

Report No.: AR/2020/C000803-01

Page: 1 of 74

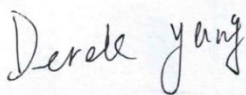
FCC TEST REPORT

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: 2021/4/29

Test Result :	PASS *
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* 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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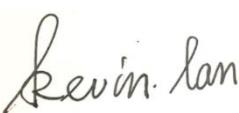

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Shenzhen Branch / 深圳分公司实验室

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1 Version

Revision Record				
Version	Chapter	Date	Modifier	Remark
01		2021/3/8		Original
02		2021/4/29	Kevin.Lan	1.Add test site Information 2.Modify data conversion error of antenna height 3.Update equipment list

This report supersedes our previous report AR/2020/C000803, issued on 2021-03-08, which is hereby deemed null and void.

Authorized for issue by:		
Prepared By		(Kevin.Lan) /Engineer
Checked By		(David Chen) /Reviewer

2 Test Summary

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

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.

All test were performed by Lab A and B.

Parts of test items above were subcontracted to Lab B.

Lab A SGS-CSTC Standards Technical Services Co., Ltd. Shenzhen Branch

Lab B SGS-CSTC STANDARDS TECHNICAL SERVICES (XI 'AN) CO., LTD.



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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

Lab A:

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
Test Engineer	Dee Zheng, Mike Hu

Lab B:

Company:	SGS-CSTC STANDARDS TECHNICAL SERVICES (XI 'AN) CO., LTD.
Address:	1/F, Unit D, Building 1, Kanghong Orange Technology Park, No.137, Keyuan 3rd Road, Fengdong New City, Xi'an, Shaanxi China
Post code:	710086
Test Engineer	Ben Huang, Leah Chen



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3.3 Test Facility

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

Lab A:

• 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.

Lab B:

• A2LA (Certificate No. 4854.01)

SGS-CSTC STANDARDS TECHNICAL SERVICES (XI 'AN) CO., LTD. is accredited by the American Association for Laboratory Accreditation(A2LA). Certificate No. 4854.01.

• FCC –Designation Number: CN1271



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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

Standard requirement:	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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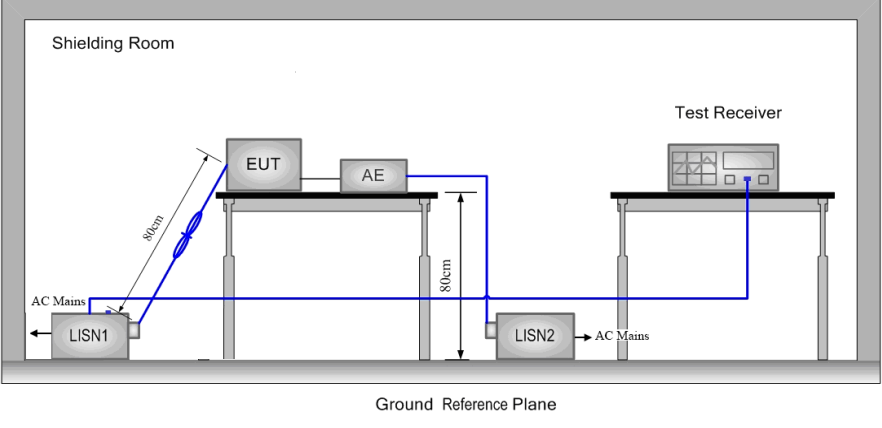
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4.2 AC Power Line Conducted Emissions

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"> 1) The mains terminal disturbance voltage test was conducted in a shielded room. 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. 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. 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. 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. 		



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

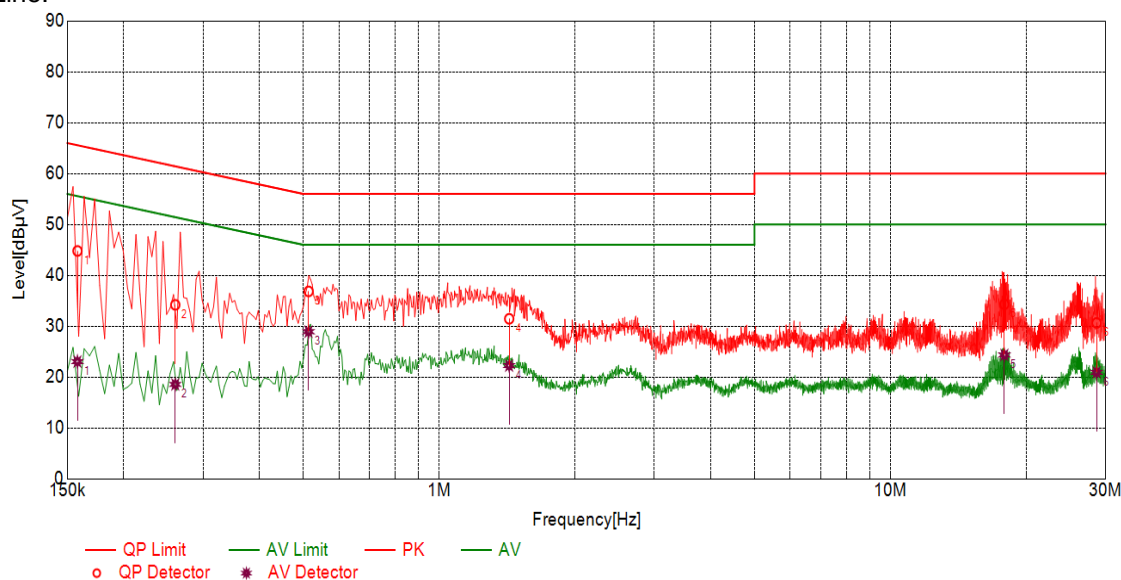


Measurement Data

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

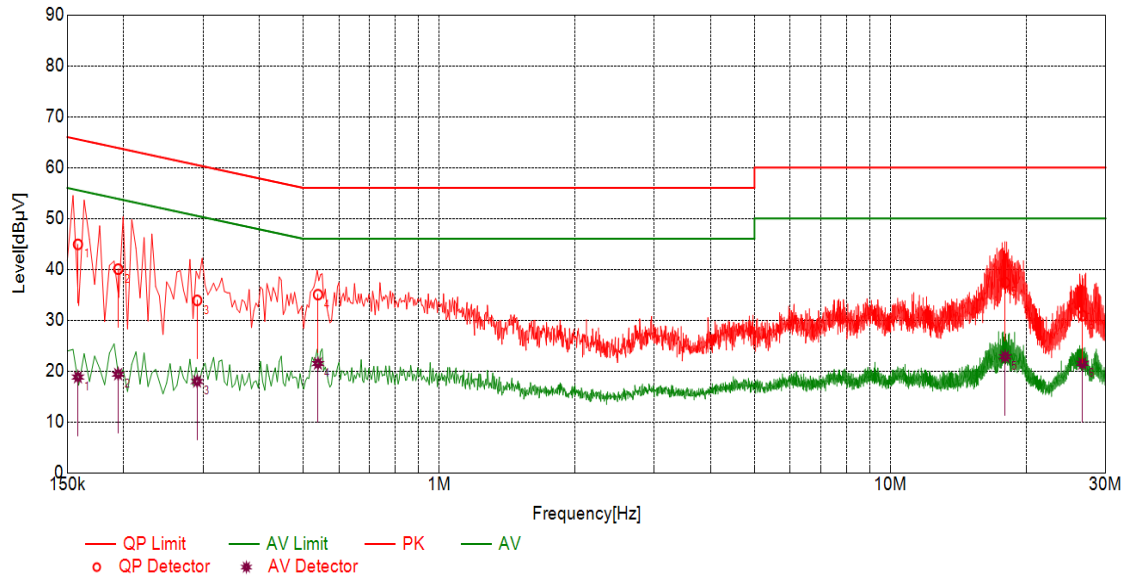


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Shenzhen Branch (SGS-CSTC Laboratory)

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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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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



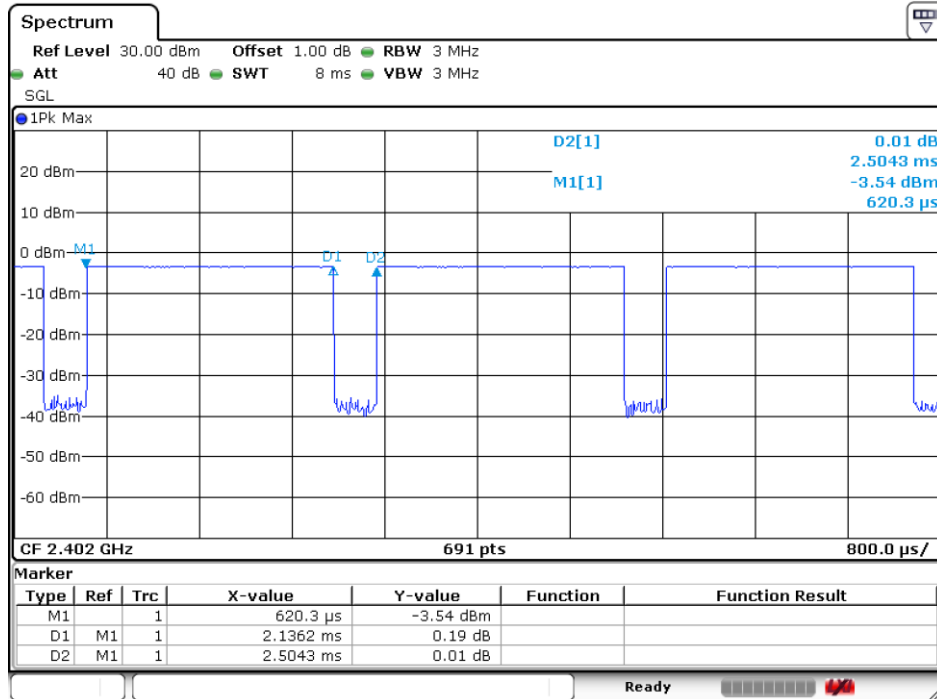
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4.3.2 Test Plots

4.3.2.1 ANT1

4.3.2.1.1 BLE_1M



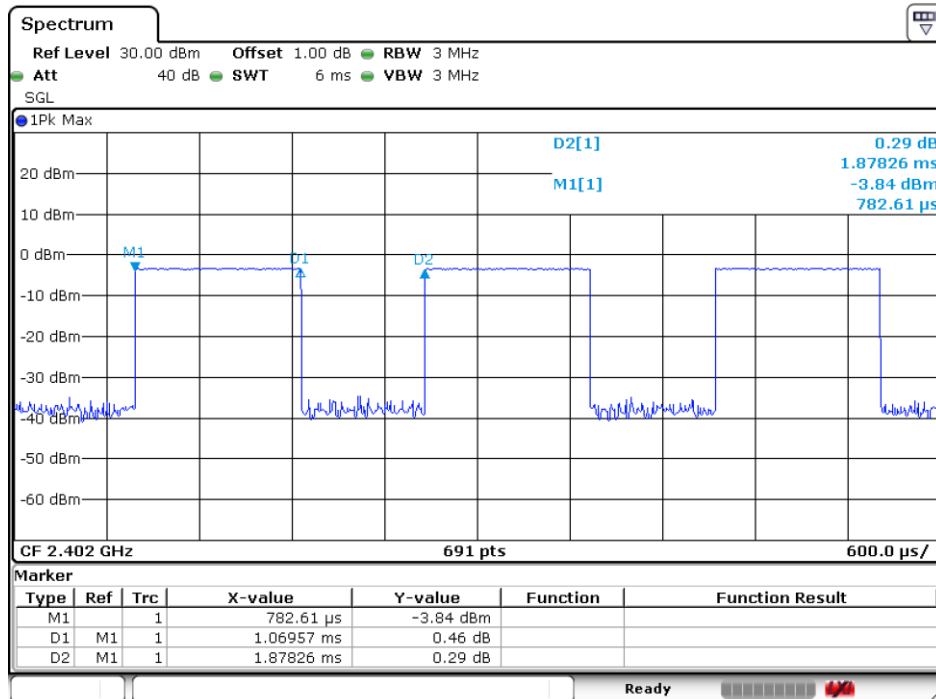
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4.3.2.1.2 BLE_2M



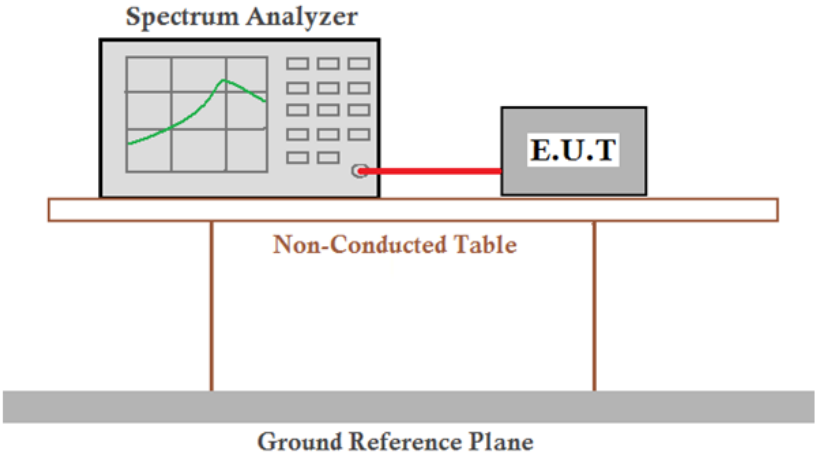
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4.4 Conducted Output Power

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

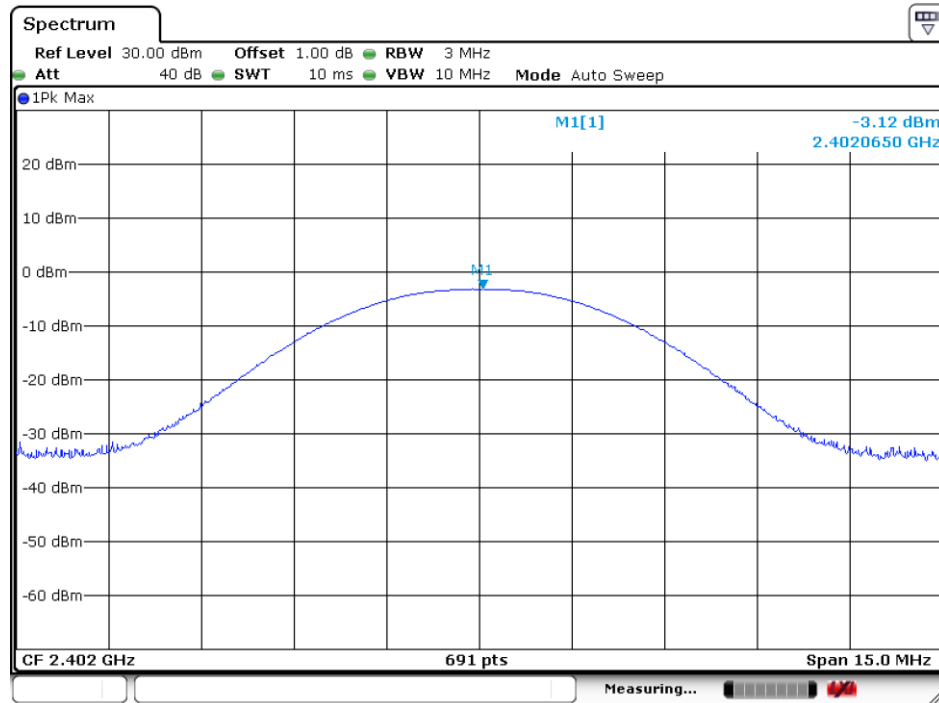


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4.4.2 Test Plots

4.4.2.1 GFSK 1M_Lowest Channel



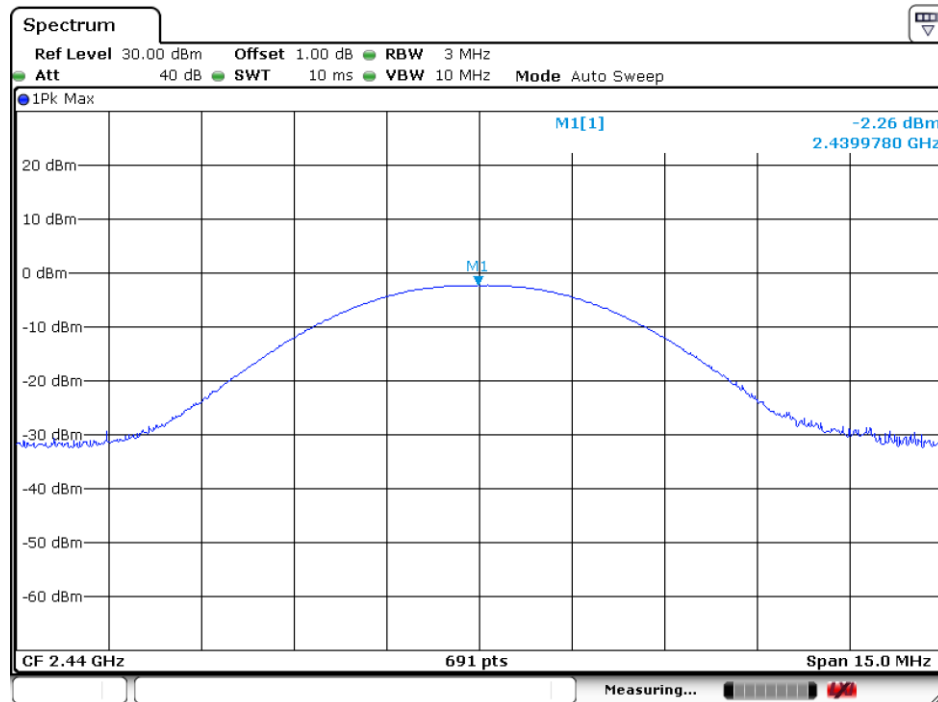
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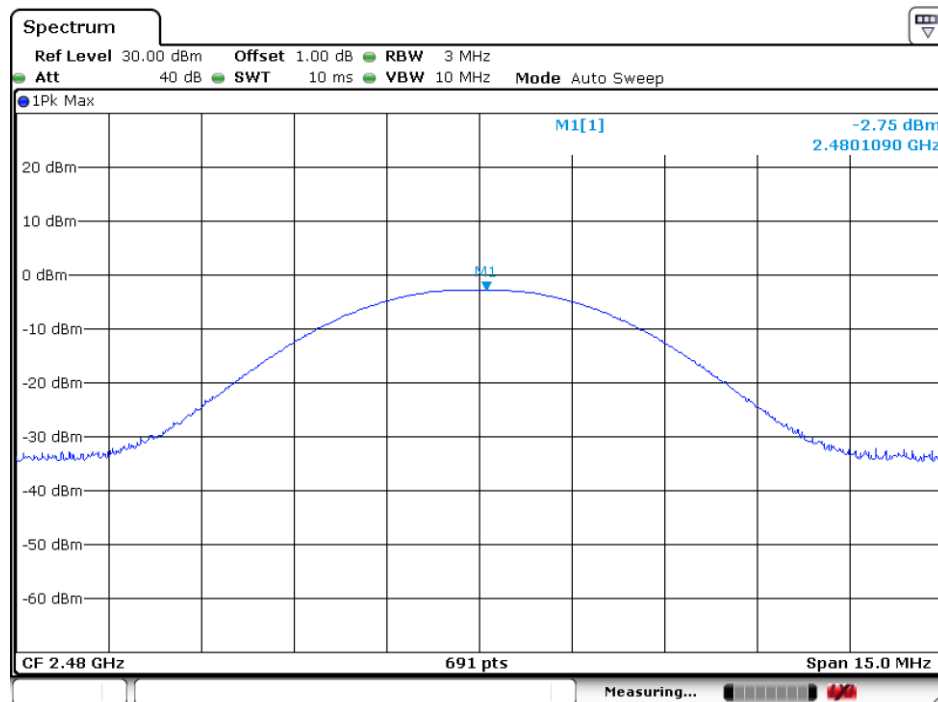
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4.4.2.2 GFSK 1M_Middle Channel



