



# FCC RADIO TEST REPORT

**FCC ID** : LDK-SMST9105AXI

**Equipment** : Catalyst 9105AX 802.11ax Access Point,  
Catalyst 1105AX 802.11ax Access Point

**Brand Name** : Cisco

**Model Name** : C9105AXI-B, C9105AXI-C, C9105AXI-D, C9105AXI-F,  
C9105AXI-N, C9105AXI-S, C9105AXI-K, C9105AXI-x,  
C1105AXI-B, C1105AXI-C, C1105AXI-D, C1105AXI-F,  
C1105AXI-N, C1105AXI-S, C1105AXI-K, C1105AXI-x  
(Refer to section 1.1.5 for more details)

**Applicant** : Cisco Systems, Inc.  
125 West Tasman Drive, San Jose, California, United  
States, 95134-1706

**Manufacturer** : Cisco Systems, Inc.  
125 West Tasman Drive, San Jose, California, United  
States, 95134-1706

**Standard** : 47 CFR FCC Part 15.247

The product was received on Apr. 20, 2020, and testing was started from Apr. 28, 2020 and completed on Jun. 01, 2020. 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 Applicable 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 .....                                            | 12        |
| 2.4 Accessories .....                                                          | 12        |
| 2.5 Support Equipment.....                                                     | 13        |
| 2.6 Test Setup Diagram .....                                                   | 14        |
| <b>3 Transmitter Test Result .....</b>                                         | <b>17</b> |
| 3.1 AC Power-line Conducted Emissions .....                                    | 17        |
| 3.2 DTS Bandwidth.....                                                         | 19        |
| 3.3 Maximum Conducted Output Power .....                                       | 20        |
| 3.4 Power Spectral Density .....                                               | 23        |
| 3.5 Emissions in Non-restricted Frequency Bands .....                          | 25        |
| 3.6 Emissions in Restricted Frequency Bands.....                               | 26        |
| <b>4 Test Equipment and Calibration Data .....</b>                             | <b>31</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>                                                  |           |



TEL : 886-3-656-9065  
FAX : 886-3-656-9085  
Report Template No.: CB-A10\_9 Ver1.1



## 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: Sandy Chuang**



# 1 General Description

## 1.1 Information

### 1.1.1 RF General Information

| Frequency Range (MHz) | IEEE Std. | Ch. Frequency (MHz) | Channel Number |
|-----------------------|-----------|---------------------|----------------|
| 2400-2483.5           | 802.15.4  | 2405-2480           | 11-26 [16]     |

| Band          | Mode   | BWch (MHz) | Nant |
|---------------|--------|------------|------|
| 2.4-2.4835GHz | Zigbee | 5          | 1TX  |

**Note:**

- ♦ Zigbee uses a O-QPSK (250kbps) 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. | Port | Brand    | Model Name | Antenna Type             | Connector | Gain (dBi) |
|------|------|----------|------------|--------------------------|-----------|------------|
| 1    | 1    | PEGATRON | WIFI_1 ANT | IFA (Inverted-F antenna) | I-PEX     | Note 1     |
| 2    | 2    | PEGATRON | WIFI_2 ANT | IFA (Inverted-F antenna) | I-PEX     |            |
| 3    | 1    | PEGATRON | BLE ANT    | IFA (Inverted-F antenna) | I-PEX     |            |

Note 1:

| Ant. | Port | Gain (dBi)  |          |          |           |          |          |          |          |                    |          |          |
|------|------|-------------|----------|----------|-----------|----------|----------|----------|----------|--------------------|----------|----------|
|      |      | WLAN 2.4GHz |          |          | WLAN 5GHz |          |          |          |          | Bluetooth / Zigbee |          |          |
|      |      | 2400 MHz    | 2450 MHz | 2500 MHz | 5150 MHz  | 5300 MHz | 5500 MHz | 5700 MHz | 5850 MHz | 2400 MHz           | 2450 MHz | 2500 MHz |
| 1    | 1    | 3.03        | 3.43     | 3.02     | 4.28      | 4.48     | 4.63     | 4.89     | 4.52     | -                  | -        | -        |
| 2    | 2    | 2.92        | 3.41     | 3.11     | 4.68      | 4.52     | 4.49     | 4.66     | 4.72     | -                  | -        | -        |
| 3    | 1    | -           | -        | -        | -         | -        | -        | -        | -        | 2.08               | 2.30     | 2.18     |

Note 2: The above information was declared by manufacturer.

Note 3:

**For 2.4GHz function:**

**For IEEE 802.11 b/g/n/ax (1TX/1RX):**

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

**For IEEE 802.11 b/g/n/ax (2TX/2RX):**

Port 1 and Port 2 can be used as transmitting/receiving antenna.

Port 1 and Port 2 could transmit/receive simultaneously.

**For 5GHz function:**

**For IEEE 802.11a/n/ac/ax (1TX/1RX):**

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

**For IEEE 802.11a/n/ac/ax (2TX/2RX):**

Port 1 and Port 2 can be used as transmitting/receiving antenna.

Port 1 and Port 2 could transmit/receive simultaneously.

**For Bluetooth function:**

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

**For Zigbee function:**

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

**1.1.3 Mode Test Duty Cycle**

| Mode   | DC | DCF(dB) | T(s)                 | VBW(Hz) $\geq 1/T$   |
|--------|----|---------|----------------------|----------------------|
| Zigbee | 1  | 0       | n/a (DC $\geq$ 0.98) | n/a (DC $\geq$ 0.98) |

Note:

- ♦ DC is Duty Cycle.
- ♦ DCF is Duty Cycle Factor.

**1.1.4 EUT Operational Condition**

|                              |                                                                                |                  |                          |                     |
|------------------------------|--------------------------------------------------------------------------------|------------------|--------------------------|---------------------|
| <b>EUT Power Type</b>        | From PoE                                                                       |                  |                          |                     |
| <b>Beamforming Function</b>  | <input checked="" type="checkbox"/>                                            | With beamforming | <input type="checkbox"/> | Without beamforming |
|                              | The product has beamforming function for n/ax in 2.4GHz and a/n/ac/ax in 5GHz. |                  |                          |                     |
| <b>Test Software Version</b> | Feb14 2020 05:22:27 version 17.18.2 (r782430 WLTEST)                           |                  |                          |                     |

Note: The above information was declared by manufacturer.



### 1.1.5 Table for Multiple Listing

The equipment names/model names in the following table are all refer to the identical product.

| Equipment Name                           | Model Name                                          | Description                                                                                                 |
|------------------------------------------|-----------------------------------------------------|-------------------------------------------------------------------------------------------------------------|
| Catalyst 9105AX 802.11ax<br>Access Point | C9105AXI-B                                          | All the models are identical, the difference equipment names/model names for difference marketing strategy. |
|                                          | C9105AXI-C                                          |                                                                                                             |
|                                          | C9105AXI-D                                          |                                                                                                             |
|                                          | C9105AXI-F                                          |                                                                                                             |
|                                          | C9105AXI-N                                          |                                                                                                             |
|                                          | C9105AXI-S                                          |                                                                                                             |
|                                          | C9105AXI-K                                          |                                                                                                             |
|                                          | C9105AXI-x<br>(x can be A-Z, regional country code) |                                                                                                             |
| Catalyst 1105AX 802.11ax<br>Access Point | C1105AXI-B                                          |                                                                                                             |
|                                          | C1105AXI-C                                          |                                                                                                             |
|                                          | C1105AXI-D                                          |                                                                                                             |
|                                          | C1105AXI-F                                          |                                                                                                             |
|                                          | C1105AXI-N                                          |                                                                                                             |
|                                          | C1105AXI-S                                          |                                                                                                             |
|                                          | C1105AXI-K                                          |                                                                                                             |
|                                          | C1105AXI-x<br>(x can be A-Z, regional country code) |                                                                                                             |

From the above models, model: C9105AXI-B was selected as representative model for the test and its data was recorded in this report.



## 1.2 Applicable 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

The following reference test guidance is not within the scope of accreditation of TAF.

- ♦ FCC KDB 558074 D01 v05r02
- ♦ FCC KDB 662911 D01 v02r01
- ♦ FCC KDB 414788 D01 v01r01

## 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       | Owen Hsu      | 22.5-23.8°C / 56-58%  | Apr. 28, 2020<br>May 28, 2020   |
| Radiated<br>(Cabinet_Above 1GHz) | 03CH06-CB     | RJ Huang      | 21.9-22.4°C / 57-60 % | Apr. 30, 2020~<br>Jun. 01, 2020 |
| Radiated<br>(Below 1GHz)         | 03CH06-CB     | Stim Sung     | 22.4-23.3°C / 57-60 % | May 19, 2020                    |
| AC Conduction                    | CO02-CB       | GN Hou        | 22~24°C / 65~68%      | May 28, 2020                    |

Test site Designation No. TW0006 with FCC.

Test site registered number IC 4086D 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) | 4.3 dB      | Confidence levels of 95% |
| Radiated Emission (1GHz ~ 18GHz)     | 4.3 dB      | Confidence levels of 95% |
| Radiated Emission (18GHz ~ 40GHz)    | 5.1 dB      | Confidence levels of 95% |
| Conducted Emission                   | 2.4 dB      | Confidence levels of 95% |
| Output Power Measurement             | 1.5 dB      | Confidence levels of 95% |
| Power Density Measurement            | 2.4 dB      | Confidence levels of 95% |
| Bandwidth Measurement                | 2%          | Confidence levels of 95% |



## **2 Test Configuration of EUT**

### **2.1 Test Channel Mode**

| Mode    | Power Setting |
|---------|---------------|
| Zigbee  | -             |
| 2405MHz | 5             |
| 2440MHz | 5             |
| 2480MHz | 1             |

## 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>                                                         | CTX                                                      |
| 1                                                                             | EUT_2.4GHz + PoE                                         |
| 2                                                                             | EUT_5GHz + PoE                                           |
| 3                                                                             | EUT_Bluetooth LE + PoE                                   |
| 4                                                                             | EUT_Zigbee + PoE                                         |
| For operating mode 2 is the worst case and it was record in this test 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                                                                                 |

| The Worst Case Mode for Following Conformance Tests                           |                                                                                                                                                                                                                                                                                     |
|-------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <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>                                               | CTX<br>The EUT was performed at X axis, Y axis and Z axis position for Emissions in Restricted Frequency Bands above 1GHz. The worst case was found at Z axis in 2.4GHz, Zigbee and at X axis in 5GHz, Bluetooth LE, thus the measurement will follow this same test configuration. |
| 1                                                                             | EUT in Z axis_2.4GHz + PoE                                                                                                                                                                                                                                                          |
| 2                                                                             | EUT in X axis_5GHz + PoE                                                                                                                                                                                                                                                            |
| 3                                                                             | EUT in X axis_Bluetooth LE + PoE                                                                                                                                                                                                                                                    |
| 4                                                                             | EUT in Z axis_Zigbee + PoE                                                                                                                                                                                                                                                          |
| For operating mode 1 is the worst case and it was record in this test report. |                                                                                                                                                                                                                                                                                     |
| <b>Operating Mode &gt; 1GHz</b>                                               | CTX (Cabinet)<br>The EUT was performed at X axis, Y axis and Z axis position. The worst case was found at Z axis, thus the measurement will follow this same test configuration.                                                                                                    |
| 1                                                                             | EUT in Z axis_Zigbee                                                                                                                                                                                                                                                                |



| The Worst Case Mode for Following Conformance Tests                                   |                                                                         |
|---------------------------------------------------------------------------------------|-------------------------------------------------------------------------|
| Tests Item                                                                            | Simultaneous Transmission Analysis - Co-location RF Exposure Evaluation |
| Operating Mode                                                                        |                                                                         |
| 1                                                                                     | WLAN 2.4GHz + WLAN 5GHz + Bluetooth LE                                  |
| 2                                                                                     | WLAN 2.4GHz + WLAN 5GHz + Zigbee                                        |
| Refer to Sporton Test Report No.: FA992016-02 for Co-location RF Exposure Evaluation. |                                                                         |

Note: It was supplied power by PoE for EUT, and the PoE is for measurement only, would not be marketed.

**<For Conducted emissions and Radiated measurement (below 1GHz)>**

| Equipment | Brand Name | Model Name     | FCC ID |
|-----------|------------|----------------|--------|
| PoE       | PHIHONG    | POE29U-1AT(PL) | N/A    |

**<For other tests>**

| Equipment | Brand Name | Model Name | FCC ID |
|-----------|------------|------------|--------|
| PoE       | CERIO      | POE-G30    | N/A    |

## 2.3 EUT Operation during Test

The EUT was programmed to be in continuously transmitting mode.

## 2.4 Accessories

| Accessories |                    |            |                  |        |
|-------------|--------------------|------------|------------------|--------|
| No.         | Equipment Name     | Brand Name | Model Name       | Remark |
| 1           | Mounting bracket*1 | Cisco      | AIR-AP-BRACKET-8 | -      |



## 2.5 Support Equipment

For AC Conduction:

| Support Equipment |           |            |                |        |
|-------------------|-----------|------------|----------------|--------|
| No.               | Equipment | Brand Name | Model Name     | FCC ID |
| A                 | PoE       | PHIHONG    | POE29U-1AT(PL) | N/A    |

For Radiated (below 1GHz):

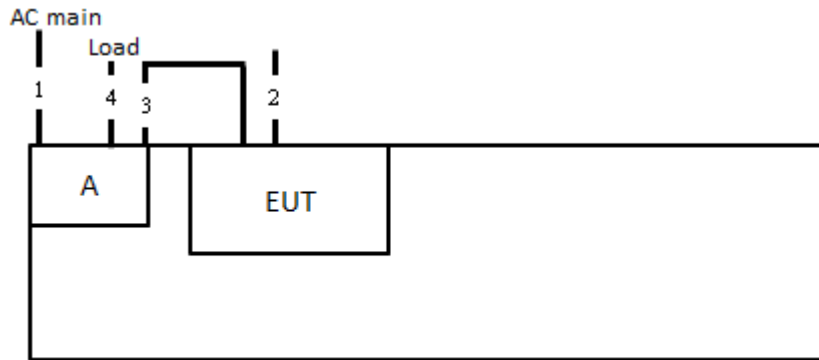
| Support Equipment |           |            |                |        |
|-------------------|-----------|------------|----------------|--------|
| No.               | Equipment | Brand Name | Model Name     | FCC ID |
| A                 | PoE       | PHIHONG    | POE29U-1AT(PL) | N/A    |
| B                 | Notebook  | DELL       | E4300          | N/A    |

For Radiated (above 1GHz) and RF Conducted:

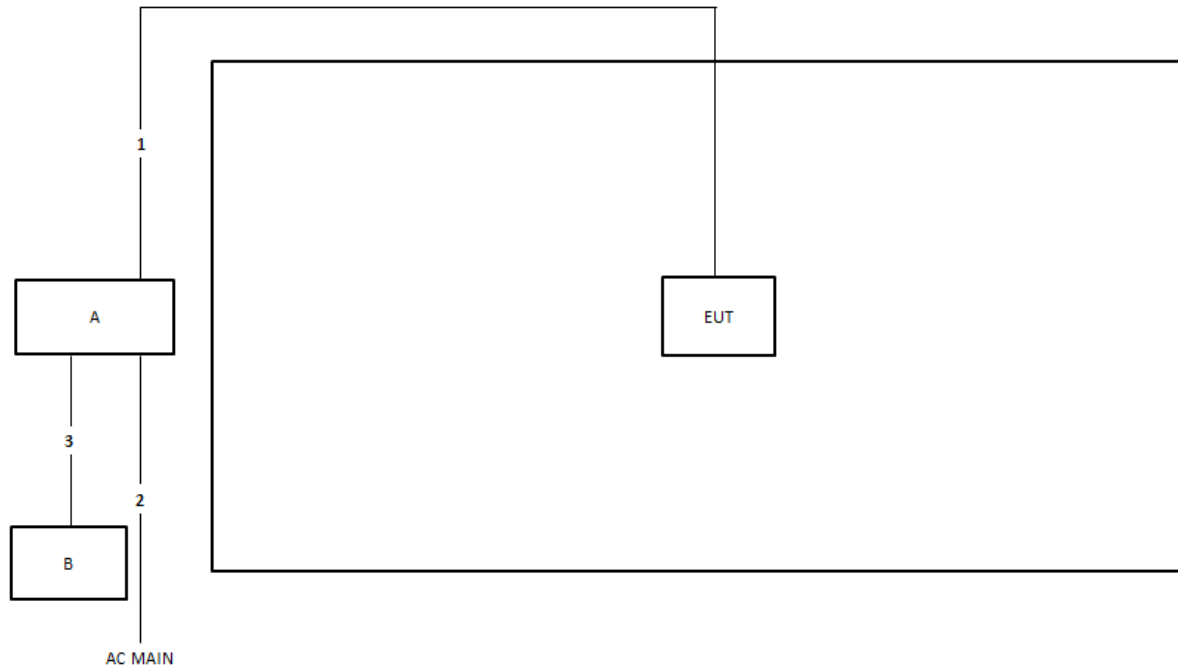
| Support Equipment |           |                   |                   |        |
|-------------------|-----------|-------------------|-------------------|--------|
| No.               | Equipment | Brand Name        | Model Name        | FCC ID |
| A                 | PoE       | CERIO             | POE-G30           | N/A    |
| B                 | Notebook  | DELL              | E4300             | N/A    |
| C                 | Fixture   | TEXAS INSTRUMENTS | LAUNCHXL-CC26X2R1 | N/A    |

## 2.6 Test Setup Diagram

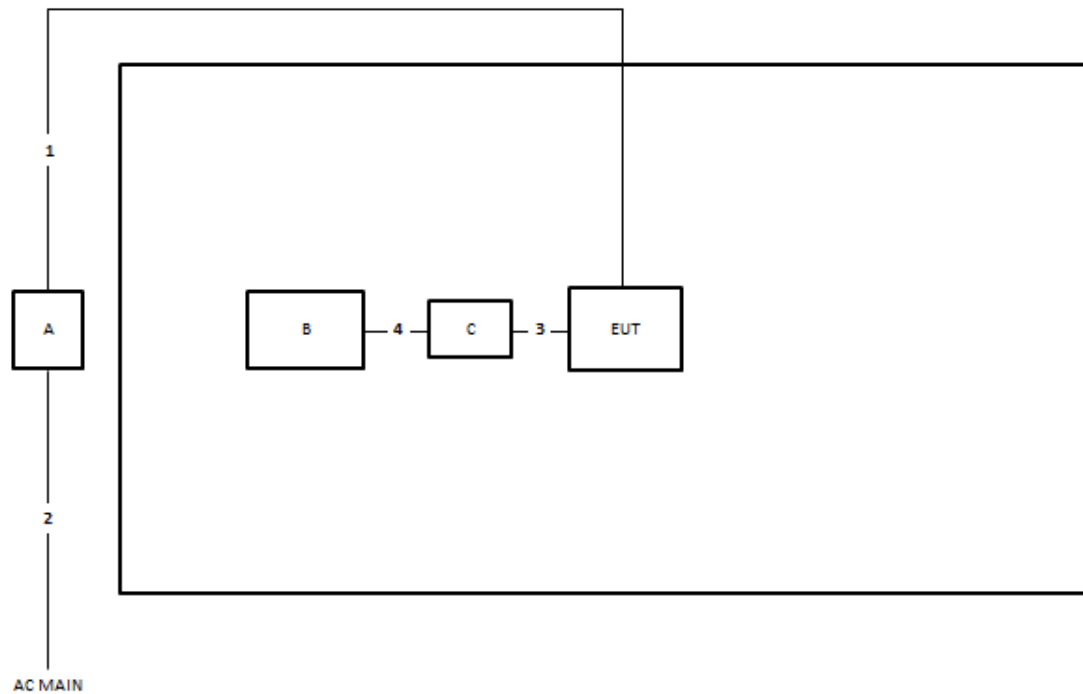
**Test Setup Diagram – AC Line Conducted Emission Test**



| Item | Connection                   | Shielded | Length |
|------|------------------------------|----------|--------|
| 1    | Power cable                  | No       | 1.5m   |
| 2    | RS232 to RJ-45 console cable | No       | 1.9m   |
| 3    | RJ-45 cable                  | No       | 1.5m   |
| 4    | RJ-45 cable                  | No       | 1.5m   |

