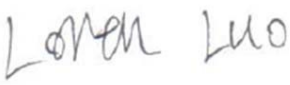
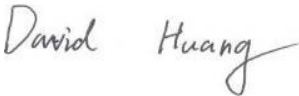



# EMC TEST REPORT



Report No.: 16071034FCC-E

Supersede Report No.: N/A

Applicant	ESG group SA	
Product Name	Mobile Phone	
Model No.	Ninja	
Serial No.	N/A	
Test Standard	FCC Part 15 Subpart B Class B:2015, ANSI C63.4: 2014	
Test Date	August 31 to September 09, 2016	
Issue Date	September 10, 2016	
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"/>		
		
Loren Luo 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](mailto: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
16071034FCC-E	NONE	Original	September 10, 2016

## 2. Customer information

Applicant Name	ESG group SA
Applicant Add	14 Rue Capois,Port-au-Prince Haiti
Manufacturer	ESG group SA
Manufacturer Add	30 Rue des Nimes, route de l'aéroport Port-au-Prince,Haiti

## 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.	718246
IC Test Site No.	4842E-1
Test Software	Radiated Emission Program-To Shenzhen v2.0

## 4. Equipment under Test (EUT) Information

Description of EUT:	Mobile Phone
Main Model:	Ninja
Serial Model:	N/A
Date EUT received:	August 30, 2016
Test Date(s):	August 31 to September 09, 2016
Equipment Category :	Class B
Antenna Gain:	GSM850: -0.21dBi PCS1900: -0.39dBi Bluetooth: -5.7Bi
Antenna Type:	GSM:PIFA antenna BT: Monopole antenna
Type of Modulation:	GSM / GPRS: GMSK Bluetooth: GFSK, $\pi$ /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: 299CHH Bluetooth: 79CH
Port:	Power Port, Earphone Port, USB Port
Input Power:	Adapter: Model: GCH-001 Input: 100-240V;50/60Hz;0.15A Output: 5.0V, 500mA Battery:

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Model: BT012300

Spec: 3.7V,700mAh

Charging Limited Voltage:4.2V

Trade Name :

Gravity

GPRS Multi-slot class

8/10/12

FCC ID:

2AGOONINJAHT

## 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
-	-	-




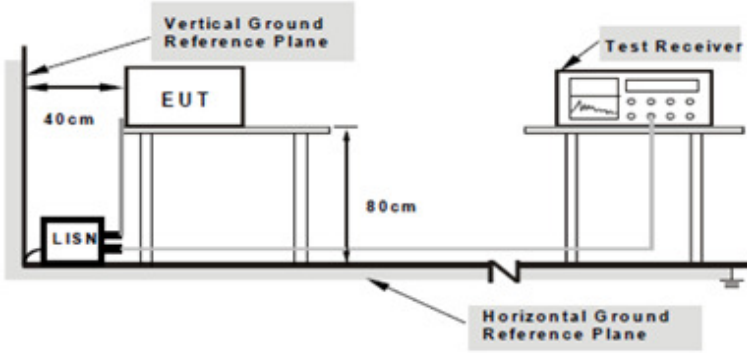
## 6. Measurements, Examination And Derived Results

### 6.1 AC Power Line Conducted Emissions

Temperature	25°C
Relative Humidity	54%
Atmospheric Pressure	1002mbar
Test date :	September 02, 2016
Tested By :	Loren Luo

#### 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>
------------	---

Procedure	<ol style="list-style-type: none"> <li>The EUT and supporting equipment were set up in accordance with the requirements of the standard on top of a 1.5m x 1m x 0.8m high, non-metallic table.</li> <li>The power supply for the EUT was fed through a 50W/50mH EUT LISN, connected to filtered mains.</li> </ol>
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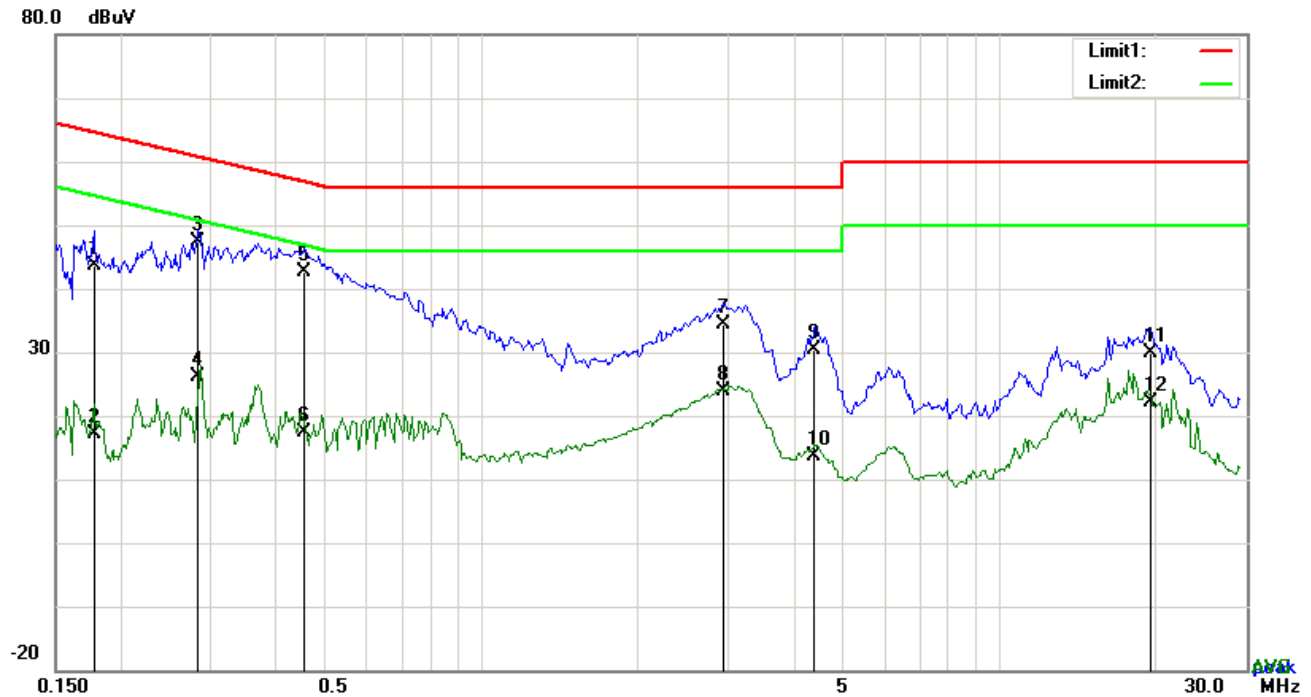
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	<p>3. The RF OUT of the EUT LISN was connected to the EMI test receiver via a low-loss coaxial cable.</p> <p>4. All other supporting equipment were powered separately from another main supply.</p> <p>5. The EUT was switched on and allowed to warm 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

