

Report No.: ZR/2020/B003603

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FCC TEST REPORT

Application No.: ZR/2020/B0036

Applicant: Guangdong OPPO Mobile Telecommunications Corp., Ltd.

Address of Applicant HaiBin Road, Wusha village, Chang An Town, DongGuan City,

Guangdong, China

Guangdong OPPO Mobile Telecommunications Corp., Ltd. Manufacturer:

HaiBin Road, Wusha village, Chang An Town, DongGuan City, Address of Manufacturer NO.18

Guangdong, China

EUT Description: Mobile Phone Model No.: CPH2173 **Trade Mark: OPPO**

FCC ID: R9C-CPH2173

47 CFR FCC Part 2, Subpart J Standards:

47 CFR Part 15, Subpart C

Date of Receipt: 2020/11/19

Date of Test: 2020/11/19 to 2020/12/31

Date of Issue: 2021/1/4

Test Result: PASS *

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

Authorized Signature:

Derde yang

Derek Yang Wireless Laboratory Manager



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1 Version

Revision Record					
Version	Chapter	Date	Modifier	Remark	
01		2021/1/4		Original	

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



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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 & 99% Occupied 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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General Information 3

3.1 Details of Client

Applicant:	Guangdong OPPO Mobile Telecommunications Corp., Ltd.
Address of Applicant	NO.18 HaiBin Road, Wusha village, Chang An Town, DongGuan City, Guangdong,China
Manufacturer:	Guangdong OPPO Mobile Telecommunications Corp., Ltd.
Address of Manufacturer	NO.18 HaiBin Road, Wusha village, Chang An Town, DongGuan City , Guangdong,China

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:

• CNAS (No. CNAS L2929)

CNAS has accredited SGS-CSTC Standards Technical Services Co., Ltd. Shenzhen Branch EMC Lab to ISO/IEC 17025:2017 General Requirements for the Competence of Testing and Calibration Laboratories (CNAS-CL01 Accreditation Criteria for the Competence of Testing and Calibration Laboratories) for the competence in the field of testing.

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.

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.

Industry Canada (IC)

Two 3m Semi-anechoic chambers and the 10m Semi-anechoic chamber of SGS-CSTC Standards Technical Services Co., Ltd. Shenzhen Branch EMC Lab have been registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing with Registration No.: 4620C-1, 4620C-2, 4620C-3.





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3.4 General Description of EUT

EUT Description:	Mobile Phone	
Model No.:	CPH2173	
Trade Mark:	OPPO	
Hardware Version:	11	
Software Version:	ColorOS V11.2	
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 V5.2 LE	
Modulation Type:	GFSK	
Number of Channel:	40	
Sample Type:	⊠ Portable Device, ☐Module	
Antenna Type:	☐ External, ☑ Integrated	
Antenna Gain: -3.5dBi		
Power Supply	□ AC/DC Adapter; □ Battery □ PoE:; □ Other:	

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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Test results and Measurement Data 4

4.1 Antenna Requirement

Standard requirement: 47 CFR Part 15C Section 15.203 /247(c)

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.

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.

The antenna is integrated on the main PCB and no consideration of replacement. The best case gain of the antenna is -3.5dBi.





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4.2 AC Power Line Conducted Emissions

Test Requirement:	47 CFR Part 15C Section	n 15.207	
Test Method:	ANSI C63.10: 2013		
Test Frequency Range:	150kHz to 30MHz		
Limit:	Fraguency range (MHz)	Limit (d	BuV)
	Frequency range (MHz)	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 log	arithm of the frequency.	
Test Procedure:	The mains terminal d room.	isturbance voltage test was	conducted in a shielded
	 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. 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. 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. In order to find the maximum emission, the relative positions of equipment and all of the interface cables must be changed according to 		



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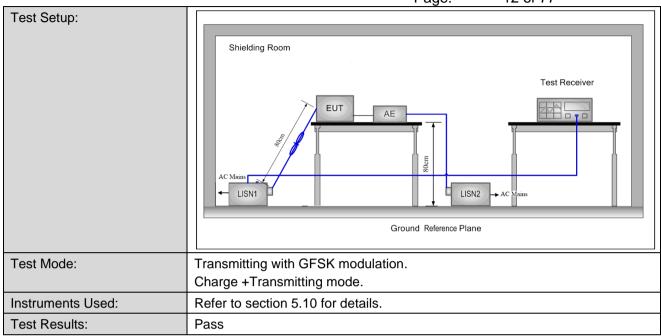
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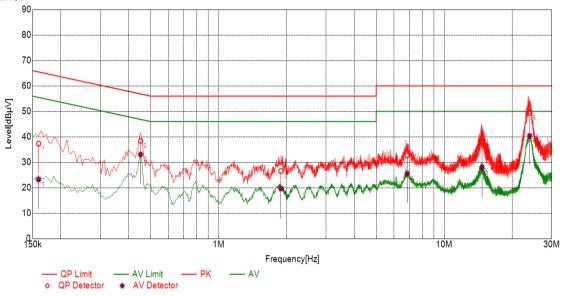
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Measurement Data

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	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]	Туре
1	0.1594	10.10	37.34	65.49	28.15	23.20	55.49	32.29	L
2	0.4512	10.10	38.39	56.85	18.46	33.11	46.85	13.74	L
3	1.8889	10.10	26.54	56.00	29.46	19.60	46.00	26.40	L
4	6.8523	10.10	32.69	60.00	27.31	25.58	50.00	24.42	L
5	14.7220	10.11	38.13	60.00	21.87	27.91	50.00	22.09	L
6	23.9307	10.11	49.44	60.00	10.56	40.37	50.00	9.63	L



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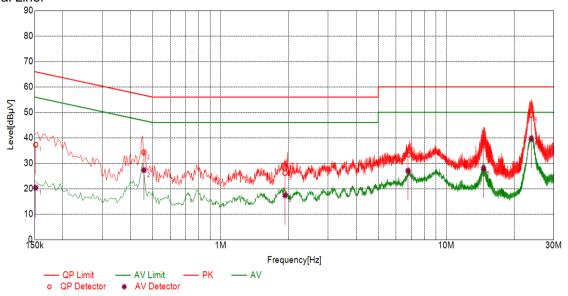
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Test Graph

Final	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]	Туре
1	0.1517	10.10	37.26	65.90	28.64	20.37	55.90	35.53	N
2	0.4577	10.10	34.28	56.73	22.45	27.28	46.73	19.45	Ν
3	1.9320	10.10	26.14	56.00	29.86	17.38	46.00	28.62	N
4	6.7759	10.10	33.37	60.00	26.63	27.01	50.00	22.99	N
5	14.6434	10.11	38.38	60.00	21.62	27.94	50.00	22.06	Ν
6	23.8421	10.11	48.98	60.00	11.02	39.61	50.00	10.39	Ν

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	61.67
BLE_2M	CH0, CH19, CH39	32.41





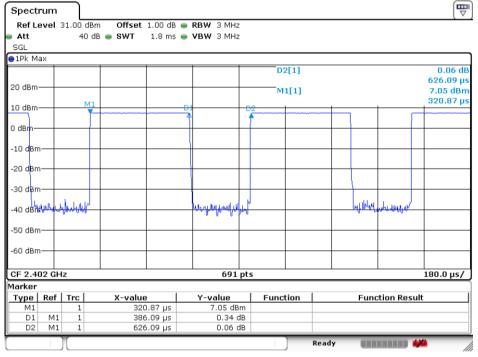
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4.3.2 **Test Plots**

