

Report No.: SUZR/2021/8005303

Rev.: 01

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# TEST REPORT

**Application No.:** ZR/2021/80053  
**Applicant:** Great Talent Technology Limited  
**Address of Applicant:** 35F,HBC HuiLong Center Building-II Minzhi Street,Longhua, Shenzhen, P.R. China  
**Manufacturer:** Great Talent Technology Limited  
**Address of Manufacturer:** 35F,HBC HuiLong Center Building-II Minzhi Street,Longhua, Shenzhen, P.R. China  
**EUT Description:** feature phone  
**Model No.:** SC3218T  
**Trade Mark:** SCHOK  
**FCC ID:** 2ALZM-SC3218T  
**Standards:** 47 CFR FCC Part 2, Subpart J  
47 CFR Part 15, Subpart C  
**Date of Receipt:** 2021/11/9  
**Date of Test:** 2021/11/13 to 2021/12/24  
**Date of Issue:** 2021/12/24

|                      |               |
|----------------------|---------------|
| <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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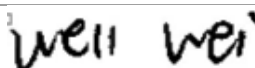
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## 1 Version

| Revision Record |         |            |          |          |
|-----------------|---------|------------|----------|----------|
| Version         | Chapter | Date       | Modifier | Remark   |
| 01              |         | 2021/12/24 |          | Original |
|                 |         |            |          |          |
|                 |         |            |          |          |

|             |                                                                                      |
|-------------|--------------------------------------------------------------------------------------|
| Prepared By |    |
|             | (Weller Liu) / Engineer                                                              |
| Checked By  |  |
|             | (Well Wei) / Reviewer                                                                |



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## 2 Test Summary

| Test Item                                                         | Test Requirement | Test Method      | Test Result | Result |
|-------------------------------------------------------------------|------------------|------------------|-------------|--------|
| Antenna Requirement                                               | 15.203/247(b)    | --               | Clause 4.1  | PASS   |
| AC Power Line Conducted Emission                                  | 15.207           | ANSI C63.10 2013 | Clause 4.2  | PASS   |
| Conducted Output Power                                            | 15.247 (b)(3)    | ANSI C63.10 2013 | Clause 4.3  | PASS   |
| DTS (6 dB) Bandwidth & 99% Occupied Bandwidth                     | 15.247 (a)(2)    | ANSI C63.10 2013 | Clause 4.4  | PASS   |
| Power Spectral Density                                            | 15.247 (e)       | ANSI C63.10 2013 | Clause 4.5  | PASS   |
| Band-edge for RF Conducted Emissions                              | 15.247(d)        | ANSI C63.10 2013 | Clause 4.6  | PASS   |
| RF Conducted Spurious Emissions                                   | 15.247(d)        | ANSI C63.10 2013 | Clause 4.7  | PASS   |
| Radiated Spurious Emissions                                       | 15.205/15.209    | ANSI C63.10 2013 | Clause 4.8  | PASS   |
| Restricted bands around fundamental frequency (Radiated Emission) | 15.205/15.209    | ANSI C63.10 2013 | Clause 4.9  | PASS   |



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### 3 General Information

#### 3.1 Details of Client

|                          |                                                                                       |
|--------------------------|---------------------------------------------------------------------------------------|
| Applicant:               | Great Talent Technology Limited                                                       |
| Address of Applicant:    | 35F,HBC HuiLong Center Building-II Minzhi Street,Longhua, Shenzhen, P.R. China 518110 |
| Manufacturer:            | Great Talent Technology Limited                                                       |
| Address of Manufacturer: | 35F,HBC HuiLong Center Building-II Minzhi Street,Longhua, Shenzhen, P.R. China 518110 |

#### 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: | Weller Liu, King-p Li, Nature Shen, Tizzy Song                                                                         |

#### 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:0031225543



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### 3.4 General Description of EUT

|                                                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| EUT Description:                                                                                                                                                                                                                                                                                                        | feature phone                                                                                                                                                                  |
| Model No.:                                                                                                                                                                                                                                                                                                              | SC3218T                                                                                                                                                                        |
| Trade Mark:                                                                                                                                                                                                                                                                                                             | SCHOK                                                                                                                                                                          |
| Hardware Version:                                                                                                                                                                                                                                                                                                       | Q3203_V1.0                                                                                                                                                                     |
| Software Version:                                                                                                                                                                                                                                                                                                       | SC3218T_V1.0.0                                                                                                                                                                 |
| Operation Frequency:                                                                                                                                                                                                                                                                                                    | 2400MHz~2483.5MHz<br>$f_c = 2402 \text{ MHz} + N * 2 \text{ MHz}$ , where:<br>- $f_c$ = "Operating Frequency" in MHz,<br>- $N$ = "Channel Number" with the range from 0 to 39. |
| Bluetooth version:                                                                                                                                                                                                                                                                                                      | Bluetooth V4.1                                                                                                                                                                 |
| Modulation Type:                                                                                                                                                                                                                                                                                                        | GFSK                                                                                                                                                                           |
| Number of Channel:                                                                                                                                                                                                                                                                                                      | 40                                                                                                                                                                             |
| Rates Type:                                                                                                                                                                                                                                                                                                             | <input checked="" type="checkbox"/> Provided by applicant<br>1M PHY                                                                                                            |
| Sample Type:                                                                                                                                                                                                                                                                                                            | <input checked="" type="checkbox"/> Portable Device, <input type="checkbox"/> Module                                                                                           |
| Antenna Type:                                                                                                                                                                                                                                                                                                           | <input type="checkbox"/> External, <input checked="" type="checkbox"/> Integrated                                                                                              |
| Antenna Gain*:                                                                                                                                                                                                                                                                                                          | <input checked="" type="checkbox"/> Provided by applicant<br>3.01dBi                                                                                                           |
| RF Cable*:                                                                                                                                                                                                                                                                                                              | <input checked="" type="checkbox"/> Provided by applicant<br>1dB                                                                                                               |
| Remark:<br>*Since the above data and/or information is provided by the applicant 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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| 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                                                                                                                | 44-46 % RH Ambient                     |            |
| Value                                                                                                                            | Temperature(°C)                        | Voltage(V) |
| NTNV                                                                                                                             | 22~23                                  | 3.8        |
| LTNV                                                                                                                             | -20                                    | 3.8        |
| HTNV                                                                                                                             | 50                                     | 3.8        |
| Remark:<br>NV: Normal Voltage<br>NT: Normal Temperature<br>LT: Low Extreme Test Temperature<br>HT: High Extreme Test Temperature |                                        |            |

### 3.6 Description of Support Units

The EUT has been tested independent unit.



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## 4 Test results and Measurement Data

### 4.1 Antenna Requirement

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                        |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------|
| <b>Standard requirement:</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 47 CFR Part 15C Section 15.203 /247(c) |
| <p>15.203 requirement:<br/>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:<br/>The conducted output power limit specified in paragraph (b) of this section is based on the use of antennas with directional gains that do not exceed 6 dBi. Except as shown in paragraph (c) of this section, if transmitting antennas of directional gain greater than 6 dBi are used, the conducted output power from the intentional radiator shall be reduced below the stated values in paragraphs (b)(1), (b)(2), and (b)(3) of this section, as appropriate, by the amount in dB that the directional gain of the antenna exceeds 6 dBi.</p> <p>The antenna is integrated and no consideration of replacement. The best case gain of the antenna is 3.01dBi.</p> |                                        |



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## 4.2 AC Power Line Conducted Emissions

|                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |              |           |
|--------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------|-----------|
| Test Requirement:                                | 47 CFR Part 15C Section 15.207                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |              |           |
| Test Method:                                     | ANSI C63.10: 2013                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |              |           |
| Test Frequency Range:                            | 150kHz to 30MHz                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |              |           |
| Limit:                                           | Frequency range (MHz)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Limit (dBuV) |           |
|                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Quasi-peak   | Average   |
|                                                  | 0.15-0.5                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 66 to 56*    | 56 to 46* |
|                                                  | 0.5-5                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 56           | 46        |
|                                                  | 5-30                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 60           | 50        |
| * Decreases with the logarithm of the frequency. |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |              |           |
| Test Procedure:                                  | <ol style="list-style-type: none"> <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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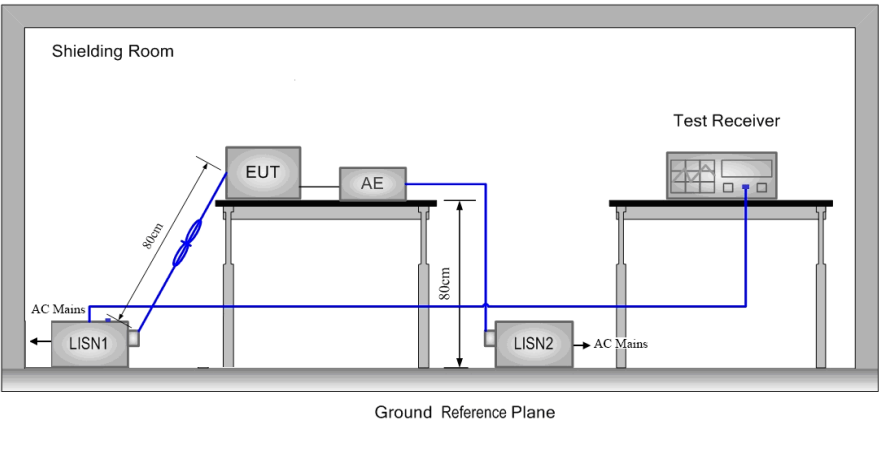
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|                   |                                                                                    |
|-------------------|------------------------------------------------------------------------------------|
| Test Setup:       |  |
| Test Mode:        | Transmitting with GFSK modulation.<br>Charge +Transmitting mode.                   |
| Instruments Used: | Refer to section 6 for details.                                                    |
| Test Results:     | Pass                                                                               |



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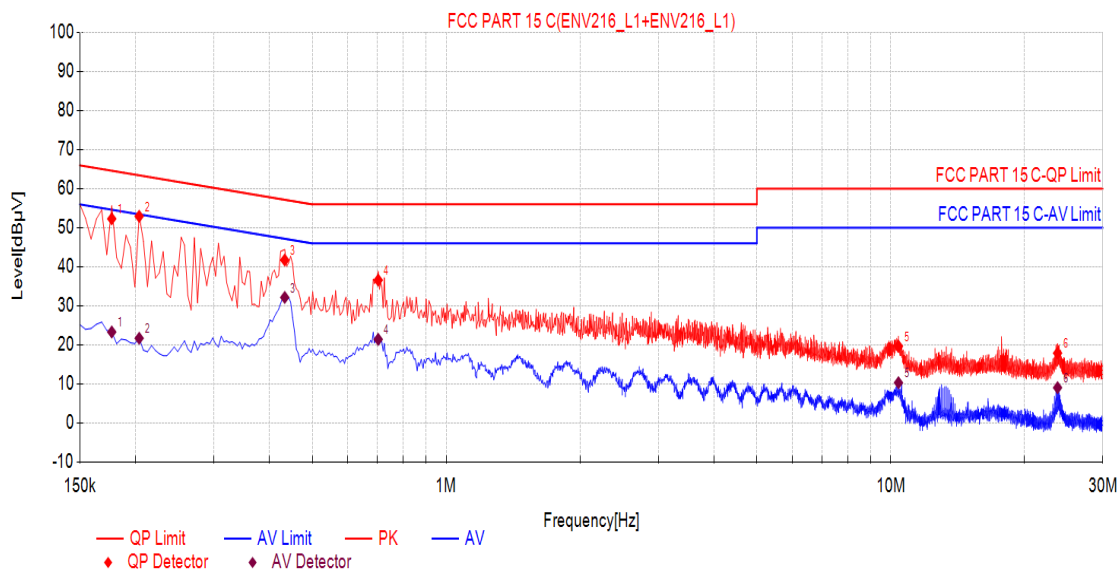
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### Measurement Data

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

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

Live Line:



| Final Data List |                 |             |                   |                 |                 |                |                   |                 |                 |                |         |
|-----------------|-----------------|-------------|-------------------|-----------------|-----------------|----------------|-------------------|-----------------|-----------------|----------------|---------|
| NO.             | Frequency [MHz] | Factor [dB] | QP Reading [dBμV] | QP Value [dBμV] | QP Limit [dBμV] | QP Margin [dB] | AV Reading [dBμV] | AV Value [dBμV] | AV Limit [dBμV] | AV Margin [dB] | Verdict |
| 1               | 0.177           | 9.75        | 42.56             | 52.31           | 64.63           | 12.32          | 13.54             | 23.29           | 54.63           | 31.34          | PASS    |
| 2               | 0.2040          | 9.82        | 43.12             | 52.94           | 63.45           | 10.51          | 11.86             | 21.68           | 53.45           | 31.77          | PASS    |
| 3               | 0.4335          | 9.54        | 32.20             | 41.74           | 57.19           | 15.45          | 22.61             | 32.15           | 47.19           | 15.04          | PASS    |
| 4               | 0.7035          | 9.58        | 27.01             | 36.59           | 56.00           | 19.41          | 11.82             | 21.40           | 46.00           | 24.60          | PASS    |
| 5               | 10.4100         | 9.63        | 10.03             | 19.66           | 60.00           | 40.34          | 0.66              | 10.29           | 50.00           | 39.71          | PASS    |
| 6               | 23.7300         | 9.32        | 8.56              | 17.88           | 60.00           | 42.12          | -0.3              | 9.02            | 50.00           | 40.98          | PASS    |

### Remark:

- The following Quasi-Peak and Average measurements were performed on the EUT:
- Final Test Level = Receiver Reading + LISN Factor + Cable Loss.