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4.4.2.3 GFSK 1M_Highest Channel

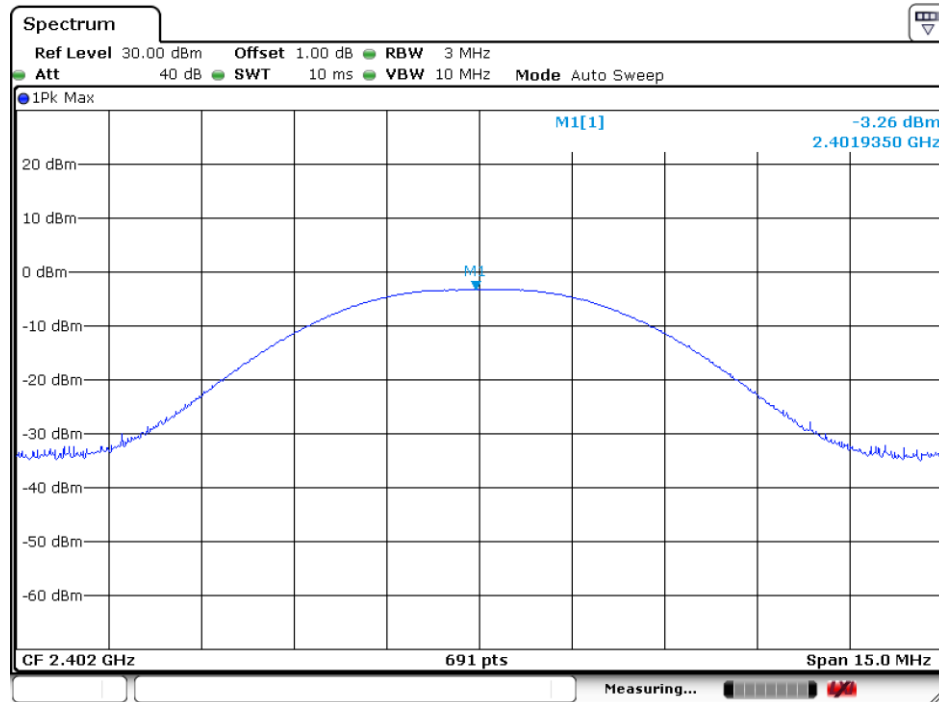


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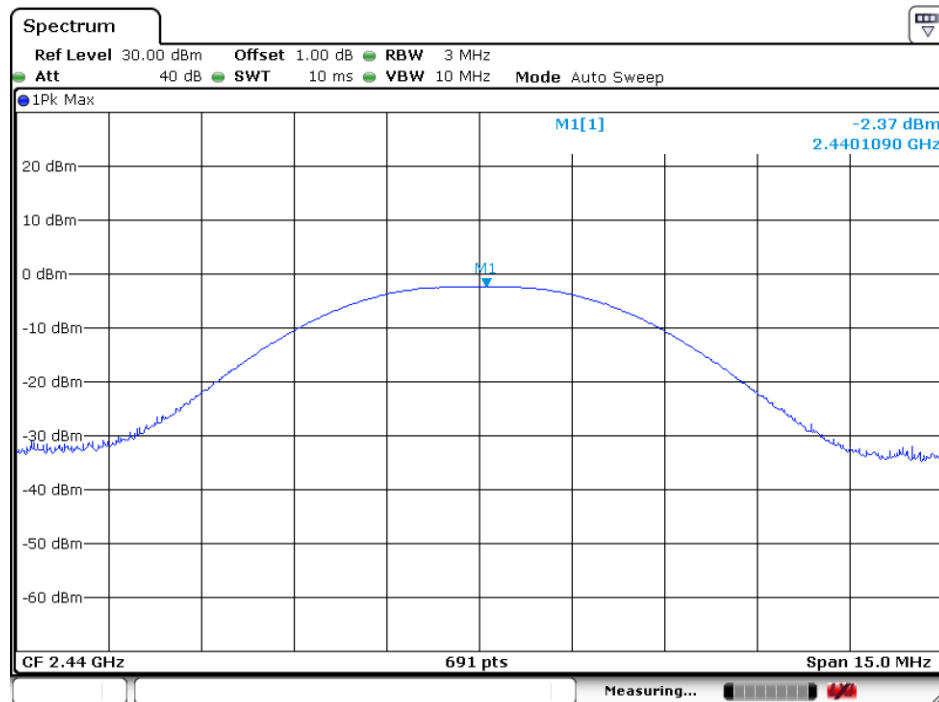
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4.4.2.4 GFSK 2M_Lowest Channel



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4.4.2.5 GFSK 2M_Middle Channel



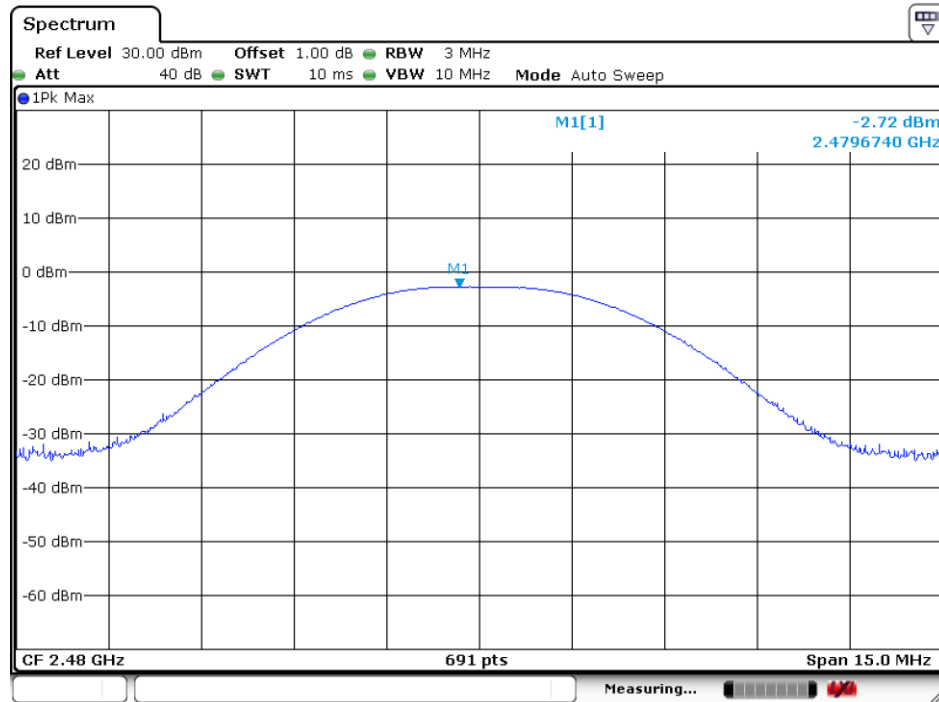
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4.4.2.6 GFSK 2M_Highest Channel



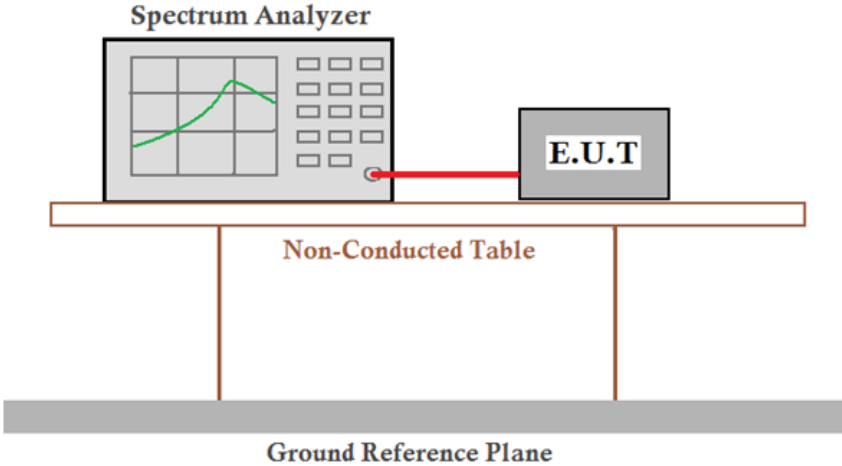
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4.5 DTS (6 dB) Bandwidth

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:	≥ 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	≥ 500	Pass
	Middle	0.68	≥ 500	Pass
	Highest	0.67	≥ 500	Pass

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

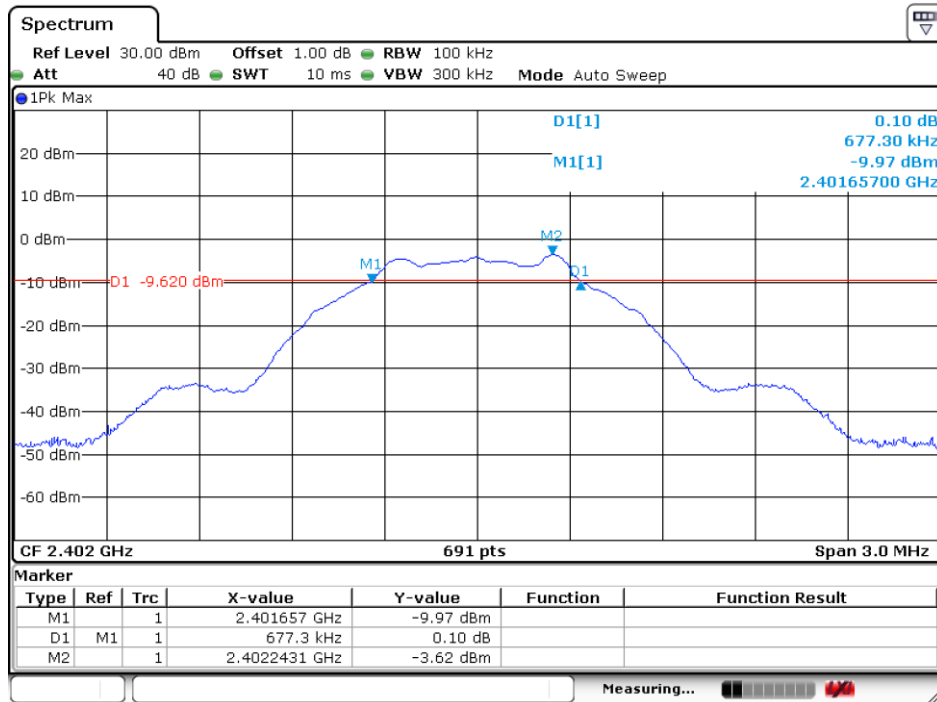


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4.5.2 Test Plots

4.5.2.1 GFSK 1M_Lowest Channel



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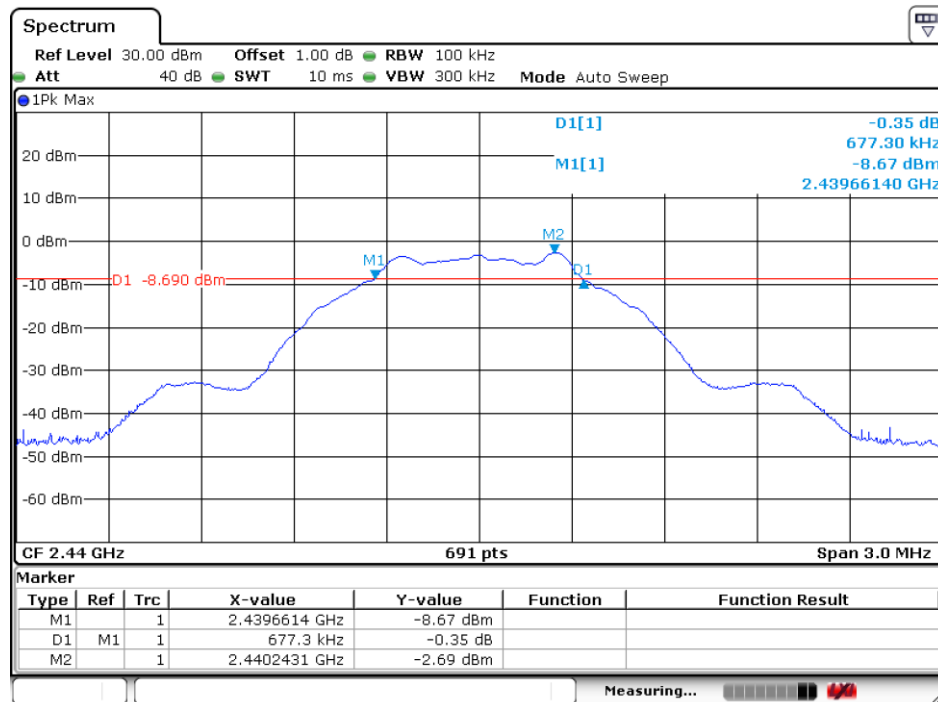
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4.5.2.2 GFSK 1M_Middle Channel



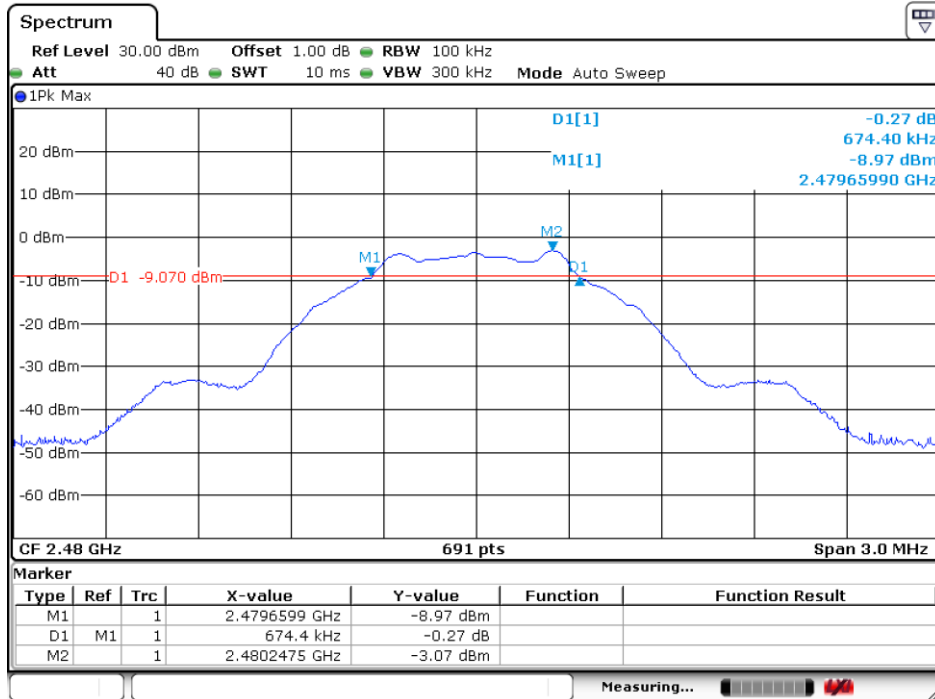
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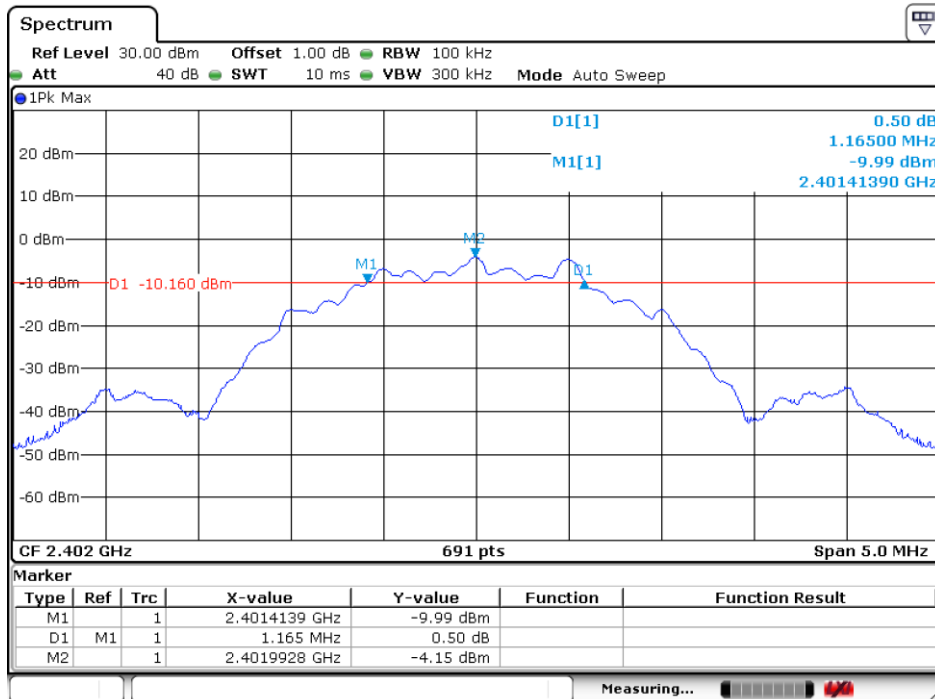
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4.5.2.3 GFSK 1M_Highest Channel



