RF TEST REPORT



Report No.: 15071004-FCC-R2
Supersede Report No.: N/A

Applicant	Verykool USA Inc				
Product Name	Mobile pho	Mobile phone			
Model No.	SL5011				
Serial No.	N/A				
Test Standard	FCC Part 1	15.247: 201	4, ANSI C63.10): 2013	
Test Date	October 27	October 27 to November 15, 2015			
Issue Date	November 16, 2015				
Test Result	Pass Fail				
Equipment complied with the specification					
Equipment did no	Equipment did not comply with the specification				
Winnie Zhang David Huang					
Winnie Zhang Test Engineer			vid Huang ecked 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

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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.



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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
15071004-FCC-R2	NONE	Original	November 16, 2015

2. Customer information

Applicant Name	Verykool USA Inc	
Applicant Add	3636 Nobel Drive, Suite 325, San Diego, CA 92122 USA	
Manufacturer	HUIZHOU QIAOXING ELECTRONICS TECHNOLOGY CO.,LTD	
Manufacturer Add	Room 1906 of VIA Building, No.9966 Shennan Avenue, Yuehai Street in	
	Nanshan District, Shenzhen	

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	Radiated Emission Program-To Shenzhen v2.0		



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4. Equipment under Test (EUT) Information

Description of EUT: Mobile phone

Main Model: SL5011

Serial Model: N/A

Date EUT received: October 26, 2015

Test Date(s): October 27 to November 15, 2015

Equipment Category : DSS

GSM850: 1.8 dBi PCS1900: 3.5 dBi

UMTS-FDD Band V: 1.5 dBi UMTS-FDD Band IV: 3.0 dBi UMTS-FDD Band II: 3.1 dBi Bluetooth/BLE: 2.6 dBi

Antenna Gain: WIFI: 2.4 dBi

LTE Band 2: 3.1 dBi LTE Band 4: 3.6 dBi LTE Band 5: 1.7 dBi LTE Band 7: 2.8 dBi LTE Band 17: 1.7 dBi

GPS:1.6 dBi

GSM / GPRS: GMSK EGPRS: GMSK,8PSK

UMTS-FDD: QPSK, 16QAM 802.11b/g/n: DSSS, OFDM

Type of Modulation:

Bluetooth: GFSK, π /4DQPSK, 8DPSK

BLE: GFSK

LTE Band: QPSK, 16QAM

GPS:BPSK



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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

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

WIFI:802.11b/g/n(20M): 2412-2462 MHz RF Operating Frequency (ies):

WIFI:802.11n(40M): 2422-2452 MHz

Bluetooth& BLE: 2402-2480 MHz

LTE Band 2 TX: $1852.5 \sim 1907.5$ MHz; RX : $1932.5 \sim 1987.5$ MHz LTE Band 4 TX: $1712.5 \sim 1752.5$ MHz; RX : $2112.5 \sim 2152.5$ 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 LTE Band 17 TX: 706.5 ~ 713.5 MHz; RX : 736.5 ~ 743.5 MHz

GPS RX:1575.42 MHz

Max. Output Power: 6.698dBm

Number of Channels:

GSM 850: 124CH PCS1900: 299CH

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

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

WIFI:802.11n(40M): 7CH

Bluetooth: 79CH

BLE: 40CH GPS:1CH

Port: Power Port, Earphone Port, USB Port

Adapter:

Model:STC-A515A-Z

Input: AC 100-240V; 50/60Hz; 300mA

Input Power:
Output: DC 5.0V,1500mA

Battery:

Spec:3.8V,2100mAh,8.0Wh



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Trade Name :	verykool
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GPRS/EGPRS Multi-slot class 8/10/12

FCC ID: WA6SL5011



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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)(1)	Channel Separation	Compliance
§15.247(a)(1)	20 dB Bandwidth	Compliance
§15.247(b)(1)	Peak Output Power	Compliance
§15.247(a)(1)(iii)	Number of Hopping Channel	Compliance
§15.247(a)(1)(iii)	Time of Occupancy (Dwell Time)	Compliance
§15.247(d)	Band Edge	Compliance
§15.207(a)	AC Line Conducted Emissions	Compliance
§15.205, §15.209, §15.247(d)	Radiated Emissions	Compliance

Measurement Uncertainty

Emissions				
Test Item	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		
-	-	-		



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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 Bluetooth/BLE/WIFI, the gain is 2.6dBi for Bluetooth/BLE, the gain is 2.4dBi for WIFI.

A permanently attached PIFA antenna for GSM/PCS/LTE and UMTS, the gain is 1.8dBi for GSM850, 3.5dBi for PCS1900,1.5dBi for UMTS-FDD Band V, 3.0dBi for UMTS-FDD Band IV, 3.1dBi for UMTS-FDD Band II, 3.1dBi for LTE Band 2, 3.6dBi for LTE Band 4, 1.7dBi for LTE Band 5, 2.8dBi for LTE Band 7, 1.7dBi for LTE Band 17.

A permanently attached PIFA antenna for GPS, the gain is 1.6dBi for GPS.

The antenna meets up with the ANTENNA REQUIREMENT.

Result: Compliance.



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6.2 Channel Separation

Temperature	24°C		
Relative Humidity	53%		
Atmospheric Pressure	1012mbar		
Test date :	November 02, 2015		
Tested By :	Winnie Zhang		

Requirement(s):	1		,		
Spec	Item	Applicable			
6.45.047()(4)		Channel Separation < 20dB BW and 20dB BW <			
	۵)	25KHz;Channel Separation Limit=25KHz	V		
§ 15.247(a)(1)	a)	Chanel Separation < 20dB BW and 20dB BW >			
		25kHz; Channel Separation Limit=2/3 20dB BW			
Test Setup	Spectrum Analyzer EUT				
	The to	est follows FCC Public Notice DA 00-705 Measurement	Guidelines.		
	Use the following spectrum analyzer settings:				
	- The EUT must have its hopping function enabled				
	- Span = wide enough to capture the peaks of two adjacent				
	channels				
	- Resolution (or IF) Bandwidth (RBW) ≥ 1% of the span				
Test Procedure	- Video (or Average) Bandwidth (VBW) ≥ RBW				
1 cott 1 cocaaic	- Sweep = auto				
	- Detector function = peak				
	- Trace = max hold				
	- Allow the trace to stabilize. Use the marker-delta function to				
	determine the separation between the peaks of the adjacent				
	channels. The limit is specified in one of the subparagraphs of this				
	Section. Submit this plot.				



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Rema	rk				
Resu	lt	Pass	Fail		
Test Data	Yes	;	□ _{N/A}		
Test Plot	Ye	s (See below)	$\square_{N/A}$		

Channel Separation measurement result

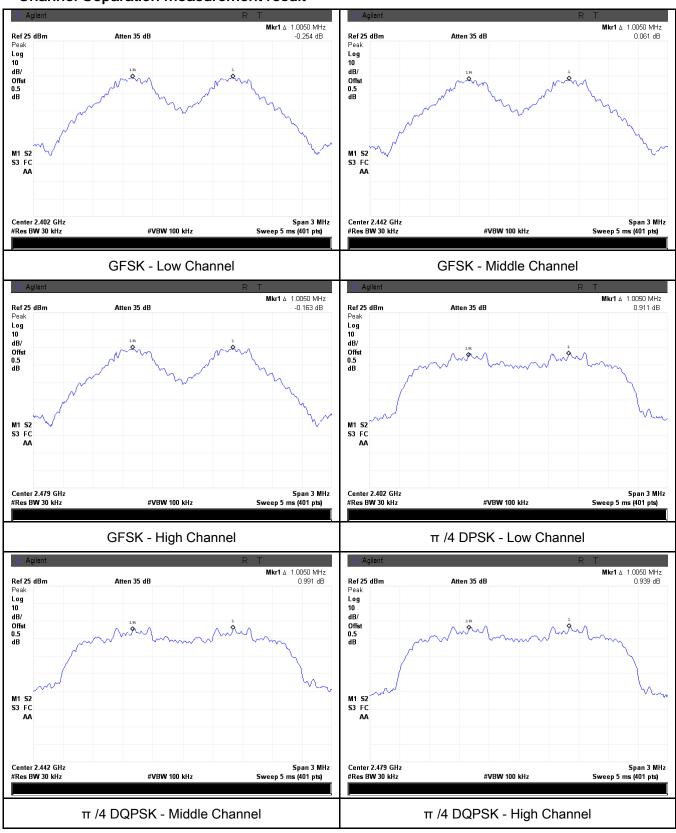
Type/ Modulation	СН	CH Freq (MHz)	CH Separation (MHz)	Limit (MHz)	Result
	Low Channel	2402	1.005	0.685	Pass
	Adjacency Channel	2403	1.005	0.085	Pass
CH Separation	Mid Channel	2440	4.005	0.005	Desa
GFSK	Adjacency Channel	2441	1.005	0.685	Pass
	High Channel	2480	4.005	0.007	Desa
	Adjacency Channel	2479	1.005	0.687	Pass
	Low Channel	2402	4.005	0.000	D
	Adjacency Channel	2403	1.005	0.868	Pass
CH Separation	Mid Channel	2440	4.005	0.875 0.867	Pass
π /4 DQPSK	Adjacency Channel	2441	1.005		
	High Channel	2480	1.005		Desc
	Adjacency Channel	2479	1.005		Pass
	Low Channel	2402	4.005	0.007	D
	Adjacency Channel	2403	1.005	0.867	Pass
CH Separation	Mid Channel	2440	4.005	0.872	
8DPSK	Adjacency Channel	2441	1.005		Pass
	High Channel	2480	4.005		Dana
	Adjacency Channel	2479	1.005	0.874	Pass