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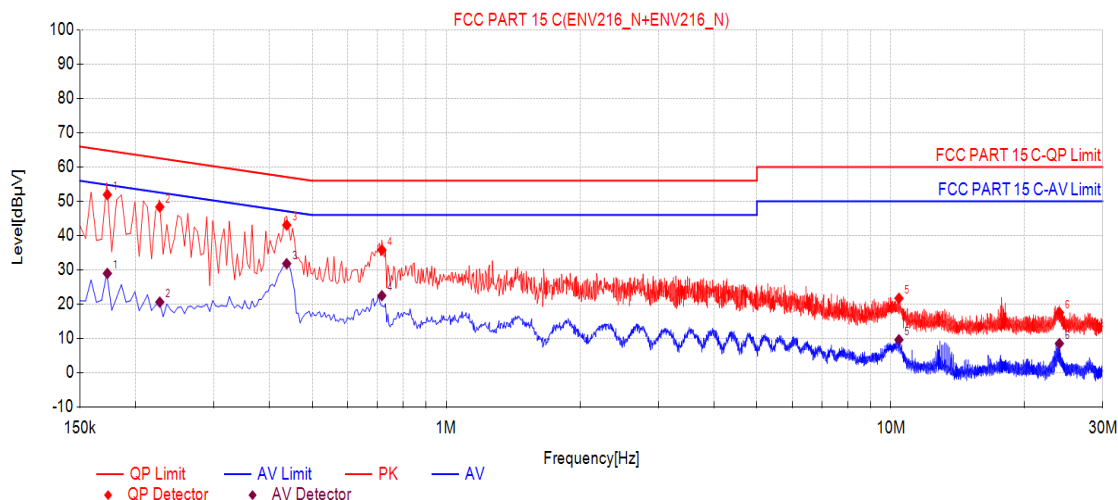
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Neutral Line:



### Final Data List

| NO. | Frequency [MHz] | Factor [dB] | QP Reading [dBμV] | QP Value [dBμV] | QP Limit [dBμV] | QP Margin [dB] | AV Reading [dBμV] | AV Value [dBμV] | AV Limit [dBμV] | AV Margin [dB] | Verdict |
|-----|-----------------|-------------|-------------------|-----------------|-----------------|----------------|-------------------|-----------------|-----------------|----------------|---------|
| 1   | 0.173           | 9.71        | 42.23             | 51.94           | 64.82           | 12.88          | 19.24             | 28.95           | 54.82           | 25.87          | PASS    |
| 2   | 0.227           | 9.70        | 38.65             | 48.35           | 62.56           | 14.21          | 10.87             | 20.57           | 52.56           | 31.99          | PASS    |
| 3   | 0.4380          | 9.83        | 33.23             | 43.06           | 57.10           | 14.04          | 21.97             | 31.80           | 47.10           | 15.30          | PASS    |
| 4   | 0.7170          | 9.81        | 25.98             | 35.79           | 56.00           | 20.21          | 12.64             | 22.45           | 46.00           | 23.55          | PASS    |
| 5   | 10.437          | 9.67        | 12.03             | 21.70           | 60.00           | 38.30          | -0.09             | 9.58            | 50.00           | 40.42          | PASS    |
| 6   | 23.960          | 9.51        | 8.01              | 17.52           | 60.00           | 42.48          | -1.04             | 8.47            | 50.00           | 41.53          | PASS    |

Remark:

1. The following Quasi-Peak and Average measurements were performed on the EUT:
2. Final Test Level = Receiver Reading + LISN Factor + Cable Loss.



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### 4.3 Duty Cycle

The detailed test data see: **Appendix**



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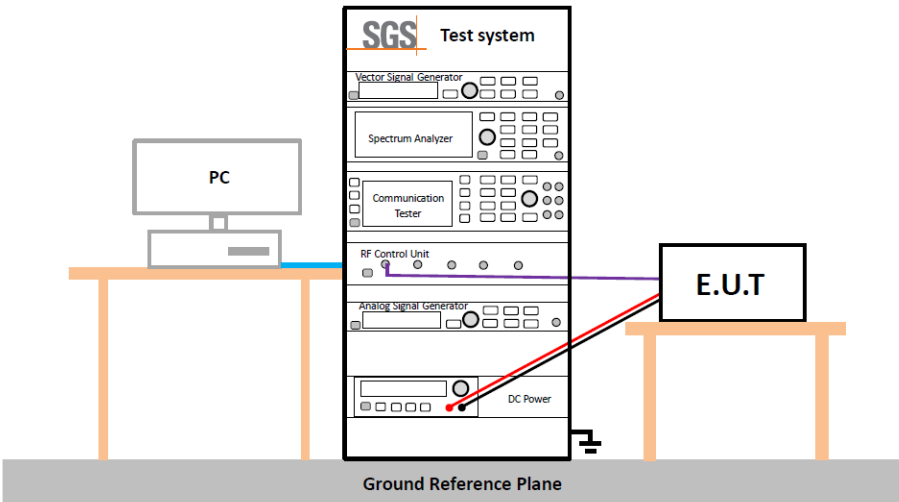


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## 4.4 Conducted Output Power

|                                             |                                                                                     |
|---------------------------------------------|-------------------------------------------------------------------------------------|
| Test Requirement:                           | 47 CFR Part 15C Section 15.247 (b)(3)                                               |
| Test Method:                                | ANSI C63.10 :2013 Section 11.9.1.1                                                  |
| Test Setup:                                 |  |
| Test Instruments:                           | Refer to section 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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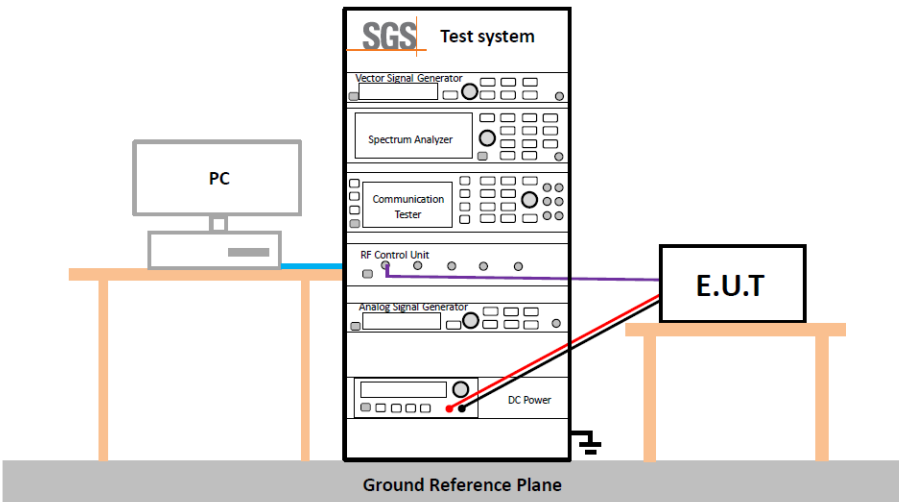
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## 4.5 DTS (6 dB) Bandwidth & 99% Occupied Bandwidth

|                                             |                                                                                     |
|---------------------------------------------|-------------------------------------------------------------------------------------|
| 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:                                      | ≥ 500 kHz                                                                           |
| Test Results:                               | Pass                                                                                |
| The detailed test data see: <b>Appendix</b> |                                                                                     |



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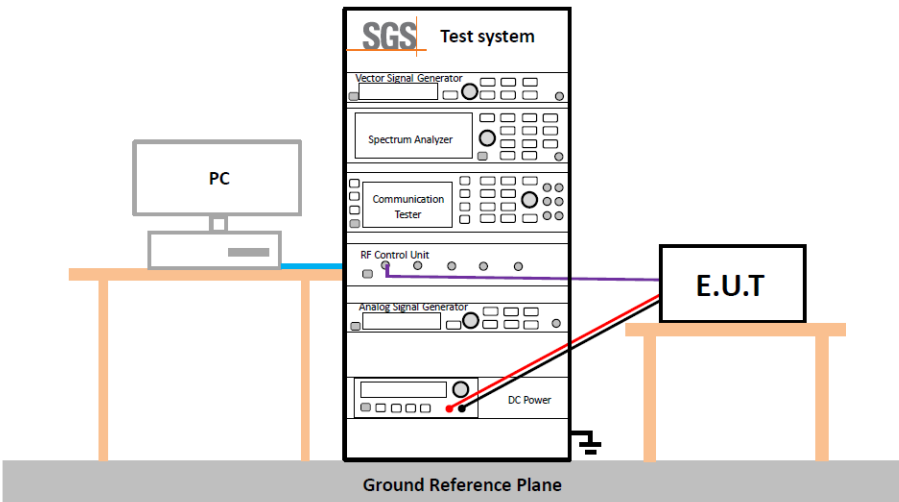
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## 4.6 Power Spectral Density

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



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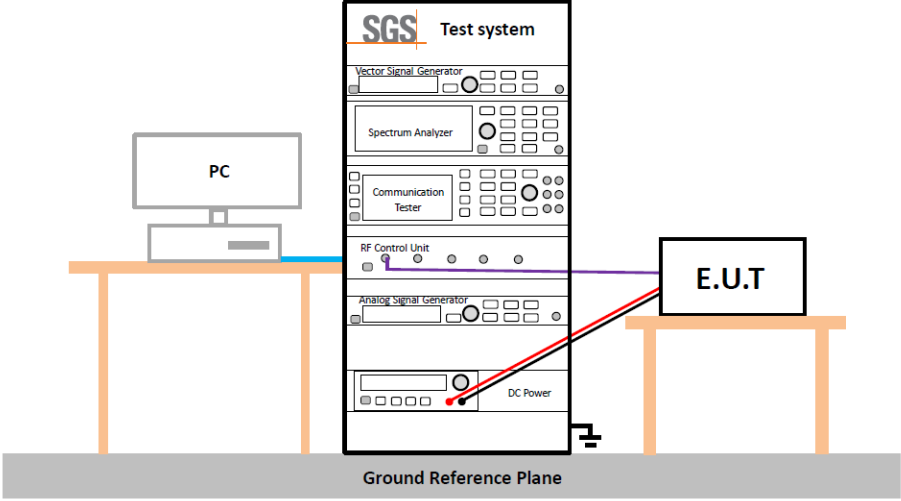
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## 4.7 Band-edge for RF Conducted Emissions

|                                             |                                                                                                                                                                                                                                                                                                                                                                                         |
|---------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 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                                                                                                                                                                                                                                                                                                                                                                                    |
| The detailed test data see: <b>Appendix</b> |                                                                                                                                                                                                                                                                                                                                                                                         |



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



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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:                                                                                                                                                                                                                                                                   |                                                  |                                  |                |            |                          |

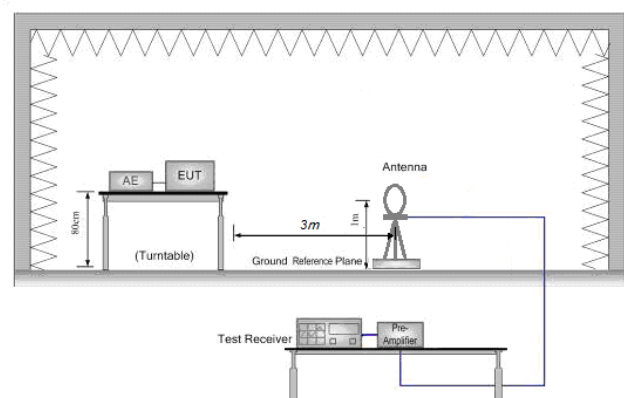


Figure 1. Below 30MHz

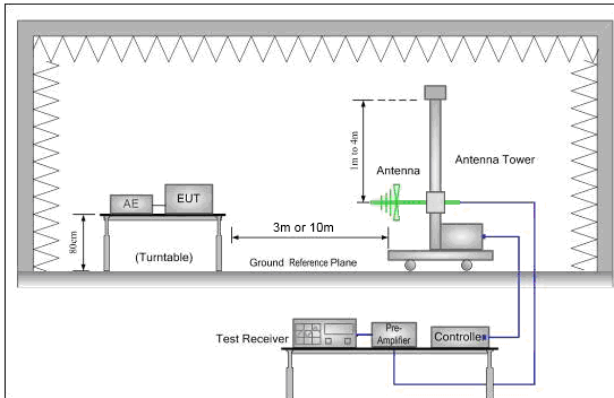


Figure 2. 30MHz to 1GHz



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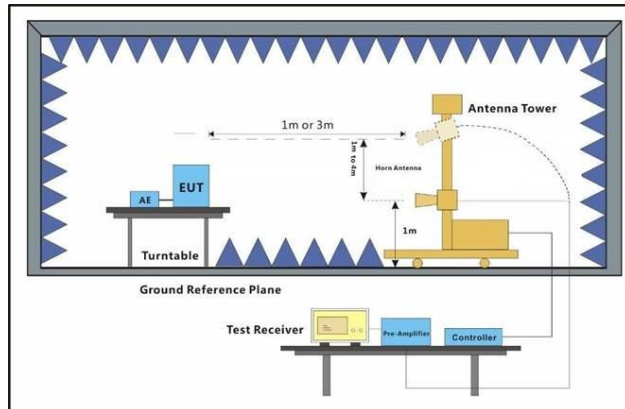


Figure 3. Above 1 GHz

Test Procedure:

- For below 1GHz, the EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 or 10 meter semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.
- For above 1GHz, the EUT was placed on the top of a rotating table 1.5 meters above the ground at a 3 meter semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation
- The EUT was set 3 or 10 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
- The antenna height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
- For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters (for the test frequency of below 30MHz, the antenna was tuned to heights 1 meter) and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.
- The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.
- If the emission level of the EUT in peak mode was 10dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10dB margin would be re-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet.
- Test the EUT in the lowest channel, the middle channel, the Highest channel.
- 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.
- Repeat above procedures until all frequencies measured was complete.

