

EMC TEST REPORT



Report No.: Q181101S008-FCC-E

Supersede Report No: N/A

Applicant	Cedar Kingdom Corporation Limited	
Product Name	Mobile Phone	
Model No.	V501C	
Serial No.	N/A	
Test Standard	FCC Part 15 Subpart B Class B, ANSI C63.4: 2014	
Test Date	November 06 to 25, 2018	
Issue Date	December 03, 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

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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

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

Test Report	Q181101S008-FCC-E
Page	3 of 24

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CONTENTS

1. REPORT REVISION HISTORY.....	5
2. CUSTOMER INFORMATION	5
3. TEST SITE INFORMATION.....	5
4. EQUIPMENT UNDER TEST (EUT) INFORMATION	6
5. TEST SUMMARY	8
6. MEASUREMENTS, EXAMINATION AND DERIVED RESULTS.....	9
6.1 AC POWER LINE CONDUCTED EMISSIONS.....	9
6.2 RADIATED EMISSIONS.....	15
ANNEX A. TEST INSTRUMENT.....	20
ANNEX B. TEST SETUP AND SUPPORTING EQUIPMENT.....	21
ANNEX C. USER MANUAL / BLOCK DIAGRAM / SCHEMATICS / PARTLIST/ DECLARATION OF SIMILARITY.....	24

1. Report Revision History

Report No.	Report Version	Description	Issue Date
Q181101S008-FCC-E	NONE	Original	December 03, 2018

2. Customer information

Applicant Name	Cedar Kingdom Corporation Limited
Applicant Add	11/F, AXA Centre 151 Gloucester Road, Wanchai, Hong Kong
Manufacturer	Cedar Kingdom Corporation Limited
Manufacturer Add	11/F, AXA Centre 151 Gloucester Road, Wanchai, Hong Kong

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:	Mobile Phone
Main Model:	V501C
Serial Model:	N/A
Antenna Gain:	GSM850: -1.12dBi PCS1900: -1.45dBi UMTS-FDD Band V: -1.12dBi UMTS-FDD Band II: -1.45dBi WIFI: -2.03dBi Bluetooth/BLE: -2.06dBi GPS: -1.56dBi
Antenna Type:	PIFA antenna
Input Power:	Adapter : Model: V-501C Input: AC100-240V~50/60Hz, 150mA Output: DC 5.0V, 1A Battery : Model: V-501C Spec: 3.8V, 2200mAh/8.36Wh Limited charge voltage: 4.35
Equipment Category :	JBP
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

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):

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

Number of Channels:

GSM 850: 124CH
 PCS1900: 299CH
 UMTS-FDD Band V: 102CH
 UMTS-FDD Band II: 277CH
 WIFI :802.11b/g/n(20M): 11CH
 WIFI :802.11n(40M): 7CH
 Bluetooth: 79CH
 BLE: 40CH
 GPS:1CH

Port:

Please refer to the user' s manual

Trade Name :

VIRZO

FCC ID:

2AKQUVZCKV501C

GPRS/ EGPRS Multi-slot class

8/10/11/12

Date EUT received:

November 11, 2018

Test Date(s):

November 06 to 25, 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

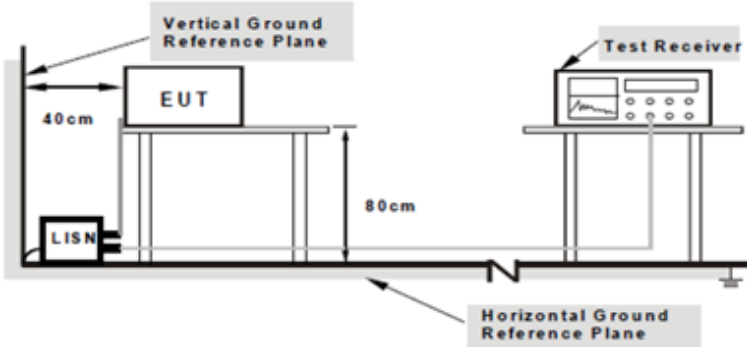
6. Measurements, Examination And Derived Results

6.1 AC Power Line Conducted Emissions

Temperature	26°C
Relative Humidity	56%
Atmospheric Pressure	1023mbar
Test date :	November 22, 2018
Tested By :	Evans He

Requirement(s):