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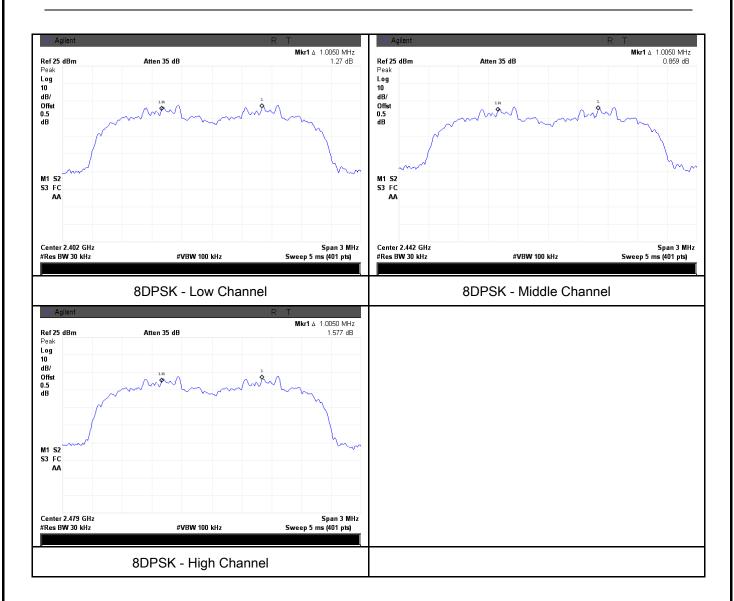
Test Plots

Channel Separation measurement result





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6.3 20dB Bandwidth

Temperature	24°C
Relative Humidity	53%
Atmospheric Pressure	1012mbar
Test date :	November 02, 2015
Tested By :	Winnie Zhang

Requirement(s):				
Spec	Item	Requirement Applicable		
§15.247(a) (1)	a)	V		
Test Setup	Spectrum Analyzer EUT			
Test Procedure				



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		marker level. The marker-delta reading at this point is the 20 dB		
		bandwidth of the emission. If this value varies with different modes of		
		operatio	n (e.g., data rate, modulation format, etc.), repeat this test for	
		each var	riation. The limit is specified in one of the subparagraphs of	
		this Sect	ion. Submit this plot(s).	
Remark				
Result		Pass	■ Fail	
Test Data	V	´es	N/A	
Test Plot	Y	es (See below)	□ _{N/A}	

Measurement result

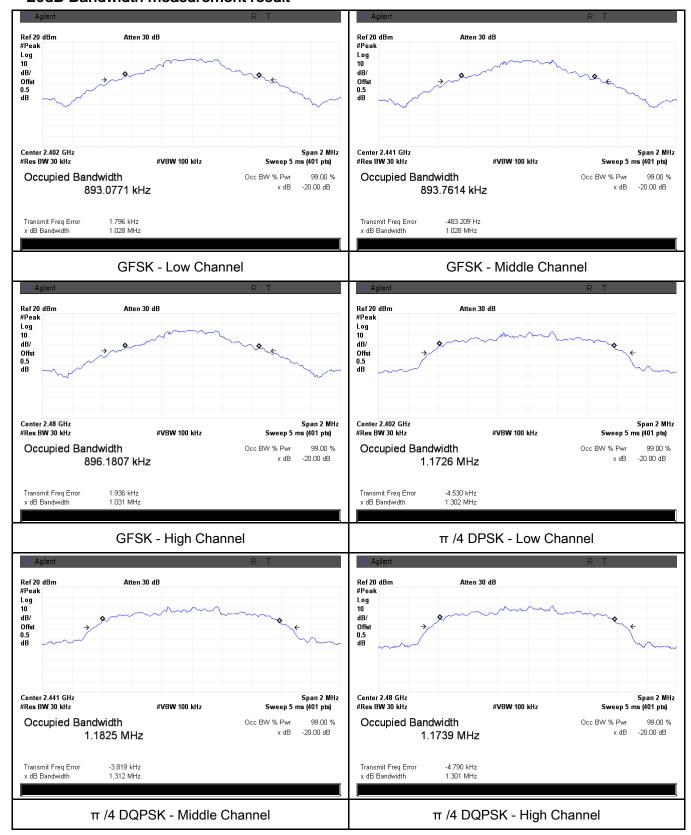
Modulation	СН	CH Freq (MHz)	20dB Bandwidth	99% Occupied
Modulation	CIT		(MHz)	Bandwidth (MHz)
	Low	2402	1.028	0.8931
GFSK	Mid	2441	1.028	0.8938
	High	2480	1.031	0.8962
π /4 DQPSK	Low	2402	1.302	1.1726
	Mid	2441	1.312	1.1825
	High	2480	1.301	1.1739
8-DPSK	Low	2402	1.301	1.1845
	Mid	2441	1.308	1.1989
	High	2480	1.311	1.1834



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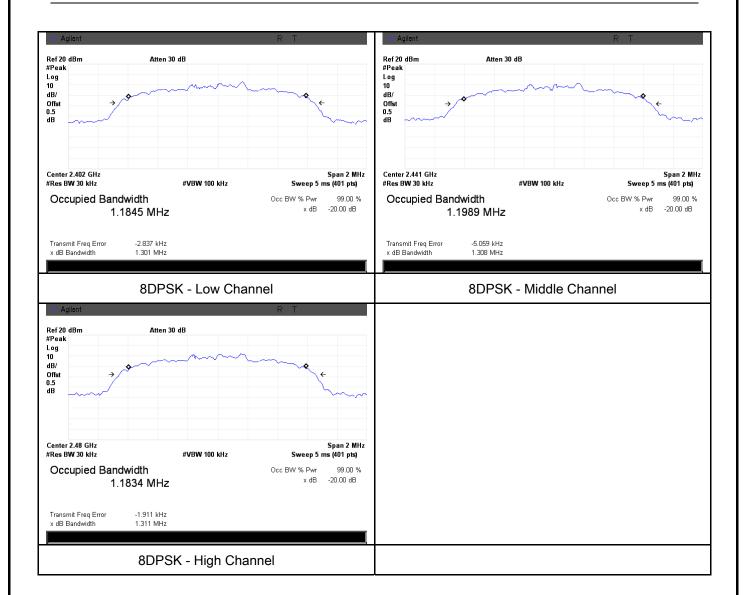
Test Plots

20dB Bandwidth measurement result





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6.4 Peak Output Power

Temperature	24°C
Relative Humidity	53%
Atmospheric Pressure	1012mbar
Test date :	November 02, 2015
Tested By :	Winnie Zhang

Spec	Item	Requirement	Applicable		
	a)	FHSS in 2400-2483.5MHz with ≥ 75 channels: ≤ 1	~		
		Watt			
	b)	FHSS in 5725-5850MHz: ≤ 1 Watt			
	c)	For all other FHSS in the 2400-2483.5MHz band:	V		
§15.247(b)		≤ 0.125 Watt.			
(2)	d)	FHSS in 902-928MHz with ≥ 50 channels: ≤ 1 Watt			
	0)	FHSS in 902-928MHz with ≥ 25 & <50 channels:			
	e)	≤ 0.25 Watt			
	f)	DSSS in 902-928MHz, 2400-2483.5MHz, 5725-			
	')	5850MHz: ≤ 1 Watt			
Test Setup					
	Spectrum Analyzer EUT				
	The test follows FCC Public Notice DA 00-705 Measurement Guidelines.				
	Use the following spectrum analyzer settings:				
	- Span = approximately 5 times the 20 dB bandwidth, centered on a				
Test	hopping channel				
Procedure	- RBW > the 20 dB bandwidth of the emission being measured				
	- VBW ≥ RBW				
	- Sweep = auto				
	-	- Detector function = peak			
	- Trace = max hold				



