

EMC TEST REPORT



Report No.: Q190826S004-FCC-E

Supersede Report No: N/A

Applicant	Cedar Kingdom Corporation Limited
Product Name	Mobile Phone
Model No.	V505c
Serial No.	N/A
Test Standard	FCC Part 15 Subpart B Class B, ANSI C63.4: 2014
Test Date	Sep 2 to 25, 2019
Issue Date	Sep 27, 2019
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
Q190826S004-FCC-E	NONE	Original	Sep 27, 2019

2. Customer information

Applicant Name	Cedar Kingdom Corporation Limited
Applicant Add	Flat/Rm 05, 14/F, Lucky Centre, 165-171 Wanchai Road, Wanchai, Hong Kong
Manufacturer	Cedar Kingdom Corporation Limited
Manufacturer Add	Flat/Rm 05, 14/F, Lucky Centre, 165-171 Wanchai 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:	V505c
Serial Model:	N/A
Antenna Gain:	GSM850: -0.7dBi PCS1900: 0.4dBi UMTS-FDD Band V: 0.4dBi UMTS-FDD Band II: -0.6dBi WIFI: 0.8dBi Bluetooth/BLE: 0.9dBi
Antenna Type:	FPC Antenna
Input Power:	Adapter : Model: V505c Input: AC100-240V~50/60Hz, 150mA Output: DC 5.0V, 1A Battery : Model: S13 Spec: 3.8V, 2500mAh/9.50Wh Limited charge voltage: 4.35V
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;
 RF Operating Frequency (ies): 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 II: 277CH
 Number of Channels: 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: 2AKQUVZCKV505C

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

Date EUT received: Aug 28, 2019

Test Date(s): Sep 2 to 25, 2019

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

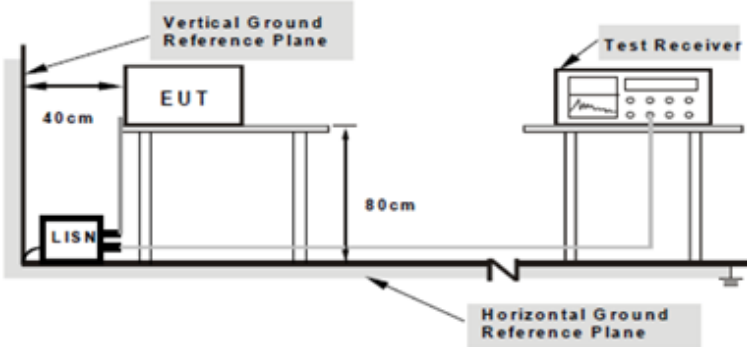
6. Measurements, Examination And Derived Results

