# EMC TEST REPORT



Report No.: 16071333-FCC-E
Supersede Report No: N/A

Applicant	BLU Products, Inc.			
Product Name	Mobile Phone			
Model No.	GRAND MA	ΑX		
Serial No.	N/A			
Test Standard	FCC Part 1	5 Subpart B C	lass B:2015, Al	NSI C63.4: 2014
Test Date	November :	November 30 to December 11, 2016		
Issue Date	December	December 12, 2016		
Test Result	Pass	Fail		
Equipment compl	Equipment complied with the specification			
Equipment did not comply with the specification				
Loven	Luo	David	Huang	
Loren Luo Test Engineer			Huang ked 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.

### **Accreditations for Conformity Assessment**

Scope
EMC, RF/Wireless, SAR, Telecom
EMC, RF/Wireless, SAR, Telecom
EMC, RF, Telecom, SAR, Safety
RF/Wireless, SAR, Telecom
EMC, RF, Telecom, SAR, Safety
EMI, EMS, RF, SAR, Telecom, Safety
EMI, RF/Wireless, SAR, Telecom
EMC, RF, SAR, Telecom
EMC, RF, SAR, Telecom, Safety



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# 1. Report Revision History

Report No.	Report Version	Description	Issue Date
16071333-FCC-E	NONE	Original	December 12, 2016

# 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

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

Main Model: GRAND MAX

Serial Model: N/A

GSM850: -1.0dBi PCS1900:-0.6dBi

UMTS-FDD Band V: -0.6dBi UMTS-FDD Band IV: -1.0dBi

Antenna Gain:

UMTS-FDD Band II: -1.0dBi

WIFI: -1.0dBi

Bluetooth/BLE: -1.0dBi

GPS: -1.0dBi

Antenna Type: GSM/PCS/UMTS-FDD :PIFA antenna

WIFI/BT/BLE/GPS: Metallic Antenna

Adapter:

Model: US-ZC-1000

Input: AC100-240V~50/60Hz,0.4A

Input Power: Output: DC 5.0V,1.0A

Battery:

Model:C806239220L

Spec: 3.8V,2200mAh, 8.36Wh

Equipment Category: JBP

GSM / GPRS: GMSK

EGPRS: GMSK

UMTS-FDD: QPSK

Type of Modulation: 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 IV TX:1712.4 ~ 1752.6 MHz;

RX: 2112.4 ~ 2152.6 MHz

RF Operating Frequency (ies): 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 WIFI: 802.11n(40M): 2422-2452 MHz Bluetooth& BLE: 2402-2480 MHz

GPS: 1575.42 MHz

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: USB Port, Earphone Port

Trade Name: BLU

Number of Channels:

FCC ID: YHLBLUGRANDMAX

Date EUT received: November 29, 2016

Test Date(s): November 30 to December 11, 2016



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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
§15.107; ANSI C63.4: 2014	AC Power Line Conducted Emissions	Compliance
§15.109; ANSI C63.4: 2014	Radiated Emissions	Compliance

#### **Measurement Uncertainty**

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



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# 6. Measurements, Examination And Derived Results

# 6.1 AC Power Line Conducted Emissions

Temperature	23°C
Relative Humidity	58%
Atmospheric Pressure	1006mbar
Test date :	December 06, 2016
Tested By :	Loren Luo

### Requirement(s):

Spec	Item	Requirement Applicable				
47CFR§15.	a)	For Low-power radio-freconnected to the public voltage that is conducted frequency or frequencied not exceed the limits in [mu] H/50 ohms line implower limit applies at the	e utility (AC) power line ed back onto the AC poses, within the band 150 the following table, as appedance stabilization in	the radio frequency ower line on any kHz to 30 MHz, shall measured using a 50 network (LISN). The	₹.	
107		Frequency ranges	Limit (	dBμV)		
		(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  Bocm  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	<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 50Ω /50mH EUT LISN, connected to filtered mains.</li> </ol>					



