

Report No.: ZR/2020/C004304

Page: 1 of 36

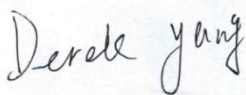
# FCC TEST REPORT

**Application No.:** ZR/2020/C0043  
**Applicant:** Sony Mobile Communications, Inc.  
**Address of Applicant:** 4-12-3 Higashi-shinagawa, Shinagawa-ku, Tokyo, 140-0002, Japan  
**Manufacturer:** Sony Mobile Communications, Inc.  
**Address of Manufacturer:** 4-12-3 Higashi-shinagawa, Shinagawa-ku, Tokyo, 140-0002, Japan  
**EUT Description:** GSM/WCDMA/LTE Phone with BT, DTS/UNII a/b/g/n/ac, GPS and NFC  
**Trade Mark:** Sony  
**FCC ID:** PY7-76625R  
**Standards:** 47 CFR FCC Part 2, Subpart J  
47 CFR Part 15, Subpart C  
**Date of Receipt:** 2021/2/25  
**Date of Test:** 2021/2/25 to 2021/3/15  
**Date of Issue:** 2021/3/18

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

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

Authorized Signature:



Derek Yang  
Wireless Laboratory Manager





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## 1 Version

Revision Record				
Version	Chapter	Date	Modifier	Remark
01		2021-03-18		Original

Authorized for issue by:			
Tested By		 (Dee Zheng) /Project Engineer	
Checked By		 (David Chen) /Reviewer	

## 2 Test Summary

Test Item	Test Requirement	Test Method	Result	Remark	Test Lab*
AC Power Line Conducted Emission	15.207	ANSI C63.10 2013	-	See Note	-
Duty cycle	-	-	PASS	-	A
Conducted Output Power	15.247 (b)(3)	ANSI C63.10 2013	PASS	-	A
DTS (6 dB) Bandwidth	15.247 (a)(2)	ANSI C63.10 2013	-	See Note	-
Power Spectral Density	15.247 (e)	ANSI C63.10 2013	-	See Note	-
Band-edge for RF Conducted Emissions	15.247(d)	ANSI C63.10 2013	-	See Note	-
RF Conducted Spurious Emissions	15.247(d)	ANSI C63.10 2013	-	See Note	-
Radiated Spurious Emissions	15.205/15.209	ANSI C63.10 2013	PASS	-	B
Restricted bands around fundamental frequency (Radiated Emission)	15.205/15.209	ANSI C63.10 2013	PASS	-	B

Note: The RF circuit, output power level and antenna performance is the same in WLAN function across all two FCC ID PY7-54955X and PY7-76625R, since the change, only verify RF output power and radiated spurious emission test data the worst mode was reported in this report.



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## Contents

1	Version .....	2
2	Test Summary .....	3
3	General Information .....	5
3.1	Details of Client .....	5
3.2	Test Location .....	5
3.3	Test Facility .....	6
3.4	General Description of EUT .....	7
3.5	Test Environment .....	8
3.6	Description of Support Units .....	8
4	Test results and Measurement Data .....	9
4.1	Antenna Requirement .....	9
4.2	Conducted Output Power .....	10
4.2.1	Test Results .....	14
4.2.2	Test Plots .....	14
4.3	Radiated Spurious Emissions .....	15
4.3.1	Radiated Emission below 1GHz .....	18
4.3.2	Transmitter Emission above 1GHz .....	22
4.4	Restricted bands around fundamental frequency .....	26
4.4.1	Test Plots .....	29
5	Measurement Uncertainty (95% confidence levels, k=2) .....	33
6	Equipment List .....	34
7	Photographs - EUT Constructional Details .....	36



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### 3 General Information

#### 3.1 Details of Client

Applicant:	Sony Mobile Communications, Inc.
Address of Applicant	4-12-3 Higashi-shinagawa, Shinagawa-ku, Tokyo, 140-0002, Japan
Manufacturer:	Sony Mobile Communications, Inc.
Address of Manufacturer	4-12-3 Higashi-shinagawa, Shinagawa-ku, Tokyo, 140-0002, Japan

#### 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

##### 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



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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:	GSM/WCDMA/LTE Phone with BT, DTS/UNII a/b/g/n/ac, GPS and NFC
Trade Mark:	Sony
S/N:	005059ADNVM2
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:	2.0 dBi

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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Page: 8 of 36

**Remark:**

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

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

### 3.5 Test Environment

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

### 3.6 Description of Support Units

The EUT has been tested independent unit.



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## 4 Test results and Measurement Data

### 4.1 Antenna Requirement

<b>Standard requirement:</b>	47 CFR Part 15C Section 15.203 /247(c)
<p>15.203 requirement: An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator, the manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited.</p> <p>15.247(b) (4) requirement: The conducted output power limit specified in paragraph (b) of this section is based on the use of antennas with directional gains that do not exceed 6 dBi. Except as shown in paragraph (c) of this section, if transmitting antennas of directional gain greater than 6 dBi are used, the conducted output power from the intentional radiator shall be reduced below the stated values in paragraphs (b)(1), (b)(2), and (b)(3) of this section, as appropriate, by the amount in dB that the directional gain of the antenna exceeds 6 dBi.</p> <p>The antenna is integrated on the main PCB and no consideration of replacement. The best case gain of the antenna is 2.0 dBi.</p>	



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## 4.2 Duty Cycle

### 4.2.1 Test Results

Test Mode	TX Freq. [MHz]	Duty cycle [%]	T(ms)	1/T(kHz)	VBW(kHz)
BLE_1M	CH0, CH19, CH39	61.66	0.386	2.591	3
BLE_2M	CH0, CH19, CH39	31.94	0.199	5.025	10



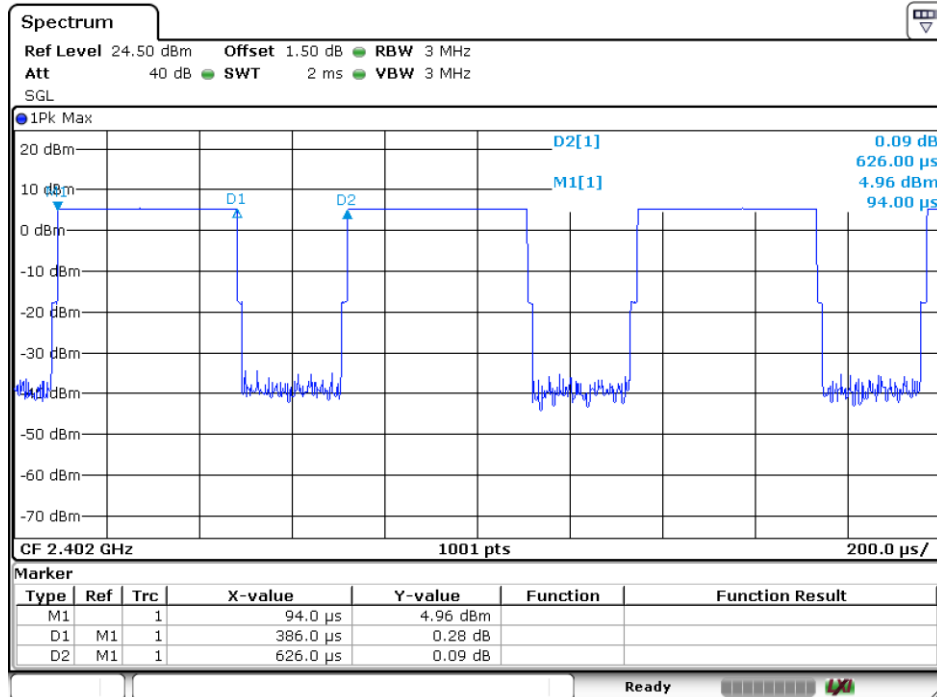
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### 4.2.2 Test Plots