6.1 AC Power Line Conducted Emissions

Temperature	25°C
Relative Humidity	75%
Atmospheric Pressure	1011mbar
Test date :	Sep 9, 2019
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 [μ] 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. The RF OUT of the EUT LISN was connected to the EMI test receiver via a low-loss
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	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 1 :	USB Downloading Mode
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Test Mode 2:	Charging and Camera Mode
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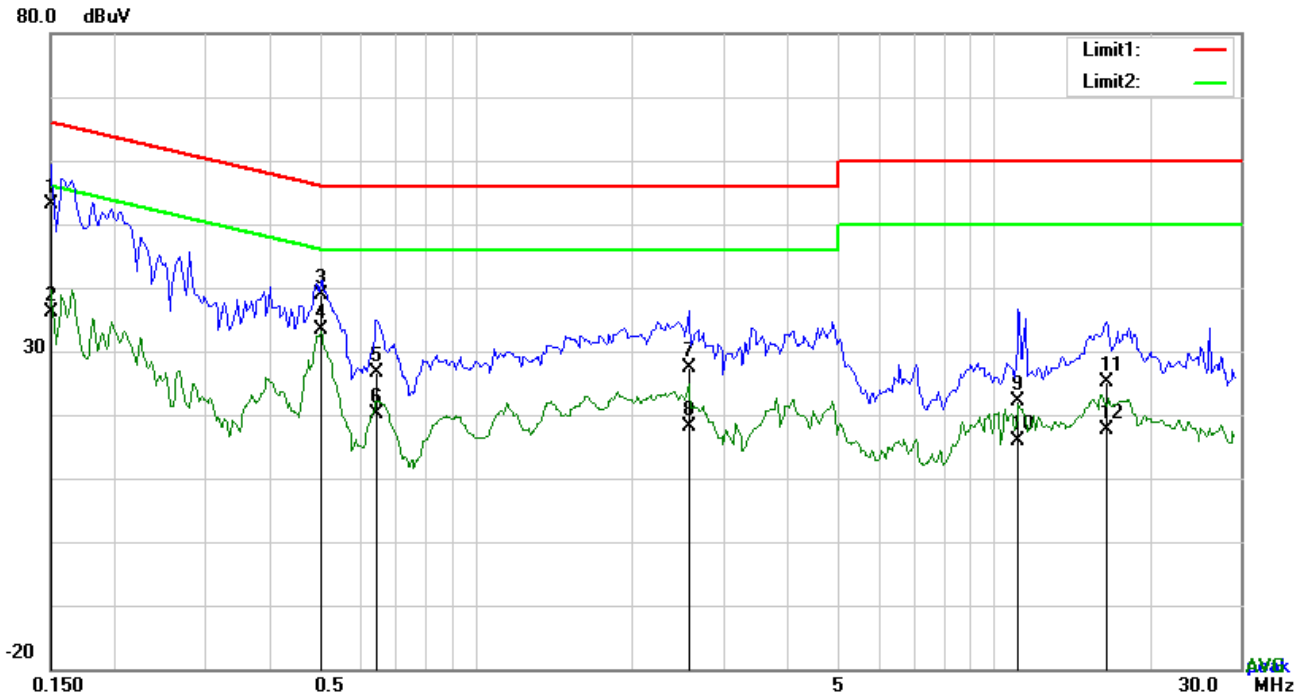
Test Mode 3:	Charging and Video Mode
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Test Mode 4:	Charging and Music Mode
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Note: 1, All above test modes were investigated. The results below show only the worst case.

2, The USB Downloading Mode were investigated. The results below show only the worst case.

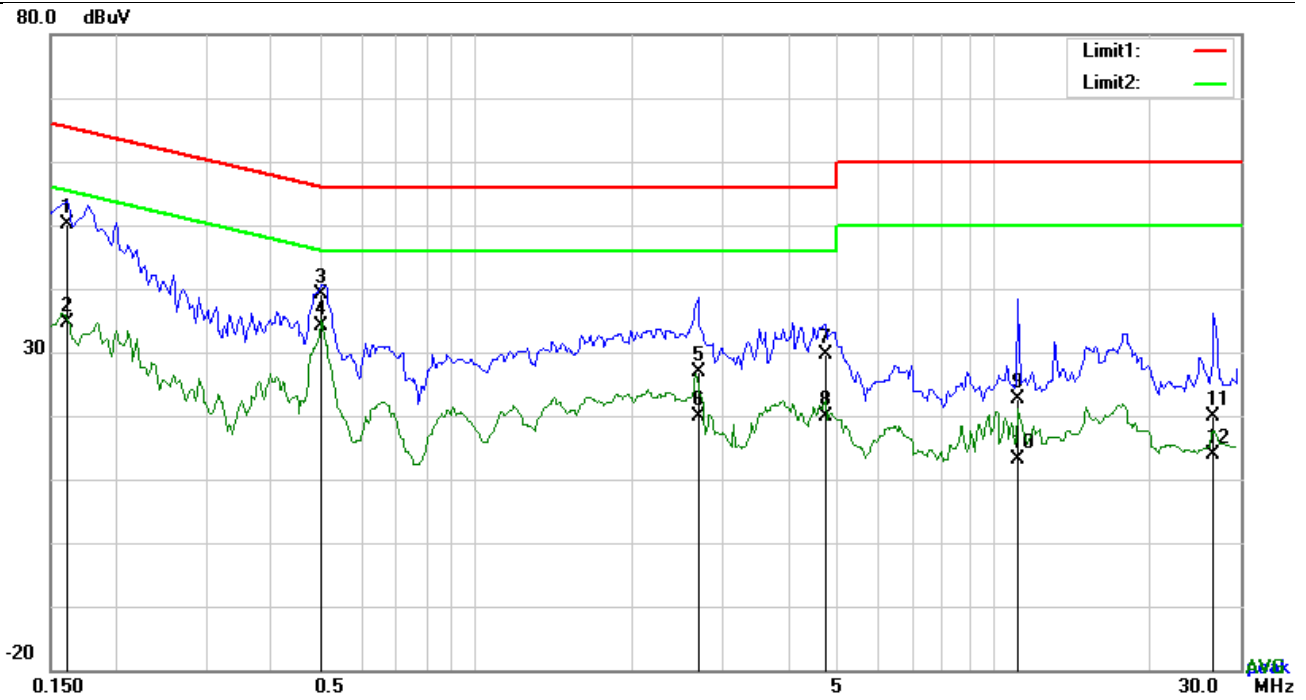
Test Mode 2 : Charging and USB Downloading Mode (worst case)



