

# TEST REPORT

Report No.: SHATBL2402015W02

**Applicant** : QUNDA Control Technology(Jiangsu)Co.,Ltd.

**Product Name** : Thermostat

**Brand Name** : 

**Model Name** : QD-HVAC15 WIFI (QUNDA)

**FCC ID** : 2BFIE-QD-HVAC15WIFI

**Test Standard** : FCC Part15.247

**Date of Test** : 2024.03.10-2024.03.18

**Report Prepared by** :



(Jack Suo)

**Report Approved by** :



(Ghost Li)

**Authorized Signatory** :



(Terry Yang)



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REVISION HISTORY

| Rev. | Issue Date | Revisions       | Revised by |
|------|------------|-----------------|------------|
| 00   | 2024.03.19 | Initial Release | Ghost Li   |

## DECLARATION OF REPORT

The device has been tested by ATBL, and the test results show that the equipment under test (EUT) is in compliance with the FCC Part15.247 requirements. And it is applicable only to the tested sample identified in the report.

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## SUMMARY OF TEST RESULT

| Report Section | Standard Section            | Test Item                                      | Judgment | Remark |
|----------------|-----------------------------|------------------------------------------------|----------|--------|
| 3.1            | 15.247 (b)(3)               | Maximum Conducted Output Power                 | PASS     | --     |
| 3.2            | 15.247 (a)(2)               | 6dB&99% Bandwidth                              | PASS     | --     |
| 3.3            | 15.247 (e)                  | Power Spectral Density                         | PASS     | --     |
| 3.4            | 15.247(d) & 15.205          | Conducted Spurious & Band Edge Emission        | PASS     | --     |
| 3.5            | 15.247(d) & 15.209 & 15.205 | Radiated Spurious Emission and Restricted Band | PASS     | --     |
| 3.6            | 15.207(a)                   | AC Power-Line Conducted Emission               | PASS     | --     |
| 3.7            | 15.203                      | Antenna Requirement                            | PASS     | --     |

## 1. GENERAL DESCRIPTION

### 1.1. Applicant

Name : QUNDA Control Technology(Jiangsu)Co.,Ltd.  
Address : NO.888 LongQiao Road,WuJiang Economy Development Area SuZhou,Jiangsu,China

### 1.2. Manufacturer

Name : QUNDA Control Technology(Jiangsu)Co.,Ltd.  
Address : NO.888 LongQiao Road,WuJiang Economy Development Area SuZhou,Jiangsu,China

### 1.3. Factory

Name : QUNDA Control Technology(Jiangsu)Co.,Ltd.  
Address : NO.888 LongQiao Road,WuJiang Economy Development Area SuZhou,Jiangsu,China

#### 1.4. General Information of EUT

| General Information    |                                                                                                                              |
|------------------------|------------------------------------------------------------------------------------------------------------------------------|
| Equipment Name         | Thermostat                                                                                                                   |
| Brand Name             |  Controller Expert                         |
| Model Name             | QD-HVAC15 WIFI (QUNDA)                                                                                                       |
| Series Model           | QD-HVAC15 WIFI(E)<br>QD-HVAC15 WIFI(2S)<br>QD-HVAC15 WIFI(2S) (QUNDA)<br>MGTH-15TWI<br>GP-HVAC15(WIFI)                       |
| Model Difference       | The same structure, different LOGO, different function (main test model is full function, series model is deletion function) |
| SN or IMEI Code        | 202401290023010                                                                                                              |
| Power Rating           | 18-30V~Max.1.5A 50-60Hz                                                                                                      |
| Hardware version       | QD-HVAC15                                                                                                                    |
| Software version       | QD-HVAC15-XSB                                                                                                                |
| Connecting I/O Port(s) | Refer to the remark below.                                                                                                   |

Remark:

1. The above information of EUT was declared by manufacturer. Please refer to the specifications or user's manual for more detailed description.
2. Device voltage 18 to 36V AC 50Hz or 60Hz were verified, 24V AC 60Hz test mode is the worst mode, so AC 24V 60Hz was used for all test.

## 1.5. Equipment Specification

| Equipment Specification         |                                                                                |
|---------------------------------|--------------------------------------------------------------------------------|
| Frequency Range                 | 2400~2483.5 MHz                                                                |
| Supported Modes                 | 802.11b/g/n                                                                    |
| Supported Bandwidth             | 20 MHz                                                                         |
| Maximum Output Power To Antenna | 26.60dBm (0.4571W)                                                             |
| Type of Modulation              | 802.11b: DSSS (DBPSK/DQPSK/CCK)<br>802.11g/n(HT): OFDM (BPSK/QPSK/16QAM/64QAM) |
| Antenna Type                    | PCB Antenna                                                                    |
| Antenna Gain                    | 2.54dBi                                                                        |

## 1.6. Modification of EUT

No modifications are made to the EUT during all test items.

## 1.7. Laboratory Information

|              |   |                                                                                        |
|--------------|---|----------------------------------------------------------------------------------------|
| Company Name | : | Shanghai ATBL Technology Co., Ltd.                                                     |
| Address      | : | Building 8, No.160 Basheng Road, Waigaoqiao Free Trade Zone, Pudong New Area, Shanghai |
| Telephone    | : | +86(0)21-51298625                                                                      |

## 1.8. Applicable Standards

According to the specifications of the manufacturer, the EUT must comply with the requirements of the following standards:

47 CFR Part 15 Subpart C §15.247

FCC KDB 558074 D01 15.247 Meas Guidance v05r02

ANSI C63.10-2013

Remark:

All test items were verified and recorded according to the standards and without any deviation during the test.

## 2. TEST CONFIGURATION OF EUT

### 2.1. Carrier Frequency Channel

| Frequency Band                      | Channel | Frequency MHz | Channel | Frequency MHz | Channel | Frequency MHz |
|-------------------------------------|---------|---------------|---------|---------------|---------|---------------|
| Channel List for 802.11b/g/n(20MHz) | 01      | 2412          | 05      | 2432          | 09      | 2452          |
|                                     | 02      | 2417          | 06      | 2437          | 10      | 2457          |
|                                     | 03      | 2422          | 07      | 2442          | 11      | 2462          |
|                                     | 04      | 2427          | 08      | 2447          | --      | --            |

Note:

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

Carrier Frequency Channel

2.4GHz Test Frequency:

| For 802.11b/g/n (HT20) |            |
|------------------------|------------|
| Channel                | Freq.(MHz) |
| 01                     | 2412       |
| 06                     | 2437       |
| 11                     | 2462       |

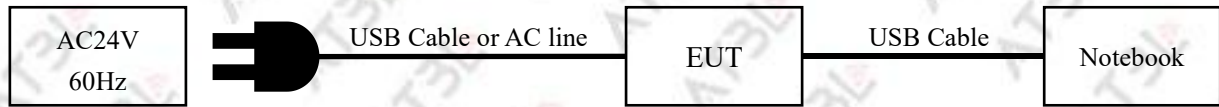
### 2.2. Test Modes

The table below is showing all test modes to demonstrate in compliance with the standard.

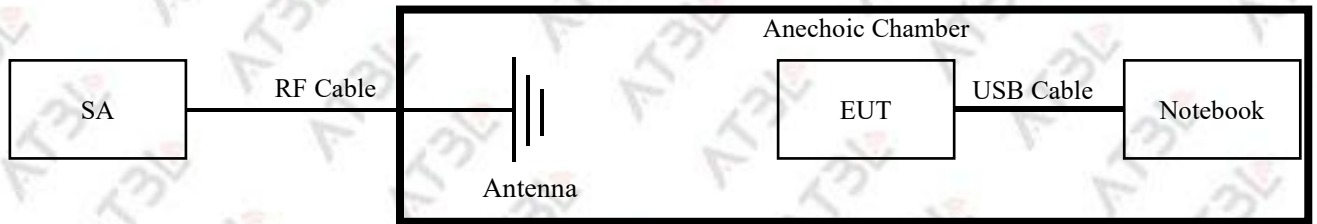
|                                      | Test Mode | Description                                   | Data Rate |
|--------------------------------------|-----------|-----------------------------------------------|-----------|
| For Conducted and Radiated Test      | Mode 1    | TX IEEE 802.11b CH1                           | 1Mbps     |
|                                      | Mode 2    | TX IEEE 802.11b CH6                           | 1Mbps     |
|                                      | Mode 3    | TX IEEE 802.11 b CH11                         | 1Mbps     |
|                                      | Mode 4    | TX IEEE 802.11g CH1                           | 6Mbps     |
|                                      | Mode 5    | TX IEEE 802.11g CH6                           | 6Mbps     |
|                                      | Mode 6    | TX IEEE 802.11g CH11                          | 6Mbps     |
|                                      | Mode 7    | TX IEEE 802.11n HT20 CH1                      | MCS0      |
|                                      | Mode 8    | TX IEEE 802.11n HT20 CH6                      | MCS0      |
|                                      | Mode 9    | TX IEEE 802.11n HT20 CH11                     | MCS0      |
| For AC Power-line Conducted Emission | Mode 10   | Keep WIFI link under the maximum output power |           |

## 2.3. Block Diagram of Test System

### 2.3.1. For AC Power-Line Conducted Emission



### 2.3.2. For Radiated Spurious Emission



### 2.3.3. For Conducted Test



## 2.4. Description of Support Units

| NO. | Unit      | Brand  | Model           | Description |
|-----|-----------|--------|-----------------|-------------|
| 1   | Notebook  | Lenovo | DESKTOP-USDEO09 | N/A         |
| 2   | USB Cable | N/A    | 100cm           | N/A         |

## 2.5. Test Software and Power Level

During the test, the channel and power control software provided by the customer is used to control the operation channel and output power level.

## 2.6. EUT Operating Conditions

For AC power-line conducted emission, the EUT was connected under the large package sizes transmission.

For radiated spurious emission and conducted test, the engineering test program was provided and make the EUT to continuous transmit/receive.

## 2.7. Equipment List

### 2.7.1. For AC Power-Line Conducted Emission

| Equipment Name | Manufacturer | Model  | Serial No. | Equipment No. | Calibration Until |
|----------------|--------------|--------|------------|---------------|-------------------|
| Test Receiver  | R&S          | ESPI   | 101679     | SHATBL-E012   | 2024.05.09        |
| LISN           | R&S          | ENV216 | 100300     | SHATBL-E013   | 2024.05.30        |
| LISN           | R&S          | ENV216 | 100333     | SHATBL-E041   | 2024.05.09        |
| Thermometer    | DeLi         | N/A    | N/A        | SHATBL-E016   | 2024.09.20        |
| Test Software  | FALA         | EZ-EMC | N/A        | SHATBL-E046   | N/A               |

### 2.7.2. For Radiated Spurious Emission

| Equipment Name                | Manufacturer | Model           | Serial No.       | Equipment No. | Calibration Until |
|-------------------------------|--------------|-----------------|------------------|---------------|-------------------|
| Signal analyzer               | Agilent      | N9020A          | MY50200811       | SHATBL-E017   | 2024.05.09        |
| Amplifier                     | JPT          | JPA0118-55-303A | 1910001800055000 | SHATBL-E006   | 2024.05.09        |
| Amplifier                     | JPT          | JPA-10M1G32     | 21010100035001   | SHATBL-E005   | 2024.05.09        |
| Antenna/Turn table Controller | Brilliant    | N/A             | N/A              | SHATBL-E007   | N/A               |
| Loop Antenna                  | Daze         | ZN30900C        | 20077            | SHATBL-E042   | 2024.05.09        |
| Bilog Antenna                 | SCHWARZBECK  | VULB 9168       | 01174            | SHATBL-E008   | 2024.05.12        |
| Broad-band Horn Antenna       | SCHWARZBECK  | BBHA 9120D      | 02334            | SHATBL-E009   | 2024.05.12        |
| Horn Antenna                  | COM-POWER    | AH-1840         | 10100008         | SHATBL-E043   | 2024.05.09        |
| Thermometer                   | DeLi         | N/A             | N/A              | SHATBL-E015   | 2024.09.20        |
| Test Software                 | FALA         | EMC-RI          | N/A              | SHATBL-E046   | N/A               |

### 2.7.3. For Conducted Test

| Equipment Name                      | Manufacturer | Model       | Serial No.    | Equipment No. | Calibration Until |
|-------------------------------------|--------------|-------------|---------------|---------------|-------------------|
| Power meter                         | Anritsu      | ML2496A     | 1935001       | SHATBL-W030   | 2024.07.09        |
| Power sensor                        | Anritsu      | MA2411B     | 1911006       | SHATBL-W031   | 2024.07.09        |
| Power sensor                        | DARE         | RPR3006W    | 16I00054SN016 | SHATBL-W008   | 2024.07.09        |
| Power sensor                        | DARE         | RPR3006W    | RPR6W-2001005 | SHATBL-W032   | 2024.07.09        |
| Power sensor                        | Rediteq      | RPR3006W    | RPR6W-2201002 | SHATBL-W033   | 2024.07.09        |
| Power sensor                        | Rediteq      | RPR3006W    | RPR6W-2201003 | SHATBL-W034   | 2024.07.09        |
| Power sensor                        | Keysight     | U2021XA     | MY59120004    | SHATBL-W035   | 2024.07.09        |
| Adjustable Attenuator               | Agilent      | 8494B       | MY42144015    | SHATBL-W009   | 2024.07.09        |
| Adjustable Attenuator               | Agilent      | 8496B       | MY42143776    | SHATBL-W010   | 2024.07.09        |
| Environmental Test Chamber          | KSON         | THS-B6C-150 | 9159K         | SHATBL-W019   | 2025.01.15        |
| Signal analyzer                     | Keysight     | N9020A      | MY50510136    | SHATBL-W003   | 2024.07.09        |
| Vector signal generator             | Keysight     | N5182B      | MY57300196    | SHATBL-W005   | 2024.07.09        |
| Vector signal generator             | Agilent      | N5182A      | MY50143555    | SHATBL-W037   | 2024.07.09        |
| Analog signal generator             | Keysight     | N5173B      | MY60403026    | SHATBL-W038   | 2024.07.09        |
| Wideband radio communication tester | R&S          | CMW500      | 101331        | SHATBL-W007   | 2024.07.09        |
| Spectrum analyzer                   | R&S          | FSV40-N     | 101761        | SHATBL-W036   | 2024.07.09        |
| Switch Box                          | N/A          | RFSW3003328 | RFSW201019    | SHATBL-W029   | N/A               |
| Thermometer                         | DeLi         | N/A         | N/A           | SHATBL-W012   | 2024.07.09        |
| Test Software                       | FALA         | LZ-RF       | N/A           | SHATBL-W020   | N/A               |

### 2.8. Measurement Uncertainty

The reported uncertainty of measurement  $y \pm U$ , where expanded uncertainty  $U$  is based on a standard uncertainty multiplied by a coverage factor of  $k=2$ , providing a level of confidence of approximately 95 %.

| No. | Item                               | Uncertainty          |
|-----|------------------------------------|----------------------|
| 1   | RF output power, conducted         | $\pm 0.958\text{dB}$ |
| 2   | Conducted spurious emissions       | $\pm 2.988\text{dB}$ |
| 3   | All emissions, radiated 30MHz-1GHz | $\pm 2.50\text{dB}$  |
| 4   | All emissions, radiated 1GHz-18GHz | $\pm 3.51\text{dB}$  |
| 5   | Occupied bandwidth                 | $\pm 23.20\text{Hz}$ |
| 6   | Power spectral density             | $\pm 0.886\text{dB}$ |

### 3. TEST RESULT

#### 3.1. Maximum Peak Conducted Output Power

##### 3.1.1. Limit

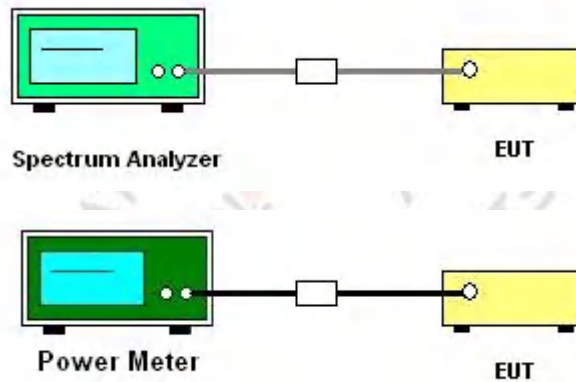
| FCC Part15.247 |              |                 |                       |        |
|----------------|--------------|-----------------|-----------------------|--------|
| Section        | Test Item    | Limit           | Frequency Range (MHz) | Result |
| 15.247(b)(3)   | Output Power | 1 watt or 30dBm | 2400-2483.5           | PASS   |

##### 3.1.2. Test Procedure

PKPM1 Peak power meter method:

The maximum peak conducted output power may be measured using a broadband peak RF power meter. The power meter shall have a video bandwidth that is greater than or equal to the DTS bandwidth and shall use a fast-responding diode detector.

##### 3.1.3. Test Setup



##### 3.1.4. Test Result of

Please refer to Appendix A for the test data.

### 3.2. 6dB Bandwidth and 99% Bandwidth

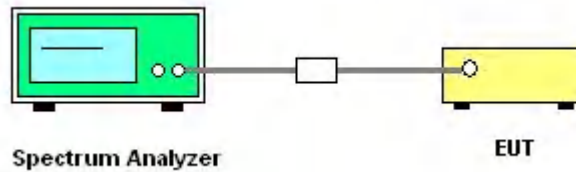
#### 3.2.1. Limit

| FCC Part15.247,Subpart C |               |                                         |                       |        |
|--------------------------|---------------|-----------------------------------------|-----------------------|--------|
| Section                  | Test Item     | Limit                                   | Frequency Range (MHz) | Result |
| 15.247(a)(2)             | Bandwidth     | $\geq 500\text{kHz}$<br>(6dB bandwidth) | 2400-2483.5           | PASS   |
| 15.247                   | 99% Bandwidth | For reporting purposes only.            | 2400-2483.5           | PASS   |

#### 3.2.2. Test Procedure

The automatic bandwidth measurement capability of an instrument may be employed using the X dB bandwidth mode with X set to 6 dB, if the functionality described above (i.e., RBW = 100 kHz, VBW $\geq$ 3RBW, peak detector with maximum hold) is implemented by the instrumentation function. When using this capability, care shall be taken so that the bandwidth measurement is not influenced by any intermediate power nulls in the fundamental emission that might be $\geq$ 6 dB.