Yes

Test Data

Test Plot

□<sub>N/A</sub>

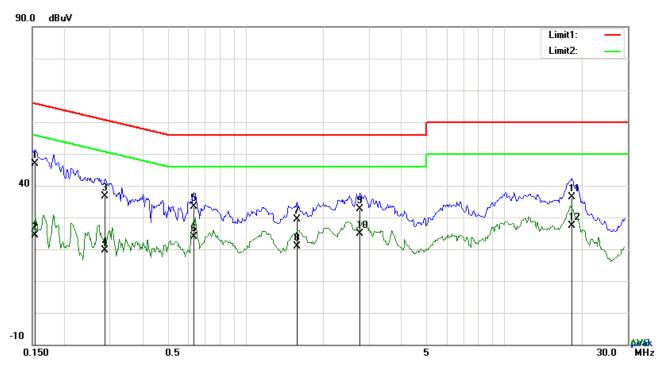
Yes (See below)

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



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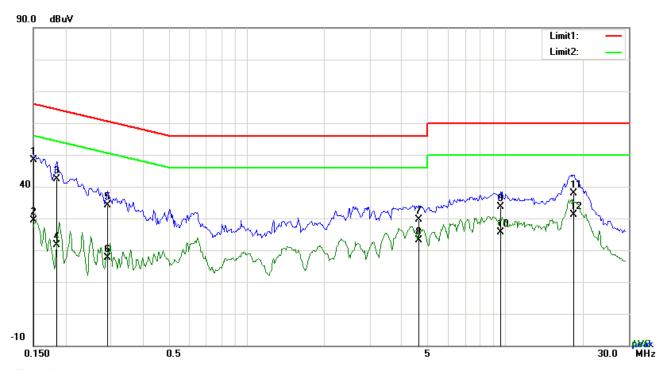
Test Data

### Phase Line Plot at 120Vac, 60Hz

No.	P/L	Frequency	Reading	Detector	Corrected	Result	Limit	Margin
		(MHz)	(dBuV)		(dB}	(dBuV)	(dBuV)	(dB)
1	L1	0.1539	36.93	QP	10.03	46.96	65.79	-18.83
2	L1	0.1539	14.43	AVG	10.03	24.46	55.79	-31.33
3	L1	0.2865	26.71	QP	10.03	36.74	60.63	-23.89
4	L1	0.2865	9.70	AVG	10.03	19.73	50.63	-30.90
5	L1	0.6336	23.25	QP	10.03	33.28	56.00	-22.72
6	L1	0.6336	13.79	AVG	10.03	23.82	46.00	-22.18
7	L1	1.5813	19.37	QP	10.04	29.41	56.00	-26.59
8	L1	1.5813	10.87	AVG	10.04	20.91	46.00	-25.09
9	L1	2.7669	22.56	QP	10.05	32.61	56.00	-23.39
10	L1	2.7669	14.81	AVG	10.05	24.86	46.00	-21.14
11	L1	18.2373	26.18	QP	10.27	36.45	60.00	-23.55
12	L1	18.2373	17.09	AVG	10.27	27.36	50.00	-22.64



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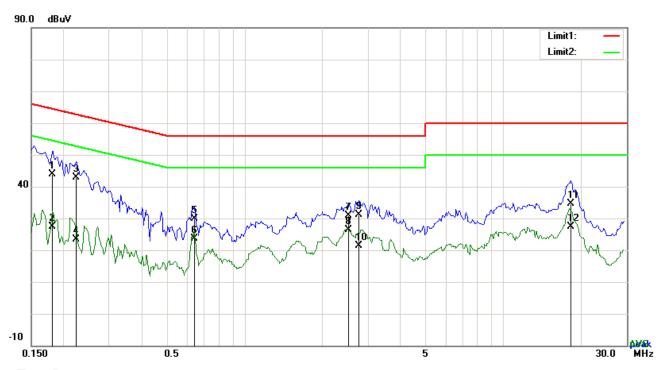
### Test Data

