

# RF TEST REPORT

For

**Royche Co., Ltd.**

**Product Name: Mechanical keyboard**

**Model(s): BTS-MKB-A-109, PJR-111-MKB, Y98**

**Report Reference No.** : POCE230915001RF002

**FCC ID** : 2AXYZ-Y98

**Applicant's Name** : ROYCHE Co.,Ltd

**Address** : F11 ParkLand B/D 601 Eonjuro Gangnam Gu, Seoul, Korea Tel: 82-2-701-2181 (rep)

**Testing Laboratory** : Shenzhen POCE Technology Co., Ltd.

**Address** : 102 Building H1 & 1/F., Building H, Hongfa Science & Technology Park, Tangtou, Shiyan, Bao'an District, Shenzhen, Guangdong, China

**Test Specification Standard** : 47 CFR Part 15.249

**Date of Receipt** : September 15, 2023

**Date of Test** : September 21, 2023 to September 21, 2023

**Data of Issue** : September 21, 2023

**Result** : Pass

Note: This report shall not be reproduced except in full, without the written approval of Shenzhen POCE Technology Co., Ltd. This document may be altered or revised by Shenzhen POCE Technology Co., Ltd. personnel only, and shall be noted in the revision section of the document. The test results in the report only apply to the tested sample

## Revision History Of Report

| Version | Description | REPORT No.         | Issue Date         |
|---------|-------------|--------------------|--------------------|
| V1.0    | Original    | POCE230915001RF002 | September 21, 2023 |
|         |             |                    |                    |
|         |             |                    |                    |
|         |             |                    |                    |
|         |             |                    |                    |

**NOTE1:**

The manufacturer should ensure that all products in series production are in conformity with the product sample detailed in this report. If the product in this report is used in any configuration other than that detailed in the report, the manufacturer must ensure the new system complies with all relevant standards.

Compiled by:



Ben Tang / File administrators

Supervised by:



Stone Yin / Technique principal

Approved by:



Machael Mo / Manager

## CONTENTS

|                                                        |           |
|--------------------------------------------------------|-----------|
| <b>1 TEST SUMMARY .....</b>                            | <b>4</b>  |
| 1.1 TEST STANDARDS .....                               | 4         |
| 1.2 SUMMARY OF TEST RESULT .....                       | 4         |
| <b>2 GENERAL INFORMATION .....</b>                     | <b>5</b>  |
| 2.1 CLIENT INFORMATION .....                           | 5         |
| 2.2 DESCRIPTION OF DEVICE (EUT) .....                  | 5         |
| 2.3 DESCRIPTION OF TEST MODES .....                    | 5         |
| 2.4 DESCRIPTION OF SUPPORT UNITS .....                 | 6         |
| 2.5 EQUIPMENTS USED DURING THE TEST .....              | 7         |
| 2.6 STATEMENT OF THE MEASUREMENT UNCERTAINTY .....     | 9         |
| 2.7 IDENTIFICATION OF TESTING LABORATORY .....         | 9         |
| 2.8 ANNOUNCEMENT .....                                 | 9         |
| <b>3 EVALUATION RESULTS (EVALUATION) .....</b>         | <b>10</b> |
| 3.1 ANTENNA REQUIREMENT .....                          | 10        |
| 3.1.1 Conclusion: .....                                | 10        |
| <b>4 RADIO SPECTRUM MATTER TEST RESULTS (RF) .....</b> | <b>11</b> |
| 4.1 CONDUCTED EMISSION AT AC POWER LINE .....          | 11        |
| 4.1.1 E.U.T. Operation: .....                          | 11        |
| 4.1.2 Test Setup Diagram: .....                        | 11        |
| 4.1.3 Test Data: .....                                 | 12        |
| 4.2 OCCUPIED BANDWIDTH .....                           | 14        |
| 4.2.1 E.U.T. Operation: .....                          | 14        |
| 4.2.2 Test Setup Diagram: .....                        | 15        |
| 4.2.3 Test Data: .....                                 | 15        |
| 4.3 FIELD STRENGTH OF FUNDAMENTAL .....                | 17        |
| 4.3.1 E.U.T. Operation: .....                          | 17        |
| 4.3.2 Test Setup Diagram: .....                        | 17        |
| 4.3.3 Test Data: .....                                 | 18        |
| 4.4 BAND EDGE EMISSIONS (RADIATED) .....               | 19        |
| 4.4.1 E.U.T. Operation: .....                          | 19        |
| 4.4.2 Test Setup Diagram: .....                        | 19        |
| 4.4.3 Test Data: .....                                 | 20        |
| 4.5 EMISSIONS IN FREQUENCY BANDS (BELOW 1GHz) .....    | 24        |
| 4.5.1 E.U.T. Operation: .....                          | 24        |
| 4.5.2 Test Data: .....                                 | 25        |
| 4.6 EMISSIONS IN FREQUENCY BANDS (ABOVE 1GHz) .....    | 27        |
| 4.6.1 E.U.T. Operation: .....                          | 27        |
| 4.6.2 Test Setup Diagram: .....                        | 28        |
| 4.6.3 Test Data: .....                                 | 29        |
| <b>5 TEST SETUP PHOTOS .....</b>                       | <b>32</b> |
| <b>6 PHOTOS OF THE EUT .....</b>                       | <b>34</b> |

# 1 TEST SUMMARY

## 1.1 Test Standards

The tests were performed according to following standards:

**47 CFR Part 15.249:** Operation within the bands 902-928 MHz, 2400-2483.5 MHz, 5725-5875 MHz, and 24.0-24.25 GHz

## 1.2 Summary of Test Result

| Item                                      | Standard           | Method                          | Requirement                                              | Result |
|-------------------------------------------|--------------------|---------------------------------|----------------------------------------------------------|--------|
| Antenna requirement                       | 47 CFR Part 15.249 |                                 | 47 CFR Part 15.203                                       | Pass   |
| Conducted Emission at AC power line       | 47 CFR Part 15.249 | ANSI C63.10-2013 section 6.2    | 47 CFR 15.207(a)                                         | Pass   |
| Occupied Bandwidth                        | 47 CFR Part 15.249 | ANSI C63.10-2013, section 6.9.2 | 47 CFR 15.215(c)                                         | Pass   |
| Field strength of fundamental             | 47 CFR Part 15.249 | ANSI C63.10-2013 section 6.6    | 47 CFR 15.249(a)<br>47 CFR 15.249(b)(1)                  | Pass   |
| Band edge emissions (Radiated)            | 47 CFR Part 15.249 | ANSI C63.10-2013 section 6.6.4  | 47 CFR 15.249(d)                                         | Pass   |
| Emissions in frequency bands (below 1GHz) | 47 CFR Part 15.249 | ANSI C63.10-2013 section 6.5    | 47 CFR 15.249(a)<br>47 CFR 15.249(d)<br>47 CFR 15.249(e) | Pass   |
| Emissions in frequency bands (above 1GHz) | 47 CFR Part 15.249 | ANSI C63.10-2013 section 6.6    | 47 CFR 15.249(a)<br>47 CFR 15.249(d)<br>47 CFR 15.249(e) | Pass   |

## 2 GENERAL INFORMATION

### 2.1 Client Information

**Applicant's Name** : ROYCHE Co.,Ltd  
**Address** : F11 ParkLand B/D 601 Eonjuro Gangnam Gu, Seoul, Korea Tel: 82-2-701-2181 (rep)

**Manufacturer** : ROYCHE Co.,Ltd  
**Address** : F11 ParkLand B/D 601 Eonjuro Gangnam Gu, Seoul, Korea Tel: 82-2-701-2181 (rep)

### 2.2 Description of Device (EUT)

|                       |                                                                                                                                                              |
|-----------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Product Name:         | Mechanical keyboard                                                                                                                                          |
| Model/Type reference: | BTS-MKB-A-109                                                                                                                                                |
| Series Model:         | PJR-111-MKB, Y98                                                                                                                                             |
| Model Difference:     | The product has many models, only the model name is different, and the other parts such as the circuit principle, pcb and electrical structure are the same. |
| Trade Mark:           | N/A                                                                                                                                                          |
| Power Supply:         | DC 5V/1A from adapter Battery:DC3.7V 300mA                                                                                                                   |
| Operation Frequency:  | 2402-2479MHz                                                                                                                                                 |
| Number of Channels:   | 78                                                                                                                                                           |
| Modulation Type:      | GFSK                                                                                                                                                         |
| Antenna Type:         | PCB                                                                                                                                                          |
| Antenna Gain:         | 1.58dBi                                                                                                                                                      |
| Hardware Version:     | V1.0                                                                                                                                                         |
| Software Version:     | V1.0                                                                                                                                                         |

Remark:The Antenna Gain is supplied by the customer.POCE is not responsible for this data and the related calculations associated with it.

### 2.3 Description of Test Modes

| No  | Title           | Description                                                                                       |
|-----|-----------------|---------------------------------------------------------------------------------------------------|
| TM1 | Lowest channel  | Keep the EUT works in continuously transmitting mode with GFSK modulation.(Duty cycle $\geq$ 98%) |
| TM2 | Middle channel  | Keep the EUT works in continuously transmitting mode with GFSK modulation.(Duty cycle $\geq$ 98%) |
| TM3 | Highest channel | Keep the EUT works in continuously transmitting mode with GFSK modulation.(Duty cycle $\geq$ 98%) |

#### Operation Frequency each of channel

| Channel | Frequency | Channel | Frequency | Channel | Frequency | Channel | Frequency |
|---------|-----------|---------|-----------|---------|-----------|---------|-----------|
| 1       | 2402MHz   | 21      | 2422MHz   | 41      | 2442MHz   | 61      | 2462MHz   |
| 2       | 2403MHz   | 22      | 2423MHz   | 42      | 2443MHz   | 62      | 2463MHz   |
| 3       | 2404MHz   | 23      | 2424MHz   | 43      | 2444MHz   | 63      | 2464MHz   |
| 4       | 2405MHz   | 24      | 2425MHz   | 44      | 2445MHz   | 64      | 2465MHz   |
| 5       | 2406MHz   | 25      | 2426MHz   | 45      | 2446MHz   | 65      | 2466MHz   |
| 6       | 2407MHz   | 26      | 2427MHz   | 46      | 2447MHz   | 66      | 2467MHz   |
| 7       | 2408MHz   | 27      | 2428MHz   | 47      | 2448MHz   | 67      | 2468MHz   |
| 8       | 2409MHz   | 28      | 2429MHz   | 48      | 2449MHz   | 68      | 2469MHz   |
| 9       | 2410MHz   | 29      | 2430MHz   | 49      | 2450MHz   | 69      | 2470MHz   |
| 10      | 2411MHz   | 30      | 2431MHz   | 50      | 2451MHz   | 70      | 2471MHz   |

|    |         |    |         |    |         |    |         |
|----|---------|----|---------|----|---------|----|---------|
| 11 | 2412MHz | 31 | 2432MHz | 51 | 2452MHz | 71 | 2472MHz |
| 12 | 2413MHz | 32 | 2433MHz | 52 | 2453MHz | 72 | 2473MHz |
| 13 | 2414MHz | 33 | 2434MHz | 53 | 2454MHz | 73 | 2474MHz |
| 14 | 2415MHz | 34 | 2435MHz | 54 | 2455MHz | 74 | 2475MHz |
| 15 | 2416MHz | 35 | 2436MHz | 55 | 2456MHz | 75 | 2476MHz |
| 16 | 2417MHz | 36 | 2437MHz | 56 | 2457MHz | 76 | 2477MHz |
| 17 | 2418MHz | 37 | 2438MHz | 57 | 2458MHz | 77 | 2478MHz |
| 18 | 2419MHz | 38 | 2439MHz | 58 | 2459MHz | 78 | 2479MHz |
| 19 | 2420MHz | 39 | 2440MHz | 59 | 2460MHz |    |         |
| 20 | 2421MHz | 40 | 2441MHz | 60 | 2461MHz |    |         |

Note:

In section 15.31(m), regards to the operating frequency range over 10 MHz, the Lowest frequency, the middle frequency, and the highest frequency of channel were selected to perform the test, and the selected channel see below:

| Test channel    | Frequency (MHz) |
|-----------------|-----------------|
|                 | BDR/EDR         |
| Lowest channel  | 2402MHz         |
| Middle channel  | 2446MHz         |
| Highest channel | 2479MHz         |

## 2.4 Description of Support Units

| Title         | Manufacturer      | Model No.   | Serial No. |
|---------------|-------------------|-------------|------------|
| AC-DC adapter | HUAWEI TECHNOLOGY | HW100400C01 |            |

## 2.5 Equipments Used During The Test

| Conducted Emission at AC power line |                 |                                           |                            |            |              |
|-------------------------------------|-----------------|-------------------------------------------|----------------------------|------------|--------------|
| Equipment                           | Manufacturer    | Model No                                  | Inventory No               | Cal Date   | Cal Due Date |
| loop antenna                        | EVERFINE        | LLA-2                                     | 80900L-C                   | 2023-02-27 | 2024-02-26   |
| Power absorbing clamp               | SCHWARZ BECK    | MESS-ELEKTRONIK                           | /                          | 2023-02-28 | 2024-02-27   |
| Electric Network                    | SCHWARZ BECK    | CAT5 8158                                 | CAT5 8158#207              | /          | /            |
| Cable                               | SCHWARZ BECK    | /                                         | /                          | 2022-12-27 | 2023-12-27   |
| Pulse Limiter                       | SCHWARZ BECK    | VTSD 9561-F Pulse limiter 10dB Ateennator | 561-G071                   | 2023-02-27 | 2024-02-26   |
| 50ΩCoaxial Switch                   | Anritsu         | MP59B                                     | M20531                     | /          | /            |
| Test Receiver                       | Rohde & Schwarz | ESPI TEST RECEIVER                        | ID:1164.6607K 03-102109-MH | 2023-06-13 | 2024-06-12   |
| L.I.S.N                             | R&S             | ESH3-Z5                                   | 831.5518.52                | 2022-12-29 | 2023-12-28   |

| Occupied Bandwidth                  |                                                    |                     |              |            |              |
|-------------------------------------|----------------------------------------------------|---------------------|--------------|------------|--------------|
| Equipment                           | Manufacturer                                       | Model No            | Inventory No | Cal Date   | Cal Due Date |
| RF Test Software                    | TACHOY                                             | RTS-01              | V2.0.0.0     | /          | /            |
| High Pass filter                    | ZHINAN                                             | OQHPF1-M1.5-18G-224 | 6210075      | /          | /            |
| Power divider                       | MIDEWEST                                           | PWD-2533            | SMA-79       | 2023-05-11 | 2026-05-10   |
| DC power                            | HP                                                 | 66311B              | 38444359     | /          | /            |
| RF Sensor Unit                      | Tachoy Information Technology(she nzheng) Co.,Ltd. | TR1029-2            | 000001       | /          | /            |
| Wideband radio communication tester | R&S                                                | CMW500              | 113410       | 2023-06-13 | 2024-06-12   |
| Vector signal generator             | Keysight                                           | N5181A              | MY48180415   | 2022-12-10 | 2023-12-09   |
| Signal generator                    | Keysight                                           | N5182A              | MY50143455   | 2022-12-29 | 2023-12-28   |
| Spectrum Analyzer                   | Keysight                                           | N9020A              | MY53420323   | 2022-12-29 | 2023-12-28   |

**Field strength of fundamental  
Band edge emissions (Radiated)  
Emissions in frequency bands (below 1GHz)  
Emissions in frequency bands (above 1GHz)**

| Equipment                           | Manufacturer   | Model No            | Inventory No           | Cal Date   | Cal Due Date |
|-------------------------------------|----------------|---------------------|------------------------|------------|--------------|
| EMI Test software                   | Farad          | EZ -EMC             | V1.1.42                | /          | /            |
| Positioning Controller              | /              | MF-7802             | /                      | /          | /            |
| High Pass filter                    | ZHINAN         | OQHPF1-M1.5-18G-224 | 6210075                | /          | /            |
| Amplifier(18-40G)                   | COM-POWER      | AH-1840             | 10100008-1             | 2022-04-05 | 2025-04-04   |
| Horn antenna                        | COM-POWER      | AH-1840 (18-40G)    | 10100008               | 2023-04-05 | 2025-04-04   |
| Loop antenna                        | ZHINAN         | ZN30900C            | ZN30900C               | 2021-07-05 | 2024-07-04   |
| Cable(LF)#2                         | Schwarzbeck    | /                   | /                      | 2023-02-27 | 2024-02-26   |
| Cable(LF)#1                         | Schwarzbeck    | /                   | /                      | 2023-02-27 | 2024-02-26   |
| Cable(HF)#2                         | Schwarzbeck    | AK9515E             | 96250                  | 2023-02-28 | 2024-02-27   |
| Cable(HF)#1                         | Schwarzbeck    | SYV-50-3-1          | /                      | 2023-02-27 | 2024-02-26   |
| Power amplifier(LF)                 | Schwarzbeck    | BBV9743             | 9743-151               | 2023-06-13 | 2024-06-12   |
| Power amplifier(HF)                 | Schwarzbeck    | BBV9718             | 9718-282               | 2023-06-13 | 2024-06-12   |
| Wideband radio communication tester | R&S            | CMW500              | 113410                 | 2023-06-13 | 2024-06-12   |
| Spectrum Analyzer                   | R&S            | FSP30               | 1321.3008K40-101729-jR | 2023-06-14 | 2024-06-13   |
| Horn Antenna                        | Sunol Sciences | DRH-118             | A091114                | 2023-05-13 | 2025-05-12   |
| Broadband Antenna                   | Sunol Sciences | JB6 Antenna         | A090414                | 2023-05-21 | 2025-05-20   |
| Test Receiver                       | R&S            | ESCI                | 102109                 | 2023-06-13 | 2024-06-12   |