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	- Allow the trace to stabilize.				
	- Use the marker-to-peak function to set the marker to the peak of the				
	emission. The indicated level is the peak output power (see the note				
	above regarding external attenuation and cable loss). The limit is				
	specified in one of the subparagraphs of this Section. Submit this				
	plot. A peak responding power meter may be used instead of a				
	spectrum analyzer.				
Remark					
Result	Pass Fail				

Test Data	Yes	□ _{N/A}
Test Plot	Yes (See below)	□ _{N/A}

Peak Output Power measurement result

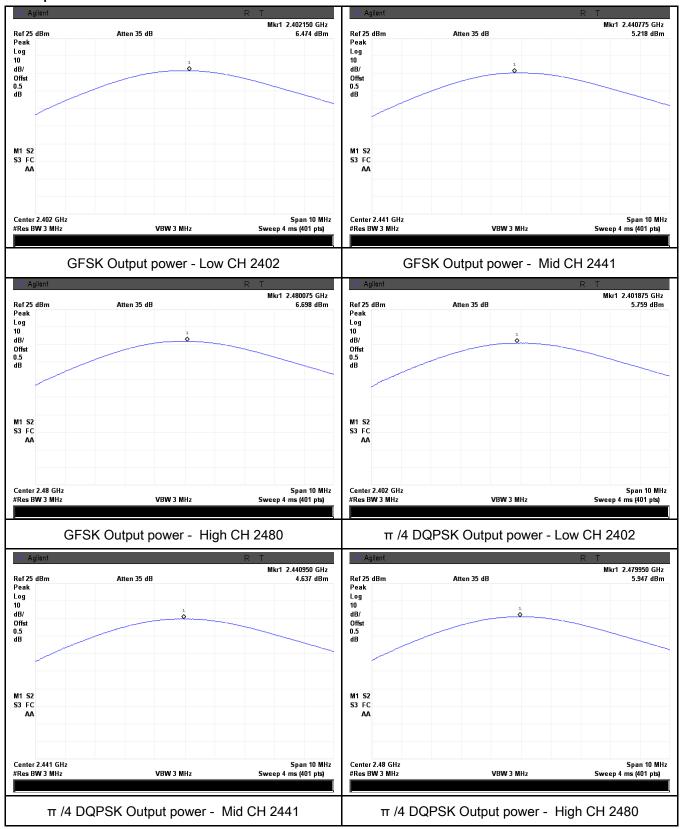
Туре	Modulation	СН	Freq (MHz)	Conducted Power (dBm)	Limit (mW)	Result
		Low	2402	6.474	125	Pass
	GFSK	Mid	2441	5.218	125	Pass
		High	2480	6.698	125	Pass
O v stan v st	π /4 DQPSK	Low	2402	5.759	125	Pass
Output		Mid	2441	4.637	125	Pass
power		High	2480	5.947	125	Pass
		Low	2402	5.913	125	Pass
	8-DPSK	Mid	2441	4.802	125	Pass
		High	2480	6.048	125	Pass



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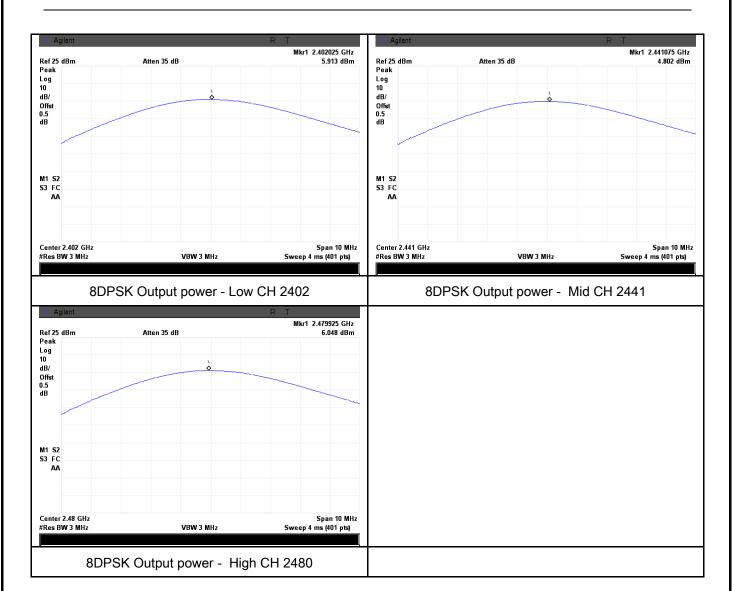
Test Plots

Output Power measurement result





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6.5 Number of Hopping Channel

Temperature	24°C
Relative Humidity	53%
Atmospheric Pressure	1012mbar
Test date :	November 02, 2015
Tested By :	Winnie Zhang

Troquirement(3).		_			
Spec	Item	Applicable			
§15.247(a) (1)(iii)	a)	•			
Test Setup	Spectrum Analyzer EUT				
	The te	st follows FCC Public Notice DA 00-705 Measurement Gu	iidelines.		
	Use the	e following spectrum analyzer settings:			
	The El	JT must have its hopping function enabled.			
	- Span = the frequency band of operation				
	- RBW ≥ 1% of the span				
Tool	- VBW≥ RBW				
Test Procedure	- Sweep = auto				
Procedure	- Detector function = peak				
	- Trace = max hold				
	- Allow trace to fully stabilize.				
	It may prove necessary to break the span up to sections, in order to				
	clearly show all of the hopping frequencies. The limit is specified in				
	one of the subparagraphs of this Section. Submit this plot(s).				
Remark					
Result	Pas	s Fail			
Test Data	Yes	□ _{N/A}			
Test Plot	Yes (See	e below)			



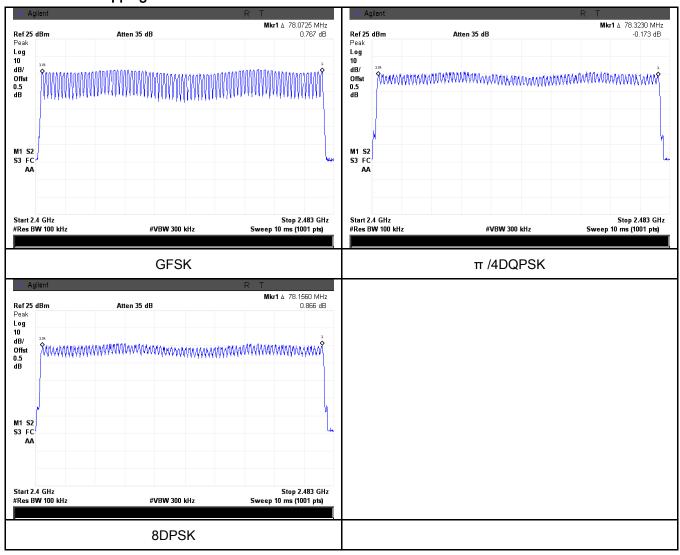
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Number of Hopping Channel measurement result

Туре	Modulation	Frequency Range	Number of Hopping Channel	Limit
Number of Hopping Channel	GFSK	2400-2483.5	79	15
	π /4 DQPSK	2400-2483.5	79	15
	8-DPSK	2400-2483.5	79	15

Test Plots

Number of Hopping Channels measurement result





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6.6 Time of Occupancy (Dwell Time)

Temperature	24°C
Relative Humidity	53%
Atmospheric Pressure	1012mbar
Test date :	November 02, 2015
Tested By:	Winnie Zhang

Spec	Item	Requirement	Applicable	
§15.247(a) (1)(iii)	a)	Dwell Time < 0.4s		
Test Setup		Spectrum Analyzer EUT		
		The test follows FCC Public Notice DA 00-705 Measurement Guidelines.		
	Use the	Use the following spectrum analyzer		
	-	Span = zero span, centered on a hopping channelRBW = 1 MHz		
	-			
Test	-	VBW ≥ RBW		
Procedure	- Sweep = as necessary to capture the entire dwell time per hopping			
		channel		
	-	- Detector function = peak		
	- Trace = max hold			
	- use the marker-delta function to determine the dwell time			
Remark				
Result	Pas	s Fail		

Test Data	Yes	□ _{N/A}
Test Plot	Yes (See below)	□ _{N/A}



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Dwell Time measurement result

Туре	Modulation	СН	Pulse Width (ms)	Dwell Time (ms)	Limit (ms)	Result
		Low	2.89	308.267	400	Pass
	GFSK	Mid	2.90	309.333	400	Pass
		High	2.89	308.267	400	Pass
		Low	2.91	310.400	400	Pass
Dwell Time	π /4 DQPSK	Mid	2.90	309.333	400	Pass
		High	2.90	309.333	400	Pass
		Low	2.91	310.400	400	Pass
	8-DPSK	Mid	2.90	309.333	400	Pass
		High	2.92	311.467	400	Pass
11igii 2.32 311.407 400 Fass						

