

## FCC &ISED Radio Test Report

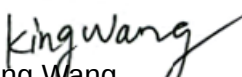
**FCC ID: 2AC23-WCT0Y****IC:12290A-WCT0Y****The report concerns: Original Grant**

Report Reference No.....: 20EFAS05137 4851  
Date Sample(s) Received.....: 2020-05-30  
Date of Tested.....: 2020-05-30 to 2020-06-23  
Date of issue.....: 2020-06-23  
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GuangDong, China  
  
Applicant's name .....: Hui Zhou Gaoshengda Technology Co., LTD  
Address .....: NO.75 Zhongkai Development Area, Huizhou,  
Guangdong,China  
Manufacturer.....: Hui Zhou Gaoshengda Technology Co., LTD  
  
Equipment.....: WIFI+BT Module  
Trade Mark .....: GSD  
Model .....: WCT0YR2201  
Ratings .....: I/P: DC 5V

Responsible Engineer :

  
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King Wang

中国认可  
国际互认  
检测  
TESTING  
CNAS L3098

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**1. TEST REPORT DECLARE**

|              |                                                                                                                |
|--------------|----------------------------------------------------------------------------------------------------------------|
| Applicant    | Hui Zhou Gaoshengda Technology Co., LTD                                                                        |
| Address      | NO.75 Zhongkai Development Area, Huizhou, Guangdong, China                                                     |
| Manufacturer | Hui Zhou Gaoshengda Technology Co., LTD                                                                        |
| Address      | NO.75 Zhongkai Development Area, Huizhou, Guangdong, China                                                     |
| Factory      | Hui Zhou Gaoshengda Technology Co., LTD                                                                        |
| Address      | NO.75 Zhongkai Development Area, Huizhou, Guangdong, China                                                     |
| Equipment    | WIFI+BT Module                                                                                                 |
| Model No.    | WCT0YR2201                                                                                                     |
| Trade Mark   | GSD                                                                                                            |
| Standard     | FCC Part15, Subpart C (15.247)<br>RSS-247 Issue 2, Feb. 2017<br>RSS-Gen Issue 5, Apr. 2018<br>ANSI C63.10-2013 |

**We Declare:**

The equipment described above is tested by DongGuan ShuoXin Electronic Technology Co., Ltd. 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. is assumed of full responsibility for the accuracy and completeness of these tests.

## 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 | PASS     | -----   |
| 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                              | Conducted Spurious 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 in this test report.
- (2) The device what use a permanently attached antenna were considered sufficient to comply 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                         | $\pm 0.048\text{kHz}$ |
| Uncertainty for conducted RF Power                      | $\pm 0.32\text{dB}$   |

**Note:**

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

### 3. GENERAL INFORMATION

#### 3.1 GENERAL DESCRIPTION OF EUT

|                         |                                                                                                                                                      |                                                                                                                   |
|-------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------|
| Equipment               | WIFI+BT Module                                                                                                                                       |                                                                                                                   |
| Brand Name              | GSD                                                                                                                                                  |                                                                                                                   |
| Test Model              | WCT0YR2201                                                                                                                                           |                                                                                                                   |
| Series Model            | N/A                                                                                                                                                  |                                                                                                                   |
| Model Difference(s)     | N/A                                                                                                                                                  |                                                                                                                   |
| Hardware Version        | V1.0                                                                                                                                                 |                                                                                                                   |
| Software Version        | V1.0                                                                                                                                                 |                                                                                                                   |
| PowerSource             | Supplied from USB.                                                                                                                                   |                                                                                                                   |
| Power Rating            | DC 5V                                                                                                                                                |                                                                                                                   |
| Operation Frequency     | 2412 MHz~ 2462 MHz                                                                                                                                   |                                                                                                                   |
| Modulation Technology   | IEEE 802.11b:DSSS<br>IEEE 802.11g:OFDM<br>IEEE 802.11n:OFDM                                                                                          |                                                                                                                   |
| Bit Rate of Transmitter | IEEE 802.11b: 11/5.5/2/1 Mbps<br>IEEE 802.11g: 54/48/36/24/18/12/9/6 Mbps<br>IEEE 802.11n: up to 300 Mbps                                            |                                                                                                                   |
| Operating Mode          | IEEE 802.11b:1TX(Ant 1 or Ant 2)<br>IEEE 802.11g:1TX(Ant 1 or Ant 2)<br>IEEE 802.11n (HT20):2TX(Ant 1+Ant 2)<br>IEEE 802.11n (HT40):2TX(Ant 1+Ant 2) |                                                                                                                   |
| Antenna Information     | Antenna Type: PIFA                                                                                                                                   | Maximum Peak Gain:<br>Vantage 3 DP:-0.75dBi<br>Vantage 3 Entry(901KG):-1.13dBi<br>Vantage 3 Entry(901OO):-1.32dBi |
| Max. Output Power       | IEEE 802.11b: 18.85dBm(0.0767W)<br>IEEE 802.11g: 22.31dBm(0.1702W)<br>IEEE 802.11n (HT20):23.57dBm(0.2275W)<br>IEEE 802.11n (HT40):23.76dBm(0.2378W) |                                                                                                                   |

Note:

1. For a more detailed features description, please refer to the manufacturer's specifications or the user's manual.
2. The EUT has three model number of antenna, these antenna type are the same, the test was used maximum antenna gain of antenna.
3. Channel List:

| CH01 - CH11 for IEEE 802.11b, IEEE 802.11g, IEEE 802.11n (HT20)<br>CH03-CH09 for IEEE 802.11n (HT40) |                 |         |                 |         |                 |         |                 |
|------------------------------------------------------------------------------------------------------|-----------------|---------|-----------------|---------|-----------------|---------|-----------------|
| Channel                                                                                              | Frequency (MHz) | Channel | Frequency (MHz) | Channel | Frequency (MHz) | Channel | Frequency (MHz) |
| 01                                                                                                   | 2412            | 04      | 2427            | 07      | 2442            | 10      | 2457            |
| 02                                                                                                   | 2417            | 05      | 2432            | 08      | 2447            | 11      | 2462            |
| 03                                                                                                   | 2422            | 06      | 2437            | 09      | 2452            |         |                 |

### 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 B Mode Channel 01/06/11        |
| Mode 2       | TX G Mode Channel 01/06/11        |
| Mode 3       | TX N-20 MHz Mode Channel 01/06/11 |
| Mode 4       | TX N-40 MHz Mode Channel03/06/09  |
| Mode 5       | TX N-40 MHz Mode Channel 09       |

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

| AC power line conducted emissions test |                             |
|----------------------------------------|-----------------------------|
| Final Test Mode                        | Description                 |
| Mode 5                                 | TX N-40 MHz Mode Channel 09 |

| Radiated emissions test - Below 1GHz |                             |
|--------------------------------------|-----------------------------|
| Final Test Mode                      | Description                 |
| Mode 5                               | TX N-40 MHz Mode Channel 09 |

| Radiated emissions test- Above 1GHz |                                   |
|-------------------------------------|-----------------------------------|
| Final Test Mode                     | Description                       |
| Mode 1                              | TX B Mode Channel 01/06/11        |
| Mode 2                              | TX G Mode Channel 01/06/11        |
| Mode 3                              | TX N-20 MHz Mode Channel 01/06/11 |
| Mode 4                              | TX N-40 MHz Mode Channel03/06/09  |

| Conducted test  |                                   |
|-----------------|-----------------------------------|
| Final Test Mode | Description                       |
| Mode 1          | TX B Mode Channel 01/06/11        |
| Mode 2          | TX G Mode Channel 01/06/11        |
| Mode 3          | TX N-20 MHz Mode Channel 01/06/11 |
| Mode 4          | TX N-40 MHz Mode Channel03/06/09  |

**NOTE:**

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

(2) 802.11b mode: DBPSK (1Mbps)

802.11g mode: OFDM (6Mbps)

802.11n HT20 mode : BPSK (13Mbps)

802.11n HT40mode : BPSK (27Mbps)

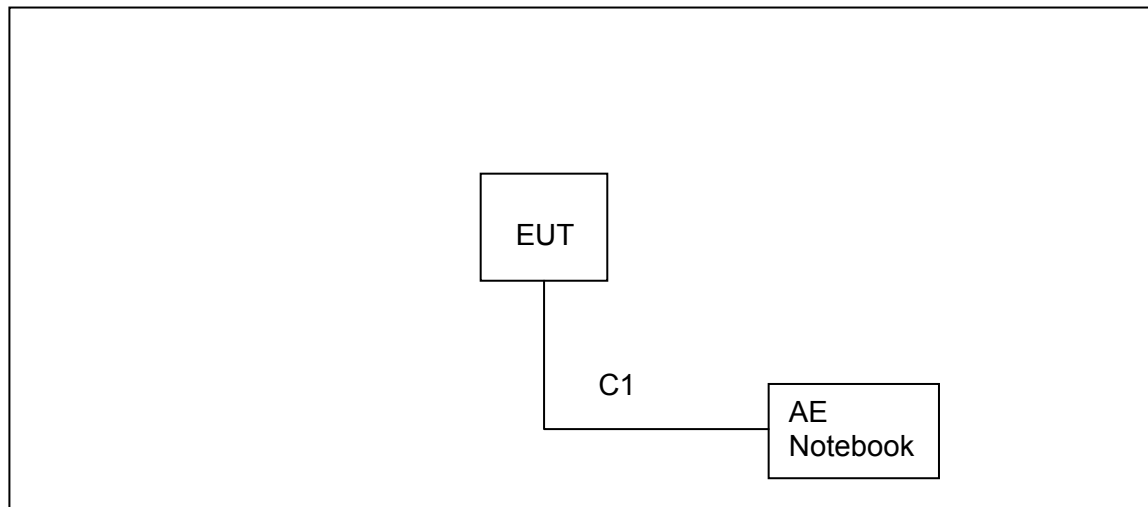
For radiated emission tests, the highest output powers were set for final test.

(3) For radiated emission below 1GHz and AC power line conducted emissions test, the IEEE 802.11n20 channel 11 is found to be the worst case and recorded.

**3.3 PARAMETERS OF TEST SOFTWARE**

| Test Software        | Realtek 11ac 8822B PCIE WLAN MP |      |      |
|----------------------|---------------------------------|------|------|
| Frequency (MHz)      | 2412                            | 2437 | 2462 |
| IEEE 802.11b         | 50                              | 50   | 52   |
| IEEE 802.11g         | 53                              | 55   | 57   |
| IEEE 802.11n (HT20)  | 52                              | 55   | 57   |
| Test Frequency (MHz) | 2422                            | 2437 | 2452 |
| IEEE 802.11n (HT40)  | 50                              | 50   | 52   |

### 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 | 25°C        | 53%      | DC 5V        |
| Radiated Emissions-9K-30MHz       | 25°C        | 60%      | DC 5V        |
| Radiated Emissions-30 MHz to 1GHz | 24°C        | 68%      | DC 5V        |
| Radiated Emissions-Above 1000 MHz | 24°C        | 68%      | DC 5V        |
| Bandwidth                         | 24.8°C      | 40.9%    | DC 5V        |
| Maximum Output Power              | 24.8°C      | 40.9%    | DC 5V        |
| Conducted Spurious Emission       | 24.8°C      | 40.9%    | DC 5V        |
| Power Spectral Density            | 24.8°C      | 40.9%    | DC 5V        |

### **3.7 DUTY CYCLE**

All tests were performed under the condition of 100% Duty Cycle

**NOTE:**

For IEEE 802.11a, IEEE 802.11n (HT20)

For radiated emissions frequency above 1 GHz, the resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is 1 kHz (Duty cycle < 98%).

For IEEE 802.11n (HT40)

For radiated emissions frequency above 1 GHz, the resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is 2 kHz (Duty cycle < 98%).

## 4. AC POWER LINE CONDUCTED EMISSIONS TEST

### 4.1 LIMIT

| Frequency of Emission (MHz) | Limit (dB $\mu$ V) |           |
|-----------------------------|--------------------|-----------|
|                             | 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    |

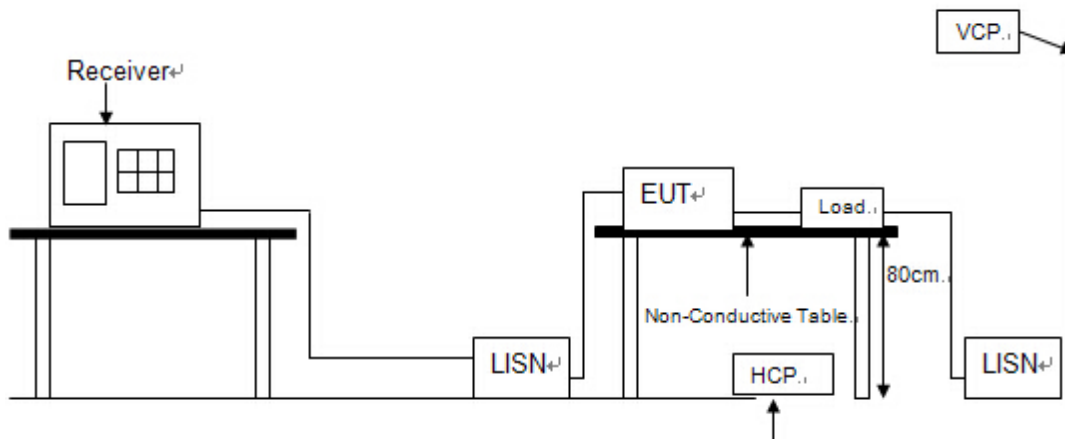
### 4.2 TEST PROCEDURE

- 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.

### 4.3 MEASUREMENT INSTRUMENTS LIST

| Item | Kind of Equipment    | Manufacturer      | Type No.             | Serial No.      | Calibrated until |
|------|----------------------|-------------------|----------------------|-----------------|------------------|
| 1    | Pulse Limiter        | MTS-systemtechnik | MTS-IMP-136          | 261115-010-0024 | 12/11/2020       |
| 2    | EMI Test Receiver    | R&S               | ESCI                 | 101308          | 12/11/2020       |
| 3    | LISN                 | AFJ               | LS16                 | 16011103219     | 06/10/2021       |
| 4    | LISN                 | Schwarzbeck       | NSLK 8127            | 8127-432        | 12/11/2020       |
| 5    | Measurement Software | Farad             | EZ-EMC (Ver.ATT-03A) | N/A             | N/A              |

#### 4.4 TESTSETUP

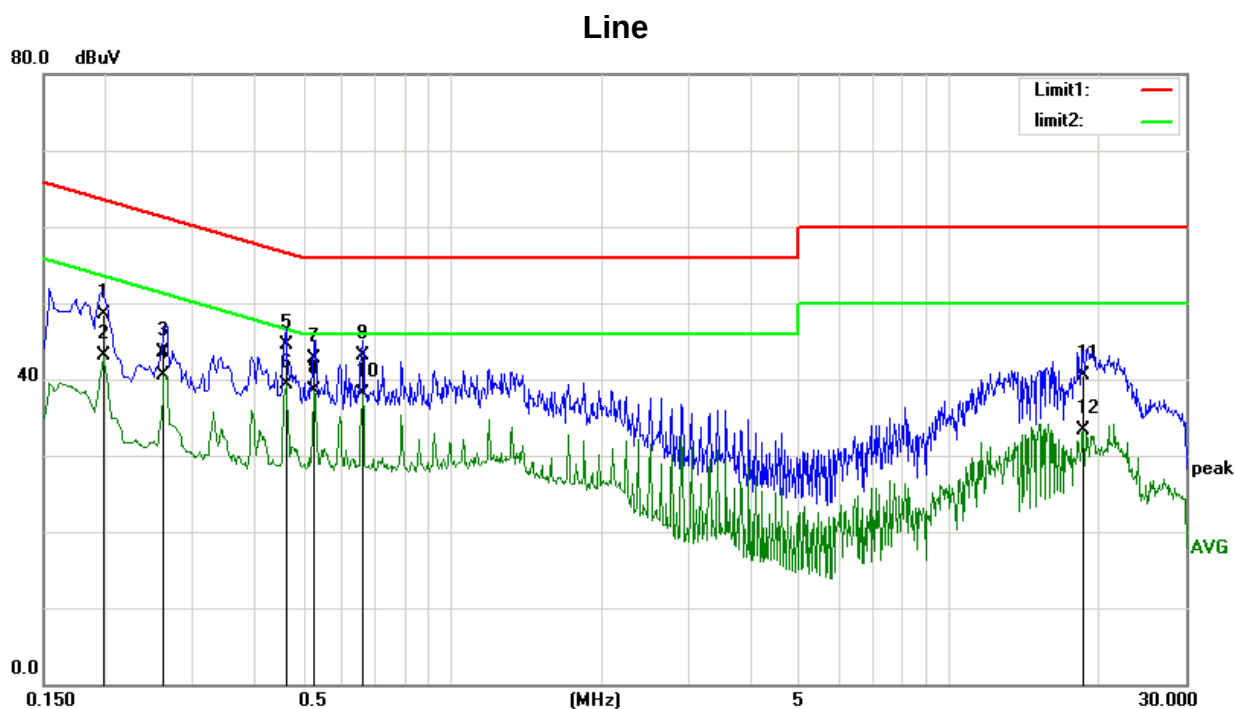


#### 4.5 EUT OPERATION CONDITIONS

The EUT was configured for testing in a typical fashion (as a customer would normally use it). The EUT has been programmed to continuously transmit during test. This operating condition was tested and used to collect the included data.

## 4.6 TEST RESULTS

Test Mode: TX N-40 MHz Mode Channel 09



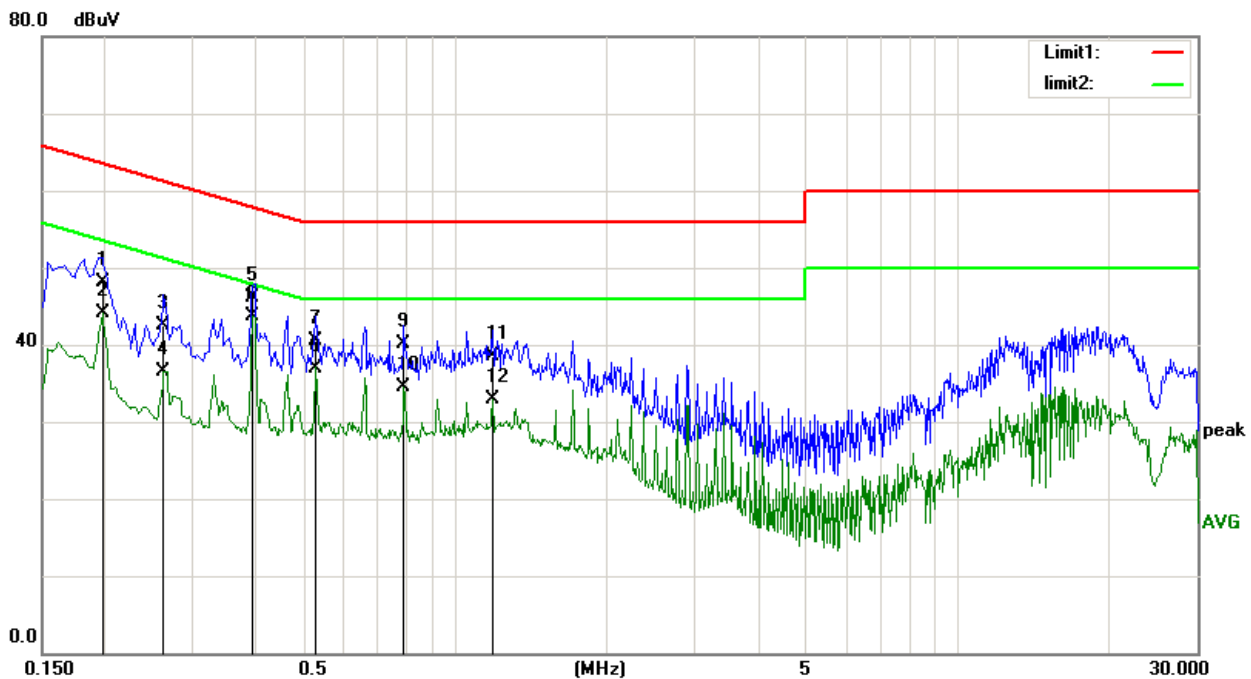
| No. | Frequency (MHz) | Reading (dBuV) | Correct Factor(dB) | Result (dBuV) | Limit (dBuV) | Margin (dB) | Remark |
|-----|-----------------|----------------|--------------------|---------------|--------------|-------------|--------|
| 1   | 0.1980          | 37.11          | 11.37              | 48.48         | 63.69        | -15.21      | QP     |
| 2   | 0.1980          | 31.71          | 11.37              | 43.08         | 53.69        | -10.61      | AVG    |
| 3   | 0.2620          | 32.77          | 10.79              | 43.56         | 61.36        | -17.80      | QP     |
| 4   | 0.2620          | 29.68          | 10.79              | 40.47         | 51.36        | -10.89      | AVG    |
| 5   | 0.4620          | 34.27          | 10.23              | 44.50         | 56.66        | -12.16      | QP     |
| 6   | 0.4620          | 29.17          | 10.23              | 39.40         | 46.66        | -7.26       | AVG    |
| 7   | 0.5260          | 32.46          | 10.17              | 42.63         | 56.00        | -13.37      | QP     |
| 8   | 0.5260          | 28.30          | 10.17              | 38.47         | 46.00        | -7.53       | AVG    |
| 9   | 0.6580          | 32.88          | 10.14              | 43.02         | 56.00        | -12.98      | QP     |
| 10  | 0.6580          | 27.99          | 10.14              | 38.13         | 46.00        | -7.87       | AVG    |
| 11  | 18.6979         | 29.37          | 11.14              | 40.51         | 60.00        | -19.49      | QP     |
| 12  | 18.6979         | 22.13          | 11.14              | 33.27         | 50.00        | -16.73      | AVG    |

### Remarks:

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

Test Mode: TX N-40 MHz Mode Channel 09

## Neutral



| No. | Frequency (MHz) | Reading (dBuV) | Correct Factor(dB) | Result (dBuV) | Limit (dBuV) | Margin (dB) | Remark |
|-----|-----------------|----------------|--------------------|---------------|--------------|-------------|--------|
| 1   | 0.1980          | 36.65          | 11.37              | 48.02         | 63.69        | -15.67      | QP     |
| 2   | 0.1980          | 32.72          | 11.37              | 44.09         | 53.69        | -9.60       | AVG    |
| 3   | 0.2620          | 31.66          | 10.79              | 42.45         | 61.36        | -18.91      | QP     |
| 4   | 0.2620          | 25.80          | 10.79              | 36.59         | 51.36        | -14.77      | AVG    |
| 5   | 0.3940          | 35.71          | 10.32              | 46.03         | 57.98        | -11.95      | QP     |
| 6   | 0.3940          | 33.43          | 10.32              | 43.75         | 47.98        | -4.23       | AVG    |
| 7   | 0.5260          | 30.35          | 10.17              | 40.52         | 56.00        | -15.48      | QP     |
| 8   | 0.5260          | 26.83          | 10.17              | 37.00         | 46.00        | -9.00       | AVG    |
| 9   | 0.7900          | 30.02          | 10.10              | 40.12         | 56.00        | -15.88      | QP     |
| 10  | 0.7900          | 24.49          | 10.10              | 34.59         | 46.00        | -11.41      | AVG    |
| 11  | 1.1860          | 28.47          | 10.11              | 38.58         | 56.00        | -17.42      | QP     |
| 12  | 1.1860          | 22.72          | 10.11              | 32.83         | 46.00        | -13.17      | 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) ( $\mu$ A/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 ( $\mu$ V/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 ( $\mu$ V/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 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) | 1MHz / 3MHz for Peak,<br>1MHz / 1/T for Average |

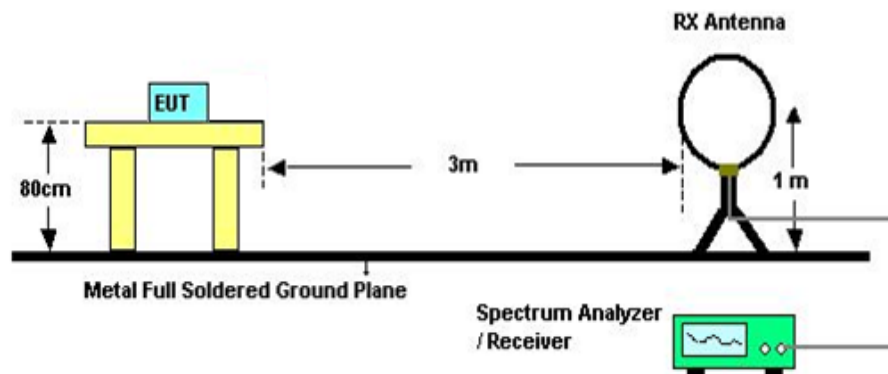
| Receiver Parameter     | Setting                             |
|------------------------|-------------------------------------|
| Attenuation            | Auto                                |
| Start ~ Stop Frequency | 9 kHz~90 kHz for PK/AVG detector    |
| Start ~ Stop Frequency | 90 kHz~110 kHz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

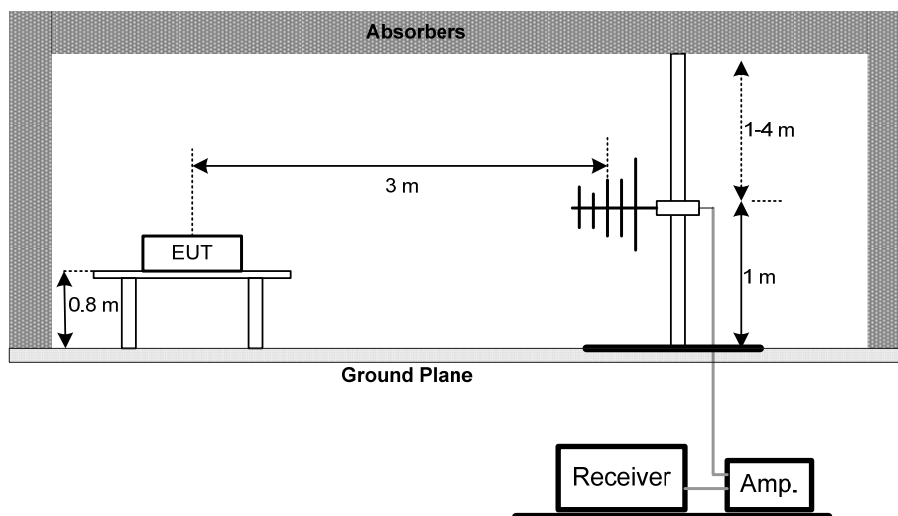
| Item | Equipment              | Manufacturer  | Model No.            | Serial No.   | Calibrated until |
|------|------------------------|---------------|----------------------|--------------|------------------|
| 1    | EMI Test Receiver      | R&S           | ESCI                 | 101307       | 12/12/2020       |
| 2    | Spectrum Analyzer      | Agilent       | E4407B               | US40240708   | 11/17/2020       |
| 3    | Loop antenna           | SCHWARZBECK K | FMZB1519             | 1519-062     | 12/14/2020       |
| 4    | Broadband antenna      | SCHWARZBECK   | VULB9168             | VULB9168-192 | 03/22/2021       |
| 5    | HORN ANTENNA           | SCHWARZBECK   | BBHA9120D            | 9120D 1065   | 04/21/2021       |
| 6    | Preamplifier Amplifier | HP            | 8447F                | 3113A05680   | 12/11/2020       |
| 7    | PRE-AMPLIFIER          | CY            | EMC011830            | 980136       | 12/11/2020       |
| 8    | RF Cable               | R&S           | Test Cable 4         | 4            | 12/11/2020       |
| 9    | RF Cable               | R&S           | Test Cable 5         | 5            | 12/11/2020       |
| 10   | RF Cable               | R&S           | Test Cable 9         | 9            | 04/21/2021       |
| 11   | RF Cable               | R&S           | Test Cable 10        | 10           | 12/11/2020       |
| 12   | Measurement Software   | Farad         | EZ-EMC (Ver.ATT-03A) | N/A          | N/A              |

## 5.4 TESTSETUP

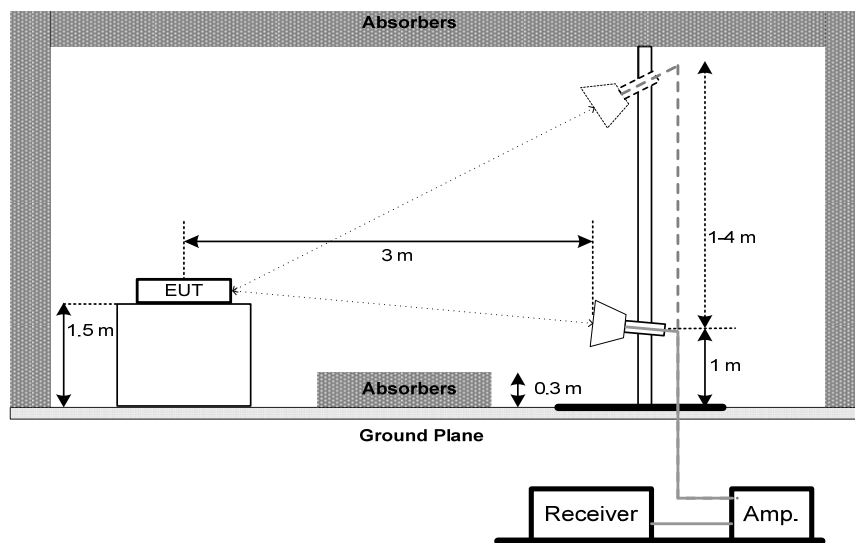
### 9 kHz-30 MHz



### 30 MHz to 1 GHz



## Above 1 GHz



## 5.5 EUT OPERATION CONDITIONS

The EUT was programmed to be in continuously transmitting mode.

