RF TEST REPORT

Report No.: Q190826S004-FCC-R4

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 15.247, ANSI C63.10: 2013
Test Date	Sep 2 to 25, 2019
Issue Date	Sep 27, 2019
Test Result	☑ Pass ☐ Fail
Equipment complied with the specification	☑
Equipment did not comply with the specification	☐
Aaron Liang	David Huang
Aaron Liang 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

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1. Report Revision History

Report No.	Report Version	Description	Issue Date
Q190826S004-FCC-R4	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	Radiated Emission Program-To Shenzhen v2.0

4. Equipment under Test (EUT) Information

Description of EUT:	Mobile Phone
Main Model:	V505c
Serial Model:	N/A
Date EUT received:	Aug 28, 2019
Test Date(s):	Sep 2 to 25, 2019
Equipment Category :	DTS
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
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
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 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 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
Max. Output Power:	4.28dBm
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
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
FCC ID:	2AKQUVZCKV505C

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
§15.203	Antenna Requirement	Compliance
§15.247 (a)(2)	DTS (6 dB) CHANNEL BANDWIDTH	Compliance
§15.247(b)(3)	Conducted Maximum Output Power	Compliance
§15.247(e)	Power Spectral Density	Compliance
§15.247(d)	Band-Edge & Unwanted Emissions into Restricted Frequency Bands	Compliance
§15.207 (a),	AC Power Line Conducted Emissions	Compliance
§15.205, §15.209, §15.247(d)	Radiated Emissions & Unwanted Emissions into Restricted Frequency Bands	Compliance

Measurement Uncertainty

Emissions		
Test Item	**Description**	**Uncertainty**
Band-Edge & Unwanted Emissions into Restricted Frequency Bands and Radiated Emissions & Unwanted Emissions into Restricted Frequency Bands	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 Antenna Requirement

Applicable Standard

According to § 15.203, an intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the provisions of this section. The manufacturer may design the unit so that a broken antenna can be replaced by the user, but the user of a standard antenna jack or electrical connector is prohibited.
The structure and application of the EUT were analyzed to determine compliance with section §15.203 of the rules. §15.203 state that the subject device must meet the following criteria:

a. Antenna must be permanently attached to the unit.

b. Antenna must use a unique type of connector to attach to the EUT.

Unit must be professionally installed, and installer shall be responsible for verifying that the correct antenna is employed with the unit.
And according to FCC 47 CFR section 15.247 (b), if the transmitting antennas of directional gain greater than 6dBi are used, the power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

Antenna Connector Construction

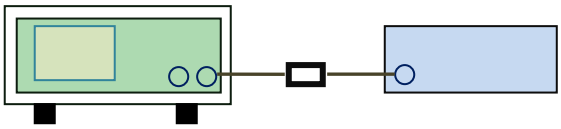
The EUT has 2 antennas:
A permanently attached FPC antenna for Bluetooth/BLE/WIF/GPS, the gain is 0.9dBi for Bluetooth/BLE, the gain is 0.8dBi for WIFI.
A permanently attached FPC antenna for GSM/PCS/UMTS, the gain is -0.7dBi for GSM850, 0.4dBi for PCS1900, 0.4dBi for UMTS-FDD Band V, -0.6dBi for UMTS-FDD Band II.

The antenna meets up with the ANTENNA REQUIREMENT.

Result: Compliance.

6.2 DTS (6 dB) Channel Bandwidth

Temperature	23°C
Relative Humidity	61%
Atmospheric Pressure	1010mbar
Test date :	Sep 4 , 2019
Tested By :	Aaron Liang

Spec	Item	Requirement	Applicable
§ 15.247(a)(2)	a)	6dB BW≥ 500kHz;	☑
RSS Gen(4.6.1)	b)	99% BW: For FCC reference only; required by IC.	☑
Test Setup	 Spectrum Analyzer EUT		
Test Procedure	558074 D01 DTS MEAS Guidance v03r03, 8.1 DTS bandwidth 6dB Emission bandwidth measurement procedure - Set RBW = 100 kHz. - Set the video bandwidth (VBW) ≥ 3 RBW. - Detector = Peak. - Trace mode = max hold. - Sweep = auto couple. - Allow the trace to stabilize. Measure the maximum width of the emission that is constrained by the frequencies associated with the two outermost amplitude points (upper and lower frequencies) that are attenuated by 6 dB relative to the maximum level measured in the fundamental emission.		
Remark			
Result	☑ Pass ☐ Fail		

Test Data ☑ Yes ☐ N/A

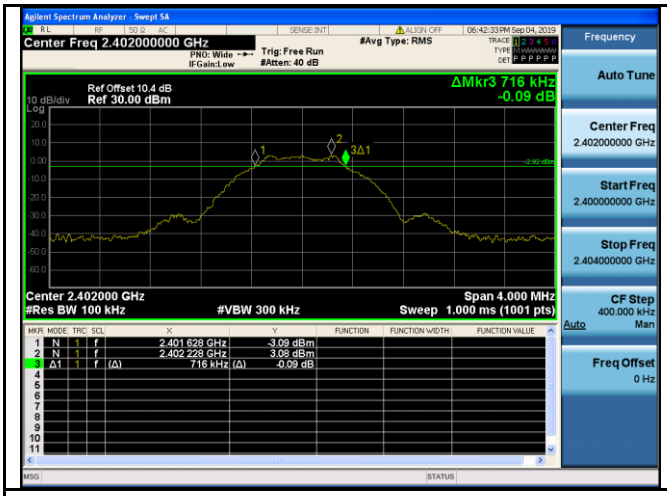
Test Plot ☑ Yes (See below) ☐ N/A

6dB Bandwidth measurement result

Test Data

CH	Frequency (MHz)	6dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)
Low	2402	0.716	1.0750
Mid	2440	0.704	1.0711
High	2480	0.712	1.0699

