



# FCC RADIO TEST REPORT

**FCC ID** : 2AEIM-1472547  
**Equipment** : TPMS sensor  
**Brand Name** : TESLA, Inc  
**Model Name** : 1472547  
**Marketing Name** : TESLA  
**Applicant** : Tesla, Inc  
3500 Deer Creek Road, Palo Alto, California  
US 94304 United States Of America  
**Manufacturer** : TESLA, Inc  
3500 Deer Creek Road, Palo Alto, California  
US 94304 United States Of America  
**Standard** : FCC Part 15 Subpart C §15.247

The product was received on Sep. 11, 2019 and testing was started from Sep. 19, 2019 and completed on Sep. 24, 2019. We, S Sporton International (USA) Inc., 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 report must not be used by the client to claim product certification, approval, or endorsement by A2LA or any agency of government.

The test results in this report apply exclusively to the tested model / sample. Without written approval of Sporton International (USA) Inc., the test report shall not be reproduced except in full.

Approved by: Ken Chen

**Sporton International (USA) Inc.**  
1175 Montague Expressway, Milpitas, CA 95035



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## History of this test report

Report No.	Version	Description	Issued Date
FR190911001	01	Initial issue of report	Sep. 30, 2019

## 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)	Peak 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 0.84 dB at 46.490 MHz
-	15.207	AC Conducted Emission	Not Required	-
3.6	15.203 & 15.247(b)	Antenna Requirement	Pass	-
<b>Remark:</b> Not required means after assessing, test items are not necessary to carry out.				

### 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.



# 1 General Description

## 1.1 Product Feature of Equipment Under Test

Bluetooth

Product Specification subjective to this standard	
Antenna Type	Monopole Antenna

## 1.2 Modification of EUT

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

## 1.3 Testing Location

Test Site	Sporton International (USA) Inc.	
Test Site Location	1175 Montague Expressway, Milpitas, CA 95035 TEL : 408 9043300	
Test Site No.	Sporton Site No.	
	TH01-CA	03CH02-CA

## 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. This EUT has also been tested and complied with the requirements of FCC Part 15, Subpart B, recorded in a separate test report.

## 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	-	-

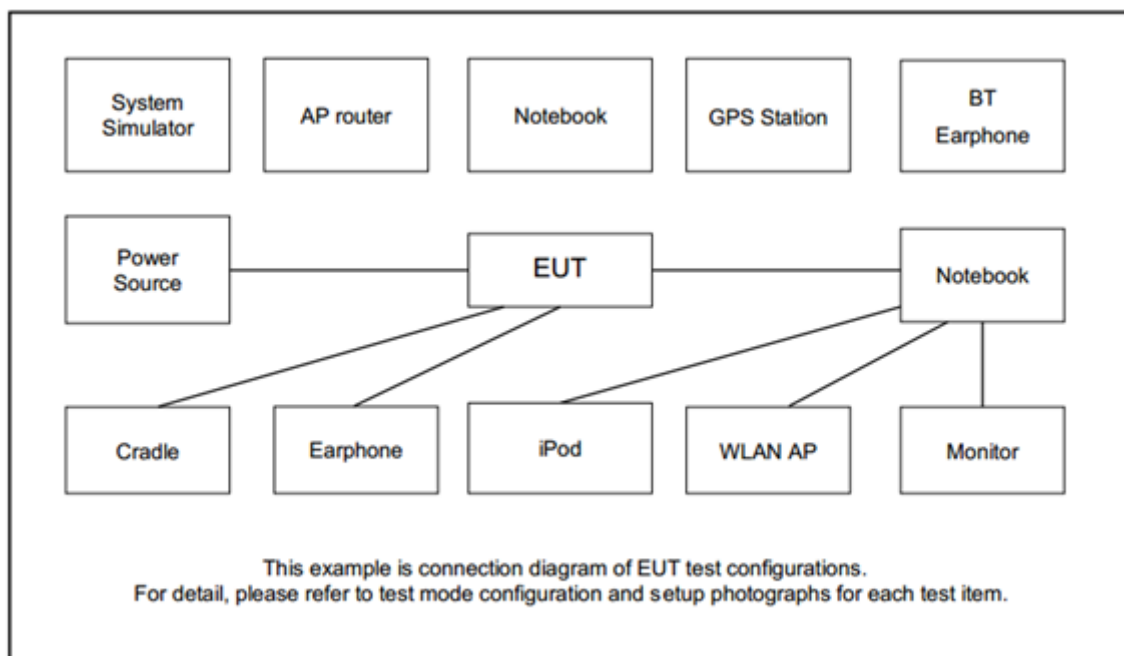
## 2.2 Test Mode

- 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:, radiation emission (9 kHz to the 10th harmonic of the highest fundamental frequency or to 40 GHz, whichever is lower). For radiated measurement, pre-scanned in three orthogonal panels, X, Y, Z. The worst cases (Y plane) were recorded in this report.

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
	Bluetooth – LE / GFSK
Conducted Test Cases	Mode 1: Bluetooth Tx CH00_2402 MHz_1Mbps
	Mode 2: Bluetooth Tx CH19_2440 MHz_1Mbps
	Mode 3: Bluetooth Tx CH39_2480 MHz_1Mbps
Radiated Test Cases	Mode 1: Bluetooth Tx CH00_2402 MHz_1Mbps
	Mode 2: Bluetooth Tx CH19_2440 MHz_1Mbps
	Mode 3: Bluetooth Tx CH39_2480 MHz_1Mbps

## 2.3 Connection Diagram of Test System



## 2.4 Support Unit used in test configuration and system

Item	Equipment	Trade Name	Model Name	FCC ID	Data Cable	Power Cord
1.	Power Supply	GW Instek	SPS-606	GES851982	N/A	N/A

## 2.5 EUT Operation Test Setup

The RF test items, utility "BTool\_v1.41.11" 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.

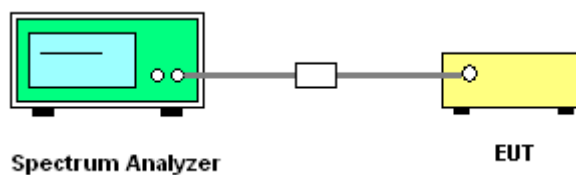
##### 3.1.2 Measuring Instruments

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

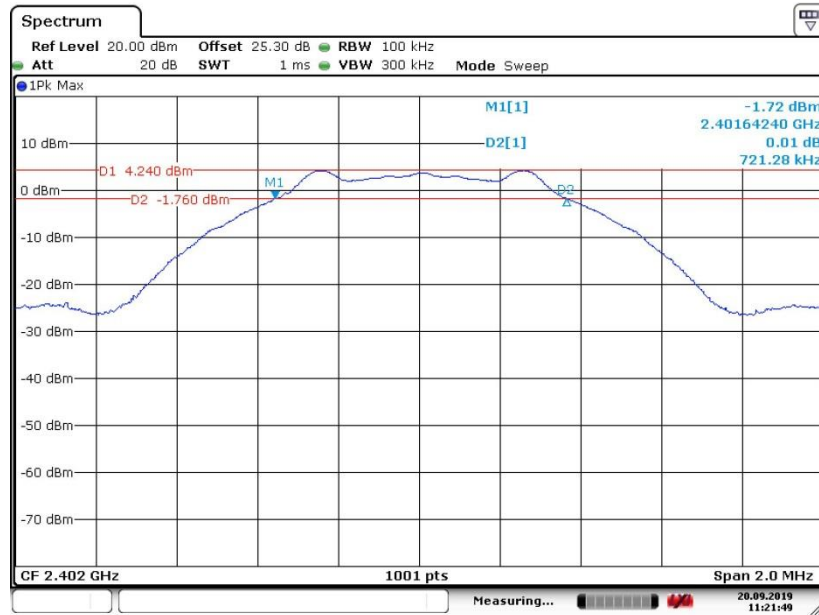




### 3.1.5 Test Result of 6dB Bandwidth

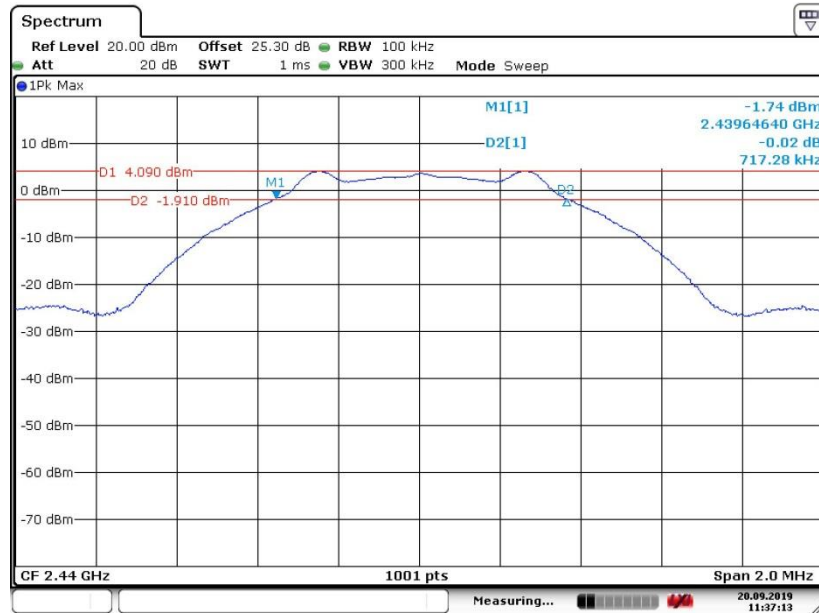
Please refer to Appendix A.