#### 3.2.3. Test Setup



#### 3.2.4. Test Result of Number of

Please refer to Appendix A for the test data.

### 3.3. Power Spectral Density

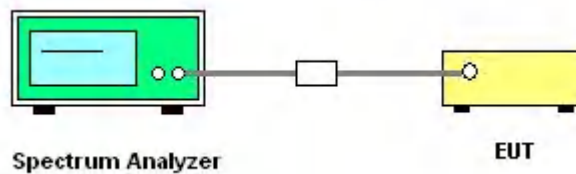
#### 3.3.1. Limit

| FCC Part15.247,Subpart C |                        |                           |                       |        |
|--------------------------|------------------------|---------------------------|-----------------------|--------|
| Section                  | Test Item              | Limit                     | Frequency Range (MHz) | Result |
| 15.247(e)                | Power Spectral Density | $\leq 8 \text{ dBm/3kHz}$ | 2400-2483.5           | PASS   |

#### 3.3.2. Test Procedure

1. Set analyzer center frequency to DTS channel center frequency.
2. Set the span to 1.5 times the DTS channel bandwidth.
3. Set the  $100 \text{ kHz} \geq \text{RBW} \geq 3 \text{ kHz}$ .
4. Set the  $\text{VBW} \geq 3 \times \text{RBW}$ .
5. Detector = peak.
6. Sweep time = auto couple.
7. Trace mode = max hold.
8. Allow trace to fully stabilize.
9. Use the peak marker function to determine the maximum amplitude level.
10. If measured value exceeds limit, reduce RBW (no less than 3 kHz) and repeat.

#### 3.3.3. Test Setup



#### 3.3.4. Test Result of

Please refer to Appendix A for the test data.

### 3.4. Conducted Spurious & Band Edge Emission

#### 3.4.1. Limit

In any 100kHz 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 20dB below that in the 100kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement.

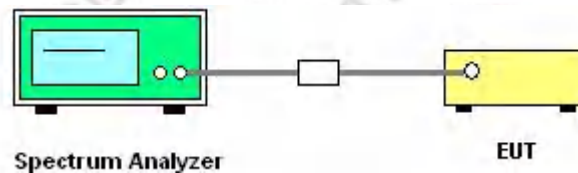
#### 3.4.2. Test Procedure

| Spectrum Parameter                    | Setting                         |
|---------------------------------------|---------------------------------|
| Detector                              | Peak                            |
| Start/Stop Frequency                  | 30 MHz to 10th carrier harmonic |
| RB / VB (emission in restricted band) | 100 kHz/300 kHz                 |
| Trace-Mode:                           | Max hold                        |

For Band edge

| Spectrum Parameter                    | Setting                                                                |
|---------------------------------------|------------------------------------------------------------------------|
| Detector                              | Peak                                                                   |
| Start/Stop Frequency                  | Lower Band Edge: 2300 to 2450 MHz<br>Upper Band Edge: 2430 to 2580 MHz |
| RB / VB (emission in restricted band) | 100 kHz/300 kHz                                                        |
| Trace-Mode:                           | Max hold                                                               |

#### 3.4.3. Test Setup



The EUT which is powered by the Battery, is connected to the Spectrum Analyzer; the RF load attached to the EUT antenna terminal is 50Ohm; the path loss as the factor is calibrated to correct the reading.

Make the measurement with the spectrum analyzer's resolution bandwidth (RBW) = 100 kHz. In order to make an accurate measurement, set the span greater than RBW.

#### 3.4.4. Test Result of

Please refer to Appendix A for the test data.

### 3.5. Radiated Spurious Emission and Restricted Band

#### 3.5.1. Limit

In any 100 kHz bandwidth outside the operating frequency band. In case the emission fall within the Restricted band specified on Part15.205(a)&209(a) limit in the table and according to ANSI C63.10-2013 below has to be followed.

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

| Frequencies (MHz) | Field Strength (micorvolts/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 (Above 1000MHz)

| FREQUENCY (MHz) | (dBuV/m) (at 3M) |         |
|-----------------|------------------|---------|
|                 | PEAK             | AVERAGE |
| Above 1000      | 74               | 54      |

Note:

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

47 CFR 15.205(a): Only spurious emissions are permitted in any of the frequency bands listed below:

| Frequency (MHz) | Frequency (MHz)   | Frequency (MHz)     | Frequency (MHz) | Frequency (MHz) |
|-----------------|-------------------|---------------------|-----------------|-----------------|
| 0.090-0.110     | 12.29-12.293      | 149.9-150.05        | 1660-1710       | 8.025-8.5       |
| 0.495-0.505     | 12.51975-12.52025 | 156.52475-156.52525 | 1718.8-1722.2   | 9.0-9.2         |
| 2.1735-2.1905   | 12.57675-12.57725 | 156.7-156.9         | 2200-2300       | 9.3-9.5         |
| 4.125-4.128     | 13.36-13.41       | 162.0125-167.17     | 2310-2390       | 10.6-12.7       |
| 4.17725-4.17775 | 16.42-16.423      | 167.72-173.2        | 2483.5-2500     | 13.25-13.4      |
| 4.20725-4.20775 | 16.69475-16.69525 | 240-285             | 2690-2900       | 14.47-14.5      |
| 6.215-6.218     | 16.80425-16.80475 | 322-335.4           | 3260-3267       | 15.35-16.2      |
| 6.26775-6.26825 | 25.5-25.67        | 399.9-410           | 3332-3339       | 17.7-21.4       |
| 6.31175-6.31225 | 37.5-38.25        | 608-614             | 3345.8-3358     | 22.01-23.12     |
| 8.291-8.294     | 73-74.6           | 960-1240            | 3600-4400       | 23.6-24.0       |
| 8.362-8.366     | 74.8-75.2         | 1300-1427           | 4500-5150       | 31.2-31.8       |
| 8.37625-8.38675 | 108-121.94        | 1435-1626.5         | 5350-5460       | 36.43-36.5      |
| 8.41425-8.41475 | 123-138           | 1645.5-1646.5       | 7250-7750       | Above 38.6      |

For Radiated Emission

| Spectrum Parameter                    | Setting                                                                                                                         |
|---------------------------------------|---------------------------------------------------------------------------------------------------------------------------------|
| Attenuation                           | Auto                                                                                                                            |
| Detector                              | Peak/QP/AV                                                                                                                      |
| Start Frequency                       | 9 kHz/150kHz(Peak/QP/AV)                                                                                                        |
| Stop Frequency                        | 150kHz/30MHz(Peak/QP/AV)                                                                                                        |
| RB / VB (emission in restricted band) | 200Hz (From 9kHz to 0.15MHz)/<br>9kHz (From 0.15MHz to 30MHz);<br>200Hz (From 9kHz to 0.15MHz)/<br>9kHz (From 0.15MHz to 30MHz) |

| Spectrum Parameter                    | Setting            |
|---------------------------------------|--------------------|
| Attenuation                           | Auto               |
| Detector                              | Peak/QP            |
| Start Frequency                       | 30 MHz(Peak/QP)    |
| Stop Frequency                        | 1000 MHz (Peak/QP) |
| RB / VB (emission in restricted band) | 120 kHz / 300 kHz  |

| Spectrum Parameter                    | Setting                                 |
|---------------------------------------|-----------------------------------------|
| Attenuation                           | Auto                                    |
| Detector                              | Peak/AV                                 |
| Start Frequency                       | 1000 MHz(Peak/AV)                       |
| Stop Frequency                        | 10th carrier hamonic(Peak/AV)           |
| RB / VB (emission in restricted band) | 1MHz / 3MHz(Peak)<br>1 MHz/1/T MHz(AVG) |

For Restricted band

| Spectrum Parameter   | Setting                                   |
|----------------------|-------------------------------------------|
| Detector             | Peak/AV                                   |
| Start/Stop Frequency | 2310MHz to 2500MHz                        |
| RB / VB              | 1 MHz / 3 MHz(Peak)<br>1 MHz/1/T MHz(AVG) |

| Receiver Parameter     | Setting                              |
|------------------------|--------------------------------------|
| Start ~ Stop Frequency | 9kHz~90kHz / RB 200Hz for PK & AV    |
| Start ~ Stop Frequency | 90kHz~110kHz / RB 200Hz for QP       |
| Start ~ Stop Frequency | 110kHz~490kHz / RB 200Hz for PK & AV |
| Start ~ Stop Frequency | 490kHz~30MHz / RB 9kHz for QP        |
| Start ~ Stop Frequency | 30MHz~1000MHz / RB 120kHz for QP     |

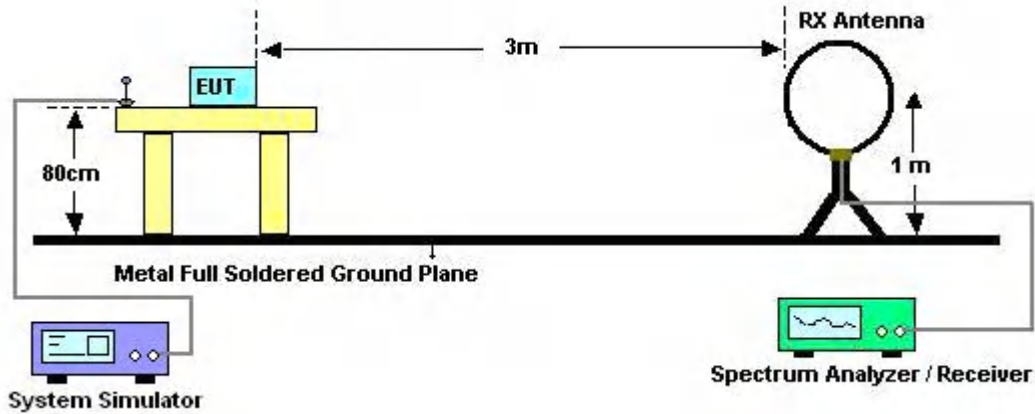
### 3.5.2. Test Procedure

1. The measuring distance at 3 m shall be used for measurements at frequency 0.009MHz up to 1GHz,and above 1GHz.
2. The EUT was placed on the top of a rotating table 0.8 m (above 1GHz is 1.5 m) above the ground at a 3 m an echoic chamber test site. The table was rotated 360 degree to determine the position of the highest radiation.
3. The height of the equipment shall be 0.8 m (above 1GHz is 1.5 m); the height of the test antenna shall vary between 1 m to 4 m. Horizontal and vertical polarization of the antenna are set to make the measurement.
4. The initial step in collecting conducted emission data is a spectrum analyzer peak detector mode pre-scanning the measurement frequency range. Significant peaks are then marked and Quasi Peak detector mode will be re-measured.
5. If the Peak Mode measured value is compliance with and lower than Quasi Peak Mode Limit, the EUT shall be deemed to meet QP Limits and no additional QP Mode measurement was performed.
6. For the actual test configuration, please refer to the related Item –EUT Test Photos.

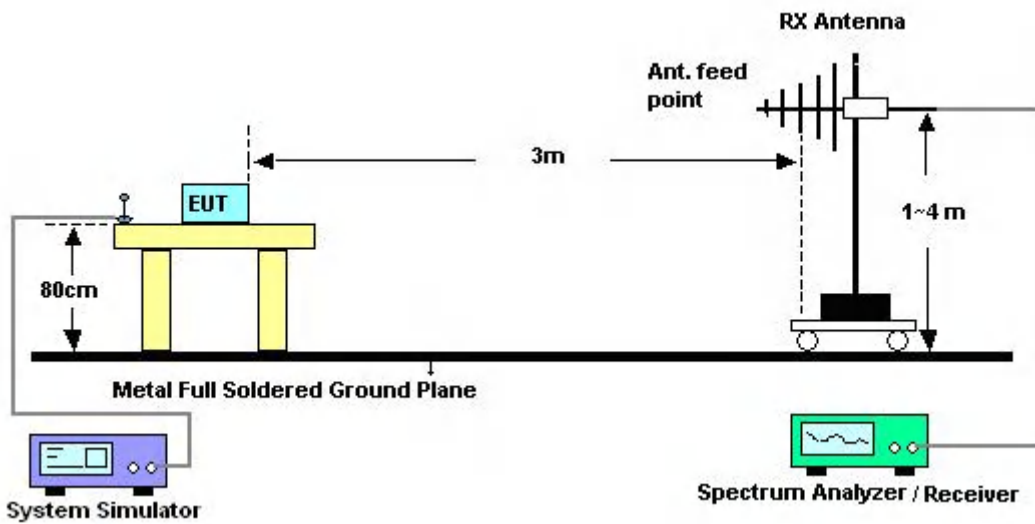
Note: Both horizontal and vertical antenna polarities were tested and performed pretest to three orthogonal axis. The worst case emissions were reported.

## 3.5.3. Test Setup

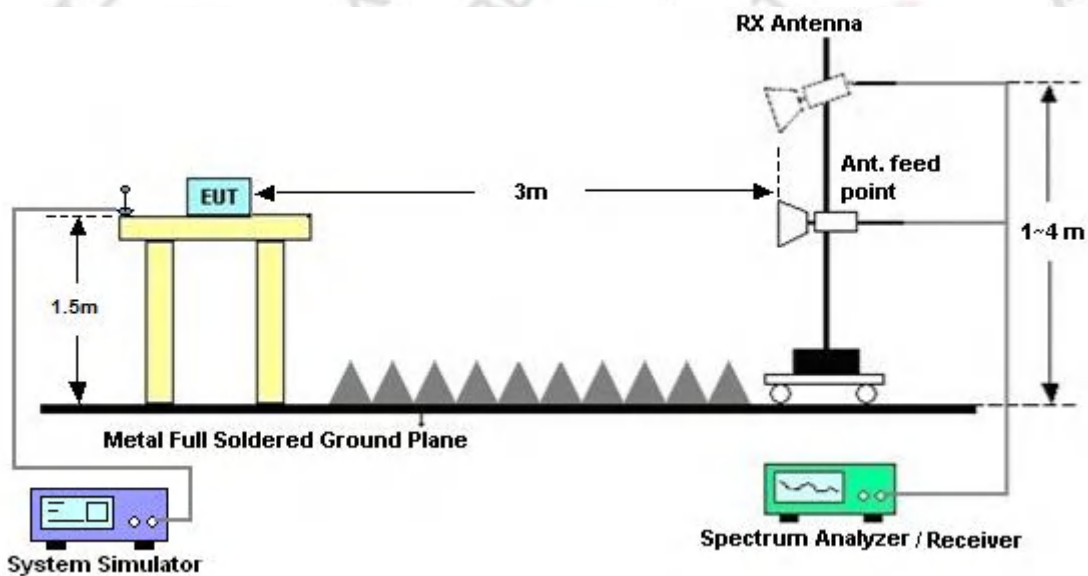
### 3.5.3.1. For radiated emissions below 30MHz



### 3.5.3.2. For radiated emissions from 30MHz to 1GHz



### 3.5.3.3. For radiated emissions above 1GHz



#### 3.5.4. Test Result of

##### 3.5.4.1. For 9 kHz ~ 30 MHz

Please refer to the Appendix B.

##### 3.5.4.2. For 30 MHz ~ 1 GHz

Please refer to the Appendix B.

##### 3.5.4.3. For 1 GHz ~ 18GHz

Please refer to the Appendix B.

##### 3.5.4.4. For above 18GHz

Please refer to the Appendix B.

##### 3.5.4.5. For above Restricted Band

Please refer to the Appendix B.

### 3.6. AC Power-Line Conducted Emission

#### 3.6.1. Limit

The radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies, within the band 150 kHz to 30 MHz, shall not exceed the limits in the following table.

| FREQUENCY (MHz) | Conducted Emission limit (dBuV) |           |
|-----------------|---------------------------------|-----------|
|                 | Quasi-peak                      | Average   |
| 0.15 -0.5       | 66 - 56 *                       | 56 - 46 * |
| 0.50 -5.0       | 56.00                           | 46.00     |
| 5.0 -30.0       | 60.00                           | 50.00     |

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    |

#### 3.6.2. Test Procedure

The EUT is 0.8 m from the horizontal ground plane and 0.4 m from the vertical ground plane with EUT being connected to the power mains through a line impedance stabilization network (LISN). All other support equipment are powered from additional LISN(s). The LISN provides 50 Ohm/ 50uH of coupling impedance for the measuring instrument.

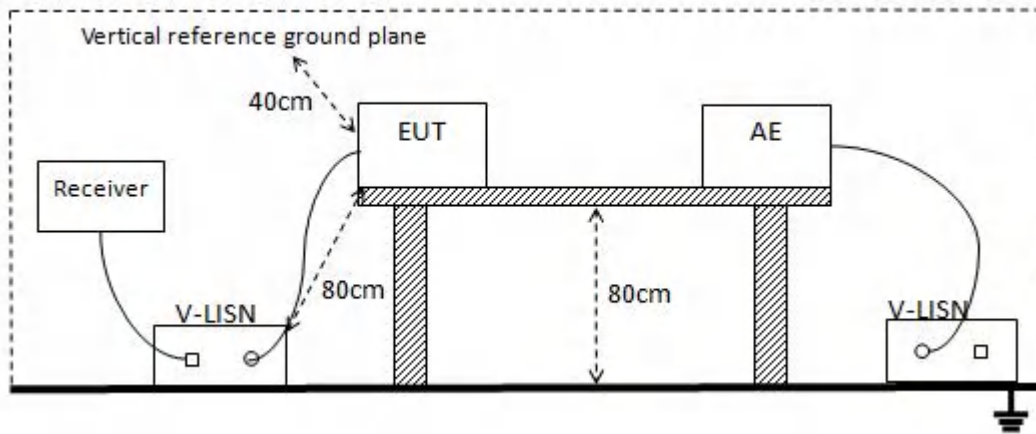
Interconnecting cables that hang closer than 40 cm to the ground plane shall be folded back and forth in the center forming a bundle 30 to 40 cm long.

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.

