

# EMC TEST REPORT



Report No.: 15071247-FCC-E

Supersede Report No.:N/A

Applicant	JETHRO TRADING LTD.	
Product Name	GSM phone	
Model No.	SC118	
Serial No.	N/A	
Test Standard	FCC Part 15 Subpart B Class B:2014, ANSI C63.4: 2014	
Test Date	December 23, 2015 to January 07, 2016	
Issue Date	January 08, 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"/>		
<i>Winnie Zhang</i>	<i>David Huang</i>	
Winnie Zhang 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
15071247-FCC-E	NONE	Original	January 08, 2016

## 2. Customer information

Applicant Name	JETHRO TRADING LTD.
Applicant Add	10385 Mckinnon Crescent, Langley, BC Canada
Manufacturer	Shenzhen Bayuda Technologies, co., ltd
Manufacturer Add	Room A433 A Block, Shenzhen Industrial products exhibition procurement center the baoyuan road baoan district

## 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:	GSM phone
Main Model:	SC118
Serial Model:	N/A
Equipment Category :	JBP
Date EUT received:	December 22, 2015
Test Date(s):	December 23, 2015 to January 07, 2016
Antenna Gain:	GSM850: 0.4dBi PCS1900: 0.7dBi Bluetooth: 0.5dBi
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: 299CH Bluetooth: 79CH
Input Power:	Battery: Model:SC118 Spec: 3.7V,800mAh,2.96Wh Charging limited voltage: 4.2V Adapter: Model: HJ-050050-US Input: AC100-240V; 50/60Hz; 0.15A Output: DC 5.0V,500mA
Port:	Power Port, Earphone Port, USB Port

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Trade Name : Jethro

FCC ID: 2AAWJSC118

## 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	22°C
Relative Humidity	53%
Atmospheric Pressure	1029mbar
Test date :	December 29, 2015
Tested By :	Winnie Zhang

#### 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"> <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>
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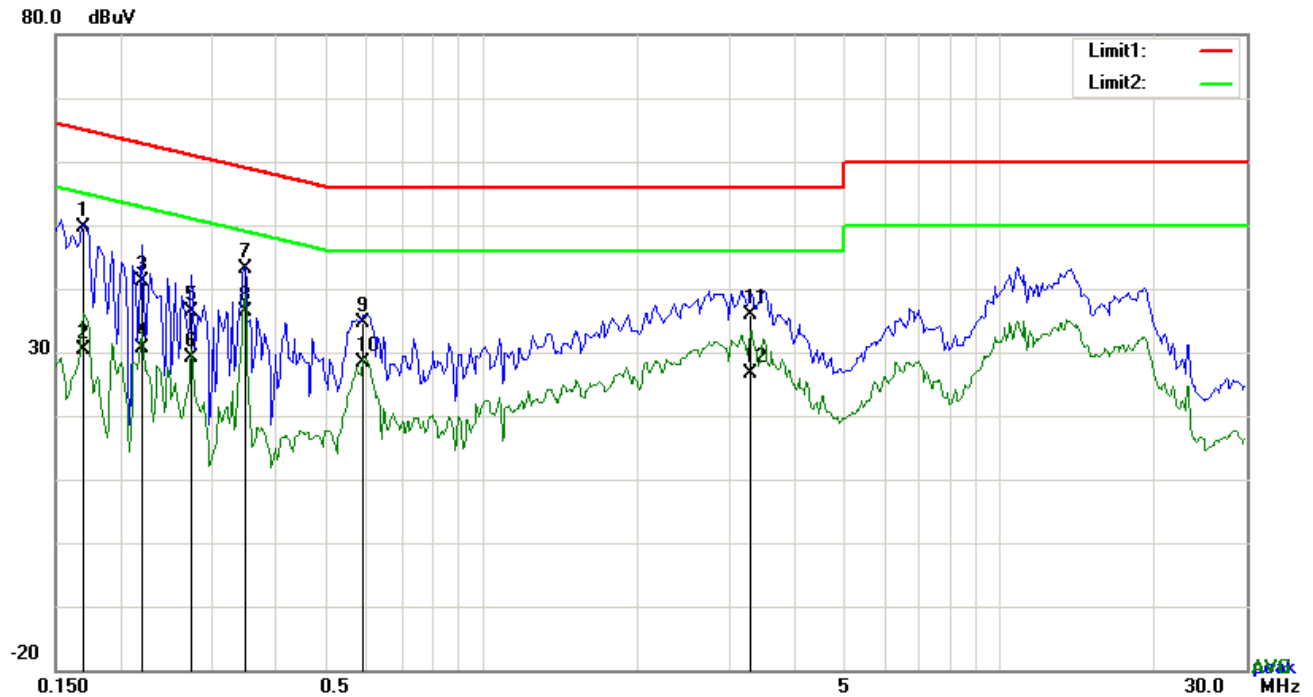
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	<p>3. The RF OUT of the EUT LISN was connected to the EMI test receiver via a low-loss coaxial cable.</p> <p>4. All other supporting equipment were powered separately from another main supply.</p> <p>5. The EUT was switched on and allowed to warm 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 1 : USB Mode**