4.3.2.1 ANT1

4.3.2.1.1 BLE 1M



Date: 7.DEC.2020 10:45:11

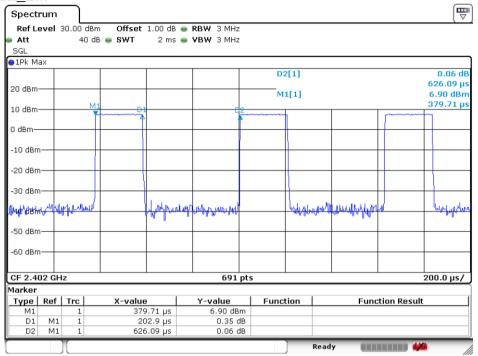




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4.3.2.1.2 BLE 2M



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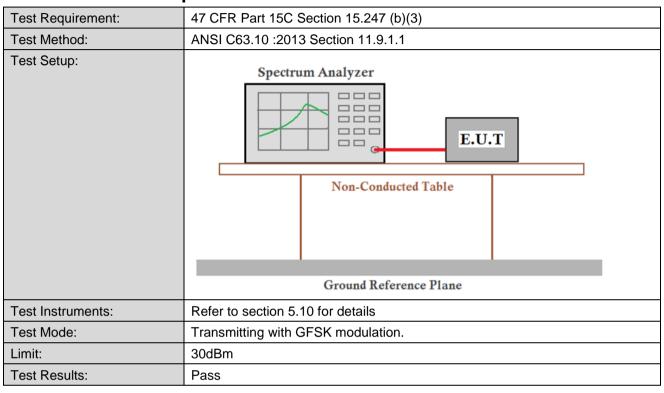




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4.4 Conducted Output Power



4.4.1 **Test Results**

Measurement Data of Peak Power:

GFSK_1M mode				
Test Channel	Peak Output Power (dBm) Limit (dBm) Result			
Lowest	7.63	30.00	Pass	
Middle	7.71	30.00	Pass	
Highest	7.46	30.00	Pass	

GFSK_2M mode				
Test Channel	Peak Output Power (dBm)	Limit (dBm)	Result	
Lowest	7.62	30.00	Pass	
Middle	7.75	30.00	Pass	
Highest	7.53	30.00	Pass	



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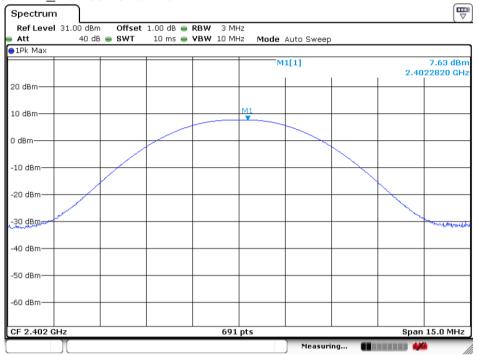


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Test Plots 4.4.2

4.4.2.1 GFSK 1M_Lowest Channel



Date: 7.DEC 2020 10:41:58





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4.4.2.2GFSK 1M Middle Channel



Date: 7.DEC.2020 10:45:47

4.4.2.3 GFSK 1M_Highest Channel



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4.4.2.4GFSK 2M Lowest Channel



Date: 7.DEC.2020 14:36:25

4.4.2.5 GFSK 2M Middle Channel



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4.4.2.6GFSK 2M_Highest Channel



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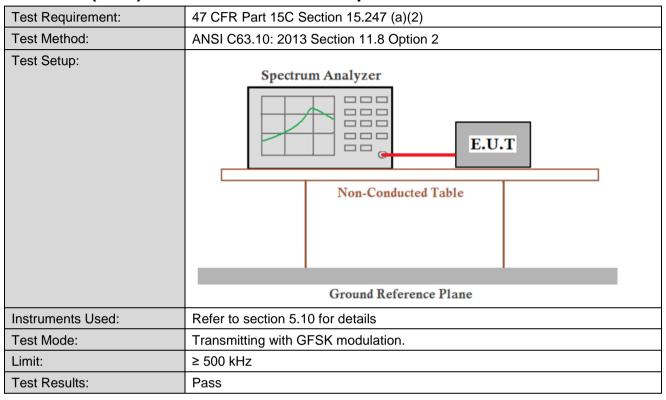




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4.5 DTS (6 dB) Bandwidth & 99% Occupied Bandwidth



4.5.1 **Test Results**

Mode	Test Channel	99% Occupied Bandwidth (MHz)	6dB Emission Bandwidth (MHz)	Limit (kHz)	Result
	Lowest	1.02	0.68	≥500	Pass
GFSK_1M	Middle	1.02	0.69	≥500	Pass
	Highest	1.02	0.69	≥500	Pass

Mode	Test Channel	99% Occupied Bandwidth (MHz)	6dB Emission Bandwidth (MHz)	Limit (kHz)	Result
	Lowest	2.03	1.17	≥500	Pass
GFSK_2M	Middle	2.03	1.17	≥500	Pass
	Highest	2.03	1.16	≥500	Pass



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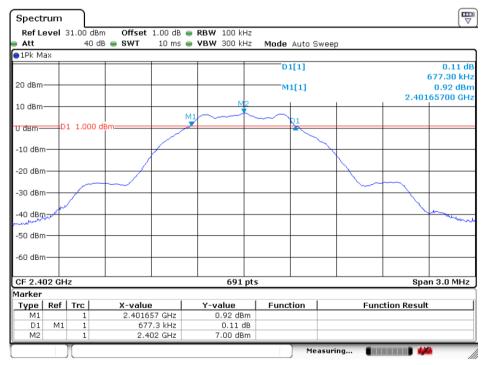
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4.5.2 **Test Plots**

4.5.2.1GFSK 1M Lowest Channel



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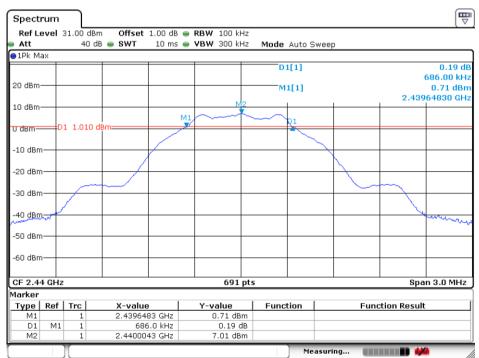
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4.5.2.2 GFSK 1M Middle Channel



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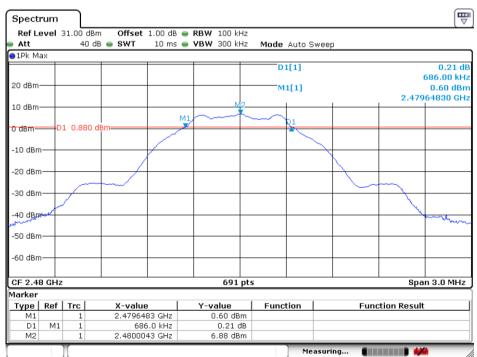
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4.5.2.3 GFSK 1M Highest Channel



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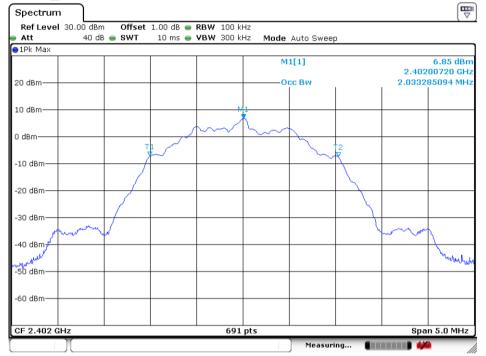
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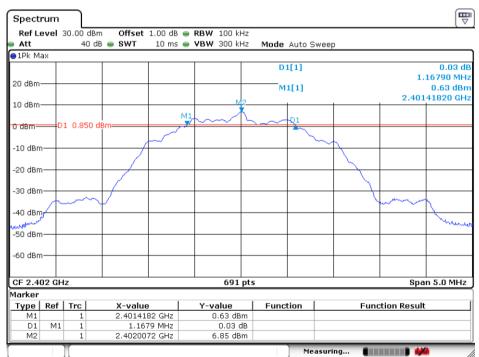
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4.5.2.4GFSK 2M Lowest Channel



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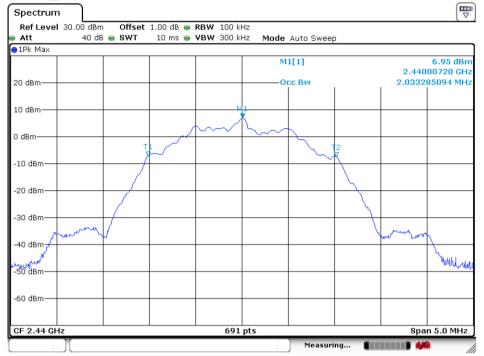
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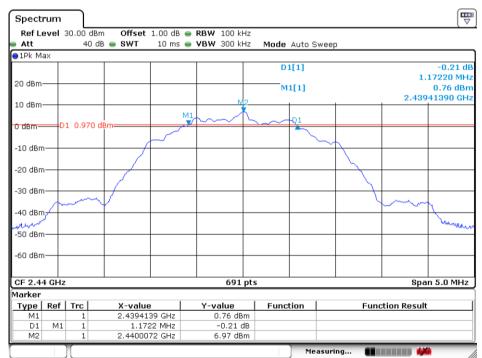
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4.5.2.5 GFSK 2M Middle Channel