LISN is at least 80 cm from the nearest part of EUT chassis.

For the actual test configuration, please refer to the related Item –EUT Test Photos.

### 3.6.3. Test Setup



### 3.6.4. Test Result of

Please refer to Appendix C for the test data.

### 3.7. Antenna Requirement

#### 3.7.1. Standard Requirement

According to 47 CFR 15.203, an intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device.

#### 3.7.2. EUT Antenna

The antenna used for the EUT is PCB antenna, which meets the antenna requirements.

#### 4. Test Setup Photographs

Please refer to Appendix D.

\*\*\*\*\*END OF THE REPORT\*\*\*\*\*

## Appendix A \_ Conducted Test Data

### 3.1.4. Test Result of Maximum Peak Conducted Output Power

|               |        |                    |                          |
|---------------|--------|--------------------|--------------------------|
| Temperature:  | 25 °C  | Relative Humidity: | 60%RH                    |
| Test Voltage: | AC 24V | Test Mode:         | TX Mode1/2/3/4/5/6/7/8/9 |

| Test mode | Test Channel | Frequency | Average<br>Conducted Output<br>Power | Peak Conducted<br>Output Power | LIMIT |
|-----------|--------------|-----------|--------------------------------------|--------------------------------|-------|
|           |              | (MHz)     | (dBm)                                | (dBm)                          | dBm   |
| Mode1     | CH01         | 2412      | 17.04                                | 19.73                          | 30    |
| Mode2     | CH06         | 2437      | 17.91                                | 20.56                          | 30    |
| Mode3     | CH11         | 2462      | 17.62                                | 20.12                          | 30    |
| Mode4     | CH01         | 2412      | 17.54                                | 24.02                          | 30    |
| Mode5     | CH06         | 2437      | 18.21                                | 24.11                          | 30    |
| Mode6     | CH11         | 2462      | 17.31                                | 24.05                          | 30    |
| Mode7     | CH01         | 2412      | 17.10                                | 24.02                          | 30    |
| Mode8     | CH06         | 2437      | 17.72                                | 24.06                          | 30    |
| Mode9     | CH11         | 2462      | 16.61                                | 23.92                          | 30    |

### EIRP Power

| Test Mode | Frequency | Peak Conducted Output Power | Antenna Gain | EIRP Power | LIMIT |
|-----------|-----------|-----------------------------|--------------|------------|-------|
|           | (MHz)     | (dBm)                       | (dBi)        | (dBm)      | dBm   |
| Mode1     | 2412      | 19.73                       | 2.54         | 22.27      | 36    |
| Mode2     | 2437      | 20.56                       | 2.54         | 23.10      | 36    |
| Mode3     | 2462      | 20.12                       | 2.54         | 22.66      | 36    |
| Mode4     | 2412      | 24.02                       | 2.54         | 26.56      | 36    |
| Mode5     | 2437      | 24.11                       | 2.54         | 26.65      | 36    |
| Mode6     | 2462      | 24.05                       | 2.54         | 26.59      | 36    |
| Mode7     | 2412      | 24.02                       | 2.54         | 26.56      | 36    |
| Mode8     | 2437      | 24.06                       | 2.54         | 26.60      | 36    |
| Mode9     | 2462      | 23.92                       | 2.54         | 26.46      | 36    |

Note: Our power sensor test AVG power has no duty cycle display. The power sensor measures AVG power is Burst power. The software has considered the factor of the duty cycle factor, so it is unnecessary to add it again.

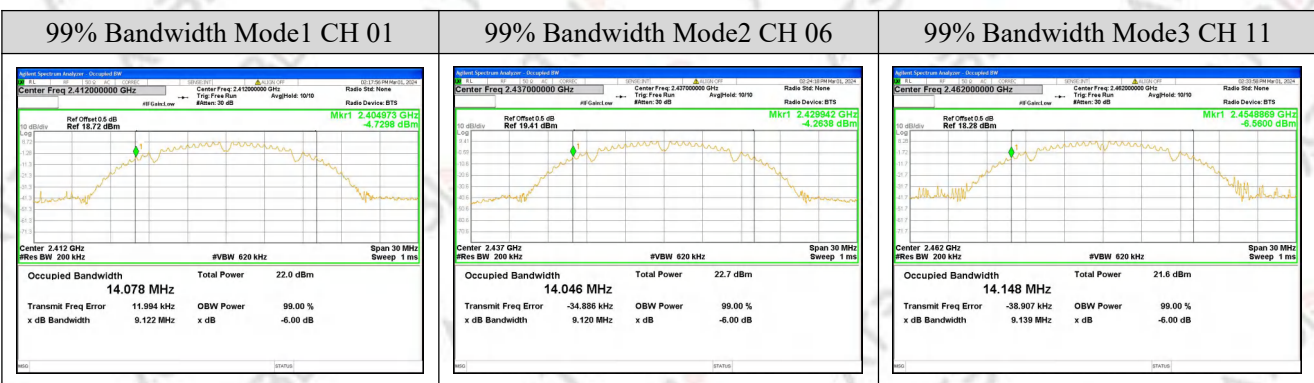
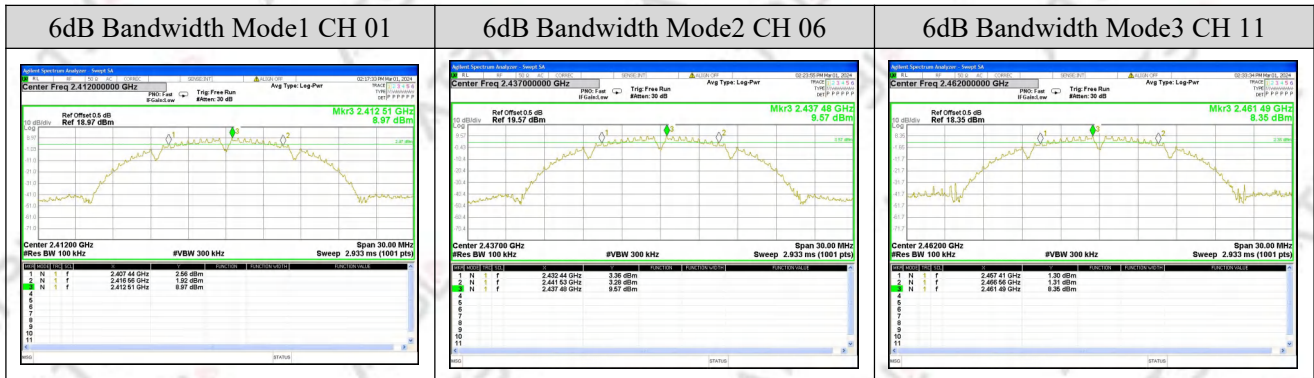
### 3.2.4. Test Result of Number of 6dB Bandwidth and 99% Bandwidth

|               |        |                    |                          |
|---------------|--------|--------------------|--------------------------|
| Temperature:  | 25 °C  | Relative Humidity: | 60%RH                    |
| Test Voltage: | AC 24V | Test Mode:         | TX Mode1/2/3/4/5/6/7/8/9 |

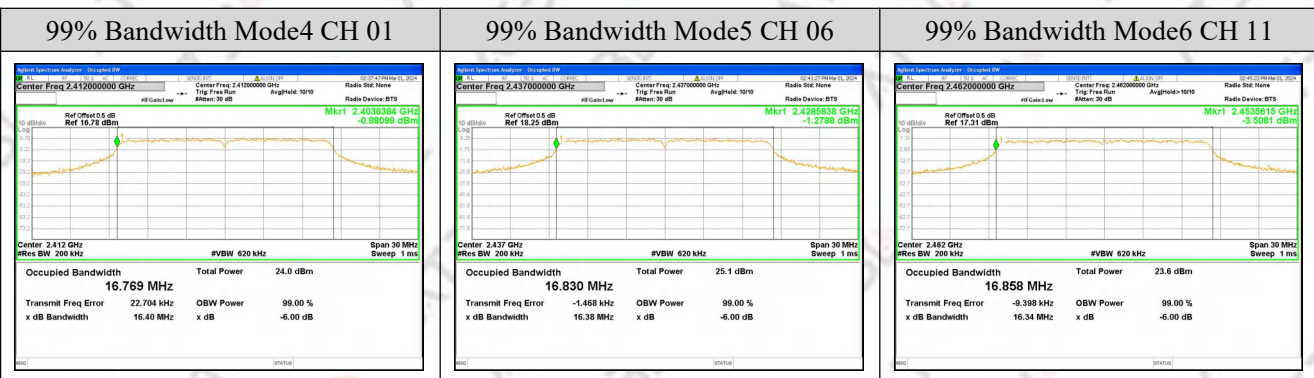
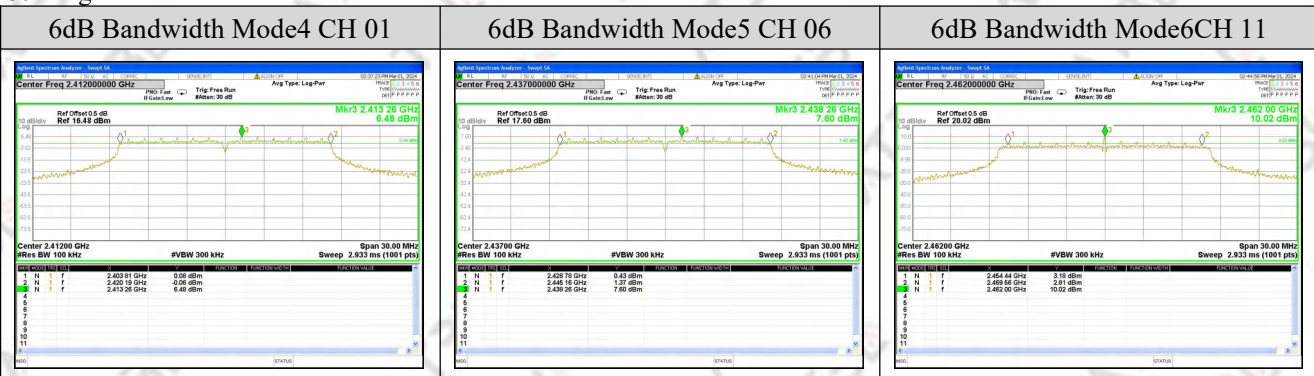
| Test mode | Frequency | 6dB Bandwidth (kHz) | 99% Bandwidth (MHz) | 6dB Bandwidth Limit(kHz) | Result |
|-----------|-----------|---------------------|---------------------|--------------------------|--------|
| Mode1     | 2412 MHz  | 912                 | 14.078              | ≥500                     | PASS   |
| Mode2     | 2437 MHz  | 909                 | 14.046              | ≥500                     | PASS   |
| Mode3     | 2462 MHz  | 915                 | 14.148              | ≥500                     | PASS   |
| Mode4     | 2412 MHz  | 1638                | 16.769              | ≥500                     | PASS   |
| Mode5     | 2437 MHz  | 1638                | 16.830              | ≥500                     | PASS   |
| Mode6     | 2462 MHz  | 1512                | 16.858              | ≥500                     | PASS   |
| Mode7     | 2412 MHz  | 1761                | 17.863              | ≥500                     | PASS   |
| Mode8     | 2437 MHz  | 1761                | 17.862              | ≥500                     | PASS   |
| Mode9     | 2462 MHz  | 1758                | 17.895              | ≥500                     | PASS   |

## 6dB Bandwidth & 99% Bandwidth

802.11b

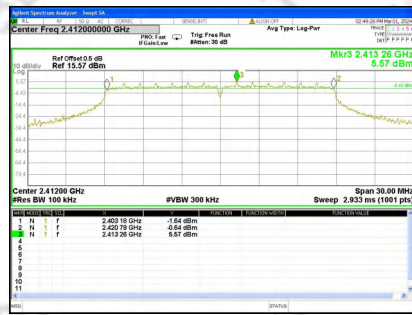


802.11g

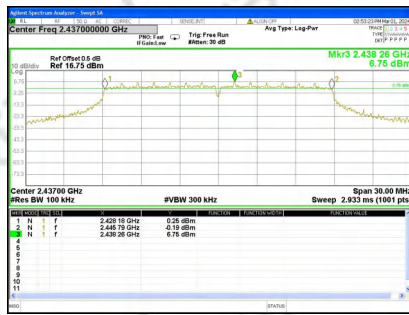


802.11n20

6dB Bandwidth Mode7 CH 01



6dB Bandwidth Mode8 CH 06



6dB Bandwidth Mode9 CH 11



99% Bandwidth Mode7 CH 01



99% Bandwidth Mode8CH 06



99% Bandwidth Mode9 CH 11

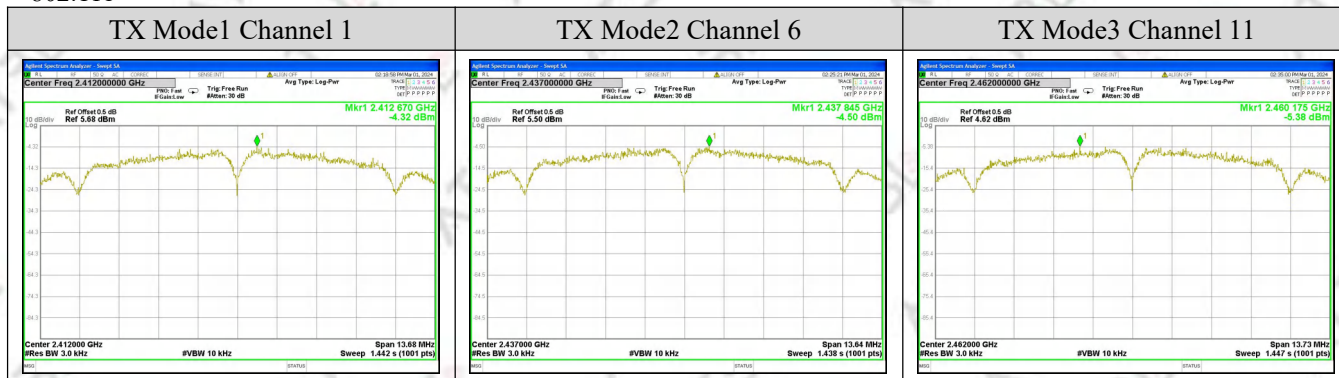


### 3.3.4. Test Result of Power Spectral Density

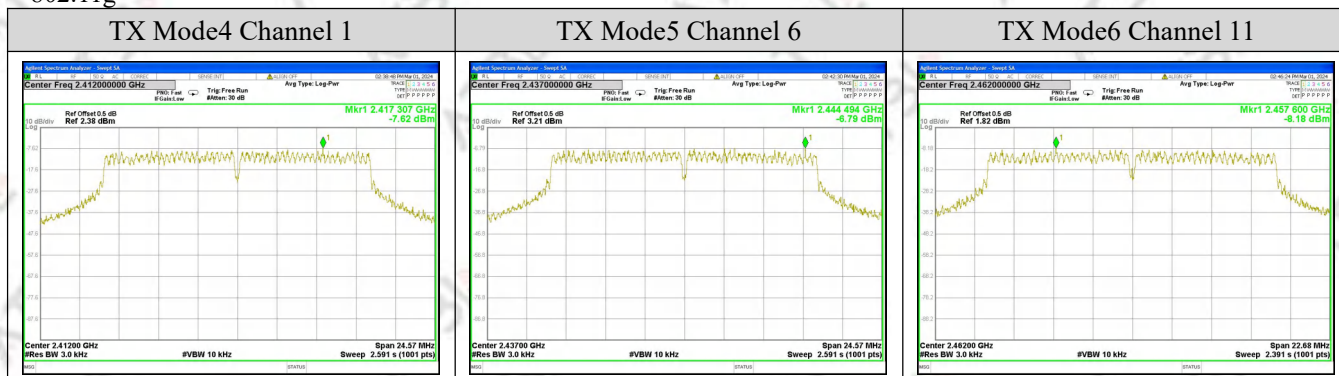
|               |        |                    |                          |
|---------------|--------|--------------------|--------------------------|
| Temperature:  | 25 °C  | Relative Humidity: | 60%RH                    |
| Test Voltage: | AC 24V | Test Mode:         | TX Mode1/2/3/4/5/6/7/8/9 |

| Test mode | Frequency | Power Density | Limit (dBm/3kHz) | Result |
|-----------|-----------|---------------|------------------|--------|
|           |           | (dBm/3kHz)    |                  |        |
| Mode1     | 2412 MHz  | -4.32         | ≤8               | PASS   |
| Mode2     | 2437 MHz  | -4.50         | ≤8               | PASS   |
| Mode3     | 2462 MHz  | -5.38         | ≤8               | PASS   |
| Mode4     | 2412 MHz  | -7.62         | ≤8               | PASS   |
| Mode5     | 2437 MHz  | -6.79         | ≤8               | PASS   |
| Mode6     | 2462 MHz  | -8.18         | ≤8               | PASS   |
| Mode7     | 2412 MHz  | -8.84         | ≤8               | PASS   |
| Mode8     | 2437 MHz  | -7.17         | ≤8               | PASS   |
| Mode9     | 2462 MHz  | -8.53         | ≤8               | PASS   |

