


EMC TEST REPORT



Report No.: 18070321-FCC-E

Supersede Report No: N/A

Applicant	BLU Products, Inc	
Product Name	Feature Phone	
Model No.	TANK X	
Serial No.	N/A	
Test Standard	FCC Part 15 Subpart B Class B:2016, ANSI C63.4: 2014	
Test Date	April 01 to April 16, 2018	
Issue Date	April 17, 2018	
Test Result	<input checked="" type="checkbox"/> Pass <input type="checkbox"/> Fail	
Equipment complied with the specification <input checked="" type="checkbox"/>		
Equipment did not comply with the specification <input type="checkbox"/>		
<i>Evans He</i>	<i>David Huang</i>	
Evans He Test Engineer	David Huang 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

Laboratories Introduction

SIEMIC, headquartered in the heart of Silicon Valley, with superior facilities in US and Asia, is one of the leading independent testing and certification facilities providing customers with one-stop shop services for Compliance Testing and Global Certifications.



In addition to testing and certification, SIEMIC provides initial design reviews and compliance management throughout a project. Our extensive experience with China, Asia Pacific, North America, European, and International compliance requirements, assures the fastest, most cost effective way to attain regulatory compliance for the global markets.

Accreditations for Conformity Assessment

Country/Region	Scope
USA	EMC, RF/Wireless, SAR, Telecom
Canada	EMC, RF/Wireless, SAR, Telecom
Taiwan	EMC, RF, Telecom, SAR, Safety
Hong Kong	RF/Wireless, SAR, Telecom
Australia	EMC, RF, Telecom, SAR, Safety
Korea	EMI, EMS, RF, SAR, Telecom, Safety
Japan	EMI, RF/Wireless, SAR, Telecom
Singapore	EMC, RF, SAR, Telecom
Europe	EMC, RF, SAR, Telecom, Safety

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1. Report Revision History

Report No.	Report Version	Description	Issue Date
18070321-FCC-E	NONE	Original	April 17, 2018

2. Customer information

Applicant Name	BLU Products,Inc
Applicant Add	10814 NW 33rd St#100 Doral,FL33172,USA
Manufacturer	BLU Products,Inc
Manufacturer Add	10814 NW 33rd St#100 Doral,FL33172,USA

3. Test site information

Lab performing tests	SIEMIC (Shenzhen-China) LABORATORIES
Lab Address	Zone A, Floor 1, Building 2 Wan Ye Long Technology Park South Side of Zhoushi Road, Bao' an District, Shenzhen, Guangdong China 518108
FCC Test Site No.	535293
IC Test Site No.	4842E-1
Test Software of Radiated Emission	Radiated Emission Program-To Shenzhen v2.0
Test Software of Conducted Emission	EZ-EMC(ver.lcp-03A1)

4. Equipment under Test (EUT) Information

Description of EUT:	Feature Phone
Main Model:	TANK X
Serial Model:	N/A
Antenna Gain:	GSM850: 0.5dBi PCS1900: 0.8dBi Bluetooth: 1.0dBi
Antenna Type:	GSM: PIFA antenna BT: Monopole antenna
Input Power:	Adapter: Model: US-NB-0550 Input: AC100-240V~50/60Hz,0.15A Output: DC 5.0V, 550mA Battery: Model: N5C100L Spec: 3.7V, 1000mAh, 3.7Wh
Equipment Category :	JBP
Type of Modulation:	GSM / GPRS: GMSK EGPRS: GMSK Bluetooth: GFSK, π /4DQPSK, 8DPSK
RF Operating Frequency (ies):	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 Bluetooth: 2402-2480 MHz
Number of Channels:	GSM 850: 124CH PCS1900: 299CH Bluetooth: 79CH
Port:	USB Port, Earphone Port

Trade Name : BLU

FCC ID: YHLBLUTANKX

GPRS Multi-slot class 8/10/11/12

Date EUT received: March 30, 2018

Test Date(s): April 01 to April 16, 2018

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


Parameter	Uncertainty
AC Power Line Conducted Emissions (150kHz~30MHz)	±3.11dB
Radiated Emission(30MHz~1GHz)	±5.12dB
Radiated Emission(1GHz~6GHz)	±5.34dB

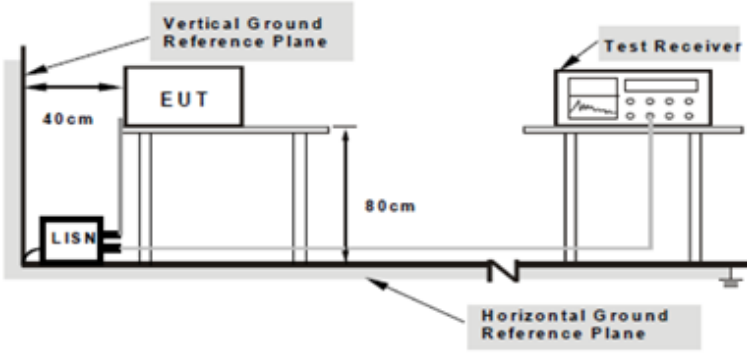
6. Measurements, Examination And Derived Results

6.1 AC Power Line Conducted Emissions

Temperature	25 °C
Relative Humidity	57%
Atmospheric Pressure	1022mbar
Test date :	April 02, 2018
Tested By :	Evans He

Requirement(s):

Spec	Item	Requirement	Applicable														
47CFR§15.107	a)	For Low-power radio-frequency devices that is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies, within the band 150 kHz to 30 MHz, shall not exceed the limits in the following table, as measured using a 50 [mu] H/50 ohms line impedance stabilization network (LISN). The lower limit applies at the boundary between the frequencies ranges.															
		<table><tr><th rowspan="2">Frequency ranges (MHz)</th><th colspan="2">Limit (dBµV)</th></tr><tr><th>QP</th><th>Average</th></tr><tr><td>0.15 ~ 0.5</td><td>66 – 56</td><td>56 – 46</td></tr><tr><td>0.5 ~ 5</td><td>56</td><td>46</td></tr><tr><td>5 ~ 30</td><td>60</td><td>50</td></tr></table>	Frequency ranges (MHz)	Limit (dBµV)		QP	Average	0.15 ~ 0.5	66 – 56	56 – 46	0.5 ~ 5	56	46	5 ~ 30	60	50	
Frequency ranges (MHz)	Limit (dBµV)																
	QP	Average															
0.15 ~ 0.5	66 – 56	56 – 46															
0.5 ~ 5	56	46															
5 ~ 30	60	50															