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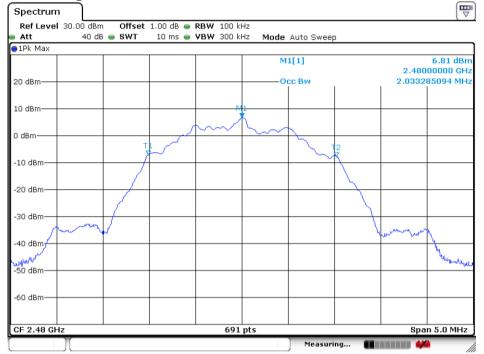
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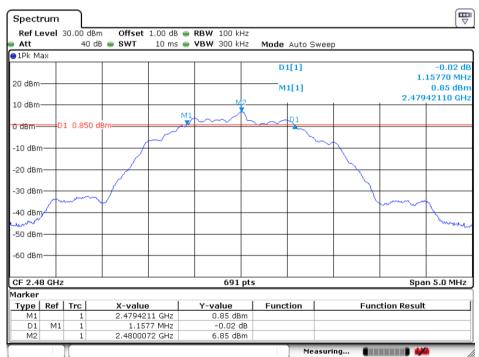
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4.5.2.6 GFSK 2M Highest Channel



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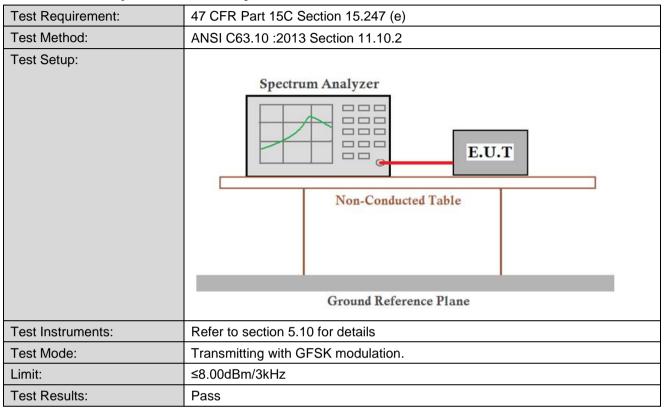
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4.6 Power Spectral Density



4.6.1 **Test Results**

Mode	Test Channel	Power Spectral Density (dBm/3kHz)	Limit (dBm/3kHz)	Result
	Lowest	-7.49	≤8.00	Pass
GFSK_1M	Middle	-7.46	≤8.00	Pass
	Highest	-7.59	≤8.00	Pass

Mode	Test Channel	Power Spectral Density (dBm/3kHz)	Limit (dBm/3kHz)	Result
	Lowest	-10.58	≤8.00	Pass
GFSK_2M	Middle	-10.43	≤8.00	Pass
	Highest	-10.52	≤8.00	Pass



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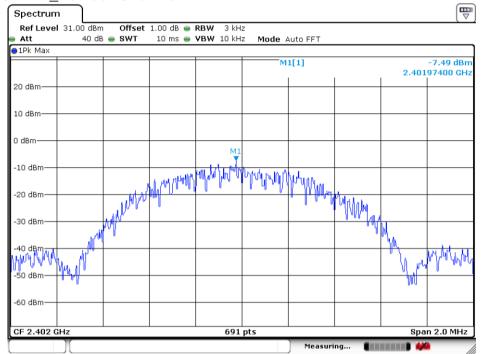


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4.6.2 **Test Plots**

4.6.2.1 GFSK 1M Lowest Channel



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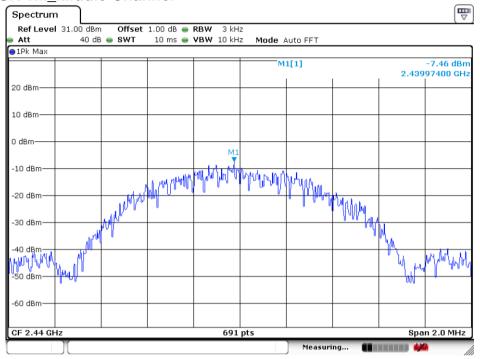




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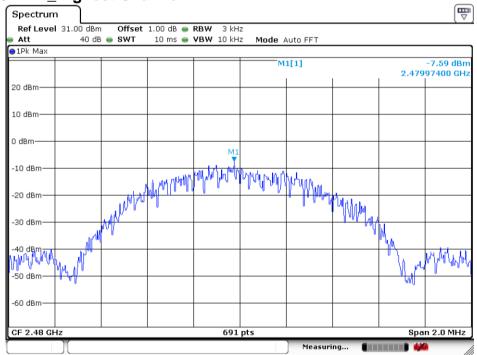
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4.6.2.2GFSK 1M Middle Channel



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4.6.2.3 GFSK 1M_Highest Channel



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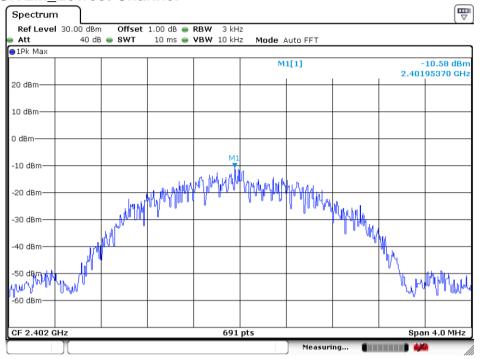
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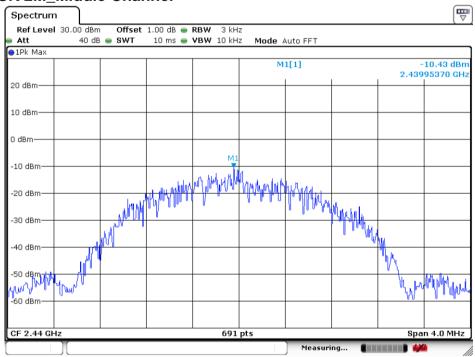
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4.6.2.4GFSK 2M Lowest Channel



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4.6.2.5 GFSK 2M Middle Channel



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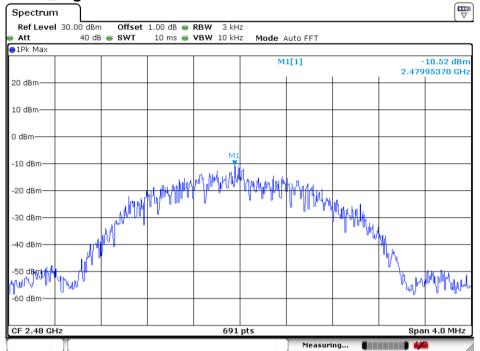
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4.6.2.6 GFSK 2M Highest Channel



Date: 7 DEC 2020 14:46:26





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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:	Spectrum Analyzer E.U.T Non-Conducted Table Ground Reference Plane		
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		



