



# FCC RADIO TEST REPORT

**FCC ID** : QXO-AP560H  
**Equipment** : 802.11ax Access Point  
**Brand Name** : Extreme Networks  
**Model Name** : AP560h  
**Applicant** : Extreme Networks, Inc.  
6480 Via Del Oro, San Jose, CA 95119  
**Manufacturer** : Extreme Networks, Inc.  
6480 Via Del Oro, San Jose, CA 95119  
**Standard** : 47 CFR FCC Part 15.247

The product was received on Mar. 13, 2019, and testing was started from Mar. 22, 2019 and completed on Apr. 26, 2019. We, SPORTON INTERNATIONAL INC. EMC & Wireless Communications Laboratory, would like to declare that the tested sample has been evaluated in accordance with the procedures given in ANSI C63.10-2013 and shown compliance with the applicable technical standards.

The report must not be used by the client to claim product certification, approval, or endorsement by TAF or any agency of government.

The test results in this report apply exclusively to the tested model / sample. Without written approval of SPORTON INTERNATIONAL INC. EMC & Wireless Communications Laboratory, the test report shall not be reproduced except in full.

  
Approved by: Cliff Chang

**SPORTON INTERNATIONAL INC. EMC & Wireless Communications Laboratory**  
No. 52, Huaya 1st Rd., Guishan Dist., Taoyuan City, Taiwan (R.O.C.)



## Table of Contents

|                                                                                |           |
|--------------------------------------------------------------------------------|-----------|
| <b>History of this test report.....</b>                                        | <b>3</b>  |
| <b>Summary of Test Result.....</b>                                             | <b>4</b>  |
| <b>1 General Description .....</b>                                             | <b>5</b>  |
| 1.1 Information.....                                                           | 5         |
| 1.2 Testing Applied Standards .....                                            | 9         |
| 1.3 Testing Location Information .....                                         | 9         |
| 1.4 Measurement Uncertainty .....                                              | 9         |
| <b>2 Test Configuration of EUT .....</b>                                       | <b>10</b> |
| 2.1 Test Channel Mode .....                                                    | 10        |
| 2.2 The Worst Case Measurement Configuration.....                              | 11        |
| 2.3 EUT Operation during Test .....                                            | 13        |
| 2.4 Accessories .....                                                          | 13        |
| 2.5 Support Equipment.....                                                     | 14        |
| 2.6 Test Setup Diagram .....                                                   | 16        |
| <b>3 Transmitter Test Result .....</b>                                         | <b>19</b> |
| 3.1 AC Power-line Conducted Emissions .....                                    | 19        |
| 3.2 DTS Bandwidth .....                                                        | 21        |
| 3.3 Maximum Conducted Output Power .....                                       | 22        |
| 3.4 Power Spectral Density .....                                               | 25        |
| 3.5 Emissions in Non-restricted Frequency Bands .....                          | 27        |
| 3.6 Emissions in Restricted Frequency Bands.....                               | 28        |
| <b>4 Test Equipment and Calibration Data .....</b>                             | <b>32</b> |
| <b>Appendix A. Test Results of AC Power-line Conducted Emissions</b>           |           |
| <b>Appendix B. Test Results of DTS Bandwidth</b>                               |           |
| <b>Appendix C. Test Results of Maximum Conducted Output Power</b>              |           |
| <b>Appendix D. Test Results of Power Spectral Density</b>                      |           |
| <b>Appendix E. Test Results of Emissions in Non-restricted Frequency Bands</b> |           |
| <b>Appendix F. Test Results of Emissions in Restricted Frequency Bands</b>     |           |
| <b>Appendix G. Test Photos</b>                                                 |           |
| <b>Photographs of EUT v01</b>                                                  |           |



## History of this test report

TEL : 886-3-656-9065  
FAX : 886-3-656-9085  
Report Template No.: CB Ver1.0

Page Number : 3 of 33  
Issued Date : May 31, 2019  
Report Version : 01



## Summary of Test Result

| Report Clause | Ref Std. Clause | Test Items                                  | Result (PASS/FAIL) | Remark |
|---------------|-----------------|---------------------------------------------|--------------------|--------|
| 1.1.2         | 15.203          | Antenna Requirement                         | PASS               | -      |
| 3.1           | 15.207          | AC Power-line Conducted Emissions           | PASS               | -      |
| 3.2           | 15.247(a)       | DTS Bandwidth                               | PASS               | -      |
| 3.3           | 15.247(b)       | Maximum Conducted Output Power              | PASS               | -      |
| 3.4           | 15.247(e)       | Power Spectral Density                      | PASS               | -      |
| 3.5           | 15.247(d)       | Emissions in Non-restricted Frequency Bands | PASS               | -      |
| 3.6           | 15.247(d)       | Emissions in Restricted Frequency Bands     | PASS               | -      |

**Declaration of Conformity:**

The test results with all measurement uncertainty excluded are presented in accordance with the regulation limits or requirements declared by manufacturers.

**Comments and Explanations:**

1. The test configuration, test mode and test software were written in this test report are declared by the manufacturer.
2. The declared of product specification for EUT presented in the report are provided by the manufacturer, and the manufacturer takes all the responsibilities for the accuracy of product specification.

**Reviewed by: Sam Chen**

**Report Producer: Wendy Pan**



# 1 General Description

## 1.1 Information

### 1.1.1 RF General Information

| Frequency Range (MHz) | Bluetooth Mode | Ch. Frequency (MHz) | Channel Number |
|-----------------------|----------------|---------------------|----------------|
| 2400-2483.5           | LE             | 2402-2480           | 0-39 [40]      |

| Band          | Mode         | BWch (MHz) | Nant |
|---------------|--------------|------------|------|
| 2.4-2.4835GHz | BT-LE(1Mbps) | 1          | 1TX  |

Note:

- ♦ Bluetooth LE uses a GFSK modulation.
- ♦ BWch is the nominal channel bandwidth.
- ♦ Nss-Min is the minimum number of spatial streams.
- ♦ Nant is the number of outputs. e.g., 2(2, 3) means have 2 outputs for port 2 and port 3. 2 means have 2 outputs for port 1 and port 2.



### 1.1.2 Antenna Information

| Ant. | Set | Port |      |           | Brand | Model Name   | Antenna Type  | Connector | Radio             | Gain (dBi) |      |      |        | Beam width |
|------|-----|------|------|-----------|-------|--------------|---------------|-----------|-------------------|------------|------|------|--------|------------|
|      |     | 1TX  | 2TX  | 4TX       |       |              |               |           |                   | 2.4GHz     | 5GHz | BT   | Thread |            |
| 1    | 1   | 1    | 1    | 1         | WNC   | Seahawk 560h | Panel Antenna | I-PEX     | R1-5GHz           | -          | 8.27 | -    | -      | 30/70      |
|      |     | -    | 2    | 2         | WNC   | Seahawk 560h | Panel Antenna | I-PEX     | R1-5GHz           | -          | 8.27 | -    | -      | 30/70      |
|      | 2   | -    | -    | 3         | WNC   | Seahawk 560h | Panel Antenna | I-PEX     | R1-5GHz           | -          | 8.27 | -    | -      | 30/70      |
|      |     | -    | -    | 4         | WNC   | Seahawk 560h | Panel Antenna | I-PEX     | R1-5GHz           | -          | 8.27 | -    | -      | 30/70      |
|      | 1   | R2-1 | R2-1 | R1-4 R2-1 | WNC   | Seahawk 560h | Panel Antenna | I-PEX     | R1-2.4GHz R2-5GHz | 7.89       | 7.93 | -    | -      | 30/70      |
|      |     | -    | R2-2 | R1-3 R2-2 | WNC   | Seahawk 560h | Panel Antenna | I-PEX     | R1-2.4GHz R2-5GHz | 7.89       | 7.93 | -    | -      | 30/70      |
|      | 2   | -    | R1-2 | R1-2 R2-3 | WNC   | Seahawk 560h | Panel Antenna | I-PEX     | R1-2.4GHz R2-5GHz | 7.89       | 7.93 | -    | -      | 30/70      |
|      |     | R1-1 | R1-1 | R1-1 R2-4 | WNC   | Seahawk 560h | Panel Antenna | I-PEX     | R1-2.4GHz R2-5GHz | 7.89       | 7.93 | -    | -      | 30/70      |
| 2    | 1   | 1    | 1    | 1         | WNC   | Seahawk 560h | Panel Antenna | I-PEX     | R1-5GHz           | -          | 6.16 | -    | -      | 70/70      |
|      |     | 1    | 2    | 2         | WNC   | Seahawk 560h | Panel Antenna | I-PEX     | R1-5GHz           | -          | 6.16 | -    | -      | 70/70      |
|      | 2   | -    | -    | 3         | WNC   | Seahawk 560h | Panel Antenna | I-PEX     | R1-5GHz           | -          | 6.16 | -    | -      | 70/70      |
|      |     | -    | -    | 4         | WNC   | Seahawk 560h | Panel Antenna | I-PEX     | R1-5GHz           | -          | 6.16 | -    | -      | 70/70      |
|      | 1   | R2-1 | R2-1 | R1-4 R2-1 | WNC   | Seahawk 560h | Panel Antenna | I-PEX     | R1-2.4GHz R2-5GHz | 6.22       | 6.32 | -    | -      | 70/70      |
|      |     | -    | R2-2 | R1-3 R2-2 | WNC   | Seahawk 560h | Panel Antenna | I-PEX     | R1-2.4GHz R2-5GHz | 6.22       | 6.32 | -    | -      | 70/70      |
|      | 2   | -    | R1-2 | R1-2 R2-3 | WNC   | Seahawk 560h | Panel Antenna | I-PEX     | R1-2.4GHz R2-5GHz | 6.22       | 6.32 | -    | -      | 70/70      |
|      |     | R1-1 | R1-1 | R1-1 R2-4 | WNC   | Seahawk 560h | Panel Antenna | I-PEX     | R1-2.4GHz R2-5GHz | 6.22       | 6.32 | -    | -      | 70/70      |
| 3    | -   | 1    | -    | -         | WNC   | Seahawk 560h | Panel Antenna | I-PEX     | R3                | -          | -    | 2.61 | 2.61   | -          |

Note1: The above information was declared by manufacturer.

Note2: Both Ant.1 and Ant. 2 support transmit and receive functions, but only one of them will be used at one time.

Note3:

**For 2.4GHz function:**

**For IEEE 802.11b/g/n/lax mode (1TX, 2TX, 4TX/4RX):**

For 1TX

Only Port 1 can be use as transmitting antenna.

For 2TX

Port 1 and Port 2 can be use as transmitting antenna.

Port 1 and Port 2 could transmit simultaneously.

For 4TX

Port 1, Port 2, Port 3 and Port 4 can be use as transmitting antenna.

Port 1, Port 2, Port 3 and Port 4 could transmit simultaneously.

For 4RX



Port 1, Port 2, Port 3 and Port 4 can be used as receiving antennas.  
Port 1, Port 2, Port 3 and Port 4 could receive simultaneously.

**For 5GHz function:****For IEEE 802.11a/n/ac/ax mode (1TX, 2TX, 4TX/4RX):**

For 1TX

Only Port 1 can be use as transmitting antenna.

For 2TX

Port 1 and Port 2 can be use as transmitting antenna.

Port 1 and Port 2 could transmit simultaneously.

For 4TX

Port 1, Port 2, Port 3 and Port 4 can be use as transmitting antenna.

Port 1, Port 2, Port 3 and Port 4 could transmit simultaneously.

For 4RX

Port 1, Port 2, Port 3 and Port 4 can be used as receiving antennas.

Port 1, Port 2, Port 3 and Port 4 could receive simultaneously.

**For Bluetooth and Thread mode (1TX/1RX):**

Only Port 1 can be use as transmitting/receiving antenna.

**1.1.3 Mode Test Duty Cycle**

| Mode         | DC   | DCF(dB) | T(s) | VBW(Hz) $\geq 1/T$ |
|--------------|------|---------|------|--------------------|
| BT-LE(1Mbps) | 0.64 | 1.938   | 400u | 3k                 |

**1.1.4 EUT Operational Condition**

|                              |                                     |                              |                          |                |
|------------------------------|-------------------------------------|------------------------------|--------------------------|----------------|
| <b>EUT Power Type</b>        | From PoE                            |                              |                          |                |
| <b>Function</b>              | <input checked="" type="checkbox"/> | Point-to-multipoint          | <input type="checkbox"/> | Point-to-point |
| <b>Test Software Version</b> | accessMtool 3.0.0.6                 |                              |                          |                |
| <b>Support Mode</b>          | <input checked="" type="checkbox"/> | LE 1M PHY: 1 Mb/s            |                          |                |
|                              | <input type="checkbox"/>            | LE Coded PHY (S=2): 500 Kb/s |                          |                |
|                              | <input type="checkbox"/>            | LE Coded PHY (S=8): 125 Kb/s |                          |                |
|                              | <input type="checkbox"/>            | LE 2M PHY: 2 Mb/s            |                          |                |

Note: The above information was declared by manufacturer.

**1.1.5 Table for Multiple Listing**

1.The EUT has three radios, the information as following table:

| Radio | Function    |           |                  |
|-------|-------------|-----------|------------------|
|       | WLAN 2.4GHz | WLAN 5GHz | Bluetooth/Thread |
| 1     | V           | V         | -                |
| 2     | -           | V         | -                |
| 3     | -           | -         | V                |

2.Table for EUT support function

| Function | Support Type                                | Support Band                                    |
|----------|---------------------------------------------|-------------------------------------------------|
| AP       | Master                                      | WLAN 2.4GHz/Bluetooth/Thread/WLAN 5GHz Band 1~4 |
| Client   | Slave without Radar Detection (Sensor Mode) | WLAN 2.4GHz/Bluetooth/Thread/WLAN 5GHz Band 1+4 |
| Bridge   | Master                                      | WLAN 2.4GHz/Bluetooth/Thread/WLAN 5GHz Band 1+4 |
| Mesh     | Master                                      | WLAN 2.4GHz/Bluetooth/Thread/WLAN 5GHz Band 1+4 |

Note: 1.The above information was declared by manufacturer.

2.Only the AP mode was tested and recorded in this test report that is designated by the manufacturer.



## 1.2 Testing Applied Standards

According to the specifications of the manufacturer, the EUT must comply with the requirements of the following standards:

- ♦ 47 CFR FCC Part 15
- ♦ ANSI C63.10-2013
- ♦ FCC KDB 558074 D01 v05r02

## 1.3 Testing Location Information

| Testing Location                    |        |                                                                                  |                      |                      |
|-------------------------------------|--------|----------------------------------------------------------------------------------|----------------------|----------------------|
| <input type="checkbox"/>            | HWA YA | ADD : No. 52, Huaya 1st Rd., Guishan Dist., Taoyuan City, Taiwan (R.O.C.)        | TEL : 886-3-327-3456 | FAX : 886-3-327-0973 |
| <input checked="" type="checkbox"/> | JHUBEI | ADD : No.8, Lane 724, Bo-ai St., Jhubei City, HsinChu County 302, Taiwan, R.O.C. | TEL : 886-3-656-9065 | FAX : 886-3-656-9085 |

| Test Condition | Test Site No. | Test Engineer | Test Environment             | Test Date                     |
|----------------|---------------|---------------|------------------------------|-------------------------------|
| RF Conducted   | TH01-CB       | Eddie Weng    | 21~23.5°C / 51~56%           | Mar. 25, 2019 ~ Apr. 17, 2019 |
| Radiated <1GHz | 03CH01-CB     | Bruce Yang    | 22~24°C / 50~60%             | Mar. 22, 2019                 |
| Radiated >1GHz | 03CH01-CB     | Justin Lin    | 22~24°C / 50~60%             | Mar. 22, 2019 ~ Apr. 26, 2019 |
| AC Conduction  | CO01-CB       | Wei Li        | 23.23~24.84°C / 58.12~58.75% | Mar. 25, 2019                 |

Test site Designation No. TW0006 with FCC.

Test site registered number IC 4086B with Industry Canada.

