

Report No.: SEWM2204000030RG03  
Rev.: 01  
Page: 1 of 32

# TEST REPORT

**Application No.:** SEWM2204000030RG  
**Applicant:** HMD Global Oy  
**Address of Applicant:** Bertel Jungin aukio 9, Espoo 02600, Finland  
**Manufacturer:** HMD Global Oy  
**Address of Manufacturer:** Bertel Jungin aukio 9, Espoo 02600, Finland  
**EUT Description:** Smart Phone  
**Model No.:** TA-1391  
**Trade Mark:** Nokia  
**FCC ID:** 2AJOTTA-1391  
**Standards:** FCC 47 CFR Part 2, Subpart J  
FCC 47 CFR Part 15, Subpart C  
**Date of Receipt:** 2021/4/1  
**Date of Test:** 2022/4/15 to 2022/5/19  
**Date of Issue:** 2022/5/20

<b>Test Result :</b>	<b>PASS *</b>
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\* In the configuration tested, the EUT detailed in this report complied with the standards specified above.

Authorized Signature:



Panta Sun  
Wireless Laboratory Manager



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## 1 Version

### Revision Record

Version	Chapter	Date	Modifier	Remark
01		2022/5/20		Original

Prepared By		Weller Liu
<hr/> (Weller Liu) / Test Supervisor		
Checked By		Well Wei
<hr/> (Well Wei) / Reviewer		

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## 2 Test Summary

Test Item	FCC Rule No.	Test Method	Test Result	Result
Antenna Requirement	15.203/15.247(b)	--	Refer to ZR/2021/3003303	PASS
AC Power Line Conducted Emission	15.207	ANSI C63.10 2013	Refer to ZR/2021/3003303	PASS
Conducted Output Power	15.247 (b)(3)	ANSI C63.10 2013	Refer to ZR/2021/3003303	PASS
DTS (6 dB) Bandwidth & 99% Occupied Bandwidth	15.247 (a)(2)	ANSI C63.10 2013	Refer to ZR/2021/3003303	Reporting only
Power Spectral Density	15.247 (e)	ANSI C63.10 2013	Refer to ZR/2021/3003303	PASS
Band-edge for RF Conducted Emissions	15.247(d)	ANSI C63.10 2013	Refer to ZR/2021/3003303	PASS
RF Conducted Spurious Emissions	15.247(d)	ANSI C63.10 2013	Refer to ZR/2021/3003303	PASS
Radiated Spurious Emissions	15.205/15.209	ANSI C63.10 2013	Clause 4.9	PASS
Restricted bands around fundamental frequency (Radiated Emission)	15.205/15.209	ANSI C63.10 2013	Clause 4.10	PASS

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Remark:

This test report (Report No.: SEWM2204000030RG03 issue on 2022/5/20) is based on the original FCC ID with ID number 2AJOTTA-1391 issued on 2021/4/21.

Review this report and original report, this report just changing the parts according to the declaration letter from client.

Considering to the difference, pre-scan were performed on the sample in this report to find the items which can be influential to the result in the original test report for fully retest.

Therefore in this report only radiated spurious emissions were performed based on the worst case of the original FCC ID with ID number 2AJOTTA-1391 issued on 2021/4/21 and other test data refer to the previous FCC ID with ID number 2AJOTTA-1391 issued on 2021/4/21.



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### 3 General Information

### 3.1 Details of Client

Applicant:	HMD Global Oy
Address of Applicant:	Bertel Jungin aukio 9, Espoo 02600, Finland
Manufacturer:	HMD Global Oy
Address of Manufacturer:	Bertel Jungin aukio 9, Espoo 02600, Finland

## 3.2 Test Location

Company:	SGS-CSTC Standards Technical Services (Suzhou) Co., Ltd
Address:	South of No. 6 Plant, No. 1, Runsheng Road, Suzhou Industrial Park, Suzhou Area, China (Jiangsu) Pilot Free Trade Zone
Post code:	215000
Test engineer:	King-p Li

### 3.3 Test Facility

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

• A2LA (Certificate No. 6336.01)

SGS-CSTC STANDARDS TECHNICAL SERVICES (SUZHOU) CO., LTD. is accredited by the American Association for Laboratory Accreditation(A2LA). Certificate No. 6336.01.

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

SGS-CSTC STANDARDS TECHNICAL SERVICES (SUZHOU) CO., LTD. has been recognized by ISED as an accredited testing laboratory.

CAB identifier: CN0120.

IC# 27594

• ECC -Designation Number: CN1312

SGS-CSTC STANDARDS TECHNICAL SERVICES (SUZHOU) CO., LTD. has been recognized as an accredited testing laboratory.

accredited testing laboratory.  
Designation Number: CN1312

Test Firm Registration Number: 717327

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### 3.4 General Description of EUT

EUT Description:	Smart Phone		
Model No.:	TA-1391		
Trade Mark:	Nokia		
Hardware Version:	19545_1_10		
Software Version:	V1.260_A01		
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 V4.2		
Modulation Type:	GFSK		
Number of Channel:	40		
Rates Type*:	<input checked="" type="checkbox"/> Provided by client		
	1M PHY		
Antenna Type:	<input type="checkbox"/> External, <input checked="" type="checkbox"/> Integrated		
Antenna Gain*:	<input checked="" type="checkbox"/> Provided by client		
	0.7dBi		
RF Cable*:	<input checked="" type="checkbox"/> Provided by client		
	0.5dB(0.6~1GHz)	0.8dB(1.4~2GHz)	1.0dB(2.1~2.7GHz)
	1.5dB(3~4GHz)	1.8dB(4.4~6GHz)	
Note: *Since the above data and/or information is provided by the client relevant results or conclusions of this report are only made for these data and/or information, SGS is not responsible for the authenticity, integrity and results of the data and information and/or the validity of the conclusion.			
Remark: As above information is provided and confirmed by the applicant. SGS is not liable to the accuracy, suitability, reliability or/and integrity of the information.			



