RF TEST REPORT

Report No.: Q191022S005-FCC-R

Supersede Report No.: N/A

Applicant	Medtrum Technologies Inc.
Product Name	Pump Base
Main Model No.	JN-022
Serial Model No.	N/A
Test Standard	FCC Part 15.247, ANSI C63.10: 2013
Test Date	Nov. 19 to Dec. 25, 2019
Issue Date	Dec. 26, 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:

BUREAU VERITAS (SHENZHEN) CONSUMER PRODUCTS SERVICE CO., LTD

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

This page has been left blank intentionally.

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 7

6. MEASUREMENTS, EXAMINATION AND DERIVED RESULTS 8

6.1 ANTENNA REQUIREMENT 8

6.2 DTS (6 DB&20 DB) CHANNEL BANDWIDTH 9

6.3 MAXIMUM OUTPUT POWER 12

6.4 POWER SPECTRAL DENSITY 15

6.5 BAND-EDGE & UNWANTED EMISSIONS INTO NON-RESTRICTED FREQUENCY BANDS 17

6.6 AC POWER LINE CONDUCTED EMISSIONS 20

6.7 RADIATED SPURIOUS EMISSIONS 22

ANNEX A. TEST INSTRUMENT 29

ANNEX B. TEST SETUP AND SUPPORTING EQUIPMENT 30

ANNEX C. USER MANUAL / BLOCK DIAGRAM / SCHEMATICS / PARTLIST 33

ANNEX D. DECLARATION OF SIMILARITY 34

1. Report Revision History

Report No.	Report Version	Description	Issue Date
Q191022S005-FCC-R	NONE	Original	Dec. 26, 2019

2. Customer information

Applicant Name	Medtrum Technologies Inc.
Applicant Add	7F， Building 8, No.200 Niudun Road, Shanghai 201203, China
Manufacturer	Medtrum Technologies Inc.
Manufacturer Add	7F， Building 8, No.200 Niudun Road, Shanghai 201203, China

3. Test site information

Test Lab A:

Lab performing tests	BUREAU VERITAS (SHENZHEN) CONSUMER PRODUCTS SERVICE CO., LTD
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:	Pump Base
Main Model:	JN-022
Serial Model:	N/A
Date EUT received:	Nov. 18, 2019
Test Date(s):	Nov. 19 to Dec. 25, 2019
Equipment Category：	DTS
Antenna Gain:	1.6dBi
Antenna Type:	Ceramic antenna
Type of Modulation:	GFSK
RF Operating Frequency (ies):	2402-2480 MHz
Max. Output Power:	-0.64 dBm
Number of Channels:	BLE:40CH
Port:	Please refer to the user manual
Input Power:	Battery: Model: L1154F Spec: 3V
Trade Name：	Medtrum
FCC ID:	2AARU-JN022

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&20 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 Non-Restricted Frequency Bands	Compliance
§15.207 (a),	AC Power Line Conducted Emissions	N/A
§15.205, §15.209, §15.247(d)	Radiated Spurious Emissions & Unwanted Emissions into Restricted Frequency Bands	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 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

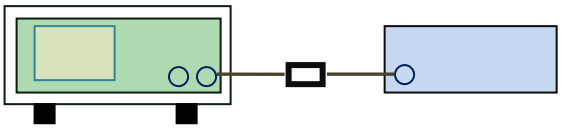
The EUT has 1 antenna:
A permanently attached Ceramic antenna for BLE, the gain is 1.6dBi for BLE.

The antenna meets up with the ANTENNA REQUIREMENT.

Result: Compliance.

6.2 DTS (6 dB&20 dB) Channel Bandwidth

Temperature	25°C
Relative Humidity	35%
Atmospheric Pressure	1010mbar
Test date :	Dec. 16, 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			
Test Procedure	558074 D01 DTS MEAS Guidance v05r02, 8.1 DTS bandwidth 6dB bandwidth a) Set RBW = 100 kHz. b) Set the video bandwidth (VBW) ≥ 3 × RBW. c) Detector = Peak. d) Trace mode = max hold. e) Sweep = auto couple. f) Allow the trace to stabilize. g) Measure the maximum width of the emission that is constrained by the freq uencies associated with the two outermost amplitude points (upper and lower fr equencies) that are attenuated by 6 dB relative to the maximum level measure d in the fundamental emission. 20dB bandwidth C63.10 Occupied Bandwidth (OBW=20dB bandwidth) 1. Set RBW = 1%-5% OBW. 2. Set the video bandwidth (VBW) ≥ 3 x RBW. 3. Set the span range between 2 times and 5 times of the OBW. 4. Sweep time=Auto, Detector=PK, Trace=Max hold. 5. Once the reference level is established, the equipment is conditioned with t ypical modulating signals to produce the worst-		

	case (i.e., the widest) bandwidth. Unless otherwise specified for an unlicensed wireless device, measure the bandwidth at the 20 dB levels with respect to the reference level.
Remark	
Result	☑ Pass ☐ Fail