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


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

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


| Item | Connection  | Shielded | Length |
|------|-------------|----------|--------|
| 1    | RJ-45 cable | No       | 10m    |
| 2    | Power cable | No       | 1.5m   |
| 3    | Pin cable   | No       | 0.1m   |
| 4    | USB cable   | Yes      | 1m     |



### 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. |            |           |

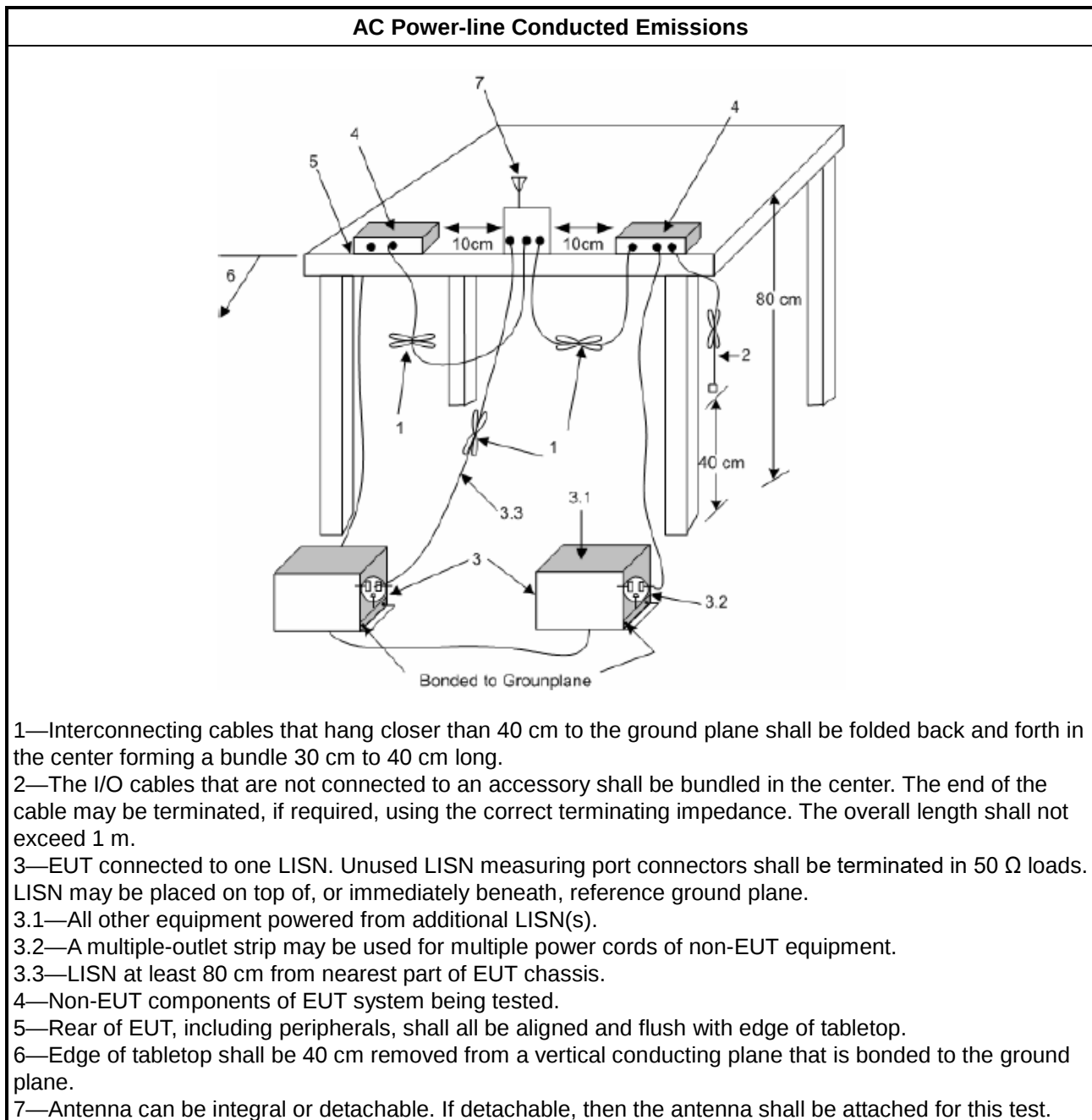
##### 3.1.2 Measuring Instruments

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

##### 3.1.3 Test Procedures

| Test Method                                                                                                      |
|------------------------------------------------------------------------------------------------------------------|
| <input checked="" type="checkbox"/> 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. |

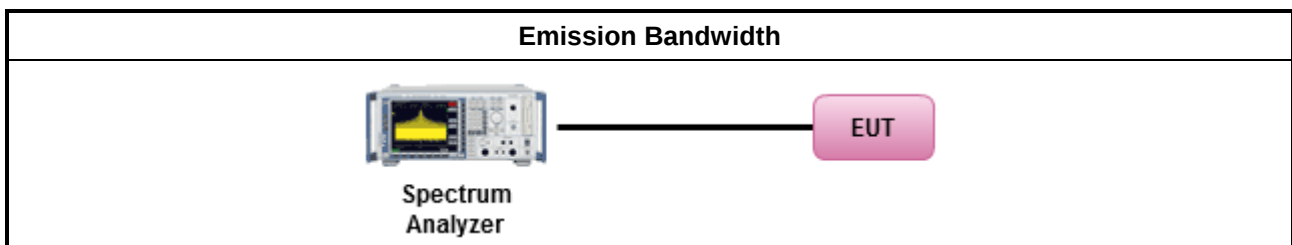
### 3.2.2 Measuring Instruments

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)                                                                                                                                                                                                                                                                                                                                                                                   |   |                                                                            |   |                                                                             |   |
|                                                                                                                                                                   | ▪ If $G_{TX} > 6$ dBi, then $P_{Out} = 30 - (G_{TX} - 6)$ dBm                                                                                                                                                                                                                                                                                                                                                                                |   |                                                                            |   |                                                                             |   |
|                                                                                                                                                                   | ▪ Smart antenna system (SAS):                                                                                                                                                                                                                                                                                                                                                                                                                |   |                                                                            |   |                                                                             |   |
|                                                                                                                                                                   | <table> <tr> <td>-</td><td>Single beam: If <math>G_{TX} &gt; 6</math> dBi, then <math>P_{Out} = 30 - (G_{TX} - 6)/3</math> dBm</td></tr> <tr> <td>-</td><td>Overlap beam: If <math>G_{TX} &gt; 6</math> dBi, then <math>P_{Out} = 30 - (G_{TX} - 6)/3</math> dBm</td></tr> <tr> <td>-</td><td>Aggregate power on all beams: If <math>G_{TX} &gt; 6</math> dBi, then <math>P_{Out} = 30 - (G_{TX} - 6)/3 + 8</math> dB dBm</td></tr> </table> | - | 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 | - |
| -                                                                                                                                                                 | 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. |                                                                                                                                                                                                                                                                                                                                                                                                                                              |   |                                                                            |   |                                                                             |   |

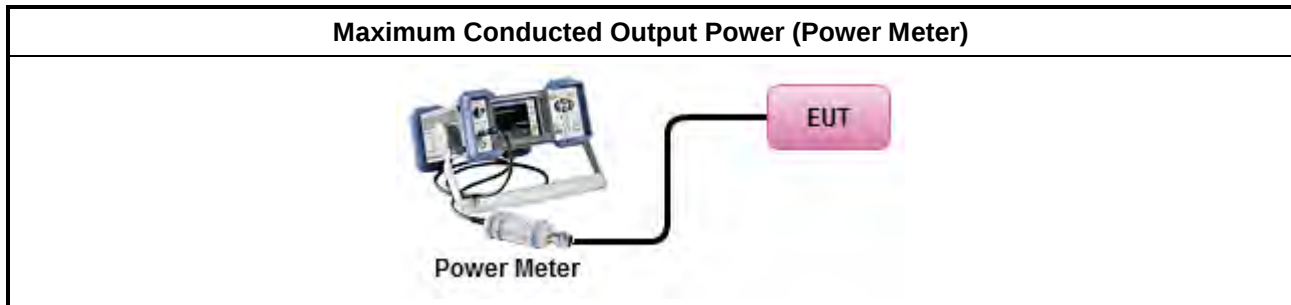
#### 3.3.2 Measuring Instruments

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 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 checked="" 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 |

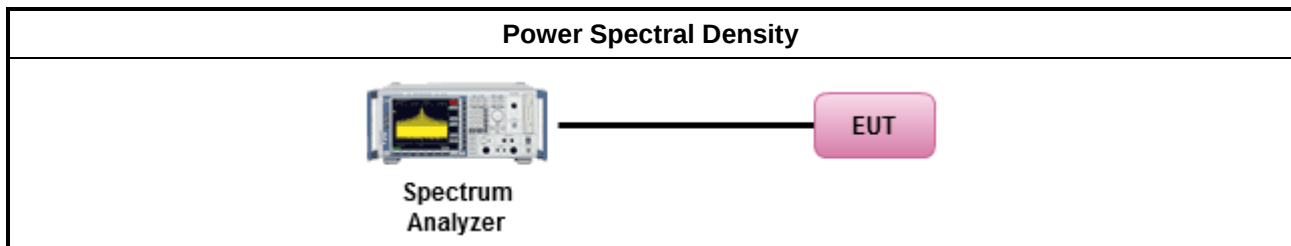
#### 3.4.2 Measuring Instruments

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 Method Max. PSD.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| ▪ For conducted measurement.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| ▪ If The EUT supports multiple transmit chains using options given below:                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| <input 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> |             |

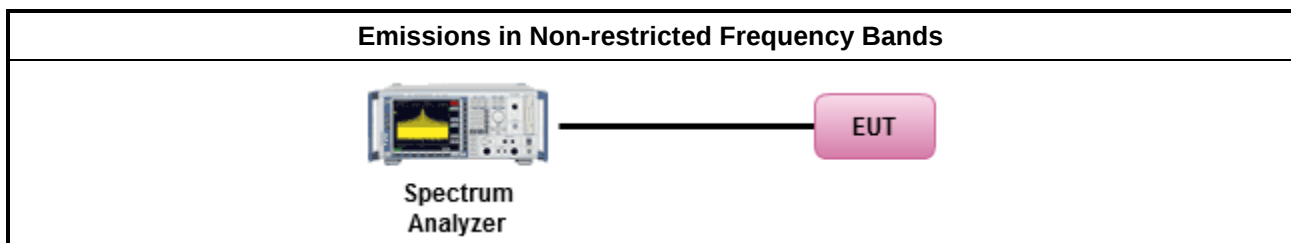
#### 3.5.2 Measuring Instruments

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.



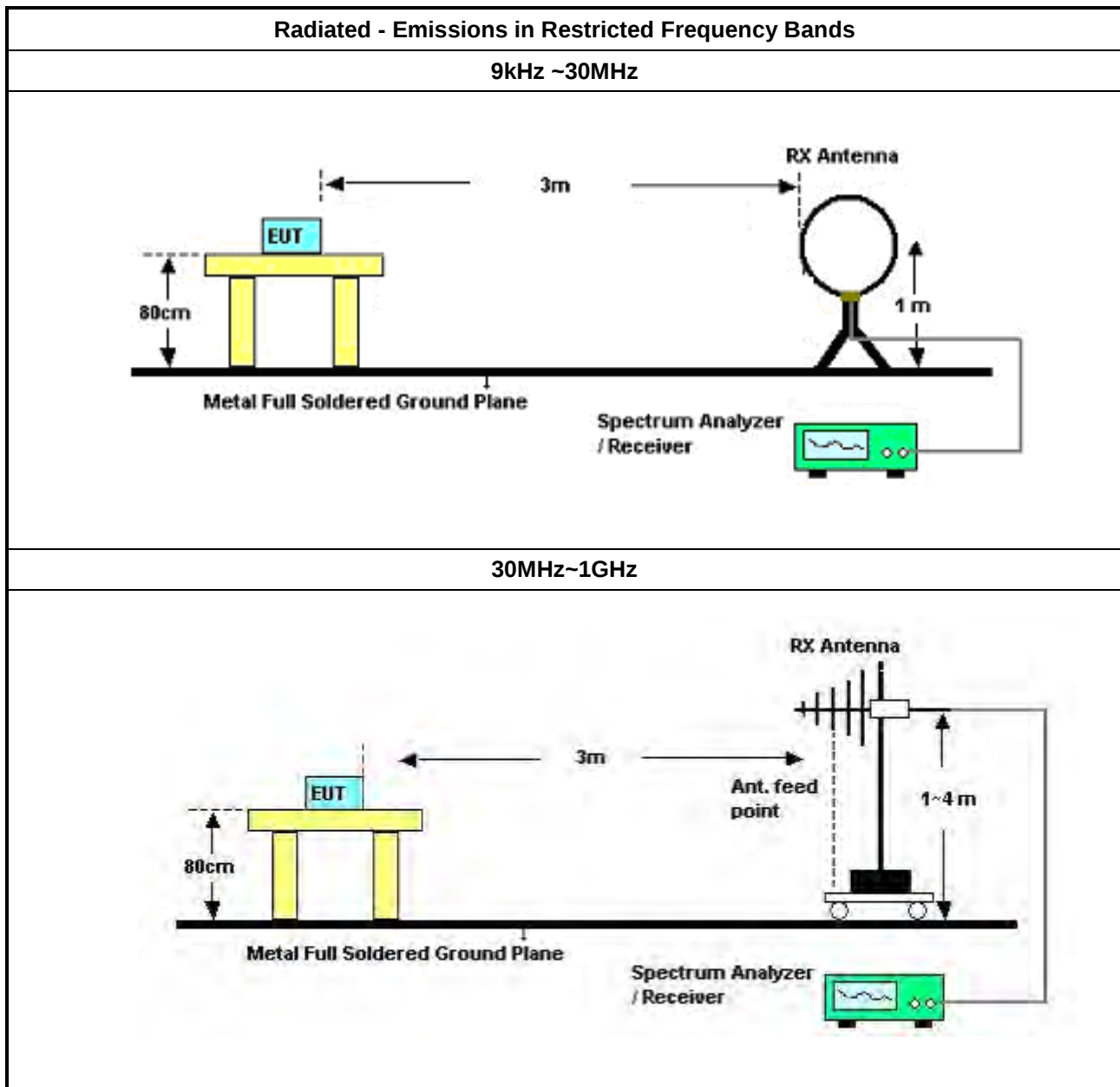
### 3.6.3 Test Procedures

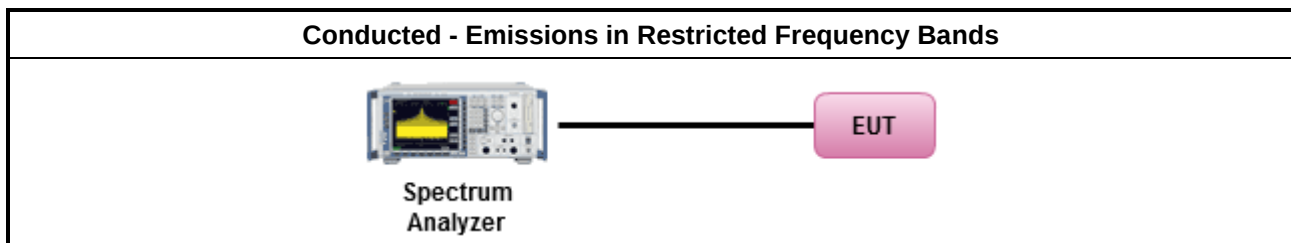
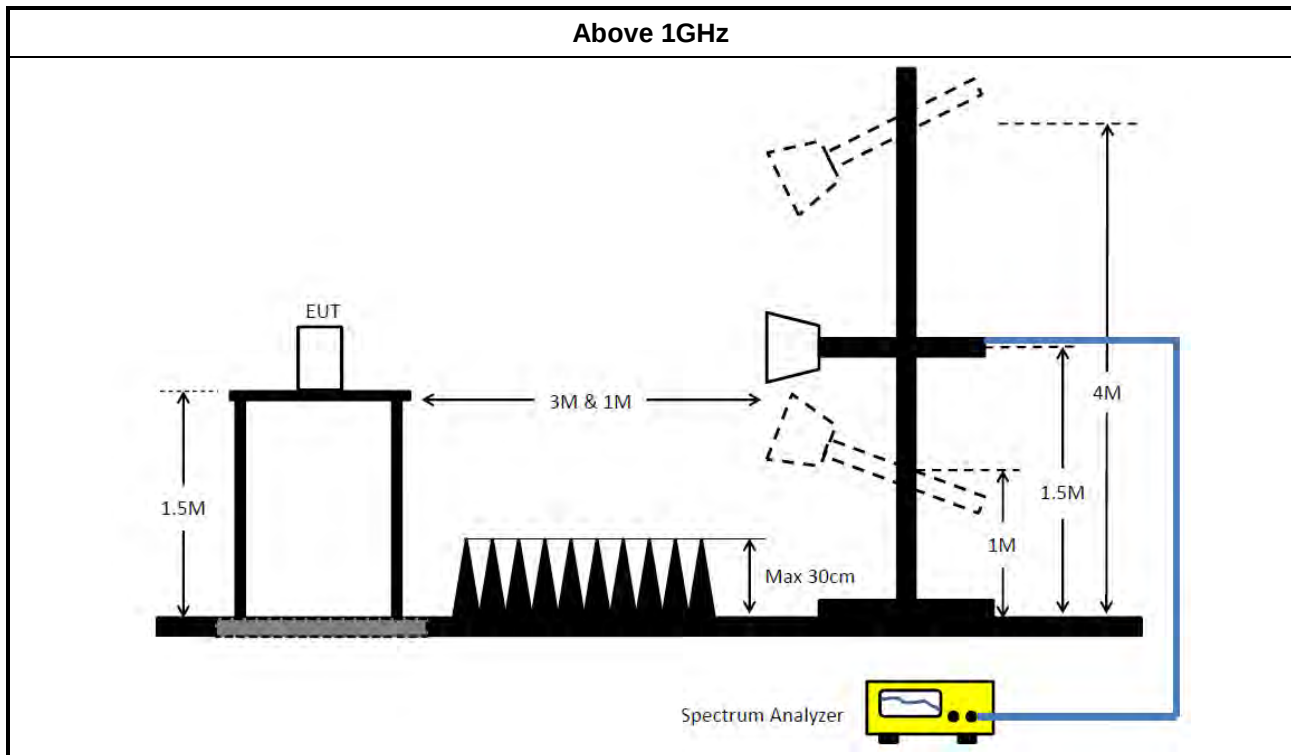
| Test Method                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <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> |



| Test Method |                                                                                                                                                                                                                                                                                                                                                                                                                                   |
|-------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|             | ▪ For conducted and cabinet radiation measurement, refer as FCC KDB 558074, clause 8.6 & C63.10 clause 11.12.2.2.                                                                                                                                                                                                                                                                                                                 |
|             | ▪ For conducted unwanted emissions into non-restricted bands (relative emission limits).<br>Devices with multiple transmit chains:<br>Refer as FCC KDB 662911, when testing out-of-band and spurious emissions against relative emission limits, tests may be performed on each output individually without summing or adding 10 log(N) if the measurements are made relative to the in-band emissions on the individual outputs. |
|             | ▪ For conducted unwanted emissions into restricted bands (absolute emission limits).<br>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                                                                                                                                                                             |
|             | ▪ 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.                                                                                    |

### 3.6.4 Test Setup





### 3.6.5 Measurement Results Calculation

The measured Level is calculated using:

Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level.

