

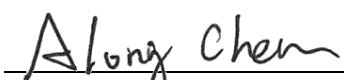
# FCC Test Report

**FCC ID** : SQG-BL54L15U  
**Equipment** : Bluetooth LE + 802.15.4 + NFC module  
**Model No.** : BL54L15μ  
**Brand Name** : Ezurio  
**Applicant** : Ezurio LLC  
**Address** : W66N220 Commerce Court, Cedarburg, WI  
53012, USA  
**Standard** : 47 CFR FCC Part 15.247  
**Received Date** : Jan. 10, 2025  
**Tested Date** : Jan. 13 ~ Jan. 15, 2025

We, International Certification Corporation, would like to declare that the tested sample has been evaluated and in compliance with the requirement of the above standards. The test results contained in this report refer exclusively to the product. It shall not be reproduced except in full without the written approval of our laboratory.

Reviewed by:

Approved by:



Along Chen / Assistant Manager



Gary Chang / Manager

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## Release Record

| Report No. | Version | Description                      | Issued Date   |
|------------|---------|----------------------------------|---------------|
| FR511001   | Rev. 01 | Initial issue                    | Feb. 14, 2025 |
| FR511001   | Rev. 02 | Typing error of P4 is corrected. | Feb. 25, 2025 |

## Summary of Test Results

| FCC Rules           | Test Items                       | Measured                                           | Result |
|---------------------|----------------------------------|----------------------------------------------------|--------|
| 15.207              | AC Power Line Conducted Emission | [dBuV]: 0.404MHz<br>36.37 (Margin -11.40dB) - AV   | Pass   |
| 15.247(d)<br>15.209 | Unwanted Emissions               | [dBm]: 19.51644GHz<br>-45.42 (Margin -4.22dB) - AV | Pass   |
| 15.247(b)(3)        | Conducted Output Power           | Max Power [dBm]: 6.83                              | Pass   |
| 15.247(a)(2)        | 6dB Bandwidth                    | Meet the requirement of limit                      | Pass   |
| 15.247(e)           | Power Spectral Density           | Meet the requirement of limit                      | Pass   |
| 15.203              | Antenna Requirement              | Meet the requirement of limit                      | 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:

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.

# 1 General Description

## 1.1 Information

### 1.1.1 Specification of the Equipment under Test (EUT)

| RF General Information                                                      |           |                 |                |           |
|-----------------------------------------------------------------------------|-----------|-----------------|----------------|-----------|
| Frequency Range (MHz)                                                       | IEEE Std. | Ch. Freq. (MHz) | Channel Number | Data Rate |
| 2400-2483.5                                                                 | 802.15.4  | 2405-2480       | 11-26 [16]     | 250kbps   |
| Note 1: RF output power specifies that Maximum Peak Conducted Output Power. |           |                 |                |           |
| Note 2: 802.15.4 uses O-QPSK modulation                                     |           |                 |                |           |

### 1.1.2 Antenna Details

External Antenna list for BL54L15μ RF trace pin module variant (453-00224R)

| Manufacturer | Model                    | Part Number       | Type            | Connector         | 2400-2500 (MHz) | 2400-2480 (MHz) |
|--------------|--------------------------|-------------------|-----------------|-------------------|-----------------|-----------------|
| Ezurio       | NanoBlue                 | EBL2400A1-10MH4L  | PCB Dipole      | IPEX MHF4         | 2 dBi           | -               |
| Ezurio       | FlexPIFA                 | 001-0022          | FlexPIFA        | IPEX MHF4L        | -               | 2 dBi           |
| Mag.Layers   | EDA-8709-2G4C1-B27-CY    | 0600-00057        | Dipole          | IPEX MHF4         | 2.32 dBi        | -               |
| Ezurio       | mFlexPIFA                | EFA2400A3S-10MH4L | PIFA            | IPEX MHF4L        | -               | 2 dBi           |
| Ezurio       | i-FlexPIFATM Mini Series | EFG2401A3S-10MH4L | i-FlexPIFA      | IPEX MHF4L        | -               | 2 dBi           |
| Ezurio       | Ezurio NFC               | 0600-00061        | Coiled Inductor | FFC/FPC Connector | -               | -               |

Integrated Antenna BL54L15μ Chip antenna module variant (453-00223R)

| Manufacturer  | Model      | Part Number        | Type            | Connector         | 2400-2500 (MHz) |
|---------------|------------|--------------------|-----------------|-------------------|-----------------|
| Yaego (Pulse) | NC         | ANT1608LL14R 2400A | Chip Antenna    | N/A               | 2.0 dBi         |
| Ezurio        | Ezurio NFC | 0600-00061         | Coiled Inductor | FFC/FPC Connector | -               |

### 1.1.3 Power Supply Type of Equipment under Test (EUT)

|                   |                  |
|-------------------|------------------|
| Power Supply Type | 1.8Vdc from host |
|-------------------|------------------|

### 1.1.4 Accessories

N/A

### 1.1.5 Channel List

| Channel No. | Frequency (MHz) |
|-------------|-----------------|
| 11          | 2405            |
| 12          | 2410            |
| 13          | 2415            |
| 14          | 2420            |
| 15          | 2425            |
| 16          | 2430            |
| 17          | 2435            |
| 18          | 2440            |
| 19          | 2445            |
| 20          | 2450            |
| 21          | 2455            |
| 22          | 2460            |
| 23          | 2465            |
| 24          | 2470            |
| 25          | 2475            |
| 26          | 2480            |

### 1.1.6 Test Tool and Duty Cycle

| Test Tool | Tera Term, Version: 4.84      |                  |
|-----------|-------------------------------|------------------|
| Mode      | Duty Cycle of Test Signal (%) | Duty Factor (dB) |
| 802.15.4  | 100.00%                       | 0.00             |

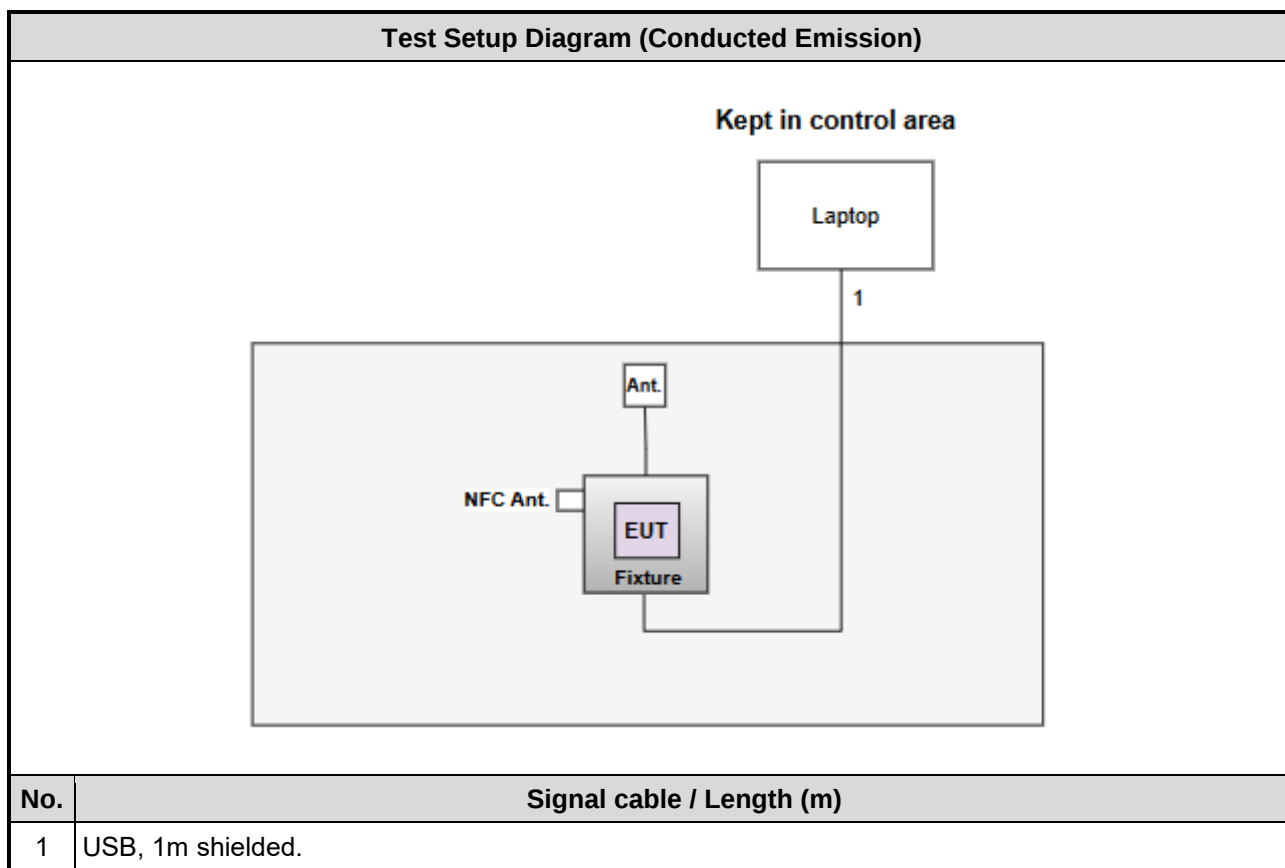
### 1.1.7 Power Index of Test Tool

| Test Frequency (MHz) | 802.15.4 Power Index |
|----------------------|----------------------|
| 2405                 | pos7dBm              |
| 2440                 | pos7dBm              |
| 2475                 | pos7dBm              |
| 2480                 | pos7dBm              |

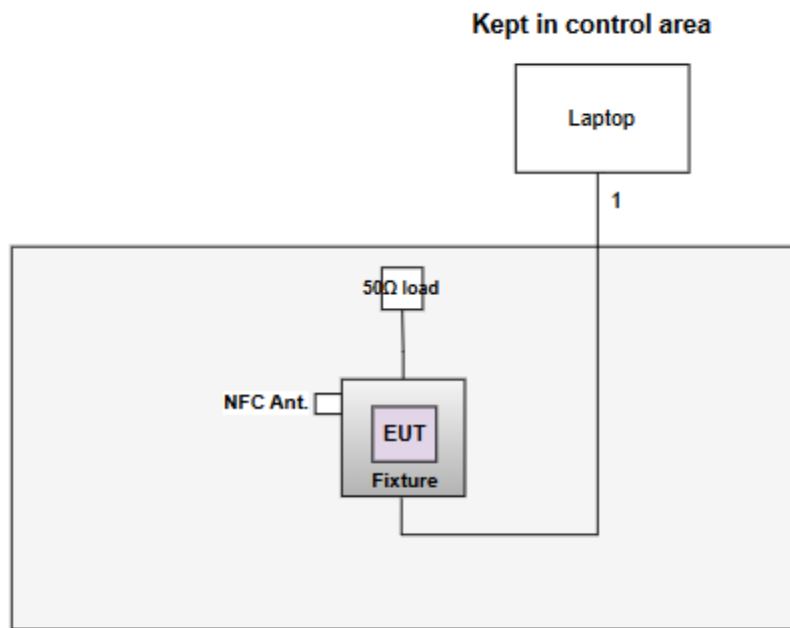
## 1.2 Local Support Equipment List

| Support Equipment List |             |       |                |        |                        |
|------------------------|-------------|-------|----------------|--------|------------------------|
| No.                    | Equipment   | Brand | Model          | FCC ID | Remarks                |
| 1                      | Laptop      | DELL  | Latitude E5400 | DoC    | ---                    |
| 2                      | 50 ohm load | Woken | WTER-18S2      | ---    | ---                    |
| 3                      | Fixture     | ---   | ---            | ---    | Provided by applicant. |

## 1.3 Test Setup Chart



### Test Setup Diagram (Radiated Emission)



| No. | Signal cable / Length (m) |
|-----|---------------------------|
| 1   | USB, 1m shielded.         |

## 1.4 The Equipment List

|                                                                     |                               |                  |                   |                         |                          |
|---------------------------------------------------------------------|-------------------------------|------------------|-------------------|-------------------------|--------------------------|
| <b>Test Item</b>                                                    | Conducted Emission            |                  |                   |                         |                          |
| <b>Test Site</b>                                                    | Conduction room 1 / (CO01-WS) |                  |                   |                         |                          |
| <b>Tested Date</b>                                                  | Jan. 15, 2025                 |                  |                   |                         |                          |
| <b>Instrument</b>                                                   | <b>Brand</b>                  | <b>Model No.</b> | <b>Serial No.</b> | <b>Calibration Date</b> | <b>Calibration Until</b> |
| Receiver                                                            | R&S                           | ESR3             | 101657            | Mar. 05, 2024           | Mar. 04, 2025            |
| LISN                                                                | R&S                           | ENV216           | 101579            | May 09, 2024            | May 08, 2025             |
| LISN<br>(Support Unit)                                              | SCHWARZBECK                   | Schwarzbeck 8127 | 8127-666          | Mar. 05, 2024           | Mar. 04, 2025            |
| 50 ohm terminal                                                     | NA                            | 50               | 01                | Jun. 19, 2024           | Jun. 18, 2025            |
| Measurement<br>Software                                             | AUDIX                         | e3               | 6.120210k         | NA                      | NA                       |
| Note: Calibration Interval of instruments listed above is one year. |                               |                  |                   |                         |                          |

|                                                                     |                            |                       |                   |                         |                          |
|---------------------------------------------------------------------|----------------------------|-----------------------|-------------------|-------------------------|--------------------------|
| <b>Test Item</b>                                                    | Radiated Emission          |                       |                   |                         |                          |
| <b>Test Site</b>                                                    | 966 chamber1 / (03CH01-WS) |                       |                   |                         |                          |
| <b>Tested Date</b>                                                  | Jan. 15, 2025              |                       |                   |                         |                          |
| <b>Instrument</b>                                                   | <b>Brand</b>               | <b>Model No.</b>      | <b>Serial No.</b> | <b>Calibration Date</b> | <b>Calibration Until</b> |
| Receiver                                                            | R&S                        | ESR3                  | 101657            | Mar. 05, 2024           | Mar. 04, 2025            |
| Spectrum Analyzer                                                   | R&S                        | FSV40                 | 101498            | Nov. 12, 2024           | Nov. 11, 2025            |
| Loop Antenna                                                        | R&S                        | HFH2-Z2               | 100330            | Nov. 05, 2024           | Nov. 04, 2025            |
| Bilog Antenna                                                       | SCHWARZBECK                | VULB9168              | VULB9168-522      | Aug. 09, 2024           | Aug. 08, 2025            |
| Horn Antenna 1G-18G                                                 | SCHWARZBECK                | BBHA 9120 D           | BBHA 9120 D 1096  | Nov. 28, 2024           | Nov. 27, 2025            |
| Horn Antenna 18G-40G                                                | SCHWARZBECK                | BBHA 9170             | BBHA 9170517      | Nov. 18, 2024           | Nov. 17, 2025            |
| Preamplifier                                                        | EMC                        | EMC02325              | 980225            | Jun. 17, 2024           | Jun. 16, 2025            |
| Preamplifier                                                        | EMC                        | EMC118A45SE           | 980898            | Jul. 05, 2024           | Jul. 04, 2025            |
| Preamplifier                                                        | EMC                        | EMC184045SE           | 980903            | Jul. 30, 2024           | Jul. 29, 2025            |
| Loop Antenna Cable                                                  | KOAX KABEL                 | 101354-BW             | 101354-BW         | Oct. 02, 2024           | Oct. 01, 2025            |
| LF cable 3M                                                         | Woken                      | CFD400NL-LW           | CFD400NL-001      | Oct. 02, 2024           | Oct. 01, 2025            |
| LF cable 11M                                                        | EMC                        | EMCCFD400-NW-NW-11000 | 200801            | Oct. 02, 2024           | Oct. 01, 2025            |
| LF cable 1M                                                         | EMC                        | EMCCFD400-NM-NM-1000  | 160502            | Oct. 02, 2024           | Oct. 01, 2025            |
| RF Cable                                                            | EMC                        | EMC104-35M-35M-8000   | 210920            | Oct. 02, 2024           | Oct. 01, 2025            |
| RF Cable                                                            | EMC                        | EMC104-35M-35M-3000   | 210922            | Oct. 02, 2024           | Oct. 01, 2025            |
| Attenuator                                                          | Pasternack                 | PE7005-10             | 10-1              | Oct. 02, 2024           | Oct. 01, 2025            |
| HIGHPASS FILTER<br>3.1-18G                                          | WHK                        | WHK3.1/18G-10SS       | 39                | Oct. 02, 2024           | Oct. 01, 2025            |
| Measurement<br>Software                                             | Sporton                    | SENSE-15247_FS        | V5.11             | NA                      | NA                       |
| Measurement<br>Software                                             | Sporton                    | SENSE-EMI             | V5.11             | NA                      | NA                       |
| Note: Calibration Interval of instruments listed above is one year. |                            |                       |                   |                         |                          |

|                                                                     |                         |                  |                   |                         |                          |
|---------------------------------------------------------------------|-------------------------|------------------|-------------------|-------------------------|--------------------------|
| <b>Test Item</b>                                                    | RF Conducted            |                  |                   |                         |                          |
| <b>Test Site</b>                                                    | (TH01-WS)               |                  |                   |                         |                          |
| <b>Tested Date</b>                                                  | Jan. 13 ~ Jan. 15, 2025 |                  |                   |                         |                          |
| <b>Instrument</b>                                                   | <b>Brand</b>            | <b>Model No.</b> | <b>Serial No.</b> | <b>Calibration Date</b> | <b>Calibration Until</b> |
| Spectrum Analyzer                                                   | R&S                     | FSV3044          | 101516            | Jun. 17, 2024           | Jun. 16, 2025            |
| Power Meter                                                         | Anritsu                 | ML2495A          | 1241002           | Nov. 26, 2024           | Nov. 25, 2025            |
| Power Sensor                                                        | Anritsu                 | MA2411B          | 1207366           | Nov. 26, 2024           | Nov. 25, 2025            |
| Attenuator                                                          | Pasternack              | PE7005-10        | 10-2              | Oct. 04, 2024           | Oct. 03, 2025            |
| HIGHPASS FILTER<br>3.1-18G                                          | WHK                     | WHK3.1/18G-10SS  | 39                | Oct. 02, 2024           | Oct. 01, 2025            |
| Measurement<br>Software                                             | Sporton                 | SENSE-15247_FS   | V5.11             | NA                      | NA                       |
| Note: Calibration Interval of instruments listed above is one year. |                         |                  |                   |                         |                          |

## 1.5 Test Standards

47 CFR FCC Part 15.247  
ANSI C63.10-2013

## 1.6 Reference Guidance

FCC KDB 558074 D01 15.247 Meas Guidance v05r02

## 1.7 Deviation from Test Standard and Measurement Procedure

None

## 1.8 Measurement Uncertainty

The measurement uncertainties given below are based on a 95% confidence level (based on a coverage factor (k=2)).

| Measurement Uncertainty  |             |
|--------------------------|-------------|
| Parameters               | Uncertainty |
| Bandwidth                | ±34.130 Hz  |
| Conducted power          | ±0.808 dB   |
| Power density            | ±0.583 dB   |
| Conducted emission       | ±2.715 dB   |
| AC conducted emission    | ±2.92 dB    |
| Unwanted Emission ≤ 1GHz | ±3.41 dB    |
| Unwanted Emission > 1GHz | ±4.59 dB    |

## 2 Test Configuration

### 2.1 Testing Facility

|                             |                                                                                        |
|-----------------------------|----------------------------------------------------------------------------------------|
| <b>Test Laboratory</b>      | International Certification Corporation                                                |
| <b>Test Site</b>            | CO01-WS, 03CH01-WS, TH01-WS                                                            |
| <b>Address of Test Site</b> | No.3-1, Lane 6, Wen San 3rd St., Kwei Shan Dist., Tao Yuan City 33381, Taiwan (R.O.C.) |

- FCC Designation No.: TW2732
- FCC site registration No.: 181692
- ISSED#: 10807A
- CAB identifier: TW2732

### 2.2 The Worst Test Modes and Channel Details

| Test item                                                                                                                                                                                                                                                                                                                          | Modulation Mode | Test Frequency (MHz)      | Data Rate | Test Configuration |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|---------------------------|-----------|--------------------|
| AC Power Line Conducted Emission                                                                                                                                                                                                                                                                                                   | O-QPSK          | 2440                      | 250kbps   | -                  |
| Unwanted Emissions ≤ 1GHz                                                                                                                                                                                                                                                                                                          | O-QPSK          | 2440                      | 250kbps   | -                  |
| Unwanted Emissions >1GHz<br>Conducted Output Power<br>6dB bandwidth<br>Power spectral density                                                                                                                                                                                                                                      | O-QPSK          | 2405 / 2440 / 2475 / 2480 | 250kbps   | -                  |
| <b>NOTE:</b><br>1. The EUT was pretested with 3 orientations placed on the table for the radiated emission measurement – X, Y, and Z-plane. The <b>Z-plane</b> results were found as the worst case and were shown in this report.<br>2. The 50Ω terminator is connected to antenna port of EUT for radiated emission measurement. |                 |                           |           |                    |

### 3 Transmitter Test Results

#### 3.1 6dB and Occupied Bandwidth

##### 3.1.1 Limit of 6dB Bandwidth

The minimum 6dB bandwidth shall be at least 500 kHz.