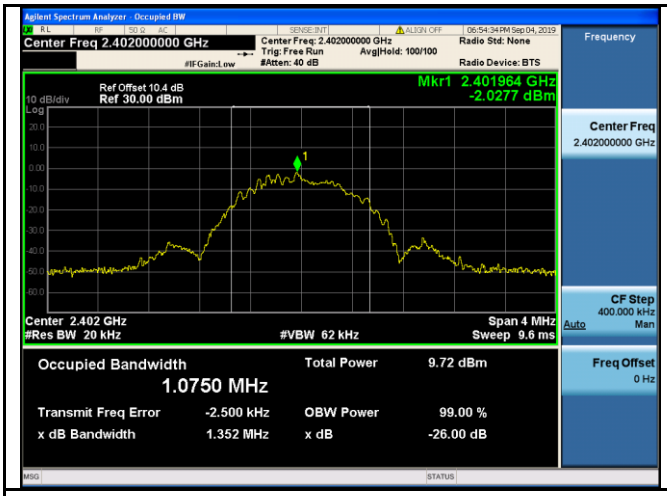
Test Plots



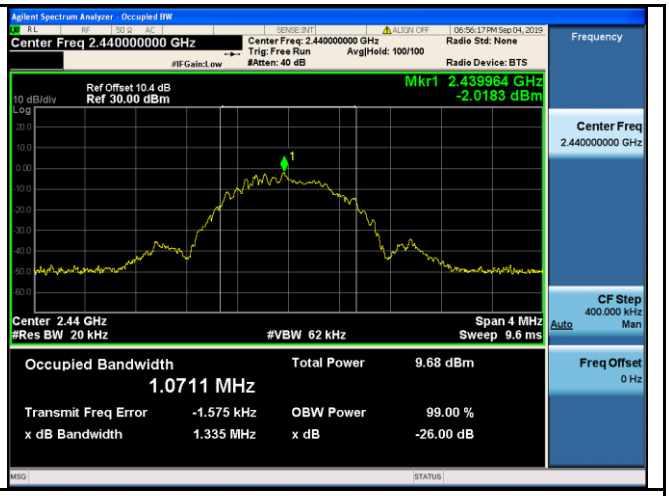
6dB Bandwidth - Low CH 2402

6dB Bandwidth - Mid CH 2440

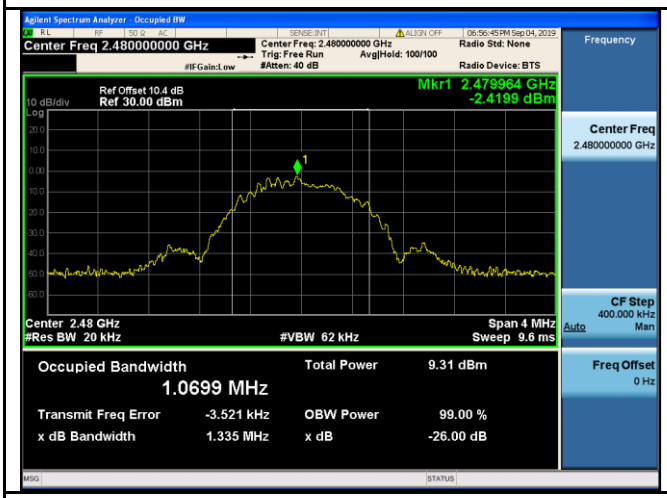
6dB Bandwidth - High CH 2480



99% Occupied Bandwidth - Low CH 2402



99% Occupied Bandwidth - Mid CH 2440

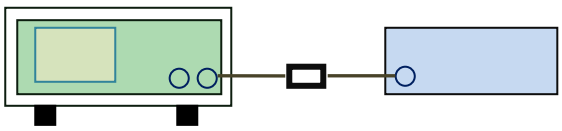


99% Occupied Bandwidth - High CH 2480

6.3 Maximum Output Power

Temperature	23°C
Relative Humidity	61%
Atmospheric Pressure	1010mbar
Test date :	Sep 4 , 2019
Tested By :	Aaron Liang

Requirement(s):

Spec	Item	Requirement	Applicable
§15.247(b)(3),RSS210(A8.4)	a)	FHSS in 2400-2483.5MHz with ≥ 75 channels: ≤ 1 Watt	☐
	b)	FHSS in 5725-5850MHz: ≤ 1 Watt	☐
	c)	For all other FHSS in the 2400-2483.5MHz band: ≤ 0.125 Watt.	☐
	d)	FHSS in 902-928MHz with ≥ 50 channels: ≤ 1 Watt	☐
	e)	FHSS in 902-928MHz with ≥ 25 & <50 channels: ≤ 0.25 Watt	☐
	f)	DTS in 902-928MHz, 2400-2483.5MHz: ≤ 1 Watt	☑
Test Setup	 Spectrum Analyzer EUT		
Test Procedure	558074 D01 DTS MEAS Guidance v03r03, 9.1.2 Integrated band power method Maximum output power measurement procedure a) Set the RBW ≥ DTS bandwidth. b) Set VBW ≥ 3 × RBW. c) Set span ≥ 3 x RBW d) Sweep time = auto couple. e) Detector = peak. f) Trace mode = max hold. g) Allow trace to fully stabilize. h) Use peak marker function to determine the peak amplitude level.		
Remark			
Result	☑ Pass ☐ Fail		

Test Data ☑ Yes ☐ N/A

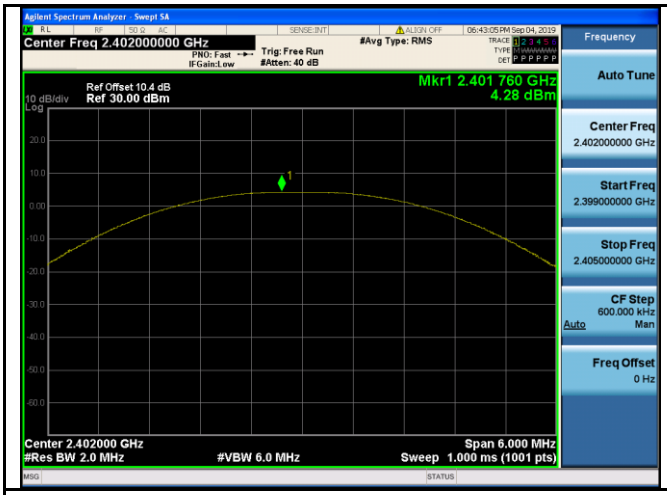
Test Plot ☑ Yes (See below) ☐ N/A

Output Power measurement result

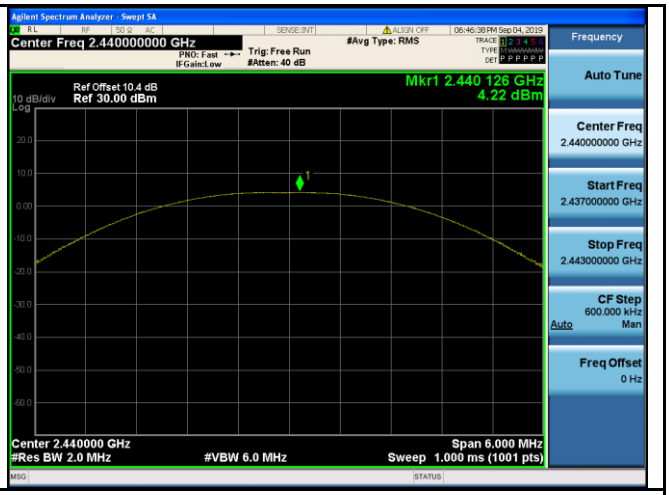
Test Data

Type	CH	Frequency (MHz)	Conducted Power (dBm)	Limit (dBm)	Result
Output power	Low	2402	**4.28**	30	Pass
	Mid	2440	4.22	30	Pass
	High	2480	3.89	30	Pass

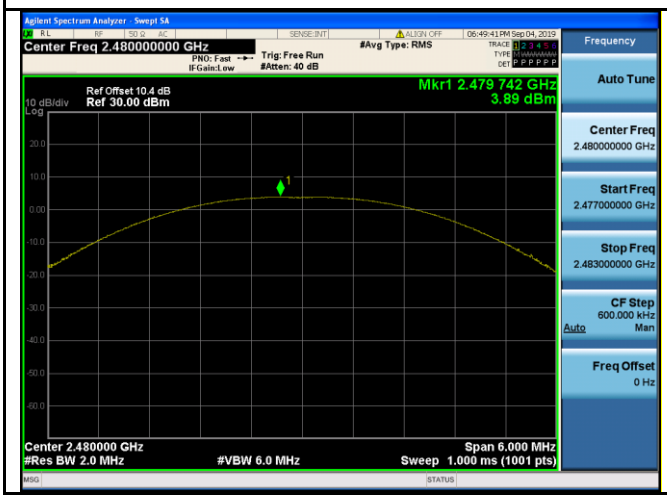
Test Plots



PK Output power - Low CH 2402



PK Output power - Mid CH 2440



PK Output power - High CH 2480	

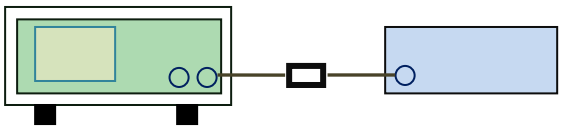
Average OUTPUT POWER(FOR REFERENCE)

Test Data

CH	Frequency (MHz)	Average Power (dBm)
Low	2402	2.96
Mid	2441	3.11
High	2480	3.7

6.4 Power Spectral Density

Temperature	23°C
Relative Humidity	61%
Atmospheric Pressure	1010mbar
Test date :	Sep 4, 2019
Tested By :	Aaron Liang

Spec	Item	Requirement	Applicable
§15.247(e)	a)	The power spectral density conducted from the intentional radiator to the antenna shall not be greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission.	☑
Test Setup	 Spectrum Analyzer EUT		
Test Procedure	558074 D01 DTS MEAS Guidance v03r03, 10.2 power spectral density method power spectral density measurement procedure - a) Set analyzer center frequency to DTS channel center frequency. - b) Set the span to 1.5 times the DTS bandwidth. - c) Set the RBW to: 3 kHz ≤ RBW ≤ 100 kHz. - d) Set the VBW ≥ 3 × RBW. - e) Detector = peak. - f) Sweep time = auto couple. - g) Trace mode = max hold. - h) Allow trace to fully stabilize. - i) Use the peak marker function to determine the maximum amplitude level within the RBW. - j) If measured value exceeds limit, reduce RBW (no less than 3 kHz) and repeat.		
Remark			
Result	☑ Pass ☐ Fail		