## 1.4 Measurement Uncertainty

ISO/IEC 17025 requires that an estimate of the measurement uncertainties associated with the emissions test results be included in the report. The measurement uncertainties given below are based on a 95% confidence level (based on a coverage factor (k=2))

| Test Items                           | Uncertainty            | Remark                   |
|--------------------------------------|------------------------|--------------------------|
| Conducted Emission (150kHz ~ 30MHz)  | 2.0 dB                 | Confidence levels of 95% |
| Radiated Emission (30MHz ~ 1,000MHz) | 3.6 dB                 | Confidence levels of 95% |
| Radiated Emission (1GHz ~ 18GHz)     | 3.7 dB                 | Confidence levels of 95% |
| Radiated Emission (18GHz ~ 40GHz)    | 3.5 dB                 | Confidence levels of 95% |
| Conducted Emission                   | 1.7 dB                 | Confidence levels of 95% |
| Output Power Measurement             | 1.33 dB                | Confidence levels of 95% |
| Power Density Measurement            | 1.27 dB                | Confidence levels of 95% |
| Bandwidth Measurement                | 9.74 x10 <sup>-8</sup> | Confidence levels of 95% |



## **2 Test Configuration of EUT**

### **2.1 Test Channel Mode**

| <b>Mode</b>      | <b>PowerSetting</b> |
|------------------|---------------------|
| BT-LE(1Mbps)_1TX | -                   |
| 2402MHz          | Default             |
| 2440MHz          | Default             |
| 2480MHz          | Default             |

## 2.2 The Worst Case Measurement Configuration

| The Worst Case Mode for Following Conformance Tests                                                                                              |                                                          |                            |                            |                        |                     |         |         |                          |                          |
|--------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------|----------------------------|----------------------------|------------------------|---------------------|---------|---------|--------------------------|--------------------------|
| <b>Tests Item</b>                                                                                                                                | AC power-line conducted emissions                        |                            |                            |                        |                     |         |         |                          |                          |
| <b>Condition</b>                                                                                                                                 | AC power-line conducted measurement for line and neutral |                            |                            |                        |                     |         |         |                          |                          |
| <b>Operating Mode</b>                                                                                                                            | Normal Link                                              |                            |                            |                        |                     |         |         |                          |                          |
|                                                                                                                                                  | Radio 1 with 2.4GHz function                             | Radio 1 with 5GHz function | Radio 2 with 5GHz function | Radio 3 with Bluetooth | Radio 3 with Thread | EUT GE1 | EUT GE2 | PoE connect with EUT GE1 | PoE connect with EUT GE2 |
| 1                                                                                                                                                | ●<br>(Ant.1)                                             | -                          | ●<br>(Ant.1)               | ●<br>(Ant.3)           | -                   | ●       | ●       | ●                        | -                        |
| 2                                                                                                                                                | ●<br>(Ant.2)                                             | -                          | ●<br>(Ant.2)               | ●<br>(Ant.3)           | -                   | ●       | ●       | ●                        | -                        |
| 3                                                                                                                                                | -                                                        | ●<br>(Ant.1)               | ●<br>(Ant.1)               | ●<br>(Ant.3)           | -                   | ●       | ●       | ●                        | -                        |
| 4                                                                                                                                                | -                                                        | ●<br>(Ant.2)               | ●<br>(Ant.2)               | ●<br>(Ant.3)           | -                   | ●       | ●       | ●                        | -                        |
| Mode 2 has been evaluated to be the worst case among Mode 1~4, thus measurement for Mode 5~6 of Thread function will follow this same test mode. |                                                          |                            |                            |                        |                     |         |         |                          |                          |
| 5                                                                                                                                                | ●<br>(Ant.2)                                             | -                          | ●<br>(Ant.2)               | -                      | ●<br>(Ant.3)        | ●       | ●       | ●                        | -                        |
| 6                                                                                                                                                | -                                                        | ●<br>(Ant.2)               | ●<br>(Ant.2)               | -                      | ●<br>(Ant.3)        | ●       | ●       | ●                        | -                        |
| Mode 2 has been evaluated to be the worst case among Mode 1~6, thus measurement for Mode 7 for another PoE port will follow this same test mode. |                                                          |                            |                            |                        |                     |         |         |                          |                          |
| 7                                                                                                                                                | ●<br>(Ant.2)                                             | -                          | ●<br>(Ant.2)               | ●<br>(Ant.3)           | -                   | ●       | ●       | -                        | ●                        |
| Mode 2 generated the worst test result, so it was recorded in this report.                                                                       |                                                          |                            |                            |                        |                     |         |         |                          |                          |

| The Worst Case Mode for Following Conformance Tests |                                                                                                                          |
|-----------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------|
| <b>Tests Item</b>                                   | DTS Bandwidth<br>Maximum Conducted Output Power<br>Power Spectral Density<br>Emissions in Non-restricted Frequency Bands |
| <b>Test Condition</b>                               | Conducted measurement at transmit chains                                                                                 |

| <b>The Worst Case Mode for Following Conformance Tests</b>                                                                                       |                                                                                                                                                                                                                                                     |                            |                            |                        |                     |         |         |                          |                          |
|--------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------|----------------------------|------------------------|---------------------|---------|---------|--------------------------|--------------------------|
| <b>Tests Item</b>                                                                                                                                | Emissions in Restricted Frequency Bands                                                                                                                                                                                                             |                            |                            |                        |                     |         |         |                          |                          |
| <b>Test Condition</b>                                                                                                                            | Radiated measurement<br>If EUT consist of multiple antenna assembly (multiple antenna are used in EUT regardless of spatial multiplexing MIMO configuration), the radiated test should be performed with highest antenna gain of each antenna type. |                            |                            |                        |                     |         |         |                          |                          |
| <b>Operating Mode &lt; 1GHz</b>                                                                                                                  | Normal Link                                                                                                                                                                                                                                         |                            |                            |                        |                     |         |         |                          |                          |
|                                                                                                                                                  | Radio 1 with 2.4GHz function                                                                                                                                                                                                                        | Radio 1 with 5GHz function | Radio 2 with 5GHz function | Radio 3 with Bluetooth | Radio 3 with Thread | EUT GE1 | EUT GE2 | PoE connect with EUT GE1 | PoE connect with EUT GE2 |
|                                                                                                                                                  | 1                                                                                                                                                                                                                                                   | ●<br>(Ant.1)               | -                          | ●<br>(Ant.1)           | ●<br>(Ant.3)        | -       | ●       | ●                        | ●                        |
|                                                                                                                                                  | 2                                                                                                                                                                                                                                                   | ●<br>(Ant.2)               | -                          | ●<br>(Ant.2)           | ●<br>(Ant.3)        | -       | ●       | ●                        | ●                        |
|                                                                                                                                                  | 3                                                                                                                                                                                                                                                   | -                          | ●<br>(Ant.1)               | ●<br>(Ant.1)           | ●<br>(Ant.3)        | -       | ●       | ●                        | ●                        |
|                                                                                                                                                  | 4                                                                                                                                                                                                                                                   | -                          | ●<br>(Ant.2)               | ●<br>(Ant.2)           | ●<br>(Ant.3)        | -       | ●       | ●                        | ●                        |
| Mode 4 has been evaluated to be the worst case among Mode 1~4, thus measurement for Mode 5~6 of Thread function will follow this same test mode. |                                                                                                                                                                                                                                                     |                            |                            |                        |                     |         |         |                          |                          |
| 5                                                                                                                                                | ●<br>(Ant.2)                                                                                                                                                                                                                                        | -                          | ●<br>(Ant.2)               | -                      | ●<br>(Ant.3)        | ●       | ●       | ●                        | -                        |
| 6                                                                                                                                                | -                                                                                                                                                                                                                                                   | ●<br>(Ant.2)               | ●<br>(Ant.2)               | -                      | ●<br>(Ant.3)        | ●       | ●       | ●                        | -                        |
| Mode 4 has been evaluated to be the worst case among Mode 1~6, thus measurement for Mode 7 for another PoE port will follow this same test mode. |                                                                                                                                                                                                                                                     |                            |                            |                        |                     |         |         |                          |                          |
| 7                                                                                                                                                | -                                                                                                                                                                                                                                                   | ●<br>(Ant.2)               | ●<br>(Ant.2)               | ●<br>(Ant.3)           | -                   | ●       | ●       | -                        | ●                        |
| For operating mode 4 is the worst case and it was record in this test report.                                                                    |                                                                                                                                                                                                                                                     |                            |                            |                        |                     |         |         |                          |                          |
| <b>Operating Mode &gt; 1GHz</b>                                                                                                                  | CTX                                                                                                                                                                                                                                                 |                            |                            |                        |                     |         |         |                          |                          |
| 1                                                                                                                                                | EUT in Y axis                                                                                                                                                                                                                                       |                            |                            |                        |                     |         |         |                          |                          |



| The Worst Case Mode for Following Conformance Tests                                   |                                                                         |
|---------------------------------------------------------------------------------------|-------------------------------------------------------------------------|
| Tests Item                                                                            | Simultaneous Transmission Analysis - Co-location RF Exposure Evaluation |
| Operating Mode                                                                        |                                                                         |
| 1                                                                                     | WLAN 2.4GHz (Radio 1) + WLAN 5GHz (Radio 2) + Bluetooth (Radio 3)       |
| 2                                                                                     | WLAN 5GHz (Radio 1) + WLAN 5GHz (Radio 2) + Bluetooth (Radio 3)         |
| 3                                                                                     | WLAN 2.4GHz (Radio 1) + WLAN 5GHz (Radio 2) + Thread (Radio 3)          |
| 4                                                                                     | WLAN 5GHz (Radio 1) + WLAN 5GHz (Radio 2) + Thread (Radio 3)            |
| Refer to Sporton Test Report No.: FA8O1739-09 for Co-location RF Exposure Evaluation. |                                                                         |

Note 1:The EUT can only be used at Y axis.

Note 2:The PoE is for measurement only, would not be marketed.

The detail information as below:

| Support Unit | Brand     | Model           |
|--------------|-----------|-----------------|
| PoE          | Microsemi | PD-9001GR/AT/AC |

## 2.3 EUT Operation during Test

### For Normal Link:

During the test, the EUT operation to normal function.

### For CTX Mode:

The EUT was programmed to be in continuously transmitting mode.

## 2.4 Accessories

N/A



## 2.5 Support Equipment

For AC Conduction:

| Support Equipment |                                |                  |                 |            |
|-------------------|--------------------------------|------------------|-----------------|------------|
| No.               | Equipment                      | Brand Name       | Model Name      | FCC ID     |
| A                 | PoE                            | Microsemi        | PD-9001GR/AT/AC | N/A        |
| B                 | GE1 PC                         | DELL             | T3400           | N/A        |
| C                 | GE2 NB                         | DELL             | E6430           | N/A        |
| D                 | WLAN2.4G NB                    | DELL             | E6430           | N/A        |
| E                 | WLAN5G NB                      | DELL             | E6430           | N/A        |
| F                 | 802.11ax Access Point (Device) | Extreme Networks | AP505i          | QXO-AP505I |
| G                 | Device NB                      | DELL             | E6430           | N/A        |

For Radiated (below 1GHz):

| Support Equipment |                                |                  |                 |            |
|-------------------|--------------------------------|------------------|-----------------|------------|
| No.               | Equipment                      | Brand Name       | Model Name      | FCC ID     |
| A                 | GE1 PC                         | DELL             | T3400           | N/A        |
| B                 | WLAN2.4G NB                    | Apple            | Mac Book        | N/A        |
| C                 | WLAN5G NB                      | Apple            | Mac Book        | N/A        |
| D                 | Device NB                      | DELL             | E4300           | N/A        |
| E                 | GE2 NB                         | DELL             | E4300           | N/A        |
| F                 | 802.11ax Access Point (Device) | Extreme Networks | AP505i          | QXO-AP505I |
| G                 | PoE                            | Microsemi        | PD-9001GR/AT/AC | N/A        |

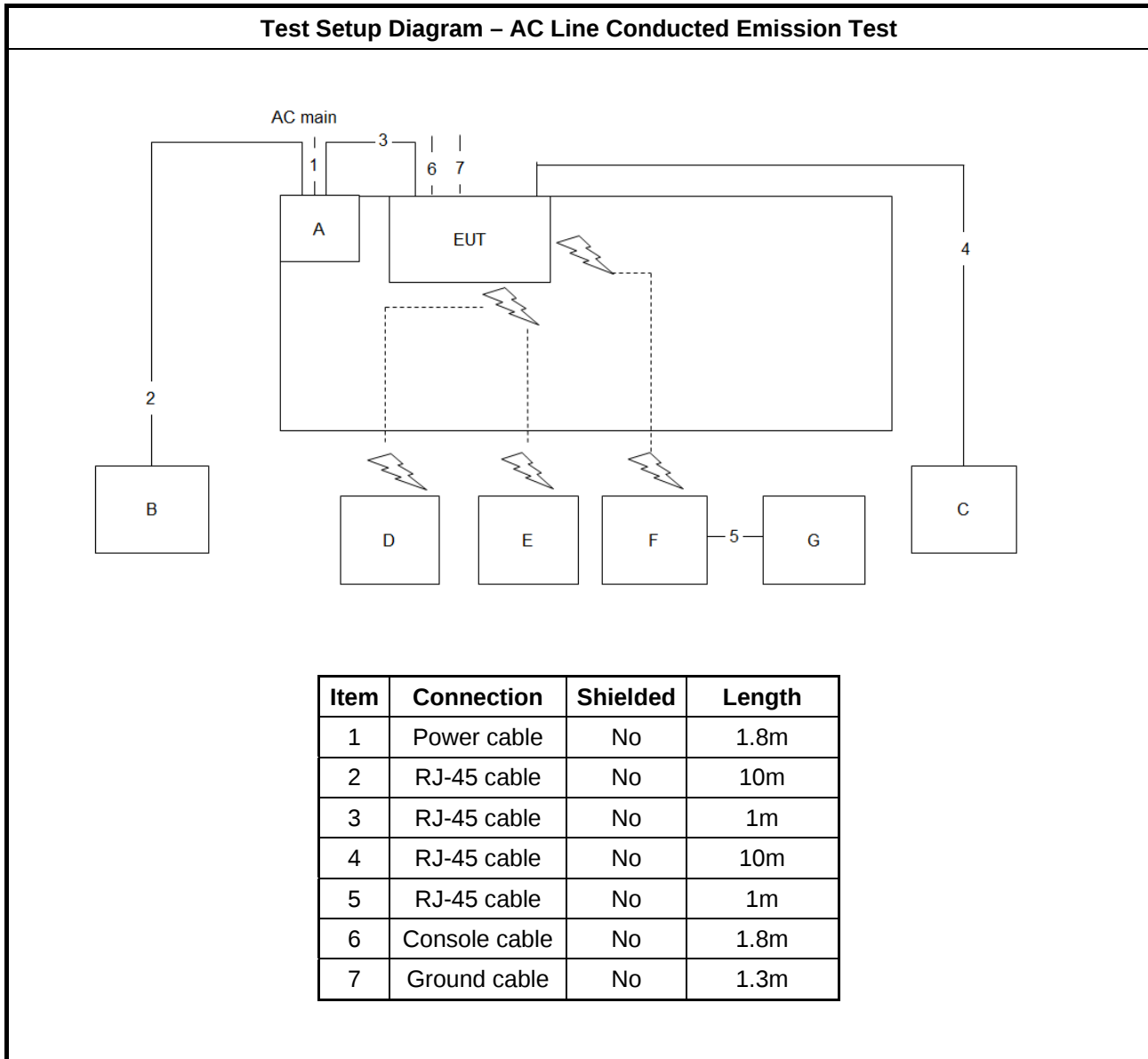
**For Radiated (above 1GHz):**

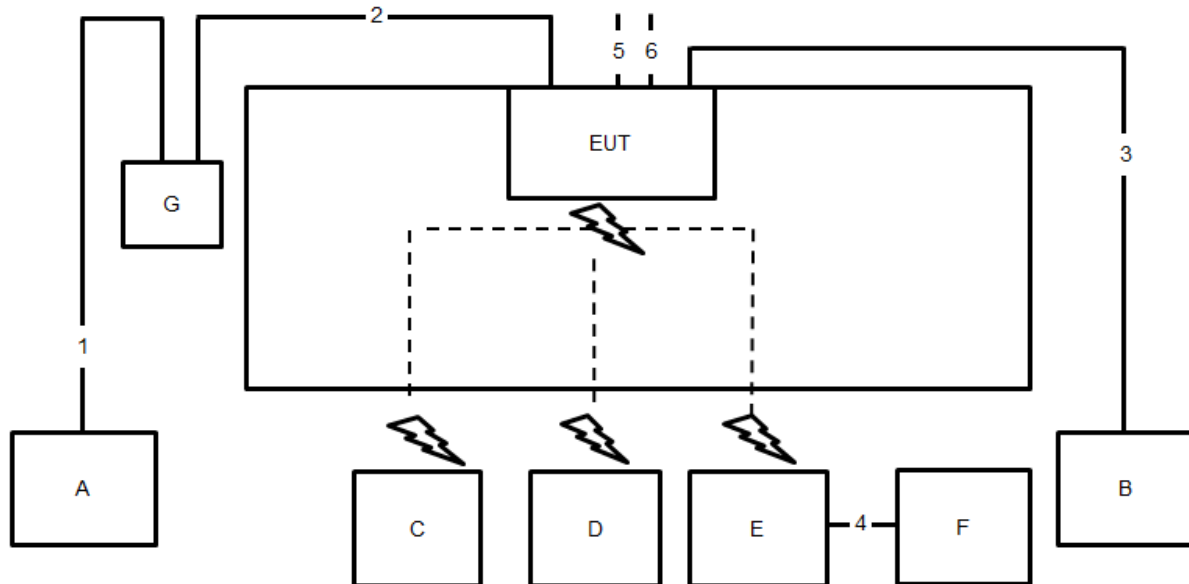
| Support Equipment |           |            |                 |        |
|-------------------|-----------|------------|-----------------|--------|
| No.               | Equipment | Brand Name | Model Name      | FCC ID |
| A                 | Notebook  | DELL       | E4300           | N/A    |
| E                 | PoE       | Microsemi  | PD-9001GR/AT/AC | N/A    |

**For RF Conducted:**

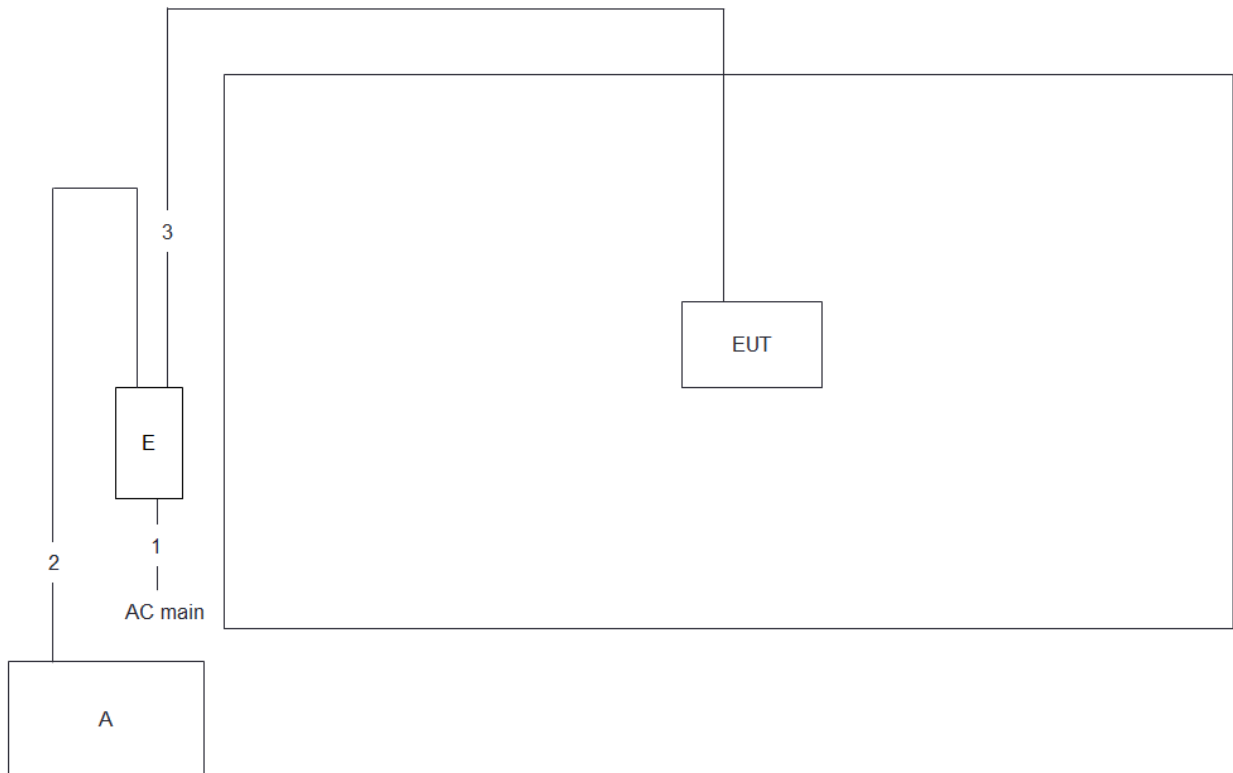
| Support Equipment |           |            |                 |        |
|-------------------|-----------|------------|-----------------|--------|
| No.               | Equipment | Brand Name | Model Name      | FCC ID |
| A                 | Notebook  | DELL       | E4300           | N/A    |
| B                 | PoE       | Microsemi  | PD-9001GR/AT/AC | N/A    |