## 2.6 Statement Of The Measurement Uncertainty

| Test Item                                                                                                                                            | Measurement Uncertainty |
|------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------|
| Conducted Disturbance (0.15~30MHz)                                                                                                                   | $\pm 3.41\text{dB}$     |
| Occupied Bandwidth                                                                                                                                   | $\pm 3.63\%$            |
| RF conducted power                                                                                                                                   | $\pm 0.733\text{dB}$    |
| RF power density                                                                                                                                     | $\pm 0.234\%$           |
| Conducted Spurious emissions                                                                                                                         | $\pm 1.98\text{dB}$     |
| Radiated Emission (Above 1GHz)                                                                                                                       | $\pm 5.46\text{dB}$     |
| Radiated Emission (Below 1GHz)                                                                                                                       | $\pm 5.79\text{dB}$     |
| Note: (1) This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of $k=2$ . |                         |

## 2.7 Identification of Testing Laboratory

|               |                                                                                                                                        |
|---------------|----------------------------------------------------------------------------------------------------------------------------------------|
| Company Name: | Shenzhen POCE Technology Co., Ltd.                                                                                                     |
| Address:      | 101-102 Building H5 & 1/F., Building H, Hongfa Science & Technology Park, Tangtou, Shiyao, Bao'an District, Shenzhen, Guangdong, China |
| Phone Number: | +86-13267178997                                                                                                                        |
| Fax Number:   | 86-755-29113252                                                                                                                        |

### Identification of the Responsible Testing Location

|                                |                                                                                                                                        |
|--------------------------------|----------------------------------------------------------------------------------------------------------------------------------------|
| Company Name:                  | Shenzhen POCE Technology Co., Ltd.                                                                                                     |
| Address:                       | 101-102 Building H5 & 1/F., Building H, Hongfa Science & Technology Park, Tangtou, Shiyao, Bao'an District, Shenzhen, Guangdong, China |
| Phone Number:                  | +86-13267178997                                                                                                                        |
| Fax Number:                    | 86-755-29113252                                                                                                                        |
| FCC Registration Number:       | 0032847402                                                                                                                             |
| Designation Number:            | CN1342                                                                                                                                 |
| Test Firm Registration Number: | 778666                                                                                                                                 |
| A2LA Certificate Number:       | 6270.01                                                                                                                                |

## 2.8 Announcement

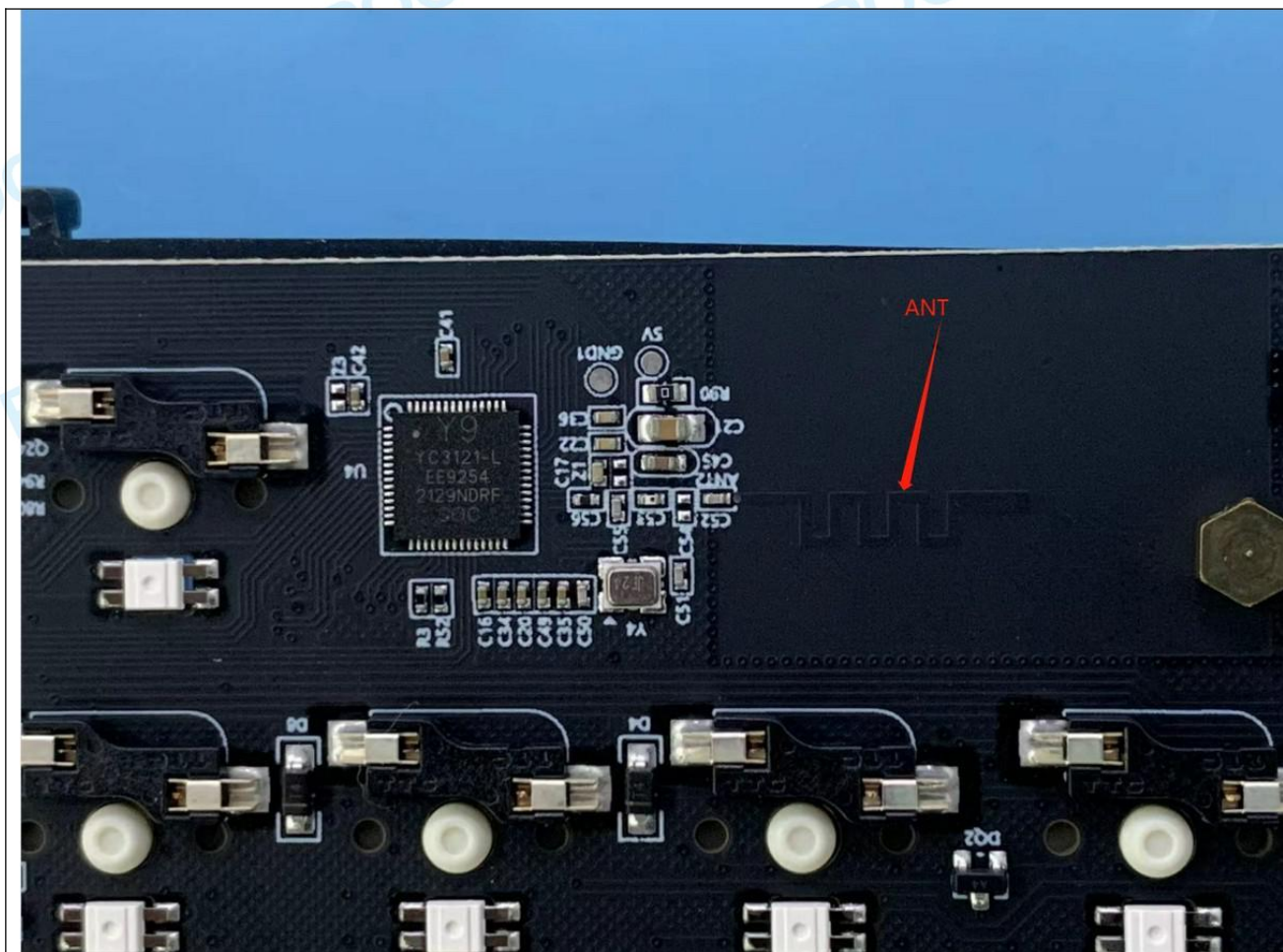
- (1) The test report reference to the report template version v0.
- (2) The test report is invalid if not marked with the signatures of the persons responsible for preparing, reviewing and approving the test report.
- (3) The test report is invalid if there is any evidence and/or falsification.
- (4) This document may not be altered or revised in any way unless done so by POCE and all revisions are duly noted in the revisions section.
- (5) Content of the test report, in part or in full, cannot be used for publicity and/or promotional purposes without prior written approval from the laboratory.
- (6) The laboratory is only responsible for the data released by the laboratory, except for the part provided by the applicant.

### 3 Evaluation Results (Evaluation)

#### 3.1 Antenna requirement

|                   |                                                                                                                                                                                                                                                                                                                                                                                     |
|-------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Test Requirement: | Refer to 47 CFR Part 15.203, an intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the provisions of this section. |
|-------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

##### 3.1.1 Conclusion:



#### 4 Radio Spectrum Matter Test Results (RF)

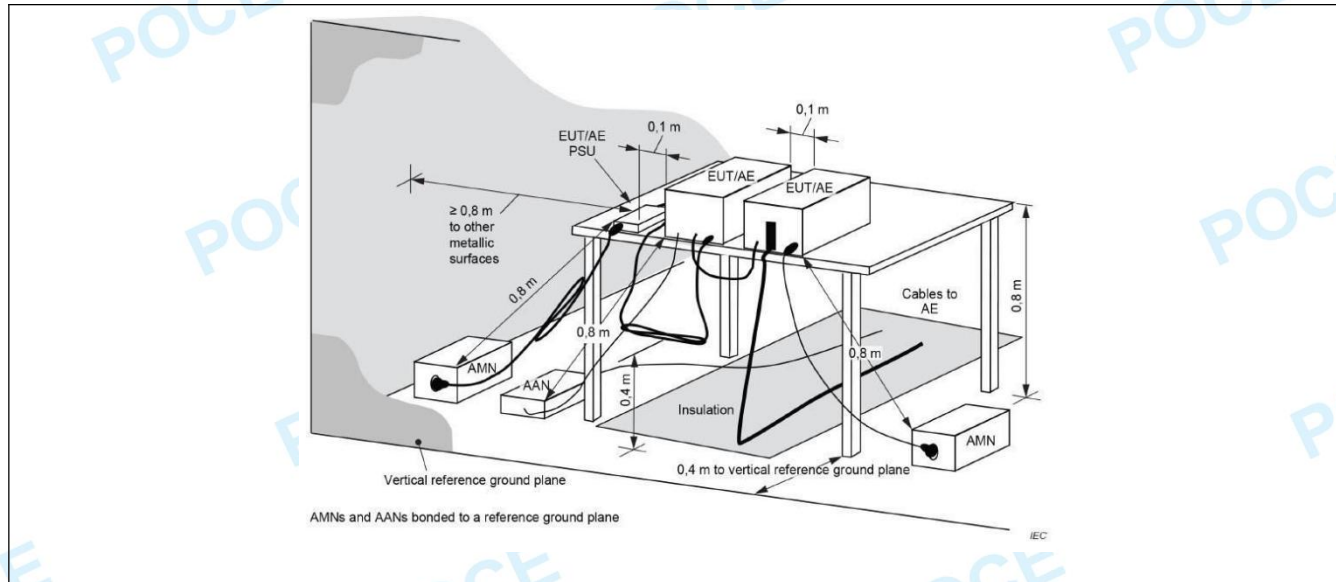
#### 4.1 Conducted Emission at AC power line

|                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                              |           |
|-------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------|-----------|
| Test Requirement: | Except as shown in paragraphs (b) and (c) of this section, for an intentional radiator that is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies, within the band 150 kHz to 30 MHz, shall not exceed the limits in the following table, as measured using a 50 $\mu$ H/50 ohms line impedance stabilization network (LISN). |                              |           |
| Test Limit:       | Frequency of emission (MHz)                                                                                                                                                                                                                                                                                                                                                                                                                          | Conducted limit (dB $\mu$ V) |           |
|                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                      | Quasi-peak                   | Average   |
|                   | 0.15-0.5                                                                                                                                                                                                                                                                                                                                                                                                                                             | 66 to 56*                    | 56 to 46* |
|                   | 0.5-5                                                                                                                                                                                                                                                                                                                                                                                                                                                | 56                           | 46        |
|                   | 5-30                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 60                           | 50        |
|                   | *Decreases with the logarithm of the frequency.                                                                                                                                                                                                                                                                                                                                                                                                      |                              |           |
| Test Method:      | ANSI C63.10-2013 section 6.2                                                                                                                                                                                                                                                                                                                                                                                                                         |                              |           |
| Procedure:        | Refer to ANSI C63.10-2013 section 6.2, standard test method for ac power-line conducted emissions from unlicensed wireless devices                                                                                                                                                                                                                                                                                                                   |                              |           |

#### 4.1.1 E.U.T. Operation:

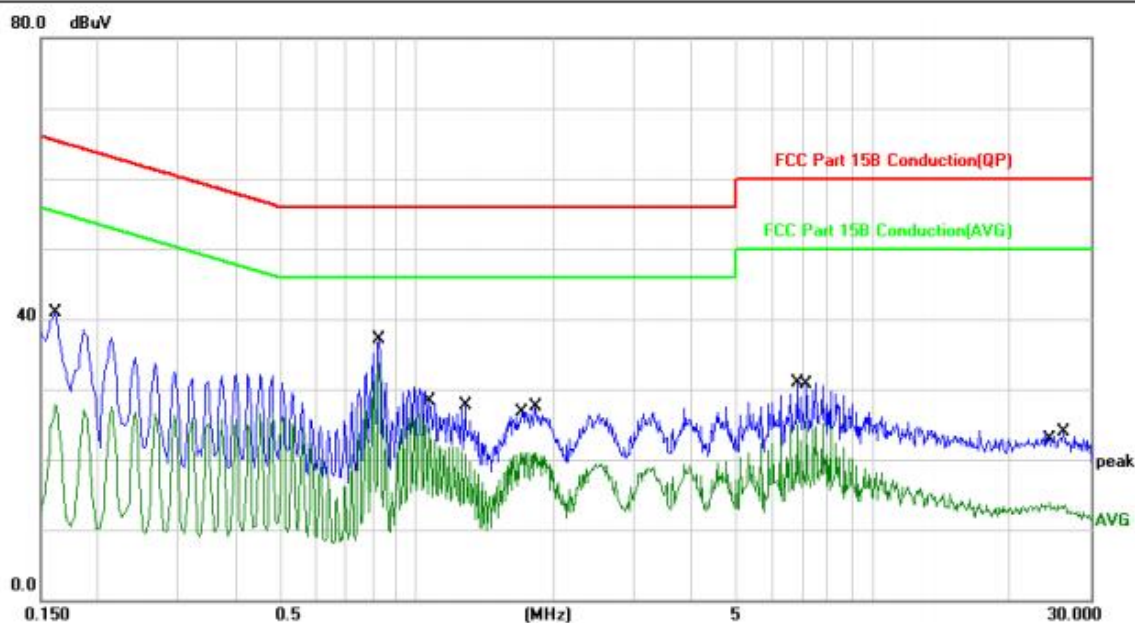
|                        |       |           |      |                       |         |
|------------------------|-------|-----------|------|-----------------------|---------|
| Operating Environment: |       |           |      |                       |         |
| Temperature:           | 23 °C | Humidity: | 48 % | Atmospheric Pressure: | 102 kPa |
| Pre test mode:         | TM1   |           |      |                       |         |
| Final test mode:       | TM1   |           |      |                       |         |

#### 4.1.2 Test Setup Diagram:



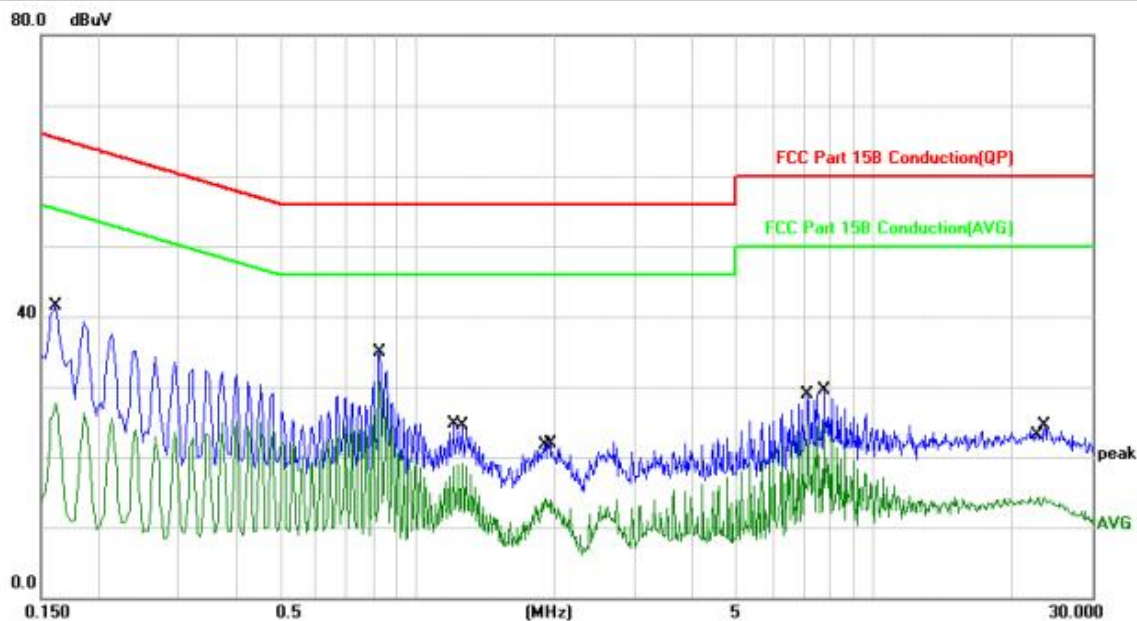
### 4.1.3 Test Data:

TM1 / Line: Line / Band: 2.4G / BW: 1 / CH: L



| No. | Mk. | Freq.<br>MHz | Reading<br>Level<br>dBuV | Correct<br>Factor<br>dB | Measure-<br>ment<br>dBuV | Limit<br>dBuV | Over<br>dB | Detector | Comment |
|-----|-----|--------------|--------------------------|-------------------------|--------------------------|---------------|------------|----------|---------|
| 1   |     | 0.1620       | 30.90                    | 10.03                   | 40.93                    | 65.36         | -24.43     | QP       |         |
| 2   |     | 0.1620       | 17.86                    | 10.03                   | 27.89                    | 55.36         | -27.47     | AVG      |         |
| 3   |     | 0.8300       | 26.80                    | 10.21                   | 37.01                    | 56.00         | -18.99     | QP       |         |
| 4   | *   | 0.8300       | 23.56                    | 10.21                   | 33.77                    | 46.00         | -12.23     | AVG      |         |
| 5   |     | 1.0700       | 14.38                    | 10.03                   | 24.41                    | 46.00         | -21.59     | AVG      |         |
| 6   |     | 1.2820       | 17.86                    | 9.92                    | 27.78                    | 56.00         | -28.22     | QP       |         |
| 7   |     | 1.6860       | 11.00                    | 9.95                    | 20.95                    | 46.00         | -25.05     | AVG      |         |
| 8   |     | 1.8220       | 17.50                    | 9.95                    | 27.45                    | 56.00         | -28.55     | QP       |         |
| 9   |     | 6.8220       | 20.60                    | 10.25                   | 30.85                    | 60.00         | -29.15     | QP       |         |
| 10  |     | 7.1660       | 15.55                    | 10.26                   | 25.81                    | 50.00         | -24.19     | AVG      |         |
| 11  |     | 24.4140      | 3.30                     | 10.56                   | 13.86                    | 50.00         | -36.14     | AVG      |         |
| 12  |     | 26.2260      | 13.22                    | 10.61                   | 23.83                    | 60.00         | -36.17     | QP       |         |

TM1 / Line: Neutral / Band: 2.4G / BW: 1 / CH: L



| No. | Mk. | Freq.<br>MHz | Reading<br>Level<br>dBuV | Correct<br>Factor<br>dB | Measure-<br>ment<br>dBuV | Limit<br>dBuV | Over<br>dB | Detector | Comment |
|-----|-----|--------------|--------------------------|-------------------------|--------------------------|---------------|------------|----------|---------|
| 1   |     | 0.1620       | 31.56                    | 10.03                   | 41.59                    | 65.36         | -23.77     | QP       |         |
| 2   |     | 0.1620       | 17.76                    | 10.03                   | 27.79                    | 55.36         | -27.57     | AVG      |         |
| 3   |     | 0.8300       | 24.79                    | 10.21                   | 35.00                    | 56.00         | -21.00     | QP       |         |
| 4   | *   | 0.8300       | 20.45                    | 10.21                   | 30.66                    | 46.00         | -15.34     | AVG      |         |
| 5   |     | 1.2020       | 14.73                    | 9.92                    | 24.65                    | 56.00         | -31.35     | QP       |         |
| 6   |     | 1.2579       | 9.19                     | 9.92                    | 19.11                    | 46.00         | -26.89     | AVG      |         |
| 7   |     | 1.8980       | 4.12                     | 9.96                    | 14.08                    | 46.00         | -31.92     | AVG      |         |
| 8   |     | 1.9500       | 11.96                    | 9.96                    | 21.92                    | 56.00         | -34.08     | QP       |         |
| 9   |     | 7.1700       | 14.84                    | 10.26                   | 25.10                    | 50.00         | -24.90     | AVG      |         |
| 10  |     | 7.7380       | 19.18                    | 10.29                   | 29.47                    | 60.00         | -30.53     | QP       |         |
| 11  |     | 22.8700      | 3.77                     | 10.56                   | 14.33                    | 50.00         | -35.67     | AVG      |         |
| 12  |     | 23.6220      | 14.02                    | 10.56                   | 24.58                    | 60.00         | -35.42     | QP       |         |

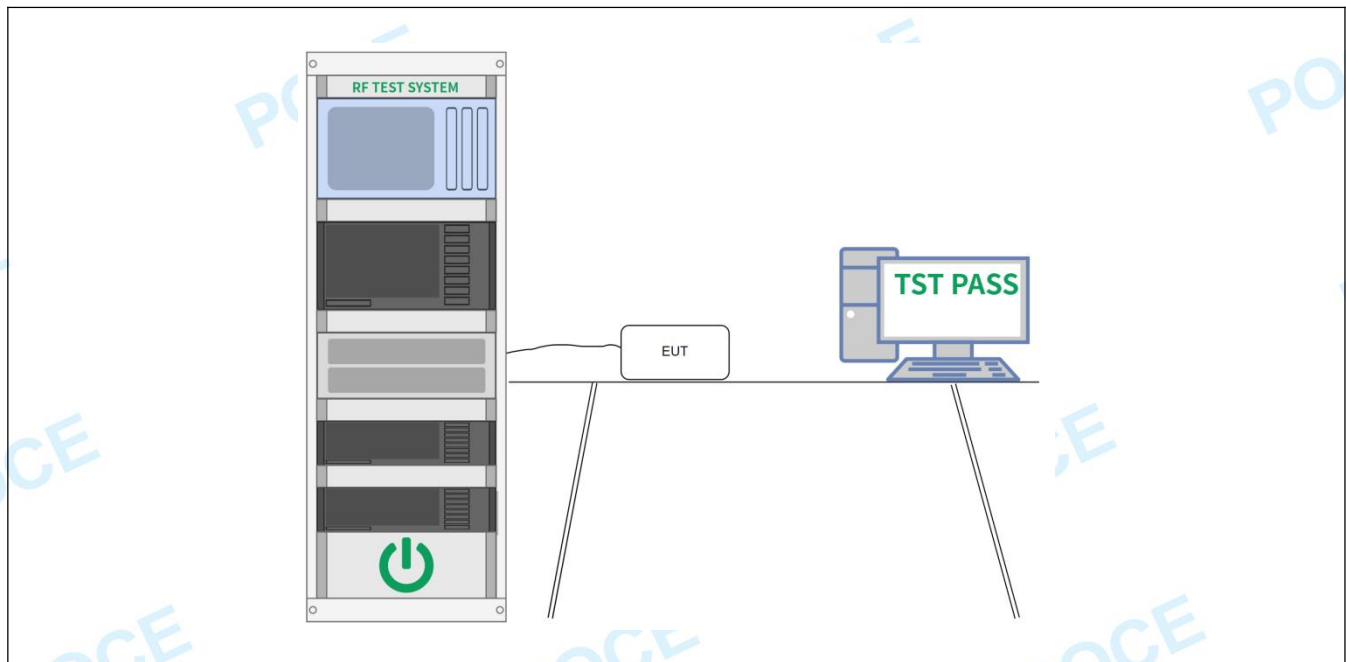
## 4.2 Occupied Bandwidth

|                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
|-------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Test Requirement: | 47 CFR 15.215(c)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| Test Limit:       | Refer to 47 CFR 15.215(c), intentional radiators operating under the alternative provisions to the general emission limits, as contained in §§ 15.217 through 15.257 and in subpart E of this part, must be designed to ensure that the 20 dB bandwidth of the emission, or whatever bandwidth may otherwise be specified in the specific rule section under which the equipment operates, is contained within the frequency band designated in the rule section under which the equipment is operated.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| Test Method:      | ANSI C63.10-2013, section 6.9.2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| Procedure:        | <p>a) The spectrum analyzer center frequency is set to the nominal EUT channel center frequency. The span range for the EMI receiver or spectrum analyzer shall be between two times and five times the OBW.</p> <p>b) The nominal IF filter bandwidth (3 dB RBW) shall be in the range of 1% to 5% of the OBW and video bandwidth (VBW) shall be approximately three times RBW, unless otherwise specified by the applicable requirement.</p> <p>c) Set the reference level of the instrument as required, keeping the signal from exceeding the maximum input mixer level for linear operation. In general, the peak of the spectral envelope shall be more than <math>[10 \log (OBW/RBW)]</math> below the reference level. Specific guidance is given in 4.1.5.2.</p> <p>d) Steps a) through c) might require iteration to adjust within the specified tolerances.</p> <p>e) The dynamic range of the instrument at the selected RBW shall be more than 10 dB below the target “-xx dB down” requirement; that is, if the requirement calls for measuring the -20 dB OBW, the instrument noise floor at the selected RBW shall be at least 30 dB below the reference value.</p> <p>f) Set detection mode to peak and trace mode to max hold.</p> <p>g) Determine the reference value: Set the EUT to transmit an unmodulated carrier or modulated signal, as applicable. Allow the trace to stabilize. Set the spectrum analyzer marker to the highest level of the displayed trace (this is the reference value).</p> <p>h) Determine the “-xx dB down amplitude” using <math>[(\text{reference value}) - \text{xx}]</math>. Alternatively, this calculation may be made by using the marker-delta function of the instrument.</p> <p>i) If the reference value is determined by an unmodulated carrier, then turn the EUT modulation ON, and either clear the existing trace or start a new trace on the spectrum analyzer and allow the new trace to stabilize. Otherwise, the trace from step g) shall be used for step j).</p> <p>j) Place two markers, one at the lowest frequency and the other at the highest frequency of the envelope of the spectral display, such that each marker is at or slightly below the “-xx dB down amplitude” determined in step h). If a marker is below this “-xx dB down amplitude” value, then it shall be as close as possible to this value. The occupied bandwidth is the frequency difference between the two markers. Alternatively, set a marker at the lowest frequency of the envelope of the spectral display, such that the marker is at or slightly below the “-xx dB down amplitude” determined in step h). Reset the marker-delta function and move the marker to the other side of the emission until the delta marker amplitude is at the same level as the reference marker amplitude. The marker-delta frequency reading at this point is the specified emission bandwidth.</p> <p>k) The occupied bandwidth shall be reported by providing plot(s) of the measuring instrument display; the plot axes and the scale units per division shall be clearly labeled. Tabular data may be reported in addition to the plot(s).</p> |

### 4.2.1 E.U.T. Operation:

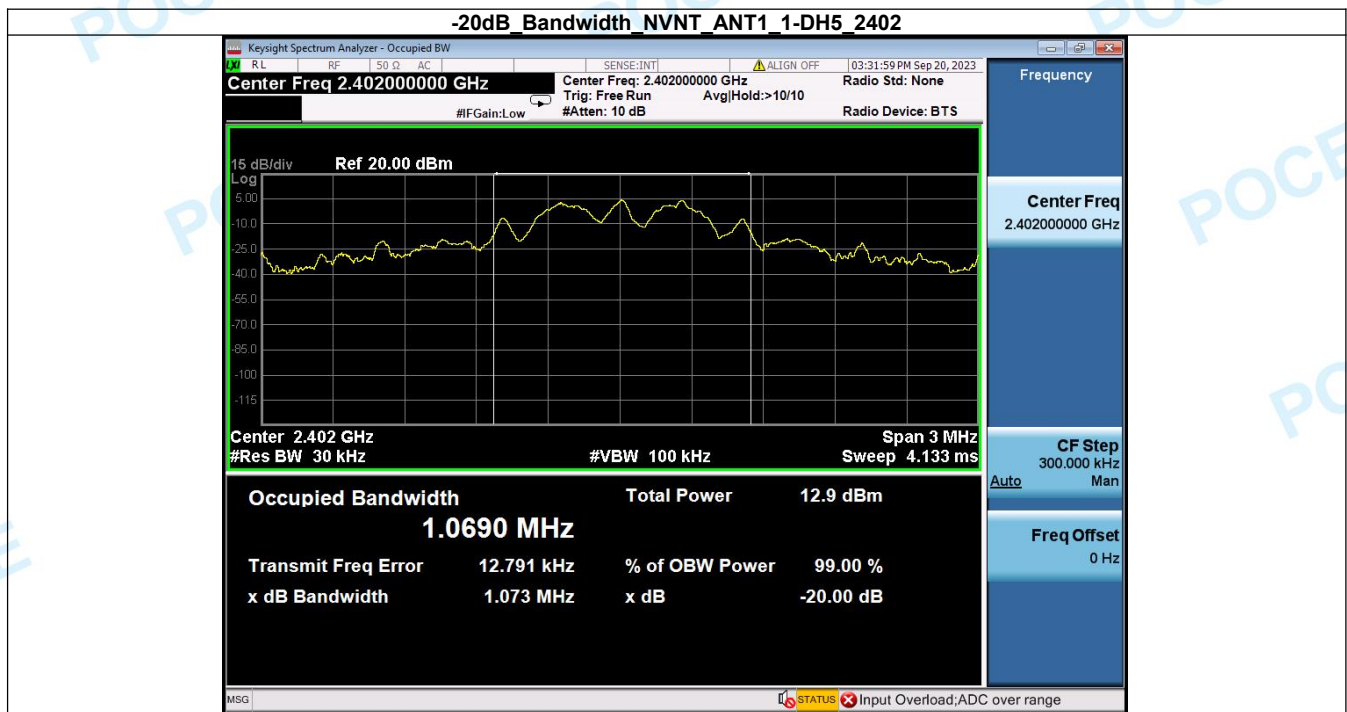
|                        |               |           |      |                       |         |
|------------------------|---------------|-----------|------|-----------------------|---------|
| Operating Environment: |               |           |      |                       |         |
| Temperature:           | 23 °C         | Humidity: | 48 % | Atmospheric Pressure: | 102 kPa |
| Pre test mode:         | TM1, TM2, TM3 |           |      |                       |         |
| Final test mode:       | TM1, TM2, TM3 |           |      |                       |         |

#### 4.2.2 Test Setup Diagram:

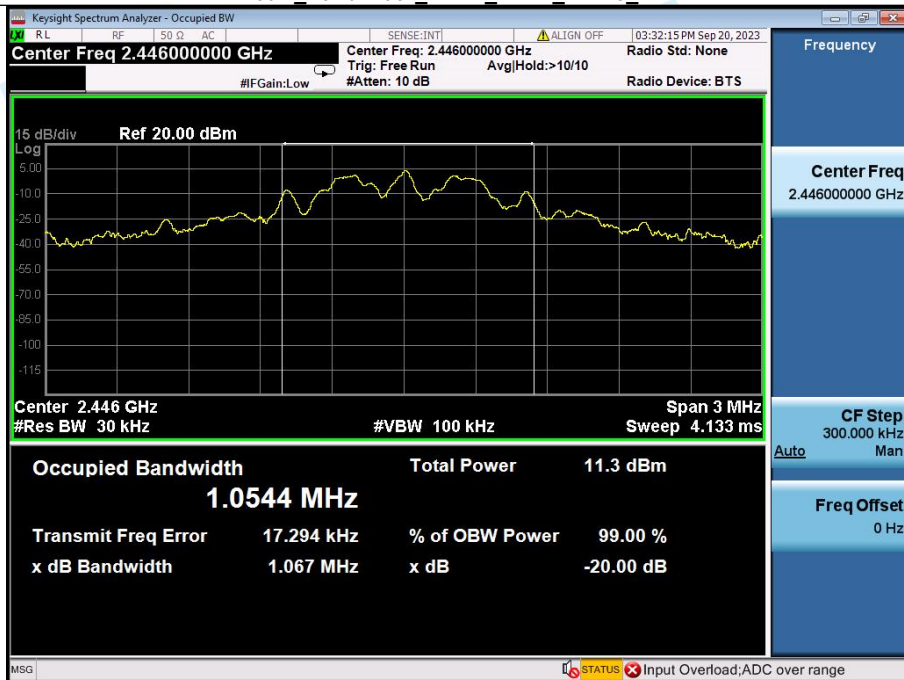


#### 4.2.3 Test Data:

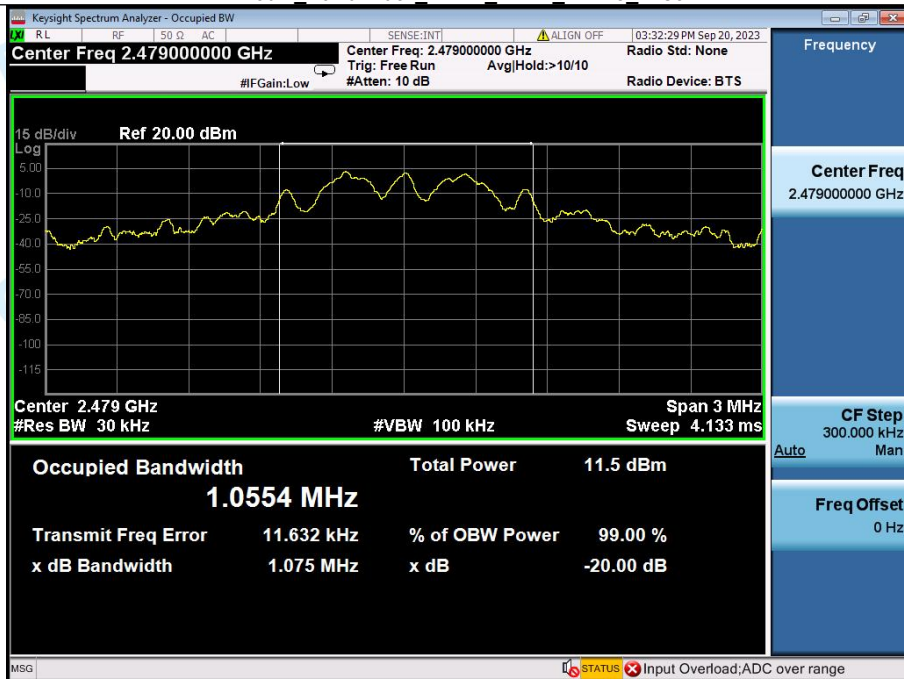
| Condition | Antenna | Modulation | Frequency (MHz) | -20dB BW(MHz) | if larger than CFS |
|-----------|---------|------------|-----------------|---------------|--------------------|
| NVNT      | ANT1    | 1-DH5      | 2402            | 1.073         | No                 |
| NVNT      | ANT1    | 1-DH5      | 2446            | 1.067         | No                 |
| NVNT      | ANT1    | 1-DH5      | 2479            | 1.075         | No                 |