Test Data ☑ Yes ☐ N/A

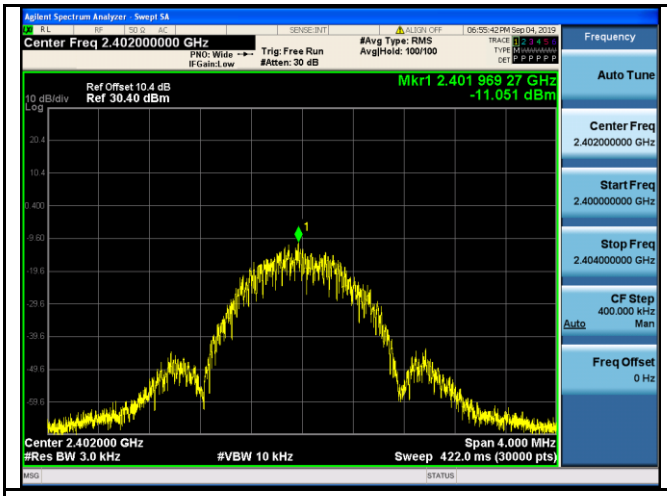
Test Plot ☑ Yes (See below) ☐ N/A

Power Spectral Density measurement result

Test Data

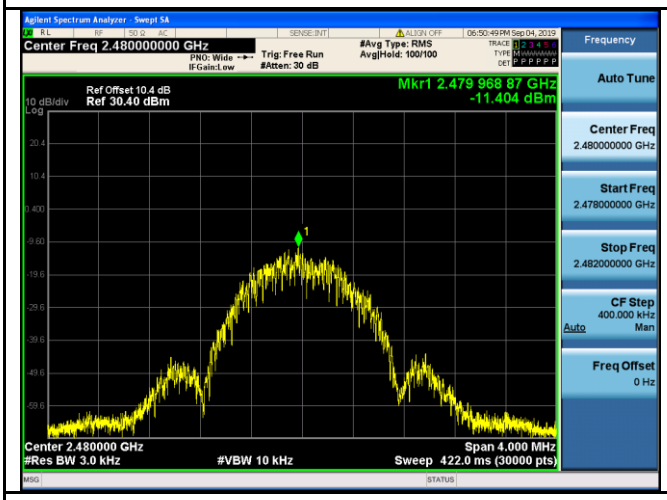
Type	CH	Freq (MHz)	PSD (dBm)	Limit (dBm)	Result
PSD	Low	2402	-11.051	8	Pass
	Mid	2440	-11.091	8	Pass
	High	2480	-11.404	8	Pass

Test Plots



PSD - Low CH 2402

PSD - Mid CH 2440

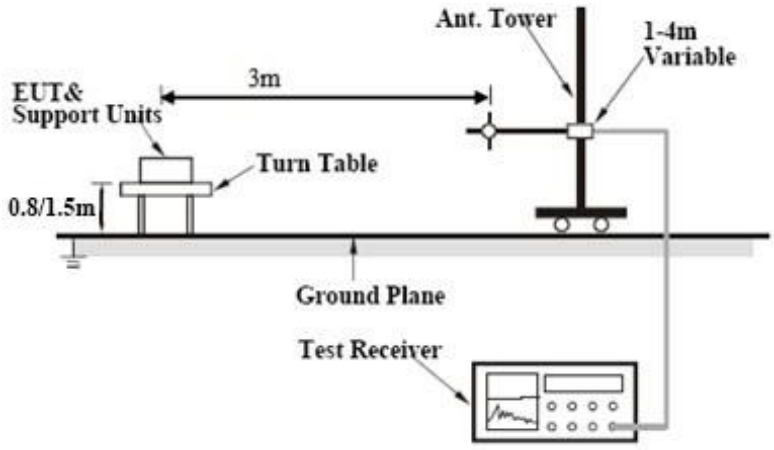


PSD - High CH 2480

6.5 Band-Edge & Unwanted Emissions into Restricted Frequency Bands

Temperature	24℃
Relative Humidity	66%
Atmospheric Pressure	1013mbar
Test date :	Sep 11 , 2019
Tested By :	Aaron Liang

Requirement(s):

Spec	Item	Requirement	Applicable
§15.247(d)	a)	In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits.	☑
Test Setup			
Test Procedure	Radiated Method Only - 1. Check the calibration of the measuring instrument using either an internal calibrator or a known signal from an external generator. - 2. Position the EUT without connection to measurement instrument. Put it on the Rotated table and turn on the EUT and make it operate in transmitting mode. Then set it to Low Channel and High Channel within its operating range, and make sure the instrument is operated in its linear range.		

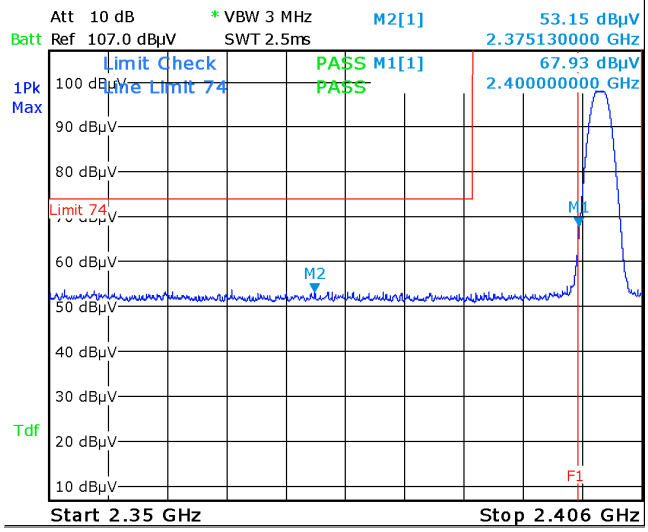
	- 3. First, set both RBW and VBW of spectrum analyzer to 100 kHz with a convenient frequency span including 100kHz bandwidth from band edge, check the emission of EUT, if pass then set Spectrum Analyzer as below: a. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120 kHz for Quasiy Peak detection at frequency below 1GHz. b. 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. c. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and the video bandwidth is 10Hz with Peak detection for Average Measurement as below at frequency above 1GHz. - 4. Measure the highest amplitude appearing on spectral display and set it as a reference level. Plot the graph with marking the highest point and edge frequency. - 5. Repeat above procedures until all measured frequencies were complete.
Remark	
Result	☑ Pass ☐ Fail