##### 3.1.2 Test Procedures

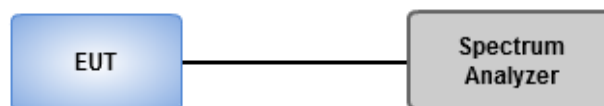
###### 6dB Bandwidth

1. Set resolution bandwidth (RBW) = 100 kHz, Video bandwidth = 300 kHz.
2. Detector = Peak, Trace mode = max hold.
3. Sweep = auto couple, Allow the trace to stabilize.
4. Measure the maximum width of the emission that is constrained by the frequencies associated with the two outermost amplitude points (upper and lower) that are attenuated by 6dB relative to the maximum level measured in the fundamental emission.

###### Occupied Bandwidth

1. Set resolution bandwidth (RBW) = 1% ~ 5 % of OBW, Video bandwidth = 3 x RBW
2. Detector = Sample, Trace mode = max hold.
3. Sweep = auto couple, Allow the trace to stabilize.
4. Use the OBW measurement function of spectrum analyzer to measure the occupied bandwidth.

##### 3.1.3 Test Setup



##### 3.1.4 Test Results

|                   |               |           |                       |
|-------------------|---------------|-----------|-----------------------|
| Ambient Condition | 22°C / 62-66% | Tested By | Roger Lu / Akun Chung |
|-------------------|---------------|-----------|-----------------------|

Refer to Appendix A.

## 3.2 Conducted Output Power

### 3.2.1 Limit of Conducted Output Power

Conducted power shall not exceed 1Watt.

Antenna gain  $\leq 6\text{dBi}$ , no any corresponding reduction is in output power limit.

Antenna gain  $> 6\text{dBi}$

Non Fixed, point to point operations.

The conducted output power from the intentional radiator shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dB

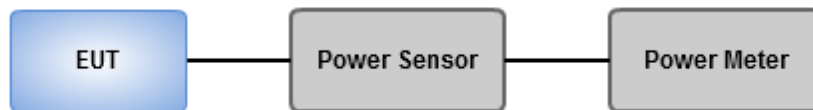
Fixed, point to point operations

Systems operating in the 2400–2483.5 MHz band that are used exclusively for fixed, point-to-point Operations, maximum peak output power of the intentional radiator is reduced by 1 dB for every 3 dB that the directional gain of the antenna exceeds 6 dBi.

### 3.2.2 Test Procedures

A broadband RF power meter is used for output power measurement. The video bandwidth of power meter is greater than DTS bandwidth of EUT. If duty cycle of test signal is not 100 %, trigger and gating function of power meter will be enabled to capture transmission burst for measuring output power.

### 3.2.3 Test Setup



### 3.2.4 Test Results

|                   |               |           |                       |
|-------------------|---------------|-----------|-----------------------|
| Ambient Condition | 22°C / 62-66% | Tested By | Roger Lu / Akun Chung |
|-------------------|---------------|-----------|-----------------------|

Refer to Appendix B.

### 3.3 Power Spectral Density

#### 3.3.1 Limit of Power Spectral Density

Power spectral density shall not be greater than 8 dBm in any 3 kHz band.

#### 3.3.2 Test Procedures

##### Peak PSD

1. Set the RBW = 3 kHz, VBW = 10 kHz.
2. Detector = Peak, Sweep time = auto couple.
3. Trace mode = max hold, allow trace to fully stabilize.
4. Use the peak marker function to determine the maximum amplitude level.

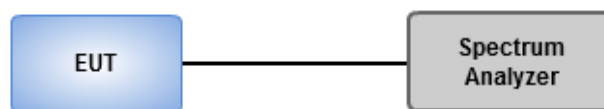
##### Average PSD, duty cycle $\geq 98\%$

1. Set the RBW = 3 kHz, VBW = 10 kHz.
2. Detector = RMS, Sweep time = auto couple.
3. Sweep time = auto couple.
4. Employ trace averaging (RMS) mode over a minimum of 100 traces.
5. Use the peak marker function to determine the maximum amplitude level.

##### Average PSD, duty cycle $< 98\%$

1. Set the RBW = 3 kHz, VBW = 10 kHz
2. Detector = RMS, Sweep time = auto couple.
3. Sweep time = auto couple.
4. Employ trace averaging (RMS) mode over a minimum of 100 traces.
5. Use the peak marker function to determine the maximum amplitude level.
6. Add  $10 \log (1/x)$ , where x is the duty cycle.

#### 3.3.3 Test Setup



#### 3.3.4 Test Results

|                   |               |           |                       |
|-------------------|---------------|-----------|-----------------------|
| Ambient Condition | 22°C / 62-66% | Tested By | Roger Lu / Akun Chung |
|-------------------|---------------|-----------|-----------------------|

Refer to Appendix C.

### 3.4 Unwanted Emissions into Restricted Frequency Bands

#### 3.4.1 Limit of Unwanted Emissions into Restricted Frequency Bands

| 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:**  
Quasi-Peak value is measured for frequency below 1GHz except for 9–90 kHz, 110–490 kHz frequency band. Peak and average value are measured for frequency above 1GHz. The limit on average radio frequency emission is as above table. The limit on peak radio frequency emissions is 20 dB above the maximum permitted average emission limit

**Note 2:**  
Measurements may be performed at a distance other than what is specified provided. When performing measurements at a distance other than that specified, the results shall be extrapolated to the specified distance using an extrapolation factor as below, Frequency at or above 30 MHz: 20 dB/decade Frequency below 30 MHz: 40 dB/decade.

#### 3.4.2 Test Procedures

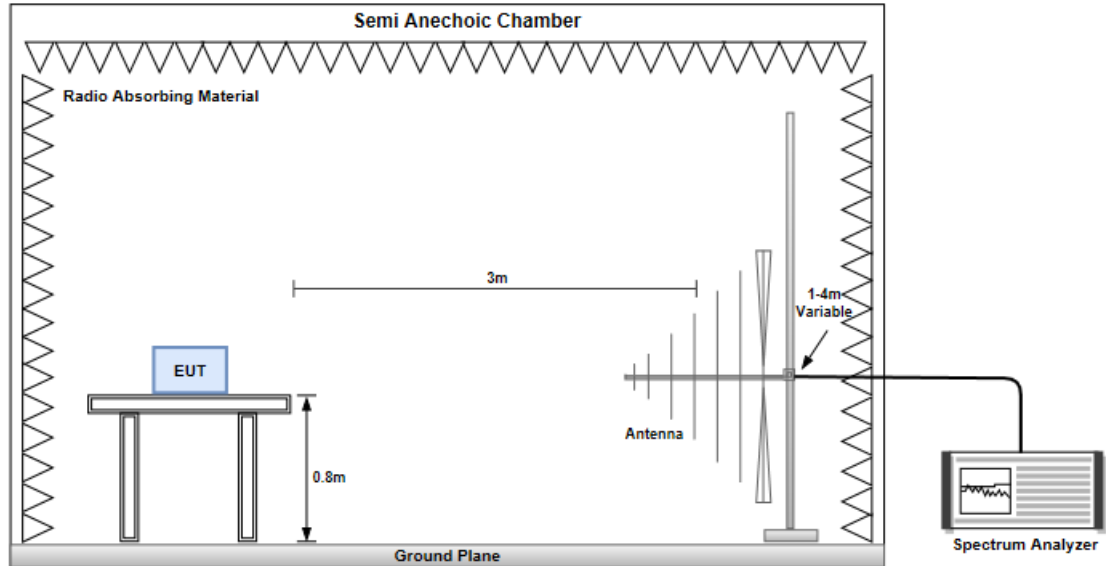
1. Measurement is made at a semi-anechoic chamber that incorporates a turntable allowing a EUT rotation of 360°. A continuously-rotating, remotely-controlled turntable is installed at the test site to support the EUT and facilitate determination of the direction of maximum radiation for each EUT emission frequency. The EUT is placed at test table. For emissions testing at or below 1 GHz, the table height is 80 cm above the reference ground plane. For emission measurements above 1 GHz, the table height is 1.5 m
2. Measurement is made with the antenna positioned in both the horizontal and vertical planes of polarization. The measurement antenna is varied in height (1m ~ 4m) above the reference ground plane to obtain the maximum signal strength. Distance between EUT and antenna is 3 m.
3. This investigation is performed with the EUT rotated 360°, the antenna height scanned between 1 m and 4 m, and the antenna rotated to repeat the measurements for both the horizontal and vertical antenna polarizations.

Note:

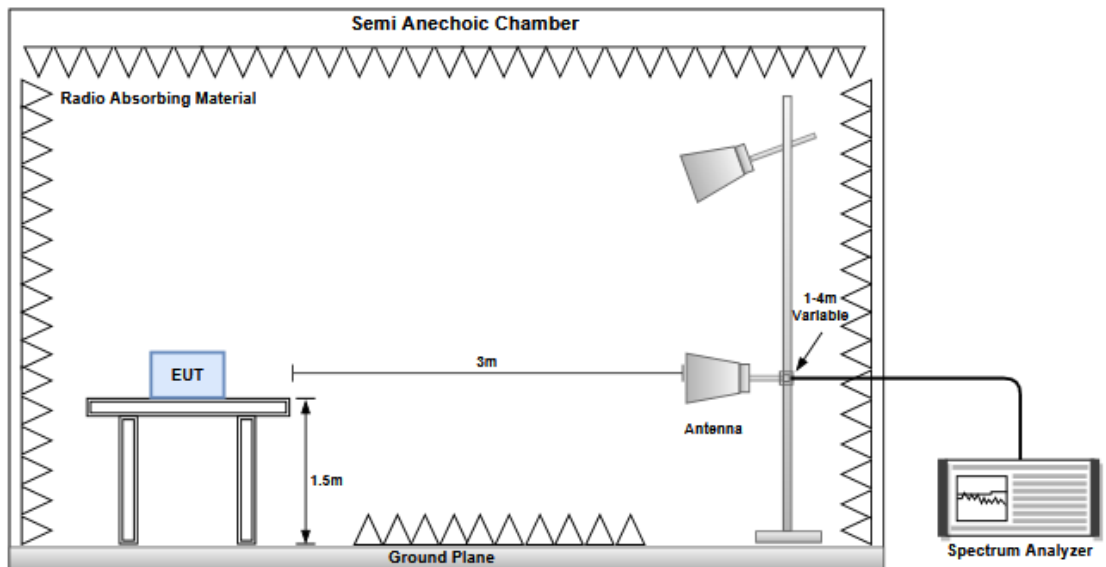
1. 120kHz measurement bandwidth of test receiver and Quasi-peak detector is for radiated emission below 1GHz.
2. RBW=1MHz, VBW=3MHz and Peak detector is for peak measured value of radiated emission above 1GHz.
3. RBW=1MHz, VBW=1/T and Peak detector is for average measured value of radiated emission above 1GHz.

### 3.4.3 Test Setup

#### Radiated Emissions below 1 GHz



#### Radiated Emissions above 1 GHz



### 3.4.4 Test Results

|                   |            |           |                     |
|-------------------|------------|-----------|---------------------|
| Ambient Condition | 21°C / 66% | Tested By | Sean Yu / Allen Lee |
|-------------------|------------|-----------|---------------------|

Refer to Appendix D.

## 3.5 Emissions in Non-Restricted Frequency Bands

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

Peak power in any 100 kHz bandwidth outside of the authorized frequency band shall be attenuated by at least 20 dB relative to the maximum in-band peak PSD level in 100 kHz.

### 3.5.2 Test Procedures

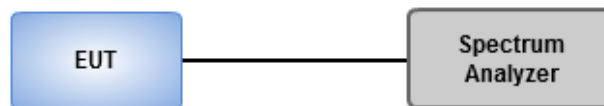
#### Reference level measurement

1. Set RBW=100kHz, VBW = 300kHz , Detector = Peak, Sweep time = Auto
2. Trace = max hold , Allow Trace to fully stabilize
3. Use the peak marker function to determine the maximum PSD level

#### Emission level measurement

1. Set RBW=100kHz, VBW = 300kHz , Detector = Peak, Sweep time = Auto
2. Trace = max hold , Allow Trace to fully stabilize
3. Scan Frequency range is up to 25GHz
4. Use the peak marker function to determine the maximum amplitude level

### 3.5.3 Test Setup



### 3.5.4 Test Results

|                   |               |           |                       |
|-------------------|---------------|-----------|-----------------------|
| Ambient Condition | 22°C / 62-66% | Tested By | Roger Lu / Akun Chung |
|-------------------|---------------|-----------|-----------------------|

Refer to Appendix E.

## 3.6 AC Power Line Conducted Emissions

### 3.6.1 Limit of AC Power Line Conducted Emissions

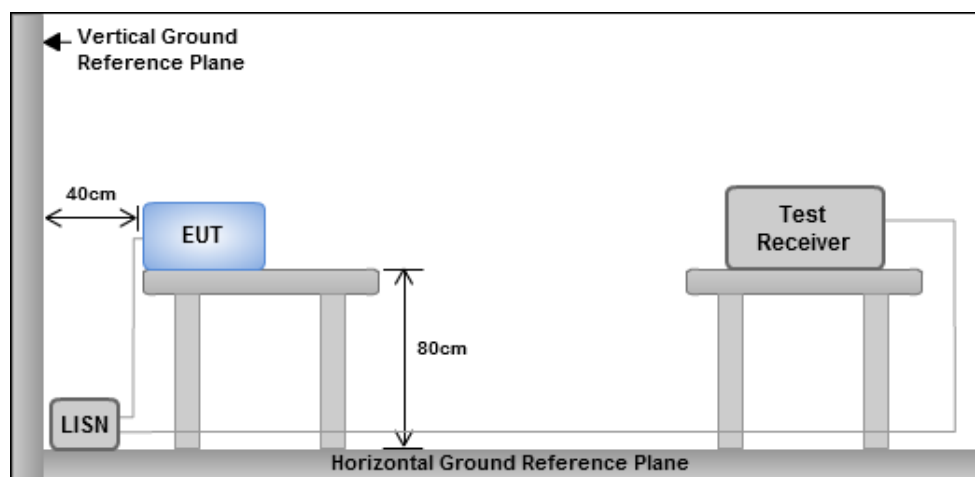
| Conducted Emissions Limit |            |           |
|---------------------------|------------|-----------|
| Frequency Emission (MHz)  | Quasi-Peak | Average   |
| 0.15-0.5                  | 66 - 56 *  | 56 - 46 * |
| 0.5-5                     | 56         | 46        |
| 5-30                   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

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

### 3.6.2 Test Procedures

1. The device is placed on a test table, raised 80 cm above the reference ground plane. The vertical conducting plane is located 40 cm to the rear of the device.
2. The device is connected to line impedance stabilization network (LISN) and other accessories are connected to other LISN. Measured levels of AC power line conducted emission are across the 50  $\Omega$  LISN port.
3. AC conducted emission measurements is made over frequency range from 150 kHz to 30 MHz.
4. This measurement was performed with AC 120V / 60Hz.

### 3.6.3 Test Setup



Note: 1. Support units were connected to second LISN.

2. Both of LISNs (AMN) are 80 cm from EUT and at least 80 cm from other units and other metal planes

### 3.6.4 Test Results

Refer to Appendix F.

---

## 4 Test laboratory information

Established in 2012, ICC provides foremost EMC & RF Testing and advisory consultation services by our skilled engineers and technicians. Our services employ a wide variety of advanced edge test equipment and one of the widest certification extents in the business.

International Certification Corporation (EMC and Wireless Communication Laboratory), it is our definitive objective is to institute long term, trust-based associations with our clients. The expectation we set up with our clients is based on outstanding service, practical expertise and devotion to a certified value structure. Our passion is to grant our clients with best EMC / RF services by oriented knowledgeable and accommodating staff.

Our Test sites are located at Linkou District and Kwei Shan District. Location map can be found on our website <http://www.icertifi.com.tw>.

### **Linkou**

Tel: 886-2-2601-1640

No.30-2, Ding Fwu Tsuen, Lin Kou  
District, New Taipei City, Taiwan  
(R.O.C.)

### **Kwei Shan**

Tel: 886-3-271-8666

No.3-1, Lane 6, Wen San 3rd  
St., Kwei Shan Dist., Tao Yuan  
City 33381, Taiwan (R.O.C.)  
No.2-1, Lane 6, Wen San 3rd  
St., Kwei Shan Dist., Tao Yuan  
City 33381, Taiwan (R.O.C.)

### **Kwei Shan Site II**

Tel: 886-3-271-8640

No.14-1, Lane 19, Wen San 3rd  
St., Kwei Shan Dist., Tao Yuan  
City 33381, Taiwan (R.O.C.)

If you have any suggestion, please feel free to contact us as below information.

Tel: 886-3-271-8666

Fax: 886-3-318-0345

Email: ICC\_Service@icertifi.com.tw

==END==

**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 | -                | -               | -        | -                | -               |
| 802.15.4      | 1.544M           | 2.158M          | 2M16D1D  | 1.456M           | 2.144M          |

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) |
|----------|--------|---------------|---------------------|--------------------|
| 802.15.4 | -      | -             | -                   | -                  |
| 2405MHz  | Pass   | 500k          | 1.506M              | 2.15M              |
| 2440MHz  | Pass   | 500k          | 1.544M              | 2.148M             |
| 2475MHz  | Pass   | 500k          | 1.525M              | 2.144M             |
| 2480MHz  | Pass   | 500k          | 1.456M              | 2.158M             |

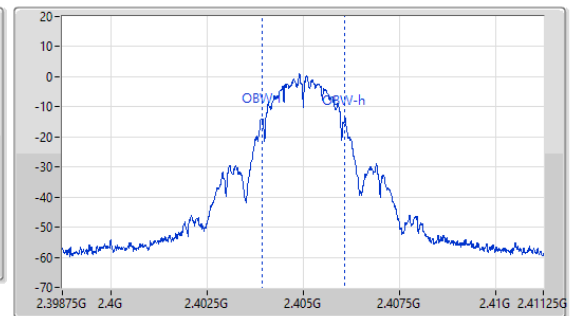
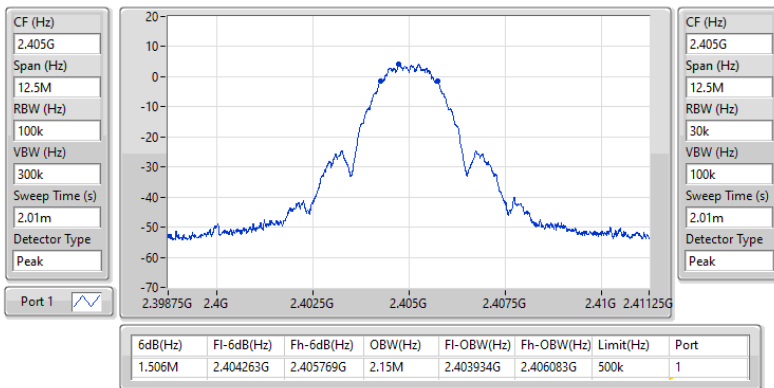
Port X-N dB = Port X 6dB down bandwidth;

Port X-OBW = Port X 99% occupied bandwidth

2.4-2.4835GHz\_802.15.4

EBW-DTS

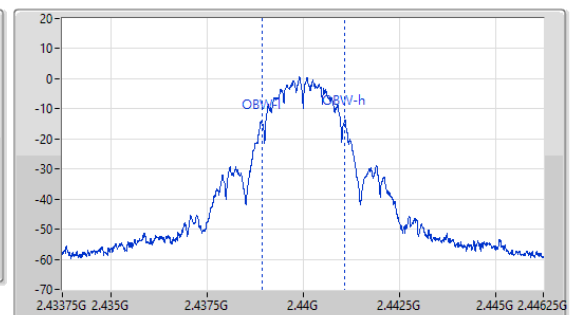
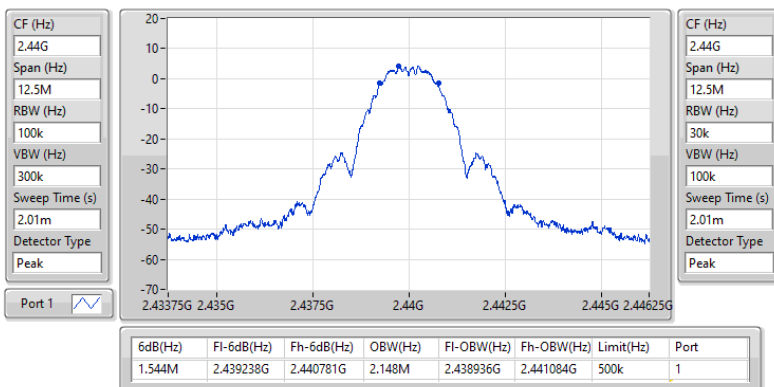
2405MHz



2.4-2.4835GHz\_802.15.4

EBW-DTS

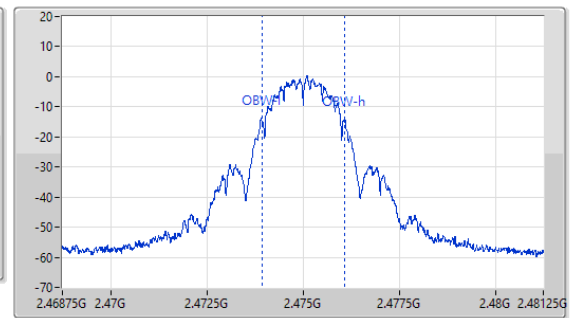
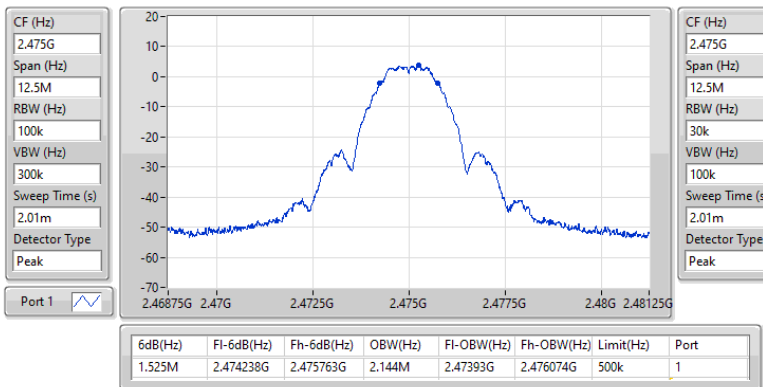
2440MHz