Spec	Item	Requirement	Applicable														
47CFR§15.107	a)	<p>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.</p> <table border="1"> <thead> <tr> <th rowspan="2">Frequency ranges (MHz)</th> <th colspan="2">Limit (dBµV)</th> </tr> <tr> <th>QP</th> <th>Average</th> </tr> </thead> <tbody> <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> </tbody> </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	<input checked="" type="checkbox"/>
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 style="text-align: center;"> 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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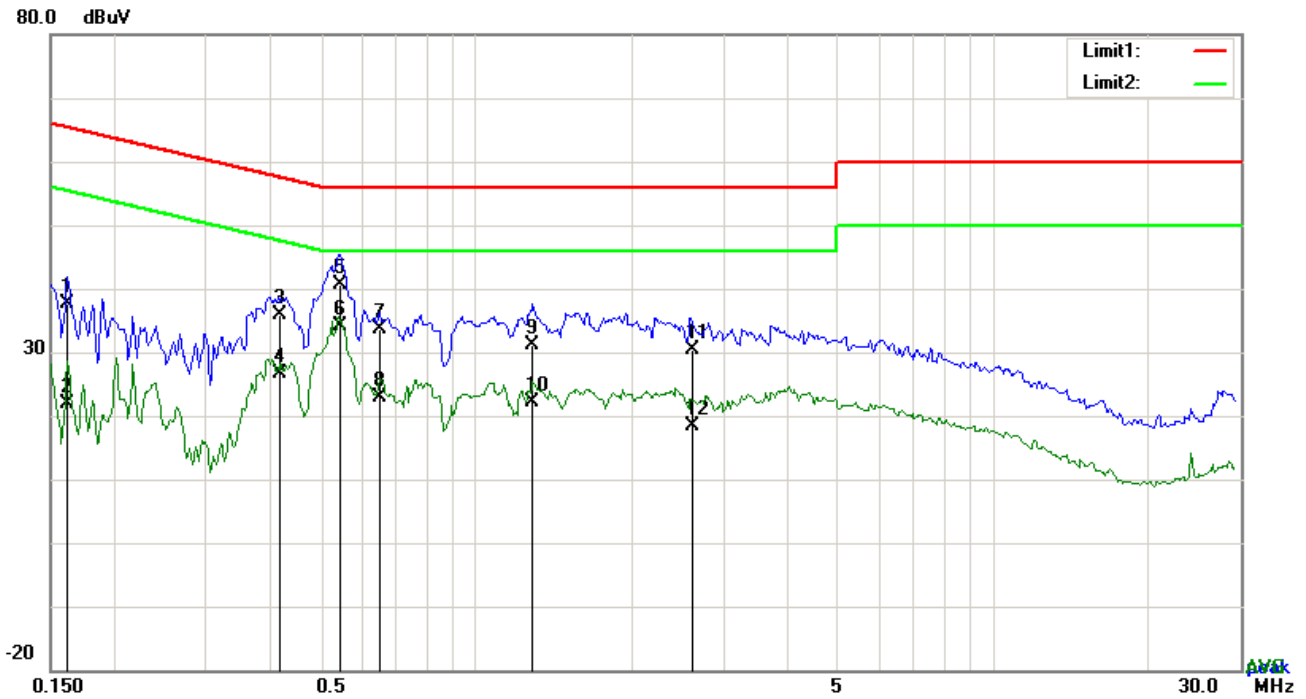
Test Report	Q181101S008-FCC-E
Page	10 of 24

	<ol style="list-style-type: none"> 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 bandwidth 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	<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