### Phase Neutral Plot at 120Vac, 60Hz

No.	P/L	Frequency	Reading	Detector	Corrected	Result	Limit	Margin
		(MHz)	(dBuV)		(dB}	(dBuV)	(dBuV)	(dB)
1	N	0.1500	38.27	QP	10.02	48.29	66.00	-17.71
2	N	0.1500	19.25	AVG	10.02	29.27	56.00	-26.73
3	N	0.1851	32.33	QP	10.02	42.35	64.25	-21.90
4	N	0.1851	11.54	AVG	10.02	21.56	54.25	-32.69
5	N	0.2904	24.14	QP	10.02	34.16	60.51	-26.35
6	N	0.2904	7.56	AVG	10.02	17.58	50.51	-32.93
7	N	4.6223	19.56	QP	10.07	29.63	56.00	-26.37
8	N	4.6223	12.98	AVG	10.07	23.05	46.00	-22.95
9	Ν	9.6105	23.56	QP	10.13	33.69	60.00	-26.31
10	Ν	9.6105	15.52	AVG	10.13	25.65	50.00	-24.35
11	N	18.3816	27.56	QP	10.24	37.80	60.00	-22.20
12	Ν	18.3816	20.90	AVG	10.24	31.14	50.00	-18.86



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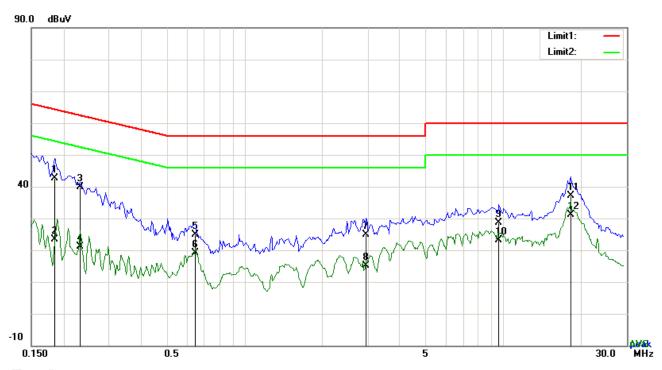
### Test Data

### Phase Line Plot at 240Vac, 60Hz

No.	P/L	Frequency	Reading	Detector	Corrected	Result	Limit	Margin	
		(MHz)	(dBuV)		(dB)	(dBuV)	(dBuV)	(dB)	
1	L1	0.1812	33.80	QP	10.03	43.83	64.43	-20.60	
2	L1	0.1812	17.47	AVG	10.03	27.50	54.43	-26.93	
3	L1	0.2241	32.79	QP	10.03	42.82	62.67	-19.85	
4	L1	0.2241	13.27	AVG	10.03	23.30	52.67	-29.37	
5	L1	0.6414	19.73	QP	10.03	29.76	56.00	-26.24	
6	L1	0.6414	13.72	AVG	10.03	23.75	46.00	-22.25	
7	L1	2.5251	20.77	QP	10.05	30.82	56.00	-25.18	
8	L1	2.5251	16.21	AVG	10.05	26.26	46.00	-19.74	
9	L1	2.7669	21.17	QP	10.05	31.22	56.00	-24.78	
10	L1	2.7669	11.32	AVG	10.05	21.37	46.00	-24.63	
11	L1	18.2373	24.42	QP	10.27	34.69	60.00	-25.31	
12	L1	18.2373	17.19	AVG	10.27	27.46	50.00	-22.54	



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### 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	0.1851	32.61	QP	10.02	42.63	64.25	-21.62
2	N	0.1851	13.47	AVG	10.02	23.49	54.25	-30.76
3	N	0.2319	29.75	QP	10.02	39.77	62.38	-22.61
4	N	0.2319	11.18	AVG	10.02	21.20	52.38	-31.18
5	N	0.6453	14.77	QP	10.02	24.79	56.00	-31.21
6	N	0.6453	9.01	AVG	10.02	19.03	46.00	-26.97
7	N	2.9580	14.75	QP	10.05	24.80	56.00	-31.20
8	N	2.9580	5.09	AVG	10.05	15.14	46.00	-30.86
9	N	9.6105	18.40	QP	10.13	28.53	60.00	-31.47
10	N	9.6105	13.00	AVG	10.13	23.13	50.00	-26.87
11	N	18.2997	26.77	QP	10.24	37.01	60.00	-22.99
12	N	18.2997	20.84	AVG	10.24	31.08	50.00	-18.92



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# 6.2 Radiated Emissions

Temperature	23°C
Relative Humidity	58%
Atmospheric Pressure	1006mbar
Test date :	December 06, 2016
Tested By :	Loren Luo