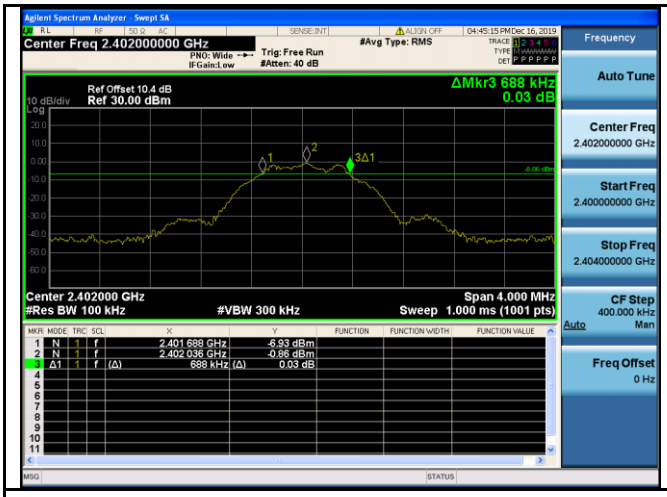
Test Data ☑ Yes ☐ N/A

Test Plot ☑ Yes (See below) ☐ N/A

6dB Bandwidth measurement result

CHANNEL	CHANNEL FREQUENCY (MHz)	6dB BANDWIDTH (MHz)	MINIMUM LIMIT (MHz)	PASS / FAIL
0	2402	0.688	0.5	PASS
19	2440	0.692	0.5	PASS
39	2480	0.688	0.5	PASS

Test Plots



6dB Bandwidth - Low CH 2402

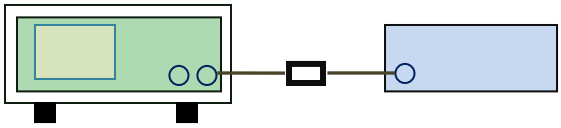
6dB Bandwidth - Mid CH 2440

6dB Bandwidth - High CH 2480

6.3 Maximum Output Power

Temperature	25°C
Relative Humidity	35%
Atmospheric Pressure	1010mbar
Test date :	Dec. 16, 2019
Tested By :	Aaron Liang

Requirement(s):

Spec	Item	Requirement	Applicable
§15.247(b)(2),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)	DSSS in 902-928MHz, 2400-2483.5MHz, 5725-5850MHz: ≤ 1 Watt	☑
Test Setup			
Test Procedure	558074 D01 DTS MEAS Guidance v05r02, 9.2.3.1 Method AVGPM. Maximum output power measurement procedure a) As an alternative to spectrum analyzer or EMI receiver measurements, measurements may be performed using a wideband RF power meter with a thermocouple detector or equivalent if all of the conditions listed below are satisfied. 1) The EUT is configured to transmit continuously, or to transmit with a constant duty factor. 2) At all times when the EUT is transmitting, it shall be transmitting at its maximum power control level. 3) The integration period of the power meter exceeds the repetition period of the transmitted signal by at least a factor of five. b) If the transmitter does not transmit continuously, measure the duty cycle (x) of the transmitter output signal as described in Section 6.0. c) Measure the average power of the transmitter. This measurement is an average over		

	both the on and off periods of the transmitter. d) Adjust the measurement in dBm by adding 10log (1/x), where x is the duty cycle to the measurement result.
Remark	
Result	☑ Pass ☐ Fail

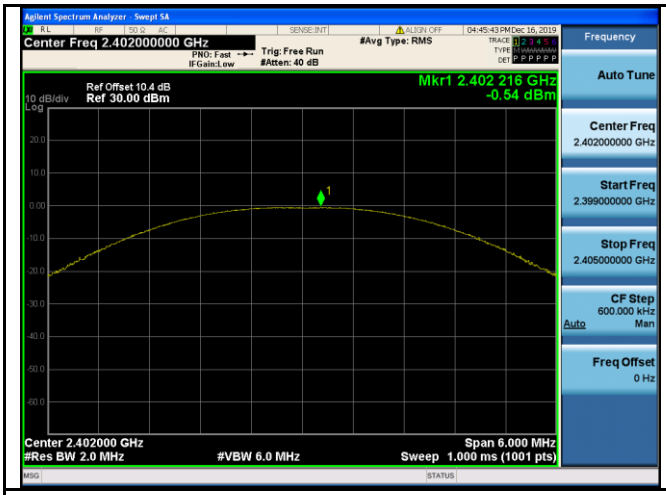
Test Data ☑ Yes ☐ N/A

Test Plot ☐ Yes (See below) ☑ N/A

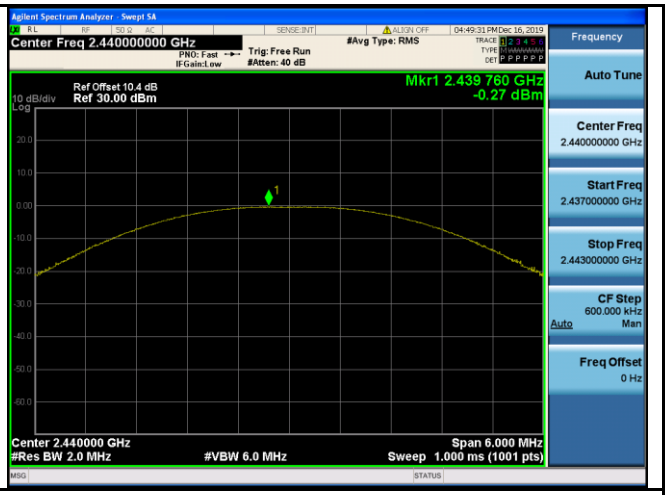
Output Power measurement result

CH	Frequency (MHz)	Peak Power (dBm)	Peak Power (mW)	Peak Power Limit (W)	Average Power (dBm)	Result
Low	2402	-0.54	0.883	1	-0.54	Pass
Mid	2440	-0.27	0.94	1	-0.35	Pass
High	2480	-0.64	0.863	1	-0.69	Pass