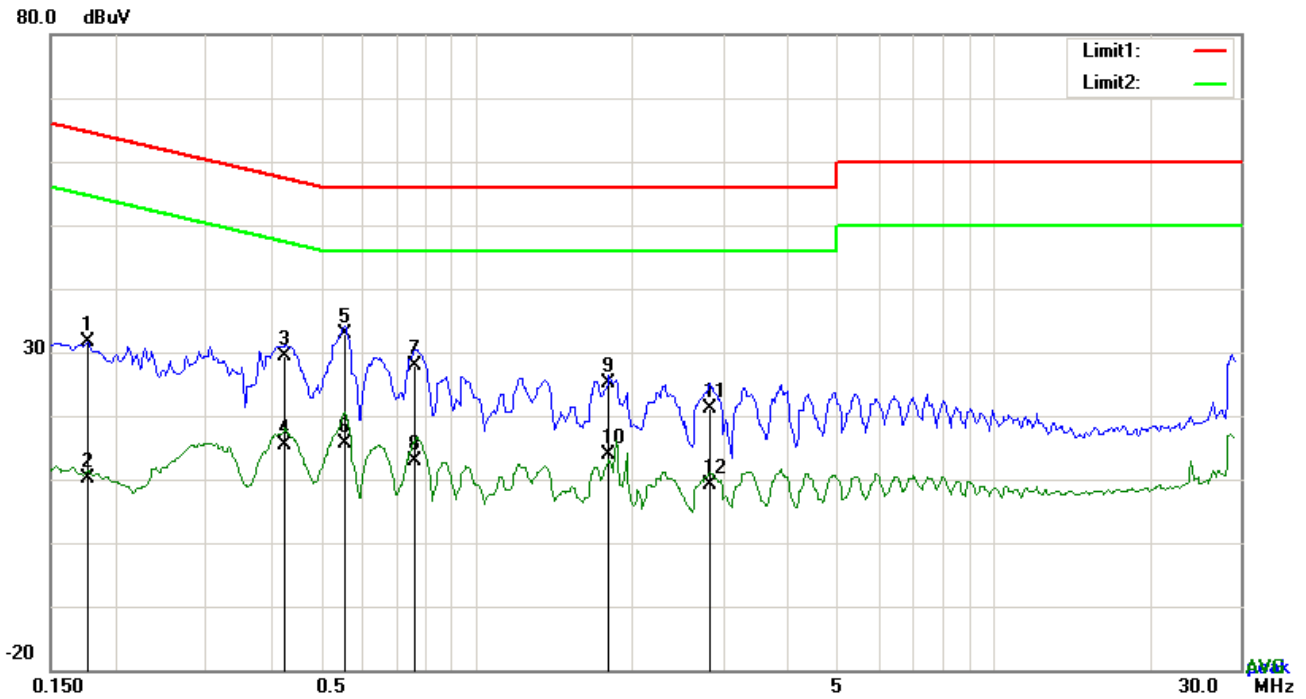


Test Data

Phase Line Plot at 120Vac, 60Hz

No.	P/L	Frequency	Reading	Detector	Corrected	Result	Limit	Margin
		(MHz)	(dBuV)		(dB)	(dBuV)	(dBuV)	(dB)
1	L1	0.1617	27.64	QP	10.03	37.67	65.38	-27.71
2	L1	0.1617	11.96	AVG	10.03	21.99	55.38	-33.39
3	L1	0.4191	25.81	QP	10.03	35.84	57.47	-21.63
4	L1	0.4191	16.65	AVG	10.03	26.68	47.47	-20.79
5	L1	0.5439	30.64	QP	10.03	40.67	56.00	-15.33
6	L1	0.5439	24.18	AVG	10.03	34.21	46.00	-11.79
7	L1	0.6492	23.54	QP	10.03	33.57	56.00	-22.43
8	L1	0.6492	12.79	AVG	10.03	22.82	46.00	-23.18
9	L1	1.2849	21.22	QP	10.03	31.25	56.00	-24.75
10	L1	1.2849	12.12	AVG	10.03	22.15	46.00	-23.85
11	L1	2.6082	20.33	QP	10.05	30.38	56.00	-25.62
12	L1	2.6082	8.40	AVG	10.05	18.45	46.00	-27.55

Test Mode:	USB Mode
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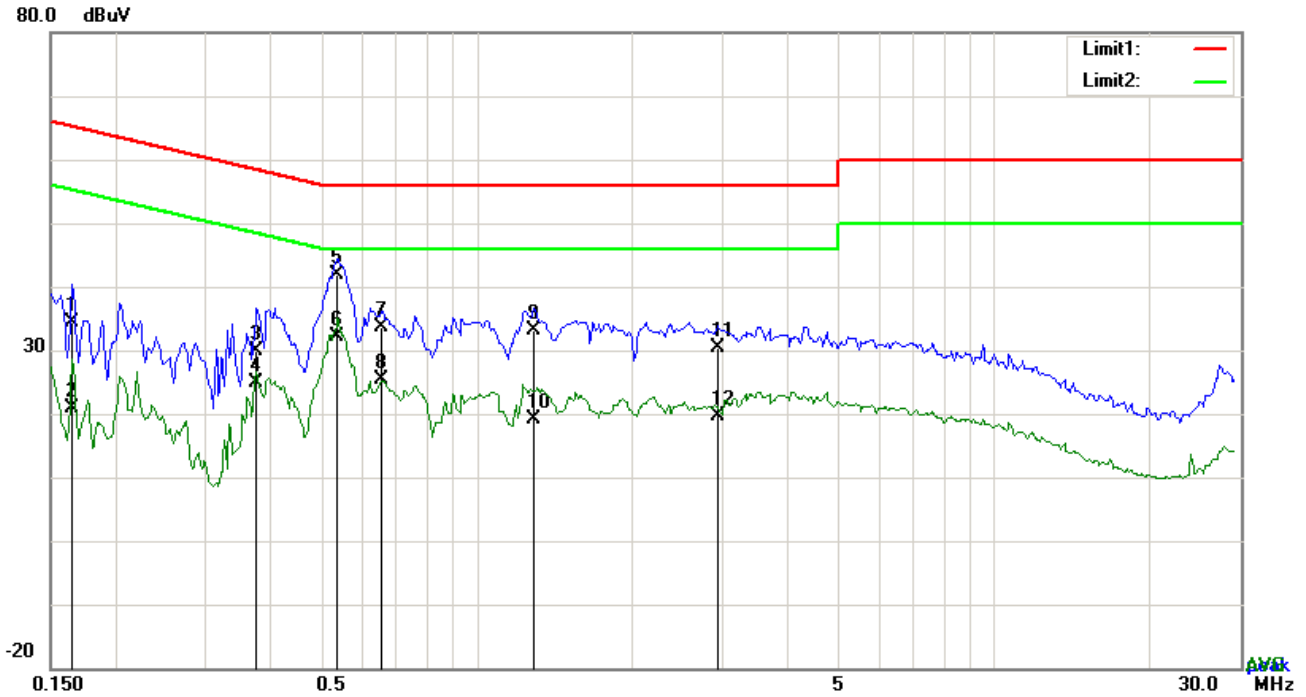


Test Data

Phase Neutral Plot at 120Vac, 60Hz

No.	P/L	Frequency	Reading	Detector	Corrected	Result	Limit	Margin
		(MHz)	(dBuV)		(dB)	(dBuV)	(dBuV)	(dB)
1	N	0.1773	21.56	QP	10.02	31.58	64.61	-33.03
2	N	0.1773	0.12	AVG	10.02	10.14	54.61	-44.47
3	N	0.4269	19.33	QP	10.02	29.35	57.31	-27.96
4	N	0.4269	5.40	AVG	10.02	15.42	47.31	-31.89
5	N	0.5556	22.87	QP	10.02	32.89	56.00	-23.11
6	N	0.5556	5.64	AVG	10.02	15.66	46.00	-30.34
7	N	0.7623	17.89	QP	10.03	27.92	56.00	-28.08
8	N	0.7623	2.74	AVG	10.03	12.77	46.00	-33.23
9	N	1.8036	15.19	QP	10.04	25.23	56.00	-30.77
10	N	1.8036	3.95	AVG	10.04	13.99	46.00	-32.01
11	N	2.8293	11.08	QP	10.05	21.13	56.00	-34.87
12	N	2.8293	-1.00	AVG	10.05	9.05	46.00	-36.95