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

There is a comparison data of both open-field test site and alternative test site - semi-Anechoic chamber according to KDB414788 Radiated Test Site, and the result came out very similar.

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.

### 3.6.7 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                |
|------------------------------------|--------------|-------------------|------------------|------------------|------------------|----------------------|-----------------------|
| LISN                               | Schwarzbeck  | NSLK 8127         | 8127650          | 9kHz ~ 30MHz     | Nov. 21, 2019    | Nov. 20, 2020        | Conduction (CO02-CB)  |
| LISN                               | Schwarzbeck  | NSLK 8127         | 8127478          | 9kHz ~ 30MHz     | Oct. 30, 2019    | Oct. 29, 2020        | Conduction (CO02-CB)  |
| EMI Receiver                       | Agilent      | N9038A            | MY52260140       | 9kHz ~ 8.4GHz    | Mar. 10, 2020    | Mar. 09, 2021        | Conduction (CO02-CB)  |
| COND Cable                         | Woken        | Cable             | 2                | 0.15MHz ~ 30MHz  | Oct. 21, 2019    | Oct. 20, 2020        | Conduction (CO02-CB)  |
| Software                           | Audix        | E3                | 6.120210n        | -                | N.C.R.           | N.C.R.               | Conduction (CO02-CB)  |
| Loop Antenna                       | Teseq        | HLA 6120          | 24155            | 9kHz - 30 MHz    | Apr. 13, 2020    | Apr. 12, 2021        | Radiation (03CH06-CB) |
| Bilog Antenna with 6 dB attenuator | TESEQ & EMCI | CBL6112D & N-6-06 | 37878 & AT-N0606 | 20MHz ~ 2GHz     | Aug. 03, 2019    | Aug. 02, 2020        | Radiation (03CH06-CB) |
| Horn Antenna                       | SCHWARZBECK  | BBHA9120D         | 9120D-1292       | 1GHz~18GHz       | Jul. 17, 2019    | Jul. 16, 2020        | Radiation (03CH06-CB) |
| Horn Antenna                       | SCHWARZBECK  | BBHA 9170         | BBHA9170507      | 15GHz ~ 40GHz    | Jun. 12, 2019    | Jun. 11, 2020        | Radiation (03CH06-CB) |
| Pre-Amplifier                      | Agilent      | 310N              | 187290           | 0.1MHz ~ 1GHz    | Apr. 28, 2020    | Apr. 27, 2021        | Radiation (03CH06-CB) |
| Pre-Amplifier                      | Agilent      | 83017A            | MY53270064       | 0.5GHz ~ 26.5GHz | May 08, 2019     | May 07, 2020         | Radiation (03CH06-CB) |
| Pre-Amplifier                      | Agilent      | 83017A            | MY53270064       | 0.5GHz ~ 26.5GHz | May 07, 2020     | May 06, 2021         | Radiation (03CH06-CB) |
| Pre-Amplifier                      | MITEQ        | TTA1840-35-HG     | 1864479          | 18GHz ~ 40GHz    | Jul. 03, 2019    | Jul. 02, 2020        | Radiation (03CH06-CB) |
| Spectrum analyzer                  | R&S          | FSP40             | 100080           | 9kHz~40GHz       | Oct. 21, 2019    | Oct. 20, 2020        | Radiation (03CH06-CB) |
| EMI Test Receiver                  | R&S          | ESCS              | 826547/017       | 9kHz ~ 2.75GHz   | May 15, 2019     | May 14, 2020         | Radiation (03CH06-CB) |
| EMI Test Receiver                  | R&S          | ESCS              | 826547/017       | 9kHz ~ 2.75GHz   | May 13, 2020     | May 12, 2021         | Radiation (03CH06-CB) |
| RF Cable-low                       | HUBER+SUHNER | RG402             | Low Cable-05+24  | 30MHz~1GHz       | Oct. 07, 2019    | Oct. 06, 2020        | Radiation (03CH06-CB) |
| RF Cable-high                      | HUBER+SUHNER | RG402             | High Cable-05    | 1GHz~18GHz       | Oct. 07, 2019    | Oct. 06, 2020        | Radiation (03CH06-CB) |



| Instrument        | Manufacturer | Model No. | Serial No.       | Characteristics  | Calibration Date | Calibration Due Date | Remark                |
|-------------------|--------------|-----------|------------------|------------------|------------------|----------------------|-----------------------|
| RF Cable-high     | HUBER+SUHNER | RG402     | High Cable-05+24 | 1GHz~18GHz       | Oct. 07, 2019    | Oct. 06, 2020        | Radiation (03CH06-CB) |
| RF Cable-high     | Woken        | RG402     | High Cable-40G#1 | 18GHz ~ 40 GHz   | Jul. 24, 2019    | Jul. 23, 2020        | Radiation (03CH06-CB) |
| RF Cable-high     | Woken        | RG402     | High Cable-40G#2 | 18GHz ~ 40 GHz   | Jul. 24, 2019    | Jul. 23, 2020        | Radiation (03CH06-CB) |
| Spectrum analyzer | R&S          | FSV40     | 101027           | 9kHz~40GHz       | Jul. 02, 2019    | Jul. 01, 2020        | Conducted (TH01-CB)   |
| RF Cable-high     | Woken        | RG402     | High Cable-06    | 1 GHz – 26.5 GHz | Oct. 07, 2019    | Oct. 06, 2020        | Conducted (TH01-CB)   |
| RF Cable-high     | Woken        | RG402     | High Cable-07    | 1 GHz –26.5 GHz  | Oct. 07, 2019    | Oct. 06, 2020        | Conducted (TH01-CB)   |
| RF Cable-high     | Woken        | RG402     | High Cable-08    | 1 GHz –26.5 GHz  | Oct. 07, 2019    | Oct. 06, 2020        | Conducted (TH01-CB)   |
| RF Cable-high     | Woken        | RG402     | High Cable-09    | 1 GHz –26.5 GHz  | Oct. 07, 2019    | Oct. 06, 2020        | Conducted (TH01-CB)   |
| RF Cable-high     | Woken        | RG402     | High Cable-10    | 1 GHz –26.5 GHz  | Oct. 07, 2019    | Oct. 06, 2020        | Conducted (TH01-CB)   |
| RF Cable-high     | Woken        | RG402     | High Cable-28    | 1 GHz –26.5 GHz  | Nov. 18, 2019    | Nov. 17, 2020        | Conducted (TH01-CB)   |
| Power Sensor      | Agilent      | E9327A    | US40442088       | 50MHz~18GHz      | Feb. 07, 2020    | Feb. 06, 2021        | Conducted (TH01-CB)   |
| Power Meter       | Agilent      | E4416A    | GB41291199       | 50MHz~18GHz      | Feb. 07, 2020    | Feb. 06, 2021        | Conducted (TH01-CB)   |

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

NCR means Non-Calibration required.



## AC Power Port Conducted Emission Result

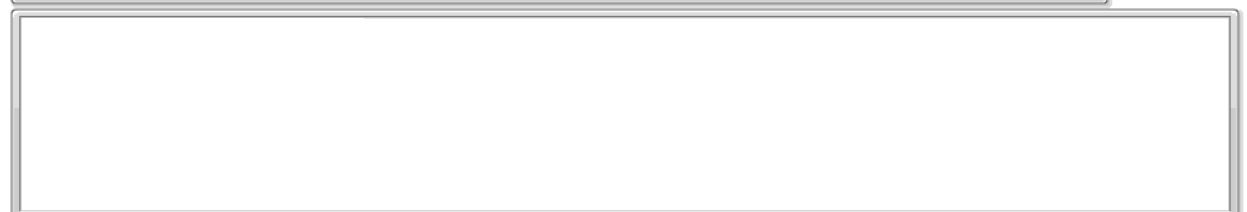
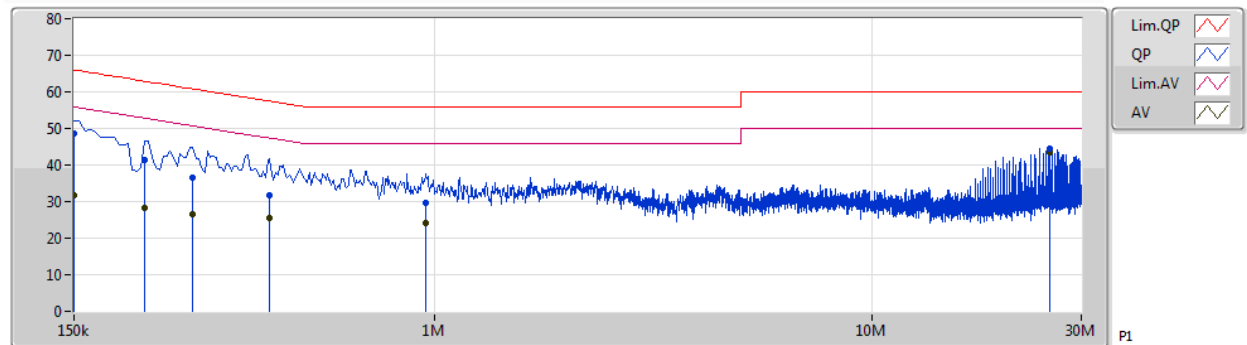
Appendix A

### Summary

| Mode   | Result | Type | Freq<br>(Hz) | Level<br>(dBuV) | Limit<br>(dBuV) | Margin<br>(dB) | Factor<br>(dB) | Condition |
|--------|--------|------|--------------|-----------------|-----------------|----------------|----------------|-----------|
| Mode 2 | Pass   | AV   | 25.337M      | 43.53           | 50.00           | -6.47          | 10.88          | Line      |

### Mode 2

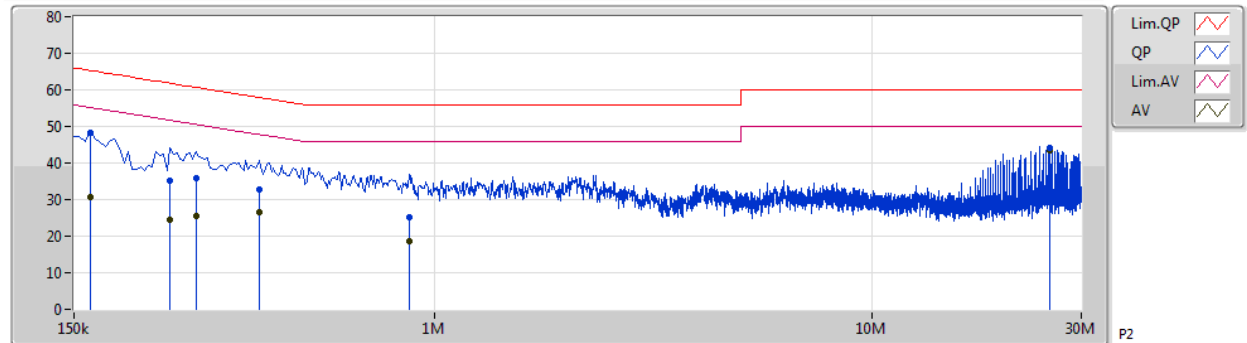
28/05/2020



| 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   | 150k         | 48.48           | 66.00           | -17.52         | 10.20          | Line      | -       | 38.28         | 0.05       | 0.05       | 10.10      |  |  |  |
| AV   | 150k         | 31.87           | 56.00           | -24.13         | 10.20          | Line      | -       | 21.67         | 0.05       | 0.05       | 10.10      |  |  |  |
| QP   | 217.5k       | 41.40           | 62.92           | -21.52         | 10.22          | Line      | -       | 31.18         | 0.05       | 0.07       | 10.10      |  |  |  |
| AV   | 217.5k       | 28.36           | 52.92           | -24.56         | 10.22          | Line      | -       | 18.14         | 0.05       | 0.07       | 10.10      |  |  |  |
| QP   | 280.5k       | 36.39           | 60.80           | -24.41         | 10.22          | Line      | -       | 26.17         | 0.05       | 0.07       | 10.10      |  |  |  |
| AV   | 280.5k       | 26.62           | 50.80           | -24.18         | 10.22          | Line      | -       | 16.40         | 0.05       | 0.07       | 10.10      |  |  |  |
| QP   | 420k         | 31.76           | 57.45           | -25.69         | 10.23          | Line      | -       | 21.53         | 0.05       | 0.08       | 10.10      |  |  |  |
| AV   | 420k         | 25.68           | 47.45           | -21.77         | 10.23          | Line      | -       | 15.45         | 0.05       | 0.08       | 10.10      |  |  |  |
| QP   | 955.5k       | 29.54           | 56.00           | -26.46         | 10.28          | Line      | -       | 19.26         | 0.06       | 0.12       | 10.10      |  |  |  |
| AV   | 955.5k       | 24.20           | 46.00           | -21.80         | 10.28          | Line      | -       | 13.92         | 0.06       | 0.12       | 10.10      |  |  |  |
| QP   | 25.337M      | 44.40           | 60.00           | -15.60         | 10.88          | Line      | -       | 33.52         | 0.53       | 0.23       | 10.12      |  |  |  |
| AV   | 25.337M      | 43.53           | 50.00           | -6.47          | 10.88          | Line      | "Worst" | 32.65         | 0.53       | 0.23       | 10.12      |  |  |  |

### Mode 2

28/05/2020



| 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   | 163.5k       | 48.19           | 65.27           | -17.08         | 10.21          | Neutral   | -       | 37.98         | 0.05       | 0.06       | 10.10      |  |  |  |
| AV   | 163.5k       | 30.63           | 55.27           | -24.64         | 10.21          | Neutral   | -       | 20.42         | 0.05       | 0.06       | 10.10      |  |  |  |
| QP   | 249k         | 35.34           | 61.79           | -26.45         | 10.22          | Neutral   | -       | 25.12         | 0.05       | 0.07       | 10.10      |  |  |  |
| AV   | 249k         | 24.44           | 51.79           | -27.35         | 10.22          | Neutral   | -       | 14.22         | 0.05       | 0.07       | 10.10      |  |  |  |
| QP   | 285k         | 35.80           | 60.67           | -24.87         | 10.23          | Neutral   | -       | 25.57         | 0.05       | 0.08       | 10.10      |  |  |  |
| AV   | 285k         | 25.62           | 50.67           | -25.05         | 10.23          | Neutral   | -       | 15.39         | 0.05       | 0.08       | 10.10      |  |  |  |
| QP   | 397.5k       | 32.68           | 57.91           | -25.23         | 10.23          | Neutral   | -       | 22.45         | 0.05       | 0.08       | 10.10      |  |  |  |
| AV   | 397.5k       | 26.68           | 47.91           | -21.23         | 10.23          | Neutral   | -       | 16.45         | 0.05       | 0.08       | 10.10      |  |  |  |
| QP   | 874.5k       | 25.28           | 56.00           | -30.72         | 10.27          | Neutral   | -       | 15.01         | 0.06       | 0.11       | 10.10      |  |  |  |
| AV   | 874.5k       | 18.49           | 46.00           | -27.51         | 10.27          | Neutral   | -       | 8.22          | 0.06       | 0.11       | 10.10      |  |  |  |
| QP   | 25.337M      | 44.22           | 60.00           | -15.78         | 10.67          | Neutral   | -       | 33.55         | 0.32       | 0.23       | 10.12      |  |  |  |
| AV   | 25.337M      | 43.44           | 50.00           | -6.56          | 10.67          | Neutral   | "Worst" | 32.77         | 0.32       | 0.23       | 10.12      |  |  |  |

**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 | -                | -               | -        | -                | -               |
| Zigbee        | 1.588M           | 2.58M           | 2M58G1D  | 1.556M           | 2.567M          |

**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;

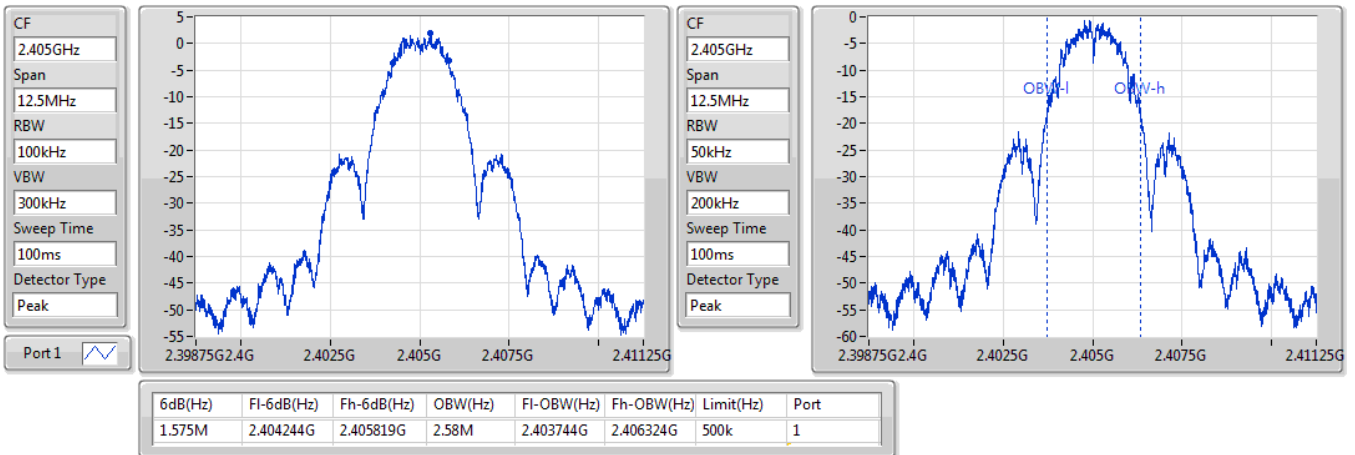
**Result**

| Mode    | Result | Limit<br>(Hz) | Port 1-N dB<br>(Hz) | Port 1-OBW<br>(Hz) |
|---------|--------|---------------|---------------------|--------------------|
| Zigbee  | -      | -             | -                   | -                  |
| 2405MHz | Pass   | 500k          | 1.575M              | 2.58M              |
| 2440MHz | Pass   | 500k          | 1.588M              | 2.574M             |
| 2480MHz | Pass   | 500k          | 1.556M              | 2.567M             |

