



# FCC RADIO TEST REPORT

**FCC ID** : TX2-RTL8722DM  
**Equipment** : 802.11 a/b/g/n Wireless LAN+Bluetooth module  
**Brand Name** : REALTEK  
**Model Name** : RTL8722DM  
**Applicant** : Realtek Semiconductor Corp.  
No. 2, Innovation Road II, Hsinchu Science Park,  
Hsinchu 300, Taiwan  
**Manufacturer** : Realtek Semiconductor Corp.  
No. 2, Innovation Road II, Hsinchu Science Park,  
Hsinchu 300, Taiwan  
**Standard** : FCC Part 15 Subpart C §15.247

The product was received on Nov. 13, 2020 and testing was started from Nov. 23, 2020 and completed on Jan. 07, 2021. We, Sporton International Inc. EMC & Wireless Communications Laboratory, would like to declare that the tested sample has been evaluated in accordance with the test procedures and has been in compliance with the applicable technical standards.

The test results in this report apply exclusively to the tested model / sample. Without written approval of Sporton International Inc. EMC & Wireless Communications Laboratory, the test report shall not be reproduced except in full.

*Louis Wu*

Approved by: Louis Wu

**Sporton International Inc. EMC & Wireless Communications Laboratory**

No. 52, Huaya 1st Rd., Guishan Dist., Taoyuan City 333, Taiwan (R.O.C.)



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### History of this test report

Report No.	Version	Description	Issued Date
FR0N0645A	01	Initial issue of report	Mar. 12, 2021



## Summary of Test Result

Report Clause	Ref Std. Clause	Test Items	Result (PASS/FAIL)	Remark
3.1	15.247(a)(2)	6dB Bandwidth	Pass	-
3.1	2.1049	99% Occupied Bandwidth	Reporting only	-
3.2	15.247(b)(3)	Output Power	Pass	-
3.3	15.247(e)	Power Spectral Density	Pass	-
3.4	15.247(d)	Conducted Band Edges and Spurious Emission	Pass	-
3.5	15.247(d)	Radiated Band Edges and Spurious Emission	Pass	Under limit 6.05 dB at 666.320 MHz
3.6	15.207	AC Conducted Emission	Pass	Under limit 6.16 dB at 0.166 MHz
3.7	15.203 & 15.247(b)	Antenna Requirement	Pass	-

**Declaration of Conformity:**

The test results with all measurement uncertainty excluded are presented in accordance with the regulation limits or requirements declared by manufacturers.

**Comments and Explanations:**

The declared of product specification for EUT presented in the report are provided by the manufacturer, and the manufacturer takes all the responsibilities for the accuracy of product specification.

**Reviewed by: Wii Chang**

**Report Producer: Tina Chuang**



# 1 General Description

## 1.1 Product Feature of Equipment Under Test

Bluetooth, Wi-Fi 2.4GHz 802.11b/g/n, Wi-Fi 5GHz 802.11a/n.

Product Specification subjective to this standard	
Sample 1	A1-8722DM-4F4MA with Fixture 1 and Printed Antenna
Sample 2	A1-8722DM-4F4M1 with Fixture 1 and External Antenna
Sample 3	A1-8722DM-4F4MC with Fixture 2 and External Antenna
Antenna Type	WLAN: Printed Antenna / External Antenna (Dipole or PIFA) Bluetooth: Printed Antenna / External Antenna (Dipole or PIFA)

Printed Antenna information		
2400 MHz ~ 2483.5 MHz	Peak Gain (dBi)	4.1

Dipole Antenna information		
2400 MHz ~ 2483.5 MHz	Peak Gain (dBi)	3.0

PIFA Antenna information		
2400 MHz ~ 2483.5 MHz	Peak Gain (dBi)	3.5

Remark: The above EUT's information was declared by manufacturer. Please refer to Comments and Explanations in report summary.

## 1.2 Modification of EUT

No modifications are made to the EUT during all test items.



### 1.3 Testing Location

<b>Test Site</b>	Sporton International Inc. EMC & Wireless Communications Laboratory
<b>Test Site Location</b>	No.52, Huaya 1st Rd., Guishan Dist., Taoyuan City 333, Taiwan (R.O.C.) TEL: +886-3-327-3456 FAX: +886-3-328-4978
<b>Test Site No.</b>	<b>Sporton Site No.</b> TH05-HY, CO05-HY

**Note:** The test site complies with ANSI C63.4 2014 requirement.

<b>Test Site</b>	Sporton International Inc. Wensan Laboratory
<b>Test Site Location</b>	No.58, Aly. 75, Ln. 564, Wenhua 3rd, Rd., Guishan Dist., Taoyuan City 333010, Taiwan (R.O.C.) TEL: +886-3-327-0868 FAX: +886-3-327-0855
<b>Test Site No.</b>	<b>Sporton Site No.</b> 03CH11-HY (TAF Code: 3786)
<b>Remark</b>	The Radiated Spurious Emission test item subcontracted to Sporton International Inc. Wensan Laboratory.

**Note:** The test site complies with ANSI C63.4 2014 requirement.

FCC designation No.: TW1190 and TW0007

### 1.4 Applicable Standards

According to the specifications of the manufacturer, the EUT must comply with the requirements of the following standards:

- ♦ FCC Part 15 Subpart C §15.247
- ♦ FCC KDB Publication No. 558074 D01 DTS Meas. Guidance v05r02
- ♦ FCC KDB 414788 D01 Radiated Test Site v01r01
- ♦ ANSI C63.10-2013

**Remark:**

1. All test items were verified and recorded according to the standards and without any deviation during the test.
2. The TAF code is not including all the FCC KDB listed without accreditation.



## 2 Test Configuration of Equipment Under Test

### 2.1 Carrier Frequency Channel

Frequency Band	Channel	Freq. (MHz)	Channel	Freq. (MHz)
2400-2483.5 MHz	0	2402	21	2444
	1	2404	22	2446
	2	2406	23	2448
	3	2408	24	2450
	4	2410	25	2452
	5	2412	26	2454
	6	2414	27	2456
	7	2416	28	2458
	8	2418	29	2460
	9	2420	30	2462
	10	2422	31	2464
	11	2424	32	2466
	12	2426	33	2468
	13	2428	34	2470
	14	2430	35	2472
	15	2432	36	2474
	16	2434	37	2476
	17	2436	38	2478
	18	2438	39	2480
	19	2440	-	-
20	2442	-	-	



### 2.2 Test Mode

- a. The EUT has been associated with peripherals and configuration operated in a manner tended to maximize its emission characteristics in a typical application. Frequency range investigated: conduction emission (150 kHz to 30 MHz), radiation emission (9 kHz to the 10th harmonic of the highest fundamental frequency or to 40 GHz, whichever is lower). The worst cases (Ant. Horizontal for Sample 1, Sample 2 with PIFA Antenna, Sample 3 with Dipole Antenna and PIFA Antenna; Ant. Vertical for Sample 2 with Dipole Antenna) were recorded in this report.
- b. AC power line Conducted Emission was tested under maximum output power.

The following summary table is showing all test modes to demonstrate in compliance with the standard.

Summary table of Test Cases	
Test Item	Data Rate / Modulation
<b>Conducted Test Cases</b>	<b>Bluetooth – LE / GFSK</b>
	Mode 1: Bluetooth Tx CH00_2402 MHz_1Mbps
	Mode 2: Bluetooth Tx CH19_2440 MHz_1Mbps
	Mode 3: Bluetooth Tx CH39_2480 MHz_1Mbps
	Mode 4: Bluetooth Tx CH00_2402 MHz_2Mbps
	Mode 5: Bluetooth Tx CH19_2440 MHz_2Mbps
	Mode 6: Bluetooth Tx CH39_2480 MHz_2Mbps
<b>Radiated Test Cases</b>	Mode 1: Bluetooth Tx CH00_2402 MHz_1Mbps
	Mode 2: Bluetooth Tx CH19_2440 MHz_1Mbps
	Mode 3: Bluetooth Tx CH39_2480 MHz_1Mbps
	Mode 4: Bluetooth Tx CH00_2402 MHz_2Mbps
	Mode 5: Bluetooth Tx CH19_2440 MHz_2Mbps
	Mode 6: Bluetooth Tx CH39_2480 MHz_2Mbps
	<b>AC Conducted Emission</b>
Mode 2 : Bluetooth Link + WLAN (2.4GHz) Link + USB Cable (Charging from Notebook) for Sample 2 with Dipole Antenna	
Mode 3 : Bluetooth Link + WLAN (2.4GHz) Link + USB Cable (Charging from Notebook) for Sample 2 with PIFA Antenna	
Mode 4 : Bluetooth Link + WLAN (2.4GHz) Link + USB Cable (Charging from Notebook) for Sample 3 with PIFA Antenna	
<b>Remark:</b> The worst case of conducted emission is mode 1; only the test data of it was reported.	



### 2.3 Connection Diagram of Test System



### 2.4 Support Unit used in test configuration and system

Item	Equipment	Brand Name	Model Name	FCC ID	Data Cable	Power Cord
1.	WLAN AP	ASUS	RT-AC66U	MSQ-RTAC66U	N/A	Unshielded, 1.8 m
2.	iPod	Apple	A1285	FCC DoC	Shielded, 1.0 m	N/A
3.	Notebook	DELL	Latitude 3400	FCC DoC	N/A	AC I/P: Unshielded, 1.2 m DC O/P: Shielded, 1.8 m
4.	Mobile Phone	SAMSUNG	SM-A730F/DS	A3LSMA730F	N/A	N/A
5.	USB Cable	N/A	N/A	N/A	N/A	N/A
6.	Fixture 1	N/A	N/A	N/A	N/A	N/A
7.	Fixture 2	N/A	N/A	N/A	N/A	N/A



## 2.5 EUT Operation Test Setup

The RF test items, utility “RTLBTAPP\_20190517\_V5.2.2.51” was installed in Notebook which was programmed in order to make the EUT get into the engineering modes to provide channel selection, power level, data rate and the application type and for continuous transmitting signals.

## 2.6 Measurement Results Explanation Example

**For all conducted test items:**

The offset level is set in the spectrum analyzer to compensate the RF cable loss and attenuator factor between EUT conducted output port and spectrum analyzer. With the offset compensation, the spectrum analyzer reading level is exactly the EUT RF output level.

Example :

The spectrum analyzer offset is derived from RF cable loss and attenuator factor.

*Offset = RF cable loss + attenuator factor.*

Following shows an offset computation example with cable loss 4.2 dB and 10dB attenuator.

$$\begin{aligned} \text{Offset(dB)} &= \text{RF cable loss(dB)} + \text{attenuator factor(dB)}. \\ &= 4.2 + 10 = 14.2 \text{ (dB)} \end{aligned}$$

### 3 Test Result

#### 3.1 6dB and 99% Bandwidth Measurement

##### 3.1.1 Limit of 6dB and 99% Bandwidth

The minimum 6 dB bandwidth shall be at least 500 kHz.

##### 3.1.2 Measuring Instruments

See list of measuring equipment of this test report.

##### 3.1.3 Test Procedures

1. The testing follows the ANSI C63.10 Section 6.9.3 (OBW) and 11.8.1 (6dB BW).
2. The RF output of EUT was connected to the spectrum analyzer by RF cable and attenuator. The path loss was compensated to the results for each measurement.
3. Set to the maximum power setting and enable the EUT transmit continuously.
4. Make the measurement with the spectrum analyzer's resolution bandwidth (RBW) = 100 kHz. Set the Video bandwidth (VBW) = 300 kHz. In order to make an accurate measurement. The 6 dB bandwidth must be greater than 500 kHz.
5. For 99% Bandwidth Measurement, the spectrum analyzer's resolution bandwidth (RBW) is set 1-5% of the emission bandwidth and set the Video bandwidth (VBW)  $\geq 3 * RBW$ .
6. Measure and record the results in the test report.

##### 3.1.4 Test Setup



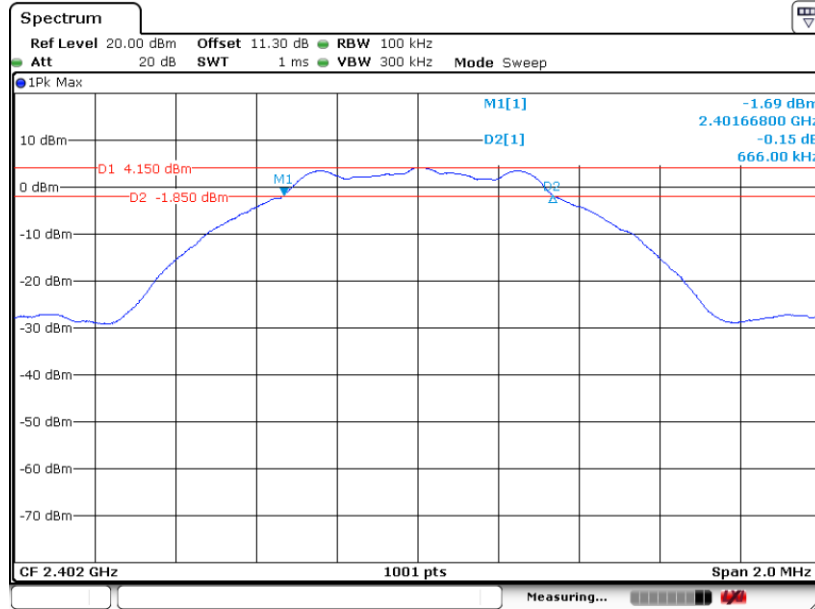


### 3.1.5 Test Result of 6dB Bandwidth

Please refer to Appendix A.

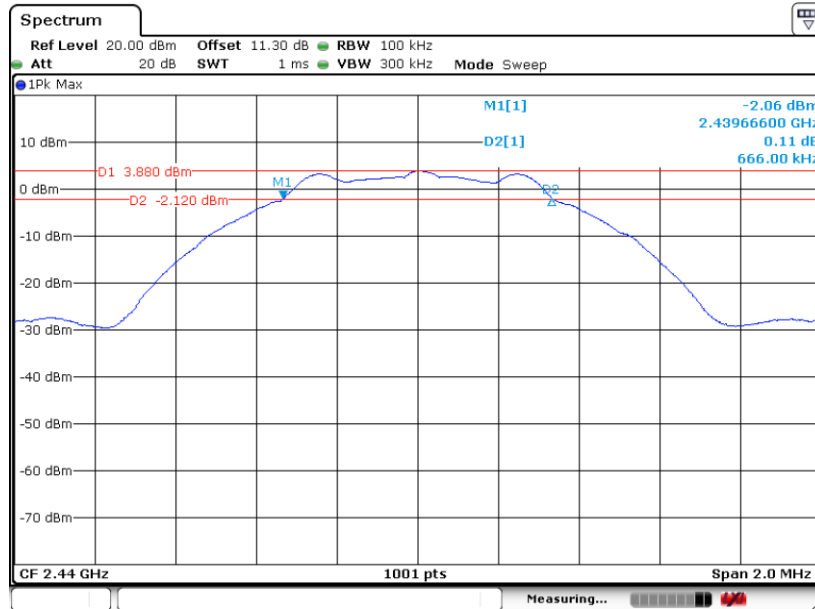
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#### 6 dB Bandwidth Plot on Channel 00



Date: 24.NOV.2020 19:31:18

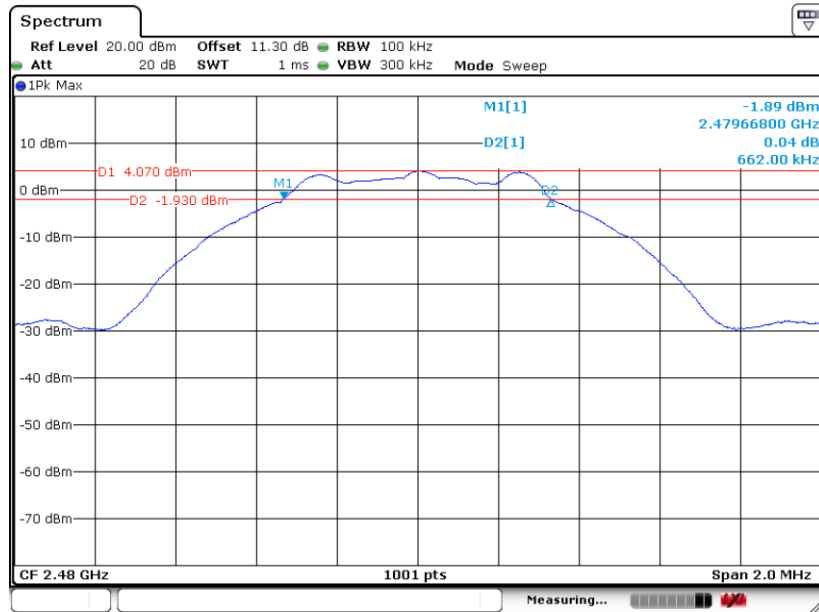
#### 6 dB Bandwidth Plot on Channel 19



Date: 24.NOV.2020 19:35:01



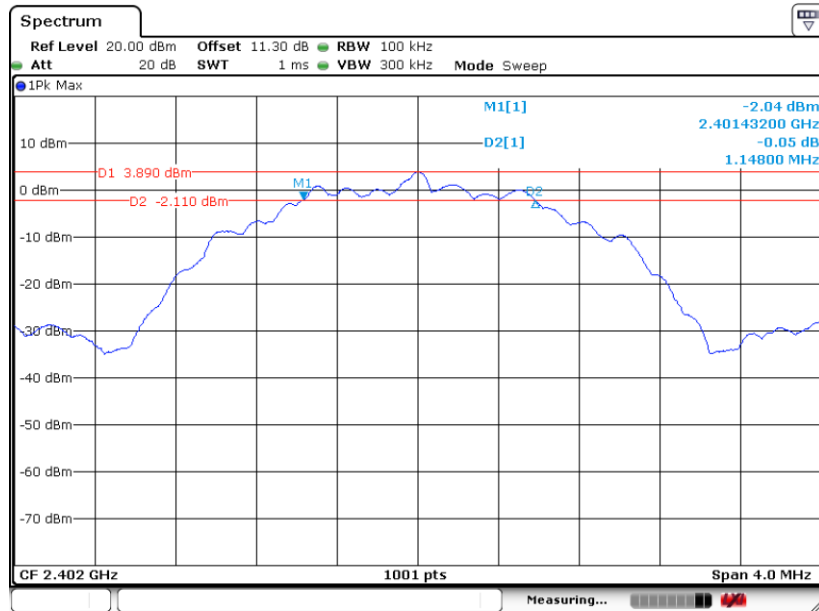
6 dB Bandwidth Plot on Channel 39



Date: 24.NOV.2020 19:38:02

<2Mbps>

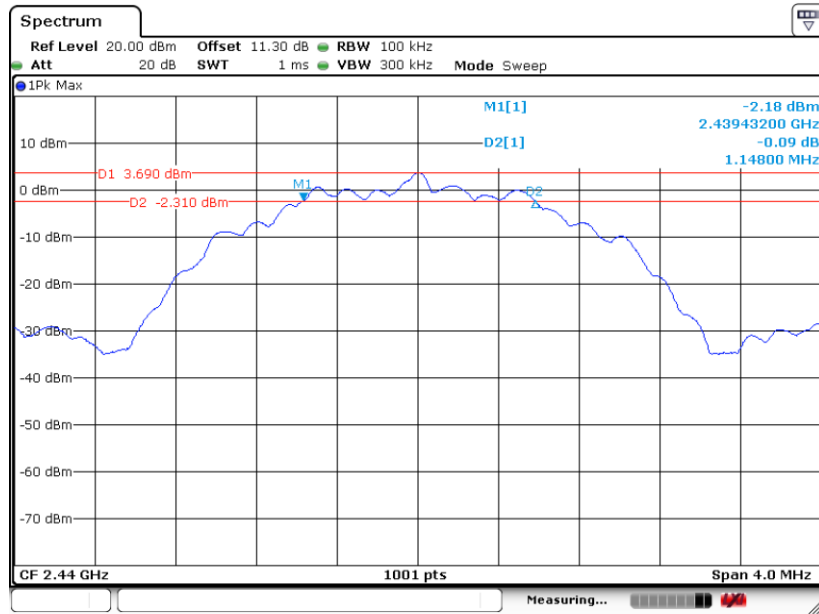
6 dB Bandwidth Plot on Channel 00



Date: 24.NOV.2020 19:42:00

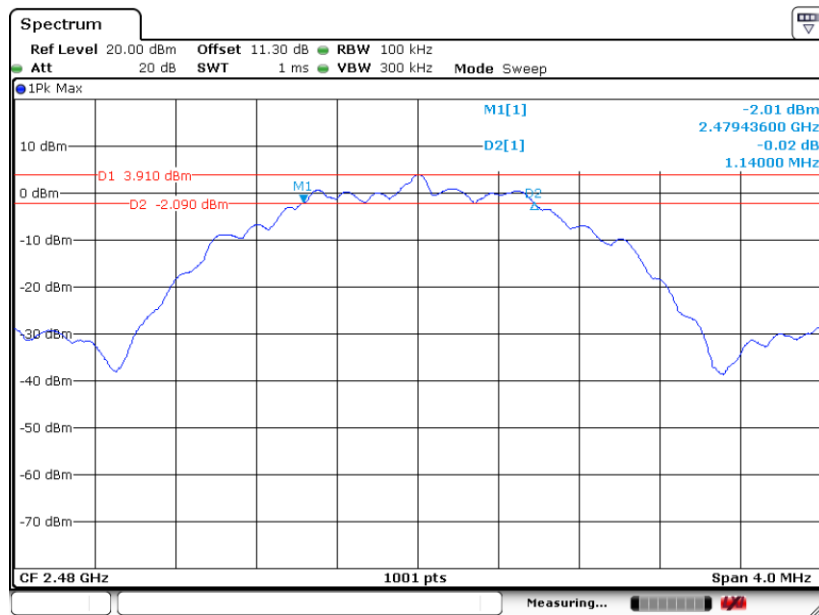


### 6 dB Bandwidth Plot on Channel 19



Date: 24.NOV.2020 19:46:29

### 6 dB Bandwidth Plot on Channel 39



Date: 24.NOV.2020 19:48:26

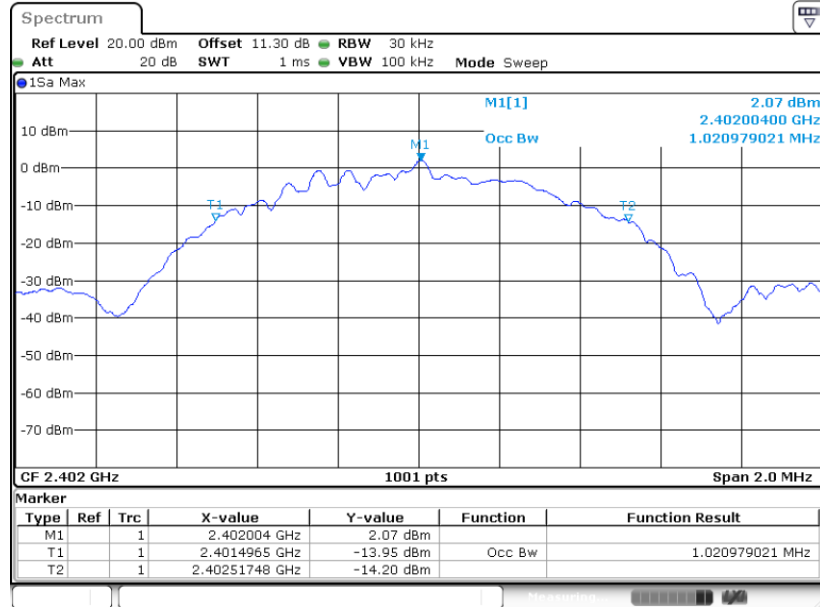


### 3.1.6 Test Result of 99% Occupied Bandwidth

Please refer to Appendix A.