Test Mode :	USB Mode
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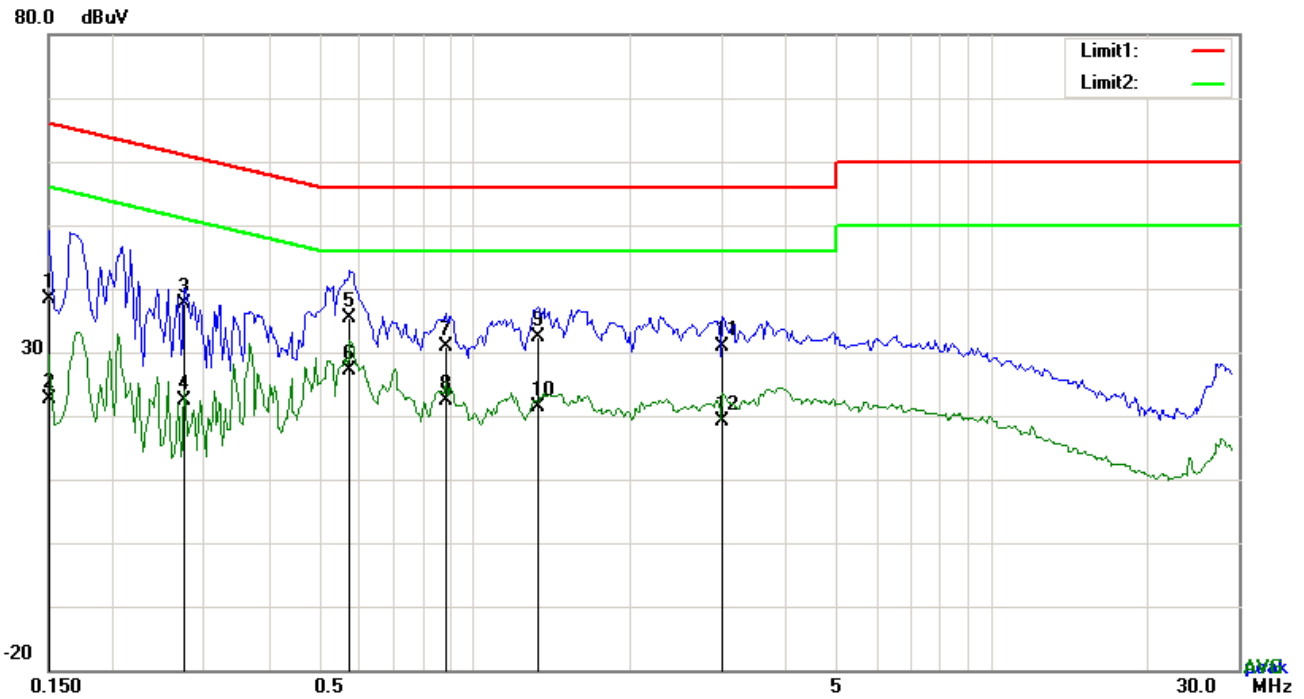


Test Data

Phase Line Plot at 240Vac, 60Hz

No.	P/L	Frequency	Reading	Detector	Corrected	Result	Limit	Margin
		(MHz)	(dBuV)		(dB}	(dBuV)	(dBuV)	(dB)
1	L1	0.1656	24.27	QP	10.03	34.30	65.18	-30.88
2	L1	0.1656	10.74	AVG	10.03	20.77	55.18	-34.41
3	L1	0.3762	19.90	QP	10.03	29.93	58.36	-28.43
4	L1	0.3762	14.85	AVG	10.03	24.88	48.36	-23.48
5	L1	0.5400	31.79	QP	10.03	41.82	56.00	-14.18
6	L1	0.5400	22.10	AVG	10.03	32.13	46.00	-13.87
7	L1	0.6570	23.48	QP	10.03	33.51	56.00	-22.49
8	L1	0.6570	15.29	AVG	10.03	25.32	46.00	-20.68
9	L1	1.2927	23.14	QP	10.03	33.17	56.00	-22.83
10	L1	1.2927	9.00	AVG	10.03	19.03	46.00	-26.97
11	L1	2.9229	20.34	QP	10.05	30.39	56.00	-25.61
12	L1	2.9229	9.60	AVG	10.05	19.65	46.00	-26.35