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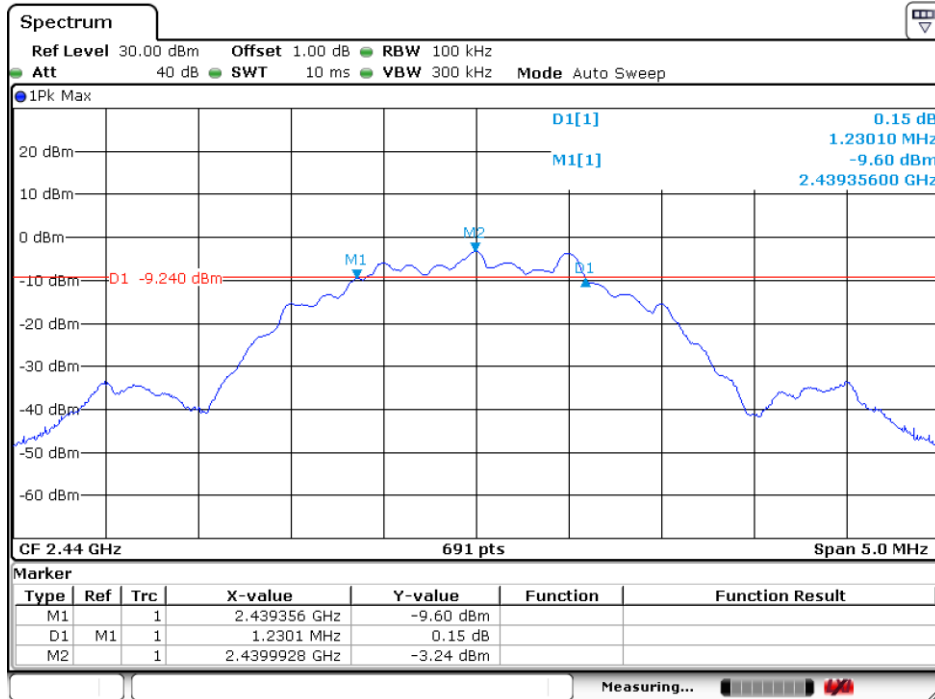
4.5.2.4 GFSK 2M_Lowest Channel



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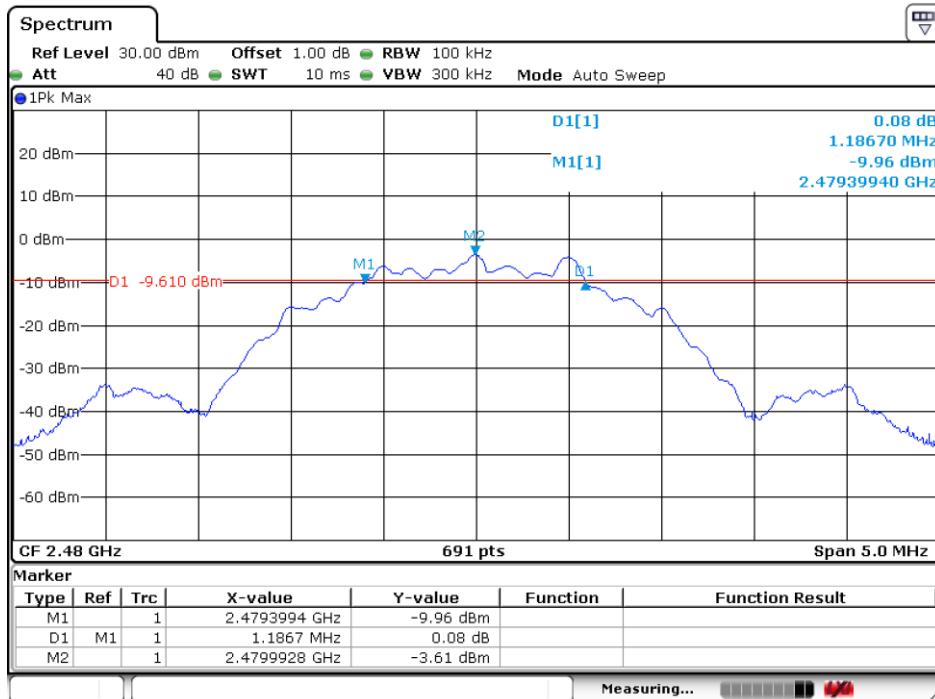


4.5.2.5 GFSK 2M_Middle Channel



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4.5.2.6 GFSK 2M_Highest Channel

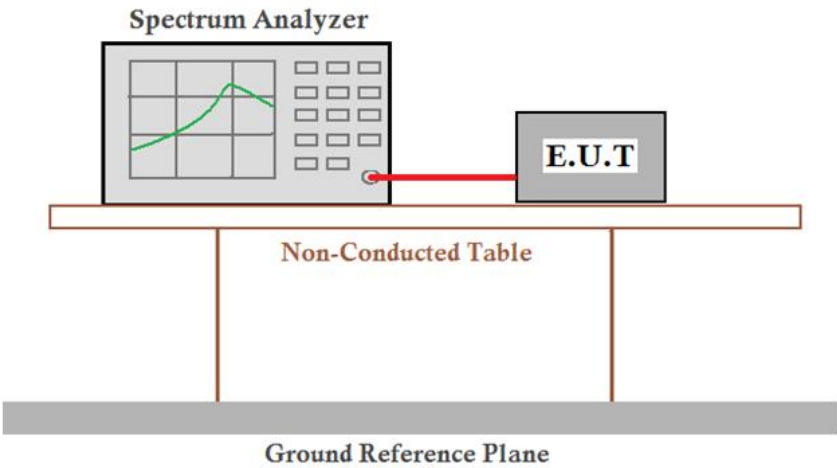


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4.6 Power Spectral Density

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

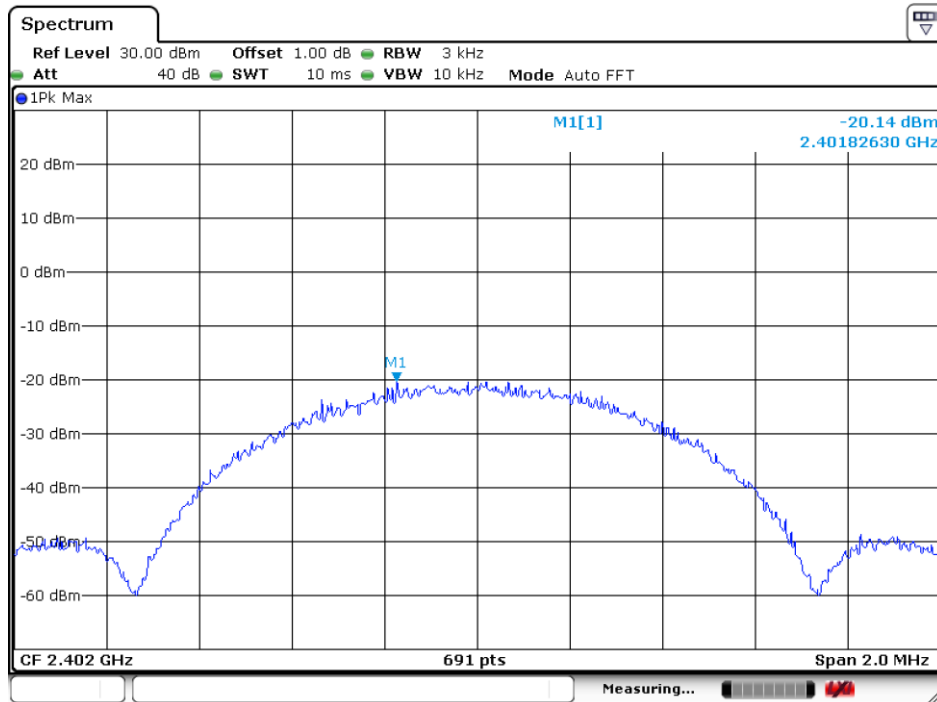


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4.6.2 Test Plots

4.6.2.1 GFSK 1M_Lowest Channel



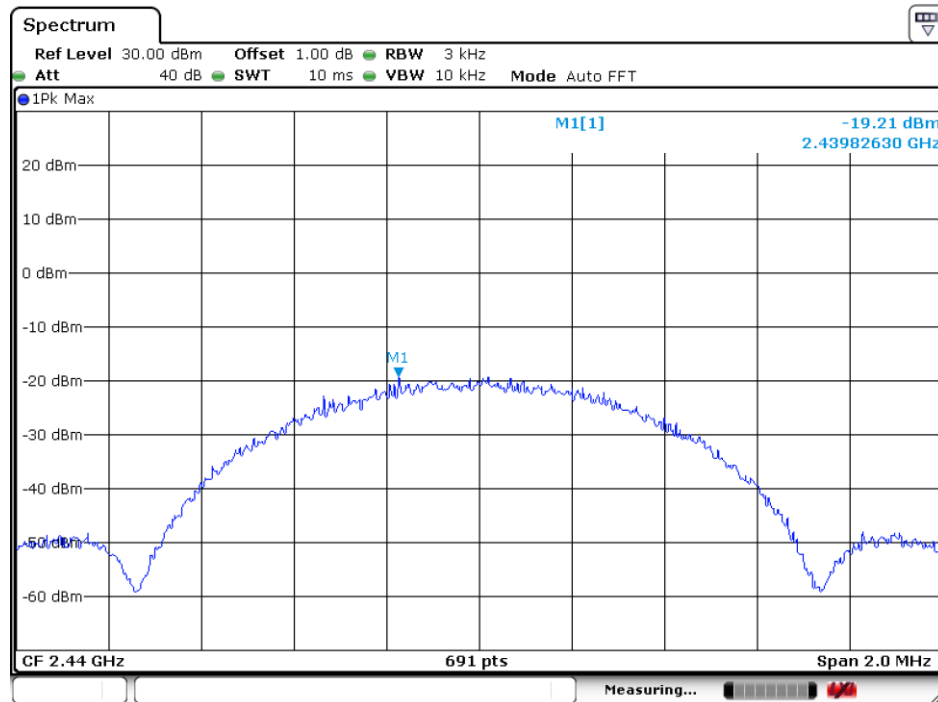
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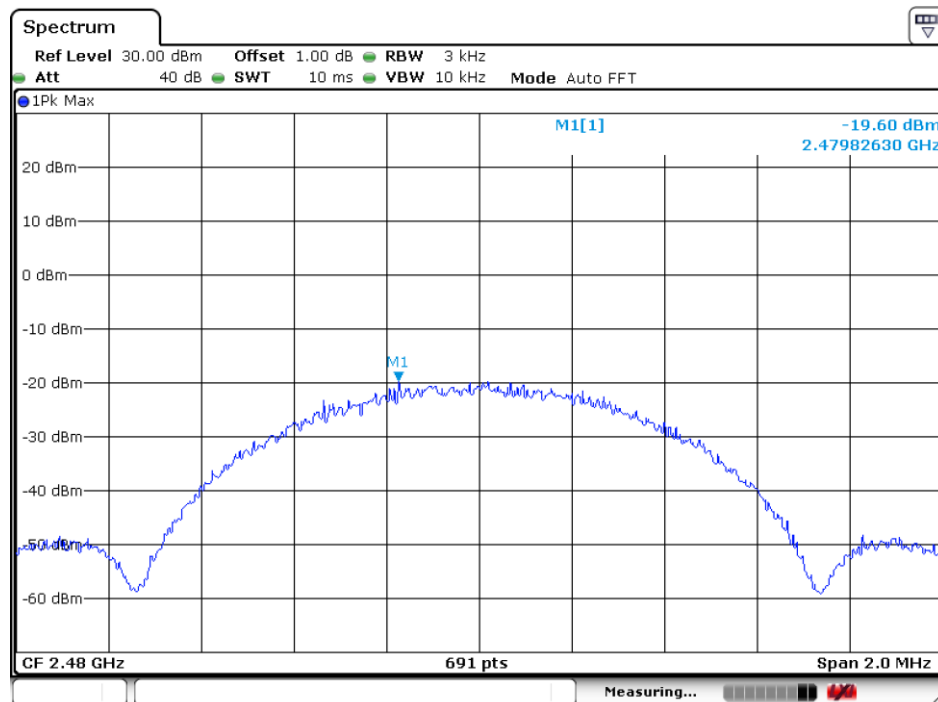
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4.6.2.2 GFSK 1M_Middle Channel



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

4.6.2.3 GFSK 1M_Highest Channel

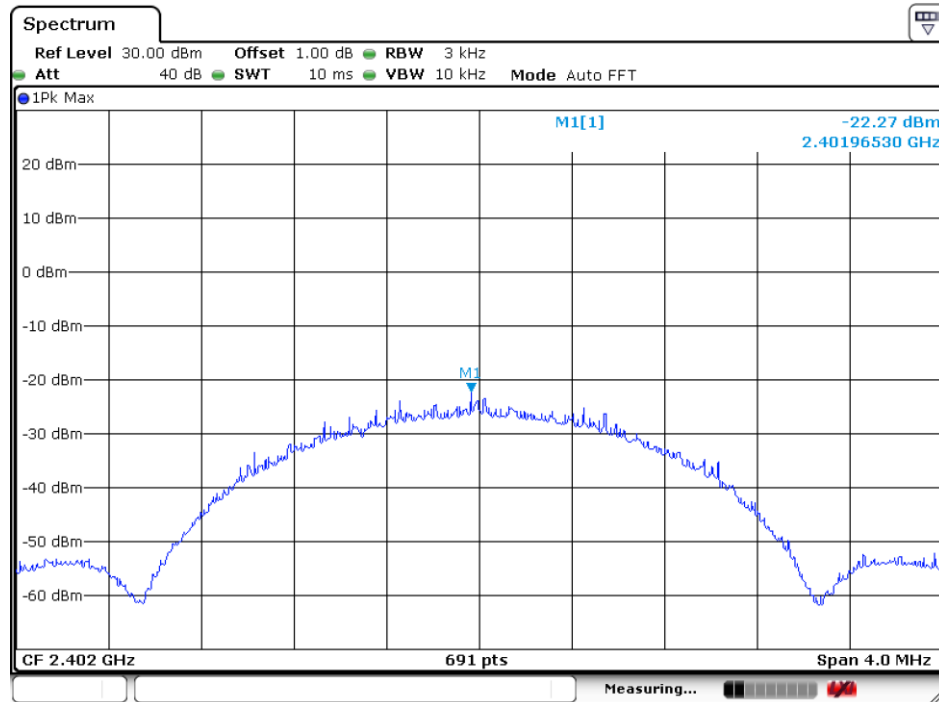


Date: 4.JAN.2021 15:45:00



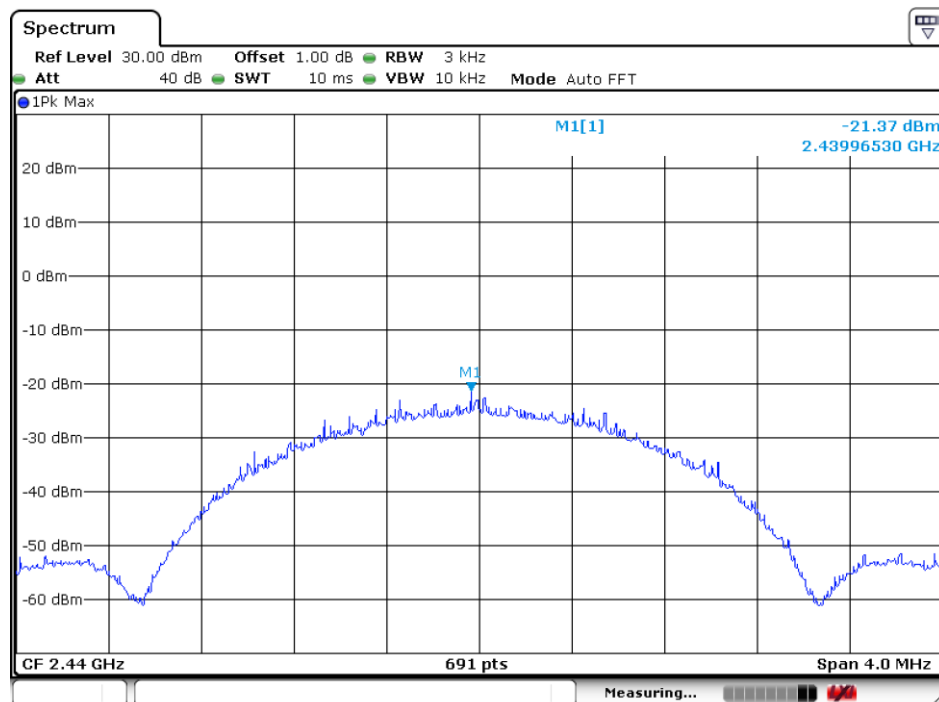
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4.6.2.4 GFSK 2M_Lowest Channel