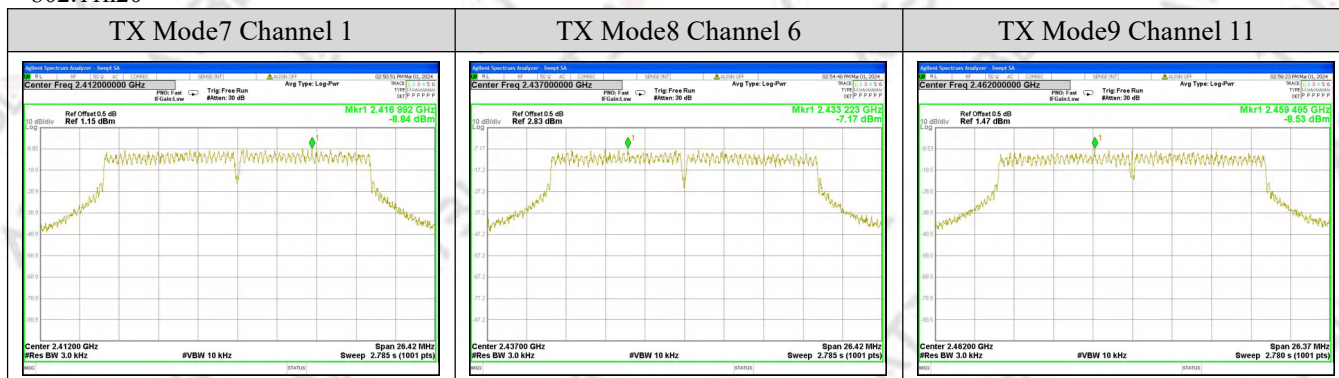
802.11b



802.11g



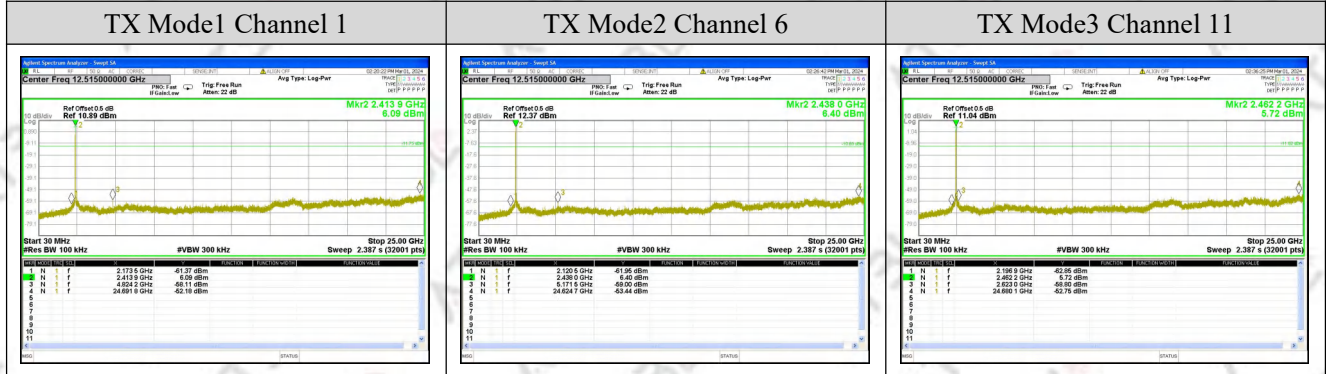
802.11n20



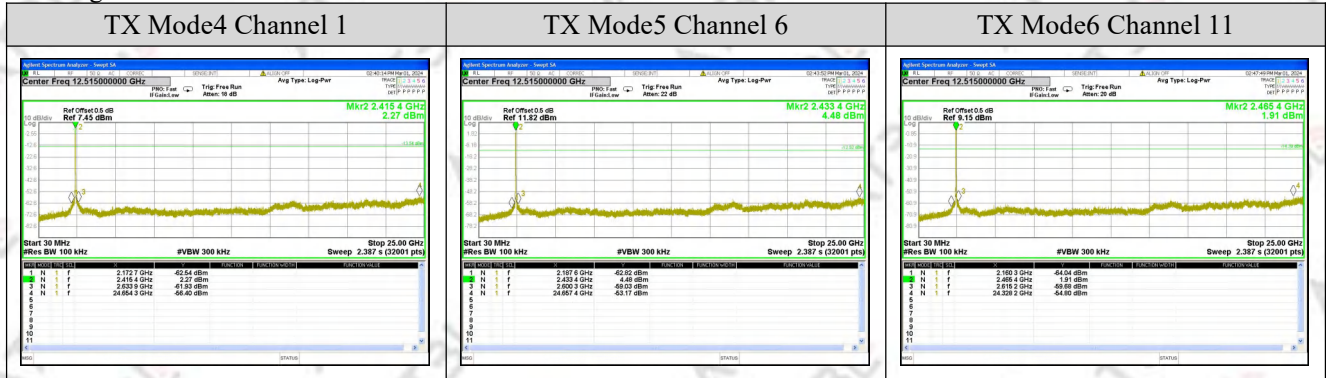
### 3.4.4. Test Result of Conducted Spurious & Band Edge Emission

|               |        |                    |                          |
|---------------|--------|--------------------|--------------------------|
| Temperature:  | 25 °C  | Relative Humidity: | 60%RH                    |
| Test Voltage: | AC 24V | Test Mode:         | TX Mode1/2/3/4/5/6/7/8/9 |

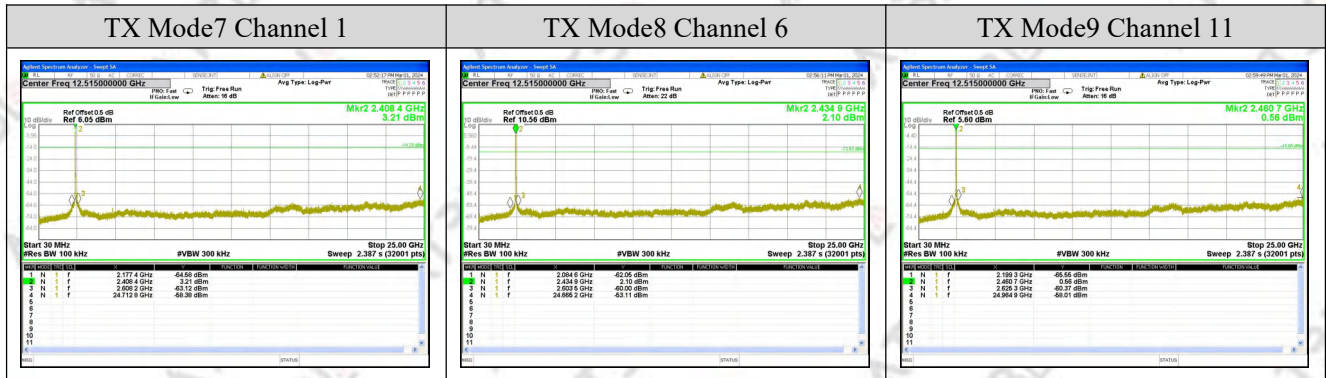
802.11b



802.11g

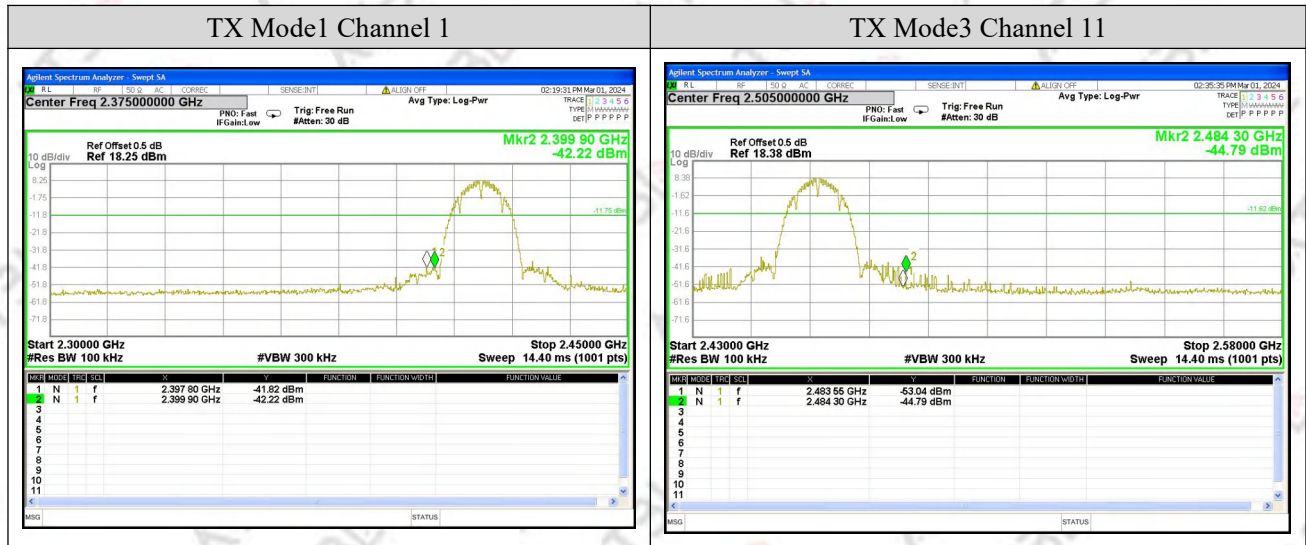


802.11n20

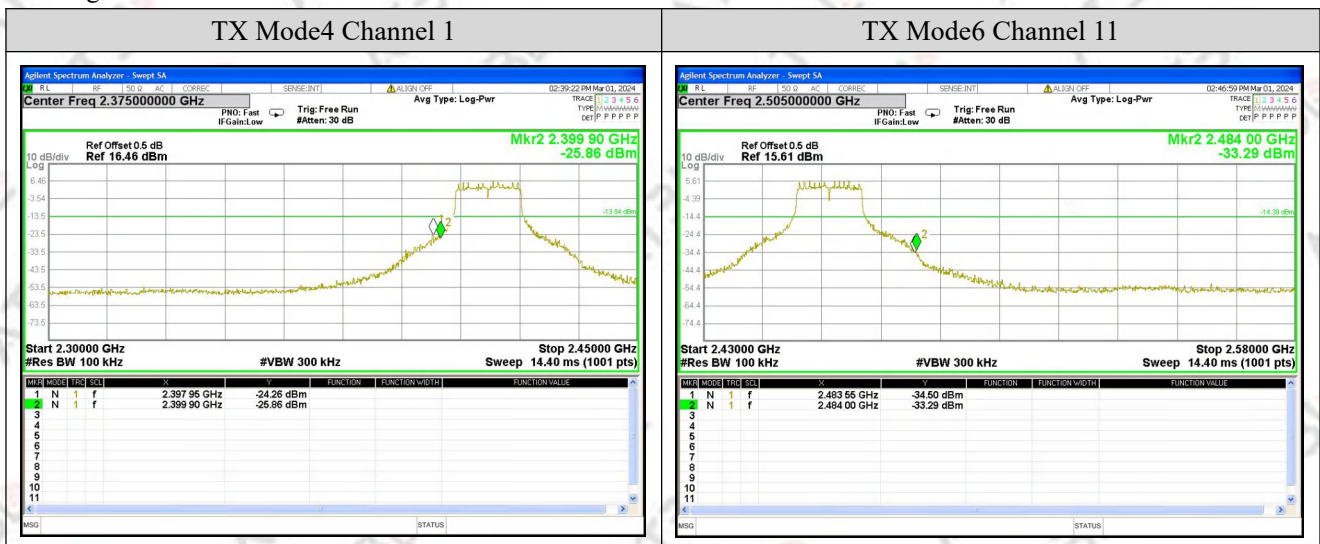


For Band edge(it's also the reference level for conducted spurious emission)

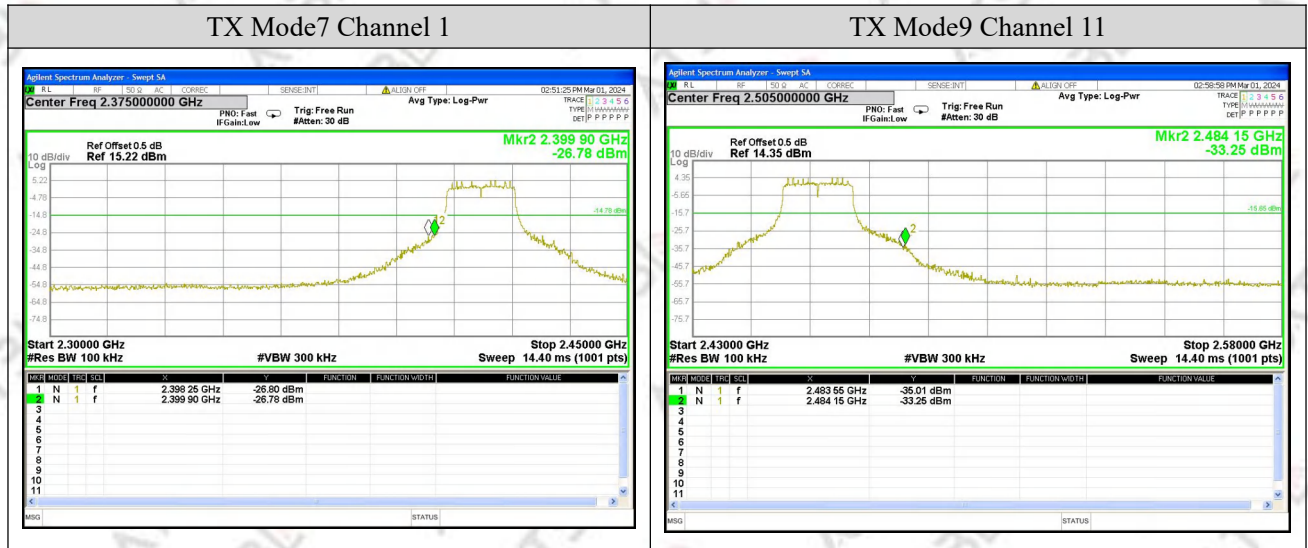
802.11b



802.11g



802.11n20



\*\*\*\*\*END OF APPENDIX A\*\*\*\*\*

## Appendix B \_ Radiated Test Data

**3.5.4. Test Result of Radiated Spurious Emission and Restricted Band**

## 3.5.4.1. For 9 kHz ~ 30 MHz

|               |         |                    |       |
|---------------|---------|--------------------|-------|
| Temperature:  | 23.4°C  | Relative Humidity: | 60%RH |
| Test Voltage: | AC 24V  | Polarization:      | --    |
| Test Mode:    | TX Mode |                    |       |

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 =  $40 \log (\text{specific distance/test distance})$ (dB);

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

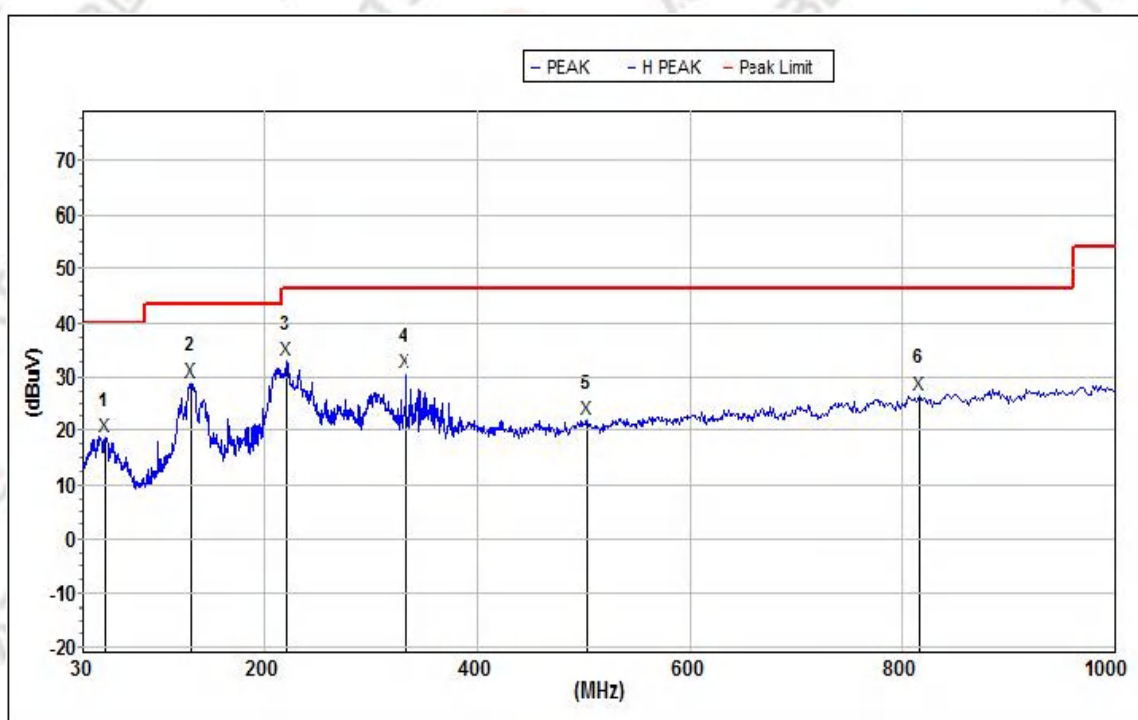
## 3.5.4.2. For 30 MHz ~ 1 GHz

|               |           |                    |            |
|---------------|-----------|--------------------|------------|
| Temperature:  | 23.4°C    | Relative Humidity: | 60%RH      |
| Test Voltage: | AC 24V    | Polarization:      | Horizontal |
| Test Mode:    | TX Mode 1 |                    |            |

Remark:

1. Margin = Result (Result = Reading + Factor) - Limit
2. Factor = Antenna factor + Cable attenuation factor (cable loss) - Amplifier gain