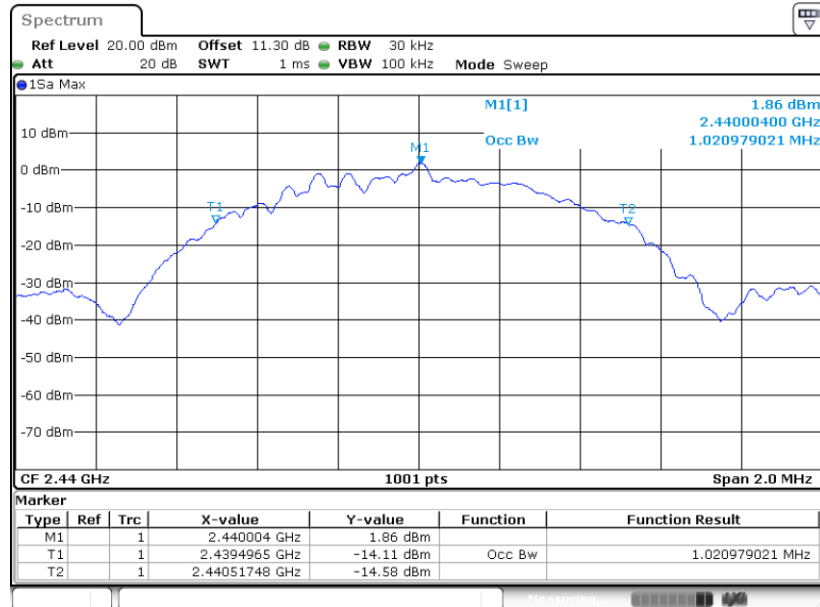
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#### 99% Bandwidth Plot on Channel 00



Date: 24.NOV.2020 19:33:06

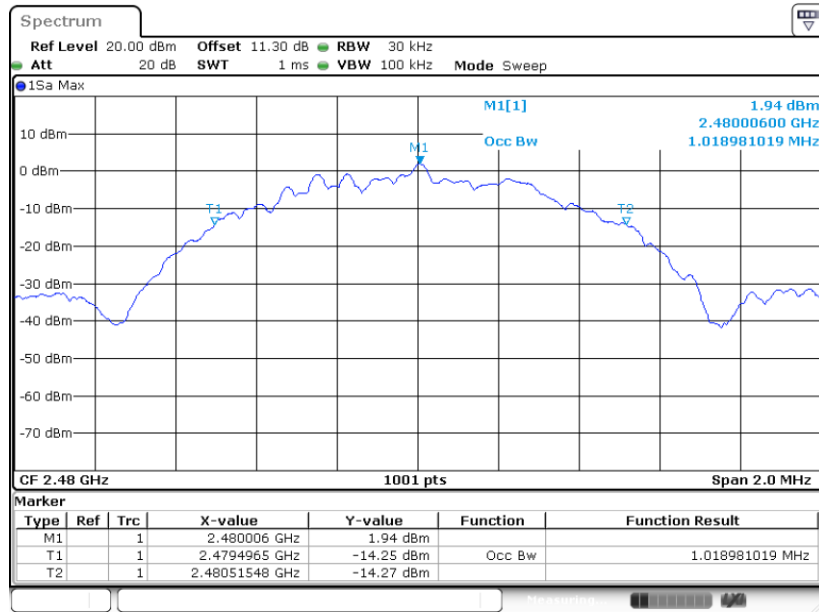
#### 99% Occupied Bandwidth Plot on Channel 19



Date: 24.NOV.2020 19:36:54



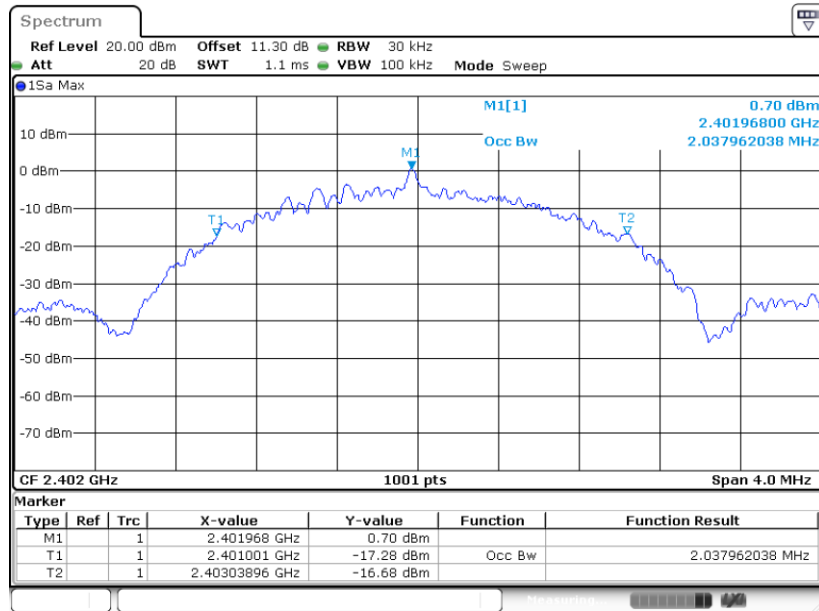
99% Occupied Bandwidth Plot on Channel 39



Date: 24.NOV.2020 19:37:30

<2Mbps>

99% Bandwidth Plot on Channel 00

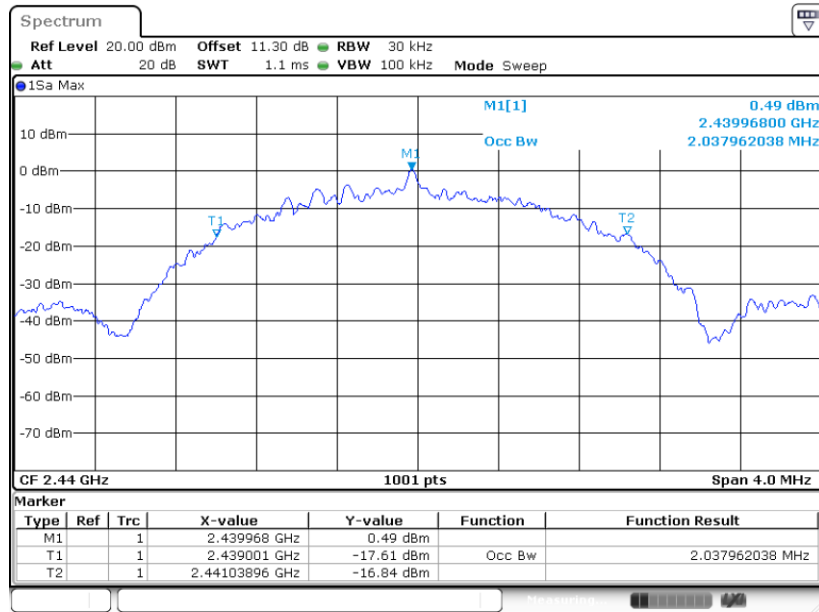


Date: 24.NOV.2020 19:41:26



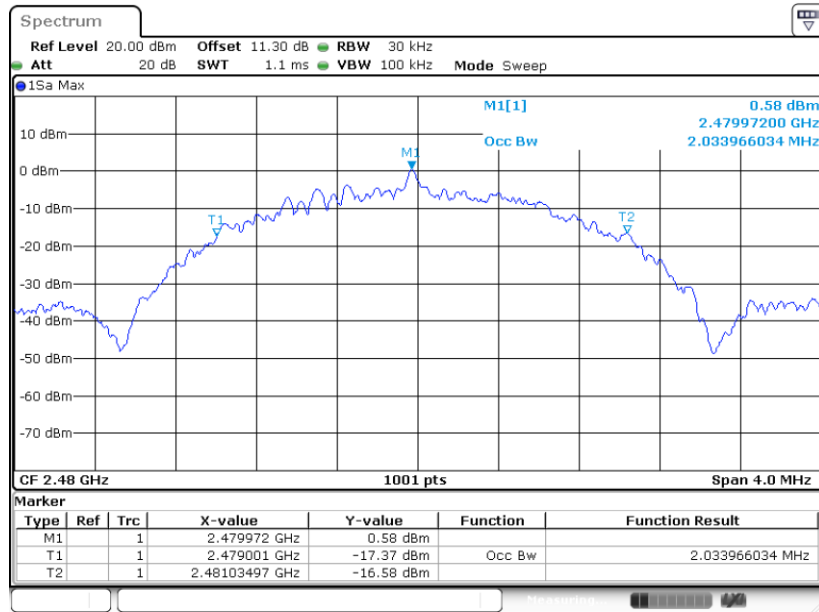


99% Occupied Bandwidth Plot on Channel 19



Date: 24.NOV.2020 19:45:57

99% Occupied Bandwidth Plot on Channel 39



Date: 24.NOV.2020 19:48:00

Note: The occupied channel bandwidth is maintained within the band of operation for all of the modulations.

## 3.2 Output Power Measurement

### 3.2.1 Limit of Output Power

For systems using digital modulation in the 2400-2483.5MHz, the limit for output power is 30dBm. If transmitting antenna of directional gain greater than 6dBi is used, the peak output power from the intentional radiator shall be reduced below the above stated value by the amount in dB that the directional gain of the antenna exceeds 6 dBi. In case of point-to-point operation, the limit has to be reduced by 1dB for every 3dB that the directional gain of the antenna exceeds 6dBi.

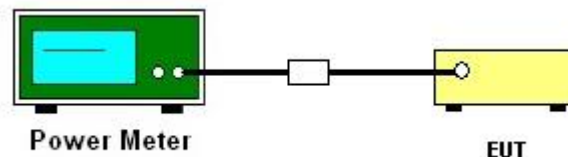
### 3.2.2 Measuring Instruments

See list of measuring equipment of this test report.

### 3.2.3 Test Procedures

1. For Average Power, the testing follows ANSI C63.10 Section 11.9.2.3.2 Method AVGP-M-G
2. The RF output of EUT was connected to the power meter by RF cable and attenuator.
3. The path loss was compensated to the results for each measurement.
4. Set to the maximum power setting and enable the EUT transmit continuously.
5. Measure the conducted output power and record the results in the test report.

### 3.2.4 Test Setup



### 3.2.5 Test Result of Average Output Power

Please refer to Appendix A.

### 3.3 Power Spectral Density Measurement

#### 3.3.1 Limit of Power Spectral Density

The peak power spectral density shall not be greater than 8dBm in any 3kHz band at any time interval of continuous transmission.

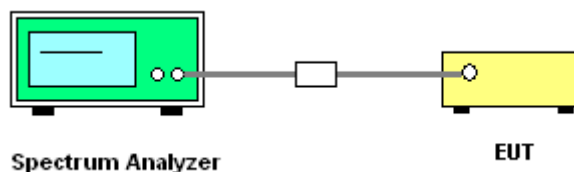
#### 3.3.2 Measuring Instruments

See list of measuring equipment of this test report.

#### 3.3.3 Test Procedures

1. The testing follows the ANSI C63.10 Section 11.10.2 Method PKPSD.
2. The RF output of EUT was connected to the spectrum analyzer by RF cable and attenuator. The path loss was compensated to the results for each measurement.
3. Set to the maximum power setting and enable the EUT transmit continuously.
4. Make the measurement with the spectrum analyzer's resolution bandwidth (RBW) = 3 kHz. Video bandwidth VBW = 10 kHz In order to make an accurate measurement, set the span to 1.5 times DTS Channel Bandwidth. (6dB BW)
5. Detector = peak, Sweep time = auto couple, Trace mode = max hold, Allow trace to fully stabilize. Use the peak marker function to determine the maximum power level.
6. Measure and record the results in the test report.
7. The Measured power density (dBm)/ 100kHz is a reference level and used as 20dBc down limit line for Conducted Band Edges and Conducted Spurious Emission.

#### 3.3.4 Test Setup



#### 3.3.5 Test Result of Power Spectral Density

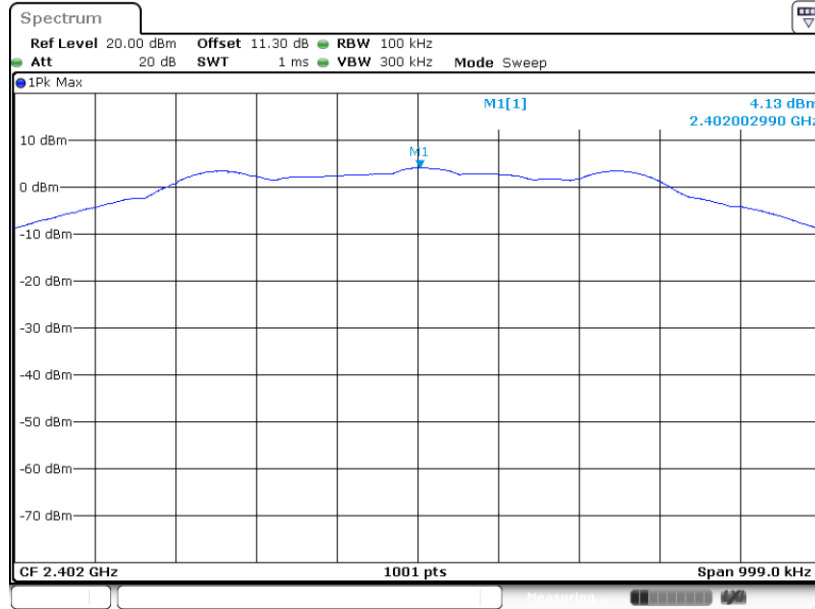
Please refer to Appendix A.