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	0.1500	42.97	QP	10.12	53.09	66.00	-12.91
2	L1	0.1500	26.13	AVG	10.12	36.25	56.00	-19.75
3	L1	0.5010	28.82	QP	10.10	38.92	56.00	-17.08
4	L1	0.5010	23.34	AVG	10.10	33.44	46.00	-12.56
5	L1	0.6406	16.58	QP	10.11	26.69	56.00	-29.31
6	L1	0.6406	9.90	AVG	10.11	20.01	46.00	-25.99
7	L1	2.5719	17.17	QP	10.16	27.33	56.00	-28.67
8	L1	2.5719	7.94	AVG	10.16	18.10	46.00	-27.90
9	L1	11.1900	11.97	QP	10.28	22.25	60.00	-37.75
10	L1	11.1900	5.72	AVG	10.28	16.00	50.00	-34.00
11	L1	16.5018	14.67	QP	10.35	25.02	60.00	-34.98
12	L1	16.5018	7.26	AVG	10.35	17.61	50.00	-32.39



Test Data

Phase Neutral Plot at 120Vac, 60Hz

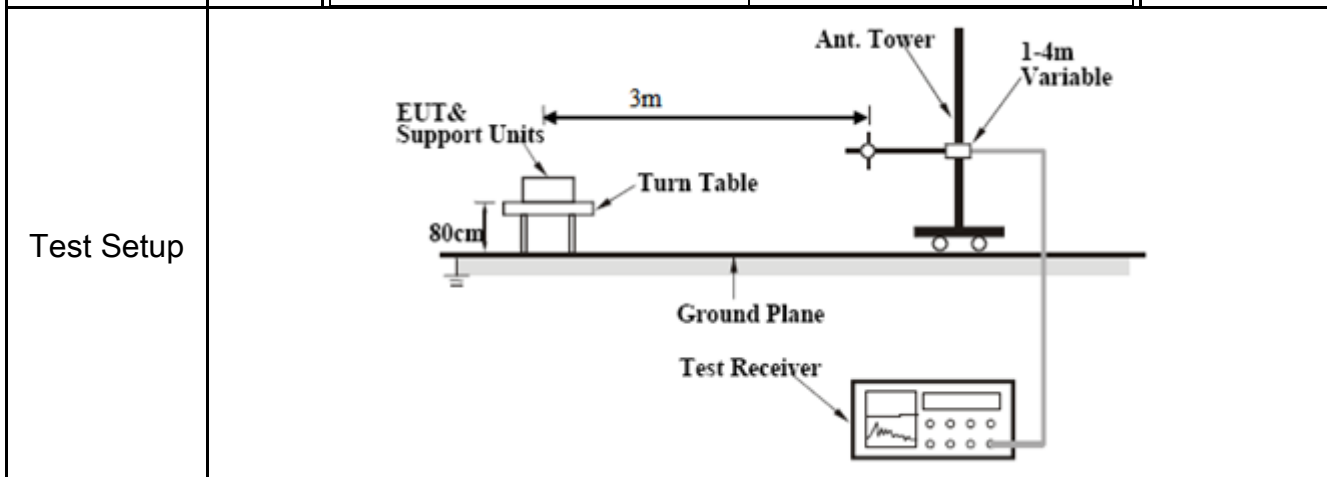
No.	P/L	Frequency	Reading	Detector	Corrected	Result	Limit	Margin
		(MHz)	(dBuV)		(dB}	(dBuV)	(dBuV)	(dB)
1	N	0.1617	40.10	QP	10.14	50.24	65.38	-15.14
2	N	0.1617	24.48	AVG	10.14	34.62	55.38	-20.76
3	N	0.5010	29.06	QP	10.12	39.18	56.00	-16.82
4	N	0.5010	24.08	AVG	10.12	34.20	46.00	-11.80
5	N	2.6889	16.77	QP	10.18	26.95	56.00	-29.05
6	N	2.6889	9.80	AVG	10.18	19.98	46.00	-26.02
7	N	4.7238	19.30	QP	10.21	29.51	56.00	-26.49
8	N	4.7238	9.60	AVG	10.21	19.81	46.00	-26.19
9	N	11.1276	12.44	QP	10.27	22.71	60.00	-37.29
10	N	11.1276	2.93	AVG	10.27	13.20	50.00	-36.80
11	N	26.6340	9.47	QP	10.50	19.97	60.00	-40.03
12	N	26.6340	3.26	AVG	10.50	13.76	50.00	-36.24