**6 dB Bandwidth Plot on Channel 00**



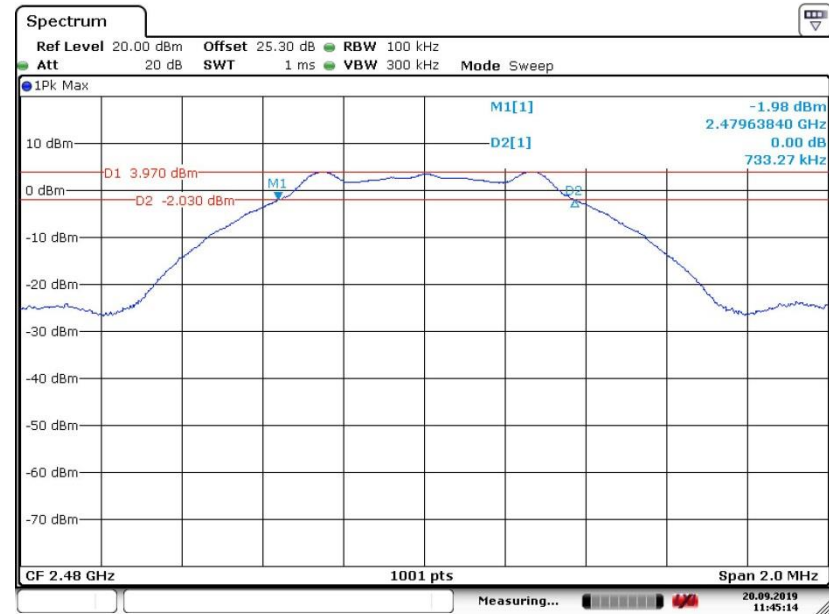
Date: 20.SEP.2019 11:21:49

**6 dB Bandwidth Plot on Channel 19**



Date: 20.SEP.2019 11:37:13

### 6 dB Bandwidth Plot on Channel 39

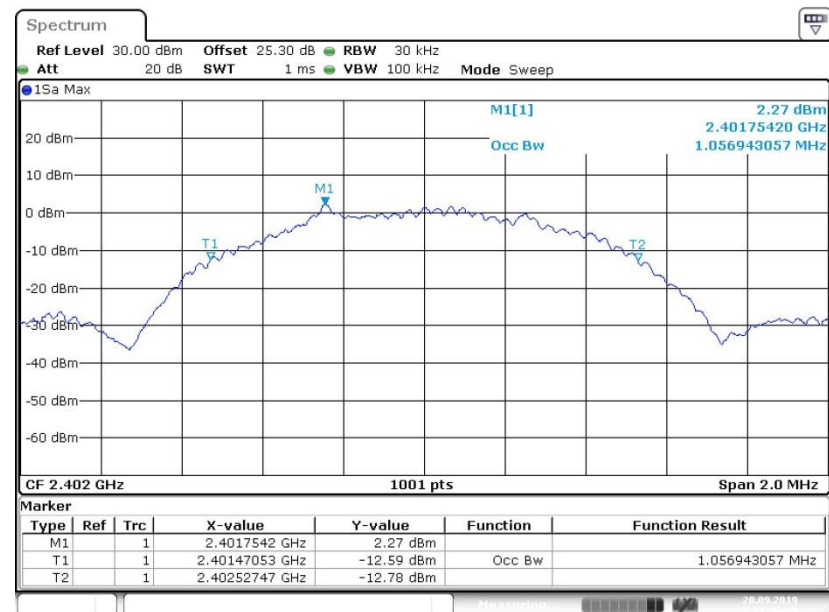


Date: 20.SEP.2019 11:45:15

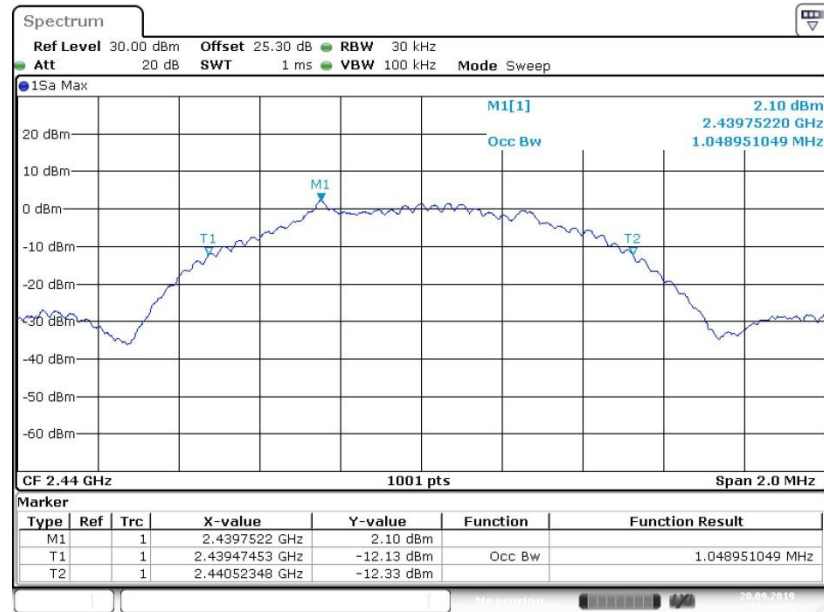
### 3.1.6 Test Result of 99% Occupied Bandwidth

Please refer to Appendix A.

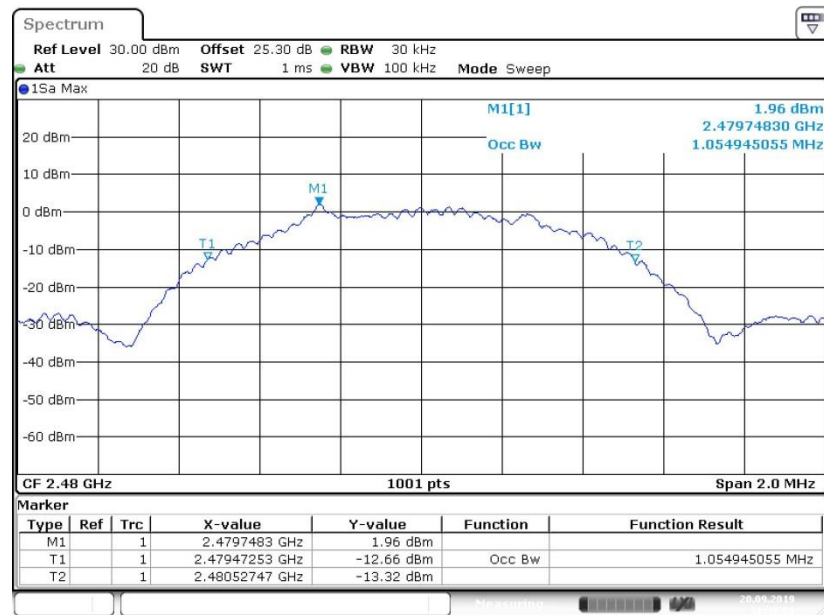
### 99% Bandwidth Plot on Channel 00



Date: 20.SEP.2019 11:28:45

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


Date: 20.SEP.2019 11:40:52

**99% Occupied Bandwidth Plot on Channel 39**


Date: 20.SEP.2019 11:50:02

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 peak 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.

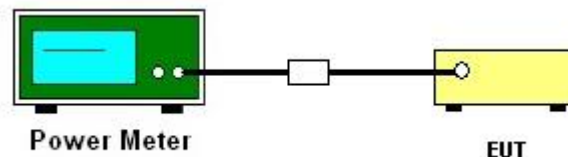
### **3.2.2 Measuring Instruments**

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 AVGPM-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.

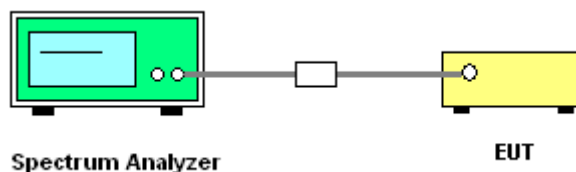
#### 3.3.2 Measuring Instruments

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



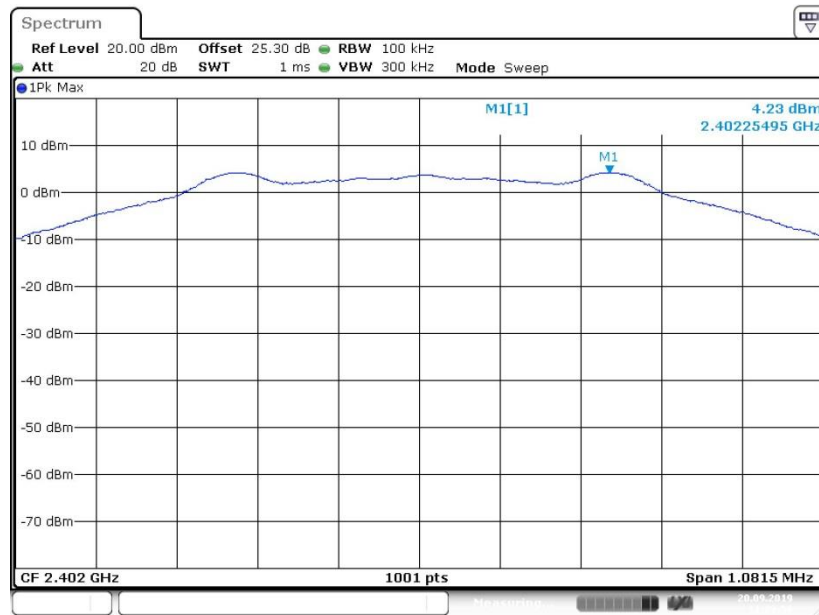
#### 3.3.5 Test Result of Power Spectral Density

Please refer to Appendix A.



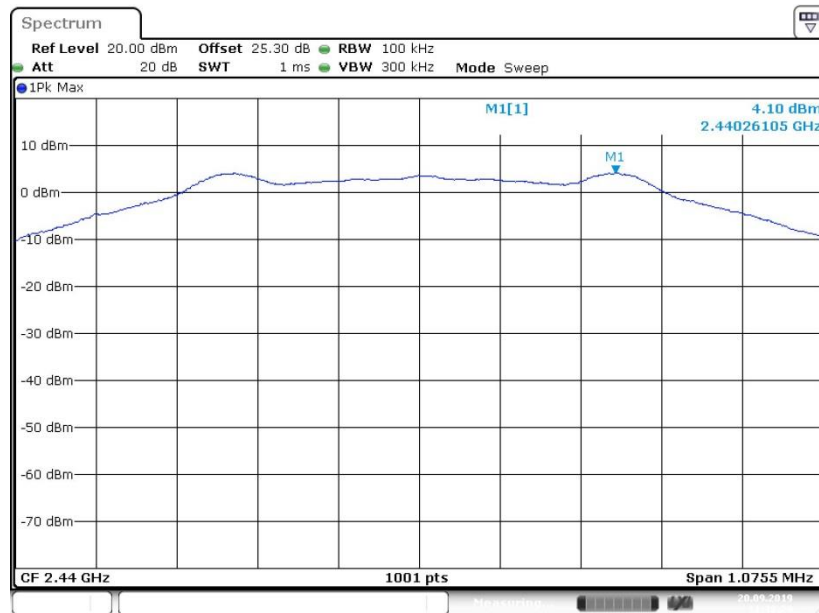
### 3.3.6 Test Result of Power Spectral Density Plots (100kHz)