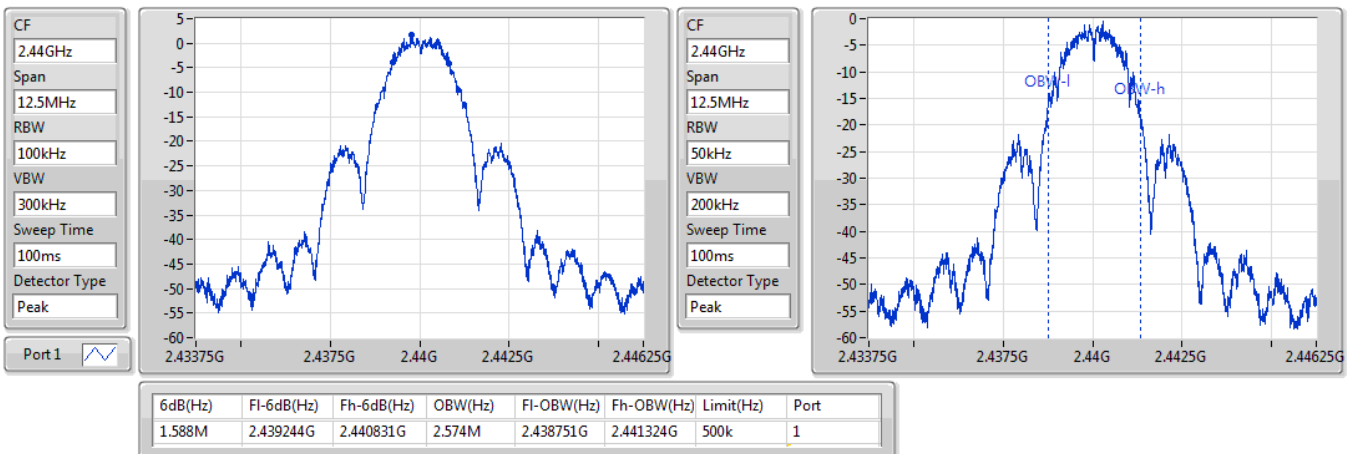
**Port X-N dB** = Port X 6dB down bandwidth; **Port X-OBW** = Port X 99% occupied bandwidth;

**Zigbee**
**2405MHz**
**EBW**

29/04/2020


**Zigbee**
**2440MHz**
**EBW**

29/04/2020

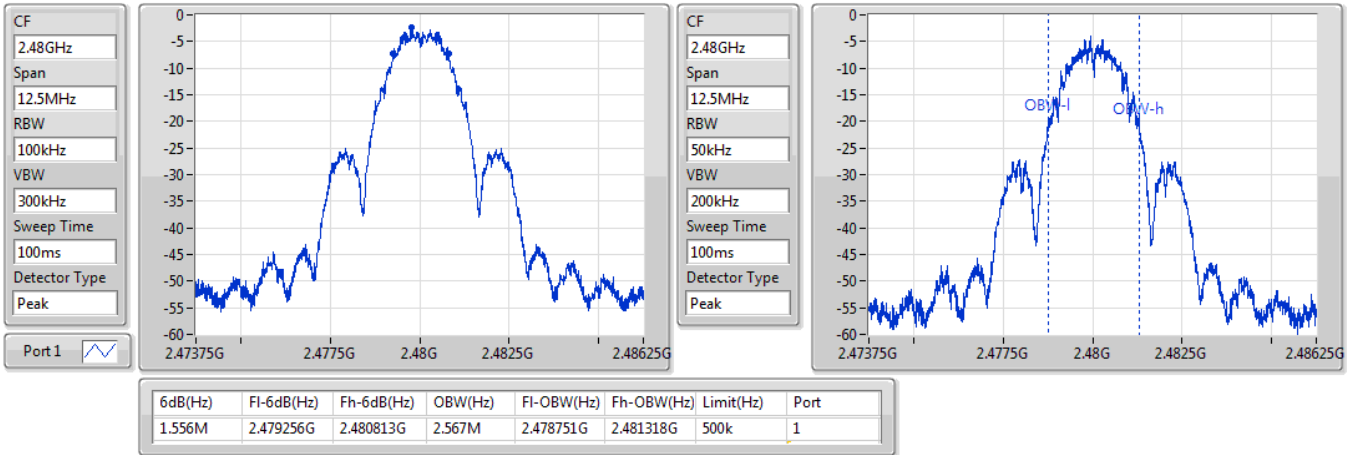


## Zigbee

2480MHz

EBW

29/04/2020





## Average Power

## Appendix C

### Summary

| Mode          | Total Power<br>(dBm) | Total Power<br>(W) | EIRP<br>(dBm) | EIRP<br>(W) |
|---------------|----------------------|--------------------|---------------|-------------|
| 2.4-2.4835GHz | -                    | -                  | -             | -           |
| Zigbee        | 5.32                 | 0.00340            | 7.58          | 0.00573     |



## Average Power

## Appendix C

### Result

| Mode    | Result | DG<br>(dBi) | Port 1<br>(dBm) | Total Power<br>(dBm) | Power Limit<br>(dBm) | EIRP Power<br>(dBm) |
|---------|--------|-------------|-----------------|----------------------|----------------------|---------------------|
| Zigbee  | -      | -           | -               | -                    | -                    | -                   |
| 2405MHz | Pass   | 2.08        | 5.32            | 5.32                 | 30.00                | 7.40                |
| 2440MHz | Pass   | 2.30        | 5.28            | 5.28                 | 30.00                | 7.58                |
| 2480MHz | Pass   | 2.18        | 1.08            | 1.08                 | 30.00                | 3.26                |

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

**Summary**

| Mode          | PD<br>(dBm/RBW) |
|---------------|-----------------|
| 2.4-2.4835GHz | -               |
| Zigbee        | -10.74          |

RBW = 500 kHz for 5.725-5.85GHz band / 1MHz for other band;

## Result

| Mode    | Result | DG<br>(dBi) | Port 1<br>(dBm/RBW) | PD<br>(dBm/RBW) | PD Limit<br>(dBm/RBW) |
|---------|--------|-------------|---------------------|-----------------|-----------------------|
| Zigbee  | -      | -           | -                   | -               | -                     |
| 2405MHz | Pass   | 2.08        | -10.74              | -10.74          | 8.00                  |
| 2440MHz | Pass   | 2.30        | -11.94              | -11.94          | 8.00                  |
| 2480MHz | Pass   | 2.18        | -15.66              | -15.66          | 8.00                  |

**DG** = Directional Gain; **RBW** = 500 kHz for 5.725-5.85GHz band / 1MHz for other band;

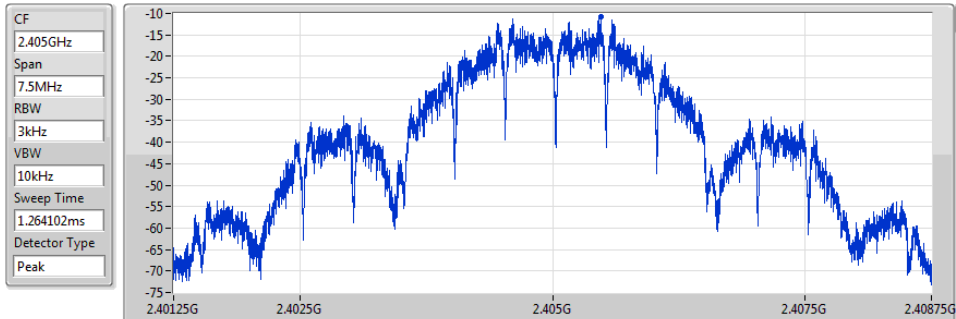
**PD** = trace bin-by-bin of each transmits port summing can be performed maximum power density; **Port X** = Port X power density;

## Zigbee

2405MHz

## PSD

29/04/2020



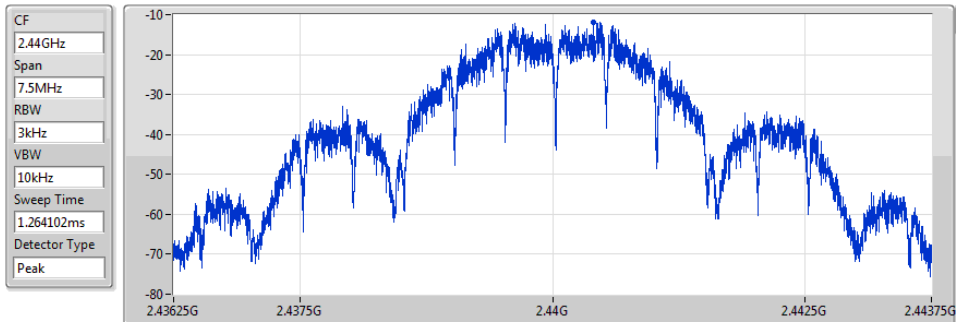
| Sum      | PD       | Port 1   |
|----------|----------|----------|
| (dBm/Hz) | (dBm/Hz) | (dBm/Hz) |
| -10.74   | -10.74   | -10.74   |

## Zigbee

2440MHz

## PSD

29/04/2020



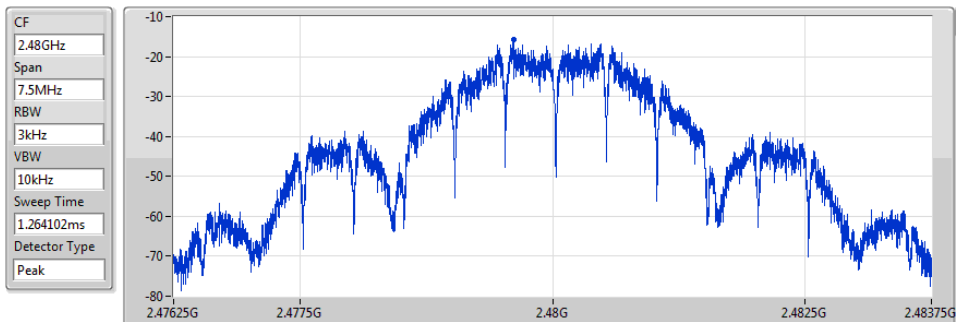
| Sum      | PD       | Port 1   |
|----------|----------|----------|
| (dBm/Hz) | (dBm/Hz) | (dBm/Hz) |
| -11.94   | -11.94   | -11.94   |

## Zigbee

2480MHz

## PSD

29/04/2020



| Sum      | PD       | Port 1   |
|----------|----------|----------|
| (dBm/Hz) | (dBm/Hz) | (dBm/Hz) |
| -15.66   | -15.66   | -15.66   |

**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) | Freq<br>(Hz) | Level<br>(dBm) | Port |
|---------------|--------|-------------|--------------|----------------|--------------|----------------|--------------|----------------|--------------|----------------|--------------|----------------|--------------|----------------|------|
| 2.4-2.4835GHz | -      | -           | -            | -              | -            | -              | -            | -              | -            | -              | -            | -              | -            | -              | -    |
| Zigbee        | Pass   | 2.4053G     | 1.01         | -28.99         | 878.72M      | -62.22         | 2.39979G     | -46.55         | 2.4G         | -48.43         | 2.48486G     | -61.09         | 17.20431G    | -53.35         | 1    |

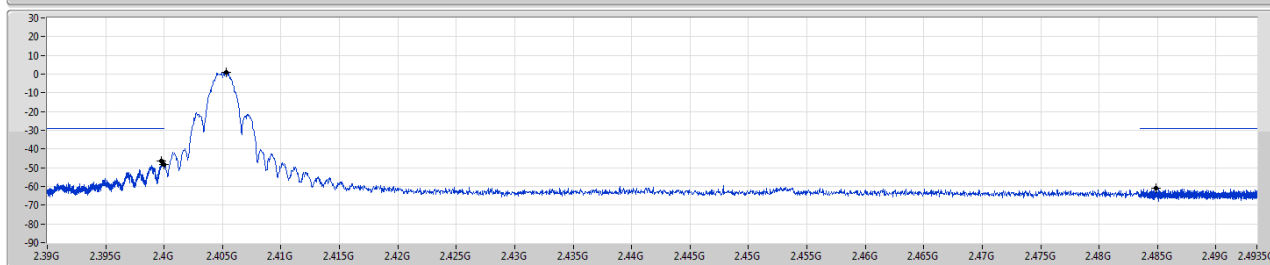
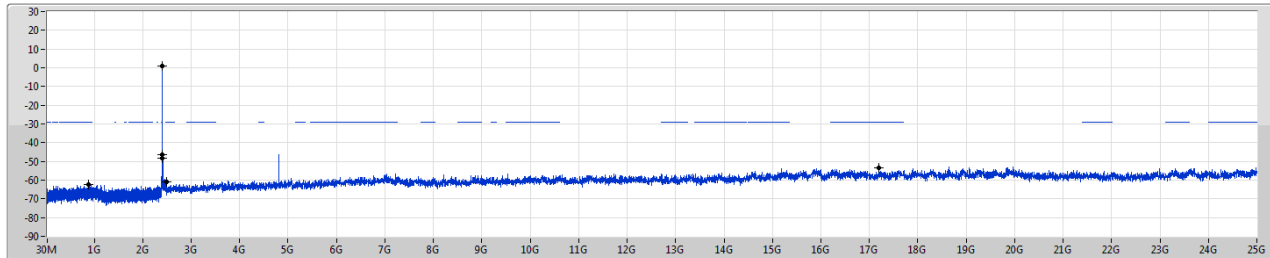
**Result**

| 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) | Freq<br>(Hz) | Level<br>(dBm) | Port |
|---------|--------|-------------|--------------|----------------|--------------|----------------|--------------|----------------|--------------|----------------|--------------|----------------|--------------|----------------|------|
| Zigbee  | -      | -           | -            | -              | -            | -              | -            | -              | -            | -              | -            | -              | -            | -              | -    |
| 2405MHz | Pass   | 2.4053G     | 1.01         | -28.99         | 878.72M      | -62.22         | 2.39979G     | -46.55         | 2.4G         | -48.43         | 2.48486G     | -61.09         | 17.20431G    | -53.35         | 1    |
| 2440MHz | Pass   | 2.4053G     | 1.01         | -28.99         | 879.01M      | -62.33         | 2.39197G     | -61.51         | 2.4835G      | -63.76         | 2.48793G     | -59.22         | 24.6202G     | -52.55         | 1    |
| 2480MHz | Pass   | 2.4053G     | 1.01         | -28.99         | 2.30298G     | -62.67         | 2.39504G     | -61.08         | 2.4835G      | -47.00         | 2.48352G     | -47.00         | 24.60051G    | -53.03         | 1    |

## Zigbee 2405MHz

CSE NdB

29/04/2020



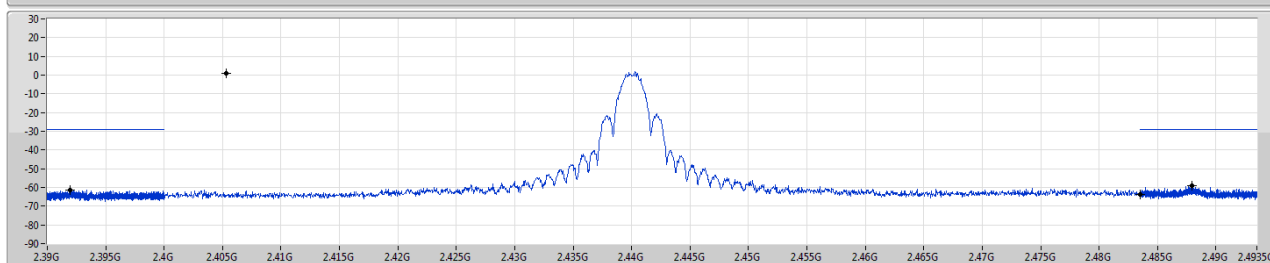
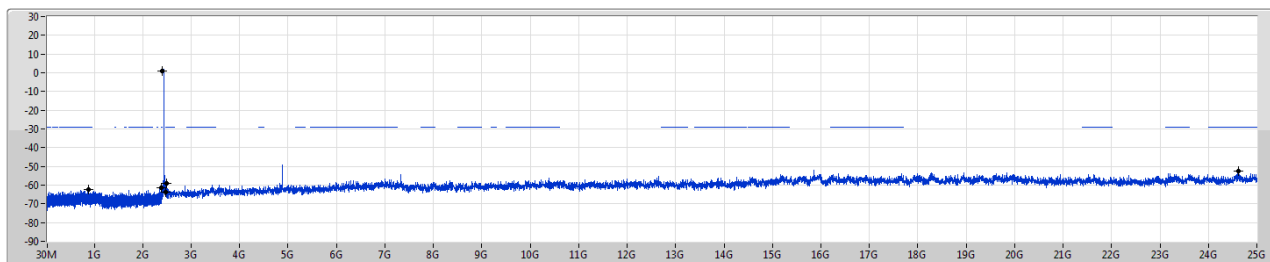
| Ref(Hz) | Ref(dBm) | Limit(dBm) | Freq(Hz) | Level(dBm) | Freq(Hz) | Level(dBm) | Freq(Hz) | Level(dBm) | Freq(Hz) | Level(dBm) | Freq(Hz)  | Level(dBm) | Port |
|---------|----------|------------|----------|------------|----------|------------|----------|------------|----------|------------|-----------|------------|------|
| 2.4053G | 1.01     | -28.99     | 878.72M  | -62.22     | 2.39979G | -46.55     | 2.4G     | -48.43     | 2.48486G | -61.09     | 17.20431G | -53.35     | 1    |

RBW (Hz)  
100k  
VBW (Hz)  
300k  
Detector  
Peak

## Zigbee 2440MHz

CSE NdB

29/04/2020



| Ref(Hz) | Ref(dBm) | Limit(dBm) | Freq(Hz) | Level(dBm) | Freq(Hz) | Level(dBm) | Freq(Hz) | Level(dBm) | Freq(Hz) | Level(dBm) | Freq(Hz) | Level(dBm) | Port |
|---------|----------|------------|----------|------------|----------|------------|----------|------------|----------|------------|----------|------------|------|
| 2.4053G | 1.01     | -28.99     | 879.01M  | -62.33     | 2.39197G | -61.51     | 2.4835G  | -63.76     | 2.48793G | -59.22     | 24.6202G | -52.55     | 1    |

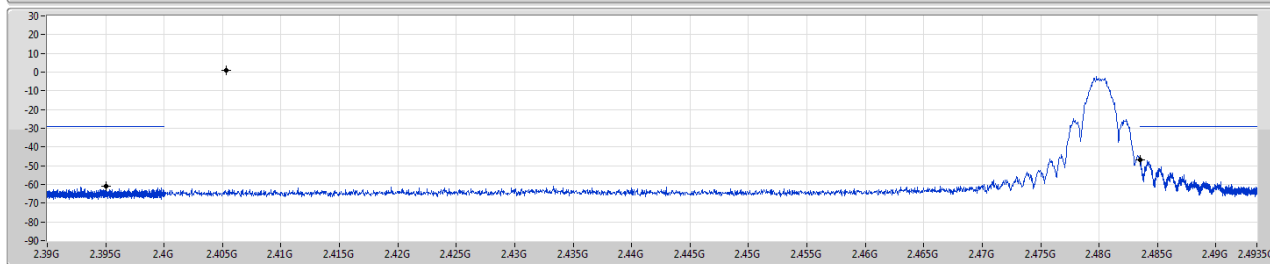
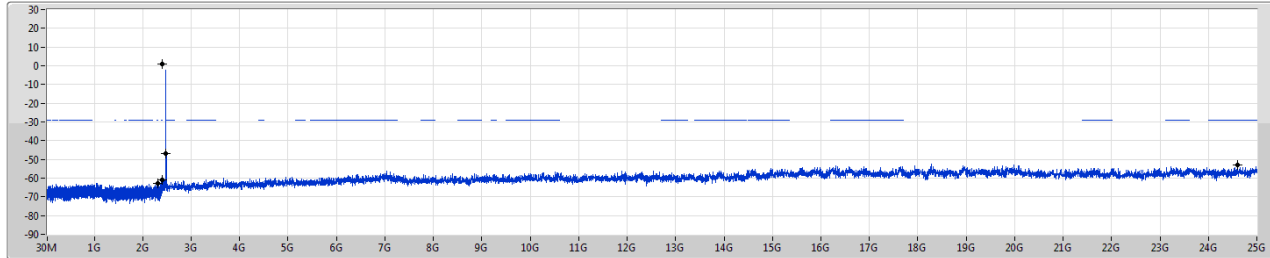
RBW (Hz)  
100k  
VBW (Hz)  
300k  
Detector  
Peak