6.1 Radiated Emissions

Temperature	24°C
Relative Humidity	66%
Atmospheric Pressure	1013mbar
Test date :	Sep 11, 2019
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 ($\mu\text{V}/\text{m}$)</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 ($\mu\text{V}/\text{m}$)	30 – 88	100	88 – 216	150	216 - 960	200	Above 960	500
		Frequency range (MHz)		Field Strength ($\mu\text{V}/\text{m}$)									
		30 – 88		100									
		88 – 216		150									
216 - 960	200												
Above 960	500												



Procedure	Steps
	<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

	<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. 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 1:	USB Downloading Mode
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Test Mode 2:	Charging and Video Mode
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Test Mode 3:	Charging and Audio Mode
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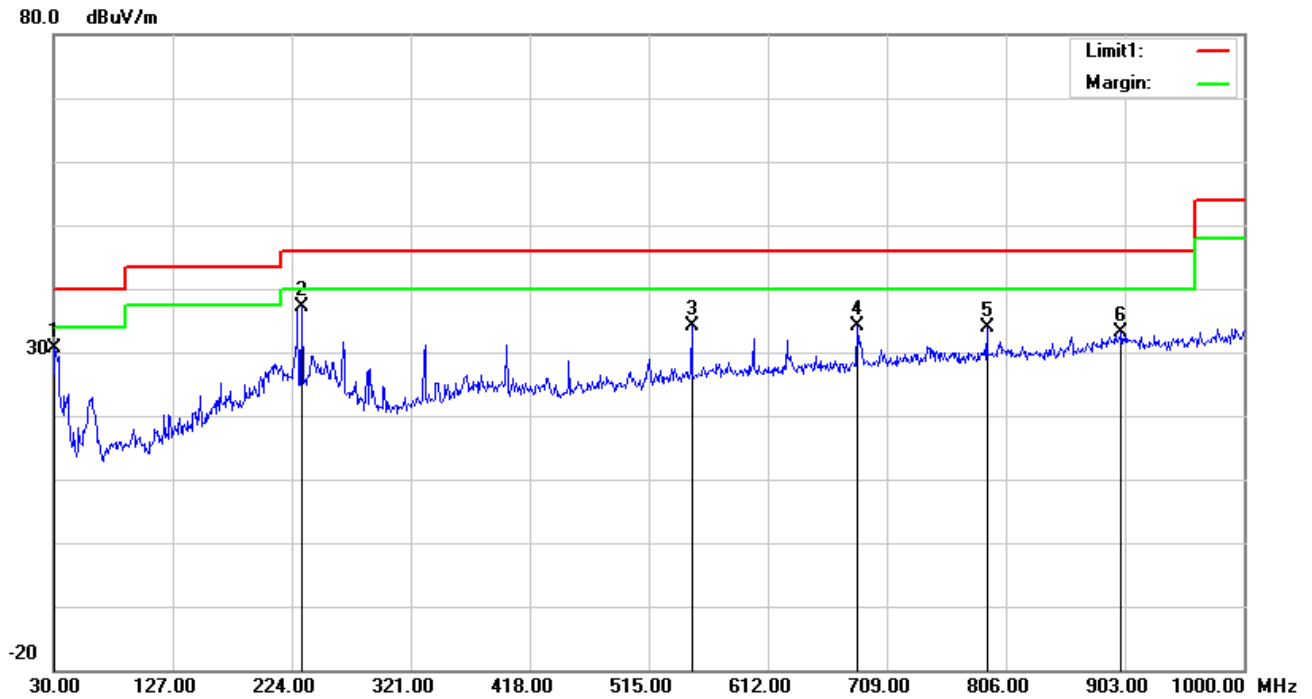
Test Mode 4:	Charging and FM Mode
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Note: 1, All above test modes were investigated. The results below show only the worst case.

