

## FCC & ISED Radio Test Report

**FCC ID: X5B-052002T**

**IC: 8814A-052002T**

**The report concerns: Original Grant**

Report Reference No.....: 22EFSB09015 09331  
Date Sample(s) Received.....: 2022-09-16  
Date of Tested.....: From 2022-09-22 to 2022-10-20  
Date of issue.....: 2022-10-25  
Testing Laboratory .....: DongGuan ShuoXin Electronic Technology Co., Ltd.  
Address .....: Zone A, 1F, No. 6, XinGang Road YuanGang Street,  
XinAn District, ChangAn Town, DongGuan City,  
GuangDong, China

Applicant's name .....: PERFORMANCE DESIGNED PRODUCTS, LLC  
Address .....: 14144 Ventura Blvd, Suite 200 Sherman. Oaks CA  
91423 United States Of America  
Manufacturer.....: PERFORMANCE DESIGNED PRODUCTS, LLC

Equipment.....: PRO BFG DONGLE FOR PS5

Trade Mark .....: 

Model .....: 052-002T

Ratings .....: I/P: 5Vdc

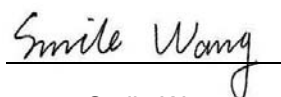
O/P: --

Test Engineer:



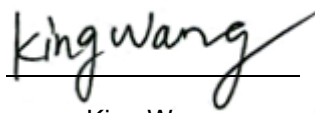
Blue Qiu

Responsible Engineer :



Smile Wang

Authorized Signatory:



King Wang

| <b>Table of Contents</b>                                     | <b>Page</b> |
|--------------------------------------------------------------|-------------|
| <b>1 TEST REPORT DECLARE</b>                                 | <b>4</b>    |
| <b>2 SUMMARY OF TEST RESULTS</b>                             | <b>5</b>    |
| 2.1 MEASUREMENT UNCERTAINTY                                  | 6           |
| <b>3 GENERAL INFORMATION</b>                                 | <b>7</b>    |
| 3.1 GENERAL DESCRIPTION OF EUT                               | 7           |
| 3.2 DESCRIPTION OF TEST MODES                                | 9           |
| 3.3 PARAMETERS OF TEST SOFTWARE                              | 9           |
| 3.4 BLOCK DIAGRAM SHOWING THE CONFIGURATION OF SYSTEM TESTED | 10          |
| 3.5 SUPPORT UNITS                                            | 10          |
| 3.6 TEST ENVIRONMENT CONDITIONS                              | 10          |
| <b>4 AC POWER LINE CONDUCTED EMISSIONS TEST</b>              | <b>11</b>   |
| 4.1 LIMIT                                                    | 11          |
| 4.2 TEST PROCEDURE                                           | 11          |
| 4.3 MEASUREMENT INSTRUMENTS LIST                             | 11          |
| 4.4 TEST SETUP                                               | 12          |
| 4.5 EUT OPERATING CONDITIONS                                 | 12          |
| 4.6 TEST RESULTS                                             | 13          |
| <b>5 RADIATED EMISSION TEST</b>                              | <b>15</b>   |
| 5.1 LIMIT                                                    | 15          |
| 5.2 TEST PROCEDURE                                           | 16          |
| 5.3 MEASUREMENT INSTRUMENTS LIST                             | 17          |
| 5.4 TEST SETUP                                               | 17          |
| 5.5 EUT OPERATING CONDITIONS                                 | 18          |
| 5.6 TEST RESULT- 9KHZ TO 30MHZ                               | 19          |
| 5.7 TEST RESULT- 30MHZ TO 1000MHZ                            | 20          |
| 5.8 TEST RESULT- ABOVE 1000MHZ(BAND EDGE)                    | 22          |
| 5.9 TEST RESULTS - ABOVE 1000MHZ(HARMONIC)                   | 26          |
| <b>6 BANDWIDTH TEST</b>                                      | <b>32</b>   |
| 6.1 LIMIT                                                    | 32          |
| 6.2 TEST PROCEDURE AND SETTING                               | 32          |
| 6.3 MEASUREMENT INSTRUMENTS LIST                             | 32          |
| 6.4 TEST SETUP                                               | 32          |
| 6.5 EUT OPERATION CONDITIONS                                 | 32          |
| 6.6 TEST RESULTS                                             | 33          |

| <b>Table of Contents</b>                  | <b>Page</b> |
|-------------------------------------------|-------------|
| <b>7 MAXIMUM OUTPUT POWER</b>             | <b>34</b>   |
| 7.1 LIMIT                                 | 34          |
| 7.2 TEST PROCEDURE                        | 34          |
| 7.3 MEASUREMENT INSTRUMENTS LIST          | 34          |
| 7.4 TEST SETUP                            | 34          |
| 7.5 EUT OPERATION CONDITIONS              | 34          |
| 7.6 TESTRESULTS                           | 35          |
| <b>8 CONDUCTED SPURIOUS EMISSION</b>      | <b>36</b>   |
| 8.1 LIMIT                                 | 36          |
| 8.2 TEST PROCEDURE                        | 36          |
| 8.3 MEASUREMENT INSTRUMENTS LIST          | 36          |
| 8.4 TEST SETUP                            | 36          |
| 8.5 EUT OPERATION CONDITIONS              | 36          |
| 8.6 TEST RESULTS                          | 37          |
| <b>9 POWER SPECTRAL DENSITY TEST</b>      | <b>39</b>   |
| 9.1 LIMIT                                 | 39          |
| 9.2 TEST PROCEDURE                        | 39          |
| 9.3 MEASUREMENT INSTRUMENTS LIST          | 39          |
| 9.4 TEST SETUP                            | 39          |
| 9.5 EUT OPERATION CONDITIONS              | 39          |
| 9.6 TEST RESULTS                          | 40          |
| <b>10 FREQUENCY STABILITY MEASUREMENT</b> | <b>41</b>   |
| 10.1 LIMIT                                | 41          |
| 10.2 TEST PROCEDURE                       | 41          |
| 10.3 MEASUREMENT INSTRUMENTS LIST         | 41          |
| 10.4 TEST SETUP                           | 41          |
| 10.5 EUT OPERATION CONDITIONS             | 41          |
| 10.6 TEST RESULTS                         | 42          |

## 1 TEST REPORT DECLARE

|              |                                                                                                                |
|--------------|----------------------------------------------------------------------------------------------------------------|
| Applicant    | PERFORMANCE DESIGNED PRODUCTS, LLC                                                                             |
| Address      | 14144 Ventura Blvd, Suite 200 Sherman. Oaks CA<br>91423 United States Of America                               |
| Manufacturer | PERFORMANCE DESIGNED PRODUCTS, LLC                                                                             |
| Address      | 14144 Ventura Blvd, Suite 200 Sherman. Oaks CA<br>91423 United States Of America                               |
| Factory      | PERFORMANCE DESIGNED PRODUCTS, LLC                                                                             |
| Address      | 14144 Ventura Blvd, Suite 200 Sherman. Oaks CA<br>91423 United States Of America                               |
| Equipment    | PRO BFG DONGLE FOR PS5                                                                                         |
| Model No.    | 052-002T                                                                                                       |
| Trade Mark   |                               |
| Standard     | FCC Part15, Subpart C (15.247)<br>RSS-247 Issue 2, Feb. 2017<br>RSS-Gen Issue 5, Mar. 2019<br>ANSI C63.10-2013 |

### We Declare:

The equipment described above is tested by DongGuan ShuoXin Electronic Technology Co., Ltd(ATT). and in the configuration tested the equipment complied with the standards specified above. The test results are contained in this test report and DongGuan ShuoXin Electronic Technology Co., Ltd.(ATT) is assumed of full responsibility for the accuracy and completeness of these tests.

ATT is not responsible for the sampling stage, so the results only apply to the sample as received.

ATT's reports apply only to the specific samples tested under conditions. It is manufacture's responsibility to ensure that additional production units of this model are manufactured with the identical electrical and mechanical components. ATT shall have no liability for any declarations, inferences or generalizations drawn by the client or others from ATT issued reports.

## 2 SUMMARY OF TEST RESULTS

The EUT have been tested according to the applicable standards as referenced below:

| Standard(s) Section                 |                                          | Test Item                         | Judgment | Remark  |
|-------------------------------------|------------------------------------------|-----------------------------------|----------|---------|
| FCC                                 | ISED                                     |                                   |          |         |
| 15.207                              | RSS-Gen8.8                               | AC Power Line Conducted Emissions | N/A      | -----   |
| 15.247(d)<br>15.205(a)<br>15.209(a) | RSS-247 5.5<br>RSS-Gen8.9<br>RSS-Gen8.10 | Radiated Emissions                | PASS     | -----   |
| 15.247(a)(2)                        | RSS-247 5.2 (a)<br>RSS-Gen6.7            | Bandwidth                         | PASS     | -----   |
| 15.247(b)(3)                        | RSS-247 5.4 (d)                          | Maximum Output Power              | PASS     | -----   |
| 15.247(d)                           | RSS-247 5.5                              | ConductedSpurious Emission        | PASS     | -----   |
| 15.247(e)                           | RSS-247 5.2 (b)                          | Power Spectral Density            | PASS     | -----   |
| -                                   | RSS-Gen 6.11                             | Frequency Stability               | PASS     | -----   |
| 15.203                              | -                                        | Antenna Requirement               | PASS     | Note(2) |

Note:

- (1) "N/A" denotes test is not applicable to this device.
- (2) The device what use a permanently attached antenna were considered sufficient tocomply with the provisions of 15.203.

**2.1 MEASUREMENT UNCERTAINTY**

| Test Item                                               | Uncertainty           |
|---------------------------------------------------------|-----------------------|
| Uncertainty for Conduction emission test (9kHz-150kHz)  | 3.7 dB                |
| Uncertainty for Conduction emission test (150kHz-30MHz) | 3.3 dB                |
| Uncertainty for Radiation Emission test (30MHz-200MHz)  | 4.60 dB (Polarize: V) |
|                                                         | 4.60 dB (Polarize: H) |
| Uncertainty for Radiation Emission test (200MHz-1GHz)   | 6.10 dB (Polarize: V) |
|                                                         | 5.08 dB (Polarize: H) |
| Uncertainty for Radiation Emission test (1GHz-6GHz)     | 5.01 dB (Polarize: V) |
|                                                         | 5.01 dB (Polarize: H) |
| Uncertainty for Radiation Emission test (6GHz-18GHz)    | 5.26 dB (Polarize: V) |
|                                                         | 5.26 dB (Polarize: H) |
| Uncertainty for Radiation Emission test (18GHz-40GHz)   | 5.06 dB (Polarize: V) |
|                                                         | 5.06 dB (Polarize: H) |
| Uncertainty for radio frequency                         | ±0.048kHz             |
| Uncertainty for conducted RF Power                      | ±0.32dB               |

**Note:**

This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of  $k=2$ .

**Test Facility:**

The Test site used by DongGuan ShuoXin Electronic Technology Co., Ltd. to collect test data is located on the Zone A, 1F, No. 6, XinGang Road YuanGang Street, XinAn District, ChangAn Town, DongGuan City, GuangDong, China

The test facility is recognized, certified, or accredited by the following organizations:

| Item                                                          | Registration No.                  | Expiration Date |
|---------------------------------------------------------------|-----------------------------------|-----------------|
| CNAS                                                          | L3098                             | 2024-08-27      |
| A2LA                                                          | 4893.01                           | 2024-06-30      |
| Innovation, Science and Economic Development<br>Canada (ISED) | 11033A<br>CAB identifier: CN0083  | 2024-06-30      |
| Federal Communications Commission (FCC)                       | 171688<br>Designation No.: CN1235 | 2024-06-30      |

### 3 GENERAL INFORMATION

#### 3.1 GENERAL DESCRIPTION OF EUT

|                         |                                                                                   |                               |
|-------------------------|-----------------------------------------------------------------------------------|-------------------------------|
| Equipment               | PRO BFG DONGLE FOR PS5                                                            |                               |
| Brand Name              |  |                               |
| Test Model              | 052-002T                                                                          |                               |
| Series Model            | Engineer Sample                                                                   |                               |
| Model Difference(s)     | N/A                                                                               |                               |
| Hardware Version        | V1.0                                                                              |                               |
| Software Version        | V1.0                                                                              |                               |
| Power Source            | Supplied from USB.                                                                |                               |
| Power Rating            | 5Vdc                                                                              |                               |
| Operation Frequency     | 2402 MHz ~ 2478 MHz                                                               |                               |
| Modulation Technology   | GFSK                                                                              |                               |
| Bit Rate of Transmitter | 1Mbps                                                                             |                               |
| Antenna Information     | Antenna Type:<br>PCB antenna                                                      | Maximum Peak Gain:<br>5.8 dBi |
| Max. Output Power       | -1.544dBm(0.000701 W) 1Mbps                                                       |                               |

Note:

1. For a more detailed features description, please refer to the manufacturer's specifications or the user's manual.

## 2. Channel List:

| Channel | Frequency<br>(MHz) | Channel | Frequency<br>(MHz) |
|---------|--------------------|---------|--------------------|
| 00      | 2402               | 20      | 2442               |
| 01      | 2404               | 21      | 2444               |
| 02      | 2406               | 22      | 2446               |
| 03      | 2408               | 23      | 2448               |
| 04      | 2410               | 24      | 2450               |
| 05      | 2412               | 25      | 2452               |
| 06      | 2414               | 26      | 2454               |
| 07      | 2416               | 27      | 2456               |
| 08      | 2418               | 28      | 2458               |
| 09      | 2420               | 29      | 2460               |
| 10      | 2422               | 30      | 2462               |
| 11      | 2424               | 31      | 2464               |
| 12      | 2426               | 32      | 2466               |
| 13      | 2428               | 33      | 2468               |
| 14      | 2430               | 34      | 2470               |
| 15      | 2432               | 35      | 2472               |
| 16      | 2434               | 36      | 2474               |
| 17      | 2436               | 37      | 2476               |
| 18      | 2438               | 38      | 2478               |
| 19      | 2440               | /       | /                  |

### 3.2 DESCRIPTION OF TEST MODES

The test system was pre-tested based on the consideration of all possible combinations of EUT operation mode.

| Pretest Mode | Description     |
|--------------|-----------------|
| Mode 1       | TX ModeNOTE (1) |

Following mode(s) as (were) found to be the worst case(s) and selected for the final test.