### Requirement(s):

Spec	Item	tem Requirement Applicable							
47CFR§15. 109(d)	a)	Except higher limit as specified else emissions from the low-power radio exceed the field strength levels spet the level of any unwanted emission the fundamental emission. The tight edges  Frequency range (MHz)  30 - 88  88 - 216	o-frequency devices shall not ecified in the following table and s shall not exceed the level of	<b>&gt;</b>					
		216 960	200						
		Above 960	500						
Test Setup	Ant. Tower  Support Units  Turn Table  Ground Plane  Test Receiver								
Procedure	2.	' ' '							



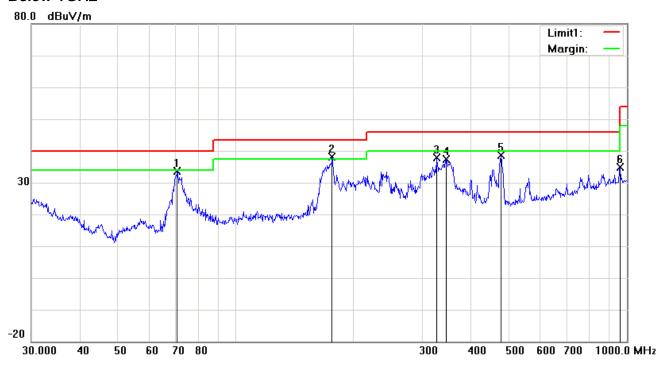
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			over a full rotation of the EUT) was chosen.					
		b.	The EUT was then rotated to the direction that gave the maximum					
			emission.					
		C.	Finally, the antenna height was adjusted to the height that gave the maximum					
			emission.					
	3.	The res	solution bandwidth and video bandwidth of test receiver/spectrum analyzer is					
		120 kH	z for Quasiy Peak detection at frequency below 1GHz.					
	4.	The reso	olution bandwidth of test receiver/spectrum analyzer is 1MHz and video					
		bandwi	dth 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						
		bandw	width with Peak detection for Average Measurement as below at frequency					
		above	1GHz.					
		■ 1 kH	Hz (Duty cycle < 98%) □ 10 Hz (Duty cycle > 98%)					
	5.	Steps 2	2 and 3 were repeated for the next frequency point, until all selected frequency					
		points v	were measured.					
Remark								
Result	Pa	SS	Fail					
Test Data	Yes		□ <sub>N/A</sub>					
	1							
Test Plot	Yes (S	ee belo	w) N/A					



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#### Below 1GHz



### Test Data

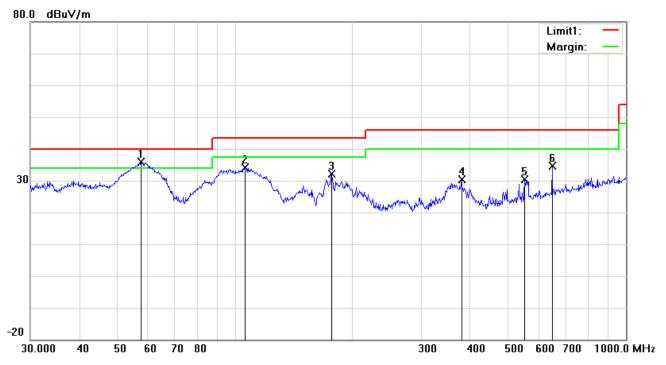
## Horizontal Polarity Plot @3m

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	Н	70.8315	47.24	QP	-13.62	33.62	40.00	-6.38	100	57
2	Н	176.2686	47.81	QP	-9.59	38.22	43.50	-5.28	100	162
3	Н	325.5958	43.94	peak	-6.16	37.78	46.00	-8.22	100	138
4	Н	345.5952	42.85	peak	-5.58	37.27	46.00	-8.73	100	251
5	Н	477.1694	40.86	peak	-2.33	38.53	46.00	-7.47	100	91
6	Н	958.7943	29.70	peak	5.24	34.94	46.00	-11.06	100	228



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### Below 1GHz



### Test Data

# 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	V	57.5939	49.87	QP	-14.08	35.79	40.00	-4.21	100	357
2	٧	106.0126	43.97	peak	-9.73	34.24	43.50	-9.26	100	72
3	V	176.8878	41.66	peak	-9.64	32.02	43.50	-11.48	100	116
4	V	379.9141	35.27	peak	-4.77	30.50	46.00	-15.50	100	20
5	V	550.9480	31.10	peak	-0.80	30.30	46.00	-15.70	100	132
6	V	647.3856	33.84	peak	0.76	34.60	46.00	-11.40	100	43



