RF TEST REPORT



Report No.: 17071343-FCC-R3

Supersede Report No.: N/A Applicant **BLU Products, Inc. Product Name Mobile Phone** Model No. STUDIO VIEW MEGA Serial No. N/A **Test Standard** FCC Part 15.247: 2016, ANSI C63.10: 2013 **Test Date** December 20, 2017 to January 07, 2018 **Issue Date** March 07, 2018 Pass **Test Result** Fail Equipment complied with the specification 7 Equipment did not comply with the specification David Huang lon Aanon Aaron Liang David Huang **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

Zone A, Floor 1, Building 2 Wan Ye Long Technology Park South Side of Zhoushi Road, Bao' an District, Shenzhen, Guangdong China 518108 Phone: +86 0755 2601 4629801 Email: China@siemic.com.cn



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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.

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	

Accreditations for Conformity Assessment



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1. Report Revision History

Report No.	Report Version	Description	Issue Date
17071343-FCC-R3	NONE	Original	March 07, 2018

2. Customer information

Applicant Name	BLU Products, Inc.
Applicant Add	10814 NW 33rd St # 100 Doral, FL 33172
Manufacturer	BLU Products, Inc.
Manufacturer Add	10814 NW 33rd St # 100 Doral, FL 33172

3. Test site information

Test Lab A:

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.	535293
IC Test Site No.	4842E-1
Test Software	Radiated Emission Program-To Shenzhen v2.0
Test Lab B:	
Lab performing tests	SIEMIC (Nanjing-China) Laboratories
Lab Address	2-1 Longcang Avenue Yuhua Economic and
	Technology Development Park, Nanjing, China
FCC Test Site No.	694825
IC Test Site No.	4842B-1
Test Software	EZ_EMC(ver.lcp-03A1)

Note: We just perform Radiated Spurious Emission above 18GHz in the test Lab. B.



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4. Equipment under Test (EUT) Information		
Description of EUT:	Mobile Phone	
Main Model:	STUDIO VIEW MEGA	
Serial Model:	N/A	
Date EUT received:	December 20, 2017	
Test Date(s):	December 20, 2017 to January 07, 2018	
Equipment Category :	DSS	
Antenna Gain:	GSM850: -3.8dBi PCS1900: -2.4dBi UMTS-FDD Band V: -3.8dBi UMTS-FDD Band IV: -2.3dBi UMTS-FDD Band II: -2.7dBi WIFI: -3.6dBi Bluetooth/BLE: -3.3dBi GPS: -3.3dBi	
Antenna Type:	PIFA antenna	
Type of Modulation:	GSM / GPRS: GMSK EGPRS: GMSK UMTS-FDD: QPSK 802.11b/g/n: DSSS, OFDM Bluetooth: GFSK, π /4DQPSK, 8DPSK BLE: GFSK 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 II TX:1852.4 ~ 1907.6 MHz;
	RX: 1932.4 ~ 1987.6 MHz
RF Operating Frequency (ies):	UMTS-FDD Band IV TX:1712.4 ~ 1752.6 MHz;
	RX : 2112.4 ~ 2152.6 MHz
	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
Max. Output Power:	4.08dBm
	GSM 850: 124CH
	PCS1900: 299CH
	UMTS-FDD Band V: 102CH
	UMTS-FDD Band IV: 202CH
Number of Channels:	UMTS-FDD Band II: 277CH
Number of Charmers.	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: TPA-46050200UU
	Input: AC100-240V~50/60Hz,0.3A
nput Power:	Output: DC 5V, 2A
	Battery
	Model: C876440350P
	Voltage: 3.8V, 13.3Wh
	Battery Capacity: 3500mAh
Trade Name :	BLU



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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& Restricted Band	Compliance
§15.207(a)	AC Line Conducted Emissions	Compliance
§15.205, §15.209, §15.247(d)	Radiated Emissions& Restricted Band	Compliance

Measurement Uncertainty

Emissions			
Test Item	Description	Uncertainty	
Band Edge& Restricted Band and Radiated Emissions& Restricted Band	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 2 antennas:

A permanently attached PIFA antenna for Bluetooth/BLE/WIF/GPS, the gain is -3.3dBi for Bluetooth/BLE, the gain is -3.6dBi for WIFI, the gain is -3.3dBi for GPS.

A permanently attached PIFA antenna for GSM/PCS/UMTS, the gain is -3.8dBi for GSM850, -2.4dBi for PCS1900, -3.8dBi for UMTS-FDD Band V, -2.7dBi for UMTS-FDD Band II, -2.3dBi for UMTS-FDD Band IV.

The antenna meets up with the ANTENNA REQUIREMENT.

Result: Compliance.



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6.2 Channel Separation

Temperature	24°C
Relative Humidity	54%
Atmospheric Pressure	1020mbar
Test date :	December 29, 2017
Tested By :	Aaron Liang

Spec	Item	Requirement Applicable			
		Channel Separation < 20dB BW and 20dB BW <			
S 45 047(-)(4)		25KHz; Channel Separation Limit=25KHz			
§ 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				
		est follows FCC Public Notice DA 00-705 Measurement	Guidelines.		
	000 1	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 				
	 Video (or Average) Bandwidth (VBW) ≥ RBW 				
Test Procedure	- 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 adj	acent		
		channels. The limit is specified in one of the subparagra	aphs of this		
		Section. Submit this plot.			



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Rema	rk				
Resu	lt	Pass	Fail		
Test Data	✓ Yes	i	□ _{N/A}		
Test Plot	✓ Yes	s (See below)	□ _{N/A}		

Channel Separation measurement result

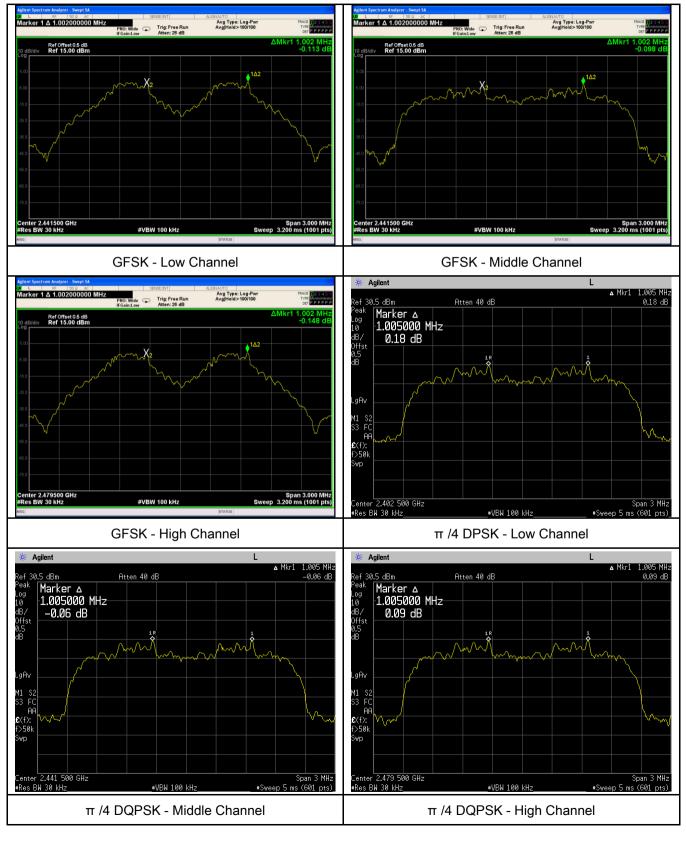
Type/ Modulation	СН	CH Frequency (MHz)	CH Separation (MHz)	Limit (MHz)	Result
	Low Channel	2402	1.002	0.965	Pass
	Adjacency Channel	2403	1.002	0.905	F 855
CH Separation	Mid Channel	2440	1.002	0.958	Pass
GFSK	Adjacency Channel	2441	1.002	0.956	Pass
	High Channel	2480	1 002	0.694	Pass
	Adjacency Channel	2479	1.002	0.681	
	Low Channel	2402	4.005	0.070	Dees
	Adjacency Channel	2403	1.005	0.878	Pass
CH Separation	Mid Channel	2440	4.005	0.875 0.860	Dees
π /4 DQPSK	Adjacency Channel	2441	1.005		Pass
	High Channel	2480	4.005		Pass
	Adjacency Channel	2479	1.005		
	Low Channel	2402	4.005	0.050	Dese
	Adjacency Channel	2403	1.005	0.856	Pass
CH Separation	Mid Channel	2440	4.005	0.050	Dees
8DPSK	Adjacency Channel	2441	1.005	0.856	Pass
	High Channel	2480	1.005	0.000	Dess
	Adjacency Channel	2479	1.005	0.863	Pass