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

4.6.2.5 GFSK 2M_Middle Channel



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

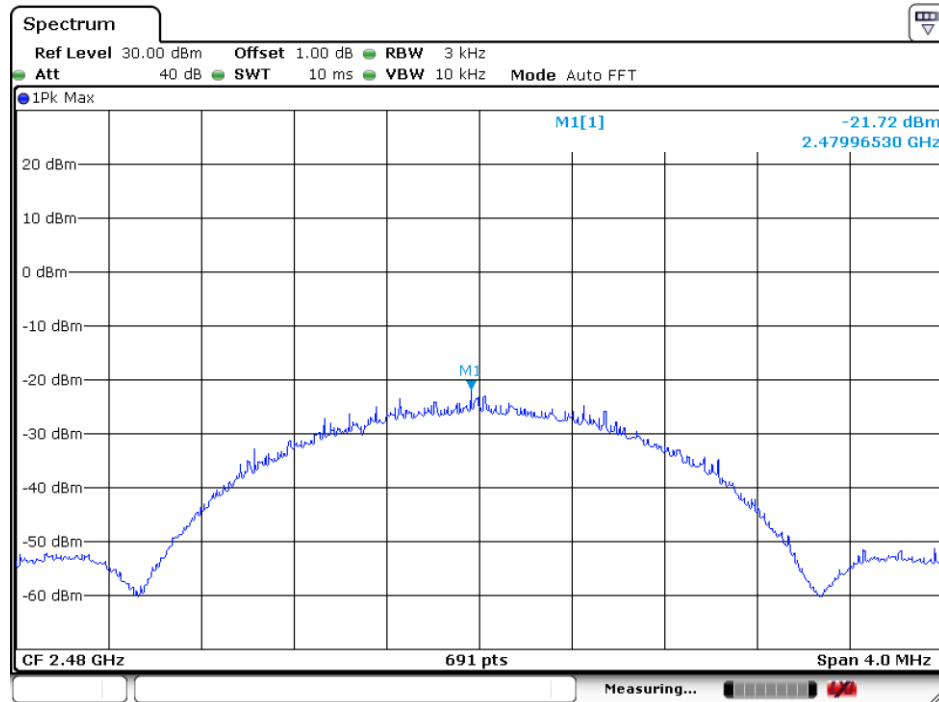


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4.6.2.6

GFSK 2M_Highest Channel



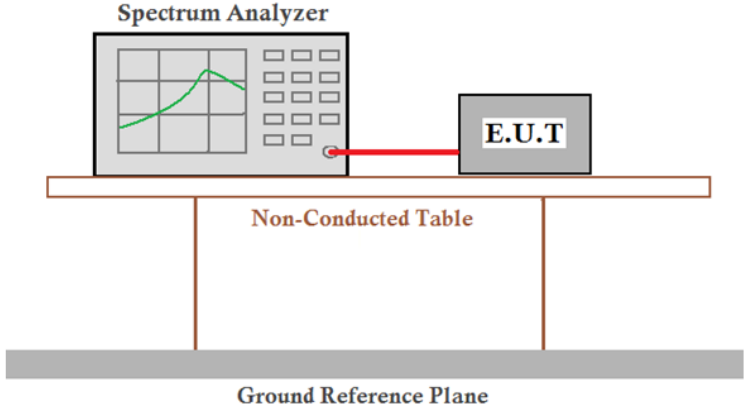
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4.7 Band-edge for RF Conducted Emissions

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

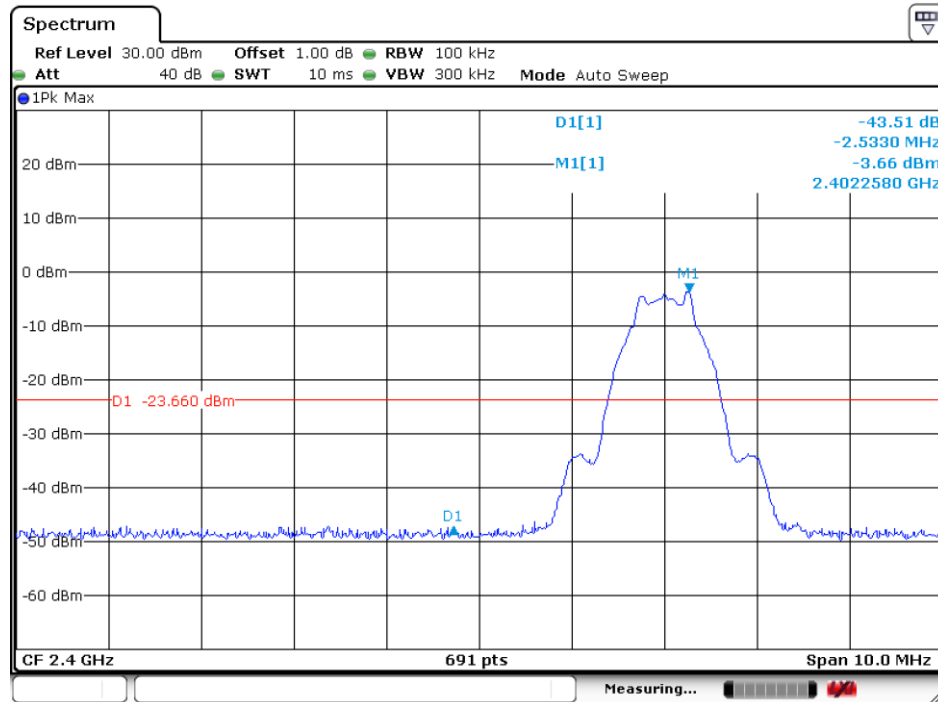


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4.7.1 Test Plots

4.7.1.1 GFSK 1M_Lowest Channel



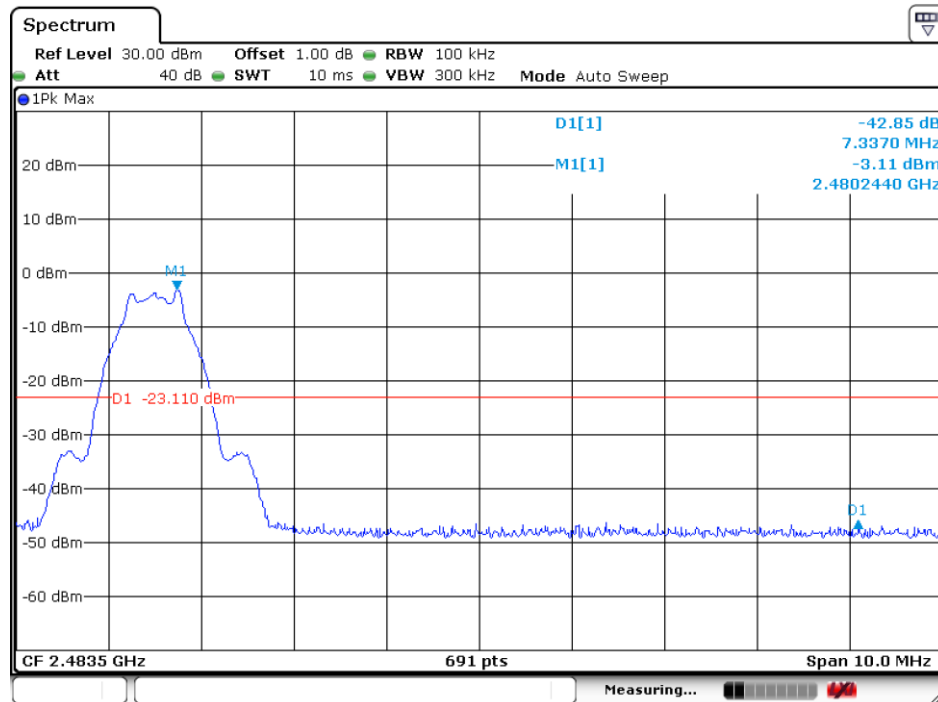
Date: 4.JAN.2021 15:52:18



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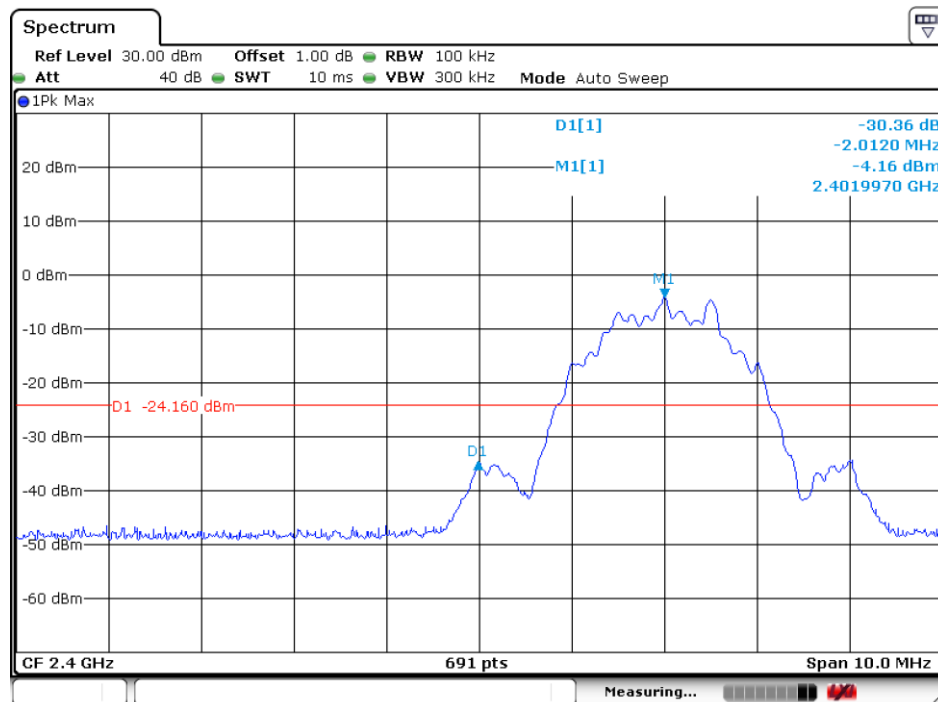
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4.7.1.2 GFSK 1M_Highest Channel



Date: 4.JAN.2021 15:53:26

4.7.1.3 GFSK 2M_Lowest Channel



Date: 4.JAN.2021 15:55:50

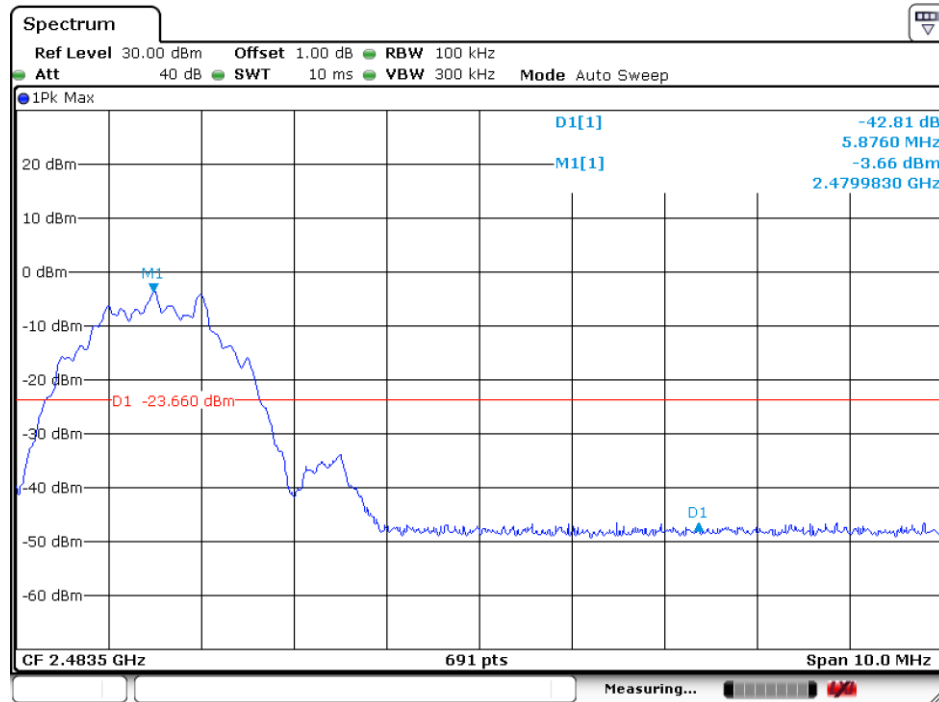


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4.7.1.4 GFSK 2M_Highest Channel



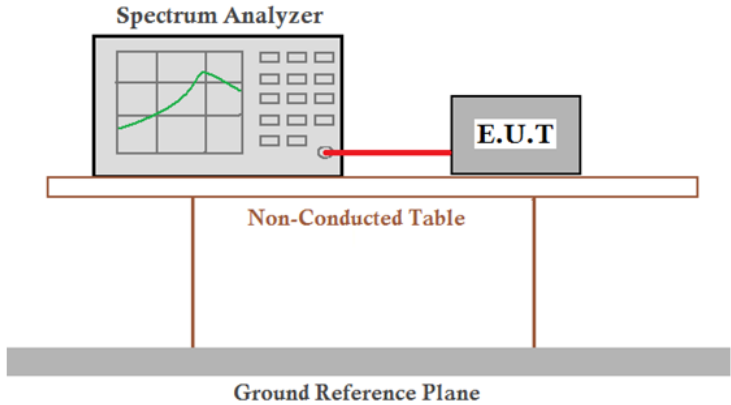
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4.8 RF Conducted Spurious Emissions