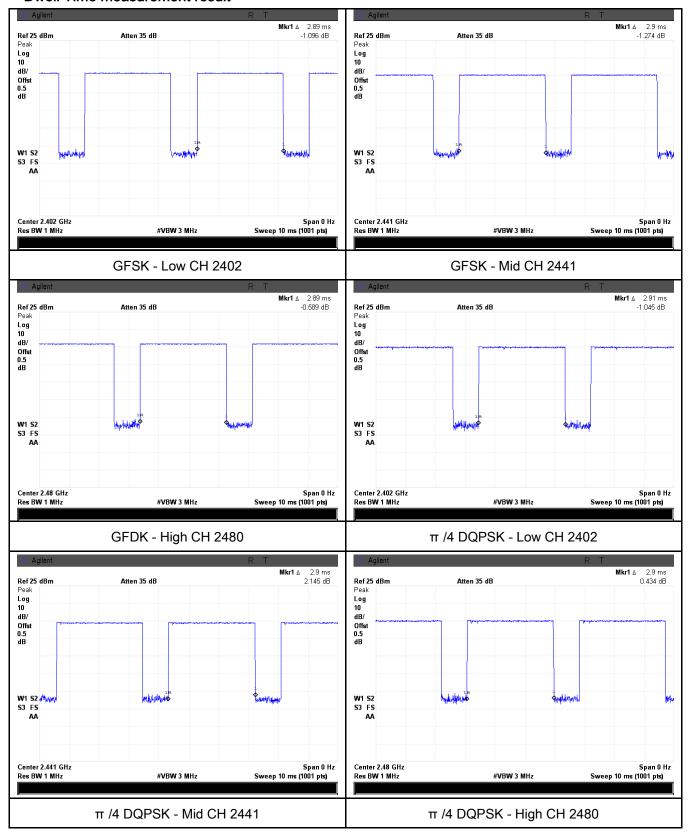
Note: Dwell time=Pulse Time (ms) × (1600 \div 6 \div 79) ×31.6



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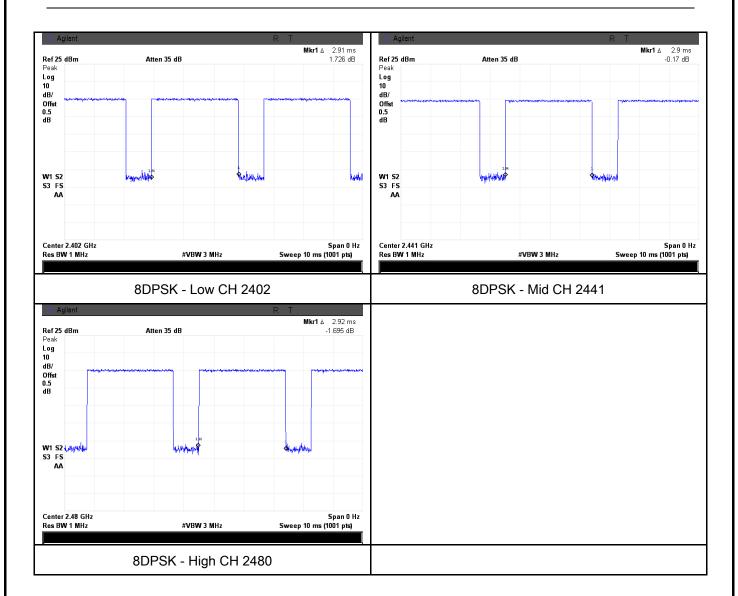
Test Plots

Dwell Time measurement result





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6.7 Band Edge

Temperature	22°C
Relative Humidity	55%
Atmospheric Pressure	1013mbar
Test date :	November 13, 2015
Tested By :	Winnie Zhang

Spec	Item	Requirement	Applicable
§15.247(a) (1)(iii)	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.	V
Test Setup	Ant. Tower Support Units Ground Plane Test Receiver		
Test Procedure	The test follows FCC Public Notice DA 00-705 Measurement Guidelines. 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,		



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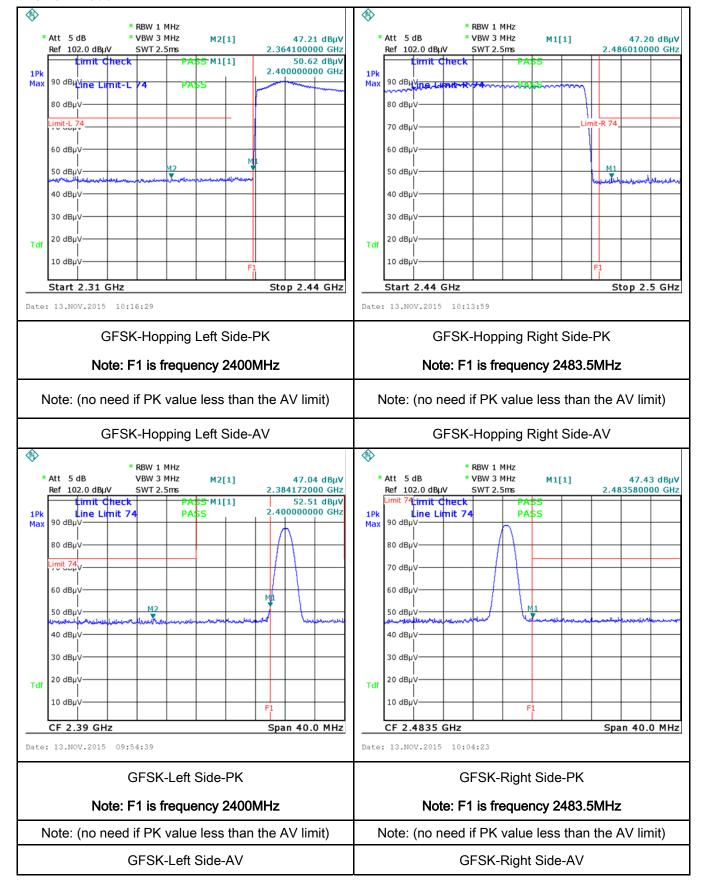
	and make sure the instrument is operated in its linear range.
	- 3. First, set both RBW and VBW of spectrum analyzer to 100 kHz with a
	convenient frequency span including 100kHz bandwidth from band edge, check
	the emission of EUT, if pass then set Spectrum Analyzer as below:
	a. The resolution bandwidth 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
Test Data	Yes N/A
Test Plot	Yes (See below)



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Test Plots

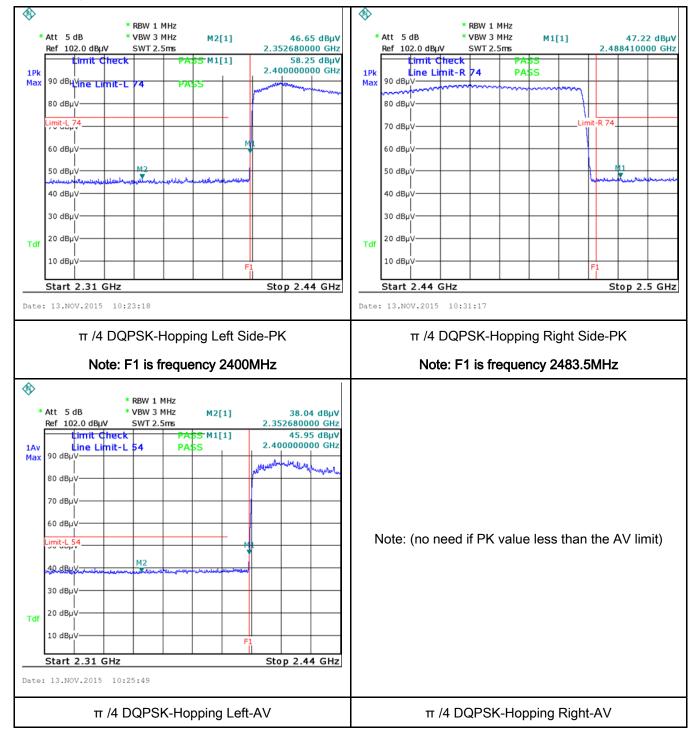
GFSK Mode:





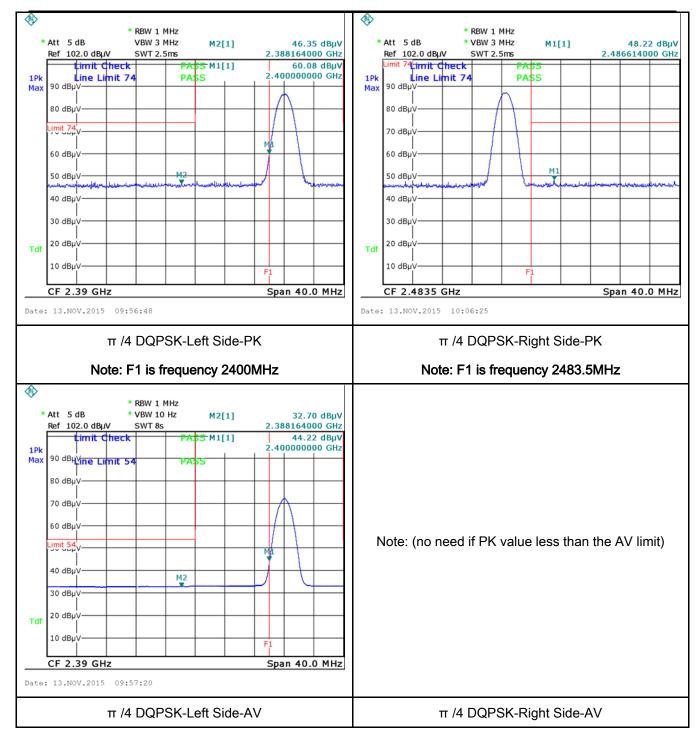
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π /4 DQPSK Mode:





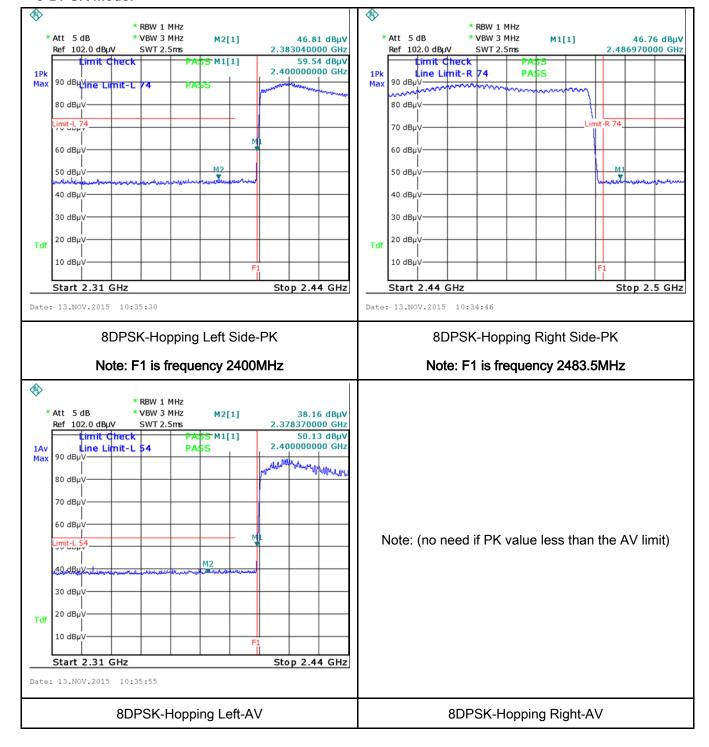
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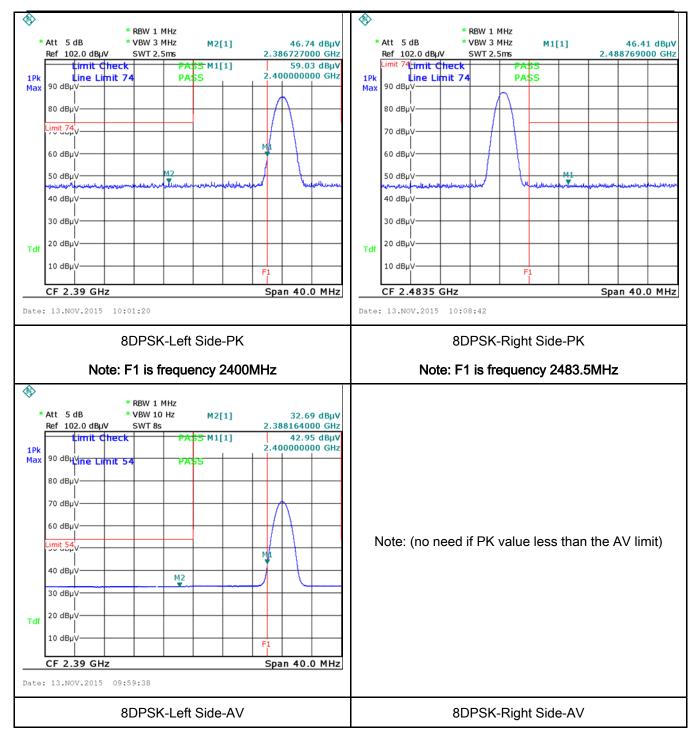
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8-DPSK Mode:





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6.8 AC Power Line Conducted Emissions

Temperature	22°C
Relative Humidity	55%
Atmospheric Pressure	1013mbar
Test date :	November 13, 2015
Tested By :	Winnie Zhang

Spec	Item	Requirement	Applicable		
47CFR§15. 207, RSS210 (A8.1)	a)	For Low-power radio-freconnected to the public voltage that is conducted frequency or frequencies not exceed the limits in [mu]H/50 ohms line implower limit applies at the Frequency ranges (MHz) 0.15 ~ 0.5 0.5 ~ 5 5 ~ 30	e utility (AC) power line and back onto the AC poses, within the band 150 the following table, as pedance stabilization notes boundary between the	the radio frequency ower line on any kHz to 30 MHz, shall measured using a 50 etwork (LISN). The	
Test Setup	Vertical Ground Reference Plane Horizontal Ground Reference Plane 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.				
Procedure	 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 				



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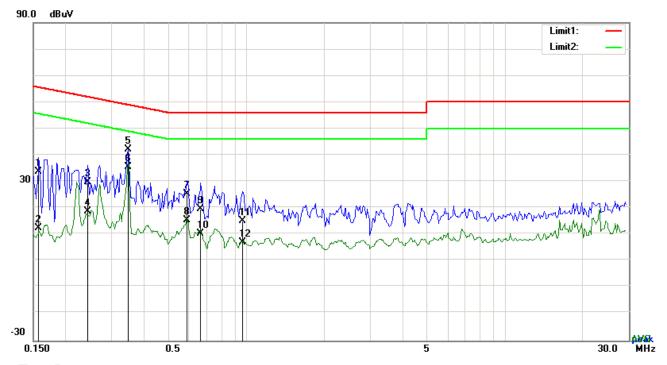
	coaxial cable.
	4. All other supporting equipment were powered separately from another main supply.
	5. The EUT was switched on and allowed to warm up to its normal operating condition.
	6. A scan was made on the NEUTRAL line (for AC mains) or Earth line (for DC power)
	over the required frequency range 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	
rtomant	
Result	Pass Fail
_	

Test Data	Yes	□ _{N/A}
Test Plot	Yes (See below)	□ _{N/A}



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Fest Mode: Bluetooth Mode	Test Mode:
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Test Data

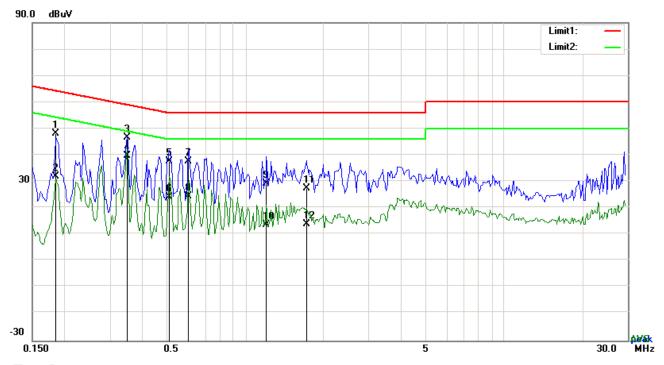
Phase Line Plot at 120Vac, 60Hz

No.	P/L	Frequency	Reading	Detector	Corrected	Result	Limit	Margin
		(MHz)	(dBuV)		(dB)	(dBuV)	(dBuV)	(dB)
1	L1	0.1578	23.67	QP	10.03	33.70	65.58	-31.88
2	L1	0.1578	2.45	AVG	10.03	12.48	55.58	-43.10
3	L1	0.2436	19.73	QP	10.03	29.76	61.97	-32.21
4	L1	0.2436	8.85	AVG	10.03	18.88	51.97	-33.09
5	L1	0.3489	32.09	QP	10.03	42.12	58.99	-16.87
6	L1	0.3489	25.47	AVG	10.03	35.50	48.99	-13.49
7	L1	0.5907	15.27	QP	10.03	25.30	56.00	-30.70
8	L1	0.5907	5.36	AVG	10.03	15.39	46.00	-30.61
9	L1	0.6648	9.70	QP	10.03	19.73	56.00	-36.27
10	L1	0.6648	0.45	AVG	10.03	10.48	46.00	-35.52
11	L1	0.9651	5.09	QP	10.03	15.12	56.00	-40.88
12	L1	0.9651	-3.11	AVG	10.03	6.92	46.00	-39.08