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**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

**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

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### 3.5 Test Environment

Environment Parameter	101.0 kPa Selected Values During Tests	
Relative Humidity	44-60 % RH Ambient	
Value	Temperature(°C)	Voltage(V)
NTNV	22~25	3.9
LTNV	-15	3.9
HTNV	55	3.9

Remark:  
NV: Normal Voltage  
NT: Normal Temperature  
LT: Low Extreme Test Temperature  
HT: High Extreme Test Temperature

### 3.6 Description of Support Units

The EUT has been tested as an 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)
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 and no consideration of replacement. The best case gain of the antenna is 0.7dBi.	

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## 4.2 AC Power Line Conducted Emissions

Test Requirement:	47 CFR Part 15C Section 15.207		
Test Method:	ANSI C63.10: 2013		
Test Frequency Range:	150kHz to 30MHz		
Receiver Setup:	RBW = 9kHz, VBW = 30kHz		
Limit:	Frequency range(MHz)		Limit (dBuV)
			Quasi-peak      Average
	0.15-0.5	66 to 56*	56 to 46*
	0.5-5	56	46
	5-30	60	50
* Decreases with the logarithm of the frequency.			
Test Procedure:	<ol style="list-style-type: none"> <li>1) The mains terminal disturbance voltage test was conducted in a shielded room.</li> <li>2) The EUT was connected to AC power source through a LISN 1 (Line Impedance Stabilization Network) which provides a <math>50\Omega/50\mu\text{H} + 5\Omega</math> linear impedance. The power cables of all other units of the EUT were connected to a second LISN 2, which was bonded to the ground reference plane in the same way as the LISN 1 for the unit being measured. A multiple socket outlet strip was used to connect multiple power cables to a single LISN provided the rating of the LISN was not exceeded.</li> <li>3) The tabletop EUT was placed upon a non-metallic table 0.8m above the ground reference plane. And for floor-standing arrangement, the EUT was placed on the horizontal ground reference plane.</li> <li>4) The test was performed with a vertical ground reference plane. The rear of the EUT shall be 0.4 m from the vertical ground reference plane. The vertical ground reference plane was bonded to the horizontal ground reference plane. The LISN 1 was placed 0.8 m from the boundary of the unit under test and bonded to a ground reference plane for LISNs mounted on top of the ground reference plane. This distance was between the closest points of the LISN 1 and the EUT. All other units of the EUT and associated equipment was at least 0.8 m from the LISN 2.</li> <li>5) In order to find the maximum emission, the relative positions of equipment and all of the interface cables must be changed according to ANSI C63.10: 2013 on conducted measurement.</li> </ol>		

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Test Setup:	
Test Mode:	Transmitting with GFSK modulation. Charge +Transmitting mode.
Instruments Used:	Refer to section 6 for details.
Test Results:	Pass



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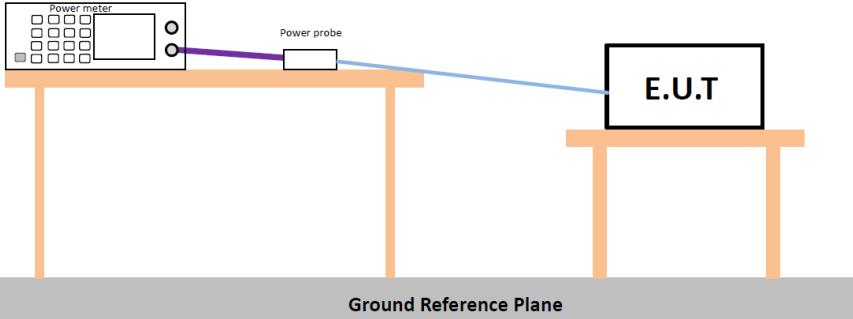
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## 4.3 Duty Cycle

## 4.4 Conducted Output Power

Test Requirement:	47 CFR Part 15C Section 15.247 (b)(3)
Test Method:	ANSI C63.10 :2013 Section 11.9.1.1
Test Setup:	 <p>* Test with power meter (Detector function: Peak)</p>
Test Instruments:	Refer to section 6 for details
Test Mode:	Transmitting with GFSK modulation.
Limit:	30dBm
Test Results:	Pass

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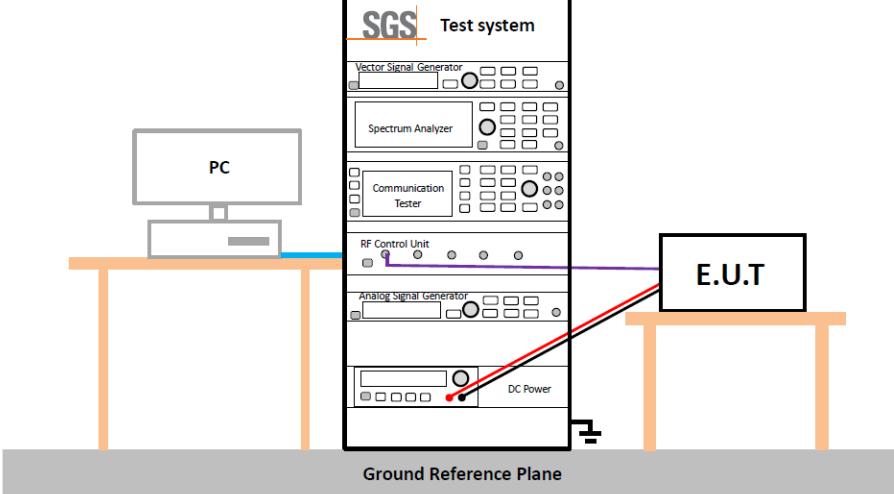
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## 4.5 DTS (6 dB) Bandwidth & 99% Occupied Bandwidth

