

Report No.: SEWM2203000023RG02

Rev.: 01

Page: 1 of 77

# TEST REPORT

**Application No.:** SEWM2203000023RG  
**Applicant:** Quectel Wireless Solutions Co., Ltd.  
**Address of Applicant:** Building 5, Shanghai Business Park Phase III (Area B), No.1016 Tianlin Road, Minhang District, Shanghai 200233, China  
**Manufacturer:** Quectel Wireless Solutions Co., Ltd.  
**Address of Manufacturer:** Building 5, Shanghai Business Park Phase III (Area B), No.1016 Tianlin Road, Minhang District, Shanghai 200233, China  
**EUT Description:** Smart Module  
**Model No.:** SG865W-WF  
**Trade Mark:** quectel  
**FCC ID:** XMR2022SG865WWF  
**Standards:** FCC 47 CFR Part 2, Subpart J  
FCC 47 CFR Part 15, Subpart C  
**Date of Receipt:** 2022/3/20  
**Date of Test:** 2022/3/20 to 2022/5/25  
**Date of Issue:** 2022/5/26

<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:

Panta Sun

Panta Sun  
Wireless Laboratory Manager



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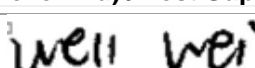
Report No.: SEWM2203000023RG02

Rev.: 01

Page: 2 of 77

## 1 Version

Revision Record				
Version	Chapter	Date	Modifier	Remark
01		2022/5/26		Original

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



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Report No.: SEWM2203000023RG02

Rev.: 01

Page: 3 of 77

## 2 Test Summary

Test Item	FCC Rule No.	Test Method	Test Result	Result
Antenna Requirement	15.203/15.247(b)	--	Clause 4.1	PASS
AC Power Line Conducted Emission	15.207	ANSI C63.10 2013 Section 6.2	Clause 4.2	PASS
Conducted Output Power	15.247 (b)(3)	ANSI C63.10 2013 Section 11.9.2.3	Clause 4.4	PASS
DTS (6 dB) Bandwidth & 99% Occupied Bandwidth	15.247 (a)(2)	ANSI C63.10 2013 Section 11.8 Option 2 / 6.9.3	Clause 4.5	Reporting only
Power Spectral Density	15.247 (e)	ANSI C63.10 2013 Section 11.10.2	Clause 4.6	PASS
Band-edge for RF Conducted Emissions	15.247(d)	ANSI C63.10 2013 Section 11.11	Clause 4.7	PASS
RF Conducted Spurious Emissions	15.247(d)	ANSI C63.10 2013 Section 11.11	Clause 4.8	PASS
Radiated Spurious Emissions	15.205/15.209	ANSI C63.10 2013 Section 11.12	Clause 4.9	PASS
Restricted bands around fundamental frequency (Radiated Emission)	15.205/15.209	ANSI C63.10 2013 Section 11.12	Clause 4.10	PASS



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Report No.: SEWM2203000023RG02  
Rev.: 01  
Page: 4 of 77

## 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 .....	5
3.4	General Description of EUT .....	6
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	AC Power Line Conducted Emissions .....	10
4.3	Duty Cycle .....	14
4.4	Conducted Output Power .....	15
4.5	DTS (6 dB) Bandwidth .....	16
4.6	Power Spectral Density .....	17
4.7	Band-edge for RF Conducted Emissions .....	18
4.8	RF Conducted Spurious Emissions .....	19
4.9	Radiated Spurious Emissions .....	20
4.10	Restricted bands around fundamental frequency .....	23
5	Measurement Uncertainty (95% confidence levels, k=2) .....	25
6	Equipment List .....	26
7	Photographs - EUT Constructional Details .....	28



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Report No.: SEWM2203000023RG02

Rev.: 01

Page: 5 of 77

### 3 General Information

#### 3.1 Details of Client

Applicant:	Quectel Wireless Solutions Co., Ltd.
Address of Applicant:	Building 5, Shanghai Business Park Phase III (Area B), No.1016 Tianlin Road, Minhang District, Shanghai 200233, China
Manufacturer:	Quectel Wireless Solutions Co., Ltd.
Address of Manufacturer:	Building 5, Shanghai Business Park Phase III (Area B), No.1016 Tianlin Road, Minhang District, Shanghai 200233, China

#### 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, Tizzy Song, Lves Cheng

#### 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.

• **FCC –Designation Number: CN1312**

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

Designation Number: CN1312.

Test Firm Registration Number: 717327



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Report No.: SEWM2203000023RG02

Rev.: 01

Page: 6 of 77

### 3.4 General Description of EUT

EUT Description:	Smart Module
Model No.:	SG865W-WF
Trade Mark:	quectel
Hardware Version:	R1.0
Software Version:	SG865WWFPAR01A05
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
Rates Type*:	<input checked="" type="checkbox"/> Provided by client 1M PHY                      2M PHY
Antenna Type:	<input checked="" type="checkbox"/> External, <input type="checkbox"/> Integrated
Antenna Gain*:	<input checked="" type="checkbox"/> Provided by client 0dBi
RF Cable*:	<input checked="" type="checkbox"/> Provided by client 0.5dB

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.

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Report No.: SEWM2203000023RG02

Rev.: 01

Page: 7 of 77

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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Report No.: SEWM2203000023RG02

Rev.: 01

Page: 8 of 77

### 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	3.8
LTNV	-40	3.8
HTNV	80	3.8
Remark: NV: Normal Voltage NT: Normal Temperature LT: Low Extreme Test Temperature HT: High Extreme Test Temperature		

### 3.6 Description of Support Units

Description	Manufacturer	Model No.
Mother board	Quectel	SG865W-WF-TE-A_V1.2
Mother board	Quectel	SA800U-WF-EVB_V2.2
Adapter	Something High Electric(Xiamen)Company Inc	P60EB120500
Remark: all above the information of table are provided by client.		



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Report No.: SEWM2203000023RG02

Rev.: 01

Page: 9 of 77

## 4 Test results and Measurement Data

### 4.1 Antenna Requirement

<b>Standard requirement:</b>	47 CFR Part 15C Section 15.203 /247(b)
<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 external on the main PCB and no consideration of replacement. The best case gain of the antenna is 0dBi.</p>	



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Report No.: SEWM2203000023RG02

Rev.: 01

Page: 10 of 77

## 4.2 AC Power Line Conducted Emissions

Test Requirement:	47 CFR Part 15C Section 15.207		
Test Method:	ANSI C63.10: 2013 Section 6.2		
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 50Ω/50μH + 5Ω linear impedance. The power cables of all other units of the EUT were connected to a second LISN 2, which was bonded to the ground reference plane in the same way as the LISN 1 for the unit being measured. A multiple socket outlet strip was used to connect multiple power cables to a single LISN provided the rating of the LISN was not exceeded.</li> <li>3) The tabletop EUT was placed upon a non-metallic table 0.8m above the ground reference plane. And for floor-standing arrangement, the EUT was placed on the horizontal ground reference plane.</li> <li>4) The test was performed with a vertical ground reference plane. The rear of the EUT shall be 0.4 m from the vertical ground reference plane. The vertical ground reference plane was bonded to the horizontal ground reference plane. The LISN 1 was placed 0.8 m from the boundary of the unit under test and bonded to a ground reference plane for LISNs mounted on top of the ground reference plane. This distance was between the closest points of the LISN 1 and the EUT. All other units of the EUT and associated equipment was at least 0.8 m from the LISN 2.</li> <li>5) In order to find the maximum emission, the relative positions of equipment and all of the interface cables must be changed according to ANSI C63.10: 2013 on conducted measurement.</li> </ol>		



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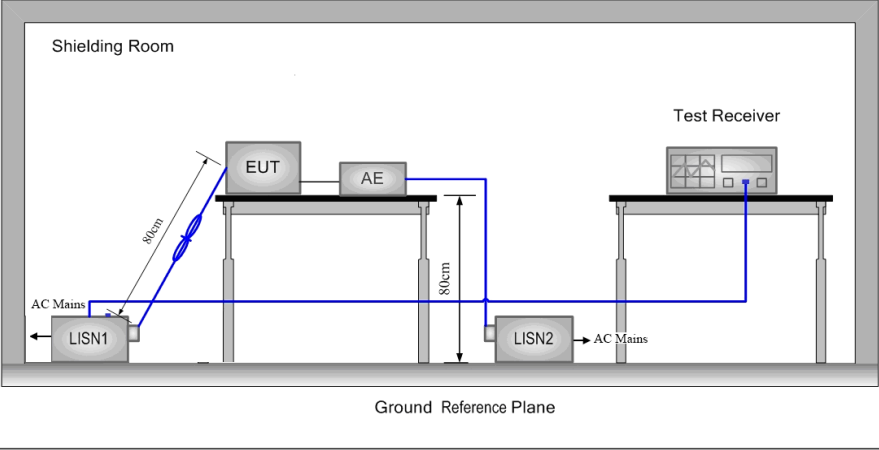
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Report No.: SEWM2203000023RG02

Rev.: 01

Page: 11 of 77

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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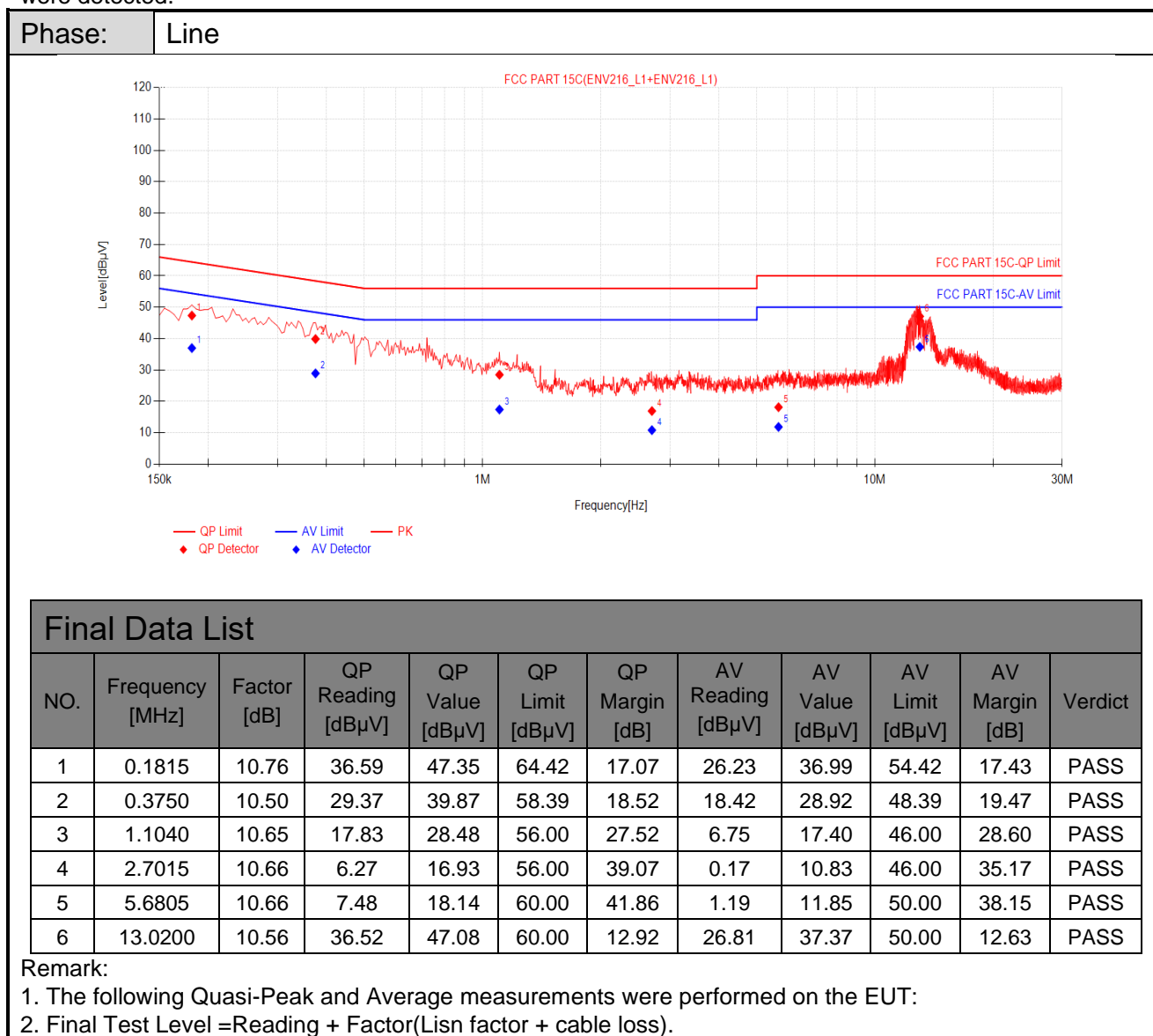
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Report No.: SEWM2203000023RG02  
Rev.: 01  
Page: 12 of 77

### Measurement Data

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

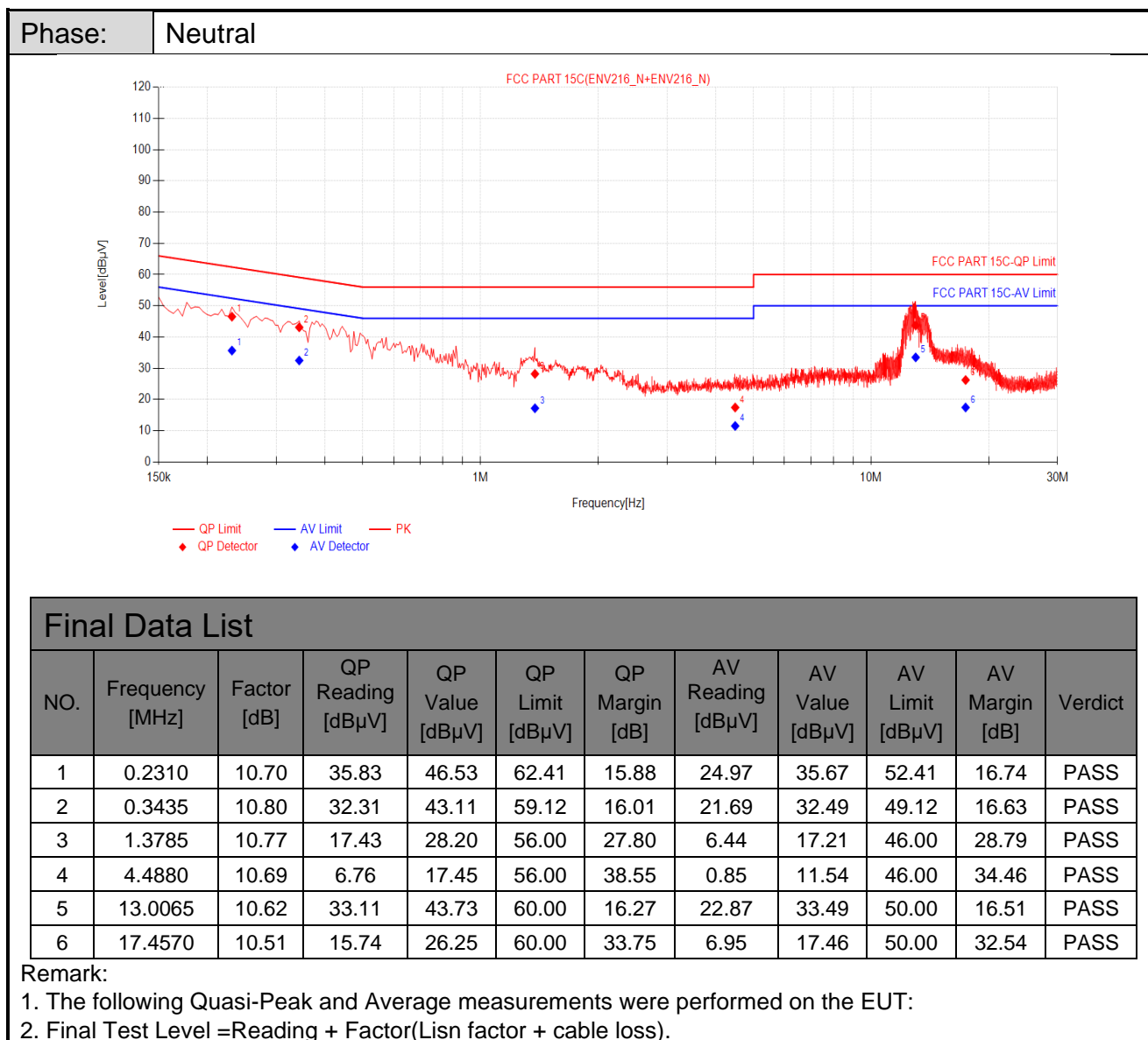
Quasi-Peak and Average measurement were performed at the frequencies with maximized peak emission were detected.