#### 4.2.2.1 ANT1

##### 4.2.2.1.1 BLE\_1M



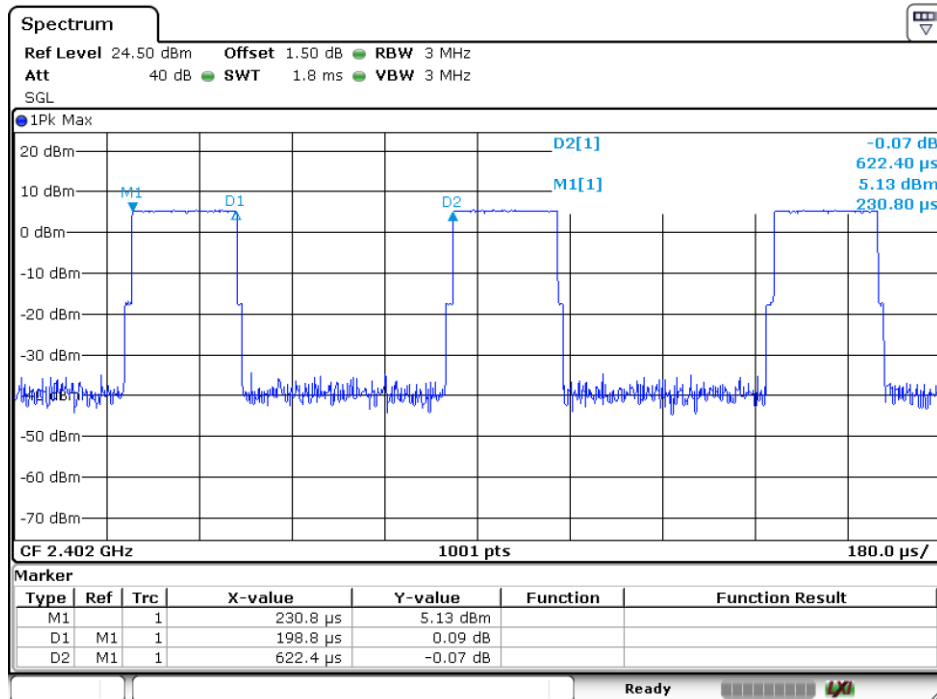
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### 4.2.2.1.2 BLE\_2M



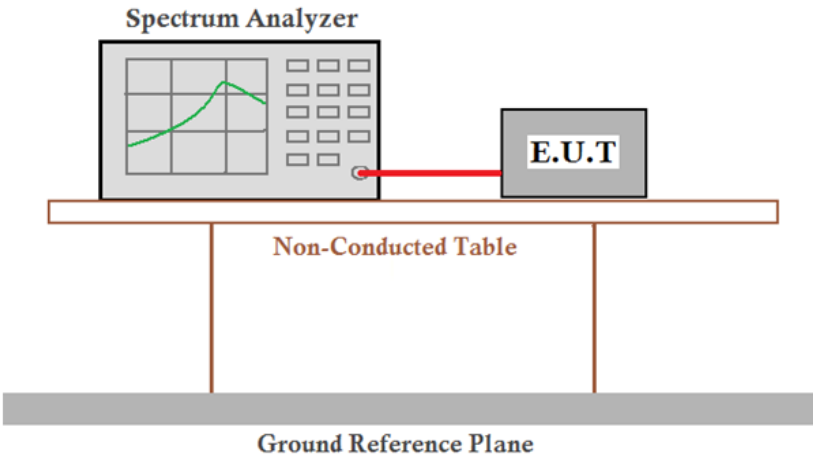
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## 4.3 Conducted Output Power

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



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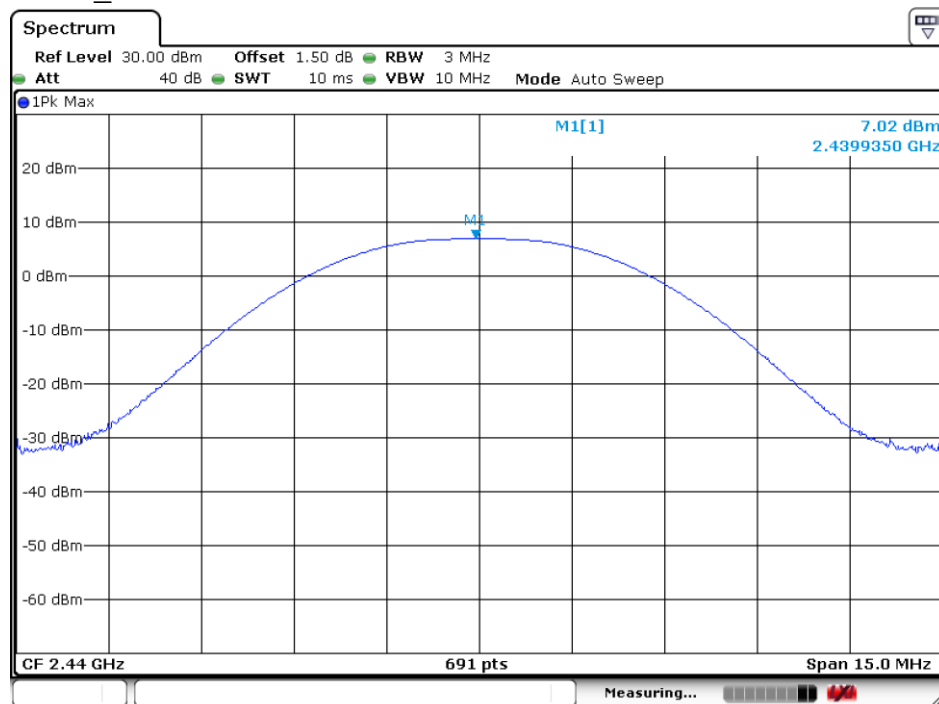
## 4.3.1 Test Results

### Measurement Data of Peak Power:

GFSK_2M mode			
Test Channel	Peak Output Power (dBm)	Limit (dBm)	Result
Middle	7.02	30.00	Pass

## 4.3.2 Test Plots

### 4.3.2.1 GFSK 2M\_Middle Channel



Date: 17.MAR.2021 16:42:27



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#### 4.4 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)				
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:

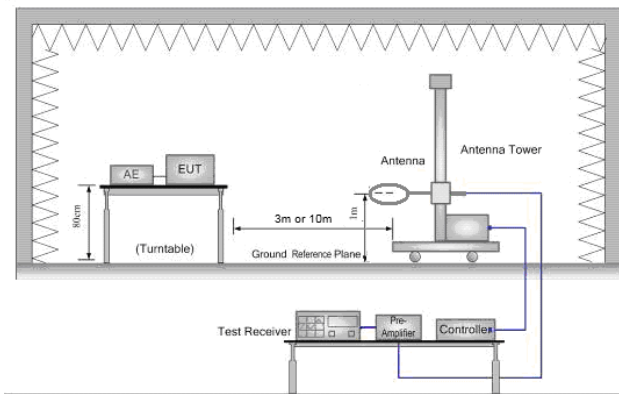


Figure 1. Below 30MHz

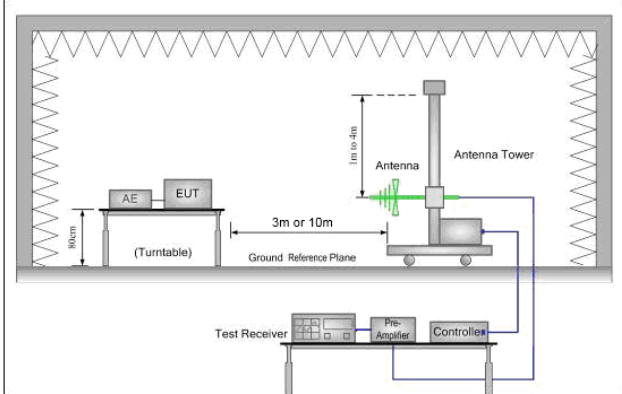


Figure 2. 30MHz to 1GHz

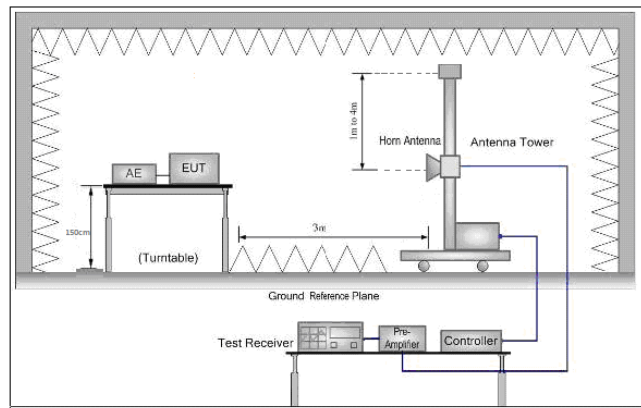


Figure 3. Above 1 GHz

### 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.
- 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.
- The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.
- 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



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Report No.: ZR/2020/C004304

Page: 17 of 36

	<p>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>h. Test the EUT in the lowest channel, the middle channel ,the Highest channel.</p> <p>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.</p> <p>j. Repeat above procedures until all frequencies measured was complete.</p>
Test Configuration:	<p>Measurements Below 1000MHz</p> <ul style="list-style-type: none"> <li>• RBW = 120 kHz</li> <li>• VBW = 300 kHz</li> <li>• Detector = Peak</li> <li>• Trace mode = max hold</li> </ul> <p>Peak Measurements Above 1000 MHz</p> <ul style="list-style-type: none"> <li>• RBW = 1 MHz</li> <li>• VBW <math>\geq</math> 3 MHz</li> <li>• Detector = Peak</li> <li>• Sweep time = auto</li> <li>• Trace mode = max hold</li> </ul> <p>Average Measurements Above 1000MHz</p> <ul style="list-style-type: none"> <li>• RBW = 1 MHz</li> <li>• VBW = 10 Hz, when duty cycle is no less than 98 percent.</li> <li>• VBW <math>\geq</math> 1/T, when duty cycle is less than 98 percent where T is the minimum transmission duration over which the transmitter is on and is transmitting at its maximum power control level for the tested mode of operation.</li> </ul>
Exploratory Test Mode:	<p>Transmitting with GFSK modulation.</p> <p>Charge + Transmitting mode.</p>
Final Test Mode:	<p>Transmitting with GFSK modulation.</p> <p>Pretest the EUT at Charge + Transmitting mode,</p> <p>For below 1GHz part, through pre-scan, the worst case is the lowest channel. Only the worst case is recorded in the report.</p>
Instruments Used:	Refer to section 5.10 for details
Test Results:	Pass
Remark:	The Emission Test is performed by the Lab B



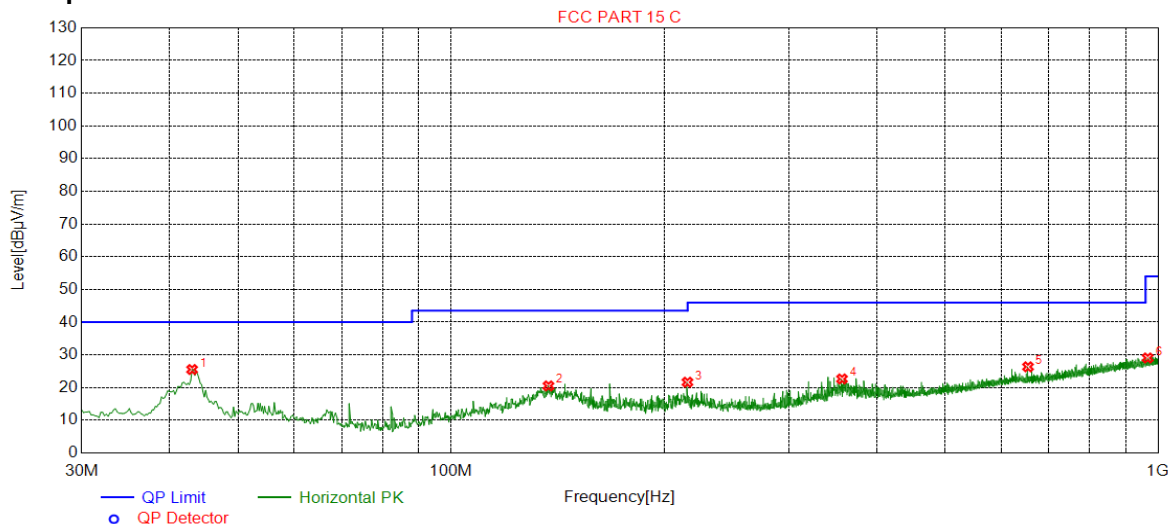
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### 4.4.1 Radiated Emission below 1GHz 4.4.1.1 Charge + Transmitting

#### Test Graph



#### Suspected List

Suspected List								
NO.	Freq. [MHz]	Level [dBμV/m]	Factor [dB]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	43.0006	25.54	-29.59	40.00	14.46	203	22	Horizontal
2	137.3035	20.52	-35.42	43.50	22.98	307	216	Horizontal
3	215.8892	21.65	-30.82	43.50	21.85	254	230	Horizontal
4	357.1494	22.65	-26.68	46.00	23.35	156	221	Horizontal
5	654.6109	26.36	-19.98	46.00	19.64	189	224	Horizontal
6	966.8194	29.07	-15.25	54.00	24.93	167	76	Horizontal

