

Report No.: AR/2020/C000803

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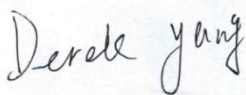
# FCC TEST REPORT

**Application No.:** AR/2020/C0008  
**Applicant:** FIH CO., LTD  
**Address of Applicant:** No.4, Mingsheng St., Tu-Cheng Dist., New Taipei City 23679, Taiwan  
**Manufacturer:** FIH CO., LTD  
**Address of Manufacturer:** No.4, Mingsheng St., Tu-Cheng Dist., New Taipei City 23679, Taiwan  
**EUT Description:** WCDMA/LTE Mobile Phone  
**Model No.:** EA1002, EC1002  
**Trade Mark:** FIH  
**FCC ID:** RYQEC1002  
**Standards:** 47 CFR FCC Part 2, Subpart J  
47 CFR Part 15, Subpart C  
**Date of Receipt:** 2020/12/18  
**Date of Test:** 2020/12/18 to 2021/1/8  
**Date of Issue:** 2021/3/8

<b>Test Result :</b>	<b>PASS *</b>
----------------------	---------------

\* In the configuration tested, the EUT detailed in this report complied with the standards specified above.

Authorized Signature:



Derek Yang  
Wireless Laboratory Manager



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## 1 Version

Revision Record				
Version	Chapter	Date	Modifier	Remark
01		2021/3/8		Original

Authorized for issue by:			
Tested By		 _____ (Mike Hu) /Project Engineer	
Checked By		 _____ (David Chen) /Reviewer	

## 2 Test Summary

Test Item	Test Requirement	Test Method	Test Result	Result
AC Power Line Conducted Emission	15.207	ANSI C63.10 2013	Clause 4.2	PASS
Conducted Output Power	15.247 (b)(3)	ANSI C63.10 2013	Clause 4.3	PASS
DTS (6 dB) Bandwidth	15.247 (a)(2)	ANSI C63.10 2013	Clause 4.4	PASS
Power Spectral Density	15.247 (e)	ANSI C63.10 2013	Clause 4.5	PASS
Band-edge for RF Conducted Emissions	15.247(d)	ANSI C63.10 2013	Clause 4.6	PASS
RF Conducted Spurious Emissions	15.247(d)	ANSI C63.10 2013	Clause 4.7	PASS
Radiated Spurious Emissions	15.205/15.209	ANSI C63.10 2013	Clause 4.8	PASS
Restricted bands around fundamental frequency (Radiated Emission)	15.205/15.209	ANSI C63.10 2013	Clause 4.9	PASS



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**Remark:**

According to the declaration letter from manufacturer, for EC1002 is all test, and for EA1002 shares the same test data of EC1002 in this report.



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### 3 General Information

#### 3.1 Details of Client

Applicant:	FIH CO., LTD
Address of Applicant	No.4, Mingsheng St., Tu-Cheng Dist., New Taipei City 23679, Taiwan
Manufacturer:	FIH CO., LTD
Address of Manufacturer	No.4, Mingsheng St., Tu-Cheng Dist., New Taipei City 23679, Taiwan

#### 3.2 Test Location

Company:	SGS-CSTC Standards Technical Services Co., Ltd. Shenzhen Branch
Address:	No. 1 Workshop, M-10, Middle section, Science & Technology Park, Shenzhen, Guangdong, China
Post code:	518057



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### 3.3 Test Facility

The test facility is recognized, certified, or accredited by the following organizations:

• **A2LA (Certificate No. 3816.01)**

SGS-CSTC Standards Technical Services Co., Ltd., Shenzhen EMC Laboratory is accredited by the American Association for Laboratory Accreditation(A2LA). Certificate No. 3816.01.

• **VCCI**

The 3m Fully-anechoic chamber for above 1GHz, 10m Semi-anechoic chamber for below 1GHz, Shielded Room for Mains Port Conducted Interference Measurement and Telecommunication Port Conducted Interference Measurement of SGS-CSTC Standards Technical Services Co., Ltd. have been registered in accordance with the Regulations for Voluntary Control Measures with Registration No.: G-20026, R-14188, C-12383 and T-11153 respectively.

• **FCC –Designation Number: CN1178**

SGS-CSTC Standards Technical Services Co., Ltd., Shenzhen EMC Laboratory has been recognized as an accredited testing laboratory.

Designation Number: CN1178. Test Firm Registration Number: 406779.

• **Innovation, Science and Economic Development Canada**

SGS-CSTC Standards Technical Services Co., Ltd., Shenzhen EMC Laboratory has been recognized by ISED as an accredited testing laboratory.

CAB identifier: CN0006.

IC#: 4620C.



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### 3.4 General Description of EUT

EUT Description:	WCDMA/LTE Mobile Phone
Model No.:	EA1002, EC1002
Trade Mark:	FIH
Hardware Version:	HW 3.0
Software Version:	EA1002_01N0_1_180, EC1002_00N0_1_180
Operation Frequency:	2400MHz~2483.5MHz fc = 2402 MHz + N * 2 MHz, where: -fc = "Operating Frequency" in MHz, -N = "Channel Number" with the range from 0 to 39.
Bluetooth version:	Bluetooth V5.1
Modulation Type:	GFSK
Number of Channel:	40
Sample Type:	<input checked="" type="checkbox"/> Portable Device, <input type="checkbox"/> Module
Antenna Type:	<input type="checkbox"/> External, <input checked="" type="checkbox"/> Integrated
Antenna Gain:	3.32dBi

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



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## Remark:

In section 15.31(m), regards to the operating frequency range over 10 MHz, the Lowest frequency, the middle frequency, and the highest frequency of channel were selected to perform the test, and the selected channel see below:

Channel	Frequency
The Lowest channel(CH0)	2402MHz
The Middle channel(CH19)	2440MHz
The Highest channel(CH39)	2480MHz

### 3.5 Test Environment

Operating Environment:	
Temperature:	25.0 °C
Humidity:	50 % RH
Atmospheric Pressure:	101.30 KPa

### 3.6 Description of Support Units

The EUT has been tested independent unit.



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## 4 Test results and Measurement Data

### 4.1 Antenna Requirement

<b>Standard requirement:</b>	47 CFR Part 15C Section 15.203 /247(c)
<p>15.203 requirement: An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator, the manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited.</p> <p>15.247(b) (4) requirement: The conducted output power limit specified in paragraph (b) of this section is based on the use of antennas with directional gains that do not exceed 6 dBi. Except as shown in paragraph (c) of this section, if transmitting antennas of directional gain greater than 6 dBi are used, the conducted output power from the intentional radiator shall be reduced below the stated values in paragraphs (b)(1), (b)(2), and (b)(3) of this section, as appropriate, by the amount in dB that the directional gain of the antenna exceeds 6 dBi.</p> <p>The antenna is integrated on the main PCB and no consideration of replacement. The best case gain of the antenna is 3.32dBi.</p>	



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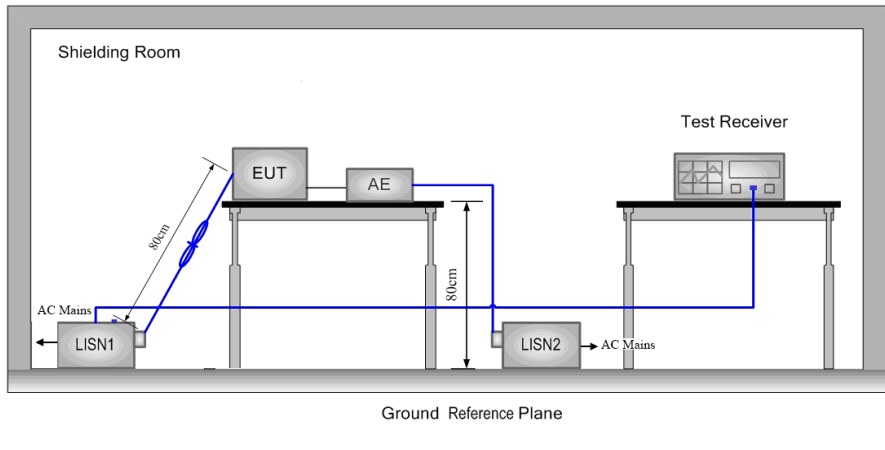
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## 4.2 AC Power Line Conducted Emissions

Test Requirement:	47 CFR Part 15C Section 15.207		
Test Method:	ANSI C63.10: 2013		
Test Frequency Range:	150kHz to 30MHz		
Limit:	Frequency range (MHz)	Limit (dBuV)	
		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.			
Test Procedure:	<ol style="list-style-type: none"> <li>1) The mains terminal disturbance voltage test was conducted in a shielded room.</li> <li>2) The EUT was connected to AC power source through a LISN 1 (Line Impedance Stabilization Network) which provides a 50Ω/50μH + 5Ω linear impedance. The power cables of all other units of the EUT were connected to a second LISN 2, which was bonded to the ground reference plane in the same way as the LISN 1 for the unit being measured. A multiple socket outlet strip was used to connect multiple power cables to a single LISN provided the rating of the LISN was not exceeded.</li> <li>3) The tabletop EUT was placed upon a non-metallic table 0.8m above the ground reference plane. And for floor-standing arrangement, the EUT was placed on the horizontal ground reference plane.</li> <li>4) The test was performed with a vertical ground reference plane. The rear of the EUT shall be 0.4 m from the vertical ground reference plane. The vertical ground reference plane was bonded to the horizontal ground reference plane. The LISN 1 was placed 0.8 m from the boundary of the unit under test and bonded to a ground reference plane for LISNs mounted on top of the ground reference plane. This distance was between the closest points of the LISN 1 and the EUT. All other units of the EUT and associated equipment was at least 0.8 m from the LISN 2.</li> <li>5) In order to find the maximum emission, the relative positions of equipment and all of the interface cables must be changed according to ANSI C63.10: 2013 on conducted measurement.</li> </ol>		



Test Setup:	
Test Mode:	Transmitting with GFSK modulation. Charge +Transmitting mode.
Instruments Used:	Refer to section 5.10 for details.
Test Results:	Pass



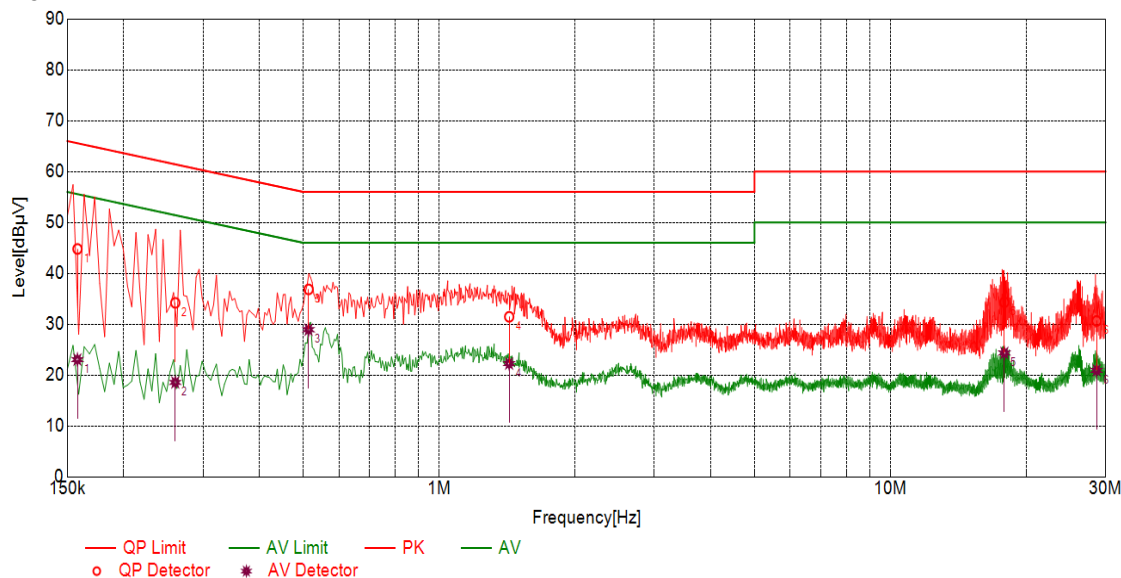


### Measurement Data

An initial pre-scan was performed on the live and neutral lines with peak detector.

Quasi-Peak and Average measurement were performed at the frequencies with maximized peak emission were detected.

### Live Line:



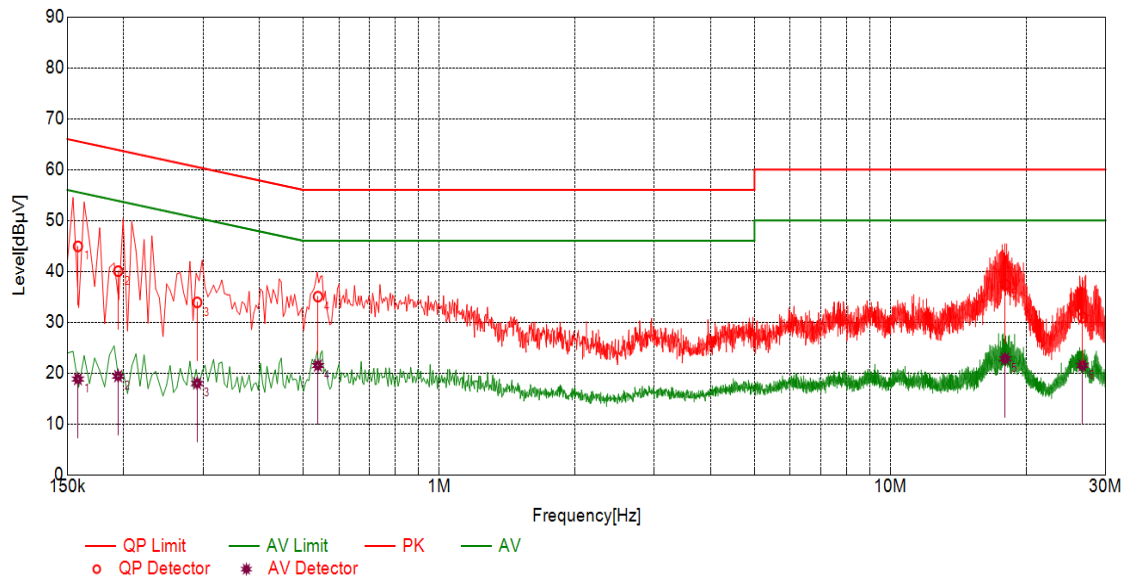
### Test Graph

Final Data List									
NO.	Freq. [MHz]	Factor [dB]	QP Value [dBμV]	QP Limit [dBμV]	QP Margin [dB]	AV Value [dBμV]	AV Limit [dBμV]	AV Margin [dB]	Type
1	0.1580	10.10	44.80	65.57	20.77	23.04	55.57	32.53	L
2	0.2603	10.10	34.20	61.42	27.22	18.56	51.42	32.86	L
3	0.5138	10.10	36.85	56.00	19.15	28.93	46.00	17.07	L
4	1.4298	10.10	31.46	56.00	24.54	22.26	46.00	23.74	L
5	17.8921	10.11	34.31	60.00	25.69	24.34	50.00	25.66	L
6	28.6447	10.11	30.65	60.00	29.35	20.92	50.00	29.08	L





Neutral Line:



### Test Graph

### Final Data List

NO.	Freq. [MHz]	Factor [dB]	QP Value [dBμV]	QP Limit [dBμV]	QP Margin [dB]	AV Value [dBμV]	AV Limit [dBμV]	AV Margin [dB]	Type
1	0.1584	10.10	44.90	65.55	20.65	18.82	55.55	36.73	N
2	0.1945	10.10	40.04	63.84	23.80	19.39	53.84	34.45	N
3	0.2910	10.10	33.89	60.49	26.60	17.97	50.49	32.52	N
4	0.5390	10.10	35.03	56.00	20.97	21.48	46.00	24.52	N
5	17.9691	10.11	37.41	60.00	22.59	22.82	50.00	27.18	N
6	26.6377	10.11	30.90	60.00	29.10	21.50	50.00	28.50	N

### Remarks:

1. The following Quasi-Peak and Average measurements were performed on the EUT:
2. Final Test Level = Receiver Reading + LISN Factor + Cable Loss.



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Shenzhen Branch (SGS-CSTC Laboratory)

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### 4.3 Duty Cycle

#### 4.3.1 Test Results

Test Mode	TX Freq. [MHz]	Duty cycle [%]
BLE_1M	CH0, CH19, CH39	85.30
BLE_2M	CH0, CH19, CH39	56.94



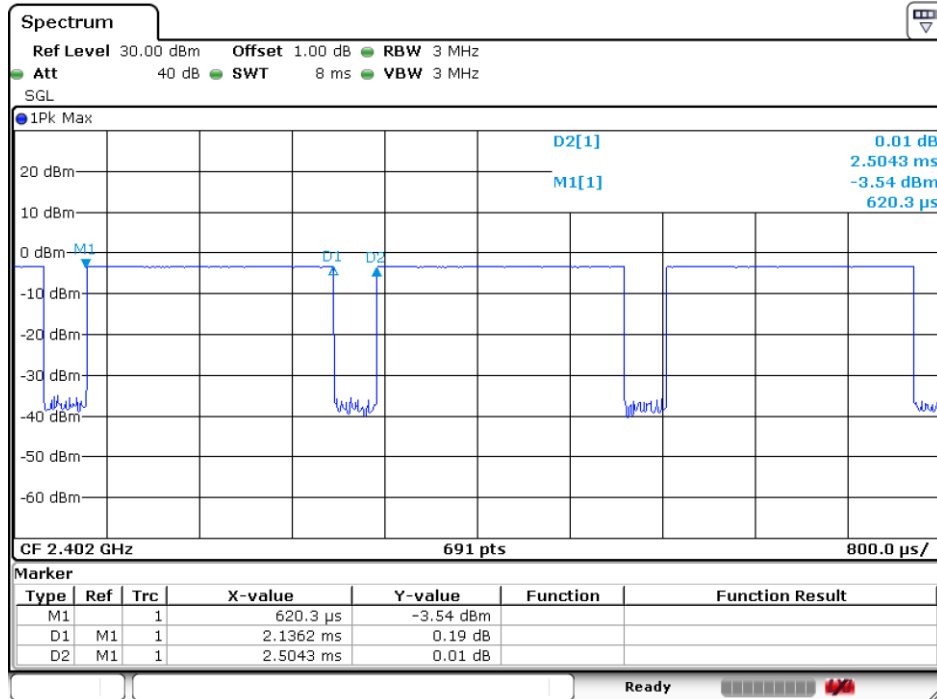
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### 4.3.2 Test Plots

#### 4.3.2.1 ANT1

##### 4.3.2.1.1 BLE\_1M



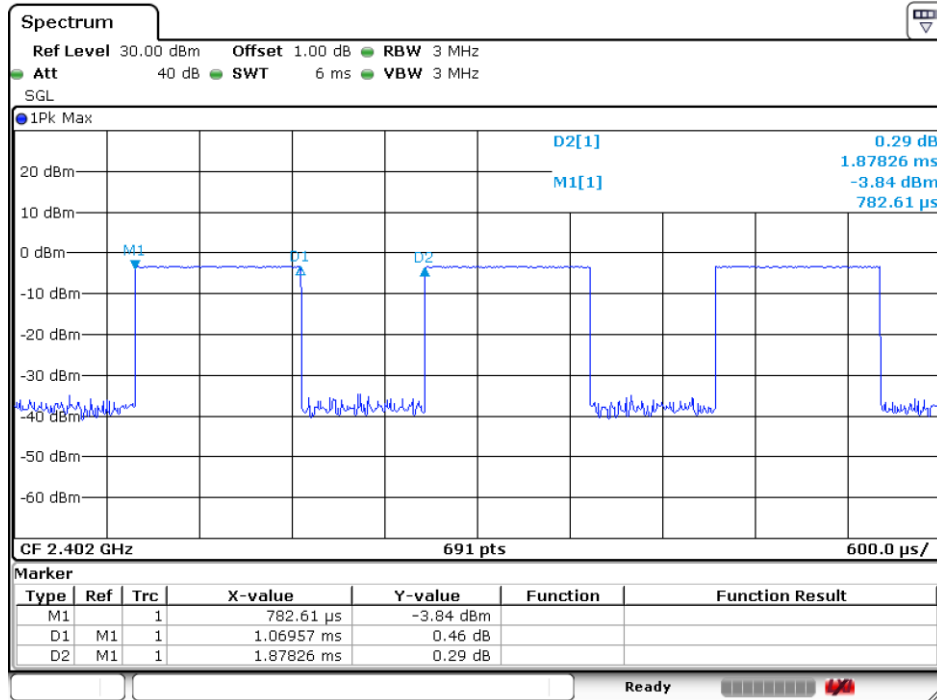
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### 4.3.2.1.2 BLE\_2M



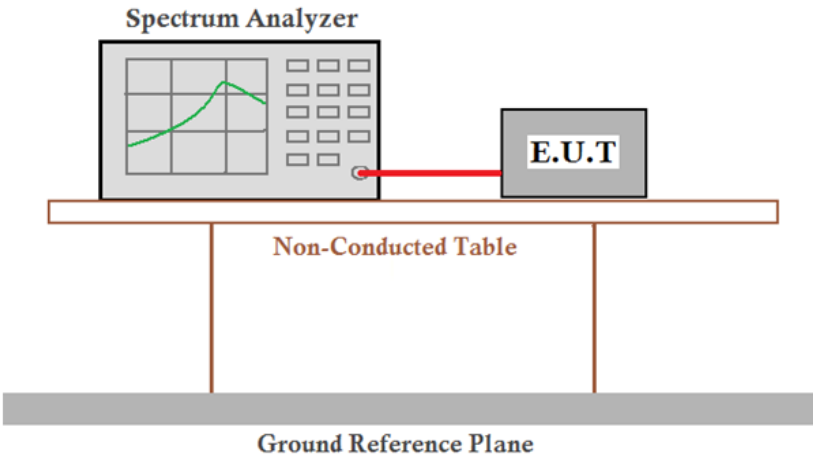
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### 4.4 Conducted Output Power