2.4-2.4835GHz\_802.15.4

EBW-DTS

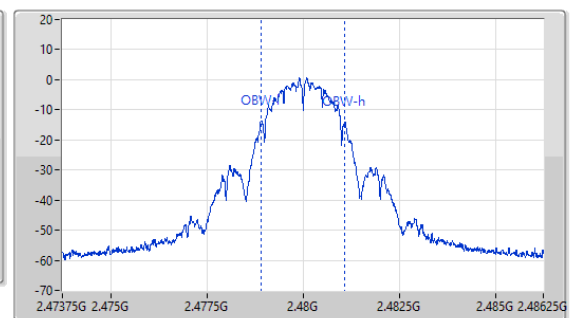
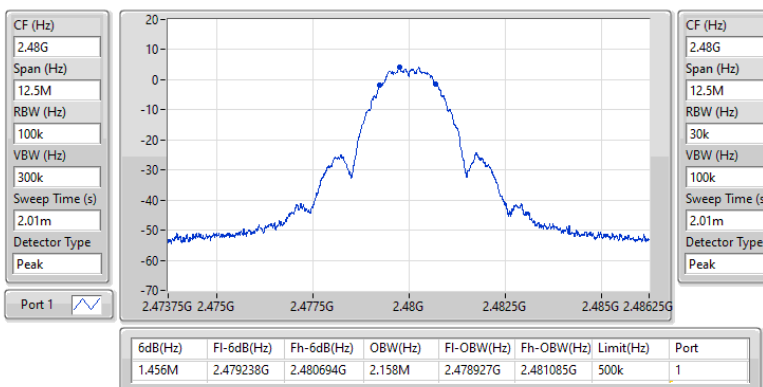
2475MHz



2.4-2.4835GHz\_802.15.4

EBW-DTS

2480MHz





## Conducted Output Power (Peak)

## Appendix B.1

### Summary

| Mode          | Total Power (dBm) | Total Power (W) |
|---------------|-------------------|-----------------|
| 2.4-2.4835GHz | -                 | -               |
| 802.15.4      | 6.83              | 0.00482         |

### Result

| Mode     | Result | Antenna Gain (dBi) | Total Power (dBm) | Power Limit (dBm) | EIRP (dBm) | EIRP Limit (dBm) |
|----------|--------|--------------------|-------------------|-------------------|------------|------------------|
| 802.15.4 | -      | -                  | -                 | -                 | -          | -                |
| 2405MHz  | Pass   | 2.32               | 6.82              | 30.00             | 9.14       | 36.00            |
| 2440MHz  | Pass   | 2.32               | 6.83              | 30.00             | 9.15       | 36.00            |
| 2475MHz  | Pass   | 2.32               | 6.81              | 30.00             | 9.13       | 36.00            |
| 2480MHz  | Pass   | 2.32               | 6.80              | 30.00             | 9.12       | 36.00            |



## Conducted Output Power (Average)

## Appendix B.2

### Summary

| Mode          | Total Power<br>(dBm) | Total Power<br>(W) |
|---------------|----------------------|--------------------|
| 2.4-2.4835GHz | -                    | -                  |
| 802.15.4      | 6.72                 | 0.00470            |

### Result

| Mode     | Result | Antenna Gain<br>(dBi) | Total Power<br>(dBm) | Power Limit<br>(dBm) | EIRP<br>(dBm) | EIRP Limit<br>(dBm) |
|----------|--------|-----------------------|----------------------|----------------------|---------------|---------------------|
| 802.15.4 | -      | -                     | -                    | -                    | -             | -                   |
| 2405MHz  | Pass   | 2.32                  | 6.71                 | -                    | 9.03          | -                   |
| 2440MHz  | Pass   | 2.32                  | 6.72                 | -                    | 9.04          | -                   |
| 2475MHz  | Pass   | 2.32                  | 6.70                 | -                    | 9.02          | -                   |
| 2480MHz  | Pass   | 2.32                  | 6.69                 | -                    | 9.01          | -                   |

Note: Average power is for reference only.

**Summary**

| Mode          | PD<br>(dBm/3kHz) |
|---------------|------------------|
| 2.4-2.4835GHz | -                |
| 802.15.4      | -6.82            |

**Result**

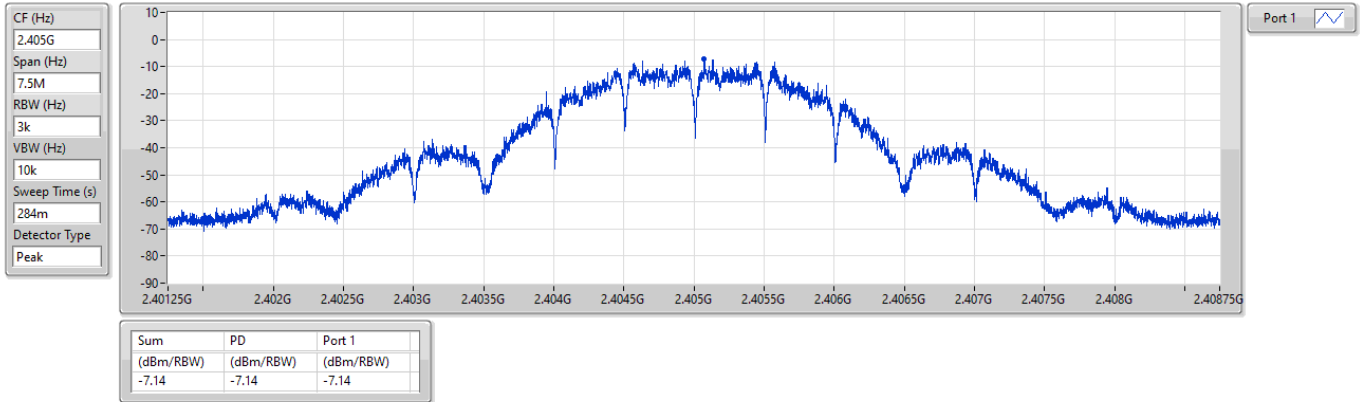
| Mode     | Result | Antenna Gain<br>(dBi) | PD<br>(dBm/RBW) | PD Limit<br>(dBm/3kHz) |
|----------|--------|-----------------------|-----------------|------------------------|
| 802.15.4 | -      | -                     | -               | -                      |
| 2405MHz  | Pass   | 2.32                  | -7.14           | 8.00                   |
| 2440MHz  | Pass   | 2.32                  | -6.88           | 8.00                   |
| 2475MHz  | Pass   | 2.32                  | -7.03           | 8.00                   |
| 2480MHz  | Pass   | 2.32                  | -6.82           | 8.00                   |



2.4-2.4835GHz\_802.15.4

PSD

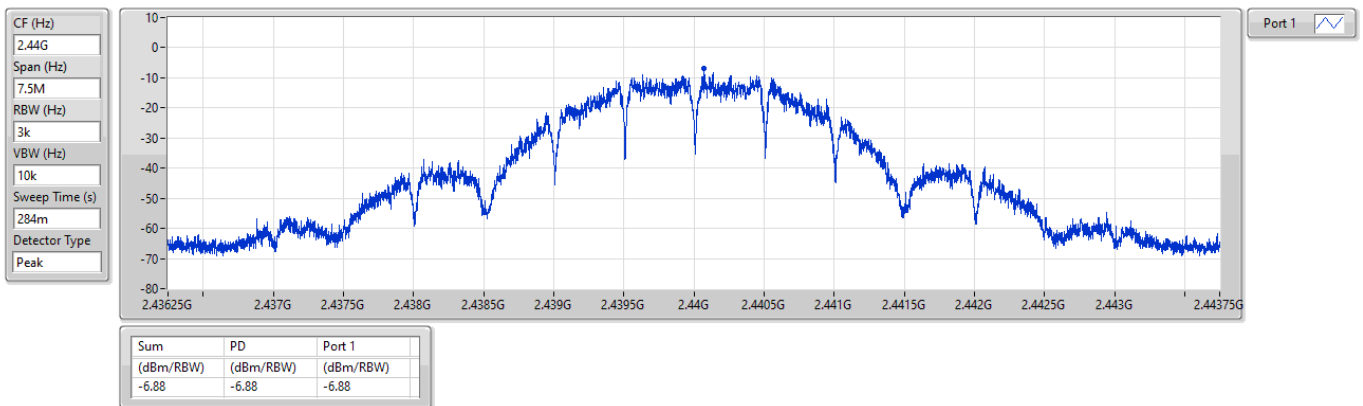
2405MHz



2.4-2.4835GHz\_802.15.4

PSD

2440MHz



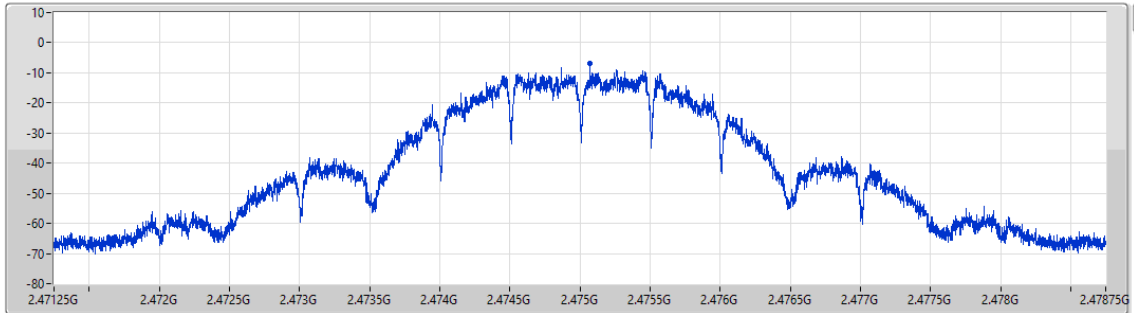


2.4-2.4835GHz\_802.15.4

PSD

2475MHz

CF (Hz)  
2.475G  
Span (Hz)  
7.5M  
RBW (Hz)  
3k  
VBW (Hz)  
10k  
Sweep Time (s)  
284m  
Detector Type  
Peak



Port 1

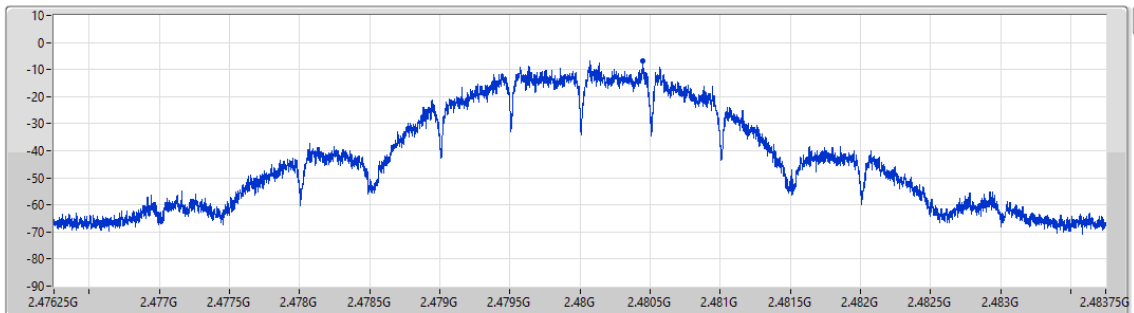
| Sum       | PD        | Port 1    |
|-----------|-----------|-----------|
| (dBm/RBW) | (dBm/RBW) | (dBm/RBW) |
| -7.03     | -7.03     | -7.03     |

2.4-2.4835GHz\_802.15.4

PSD

2480MHz

CF (Hz)  
2.48G  
Span (Hz)  
7.5M  
RBW (Hz)  
3k  
VBW (Hz)  
10k  
Sweep Time (s)  
284m  
Detector Type  
Peak



Port 1

| Sum       | PD        | Port 1    |
|-----------|-----------|-----------|
| (dBm/RBW) | (dBm/RBW) | (dBm/RBW) |
| -6.82     | -6.82     | -6.82     |



## Unwanted Conducted Emissions into Restricted Frequency Bands – 30MHz ~ 1GHz

### Appendix D.1

#### Summary

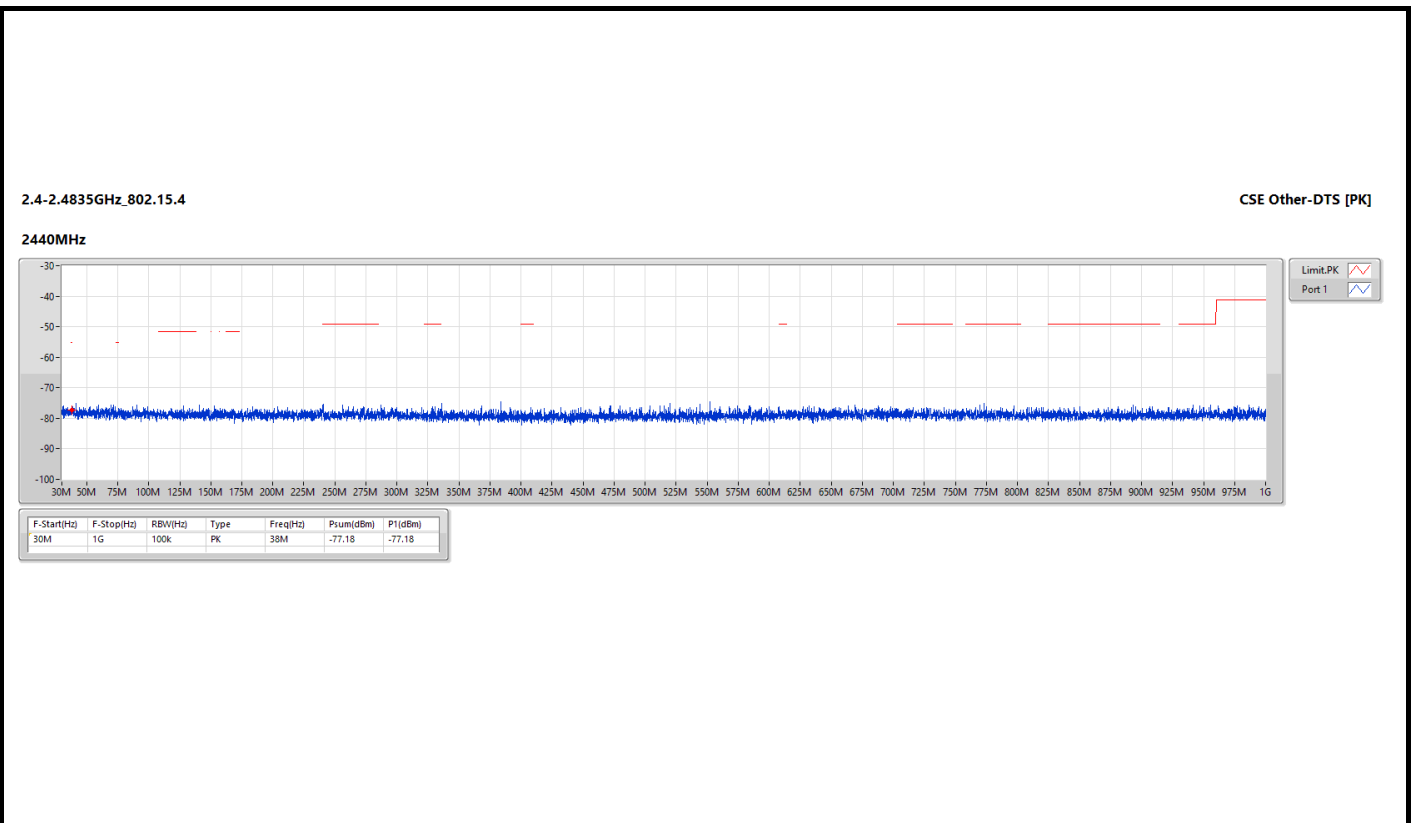
| Mode          | Result | F-Start (Hz) | F-Stop (Hz) | Type | Freq (Hz) | DG (dBi) | GRF (dB) | Psum (dBm) | EIRP (dBm) | Limit (dBm) | Margin (dB) |
|---------------|--------|--------------|-------------|------|-----------|----------|----------|------------|------------|-------------|-------------|
| 2.4-2.4835GHz | -      | -            | -           | -    | -         | -        | -        | -          | -          | -           | -           |
| 802.15.4      | Pass   | 30M          | 1G          | PK   | 38M       | 2.32     | 4.7      | -77.18     | -70.16     | -55.20      | -14.96      |

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

#### Result

| Mode     | Result | F-Start (Hz) | F-Stop (Hz) | Type | Freq (Hz) | DG (dBi) | GRF (dB) | Psum (dBm) | EIRP (dBm) | Limit (dBm) | Margin (dB) |
|----------|--------|--------------|-------------|------|-----------|----------|----------|------------|------------|-------------|-------------|
| 802.15.4 | -      | -            | -           | -    | -         | -        | -        | -          | -          | -           | -           |
| 2440MHz  | Pass   | 30M          | 1G          | PK   | 38M       | 2.32     | 4.7      | -77.18     | -70.16     | -55.20      | -14.96      |

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





**Summary**

| Mode          | Result | F-Start<br>(Hz) | F-Stop<br>(Hz) | Type | Freq<br>(Hz) | DG<br>(dBi) | Psum<br>(dBm) | EIRP<br>(dBm) | Limit<br>(dBm) | Margin<br>(dB) |
|---------------|--------|-----------------|----------------|------|--------------|-------------|---------------|---------------|----------------|----------------|
| 2.4-2.4835GHz | -      | -               | -              | -    | -            | -           | -             | -             | -              | -              |
| 802.15.4      | Pass   | 2.4835G         | 2.5G           | AV   | 2.48352G     | 2.32        | -49.15        | -46.83        | -41.20         | -5.63          |

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) | Psum<br>(dBm) | EIRP<br>(dBm) | Limit<br>(dBm) | Margin<br>(dB) |
|----------|--------|-----------------|----------------|------|--------------|-------------|---------------|---------------|----------------|----------------|
| 802.15.4 | -      | -               | -              | -    | -            | -           | -             | -             | -              | -              |
| 2405MHz  | Pass   | 1G              | 2.31G          | AV   | 2.27709G     | 2.32        | -63.33        | -61.01        | -41.20         | -19.81         |
| 2405MHz  | Pass   | 2.31G           | 2.39G          | AV   | 2.39G        | 2.32        | -58.44        | -56.12        | -41.20         | -14.92         |
| 2405MHz  | Pass   | 2.4835G         | 2.5G           | AV   | 2.49324G     | 2.32        | -65.60        | -63.28        | -41.20         | -22.08         |
| 2405MHz  | Pass   | 2.5G            | 3.1G           | AV   | 2.533G       | 2.32        | -63.35        | -61.03        | -41.20         | -19.83         |
| 2405MHz  | Pass   | 1G              | 2.31G          | PK   | 2.27725G     | 2.32        | -53.93        | -51.61        | -21.20         | -30.41         |
| 2405MHz  | Pass   | 2.31G           | 2.39G          | PK   | 2.39G        | 2.32        | -47.98        | -45.66        | -21.20         | -24.46         |
| 2405MHz  | Pass   | 2.4835G         | 2.5G           | PK   | 2.49337G     | 2.32        | -54.38        | -52.06        | -21.20         | -30.86         |
| 2405MHz  | Pass   | 2.5G            | 3.1G           | PK   | 2.7784G      | 2.32        | -53.77        | -51.45        | -21.20         | -30.25         |
| 2440MHz  | Pass   | 1G              | 2.31G          | AV   | 2.23992G     | 2.32        | -64.29        | -61.97        | -41.20         | -20.77         |
| 2440MHz  | Pass   | 2.31G           | 2.39G          | AV   | 2.31204G     | 2.32        | -64.19        | -61.87        | -41.20         | -20.67         |
| 2440MHz  | Pass   | 2.4835G         | 2.5G           | AV   | 2.48792G     | 2.32        | -65.04        | -62.72        | -41.20         | -21.52         |
| 2440MHz  | Pass   | 2.5G            | 3.1G           | AV   | 2.56765G     | 2.32        | -63.33        | -61.01        | -41.20         | -19.81         |
| 2440MHz  | Pass   | 1G              | 2.31G          | PK   | 2.22158G     | 2.32        | -53.24        | -50.92        | -21.20         | -29.72         |
| 2440MHz  | Pass   | 2.31G           | 2.39G          | PK   | 2.31152G     | 2.32        | -54.13        | -51.81        | -21.20         | -30.61         |
| 2440MHz  | Pass   | 2.4835G         | 2.5G           | PK   | 2.48735G     | 2.32        | -53.33        | -51.01        | -21.20         | -29.81         |
| 2440MHz  | Pass   | 2.5G            | 3.1G           | PK   | 2.6812G      | 2.32        | -54.35        | -52.03        | -21.20         | -30.83         |
| 2475MHz  | Pass   | 1G              | 2.31G          | AV   | 2.21896G     | 2.32        | -63.88        | -61.56        | -41.20         | -20.36         |
| 2475MHz  | Pass   | 2.31G           | 2.39G          | AV   | 2.347G       | 2.32        | -64.15        | -61.83        | -41.20         | -20.63         |
| 2475MHz  | Pass   | 2.4835G         | 2.5G           | AV   | 2.48359G     | 2.32        | -54.82        | -52.50        | -41.20         | -11.30         |
| 2475MHz  | Pass   | 2.5G            | 3.1G           | AV   | 2.60335G     | 2.32        | -63.40        | -61.08        | -41.20         | -19.88         |
| 2475MHz  | Pass   | 1G              | 2.31G          | PK   | 2.26677G     | 2.32        | -53.52        | -51.20        | -21.20         | -30.00         |
| 2475MHz  | Pass   | 2.31G           | 2.39G          | PK   | 2.347G       | 2.32        | -54.37        | -52.05        | -21.20         | -30.85         |
| 2475MHz  | Pass   | 2.4835G         | 2.5G           | PK   | 2.48353G     | 2.32        | -44.15        | -41.83        | -21.20         | -20.63         |
| 2475MHz  | Pass   | 2.5G            | 3.1G           | PK   | 2.8636G      | 2.32        | -53.66        | -51.34        | -21.20         | -30.14         |
| 2480MHz  | Pass   | 1G              | 2.31G          | AV   | 2.15951G     | 2.32        | -64.41        | -62.09        | -41.20         | -20.89         |
| 2480MHz  | Pass   | 2.31G           | 2.39G          | AV   | 2.352G       | 2.32        | -64.18        | -61.86        | -41.20         | -20.66         |
| 2480MHz  | Pass   | 2.4835G         | 2.5G           | AV   | 2.48352G     | 2.32        | -49.15        | -46.83        | -41.20         | -5.63          |
| 2480MHz  | Pass   | 2.5G            | 3.1G           | AV   | 2.60815G     | 2.32        | -63.35        | -61.03        | -41.20         | -19.83         |
| 2480MHz  | Pass   | 1G              | 2.31G          | PK   | 2.28904G     | 2.32        | -53.84        | -51.52        | -21.20         | -30.32         |
| 2480MHz  | Pass   | 2.31G           | 2.39G          | PK   | 2.37576G     | 2.32        | -54.72        | -52.40        | -21.20         | -31.20         |
| 2480MHz  | Pass   | 2.4835G         | 2.5G           | PK   | 2.48386G     | 2.32        | -37.96        | -35.64        | -21.20         | -14.44         |
| 2480MHz  | Pass   | 2.5G            | 3.1G           | PK   | 2.512G       | 2.32        | -52.81        | -50.49        | -21.20         | -29.29         |