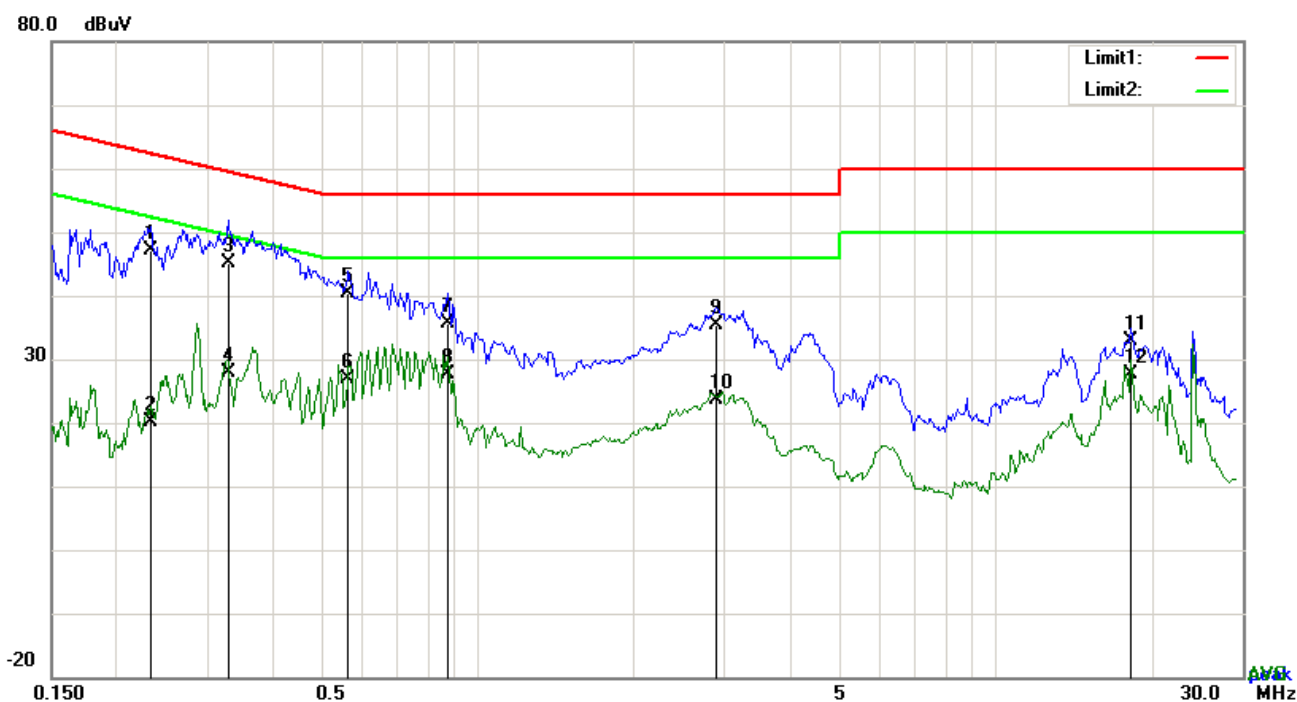


**Test Data**

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

No.	P/L	Frequency	Reading	Detector	Corrected	Result	Limit	Margin
		(MHz)	(dBuV)		(dB}	(dBuV)	(dBuV)	(dB)
1	L1	0.1777	33.63	QP	10.03	43.66	64.59	-20.93
2	L1	0.1777	7.17	AVG	10.03	17.20	54.59	-37.39
3	L1	0.2826	37.23	QP	10.03	47.26	60.74	-13.48
4	L1	0.2826	15.99	AVG	10.03	26.02	50.74	-24.72
5	L1	0.4542	32.54	QP	10.03	42.57	56.80	-14.23
6	L1	0.4542	7.39	AVG	10.03	17.42	46.80	-29.38
7	L1	2.9385	24.45	QP	10.05	34.50	56.00	-21.50
8	L1	2.9385	13.82	AVG	10.05	23.87	46.00	-22.13
9	L1	4.4040	20.35	QP	10.07	30.42	56.00	-25.58
10	L1	4.4040	3.61	AVG	10.07	13.68	46.00	-32.32
11	L1	19.5828	19.61	QP	10.29	29.90	60.00	-30.10
12	L1	19.5828	11.91	AVG	10.29	22.20	50.00	-27.80