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#### Above 1GHz

Frequency (MHz)	Amplitude (dBµV/m)	Azimuth	Height (cm)	Polarity (H/V)	Factors (dB)	Limit (dBµV/m)	Margin (dB)	Detector (PK/AV)
1543.71	50.69	80	143	V	-22.75	74	-23.31	PK
2059.62	50.24	72	124	V	-21.68	74	-23.76	PK
1684.77	49.15	53	110	V	-22.89	74	-24.85	PK
2166.89	50.37	69	135	Н	-22.45	74	-23.63	PK
2857.18	49.67	47	108	Н	-22.63	74	-24.33	PK
1879.18	50.82	77	110	Н	-22.49	74	-23.18	PK

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

Note 2: The frequency that above 3GHz is mainly from the environment noise.

Note 3: The AV measurement performed, more than 20dB below limit so AV test data was not presented.



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# Annex A. TEST INSTRUMENT

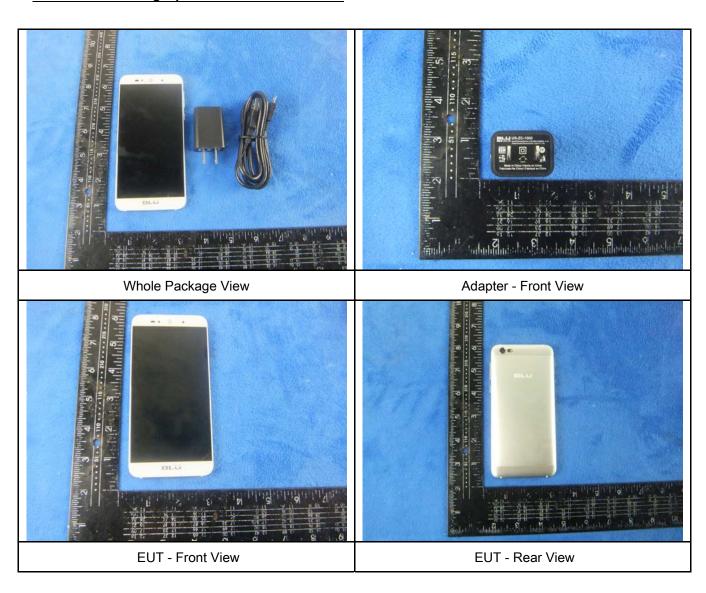
Instrument	Model	Serial #	Cal Date	Cal Due	In use	
AC Line Conducted Emissions						
EMI test receiver	ESCS30	8471241027	09/16/2016	09/15/2017	•	
Line Impedance Stabilization Network	LI-125A	191106	09/24/2016	09/23/2017	•	
Line Impedance Stabilization Network	LI-125A	191107	09/24/2016	09/23/2017	<b>\</b>	
LISN	ISN T800	34373	09/24/2016	09/23/2017	<	
Transient Limiter	LIT-153	531118	08/31/2016	08/30/2017	>	
Radiated Emissions						
EMI test receiver	ESL6	100262	09/16/2016	09/15/2017	>	
OPT 010 AMPLIFIER (0.1-1300MHz)	8447E	2727A02430	08/31/2016	08/30/2017	<b>&gt;</b>	
Microwave Preamplifier (1 ~ 26.5GHz)	8449B	3008A02402	03/24/2016	03/23/2017	<b>\</b>	
Bilog Antenna (30MHz~6GHz)	JB6	A110712	09/20/2016	09/19/2017	<b>\</b>	
Double Ridge Horn Antenna	AH-118	71259	09/23/2016	09/22/2017	<b>\(\right\)</b>	