#### Final Data List

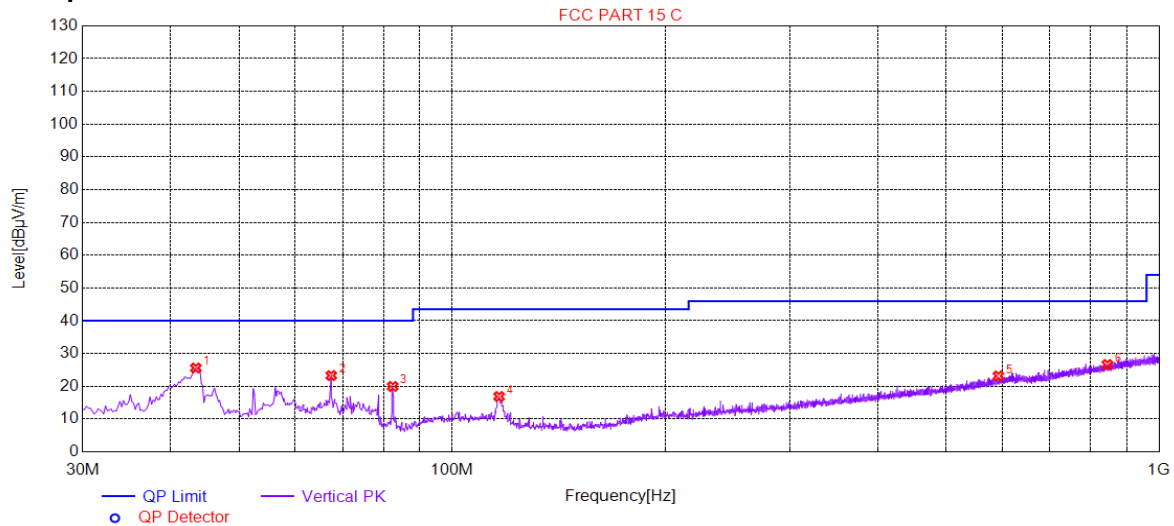


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### Test Graph



### Suspected List

Suspected List								
NO.	Freq. [MHz]	Level [dBμV/m]	Factor [dB]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	43.3887	25.59	-29.76	40.00	14.41	175	317	Vertical
2	67.4495	23.28	-33.76	40.00	16.72	204	247	Vertical
3	82.3905	19.97	-35.57	40.00	20.03	245	114	Vertical
4	116.5413	16.90	-33.03	43.50	26.60	279	104	Vertical
5	592.5185	23.16	-20.84	46.00	22.84	236	162	Vertical
6	844.9630	26.65	-16.97	46.00	19.35	356	250	Vertical

### Final Data List



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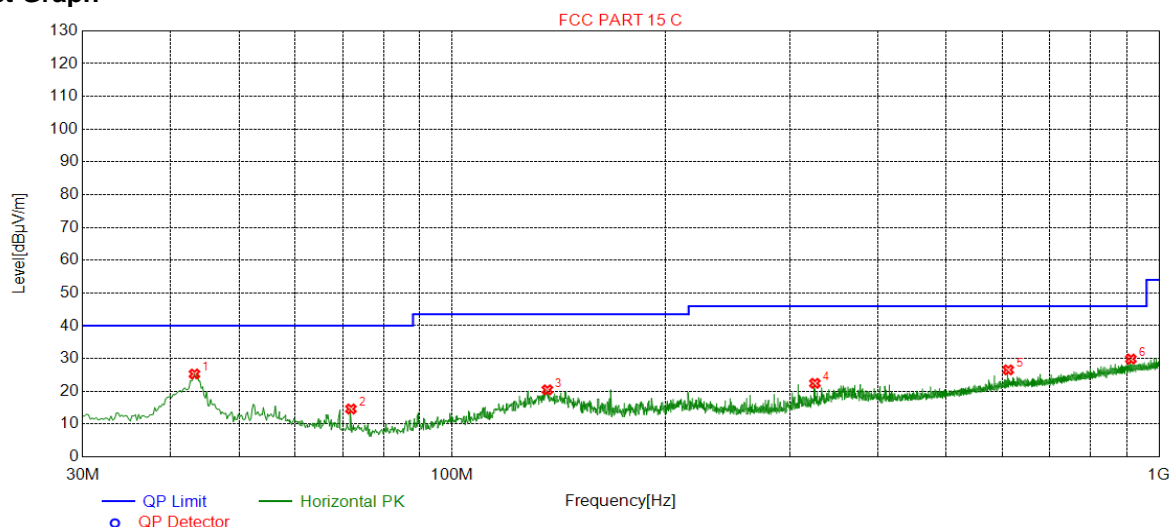
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Page: 20 of 36

### Test Graph



### Suspected List

Suspected List								
NO.	Freq. [MHz]	Level [dBμV/m]	Factor [dB]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	43.1946	25.30	-29.68	40.00	14.70	125	140	Horizontal
2	71.9124	14.62	-34.73	40.00	25.38	235	151	Horizontal
3	136.3333	20.45	-35.37	43.50	23.05	356	229	Horizontal
4	325.9092	22.44	-27.53	46.00	23.56	156	232	Horizontal
5	611.9224	26.55	-20.49	46.00	19.45	245	306	Horizontal
6	912.2945	29.86	-15.89	46.00	16.14	243	346	Horizontal

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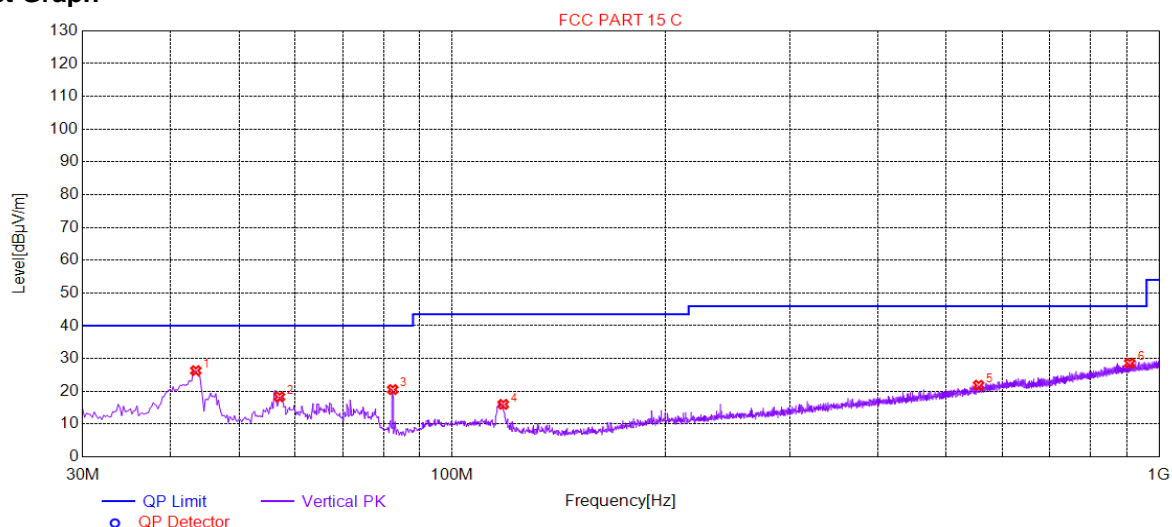
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Page: 21 of 36

### Test Graph



### Suspected List

Suspected List								
NO.	Freq. [MHz]	Level [dBμV/m]	Factor [dB]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	43.3887	26.32	-29.76	40.00	13.68	186	320	Vertical
2	56.9714	18.32	-31.41	40.00	21.68	179	161	Vertical
3	82.3905	20.54	-35.57	40.00	19.46	254	321	Vertical
4	118.0936	16.02	-33.27	43.50	27.48	247	104	Vertical
5	555.4571	21.87	-21.89	46.00	24.13	286	346	Vertical
6	908.8018	28.58	-15.93	46.00	17.42	189	14	Vertical