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

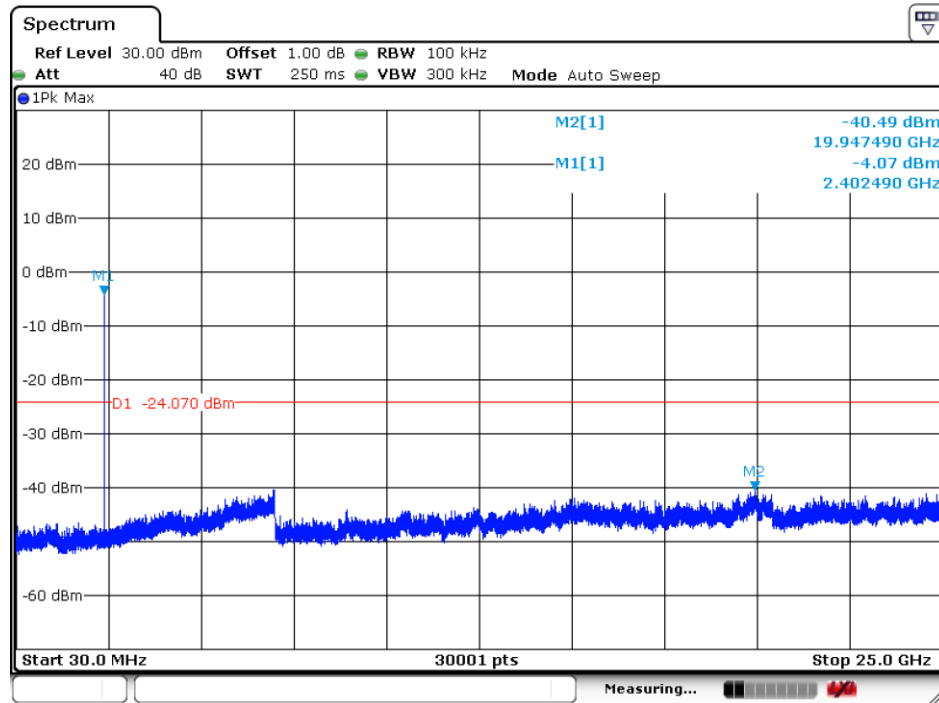


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4.8.1 Test Plots

4.8.1.1 GFSK 1M_Lowest Channel



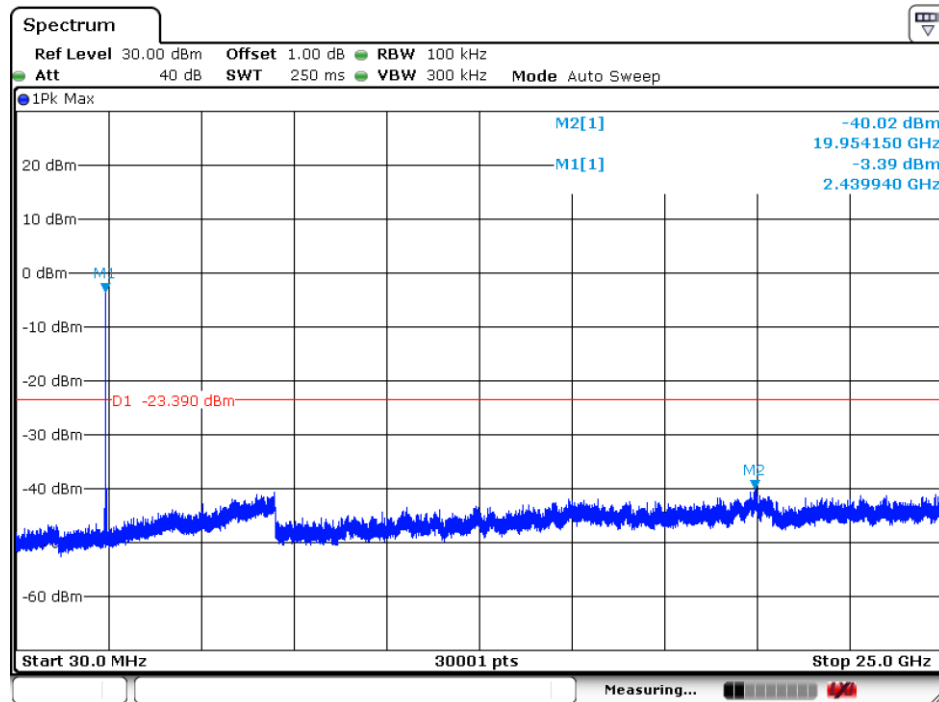
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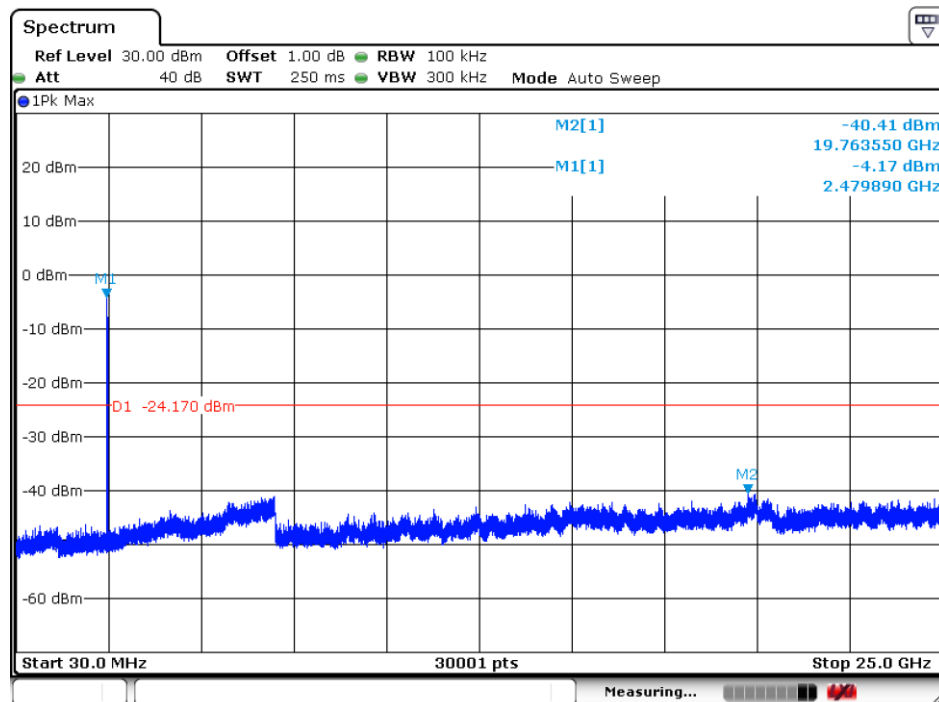
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4.8.1.2 GFSK 1M_Middle Channel



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

4.8.1.3 GFSK 1M_Highest Channel



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

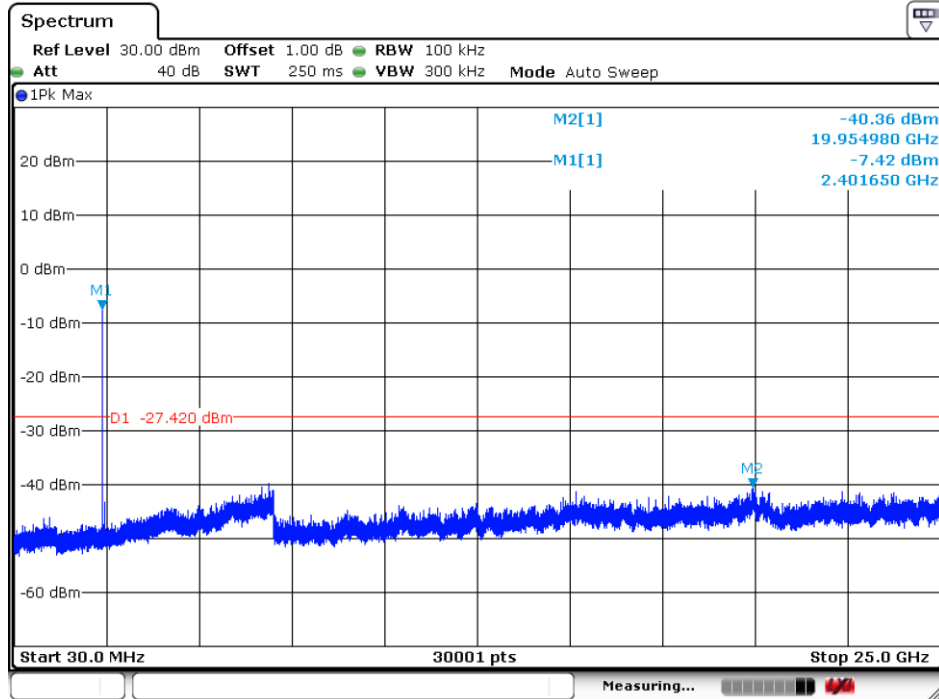


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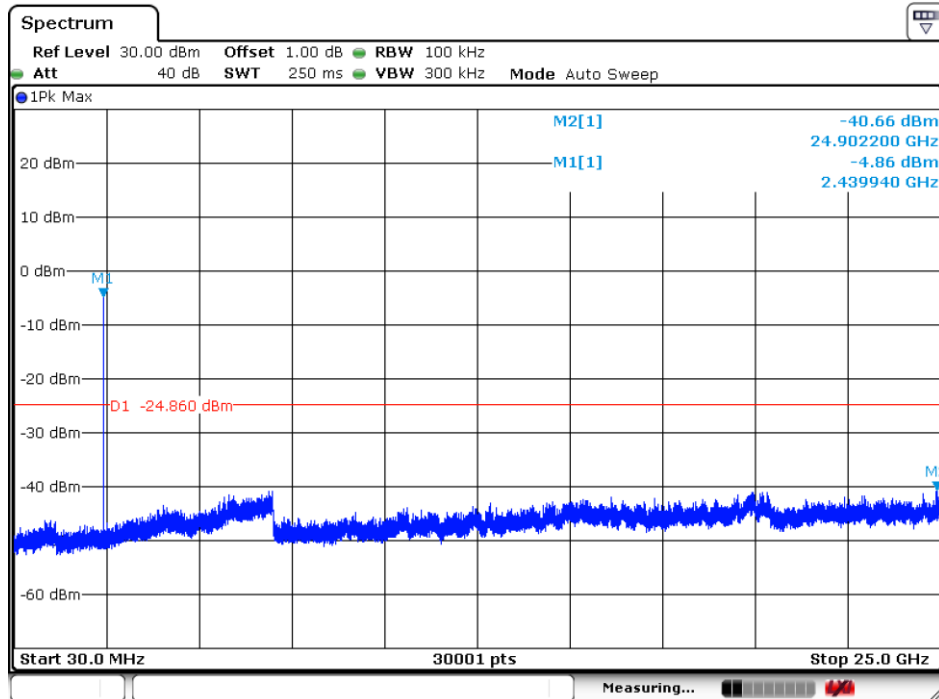
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4.8.1.4 GFSK 2M_Lowest Channel



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

4.8.1.5 GFSK 2M_Middle Channel

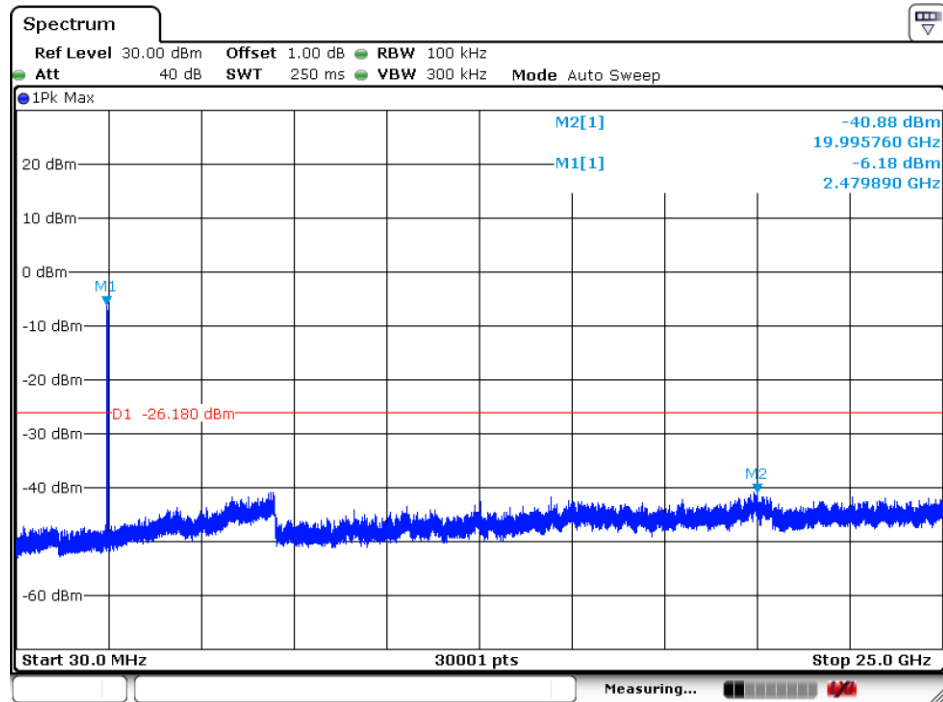


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4.8.1.6 GFSK 2M_Highest Channel



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:

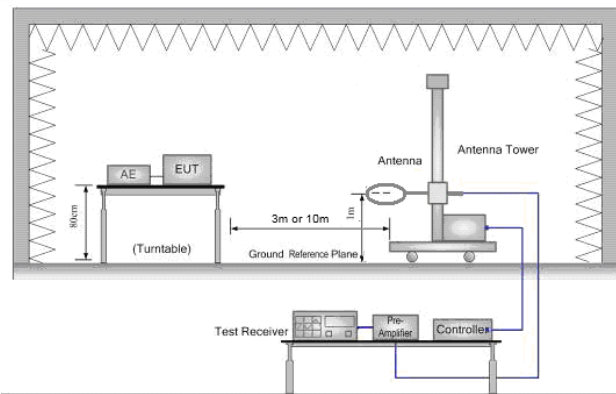


Figure 1. Below 30MHz

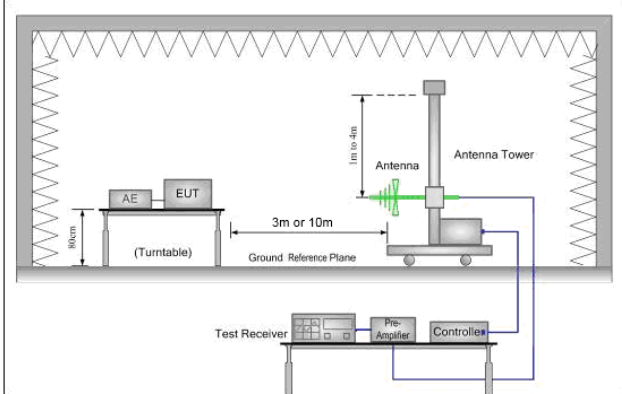


Figure 2. 30MHz to 1GHz

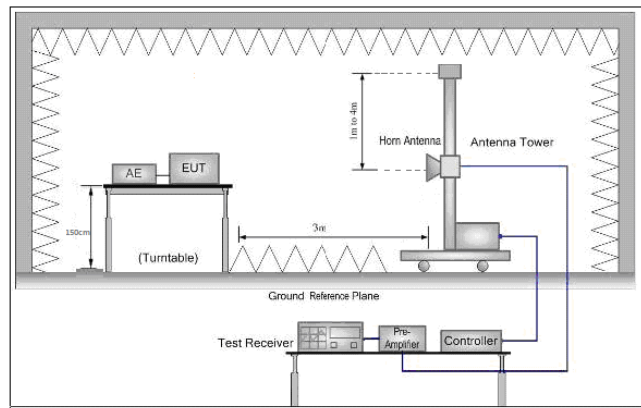


Figure 3. Above 1 GHz

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 = $N_1 * L_1 + N_2 * L_2 + \dots + N_{n-1} * L_{n-1} + N_n * L_n$</p> <p>Where N_1 is number of type 1 pulses, L_1 is length of type 1 pulses, etc.</p> <p>Average Emission Level = Peak Emission Level + $20 * \log(\text{Duty cycle})$</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

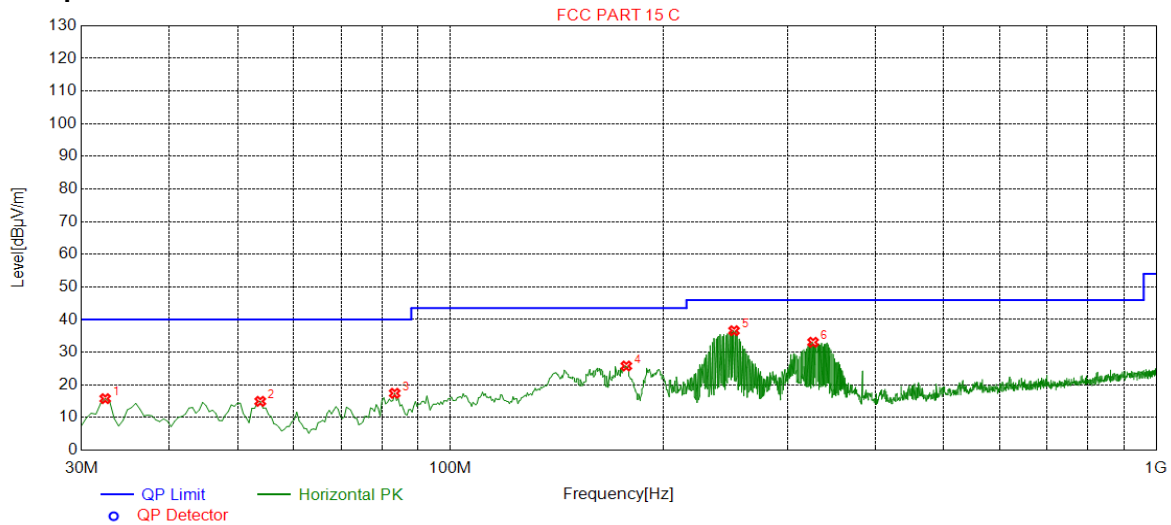


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4.9.1 Radiated Emission below 1GHz 4.9.1.1 Charge + Transmitting

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	240	255	Horizontal
2	53.7769	14.96	40.00	25.04	232	231	Horizontal
3	83.3767	17.43	40.00	22.57	124	275	Horizontal
4	177.5138	25.79	43.50	17.71	240	28	Horizontal
5	252.2411	36.60	46.00	9.40	248	215	Horizontal
6	326.4832	33.06	46.00	12.94	234	332	Horizontal

Final Data List



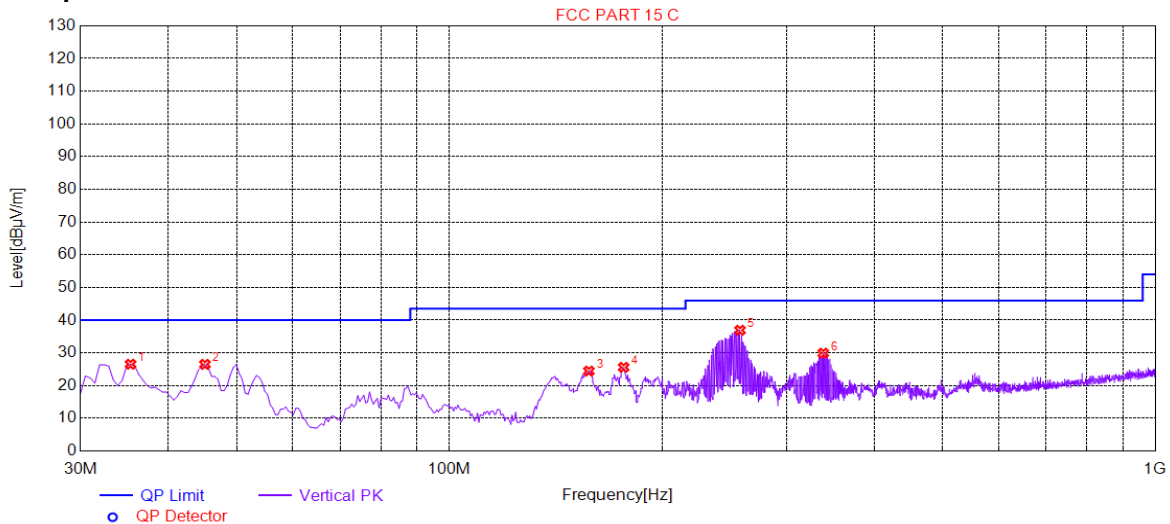
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Test Graph