Test Configuration:

- Measurements Below 1000MHz
- RBW = 120 kHz
  - VBW = 300 kHz
  - Detector = Peak
  - Trace mode = max hold
- Peak Measurements Above 1000 MHz
- RBW = 1 MHz
  - VBW ≥ 3 MHz

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|                                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
|---------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                             | <ul style="list-style-type: none"> <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 MHz.</li> <li>• Detector = RMS</li> <li>• Sweep time = Auto</li> <li>• Trace was averaged over 100 sweeps</li> </ul> <p>transmission duration over which the transmitter is on and is transmitting at its maximum power control level for the tested mode of operation.</p> |
| Exploratory Test Mode:                      | Transmitting with GFSK modulation.<br>Charge + Transmitting mode.                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| Final Test Mode:                            | Transmitting with GFSK modulation.<br>Pretest the EUT at Charge + Transmitting mode,<br>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: |  |
|-------------|--|

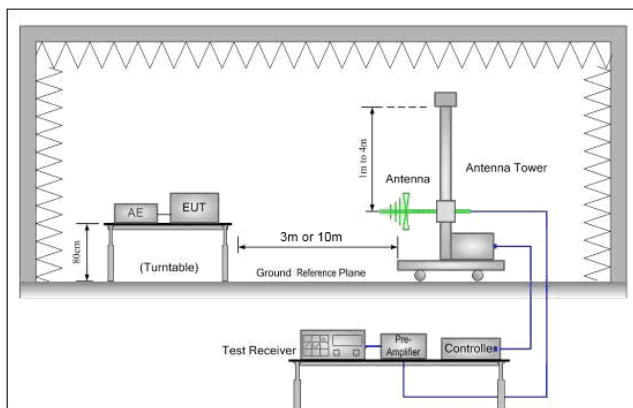


Figure 1. 30MHz to 1GHz

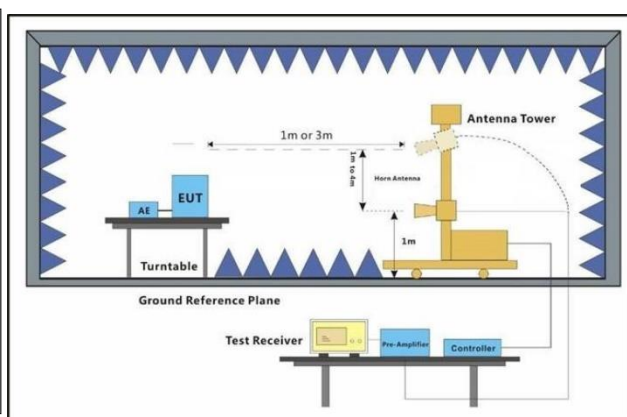


Figure 2. Above 1 GHz

|                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
|-----------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 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</li> </ol> |
|-----------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

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|                                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
|---------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                             | <p>frequency to show compliance. Also measure any emissions in the restricted bands. Save the spectrum analyzer plot. Repeat for each power and modulation for lowest and highest channel</p> <p>h. Test the EUT in the lowest channel , the Highest channel</p> <p>i. The radiation measurements are performed in X, Y, Z axis positioning for Transmitting mode, And found the X axis positioning which it is worse case.</p> <p>j. Repeat above procedures until all frequencies measured was complete.</p>                                                                                                                                                                                                                                                                                                 |
| Test Configuration:                         | <p>Measurements Below 1000MHz</p> <ul style="list-style-type: none"> <li>• RBW = 120 kHz</li> <li>• VBW = 300 kHz</li> <li>• Detector = Peak</li> <li>• Trace mode = max hold</li> </ul> <p>Peak Measurements Above 1000 MHz</p> <ul style="list-style-type: none"> <li>• RBW = 1 MHz</li> <li>• VBW ≥ 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 MHz.</li> <li>• Detector = RMS</li> <li>• Sweep time = Auto</li> <li>• Trace was averaged over 100 sweeps</li> </ul> <p>transmission duration over which the transmitter is on and is transmitting at its maximum power control level for the tested mode of operation.</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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## 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               | $\pm 7.25 \times 10^{-8}$             |
| 5   | Duty Cycle                    | $\pm 0.37\%$                          |
| 6   | Occupied Bandwidth            | $\pm 7.25 \times 10^{-8}$             |
| 7   | Conduction Emission           | $\pm 2.90\text{dB}$ (150kHz to 30MHz) |
| 8   | Radiated Emission             | $\pm 3.13\text{dB}$ (9k -30MHz)       |
|     |                               | $\pm 4.8\text{dB}$ (30M -1GHz)        |
|     |                               | $\pm 4.8\text{dB}$ (1GHz to 18GHz)    |
|     |                               | $\pm 4.8\text{dB}$ (Above 18GHz)      |



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## 6 Equipment List

| 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 | 2021/2/20 | 2022/2/19    |
| Artificial network             | ROHDE&SCHWARZ | ENV216           | SUWI-01-19-02 | 2021/2/20 | 2022/2/19    |
| Measurement Software           | Tonscend      | JS32-CE V3.0.0.1 | SUWI-02-09-05 | NCR       | NCR          |
| Temperature and humidity meter | MingGao       | TH101B           | SUWI-01-01-06 | 2021/2/20 | 2022/2/19    |



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| 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 | 2021/2/20 | 2022/2/19    |
| Signal Analyzer                | ROHDE&SCHWARZ                 | FSW43               | SUWI-01-02-04 | 2021/5/28 | 2022/5/27    |
| Test receiver                  | ROHDE&SCHWARZ                 | ESR7                | SUWI-01-10-01 | 2021/2/20 | 2022/2/19    |
| DC Power Supply                | HYELEC                        | HY3005B             | SUWI-01-18-01 | 2021/2/20 | 2022/2/19    |
| Receiving antenna              | SCHWRZBECK<br>MESS-ELEKTRONIK | VULB 9163           | SUWI-01-11-01 | 2021/5/16 | 2022/5/15    |
| Receiving antenna              | SCHWRZBECK<br>MESS-ELEKTRONIK | BBHA 9120D          | SUWI-01-11-02 | 2021/5/16 | 2022/5/15    |
| Receiving antenna              | SCHWRZBECK<br>MESS-ELEKTRONIK | BBHA 9170           | SUWI-01-11-03 | 2021/5/14 | 2022/5/13    |
| Amplifier                      | Tonscend                      | TAP9K3G40           | SUWI-01-14-01 | 2021/2/20 | 2022/2/19    |
| Amplifier                      | Tonscend                      | TAP01018050         | SUWI-01-14-02 | 2021/2/20 | 2022/2/19    |
| Amplifier                      | Tonscend                      | TAP18040048         | SUWI-01-14-03 | 2021/2/20 | 2022/2/19    |
| Active Loop Antenna            | SCHWRZBECK<br>MESS-ELEKTRONIK | FMZB 1519B          | SUWI-01-21-01 | 2021/6/10 | 2022/6/9     |
| Measurement Software           | Tonscend                      | JS32-RE<br>V3.0.0.3 | SUWI-02-09-04 | NCR       | NCR          |
| Radio Communication Analyzer   | ROHDE&SCHWARZ                 | CMW500              | SUWI-01-27-01 | 2021/9/28 | 2022/9/27    |



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## 7 Photographs - EUT Constructional Details

Refer to Appendix A.2 WLAN Setup Photos.



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# Appendix



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## DTS Bandwidth

### Test Result

| TestMode | Antenna | Channel | DTS BW [MHz] | FL[MHz]  | FH[MHz]  | Limit[MHz] | Verdict |
|----------|---------|---------|--------------|----------|----------|------------|---------|
| BLE_1M   | Ant1    | 2402    | 0.711        | 2401.637 | 2402.348 | 0.5        | PASS    |
|          |         | 2440    | 0.705        | 2439.640 | 2440.345 | 0.5        | PASS    |
|          |         | 2480    | 0.705        | 2479.640 | 2480.345 | 0.5        | PASS    |



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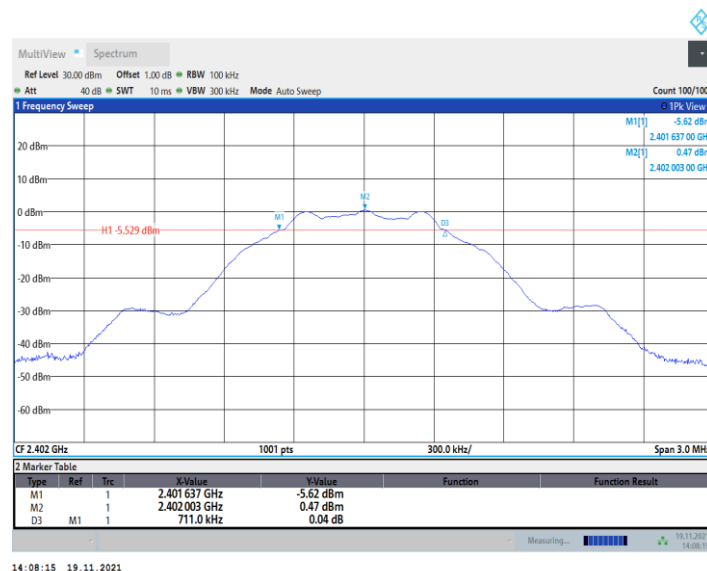
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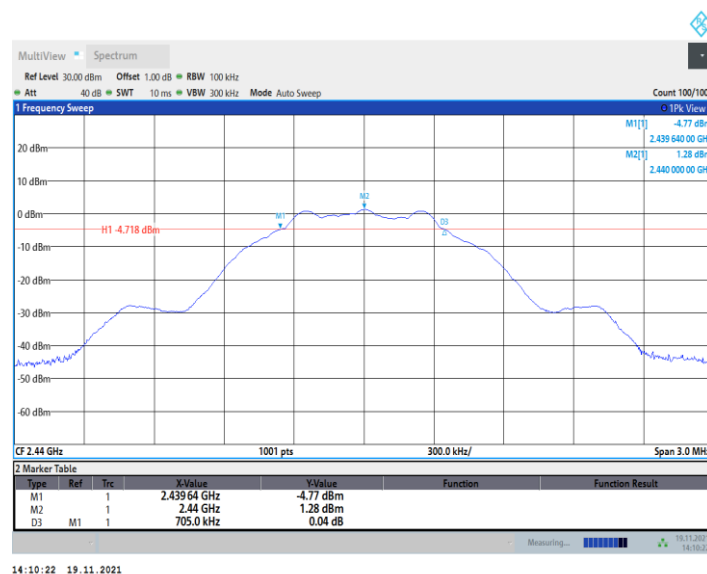
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### Test Graphs

BLE\_1M\_Ant1\_2402



BLE\_1M\_Ant1\_2440



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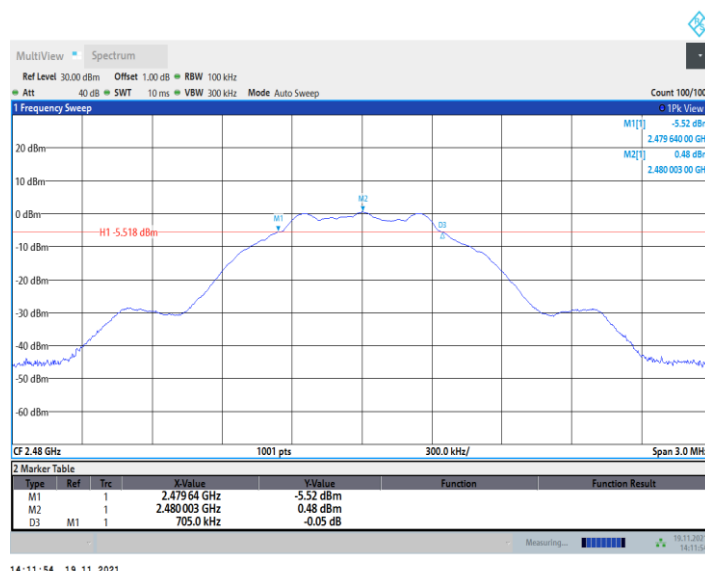
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### BLE\_1M\_Ant1\_2480



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## Occupied Channel Bandwidth

### Test Result

| TestMode | Antenna | Channel | OCB [MHz] | FL[MHz]  | FH[MHz]  | Limit[MHz] | Verdict |
|----------|---------|---------|-----------|----------|----------|------------|---------|
| BLE_1M   | Ant1    | 2402    | 1.061     | 2401.475 | 2402.536 | ---        | PASS    |
|          |         | 2440    | 1.061     | 2439.474 | 2440.535 | ---        | PASS    |
|          |         | 2480    | 1.06      | 2479.474 | 2480.534 | ---        | PASS    |



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### Test Graphs

BLE\_1M\_Ant1\_2402



BLE\_1M\_Ant1\_2440



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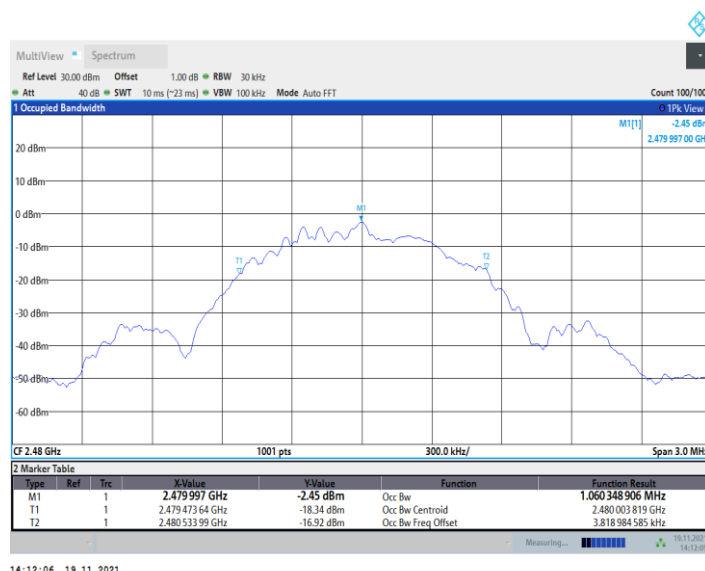
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## Maximum conducted output power