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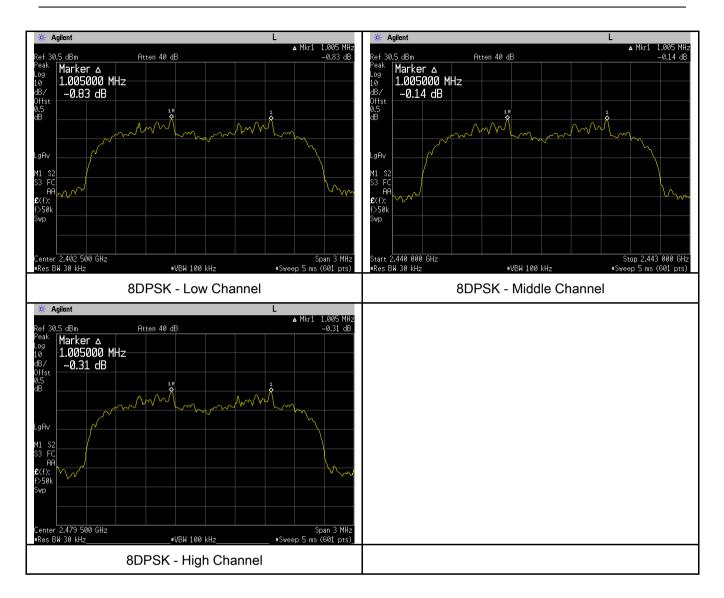
Test Plots

Channel Separation measurement result





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6.3 20dB Bandwidth

Temperature	24°C
Relative Humidity	54%
Atmospheric Pressure	1020mbar
Test date :	December 29, 2017
Tested By :	Aaron Liang

Spec	Item	Requirement	Applicable
§15.247(a) (1)	a)	v	
Test Setup		Spectrum Analyzer EUT	
Test Procedure		st follows FCC Public Notice DA 00-705 Measurement Gu <u>e following spectrum analyzer settings:</u> Span = approximately 2 to 3 times the 20 dB bandwidth, a hopping channel RBW \geq 1% of the 20 dB bandwidth VBW \geq RBW Sweep = auto Detector function = peak Trace = max hold. The EUT should be transmitting at its maximum data rate trace to stabilize. Use the marker-to-peak function to set to to the peak of the emission. Use the marker-delta function measure 20 dB down one side of the emission. Reset the delta function, and move the marker to the other side of tt emission, until it is (as close as possible to) even with the	e. Allow the the marker n to e marker- he

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[marker level	l. The marker-o	delta reading at this point is the 20 dB		
	bandwidth o	f the emission.	If this value varies with different modes of		
	operation (e	.g., data rate, r	modulation format, etc.), repeat this test for		
	each variatio	n. The limit is specified in one of the subparagraphs of			
	this Section.	Submit this pl	ot(s).		
Remark					
Result	Pass	Fail			
Test Data	Test Data Yes				

Measurement result

Test Plot Yes (See below)

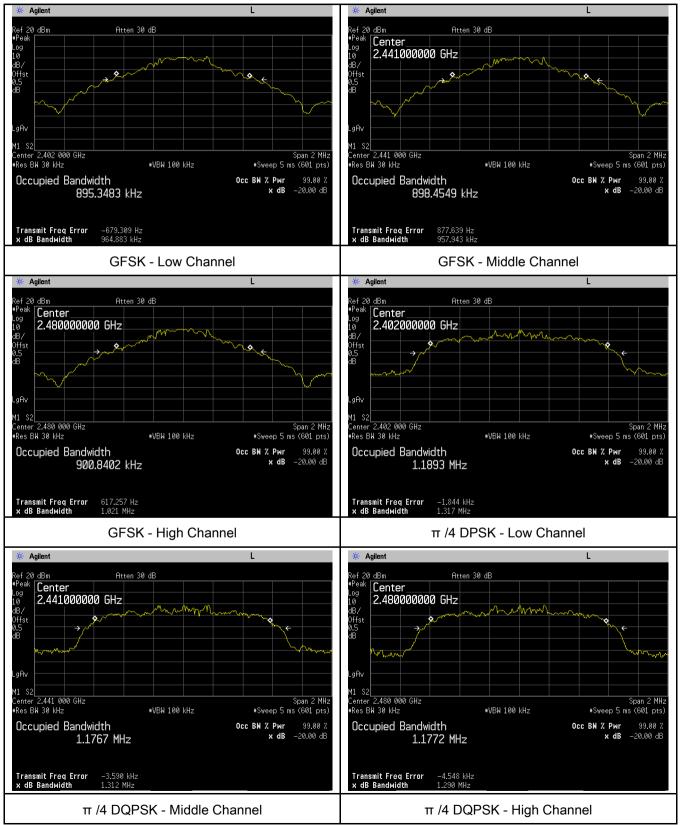
Modulation	СН	CH Frequency (MHz)	20dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)
	Low	2402	0.965	0.895
GFSK	Mid	2441	0.958	0.898
	High	2480	1.021	0.901
	Low	2402	1.317	1.1893
π /4 DQPSK	Mid	2441	1.312	1.1767
	High	2480	1.290	1.1772
	Low	2402	1.284	1.1897
8-DPSK	Mid	2441	1.284	1.1870
	High	2480	1.294	1.1745



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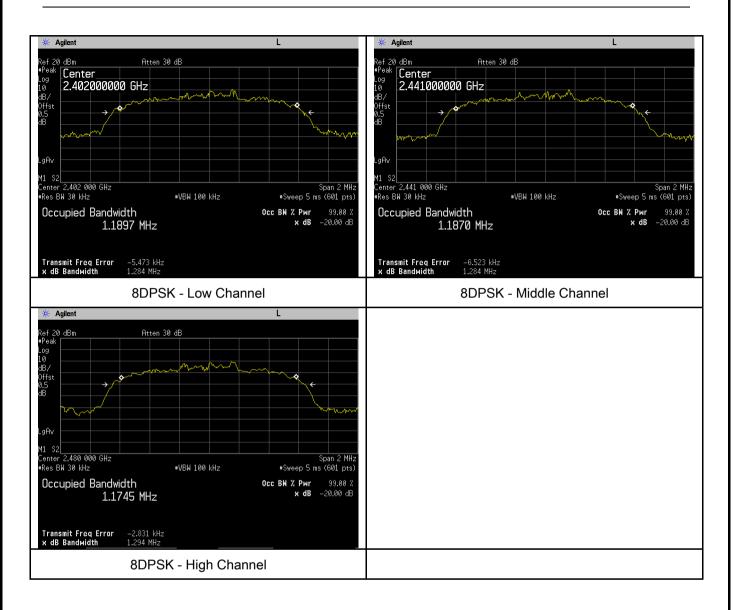
Test Plots

20dB Bandwidth measurement result





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6.4 Peak Output Power

Temperature	24°C
Relative Humidity	54%
Atmospheric Pressure	1020mbar
Test date :	December 29, 2017
Tested By :	Aaron Liang

Spec	Item	Requirement	Applicable		
	a)	FHSS in 2400-2483.5MHz with \geq 75 channels: \leq 1 Watt	K		
	b)	FHSS in 5725-5850MHz: ≤ 1 Watt			
§15.247(b)	c)	For all other FHSS in the 2400-2483.5MHz band: \leq 0.125 Watt.	K		
(3)	d)	FHSS in 902-928MHz with ≥ 50 channels: ≤ 1 Watt			
	e)	FHSS in 902-928MHz with \geq 25 & <50 channels: \leq 0.25 Watt			
	f)	DTS in 90 <u>2-928MHz, 2400</u> -2483.5MHz: ≤ 1 Watt			
Test Setup	Spectrum Analyzer EUT				
Test Procedure	5				

			Test Denet	
A Bureau	u Veritas G		Test Report Page	17071343-FCC-R3 19 of 67
г <u> </u>		Г. — Г. — — — — — — — — — — — — — — — —		
		- Use the m	arker-to-peak fu	nction to set the marker to the peak of the
		emission.	The indicated level	vel is the peak output power (see the note
		above reg	arding external a	attenuation and cable loss). The limit is
		specified i	n one of the sub	paragraphs of this Section. Submit this
		plot. A pea	ak responding po	ower meter may be used instead of a
		spectrum	analyzer.	
Remark				
Result		Pass	E Fail	
Test Data	√ _Y	Zes	□ _{N/A}	
Test Plot	₽ _Y	es (See below)	□ _{N/A}	

