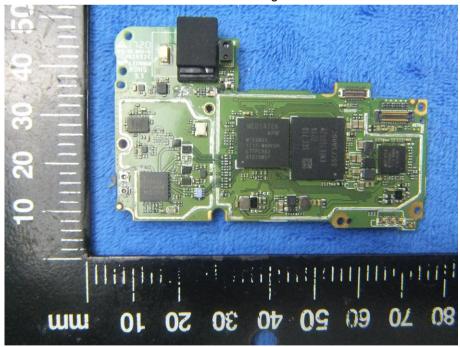


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Mainboard without Shielding - Front View



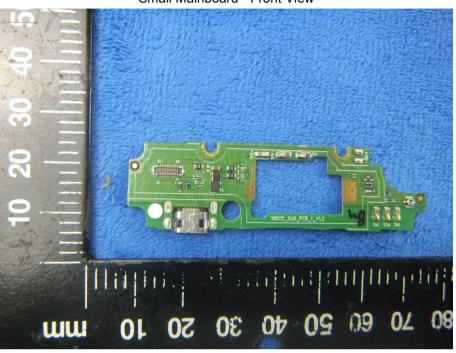
Mainboard without Shielding - Rear View



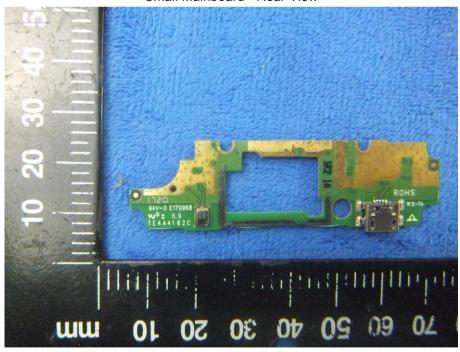


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#### Small Mainboard - Front View



Small Mainboard - Rear View





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LCD - Front View



LCD - Rear View





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#### GSM/PCS/UMTS - Antenna View



BT/WIFI - Antenna View





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## Annex B.iii. Photograph: Test Setup Photo



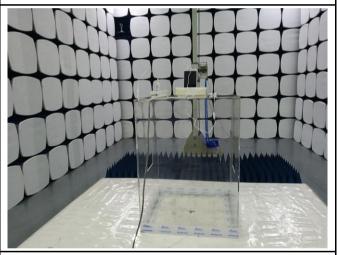
Conducted Emissions Test Setup Front View



Conducted Emissions Test Setup Side View



Radiated Spurious Emissions Test Setup Below 1GHz



Radiated Spurious Emissions Test Setup Above 1GHz

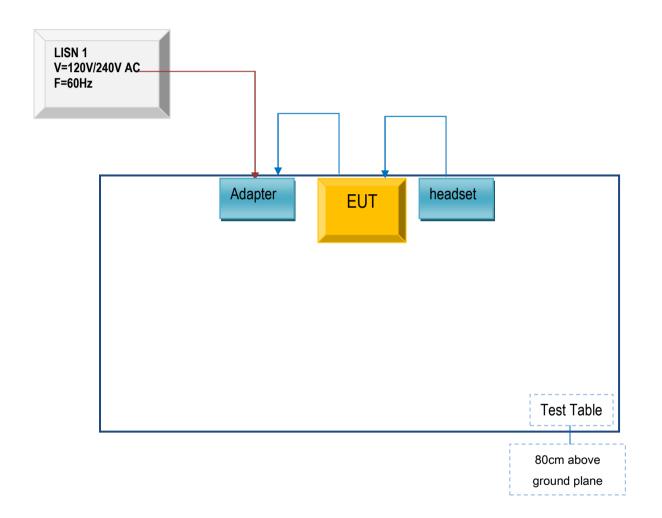


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## Annex C. TEST SETUP AND SUPPORTING EQUIPMENT