Report No.: SEWM2203000023RG02

Rev.: 01

Page: 13 of 77





Report No.: SEWM2203000023RG02

Rev.: 01

Page: 14 of 77

### 4.3 Duty Cycle

The detailed test data see: **Appendix**



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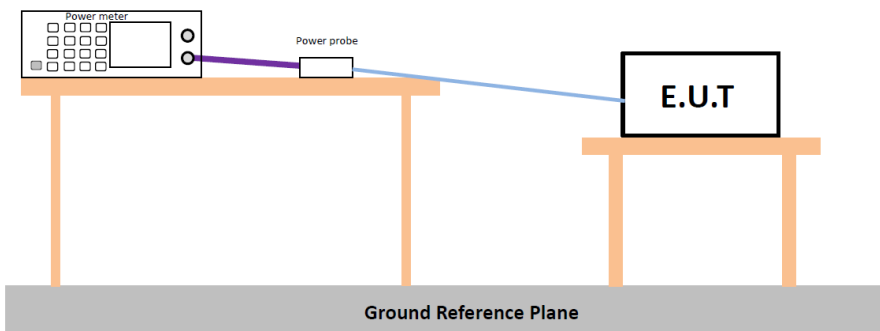
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Report No.: SEWM2203000023RG02  
Rev.: 01  
Page: 15 of 77

## 4.4 Conducted Output Power

Test Requirement:	47 CFR Part 15C Section 15.247 (b)(3)
Test Method:	ANSI C63.10 :2013 Section11.9.2.3
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
The detailed test data see: <b>Appendix</b>	



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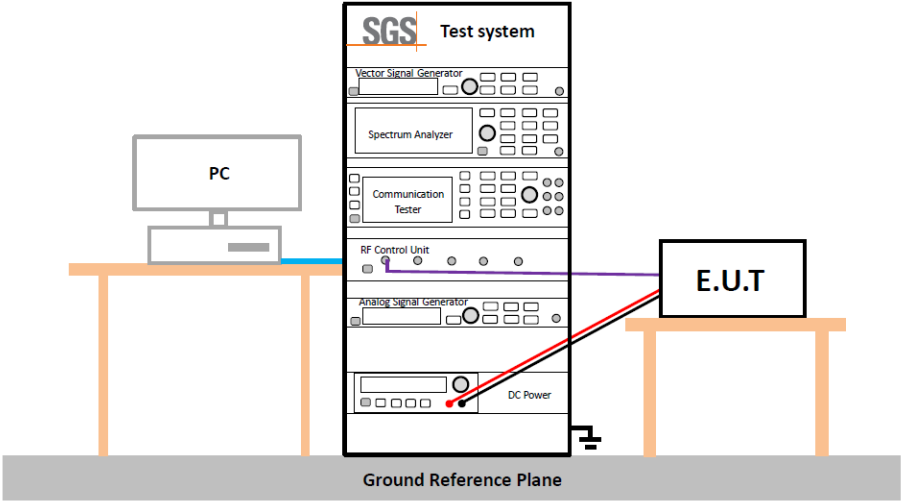
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Report No.: SEWM2203000023RG02

Rev.: 01

Page: 16 of 77

#### 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 / 6.9.3
Test Setup:	
Instruments Used:	Refer to section 6 for details
Test Mode:	Transmitting with GFSK modulation.
Limit:	≥ 500 kHz
Test Results:	Pass
The detailed test data see: <b>Appendix</b>	



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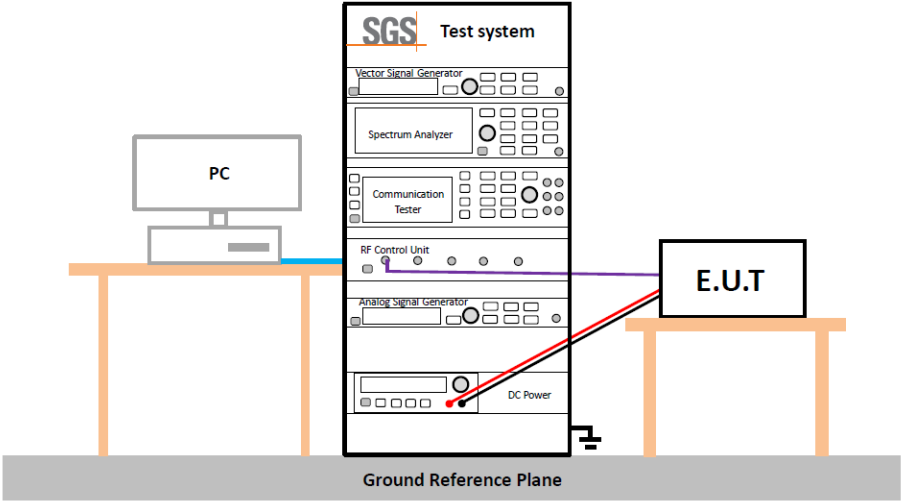
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Report No.: SEWM2203000023RG02  
Rev.: 01  
Page: 17 of 77

## 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:	≤8.00dBm/3kHz
Test Results:	Pass
The detailed test data see: <b>Appendix</b>	



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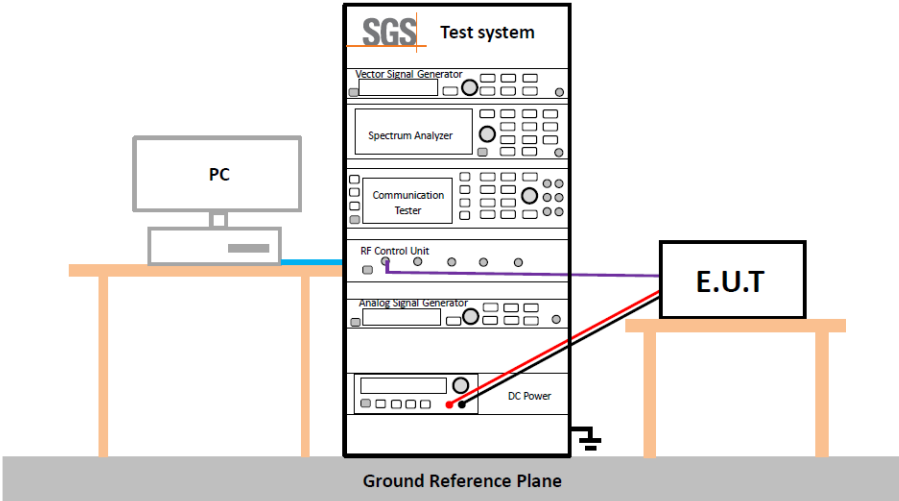
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Rev.: 01  
Page: 18 of 77

## 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 11.11
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
The detailed test data see: <b>Appendix</b>	



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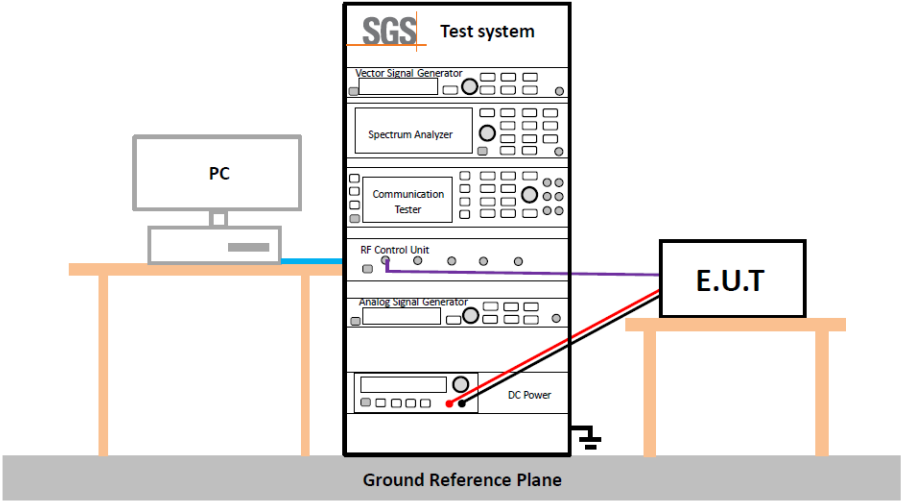
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Rev.: 01  
Page: 19 of 77

## 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
The detailed test data see: <b>Appendix</b>	



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Report No.: SEWM2203000023RG02

Rev.: 01

Page: 20 of 77

### 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)				
Test frequency:	9kHz ~ 40GHz(or 10 Harmonic)				
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:

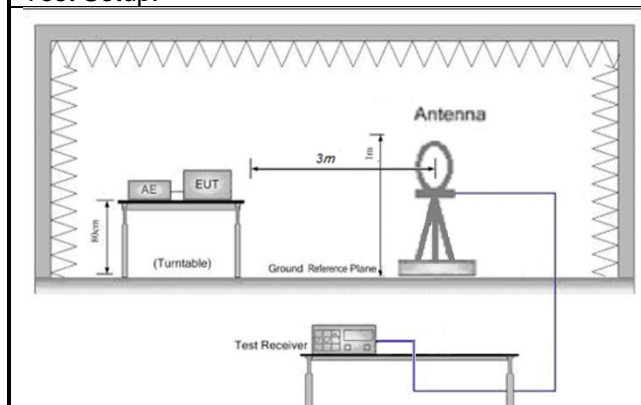


Figure 1. Below 30MHz

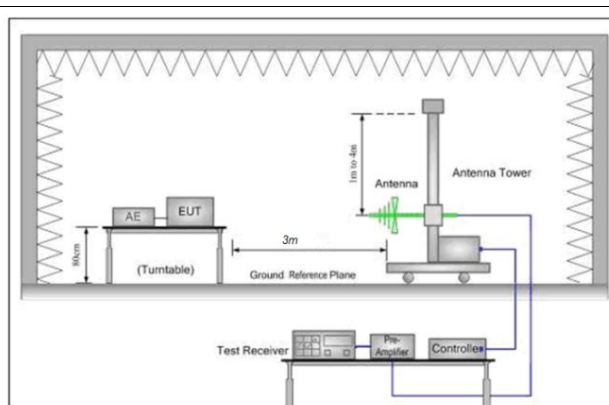


Figure 2. 30MHz to 1GHz



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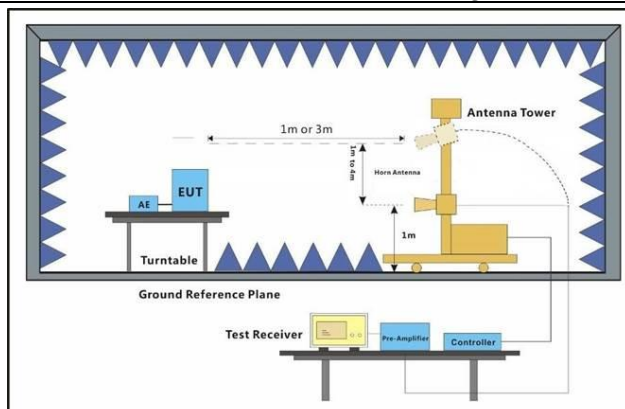


Figure 3. Above 1 GHz

<p>Test Procedure:</p>	<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 \cdot \log(3/1) = 9.54 \text{ dB}</math>.</li> </ol>
<p>Test Configuration:</p>	<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>

Report No.: SEWM2203000023RG02

Rev.: 01

Page: 22 of 77

	<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).</li> </ul> <p>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.</p> <ul style="list-style-type: none"> <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:	<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 6 for details
Test Results:	Pass
The detailed test data see: <b>Appendix</b>	



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Report No.: SEWM2203000023RG02

Rev.: 01

Page: 23 of 77

### 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:

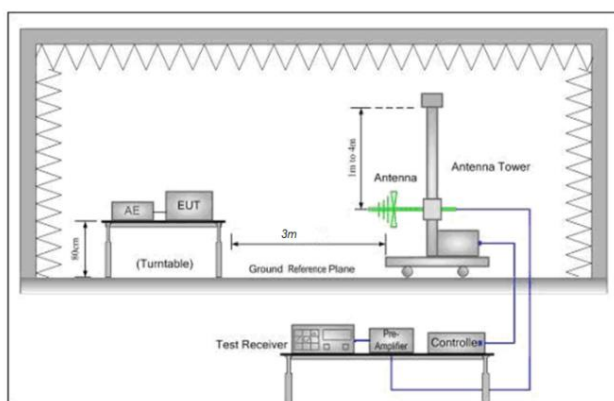


Figure 1. 30MHz to 1GHz

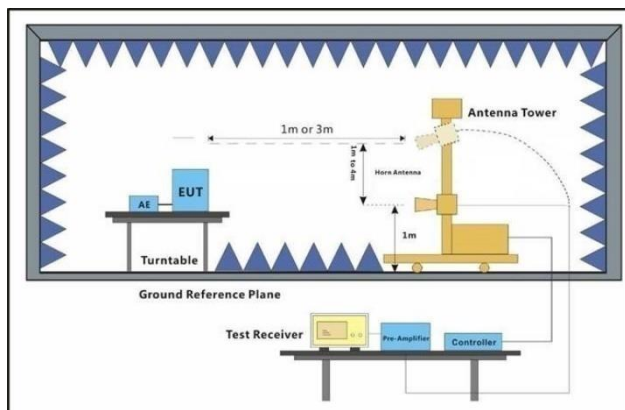


Figure 2. Above 1 GHz

#### Test Procedure:

- 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 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.
- 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



Report No.: SEWM2203000023RG02

Rev.: 01

Page: 24 of 77

	<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 ≥ 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 ≥ [3 *RBW]</li> <li>• Detector = RMS (power averaging), if span / (# of points in sweep) ≤ (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:	<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>Only the worst case is recorded in the report.</p>
Instruments Used:	Refer to section 6 for details
Test Results:	Pass
The detailed test data see: <b>Appendix</b>	



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Report No.: SEWM2203000023RG02

Rev.: 01

Page: 25 of 77

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

No.	Item	Measurement Uncertainty
1	Total RF power, conducted	$\pm 0.54\text{dB}$
2	RF power density, conducted	$\pm 1.03\text{dB}$
3	Spurious emissions, conducted	$\pm 0.54\text{dB}$
4	Radio Frequency	$\pm 1.0\%$
5	Duty Cycle	$\pm 0.37\%$
6	Occupied Bandwidth	$\pm 1.0\%$
7	Conduction Emission	$\pm 2.90\text{dB}$ (150kHz to 30MHz)
8	Radiated Emission	$\pm 3.13\text{dB}$ (9k -30MHz)
		$\pm 4.80\text{dB}$ (30M -1GHz)
		$\pm 4.80\text{dB}$ (1GHz to 18GHz)
		$\pm 4.80\text{dB}$ (Above 18GHz)



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Report No.: SEWM2203000023RG02

Rev.: 01

Page: 26 of 77

## 6 Equipment List

RF Test Equipment					
Equipment	Manufacturer	Model No.	Inventory No.	Cal Date	Cal Due Date
Shielding Room	Brilliant-emc	N/A	SUWI-04-01-06	2021/5/8	2024/5/7
Temperature and humidity meter	MingGao	TH101B	SUWI-01-01-07	2022/2/16	2023/2/15
Signal Analyzer	ROHDE&SCHWARZ	FSV3030	SUWI-01-02-02	2021/5/28	2022/5/27
Measurement Software	Tonscend	JS1120-3 Test System V3.1.55	SUWI-02-09-09	NCR	NCR
DC Power Supply	HYELEC	HY3005B	SUWI-01-18-01	2022/2/15	2023/2/14
Power meter	Anritsu	ML2495A	SUWI-01-31-01	2021/12/4	2022/12/3
Pulse power sensor	Anritsu	MA2411B	SUWI-01-32-01	2021/12/4	2022/12/3

CE Test Equipment					
Equipment	Manufacturer	Model No.	Inventory No.	Cal Date	Cal Due Date
Shielding Room	Brilliant-emc	N/A	SUWI-04-03-01	2021/5/8	2024/5/7
Artificial network	ROHDE&SCHWARZ	ENV216	SUWI-01-19-01	2022/2/19	2023/2/18
Artificial network	ROHDE&SCHWARZ	ENV216	SUWI-01-19-02	2022/2/19	2023/2/18
Measurement Software	Tonscend	JS32-CE V4.0.0.2	SUWI-02-09-05	NCR	NCR
Test receiver	ROHDE&SCHWARZ	ESR7	SUWI-01-10-01	2022/2/19	2023/2/18
Temperature and humidity meter	MingGao	TH101B	SUWI-01-01-06	2022/2/16	2023/2/15



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Report No.: SEWM2203000023RG02

Rev.: 01

Page: 27 of 77

RSE Test Equipment					
Equipment	Manufacturer	Model No.	Inventory No.	Cal Date	Cal Due Date
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	2022/2/14	2023/2/13
Amplifier	Tonscend	TAP01018050	SUWI-01-14-02	2022/2/14	2023/2/13
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	2023/6/9
Measurement Software	Tonscend	JS32-RE V4.0.0.0	SUWI-02-09-04	NCR	NCR
Measurement Software	Tonscend	JS32-RSE V4.0.0.1	SUWI-02-09-06	NCR	NCR



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Rev.: 01

Page: 28 of 77

## 7 Photographs - Setup Photos

Refer to Appendix A.2 WLAN Setup Photos.