Test Mode : USB Mode



Test Data

Phase Neutral Plot at 240Vac, 60Hz

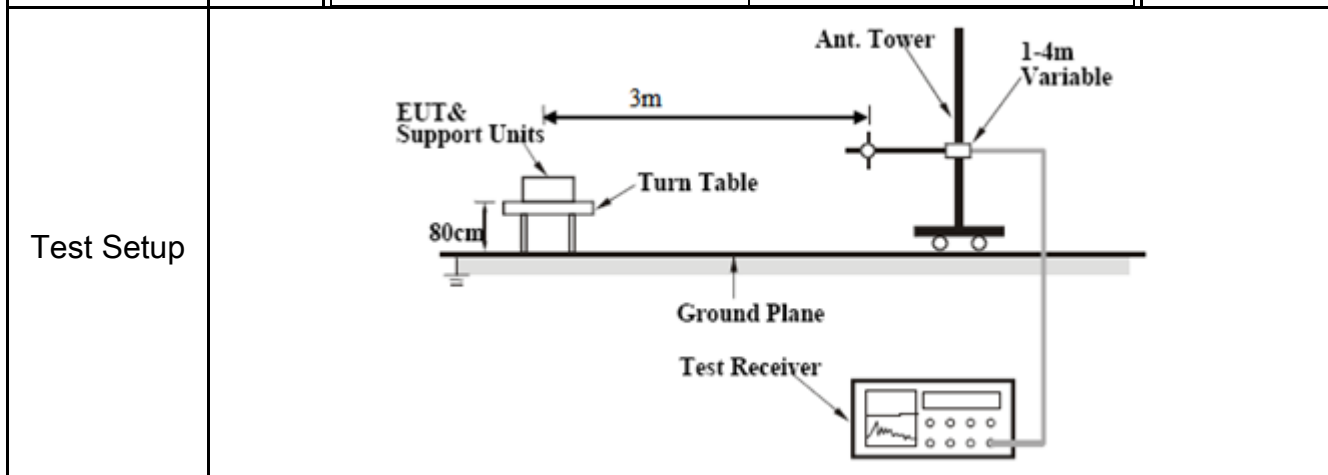
No.	P/L	Frequency	Reading	Detector	Corrected	Result	Limit	Margin
		(MHz)	(dBuV)		(dB}	(dBuV)	(dBuV)	(dB)
1	N	0.1500	28.29	QP	10.02	38.31	66.00	-27.69
2	N	0.1500	12.55	AVG	10.02	22.57	56.00	-33.43
3	N	0.2748	27.71	QP	10.02	37.73	60.97	-23.24
4	N	0.2748	12.48	AVG	10.02	22.50	50.97	-28.47
5	N	0.5751	25.45	QP	10.02	35.47	56.00	-20.53
6	N	0.5751	17.21	AVG	10.02	27.23	46.00	-18.77
7	N	0.8832	20.95	QP	10.03	30.98	56.00	-25.02
8	N	0.8832	12.44	AVG	10.03	22.47	46.00	-23.53
9	N	1.3278	22.30	QP	10.03	32.33	56.00	-23.67
10	N	1.3278	11.24	AVG	10.03	21.27	46.00	-24.73
11	N	3.0234	20.95	QP	10.05	31.00	56.00	-25.00
12	N	3.0234	9.12	AVG	10.05	19.17	46.00	-26.83

6.2 Radiated Emissions

Temperature	26°C
Relative Humidity	56%
Atmospheric Pressure	1023mbar
Test date :	November 22, 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	<input checked="" type="checkbox"/>										
		<table border="1"> <thead> <tr> <th>Frequency range (MHz)</th> <th>Field Strength ($\mu\text{V/m}$)</th> </tr> </thead> <tbody> <tr> <td>30 – 88</td> <td>100</td> </tr> <tr> <td>88 – 216</td> <td>150</td> </tr> <tr> <td>216 - 960</td> <td>200</td> </tr> <tr> <td>Above 960</td> <td>500</td> </tr> </tbody> </table>		Frequency range (MHz)	Field Strength ($\mu\text{V/m}$)	30 – 88	100	88 – 216	150	216 - 960	200	Above 960	500
		Frequency range (MHz)		Field Strength ($\mu\text{V/m}$)									
		30 – 88		100									
		88 – 216		150									
216 - 960	200												
Above 960	500												



Procedure	<ol style="list-style-type: none"> 1. The EUT was switched on and allowed to warm up to its normal operating condition. 2. 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"> a. Vertical or horizontal polarization (whichever gave the higher emission level
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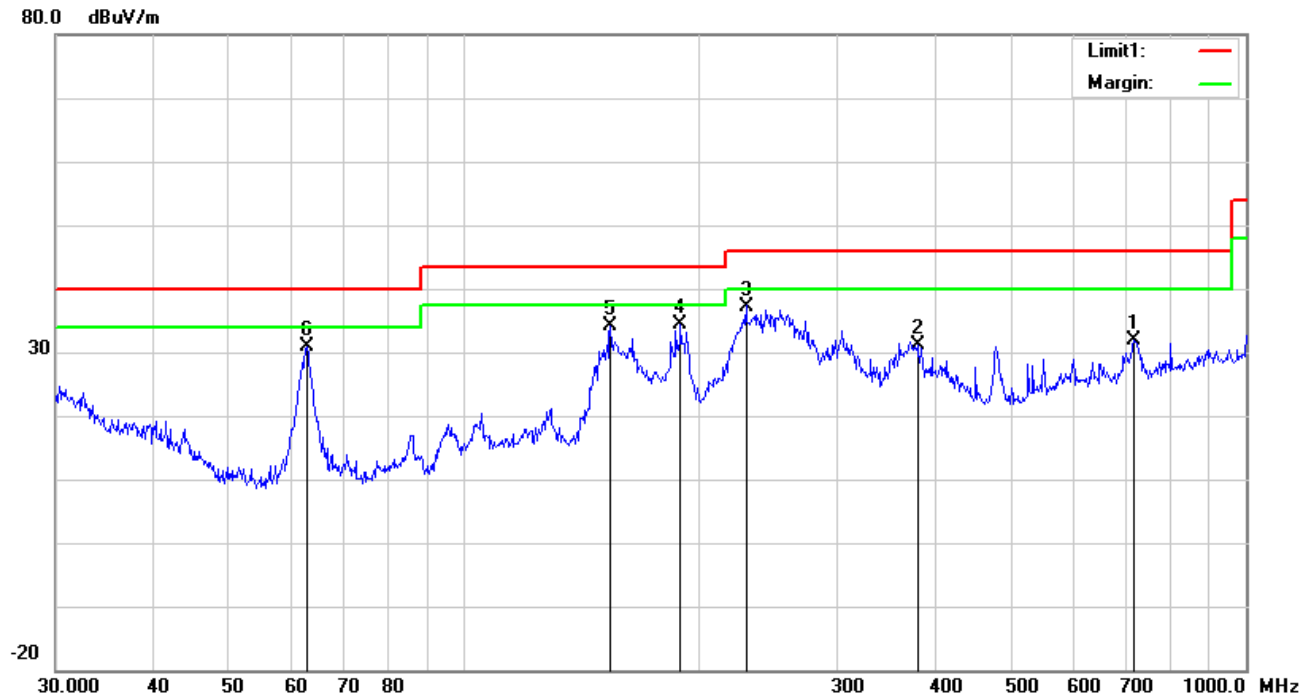
	<p>over a full rotation of the EUT) was chosen.</p> <p>b. The EUT was then rotated to the direction that gave the maximum emission.</p> <p>c. Finally, the antenna height was adjusted to the height that gave the maximum emission.</p> <p>3. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120 kHz for Quasiy 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. 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. ■ 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
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Below 1GHz