| Radiated emissions test - Below 1GHz |             |
|--------------------------------------|-------------|
| Final Test Mode                      | Description |
| Mode 1                               | TX Mode     |

| Radiated emissions test - Above 1GHz |                 |
|--------------------------------------|-----------------|
| Final Test Mode                      | Description     |
| Mode 1                               | TX ModeNOTE (1) |

| Conducted test  |                 |
|-----------------|-----------------|
| Final Test Mode | Description     |
| Mode 1          | TX ModeNOTE (1) |

Note:

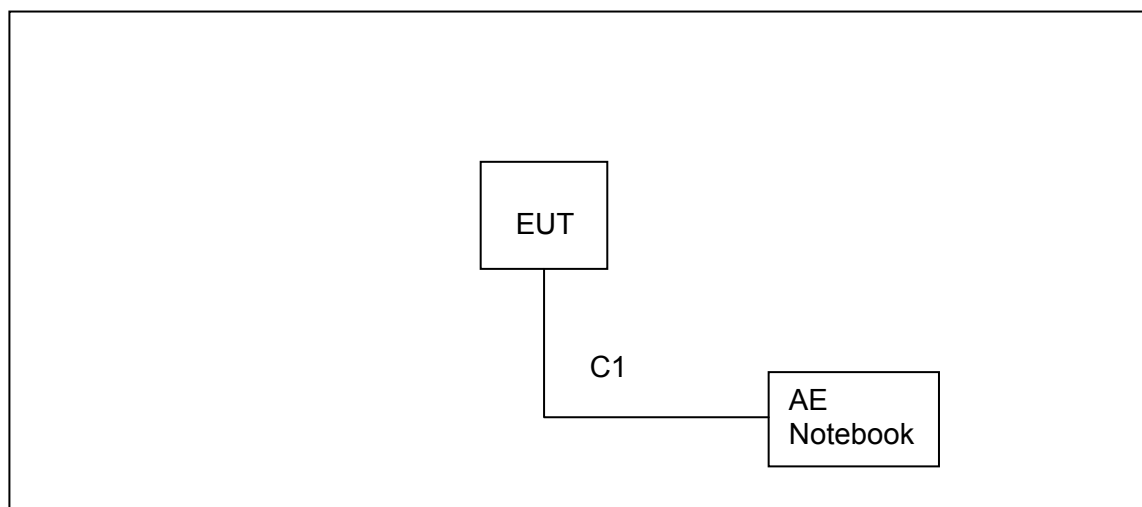
(1) The measurements are performed at the high, middle, low available channels.

### 3.3 PARAMETERS OF TEST SOFTWARE

During testing channel & power controlling software provided by the customer was used to control the operating channel as well as the output power level. The RF output power selection is for the setting of RF output power expected by the customer and is going to be fixed on the firmware of the final end product power parameters of BT LE

| Test Software    | /    |      |      |
|------------------|------|------|------|
| Frequency (MHz)  | 2402 | 2440 | 2478 |
| Parameters-1Mbps | 0x7F | 0x7F | 0x7F |

### 3.4 BLOCK DIAGRAM SHOWING THE CONFIGURATION OF SYSTEM TESTED



### 3.5 SUPPORT UNITS

| Item | Equipment | Brand | Model No. | Series No.  |
|------|-----------|-------|-----------|-------------|
| AE   | Notebook  | ACER  | MS2367    | 32807810766 |

| Item | Cable Type | Shielded Type | Ferrite Core | Length |
|------|------------|---------------|--------------|--------|
| C1   | DC Cable   | NO            | NO           | 0.8m   |

### 3.6 TEST ENVIRONMENT CONDITIONS

| Test Item                         | Temperature | Humidity | Test Voltage |
|-----------------------------------|-------------|----------|--------------|
| AC Power Line Conducted Emissions | 23.5°C      | 61%      | AC 120V 60Hz |
| Radiated Emissions-9K-30MHz       | 23.5°C      | 61%      | 5Vdc         |
| Radiated Emissions-30 MHz to 1GHz | 23.5°C      | 61%      | 5Vdc         |
| Radiated Emissions-Above 1000 MHz | 23.5°C      | 61%      | 5Vdc         |
| Bandwidth                         | 22.9°C      | 58%      | 5Vdc         |
| Maximum Output Power              | 22.9°C      | 58%      | 5Vdc         |
| Conducted Spurious Emission       | 22.9°C      | 58%      | 5Vdc         |
| Power Spectral Density            | 22.9°C      | 58%      | 5Vdc         |

## 4AC POWER LINE CONDUCTED EMISSIONS TEST

### 4.1LIMIT

| Frequency of Emission (MHz) | Limit (dBμV) |           |
|-----------------------------|--------------|-----------|
|                             | Quasi-peak   | Average   |
| 0.15 - 0.50                 | 66 to 56*    | 56 to 46* |
| 0.50 - 5.0                  | 56           | 46        |
| 5.0 - 30.0                  | 60           | 50        |

Note:

- (1) The tighter limit applies at the band edges.
- (2) The limit of " \* " marked band means the limitation decreases linearly with the logarithm of the frequency in the range.

The following table is the setting of the receiver

| Receiver Parameters | Setting  |
|---------------------|----------|
| Attenuation         | 10 dB    |
| Start Frequency     | 0.15 MHz |
| Stop Frequency      | 30 MHz   |
| IF Bandwidth        | 9 kHz    |

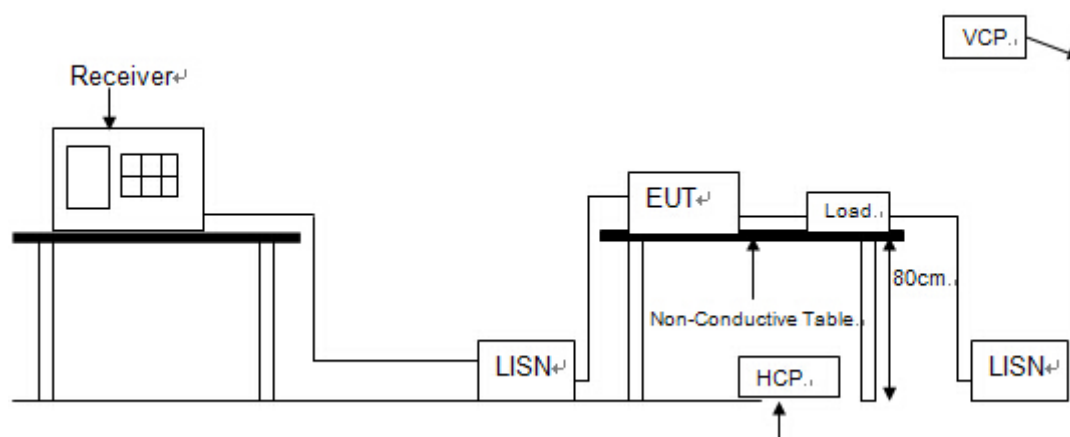
### 4.2TEST PROCEDURE

- a. The EUT was placed 0.8 meters from the horizontal ground plane with EUT being connected to the power mains through a line impedance stabilization network (LISN). All other support equipment powered from additional LISN(s). The LISN provide 50 Ohm/ 50uH of coupling impedance for the measuring instrument.
- b. Interconnecting cables that hang closer than 40 cm to the ground plane shall be folded back and forth in the center forming a bundle 30 to 40 cm long.
- c. I/O cables that are not connected to a peripheral shall be bundled in the center. The end of the cable may be terminated, if required, using the correct terminating impedance. The overall length shall not exceed 1 m.
- d. LISN at least 80 cm from nearest part of EUT chassis.

### 4.3MEASUREMENT INSTRUMENTS LIST

| Item | Kind of Equipment    | Manufacturer      | Type No.             | Serial No.      | Calibrated until |
|------|----------------------|-------------------|----------------------|-----------------|------------------|
| 1    | Pulse Limiter        | MTS-systemtechnik | MTS-IMP-136          | 261115-010-0024 | 12/19/2022       |
| 2    | EMI Test Receiver    | R&S               | ESCI                 | 101308          | 12/17/2022       |
| 3    | LISN                 | AFJ               | LS16                 | 16011103219     | 05/23/2023       |
| 4    | LISN                 | Schwarzbeck       | NSLK 8127            | 8127-432        | 12/17/2022       |
| 5    | Measurement Software | Farad             | EZ-EMC (Ver.ATT-03A) | N/A             | N/A              |

#### 4.4 TEST SETUP

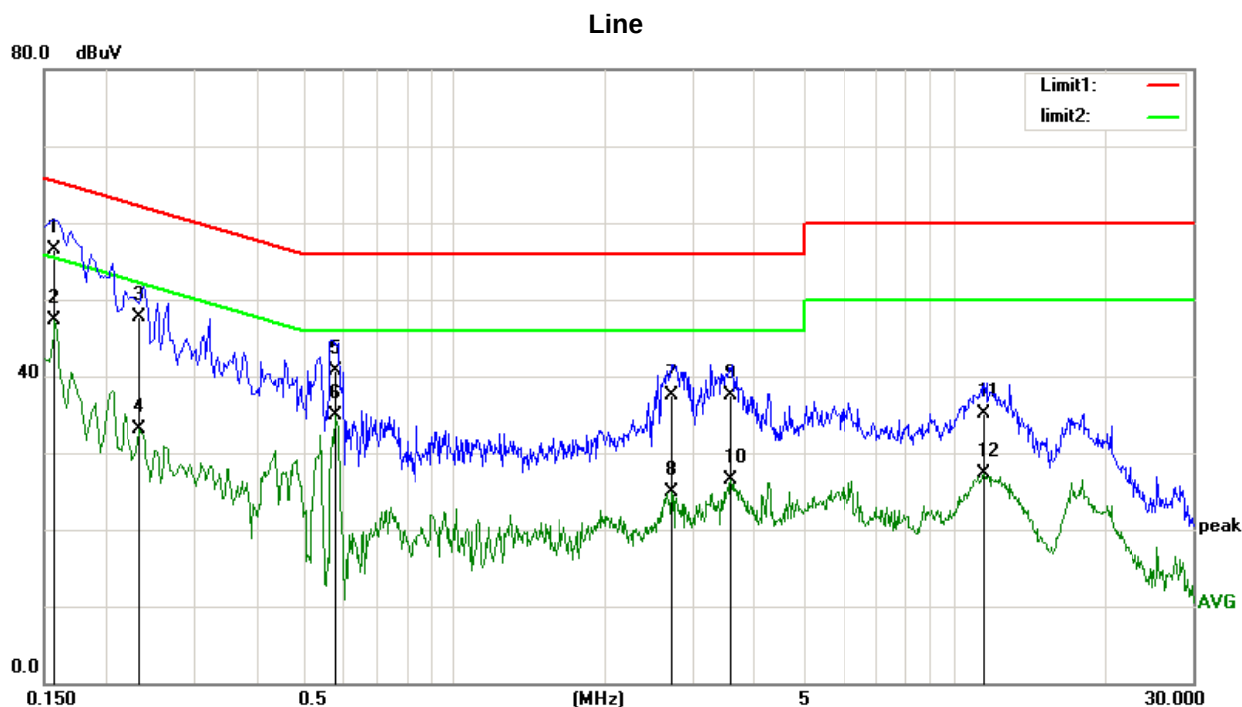


#### 4.5 EUT OPERATING CONDITIONS

The EUT was configured for testing in a typical function (as a customer would normally use it), EUT was programmed to be in continuously transmitting data or hopping on mode.

## 4.6 TEST RESULTS

Test Mode: TX Mode



| No. | Frequency<br>(MHz) | Reading<br>(dBuV) | Correct<br>Factor(dB) | Result<br>(dBuV) | Limit<br>(dBuV) | Margin<br>(dB) | Remark |
|-----|--------------------|-------------------|-----------------------|------------------|-----------------|----------------|--------|
| 1   | 0.1580             | 45.56             | 11.01                 | 56.57            | 65.56           | -8.99          | QP     |
| 2   | 0.1580             | 36.29             | 11.01                 | 47.30            | 55.56           | -8.26          | AVG    |
| 3   | 0.2340             | 36.98             | 10.65                 | 47.63            | 62.30           | -14.67         | QP     |
| 4   | 0.2340             | 22.37             | 10.65                 | 33.02            | 52.30           | -19.28         | AVG    |
| 5   | 0.5778             | 30.06             | 10.63                 | 40.69            | 56.00           | -15.31         | QP     |
| 6   | 0.5778             | 24.25             | 10.63                 | 34.88            | 46.00           | -11.12         | AVG    |
| 7   | 2.7099             | 26.84             | 10.61                 | 37.45            | 56.00           | -18.55         | QP     |
| 8   | 2.7099             | 14.36             | 10.61                 | 24.97            | 46.00           | -21.03         | AVG    |
| 9   | 3.5819             | 26.87             | 10.62                 | 37.49            | 56.00           | -18.51         | QP     |
| 10  | 3.5819             | 15.91             | 10.62                 | 26.53            | 46.00           | -19.47         | AVG    |
| 11  | 11.4739            | 24.39             | 10.69                 | 35.08            | 60.00           | -24.92         | QP     |
| 12  | 11.4739            | 16.58             | 10.69                 | 27.27            | 50.00           | -22.73         | AVG    |

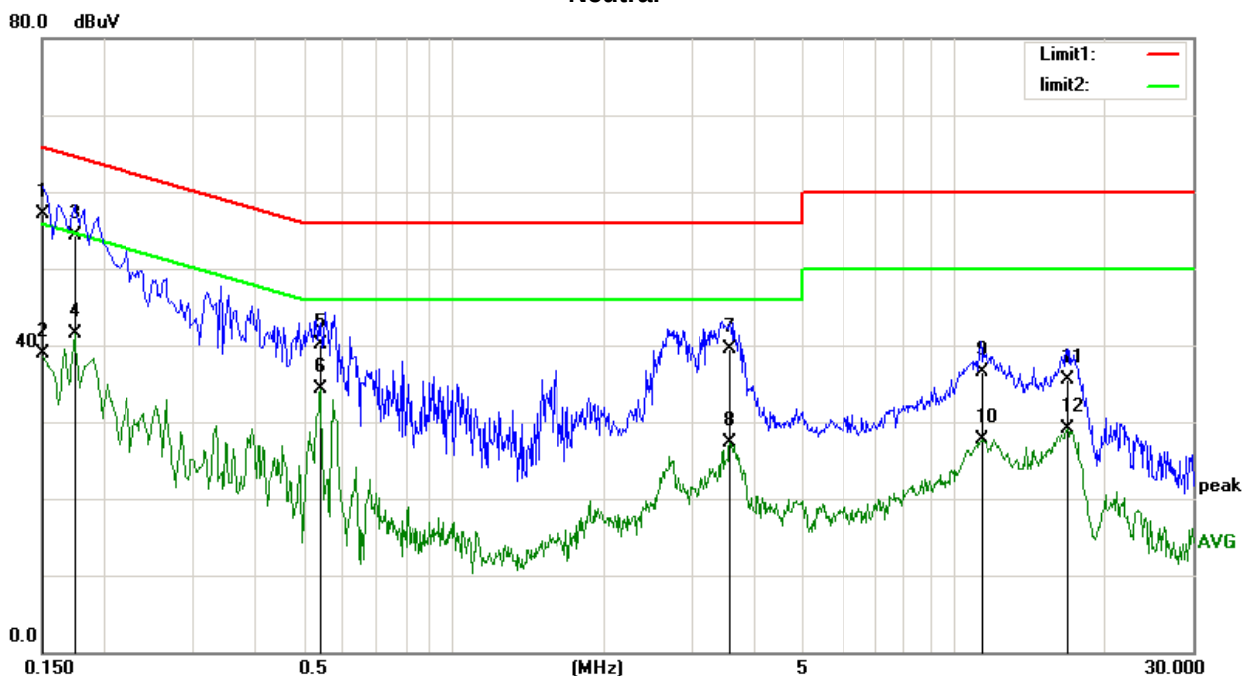
### Remarks:

(1) Measurement Value = Reading Level + Correct Factor.