Test Requirement:	47 CFR Part 15C Section 15.247 (b)(3)
Test Method:	ANSI C63.10 :2013 Section 11.9.1.1
Test Setup:	
Test Instruments:	Refer to section 5.10 for details
Test Mode:	Transmitting with GFSK modulation.
Limit:	30dBm
Test Results:	Pass

#### 4.4.1 Test Results

##### Measurement Data of Peak Power:

GFSK_1M mode			
Test Channel	Peak Output Power (dBm)	Limit (dBm)	Result
Lowest	-3.12	30.00	Pass
Middle	-2.26	30.00	Pass
Highest	-2.75	30.00	Pass

GFSK_2M mode			
Test Channel	Peak Output Power (dBm)	Limit (dBm)	Result
Lowest	-3.26	30.00	Pass
Middle	-2.37	30.00	Pass
Highest	-2.72	30.00	Pass

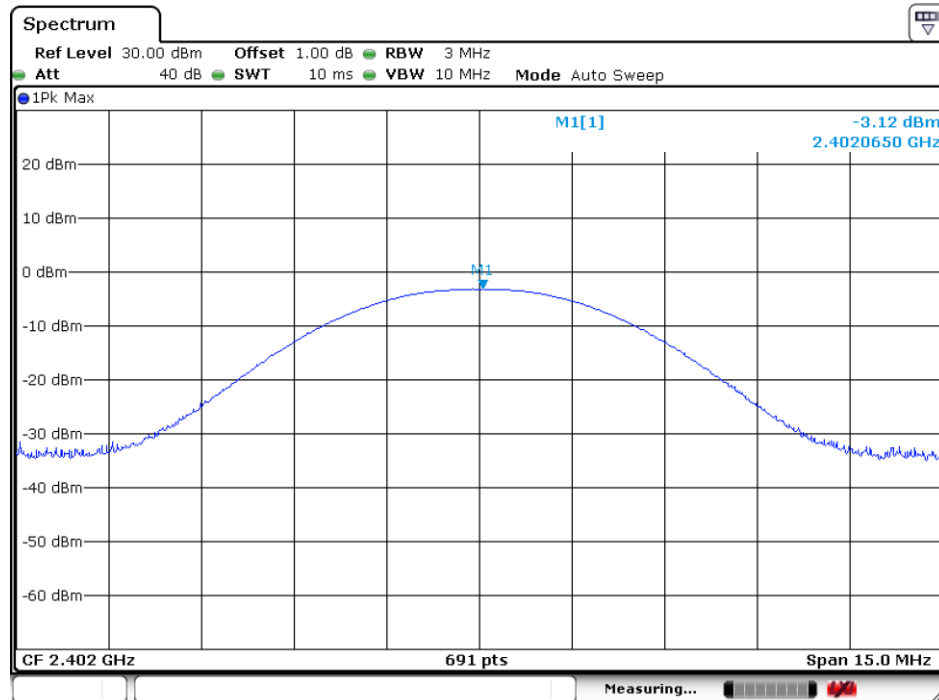


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## 4.4.2 Test Plots

### 4.4.2.1 GFSK 1M\_Lowest Channel



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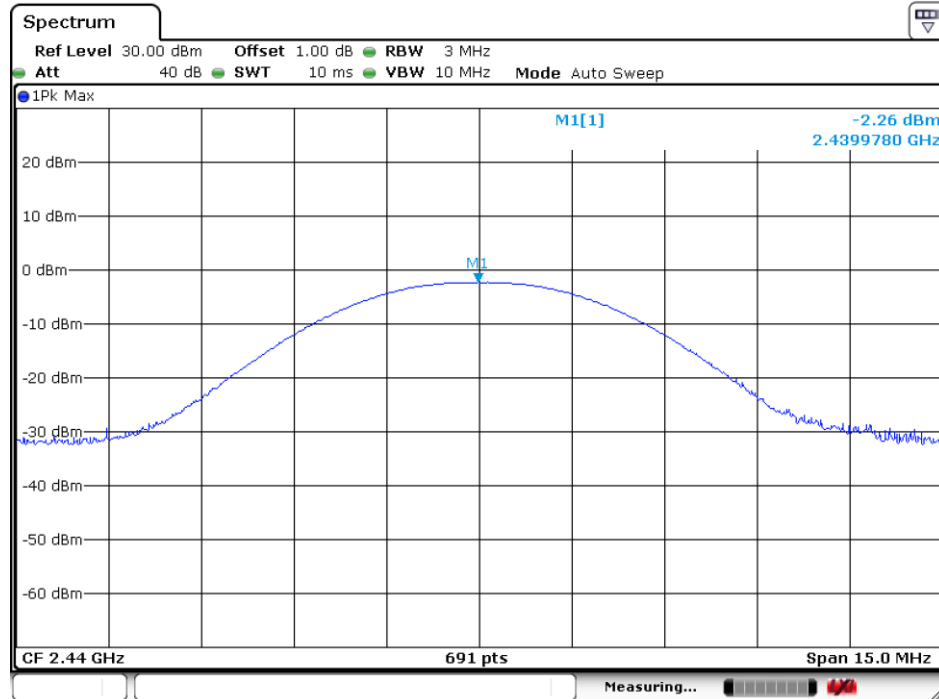


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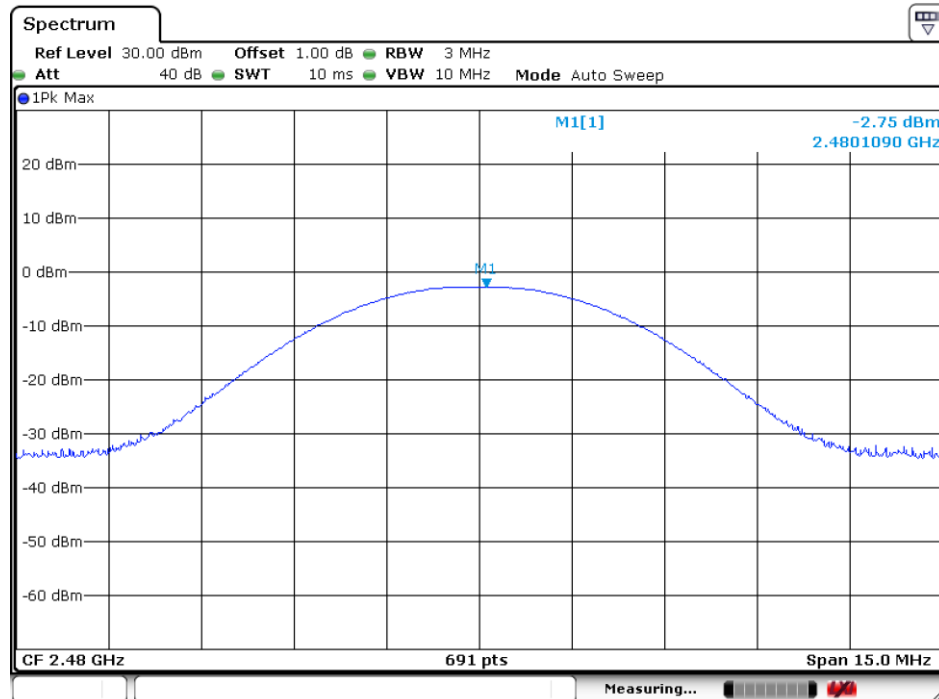


### 4.4.2.2 GFSK 1M\_Middle Channel



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### 4.4.2.3 GFSK 1M\_Highest Channel



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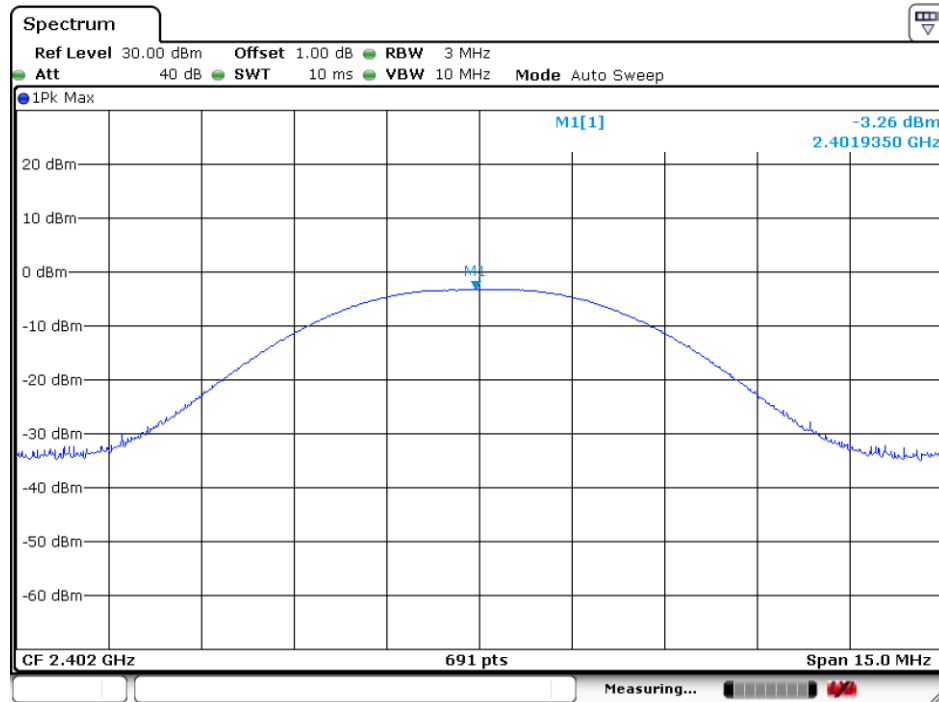
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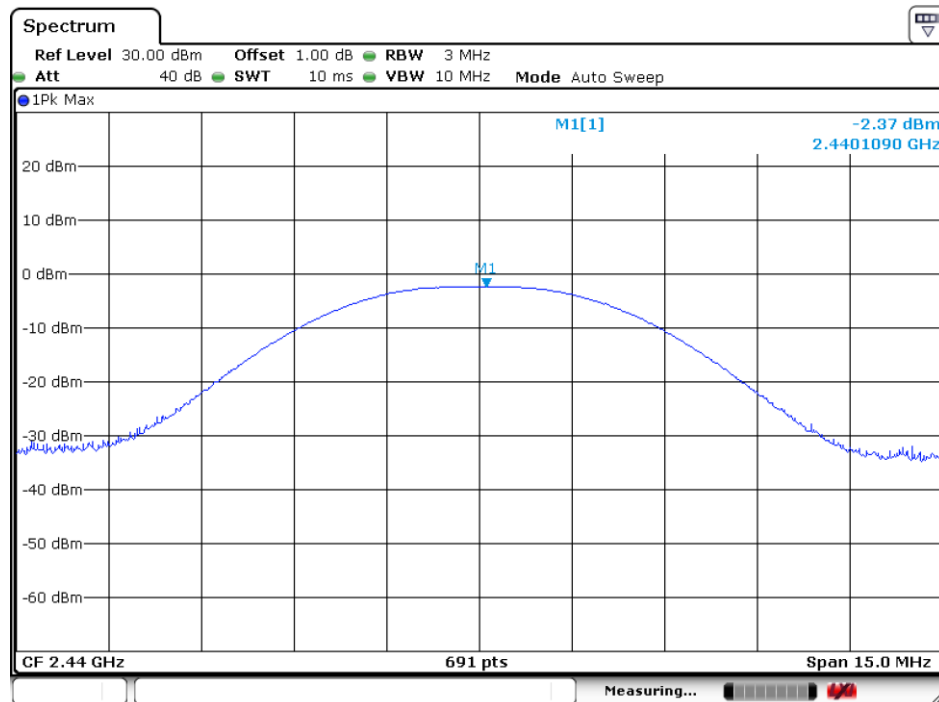
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### 4.4.2.4 GFSK 2M\_Lowest Channel



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### 4.4.2.5 GFSK 2M\_Middle Channel



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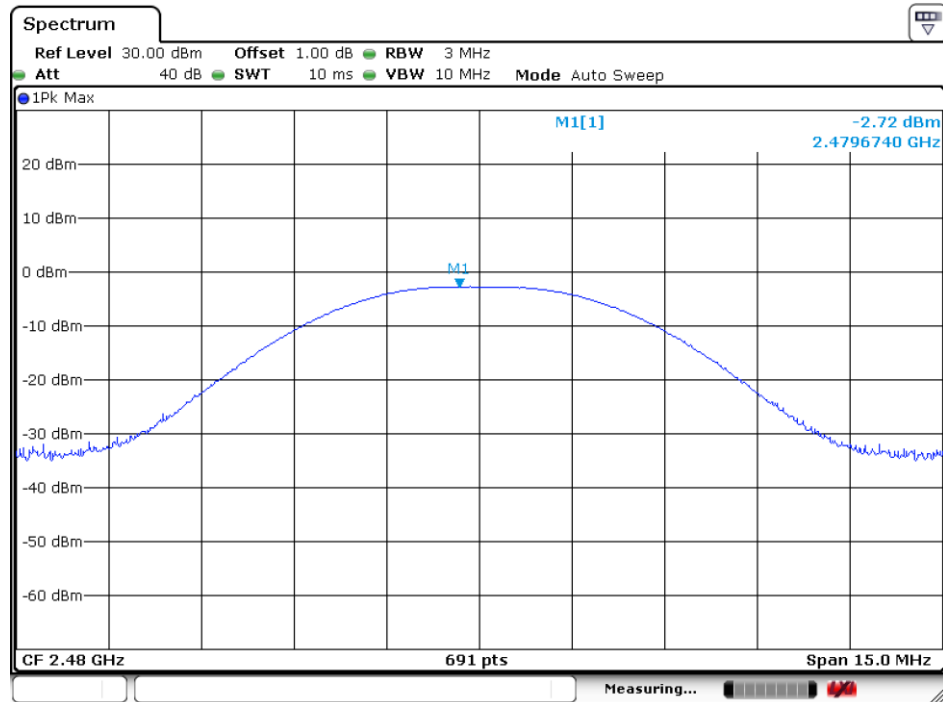
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### 4.4.2.6

### GFSK 2M\_Highest Channel



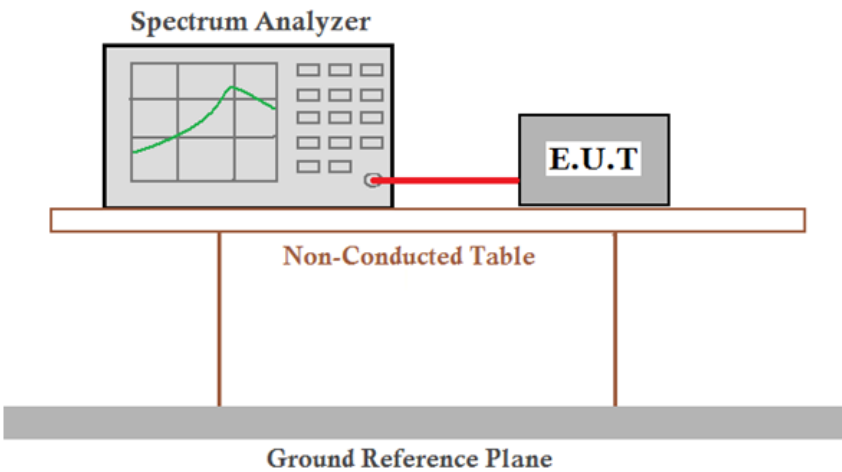
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### 4.5 DTS (6 dB) Bandwidth

Test Requirement:	47 CFR Part 15C Section 15.247 (a)(2)
Test Method:	ANSI C63.10: 2013 Section 11.8 Option 2
Test Setup:	
Instruments Used:	Refer to section 5.10 for details
Test Mode:	Transmitting with GFSK modulation.
Limit:	$\geq 500$ kHz
Test Results:	Pass

#### 4.5.1 Test Results

Mode	Test Channel	6dB Emission Bandwidth (MHz)	Limit (kHz)	Result
GFSK_1M	Lowest	0.68	$\geq 500$	Pass
	Middle	0.68	$\geq 500$	Pass
	Highest	0.67	$\geq 500$	Pass

Mode	Test Channel	6dB Emission Bandwidth (MHz)	Limit (kHz)	Result
GFSK_2M	Lowest	1.17	$\geq 500$	Pass
	Middle	1.23	$\geq 500$	Pass
	Highest	1.19	$\geq 500$	Pass

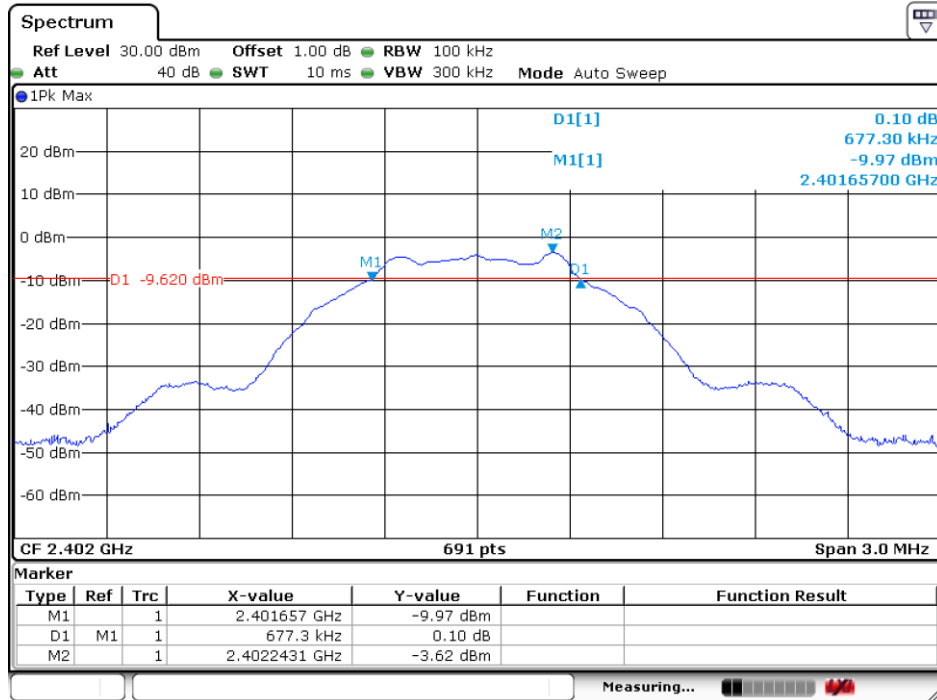


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### 4.5.2 Test Plots

#### 4.5.2.1 GFSK 1M\_Lowest Channel



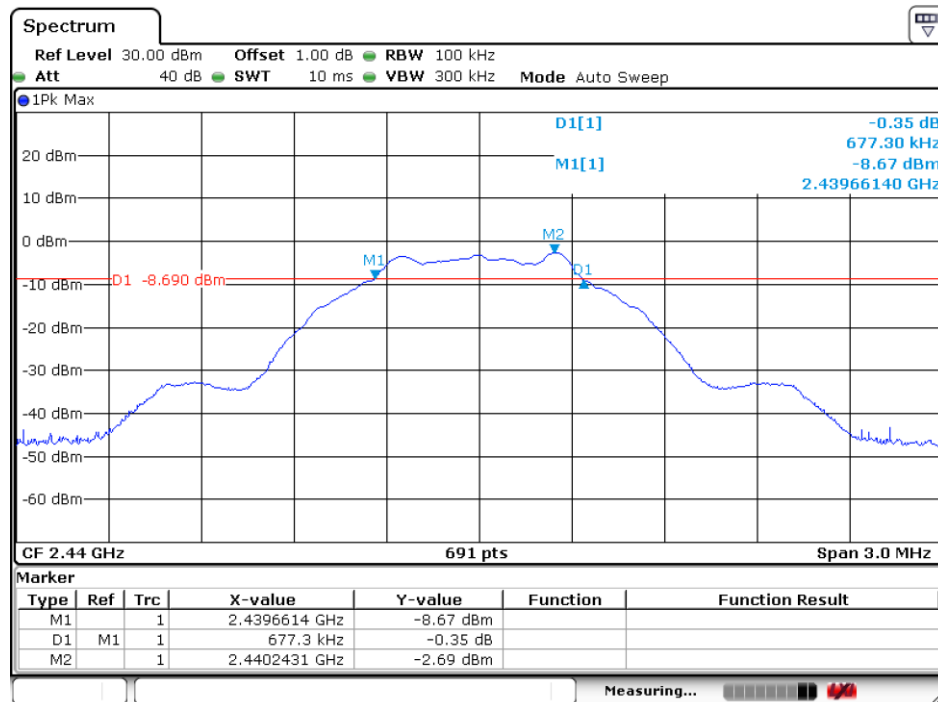
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### 4.5.2.2 GFSK 1M\_Middle Channel