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Rev.: 01  
Page: 29 of 77

# Appendix



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Rev.: 01

Page: 30 of 77

## DTS Bandwidth Test Result

TestMode	Antenna	Frequency[MHz]	DTS BW [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
BLE_1M	Ant1	2402	0.68	2401.67	2402.35	≥0.5	PASS
		2440	0.68	2439.67	2440.34	≥0.5	PASS
		2480	0.68	2479.67	2480.34	≥0.5	PASS
BLE_2M	Ant1	2402	1.15	2401.44	2402.59	≥0.5	PASS
		2440	1.16	2439.43	2440.59	≥0.5	PASS
		2480	1.16	2479.44	2480.59	≥0.5	PASS



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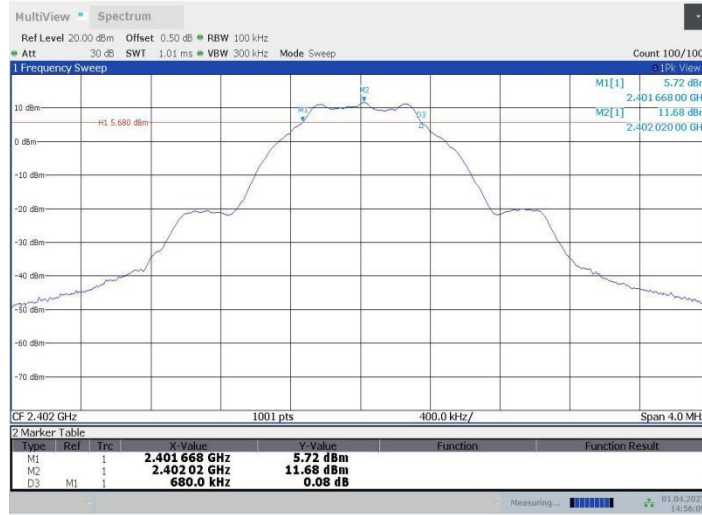
Report No.: SEWM2203000023RG02

Rev.: 01

Page: 31 of 77

### Test Graphs

BLE\_1M\_Ant1\_2402



14:56:10 01.04.2022

BLE\_1M\_Ant1\_2440



15:00:04 01.04.2022



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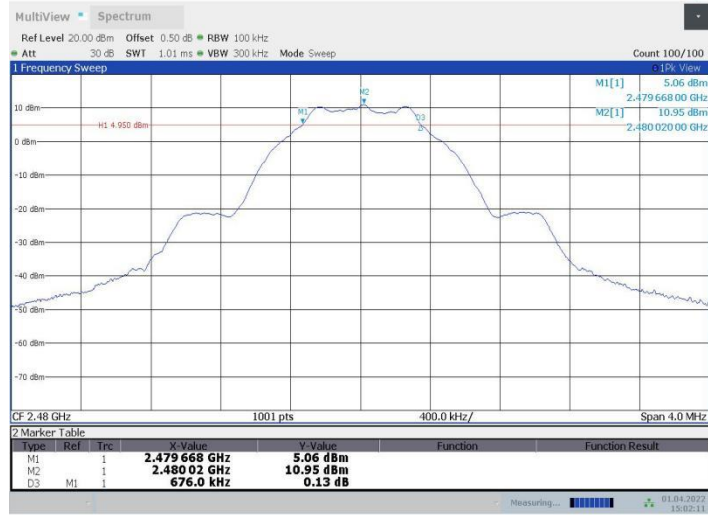
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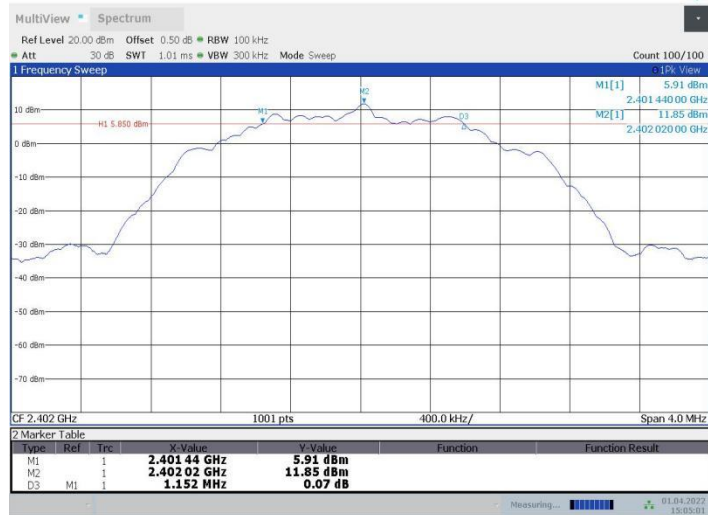
Page: 32 of 77

### BLE\_1M\_Ant1\_2480



15:02:12 01.04.2022

### BLE\_2M\_Ant1\_2402



15:05:01 01.04.2022



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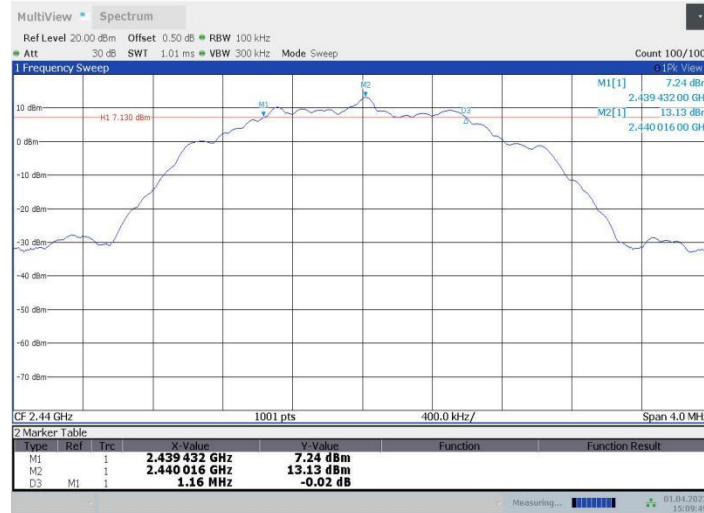
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Report No.: SEWM2203000023RG02

Rev.: 01

Page: 33 of 77

### BLE\_2M\_Ant1\_2440



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15:19:16 01.04.2022



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Rev.: 01

Page: 34 of 77

## Occupied Channel Bandwidth Test Result

TestMode	Antenna	Frequency[MHz]	OCB [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
BLE_1M	Ant1	2402	1.017	2401.509	2402.526	---	---
		2440	1.016	2439.507	2440.523	---	---
		2480	1.016	2479.507	2480.524	---	---
BLE_2M	Ant1	2402	2.000	2401.026	2403.026	---	---
		2440	1.999	2439.024	2441.023	---	---
		2480	2.001	2479.024	2481.025	---	---



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Rev.: 01

Page: 35 of 77

### Test Graphs

BLE\_1M\_Ant1\_2402



14:56:28 01.04.2022

BLE\_1M\_Ant1\_2440



15:00:22 01.04.2022



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Rev.: 01

Page: 36 of 77

### BLE\_1M\_Ant1\_2480



15:02:30 01.04.2022

### BLE\_2M\_Ant1\_2402



15:05:18 01.04.2022



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### BLE\_2M\_Ant1\_2440



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15:19:33 01.04.2022



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 Rev.: 01  
 Page: 38 of 77

## Maximum conducted output power Test Result Peak

TestMode	Antenna	Frequency[MHz]	Conducted Peak Power[dBm]	Conducted Limit[dBm]	Verdict
BLE_1M	Ant1	2402	12.23	≤30	PASS
		2440	13.65	≤30	PASS
		2480	11.56	≤30	PASS
BLE_2M	Ant1	2402	12.63	≤30	PASS
		2440	13.98	≤30	PASS
		2480	11.71	≤30	PASS



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Report No.: SEWM2203000023RG02  
 Rev.: 01  
 Page: 39 of 77

## Maximum power spectral density Test Result

TestMode	Antenna	Frequency[MHz]	Result[dBm/3kHz]	Limit[dBm/3kHz]	Verdict
BLE_1M	Ant1	2402	-2.92	≤8.00	PASS
		2440	-1.71	≤8.00	PASS
		2480	-3.67	≤8.00	PASS
BLE_2M	Ant1	2402	-5.68	≤8.00	PASS
		2440	-4.36	≤8.00	PASS
		2480	-6.34	≤8.00	PASS



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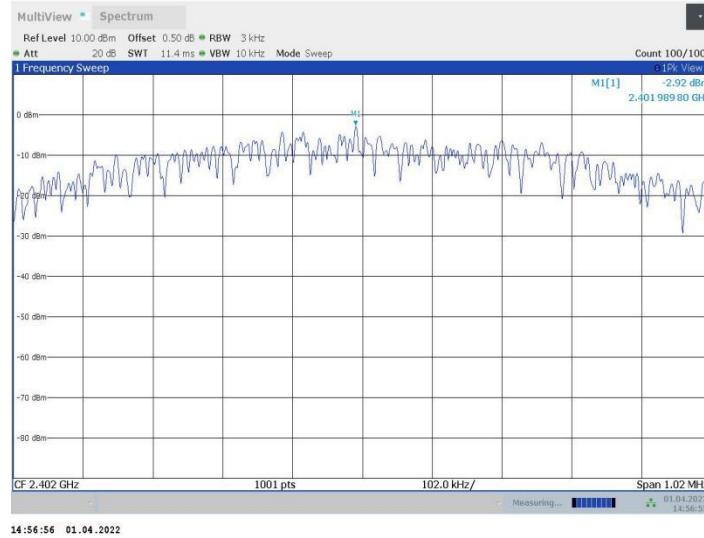
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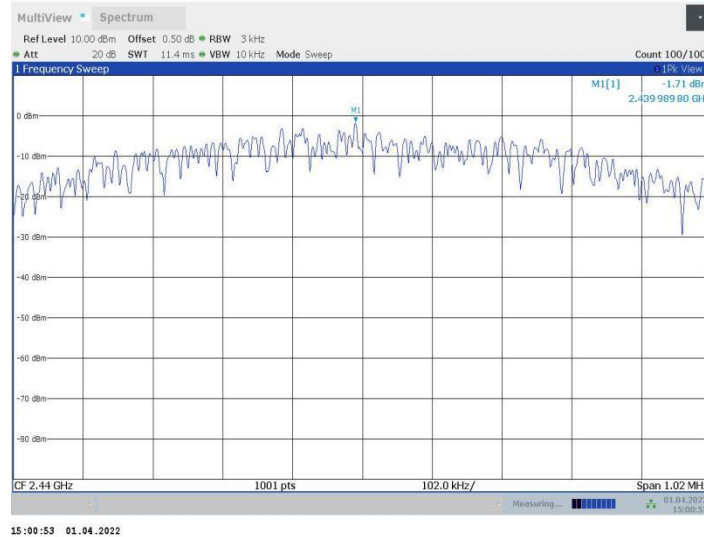
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### Test Graphs

BLE\_1M\_Ant1\_2402



BLE\_1M\_Ant1\_2440



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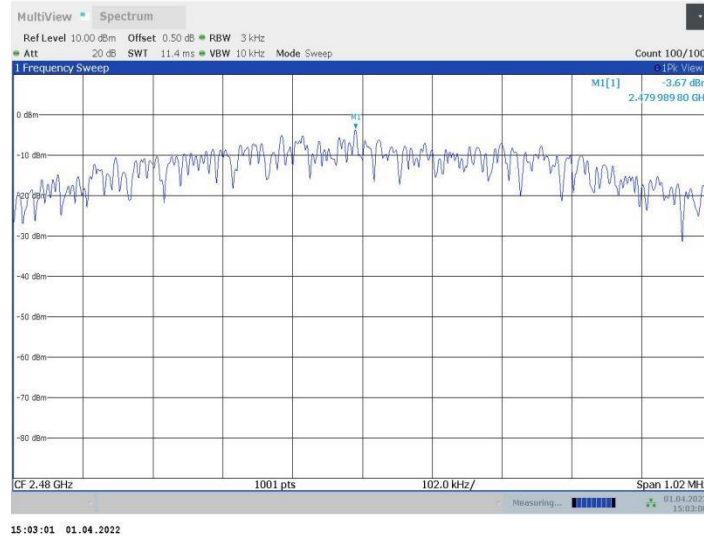
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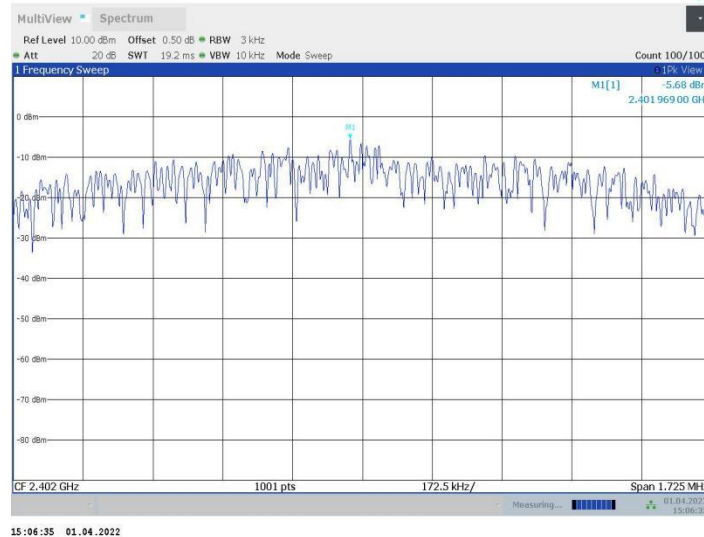
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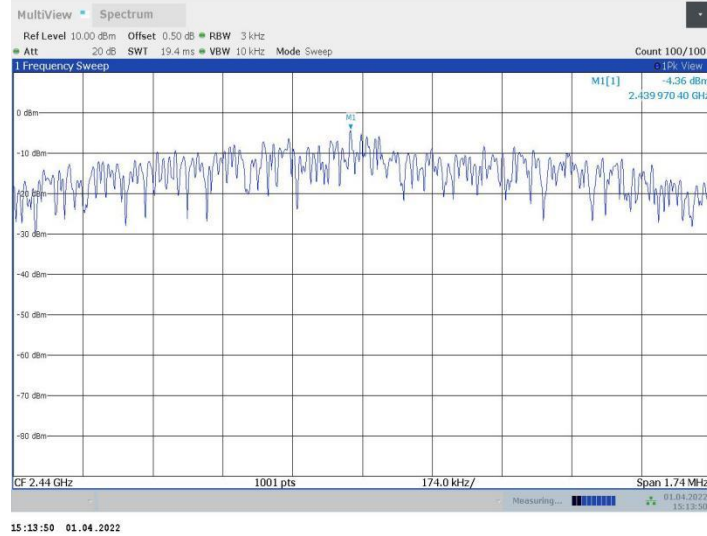
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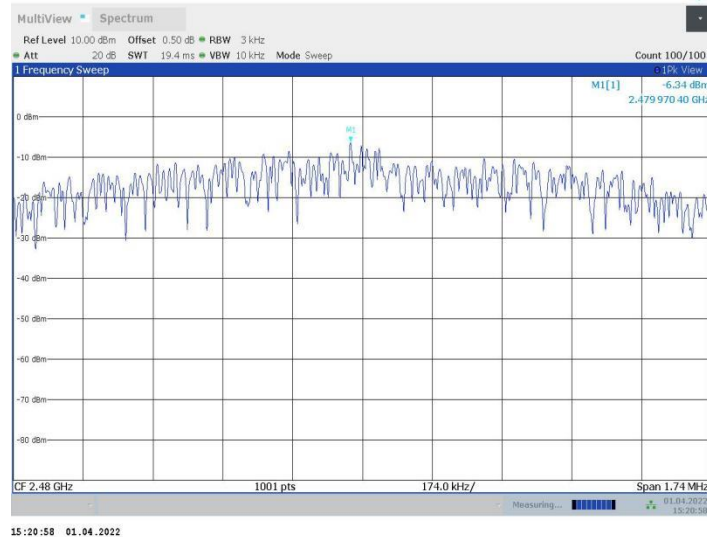
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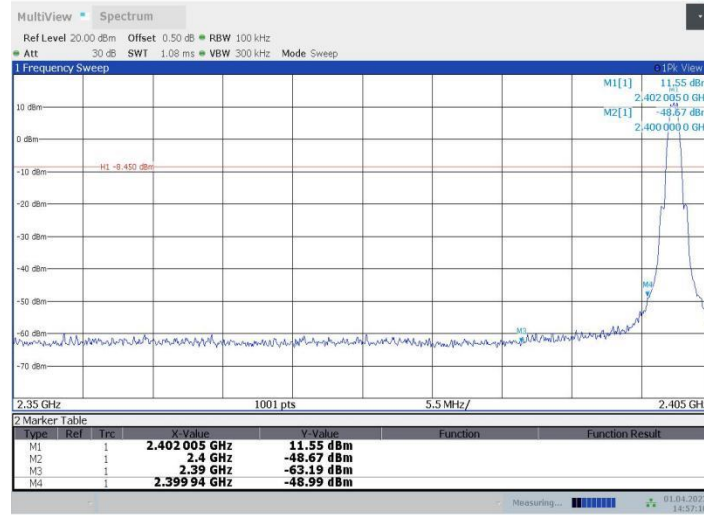
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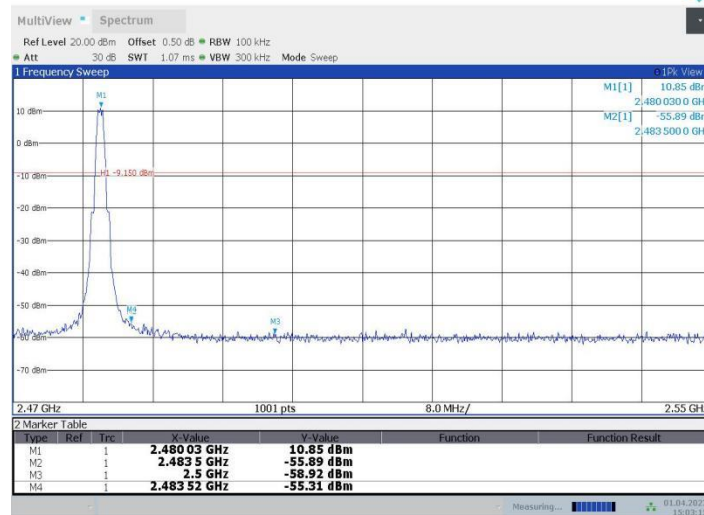
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### Band edge measurements Test Graphs