**Test Mode:** USB Mode

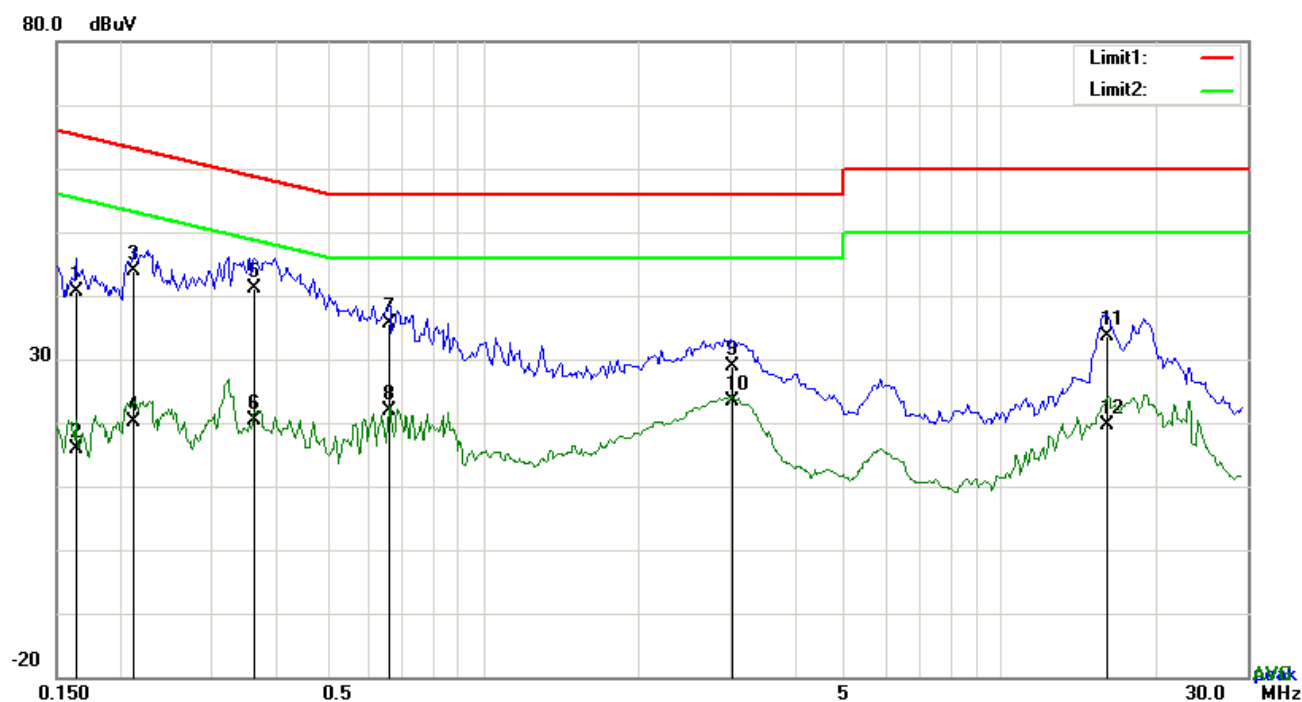


**Test Data**

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

No.	P/L	Frequency	Reading	Detector	Corrected	Result	Limit	Margin
		(MHz)	(dBuV)		(dB}	(dBuV)	(dBuV)	(dB)
1	N	0.2329	37.05	QP	10.02	47.07	62.35	-15.28
2	N	0.2329	10.00	AVG	10.02	20.02	52.35	-32.33
3	N	0.3294	35.10	QP	10.02	45.12	59.47	-14.35
4	N	0.3294	17.83	AVG	10.02	27.85	49.47	-21.62
5	N	0.5634	30.41	QP	10.02	40.43	56.00	-15.57
6	N	0.5634	16.78	AVG	10.02	26.80	46.00	-19.20
7	N	0.8754	25.65	QP	10.03	35.68	56.00	-20.32
8	N	0.8754	17.48	AVG	10.03	27.51	46.00	-18.49
9	N	2.8878	25.21	QP	10.05	35.26	56.00	-20.74
10	N	2.8878	13.65	AVG	10.05	23.70	46.00	-22.30
11	N	18.2451	22.64	QP	10.24	32.88	60.00	-27.12
12	N	18.2451	17.38	AVG	10.24	27.62	50.00	-22.38