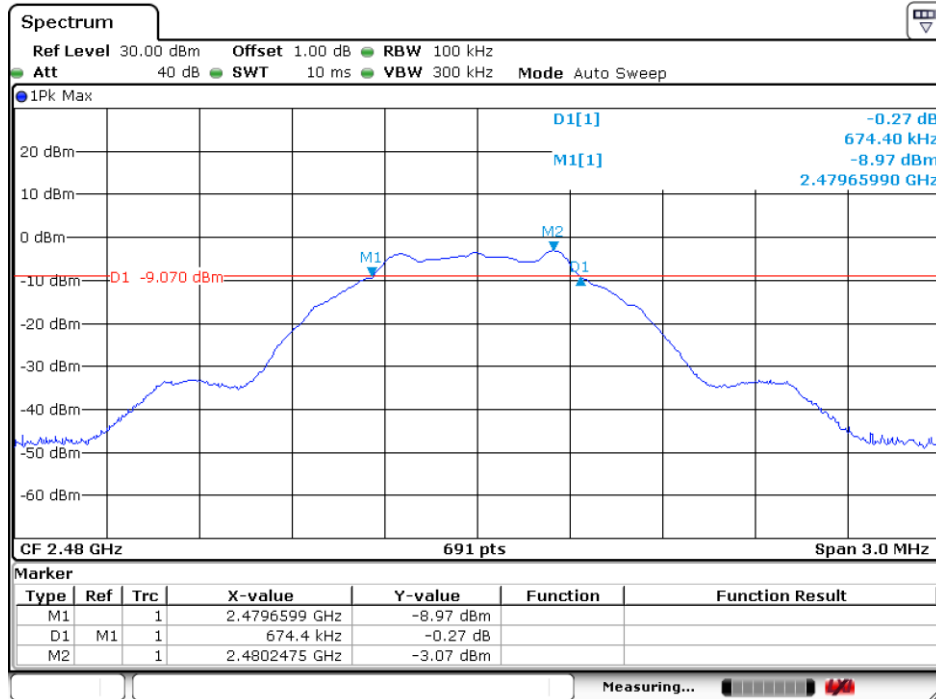


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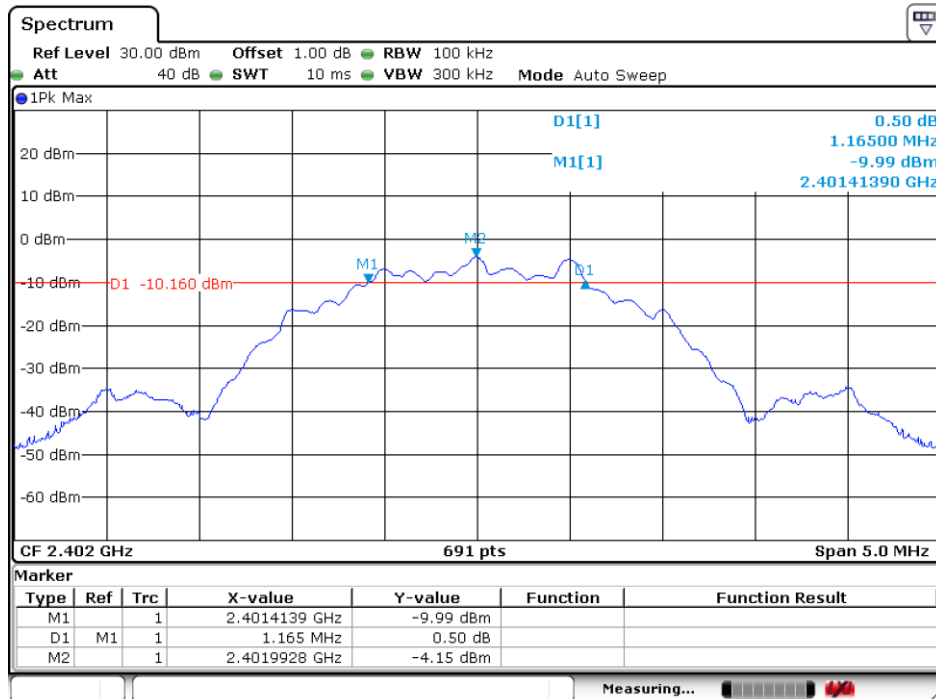
### GFSK 1M\_Highest Channel



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### 4.5.2.4

### GFSK 2M\_Lowest Channel



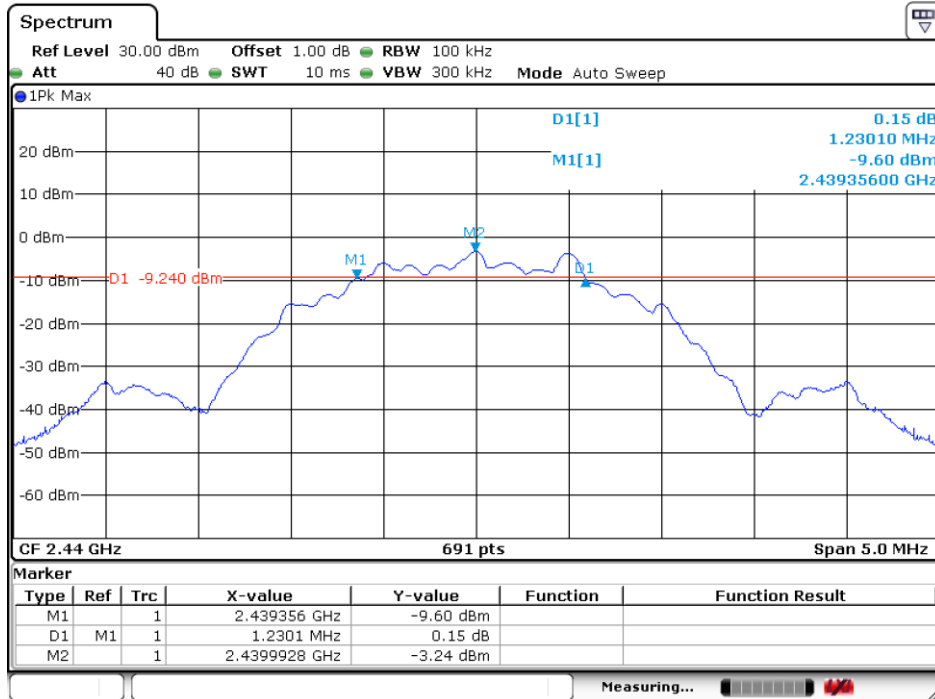
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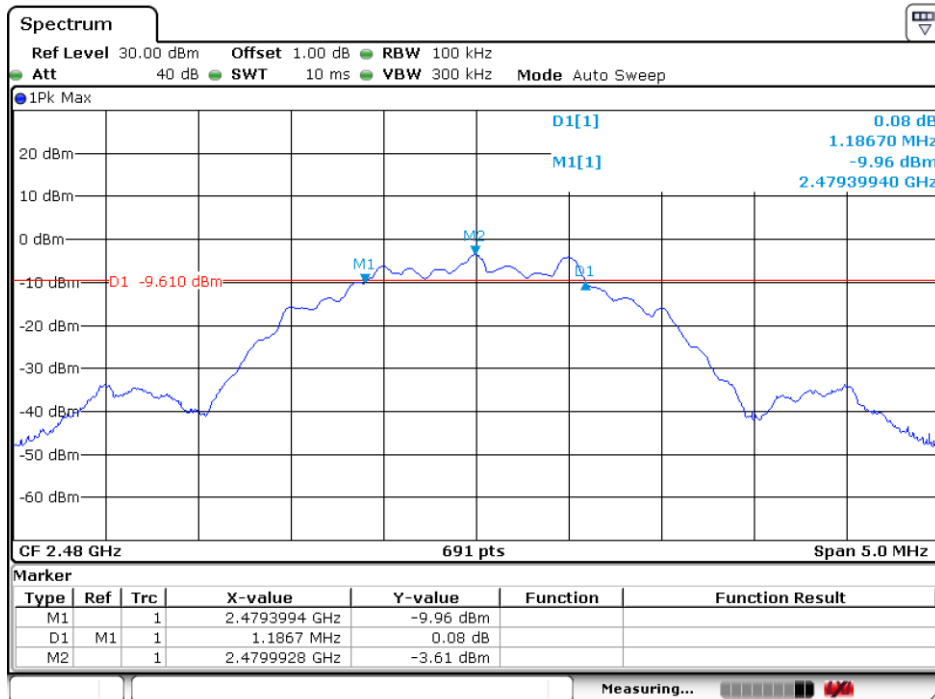
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### 4.5.2.5 GFSK 2M\_Middle Channel



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### 4.5.2.6 GFSK 2M\_Highest Channel



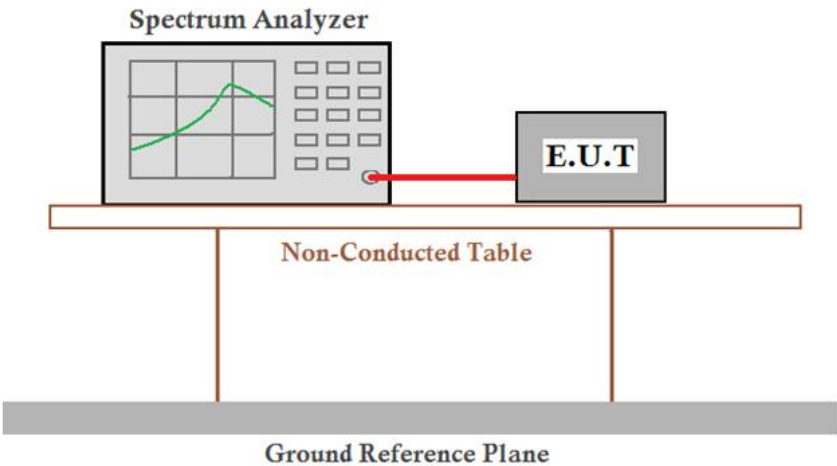
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## 4.6 Power Spectral Density

Test Requirement:	47 CFR Part 15C Section 15.247 (e)
Test Method:	ANSI C63.10 :2013 Section 11.10.2
Test Setup:	
Test Instruments:	Refer to section 5.10 for details
Test Mode:	Transmitting with GFSK modulation.
Limit:	≤8.00dBm/3kHz
Test Results:	Pass

### 4.6.1 Test Results

Mode	Test Channel	Power Spectral Density (dBm/3kHz)	Limit (dBm/3kHz)	Result
GFSK_1M	Lowest	-20.14	≤8.00	Pass
	Middle	-19.21	≤8.00	Pass
	Highest	-19.60	≤8.00	Pass

Mode	Test Channel	Power Spectral Density (dBm/3kHz)	Limit (dBm/3kHz)	Result
GFSK_2M	Lowest	-22.27	≤8.00	Pass
	Middle	-21.37	≤8.00	Pass
	Highest	-21.72	≤8.00	Pass

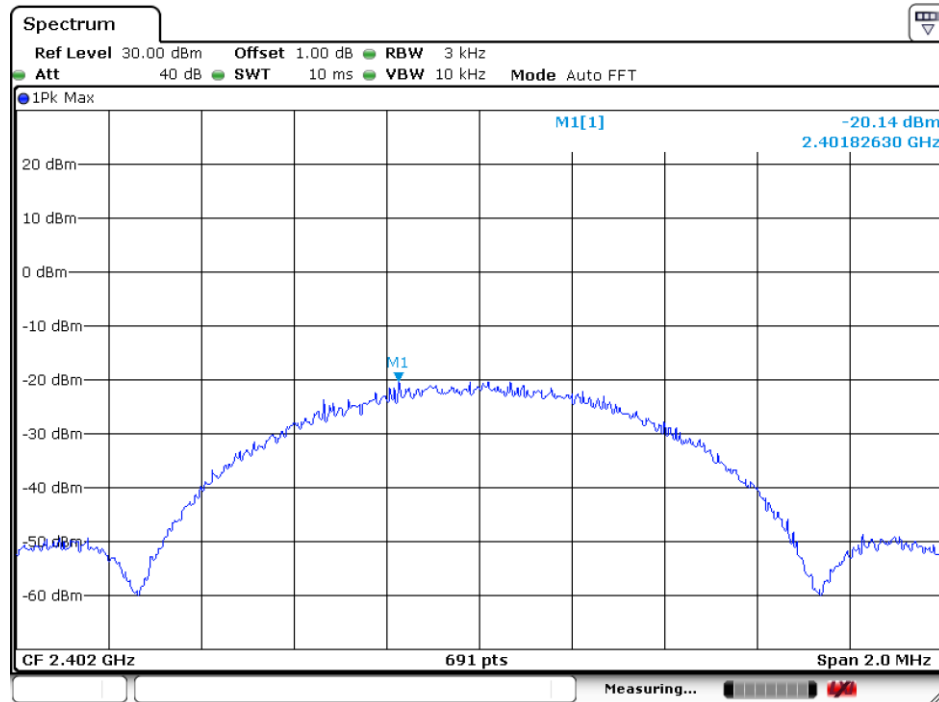


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## 4.6.2 Test Plots

### 4.6.2.1 GFSK 1M\_Lowest Channel



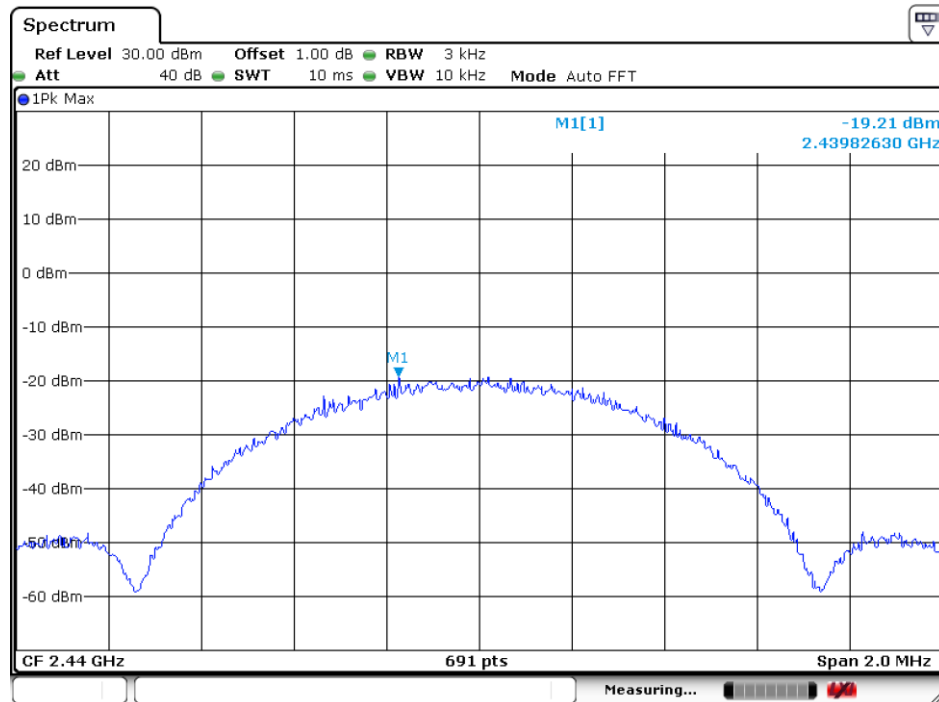
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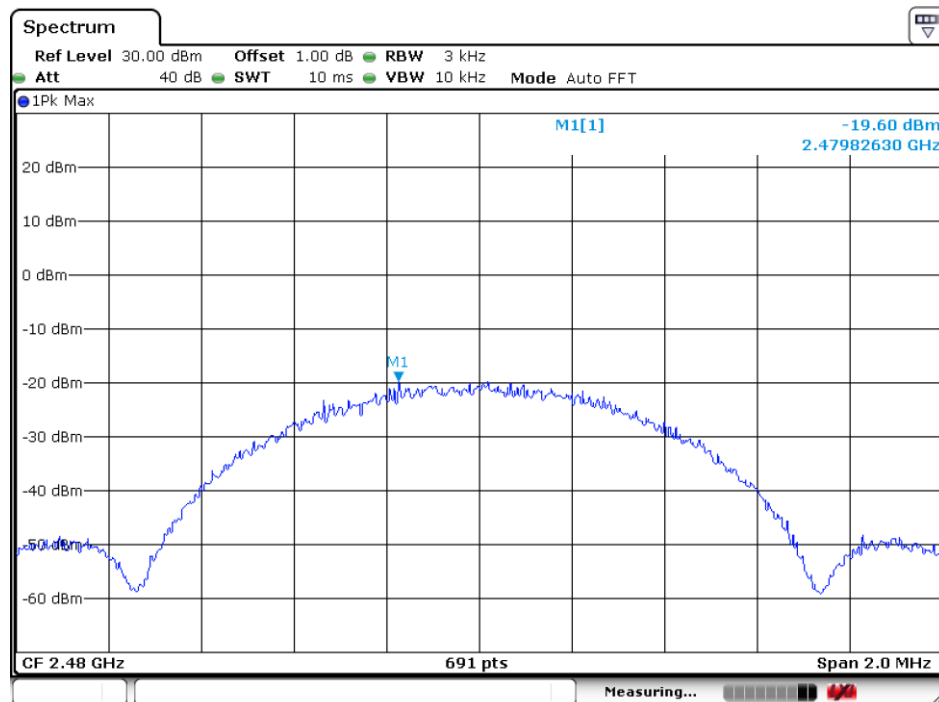
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### 4.6.2.2 GFSK 1M\_Middle Channel



Date: 4.JAN.2021 15:45:19

### 4.6.2.3 GFSK 1M\_Highest Channel



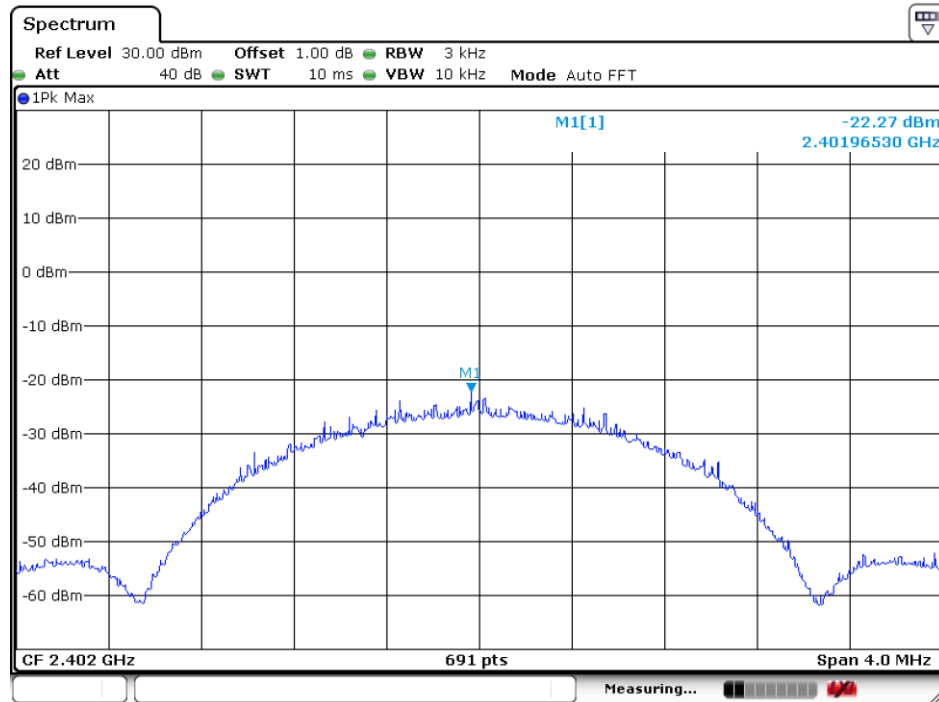
Date: 4.JAN.2021 15:45:00



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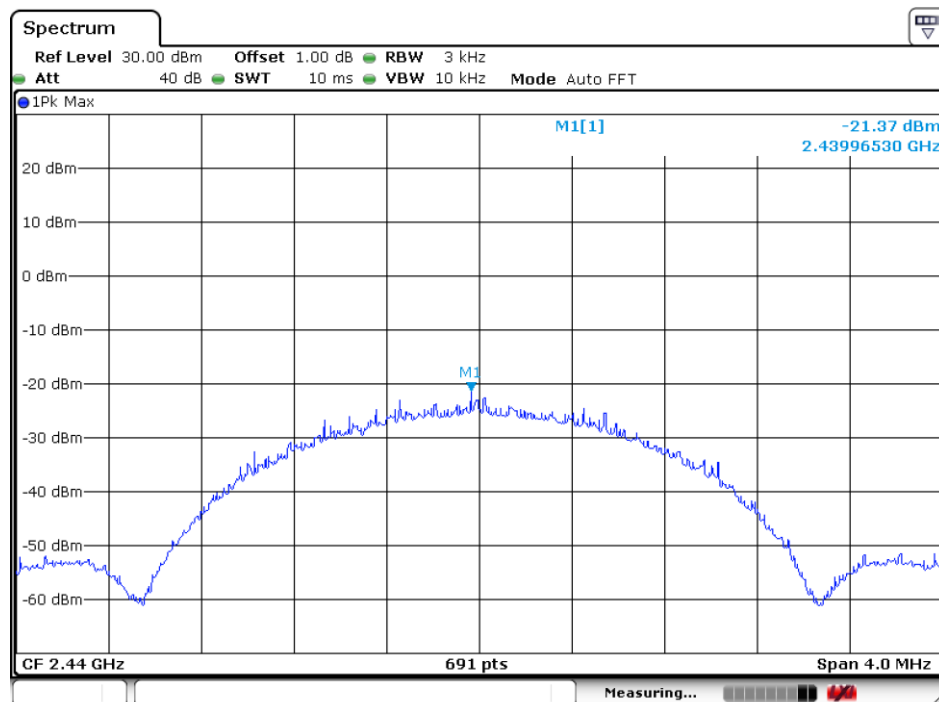