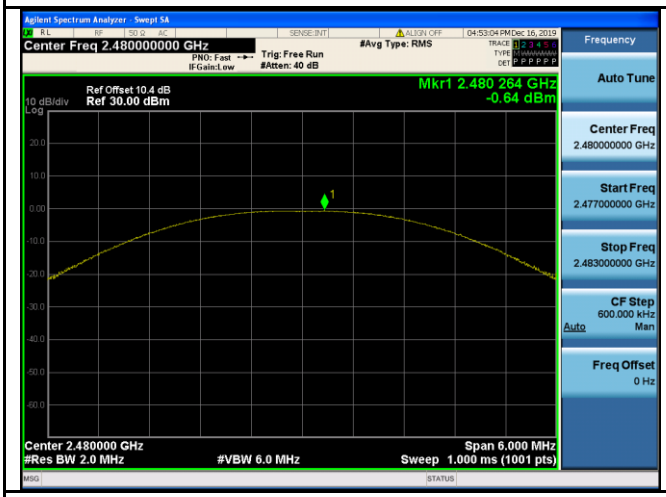
Test Plots



PK Output power - Low CH 2402



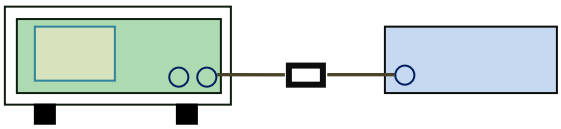
PK Output power - Mid CH 2440



PK Output power - High CH 2480

6.4 Power Spectral Density

Temperature	25°C
Relative Humidity	35%
Atmospheric Pressure	1010mbar
Test date :	Dec. 16, 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			
Test Procedure	558074 D01 DTS MEAS Guidance v05r02, 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

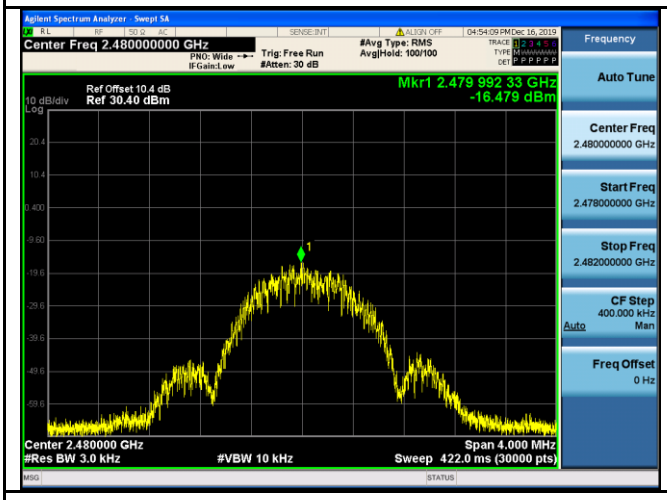
Test Plot ☑ Yes (See below) ☐ N/A

Channel	FREQ. (MHz)	PSD (dBm/3kHz)	Limit (dBm/3kHz)	PASS /FAIL
0	2402	-16.061	8	PASS
19	2440	-16.068	8	PASS
39	2480	-16.479	8	PASS

Test Plots

PSD - Low CH 2402

PSD - Mid CH 2440

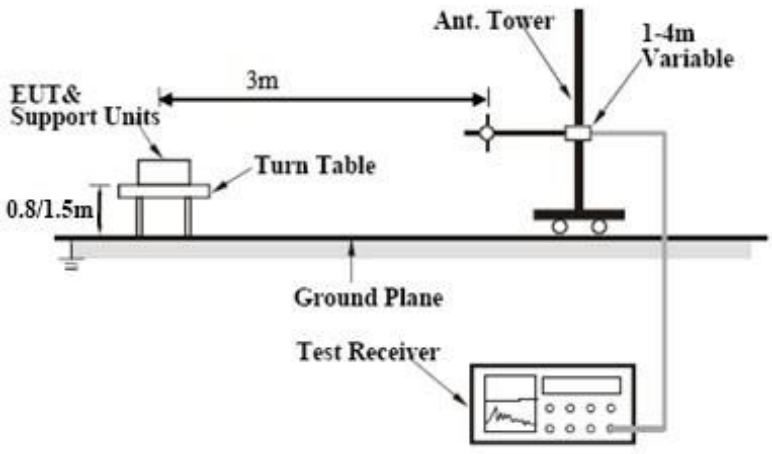


PSD - High CH 2480

6.5 Band-Edge & Unwanted Emissions into Non-Restricted Frequency Bands

Temperature		25°C
Relative Humidity		39%
Atmospheric Pressure		1011mbar
Test date :		Dec. 24, 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,	