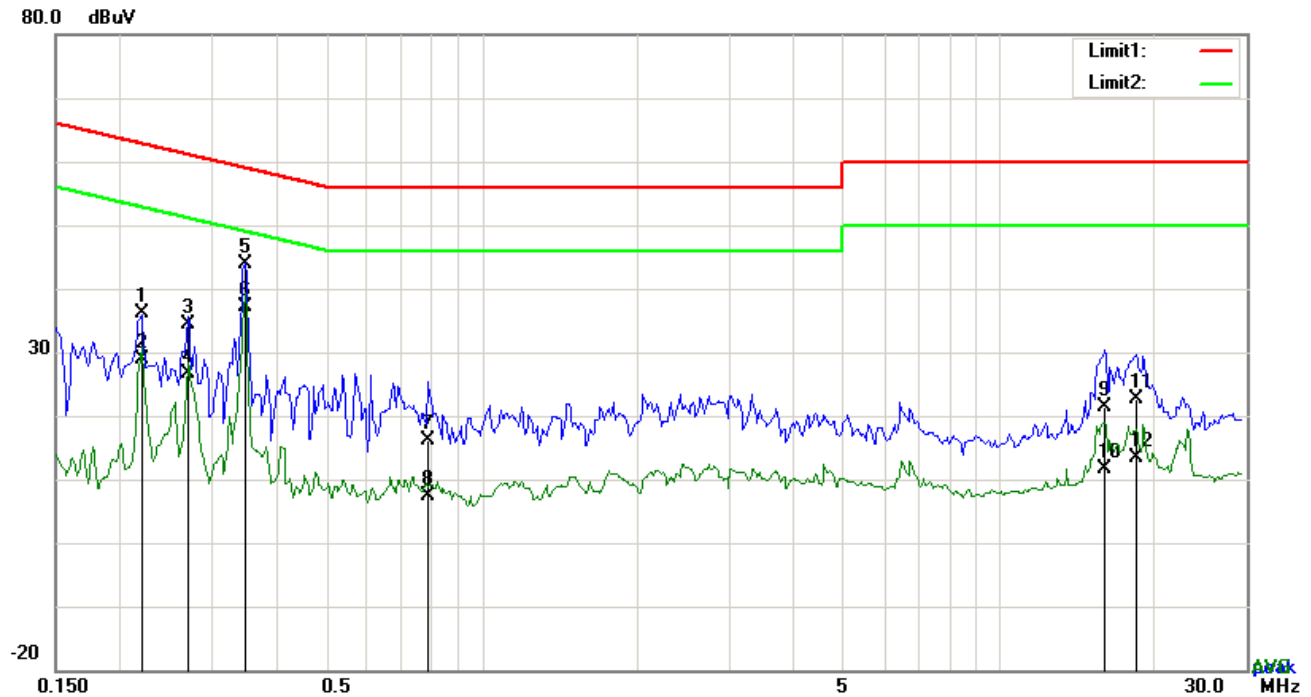


**Test Data**

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

No.	P/L	Frequency	Reading	Detector	Corrected	Result	Limit	Margin
		(MHz)	(dBuV)		(dB}	(dBuV)	(dBuV)	(dB)
1	L1	0.1695	39.56	QP	10.03	49.59	64.98	-15.39
2	L1	0.1695	20.46	AVG	10.03	30.49	54.98	-24.49
3	L1	0.2202	31.18	QP	10.03	41.21	62.81	-21.60
4	L1	0.2202	20.61	AVG	10.03	30.64	52.81	-22.17
5	L1	0.2748	26.41	QP	10.03	36.44	60.97	-24.53
6	L1	0.2748	18.98	AVG	10.03	29.01	50.97	-21.96
7	L1	0.3489	33.11	QP	10.03	43.14	58.99	-15.85
8	L1	0.3489	26.25	AVG	10.03	36.28	48.99	-12.71
9	L1	0.5907	24.62	QP	10.03	34.65	56.00	-21.35
10	L1	0.5907	18.29	AVG	10.03	28.32	46.00	-17.68
11	L1	3.3081	25.82	QP	10.06	35.88	56.00	-20.12
12	L1	3.3081	16.61	AVG	10.06	26.67	46.00	-19.33