### 3.3.6 Test Result of Power Spectral Density Plots (100kHz)

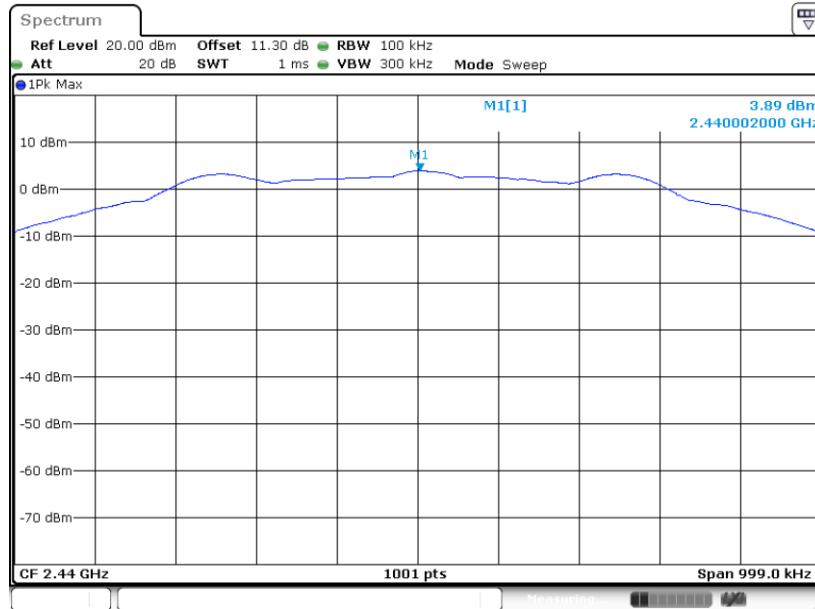
<1Mbps>

PSD 100kHz Plot on Channel 00



Date: 24.NOV.2020 19:31:51

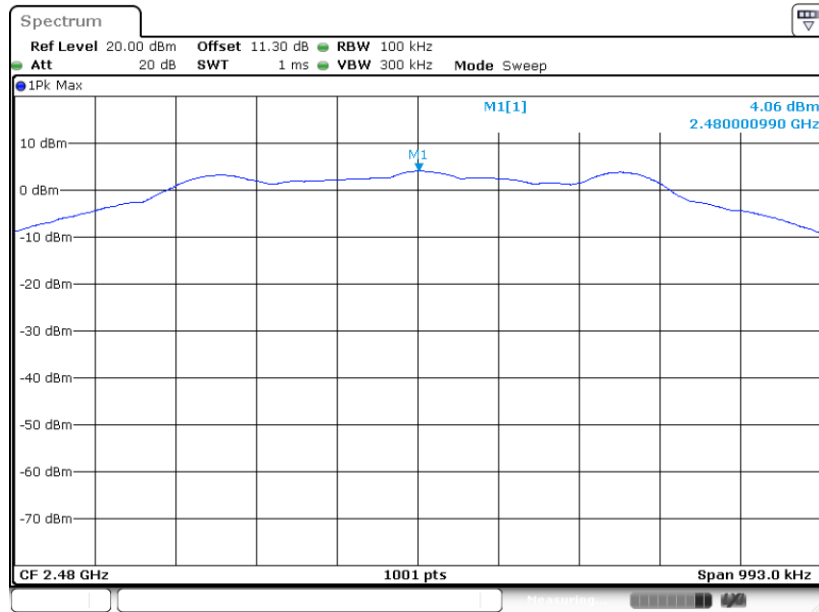
PSD 100kHz Plot on Channel 19



Date: 24.NOV.2020 19:35:54



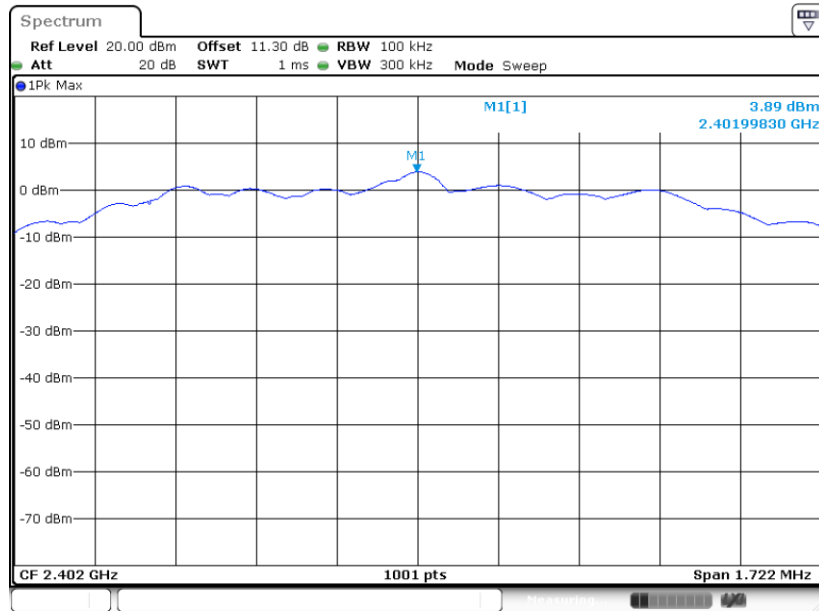
PSD 100kHz Plot on Channel 39



Date: 24.NOV.2020 19:38:27

<2Mbps>

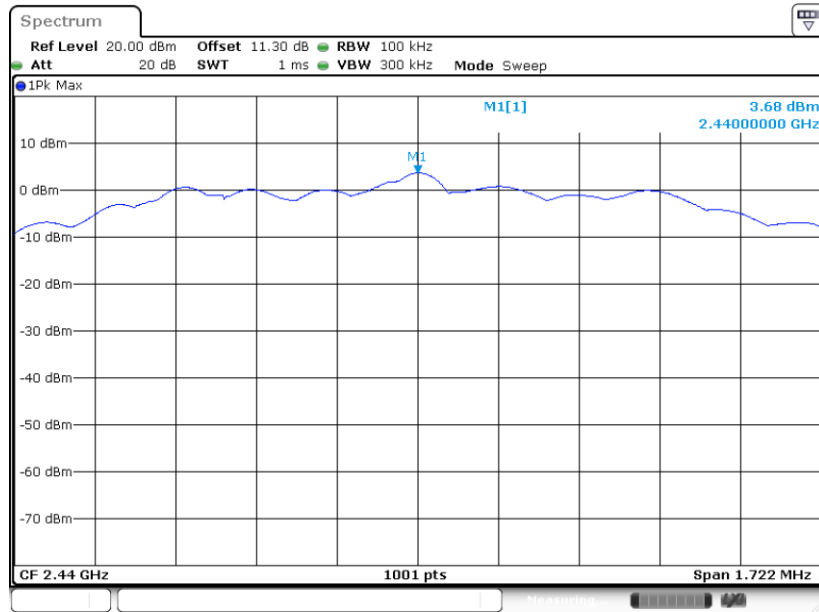
PSD 100kHz Plot on Channel 00



Date: 24.NOV.2020 19:42:29

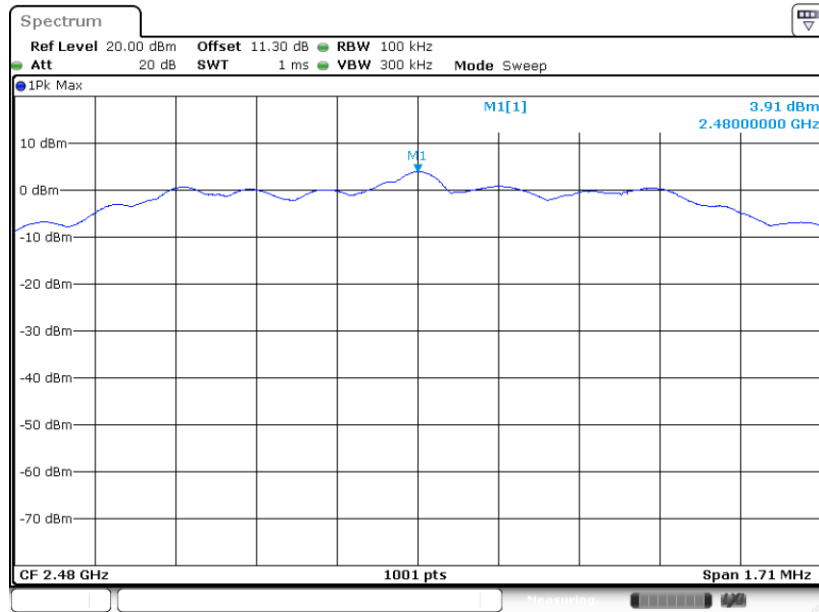


PSD 100kHz Plot on Channel 19



Date: 24.NOV.2020 19:46:49

PSD 100kHz Plot on Channel 39



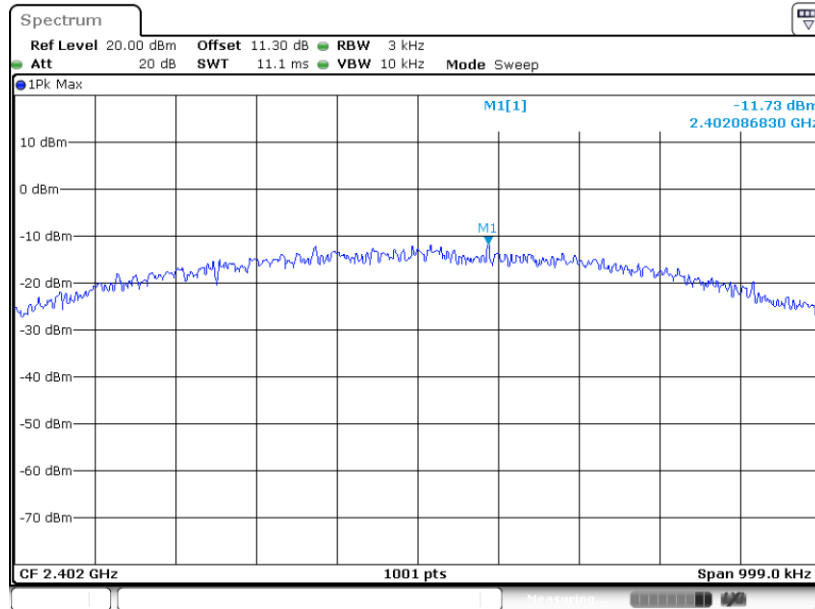
Date: 24.NOV.2020 19:48:48



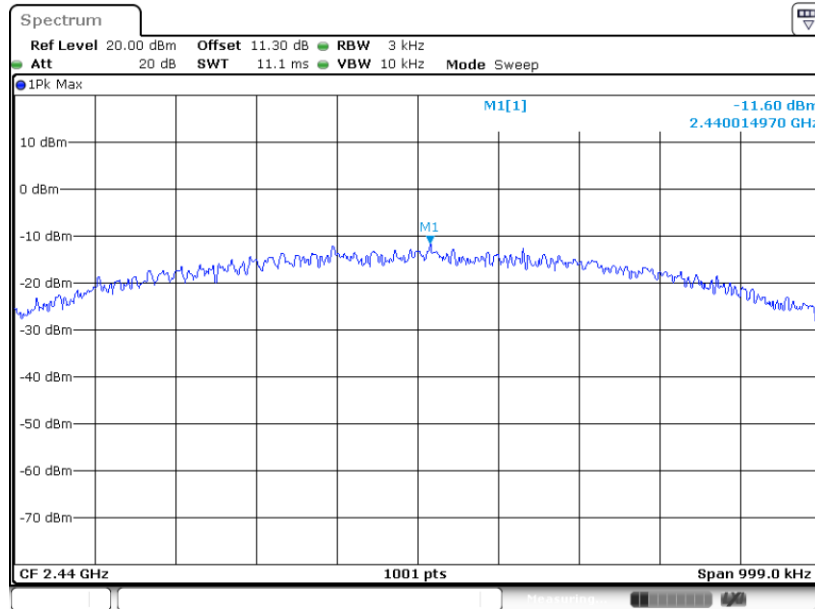
### 3.3.7 Test Result of Power Spectral Density Plots (3kHz)

<1Mbps>

PSD 3kHz Plot on Channel 00

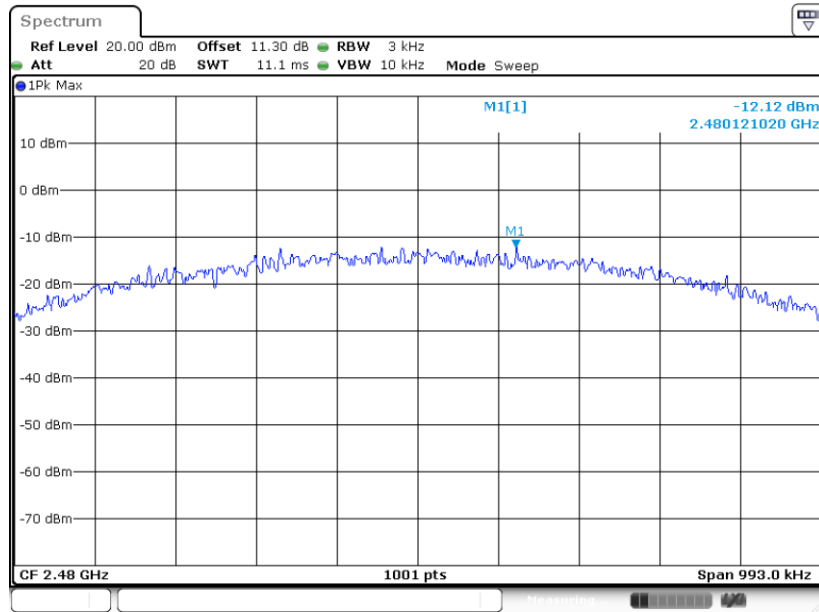


PSD 3kHz Plot on Channel 19





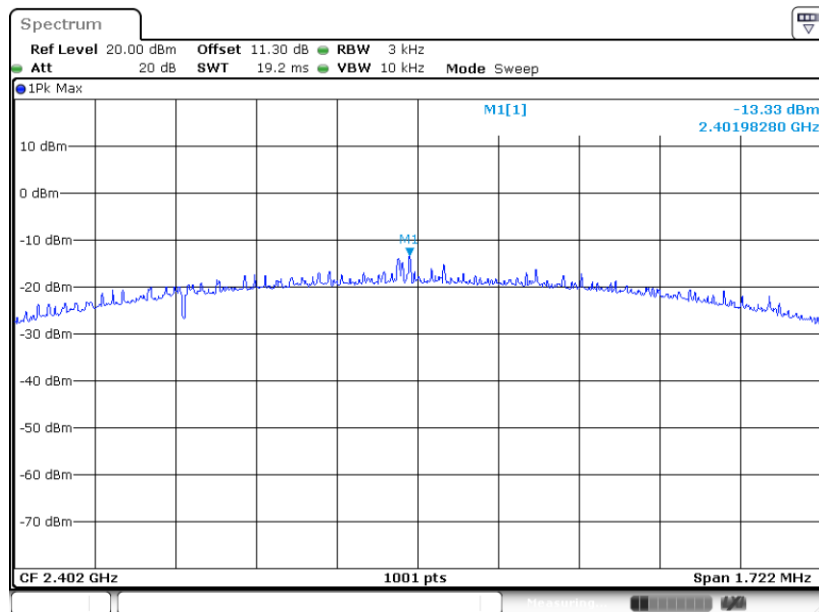
PSD 3kHz Plot on Channel 39



Date: 24.NOV.2020 19:38:14

<2Mbps>

PSD 3kHz Plot on Channel 00

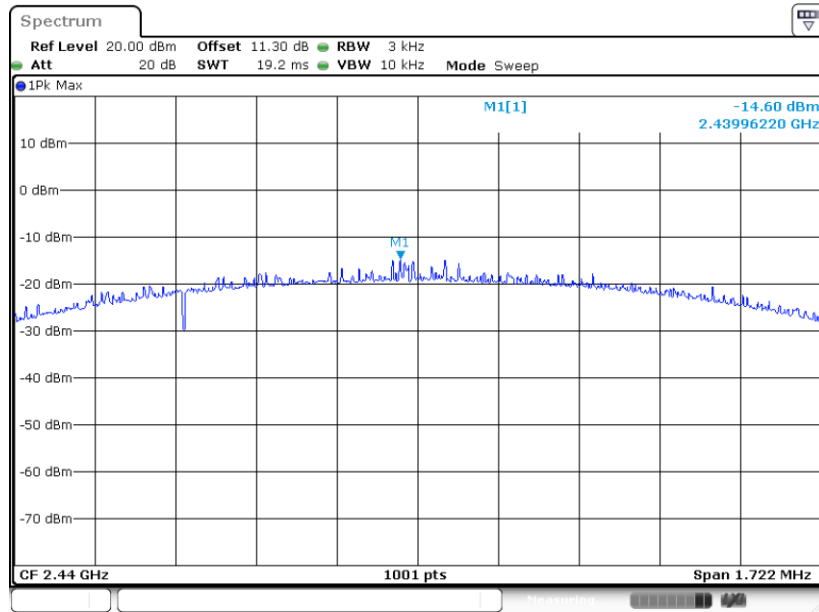


Date: 24.NOV.2020 19:42:19



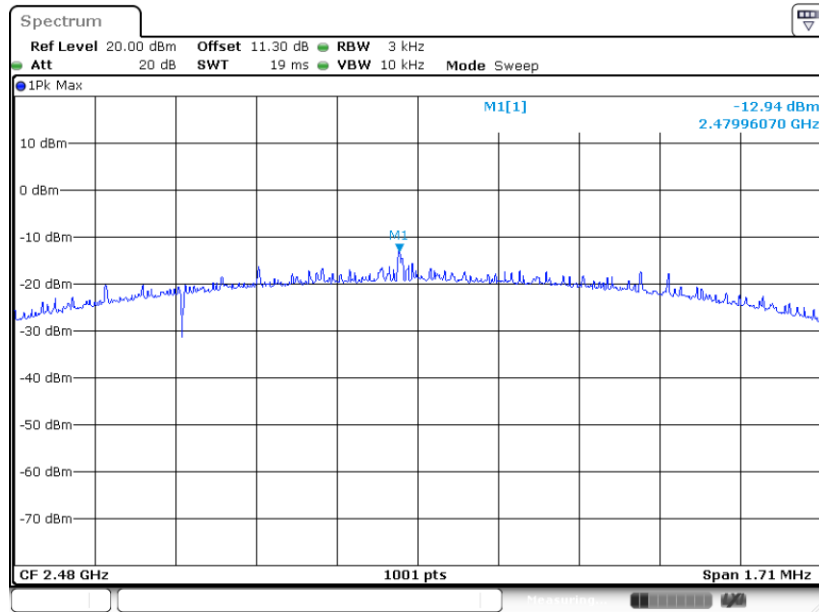


PSD 3kHz Plot on Channel 19



Date: 24.NOV.2020 19:46:40

PSD 3kHz Plot on Channel 39



Date: 24.NOV.2020 19:48:38

## 3.4 Conducted Band Edges and Spurious Emission Measurement

### 3.4.1 Limit of Conducted Band Edges and Spurious Emission

All harmonics/spurious must be at least 20 dB down from the highest emission level within the authorized band.

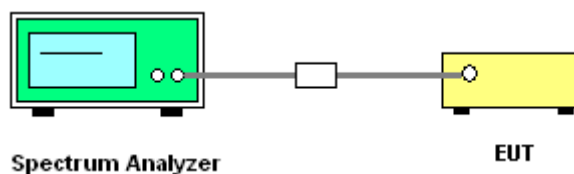
### 3.4.2 Measuring Instruments

See list of measuring equipment of this test report.

### 3.4.3 Test Procedure

1. The testing follows the ANSI C63.10 Section 11.11.3 Emission level measurement.
2. The RF output of EUT was connected to the spectrum analyzer by RF cable and attenuator. The path loss was compensated to the results for each measurement.
3. Set to the maximum power setting and enable the EUT transmit continuously.
4. Set RBW = 100 kHz, VBW=300 kHz, Peak Detector. Unwanted Emissions measured in any 100 kHz bandwidth outside of the authorized frequency band shall be attenuated by at least 20 dB relative to the maximum in-band peak PSD level in 100 kHz when maximum peak conducted output power procedure is used. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, the attenuation required under this paragraph shall be 30 dB instead of 20 dB.
5. Measure and record the results in the test report.
6. The RF fundamental frequency should be excluded against the limit line in the operating frequency band.