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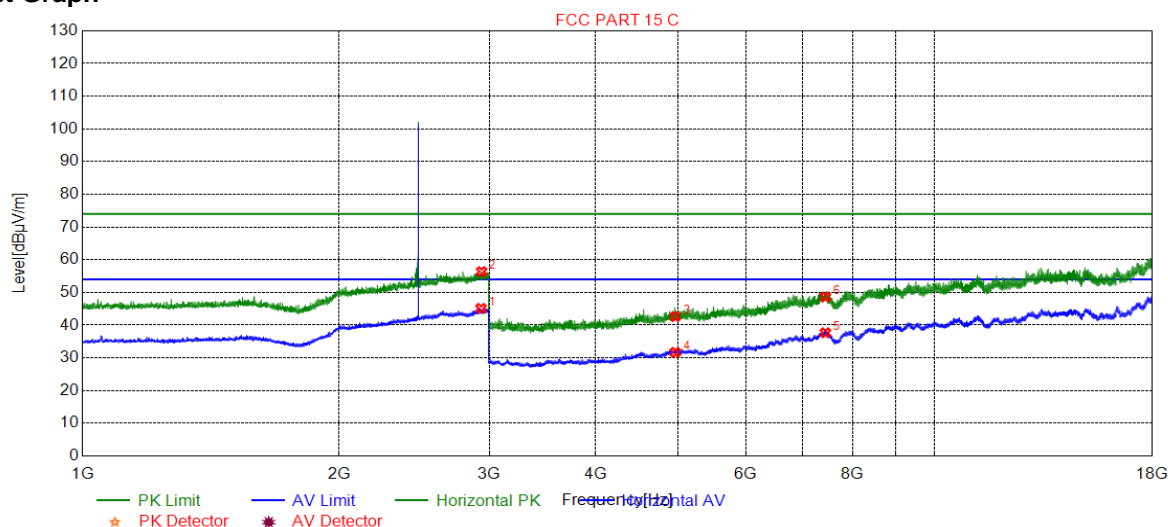
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### 4.4.2 Transmitter Emission above 1GHz

#### 4.4.2.1 BLE\_1M\_Channel 39

#### Test Graph



#### Suspected List

Suspected List								
NO.	Freq. [MHz]	Level [dBμV/m]	Factor [dB]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	2934.483	45.14	10.63	54.00	8.86	146	285	Horizontal
2	2938.484	56.38	10.54	74.00	17.62	152	263	Horizontal
3	4960.000	42.65	-16.28	74.00	31.35	176	219	Horizontal
4	4960.000	31.70	-16.28	54.00	22.30	205	83	Horizontal
5	7440.000	37.68	-8.83	54.00	16.32	159	185	Horizontal
6	7440.000	48.61	-8.83	74.00	25.39	173	219	Horizontal

#### Final Data List

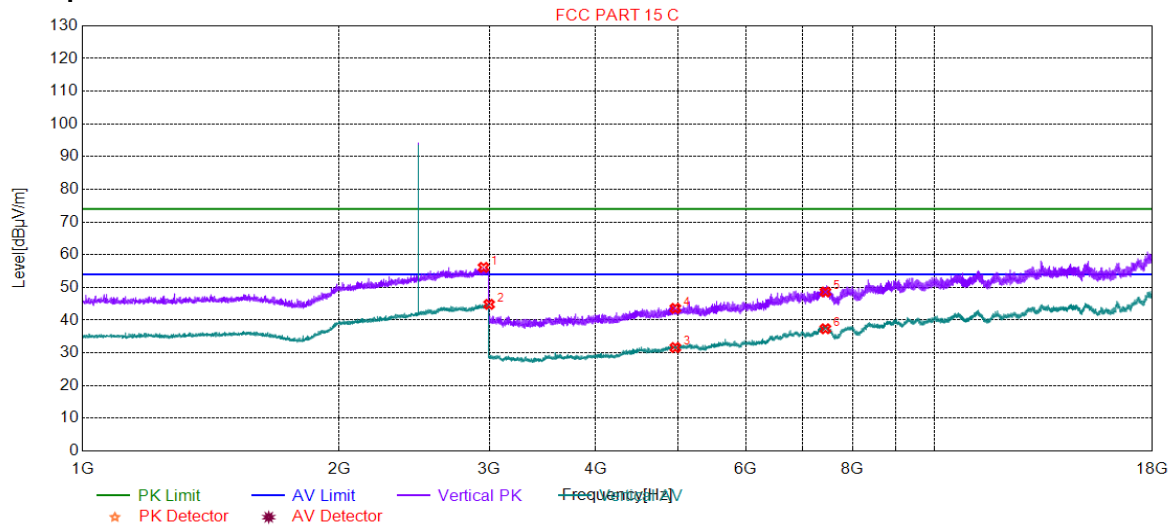


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### 4.4.2.2 BLE\_1M\_Channel 39

#### Test Graph



#### Suspected List

Suspected List								
NO.	Freq. [MHz]	Level [dBμV/m]	Factor [dB]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	2954.488	56.15	10.73	74.00	17.85	246	96	Vertical
2	2998.999	44.85	10.76	54.00	9.15	279	181	Vertical
3	4960.000	31.63	-16.28	54.00	22.37	251	55	Vertical
4	4960.000	43.62	-16.28	74.00	30.38	302	346	Vertical
5	7440.000	48.63	-8.83	74.00	25.37	279	278	Vertical
6	7440.000	37.38	-8.83	54.00	16.62	231	55	Vertical

#### Final Data List



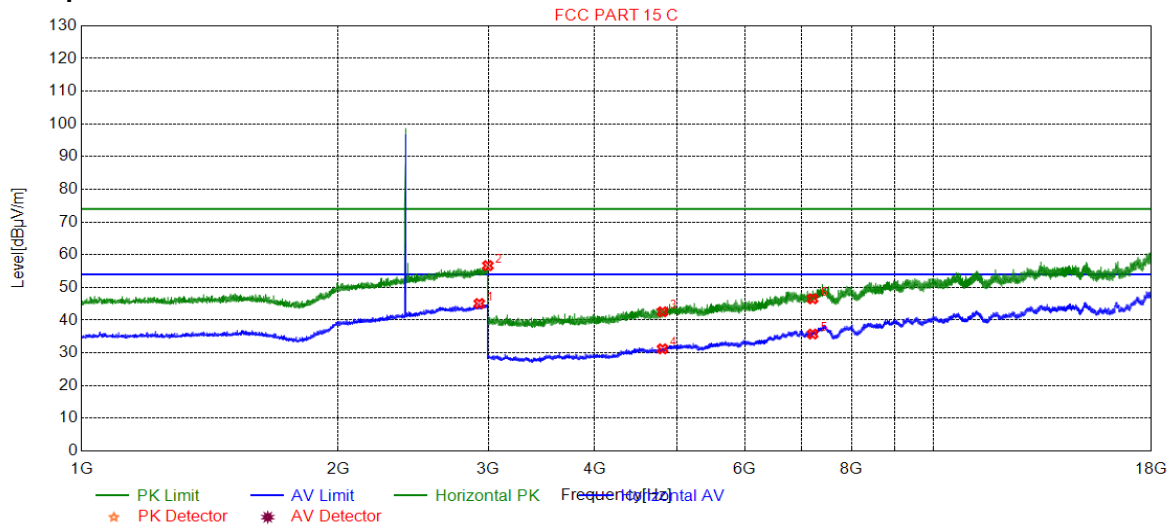
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### 4.4.2.3 BLE\_2M\_Channel 0