Zigbee  
2480MHz

CSE NdB

29/04/2020

Port 1



RBW (Hz)  
100k  
VBW (Hz)  
300k  
Detector  
Peak

| Ref(Hz) | Ref(dBm) | Limit(dBm) | Freq(Hz) | Level(dBm) | Freq(Hz) | Level(dBm) | Freq(Hz) | Level(dBm) | Freq(Hz) | Level(dBm) | Freq(Hz)  | Level(dBm) | Port |
|---------|----------|------------|----------|------------|----------|------------|----------|------------|----------|------------|-----------|------------|------|
| 2.4053G | 1.01     | -28.99     | 2.30298G | -62.67     | 2.39504G | -61.08     | 2.4835G  | -47.00     | 2.48352G | -47.00     | 24.60051G | -53.03     | 1    |



## ***Radiated Emissions below 1GHz***

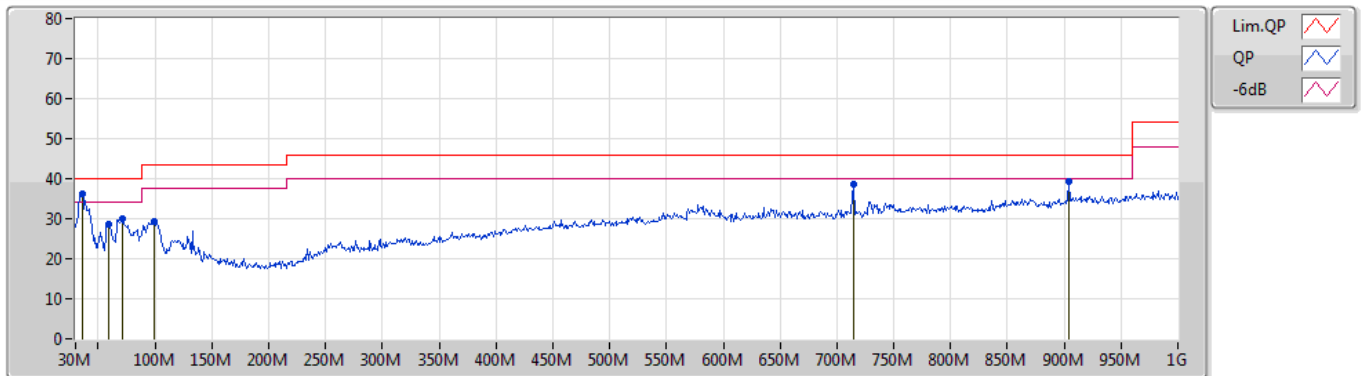
## ***Appendix F.1***

### **Summary**

| Mode   | Result | Type | Freq<br>(Hz) | Level<br>(dBuV/m) | Limit<br>(dBuV/m) | Margin<br>(dB) | Condition |
|--------|--------|------|--------------|-------------------|-------------------|----------------|-----------|
| Mode 1 | Pass   | PK   | 35.82M       | 36.33             | 40.00             | -3.67          | Vertical  |

### Mode 1

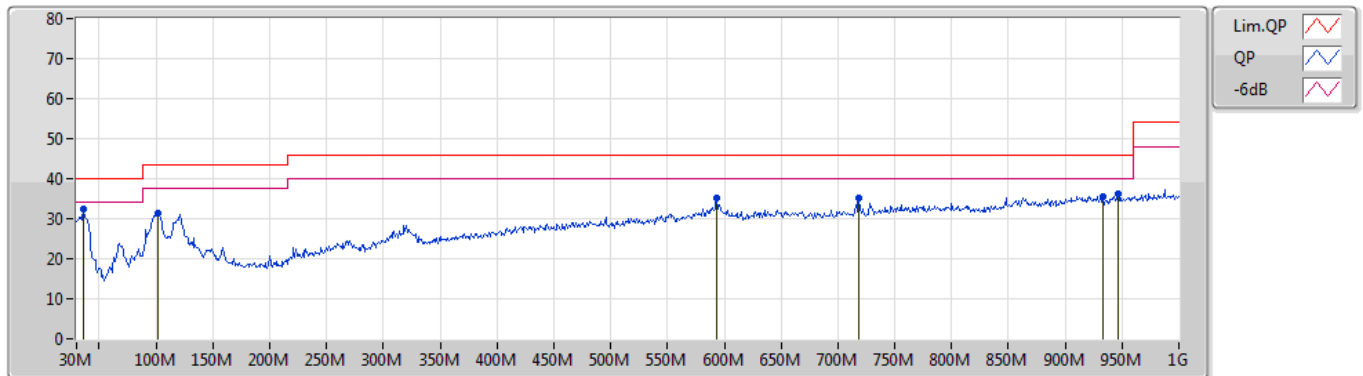
19/05/2020



| 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) | Comment | Raw<br>(dBuV/m) | AF<br>(dB/m) | CL<br>(dB) | PA<br>(dB) |
|------|--------------|-------------------|-------------------|----------------|----------------|-------------|-----------|----------------|---------------|---------|-----------------|--------------|------------|------------|
| PK   | 35.82M       | 36.33             | 40.00             | -3.67          | -9.67          | 3           | Vertical  | 0              | 1.00          | "Worst" | 46.00           | 21.21        | 1.60       | 32.48      |
| PK   | 59.1M        | 28.67             | 40.00             | -11.33         | -18.74         | 3           | Vertical  | 22             | 3.00          | -       | 47.41           | 12.22        | 1.58       | 32.54      |
| PK   | 70.74M       | 29.83             | 40.00             | -10.17         | -18.60         | 3           | Vertical  | 99             | 1.50          | -       | 48.43           | 12.13        | 1.71       | 32.44      |
| PK   | 98.87M       | 29.44             | 43.50             | -14.06         | -13.80         | 3           | Vertical  | 166            | 1.00          | -       | 43.24           | 16.47        | 2.08       | 32.35      |
| PK   | 714.82M      | 38.67             | 46.00             | -7.33          | -1.72          | 3           | Vertical  | 357            | 3.00          | -       | 40.39           | 25.01        | 5.59       | 32.32      |
| PK   | 903.97M      | 39.29             | 46.00             | -6.71          | 1.49           | 3           | Vertical  | 252            | 2.00          | -       | 37.80           | 26.60        | 6.60       | 31.71      |

### Mode 1

19/05/2020



| 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) | Comment | Raw<br>(dBuV/m) | AF<br>(dB/m) | CL<br>(dB) | PA<br>(dB) |
|------|--------------|-------------------|-------------------|----------------|----------------|-------------|------------|----------------|---------------|---------|-----------------|--------------|------------|------------|
| PK   | 35.82M       | 32.54             | 40.00             | -7.46          | -9.67          | 3           | Horizontal | 0              | 1.50          | "Worst" | 42.21           | 21.21        | 1.60       | 32.48      |
| PK   | 101.78M      | 31.27             | 43.50             | -12.23         | -13.45         | 3           | Horizontal | 93             | 2.00          | -       | 44.72           | 16.81        | 2.12       | 32.38      |
| PK   | 593.57M      | 35.21             | 46.00             | -10.79         | -2.49          | 3           | Horizontal | 276            | 2.00          | -       | 37.70           | 24.68        | 5.07       | 32.24      |
| PK   | 718.7M       | 35.15             | 46.00             | -10.85         | -1.61          | 3           | Horizontal | 30             | 1.00          | -       | 36.76           | 25.07        | 5.61       | 32.29      |
| PK   | 933.07M      | 35.61             | 46.00             | -10.39         | 1.66           | 3           | Horizontal | 211            | 2.00          | -       | 33.95           | 26.58        | 6.60       | 31.52      |
| PK   | 946.65M      | 36.18             | 46.00             | -9.82          | 1.90           | 3           | Horizontal | 273            | 1.25          | -       | 34.28           | 26.73        | 6.60       | 31.43      |



**For Radiated Cabinet:**

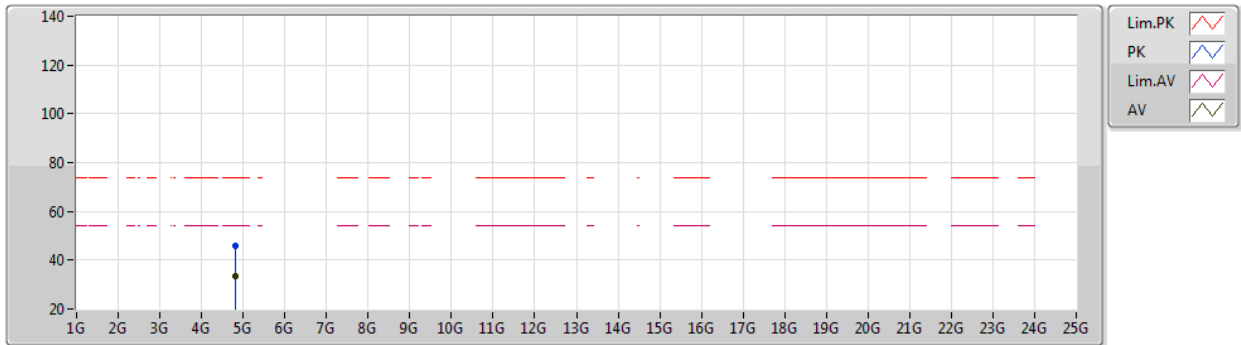
**Summary**

| Mode          | Result | Type | Freq<br>(Hz) | Level<br>(dBuV/m) | Limit<br>(dBuV/m) | Margin<br>(dB) | Dist<br>(m) | Condition  | Azimuth<br>(°) | Height<br>(m) | Comments |
|---------------|--------|------|--------------|-------------------|-------------------|----------------|-------------|------------|----------------|---------------|----------|
| 2.4-2.4835GHz | -      | -    | -            | -                 | -                 | -              | -           | -          | -              | -             | -        |
| Zigbee        | Pass   | AV   | 4.80898G     | 35.07             | 54.00             | -18.93         | 3           | Horizontal | 141            | 2.59          | -        |

## Zigbee

### 2405MHz\_TX

30/04/2020



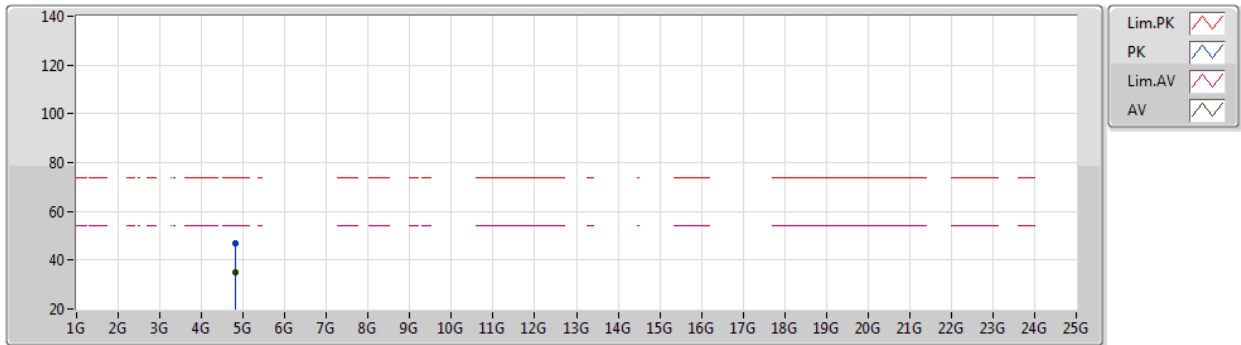
EUT Z\_1TX  
Setting 5  
01-D-R-5

| Type | Freq<br>(Hz) | Level<br>(dBuV/m) | Limit<br>(dBuV/m) | Margin<br>(dB) | Raw<br>(dBuV) | Dist<br>(m) | Condition | Azimuth<br>(°) | Height<br>(m) | Comment | AF<br>(dB) | CL<br>(dB) | PA<br>(dB) |
|------|--------------|-------------------|-------------------|----------------|---------------|-------------|-----------|----------------|---------------|---------|------------|------------|------------|
| PK   | 4.80878G     | 45.85             | 74.00             | -28.15         | 41.20         | 3           | Vertical  | 53             | 2.57          | -       | 31.01      | 5.31       | 31.67      |
| AV   | 4.81098G     | 33.57             | 54.00             | -20.43         | 28.91         | 3           | Vertical  | 53             | 2.57          | -       | 31.01      | 5.32       | 31.67      |

## Zigbee

### 2405MHz\_TX

30/04/2020



EUT Z\_1TX  
Setting 5  
01-D-R-5

| Type | Freq<br>(Hz) | Level<br>(dBuV/m) | Limit<br>(dBuV/m) | Margin<br>(dB) | Raw<br>(dBuV) | Dist<br>(m) | Condition  | Azimuth<br>(°) | Height<br>(m) | Comment | AF<br>(dB) | CL<br>(dB) | PA<br>(dB) |
|------|--------------|-------------------|-------------------|----------------|---------------|-------------|------------|----------------|---------------|---------|------------|------------|------------|
| PK   | 4.81178G     | 46.78             | 74.00             | -27.22         | 42.12         | 3           | Horizontal | 141            | 2.59          | -       | 31.01      | 5.32       | 31.67      |
| AV   | 4.80898G     | 35.07             | 54.00             | -18.93         | 30.42         | 3           | Horizontal | 141            | 2.59          | -       | 31.01      | 5.31       | 31.67      |



For Conducted Harmonic (1~3GHz):

Summary

| Mode          | Result | F-Start<br>(Hz) | F-Stop<br>(Hz) | Type | Freq<br>(Hz) | DG<br>(dBi) | P1<br>(dBm) | Psum<br>(dBm) | EIRP<br>(dBm) | Limit<br>(dBm) | Margin<br>(dB) |
|---------------|--------|-----------------|----------------|------|--------------|-------------|-------------|---------------|---------------|----------------|----------------|
| 2.4-2.4835GHz | -      | -               | -              | -    | -            | -           | -           | -             | -             | -              | -              |
| Zigbee        | Pass   | 2.4935G         | 3G             | AV   | 2.53592G     | 2.30        | -61.84      | -61.84        | -59.54        | -41.20         | -18.34         |

DG = Directional Gain;  
PX=Port X; Psum=P1+.P2+...PX

**Result**

| Mode    | Result | F-Start<br>(Hz) | F-Stop<br>(Hz) | Type | Freq<br>(Hz) | DG<br>(dBi) | P1<br>(dBm) | Psum<br>(dBm) | EIRP<br>(dBm) | Limit<br>(dBm) | Margin<br>(dB) |
|---------|--------|-----------------|----------------|------|--------------|-------------|-------------|---------------|---------------|----------------|----------------|
| Zigbee  | -      | -               | -              | -    | -            | -           | -           | -             | -             | -              | -              |
| 2405MHz | Pass   | 1G              | 2.39G          | AV   | 2.31008G     | 2.08        | -66.23      | -66.23        | -64.15        | -41.20         | -22.95         |
| 2405MHz | Pass   | 2.39G           | 2.4G           | AV   | 2.39G        | 2.08        | -73.74      | -73.74        | -71.66        | -41.20         | -30.46         |
| 2405MHz | Pass   | 2.4G            | 2.4835G        | AV   | 2.4835G      | 2.08        | -74.81      | -74.81        | -72.73        | -41.20         | -31.53         |
| 2405MHz | Pass   | 2.4835G         | 2.4935G        | AV   | 2.4933G      | 2.08        | -72.56      | -72.56        | -70.48        | -41.20         | -29.28         |
| 2405MHz | Pass   | 2.4935G         | 3G             | AV   | 2.50097G     | 2.08        | -62.59      | -62.59        | -60.51        | -41.20         | -19.31         |
| 2405MHz | Pass   | 1G              | 2.39G          | PK   | 2.38461G     | 2.08        | -57.68      | -57.68        | -55.60        | -21.20         | -34.40         |
| 2405MHz | Pass   | 2.39G           | 2.4G           | PK   | 2.39G        | 2.08        | -63.71      | -63.71        | -61.63        | -21.20         | -40.43         |
| 2405MHz | Pass   | 2.4G            | 2.4835G        | PK   | 2.4835G      | 2.08        | -63.97      | -63.97        | -61.89        | -21.20         | -40.69         |
| 2405MHz | Pass   | 2.4835G         | 2.4935G        | PK   | 2.4894G      | 2.08        | -62.44      | -62.44        | -60.36        | -21.20         | -39.16         |
| 2405MHz | Pass   | 2.4935G         | 3G             | PK   | 2.50135G     | 2.08        | -56.34      | -56.34        | -54.26        | -21.20         | -33.06         |
| 2440MHz | Pass   | 1G              | 2.39G          | AV   | 2.3443G      | 2.30        | -62.88      | -62.88        | -60.58        | -41.20         | -19.38         |
| 2440MHz | Pass   | 2.39G           | 2.4G           | AV   | 2.39G        | 2.30        | -74.29      | -74.29        | -71.99        | -41.20         | -30.79         |
| 2440MHz | Pass   | 2.4G            | 2.4835G        | AV   | 2.4835G      | 2.30        | -74.74      | -74.74        | -72.44        | -41.20         | -31.24         |
| 2440MHz | Pass   | 2.4835G         | 2.4935G        | AV   | 2.49346G     | 2.30        | -71.72      | -71.72        | -69.42        | -41.20         | -28.22         |
| 2440MHz | Pass   | 2.4935G         | 3G             | AV   | 2.53592G     | 2.30        | -61.84      | -61.84        | -59.54        | -41.20         | -18.34         |
| 2440MHz | Pass   | 1G              | 2.39G          | PK   | 2.34448G     | 2.30        | -57.02      | -57.02        | -54.72        | -21.20         | -33.52         |
| 2440MHz | Pass   | 2.39G           | 2.4G           | PK   | 2.39G        | 2.30        | -64.10      | -64.10        | -61.80        | -21.20         | -40.60         |
| 2440MHz | Pass   | 2.4G            | 2.4835G        | PK   | 2.4835G      | 2.30        | -64.41      | -64.41        | -62.11        | -21.20         | -40.91         |
| 2440MHz | Pass   | 2.4835G         | 2.4935G        | PK   | 2.49032G     | 2.30        | -61.25      | -61.25        | -58.95        | -21.20         | -37.75         |
| 2440MHz | Pass   | 2.4935G         | 3G             | PK   | 2.53541G     | 2.30        | -55.50      | -55.50        | -53.20        | -21.20         | -32.00         |
| 2480MHz | Pass   | 1G              | 2.39G          | AV   | 2.38427G     | 2.18        | -67.82      | -67.82        | -65.64        | -41.20         | -24.44         |
| 2480MHz | Pass   | 2.39G           | 2.4G           | AV   | 2.39G        | 2.18        | -75.19      | -75.19        | -73.01        | -41.20         | -31.81         |
| 2480MHz | Pass   | 2.4G            | 2.4835G        | AV   | 2.4835G      | 2.18        | -74.07      | -74.07        | -71.89        | -41.20         | -30.69         |
| 2480MHz | Pass   | 2.4835G         | 2.4935G        | AV   | 2.49278G     | 2.18        | -71.78      | -71.78        | -69.60        | -41.20         | -28.40         |
| 2480MHz | Pass   | 2.4935G         | 3G             | AV   | 2.57606G     | 2.18        | -65.65      | -65.65        | -63.47        | -41.20         | -22.27         |
| 2480MHz | Pass   | 1G              | 2.39G          | PK   | 2.38409G     | 2.18        | -60.90      | -60.90        | -58.72        | -21.20         | -37.52         |
| 2480MHz | Pass   | 2.39G           | 2.4G           | PK   | 2.39G        | 2.18        | -65.47      | -65.47        | -63.29        | -21.20         | -42.09         |
| 2480MHz | Pass   | 2.4G            | 2.4835G        | PK   | 2.4835G      | 2.18        | -64.72      | -64.72        | -62.54        | -21.20         | -41.34         |
| 2480MHz | Pass   | 2.4835G         | 2.4935G        | PK   | 2.49328G     | 2.18        | -61.23      | -61.23        | -59.05        | -21.20         | -37.85         |
| 2480MHz | Pass   | 2.4935G         | 3G             | PK   | 2.51756G     | 2.18        | -59.00      | -59.00        | -56.82        | -21.20         | -35.62         |