PSD 100kHz Plot on Channel 00

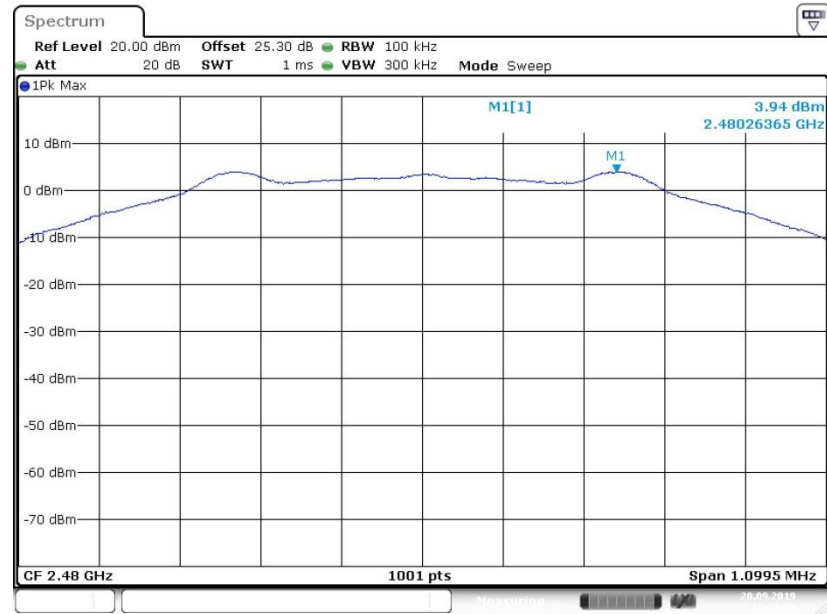
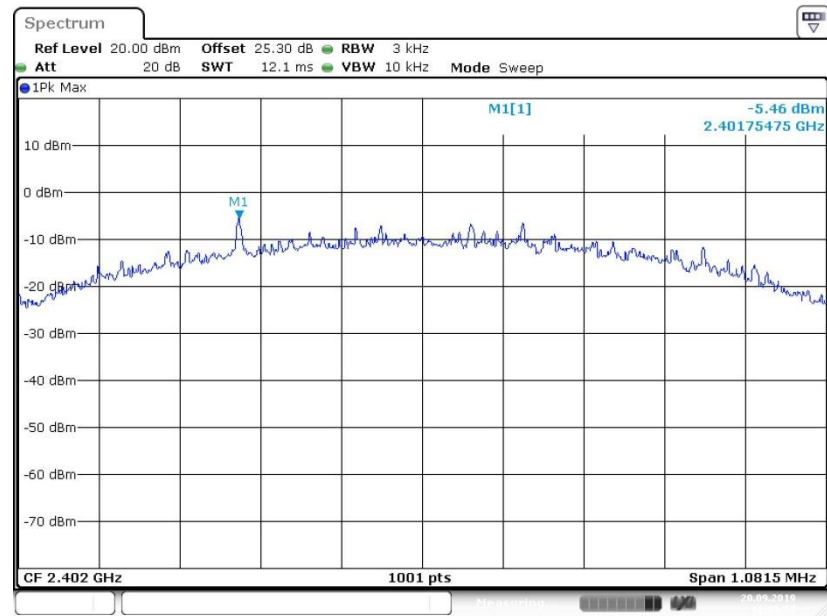


Date: 20 SEP. 2019 11:23:57

PSD 100kHz Plot on Channel 19



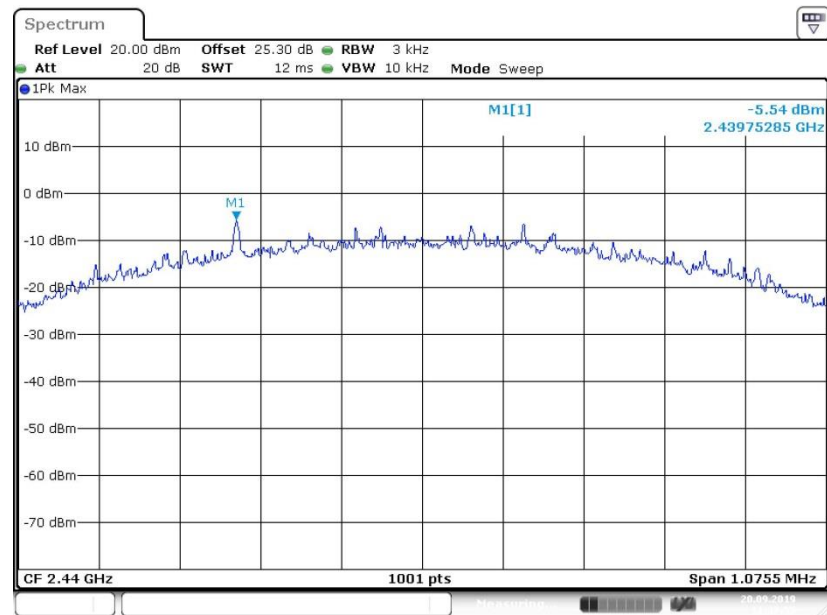
Date: 20 SEP. 2019 11:38:24

**PSD 100kHz Plot on Channel 39**

**3.3.7 Test Result of Power Spectral Density Plots (3kHz)**
**PSD 3kHz Plot on Channel 00**




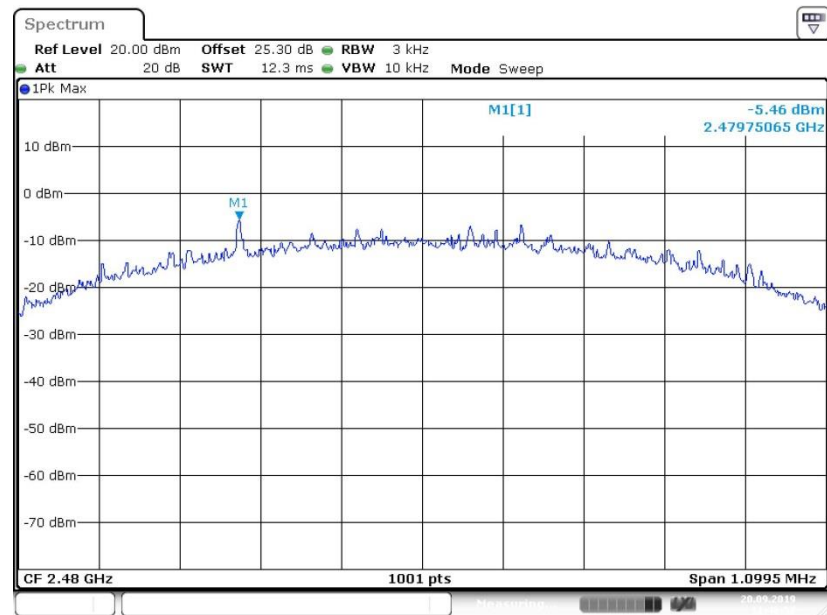


PSD 3kHz Plot on Channel 19



Date: 20.SEP.2019 11:37:56

PSD 3kHz Plot on Channel 39



Date: 20.SEP.2019 11:46:57

### 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.

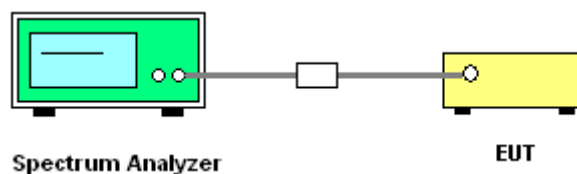
#### 3.4.2 Measuring Instruments

See list of measuring equipment of this test report.

#### 3.4.3 Test Procedure

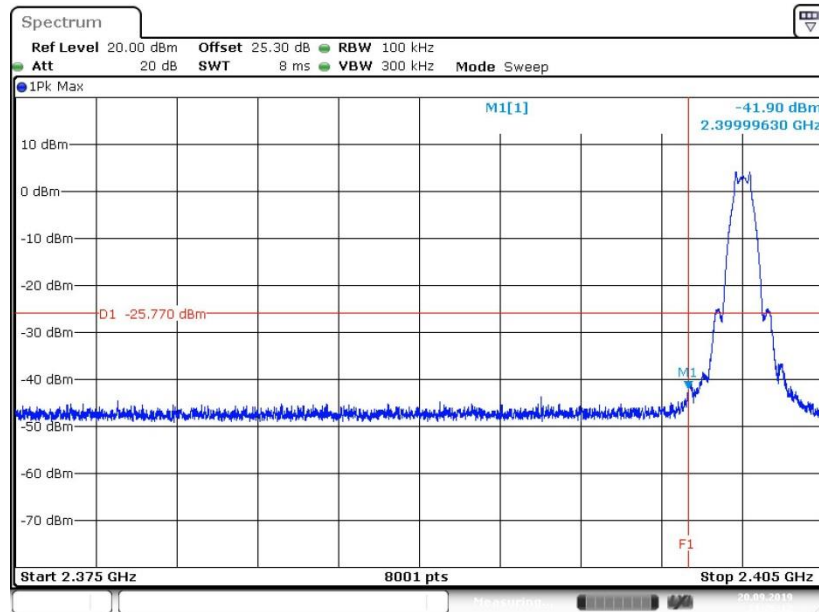
1. The testing follows the ANSI C63.10 Section 11.11.3 Emission level measurement.
2. The RF output of EUT was connected to the spectrum analyzer by RF cable and attenuator. The path loss was compensated to the results for each measurement.
3. Set to the maximum power setting and enable the EUT transmit 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