BLE 1M Ant1 Low 2402



BLE 1M Ant1 High 2480



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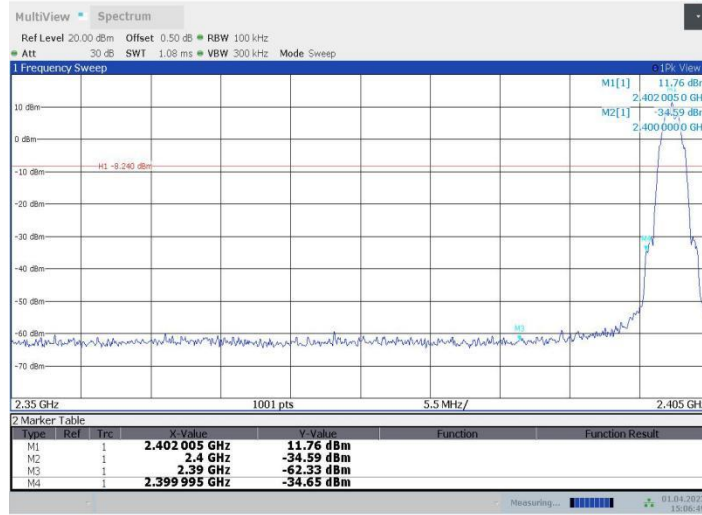


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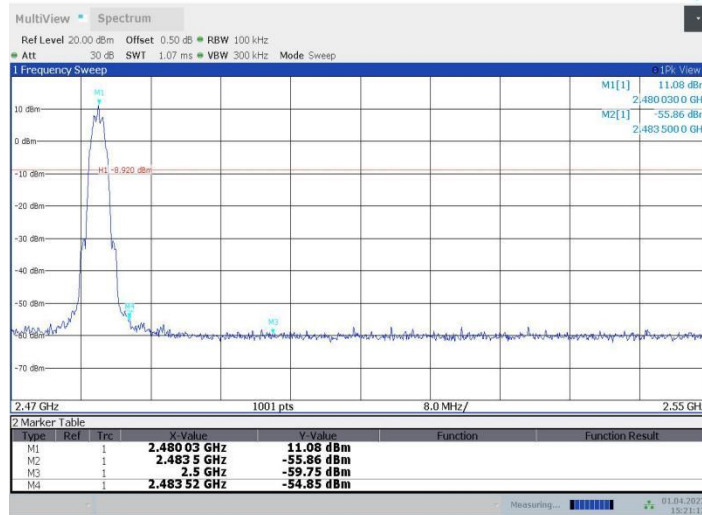
Page: 44 of 77

### BLE\_2M\_Ant1\_Low\_2402



15:06:50 01.04.2022

### BLE\_2M\_Ant1\_High\_2480



15:21:13 01.04.2022



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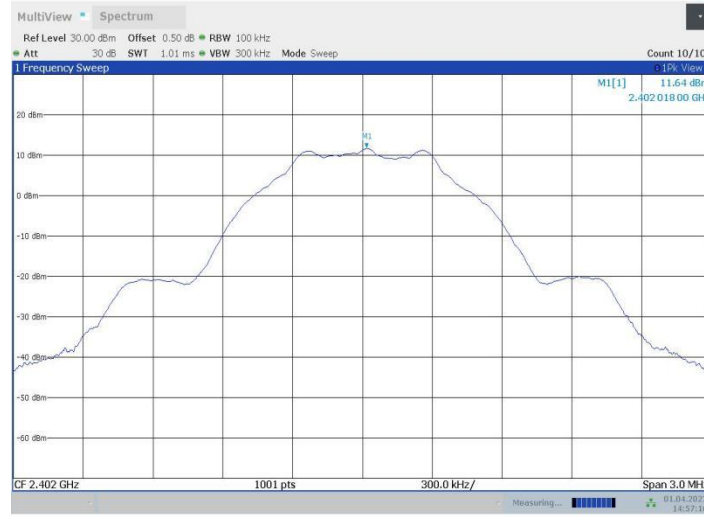
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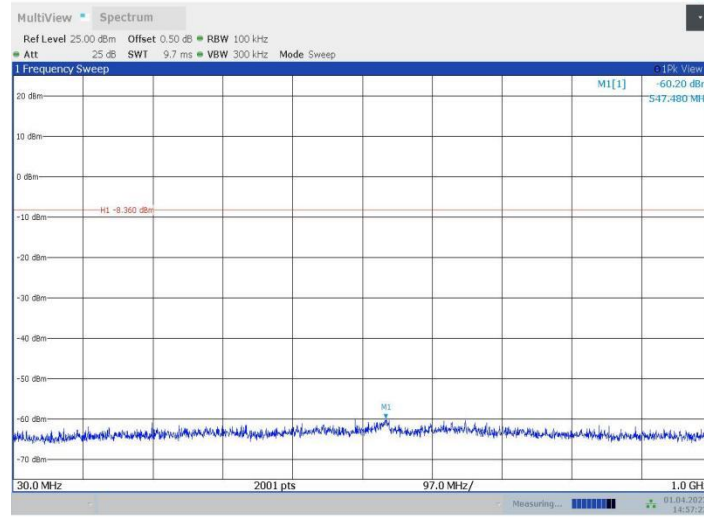
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### Conducted Spurious Emission Test Graphs

BLE\_1M\_Ant1\_2402\_0~Reference



BLE\_1M\_Ant1\_2402\_30~1000



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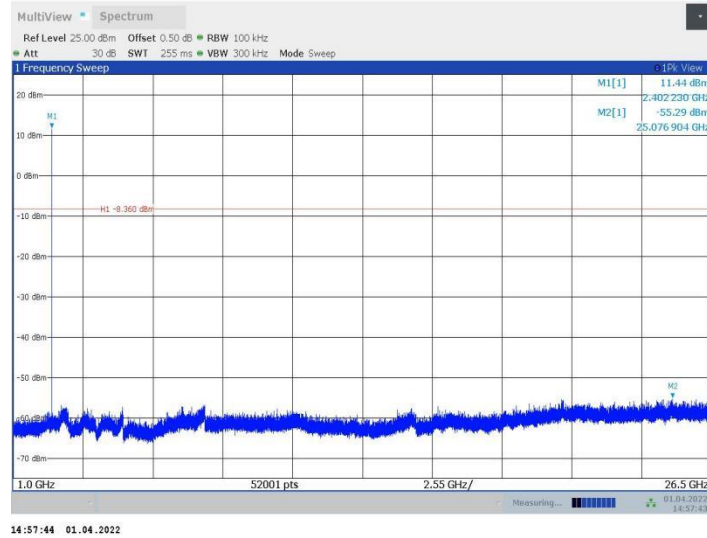
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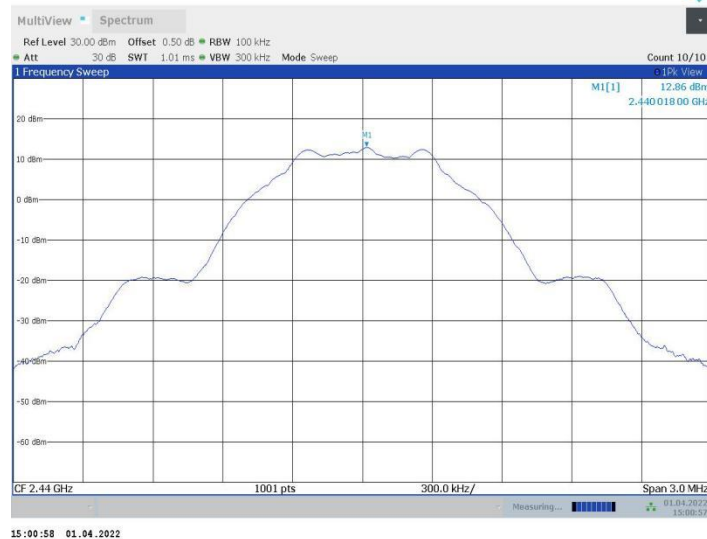
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Page: 46 of 77

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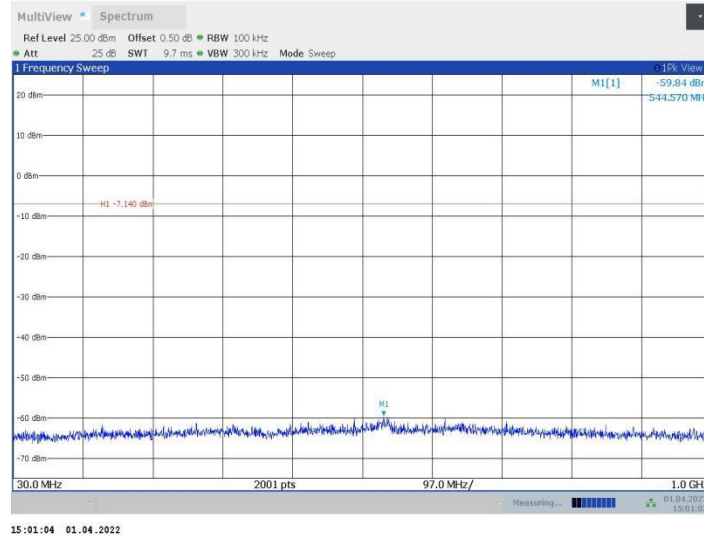
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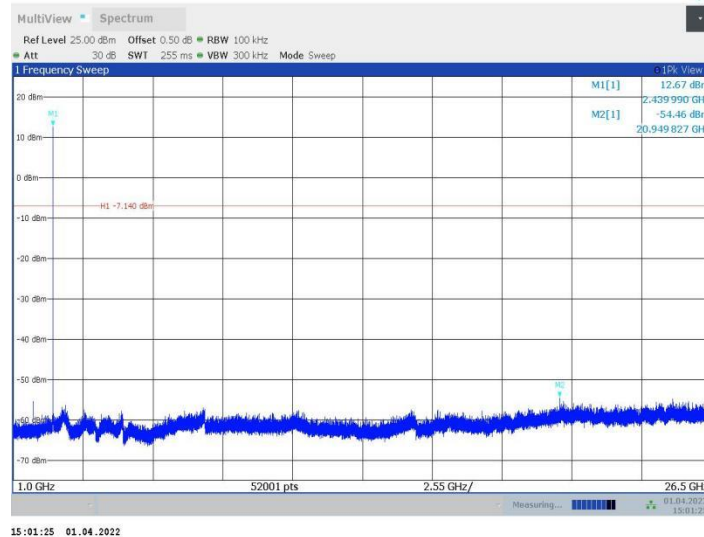
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BLE\_1M\_Ant1\_2440\_30~1000



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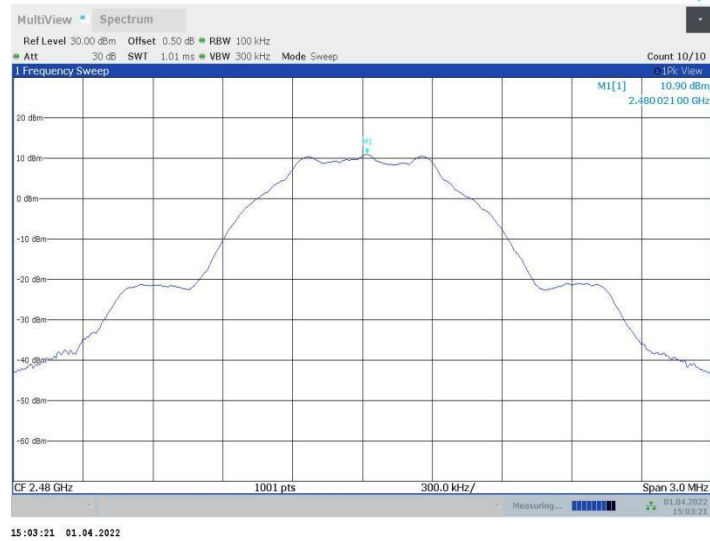
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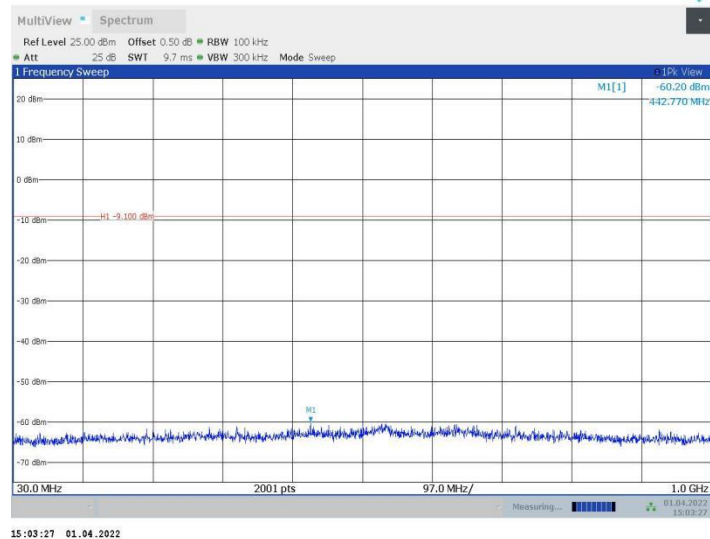
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Page: 48 of 77

### BLE 1M Ant1 2480 0~Reference



### BLE 1M Ant1 2480 30~1000



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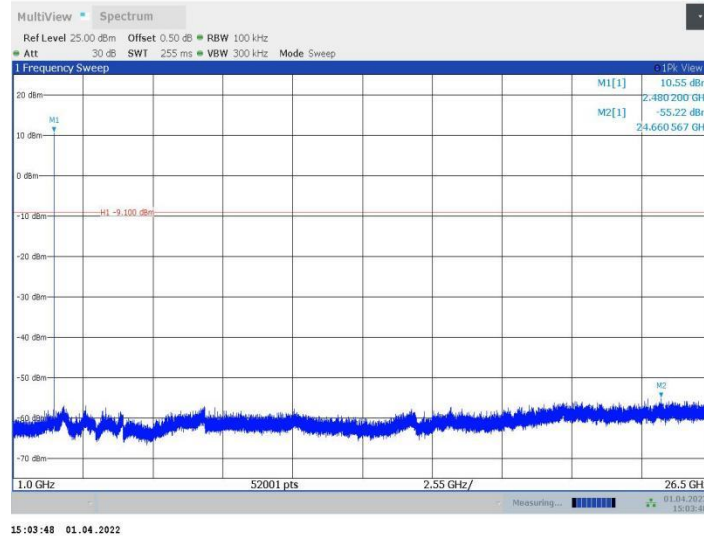