Test Mode : USB Mode

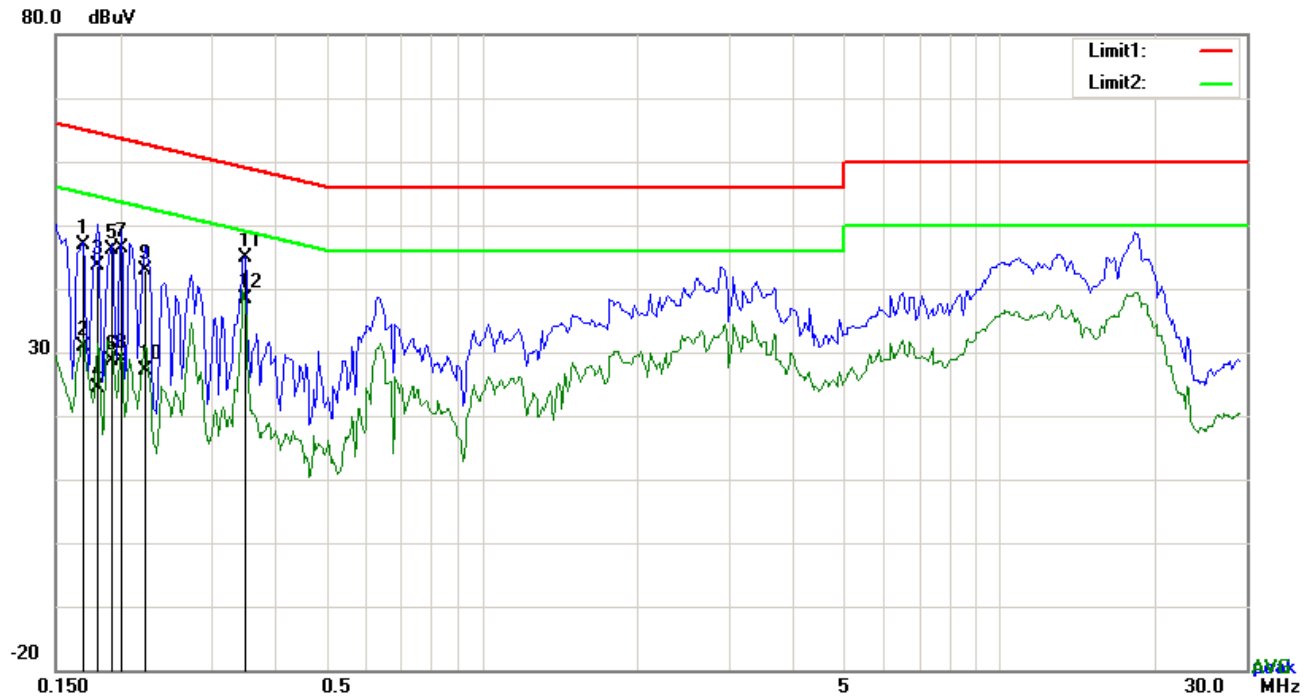


Test Data

Phase Neutral Plot at 120Vac, 60Hz

No.	P/L	Frequency	Reading	Detector	Corrected	Result	Limit	Margin
		(MHz)	(dBuV)		(dB}	(dBuV)	(dBuV)	(dB)
1	N	0.2202	25.99	QP	10.02	36.01	62.81	-26.80
2	N	0.2202	18.92	AVG	10.02	28.94	52.81	-23.87
3	N	0.2709	24.43	QP	10.02	34.45	61.09	-26.64
4	N	0.2709	16.71	AVG	10.02	26.73	51.09	-24.36
5	N	0.3489	33.74	QP	10.02	43.76	58.99	-15.23
6	N	0.3489	27.02	AVG	10.02	37.04	48.99	-11.95
7	N	0.7857	6.10	QP	10.03	16.13	56.00	-39.87
8	N	0.7857	-2.61	AVG	10.03	7.42	46.00	-38.58
9	N	16.0416	11.26	QP	10.21	21.47	60.00	-38.53
10	N	16.0416	1.51	AVG	10.21	11.72	50.00	-38.28
11	N	18.3699	12.31	QP	10.24	22.55	60.00	-37.45
12	N	18.3699	3.21	AVG	10.24	13.45	50.00	-36.55