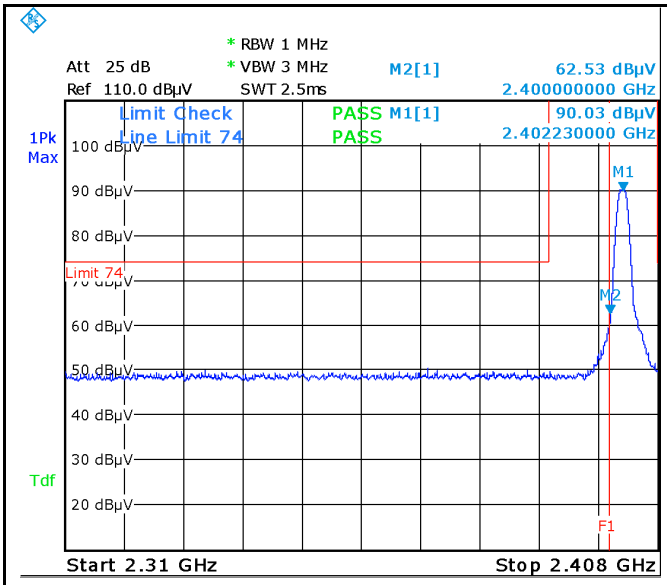
	and make sure the instrument is operated in its linear range. - 3. First, set both RBW and VBW of spectrum analyzer to 100 kHz with a convenient frequency span including 100kHz bandwidth from band edge, check the emission of EUT, if pass then set Spectrum Analyzer as below: a. The resolution bandwidth 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

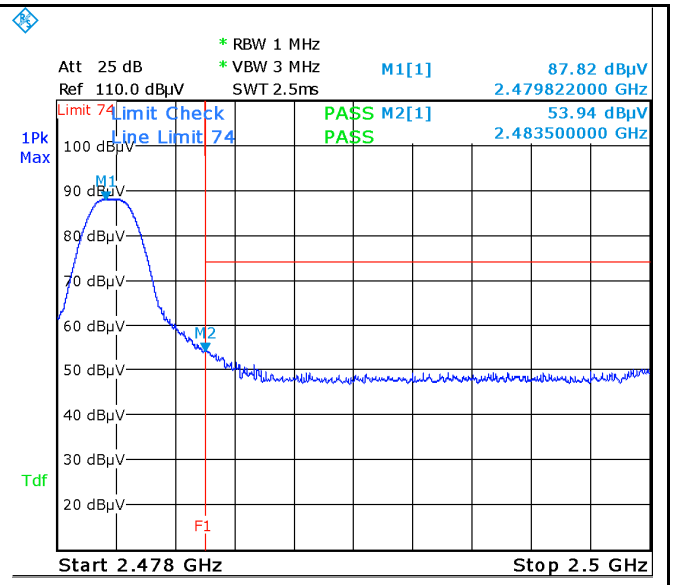
Test Plots

Restricted Band-edge result



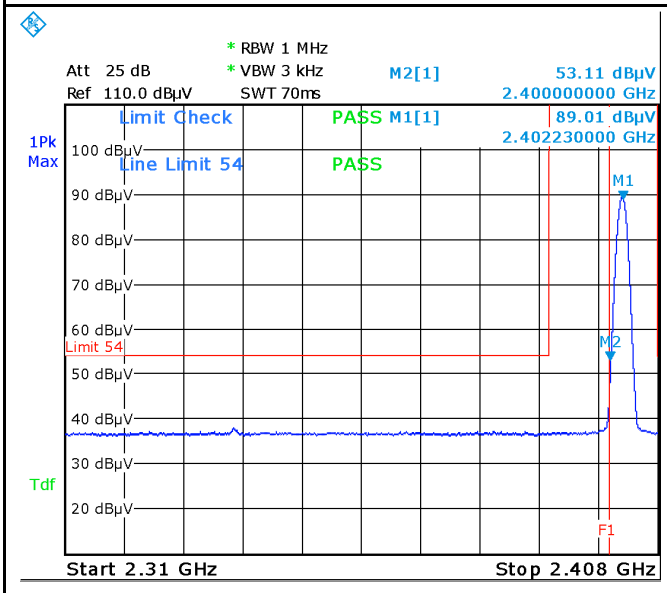
Band Edge, Left Side (Peak)

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



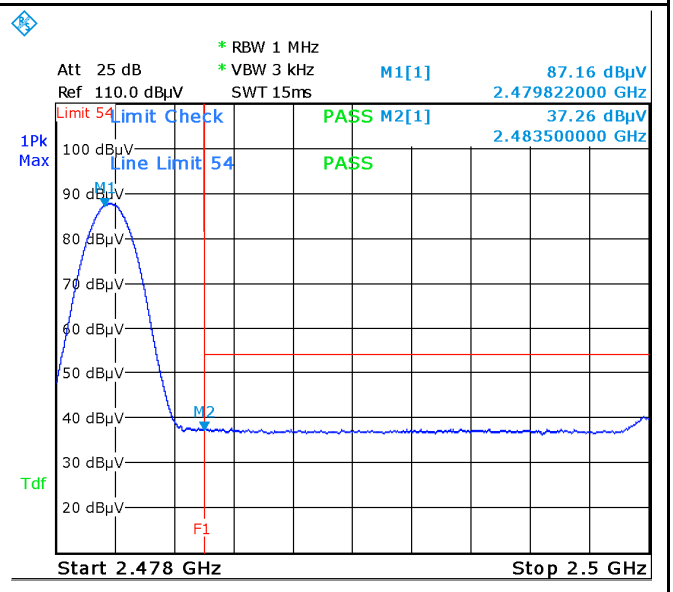
Band Edge, Right Side (Peak)