Mode 1 Horizontal



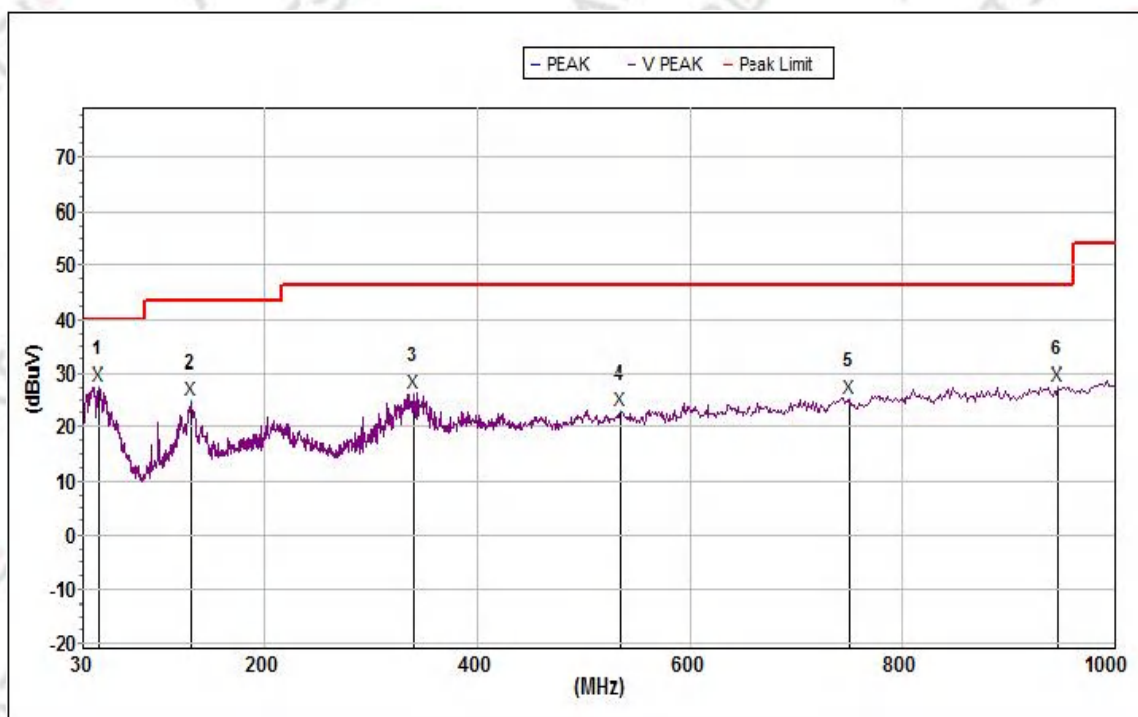
| Mk.   | Freq.<br>(MHz) | Level<br>(dBuV) | Limit<br>(dBuV) | Margin<br>(dB) | Deg.<br>(deg.) | Hi.<br>(cm) | Ant.F/G.<br>(dB) | Amp.G.<br>(dB) | Cbl.L.<br>(dB) | Pol. |
|-------|----------------|-----------------|-----------------|----------------|----------------|-------------|------------------|----------------|----------------|------|
| Peak: |                |                 |                 |                |                |             |                  |                |                |      |
| 1     | 50.321         | 18.8            | 40.0            | 21.2           | 194            | 100         | 18.1             | 31.9           | 1.0            | H    |
| 2     | 131.758        | 29.1            | 43.5            | 14.4           | 227            | 100         | 16.6             | 31.9           | 1.6            | H    |
| 3     | 220.231        | 32.8            | 46.0            | 13.2           | 356            | 100         | 17.2             | 31.9           | 2.0            | H    |
| 4     | 332.519        | 30.7            | 46.0            | 15.3           | 293            | 100         | 19.3             | 32.2           | 2.6            | H    |
| 5     | 503.822        | 22.1            | 46.0            | 23.9           | 227            | 100         | 22.4             | 31.2           | 3.1            | H    |
| 6     | 815.968        | 26.6            | 46.0            | 19.4           | 360            | 100         | 25.6             | 31.4           | 4.0            | H    |

|               |           |                    |          |
|---------------|-----------|--------------------|----------|
| Temperature:  | 23.4°C    | Relative Humidity: | 60%RH    |
| Test Voltage: | AC 24V    | Polarization:      | Vertical |
| Test Mode:    | TX Mode 1 |                    |          |

Remark:

1. Margin = Result (Result = Reading + Factor) - Limit
2. Factor = Antenna factor + Cable attenuation factor (cable loss) - Amplifier gain

Mode 1 Vertical



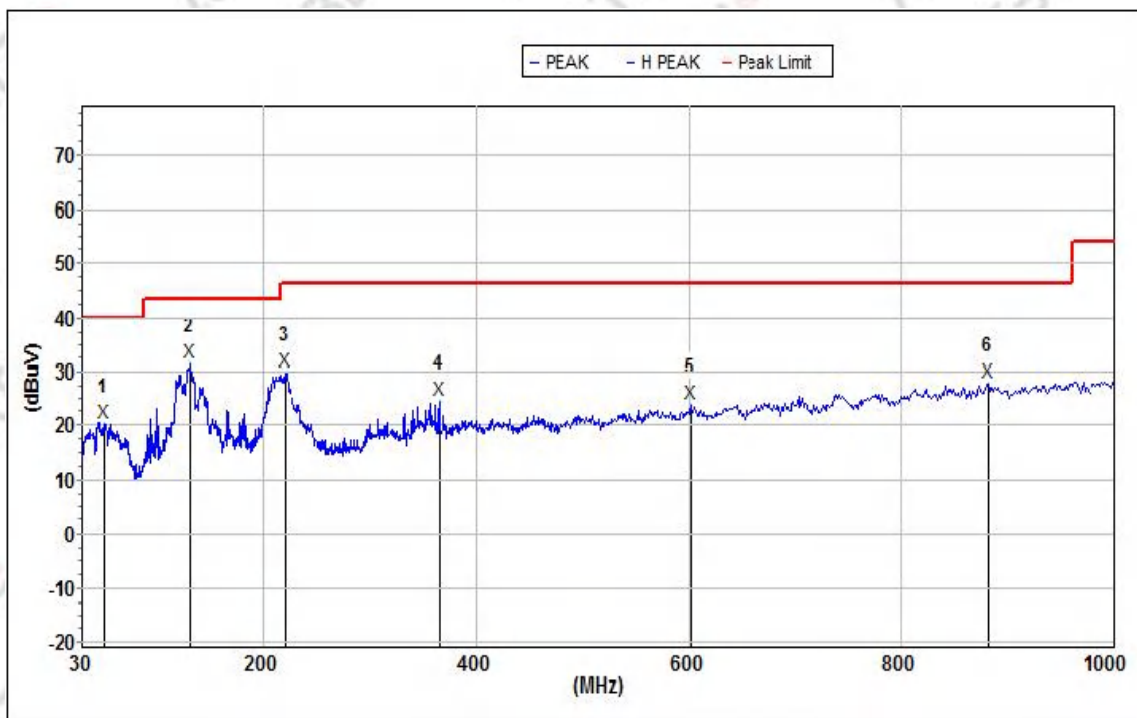
| Mk.   | Freq. (MHz) | Level (dBUV) | Limit (dBUV) | Margin (dB) | Deg. (deg.) | Hi. (cm) | Ant.F/G. (dB) | Amp.G. (dB) | Cbl.L. (dB) | Pol. |
|-------|-------------|--------------|--------------|-------------|-------------|----------|---------------|-------------|-------------|------|
| Peak: |             |              |              |             |             |          |               |             |             |      |
| 1     | 44.979      | 27.8         | 40.0         | 12.2        | 81          | 300      | 18.5          | 32.0        | 0.9         | V    |
| 2     | 132.221     | 24.9         | 43.5         | 18.6        | 130         | 300      | 17.1          | 31.9        | 1.6         | V    |
| 3     | 340.782     | 26.4         | 46.0         | 19.6        | 359         | 300      | 19.9          | 32.2        | 2.6         | V    |
| 4     | 533.832     | 23.1         | 46.0         | 22.9        | 3           | 300      | 23.2          | 31.2        | 3.2         | V    |
| 5     | 750.108     | 25.5         | 46.0         | 20.5        | 226         | 300      | 25.0          | 31.3        | 3.9         | V    |
| 6     | 945.440     | 27.8         | 46.0         | 18.2        | 99          | 300      | 26.8          | 31.9        | 4.3         | V    |

|               |           |                    |            |
|---------------|-----------|--------------------|------------|
| Temperature:  | 23.4°C    | Relative Humidity: | 60%RH      |
| Test Voltage: | AC 24V    | Polarization:      | Horizontal |
| Test Mode:    | TX Mode 3 |                    |            |

Remark:

1. Margin = Result (Result = Reading + Factor) – Limit
2. Factor = Antenna factor + Cable attenuation factor (cable loss) – Amplifier gain

Mode 3 Horizontal



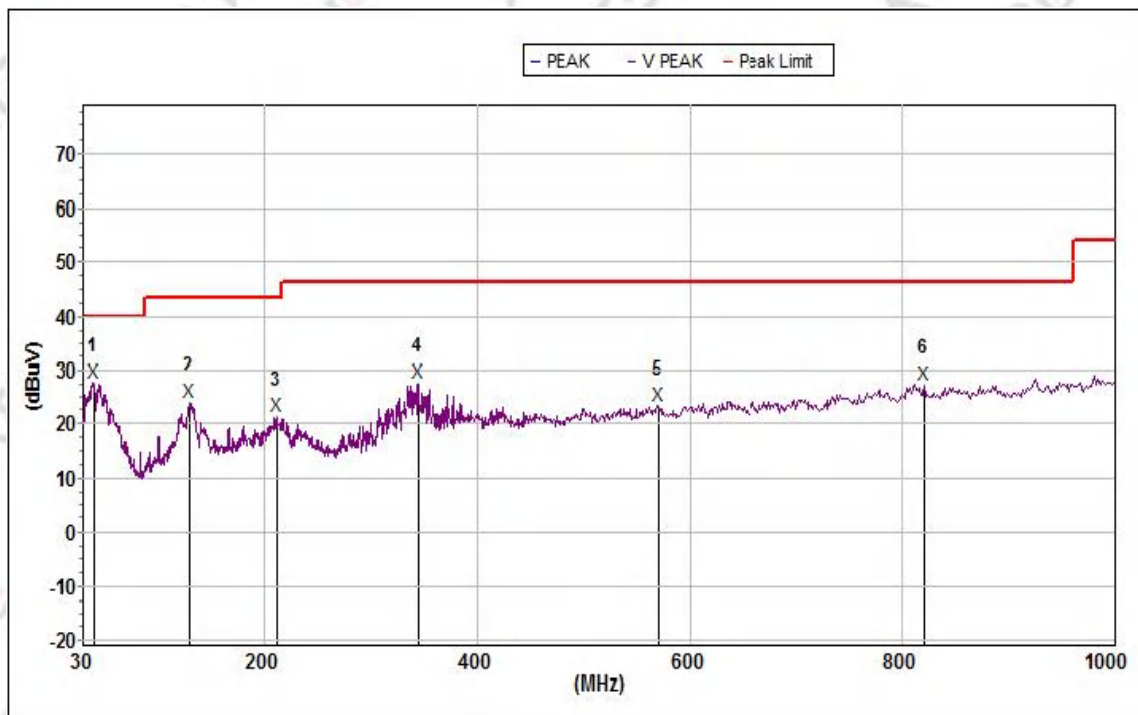
| Mk.   | Freq.<br>(MHz) | Level<br>(dBuV) | Limit<br>(dBuV) | Margin<br>(dB) | Deg.<br>(deg.) | Hi.<br>(cm) | Ant.F/G.<br>(dB) | Amp.G.<br>(dB) | Cbl.L.<br>(dB) | Pol. |
|-------|----------------|-----------------|-----------------|----------------|----------------|-------------|------------------|----------------|----------------|------|
| Peak: |                |                 |                 |                |                |             |                  |                |                |      |
| 1     | 51.211         | 20.4            | 40.0            | 19.6           | 185            | 300         | 18.0             | 31.9           | 1.0            | H    |
| 2     | 131.758        | 31.5            | 43.5            | 12.0           | 200            | 300         | 16.6             | 31.9           | 1.6            | H    |
| 3     | 220.231        | 29.9            | 46.0            | 16.1           | 0              | 300         | 17.2             | 31.9           | 2.0            | H    |
| 4     | 365.539        | 24.8            | 46.0            | 21.2           | 314            | 300         | 20.2             | 32.3           | 2.7            | H    |
| 5     | 601.427        | 24.2            | 46.0            | 21.8           | 357            | 300         | 23.3             | 31.1           | 3.5            | H    |
| 6     | 881.407        | 28.0            | 46.0            | 18.0           | 0              | 300         | 26.5             | 31.8           | 4.2            | H    |

|               |           |                    |          |
|---------------|-----------|--------------------|----------|
| Temperature:  | 23.4°C    | Relative Humidity: | 60%RH    |
| Test Voltage: | AC 24V    | Polarization:      | Vertical |
| Test Mode:    | TX Mode 3 |                    |          |

Remark:

1. Margin = Result (Result = Reading + Factor) - Limit
2. Factor = Antenna factor + Cable attenuation factor (cable loss) - Amplifier gain

Mode 3 Vertical



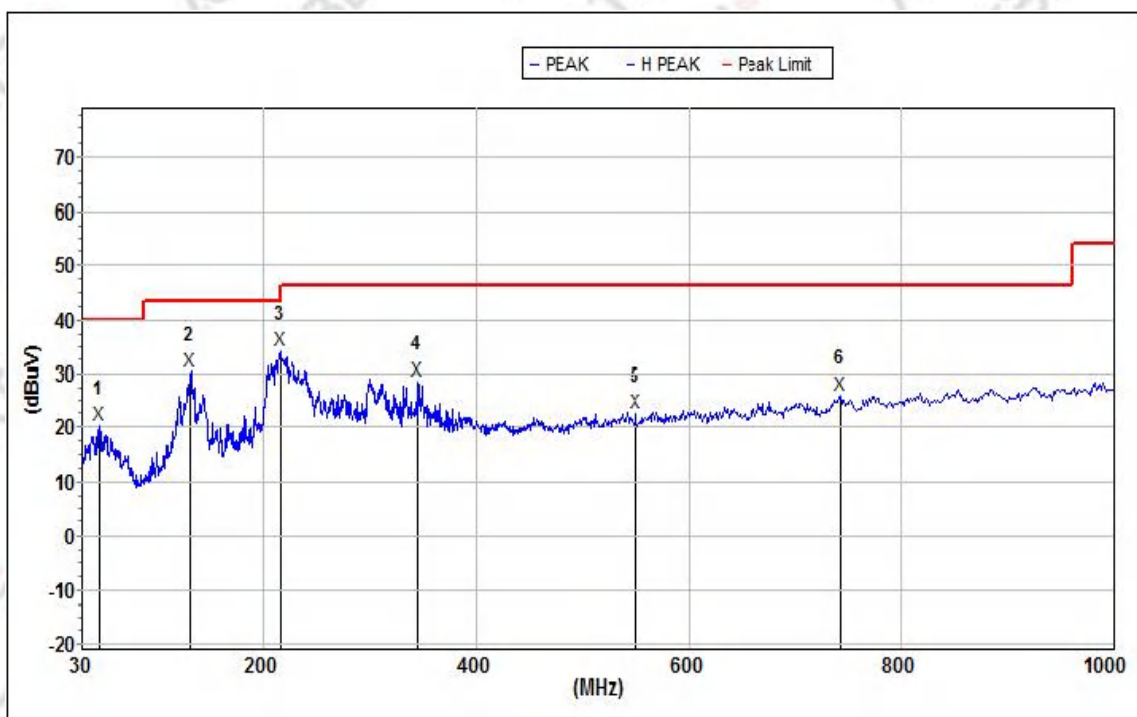
| Mk.   | Freq. (MHz) | Level (dBuV) | Limit (dBuV) | Margin (dB) | Deg. (deg.) | Hi. (cm) | Ant.F/G. (dB) | Amp.G. (dB) | Cbl.L. (dB) | Pol. |
|-------|-------------|--------------|--------------|-------------|-------------|----------|---------------|-------------|-------------|------|
| Peak: |             |              |              |             |             |          |               |             |             |      |
| 1     | 39.645      | 27.7         | 40.0         | 12.3        | 149         | 300      | 18.2          | 32.0        | 0.9         | V    |
| 2     | 130.379     | 24.2         | 43.5         | 19.3        | 133         | 300      | 17.0          | 31.9        | 1.6         | V    |
| 3     | 210.786     | 21.3         | 43.5         | 22.2        | 37          | 300      | 18.3          | 31.9        | 2.0         | V    |
| 4     | 344.990     | 27.7         | 46.0         | 18.3        | 325         | 300      | 20.1          | 32.2        | 2.7         | V    |
| 5     | 571.611     | 23.5         | 46.0         | 22.5        | 67          | 300      | 23.5          | 31.1        | 3.4         | V    |
| 6     | 820.271     | 27.3         | 46.0         | 18.7        | 149         | 300      | 25.8          | 31.4        | 4.0         | V    |

|               |           |                    |            |
|---------------|-----------|--------------------|------------|
| Temperature:  | 23.4°C    | Relative Humidity: | 60%RH      |
| Test Voltage: | AC 24V    | Polarization:      | Horizontal |
| Test Mode:    | TX Mode 4 |                    |            |

Remark:

1. Margin = Result (Result = Reading + Factor) – Limit
2. Factor = Antenna factor + Cable attenuation factor (cable loss) – Amplifier gain