2, The USB Downloading Mode were investigated. The results below show only the worst case.

Test Mode 1:	USB Downloading Mode (worst case)
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Below 1GHz

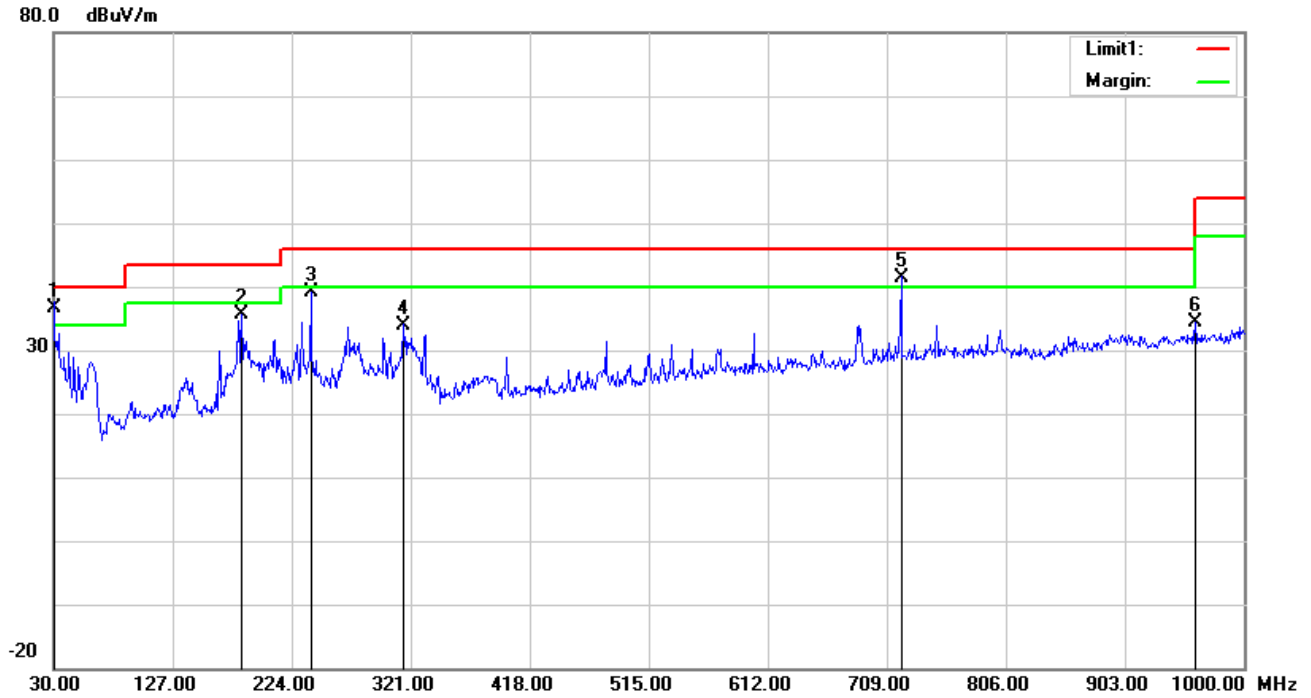


Test Data

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	30.9700	33.24	19.48	22.27	0.13	30.58	40.00	-9.42	100	53
2	H	232.7300	46.36	11.55	22.32	1.59	37.18	46.00	-8.82	100	101
3	H	549.9200	34.28	19.30	21.70	2.27	34.15	46.00	-11.85	100	37
4	H	684.7500	32.27	20.89	21.39	2.39	34.16	46.00	-11.84	100	354
5	H	790.4800	30.38	22.11	21.17	2.54	33.86	46.00	-12.14	100	167
6	H	900.0900	27.53	23.90	20.88	2.65	33.20	46.00	-12.80	100	195