Test Requirement:	47 CFR Part 15C Section 15.247 (a)(2)
Test Method:	ANSI C63.10: 2013 Section 11.8 Option 2
Test Setup:	
Instruments Used:	Refer to section 6 for details
Test Mode:	Transmitting with GFSK modulation.
Limit:	$\geq 500$ kHz
Test Results:	Pass

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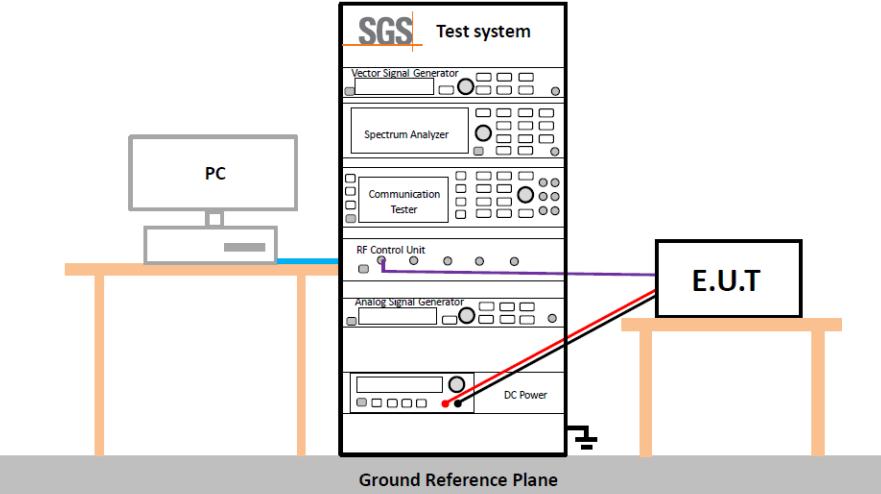
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## 4.6 Power Spectral Density

Test Requirement:	47 CFR Part 15C Section 15.247 (e)
Test Method:	ANSI C63.10 :2013 Section 11.10.2
Test Setup:	
Test Instruments:	Refer to section 6 for details
Test Mode:	Transmitting with GFSK modulation.
Limit:	$\leq 8.00 \text{dBm}/3\text{kHz}$
Test Results:	Pass

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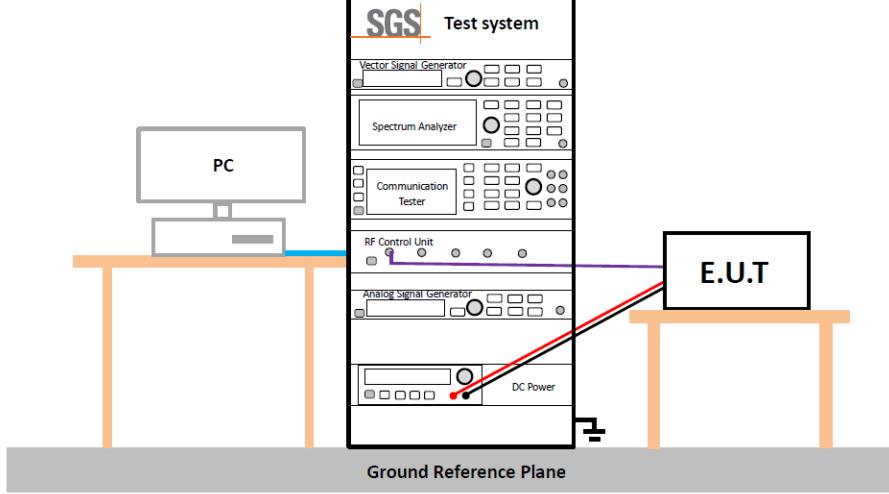
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## 4.7 Band-edge for RF Conducted Emissions

Test Requirement:	47 CFR Part 15C Section 15.247 (d)
Test Method:	ANSI C63.10: 2013 Section 11.13
Test Setup:	
Instruments Used:	Refer to section 6 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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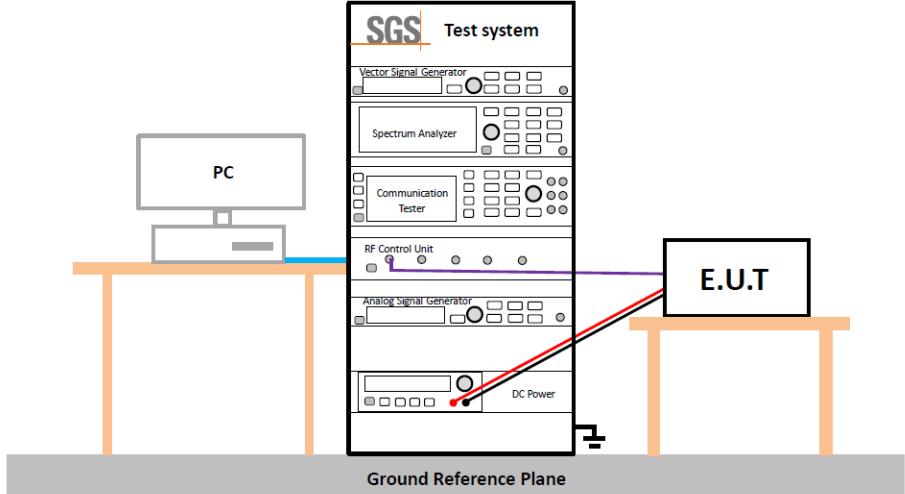
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## 4.8 RF Conducted Spurious Emissions