### 4.6.2.4 GFSK 2M\_Lowest Channel



Date: 4.JAN.2021 15:43:57

### 4.6.2.5 GFSK 2M\_Middle Channel



Date: 4.JAN.2021 15:44:12



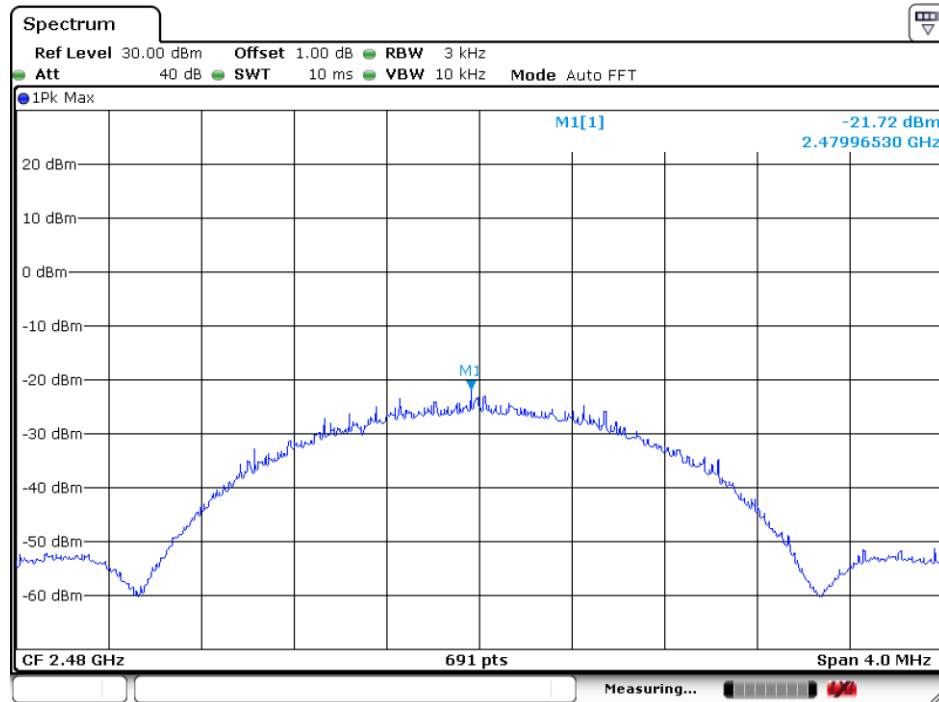
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### 4.6.2.6

### GFSK 2M\_Highest Channel



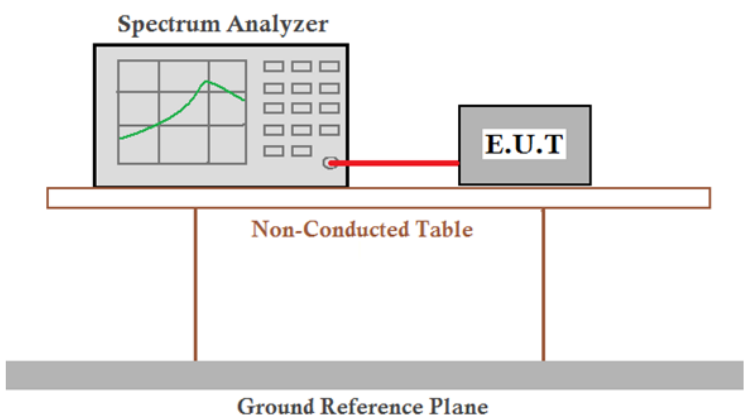
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## 4.7 Band-edge for RF Conducted Emissions

Test Requirement:	47 CFR Part 15C Section 15.247 (d)
Test Method:	ANSI C63.10: 2013 Section 11.13
Test Setup:	
Instruments Used:	Refer to section 5.10 for details
Test Mode:	Transmitting with GFSK modulation.
Limit:	In any 100 kHz bandwidth outside the frequency band in which the spread spectrum intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement.
Test Results:	Pass

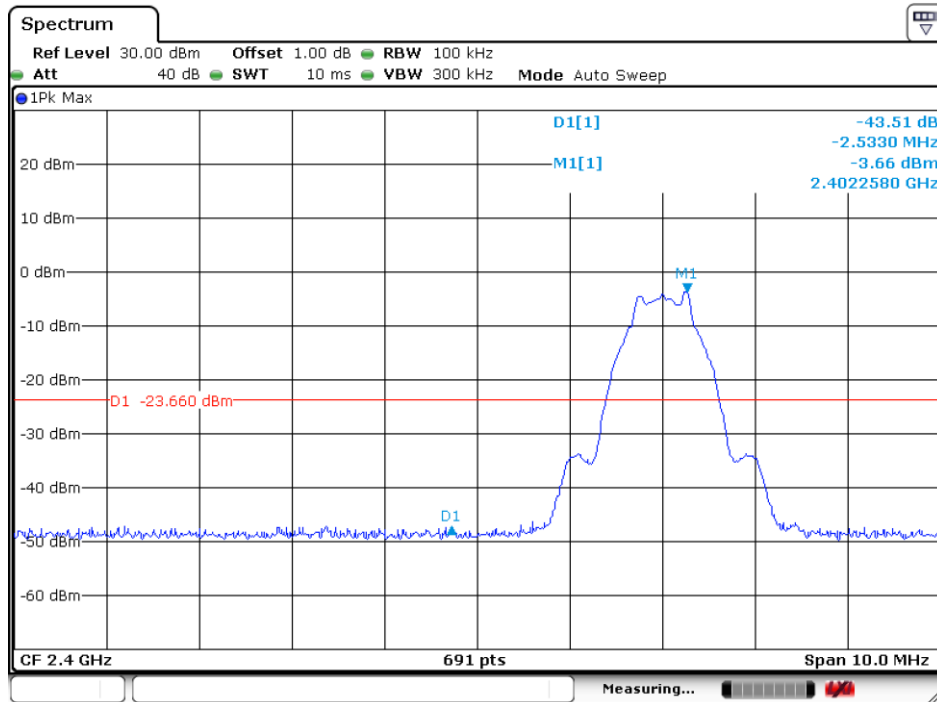


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### 4.7.1 Test Plots

#### 4.7.1.1 GFSK 1M\_Lowest Channel



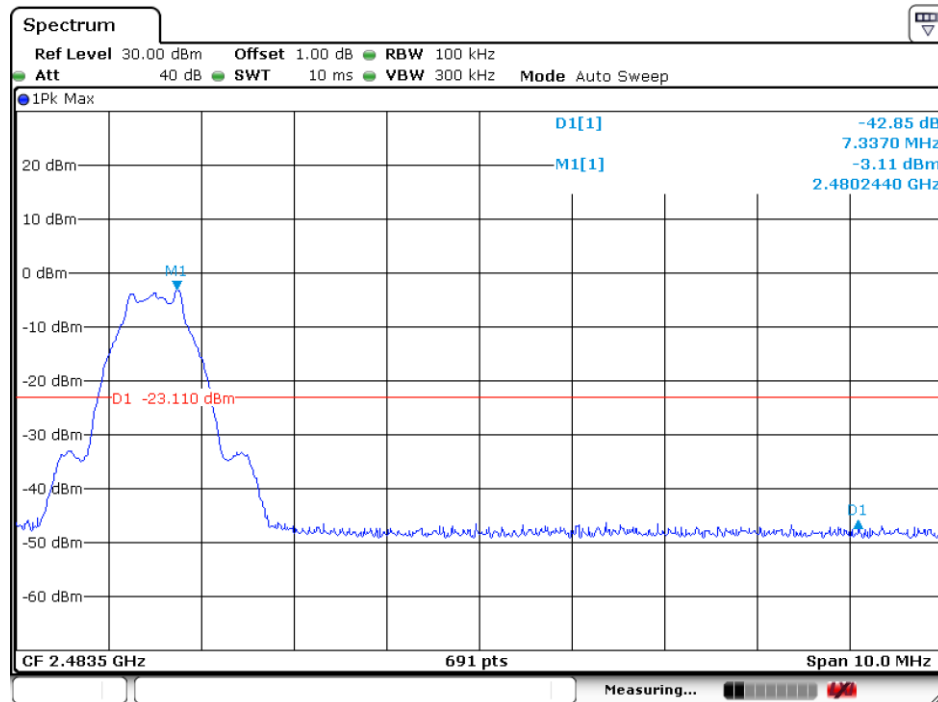
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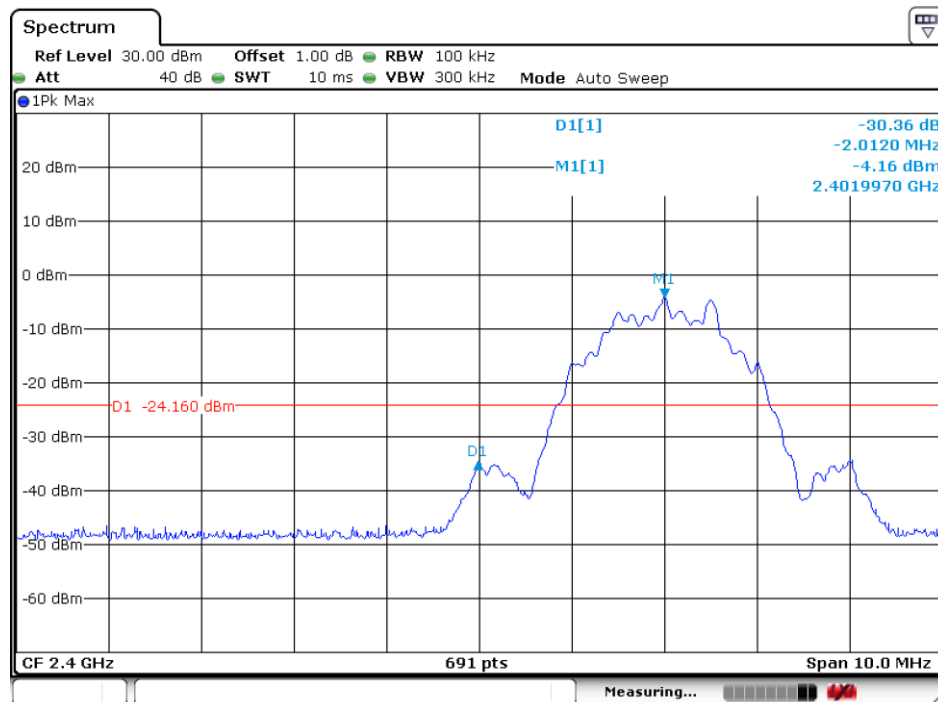
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### 4.7.1.2 GFSK 1M\_Highest Channel



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### 4.7.1.3 GFSK 2M\_Lowest Channel



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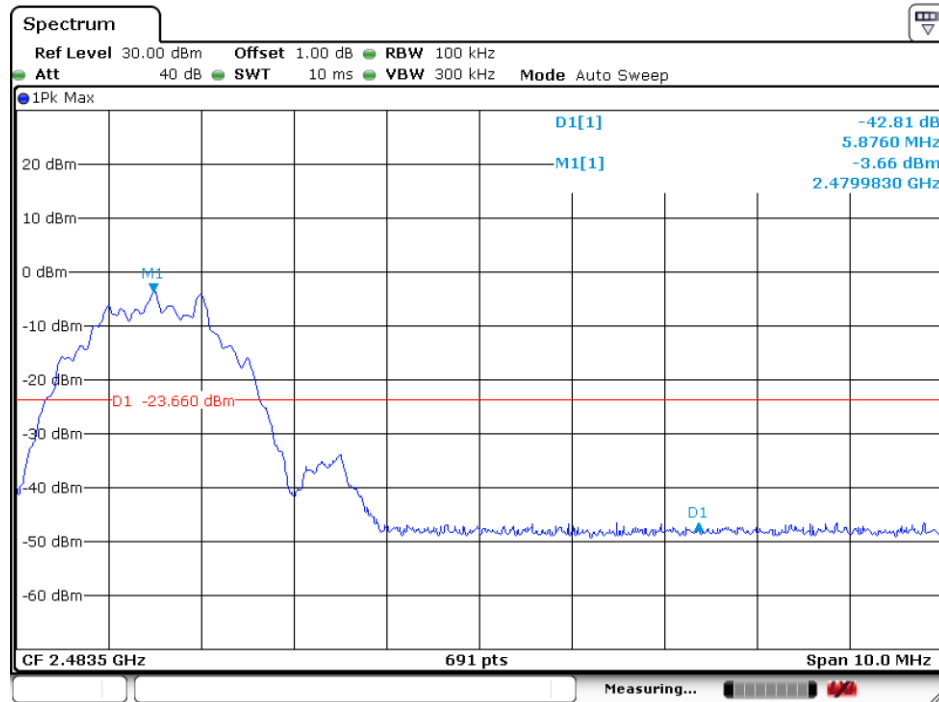
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### 4.7.1.4

### GFSK 2M\_Highest Channel



Date: 4.JAN.2021 15:54:28

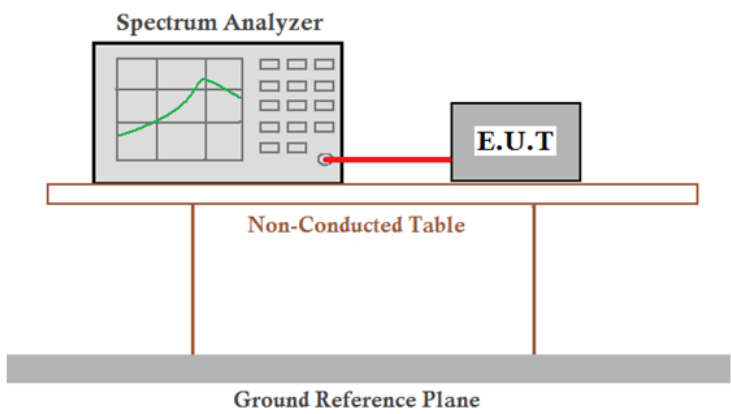


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## 4.8 RF Conducted Spurious Emissions

Test Requirement:	47 CFR Part 15C Section 15.247 (d)
Test Method:	ANSI C63.10: 2013 Section 11.11
Test Setup:	
Instruments Used:	Refer to section 5.10 for details
Test Mode:	Transmitting with GFSK modulation.
Limit:	In any 100 kHz bandwidth outside the frequency band in which the spread spectrum intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement.
Test Results:	Pass

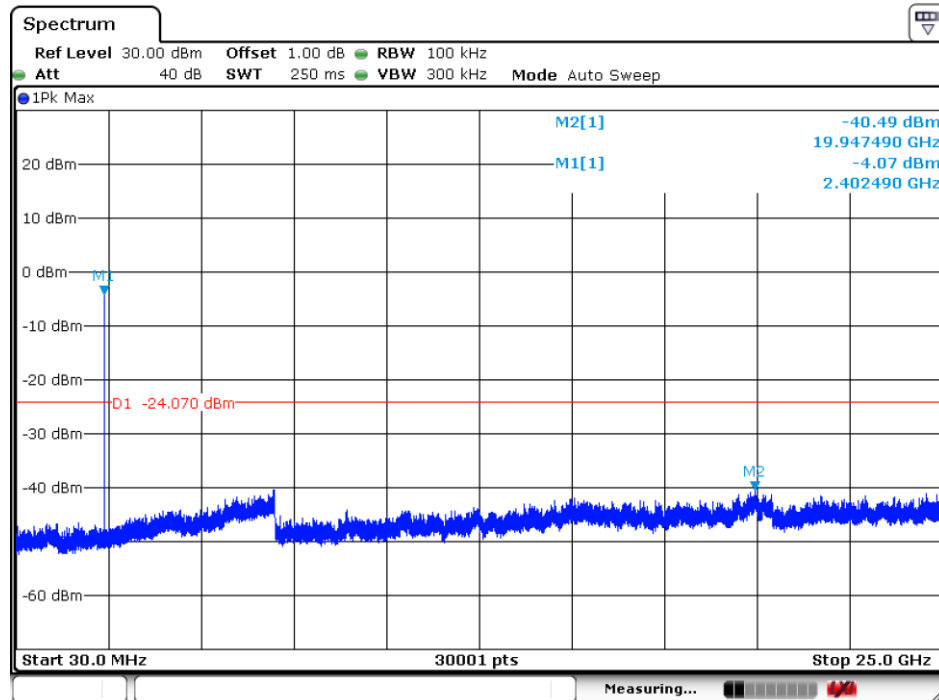


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## 4.8.1 Test Plots

### 4.8.1.1 GFSK 1M\_Lowest Channel



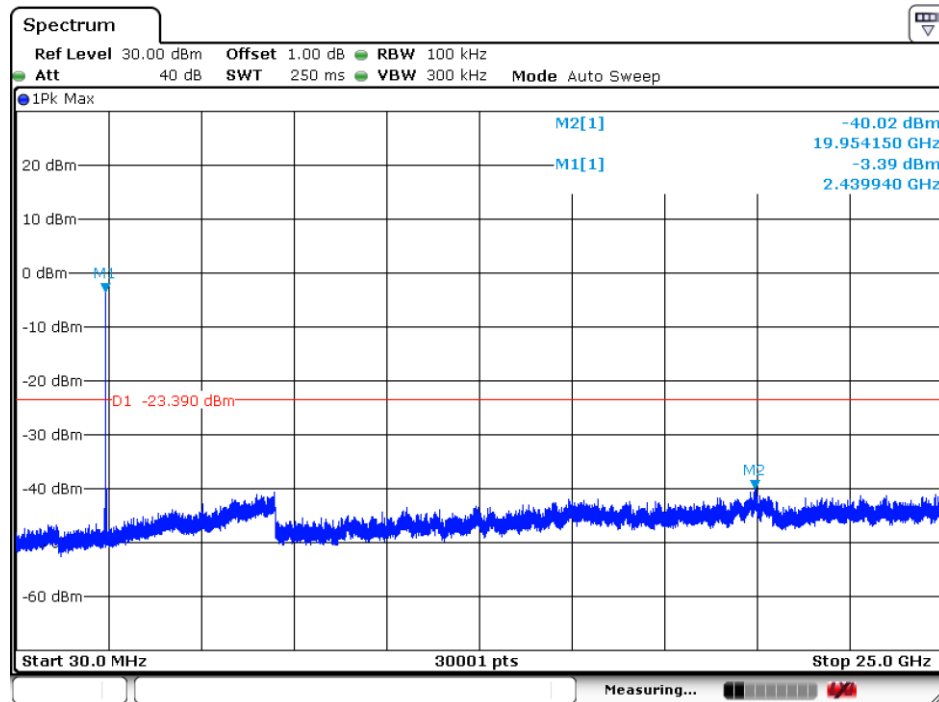
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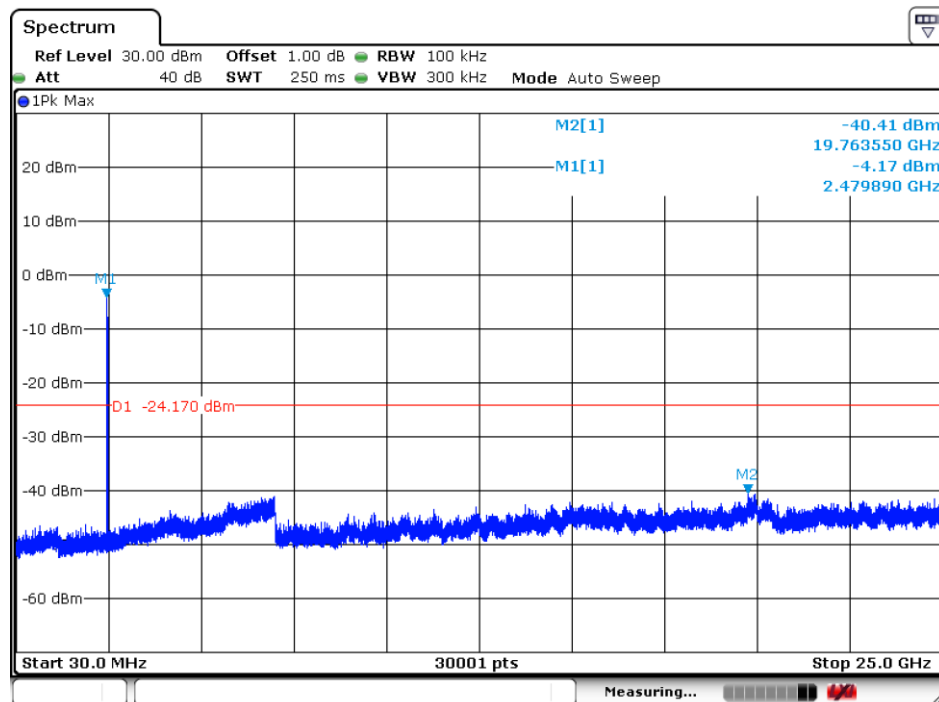
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### 4.8.1.2 GFSK 1M\_Middle Channel