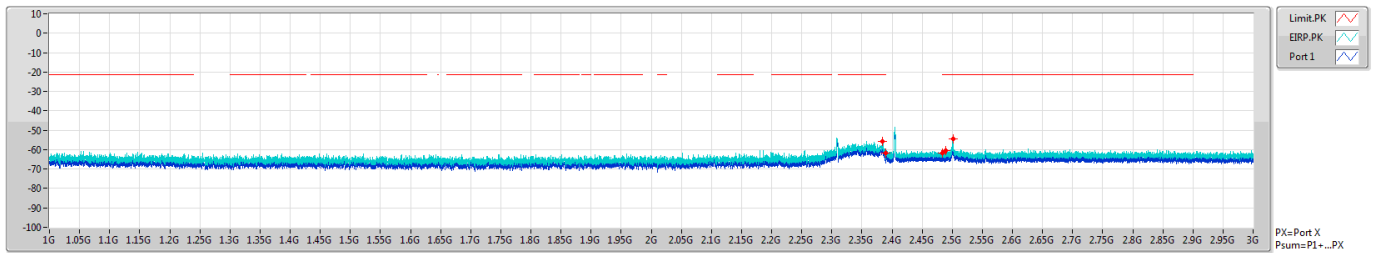
DG = Directional Gain;  
PX=Port X; Psum=P1+...PX

## Zigbee

2405MHz

CSE-PK

29/04/2020



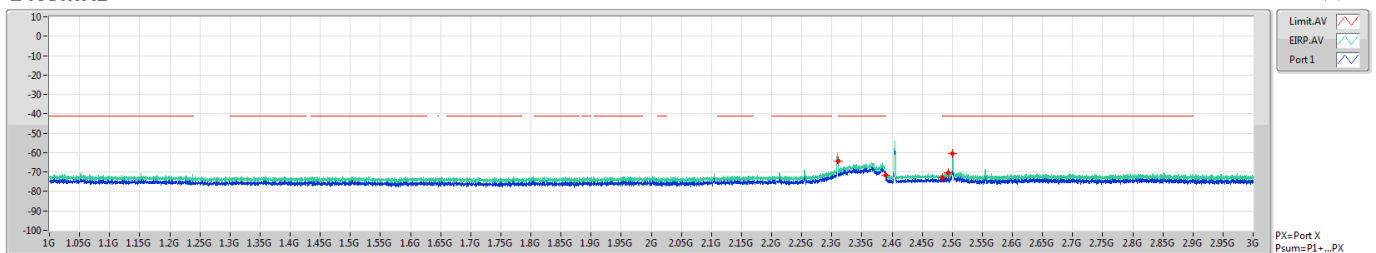
| F-Start(Hz) | F-Stop(Hz) | RBW(Hz) | Type | Freq(Hz) | ERP(dBm) | Limit(dBm) | Margin(dB) | DG(dB) | Ref(dB) | Psum(dBm) | P1(dBm) |
|-------------|------------|---------|------|----------|----------|------------|------------|--------|---------|-----------|---------|
| 1G          | 2.39G      | 1M      | PK   | 2.38461G | -55.60   | -21.20     | -34.40     | 2.08   | 0.00    | -57.68    | -57.68  |
| 2.39G       | 2.4G       | 1M      | PK   | 2.39G    | -61.63   | -21.20     | -40.43     | 2.08   | 0.00    | -63.71    | -63.71  |
| 2.4G        | 2.4835G    | 1M      | PK   | 2.4835G  | -61.89   | -21.20     | -40.69     | 2.08   | 0.00    | -63.97    | -63.97  |
| 2.4835G     | 2.4935G    | 1M      | PK   | 2.4894G  | -60.36   | -21.20     | -39.16     | 2.08   | 0.00    | -62.44    | -62.44  |
| 2.4935G     | 3G         | 1M      | PK   | 2.50135G | -54.26   | -21.20     | -33.06     | 2.08   | 0.00    | -56.34    | -56.34  |

## Zigbee

2405MHz

CSE-AV

29/04/2020



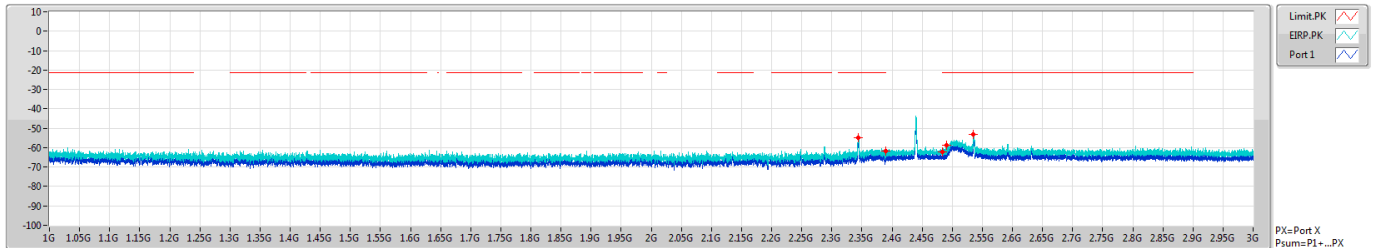
| F-Start(Hz) | F-Stop(Hz) | RBW(Hz) | Type | Freq(Hz) | ERP(dBm) | Limit(dBm) | Margin(dB) | DG(dB) | Ref(dB) | Psum(dBm) | P1(dBm) |
|-------------|------------|---------|------|----------|----------|------------|------------|--------|---------|-----------|---------|
| 1G          | 2.39G      | 1M      | AV   | 2.31008G | -64.15   | -41.20     | -22.95     | 2.08   | 0.00    | -66.23    | -66.23  |
| 2.39G       | 2.4G       | 1M      | AV   | 2.39G    | -71.66   | -41.20     | -30.46     | 2.08   | 0.00    | -73.74    | -73.74  |
| 2.4G        | 2.4835G    | 1M      | AV   | 2.4835G  | -72.73   | -41.20     | -31.53     | 2.08   | 0.00    | -74.81    | -74.81  |
| 2.4835G     | 2.4935G    | 1M      | AV   | 2.4933G  | -70.48   | -41.20     | -29.28     | 2.08   | 0.00    | -72.56    | -72.56  |
| 2.4935G     | 3G         | 1M      | AV   | 2.50097G | -60.51   | -41.20     | -19.31     | 2.08   | 0.00    | -62.59    | -62.59  |

## Zigbee

2440MHz

## CSE-PK

29/04/2020



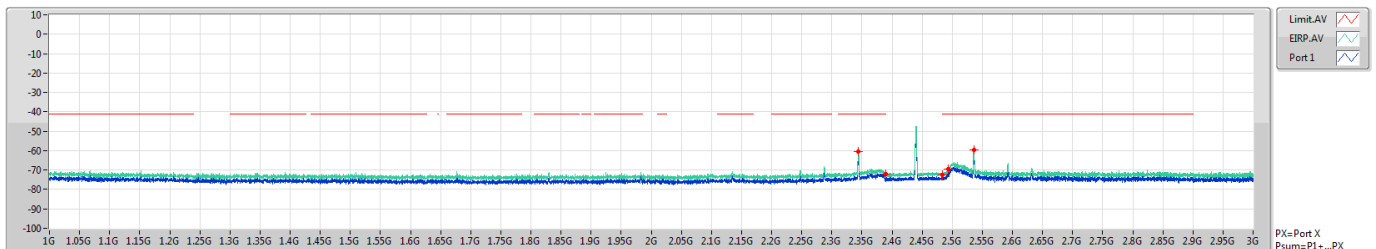
| F-Start(Hz) | F-Stop(Hz) | RBW(Hz) | Type | Freq(Hz) | EIRP(dBm) | Limit(dBm) | Margin(dB) | DG(dB) | Ref(dB) | Psum(dBm) | P1(dBm) |
|-------------|------------|---------|------|----------|-----------|------------|------------|--------|---------|-----------|---------|
| 1G          | 2.39G      | 1M      | PK   | 2.34448G | -54.72    | -21.20     | -33.52     | 2.30   | 0.00    | -57.02    | -57.02  |
| 2.39G       | 2.4G       | 1M      | PK   | 2.39G    | -61.80    | -21.20     | -40.60     | 2.30   | 0.00    | -64.10    | -64.10  |
| 2.4G        | 2.4835G    | 1M      | PK   | 2.4835G  | -62.11    | -21.20     | -40.91     | 2.30   | 0.00    | -64.41    | -64.41  |
| 2.4835G     | 2.4935G    | 1M      | PK   | 2.49032G | -58.95    | -21.20     | -37.75     | 2.30   | 0.00    | -61.25    | -61.25  |
| 2.4935G     | 3G         | 1M      | PK   | 2.53541G | -53.20    | -21.20     | -32.00     | 2.30   | 0.00    | -55.50    | -55.50  |

## Zigbee

2440MHz

## CSE-AV

29/04/2020



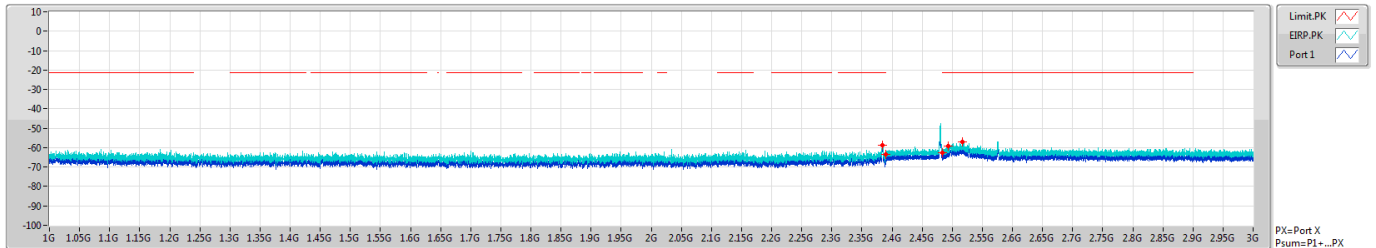
| F-Start(Hz) | F-Stop(Hz) | RBW(Hz) | Type | Freq(Hz) | EIRP(dBm) | Limit(dBm) | Margin(dB) | DG(dB) | Ref(dB) | Psum(dBm) | P1(dBm) |
|-------------|------------|---------|------|----------|-----------|------------|------------|--------|---------|-----------|---------|
| 1G          | 2.39G      | 1M      | AV   | 2.3443G  | -60.58    | -41.20     | -19.38     | 2.30   | 0.00    | -62.88    | -62.88  |
| 2.39G       | 2.4G       | 1M      | AV   | 2.39G    | -71.99    | -41.20     | -30.79     | 2.30   | 0.00    | -74.29    | -74.29  |
| 2.4G        | 2.4835G    | 1M      | AV   | 2.4835G  | -72.44    | -41.20     | -31.24     | 2.30   | 0.00    | -74.74    | -74.74  |
| 2.4835G     | 2.4935G    | 1M      | AV   | 2.49346G | -69.42    | -41.20     | -28.22     | 2.30   | 0.00    | -71.72    | -71.72  |
| 2.4935G     | 3G         | 1M      | AV   | 2.53592G | -59.54    | -41.20     | -18.34     | 2.30   | 0.00    | -61.84    | -61.84  |

## Zigbee

2480MHz

CSE-PK

29/04/2020



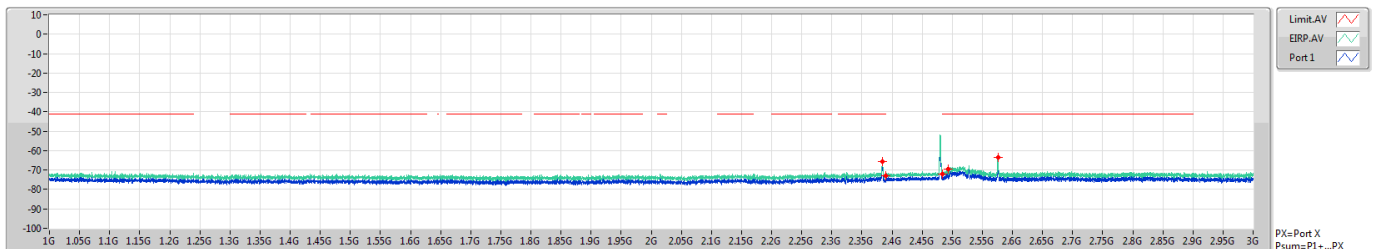
| F-Start(Hz) | F-Stop(Hz) | RBW(Hz) | Type | Freq(Hz) | EIRP(dBm) | Limit(dBm) | Margin(dB) | DG(dB) | Ref(dB) | Psum(dBm) | P1(dBm) |
|-------------|------------|---------|------|----------|-----------|------------|------------|--------|---------|-----------|---------|
| 1G          | 2.39G      | 1M      | PK   | 2.38409G | -58.72    | -21.20     | -37.52     | 2.18   | 0.00    | -60.90    | -60.90  |
| 2.39G       | 2.4G       | 1M      | PK   | 2.39G    | -63.29    | -21.20     | -42.09     | 2.18   | 0.00    | -65.47    | -65.47  |
| 2.4G        | 2.4835G    | 1M      | PK   | 2.4835G  | -62.54    | -21.20     | -41.34     | 2.18   | 0.00    | -64.72    | -64.72  |
| 2.4835G     | 2.4935G    | 1M      | PK   | 2.49328G | -59.05    | -21.20     | -37.85     | 2.18   | 0.00    | -61.23    | -61.23  |
| 2.4935G     | 3G         | 1M      | PK   | 2.51756G | -56.82    | -21.20     | -35.62     | 2.18   | 0.00    | -59.00    | -59.00  |

## Zigbee

2480MHz

CSE-AV

29/04/2020



| F-Start(Hz) | F-Stop(Hz) | RBW(Hz) | Type | Freq(Hz) | EIRP(dBm) | Limit(dBm) | Margin(dB) | DG(dB) | Ref(dB) | Psum(dBm) | P1(dBm) |
|-------------|------------|---------|------|----------|-----------|------------|------------|--------|---------|-----------|---------|
| 1G          | 2.39G      | 1M      | AV   | 2.38427G | -65.64    | -41.20     | -24.44     | 2.18   | 0.00    | -67.82    | -67.82  |
| 2.39G       | 2.4G       | 1M      | AV   | 2.39G    | -73.01    | -41.20     | -31.81     | 2.18   | 0.00    | -75.19    | -75.19  |
| 2.4G        | 2.4835G    | 1M      | AV   | 2.4835G  | -71.89    | -41.20     | -30.69     | 2.18   | 0.00    | -74.07    | -74.07  |
| 2.4835G     | 2.4935G    | 1M      | AV   | 2.49278G | -69.60    | -41.20     | -28.40     | 2.18   | 0.00    | -71.78    | -71.78  |
| 2.4935G     | 3G         | 1M      | AV   | 2.57606G | -63.47    | -41.20     | -22.27     | 2.18   | 0.00    | -65.65    | -65.65  |



For Conducted Harmonic (3~25GHz):

Summary

| Mode          | Result | F-Start<br>(Hz) | F-Stop<br>(Hz) | Type | Freq<br>(Hz) | DG<br>(dBi) | P1<br>(dBm) | Psum<br>(dBm) | EIRP<br>(dBm) | Limit<br>(dBm) | Margin<br>(dB) |
|---------------|--------|-----------------|----------------|------|--------------|-------------|-------------|---------------|---------------|----------------|----------------|
| 2.4-2.4835GHz | -      | -               | -              | -    | -            | -           | -           | -             | -             | -              | -              |
| Zigbee        | Pass   | 3G              | 7.5G           | AV   | 4.881G       | 2.30        | -54.53      | -54.53        | -52.23        | -41.20         | -11.03         |

DG = Directional Gain;  
PX=Port X; Psum=P1+.P2+...PX

**Result**

| Mode    | Result | F-Start<br>(Hz) | F-Stop<br>(Hz) | Type | Freq<br>(Hz) | DG<br>(dBi) | P1<br>(dBm) | Psum<br>(dBm) | EIRP<br>(dBm) | Limit<br>(dBm) | Margin<br>(dB) |
|---------|--------|-----------------|----------------|------|--------------|-------------|-------------|---------------|---------------|----------------|----------------|
| Zigbee  | -      | -               | -              | -    | -            | -           | -           | -             | -             | -              | -              |
| 2405MHz | Pass   | 3G              | 7.5G           | AV   | 4.809G       | 2.08        | -56.88      | -56.88        | -54.80        | -41.20         | -13.60         |
| 2405MHz | Pass   | 7.5G            | 25G            | AV   | 18.95594G    | 2.08        | -73.94      | -73.94        | -71.86        | -41.20         | -30.66         |
| 2405MHz | Pass   | 3G              | 7.5G           | PK   | 4.809G       | 2.08        | -51.48      | -51.48        | -49.40        | -21.20         | -28.20         |
| 2405MHz | Pass   | 7.5G            | 25G            | PK   | 19.29719G    | 2.08        | -64.91      | -64.91        | -62.83        | -21.20         | -41.63         |
| 2440MHz | Pass   | 3G              | 7.5G           | AV   | 4.881G       | 2.30        | -54.53      | -54.53        | -52.23        | -41.20         | -11.03         |
| 2440MHz | Pass   | 7.5G            | 25G            | AV   | 18.9275G     | 2.30        | -74.21      | -74.21        | -71.91        | -41.20         | -30.71         |
| 2440MHz | Pass   | 3G              | 7.5G           | PK   | 4.881G       | 2.30        | -49.50      | -49.50        | -47.20        | -21.20         | -26.00         |
| 2440MHz | Pass   | 7.5G            | 25G            | PK   | 19.89875G    | 2.30        | -64.82      | -64.82        | -62.52        | -21.20         | -41.32         |
| 2480MHz | Pass   | 3G              | 7.5G           | AV   | 4.95919G     | 2.18        | -64.54      | -64.54        | -62.36        | -41.20         | -21.16         |
| 2480MHz | Pass   | 7.5G            | 25G            | AV   | 18.27125G    | 2.18        | -73.83      | -73.83        | -71.65        | -41.20         | -30.45         |
| 2480MHz | Pass   | 3G              | 7.5G           | PK   | 4.96088G     | 2.18        | -58.32      | -58.32        | -56.14        | -21.20         | -34.94         |
| 2480MHz | Pass   | 7.5G            | 25G            | PK   | 19.5925G     | 2.18        | -63.90      | -63.90        | -61.72        | -21.20         | -40.52         |