### Test Result

| TestMode | Antenna | Channel | Result[dBm] | Limit[dBm] | Verdict |
|----------|---------|---------|-------------|------------|---------|
| BLE_1M   | Ant1    | 2402    | 1.09        | <=30       | PASS    |
|          |         | 2440    | 1.86        | <=30       | PASS    |
|          |         | 2480    | 1.19        | <=30       | PASS    |



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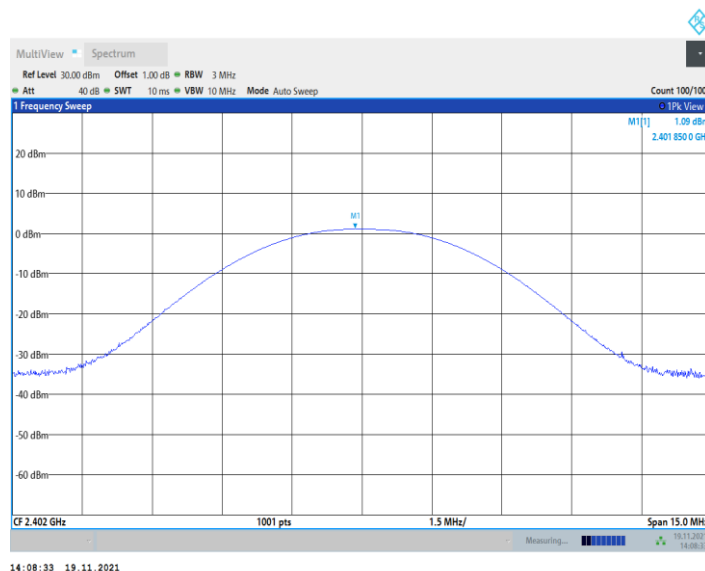
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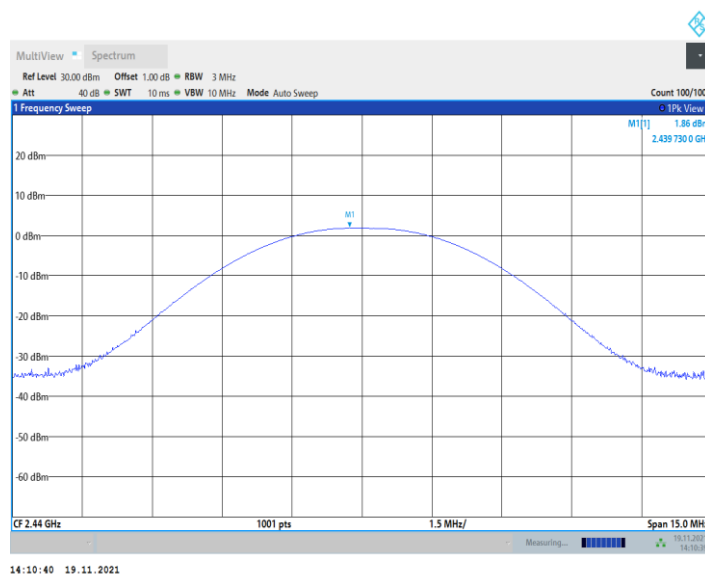
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### Test Graphs

BLE\_1M\_Ant1\_2402



BLE\_1M\_Ant1\_2440



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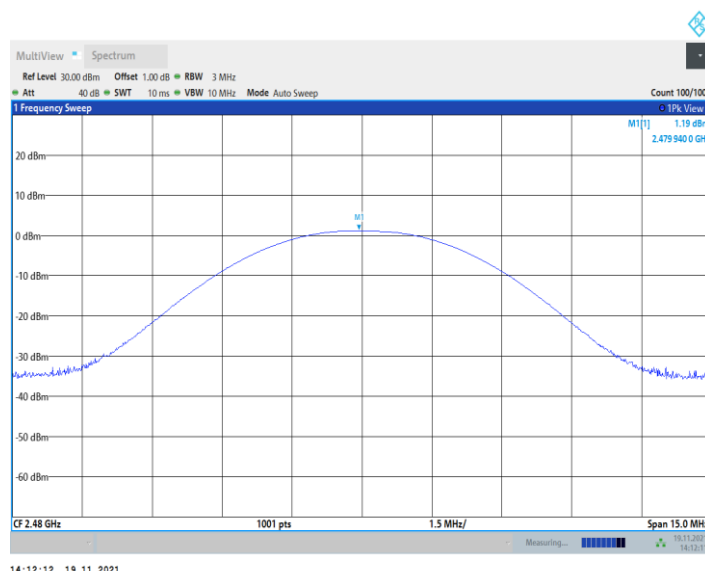


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### BLE\_1M\_Ant1\_2480



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## Maximum power spectral density

### Test Result

| TestMode | Antenna | Channel | Result[dBm/3kHz] | Limit[dBm/3kHz] | Verdict |
|----------|---------|---------|------------------|-----------------|---------|
| BLE_1M   | Ant1    | 2402    | -14.4            | <=8             | PASS    |
|          |         | 2440    | -13.55           | <=8             | PASS    |
|          |         | 2480    | -14.28           | <=8             | PASS    |



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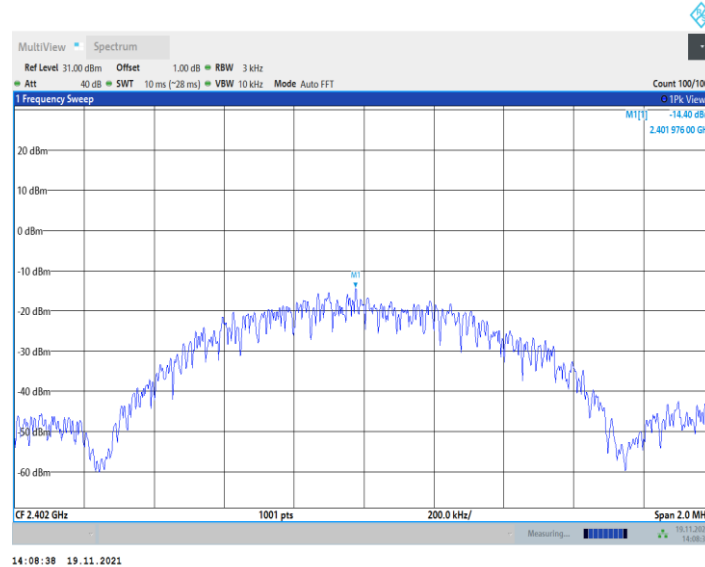
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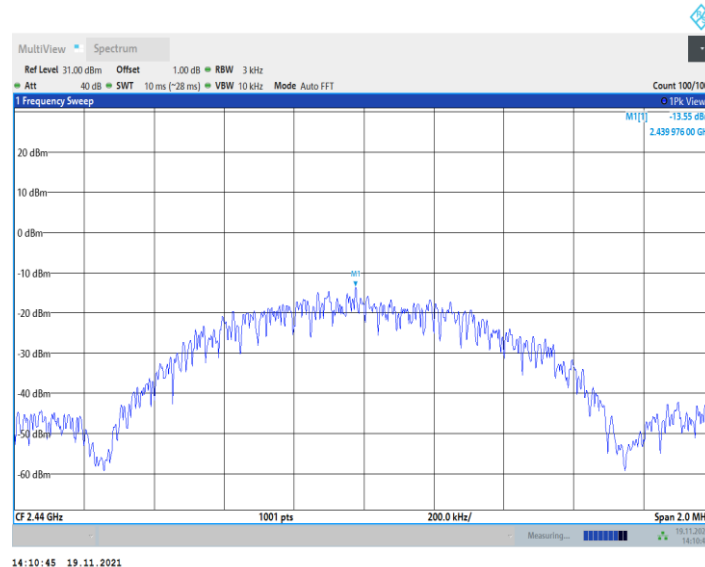
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## Test Graphs

BLE\_1M\_Ant1\_2402



BLE\_1M\_Ant1\_2440



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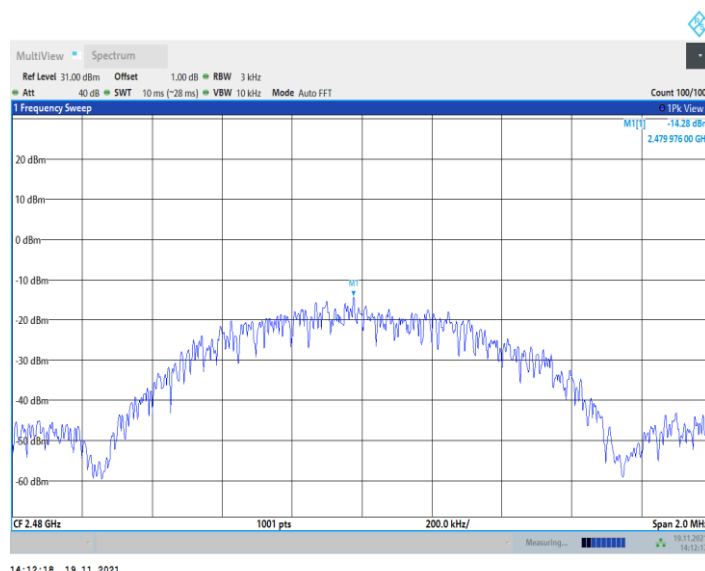
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### BLE\_1M\_Ant1\_2480



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## Band edge measurements

### Test Result

| TestMode | Antenna | ChName | Channel | RefLevel[dBm] | Result[dBm] | Limit[dBm] | Verdict |
|----------|---------|--------|---------|---------------|-------------|------------|---------|
| BLE_1M   | Ant1    | Low    | 2402    | 0.57          | -54.82      | <=-19.43   | PASS    |
|          |         | High   | 2480    | 0.72          | -58.85      | <=-19.28   | PASS    |



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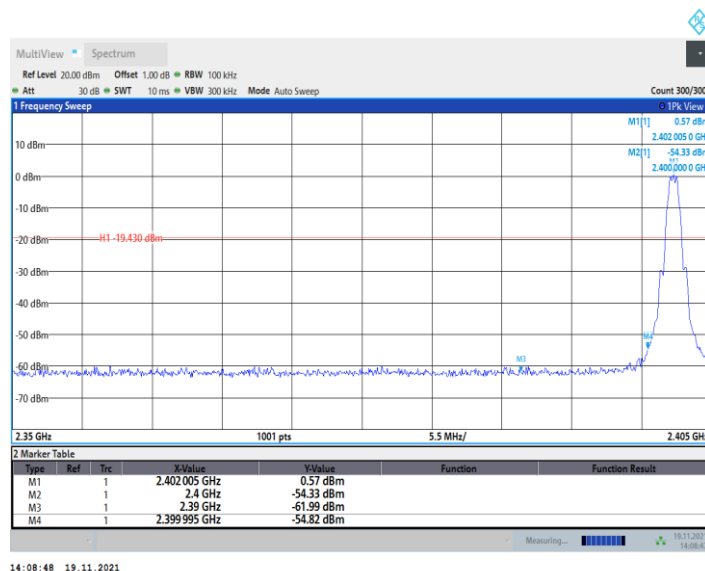
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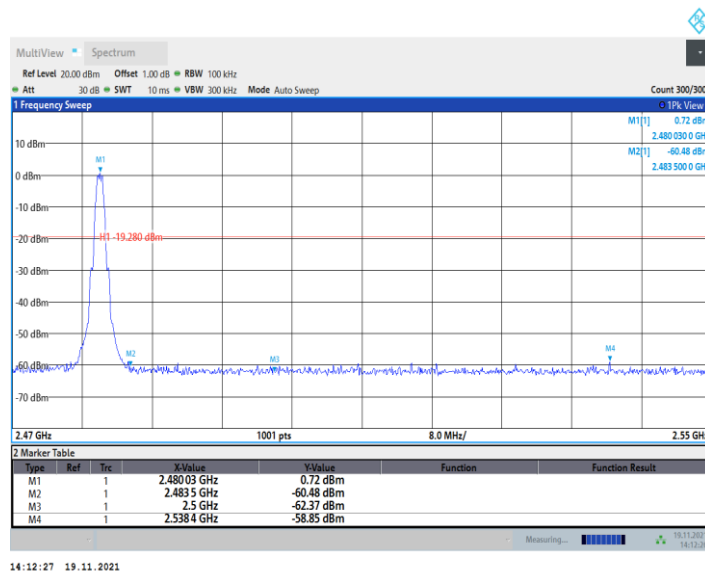
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### Test Graphs

BLE\_1M\_Ant1\_Low\_2402



BLE\_1M\_Ant1\_High\_2480



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## Conducted Spurious Emission

### Test Result

| TestMode | Antenna | Channel | FreqRange<br>[MHz] | RefLevel<br>[dBm] | Result[dBm] | Limit[dBm] | Verdict |
|----------|---------|---------|--------------------|-------------------|-------------|------------|---------|
| BLE_1M   | Ant1    | 2402    | Reference          | 0.50              | 0.50        | ---        | PASS    |
|          |         |         | 30~1000            | 0.50              | -62.28      | <=-19.5    | PASS    |
|          |         |         | 1000~26500         | 0.50              | -59.49      | <=-19.5    | PASS    |
|          |         | 2440    | Reference          | 1.28              | 1.28        | ---        | PASS    |
|          |         |         | 30~1000            | 1.28              | -63.11      | <=-18.72   | PASS    |
|          |         |         | 1000~26500         | 1.28              | -57.04      | <=-18.72   | PASS    |
|          |         | 2480    | Reference          | 0.52              | 0.52        | ---        | PASS    |
|          |         |         | 30~1000            | 0.52              | -62.5       | <=-19.48   | PASS    |
|          |         |         | 1000~26500         | 0.52              | -59.63      | <=-19.48   | PASS    |