### 3.4.4 Test Setup

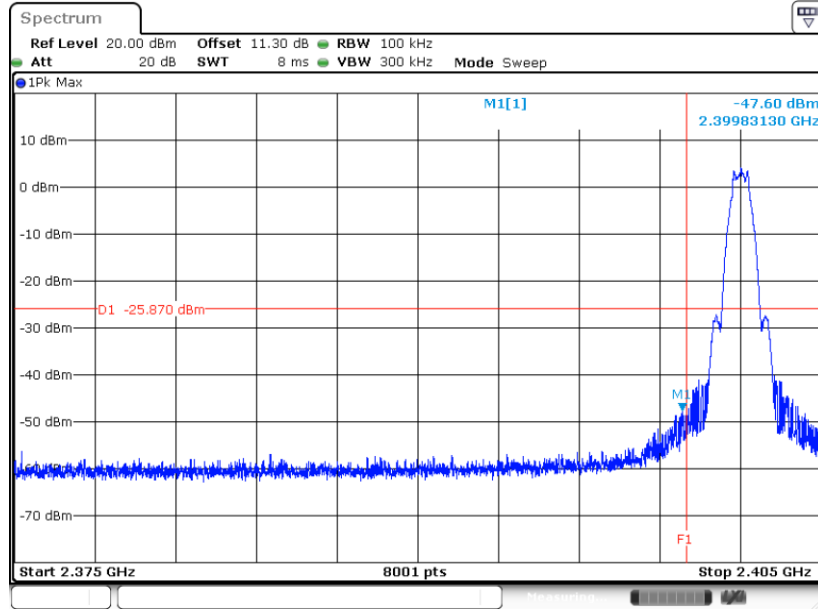




### 3.4.5 Test Result of Conducted Band Edges Plots

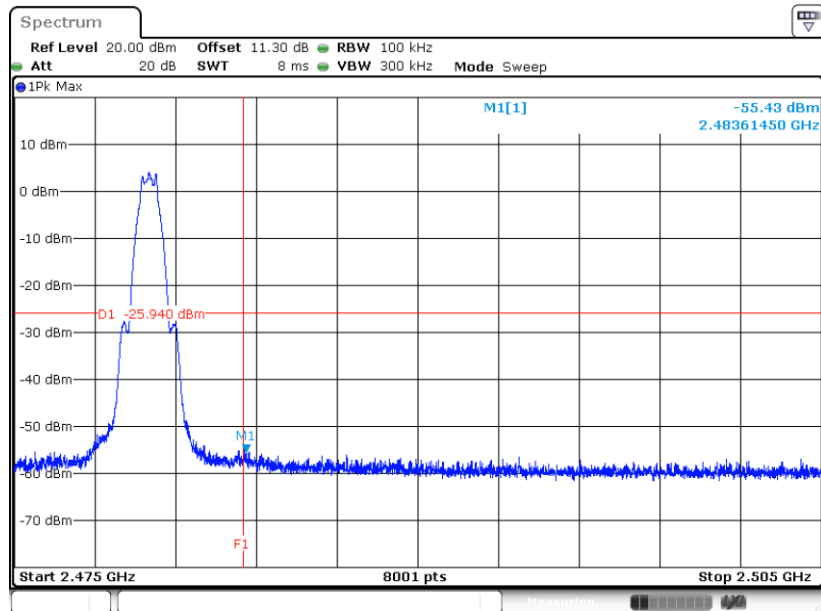
<1Mbps>

#### Low Band Edge Plot on Channel 00



Date: 24.NOV.2020 19:32:03

#### High Band Edge Plot on Channel 39

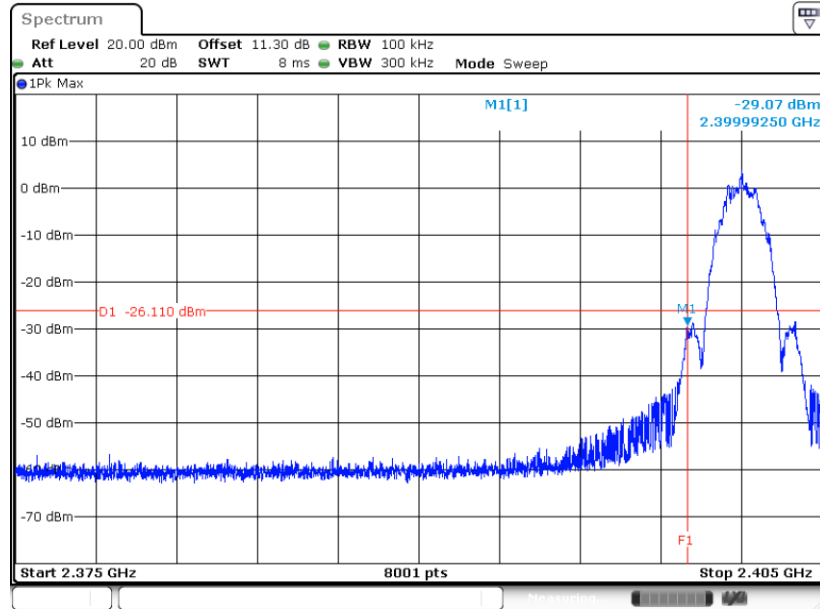


Date: 24.NOV.2020 19:38:46



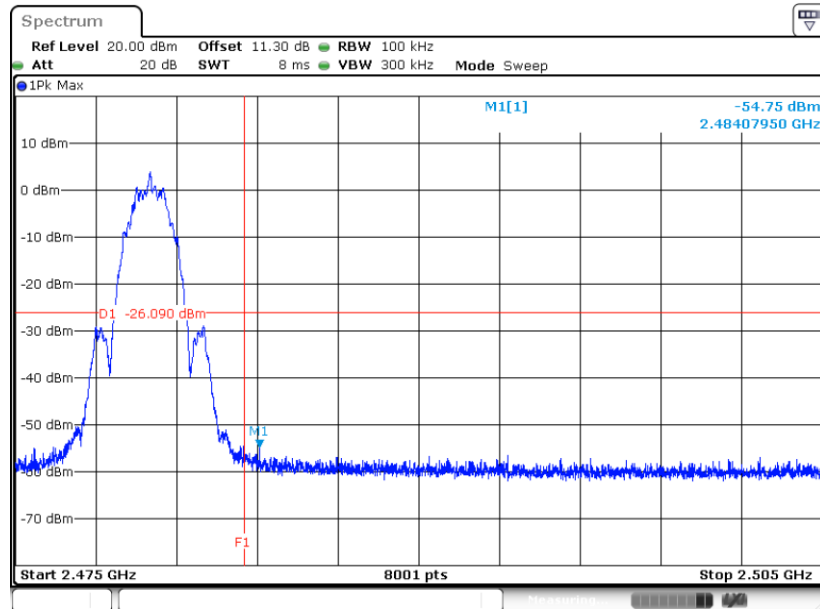
<2Mbps>

Low Band Edge Plot on Channel 00



Date: 24.NOV.2020 19:42:41

High Band Edge Plot on Channel 39



Date: 24.NOV.2020 19:49:04

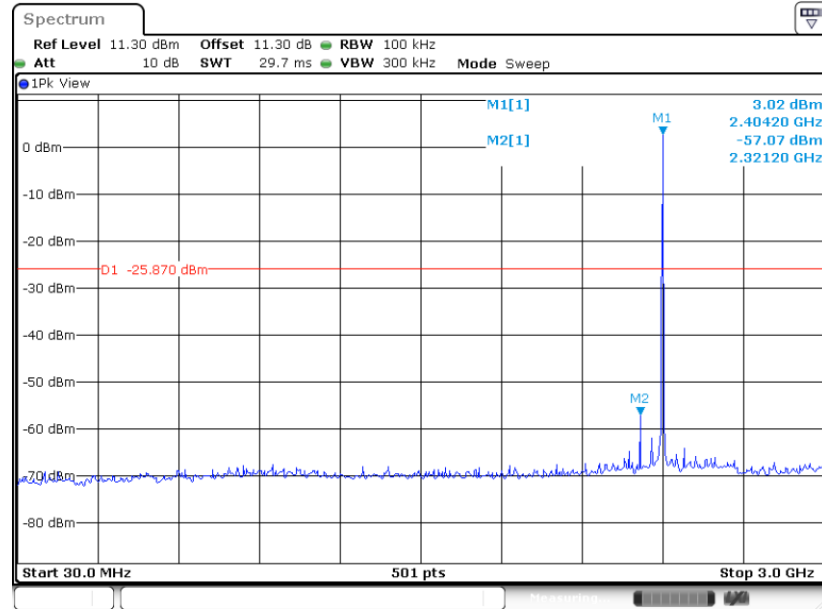


### 3.4.6 Test Result of Conducted Spurious Emission Plots

<1Mbps>

Conducted Spurious Emission Plot on Bluetooth LE 1Mbps

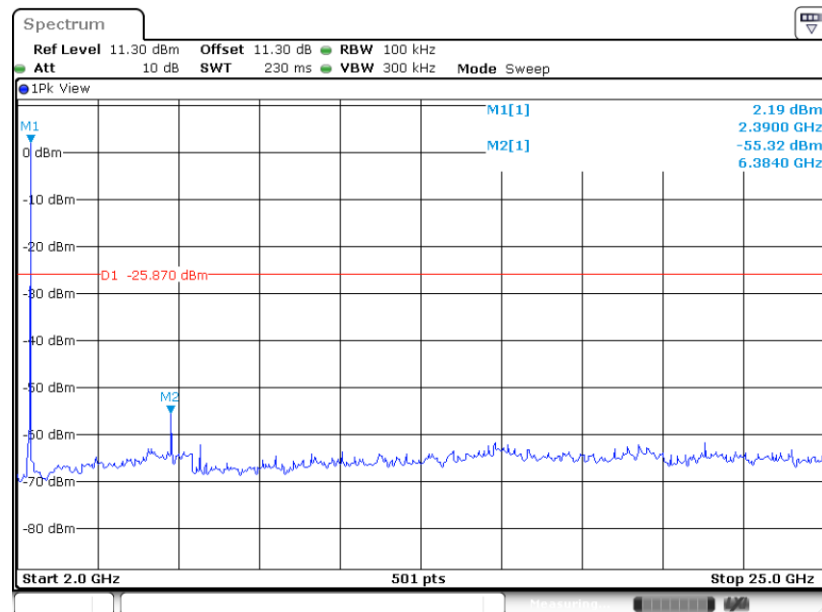
GFSK Channel 00



Date: 24.NOV.2020 19:32:27

Conducted Spurious Emission Plot on Bluetooth LE 1Mbps

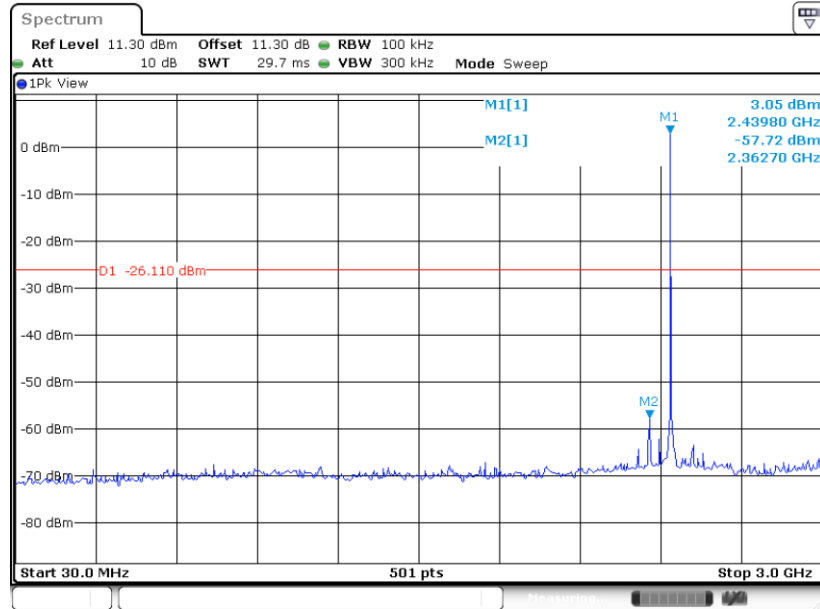
GFSK Channel 00



Date: 24.NOV.2020 19:32:52

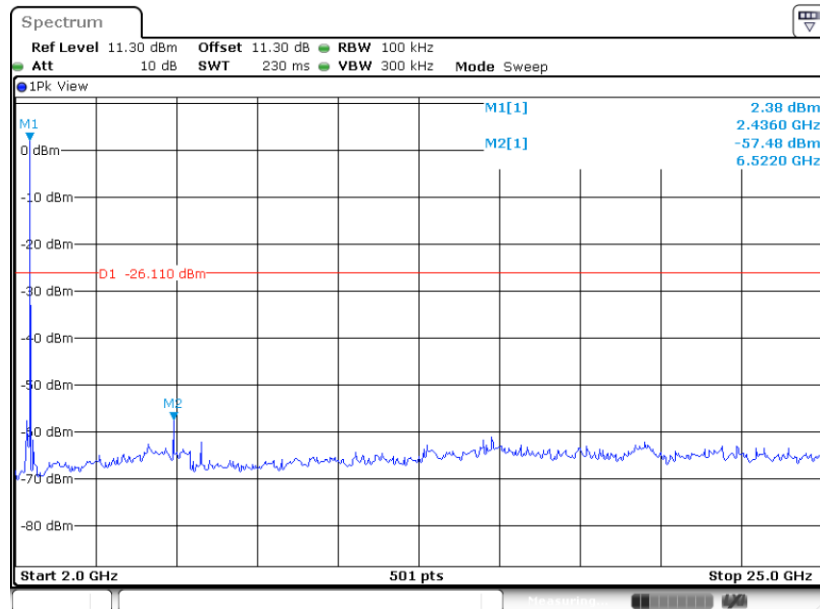


### Conducted Spurious Emission Plot on Bluetooth LE 1Mbps GFSK Channel 19



Date: 24.NOV.2020 19:36:15

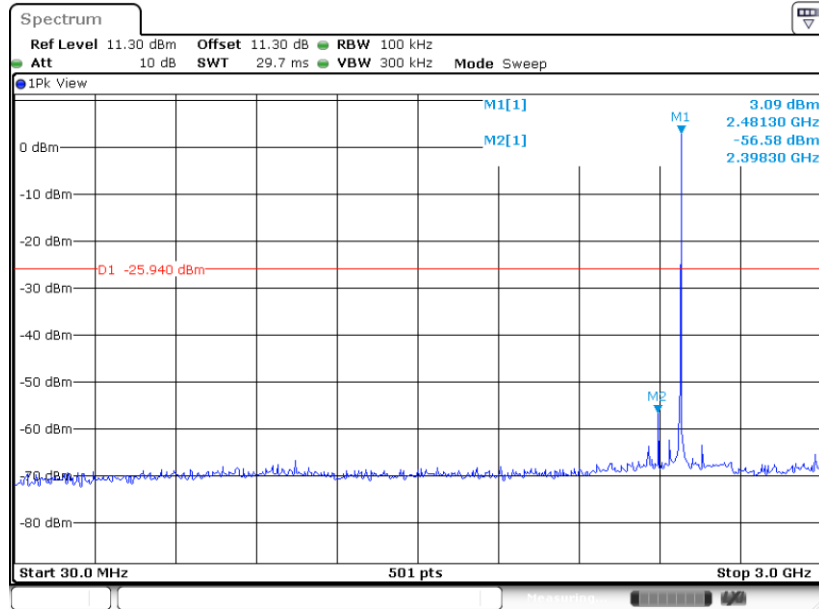
### Conducted Spurious Emission Plot on Bluetooth LE 1Mbps GFSK Channel 19



Date: 24.NOV.2020 19:36:28

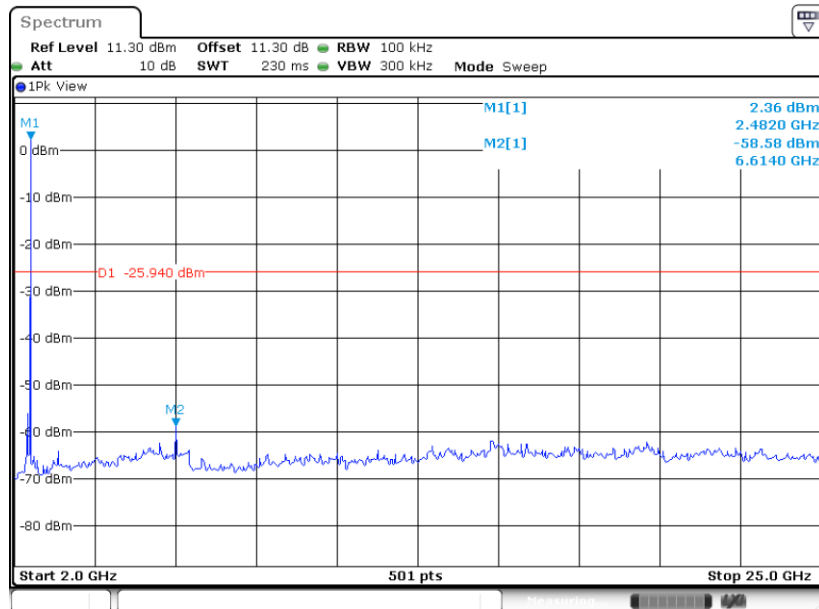


### Conducted Spurious Emission Plot on Bluetooth LE 1Mbps GFSK Channel 39



Date: 24.NOV.2020 19:39:28

### Conducted Spurious Emission Plot on Bluetooth LE 1Mbps GFSK Channel 39



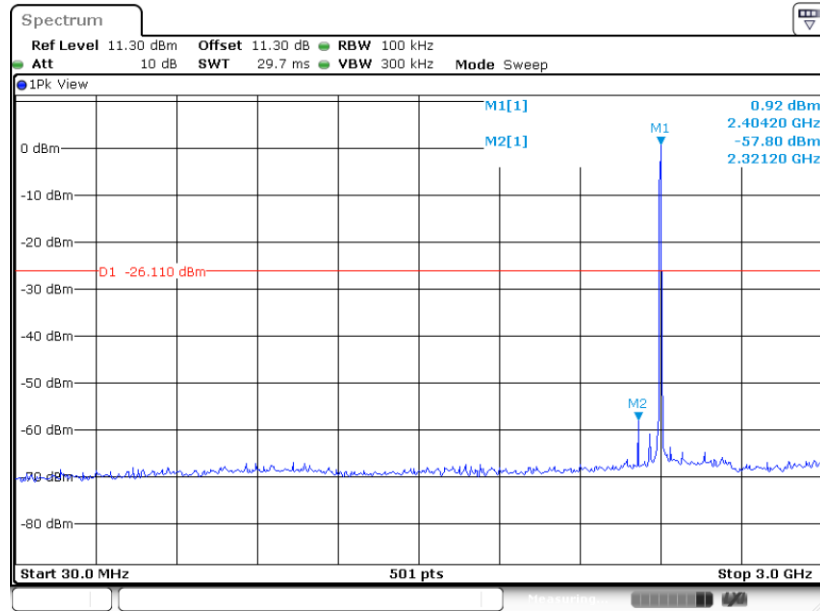
Date: 24.NOV.2020 19:39:40



<2Mbps>

Conducted Spurious Emission Plot on Bluetooth LE 2Mbps

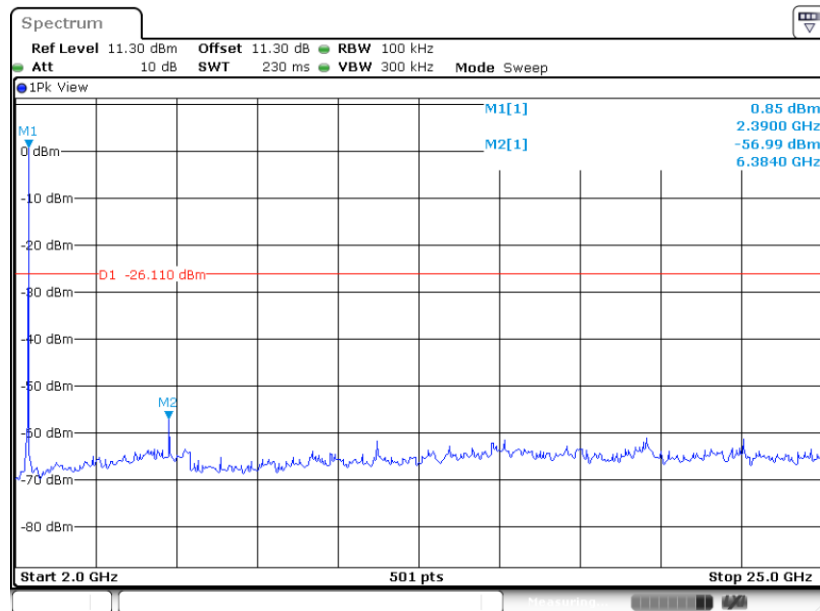
GFSK Channel 00



Date: 24.NOV.2020 19:45:21

Conducted Spurious Emission Plot on Bluetooth LE 2Mbps

GFSK Channel 00

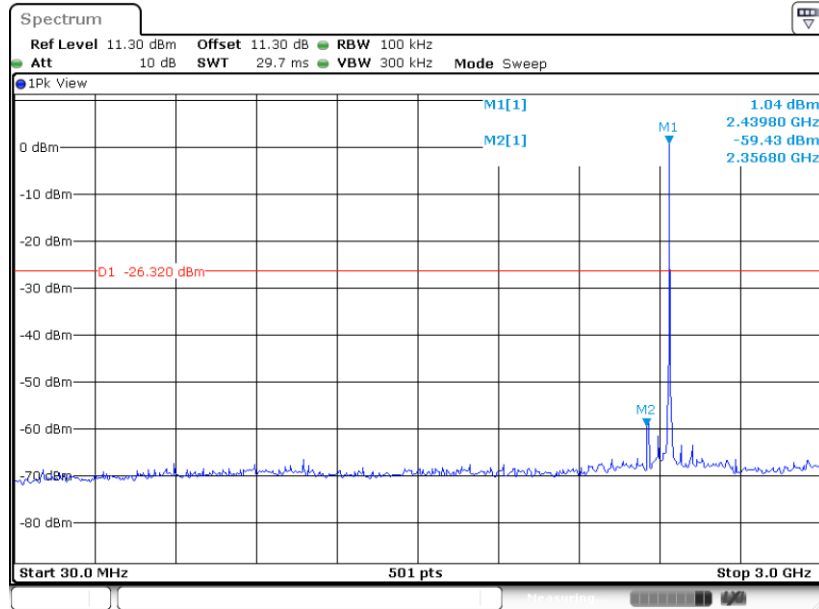


Date: 24.NOV.2020 19:45:32



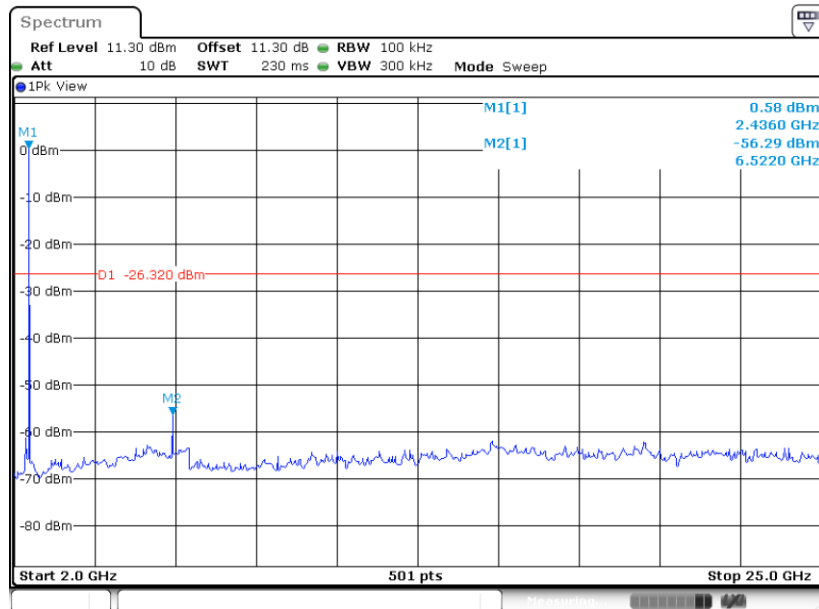


### Conducted Spurious Emission Plot on Bluetooth LE 2Mbps GFSK Channel 19



Date: 24.NOV.2020 19:47:20

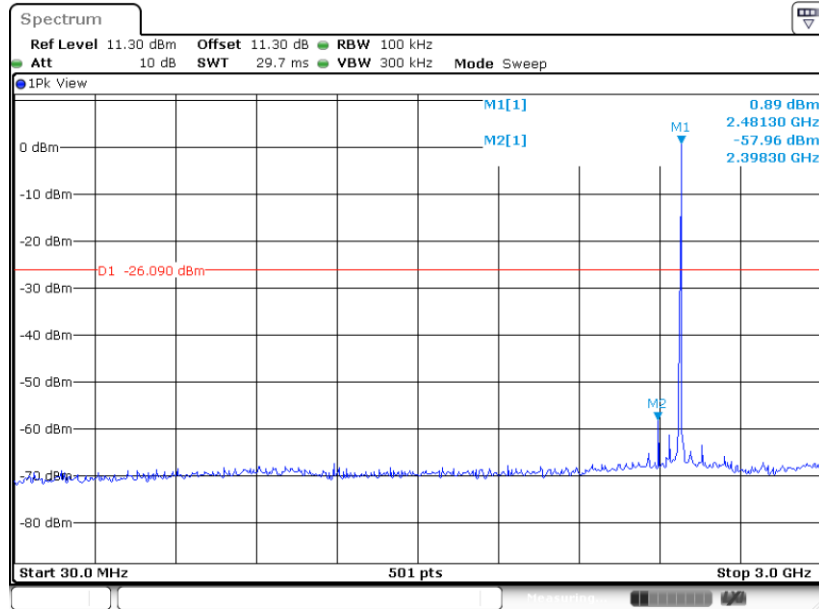
### Conducted Spurious Emission Plot on Bluetooth LE 2Mbps GFSK Channel 19



Date: 24.NOV.2020 19:47:31

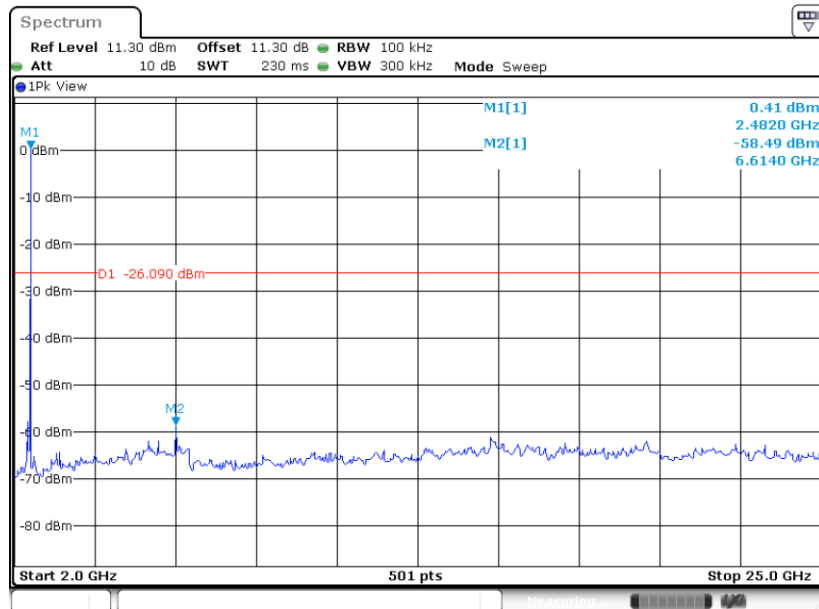


### Conducted Spurious Emission Plot on Bluetooth LE 2Mbps GFSK Channel 39



Date: 24.NOV.2020 19:49:32

### Conducted Spurious Emission Plot on Bluetooth LE 2Mbps GFSK Channel 39



Date: 24.NOV.2020 19:49:56



### 3.5 Radiated Band Edges and Spurious Emission Measurement

#### 3.5.1 Limit of Radiated Band Edges and Spurious Emission

In any 100 kHz bandwidth outside the intentional radiator frequency band, all harmonics/spurious must be at least 20 dB below the highest emission level within the authorized band. If the output power of this device was measured by spectrum analyzer, the attenuation under this paragraph shall be 30 dB instead of 20 dB. In addition, radiated emissions which fall in the restricted bands must also comply with the limits as below.

Frequency (MHz)	Field Strength (microvolts/meter)	Measurement Distance (meters)
0.009 – 0.490	2400/F(kHz)	300
0.490 – 1.705	24000/F(kHz)	30
1.705 – 30.0	30	30
30 – 88	100	3
88 – 216	150	3
216 - 960	200	3
Above 960	500	3

#### 3.5.2 Measuring Instruments

See list of measuring equipment of this test report.

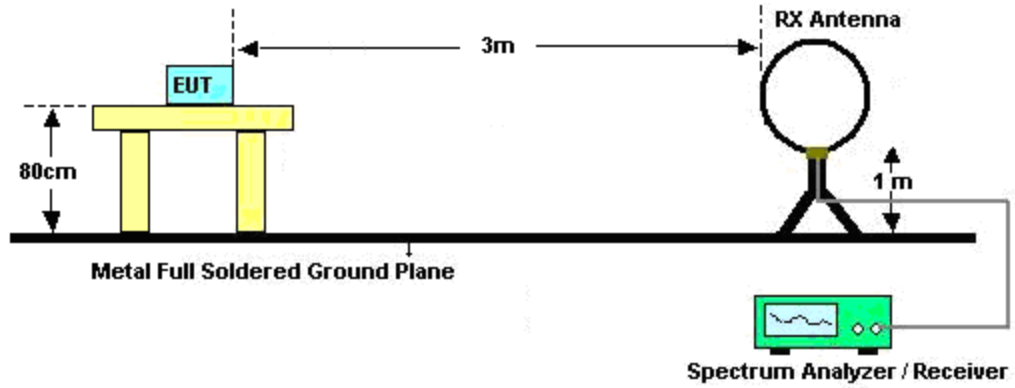


### 3.5.3 Test Procedures

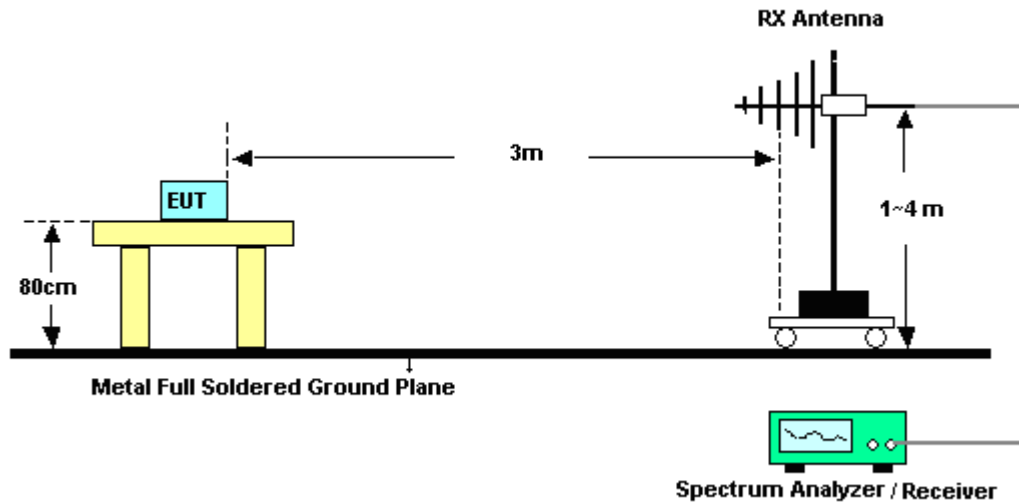
1. The testing follows the ANSI C63.10 Section 11.12.1 Radiated emission measurements.
2. The EUT was arranged to its worst case and then tune the antenna tower (from 1 m to 4 m) and turntable (from 0 degree to 360 degrees) to find the maximum reading. A pre-amp and a high pass filter are used for the test in order to get better signal level.
3. The EUT was placed on a turntable with 0.8 meter for frequency below 1GHz and 1.5 meter for frequency above 1GHz respectively above ground.
4. The EUT was set 3 meters from the interference receiving antenna, which was mounted on the top of a variable height antenna tower.
5. Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level
6. For testing below 1GHz, if the emission level of the EUT in peak mode was 3 dB lower than the limit specified, then peak values of EUT will be reported, otherwise, the emissions will be repeated one by one using the CISPR quasi-peak method and reported.
7. For testing above 1GHz, the emission level of the EUT in peak mode was 20dB lower than average limit (that means the emission level in average mode also complies with the limit in average mode), then peak values of EUT will be reported, otherwise, the emissions will be measured in average mode again and reported.
8. Use the following spectrum analyzer settings:
  - (1) Span shall wide enough to fully capture the emission being measured;
  - (2) Set RBW=100 kHz for  $f < 1$  GHz;  $VBW \geq RBW$ ; Sweep = auto; Detector function = peak; Trace = max hold;
  - (3) Set RBW = 1 MHz, VBW= 3MHz for  $f \geq 1$  GHz for peak measurement.  
For average measurement:
    - $VBW = 10$  Hz, when duty cycle is no less than 98 percent.
    - $VBW \geq 1/T$ , when duty cycle is less than 98 percent where T is the minimum transmission duration over which the transmitter is on and is transmitting at its maximum power control level for the tested mode of operation.