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	30.0000	38.64	20.10	22.28	0.13	36.59	40.00	-3.41	100	133
2	V	183.2600	45.02	11.30	22.27	1.47	35.52	43.50	-7.98	100	196
3	V	239.5200	48.07	11.69	22.31	1.60	39.05	46.00	-6.95	100	102
4	V	315.1800	40.49	14.00	22.25	1.76	34.00	46.00	-12.00	100	51
5	V	720.6400	38.66	21.58	21.32	2.44	41.36	46.00	-4.64	100	120
6	V	960.2300	28.85	23.70	20.77	2.71	34.49	54.00	-19.51	100	290

Above 1GHz

Worst case data (USB Downloading Mode)

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)
1052.6	58.13	246	100	H	-18.48	39.65	74	-34.35	PK
1052.6	45.22	166	100	H	-18.48	26.74	54	-27.26	AV
1448.5	56.95	90	100	H	-16.97	39.98	74	-34.02	PK
1448.5	43.75	55	100	H	-16.97	26.78	54	-27.22	AV
1099.8	56.82	308	100	V	-16.97	39.85	74	-34.15	PK
1099.8	43.92	244	100	V	-16.97	26.95	54	-27.05	AV
1700.6	54.97	53	100	V	-13.75	41.22	74	-32.78	PK
1700.6	40.94	212	100	V	-13.75	27.19	54	-26.81	AV

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.

Annex A. TEST INSTRUMENT

Conducted Emission:

Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
EMI Test Receiver	Rohde&Schwarz	ESCS30	8.471E+09	Apr. 04,19	Apr. 03,20
Artificial Mains Network	SCHWARZBECK	8127	8127713	Mar. 28,19	Mar. 27,20
ISN	Com-Power	ISN T800	34373	Mar. 28,19	Mar. 27,20
Test software	EZ-EMC	ICP-03A1	N/A	N/A	N/A

RE& RSE

Frequency Range Below 1GHz

Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
EMI Test Receiver	Rohde&Schwarz	ESL6	1300.5001K0 6-100262-eQ	Apr. 04, 19	Apr. 03, 20
Bilog Antenna	Sunol Sciences	JB6	A110712	Apr. 08, 19	Apr. 07, 20
Active Antenna	CMO-POWER	AL-130	121031	Mar. 27, 19	Mar. 26, 20
Signal Amplifier	HP	8447E	443008	Mar. 28, 19	Mar. 27, 20
3m Semi-anechoic Chamber	SAEMC	9m*6m*6m	N/A	Oct. 18,18	Oct. 17,21
Test Software	EZ-EMC	ICP-03A1	N/A	N/A	N/A