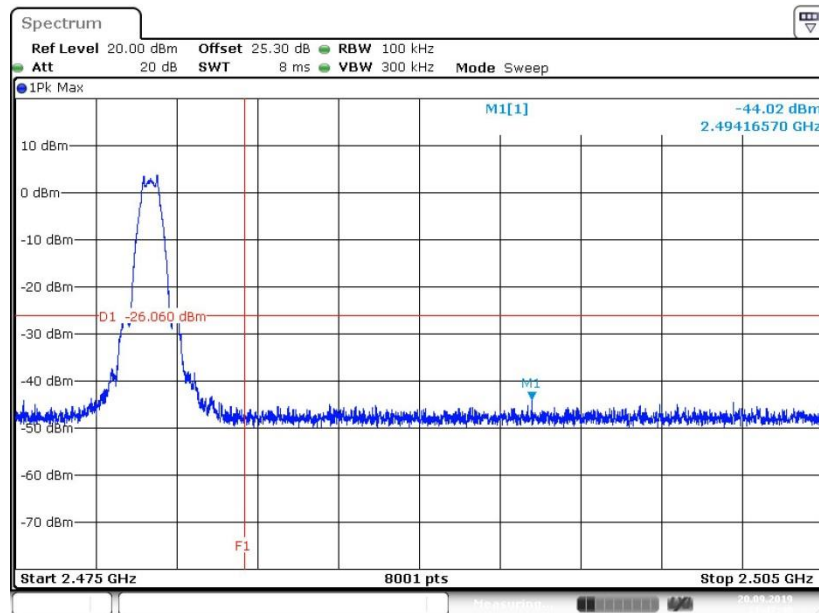


### 3.4.5 Test Result of Conducted Band Edges Plots

**Low Band Edge Plot on Channel 00**

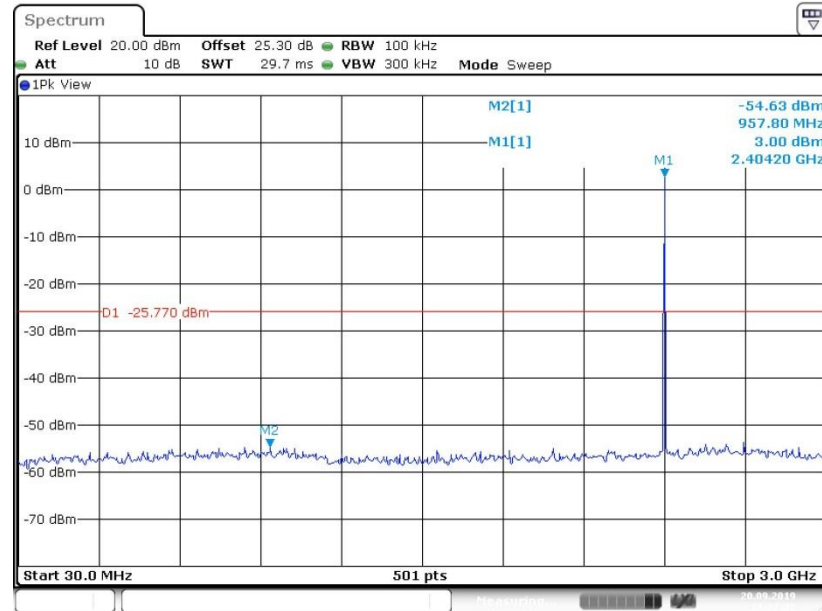


**High Band Edge Plot on Channel 39**

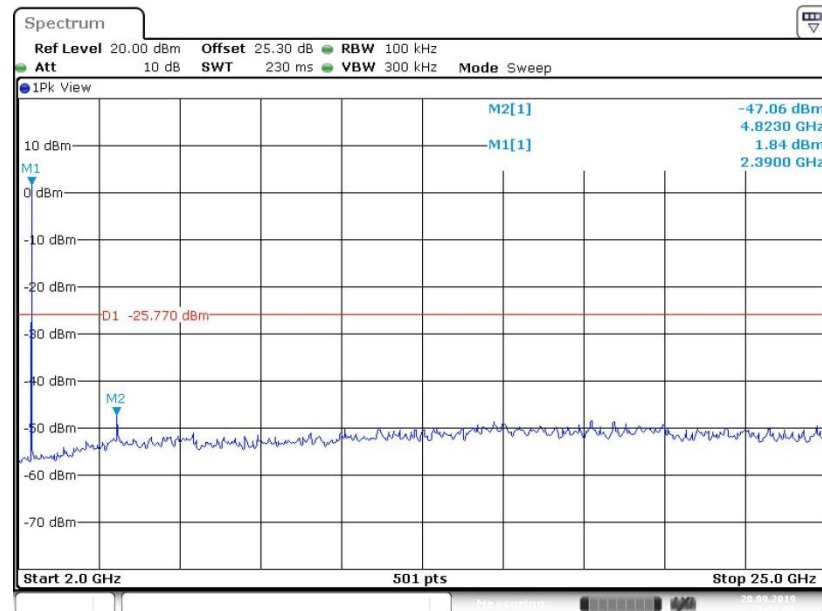


### 3.4.6 Test Result of Conducted Spurious Emission Plots

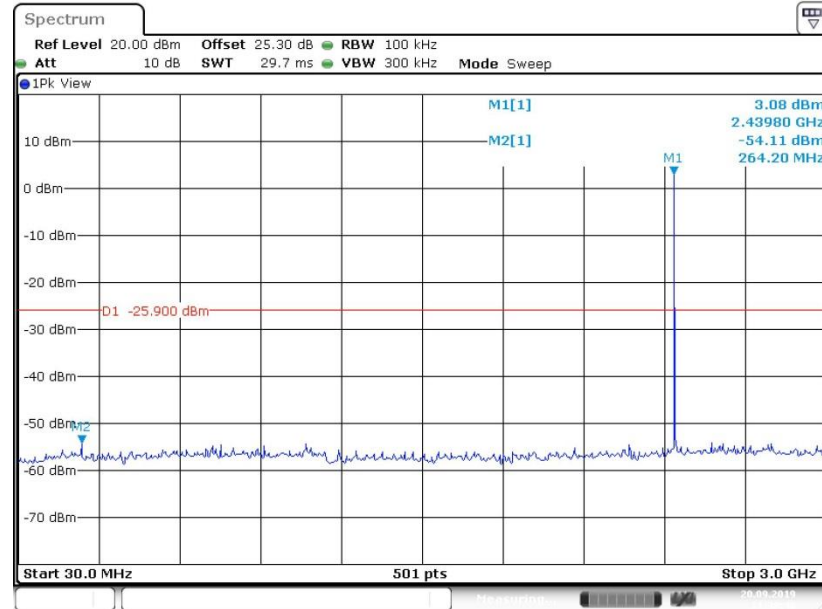
#### Conducted Spurious Emission Plot on Bluetooth LE 1Mbps GFSK Channel 00



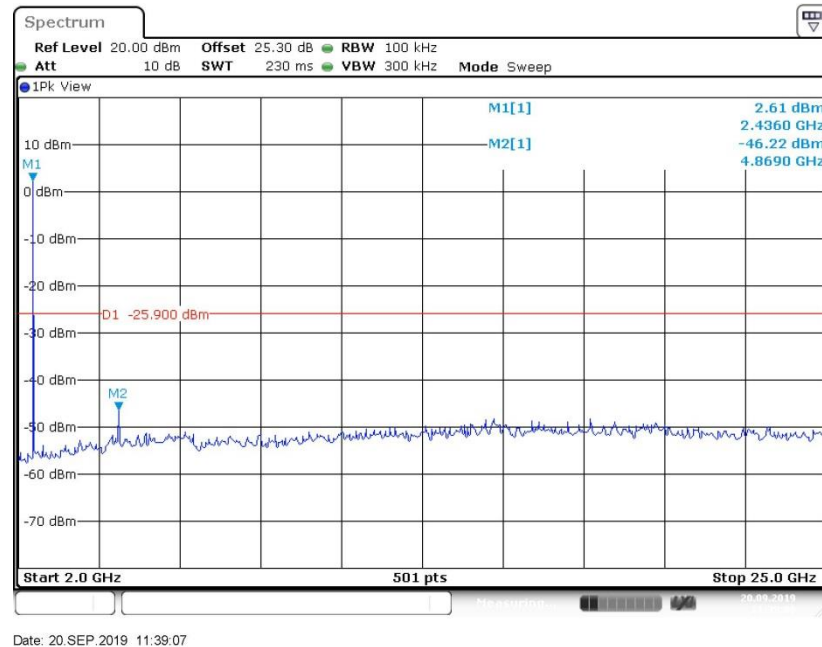
#### Conducted Spurious Emission Plot on Bluetooth LE 1Mbps GFSK Channel 00



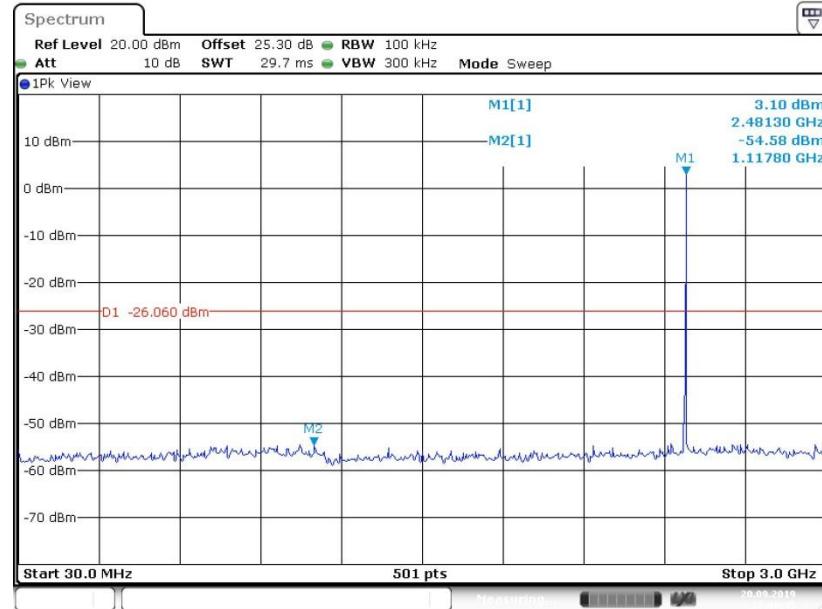
### Conducted Spurious Emission Plot on Bluetooth LE 1Mbps GFSK Channel 19



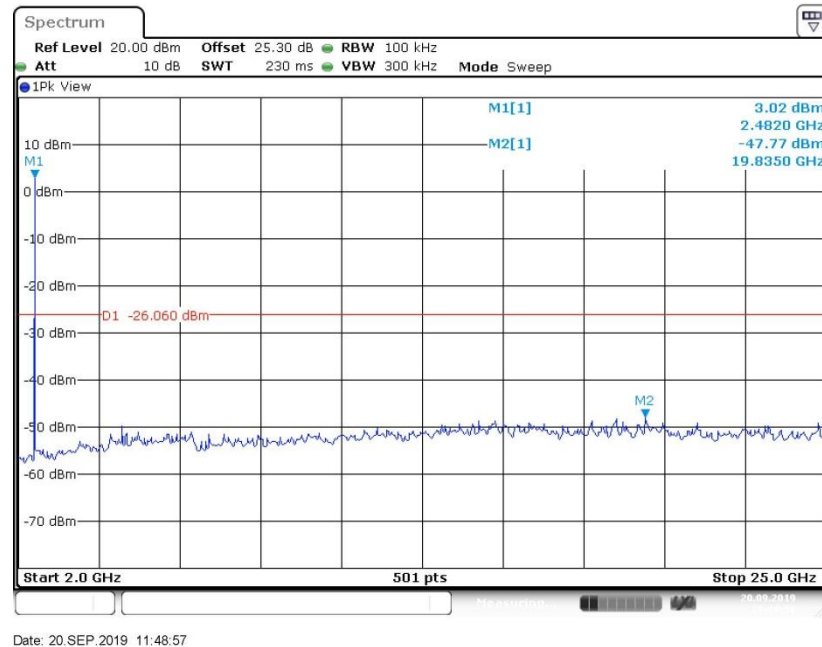
### Conducted Spurious Emission Plot on Bluetooth LE 1Mbps GFSK Channel 19



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



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



### 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.

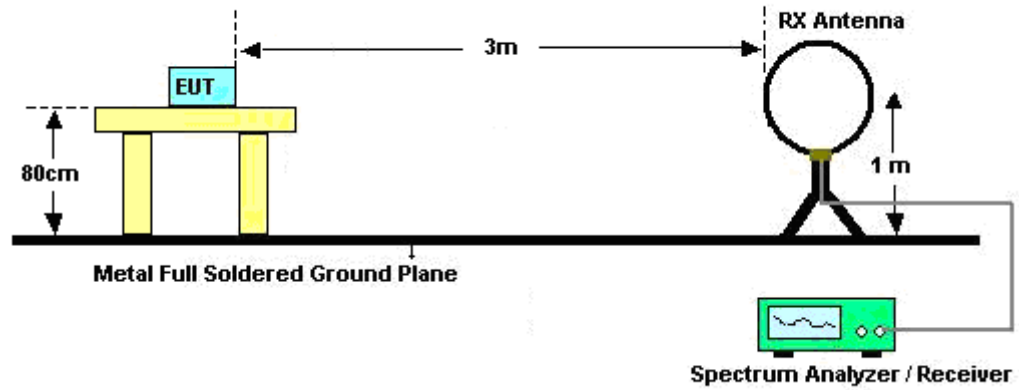
### 3.5.3 Test Procedures

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  $f < 1 \text{ GHz}$ ;  $\text{VBW} \geq \text{RBW}$ ; Sweep = auto; Detector function = peak; Trace = max hold;
  - (3) Set RBW = 1 MHz, VBW= 3MHz for  $f \geq 1 \text{ GHz}$  for peak measurement.  
For average measurement:
    - $\text{VBW} = 10 \text{ Hz}$ , when duty cycle is no less than 98 percent.
    - $\text{VBW} \geq 1/T$ , 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.