### 3.5.4 Test Setup

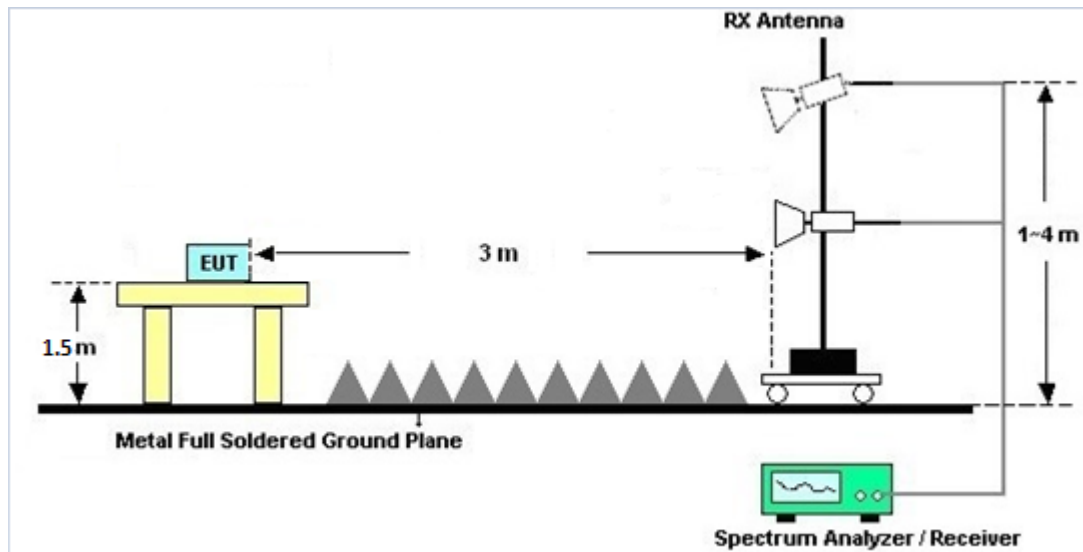
For radiated test below 30MHz



For radiated test from 30MHz to 1GHz



For radiated test above 1GHz



### 3.5.5 Test Results of Radiated Spurious Emissions (9 kHz ~ 30 MHz)

The low frequency, which started from 9 kHz to 30MHz, was pre-scanned and the result which was 20dB lower than the limit line was not reported.

There is a comparison data of both open-field test site and alternative test site - semi-Anechoic chamber according to 414788 D01 Radiated Test Site v01r01, and the result came out very similar.

### 3.5.6 Test Result of Radiated Spurious at Band Edges

Please refer to Appendix C and D.

### 3.5.7 Duty Cycle

Please refer to Appendix E.

### 3.5.8 Test Result of Radiated Spurious Emission (30MHz ~ 10th Harmonic)

Please refer to Appendix C and D.



### 3.6 AC Conducted Emission Measurement

#### 3.6.1 Limit of AC Conducted Emission

For equipment 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.

Frequency of emission (MHz)	Conducted limit (dB $\mu$ V)	
	Quasi-peak	Average
0.15-0.5	66 to 56*	56 to 46*
0.5-5	56	46
5-30	60	50

\*Decreases with the logarithm of the frequency.

#### 3.6.2 Measuring Instruments

See list of measuring equipment of this test report.

#### 3.6.3 Test Procedures

1. The EUT was placed 0.4 meter from the conducting wall of the shielding room was kept at least 80 centimeters from any other grounded conducting surface.
2. Connect EUT to the power mains through a line impedance stabilization network (LISN).
3. All the support units are connecting to the other LISN.
4. The LISN provides 50 ohm coupling impedance for the measuring instrument.
5. The FCC states that a 50 ohm, 50 microhenry LISN should be used.
6. Both sides of AC line were checked for maximum conducted interference.
7. The frequency range from 150 kHz to 30 MHz was searched.
8. Set the test-receiver system to Peak Detect Function and specified bandwidth (IF Bandwidth = 9kHz) with Maximum Hold Mode. Then measurement is also conducted by Average Detector and Quasi-Peak Detector Function respectively.

### 3.6.4 Test Setup



### 3.6.5 Test Result of AC Conducted Emission

Please refer to Appendix B.





## **3.7 Antenna Requirements**

### **3.7.1 Standard Applicable**

If directional gain of transmitting antennas is greater than 6dBi, the power shall be reduced by the same level in dB comparing to gain minus 6dBi. 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 rule.

### **3.7.2 Antenna Anti-Replacement Construction**

An embedded-in antenna design is used.

### **3.7.3 Antenna Gain**

The antenna peak gain of EUT is less than 6 dBi. Therefore, it is not necessary to reduce maximum peak output power limit.



## 4 List of Measuring Equipment

Instrument	Brand Name	Model No.	Serial No.	Characteristics	Calibration Date	Test Date	Due Date	Remark
Hygrometer	Testo	608-H1	34893241	N/A	Mar. 02, 2020	Nov. 23, 2020~ Nov. 24, 2020	Mar. 01, 2021	Conducted (TH05-HY)
Power Sensor	DARE	RPR3006W	16I00054S NO10	10MHz~6GHz	Dec. 23, 2019	Nov. 23, 2020~ Nov. 24, 2020	Dec. 22, 2020	Conducted (TH05-HY)
Signal Analyzer	Rohde & Schwarz	FSV40	101566	10Hz ~ 40GHz	Jul. 22, 2020	Nov. 23, 2020~ Nov. 24, 2020	Jul. 21, 2021	Conducted (TH05-HY)
Switch Box & RF Cable	EM Electronics	EMSW18SE	SW200302	N/A	Mar. 17, 2020	Nov. 23, 2020~ Nov. 24, 2020	Mar. 16, 2021	Conducted (TH05-HY)
AC Power Source	ChainTek	APC-1000W	N/A	N/A	N/A	Dec. 07, 2020	N/A	Conduction (CO05-HY)
EMI Test Receiver	Rohde & Schwarz	ESR3	102317	9kHz~3.6GHz	Sep. 11, 2020	Dec. 07, 2020	Sep. 10, 2021	Conduction (CO05-HY)
LISN	Rohde & Schwarz	ENV216	100081	9kHz~30MHz	Nov. 16, 2020	Dec. 07, 2020	Nov. 15, 2021	Conduction (CO05-HY)
LISN	TESEQ	NNB 52	36122	9kHz~30MHz	Feb. 04, 2020	Dec. 07, 2020	Feb. 03, 2021	Conduction (CO05-HY)
Software	Rohde & Schwarz	EMC32 V10.30	N/A	N/A	N/A	Dec. 07, 2020	N/A	Conduction (CO05-HY)
LF Cable	HUBER + SUHNER	RG-214/U	LF01	N/A	Jan. 02, 2020	Dec. 07, 2020	Jan. 01, 2021	Conduction (CO05-HY)
Pulse Limiter	Rohde & Schwarz	ESH3-Z2	100851	N/A	Jan. 02, 2020	Dec. 07, 2020	Jan. 01, 2021	Conduction (CO05-HY)
Hygrometer	Testo	608-H1	34893241	N/A	Mar. 02, 2020	Dec. 07, 2020	Mar. 01, 2021	Conduction (CO05-HY)



Instrument	Brand Name	Model No.	Serial No.	Characteristics	Calibration Date	Test Date	Due Date	Remark
Horn Antenna	SCHWARZBECK	BBHA 9120 D	9120D-1326	1GHz ~ 18GHz	Nov. 03, 2020	Dec. 03, 2020~Jan. 07, 2021	Nov. 02, 2021	Radiation (03CH11-HY)
SHF-EHF Horn Antenna	SCHWARZBECK	BBHA 9170	BBHA9170576	18GHz~40GHz	May 22, 2020	Dec. 03, 2020~Jan. 07, 2021	May 21, 2021	Radiation (03CH11-HY)
Bilog Antenna	TESEQ	CBL 6111D & N-6-06	35414 & AT-N0602	30MHz~1GHz	Oct. 11, 2020	Dec. 03, 2020~Jan. 07, 2021	Oct. 10, 2021	Radiation (03CH11-HY)
Preamplifier	Keysight	83017A	MY53270080	1GHz~26.5GHz	Nov. 12, 2020	Dec. 03, 2020~Jan. 07, 2021	Nov. 11, 2021	Radiation (03CH11-HY)
Preamplifier	EMEC	EM18G40G	060801	18GHz~40GHz	Jun. 15, 2020	Dec. 03, 2020~Jan. 07, 2021	Jun. 14, 2021	Radiation (03CH11-HY)
Amplifier	SONOMA	310N	187312	9kHz~1GHz	Dec. 02, 2020	Dec. 03, 2020~Jan. 07, 2021	Dec. 01, 2021	Radiation (03CH11-HY)
Spectrum Analyzer	Keysight	N9010A	MY54200486	10Hz~44GHz	Feb. 10, 2020	Dec. 03, 2020~Jan. 07, 2021	Feb. 09, 2021	Radiation (03CH11-HY)
EMI Test Receiver	Keysight	N9038A(MXE)	MY55420170	20MHz~8.4GHz	Oct. 23, 2020	Dec. 03, 2020~Jan. 07, 2021	Oct. 22, 2021	Radiation (03CH11-HY)
Controller	EMEC	EM 1000	N/A	Control Turn table & Ant Mast	N/A	Dec. 03, 2020~Jan. 07, 2021	N/A	Radiation (03CH11-HY)
Antenna Mast	EMEC	AM-BS-4500-B	N/A	1~4m	N/A	Dec. 03, 2020~Jan. 07, 2021	N/A	Radiation (03CH11-HY)
Turn Table	EMEC	TT 2000	N/A	0~360 Degree	N/A	Dec. 03, 2020~Jan. 07, 2021	N/A	Radiation (03CH11-HY)
Software	Audix	E3 6.2009-8-24	RK-001053	N/A	N/A	Dec. 03, 2020~Jan. 07, 2021	N/A	Radiation (03CH11-HY)
RF Cable	HUBER + SUHNER	SUCOFLEX 104	MY9837/4 PE	9kHz-30MHz	Mar. 12, 2020	Dec. 03, 2020~Jan. 07, 2021	Mar. 11, 2021	Radiation (03CH11-HY)
RF Cable	HUBER + SUHNER	SUCOFLEX 102	MY2859/2	30MHz-40GHz	Mar. 12, 2020	Dec. 03, 2020~Jan. 07, 2021	Mar. 11, 2021	Radiation (03CH11-HY)
RF Cable	HUBER + SUHNER	SUCOFLEX 104	MY9837/4 PE	30M-18G	Mar. 12, 2020	Dec. 03, 2020~Jan. 07, 2021	Mar. 11, 2021	Radiation (03CH11-HY)
RF Cable	HUBER + SUHNER	SUCOFLEX 102	MY4274/2	30MHz-40GHz	Mar. 12, 2020	Dec. 03, 2020~Jan. 07, 2021	Mar. 11, 2021	Radiation (03CH11-HY)
Filter	Wainwright	WLK4-1000-1530-8000-40SS	SN11	1.53G Low Pass	Sep. 14, 2020	Dec. 03, 2020~Jan. 07, 2021	Sep. 13, 2021	Radiation (03CH11-HY)
Filter	Wainwright	WHKX12-2700-3000-18000-60SS	SN3	3GHz High Pass Filter	Sep. 14, 2020	Dec. 03, 2020~Jan. 07, 2021	Sep. 13, 2021	Radiation (03CH11-HY)
Hygrometer	TECPEL	DTM-303B	TP140325	N/A	Nov. 18, 2020	Dec. 03, 2020~Jan. 07, 2021	Nov. 17, 2021	Radiation (03CH11-HY)
Hygrometer	TECPEL	DTM-303B	TP200880	QA-3-031	Oct. 22, 2020	Dec. 03, 2020~Jan. 07, 2021	Oct. 21, 2021	Radiation (03CH11-HY)



## 5 Uncertainty of Evaluation

### Uncertainty of Conducted Emission Measurement (150 kHz ~ 30 MHz)

Measuring Uncertainty for a Level of Confidence of 95% ( $U = 2Uc(y)$ )	2.3
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### Uncertainty of Radiated Emission Measurement (30 MHz ~ 1000 MHz)

Measuring Uncertainty for a Level of Confidence of 95% ( $U = 2Uc(y)$ )	4.4
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### Uncertainty of Radiated Emission Measurement (1000 MHz ~ 18000 MHz)

Measuring Uncertainty for a Level of Confidence of 95% ( $U = 2Uc(y)$ )	5.2
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### Uncertainty of Radiated Emission Measurement (18000 MHz ~ 40000 MHz)

Measuring Uncertainty for a Level of Confidence of 95% ( $U = 2Uc(y)$ )	5.1
---	-----

**Appendix A. Test Result of Conducted Test Items**

Test Engineer:	Kai Liao	Temperature:	23.4~23.6	°C
Test Date:	2020/11/23 ~11/24	Relative Humidity:	53.8~54.1	%

**TEST RESULTS DATA**  
**6dB and 99% Occupied Bandwidth**

Mod.	Data Rate	NTX	CH.	Freq. (MHz)	99% Occupied BW (MHz)	6dB BW (MHz)	6dB BW Limit (MHz)	Pass/Fail
BLE	1Mbps	1	0	2402	1.021	0.666	0.50	Pass
BLE	1Mbps	1	19	2440	1.021	0.666	0.50	Pass
BLE	1Mbps	1	39	2480	1.019	0.662	0.50	Pass

**TEST RESULTS DATA**  
**Average Power Table**

Mod.	Data Rate	NTX	CH.	Freq. (MHz)	Average Conducted Power (dBm)	Conducted Power Limit (dBm)	DG (dBi)	EIRP Power (dBm)	EIRP Power Limit (dBm)	Pass /Fail
BLE	1Mbps	1	0	2402	4.40	30.00	4.10	8.50	36.00	Pass
BLE	1Mbps	1	19	2440	4.30	30.00	4.10	8.40	36.00	Pass
BLE	1Mbps	1	39	2480	4.30	30.00	4.10	8.40	36.00	Pass

**TEST RESULTS DATA**  
**Peak Power Density**

Mod.	Data Rate	NTX	CH.	Freq. (MHz)	Peak PSD (dBm /100kHz)	Peak PSD (dBm /3kHz)	DG (dBi)	Peak PSD Limit (dBm /3kHz)	Pass/Fail
BLE	1Mbps	1	0	2402	4.13	-11.73	4.10	8.00	Pass
BLE	1Mbps	1	19	2440	3.89	-11.60	4.10	8.00	Pass
BLE	1Mbps	1	39	2480	4.06	-12.12	4.10	8.00	Pass

Note: PSD (dBm/ 100kHz) is a reference level used for Conducted Band Edges and Conducted Spurious Emission 30dBc limit.

**TEST RESULTS DATA**  
**6dB and 99% Occupied Bandwidth**

Mod.	Data Rate	NTx	CH.	Freq. (MHz)	99% Occupied BW (MHz)	6dB BW (MHz)	6dB BW Limit (MHz)	Pass/Fail
BLE	2Mbps	1	0	2402	2.038	1.148	0.50	Pass
BLE	2Mbps	1	19	2440	2.038	1.148	0.50	Pass
BLE	2Mbps	1	39	2480	2.034	1.140	0.50	Pass

**TEST RESULTS DATA**  
**Average Power Table**

Mod.	Data Rate	NTx	CH.	Freq. (MHz)	Average Conducted Power (dBm)	Conducted Power Limit (dBm)	DG (dBi)	EIRP Power (dBm)	EIRP Power Limit (dBm)	Pass /Fail
BLE	2Mbps	1	0	2402	4.30	30.00	4.10	8.40	36.00	Pass
BLE	2Mbps	1	19	2440	4.20	30.00	4.10	8.30	36.00	Pass
BLE	2Mbps	1	39	2480	4.20	30.00	4.10	8.30	36.00	Pass

**TEST RESULTS DATA**  
**Peak Power Density**

Mod.	Data Rate	NTx	CH.	Freq. (MHz)	Peak PSD (dBm /100kHz)	Peak PSD (dBm /3kHz)	DG (dBi)	Peak PSD Limit (dBm /3kHz)	Pass/Fail
BLE	2Mbps	1	0	2402	3.89	-13.33	4.10	8.00	Pass
BLE	2Mbps	1	19	2440	3.68	-14.60	4.10	8.00	Pass
BLE	2Mbps	1	39	2480	3.91	-12.94	4.10	8.00	Pass

Note: PSD (dBm/ 100kHz) is a reference level used for Conducted Band Edges and Conducted Spurious Emission 30dBc limit.



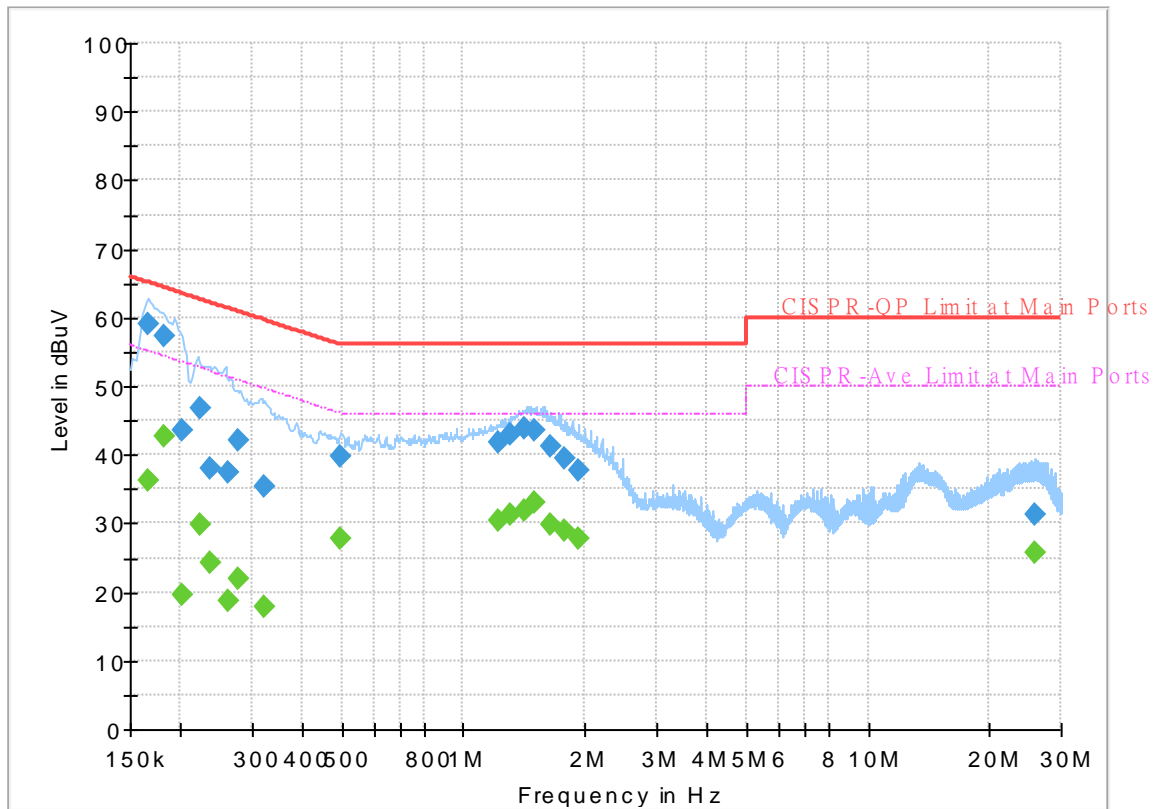
## Appendix B. AC Conducted Emission Test Results

Test Engineer :	Tom Lee and Howard Huang	Temperature :	24~26°C
		Relative Humidity :	40~50%

# EUT Information

Report NO : 0N0645  
 Test Mode : Mode 1  
 Test Voltage : Power From System  
 Phase : Line

Full Spectrum



## Final\_Result

Frequency (MHz)	QuasiPeak (dBuV)	CAverage (dBuV)	Limit (dBuV)	Margin (dB)	Line	Filter	Corr. (dB)
0.165750	---	36.32	55.17	18.85	L1	OFF	19.5
0.165750	59.01	---	65.17	6.16	L1	OFF	19.5
0.181500	---	42.62	54.42	11.80	L1	OFF	19.5
0.181500	57.17	---	64.42	7.25	L1	OFF	19.5
0.201120	---	19.58	53.56	33.98	L1	OFF	19.5
0.201120	43.50	---	63.56	20.06	L1	OFF	19.5
0.224250	---	29.96	52.66	22.70	L1	OFF	19.5
0.224250	46.92	---	62.66	15.74	L1	OFF	19.5
0.237750	---	24.35	52.17	27.82	L1	OFF	19.5
0.237750	37.95	---	62.17	24.22	L1	OFF	19.5
0.260970	---	18.71	51.40	32.69	L1	OFF	19.5
0.260970	37.51	---	61.40	23.89	L1	OFF	19.5
0.276000	---	22.01	50.94	28.93	L1	OFF	19.5
0.276000	42.18	---	60.94	18.76	L1	OFF	19.5
0.320280	---	17.71	49.70	31.99	L1	OFF	19.5
0.320280	35.28	---	59.70	24.42	L1	OFF	19.5
0.496500	---	27.84	46.06	18.22	L1	OFF	19.5
0.496500	39.71	---	56.06	16.35	L1	OFF	19.5
1.216500	---	30.50	46.00	15.50	L1	OFF	19.6
1.216500	41.92	---	56.00	14.08	L1	OFF	19.6
1.308750	---	31.16	46.00	14.84	L1	OFF	19.6