DG = Directional Gain;

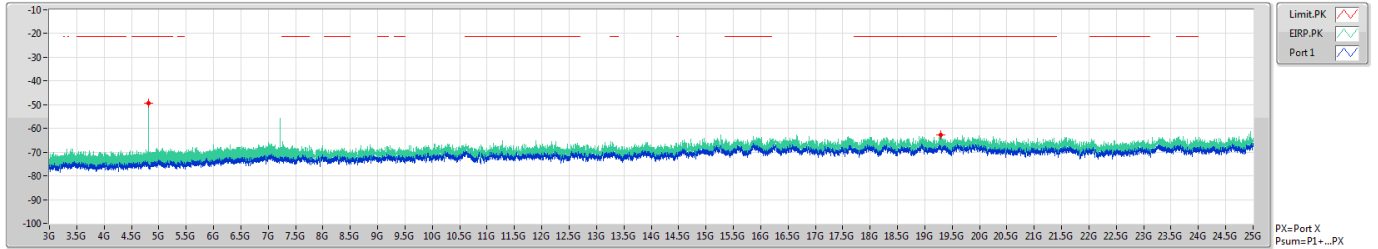
PX=Port X; Psum=P1+.P2+...PX

## Zigbee

2405MHz

## CSE-PK

29/04/2020



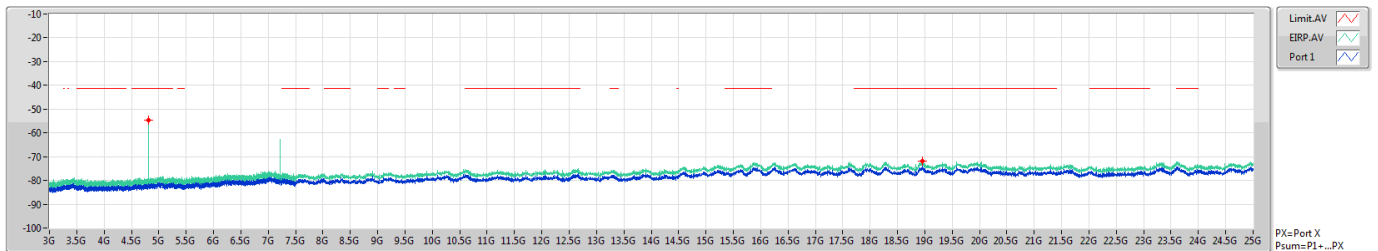
| F-Start(Hz) | F-Stop(Hz) | RBW(Hz) | Type | Freq(Hz)  | EIRP(dBm) | Limit(dBm) | Margin(dB) | DC(dB) | Ref(dB) | Psum(dBm) | P1(dBm) |
|-------------|------------|---------|------|-----------|-----------|------------|------------|--------|---------|-----------|---------|
| 3G          | 7.5G       | 1M      | PK   | 4.809G    | -49.40    | -21.20     | -28.20     | 2.08   | 0.00    | -51.48    | -51.48  |
| 7.5G        | 25G        | 1M      | PK   | 19.29719G | -62.83    | -21.20     | -41.63     | 2.08   | 0.00    | -64.91    | -64.91  |

## Zigbee

2405MHz

## CSE-AV

29/04/2020



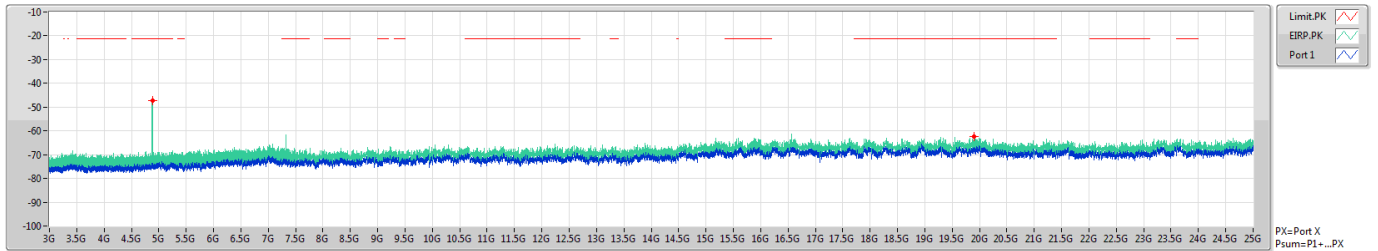
| F-Start(Hz) | F-Stop(Hz) | RBW(Hz) | Type | Freq(Hz)  | EIRP(dBm) | Limit(dBm) | Margin(dB) | DC(dB) | Ref(dB) | Psum(dBm) | P1(dBm) |
|-------------|------------|---------|------|-----------|-----------|------------|------------|--------|---------|-----------|---------|
| 3G          | 7.5G       | 1M      | AV   | 4.809G    | -54.80    | -41.20     | -13.60     | 2.08   | 0.00    | -56.88    | -56.88  |
| 7.5G        | 25G        | 1M      | AV   | 18.95594G | -71.86    | -41.20     | -30.66     | 2.08   | 0.00    | -73.94    | -73.94  |

## Zigbee

2440MHz

CSE-PK

29/04/2020



| F-Start(Hz) | F-Stop(Hz) | RBW(Hz) | Type | Freq(Hz)  | EIRP(dBm) | Limit(dBm) | Margin(dB) | DG(dBi) | Ref(dB) | Psum(dBm) | P1(dBm) |
|-------------|------------|---------|------|-----------|-----------|------------|------------|---------|---------|-----------|---------|
| 3G          | 7.5G       | 1M      | PK   | 4.881G    | -47.20    | -21.20     | -26.00     | 2.30    | 0.00    | -49.50    | -49.50  |
| 7.5G        | 25G        | 1M      | PK   | 19.89875G | -62.52    | -21.20     | -41.32     | 2.30    | 0.00    | -64.82    | -64.82  |

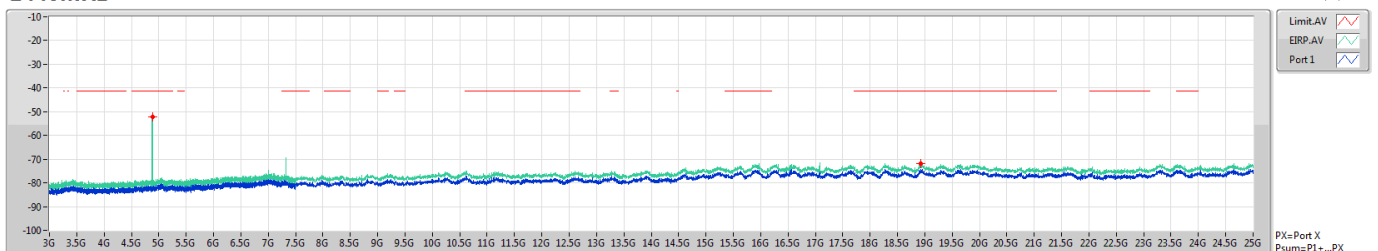
PX=Port X  
Psum=P1+...PX

## Zigbee

2440MHz

CSE-AV

29/04/2020



| F-Start(Hz) | F-Stop(Hz) | RBW(Hz) | Type | Freq(Hz) | EIRP(dBm) | Limit(dBm) | Margin(dB) | DG(dBi) | Ref(dB) | Psum(dBm) | P1(dBm) |
|-------------|------------|---------|------|----------|-----------|------------|------------|---------|---------|-----------|---------|
| 3G          | 7.5G       | 1M      | AV   | 4.881G   | -52.23    | -41.20     | -11.03     | 2.30    | 0.00    | -54.53    | -54.53  |
| 7.5G        | 25G        | 1M      | AV   | 18.9275G | -71.91    | -41.20     | -30.71     | 2.30    | 0.00    | -74.21    | -74.21  |

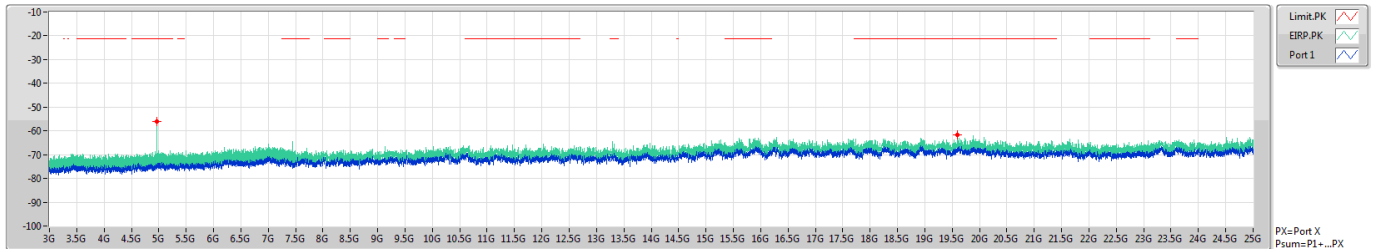
PX=Port X  
Psum=P1+...PX

## Zigbee

2480MHz

CSE-PK

29/04/2020



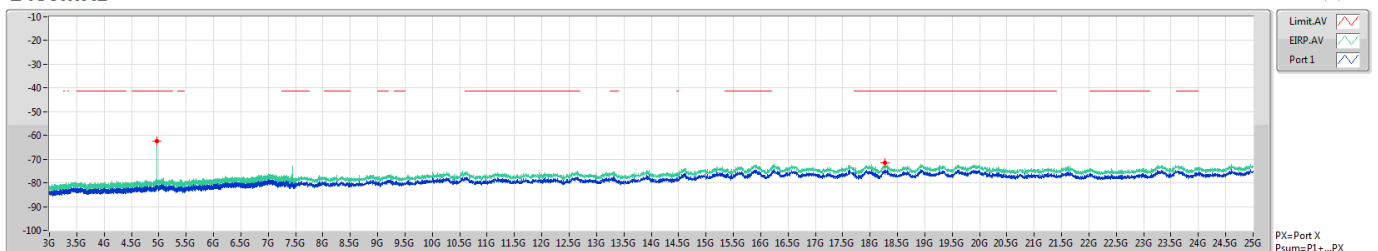
| F-Start(Hz) | F-Stop(Hz) | RBW(Hz) | Type | Freq(Hz) | EIRP(dBm) | Limit(dBm) | Margin(dB) | DG(dBi) | Ref(dB) | Psum(dBm) | P1(dBm) |
|-------------|------------|---------|------|----------|-----------|------------|------------|---------|---------|-----------|---------|
| 3G          | 7.5G       | 1M      | PK   | 4.96088G | -56.14    | -21.20     | -34.94     | 2.18    | 0.00    | -58.32    | -58.32  |
| 7.5G        | 25G        | 1M      | PK   | 19.5925G | -61.72    | -21.20     | -40.52     | 2.18    | 0.00    | -63.90    | -63.90  |

## Zigbee

2480MHz

CSE-AV

29/04/2020



| F-Start(Hz) | F-Stop(Hz) | RBW(Hz) | Type | Freq(Hz)  | EIRP(dBm) | Limit(dBm) | Margin(dB) | DG(dBi) | Ref(dB) | Psum(dBm) | P1(dBm) |
|-------------|------------|---------|------|-----------|-----------|------------|------------|---------|---------|-----------|---------|
| 3G          | 7.5G       | 1M      | AV   | 4.95919G  | -62.36    | -41.20     | -21.16     | 2.18    | 0.00    | -64.54    | -64.54  |
| 7.5G        | 25G        | 1M      | AV   | 18.27125G | -71.65    | -41.20     | -30.45     | 2.18    | 0.00    | -73.83    | -73.83  |



For Conducted Bandedge:

Summary

| Mode          | Result | F-Start<br>(Hz) | F-Stop<br>(Hz) | Type | Freq<br>(Hz) | DG<br>(dBi) | P1<br>(dBm) | Psum<br>(dBm) | EIRP<br>(dBm) | Limit<br>(dBm) | Margin<br>(dB) |
|---------------|--------|-----------------|----------------|------|--------------|-------------|-------------|---------------|---------------|----------------|----------------|
| 2.4-2.4835GHz | -      | -               | -              | -    | -            | -           | -           | -             | -             | -              | -              |
| Zigbee        | Pass   | 2.4G            | 2.4835G        | AV   | 2.4835G      | 2.18        | -43.72      | -43.72        | -41.54        | -41.20         | -0.34          |

DG = Directional Gain;  
PX=Port X; Psum=P1+.P2+...PX

**Result**

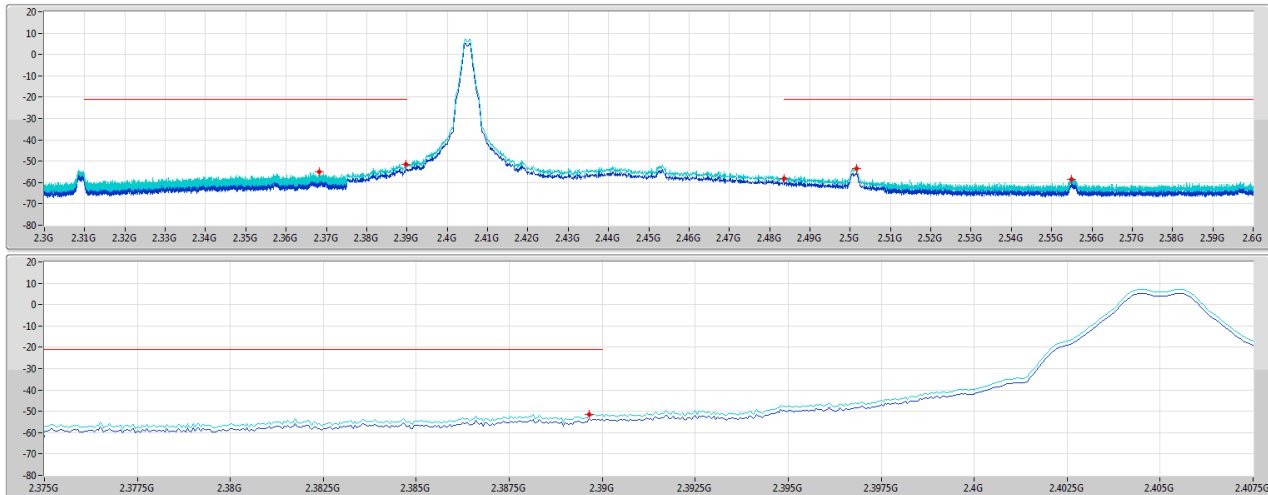
| Mode    | Result | F-Start<br>(Hz) | F-Stop<br>(Hz) | Type | Freq<br>(Hz) | DG<br>(dBi) | P1<br>(dBm) | Psum<br>(dBm) | EIRP<br>(dBm) | Limit<br>(dBm) | Margin<br>(dB) |
|---------|--------|-----------------|----------------|------|--------------|-------------|-------------|---------------|---------------|----------------|----------------|
| Zigbee  | -      | -               | -              | -    | -            | -           | -           | -             | -             | -              | -              |
| 2405MHz | Pass   | 2.3G            | 2.375G         | AV   | 2.36629G     | 2.08        | -66.83      | -66.83        | -64.75        | -41.20         | -23.55         |
| 2405MHz | Pass   | 2.375G          | 2.4G           | AV   | 2.3899G      | 2.08        | -62.49      | -62.49        | -60.41        | -41.20         | -19.21         |
| 2405MHz | Pass   | 2.4G            | 2.4835G        | AV   | 2.4835G      | 2.08        | -70.46      | -70.46        | -68.38        | -41.20         | -27.18         |
| 2405MHz | Pass   | 2.4835G         | 2.5085G        | AV   | 2.50115G     | 2.08        | -61.72      | -61.72        | -59.64        | -41.20         | -18.44         |
| 2405MHz | Pass   | 2.5085G         | 2.6G           | AV   | 2.55544G     | 2.08        | -69.10      | -69.10        | -67.02        | -41.20         | -25.82         |
| 2405MHz | Pass   | 2.3G            | 2.375G         | PK   | 2.36832G     | 2.08        | -56.89      | -56.89        | -54.81        | -21.20         | -33.61         |
| 2405MHz | Pass   | 2.375G          | 2.4G           | PK   | 2.38965G     | 2.08        | -53.58      | -53.58        | -51.50        | -21.20         | -30.30         |
| 2405MHz | Pass   | 2.4G            | 2.4835G        | PK   | 2.4835G      | 2.08        | -60.33      | -60.33        | -58.25        | -21.20         | -37.05         |
| 2405MHz | Pass   | 2.4835G         | 2.5085G        | PK   | 2.50165G     | 2.08        | -55.64      | -55.64        | -53.56        | -21.20         | -32.36         |
| 2405MHz | Pass   | 2.5085G         | 2.6G           | PK   | 2.55494G     | 2.08        | -60.45      | -60.45        | -58.37        | -21.20         | -37.17         |
| 2440MHz | Pass   | 2.3G            | 2.375G         | AV   | 2.34414G     | 2.30        | -62.82      | -62.82        | -60.52        | -41.20         | -19.32         |
| 2440MHz | Pass   | 2.375G          | 2.4G           | AV   | 2.388G       | 2.30        | -68.45      | -68.45        | -66.15        | -41.20         | -24.95         |
| 2440MHz | Pass   | 2.4G            | 2.4835G        | AV   | 2.4835G      | 2.30        | -67.43      | -67.43        | -65.13        | -41.20         | -23.93         |
| 2440MHz | Pass   | 2.4835G         | 2.5085G        | AV   | 2.4879G      | 2.30        | -62.80      | -62.80        | -60.50        | -41.20         | -19.30         |
| 2440MHz | Pass   | 2.5085G         | 2.6G           | AV   | 2.53613G     | 2.30        | -62.35      | -62.35        | -60.05        | -41.20         | -18.85         |
| 2440MHz | Pass   | 2.3G            | 2.375G         | PK   | 2.34346G     | 2.30        | -56.21      | -56.21        | -53.91        | -21.20         | -32.71         |
| 2440MHz | Pass   | 2.375G          | 2.4G           | PK   | 2.37885G     | 2.30        | -57.84      | -57.84        | -55.54        | -21.20         | -34.34         |
| 2440MHz | Pass   | 2.4G            | 2.4835G        | PK   | 2.4835G      | 2.30        | -57.73      | -57.73        | -55.43        | -21.20         | -34.23         |
| 2440MHz | Pass   | 2.4835G         | 2.5085G        | PK   | 2.4876G      | 2.30        | -54.41      | -54.41        | -52.11        | -21.20         | -30.91         |
| 2440MHz | Pass   | 2.5085G         | 2.6G           | PK   | 2.53643G     | 2.30        | -55.73      | -55.73        | -53.43        | -21.20         | -32.23         |
| 2480MHz | Pass   | 2.3G            | 2.375G         | AV   | 2.32465G     | 2.18        | -72.44      | -72.44        | -70.26        | -41.20         | -29.06         |
| 2480MHz | Pass   | 2.375G          | 2.4G           | AV   | 2.38385G     | 2.18        | -63.94      | -63.94        | -61.76        | -41.20         | -20.56         |
| 2480MHz | Pass   | 2.4G            | 2.4835G        | AV   | 2.4835G      | 2.18        | -43.72      | -43.72        | -41.54        | -41.20         | -0.34          |
| 2480MHz | Pass   | 2.4835G         | 2.5085G        | AV   | 2.4835G      | 2.18        | -44.42      | -44.42        | -42.24        | -41.20         | -1.04          |
| 2480MHz | Pass   | 2.5085G         | 2.6G           | AV   | 2.57605G     | 2.18        | -64.13      | -64.13        | -61.95        | -41.20         | -20.75         |
| 2480MHz | Pass   | 2.3G            | 2.375G         | PK   | 2.32509G     | 2.18        | -62.85      | -62.85        | -60.67        | -21.20         | -39.47         |
| 2480MHz | Pass   | 2.375G          | 2.4G           | PK   | 2.3845G      | 2.18        | -56.91      | -56.91        | -54.73        | -21.20         | -33.53         |
| 2480MHz | Pass   | 2.4G            | 2.4835G        | PK   | 2.4835G      | 2.18        | -37.63      | -37.63        | -35.45        | -21.20         | -14.25         |
| 2480MHz | Pass   | 2.4835G         | 2.5085G        | PK   | 2.4835G      | 2.18        | -39.50      | -39.50        | -37.32        | -21.20         | -16.12         |
| 2480MHz | Pass   | 2.5085G         | 2.6G           | PK   | 2.57548G     | 2.18        | -57.19      | -57.19        | -55.01        | -21.20         | -33.81         |