Mode 4 Horizontal



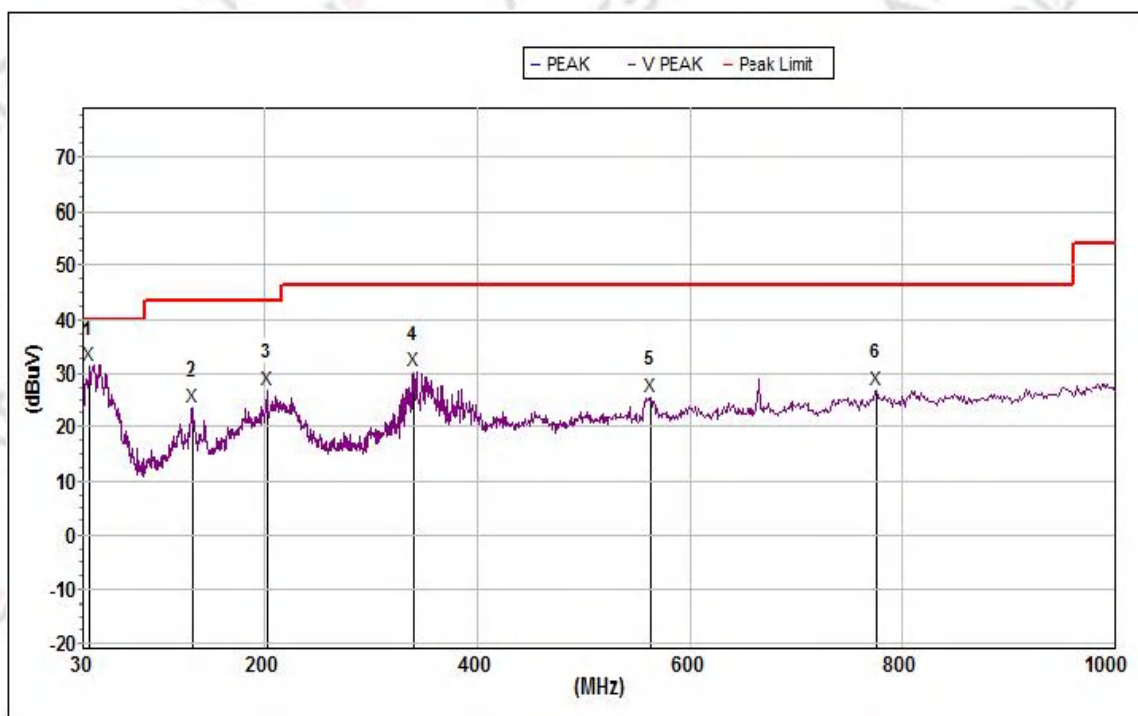
| Mk.   | Freq.<br>(MHz) | Level<br>(dBuV) | Limit<br>(dBuV) | Margin<br>(dB) | Deg.<br>(deg.) | Hi.<br>(cm) | Ant.F/G.<br>(dB) | Amp.G.<br>(dB) | Cbl.L.<br>(dB) | Pol. |
|-------|----------------|-----------------|-----------------|----------------|----------------|-------------|------------------|----------------|----------------|------|
| Peak: |                |                 |                 |                |                |             |                  |                |                |      |
| 1     | 46.422         | 20.4            | 40.0            | 19.6           | 180            | 100         | 18.1             | 31.9           | 0.8            | H    |
| 2     | 132.453        | 30.4            | 43.5            | 13.1           | 180            | 100         | 16.7             | 31.9           | 1.4            | H    |
| 3     | 216.024        | 34.2            | 46.0            | 11.8           | 360            | 100         | 17.2             | 31.9           | 2.5            | H    |
| 4     | 346.202        | 28.6            | 46.0            | 17.4           | 275            | 100         | 19.7             | 32.2           | 2.7            | H    |
| 5     | 549.983        | 22.8            | 46.0            | 23.2           | 99             | 100         | 22.8             | 31.2           | 3.1            | H    |
| 6     | 742.259        | 26.2            | 46.0            | 19.8           | 114            | 100         | 24.8             | 31.2           | 3.6            | H    |

|               |           |                    |          |
|---------------|-----------|--------------------|----------|
| Temperature:  | 23.4°C    | Relative Humidity: | 60%RH    |
| Test Voltage: | AC 24V    | Polarization:      | Vertical |
| Test Mode:    | TX Mode 4 |                    |          |

Remark:

1. Margin = Result (Result = Reading + Factor) - Limit
2. Factor = Antenna factor + Cable attenuation factor (cable loss) - Amplifier gain

Mode 4 Vertical



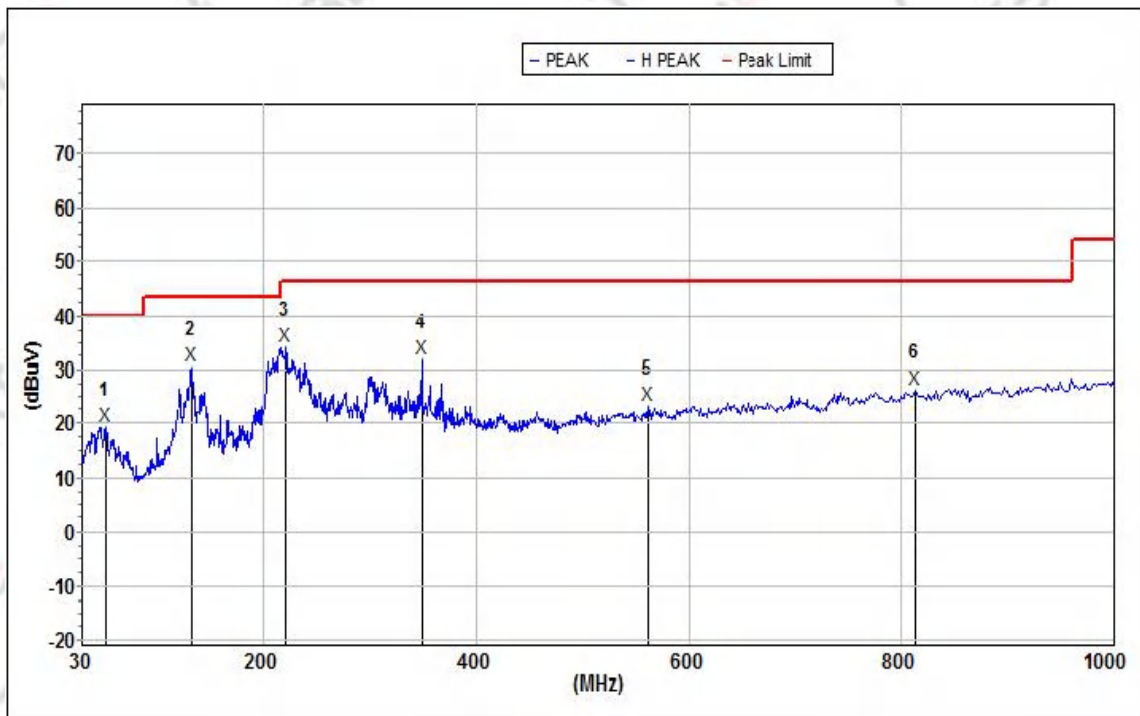
| Mk.   | Freq.<br>(MHz) | Level<br>(dBuV) | Limit<br>(dBuV) | Margin<br>(dB) | Deg.<br>(deg.) | Hi.<br>(cm) | Ant.F/G.<br>(dB) | Amp.G.<br>(dB) | Cbl.L.<br>(dB) | Pol. |
|-------|----------------|-----------------|-----------------|----------------|----------------|-------------|------------------|----------------|----------------|------|
| Peak: |                |                 |                 |                |                |             |                  |                |                |      |
| 1     | 35.812         | 31.3            | 40.0            | 8.7            | 196            | 100         | 18.1             | 32.0           | 0.8            | V    |
| 2     | 132.685        | 23.9            | 43.5            | 19.6           | 148            | 100         | 17.2             | 31.9           | 1.4            | V    |
| 3     | 202.100        | 26.9            | 43.5            | 16.6           | 0              | 100         | 18.5             | 31.9           | 2.4            | V    |
| 4     | 341.380        | 30.4            | 46.0            | 15.6           | 0              | 100         | 19.9             | 32.2           | 2.7            | V    |
| 5     | 563.650        | 25.8            | 46.0            | 20.2           | 148            | 100         | 23.4             | 31.1           | 3.2            | V    |
| 6     | 775.517        | 27.0            | 46.0            | 19.0           | 228            | 100         | 25.4             | 31.3           | 3.6            | V    |

|               |           |                    |            |
|---------------|-----------|--------------------|------------|
| Temperature:  | 23.4°C    | Relative Humidity: | 60%RH      |
| Test Voltage: | AC 24V    | Polarization:      | Horizontal |
| Test Mode:    | TX Mode 6 |                    |            |

Remark:

1. Margin = Result (Result = Reading + Factor) – Limit
2. Factor = Antenna factor + Cable attenuation factor (cable loss) – Amplifier gain

Mode 6 Horizontal



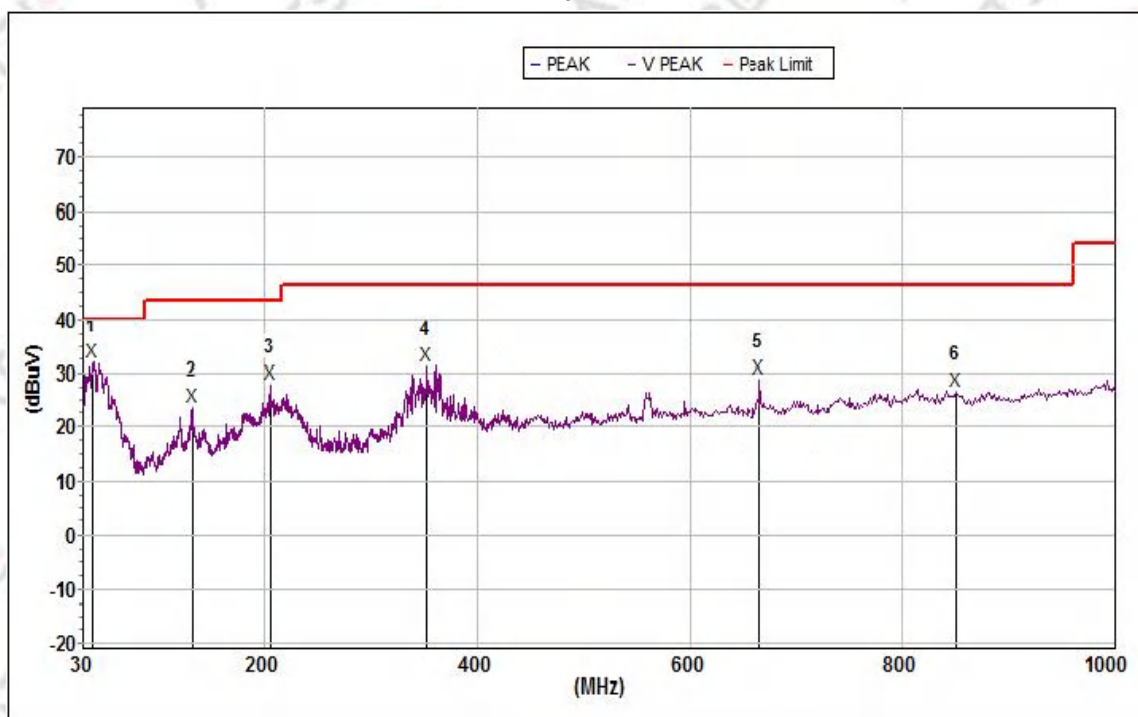
| Mk.   | Freq.<br>(MHz) | Level<br>(dBuV) | Limit<br>(dBuV) | Margin<br>(dB) | Deg.<br>(deg.) | Hi.<br>(cm) | Ant.F/G.<br>(dB) | Amp.G.<br>(dB) | Cbl.L.<br>(dB) | Pol. |
|-------|----------------|-----------------|-----------------|----------------|----------------|-------------|------------------|----------------|----------------|------|
| Peak: |                |                 |                 |                |                |             |                  |                |                |      |
| 1     | 51.752         | 19.3            | 40.0            | 20.7           | 150            | 100         | 17.9             | 31.9           | 0.8            | H    |
| 2     | 132.685        | 30.8            | 43.5            | 12.7           | 198            | 100         | 16.7             | 31.9           | 1.4            | H    |
| 3     | 220.231        | 34.4            | 46.0            | 11.6           | 341            | 100         | 17.2             | 31.9           | 2.5            | H    |
| 4     | 349.250        | 31.8            | 46.0            | 14.2           | 296            | 100         | 19.8             | 32.2           | 2.7            | H    |
| 5     | 561.677        | 23.3            | 46.0            | 22.7           | 216            | 100         | 23.0             | 31.1           | 3.2            | H    |
| 6     | 813.112        | 26.4            | 46.0            | 19.6           | 216            | 100         | 25.6             | 31.4           | 3.6            | H    |

|               |           |                    |          |
|---------------|-----------|--------------------|----------|
| Temperature:  | 23.4°C    | Relative Humidity: | 60%RH    |
| Test Voltage: | AC 24V    | Polarization:      | Vertical |
| Test Mode:    | TX Mode 6 |                    |          |

Remark:

1. Margin = Result (Result = Reading + Factor) – Limit
2. Factor = Antenna factor + Cable attenuation factor (cable loss) – Amplifier gain

Mode 6 Vertical



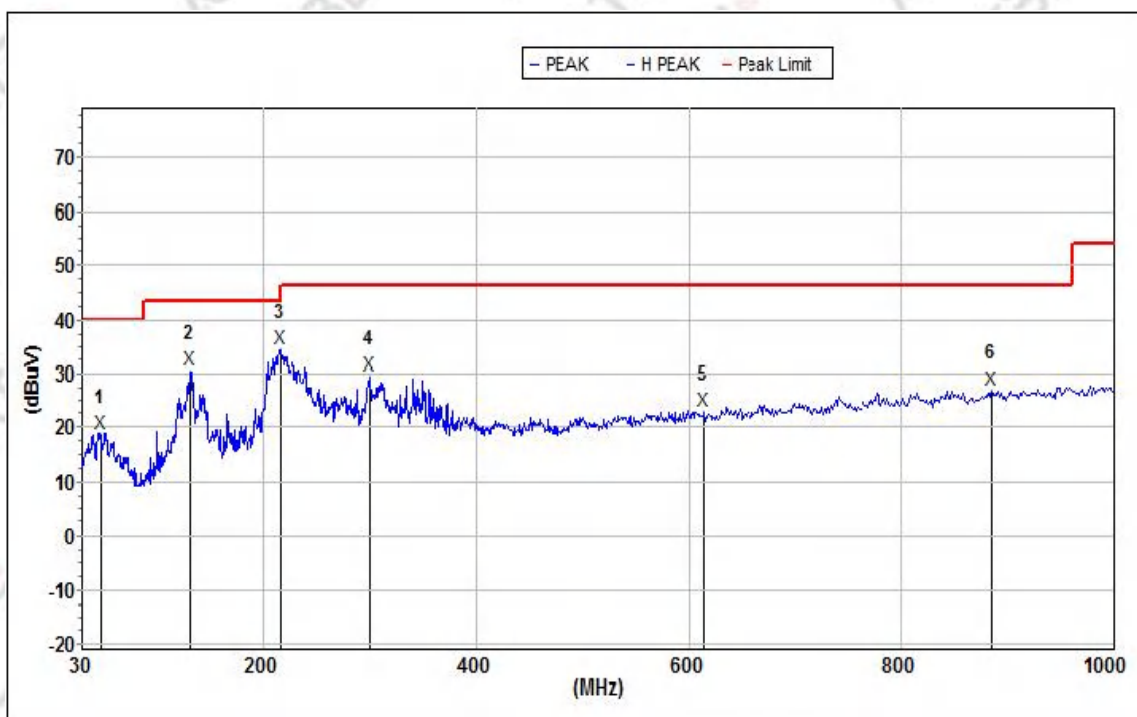
| Mk.   | Freq. (MHz) | Level (dBUV) | Limit (dBUV) | Margin (dB) | Deg. (deg.) | Hi. (cm) | Ant.F/G. (dB) | Amp.G. (dB) | Cbl.L. (dB) | Pol. |
|-------|-------------|--------------|--------------|-------------|-------------|----------|---------------|-------------|-------------|------|
| Peak: |             |              |              |             |             |          |               |             |             |      |
| 1     | 39.162      | 32.1         | 40.0         | 7.9         | 161         | 100      | 18.2          | 32.0        | 0.8         | V    |
| 2     | 132.685     | 23.7         | 43.5         | 19.8        | 176         | 100      | 17.2          | 31.9        | 1.4         | V    |
| 3     | 204.955     | 28.1         | 43.5         | 15.4        | 0           | 100      | 18.4          | 31.9        | 2.4         | V    |
| 4     | 353.563     | 31.3         | 46.0         | 14.7        | 322         | 100      | 20.4          | 32.2        | 2.7         | V    |
| 5     | 665.803     | 28.9         | 46.0         | 17.1        | 48          | 100      | 24.1          | 31.2        | 3.4         | V    |
| 6     | 849.545     | 26.6         | 46.0         | 19.4        | 290         | 100      | 25.9          | 31.6        | 3.6         | V    |

|               |           |                    |            |
|---------------|-----------|--------------------|------------|
| Temperature:  | 23.4°C    | Relative Humidity: | 60%RH      |
| Test Voltage: | AC 24V    | Polarization:      | Horizontal |
| Test Mode:    | TX Mode 7 |                    |            |

Remark:

1. Margin = Result (Result = Reading + Factor) – Limit
2. Factor = Antenna factor + Cable attenuation factor (cable loss) – Amplifier gain

Mode 7 Horizontal



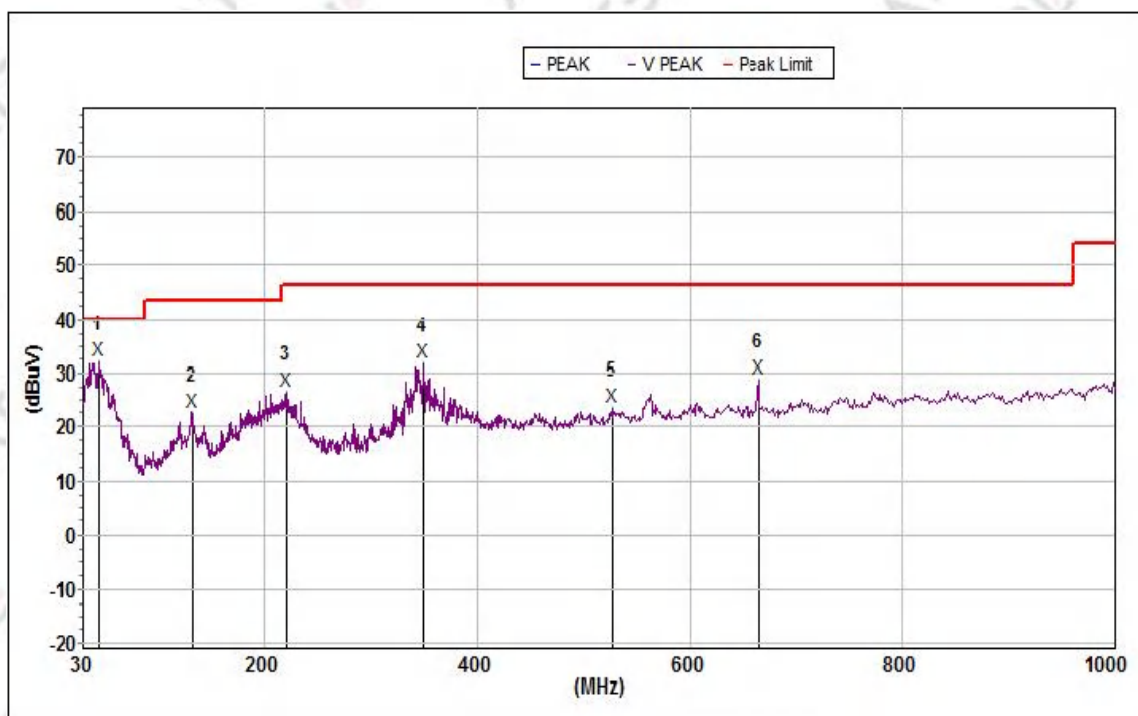
| Mk.   | Freq. (MHz) | Level (dBuV) | Limit (dBuV) | Margin (dB) | Deg. (deg.) | Hi. (cm) | Ant.F/G. (dB) | Amp.G. (dB) | Cbl.L. (dB) | Pol. |
|-------|-------------|--------------|--------------|-------------|-------------|----------|---------------|-------------|-------------|------|
| Peak: |             |              |              |             |             |          |               |             |             |      |
| 1     | 47.910      | 18.9         | 40.0         | 21.1        | 208         | 100      | 18.1          | 31.9        | 0.8         | H    |
| 2     | 131.758     | 30.8         | 43.5         | 12.7        | 208         | 100      | 16.6          | 31.9        | 1.4         | H    |
| 3     | 216.024     | 34.6         | 46.0         | 11.4        | 360         | 100      | 17.2          | 31.9        | 2.5         | H    |
| 4     | 299.316     | 29.6         | 46.0         | 16.4        | 306         | 100      | 18.5          | 32.1        | 2.7         | H    |
| 5     | 614.214     | 23.0         | 46.0         | 23.0        | 1           | 100      | 23.4          | 31.1        | 3.4         | H    |
| 6     | 884.503     | 27.1         | 46.0         | 18.9        | 193         | 100      | 26.6          | 31.8        | 3.6         | H    |

|               |           |                    |          |
|---------------|-----------|--------------------|----------|
| Temperature:  | 23.4°C    | Relative Humidity: | 60%RH    |
| Test Voltage: | AC 24V    | Polarization:      | Vertical |
| Test Mode:    | TX Mode 7 |                    |          |