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Test Mode:	Bluetooth Mode



Test Data

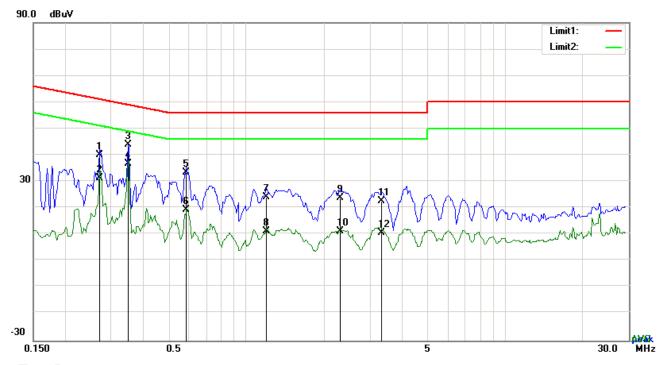
Phase Neutral Plot at 120Vac, 60Hz

No.	P/L	Frequency	Reading	Detector	Corrected	Result	Limit	Margin
		(MHz)	(dBuV)		(dB}	(dBuV)	(dBuV)	(dB)
1	N	0.1851	38.06	QP	10.02	48.08	64.25	-16.17
2	N	0.1851	21.82	AVG	10.02	31.84	54.25	-22.41
3	N	0.3489	36.66	QP	10.02	46.68	58.99	-12.31
4	N	0.3489	29.69	AVG	10.02	39.71	48.99	-9.28
5	N	0.5088	27.76	QP	10.02	37.78	56.00	-18.22
6	N	0.5088	14.09	AVG	10.02	24.11	46.00	-21.89
7	N	0.6024	27.60	QP	10.02	37.62	56.00	-18.38
8	N	0.6024	14.45	AVG	10.02	24.47	46.00	-21.53
9	N	1.2069	19.25	QP	10.03	29.28	56.00	-26.72
10	N	1.2069	3.65	AVG	10.03	13.68	46.00	-32.32
11	N	1.7178	17.50	QP	10.04	27.54	56.00	-28.46
12	N	1.7178	3.80	AVG	10.04	13.84	46.00	-32.16



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l est Mode:	Bluetooth Mode



Test Data

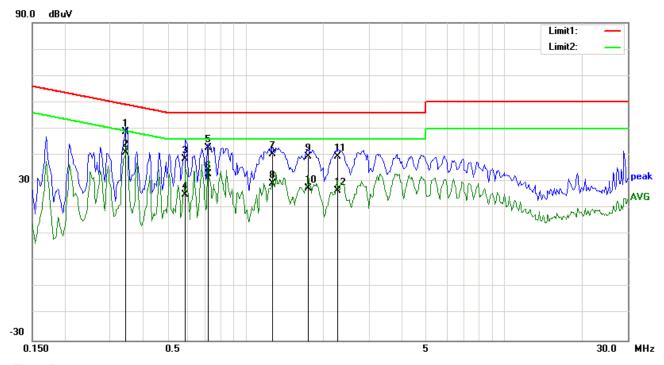
Phase Line Plot at 240Vac, 60Hz

No.	P/L	Frequency	Reading	Detector	Corrected	Result	Limit	Margin
		(MHz)	(dBuV)		(dB}	(dBuV)	(dBuV)	(dB)
1	L1	0.2709	29.92	QP	10.03	39.95	61.09	-21.14
2	L1	0.2709	21.36	AVG	10.03	31.39	51.09	-19.70
3	L1	0.3489	33.87	QP	10.03	43.90	58.99	-15.09
4	L1	0.3489	26.69	AVG	10.03	36.72	48.99	-12.27
5	L1	0.5868	23.38	QP	10.03	33.41	56.00	-22.59
6	L1	0.5868	9.33	AVG	10.03	19.36	46.00	-26.64
7	L1	1.1952	14.08	QP	10.03	24.11	56.00	-31.89
8	L1	1.1952	1.09	AVG	10.03	11.12	46.00	-34.88
9	L1	2.3028	13.95	QP	10.05	24.00	56.00	-32.00
10	L1	2.3028	1.10	AVG	10.05	11.15	46.00	-34.85
11	L1	3.3315	12.72	QP	10.06	22.78	56.00	-33.22
12	L1	3.3315	0.47	AVG	10.06	10.53	46.00	-35.47



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est Mode: Bluetooth 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	0.3450	38.74	QP	10.02	48.76	59.08	-10.32
2	Ν	0.3450	31.05	AVG	10.02	41.07	49.08	-8.01
3	Ν	0.5868	28.57	QP	10.02	38.59	56.00	-17.41
4	Ν	0.5868	15.05	AVG	10.02	25.07	46.00	-20.93
5	Ν	0.7194	32.87	QP	10.02	42.89	56.00	-13.11
6	N	0.7194	22.69	AVG	10.02	32.71	46.00	-13.29
7	Ν	1.2732	30.46	QP	10.03	40.49	56.00	-15.51
8	N	1.2732	19.23	AVG	10.03	29.26	46.00	-16.74
9	N	1.7490	29.44	QP	10.04	39.48	56.00	-16.52
10	N	1.7490	17.52	AVG	10.04	27.56	46.00	-18.44
11	N	2.2755	29.49	QP	10.04	39.53	56.00	-16.47
12	N	2.2755	16.64	AVG	10.04	26.68	46.00	-19.32



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6.9 Radiated Spurious Emissions

Temperature	22°C
Relative Humidity	55%
Atmospheric Pressure	1013mbar
Test date :	November 13, 2015
Tested By:	Winnie Zhang

Requirement(s):

Spec	Item	Requirement Applicable					
47CFR§15. 205, §15.209,	a)	Except higher limit as specified else emissions from the low-power radio-exceed the field strength levels specified the level of any unwanted emissions the fundamental emission. The tight edges	V				
§15.247(d)		Frequency range (MHz) 30 - 88	Field Strength (μV/m) 100				
		88 – 216	150				
		216 960	200				
		Above 960	500				
Test Setup		Ant. Tower Support Units Ground Plane Test Receiver					
Procedure	2.	condition.					



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		_	Vertical or beginned polarization (which ever rove the higher emission
		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 re	esolution bandwidth and video bandwidth of test receiver/spectrum analyzer is
		120 k	Hz for Quasiy Peak detection at frequency below 1GHz.
	4.	The re	solution bandwidth of test receiver/spectrum analyzer is 1MHz and video
		bandv	vidth is 3MHz with Peak detection for Peak measurement at frequency above
		1GHz	
		The re	esolution bandwidth of test receiver/spectrum analyzer is 1MHz and the video
		bandv	vidth is 10Hz with Peak detection for Average Measurement as below at
		freque	ency above 1GHz.
	5.	Steps	2 and 3 were repeated for the next frequency point, until all selected
		freque	ency points were measured.
Demont			
Remark			
Result	₽ P	ass	Fail

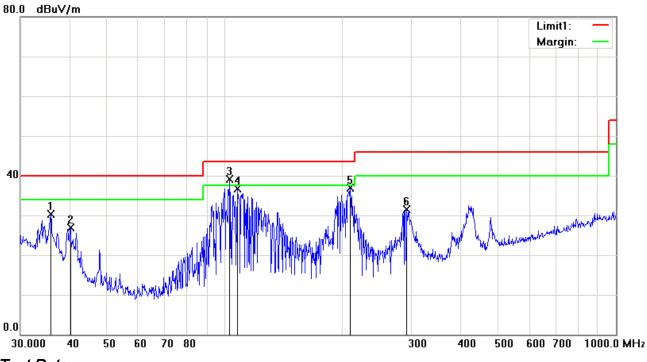
Test Data	Yes	□ _{N/A}
Test Plot	Yes (See below)	□ _{N/A}