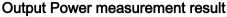
Peak Output Power measurement result

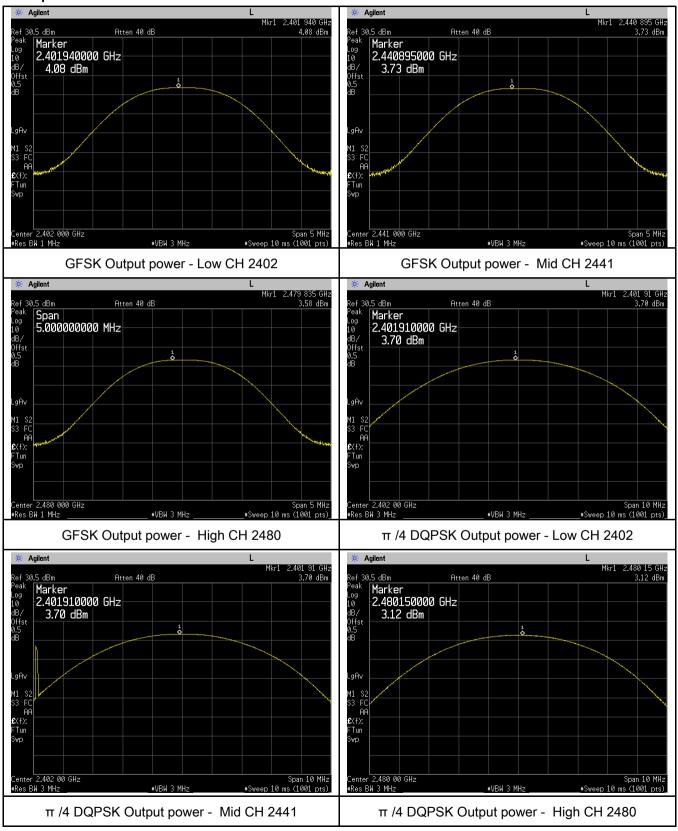
Туре	Modulation	СН	Frequenc y (MHz)	Conducted Power (dBm)	Limit (mW)	Result
		Low	2402	4.08	1000	Pass
	GFSK	Mid	2441	3.73	1000	Pass
		High	2480	3.58	125	Pass
Outrout	π /4 DQPSK 8-DPSK	Low	2402	3.70	125	Pass
Output		Mid	2441	3.70	125	Pass
power		High	2480	3.12	125	Pass
		Low	2402	3.73	125	Pass
		Mid	2441	3.38	125	Pass
		High	2480	3.22	125	Pass



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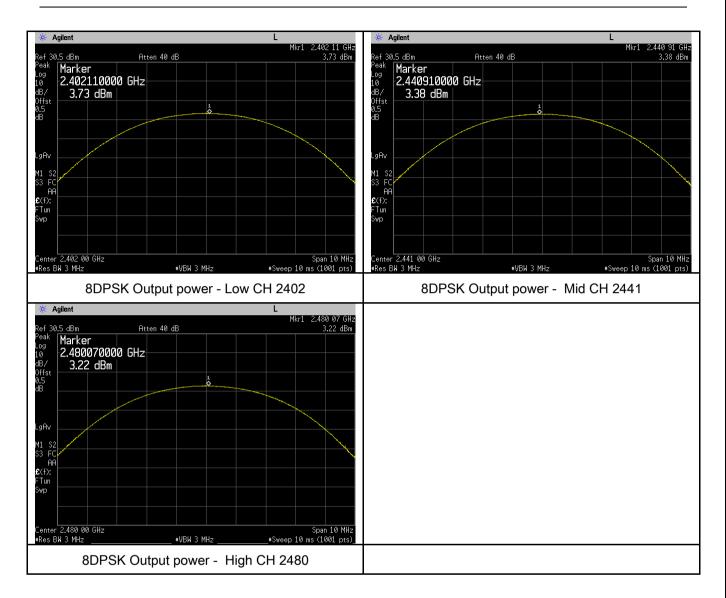
Test Plots







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6.5 Number of Hopping Channel

Temperature	24°C
Relative Humidity	54%
Atmospheric Pressure	1020mbar
Test date :	December 29, 2017
Tested By :	Aaron Liang

Spec	Item	Requirement	Applicable		
§15.247(a) (1)(iii)	a)	FHSS in 2400-2483.5MHz \geq 15 channels	Z		
Test Setup		Spectrum Analyzer EUT			
	The tes	st follows FCC Public Notice DA 00-705 Measurement Gu	idelines.		
	Use the	e following spectrum analyzer settings:			
	The EL	JT must have its hopping function enabled.			
	 Span = the frequency band of operation 				
	- RBW \geq 1% of the span				
Teet	- VBW ≥ RBW				
Test	- 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 sp	ecified 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	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

A Mid 1 78.07 SHE A Mid 1 78.07	Ref 30.5 dBm Atten 40 dB -0.50 dB Ref 30.5 dBm Atten 40 dB -3. Peak Manutana
GFSK π /4DQPSK ** Agilent L V* Agilent L ** Marker Δ -1.33 dB ** Agilent -1.33 dB ** Marker Δ -1.38 dB ** Agilent ** Agilent ** Agilent ** Agilent ** Agilent ** Agilent ** Agilent * Agilent ** Agilent * Agilent ** Agilent * Agilen	dB/st -0.50 dB -0.50 dB -0.50 dB 0ffst -0.50 dB -0.50 dB -0.50 dB 18 -0.50 dB -0.50 dB -0.50 dB 19 -0.50 dB -0.50 dB -0.50 dB 18 -0.50 dB -0.50 dB -0.50 dB 19 -0.50 dB -0.50
** Agilent L %* Agilent Atten 40 dB -1.38 dB ** Marker A ************************************	
▲ Mkr1 78.072 5 MHz Peak Marker △ 18 78.072500 MHz -1.38 dB -1.38 dB 18 -1.38 dB 19 -1.38 dB 18 -1.38 dB 19 -1.38 dB 18 -1.38 dB 18 -1.38 dB 19 -1.38 dB	GFSK π/4DQPSK
Peak Marker A Peak 19 78.072500 MHz -1.38 dB df/ -1.38 dB -1.38 dB 10 10 10 10	▲ Mkr1 78.072 5 MHz
	Peak Log 10 dB/ dB/ dB/ dB Marker Δ 78.072500 MHz A LgAv -1.38 dB -1.38 dB Start S2 -1.38 dB -1.38 dB Start 2.400 000 0 GHz Stop 2.483 500 0 GHz



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6.6 Time of Occupancy (Dwell Time)

Temperature	24°C
Relative Humidity	54%
Atmospheric Pressure	1020mbar
Test date :	December 29, 2017
Tested By :	Aaron Liang

Spec	Item	Requirement	Applicable
§15.247(a) (1)(iii)	a)	Dwell Time < 0.4s	M
Test Setup		Spectrum Analyzer EUT	
		st follows FCC Public Notice DA 00-705 Measurement G	uidelines.
	Use the	e following spectrum analyzer	
	-	Span = zero span, centered on a hopping channel	
	-	RBW = 1 MHz	
Test	-	VBW ≥ RBW	
Procedure	-	Sweep = as necessary to capture the entire dwell time p	er hopping
		channel	
	- Detector function = peak		
	-	Trace = max hold	
	-	use the marker-delta function to determine the dwell time	e
Remark			
Result	Pas	s Fail	
Test Data	Yes	□ _{N/A}	
Test Plot	′es (See	below)	



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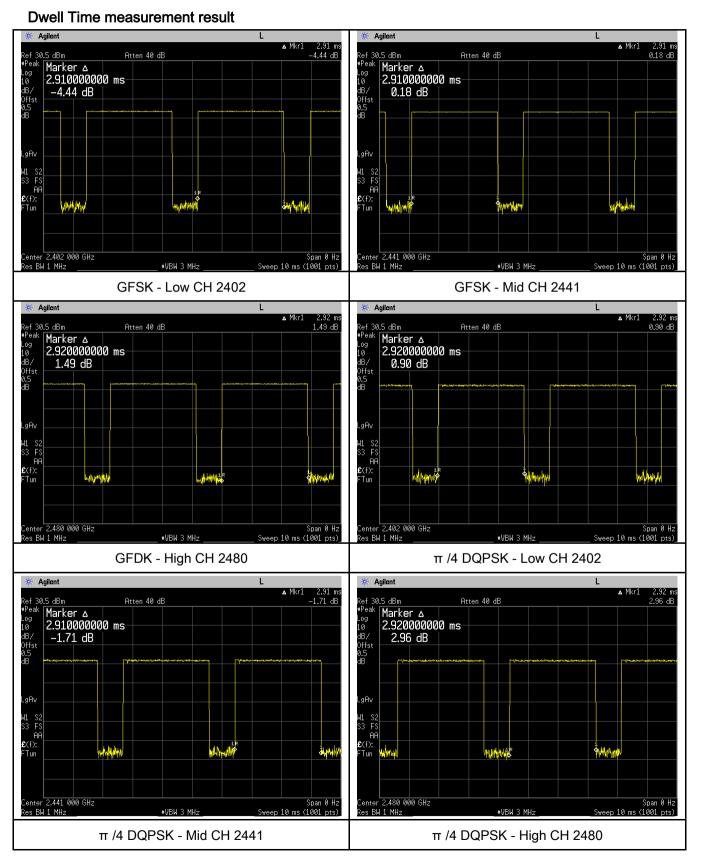
Dwell Time measurement result