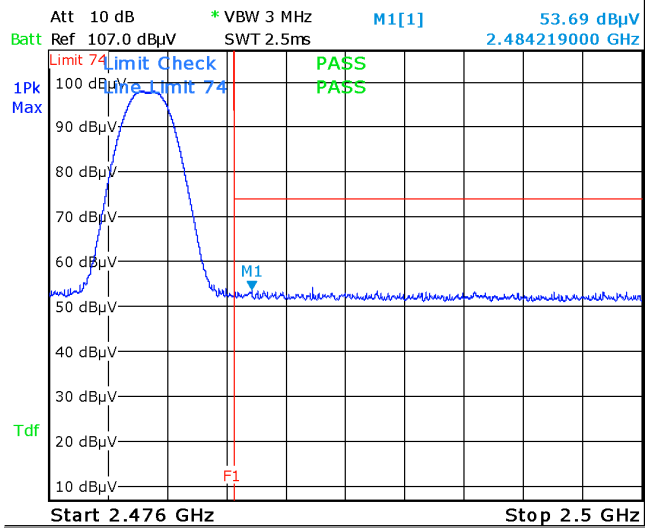
Test Data ☐ Yes ☑ N/A

Test Plot ☑ Yes (See below) ☐ N/A

Test Plots

Band Edge measurement result



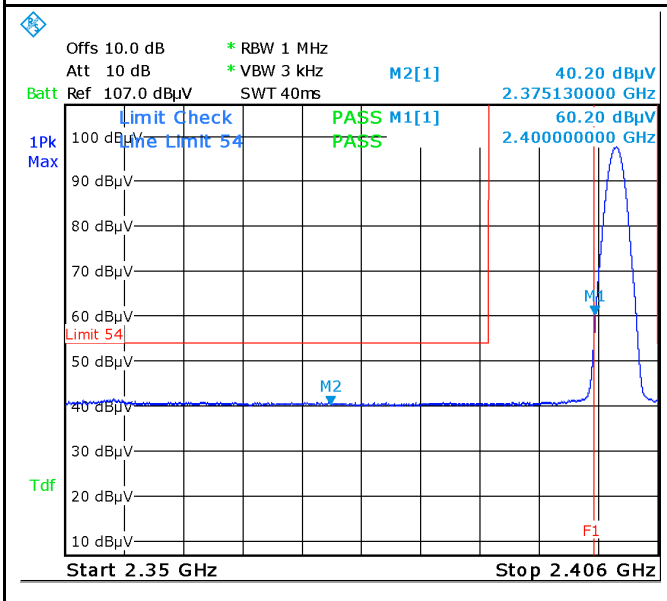


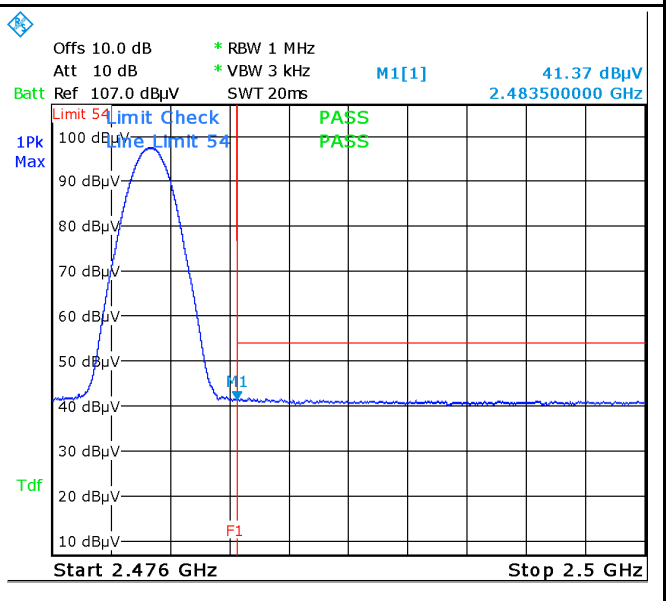
Band Edge, Left Side (Peak)

Note: F1 is frequency 2390MHz; F2 is frequency 2400MHz

Band Edge, Right Side (Peak)

Note: F1 is frequency 2483.5MHz





Band Edge, Left Side-AV

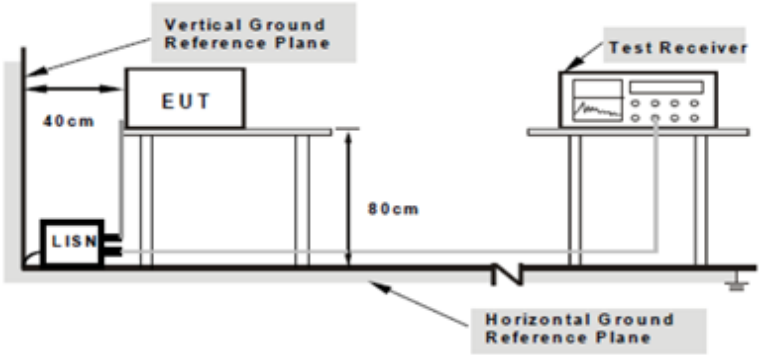
Band Edge, Right Side-AV

Note: Both Horizontal and vertical polarities were investigated.

6.6 AC Power Line Conducted Emissions

Temperature	24℃
Relative Humidity	64%
Atmospheric Pressure	1017mbar
Test date :	Sep 10 , 2019
Tested By :	Aaron Liang

Requirement(s):

<table>
<tr><th>Spec</th><th>Item</th><th>Requirement</th><th>Applicable</th></tr>
<tr><td>47CFR§15.207, RSS210 (A8.1)</td><td>a)</td><td>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></td><td>☑</td></tr>
<tr><td>Test Setup</td><td colspan="3"> 

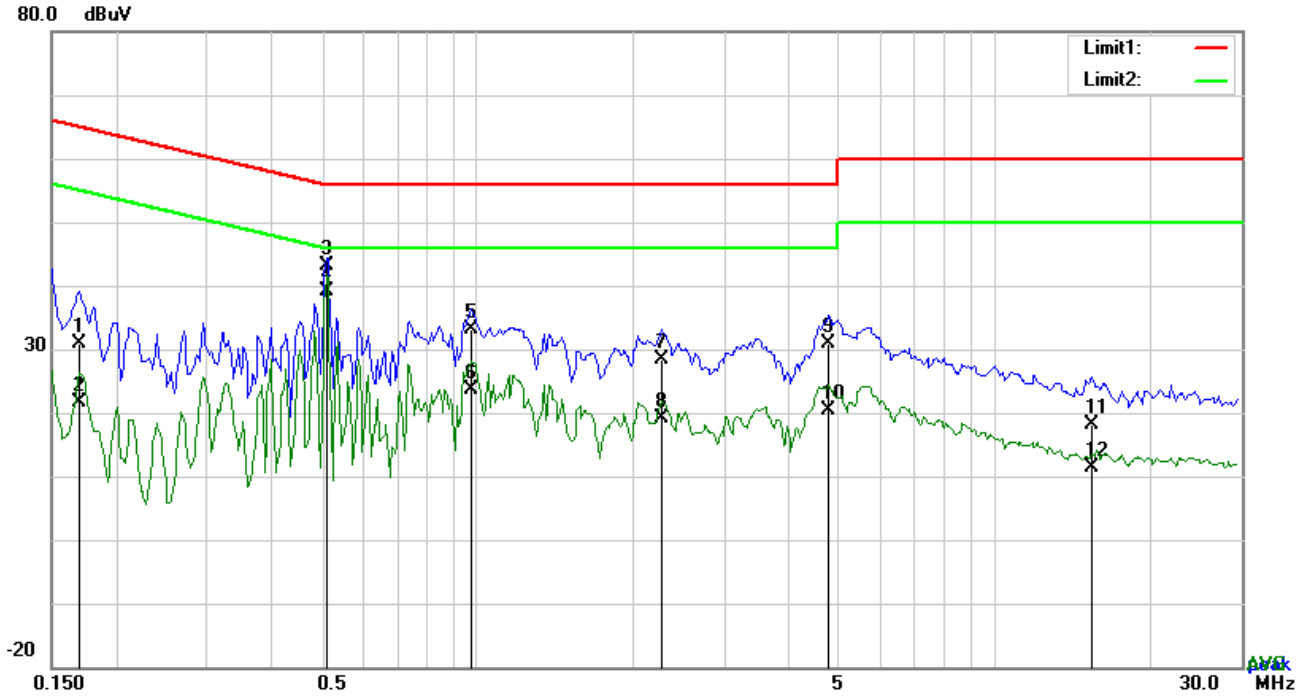
Note: 1.Support units were connected to second LISN.
2.Both of LISNs (AMN) are 80cm from EUT and at least 80cm from other units and other metal planes support units.</td></tr>
<tr><td>Procedure</td><td colspan="3">1. The EUT and supporting equipment were set up in accordance with the requirements of the standard on top of a 1.5m x 1m x 0.8m high, non-metallic table.
2. The power supply for the EUT was fed through a 50W/50mH EUT LISN, connected to filtered mains.
3. The RF OUT of the EUT LISN was connected to the EMI test receiver via a low-loss</td></tr>
</table>