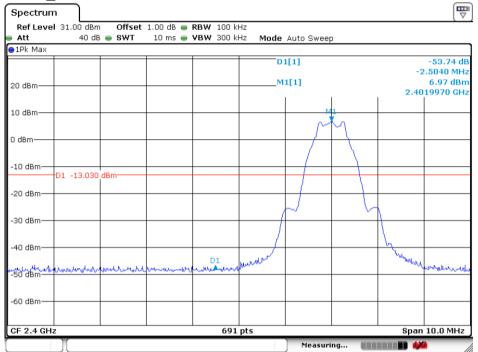


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4.7.1 **Test Plots**

4.7.1.1 GFSK 1M Lowest Channel



Date: 7.DEC.2020 10:44:31

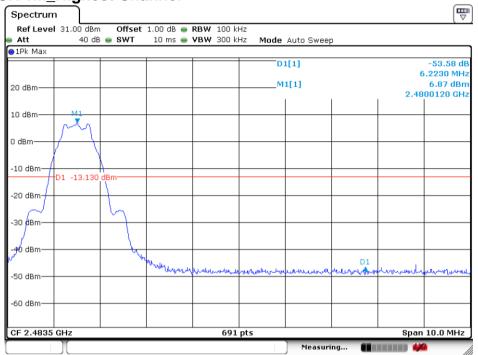




Report No.: ZR/2020/B003603

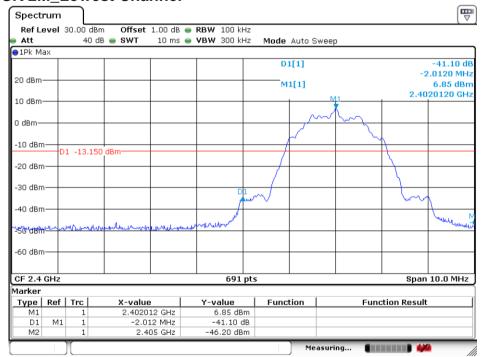
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4.7.1.2GFSK 1M Highest Channel



Date: 7.DEC.2020 10:48:56

4.7.1.3 GFSK 2M Lowest Channel



Date: 7 DEC 2020 14:38:01



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4.7.1.4GFSK 2M_Highest Channel



Date: 7 DEC 2020 14:48:29





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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:	Spectrum Analyzer E.U.T Non-Conducted Table Ground Reference Plane				
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				



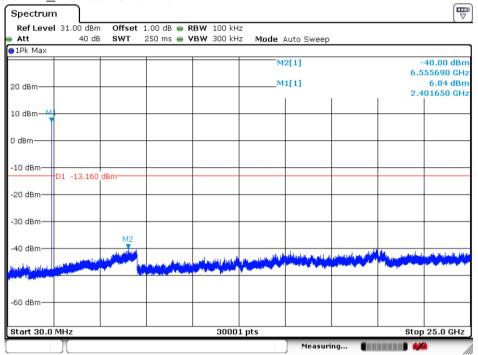


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Test Plots 4.8.1

4.8.1.1 GFSK 1M_Lowest Channel



Date: 7 DEC 2020 10:54:39

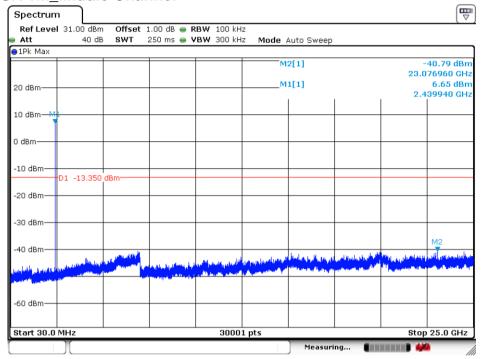




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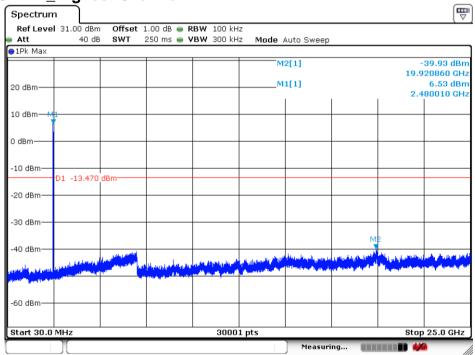
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4.8.1.2GFSK 1M Middle Channel



Date: 7.DEC.2020 10:50:52

4.8.1.3 GFSK 1M_Highest Channel



Date: 7 DEC 2020 10:50:00



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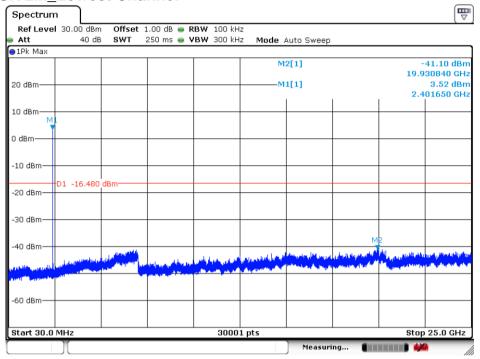
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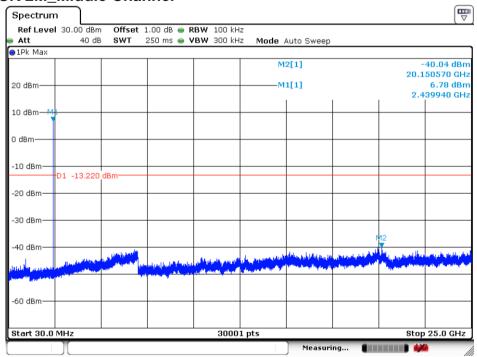
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4.8.1.4GFSK 2M Lowest Channel



Date: 7.DEC.2020 14:53:06

4.8.1.5 GFSK 2M Middle Channel



Date: 7 DEC 2020 14:52:11



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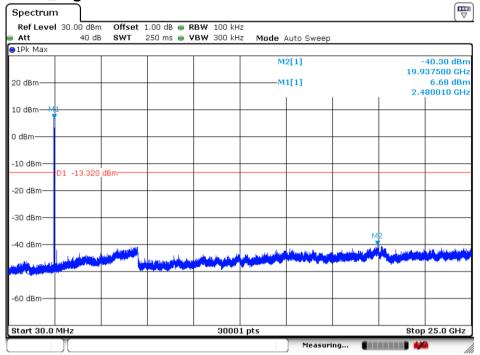
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4.8.1.6GFSK 2M_Highest Channel



Date: 7.DEC.2020 14:51:10

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	n 15.209 and 15.20	05						
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				
	Above 1G112	Peak	1MHz	10Hz	Average				
Limit:	Frequency	Field strength	Limit	Remark	Measurement				
	requeriey	(microvolt/meter)	(dBuV/m)	rtomant	distance (m)				
	0.009MHz-0.490MHz	(microvolt/meter) 2400/F(kHz)	(dBuV/m) -	-	distance (m) 300				
		,	(dBuV/m) - -	-	. ,				
	0.009MHz-0.490MHz	2400/F(kHz)	-	- - -	300				
	0.009MHz-0.490MHz 0.490MHz-1.705MHz	2400/F(kHz) 24000/F(kHz)	-	- - - Quasi-peak	300 30				
	0.009MHz-0.490MHz 0.490MHz-1.705MHz 1.705MHz-30MHz	2400/F(kHz) 24000/F(kHz) 30		- - -	300 30 30				
	0.009MHz-0.490MHz 0.490MHz-1.705MHz 1.705MHz-30MHz 30MHz-88MHz	2400/F(kHz) 24000/F(kHz) 30 100	- - - 40.0	- - - Quasi-peak	300 30 30 30				
	0.009MHz-0.490MHz 0.490MHz-1.705MHz 1.705MHz-30MHz 30MHz-88MHz 88MHz-216MHz	2400/F(kHz) 24000/F(kHz) 30 100 150	- - 40.0 43.5	- - - Quasi-peak Quasi-peak	300 30 30 3 3				
	0.009MHz-0.490MHz 0.490MHz-1.705MHz 1.705MHz-30MHz 30MHz-88MHz 88MHz-216MHz 216MHz-960MHz	2400/F(kHz) 24000/F(kHz) 30 100 150 200	- - 40.0 43.5 46.0	- - - Quasi-peak Quasi-peak Quasi-peak	300 30 30 3 3 3				
	0.009MHz-0.490MHz 0.490MHz-1.705MHz 1.705MHz-30MHz 30MHz-88MHz 88MHz-216MHz 216MHz-960MHz 960MHz-1GHz	2400/F(kHz) 24000/F(kHz) 30 100 150 200 500 500 s otherwise specific the maximum per ent under test. This	- 40.0 43.5 46.0 54.0 54.0 ed, the limit or	- Quasi-peak Quasi-peak Quasi-peak Quasi-peak Average on peak radio frage emission lir	300 30 30 3 3 3 3 3 requency				



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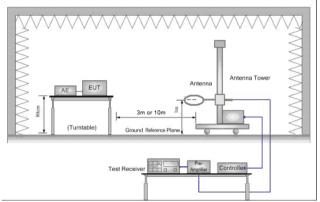
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Test Setup:



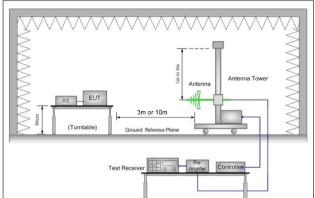


Figure 1. Below 30MHz

Figure 2. 30MHz to 1GHz

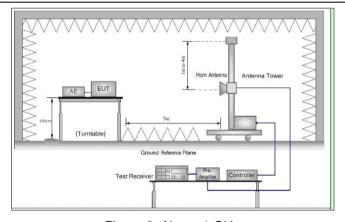


Figure 3. Above 1 GHz

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 camber. 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 camber. 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.
- e. Use the following spectrum analyzer settings:
 - Span shall wide enough to fully capture the emission being (1) measured:
 - (2)Set RBW=100 kHz for f < 1 GHz, RBW=1MHz for f>1GHz; VBW ≥ RBW; Sweep = auto;
 - Detector function = peak; Trace = max hold for peak
 - (3)For average measurement: use duty cycle correction factor method per 15.35(c).