Test Mode : USB Mode

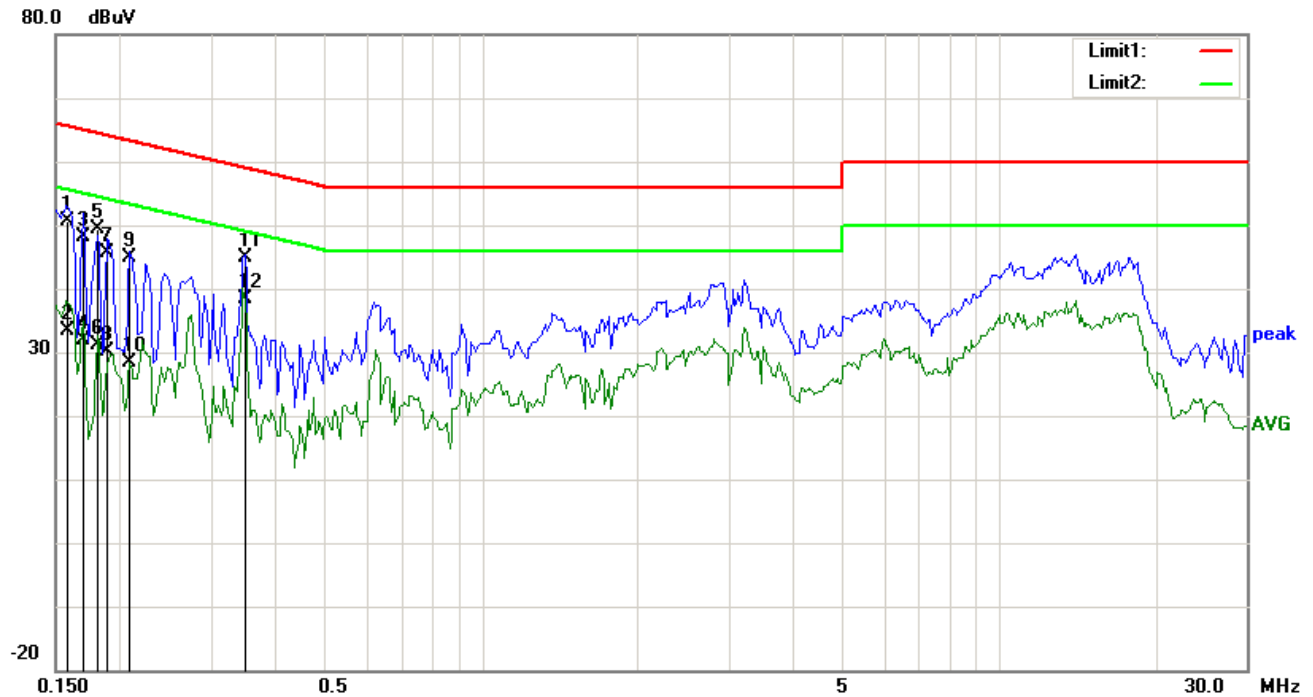


Test Data

Phase Line Plot at 240Vac, 60Hz

No.	P/L	Frequency	Reading	Detector	Corrected	Result	Limit	Margin
		(MHz)	(dBuV)		(dB)	(dBuV)	(dBuV)	(dB)
1	L1	0.1695	36.88	QP	10.03	46.91	64.98	-18.07
2	L1	0.1695	20.83	AVG	10.03	30.86	54.98	-24.12
3	L1	0.1812	33.65	QP	10.03	43.68	64.43	-20.75
4	L1	0.1812	14.46	AVG	10.03	24.49	54.43	-29.94
5	L1	0.1929	36.13	QP	10.03	46.16	63.91	-17.75
6	L1	0.1929	18.65	AVG	10.03	28.68	53.91	-25.23
7	L1	0.2007	36.43	QP	10.03	46.46	63.58	-17.12
8	L1	0.2007	18.83	AVG	10.03	28.86	53.58	-24.72
9	L1	0.2241	32.79	QP	10.03	42.82	62.67	-19.85
10	L1	0.2241	17.09	AVG	10.03	27.12	52.67	-25.55
11	L1	0.3489	34.97	QP	10.03	45.00	58.99	-13.99
12	L1	0.3489	28.23	AVG	10.03	38.26	48.99	-10.73

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	0.1582	40.71	QP	10.02	50.73	65.56	-14.83
2	N	0.1582	23.26	AVG	10.02	33.28	55.56	-22.28
3	N	0.1695	38.15	QP	10.02	48.17	64.98	-16.81
4	N	0.1695	21.83	AVG	10.02	31.85	54.98	-23.13
5	N	0.1812	39.28	QP	10.02	49.30	64.43	-15.13
6	N	0.1812	21.09	AVG	10.02	31.11	54.43	-23.32
7	N	0.1890	35.60	QP	10.02	45.62	64.08	-18.46
8	N	0.1890	20.18	AVG	10.02	30.20	54.08	-23.88
9	N	0.2085	34.74	QP	10.02	44.76	63.26	-18.50
10	N	0.2085	18.40	AVG	10.02	28.42	53.26	-24.84
11	N	0.3489	34.94	QP	10.02	44.96	58.99	-14.03
12	N	0.3489	28.24	AVG	10.02	38.26	48.99	-10.73

## 6.2 Radiated Emissions

Temperature	22°C
Relative Humidity	53%
Atmospheric Pressure	1029mbar
Test date :	December 29, 2015
Tested By :	Winnie Zhang