	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	☑ Pass ☐ Fail

Test Data ☑ Yes ☐ N/A

Test Plot ☑ Yes (See below) ☐ N/A

Test Mode:	Transmitting Mode

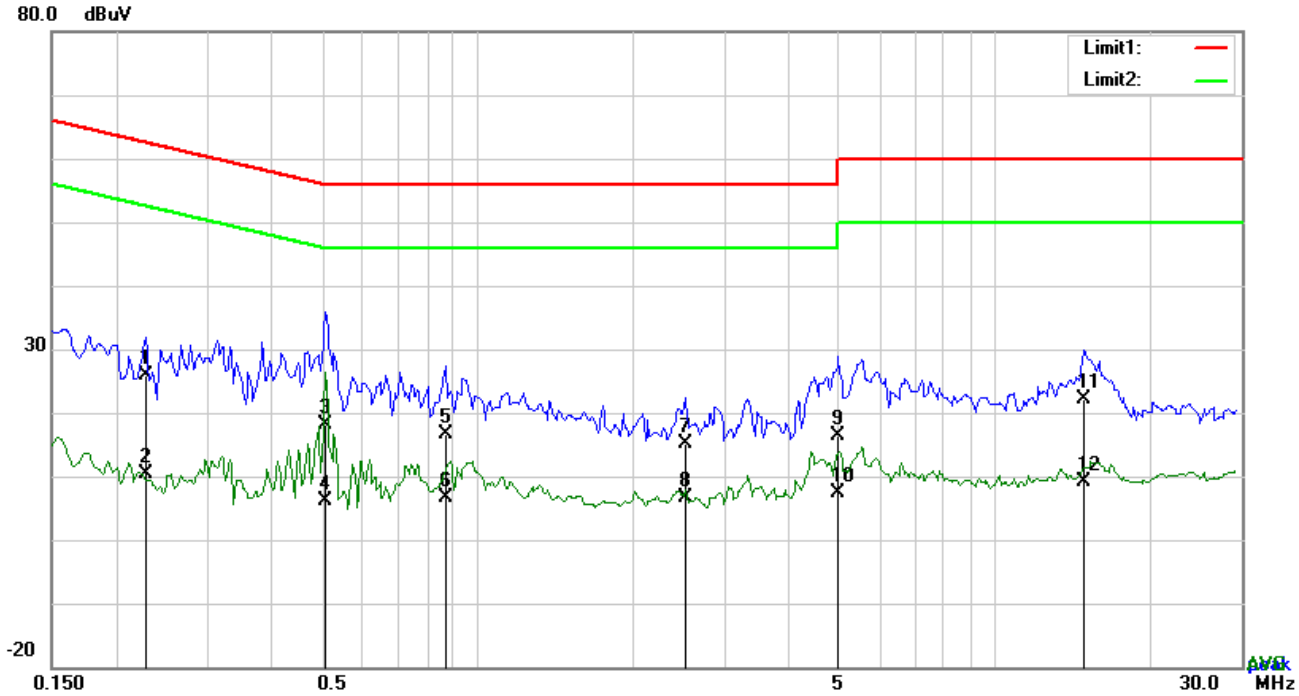


Test Data

Phase Line Plot at 120Vac, 60Hz

No.	P/L	Frequency (MHz)	Reading (dBµV)	Detector	Corrected (dB)	Result (dBµV)	Limit (dBµV)	Margin (dB)
1	L1	0.1695	20.78	QP	10.12	30.90	64.98	-34.08
2	L1	0.1695	11.51	AVG	10.12	21.63	54.98	-33.35
3	L1	0.5127	32.99	QP	10.10	43.09	56.00	-12.91
4	L1	0.5127	29.15	AVG	10.10	39.25	46.00	-6.75
5	L1	0.9729	23.08	QP	10.13	33.21	56.00	-22.79
6	L1	0.9729	13.61	AVG	10.13	23.74	46.00	-22.26
7	L1	2.2716	18.35	QP	10.15	28.50	56.00	-27.50
8	L1	2.2716	9.10	AVG	10.15	19.25	46.00	-26.75
9	L1	4.7823	20.77	QP	10.20	30.97	56.00	-25.03
10	L1	4.7823	10.28	AVG	10.20	20.48	46.00	-25.52
11	L1	15.4098	7.77	QP	10.34	18.11	60.00	-41.89
12	L1	15.4098	1.08	AVG	10.34	11.42	50.00	-38.58

Test Mode:	Transmitting Mode



Test Data

Phase Neutral Plot at 120Vac, 60Hz

No.	P/L	Frequency (MHz)	Reading (dBµV)	Detector	Corrected (dB)	Result (dBµV)	Limit (dBµV)	Margin (dB)
1	N	0.2280	15.67	QP	10.13	25.80	62.52	-36.72
2	N	0.2280	0.37	AVG	10.13	10.50	52.52	-42.02
3	N	0.5088	7.92	QP	10.12	18.04	56.00	-37.96
4	N	0.5088	-3.92	AVG	10.12	6.20	46.00	-39.80
5	N	0.8676	6.50	QP	10.14	16.64	56.00	-39.36
6	N	0.8676	-3.43	AVG	10.14	6.71	46.00	-39.29
7	N	2.5212	4.86	QP	10.17	15.03	56.00	-40.97
8	N	2.5212	-3.43	AVG	10.17	6.74	46.00	-39.26
9	N	4.9851	6.25	QP	10.21	16.46	56.00	-39.54
10	N	4.9851	-2.83	AVG	10.21	7.38	46.00	-38.62
11	N	14.8911	11.85	QP	10.31	22.16	60.00	-37.84
12	N	14.8911	-1.07	AVG	10.31	9.24	50.00	-40.76

6.7 Radiated Emissions & Restricted Band

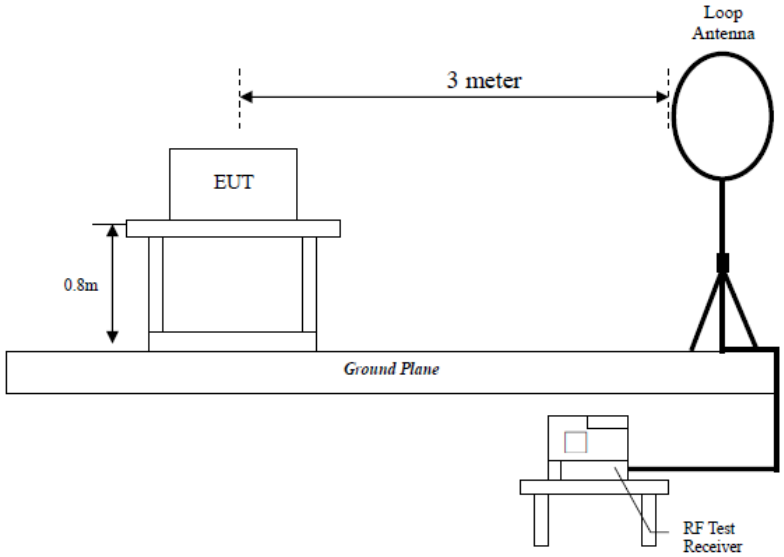
Temperature	24℃
Relative Humidity	64%
Atmospheric Pressure	1017mbar
Test date :	Sep 10 , 2019
Tested By :	Aaron Liang

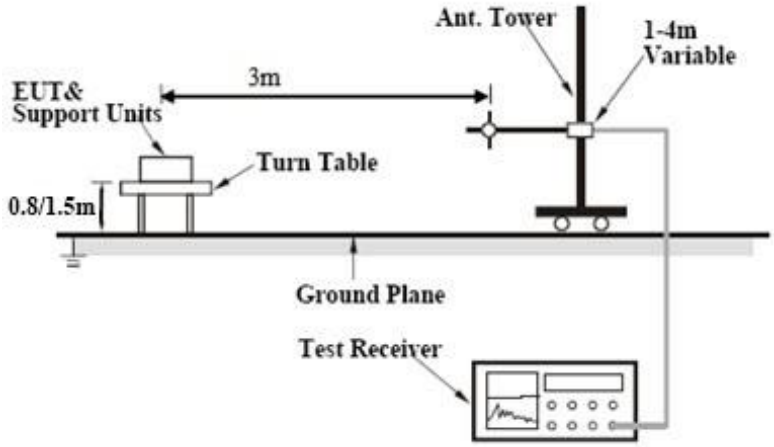
Requirement(s):

<table>
<tr><th>Spec</th><th>Item</th><th>Requirement</th><th>Applicable</th></tr>
<tr><td rowspan="2">47CFR§15.247(d), RSS210 (A8.5)</td><td>a)</td><td>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
<table>
<tr><th>Frequency range (MHz)</th><th>Field Strength (μV/m)</th></tr>
<tr><td>0.009~0.490</td><td>2400/F(KHz)</td></tr>
<tr><td>0.490~1.705</td><td>24000/F(KHz)</td></tr>
<tr><td>1.705~30.0</td><td>30</td></tr>
<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>
</table></td><td>☑</td></tr>
<tr><td>b)</td><td>For non-restricted band, In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB or 30dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, determined by the measurement method on output power to be used. Attenuation below the general limits specified in § 15.209(a) is not required
☒ 20 dB down ☐ 30 dB down</td><td>☑</td></tr>
</table>

	c)	or restricted band, emission must also comply with the radiated emission limits specified in 15.209	☑

Test Setup





Procedure

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:
   a. Vertical or horizontal polarization (whichever gave the higher emission level over a full rotation of the EUT) was chosen.
   b. The EUT was then rotated to the direction that gave the maximum emission.
   c. Finally, the antenna height was adjusted to the height that gave the maximum emission.
3. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120 kHz for Quasiy Peak detection at frequency below 1GHz.
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 is 10Hz with Peak detection for Average Measurement as below at frequency above 1GHz. 5. Steps 2 and 3 were repeated for the next frequency point, until all selected frequency points were measured.
Remark	
Result	☑ Pass ☐ Fail

Test Data ☑ Yes ☐ N/A

Test Plot ☑ Yes (See below) ☐ N/A

Test Result:

Test Mode:	Transmitting Mode

Frequency range: 9KHz - 30MHz

Freq. (MHz)	Detection value	Factor (dB/m)	Reading (dBuV/m)	Result (dBuV/m)	Limit@3m (dBuV/m)	Margin (dB)
--	--	--	--	--	--	>20
--	--	--	--	--	--	>20