Test Setup	 <p>Note: 1.Support units were connected to second LISN. 2.Both of LISNs (AMN) are 80cm from EUT and at least 80cm from other units and other metal planes support units.</p>
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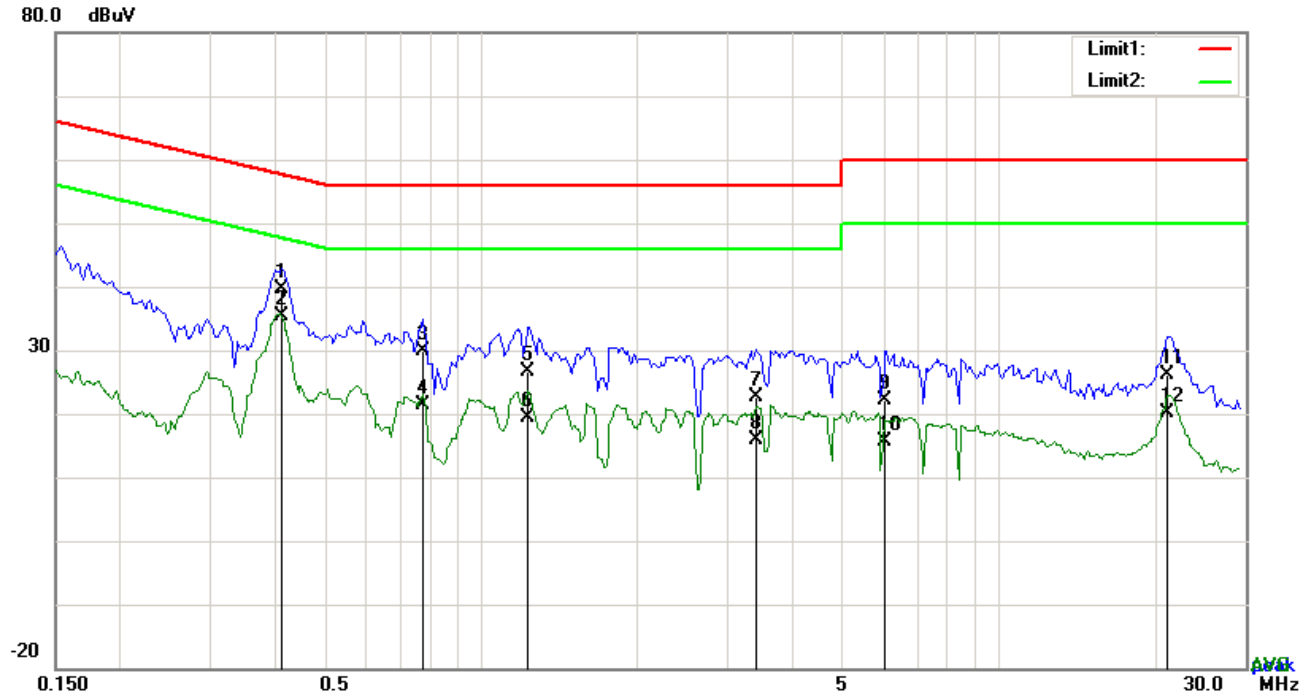
Procedure	<ol style="list-style-type: none"> The EUT and supporting equipment were set up in accordance with the requirements of the standard on top of a 1.5m x 1m x 0.8m high, non-metallic table. The power supply for the EUT was fed through a 50Ω /50mH EUT LISN, connected to filtered mains.
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	<p>3. The RF OUT of the EUT LISN was connected to the EMI test receiver via a low-loss coaxial cable.</p> <p>4. All other supporting equipment were powered separately from another main supply.</p> <p>5. The EUT was switched on and allowed to warm up to its normal operating condition.</p> <p>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.</p> <p>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.</p> <p>8. Step 7 was then repeated for the LIVE line (for AC mains) or DC line (for DC power).</p>
Remark	
Result	<input checked="" type="checkbox"/> Pass <input type="checkbox"/> Fail

Test Data ☒ Yes ☐ N/A

Test Plot ☒ Yes (See below) ☐ N/A

Test Mode : USB Mode

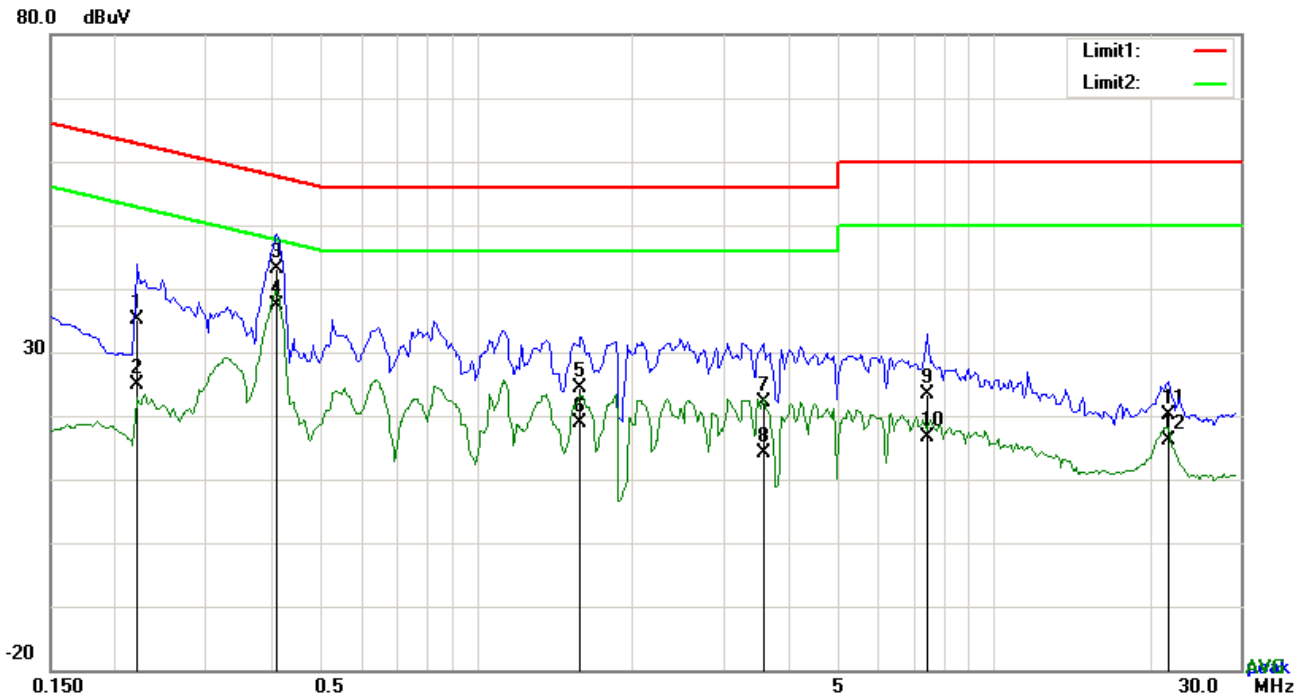


Test Data

Phase Line Plot at 120Vac, 60Hz

No.	P/L	Frequency	Reading	Detector	Corrected	Result	Limit	Margin
		(MHz)	(dBuV)		(dB)	(dBuV)	(dBuV)	(dB)
1	L1	0.4113	29.71	QP	10.03	39.74	57.62	-17.88
2	L1	0.4113	25.28	AVG	10.03	35.31	47.62	-12.31
3	L1	0.7701	19.94	QP	10.03	29.97	56.00	-26.03
4	L1	0.7701	11.45	AVG	10.03	21.48	46.00	-24.52
5	L1	1.2342	16.50	QP	10.03	26.53	56.00	-29.47
6	L1	1.2342	9.43	AVG	10.03	19.46	46.00	-26.54
7	L1	3.3900	12.54	QP	10.06	22.60	56.00	-33.40
8	L1	3.3900	5.70	AVG	10.06	15.76	46.00	-30.24
9	L1	6.0498	12.11	QP	10.09	22.20	60.00	-37.80
10	L1	6.0498	5.43	AVG	10.09	15.52	50.00	-34.48
11	L1	21.1935	15.92	QP	10.32	26.24	60.00	-33.76
12	L1	21.1935	9.76	AVG	10.32	20.08	50.00	-29.92

Test Mode:	USB Mode
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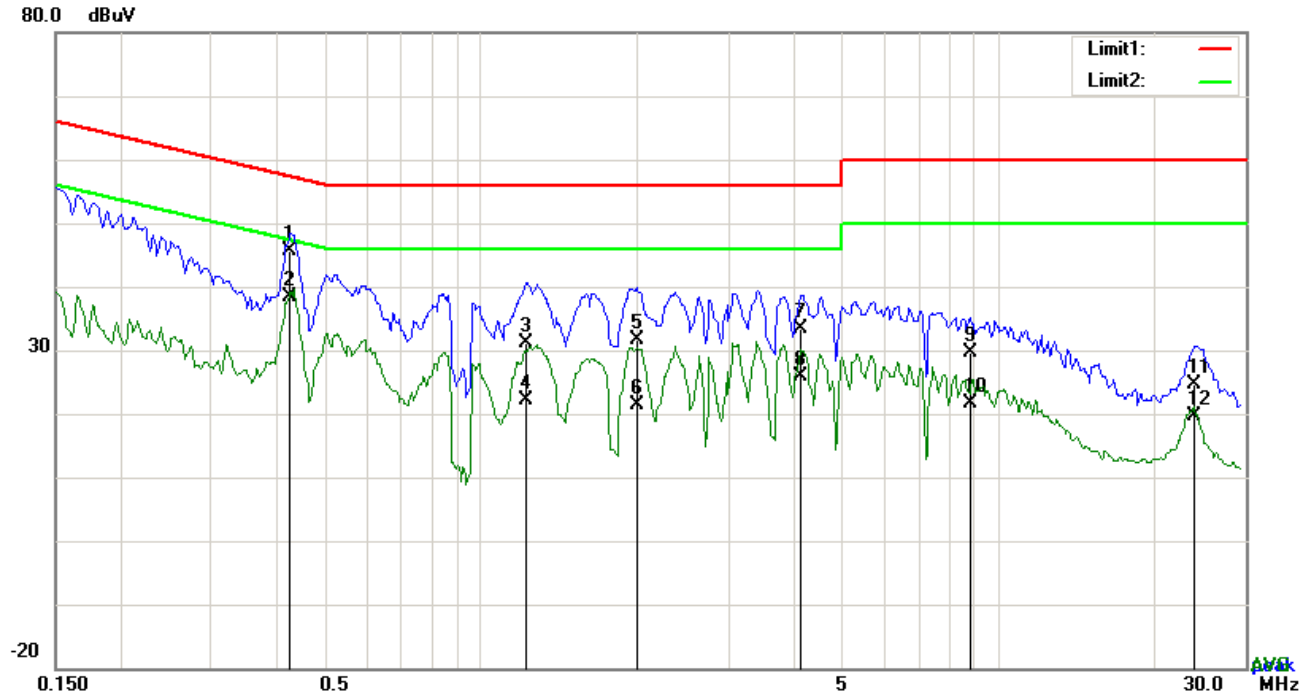