Suspected List

Suspected List							
NO.	Freq. [MHz]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	35.3377	26.55	40.00	13.45	183	358	Vertical
2	45.0425	26.50	40.00	13.50	222	360	Vertical
3	157.6188	24.44	43.50	19.06	222	305	Vertical
4	176.5433	25.60	43.50	17.90	266	16	Vertical
5	258.0640	36.94	46.00	9.06	250	16	Vertical
6	338.6143	29.92	46.00	16.08	260	312	Vertical

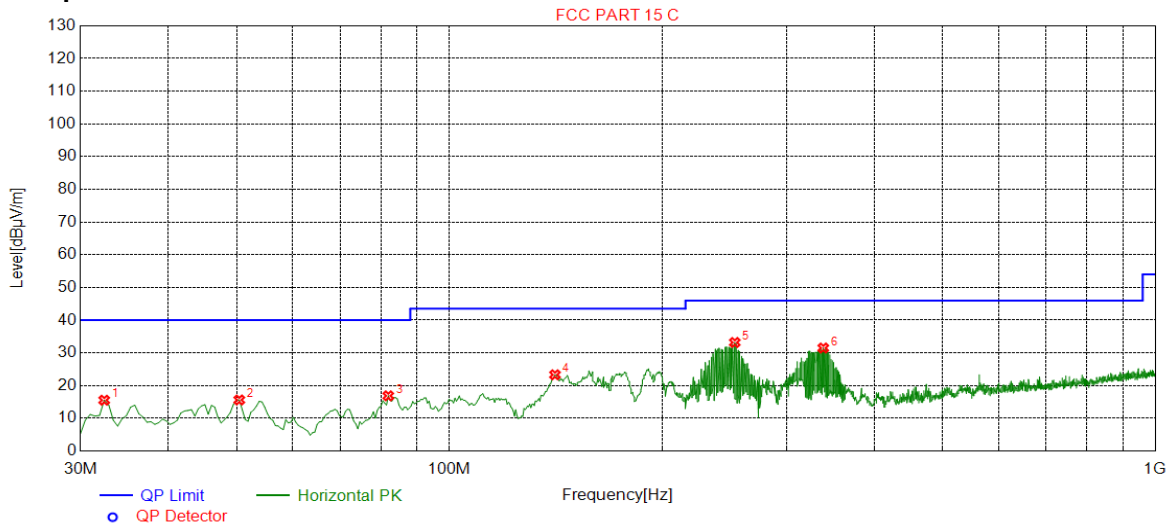
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Test Graph



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	145	276	Horizontal
2	50.3802	15.62	40.00	24.38	110	242	Horizontal
3	81.9210	16.88	40.00	23.12	157	280	Horizontal
4	141.1206	23.32	43.50	20.18	223	233	Horizontal
5	253.6968	33.19	46.00	12.81	183	217	Horizontal
6	338.6143	31.50	46.00	14.50	209	220	Horizontal

Final Data List



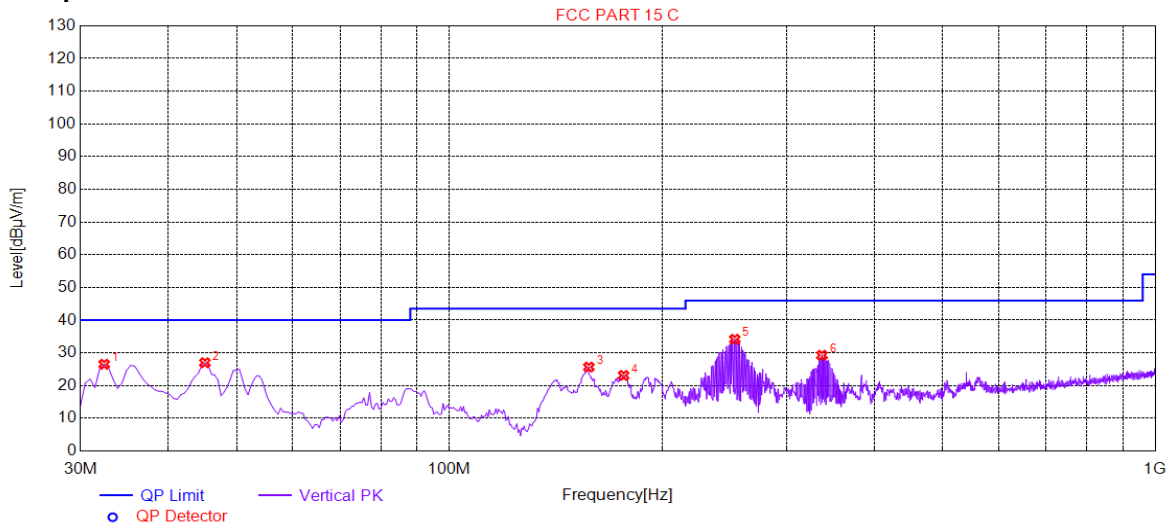
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Test Graph



Suspected List

Suspected List							
NO.	Freq. [MHz]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	32.4262	26.54	40.00	13.46	283	343	Vertical
2	45.0425	27.00	40.00	13.00	180	349	Vertical
3	157.6188	25.67	43.50	17.83	169	324	Vertical
4	176.5433	23.12	43.50	20.38	202	16	Vertical
5	253.6968	34.18	46.00	11.82	225	357	Vertical
6	337.1586	29.29	46.00	16.71	275	324	Vertical

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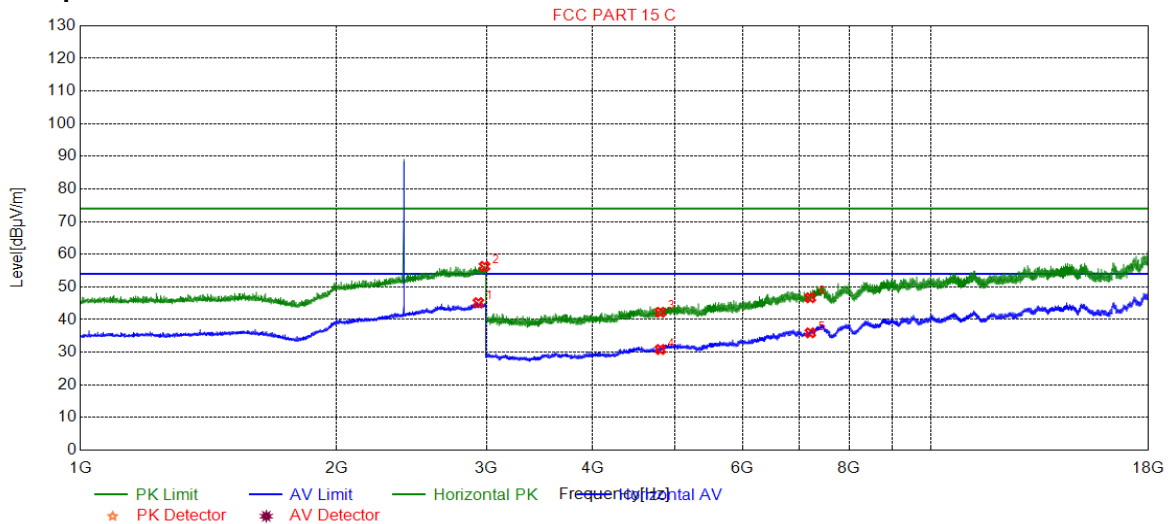
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4.9.2 Transmitter Emission above 1GHz

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

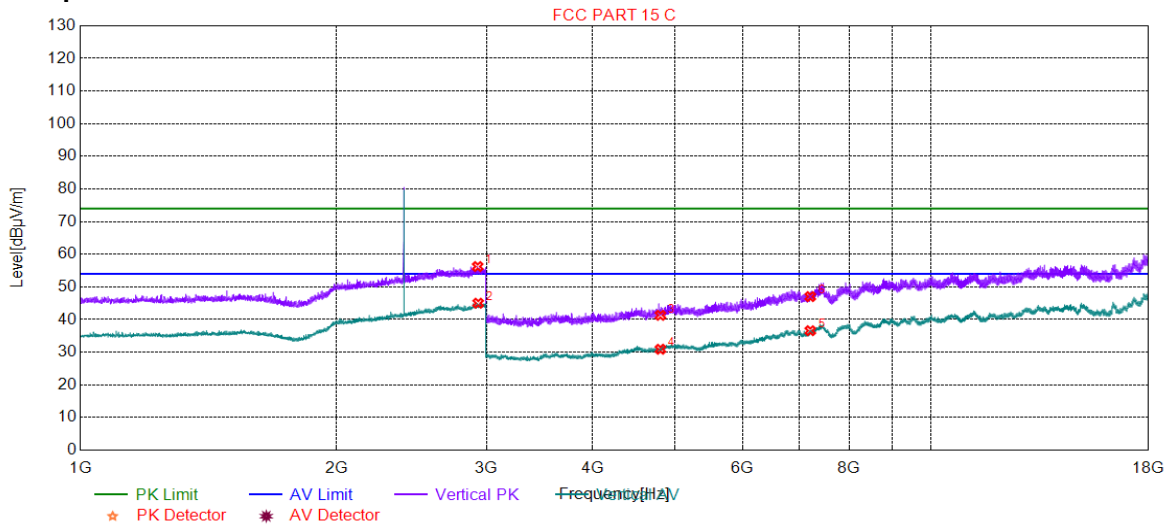


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4.9.2.2 BLE 1M_Channel 0

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

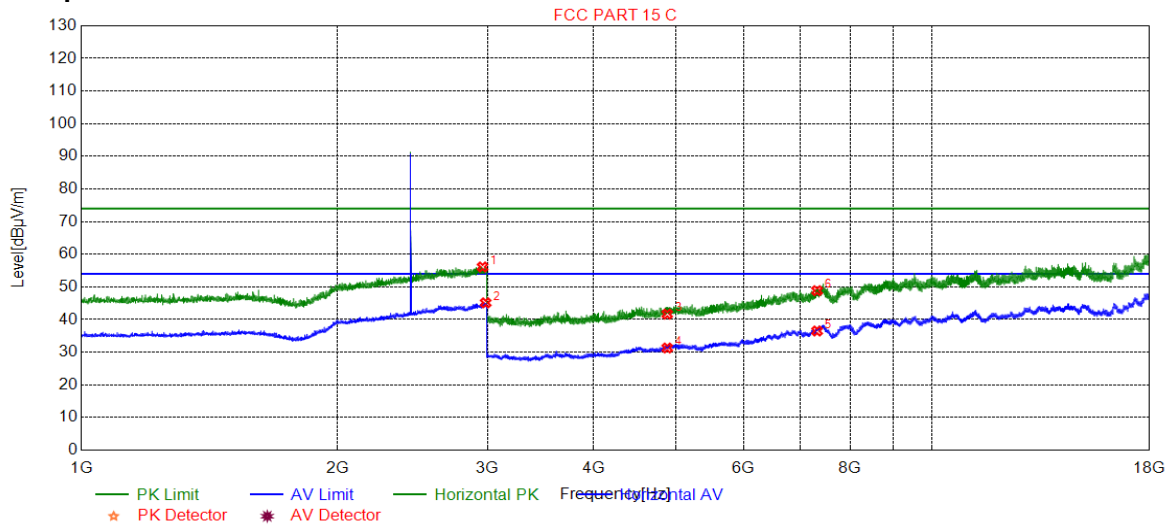


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4.9.2.3 BLE 1M_Channel 19

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

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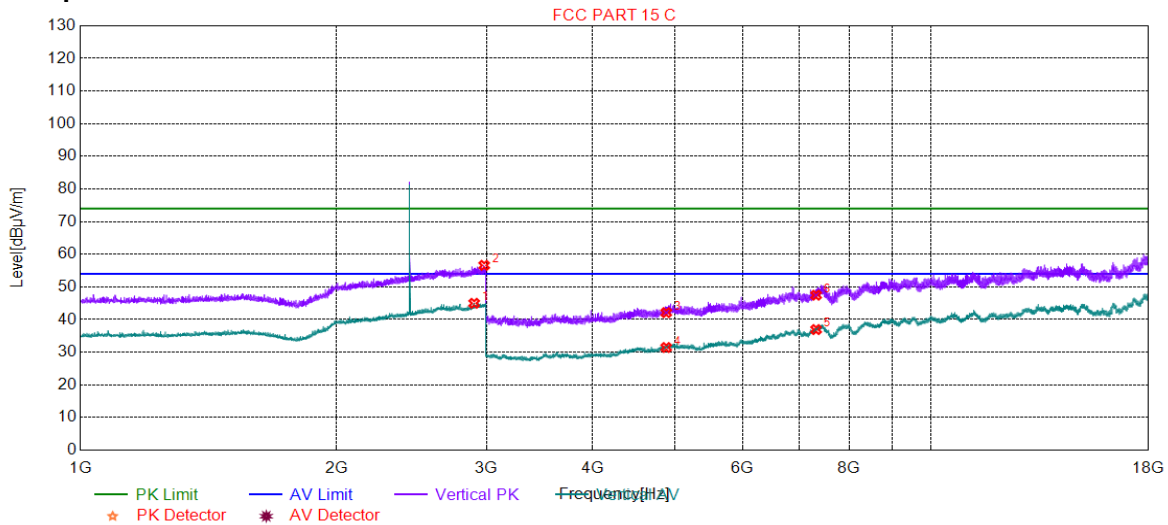
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4.9.2.4 BLE 1M_Channel 19

Test Graph



Suspected List

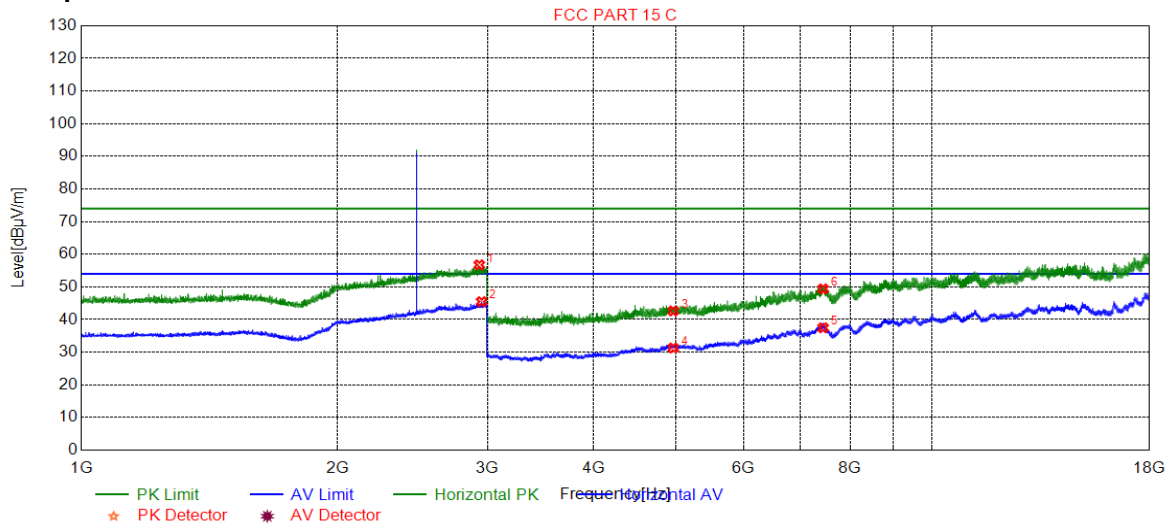
Suspected List							
NO.	Freq. [MHz]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	2901.975	45.00	54.00	9.00	271	331	Vertical
2	2981.995	56.61	74.00	17.39	160	90	Vertical
3	4880.000	42.14	74.00	31.86	253	228	Vertical
4	4880.000	31.46	54.00	22.54	255	228	Vertical
5	7320.000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

Final Data List

Final Data List							
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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

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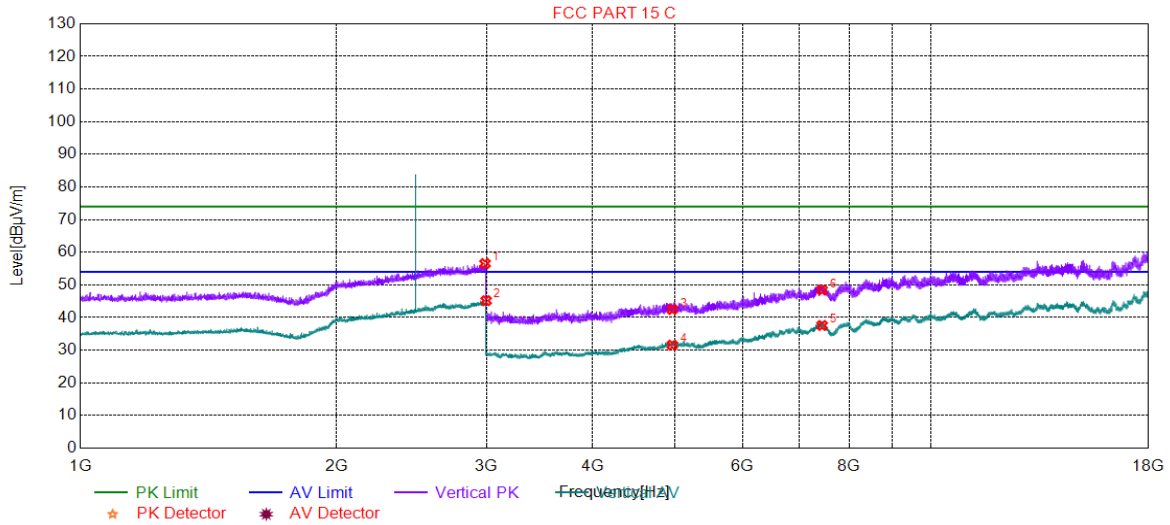
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4.9.2.6 BLE 1M_Channel 39