### 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"> <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

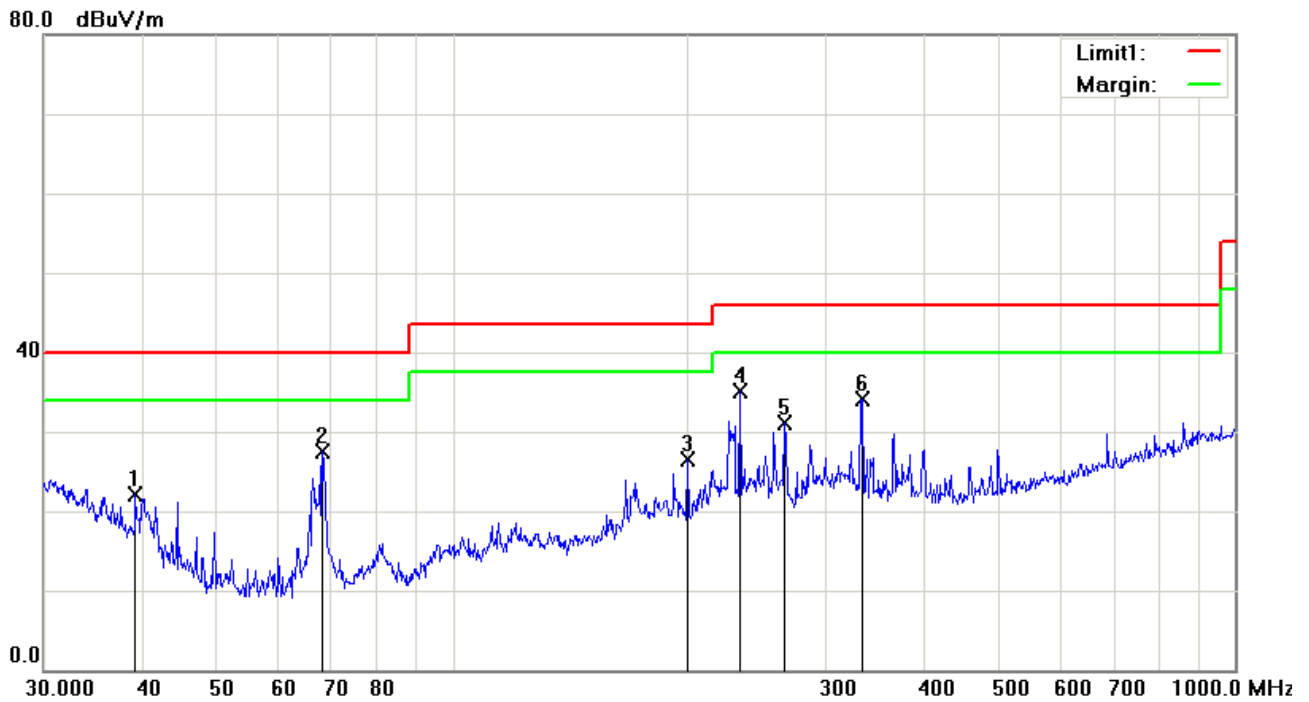
Test Data ☒ Yes ☐ N/A

Test Plot ☒ Yes (See below) ☐ N/A



**Test Mode 1: USB Mode**

*Below 1GHz*

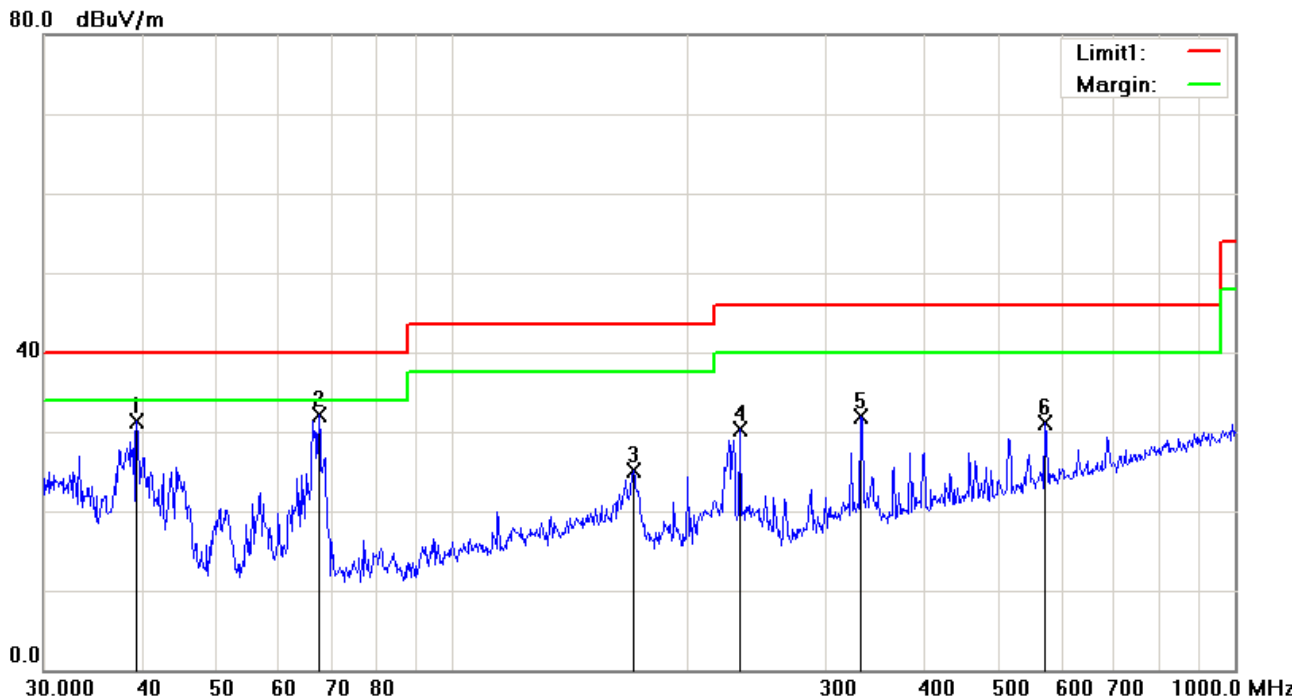


**Test Data**

**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	39.2991	29.18	peak	-7.08	22.10	40.00	-17.90	100	0
2	H	68.1514	41.27	peak	-13.74	27.53	40.00	-12.47	100	229
3	H	199.2855	35.37	peak	-8.78	26.59	43.50	-16.91	100	259
4	H	232.5318	44.22	peak	-9.04	35.18	46.00	-10.82	100	304
5	H	265.6757	39.61	peak	-8.47	31.14	46.00	-14.86	100	290
6	H	333.6867	39.98	peak	-5.93	34.05	46.00	-11.95	100	259