#### Test Graph



#### Suspected List

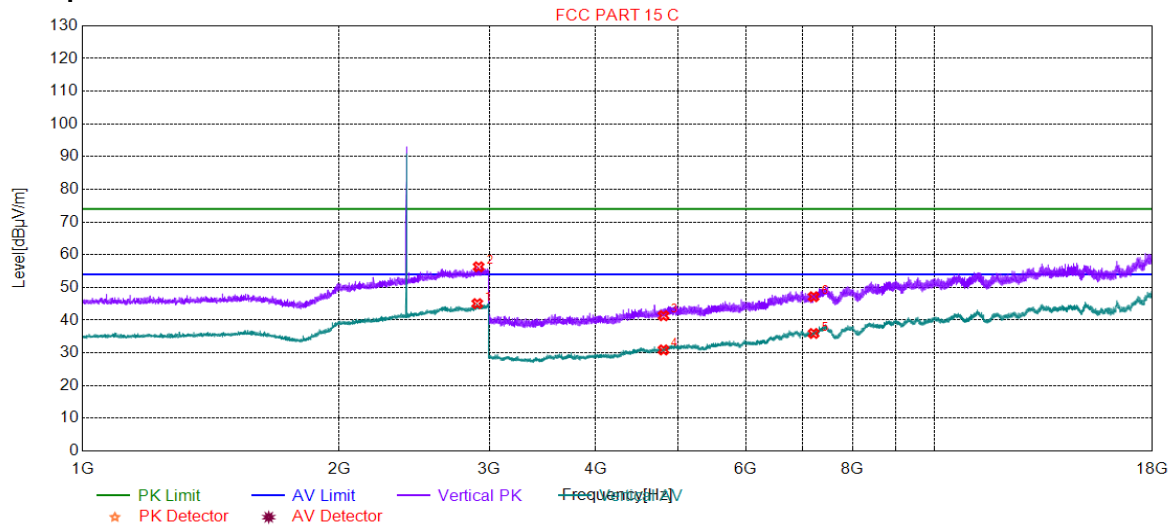
Suspected List								
NO.	Freq. [MHz]	Level [dBμV/m]	Factor [dB]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	2928.482	45.10	10.70	54.00	8.90	156	323	Horizontal
2	2996.999	56.67	10.73	74.00	17.33	152	30	Horizontal
3	4804.000	42.56	-17.18	74.00	31.44	176	48	Horizontal
4	4804.000	31.24	-17.18	54.00	22.76	147	82	Horizontal
5	7206.000	35.76	-9.48	54.00	18.24	203	14	Horizontal
6	7206.000	46.54	-9.48	74.00	27.46	151	201	Horizontal

#### Final Data List

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### 4.4.2.4 BLE\_2M\_Channel 0

#### Test Graph



#### Suspected List

Suspected List								
NO.	Freq. [MHz]	Level [dBμV/m]	Factor [dB]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	2904.476	45.08	10.40	54.00	8.92	247	346	Vertical
2	2915.478	56.33	10.52	74.00	17.67	254	158	Vertical
3	4804.000	41.36	-17.18	74.00	32.64	304	6	Vertical
4	4804.000	30.91	-17.18	54.00	23.09	249	160	Vertical
5	7206.000	35.94	-9.48	54.00	18.06	279	23	Vertical
6	7206.000	47.17	-9.48	74.00	26.83	256	40	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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### 4.5 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:			

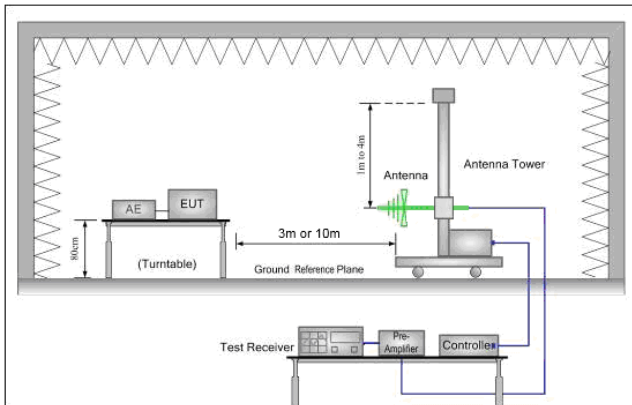


Figure 1. 30MHz to 1GHz

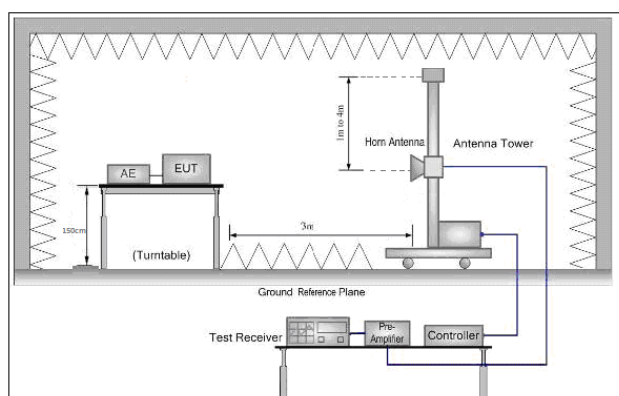


Figure 2. Above 1 GHz

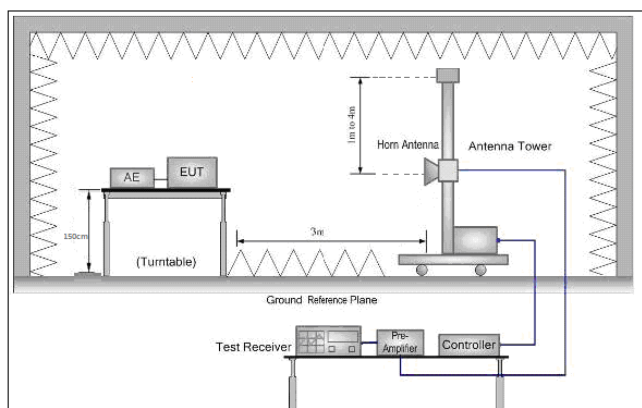


Figure 3. Above 1 GHz



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Report No.: ZR/2020/C004304

Page: 27 of 36

Test Procedure:	<p>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.</p> <p>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.</p> <p>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.</p> <p>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.</p> <p>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.</p> <p>f. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.</p> <p>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</p> <p>h. Test the EUT in the lowest channel , the Highest channel</p> <p>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.</p> <p>j. Repeat above procedures until all frequencies measured was complete.</p>
Test Configuration:	<p>Measurements Below 1000MHz</p> <ul style="list-style-type: none"> <li>• RBW = 120 kHz</li> <li>• VBW = 300 kHz</li> <li>• Detector = Peak</li> <li>• Trace mode = max hold</li> </ul> <p>Peak Measurements Above 1000 MHz</p> <ul style="list-style-type: none"> <li>• RBW = 1 MHz</li> <li>• VBW <math>\geq</math> 3 MHz</li> <li>• Detector = Peak</li> <li>• Sweep time = auto</li> <li>• Trace mode = max hold</li> </ul> <p>Average Measurements Above 1000MHz</p> <ul style="list-style-type: none"> <li>• RBW = 1 MHz</li> <li>• VBW = 10 Hz, when duty cycle is no less than 98 percent.</li> <li>• VBW <math>\geq</math> 1/T, when duty cycle is less than 98 percent where T is the minimum transmission duration over which the transmitter is on and is transmitting at its maximum power control level for the tested mode of operation.</li> </ul>
Exploratory Test Mode:	<p>Transmitting with GFSK modulation.</p> <p>Charge + Transmitting mode.</p>