## 2.6 Test Setup Diagram



**Test Setup Diagram - Radiated Test < 1GHz**


| Item | Connection    | Shielded | Length |
|------|---------------|----------|--------|
| 1    | RJ-45 cable   | No       | 1.5m   |
| 2    | RJ-45 cable   | No       | 10m    |
| 3    | RJ-45 cable   | No       | 10m    |
| 4    | RJ-45 cable   | No       | 10m    |
| 5    | Console cable | No       | 1.5m   |
| 6    | Ground cable  | No       | 1.5m   |

**Test Setup Diagram - Radiated Test > 1GHz**


| Item | Connection  | Shielded | Length |
|------|-------------|----------|--------|
| 1    | Power cable | No       | 1.5m   |
| 2    | RJ-45 cable | No       | 1.5m   |
| 3    | RJ-45 cable | No       | 10m    |



### 3 Transmitter Test Result

#### 3.1 AC Power-line Conducted Emissions

##### 3.1.1 AC Power-line Conducted Emissions Limit

| AC Power-line Conducted Emissions Limit |            |           |
|-----------------------------------------|------------|-----------|
| Frequency Emission (MHz)                | Quasi-Peak | Average   |
| 0.15-0.5                                | 66 - 56 *  | 56 - 46 * |
| 0.5-5                                   | 56         | 46        |
| 5-30                                    | 60         | 50        |

Note 1: \* Decreases with the logarithm of the frequency.

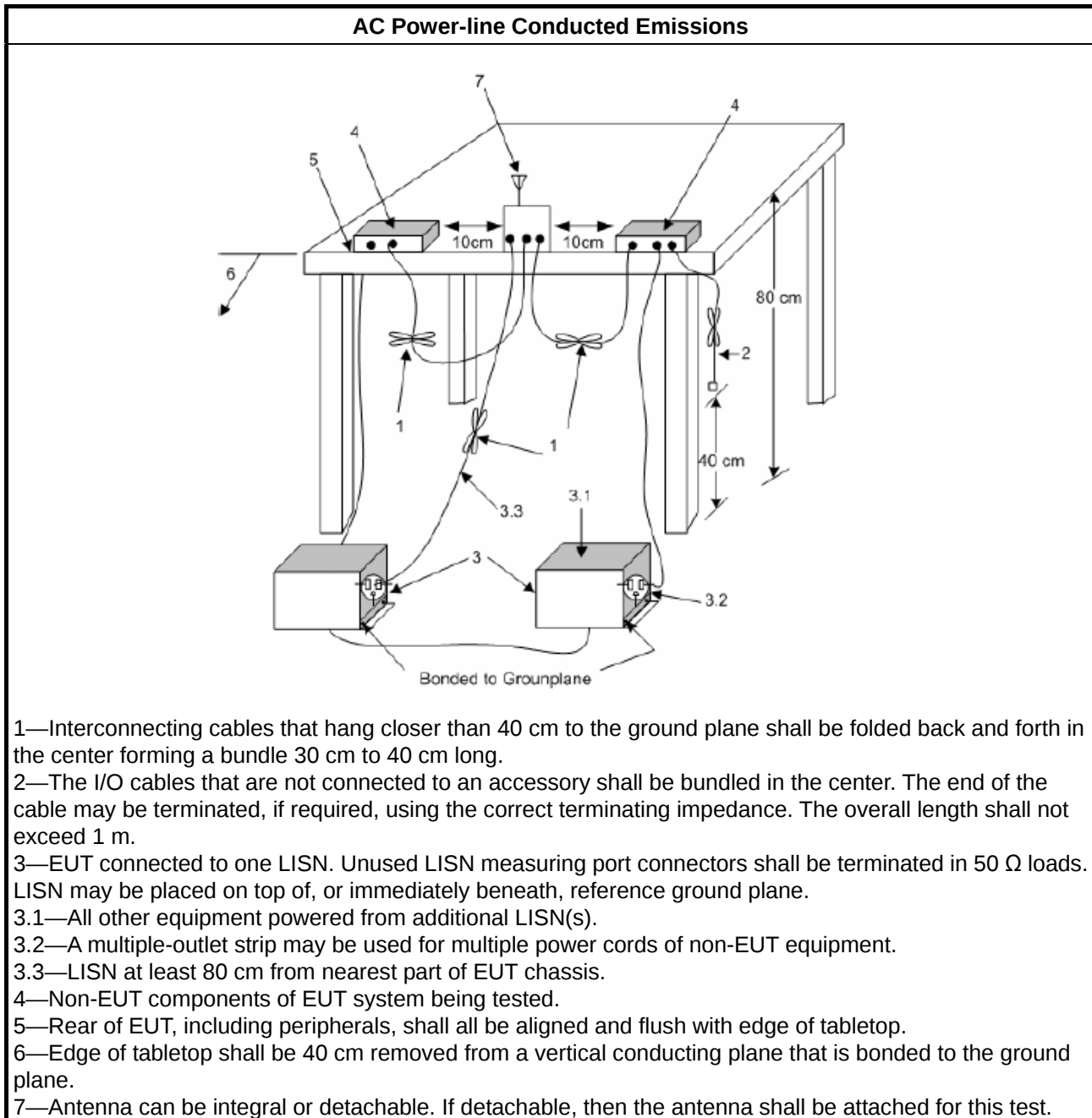
##### 3.1.2 Measuring Instruments

Refer a test equipment and calibration data table in this test report.

##### 3.1.3 Test Procedures

| Test Method                                                                    |
|--------------------------------------------------------------------------------|
| ▪ Refer as ANSI C63.10-2013, clause 6.2 for AC power-line conducted emissions. |

### 3.1.4 Test Setup



### 3.1.5 Test Result of AC Power-line Conducted Emissions

Refer as Appendix A

## 3.2 DTS Bandwidth

### 3.2.1 6dB Bandwidth Limit

| 6dB Bandwidth Limit                                 |                                |
|-----------------------------------------------------|--------------------------------|
| <b>Systems using digital modulation techniques:</b> |                                |
| ▪                                                   | 6 dB bandwidth $\geq$ 500 kHz. |

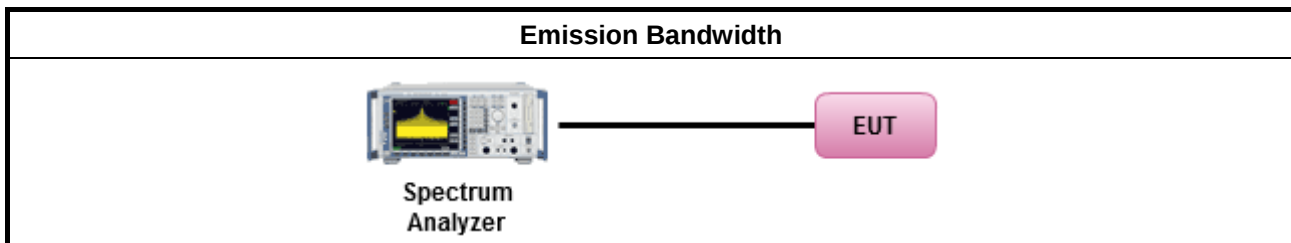
### 3.2.2 Measuring Instruments

Refer a test equipment and calibration data table in this test report.

### 3.2.3 Test Procedures

| Test Method                         |                                                                                                     |
|-------------------------------------|-----------------------------------------------------------------------------------------------------|
| ▪                                   | For the emission bandwidth shall be measured using one of the options below:                        |
| <input checked="" type="checkbox"/> | Refer as FCC KDB 558074, clause 8.2 & C63.10 clause 11.8.1 Option 1 for 6 dB bandwidth measurement. |
| <input type="checkbox"/>            | Refer as FCC KDB 558074, clause 8.2 & C63.10 clause 11.8.2 Option 2 for 6 dB bandwidth measurement. |
| <input type="checkbox"/>            | Refer as ANSI C63.10, clause 6.9.1 for occupied bandwidth testing.                                  |

### 3.2.4 Test Setup



### 3.2.5 Test Result of Emission Bandwidth

Refer as Appendix B

### 3.3 Maximum Conducted Output Power

#### 3.3.1 Maximum Conducted Output Power Limit

| Maximum Conducted Output Power Limit                                                                                                                              |                                                                                                      |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------|
|                                                                                                                                                                   | ▪ If $G_{TX} \leq 6$ dBi, then $P_{Out} \leq 30$ dBm (1 W)                                           |
|                                                                                                                                                                   | ▪ Point-to-multipoint systems (P2M): If $G_{TX} > 6$ dBi, then $P_{Out} = 30 - (G_{TX} - 6)$ dBm     |
|                                                                                                                                                                   | ▪ Point-to-point systems (P2P): If $G_{TX} > 6$ dBi, then $P_{Out} = 30 - (G_{TX} - 6)/3$ dBm        |
|                                                                                                                                                                   | ▪ Smart antenna system (SAS):                                                                        |
|                                                                                                                                                                   | - Single beam: If $G_{TX} > 6$ dBi, then $P_{Out} = 30 - (G_{TX} - 6)/3$ dBm                         |
|                                                                                                                                                                   | - Overlap beam: If $G_{TX} > 6$ dBi, then $P_{Out} = 30 - (G_{TX} - 6)/3$ dBm                        |
|                                                                                                                                                                   | - Aggregate power on all beams: If $G_{TX} > 6$ dBi, then $P_{Out} = 30 - (G_{TX} - 6)/3 + 8$ dB dBm |
| $P_{Out}$ = maximum peak conducted output power or maximum conducted output power in dBm,<br>$G_{TX}$ = the maximum transmitting antenna directional gain in dBi. |                                                                                                      |

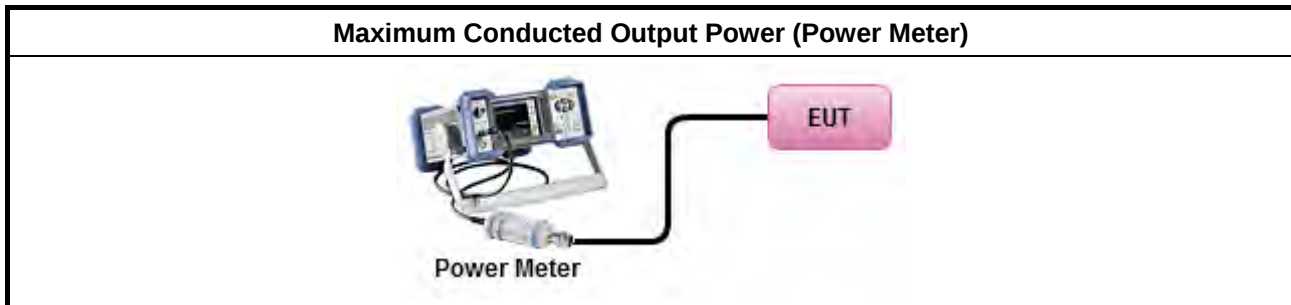
#### 3.3.2 Measuring Instruments

Refer a test equipment and calibration data table in this test report.

### 3.3.3 Test Procedures

| Test Method                                                                                                                                                                                                                                                                                                                                                            |                                                                                                                           |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------|
| <ul style="list-style-type: none"> <li>Maximum Peak Conducted Output Power</li> </ul>                                                                                                                                                                                                                                                                                  |                                                                                                                           |
| <input type="checkbox"/>                                                                                                                                                                                                                                                                                                                                               | Refer as FCC KDB 558074, clause 8.3.1.1 & C63.10 clause 11.9.1.1 (RBW ≥ EBW method).                                      |
| <input type="checkbox"/>                                                                                                                                                                                                                                                                                                                                               | Refer as FCC KDB 558074, clause 8.3.1.3 & C63.10 clause 11.9.1.3 (peak power meter).                                      |
| <ul style="list-style-type: none"> <li>Maximum Conducted Output Power</li> </ul>                                                                                                                                                                                                                                                                                       |                                                                                                                           |
| [duty cycle ≥ 98% or external video / power trigger]                                                                                                                                                                                                                                                                                                                   |                                                                                                                           |
| <input type="checkbox"/>                                                                                                                                                                                                                                                                                                                                               | Refer as FCC KDB 558074, clause 8.3.2.2 & C63.10 clause 11.9.2.2.2 Method AVGSA-1.                                        |
| <input type="checkbox"/>                                                                                                                                                                                                                                                                                                                                               | Refer as FCC KDB 558074, clause 8.3.2.2 & C63.10 clause 11.9.2.2.3 Method AVGSA-1A. (alternative)                         |
| duty cycle < 98% and average over on/off periods with duty factor                                                                                                                                                                                                                                                                                                      |                                                                                                                           |
| <input type="checkbox"/>                                                                                                                                                                                                                                                                                                                                               | Refer as FCC KDB 558074, clause 8.3.2.2 & C63.10 clause 11.9.2.2.4 Method AVGSA-2.                                        |
| <input type="checkbox"/>                                                                                                                                                                                                                                                                                                                                               | Refer as FCC KDB 558074, clause 8.3.2.2 & C63.10 clause 11.9.2.2.5 Method AVGSA-2A (alternative)                          |
| <input type="checkbox"/>                                                                                                                                                                                                                                                                                                                                               | Refer as FCC KDB 558074, clause 8.3.2.2 & C63.10 clause 11.9.2.2.6 Method AVGSA-3                                         |
| <input type="checkbox"/>                                                                                                                                                                                                                                                                                                                                               | Refer as FCC KDB 558074, clause 8.3.2.2 & C63.10 clause 11.9.2.2.7 Method AVGSA-3A (alternative)                          |
| Measurement using a power meter (PM)                                                                                                                                                                                                                                                                                                                                   |                                                                                                                           |
| <input checked="" type="checkbox"/>                                                                                                                                                                                                                                                                                                                                    | Refer as FCC KDB 558074, clause 8.3.2.3 & C63.10 clause 11.9.2.3.1 Method AVGPM (using an RF average power meter).        |
| <input type="checkbox"/>                                                                                                                                                                                                                                                                                                                                               | Refer as FCC KDB 558074, clause 8.3.2.3 & C63.10 clause 11.9.2.3.2 Method AVGPM-G (using an gate RF average power meter). |
| <ul style="list-style-type: none"> <li>For conducted measurement.</li> </ul>                                                                                                                                                                                                                                                                                           |                                                                                                                           |
| <ul style="list-style-type: none"> <li>If the EUT supports multiple transmit chains using options given below:<br/>Refer as FCC KDB 662911, In-band power measurements. Using the measure-and-sum approach, measured all transmit ports individually. Sum the power (in linear power units e.g., mW) of all ports for each individual sample and save them.</li> </ul> |                                                                                                                           |
| <ul style="list-style-type: none"> <li>If multiple transmit chains, EIRP calculation could be following as methods:<br/> <math display="block">P_{total} = P_1 + P_2 + \dots + P_n</math> (calculated in linear unit [mW] and transfer to log unit [dBm])<br/> <math display="block">EIRP_{total} = P_{total} + DG</math> </li> </ul>                                  |                                                                                                                           |

### 3.3.4 Test Setup



### 3.3.5 Test Result of Maximum Conducted Output Power

Refer as Appendix C



### 3.4 Power Spectral Density

#### 3.4.1 Power Spectral Density Limit

| Power Spectral Density Limit                     |
|--------------------------------------------------|
| ▪ Power Spectral Density (PSD) $\leq 8$ dBm/3kHz |

#### 3.4.2 Measuring Instruments

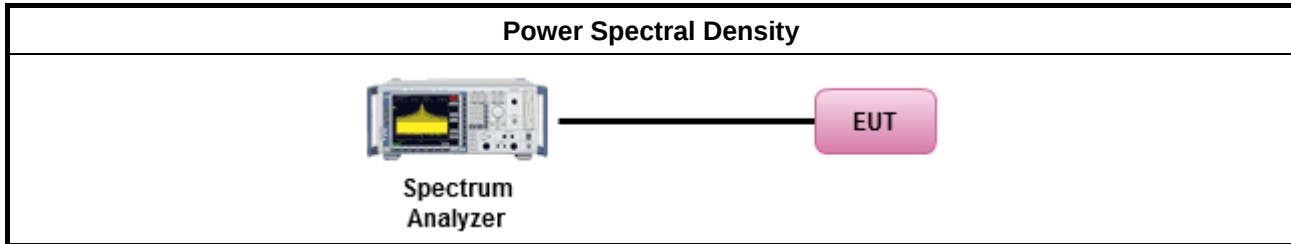
Refer a test equipment and calibration data table in this test report.