Test Data

Phase Neutral Plot at 120Vac, 60Hz

No.	P/L	Frequency	Reading	Detector	Corrected	Result	Limit	Margin
		(MHz)	(dBuV)		(dB}	(dBuV)	(dBuV)	(dB)
1	N	0.2202	25.00	QP	10.02	35.02	62.81	-27.79
2	N	0.2202	14.86	AVG	10.02	24.88	52.81	-27.93
3	N	0.4113	33.03	QP	10.02	43.05	57.62	-14.57
4	N	0.4113	27.36	AVG	10.02	37.38	47.62	-10.24
5	N	1.5930	14.22	QP	10.04	24.26	56.00	-31.74
6	N	1.5930	8.72	AVG	10.04	18.76	46.00	-27.24
7	N	3.6006	12.03	QP	10.06	22.09	56.00	-33.91
8	N	3.6006	4.10	AVG	10.06	14.16	46.00	-31.84
9	N	7.4226	13.26	QP	10.10	23.36	60.00	-36.64
10	N	7.4226	6.61	AVG	10.10	16.71	50.00	-33.29
11	N	21.7317	9.81	QP	10.29	20.10	60.00	-39.90
12	N	21.7317	5.81	AVG	10.29	16.10	50.00	-33.90

Test Mode : USB Mode

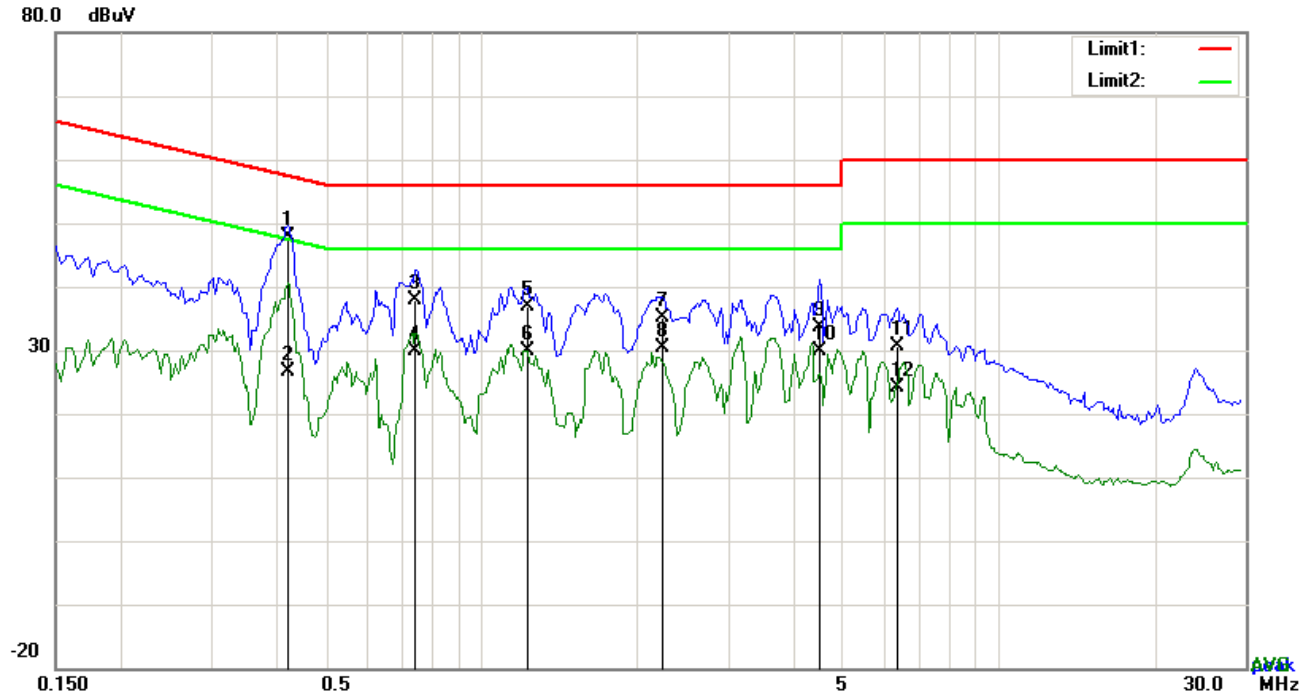


Test Data

Phase Line Plot at 240Vac, 60Hz

No.	P/L	Frequency	Reading	Detector	Corrected	Result	Limit	Margin
		(MHz)	(dBuV)		(dB}	(dBuV)	(dBuV)	(dB)
1	L1	0.4269	35.68	QP	10.03	45.71	57.31	-11.60
2	L1	0.4269	28.25	AVG	10.03	38.28	47.31	-9.03
3	L1	1.2225	20.98	QP	10.03	31.01	56.00	-24.99
4	L1	1.2225	12.12	AVG	10.03	22.15	46.00	-23.85
5	L1	1.9908	21.56	QP	10.04	31.60	56.00	-24.40
6	L1	1.9908	11.22	AVG	10.04	21.26	46.00	-24.74
7	L1	4.1466	23.23	QP	10.07	33.30	56.00	-22.70
8	L1	4.1466	15.81	AVG	10.07	25.88	46.00	-20.12
9	L1	8.7759	19.58	QP	10.13	29.71	60.00	-30.29
10	L1	8.7759	11.45	AVG	10.13	21.58	50.00	-28.42
11	L1	23.8026	14.28	QP	10.37	24.65	60.00	-35.35
12	L1	23.8026	9.22	AVG	10.37	19.59	50.00	-30.41

Test Mode : USB 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	0.4230	37.77	QP	10.02	47.79	57.39	-9.60
2	N	0.4230	16.52	AVG	10.02	26.54	47.39	-20.85
3	N	0.7467	27.82	QP	10.02	37.84	56.00	-18.16
4	N	0.7467	19.97	AVG	10.02	29.99	46.00	-16.01
5	N	1.2303	26.87	QP	10.03	36.90	56.00	-19.10
6	N	1.2303	19.97	AVG	10.03	30.00	46.00	-16.00
7	N	2.2404	25.14	QP	10.04	35.18	56.00	-20.82
8	N	2.2404	20.37	AVG	10.04	30.41	46.00	-15.59
9	N	4.5210	23.47	QP	10.07	33.54	56.00	-22.46
10	N	4.5210	19.91	AVG	10.07	29.98	46.00	-16.02
11	N	6.3657	20.43	QP	10.09	30.52	60.00	-29.48
12	N	6.3657	13.97	AVG	10.09	24.06	50.00	-25.94

6.2 Radiated Emissions

Temperature	25 °C
Relative Humidity	57%
Atmospheric Pressure	1022mbar
Test date :	April 02, 2018
Tested By :	Evans He

Requirement(s):

Spec	Item	Requirement	Applicable	
47CFR§15.109(d)	a)	Except higher limit as specified elsewhere in other section, the emissions from the low-power radio-frequency devices shall not exceed the field strength levels specified in the following table and the level of any unwanted emissions shall not exceed the level of the fundamental emission. The tighter limit applies at the band edges		
		Frequency range (MHz)		Field Strength (µV/m)
		30 – 88		100
		88 – 216		150
		216 - 960		200
		Above 960		500