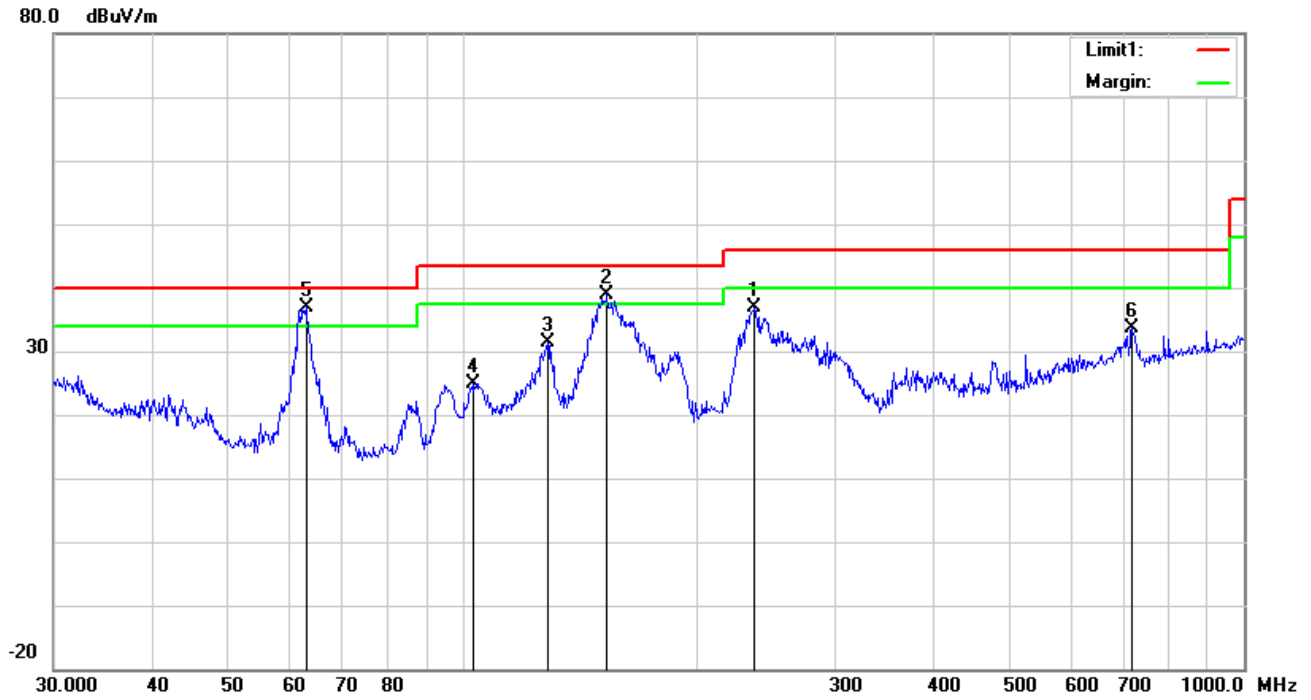


Test Data

Horizontal Polarity Plot @3m

No.	P/L	Frequency (MHz)	Reading (dBuV/m)	Ant_F (dB/m)	PA_G (dB)	Cab_L (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (°)
1	H	719.1995	29.98	20.43	21.32	2.67	31.76	46.00	-14.24	100	221
2	H	379.9141	35.99	15.28	22.07	2.02	31.22	46.00	-14.78	100	95
3	H	229.2931	46.26	11.69	22.33	1.63	37.25	46.00	-8.75	100	279
4	H	189.0743	43.69	11.50	22.31	1.52	34.40	43.50	-9.10	100	112
5	H	153.7385	42.43	12.60	22.31	1.36	34.08	43.50	-9.42	100	245
6	H	62.8708	45.07	7.44	22.40	0.82	30.93	40.00	-9.07	100	109