Туре	Modulation	СН	Pulse Width (ms)	Dwell Time (ms)	Limit (ms)	Result
		Low	2.91	310.400	400	Pass
	GFSK	Mid	2.91	310.400	400	Pass
		High	2.92	311.467	400	Pass
	π /4 DQPSK 8-DPSK	Low	2.92	311.467	400	Pass
Dwell Time		Mid	2.91	310.400	400	Pass
		High	2.92	311.467	400	Pass
		Low	2.92	311.467	400	Pass
		Mid	2.91	310.400	400	Pass
		High	2.91	310.400	400	Pass
Note: Dwell time=Pulse Time (ms) × (1600 ÷ 6 ÷ 79) ×31.6						



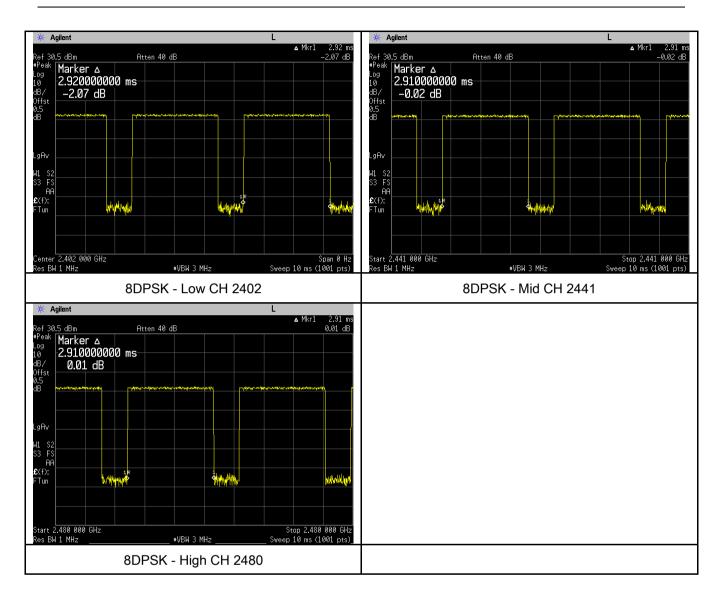
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Test Plots





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6.7 Band Edge & Restricted Band

Temperature	26°C
Relative Humidity	56%
Atmospheric Pressure	1022mbar
Test date :	December 26, 2017
Tested By :	Aaron Liang

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 LUT& 3m Support Units 0.8/1.5m 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
	Yes IN/A Yes (See below)

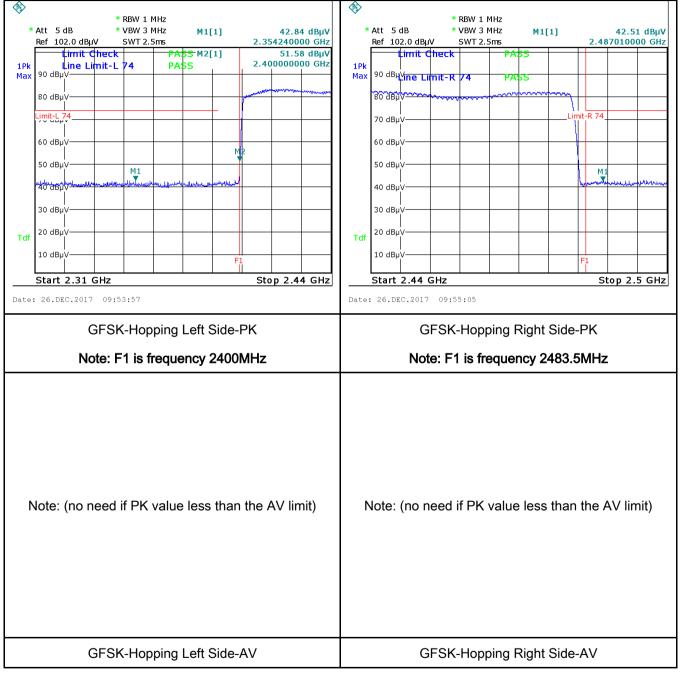


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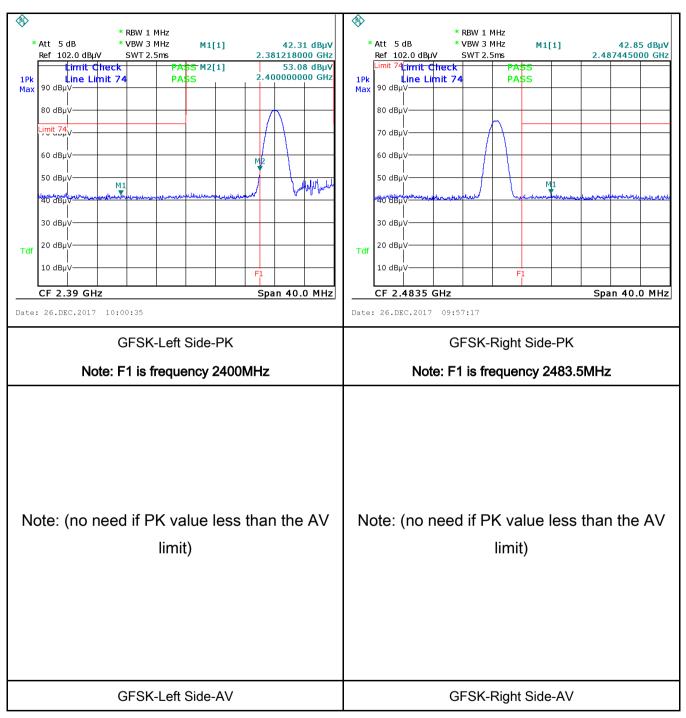
Test Plots

GFSK Mode:





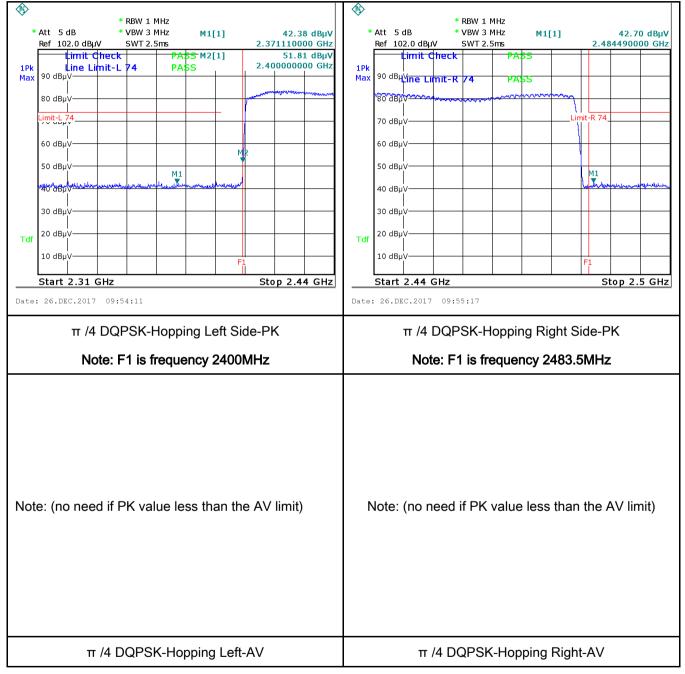
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π /4 DQPSK Mode:





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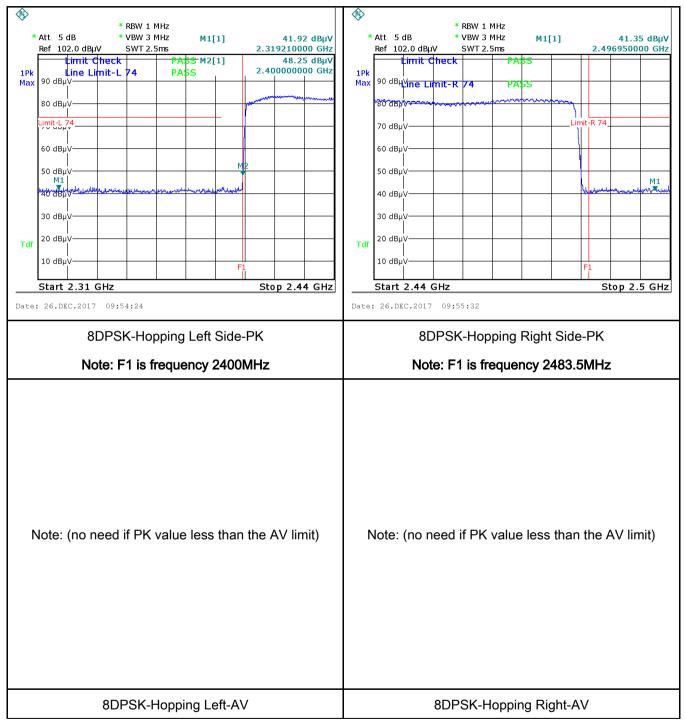




 Test Report
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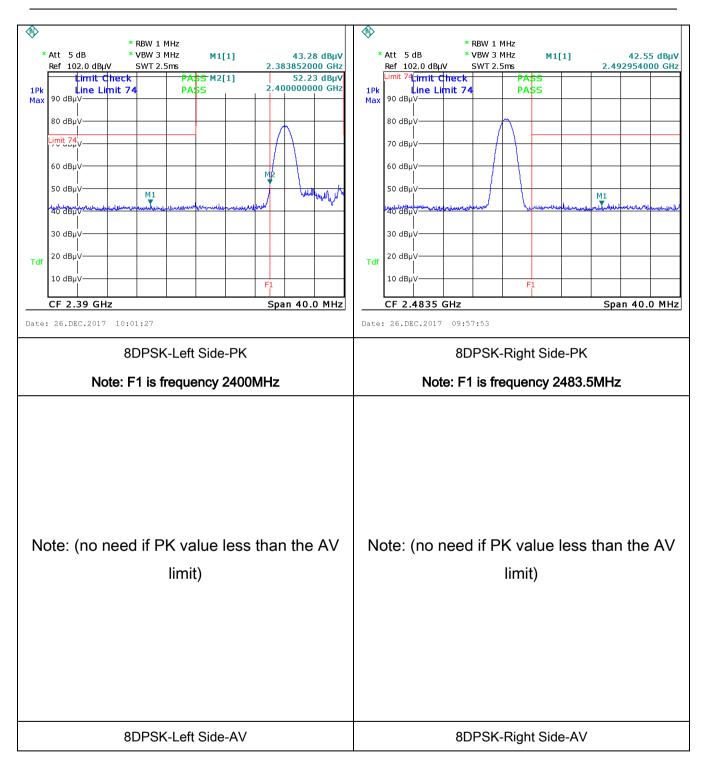
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8-DPSK Mode:





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6.8 AC Power Line Conducted Emissions

Temperature	26°C	
Relative Humidity	56%	
Atmospheric Pressure	1022mbar	
Test date :	December 26, 2017	
Tested By :	Aaron Liang	

Spec	Item	Requirement			Applicable	
47CFR§15. 207, RSS210 (A8.1)	a)	For Low-power radio-fr connected to the public voltage that is conducted frequency or frequencies not exceed the limits in [mu]H/50 ohms line imp lower limit applies at th Frequency ranges (MHz) 0.15 ~ 0.5	c utility (AC) power line ed back onto the AC po es, within the band 150 the following table, as pedance stabilization n e boundary between th	, the radio frequency ower line on any) kHz to 30 MHz, shall measured using a 50 network (LISN). The		
		0.5 ~ 5	56	46		
		5 ~ 30	60	50		
Test Setup	Vertical Ground Reference Plane EUT Bocm UI 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 					

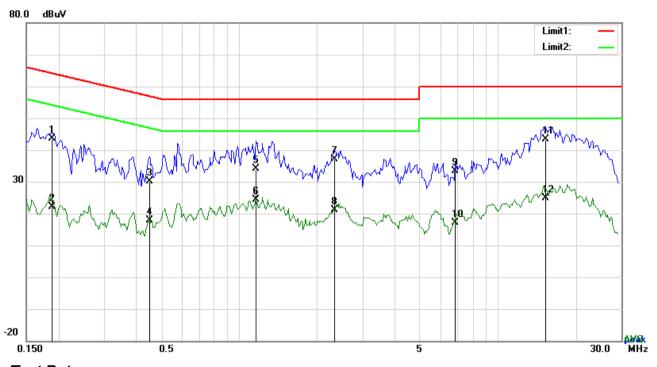
3			
SIE	MIC	Test Report	17071343-FCC-R3
A Bureau Verit	as Group Company	Page	37 of 67
[and the set of		
	coaxial cable.		
			owered separately from another main supply.
			d to warm up to its normal operating condition.
	6. A scan was made on	the NEUTRAL lir	ne (for AC mains) or Earth line (for DC power)
	over the required freq	uency range usir	ng an EMI test receiver.
	7. High peaks, relative to	o the limit line, Th	ne EMI test receiver was then tuned to the
	selected frequencies a	and the necessa	ry measurements made with a receiver bandwidth
	setting of 10 kHz.		
	8. Step 7 was then repea	ated for the LIVE	line (for AC mains) or DC line (for DC power).
Remark			
Result	Pass Fa	ail	
Test Data	Yes	N/A	
Test Plot	Yes (See below)	N/A	



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Test Mode: Bluetooth Mode



Test Data

P/L No. Frequency Reading Detector Corrected Result Limit Margin (MHz) (dBuV) (dB} (dBuV) (dBuV) (dB) 43.63 L1 0.1890 33.60 QP 10.03 64.08 -20.45 1 12.22 AVG 22.25 0.1890 10.03 54.08 -31.83 2 L1 20.04 0.4503 QP 10.03 30.07 56.87 -26.80 3 L1 0.4503 7.81 AVG 10.03 17.84 46.87 -29.03 4 L1 1.1640 24.12 QP 10.03 34.15 56.00 -21.85 5 L1 14.32 AVG 10.03 46.00 1.1640 24.35 -21.65 6 L1 2.3340 27.18 QP 10.05 37.23 56.00 7 L1 -18.77 2.3340 AVG 46.00 8 L1 11.01 10.05 21.06 -24.94 6.8181 23.31 QP 10.11 60.00 -26.58 33.42 9 L1 AVG 10 6.8181 6.99 10.11 17.10 50.00 -32.90 L1 15.3162 33.04 QP 10.23 43.27 60.00 -16.73 11 L1 15.3162 14.62 AVG 10.23 24.85 50.00 -25.15 12 L1

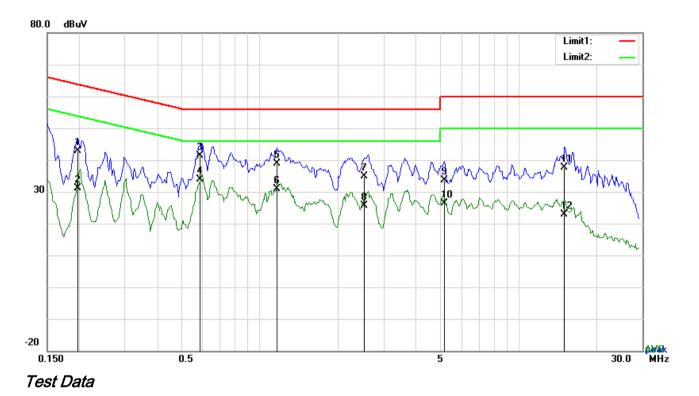
Phase Line Plot at 120Vac, 60Hz



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Test Mode: Bluetooth Mode



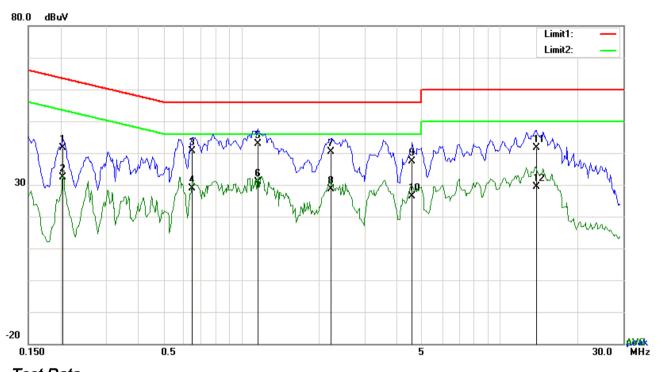
Phase Neutral Plot at 120Vac, 60Hz

No.	P/L	Frequency	Reading	Detector	Corrected	Result	Limit	Margin
		(MHz)	(dBuV)		(dB}	(dBuV)	(dBuV)	(dB)
1	Ν	0.1968	32.87	QP	10.02	42.89	63.74	-20.85
2	Ν	0.1968	21.14	AVG	10.02	31.16	53.74	-22.58
3	Ν	0.5868	31.37	QP	10.02	41.39	56.00	-14.61
4	Ν	0.5868	23.86	AVG	10.02	33.88	46.00	-12.12
5	Ν	1.1601	28.85	QP	10.03	38.88	56.00	-17.12
6	Ν	1.1601	20.74	AVG	10.03	30.77	46.00	-15.23
7	Ν	2.5251	24.76	QP	10.05	34.81	56.00	-21.19
8	Ν	2.5251	15.53	AVG	10.05	25.58	46.00	-20.42
9	N	5.1528	23.63	QP	10.07	33.70	60.00	-26.30
10	Ν	5.1528	16.41	AVG	10.07	26.48	50.00	-23.52
11	Ν	15.0432	27.38	QP	10.20	37.58	60.00	-22.42
12	Ν	15.0432	12.78	AVG	10.20	22.98	50.00	-27.02