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



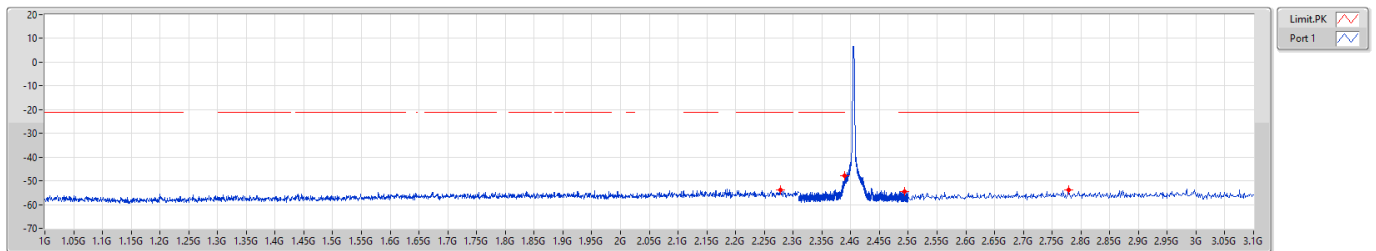
## Unwanted Conducted Emissions into Restricted Frequency Bands – 1GHz ~ 3.1GHz

### Appendix D.2

2.4-2.4835GHz\_802.15.4

CSE Bandedge-DTS [PK]

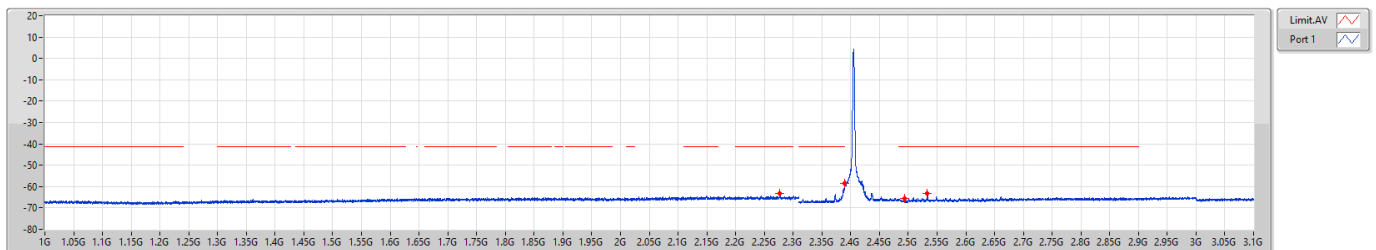
2405MHz



2.4-2.4835GHz\_802.15.4

CSE Bandedge-DTS [AV]

2405MHz

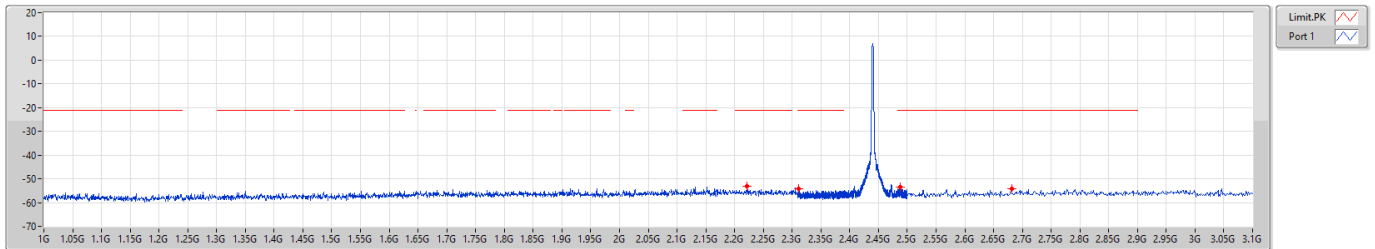




2.4-2.4835GHz\_802.15.4

CSE Bandedge-DTS [PK]

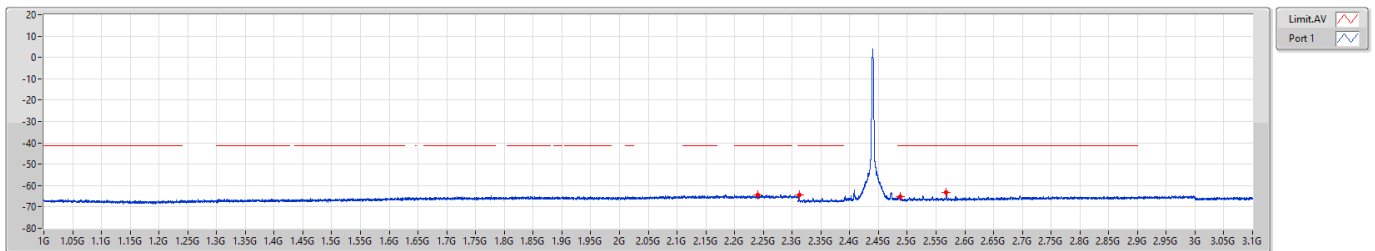
2440MHz



2.4-2.4835GHz\_802.15.4

CSE Bandedge-DTS [AV]

2440MHz





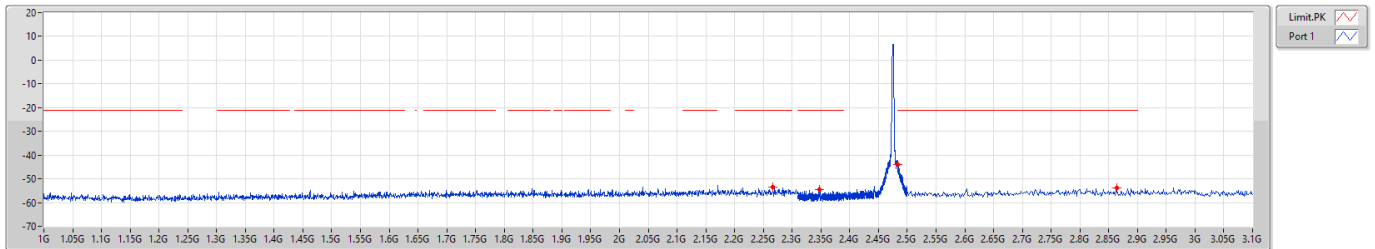
## Unwanted Conducted Emissions into Restricted Frequency Bands – 1GHz ~ 3.1GHz

### Appendix D.2

2.4-2.4835GHz\_802.15.4

CSE Bandedge-DTS [PK]

2475MHz

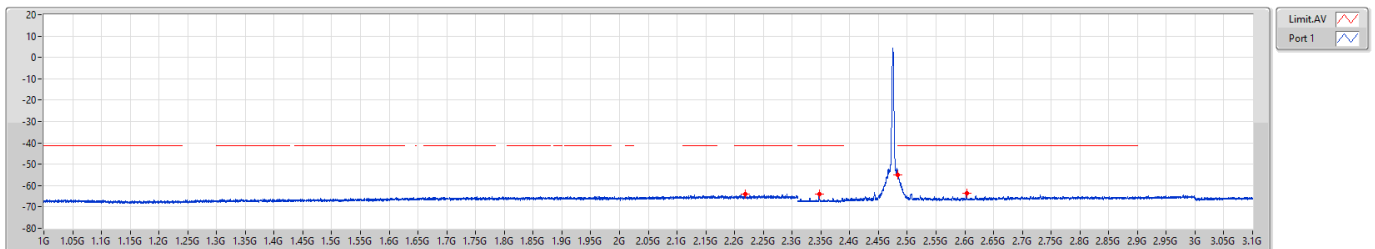


| F-Start(Hz) | F-Stop(Hz) | RBW(Hz) | Type | Freq(Hz) | Psum(dBm) | P1(dBm) |
|-------------|------------|---------|------|----------|-----------|---------|
| 1G          | 2.31G      | 1M      | PK   | 2.26677G | -53.52    | -53.52  |
| 2.31G       | 2.39G      | 1M      | PK   | 2.347G   | -54.37    | -54.37  |
| 2.4835G     | 2.5G       | 1M      | PK   | 2.48353G | -44.15    | -44.15  |
| 2.5G        | 3.1G       | 1M      | PK   | 2.8636G  | -53.66    | -53.66  |

2.4-2.4835GHz\_802.15.4

CSE Bandedge-DTS [AV]

2475MHz



| F-Start(Hz) | F-Stop(Hz) | RBW(Hz) | Type | Freq(Hz) | Psum(dBm) | P1(dBm) |
|-------------|------------|---------|------|----------|-----------|---------|
| 1G          | 2.31G      | 1M      | AV   | 2.21896G | -63.88    | -63.88  |
| 2.31G       | 2.39G      | 1M      | AV   | 2.347G   | -64.15    | -64.15  |
| 2.4835G     | 2.5G       | 1M      | AV   | 2.48359G | -54.82    | -54.82  |
| 2.5G        | 3.1G       | 1M      | AV   | 2.60335G | -63.40    | -63.40  |



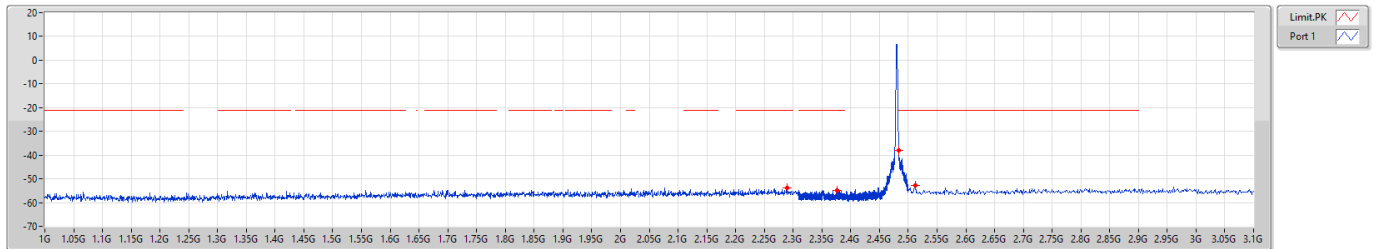
## Unwanted Conducted Emissions into Restricted Frequency Bands – 1GHz ~ 3.1GHz

### Appendix D.2

2.4-2.4835GHz\_802.15.4

CSE Bandedge-DTS [PK]

2480MHz

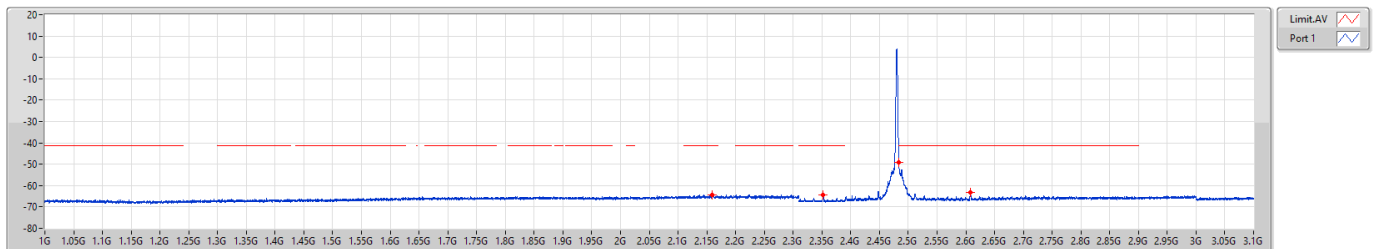


| F-Start(Hz) | F-Stop(Hz) | RBW(Hz) | Type | Freq(Hz) | Psum(dBm) | P1(dBm) |
|-------------|------------|---------|------|----------|-----------|---------|
| 1G          | 2.31G      | 1M      | PK   | 2.28904G | -53.84    | -53.84  |
| 2.31G       | 2.39G      | 1M      | PK   | 2.37576G | -54.72    | -54.72  |
| 2.4835G     | 2.5G       | 1M      | PK   | 2.48386G | -37.96    | -37.96  |
| 2.5G        | 3.1G       | 1M      | PK   | 2.512G   | -52.81    | -52.81  |

2.4-2.4835GHz\_802.15.4

CSE Bandedge-DTS [AV]

2480MHz



| F-Start(Hz) | F-Stop(Hz) | RBW(Hz) | Type | Freq(Hz) | Psum(dBm) | P1(dBm) |
|-------------|------------|---------|------|----------|-----------|---------|
| 1G          | 2.31G      | 1M      | AV   | 2.15951G | -64.41    | -64.41  |
| 2.31G       | 2.39G      | 1M      | AV   | 2.352G   | -64.18    | -64.18  |
| 2.4835G     | 2.5G       | 1M      | AV   | 2.48352G | -49.15    | -49.15  |
| 2.5G        | 3.1G       | 1M      | AV   | 2.60815G | -63.35    | -63.35  |



# Unwanted Conducted Emissions into Restricted Frequency Bands – 3.1GHz ~ 25GHz

## Appendix D.3

### Summary

| Mode          | Result | F-Start (Hz) | F-Stop (Hz) | Type | Freq (Hz) | DG (dBi) | Psum (dBm) | EIRP (dBm) | Limit (dBm) | Margin (dB) |
|---------------|--------|--------------|-------------|------|-----------|----------|------------|------------|-------------|-------------|
| 2.4-2.4835GHz | -      | -            | -           | -    | -         | -        | -          | -          | -           | -           |
| 802.15.4      | Pass   | 8G           | 25G         | AV   | 19.51644G | 2.32     | -47.74     | -45.42     | -41.20      | -4.22       |

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

### Result

| Mode     | Result | F-Start (Hz) | F-Stop (Hz) | Type | Freq (Hz) | DG (dBi) | Psum (dBm) | EIRP (dBm) | Limit (dBm) | Margin (dB) |
|----------|--------|--------------|-------------|------|-----------|----------|------------|------------|-------------|-------------|
| 802.15.4 | -      | -            | -           | -    | -         | -        | -          | -          | -           | -           |
| 2405MHz  | Pass   | 3.1G         | 4G          | AV   | 3.9919G   | 2.32     | -73.96     | -71.64     | -41.20      | -30.44      |
| 2405MHz  | Pass   | 4G           | 5G          | AV   | 4.80925G  | 2.32     | -66.62     | -64.30     | -41.20      | -23.10      |
| 2405MHz  | Pass   | 5G           | 7G          | AV   | 5.442G    | 2.32     | -73.21     | -70.89     | -41.20      | -29.69      |
| 2405MHz  | Pass   | 7G           | 8G          | AV   | 7.47125G  | 2.32     | -71.17     | -68.85     | -41.20      | -27.65      |
| 2405MHz  | Pass   | 8G           | 25G         | AV   | 19.23594G | 2.32     | -49.17     | -46.85     | -41.20      | -5.65       |
| 2405MHz  | Pass   | 3.1G         | 4G          | PK   | 3.90055G  | 2.32     | -63.93     | -61.61     | -21.20      | -40.41      |
| 2405MHz  | Pass   | 4G           | 5G          | PK   | 4.811G    | 2.32     | -59.52     | -57.20     | -21.20      | -36.00      |
| 2405MHz  | Pass   | 4G           | 5G          | PK   | 4.81125G  | 2.32     | -59.52     | -57.20     | -21.20      | -36.00      |
| 2405MHz  | Pass   | 5G           | 7G          | PK   | 5.4015G   | 2.32     | -62.94     | -60.62     | -21.20      | -39.42      |
| 2405MHz  | Pass   | 7G           | 8G          | PK   | 7.4825G   | 2.32     | -61.35     | -59.03     | -21.20      | -37.83      |
| 2405MHz  | Pass   | 8G           | 25G         | PK   | 19.24391G | 2.32     | -42.38     | -40.06     | -21.20      | -18.86      |
| 2440MHz  | Pass   | 3.1G         | 4G          | AV   | 3.9442G   | 2.32     | -74.16     | -71.84     | -41.20      | -30.64      |
| 2440MHz  | Pass   | 4G           | 5G          | AV   | 4.881G    | 2.32     | -66.29     | -63.97     | -41.20      | -22.77      |
| 2440MHz  | Pass   | 5G           | 7G          | AV   | 5.4155G   | 2.32     | -73.15     | -70.83     | -41.20      | -29.63      |
| 2440MHz  | Pass   | 7G           | 8G          | AV   | 7.49675G  | 2.32     | -71.35     | -69.03     | -41.20      | -27.83      |
| 2440MHz  | Pass   | 8G           | 25G         | AV   | 19.51644G | 2.32     | -47.74     | -45.42     | -41.20      | -4.22       |
| 2440MHz  | Pass   | 3.1G         | 4G          | PK   | 3.96738G  | 2.32     | -62.81     | -60.49     | -21.20      | -39.29      |
| 2440MHz  | Pass   | 4G           | 5G          | PK   | 4.87925G  | 2.32     | -57.88     | -55.56     | -21.20      | -34.36      |
| 2440MHz  | Pass   | 5G           | 7G          | PK   | 5.2125G   | 2.32     | -62.30     | -59.98     | -21.20      | -38.78      |
| 2440MHz  | Pass   | 7G           | 8G          | PK   | 7.49425G  | 2.32     | -60.33     | -58.01     | -21.20      | -36.81      |
| 2440MHz  | Pass   | 8G           | 25G         | PK   | 19.51644G | 2.32     | -40.64     | -38.32     | -21.20      | -17.12      |
| 2475MHz  | Pass   | 3.1G         | 4G          | AV   | 3.99888G  | 2.32     | -74.01     | -71.69     | -41.20      | -30.49      |
| 2475MHz  | Pass   | 4G           | 5G          | AV   | 4.951G    | 2.32     | -70.78     | -68.46     | -41.20      | -27.26      |
| 2475MHz  | Pass   | 5G           | 7G          | AV   | 5.4435G   | 2.32     | -73.17     | -70.85     | -41.20      | -29.65      |
| 2475MHz  | Pass   | 7G           | 8G          | AV   | 7.483G    | 2.32     | -71.26     | -68.94     | -41.20      | -27.74      |
| 2475MHz  | Pass   | 8G           | 25G         | AV   | 19.80384G | 2.32     | -49.35     | -47.03     | -41.20      | -5.83       |
| 2475MHz  | Pass   | 3.1G         | 4G          | PK   | 3.99415G  | 2.32     | -63.51     | -61.19     | -21.20      | -39.99      |
| 2475MHz  | Pass   | 4G           | 5G          | PK   | 4.951G    | 2.32     | -61.83     | -59.51     | -21.20      | -38.31      |
| 2475MHz  | Pass   | 5G           | 7G          | PK   | 5.441G    | 2.32     | -62.45     | -60.13     | -21.20      | -38.93      |
| 2475MHz  | Pass   | 7G           | 8G          | PK   | 7.38425G  | 2.32     | -61.15     | -58.83     | -21.20      | -37.63      |
| 2475MHz  | Pass   | 8G           | 25G         | PK   | 19.80438G | 2.32     | -41.96     | -39.64     | -21.20      | -18.44      |
| 2480MHz  | Pass   | 3.1G         | 4G          | AV   | 3.94555G  | 2.32     | -74.30     | -71.98     | -41.20      | -30.78      |
| 2480MHz  | Pass   | 4G           | 5G          | AV   | 4.96125G  | 2.32     | -70.99     | -68.67     | -41.20      | -27.47      |
| 2480MHz  | Pass   | 5G           | 7G          | AV   | 5.449G    | 2.32     | -73.14     | -70.82     | -41.20      | -29.62      |