Below 1GHz



Test Data

Vertical Polarity Plot @3m

No.	P/L	Frequency	Reading	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	236.6447	46.00	11.59	22.31	1.66	36.94	46.00	-9.06	100	297
2	V	153.2004	47.31	12.60	22.32	1.36	38.95	43.50	-4.55	100	202
3	V	128.5630	39.18	13.34	22.38	1.19	31.33	43.50	-12.17	100	249
4	V	103.0800	35.22	10.94	22.33	1.14	24.97	43.50	-18.53	100	302
5	V	63.0916	51.12	7.45	22.40	0.83	37.00	40.00	-3.00	100	270
6	V	719.1995	31.86	20.43	21.32	2.67	33.64	46.00	-12.36	100	160

Above 1GHz

Frequency (MHz)	Read_level (dBμV/m)	Azimuth	Height (cm)	Polarity (H/V)	Factors (dB)	Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector (PK/AV)
3509.67	67.22	85	100	V	-12.31	49.41	74	-24.59	PK
1232.35	69.97	58	100	V	-19.45	47.74	74	-26.26	PK
1172.43	65.54	30	100	V	-19.9	47.07	74	-26.93	PK
1168.85	64.49	51	100	H	-19.22	43.53	74	-30.47	PK
2800.73	63.13	346	100	H	-12.51	47.68	74	-26.32	PK
2223.22	61.44	214	100	H	-14.7	47.65	74	-26.35	PK

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

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.