Remark:

1. Margin = Result (Result = Reading + Factor) - Limit
2. Factor = Antenna factor + Cable attenuation factor (cable loss) - Amplifier gain

Mode 7 Vertical



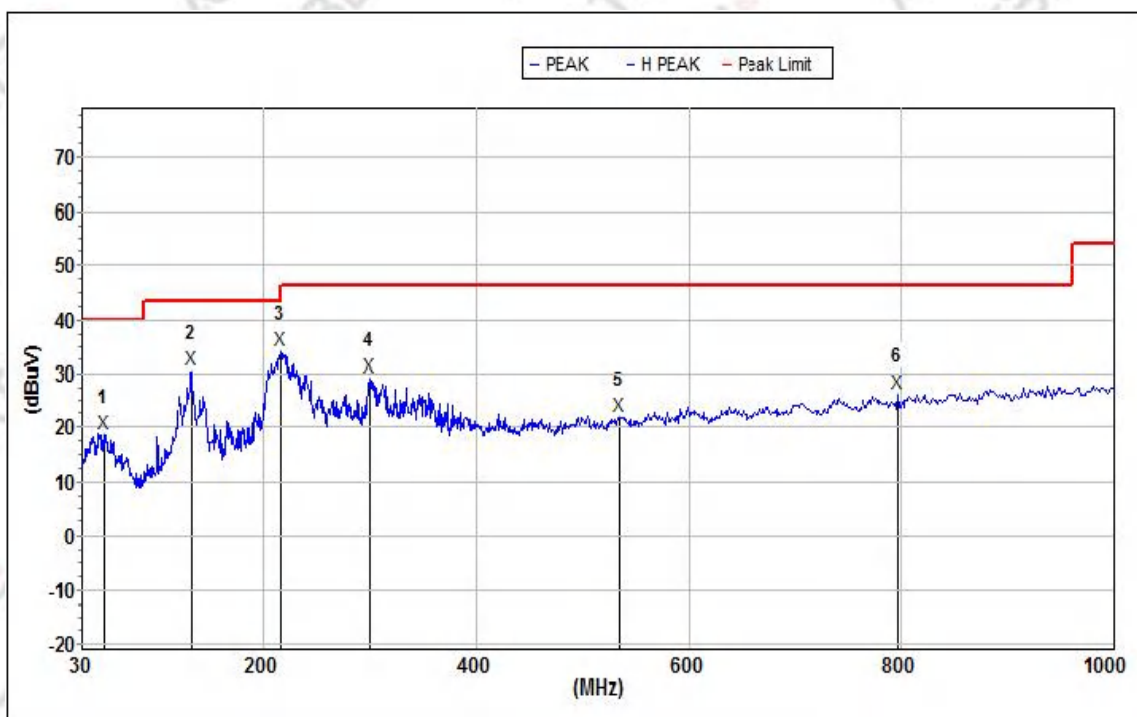
| Mk.   | Freq. (MHz) | Level (dBuV) | Limit (dBuV) | Margin (dB) | Deg. (deg.) | Hi. (cm) | Ant.F/G. (dB) | Amp.G. (dB) | Cbl.L. (dB) | Pol. |
|-------|-------------|--------------|--------------|-------------|-------------|----------|---------------|-------------|-------------|------|
| Peak: |             |              |              |             |             |          |               |             |             |      |
| 1     | 44.979      | 32.2         | 40.0         | 7.8         | 295         | 100      | 18.5          | 32.0        | 0.8         | V    |
| 2     | 132.685     | 22.9         | 43.5         | 20.6        | 151         | 100      | 17.2          | 31.9        | 1.4         | V    |
| 3     | 220.231     | 26.7         | 46.0         | 19.3        | 119         | 100      | 18.1          | 31.9        | 2.5         | V    |
| 4     | 349.863     | 31.9         | 46.0         | 14.1        | 351         | 100      | 20.3          | 32.2        | 2.7         | V    |
| 5     | 526.397     | 23.7         | 46.0         | 22.3        | 247         | 100      | 23.2          | 31.2        | 3.0         | V    |
| 6     | 664.637     | 28.9         | 46.0         | 17.1        | 357         | 100      | 24.1          | 31.2        | 3.4         | V    |

|               |           |                    |            |
|---------------|-----------|--------------------|------------|
| Temperature:  | 23.4°C    | Relative Humidity: | 60%RH      |
| Test Voltage: | AC 24V    | Polarization:      | Horizontal |
| Test Mode:    | TX Mode 9 |                    |            |

Remark:

1. Margin = Result (Result = Reading + Factor) - Limit
2. Factor = Antenna factor + Cable attenuation factor (cable loss) - Amplifier gain

Mode 9 Horizontal



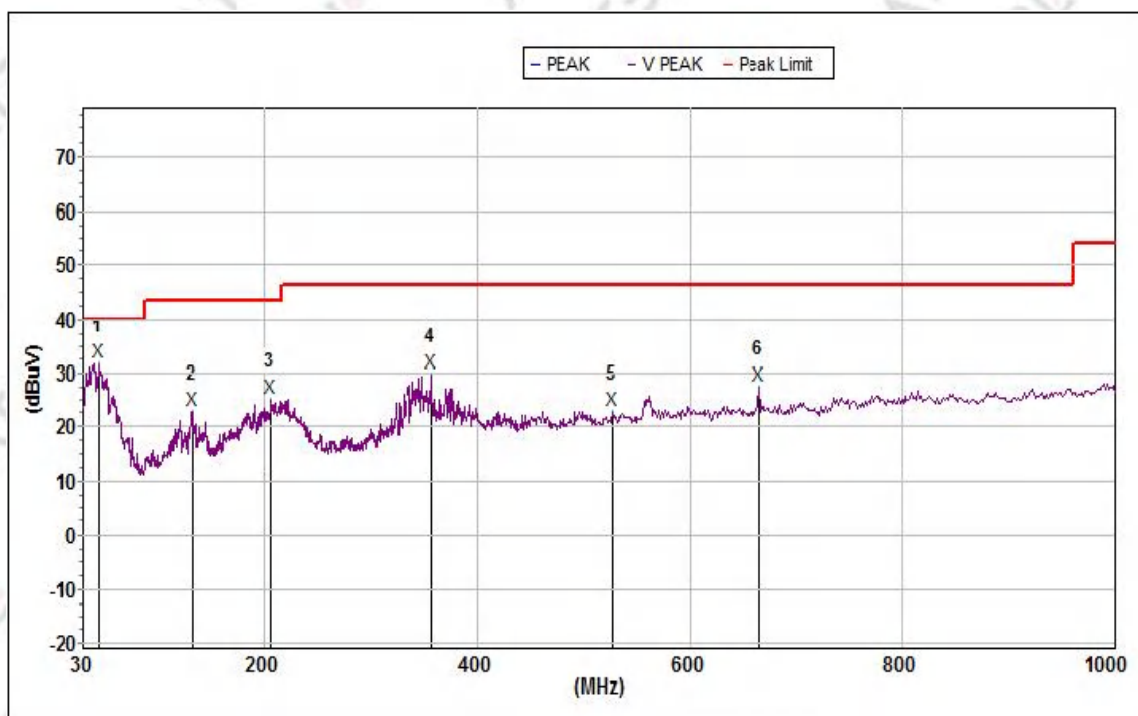
| Mk.   | Freq. (MHz) | Level (dBuV) | Limit (dBuV) | Margin (dB) | Deg. (deg.) | Hi. (cm) | Ant.F/G. (dB) | Amp.G. (dB) | Cbl.L. (dB) | Pol. |
|-------|-------------|--------------|--------------|-------------|-------------|----------|---------------|-------------|-------------|------|
| Peak: |             |              |              |             |             |          |               |             |             |      |
| 1     | 50.853      | 18.8         | 40.0         | 21.2        | 200         | 100      | 18.1          | 31.9        | 0.8         | H    |
| 2     | 132.685     | 30.5         | 43.5         | 13.0        | 200         | 100      | 16.7          | 31.9        | 1.4         | H    |
| 3     | 215.646     | 34.2         | 43.5         | 9.3         | 360         | 100      | 17.2          | 31.9        | 2.5         | H    |
| 4     | 299.316     | 29.2         | 46.0         | 16.8        | 313         | 100      | 18.5          | 32.1        | 2.7         | H    |
| 5     | 533.832     | 22.1         | 46.0         | 23.9        | 342         | 100      | 22.7          | 31.2        | 3.0         | H    |
| 6     | 796.183     | 26.5         | 46.0         | 19.5        | 342         | 100      | 25.4          | 31.3        | 3.6         | H    |

|               |           |                    |          |
|---------------|-----------|--------------------|----------|
| Temperature:  | 23.4°C    | Relative Humidity: | 60%RH    |
| Test Voltage: | AC 24V    | Polarization:      | Vertical |
| Test Mode:    | TX Mode 9 |                    |          |

Remark:

1. Margin = Result (Result = Reading + Factor) - Limit
2. Factor = Antenna factor + Cable attenuation factor (cable loss) - Amplifier gain

Mode 9 Vertical



| Mk.   | Freq. (MHz) | Level (dBuV) | Limit (dBuV) | Margin (dB) | Deg. (deg.) | Hi. (cm) | Ant.F/G. (dB) | Amp.G. (dB) | Cbl.L. (dB) | Pol. |
|-------|-------------|--------------|--------------|-------------|-------------|----------|---------------|-------------|-------------|------|
| Peak: |             |              |              |             |             |          |               |             |             |      |
| 1     | 44.979      | 31.9         | 40.0         | 8.1         | 276         | 100      | 18.5          | 32.0        | 0.8         | V    |
| 2     | 132.685     | 23.1         | 43.5         | 20.4        | 163         | 100      | 17.2          | 31.9        | 1.4         | V    |
| 3     | 205.315     | 25.5         | 43.5         | 18.0        | 9           | 100      | 18.4          | 31.9        | 2.4         | V    |
| 4     | 357.302     | 30.1         | 46.0         | 15.9        | 349         | 100      | 20.5          | 32.2        | 2.7         | V    |
| 5     | 527.320     | 23.1         | 46.0         | 22.9        | 64          | 100      | 23.2          | 31.2        | 3.0         | V    |
| 6     | 665.803     | 27.8         | 46.0         | 18.2        | 0           | 100      | 24.1          | 31.2        | 3.4         | V    |

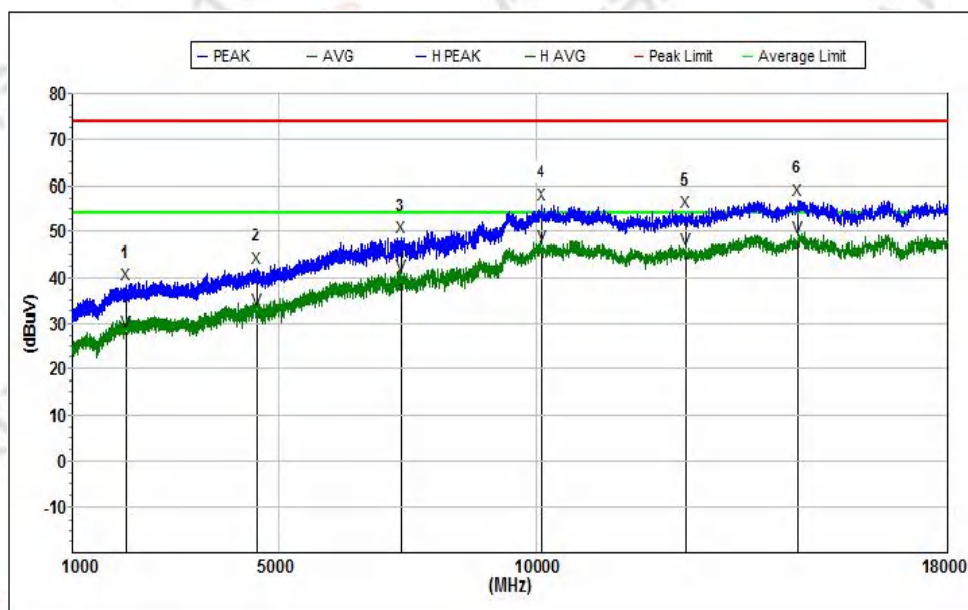
## 3.5.4.3. For 1GHz ~ 18 GHz

|               |           |                    |            |
|---------------|-----------|--------------------|------------|
| Temperature:  | 23.4°C    | Relative Humidity: | 60%RH      |
| Test Voltage: | AC 24V    | Polarization:      | Horizontal |
| Test Mode:    | TX Mode 1 |                    |            |

Remark:

1. Margin = Result (Result = Reading + Factor) – Limit
2. Factor = Antenna factor + Cable attenuation factor (cable loss) – Amplifier gain

Mode 1 Horizontal



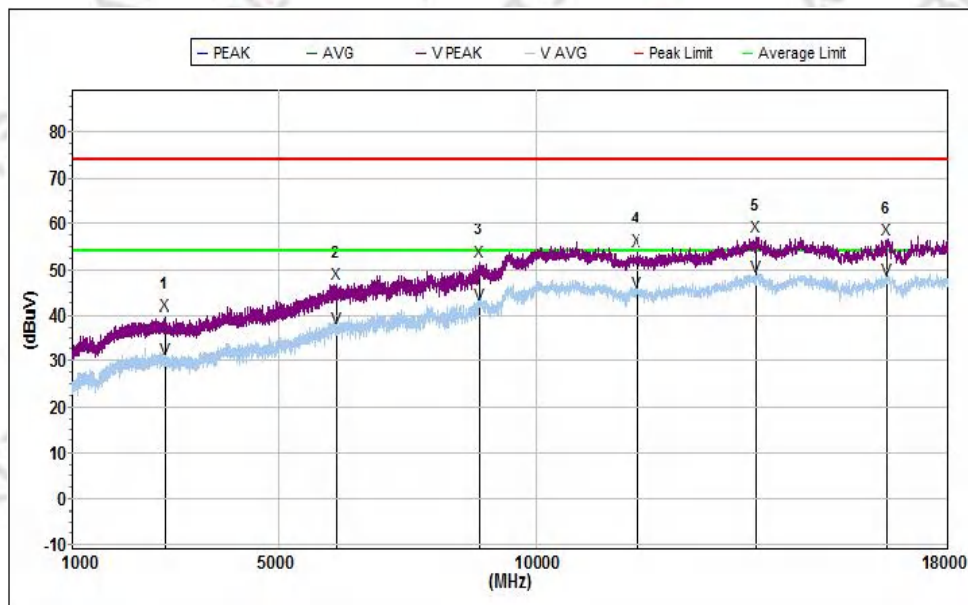
| Mk.   | Freq.<br>(MHz) | Level<br>(dBuV) | Limit<br>(dBuV) | Margin<br>(dB) | Deg.<br>(deg.) | Hi.<br>(cm) | Ant.F/G.<br>(dB) | Amp.G.<br>(dB) | Cbl.L.<br>(dB) | Pol. |
|-------|----------------|-----------------|-----------------|----------------|----------------|-------------|------------------|----------------|----------------|------|
| Peak: |                |                 |                 |                |                |             |                  |                |                |      |
| 1     | 2027.650       | 38.7            | 74.0            | 35.3           | 0              | 100         | 25.4             | 56.3           | 2.7            | H    |
| 2     | 4586.150       | 42.1            | 74.0            | 31.9           | 0              | 100         | 31.5             | 57.3           | 3.5            | H    |
| 3     | 7375.850       | 48.7            | 74.0            | 25.3           | 0              | 100         | 36.3             | 57.0           | 4.6            | H    |
| 4     | 10121.350      | 55.9            | 74.0            | 18.1           | 0              | 100         | 38.3             | 56.5           | 5.4            | H    |
| 5     | 12911.900      | 54.5            | 74.0            | 19.5           | 0              | 100         | 39.8             | 56.6           | 6.2            | H    |
| 6     | 15076.000      | 56.9            | 74.0            | 17.1           | 0              | 100         | 39.0             | 55.9           | 6.3            | H    |
| Avg   |                |                 |                 |                |                |             |                  |                |                |      |
| 1     | 2027.650       | 28.2            | 54.0            | 25.8           | 0              | 100         | 25.4             | 56.3           | 2.7            | H    |
| 2     | 4586.150       | 33.1            | 54.0            | 20.9           | 0              | 100         | 31.5             | 57.3           | 3.5            | H    |
| 3     | 7375.850       | 40.5            | 54.0            | 13.5           | 0              | 100         | 36.3             | 57.0           | 4.6            | H    |
| 4     | 10121.350      | 46.8            | 54.0            | 7.2            | 0              | 100         | 38.3             | 56.5           | 5.4            | H    |
| 5     | 12911.900      | 46.2            | 54.0            | 7.8            | 0              | 100         | 39.8             | 56.6           | 6.2            | H    |
| 6     | 15076.000      | 48.8            | 54.0            | 5.2            | 0              | 100         | 39.0             | 55.9           | 6.3            | H    |

|               |           |                    |          |
|---------------|-----------|--------------------|----------|
| Temperature:  | 23.4°C    | Relative Humidity: | 60%RH    |
| Test Voltage: | AC 24V    | Polarization:      | Vertical |
| Test Mode:    | TX Mode 1 |                    |          |