#### 3.4.3 Test Procedures

| Test Method                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| ▪ Peak power spectral density procedures that the same method as used to determine the conducted output power. If maximum peak conducted output power was measured to demonstrate compliance to the output power limit, then the peak PSD procedure below (Method PKPSD) shall be used. If maximum conducted output power was measured to demonstrate compliance to the output power limit, then one of the average PSD procedures shall be used, as applicable based on the following criteria (the peak PSD procedure is also an acceptable option). |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| <input checked="" type="checkbox"/>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | Refer as FCC KDB 558074, clause 8.4 & C63.10 clause 11.10.2 Method PKPSD.<br>[duty cycle $\geq 98\%$ or external video / power trigger]                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| <input type="checkbox"/>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Refer as FCC KDB 558074, clause 8.4 & C63.10 clause 11.10.3 Method AVGPS-1.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| <input type="checkbox"/>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Refer as FCC KDB 558074, clause 8.4 & C63.10 clause 11.10.5 Method AVGPS-2.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| <input type="checkbox"/>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Refer as FCC KDB 558074, clause 8.4 & C63.10 clause 11.10.7 Method AVGPS-3.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| duty cycle $< 98\%$ and average over on/off periods with duty factor                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| <input type="checkbox"/>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Refer as FCC KDB 558074, clause 8.4 & C63.10 clause 11.10.4 Method AVGPS-1A.<br>(alternative).                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| <input type="checkbox"/>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Refer as FCC KDB 558074, clause 8.4 & C63.10 clause 11.10.6 Method AVGPS-2A.<br>(alternative)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| <input type="checkbox"/>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Refer as FCC KDB 558074, clause 8.4 & C63.10 clause 11.10.8 Method AVGPS-3A.<br>(alternative)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| ▪ For conducted measurement.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| ▪ If The EUT supports multiple transmit chains using options given below:                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| <input checked="" type="checkbox"/>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | Option 1: Measure and sum the spectra across the outputs. Refer as FCC KDB 662911, In-band power spectral density (PSD). Sample all transmit ports simultaneously using a spectrum analyzer for each transmit port. Where the trace bin-by-bin of each transmit port summing can be performed. (i.e., in the first spectral bin of output 1 is summed with that in the first spectral bin of output 2 and that from the first spectral bin of output 3, and so on up to the NTX output to obtain the value for the first frequency bin of the summed spectrum.). Add up the amplitude (power) values for the different transmit chains and use this as the new data trace. |
| <input type="checkbox"/>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Option 2: Measure and sum spectral maxima across the outputs. With this technique, spectra are measured at each output of the device at the required resolution bandwidth. The maximum value (peak) of each spectrum is determined. These maximum values are then summed mathematically in linear power units across the outputs. These operations shall be performed separately over frequency spans that have different out-of-band or spurious emission limits,                                                                                                                                                                                                         |

- |  |                                                                                                                                                                                                                                                                                                                                                                                              |
|--|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|  | <input type="checkbox"/> Option 3: Measure and add $10 \log(N)$ dB, where N is the number of transmit chains. Refer as FCC KDB 662911, In-band power spectral density (PSD). Performed at each transmit chains and each transmit chains shall be compared with the limit have been reduced with $10 \log(N)$ . Or each transmit chains shall be add $10 \log(N)$ to compared with the limit. |
|--|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

### 3.4.4 Test Setup



### 3.4.5 Test Result of Power Spectral Density

Refer as Appendix D

### 3.5 Emissions in Non-restricted Frequency Bands

#### 3.5.1 Emissions in Non-restricted Frequency Bands Limit

| Un-restricted Band Emissions Limit                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |             |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------|
| RF output power procedure                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Limit (dBc) |
| Peak output power procedure                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 20          |
| Average output power procedure                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | 30          |
| <p>Note 1: If the peak output power procedure is used to measure the fundamental emission power to demonstrate compliance to requirements, then the peak conducted output power measured within any 100 kHz outside the authorized frequency band shall be attenuated by at least 20 dB relative to the maximum measured in-band peak PSD level.</p> <p>Note 2: If the average output power procedure is used to measure the fundamental emission power to demonstrate compliance to requirements, then the power in any 100 kHz outside of the authorized frequency band shall be attenuated by at least 30 dB relative to the maximum measured in-band average PSD level.</p> |             |

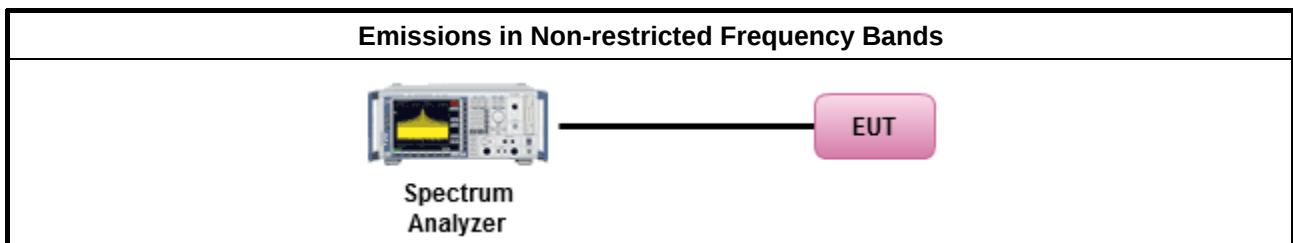
#### 3.5.2 Measuring Instruments

Refer a test equipment and calibration data table in this test report.

#### 3.5.3 Test Procedures

| Test Method                                                                                                                             |
|-----------------------------------------------------------------------------------------------------------------------------------------|
| <ul style="list-style-type: none"> <li>Refer as FCC KDB 558074, clause 8.5 for unwanted emissions into non-restricted bands.</li> </ul> |

#### 3.5.4 Test Setup



#### 3.5.5 Test Result of Emissions in Non-restricted Frequency Bands

Refer as Appendix E

### 3.6 Emissions in Restricted Frequency Bands

#### 3.6.1 Emissions in Restricted Frequency Bands Limit

| Restricted Band Emissions Limit |                       |                         |                      |
|---------------------------------|-----------------------|-------------------------|----------------------|
| Frequency Range (MHz)           | Field Strength (uV/m) | Field Strength (dBuV/m) | Measure Distance (m) |
| 0.009~0.490                     | 2400/F(kHz)           | 48.5 - 13.8             | 300                  |
| 0.490~1.705                     | 24000/F(kHz)          | 33.8 - 23               | 30                   |
| 1.705~30.0                      | 30                    | 29                      | 30                   |
| 30~88                           | 100                   | 40                      | 3                    |
| 88~216                          | 150                   | 43.5                    | 3                    |
| 216~960                         | 200                   | 46                      | 3                    |
| Above 960                       | 500                   | 54                      | 3                    |

Note 1: Test distance for frequencies at or above 30 MHz, measurements may be performed at a distance other than the limit distance provided they are not performed in the near field and the emissions to be measured can be detected by the measurement equipment. When performing measurements at a distance other than that specified, the results shall be extrapolated to the specified distance using an extrapolation factor of 20 dB/decade (inverse of linear distance for field-strength measurements, inverse of linear distance-squared for power-density measurements).

Note 2: Test distance for frequencies at below 30 MHz, measurements may be performed at a distance closer than the EUT limit distance; however, an attempt should be made to avoid making measurements in the near field. When performing measurements below 30 MHz at a closer distance than the limit distance, the results shall be extrapolated to the specified distance by either making measurements at a minimum of two or more distances on at least one radial to determine the proper extrapolation factor or by using the square of an inverse linear distance extrapolation factor (40 dB / decade). The test report shall specify the extrapolation method used to determine compliance of the EUT.

Note 3: Using the distance of 1m during the test for above 18 GHz, and the test value to correct for the distance factor at 3m.

#### 3.6.2 Measuring Instruments

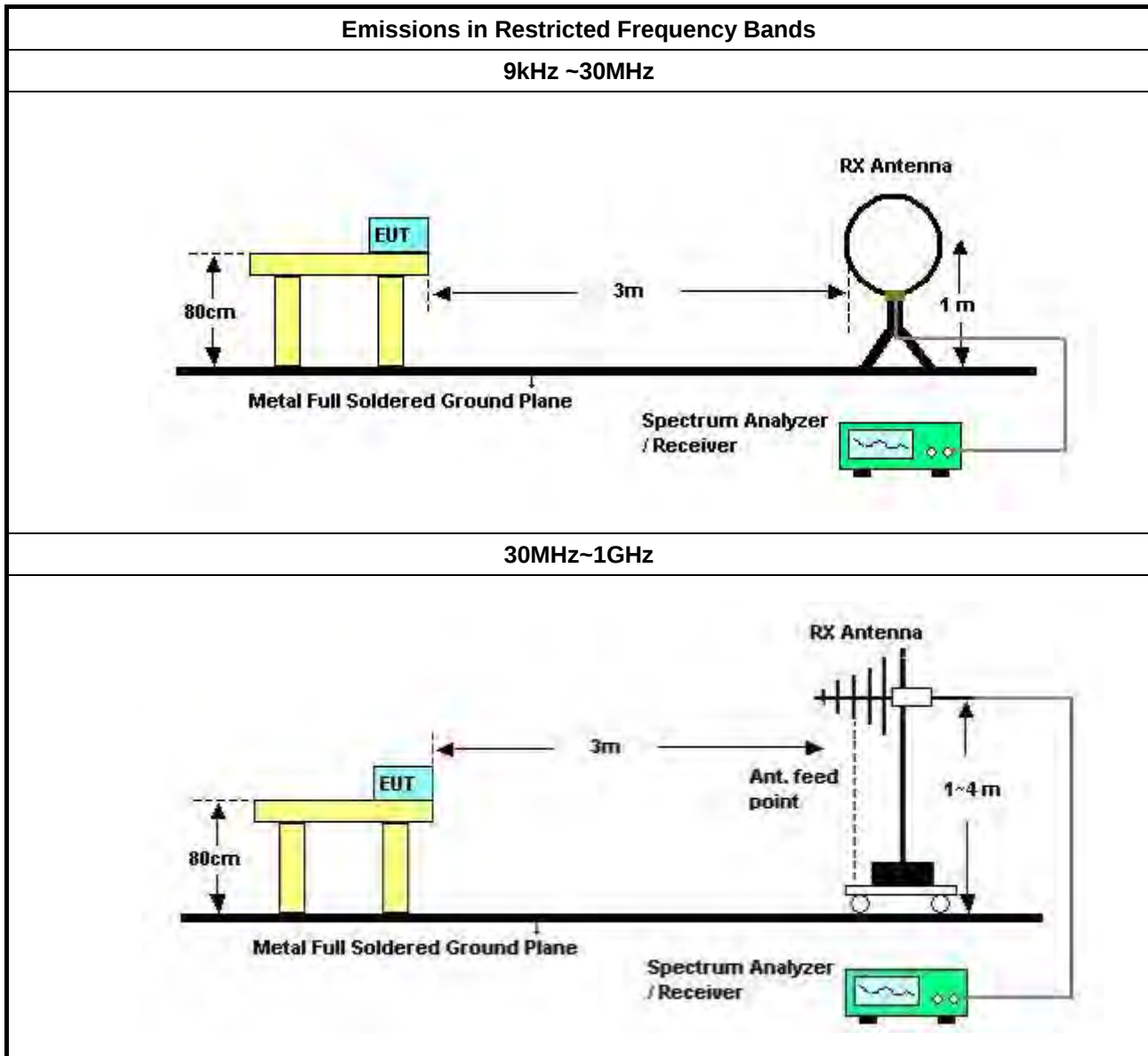
Refer a test equipment and calibration data table in this test report.

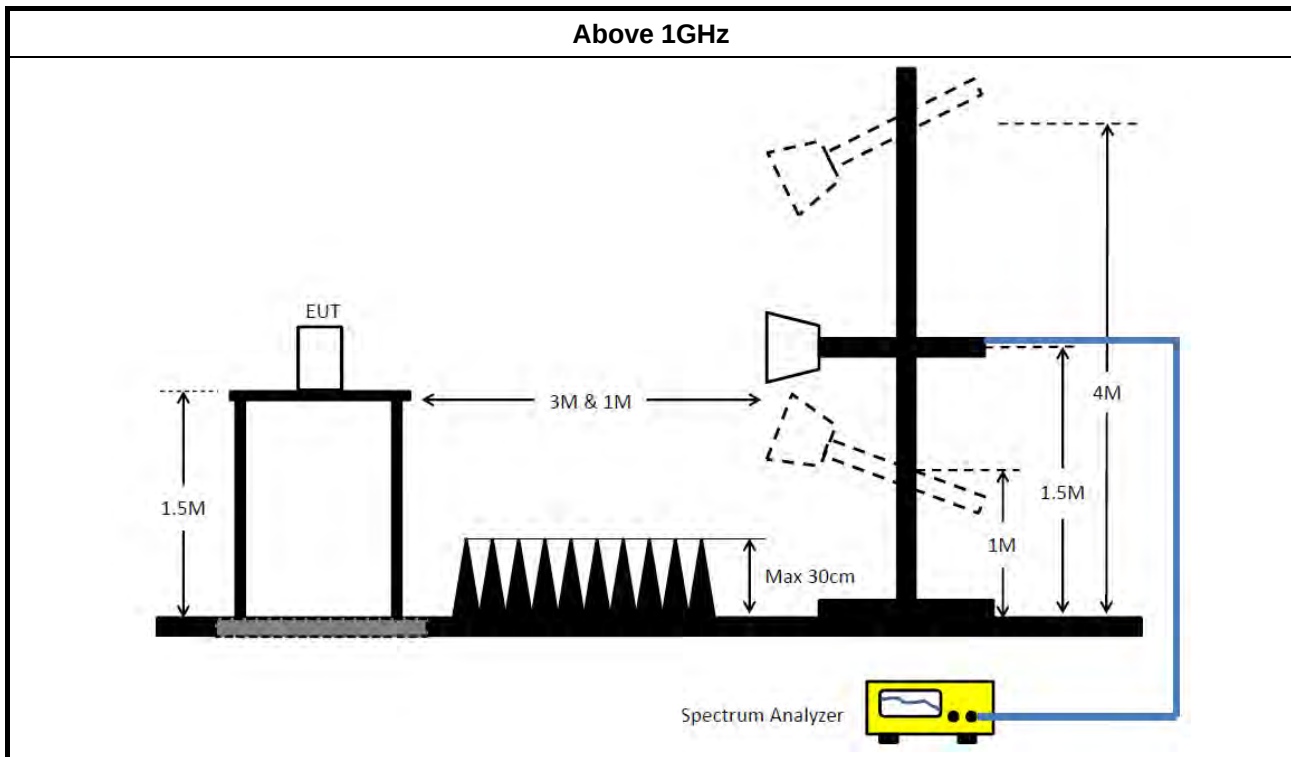


### 3.6.3 Test Procedures

| Test Method                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <ul style="list-style-type: none"> <li>The average emission levels shall be measured in [duty cycle <math>\geq 98</math> or duty factor].</li> </ul>                                                                        |                                                                                                                                                                                                                                                                                                                                                                                                |
| <ul style="list-style-type: none"> <li>Refer as ANSI C63.10, clause 6.10.3 band-edge testing shall be performed at the lowest frequency channel and highest frequency channel within the allowed operating band.</li> </ul> |                                                                                                                                                                                                                                                                                                                                                                                                |
| <ul style="list-style-type: none"> <li>For the transmitter unwanted emissions shall be measured using following options below:</li> </ul>                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                |
|                                                                                                                                                                                                                             | <ul style="list-style-type: none"> <li>Refer as FCC KDB 558074, clause 8.6 for unwanted emissions into restricted bands.</li> </ul>                                                                                                                                                                                                                                                            |
|                                                                                                                                                                                                                             | <input type="checkbox"/> Refer as FCC KDB 558074, clause 8.6 & C63.10 clause 11.12.2.5.1(trace averaging for duty cycle $\geq 98\%$ ).                                                                                                                                                                                                                                                         |
|                                                                                                                                                                                                                             | <input type="checkbox"/> Refer as FCC KDB 558074, clause 8.6 & C63.10 clause 11.12.2.5.2(trace averaging + duty factor).                                                                                                                                                                                                                                                                       |
|                                                                                                                                                                                                                             | <input checked="" type="checkbox"/> Refer as FCC KDB 558074, clause 8.6 & C63.10 clause 11.12.2.5.3(Reduced VBW $\geq 1/T$ ).                                                                                                                                                                                                                                                                  |
|                                                                                                                                                                                                                             | <input type="checkbox"/> Refer as ANSI C63.10, clause 11.12.2.5.3 (Reduced VBW). VBW $\geq 1/T$ , where T is pulse time.                                                                                                                                                                                                                                                                       |
|                                                                                                                                                                                                                             | <input type="checkbox"/> Refer as ANSI C63.10, clause 7.5 average value of pulsed emissions.                                                                                                                                                                                                                                                                                                   |
|                                                                                                                                                                                                                             | <input checked="" type="checkbox"/> Refer as FCC KDB 558074, clause 8.6 & C63.10 clause 11.12.2.4 measurement procedure peak limit.                                                                                                                                                                                                                                                            |
| <ul style="list-style-type: none"> <li>For the transmitter band-edge emissions shall be measured using following options below:</li> </ul>                                                                                  |                                                                                                                                                                                                                                                                                                                                                                                                |
|                                                                                                                                                                                                                             | <ul style="list-style-type: none"> <li>Refer as FCC KDB 558074 clause 8.7 &amp; c63.10 clause 11.13.1, When the performing peak or average radiated measurements, emissions within 2 MHz of the authorized band edge may be measured using the marker-delta method described below.</li> </ul>                                                                                                 |
|                                                                                                                                                                                                                             | <ul style="list-style-type: none"> <li>Refer as FCC KDB 558074, clause 8.7 (ANSI C63.10, clause 6.10.6) for marker-delta method for band-edge measurements.</li> </ul>                                                                                                                                                                                                                         |
|                                                                                                                                                                                                                             | <ul style="list-style-type: none"> <li>Refer as FCC KDB 558074, clause 8.7 for narrower resolution bandwidth (100kHz) using the band power and summing the spectral levels (i.e., 1 MHz).</li> </ul>                                                                                                                                                                                           |
|                                                                                                                                                                                                                             | <ul style="list-style-type: none"> <li>For conducted unwanted emissions into restricted bands (absolute emission limits). Devices with multiple transmit chains using options given below:<br/>(1) Measure and sum the spectra across the outputs or<br/>(2) Measure and add 10 log(N) dB</li> </ul>                                                                                           |
|                                                                                                                                                                                                                             | <ul style="list-style-type: none"> <li>For FCC KDB 662911 The methodology described here may overestimate array gain, thereby resulting in apparent failures to satisfy the out-of-band limits even if the device is actually compliant. In such cases, compliance may be demonstrated by performing radiated tests around the frequencies at which the apparent failures occurred.</li> </ul> |

### 3.6.4 Test Setup





### 3.6.5 Emissions in Restricted Frequency Bands (Below 30MHz)

All amplitude of spurious emissions that are attenuated by more than 20 dB below the permissible value has no need to be reported.