(2) Margin Level = Measurement Value - Limit Value.

Test Mode: TX Mode

## Neutral



| No. | Frequency<br>(MHz) | Reading<br>(dBuV) | Correct<br>Factor(dB) | Result<br>(dBuV) | Limit<br>(dBuV) | Margin<br>(dB) | Remark |
|-----|--------------------|-------------------|-----------------------|------------------|-----------------|----------------|--------|
| 1   | 0.1500             | 45.99             | 11.04                 | 57.03            | 65.99           | -8.96          | QP     |
| 2   | 0.1500             | 27.85             | 11.04                 | 38.89            | 55.99           | -17.10         | AVG    |
| 3   | 0.1737             | 43.43             | 10.93                 | 54.36            | 64.78           | -10.42         | QP     |
| 4   | 0.1737             | 30.49             | 10.93                 | 41.42            | 54.78           | -13.36         | AVG    |
| 5   | 0.5420             | 29.61             | 10.59                 | 40.20            | 56.00           | -15.80         | QP     |
| 6   | 0.5420             | 23.79             | 10.59                 | 34.38            | 46.00           | -11.62         | AVG    |
| 7   | 3.5819             | 28.83             | 10.62                 | 39.45            | 56.00           | -16.55         | QP     |
| 8   | 3.5819             | 16.74             | 10.62                 | 27.36            | 46.00           | -18.64         | AVG    |
| 9   | 11.3739            | 25.76             | 10.69                 | 36.45            | 60.00           | -23.55         | QP     |
| 10  | 11.3739            | 17.05             | 10.69                 | 27.74            | 50.00           | -22.26         | AVG    |
| 11  | 16.8414            | 24.83             | 10.59                 | 35.42            | 60.00           | -24.58         | QP     |
| 12  | 16.8414            | 18.59             | 10.59                 | 29.18            | 50.00           | -20.82         | AVG    |

### Remarks:

- (1) Measurement Value = Reading Level + Correct Factor.
- (2) Margin Level = Measurement Value - Limit Value.

## 5 RADIATED EMISSION TEST

### 5.1 LIMIT

In case the emission fall within the restricted band specified on 15.205(a) and RSS-Gen 8.10, then the 15.209(a) and RSS-Gen 8.9 limit in the table below has to be followed.

#### LIMITS OF RADIATED EMISSION MEASUREMENT (9 kHz-1000MHz)

| 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                             |

#### LIMITS OF RADIATED EMISSION MEASUREMENT (9 kHz-30 MHz)

| Frequency (MHz) | Magnetic field strength (H-Field) (μA/m) | Measurement Distance (meters) |
|-----------------|------------------------------------------|-------------------------------|
| 0.009-0.490     | 6.37/F(kHz)                              | 300                           |
| 0.490-1.705     | 6.37/F(kHz)                              | 30                            |
| 1.705-30.0      | 0.08                                     | 30                            |

#### LIMITS OF RADIATED EMISSION MEASUREMENT (30 MHz-1000MHz)

| Frequency (MHz) | Field Strength (μV/m at 3m) |
|-----------------|-----------------------------|
| 30-88           | 100                         |
| 88-216          | 150                         |
| 216-960         | 200                         |
| Above 960       | 500                         |

#### LIMITS OF RADIATED EMISSION MEASUREMENT (Above 1000MHz)

| Frequency (MHz) | (dBuV/m at 3 m) |         |
|-----------------|-----------------|---------|
|                 | Peak            | Average |
| Above 1000      | 74              | 54      |

**Note:**

- (1) The limit for radiated test was performed according to FCC PART 15C and RSS-247.
- (2) The tighter limit applies at the band edges.
- (3) Emission level (dBuV/m)=20log Emission level (uV/m).

## 5.2 TEST PROCEDURE

- a. The measuring distance of 3 m shall be used for measurements. The EUT was placed on the top of a rotating table 0.8 meter above the ground at a 3 meter semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.(below 1GHz)
- b. The measuring distance of 3 m or 1.5m shall be used for measurements. The EUT was placed on the top of a rotating table 1.5 meter above the ground at a 3 meter semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.(above 1GHz)
- c. The height of the equipment or of the substitution antenna shall be 0.8m or 1.5m; the height of the test antenna shall vary between 1 m to 4 m. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
- d. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights find the maximum reading (used Bore sight function).
- e. The receiver system was set to peak and average detect function and specified bandwidth with maximum hold mode when the test frequency is above 1GHz.
- f. The initial step in collecting radiated emission data is a receiver peak detector mode pre-scanning the measurement frequency range. Significant peaks are then marked and then Quasi Peak detector mode re-measured.
- g. All readings are Peak unless otherwise stated QP in column of Note. Peak denotes that the Peak reading compliance with the QP Limits and then QP Mode measurement didn't perform. (below 1GHz)
- h. All readings are Peak Mode value unless otherwise stated AVG in column of Note. If the Peak Mode Measured value compliance with the Peak Limits and lower than AVG Limits, the EUT shall be deemed to meet both Peak & AVG Limits and then only Peak Mode was measured, but AVG Mode didn't perform. (above 1GHz)
- i. The test result is calculated as the following:
  - (1) Result = Reading + Correct Factor
  - (2) Correct Factor = Antenna Factor + Cable Loss – Amplifier Gain + Attenuator
  - (3) Margin = Result - Limit

| Spectrum Parameter                         | Setting                                                                   |
|--------------------------------------------|---------------------------------------------------------------------------|
| Attenuation                                | Auto                                                                      |
| Start Frequency                            | 1000 MHz                                                                  |
| Stop Frequency                             | 10th carrier harmonic                                                     |
| RBW / VBW<br>(Emission in restricted band) | RBW 1MHz VBW 3MHz peak detector for Pk value<br>RMS detector for AV value |

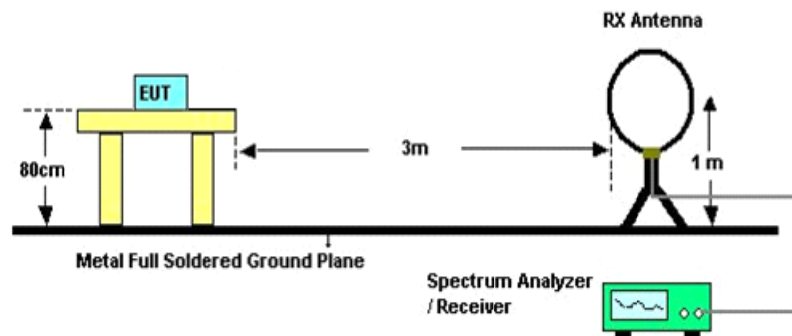
| Receiver Parameter     | Setting                             |
|------------------------|-------------------------------------|
| Attenuation            | Auto                                |
| Start ~ Stop Frequency | 9 kHz~90 kHz for PK/AVG detector    |
| Start ~ Stop Frequency | 90 kHz~110 kHz for QP detector      |
| Start ~ Stop Frequency | 110 kHz~490 kHz for PK/AVG detector |
| Start ~ Stop Frequency | 490 kHz~30 MHz for QP detector      |
| Start ~ Stop Frequency | 30MHz~1000MHz for QP detector       |

### 5.3 MEASUREMENT INSTRUMENTS LIST

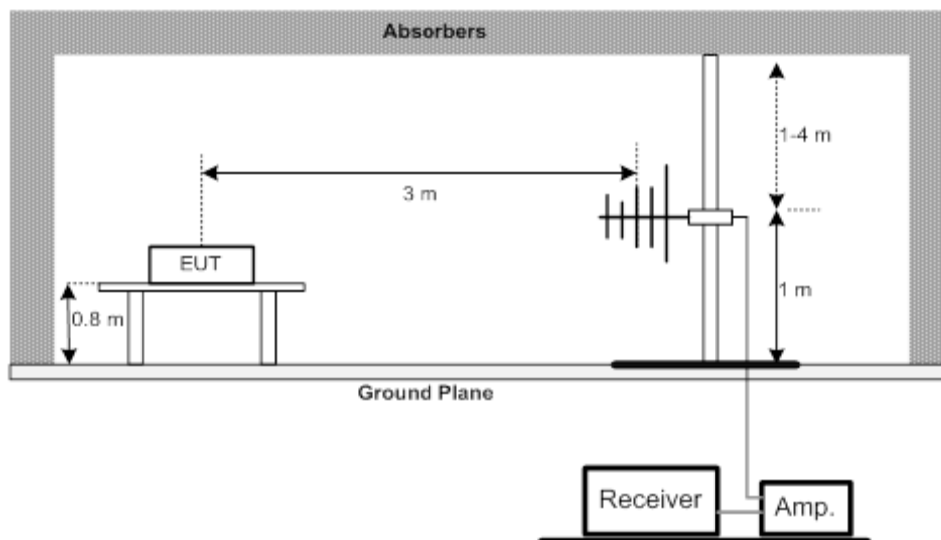
| Item | Equipment              | Manufacturer  | Model No.            | Serial No.   | Calibrated until |
|------|------------------------|---------------|----------------------|--------------|------------------|
| 1    | EMI Test Receiver      | R&S           | ESCI                 | 101307       | 12/17/2022       |
| 2    | Spectrum Analyzer      | Agilent       | E4407B               | US40240708   | 11/16/2022       |
| 3    | Loop antenna           | SCHWARZBECK K | FMZB1519             | 1519-062     | 12/17/2022       |
| 4    | Broadband antenna      | SCHWARZBECK   | VULB9168             | VULB9168-192 | 08/05/2022       |
| 5    | HORN ANTENNA           | SCHWARZBECK   | BBHA9120D            | 9120D 1065   | 04/18/2023       |
| 6    | Preamplifier Amplifier | HP            | 8447F                | 3113A05680   | 12/19/2022       |
| 7    | PRE-AMPLIFIER          | CY            | EMC011830            | 980136       | 04/18/2023       |
| 8    | RF Cable               | R&S           | Test Cable 4         | 4            | 12/19/2022       |
| 9    | RF Cable               | R&S           | Test Cable 5         | 5            | 12/19/2022       |
| 10   | RF Cable               | R&S           | Test Cable 9         | 9            | 04/18/2023       |
| 11   | RF Cable               | R&S           | Test Cable 10        | 10           | 12/19/2022       |
| 12   | Measurement Software   | Farad         | EZ-EMC (Ver.ATT-03A) | N/A          | N/A              |

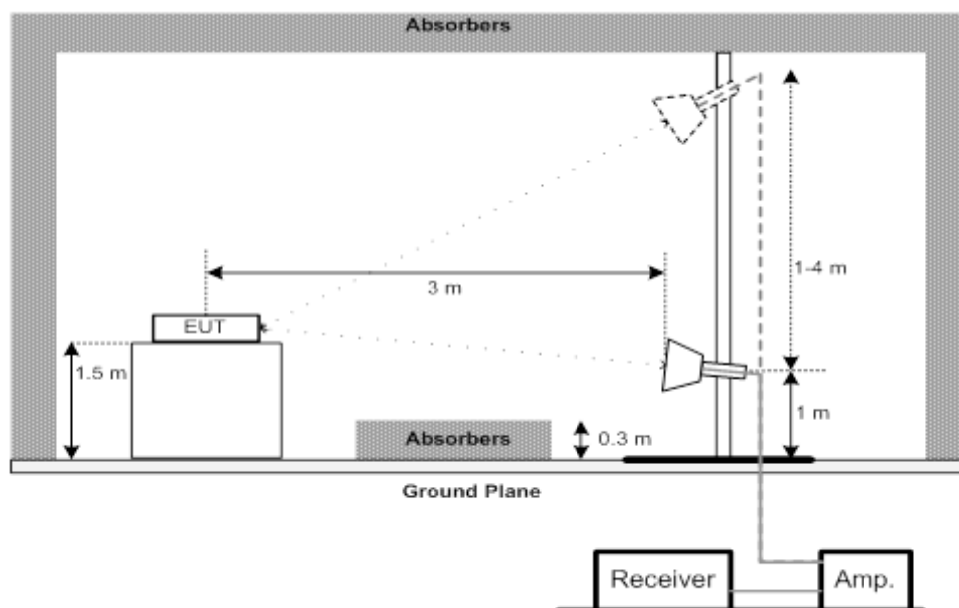
### 5.4 TESTSETUP

#### 9 kHz-30 MHz



#### 30 MHz to 1 GHz



**Above 1 GHz****5.5 EUT OPERATING CONDITIONS**

The EUT was programmed to be in continuously transmitting mode.