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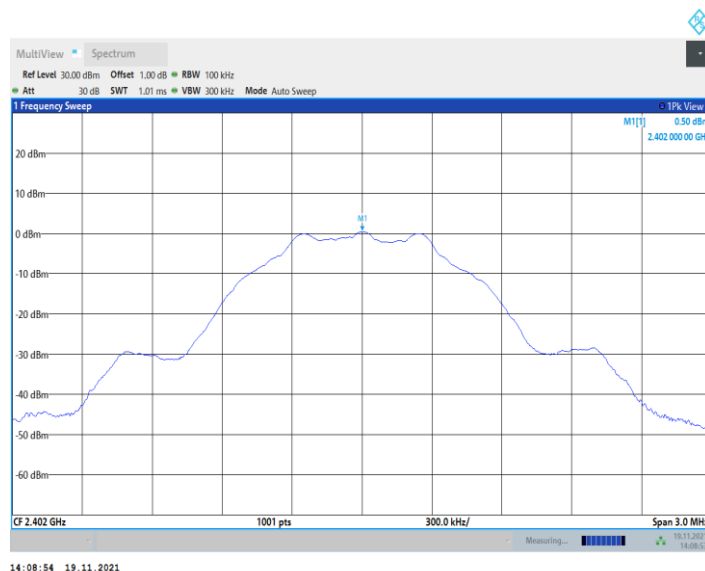
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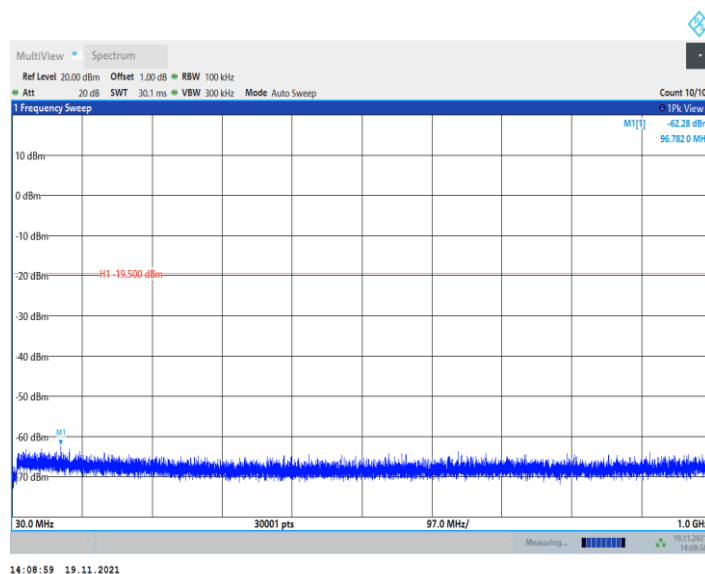
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### Test Graphs

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BLE\_1M\_Ant1\_2402\_30-1000



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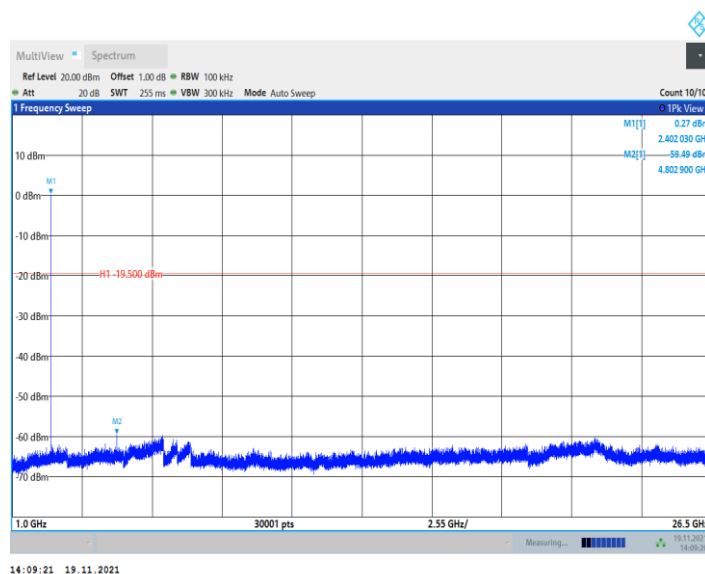
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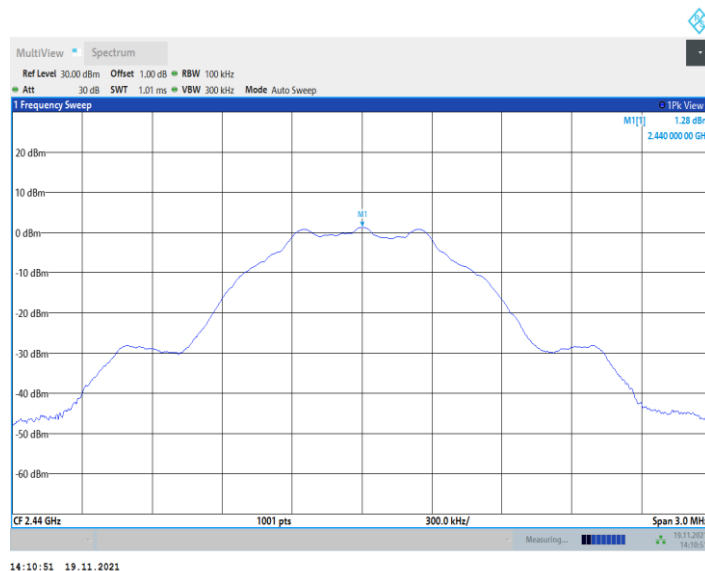
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### BLE\_1M\_Ant1\_2440\_0-Reference



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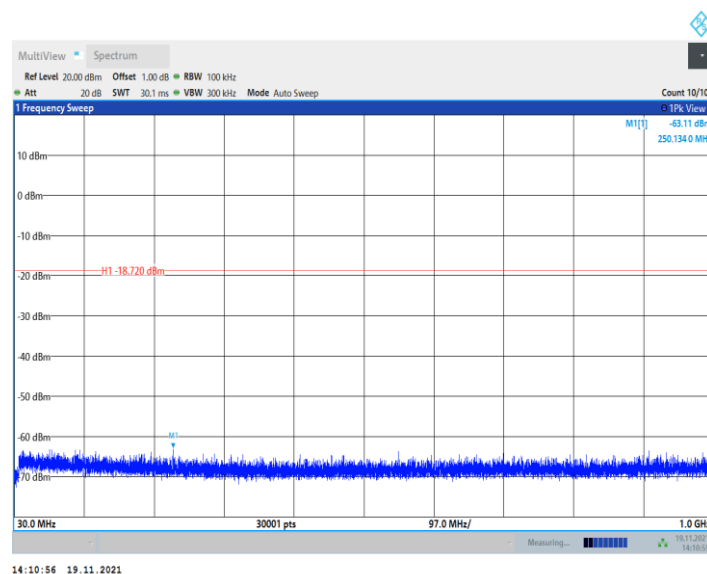
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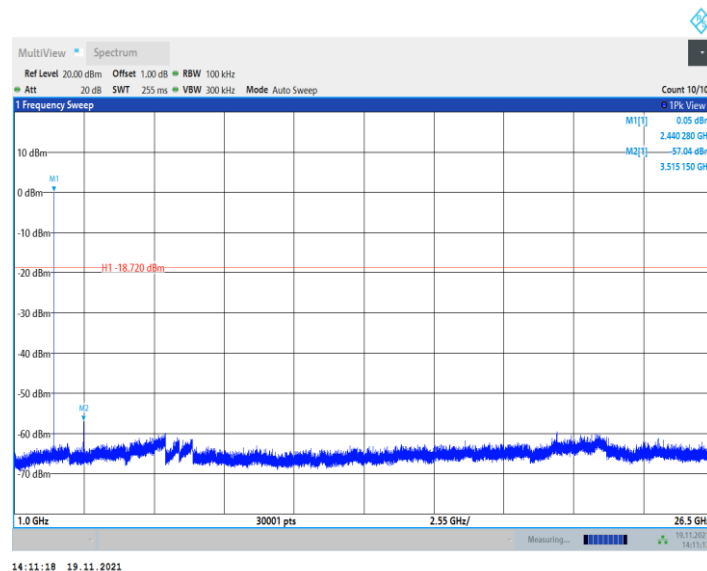
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### BLE\_1M\_Ant1\_2440\_30~1000



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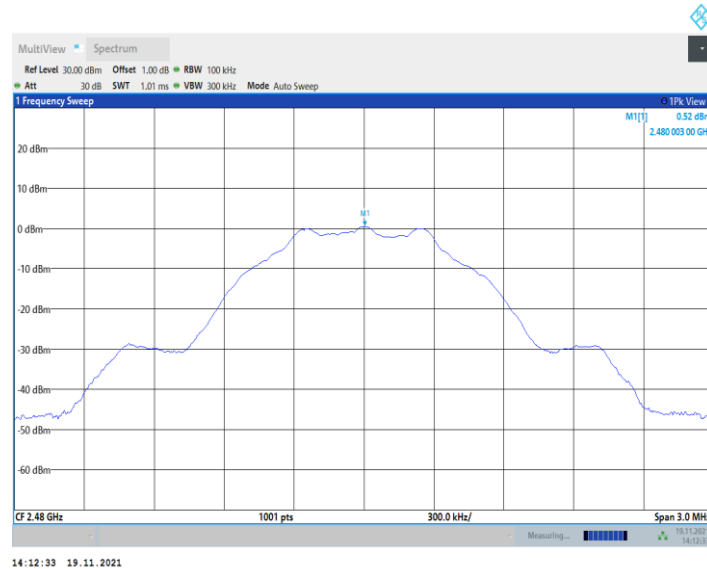
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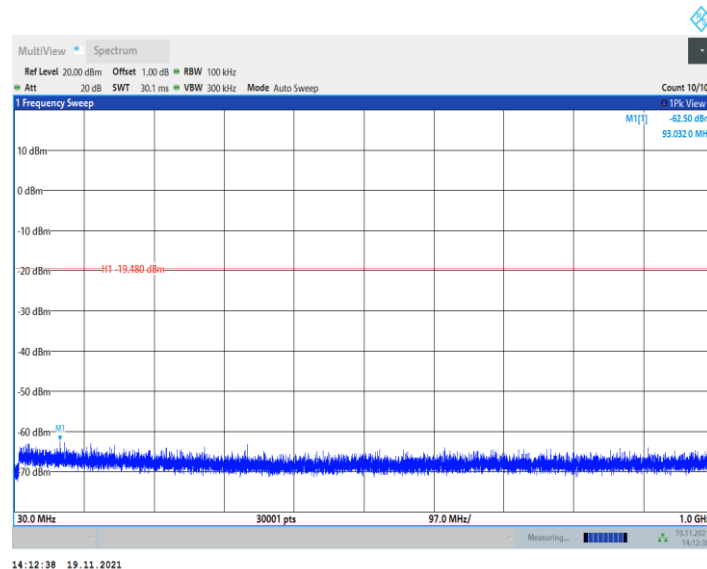
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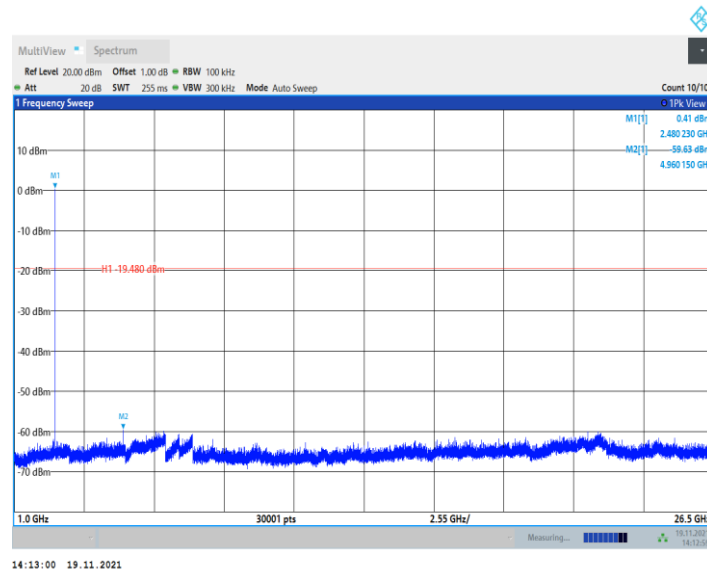
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### BLE\_1M\_Ant1\_2480\_1000~26500



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## Duty Cycle

### Test Result

| TestMode | Antenna | Channel | ON Time<br>[ms] | Period<br>[ms] | X      | DC [%] | xFactor | Limit | Verdict |
|----------|---------|---------|-----------------|----------------|--------|--------|---------|-------|---------|
| BLE_1M   | Ant1    | 2402    | 0.39            | 0.63           | 0.6190 | 61.90  | 2.08    | ---   | PASS    |
|          |         | 2440    | 0.39            | 0.63           | 0.6190 | 61.90  | 2.08    | ---   | PASS    |
|          |         | 2480    | 0.39            | 0.63           | 0.6190 | 61.90  | 2.08    | ---   | PASS    |