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1 490. 10 01 77
Duty cycle = On time/100 milliseconds
On time = N 1 *L 1 +N 2 *L 2 ++N n-1 *LN n-1 +N n *L n
Where N 1 is number of type 1 pulses, L 1 is length of type 1 pulses, etc.
Average Emission Level = Peak Emission Level + 20*log(Duty cycle)
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.
g. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.
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.
i. Test the EUT in the lowest channel, the middle channel ,the Highest channel.
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.
k. Repeat above procedures until all frequencies measured was complete.
Transmitting with GFSK modulation.
Charge + Transmitting 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.
Refer to section 5.10 for details
Pass



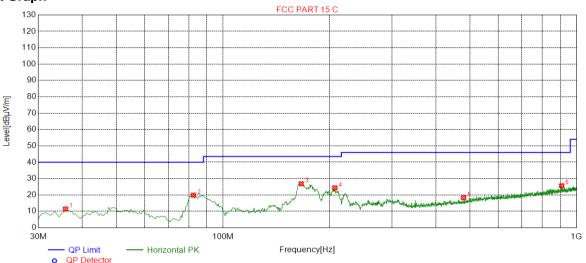


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4.9.1 **Radiated Emission below 1GHz** 4.9.1.1 **Charge + Transmitting**

Test Graph



Suspected List

Suspe	Suspected List								
NO.	Freq. [MHz]	Level [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity		
1	35.8229	11.43	40.00	28.57	150	253	Horizontal		
2	82.4062	19.89	40.00	20.11	150	85	Horizontal		
3	166.3532	26.86	43.50	16.64	150	228	Horizontal		
4	207.1136	24.36	43.50	19.14	150	228	Horizontal		
5	478.8494	18.34	46.00	27.66	150	266	Horizontal		
6	907.3187	25.69	46.00	20.31	150	161	Horizontal		

Final Data List

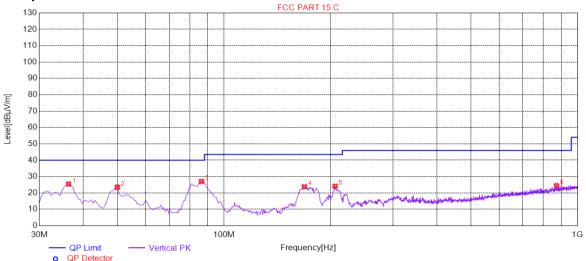




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Test Graph



Suspected List

<u>ouspec</u>	teu List									
Suspe	Suspected List									
NO.	Freq. [MHz]	Level [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity			
1	36.3082	25.47	40.00	14.53	150	72	Vertical			
2	49.8949	23.59	40.00	16.41	150	2	Vertical			
3	86.2881	27.05	40.00	12.95	150	246	Vertical			
4	168.7794	23.80	43.50	19.70	150	344	Vertical			
5	206.1431	24.14	43.50	19.36	150	322	Vertical			
6	871.8959	24.48	46.00	21.52	150	344	Vertical			

Final Data List

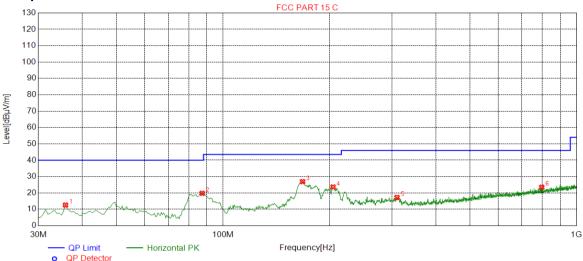




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Test Graph



Suspected List

<u>ouspee</u>	teu List									
Suspe	Suspected List									
NO.	Freq. [MHz]	Level [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity			
1	35.8229	12.62	40.00	27.38	150	284	Horizontal			
2	87.2586	19.81	40.00	20.19	150	94	Horizontal			
3	167.8089	26.94	43.50	16.56	150	218	Horizontal			
4	204.6873	23.67	43.50	19.83	150	224	Horizontal			
5	310.4702	17.26	46.00	28.74	150	104	Horizontal			
6	797.1686	23.49	46.00	22.51	150	313	Horizontal			

Final Data List

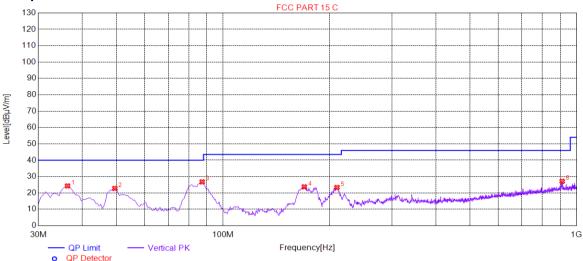




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Test Graph



Suspected List

<u>ouspeo</u>	dispected List									
Suspe	Suspected List									
NO.	Freq. [MHz]	Level [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity			
1	36.3082	24.28	40.00	15.72	150	344	Vertical			
2	49.4097	22.79	40.00	17.21	150	329	Vertical			
3	87.2586	26.78	40.00	13.22	150	98	Vertical			
4	169.7499	23.74	43.50	19.76	150	344	Vertical			
5	210.0250	23.34	43.50	20.16	150	326	Vertical			
6	910.7154	27.14	46.00	18.86	150	10	Vertical			

Final Data List



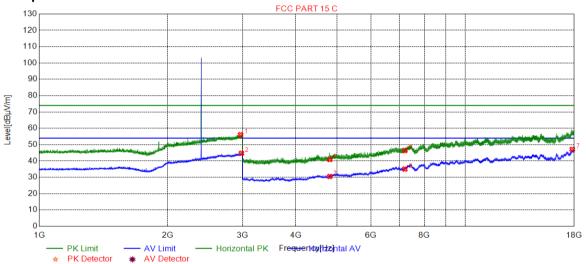


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4.9.2 **Transmitter Emission above 1GHz BLE-1M Channel 0** 4.9.2.1

Test Graph



Suspected List

Suspe	Suspected List								
NO.	Freq. [MHz]	Level [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity		
1	2966.491	56.08	74.00	17.92	150	354	Horizontal		
2	2980.995	44.71	54.00	9.29	150	56	Horizontal		
3	4804.000	30.52	54.00	23.48	150	23	Horizontal		
4	4804.000	40.94	74.00	33.06	150	330	Horizontal		
5	7206.000	46.38	74.00	27.62	150	330	Horizontal		
6	7206.000	35.06	54.00	18.94	150	6	Horizontal		
7	17807.99	47.11	54.00	6.89	150	194	Horizontal		