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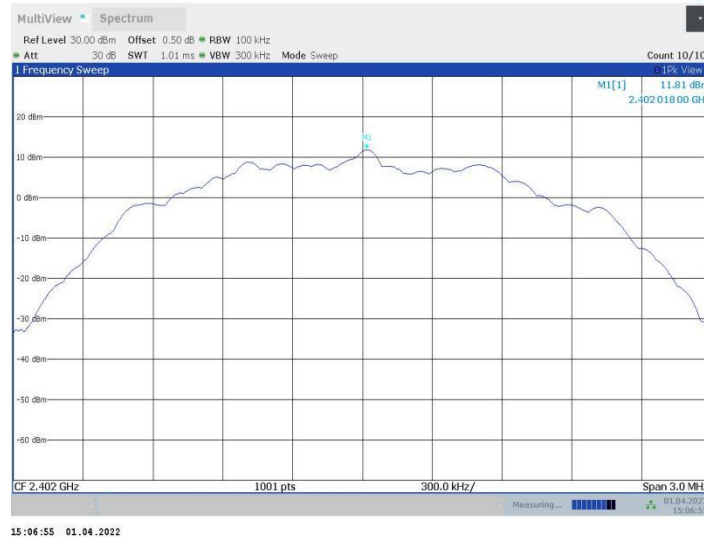
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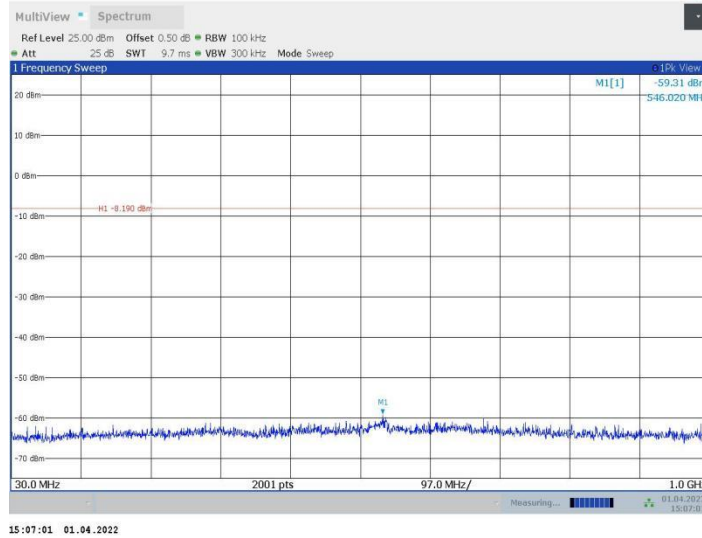
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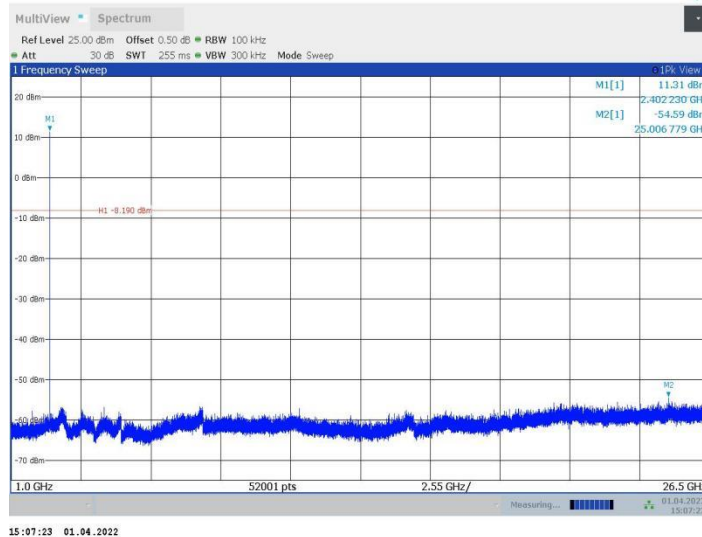
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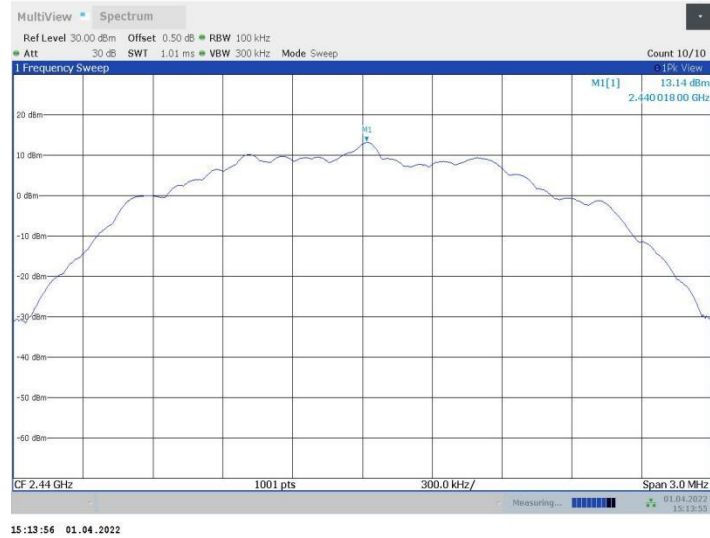
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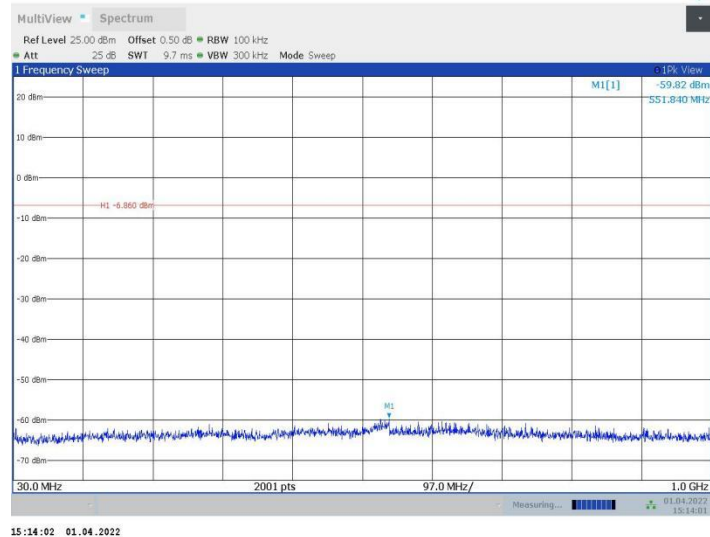
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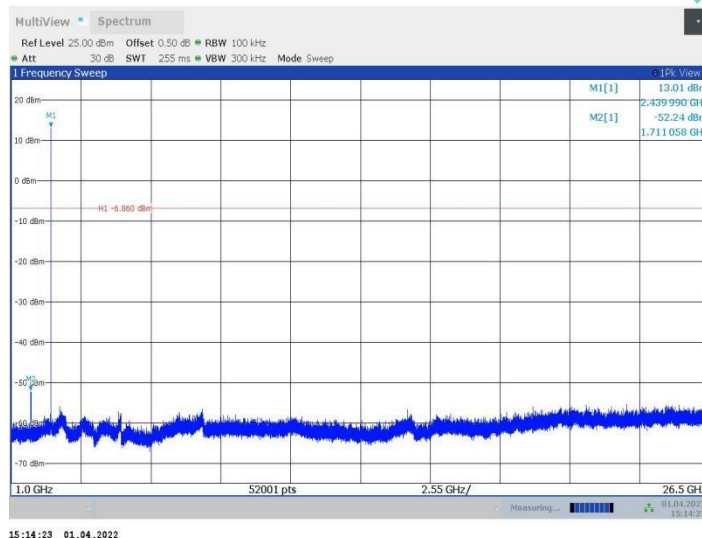
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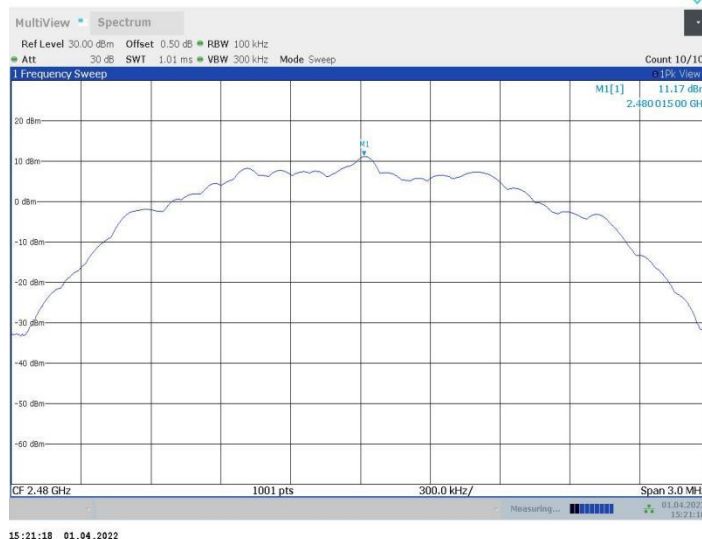
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BLE 2M Ant1 2440 1000~26500



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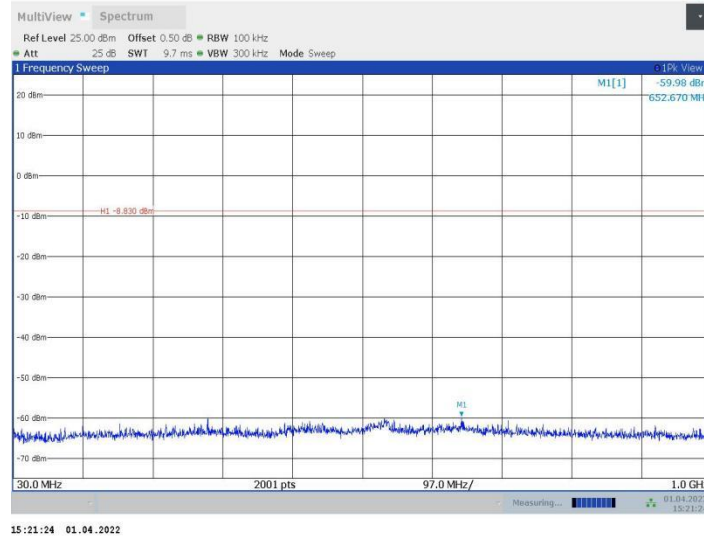
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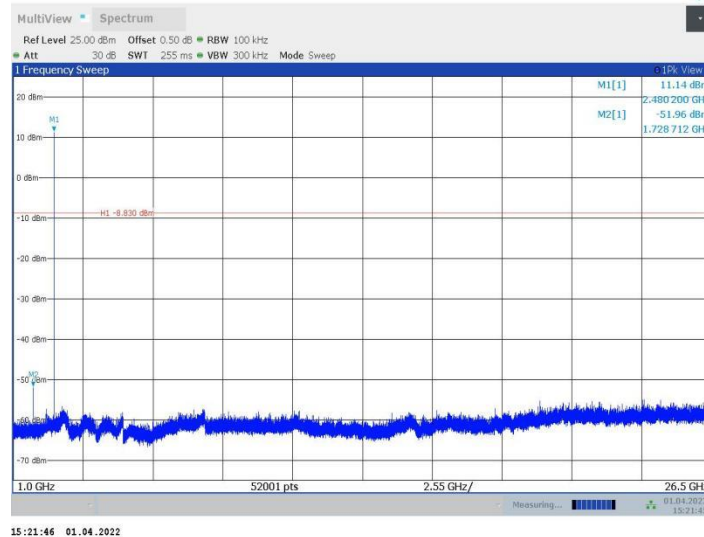
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Rev.: 01

Page: 54 of 77

## Duty Cycle Test Result

TestMode	Antenna	Frequency[MHz]	ON Time [ms]	Period [ms]	Duty Cycle [%]	Duty Cycle Factor[dB]
BLE_1M	Ant1	2402	0.39	0.63	61.90	2.08
BLE_2M	Ant1	2402	0.20	0.62	32.26	4.91



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### Test Graphs



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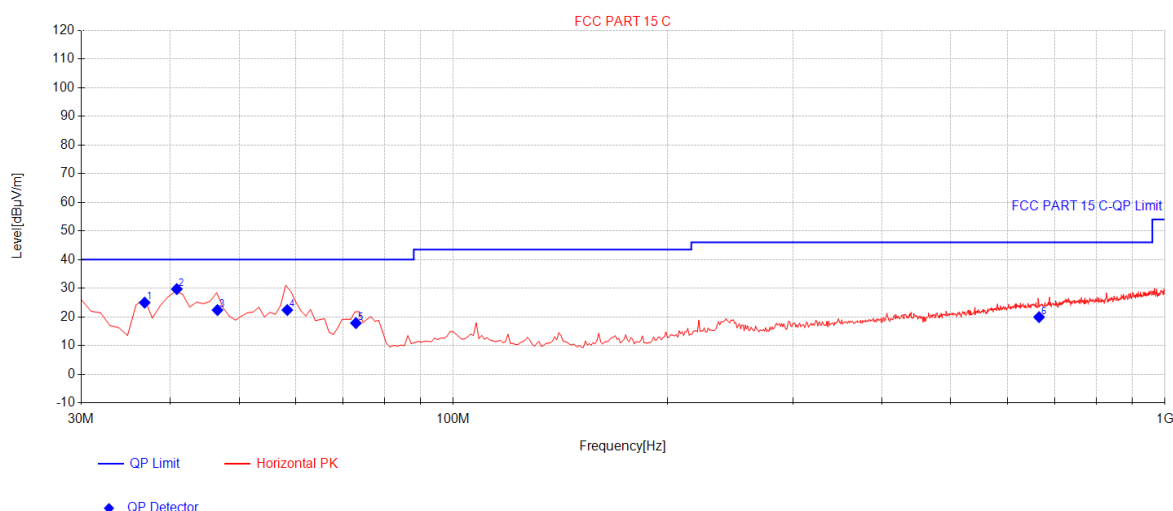
Rev.: 01

Page: 56 of 77

### Radiated Spurious Emissions

Radiated emission below 1GHz

Worst case Mode: BLE 2M\_Channel 00



#### 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	36.8405	42.02	-17.04	24.98	40.00	15.02	207.9	227.8	Horizontal
2	40.8797	45.54	-15.84	29.70	40.00	10.30	193.6	91.2	Horizontal
3	46.6276	37.10	-14.72	22.38	40.00	17.62	196.6	4.7	Horizontal
4	58.4486	38.26	-15.86	22.40	40.00	17.60	205.1	38.4	Horizontal
5	72.9690	37.38	-19.55	17.83	40.00	22.17	220	272.1	Horizontal
6	665.2260	24.59	-4.66	19.93	46.00	26.07	103	60.5	Horizontal



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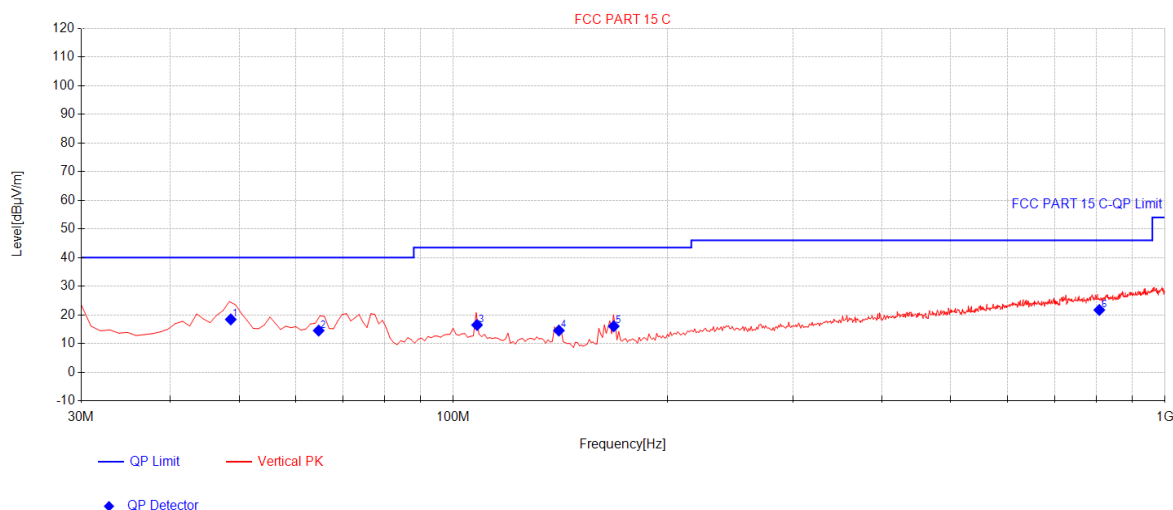
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Rev.: 01

Page: 57 of 77



### 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	48.6777	32.86	-14.44	18.42	40.00	21.58	118.7	356.6	Vertical
2	64.6927	32.15	-17.62	14.53	40.00	25.47	116	268.9	Vertical
3	107.9971	33.17	-16.69	16.48	43.50	27.02	106	262.9	Vertical
4	140.7090	34.24	-19.70	14.54	43.50	28.96	100	1.3	Vertical
5	168.0334	34.69	-18.65	16.04	43.50	27.46	114.5	191.5	Vertical
6	808.4916	24.50	-2.78	21.72	46.00	24.28	179.9	285.6	Vertical