Test Requirement:	47 CFR Part 15C Section 15.247 (d)
Test Method:	ANSI C63.10: 2013 Section 11.11
Test Setup:	
Instruments Used:	Refer to section 6 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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## 4.9 Radiated Spurious Emissions

Test Requirement:	47 CFR Part 15C Section 15.209 and 15.205				
Test Method:	ANSI C63.10 :2013 Section 11.12				
Test Site:	Measurement Distance: 3m (Semi-Anechoic Chamber)				
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.

### Test Setup:

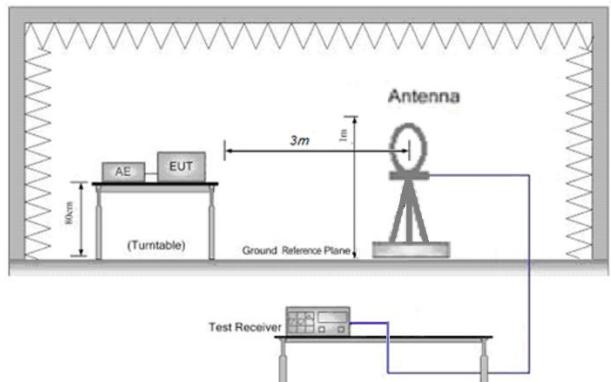


Figure 1. Below 30MHz

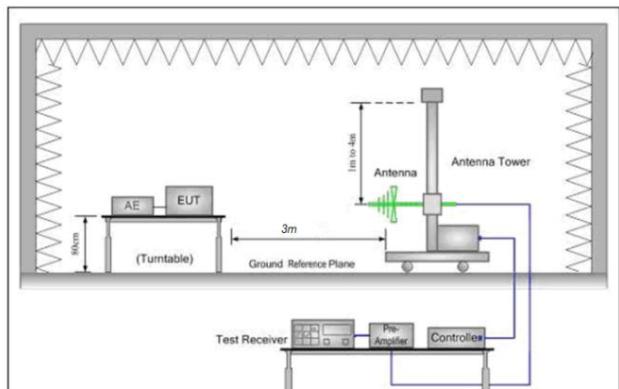


Figure 2. 30MHz to 1GHz

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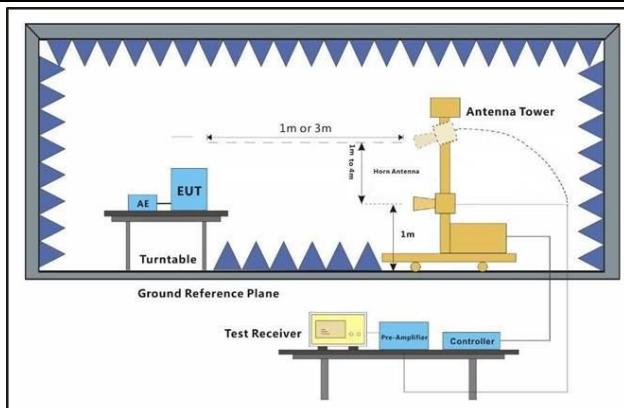


Figure 3. Above 1 GHz

Test Procedure:	<ol style="list-style-type: none"> <li>For below 1GHz, the EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 or 10 meter semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.</li> <li>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 (Distance from antenna to EUT is 1m for measurements &gt;18GHz).</li> <li>The EUT was set 3 or 10 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.</li> <li>The antenna height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.</li> <li>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.</li> <li>The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.</li> <li>Test the EUT in the lowest channel, the middle channel ,the Highest channel.</li> <li>The radiation measurements are performed in X, Y, Z axis positioning for Transmitting mode, And found the X axis positioning which it is worse case.</li> <li>Repeat above procedures until all frequencies measured was complete.</li> <li>The low frequency, which started from 9 kHz to 30MHz, was pre-scanned and the result which was 20dB lower than the limit line was not reported</li> <li>The disturbance above 18GHz was very low, and the harmonics were the highest point could be found when testing, so only the harmonics had been displayed.</li> <li>At a measurement distance of 1 meter the limit line was increased by <math>20 \times \log(3/1) = 9.54</math> dB.</li> </ol>
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>

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	<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 <math>\geq</math> [3 *RBW]</li> <li>• Detector = RMS (power averaging), if span / (# of points in sweep) <math>\leq</math> (RBW / 2). Satisfying this condition may require increasing the number of points in the sweep or reducing the span. If this condition cannot be satisfied, then the detector mode shall be set to peak.</li> <li>• Sweep time = auto</li> <li>• Perform a trace average of at least 100 traces.</li> </ul> <p>Value = Reading + Factor(Antenna Factor + Cable loss – Preamplifier Factor).</p>
Exploratory Test Mode:	Transmitting with GFSK modulation. Charge + Transmitting mode.
Final Test Mode:	Transmitting with GFSK modulation. Pretest the EUT at Charge + Transmitting mode, For below 1GHz part, through pre-scan, the worst case is the lowest channel. Only the worst case is recorded in the report.
Instruments Used:	Refer to section 6 for details
Test Results:	Pass
The detailed test data see: <b>Appendix</b>	