## 5.6 TEST RESULTS - 9kHz TO 30MHz

|            |                             |
|------------|-----------------------------|
| Test Mode: | TX N-40 MHz Mode Channel 09 |
|------------|-----------------------------|

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

**Note:**

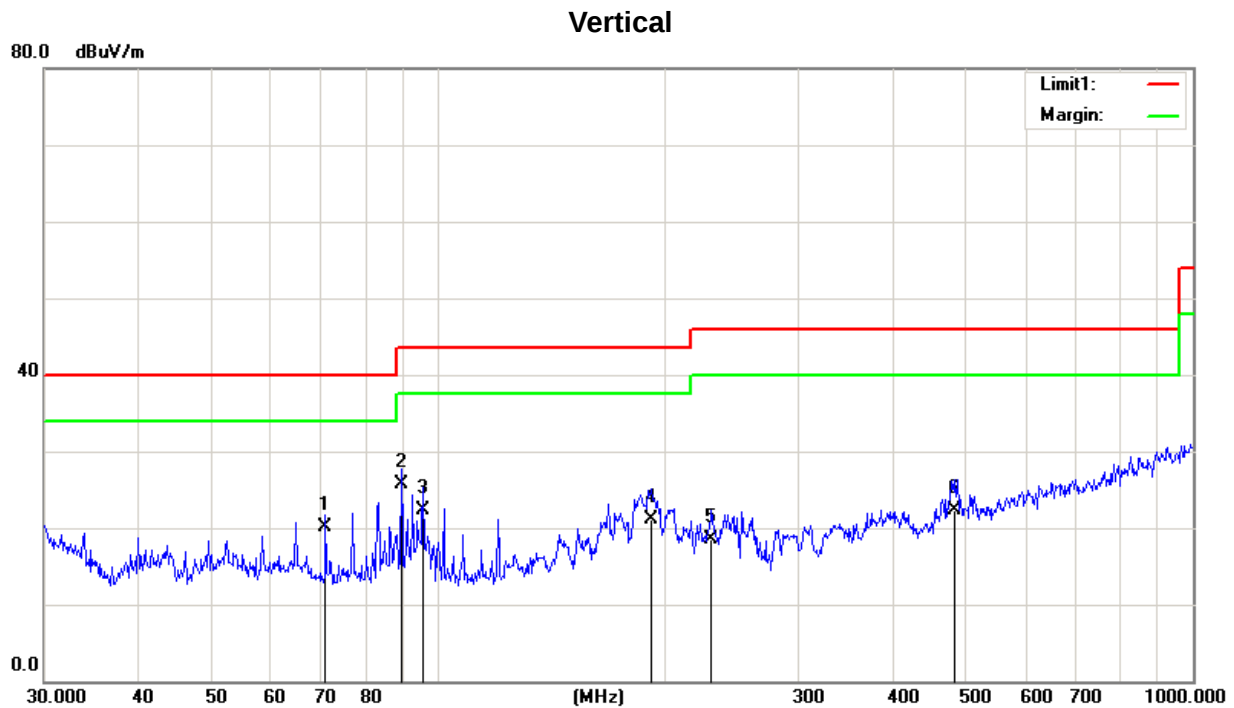
The amplitude of spurious emissions which are attenuated by more than 20dB below the permissible value has no need to be reported.

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

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

## 5.7 TEST RESULTS - 30MHz TO 1000MHz

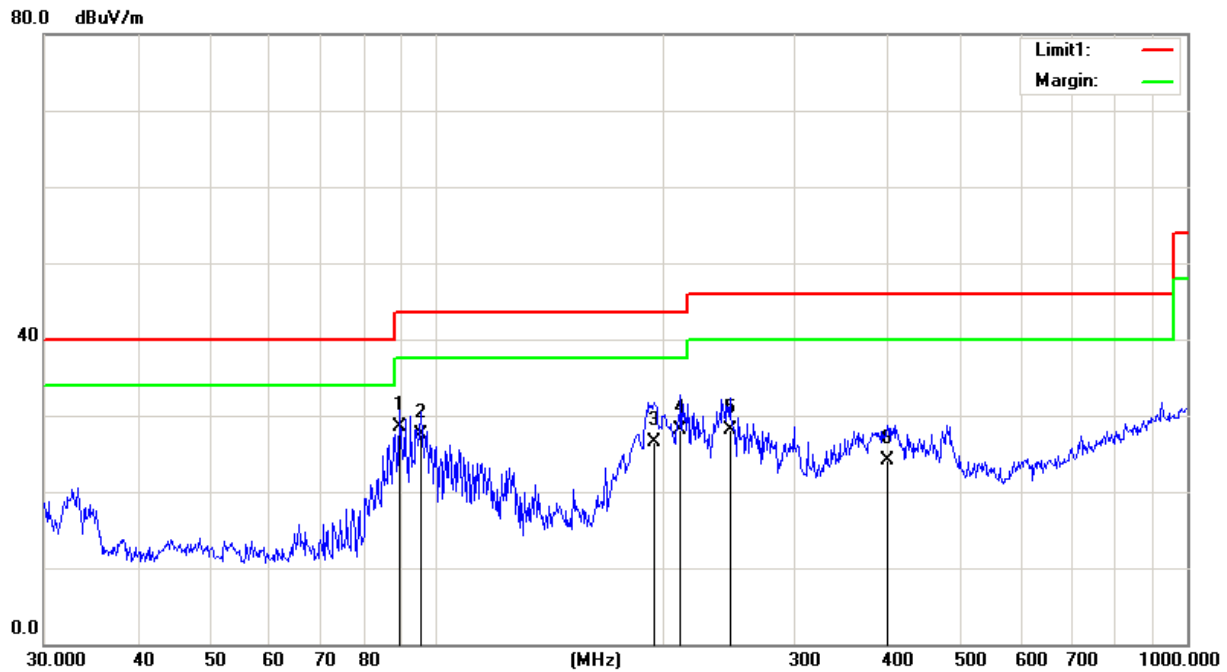
Test Mode : TX N-40 MHz Mode Channel 09



| No. | Frequency (MHz) | Reading (dBuV/m) | Correct Factor(dB/m) | Result (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Remark |
|-----|-----------------|------------------|----------------------|-----------------|----------------|-------------|--------|
| 1   | 70.8315         | 34.84            | -14.81               | 20.03           | 40.00          | -19.97      | QP     |
| 2   | 89.2762         | 40.79            | -15.17               | 25.62           | 43.50          | -17.88      | QP     |
| 3   | 95.4270         | 37.13            | -14.77               | 22.36           | 43.50          | -21.14      | QP     |
| 4   | 191.7450        | 32.69            | -11.49               | 21.20           | 43.50          | -22.30      | QP     |
| 5   | 230.0985        | 26.34            | -7.86                | 18.48           | 46.00          | -27.52      | QP     |
| 6   | 483.9094        | 28.39            | -6.02                | 22.37           | 46.00          | -23.63      | QP     |

Test Mode : TX N-40 MHz Mode Channel 09

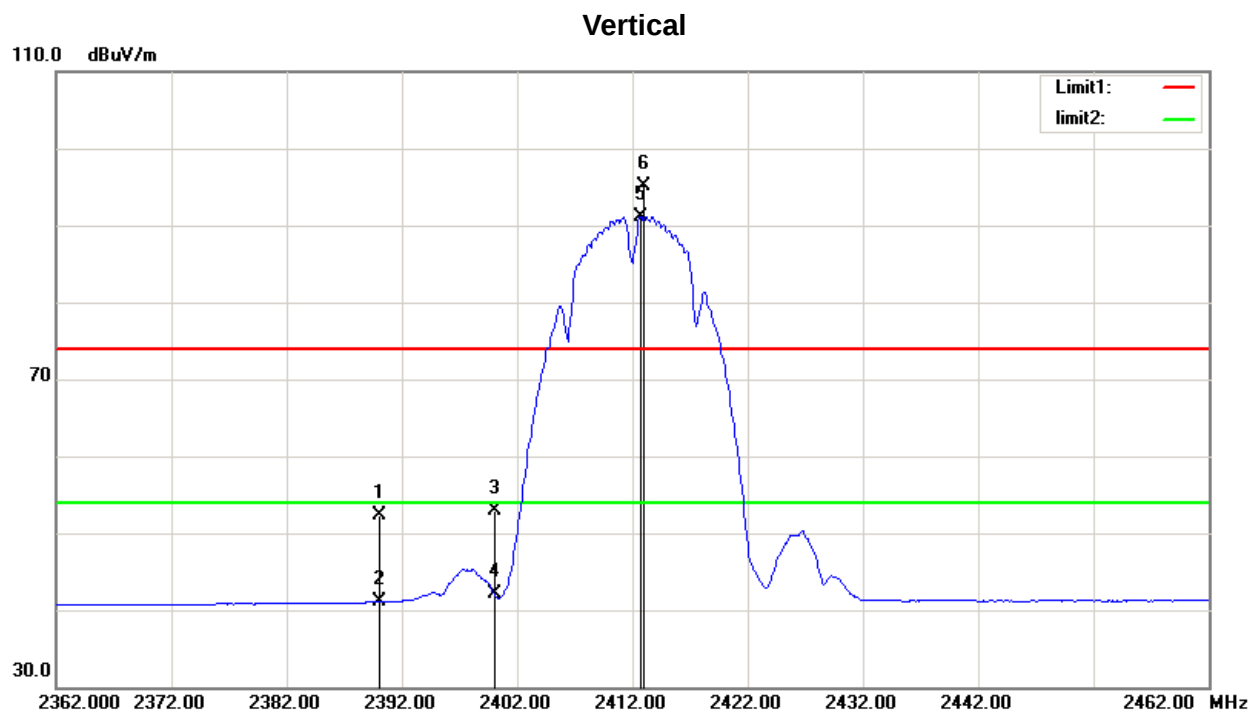
## Horizontal



| No. | Frequency<br>(MHz) | Reading<br>(dBuV/m) | Correct<br>Factor(dB/m) | Result<br>(dBuV/m) | Limit<br>(dBuV/m) | Margin<br>(dB) | Remark |
|-----|--------------------|---------------------|-------------------------|--------------------|-------------------|----------------|--------|
| 1   | 89.2762            | 45.65               | -17.17                  | 28.48              | 43.50             | -15.02         | QP     |
| 2   | 95.4270            | 44.28               | -16.77                  | 27.51              | 43.50             | -15.99         | QP     |
| 3   | 195.1365           | 36.29               | -9.69                   | 26.60              | 43.50             | -16.90         | QP     |
| 4   | 211.5263           | 37.14               | -9.02                   | 28.12              | 43.50             | -15.38         | QP     |
| 5   | 245.9507           | 34.14               | -6.11                   | 28.03              | 46.00             | -17.97         | QP     |
| 6   | 399.0300           | 31.08               | -6.93                   | 24.15              | 46.00             | -21.85         | QP     |

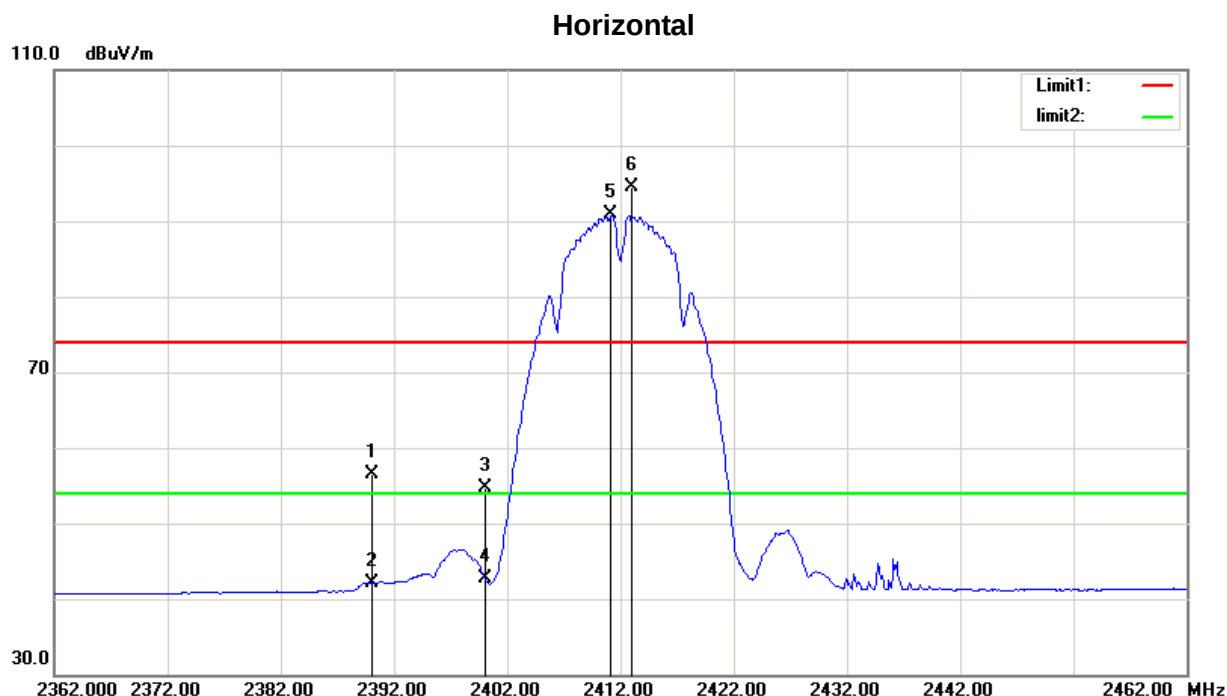
## 5.8 TEST RESULTS- ABOVE 1000MHz(BAND EDGE)

|                 |                    |
|-----------------|--------------------|
| Orthogonal Axis | X                  |
| Test Mode:      | TX B Mode 2412 MHz |



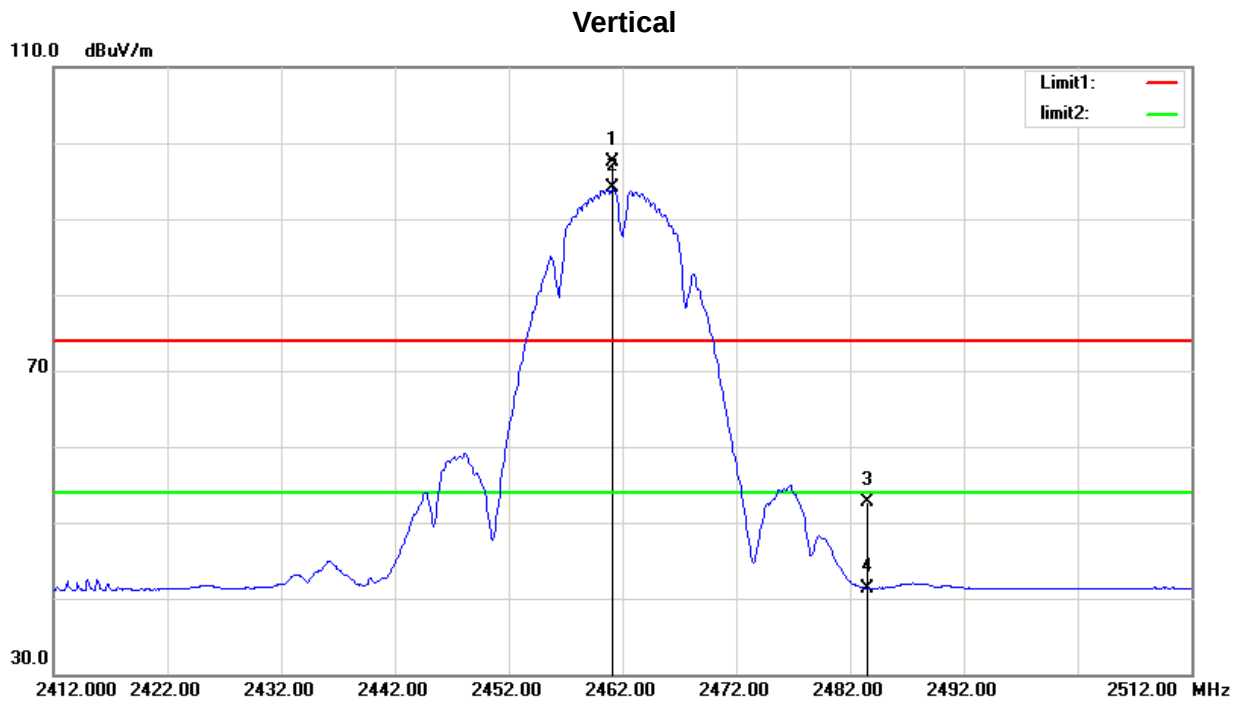
| No. | Frequency<br>(MHz) | Reading<br>(dBuV/m) | Correct<br>Factor(dB/m) | Result<br>(dBuV/m) | Limit<br>(dBuV/m) | Margin<br>(dB) | Remark |
|-----|--------------------|---------------------|-------------------------|--------------------|-------------------|----------------|--------|
| 1   | 2390.000           | 20.78               | 31.62                   | 52.40              | 74.00             | -21.60         | peak   |
| 2   | 2390.000           | 9.49                | 31.62                   | 41.11              | 54.00             | -12.89         | AVG    |
| 3   | 2400.000           | 21.31               | 31.64                   | 52.95              | 74.00             | -21.05         | peak   |
| 4   | 2400.000           | 10.43               | 31.64                   | 42.07              | 54.00             | -11.93         | AVG    |
| 5   | 2412.700           | 59.50               | 31.68                   | 91.18              | /                 | /              | AVG    |
| 6   | 2413.000           | 63.34               | 31.68                   | 95.02              | /                 | /              | peak   |

|                 |                    |
|-----------------|--------------------|
| Orthogonal Axis | X                  |
| Test Mode:      | TX B Mode 2412 MHz |



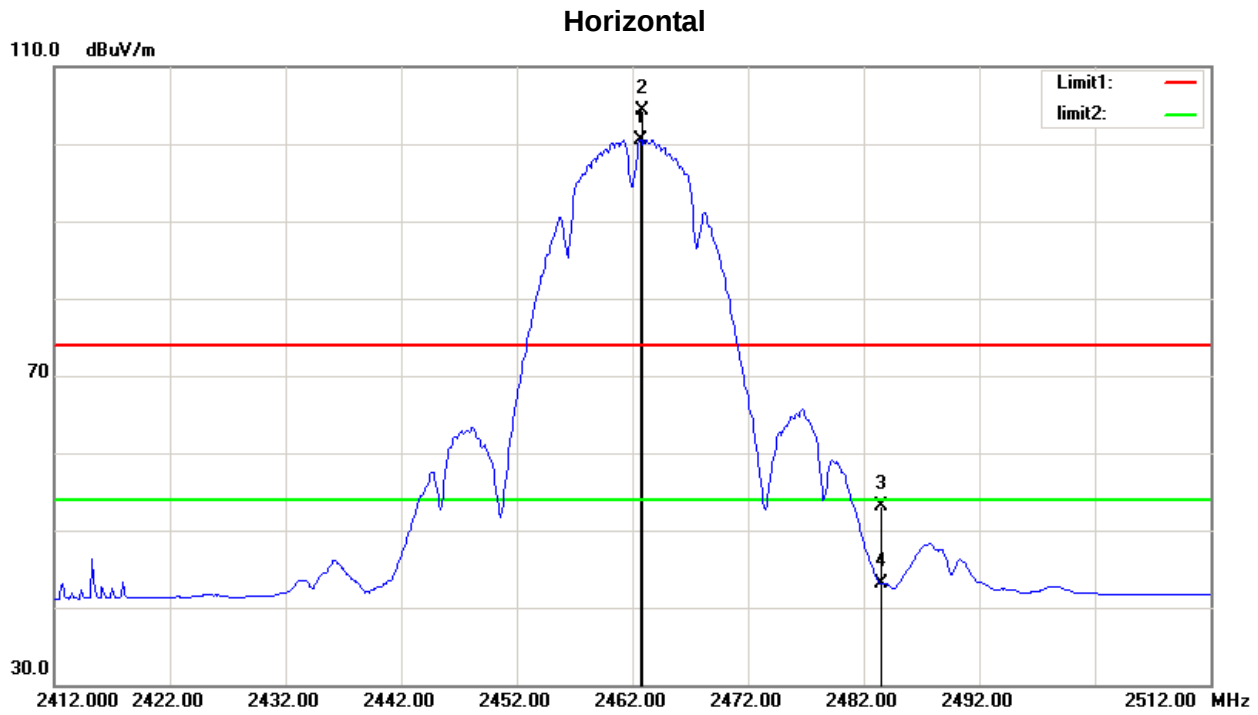
| No. | Frequency<br>(MHz) | Reading<br>(dBuV/m) | Correct<br>Factor(dB/m) | Result<br>(dBuV/m) | Limit<br>(dBuV/m) | Margin<br>(dB) | Remark |
|-----|--------------------|---------------------|-------------------------|--------------------|-------------------|----------------|--------|
| 1   | 2390.000           | 24.82               | 31.62                   | 56.44              | 74.00             | -17.56         | peak   |
| 2   | 2390.000           | 10.41               | 31.62                   | 42.03              | 54.00             | -11.97         | AVG    |
| 3   | 2400.000           | 23.12               | 31.64                   | 54.76              | 74.00             | -19.24         | peak   |
| 4   | 2400.000           | 11.16               | 31.64                   | 42.80              | 54.00             | -11.20         | AVG    |
| 5   | 2411.200           | 59.15               | 31.68                   | 90.83              | /                 | /              | AVG    |
| 6   | 2413.000           | 62.84               | 31.68                   | 94.52              | /                 | /              | peak   |

|                 |                    |
|-----------------|--------------------|
| Orthogonal Axis | X                  |
| Test Mode:      | TX B Mode 2462 MHz |



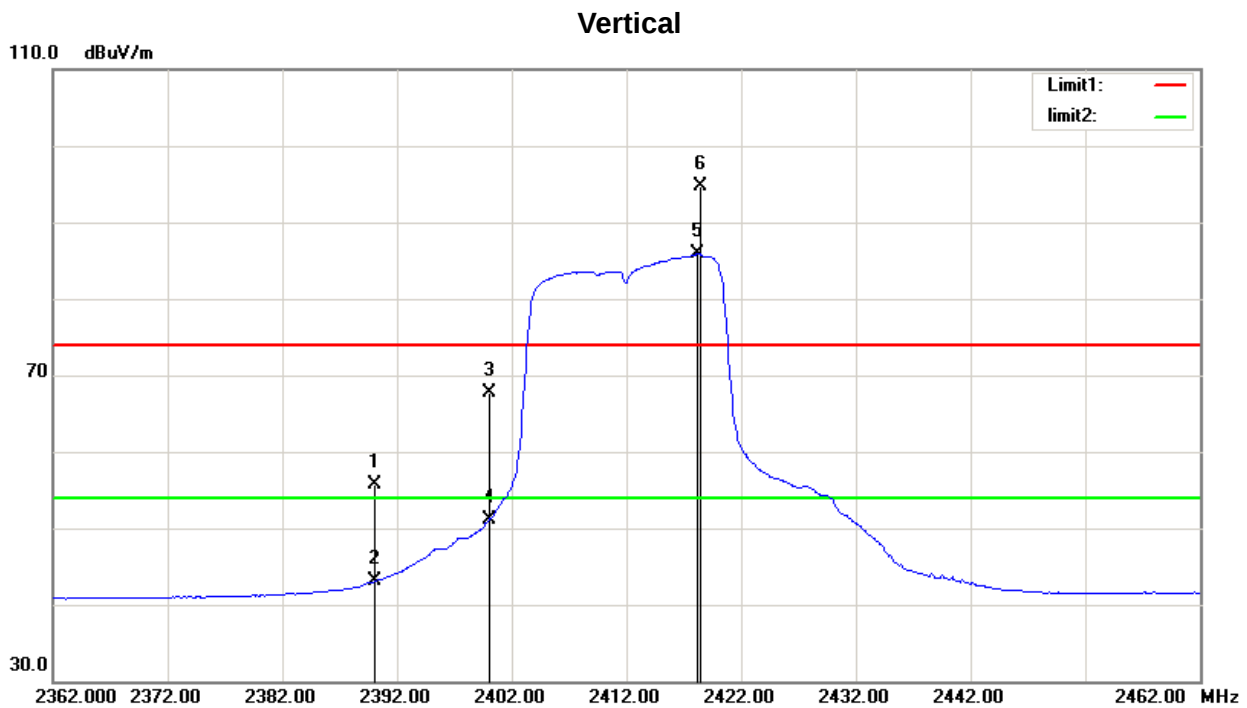
| No. | Frequency<br>(MHz) | Reading<br>(dBuV/m) | Correct<br>Factor(dB/m) | Result<br>(dBuV/m) | Limit<br>(dBuV/m) | Margin<br>(dB) | Remark |
|-----|--------------------|---------------------|-------------------------|--------------------|-------------------|----------------|--------|
| 1   | 2461.100           | 65.75               | 31.83                   | 97.58              | /                 | /              | peak   |
| 2   | 2461.200           | 62.19               | 31.83                   | 94.02              | /                 | /              | AVG    |
| 3   | 2483.500           | 20.86               | 31.89                   | 52.75              | 74.00             | -21.25         | peak   |
| 4   | 2483.500           | 9.45                | 31.89                   | 41.34              | 54.00             | -12.66         | AVG    |

|                 |                    |
|-----------------|--------------------|
| Orthogonal Axis | X                  |
| Test Mode:      | TX B Mode 2462 MHz |