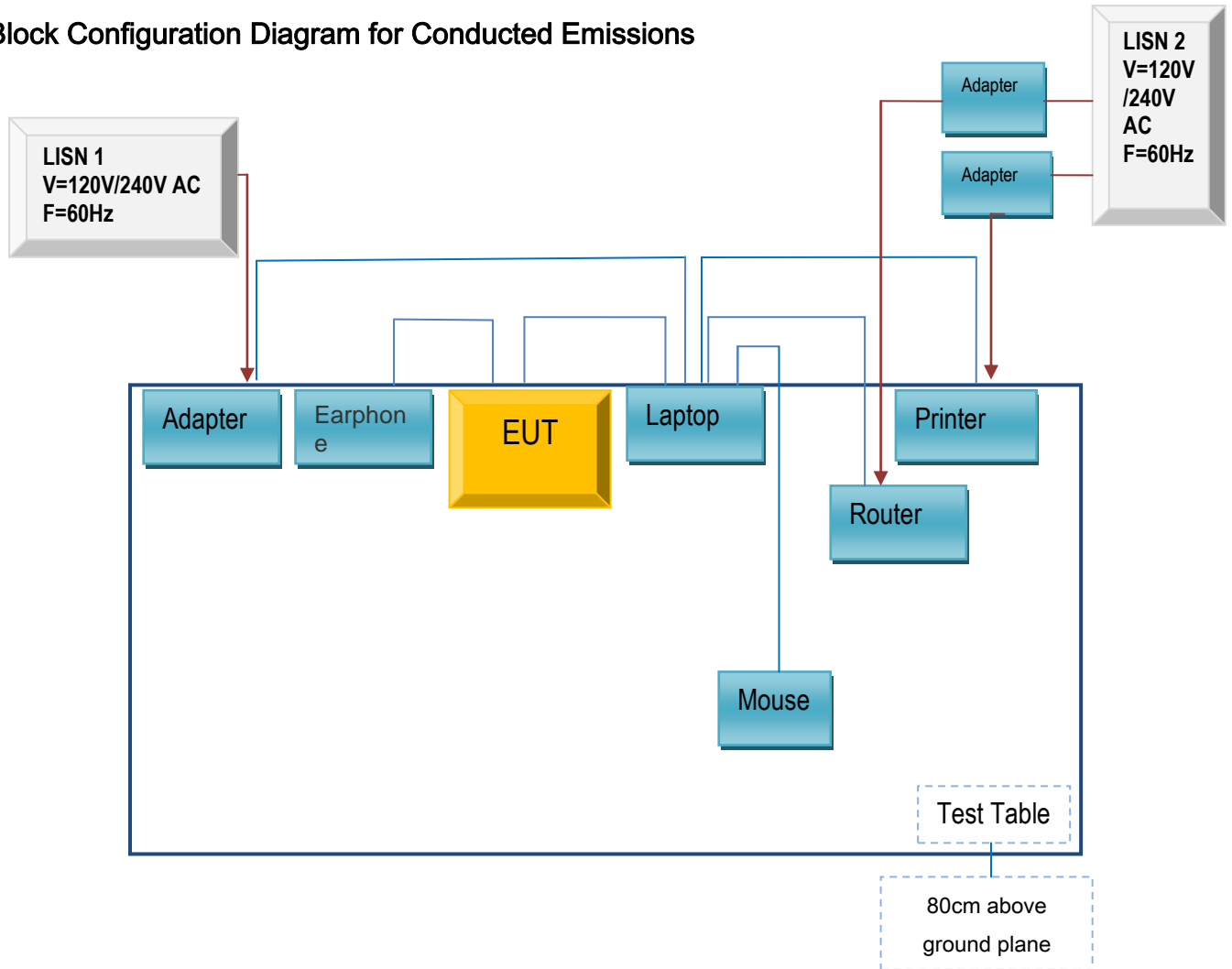
Annex A. TEST INSTRUMENT

Instrument	Model	Serial #	Cal Date	Cal Due
AC Line Conducted Emissions				
EMI test receiver	ESCS30	8471241027	01/05/2018	01/04/2019
Artificial Mains Network	8127	8127713	01/05/2018	01/04/2019
ISN	ISN T800	34373	01/05/2018	01/04/2019
Radiated Emissions				
EMI test receiver	ESL6	1300.5001K06- 100262-eQ	01/05/2018	01/04/2019
Active Antenna	AL-130	121031	02/08/2018	02/07/2019
3m Semi-anechoic Chamber	9m*6m*6m	N/A	10/18/2018	10/17/2019
Signal Amplifier	8447E	443008	01/25/2018	01/24/2019
MXA signal analyzer	N9020A	MY49100060	01/05/2018	01/04/2019
Horn Antenna	HAH-118	71259	01/26/2018	01/25/2019
Horn Antenna	HAH-118	71283	02/02/2018	02/01/2019
AMPLIFIER	EM01G26G	60613	01/25/2018	01/24/2019
AMPLIFIER	Emc012645	980077	01/05/2018	01/04/2019
Bilog Antenna (30MHz~6GHz)	JB6	A110712	02/08/2018	02/07/2019

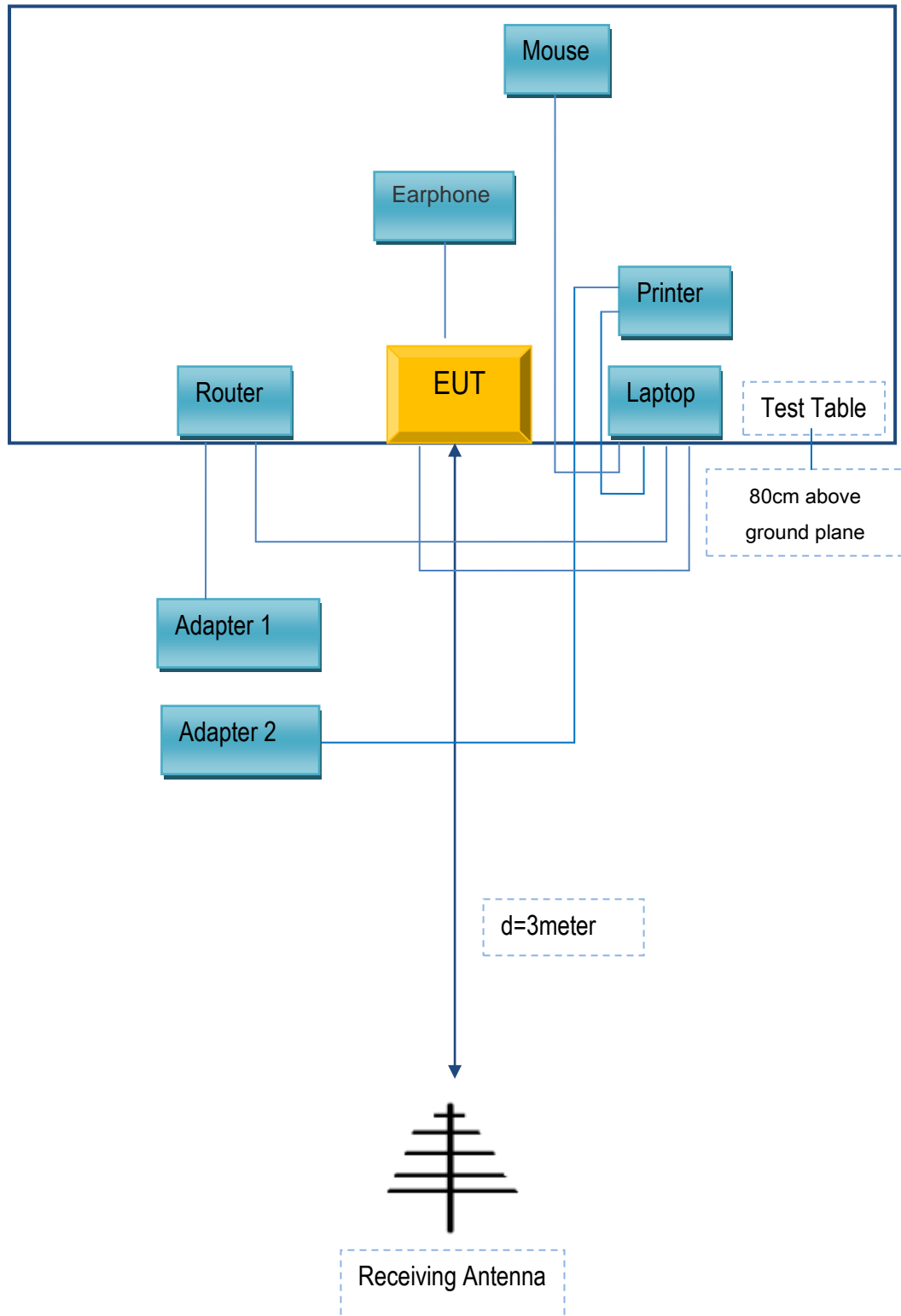
Annex B. TEST SETUP AND SUPPORTING EQUIPMENT

Annex B.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
HP	Printer	VCVRA-1003	CN36M19JWX
DELL	Mouse	E100	912NMTUT41481
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

Test Report	Q181101S008-FCC-E
Page	24 of 24

**Annex C. User Manual / Block Diagram / Schematics / Partlist/
DECLARATION OF SIMILARITY**

Please see the attachment