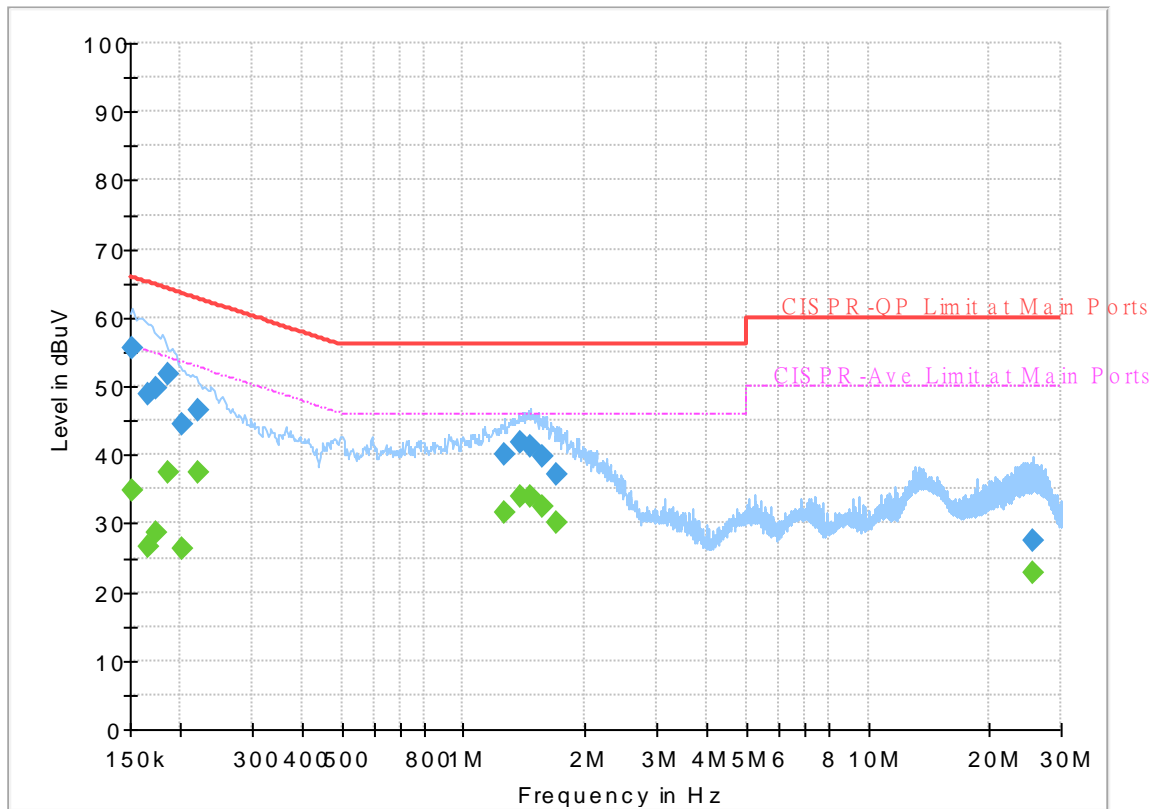


1.308750	42.84	---	56.00	13.16	L1	OFF	19.6
1.418190	---	31.77	46.00	14.23	L1	OFF	19.6
1.418190	43.72	---	56.00	12.28	L1	OFF	19.6
1.502250	---	33.17	46.00	12.83	L1	OFF	19.6
1.502250	43.55	---	56.00	12.45	L1	OFF	19.6
1.650750	---	29.85	46.00	16.15	L1	OFF	19.6
1.650750	41.32	---	56.00	14.68	L1	OFF	19.6
1.776750	---	29.05	46.00	16.95	L1	OFF	19.6
1.776750	39.61	---	56.00	16.39	L1	OFF	19.6
1.925250	---	27.75	46.00	18.25	L1	OFF	19.6
1.925250	37.64	---	56.00	18.36	L1	OFF	19.6
25.777410	---	25.88	50.00	24.12	L1	OFF	19.8
25.777410	31.38	---	60.00	28.62	L1	OFF	19.8

# EUT Information

Report NO : 0N0645  
 Test Mode : Mode 1  
 Test Voltage : Power From System  
 Phase : Neutral

Full Spectrum



## Final\_Result

Frequency (MHz)	QuasiPeak (dBuV)	CAverage (dBuV)	Limit (dBuV)	Margin (dB)	Line	Filter	Corr. (dB)
0.152250	---	34.86	55.88	21.02	N	OFF	19.5
0.152250	55.47	---	65.88	10.41	N	OFF	19.5
0.165300	---	26.70	55.19	28.49	N	OFF	19.5
0.165300	48.82	---	65.19	16.37	N	OFF	19.5
0.174750	---	28.71	54.73	26.02	N	OFF	19.5
0.174750	49.68	---	64.73	15.05	N	OFF	19.5
0.186000	---	37.35	54.21	16.86	N	OFF	19.5
0.186000	51.62	---	64.21	12.59	N	OFF	19.5
0.201750	---	26.34	53.54	27.20	N	OFF	19.5
0.201750	44.30	---	63.54	19.24	N	OFF	19.5
0.222000	---	37.46	52.74	15.28	N	OFF	19.5
0.222000	46.62	---	62.74	16.12	N	OFF	19.5
1.258350	---	31.67	46.00	14.33	N	OFF	19.6
1.258350	40.06	---	56.00	15.94	N	OFF	19.6
1.378500	---	33.99	46.00	12.01	N	OFF	19.6
1.378500	41.80	---	56.00	14.20	N	OFF	19.6
1.457250	---	33.95	46.00	12.05	N	OFF	19.6
1.457250	41.37	---	56.00	14.63	N	OFF	19.6
1.574250	---	32.34	46.00	13.66	N	OFF	19.6
1.574250	39.72	---	56.00	16.28	N	OFF	19.6
1.704750	---	30.06	46.00	15.94	N	OFF	19.6

<b>1.704750</b>	<b>37.18</b>	<b>---</b>	<b>56.00</b>	<b>18.82</b>	<b>N</b>	<b>OFF</b>	<b>19.6</b>
<b>25.643400</b>	<b>---</b>	<b>22.88</b>	<b>50.00</b>	<b>27.12</b>	<b>N</b>	<b>OFF</b>	<b>20.0</b>
<b>25.643400</b>	<b>27.35</b>	<b>---</b>	<b>60.00</b>	<b>32.65</b>	<b>N</b>	<b>OFF</b>	<b>20.0</b>



### Appendix C. Radiated Spurious Emission

Test Engineer :	Bill Cheng, Fu Chen and Troye Hsieh	Temperature :	18.4~25.0°C
		Relative Humidity :	40.0~69.9%

<Sample 1>

<1Mbps>

**2.4GHz 2400~2483.5MHz**

**BLE (Band Edge @ 3m)**

BLE	Note	Frequency ( MHz )	Level ( dBμV/m )	Over Limit ( dB )	Limit Line ( dBμV/m )	Read Level ( dBμV )	Antenna Factor ( dB/m )	Path Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Peak Avg. ( P/A )	Pol. ( H/V )
BLE CH 00 2402MHz		2343.6	53.3	-20.7	74	42.6	27.61	16.57	33.48	100	114	P	H
		2322.075	43.61	-10.39	54	32.89	27.66	16.55	33.49	100	114	A	H
	*	2402	100.94	-	-	90.26	27.5	16.63	33.45	100	114	P	H
	*	2402	100.23	-	-	89.55	27.5	16.63	33.45	100	114	A	H
		2337.09	52.66	-21.34	74	41.94	27.63	16.57	33.48	400	359	P	V
		2347.695	43.29	-10.71	54	32.59	27.6	16.58	33.48	400	359	A	V
	*	2402	97.82	-	-	87.14	27.5	16.63	33.45	400	359	P	V
	*	2402	97.23	-	-	86.55	27.5	16.63	33.45	400	359	A	V
BLE CH 19 2440MHz		2326.8	52.89	-21.11	74	42.17	27.65	16.56	33.49	100	144	P	H
		2360.08	43.65	-10.35	54	32.95	27.58	16.59	33.47	100	144	A	H
	*	2440	101.31	-	-	90.57	27.5	16.67	33.43	100	144	P	H
	*	2440	100.78	-	-	90.04	27.5	16.67	33.43	100	144	A	H
		2495.6	52.94	-21.06	74	42.19	27.41	16.74	33.4	100	144	P	H
		2499.68	43.38	-10.62	54	32.64	27.4	16.74	33.4	100	144	A	H
		2369.2	52.55	-21.45	74	41.86	27.56	16.6	33.47	386	353	P	V
		2342.32	43.25	-10.75	54	32.54	27.62	16.57	33.48	386	353	A	V
	*	2440	96.92	-	-	86.18	27.5	16.67	33.43	386	353	P	V
	*	2440	96.33	-	-	85.59	27.5	16.67	33.43	386	353	A	V
		2489.28	52.99	-21.01	74	42.25	27.42	16.73	33.41	386	353	P	V
		2497.6	43.36	-10.64	54	32.62	27.4	16.74	33.4	386	353	A	V



<b>BLE CH 39 2480MHz</b>	*	2480	101.78	-	-	91.03	27.44	16.72	33.41	108	111	P	H
	*	2480	101.19	-	-	90.44	27.44	16.72	33.41	108	111	A	H
		2499.04	53.4	-20.6	74	42.66	27.4	16.74	33.4	108	111	P	H
		2483.8	44.79	-9.21	54	34.05	27.43	16.72	33.41	108	111	A	H
													H
													H
	*	2480	97.17	-	-	86.42	27.44	16.72	33.41	374	357	P	V
	*	2480	96.53	-	-	85.78	27.44	16.72	33.41	374	357	A	V
		2483.76	53.89	-20.11	74	43.15	27.43	16.72	33.41	374	357	P	V
		2483.96	43.51	-10.49	54	32.77	27.43	16.72	33.41	374	357	A	V
													V
													V
<b>Remark</b>	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												



2.4GHz 2400~2483.5MHz  
BLE (Harmonic @ 3m)

BLE	Note	Frequency ( MHz )	Level ( dBµV/m )	Over Limit ( dB )	Limit Line ( dBµV/m )	Read Level ( dBµV )	Antenna Factor ( dB/m )	Path Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Peak Avg. ( P/A )	Pol. ( H/V )
BLE CH 00 2402MHz		4804	37.11	-36.89	74	61.31	31	10.97	66.17	100	0	P	H
													H
													H
													H
		4804	35.92	-38.08	74	60.12	31	10.97	66.17	100	0	P	V
													V
													V
BLE CH 19 2440MHz		4880	37	-37	74	60.57	31.54	11.01	66.12	100	0	P	H
		7320	40.6	-33.4	74	56.54	36.4	13.38	65.72	100	0	P	H
													H
													H
		4880	38.1	-35.9	74	61.67	31.54	11.01	66.12	100	0	P	V
		7320	39.4	-34.6	74	55.34	36.4	13.38	65.72	100	0	P	V
													V
BLE CH 39 2480MHz		4960	36.59	-37.41	74	60.54	31.06	11.05	66.06	100	0	P	H
		7440	41.27	-32.73	74	57.24	36.56	13.26	65.79	100	0	P	H
													H
													H
		4960	37.21	-36.79	74	61.16	31.06	11.05	66.06	100	0	P	V
		7440	40.31	-33.69	74	56.28	36.56	13.26	65.79	100	0	P	V
													V
Remark	1. No other spurious found.												
	2. All results are PASS against Peak and Average limit line.												



<2Mbps>

2.4GHz 2400~2483.5MHz

BLE (Band Edge @ 3m)

BLE	Note	Frequency	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Path Loss	Preamp Factor	Ant Pos	Table Pos	Peak Avg.	Pol.	
		( MHz )	( dBμV/m )	( dB )	( dBμV/m )	( dBμV )	( dB/m )	( dB )	( dB )	( cm )	( deg )	( P/A )	( H/V )	
BLE CH 00 2402MHz		2361.345	53.18	-20.82	74	42.48	27.58	16.59	33.47	100	113	P	H	
		2326.065	44.84	-9.16	54	34.12	27.65	16.56	33.49	100	113	A	H	
	*	2402	100.73	-	-	90.05	27.5	16.63	33.45	100	113	P	H	
	*	2402	99.49	-	-	88.81	27.5	16.63	33.45	100	113	A	H	
													H	
													H	
			2348.745	52.66	-21.34	74	41.96	27.6	16.58	33.48	400	360	P	V
			2354.52	44.76	-9.24	54	34.06	27.59	16.58	33.47	400	360	A	V
	*		2402	97.22	-	-	86.54	27.5	16.63	33.45	400	360	P	V
	*		2402	95.94	-	-	85.26	27.5	16.63	33.45	400	360	A	V
													V	
													V	
BLE CH 19 2440MHz		2387.42	52.81	-21.19	74	42.12	27.53	16.62	33.46	171	146	P	H	
		2388.82	45.07	-8.93	54	34.39	27.52	16.62	33.46	171	146	A	H	
	*	2440	101.35	-	-	90.61	27.5	16.67	33.43	171	146	P	H	
	*	2440	100.15	-	-	89.41	27.5	16.67	33.43	171	146	A	H	
			2496.71	52.82	-21.18	74	42.07	27.41	16.74	33.4	171	146	P	H
			2496.36	44.85	-9.15	54	34.1	27.41	16.74	33.4	171	146	A	H
			2338.42	52.63	-21.37	74	41.92	27.62	16.57	33.48	345	355	P	V
			2386.16	45.05	-8.95	54	34.36	27.53	16.62	33.46	345	355	A	V
	*		2440	94.99	-	-	84.25	27.5	16.67	33.43	345	355	P	V
	*		2440	93.71	-	-	82.97	27.5	16.67	33.43	345	355	A	V
			2483.55	52.71	-21.29	74	41.97	27.43	16.72	33.41	345	355	P	V
			2490.9	44.92	-9.08	54	34.17	27.42	16.73	33.4	345	355	A	V



<b>BLE CH 39 2480MHz</b>	*	2480	102.54	-	-	91.79	27.44	16.72	33.41	107	111	P	H
	*	2480	101.18	-	-	90.43	27.44	16.72	33.41	107	111	A	H
		2483.52	53.45	-20.55	74	42.71	27.43	16.72	33.41	107	111	P	H
		2483.52	46.22	-7.78	54	35.48	27.43	16.72	33.41	107	111	A	H
													H
													H
	*	2480	97.46	-	-	86.71	27.44	16.72	33.41	400	53	P	V
	*	2480	96.19	-	-	85.44	27.44	16.72	33.41	400	53	A	V
		2492.48	52.79	-21.21	74	42.04	27.42	16.73	33.4	400	53	P	V
		2498.92	45.3	-8.7	54	34.56	27.4	16.74	33.4	400	53	A	V
													V
													V
<b>Remark</b>	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												





2.4GHz 2400~2483.5MHz  
BLE (Harmonic @ 3m)

BLE	Note	Frequency ( MHz )	Level ( dBμV/m )	Over Limit ( dB )	Limit Line ( dBμV/m )	Read Level ( dBμV )	Antenna Factor ( dB/m )	Path Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Peak Avg. ( P/A )	Pol. ( H/V )
BLE CH 00 2402MHz		4804	37.35	-36.65	74	61.55	31	10.97	66.17	100	0	P	H
													H
													H
													H
		4804	37.38	-36.62	74	61.58	31	10.97	66.17	100	0	P	V
													V
													V
BLE CH 19 2440MHz		4880	37.91	-36.09	74	61.48	31.54	11.01	66.12	100	0	P	H
		7320	41.34	-32.66	74	57.28	36.4	13.38	65.72	100	0	P	H
													H
													H
		4880	38.37	-35.63	74	61.94	31.54	11.01	66.12	100	0	P	V
		7320	41.08	-32.92	74	57.02	36.4	13.38	65.72	100	0	P	V
													V
BLE CH 39 2480MHz		4960	37.38	-36.62	74	61.33	31.06	11.05	66.06	100	0	P	H
		7440	40.07	-33.93	74	56.04	36.56	13.26	65.79	100	0	P	H
													H
													H
		4960	37.34	-36.66	74	61.29	31.06	11.05	66.06	100	0	P	V
		7440	40.1	-33.9	74	56.07	36.56	13.26	65.79	100	0	P	V
													V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												



Emission below 1GHz

2.4GHz BLE (LF)

BLE	Note	Frequency	Level	Over	Limit	Read	Antenna	Path	Preamp	Ant	Table	Peak	Pol.	
		( MHz )	( dBμV/m )	( dB )	( dBμV/m )	( dBμV )	( dB/m )	( dB )	( dB )	( cm )	( deg )	( P/A )	( H/V )	
2.4GHz BLE LF		76.56	24.41	-15.59	40	42.91	12.73	1.29	32.52	-	-	P	H	
		143.49	27.36	-16.14	43.5	40.98	17.13	1.77	32.52	-	-	P	H	
		186.17	35.08	-8.42	43.5	50.86	14.72	2.03	32.53	-	-	P	H	
		336.52	27.66	-18.34	46	37.1	19.89	2.67	32	-	-	P	H	
		495.6	30.94	-15.06	46	36.03	23.86	3.21	32.16	-	-	P	H	
		665.35	39.53	-6.47	46	42.04	26.36	3.7	32.57	100	0	P	H	
													H	
													H	
													H	
													H	
													H	
													H	
													H	
			57.16	25.91	-14.09	40	45.42	11.92	1.11	32.54	-	-	P	V
			140.58	27.61	-15.89	43.5	41.27	17.12	1.74	32.52	-	-	P	V
			194.9	32.98	-10.52	43.5	48.8	14.66	2.06	32.54	-	-	P	V
			489.78	28.26	-17.74	46	33.38	23.83	3.19	32.14	-	-	P	V
			666.32	39.77	-6.23	46	42.26	26.37	3.7	32.56	100	0	P	V
			942.77	31.24	-14.76	46	27.5	30.23	4.43	30.92	-	-	P	V
													V	
												V		
												V		
												V		
												V		
												V		
Remark	1. No other spurious found. 2. All results are PASS against limit line.													



<Sample 2>  
<Dipole Antenna>  
<1Mbps>

2.4GHz 2400~2483.5MHz  
BLE (Band Edge @ 3m)

BLE	Note	Frequency	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Path Loss	Preamp Factor	Ant Pos	Table Pos	Peak Avg.	Pol.
		( MHz )	( dBμV/m )	( dB )	( dBμV/m )	( dBμV )	( dB/m )	( dB )	( dB )	( cm )	( deg )	( P/A )	( H/V )
BLE CH 00 2402MHz		2389.17	52.64	-21.36	74	41.96	27.52	16.62	33.46	152	115	P	H
		2325.225	43.28	-10.72	54	32.56	27.65	16.56	33.49	152	115	A	H
	*	2402	92.93	-	-	82.25	27.5	16.63	33.45	152	115	P	H
	*	2402	92.44	-	-	81.76	27.5	16.63	33.45	152	115	A	H
		2327.115	53.17	-20.83	74	42.45	27.65	16.56	33.49	107	61	P	V
		2382.765	43.36	-10.64	54	32.68	27.53	16.61	33.46	107	61	A	V
	*	2402	101.57	-	-	90.89	27.5	16.63	33.45	107	61	P	V
	*	2402	101.06	-	-	90.38	27.5	16.63	33.45	107	61	A	V
BLE CH 19 2440MHz		2372.4	52.37	-21.63	74	41.67	27.56	16.6	33.46	145	117	P	H
		2361.2	43.3	-10.7	54	32.6	27.58	16.59	33.47	145	117	A	H
	*	2440	95.49	-	-	84.75	27.5	16.67	33.43	145	117	P	H
	*	2440	94.84	-	-	84.1	27.5	16.67	33.43	145	117	A	H
		2499.6	52.19	-21.81	74	41.45	27.4	16.74	33.4	145	117	P	H
		2484.56	43.37	-10.63	54	32.63	27.43	16.72	33.41	145	117	A	H
		2341.68	53.23	-20.77	74	42.52	27.62	16.57	33.48	109	59	P	V
		2359.92	44.05	-9.95	54	33.35	27.58	16.59	33.47	109	59	A	V
	*	2440	103.43	-	-	92.69	27.5	16.67	33.43	109	59	P	V
	*	2440	102.77	-	-	92.03	27.5	16.67	33.43	109	59	A	V
		2491.2	52.45	-21.55	74	41.7	27.42	16.73	33.4	109	59	P	V
		2484.32	43.3	-10.7	54	32.56	27.43	16.72	33.41	109	59	A	V



<b>BLE CH 39 2480MHz</b>	*	2480	93.59	-	-	82.84	27.44	16.72	33.41	143	116	P	H
	*	2480	92.58	-	-	81.83	27.44	16.72	33.41	143	116	A	H
		2485.32	52.37	-21.63	74	41.63	27.43	16.72	33.41	143	116	P	H
		2489.04	43.07	-10.93	54	32.33	27.42	16.73	33.41	143	116	A	H
													H
													H
	*	2480	100.71	-	-	89.96	27.44	16.72	33.41	104	91	P	V
	*	2480	100.13	-	-	89.38	27.44	16.72	33.41	104	91	A	V
		2486.24	52.9	-21.1	74	42.16	27.43	16.72	33.41	104	91	P	V
		2483.52	43.78	-10.22	54	33.04	27.43	16.72	33.41	104	91	A	V
													V
													V
<b>Remark</b>	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												



2.4GHz 2400~2483.5MHz  
BLE (Harmonic @ 3m)

BLE	Note	Frequency ( MHz )	Level ( dBµV/m )	Over Limit ( dB )	Limit Line ( dBµV/m )	Read Level ( dBµV )	Antenna Factor ( dB/m )	Path Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Peak Avg. ( P/A )	Pol. ( H/V )
BLE CH 00 2402MHz		4804	39.58	-34.42	74	58.07	31	10.97	60.46	100	0	P	H
													H
													H
													H
		4804	39.49	-34.51	74	57.98	31	10.97	60.46	100	0	P	V
													V
													V
BLE CH 19 2440MHz		4880	39.88	-34.12	74	57.73	31.54	11.01	60.4	100	0	P	H
		7320	41.97	-32.03	74	51.3	36.4	13.38	59.11	100	0	P	H
													H
													H
		4880	40.69	-33.31	74	58.54	31.54	11.01	60.4	100	0	P	V
		7320	44.03	-29.97	74	53.36	36.4	13.38	59.11	100	0	P	V
													V
BLE CH 39 2480MHz		4960	39.77	-34.23	74	57.99	31.06	11.05	60.33	100	0	P	H
		7440	42.89	-31.11	74	52.11	36.56	13.26	59.04	100	0	P	H
													H
													H
		4960	39.35	-34.65	74	57.57	31.06	11.05	60.33	100	0	P	V
		7440	42.83	-31.17	74	52.05	36.56	13.26	59.04	100	0	P	V
													V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												



<2Mbps>

2.4GHz 2400~2483.5MHz

BLE (Band Edge @ 3m)