**Test Mode:** USB Mode

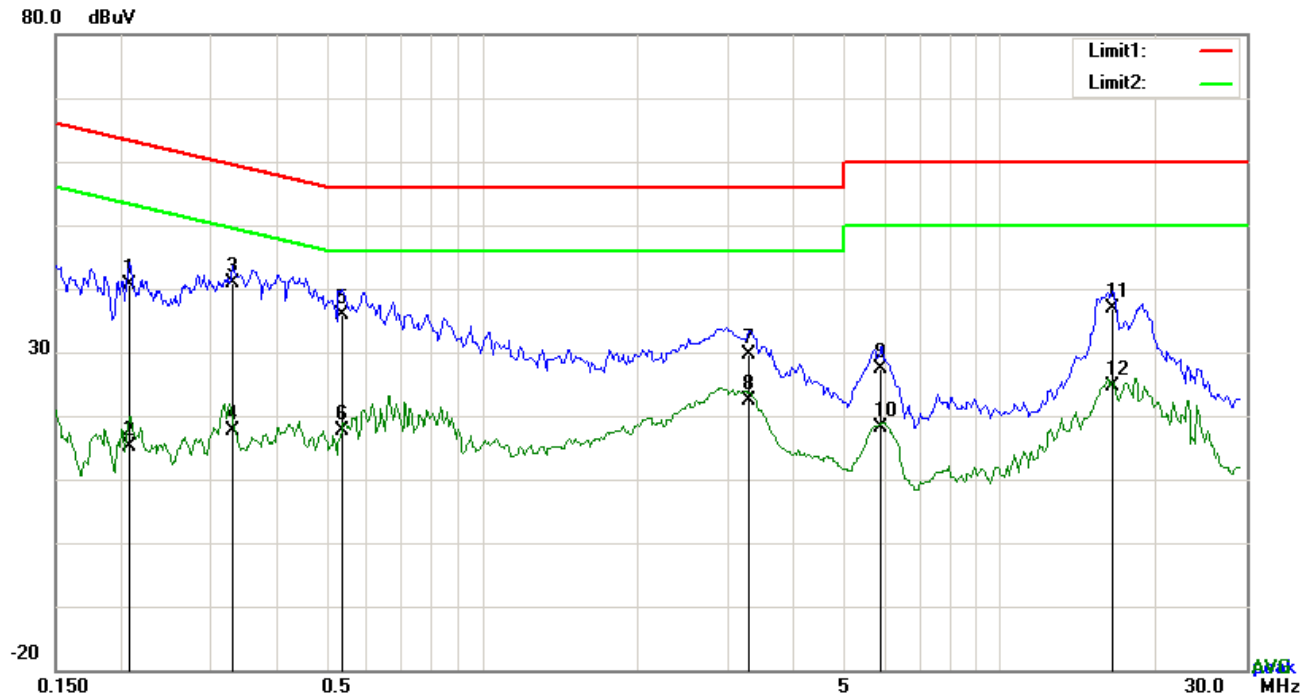


### Test Data

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

No.	P/L	Frequency	Reading	Detector	Corrected	Result	Limit	Margin
		(MHz)	(dBuV)		(dB)	(dBuV)	(dBuV)	(dB)
1	L1	0.1633	30.70	QP	10.03	40.73	65.29	-24.56
2	L1	0.1633	5.89	AVG	10.03	15.92	55.29	-39.37
3	L1	0.2124	33.75	QP	10.03	43.78	63.11	-19.33
4	L1	0.2124	10.22	AVG	10.03	20.25	53.11	-32.86
5	L1	0.3615	31.10	QP	10.03	41.13	58.69	-17.56
6	L1	0.3615	10.42	AVG	10.03	20.45	48.69	-28.24
7	L1	0.6609	25.72	QP	10.03	35.75	56.00	-20.25
8	L1	0.6609	11.77	AVG	10.03	21.80	46.00	-24.20
9	L1	3.0253	18.93	QP	10.06	28.99	56.00	-27.01
10	L1	3.0253	13.39	AVG	10.06	23.45	46.00	-22.55
11	L1	16.0689	23.35	QP	10.24	33.59	60.00	-26.41
12	L1	16.0689	9.41	AVG	10.24	19.65	50.00	-30.35

**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	0.2085	30.71	QP	10.02	40.73	63.26	-22.53
2	N	0.2085	5.14	AVG	10.02	15.16	53.26	-38.10
3	N	0.3294	30.82	QP	10.02	40.84	59.47	-18.63
4	N	0.3294	7.65	AVG	10.02	17.67	49.47	-31.80
5	N	0.5350	25.91	QP	10.02	35.93	56.00	-20.07
6	N	0.5350	7.73	AVG	10.02	17.75	46.00	-28.25
7	N	3.2886	19.63	QP	10.05	29.68	56.00	-26.32
8	N	3.2886	12.43	AVG	10.05	22.48	46.00	-23.52
9	N	5.9289	17.23	QP	10.08	27.31	60.00	-32.69
10	N	5.9289	8.09	AVG	10.08	18.17	50.00	-31.83
11	N	16.5330	26.73	QP	10.22	36.95	60.00	-23.05
12	N	16.5330	14.49	AVG	10.22	24.71	50.00	-25.29

## 6.2 Radiated Emissions

Temperature	24°C
Relative Humidity	59%
Atmospheric Pressure	1007mbar
Test date :	September 07, 2016
Tested By :	Loren Luo

### Requirement(s):

Spec	Item	Requirement	Applicable	
47CFR§15.107(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	
------------	--

Procedure	<ol style="list-style-type: none"> <li>The EUT was switched on and allowed to warm up to its normal operating condition.</li> <li>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"> <li>Vertical or horizontal polarization (whichever gave the higher emission level</li> </ol> </li> </ol>
-----------	--

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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 &lt; 98%) □ 10 Hz (Duty cycle &gt; 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