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## 4.10 Restricted bands around fundamental frequency

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

### Test Setup:

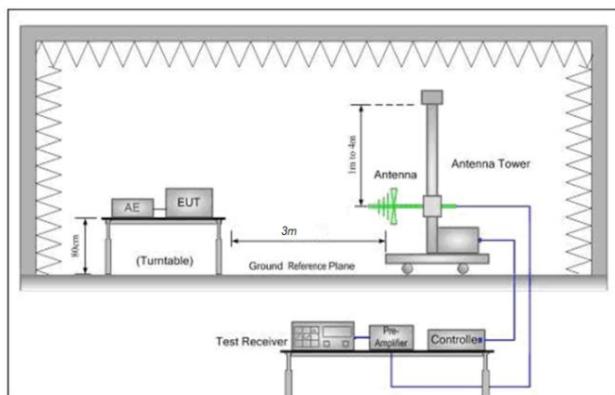


Figure 1. 30MHz to 1GHz

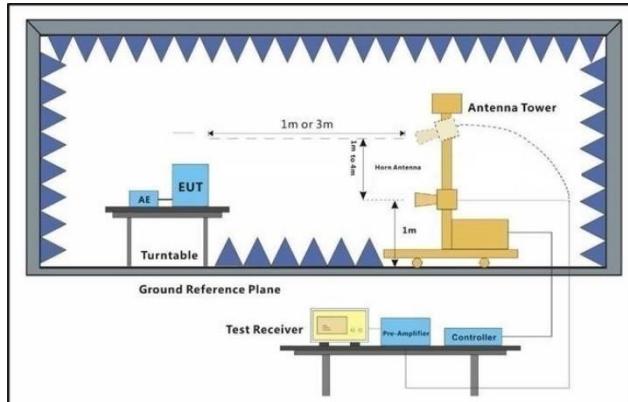


Figure 2. Above 1 GHz

Test Procedure:	<ol style="list-style-type: none"> <li>For below 1GHz, the EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 or 10 meter semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.</li> <li>For above 1GHz, the EUT was placed on the top of a rotating table 1.5 meters above the ground at a 3 meter semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.</li> <li>The EUT was set 3 or 10 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.</li> <li>The antenna height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.</li> <li>For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.</li> <li>The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.</li> <li>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</li> </ol>
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	<p>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 <math>\geq</math> [3 *RBW]</li><li>• Detector = RMS (power averaging), if span / (# of points in sweep) <math>\leq</math> (RBW / 2). Satisfying this condition may require increasing the number of points in the sweep or reducing the span. If this condition cannot be satisfied, then the detector mode shall be set to peak.</li><li>• Sweep time = auto</li><li>• Perform a trace average of at least 100 traces.</li></ul> <p>Value = Reading + Factor(Antenna Factor + Cable loss).</p>
Exploratory Test Mode:	Transmitting with GFSK modulation. Charge + Transmitting mode.
Final Test Mode:	Transmitting with GFSK modulation. Pretest the EUT at Charge + Transmitting mode. Only the worst case is recorded in the report.
Instruments Used:	Refer to section 6 for details
Test Results:	Pass
The detailed test data see: <b>Appendix</b>	

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

No.	Item	Measurement Uncertainty
1	Radiated Emission	± 3.13dB (9k -30MHz)
		± 4.8dB (30M -1GHz)
		± 4.8dB (1GHz to 18GHz)
		± 4.8dB (Above 18GHz)

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## 6 Equipment List

RSE Test System					
Equipment	Manufacturer	Model No.	Inventory No.	Cal Date (yyyy-mm-dd)	Cal Due Date (yyyy-mm-dd)
Semi-Anechoic Chamber	Brilliant-emc	N/A	SUWI-04-02-01	2021/5/8	2024/5/7
Temperature and humidity meter	MingGao	TH101B	SUWI-01-01-05	2022/2/16	2023/2/15
Signal Analyzer	ROHDE&SCHWARZ	FSW43	SUWI-01-02-04	2021/5/28	2022/5/27
Signal Analyzer	KEYSIGHT	N9020A	SUWI-01-02-05	2021/12/4	2022/12/3
Test receiver	ROHDE&SCHWARZ	ESR7	SUWI-01-10-01	2022/2/19	2023/2/18
Receiving antenna	SCHWRZBECK MESS-ELEKTRONIK	VULB 9163	SUWI-01-11-01	2021/5/16	2023/5/15
Receiving antenna	SCHWRZBECK MESS-ELEKTRONIK	BBHA 9120D	SUWI-01-11-02	2021/5/16	2023/5/15
Receiving antenna	SCHWRZBECK MESS-ELEKTRONIK	BBHA 9170	SUWI-01-11-03	2021/5/14	2023/5/13
Amplifier	Tonscend	TAP9K3G40	SUWI-01-14-01	2022/2/15	2023/2/14
Amplifier	Tonscend	TAP01018050	SUWI-01-14-02	2022/2/15	2023/2/14
Amplifier	Tonscend	TAP18040048	SUWI-01-14-03	2022/2/19	2023/2/18
Active Loop Antenna	SCHWRZBECK MESS-ELEKTRONIK	FMZB 1519B	SUWI-01-21-01	2021/6/10	2022/6/9
Measurement Software	Tonscend	JS32-RE V4.0.0.0	SUWI-02-09-04	NCR	NCR
Measurement Software	Tonscend	JS32-RSE V4.0.0.0	SUWI-02-09-06	NCR	NCR

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## 7 Photographs - Setup Photos

Refer to Appendix A.2 WLAN Setup Photos.