Final Data List



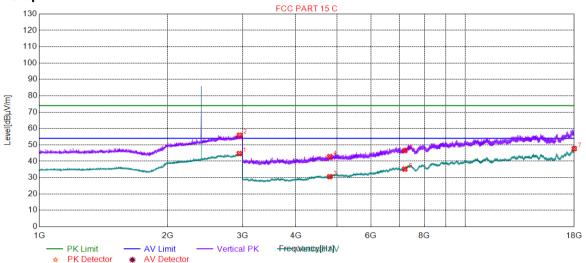


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BLE-1M Channel 0 4.9.2.2

Test Graph



Suspected List

Suspe	Suspected List							
NO.	Freq. [MHz]	Level [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity	
1	2947.486	44.74	54.00	9.26	150	81	Vertical	
2	2949.987	55.93	74.00	18.07	150	330	Vertical	
3	4804.000	30.55	54.00	23.45	150	224	Vertical	
4	4804.000	42.83	74.00	31.17	150	190	Vertical	
5	7206.000	46.50	74.00	27.50	150	173	Vertical	
6	7206.000	35.21	54.00	18.79	150	139	Vertical	
7	18000.00	47.73	54.00	6.27	150	71	Vertical	

Final Data List



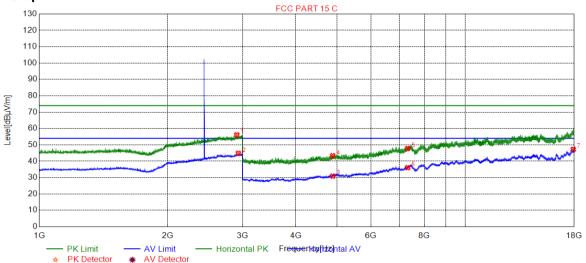


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BLE-1M Channel 19 4.9.2.3

Test Graph



Suspected List

Suspe	Suspected List								
NO.	Freq. [MHz]	Level [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity		
1	2906.476	56.12	74.00	17.88	150	312	Horizontal		
2	2931.983	44.86	54.00	9.14	150	113	Horizontal		
3	4880.000	30.94	54.00	23.06	150	346	Horizontal		
4	4880.000	43.35	74.00	30.65	150	109	Horizontal		
5	7320.000	47.82	74.00	26.18	150	8	Horizontal		
6	7320.000	36.08	54.00	17.92	150	296	Horizontal		
7	17900.99	47.29	54.00	6.71	150	312	Horizontal		

Final Data List



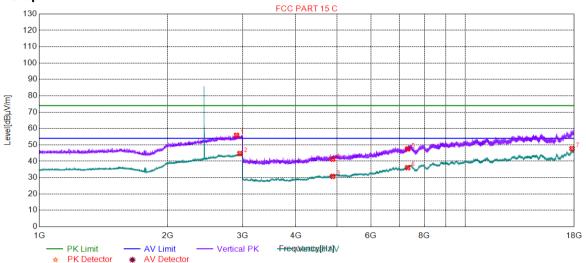


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BLE-1M Channel 19 4.9.2.4

Test Graph



Suspected List

Suspe	Suspected List								
NO.	Freq. [MHz]	Level [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity		
1	2902.475	55.87	74.00	18.13	150	143	Vertical		
2	2956.989	44.75	54.00	9.25	150	128	Vertical		
3	4880.000	30.76	54.00	23.24	150	14	Vertical		
4	4880.000	41.28	74.00	32.72	150	352	Vertical		
5	7320.000	47.54	74.00	26.46	150	48	Vertical		
6	7320.000	36.09	54.00	17.91	150	64	Vertical		
7	17785.48	47.71	54.00	6.29	150	82	Vertical		

Final Data List



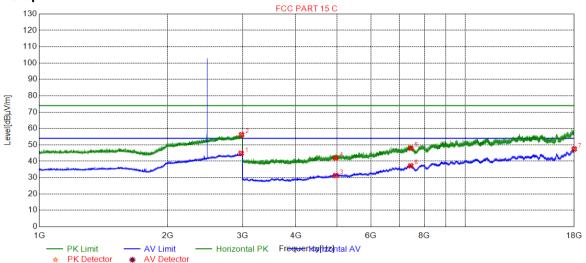


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BLE-1M Channel 39 4.9.2.5

Test Graph



Suspected List

Suspe	Suspected List							
NO.	Freq. [MHz]	Level [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity	
1	2975.994	44.84	54.00	9.16	150	329	Horizontal	
2	2982.495	56.23	74.00	17.77	150	129	Horizontal	
3	4960.000	31.25	54.00	22.75	150	228	Horizontal	
4	4960.000	42.04	74.00	31.96	150	23	Horizontal	
5	7440.000	47.96	74.00	26.04	150	346	Horizontal	
6	7440.000	37.21	54.00	16.79	150	58	Horizontal	
7	17996.99	47.50	54.00	6.50	150	244	Horizontal	

Final Data List



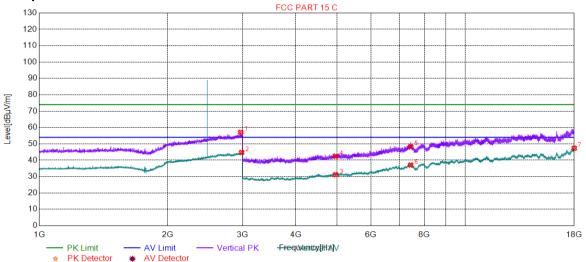


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BLE-1M Channel 39 4.9.2.6

Test Graph



Suspected List

Suspe	Suspected List									
NO.	Freq. [MHz]	Level [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity			
1	2969.492	57.10	74.00	16.90	150	242	Vertical			
2	2983.495	44.77	54.00	9.23	150	211	Vertical			
3	4960.000	31.17	54.00	22.83	150	354	Vertical			
4	4960.000	42.43	74.00	31.57	150	252	Vertical			
5	7440.000	48.23	74.00	25.77	150	201	Vertical			
6	7440.000	37.07	54.00	16.93	150	82	Vertical			
7	18000.00	47.36	54.00	6.64	150	252	Vertical			

Final Data List



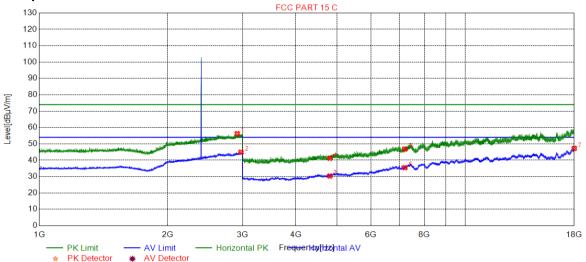


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BLE-2M Channel 0 4.9.2.7

Test Graph



Suspected List

Suspe	Suspected List									
NO.	Freq. [MHz]	Level [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity			
1	2913.978	56.25	74.00	17.75	150	97	Horizontal			
2	2973.993	44.89	54.00	9.11	150	206	Horizontal			
3	4804.000	30.37	54.00	23.63	150	92	Horizontal			
4	4804.000	41.25	74.00	32.75	150	92	Horizontal			
5	7206.000	46.81	74.00	27.19	150	58	Horizontal			
6	7206.000	35.49	54.00	18.51	150	126	Horizontal			
7	17998.49	47.25	54.00	6.75	150	143	Horizontal			

Final Data List



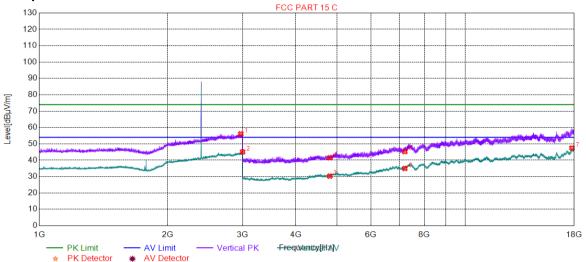


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BLE-2M Channel 0 4.9.2.8

Test Graph



Suspected List

Suspe	Suspected List									
NO.	Freq. [MHz]	Level [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity			
1	2970.492	56.15	74.00	17.85	150	128	Vertical			
2	2999.499	45.10	54.00	8.90	150	289	Vertical			
3	4804.000	30.31	54.00	23.69	150	150	Vertical			
4	4804.000	41.53	74.00	32.47	150	150	Vertical			
5	7206.000	45.28	74.00	28.72	150	30	Vertical			
6	7206.000	34.97	54.00	19.03	150	14	Vertical			
7	17777.98	47.48	54.00	6.52	150	167	Vertical			