RE& RSE

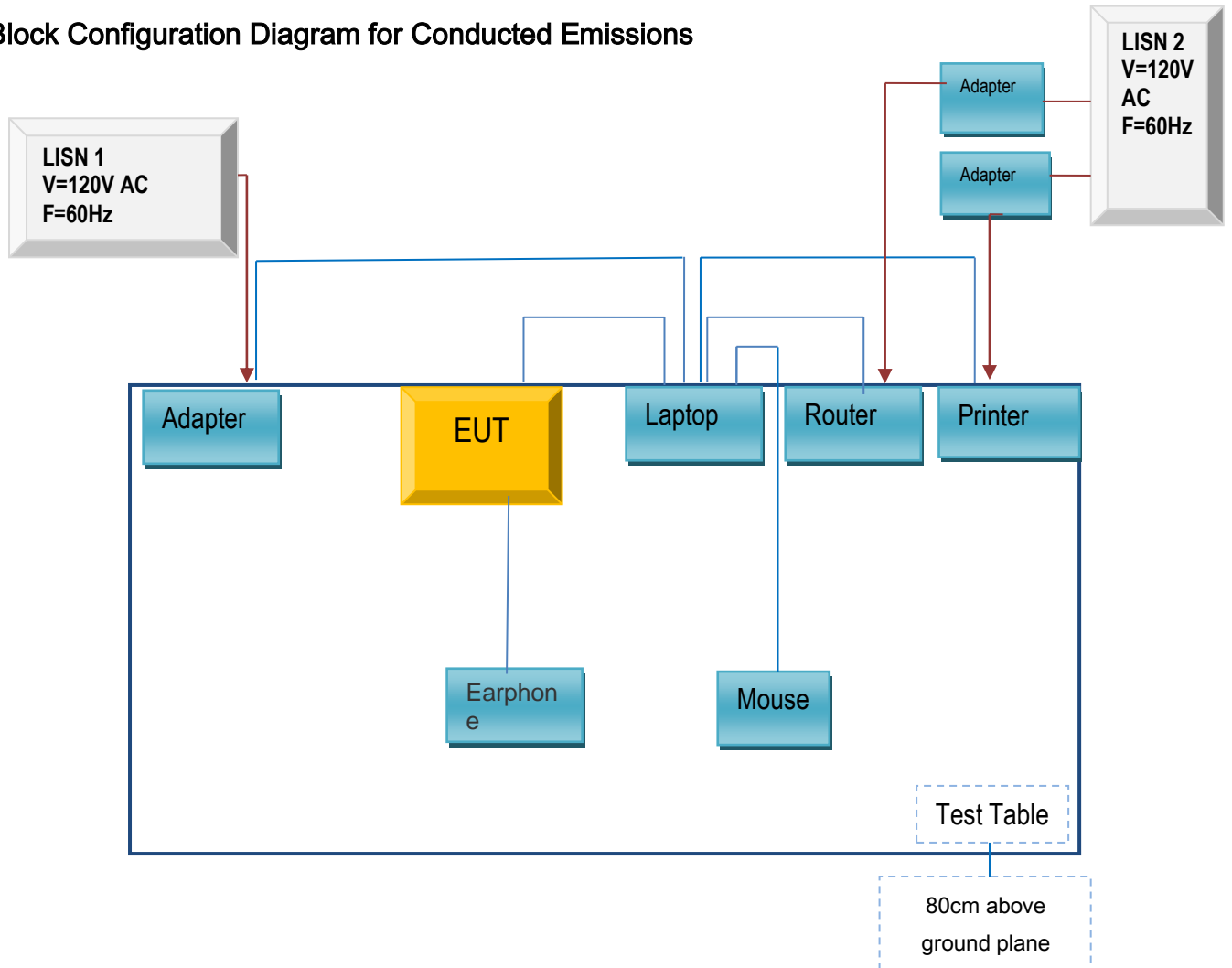
Frequency Range Above 1GHz

Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
Spectrum	Agilent	E4446A	MY46180622	8-May-19	7-May-20
MXA signal analyzer	Agilent	N9020A	MY49100060	Mar. 28, 19	Mar. 27, 20
Horn Antenna	COM-POWER	HAH-118	71259	Mar. 22, 19	Mar. 21, 20
Horn Antenna	COM-POWER	HAH-118	71283	Mar. 20, 19	Mar. 19, 20
SHF-EHF Horn	Schwarzbeck	BBHA9170	BBHA9170147	Jun. 30, 19	Jun. 29, 20
SHF-EHF Horn	Schwarzbeck	BBHA9170	BBHA9170242	Jun. 30, 19	Jun. 29, 20
AMPLIFIER	EM Electornic Corporation	EM01G26G	60613	Mar. 28, 19	Mar. 27, 20
AMPLIFIER	Emc Instruments Corporation	Emc012645	980077	Jan. 04, 19	Jan. 03,20
3m Semi-anechoic	SAEMC	9m*6m*6m	N/A	Oct. 18,18	Oct. 17,21
Test Software	EZ-EMC	ICP-03A1	N/A	N/A	N/A