The radiated emissions were investigated from 9 kHz or the lowest frequency generated within the device, up to the 10 harmonic or 40 GHz, whichever is appropriate.

### 3.6.6 Test Result of Emissions in Restricted Frequency Bands

Refer as Appendix F



## 4 Test Equipment and Calibration Data

| Instrument                        | Manufacturer | Model No.         | Serial No.       | Characteristics  | Calibration Date | Calibration Due Date | Remark                |
|-----------------------------------|--------------|-------------------|------------------|------------------|------------------|----------------------|-----------------------|
| EMI Receiver                      | Agilent      | N9038A            | My52260123       | 9kHz ~ 8.45GHz   | Jan. 28, 2019    | Jan. 29, 2020        | Conduction (CO01-CB)  |
| LISN                              | F.C.C.       | FCC-LISN-50-16-2  | 04083            | 150kHz ~ 100MHz  | Dec. 24, 2018    | Dec. 23, 2019        | Conduction (CO01-CB)  |
| LISN                              | Schwarzbeck  | NSLK 8127         | 8127647          | 9kHz ~ 30MHz     | Jan. 11, 2019    | Jan. 10, 2020        | Conduction (CO01-CB)  |
| COND Cable                        | Woken        | Cable             | Low cable-CO01   | 150kHz ~ 30MHz   | May 22, 2018     | May 21, 2019         | Conduction (CO01-CB)  |
| Software                          | Audix        | E3                | 6.120210n        | -                | N.C.R.           | N.C.R.               | Conduction (CO01-CB)  |
| BILOG ANTENNA with 6dB Attenuator | TESEQ & EMCI | CBL6112D & N-6-06 | 37880 & AT-N0609 | 20MHz ~ 2GHz     | Aug. 27, 2018    | Aug. 26, 2019        | Radiation (03CH01-CB) |
| Loop Antenna                      | Teseq        | HLA 6120          | 31244            | 9kHz - 30 MHz    | Mar. 15, 2019    | Mar. 14, 2020        | Radiation (03CH01-CB) |
| Horn Antenna                      | EMCO         | 3115              | 00075790         | 750MHz ~ 18GHz   | Nov. 13, 2018    | Nov. 12, 2019        | Radiation (03CH01-CB) |
| Horn Antenna                      | Schwarzbeck  | BBHA 9170         | BBHA9170252      | 15GHz ~ 40GHz    | Jun. 28, 2018    | Jun. 27, 2019        | Radiation (03CH01-CB) |
| Pre-Amplifier                     | EMCI         | EMC330N           | 980332           | 20MHz ~ 3GHz     | May 02, 2018     | May 01, 2019         | Radiation (03CH01-CB) |
| Pre-Amplifier                     | Agilent      | 8449B             | 3008A02310       | 1GHz ~ 26.5GHz   | Jan. 08, 2019    | Jan. 07, 2020        | Radiation (03CH01-CB) |
| Pre-Amplifier                     | MITEQ        | TTA1840-35-H G    | 1864479          | 18GHz ~ 40GHz    | Jul. 04, 2018    | Jul. 03, 2019        | Radiation (03CH01-CB) |
| Spectrum Analyzer                 | R&S          | FSP40             | 100056           | 9kHz ~ 40GHz     | Jan. 31, 2019    | Jan. 30, 2020        | Radiation (03CH01-CB) |
| EMI Test Receiver                 | R&S          | ESCS              | 100359           | 9kHz ~ 2.75GHz   | Jul. 03, 2018    | Jul. 02, 2019        | Radiation (03CH01-CB) |
| RF Cable-low                      | Woken        | Low Cable-16+17   | N/A              | 30 MHz ~ 1 GHz   | Oct. 08, 2018    | Oct. 07, 2019        | Radiation (03CH01-CB) |
| RF Cable-high                     | Woken        | High Cable-16     | N/A              | 1 GHz ~ 18 GHz   | Oct. 08, 2018    | Oct. 07, 2019        | Radiation (03CH01-CB) |
| RF Cable-high                     | Woken        | High Cable-16+17  | N/A              | 1 GHz ~ 18 GHz   | Oct. 08, 2018    | Oct. 07, 2019        | Radiation (03CH01-CB) |
| RF Cable-high                     | Woken        | High Cable-40G#1  | N/A              | 18GHz ~ 40 GHz   | Jul. 27, 2018    | Jul. 26, 2019        | Radiation (03CH01-CB) |
| RF Cable-high                     | Woken        | High Cable-40G#2  | N/A              | 18GHz ~ 40 GHz   | Jul. 27, 2018    | Jul. 26, 2019        | Radiation (03CH01-CB) |
| Spectrum analyzer                 | R&S          | FSV40             | 100979           | 9kHz~40GHz       | Feb. 25, 2019    | Feb. 24, 2020        | Conducted (TH01-CB)   |
| RF Cable-high                     | Woken        | RG402             | High Cable-06    | 1 GHz ~ 26.5 GHz | Oct. 08, 2018    | Oct. 07, 2019        | Conducted (TH01-CB)   |
| RF Cable-high                     | Woken        | RG402             | High Cable-07    | 1 GHz ~ 26.5 GHz | Oct. 08, 2018    | Oct. 07, 2019        | Conducted (TH01-CB)   |



| Instrument    | Manufacturer | Model No. | Serial No.    | Characteristics | Calibration Date | Calibration Due Date | Remark              |
|---------------|--------------|-----------|---------------|-----------------|------------------|----------------------|---------------------|
| RF Cable-high | Woken        | RG402     | High Cable-08 | 1 GHz –26.5 GHz | Oct. 08, 2018    | Oct. 07, 2019        | Conducted (TH01-CB) |
| RF Cable-high | Woken        | RG402     | High Cable-09 | 1 GHz –26.5 GHz | Oct. 08, 2018    | Oct. 07, 2019        | Conducted (TH01-CB) |
| RF Cable-high | Woken        | RG402     | High Cable-10 | 1 GHz –26.5 GHz | Oct. 08, 2018    | Oct. 07, 2019        | Conducted (TH01-CB) |
| RF Cable-high | Woken        | RG402     | High Cable-28 | 1 GHz –26.5 GHz | Nov. 19, 2018    | Nov. 18, 2019        | Conducted (TH01-CB) |
| Power Sensor  | Agilent      | U2021XA   | MY53410001    | 50MHz~18GHz     | Nov. 05, 2018    | Nov. 04, 2019        | Conducted (TH01-CB) |

Note: Calibration Interval of instruments listed above is one year.

NCR means Non-Calibration required.



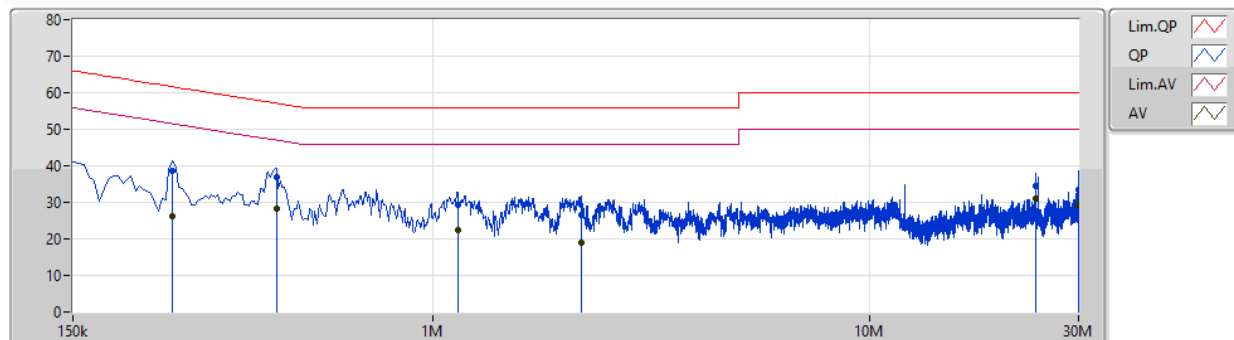
# AC Power Port Conducted Emission Result

Appendix A

|           |        |                 |                    |
|-----------|--------|-----------------|--------------------|
| Test Mode | Mode 2 | Frequency Range | 0.15 MHz to 30 MHz |
|-----------|--------|-----------------|--------------------|

## Mode 2

25/03/2019

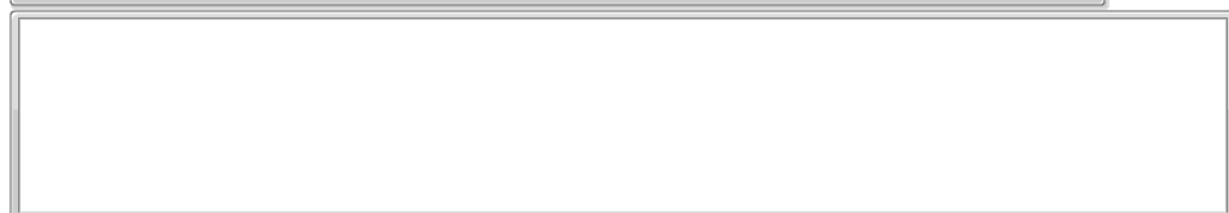
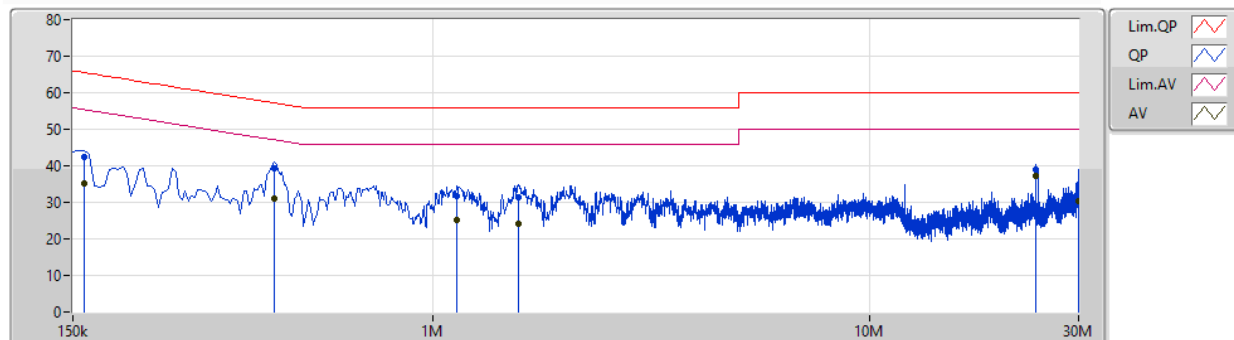


| Type | Freq<br>(Hz) | Level<br>(dBuV) | Limit<br>(dBuV) | Margin<br>(dB) | Factor<br>(dB) | Condition | Comment | Raw<br>(dBuV) | AF<br>(dB) | CL<br>(dB) | AT<br>(dB) |  |  |  |
|------|--------------|-----------------|-----------------|----------------|----------------|-----------|---------|---------------|------------|------------|------------|--|--|--|
| QP   | 253.5k       | 38.46           | 61.64           | -23.18         | 9.99           | Line      | -       | 28.47         | 0.06       | 0.13       | 9.80       |  |  |  |
| AV   | 253.5k       | 26.10           | 51.64           | -25.54         | 9.99           | Line      | -       | 16.11         | 0.06       | 0.13       | 9.80       |  |  |  |
| QP   | 438k         | 37.00           | 57.11           | -20.11         | 10.00          | Line      | -       | 27.00         | 0.06       | 0.13       | 9.81       |  |  |  |
| AV   | 438k         | 28.25           | 47.11           | -18.86         | 10.00          | Line      | "Worst" | 18.25         | 0.06       | 0.13       | 9.81       |  |  |  |
| QP   | 1.14M        | 29.41           | 56.00           | -26.59         | 10.09          | Line      | -       | 19.32         | 0.07       | 0.20       | 9.82       |  |  |  |
| AV   | 1.14M        | 22.25           | 46.00           | -23.75         | 10.09          | Line      | -       | 12.16         | 0.07       | 0.20       | 9.82       |  |  |  |
| QP   | 2.18M        | 26.67           | 56.00           | -29.33         | 10.14          | Line      | -       | 16.53         | 0.09       | 0.22       | 9.83       |  |  |  |
| AV   | 2.18M        | 18.91           | 46.00           | -27.09         | 10.14          | Line      | -       | 8.77          | 0.09       | 0.22       | 9.83       |  |  |  |
| QP   | 24.009M      | 34.36           | 60.00           | -25.64         | 10.59          | Line      | -       | 23.77         | 0.32       | 0.26       | 10.01      |  |  |  |
| AV   | 24.009M      | 30.93           | 50.00           | -19.07         | 10.59          | Line      | -       | 20.34         | 0.32       | 0.26       | 10.01      |  |  |  |
| QP   | 30M          | 33.55           | 60.00           | -26.45         | 10.70          | Line      | -       | 22.85         | 0.36       | 0.29       | 10.05      |  |  |  |
| AV   | 30M          | 29.32           | 50.00           | -20.68         | 10.70          | Line      | -       | 18.62         | 0.36       | 0.29       | 10.05      |  |  |  |

|           |        |                 |                    |
|-----------|--------|-----------------|--------------------|
| Test Mode | Mode 2 | Frequency Range | 0.15 MHz to 30 MHz |
|-----------|--------|-----------------|--------------------|

### Mode 2

25/03/2019



| Type | Freq<br>(Hz) | Level<br>(dBuV) | Limit<br>(dBuV) | Margin<br>(dB) | Factor<br>(dB) | Condition | Comment | Raw<br>(dBuV) | AF<br>(dB) | CL<br>(dB) | AT<br>(dB) |  |  |  |
|------|--------------|-----------------|-----------------|----------------|----------------|-----------|---------|---------------|------------|------------|------------|--|--|--|
| QP   | 159k         | 42.25           | 65.52           | -23.27         | 9.99           | Neutral   | -       | 32.26         | 0.04       | 0.16       | 9.79       |  |  |  |
| AV   | 159k         | 35.11           | 55.52           | -20.41         | 9.99           | Neutral   | -       | 25.12         | 0.04       | 0.16       | 9.79       |  |  |  |
| QP   | 433.5k       | 39.23           | 57.19           | -17.96         | 9.98           | Neutral   | -       | 29.25         | 0.04       | 0.13       | 9.81       |  |  |  |
| AV   | 433.5k       | 30.91           | 47.19           | -16.28         | 9.98           | Neutral   | -       | 20.93         | 0.04       | 0.13       | 9.81       |  |  |  |
| QP   | 1.131M       | 31.73           | 56.00           | -24.27         | 10.08          | Neutral   | -       | 21.65         | 0.06       | 0.20       | 9.82       |  |  |  |
| AV   | 1.131M       | 25.11           | 46.00           | -20.89         | 10.08          | Neutral   | -       | 15.03         | 0.06       | 0.20       | 9.82       |  |  |  |
| QP   | 1.568M       | 31.42           | 56.00           | -24.58         | 10.12          | Neutral   | -       | 21.30         | 0.07       | 0.22       | 9.83       |  |  |  |
| AV   | 1.568M       | 24.07           | 46.00           | -21.93         | 10.12          | Neutral   | -       | 13.95         | 0.07       | 0.22       | 9.83       |  |  |  |
| QP   | 24.005M      | 39.04           | 60.00           | -20.96         | 10.58          | Neutral   | -       | 28.46         | 0.31       | 0.26       | 10.01      |  |  |  |
| AV   | 24.005M      | 37.10           | 50.00           | -12.90         | 10.58          | Neutral   | "Worst" | 26.52         | 0.31       | 0.26       | 10.01      |  |  |  |
| QP   | 30M          | 34.80           | 60.00           | -25.20         | 10.72          | Neutral   | -       | 24.08         | 0.38       | 0.29       | 10.05      |  |  |  |
| AV   | 30M          | 30.21           | 50.00           | -19.79         | 10.72          | Neutral   | -       | 19.49         | 0.38       | 0.29       | 10.05      |  |  |  |

**Summary**

| Mode             | Max-N dB<br>(Hz) | Max-OBW<br>(Hz) | ITU-Code | Min-N dB<br>(Hz) | Min-OBW<br>(Hz) |
|------------------|------------------|-----------------|----------|------------------|-----------------|
| 2.4-2.4835GHz    | -                | -               | -        | -                | -               |
| BT-LE(1Mbps)_1TX | 692.5k           | 1.031M          | 1M03F1D  | 677.5k           | 1.022M          |