Final Data List



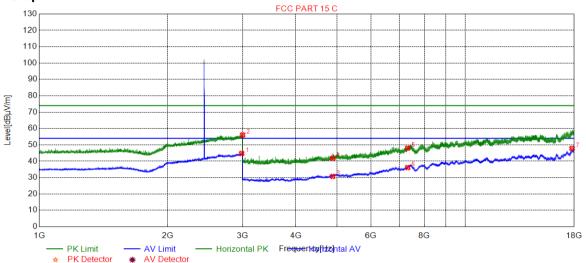


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BLE-2M Channel 19 4.9.2.9

Test Graph



Suspected List

Suspe	Suspected List									
NO.	Freq. [MHz]	Level [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity			
1	2984.496	44.77	54.00	9.23	150	353	Horizontal			
2	2999.499	56.10	74.00	17.90	150	343	Horizontal			
3	4880.000	30.75	54.00	23.25	150	346	Horizontal			
4	4880.000	41.89	74.00	32.11	150	159	Horizontal			
5	7320.000	48.04	74.00	25.96	150	329	Horizontal			
6	7320.000	36.16	54.00	17.84	150	210	Horizontal			
7	17785.48	47.84	54.00	6.16	150	58	Horizontal			

Final Data List



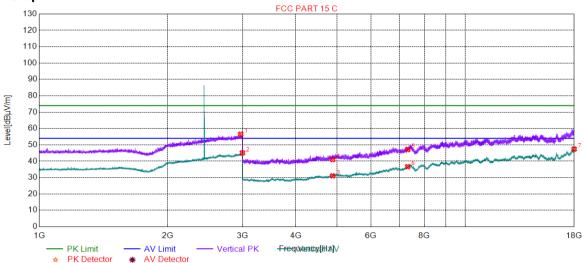


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BLE-2M Channel 19 4.9.2.10

Test Graph



Suspected List

Suspe	Suspected List									
NO.	Freq. [MHz]	Level [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity			
1	2969.992	56.51	74.00	17.49	150	278	Vertical			
2	2996.499	45.12	54.00	8.88	150	272	Vertical			
3	4880.000	31.09	54.00	22.91	150	209	Vertical			
4	4880.000	41.06	74.00	32.94	150	31	Vertical			
5	7320.000	47.14	74.00	26.86	150	99	Vertical			
6	7320.000	36.70	54.00	17.30	150	136	Vertical			
7	17987.99	47.44	54.00	6.56	150	82	Vertical			

Final Data List



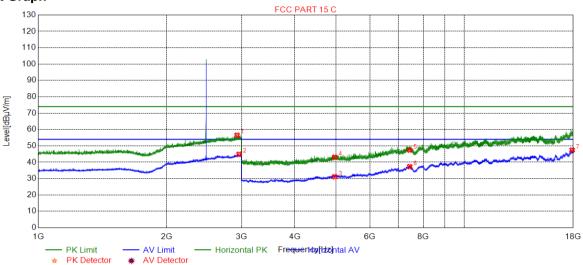


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BLE-2M Channel 39 4.9.2.11

Test Graph



Suspected List

Suspe	Suspected List									
NO.	Freq. [MHz]	Level [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity			
1	2926.481	56.55	74.00	17.45	150	136	Horizontal			
2	2958.489	44.89	54.00	9.11	150	231	Horizontal			
3	4960.000	31.15	54.00	22.85	150	329	Horizontal			
4	4960.000	43.11	74.00	30.89	150	153	Horizontal			
5	7440.000	47.45	74.00	26.55	150	240	Horizontal			
6	7440.000	37.29	54.00	16.71	150	222	Horizontal			
7	17891.24	47.46	54.00	6.54	150	296	Horizontal			

Final Data List



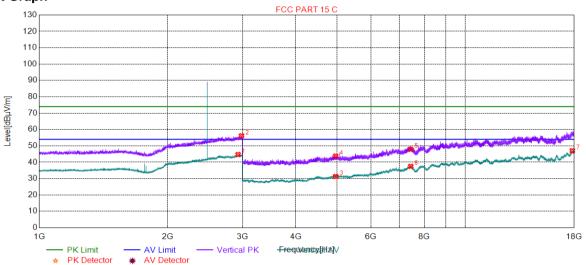


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BLE-2M Channel 39 4.9.2.12

Test Graph



Suspected List

Suspe	Suspected List									
NO.	Freq. [MHz]	Level [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity			
1	2927.481	44.73	54.00	9.27	150	142	Vertical			
2	2981.495	56.17	74.00	17.83	150	163	Vertical			
3	4960.000	31.32	54.00	22.68	150	14	Vertical			
4	4960.000	43.80	74.00	30.20	150	30	Vertical			
5	7440.000	47.90	74.00	26.10	150	250	Vertical			
6	7440.000	37.52	54.00	16.48	150	132	Vertical			
7	17813.24	47.07	54.00	6.93	150	352	Vertical			

Final Data List

Remark:

- 1) 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
- 2) 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.
- 3) 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.
- 4) All Modes have been tested, but only the worst case data displayed in this report.



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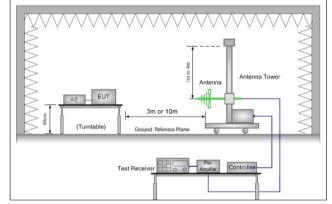
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4.10Restricted bands around fundamental frequency

Test Requirement:	47 CFR Part 15C Section	15.209 and 15.205							
Test Method:	ANSI C63.10: 2013 Section	n 11.12							
Test Site:	Measurement Distance: 3n	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						
	Al- 2012 4 OLL-	54.0	Average Value						
	Above 1GHz	74.0	Peak Value						
Test Setup:		<u>.</u>							





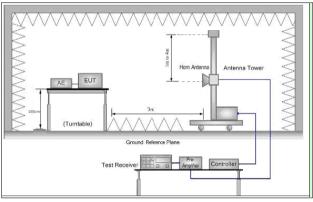


Figure 1. 30MHz to 1GHz

Figure 2. Above 1 GHz

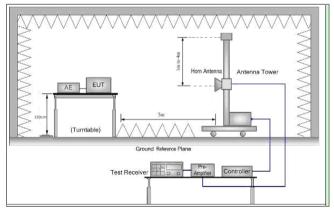


Figure 3. Above 1 GHz



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	,
Test Procedure:	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 camber. 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 camber. 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





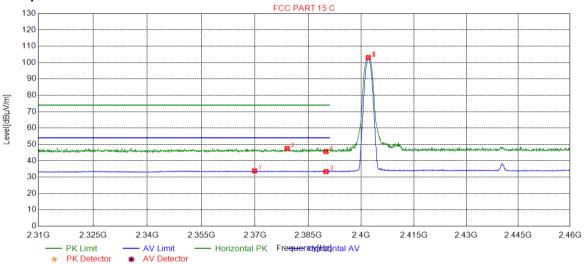
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Test Plots 4.10.1

BLE-1M Channel 0 4.10.1.1

Test Graph



Suspected List

Suspe	Suspected List									
NO.	Freq. [MHz]	Level [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity			
1	2369.879	33.84	54.00	20.16	150	295	Horizontal			
2	2379.034	47.55	74.00	26.45	150	314	Horizontal			
3	2390.000	33.39	54.00	20.61	150	252	Horizontal			
4	2390.000	45.67	74.00	28.33	150	102	Horizontal			
5	2402.000	103.10	0.00	-103.10	150	56	Horizontal			
6	2402.000	102.47	0.00	-102.47	150	56	Horizontal			

Final Data List



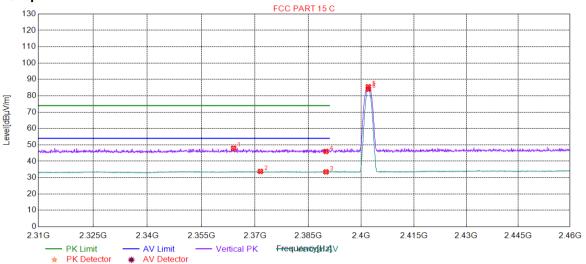


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BLE-1M Channel 0 4.10.1.2

Test Graph



Suspected List

Suspe	Suspected List									
NO.	Freq. [MHz]	Level [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity			
1	2364.027	47.97	74.00	26.03	150	297	Vertical			
2	2371.530	33.82	54.00	20.18	150	308	Vertical			
3	2390.000	33.50	54.00	20.50	150	308	Vertical			
4	2390.000	46.04	74.00	27.96	150	332	Vertical			
5	2402.000	85.56	0.00	-85.56	150	324	Vertical			
6	2402.000	84.06	0.00	-84.06	150	157	Vertical			