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Test Mode: Bluetooth Mode

Below 1GHz



Test Data

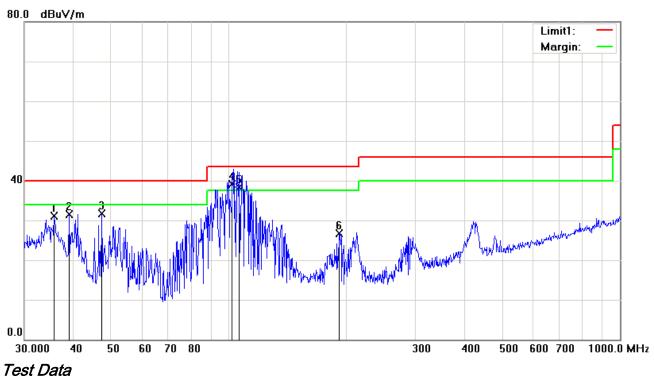
Horizontal Polarity Plot @3m

	rionzontari otarity riot @om									
No.	P/L	Frequency	Readin g	Detector	Corrected	Result	Limit	Margin	Height	Degree
		(MHz)	(dBuV/ m)		(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	(cm)	()
1	Н	35.8747	34.79	peak	-4.58	30.21	40.00	-9.79	100	307
2	Н	40.2757	34.75	peak	-7.77	26.98	40.00	-13.02	100	318
3	Н	102.7473	49.49	QP	-10.32	39.17	43.50	-4.33	100	183
4	Н	107.8877	46.09	peak	-9.40	36.69	43.50	-6.81	100	0
5	Н	209.3129	45.65	peak	-8.82	36.83	43.50	-6.67	100	156
6	Н	292.0583	38.76	peak	-7.26	31.50	46.00	-14.50	100	299



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Below 1GHz



Vertical Polarity Plot @3m

No.	P/L	Frequency	Readin g	Detector	Corrected	Result	Limit	Margin	Height	Degree
		(MHz)	(dBuV/ m)		(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	(cm)	()
1	>	35.7491	35.64	peak	-4.49	31.15	40.00	-8.85	100	214
2	٧	39.0245	38.45	peak	-6.88	31.57	40.00	-8.43	100	229
3	٧	47.3255	43.60	peak	-11.98	31.62	40.00	-8.38	100	248
4	٧	101.9660	49.47	QP	-10.45	39.02	43.50	-4.48	100	229
5	V	105.6777	48.07	QP	-9.79	38.28	43.50	-5.22	100	252
6	V	191.7450	35.89	peak	-9.14	26.75	43.50	-16.75	100	199



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Test Mode: Transmitting Mode

Mode: GFSK (Worst Case)

Low Channel (2402 MHz)

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)
4804	38.66	AV	V	33.83	6.86	31.72	47.63	54	-6.37
4804	38.42	AV	Н	33.83	6.86	31.72	47.39	54	-6.61
4804	46.58	PK	V	33.83	6.86	31.72	55.55	74	-18.45
4804	45.93	PK	Н	33.83	6.86	31.72	54.90	74	-19.10

Middle Channel (2441 MHz)

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)
4882	38.61	AV	V	33.86	6.82	31.82	47.47	54	-6.53
4882	38.45	AV	Н	33.86	6.82	31.82	47.31	54	-6.69
4882	46.53	PK	V	33.86	6.82	31.82	55.39	74	-18.61
4882	45.98	PK	Н	33.86	6.82	31.82	54.84	74	-19.16

High Channel (2480 MHz)

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)
4960	38.59	AV	V	33.9	6.76	31.92	47.33	54	-6.67
4960	38.42	AV	Н	33.9	6.76	31.92	47.16	54	-6.84
4960	46.48	PK	V	33.9	6.76	31.92	55.22	74	-18.78
4960	45.93	PK	Н	33.9	6.76	31.92	54.67	74	-19.33



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Annex A. TEST INSTRUMENT

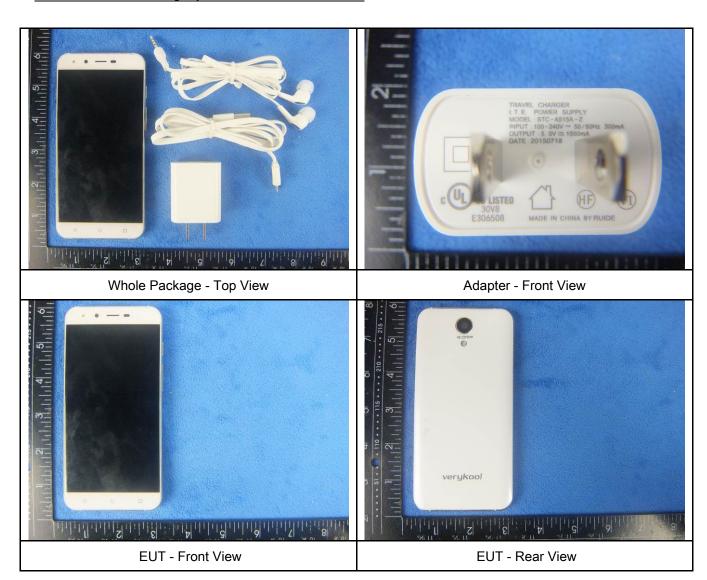
Instrument	Model	Serial #	Cal Date	Cal Due	In use
AC Line Conducted					
EMI test receiver	ESCS30	8471241027	09/17/2015	09/16/2016	<u><</u>
Line Impedance	LI-125A	191106	09/25/2015	09/24/2016	<u> </u>
Line Impedance	LI-125A	191107	09/25/2015	09/24/2016	~
LISN	ISN T800	34373	09/25/2015	09/24/2016	~
Double Ridge Horn Antenna (1 ~18GHz)	AH-118	71283	09/24/2015	09/23/2016	\
Transient Limiter	LIT-153	531118	09/01/2015	08/31/2016	>
RF conducted test					
Agilent ESA-E SERIES	E4407B	MY45108319	09/17/2015	09/16/2016	~
Power Splitter	1#	1#	09/01/2015	08/31/2016	<u><</u>
DC Power Supply	E3640A	MY40004013	09/17/2015	09/16/2016	<u><</u>
Radiated Emissions					
EMI test receiver	ESL6	100262	09/17/2015	09/16/2016	~
Positioning Controller	UC3000	MF780208282	11/20/2014	11/19/2015	~
OPT 010 AMPLIFIER (0.1-1300MHz)	8447E	2727A02430	09/01/2015	08/31/2016	•
Microwave Preamplifier (1 ~ 26.5GHz)	8449B	3008A02402	03/25/2015	03/24/2016	<u><</u>
Bilog Antenna (30MHz~6GHz)	JB6	A110712	09/21/2015	09/20/2016	<u>\</u>
Double Ridge Horn Antenna (1 ~18GHz)	AH-118	71283	09/24/2015	09/23/2016	V
Universal Radio Communication Tester	CMU200	121393	09/25/2015	09/24/2016	V



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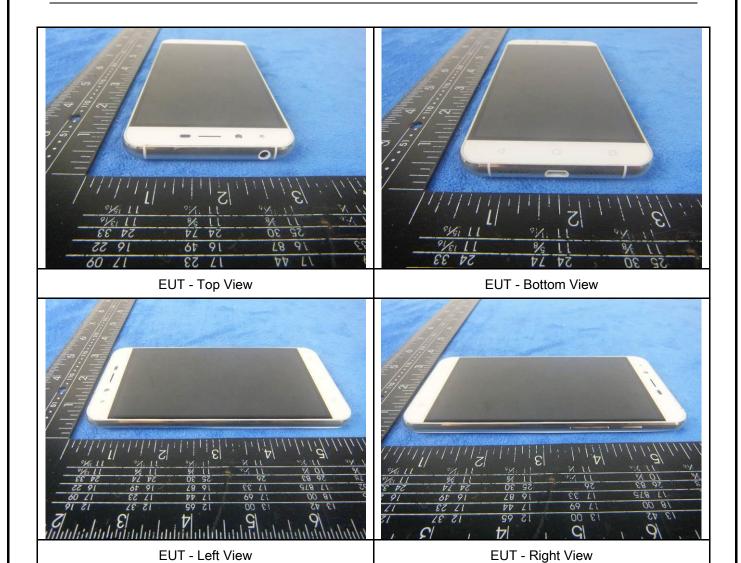
Annex B. EUT And Test Setup Photographs