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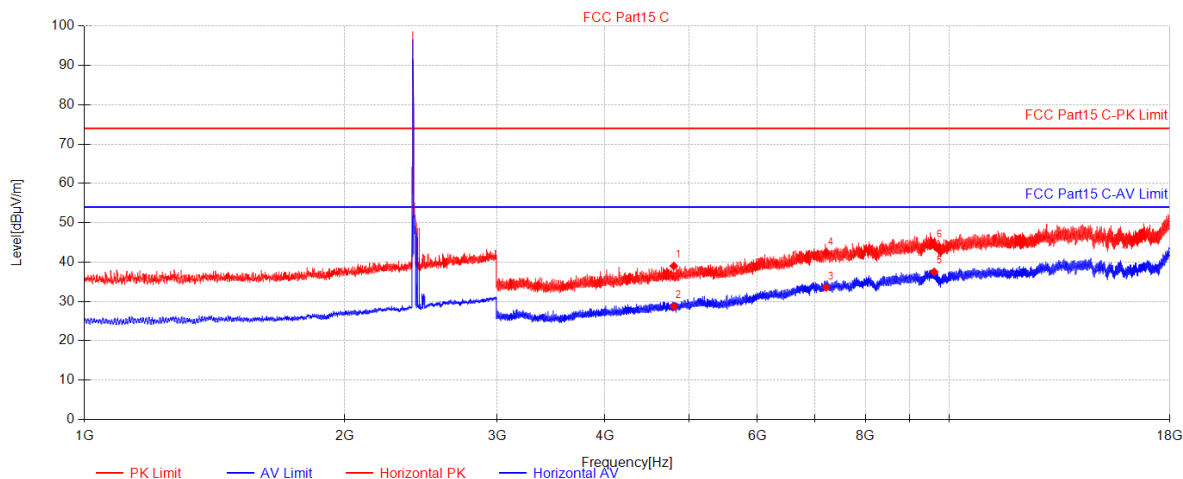
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Rev.: 01  
Page: 58 of 77

### Transmitter emission Above 1GHz

#### BLE 1M\_Channel 00



#### Final Data List

NO.	Frequency [MHz]	Reading [dBμV]	Factor [dB]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	4804.0000	52.22	-13.21	39.01	74.00	34.99	223	179	Horizontal
2	4804.0000	41.95	-13.21	28.74	54.00	25.26	244	71	Horizontal
3	7206.0000	40.42	-6.84	33.58	54.00	20.42	190	183	Horizontal
4	7206.0000	49.22	-6.84	42.38	74.00	31.62	251	111	Horizontal
5	9608.0000	38.73	-1.22	37.51	54.00	16.49	187	3	Horizontal
6	9608.0000	45.51	-1.22	44.29	74.00	29.71	146	359	Horizontal



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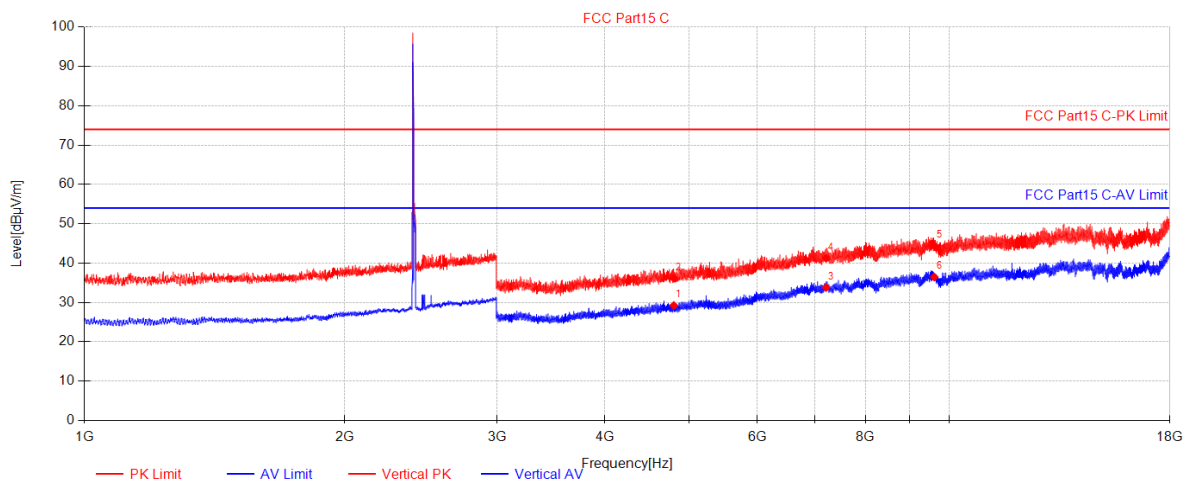


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Rev.: 01

Page: 59 of 77

## BLE 1M\_Channel 00



## Final Data List

NO.	Frequency [MHz]	Reading [dBμV]	Factor [dB]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	4804.0000	42.46	-13.21	29.25	54.00	24.75	144	3	Vertical
2	4804.0000	49.37	-13.21	36.16	74.00	37.84	299	359	Vertical
3	7206.0000	40.64	-6.84	33.80	54.00	20.20	169	142	Vertical
4	7206.0000	48.06	-6.84	41.22	74.00	32.78	201	173	Vertical
5	9608.0000	45.68	-1.22	44.46	74.00	29.54	123	180	Vertical
6	9608.0000	37.68	-1.22	36.46	54.00	17.54	258	359	Vertical



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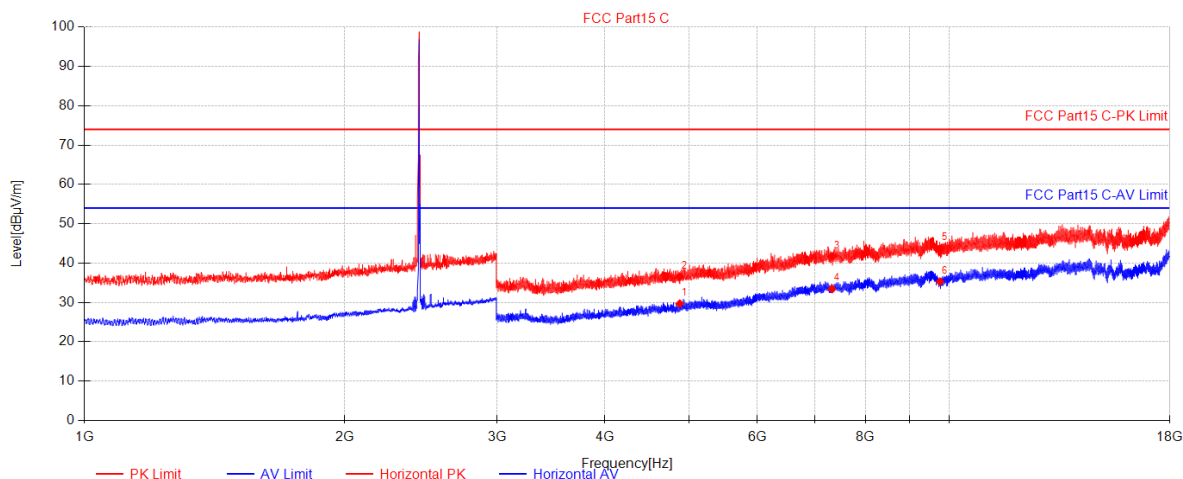
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Rev.: 01

Page: 60 of 77

## BLE 1M\_Channel 19



## Final Data List

NO.	Frequency [MHz]	Reading [dBμV]	Factor [dB]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	4880.0000	42.69	-12.99	29.70	54.00	24.30	154	4	Horizontal
2	4880.0000	49.51	-12.99	36.52	74.00	37.48	180	142	Horizontal
3	7320.0000	48.85	-7.15	41.70	74.00	32.30	233	248	Horizontal
4	7320.0000	40.62	-7.15	33.47	54.00	20.53	255	71	Horizontal
5	9760.0000	44.92	-1.20	43.72	74.00	30.28	172	175	Horizontal
6	9760.0000	36.49	-1.20	35.29	54.00	18.71	194	359	Horizontal



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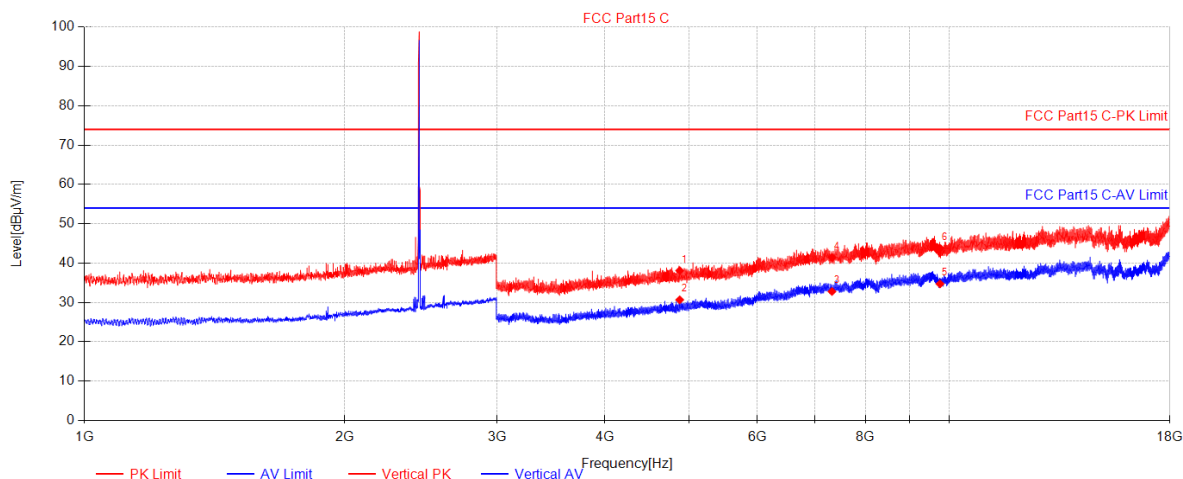
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### BLE 1M\_Channel 19



Final Data List									
NO.	Frequency [MHz]	Reading [dBμV]	Factor [dB]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	4880.0000	51.08	-12.99	38.09	74.00	35.91	159	142	Vertical
2	4880.0000	43.66	-12.99	30.67	54.00	23.33	194	4	Vertical
3	7320.0000	39.94	-7.15	32.79	54.00	21.21	178	256	Vertical
4	7320.0000	48.61	-7.15	41.46	74.00	32.54	256	330	Vertical
5	9760.0000	35.92	-1.20	34.72	54.00	19.28	201	4	Vertical
6	9760.0000	44.95	-1.20	43.75	74.00	30.25	233	249	Vertical



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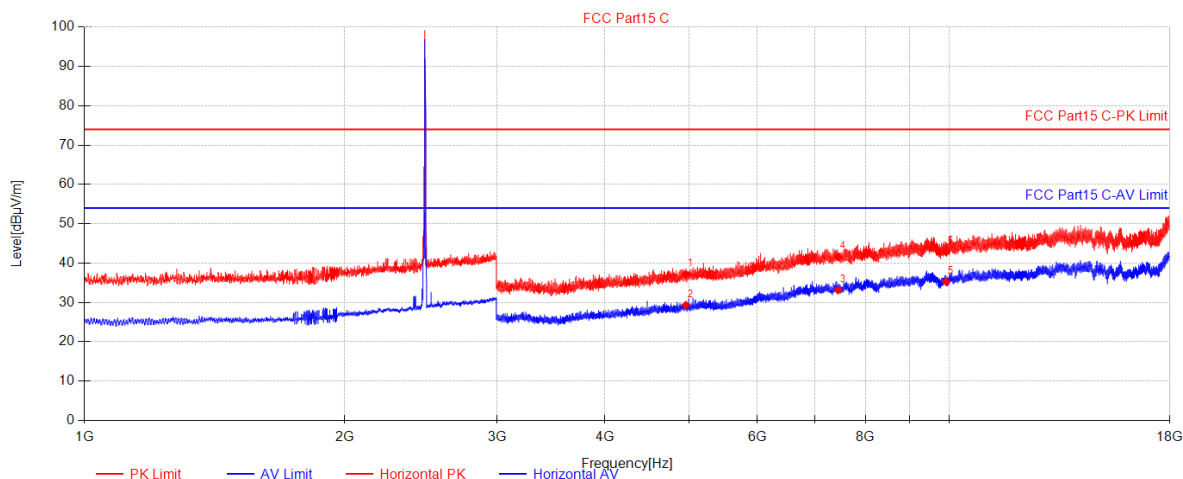
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Page: 62 of 77

### BLE 1M\_Channel 39



### Final Data List

NO.	Frequency [MHz]	Reading [dBμV]	Factor [dB]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	4960.0000	49.99	-12.83	37.16	74.00	36.84	145	152	Horizontal
2	4960.0000	42.16	-12.83	29.33	54.00	24.67	233	219	Horizontal
3	7440.0000	39.96	-6.83	33.13	54.00	20.87	201	125	Horizontal
4	7440.0000	48.39	-6.83	41.56	74.00	32.44	196	328	Horizontal
5	9920.0000	36.20	-0.93	35.27	54.00	18.73	172	266	Horizontal
6	9920.0000	43.77	-0.93	42.84	74.00	31.16	184	255	Horizontal



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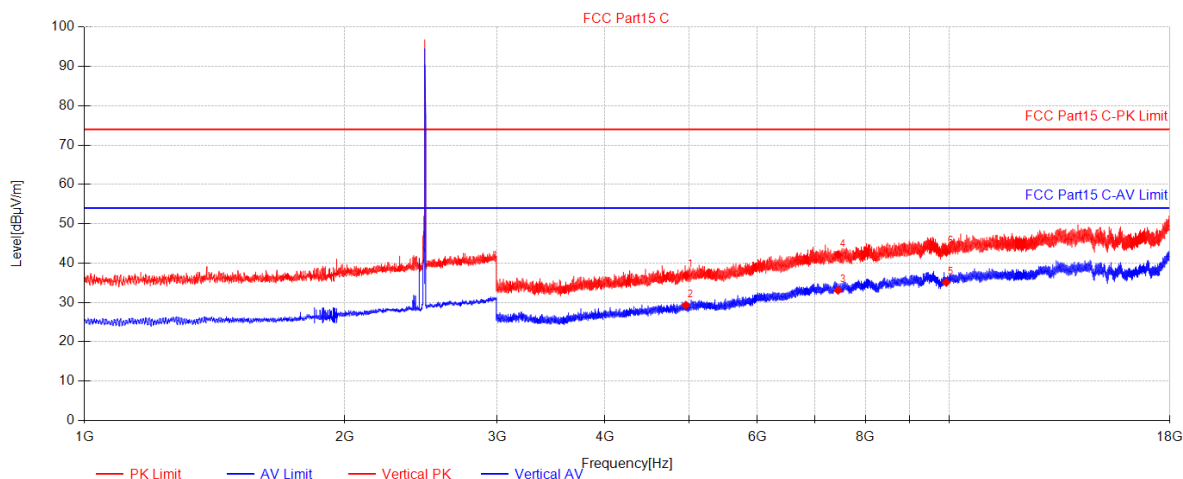
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Rev.: 01

Page: 63 of 77

## BLE 1M\_Channel 39



## Final Data List

NO.	Frequency [MHz]	Reading [dBμV]	Factor [dB]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	4960.0000	49.69	-12.83	36.86	74.00	37.14	158	36	Vertical
2	4960.0000	42.15	-12.83	29.32	54.00	24.68	288	145	Vertical
3	7440.0000	39.91	-6.83	33.08	54.00	20.92	247	108	Vertical
4	7440.0000	48.92	-6.83	42.09	74.00	31.91	149	36	Vertical
5	9920.0000	36.03	-0.93	35.10	54.00	18.90	230	319	Vertical
6	9920.0000	43.77	-0.93	42.84	74.00	31.16	196	72	Vertical



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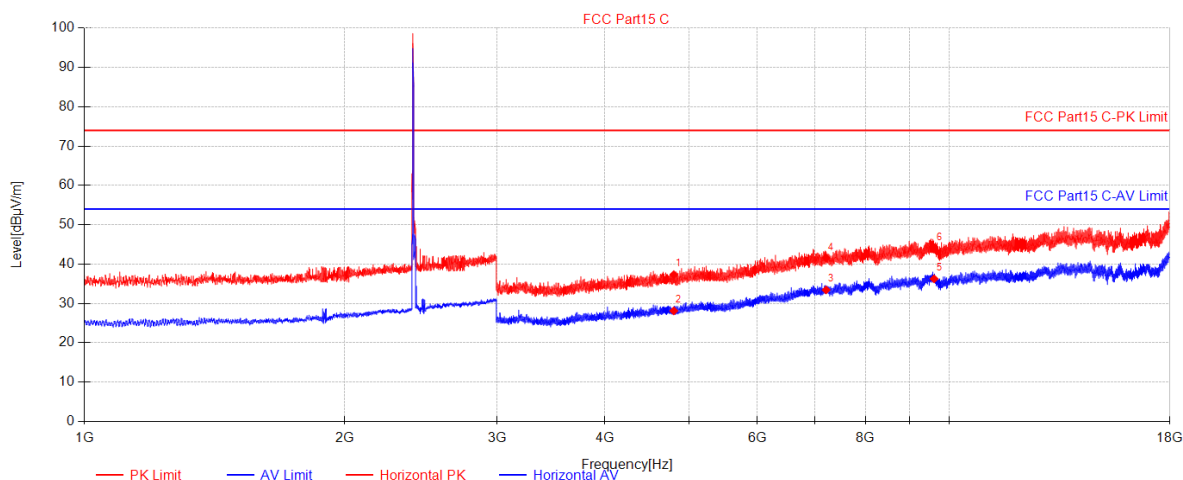