**Unwanted Conducted Emissions into Restricted  
Frequency Bands – 3.1GHz ~ 25GHz**

**Appendix D.3**

| Mode    | Result | F-Start<br>(Hz) | F-Stop<br>(Hz) | Type | Freq<br>(Hz) | DG<br>(dBi) | Psum<br>(dBm) | EIRP<br>(dBm) | Limit<br>(dBm) | Margin<br>(dB) |
|---------|--------|-----------------|----------------|------|--------------|-------------|---------------|---------------|----------------|----------------|
| 2480MHz | Pass   | 7G              | 8G             | AV   | 7.4915G      | 2.32        | -71.31        | -68.99        | -41.20         | -27.79         |
| 2480MHz | Pass   | 8G              | 25G            | AV   | 19.84422G    | 2.32        | -50.32        | -48.00        | -41.20         | -6.80          |
| 2480MHz | Pass   | 3.1G            | 4G             | PK   | 3.9595G      | 2.32        | -63.46        | -61.14        | -21.20         | -39.94         |
| 2480MHz | Pass   | 4G              | 5G             | PK   | 4.959G       | 2.32        | -62.28        | -59.96        | -21.20         | -38.76         |
| 2480MHz | Pass   | 5G              | 7G             | PK   | 5.2275G      | 2.32        | -62.89        | -60.57        | -21.20         | -39.37         |
| 2480MHz | Pass   | 7G              | 8G             | PK   | 7.48925G     | 2.32        | -60.58        | -58.26        | -21.20         | -37.06         |
| 2480MHz | Pass   | 8G              | 25G            | PK   | 19.84422G    | 2.32        | -42.92        | -40.60        | -21.20         | -19.40         |

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



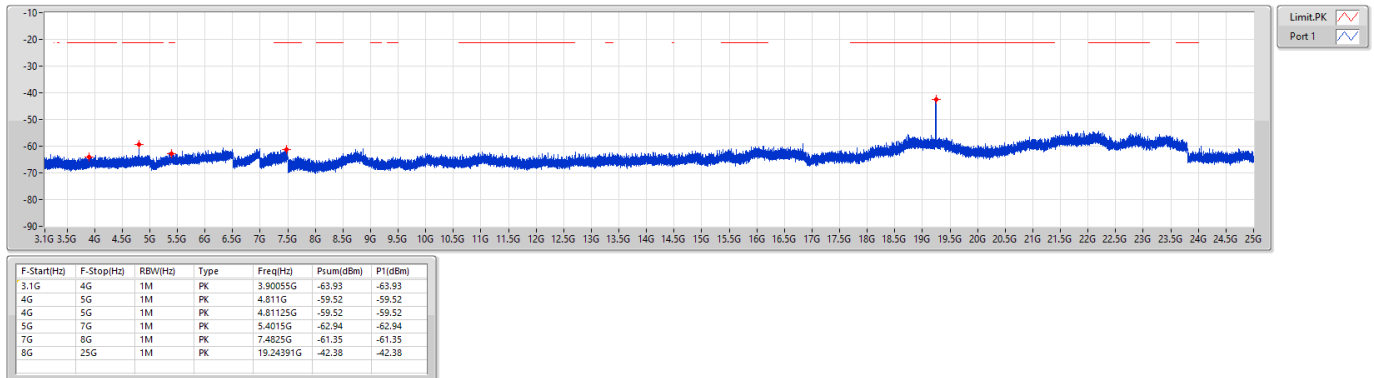
## Unwanted Conducted Emissions into Restricted Frequency Bands – 3.1GHz ~ 25GHz

### Appendix D.3

2.4-2.4835GHz\_802.15.4

CSE-DTS [PK]

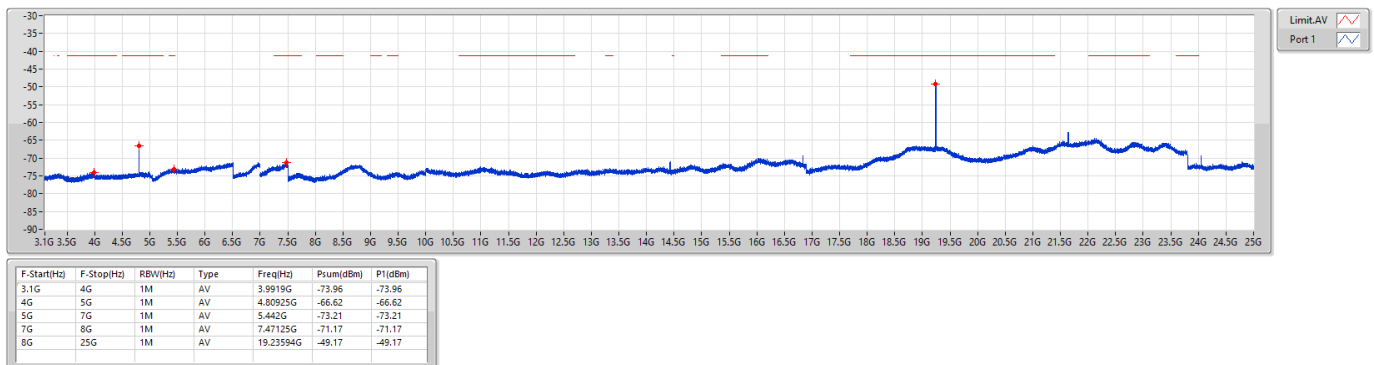
2405MHz



2.4-2.4835GHz\_802.15.4

CSE-DTS [AV]

2405MHz





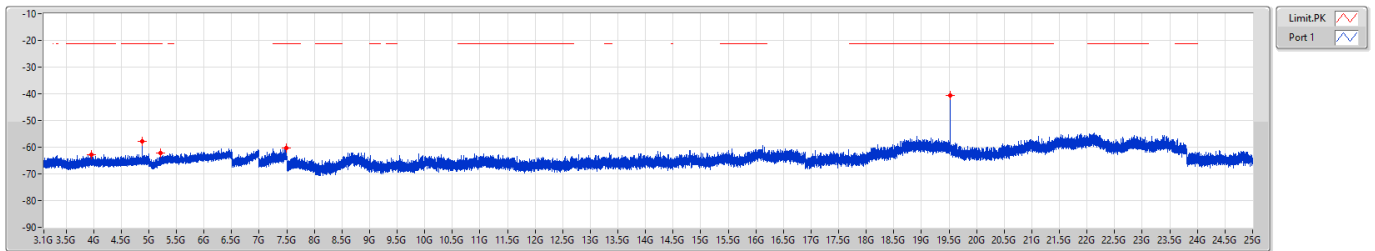
## Unwanted Conducted Emissions into Restricted Frequency Bands – 3.1GHz ~ 25GHz

### Appendix D.3

2.4-2.4835GHz\_802.15.4

CSE-DTS [PK]

2440MHz

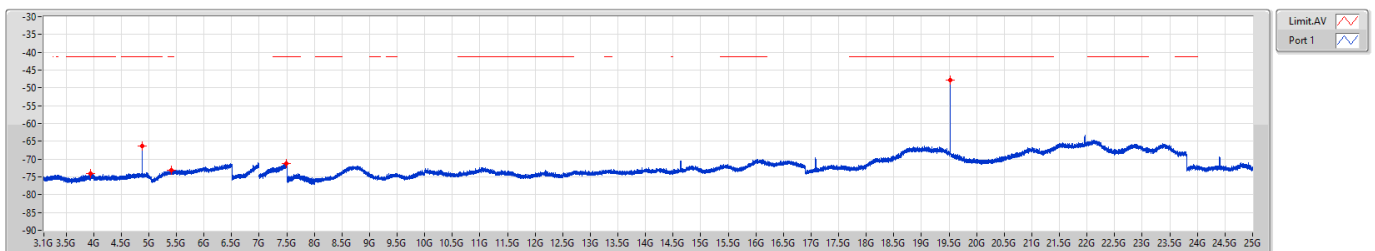


| F-Start(Hz) | F-Stop(Hz) | RBW(Hz) | Type | Freq(Hz)  | Psum(dBm) | P1(dBm) |
|-------------|------------|---------|------|-----------|-----------|---------|
| 3.1G        | 4G         | 1M      | PK   | 3.96738G  | -62.81    | -62.81  |
| 4G          | 5G         | 1M      | PK   | 4.87925G  | -57.88    | -57.88  |
| 5G          | 7G         | 1M      | PK   | 5.2125G   | -62.30    | -62.30  |
| 7G          | 8G         | 1M      | PK   | 7.49425G  | -60.33    | -60.33  |
| 8G          | 25G        | 1M      | PK   | 19.51644G | -40.64    | -40.64  |

2.4-2.4835GHz\_802.15.4

CSE-DTS [AV]

2440MHz



| F-Start(Hz) | F-Stop(Hz) | RBW(Hz) | Type | Freq(Hz)  | Psum(dBm) | P1(dBm) |
|-------------|------------|---------|------|-----------|-----------|---------|
| 3.1G        | 4G         | 1M      | AV   | 3.9442G   | -74.16    | -74.16  |
| 4G          | 5G         | 1M      | AV   | 4.881G    | -66.29    | -66.29  |
| 5G          | 7G         | 1M      | AV   | 5.4155G   | -73.15    | -73.15  |
| 7G          | 8G         | 1M      | AV   | 7.49675G  | -71.35    | -71.35  |
| 8G          | 25G        | 1M      | AV   | 19.51644G | -47.74    | -47.74  |



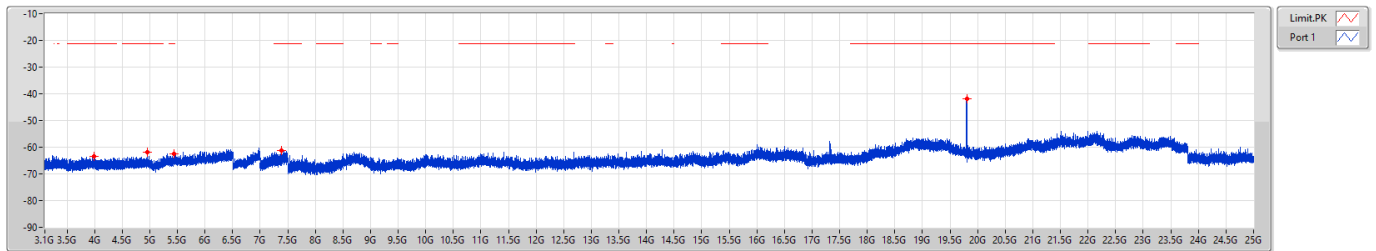
## Unwanted Conducted Emissions into Restricted Frequency Bands – 3.1GHz ~ 25GHz

### Appendix D.3

2.4-2.4835GHz\_802.15.4

CSE-DTS [PK]

2475MHz

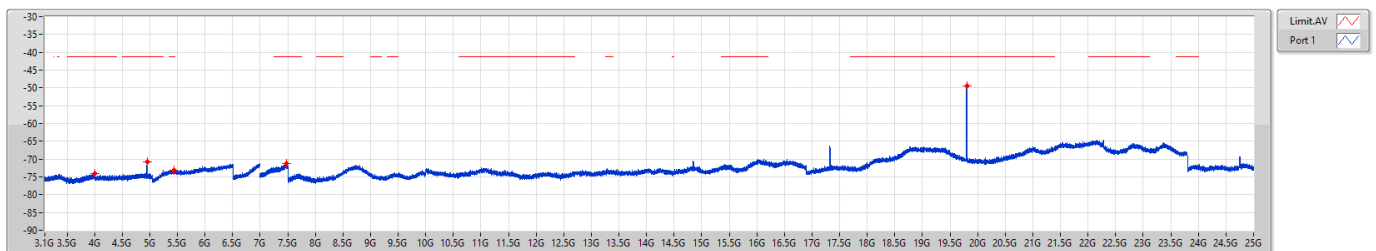


| F-Start(Hz) | F-Stop(Hz) | RBW(Hz) | Type | Freq(Hz)  | Psum(dBm) | P1(dBm) |
|-------------|------------|---------|------|-----------|-----------|---------|
| 3.1G        | 4G         | 1M      | PK   | 3.99415G  | -63.51    | -63.51  |
| 4G          | 5G         | 1M      | PK   | 4.951G    | -61.83    | -61.83  |
| 5G          | 7G         | 1M      | PK   | 5.441G    | -62.45    | -62.45  |
| 7G          | 8G         | 1M      | PK   | 7.38425G  | -61.15    | -61.15  |
| 8G          | 25G        | 1M      | PK   | 19.80438G | -41.96    | -41.96  |

2.4-2.4835GHz\_802.15.4

CSE-DTS [AV]

2475MHz



| F-Start(Hz) | F-Stop(Hz) | RBW(Hz) | Type | Freq(Hz)  | Psum(dBm) | P1(dBm) |
|-------------|------------|---------|------|-----------|-----------|---------|
| 3.1G        | 4G         | 1M      | AV   | 3.99888G  | -74.01    | -74.01  |
| 4G          | 5G         | 1M      | AV   | 4.951G    | -70.78    | -70.78  |
| 5G          | 7G         | 1M      | AV   | 5.4435G   | -73.17    | -73.17  |
| 7G          | 8G         | 1M      | AV   | 7.483G    | -71.26    | -71.26  |
| 8G          | 25G        | 1M      | AV   | 19.80384G | -49.35    | -49.35  |



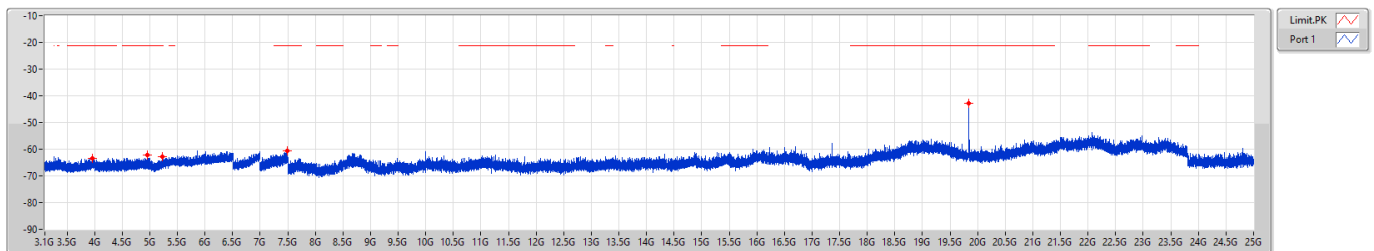
## Unwanted Conducted Emissions into Restricted Frequency Bands – 3.1GHz ~ 25GHz

### Appendix D.3

2.4-2.4835GHz\_802.15.4

CSE-DTS [PK]

2480MHz

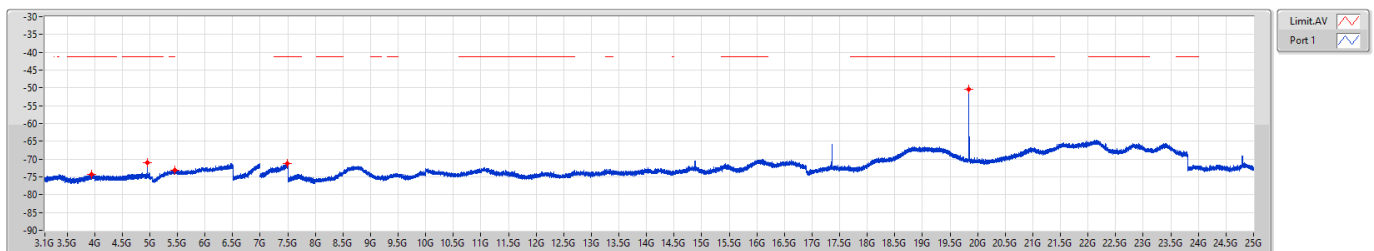


| F-Start(Hz) | F-Stop(Hz) | RBW(Hz) | Type | Freq(Hz)  | Psum(dBm) | P1(dBm) |
|-------------|------------|---------|------|-----------|-----------|---------|
| 3.1G        | 4G         | 1M      | PK   | 3.9595G   | -63.46    | -63.46  |
| 4G          | 5G         | 1M      | PK   | 4.9596G   | -62.28    | -62.28  |
| 5G          | 7G         | 1M      | PK   | 5.2275G   | -62.89    | -62.89  |
| 7G          | 8G         | 1M      | PK   | 7.48925G  | -60.58    | -60.58  |
| 8G          | 25G        | 1M      | PK   | 19.84422G | -42.92    | -42.92  |

2.4-2.4835GHz\_802.15.4

CSE-DTS [AV]

2480MHz



| F-Start(Hz) | F-Stop(Hz) | RBW(Hz) | Type | Freq(Hz)  | Psum(dBm) | P1(dBm) |
|-------------|------------|---------|------|-----------|-----------|---------|
| 3.1G        | 4G         | 1M      | AV   | 3.94555G  | -74.30    | -74.30  |
| 4G          | 5G         | 1M      | AV   | 4.96125G  | -70.99    | -70.99  |
| 5G          | 7G         | 1M      | AV   | 5.449G    | -73.14    | -73.14  |
| 7G          | 8G         | 1M      | AV   | 7.4915G   | -71.31    | -71.31  |
| 8G          | 25G        | 1M      | AV   | 19.84422G | -50.32    | -50.32  |



**Summary**

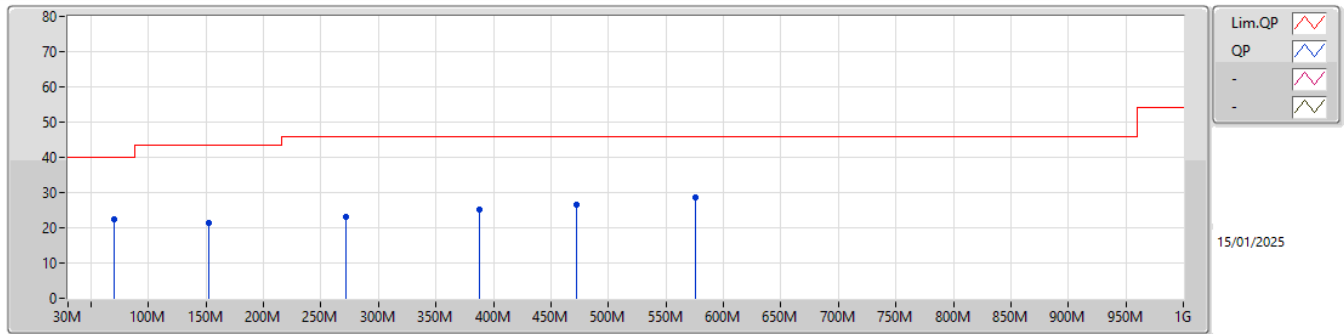
| Mode   | Result | Type | Freq<br>(Hz) | Level<br>(dBuV/m) | Limit<br>(dBuV/m) | Margin<br>(dB) | Condition |
|--------|--------|------|--------------|-------------------|-------------------|----------------|-----------|
| Mode 1 | Pass   | PK   | 56.9M        | 27.56             | 40.00             | -12.44         | Vertical  |



## Unwanted Radiated Emissions into Restricted Frequency Bands Below 1GHz

### Appendix D.4

#### Mode 1



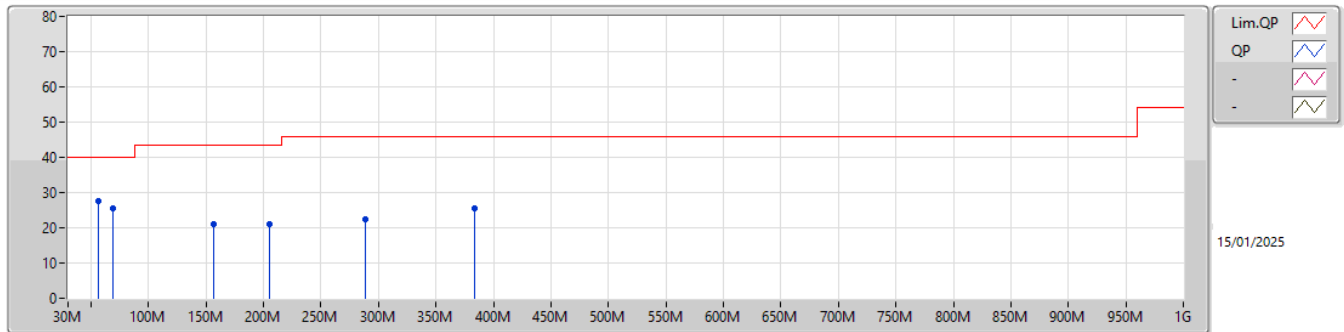
| Type | Freq<br>(Hz) | Level<br>(dBuV/m) | Limit<br>(dBuV/m) | Margin<br>(dB) | Factor<br>(dB/m) | Dist<br>(m) | Condition  | Azimuth<br>(°) | Height<br>(m) | Comment | Raw<br>(dBuV) | AF<br>(dB/m) | CL<br>(dB) | PA<br>(dB) |  |  |
|------|--------------|-------------------|-------------------|----------------|------------------|-------------|------------|----------------|---------------|---------|---------------|--------------|------------|------------|--|--|
| PK   | 69.7M        | 22.32             | 40.00             | -17.68         | -10.97           | 3           | Horizontal | -              | -             | -       | 33.29         | 16.36        | 0.85       | 28.18      |  |  |
| PK   | 152.2M       | 21.30             | 43.50             | -22.20         | -8.66            | 3           | Horizontal | -              | -             | -       | 29.96         | 18.38        | 1.22       | 28.26      |  |  |
| PK   | 272M         | 23.05             | 46.00             | -22.95         | -8.69            | 3           | Horizontal | -              | -             | -       | 31.74         | 17.88        | 1.67       | 28.24      |  |  |
| PK   | 388M         | 25.09             | 46.00             | -20.91         | -5.74            | 3           | Horizontal | -              | -             | -       | 30.83         | 20.56        | 1.88       | 28.18      |  |  |
| PK   | 472.2M       | 26.65             | 46.00             | -19.35         | -3.84            | 3           | Horizontal | -              | -             | -       | 30.49         | 22.34        | 2.01       | 28.19      |  |  |
| PK   | 576.2M       | 28.50             | 46.00             | -17.50         | -1.62            | 3           | Horizontal | -              | -             | -       | 30.12         | 24.25        | 2.31       | 28.18      |  |  |