Test Setup	
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Procedure	<ol style="list-style-type: none"> 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: <ol style="list-style-type: none"> Vertical or horizontal polarization (whichever gave the higher emission level
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	<p>over a full rotation of the EUT) was chosen.</p> <p>b. The EUT was then rotated to the direction that gave the maximum emission.</p> <p>c. Finally, the antenna height was adjusted to the height that gave the maximum emission.</p> <p>3. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120 kHz for Quasi Peak detection at frequency below 1GHz.</p> <p>4. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and video bandwidth is 3MHz with Peak detection for Peak measurement at frequency above 1GHz.</p> <p>The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and the video bandwidth with Peak detection for Average Measurement as below at frequency above 1GHz.</p> <p>■ 1 kHz (Duty cycle < 98%) □ 10 Hz (Duty cycle > 98%)</p> <p>5. Steps 2 and 3 were repeated for the next frequency point, until all selected frequency points were measured.</p>
Remark	
Result	<input checked="" type="checkbox"/> Pass <input type="checkbox"/> Fail

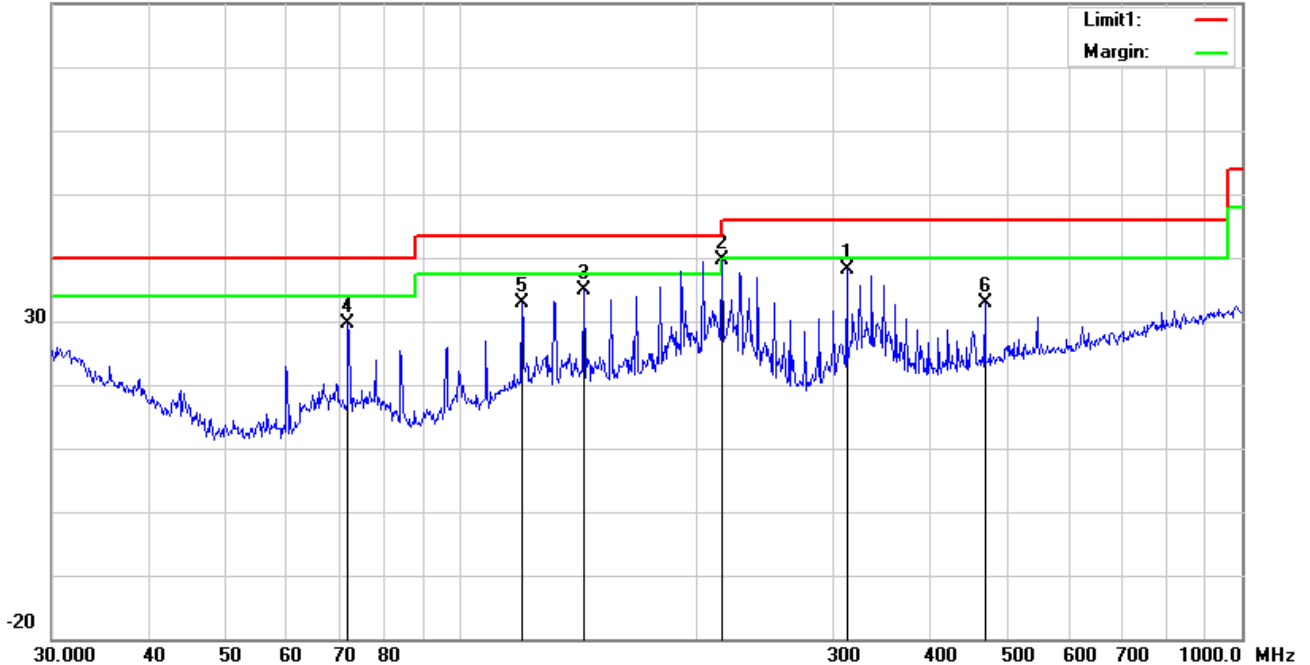
Test Data ☒ Yes ☐ N/A

Test Plot ☒ Yes (See below) ☐ N/A

Test Mode : USB Mode

Below 1GHz

80.0 dBuV/m

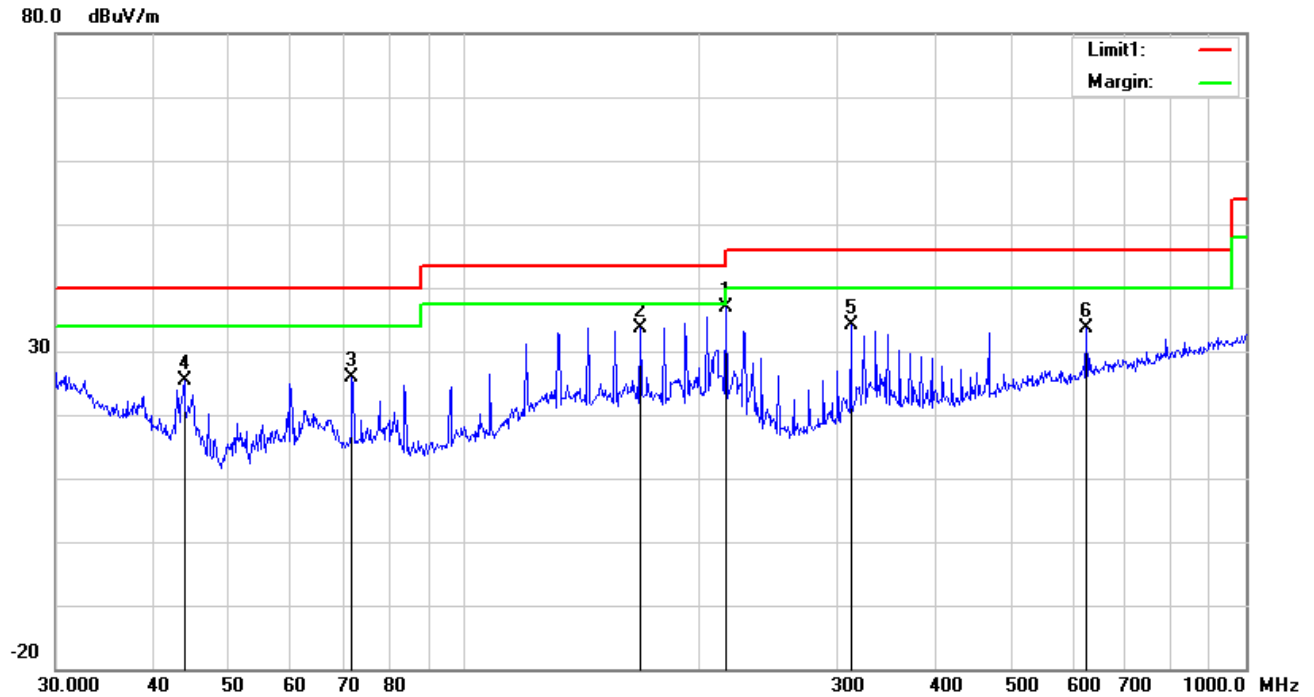


Test Data

Horizontal Polarity Plot @3m

No.	P/L	Frequency (MHz)	Reading (dBuV/m)	Detector	Ant_F (dB/m)	PA_G (dB)	Cab_L (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (°)
1	H	312.1794	44.59	peak	13.86	22.26	1.85	38.04	46.00	-7.96	100	95
2	H	216.0240	48.60	peak	11.88	22.35	1.59	39.72	46.00	-6.28	100	1
3	H	143.8295	43.40	peak	12.60	22.38	1.30	34.92	43.50	-8.58	100	350
4	H	71.8320	43.24	peak	7.76	22.39	0.97	29.58	40.00	-10.42	100	120
5	H	119.8556	40.21	peak	13.87	22.36	1.16	32.88	43.50	-10.62	100	36
6	H	468.8762	35.51	peak	17.08	21.87	2.24	32.96	46.00	-13.04	100	220