**Max-N dB** = Maximum 6dB down bandwidth; **Max-OBW** = Maximum 99% occupied bandwidth;

**Min-N dB** = Minimum 6dB down bandwidth; **Min-OBW** = Minimum 99% occupied bandwidth;

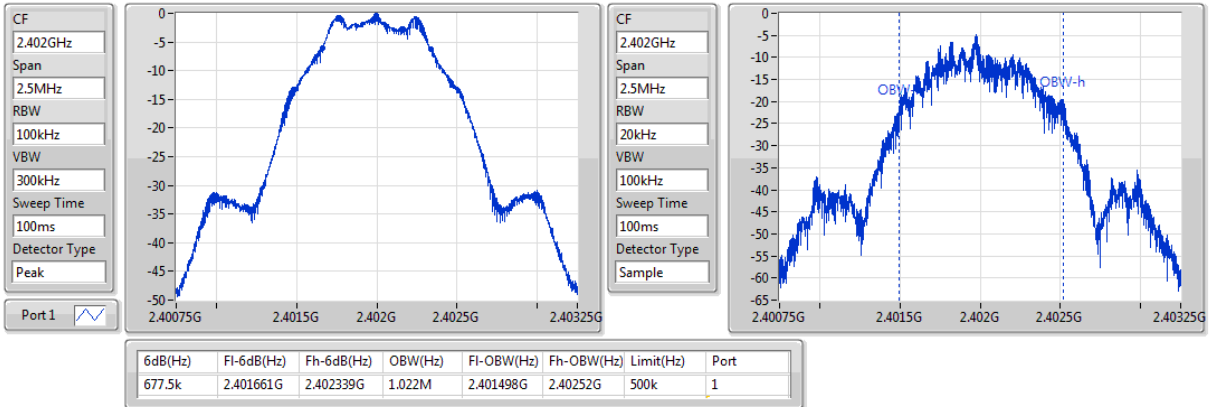
**Result**

| Mode             | Result | Limit<br>(Hz) | Port 1-N dB<br>(Hz) | Port 1-OBW<br>(Hz) |
|------------------|--------|---------------|---------------------|--------------------|
| BT-LE(1Mbps)_1TX | -      | -             | -                   | -                  |
| 2402MHz          | Pass   | 500k          | 677.5k              | 1.022M             |
| 2440MHz          | Pass   | 500k          | 683.75k             | 1.029M             |
| 2480MHz          | Pass   | 500k          | 692.5k              | 1.031M             |

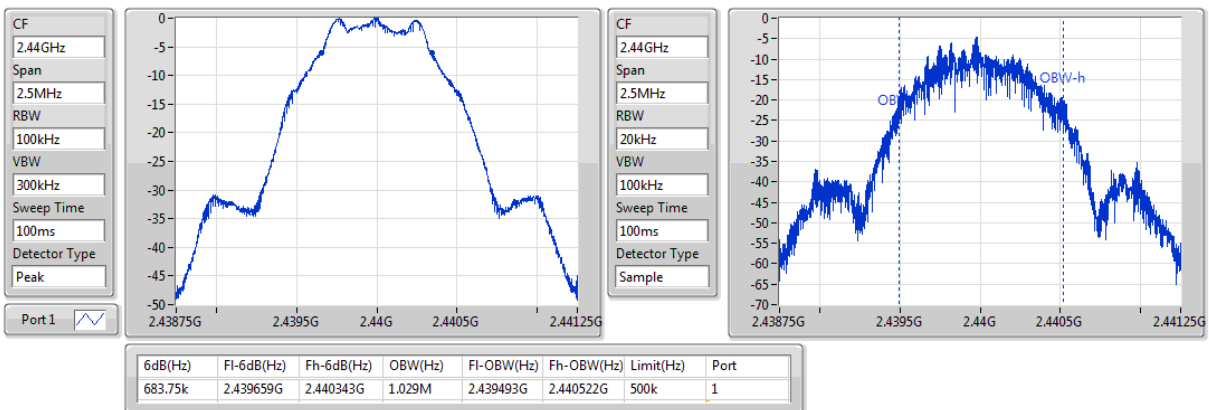
**Port X-N dB** = Port X 6dB down bandwidth; **Port X-OBW** = Port X 99% occupied bandwidth;

**BT-LE(1Mbps)\_1TX**
**EBW**
**2402MHz**

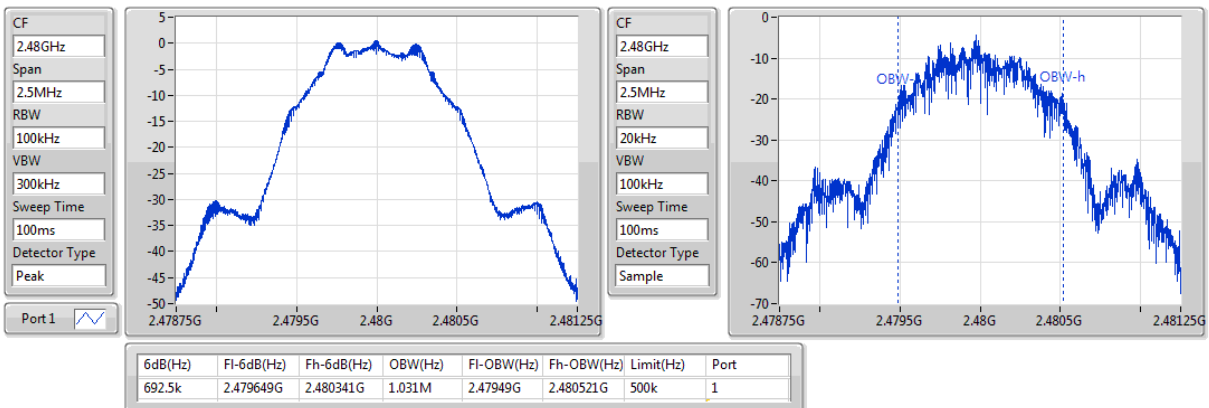
28/03/2019


**BT-LE(1Mbps)\_1TX**
**EBW**
**2440MHz**

28/03/2019


**BT-LE(1Mbps)\_1TX**
**EBW**
**2480MHz**

28/03/2019



**Summary**

| Mode             | Total Power<br>(dBm) | Total Power<br>(W) |
|------------------|----------------------|--------------------|
| 2.4-2.4835GHz    | -                    | -                  |
| BT-LE(1Mbps)_1TX | -0.93                | 0.00081            |

**Result**

| Mode             | Result | DG<br>(dBi) | Port 1<br>(dBm) | Total Power<br>(dBm) | Power Limit<br>(dBm) |
|------------------|--------|-------------|-----------------|----------------------|----------------------|
| BT-LE(1Mbps)_1TX | -      | -           | -               | -                    | -                    |
| 2402MHz          | Pass   | 2.61        | -1.05           | -1.05                | 30.00                |
| 2440MHz          | Pass   | 2.61        | -0.93           | -0.93                | 30.00                |
| 2480MHz          | Pass   | 2.61        | -1.28           | -1.28                | 30.00                |

DG = Directional Gain; Port X = Port X output power.

Note : Conducted average output power is for reference only.

**Summary**

| Mode             | PD<br>(dBm/RBW) |
|------------------|-----------------|
| 2.4-2.4835GHz    | -               |
| BT-LE(1Mbps)_1TX | -13.84          |

RBW=3kHz.

**Result**

| Mode             | Result | DG<br>(dBi) | Port 1<br>(dBm/RBW) | PD<br>(dBm/RBW) | PD Limit<br>(dBm/RBW) |
|------------------|--------|-------------|---------------------|-----------------|-----------------------|
| BT-LE(1Mbps)_1TX | -      | -           | -                   | -               | -                     |
| 2402MHz          | Pass   | 2.61        | -15.58              | -15.58          | 8.00                  |
| 2440MHz          | Pass   | 2.61        | -13.84              | -13.84          | 8.00                  |
| 2480MHz          | Pass   | 2.61        | -14.08              | -14.08          | 8.00                  |

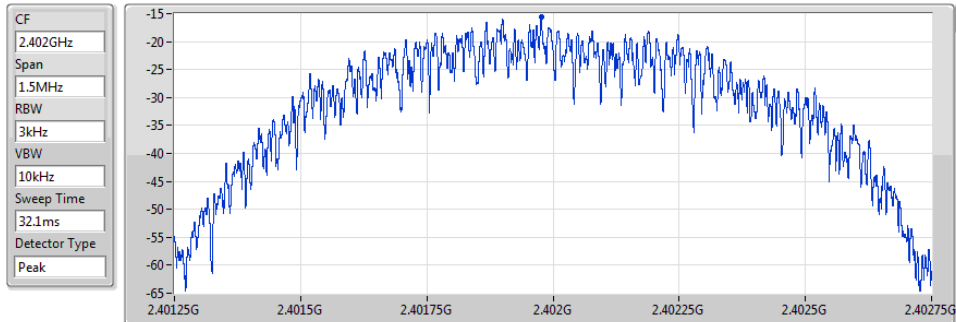
**DG** = Directional Gain; RBW=3kHz;**PD** = trace bin-by-bin of each transmits port summing can be performed maximum power density; **Port X** = Port Xpower density;

### BT-LE(1Mbps)\_1TX

### PSD

2402MHz

28/03/2019



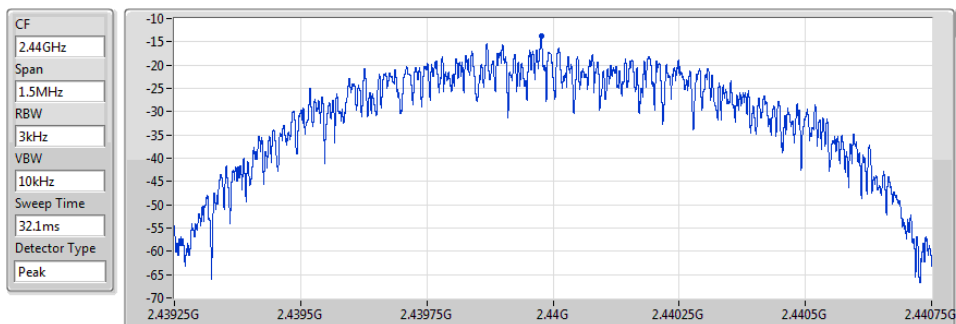
| Sum       | PD        | Port 1    |
|-----------|-----------|-----------|
| (dBm/RBW) | (dBm/RBW) | (dBm/RBW) |
| -15.58    | -15.58    | -15.58    |

### BT-LE(1Mbps)\_1TX

### PSD

2440MHz

28/03/2019



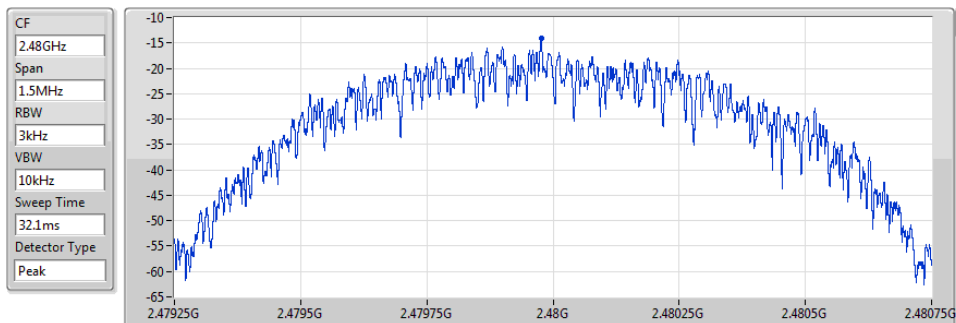
| Sum       | PD        | Port 1    |
|-----------|-----------|-----------|
| (dBm/RBW) | (dBm/RBW) | (dBm/RBW) |
| -13.84    | -13.84    | -13.84    |

### BT-LE(1Mbps)\_1TX

### PSD

2480MHz

28/03/2019



| Sum       | PD        | Port 1    |
|-----------|-----------|-----------|
| (dBm/RBW) | (dBm/RBW) | (dBm/RBW) |
| -14.08    | -14.08    | -14.08    |

**Summary**

| Mode             | Result | Ref<br>(Hz) | Ref<br>(dBm) | Limit<br>(dBm) | Freq<br>(Hz) | Level<br>(dBm) | Freq<br>(Hz) | Level<br>(dBm) | Freq<br>(Hz) | Level<br>(dBm) | Freq<br>(Hz) | Level<br>(dBm) | Port |
|------------------|--------|-------------|--------------|----------------|--------------|----------------|--------------|----------------|--------------|----------------|--------------|----------------|------|
| 2.4-2.4835GHz    | -      | -           | -            | -              | -            | -              | -            | -              | -            | -              | -            | -              | -    |
| BT-LE(1Mbps)_1TX | Pass   | 2.43995G    | -15.80       | -45.80         | 1.88503G     | -58.48         | 2.39804G     | -58.08         | 2.48501G     | -57.94         | 16.3094G     | -50.03         | 1    |

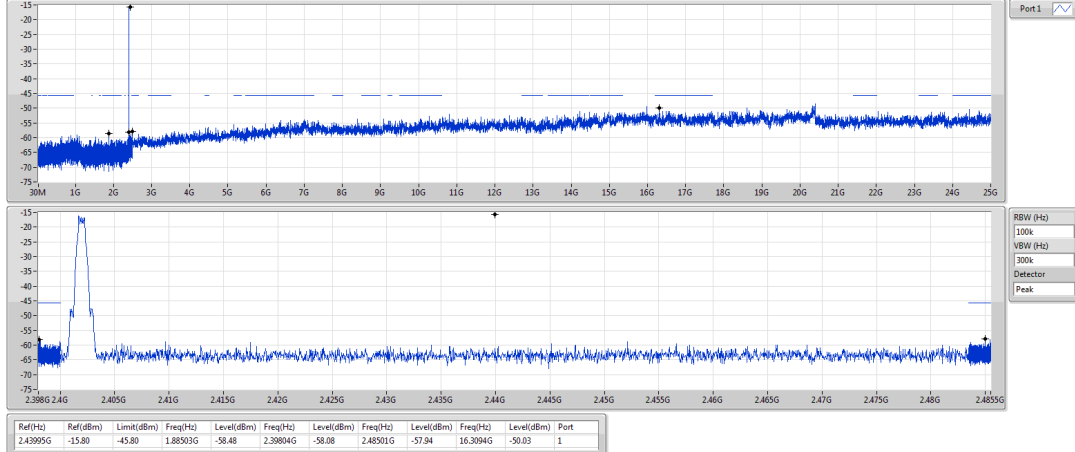
**Result**

| Mode             | Result | Ref<br>(Hz) | Ref<br>(dBm) | Limit<br>(dBm) | Freq<br>(Hz) | Level<br>(dBm) | Freq<br>(Hz) | Level<br>(dBm) | Freq<br>(Hz) | Level<br>(dBm) | Freq<br>(Hz) | Level<br>(dBm) | Port |
|------------------|--------|-------------|--------------|----------------|--------------|----------------|--------------|----------------|--------------|----------------|--------------|----------------|------|
| BT-LE(1Mbps)_1TX | -      | -           | -            | -              | -            | -              | -            | -              | -            | -              | -            | -              | -    |
| 2402MHz          | Pass   | 2.43995G    | -15.80       | -45.80         | 1.88503G     | -58.48         | 2.39804G     | -58.08         | 2.48501G     | -57.94         | 16.3094G     | -50.03         | 1    |
| 2440MHz          | Pass   | 2.43995G    | -15.80       | -45.80         | 2.15469G     | -59.75         | 2.39935G     | -59.02         | 2.48377G     | -58.48         | 24.27954G    | -50.16         | 1    |
| 2480MHz          | Pass   | 2.43995G    | -15.80       | -45.80         | 750.76M      | -59.86         | 2.39865G     | -59.62         | 2.48368G     | -56.55         | 15.29344G    | -50.66         | 1    |