**5.6 TEST RESULT- 9kHz TO 30MHz**

|            |         |
|------------|---------|
| Test Mode: | TX Mode |
|------------|---------|

| Freq. | Reading  | Limit    | Margin | State |
|-------|----------|----------|--------|-------|
| (MHz) | (dBuV/m) | (dBuV/m) | (dB)   | P/F   |
| --    | --       | --       | --     | P     |
| --    | --       | --       | --     | P     |

**Note:**

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

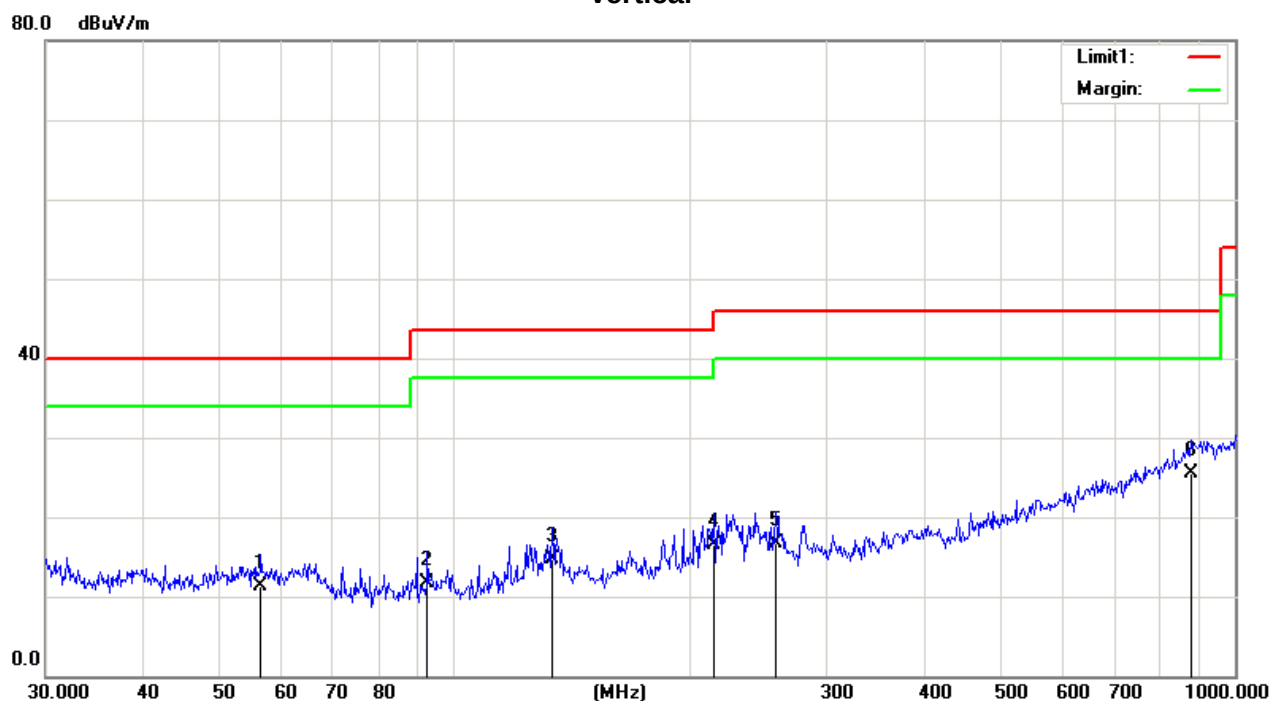
Distance extrapolation factor =  $20 \log (\text{specific distance/test distance})(\text{dB})$ ;

Limit line = specific limits(dBuv) + distance extrapolation factor

## 5.7 TEST RESULT- 30MHz TO 1000MHz

Test Mode : TX Mode

### Vertical



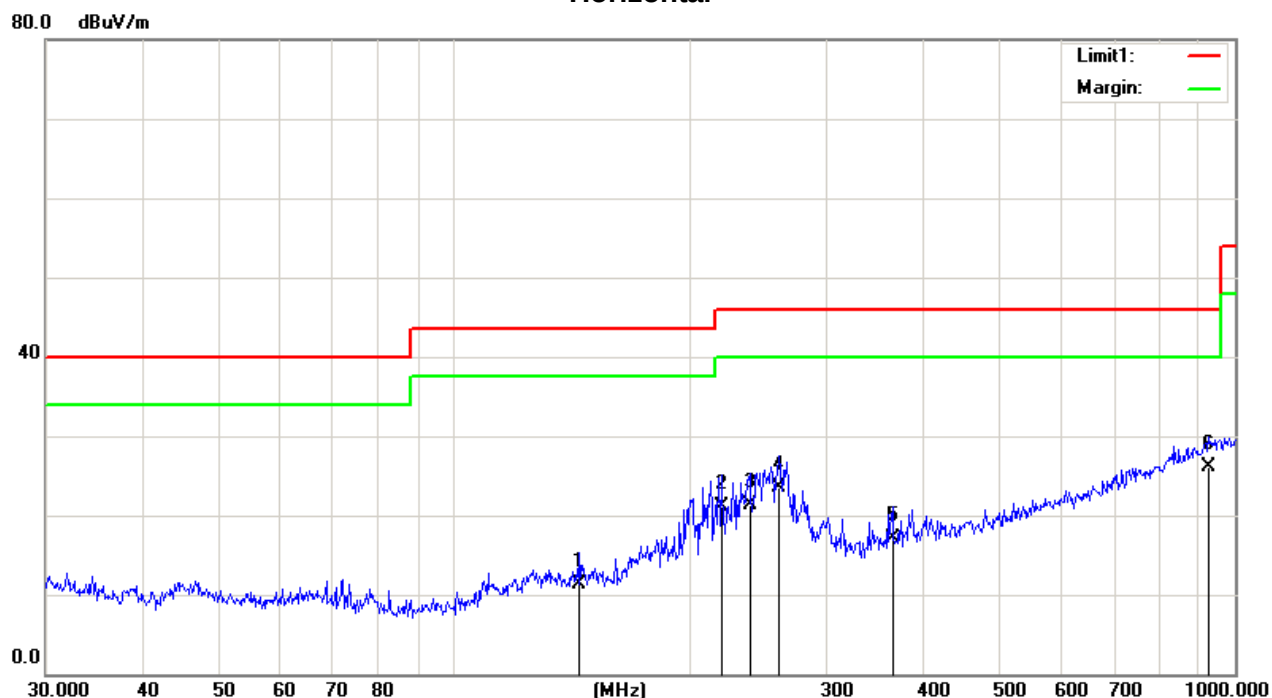
| No. | Mk. | Freq.    | Reading Level | Correct Factor | Measurement | Limit | Over   | Antenna Height | Table Degree |         |
|-----|-----|----------|---------------|----------------|-------------|-------|--------|----------------|--------------|---------|
|     |     | MHz      | dBuV          | dB             | dBuV/m      | dB/m  | dB     | cm             | degree       | Comment |
| 1   |     | 56.5929  | 24.06         | -12.68         | 11.38       | 40.00 | -28.62 | 200            | 69           |         |
| 2   |     | 92.4624  | 26.62         | -14.97         | 11.65       | 43.50 | -31.85 | 100            | 57           |         |
| 3   |     | 133.6188 | 26.59         | -11.92         | 14.67       | 43.50 | -28.83 | 100            | 165          |         |
| 4   |     | 215.2678 | 27.11         | -10.60         | 16.51       | 43.50 | -26.99 | 100            | 285          |         |
| 5   |     | 258.3264 | 23.27         | -6.62          | 16.65       | 46.00 | -29.35 | 200            | 75           |         |
| 6   | *   | 878.3214 | 23.43         | 2.17           | 25.60       | 46.00 | -20.40 | 100            | 321          |         |

\*:Maximum data    x:Over limit    !:over margin

(Reference Only)

Test Mode : TX Mode

## Horizontal



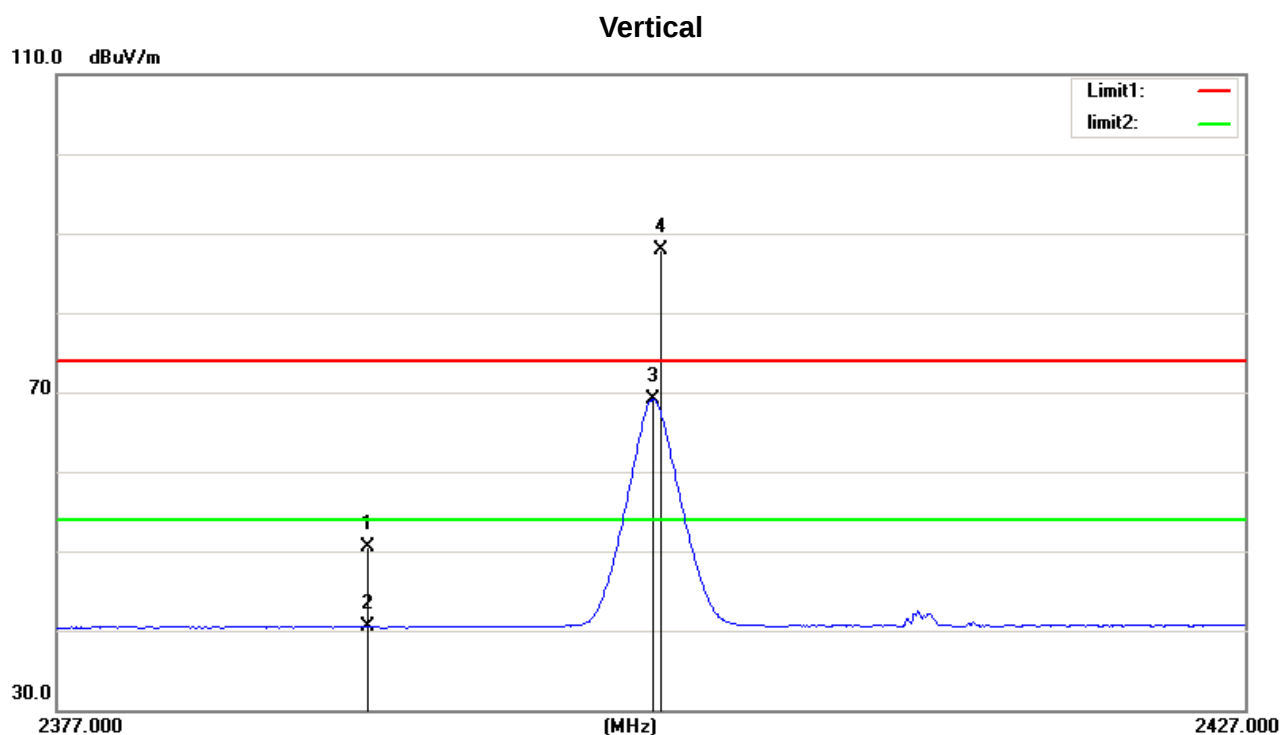
| No. | Mk. | Freq.    | Reading Level | Correct Factor | Measurement | Limit | Over   | Antenna Height | Table Degree |         |
|-----|-----|----------|---------------|----------------|-------------|-------|--------|----------------|--------------|---------|
|     |     | MHz      | dBuV          | dB             | dBuV/m      | dB/m  | dB     | cm             | degree       | Comment |
| 1   |     | 144.8418 | 23.85         | -12.54         | 11.31       | 43.50 | -32.19 | QP             | 100          | 36      |
| 2   |     | 219.8449 | 29.69         | -8.49          | 21.20       | 46.00 | -24.80 | QP             | 200          | 285     |
| 3   |     | 239.1473 | 27.70         | -6.42          | 21.28       | 46.00 | -24.72 | QP             | 100          | 158     |
| 4   |     | 261.0583 | 28.32         | -4.87          | 23.45       | 46.00 | -22.55 | QP             | 200          | 132     |
| 5   |     | 364.2595 | 25.35         | -8.32          | 17.03       | 46.00 | -28.97 | QP             | 200          | 65      |
| 6   | *   | 925.7563 | 22.37         | 3.69           | 26.06       | 46.00 | -19.94 | QP             | 100          | 79      |

\*:Maximum data x:Over limit !:over margin

⟨Reference Only

## 5.8 TEST RESULT- ABOVE 1000MHz(BAND EDGE)

Test Mode: TX 2402 MHz



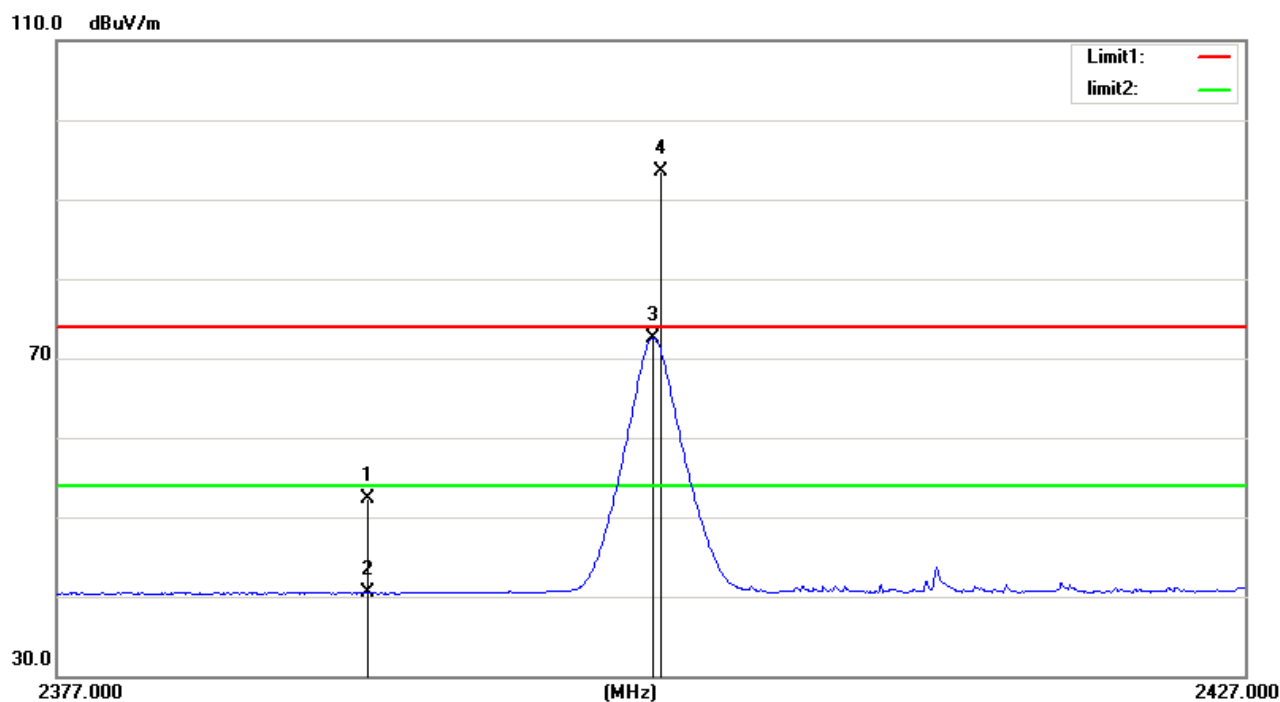
| No. | Mk. | Freq.    | Reading Level | Correct Factor | Measurement | Limit | Over   | Antenna Height | Table Degree |             |
|-----|-----|----------|---------------|----------------|-------------|-------|--------|----------------|--------------|-------------|
|     |     | MHz      | dBuV          | dB             | dBuV/m      | dB/m  | dB     | cm             | degree       | Comment     |
| 1   |     | 2390.000 | 20.16         | 30.41          | 50.57       | 74.00 | -23.43 | peak           | 150          | 81          |
| 2   |     | 2390.000 | 10.05         | 30.41          | 40.46       | 54.00 | -13.54 | AVG            | 150          | 81          |
| 3   | *   | 2402.000 | 38.70         | 30.43          | 69.13       | 54.00 | 15.13  | AVG            | 150          | 81 NO LIMIT |
| 4   | X   | 2402.300 | 57.47         | 30.43          | 87.90       | 74.00 | 13.90  | peak           | 150          | 81 NO LIMIT |