Note: F1 is frequency 2483.5MHz



Band Edge, Left Side-AV

Note: F1 is frequency 2483.5MHz



Band Edge, Right Side-AV

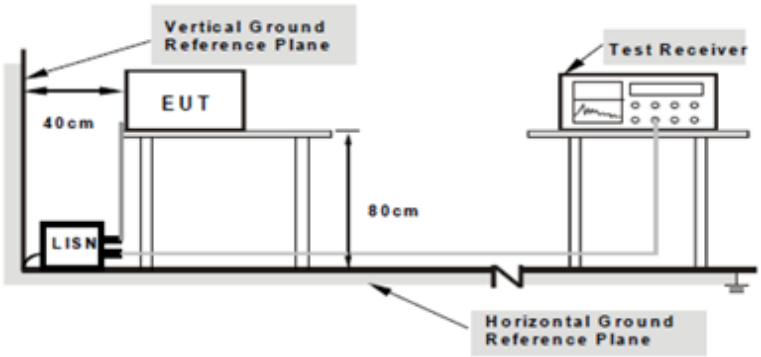
Note: F1 is frequency 2483.5MHz

Note: Both Horizontal and vertical polarities were investigated.

6.6 AC Power Line Conducted Emissions

Temperature	25°C
Relative Humidity	35%
Atmospheric Pressure	1010mbar
Test date :	Dec. 16, 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

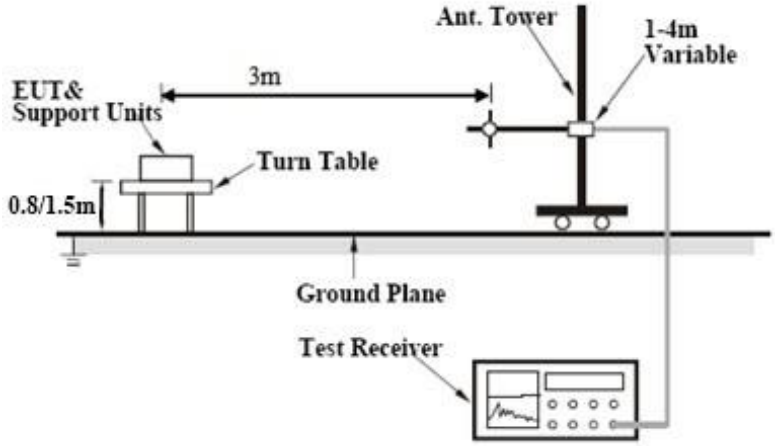
Test Plot ☐ Yes (See below) ☑ N/A

6.7 Radiated Spurious Emissions

Temperature	25°C
Relative Humidity	39%
Atmospheric Pressure	1011mbar
Test date :	Dec. 24, 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="3">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>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>
<tr><td>c)</td><td>or restricted band, emission must also comply with the radiated emission limits specified in 15.209</td><td>☑</td></tr>
</table>

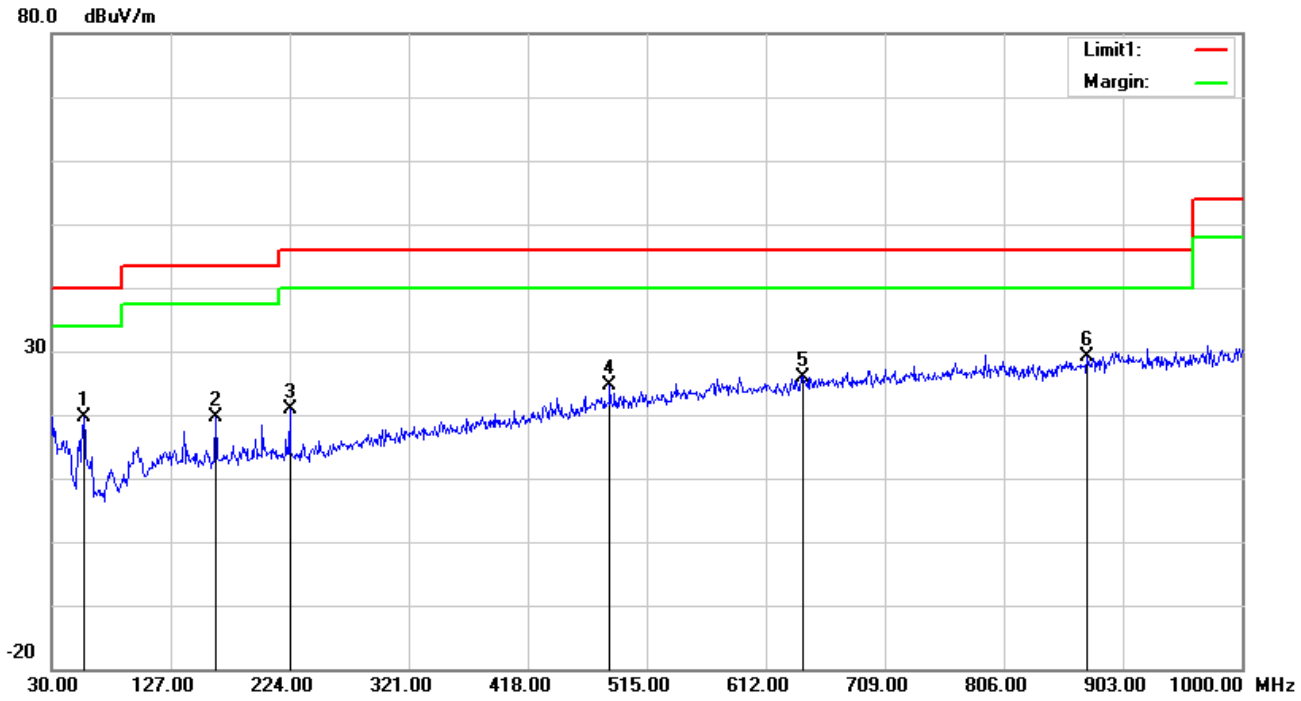
Test Setup	
Procedure	1. The EUT was switched on and allowed to warm up to its normal operating condition. 2. The test was carried out at the selected frequency points obtained from the EUT characterization. Maximization of the emissions, was carried out by rotating the EUT, changing the antenna polarization, 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	Different RF configuration has been evaluated but not much difference was found. The data presented here is the worst case data with EUT under 802.11n – HT20-2437MHz mode.
Result	☑ Pass ☐ Fail