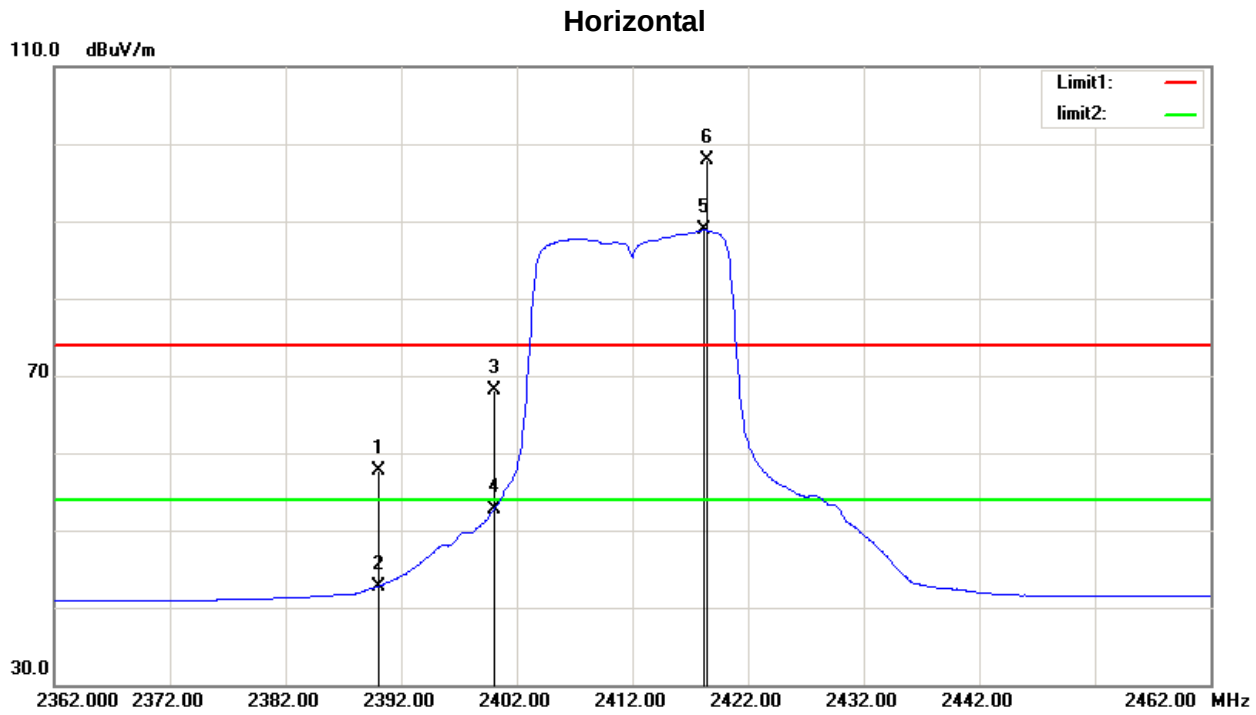
| No. | Frequency (MHz) | Reading (dBuV/m) | Correct Factor(dB/m) | Result (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Remark |
|-----|-----------------|------------------|----------------------|-----------------|----------------|-------------|--------|
| 1   | 2462.700        | 68.72            | 31.83                | 100.55          | /              | /           | AVG    |
| 2   | 2462.900        | 72.52            | 31.83                | 104.35          | /              | /           | peak   |
| 3   | 2483.500        | 21.27            | 31.89                | 53.16           | 74.00          | -20.84      | peak   |
| 4   | 2483.500        | 11.16            | 31.89                | 43.05           | 54.00          | -10.95      | AVG    |

|                 |                    |
|-----------------|--------------------|
| Orthogonal Axis | X                  |
| Test Mode:      | TX G Mode 2412 MHz |



| No. | Frequency<br>(MHz) | Reading<br>(dBuV/m) | Correct<br>Factor(dB/m) | Result<br>(dBuV/m) | Limit<br>(dBuV/m) | Margin<br>(dB) | Remark |
|-----|--------------------|---------------------|-------------------------|--------------------|-------------------|----------------|--------|
| 1   | 2390.000           | 23.99               | 31.62                   | 55.61              | 74.00             | -18.39         | peak   |
| 2   | 2390.000           | 11.40               | 31.62                   | 43.02              | 54.00             | -10.98         | AVG    |
| 3   | 2400.000           | 36.03               | 31.64                   | 67.67              | 74.00             | -6.33          | peak   |
| 4   | 2400.000           | 19.44               | 31.64                   | 51.08              | 54.00             | -2.92          | AVG    |
| 5   | 2418.200           | 54.15               | 31.69                   | 85.84              | /                 | /              | AVG    |
| 6   | 2418.400           | 63.11               | 31.69                   | 94.80              | /                 | /              | peak   |

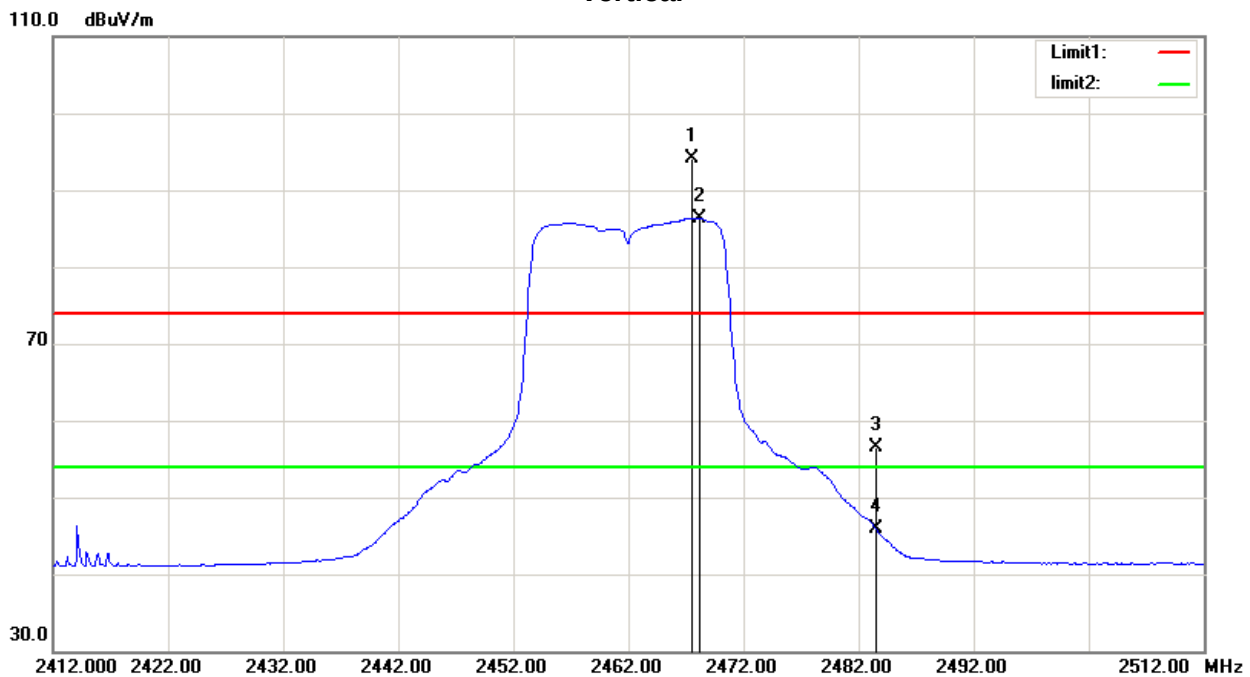
|                 |                    |
|-----------------|--------------------|
| Orthogonal Axis | X                  |
| Test Mode:      | TX G Mode 2412 MHz |



| No. | Frequency<br>(MHz) | Reading<br>(dBuV/m) | Correct<br>Factor(dB/m) | Result<br>(dBuV/m) | Limit<br>(dBuV/m) | Margin<br>(dB) | Remark |
|-----|--------------------|---------------------|-------------------------|--------------------|-------------------|----------------|--------|
| 1   | 2390.000           | 26.01               | 31.62                   | 57.63              | 74.00             | -16.37         | peak   |
| 2   | 2390.000           | 11.09               | 31.62                   | 42.71              | 54.00             | -11.29         | AVG    |
| 3   | 2400.000           | 36.47               | 31.64                   | 68.11              | 74.00             | -5.89          | peak   |
| 4   | 2400.000           | 21.09               | 31.64                   | 52.73              | 54.00             | -1.27          | AVG    |
| 5   | 2418.200           | 57.19               | 31.69                   | 88.88              | /                 | /              | AVG    |
| 6   | 2418.400           | 66.22               | 31.69                   | 97.91              | /                 | /              | peak   |

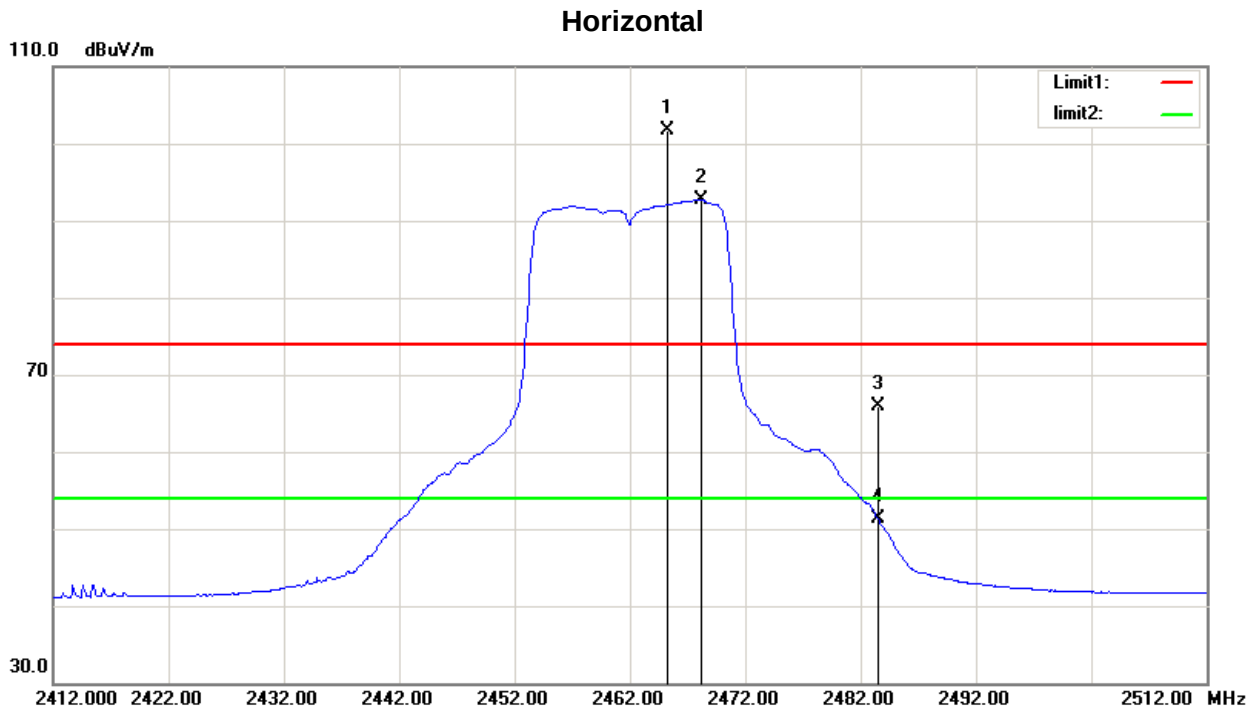
|                 |                    |
|-----------------|--------------------|
| Orthogonal Axis | X                  |
| Test Mode:      | TX G Mode 2462 MHz |

## Vertical



| No. | Frequency<br>(MHz) | Reading<br>(dBuV/m) | Correct<br>Factor(dB/m) | Result<br>(dBuV/m) | Limit<br>(dBuV/m) | Margin<br>(dB) | Remark |
|-----|--------------------|---------------------|-------------------------|--------------------|-------------------|----------------|--------|
| 1   | 2467.500           | 62.33               | 31.84                   | 94.17              | /                 | /              | peak   |
| 2   | 2468.200           | 54.49               | 31.84                   | 86.33              | /                 | /              | AVG    |
| 3   | 2483.500           | 24.64               | 31.89                   | 56.53              | 74.00             | -17.47         | peak   |
| 4   | 2483.500           | 13.97               | 31.89                   | 45.86              | 54.00             | -8.14          | AVG    |

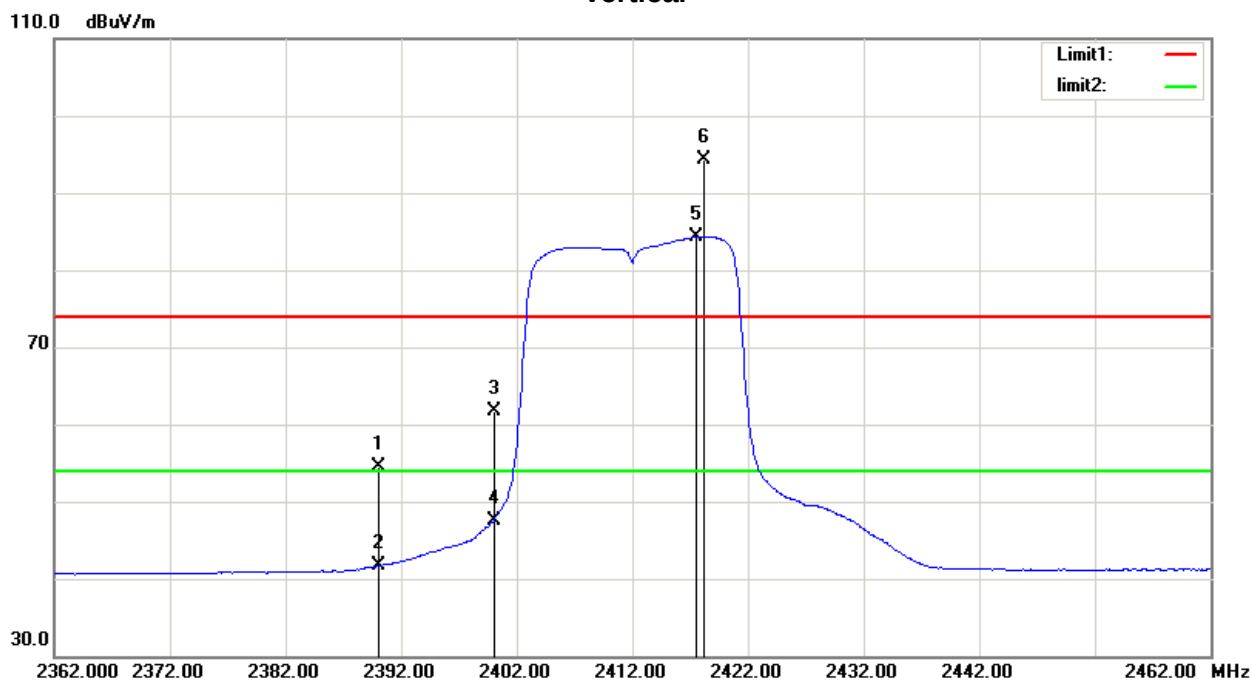
|                 |                    |
|-----------------|--------------------|
| Orthogonal Axis | X                  |
| Test Mode:      | TX G Mode 2462 MHz |



| No. | Frequency<br>(MHz) | Reading<br>(dBuV/m) | Correct<br>Factor(dB/m) | Result<br>(dBuV/m) | Limit<br>(dBuV/m) | Margin<br>(dB) | Remark |
|-----|--------------------|---------------------|-------------------------|--------------------|-------------------|----------------|--------|
| 1   | 2465.300           | 69.88               | 31.84                   | 101.72             | /                 | /              | peak   |
| 2   | 2468.200           | 60.83               | 31.84                   | 92.67              | /                 | /              | AVG    |
| 3   | 2483.500           | 34.09               | 31.89                   | 65.98              | 74.00             | -8.02          | peak   |
| 4   | 2483.500           | 19.43               | 31.89                   | 51.32              | 54.00             | -2.68          | AVG    |

|                 |                        |
|-----------------|------------------------|
| Orthogonal Axis | X                      |
| Test Mode:      | TX N-20M Mode 2412 MHz |

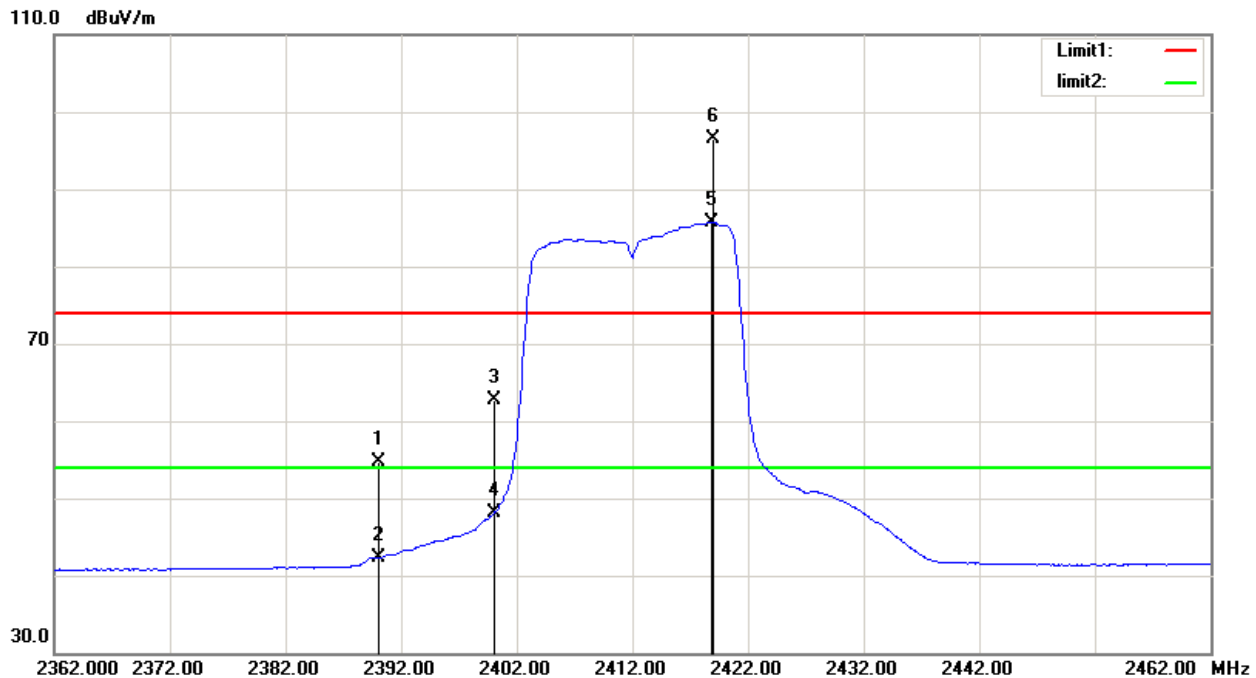
## Vertical



| No. | Frequency<br>(MHz) | Reading<br>(dBuV/m) | Correct<br>Factor(dB/m) | Result<br>(dBuV/m) | Limit<br>(dBuV/m) | Margin<br>(dB) | Remark |
|-----|--------------------|---------------------|-------------------------|--------------------|-------------------|----------------|--------|
| 1   | 2390.000           | 22.94               | 31.62                   | 54.56              | 74.00             | -19.44         | peak   |
| 2   | 2390.000           | 10.04               | 31.62                   | 41.66              | 54.00             | -12.34         | AVG    |
| 3   | 2400.000           | 30.05               | 31.64                   | 61.69              | 74.00             | -12.31         | peak   |
| 4   | 2400.000           | 15.95               | 31.64                   | 47.59              | 54.00             | -6.41          | AVG    |
| 5   | 2417.600           | 52.68               | 31.69                   | 84.37              | /                 | /              | AVG    |
| 6   | 2418.200           | 62.68               | 31.69                   | 94.37              | /                 | /              | peak   |

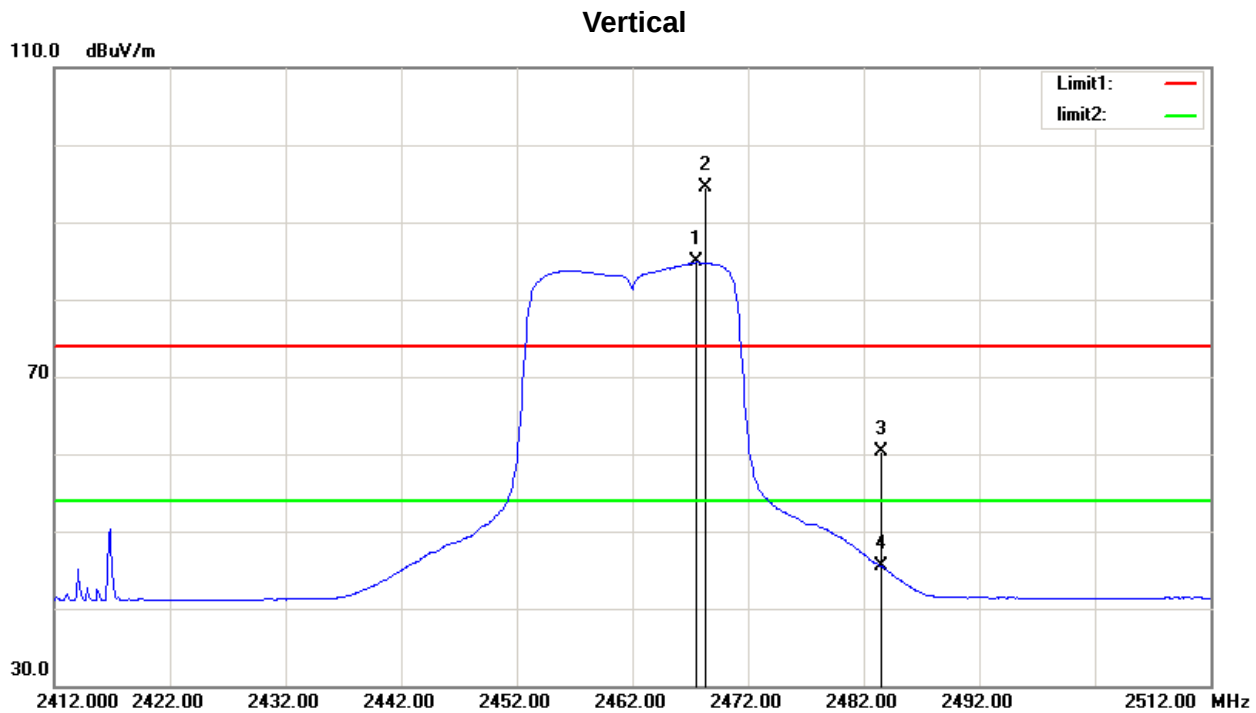
|                 |                        |
|-----------------|------------------------|
| Orthogonal Axis | X                      |
| Test Mode:      | TX N-20M Mode 2412 MHz |

## Horizontal



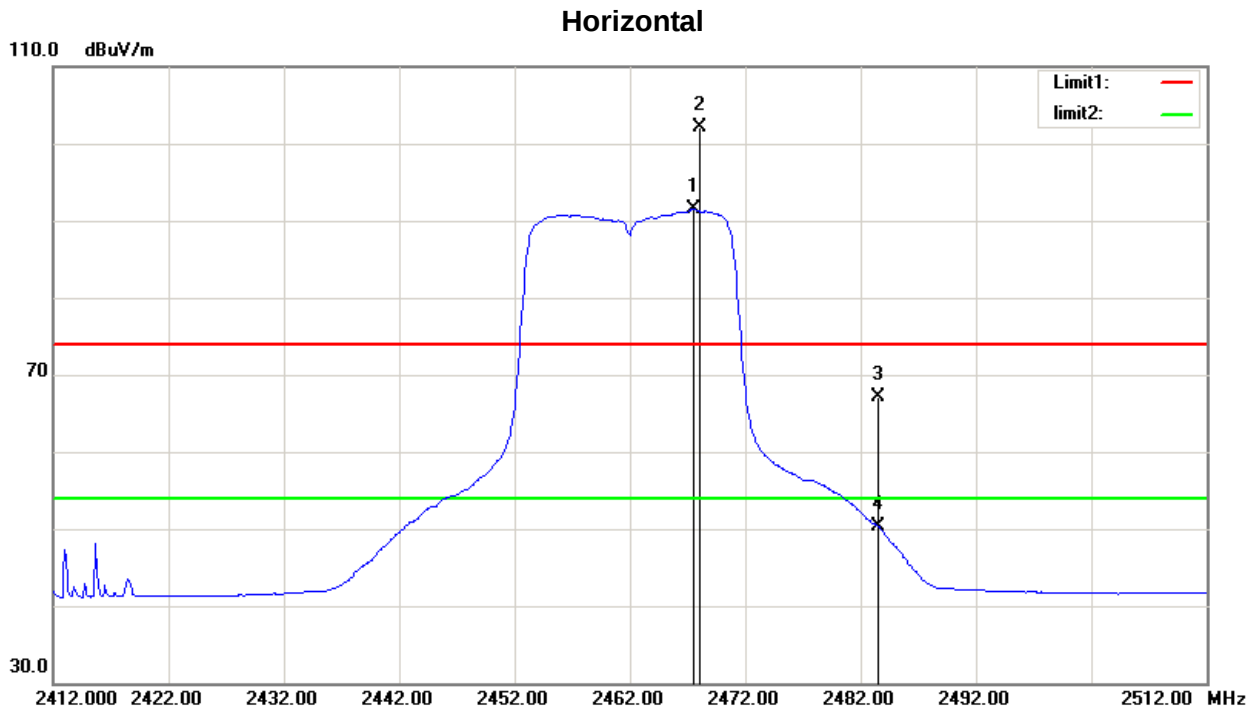
| No. | Frequency<br>(MHz) | Reading<br>(dBuV/m) | Correct<br>Factor(dB/m) | Result<br>(dBuV/m) | Limit<br>(dBuV/m) | Margin<br>(dB) | Remark |
|-----|--------------------|---------------------|-------------------------|--------------------|-------------------|----------------|--------|
| 1   | 2390.000           | 23.07               | 31.62                   | 54.69              | 74.00             | -19.31         | peak   |
| 2   | 2390.000           | 10.67               | 31.62                   | 42.29              | 54.00             | -11.71         | AVG    |
| 3   | 2400.000           | 31.13               | 31.64                   | 62.77              | 74.00             | -11.23         | peak   |
| 4   | 2400.000           | 16.46               | 31.64                   | 48.10              | 54.00             | -5.90          | AVG    |
| 5   | 2418.800           | 54.10               | 31.70                   | 85.80              | /                 | /              | AVG    |
| 6   | 2419.000           | 64.86               | 31.70                   | 96.56              | /                 | /              | peak   |

|                 |                        |
|-----------------|------------------------|
| Orthogonal Axis | X                      |
| Test Mode:      | TX N-20M Mode 2462 MHz |



| No. | Frequency<br>(MHz) | Reading<br>(dBuV/m) | Correct<br>Factor(dB/m) | Result<br>(dBuV/m) | Limit<br>(dBuV/m) | Margin<br>(dB) | Remark |
|-----|--------------------|---------------------|-------------------------|--------------------|-------------------|----------------|--------|
| 1   | 2467.600           | 53.01               | 31.84                   | 84.85              | /                 | /              | AVG    |
| 2   | 2468.300           | 62.57               | 31.85                   | 94.42              | /                 | /              | peak   |
| 3   | 2483.500           | 28.45               | 31.89                   | 60.34              | 74.00             | -13.66         | peak   |
| 4   | 2483.500           | 13.58               | 31.89                   | 45.47              | 54.00             | -8.53          | AVG    |

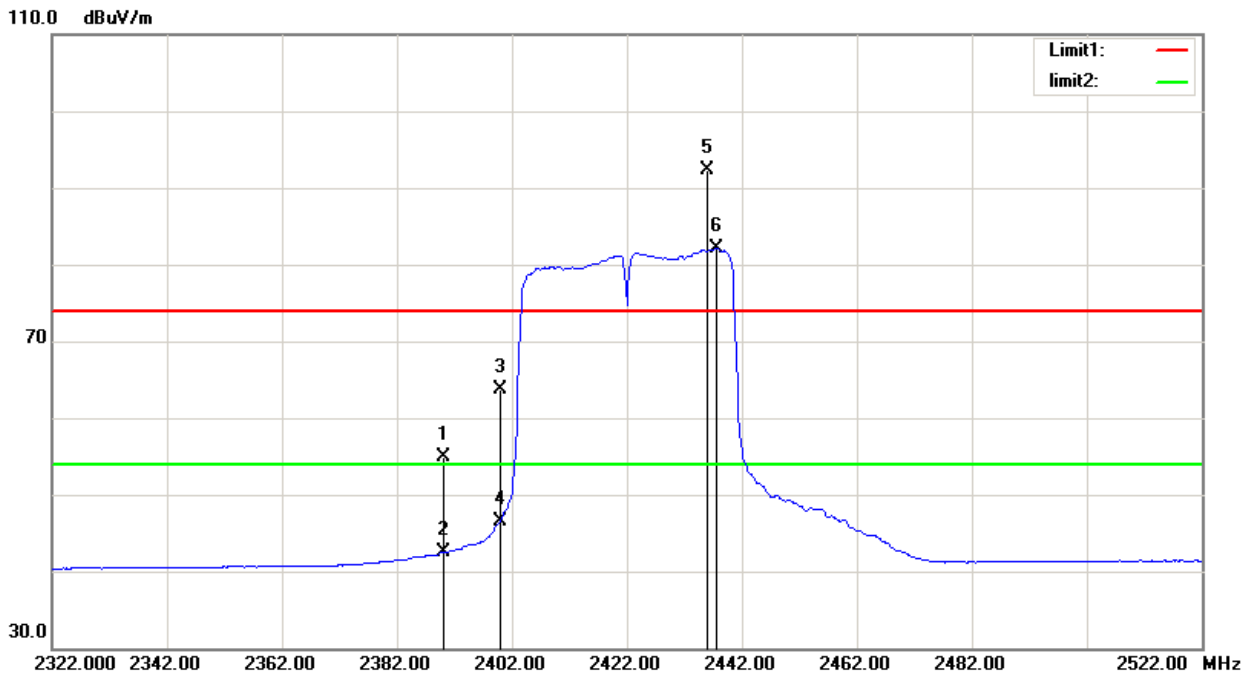
|                 |                        |
|-----------------|------------------------|
| Orthogonal Axis | X                      |
| Test Mode:      | TX N-20M Mode 2462 MHz |



| No. | Frequency (MHz) | Reading (dBuV/m) | Correct Factor(dB/m) | Result (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Remark |
|-----|-----------------|------------------|----------------------|-----------------|----------------|-------------|--------|
| 1   | 2467.500        | 59.61            | 31.84                | 91.45           | /              | /           | AVG    |
| 2   | 2468.100        | 70.23            | 31.84                | 102.07          | /              | /           | peak   |
| 3   | 2483.500        | 35.30            | 31.89                | 67.19           | 74.00          | -6.81       | peak   |
| 4   | 2483.500        | 18.41            | 31.89                | 50.30           | 54.00          | -3.70       | AVG    |

|                 |                       |
|-----------------|-----------------------|
| Orthogonal Axis | X                     |
| Test Mode:      | TX N-40M Mode 2422MHz |