## Unwanted Radiated Emissions into Restricted Frequency Bands Below 1GHz

### Appendix D.4

#### Mode 1



| Type | Freq<br>(Hz) | Level<br>(dBuV/m) | Limit<br>(dBuV/m) | Margin<br>(dB) | Factor<br>(dB/m) | Dist<br>(m) | Condition | Azimuth<br>(°) | Height<br>(m) | Comment | Raw<br>(dBuV) | AF<br>(dB/m) | CL<br>(dB) | PA<br>(dB) |  |  |
|------|--------------|-------------------|-------------------|----------------|------------------|-------------|-----------|----------------|---------------|---------|---------------|--------------|------------|------------|--|--|
| PK   | 56.9M        | 27.56             | 40.00             | -12.44         | -8.48            | 3           | Vertical  | -              | -             | -       | 36.04         | 18.90        | 0.77       | 28.15      |  |  |
| PK   | 69.4M        | 25.57             | 40.00             | -14.43         | -10.90           | 3           | Vertical  | -              | -             | -       | 36.47         | 16.42        | 0.85       | 28.17      |  |  |
| PK   | 157M         | 21.13             | 43.50             | -22.37         | -8.62            | 3           | Vertical  | -              | -             | -       | 29.75         | 18.40        | 1.24       | 28.26      |  |  |
| PK   | 205.2M       | 20.96             | 43.50             | -22.54         | -11.66           | 3           | Vertical  | -              | -             | -       | 32.62         | 15.19        | 1.43       | 28.28      |  |  |
| PK   | 288.5M       | 22.55             | 46.00             | -23.45         | -8.13            | 3           | Vertical  | -              | -             | -       | 30.68         | 18.37        | 1.74       | 28.24      |  |  |
| PK   | 384M         | 25.36             | 46.00             | -20.64         | -5.81            | 3           | Vertical  | -              | -             | -       | 31.17         | 20.50        | 1.87       | 28.18      |  |  |



**Unwanted Radiated Emissions into Restricted  
Frequency Bands Above 1GHz**

**Appendix D.5**

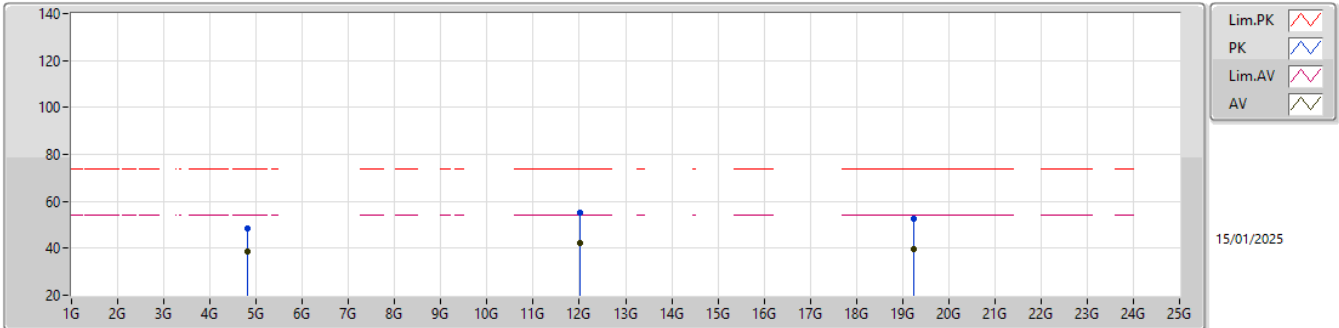
**Summary**

| 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 | -      | -    | -            | -                 | -                 | -              | -           | -         | -              | -             | -        |
| 802.15.4      | Pass   | AV   | 19.8G        | 44.02             | 54.00             | -9.98          | 3           | Vertical  | 190            | 1.25          | -        |



2.4-2.4835GHz\_802.15.4

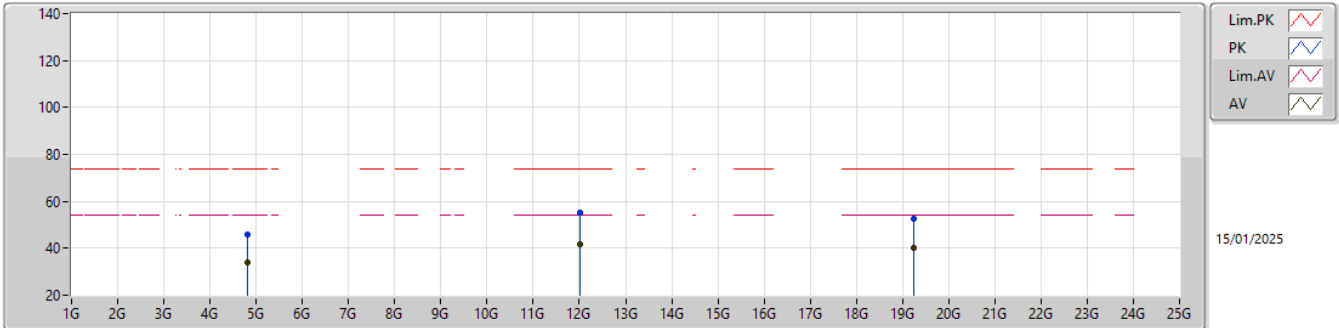
2405MHz\_TX



| 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/m) | CL<br>(dB) | PA<br>(dB) |  |  |  |
|------|--------------|-------------------|-------------------|----------------|---------------|-------------|------------|----------------|---------------|---------|--------------|------------|------------|--|--|--|
| AV   | 4.81G        | 38.72             | 54.00             | -15.28         | 39.15         | 3           | Horizontal | 47             | 2.09          | -       | 31.40        | 6.69       | 38.52      |  |  |  |
| PK   | 4.81G        | 48.59             | 74.00             | -25.41         | 49.02         | 3           | Horizontal | 47             | 2.09          | -       | 31.40        | 6.69       | 38.52      |  |  |  |
| AV   | 12.025G      | 42.28             | 54.00             | -11.72         | 35.52         | 3           | Horizontal | 108            | 1.00          | -       | 39.40        | 10.24      | 42.88      |  |  |  |
| PK   | 12.025G      | 55.09             | 74.00             | -18.91         | 48.33         | 3           | Horizontal | 108            | 1.00          | -       | 39.40        | 10.24      | 42.88      |  |  |  |
| AV   | 19.24G       | 39.87             | 54.00             | -14.13         | 38.13         | 3           | Horizontal | 111            | 1.00          | -       | 37.82        | 13.30      | 49.38      |  |  |  |
| PK   | 19.24G       | 52.53             | 74.00             | -21.47         | 50.79         | 3           | Horizontal | 111            | 1.00          | -       | 37.82        | 13.30      | 49.38      |  |  |  |

2.4-2.4835GHz\_802.15.4

2405MHz\_TX

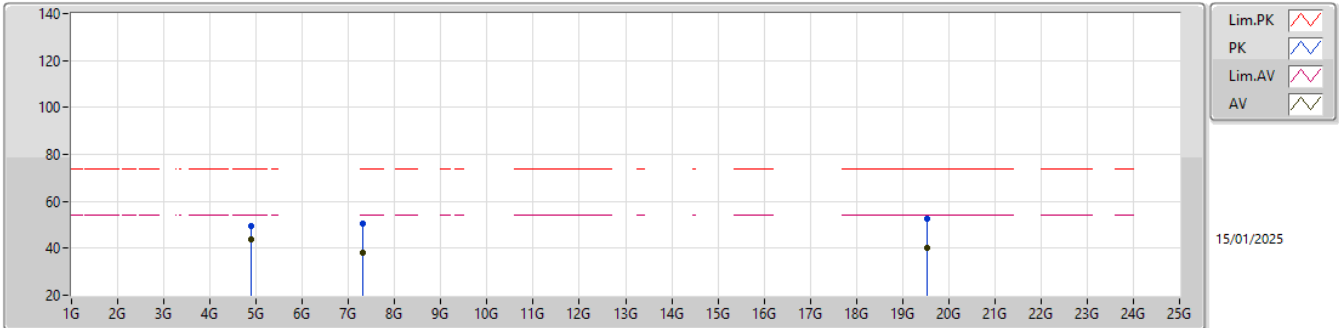


| Type | Freq<br>(Hz) | Level<br>(dBuV/m) | Limit<br>(dBuV/m) | Margin<br>(dB) | Raw<br>(dBuV) | Dist<br>(m) | Condition | Azimuth<br>(°) | Height<br>(m) | Comment | AF<br>(dB/m) | CL<br>(dB) | PA<br>(dB) |  |  |  |
|------|--------------|-------------------|-------------------|----------------|---------------|-------------|-----------|----------------|---------------|---------|--------------|------------|------------|--|--|--|
| AV   | 4.81G        | 34.14             | 54.00             | -19.86         | 34.57         | 3           | Vertical  | 203            | 1.00          | -       | 31.40        | 6.69       | 38.52      |  |  |  |
| PK   | 4.81G        | 45.80             | 74.00             | -28.20         | 46.23         | 3           | Vertical  | 203            | 1.00          | -       | 31.40        | 6.69       | 38.52      |  |  |  |
| AV   | 12.025G      | 41.92             | 54.00             | -12.08         | 35.16         | 3           | Vertical  | 158            | 1.00          | -       | 39.40        | 10.24      | 42.88      |  |  |  |
| PK   | 12.025G      | 55.09             | 74.00             | -18.91         | 48.33         | 3           | Vertical  | 158            | 1.00          | -       | 39.40        | 10.24      | 42.88      |  |  |  |
| AV   | 19.24G       | 39.96             | 54.00             | -14.04         | 38.22         | 3           | Vertical  | 151            | 1.00          | -       | 37.82        | 13.30      | 49.38      |  |  |  |
| PK   | 19.24G       | 52.41             | 74.00             | -21.59         | 50.67         | 3           | Vertical  | 151            | 1.00          | -       | 37.82        | 13.30      | 49.38      |  |  |  |



2.4-2.4835GHz\_802.15.4

2440MHz\_TX

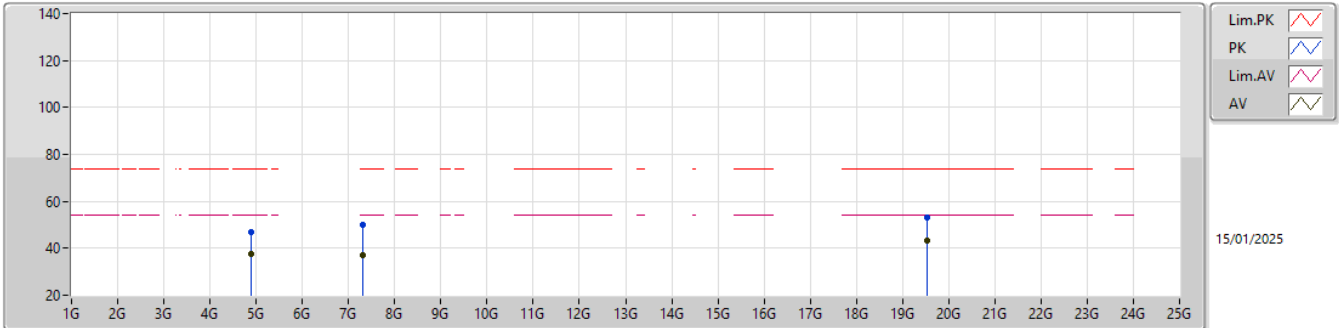


| Type | Freq<br>(Hz) | Level<br>(dBuV/m) | Limit<br>(dBuV/m) | Margin<br>(dB) | Raw<br>(dBuV) | Dist<br>(m) | Condition  | Azimuth<br>(°) | Height<br>(m) | Comment | AF<br>(dB/m) | CL<br>(dB) | PA<br>(dB) |  |  |  |
|------|--------------|-------------------|-------------------|----------------|---------------|-------------|------------|----------------|---------------|---------|--------------|------------|------------|--|--|--|
| AV   | 4.88G        | 43.84             | 54.00             | -10.16         | 44.24         | 3           | Horizontal | 51             | 1.71          | -       | 31.40        | 6.77       | 38.57      |  |  |  |
| PK   | 4.88G        | 49.55             | 74.00             | -24.45         | 49.95         | 3           | Horizontal | 51             | 1.71          | -       | 31.40        | 6.77       | 38.57      |  |  |  |
| AV   | 7.32G        | 37.93             | 54.00             | -16.07         | 32.43         | 3           | Horizontal | 165            | 1.00          | -       | 36.26        | 8.63       | 39.39      |  |  |  |
| PK   | 7.32G        | 50.77             | 74.00             | -23.23         | 45.27         | 3           | Horizontal | 165            | 1.00          | -       | 36.26        | 8.63       | 39.39      |  |  |  |
| AV   | 19.52G       | 40.33             | 54.00             | -13.67         | 38.60         | 3           | Horizontal | 209            | 1.12          | -       | 37.60        | 13.45      | 49.32      |  |  |  |
| PK   | 19.52G       | 52.76             | 74.00             | -21.24         | 51.03         | 3           | Horizontal | 209            | 1.12          | -       | 37.60        | 13.45      | 49.32      |  |  |  |



2.4-2.4835GHz\_802.15.4

2440MHz\_TX

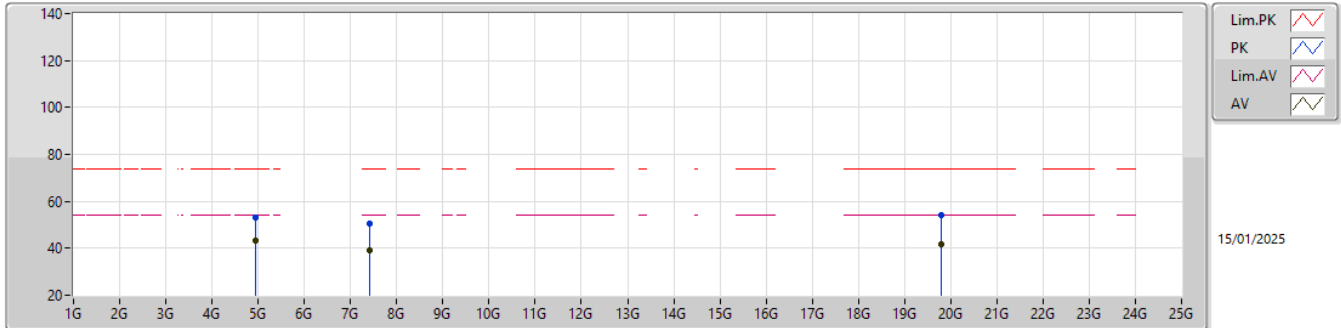


| Type | Freq<br>(Hz) | Level<br>(dBuV/m) | Limit<br>(dBuV/m) | Margin<br>(dB) | Raw<br>(dBuV) | Dist<br>(m) | Condition | Azimuth<br>(°) | Height<br>(m) | Comment | AF<br>(dB/m) | CL<br>(dB) | PA<br>(dB) |  |  |  |
|------|--------------|-------------------|-------------------|----------------|---------------|-------------|-----------|----------------|---------------|---------|--------------|------------|------------|--|--|--|
| AV   | 4.88G        | 37.63             | 54.00             | -16.37         | 38.03         | 3           | Vertical  | 162            | 2.28          | -       | 31.40        | 6.77       | 38.57      |  |  |  |
| PK   | 4.88G        | 47.01             | 74.00             | -26.99         | 47.41         | 3           | Vertical  | 162            | 2.28          | -       | 31.40        | 6.77       | 38.57      |  |  |  |
| AV   | 7.32G        | 36.84             | 54.00             | -17.16         | 31.34         | 3           | Vertical  | 194            | 1.00          | -       | 36.26        | 8.63       | 39.39      |  |  |  |
| PK   | 7.32G        | 49.88             | 74.00             | -24.12         | 44.38         | 3           | Vertical  | 194            | 1.00          | -       | 36.26        | 8.63       | 39.39      |  |  |  |
| AV   | 19.52G       | 43.25             | 54.00             | -10.75         | 41.52         | 3           | Vertical  | 190            | 1.23          | -       | 37.60        | 13.45      | 49.32      |  |  |  |
| PK   | 19.52G       | 53.29             | 74.00             | -20.71         | 51.56         | 3           | Vertical  | 190            | 1.23          | -       | 37.60        | 13.45      | 49.32      |  |  |  |



2.4-2.4835GHz\_802.15.4

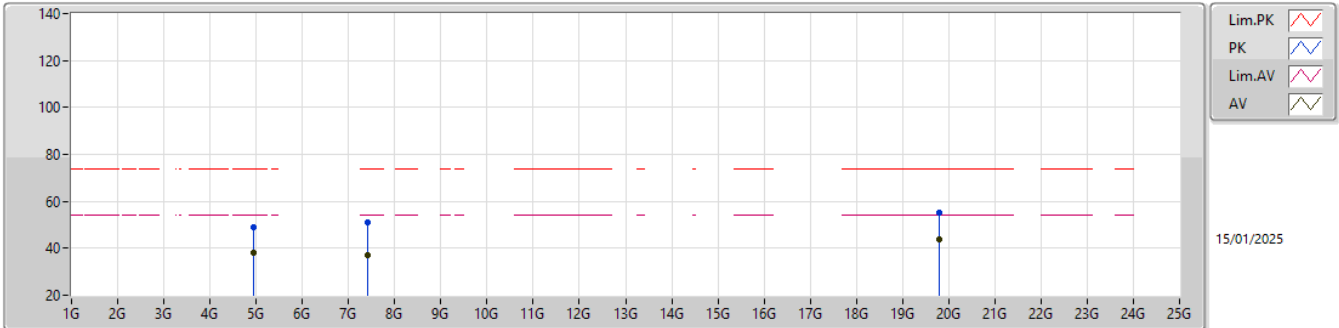
2475MHz\_TX



| 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/m) | CL<br>(dB) | PA<br>(dB) |  |  |  |
|------|--------------|-------------------|-------------------|----------------|---------------|-------------|------------|----------------|---------------|---------|--------------|------------|------------|--|--|--|
| AV   | 4.95G        | 43.28             | 54.00             | -10.72         | 43.65         | 3           | Horizontal | 49             | 1.82          | -       | 31.40        | 6.85       | 38.62      |  |  |  |
| PK   | 4.95G        | 52.95             | 74.00             | -21.05         | 53.32         | 3           | Horizontal | 49             | 1.82          | -       | 31.40        | 6.85       | 38.62      |  |  |  |
| AV   | 7.425G       | 39.16             | 54.00             | -14.84         | 33.78         | 3           | Horizontal | 312            | 1.59          | -       | 36.25        | 8.66       | 39.53      |  |  |  |
| PK   | 7.425G       | 50.73             | 74.00             | -23.27         | 45.35         | 3           | Horizontal | 312            | 1.59          | -       | 36.25        | 8.66       | 39.53      |  |  |  |
| AV   | 19.8G        | 41.96             | 54.00             | -12.04         | 40.05         | 3           | Horizontal | 202            | 1.16          | -       | 37.60        | 13.49      | 49.18      |  |  |  |
| PK   | 19.8G        | 53.88             | 74.00             | -20.12         | 51.97         | 3           | Horizontal | 202            | 1.16          | -       | 37.60        | 13.49      | 49.18      |  |  |  |

### 2.4-2.4835GHz\_802.15.4

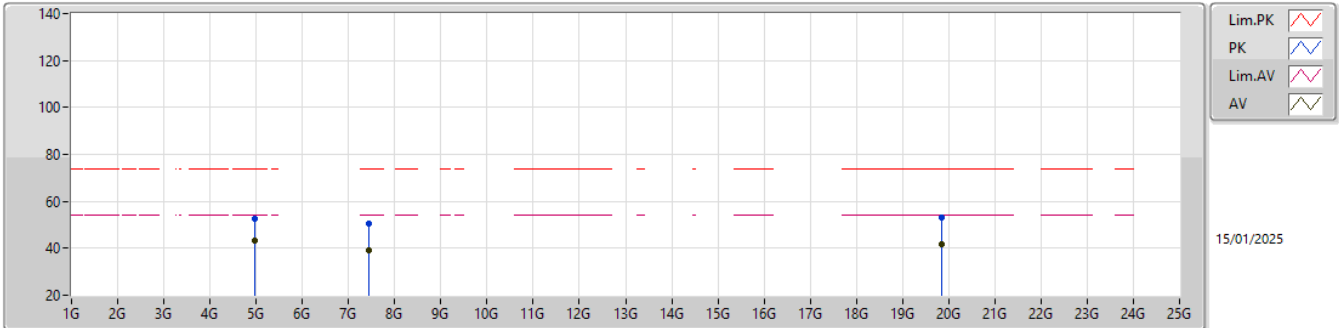
#### 2475MHz\_TX



| 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/m) | CL<br>(dB) | PA<br>(dB) |  |  |  |
|------|--------------|-------------------|-------------------|----------------|---------------|-------------|-----------|----------------|---------------|---------|--------------|------------|------------|--|--|--|
| AV   | 4.95G        | 38.29             | 54.00             | -15.71         | 38.66         | 3           | Vertical  | 23             | 1.33          | -       | 31.40        | 6.85       | 38.62      |  |  |  |
| PK   | 4.95G        | 48.73             | 74.00             | -25.27         | 49.10         | 3           | Vertical  | 23             | 1.33          | -       | 31.40        | 6.85       | 38.62      |  |  |  |
| AV   | 7.425G       | 36.84             | 54.00             | -17.16         | 31.46         | 3           | Vertical  | 130            | 1.00          | -       | 36.25        | 8.66       | 39.53      |  |  |  |
| PK   | 7.425G       | 50.99             | 74.00             | -23.01         | 45.61         | 3           | Vertical  | 130            | 1.00          | -       | 36.25        | 8.66       | 39.53      |  |  |  |
| AV   | 19.8G        | 44.02             | 54.00             | -9.98          | 42.11         | 3           | Vertical  | 190            | 1.25          | -       | 37.60        | 13.49      | 49.18      |  |  |  |
| PK   | 19.8G        | 55.01             | 74.00             | -18.99         | 53.10         | 3           | Vertical  | 190            | 1.25          | -       | 37.60        | 13.49      | 49.18      |  |  |  |