Test Data ☑ Yes ☐ N/A

Test Plot ☑ Yes (See below) ☐ N/A

Test Model :	Transmitting Mode

(Below 1GHz)

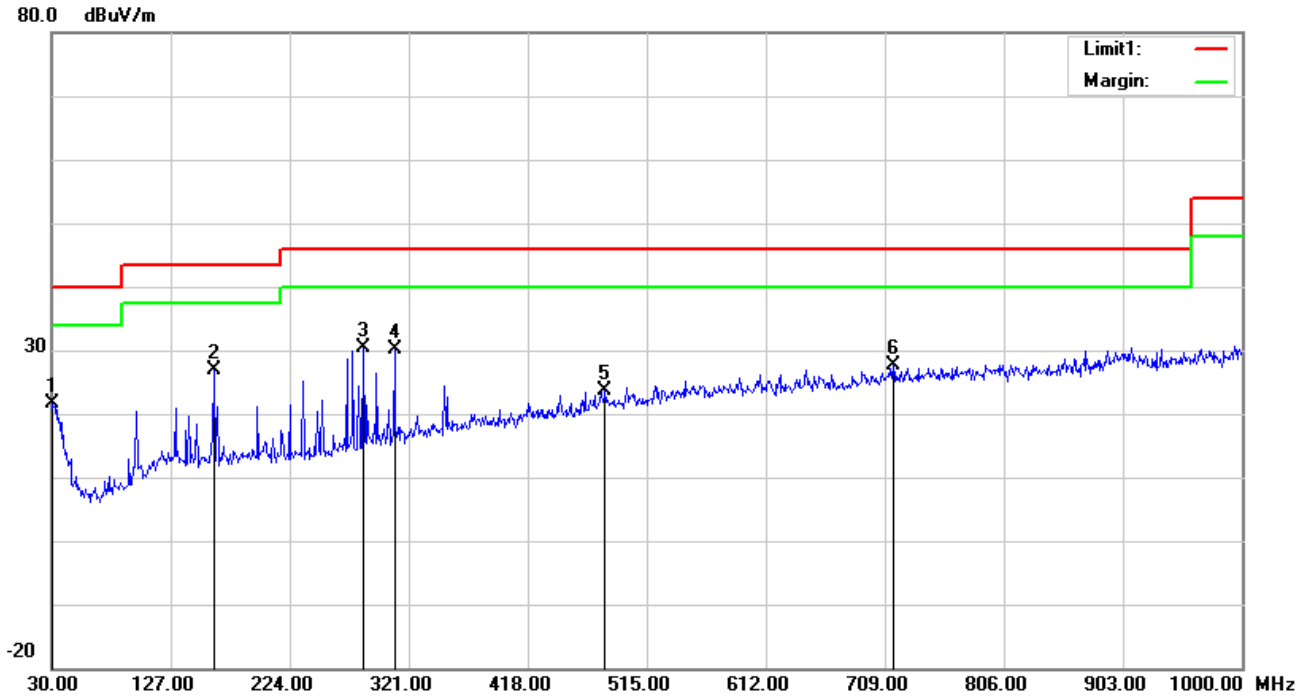


Test Data

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	H	56.1900	34.53	7.33	22.40	0.25	19.71	40.00	-20.29	100	81
2	H	163.8600	29.50	11.07	22.27	1.35	19.65	43.50	-23.85	100	141
3	H	224.0000	30.25	11.40	22.34	1.58	20.89	46.00	-25.11	100	228
4	H	484.9300	25.94	18.52	21.84	2.09	24.71	46.00	-21.29	100	24
5	H	642.0700	24.50	20.64	21.49	2.35	26.00	46.00	-20.00	100	146
6	H	873.9000	24.69	22.78	20.95	2.63	29.15	46.00	-16.85	100	81

(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	23.65	20.10	22.28	0.13	21.60	40.00	-18.40	100	158
2	V	161.9200	36.78	11.04	22.27	1.33	26.88	43.50	-16.62	100	336
3	V	284.1400	37.59	13.32	22.29	1.69	30.31	46.00	-15.69	100	120
4	V	309.3600	36.85	13.89	22.26	1.74	30.22	46.00	-15.78	100	283
5	V	481.0500	24.89	18.47	21.85	2.08	23.59	46.00	-22.41	100	224
6	V	715.7900	24.95	21.56	21.33	2.43	27.61	46.00	-18.39	100	279

Above 1GHz

Test Mode:	Transmitting Mode

Low Channel (2402 MHz)

Vertical

FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	DETECTOR (PK/AV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (MM)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
4804	53.08	PK	74	-20.92	150	111	56.83	-3.75
4804	45.42	AV	54	-8.58	150	111	49.17	-3.75