BLE	Note	Frequency	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Path Loss	Preamp Factor	Ant Pos	Table Pos	Peak Avg.	Pol.	
		( MHz )	( dBμV/m )	( dB )	( dBμV/m )	( dBμV )	( dB/m )	( dB )	( dB )	( cm )	( deg )	( P/A )	( H/V )	
BLE CH 00 2402MHz		2373	52.74	-21.26	74	42.05	27.55	16.6	33.46	122	115	P	H	
		2369.535	44.6	-9.4	54	33.91	27.56	16.6	33.47	122	115	A	H	
	*	2402	93.39	-	-	82.71	27.5	16.63	33.45	122	115	P	H	
	*	2402	92.19	-	-	81.51	27.5	16.63	33.45	122	115	A	H	
													H	
													H	
			2325.33	53.32	-20.68	74	42.6	27.65	16.56	33.49	116	0	P	V
			2358.825	44.79	-9.21	54	34.09	27.58	16.59	33.47	116	0	A	V
	*		2402	101.79	-	-	91.11	27.5	16.63	33.45	116	0	P	V
	*		2402	100.51	-	-	89.83	27.5	16.63	33.45	116	0	A	V
													V	
													V	
BLE CH 19 2440MHz		2382.8	52.57	-21.43	74	41.89	27.53	16.61	33.46	144	115	P	H	
		2321.48	44.6	-9.4	54	33.88	27.66	16.55	33.49	144	115	A	H	
	*	2440	95.95	-	-	85.21	27.5	16.67	33.43	144	115	P	H	
	*	2440	94.62	-	-	83.88	27.5	16.67	33.43	144	115	A	H	
			2488.31	53.09	-20.91	74	42.35	27.42	16.73	33.41	144	115	P	H
			2495.03	44.59	-9.41	54	33.85	27.41	16.73	33.4	144	115	A	H
			2314.76	52.43	-21.57	74	41.71	27.67	16.54	33.49	109	138	P	V
			2359.98	45.58	-8.42	54	34.88	27.58	16.59	33.47	109	138	A	V
	*		2440	103.57	-	-	92.83	27.5	16.67	33.43	109	138	P	V
	*		2440	102.36	-	-	91.62	27.5	16.67	33.43	109	138	A	V
			2496.71	52.65	-21.35	74	41.9	27.41	16.74	33.4	109	138	P	V
			2497.76	44.6	-9.4	54	33.86	27.4	16.74	33.4	109	138	A	V



<b>BLE CH 39 2480MHz</b>	*	2480	93.35	-	-	82.6	27.44	16.72	33.41	134	63	P	H
	*	2480	92.09	-	-	81.34	27.44	16.72	33.41	134	63	A	H
		2489.6	53.76	-20.24	74	43.02	27.42	16.73	33.41	134	63	P	H
		2497.52	44.9	-9.1	54	34.16	27.4	16.74	33.4	134	63	A	H
													H
													H
	*	2480	100.86	-	-	90.11	27.44	16.72	33.41	104	90	P	V
	*	2480	99.64	-	-	88.89	27.44	16.72	33.41	104	90	A	V
		2485.08	53.41	-20.59	74	42.67	27.43	16.72	33.41	104	90	P	V
		2484.2	45.08	-8.92	54	34.34	27.43	16.72	33.41	104	90	A	V
													V
													V
<b>Remark</b>	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												



2.4GHz 2400~2483.5MHz  
BLE (Harmonic @ 3m)

BLE	Note	Frequency ( MHz )	Level ( dBμV/m )	Over Limit ( dB )	Limit Line ( dBμV/m )	Read Level ( dBμV )	Antenna Factor ( dB/m )	Path Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Peak Avg. ( P/A )	Pol. ( H/V )
BLE CH 00 2402MHz		4804	41.62	-32.38	74	60.11	31	10.97	60.46	100	0	P	H
													H
													H
													H
		4804	39.56	-34.44	74	58.05	31	10.97	60.46	100	0	P	V
													V
													V
BLE CH 19 2440MHz		4880	40.35	-33.65	74	58.2	31.54	11.01	60.4	100	0	P	H
		7320	43.23	-30.77	74	52.56	36.4	13.38	59.11	100	0	P	H
													H
													H
		4880	39.61	-34.39	74	57.46	31.54	11.01	60.4	100	0	P	V
		7320	43.74	-30.26	74	53.07	36.4	13.38	59.11	100	0	P	V
													V
BLE CH 39 2480MHz		4960	40.14	-33.86	74	58.36	31.06	11.05	60.33	100	0	P	H
		7440	42.9	-31.1	74	52.12	36.56	13.26	59.04	100	0	P	H
													H
													H
		4960	40.11	-33.89	74	58.33	31.06	11.05	60.33	100	0	P	V
		7440	43.9	-30.1	74	53.12	36.56	13.26	59.04	100	0	P	V
													V
Remark	1. No other spurious found.												
	2. All results are PASS against Peak and Average limit line.												





Emission below 1GHz

2.4GHz BLE (LF)

BLE	Note	Frequency	Level	Over	Limit	Read	Antenna	Path	Preamp	Ant	Table	Peak	Pol.	
		( MHz )	( dBμV/m )	( dB )	( dBμV/m )	( dBμV )	( dB/m )	( dB )	( dB )	( cm )	( deg )	( P/A )	( H/V )	
2.4GHz BLE LF		65.89	22.49	-17.51	40	42	11.83	1.19	32.53	-	-	P	H	
		157.07	37.17	-6.33	43.5	51.35	16.48	1.86	32.52	100	0	P	H	
		201.69	30.73	-12.77	43.5	46.29	14.88	2.09	32.53	-	-	P	H	
		320.03	26.48	-19.52	46	36.57	19.36	2.61	32.06	-	-	P	H	
		475.23	30.8	-15.2	46	36.18	23.56	3.14	32.08	-	-	P	H	
		665.35	38.23	-7.77	46	40.74	26.36	3.7	32.57	-	-	P	H	
														H
														H
														H
														H
														H
														H
			57.16	27.09	-12.91	40	46.6	11.92	1.11	32.54	-	-	P	V
			141.55	25.98	-17.52	43.5	39.65	17.1	1.75	32.52	-	-	P	V
			162.89	29.93	-13.57	43.5	44.46	16.1	1.9	32.53	-	-	P	V
			475.23	29	-17	46	34.38	23.56	3.14	32.08	-	-	P	V
			666.32	39.87	-6.13	46	42.36	26.37	3.7	32.56	100	0	P	V
			902.03	30.82	-15.18	46	28.56	29.13	4.32	31.19	-	-	P	V
														V
														V
													V	
													V	
													V	
													V	
Remark	1. No other spurious found. 2. All results are PASS against limit line.													



<PIFA Antenna>

<1Mbps>

2.4GHz 2400~2483.5MHz

BLE (Band Edge @ 3m)

BLE	Note	Frequency	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Path Loss	Preamp Factor	Ant Pos	Table Pos	Peak Avg.	Pol.	
		( MHz )	( dBμV/m )	( dB )	( dBμV/m )	( dBμV )	( dB/m )	( dB )	( dB )	( cm )	( deg )	( P/A )	( H/V )	
BLE CH 00 2402MHz		2380.56	53.06	-20.94	74	42.37	27.54	16.61	33.46	260	163	P	H	
		2322.075	43.09	-10.91	54	32.37	27.66	16.55	33.49	260	163	A	H	
	*	2402	101.61	-	-	90.93	27.5	16.63	33.45	260	163	P	H	
	*	2402	100.99	-	-	90.31	27.5	16.63	33.45	260	163	A	H	
													H	
														H
			2321.13	52.19	-21.81	74	41.47	27.66	16.55	33.49	312	102	P	V
			2341.5	42.92	-11.08	54	32.21	27.62	16.57	33.48	312	102	A	V
	*		2402	97.53	-	-	86.85	27.5	16.63	33.45	312	102	P	V
	*		2402	96.96	-	-	86.28	27.5	16.63	33.45	312	102	A	V
														V
														V
BLE CH 19 2440MHz		2359.92	52.58	-21.42	74	41.88	27.58	16.59	33.47	257	163	P	H	
		2360.08	44.12	-9.88	54	33.42	27.58	16.59	33.47	257	163	A	H	
	*	2440	103.47	-	-	92.73	27.5	16.67	33.43	257	163	P	H	
	*	2440	103.01	-	-	92.27	27.5	16.67	33.43	257	163	A	H	
			2493.6	52.44	-21.56	74	41.7	27.41	16.73	33.4	257	163	P	H
			2487.76	42.91	-11.09	54	32.17	27.42	16.73	33.41	257	163	A	H
			2349.68	52.13	-21.87	74	41.43	27.6	16.58	33.48	300	104	P	V
			2359.76	42.97	-11.03	54	32.27	27.58	16.59	33.47	300	104	A	V
	*		2440	99.16	-	-	88.42	27.5	16.67	33.43	300	104	P	V
	*		2440	98.4	-	-	87.66	27.5	16.67	33.43	300	104	A	V
			2493.6	51.97	-22.03	74	41.23	27.41	16.73	33.4	300	104	P	V
			2491.28	42.83	-11.17	54	32.08	27.42	16.73	33.4	300	104	A	V



<b>BLE CH 39 2480MHz</b>	*	2480	101.09	-	-	90.34	27.44	16.72	33.41	250	164	P	H
	*	2480	100.58	-	-	89.83	27.44	16.72	33.41	250	164	A	H
		2490.64	52.5	-21.5	74	41.75	27.42	16.73	33.4	250	164	P	H
		2483.56	43.48	-10.52	54	32.74	27.43	16.72	33.41	250	164	A	H
													H
													H
	*	2480	97.88	-	-	87.13	27.44	16.72	33.41	300	97	P	V
	*	2480	97.24	-	-	86.49	27.44	16.72	33.41	300	97	A	V
		2486.84	52.99	-21.01	74	42.24	27.43	16.73	33.41	300	97	P	V
		2496	43.22	-10.78	54	32.47	27.41	16.74	33.4	300	97	A	V
													V
													V
<b>Remark</b>	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												



2.4GHz 2400~2483.5MHz  
BLE (Harmonic @ 3m)

BLE	Note	Frequency ( MHz )	Level ( dBμV/m )	Over Limit ( dB )	Limit Line ( dBμV/m )	Read Level ( dBμV )	Antenna Factor ( dB/m )	Path Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Peak Avg. ( P/A )	Pol. ( H/V )
BLE CH 00 2402MHz		4804	38.71	-35.29	74	62.91	31	10.97	66.17	100	0	P	H
													H
													H
													H
		4804	38.52	-35.48	74	62.72	31	10.97	66.17	100	0	P	V
													V
													V
BLE CH 19 2440MHz		4880	39.64	-34.36	74	63.21	31.54	11.01	66.12	100	0	P	H
		7320	41.95	-32.05	74	57.89	36.4	13.38	65.72	100	0	P	H
													H
													H
		4880	38.89	-35.11	74	62.46	31.54	11.01	66.12	100	0	P	V
		7320	42.2	-31.8	74	58.14	36.4	13.38	65.72	100	0	P	V
													V
BLE CH 39 2480MHz		4960	37.48	-36.52	74	61.43	31.06	11.05	66.06	100	0	P	H
		7440	40.7	-33.3	74	56.67	36.56	13.26	65.79	100	0	P	H
													H
													H
		4960	38.25	-35.75	74	62.2	31.06	11.05	66.06	100	0	P	V
		7440	41.35	-32.65	74	57.32	36.56	13.26	65.79	100	0	P	V
													V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												



<2Mbps>

2.4GHz 2400~2483.5MHz

BLE (Band Edge @ 3m)

BLE	Note	Frequency	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Path Loss	Preamp Factor	Ant Pos	Table Pos	Peak Avg.	Pol.	
		( MHz )	( dBμV/m )	( dB )	( dBμV/m )	( dBμV )	( dB/m )	( dB )	( dB )	( cm )	( deg )	( P/A )	( H/V )	
BLE CH 00 2402MHz		2313.78	52.55	-21.45	74	41.83	27.67	16.54	33.49	100	165	P	H	
		2368.59	45.21	-8.79	54	34.52	27.56	16.6	33.47	100	165	A	H	
	*	2402	102.43	-	-	91.75	27.5	16.63	33.45	100	165	P	H	
	*	2402	101.22	-	-	90.54	27.5	16.63	33.45	100	165	A	H	
													H	
													H	
			2348.325	52.8	-21.2	74	42.1	27.6	16.58	33.48	300	100	P	V
			2386.335	44.53	-9.47	54	33.84	27.53	16.62	33.46	300	100	A	V
	*		2402	96.3	-	-	85.62	27.5	16.63	33.45	300	100	P	V
	*		2402	95.06	-	-	84.38	27.5	16.63	33.45	300	100	A	V
													V	
												V		
BLE CH 19 2440MHz		2359.91	53.01	-20.99	74	42.31	27.58	16.59	33.47	204	163	P	H	
		2359.755	45.09	-8.91	54	34.39	27.58	16.59	33.47	204	163	A	H	
	*	2440	103.41	-	-	92.67	27.5	16.67	33.43	204	163	P	H	
	*	2440	102.12	-	-	91.38	27.5	16.67	33.43	204	163	A	H	
			2495.59	52.15	-21.85	74	41.4	27.41	16.74	33.4	204	163	P	H
			2496.64	44.62	-9.38	54	33.87	27.41	16.74	33.4	204	163	A	H
			2332.165	51.96	-22.04	74	41.24	27.64	16.56	33.48	300	92	P	V
			2364.87	44.56	-9.44	54	33.87	27.57	16.59	33.47	300	92	A	V
	*		2440	99.36	-	-	88.62	27.5	16.67	33.43	300	92	P	V
	*		2440	98.07	-	-	87.33	27.5	16.67	33.43	300	92	A	V
			2495.03	51.92	-22.08	74	41.18	27.41	16.73	33.4	300	92	P	V
		2486.42	44.72	-9.28	54	33.97	27.43	16.73	33.41	300	92	A	V	



<b>BLE CH 39 2480MHz</b>	*	2480	100.48	-	-	89.73	27.44	16.72	33.41	200	162	P	H
	*	2480	99.31	-	-	88.56	27.44	16.72	33.41	200	162	A	H
		2484.36	52.71	-21.29	74	41.97	27.43	16.72	33.41	200	162	P	H
		2483.64	44.94	-9.06	54	34.2	27.43	16.72	33.41	200	162	A	H
													H
													H
	*	2480	96.82	-	-	86.07	27.44	16.72	33.41	300	103	P	V
	*	2480	95.59	-	-	84.84	27.44	16.72	33.41	300	103	A	V
		2490.8	52.76	-21.24	74	42.01	27.42	16.73	33.4	300	103	P	V
		2491.8	44.37	-9.63	54	33.62	27.42	16.73	33.4	300	103	A	V
													V
													V
<b>Remark</b>	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												



2.4GHz 2400~2483.5MHz  
BLE (Harmonic @ 3m)

BLE	Note	Frequency ( MHz )	Level ( dBµV/m )	Over Limit ( dB )	Limit Line ( dBµV/m )	Read Level ( dBµV )	Antenna Factor ( dB/m )	Path Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Peak Avg. ( P/A )	Pol. ( H/V )
BLE CH 00 2402MHz		4804	36.85	-37.15	74	61.05	31	10.97	66.17	100	0	P	H
													H
													H
													H
													H
													V
													V
BLE CH 19 2440MHz		4880	38.59	-35.41	74	62.16	31.54	11.01	66.12	100	0	P	H
		7320	40.62	-33.38	74	56.56	36.4	13.38	65.72	100	0	P	H
													H
													H
													V
													V
													V
BLE CH 39 2480MHz		4960	37.6	-36.4	74	61.55	31.06	11.05	66.06	100	0	P	H
		7440	41.79	-32.21	74	57.76	36.56	13.26	65.79	100	0	P	H
													H
													H
													V
													V
													V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												



Emission below 1GHz

2.4GHz BLE (LF)

BLE	Note	Frequency	Level	Over	Limit	Read	Antenna	Path	Preamp	Ant	Table	Peak	Pol.	
		( MHz )	( dBμV/m )	( dB )	( dBμV/m )	( dBμV )	( dB/m )	( dB )	( dB )	( cm )	( deg )	( P/A )	( H/V )	
2.4GHz BLE LF		64.92	23.07	-16.93	40	42.68	11.75	1.18	32.54	-	-	P	H	
		155.13	34.96	-8.54	43.5	48.96	16.67	1.85	32.52	-	-	P	H	
		218.18	28.77	-17.23	46	44.03	15.03	2.18	32.47	-	-	P	H	
		484.93	30	-16	46	35.22	23.74	3.16	32.12	-	-	P	H	
		664.38	38.77	-7.23	46	41.28	26.36	3.7	32.57	100	0	P	H	
		954.41	30.88	-15.12	46	26.38	30.89	4.46	30.85	-	-	P	H	
														H
														H
														H
														H
														H
														H
			35.82	25.85	-14.15	40	36.21	21.25	0.87	32.48	-	-	P	V
			161.92	33.65	-9.85	43.5	48.03	16.24	1.9	32.52	-	-	P	V
			332.64	27.21	-18.79	46	36.82	19.75	2.65	32.01	-	-	P	V
			474.26	28.87	-17.13	46	34.27	23.54	3.13	32.07	-	-	P	V
			666.32	39.72	-6.28	46	42.21	26.37	3.7	32.56	100	0	P	V
			959.26	30.97	-15.03	46	26.21	31.11	4.46	30.81	-	-	P	V
														V
														V
													V	
													V	
													V	
													V	
Remark	1. No other spurious found. 2. All results are PASS against limit line.													





<Sample 3>  
<Dipole Antenna>  
<2Mbps>

2.4GHz 2400~2483.5MHz  
BLE (Band Edge @ 3m)

BLE	Note	Frequency	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Path Loss	Preamp Factor	Ant Pos	Table Pos	Peak Avg.	Pol.
		( MHz )	( dBμV/m )	( dB )	( dBμV/m )	( dBμV )	( dB/m )	( dB )	( dB )	( cm )	( deg )	( P/A )	( H/V )
BLE CH 19 2440MHz		2376.22	52.63	-21.37	74	41.93	27.55	16.61	33.46	100	196	P	H
		2358.3	44.31	-9.69	54	33.61	27.58	16.59	33.47	100	196	A	H
	*	2440	101.25	-	-	90.51	27.5	16.67	33.43	100	196	P	H
	*	2440	99.96	-	-	89.22	27.5	16.67	33.43	100	196	A	H
		2490.9	51.83	-22.17	74	41.08	27.42	16.73	33.4	100	196	P	H
		2496.64	44.77	-9.23	54	34.02	27.41	16.74	33.4	100	196	A	H
		2357.04	52.82	-21.18	74	42.11	27.59	16.59	33.47	300	103	P	V
		2365.16	44.49	-9.51	54	33.79	27.57	16.6	33.47	300	103	A	V
	*	2440	92.2	-	-	81.46	27.5	16.67	33.43	300	103	P	V
	*	2440	90.94	-	-	80.2	27.5	16.67	33.43	300	103	A	V
		2498.32	52.77	-21.23	74	42.03	27.4	16.74	33.4	300	103	P	V
		2499.79	44.19	-9.81	54	33.45	27.4	16.74	33.4	300	103	A	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												



**2.4GHz 2400~2483.5MHz**

**BLE (Harmonic @ 3m)**

BLE	Note	Frequency ( MHz )	Level ( dBμV/m )	Over Limit ( dB )	Limit Line ( dBμV/m )	Read Level ( dBμV )	Antenna Factor ( dB/m )	Path Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Peak Avg. ( P/A )	Pol. ( H/V )	
BLE CH 19 2440MHz		4880	39.43	-34.57	74	63	31.54	11.01	66.12	100	0	P	H	
		7320	41.92	-32.08	74	57.86	36.4	13.38	65.72	100	0	P	H	
													H	
													H	
			4880	38.69	-35.31	74	62.26	31.54	11.01	66.12	100	0	P	V
			7320	41.6	-32.4	74	57.54	36.4	13.38	65.72	100	0	P	V
														V
														V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.													



Emission below 1GHz

2.4GHz BLE (LF)

BLE	Note	Frequency	Level	Over	Limit	Read	Antenna	Path	Preamp	Ant	Table	Peak	Pol.	
		( MHz )	( dBμV/m )	( dB )	( dBμV/m )	( dBμV )	( dB/m )	( dB )	( dB )	( cm )	( deg )	( P/A )	( H/V )	
2.4GHz BLE LF		68.8	29.63	-10.37	40	48.83	12.12	1.21	32.53	-	-	P	H	
		157.07	36.11	-7.39	43.5	50.29	16.48	1.86	32.52	-	-	P	H	
		239.52	29.16	-16.84	46	42.29	16.95	2.3	32.38	-	-	P	H	
		498.51	30.3	-15.7	46	35.38	23.87	3.22	32.17	-	-	P	H	
		666.32	39.95	-6.05	46	42.44	26.37	3.7	32.56	100	0	P	H	
		857.41	30.69	-15.31	46	28.59	29.27	4.2	31.37	-	-	P	H	
														H
														H
														H
														H
														H
														H
			68.8	26.44	-13.56	40	45.64	12.12	1.21	32.53	-	-	P	V
			115.36	26.45	-17.05	43.5	40.2	17.21	1.55	32.51	-	-	P	V
			159.01	29.49	-14.01	43.5	43.77	16.36	1.88	32.52	-	-	P	V
			503.36	28.21	-17.79	46	33.29	23.89	3.23	32.2	-	-	P	V
			663.41	39.33	-6.67	46	41.85	26.36	3.7	32.58	100	0	P	V
			830.25	31.27	-14.73	46	30.35	28.29	4.11	31.48	-	-	P	V
														V
														V
													V	
													V	
													V	
													V	
Remark	1. No other spurious found. 2. All results are PASS against limit line.													



<PIFA Antenna>

<2Mbps>

2.4GHz 2400~2483.5MHz

BLE (Band Edge @ 3m)

BLE	Note	Frequency	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Path Loss	Preamp Factor	Ant Pos	Table Pos	Peak Avg.	Pol.	
		( MHz )	( dBμV/m )	( dB )	( dBμV/m )	( dBμV )	( dB/m )	( dB )	( dB )	( cm )	( deg )	(P/A)	(H/V)	
BLE CH 00 2402MHz		2317.455	52.8	-21.2	74	42.07	27.67	16.55	33.49	139	180	P	H	
		2369.745	44.85	-9.15	54	34.16	27.56	16.6	33.47	139	180	A	H	
	*	2402	100.42	-	-	89.74	27.5	16.63	33.45	139	180	P	H	
	*	2402	99.12	-	-	88.44	27.5	16.63	33.45	139	180	A	H	
													H	
													H	
			2364.705	52.6	-21.4	74	41.91	27.57	16.59	33.47	309	98	P	V
			2352.945	44.67	-9.33	54	33.97	27.59	16.58	33.47	309	98	A	V
	*		2402	96.01	-	-	85.33	27.5	16.63	33.45	309	98	P	V
	*		2402	94.59	-	-	83.91	27.5	16.63	33.45	309	98	A	V
													V	
													V	
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.													