Date: 4.JAN.2021 15:59:39

### 4.8.1.3 GFSK 1M\_Highest Channel



Date: 4.JAN.2021 16:00:35



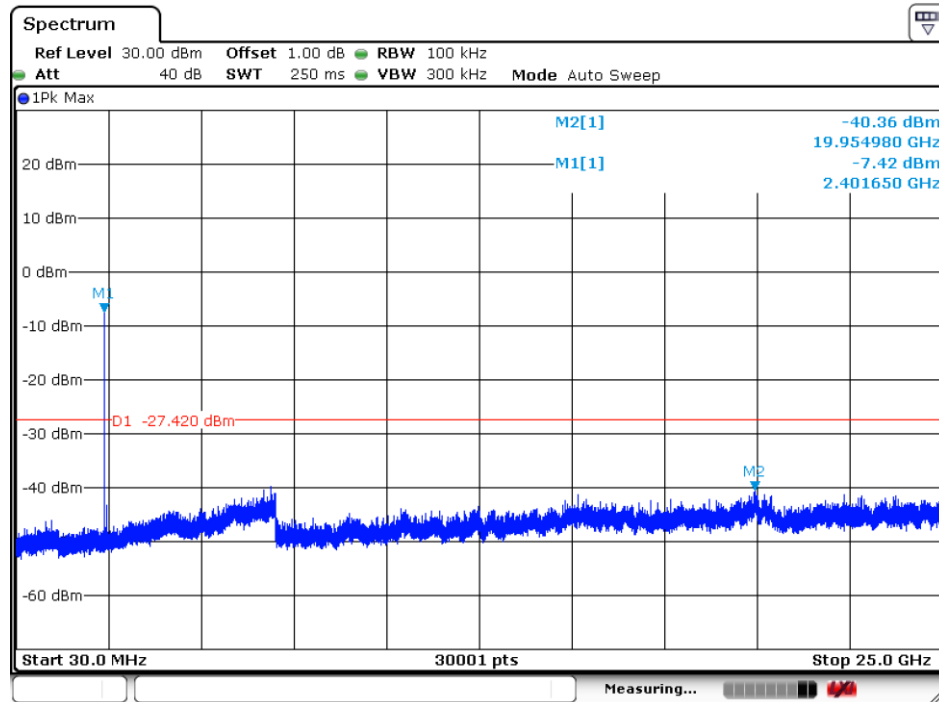
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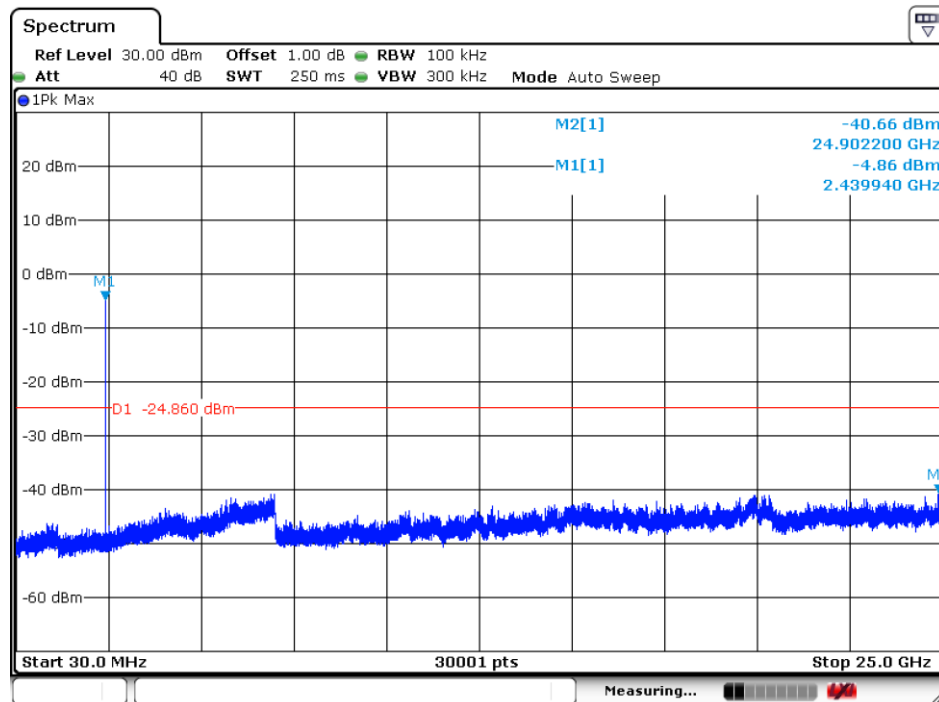
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### 4.8.1.4 GFSK 2M\_Lowest Channel



Date: 4.JAN.2021 16:02:46

### 4.8.1.5 GFSK 2M\_Middle Channel



Date: 4.JAN.2021 16:02:08



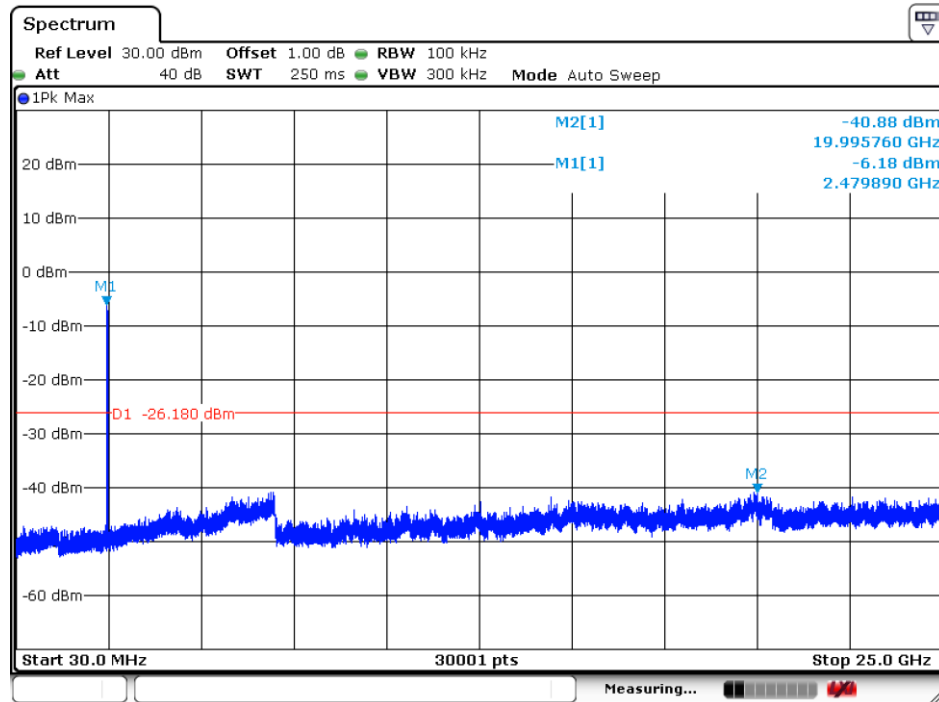
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### 4.8.1.6 GFSK 2M\_Highest Channel



Date: 4.JAN.2021 16:01:18

#### Remark:

Scan from 9kHz to 25GHz, the disturbance between 9KHz to 30MHz was very low, and the above harmonics were the highest point could be found when testing, The amplitude of spurious emissions from the radiator which are attenuated more than 20dB below the limit need not be reported.



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## 4.9 Radiated Spurious Emissions

Test Requirement:	47 CFR Part 15C Section 15.209 and 15.205				
Test Method:	ANSI C63.10 :2013 Section 11.12				
Test Site:	Measurement Distance: 3m (Semi-Anechoic Chamber)				
Receiver Setup:	Frequency	Detector	RBW	VBW	Remark
	0.009MHz-0.090MHz	Peak	10kHz	30kHz	Peak
	0.009MHz-0.090MHz	Average	10kHz	30kHz	Average
	0.090MHz-0.110MHz	Quasi-peak	10kHz	30kHz	Quasi-peak
	0.110MHz-0.490MHz	Peak	10kHz	30kHz	Peak
	0.110MHz-0.490MHz	Average	10kHz	30kHz	Average
	0.490MHz -30MHz	Quasi-peak	10kHz	30kHz	Quasi-peak
	30MHz-1GHz	Quasi-peak	100kHz	30kHz	Quasi-peak
	Above 1GHz	Peak	1MHz	3MHz	Peak
		Peak	1MHz	10Hz	Average
Limit:	Frequency	Field strength (microvolt/meter)	Limit (dBuV/m)	Remark	Measurement distance (m)
	0.009MHz-0.490MHz	2400/F(kHz)	-	-	300
	0.490MHz-1.705MHz	24000/F(kHz)	-	-	30
	1.705MHz-30MHz	30	-	-	30
	30MHz-88MHz	100	40.0	Quasi-peak	3
	88MHz-216MHz	150	43.5	Quasi-peak	3
	216MHz-960MHz	200	46.0	Quasi-peak	3
	960MHz-1GHz	500	54.0	Quasi-peak	3
	Above 1GHz	500	54.0	Average	3
	Remark: 15.35(b), Unless otherwise specified, the limit on peak radio frequency emissions is 20dB above the maximum permitted average emission limit applicable to the equipment under test. This peak limit applies to the total peak emission level radiated by the device.				



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### Test Setup:

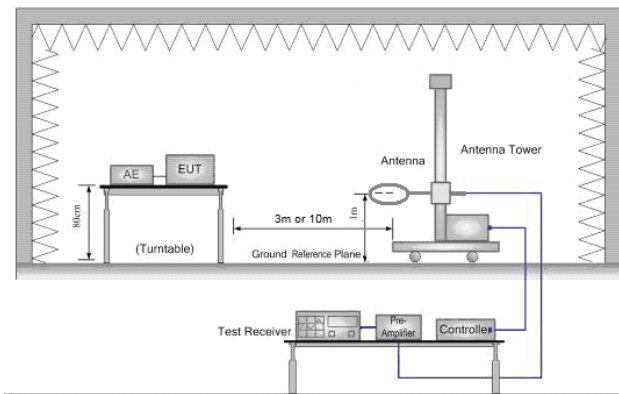


Figure 1. Below 30MHz

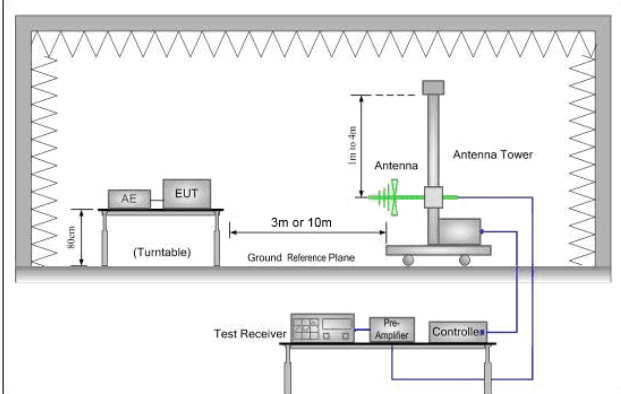


Figure 2. 30MHz to 1GHz

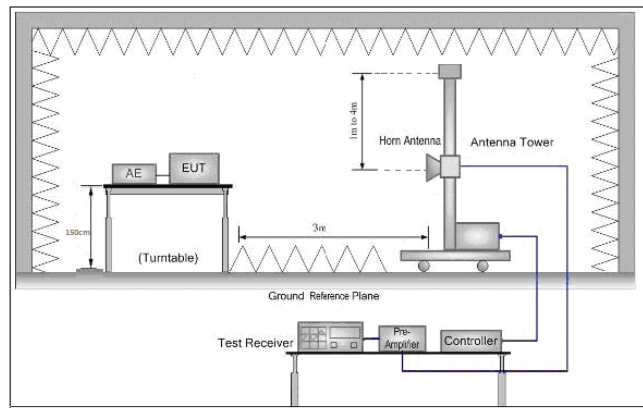


Figure 3. Above 1 GHz

### Test Procedure:

- For below 1GHz, the EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 or 10 meter semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.
- For above 1GHz, the EUT was placed on the top of a rotating table 1.5 meters above the ground at a 3 meter semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation
- The EUT was set 3 or 10 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
- The antenna height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
- Use the following spectrum analyzer settings:
  - Span shall wide enough to fully capture the emission being measured;
  - Set RBW=100 kHz for  $f < 1$  GHz, RBW=1MHz for  $f > 1$ GHz ;  
VBW  $\geq$  RBW; Sweep = auto;  
Detector function = peak; Trace = max hold for peak
  - For average measurement: use duty cycle correction factor method per 15.35(c).



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	<p>Duty cycle = On time/100 milliseconds</p> <p>On time = <math>N_1 * L_1 + N_2 * L_2 + \dots + N_{n-1} * L_{n-1} + N_n * L_n</math></p> <p>Where <math>N_1</math> is number of type 1 pulses, <math>L_1</math> is length of type 1 pulses, etc.</p> <p>Average Emission Level = Peak Emission Level + <math>20 * \log(\text{Duty cycle})</math></p> <p>f. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters (for the test frequency of below 30MHz, the antenna was tuned to heights 1 meter) and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.</p> <p>g. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.</p> <p>h. If the emission level of the EUT in peak mode was 10dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10dB margin would be re-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet.</p> <p>i. Test the EUT in the lowest channel, the middle channel, the Highest channel.</p> <p>j. The radiation measurements are performed in X, Y, Z axis positioning for Transmitting mode, And found the X axis positioning which it is worse case.</p> <p>k. Repeat above procedures until all frequencies measured was complete.</p>
Exploratory Test Mode:	Transmitting with GFSK modulation. Charge + Transmitting mode.
Final Test Mode:	Transmitting with GFSK modulation. Pretest the EUT at Charge + Transmitting mode, For below 1GHz part, through pre-scan, the worst case is the lowest channel. Only the worst case is recorded in the report.
Instruments Used:	Refer to section 5.10 for details
Test Results:	Pass

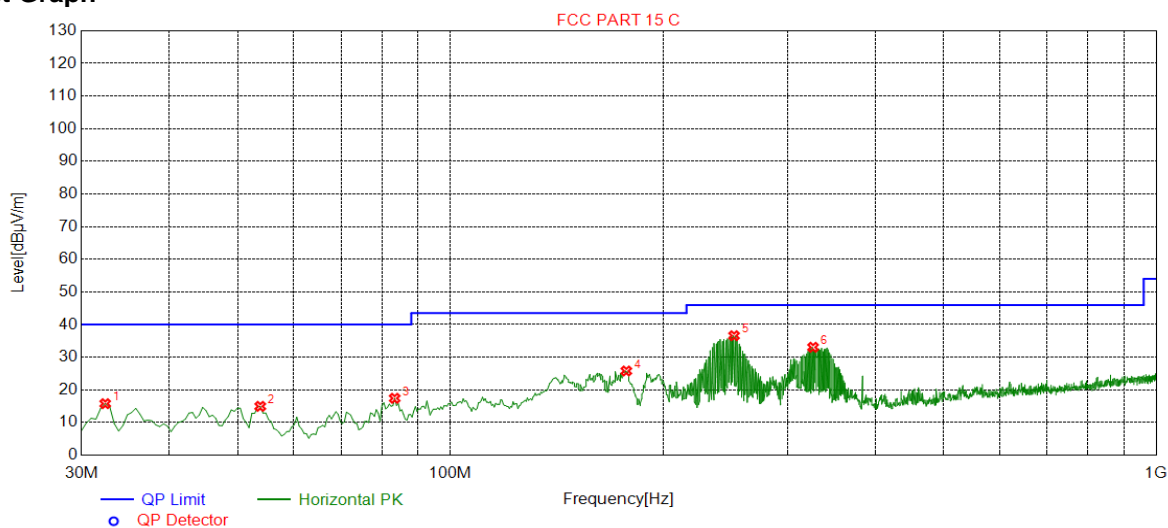


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### 4.9.1 Radiated Emission below 1GHz 4.9.1.1 Charge + Transmitting Test Graph



### Suspected List

Suspected List							
NO.	Freq. [MHz]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	32.4262	15.79	40.00	24.21	150	255	Horizontal
2	53.7769	14.96	40.00	25.04	150	231	Horizontal
3	83.3767	17.43	40.00	22.57	150	275	Horizontal
4	177.5138	25.79	43.50	17.71	150	28	Horizontal
5	252.2411	36.60	46.00	9.40	150	215	Horizontal
6	326.4832	33.06	46.00	12.94	150	332	Horizontal

### Final Data List



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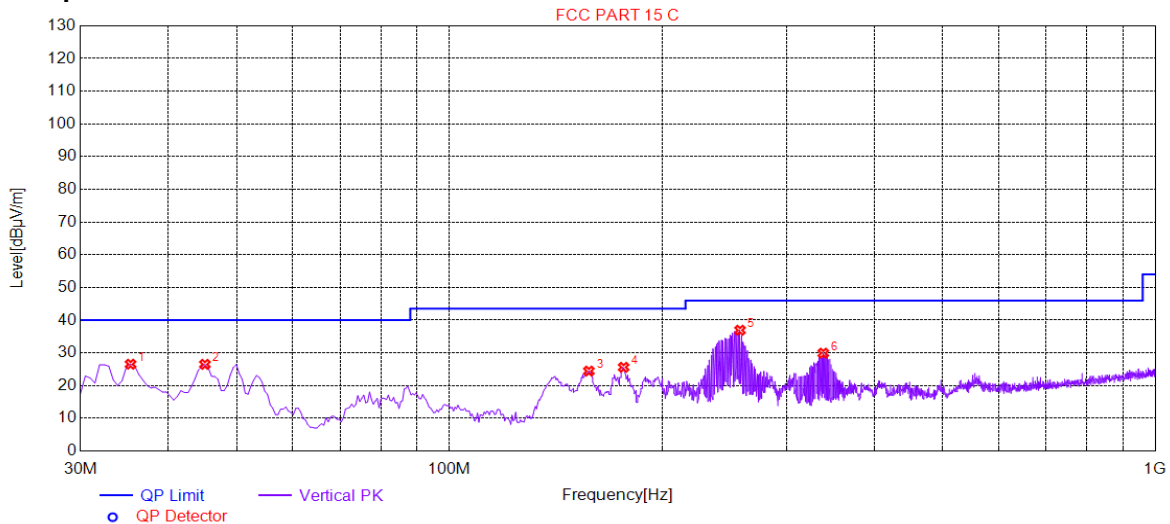
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### Test Graph



### Suspected List

Suspected List							
NO.	Freq. [MHz]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	35.3377	26.55	40.00	13.45	150	358	Vertical
2	45.0425	26.50	40.00	13.50	150	360	Vertical
3	157.6188	24.44	43.50	19.06	150	305	Vertical
4	176.5433	25.60	43.50	17.90	150	16	Vertical
5	258.0640	36.94	46.00	9.06	150	16	Vertical
6	338.6143	29.92	46.00	16.08	150	312	Vertical

### Final Data List

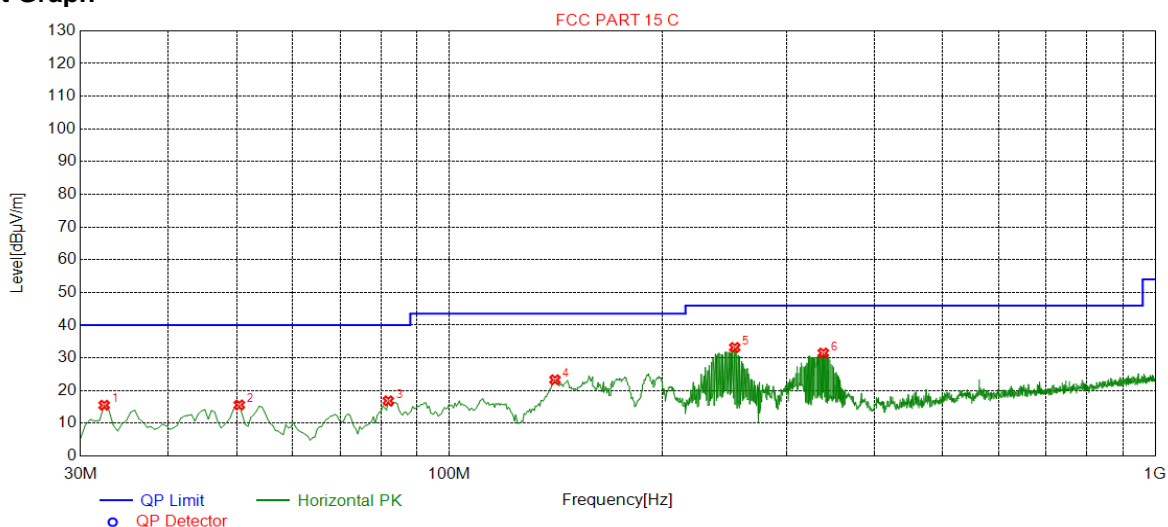


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### Test Graph



### Suspected List

Suspected List							
NO.	Freq. [MHz]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	32.4262	15.55	40.00	24.45	150	276	Horizontal
2	50.3802	15.62	40.00	24.38	150	242	Horizontal
3	81.9210	16.88	40.00	23.12	150	280	Horizontal
4	141.1206	23.32	43.50	20.18	150	233	Horizontal
5	253.6968	33.19	46.00	12.81	150	217	Horizontal
6	338.6143	31.50	46.00	14.50	150	220	Horizontal