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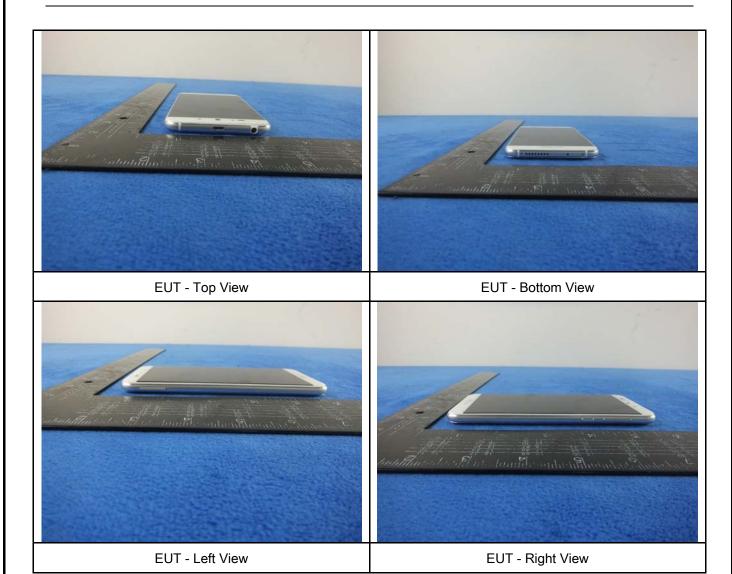
# Annex B. EUT And Test Setup Photographs

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





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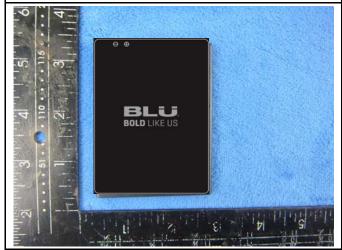
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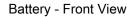
### Annex B.ii. Photograph: EUT Internal Photo



Cover Off - Top View 1

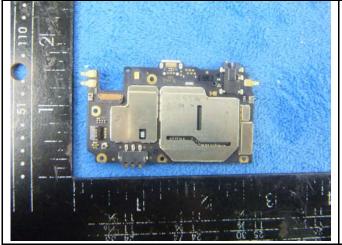
Cover Off - Top View 2







Battery - Rear View



Mainboard with Shielding - Front View



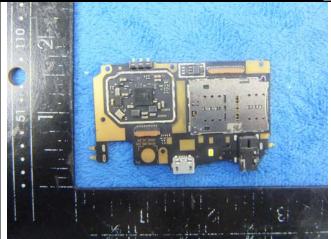
Mainboard without Shielding - Front View



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Mainboard with Shielding - Rear View



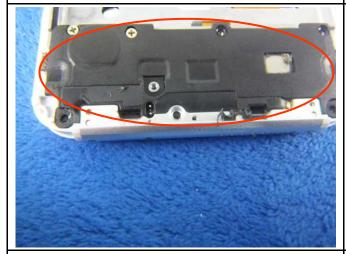
Mainboard without Shielding - Rear View



LCD - Front View



LCD - Rear View



GSM/PCS/UMTS-FDD Antenna View

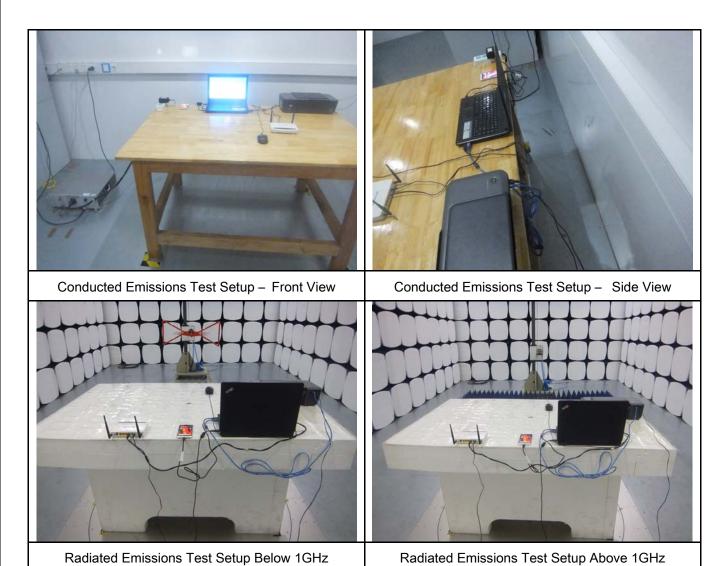


WIFI/BT/BLE/GPS - Metallic Antenna View



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# Annex B.iii. Photograph: Test Setup Photo