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Report No.: ZR/2020/C004304

Page: 28 of 36

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
Remark:	The Emission Test is performed by the Lab B



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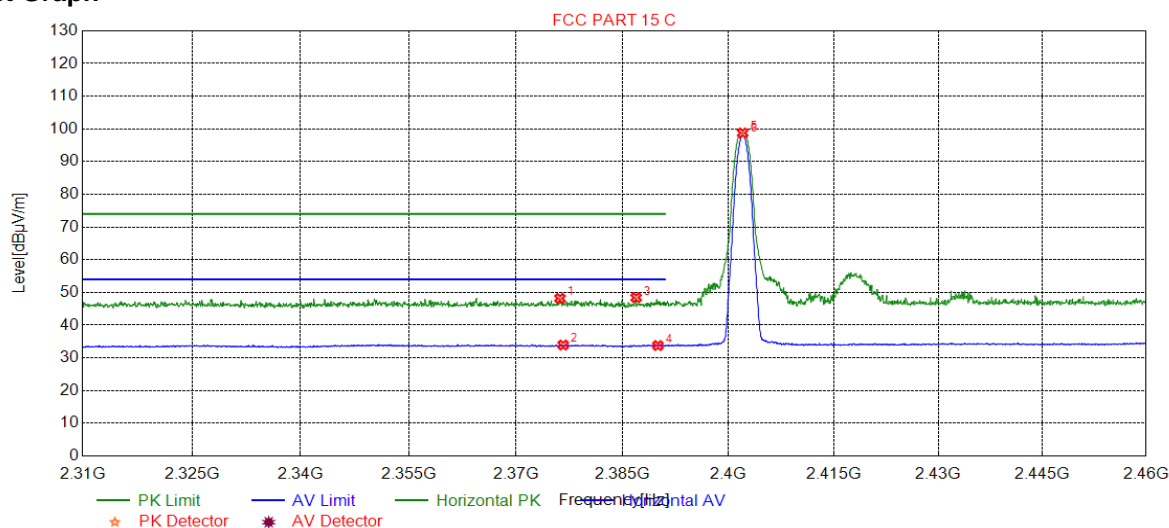
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### 4.5.1 Test Plots

#### 4.5.1.1 BLE\_1M\_Channel 0

#### Test Graph



#### Suspected List

Suspected List								
NO.	Freq. [MHz]	Level [dBμV/m]	Factor [dB]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	2376.183	48.19	7.96	74.00	25.81	159	156	Horizontal
2	2376.633	33.94	7.96	54.00	20.06	178	360	Horizontal
3	2386.913	48.44	7.89	74.00	25.56	204	192	Horizontal
4	2390.000	33.78	7.98	54.00	20.22	176	192	Horizontal
5	2402.000	98.77	8.06	0.00	-98.77	189	197	Horizontal
6	2402.000	98.13	8.06	0.00	-98.13	157	181	Horizontal

#### Final Data List

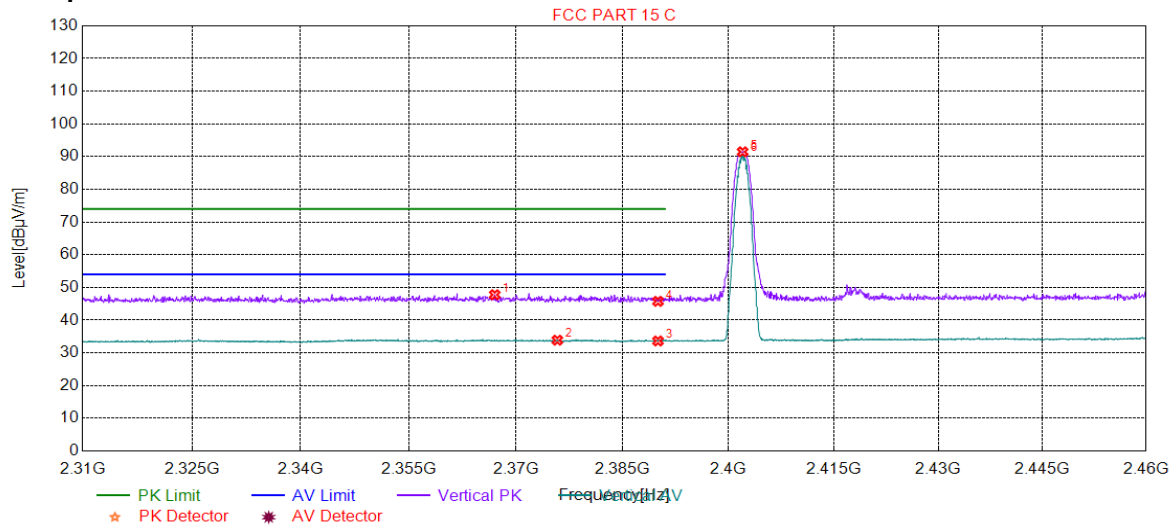


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### 4.5.1.2 BLE\_1M\_Channel 0

#### Test Graph



#### Suspected List

Suspected List								
NO.	Freq. [MHz]	Level [dBμV/m]	Factor [dB]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	2367.028	47.78	8.07	74.00	26.22	246	39	Vertical
2	2375.807	33.89	7.95	54.00	20.11	239	112	Vertical
3	2390.000	33.65	7.98	54.00	20.35	234	39	Vertical
4	2390.000	45.76	7.98	74.00	28.24	305	125	Vertical
5	2402.000	91.48	8.06	0.00	-91.48	279	256	Vertical
6	2402.000	90.75	8.06	0.00	-90.75	245	260	Vertical

#### Final Data List

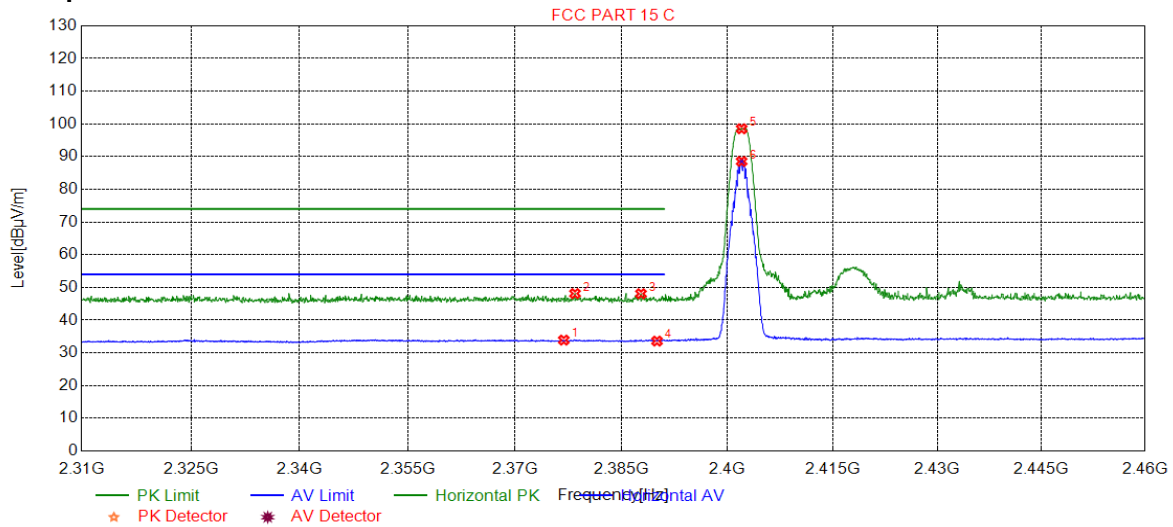


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### 4.5.1.3 BLE\_2M\_Channel 0