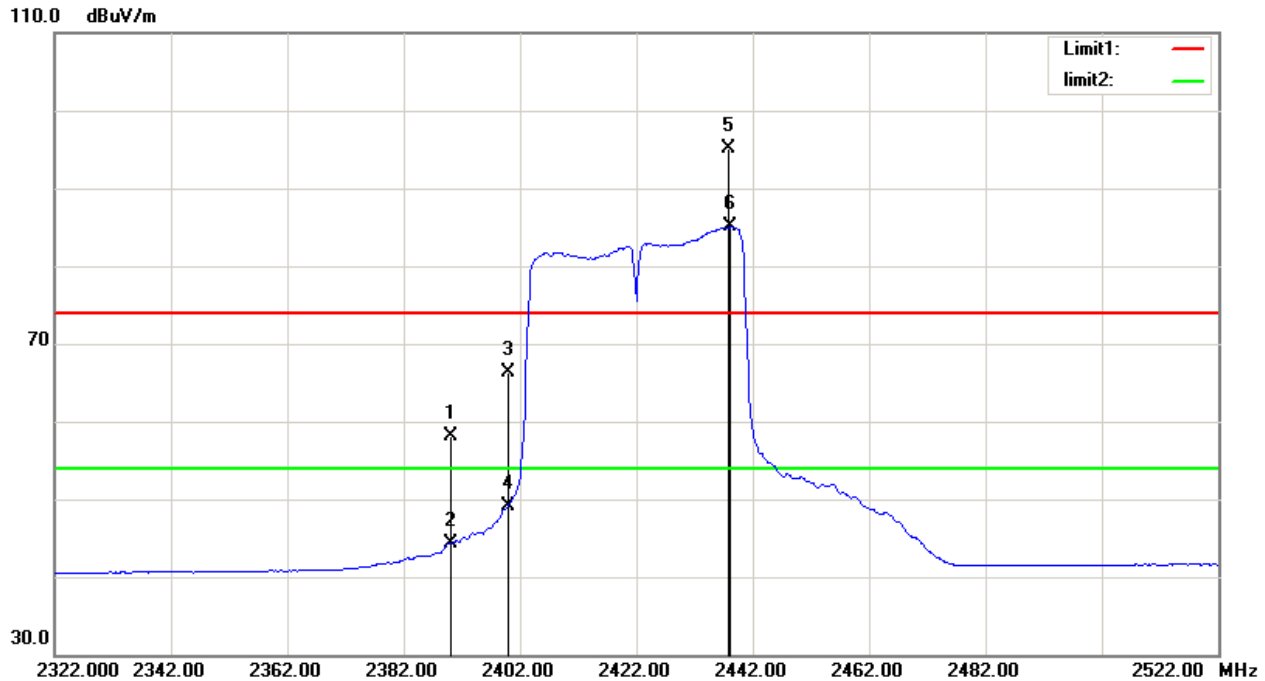
## Vertical



| No. | Frequency (MHz) | Reading (dBuV/m) | Correct Factor(dB/m) | Result (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Remark |
|-----|-----------------|------------------|----------------------|-----------------|----------------|-------------|--------|
| 1   | 2390.000        | 23.19            | 31.62                | 54.81           | 74.00          | -19.19      | peak   |
| 2   | 2390.000        | 10.80            | 31.62                | 42.42           | 54.00          | -11.58      | AVG    |
| 3   | 2400.000        | 31.98            | 31.64                | 63.62           | 74.00          | -10.38      | peak   |
| 4   | 2400.000        | 14.96            | 31.64                | 46.60           | 54.00          | -7.40       | AVG    |
| 5   | 2436.000        | 60.62            | 31.75                | 92.37           | /              | /           | peak   |
| 6   | 2437.600        | 50.33            | 31.76                | 82.09           | /              | /           | AVG    |

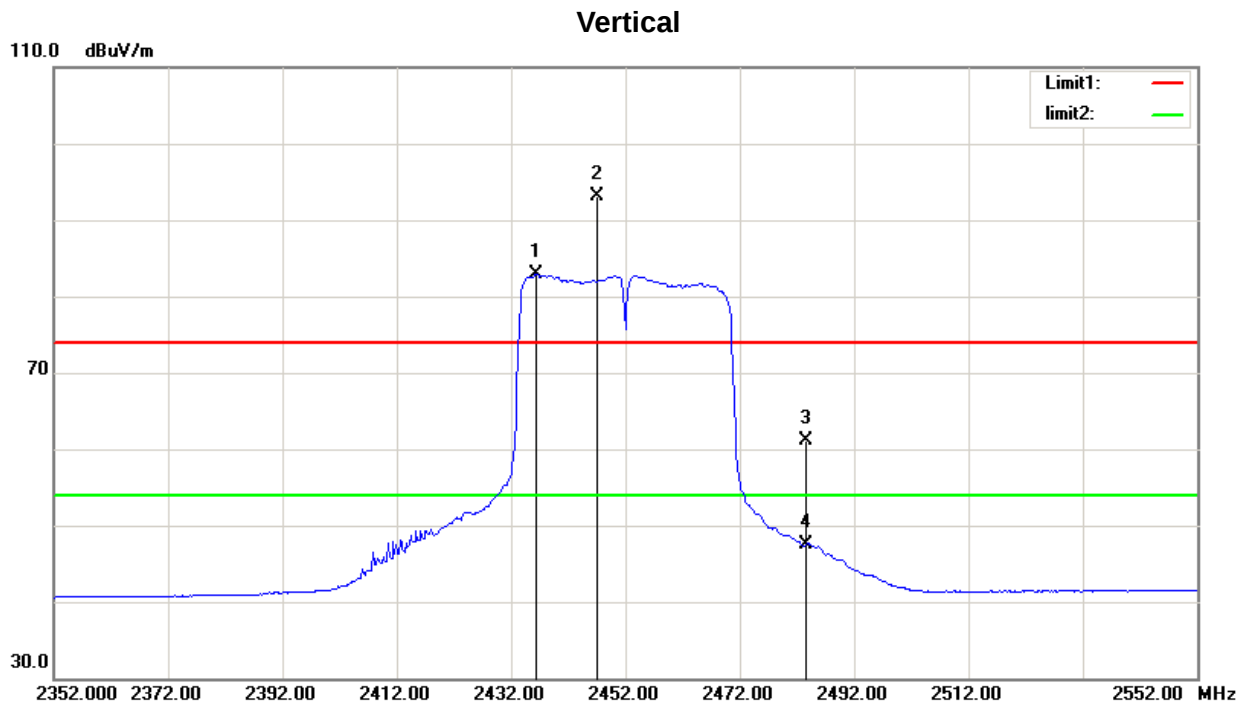
|                 |                       |
|-----------------|-----------------------|
| Orthogonal Axis | X                     |
| Test Mode:      | TX N-40M Mode 2422MHz |

## Horizontal



| No. | Frequency (MHz) | Reading (dBuV/m) | Correct Factor(dB/m) | Result (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Remark |
|-----|-----------------|------------------|----------------------|-----------------|----------------|-------------|--------|
| 1   | 2390.000        | 26.47            | 31.62                | 58.09           | 74.00          | -15.91      | peak   |
| 2   | 2390.000        | 12.70            | 31.62                | 44.32           | 54.00          | -9.68       | AVG    |
| 3   | 2400.000        | 34.72            | 31.64                | 66.36           | 74.00          | -7.64       | peak   |
| 4   | 2400.000        | 17.53            | 31.64                | 49.17           | 54.00          | -4.83       | AVG    |
| 5   | 2437.800        | 63.37            | 31.76                | 95.13           | /              | /           | peak   |
| 6   | 2438.200        | 53.30            | 31.76                | 85.06           | /              | /           | AVG    |

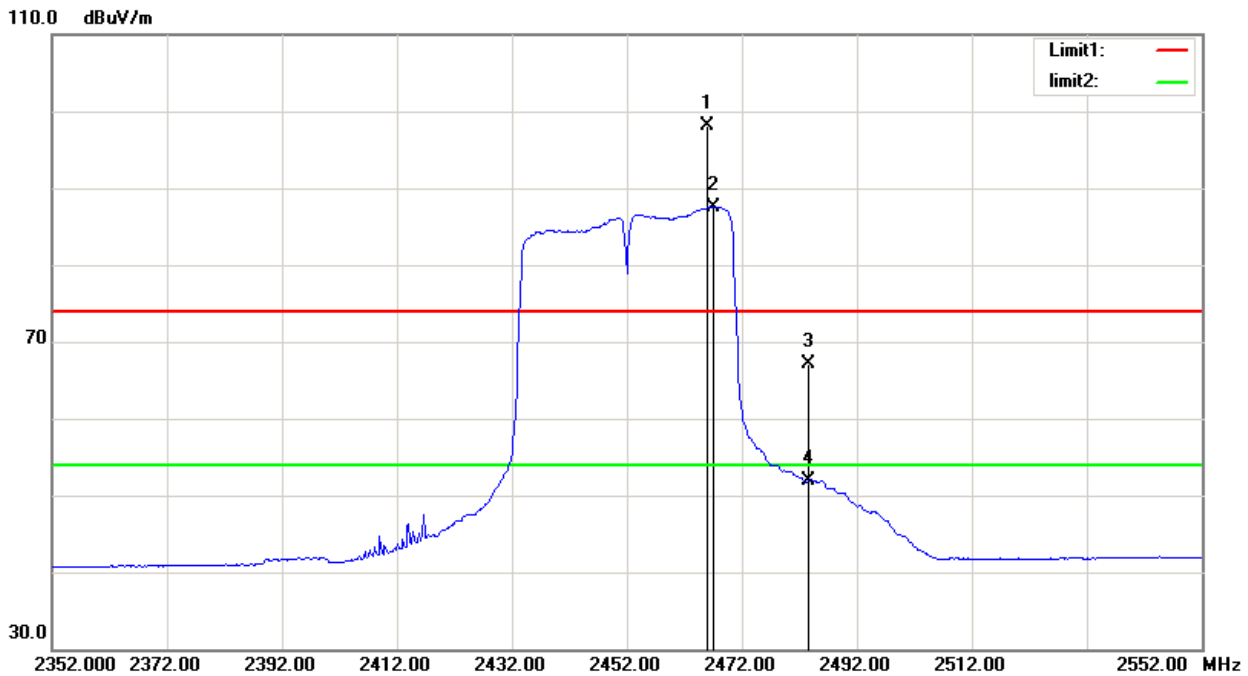
|                 |                        |
|-----------------|------------------------|
| Orthogonal Axis | X                      |
| Test Mode:      | TX N-40M Mode 2452 MHz |



| No. | Frequency<br>(MHz) | Reading<br>(dBuV/m) | Correct<br>Factor(dB/m) | Result<br>(dBuV/m) | Limit<br>(dBuV/m) | Margin<br>(dB) | Remark |
|-----|--------------------|---------------------|-------------------------|--------------------|-------------------|----------------|--------|
| 1   | 2436.400           | 51.16               | 31.75                   | 82.91              | /                 | /              | AVG    |
| 2   | 2447.200           | 61.26               | 31.78                   | 93.04              | /                 | /              | peak   |
| 3   | 2483.500           | 29.13               | 31.89                   | 61.02              | 74.00             | -12.98         | peak   |
| 4   | 2483.500           | 15.62               | 31.89                   | 47.51              | 54.00             | -6.49          | AVG    |

|                 |                        |
|-----------------|------------------------|
| Orthogonal Axis | X                      |
| Test Mode:      | TX N-40M Mode 2452 MHz |

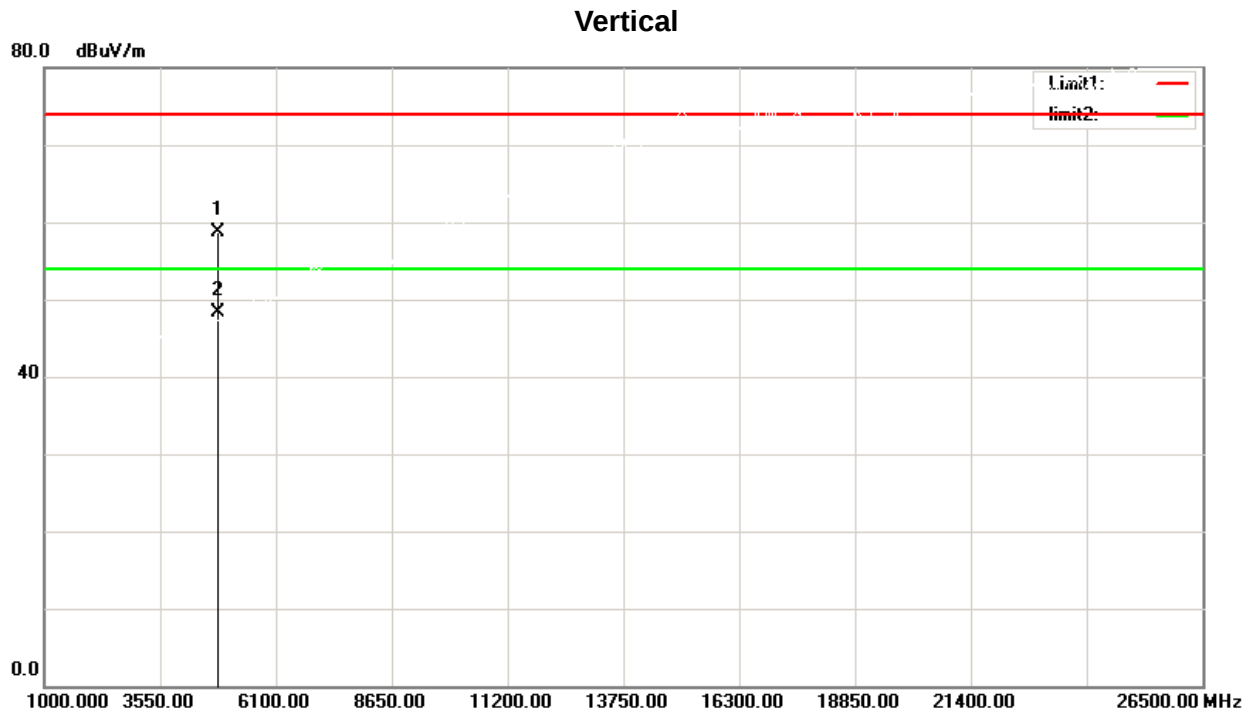
## Horizontal



| No. | Frequency<br>(MHz) | Reading<br>(dBuV/m) | Correct<br>Factor(dB/m) | Result<br>(dBuV/m) | Limit<br>(dBuV/m) | Margin<br>(dB) | Remark |
|-----|--------------------|---------------------|-------------------------|--------------------|-------------------|----------------|--------|
| 1   | 2466.000           | 66.26               | 31.84                   | 98.10              | /                 | /              | peak   |
| 2   | 2467.000           | 55.69               | 31.84                   | 87.53              | /                 | /              | AVG    |
| 3   | 2483.500           | 35.13               | 31.89                   | 67.02              | 74.00             | -6.98          | peak   |
| 4   | 2483.500           | 20.03               | 31.89                   | 51.92              | 54.00             | -2.08          | AVG    |

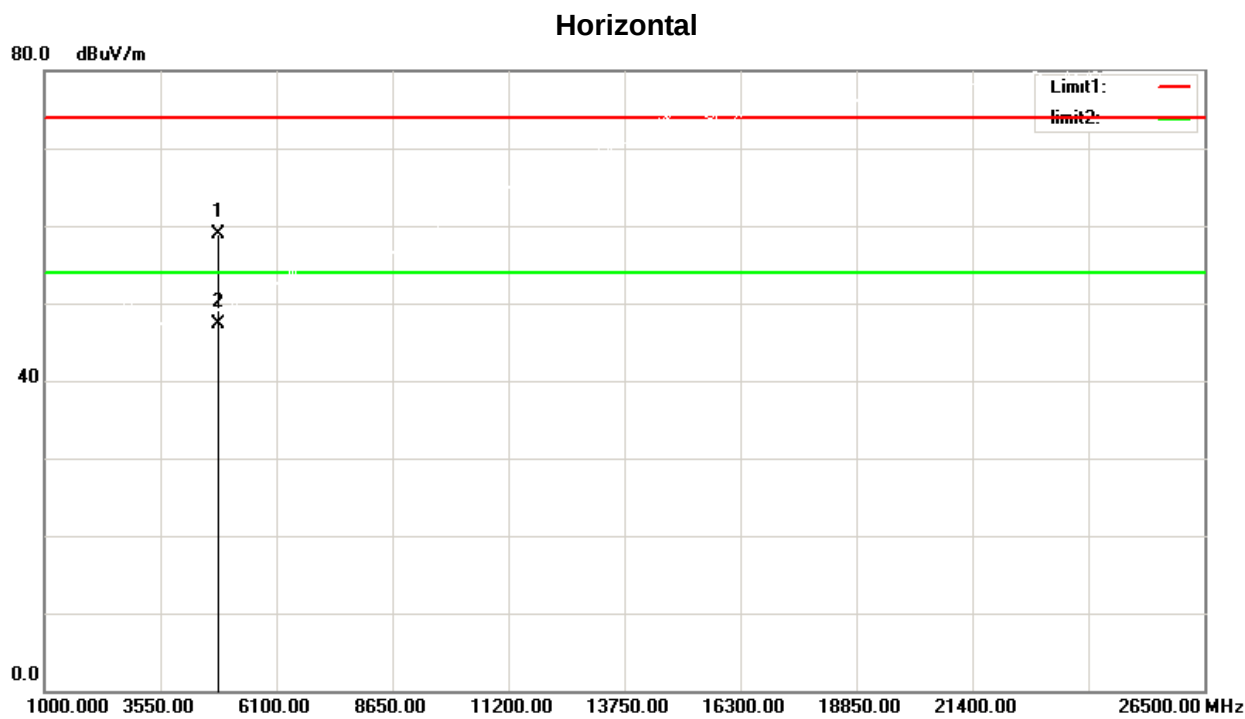
## 5.9 TEST RESULTS- ABOVE 1000MHz(HARMONIC)

|                 |                    |
|-----------------|--------------------|
| Orthogonal Axis | X                  |
| Test Mode:      | TX B Mode 2412 MHz |



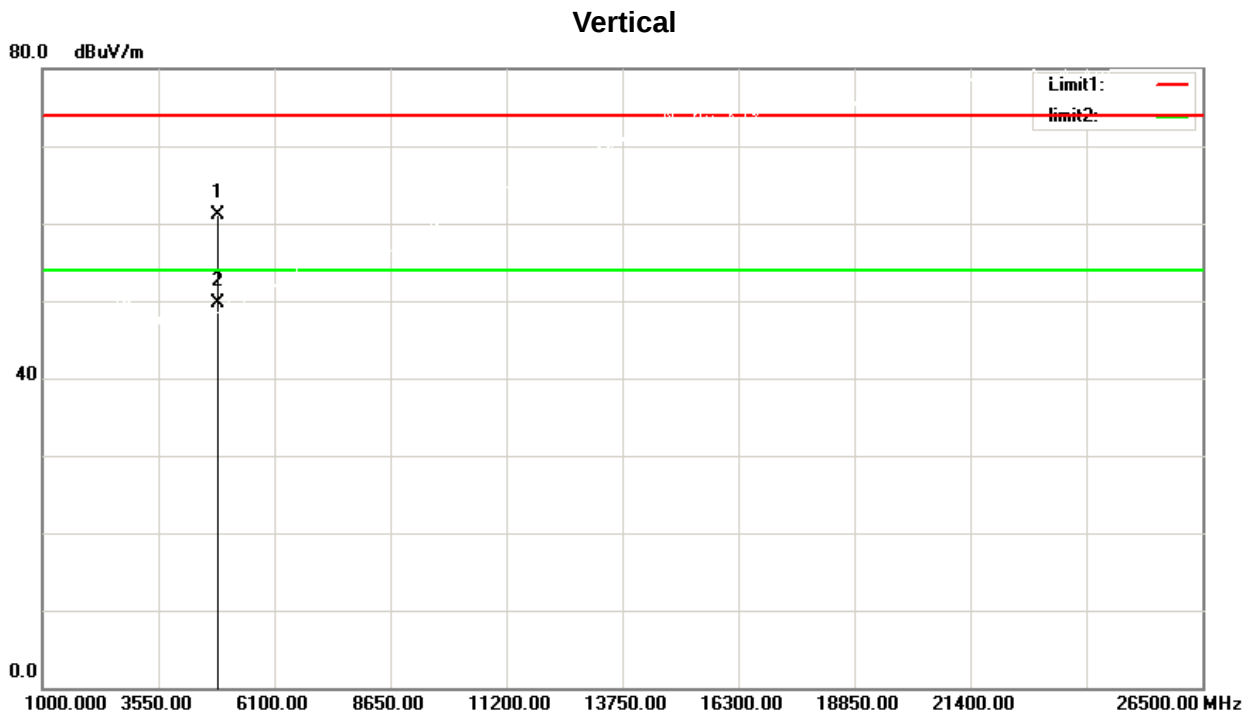
| No. | Frequency<br>(MHz) | Reading<br>(dBuV/m) | Correct<br>Factor(dB/m) | Result<br>(dBuV/m) | Limit<br>(dBuV/m) | Margin<br>(dB) | Remark |
|-----|--------------------|---------------------|-------------------------|--------------------|-------------------|----------------|--------|
| 1   | 4824.000           | 61.87               | -3.24                   | 58.63              | 74.00             | -15.37         | peak   |
| 2   | 4824.000           | 51.50               | -3.24                   | 48.26              | 54.00             | -5.74          | AVG    |

|                 |                    |
|-----------------|--------------------|
| Orthogonal Axis | X                  |
| Test Mode:      | TX B Mode 2412 MHz |



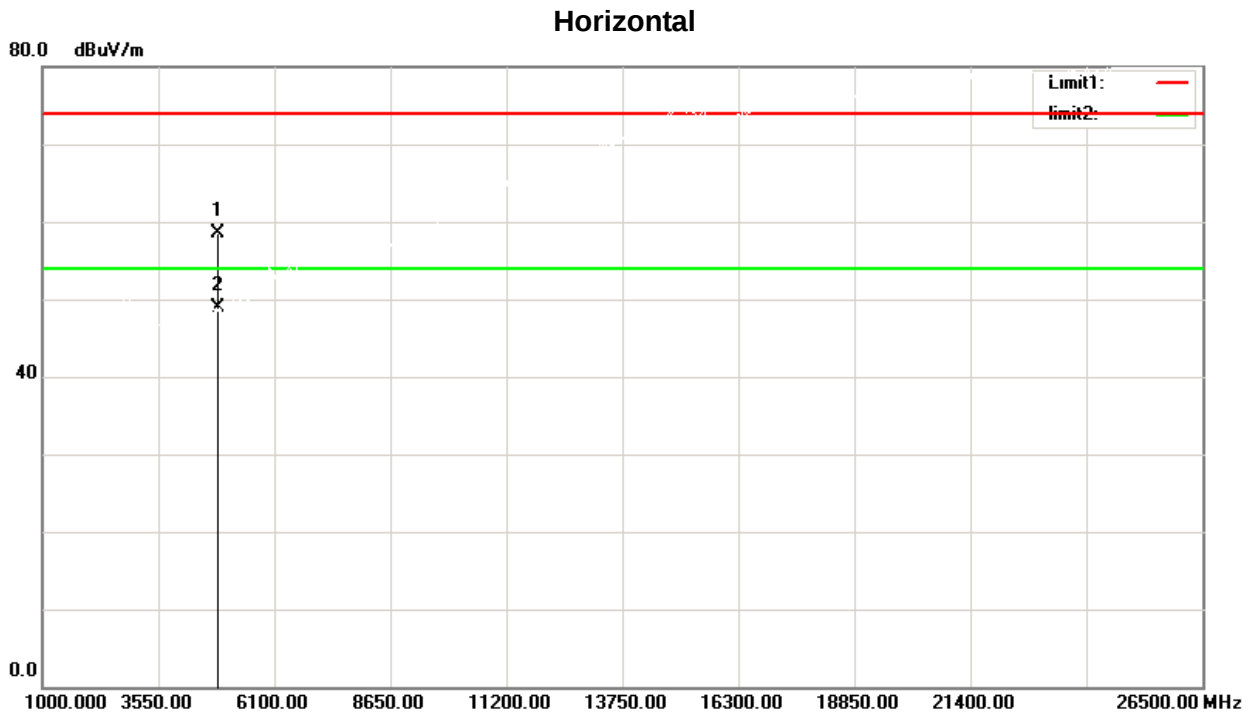
| No. | Frequency (MHz) | Reading (dBuV/m) | Correct Factor(dB/m) | Result (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Remark |
|-----|-----------------|------------------|----------------------|-----------------|----------------|-------------|--------|
| 1   | 4824.150        | 62.10            | -3.24                | 58.86           | 74.00          | -15.14      | peak   |
| 2   | 4824.150        | 50.60            | -3.24                | 47.36           | 54.00          | -6.64       | AVG    |

|                 |                    |
|-----------------|--------------------|
| Orthogonal Axis | X                  |
| Test Mode:      | TX B Mode 2437 MHz |



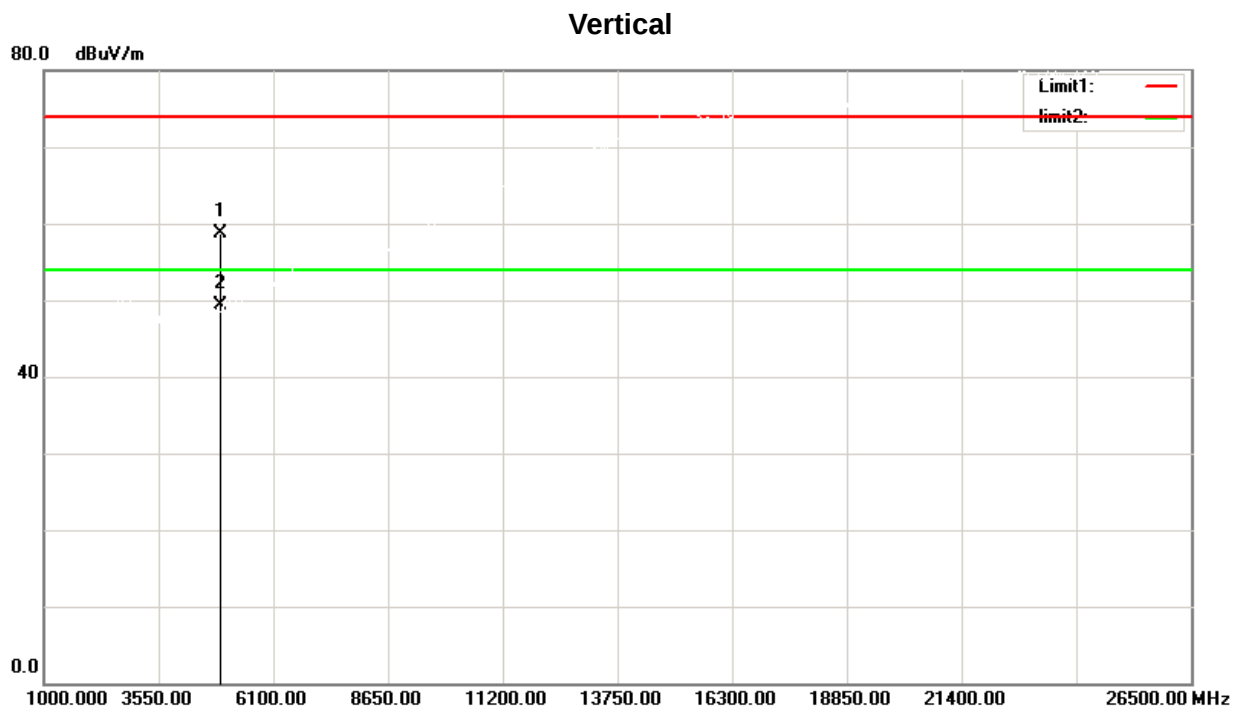
| No. | Frequency<br>(MHz) | Reading<br>(dBuV/m) | Correct<br>Factor(dB/m) | Result<br>(dBuV/m) | Limit<br>(dBuV/m) | Margin<br>(dB) | Remark |
|-----|--------------------|---------------------|-------------------------|--------------------|-------------------|----------------|--------|
| 1   | 4874.530           | 64.26               | -3.06                   | 61.20              | 74.00             | -12.80         | peak   |
| 2   | 4874.530           | 52.69               | -3.06                   | 49.63              | 54.00             | -4.37          | AVG    |

|                 |                    |
|-----------------|--------------------|
| Orthogonal Axis | X                  |
| Test Mode:      | TX B Mode 2437 MHz |