**2.4GHz 2400~2483.5MHz  
BLE (Harmonic @ 3m)**

BLE	Note	Frequency ( MHz )	Level ( dBμV/m )	Over Limit ( dB )	Limit Line ( dBμV/m )	Read Level ( dBμV )	Antenna Factor ( dB/m )	Path Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Peak Avg. ( P/A )	Pol. ( H/V )	
BLE CH 00 2402MHz		4804	38.37	-35.63	74	62.57	31	10.97	66.17	100	0	P	H	
													H	
													H	
													H	
			4804	38.58	-35.42	74	62.78	31	10.97	66.17	100	0	P	V
														V
														V
														V
<b>Remark</b>	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.													



Emission below 1GHz

2.4GHz BLE (LF)

BLE	Note	Frequency	Level	Over	Limit	Read	Antenna	Path	Preamp	Ant	Table	Peak	Pol.	
		( MHz )	( dBμV/m )	( dB )	( dBμV/m )	( dBμV )	( dB/m )	( dB )	( dB )	( cm )	( deg )	( P/A )	( H/V )	
2.4GHz BLE LF		71.71	24.53	-15.47	40	43.62	12.2	1.24	32.53	-	-	P	H	
		152.22	37.2	-6.3	43.5	51.2	16.69	1.83	32.52	-	-	P	H	
		192.96	28.83	-14.67	43.5	44.67	14.65	2.05	32.54	-	-	P	H	
		473.29	28.92	-17.08	46	34.34	23.52	3.13	32.07	-	-	P	H	
		666.32	39.73	-6.27	46	42.22	26.37	3.7	32.56	100	0	P	H	
		958.29	30.58	-15.42	46	25.88	31.06	4.46	30.82	-	-	P	H	
														H
														H
														H
														H
														H
														H
			57.16	26.91	-13.09	40	46.42	11.92	1.11	32.54	-	-	P	V
			118.27	30.12	-13.38	43.5	43.83	17.23	1.57	32.51	-	-	P	V
			162.89	31.58	-11.92	43.5	46.11	16.1	1.9	32.53	-	-	P	V
			504.33	27.93	-18.07	46	33.02	23.89	3.23	32.21	-	-	P	V
			664.38	39.85	-6.15	46	42.36	26.36	3.7	32.57	100	0	P	V
			876.81	30.95	-15.05	46	28.77	29.21	4.26	31.29	-	-	P	V
														V
														V
													V	
													V	
													V	
													V	
Remark	1. No other spurious found. 2. All results are PASS against limit line.													



**Note symbol**

*	<b>Fundamental Frequency</b> which can be ignored. However, the level of any unwanted emissions shall not exceed the level of the fundamental frequency.
!	Test result is <b>over limit</b> line.
P/A	<b>Peak</b> or <b>Average</b>
H/V	<b>Horizontal</b> or <b>Vertical</b>



A calculation example for radiated spurious emission is shown as below:

BLE	Note	Frequency	Level	Over	Limit	Read	Antenna	Path	Preamp	Ant	Table	Peak	Pol.
		( MHz )	( dBμV/m )	( dB )	( dBμV/m )	( dBμV )	( dB/m )	( dB )	( dB )	( cm )	( deg )	( P/A )	( H/V )
BLE CH 00 2402MHz		2390	55.45	-18.55	74	54.51	32.22	4.58	35.86	103	308	P	H
		2390	43.54	-10.46	54	42.6	32.22	4.58	35.86	103	308	A	H

1. Path Loss(dB) = Cable loss(dB) + Filter loss(dB) + Attenuator loss(dB)
2. Level(dBμV/m) =  
Antenna Factor(dB/m) + Path Loss(dB) + Read Level(dBμV) - Preamp Factor(dB)
3. Over Limit(dB) = Level(dBμV/m) – Limit Line(dBμV/m)

**For Peak Limit @ 2390MHz:**

1. Level(dBμV/m)  
= Antenna Factor(dB/m) + Path Loss(dB) + Read Level(dBμV) - Preamp Factor(dB)  
= 32.22(dB/m) + 4.58(dB) + 54.51(dBμV) – 35.86 (dB)  
= 55.45 (dBμV/m)
2. Over Limit(dB)  
= Level(dBμV/m) – Limit Line(dBμV/m)  
= 55.45(dBμV/m) – 74(dBμV/m)  
= -18.55(dB)

**For Average Limit @ 2390MHz:**

1. Level(dBμV/m)  
= Antenna Factor(dB/m) + Path Loss(dB) + Read Level(dBμV) - Preamp Factor(dB)  
= 32.22(dB/m) + 4.58(dB) + 42.6(dBμV) – 35.86 (dB)  
= 43.54 (dBμV/m)
2. Over Limit(dB)  
= Level(dBμV/m) – Limit Line(dBμV/m)  
= 43.54(dBμV/m) – 54(dBμV/m)  
= -10.46(dB)

**Both peak and average measured complies with the limit line, so test result is “PASS”.**





## Appendix D. Radiated Spurious Emission Plots

Test Engineer :	Bill Cheng, Fu Chen and Troye Hsieh	Temperature :	18.4~25.0°C
		Relative Humidity :	40.0~69.9%

### Note symbol

-L	Low channel location
-R	High channel location



<Sample 1>

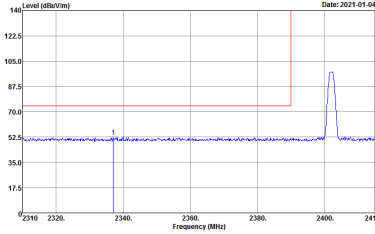
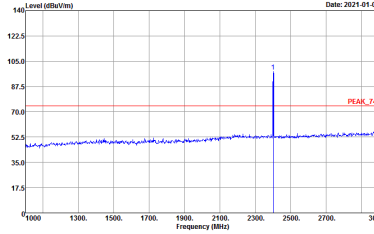
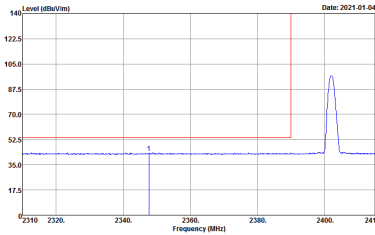
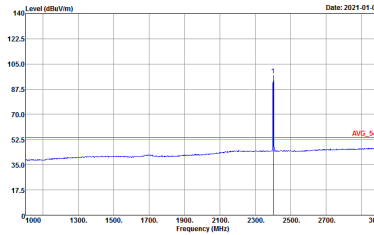
<1Mbps>

2.4GHz 2400~2483.5MHz

BLE (Band Edge @ 3m)

BLE	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
	BLE CH00 2402MHz	
	Horizontal	Fundamental
Peak	<p>Site : 03CH11-14Y Condition : PEAK_86_74 3m HORN 9120D-HF_1326 HORIZONTAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto</p>	<p>Site : 03CH11-14Y Condition : PEAK_74 3m HORN 9120D-HF_1326 HORIZONTAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto</p>
Avg.	<p>Site : 03CH11-14Y Condition : AVG_BE_54 3m HORN 9120D-HF_1326 HORIZONTAL : RBW:1000.000KHz VBW:3.000KHz SWT:Auto</p>	<p>Site : 03CH11-14Y Condition : AVG_54 3m HORN 9120D-HF_1326 HORIZONTAL : RBW:1000.000KHz VBW:3.000KHz SWT:Auto</p>

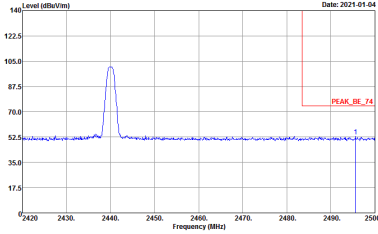
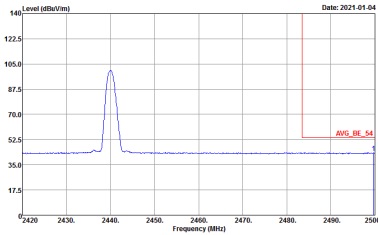


BLE	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
BLE CH00 2402MHz		
	Vertical	Fundamental
Peak	 <p>Site : 03CH11-HY Condition : PEAK_BE_74 3m HORN 9120D-HF_1326 VERTICAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto</p>	 <p>Site : 03CH11-HY Condition : PEAK_74 3m HORN 9120D-HF_1326 VERTICAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto</p>
Avg	 <p>Site : 03CH11-HY Condition : AVG_BE_54 3m HORN 9120D-HF_1326 VERTICAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto</p>	 <p>Site : 03CH11-HY Condition : AVG_54 3m HORN 9120D-HF_1326 VERTICAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto</p>



BLE	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
BLE CH19 2440MHz - L		
	Horizontal	Fundamental
Peak	<p>Date: 2021-01-04</p> <p>Site : 03CH11-HY Condition : PEAK_BE_74 3m HORN 9120D-HF_1326 HORIZONTAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto</p>	<p>Date: 2021-01-04</p> <p>Site : 03CH11-HY Condition : PEAK_74 3m HORN 9120D-HF_1326 HORIZONTAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto</p>
Avg.	<p>Date: 2021-01-04</p> <p>Site : 03CH11-HY Condition : AVG_BE_54 3m HORN 9120D-HF_1326 HORIZONTAL : RBW:1000.000KHz VBW:3.000KHz SWT:Auto</p>	<p>Date: 2021-01-04</p> <p>Site : 03CH11-HY Condition : AVG_54 3m HORN 9120D-HF_1326 HORIZONTAL : RBW:1000.000KHz VBW:3.000KHz SWT:Auto</p>

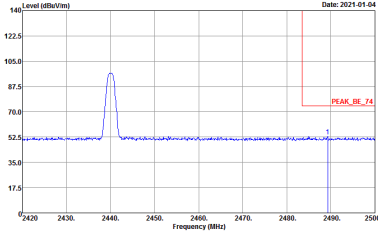
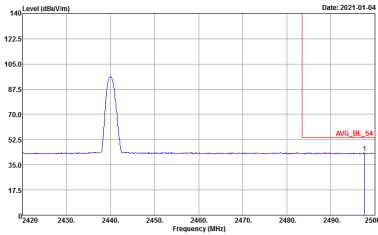


BLE	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
BLE CH19 2440MHz - R		
	Horizontal	Fundamental
Peak	 <p>Site : 03CH11-HY Condition : PEAK_BE_74 3m HORN 91200-HF_1326 HORIZONTAL : RBW:1000.000KHz VBW:3000.000KHz SWF:Auto</p>	Left blank
Avg.	 <p>Site : 03CH11-HY Condition : AVG_BE_54 3m HORN 91200-HF_1326 HORIZONTAL : RBW:1000.000KHz VBW:3.000KHz SWF:Auto</p>	Left blank



BLE	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
BLE CH19 2440MHz - L		
	Vertical	Fundamental
Peak	<p>Site : 03CH11-HY Condition : PEAK_BE_74 3m HORN 9120D-HF_1326 VERTICAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto</p>	<p>Site : 03CH11-HY Condition : PEAK_74 3m HORN 9120D-HF_1326 VERTICAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto</p>
Avg.	<p>Site : 03CH11-HY Condition : AVG_BE_54 3m HORN 9120D-HF_1326 VERTICAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto</p>	<p>Site : 03CH11-HY Condition : AVG_54 3m HORN 9120D-HF_1326 VERTICAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto</p>



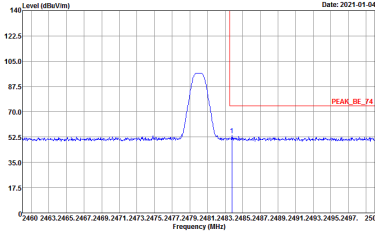
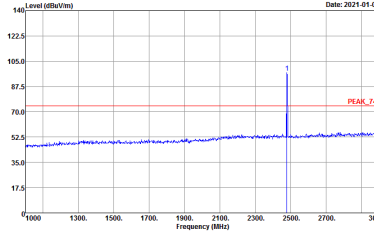
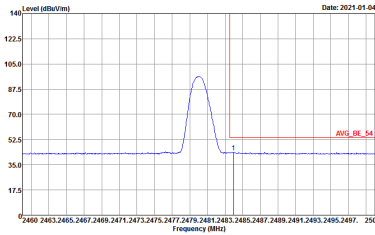
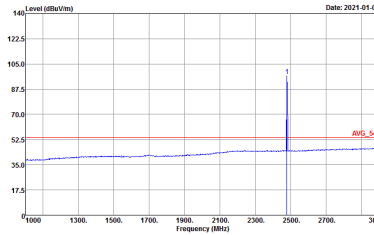
BLE	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
BLE CH19 2440MHz - R		
	Vertical	Fundamental
Peak	 <p>Site : 03CH11-HY Condition : PEAK_BE_74 3m HORN 91200-HF_1326 VERTICAL : RBW:1000.000KHz VBW:3000.000KHz SWF:Auto</p>	Left blank
Avg.	 <p>Site : 03CH11-HY Condition : AVG_BE_54 3m HORN 91200-HF_1326 VERTICAL : RBW:1000.000KHz VBW:3.000KHz SWF:Auto</p>	Left blank



BLE	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
BLE CH39 2480MHz		
	Horizontal	Fundamental
Peak	<p>Site : 03CH11-HY Condition : PEAK_BE_74 3m HORN 9120D-HF_1326 HORIZONTAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto</p>	<p>Site : 03CH11-HY Condition : PEAK_74 3m HORN 9120D-HF_1326 HORIZONTAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto</p>
Avg.	<p>Site : 03CH11-HY Condition : AVG_BE_54 3m HORN 9120D-HF_1326 HORIZONTAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto</p>	<p>Site : 03CH11-HY Condition : AVG_54 3m HORN 9120D-HF_1326 HORIZONTAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto</p>



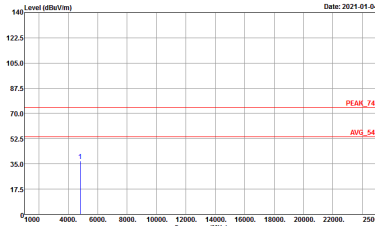
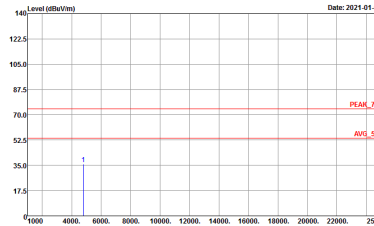


BLE	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
BLE CH39 2480MHz		
	Vertical	Fundamental
Peak	 <p>Date: 2021-01-04</p> <p>Site : 03CH11-HY Condition : PEAK_BE_74 3m HORN 9120D-HF_1326 VERTICAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto</p>	 <p>Date: 2021-01-04</p> <p>Site : 03CH11-HY Condition : PEAK_74 3m HORN 9120D-HF_1326 VERTICAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto</p>
Avg.	 <p>Date: 2021-01-04</p> <p>Site : 03CH11-HY Condition : AVG_BE_54 3m HORN 9120D-HF_1326 VERTICAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto</p>	 <p>Date: 2021-01-04</p> <p>Site : 03CH11-HY Condition : AVG_54 3m HORN 9120D-HF_1326 VERTICAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto</p>



2.4GHz 2400~2483.5MHz

BLE (Harmonic @ 3m)

BLE	2.4GHz 2400~2483.5MHz Harmonic @ 3m	
BLE CH00 2402MHz		
	Horizontal	Vertical
<p><b>Peak</b> <b>Avg.</b></p>	 <p>Site : 03CHI1-HY Condition : PEAK_74 3m HORN 91200-HF_1326 HORIZONTAL</p>	 <p>Site : 03CHI1-HY Condition : PEAK_74 3m HORN 91200-HF_1326 VERTICAL</p>



<b>BLE</b>	<b>2.4GHz 2400~2483.5MHz Harmonic @ 3m</b>	
	<b>BLE CH19 2440MHz</b>	
	<b>Horizontal</b>	<b>Vertical</b>
<b>Peak Avg.</b>	<p>Site : 03CH11-HY Condition : PEAK_74 3m HORN 91200-HF_1326 HORIZONTAL</p>	<p>Site : 03CH11-HY Condition : PEAK_74 3m HORN 91200-HF_1326 VERTICAL</p>



BLE	2.4GHz 2400~2483.5MHz Harmonic @ 3m	
	BLE CH39 2480MHz	
	Horizontal	Vertical
Peak	<p>Site : 03CH11-HY Condition : PEAK_74 3m HORN 91200-HF_1326 HORIZONTAL</p>	<p>Site : 03CH11-HY Condition : PEAK_74 3m HORN 91200-HF_1326 VERTICAL</p>



<2Mbps>

2.4GHz 2400~2483.5MHz

BLE (Band Edge @ 3m)

BLE	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
BLE CH00 2402MHz		
	Horizontal	Fundamental
Peak	<p>Site : 03CH11-HY Condition : PEAK_BE_74 3m HORN 9120D-HF_1326 HORIZONTAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto</p>	<p>Site : 03CH11-HY Condition : PEAK_74 3m HORN 9120D-HF_1326 HORIZONTAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto</p>
Avg.	<p>Site : 03CH11-HY Condition : AVG_BE_54 3m HORN 9120D-HF_1326 HORIZONTAL : RBW:1000.000KHz VBW:10.000KHz SWT:Auto</p>	<p>Site : 03CH11-HY Condition : AVG_54 3m HORN 9120D-HF_1326 HORIZONTAL : RBW:1000.000KHz VBW:10.000KHz SWT:Auto</p>

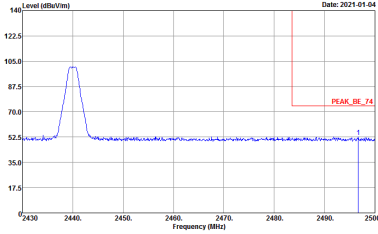
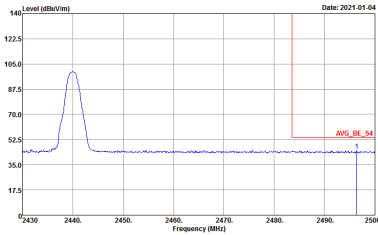


BLE	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
BLE CH00 2402MHz		
	Vertical	Fundamental
Peak	<p>Site : 03CH11-HY Condition : PEAK_BE_74 3m HORN 9120D-HF_1326 VERTICAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto</p>	<p>Site : 03CH11-HY Condition : PEAK_74 3m HORN 9120D-HF_1326 VERTICAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto</p>
Avg	<p>Site : 03CH11-HY Condition : AVG_BE_54 3m HORN 9120D-HF_1326 VERTICAL : RBW:1000.000KHz VBW:10.000KHz SWT:Auto</p>	<p>Site : 03CH11-HY Condition : AVG_54 3m HORN 9120D-HF_1326 VERTICAL : RBW:1000.000KHz VBW:10.000KHz SWT:Auto</p>



BLE	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
BLE CH19 2440MHz - L		
	Horizontal	Fundamental
Peak	<p>Date: 2021-01-04</p> <p>Site : 03CH11-HY Condition : PEAK_BE_74 3m HORN 9120D-HF_1326 HORIZONTAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto</p>	<p>Date: 2021-01-04</p> <p>Site : 03CH11-HY Condition : PEAK_74 3m HORN 9120D-HF_1326 HORIZONTAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto</p>
Avg.	<p>Date: 2021-01-04</p> <p>Site : 03CH11-HY Condition : AVG_BE_54 3m HORN 9120D-HF_1326 HORIZONTAL : RBW:1000.000KHz VBW:10.000KHz SWT:Auto</p>	<p>Date: 2021-01-04</p> <p>Site : 03CH11-HY Condition : AVG_54 3m HORN 9120D-HF_1326 HORIZONTAL : RBW:1000.000KHz VBW:10.000KHz SWT:Auto</p>



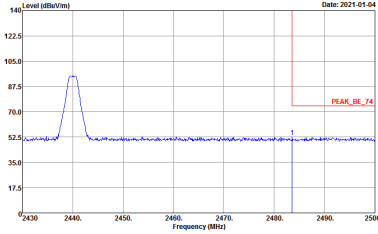
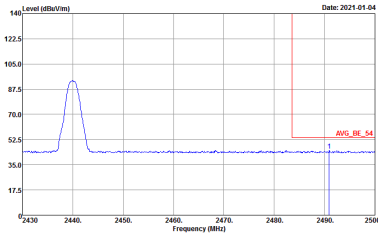
BLE	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
BLE CH19 2440MHz - R		
	Horizontal	Fundamental
Peak	 <p>Site : 03CH11-HY Condition : PEAK_BE_74 3m HORN 91200-HF_1326 HORIZONTAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto</p>	Left blank
Avg.	 <p>Site : 03CH11-HY Condition : AVG_BE_54 3m HORN 91200-HF_1326 HORIZONTAL : RBW:1000.000KHz VBW:10.000KHz SWT:Auto</p>	Left blank





BLE	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
BLE CH19 2440MHz - L		
	Vertical	Fundamental
Peak	<p>Date: 2021-01-04</p> <p>Site : 03CH11-HY Condition : PEAK_BE_74 3m HORN 9120D-HF_1326 VERTICAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto</p>	<p>Date: 2021-01-04</p> <p>Site : 03CH11-HY Condition : PEAK_74 3m HORN 9120D-HF_1326 VERTICAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto</p>
Avg.	<p>Date: 2021-01-04</p> <p>Site : 03CH11-HY Condition : AVG_BE_54 3m HORN 9120D-HF_1326 VERTICAL : RBW:1000.000KHz VBW:10.000KHz SWT:Auto</p>	<p>Date: 2021-01-04</p> <p>Site : 03CH11-HY Condition : AVG_54 3m HORN 9120D-HF_1326 VERTICAL : RBW:1000.000KHz VBW:10.000KHz SWT:Auto</p>



BLE	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
BLE CH19 2440MHz - R		
	Vertical	Fundamental
Peak	 <p>Site : 03CH11-HY Condition : PEAK_BE_74 3m HORN 91200-HF_1326 VERTICAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto</p>	Left blank
Avg.	 <p>Site : 03CH11-HY Condition : AVG_BE_54 3m HORN 91200-HF_1326 VERTICAL : RBW:1000.000KHz VBW:10.000KHz SWT:Auto</p>	Left blank