#### Test Graph



#### Suspected List

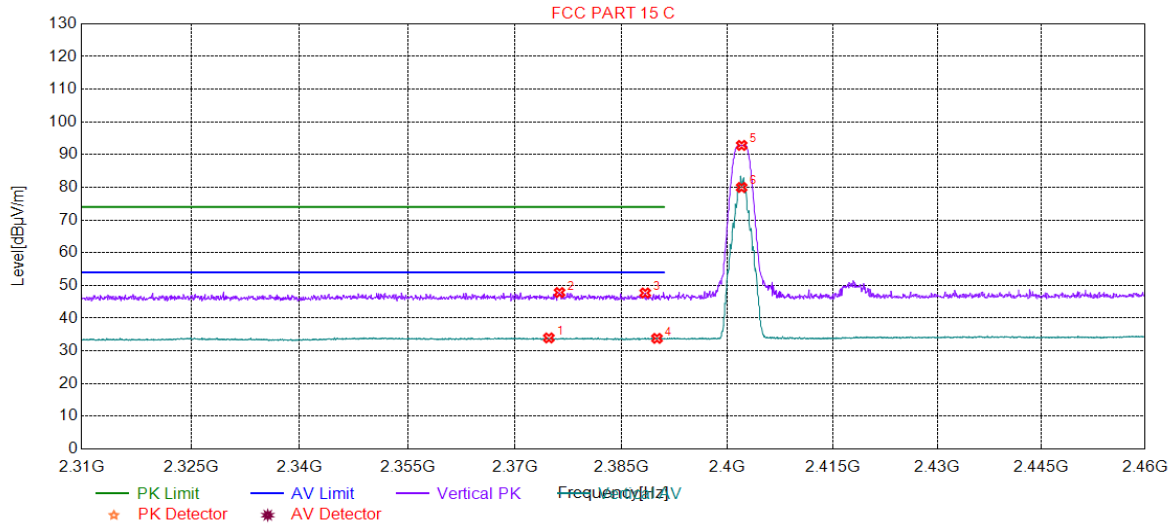
Suspected List								
NO.	Freq. [MHz]	Level [dBμV/m]	Factor [dB]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	2376.858	33.92	7.96	54.00	20.08	146	123	Horizontal
2	2378.434	48.15	7.98	74.00	25.85	179	115	Horizontal
3	2387.738	48.10	7.91	74.00	25.90	156	160	Horizontal
4	2390.000	33.61	7.98	54.00	20.39	176	322	Horizontal
5	2402.000	98.52	8.06	0.00	-98.52	206	160	Horizontal
6	2402.000	88.54	8.06	0.00	-88.54	189	190	Horizontal

#### Final Data List

--	--	--	--	--	--	--	--	--

### 4.5.1.4 BLE\_2M\_Channel 0

#### Test Graph



#### Suspected List

Suspected List								
NO.	Freq. [MHz]	Level [dBμV/m]	Factor [dB]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	2374.757	33.97	7.95	54.00	20.03	256	187	Vertical
2	2376.258	47.85	7.96	74.00	26.15	247	346	Vertical
3	2388.339	47.71	7.93	74.00	26.29	302	160	Vertical
4	2390.000	33.83	7.98	54.00	20.17	255	106	Vertical
5	2402.000	92.83	8.06	0.00	-92.83	246	252	Vertical
6	2402.000	79.98	8.06	0.00	-79.98	273	103	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)

Lab A:

No.	Item	Measurement Uncertainty
1	Total RF power, conducted	$\pm 0.75\text{dB}$

Lab B:

No.	Item	Measurement Uncertainty
1	Radiated Spurious emission test	$\pm 4.8\text{dB}$ (30MHz-1GHz)
		$\pm 5.2\text{dB}$ (1GHz-6GHz)
		$\pm 5.5\text{dB}$ (6GHz-18GHz)
		$\pm 5.02\text{dB}$ (18GHz-40GHz)
2	Conduct emission test	$\pm 3.4\text{ dB}$ (9KHz- 30MHz)



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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 Technologies Inc	66311B	W009-09	2020/7/15	2021/7/15
Signal Analyzer	Rohde & Schwarz	FSV	W025-05	2021/1/3	2022/1/2
				2020/1/4	2021/1/3
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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Page: 35 of 36

RSE&RE&CE Test System					
Equipment	Manufacturer	Model No.	Cal Date	Cal Due Date	Inventory No.
Semi-Anechoic Chamber	Brilliant-emc	966	NCR	NCR	XAW03-35-01
MXA signal analyzer	Keysight	N9020A	2020-04-02	2021-04-02	XAW01-06-01
Radio communication analyzer	ROHDE&SCHWARZ	CMW 500	2020-04-02	2021-04-02	XAW01-03-02
Test receiver	ROHDE&SCHWARZ	ESR	2020-09-11	2021-09-10	XAW01-08-01
Receiving antenna	Rosenberger	VULB 9163	2019-10-13	2021-10-12	XAW01-09-01
Receiving antenna	Rosenberger	BBHA 9120D	2019-10-13	2021-10-12	XAW01-09-02
Receiving antenna	Rosenberger	BBHA 9170	2019-10-13	2021-10-12	XAW01-09-03
Directional antenna rack controller	Max-Full	MF-7802BS	NCR	NCR	XAW03-03-01
High-speed antenna rack controller	Max-Full	MF-7802	NCR	NCR	XAW03-04-01
Filter bank	Tonscend	JS0806-F	NCR	NCR	XAW03-05-01
Filter bank	Tonscend	JS0806s	NCR	NCR	XAW03-05-02
Amplifier	Tonscend	TAP00903040	2020-10-26	2021-10-25	XAW01-41-01
Amplifier	Tonscend	TAP01018048	2020-10-26	2021-10-25	XAW01-41-02
Amplifier	Tonscend	TAP18040048	2020-10-26	2021-10-25	XAW01-41-03
Amplifier	Shanghai Steed	YX28980930	2020-10-26	2021-10-25	XAW01-41-06
Artificial network	ROHDE&SCHWARZ	ENV216	2020-08-04	2021-08-03	XAW01-19-02
Temperature and humidity meter	MingGao	TH101B	2020-06-11	2021-05-11	XAW01-01-01
Measurement Software	Tonscend	TS+ RSE&RE	NCR	NCR	XAW02-05-01
Measurement Software	Tonscend	TS+ CE	NCR	NCR	XAW02-05-02



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## 7 Photographs - EUT Constructional Details

Refer to Appendix A PCE&NII&DTS&DSS Setup Photos.

The End



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