### -20dB\_Bandwidth\_NVNT\_ANT1\_1-DH5\_2441



### -20dB\_Bandwidth\_NVNT\_ANT1\_1-DH5\_2480



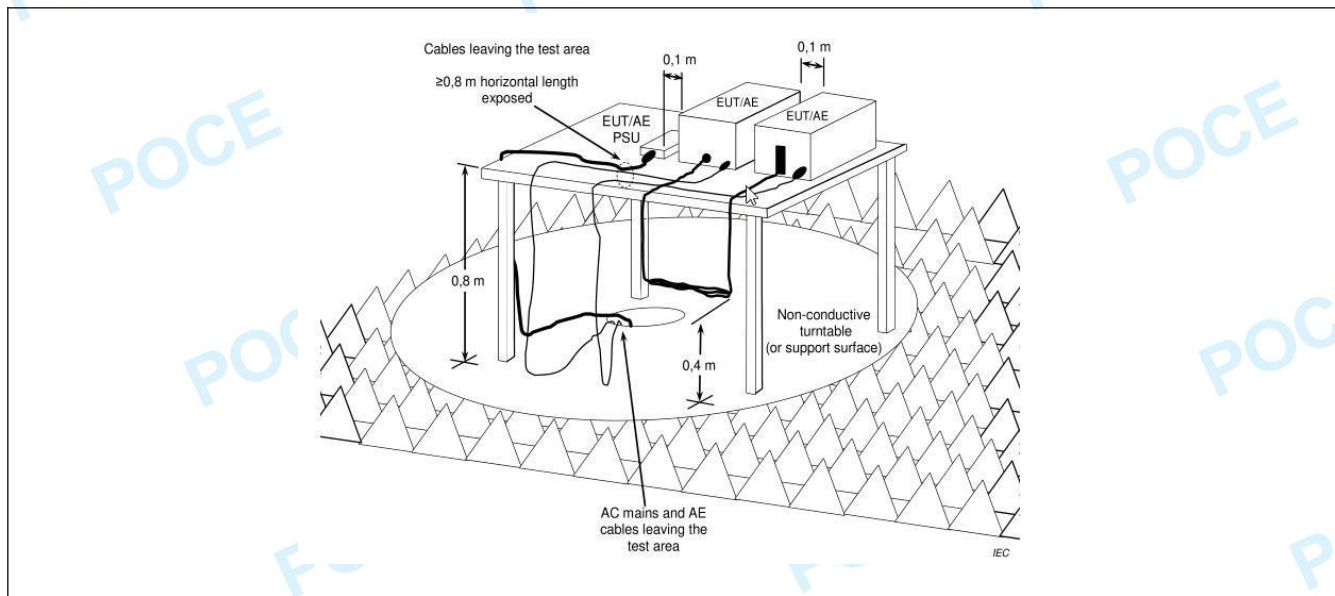
### 4.3 Field strength of fundamental

|                   |                                                                                                                                                                                        |                                                  |                                                |
|-------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------|------------------------------------------------|
| Test Requirement: | Except as provided in paragraph (b) of this section, the field strength of emissions from intentional radiators operated within these frequency bands shall comply with the following: |                                                  |                                                |
|                   | Fundamental frequency                                                                                                                                                                  | Field strength of fundamental (millivolts/meter) | Field strength of harmonics (microvolts/meter) |
|                   | 902-928 MHz                                                                                                                                                                            | 50                                               | 500                                            |
|                   | 2400-2483.5 MHz                                                                                                                                                                        | 50                                               | 500                                            |
|                   | 5725-5875 MHz                                                                                                                                                                          | 50                                               | 500                                            |
|                   | 24.0-24.25 GHz                                                                                                                                                                         | 250                                              | 2500                                           |
|                   | The field strength of emissions in this band shall not exceed 2500 millivolts/meter.                                                                                                   |                                                  |                                                |
| Test Method:      | ANSI C63.10-2013 section 6.6                                                                                                                                                           |                                                  |                                                |
| Procedure:        | ANSI C63.10-2013 section 6.6                                                                                                                                                           |                                                  |                                                |

#### 4.3.1 E.U.T. Operation:

|                        |               |           |      |                       |         |
|------------------------|---------------|-----------|------|-----------------------|---------|
| Operating Environment: |               |           |      |                       |         |
| Temperature:           | 23 °C         | Humidity: | 48 % | Atmospheric Pressure: | 102 kPa |
| Pre test mode:         | TM1, TM2, TM3 |           |      |                       |         |
| Final test mode:       | TM1, TM2, TM3 |           |      |                       |         |

#### 4.3.2 Test Setup Diagram:



#### 4.3.3 Test Data:

| Frequency (MHz) | Emission (dBuV/m) | PK/AV | Ant. Pol. | Limits PK/AV (dBuV/m) | Margin (dB) |
|-----------------|-------------------|-------|-----------|-----------------------|-------------|
| 2402            | 79.73             | Peak  | H         | 114                   | -34.27      |
| 2402            | 76.20             | AV    | H         | 94                    | -17.8       |
| 2402            | 75.16             | Peak  | V         | 114                   | -38.84      |
| 2402            | 71.93             | AV    | V         | 94                    | -22.07      |
| 2446            | 73.41             | Peak  | H         | 114                   | -40.59      |
| 2446            | 71.48             | AV    | H         | 94                    | -38.02      |
| 2446            | 75.98             | Peak  | V         | 114                   | -27.13      |
| 2446            | 72.46             | AV    | V         | 94                    | -10.95      |
| 2479            | 86.87             | Peak  | H         | 114                   | -33.02      |
| 2479            | 83.05             | AV    | H         | 94                    | -14.83      |
| 2479            | 80.98             | Peak  | V         | 114                   | -26.55      |
| 2479            | 79.17             | AV    | V         | 94                    | -19.44      |

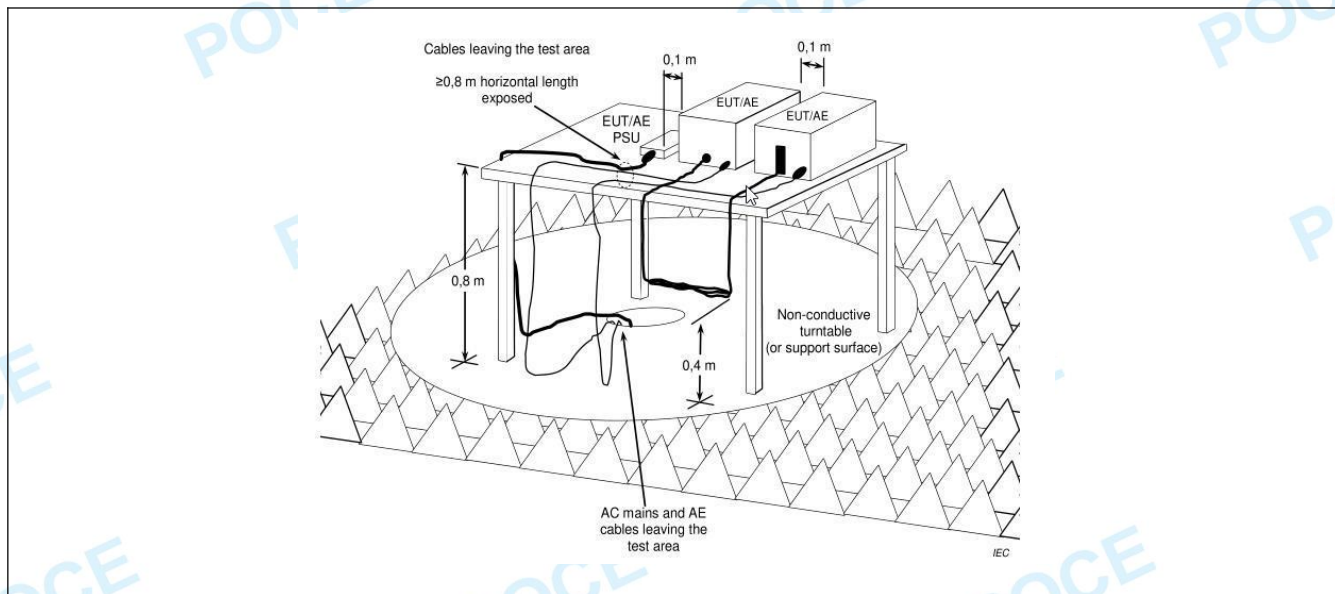
#### 4.4 Band edge emissions (Radiated)

|                   |                                                                                                                                                                                                                                                                                                                                                 |                                   |                               |
|-------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------|-------------------------------|
| Test Requirement: | Emissions radiated outside of the specified frequency bands, except for harmonics, shall be attenuated by at least 50 dB below the level of the fundamental or to the general radiated emission limits in § 15.209, whichever is the lesser attenuation.                                                                                        |                                   |                               |
| Test Limit:       | Emissions radiated outside of the specified frequency bands, except for harmonics, shall be attenuated by at least 50 dB below the level of the fundamental or to the general radiated emission limits in § 15.209, whichever is the lesser attenuation.                                                                                        |                                   |                               |
|                   | Frequency (MHz)                                                                                                                                                                                                                                                                                                                                 | Field strength (microvolts/meter) | Measurement distance (meters) |
|                   | 0.009-0.490                                                                                                                                                                                                                                                                                                                                     | 2400/F(kHz)                       | 300                           |
|                   | 0.490-1.705                                                                                                                                                                                                                                                                                                                                     | 24000/F(kHz)                      | 30                            |
|                   | 1.705-30.0                                                                                                                                                                                                                                                                                                                                      | 30                                | 30                            |
|                   | 30-88                                                                                                                                                                                                                                                                                                                                           | 100 **                            | 3                             |
|                   | 88-216                                                                                                                                                                                                                                                                                                                                          | 150 **                            | 3                             |
|                   | 216-960                                                                                                                                                                                                                                                                                                                                         | 200 **                            | 3                             |
|                   | Above 960                                                                                                                                                                                                                                                                                                                                       | 500                               | 3                             |
|                   | ** Except as provided in paragraph (g), fundamental emissions from intentional radiators operating under this section shall not be located in the frequency bands 54-72 MHz, 76-88 MHz, 174-216 MHz or 470-806 MHz. However, operation within these frequency bands is permitted under other sections of this part, e.g., §§ 15.231 and 15.241. |                                   |                               |
| Test Method:      | ANSI C63.10-2013 section 6.6.4                                                                                                                                                                                                                                                                                                                  |                                   |                               |
| Procedure:        | ANSI C63.10-2013 section 6.6.4                                                                                                                                                                                                                                                                                                                  |                                   |                               |

##### 4.4.1 E.U.T. Operation:

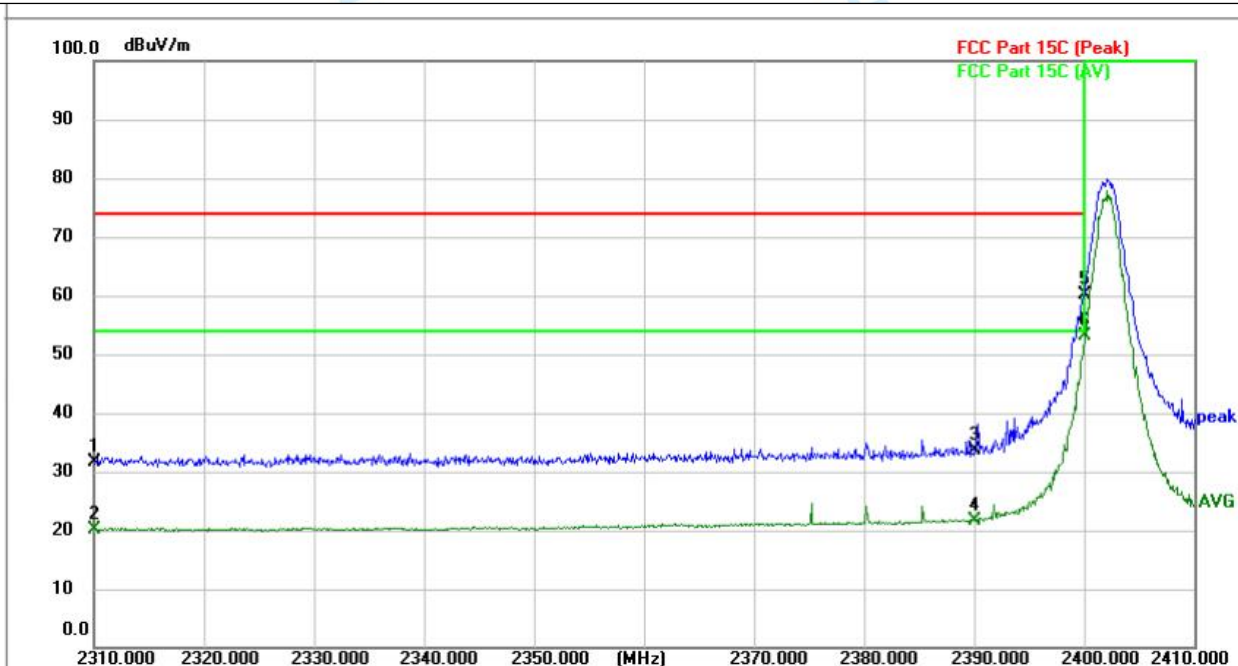
|                        |          |           |      |                       |         |
|------------------------|----------|-----------|------|-----------------------|---------|
| Operating Environment: |          |           |      |                       |         |
| Temperature:           | 23 °C    | Humidity: | 48 % | Atmospheric Pressure: | 102 kPa |
| Pre test mode:         | TM1, TM3 |           |      |                       |         |
| Final test mode:       | TM1, TM3 |           |      |                       |         |

##### 4.4.2 Test Setup Diagram:



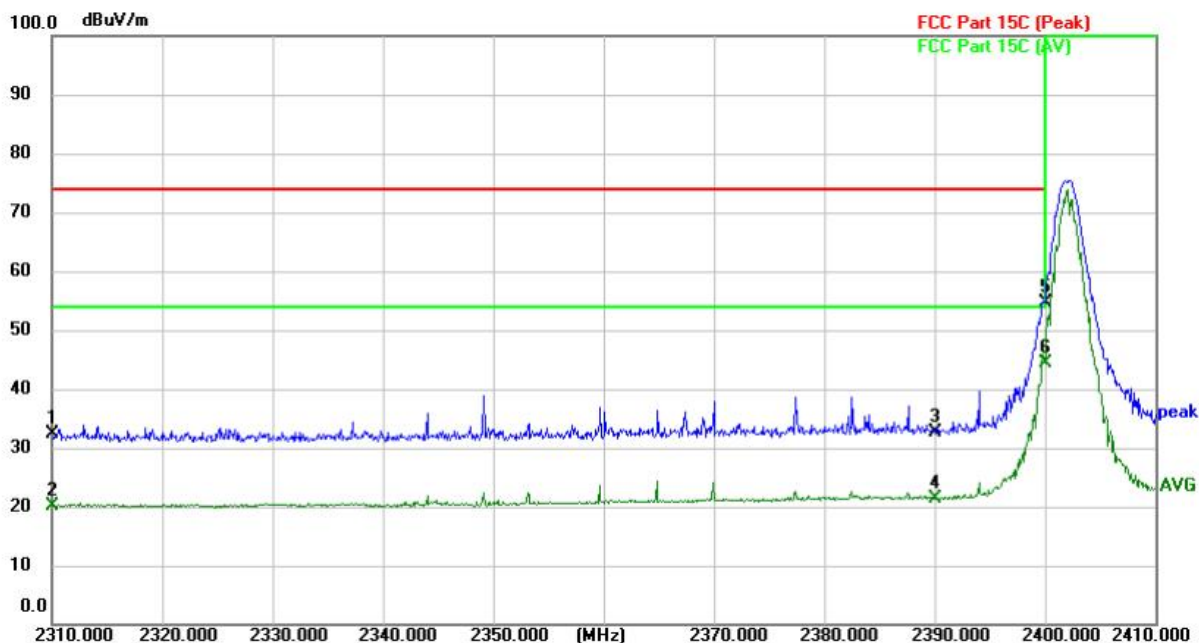
#### 4.4.3 Test Data:

TM1 / Polarization: Horizontal / Band: 2.4G / BW: 1 / CH: L



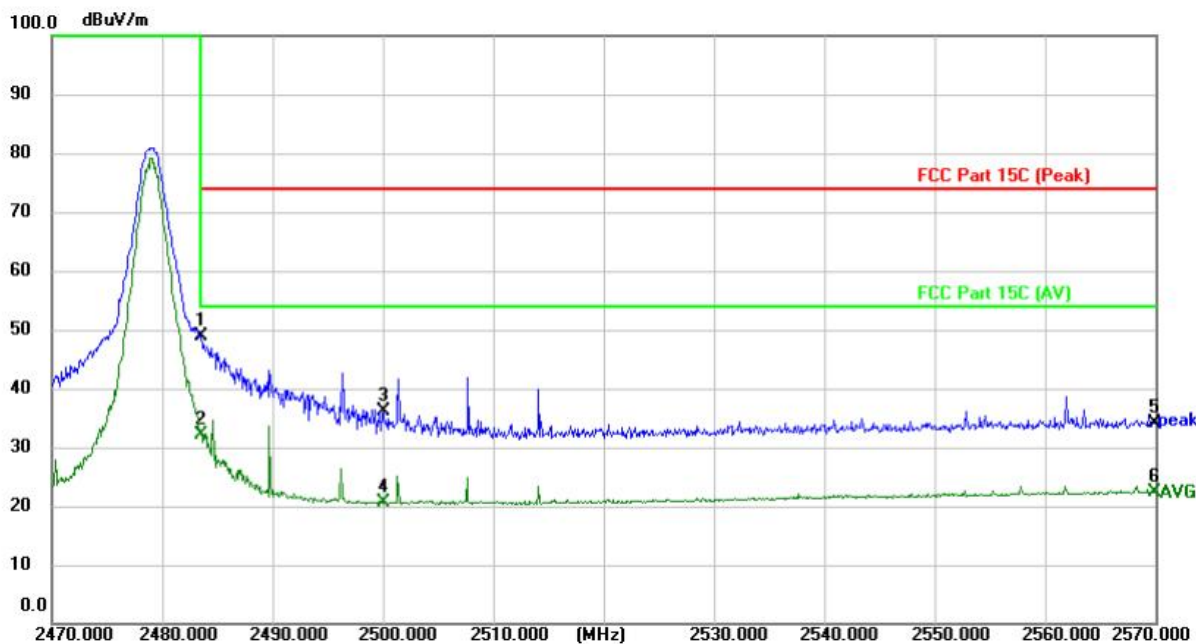
| No. | Frequency (MHz) | Reading (dBuV) | Factor (dB/m) | Level (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Detector | Height (cm) | Azimuth (deg.) | P/F | Remark |
|-----|-----------------|----------------|---------------|----------------|----------------|-------------|----------|-------------|----------------|-----|--------|
| 1   | 2310.000        | 38.57          | -6.93         | 31.64          | 74.00          | -42.36      | peak     |             |                | P   |        |
| 2   | 2310.000        | 27.14          | -6.93         | 20.21          | 54.00          | -33.79      | AVG      |             |                | P   |        |
| 3   | 2390.000        | 40.39          | -6.72         | 33.67          | 74.00          | -40.33      | peak     |             |                | P   |        |
| 4   | 2390.000        | 28.43          | -6.72         | 21.71          | 54.00          | -32.29      | AVG      |             |                | P   |        |
| 5   | 2400.000        | 66.82          | -6.69         | 60.13          | 74.00          | -13.87      | peak     |             |                | P   |        |
| 6 * | 2400.000        | 59.77          | -6.69         | 53.08          | 54.00          | -0.92       | AVG      |             |                | P   |        |

TM1 / Polarization: Vertical / Band: 2.4G / BW: 1 / CH: L



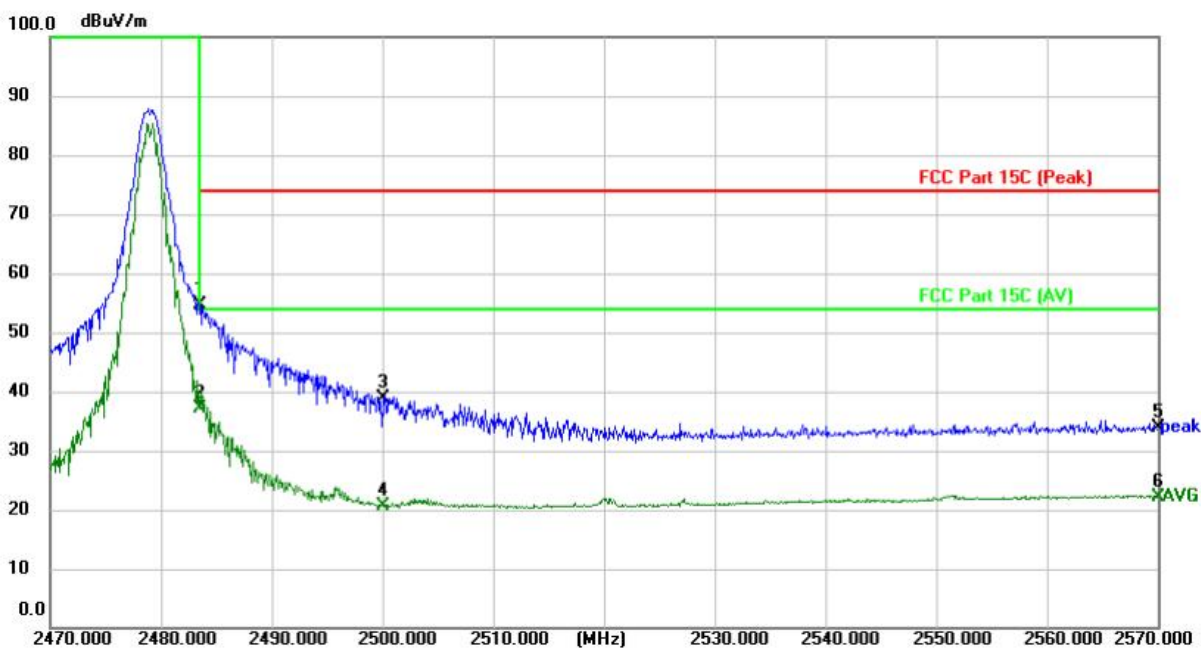
| No. | Frequency (MHz) | Reading (dBuV) | Factor (dB/m) | Level (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Detector | Height (cm) | Azimuth (deg.) | P/F | Remark |
|-----|-----------------|----------------|---------------|----------------|----------------|-------------|----------|-------------|----------------|-----|--------|
| 1   | 2310.000        | 40.49          | -8.23         | 32.26          | 74.00          | -41.74      | peak     |             |                | P   |        |
| 2   | 2310.000        | 28.47          | -8.23         | 20.24          | 54.00          | -33.76      | AVG      |             |                | P   |        |
| 3   | 2390.000        | 40.58          | -7.91         | 32.67          | 74.00          | -41.33      | peak     |             |                | P   |        |
| 4   | 2390.000        | 29.39          | -7.91         | 21.48          | 54.00          | -32.52      | AVG      |             |                | P   |        |
| 5   | 2400.000        | 62.61          | -7.87         | 54.74          | 74.00          | -19.26      | peak     |             |                | P   |        |
| 6 * | 2400.000        | 52.21          | -7.87         | 44.34          | 54.00          | -9.66       | AVG      |             |                | P   |        |

TM3 / Polarization: Horizontal / Band: 2.4G / BW: 1 / CH: H



| No. | Frequency (MHz) | Reading (dBuV) | Factor (dB/m) | Level (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Detector | Height (cm) | Azimuth (deg.) | P/F | Remark |
|-----|-----------------|----------------|---------------|----------------|----------------|-------------|----------|-------------|----------------|-----|--------|
| 1   | 2483.500        | 56.36          | -7.54         | 48.82          | 74.00          | -25.18      | peak     |             |                | P   |        |
| 2 * | 2483.500        | 39.71          | -7.54         | 32.17          | 54.00          | -21.83      | AVG      |             |                | P   |        |
| 3   | 2500.000        | 43.62          | -7.48         | 36.14          | 74.00          | -37.86      | peak     |             |                | P   |        |
| 4   | 2500.000        | 28.03          | -7.48         | 20.55          | 54.00          | -33.45      | AVG      |             |                | P   |        |
| 5   | 2569.900        | 41.22          | -7.20         | 34.02          | 74.00          | -39.98      | peak     |             |                | P   |        |
| 6   | 2569.900        | 29.50          | -7.20         | 22.30          | 54.00          | -31.70      | AVG      |             |                | P   |        |

TM3 / Polarization: Vertical / Band: 2.4G / BW: 1 / CH: H



| No. | Frequency (MHz) | Reading (dBuV) | Factor (dB/m) | Level (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Detector | Height (cm) | Azimuth (deg.) | P/F | Remark |
|-----|-----------------|----------------|---------------|----------------|----------------|-------------|----------|-------------|----------------|-----|--------|
| 1   | 2483.500        | 61.15          | -6.47         | 54.68          | 74.00          | -19.32      | peak     |             |                | P   |        |
| 2 * | 2483.500        | 43.68          | -6.47         | 37.21          | 54.00          | -16.79      | AVG      |             |                | P   |        |
| 3   | 2500.000        | 45.32          | -6.43         | 38.89          | 74.00          | -35.11      | peak     |             |                | P   |        |
| 4   | 2500.000        | 27.18          | -6.43         | 20.75          | 54.00          | -33.25      | AVG      |             |                | P   |        |
| 5   | 2570.000        | 40.23          | -6.31         | 33.92          | 74.00          | -40.08      | peak     |             |                | P   |        |
| 6   | 2570.000        | 28.54          | -6.31         | 22.23          | 54.00          | -31.77      | AVG      |             |                | P   |        |

#### 4.5 Emissions in frequency bands (below 1GHz)

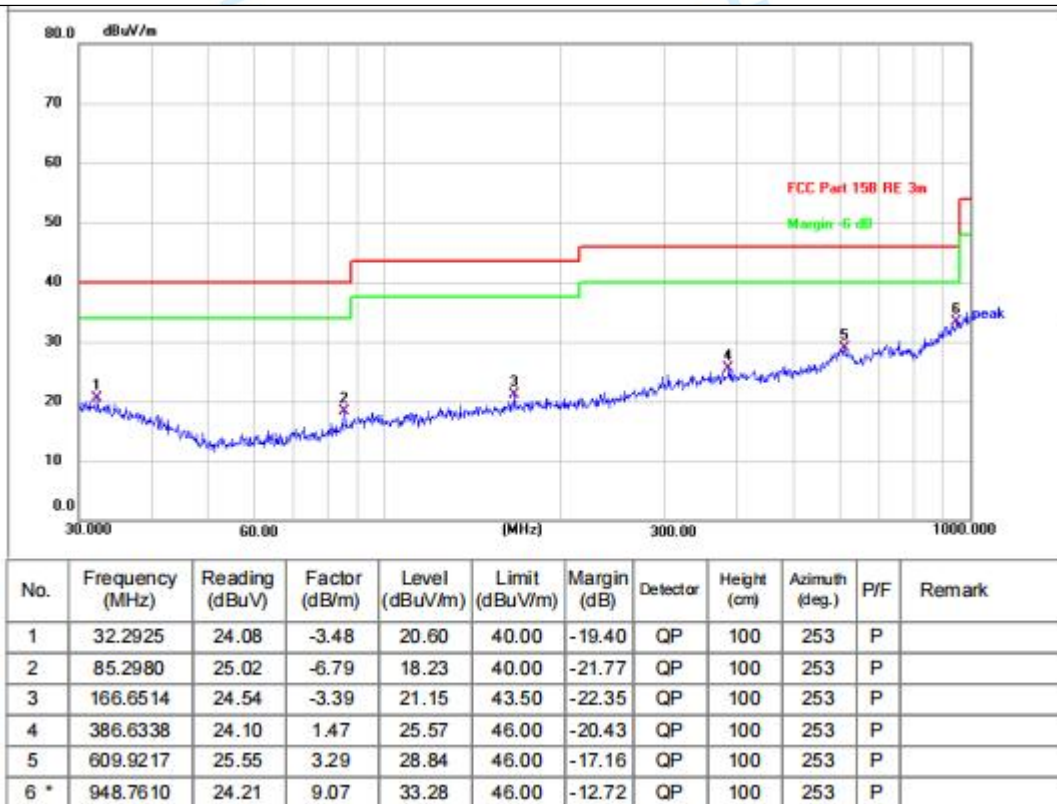
| Test Requirement:     | 47 CFR 15.249(a)<br>47 CFR 15.249(d)<br>47 CFR 15.249(e)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                |                       |                                                  |                                                |             |    |     |                 |    |     |               |    |     |                |     |      |                 |                                   |                               |             |             |     |             |              |    |            |    |    |       |        |   |        |        |   |         |        |   |           |     |   |
|-----------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------|-----------------------|--------------------------------------------------|------------------------------------------------|-------------|----|-----|-----------------|----|-----|---------------|----|-----|----------------|-----|------|-----------------|-----------------------------------|-------------------------------|-------------|-------------|-----|-------------|--------------|----|------------|----|----|-------|--------|---|--------|--------|---|---------|--------|---|-----------|-----|---|
| Test Limit:           | <p>Except as provided in paragraph (b) of this section, the field strength of emissions from intentional radiators operated within these frequency bands shall comply with the following:</p> <table border="1"> <thead> <tr> <th>Fundamental frequency</th><th>Field strength of fundamental (millivolts/meter)</th><th>Field strength of harmonics (microvolts/meter)</th></tr> </thead> <tbody> <tr> <td>902-928 MHz</td><td>50</td><td>500</td></tr> <tr> <td>2400-2483.5 MHz</td><td>50</td><td>500</td></tr> <tr> <td>5725-5875 MHz</td><td>50</td><td>500</td></tr> <tr> <td>24.0-24.25 GHz</td><td>250</td><td>2500</td></tr> </tbody> </table> <p>Emissions radiated outside of the specified frequency bands, except for harmonics, shall be attenuated by at least 50 dB below the level of the fundamental or to the general radiated emission limits in § 15.209, whichever is the lesser attenuation.</p> <table border="1"> <thead> <tr> <th>Frequency (MHz)</th><th>Field strength (microvolts/meter)</th><th>Measurement distance (meters)</th></tr> </thead> <tbody> <tr> <td>0.009-0.490</td><td>2400/F(kHz)</td><td>300</td></tr> <tr> <td>0.490-1.705</td><td>24000/F(kHz)</td><td>30</td></tr> <tr> <td>1.705-30.0</td><td>30</td><td>30</td></tr> <tr> <td>30-88</td><td>100 **</td><td>3</td></tr> <tr> <td>88-216</td><td>150 **</td><td>3</td></tr> <tr> <td>216-960</td><td>200 **</td><td>3</td></tr> <tr> <td>Above 960</td><td>500</td><td>3</td></tr> </tbody> </table> <p>** Except as provided in paragraph (g), fundamental emissions from intentional radiators operating under this section shall not be located in the frequency bands 54-72 MHz, 76-88 MHz, 174-216 MHz or 470-806 MHz. However, operation within these frequency bands is permitted under other sections of this part, e.g., §§ 15.231 and 15.241.</p> <p>As shown in § 15.35(b), for frequencies above 1000 MHz, the field strength limits in paragraphs (a) and (b) of this section are based on average limits. However, the peak field strength of any emission shall not exceed the maximum permitted average limits specified above by more than 20 dB under any condition of modulation. For point-to-point operation under paragraph (b) of this section, the peak field strength shall not exceed 2500 millivolts/meter at 3 meters along the antenna azimuth.</p> |                                                | Fundamental frequency | Field strength of fundamental (millivolts/meter) | Field strength of harmonics (microvolts/meter) | 902-928 MHz | 50 | 500 | 2400-2483.5 MHz | 50 | 500 | 5725-5875 MHz | 50 | 500 | 24.0-24.25 GHz | 250 | 2500 | Frequency (MHz) | Field strength (microvolts/meter) | Measurement distance (meters) | 0.009-0.490 | 2400/F(kHz) | 300 | 0.490-1.705 | 24000/F(kHz) | 30 | 1.705-30.0 | 30 | 30 | 30-88 | 100 ** | 3 | 88-216 | 150 ** | 3 | 216-960 | 200 ** | 3 | Above 960 | 500 | 3 |
| Fundamental frequency | Field strength of fundamental (millivolts/meter)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Field strength of harmonics (microvolts/meter) |                       |                                                  |                                                |             |    |     |                 |    |     |               |    |     |                |     |      |                 |                                   |                               |             |             |     |             |              |    |            |    |    |       |        |   |        |        |   |         |        |   |           |     |   |
| 902-928 MHz           | 50                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 500                                            |                       |                                                  |                                                |             |    |     |                 |    |     |               |    |     |                |     |      |                 |                                   |                               |             |             |     |             |              |    |            |    |    |       |        |   |        |        |   |         |        |   |           |     |   |
| 2400-2483.5 MHz       | 50                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 500                                            |                       |                                                  |                                                |             |    |     |                 |    |     |               |    |     |                |     |      |                 |                                   |                               |             |             |     |             |              |    |            |    |    |       |        |   |        |        |   |         |        |   |           |     |   |
| 5725-5875 MHz         | 50                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 500                                            |                       |                                                  |                                                |             |    |     |                 |    |     |               |    |     |                |     |      |                 |                                   |                               |             |             |     |             |              |    |            |    |    |       |        |   |        |        |   |         |        |   |           |     |   |
| 24.0-24.25 GHz        | 250                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 2500                                           |                       |                                                  |                                                |             |    |     |                 |    |     |               |    |     |                |     |      |                 |                                   |                               |             |             |     |             |              |    |            |    |    |       |        |   |        |        |   |         |        |   |           |     |   |
| Frequency (MHz)       | Field strength (microvolts/meter)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Measurement distance (meters)                  |                       |                                                  |                                                |             |    |     |                 |    |     |               |    |     |                |     |      |                 |                                   |                               |             |             |     |             |              |    |            |    |    |       |        |   |        |        |   |         |        |   |           |     |   |
| 0.009-0.490           | 2400/F(kHz)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | 300                                            |                       |                                                  |                                                |             |    |     |                 |    |     |               |    |     |                |     |      |                 |                                   |                               |             |             |     |             |              |    |            |    |    |       |        |   |        |        |   |         |        |   |           |     |   |
| 0.490-1.705           | 24000/F(kHz)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | 30                                             |                       |                                                  |                                                |             |    |     |                 |    |     |               |    |     |                |     |      |                 |                                   |                               |             |             |     |             |              |    |            |    |    |       |        |   |        |        |   |         |        |   |           |     |   |
| 1.705-30.0            | 30                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 30                                             |                       |                                                  |                                                |             |    |     |                 |    |     |               |    |     |                |     |      |                 |                                   |                               |             |             |     |             |              |    |            |    |    |       |        |   |        |        |   |         |        |   |           |     |   |
| 30-88                 | 100 **                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 3                                              |                       |                                                  |                                                |             |    |     |                 |    |     |               |    |     |                |     |      |                 |                                   |                               |             |             |     |             |              |    |            |    |    |       |        |   |        |        |   |         |        |   |           |     |   |
| 88-216                | 150 **                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 3                                              |                       |                                                  |                                                |             |    |     |                 |    |     |               |    |     |                |     |      |                 |                                   |                               |             |             |     |             |              |    |            |    |    |       |        |   |        |        |   |         |        |   |           |     |   |
| 216-960               | 200 **                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 3                                              |                       |                                                  |                                                |             |    |     |                 |    |     |               |    |     |                |     |      |                 |                                   |                               |             |             |     |             |              |    |            |    |    |       |        |   |        |        |   |         |        |   |           |     |   |
| Above 960             | 500                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 3                                              |                       |                                                  |                                                |             |    |     |                 |    |     |               |    |     |                |     |      |                 |                                   |                               |             |             |     |             |              |    |            |    |    |       |        |   |        |        |   |         |        |   |           |     |   |
| Test Method:          | ANSI C63.10-2013 section 6.5                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                |                       |                                                  |                                                |             |    |     |                 |    |     |               |    |     |                |     |      |                 |                                   |                               |             |             |     |             |              |    |            |    |    |       |        |   |        |        |   |         |        |   |           |     |   |
| Procedure:            | ANSI C63.10-2013 section 6.5                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                |                       |                                                  |                                                |             |    |     |                 |    |     |               |    |     |                |     |      |                 |                                   |                               |             |             |     |             |              |    |            |    |    |       |        |   |        |        |   |         |        |   |           |     |   |