### 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	39.4372	38.57	peak	-7.18	31.39	40.00	-8.61	100	319
2	V	67.4382	45.82	peak	-13.79	32.03	40.00	-7.97	100	68
3	V	170.1948	34.15	peak	-9.12	25.03	43.50	-18.47	100	226
4	V	233.3487	39.42	peak	-9.04	30.38	46.00	-15.62	100	196
5	V	332.5187	37.93	peak	-5.97	31.96	46.00	-14.04	100	222
6	V	570.6100	31.64	peak	-0.48	31.16	46.00	-14.84	100	8

### *Above 1GHz*

Frequency (MHz)	Amplitude (dBμV/m)	Azimuth	Height (cm)	Polarity (H/V)	Factors (dB)	Limit (dBμV/m)	Margin (dB)	Detector (PK/AV)
1543.12	50.22	58	123	V	-22.37	74	-23.78	PK
2033.20	50.33	138	150	V	-21.45	74	-23.67	PK
1647.65	49.58	80	180	V	-23.77	74	-24.42	PK
2132.30	50.45	50	200	H	-21.25	74	-23.55	PK
2877.08	49.36	125	100	H	-23.65	74	-24.64	PK
1825.14	50.21	43	180	H	-22.78	74	-23.78	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
<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	09/01/2015	08/31/2016	<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	09/01/2015	08/31/2016	<input checked="" type="checkbox"/>
Microwave Preamplifier (1 ~ 26.5GHz)	8449B	3008A02402	03/25/2015	03/24/2016	<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