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

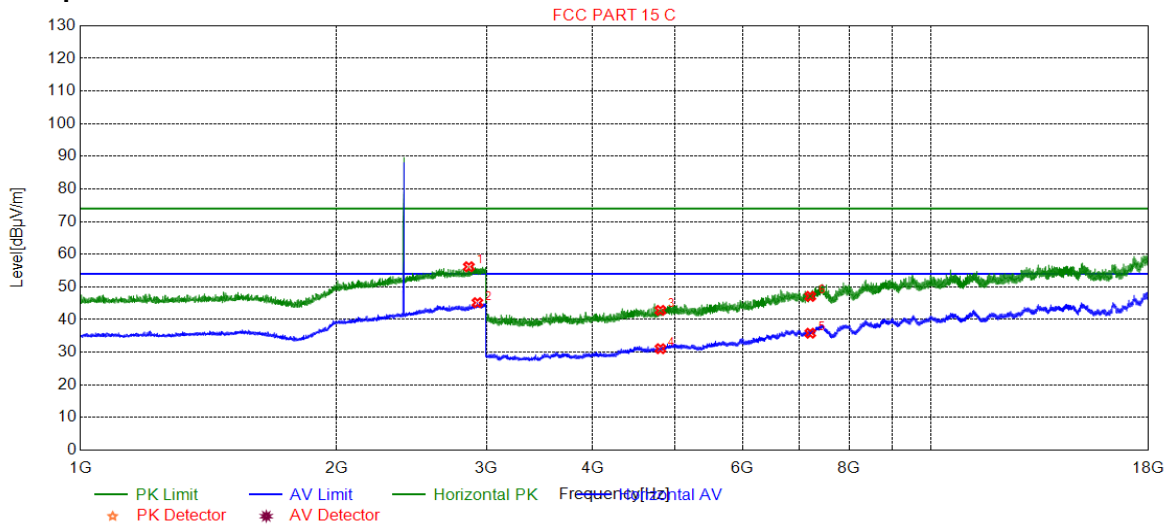


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4.9.2.7 BLE 2M_Channel 0

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

Final Data List



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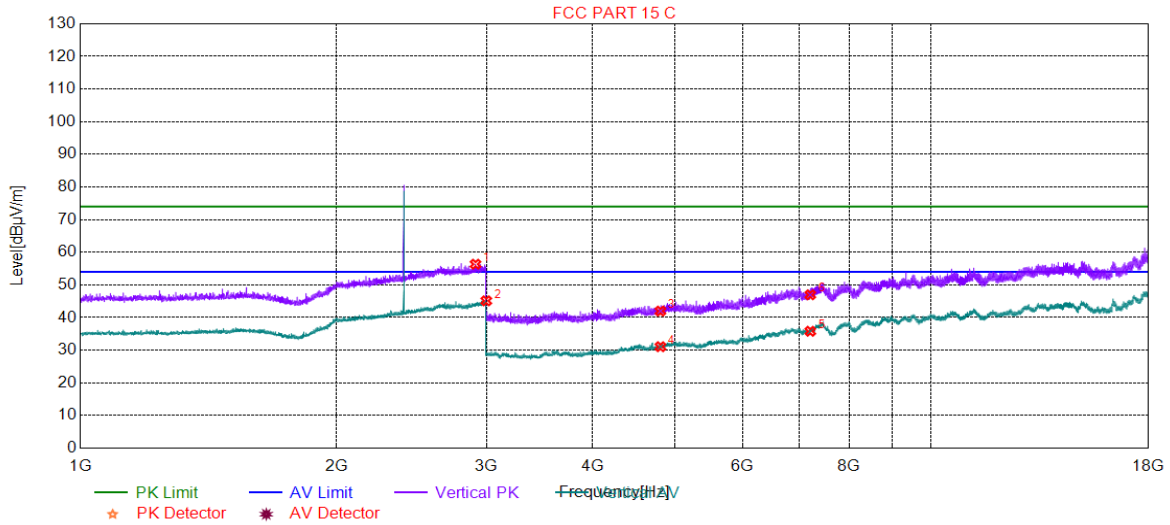
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4.9.2.8 BLE 2M_Channel 0

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

Final Data List

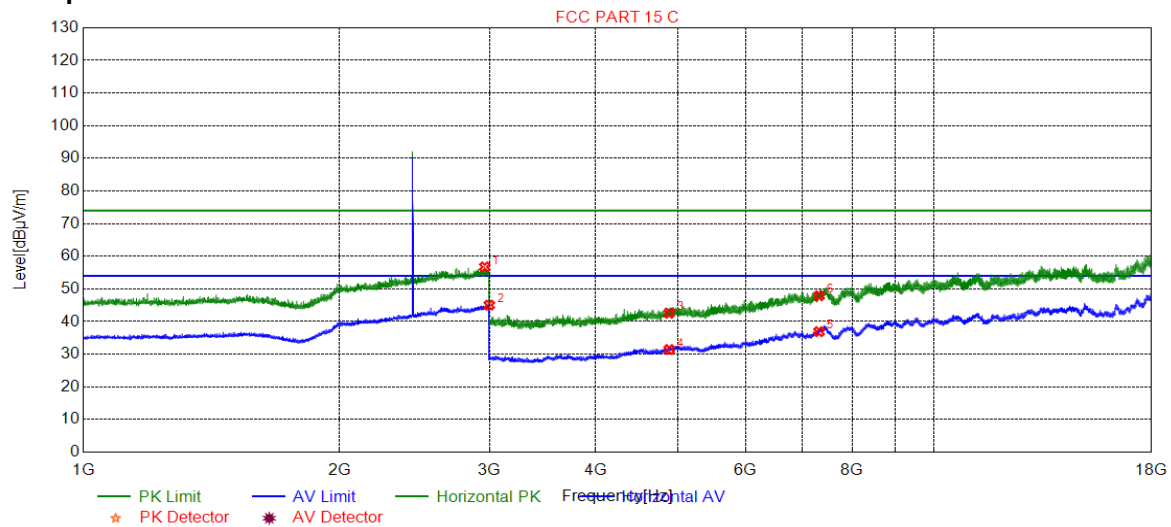


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4.9.2.9 BLE 2M_Channel 19

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

Final Data List

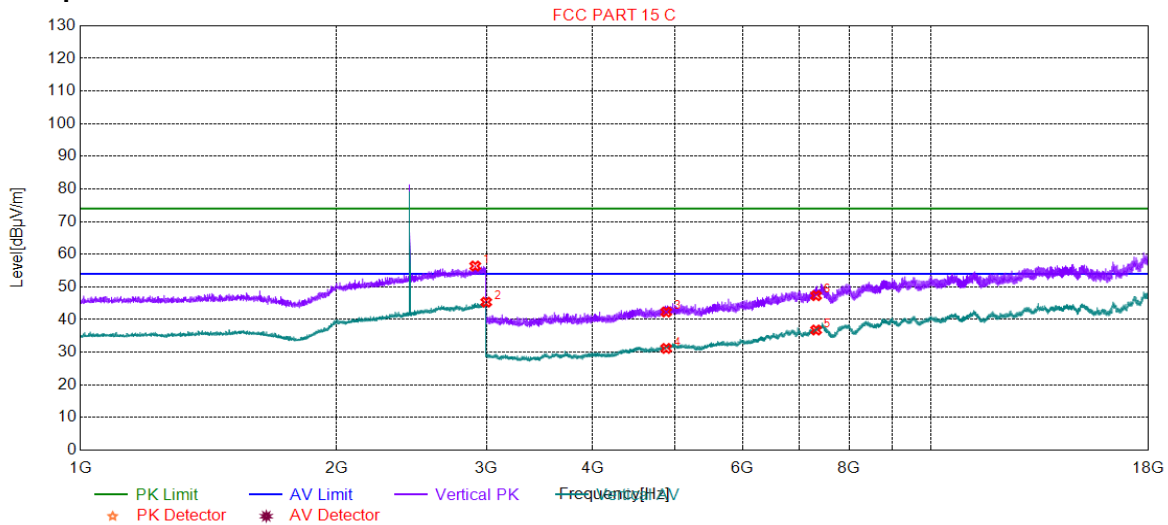


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4.9.2.10 BLE 2M_Channel 19

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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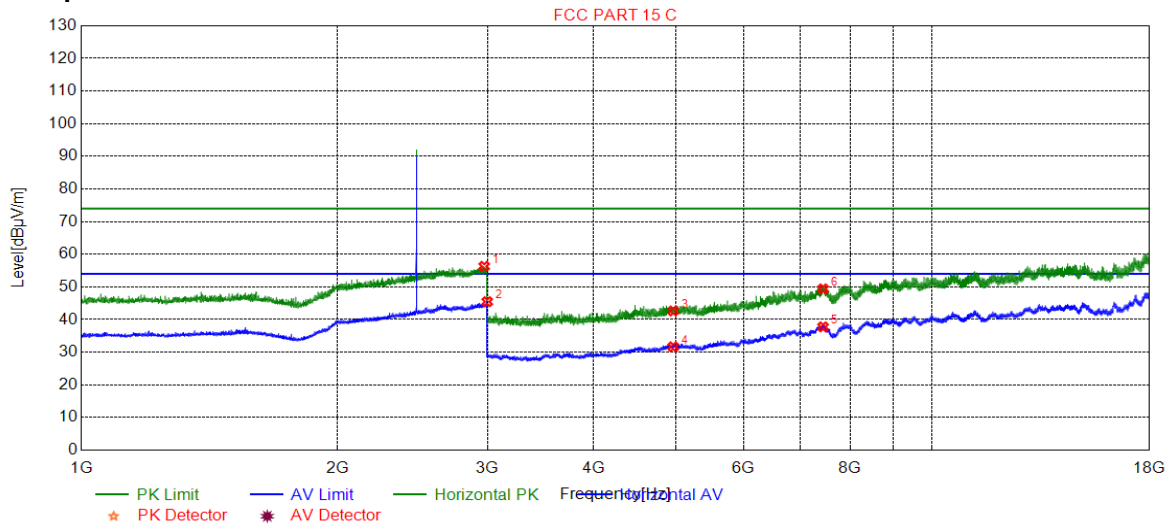
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4.9.2.11 BLE 2M_Channel 39

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

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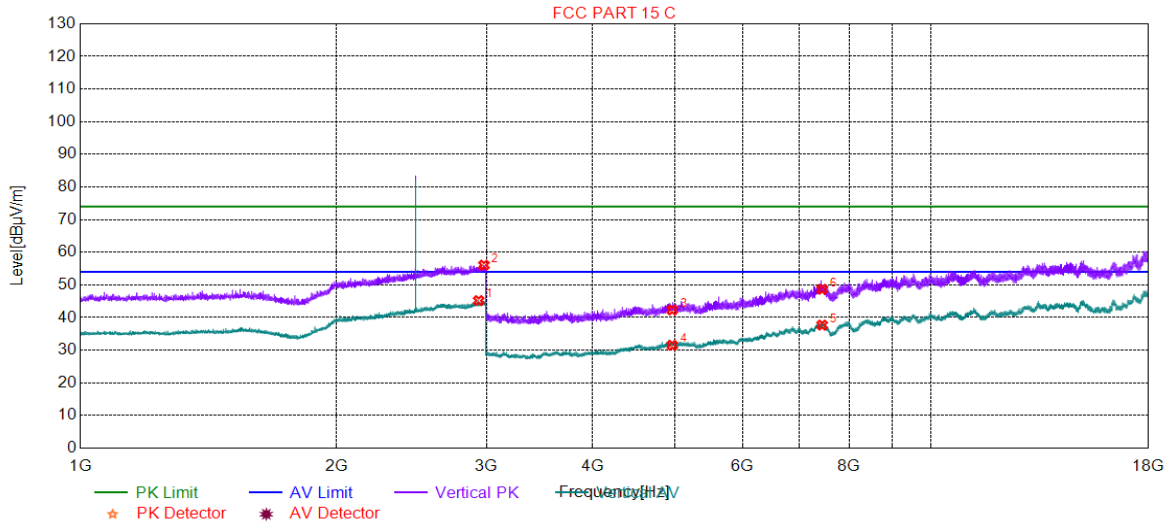
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4.9.2.12 BLE 2M_Channel 39

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:			

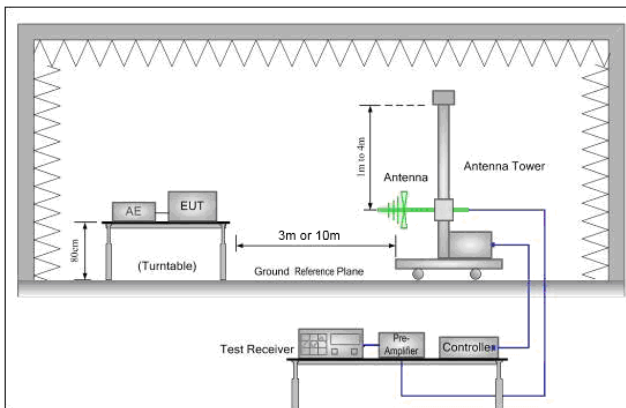


Figure 1. 30MHz to 1GHz

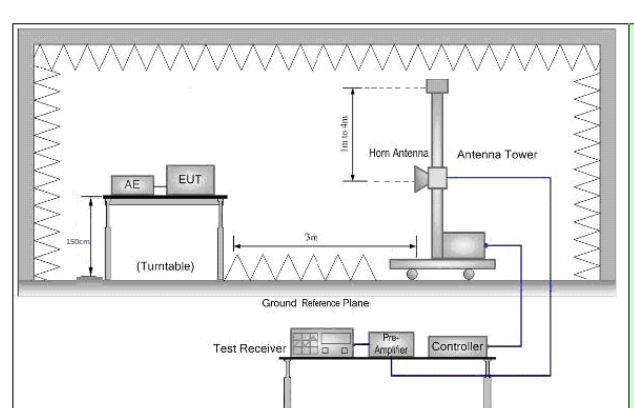


Figure 2. Above 1 GHz

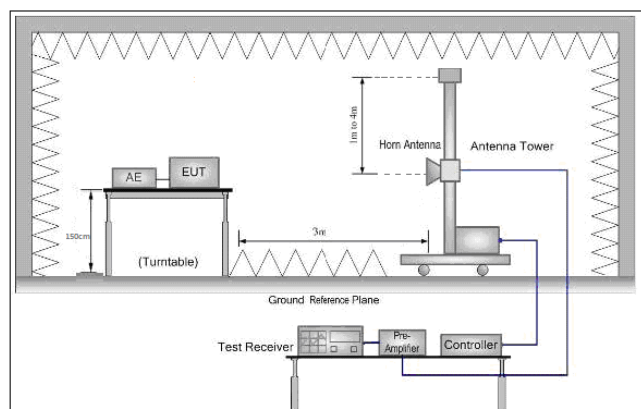


Figure 3. Above 1 GHz



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Report No.: AR/2020/C000803-01

Page: 62 of 74

Test Procedure:	<ul style="list-style-type: none"> 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. 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. 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. 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. 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. f. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode. 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 h. Test the EUT in the lowest channel , the Highest channel 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. j. Repeat above procedures until all frequencies measured was complete.
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

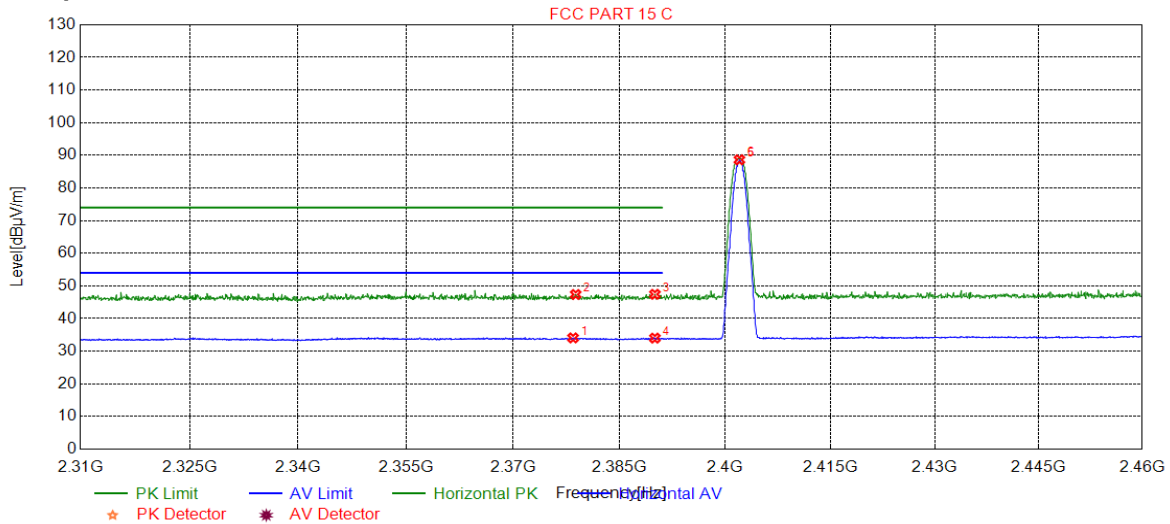


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4.10.1 Test Plots

4.10.1.1 BLE 1M_Channel 0

Test Graph



Suspected List

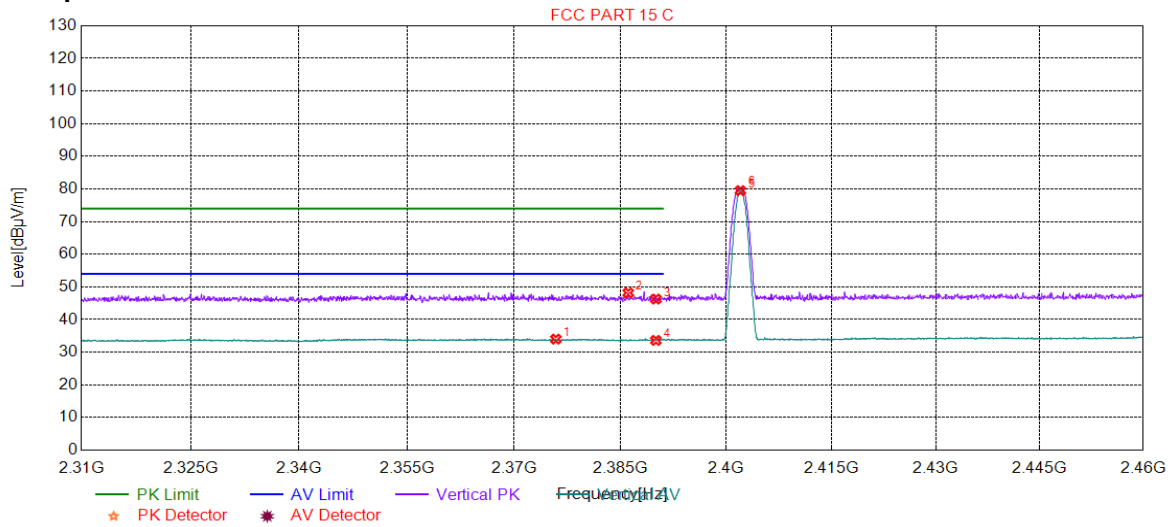
Suspected List							
NO.	Freq. [MHz]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	2378.434	34.09	54.00	19.91	182	210	Horizontal
2	2378.809	47.39	74.00	26.61	241	60	Horizontal
3	2390.000	47.45	74.00	26.55	182	287	Horizontal
4	2390.000	34.03	54.00	19.97	304	54	Horizontal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