\*:Maximum data    x:Over limit    !:over margin

(Reference Only)

Test Mode: TX 2402 MHz

## Horizontal



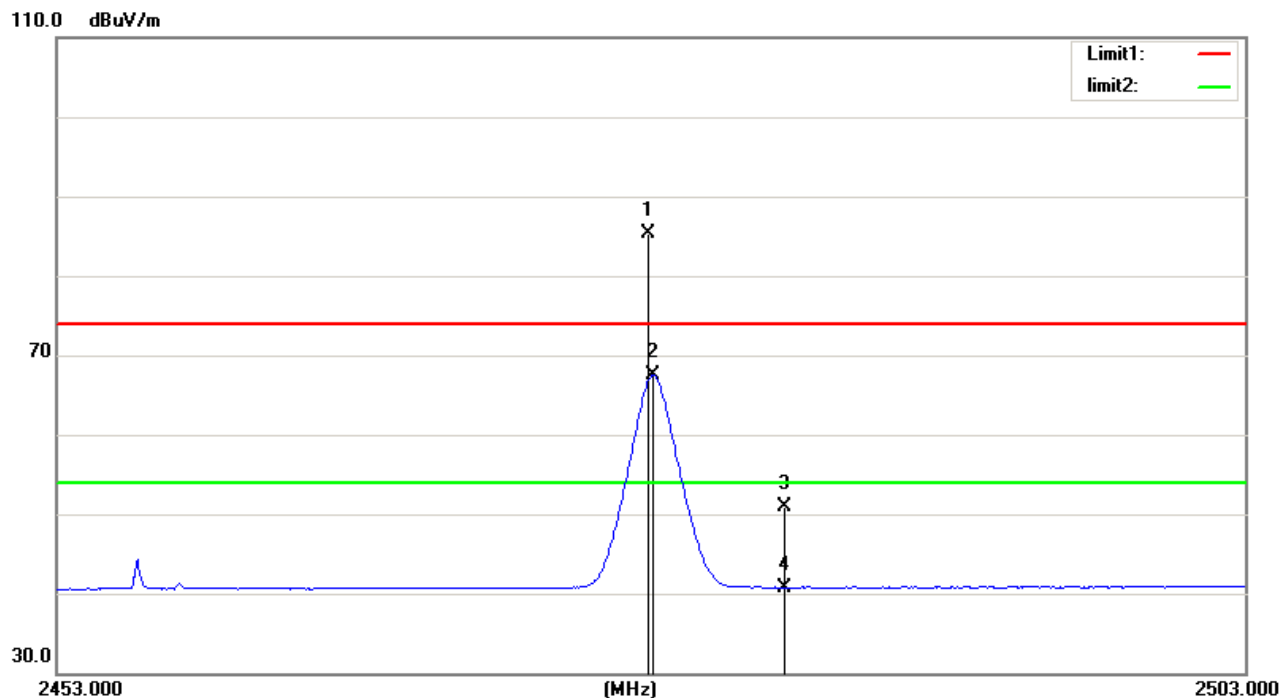
| No. | Mk. | Freq.<br>MHz | Reading<br>Level<br>dBuV | Correct<br>Factor<br>dB | Measure-<br>ment<br>dBuV/m | Limit<br>dB/m | Over<br>dB | Detector | Antenna<br>Height<br>cm | Table<br>Degree<br>degree | Comment  |
|-----|-----|--------------|--------------------------|-------------------------|----------------------------|---------------|------------|----------|-------------------------|---------------------------|----------|
| 1   |     | 2390.000     | 21.90                    | 30.41                   | 52.31                      | 74.00         | -21.69     | peak     | 150                     | 190                       |          |
| 2   |     | 2390.000     | 10.05                    | 30.41                   | 40.46                      | 54.00         | -13.54     | AVG      | 150                     | 190                       |          |
| 3   | X   | 2402.000     | 42.14                    | 30.43                   | 72.57                      | 54.00         | 18.57      | AVG      | 150                     | 190                       | NO LIMIT |
| 4   | *   | 2402.300     | 63.03                    | 30.43                   | 93.46                      | 74.00         | 19.46      | peak     | 150                     | 190                       | NO LIMIT |

\*:Maximum data    x:Over limit    !:over margin

⋄Reference Only

Test Mode: TX 2478 MHz

## Vertical



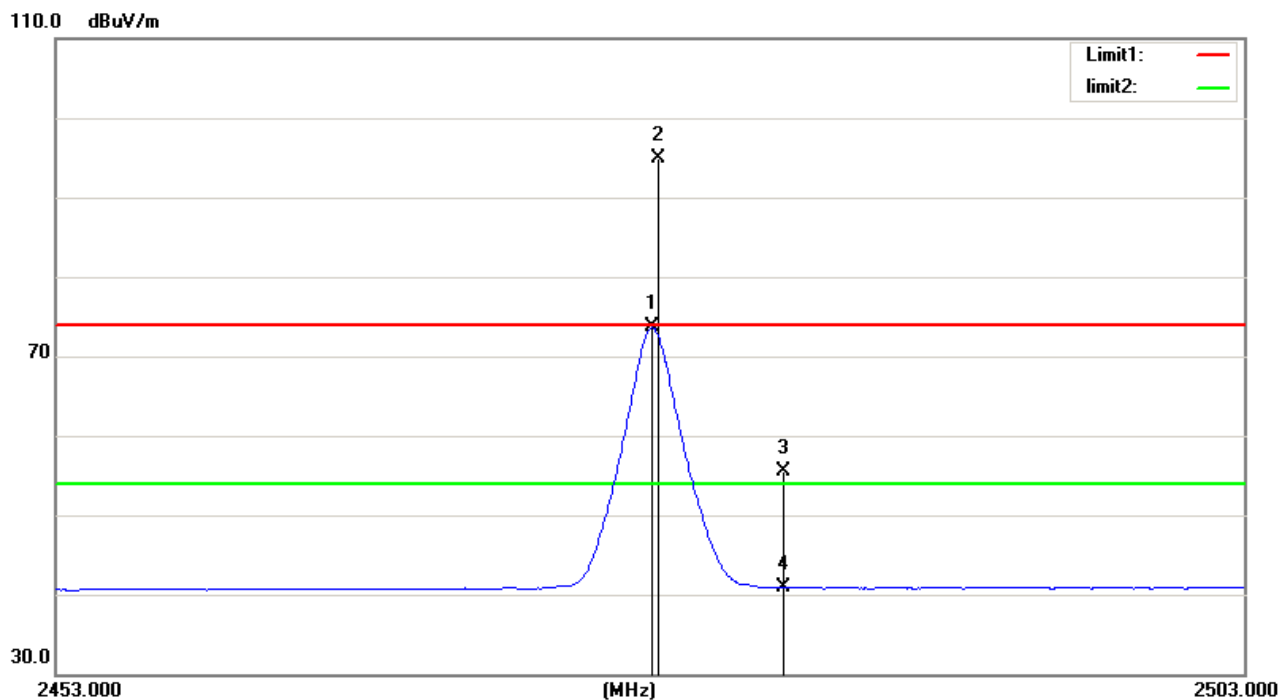
| No. | Mk. | Freq.    | Reading Level | Correct Factor | Measurement | Limit | Over   | Antenna Height | Table Degree |        |          |
|-----|-----|----------|---------------|----------------|-------------|-------|--------|----------------|--------------|--------|----------|
|     |     | MHz      | dBuV          | dB             | dBuV/m      | dB/m  | dB     | Detector       | cm           | degree | Comment  |
| 1   | X   | 2477.800 | 54.70         | 30.63          | 85.33       | 74.00 | 11.33  | peak           | 150          | 84     | NO LIMIT |
| 2   | *   | 2478.000 | 36.85         | 30.63          | 67.48       | 54.00 | 13.48  | AVG            | 150          | 84     | NO LIMIT |
| 3   |     | 2483.500 | 20.30         | 30.64          | 50.94       | 74.00 | -23.06 | peak           | 150          | 84     |          |
| 4   |     | 2483.500 | 10.11         | 30.64          | 40.75       | 54.00 | -13.25 | AVG            | 150          | 84     |          |

\*:Maximum data x:Over limit !:over margin

(Reference Only)

Test Mode: TX 2478 MHz

## Horizontal



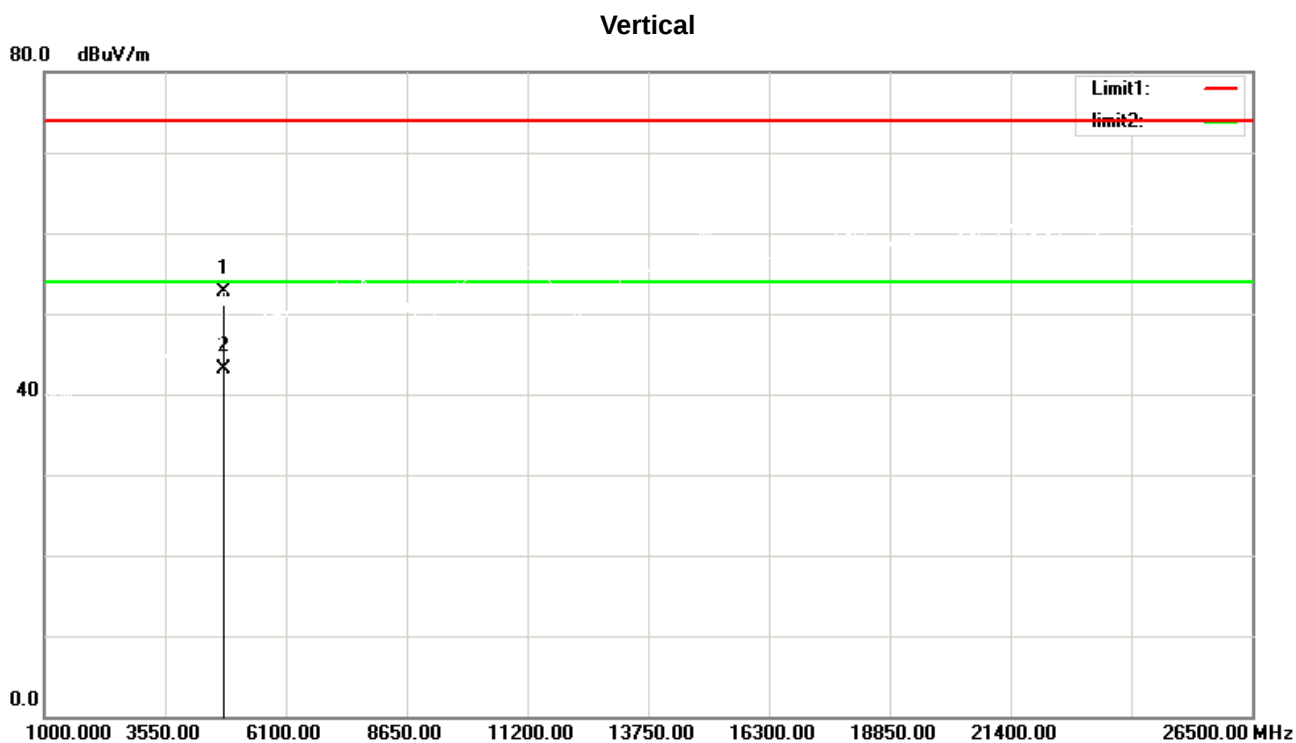
| No. | Mk. | Freq.    | Reading Level | Correct Factor | Measurement | Limit | Over   | Antenna Height | Table Degree |        |          |
|-----|-----|----------|---------------|----------------|-------------|-------|--------|----------------|--------------|--------|----------|
|     |     | MHz      | dBuV          | dB             | dBuV/m      | dB/m  | dB     | Detector       | cm           | degree | Comment  |
| 1   | X   | 2478.000 | 42.99         | 30.63          | 73.62       | 54.00 | 19.62  | AVG            | 150          | 197    | NO LIMIT |
| 2   | *   | 2478.250 | 64.36         | 30.63          | 94.99       | 74.00 | 20.99  | peak           | 150          | 197    | NO LIMIT |
| 3   |     | 2483.500 | 24.87         | 30.64          | 55.51       | 74.00 | -18.49 | peak           | 150          | 197    |          |
| 4   |     | 2483.500 | 10.21         | 30.64          | 40.85       | 54.00 | -13.15 | AVG            | 150          | 197    |          |

\*:Maximum data x:Over limit !:over margin

(Reference Only)