BT-LE(1Mbps)\_1TX

CSE NdB

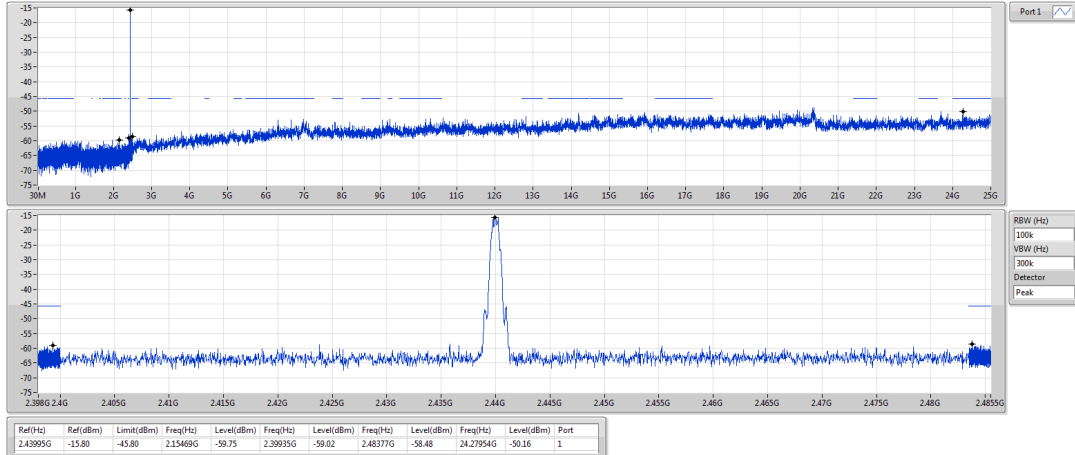
2402MHz



BT-LE(1Mbps)\_1TX

CSE NdB

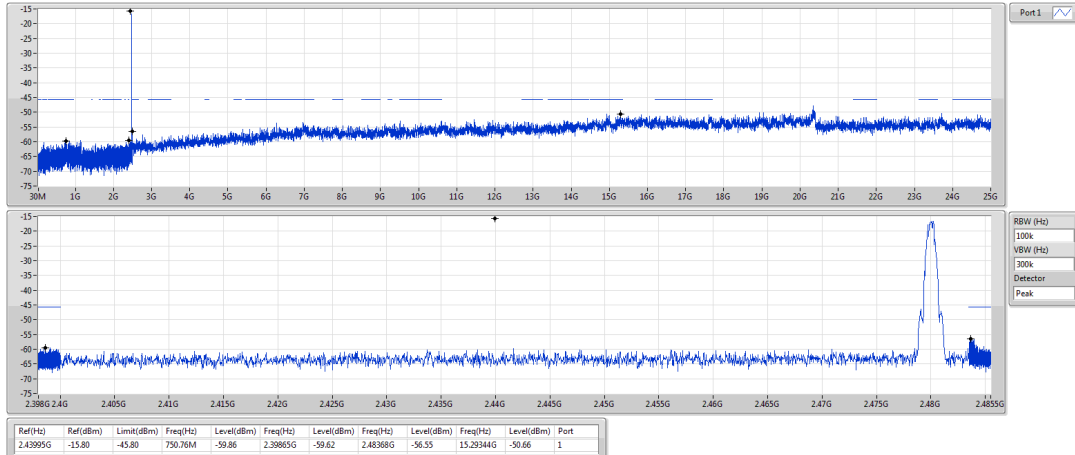
2440MHz



BT-LE(1Mbps)\_1TX

CSE NdB

2480MHz



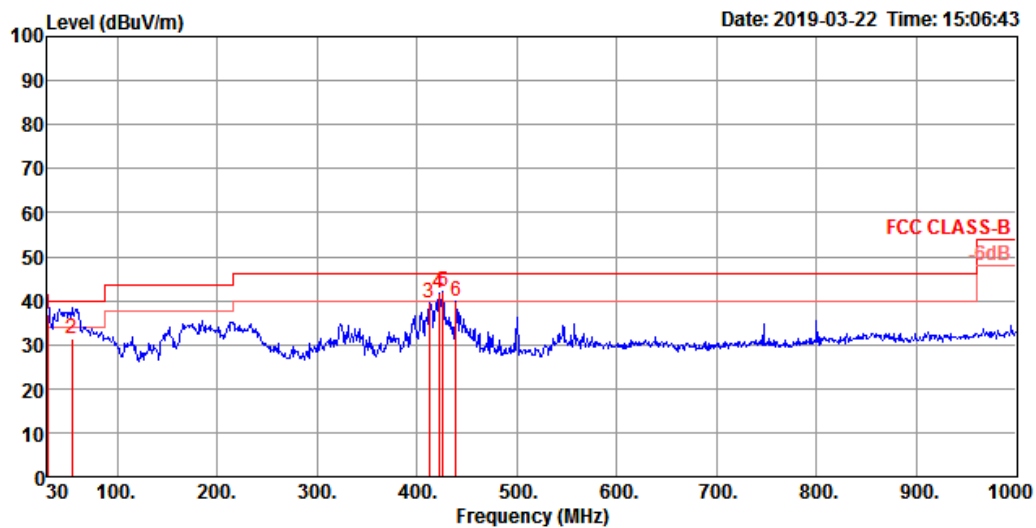


## Radiated Emission below 1GHz Result

Appendix F.1

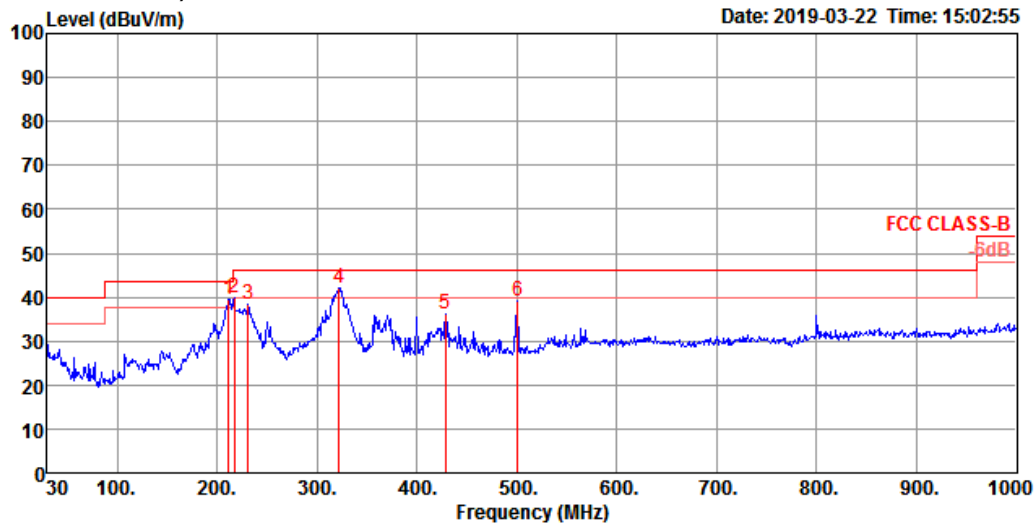
|           |        |                 |                     |
|-----------|--------|-----------------|---------------------|
| Test Mode | Mode 4 | Frequency Range | 30 MHz to 1,000 MHz |
|-----------|--------|-----------------|---------------------|

Vertical 30 MHz to 1,000 MHz



|   | Freq   | Level  | Limit  | Over  | Read  | Cable | Antenna | Preamp | A/Pos | T/Pos | Remark | Pol/Phase |
|---|--------|--------|--------|-------|-------|-------|---------|--------|-------|-------|--------|-----------|
|   | MHz    | dBuV/m | dBuV/m | dB    | dBuV  | dB    | dB/m    | dB     | cm    | deg   |        |           |
| 1 | 30.00  | 36.86  | 40.00  | -3.14 | 44.70 | 0.49  | 24.10   | 32.43  | 100   | 312   | QP     | VERTICAL  |
| 2 | 54.25  | 31.34  | 40.00  | -8.66 | 50.30 | 0.75  | 12.70   | 32.41  | 125   | 212   | QP     | VERTICAL  |
| 3 | 412.18 | 39.60  | 46.00  | -6.40 | 47.54 | 2.19  | 22.16   | 32.29  | 125   | 359   | Peak   | VERTICAL  |
| 4 | 421.88 | 41.82  | 46.00  | -4.18 | 49.33 | 2.23  | 22.55   | 32.29  | 150   | 29    | Peak   | VERTICAL  |
| 5 | 425.76 | 42.01  | 46.00  | -3.99 | 49.49 | 2.24  | 22.58   | 32.30  | 150   | 322   | Peak   | VERTICAL  |
| 6 | 439.34 | 39.95  | 46.00  | -6.05 | 47.29 | 2.28  | 22.69   | 32.31  | 150   | 347   | Peak   | VERTICAL  |

## Horizontal 30 MHz to 1,000 MHz



|   | Freq   | Level  | Limit  | Over  | Read  | CableAntenna | Preampl | A/Pos | T/Pos | Remark | Pol/Phase |
|---|--------|--------|--------|-------|-------|--------------|---------|-------|-------|--------|-----------|
|   | MHz    | dBuV/m | dBuV/m | dB    | dBuV  | dB           | dB/m    | dB    | cm    | deg    |           |
| 1 | 211.39 | 39.55  | 43.50  | -3.95 | 55.10 | 1.51         | 15.23   | 32.29 | 150   | 152    | Peak      |
| 2 | 217.21 | 39.73  | 46.00  | -6.27 | 55.28 | 1.53         | 15.21   | 32.29 | 125   | 185    | Peak      |
| 3 | 230.79 | 38.26  | 46.00  | -7.74 | 52.67 | 1.57         | 16.31   | 32.29 | 100   | 183    | Peak      |
| 4 | 321.97 | 42.00  | 46.00  | -4.00 | 52.81 | 1.93         | 19.52   | 32.26 | 100   | 167    | Peak      |
| 5 | 428.67 | 36.18  | 46.00  | -9.82 | 43.63 | 2.25         | 22.60   | 32.30 | 300   | 221    | Peak      |
| 6 | 500.45 | 38.96  | 46.00  | -7.04 | 45.51 | 2.38         | 23.42   | 32.35 | 150   | 173    | Peak      |

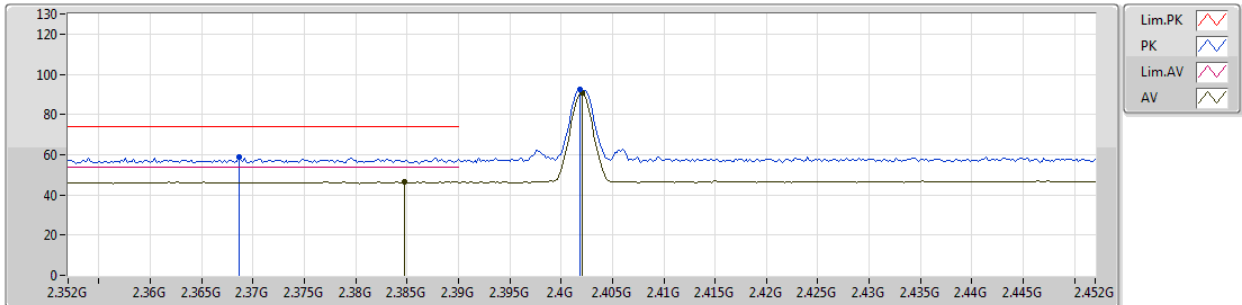
**Summary**

| Mode             | Result | Type | Freq<br>(Hz) | Level<br>(dBuV/m) | Limit<br>(dBuV/m) | Margin<br>(dB) | Factor<br>(dB) | Dist<br>(m) | Condition  | Azimuth<br>(°) | Height<br>(m) | Comments |
|------------------|--------|------|--------------|-------------------|-------------------|----------------|----------------|-------------|------------|----------------|---------------|----------|
| 2.4-2.4835GHz    | -      | -    | -            | -                 | -                 | -              | -              | -           | -          | -              | -             | -        |
| BT-LE(1Mbps)_1TX | Pass   | PK   | 2.4838G      | 68.02             | 74.00             | -5.98          | 30.96          | 3           | Horizontal | 205            | 1.48          | -        |

## BT-LE(1Mbps)\_1TX

## 2402MHz\_TX

27/03/2019



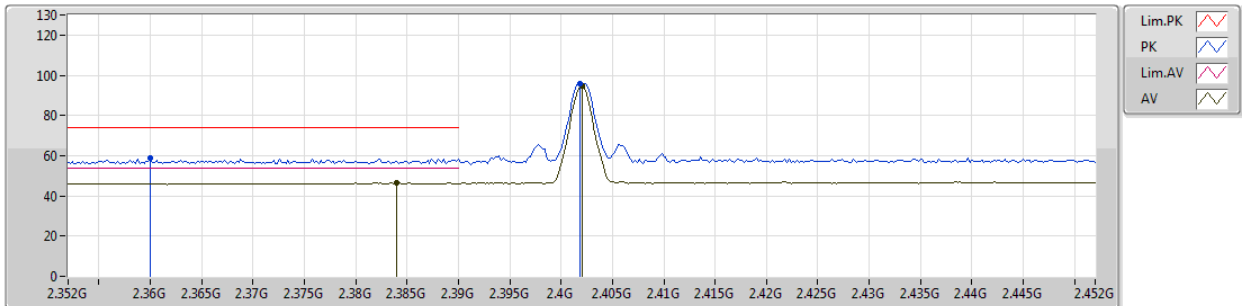
EUT Y\_1TX  
Setting Default  
01-E-4  
FSU

| Type | Freq<br>(Hz) | Level<br>(dBuV/m) | Limit<br>(dBuV/m) | Margin<br>(dB) | Factor<br>(dB) | Dist<br>(m) | Condition | Azimuth<br>(°) | Height<br>(m) | Comments |
|------|--------------|-------------------|-------------------|----------------|----------------|-------------|-----------|----------------|---------------|----------|
| PK   | 2.3686G      | 59.11             | 74.00             | -14.89         | 30.72          | 3           | Vertical  | 300            | 2.44          | -        |
| AV   | 2.3848G      | 46.46             | 54.00             | -7.54          | 30.78          | 3           | Vertical  | 300            | 2.44          | -        |
| PK   | 2.4018G      | 92.26             | Inf               | -Inf           | 30.84          | 3           | Vertical  | 300            | 2.44          | -        |
| AV   | 2.402G       | 90.84             | Inf               | -Inf           | 30.84          | 3           | Vertical  | 300            | 2.44          | -        |

## BT-LE(1Mbps)\_1TX

27/03/2019

## 2402MHz\_TX



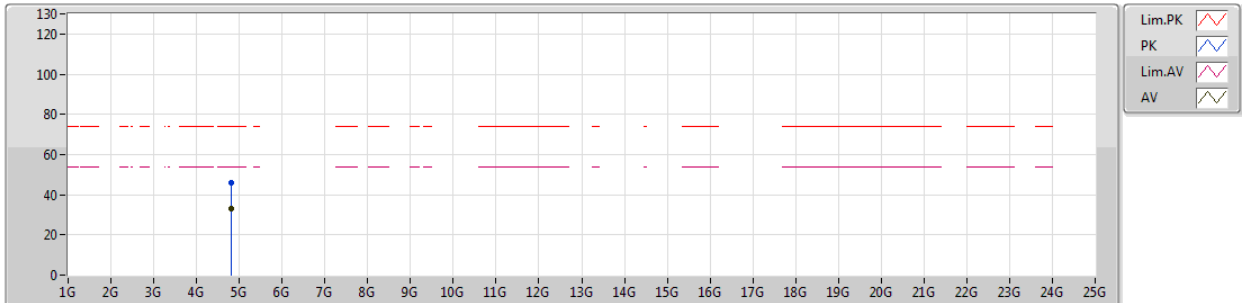
EUT V\_1TX  
Setting Default  
01-E-4  
FSU

| Type | Freq    | Level    | Limit    | Margin | Factor | Dist | Condition  | Azimuth | Height | Comments |
|------|---------|----------|----------|--------|--------|------|------------|---------|--------|----------|
|      | (Hz)    | (dBuV/m) | (dBuV/m) | (dB)   | (dB)   | (m)  |            | (°)     | (m)    |          |
| PK   | 2.36G   | 58.82    | 74.00    | -15.18 | 30.69  | 3    | Horizontal | 182     | 1.94   | -        |
| AV   | 2.384G  | 46.43    | 54.00    | -7.57  | 30.78  | 3    | Horizontal | 182     | 1.94   | -        |
| PK   | 2.4018G | 96.03    | Inf      | -Inf   | 30.84  | 3    | Horizontal | 182     | 1.94   | -        |
| AV   | 2.402G  | 94.62    | Inf      | -Inf   | 30.84  | 3    | Horizontal | 182     | 1.94   | -        |

### BT-LE(1Mbps)\_1TX

27/03/2019

### 2402MHz\_TX



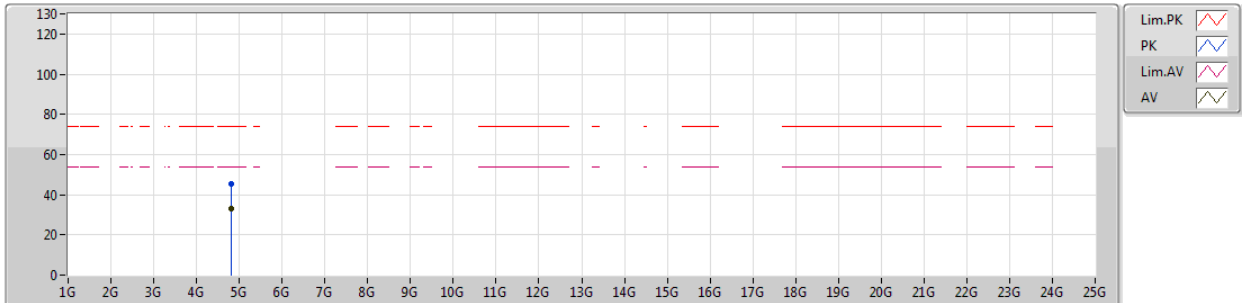
EUT Y\_1TX  
Setting Default  
01-E-4  
FSU

| Type | Freq<br>(Hz) | Level<br>(dBuV/m) | Limit<br>(dBuV/m) | Margin<br>(dB) | Factor<br>(dB) | Dist<br>(m) | Condition | Azimuth<br>(°) | Height<br>(m) | Comments |  |  |  |  |  |  |
|------|--------------|-------------------|-------------------|----------------|----------------|-------------|-----------|----------------|---------------|----------|--|--|--|--|--|--|
| PK   | 4.80764G     | 45.70             | 74.00             | -28.30         | 3.51           | 3           | Vertical  | 290            | 1.50          | -        |  |  |  |  |  |  |
| AV   | 4.80336G     | 33.02             | 54.00             | -20.98         | 3.49           | 3           | Vertical  | 290            | 1.50          | -        |  |  |  |  |  |  |

## BT-LE(1Mbps)\_1TX

27/03/2019

## 2402MHz\_TX



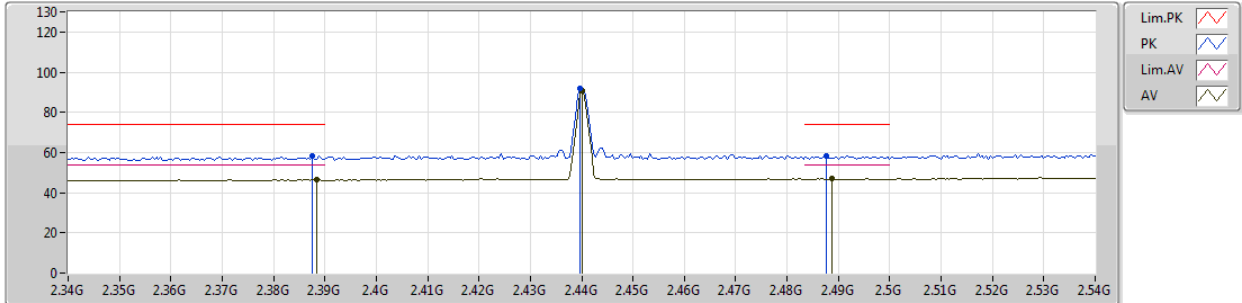
EUT Y\_1TX  
Setting Default  
01-E-4  
FSU

| Type | Freq<br>(Hz) | Level<br>(dBuV/m) | Limit<br>(dBuV/m) | Margin<br>(dB) | Factor<br>(dB) | Dist<br>(m) | Condition  | Azimuth<br>(°) | Height<br>(m) | Comments |  |  |  |  |  |  |
|------|--------------|-------------------|-------------------|----------------|----------------|-------------|------------|----------------|---------------|----------|--|--|--|--|--|--|
| PK   | 4.80732G     | 45.48             | 74.00             | -28.52         | 3.51           | 3           | Horizontal | 330            | 2.10          | -        |  |  |  |  |  |  |
| AV   | 4.80878G     | 32.87             | 54.00             | -21.13         | 3.52           | 3           | Horizontal | 330            | 2.10          | -        |  |  |  |  |  |  |