2.4-2.4835GHz\_802.15.4

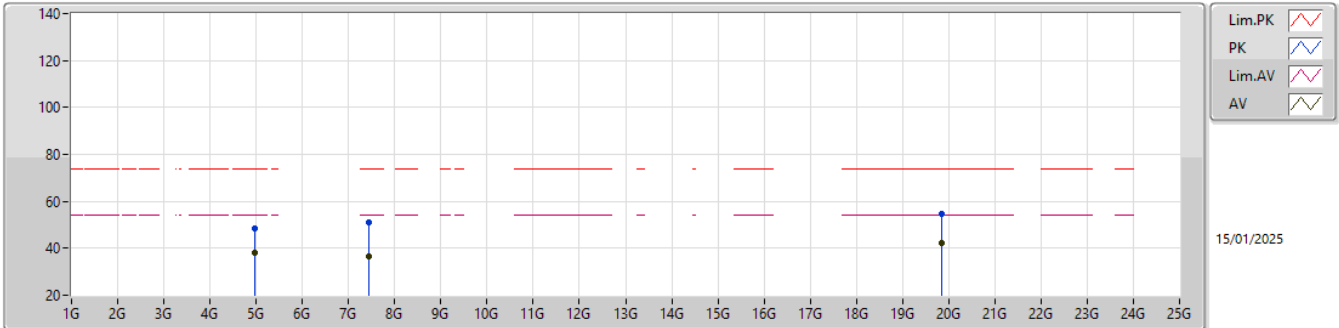
2480MHz\_TX



| 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/m) | CL<br>(dB) | PA<br>(dB) |  |  |  |  |
|------|--------------|-------------------|-------------------|----------------|---------------|-------------|------------|----------------|---------------|---------|--------------|------------|------------|--|--|--|--|
| AV   | 4.96G        | 43.06             | 54.00             | -10.94         | 43.38         | 3           | Horizontal | 43             | 1.77          | -       | 31.44        | 6.86       | 38.62      |  |  |  |  |
| PK   | 4.96G        | 52.52             | 74.00             | -21.48         | 52.84         | 3           | Horizontal | 43             | 1.77          | -       | 31.44        | 6.86       | 38.62      |  |  |  |  |
| AV   | 7.44G        | 39.01             | 54.00             | -14.99         | 33.61         | 3           | Horizontal | 318            | 1.54          | -       | 36.28        | 8.66       | 39.54      |  |  |  |  |
| PK   | 7.44G        | 50.66             | 74.00             | -23.34         | 45.26         | 3           | Horizontal | 318            | 1.54          | -       | 36.28        | 8.66       | 39.54      |  |  |  |  |
| AV   | 19.84G       | 41.70             | 54.00             | -12.30         | 39.84         | 3           | Horizontal | 217            | 1.12          | -       | 37.52        | 13.50      | 49.16      |  |  |  |  |
| PK   | 19.84G       | 53.07             | 74.00             | -20.93         | 51.21         | 3           | Horizontal | 217            | 1.12          | -       | 37.52        | 13.50      | 49.16      |  |  |  |  |

### 2.4-2.4835GHz\_802.15.4

#### 2480MHz\_TX



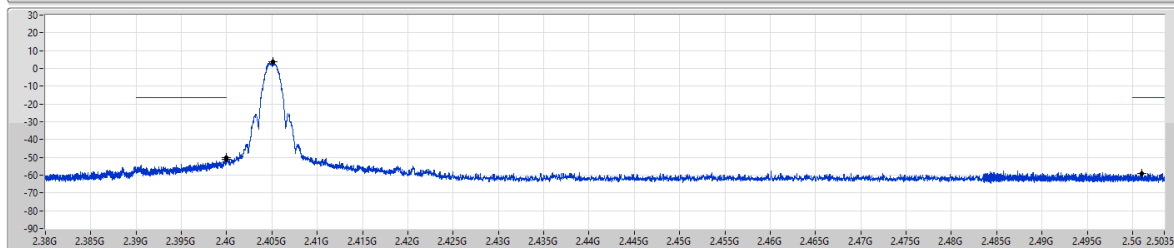
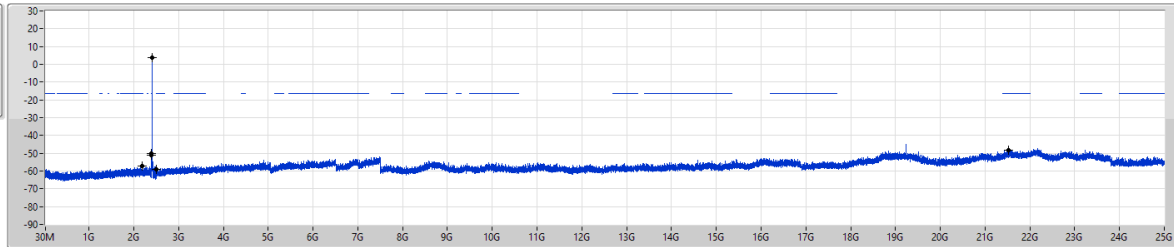
| Type | Freq<br>(Hz) | Level<br>(dBuV/m) | Limit<br>(dBuV/m) | Margin<br>(dB) | Raw<br>(dBuV) | Dist<br>(m) | Condition | Azimuth<br>(°) | Height<br>(m) | Comment | AF<br>(dB/m) | CL<br>(dB) | PA<br>(dB) |  |  |  |
|------|--------------|-------------------|-------------------|----------------|---------------|-------------|-----------|----------------|---------------|---------|--------------|------------|------------|--|--|--|
| AV   | 4.96G        | 38.08             | 54.00             | -15.92         | 38.40         | 3           | Vertical  | 20             | 1.31          | -       | 31.44        | 6.86       | 38.62      |  |  |  |
| PK   | 4.96G        | 48.61             | 74.00             | -25.39         | 48.93         | 3           | Vertical  | 20             | 1.31          | -       | 31.44        | 6.86       | 38.62      |  |  |  |
| AV   | 7.44G        | 36.66             | 54.00             | -17.34         | 31.26         | 3           | Vertical  | 128            | 1.00          | -       | 36.28        | 8.66       | 39.54      |  |  |  |
| PK   | 7.44G        | 50.78             | 74.00             | -23.22         | 45.38         | 3           | Vertical  | 128            | 1.00          | -       | 36.28        | 8.66       | 39.54      |  |  |  |
| AV   | 19.84G       | 42.39             | 54.00             | -11.61         | 40.53         | 3           | Vertical  | 188            | 1.32          | -       | 37.52        | 13.50      | 49.16      |  |  |  |
| PK   | 19.84G       | 54.52             | 74.00             | -19.48         | 52.66         | 3           | Vertical  | 188            | 1.32          | -       | 37.52        | 13.50      | 49.16      |  |  |  |

2.4-2.4835GHz\_802.15.4

CSEndB-DTS

2405MHz

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



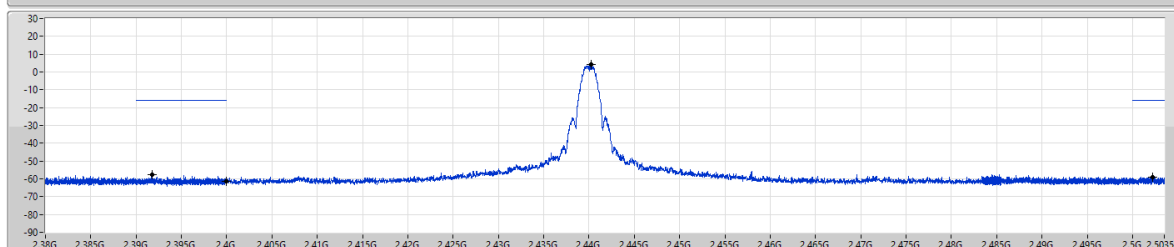
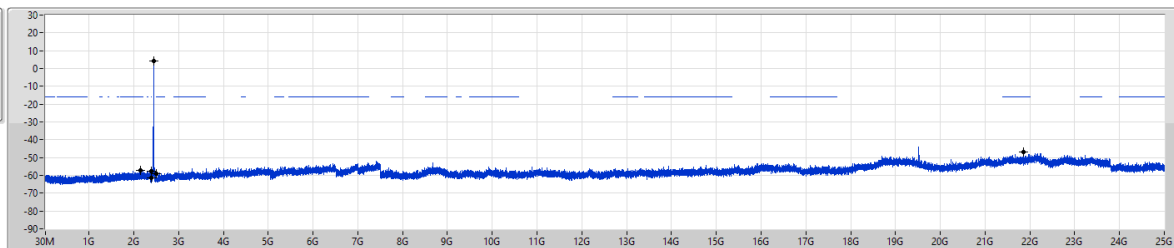
| Ref(Hz)  | Ref(dBm) | Limit(dBm) | Freq(Hz) | Level(dBm) | Freq(Hz) | Level(dBm) | Freq(Hz) | Level(dBm) | Freq(Hz) | Level(dBm) | Freq(Hz) | Level(dBm) | Port |
|----------|----------|------------|----------|------------|----------|------------|----------|------------|----------|------------|----------|------------|------|
| 2.40507G | 3.76     | -16.24     | 2.18436G | -57.07     | 2.39998G | -50.24     | 2.4G     | -50.95     | 2.50101G | -58.87     | 2.52007G | -48.28     | 1    |

2.4-2.4835GHz\_802.15.4

CSEndB-DTS

2440MHz

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



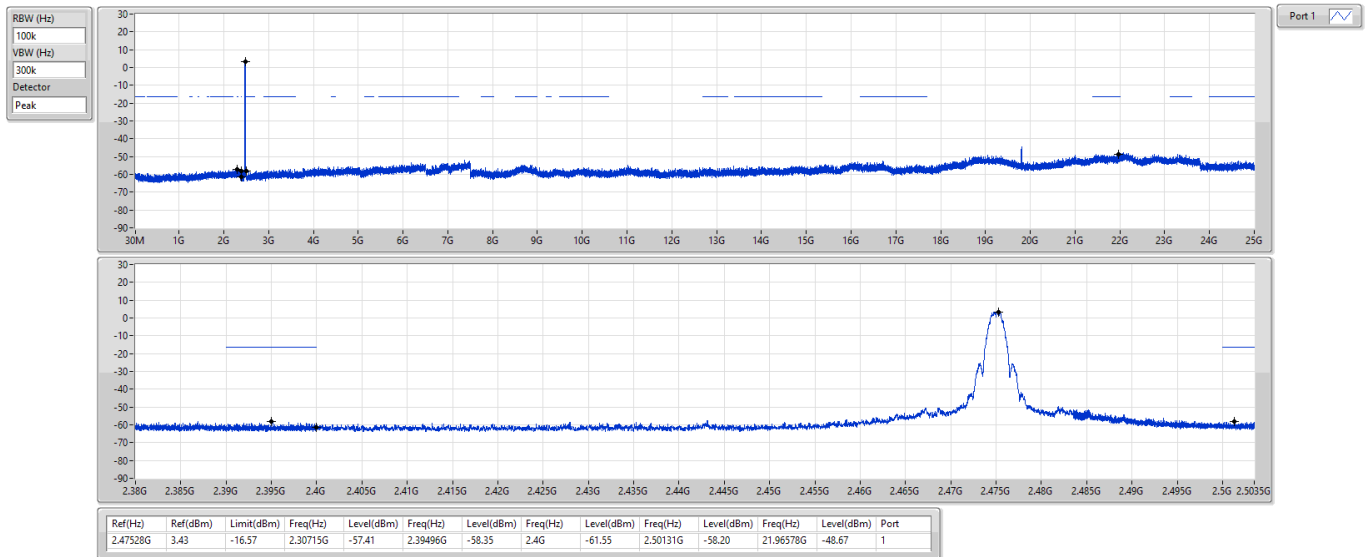
| Ref(Hz)  | Ref(dBm) | Limit(dBm) | Freq(Hz) | Level(dBm) | Freq(Hz) | Level(dBm) | Freq(Hz) | Level(dBm) | Freq(Hz) | Level(dBm) | Freq(Hz) | Level(dBm) | Port |
|----------|----------|------------|----------|------------|----------|------------|----------|------------|----------|------------|----------|------------|------|
| 2.44026G | 4.20     | -15.80     | 2.14588G | -57.42     | 2.39175G | -57.60     | 2.4G     | -61.52     | 2.50218G | -58.89     | 2.51819G | -47.02     | 1    |



2.4-2.4835GHz\_802.15.4

CSEndB-DTS

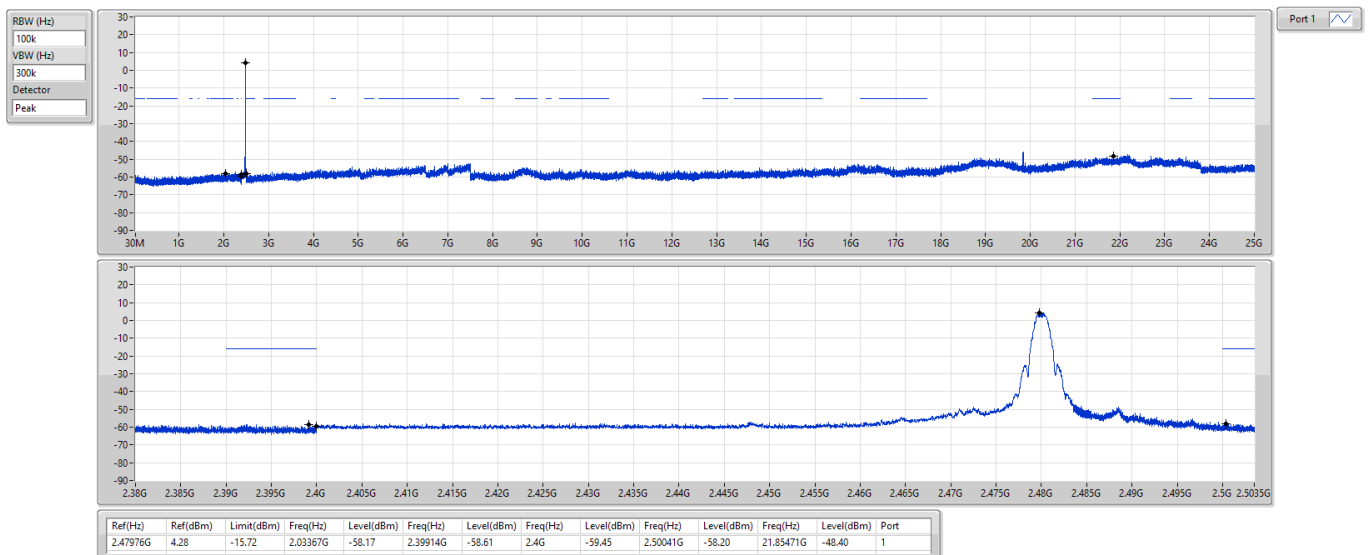
2475MHz



2.4-2.4835GHz\_802.15.4

CSEndB-DTS

2480MHz



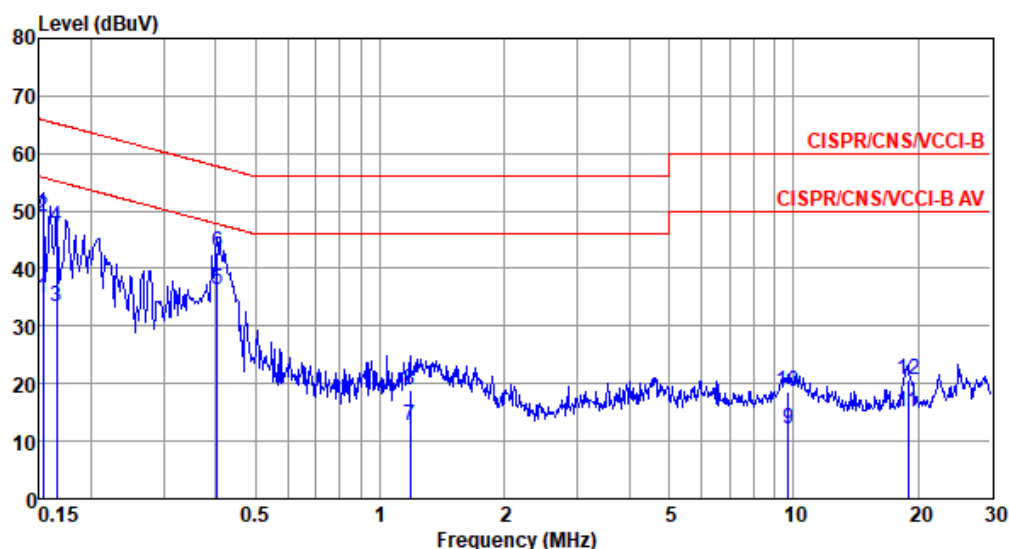


|                 |        |                  |      |
|-----------------|--------|------------------|------|
| Modulation Mode | O-QPSK | Test Freq. (MHz) | 2440 |
| Power Phase     | Line   |                  |      |

Test by : Allen Lee

Temperature: 21°C

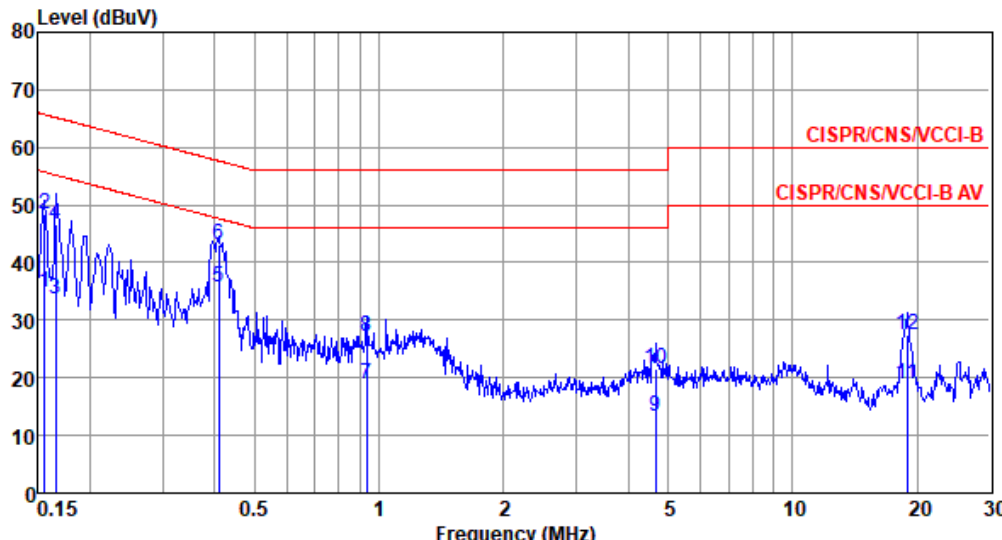
Humidity: 66%



|    | Freq<br>MHz | Level<br>dBUV | Limit<br>Line<br>dBUV | Over<br>Limit<br>dB | Read<br>Level<br>dBUV | Factor<br>dB | Cable<br>loss<br>dB | Aux<br>dB | Remark  |
|----|-------------|---------------|-----------------------|---------------------|-----------------------|--------------|---------------------|-----------|---------|
| 1  | 0.153       | 34.70         | 55.82                 | -21.12              | 24.97                 | 9.65         | 0.08                | 0.00      | Average |
| 2  | 0.153       | 49.08         | 65.82                 | -16.74              | 39.35                 | 9.65         | 0.08                | 0.00      | QP      |
| 3  | 0.165       | 33.49         | 55.21                 | -21.72              | 23.76                 | 9.65         | 0.08                | 0.00      | Average |
| 4  | 0.165       | 47.20         | 65.21                 | -18.01              | 37.47                 | 9.65         | 0.08                | 0.00      | QP      |
| 5* | 0.404       | 36.37         | 47.77                 | -11.40              | 26.64                 | 9.64         | 0.09                | 0.00      | Average |
| 6  | 0.404       | 42.70         | 57.77                 | -15.07              | 32.97                 | 9.64         | 0.09                | 0.00      | QP      |
| 7  | 1.184       | 12.76         | 46.00                 | -33.24              | 2.99                  | 9.65         | 0.12                | 0.00      | Average |
| 8  | 1.184       | 18.80         | 56.00                 | -37.20              | 9.03                  | 9.65         | 0.12                | 0.00      | QP      |
| 9  | 9.705       | 11.98         | 50.00                 | -38.02              | 1.97                  | 9.71         | 0.30                | 0.00      | Average |
| 10 | 9.705       | 18.71         | 60.00                 | -41.29              | 8.70                  | 9.71         | 0.30                | 0.00      | QP      |
| 11 | 18.920      | 14.95         | 50.00                 | -35.05              | 4.73                  | 9.68         | 0.54                | 0.00      | Average |
| 12 | 18.920      | 20.57         | 60.00                 | -39.43              | 10.35                 | 9.68         | 0.54                | 0.00      | QP      |

Note 1: Level (dBUV) = Read Level (dBUV) + LISN Factor (dB) + Cable Loss (dB) + Aux (dB).