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EUT - Top View



EUT - Bottom View



EUT - Left View



EUT - Right View



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



Cover Off - Top View 1



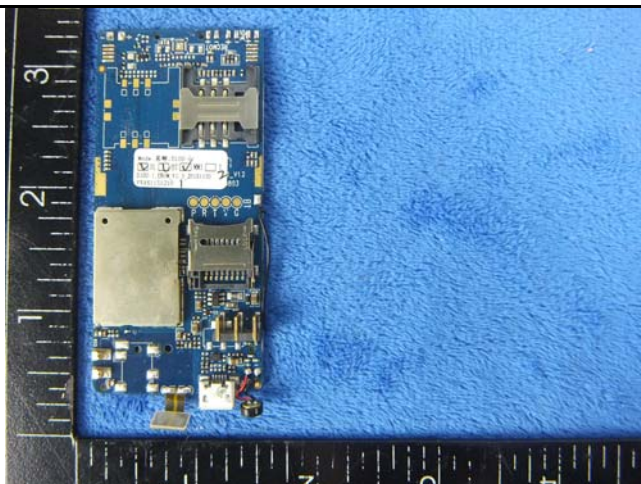
Cover Off - Top View 2



Battery - Front View



Battery - Rear View



Mainboard with Shielding - Front View

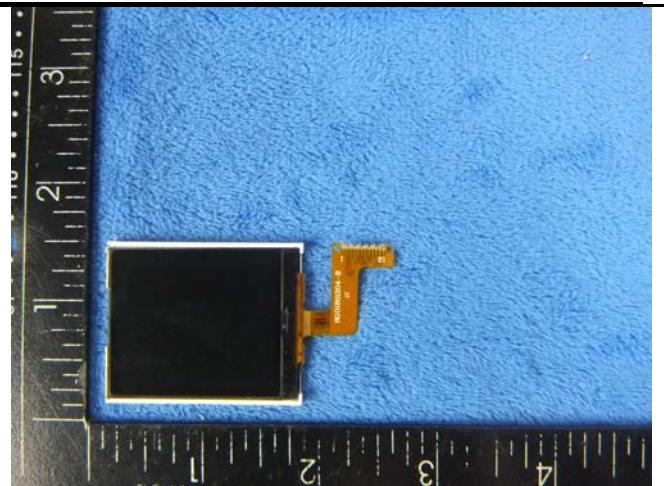


Mainboard without shielding - Front View

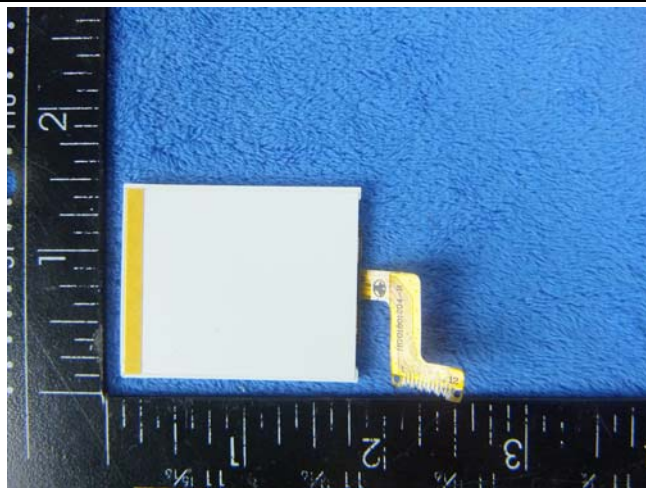




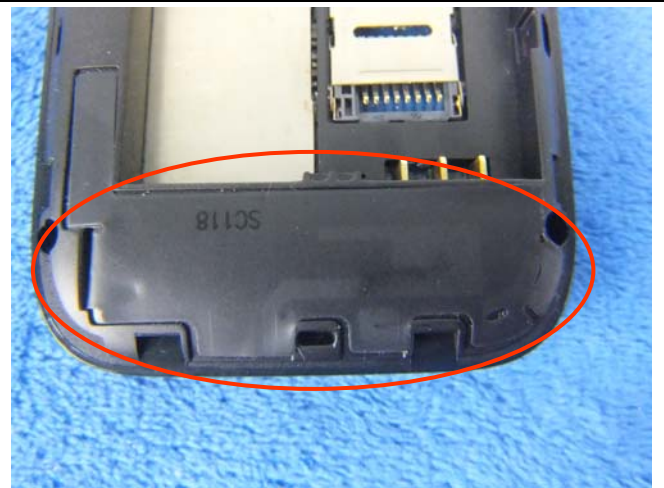
Mainboard - Rear View



LCD - Front View



LCD - Rear View



GSM/PCS - Antenna View



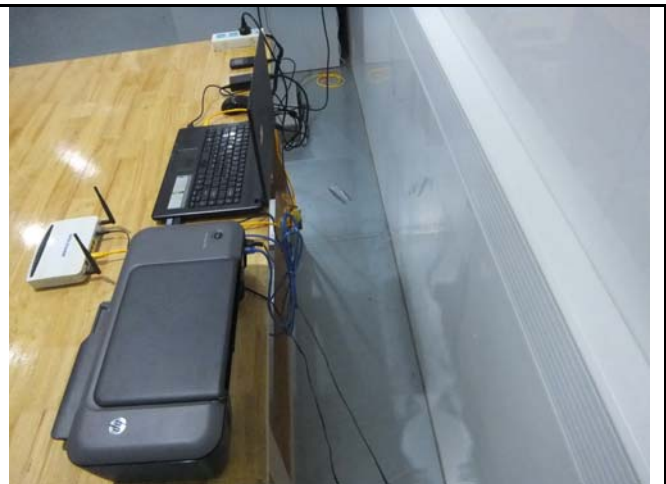
BT - Antenna View



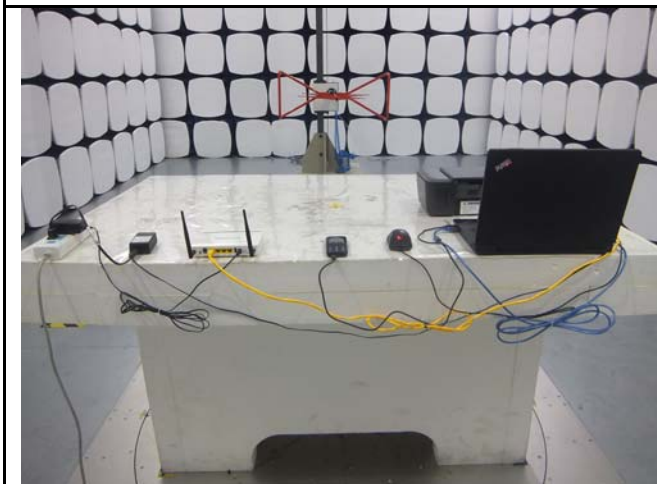
**Annex B.iii. Photograph: Test Setup Photo**



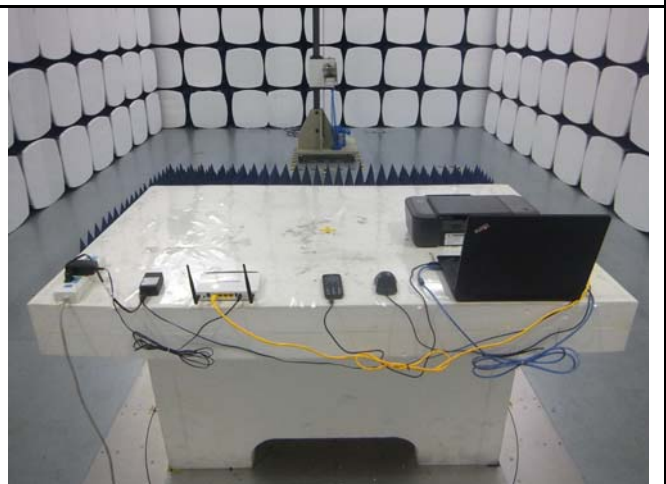
Conducted Emissions Test Setup – Front View