Below 1GHz



Test Data

Vertical Polarity Plot @3m

No.	P/L	Frequency	Reading	Detector	Ant_F	PA_G	Cab_L	Result	Limit	Margin	Height	Degree
		(MHz)	(dBuV/m)		(dB/m)	(dB)	(dB)	(dBuV/m)	(dBuV/m)	(dB)	(cm)	(°)
1	V	216.0240	45.73	peak	11.88	22.35	1.59	36.85	46.00	-9.15	100	294
2	V	167.8243	42.63	peak	11.97	22.26	1.37	33.71	43.50	-9.79	100	71
3	V	71.8320	39.43	peak	7.76	22.39	0.97	25.77	40.00	-14.23	100	353
4	V	43.8119	35.44	peak	11.38	22.29	0.76	25.29	40.00	-14.71	100	329
5	V	312.1794	40.71	peak	13.86	22.26	1.85	34.16	46.00	-11.84	100	348
6	V	625.0780	33.22	peak	19.38	21.52	2.56	33.64	46.00	-12.36	100	51

Above 1GHz

Frequency (MHz)	Read_level (dBμV/m)	Azimuth	Height (cm)	Polarity (H/V)	Level (dBμV/m)	Factors (dB)	Limit (dBμV/m)	Margin (dB)	Detector (PK/AV)
1068.542	67.88	142	100	V	-20.3	47.58	74	-26.42	PK
1507.289	64.49	232	100	V	-18.55	45.94	74	-28.06	PK
2688.682	62.24	245	100	V	-13.29	48.95	74	-25.05	PK
1040.206	65.05	110	100	H	-20.43	44.62	74	-29.38	PK
1639.72	65.04	307	100	H	-17.64	47.4	74	-26.6	PK
3119.795	58.19	238	100	H	-12.81	45.38	74	-28.62	PK

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

Note2: The frequency that above 3GHz is mainly from the environment noise.

Note3: The AV measurement performed, more than 20dB below limit so AV test data was not presented.

Annex A. TEST INSTRUMENT

Instrument	Model	Serial #	Cal Date	Cal Due	In use
AC Line Conducted Emissions					
EMI test receiver	ESCS30	8471241027	09/15/2017	09/14/2018	<input checked="" type="checkbox"/>
Line Impedance Stabilization Network	LI-125A	191106	09/23/2017	09/22/2018	<input checked="" type="checkbox"/>
Line Impedance Stabilization Network	LI-125A	191107	09/23/2017	09/22/2018	<input checked="" type="checkbox"/>
ISN	ISN T800	34373	09/23/2017	09/22/2018	<input type="checkbox"/>
Transient Limiter	LIT-153	531118	08/30/2017	08/29/2018	<input checked="" type="checkbox"/>
Radiated Emissions					
EMI test receiver	E SL6	100262	09/15/2017	09/14/2018	<input checked="" type="checkbox"/>
OPT 010 AMPLIFIER (0.1-1300MHz)	8447E	2727A02430	08/30/2017	08/29/2018	<input checked="" type="checkbox"/>
Microwave Preamplifier (1 ~ 26.5GHz)	8449B	3008A02402	03/22/2018	03/21/2019	<input checked="" type="checkbox"/>
Bilog Antenna (30MHz~6GHz)	JB6	A110712	09/19/2017	09/18/2018	<input checked="" type="checkbox"/>
Double Ridge Horn Antenna	AH-118	71259	09/22/2017	09/21/2018	<input checked="" type="checkbox"/>