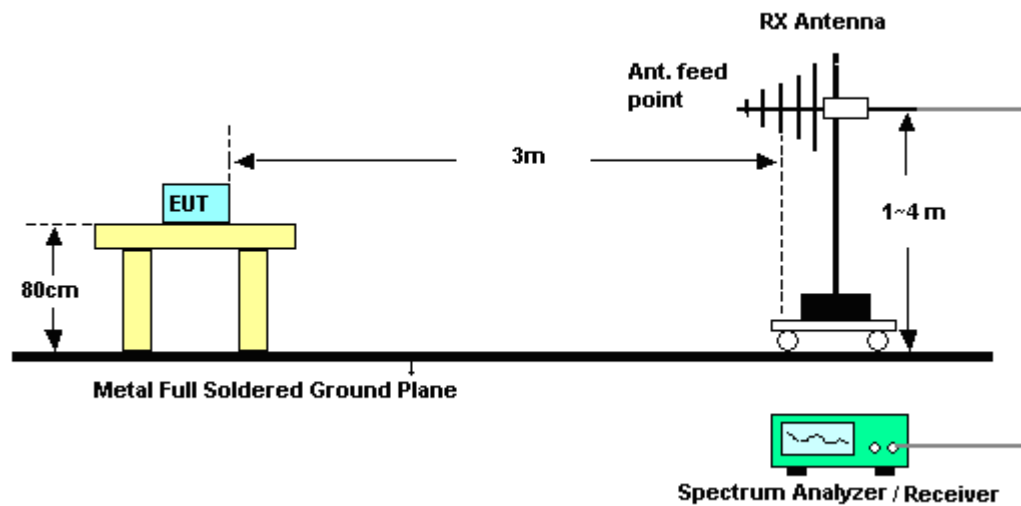


### 3.5.4 Test Setup

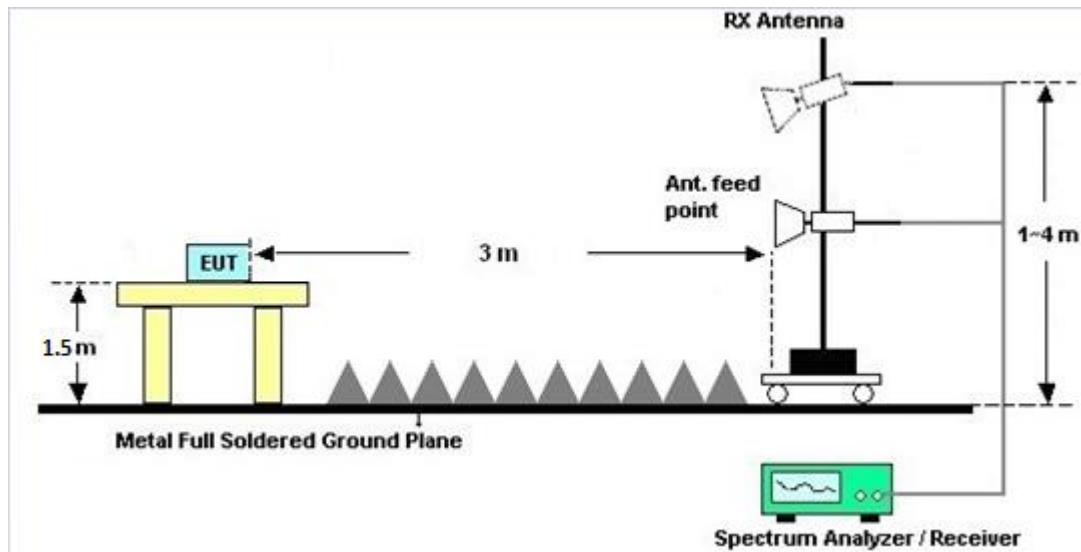
For radiated emissions below 30MHz



For radiated emissions from 30MHz to 1GHz



For radiated emissions 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 B and C.

### 3.5.7 Duty Cycle

Please refer to Appendix D.

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

Please refer to Appendix B and C.



## **3.6 Antenna Requirements**

### **3.6.1 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.

### **3.6.2 Antenna Anti-Replacement Construction**

An embedded-in antenna design is used.

### **3.6.3 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	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Test Date	Due Date	Remark
Power Meter	Anritsu	ML2495A	1804004	N/A	Aug. 14, 2019	Sep. 19, 2019~ Sep. 20, 2019	Aug. 13, 2020	Conducted (TH01-CA)
Power Sensor	Anritsu	MA2411B	1726149	300MHz~40GHz z	Aug. 15, 2019	Sep. 19, 2019~ Sep. 20, 2019	Aug. 14, 2020	Conducted (TH01-CA)
Spectrum Analyzer	Rohde & Schwarz	FSV 40	101089	10Hz~40GHz	Aug. 29, 2019	Sep. 19, 2019~ Sep. 20, 2019	Aug. 28, 2020	Conducted (TH01-CA)
Switch Box & RF Cable	EM	EMSW18	SW107090 2	N/A	Apr. 07, 2019	Sep. 19, 2019~ Sep. 20, 2019	Apr. 06, 2020	Conducted (TH01-CA)
Bilog Antenna	TESEQ	6111D	50392	30MHz~1GHz	May 15, 2019	Sep. 19, 2019~ Sep. 24, 2019	May 14, 2020	Radiation (03CH02-CA)
Horn Antenna	SCHWARZBECK	BBHA 9120D	01894	1GHz~18GHz	Jul. 22, 2019	Sep. 20, 2019~ Sep. 24, 2019	Jul. 21, 2020	Radiation (03CH02-CA)
Preamplifier	SONOMA	310N	372240	N/A	Aug. 13, 2019	Sep. 20, 2019~ Sep. 24, 2019	Aug. 12, 2020	Radiation (03CH02-CA)
Preamplifier	Keysight	83017A	MY532703 23	1GHz~26.5GHz	Jul. 26, 2019	Sep. 20, 2019~ Sep. 24, 2019	Jul. 25, 2020	Radiation (03CH02-CA)
Preamplifier	Jet-Power	JPA0118-55-3 03	171000180 0055007	1GHz~18GHz	Apr. 01, 2019	Sep. 20, 2019~ Sep. 24, 2019	Mar. 31, 2020	Radiation (03CH02-CA)
EMI Test Receiver	R&S	ESU26	100049	20Hz~26.5GHz	Jul. 31, 2019	Sep. 20, 2019~ Sep. 24, 2019	Jul. 30, 2020	Radiation (03CH02-CA)
Spectrum Analyzer	Keysight	N9010A	MY574202 21	10Hz~44GHz	Sep. 11, 2019	Sep. 20, 2019~ Sep. 24, 2019	Sep. 10, 2020	Radiation (03CH02-CA)
Filter	Wainwright	WLK12-1200- 1272-11000-4 0SS	SN2	1.2G Low Pass	Aug. 02, 2019	Sep. 20, 2019~ Sep. 24, 2019	Aug. 01, 2020	Radiation (03CH02-CA)
Filter	Wainwright	WHKX12-270 0-3000-18000 -60ST	SN10	3G Highpass	Aug. 02, 2019	Sep. 20, 2019~ Sep. 24, 2019	Aug. 01, 2020	Radiation (03CH02-CA)
Antenna Mast	ChainTek	MBS-520-1	N/A	1m~4m	N/A	Sep. 20, 2019~ Sep. 24, 2019	N/A	Radiation (03CH02-CA)
Turn Table	ChainTek	T-200-S-1	N/A	0~360 Degree	N/A	Sep. 20, 2019~ Sep. 24, 2019	N/A	Radiation (03CH02-CA)

## 5 Uncertainty of Evaluation

### 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% ( $U = 2Uc(y)$ )	6.5
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### Uncertainty of Radiated Emission Measurement (18000 MHz ~ 40000 MHz)

Measuring Uncertainty for a Level of Confidence of 95% ( $U = 2Uc(y)$ )	6.3
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**Appendix A. Test Result of Conducted Test Items**

Test Engineer:	Jordan Huang	Temperature:	21~25	°C
Test Date:	9/19/2019~9/20/2019	Relative Humidity:	51~54	%

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

Mod.	Data Rate	N <sub>TX</sub>	CH.	Freq. (MHz)	99% Occupied BW (MHz)	6dB BW (MHz)	6dB BW Limit (MHz)	Pass/Fail
BLE	1Mbps	1	0	2402	1.057	0.721	0.50	Pass
BLE	1Mbps	1	19	2440	1.049	0.717	0.50	Pass
BLE	1Mbps	1	39	2480	1.055	0.733	0.50	Pass

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

Mod.	Data Rate	N <sub>TX</sub>	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	4.94	30.00	3.39	8.33	36.00	Pass
BLE	1Mbps	1	19	2440	4.80	30.00	3.39	8.19	36.00	Pass
BLE	1Mbps	1	39	2480	4.64	30.00	3.39	8.03	36.00	Pass

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

Mod.	Data Rate	N <sub>TX</sub>	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	4.23	-5.46	3.39	8.00	Pass
BLE	1Mbps	1	19	2440	4.10	-5.54	3.39	8.00	Pass
BLE	1Mbps	1	39	2480	3.94	-5.46	3.39	8.00	Pass

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



## Appendix B. Radiated Spurious Emission

Test Engineer :	Calvin Wu	Temperature :	22~26°C
		Relative Humidity :	42~50%

## 2.4GHz 2400~2483.5MHz

## BLE (Band Edge @ 3m)

BLE	Note	Frequency	Level	Over	Limit	Read	Antenna	Path	Preamp	Ant	Table	Peak	Pol.
				Limit	Line	Level	Factor	Loss	Factor	Pos	Pos	Avg.	
		( MHz )	( dBμV/m )	( dB )	( dBμV/m )	( dBμV )	( dB/m )	( dB )	( dB )	( cm )	( deg )	( P/A )	( H/V )
BLE CH 00 2402MHz		2378.46	54.93	-19.07	74	41.55	27.25	17.31	31.18	215	179	P	H
		2388.33	43.85	-10.15	54	30.42	27.28	17.32	31.17	215	179	A	H
	*	2402	101.18	-	-	87.68	27.32	17.34	31.16	215	179	P	H
	*	2402	100.87	-	-	87.37	27.32	17.34	31.16	215	179	A	H
													H
													H
		2386.545	54.59	-19.41	74	41.09	27.35	17.32	31.17	100	179	P	V
		2389.275	43.72	-10.28	54	30.22	27.35	17.32	31.17	100	179	A	V
	*	2402	96.55	-	-	82.98	27.39	17.34	31.16	100	179	P	V
	*	2402	96.22	-	-	82.65	27.39	17.34	31.16	100	179	A	V
													V
													V
BLE CH 19 2440MHz		2387.92	54.89	-19.11	74	41.46	27.28	17.32	31.17	208	177	P	H
		2389.36	43.68	-10.32	54	30.24	27.29	17.32	31.17	208	177	A	H
	*	2440	101.92	-	-	88.21	27.44	17.41	31.14	208	177	P	H
	*	2440	101.58	-	-	87.87	27.44	17.41	31.14	208	177	A	H
		2484.16	55.02	-18.98	74	41.09	27.57	17.48	31.12	208	177	P	H
		2499.28	44.23	-9.77	54	30.22	27.62	17.5	31.11	208	177	A	H
		2349.68	54.93	-19.07	74	41.61	27.25	17.26	31.19	100	214	P	V
		2389.04	43.68	-10.32	54	30.18	27.35	17.32	31.17	100	214	A	V
	*	2440	96.22	-	-	82.46	27.49	17.41	31.14	100	214	P	V
	*	2440	95.85	-	-	82.09	27.49	17.41	31.14	100	214	A	V
		2496.4	55.16	-18.84	74	41.12	27.65	17.5	31.11	100	214	P	V
		2497.36	44.21	-9.79	54	30.17	27.65	17.5	31.11	100	214	A	V