## 5.9 TEST RESULTS - ABOVE 1000MHz(HARMONIC)

Test Mode: TX 2402 MHz



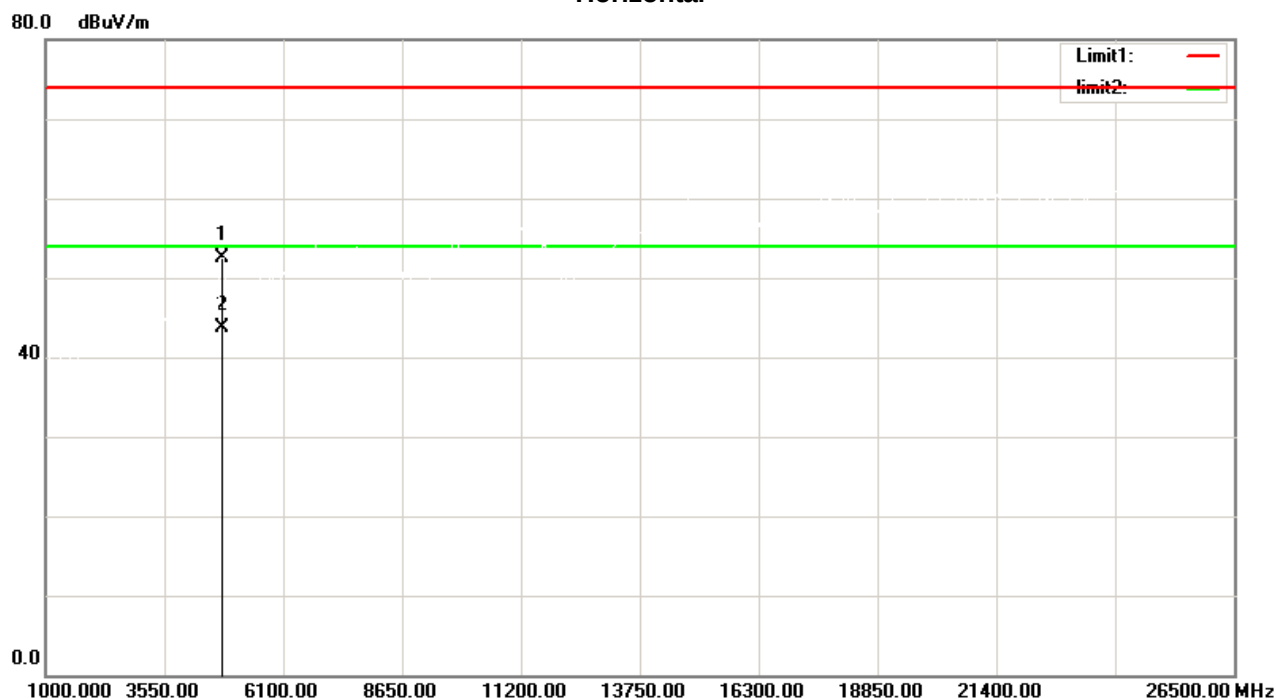
| No. | Mk. | Freq.<br>MHz | Reading<br>Level<br>dBuV | Correct<br>Factor<br>dB | Measure-<br>ment<br>dBuV/m | Limit<br>dB/m | Over<br>dB | Detector | Antenna<br>Height<br>cm | Table<br>Degree<br>degree | Comment |
|-----|-----|--------------|--------------------------|-------------------------|----------------------------|---------------|------------|----------|-------------------------|---------------------------|---------|
| 1   |     | 4804.000     | 60.29                    | -7.53                   | 52.76                      | 74.00         | -21.24     | peak     | 150                     | 85                        |         |
| 2   | *   | 4804.000     | 50.65                    | -7.53                   | 43.12                      | 54.00         | -10.88     | AVG      | 150                     | 81                        |         |

\*:Maximum data    x:Over limit    !:over margin

⟨Reference Only

Test Mode: TX 2402 MHz

## Horizontal



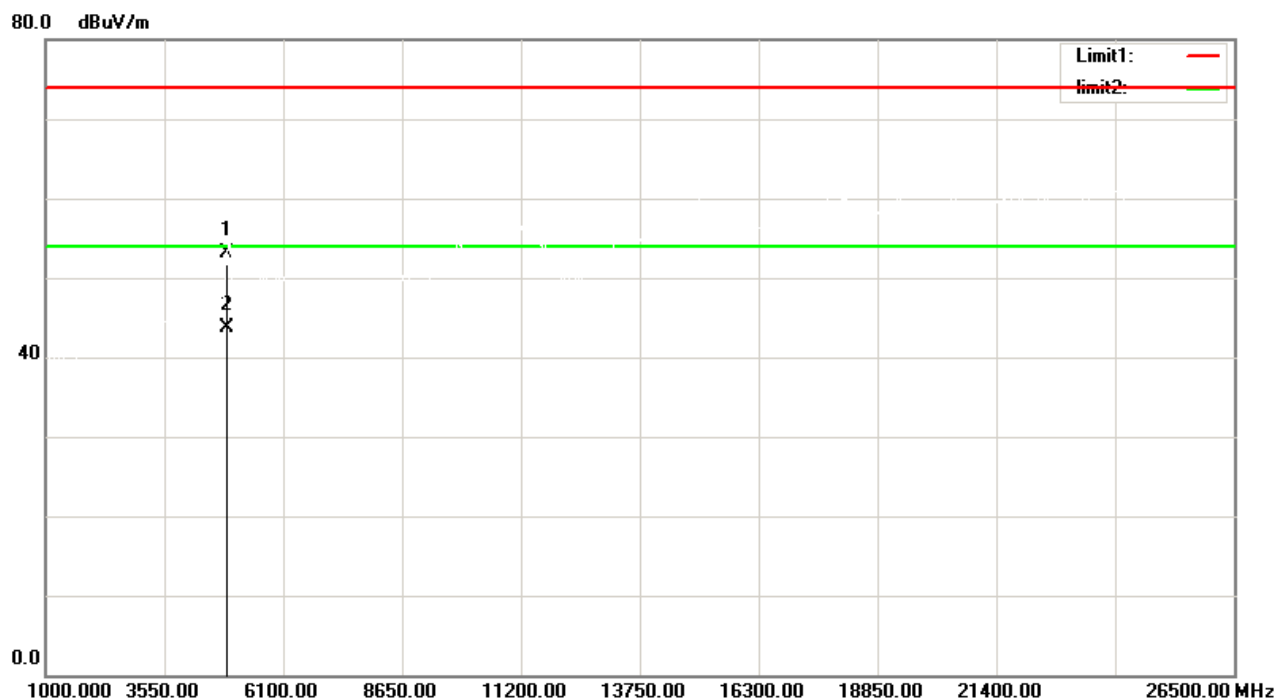
| No. | Mk. | Freq.    | Reading | Correct | Measure- | Limit | Over   | Antenna | Table  |         |
|-----|-----|----------|---------|---------|----------|-------|--------|---------|--------|---------|
|     |     | MHz      | Level   | Factor  | ment     |       |        | Height  | Degree |         |
|     |     |          | dBuV    | dB      | dBuV/m   | dB/m  | dB     | cm      | degree | Comment |
| 1   |     | 4804.000 | 60.10   | -7.53   | 52.57    | 74.00 | -21.43 | peak    | 150    | 190     |
| 2   | *   | 4804.000 | 51.14   | -7.53   | 43.61    | 54.00 | -10.39 | AVG     | 150    | 194     |

\*:Maximum data x:Over limit !:over margin

(Reference Only)

Test Mode: TX 2440 MHz

## Vertical



| No. | Mk. | Freq.    | Reading | Correct | Measure- | Limit | Over   | Antenna | Table  |         |
|-----|-----|----------|---------|---------|----------|-------|--------|---------|--------|---------|
|     |     | MHz      | Level   | Factor  | ment     |       |        | Height  | Degree |         |
|     |     |          | dBuV    | dB      | dBuV/m   | dB/m  | dB     | cm      | degree | Comment |
| 1   |     | 4880.000 | 60.40   | -7.31   | 53.09    | 74.00 | -20.91 | peak    | 150    | 90      |
| 2   | *   | 4880.000 | 50.94   | -7.31   | 43.63    | 54.00 | -10.37 | AVG     | 150    | 84      |

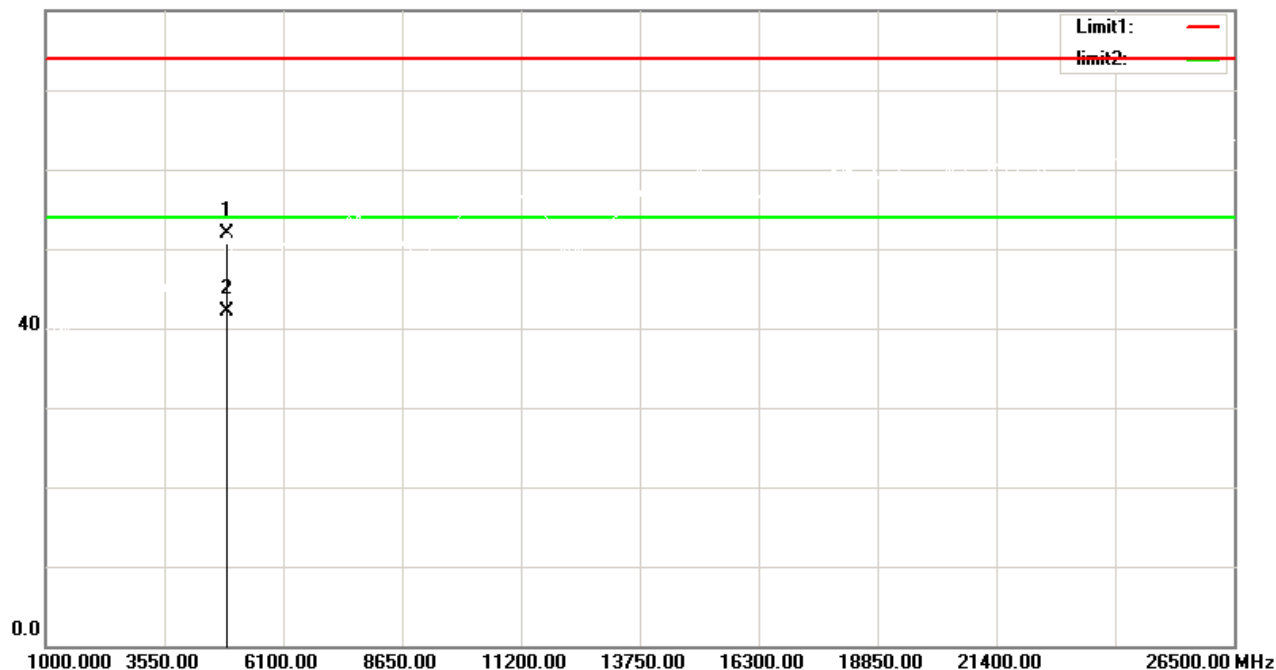
\*:Maximum data x:Over limit !:over margin

(Reference Only)

Test Mode: TX 2440 MHz

## Horizontal

80.0 dBuV/m



| No. | Mk. | Freq.<br>MHz | Reading<br>Level<br>dBuV | Correct<br>Factor<br>dB | Measure-<br>ment<br>dBuV/m | Limit<br>dB/m | Over<br>dB | Detector | Antenna<br>Height<br>cm | Table<br>Degree | Comment |
|-----|-----|--------------|--------------------------|-------------------------|----------------------------|---------------|------------|----------|-------------------------|-----------------|---------|
| 1   |     | 4888.750     | 59.26                    | -7.29                   | 51.97                      | 74.00         | -22.03     | peak     | 150                     | 179             |         |
| 2   | *   | 4888.750     | 49.32                    | -7.29                   | 42.03                      | 54.00         | -11.97     | AVG      | 150                     | 188             |         |

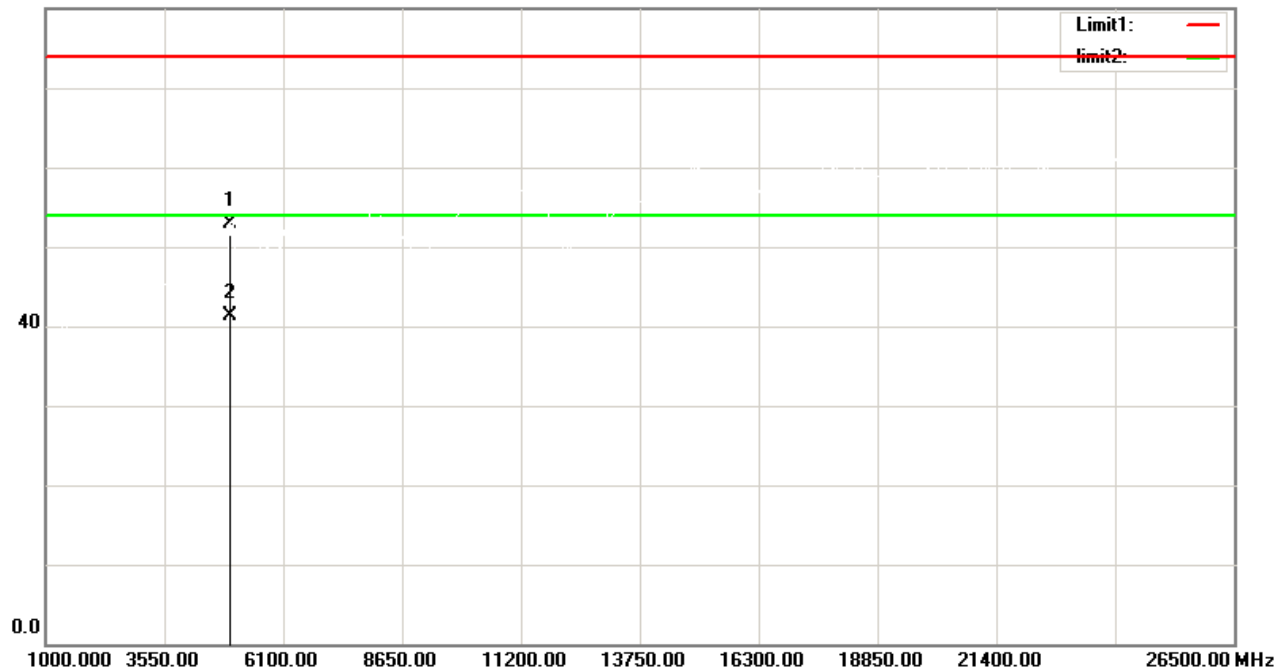
\*:Maximum data x:Over limit !:over margin

(Reference Only)