Annex B. EUT And Test Setup Photographs

Annex B.i. Photograph: EUT External Photo

Whole Package View



Adapter - Label View



EUT - Front View



EUT - Rear View



EUT - Top View



EUT - Bottom View



EUT - Left View



EUT - Right View



Annex B.ii. Photograph: EUT Internal Photo

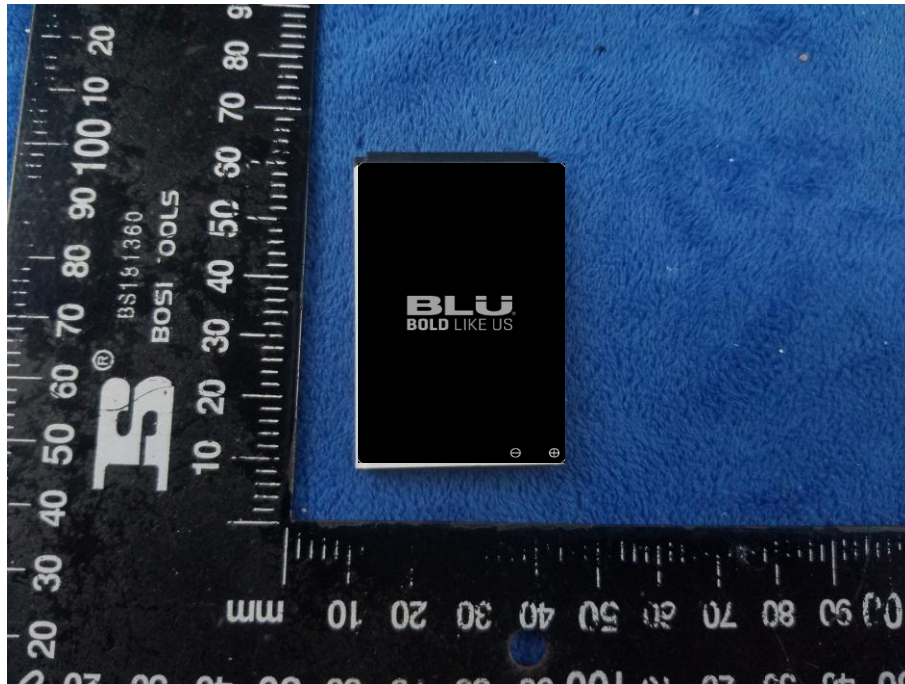
Cover Off - Top View 1



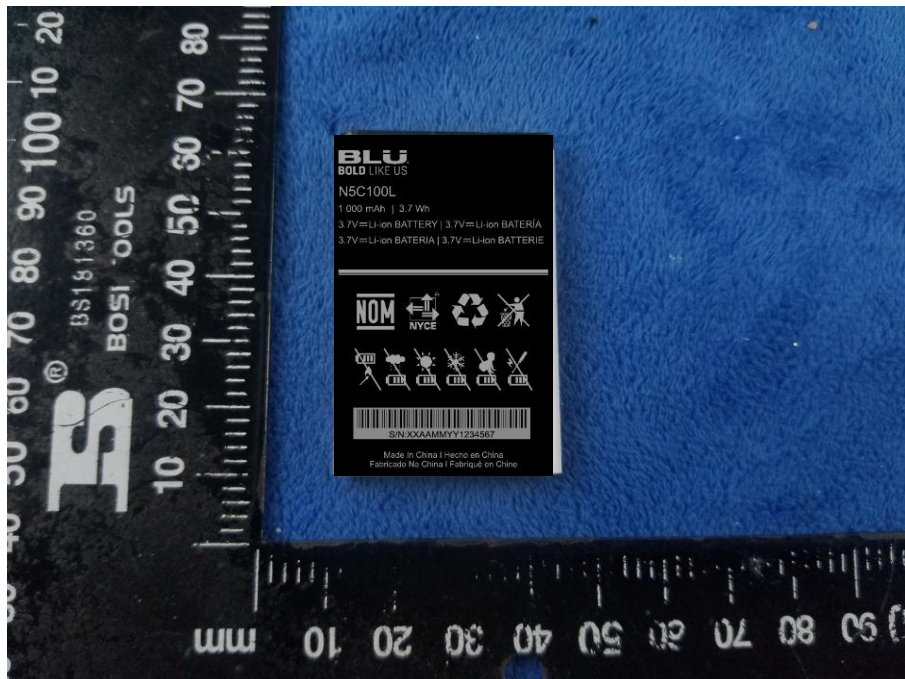