Conducted Emissions Test Setup – Side View



Radiated Spurious Emissions Test Setup Below 1GHz



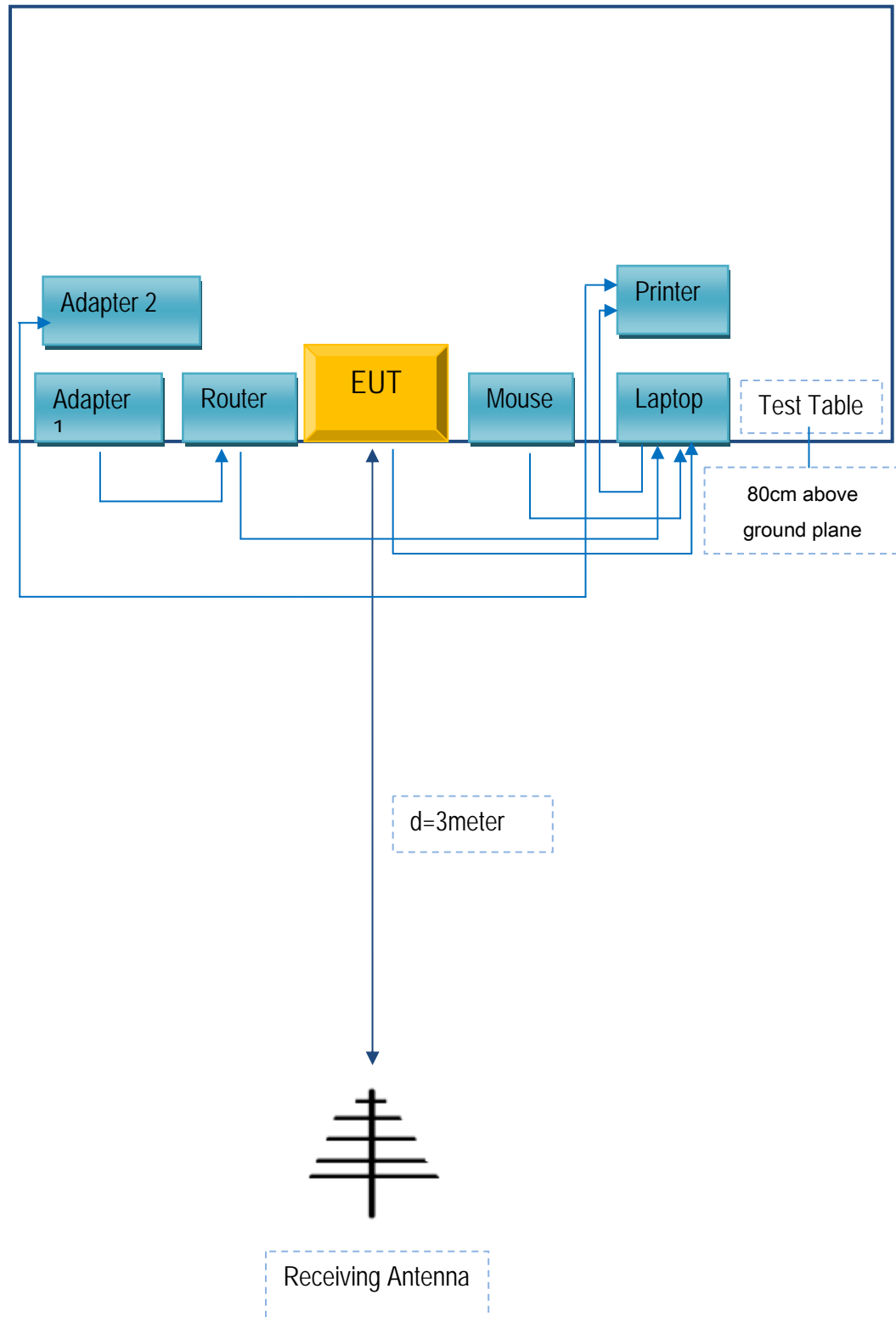
Radiated Spurious Emissions Test Setup Above  
1GHz

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

The diagram illustrates the block configuration for conducted emissions testing. It shows the following components and connections:

- LISN 1**: V=120V/240V AC, F=60Hz. Connected to the EUT and the Adapter.
- LISN 2**: V=120V/240V AC, F=60Hz. Connected to the Router and the Adapter.
- EUT** (Equipment Under Test): Yellow box, connected to LISN 1 and the Adapter.
- Adapter**: Blue box, connected to LISN 1, LISN 2, and the Router.
- Mouse**: Blue box, connected to the Laptop.
- Laptop**: Blue box, connected to the Router.
- Printer**: Blue box, connected to the Router.
- Router**: Blue box, connected to the Adapter, Mouse, Laptop, and Printer.
- Test Table**: Dashed box, connected to the Router.
- 80cm above ground plane**: Dashed box, connected to the Test Table.

## 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	Lenovo Laptop	E40& 0579A52	LR-1EHRX
GOLDWEB	Router	R102	1202032094
HP	Printer	VCVRA-1003	CN36M19JWX
DELL	Mouse	E100	912NMTUT41481
JETHRO TRADING LTD.	Adapter	HJ-050050-US	ST1274111

### **Supporting Cable:**

Cable type	Shield Type	Ferrite Core	Length	Serial No
USB Cable	Un-shielding	No	2m	JX120051274
RJ45 Cable	Un-shielding	No	2m	KX156327541
Router Power cable	Un-shielding	No	2m	13274630Z
Printer Power cable	Un-shielding	No	2m	127581031
USB Cable	Un-shielding	No	0.8m	ST1274111

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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