##### 4.5.1 E.U.T. Operation:

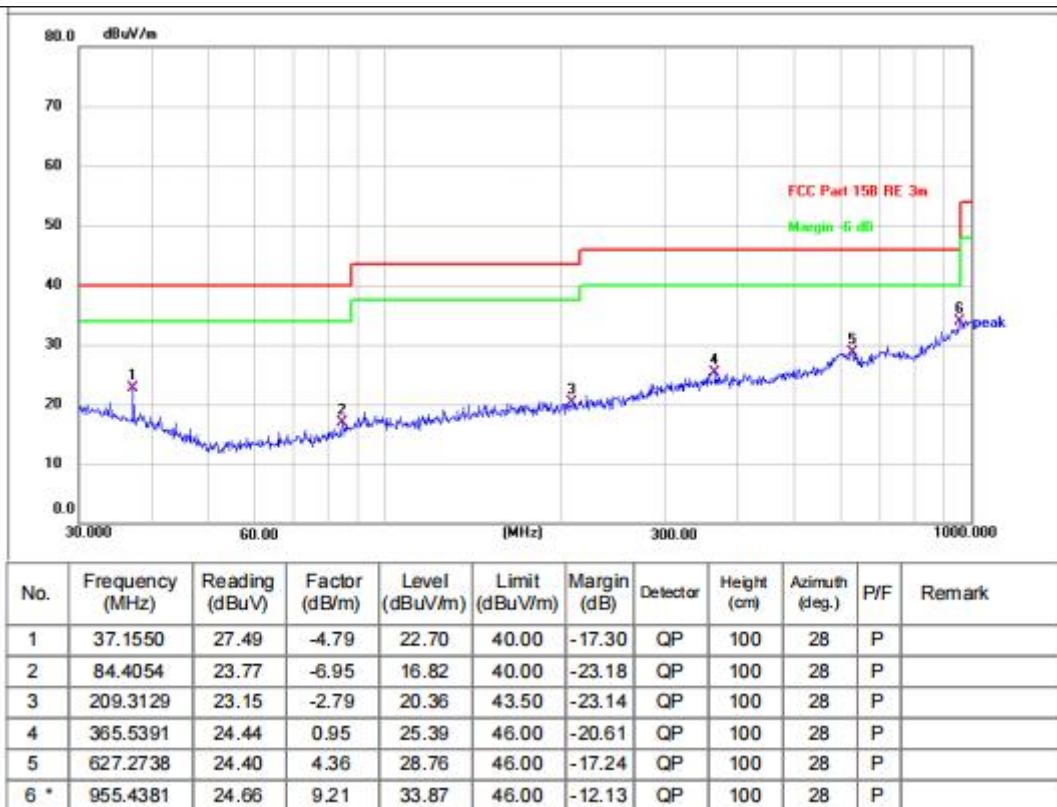
|                        |       |           |      |                       |         |
|------------------------|-------|-----------|------|-----------------------|---------|
| Operating Environment: |       |           |      |                       |         |
| Temperature:           | 23 °C | Humidity: | 48 % | Atmospheric Pressure: | 102 kPa |
| Pre test mode:         | TM1   |           |      |                       |         |
| Final test mode:       | TM1   |           |      |                       |         |

#### 4.5.2 Test Data:

TM1 / Polarization: Horizontal / Band: 2.4G / BW: 1 / CH: L



TM1 / Polarization: Vertical / Band: 2.4G / BW: 1 / CH: L



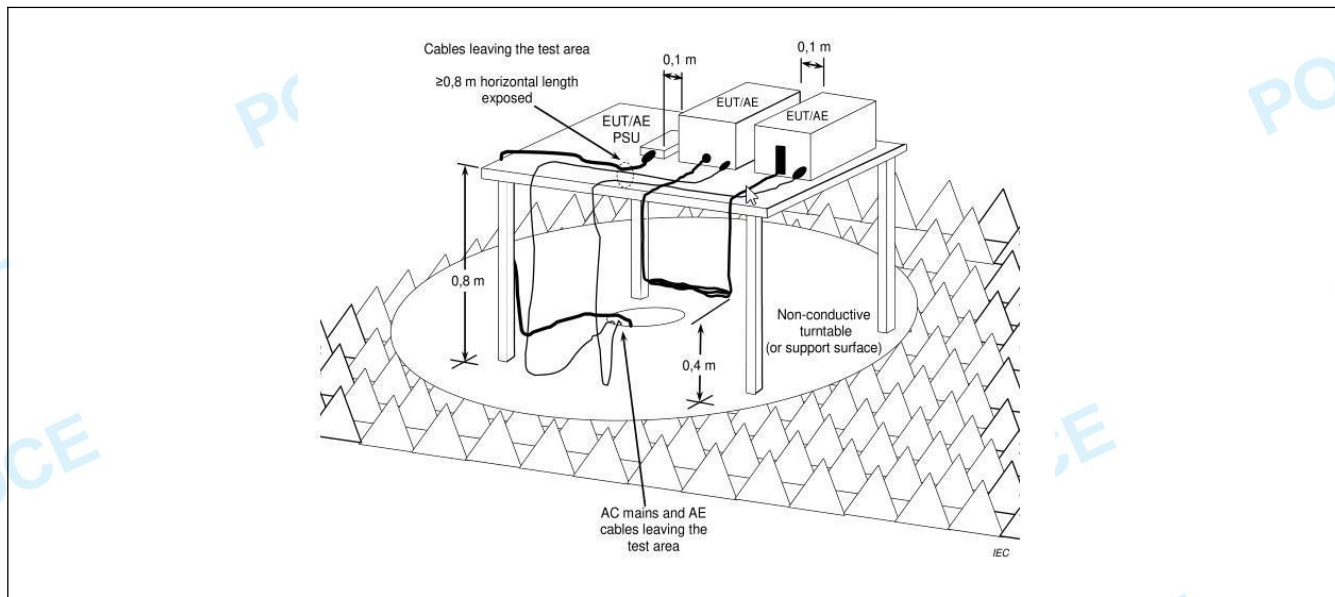
#### 4.6 Emissions in frequency bands (above 1GHz)

| Test Requirement:     | 47 CFR 15.249(a)<br>47 CFR 15.249(d)<br>47 CFR 15.249(e)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                |                       |                                                  |                                                |             |    |     |                 |    |     |               |    |     |                |     |      |                 |                                   |                               |             |             |     |             |              |    |            |    |    |       |        |   |        |        |   |         |        |   |           |     |   |
|-----------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------|-----------------------|--------------------------------------------------|------------------------------------------------|-------------|----|-----|-----------------|----|-----|---------------|----|-----|----------------|-----|------|-----------------|-----------------------------------|-------------------------------|-------------|-------------|-----|-------------|--------------|----|------------|----|----|-------|--------|---|--------|--------|---|---------|--------|---|-----------|-----|---|
| Test Limit:           | <p>Except as provided in paragraph (b) of this section, the field strength of emissions from intentional radiators operated within these frequency bands shall comply with the following:</p> <table border="1"> <thead> <tr> <th>Fundamental frequency</th><th>Field strength of fundamental (millivolts/meter)</th><th>Field strength of harmonics (microvolts/meter)</th></tr> </thead> <tbody> <tr> <td>902-928 MHz</td><td>50</td><td>500</td></tr> <tr> <td>2400-2483.5 MHz</td><td>50</td><td>500</td></tr> <tr> <td>5725-5875 MHz</td><td>50</td><td>500</td></tr> <tr> <td>24.0-24.25 GHz</td><td>250</td><td>2500</td></tr> </tbody> </table> <p>Emissions radiated outside of the specified frequency bands, except for harmonics, shall be attenuated by at least 50 dB below the level of the fundamental or to the general radiated emission limits in § 15.209, whichever is the lesser attenuation.</p> <table border="1"> <thead> <tr> <th>Frequency (MHz)</th><th>Field strength (microvolts/meter)</th><th>Measurement distance (meters)</th></tr> </thead> <tbody> <tr> <td>0.009-0.490</td><td>2400/F(kHz)</td><td>300</td></tr> <tr> <td>0.490-1.705</td><td>24000/F(kHz)</td><td>30</td></tr> <tr> <td>1.705-30.0</td><td>30</td><td>30</td></tr> <tr> <td>30-88</td><td>100 **</td><td>3</td></tr> <tr> <td>88-216</td><td>150 **</td><td>3</td></tr> <tr> <td>216-960</td><td>200 **</td><td>3</td></tr> <tr> <td>Above 960</td><td>500</td><td>3</td></tr> </tbody> </table> <p>** Except as provided in paragraph (g), fundamental emissions from intentional radiators operating under this section shall not be located in the frequency bands 54-72 MHz, 76-88 MHz, 174-216 MHz or 470-806 MHz. However, operation within these frequency bands is permitted under other sections of this part, e.g., §§ 15.231 and 15.241.</p> <p>As shown in § 15.35(b), for frequencies above 1000 MHz, the field strength limits in paragraphs (a) and (b) of this section are based on average limits. However, the peak field strength of any emission shall not exceed the maximum permitted average limits specified above by more than 20 dB under any condition of modulation. For point-to-point operation under paragraph (b) of this section, the peak field strength shall not exceed 2500 millivolts/meter at 3 meters along the antenna azimuth.</p> |                                                | Fundamental frequency | Field strength of fundamental (millivolts/meter) | Field strength of harmonics (microvolts/meter) | 902-928 MHz | 50 | 500 | 2400-2483.5 MHz | 50 | 500 | 5725-5875 MHz | 50 | 500 | 24.0-24.25 GHz | 250 | 2500 | Frequency (MHz) | Field strength (microvolts/meter) | Measurement distance (meters) | 0.009-0.490 | 2400/F(kHz) | 300 | 0.490-1.705 | 24000/F(kHz) | 30 | 1.705-30.0 | 30 | 30 | 30-88 | 100 ** | 3 | 88-216 | 150 ** | 3 | 216-960 | 200 ** | 3 | Above 960 | 500 | 3 |
| Fundamental frequency | Field strength of fundamental (millivolts/meter)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Field strength of harmonics (microvolts/meter) |                       |                                                  |                                                |             |    |     |                 |    |     |               |    |     |                |     |      |                 |                                   |                               |             |             |     |             |              |    |            |    |    |       |        |   |        |        |   |         |        |   |           |     |   |
| 902-928 MHz           | 50                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 500                                            |                       |                                                  |                                                |             |    |     |                 |    |     |               |    |     |                |     |      |                 |                                   |                               |             |             |     |             |              |    |            |    |    |       |        |   |        |        |   |         |        |   |           |     |   |
| 2400-2483.5 MHz       | 50                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 500                                            |                       |                                                  |                                                |             |    |     |                 |    |     |               |    |     |                |     |      |                 |                                   |                               |             |             |     |             |              |    |            |    |    |       |        |   |        |        |   |         |        |   |           |     |   |
| 5725-5875 MHz         | 50                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 500                                            |                       |                                                  |                                                |             |    |     |                 |    |     |               |    |     |                |     |      |                 |                                   |                               |             |             |     |             |              |    |            |    |    |       |        |   |        |        |   |         |        |   |           |     |   |
| 24.0-24.25 GHz        | 250                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 2500                                           |                       |                                                  |                                                |             |    |     |                 |    |     |               |    |     |                |     |      |                 |                                   |                               |             |             |     |             |              |    |            |    |    |       |        |   |        |        |   |         |        |   |           |     |   |
| Frequency (MHz)       | Field strength (microvolts/meter)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Measurement distance (meters)                  |                       |                                                  |                                                |             |    |     |                 |    |     |               |    |     |                |     |      |                 |                                   |                               |             |             |     |             |              |    |            |    |    |       |        |   |        |        |   |         |        |   |           |     |   |
| 0.009-0.490           | 2400/F(kHz)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | 300                                            |                       |                                                  |                                                |             |    |     |                 |    |     |               |    |     |                |     |      |                 |                                   |                               |             |             |     |             |              |    |            |    |    |       |        |   |        |        |   |         |        |   |           |     |   |
| 0.490-1.705           | 24000/F(kHz)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | 30                                             |                       |                                                  |                                                |             |    |     |                 |    |     |               |    |     |                |     |      |                 |                                   |                               |             |             |     |             |              |    |            |    |    |       |        |   |        |        |   |         |        |   |           |     |   |
| 1.705-30.0            | 30                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 30                                             |                       |                                                  |                                                |             |    |     |                 |    |     |               |    |     |                |     |      |                 |                                   |                               |             |             |     |             |              |    |            |    |    |       |        |   |        |        |   |         |        |   |           |     |   |
| 30-88                 | 100 **                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 3                                              |                       |                                                  |                                                |             |    |     |                 |    |     |               |    |     |                |     |      |                 |                                   |                               |             |             |     |             |              |    |            |    |    |       |        |   |        |        |   |         |        |   |           |     |   |
| 88-216                | 150 **                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 3                                              |                       |                                                  |                                                |             |    |     |                 |    |     |               |    |     |                |     |      |                 |                                   |                               |             |             |     |             |              |    |            |    |    |       |        |   |        |        |   |         |        |   |           |     |   |
| 216-960               | 200 **                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 3                                              |                       |                                                  |                                                |             |    |     |                 |    |     |               |    |     |                |     |      |                 |                                   |                               |             |             |     |             |              |    |            |    |    |       |        |   |        |        |   |         |        |   |           |     |   |
| Above 960             | 500                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 3                                              |                       |                                                  |                                                |             |    |     |                 |    |     |               |    |     |                |     |      |                 |                                   |                               |             |             |     |             |              |    |            |    |    |       |        |   |        |        |   |         |        |   |           |     |   |
| Test Method:          | ANSI C63.10-2013 section 6.6                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                |                       |                                                  |                                                |             |    |     |                 |    |     |               |    |     |                |     |      |                 |                                   |                               |             |             |     |             |              |    |            |    |    |       |        |   |        |        |   |         |        |   |           |     |   |
| Procedure:            | ANSI C63.10-2013 section 6.6                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                |                       |                                                  |                                                |             |    |     |                 |    |     |               |    |     |                |     |      |                 |                                   |                               |             |             |     |             |              |    |            |    |    |       |        |   |        |        |   |         |        |   |           |     |   |