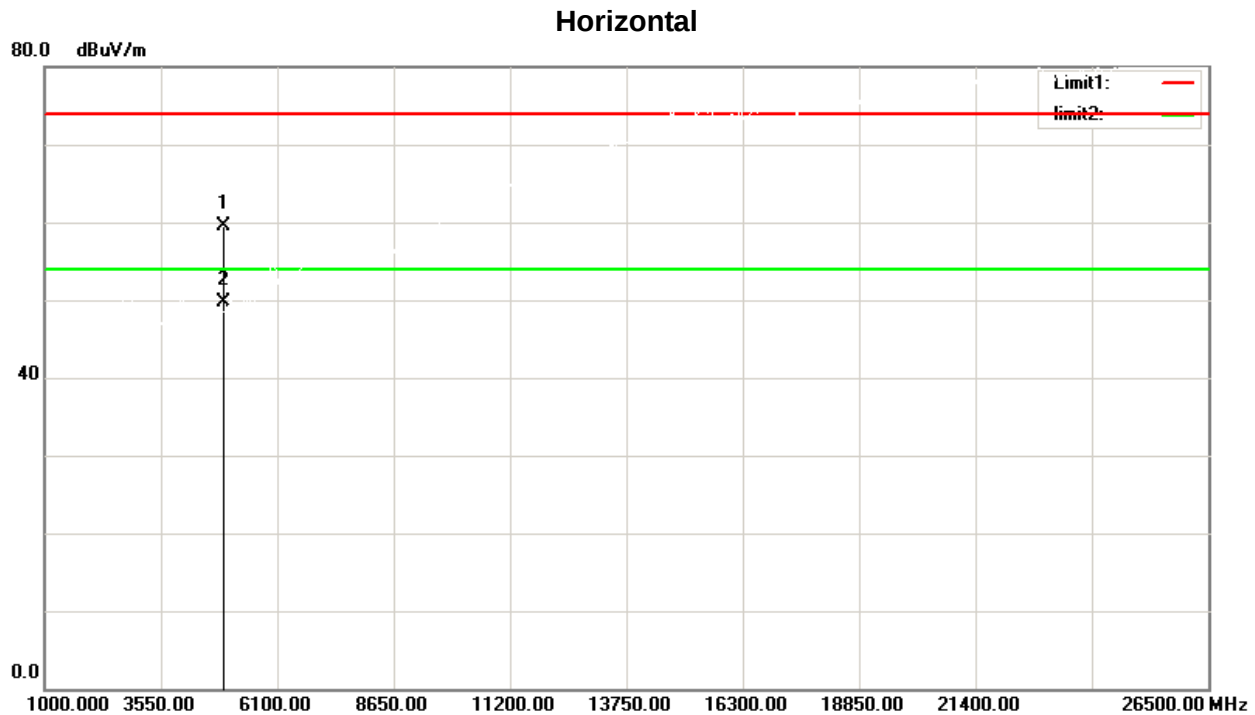
| No. | Frequency (MHz) | Reading (dBuV/m) | Correct Factor(dB/m) | Result (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Remark |
|-----|-----------------|------------------|----------------------|-----------------|----------------|-------------|--------|
| 1   | 4873.900        | 61.51            | -3.06                | 58.45           | 74.00          | -15.55      | peak   |
| 2   | 4873.900        | 51.89            | -3.06                | 48.83           | 54.00          | -5.17       | AVG    |

|                 |                    |
|-----------------|--------------------|
| Orthogonal Axis | X                  |
| Test Mode:      | TX B Mode 2462 MHz |



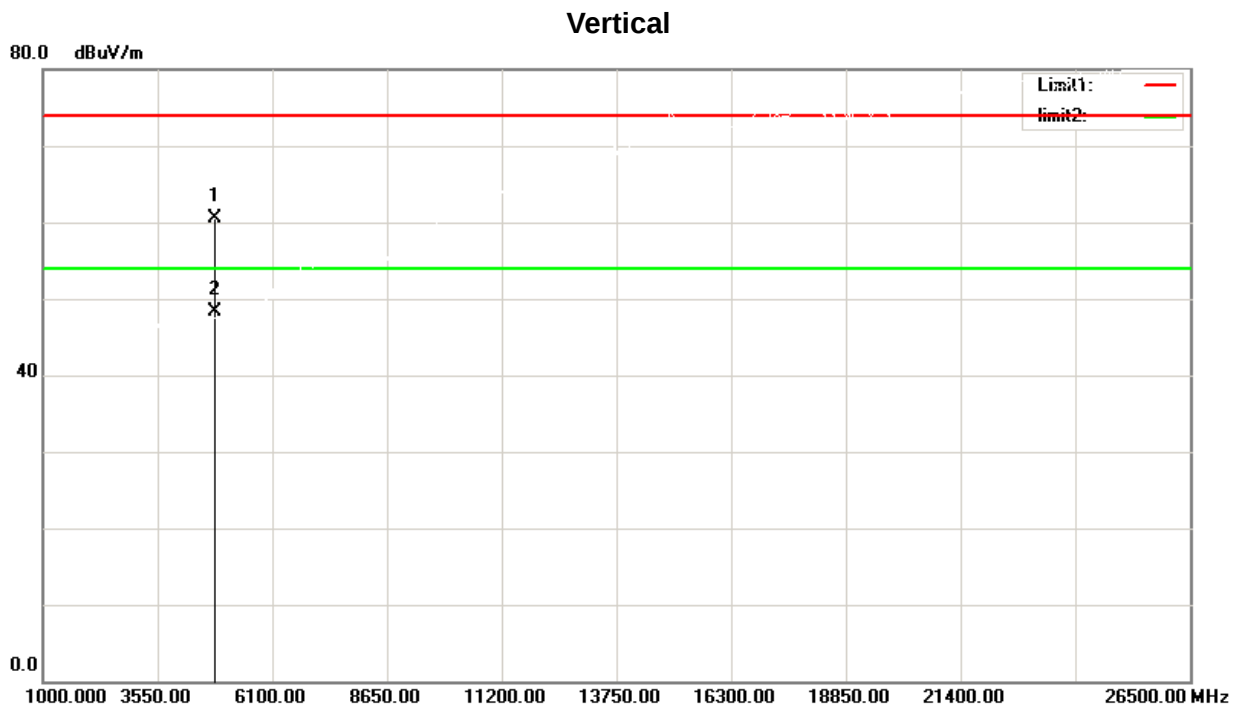
| No. | Frequency<br>(MHz) | Reading<br>(dBuV/m) | Correct<br>Factor(dB/m) | Result<br>(dBuV/m) | Limit<br>(dBuV/m) | Margin<br>(dB) | Remark |
|-----|--------------------|---------------------|-------------------------|--------------------|-------------------|----------------|--------|
| 1   | 4924.750           | 61.66               | -2.87                   | 58.79              | 74.00             | -15.21         | peak   |
| 2   | 4924.750           | 52.24               | -2.87                   | 49.37              | 54.00             | -4.63          | AVG    |

|                 |                    |
|-----------------|--------------------|
| Orthogonal Axis | X                  |
| Test Mode:      | TX B Mode 2462 MHz |



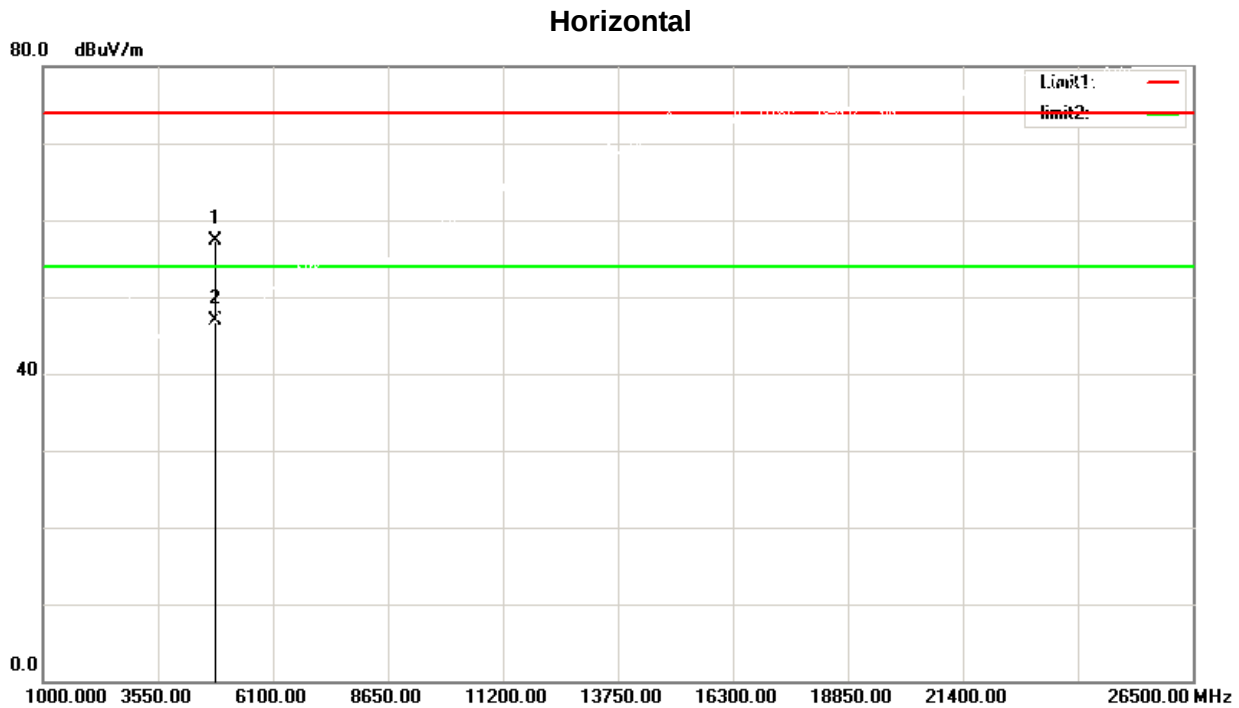
| No. | Frequency<br>(MHz) | Reading<br>(dBuV/m) | Correct<br>Factor(dB/m) | Result<br>(dBuV/m) | Limit<br>(dBuV/m) | Margin<br>(dB) | Remark |
|-----|--------------------|---------------------|-------------------------|--------------------|-------------------|----------------|--------|
| 1   | 4923.850           | 62.30               | -2.87                   | 59.43              | 74.00             | -14.57         | peak   |
| 2   | 4923.850           | 52.52               | -2.87                   | 49.65              | 54.00             | -4.35          | AVG    |

|                 |                    |
|-----------------|--------------------|
| Orthogonal Axis | X                  |
| Test Mode:      | TX G Mode 2412 MHz |



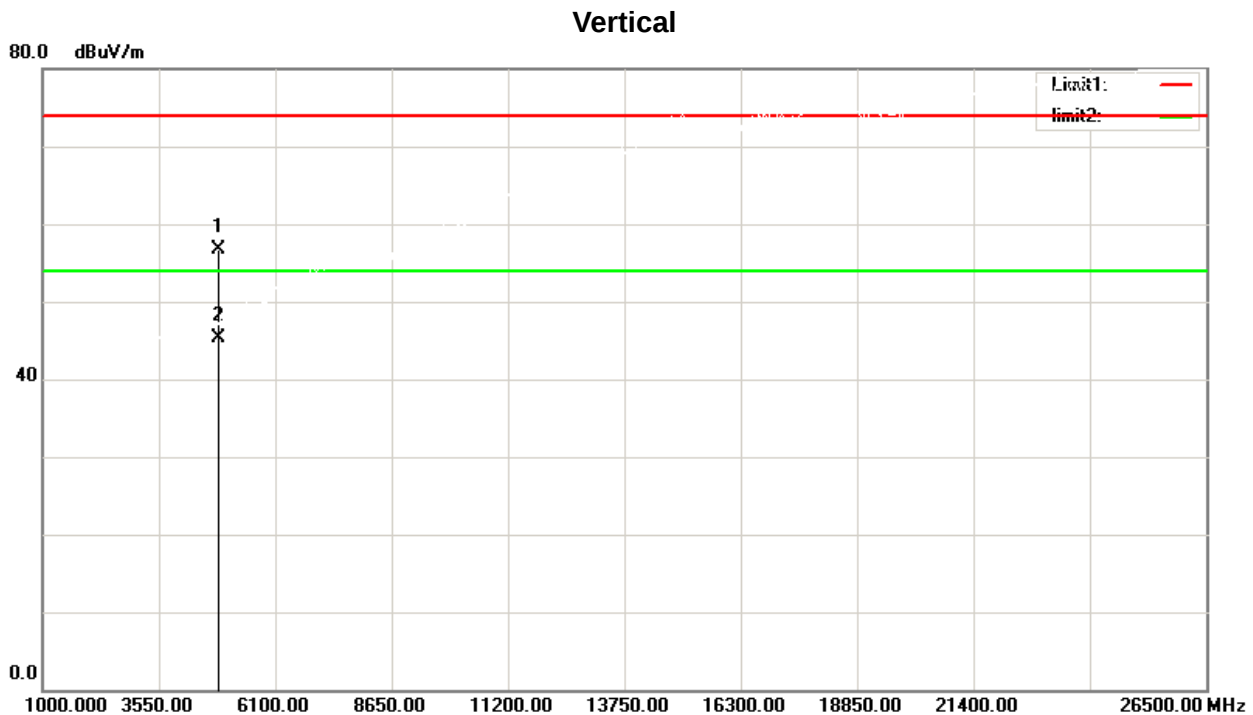
| No. | Frequency (MHz) | Reading (dBuV/m) | Correct Factor(dB/m) | Result (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Remark |
|-----|-----------------|------------------|----------------------|-----------------|----------------|-------------|--------|
| 1   | 4823.950        | 63.76            | -3.24                | 60.52           | 74.00          | -13.48      | peak   |
| 2   | 4823.950        | 51.52            | -3.24                | 48.28           | 54.00          | -5.72       | AVG    |

|                 |                    |
|-----------------|--------------------|
| Orthogonal Axis | X                  |
| Test Mode:      | TX G Mode 2412 MHz |



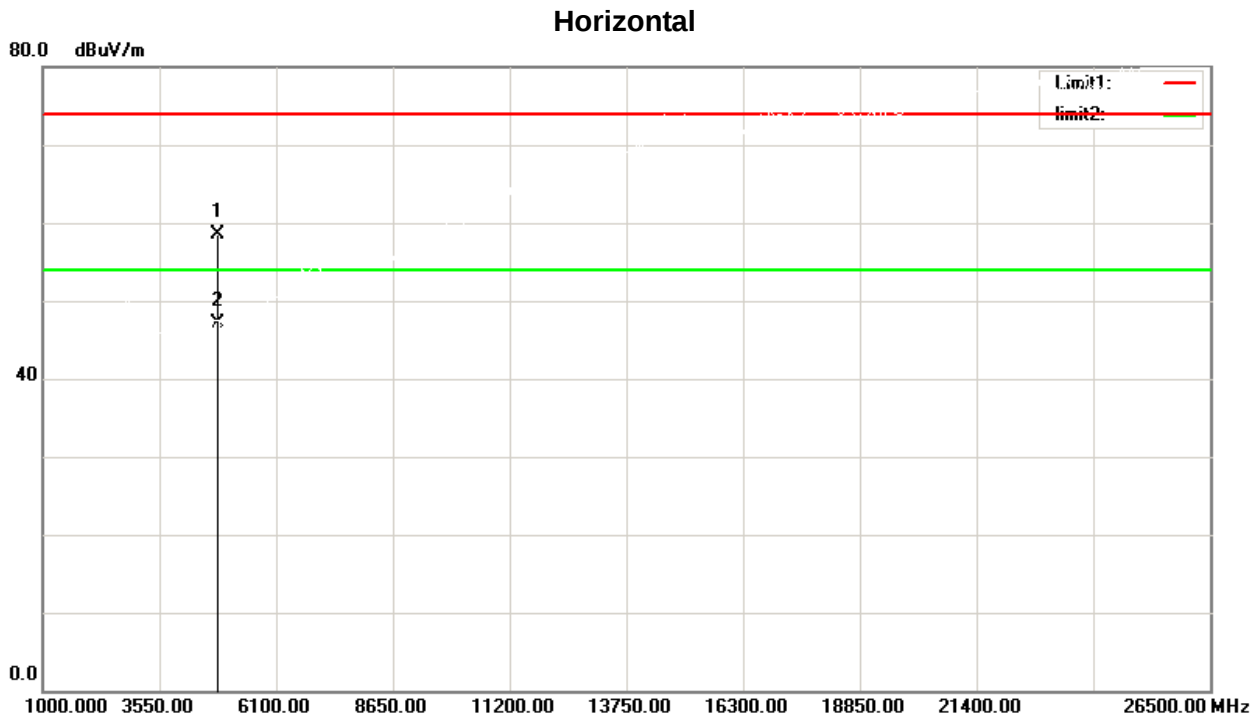
| No. | Frequency<br>(MHz) | Reading<br>(dBuV/m) | Correct<br>Factor(dB/m) | Result<br>(dBuV/m) | Limit<br>(dBuV/m) | Margin<br>(dB) | Remark |
|-----|--------------------|---------------------|-------------------------|--------------------|-------------------|----------------|--------|
| 1   | 4824.500           | 60.54               | -3.24                   | 57.30              | 74.00             | -16.70         | peak   |
| 2   | 4824.500           | 50.20               | -3.24                   | 46.96              | 54.00             | -7.04          | AVG    |

|                 |                    |
|-----------------|--------------------|
| Orthogonal Axis | X                  |
| Test Mode:      | TX G Mode 2437 MHz |



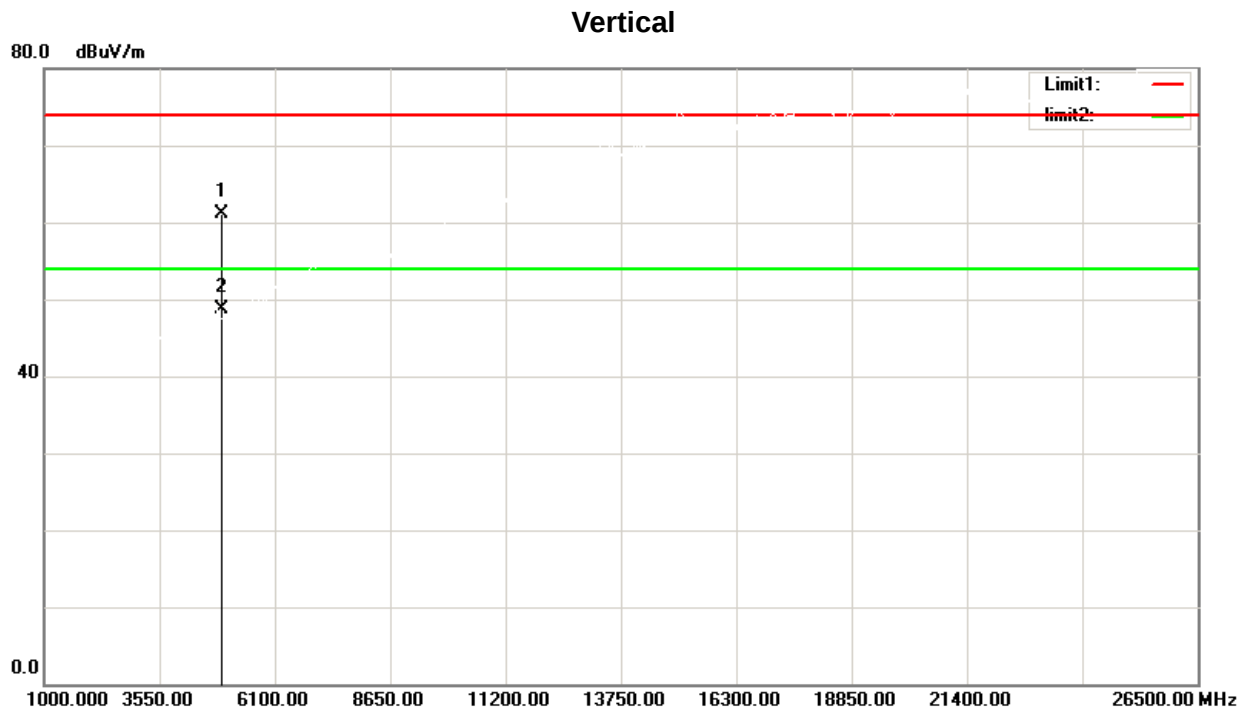
| No. | Frequency<br>(MHz) | Reading<br>(dBuV/m) | Correct<br>Factor(dB/m) | Result<br>(dBuV/m) | Limit<br>(dBuV/m) | Margin<br>(dB) | Remark |
|-----|--------------------|---------------------|-------------------------|--------------------|-------------------|----------------|--------|
| 1   | 4875.100           | 59.77               | -3.06                   | 56.71              | 74.00             | -17.29         | peak   |
| 2   | 4875.100           | 48.32               | -3.06                   | 45.26              | 54.00             | -8.74          | AVG    |

|                 |                    |
|-----------------|--------------------|
| Orthogonal Axis | X                  |
| Test Mode:      | TX G Mode 2437 MHz |



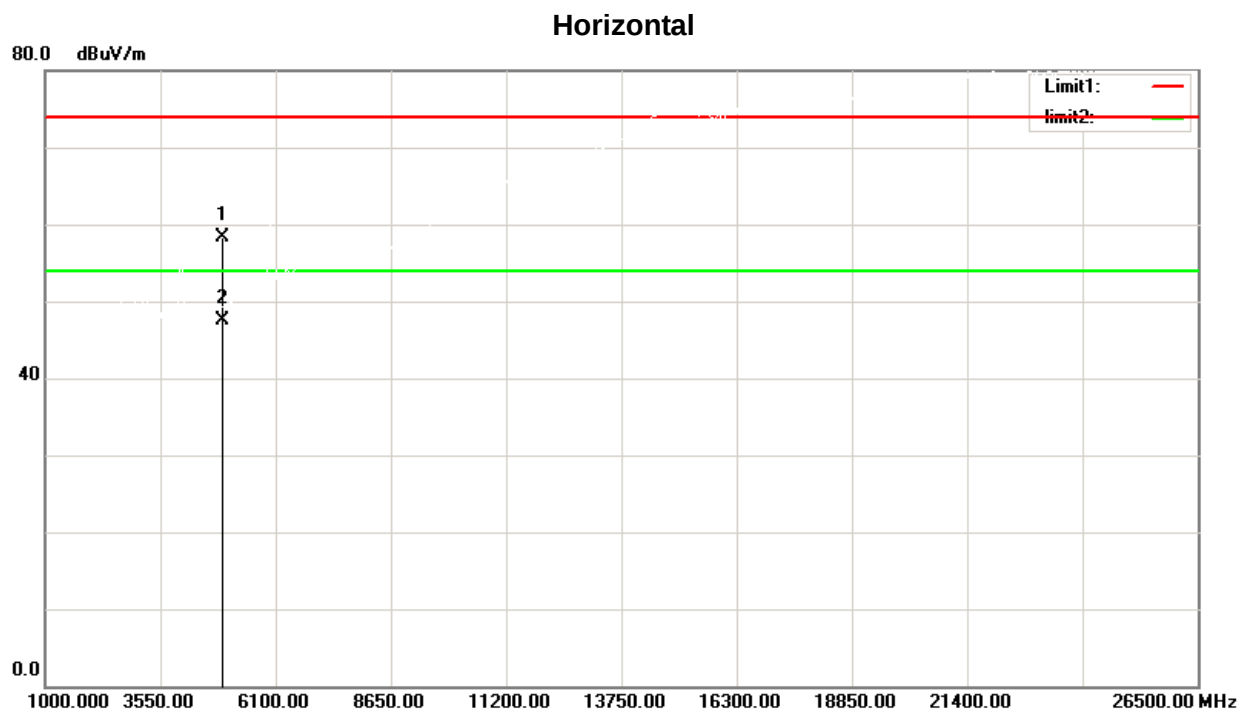
| No. | Frequency<br>(MHz) | Reading<br>(dBuV/m) | Correct<br>Factor(dB/m) | Result<br>(dBuV/m) | Limit<br>(dBuV/m) | Margin<br>(dB) | Remark |
|-----|--------------------|---------------------|-------------------------|--------------------|-------------------|----------------|--------|
| 1   | 4824.500           | 61.72               | -3.24                   | 58.48              | 74.00             | -15.52         | peak   |
| 2   | 4824.500           | 50.36               | -3.24                   | 47.12              | 54.00             | -6.88          | AVG    |

|                 |                    |
|-----------------|--------------------|
| Orthogonal Axis | X                  |
| Test Mode:      | TX G Mode 2462 MHz |



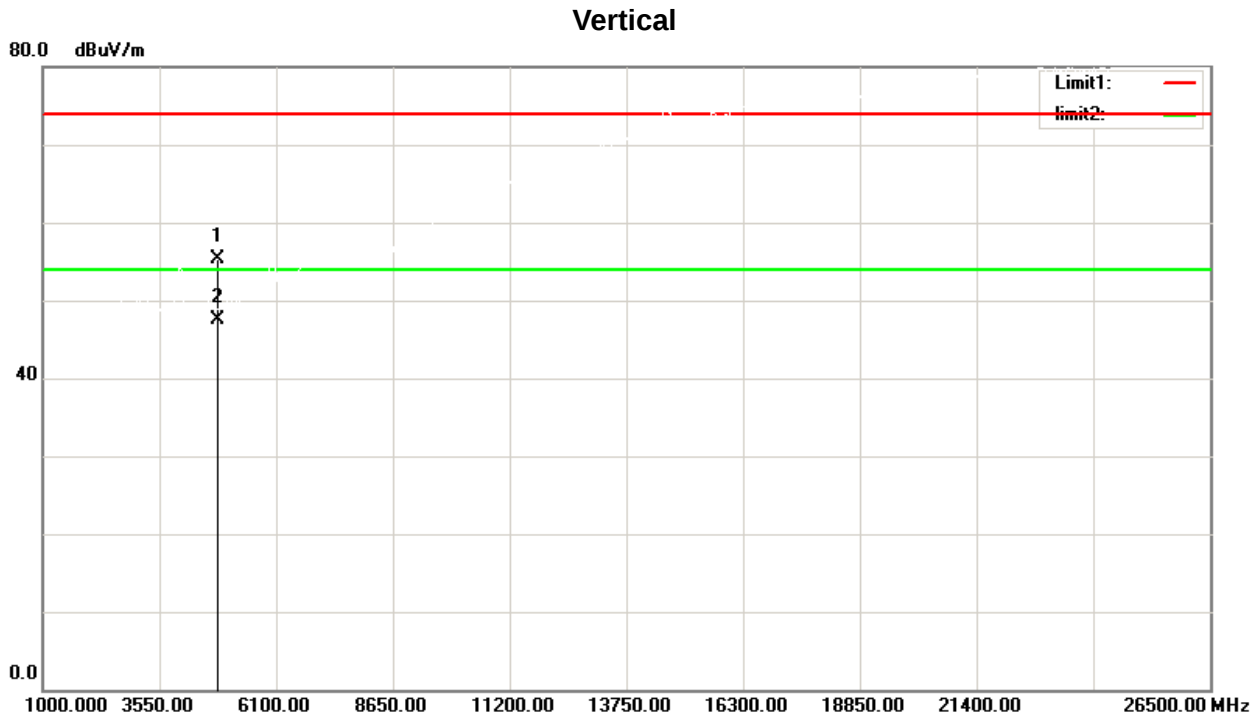
| No. | Frequency<br>(MHz) | Reading<br>(dBuV/m) | Correct<br>Factor(dB/m) | Result<br>(dBuV/m) | Limit<br>(dBuV/m) | Margin<br>(dB) | Remark |
|-----|--------------------|---------------------|-------------------------|--------------------|-------------------|----------------|--------|
| 1   | 4925.500           | 63.98               | -2.87                   | 61.11              | 74.00             | -12.89         | peak   |
| 2   | 4925.500           | 51.56               | -2.87                   | 48.69              | 54.00             | -5.31          | AVG    |

|                 |                    |
|-----------------|--------------------|
| Orthogonal Axis | X                  |
| Test Mode:      | TX G Mode 2462 MHz |