DG = Directional Gain;  
PX=Port X; Psum=P1+...PX

Zigbee  
2405MHz

## CSE-PK

29/04/2020

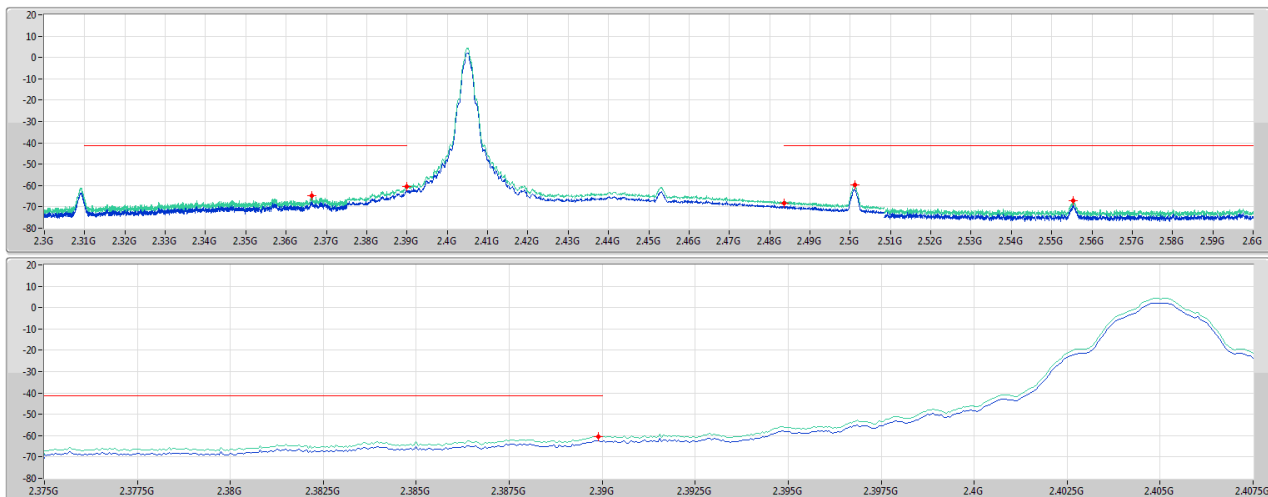


| F-Start(Hz) | F-Stop(Hz) | RBW(Hz) | Type | Freq(Hz) | EIRP(dBm) | Limit(dBm) | Margin(dB) | DG(dB) | Ref(dB) | Psum(dBm) | P1(dBm) |
|-------------|------------|---------|------|----------|-----------|------------|------------|--------|---------|-----------|---------|
| 2.3G        | 2.375G     | 1M      | PK   | 2.36832G | -54.81    | -21.20     | -33.61     | 2.08   | 0.00    | -56.89    | -56.89  |
| 2.375G      | 2.4G       | 1M      | PK   | 2.38965G | -51.50    | -21.20     | -30.30     | 2.08   | 0.00    | -53.58    | -53.58  |
| 2.4G        | 2.4835G    | 1M      | PK   | 2.4835G  | -58.25    | -21.20     | -37.05     | 2.08   | 0.00    | -60.33    | -60.33  |
| 2.4835G     | 2.5085G    | 1M      | PK   | 2.50165G | -53.56    | -21.20     | -32.36     | 2.08   | 0.00    | -55.64    | -55.64  |
| 2.5085G     | 2.6G       | 1M      | PK   | 2.55494G | -58.37    | -21.20     | -37.17     | 2.08   | 0.00    | -60.45    | -60.45  |

Zigbee  
2405MHz

## CSE-AV

29/04/2020

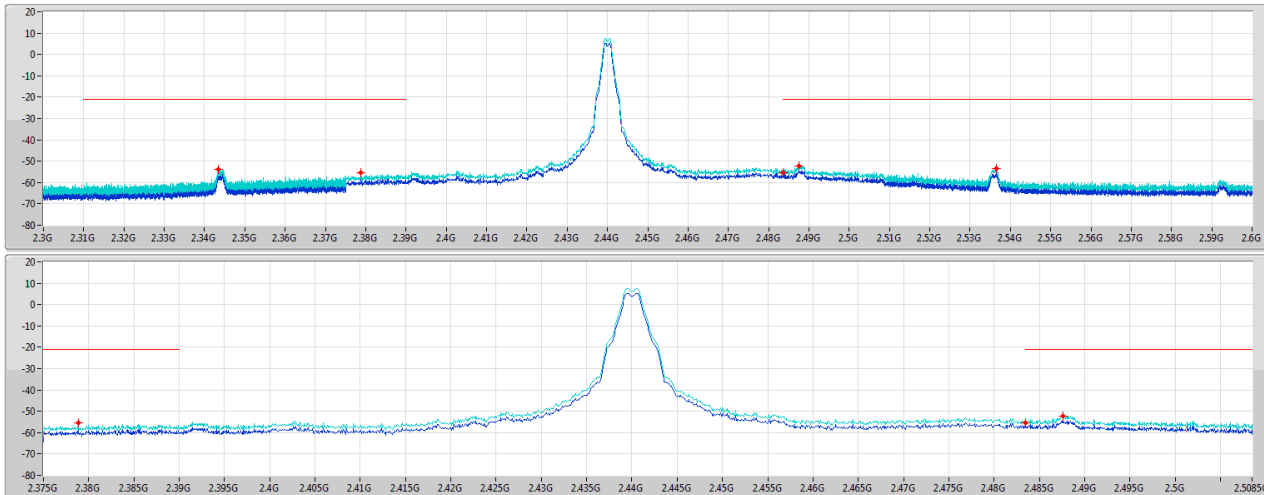


| F-Start(Hz) | F-Stop(Hz) | RBW(Hz) | Type | Freq(Hz) | EIRP(dBm) | Limit(dBm) | Margin(dB) | DG(dB) | Ref(dB) | Psum(dBm) | P1(dBm) |
|-------------|------------|---------|------|----------|-----------|------------|------------|--------|---------|-----------|---------|
| 2.3G        | 2.375G     | 1M      | AV   | 2.36629G | -64.75    | -41.20     | -23.55     | 2.08   | 0.00    | -66.83    | -66.83  |
| 2.375G      | 2.4G       | 1M      | AV   | 2.3899G  | -60.41    | -41.20     | -19.21     | 2.08   | 0.00    | -62.49    | -62.49  |
| 2.4G        | 2.4835G    | 1M      | AV   | 2.4835G  | -68.38    | -41.20     | -27.18     | 2.08   | 0.00    | -70.46    | -70.46  |
| 2.4835G     | 2.5085G    | 1M      | AV   | 2.50115G | -59.64    | -41.20     | -18.44     | 2.08   | 0.00    | -61.72    | -61.72  |
| 2.5085G     | 2.6G       | 1M      | AV   | 2.5544G  | -67.02    | -41.20     | -25.82     | 2.08   | 0.00    | -69.10    | -69.10  |

Zigbee  
2440MHz

## CSE-PK

29/04/2020

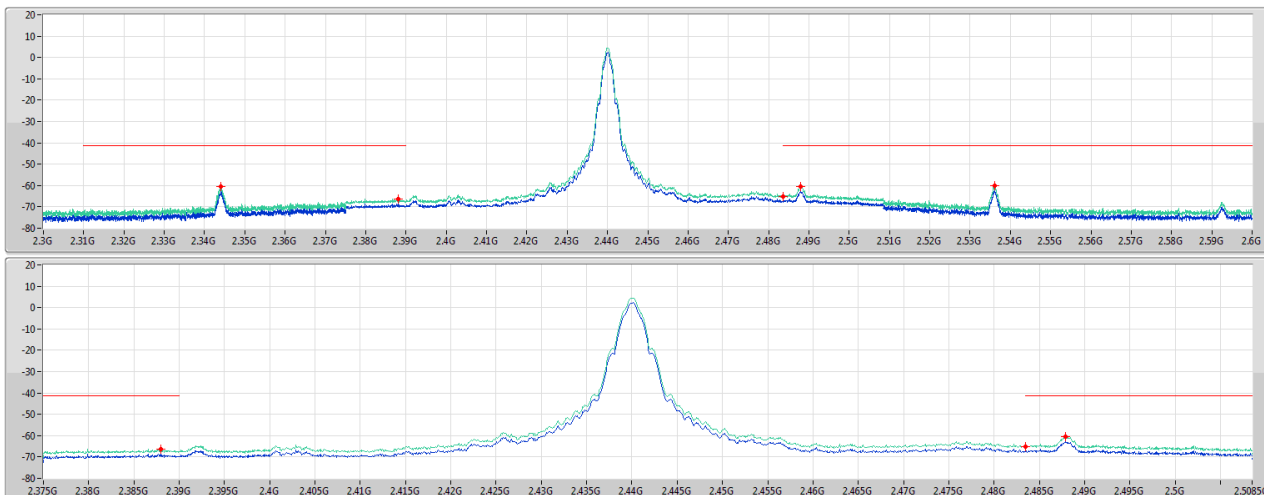


| F-Start(Hz) | F-Stop(Hz) | RBW(Hz) | Type | Freq(Hz) | EIRP(dBm) | Limit(dBm) | Margin(dB) | DG(dB) | Ref(dB) | Psum(dBm) | P1(dBm) |
|-------------|------------|---------|------|----------|-----------|------------|------------|--------|---------|-----------|---------|
| 2.3G        | 2.375G     | 1M      | PK   | 2.34346G | -53.91    | -21.20     | -32.71     | 2.30   | 0.00    | -56.21    | -56.21  |
| 2.375G      | 2.4G       | 1M      | PK   | 2.37885G | -55.54    | -21.20     | -34.34     | 2.30   | 0.00    | -57.84    | -57.84  |
| 2.4G        | 2.4835G    | 1M      | PK   | 2.4835G  | -55.43    | -21.20     | -34.23     | 2.30   | 0.00    | -57.73    | -57.73  |
| 2.4835G     | 2.5085G    | 1M      | PK   | 2.4876G  | -52.11    | -21.20     | -30.91     | 2.30   | 0.00    | -54.41    | -54.41  |
| 2.5085G     | 2.6G       | 1M      | PK   | 2.53843G | -53.43    | -21.20     | -32.23     | 2.30   | 0.00    | -55.73    | -55.73  |

Zigbee  
2440MHz

## CSE-AV

29/04/2020

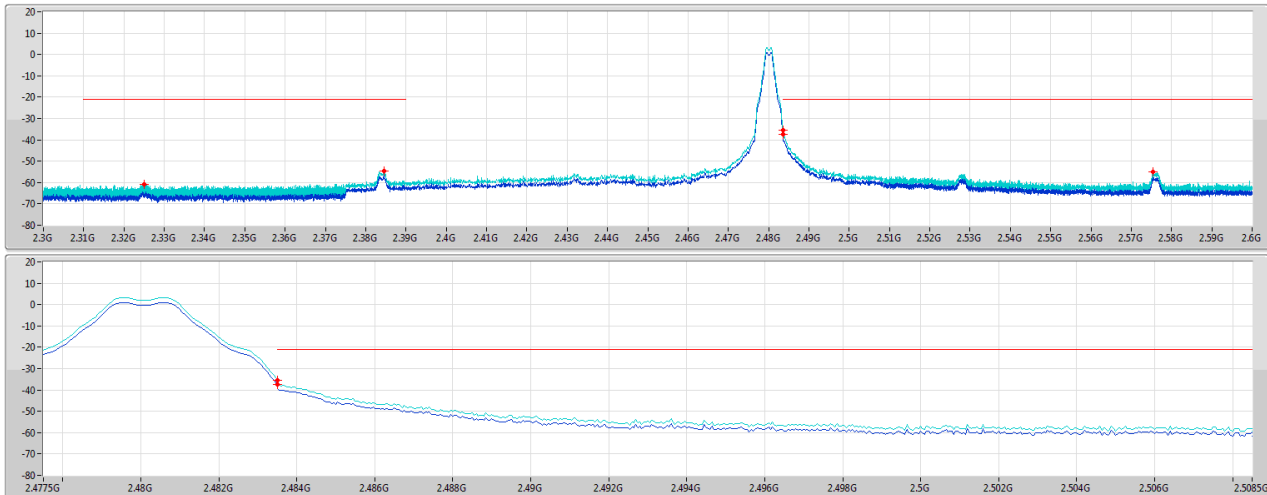


| F-Start(Hz) | F-Stop(Hz) | RBW(Hz) | Type | Freq(Hz) | EIRP(dBm) | Limit(dBm) | Margin(dB) | DG(dB) | Ref(dB) | Psum(dBm) | P1(dBm) |
|-------------|------------|---------|------|----------|-----------|------------|------------|--------|---------|-----------|---------|
| 2.3G        | 2.375G     | 1M      | AV   | 2.34414G | -60.52    | -41.20     | -19.32     | 2.30   | 0.00    | -62.82    | -62.82  |
| 2.375G      | 2.4G       | 1M      | AV   | 2.388G   | -66.15    | -41.20     | -24.95     | 2.30   | 0.00    | -68.45    | -68.45  |
| 2.4G        | 2.4835G    | 1M      | AV   | 2.4835G  | -65.13    | -41.20     | -23.93     | 2.30   | 0.00    | -67.43    | -67.43  |
| 2.4835G     | 2.5085G    | 1M      | AV   | 2.4879G  | -60.50    | -41.20     | -19.30     | 2.30   | 0.00    | -62.80    | -62.80  |
| 2.5085G     | 2.6G       | 1M      | AV   | 2.53613G | -60.05    | -41.20     | -18.85     | 2.30   | 0.00    | -62.35    | -62.35  |

Zigbee  
2480MHz

## CSE-PK

29/04/2020

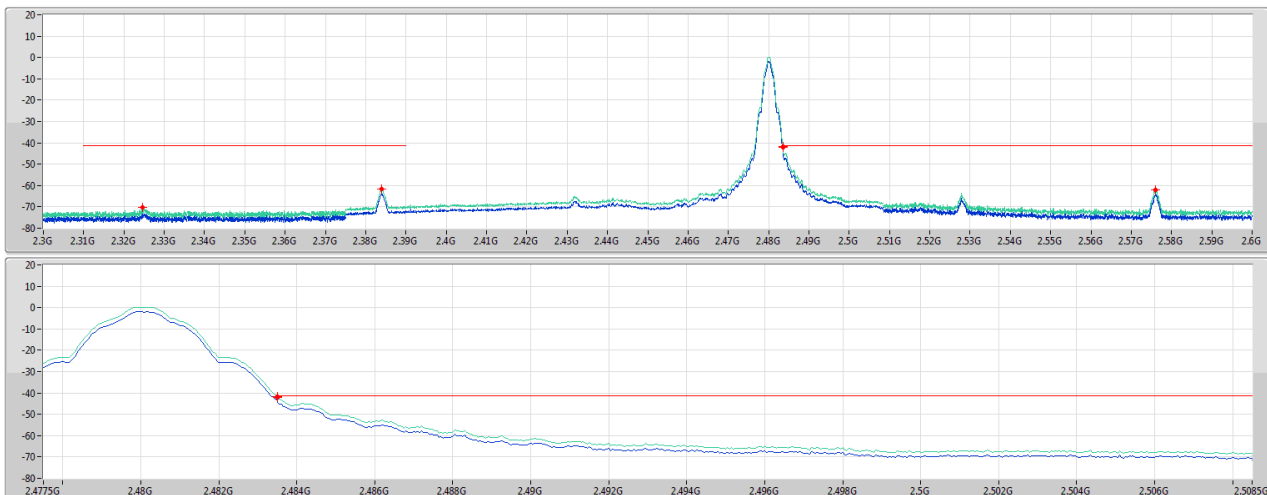


| F-Start(Hz) | F-Stop(Hz) | RBW(Hz) | Type | Freq(Hz) | EIRP(dBm) | Limit(dBm) | Margin(dB) | DG(dB) | Ref(dB) | Psum(dBm) | P1(dBm) |
|-------------|------------|---------|------|----------|-----------|------------|------------|--------|---------|-----------|---------|
| 2.3G        | 2.375G     | 1M      | PK   | 2.32509G | -60.67    | -21.20     | -39.47     | 2.18   | 0.00    | -62.85    | -62.85  |
| 2.375G      | 2.4G       | 1M      | PK   | 2.3845G  | -54.73    | -21.20     | -33.53     | 2.18   | 0.00    | -56.91    | -56.91  |
| 2.4G        | 2.4835G    | 1M      | PK   | 2.4835G  | -35.45    | -21.20     | -14.25     | 2.18   | 0.00    | -37.63    | -37.63  |
| 2.4835G     | 2.5085G    | 1M      | PK   | 2.4835G  | -37.32    | -21.20     | -16.12     | 2.18   | 0.00    | -39.50    | -39.50  |
| 2.5085G     | 2.6G       | 1M      | PK   | 2.57548G | -55.01    | -21.20     | -33.81     | 2.18   | 0.00    | -57.19    | -57.19  |

Zigbee  
2480MHz

## CSE-AV

29/04/2020



| F-Start(Hz) | F-Stop(Hz) | RBW(Hz) | Type | Freq(Hz) | EIRP(dBm) | Limit(dBm) | Margin(dB) | DG(dB) | Ref(dB) | Psum(dBm) | P1(dBm) |
|-------------|------------|---------|------|----------|-----------|------------|------------|--------|---------|-----------|---------|
| 2.3G        | 2.375G     | 1M      | AV   | 2.32465G | -70.26    | -41.20     | -29.06     | 2.18   | 0.00    | -72.44    | -72.44  |
| 2.375G      | 2.4G       | 1M      | AV   | 2.38385G | -61.76    | -41.20     | -20.56     | 2.18   | 0.00    | -63.94    | -63.94  |
| 2.4G        | 2.4835G    | 1M      | AV   | 2.4835G  | -41.54    | -41.20     | -0.34      | 2.18   | 0.00    | -43.72    | -43.72  |
| 2.4835G     | 2.5085G    | 1M      | AV   | 2.4835G  | -42.24    | -41.20     | -1.04      | 2.18   | 0.00    | -44.42    | -44.42  |
| 2.5085G     | 2.6G       | 1M      | AV   | 2.57605G | -61.95    | -41.20     | -20.75     | 2.18   | 0.00    | -64.13    | -64.13  |