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Test Mode: Bluetooth Mode



Test Data

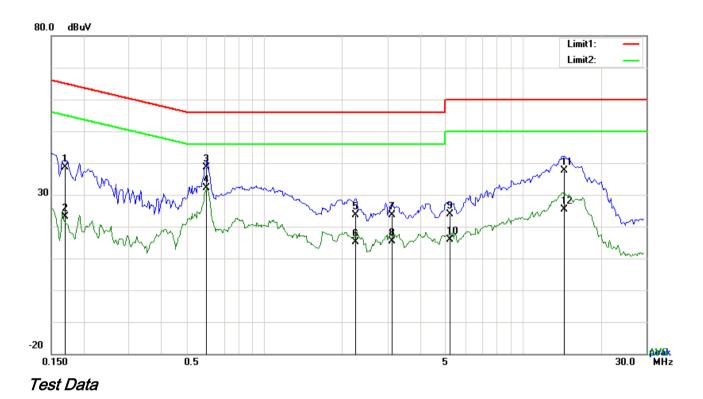
No.	P/L	Frequency	Reading	Detector	Corrected	Result	Limit	Margin
		(MHz)	(dBuV)		(dB}	(dBuV)	(dBuV)	(dB)
1	L1	0.2046	31.62	QP	10.03	41.65	63.42	-21.77
2	L1	0.2046	22.27	AVG	10.03	32.30	53.42	-21.12
3	L1	0.6453	30.67	QP	10.03	40.70	56.00	-15.30
4	L1	0.6453	18.91	AVG	10.03	28.94	46.00	-17.06
5	L1	1.1601	32.78	QP	10.03	42.81	56.00	-13.19
6	L1	1.1601	20.90	AVG	10.03	30.93	46.00	-15.07
7	L1	2.2287	30.35	QP	10.05	40.40	56.00	-15.60
8	L1	2.2287	18.68	AVG	10.05	28.73	46.00	-17.27
9	L1	4.5795	27.43	QP	10.07	37.50	56.00	-18.50
10	L1	4.5795	16.19	AVG	10.07	26.26	46.00	-19.74
11	L1	13.8459	31.47	QP	10.21	41.68	60.00	-18.32
12	L1	13.8459	19.25	AVG	10.21	29.46	50.00	-20.54

Phase Line Plot at 240Vac, 60Hz



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Test Mode: Bluetooth Mode



Phase Neutral Plot at 240Vac, 60Hz

No.	P/L	Frequency	Reading	Detector	Corrected	Result	Limit	Margin
		(MHz)	(dBuV)		(dB}	(dBuV)	(dBuV)	(dB)
1	N	0.1695	28.56	QP	10.02	38.58	64.98	-26.40
2	N	0.1695	13.02	AVG	10.02	23.04	54.98	-31.94
3	N	0.5985	28.71	QP	10.02	38.73	56.00	-17.27
4	N	0.5985	22.04	AVG	10.02	32.06	46.00	-13.94
5	Ν	2.2560	13.48	QP	10.04	23.52	56.00	-32.48
6	Ν	2.2560	5.19	AVG	10.04	15.23	46.00	-30.77
7	N	3.1170	13.58	QP	10.05	23.63	56.00	-32.37
8	Ν	3.1170	5.31	AVG	10.05	15.36	46.00	-30.64
9	N	5.2425	13.83	QP	10.07	23.90	60.00	-36.10
10	Ν	5.2425	5.79	AVG	10.07	15.86	50.00	-34.14
11	N	14.4933	27.38	QP	10.19	37.57	60.00	-22.43
12	N	14.4933	15.21	AVG	10.19	25.40	50.00	-24.60



6.9 Radiated Emissions & Restricted Band

Temperature	26°C
Relative Humidity	56%
Atmospheric Pressure	1022mbar
Test date :	December 26, 2017
Tested By :	Aaron Liang

Requirement(s):

Spec	Item	Requirement	Applicable			
47CFR§15.		Except higher limit as specified else emissions from the low-power radio exceed the field strength levels spe the level of any unwanted emission the fundamental emission. The tigh edges				
205,		Frequency range (MHz)	Field Strength (µV/m)	_		
§15.209,	a)	0.009~0.490	2400/F(KHz)	~		
§15.247(d)		0.490~1.705	24000/F(KHz)			
3.0.2(0)		1.705~30.0	30			
		30 - 88	100			
		88 - 216	150			
		216 960	200			
		Above 960	500			
Test Setup		Above 960 500				



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	Ant. Tower L-4m Variable Units 0.8/1.5m Ground Plane Test Receiver
	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.
Procedure	c. Finally, the antenna height was adjusted to the height that gave the maximum emission.
	 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. 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. Steps 2 and 3 were repeated for the next frequency point, until all selected
	frequency points were measured.
Remark	
Result	Pass Fail
Test Data	Yes (See below)



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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
						>20

Note:

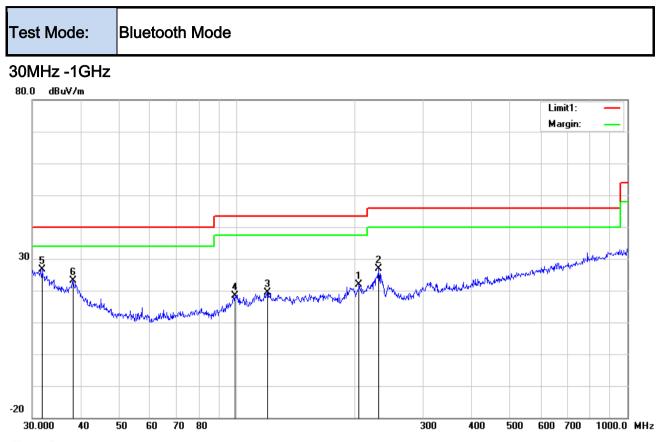
The amplitude of spurious emissions which are attenuated by more than 20dB below the permissible value has no need to be reported.

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

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



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Test Data

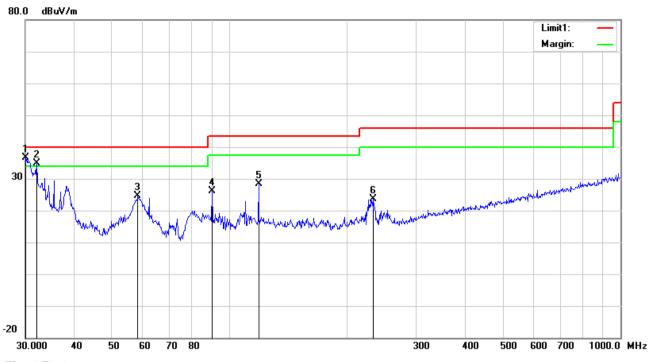
Horizontal Polarity Plot @3m

No.	P/L	Frequency	Reading	Detect	Ant_F	PA_G	Cab_L	Result	Limit	Margin	Height	Degr
				or								ee
		(MHz)	(dBuV/m)		(dB/m)	(dB)	(dB)	(dBuV/m)	(dBuV/m)	(dB)	(cm)	(°)
1	Н	205.6751	30.65	peak	12.02	22.37	1.56	21.86	43.50	-21.64	100	204
2	Н	230.9068	35.83	peak	11.67	22.32	1.64	26.82	46.00	-19.18	200	20
3	Н	119.8556	26.83	peak	13.87	22.36	1.16	19.50	43.50	-24.00	100	125
4	Н	98.8326	29.45	peak	10.12	22.32	1.09	18.34	43.50	-25.16	100	129
5	Н	31.8427	28.16	peak	19.98	22.27	0.67	26.54	40.00	-13.46	100	154
6	Н	38.2120	29.48	peak	15.21	22.27	0.78	23.20	40.00	-16.80	100	71