Final Data List



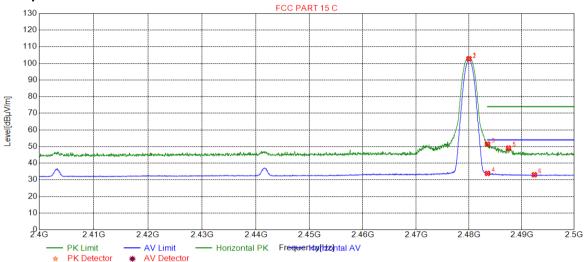


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BLE-1M Channel 39 4.10.1.3

Test Graph



Suspected List

Suspe	Suspected List									
NO.	Freq. [MHz]	Level [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity			
1	2480.000	102.77	0.00	-102.77	150	75	Horizontal			
2	2480.000	102.17	0.00	-102.17	150	75	Horizontal			
3	2483.500	51.46	74.00	22.54	150	64	Horizontal			
4	2483.500	33.88	54.00	20.12	150	68	Horizontal			
5	2487.493	49.07	74.00	24.93	150	98	Horizontal			
6	2492.396	33.07	54.00	20.93	150	60	Horizontal			

Final Data List



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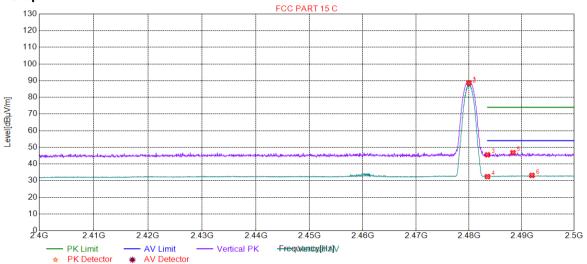


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BLE-1M Channel 39 4.10.1.4

Test Graph



Suspected List

Suspe	Suspected List								
NO.	Freq. [MHz]	Level [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity		
1	2480.000	88.69	0.00	-88.69	150	308	Vertical		
2	2480.000	88.09	0.00	-88.09	150	308	Vertical		
3	2483.500	45.52	74.00	28.48	150	53	Vertical		
4	2483.500	32.43	54.00	21.57	150	177	Vertical		
5	2488.344	46.80	74.00	27.20	150	33	Vertical		
6	2491.946	33.16	54.00	20.84	150	346	Vertical		

Final Data List



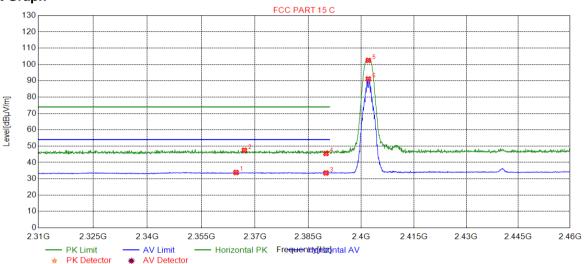


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BLE-2M Channel 0 4.10.1.5

Test Graph



Suspected List

Suspe	Suspected List								
NO.	Freq. [MHz]	Level [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity		
1	2364.702	33.88	54.00	20.12	150	199	Horizontal		
2	2367.028	47.48	74.00	26.52	150	172	Horizontal		
3	2390.000	33.57	54.00	20.43	150	222	Horizontal		
4	2390.000	45.52	74.00	28.48	150	349	Horizontal		
5	2402.000	102.52	0.00	-102.52	150	79	Horizontal		
6	2402.000	91.14	0.00	-91.14	150	71	Horizontal		

Final Data List



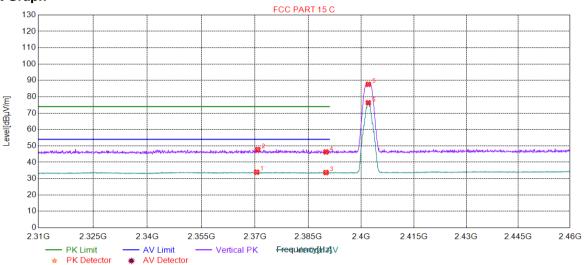


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BLE-2M Channel 0 4.10.1.6

Test Graph



Suspected List

Suspe	Suspected List								
NO.	Freq. [MHz]	Level [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity		
1	2370.480	33.92	54.00	20.08	150	153	Vertical		
2	2370.780	47.78	74.00	26.22	150	106	Vertical		
3	2390.000	33.73	54.00	20.27	150	133	Vertical		
4	2390.000	46.29	74.00	27.71	150	300	Vertical		
5	2402.000	87.64	0.00	-87.64	150	335	Vertical		
6	2402.000	76.39	0.00	-76.39	150	195	Vertical		

Final Data List



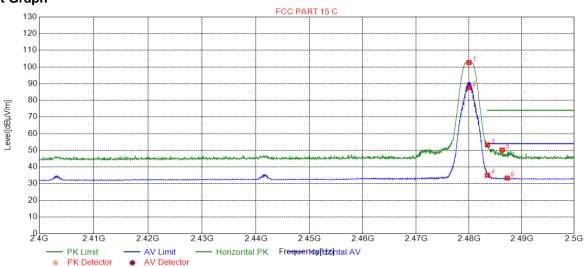


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BLE-2M Channel 39 4.10.1.7

Test Graph



Suspected List

Suspe	Suspected List								
NO.	Freq. [MHz]	Level [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity		
1	2480.000	102.69	0.00	-102.69	150	83	Horizontal		
2	2480.000	87.59	0.00	-87.59	150	229	Horizontal		
3	2483.500	53.30	74.00	20.70	150	83	Horizontal		
4	2483.500	35.02	54.00	18.98	150	131	Horizontal		
5	2486.293	50.18	74.00	23.82	150	99	Horizontal		
6	2487.243	33.38	54.00	20.62	150	87	Horizontal		

Final Data List



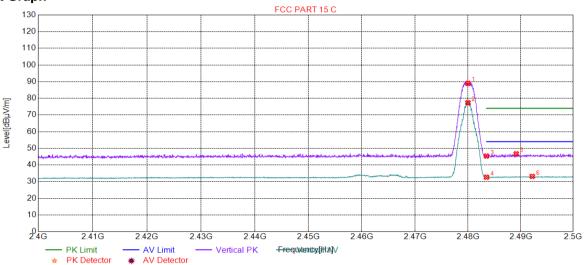


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BLE-2M Channel 39 4.10.1.8

Test Graph



Suspected List

Suspe	Suspected List								
NO.	Freq. [MHz]	Level [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity		
1	2480.000	89.04	0.00	-89.04	150	201	Vertical		
2	2480.000	77.38	0.00	-77.38	150	4	Vertical		
3	2483.500	45.36	74.00	28.64	150	263	Vertical		
4	2483.500	32.67	54.00	21.33	150	320	Vertical		
5	2489.144	46.72	74.00	27.28	150	93	Vertical		
6	2492.196	33.19	54.00	20.81	150	217	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.





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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	Dedicted Couriers emission test	±4.5dB (30MHz-1GHz)
4	Radiated Spurious emission test	±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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Equipment List

Conducted Emission								
Toot Equipment	Manufacturer	Madal Na	Inventory No	Cal. date	Cal.Duedate			
Test Equipment	Wanufacturer	Model No.	Inventory No	(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 V5.4.1221d	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-T2 02	EMC0122	2020/2/11	2021/2/10			
EMI Test Receiver	Rohde & Schwarz	ESCI	SEM004-02	2020/3/2	2021/3/1			

RF conducted test								
Toot Equipment	Manufacturer	Model No	Inventory No.	Cal. date	Cal.Duedate			
Test Equipment	Wanufacturer	Model No.	Inventory No	(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-CP AR	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							
				Cal. date	Cal.Due date		
Test Equipment	Manufacturer	Model No.	Inventory No.	(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 Chamb	er				
Test Equipment	Manufacturer	Model No.	Inventory No.	Cal. date	Cal.Due date		
	manaraota o			(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 - Photographs of Set-Up for ZR/2020/B0036.

The End