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

Final Data List

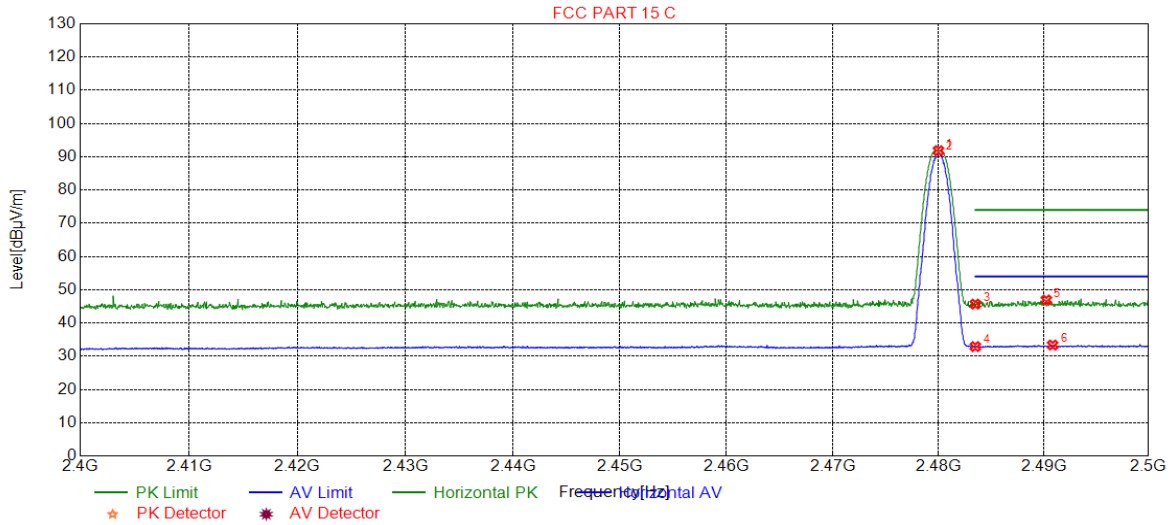


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4.10.1.3 BLE 1M_Channel 39

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

Final Data List

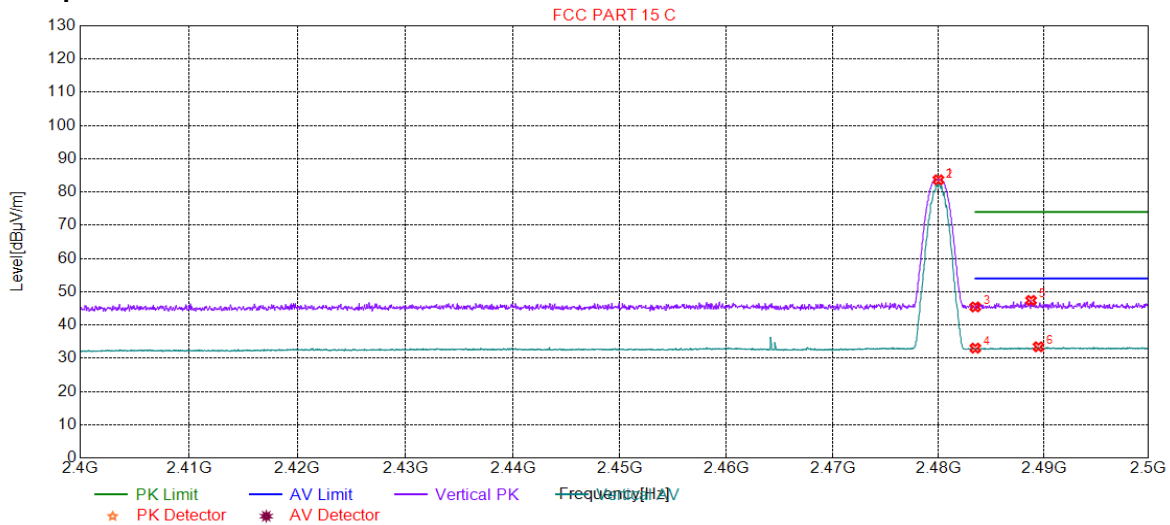


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4.10.1.4 BLE 1M_Channel 39

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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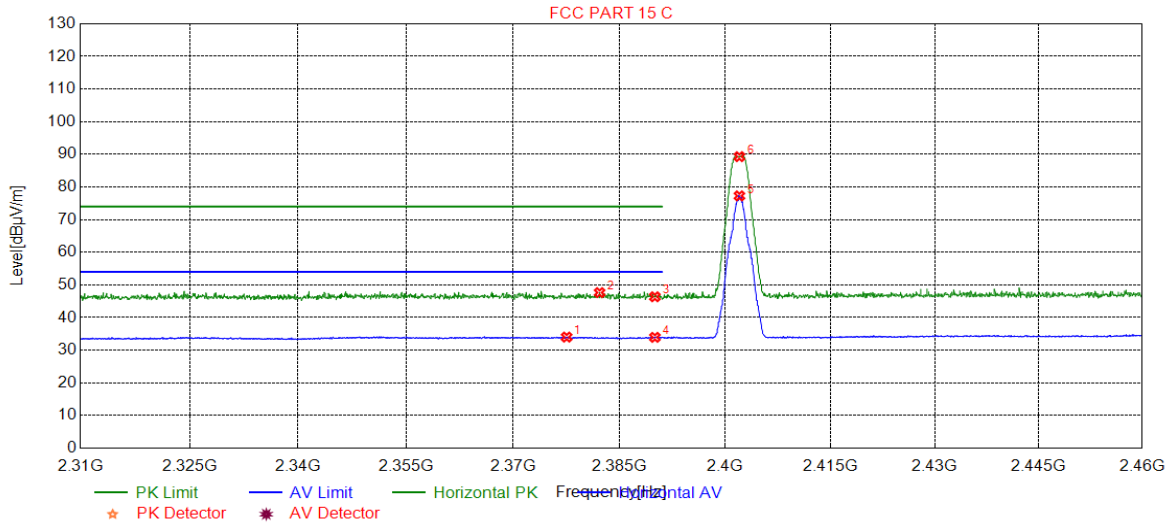
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4.10.1.5 BLE 2M_Channel 0

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

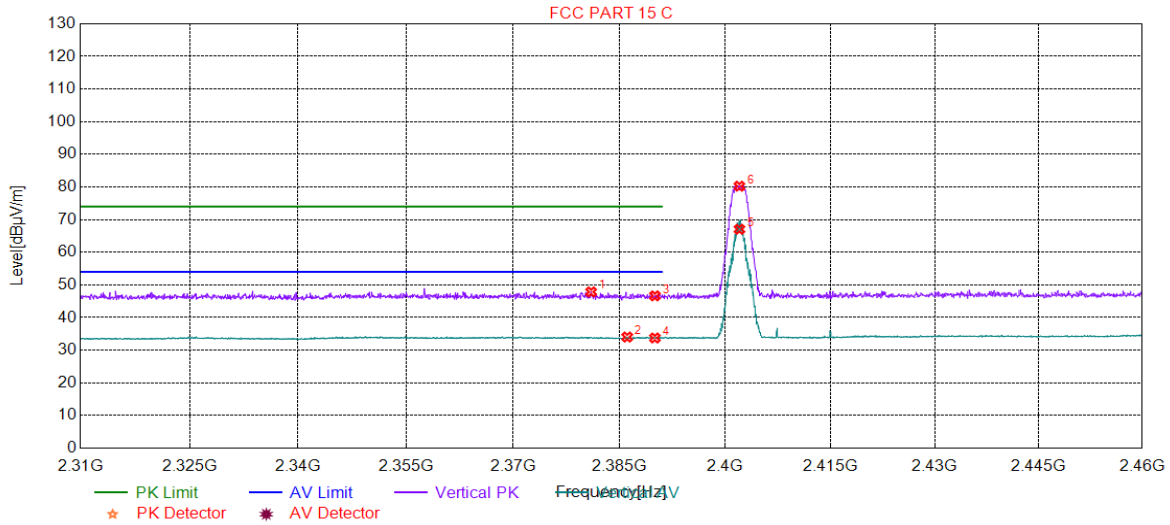


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4.10.1.6 BLE 2M_Channel 0

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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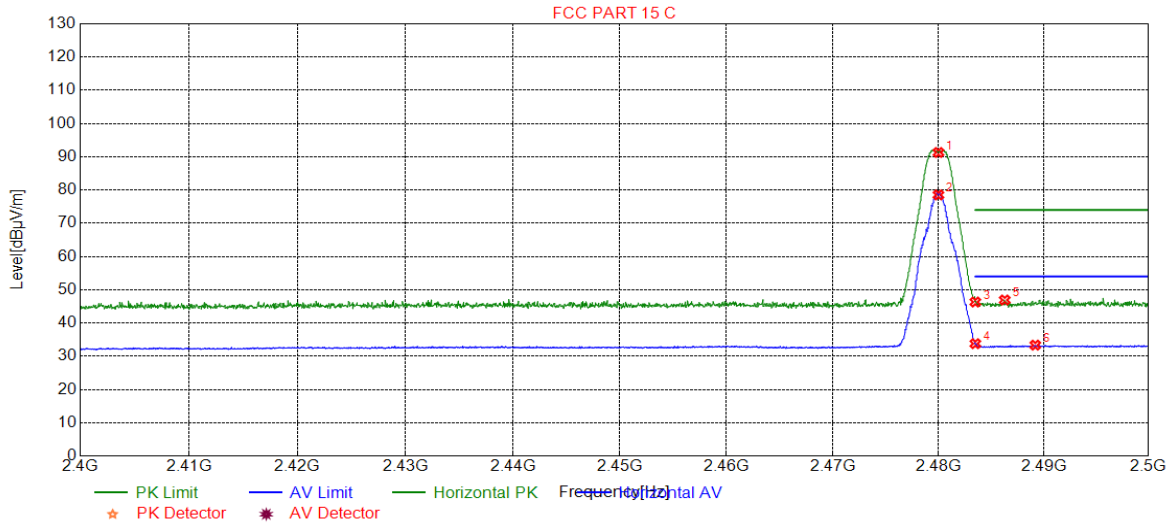
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4.10.1.7 BLE 2M_Channel 39

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

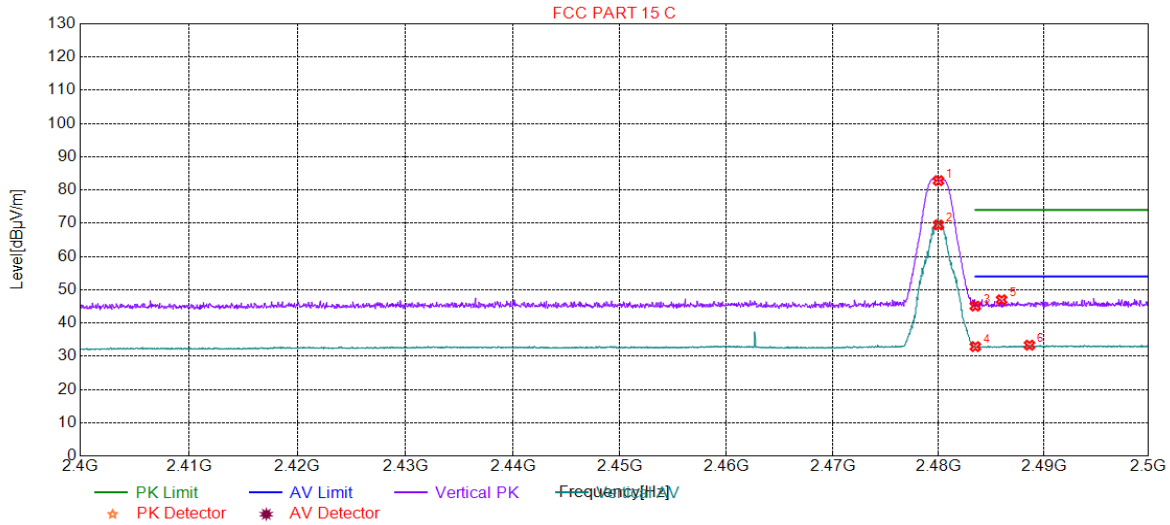


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4.10.1.8 BLE 2M_Channel 39

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)

Lab A:

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	Temperature test	±1°C
5	Humidity test	±3%
6	DC and low frequency voltages	±0.5%

Lab B:

No.	Item	Measurement Uncertainty
1	Conduction Emission	± 3.0dB (150kHz to 30MHz)
2	Radiated Emission	± 4.8dB (Below 1GHz)
		± 4.8dB (1GHz to 6GHz)
		± 4.5dB (6GHz to 18GHz)
		± 5.02dB (Above 18GHz)



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6 Equipment List

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	2020/4/16	2021/4/15
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-CP AR	W027-03	2020/10/27	2021/10/27
Power Meter	Rohde & Schwarz	NRVS	SEM014-02	2020/7/14	2021/7/14

CE Test System					
Equipment	Manufacturer	Model No.	Inventory No.	Cal Date	Cal Due Date
Shielding Room	Brilliant-emc	N/A	XAW03-35-01	2019-09-11	2022-09-10
Test receiver	ROHDE&SCHWARZ	ESR	XAW01-08-05	2020-04-12	2021-04-11
Artificial network	ROHDE&SCHWARZ	ENV216	XAW01-04-01	2020-08-04	2021-08-03
Temperature and humidity meter	MingGao	TH101B	XAW01-01-01	2020-11-06	2021-11-05
Measurement Software	Tonscend	TS+ CE V2.5	XAW02-05-02	NCR	NCR



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RSE Test System					
Equipment	Manufacturer	Model No.	Inventory No.	Cal Date	Cal Due Date
Semi-Anechoic Chamber	Brilliant-emc	N/A	XAW03-35-01	2019-09-11	2022-09-10
MXA signal analyzer	Keysight	N9020A	XAW01-06-01	2020-04-02	2021-04-01
Test receiver	ROHDE&SCHWARZ	ESR	XAW01-08-01	2020-09-11	2021-09-10
Receiving antenna (30MHz~3GHz)	Schwarzbeck	VULB 9163	XAW01-09-01	2019-10-13	2021-10-12
Receiving antenna (1GHz~18GHz)	Schwarzbeck	BBHA 9120D	XAW01-09-02	2019-10-13	2021-10-12
Receiving antenna (15GHz~40GHz)	Schwarzbeck	BBHA 9170	XAW01-09-03	2019-10-13	2021-10-12
Directional antenna rack controller	Max-Full	MF-7802BS	XAW03-03-01	NCR	NCR
High-speed antenna rack controller	Max-Full	MF-7802	XAW03-04-01	NCR	NCR
Filter bank	Tonscend	JS0806-F	XAW03-05-01	NCR	NCR
Filter bank	Tonscend	JS0806s	XAW03-05-02	NCR	NCR
Amplifier	Tonscend	TAP00903040	XAW01-41-01	2020-10-26	2021-10-25
Amplifier	Tonscend	TAP01018048	XAW01-41-02	2020-10-26	2021-10-25
Amplifier	Tonscend	TAP18040048	XAW01-41-03	2020-10-27	2021-10-26
Amplifier	Shanghai Steed	YX28980930	XAW01-41-06	2020-10-26	2021-10-25
Temperature and humidity meter	MingGao	TH101B	XAW01-01-01	2020-11-06	2021-11-05
Measurement Software	Tonscend	TS+ RSE V3.0.0.2	XAW02-05-01	NCR	NCR



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7 Photographs - EUT Constructional Details

Refer to Appendix A PCE Setup Photos.

The End



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