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# Appendix



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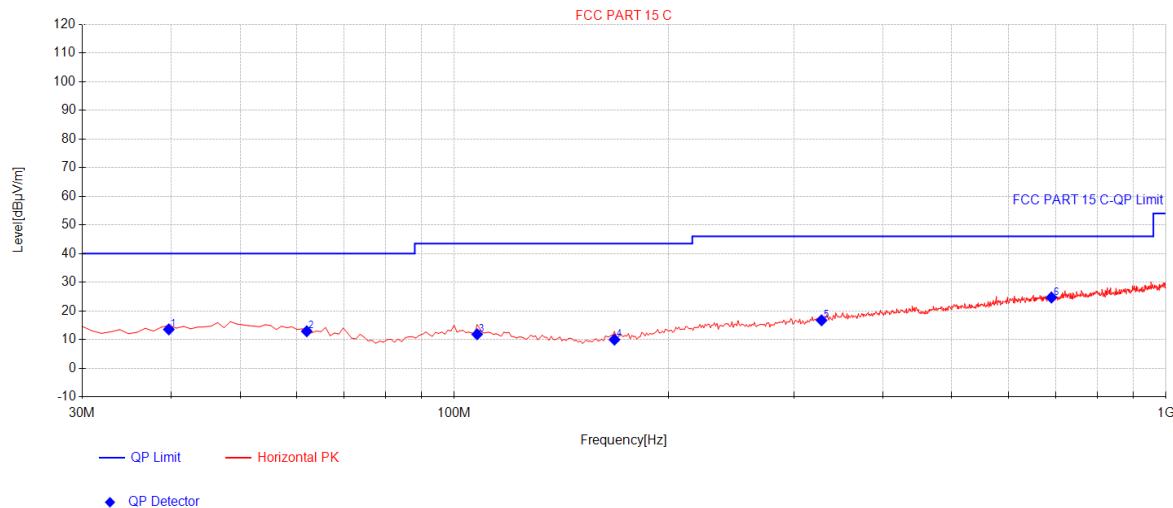
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## Test on the worst case:

### Radiated Spurious Emissions

#### Radiated emission below 1GHz

#### Worst case Mode: BLE 1M Channel 0



Final Data List									
NO.	Frequency [MHz]	Reading [dBμV]	Factor [dB]	QP Value [dBμV/m]	QP Limit [dBμV/m]	QP Margin [dB]	Height [cm]	Angle [°]	Polarity
1	39.7097	29.63	-16.08	13.55	40.00	26.45	120	359	Horizontal
2	62.042	29.69	-16.80	12.89	40.00	27.11	141	40	Horizontal
3	107.6777	28.52	-16.68	11.84	43.50	31.66	132	328	Horizontal
4	167.8779	28.63	-18.65	9.98	43.50	33.52	152	350	Horizontal
5	328.0881	28.69	-11.98	16.71	46.00	29.29	232	100	Horizontal
6	690.2603	28.88	-4.21	24.67	46.00	21.33	211	264	Horizontal

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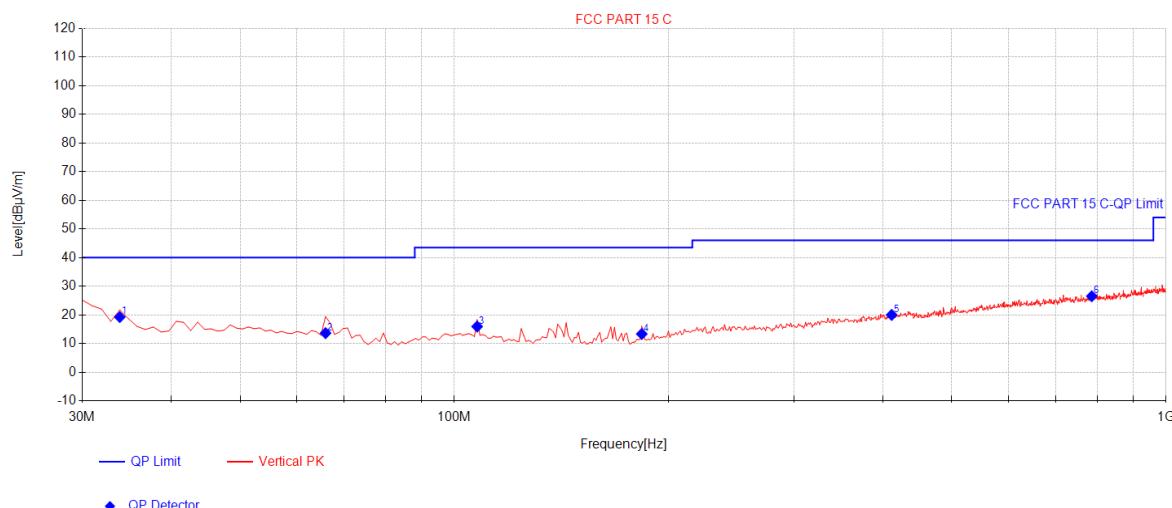
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Final Data List									
NO.	Frequency [MHz]	Reading [dB $\mu$ V]	Factor [dB]	QP Value [dB $\mu$ V/m]	QP Limit [dB $\mu$ V/m]	QP Margin [dB]	Height [cm]	Angle [°]	Polarity
1	33.8839	37.02	-17.78	19.24	40.00	20.76	105	234	Vertical
2	65.9259	31.54	-17.90	13.64	40.00	26.36	231	207	Vertical
3	107.6777	32.62	-16.68	15.94	43.50	27.56	142	162	Vertical
4	183.4134	31.52	-18.17	13.35	43.50	30.15	263	117	Vertical
5	411.5916	29.68	-9.69	19.99	46.00	26.01	210	81	Vertical
6	786.3864	29.62	-3.10	26.52	46.00	19.48	144	343	Vertical