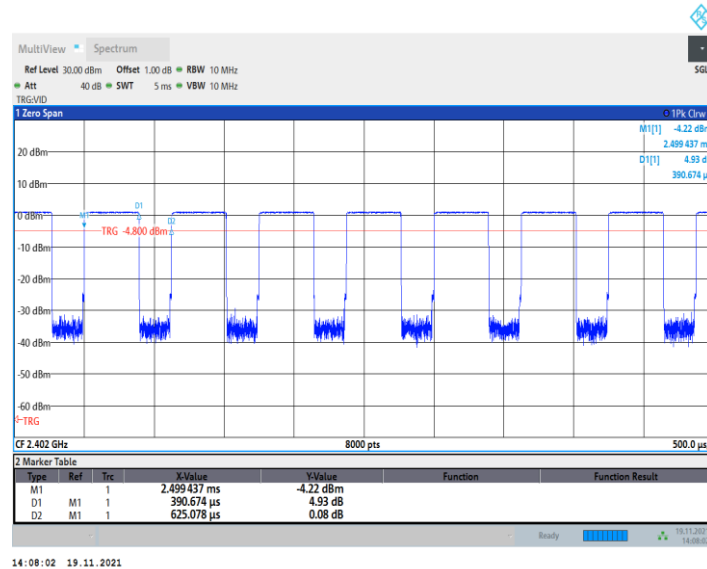
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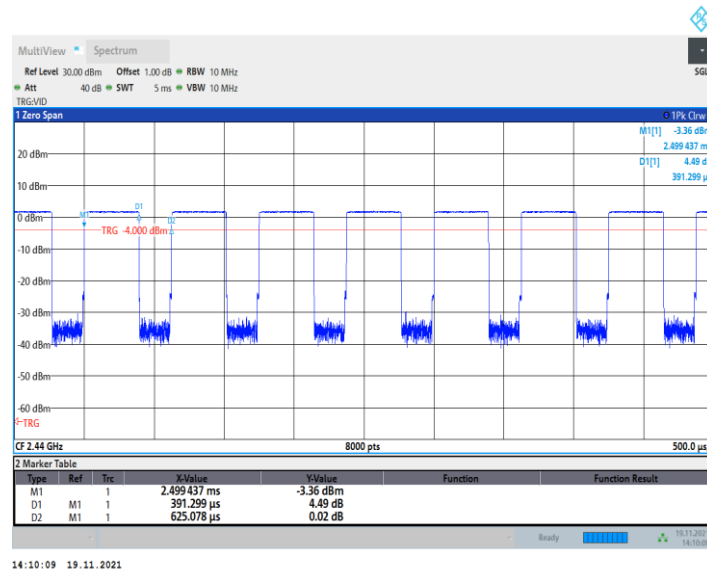
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### Test Graphs

BLE\_1M\_Ant1\_2402



BLE\_1M\_Ant1\_2440



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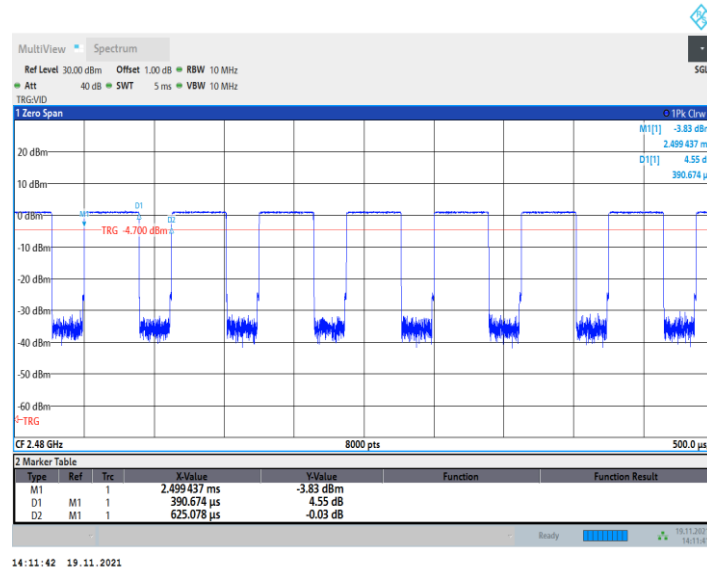
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### BLE\_1M\_Ant1\_2480



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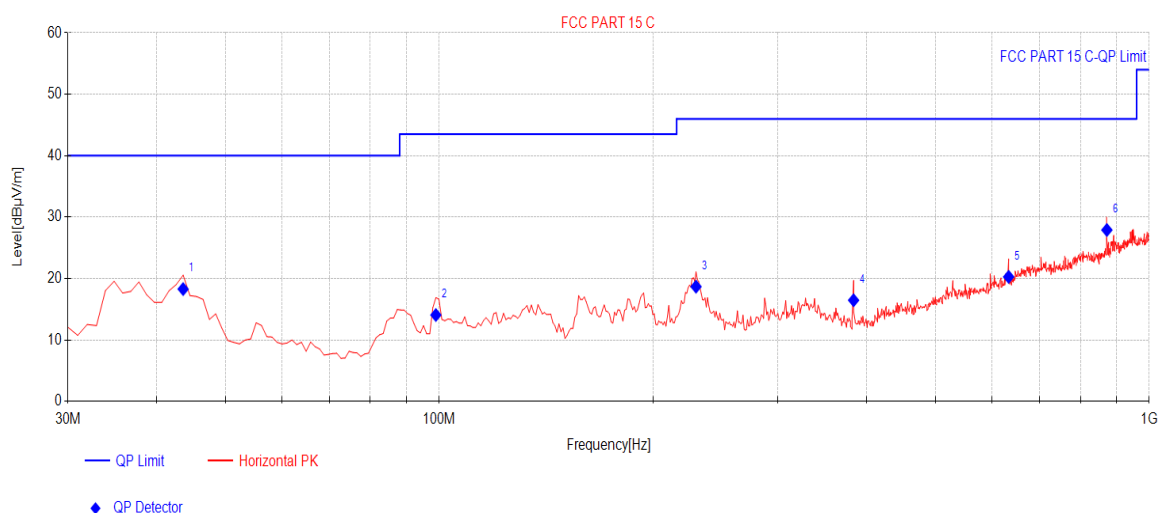
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## Radiated Spurious Emissions

### Radiated emission below 1GHz

#### LF BLE 1M \_Channel 39 worse case



#### Data List

| NO. | Frequency [MHz] | Factor [dB] | QP Value [dBμV/m] | QP Limit [dBμV/m] | QP Margin [dB] | Height [cm] | Angle [°] | Polarity   |
|-----|-----------------|-------------|-------------------|-------------------|----------------|-------------|-----------|------------|
| 1   | 43.5936         | -21.17      | 18.28             | 40.00             | 21.72          | 103         | 357       | Horizontal |
| 2   | 98.9389         | -19.83      | 14.06             | 43.50             | 29.44          | 362         | 241       | Horizontal |
| 3   | 230.0200        | -18.79      | 18.67             | 46.00             | 27.33          | 152         | 142       | Horizontal |
| 4   | 383.4334        | -15.66      | 16.46             | 46.00             | 29.54          | 221         | 200       | Horizontal |
| 5   | 633.9439        | -9.79       | 20.27             | 46.00             | 25.73          | 116         | 134       | Horizontal |
| 6   | 871.8318        | -5.22       | 27.90             | 46.00             | 18.10          | 102         | 348       | Horizontal |

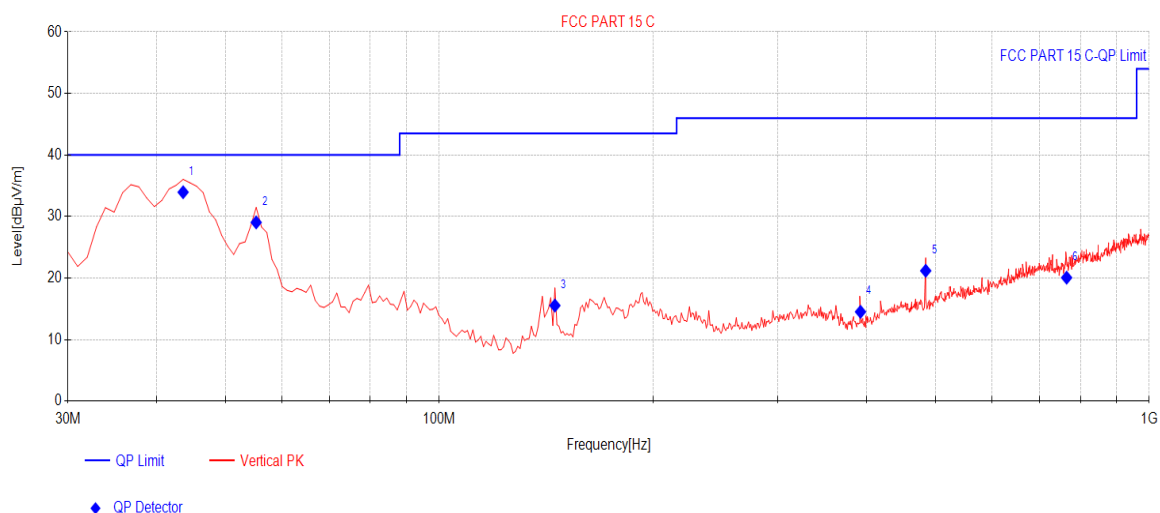


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### LF BLE 1M\_Channel 39 worse case



#### Data List

| NO. | Frequency [MHz] | Factor [dB] | QP Value [dBμV/m] | QP Limit [dBμV/m] | QP Margin [dB] | Height [cm] | Angle [°] | Polarity |
|-----|-----------------|-------------|-------------------|-------------------|----------------|-------------|-----------|----------|
| 1   | 43.5936         | -21.17      | 33.95             | 40.00             | 6.05           | 163         | 114       | Vertical |
| 2   | 55.2452         | -21.38      | 29.04             | 40.00             | 10.96          | 185         | 360       | Vertical |
| 3   | 145.5455        | -22.93      | 15.53             | 43.50             | 27.97          | 246         | 344       | Vertical |
| 4   | 392.1722        | -15.59      | 14.51             | 46.00             | 31.49          | 261         | 258       | Vertical |
| 5   | 484.4144        | -13.85      | 21.18             | 46.00             | 24.82          | 152         | 258       | Vertical |
| 6   | 765.0250        | -7.57       | 20.06             | 46.00             | 25.94          | 106         | 16        | Vertical |



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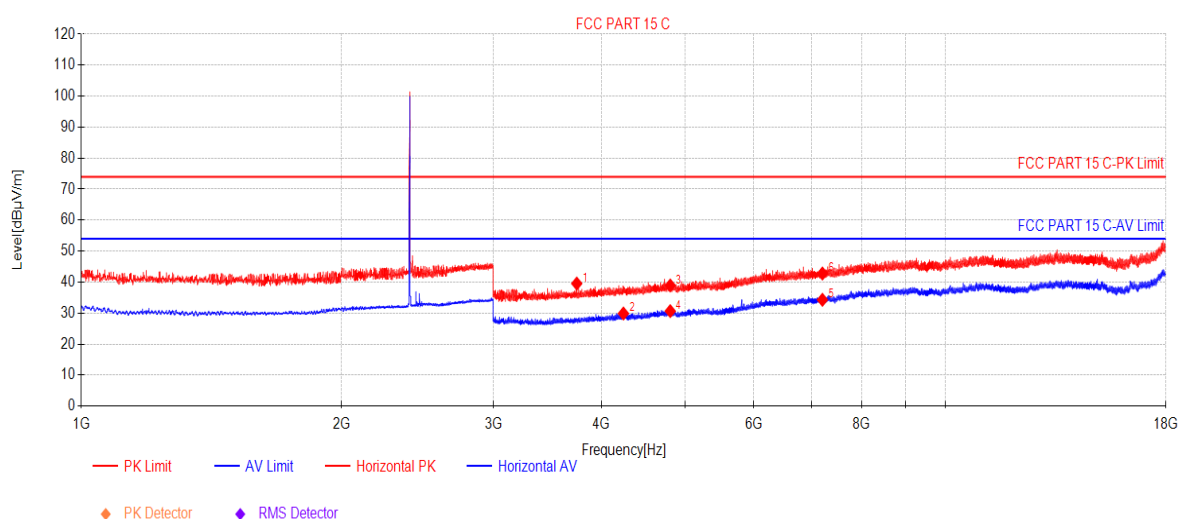
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### Transmitter emission above 1GHz

### EMISSION BLE1M Channel 00



#### Data List

| NO. | Frequency [MHz] | Reading [dBμV/m] | Factor [dB] | Level [dBμV/m] | Limit [dBμV/m] | Margin [dB] | Height [cm] | Angle [°] | Polarity   |
|-----|-----------------|------------------|-------------|----------------|----------------|-------------|-------------|-----------|------------|
| 1   | 3745.0000       | 55.14            | -15.59      | 39.55          | 74.00          | 34.45       | 168         | 24        | Horizontal |
| 2   | 4240.5000       | 43.89            | -14.00      | 29.89          | 54.00          | 24.11       | 243         | 24        | Horizontal |
| 3   | 4804.0000       | 51.26            | -12.33      | 38.93          | 74.00          | 35.07       | 196         | 152       | Horizontal |
| 4   | 4804.0000       | 42.99            | -12.33      | 30.66          | 54.00          | 23.34       | 169         | 152       | Horizontal |
| 5   | 7206.0000       | 40.22            | -5.91       | 34.31          | 54.00          | 19.69       | 138         | 3         | Horizontal |
| 6   | 7206.0000       | 48.70            | -5.91       | 42.79          | 74.00          | 31.21       | 305         | 360       | Horizontal |