Note:

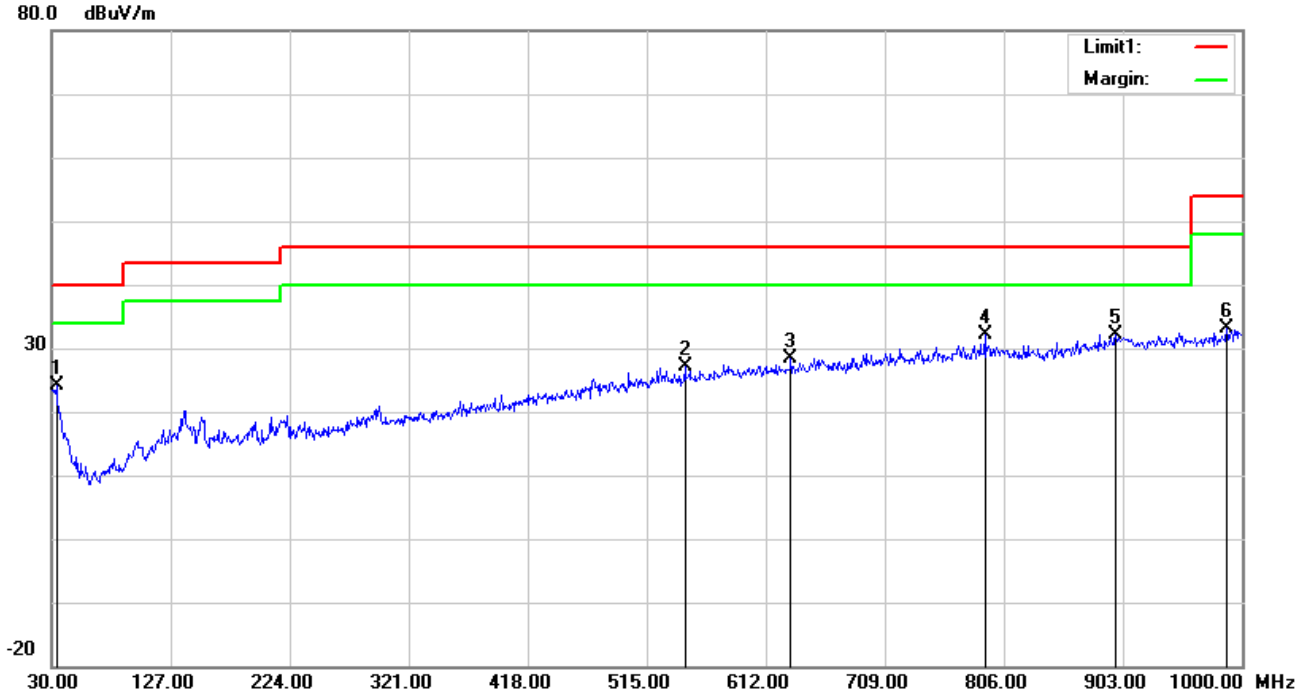
The amplitude of spurious emissions which are attenuated by more than 20dB below the permissible value has no need to be reported.

Distance extrapolation factor =40 log (specific distance/test distance)(dB);

Limit line = specific limits(dBuv) + distance extrapolation factor.

Test Mode:	Transmitting Mode

30MHz -1GHz

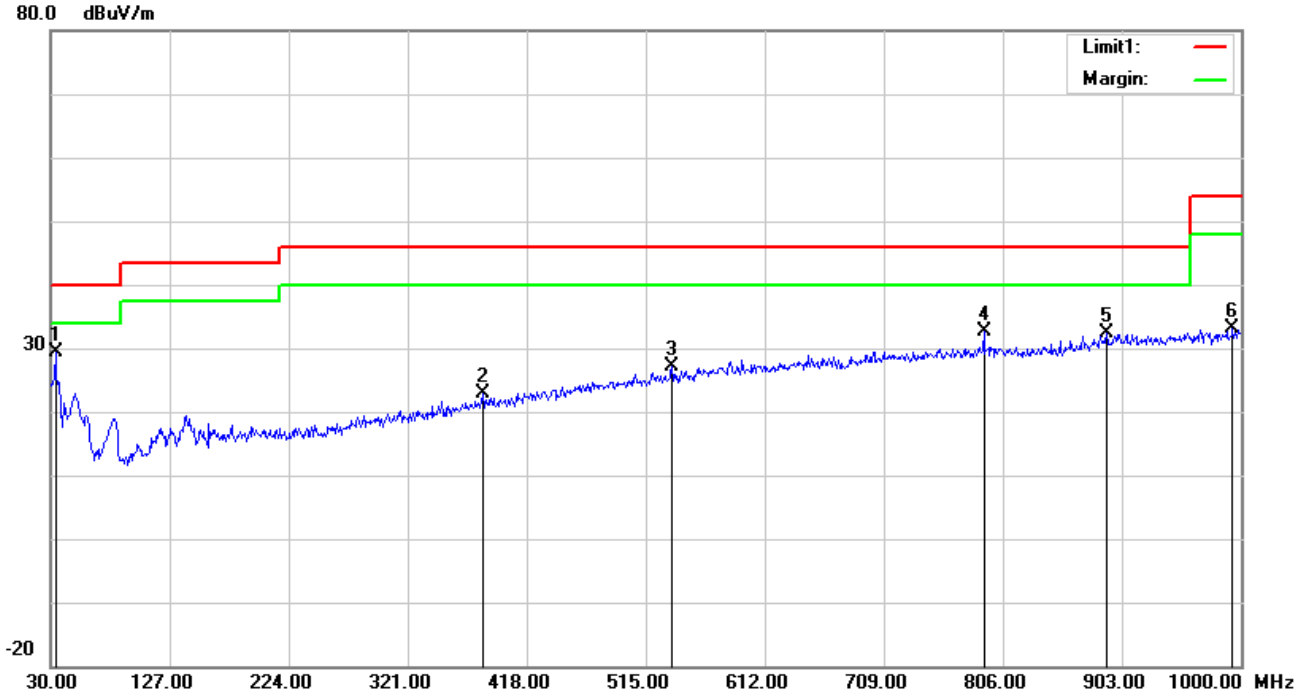


Test Data

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	H	33.8800	28.65	17.62	22.26	0.15	24.16	40.00	-15.84	100	232
2	H	546.0400	27.40	19.28	21.70	2.26	27.24	46.00	-18.76	100	102
3	H	632.3700	27.14	20.45	21.51	2.34	28.42	46.00	-17.58	100	340
4	H	790.4800	28.61	22.11	21.17	2.54	32.09	46.00	-13.91	100	237
5	H	897.1800	26.60	23.78	20.89	2.65	32.14	46.00	-13.86	100	106
6	H	987.3900	26.94	24.05	20.71	2.74	33.02	54.00	-20.98	100	147

30MHz -1GHz



Test Data

Horizontal 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	33.8800	33.90	17.62	22.26	0.15	29.41	40.00	-10.59	100	126
2	V	382.1100	27.24	15.71	22.06	1.90	22.79	46.00	-23.21	100	209
3	V	536.3400	27.36	19.25	21.73	2.23	27.11	46.00	-18.89	100	167
4	V	790.4800	29.20	22.11	21.17	2.54	32.68	46.00	-13.32	100	17
5	V	890.3900	27.18	23.48	20.91	2.64	32.39	46.00	-13.61	100	219
6	V	993.2100	26.94	24.21	20.70	2.75	33.20	54.00	-20.80	100	43

Above 1GHz

Test Mode:	Transmitting Mode

Low Channel: GFSK Mode (Worst Case) (2402 MHz)

ANTENNA POLARITY & test distance: HORIZONTAL at 3 m								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2375.13	53.15 PK	74	-20.85	344	231	66.8	-13.65
2	2375.13	40.2 AV	54	-13.8	213	14	53.85	-13.65
3	2402	97.82 PK			206	17	111.79	-13.97
4	2402	97.16 AV			283	70	111.13	-13.97
5	4804	50.08 PK	74	-23.92	282	242	63.83	-13.75
6	4804	39.12 AV	54	-14.88	340	262	52.87	-13.75
ANTENNA POLARITY & test distance: Vertical at 3 m								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390	52.16 PK	74	-21.84	169	340	65.81	-13.65
2	2390	40.13 AV	54	-13.87	150	244	53.78	-13.65
3	2402	97.11 PK			243	25	111.08	-13.97
4	2402	96.59 AV			312	181	110.56	-13.97
5	4804	49.95 PK	74	-24.05	294	337	63.7	-13.75
6	4804	38.04 AV	54	-15.96	167	111	51.79	-13.75

REMARKS:

1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).