Test Mode: TX 2478 MHz

## Vertical

80.0 dBuV/m



| No. | Mk. | Freq.<br>MHz | Reading<br>Level<br>dBuV | Correct<br>Factor<br>dB | Measure-<br>ment<br>dBuV/m | Limit<br>dB/m | Over<br>dB | Detector | Antenna<br>Height<br>cm | Table<br>Degree<br>degree | Comment |
|-----|-----|--------------|--------------------------|-------------------------|----------------------------|---------------|------------|----------|-------------------------|---------------------------|---------|
| 1   |     | 4956.000     | 59.91                    | -7.10                   | 52.81                      | 74.00         | -21.19     | peak     | 150                     | 81                        |         |
| 2   | *   | 4956.000     | 48.36                    | -7.10                   | 41.26                      | 54.00         | -12.74     | AVG      | 150                     | 78                        |         |

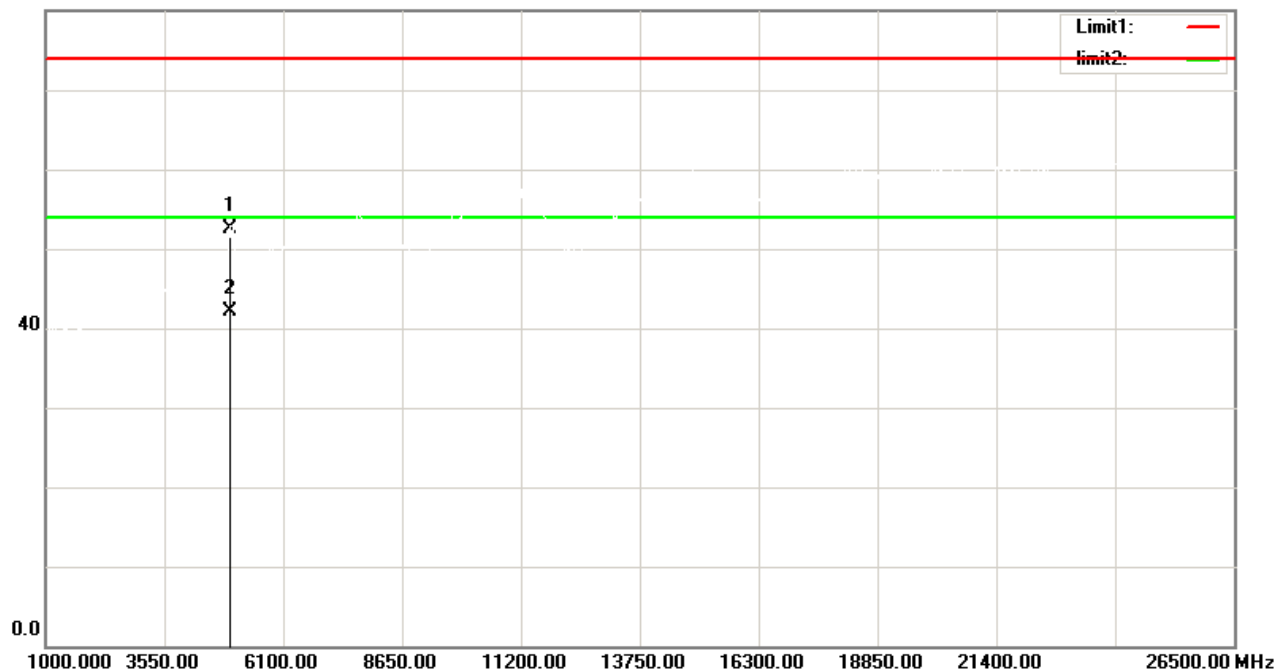
\*:Maximum data    x:Over limit    !:over margin

(Reference Only)

Test Mode: TX 2478 MHz

## Horizontal

80.0 dBuV/m



| No. Mk. | Freq.<br>MHz | Reading<br>Level<br>dBuV | Correct<br>Factor<br>dB | Measure-<br>ment<br>dBuV/m | Limit<br>dB/m | Over<br>dB | Detector | Antenna<br>Height<br>cm | Table<br>Degree | Comment |
|---------|--------------|--------------------------|-------------------------|----------------------------|---------------|------------|----------|-------------------------|-----------------|---------|
| 1       | 4956.000     | 59.70                    | -7.10                   | 52.60                      | 74.00         | -21.40     | peak     | 150                     | 190             |         |
| 2 *     | 4956.000     | 49.13                    | -7.10                   | 42.03                      | 54.00         | -11.97     | AVG      | 150                     | 193             |         |

\*:Maximum data x:Over limit !:over margin

(Reference Only)

## 6 BANDWIDTH TEST

### 6.1 LIMIT

| FCC Part15, Subpart C (15.247)& RSS-Gen/ RSS-247 |           |                                   |
|--------------------------------------------------|-----------|-----------------------------------|
| Section                                          | Test Item | Limit                             |
| 15.247(a)(2)<br>RSS-Gen6.7<br>RSS-247 5.2 (a)    | Bandwidth | $\geq 500$ kHz<br>(6dB bandwidth) |

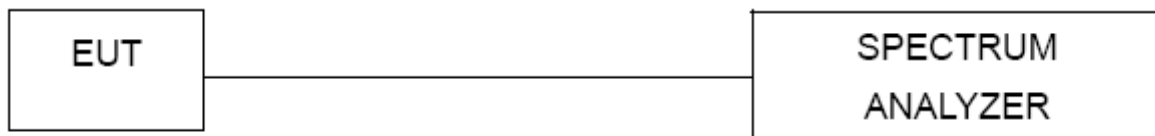
### 6.2 TEST PROCEDURE AND SETTING

- The EUT was directly connected to the spectrum analyzer and antenna output port as show in the block diagram below.
- Spectrum Setting:  
For 6dB Bandwidth RBW= 100 kHz, VBW=300 kHz, Sweep time =Auto.  
For 99% Bandwidth RBW=30kHz, VBW=100kHz, Sweep time =Auto for 1Mbps.  
RBW=100kHz, VBW=300kHz, Sweep time =Auto for 2Mbps.

### 6.3 MEASUREMENT INSTRUMENTS LIST

| Item | Kind of Equipment | Manufacturer  | Type No.    | Serial No. | Calibrated until |
|------|-------------------|---------------|-------------|------------|------------------|
| 1    | Spectrum analyzer | KEYSIGHT      | N9010A      | MY55150427 | 2023/05/26       |
| 2    | Attenuator        | Mini-Circuits | BW-S10W2    | 101109     | N/A              |
| 3    | RF Cable          | Mi-cable      | C10-01-01-1 | 100309     | N/A              |

### 6.4 TEST SETUP



### 6.5 EUT OPERATION CONDITIONS

The EUT tested system was configured as the statements of 4.5 unless otherwise a special operating condition is specified in the follows during the testing.

## 6.6 TESTRESULTS

| TX Mode_1Mbps |                 |                      |              |        |
|---------------|-----------------|----------------------|--------------|--------|
| Channel       | Frequency (MHz) | 6 dB bandwidth (MHz) | 99%OBW (MHz) | Result |
| CH00          | 2402            | 0.7192               | 1.0607       | PASS   |
| CH19          | 2440            | 0.7239               | 1.0615       | PASS   |
| CH38          | 2478            | 0.7248               | 1.0691       | PASS   |



## 7 MAXIMUM OUTPUT POWER

### 7.1 LIMIT

| FCC Part15, Subpart C (15.247)&RSS-247 |                      |                 |
|----------------------------------------|----------------------|-----------------|
| Section                                | Test Item            | Limit           |
| 15.247(b)(3)<br>RSS-2475.4 (d)         | Maximum Output Power | 1 watt or 30dBm |

### 7.2 TEST PROCEDURE

- The EUT was directly connected to the spectrum analyzer and antenna output port as show in the block diagram below.
- The maximum conducted output power was performed in accordance with method 11.9.1.3(for peak power)ofANSI C63.10-2013.

### 7.3 MEASUREMENT INSTRUMENTS LIST

| Item | Kind of Equipment | Manufacturer  | Type No.    | Serial No. | Calibrated until |
|------|-------------------|---------------|-------------|------------|------------------|
| 1    | Spectrum analyzer | KEYSIGHT      | N9010A      | MY55150427 | 2023/05/26       |
| 2    | Attenuator        | Mini-Circuits | BW-S10W2    | 101109     | N/A              |
| 3    | RF Cable          | Mi-cable      | C10-01-01-1 | 100309     | N/A              |

### 7.4 TEST SETUP

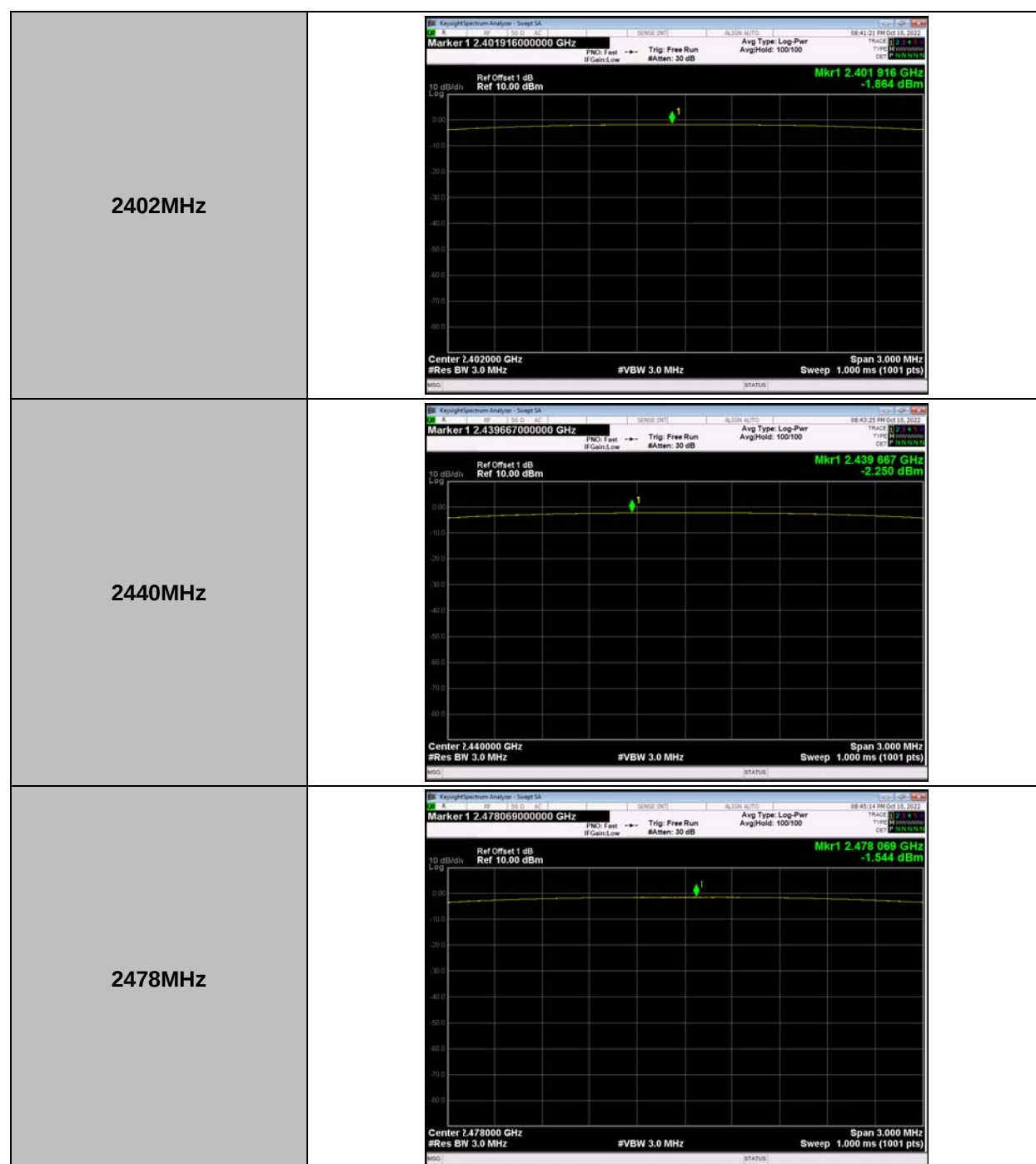


### 7.5 EUT OPERATION CONDITIONS

The EUT tested system was configured as the statements of 4.5 unless otherwise a special operating condition is specified in the follows during the testing.

## 7.6 TESTRESULTS

| TX Mode_1Mbps |                 |                    |                  |        |
|---------------|-----------------|--------------------|------------------|--------|
| Channel       | Frequency (MHz) | Output Power (dBm) | Output Power (W) | Result |
| CH00          | 2402            | -1.864             | 0.00651          | PASS   |
| CH19          | 2440            | -2.250             | 0.000596         | PASS   |
| CH38          | 2478            | -1.544             | 0.000701         | PASS   |
| Limit         | 30dBm / 1W      |                    |                  |        |



## 8 CONDUCTED SPURIOUS EMISSION

### 8.1 LIMIT

For FCC

In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak Output Power limits. If the transmitter complies with the Output Power limits based on the use of RMS averaging over a time interval, as permitted under paragraph (b)(3) of this section, the attenuation required under this paragraph shall be 30 dB instead of 20 dB. Attenuation below the general limits specified in Section 15.209(a) is not required.

For ISSED

In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated device is operating, the RF power that is produced shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided that the transmitter demonstrates compliance with the peak Output Power limits. If the transmitter complies with the Output Power limits based on the use of root-mean-square averaging over a time interval, as permitted under section 5.4(d), the attenuation required shall be 30 dB instead of 20 dB. Attenuation below the general field strength limits specified in RSS-Gen is not required.

### 8.2 TEST PROCEDURE

- The EUT was directly connected to the spectrum analyzer and antenna output port as show in the block diagram below.
- Spectrum Setting : RBW= 100 kHz, VBW=300 kHz, Sweep time = Auto.