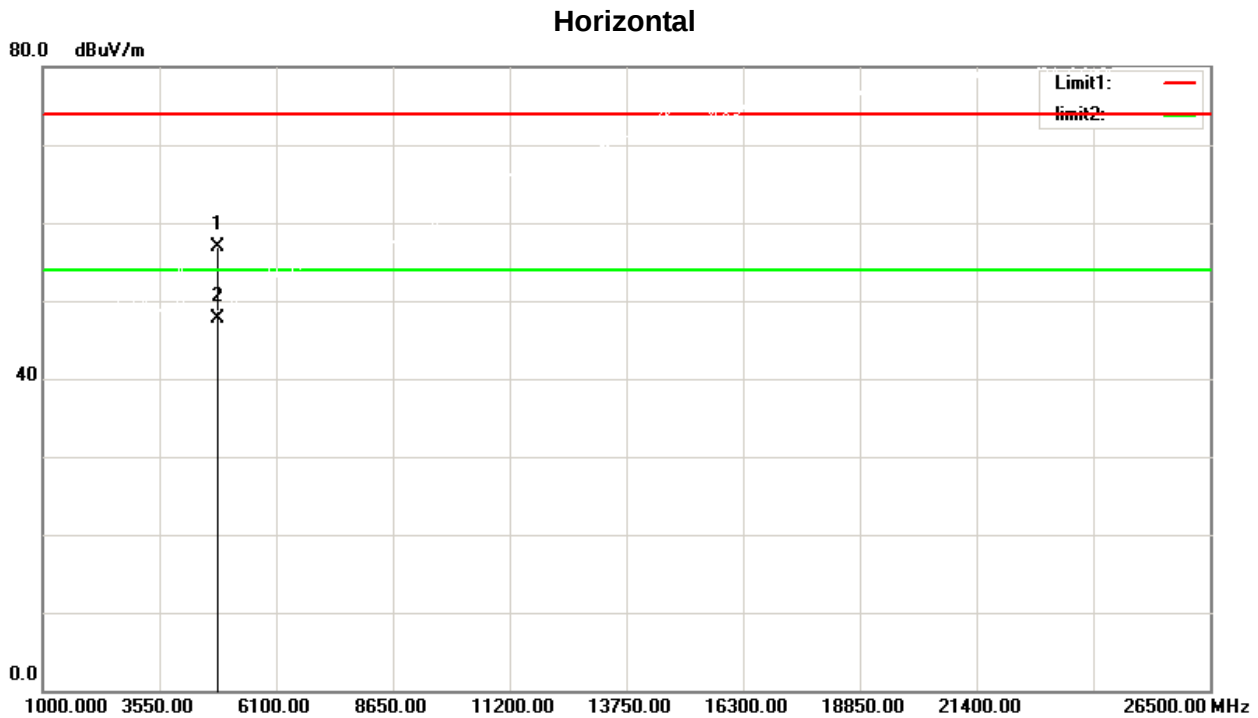
| No. | Frequency (MHz) | Reading (dBuV/m) | Correct Factor(dB/m) | Result (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Remark |
|-----|-----------------|------------------|----------------------|-----------------|----------------|-------------|--------|
| 1   | 4925.500        | 61.17            | -2.87                | 58.30           | 74.00          | -15.70      | peak   |
| 2   | 4925.500        | 50.32            | -2.87                | 47.45           | 54.00          | -6.55       | AVG    |

|                 |                        |
|-----------------|------------------------|
| Orthogonal Axis | X                      |
| Test Mode:      | TX N-20M Mode 2412 MHz |



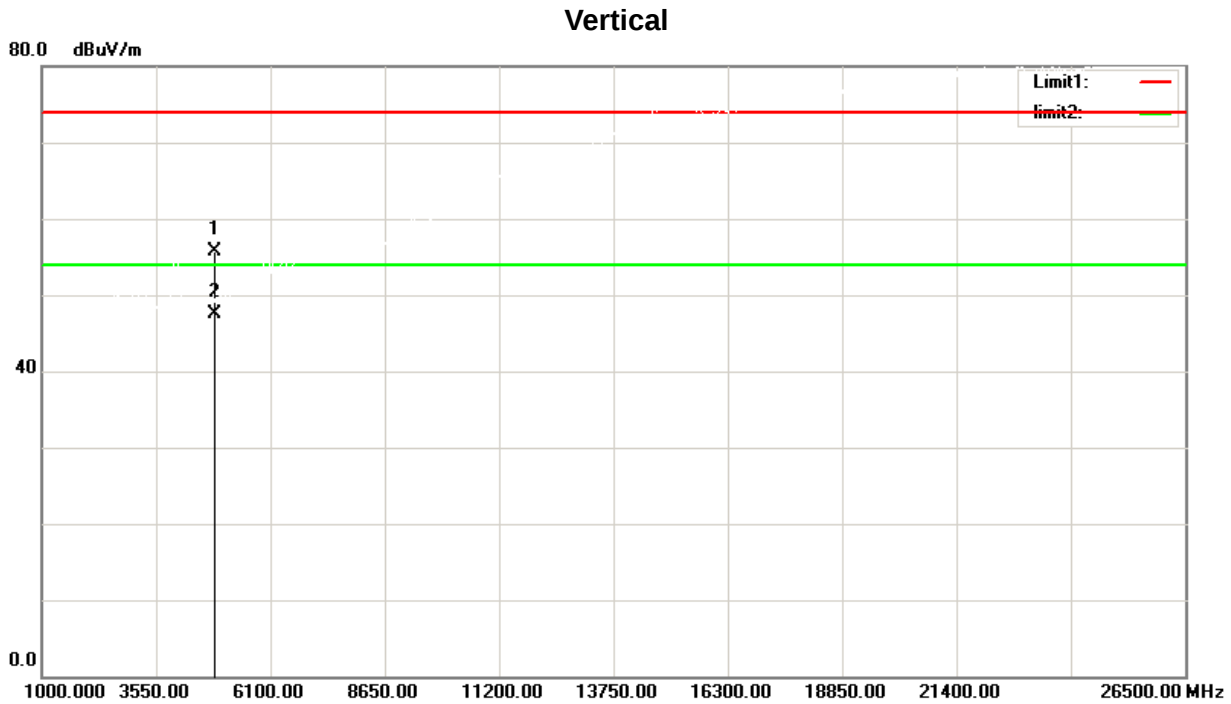
| No. | Frequency<br>(MHz) | Reading<br>(dBuV/m) | Correct<br>Factor(dB/m) | Result<br>(dBuV/m) | Limit<br>(dBuV/m) | Margin<br>(dB) | Remark |
|-----|--------------------|---------------------|-------------------------|--------------------|-------------------|----------------|--------|
| 1   | 4824.500           | 58.64               | -3.24                   | 55.40              | 74.00             | -18.60         | peak   |
| 2   | 4824.500           | 50.81               | -3.24                   | 47.57              | 54.00             | -6.43          | AVG    |

|                 |                        |
|-----------------|------------------------|
| Orthogonal Axis | X                      |
| Test Mode:      | TX N-20M Mode 2412 MHz |



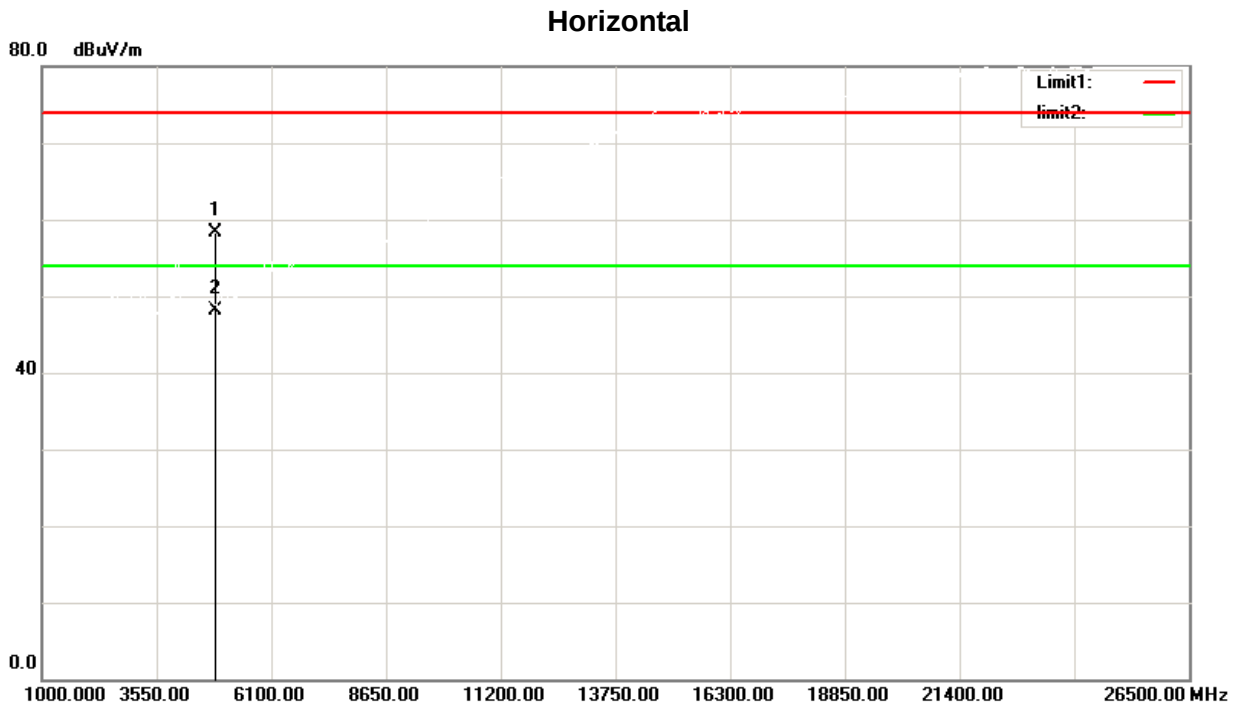
| No. | Frequency<br>(MHz) | Reading<br>(dBuV/m) | Correct<br>Factor(dB/m) | Result<br>(dBuV/m) | Limit<br>(dBuV/m) | Margin<br>(dB) | Remark |
|-----|--------------------|---------------------|-------------------------|--------------------|-------------------|----------------|--------|
| 1   | 4824.550           | 60.20               | -3.24                   | 56.96              | 74.00             | -17.04         | peak   |
| 2   | 4824.550           | 50.87               | -3.24                   | 47.63              | 54.00             | -6.37          | AVG    |

|                 |                        |
|-----------------|------------------------|
| Orthogonal Axis | X                      |
| Test Mode:      | TX N-20M Mode 2437 MHz |



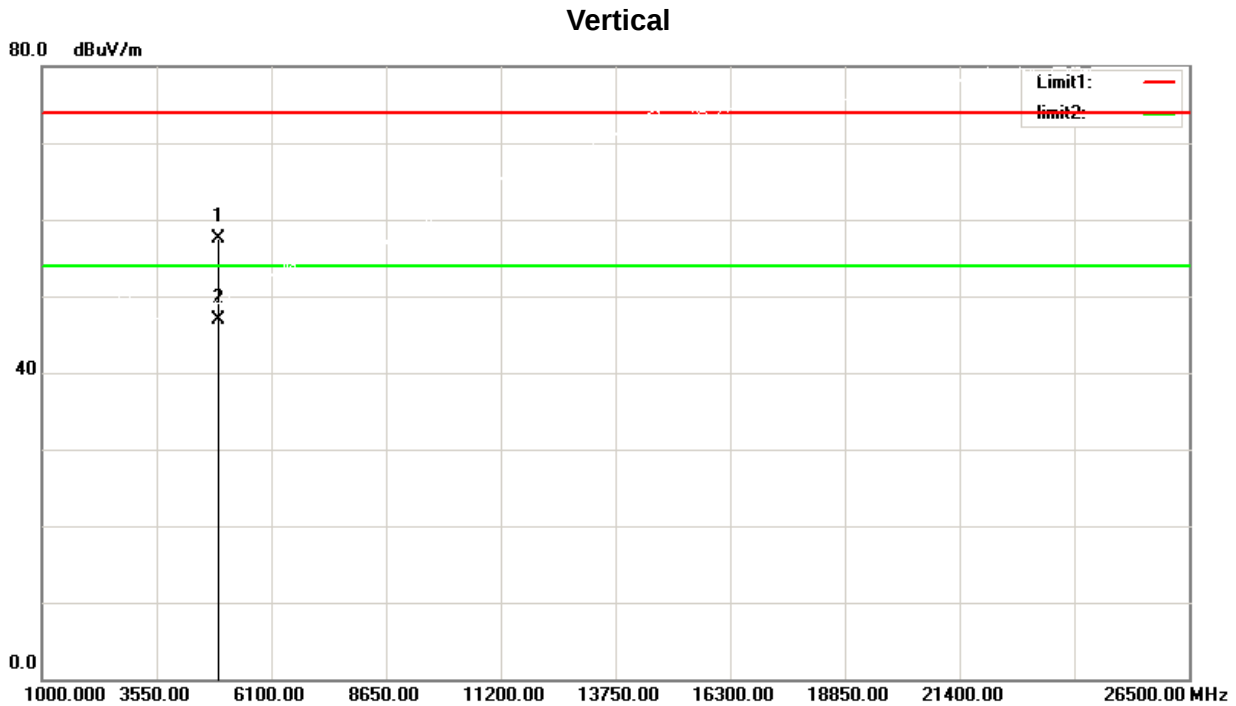
| No. | Frequency<br>(MHz) | Reading<br>(dBuV/m) | Correct<br>Factor(dB/m) | Result<br>(dBuV/m) | Limit<br>(dBuV/m) | Margin<br>(dB) | Remark |
|-----|--------------------|---------------------|-------------------------|--------------------|-------------------|----------------|--------|
| 1   | 4846.000           | 58.91               | -3.17                   | 55.74              | 74.00             | -18.26         | peak   |
| 2   | 4846.000           | 50.62               | -3.17                   | 47.45              | 54.00             | -6.55          | AVG    |

|                 |                        |
|-----------------|------------------------|
| Orthogonal Axis | X                      |
| Test Mode:      | TX N-20M Mode 2437 MHz |



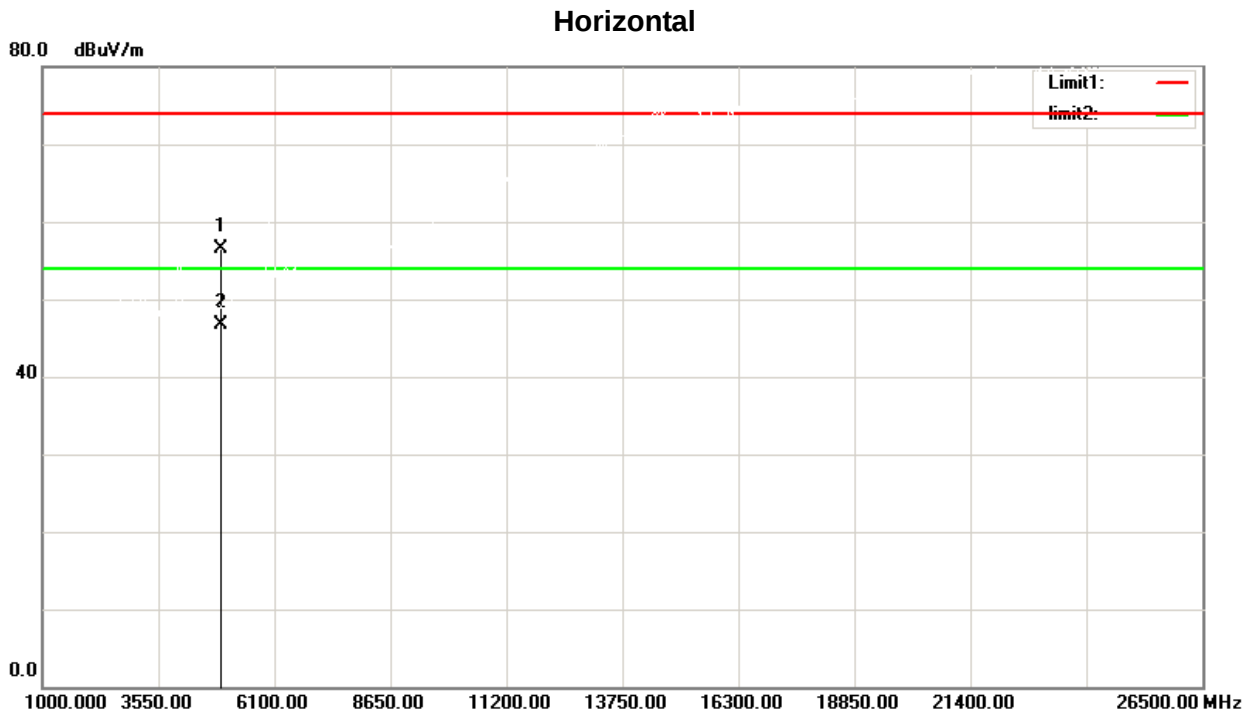
| No. | Frequency<br>(MHz) | Reading<br>(dBuV/m) | Correct<br>Factor(dB/m) | Result<br>(dBuV/m) | Limit<br>(dBuV/m) | Margin<br>(dB) | Remark |
|-----|--------------------|---------------------|-------------------------|--------------------|-------------------|----------------|--------|
| 1   | 4844.000           | 61.38               | -3.17                   | 58.21              | 74.00             | -15.79         | peak   |
| 2   | 4844.000           | 51.23               | -3.17                   | 48.06              | 54.00             | -5.94          | AVG    |

|                 |                        |
|-----------------|------------------------|
| Orthogonal Axis | X                      |
| Test Mode:      | TX N-20M Mode 2462 MHz |



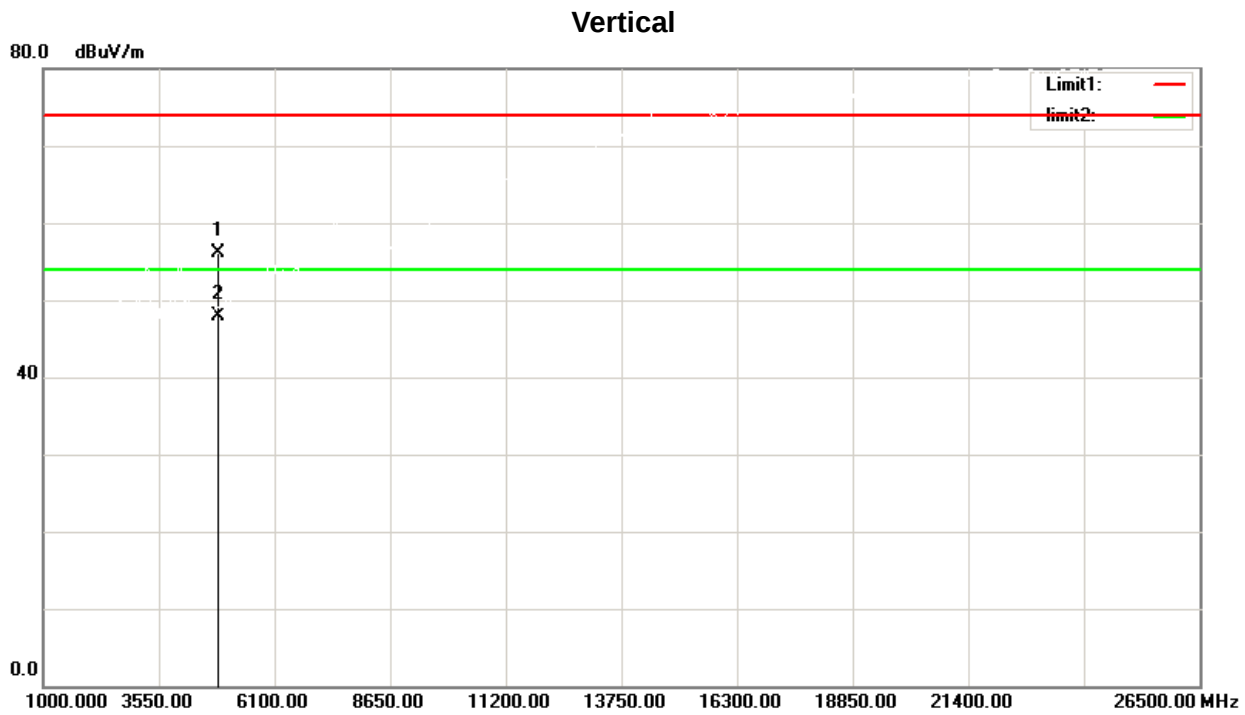
| No. | Frequency<br>(MHz) | Reading<br>(dBuV/m) | Correct<br>Factor(dB/m) | Result<br>(dBuV/m) | Limit<br>(dBuV/m) | Margin<br>(dB) | Remark |
|-----|--------------------|---------------------|-------------------------|--------------------|-------------------|----------------|--------|
| 1   | 4924.500           | 60.43               | -2.87                   | 57.56              | 74.00             | -16.44         | peak   |
| 2   | 4924.500           | 49.69               | -2.87                   | 46.82              | 54.00             | -7.18          | AVG    |

|                 |                        |
|-----------------|------------------------|
| Orthogonal Axis | X                      |
| Test Mode:      | TX N-20M Mode 2462 MHz |



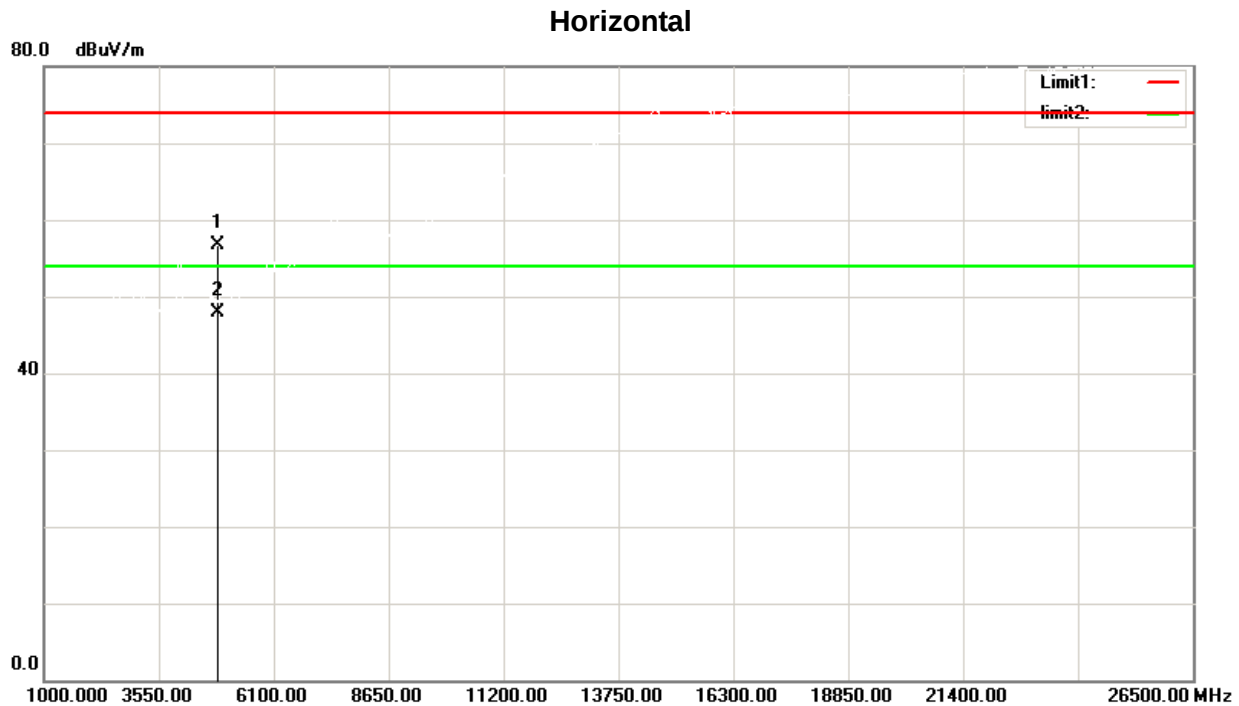
| No. | Frequency (MHz) | Reading (dBuV/m) | Correct Factor(dB/m) | Result (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Remark |
|-----|-----------------|------------------|----------------------|-----------------|----------------|-------------|--------|
| 1   | 4924.550        | 59.30            | -2.87                | 56.43           | 74.00          | -17.57      | peak   |
| 2   | 4924.550        | 49.64            | -2.87                | 46.77           | 54.00          | -7.23       | AVG    |

|                 |                       |
|-----------------|-----------------------|
| Orthogonal Axis | X                     |
| Test Mode:      | TX N-40M Mode 2422MHz |



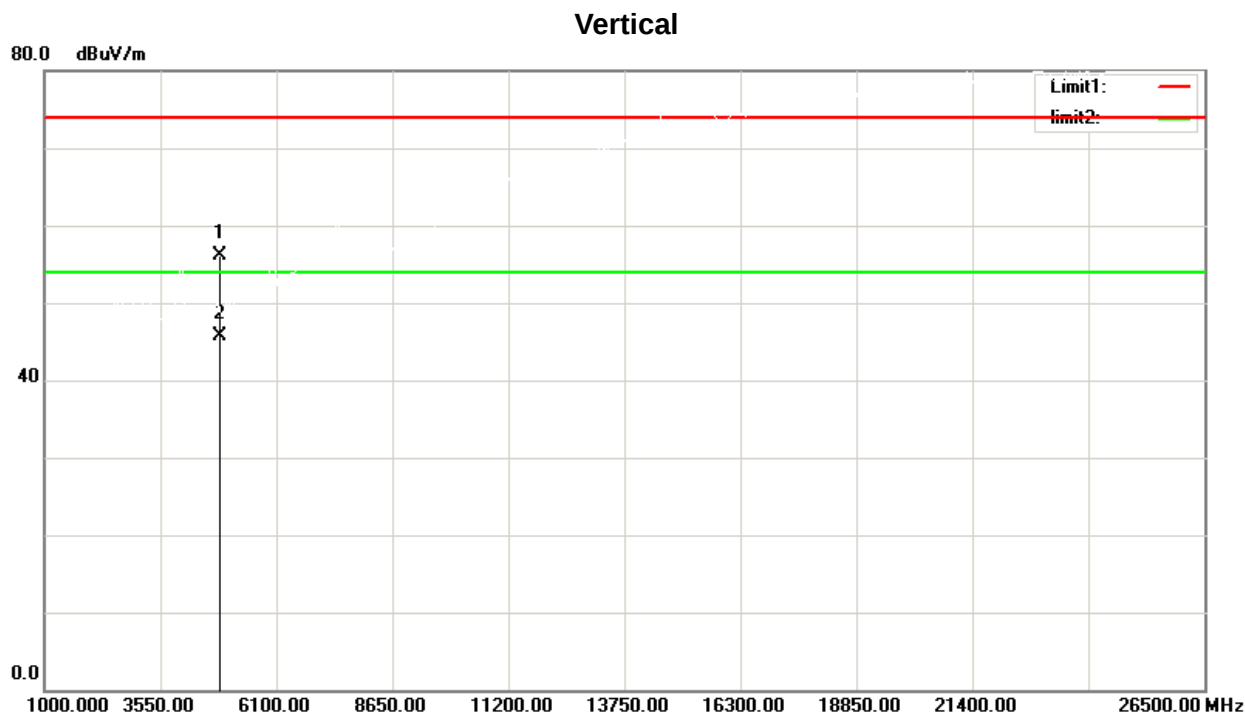
| No. | Frequency (MHz) | Reading (dBuV/m) | Correct Factor(dB/m) | Result (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Remark |
|-----|-----------------|------------------|----------------------|-----------------|----------------|-------------|--------|
| 1   | 4845.500        | 59.21            | -3.17                | 56.04           | 74.00          | -17.96      | peak   |
| 2   | 4845.500        | 51.01            | -3.17                | 47.84           | 54.00          | -6.16       | AVG    |

|                 |                       |
|-----------------|-----------------------|
| Orthogonal Axis | X                     |
| Test Mode:      | TX N-40M Mode 2422MHz |