##### 4.6.1 E.U.T. Operation:

|                        |               |           |      |                       |         |
|------------------------|---------------|-----------|------|-----------------------|---------|
| Operating Environment: |               |           |      |                       |         |
| Temperature:           | 23 °C         | Humidity: | 48 % | Atmospheric Pressure: | 102 kPa |
| Pre test mode:         | TM1, TM2, TM3 |           |      |                       |         |
| Final test mode:       | TM1, TM2, TM3 |           |      |                       |         |

#### 4.6.2 Test Setup Diagram:



#### 4.6.3 Test Data:

TM1 / Polarization: Horizontal / Band: 2.4G / BW: 1 / CH: L

| No. | Frequency (MHz) | Reading (dBuV) | Factor (dB/m) | Level (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Detector | Height (cm) | Azimuth (deg.) | P/F | Remark |
|-----|-----------------|----------------|---------------|----------------|----------------|-------------|----------|-------------|----------------|-----|--------|
| 1   | 4804.000        | 39.33          | -0.90         | 38.43          | 74.00          | -35.57      | QP       | 150         |                | P   |        |
| 2   | 4804.000        | 28.06          | -0.90         | 27.16          | 54.00          | -26.84      | AVG      | 150         |                | P   |        |
| 3   | 7206.000        | 35.80          | 4.13          | 39.93          | 74.00          | -34.07      | QP       | 150         |                | P   |        |
| 4   | 7206.000        | 24.91          | 4.13          | 29.04          | 54.00          | -24.96      | AVG      | 150         |                | P   |        |
| 5   | 9608.000        | 36.68          | 8.09          | 44.77          | 74.00          | -29.23      | QP       | 150         |                | P   |        |
| 6 * | 9608.000        | 24.59          | 8.09          | 32.68          | 54.00          | -21.32      | AVG      | 150         |                | P   |        |

TM1 / Polarization: Vertical / Band: 2.4G / BW: 1 / CH: L

| No. | Frequency (MHz) | Reading (dBuV) | Factor (dB/m) | Level (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Detector | Height (cm) | Azimuth (deg.) | P/F | Remark |
|-----|-----------------|----------------|---------------|----------------|----------------|-------------|----------|-------------|----------------|-----|--------|
| 1   | 4804.000        | 39.45          | -0.28         | 39.17          | 74.00          | -34.83      | QP       | 150         |                | P   |        |
| 2   | 4804.000        | 28.26          | -0.28         | 27.98          | 54.00          | -26.02      | AVG      | 150         |                | P   |        |
| 3   | 7206.000        | 35.46          | 4.09          | 39.55          | 74.00          | -34.45      | QP       | 150         |                | P   |        |
| 4   | 7206.000        | 24.89          | 4.09          | 28.98          | 54.00          | -25.02      | AVG      | 150         |                | P   |        |
| 5   | 9608.000        | 35.97          | 8.02          | 43.99          | 74.00          | -30.01      | QP       | 150         |                | P   |        |
| 6 * | 9608.000        | 24.67          | 8.02          | 32.69          | 54.00          | -21.31      | AVG      | 150         |                | P   |        |

TM2 / Polarization: Horizontal / Band: 2.4G / BW: 1 / CH: M

| No. | Frequency (MHz) | Reading (dBuV) | Factor (dB/m) | Level (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Detector | Height (cm) | Azimuth (deg.) | P/F | Remark |
|-----|-----------------|----------------|---------------|----------------|----------------|-------------|----------|-------------|----------------|-----|--------|
| 1   | 4892.000        | 39.42          | -0.60         | 38.82          | 74.00          | -35.18      | peak     |             |                | P   |        |
| 2   | 4892.000        | 28.14          | -0.60         | 27.54          | 54.00          | -26.46      | AVG      |             |                | P   |        |
| 3   | 7338.000        | 36.56          | 4.33          | 40.89          | 74.00          | -33.11      | peak     |             |                | P   |        |
| 4   | 7338.000        | 24.89          | 4.33          | 29.22          | 54.00          | -24.78      | AVG      |             |                | P   |        |
| 5   | 9784.000        | 36.19          | 8.09          | 44.28          | 74.00          | -29.72      | peak     |             |                | P   |        |
| 6 * | 9784.000        | 24.93          | 8.09          | 33.02          | 54.00          | -20.98      | AVG      |             |                | P   |        |

TM2 / Polarization: Vertical / Band: 2.4G / BW: 1 / CH: M

| No. | Frequency (MHz) | Reading (dBuV) | Factor (dB/m) | Level (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Detector | Height (cm) | Azimuth (deg.) | P/F | Remark |
|-----|-----------------|----------------|---------------|----------------|----------------|-------------|----------|-------------|----------------|-----|--------|
| 1   | 4892.000        | 38.04          | 0.01          | 38.05          | 74.00          | -35.95      | peak     |             |                | P   |        |
| 2   | 4892.000        | 27.43          | 0.01          | 27.44          | 54.00          | -26.56      | AVG      |             |                | P   |        |
| 3   | 7338.000        | 36.29          | 4.40          | 40.69          | 74.00          | -33.31      | peak     |             |                | P   |        |
| 4   | 7338.000        | 24.84          | 4.40          | 29.24          | 54.00          | -24.76      | AVG      |             |                | P   |        |
| 5   | 9784.000        | 35.94          | 8.14          | 44.08          | 74.00          | -29.92      | peak     |             |                | P   |        |
| 6 * | 9784.000        | 24.75          | 8.14          | 32.89          | 54.00          | -21.11      | AVG      |             |                | P   |        |

## TM3 / Polarization: Horizontal / Band: 2.4G / BW: 1 / CH: H

| No. | Frequency (MHz) | Reading (dBuV) | Factor (dB/m) | Level (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Detector | Height (cm) | Azimuth (deg.) | P/F | Remark |
|-----|-----------------|----------------|---------------|----------------|----------------|-------------|----------|-------------|----------------|-----|--------|
| 1   | 4958.000        | 38.06          | 0.23          | 38.29          | 74.00          | -35.71      | QP       | 150         |                | P   |        |
| 2   | 4958.000        | 27.40          | 0.23          | 27.63          | 54.00          | -26.37      | AVG      | 150         |                | P   |        |
| 3   | 7437.000        | 36.99          | 4.64          | 41.63          | 74.00          | -32.37      | QP       | 150         |                | P   |        |
| 4   | 7437.000        | 26.09          | 4.64          | 30.73          | 54.00          | -23.27      | AVG      | 150         |                | P   |        |
| 5   | 9916.000        | 36.79          | 8.23          | 45.02          | 74.00          | -28.98      | QP       | 150         |                | P   |        |
| 6 * | 9916.000        | 25.11          | 8.23          | 33.34          | 54.00          | -20.66      | AVG      | 150         |                | P   |        |

## TM3 / Polarization: Vertical / Band: 2.4G / BW: 1 / CH: H

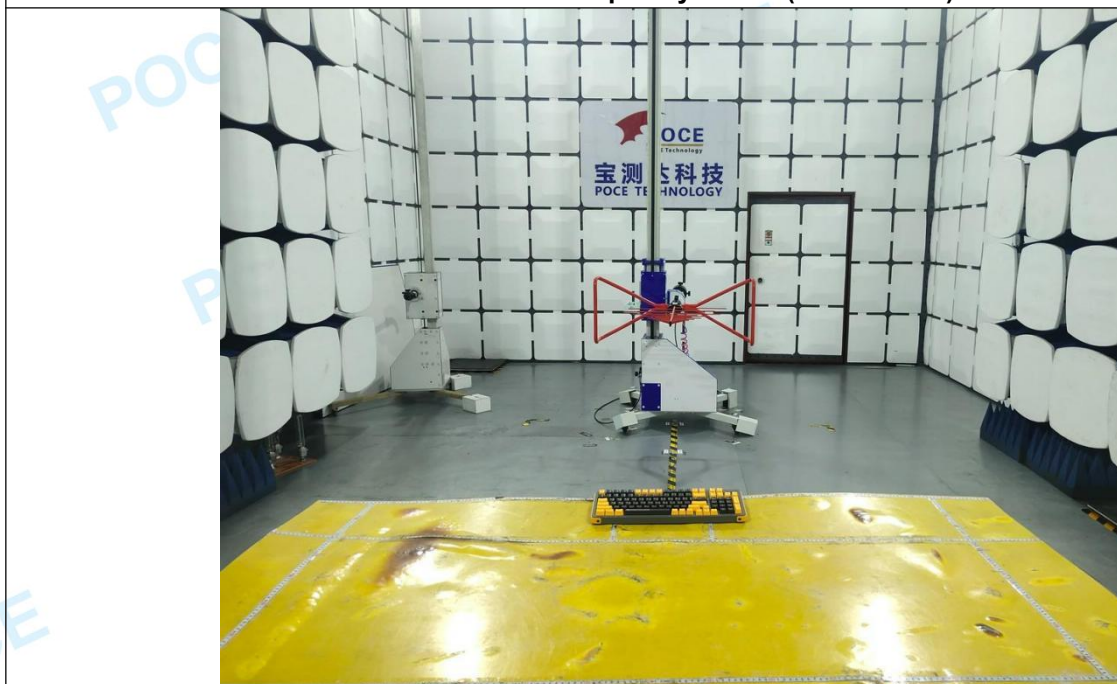
| No. | Frequency (MHz) | Reading (dBuV) | Factor (dB/m) | Level (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Detector | Height (cm) | Azimuth (deg.) | P/F | Remark |
|-----|-----------------|----------------|---------------|----------------|----------------|-------------|----------|-------------|----------------|-----|--------|
| 1   | 4958.000        | 41.97          | -0.38         | 41.59          | 74.00          | -32.41      | QP       | 150         |                | P   |        |
| 2   | 4958.000        | 28.63          | -0.38         | 28.25          | 54.00          | -25.75      | AVG      | 150         |                | P   |        |
| 3   | 7437.000        | 36.33          | 4.49          | 40.82          | 74.00          | -33.18      | QP       | 150         |                | P   |        |
| 4   | 7437.000        | 25.49          | 4.49          | 29.98          | 54.00          | -24.02      | AVG      | 150         |                | P   |        |
| 5   | 9916.000        | 36.59          | 8.09          | 44.68          | 74.00          | -29.32      | QP       | 150         |                | P   |        |
| 6 * | 9916.000        | 25.20          | 8.09          | 33.29          | 54.00          | -20.71      | AVG      | 150         |                | P   |        |

## 5 TEST SETUP PHOTOS

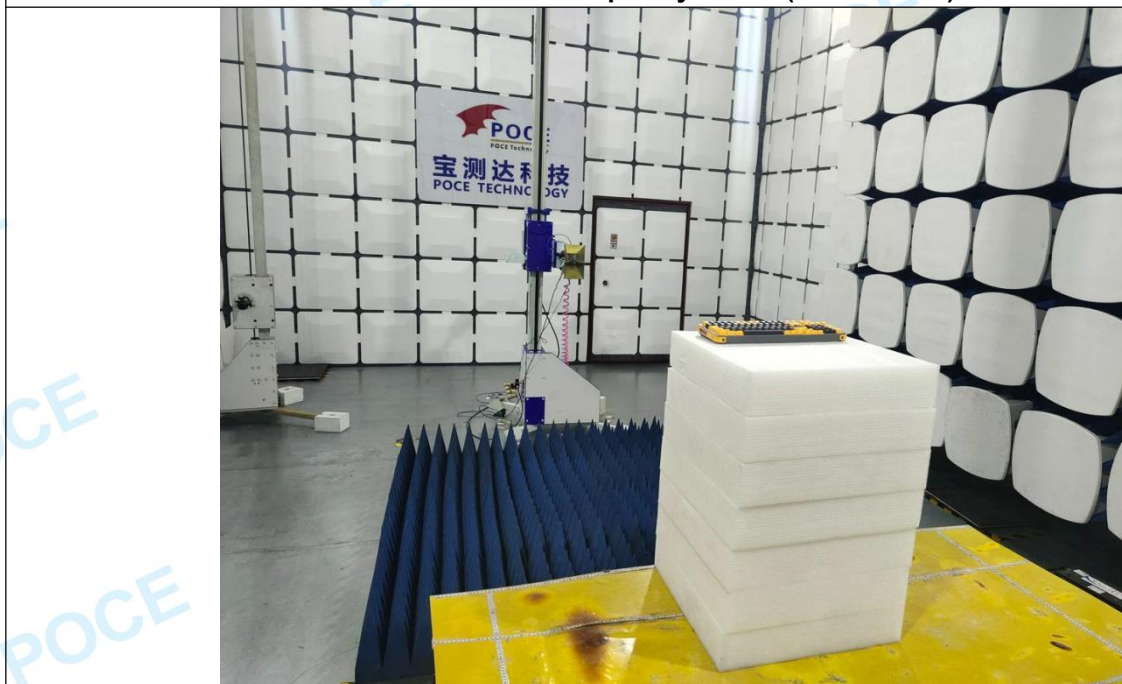
Conducted Emission at AC power line



Emissions in frequency bands (below 1GHz)