### 8.3 MEASUREMENT INSTRUMENTS LIST

| Item | Kind of Equipment | Manufacturer  | Type No.    | Serial No. | Calibrated until |
|------|-------------------|---------------|-------------|------------|------------------|
| 1    | Spectrum analyzer | KEYSIGHT      | N9010A      | MY55150427 | 2023/05/26       |
| 2    | Attenuator        | Mini-Circuits | BW-S10W2    | 101109     | N/A              |
| 3    | RF Cable          | Mi-cable      | C10-01-01-1 | 100309     | N/A              |

### 8.4 TEST SETUP



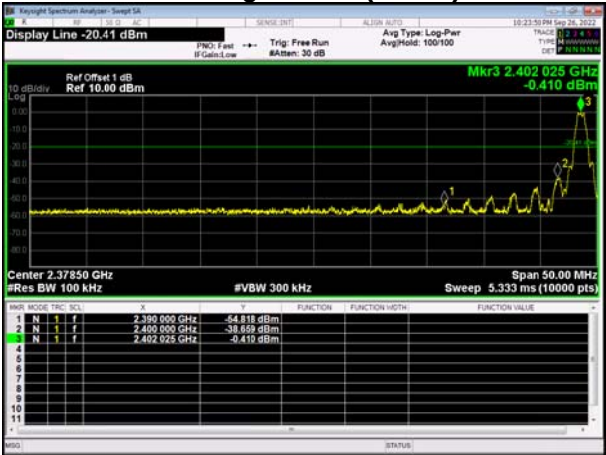
### 8.5 EUT OPERATION CONDITIONS

The EUT tested system was configured as the statements of 4.5 unless otherwise a special operating condition is specified in the follows during the testing.

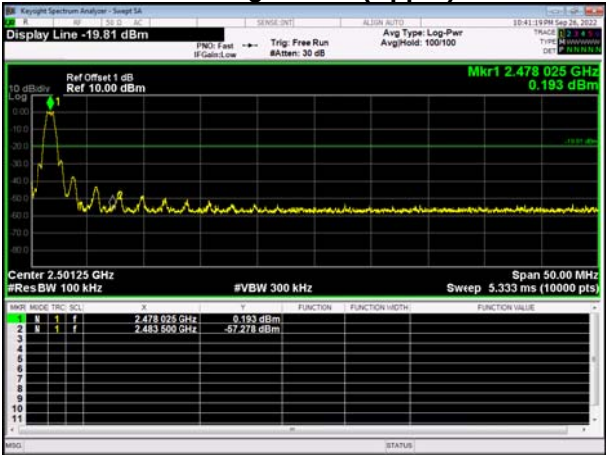
8.6 TEST RESULTS

TX Mode\_1Mbps

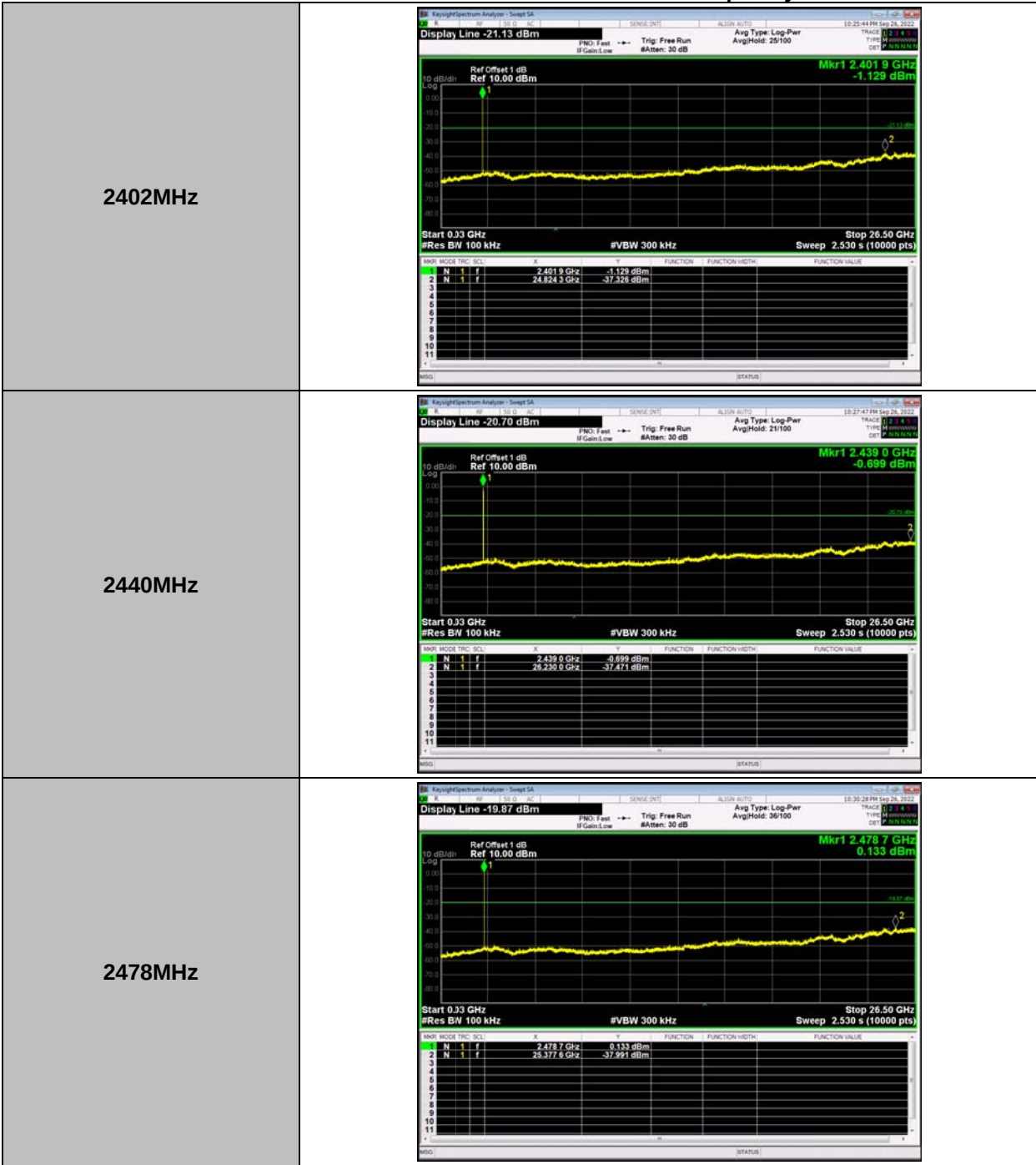
Bandedge- CH00 (Lower)



Bandedge CH38 (Upper)



CH00 – 10th Harmonic of the fundamental frequency



## 9 POWER SPECTRAL DENSITY TEST

### 9.1 LIMIT

| FCC Part15, Subpart C (15.247)&RSS-247 |                        |                         |
|----------------------------------------|------------------------|-------------------------|
| Section                                | Test Item              | Limit                   |
| 15.247(e)<br>RSS-2475.2 (b)            | Power Spectral Density | 8 dBm<br>(in any 3 kHz) |

### 9.2 TEST PROCEDURE

- The EUT was directly connected to the spectrum analyzer and antenna output port as show in the block diagram below.
- Spectrum Setting: RBW=3 kHz, VBW=10kHz, Sweep time = auto.

### 9.3 MEASUREMENT INSTRUMENTS LIST

| Item | Kind of Equipment | Manufacturer  | Type No.    | Serial No. | Calibrated until |
|------|-------------------|---------------|-------------|------------|------------------|
| 1    | Spectrum analyzer | KEYSIGHT      | N9010A      | MY55150427 | 2023/05/26       |
| 2    | Attenuator        | Mini-Circuits | BW-S10W2    | 101109     | N/A              |
| 3    | RF Cable          | Mi-cable      | C10-01-01-1 | 100309     | N/A              |

### 9.4 TEST SETUP

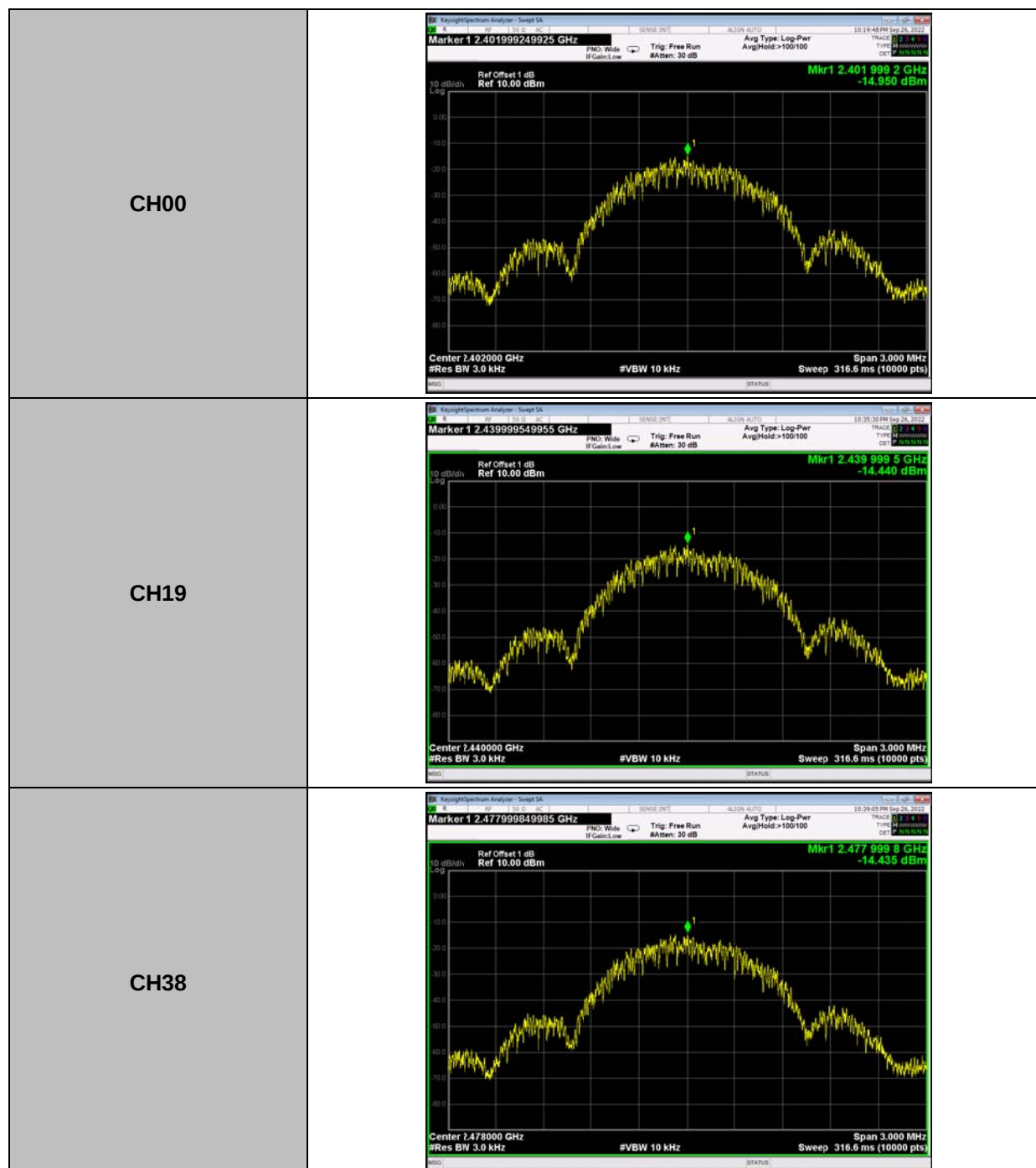


### 9.5 EUT OPERATION CONDITIONS

The EUT tested system was configured as the statements of 3.5 unless otherwise a special operating condition is specified in the follows during the testing.

## 9.6 TEST RESULTS

| TX Mode_1Mbps |                 |                                   |                  |        |
|---------------|-----------------|-----------------------------------|------------------|--------|
| Channel       | Frequency (MHz) | Power SpectralDensity (dBm/3 kHz) | Limit: <dBm/3KHz | Result |
| CH00          | 2402            | -14.950                           | 8                | PASS   |
| CH19          | 2440            | -14.440                           | 8                | PASS   |
| CH38          | 2478            | -14.435                           | 8                | PASS   |



## 10 FREQUENCY STABILITY MEASUREMENT

### 10.1 LIMIT

| RSS-Gen      |                     |                                |                       |
|--------------|---------------------|--------------------------------|-----------------------|
| Section      | Test Item           | Limit                          | Frequency Range (MHz) |
| RSS-Gen 6.11 | Frequency Stability | Specified in the user's manual | 2402-2480             |

### 10.2 TEST PROCEDURE

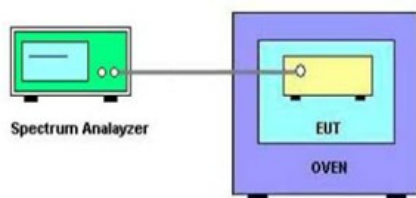
- a. The EUT was directly connected to the spectrum analyzer and antenna output port as show in the block diagram below.
- b. Spectrum Setting:

| Spectrum Parameter | Setting                                          |
|--------------------|--------------------------------------------------|
| Attenuation        | Auto                                             |
| Span Frequency     | Entire absence of modulation emissions bandwidth |
| RBW                | 10 kHz                                           |
| VBW                | 10kHz                                            |
| Sweep Time         | Auto                                             |

### 10.3 MEASUREMENT INSTRUMENTS LIST

| Item | Kind of Equipment        | Manufacturer      | Type No.    | Serial No.    | Calibrated until |
|------|--------------------------|-------------------|-------------|---------------|------------------|
| 1    | Spectrum analyzer        | KEYSIGHT          | N9010A      | MY55150427    | 2023/05/26       |
| 2    | Attenuator               | Mini-Circuits     | BW-S10W2    | 101109        | N/A              |
| 3    | RF Cable                 | Mi-cable          | C10-01-01-1 | 100309        | N/A              |
| 4    | Temperature conditioning | Guan Jian.HTH1000 | -20-130℃    | GJ1000-10D001 | N/A              |
| 5    | DC Power Supply          | G.KE              | IPR-10010D  | 010931954     | N/A              |

### 10.4 TEST SETUP



### 10.5 EUT OPERATION CONDITIONS

The EUT was programmed to be in continuously transmitting mode.

**10.6 TEST RESULTS**

|                      | Temperature vs. Frequency Stability |                             |
|----------------------|-------------------------------------|-----------------------------|
| Voltage              | Temperature                         | Measurement Frequency (MHz) |
| 5V                   | (°C)                                | 2402                        |
|                      | -20                                 | 2402.0208                   |
|                      | 25                                  | 2402.0210                   |
|                      | 50                                  | 2402.0213                   |
| 3.5V                 | 25                                  | 2402.0211                   |
| Max. Deviation (MHz) |                                     | 0.0213                      |
| Max. Deviation (ppm) |                                     | 8.87                        |

Note: 3.5V is the end point voltage, and products below 3.5V will cease working.

**END OF TEST REPORT**