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30MHz -1GHz



Test Data

Vertical Polarity Plot @3m

No.	P/L	Frequency	Reading	Detect	Ant_F	PA_G	Cab_L	Result	Limit	Margin	Height	Degr
	• /-			or								ee
		(MHz)	(dBuV/m)		(dB/m)	(dB)	(dB)	(dBuV/m)	(dBuV/m)	(dB)	(cm)	(°)
1	V	30.0000	36.89	QP	21.40	22.28	0.62	36.63	40.00	-3.37	100	139
2	V	32.0668	36.77	peak	19.81	22.27	0.68	34.99	40.00	-5.01	100	291
3	V	58.2030	38.82	peak	7.50	22.40	0.76	24.68	40.00	-15.32	100	29
4	V	90.2205	39.41	peak	8.05	22.32	0.95	26.09	43.50	-17.41	100	311
5	V	118.6014	35.85	peak	13.66	22.36	1.16	28.31	43.50	-15.19	100	269
6	V	232.5318	32.69	peak	11.64	22.32	1.64	23.65	46.00	-22.35	100	332



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Above 1GHz

Test Mode:

Transmitting Mode

Low Channel: GFSK Mode (Worst Case) (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	47.1	AV	V	33.39	7.22	48.46	39.25	54	-14.75
4804	44.73	AV	Н	33.39	7.22	48.46	36.88	54	-17.12
4804	69.71	PK	V	33.39	7.22	48.46	61.86	74	-12.14
4804	66.09	PK	Н	33.39	7.22	48.46	58.24	74	-15.76
7671	32.58	AV	V	37.72	7.64	48.04	29.9	54	-24.1
7671	30.25	AV	Н	37.72	7.64	48.04	27.57	54	-26.43
7671	56.98	PK	V	37.72	7.64	48.04	54.3	74	-19.7
7671	55.66	PK	Н	37.72	7.64	48.04	52.98	74	-21.02

Middle Channel: GFSK Mode (Worst Case) (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	45.32	AV	V	33.62	7.53	48.36	38.11	54	-15.89
4882	44.15	AV	Н	33.62	7.53	48.36	36.94	54	-17.06
4882	66.54	PK	V	33.62	7.53	48.36	59.33	74	-14.67
4882	64.02	PK	Н	33.62	7.53	48.36	56.81	74	-17.19
11693	32.56	AV	V	39.71	12.49	47.11	37.65	54	-16.35
11693	30.18	AV	Н	39.71	12.49	47.11	35.27	54	-18.73
11693	48.75	PK	V	39.71	12.49	47.11	53.84	74	-20.16
11693	46.94	PK	Н	39.71	12.49	47.11	52.03	74	-21.97



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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	43.45	AV	V	33.89	7.86	48.31	36.89	54	-17.11
4960	45.52	AV	Н	33.89	7.86	48.31	38.96	54	-15.04
4960	67.39	PK	V	33.89	7.86	48.31	60.83	74	-13.17
4960	66.11	PK	Н	33.89	7.86	48.31	59.55	74	-14.45
17849	18.06	AV	V	42.8	19.37	43.61	36.62	54	-17.38
17849	20.62	AV	Н	42.8	19.37	43.61	39.18	54	-14.82
17849	39.51	PK	V	42.8	19.37	43.61	58.07	74	-15.93
17849	41.07	PK	Н	42.8	19.37	43.61	59.63	74	-14.37

High Channel: GFSK Mode (Worst Case) (2480 MHz)

Note:

1, The testing has been conformed to 10*2480MHz=24,800MHz

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.

4, The radiated spurious test above 18GHz is subcontracted to SIEMIC (Nanjing-China) Laboratories. and found 30dB below the limit at least.



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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	09/15/2017	09/14/2018	•
Line Impedance	LI-125A	191106	09/23/2017	09/22/2018	v
Line Impedance	LI-125A	191107	09/23/2017	09/22/2018	>
ISN	ISN T800	34373	09/23/2017	09/22/2018	
Transient Limiter	LIT-153	531118	08/30/2017	08/29/2018	
RF conducted test				-	
Agilent ESA-E SERIES	E4407B	MY45108319	09/15/2017	09/14/2018	K
Power Splitter	1#	1#	08/30/2017	08/29/2018	V
DC Power Supply	E3640A	MY40004013	09/15/2017	09/14/2018	V
Radiated Emissions					
EMI test receiver	ESL6	100262	09/15/2017	09/14/2018	>
Positioning Controller	UC3000	MF780208282	11/17/2017	11/16/2018	>
OPT 010 AMPLIFIER	8447E	2727A02430	08/30/2017	08/29/2018	•
(0.1-1300MHz)					
Microwave Preamplifier (1 ~ 26.5GHz)	8449B	3008A02402	03/23/2017	03/22/2018	V
Horn Antenna	BBHA9170	3145226D1	09/27/2017	09/26/2018	
Active Antenna (9kHz-30MHz)	AL-130	121031	10/12/2017	10/11/2018	L
Bilog Antenna (30MHz~6GHz)	JB6	A110712	09/19/2017	09/18/2018	K
Double Ridge Horn Antenna (1 ~18GHz)	AH-118	71283	09/22/2017	09/21/2018	
Universal Radio Communication Tester	CMU200	121393	09/23/2017	09/22/2018	V



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Annex B. EUT And Test Setup Photographs

Annex B.i. Photograph: EUT External Photo

Adapter - Lable View





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EUT - Front View



EUT - Rear View





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EUT - Top View



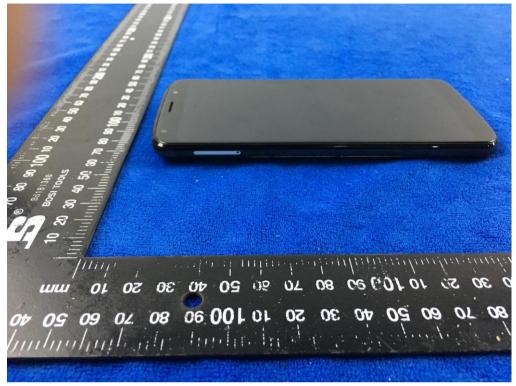
EUT - Bottom View





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EUT - Left View



EUT - Right View





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Annex B.ii. Photograph: EUT Internal Photo



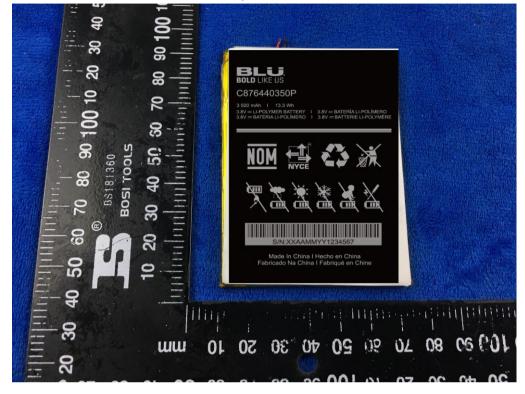
Cover Off - Top View 2



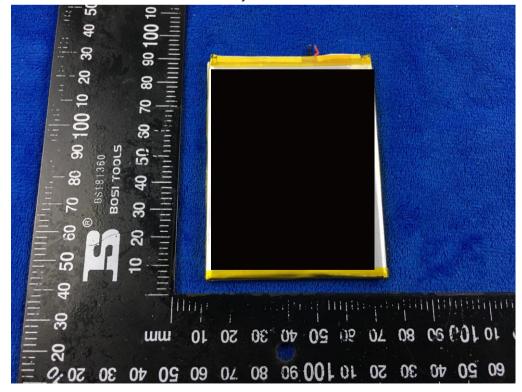


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Battery - Front View



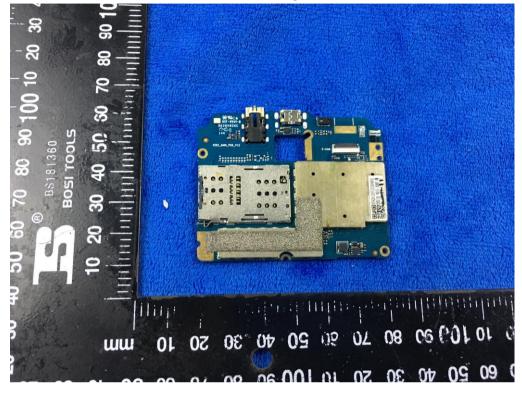
Battery - Rear View



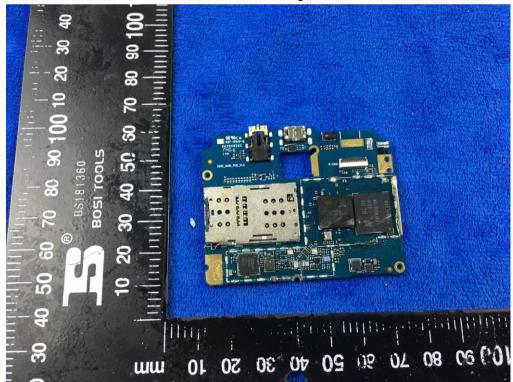


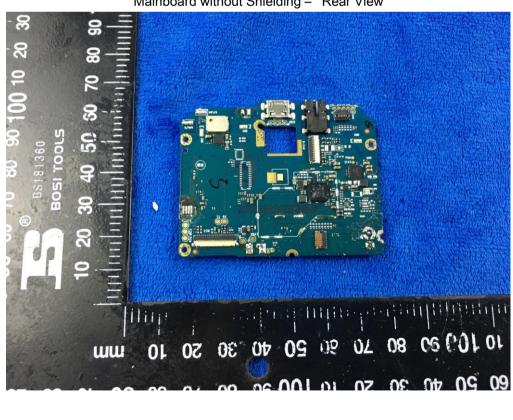
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Mainboard with Shielding - Front View