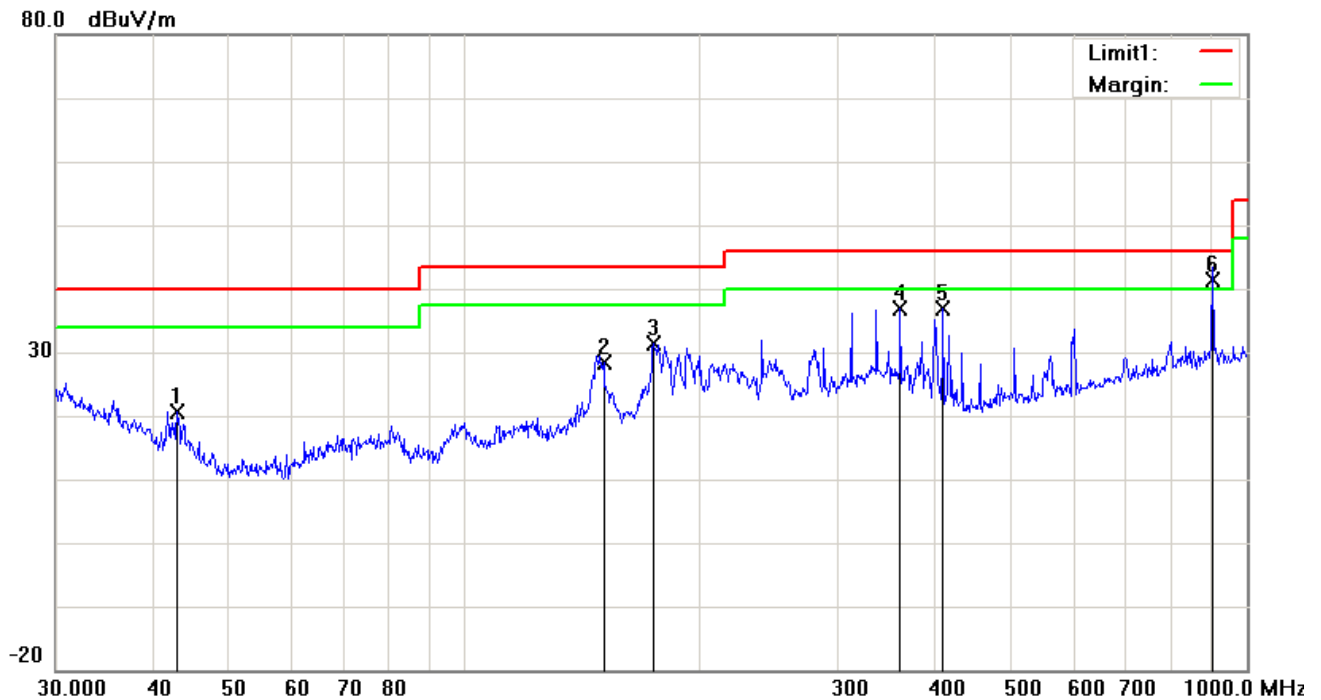
Test Data ☒ Yes ☐ N/A

Test Plot ☒ Yes (See below) ☐ N/A



**Test Mode : USB Mode**

**Below 1GHz**

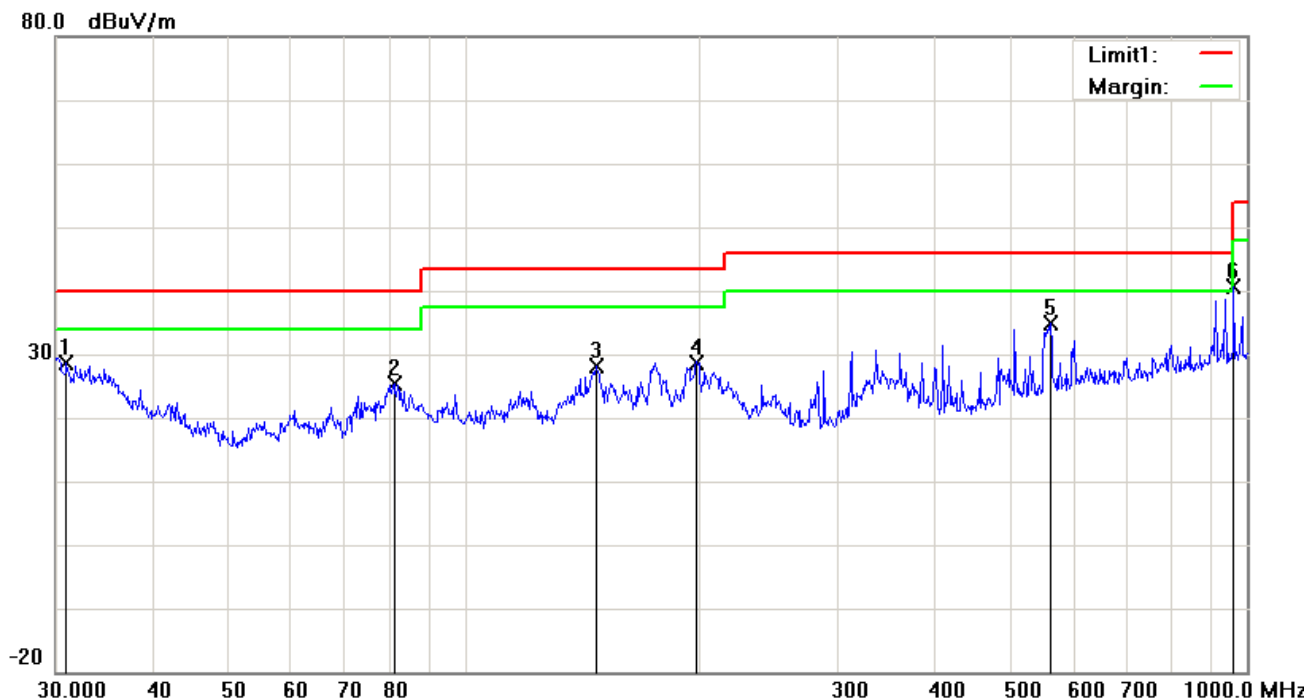


**Test Data**

**Horizontal Polarity Plot @3m**

No.	P/L	Frequency	Reading	Detector	Corrected	Result	Limit	Margin	Height	Degree
		(MHz)	(dBuV/m)		(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	(cm)	( ° )
1	H	42.8998	30.28	peak	-9.53	20.75	40.00	-19.25	100	178
2	H	150.5378	36.67	peak	-8.40	28.27	43.50	-15.23	100	256
3	H	174.4241	40.93	peak	-9.45	31.48	43.50	-12.02	100	130
4	H	360.4477	42.09	peak	-5.22	36.87	46.00	-9.13	100	36
5	H	408.9460	40.88	peak	-4.08	36.80	46.00	-9.20	100	59
6	H	903.3094	36.72	QP	4.73	41.45	46.00	-4.55	100	114

### Below 1GHz



### Test Data

#### Vertical Polarity Plot @3m

No.	P/L	Frequency	Reading	Detector	Corrected	Result	Limit	Margin	Height	Degree
		(MHz)	(dBuV/m)		(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	(cm)	( ° )
1	V	30.9619	29.60	peak	-0.96	28.64	40.00	-11.36	100	120
2	V	81.2117	38.97	peak	-13.71	25.26	40.00	-14.74	100	155
3	V	147.4036	36.61	peak	-8.44	28.17	43.50	-15.33	100	360
4	V	197.8928	37.60	peak	-8.85	28.75	43.50	-14.75	100	297
5	V	560.6928	35.62	peak	-0.64	34.98	46.00	-11.02	100	94
6	V	962.1623	35.33	peak	5.29	40.62	54.00	-13.38	100	31

### *Above 1GHz*

Frequency (MHz)	Amplitude (dBμV/m)	Azimuth	Height (cm)	Polarity (H/V)	Factors (dB)	Limit (dBμV/m)	Margin (dB)	Detector (PK/AV)
1527.63	50.11	68	119	V	-21.13	74	-23.89	PK
2119.80	51.28	125	121	V	-21.33	74	-22.72	PK
1760.56	49.34	71	143	V	-22.42	74	-24.66	PK
2026.22	50.67	58	186	H	-21.95	74	-23.33	PK
2821.97	49.88	118	107	H	-22.77	74	-24.12	PK
1839.46	49.56	86	125	H	-22.56	74	-24.44	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, X-Axis, Y-Axis and -Axis were investigated. The results above show only the worst case.*

*Note4: 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
<b>AC Line Conducted Emissions</b>					
EMI test receiver	ESCS30	8471241027	09/17/2015	09/16/2016	<input checked="" type="checkbox"/>
Line Impedance Stabilization Network	LI-125A	191106	09/25/2015	09/24/2016	<input checked="" type="checkbox"/>
Line Impedance Stabilization Network	LI-125A	191107	09/25/2015	09/24/2016	<input checked="" type="checkbox"/>
LISN	ISN T800	34373	09/25/2015	09/24/2016	<input checked="" type="checkbox"/>
Transient Limiter	LIT-153	531118	08/31/2016	08/30/2017	<input checked="" type="checkbox"/>
<b>Radiated Emissions</b>					
EMI test receiver	ESL6	100262	09/17/2015	09/16/2016	<input checked="" type="checkbox"/>
OPT 010 AMPLIFIER (0.1-1300MHz)	8447E	2727A02430	08/31/2016	08/30/2017	<input checked="" type="checkbox"/>
Microwave Preamplifier (1 ~ 26.5GHz)	8449B	3008A02402	03/24/2016	03/23/2017	<input checked="" type="checkbox"/>
Bilog Antenna (30MHz~6GHz)	JB6	A110712	09/21/2015	09/20/2016	<input checked="" type="checkbox"/>
Double Ridge Horn Antenna	AH-118	71259	09/24/2015	09/23/2016	<input checked="" type="checkbox"/>