2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB)-Preamplifier Gain.

3. Only emissions significantly above equipment noise floor are reported.

4. Margin value = Emission level – Limit value.

5. The testing has been conformed to 10*2402MHz=24,020MHz

6. X-Axis, Y-Axis and Z-Axis were investigated. The results above show only the worst case.

Middle Channel: GFSK Mode (Worst Case) (2440 MHz)

ANTENNA POLARITY & test distance: HORIZONTAL at 3 m								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	3874.1	39.95 PK	74	-34.05	255	311	53.8	-13.85
2	3874.1	31.44 AV	54	-22.56	236	328	45.29	-13.85
3	2440	97.12 PK			234	140	110.14	-13.02
4	2440	96.32 AV			364	15	109.34	-13.02
5	4880	50.02 PK	74	-23.98	123	146	63.77	-13.75
6	4880	38.46 AV	54	-15.54	104	40	52.21	-13.75
ANTENNA POLARITY & test distance: Vertical at 3 m								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	3870.5	40.14 PK	74	-33.86	300	124	53.99	-13.85
2	3870.5	31.74 AV	54	-22.26	219	161	45.59	-13.85
3	2440	98.12 PK			272	211	111.14	-13.02
4	2440	97.35 AV			321	279	110.37	-13.02
5	4880	50.08 PK	74	-23.92	115	232	63.83	-13.75
6	4880	38.12 AV	54	-15.88	201	268	51.87	-13.75

REMARKS:

1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).

2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB)-Preamplifier Gain.

3. Only emissions significantly above equipment noise floor are reported.

4. Margin value = Emission level – Limit value.

5. The testing has been conformed to 10*2440MHz=24,400MHz

6. X-Axis, Y-Axis and Z-Axis were investigated. The results above show only the worst case.

High Channel: GFSK Mode (Worst Case) (2480 MHz)

ANTENNA POLARITY & test distance: HORIZONTAL at 3 m								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2483.5	2483.5 PK	-20.31	269	43	67.34	-13.65	-20.31
2	2483.5	2483.5 AV	-12.63	350	275	55.02	-13.65	-12.63
3	2480	2480 PK		379	54	111.59	-13.97	
4	2480	2480 AV		128	248	109.84	-13.97	
5	4960	50.64 PK	74	-23.36	340	66	64.39	-13.75
6	4960	39.54 AV	54	-14.46	124	116	53.29	-13.75
ANTENNA POLARITY & test distance: Vertical at 3 m								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2483.5	52.16 PK	74	-21.84	322	310	65.81	-13.65
2	2483.5	40.79 AV	54	-13.21	231	344	54.44	-13.65
3	2480	96.38 PK			298	91	110.35	-13.97
4	2480	95.58 AV			103	279	109.55	-13.97
5	4960	50.42 PK	74	-23.58	369	56	64.17	-13.75
6	4960	39.29 AV	54	-14.71	305	45	53.04	-13.75

REMARKS:

1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).

2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB)-Preamplifier Gain.

3. Only emissions significantly above equipment noise floor are reported.

4. Margin value = Emission level – Limit value.

5. The testing has been conformed to 10*2462MHz=24,620MHz

6, X-Axis, Y-Axis and Z-Axis were investigated. The results above show only the worst case.

Annex A. TEST INSTRUMENT

RE& RSE

Frequency Range Below 1GHz

Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
EMI Test Receiver	Rohde&Schwarz	ESL6	1300.5001K06 -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 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

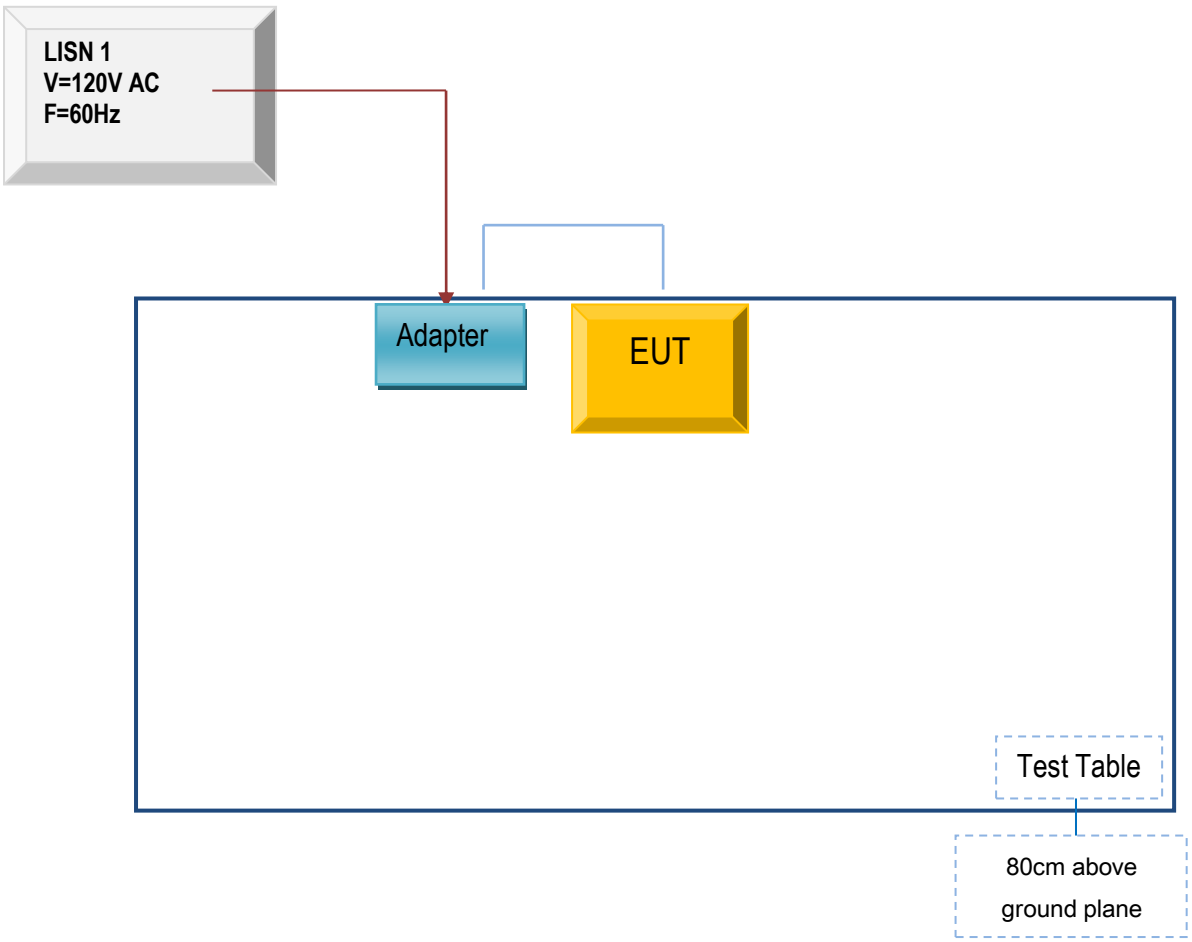
Antenna Port Conducted RF measurement

Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
Wireless Connectivity	R&S	CMW270	1201.0002K75	Nov. 29, 18	Nov. 28, 19
MXA VEXTOR SIGNAL	Agilent	n5182a	MY50140530	Mar. 28,19	Mar. 27,20
MXA signal analyzer	Agilent	n9020a	MY49100060	Mar. 28,19	Mar. 27,20
RF Control Unit	Tonscend	JS0806-2	188060112	Mar. 28,19	Mar. 27,20
Signal Generation	Agilent	E4421B	US40051152	Nov. 29, 18	Nov. 28, 19
DC Power Supply	Agilent	E3640A	MY40004013	Mar. 28,19	Mar. 27,20
Programmable Temperature &	Hongjin	HYC-TH-225DH	DG-180746	Mar. 28,19	Mar. 27,20
Test System	Tonscend	JS 1120-3	N/A	N/A	N/A
Power Splitter	Weinschel	1580-1	TL177	Mar. 20,19	Mar. 19,20
Universal Radio Communication	ROHDE&SCHWARZ	CMU200	112012	Mar. 28,19	Mar. 27,20
Universal Radio Communication	ROHDE&SCHWARZ	CMU200	121393	Mar. 28,19	Mar. 27,20
Wireless Communication Test Set	ROHDE&SCHWARZ	CMW500	1201.0002K500-155842-Gd	Aug. 06, 19	Aug. 05, 20