<b>BLE CH 39 2480MHz</b>	*	2480	101.75	-	-	87.84	27.56	17.47	31.12	200	177	P	H
	*	2480	101.38	-	-	87.47	27.56	17.47	31.12	200	177	A	H
		2485	55.8	-18.2	74	41.87	27.57	17.48	31.12	200	177	P	H
		2483.52	45.35	-8.65	54	31.42	27.57	17.48	31.12	200	177	A	H
													H
													H
	*	2480	96.88	-	-	82.93	27.6	17.47	31.12	100	151	P	V
	*	2480	96.48	-	-	82.53	27.6	17.47	31.12	100	151	A	V
		2497.48	55.2	-18.8	74	41.16	27.65	17.5	31.11	100	151	P	V
		2483.52	44.46	-9.54	54	30.49	27.61	17.48	31.12	100	151	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	57.8	-16.2	74	73.88	31.22	11.86	59.16	252	30	P	H
		4804	51.88	-2.12	54	67.96	31.22	11.86	59.16	252	30	A	H
		9608	63.25	-17.93	81.18	68.62	38.43	15.55	59.35	187	85	P	H
													H
		4804	56.14	-17.86	74	72.08	31.36	11.86	59.16	302	221	P	V
		4804	49.5	-4.5	54	65.44	31.36	11.86	59.16	302	221	A	V
		9608	60.98	-15.57	76.55	66.29	38.49	15.55	59.35	274	27	P	V
													V
BLE CH 19 2440MHz		4880	57.16	-16.84	74	73.35	31.33	11.66	59.18	261	25	P	H
		4880	51.97	-2.03	54	68.16	31.33	11.66	59.18	261	25	A	H
		7320	47.35	-26.65	74	56.43	35.96	14.13	59.17	100	0	P	H
		9760	63.05	-18.87	81.92	68.23	38.59	15.79	59.56	188	90	P	H
		4880	56.21	-17.79	74	72.22	31.51	11.66	59.18	400	95	P	V
		4880	49.94	-4.06	54	65.95	31.51	11.66	59.18	400	95	A	V
		7320	57.32	-16.68	74	66.33	36.03	14.13	59.17	210	164	P	V
		7320	47.3	-6.7	54	56.31	36.03	14.13	59.17	210	164	A	V
		9760	60.15	-16.07	76.22	65.29	38.63	15.79	59.56	400	51	P	V
BLE CH 39 2480MHz		4960	55.41	-18.59	74	71.72	31.44	11.44	59.19	267	27	P	H
		4960	49.63	-4.37	54	65.94	31.44	11.44	59.19	267	27	A	H
		7440	45.59	-28.41	74	54.21	36.27	14.23	59.12	100	0	P	H
		9920	61.66	-20.09	81.75	66.58	38.75	16.12	59.79	190	85	P	H
		4960	47.99	-26.01	74	64.07	31.67	11.44	59.19	100	0	P	V
		7440	57.39	-16.61	74	65.94	36.34	14.23	59.12	208	332	P	V
		7440	47.89	-6.11	54	56.44	36.34	14.23	59.12	208	332	A	V
		9920	60.2	-16.68	76.88	65.1	38.77	16.12	59.79	400	111	P	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.
				Limit	Line	Level	Factor	Loss	Factor	Pos	Pos	Avg.	
		( MHz )	( dBμV/m )	( dB )	( dBμV/m )	( dBμV )	( dB/m )	( dB )	( dB )	( cm )	( deg )	( P/A )	( H/V )
2.4GHz BLE LF		46.49	28.27	-11.73	40	43.51	16.11	1.1	32.45	-	-	P	H
		79.47	29.21	-10.79	40	46.82	13.35	1.49	32.45	100	0	P	H
		120.21	32.39	-11.11	43.5	45.54	17.52	1.75	32.42	-	-	P	H
		142.52	30.83	-12.67	43.5	43.63	17.55	2.07	32.42	-	-	P	H
		739.07	29.92	-16.08	46	29.91	27.96	4.45	32.4	-	-	P	H
		937.92	33.02	-12.98	46	28.92	30.42	4.99	31.31	-	-	P	H
													H
													H
													H
													H
													H
													H
		46.49	39.16	-0.84	40	54.4	16.11	1.1	32.45	100	0	Q	V
	*	46.49	43.96	-	-	59.2	16.11	1.1	32.45	100	0	P	V
		80.44	33.75	-6.25	40	51.19	13.49	1.52	32.45	100	177	Q	V
		80.44	37.95	-2.05	40	55.39	13.49	1.52	32.45	100	177	P	V
		113.42	32.34	-11.16	43.5	45.74	17.3	1.72	32.42	-	-	P	V
		169.68	26.96	-16.54	43.5	41.43	15.83	2.11	32.41	-	-	P	V
		731.31	29.91	-16.09	46	30.22	27.65	4.46	32.42	-	-	P	V
		952.47	33.39	-12.61	46	28.66	30.85	5.03	31.15	-	-	P	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.
				Limit	Line	Level	Factor	Loss	Factor	Pos	Pos	Avg.	
		( 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 C. Radiated Spurious Emission Plots

Test Engineer :	Calvin Wu	Temperature :	22~26°C
		Relative Humidity :	42~50%

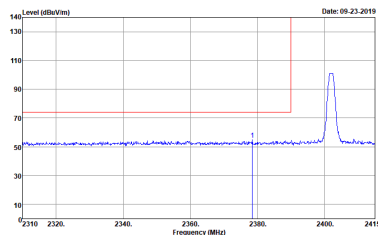
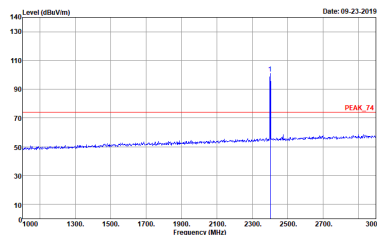
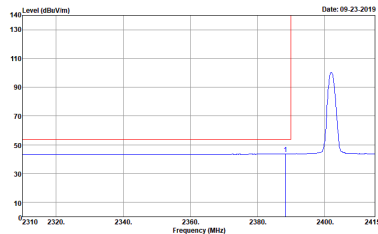
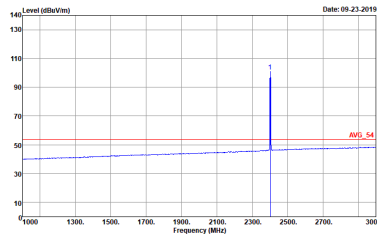
### Note symbol

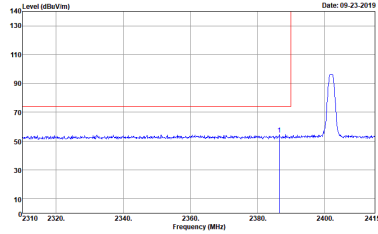
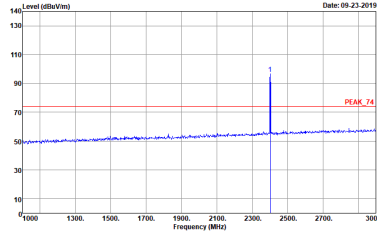
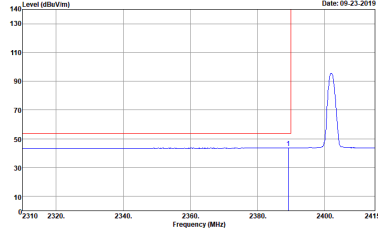
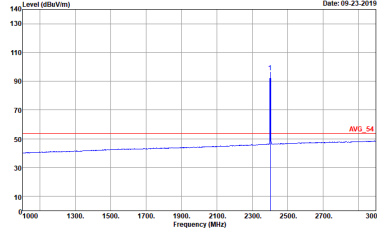
-L	Low channel location
-R	High channel location

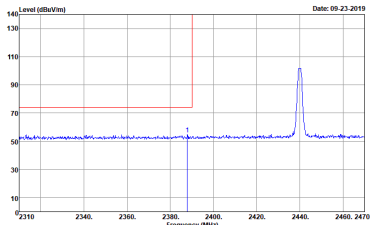
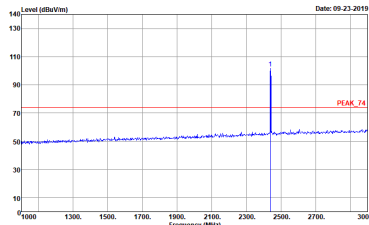
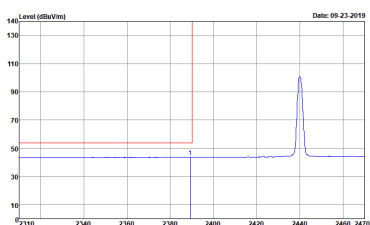
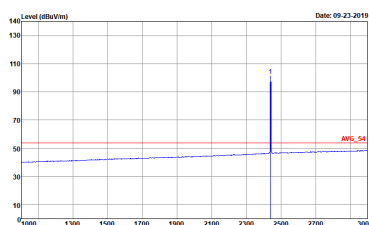


## 2.4GHz 2400~2483.5MHz

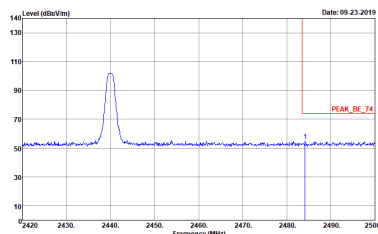
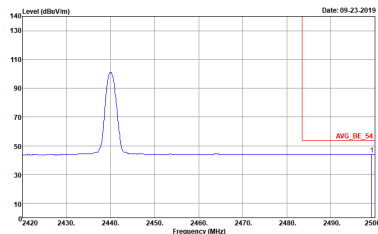
## BLE (Band Edge @ 3m)

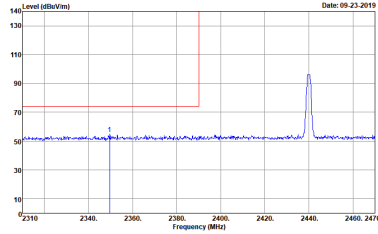
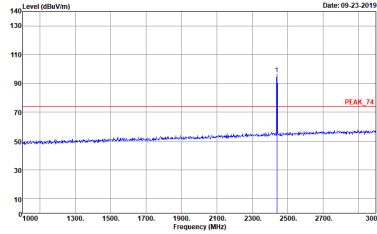
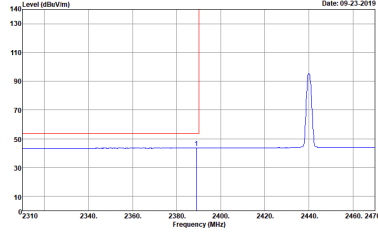
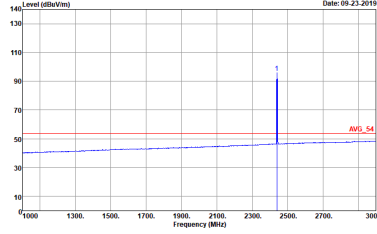
BLE	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
	BLE CH00 2402MHz	
	Horizontal	Fundamental
Peak	 <p>Site : 03CH02-CA Condition : PEAK_BE_74 3m HORN 91200-HF_01894 HORIZONTAL Detector : Peak Pretest : 190911001 EUT : Time Pressure Monitor Sensor POWER : 3.3V / 0.02A (DC Power Supply) Model : 1472547 Mode : 1 Setting : 0xC Plane : Y_StandAlone</p>	 <p>Site : 03CH02-CA Condition : PEAK_74 3m HORN 91200-HF_01894 HORIZONTAL Detector : Peak Pretest : 190911001 EUT : Time Pressure Monitor Sensor POWER : 3.3V / 0.02A (DC Power Supply) Model : 1472547 Mode : 1 Setting : 0xC Plane : Y_StandAlone</p>
Avg.	 <p>Site : 03CH02-CA Condition : AVG_BE_54 3m HORN 91200-HF_01894 HORIZONTAL Detector : Peak Pretest : 190911001 EUT : Time Pressure Monitor Sensor POWER : 3.3V / 0.02A (DC Power Supply) Model : 1472547 Mode : 1 Setting : 0xC Plane : Y_StandAlone</p>	 <p>Site : 03CH02-CA Condition : AVG_54 3m HORN 91200-HF_01894 HORIZONTAL Detector : Peak Pretest : 190911001 EUT : Time Pressure Monitor Sensor POWER : 3.3V / 0.02A (DC Power Supply) Model : 1472547 Mode : 1 Setting : 0xC Plane : Y_StandAlone</p>