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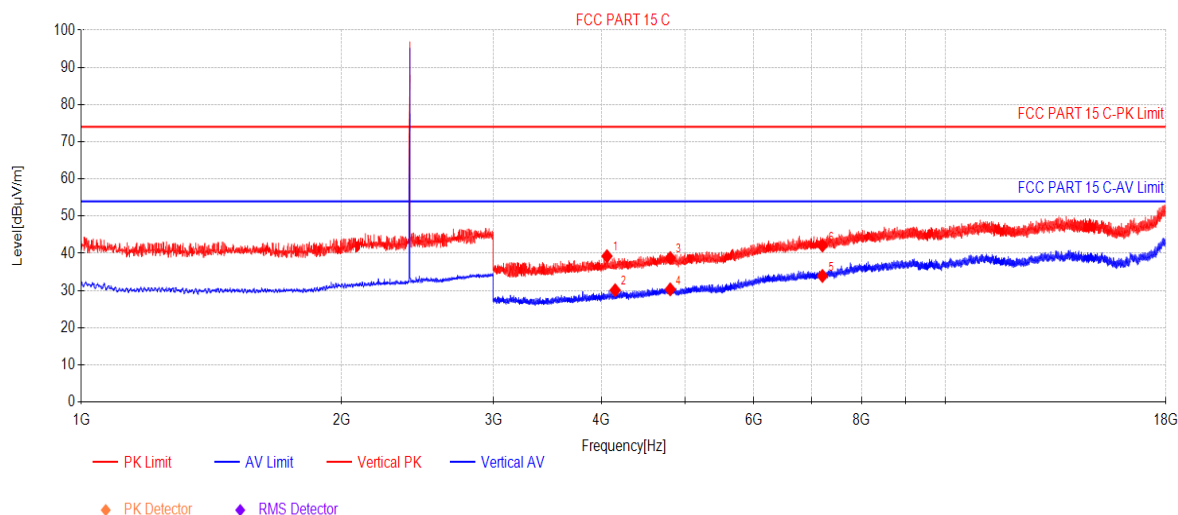
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## EMISSION BLE1M Channel 00



| Data List |                 |                  |             |                |                |             |             |           |          |
|-----------|-----------------|------------------|-------------|----------------|----------------|-------------|-------------|-----------|----------|
| NO.       | Frequency [MHz] | Reading [dBμV/m] | Factor [dB] | Level [dBμV/m] | Limit [dBμV/m] | Margin [dB] | Height [cm] | Angle [°] | Polarity |
| 1         | 4058.5000       | 53.74            | -14.49      | 39.25          | 74.00          | 34.75       | 196         | 73        | Vertical |
| 2         | 4148.5000       | 44.25            | -14.17      | 30.08          | 54.00          | 23.92       | 185         | 101       | Vertical |
| 3         | 4804.0000       | 51.06            | -12.33      | 38.73          | 74.00          | 35.27       | 246         | 122       | Vertical |
| 4         | 4804.0000       | 42.65            | -12.33      | 30.32          | 54.00          | 23.68       | 385         | 112       | Vertical |
| 5         | 7206.0000       | 39.84            | -5.91       | 33.93          | 54.00          | 20.07       | 108         | 191       | Vertical |
| 6         | 7206.0000       | 48.01            | -5.91       | 42.10          | 74.00          | 31.90       | 195         | 101       | Vertical |



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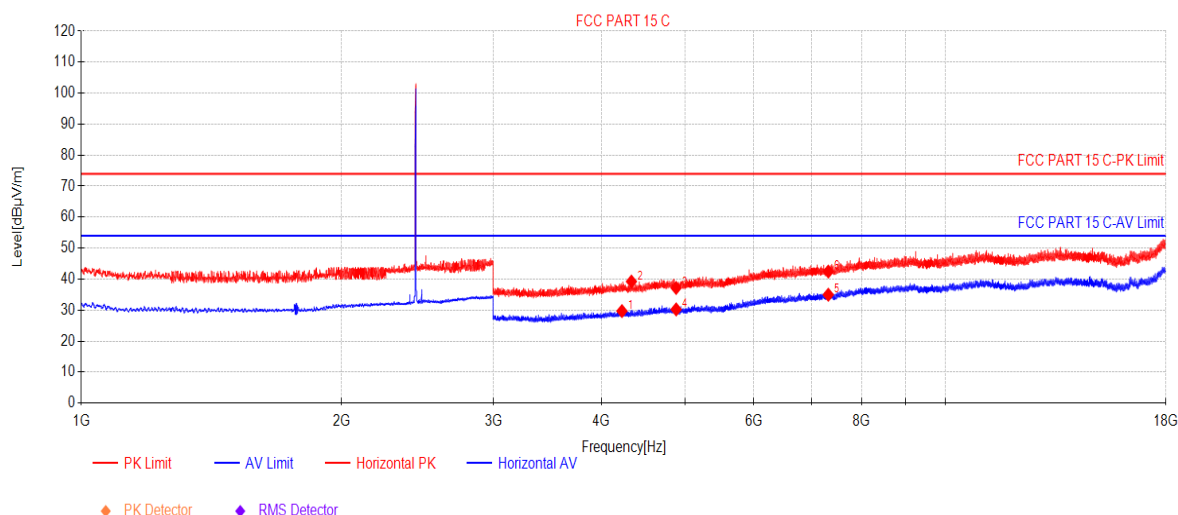
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### EMISSION BLE1M Channel 19



#### Data List

| NO. | Frequency [MHz] | Reading [dBμV/m] | Factor [dB] | Level [dBμV/m] | Limit [dBμV/m] | Margin [dB] | Height [cm] | Angle [°] | Polarity   |
|-----|-----------------|------------------|-------------|----------------|----------------|-------------|-------------|-----------|------------|
| 1   | 4224.0000       | 43.73            | -14.04      | 29.69          | 54.00          | 24.31       | 185         | 33        | Horizontal |
| 2   | 4332.0000       | 53.04            | -13.80      | 39.24          | 74.00          | 34.76       | 169         | 123       | Horizontal |
| 3   | 4880.0000       | 49.65            | -12.48      | 37.17          | 74.00          | 36.83       | 146         | 341       | Horizontal |
| 4   | 4880.0000       | 42.71            | -12.48      | 30.23          | 54.00          | 23.77       | 102         | 22        | Horizontal |
| 5   | 7320.0000       | 40.38            | -5.41       | 34.97          | 54.00          | 19.03       | 346         | 62        | Horizontal |
| 6   | 7320.0000       | 47.86            | -5.41       | 42.45          | 74.00          | 31.55       | 241         | 193       | Horizontal |



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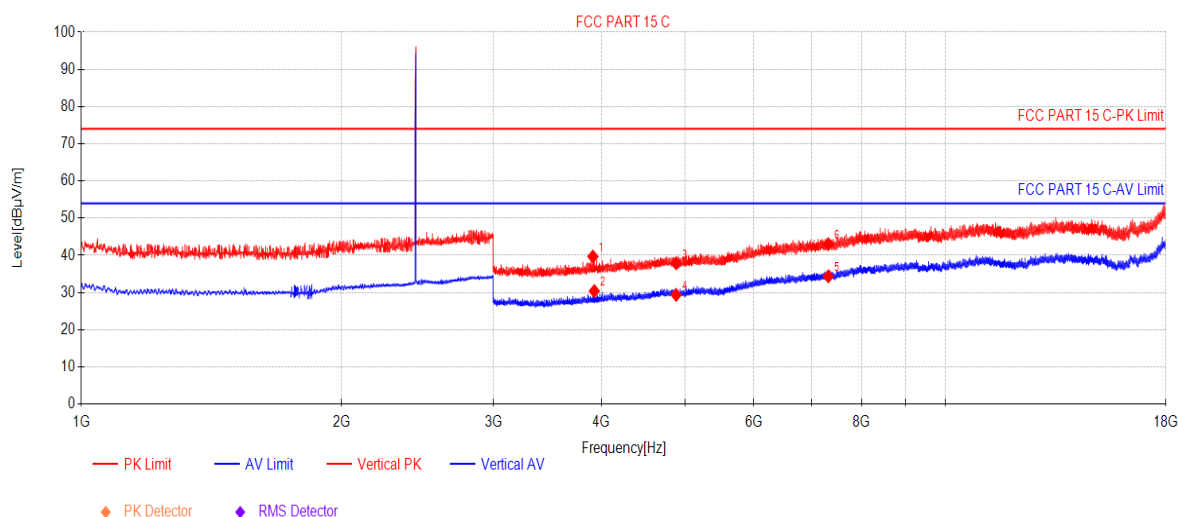
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## EMISSION BLE1M Channel 19



### Data List

| NO. | Frequency [MHz] | Reading [dBμV/m] | Factor [dB] | Level [dBμV/m] | Limit [dBμV/m] | Margin [dB] | Height [cm] | Angle [°] | Polarity |
|-----|-----------------|------------------|-------------|----------------|----------------|-------------|-------------|-----------|----------|
| 1   | 3909.5000       | 54.77            | -15.09      | 39.68          | 74.00          | 34.32       | 186         | 359       | Vertical |
| 2   | 3924.0000       | 45.44            | -15.06      | 30.38          | 54.00          | 23.62       | 246         | 13        | Vertical |
| 3   | 4880.0000       | 50.33            | -12.48      | 37.85          | 74.00          | 36.15       | 324         | 300       | Vertical |
| 4   | 4880.0000       | 41.86            | -12.48      | 29.38          | 54.00          | 24.62       | 125         | 122       | Vertical |
| 5   | 7320.0000       | 39.77            | -5.41       | 34.36          | 54.00          | 19.64       | 185         | 43        | Vertical |
| 6   | 7320.0000       | 48.41            | -5.41       | 43.00          | 74.00          | 31.00       | 325         | 311       | Vertical |



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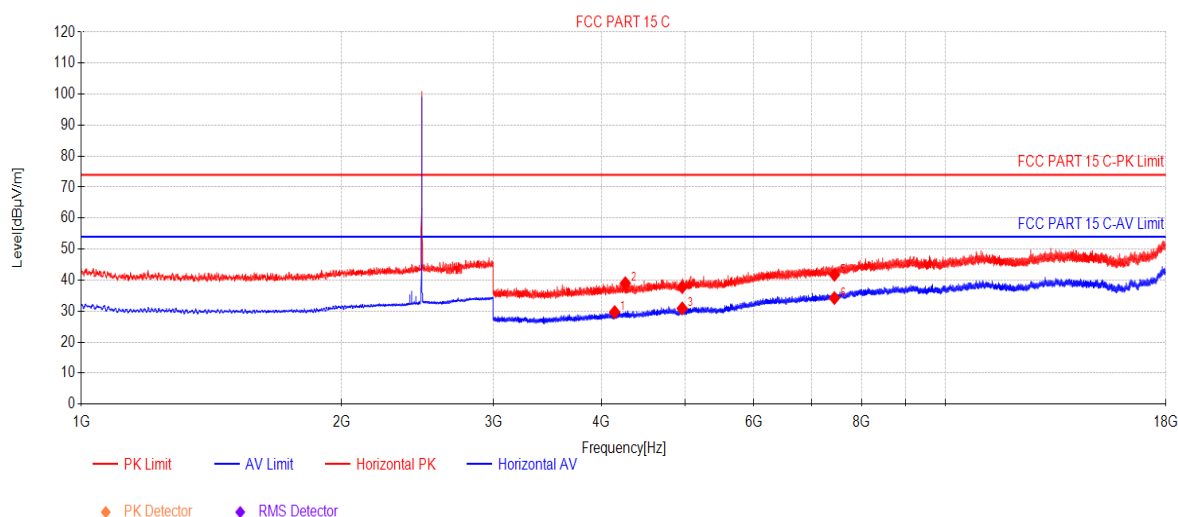


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### EMISSION BLE1M Channel 39



#### Data List

| NO. | Frequency [MHz] | Reading [dBμV/m] | Factor [dB] | Level [dBμV/m] | Limit [dBμV/m] | Margin [dB] | Height [cm] | Angle [°] | Polarity   |
|-----|-----------------|------------------|-------------|----------------|----------------|-------------|-------------|-----------|------------|
| 1   | 4142.5000       | 43.88            | -14.18      | 29.70          | 54.00          | 24.30       | 185         | 19        | Horizontal |
| 2   | 4262.0000       | 52.96            | -13.95      | 39.01          | 74.00          | 34.99       | 362         | 338       | Horizontal |
| 3   | 4960.0000       | 43.29            | -12.41      | 30.88          | 54.00          | 23.12       | 181         | 86        | Horizontal |
| 4   | 4960.0000       | 50.19            | -12.41      | 37.78          | 74.00          | 36.22       | 105         | 152       | Horizontal |
| 5   | 7440.0000       | 47.09            | -5.36       | 41.73          | 74.00          | 32.27       | 243         | 320       | Horizontal |
| 6   | 7440.0000       | 39.58            | -5.36       | 34.22          | 54.00          | 19.78       | 249         | 69        | Horizontal |



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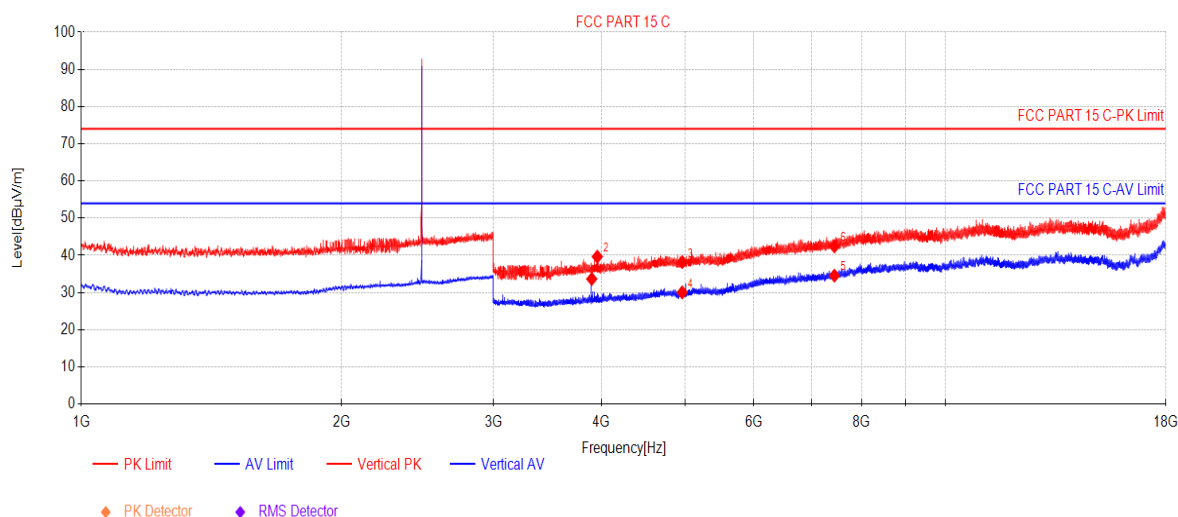
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### EMISSION BLE1M Channel 39