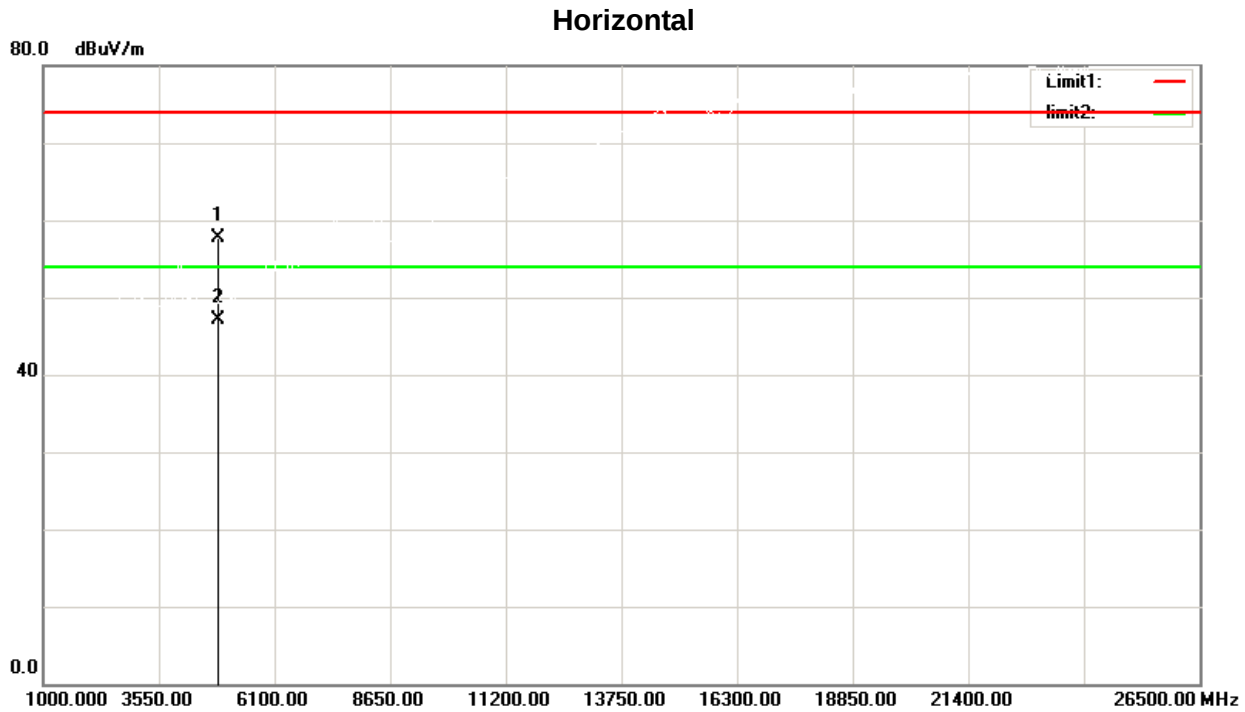
| No. | Frequency<br>(MHz) | Reading<br>(dBuV/m) | Correct<br>Factor(dB/m) | Result<br>(dBuV/m) | Limit<br>(dBuV/m) | Margin<br>(dB) | Remark |
|-----|--------------------|---------------------|-------------------------|--------------------|-------------------|----------------|--------|
| 1   | 4846.650           | 59.96               | -3.17                   | 56.79              | 74.00             | -17.21         | peak   |
| 2   | 4846.650           | 51.01               | -3.17                   | 47.84              | 54.00             | -6.16          | AVG    |

|                 |                        |
|-----------------|------------------------|
| Orthogonal Axis | X                      |
| Test Mode:      | TX N-40M Mode 2437 MHz |



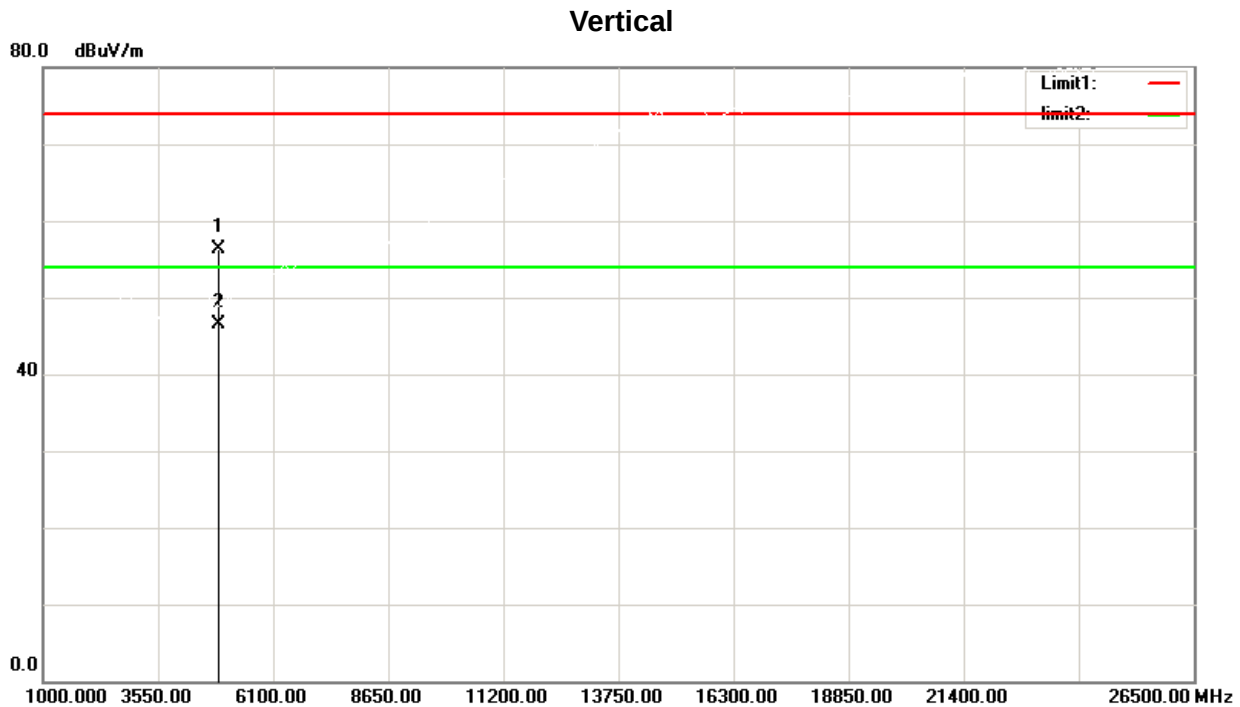
| No. | Frequency<br>(MHz) | Reading<br>(dBuV/m) | Correct<br>Factor(dB/m) | Result<br>(dBuV/m) | Limit<br>(dBuV/m) | Margin<br>(dB) | Remark |
|-----|--------------------|---------------------|-------------------------|--------------------|-------------------|----------------|--------|
| 1   | 4874.500           | 59.16               | -3.06                   | 56.10              | 74.00             | -17.90         | peak   |
| 2   | 4874.500           | 48.73               | -3.06                   | 45.67              | 54.00             | -8.33          | AVG    |

|                 |                        |
|-----------------|------------------------|
| Orthogonal Axis | X                      |
| Test Mode:      | TX N-40M Mode 2437 MHz |



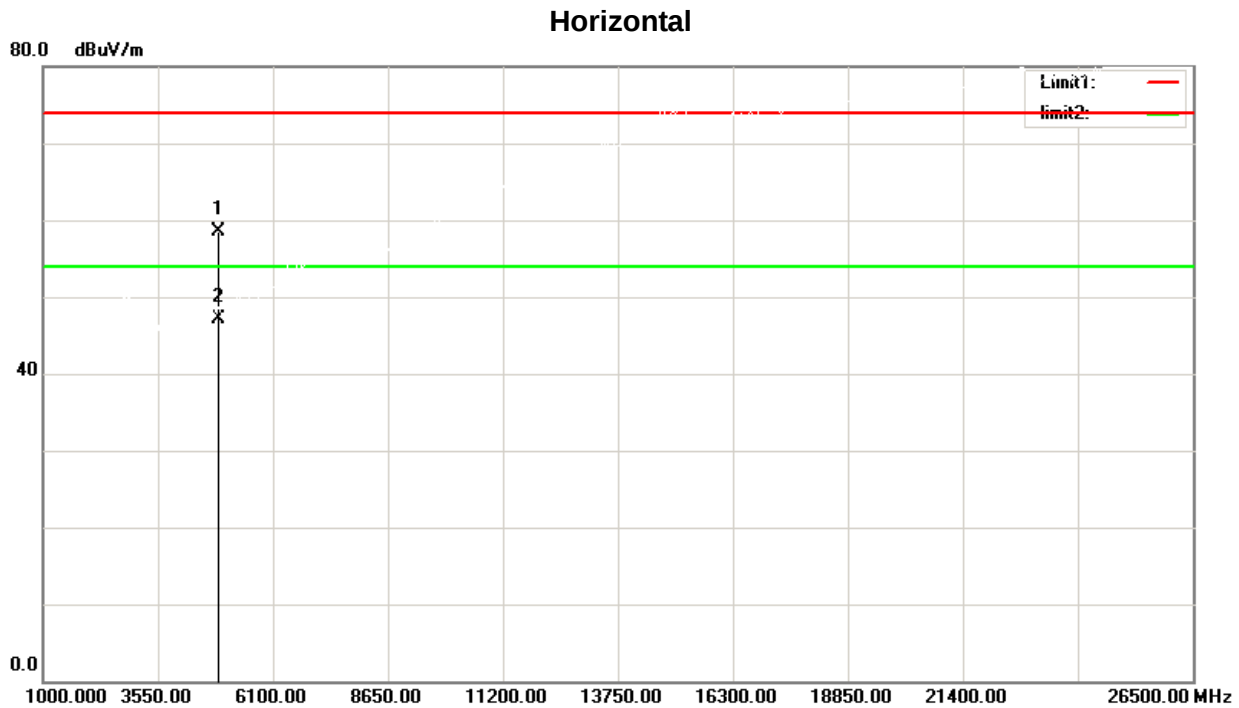
| No. | Frequency<br>(MHz) | Reading<br>(dBuV/m) | Correct<br>Factor(dB/m) | Result<br>(dBuV/m) | Limit<br>(dBuV/m) | Margin<br>(dB) | Remark |
|-----|--------------------|---------------------|-------------------------|--------------------|-------------------|----------------|--------|
| 1   | 4874.500           | 60.79               | -3.06                   | 57.73              | 74.00             | -16.27         | peak   |
| 2   | 4874.500           | 50.09               | -3.06                   | 47.03              | 54.00             | -6.97          | AVG    |

|                 |                        |
|-----------------|------------------------|
| Orthogonal Axis | X                      |
| Test Mode:      | TX N-40M Mode 2452 MHz |



| No. | Frequency<br>(MHz) | Reading<br>(dBuV/m) | Correct<br>Factor(dB/m) | Result<br>(dBuV/m) | Limit<br>(dBuV/m) | Margin<br>(dB) | Remark |
|-----|--------------------|---------------------|-------------------------|--------------------|-------------------|----------------|--------|
| 1   | 4905.650           | 59.31               | -2.95                   | 56.36              | 74.00             | -17.64         | peak   |
| 2   | 4905.650           | 49.51               | -2.95                   | 46.56              | 54.00             | -7.44          | AVG    |

|                 |                        |
|-----------------|------------------------|
| Orthogonal Axis | X                      |
| Test Mode:      | TX N-40M Mode 2452 MHz |



| No. | Frequency<br>(MHz) | Reading<br>(dBuV/m) | Correct<br>Factor(dB/m) | Result<br>(dBuV/m) | Limit<br>(dBuV/m) | Margin<br>(dB) | Remark |
|-----|--------------------|---------------------|-------------------------|--------------------|-------------------|----------------|--------|
| 1   | 4904.500           | 61.40               | -2.95                   | 58.45              | 74.00             | -15.55         | peak   |
| 2   | 4904.500           | 50.12               | -2.95                   | 47.17              | 54.00             | -6.83          | AVG    |

## 6. BANDWIDTH TEST

### 6.1 LIMIT

| FCC Part15, Subpart C (15.247)&RSS-Gen and RSS-247 |                        |                 |
|----------------------------------------------------|------------------------|-----------------|
| Section                                            | Test Item              | Limit           |
| 15.247(a)(2)<br>RSS-Gen6.7<br>RSS-247 5.2 (a)      | 6dB Bandwidth          | Minimum 500 kHz |
|                                                    | 99% Emission 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.
- For 6dB Bandwidth Spectrum setting: RBW= 100KHz, VBW=300KHz, Sweep time = 2.5ms.  
For 99% OBW Spectrum Setting: RBW= 300KHz, VBW=1MHz,Sweep time = 2.5ms.
- The bandwidth was performed in accordance with method 11.8.1 of ANSI C63.10-2013.

### 6.3 MEASUREMENT INSTRUMENTS LIST

| Item | Kind of Equipment | Manufacturer  | Type No.    | Serial No. | Calibrated until |
|------|-------------------|---------------|-------------|------------|------------------|
| 1    | Spectrum analyzer | KEYSIGHT      | N9010A      | MY55150427 | 2021/05/24       |
| 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

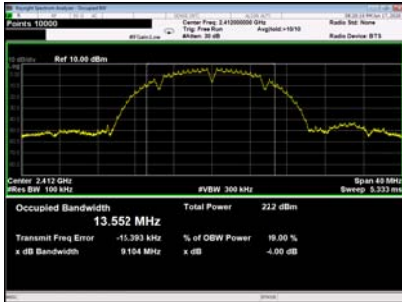
The EUT tested system was configured as the statements of 4.5 unless otherwise a special operating condition is specified in the follows during the testing.

## 6.6 TESTRESULTS

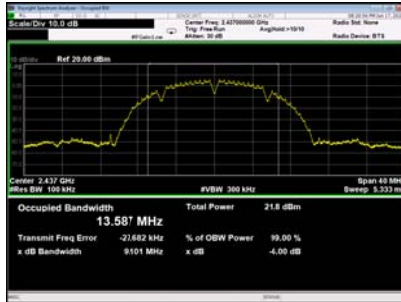
| TX B Mode |                 |                     |                             |                               |        |
|-----------|-----------------|---------------------|-----------------------------|-------------------------------|--------|
| Channel   | Frequency (MHz) | 6dB Bandwidth (MHz) | 99% Emission Bandwidth(MHz) | 6dB Bandwidth Min. Limit(kHz) | Result |
| 01        | 2412            | 9.104               | 13.543                      | 500                           | PASS   |
| 06        | 2437            | 9.101               | 13.585                      | 500                           | PASS   |
| 11        | 2462            | 9.102               | 13.559                      | 500                           | PASS   |

### 6dB

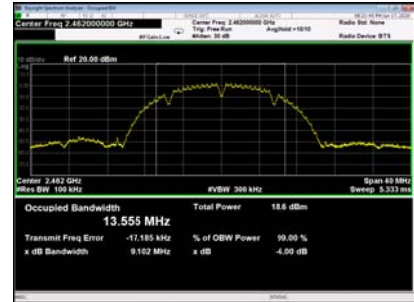
CH01



CH06

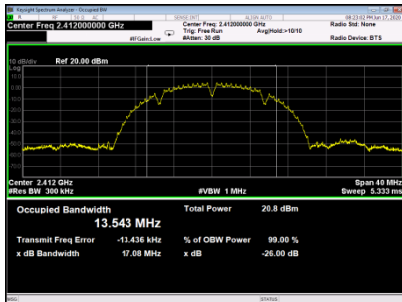


CH11

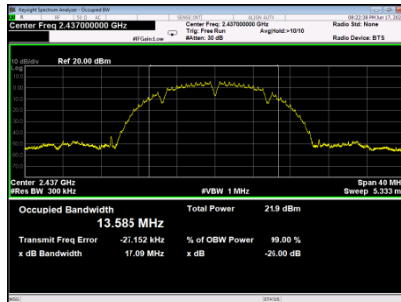


### 99%

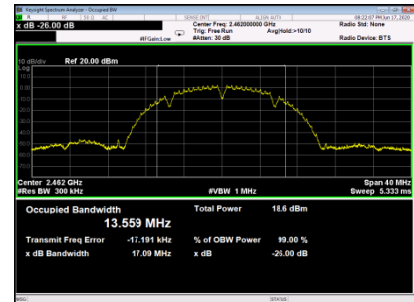
CH01



CH06



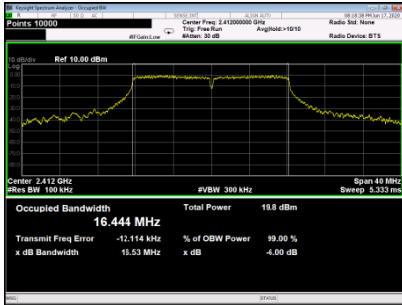
CH11



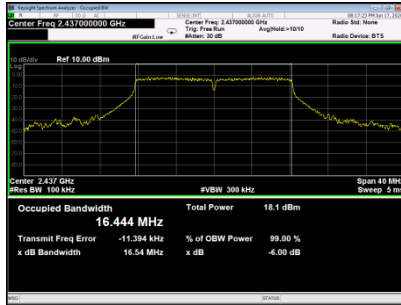
| TX G Mode |                 |                     |                             |                               |        |
|-----------|-----------------|---------------------|-----------------------------|-------------------------------|--------|
| Channel   | Frequency (MHz) | 6dB Bandwidth (MHz) | 99% Emission Bandwidth(MHz) | 6dB Bandwidth Min. Limit(kHz) | Result |
| 01        | 2412            | 16.53               | 16.445                      | 500                           | PASS   |
| 06        | 2437            | 16.54               | 16.452                      | 500                           | PASS   |
| 11        | 2462            | 16.54               | 16.437                      | 500                           | PASS   |

## 6dB

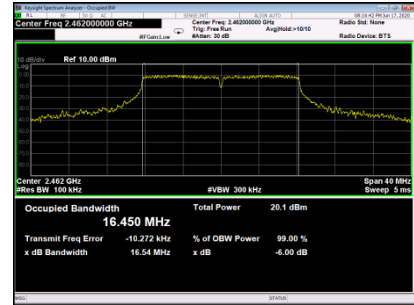
CH01



CH06

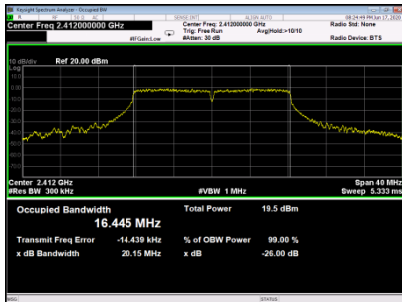


CH11

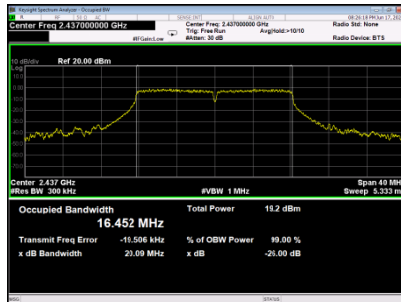


## 99%

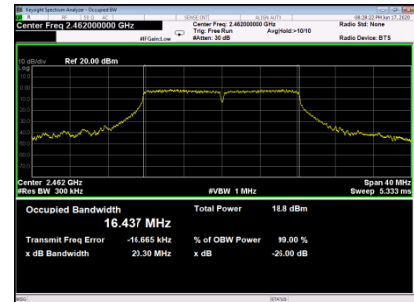
CH01



CH06



CH11

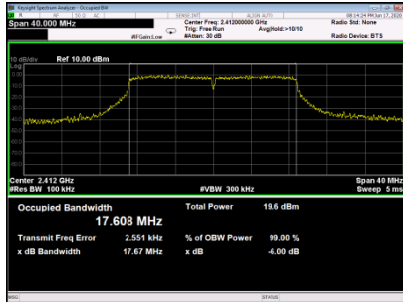


## TX N (HT20) Mode

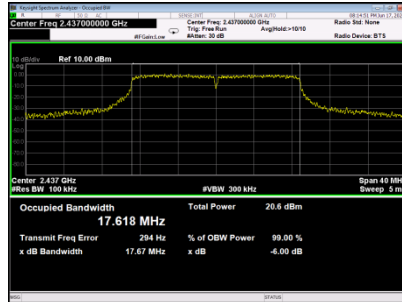
| Channel | Frequency (MHz) | 6dB Bandwidth (MHz) | 99% Emission Bandwidth(MHz) | 6dB Bandwidth Min. Limit(kHz) | Result |
|---------|-----------------|---------------------|-----------------------------|-------------------------------|--------|
| 01      | 2412            | 17.67               | 17.577                      | 500                           | PASS   |
| 06      | 2437            | 17.67               | 17.579                      | 500                           | PASS   |
| 11      | 2462            | 17.67               | 17.578                      | 500                           | PASS   |

### 6dB

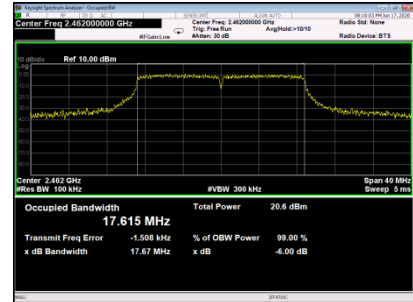
CH01



CH06

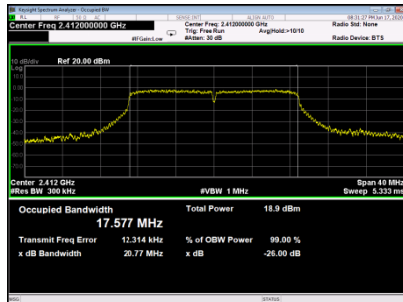


CH11

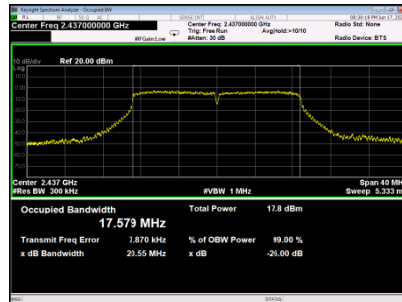


### 99%

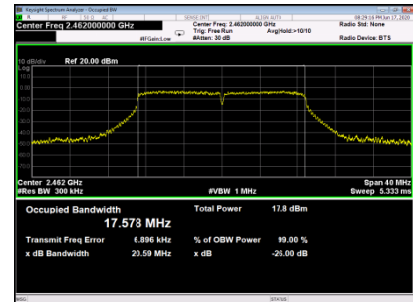
CH01



CH06



CH11

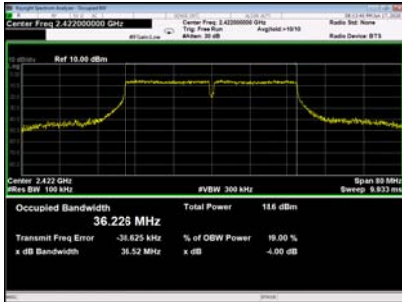


## TX N (HT40) Mode

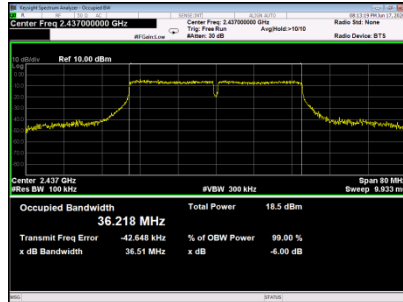
| Channel | Frequency (MHz) | 6dB Bandwidth (MHz) | 99% Emission Bandwidth(MHz) | 6dB Bandwidth Min. Limit(kHz) | Result |
|---------|-----------------|---------------------|-----------------------------|-------------------------------|--------|
| 03      | 2422            | 36.52               | 36.210                      | 500                           | PASS   |
| 06      | 2437            | 36.51               | 36.204                      | 500                           | PASS   |
| 09      | 2452            | 36.52               | 36.208                      | 500                           | PASS   |

### 6dB

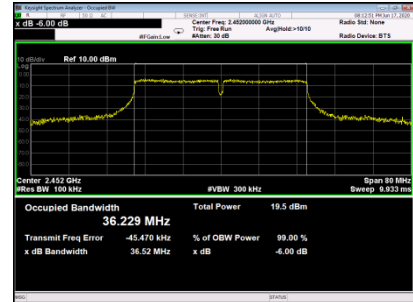
CH03



CH06

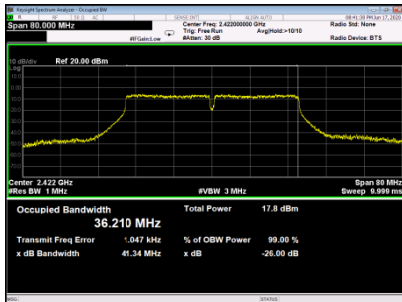


CH09

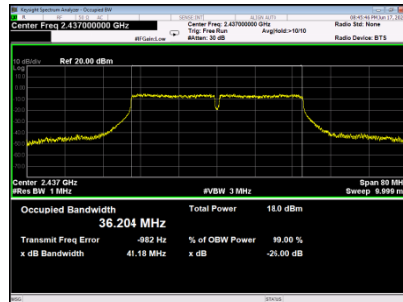


### 99%

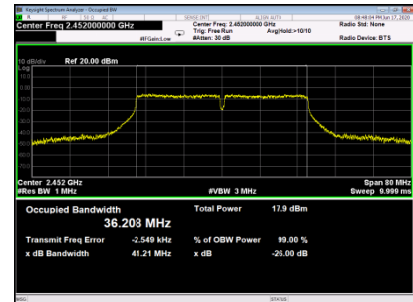
CH03



CH06



CH9



## 7. MAXIMUM OUTPUT POWER TEST

### 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 |

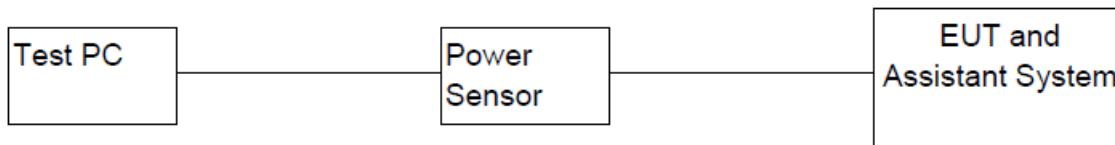
### 7.2 TEST PROCEDURE AND SETTING

- The EUT was directly connected to the power meter 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 of ANSI C63.10-2013.and FCC KDB 662911 D01 v02r01 Multiple Transmitter Output.