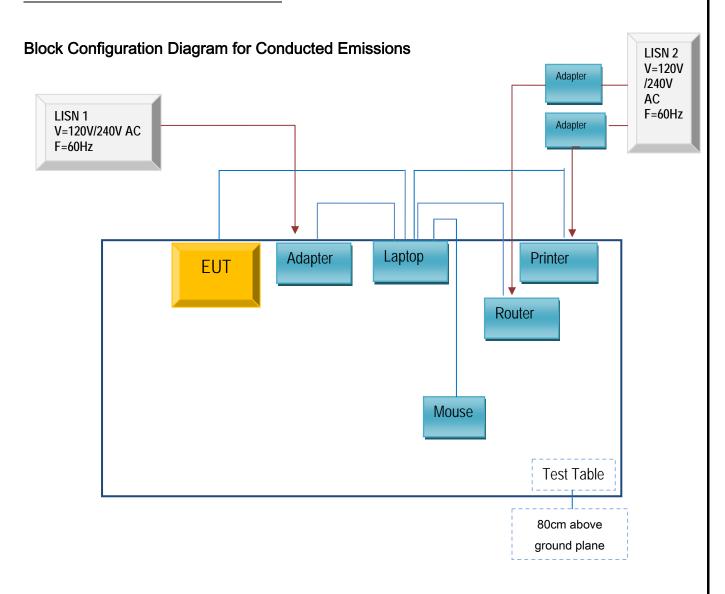




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# Annex C. TEST SETUP AND SUPPORTING EQUIPMENT

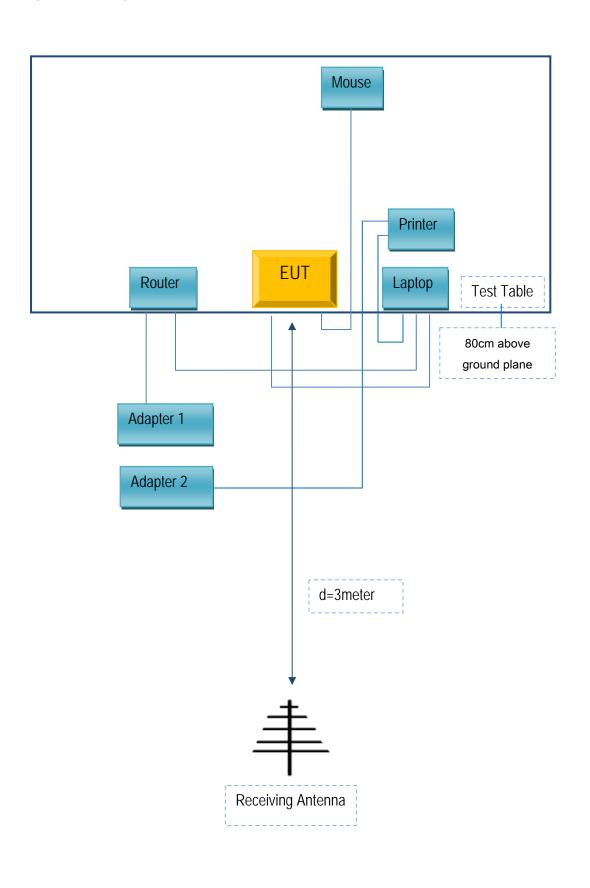
#### Annex C.ii. TEST SET UP BLOCK





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# **Block Configuration Diagram for Radiated Emissions**





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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
Lenovo	Laptop	E40	LR-1EHRX
GOLDWEB	Router	R102	1202032094
Lenovo	AC Adapter	42T4416	21D9JU
HP	Printer	VCVRA-1003	CN36M19JWX
DELL	Mouse	E100	912NMTUT41481
BULL	Socket	GN-403	GN201203

### Supporting Cable:

Cable type	Shield Type	Ferrite Core	Length	Serial No
USB Cable	Un-shielding	No	2m	JX120051274
USB Cable	Un-shielding	No	2m	CBA3000AH0C1
RJ45 Cable	Un-shielding	No	2m	KX156327541
Router Power cable	Un-shielding	No	2m	13274630Z
Printer Power cable	Un-shielding	No	2m	127581031
Power Cable	Un-shielding	No	0.8m	GT211032



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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