### BT-LE(1Mbps)\_1TX

27/03/2019

### 2440MHz\_TX



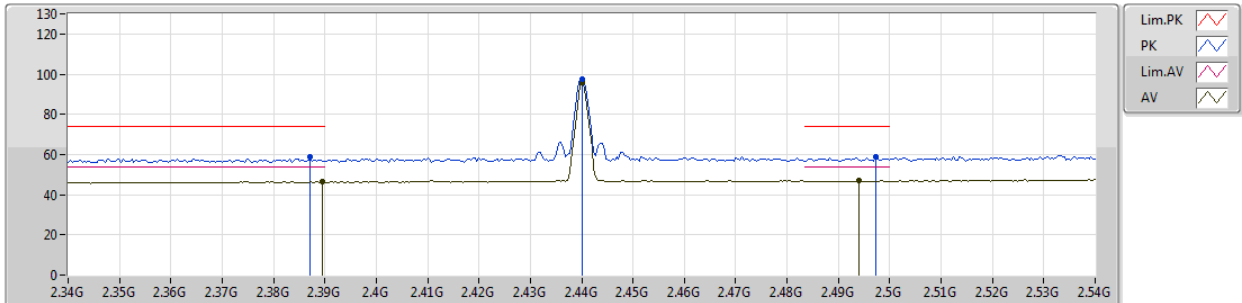
EUT Y\_1TX  
Setting Default  
01-E-4  
FSU

| Type | Freq<br>(Hz) | Level<br>(dBuV/m) | Limit<br>(dBuV/m) | Margin<br>(dB) | Factor<br>(dB) | Dist<br>(m) | Condition | Azimuth<br>(°) | Height<br>(m) | Comments |
|------|--------------|-------------------|-------------------|----------------|----------------|-------------|-----------|----------------|---------------|----------|
| PK   | 2.3876G      | 58.37             | 74.00             | -15.63         | 30.79          | 3           | Vertical  | 264            | 1.53          | -        |
| AV   | 2.3884G      | 46.50             | 54.00             | -7.50          | 30.80          | 3           | Vertical  | 264            | 1.53          | -        |
| PK   | 2.4396G      | 91.98             | Inf               | -Inf           | 30.90          | 3           | Vertical  | 264            | 1.53          | -        |
| AV   | 2.44G        | 90.59             | Inf               | -Inf           | 30.90          | 3           | Vertical  | 264            | 1.53          | -        |
| PK   | 2.4876G      | 58.49             | 74.00             | -15.51         | 30.97          | 3           | Vertical  | 264            | 1.53          | -        |
| AV   | 2.4888G      | 46.98             | 54.00             | -7.02          | 30.97          | 3           | Vertical  | 264            | 1.53          | -        |

### BT-LE(1Mbps)\_1TX

27/03/2019

### 2440MHz\_TX



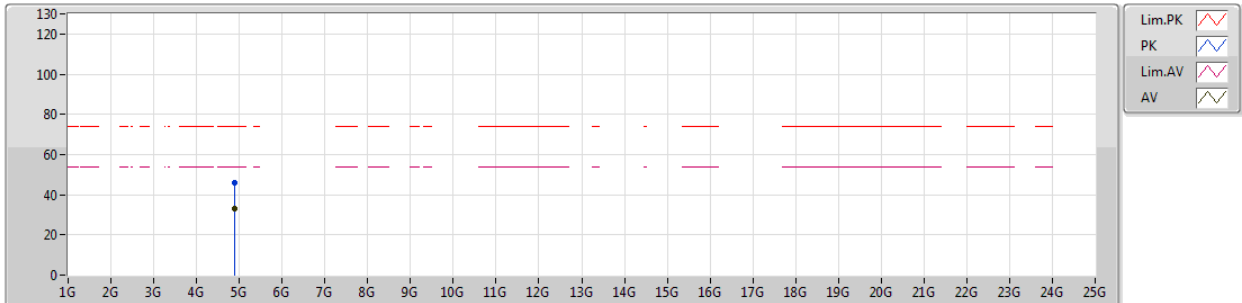
EUT Y\_1TX  
Setting Default  
01-E-4  
FSU

| Type | Freq<br>(Hz) | Level<br>(dBuV/m) | Limit<br>(dBuV/m) | Margin<br>(dB) | Factor<br>(dB) | Dist<br>(m) | Condition  | Azimuth<br>(°) | Height<br>(m) | Comments |
|------|--------------|-------------------|-------------------|----------------|----------------|-------------|------------|----------------|---------------|----------|
| PK   | 2.3872G      | 58.65             | 74.00             | -15.35         | 30.79          | 3           | Horizontal | 242            | 2.13          | -        |
| AV   | 2.3896G      | 46.48             | 54.00             | -7.52          | 30.80          | 3           | Horizontal | 242            | 2.13          | -        |
| PK   | 2.44G        | 97.33             | Inf               | -Inf           | 30.90          | 3           | Horizontal | 242            | 2.13          | -        |
| AV   | 2.44G        | 95.99             | Inf               | -Inf           | 30.90          | 3           | Horizontal | 242            | 2.13          | -        |
| PK   | 2.4972G      | 58.59             | 74.00             | -15.41         | 30.99          | 3           | Horizontal | 242            | 2.13          | -        |
| AV   | 2.494G       | 46.88             | 54.00             | -7.12          | 30.98          | 3           | Horizontal | 242            | 2.13          | -        |

### BT-LE(1Mbps)\_1TX

27/03/2019

### 2440MHz\_TX



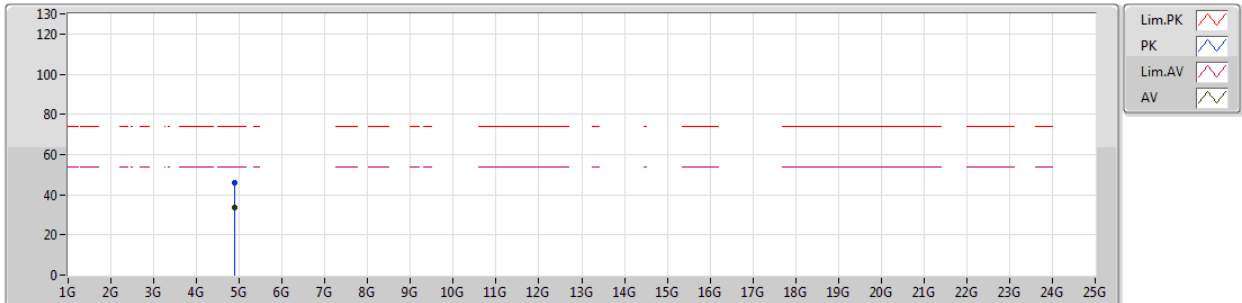
EUT Y\_1TX  
Setting Default  
01-E-4  
FSU

| Type | Freq<br>(Hz) | Level<br>(dBuV/m) | Limit<br>(dBuV/m) | Margin<br>(dB) | Factor<br>(dB) | Dist<br>(m) | Condition | Azimuth<br>(°) | Height<br>(m) | Comments |  |  |  |  |  |  |
|------|--------------|-------------------|-------------------|----------------|----------------|-------------|-----------|----------------|---------------|----------|--|--|--|--|--|--|
| PK   | 4.88254G     | 46.22             | 74.00             | -27.78         | 3.85           | 3           | Vertical  | 211            | 1.59          | -        |  |  |  |  |  |  |
| AV   | 4.87888G     | 33.17             | 54.00             | -20.83         | 3.83           | 3           | Vertical  | 211            | 1.59          | -        |  |  |  |  |  |  |

### BT-LE(1Mbps)\_1TX

27/03/2019

### 2440MHz\_TX



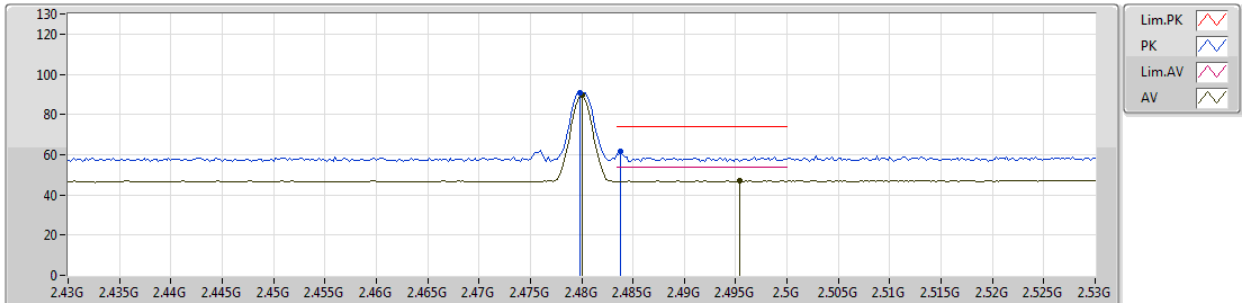
EUT Y\_1TX  
Setting Default  
01-E-4  
FSU

| Type | Freq<br>(Hz) | Level<br>(dBuV/m) | Limit<br>(dBuV/m) | Margin<br>(dB) | Factor<br>(dB) | Dist<br>(m) | Condition  | Azimuth<br>(°) | Height<br>(m) | Comments |
|------|--------------|-------------------|-------------------|----------------|----------------|-------------|------------|----------------|---------------|----------|
| PK   | 4.88216G     | 45.99             | 74.00             | -28.01         | 3.85           | 3           | Horizontal | 190            | 1.16          | -        |
| AV   | 4.87856G     | 33.58             | 54.00             | -20.42         | 3.83           | 3           | Horizontal | 190            | 1.16          | -        |

## BT-LE(1Mbps)\_1TX

27/03/2019

## 2480MHz\_TX



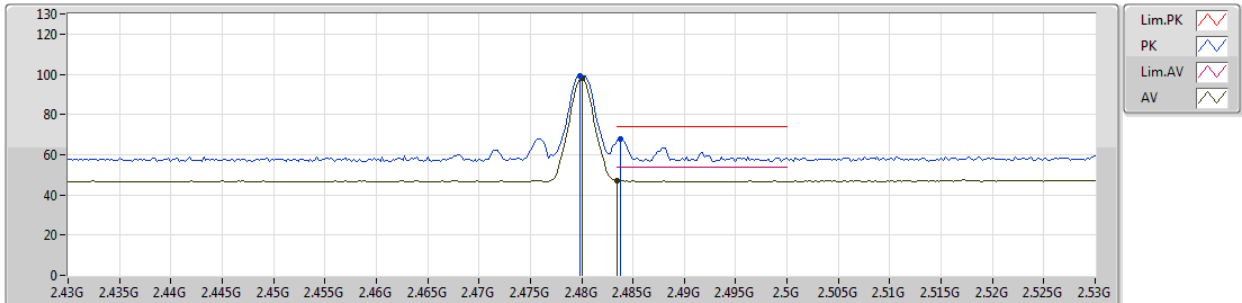
EUT Y\_1TX  
Setting Default  
01-E-4  
FSU

| Type | Freq<br>(Hz) | Level<br>(dBuV/m) | Limit<br>(dBuV/m) | Margin<br>(dB) | Factor<br>(dB) | Dist<br>(m) | Condition | Azimuth<br>(°) | Height<br>(m) | Comments |  |  |  |  |  |  |
|------|--------------|-------------------|-------------------|----------------|----------------|-------------|-----------|----------------|---------------|----------|--|--|--|--|--|--|
| PK   | 2.4798G      | 90.83             | Inf               | -Inf           | 30.96          | 3           | Vertical  | 185            | 2.14          | -        |  |  |  |  |  |  |
| AV   | 2.48G        | 89.42             | Inf               | -Inf           | 30.96          | 3           | Vertical  | 185            | 2.14          | -        |  |  |  |  |  |  |
| PK   | 2.4838G      | 61.54             | 74.00             | -12.46         | 30.96          | 3           | Vertical  | 185            | 2.14          | -        |  |  |  |  |  |  |
| AV   | 2.4954G      | 46.95             | 54.00             | -7.05          | 30.99          | 3           | Vertical  | 185            | 2.14          | -        |  |  |  |  |  |  |

## BT-LE(1Mbps)\_1TX

27/03/2019

## 2480MHz\_TX



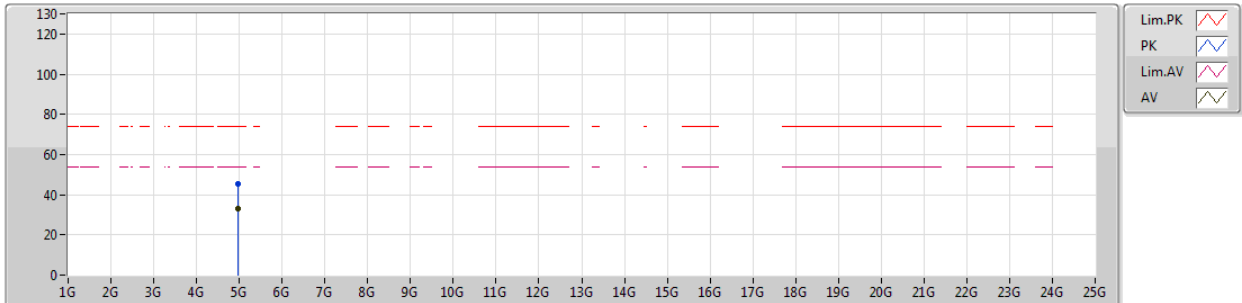
EUT Y\_1TX  
Setting Default  
01-E-4  
FSU

| Type | Freq<br>(Hz) | Level<br>(dBuV/m) | Limit<br>(dBuV/m) | Margin<br>(dB) | Factor<br>(dB) | Dist<br>(m) | Condition  | Azimuth<br>(°) | Height<br>(m) | Comments |  |  |  |  |  |  |
|------|--------------|-------------------|-------------------|----------------|----------------|-------------|------------|----------------|---------------|----------|--|--|--|--|--|--|
| PK   | 2.4798G      | 99.40             | Inf               | -Inf           | 30.96          | 3           | Horizontal | 205            | 1.48          | -        |  |  |  |  |  |  |
| AV   | 2.48G        | 97.93             | Inf               | -Inf           | 30.96          | 3           | Horizontal | 205            | 1.48          | -        |  |  |  |  |  |  |
| PK   | 2.4838G      | 68.02             | 74.00             | -5.98          | 30.96          | 3           | Horizontal | 205            | 1.48          | -        |  |  |  |  |  |  |
| AV   | 2.4835G      | 47.15             | 54.00             | -6.85          | 30.96          | 3           | Horizontal | 205            | 1.48          | -        |  |  |  |  |  |  |

## BT-LE(1Mbps)\_1TX

27/03/2019

## 2480MHz\_TX



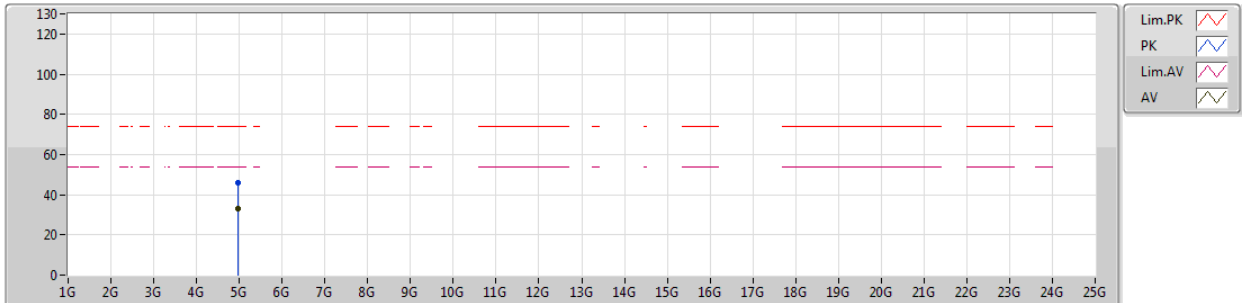
EUT Y\_1TX  
Setting Default  
01-E-4  
FSU

| Type | Freq     | Level    | Limit    | Margin | Factor | Dist | Condition | Azimuth | Height | Comments |  |  |  |  |  |  |
|------|----------|----------|----------|--------|--------|------|-----------|---------|--------|----------|--|--|--|--|--|--|
|      | (Hz)     | (dBuV/m) | (dBuV/m) | (dB)   | (dB)   | (m)  |           | (°)     | (m)    |          |  |  |  |  |  |  |
| PK   | 4.9599G  | 45.29    | 74.00    | -28.71 | 4.20   | 3    | Vertical  | 135     | 1.55   | -        |  |  |  |  |  |  |
| AV   | 4.96008G | 32.97    | 54.00    | -21.03 | 4.20   | 3    | Vertical  | 135     | 1.55   | -        |  |  |  |  |  |  |

### BT-LE(1Mbps)\_1TX

27/03/2019

### 2480MHz\_TX



EUT Y\_1TX  
Setting Default  
01-E-4  
FSU

| Type | Freq<br>(Hz) | Level<br>(dBuV/m) | Limit<br>(dBuV/m) | Margin<br>(dB) | Factor<br>(dB) | Dist<br>(m) | Condition  | Azimuth<br>(°) | Height<br>(m) | Comments |
|------|--------------|-------------------|-------------------|----------------|----------------|-------------|------------|----------------|---------------|----------|
| PK   | 4.96234G     | 45.85             | 74.00             | -28.15         | 4.21           | 3           | Horizontal | 227            | 1.85          | -        |
| AV   | 4.96236G     | 32.92             | 54.00             | -21.08         | 4.21           | 3           | Horizontal | 227            | 1.85          | -        |