Mainboard without Shielding - Front View





Mainboard without Shielding - Rear View



Mainboard with Shielding - Rear View



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LCD - Front View



LCD – Rear View





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GSM/PCS/UMTS-FDD Antenna View



WIFI/BT/BLE/GPS - Antenna View





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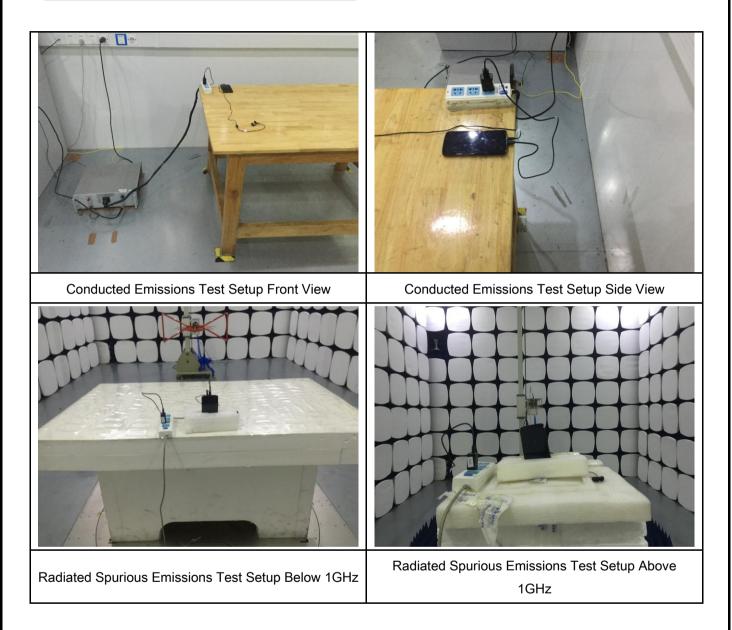
RXD - Antenna View





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Annex B.iii. Photograph: Test Setup Photo





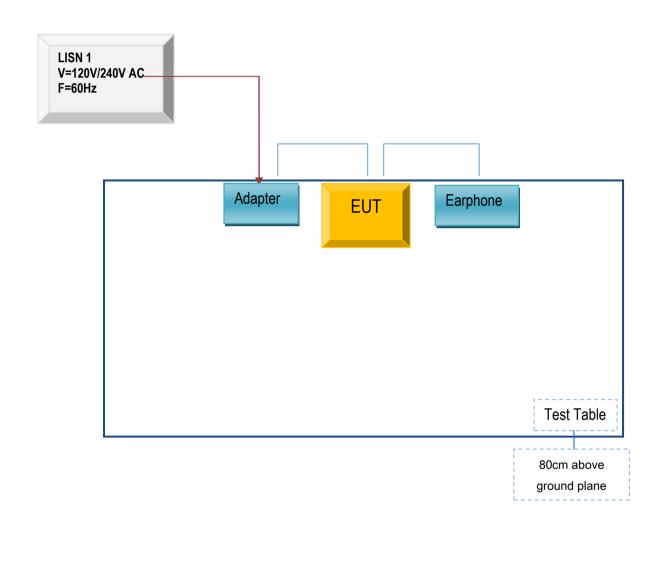
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Annex C. TEST SETUP AND SUPPORTING EQUIPMENT

Annex C.ii. TEST SET UP BLOCK

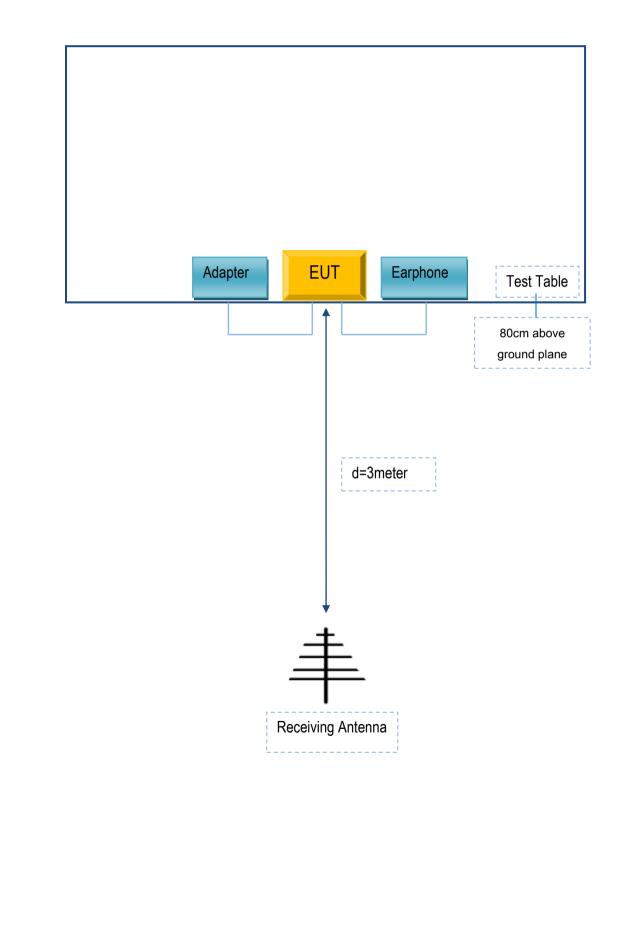
Block Configuration Diagram for AC Line Conducted Emissions





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

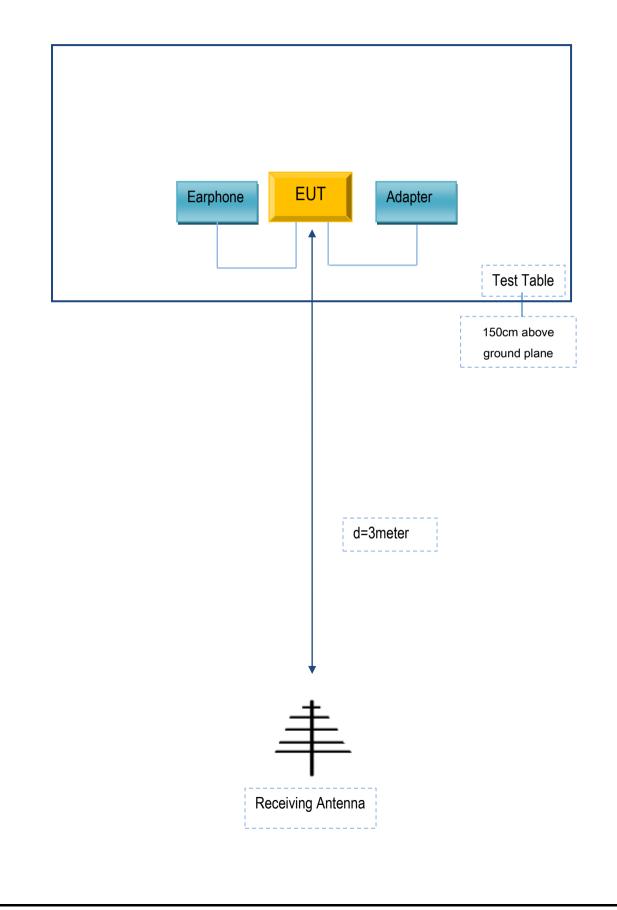




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Block Configuration Diagram for Radiated Emissions (Above 1GHz).





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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
BLU Products, Inc.	Adapter	STUDIO VIEW MEGA	N/A
N/A	Earphone	N/A	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