Horizontal

FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	DETECTOR (PK/AV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (MM)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
4804	56.56	PK	74	-17.44	155	71	60.31	-3.75
4804	48.17	AV	54	-5.83	155	71	51.92	-3.75

Middle Channel (2440 MHz)

Vertical

FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	DETECTOR (PK/AV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (MM)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
4880	57.35	PK	74	-16.65	142	144	61.31	-3.96
4880	48.51	AV	54	-5.49	142	144	52.47	-3.96
9760	55.31	PK	74	-18.69	153	295	59.27	-3.96
9760	45.13	AV	54	-8.87	153	295	49.09	-3.96

Horizontal

FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	DETECTOR (PK/AV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (MM)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
4880	56.52	PK	74	-17.48	143	321	60.48	-3.96
4880	48.67	AV	54	-5.33	143	321	52.63	-3.96
9760	56.1	PK	74	-17.9	164	37	60.06	-3.96
9760	44.49	AV	54	-9.51	164	37	48.45	-3.96

High Channel (2480 MHz)

Vertical

FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	DETECTOR (PK/AV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (MM)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
4960	58.85	PK	74	-15.15	146	98	62.6	-3.75
4960	47.8	AV	54	-6.2	146	98	51.55	-3.75

Horizontal

FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	DETECTOR (PK/AV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (MM)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
4960	61.1	PK	74	-12.9	170	66	64.85	-3.75
4960	47.38	AV	54	-6.62	170	66	51.13	-3.75

Note:

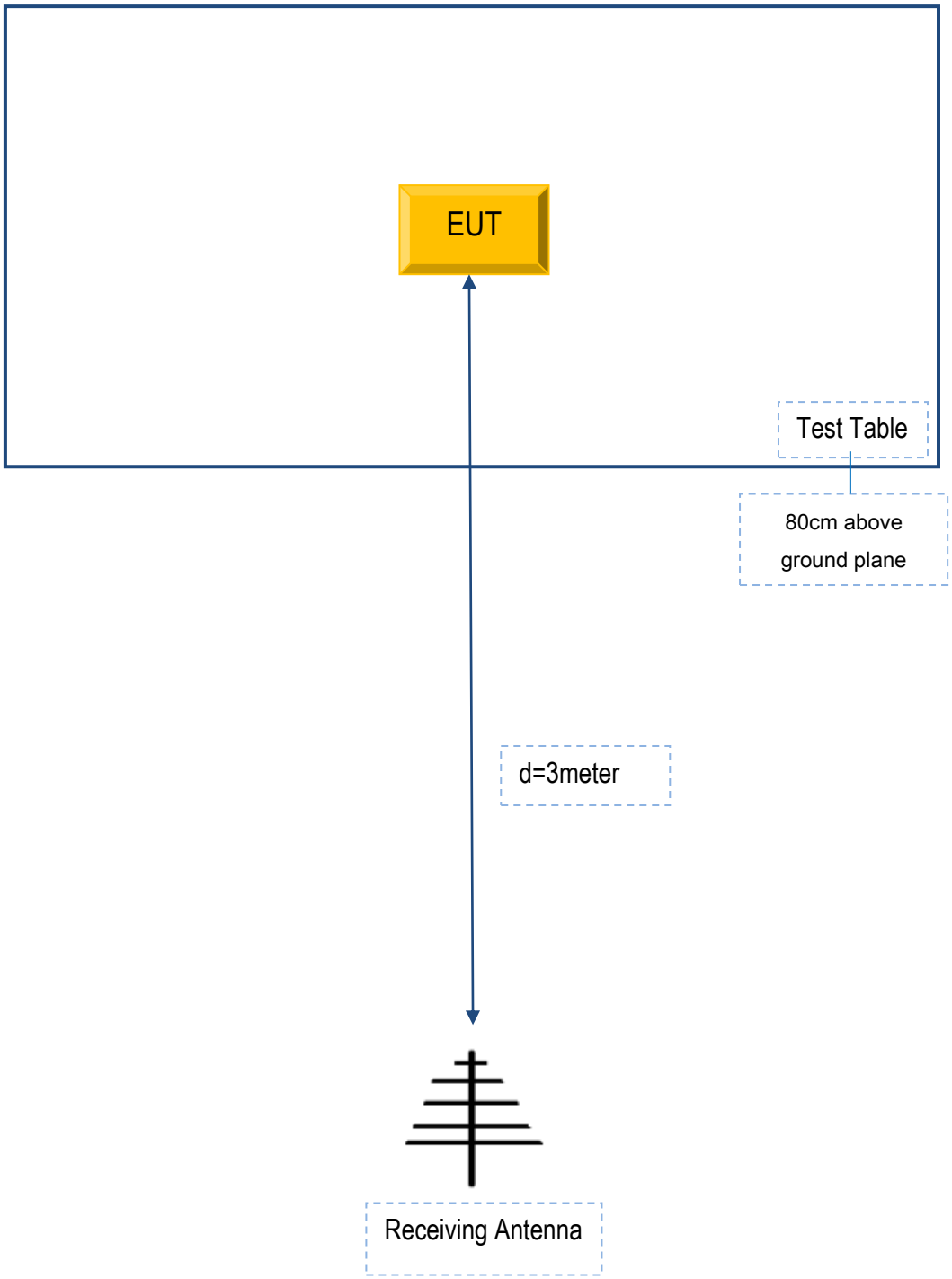
*1, The testing has been conformed to 10*2480MHz=24,800MHz*
2, All other emissions more than 30 dB below the limit
3, X-Axis, Y-Axis and Z-Axis were investigated. The results above show only the worst case.