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Rev.: 01

Page: 64 of 77

## BLE 2M\_Channel 00



## Final Data List

NO.	Frequency [MHz]	Reading [dBμV]	Factor [dB]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	4804.0000	50.54	-13.21	37.33	74.00	36.67	154	253	Horizontal
2	4804.0000	41.33	-13.21	28.12	54.00	25.88	238	251	Horizontal
3	7206.0000	40.27	-6.84	33.43	54.00	20.57	201	323	Horizontal
4	7206.0000	48.38	-6.84	41.54	74.00	32.46	162	36	Horizontal
5	9608.0000	37.48	-1.22	36.26	54.00	17.74	144	325	Horizontal
6	9608.0000	45.19	-1.22	43.97	74.00	30.03	183	215	Horizontal



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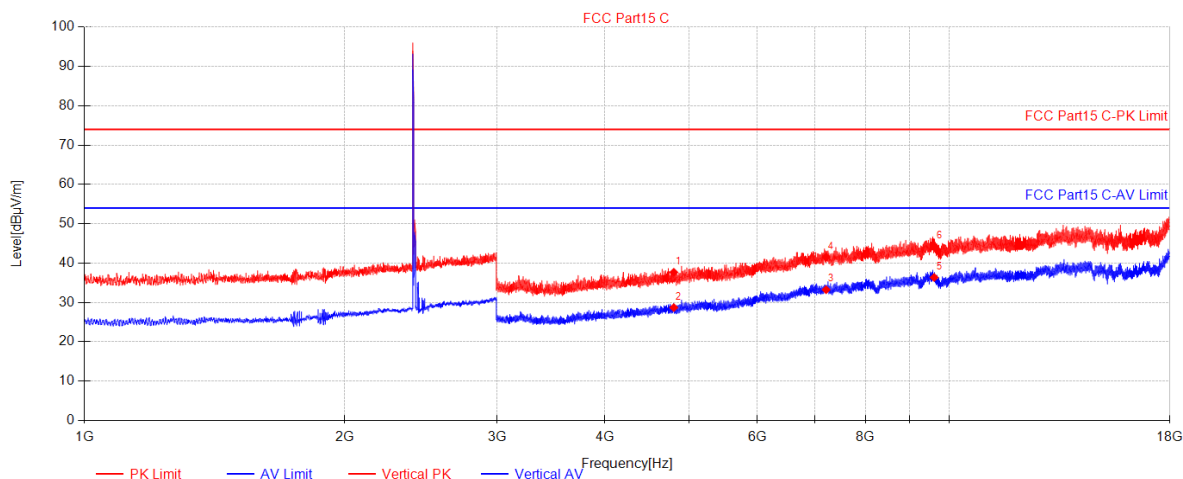
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Report No.: SEWM2203000023RG02

Rev.: 01

Page: 65 of 77

## BLE 2M\_Channel 00



## Final Data List

NO.	Frequency [MHz]	Reading [dBμV]	Factor [dB]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	4804.0000	50.89	-13.21	37.68	74.00	36.32	125	354	Vertical
2	4804.0000	41.90	-13.21	28.69	54.00	25.31	184	145	Vertical
3	7206.0000	40.07	-6.84	33.23	54.00	20.77	235	15	Vertical
4	7206.0000	48.37	-6.84	41.53	74.00	32.47	196	15	Vertical
5	9608.0000	37.58	-1.22	36.36	54.00	17.64	170	4	Vertical
6	9608.0000	45.33	-1.22	44.11	74.00	29.89	255	23	Vertical



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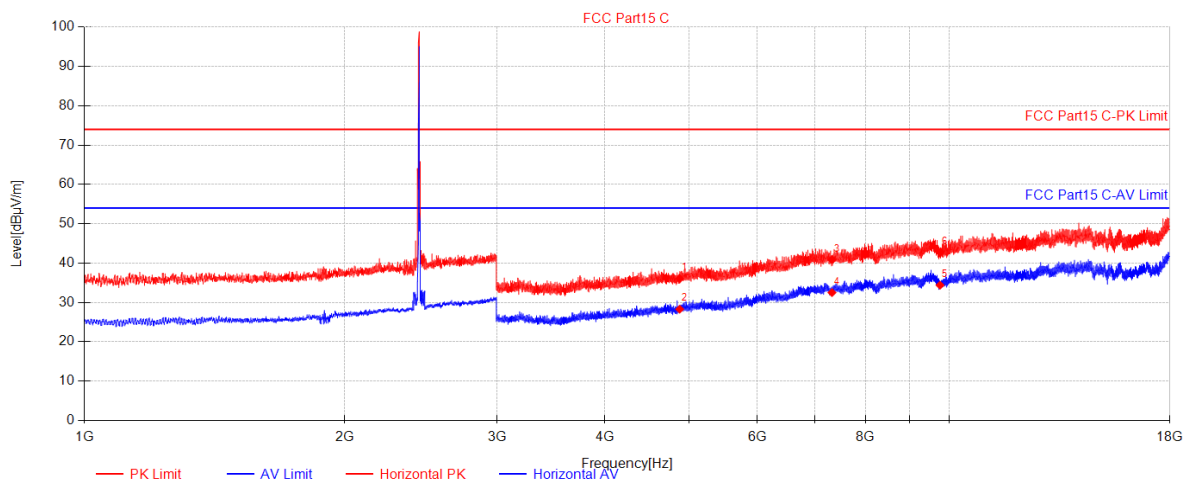
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Report No.: SEWM2203000023RG02

Rev.: 01

Page: 66 of 77

### BLE 2M\_Channel 19



### Final Data List

NO.	Frequency [MHz]	Reading [dBμV]	Factor [dB]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	4880.0000	49.05	-12.99	36.06	74.00	37.94	112	216	Horizontal
2	4880.0000	41.28	-12.99	28.29	54.00	25.71	231	146	Horizontal
3	7320.0000	48.02	-7.15	40.87	74.00	33.13	154	180	Horizontal
4	7320.0000	39.65	-7.15	32.50	54.00	21.50	207	288	Horizontal
5	9760.0000	35.59	-1.20	34.39	54.00	19.61	196	359	Horizontal
6	9760.0000	43.98	-1.20	42.78	74.00	31.22	188	72	Horizontal



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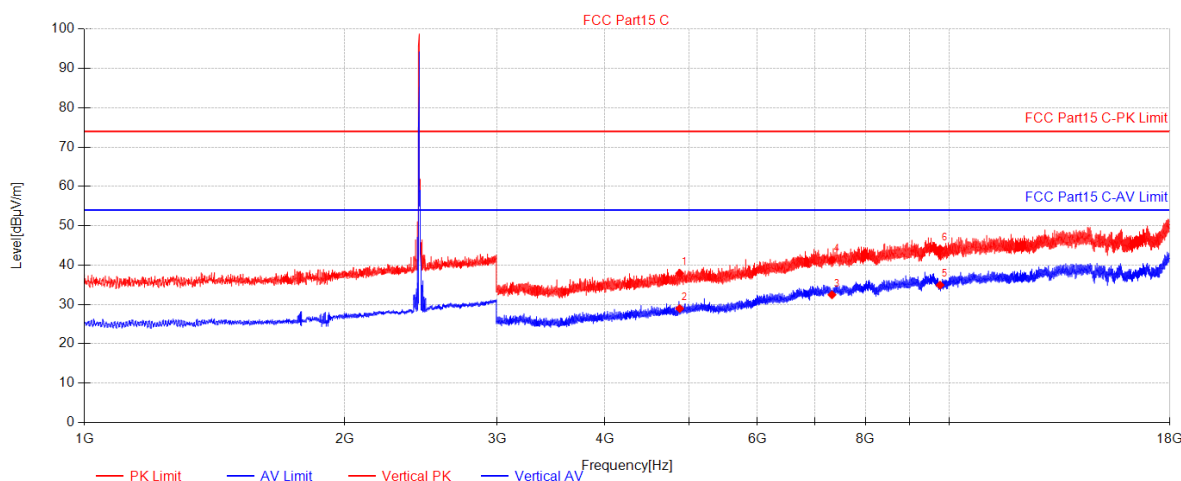
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Report No.: SEWM2203000023RG02

Rev.: 01

Page: 67 of 77

## BLE 2M\_Channel 19



## Final Data List

NO.	Frequency [MHz]	Reading [dBμV]	Factor [dB]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	4880.0000	50.92	-12.99	37.93	74.00	36.07	145	4	Vertical
2	4880.0000	41.96	-12.99	28.97	54.00	25.03	215	299	Vertical
3	7320.0000	39.60	-7.15	32.45	54.00	21.55	233	185	Vertical
4	7320.0000	48.48	-7.15	41.33	74.00	32.67	196	125	Vertical
5	9760.0000	36.13	-1.20	34.93	54.00	19.07	172	299	Vertical
6	9760.0000	45.32	-1.20	44.12	74.00	29.88	184	108	Vertical



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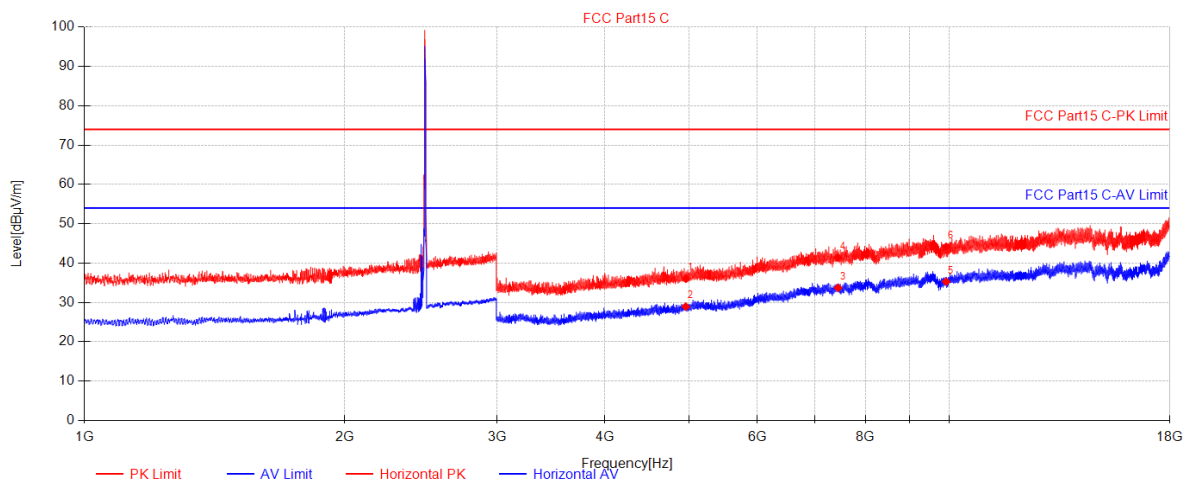
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Report No.: SEWM2203000023RG02

Rev.: 01

Page: 68 of 77

### BLE 2M\_Channel 39



### Final Data List

NO.	Frequency [MHz]	Reading [dBμV]	Factor [dB]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	4960.0000	48.88	-12.83	36.05	74.00	37.95	165	179	Horizontal
2	4960.0000	41.77	-12.83	28.94	54.00	25.06	247	255	Horizontal
3	7440.0000	40.56	-6.83	33.73	54.00	20.27	231	360	Horizontal
4	7440.0000	48.21	-6.83	41.38	74.00	32.62	185	285	Horizontal
5	9920.0000	36.22	-0.93	35.29	54.00	18.71	142	352	Horizontal
6	9920.0000	45.08	-0.93	44.15	74.00	29.85	196	178	Horizontal



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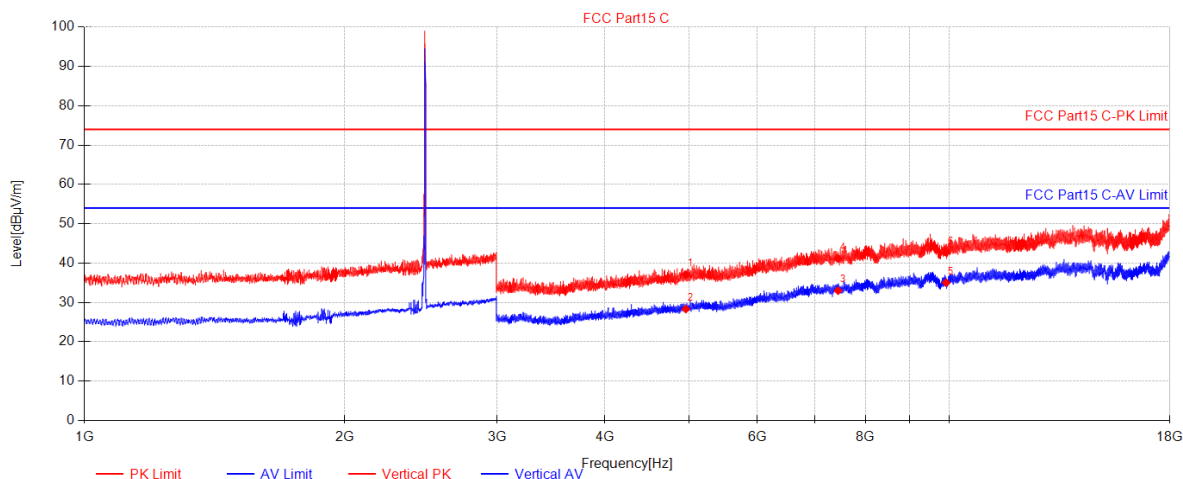


Report No.: SEWM2203000023RG02

Rev.: 01

Page: 69 of 77

## BLE 2M\_Channel 39



## Final Data List

NO.	Frequency [MHz]	Reading [dBμV]	Factor [dB]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	4960.0000	49.89	-12.83	37.06	74.00	36.94	189	3	Vertical
2	4960.0000	41.15	-12.83	28.32	54.00	25.68	255	360	Vertical
3	7440.0000	39.83	-6.83	33.00	54.00	21.00	140	74	Vertical
4	7440.0000	47.99	-6.83	41.16	74.00	32.84	175	184	Vertical
5	9920.0000	35.95	-0.93	35.02	54.00	18.98	236	324	Vertical
6	9920.0000	43.64	-0.93	42.71	74.00	31.29	123	351	Vertical



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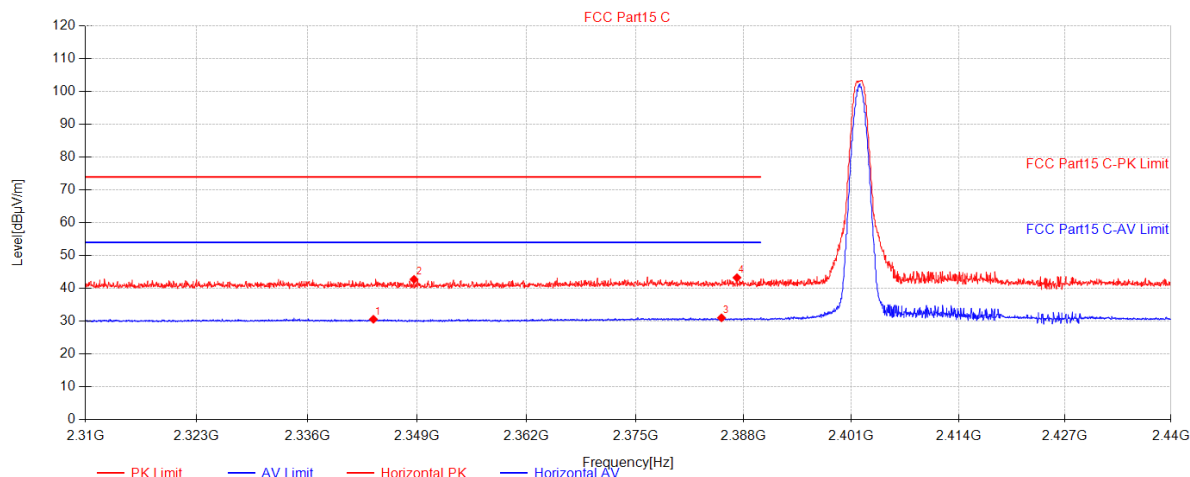
Report No.: SEWM2203000023RG02

Rev.: 01

Page: 70 of 77

### Restricted bands around fundamental frequency

#### BLE 1M\_Channel 00



#### Final Data List

NO.	Frequency [MHz]	Reading [dBμV]	Factor [dB]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	2343.8	27.48	3.09	30.57	54.00	23.43	115	268	Horizontal
2	2348.61	39.66	3.09	42.75	74.00	31.25	115	268	Horizontal
3	2385.3133	27.93	3.07	31.00	54.00	23.00	115	268	Horizontal
4	2387.1767	40.19	3.07	43.26	74.00	30.74	115	268	Horizontal