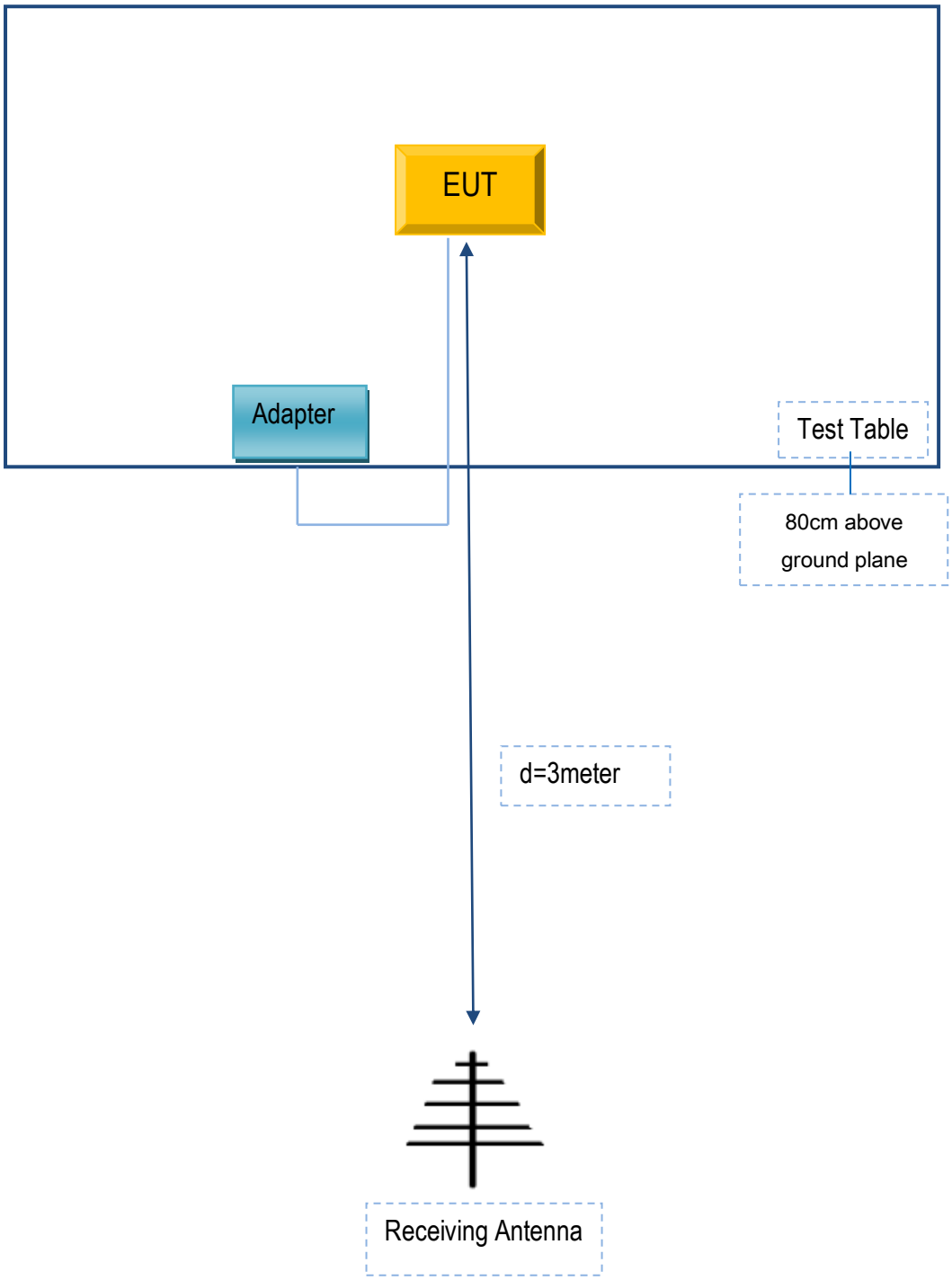
Annex B. TEST SETUP AND SUPPORTING EQUIPMENT

Annex B.i. TEST SET UP BLOCK

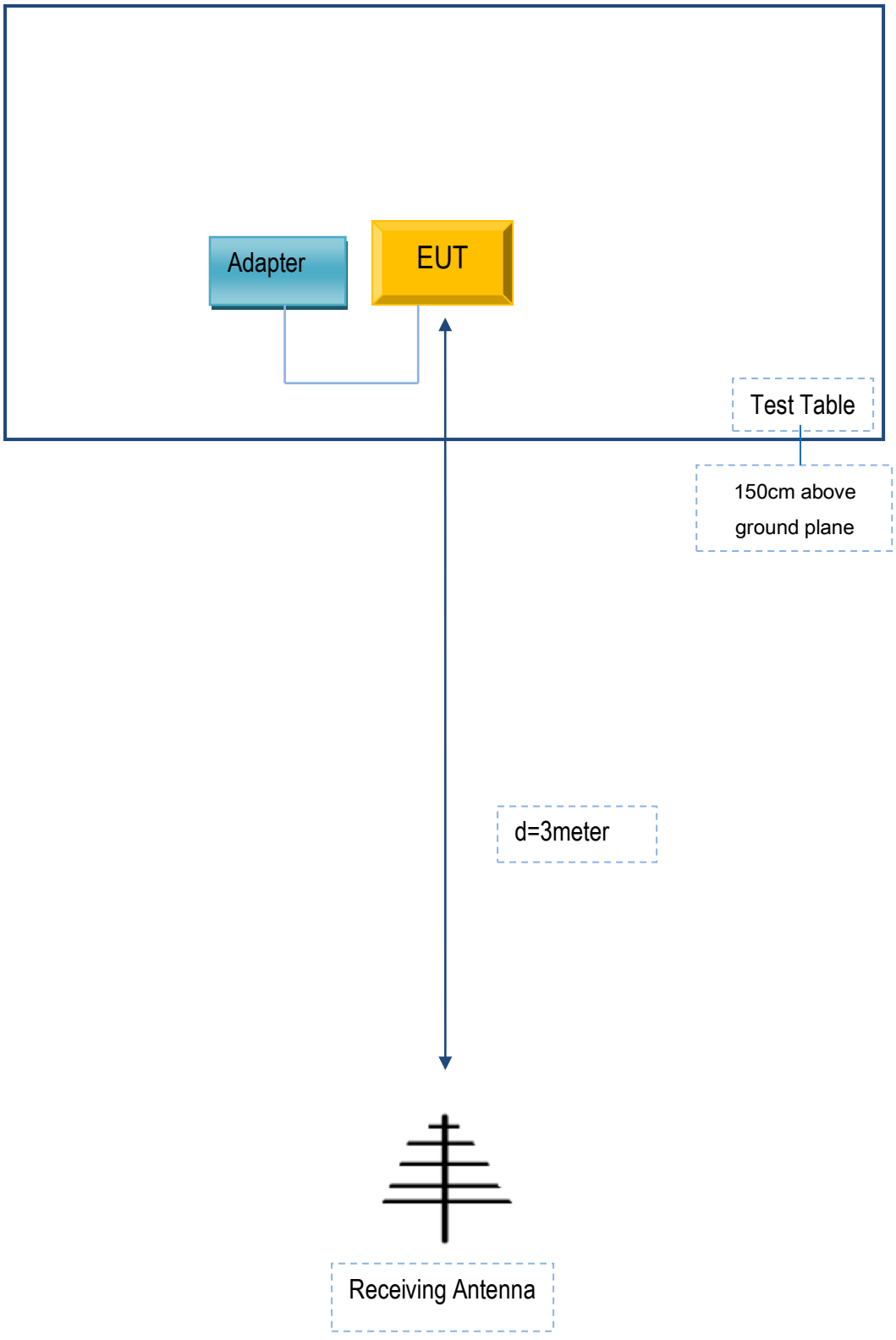
Block Configuration Diagram for AC Line Conducted Emissions



Block Configuration Diagram for Radiated Emissions （ Below 1GHz ）.



Block Configuration Diagram for Radiated Emissions （Above 1GHz）.



Annex C. il. 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
N/A	N/A	N/A	N/A

Supporting Cable:

Cable type	Shield Type	Ferrite Core	Length	Serial No
N/A	N/A	N/A	N/A	N/A

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

Please see the attachment