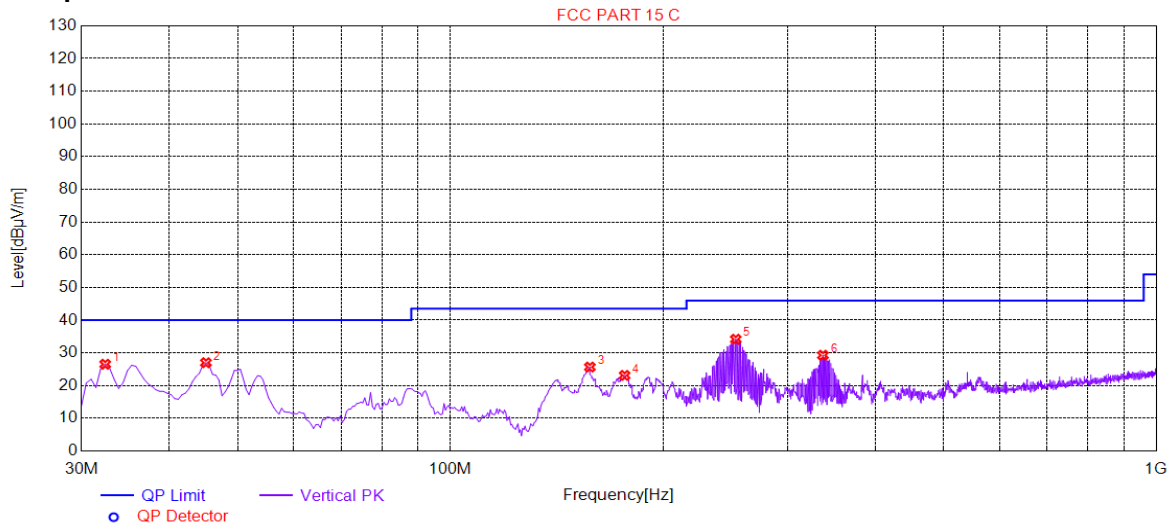
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### Test Graph



### Suspected List

Suspected List							
NO.	Freq. [MHz]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	32.4262	26.54	40.00	13.46	150	343	Vertical
2	45.0425	27.00	40.00	13.00	150	349	Vertical
3	157.6188	25.67	43.50	17.83	150	324	Vertical
4	176.5433	23.12	43.50	20.38	150	16	Vertical
5	253.6968	34.18	46.00	11.82	150	357	Vertical
6	337.1586	29.29	46.00	16.71	150	324	Vertical

### Final Data List

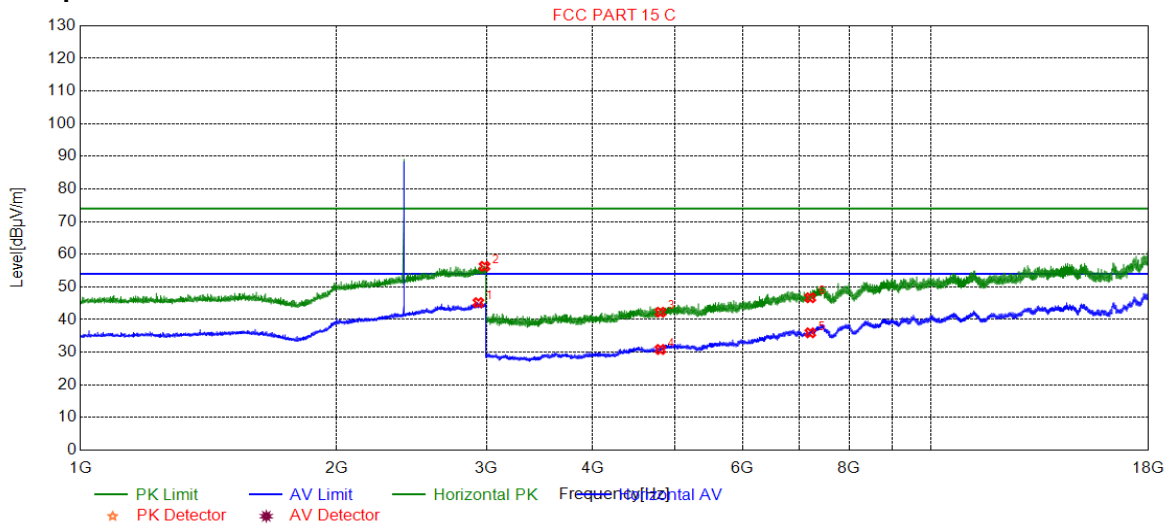


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### 4.9.2 Transmitter Emission above 1GHz 4.9.2.1 BLE 1M\_Channel 0

#### Test Graph



#### Suspected List

Suspected List							
NO.	Freq. [MHz]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	2935.483	45.20	54.00	8.80	274	238	Horizontal
2	2984.996	56.30	74.00	17.70	317	274	Horizontal
3	4804.000	42.25	74.00	31.75	229	286	Horizontal
4	4804.000	30.85	54.00	23.15	130	14	Horizontal
5	7206.000	35.95	54.00	18.05	210	14	Horizontal
6	7206.000	46.70	74.00	27.30	398	14	Horizontal

#### Final Data List

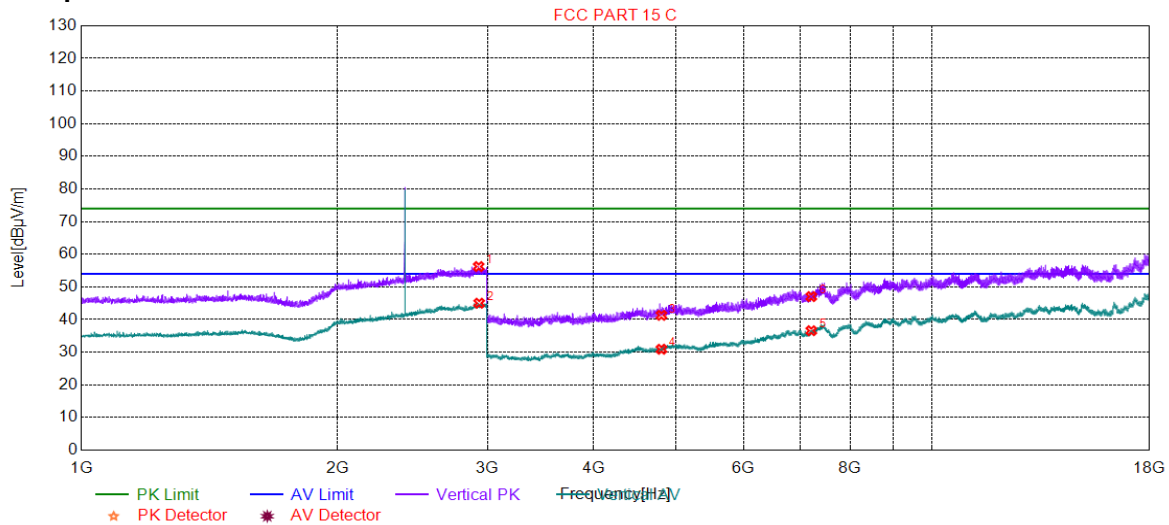


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### 4.9.2.2 BLE 1M\_Channel 0

#### Test Graph



#### Suspected List

Suspected List							
NO.	Freq. [MHz]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	2929.982	56.25	74.00	17.75	192	315	Vertical
2	2933.983	45.03	54.00	8.97	145	190	Vertical
3	4804.000	41.31	74.00	32.69	188	126	Vertical
4	4804.000	30.92	54.00	23.08	339	109	Vertical
5	7206.000	36.60	54.00	17.40	277	313	Vertical
6	7206.000	47.05	74.00	26.95	174	211	Vertical

#### Final Data List

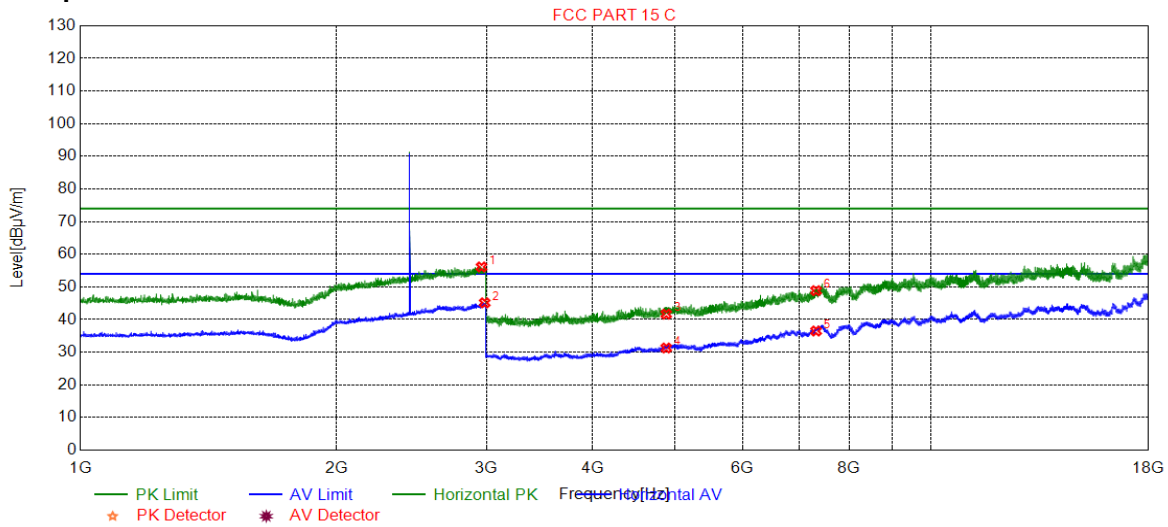


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### 4.9.2.3 BLE 1M\_Channel 19

#### Test Graph



#### Suspected List

Suspected List							
NO.	Freq. [MHz]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	2960.990	56.12	74.00	17.88	227	332	Horizontal
2	2985.996	45.13	54.00	8.87	336	123	Horizontal
3	4880.000	41.68	74.00	32.32	137	133	Horizontal
4	4880.000	31.31	54.00	22.69	197	218	Horizontal
5	7320.000	36.50	54.00	17.50	367	14	Horizontal
6	7320.000	48.86	74.00	25.14	133	303	Horizontal

#### Final Data List



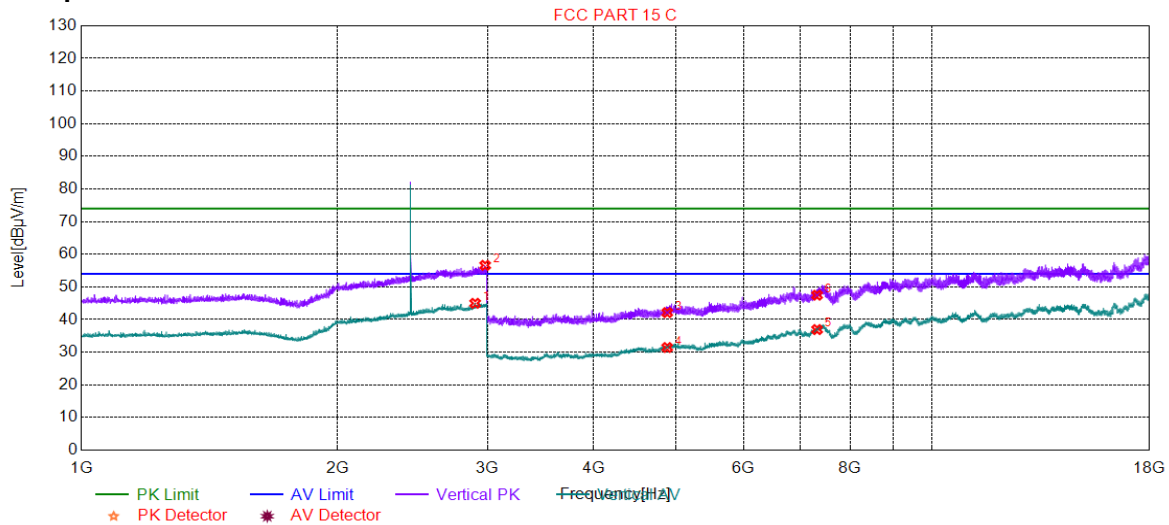
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### 4.9.2.4 BLE 1M\_Channel 19

#### Test Graph



#### Suspected List

Suspected List							
NO.	Freq. [MHz]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	2901.975	45.00	54.00	9.00	271	331	Vertical
2	2981.995	56.61	74.00	17.39	160	90	Vertical
3	4880.000	42.14	74.00	31.86	253	228	Vertical
4	4880.000	31.46	54.00	22.54	255	228	Vertical
5	7320.000	36.95	54.00	17.05	224	245	Vertical
6	7320.000	47.48	74.00	26.52	210	126	Vertical

#### Final Data List



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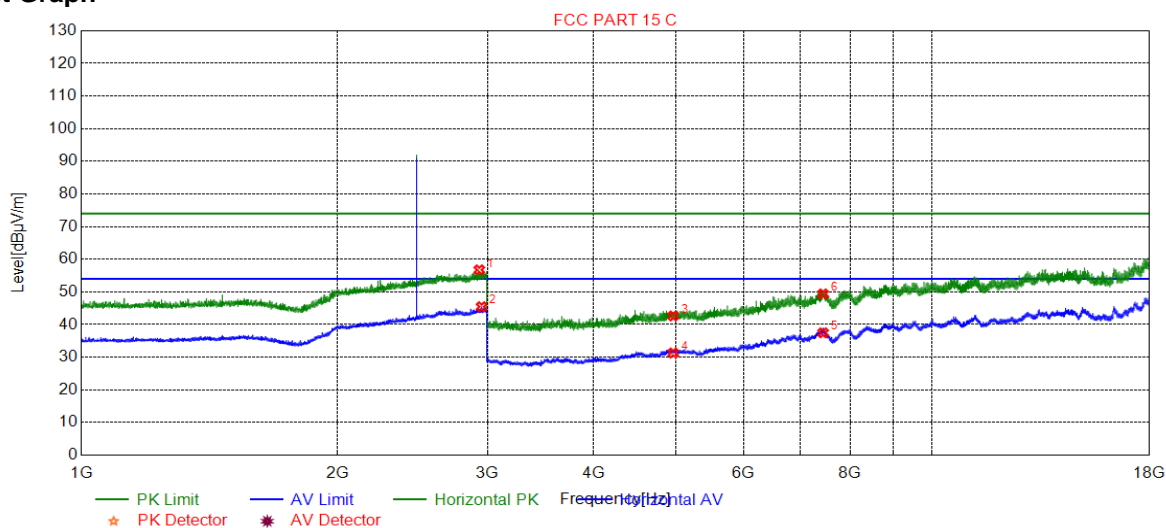
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### 4.9.2.5 BLE 1M\_Channel 39

#### Test Graph



#### Suspected List

Suspected List							
NO.	Freq. [MHz]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	2934.983	56.76	74.00	17.24	374	92	Horizontal
2	2953.488	45.48	54.00	8.52	297	352	Horizontal
3	4960.000	42.65	74.00	31.35	167	82	Horizontal
4	4960.000	31.30	54.00	22.70	238	82	Horizontal
5	7440.000	37.48	54.00	16.52	335	14	Horizontal
6	7440.000	49.40	74.00	24.60	309	285	Horizontal

#### Final Data List

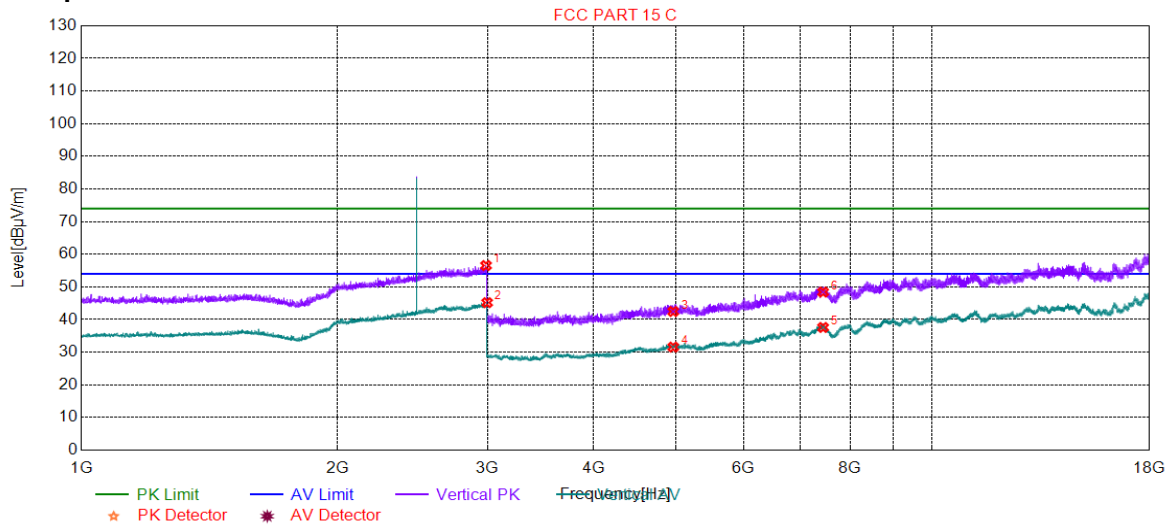


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### 4.9.2.6 BLE 1M\_Channel 39

#### Test Graph



#### Suspected List

Suspected List							
NO.	Freq. [MHz]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	2988.997	56.56	74.00	17.44	329	0	Vertical
2	2997.999	45.19	54.00	8.81	180	76	Vertical
3	4960.000	42.48	74.00	31.52	285	278	Vertical
4	4960.000	31.59	54.00	22.41	270	69	Vertical
5	7440.000	37.60	54.00	16.40	270	261	Vertical
6	7440.000	48.43	74.00	25.57	228	124	Vertical

#### Final Data List



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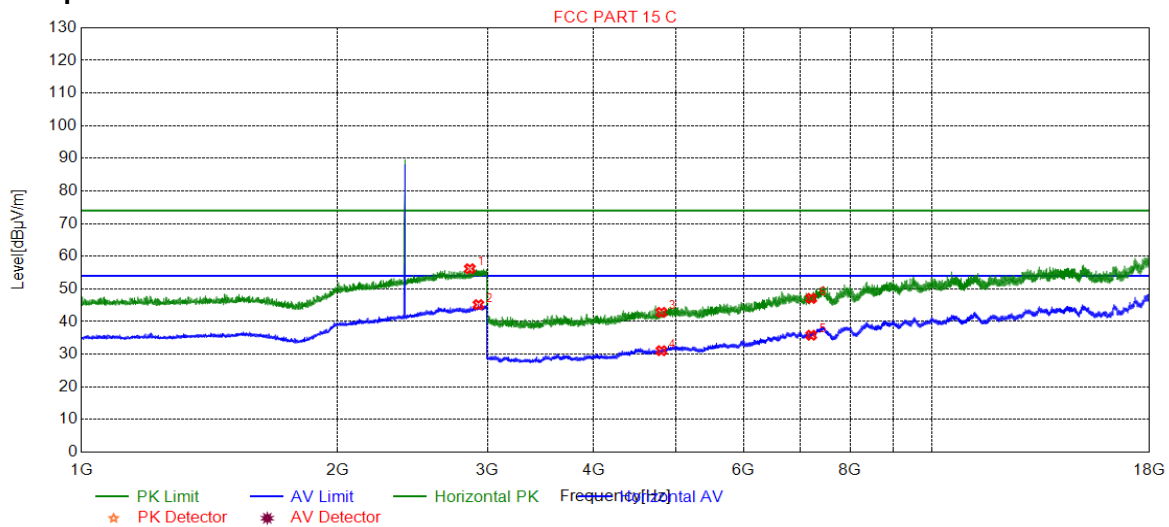
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### 4.9.2.7 BLE 2M\_Channel 0

#### Test Graph



#### Suspected List

Suspected List							
NO.	Freq. [MHz]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	2860.965	56.19	74.00	17.81	342	82	Horizontal
2	2927.982	45.18	54.00	8.82	105	103	Horizontal
3	4804.000	42.83	74.00	31.17	346	64	Horizontal
4	4804.000	31.09	54.00	22.91	222	286	Horizontal
5	7206.000	35.83	54.00	18.17	292	302	Horizontal
6	7206.000	47.12	74.00	26.88	394	150	Horizontal

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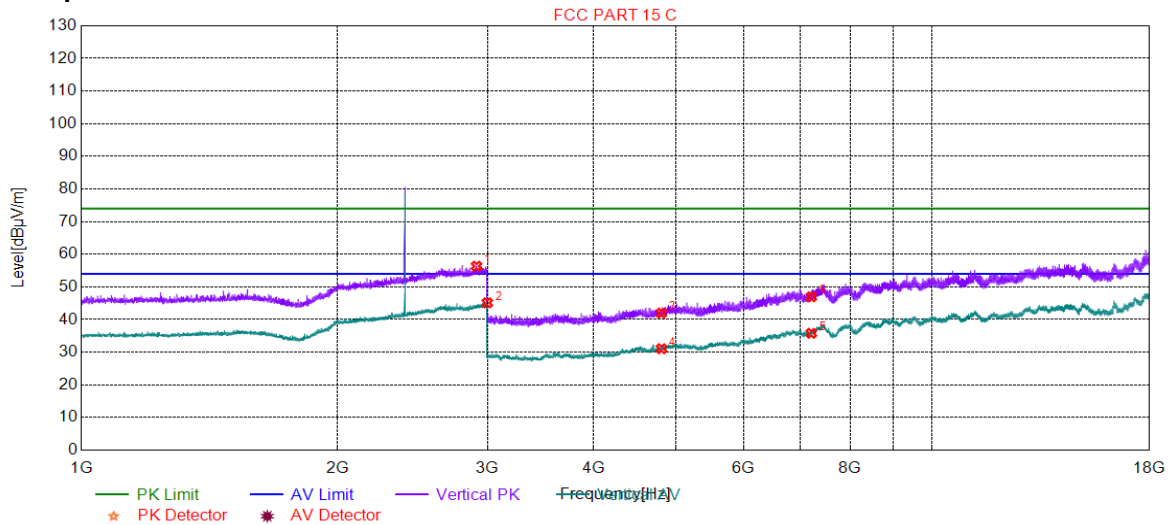
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### 4.9.2.8 BLE 2M\_Channel 0