### Annex C.ii. TEST SET UP BLOCK

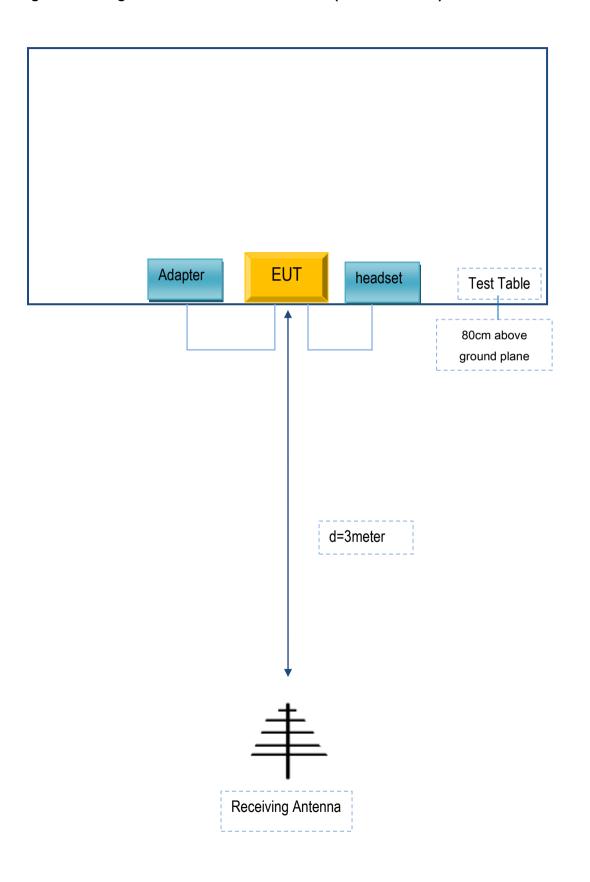
Block Configuration Diagram for AC Line Conducted Emissions





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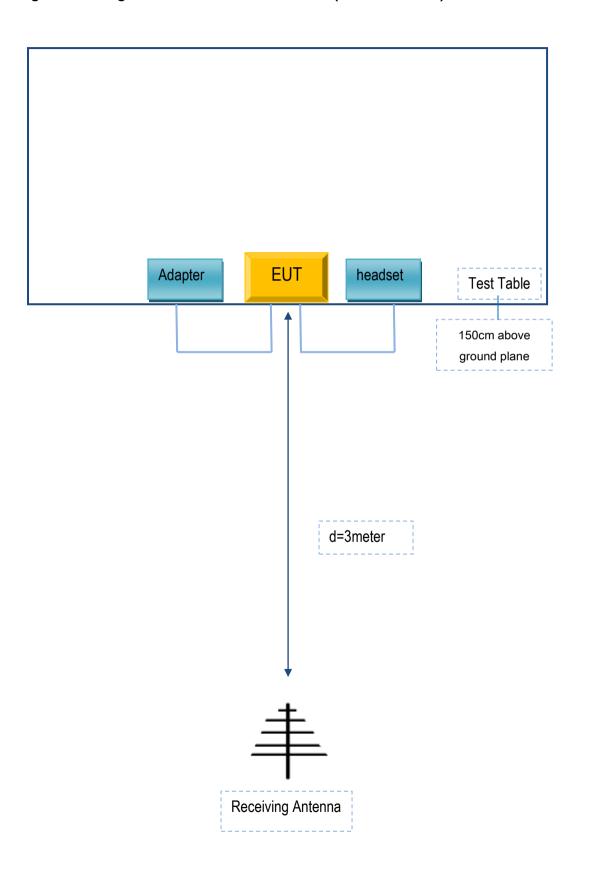
## Block Configuration Diagram for Radiated Emissions (Below 1GHz).





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





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## 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
INFINIX MOBILITY LIMITED	Adapter	A88-502000	N/A
SAMSUNG headset		HS330	N/A

#### **Supporting Cable:**

Cable type	Shield Type	Ferrite Core	Length	Serial No
USB Cable	Un-shielding	No	0.8m	N/A



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

Please see the attachment



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## Annex E. DECLARATION OF SIMILARITY

N/A