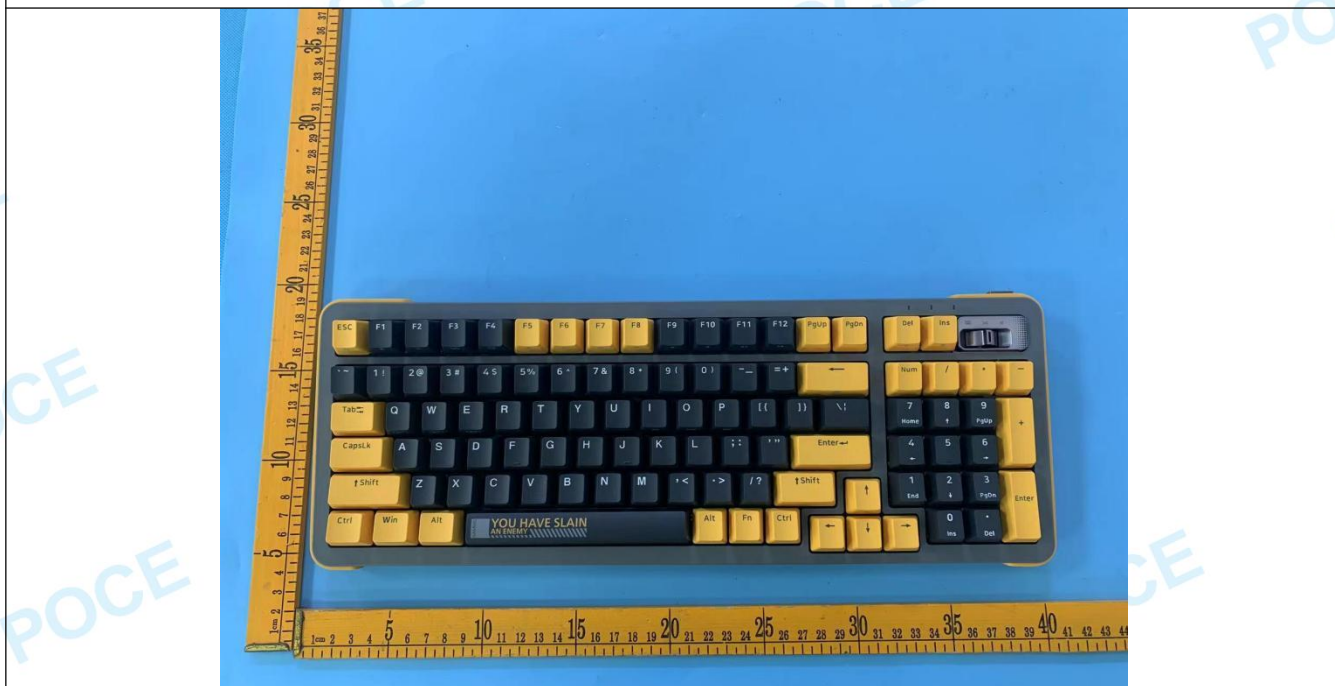


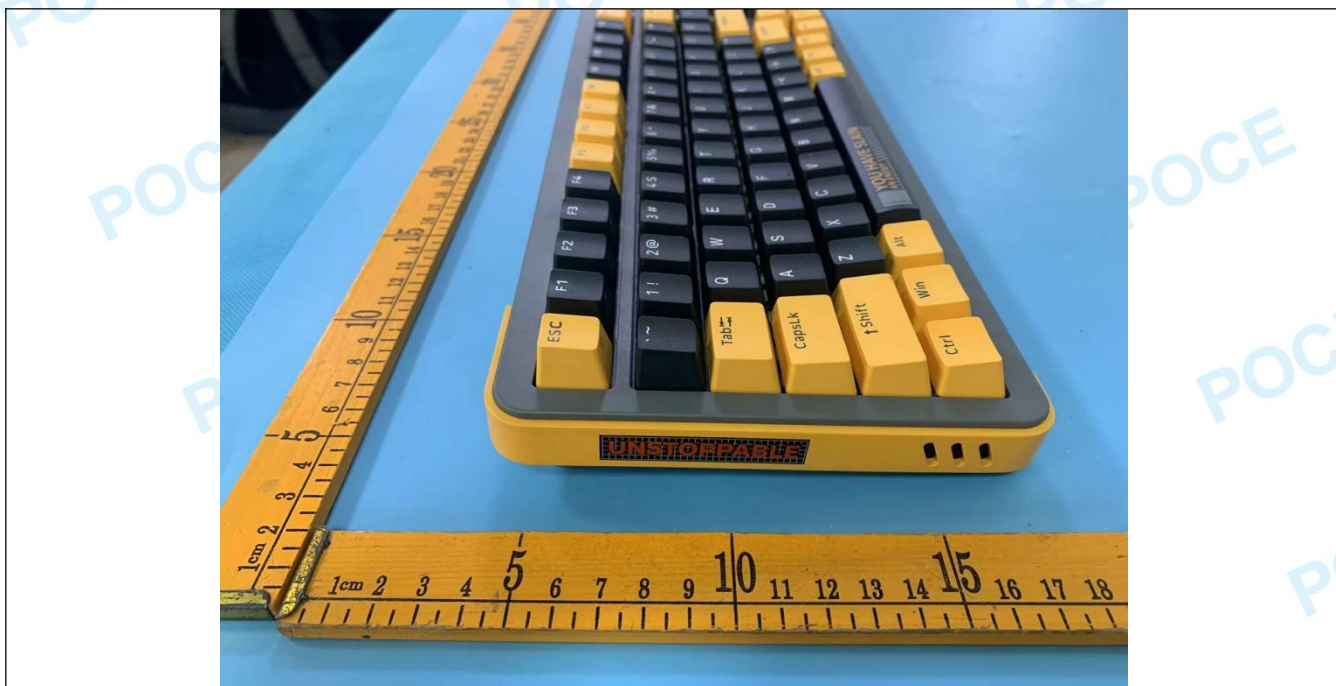
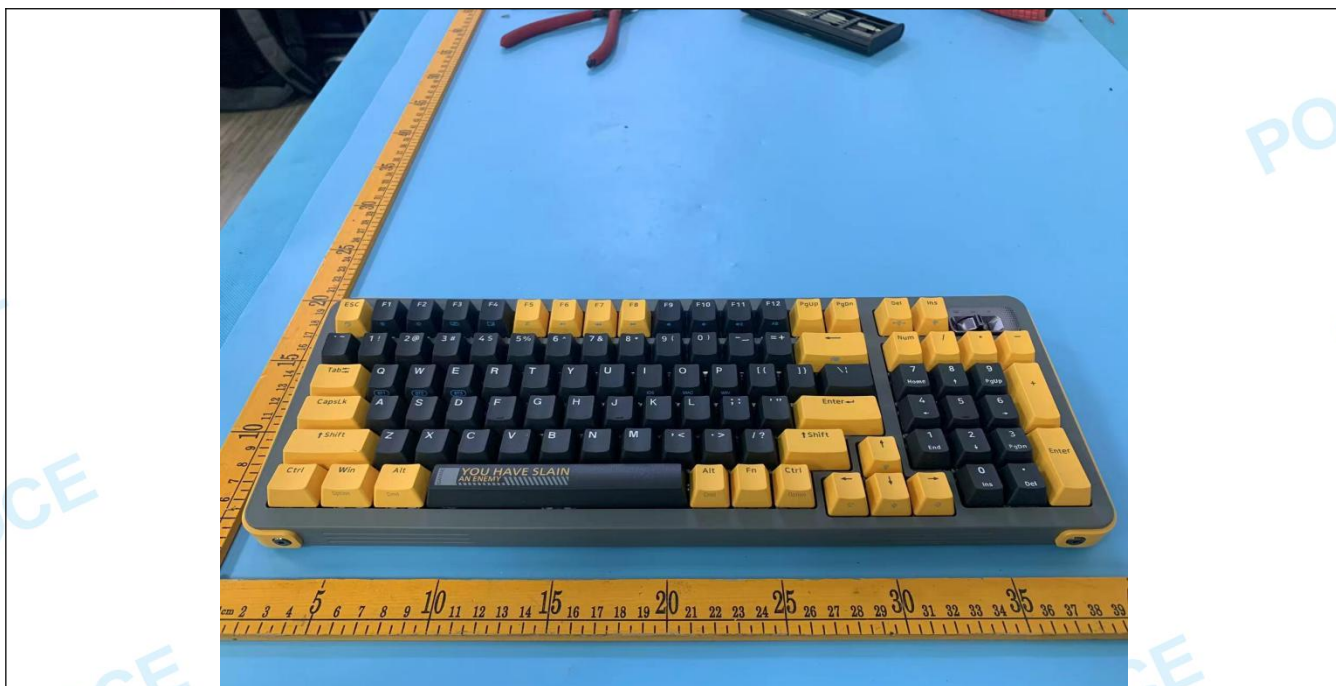
**Emissions in frequency bands (above 1GHz)**

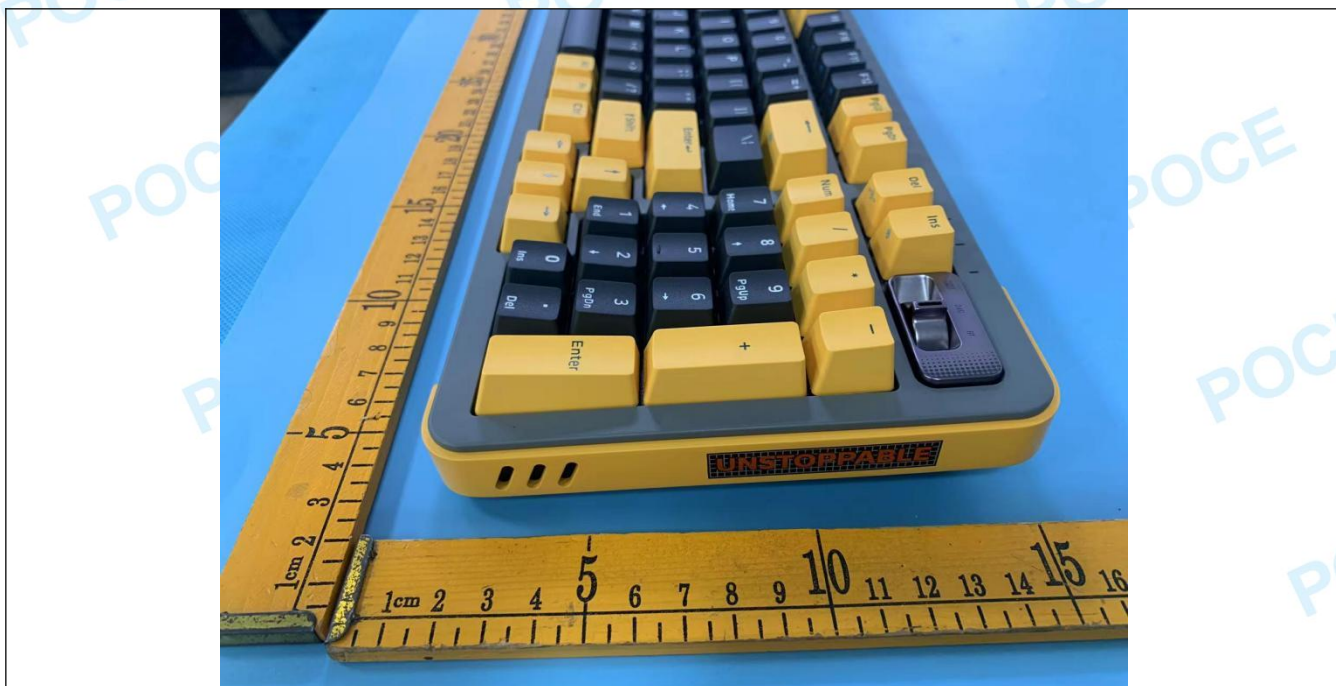
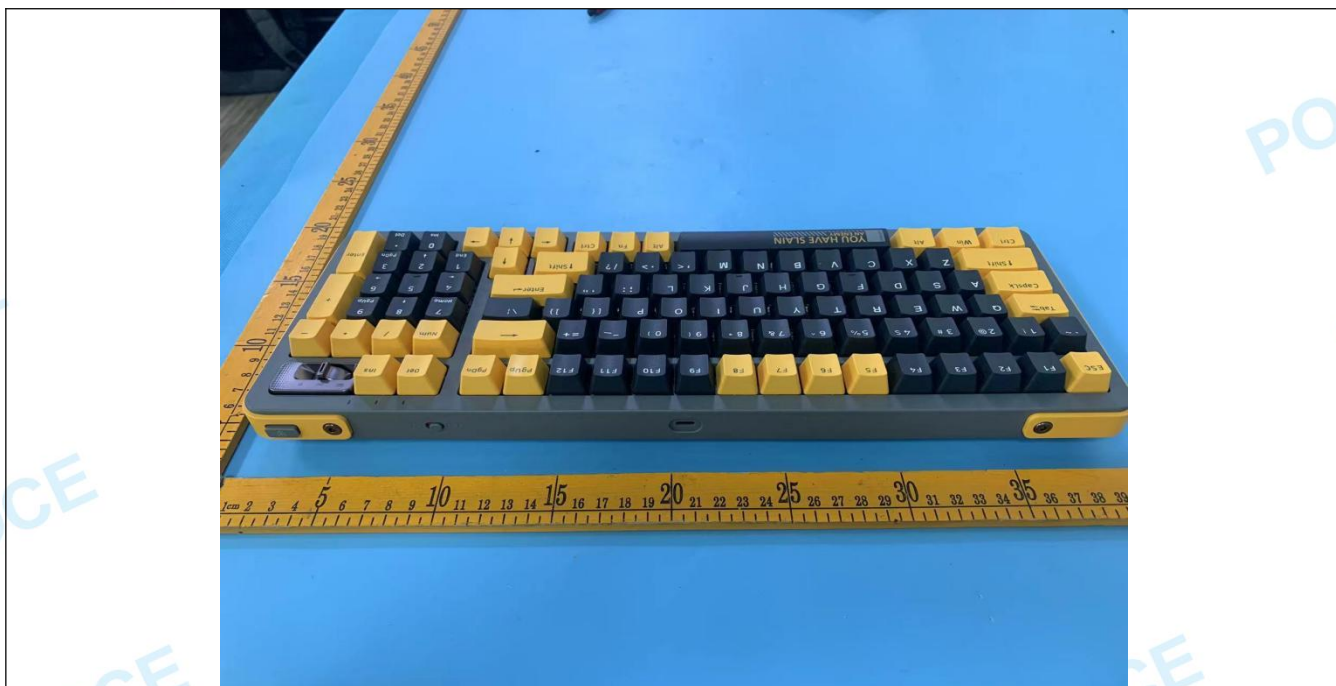


## 6 PHOTOS OF THE EUT

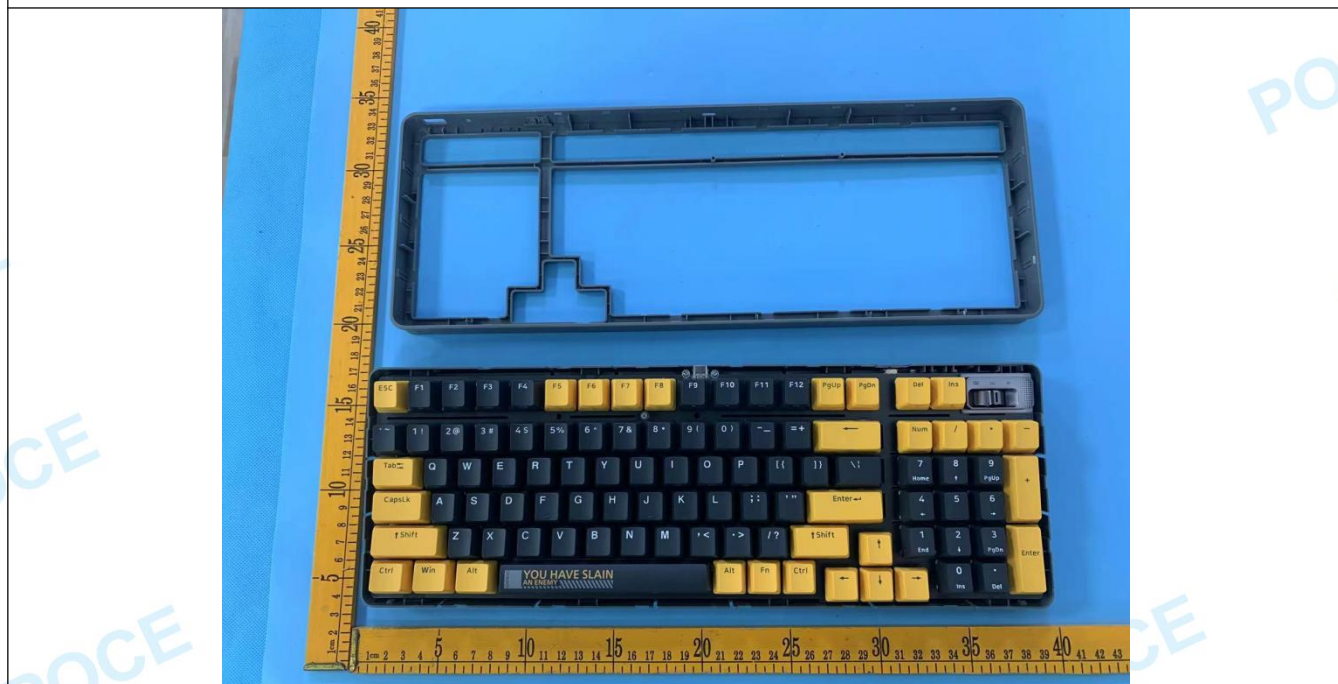
External

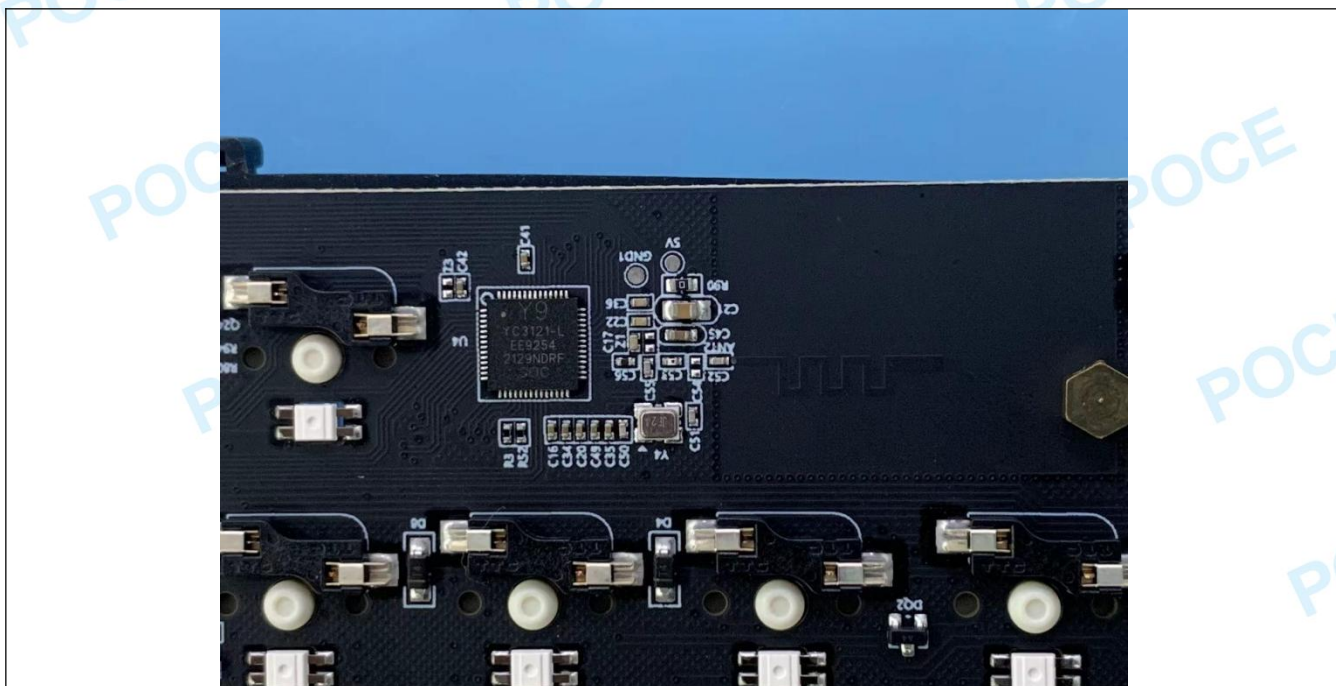






**Internal**





\*\*\*\*\* End of Report \*\*\*\*\*