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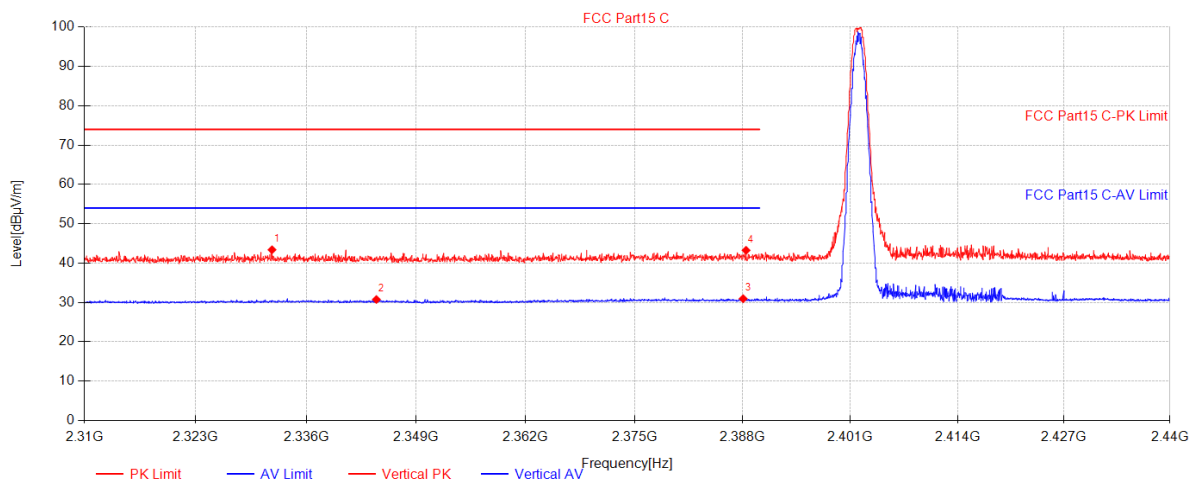
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Report No.: SEWM2203000023RG02

Rev.: 01

Page: 71 of 77

### BLE 1M\_Channel 00



### Final Data List

NO.	Frequency [MHz]	Reading [dBμV]	Factor [dB]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	2331.97	40.30	3.09	43.39	74.00	30.61	281	139	Vertical
2	2344.2767	27.67	3.09	30.76	54.00	23.24	281	139	Vertical
3	2388.0433	27.89	3.07	30.96	54.00	23.04	281	139	Vertical
4	2388.39	40.18	3.07	43.25	74.00	30.75	281	139	Vertical



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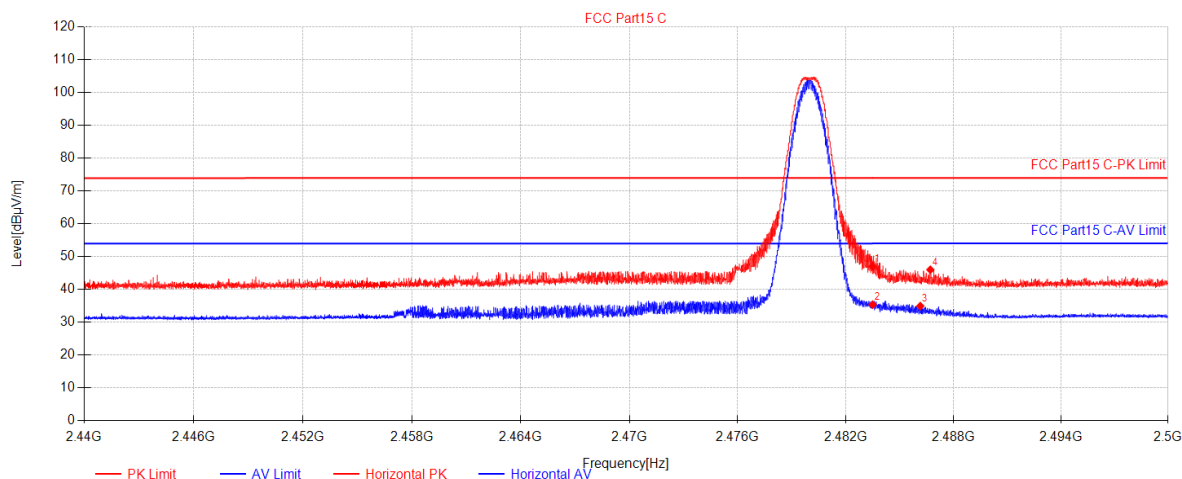
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Report No.: SEWM2203000023RG02

Rev.: 01

Page: 72 of 77

### BLE 1M\_Channel 39



### Final Data List

NO.	Frequency [MHz]	Reading [dBμV]	Factor [dB]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	2483.5000	43.38	3.60	46.98	74.00	27.02	142	165	Horizontal
2	2483.5000	31.74	3.60	35.34	54.00	18.66	142	165	Horizontal
3	2486.155	31.28	3.61	34.89	54.00	19.11	142	165	Horizontal
4	2486.7175	42.35	3.62	45.97	74.00	28.03	142	165	Horizontal



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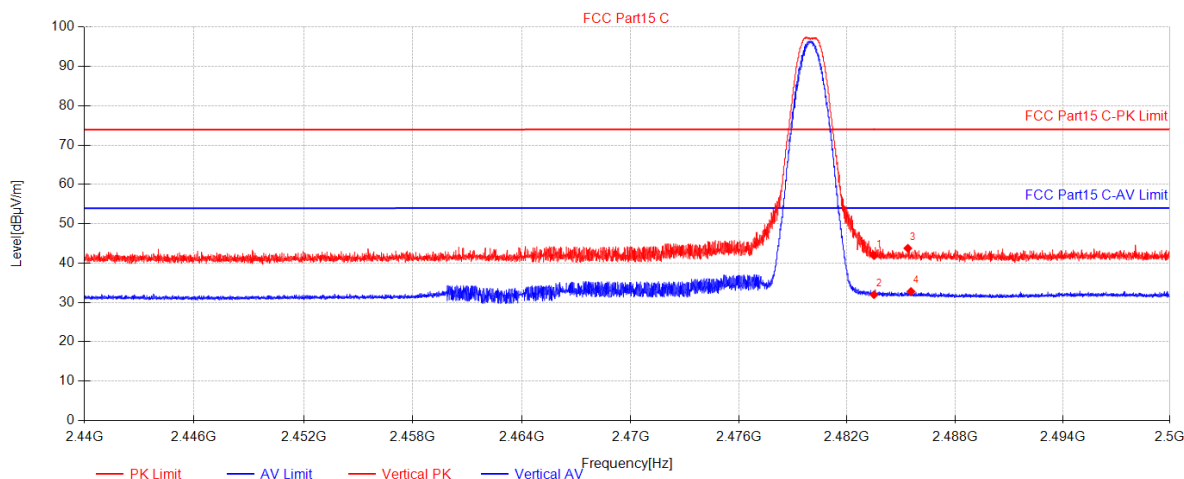
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Report No.: SEWM2203000023RG02

Rev.: 01

Page: 73 of 77

### BLE 1M\_Channel 39



### Final Data List

NO.	Frequency [MHz]	Reading [dBμV]	Factor [dB]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	2483.5000	38.29	3.60	41.89	74.00	32.11	254	238	Vertical
2	2483.5000	28.36	3.60	31.96	54.00	22.04	254	238	Vertical
3	2485.3825	40.16	3.61	43.77	74.00	30.23	254	238	Vertical
4	2485.555	29.17	3.61	32.78	54.00	21.22	254	238	Vertical



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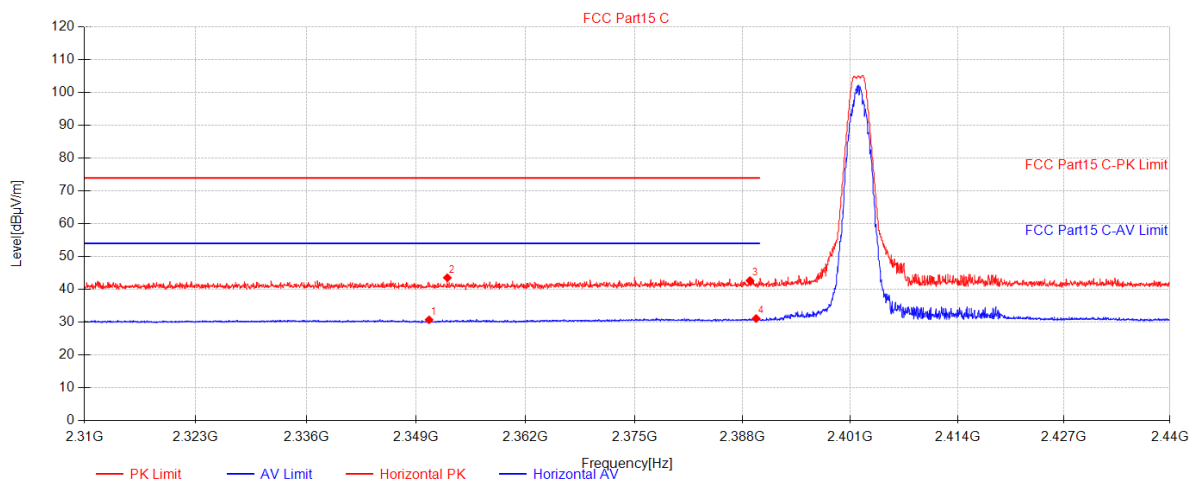


Report No.: SEWM2203000023RG02

Rev.: 01

Page: 74 of 77

### BLE 2M\_Channel 00



### Final Data List

NO.	Frequency [MHz]	Reading [dBμV]	Factor [dB]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	2350.5167	27.62	3.08	30.70	54.00	23.30	125	315	Horizontal
2	2352.6833	40.46	3.08	43.54	74.00	30.46	125	315	Horizontal
3	2388.8667	39.60	3.07	42.67	74.00	31.33	125	315	Horizontal
4	2389.6033	28.03	3.07	31.10	54.00	22.90	125	315	Horizontal



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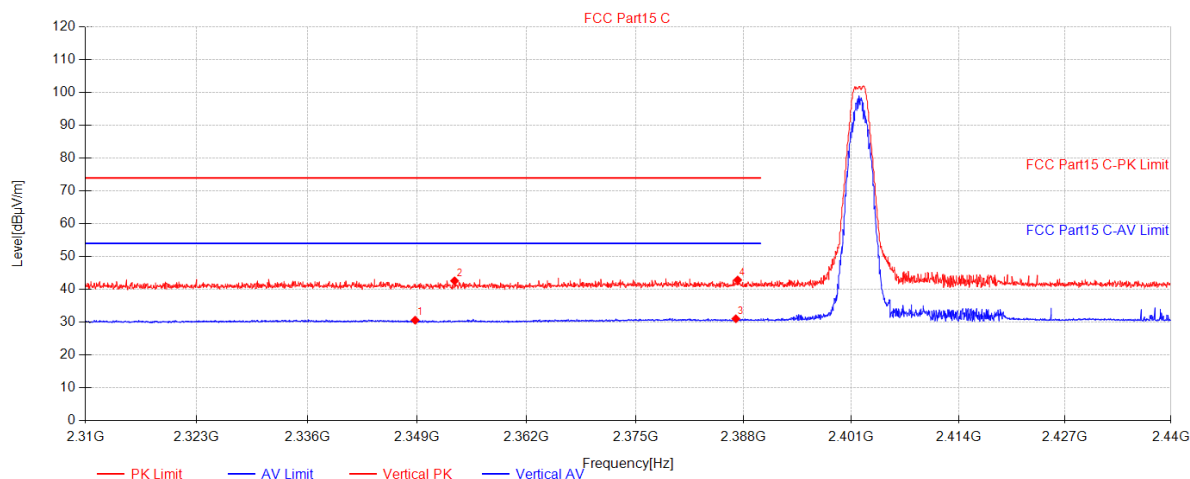
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Report No.: SEWM2203000023RG02

Rev.: 01

Page: 75 of 77

### BLE 2M\_Channel 00



### Final Data List

NO.	Frequency [MHz]	Reading [dBμV]	Factor [dB]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	2348.74	27.49	3.09	30.58	54.00	23.42	235	139	Vertical
2	2353.42	39.52	3.08	42.60	74.00	31.40	235	139	Vertical
3	2387.0467	27.96	3.07	31.03	54.00	22.97	235	139	Vertical
4	2387.2633	39.78	3.07	42.85	74.00	31.15	235	139	Vertical



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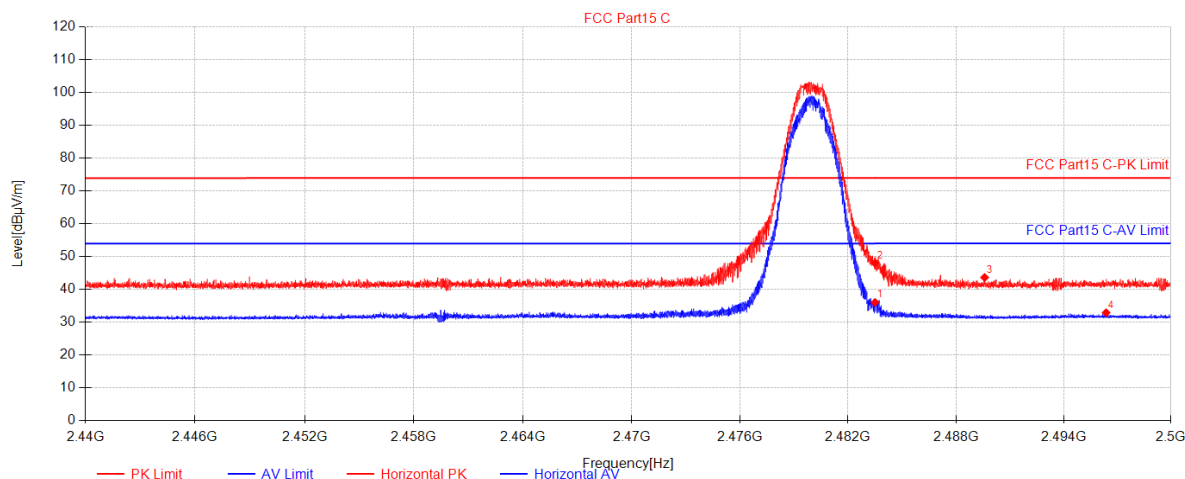
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Report No.: SEWM2203000023RG02

Rev.: 01

Page: 76 of 77

### BLE 2M\_Channel 39



### Final Data List

NO.	Frequency [MHz]	Reading [dBμV]	Factor [dB]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	2483.5000	32.41	3.60	36.01	54.00	17.99	230	111	Horizontal
2	2483.5000	44.41	3.60	48.01	74.00	25.99	230	111	Horizontal
3	2489.5975	39.99	3.63	43.62	74.00	30.38	230	111	Horizontal
4	2496.3775	29.20	3.68	32.88	54.00	21.12	230	111	Horizontal



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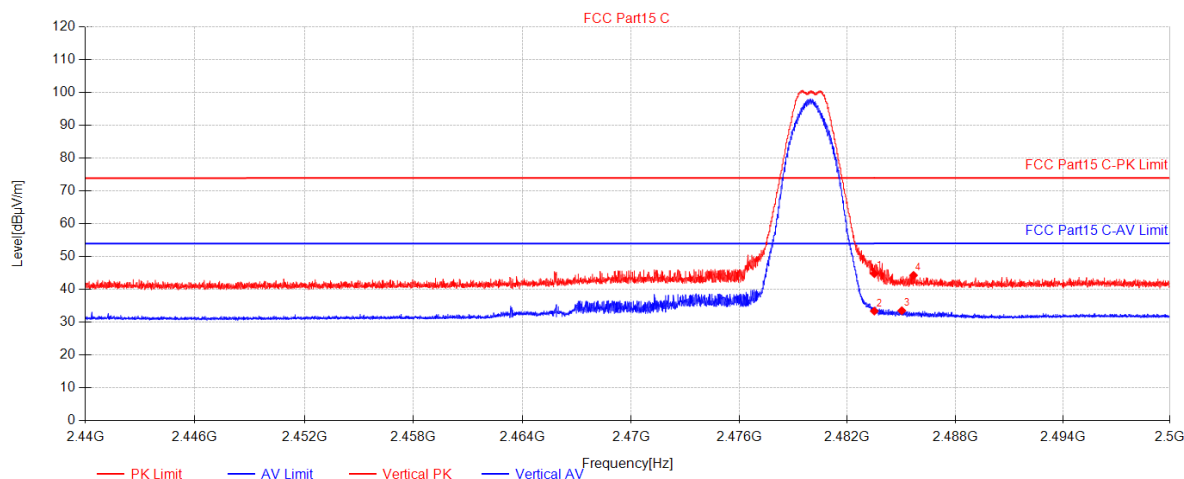
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Rev.: 01

Page: 77 of 77

## BLE 2M\_Channel 39



## Final Data List

NO.	Frequency [MHz]	Reading [dBμV]	Factor [dB]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	2483.5000	41.19	3.60	44.79	74.00	29.21	117	238	Vertical
2	2483.5000	29.77	3.60	33.37	54.00	20.63	117	238	Vertical
3	2485.03	29.88	3.61	33.49	54.00	20.51	117	238	Vertical
4	2485.6825	40.66	3.61	44.27	74.00	29.73	117	238	Vertical

The End



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