#### Test Graph



#### Suspected List

Suspected List							
NO.	Freq. [MHz]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	2912.978	56.36	74.00	17.64	164	48	Vertical
2	2998.999	45.14	54.00	8.86	287	289	Vertical
3	4804.000	42.00	74.00	32.00	181	40	Vertical
4	4804.000	31.09	54.00	22.91	175	346	Vertical
5	7206.000	35.81	54.00	18.19	186	228	Vertical
6	7206.000	46.98	74.00	27.02	305	125	Vertical

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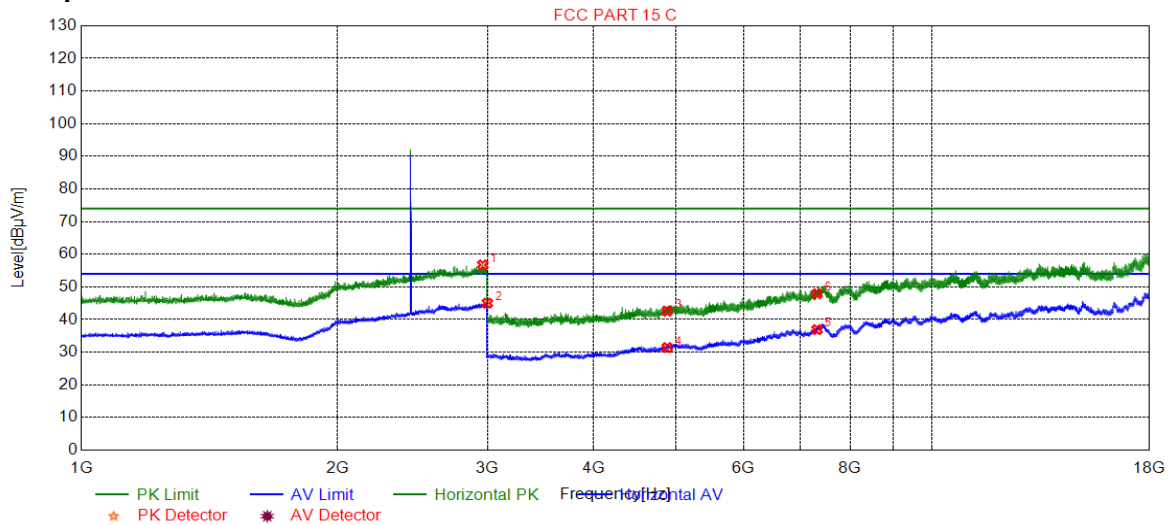
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### 4.9.2.9 BLE 2M\_Channel 19

#### Test Graph



#### Suspected List

Suspected List							
NO.	Freq. [MHz]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	2962.490	56.76	74.00	17.24	381	128	Horizontal
2	2998.999	45.04	54.00	8.96	196	71	Horizontal
3	4880.000	42.58	74.00	31.42	353	286	Horizontal
4	4880.000	31.43	54.00	22.57	114	354	Horizontal
5	7320.000	36.93	54.00	17.07	389	201	Horizontal
6	7320.000	47.91	74.00	26.09	148	235	Horizontal

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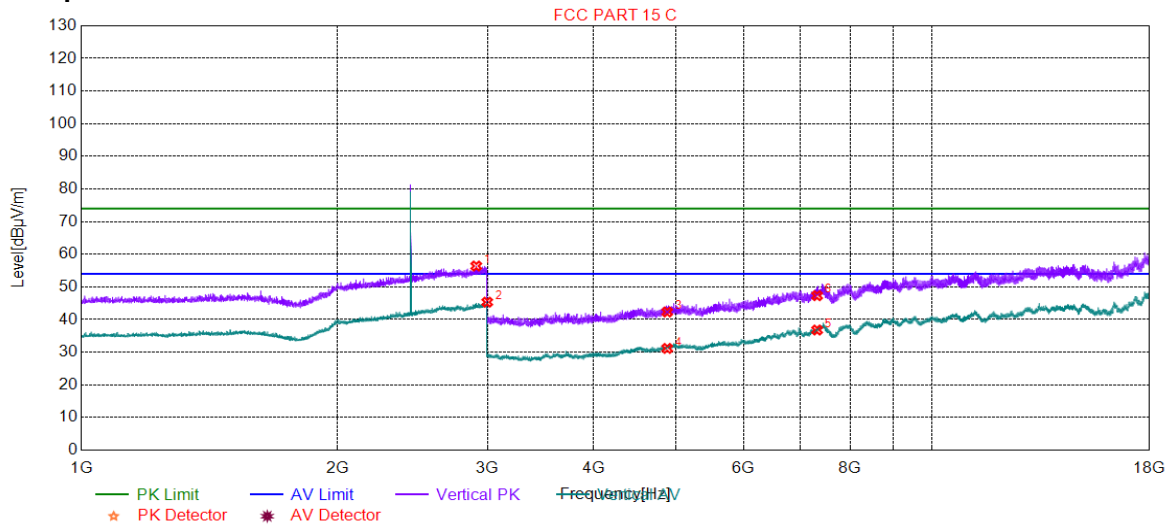
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### 4.9.2.10 BLE 2M\_Channel 19

#### Test Graph



#### Suspected List

Suspected List							
NO.	Freq. [MHz]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	2910.977	56.41	74.00	17.59	375	33	Vertical
2	2998.999	45.34	54.00	8.66	335	331	Vertical
3	4880.000	42.34	74.00	31.66	359	296	Vertical
4	4880.000	31.18	54.00	22.82	367	142	Vertical
5	7320.000	36.81	54.00	17.19	259	193	Vertical
6	7320.000	47.33	74.00	26.67	175	126	Vertical

#### Final Data List

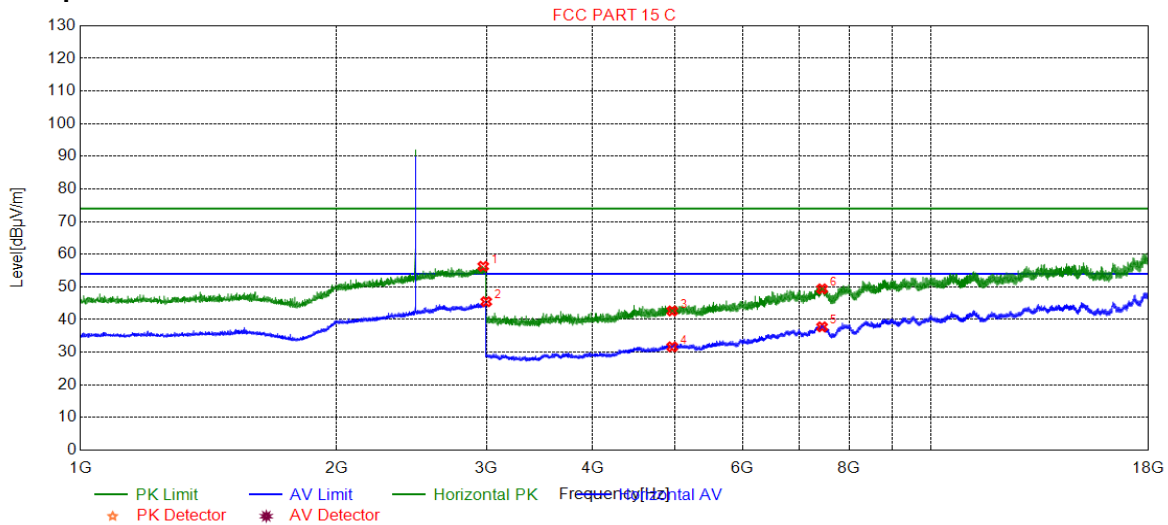


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### 4.9.2.11 BLE 2M\_Channel 39

#### Test Graph



#### Suspected List

Suspected List							
NO.	Freq. [MHz]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	2973.993	56.32	74.00	17.68	315	278	Horizontal
2	2998.499	45.49	54.00	8.51	161	96	Horizontal
3	4960.000	42.65	74.00	31.35	121	82	Horizontal
4	4960.000	31.66	54.00	22.34	275	217	Horizontal
5	7440.000	37.77	54.00	16.23	110	14	Horizontal
6	7440.000	49.40	74.00	24.60	104	285	Horizontal

#### Final Data List

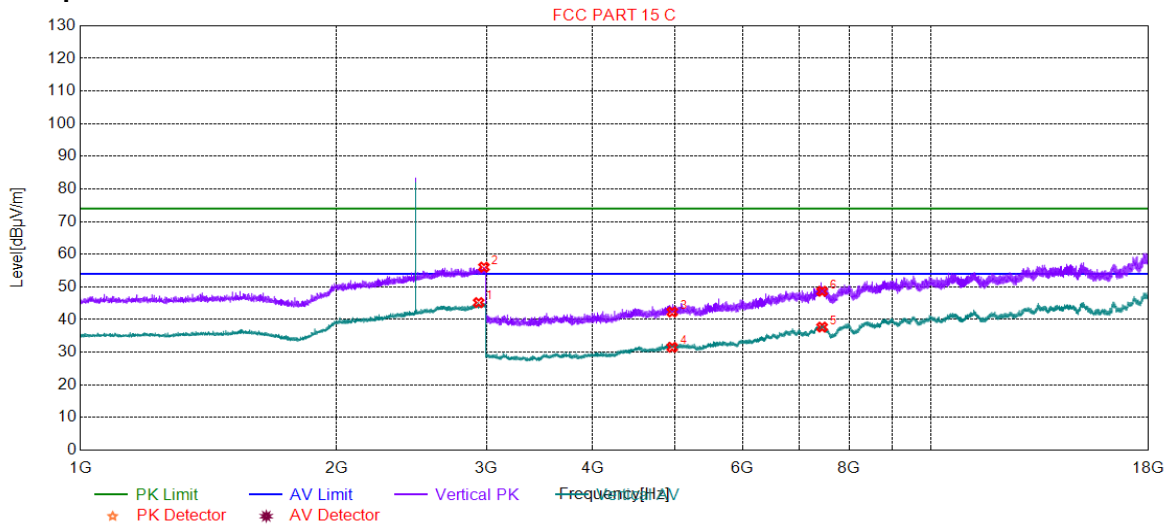


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### 4.9.2.12 BLE 2M\_Channel 39

#### Test Graph



#### Suspected List

Suspected List							
NO.	Freq. [MHz]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	2937.984	45.20	54.00	8.80	252	40	Vertical
2	2979.995	56.07	74.00	17.93	372	113	Vertical
3	4960.000	42.33	74.00	31.67	238	329	Vertical
4	4960.000	31.53	54.00	22.47	136	193	Vertical
5	7440.000	37.70	54.00	16.30	109	210	Vertical
6	7440.000	48.67	74.00	25.33	310	142	Vertical

#### Final Data List

#### Remark:

- The field strength is calculated by adding the Antenna Factor, Cable Factor & Preamplifier. The basic equation with a sample calculation is as follows:  
Final Test Level = Receiver Reading + Antenna Factor + Cable Factor – Preamplifier Factor
- Scan from 9kHz to 25GHz, the disturbance between 9KHz to 30MHz was very low, and the above harmonics were the highest point could be found when testing, The amplitude of spurious emissions from the radiator which are attenuated more than 20dB below the limit need not be reported.
- As shown in this section, for frequencies above 1GHz, the field strength limits are based on average limits. However, the peak field strength of any emission shall not exceed the maximum permitted average limits specified above by more than 20 dB under any condition of modulation. So, only the peak measurements were shown in the report.
- All Modes have been tested, but only the worst case data displayed in this report.



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### 4.10 Restricted bands around fundamental frequency

Test Requirement:	47 CFR Part 15C Section 15.209 and 15.205		
Test Method:	ANSI C63.10: 2013 Section 11.12		
Test Site:	Measurement Distance: 3m (Semi-Anechoic Chamber)		
Limit:	Frequency	Limit (dBuV/m)	Remark
	30MHz-88MHz	40.0	Quasi-peak
	88MHz-216MHz	43.5	Quasi-peak
	216MHz-960MHz	46.0	Quasi-peak
	960MHz-1GHz	54.0	Quasi-peak
	Above 1GHz	54.0	Average Value
		74.0	Peak Value
Test Setup:			

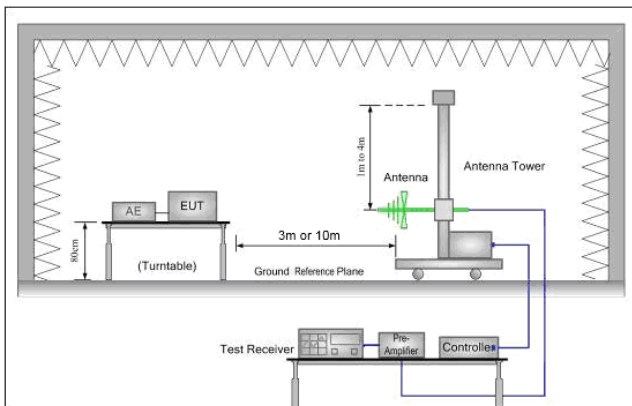


Figure 1. 30MHz to 1GHz

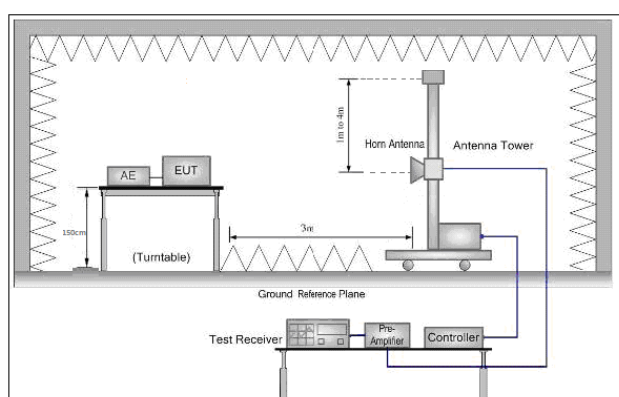


Figure 2. Above 1 GHz

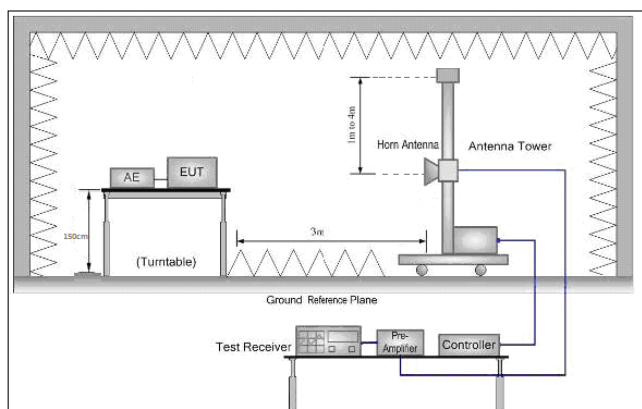


Figure 3. Above 1 GHz



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Test Procedure:	<ul style="list-style-type: none"> <li>a. For below 1GHz, the EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 or 10 meter semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.</li> <li>b. For above 1GHz, the EUT was placed on the top of a rotating table 1.5 meters above the ground at a 3 meter semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.</li> <li>c. The EUT was set 3 or 10 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.</li> <li>d. The antenna height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.</li> <li>e. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.</li> <li>f. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.</li> <li>g. Place a marker at the end of the restricted band closest to the transmit frequency to show compliance. Also measure any emissions in the restricted bands. Save the spectrum analyzer plot. Repeat for each power and modulation for lowest and highest channel</li> <li>h. Test the EUT in the lowest channel , the Highest channel</li> <li>i. The radiation measurements are performed in X, Y, Z axis positioning for Transmitting mode, And found the X axis positioning which it is worse case.</li> <li>j. Repeat above procedures until all frequencies measured was complete.</li> </ul>
Exploratory Test Mode:	Transmitting with GFSK modulation. Charge + Transmitting mode.
Final Test Mode:	Transmitting with GFSK modulation. Pretest the EUT at Charge + Transmitting mode. Only the worst case is recorded in the report.
Instruments Used:	Refer to section 5.10 for details
Test Results:	Pass

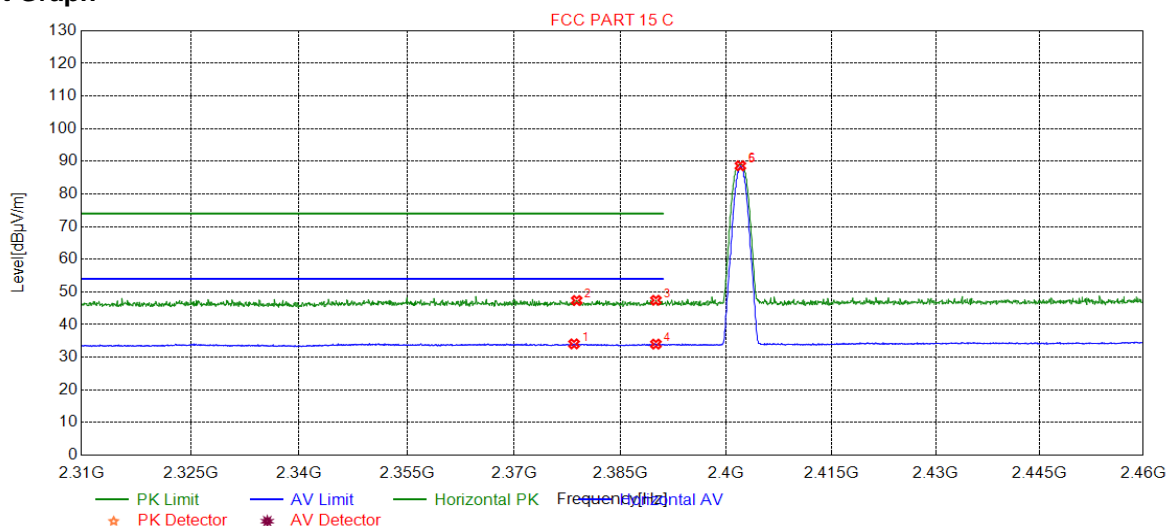


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### 4.10.1 Test Plots

#### 4.10.1.1 BLE 1M\_Channel 0

#### Test Graph



#### Suspected List

Suspected List							
NO.	Freq. [MHz]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	2378.434	34.09	54.00	19.91	182	210	Horizontal
2	2378.809	47.39	74.00	26.61	241	60	Horizontal
3	2390.000	47.45	74.00	26.55	182	287	Horizontal
4	2390.000	34.03	54.00	19.97	304	54	Horizontal
5	2402.000	88.64	0.00	-88.64	244	336	Horizontal
6	2402.000	88.97	0.00	-88.97	337	332	Horizontal

#### Final Data List



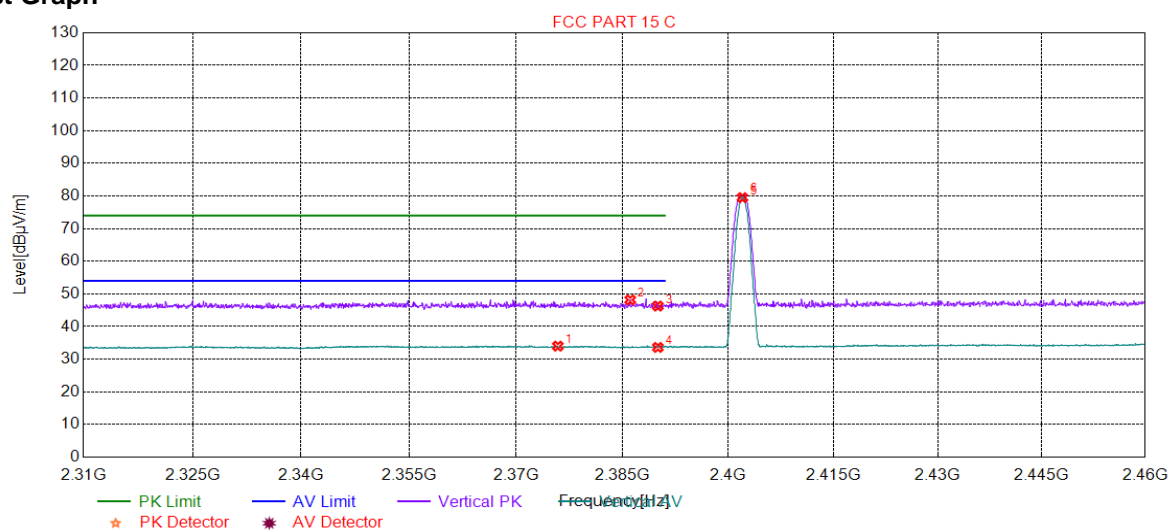
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### 4.10.1.2 BLE 1M\_Channel 0

#### Test Graph



#### Suspected List

Suspected List							
NO.	Freq. [MHz]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	2375.882	34.02	54.00	19.98	225	91	Vertical
2	2386.088	48.19	74.00	25.81	158	260	Vertical
3	2390.000	46.30	74.00	27.70	209	201	Vertical
4	2390.000	33.63	54.00	20.37	144	154	Vertical
5	2402.000	79.51	0.00	-79.51	192	139	Vertical
6	2402.000	80.34	0.00	-80.34	173	139	Vertical