### 7.3 MEASUREMENT INSTRUMENTS LIST

| Item | Equipment     | Manufacturer  | Model No.   | Serial No. | Calibrated until |
|------|---------------|---------------|-------------|------------|------------------|
| 1    | Power Sensor  | KEYSIGHT      | U2021XA     | MY55240009 | 05/24/2021       |
| 2    | Attenuator    | Mini-Circuits | BW-S10W2    | 101109     | N/A              |
| 3    | RF Cable      | Micable       | C10-01-01-1 | 100309     | N/A              |
| 4    | Test Software | KEYSIGHT      | Power Panel | V3.11      | 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 B Mode_Ant 1 |                    |                       |                     |        |
|-----------------|--------------------|-----------------------|---------------------|--------|
| Channel         | Frequency<br>(MHz) | Output Power<br>(dBm) | Output Power<br>(W) | Result |
| 01              | 2412               | 17.98                 | 0.0628              | PASS   |
| 06              | 2437               | 18.85                 | 0.0767              | PASS   |
| 11              | 2462               | 18.53                 | 0.0713              | PASS   |
| Limit           | 30dBm / 1W         |                       |                     |        |

| TX B Mode_Ant 2 |                    |                       |                     |        |
|-----------------|--------------------|-----------------------|---------------------|--------|
| Channel         | Frequency<br>(MHz) | Output Power<br>(dBm) | Output Power<br>(W) | Result |
| 01              | 2412               | 17.98                 | 0.0628              | PASS   |
| 06              | 2437               | 18.22                 | 0.0664              | PASS   |
| 11              | 2462               | 18.10                 | 0.0646              | PASS   |
| Limit           | 30dBm / 1W         |                       |                     |        |

| TX G Mode_Ant 1 |                 |                    |                  |        |
|-----------------|-----------------|--------------------|------------------|--------|
| Channel         | Frequency (MHz) | Output Power (dBm) | Output Power (W) | Result |
| 01              | 2412            | 21.92              | 0.1556           | PASS   |
| 06              | 2437            | 21.87              | 0.1538           | PASS   |
| 11              | 2462            | 22.31              | 0.1702           | PASS   |
| Limit           | 30dBm / 1W      |                    |                  |        |

| TX G Mode_Ant 2 |                 |                    |                  |        |
|-----------------|-----------------|--------------------|------------------|--------|
| Channel         | Frequency (MHz) | Output Power (dBm) | Output Power (W) | Result |
| 01              | 2412            | 21.87              | 0.1538           | PASS   |
| 06              | 2437            | 22.24              | 0.1675           | PASS   |
| 11              | 2462            | 22.07              | 0.1611           | PASS   |
| Limit           | 30dBm / 1W      |                    |                  |        |

| TX N (HT20) _Ant 1 |                 |                    |                  |        |
|--------------------|-----------------|--------------------|------------------|--------|
| Channel            | Frequency (MHz) | Output Power (dBm) | Output Power (W) | Result |
| 01                 | 2412            | 20.78              | 0.1197           | PASS   |
| 06                 | 2437            | 20.27              | 0.1064           | PASS   |
| 11                 | 2462            | 20.05              | 0.1012           | PASS   |
| Limit              | 30dBm / 1W      |                    |                  |        |

| TX N (HT20) _Ant 2 |                 |                    |                  |        |
|--------------------|-----------------|--------------------|------------------|--------|
| Channel            | Frequency (MHz) | Output Power (dBm) | Output Power (W) | Result |
| 01                 | 2412            | 20.29              | 0.1069           | PASS   |
| 06                 | 2437            | 20.83              | 0.1211           | PASS   |
| 11                 | 2462            | 20.61              | 0.1151           | PASS   |
| Limit              | 30dBm / 1W      |                    |                  |        |

| TX N (HT20) _Total |                 |                    |                  |        |
|--------------------|-----------------|--------------------|------------------|--------|
| Channel            | Frequency (MHz) | Output Power (dBm) | Output Power (W) | Result |
| 01                 | 2412            | 23.55              | 0.2266           | PASS   |
| 06                 | 2437            | 23.57              | 0.2275           | PASS   |
| 11                 | 2462            | 23.35              | 0.2162           | PASS   |
| Limit              | 30dBm / 1W      |                    |                  |        |

| TX N (HT40) _Ant 1 |                 |                    |                  |        |
|--------------------|-----------------|--------------------|------------------|--------|
| Channel            | Frequency (MHz) | Output Power (dBm) | Output Power (W) | Result |
| 03                 | 2422            | 20.08              | 0.1019           | PASS   |
| 06                 | 2437            | 19.76              | 0.0946           | PASS   |
| 09                 | 2452            | 20.11              | 0.1026           | PASS   |
| Limit              | 30dBm / 1W      |                    |                  |        |

| TX N (HT40) _Ant 2 |                 |                    |                  |        |
|--------------------|-----------------|--------------------|------------------|--------|
| Channel            | Frequency (MHz) | Output Power (dBm) | Output Power (W) | Result |
| 03                 | 2422            | 20.93              | 0.1239           | PASS   |
| 06                 | 2437            | 20.86              | 0.1219           | PASS   |
| 09                 | 2452            | 21.31              | 0.1352           | PASS   |
| Limit              | 30dBm / 1W      |                    |                  |        |

| TX N (HT40) _Total |                 |                    |                  |        |
|--------------------|-----------------|--------------------|------------------|--------|
| Channel            | Frequency (MHz) | Output Power (dBm) | Output Power (W) | Result |
| 03                 | 2422            | 23.54              | 0.2257           | PASS   |
| 06                 | 2437            | 23.36              | 0.2165           | PASS   |
| 09                 | 2452            | 23.76              | 0.2378           | PASS   |
| Limit              | 30dBm / 1W      |                    |                  |        |

## 8. CONDUCTED SPURIOUS EMISSIONS

### 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 AND SETTING

- a. The EUT was directly connected to the spectrum analyzer and antenna output port as show in the block diagram below.
- b. 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 | 2021/05/24       |
| 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



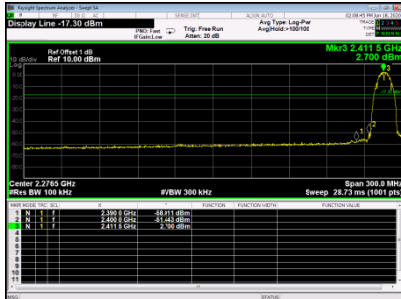
### 8.5 EUT OPERATION CONDITIONS

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.

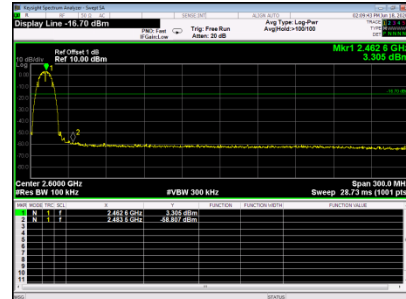
## 8.6 TESTRESULTS

### TX B Mode\_Ant 1

#### Bandedge-CH01

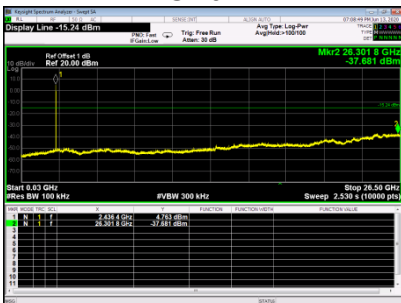


#### Bandedge-CH11

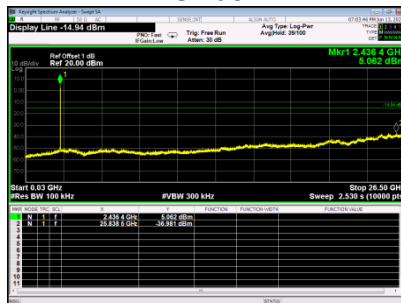


### 10th Harmonic of the fundamental frequency

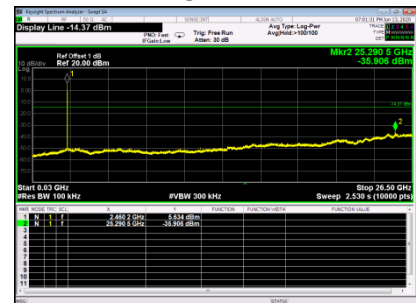
#### CH01



#### CH06

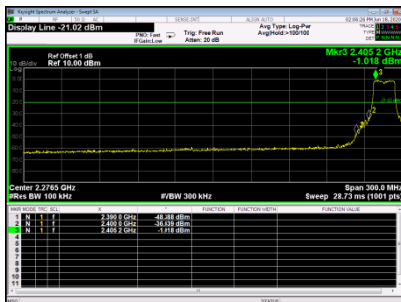


#### CH11

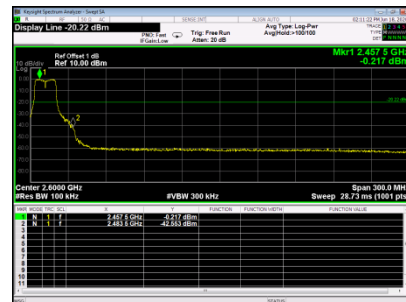


### TX G Mode\_Ant 1

#### Bandedge-CH01

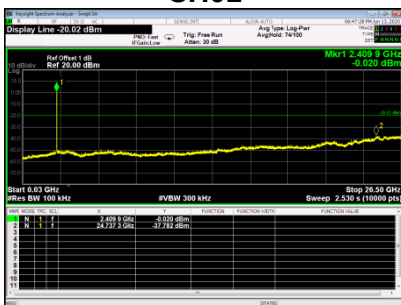


#### Bandedge-CH11

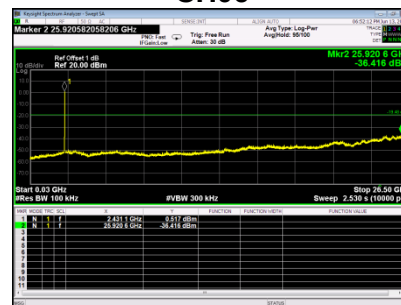


### 10th Harmonic of the fundamental frequency

#### CH01



#### CH06

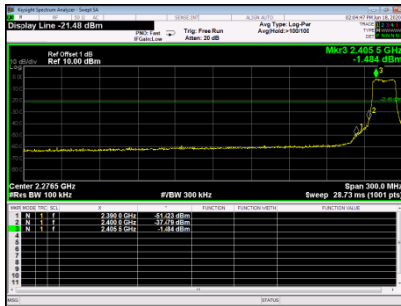


#### CH11

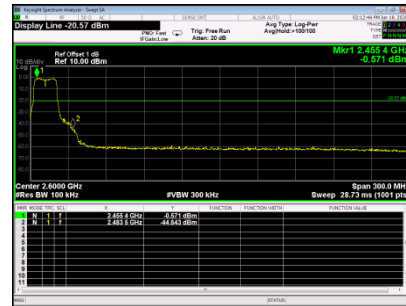


## TX N (HT20) Mode \_Ant 1

### Bandedge-CH01



### Bandedge-CH11

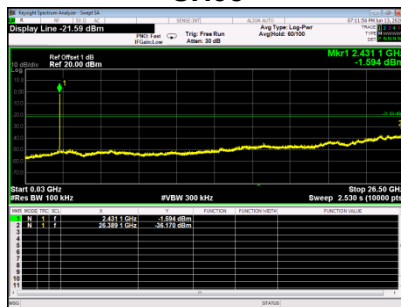


## 10th Harmonic of the fundamental frequency

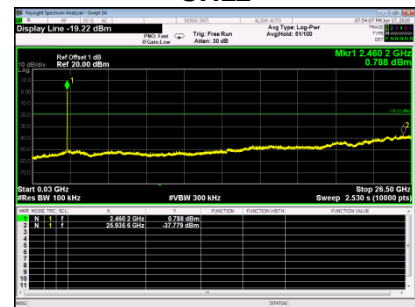
### CH01



### CH06

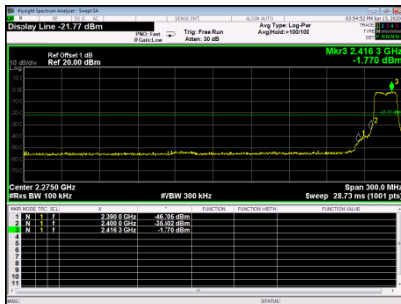


### CH11

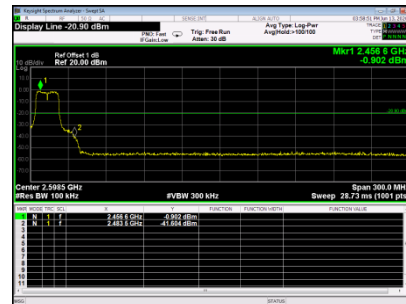


## TX N (HT20) Mode \_Ant 2

### Bandedge-CH01

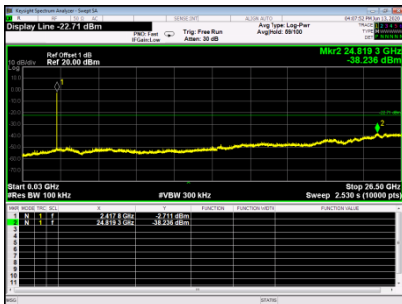


### Bandedge-CH11

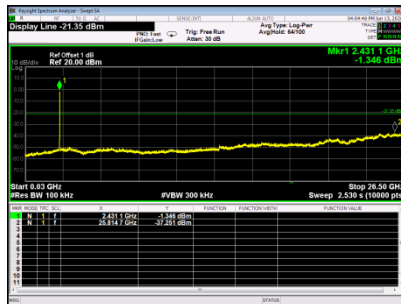


## 10th Harmonic of the fundamental frequency

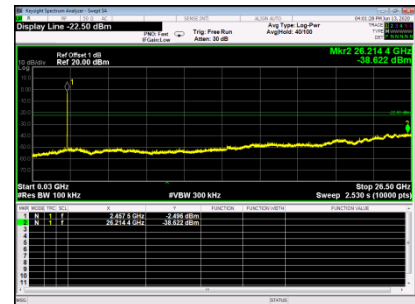
### CH01



### CH06

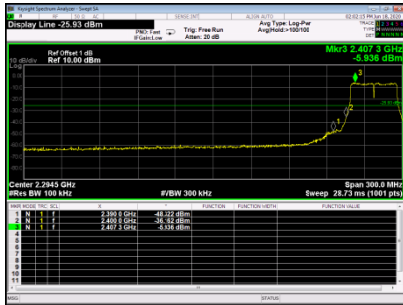


### CH11

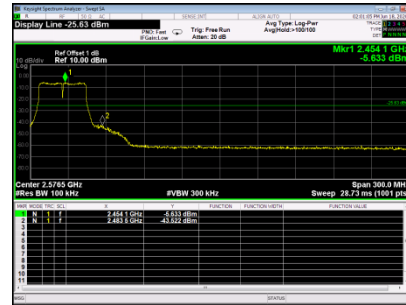


## TX N (HT40) Mode \_Ant 1

### Bandedge-CH03

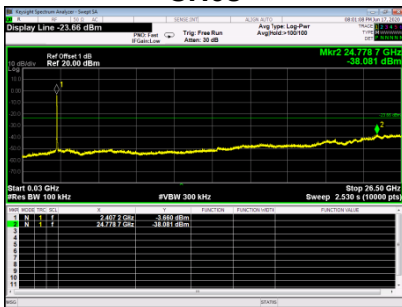


### Bandedge-CH09

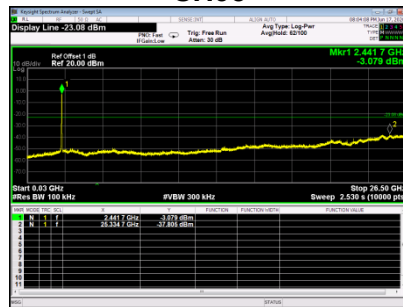


## 10th Harmonic of the fundamental frequency

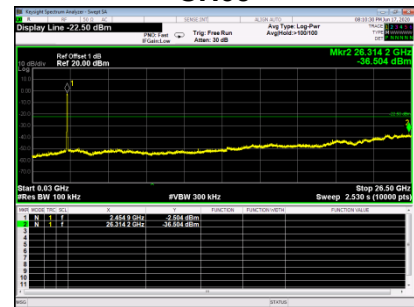
### CH03



### CH06

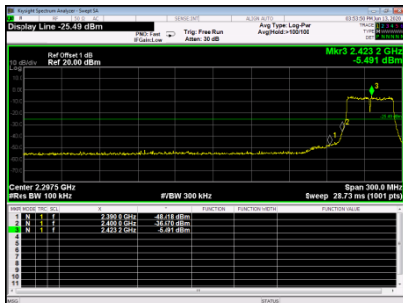


### CH09



## TX N (HT40) Mode \_Ant 2

### Bandedge-CH03

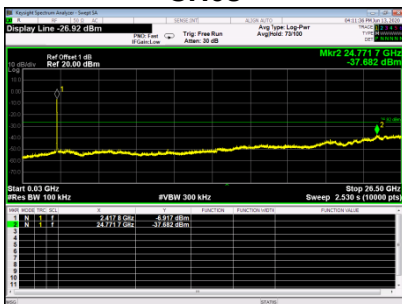


### Bandedge-CH09

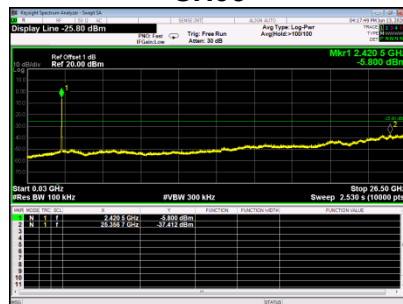


## 10th Harmonic of the fundamental frequency

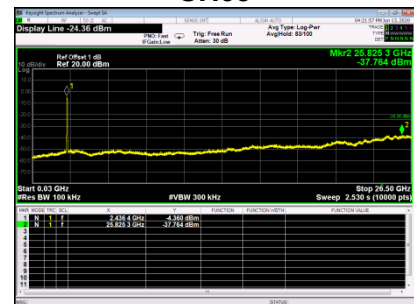
### CH03



### CH06



### CH09



## 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 AND SETTING

- 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=10 kHz, Sweep time = Auto.
- The Power Spectral Density was performed in accordance with method11.10.2 of ANSI C63.10-2013.

### 9.3 MEASUREMENT INSTRUMENTS LIST

| Item | Kind of Equipment | Manufacturer  | Type No.    | Serial No. | Calibrated until |
|------|-------------------|---------------|-------------|------------|------------------|
| 1    | Spectrum analyzer | KEYSIGHT      | N9010A      | MY55150427 | 2021/05/24       |
| 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



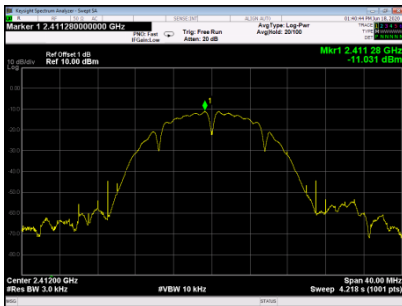
### 9.5 EUT OPERATION CONDITIONS

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

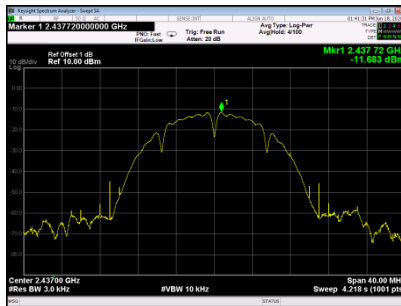
## 9.6 TESTRESULTS

| TX B Mode_Ant 1 |                 |                                    |                  |        |
|-----------------|-----------------|------------------------------------|------------------|--------|
| Channel         | Frequency (MHz) | Power Spectral Density (dBm/3 kHz) | Limit: <dBm/3KHz | Result |
| 01              | 2412            | -11.031                            | 8                | PASS   |
| 06              | 2437            | -11.683                            | 8                | PASS   |
| 11              | 2462            | -12.020                            | 8                | PASS   |

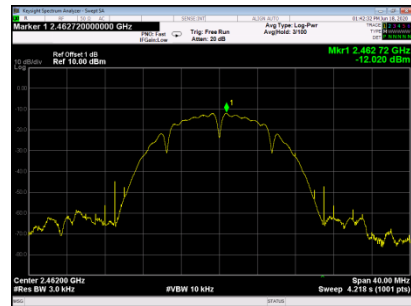
CH01



CH06

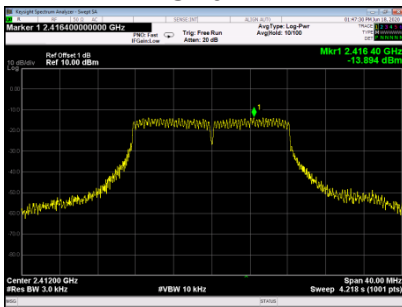


CH11

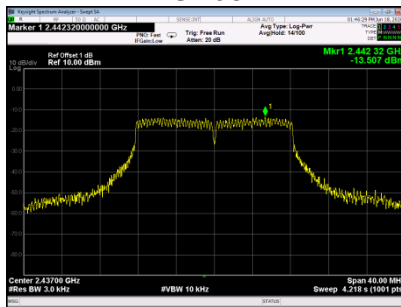


| TX G Mode_Ant 1 |                 |                                    |                  |        |
|-----------------|-----------------|------------------------------------|------------------|--------|
| Channel         | Frequency (MHz) | Power Spectral Density (dBm/3 kHz) | Limit: <dBm/3KHz | Result |
| 01              | 2412            | -13.894                            | 8                | PASS   |
| 06              | 2437            | -13.507                            | 8                | PASS   |
| 11              | 2462            | -12.592                            | 8                | PASS   |

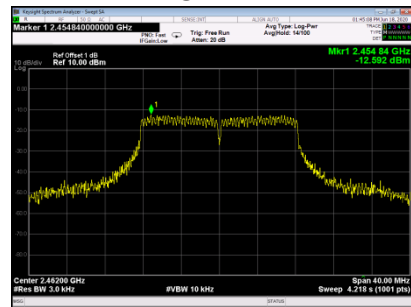
CH01



CH06



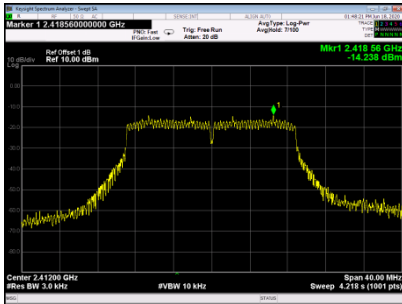
CH11



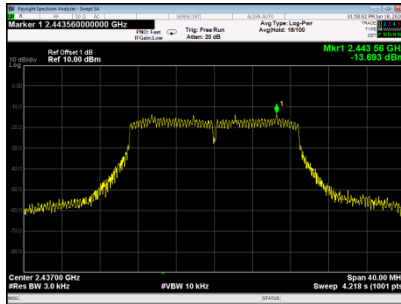
## TX N (HT20) Mode\_Ant 1

| Channel | Frequency (MHz) | Power Spectral Density (dBm/3 kHz) | Limit: <dBm/3KHz | Result |
|---------|-----------------|------------------------------------|------------------|--------|
| 01      | 2412            | -14.238                            | 8                | PASS   |
| 06      | 2437            | -13.693                            | 8                | PASS   |
| 11      | 2462            | -13.842                            | 8                | PASS   |

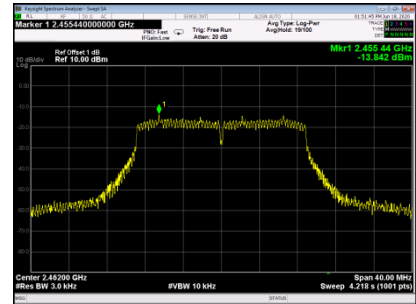
CH01



CH06



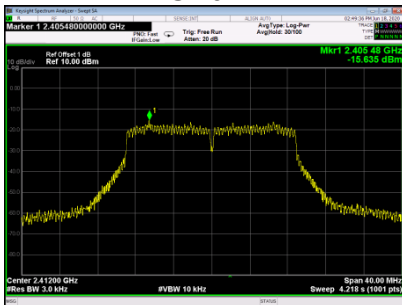
CH11



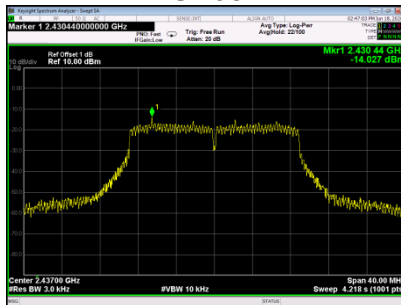
## TX N (HT20) Mode\_Ant 2

| Channel | Frequency (MHz) | Power Spectral Density (dBm/3 kHz) | Limit: <dBm/3KHz | Result |
|---------|-----------------|------------------------------------|------------------|--------|
| 01      | 2412            | -15.635                            | 8                | PASS   |
| 06      | 2437            | -14.027                            | 8                | PASS   |
| 11      | 2462            | -14.318                            | 8                | PASS   |

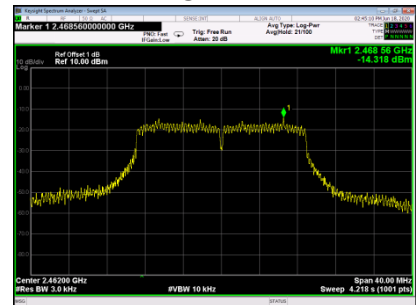
CH01



CH06



CH11



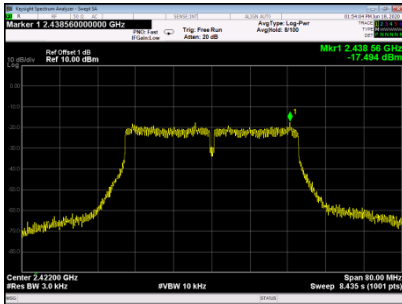
## TX N (HT20) Mode\_Total

| Channel | Frequency (MHz) | Power Spectral Density (dBm/3 kHz) | Limit: <dBm/3KHz | Result |
|---------|-----------------|------------------------------------|------------------|--------|
| 01      | 2412            | -11.87                             | 8                | PASS   |
| 06      | 2437            | -10.85                             | 8                | PASS   |
| 11      | 2462            | -11.06                             | 8                | PASS   |

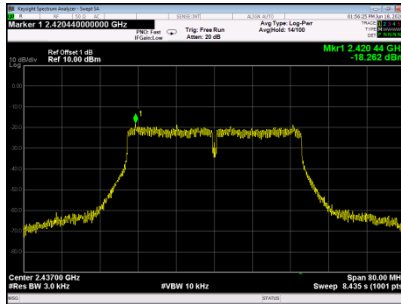
## TX N (HT40) Mode\_Ant 1

| Channel | Frequency (MHz) | Power Spectral Density (dBm/3 kHz) | Limit: <dBm/3KHz | Result |
|---------|-----------------|------------------------------------|------------------|--------|
| 03      | 2412            | -17.494                            | 8                | PASS   |
| 06      | 2437            | -18.262                            | 8                | PASS   |
| 09      | 2452            | -16.906                            | 8                | PASS   |

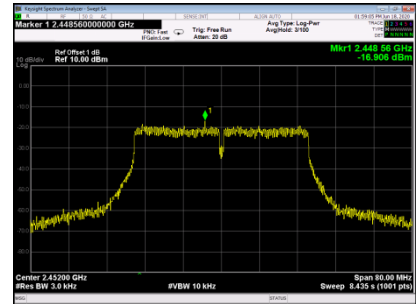
CH03



CH06



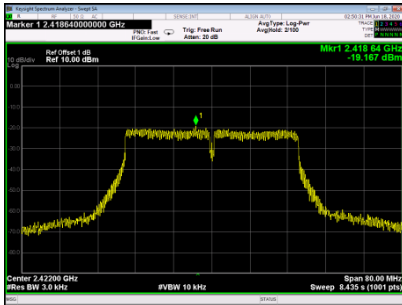
CH09



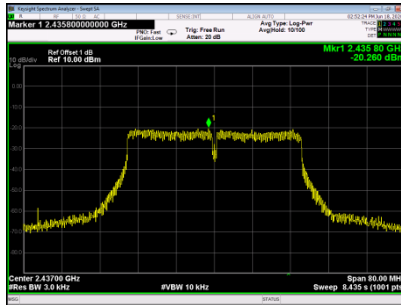
## TX N (HT40) Mode\_Ant 2

| Channel | Frequency (MHz) | Power Spectral Density (dBm/3 kHz) | Limit: <dBm/3KHz | Result |
|---------|-----------------|------------------------------------|------------------|--------|
| 03      | 2412            | -19.167                            | 8                | PASS   |
| 06      | 2437            | -20.260                            | 8                | PASS   |
| 09      | 2452            | -19.808                            | 8                | PASS   |

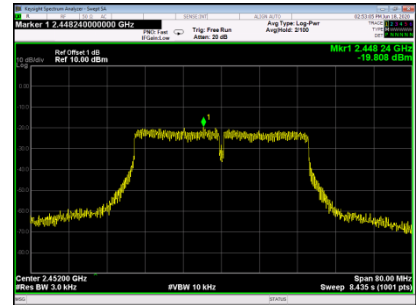
CH03



CH06



CH09



## TX N (HT40) Mode\_Total

| Channel | Frequency (MHz) | Power Spectral Density (dBm/3 kHz) | Limit: <dBm/3KHz | Result |
|---------|-----------------|------------------------------------|------------------|--------|
| 03      | 2412            | -15.24                             | 8                | PASS   |
| 06      | 2437            | -16.14                             | 8                | PASS   |
| 09      | 2452            | -15.11                             | 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 | 2412-2462             |

### 10.2 TEST PROCEDURE AND SETTING

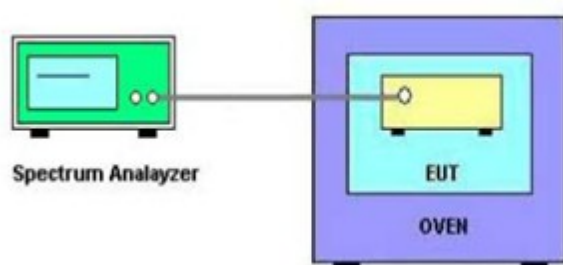
- a. The EUT was directly connected to the spectrum analyzer and antenna output port as show in the block diagram below.
- b. Spectrum Setting:

| 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    | 2021/05/24       |
| 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°C   | 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)                                | 2412                        |
|                      | -20                                 | 2412.0023                   |
|                      | 25                                  | 2412.0026                   |
|                      | 50                                  | 2412.0018                   |
| 2.7V                 | 25                                  | 2412.0017                   |
| Max. Deviation (MHz) |                                     | 0.0026                      |
| Max. Deviation (ppm) |                                     | 1.08                        |

Note: 2.7V is the end point voltage, and products below 2.7V will cease working.

**END OF TEST REPORT**