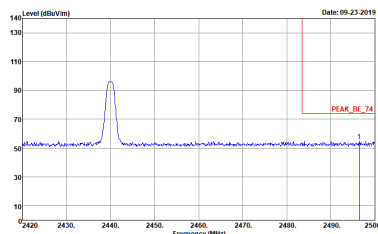
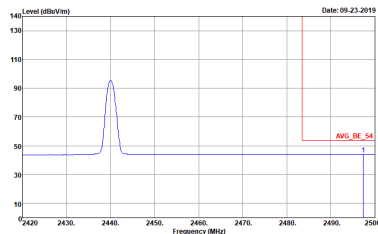
BLE	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
	BLE CH00 2402MHz	
	Vertical	Fundamental
Peak	 <p>           Site : 03CH02-CA            Condition : PEAK_BE_74 3m HORN 91200-HF_01894 VERTICAL            Detector : Peak            Pretest : 190911001            EUT : Time Pressure Monitor Sensor            POWER : 3.3V / 0.02A (DC Power Supply)            Model : 1472547            Mode : 1            Setting : 0xC            Plane : Y_StandAlone         </p>	 <p>           Site : 03CH02-CA            Condition : PEAK_74 3m HORN 91200-HF_01894 VERTICAL            Detector : Peak            Pretest : 190911001            EUT : Time Pressure Monitor Sensor            POWER : 3.3V / 0.02A (DC Power Supply)            Model : 1472547            Mode : 1            Setting : 0xC            Plane : Y_StandAlone         </p>
Avg	 <p>           Site : 03CH02-CA            Condition : AVG_BE_54 3m HORN 91200-HF_01894 VERTICAL            Detector : Peak            Pretest : 190911001            EUT : Time Pressure Monitor Sensor            POWER : 3.3V / 0.02A (DC Power Supply)            Model : 1472547            Mode : 1            Setting : 0xC            Plane : Y_StandAlone         </p>	 <p>           Site : 03CH02-CA            Condition : AVG_54 3m HORN 91200-HF_01894 VERTICAL            Detector : Peak            Pretest : 190911001            EUT : Time Pressure Monitor Sensor            POWER : 3.3V / 0.02A (DC Power Supply)            Model : 1472547            Mode : 1            Setting : 0xC            Plane : Y_StandAlone         </p>

BLE	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
	BLE CH19 2440MHz - L	
	Horizontal	Fundamental
Peak	 <p>           Site : 03CH02-CA            Condition : PEAK_BE_74 3m HORN 9120D-HF_01894 HORIZONTAL            Detector : Peak            Pretest : 190911001            EUT : Time Pressure Monitor Sensor            POWER : 3.3V / 0.02A (DC Power Supply)            Model : 1472547            Mode : 2            Setting : 0xC            Plane : Y_StandAlone         </p>	 <p>           Site : 03CH02-CA            Condition : PEAK_74 3m HORN 9120D-HF_01894 HORIZONTAL            Detector : Peak            Pretest : 190911001            EUT : Time Pressure Monitor Sensor            POWER : 3.3V / 0.02A (DC Power Supply)            Model : 1472547            Mode : 2            Setting : 0xC            Plane : Y_StandAlone         </p>
Avg.	 <p>           Site : 03CH02-CA            Condition : AVG_BE_54 3m HORN 9120D-HF_01894 HORIZONTAL            Detector : Peak            Pretest : 190911001            EUT : Time Pressure Monitor Sensor            POWER : 3.3V / 0.02A (DC Power Supply)            Model : 1472547            Mode : 2            Setting : 0xC            Plane : Y_StandAlone         </p>	 <p>           Site : 03CH02-CA            Condition : AVG_54 3m HORN 9120D-HF_01894 HORIZONTAL            Detector : Peak            Pretest : 190911001            EUT : Time Pressure Monitor Sensor            POWER : 3.3V / 0.02A (DC Power Supply)            Model : 1472547            Mode : 2            Setting : 0xC            Plane : Y_StandAlone         </p>

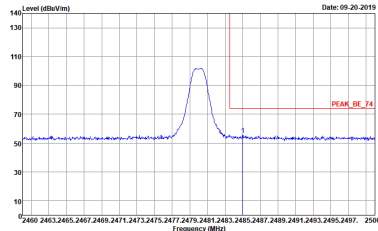
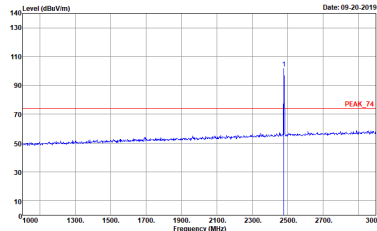
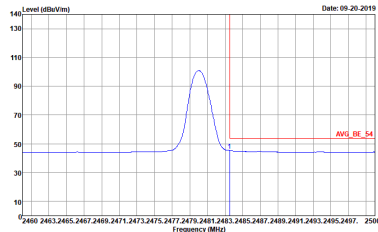
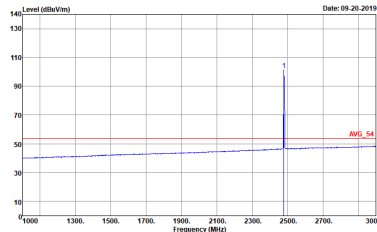


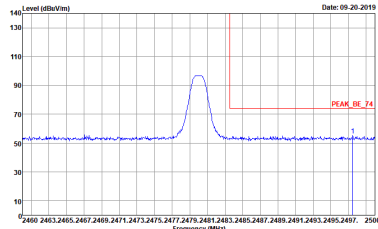
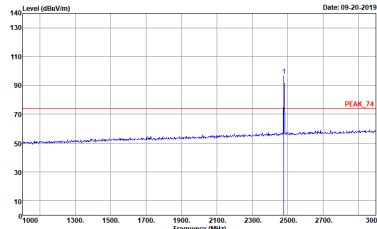
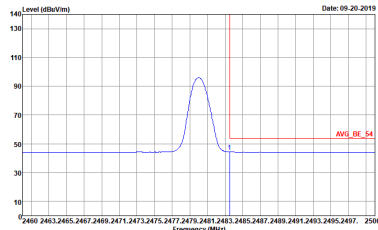
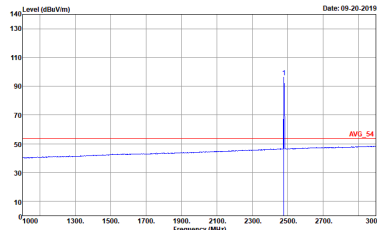
BLE	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
	BLE CH19 2440MHz - R	
	Horizontal	Fundamental
Peak	 <p>           Site : 03CH02-CA            Condition : PEAK_BE_74 3m HORN 91200-HF_01894 HORIZONTAL            Detector : Peak            Pretest : 190911001            EUT : Time Pressure Monitor Sensor            POWER : 3.3V / 0.02A (DC Power Supply)            Model : 1472547            Mode : 2            Setting : 0xC            Plane : Y_StandAlone         </p>	Left blank
Avg.	 <p>           Site : 03CH02-CA            Condition : AVG_BE_54 3m HORN 91200-HF_01894 HORIZONTAL            Detector : Peak            Pretest : 190911001            EUT : Time Pressure Monitor Sensor            POWER : 3.3V / 0.02A (DC Power Supply)            Model : 1472547            Mode : 2            Setting : 0xC            Plane : Y_StandAlone         </p>	Left blank

BLE	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
	BLE CH19 2440MHz - L	
	Vertical	Fundamental
Peak	 <p>           Site : 03CH02-CA            Condition : PEAK_BE_74 3m HORN 91200-HF_01894 VERTICAL            Detector : Peak            Pretest : 190911001            EUT : Time Pressure Monitor Sensor            POWER : 3.3V / 0.02A (DC Power Supply)            Model : 1472547            Mode : 2            Setting : 0xC            Plane : Y_StandAlone         </p>	 <p>           Site : 03CH02-CA            Condition : PEAK_74 3m HORN 91200-HF_01894 VERTICAL            Detector : Peak            Pretest : 190911001            EUT : Time Pressure Monitor Sensor            POWER : 3.3V / 0.02A (DC Power Supply)            Model : 1472547            Mode : 2            Setting : 0xC            Plane : Y_StandAlone         </p>
Avg.	 <p>           Site : 03CH02-CA            Condition : AVG_BE_54 3m HORN 91200-HF_01894 VERTICAL            Detector : Peak            Pretest : 190911001            EUT : Time Pressure Monitor Sensor            POWER : 3.3V / 0.02A (DC Power Supply)            Model : 1472547            Mode : 2            Setting : 0xC            Plane : Y_StandAlone         </p>	 <p>           Site : 03CH02-CA            Condition : AVG_54 3m HORN 91200-HF_01894 VERTICAL            Detector : Peak            Pretest : 190911001            EUT : Time Pressure Monitor Sensor            POWER : 3.3V / 0.02A (DC Power Supply)            Model : 1472547            Mode : 2            Setting : 0xC            Plane : Y_StandAlone         </p>

BLE	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
	BLE CH19 2440MHz - R	
	Vertical	Fundamental
Peak	 <p>           Site : 03CH02-CA            Condition : PEAK_BE_74 3m HORN 91200-HF_01894 VERTICAL            RBW:1000.000KHz VBW:3000.000KHz SWT:Auto            Detector : Peak            Pretest : 190911001            EUT : Time Pressure Monitor Sensor            POWER : 3.3V / 0.02A (DC Power Supply)            Model : 1472547            Mode : 2            Setting : 0xC            Plane : Y_StandAlone         </p>	Left blank
Avg.	 <p>           Site : 03CH02-CA            Condition : AVG_BE_54 3m HORN 91200-HF_01894 VERTICAL            RBW:1000.000KHz VBW:0.010KHz SWT:Auto            Detector : Peak            Pretest : 190911001            EUT : Time Pressure Monitor Sensor            POWER : 3.3V / 0.02A (DC Power Supply)            Model : 1472547            Mode : 2            Setting : 0xC            Plane : Y_StandAlone         </p>	Left blank