2: Over Limit (dB) = Level (dBUV) - Limit Line (dBUV).

| Modulation Mode                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | O-QPSK  | Test Freq. (MHz) | 2440  |        |       |        |       |      |         |        |       |     |  |  |     |      |      |       |       |    |      |    |        |  |  |  |      |    |      |  |    |  |  |   |       |       |       |        |       |      |      |      |         |   |       |       |       |        |       |      |      |      |    |   |       |       |       |        |       |      |      |      |         |   |       |       |       |        |       |      |      |      |    |    |       |       |       |        |       |      |      |      |         |   |       |       |       |        |       |      |      |      |    |   |       |       |       |        |      |      |      |      |         |   |       |       |       |        |       |      |      |      |    |   |       |       |       |        |      |      |      |      |         |    |       |       |       |        |       |      |      |      |    |    |        |       |       |        |      |      |      |      |         |    |        |       |       |        |       |      |      |      |    |
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| Power Phase                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | Neutral |                  |       |        |       |        |       |      |         |        |       |     |  |  |     |      |      |       |       |    |      |    |        |  |  |  |      |    |      |  |    |  |  |   |       |       |       |        |       |      |      |      |         |   |       |       |       |        |       |      |      |      |    |   |       |       |       |        |       |      |      |      |         |   |       |       |       |        |       |      |      |      |    |    |       |       |       |        |       |      |      |      |         |   |       |       |       |        |       |      |      |      |    |   |       |       |       |        |      |      |      |      |         |   |       |       |       |        |       |      |      |      |    |   |       |       |       |        |      |      |      |      |         |    |       |       |       |        |       |      |      |      |    |    |        |       |       |        |      |      |      |      |         |    |        |       |       |        |       |      |      |      |    |
| Test by : Allen Lee      Temperature: 21°C      Humidity: 66%                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |         |                  |       |        |       |        |       |      |         |        |       |     |  |  |     |      |      |       |       |    |      |    |        |  |  |  |      |    |      |  |    |  |  |   |       |       |       |        |       |      |      |      |         |   |       |       |       |        |       |      |      |      |    |   |       |       |       |        |       |      |      |      |         |   |       |       |       |        |       |      |      |      |    |    |       |       |       |        |       |      |      |      |         |   |       |       |       |        |       |      |      |      |    |   |       |       |       |        |      |      |      |      |         |   |       |       |       |        |       |      |      |      |    |   |       |       |       |        |      |      |      |      |         |    |       |       |       |        |       |      |      |      |    |    |        |       |       |        |      |      |      |      |         |    |        |       |       |        |       |      |      |      |    |
| <div></div> <table><tr><th></th><th>Freq</th><th>Level</th><th>Limit</th><th>Over</th><th>Read</th><th>Factor</th><th>Cable</th><th>Aux</th><th></th></tr><tr><th></th><th>MHz</th><th>dBuV</th><th>Line</th><th>Limit</th><th>Level</th><th>dB</th><th>loss</th><th>dB</th><th>Remark</th></tr><tr><th></th><th></th><th></th><th>dBuV</th><th>dB</th><th>dBuV</th><th></th><th>dB</th><th></th><th></th></tr><tr><td>1</td><td>0.156</td><td>34.86</td><td>55.69</td><td>-20.83</td><td>25.12</td><td>9.66</td><td>0.08</td><td>0.00</td><td>Average</td></tr><tr><td>2</td><td>0.156</td><td>48.28</td><td>65.69</td><td>-17.41</td><td>38.54</td><td>9.66</td><td>0.08</td><td>0.00</td><td>QP</td></tr><tr><td>3</td><td>0.165</td><td>33.69</td><td>55.21</td><td>-21.52</td><td>23.95</td><td>9.66</td><td>0.08</td><td>0.00</td><td>Average</td></tr><tr><td>4</td><td>0.165</td><td>46.55</td><td>65.21</td><td>-18.66</td><td>36.81</td><td>9.66</td><td>0.08</td><td>0.00</td><td>QP</td></tr><tr><td>5*</td><td>0.410</td><td>35.65</td><td>47.64</td><td>-11.99</td><td>25.92</td><td>9.64</td><td>0.09</td><td>0.00</td><td>Average</td></tr><tr><td>6</td><td>0.410</td><td>43.13</td><td>57.64</td><td>-14.51</td><td>33.40</td><td>9.64</td><td>0.09</td><td>0.00</td><td>QP</td></tr><tr><td>7</td><td>0.933</td><td>18.83</td><td>46.00</td><td>-27.17</td><td>9.08</td><td>9.65</td><td>0.10</td><td>0.00</td><td>Average</td></tr><tr><td>8</td><td>0.933</td><td>27.16</td><td>56.00</td><td>-28.84</td><td>17.41</td><td>9.65</td><td>0.10</td><td>0.00</td><td>QP</td></tr><tr><td>9</td><td>4.672</td><td>13.42</td><td>46.00</td><td>-32.58</td><td>3.50</td><td>9.69</td><td>0.23</td><td>0.00</td><td>Average</td></tr><tr><td>10</td><td>4.672</td><td>21.59</td><td>56.00</td><td>-34.41</td><td>11.67</td><td>9.69</td><td>0.23</td><td>0.00</td><td>QP</td></tr><tr><td>11</td><td>18.920</td><td>18.96</td><td>50.00</td><td>-31.04</td><td>8.60</td><td>9.82</td><td>0.54</td><td>0.00</td><td>Average</td></tr><tr><td>12</td><td>18.920</td><td>27.35</td><td>60.00</td><td>-32.65</td><td>16.99</td><td>9.82</td><td>0.54</td><td>0.00</td><td>QP</td></tr></table> |         |                  |       |        | Freq  | Level  | Limit | Over | Read    | Factor | Cable | Aux |  |  | MHz | dBuV | Line | Limit | Level | dB | loss | dB | Remark |  |  |  | dBuV | dB | dBuV |  | dB |  |  | 1 | 0.156 | 34.86 | 55.69 | -20.83 | 25.12 | 9.66 | 0.08 | 0.00 | Average | 2 | 0.156 | 48.28 | 65.69 | -17.41 | 38.54 | 9.66 | 0.08 | 0.00 | QP | 3 | 0.165 | 33.69 | 55.21 | -21.52 | 23.95 | 9.66 | 0.08 | 0.00 | Average | 4 | 0.165 | 46.55 | 65.21 | -18.66 | 36.81 | 9.66 | 0.08 | 0.00 | QP | 5* | 0.410 | 35.65 | 47.64 | -11.99 | 25.92 | 9.64 | 0.09 | 0.00 | Average | 6 | 0.410 | 43.13 | 57.64 | -14.51 | 33.40 | 9.64 | 0.09 | 0.00 | QP | 7 | 0.933 | 18.83 | 46.00 | -27.17 | 9.08 | 9.65 | 0.10 | 0.00 | Average | 8 | 0.933 | 27.16 | 56.00 | -28.84 | 17.41 | 9.65 | 0.10 | 0.00 | QP | 9 | 4.672 | 13.42 | 46.00 | -32.58 | 3.50 | 9.69 | 0.23 | 0.00 | Average | 10 | 4.672 | 21.59 | 56.00 | -34.41 | 11.67 | 9.69 | 0.23 | 0.00 | QP | 11 | 18.920 | 18.96 | 50.00 | -31.04 | 8.60 | 9.82 | 0.54 | 0.00 | Average | 12 | 18.920 | 27.35 | 60.00 | -32.65 | 16.99 | 9.82 | 0.54 | 0.00 | QP |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | Freq    | Level            | Limit | Over   | Read  | Factor | Cable | Aux  |         |        |       |     |  |  |     |      |      |       |       |    |      |    |        |  |  |  |      |    |      |  |    |  |  |   |       |       |       |        |       |      |      |      |         |   |       |       |       |        |       |      |      |      |    |   |       |       |       |        |       |      |      |      |         |   |       |       |       |        |       |      |      |      |    |    |       |       |       |        |       |      |      |      |         |   |       |       |       |        |       |      |      |      |    |   |       |       |       |        |      |      |      |      |         |   |       |       |       |        |       |      |      |      |    |   |       |       |       |        |      |      |      |      |         |    |       |       |       |        |       |      |      |      |    |    |        |       |       |        |      |      |      |      |         |    |        |       |       |        |       |      |      |      |    |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | MHz     | dBuV             | Line  | Limit  | Level | dB     | loss  | dB   | Remark  |        |       |     |  |  |     |      |      |       |       |    |      |    |        |  |  |  |      |    |      |  |    |  |  |   |       |       |       |        |       |      |      |      |         |   |       |       |       |        |       |      |      |      |    |   |       |       |       |        |       |      |      |      |         |   |       |       |       |        |       |      |      |      |    |    |       |       |       |        |       |      |      |      |         |   |       |       |       |        |       |      |      |      |    |   |       |       |       |        |      |      |      |      |         |   |       |       |       |        |       |      |      |      |    |   |       |       |       |        |      |      |      |      |         |    |       |       |       |        |       |      |      |      |    |    |        |       |       |        |      |      |      |      |         |    |        |       |       |        |       |      |      |      |    |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |         |                  | dBuV  | dB     | dBuV  |        | dB    |      |         |        |       |     |  |  |     |      |      |       |       |    |      |    |        |  |  |  |      |    |      |  |    |  |  |   |       |       |       |        |       |      |      |      |         |   |       |       |       |        |       |      |      |      |    |   |       |       |       |        |       |      |      |      |         |   |       |       |       |        |       |      |      |      |    |    |       |       |       |        |       |      |      |      |         |   |       |       |       |        |       |      |      |      |    |   |       |       |       |        |      |      |      |      |         |   |       |       |       |        |       |      |      |      |    |   |       |       |       |        |      |      |      |      |         |    |       |       |       |        |       |      |      |      |    |    |        |       |       |        |      |      |      |      |         |    |        |       |       |        |       |      |      |      |    |
| 1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | 0.156   | 34.86            | 55.69 | -20.83 | 25.12 | 9.66   | 0.08  | 0.00 | Average |        |       |     |  |  |     |      |      |       |       |    |      |    |        |  |  |  |      |    |      |  |    |  |  |   |       |       |       |        |       |      |      |      |         |   |       |       |       |        |       |      |      |      |    |   |       |       |       |        |       |      |      |      |         |   |       |       |       |        |       |      |      |      |    |    |       |       |       |        |       |      |      |      |         |   |       |       |       |        |       |      |      |      |    |   |       |       |       |        |      |      |      |      |         |   |       |       |       |        |       |      |      |      |    |   |       |       |       |        |      |      |      |      |         |    |       |       |       |        |       |      |      |      |    |    |        |       |       |        |      |      |      |      |         |    |        |       |       |        |       |      |      |      |    |
| 2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | 0.156   | 48.28            | 65.69 | -17.41 | 38.54 | 9.66   | 0.08  | 0.00 | QP      |        |       |     |  |  |     |      |      |       |       |    |      |    |        |  |  |  |      |    |      |  |    |  |  |   |       |       |       |        |       |      |      |      |         |   |       |       |       |        |       |      |      |      |    |   |       |       |       |        |       |      |      |      |         |   |       |       |       |        |       |      |      |      |    |    |       |       |       |        |       |      |      |      |         |   |       |       |       |        |       |      |      |      |    |   |       |       |       |        |      |      |      |      |         |   |       |       |       |        |       |      |      |      |    |   |       |       |       |        |      |      |      |      |         |    |       |       |       |        |       |      |      |      |    |    |        |       |       |        |      |      |      |      |         |    |        |       |       |        |       |      |      |      |    |
| 3                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | 0.165   | 33.69            | 55.21 | -21.52 | 23.95 | 9.66   | 0.08  | 0.00 | Average |        |       |     |  |  |     |      |      |       |       |    |      |    |        |  |  |  |      |    |      |  |    |  |  |   |       |       |       |        |       |      |      |      |         |   |       |       |       |        |       |      |      |      |    |   |       |       |       |        |       |      |      |      |         |   |       |       |       |        |       |      |      |      |    |    |       |       |       |        |       |      |      |      |         |   |       |       |       |        |       |      |      |      |    |   |       |       |       |        |      |      |      |      |         |   |       |       |       |        |       |      |      |      |    |   |       |       |       |        |      |      |      |      |         |    |       |       |       |        |       |      |      |      |    |    |        |       |       |        |      |      |      |      |         |    |        |       |       |        |       |      |      |      |    |
| 4                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | 0.165   | 46.55            | 65.21 | -18.66 | 36.81 | 9.66   | 0.08  | 0.00 | QP      |        |       |     |  |  |     |      |      |       |       |    |      |    |        |  |  |  |      |    |      |  |    |  |  |   |       |       |       |        |       |      |      |      |         |   |       |       |       |        |       |      |      |      |    |   |       |       |       |        |       |      |      |      |         |   |       |       |       |        |       |      |      |      |    |    |       |       |       |        |       |      |      |      |         |   |       |       |       |        |       |      |      |      |    |   |       |       |       |        |      |      |      |      |         |   |       |       |       |        |       |      |      |      |    |   |       |       |       |        |      |      |      |      |         |    |       |       |       |        |       |      |      |      |    |    |        |       |       |        |      |      |      |      |         |    |        |       |       |        |       |      |      |      |    |
| 5*                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | 0.410   | 35.65            | 47.64 | -11.99 | 25.92 | 9.64   | 0.09  | 0.00 | Average |        |       |     |  |  |     |      |      |       |       |    |      |    |        |  |  |  |      |    |      |  |    |  |  |   |       |       |       |        |       |      |      |      |         |   |       |       |       |        |       |      |      |      |    |   |       |       |       |        |       |      |      |      |         |   |       |       |       |        |       |      |      |      |    |    |       |       |       |        |       |      |      |      |         |   |       |       |       |        |       |      |      |      |    |   |       |       |       |        |      |      |      |      |         |   |       |       |       |        |       |      |      |      |    |   |       |       |       |        |      |      |      |      |         |    |       |       |       |        |       |      |      |      |    |    |        |       |       |        |      |      |      |      |         |    |        |       |       |        |       |      |      |      |    |
| 6                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | 0.410   | 43.13            | 57.64 | -14.51 | 33.40 | 9.64   | 0.09  | 0.00 | QP      |        |       |     |  |  |     |      |      |       |       |    |      |    |        |  |  |  |      |    |      |  |    |  |  |   |       |       |       |        |       |      |      |      |         |   |       |       |       |        |       |      |      |      |    |   |       |       |       |        |       |      |      |      |         |   |       |       |       |        |       |      |      |      |    |    |       |       |       |        |       |      |      |      |         |   |       |       |       |        |       |      |      |      |    |   |       |       |       |        |      |      |      |      |         |   |       |       |       |        |       |      |      |      |    |   |       |       |       |        |      |      |      |      |         |    |       |       |       |        |       |      |      |      |    |    |        |       |       |        |      |      |      |      |         |    |        |       |       |        |       |      |      |      |    |
| 7                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | 0.933   | 18.83            | 46.00 | -27.17 | 9.08  | 9.65   | 0.10  | 0.00 | Average |        |       |     |  |  |     |      |      |       |       |    |      |    |        |  |  |  |      |    |      |  |    |  |  |   |       |       |       |        |       |      |      |      |         |   |       |       |       |        |       |      |      |      |    |   |       |       |       |        |       |      |      |      |         |   |       |       |       |        |       |      |      |      |    |    |       |       |       |        |       |      |      |      |         |   |       |       |       |        |       |      |      |      |    |   |       |       |       |        |      |      |      |      |         |   |       |       |       |        |       |      |      |      |    |   |       |       |       |        |      |      |      |      |         |    |       |       |       |        |       |      |      |      |    |    |        |       |       |        |      |      |      |      |         |    |        |       |       |        |       |      |      |      |    |
| 8                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | 0.933   | 27.16            | 56.00 | -28.84 | 17.41 | 9.65   | 0.10  | 0.00 | QP      |        |       |     |  |  |     |      |      |       |       |    |      |    |        |  |  |  |      |    |      |  |    |  |  |   |       |       |       |        |       |      |      |      |         |   |       |       |       |        |       |      |      |      |    |   |       |       |       |        |       |      |      |      |         |   |       |       |       |        |       |      |      |      |    |    |       |       |       |        |       |      |      |      |         |   |       |       |       |        |       |      |      |      |    |   |       |       |       |        |      |      |      |      |         |   |       |       |       |        |       |      |      |      |    |   |       |       |       |        |      |      |      |      |         |    |       |       |       |        |       |      |      |      |    |    |        |       |       |        |      |      |      |      |         |    |        |       |       |        |       |      |      |      |    |
| 9                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | 4.672   | 13.42            | 46.00 | -32.58 | 3.50  | 9.69   | 0.23  | 0.00 | Average |        |       |     |  |  |     |      |      |       |       |    |      |    |        |  |  |  |      |    |      |  |    |  |  |   |       |       |       |        |       |      |      |      |         |   |       |       |       |        |       |      |      |      |    |   |       |       |       |        |       |      |      |      |         |   |       |       |       |        |       |      |      |      |    |    |       |       |       |        |       |      |      |      |         |   |       |       |       |        |       |      |      |      |    |   |       |       |       |        |      |      |      |      |         |   |       |       |       |        |       |      |      |      |    |   |       |       |       |        |      |      |      |      |         |    |       |       |       |        |       |      |      |      |    |    |        |       |       |        |      |      |      |      |         |    |        |       |       |        |       |      |      |      |    |
| 10                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | 4.672   | 21.59            | 56.00 | -34.41 | 11.67 | 9.69   | 0.23  | 0.00 | QP      |        |       |     |  |  |     |      |      |       |       |    |      |    |        |  |  |  |      |    |      |  |    |  |  |   |       |       |       |        |       |      |      |      |         |   |       |       |       |        |       |      |      |      |    |   |       |       |       |        |       |      |      |      |         |   |       |       |       |        |       |      |      |      |    |    |       |       |       |        |       |      |      |      |         |   |       |       |       |        |       |      |      |      |    |   |       |       |       |        |      |      |      |      |         |   |       |       |       |        |       |      |      |      |    |   |       |       |       |        |      |      |      |      |         |    |       |       |       |        |       |      |      |      |    |    |        |       |       |        |      |      |      |      |         |    |        |       |       |        |       |      |      |      |    |
| 11                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | 18.920  | 18.96            | 50.00 | -31.04 | 8.60  | 9.82   | 0.54  | 0.00 | Average |        |       |     |  |  |     |      |      |       |       |    |      |    |        |  |  |  |      |    |      |  |    |  |  |   |       |       |       |        |       |      |      |      |         |   |       |       |       |        |       |      |      |      |    |   |       |       |       |        |       |      |      |      |         |   |       |       |       |        |       |      |      |      |    |    |       |       |       |        |       |      |      |      |         |   |       |       |       |        |       |      |      |      |    |   |       |       |       |        |      |      |      |      |         |   |       |       |       |        |       |      |      |      |    |   |       |       |       |        |      |      |      |      |         |    |       |       |       |        |       |      |      |      |    |    |        |       |       |        |      |      |      |      |         |    |        |       |       |        |       |      |      |      |    |
| 12                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | 18.920  | 27.35            | 60.00 | -32.65 | 16.99 | 9.82   | 0.54  | 0.00 | QP      |        |       |     |  |  |     |      |      |       |       |    |      |    |        |  |  |  |      |    |      |  |    |  |  |   |       |       |       |        |       |      |      |      |         |   |       |       |       |        |       |      |      |      |    |   |       |       |       |        |       |      |      |      |         |   |       |       |       |        |       |      |      |      |    |    |       |       |       |        |       |      |      |      |         |   |       |       |       |        |       |      |      |      |    |   |       |       |       |        |      |      |      |      |         |   |       |       |       |        |       |      |      |      |    |   |       |       |       |        |      |      |      |      |         |    |       |       |       |        |       |      |      |      |    |    |        |       |       |        |      |      |      |      |         |    |        |       |       |        |       |      |      |      |    |
| Note 1: Level (dBUV) = Read Level (dBUV) + LISN Factor (dB) + Cable Loss (dB) + Aux (dB).<br>2: Over Limit (dB) = Level (dBUV) – Limit Line (dBUV).                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |         |                  |       |        |       |        |       |      |         |        |       |     |  |  |     |      |      |       |       |    |      |    |        |  |  |  |      |    |      |  |    |  |  |   |       |       |       |        |       |      |      |      |         |   |       |       |       |        |       |      |      |      |    |   |       |       |       |        |       |      |      |      |         |   |       |       |       |        |       |      |      |      |    |    |       |       |       |        |       |      |      |      |         |   |       |       |       |        |       |      |      |      |    |   |       |       |       |        |      |      |      |      |         |   |       |       |       |        |       |      |      |      |    |   |       |       |       |        |      |      |      |      |         |    |       |       |       |        |       |      |      |      |    |    |        |       |       |        |      |      |      |      |         |    |        |       |       |        |       |      |      |      |    |