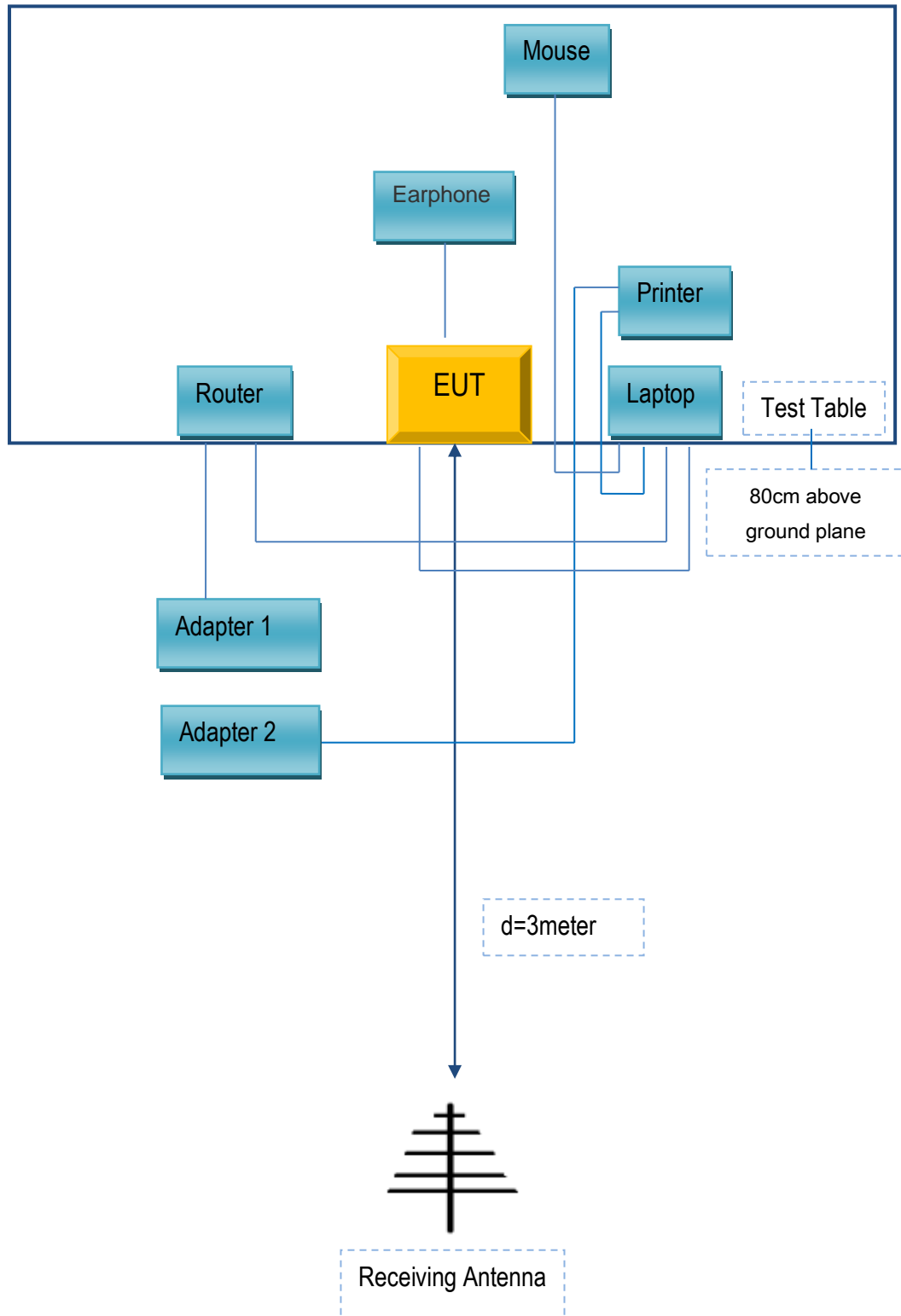
Annex B. TEST SETUP AND SUPPORTING EQUIPMENT

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
Cedar Kingdom Cedar Kingdom Corporation Limited	earphone	N/A	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

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

Please see the attachment