Cover Off - Top View 2



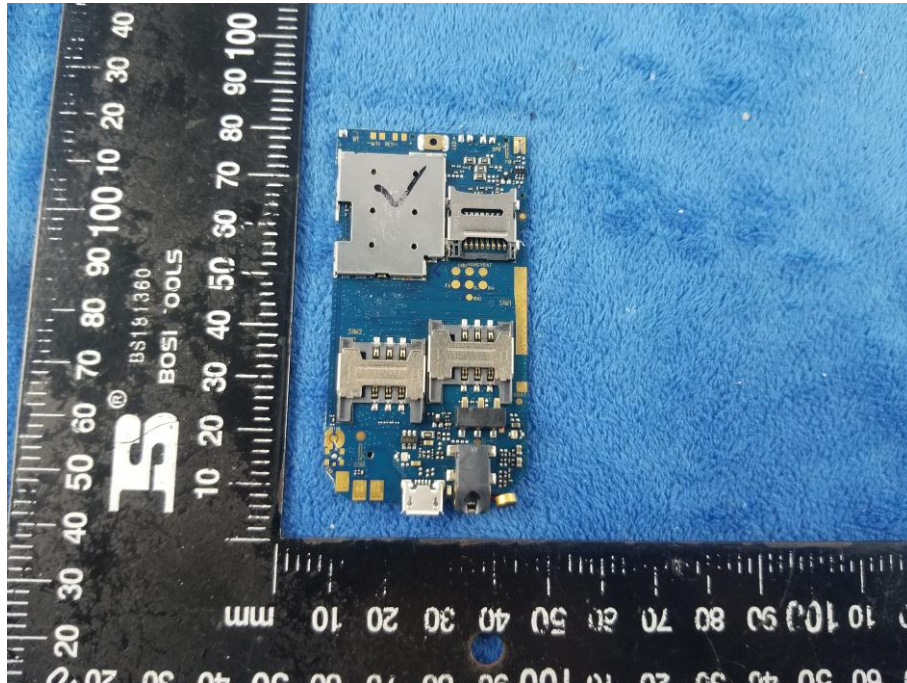
Battery - Front View



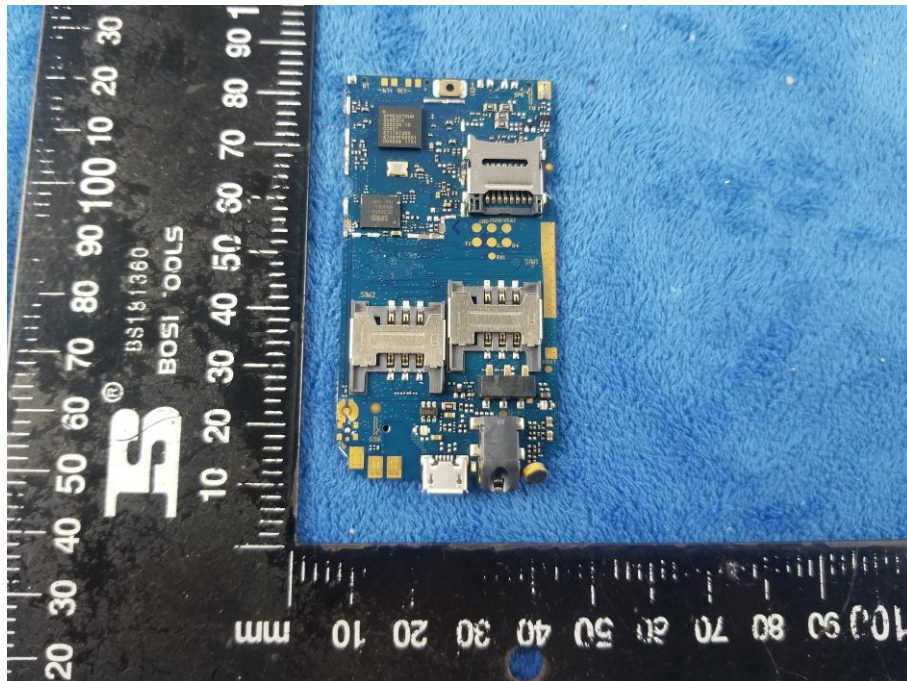
Battery - Rear View



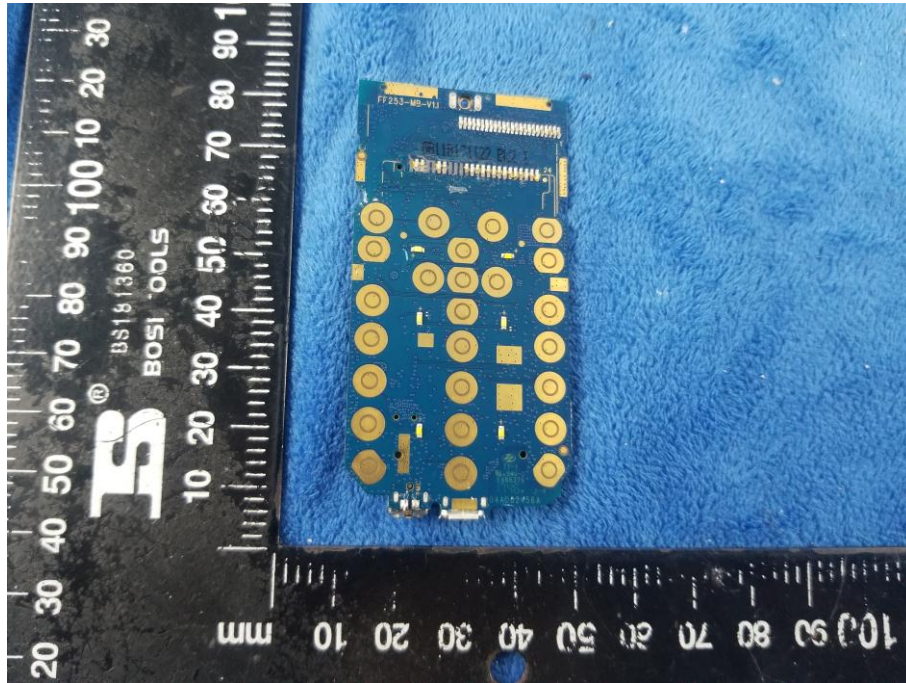
Mainboard with Shielding – Front View



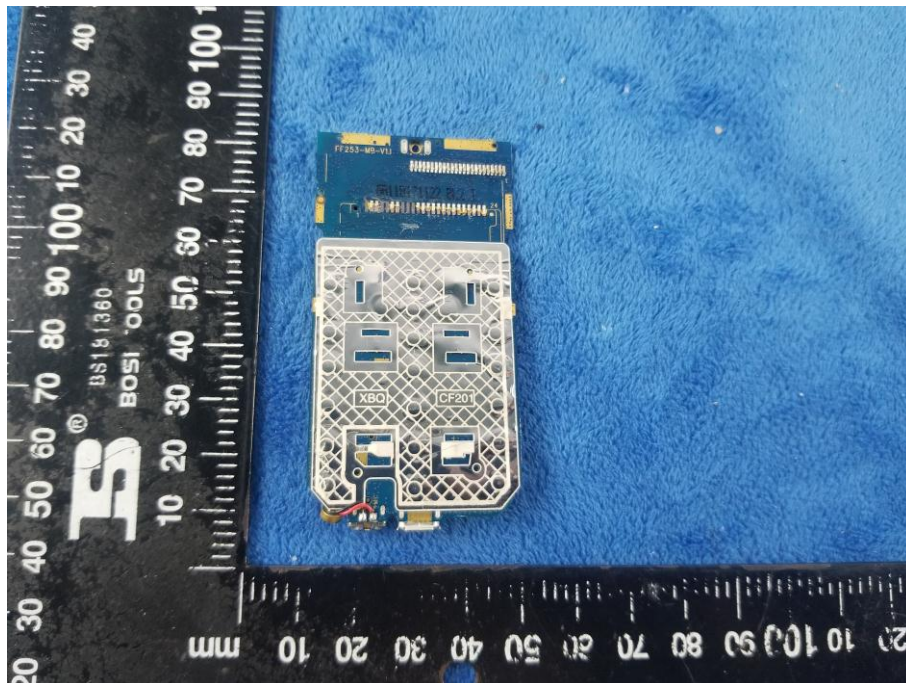
Mainboard with Shielding – Rear View



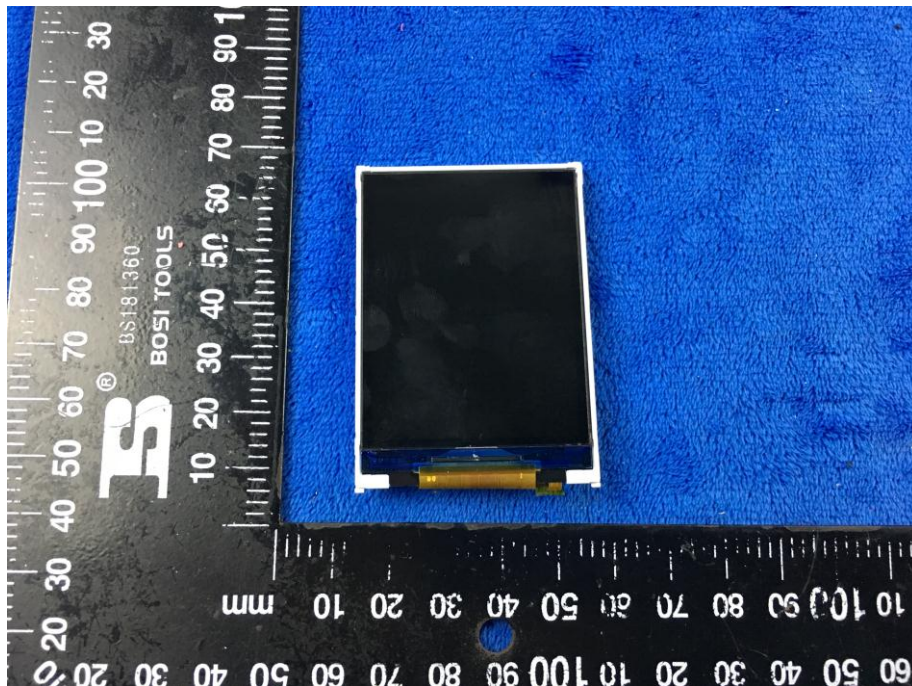
Mainboard without Shielding – Front View