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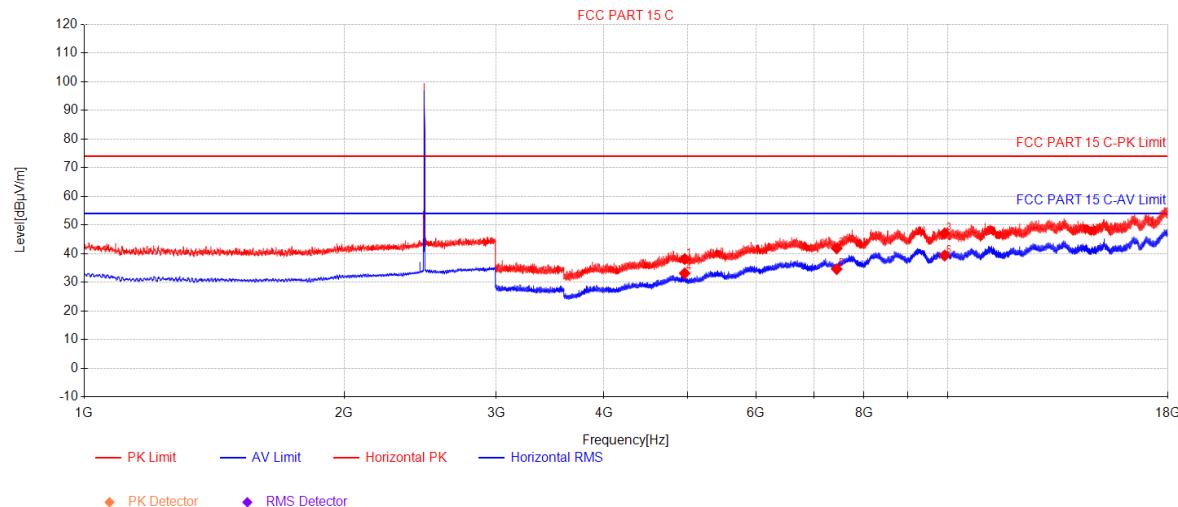
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## Transmitter emission Above 1GHz

### BLE 1M\_Channel 39



Final Data List									
NO.	Frequency [MHz]	Reading [dBμV]	Level [dBμV/m]	Factor [dB]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	4960	50.52	38.11	-12.41	74.00	35.89	263	263	Horizontal
2	7440	47.16	41.80	-5.36	74.00	32.20	251	241	Horizontal
3	9920	45.73	47.02	1.29	74.00	26.98	144	144	Horizontal
4	4960	45.53	33.12	-12.41	54.00	20.88	263	263	Horizontal
5	7440	39.94	34.58	-5.36	54.00	19.42	255	244	Horizontal
6	9920	38.01	39.30	1.29	54.00	14.70	362	144	Horizontal



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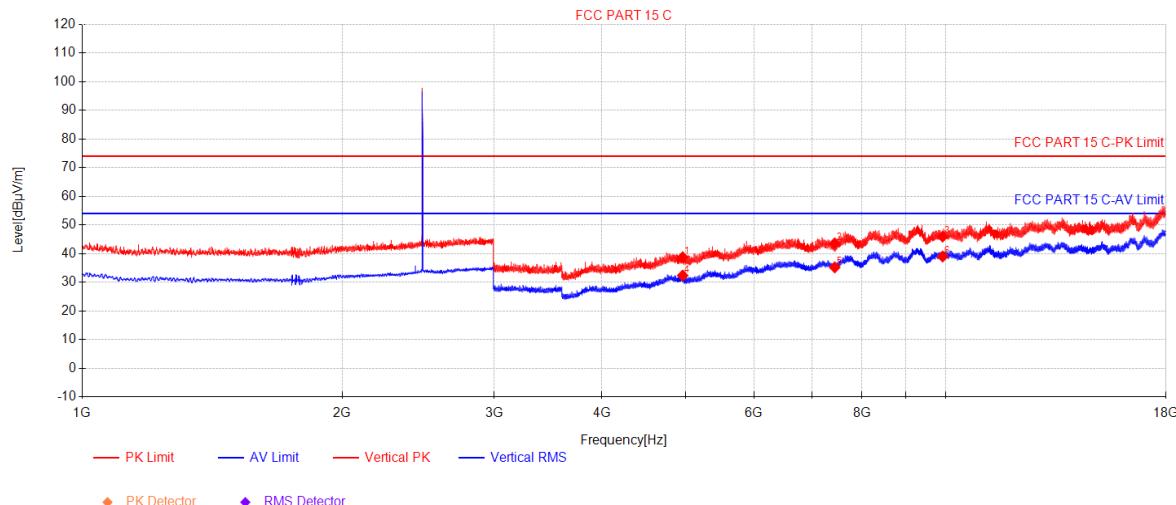
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## BLE 1M\_Channel 39



Final Data List									
NO.	Frequency [MHz]	Reading [dBμV]	Level [dBμV/m]	Factor [dB]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	4960	51.11	38.70	-12.41	74.00	35.30	263	20	Vertical
2	7440	48.94	43.58	-5.36	74.00	30.42	251	3	Vertical
3	9920	44.62	45.91	1.29	74.00	28.09	175	5	Vertical
4	4960	44.75	32.34	-12.41	54.00	21.66	265	129	Vertical
5	7440	40.54	35.18	-5.36	54.00	18.82	284	328	Vertical
6	9920	37.69	38.98	1.29	54.00	15.02	144	261	Vertical