Annex B.i. Photograph: EUT External Photo





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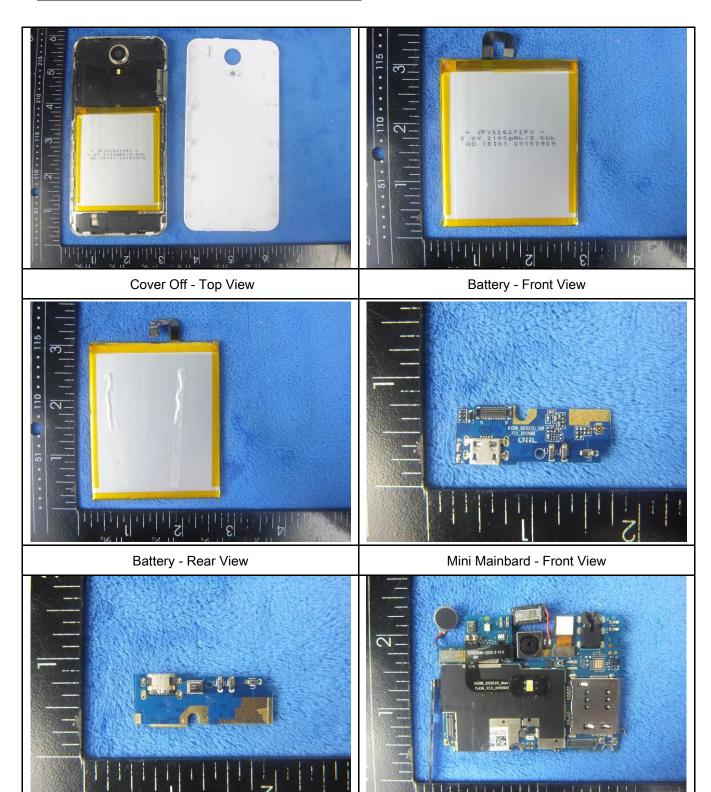


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Mainbard with Shielding - Front View

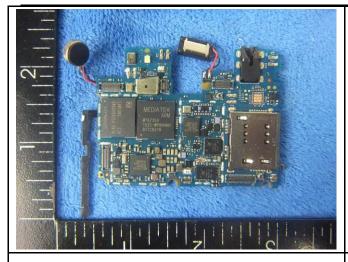
Annex B.ii. Photograph: EUT Internal Photo

Mini Mainbard - Rear View





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Z I I B BOX 9273

Mainbard without Shielding - Front View

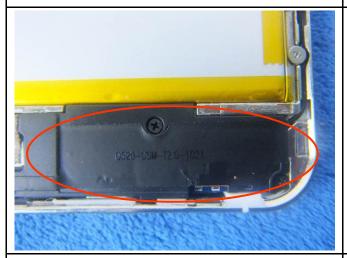
Mainbard - Rear View





LCD - Front View

LCD - Rear View



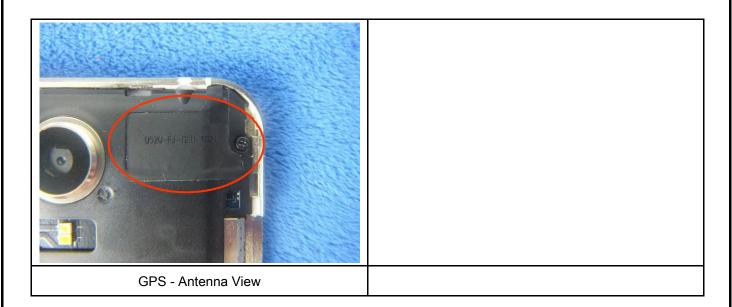




WIFI/BT/BLE - Antenna View



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Annex B.iii. Photograph: Test Setup Photo



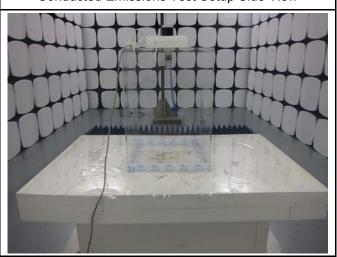
Conducted Emissions Test Setup Front View



Conducted Emissions Test Setup Side View



Radiated Spurious Emissions Test Setup Below 1GHz



Radiated Spurious Emissions Test Setup Above 1GHz

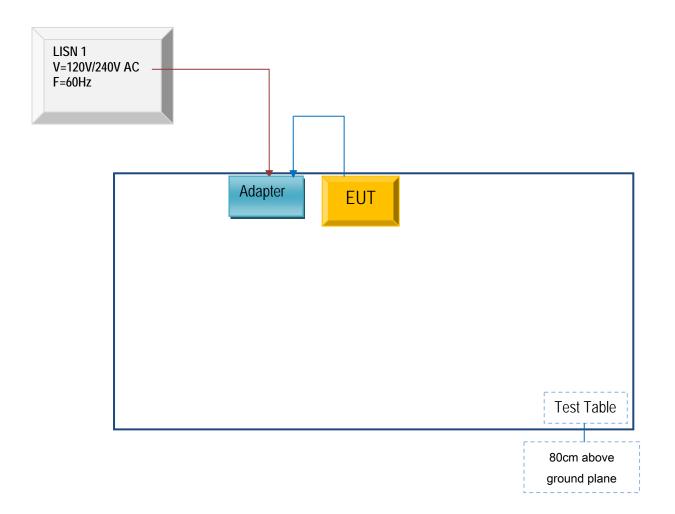


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Annex C. TEST SETUP AND SUPPORTING EQUIPMENT

Annex C.ii. TEST SET UP BLOCK

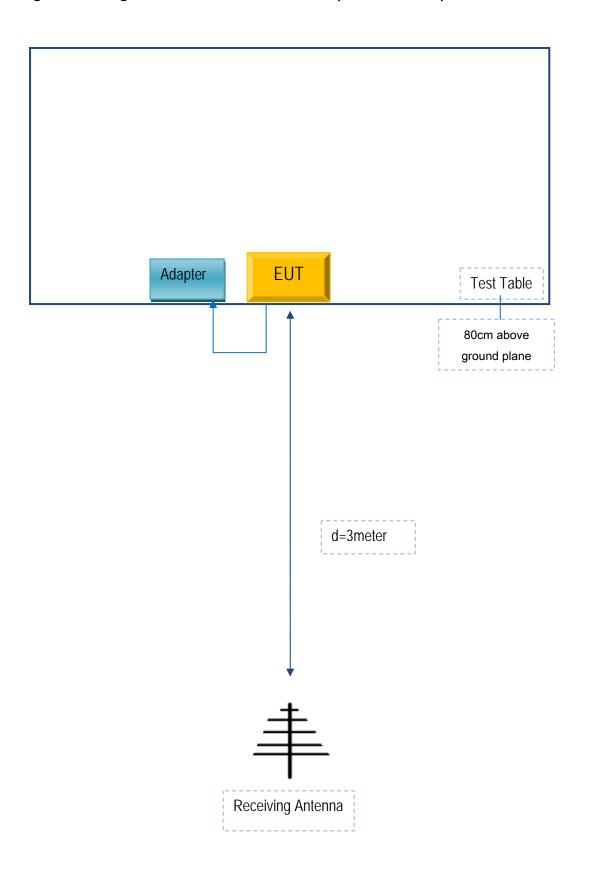
Block Configuration Diagram for AC Line Conducted Emissions





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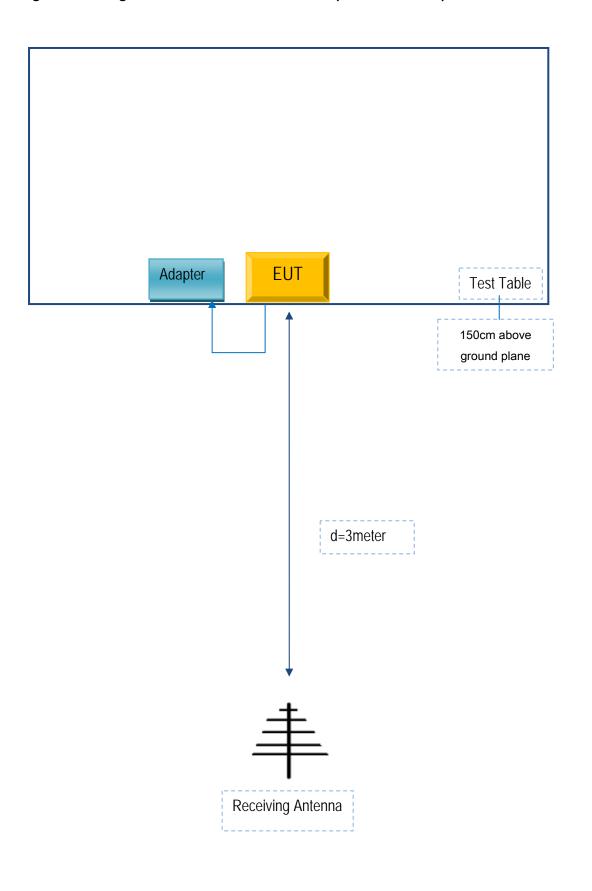
Block Configuration Diagram for Radiated Emissions (Below 1GHz).





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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.

Manufacturer	Equipment Description	Model	Calibration Date	Calibration Due Date
N/A	N/A	N/A	N/A	N/A



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

Please see attachment



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Annex E. DECLARATION OF SIMILARITY

N/A