#### Data List

| NO. | Frequency [MHz] | Reading [dBμV/m] | Factor [dB] | Level [dBμV/m] | Limit [dBμV/m] | Margin [dB] | Height [cm] | Angle [°] | Polarity |
|-----|-----------------|------------------|-------------|----------------|----------------|-------------|-------------|-----------|----------|
| 1   | 3897.5000       | 48.77            | -15.12      | 33.65          | 54.00          | 20.35       | 246         | 185       | Vertical |
| 2   | 3955.5000       | 54.62            | -14.97      | 39.65          | 74.00          | 34.35       | 352         | 52        | Vertical |
| 3   | 4960.0000       | 50.60            | -12.41      | 38.19          | 74.00          | 35.81       | 185         | 106       | Vertical |
| 4   | 4960.0000       | 42.44            | -12.41      | 30.03          | 54.00          | 23.97       | 216         | 99        | Vertical |
| 5   | 7440.0000       | 39.91            | -5.36       | 34.55          | 54.00          | 19.45       | 128         | 307       | Vertical |
| 6   | 7440.0000       | 47.77            | -5.36       | 42.41          | 74.00          | 31.59       | 108         | 238       | Vertical |



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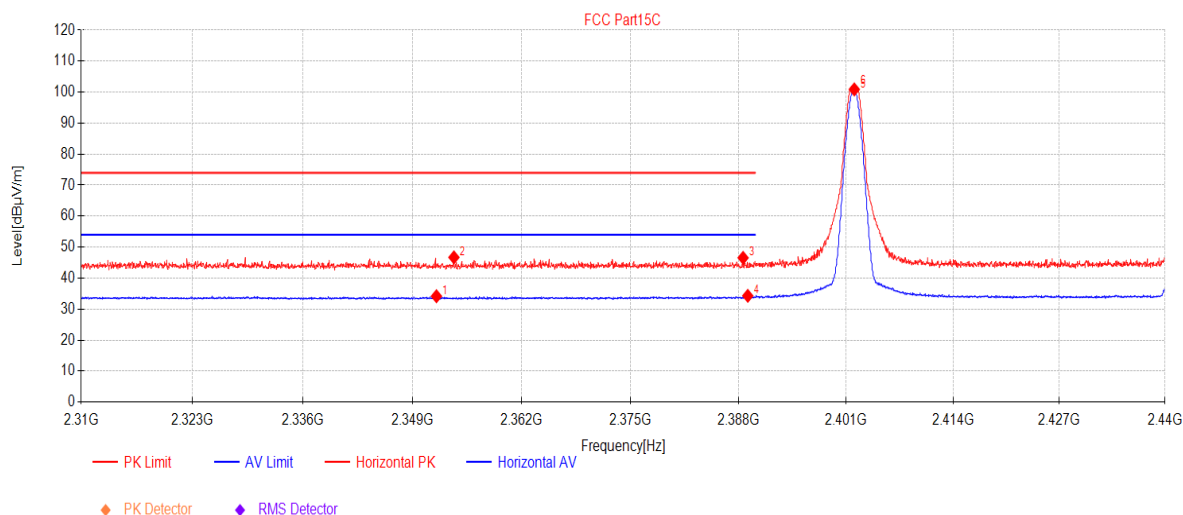
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### Restricted bands around fundamental frequency

### BAND\_EDGE BLE1M Channel 00



#### Data List

| NO. | Frequency [MHz] | Reading [dBμV/m] | Factor [dB] | Level [dBμV/m] | Limit [dBμV/m] | Margin [dB] | Height [cm] | Angle [°] | Polarity   |
|-----|-----------------|------------------|-------------|----------------|----------------|-------------|-------------|-----------|------------|
| 1   | 2351.8306       | 31.06            | 3.10        | 34.16          | 54.00          | 19.84       | 154         | 72        | Horizontal |
| 2   | 2353.9113       | 43.59            | 3.11        | 46.70          | 74.00          | 27.30       | 154         | 72        | Horizontal |
| 3   | 2388.5462       | 43.31            | 3.25        | 46.56          | 74.00          | 27.44       | 154         | 72        | Horizontal |
| 4   | 2389.1097       | 31.04            | 3.25        | 34.29          | 54.00          | 19.71       | 154         | 72        | Horizontal |
| 5   | 2402.0000       | 97.58            | 3.31        | 100.89         | 53.92          | -46.97      | 154         | 72        | Horizontal |
| 6   | 2402.0000       | 98.68            | 3.31        | 101.99         | 73.89          | -28.10      | 154         | 72        | Horizontal |



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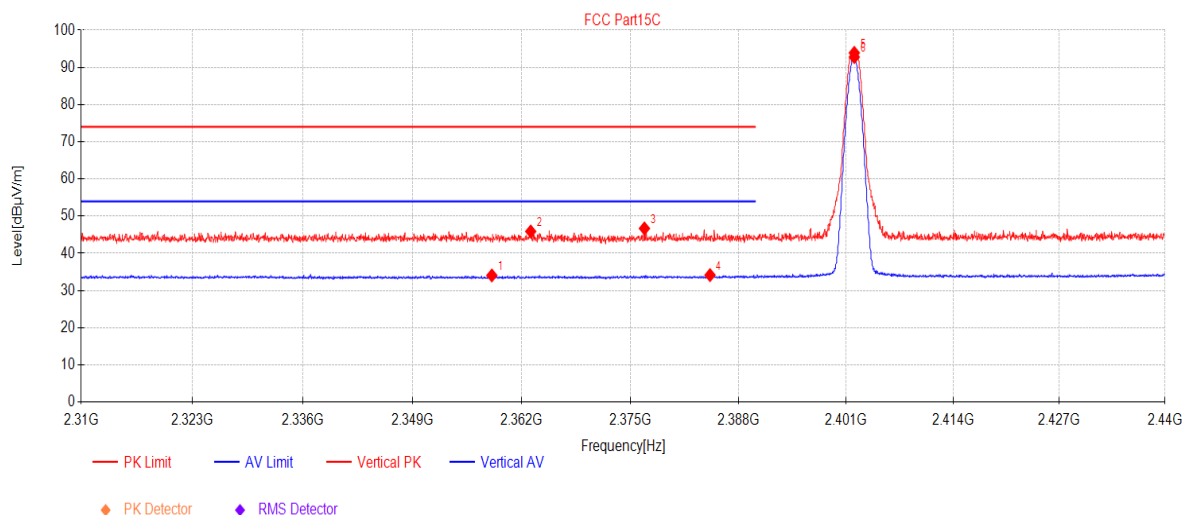
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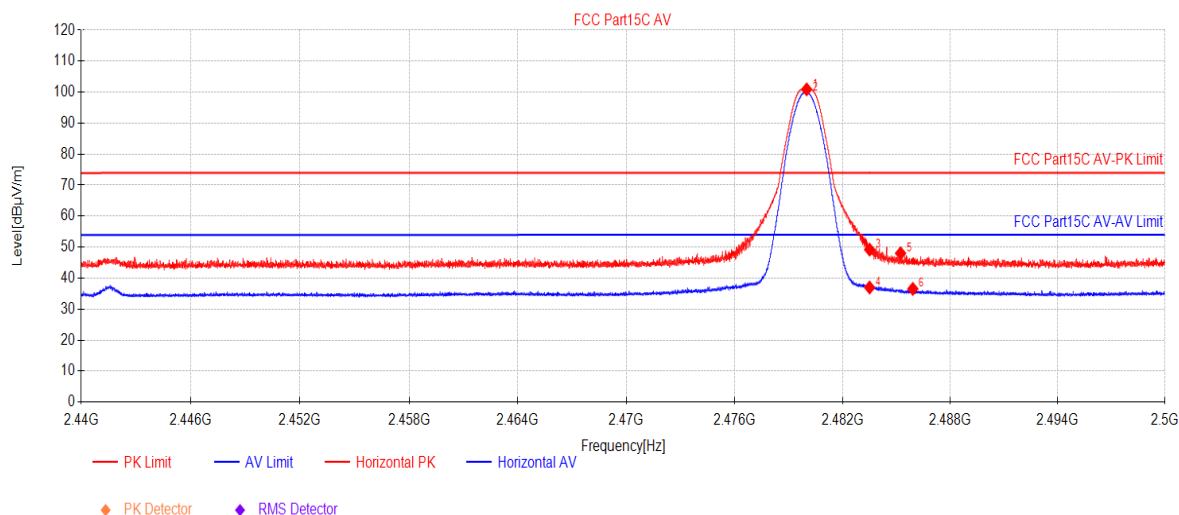
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## BAND\_EDGE BLE1M Channel 00



| Data List |                 |                  |             |                |                |             |             |           |          |
|-----------|-----------------|------------------|-------------|----------------|----------------|-------------|-------------|-----------|----------|
| NO.       | Frequency [MHz] | Reading [dBμV/m] | Factor [dB] | Level [dBμV/m] | Limit [dBμV/m] | Margin [dB] | Height [cm] | Angle [°] | Polarity |
| 1         | 2358.4195       | 30.93            | 3.13        | 34.06          | 54.00          | 19.94       | 305         | 260       | Vertical |
| 2         | 2363.0577       | 42.76            | 3.14        | 45.90          | 74.00          | 28.10       | 305         | 260       | Vertical |
| 3         | 2376.6689       | 43.49            | 3.20        | 46.69          | 74.00          | 27.31       | 305         | 260       | Vertical |
| 4         | 2384.5582       | 30.91            | 3.24        | 34.15          | 54.00          | 19.85       | 305         | 260       | Vertical |
| 5         | 2402.0000       | 90.60            | 3.31        | 93.91          | 73.89          | -20.02      | 305         | 260       | Vertical |
| 6         | 2402.0000       | 89.46            | 3.31        | 92.77          | 53.92          | -38.85      | 305         | 260       | Vertical |

**BAND EDGE BLE1M Channel 39**



| Data List |                 |                  |             |                |                |             |             |           |            |
|-----------|-----------------|------------------|-------------|----------------|----------------|-------------|-------------|-----------|------------|
| NO.       | Frequency [MHz] | Reading [dBμV/m] | Factor [dB] | Level [dBμV/m] | Limit [dBμV/m] | Margin [dB] | Height [cm] | Angle [°] | Polarity   |
| 1         | 2480.0000       | 97.03            | 3.88        | 100.91         | 74.00          | -26.91      | 100         | 65        | Horizontal |
| 2         | 2480.0000       | 96.06            | 3.88        | 99.94          | 54.00          | -45.94      | 100         | 65        | Horizontal |
| 3         | 2483.5000       | 45.30            | 3.91        | 49.21          | 74.00          | 24.79       | 100         | 65        | Horizontal |
| 4         | 2483.5000       | 33.07            | 3.91        | 36.98          | 54.00          | 17.02       | 100         | 65        | Horizontal |
| 5         | 2485.2250       | 44.10            | 3.92        | 48.02          | 74.00          | 25.98       | 100         | 65        | Horizontal |
| 6         | 2485.9075       | 32.61            | 3.93        | 36.54          | 54.00          | 17.46       | 100         | 65        | Horizontal |



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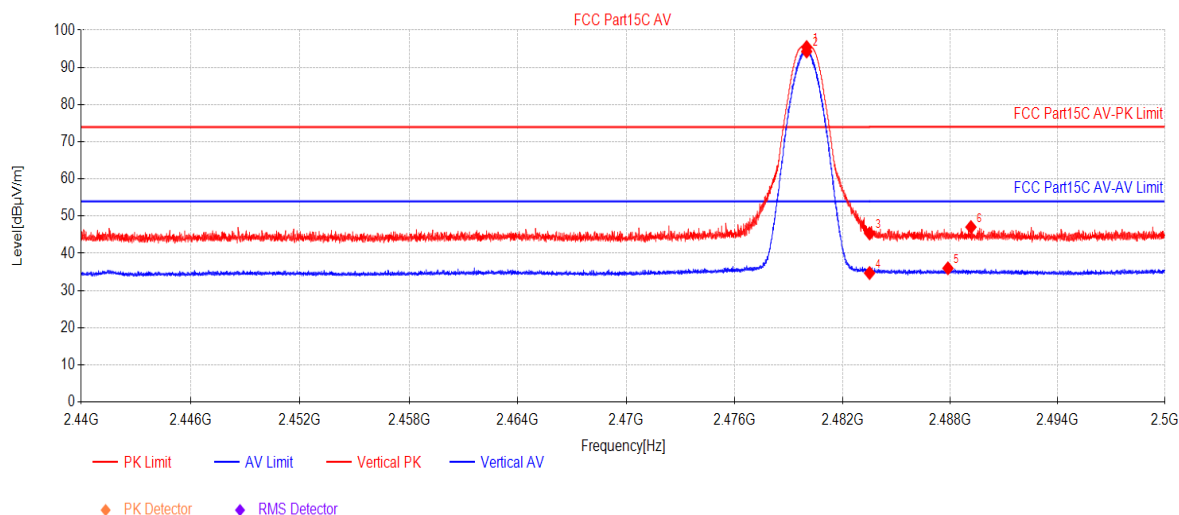


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## BAND\_EDGE BLE1M Channel 39



| Data List |                 |                  |             |                |                |             |             |           |          |
|-----------|-----------------|------------------|-------------|----------------|----------------|-------------|-------------|-----------|----------|
| NO.       | Frequency [MHz] | Reading [dBμV/m] | Factor [dB] | Level [dBμV/m] | Limit [dBμV/m] | Margin [dB] | Height [cm] | Angle [°] | Polarity |
| 1         | 2480.0000       | 91.58            | 3.88        | 95.46          | 74.00          | -21.46      | 370         | 86        | Vertical |
| 2         | 2480.0000       | 90.40            | 3.88        | 94.28          | 54.00          | -40.28      | 370         | 86        | Vertical |
| 3         | 2483.5000       | 41.45            | 3.91        | 45.36          | 74.00          | 28.64       | 370         | 86        | Vertical |
| 4         | 2483.5000       | 30.80            | 3.91        | 34.71          | 54.00          | 19.29       | 370         | 86        | Vertical |
| 5         | 2487.8650       | 32.05            | 3.94        | 35.99          | 54.00          | 18.01       | 370         | 86        | Vertical |
| 6         | 2489.1475       | 43.10            | 3.95        | 47.05          | 74.00          | 26.95       | 370         | 86        | Vertical |

The End