## Annex B. EUT And Test Setup Photographs

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



Whole Package View



Adapter - Front 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



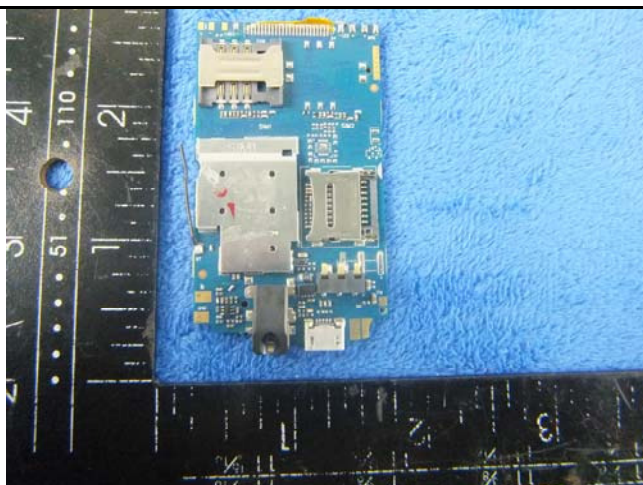
Cover Off - Top View 2



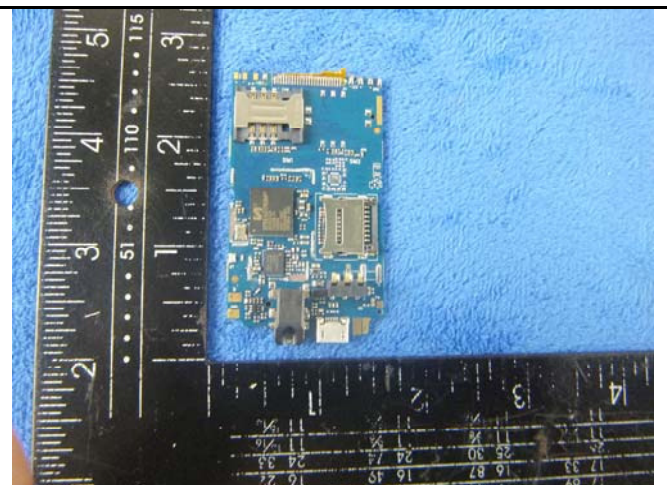
Battery - Front View



Battery - Rear View



Mainboard with Shielding - Front View

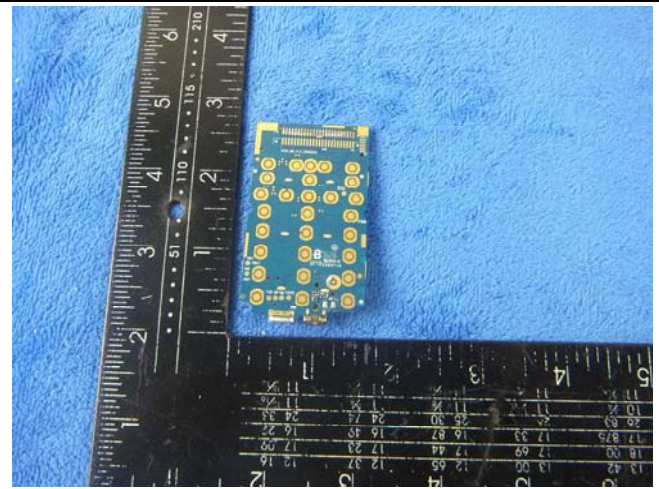


Mainboard without Shielding - Front View