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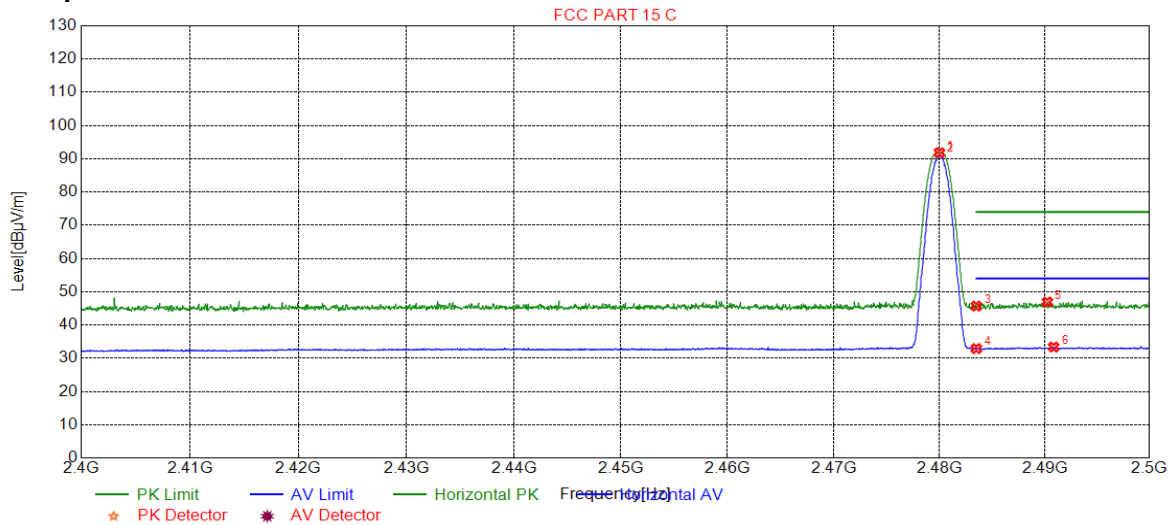
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### 4.10.1.3 BLE 1M\_Channel 39

#### Test Graph



#### Suspected List

Suspected List							
NO.	Freq. [MHz]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	2480.000	91.85	0.00	-91.85	143	318	Horizontal
2	2480.000	91.18	0.00	-91.18	277	315	Horizontal
3	2483.500	45.71	74.00	28.29	229	70	Horizontal
4	2483.500	32.94	54.00	21.06	114	288	Horizontal
5	2490.245	46.93	74.00	27.07	268	74	Horizontal
6	2490.845	33.40	54.00	20.60	374	96	Horizontal

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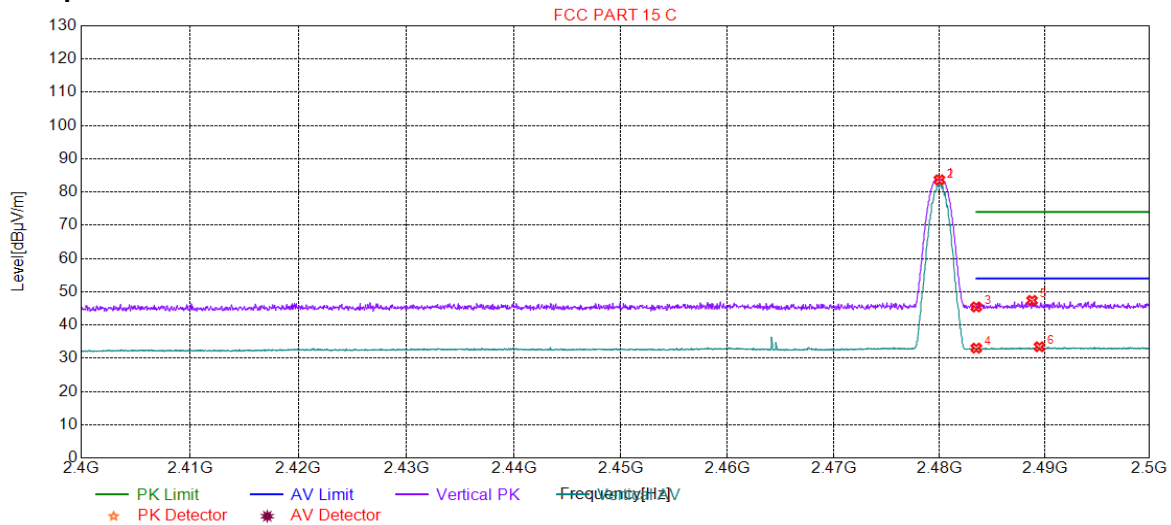
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### 4.10.1.4 BLE 1M\_Channel 39

#### Test Graph



#### Suspected List

Suspected List							
NO.	Freq. [MHz]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	2480.000	83.67	0.00	-83.67	233	125	Vertical
2	2480.000	83.15	0.00	-83.15	218	125	Vertical
3	2483.500	45.46	74.00	28.54	383	328	Vertical
4	2483.500	33.07	54.00	20.93	116	275	Vertical
5	2488.794	47.42	74.00	26.58	183	188	Vertical
6	2489.494	33.48	54.00	20.52	107	230	Vertical

#### Final Data List



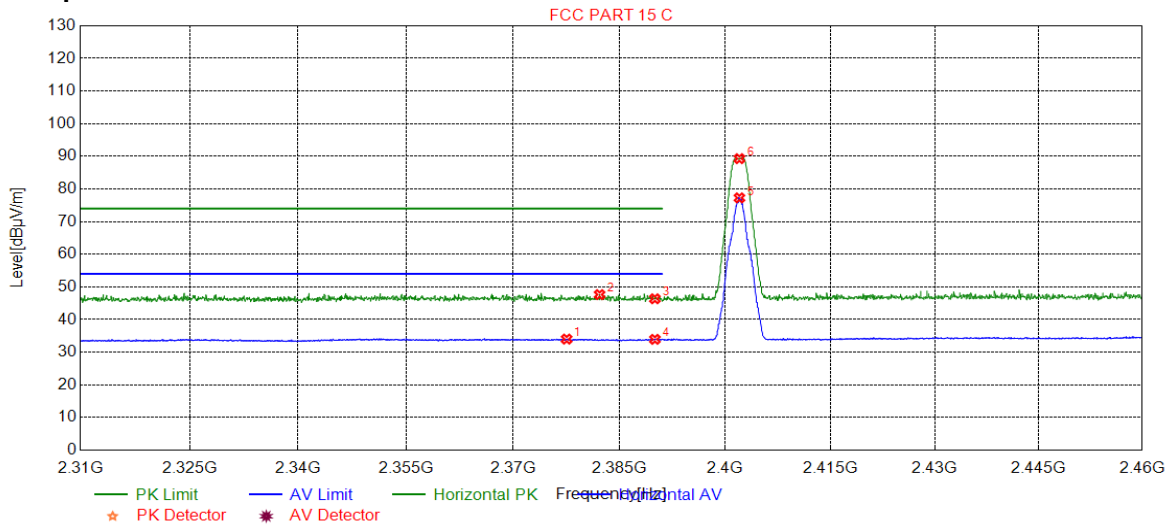
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### 4.10.1.5 BLE 2M\_Channel 0

#### Test Graph



#### Suspected List

Suspected List							
NO.	Freq. [MHz]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	2377.533	34.03	54.00	19.97	151	346	Horizontal
2	2382.186	47.66	74.00	26.34	379	202	Horizontal
3	2390.000	46.38	74.00	27.62	237	172	Horizontal
4	2390.000	33.96	54.00	20.04	345	217	Horizontal
5	2402.000	77.29	0.00	-77.29	333	330	Horizontal
6	2402.000	89.31	0.00	-89.31	345	330	Horizontal

#### Final Data List

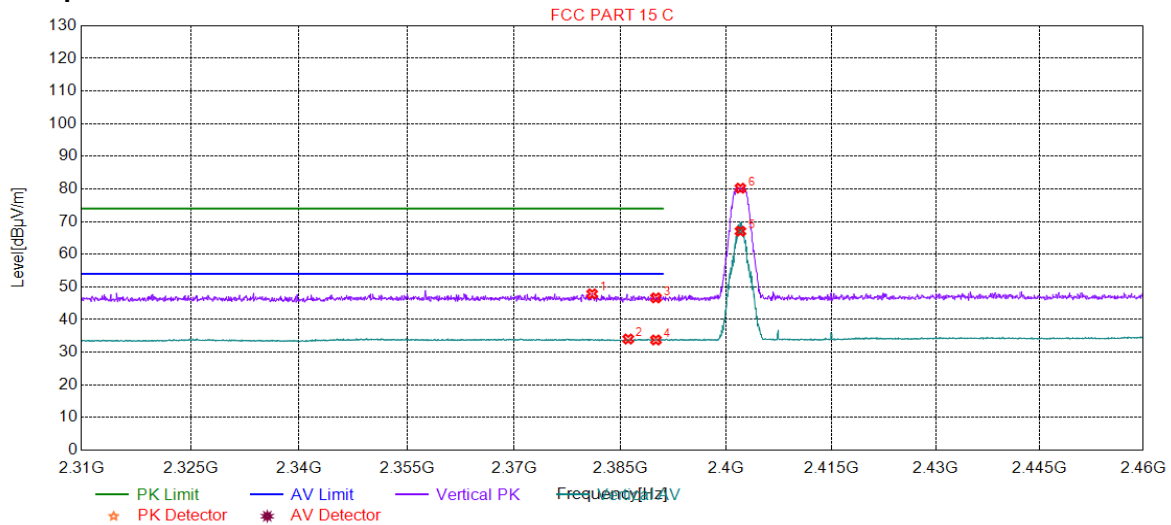


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### 4.10.1.6 BLE 2M\_Channel 0

#### Test Graph



#### Suspected List

Suspected List							
NO.	Freq. [MHz]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	2380.985	47.88	74.00	26.12	120	3	Vertical
2	2386.088	34.05	54.00	19.95	213	313	Vertical
3	2390.000	46.66	74.00	27.34	177	294	Vertical
4	2390.000	33.76	54.00	20.24	155	151	Vertical
5	2402.000	67.07	0.00	-67.07	376	56	Vertical
6	2402.000	80.26	0.00	-80.26	305	120	Vertical

#### Final Data List



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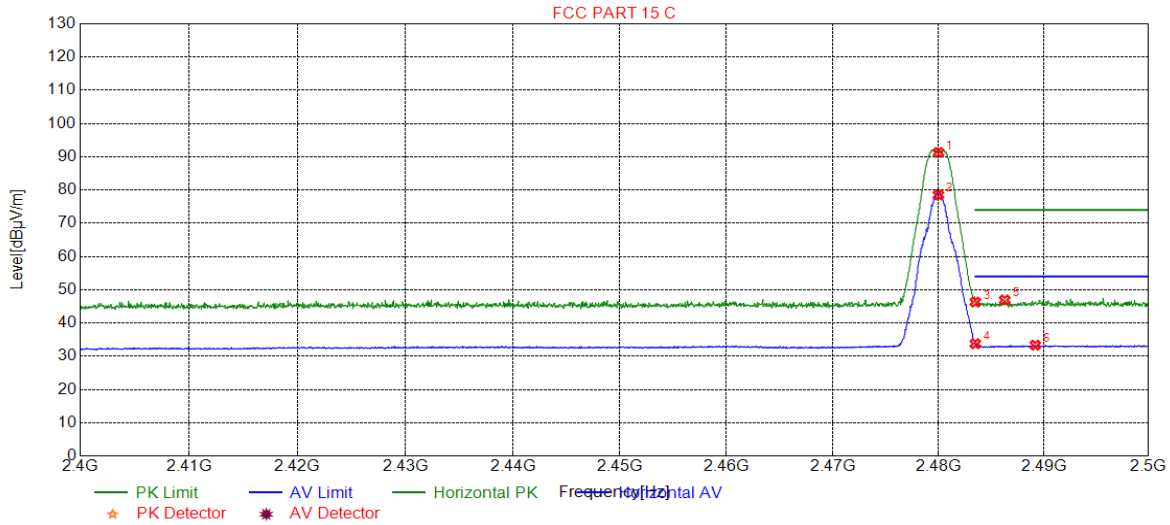
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### 4.10.1.7 BLE 2M\_Channel 39

#### Test Graph



#### Suspected List

Suspected List							
NO.	Freq. [MHz]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	2480.000	91.30	0.00	-91.30	386	313	Horizontal
2	2480.000	78.54	0.00	-78.54	119	14	Horizontal
3	2483.500	46.33	74.00	27.67	267	101	Horizontal
4	2483.500	33.81	54.00	20.19	285	14	Horizontal
5	2486.293	46.94	74.00	27.06	336	301	Horizontal
6	2489.194	33.37	54.00	20.63	208	339	Horizontal

#### Final Data List

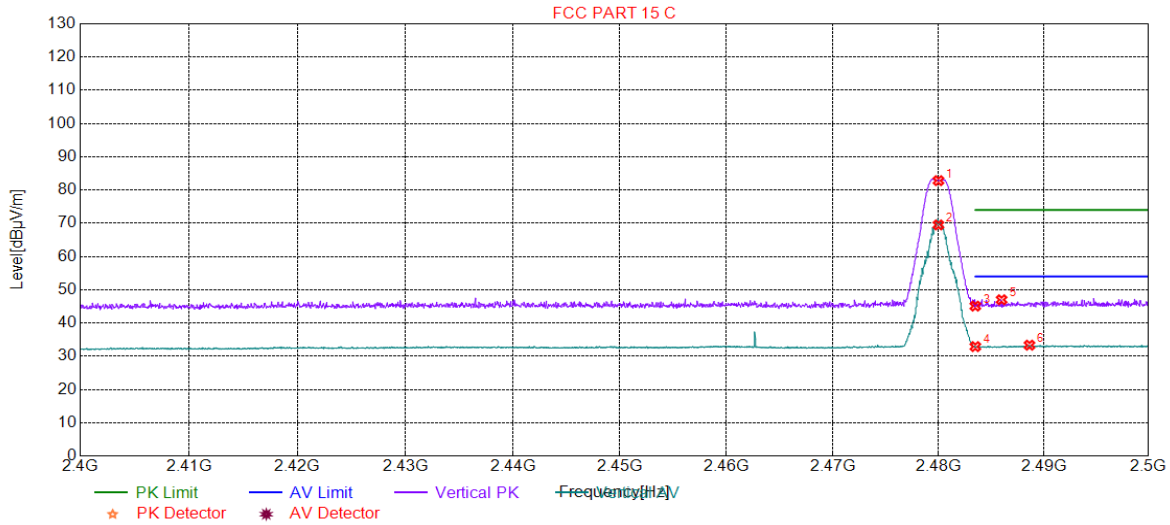


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### 4.10.1.8 BLE 2M\_Channel 39

#### Test Graph



#### Suspected List

Suspected List							
NO.	Freq. [MHz]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	2480.000	82.83	0.00	-82.83	204	122	Vertical
2	2480.000	69.52	0.00	-69.52	375	183	Vertical
3	2483.500	45.10	74.00	28.90	321	153	Vertical
4	2483.500	32.92	54.00	21.08	268	54	Vertical
5	2485.993	47.02	74.00	26.98	116	137	Vertical
6	2488.644	33.36	54.00	20.64	349	194	Vertical

#### Final Data List

#### Remark:

The field strength is calculated by adding the Antenna Factor, Cable Factor & Preamplifier. The basic equation with a sample calculation is as follows:

Final Test Level = Receiver Reading + Antenna Factor + Cable Factor – Preamplifier Factor

All Modes have been tested, but only the worst case data displayed in this report.



## 5 Measurement Uncertainty (95% confidence levels, k=2)

No.	Item	Measurement Uncertainty
1	Total RF power, conducted	±0.75dB
2	RF power density, conducted	±2.84dB
3	Spurious emissions, conducted	±0.75dB
4	Radiated Spurious emission test	±4.5dB (30MHz-1GHz)
		±4.8dB (1GHz-25GHz)
5	Conduct emission test	±3.12 dB(9KHz- 30MHz)
6	Temperature test	±1°C
7	Humidity test	±3%
8	DC and low frequency voltages	±0.5%



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## 6 Equipment List

Conducted Emission					
Test Equipment	Manufacturer	Model No.	Inventory No	Cal. date	Cal.Duedate
				(yyyy-mm-dd)	(yyyy-mm-dd)
Shielding Room	ZhongYu Electron	GB-88	SEM001-06	2020/5/10	2023/5/9
LISN	Rohde & Schwarz	ENV216	SEM007-01	2020/7/14	2021/7/14
LISN	ETS-LINDGREN	Feb-16	SEM007-02	2020/4/1	2021/3/31
Measurement Software	AUDIX	e3 V5.4.1221c	N/A	N/A	N/A
Coaxial Cable	SGS	N/A	SEM024-01	2020/6/12	2021/6/11
2 Line ISN	Fischer Custom Communications Inc	FCC-TLISN-T202	EMC0122	2020/2/11	2021/2/10
EMI Test Receiver	Rohde & Schwarz	ESCI	SEM004-02	2020/3/2	2021/3/1

RF conducted test					
Test Equipment	Manufacturer	Model No.	Inventory No	Cal. date	Cal.Duedate
				(yyyy-mm-dd)	(yyyy-mm-dd)
DC Power Supply	Agilent Technologie Inc	66311B	W009-09	2020/7/15	2021/7/15
Signal Analyzer	Rohde & Schwarz	FSV	W025-05	2020/1/3	2021/1/2
Coaxial Cable	SGS	N/A	SEM031-01	2020/6/12	2021/6/11
Attenuator	Weinschel Associates	WA41	SEM021-09	N/A	N/A
Signal Generator	KEYSIGHT	N5173B	SEM006-05	2020/7/14	2021/7/14
Temperature Chamber	GIANT FORCE	ICT-150-40-CPAR	W027-03	2020/10/27	2021/10/27
Power Meter	Rohde & Schwarz	NRVS	SEM014-02	2020/7/14	2021/7/14



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RE in Chamber					
Test Equipment	Manufacturer	Model No.	Inventory No.	Cal. date	Cal.Due date
				(yyyy-mm-dd)	(yyyy-mm-dd)
3m Semi-Anechoic Chamber	AUDIX	N/A	SEM001-02	2018/3/13	2021/3/12
Measurement Software	AUDIX	e3V8.2014-6-2	N/A	N/A	N/A
Coaxial Cable	SGS	N/A	SEM026-01	2020/6/12	2021/6/11
EXA Signal Analyzer (10Hz-26.5GHz)	Agilent Technologie Inc	N9010A	SEM004-09	2020/3/12	2021/3/11
BiConiLog Antenna (26-3000MHz)	ETS-Lindgren	3142C	SEM003-01	2020/6/27	2023/6/26
Horn Antenna (0.8-18GHz)	Rohde & Schwarz	HF907	SEM003-07	2018/4/13	2021/4/12
Pre-amplifier(0.1-1.3GHz)	HP	8447D	SEM005-02	2020/7/14	2021/7/14
Low Noise Amplifier(100MHz-18GHz)	Black Diamond Series	BDLNA-0118-352810	SEM005-05	2020/9/3	2021/9/2
Horn Antenna (15-40GHz)	Schwarzbeck	BBHA 9170	SEM003-15	2020/10/17	2023/10/16
Pre-amplifier(18-26GHz)	Rohde & Schwarz	CH14-H052	SEM005-17	2020/3/2	2021/3/1
Band filter	N/A	N/A	SEM023-01	N/A	N/A
RE in Chamber					
Test Equipment	Manufacturer	Model No.	Inventory No.	Cal. date	Cal.Due date
				(yyyy-mm-dd)	(yyyy-mm-dd)
3m Semi-Anechoic Chamber	ETS-LINDGREN	N/A	SEM001-01	2020/8/5	2023/8/4
Measurement Software	AUDIX	e3 V8.2014-6-27	N/A	N/A	N/A
Coaxial Cable	SGS	N/A	SEM025-01	2020/6/12	2021/6/11
MXE EMI Receiver (20Hz-8.4GHz)	Agilent Technologie	N9038A	SEM004-05	2020/7/14	2021/7/14
BiConiLog Antenna (26-3000MHz)	ETS-LINDGREN	3142C	SEM003-01	2020/6/27	2023/6/26
Pre-amplifier (0.1-1.3GHz)	Agilent Technologie	8447D	SEM005-01	2020/3/2	2021/3/1



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RE in Chamber					
Test Equipment	Manufacturer	Model No.	Inventory No	Cal. Date (yyyy-mm-dd)	Cal. Due date (yyyy-mm-dd)
10m Semi-Anechoic Chamber	SAEMC	FSAC1018	SEM001-03	2018/3/31	2021/3/30
EMI Test Receiver (9k-7GHz)	Rohde & Schwarz	ESR	SEM004-03	2020/3/2	2021/3/1
Trilog-Broadband Antenna(25M-2GHz)	Schwarzbeck	VULB9168	SEM003-18	2020/3/15	2022/3/14
Pre-amplifier (9k-1GHz)	Sonoma	310N	SEM005-03	2020/3/12	2021/3/11
Loop Antenna (9kHz-30MHz)	ETS-Lindgren	6502	SEM003-08	2020/8/22	2023/8/21
Measurement Software	AUDIX	e3 V8.2014-6-27	N/A	N/A	N/A
Coaxial Cable	SGS	N/A	SEM029-01	2020/6/12	2021/6/11



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## 7 Photographs - EUT Constructional Details

Refer to Appendix A PCE Setup Photos.

The End



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