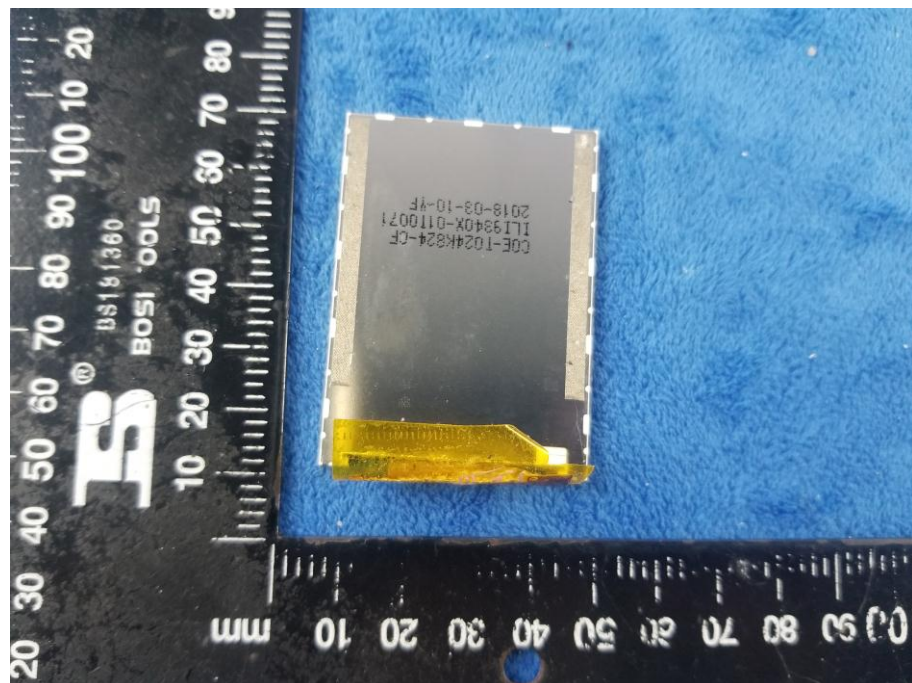
Mainboard without Shielding – Rear View



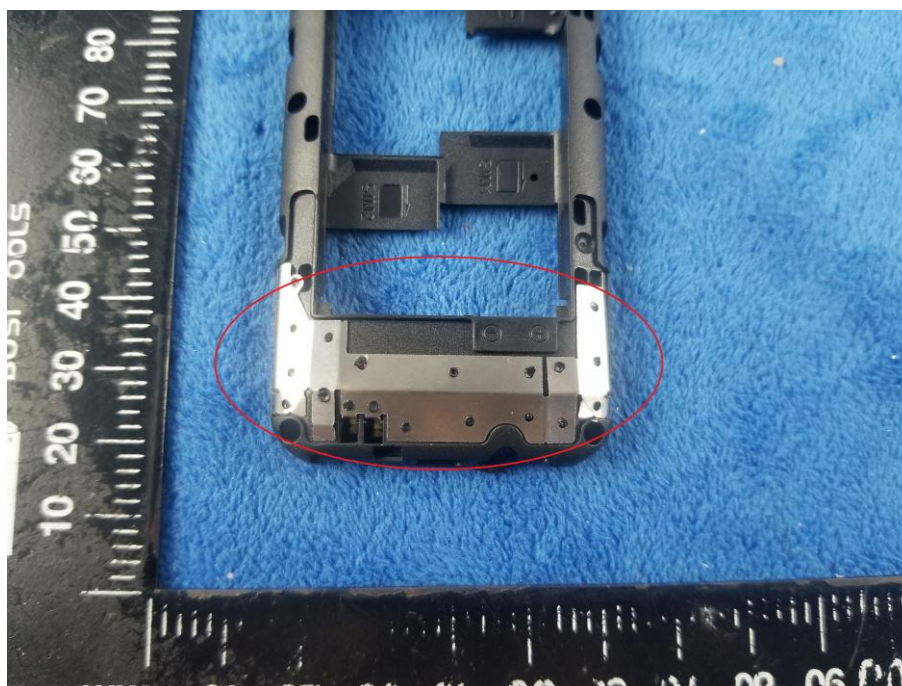
LCD – Front View



LCD – Rear View



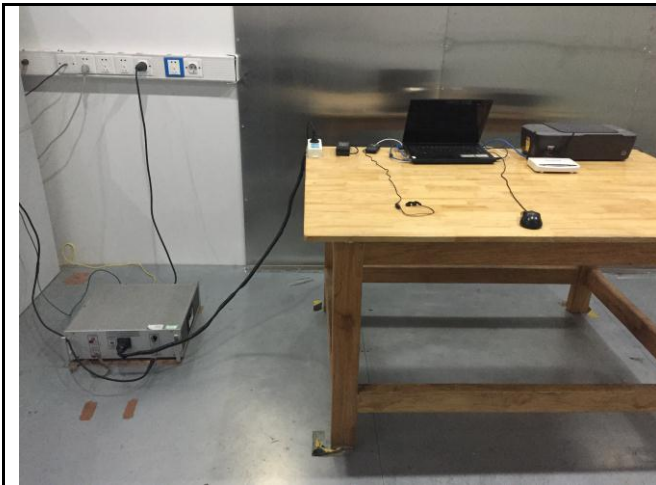
GSM/PCS - Antenna View



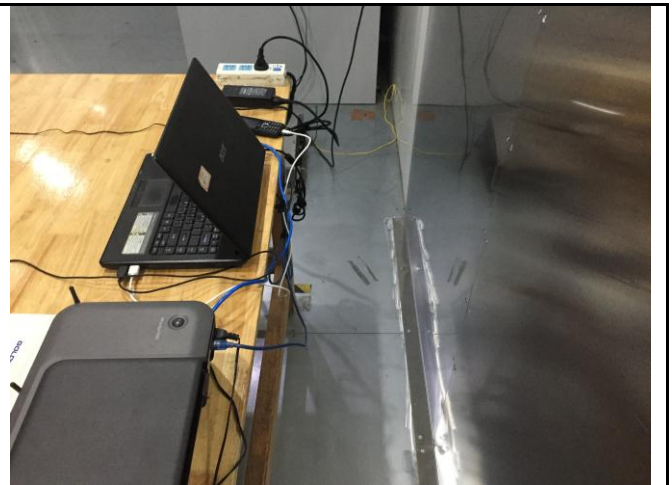
BT - Antenna View



Annex B.iii. Photograph: Test Setup Photo



Conducted Emissions Test Setup – Front View



Conducted Emissions Test Setup – Side View



Radiated Emissions Test Setup Below 1GHz

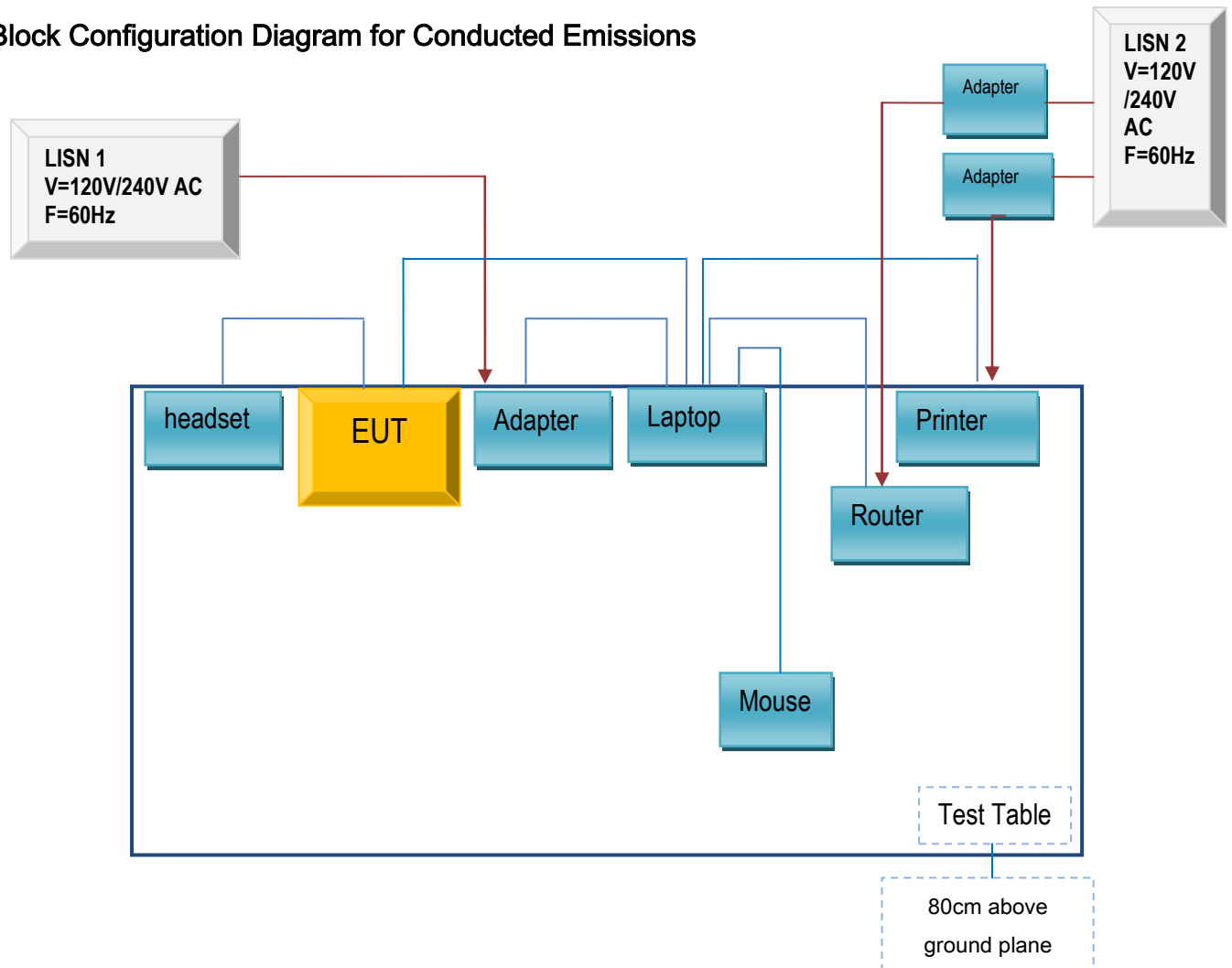


Radiated Emissions Test Setup Above 1GHz

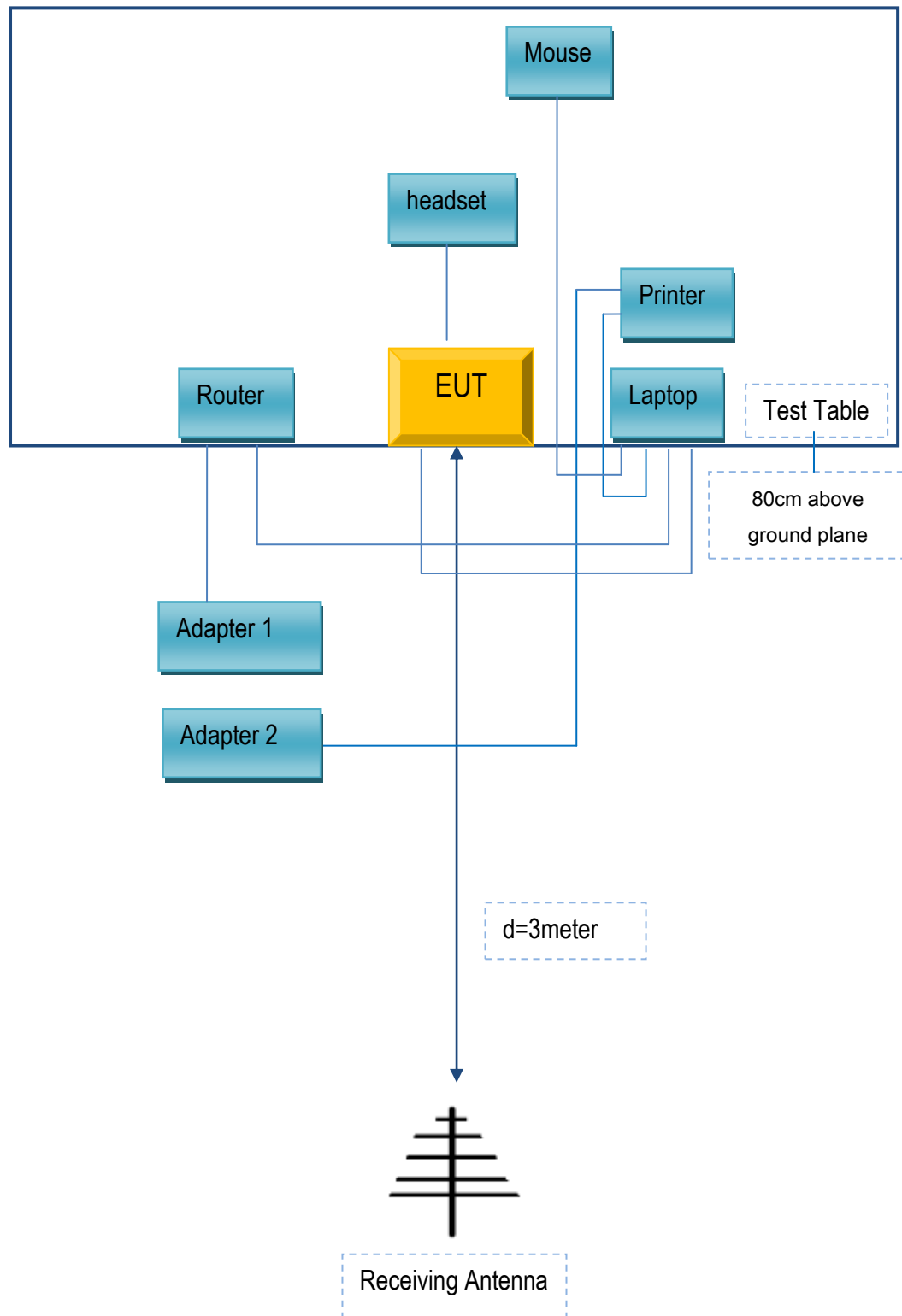
Annex C. TEST SETUP AND SUPPORTING EQUIPMENT

Annex C.ii. TEST SET UP BLOCK

Block Configuration Diagram for Conducted Emissions



Block Configuration Diagram for Radiated Emissions



Annex C. ii. 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
SAMSUNG	headset	HS330	N/A

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

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

Please see the attachment

Annex E. DECLARATION OF SIMILARITY

N/A