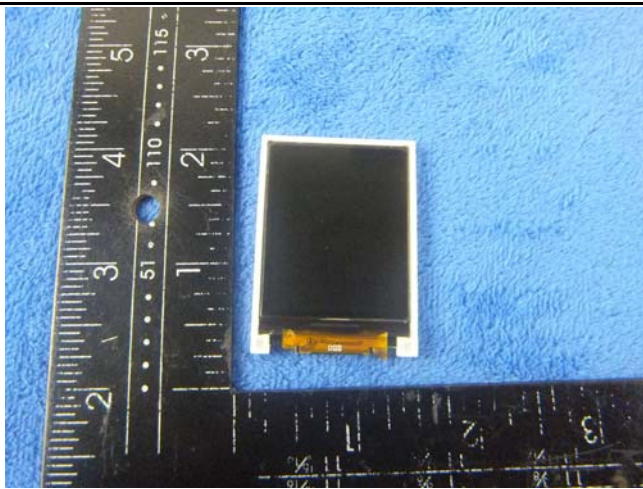




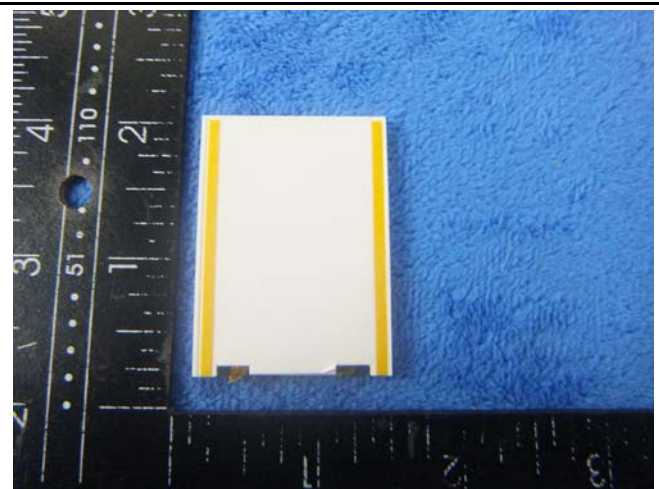
Mainboard with Shielding - Rear View



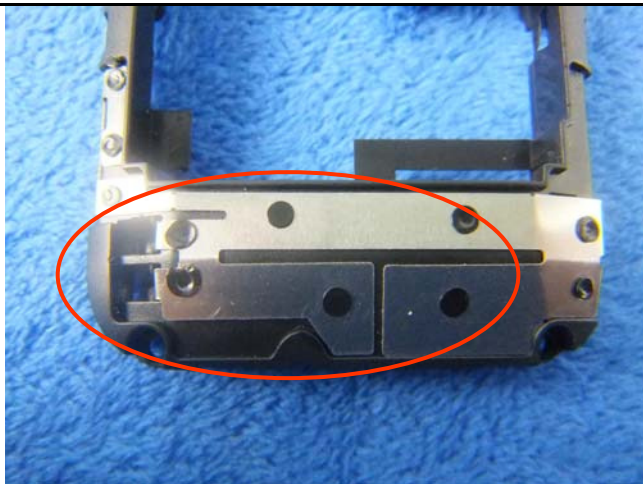
Mainboard without Shielding – Rear View



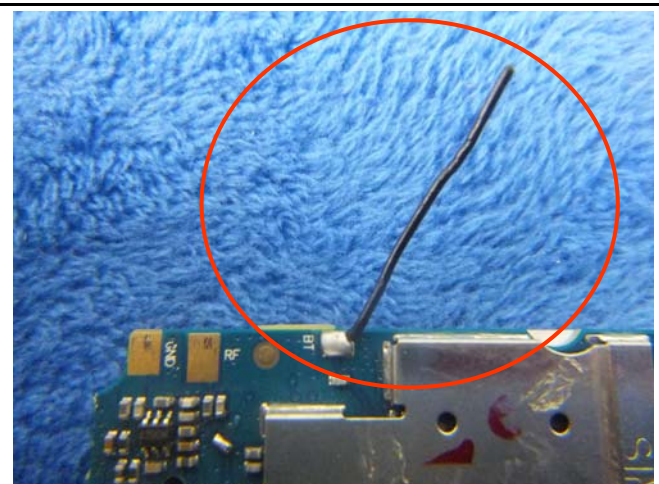
LCD – Front View



LCD – Rear View



GSM/PCS Antenna View



BT- Antenna View



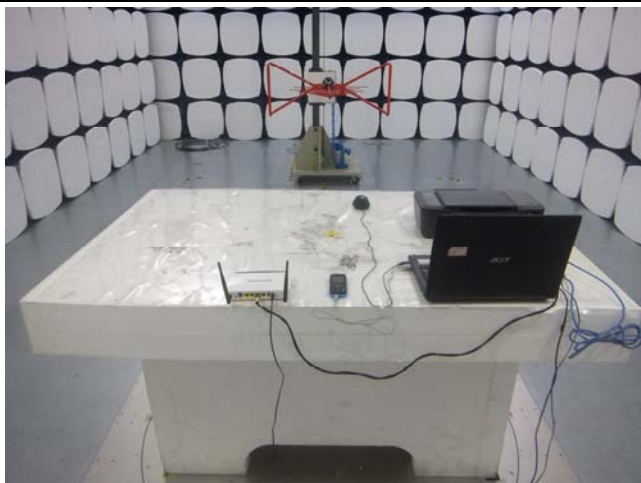
**Annex B.iii. Photograph: Test Setup Photo**



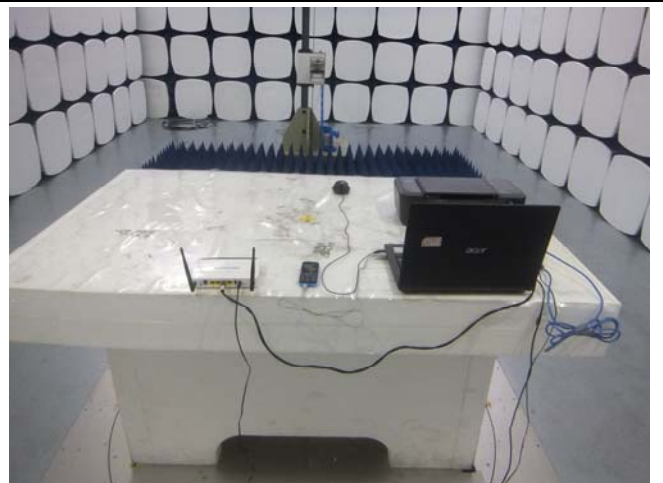
Conducted Emissions Test Setup – TF Card Front View