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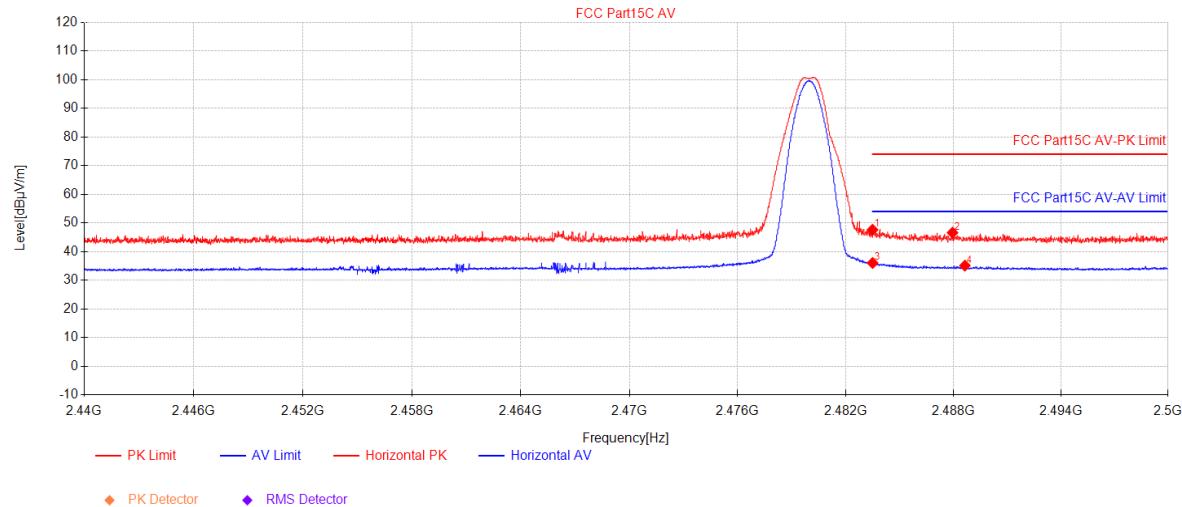
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## Restricted bands around fundamental frequency

### BLE 1M\_Channel 39



#### Final Data List

NO.	Frequency [MHz]	Reading [dBμV]	Level [dBμV/m]	Factor [dB]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	2483.5	43.69	47.60	3.91	74.00	26.40	165	109	Horizontal
2	2487.955	42.64	46.58	3.94	74.00	27.42	165	109	Horizontal
3	2483.5	32.12	36.03	3.91	54.00	17.97	165	109	Horizontal
4	2488.645	31.14	35.09	3.95	54.00	18.91	165	109	Horizontal

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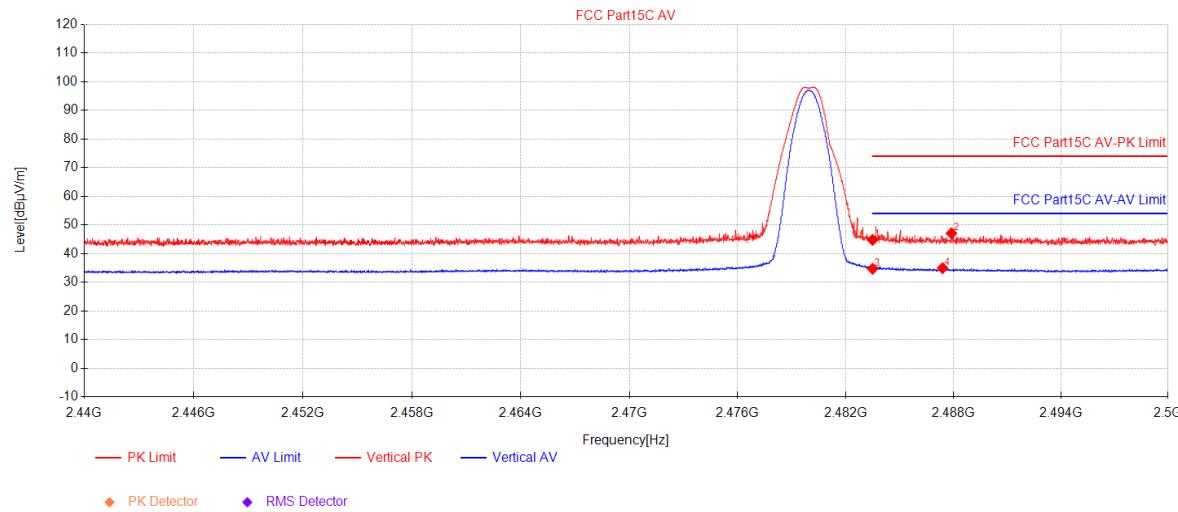


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## BLE 1M\_Channel 39



Final Data List										
NO.	Frequency [MHz]	Reading [dB $\mu$ V]	Level [dB $\mu$ V/m]	Factor [dB]	Limit [dB $\mu$ V/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity	
1	2483.5	40.86	44.77	3.91	74.00	29.23	371	89	Vertical	
2	2487.895	43.12	47.06	3.94	74.00	26.94	371	89	Vertical	
3	2483.5	30.77	34.68	3.91	54.00	19.32	371	89	Vertical	
4	2487.4	30.95	34.89	3.94	54.00	19.11	371	89	Vertical	

The End

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