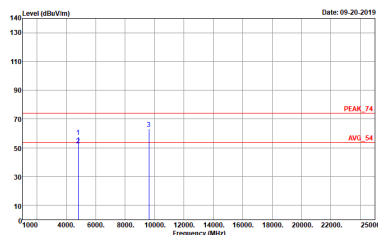
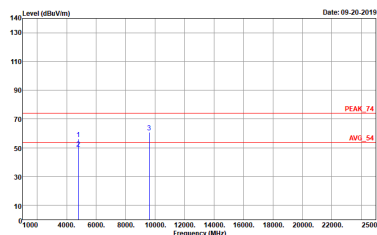
BLE	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
	BLE CH39 2480MHz	
	Horizontal	Fundamental
Peak	 <p>Site : 03CH02-CA Condition : PEAK_BE_74 3m HORN 91200-HF_01894 HORIZONTAL Detector : Peak Pretest : 190911001 EUT : Time Pressure Monitor Sensor POWER : 3.3V / 0.02A (DC Power Supply) Model : 1472547 Mode : 3 Setting : 0xC Plane : Y_StandAlone</p>	 <p>Site : 03CH02-CA Condition : PEAK_F4 3m HORN 91200-HF_01894 HORIZONTAL Detector : Peak Pretest : 190911001 EUT : Time Pressure Monitor Sensor POWER : 3.3V / 0.02A (DC Power Supply) Model : 1472547 Mode : 3 Setting : 0xC Plane : Y_StandAlone</p>
Avg.	 <p>Site : 03CH02-CA Condition : AVG_BE_54 3m HORN 91200-HF_01894 HORIZONTAL Detector : Peak Pretest : 190911001 EUT : Time Pressure Monitor Sensor POWER : 3.3V / 0.02A (DC Power Supply) Model : 1472547 Mode : 3 Setting : 0xC Plane : Y_StandAlone</p>	 <p>Site : 03CH02-CA Condition : AVG_F4 3m HORN 91200-HF_01894 HORIZONTAL Detector : Peak Pretest : 190911001 EUT : Time Pressure Monitor Sensor POWER : 3.3V / 0.02A (DC Power Supply) Model : 1472547 Mode : 3 Setting : 0xC Plane : Y_StandAlone</p>

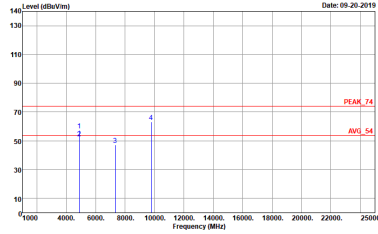
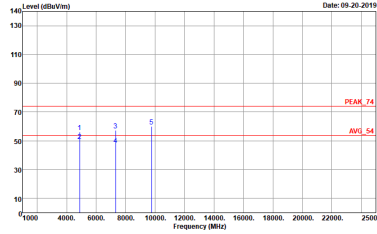
BLE	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
	BLE CH39 2480MHz	
	Vertical	Fundamental
Peak	 <p>           Site : 03CH02-CA            Condition : PEAK_BE_74 3m HORN 91200-HF_01894 VERTICAL            Detector : Peak            Pretest : 190911001            EUT : Time Pressure Monitor Sensor            POWER : 3.3V / 0.02A (DC Power Supply)            Model : 1472547            Mode : 3            Setting : 0xC            Plane : Y_StandAlone         </p>	 <p>           Site : 03CH02-CA            Condition : PEAK_74 3m HORN 91200-HF_01894 VERTICAL            Detector : Peak            Pretest : 190911001            EUT : Time Pressure Monitor Sensor            POWER : 3.3V / 0.02A (DC Power Supply)            Model : 1472547            Mode : 3            Setting : 0xC            Plane : Y_StandAlone         </p>
Avg.	 <p>           Site : 03CH02-CA            Condition : AVG_BE_54 3m HORN 91200-HF_01894 VERTICAL            Detector : Peak            Pretest : 190911001            EUT : Time Pressure Monitor Sensor            POWER : 3.3V / 0.02A (DC Power Supply)            Model : 1472547            Mode : 3            Setting : 0xC            Plane : Y_StandAlone         </p>	 <p>           Site : 03CH02-CA            Condition : AVG_54 3m HORN 91200-HF_01894 VERTICAL            Detector : Peak            Pretest : 190911001            EUT : Time Pressure Monitor Sensor            POWER : 3.3V / 0.02A (DC Power Supply)            Model : 1472547            Mode : 3            Setting : 0xC            Plane : Y_StandAlone         </p>

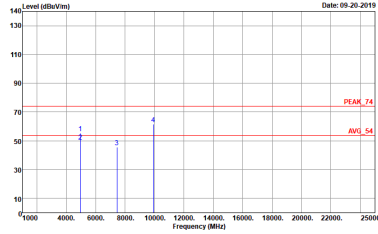
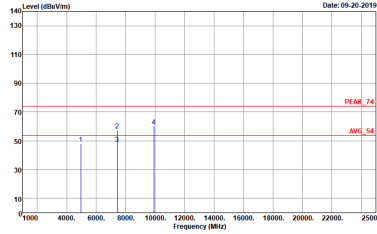


## 2.4GHz 2400~2483.5MHz

## BLE (Harmonic @ 3m)

BLE	2.4GHz 2400~2483.5MHz Harmonic @ 3m	
	BLE CH00 2402MHz	
	Horizontal	Vertical
Peak Avg.	<div><p>Site : 03CH02-CA Condition : PEAK_74 3m HORN 91200-HF_01894 HORIZONTAL Detector : Peak Pretest : 190911001 EUT : Time Pressure Monitor Sensor POWER : 3.3V / 0.02A (DC Power Supply) Model : 1472547 Mode : 1 Setting : 0xC Plane : Y_StandAlone</p></div>	<div><p>Site : 03CH02-CA Condition : PEAK_74 3m HORN 91200-HF_01894 VERTICAL Detector : Peak Pretest : 190911001 EUT : Time Pressure Monitor Sensor POWER : 3.3V / 0.02A (DC Power Supply) Model : 1472547 Mode : 1 Setting : 0xC Plane : Y_StandAlone</p></div>

BLE	2.4GHz 2400~2483.5MHz Harmonic @ 3m	
	BLE CH19 2440MHz	
	Horizontal	Vertical
<b>Peak</b>  <b>Avg.</b>	 <p>Site : 03CH02-CA  Condition : PEAK_T4 3m HORN 9120D-HF_01894 HORIZONTAL  Detector : Peak  Pretest : 190911001  EUT : Time Pressure Monitor Sensor  POWER : 3.3V / 0.02A (DC Power Supply)  Model : 1472547  Mode : 2  Setting : 0xC  Plane : Y_StandAlone</p>	 <p>Site : 03CH02-CA  Condition : PEAK_T4 3m HORN 9120D-HF_01894 VERTICAL  Detector : Peak  Pretest : 190911001  EUT : Time Pressure Monitor Sensor  POWER : 3.3V / 0.02A (DC Power Supply)  Model : 1472547  Mode : 2  Setting : 0xC  Plane : Y_StandAlone</p>

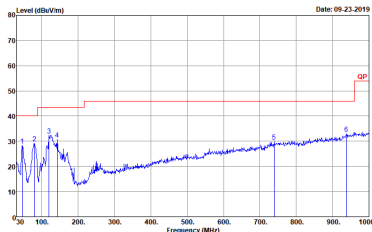
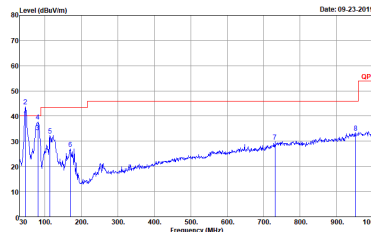
BLE	2.4GHz 2400~2483.5MHz Harmonic @ 3m	
	BLE CH39 2480MHz	
	Horizontal	Vertical
Peak	 <p>           Site : 03CH02-CA            Condition : PEAK_74 3m HORN 9120D-HF_01894 HORIZONTAL            Detector : Peak            Pretest : 190911001            EUT : Time Pressure Monitor Sensor            POWER : 3.3V / 0.02A (DC Power Supply)            Model : 1472547            Mode : 3            Setting : 0xC            Plane : Y_StandAlone         </p>	 <p>           Site : 03CH02-CA            Condition : PEAK_74 3m HORN 9120D-HF_01894 VERTICAL            Detector : Peak            Pretest : 190911001            EUT : Time Pressure Monitor Sensor            POWER : 3.3V / 0.02A (DC Power Supply)            Model : 1472547            Mode : 3            Setting : 0xC            Plane : Y_StandAlone         </p>





## Emission below 1GHz

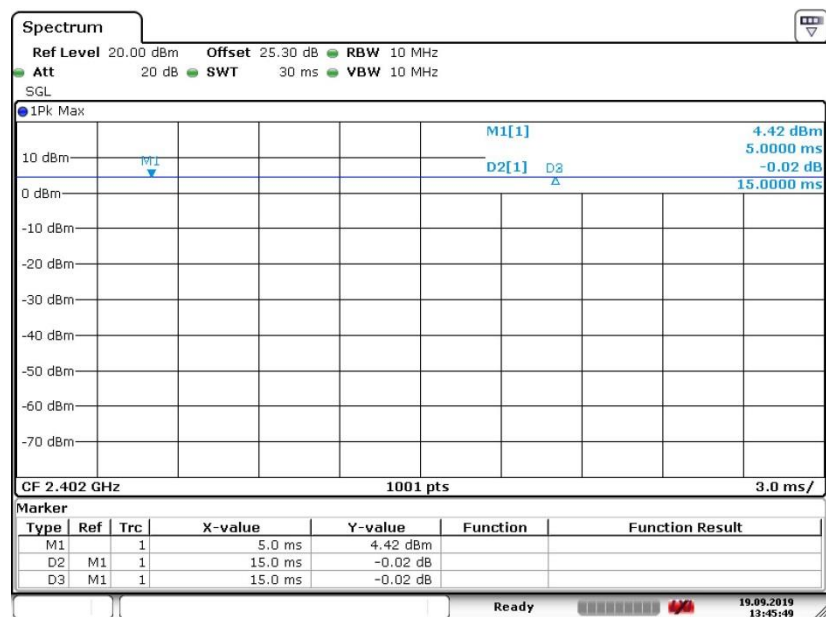
## 2.4GHz BLE (LF)

BLE	2.4GHz 2400~2483.5MHz	
	BLE LF	
	Horizontal	Vertical
QP / Peak	<div><p>Site : 03CH02-CA Condition : QP 3m BTL06 6111D-LF_50392 HORIZONTAL Detector : Peak Project : 190911001 Power : 3.3V / 0.02A (DC Power Supply) Mode : 4 Setting : 0xC Plane : -Y_StandAlone</p></div>	<div><p>Site : 03CH02-CA Condition : QP 3m BTL06 6111D-LF_50392 VERTICAL Detector : Peak Project : 190911001 Power : 3.3V / 0.02A (DC Power Supply) Mode : 4 Setting : 0xC Plane : -Y_StandAlone</p></div>

## Appendix D. Duty Cycle Plots

Band	Duty Cycle(%)	T(us)	1/T(kHz)	VBW Setting	Duty Factor(dB)
Bluetooth -LE	100	-	-	10Hz	0.00

### Bluetooth - LE



Date: 19.SEP.2019 13:45:49