Conducted Emissions Test Setup – TF Card Side View



Radiated Emissions Test Setup Below 1GHz - TF Card Front View

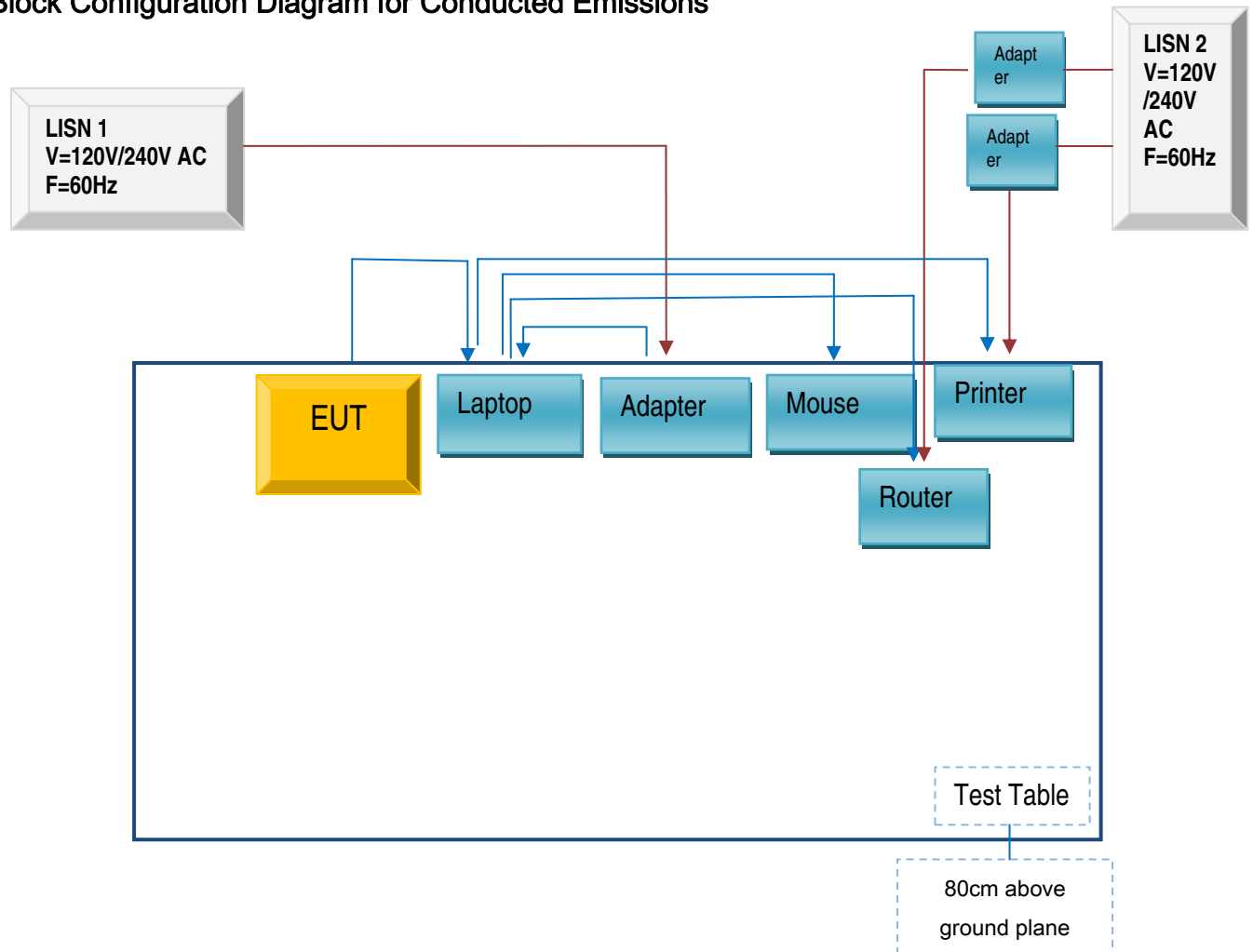


Radiated Emissions Test Setup Above 1GHz - TF Card Side View

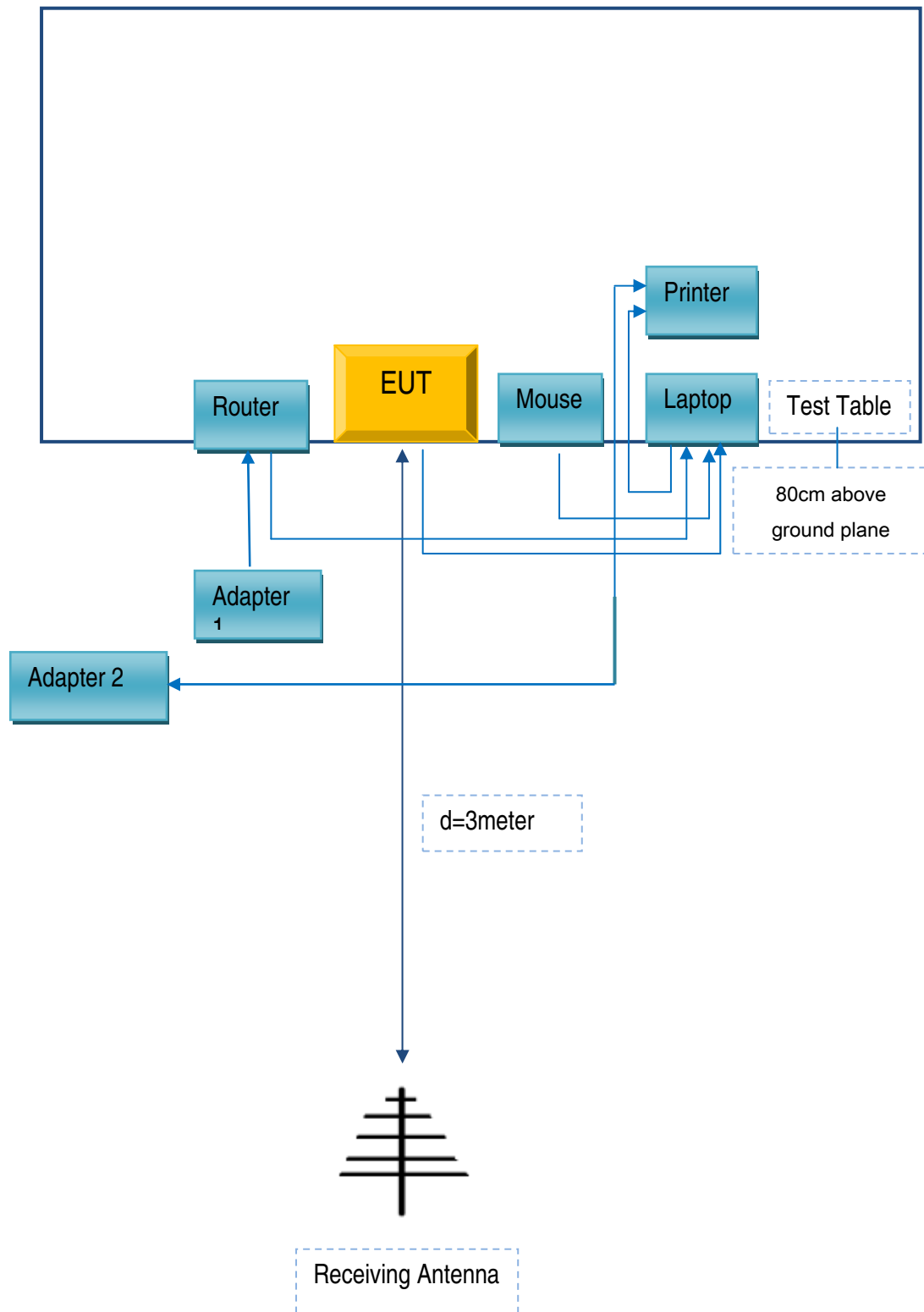
## Annex C. TEST SETUP AND SUPPORTING EQUIPMENT

### 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

### **Supporting Cable:**

Cable type	Shield Type	Ferrite Core	Length	Serial No
USB Cable	Un-shielding	No	2m	JX120051274
USB Cable	Un-shielding	No	2m	JX110725002
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 attachment

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## Annex E. DECLARATION OF SIMILARITY

N/A