Annex A. TEST INSTRUMENT

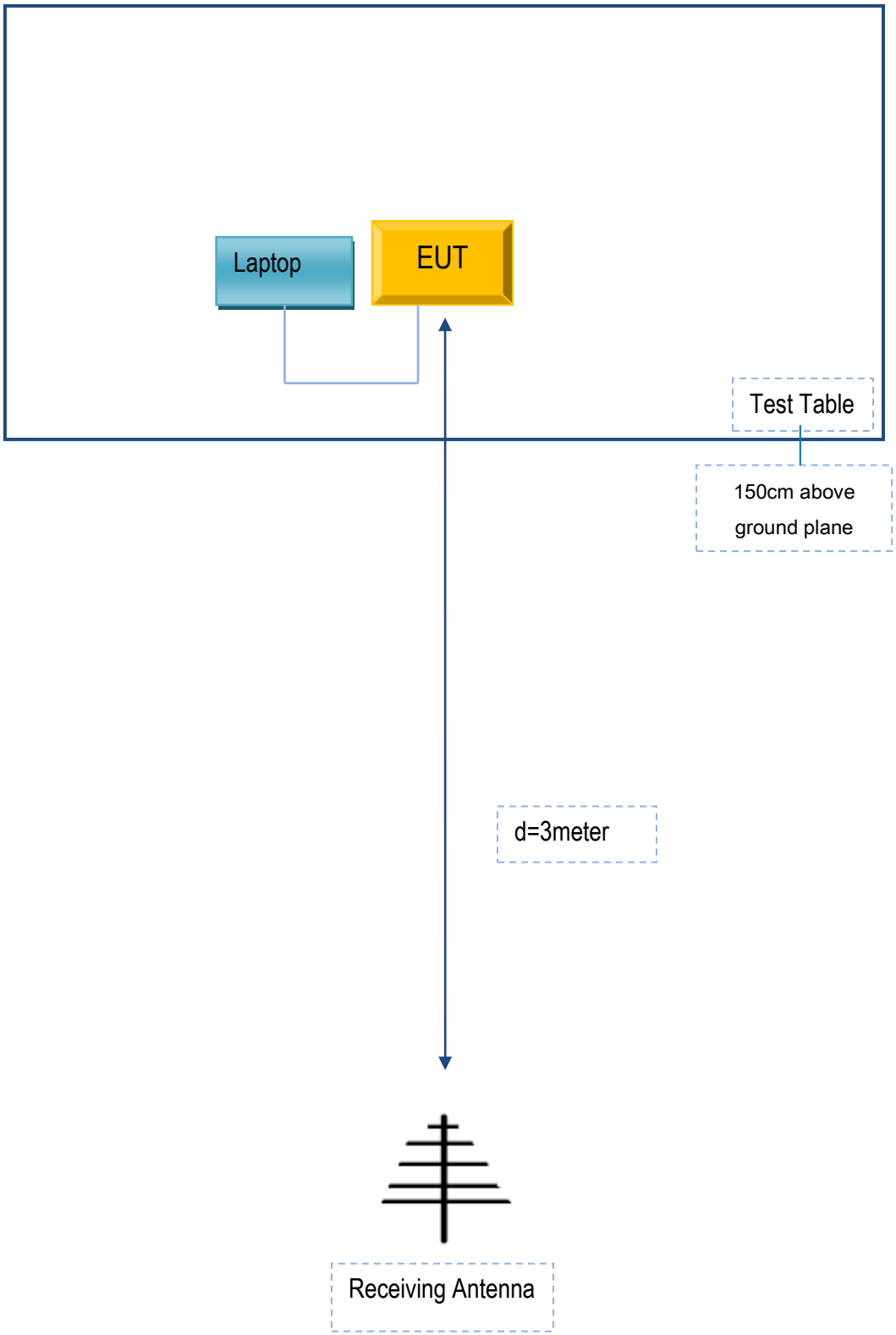
Instrument	Manufacturer	Model	Serial #	Cal Date	Cal Due
RF conducted test					
Wireless Connectivity	R&S	CMW270	1201.0002K75	Dec. 18, 19	Dec. 17,20
MXA VEXTOR	Agilent	n5182a	MY50140530	Mar. 28,19	Mar. 27,20
MXA signal analyzer	Agilent	n9020a	MY49100060	Mar. 28,19	Mar. 27,20
RF Control Unit	Tonscend	JS0806-2	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	Hongjin	HYC-TH-	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
Radiated Emissions					
EMI Test Receiver	Rohde&Schwarz	ESL6	1300.5001K06-	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
Spectrum	Agilent	E4446A	MY46180622	May. 08,19	Mar. 07, 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
Test Software	EZ-EMC	ICP-03A1	N/A	N/A	N/A
Spectrum	Agilent	E4446A	MY46180622	May. 08,19	Mar. 07, 20

Annex B. TEST SETUP AND SUPPORTING EQUIPMENT

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



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



Annex B. ii. SUPPORTING EQUIPMENT DESCRIPTION

The following is a description of supporting equipment and details of cables used with the EUT.

Manufacturer	Equipment Description	Model	Serial No
N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A

Annex C. User Manual / Block Diagram / Schematics / Partlist

Please see attachment

Annex D. DECLARATION OF SIMILARITY

N/A