Remark:

1. Margin = Result (Result = Reading + Factor) - Limit
2. Factor = Antenna factor + Cable attenuation factor (cable loss) - Amplifier gain

Mode 1 Vertical



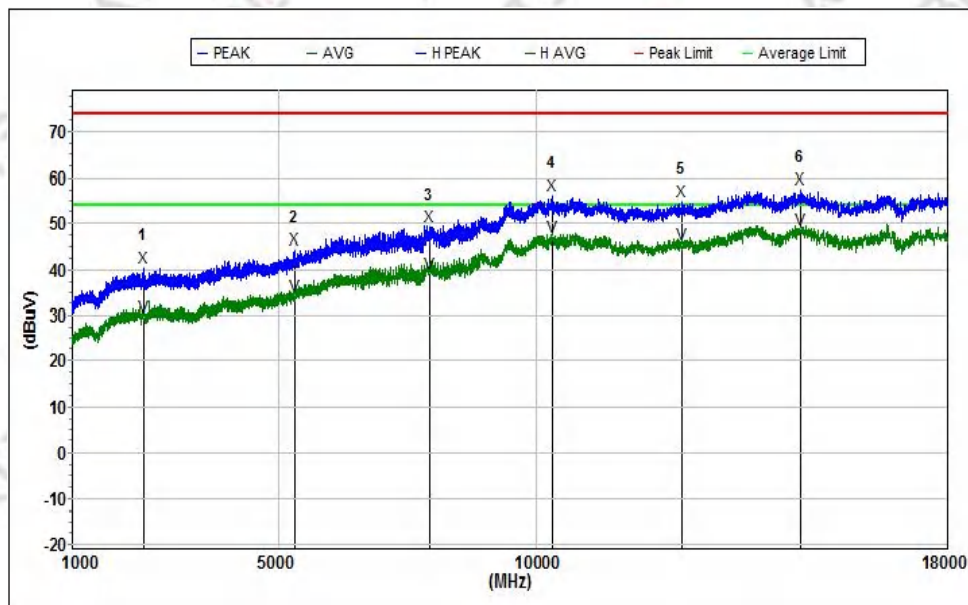
| Mk.   | Freq.<br>(MHz) | Level<br>(dBuV) | Limit<br>(dBuV) | Margin<br>(dB) | Deg.<br>(deg.) | Hi.<br>(cm) | Ant.F/G.<br>(dB) | Amp.G.<br>(dB) | Cbl.L.<br>(dB) | Pol. |
|-------|----------------|-----------------|-----------------|----------------|----------------|-------------|------------------|----------------|----------------|------|
| Peak: |                |                 |                 |                |                |             |                  |                |                |      |
| 1     | 2802.850       | 40.0            | 74.0            | 34.0           | 0              | 100         | 28.2             | 57.5           | 2.9            | V    |
| 2     | 6118.700       | 46.8            | 74.0            | 27.2           | 36             | 100         | 34.0             | 57.0           | 4.1            | V    |
| 3     | 8907.550       | 51.9            | 74.0            | 22.1           | 182            | 100         | 37.5             | 57.3           | 5.3            | V    |
| 4     | 11959.050      | 54.0            | 74.0            | 20.0           | 36             | 100         | 38.7             | 56.3           | 5.9            | V    |
| 5     | 14283.800      | 57.1            | 74.0            | 16.9           | 109            | 100         | 39.5             | 55.9           | 6.2            | V    |
| 6     | 16819.350      | 56.3            | 74.0            | 17.7           | 0              | 100         | 38.0             | 56.2           | 6.8            | V    |
| Avg   |                |                 |                 |                |                |             |                  |                |                |      |
| 1     | 2802.850       | 30.3            | 54.0            | 23.7           | 0              | 100         | 28.2             | 57.5           | 2.9            | V    |
| 2     | 6118.700       | 37.3            | 54.0            | 16.7           | 36             | 100         | 34.0             | 57.0           | 4.1            | V    |
| 3     | 8907.550       | 42.2            | 54.0            | 11.8           | 182            | 100         | 37.5             | 57.3           | 5.3            | V    |
| 4     | 11959.050      | 44.9            | 54.0            | 9.1            | 36             | 100         | 38.7             | 56.3           | 5.9            | V    |
| 5     | 14283.800      | 48.4            | 54.0            | 5.6            | 109            | 100         | 39.5             | 55.9           | 6.2            | V    |
| 6     | 16819.350      | 48.0            | 54.0            | 6.0            | 0              | 100         | 38.0             | 56.2           | 6.8            | V    |

|               |           |                    |            |
|---------------|-----------|--------------------|------------|
| Temperature:  | 23.4°C    | Relative Humidity: | 60%RH      |
| Test Voltage: | AC 24V    | Polarization:      | Horizontal |
| Test Mode:    | TX Mode 3 |                    |            |

Remark:

1. Margin = Result (Result = Reading + Factor) - Limit
2. Factor = Antenna factor + Cable attenuation factor (cable loss) - Amplifier gain

### Mode 3 Horizontal



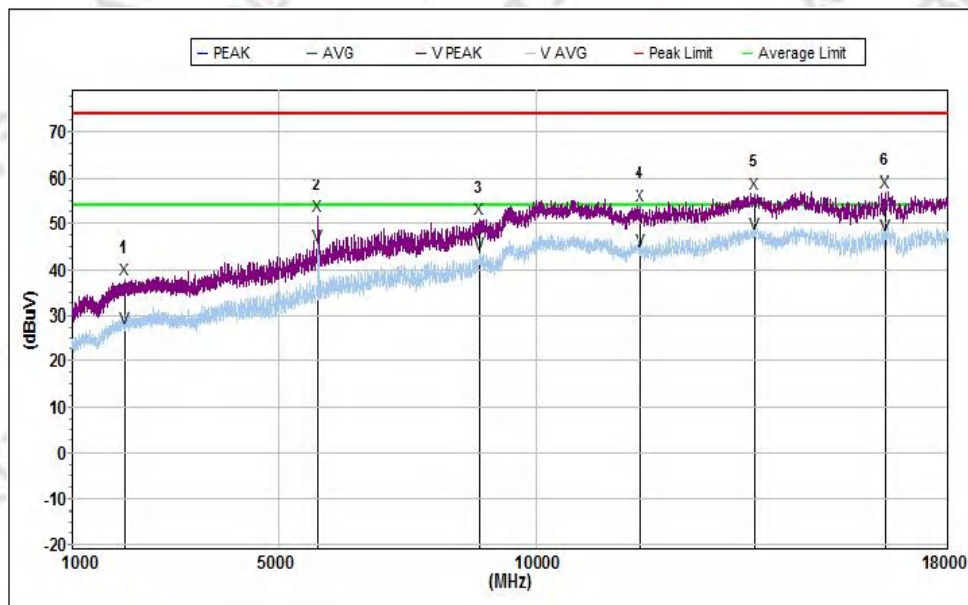
| Mk.   | Freq. (MHz) | Level (dBuV) | Limit (dBuV) | Margin (dB) | Deg. (deg.) | Hi. (cm) | Ant.F/G. (dB) | Amp.G. (dB) | Cbl.L. (dB) | Pol. |
|-------|-------------|--------------|--------------|-------------|-------------|----------|---------------|-------------|-------------|------|
| Peak: |             |              |              |             |             |          |               |             |             |      |
| 1     | 2380.400    | 40.6         | 74.0         | 33.4        | 108         | 100      | 27.0          | 56.9        | 2.8         | H    |
| 2     | 5316.300    | 44.5         | 74.0         | 29.5        | 108         | 100      | 32.5          | 57.4        | 3.9         | H    |
| 3     | 7924.100    | 49.4         | 74.0         | 24.6        | 108         | 100      | 36.9          | 57.1        | 4.9         | H    |
| 4     | 10322.800   | 56.4         | 74.0         | 17.6        | 108         | 100      | 38.4          | 56.6        | 5.5         | H    |
| 5     | 12832.850   | 54.9         | 74.0         | 19.1        | 108         | 100      | 39.7          | 56.5        | 6.1         | H    |
| 6     | 15124.450   | 57.6         | 74.0         | 16.4        | 108         | 100      | 38.9          | 55.9        | 6.3         | H    |
| Avg   |             |              |              |             |             |          |               |             |             |      |
| 1     | 2380.400    | 29.8         | 54.0         | 24.2        | 108         | 100      | 27.0          | 56.9        | 2.8         | H    |
| 2     | 5316.300    | 34.3         | 54.0         | 19.7        | 108         | 100      | 32.5          | 57.4        | 3.9         | H    |
| 3     | 7924.100    | 39.2         | 54.0         | 14.8        | 108         | 100      | 36.9          | 57.1        | 4.9         | H    |
| 4     | 10322.800   | 47.0         | 54.0         | 7.0         | 108         | 100      | 38.4          | 56.6        | 5.5         | H    |
| 5     | 12832.850   | 45.5         | 54.0         | 8.5         | 108         | 100      | 39.7          | 56.5        | 6.1         | H    |
| 6     | 15124.450   | 48.9         | 54.0         | 5.1         | 108         | 100      | 38.9          | 55.9        | 6.3         | H    |

|               |           |                    |          |
|---------------|-----------|--------------------|----------|
| Temperature:  | 23.4°C    | Relative Humidity: | 60%RH    |
| Test Voltage: | AC 24V    | Polarization:      | Vertical |
| Test Mode:    | TX Mode 2 |                    |          |

Remark:

1. Margin = Result (Result = Reading + Factor) - Limit
2. Factor = Antenna factor + Cable attenuation factor (cable loss) - Amplifier gain

Mode 2 Vertical



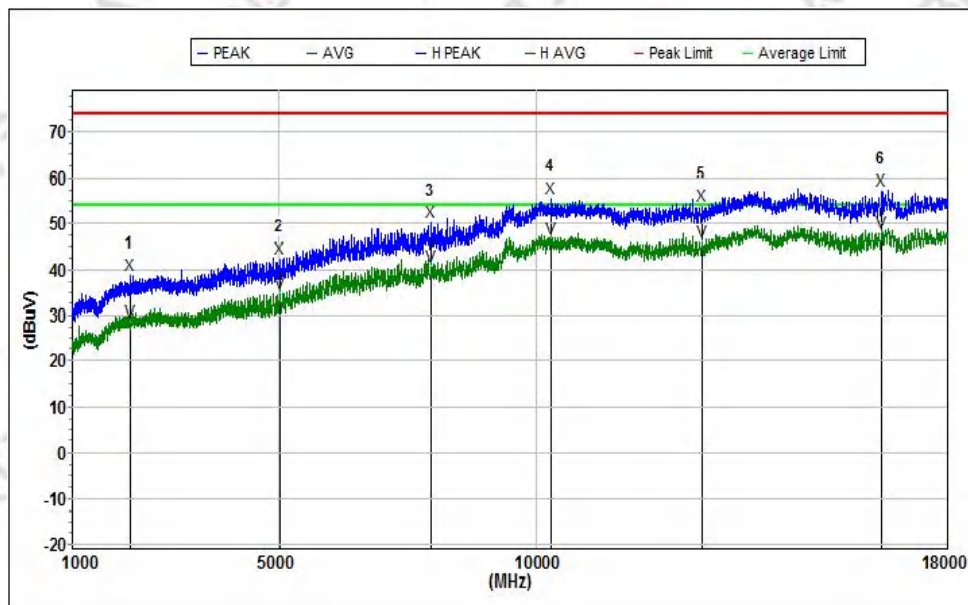
| Mk.   | Freq.<br>(MHz) | Level<br>(dBuV) | Limit<br>(dBuV) | Margin<br>(dB) | Deg.<br>(deg.) | Hi.<br>(cm) | Ant.F/G.<br>(dB) | Amp.G.<br>(dB) | Cbl.L.<br>(dB) | Pol. |
|-------|----------------|-----------------|-----------------|----------------|----------------|-------------|------------------|----------------|----------------|------|
| Peak: |                |                 |                 |                |                |             |                  |                |                |      |
| 1     | 2003.850       | 37.8            | 74.0            | 36.2           | 29             | 100         | 25.2             | 56.3           | 2.7            | V    |
| 2     | 5764.250       | 51.8            | 74.0            | 22.2           | 29             | 100         | 33.0             | 57.1           | 4.1            | V    |
| 3     | 8908.400       | 51.0            | 74.0            | 23.0           | 29             | 100         | 37.5             | 57.3           | 5.3            | V    |
| 4     | 12029.600      | 53.9            | 74.0            | 20.1           | 29             | 100         | 38.7             | 56.3           | 5.9            | V    |
| 5     | 14251.500      | 56.5            | 74.0            | 17.5           | 29             | 100         | 39.6             | 55.9           | 6.2            | V    |
| 6     | 16785.350      | 57.0            | 74.0            | 17.0           | 29             | 100         | 37.9             | 56.2           | 6.8            | V    |
| Avg   |                |                 |                 |                |                |             |                  |                |                |      |
| 1     | 2003.850       | 27.2            | 54.0            | 26.8           | 29             | 100         | 25.2             | 56.3           | 2.7            | V    |
| 2     | 5764.250       | 45.2            | 54.0            | 8.8            | 29             | 100         | 33.0             | 57.1           | 4.1            | V    |
| 3     | 8908.400       | 43.4            | 54.0            | 10.6           | 29             | 100         | 37.5             | 57.3           | 5.3            | V    |
| 4     | 12029.600      | 44.1            | 54.0            | 9.9            | 29             | 100         | 38.7             | 56.3           | 5.9            | V    |
| 5     | 14251.500      | 47.8            | 54.0            | 6.2            | 29             | 100         | 39.6             | 55.9           | 6.2            | V    |
| 6     | 16785.350      | 47.4            | 54.0            | 6.6            | 29             | 100         | 37.9             | 56.2           | 6.8            | V    |

|               |           |                    |            |
|---------------|-----------|--------------------|------------|
| Temperature:  | 23.4°C    | Relative Humidity: | 60%RH      |
| Test Voltage: | AC 24V    | Polarization:      | Horizontal |
| Test Mode:    | TX Mode 4 |                    |            |

Remark:

1. Margin = Result (Result = Reading + Factor) - Limit
2. Factor = Antenna factor + Cable attenuation factor (cable loss) - Amplifier gain

Mode 4 Horizontal



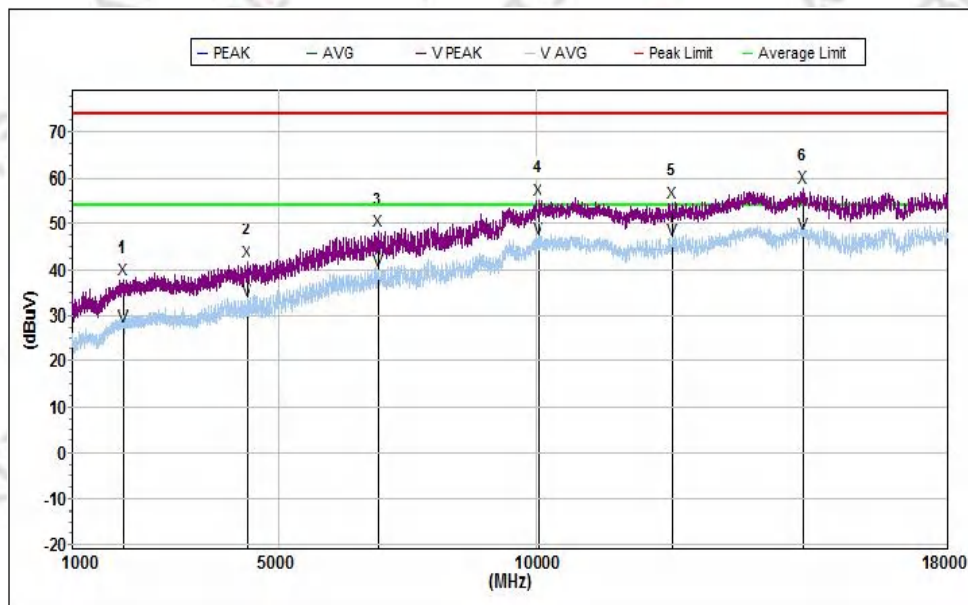
| Mk.   | Freq.<br>(MHz) | Level<br>(dBuV) | Limit<br>(dBuV) | Margin<br>(dB) | Deg.<br>(deg.) | Hi.<br>(cm) | Ant.F/G.<br>(dB) | Amp.G.<br>(dB) | Cbl.L.<br>(dB) | Pol. |
|-------|----------------|-----------------|-----------------|----------------|----------------|-------------|------------------|----------------|----------------|------|
| Peak: |                |                 |                 |                |                |             |                  |                |                |      |
| 1     | 2099.900       | 38.8            | 74.0            | 35.2           | 177            | 100         | 25.8             | 56.5           | 2.7            | H    |
| 2     | 5027.300       | 42.6            | 74.0            | 31.4           | 177            | 100         | 32.8             | 57.5           | 3.6            | H    |
| 3     | 7948.750       | 50.3            | 74.0            | 23.7           | 177            | 100         | 36.9             | 57.1           | 4.9            | H    |
| 4     | 10301.550      | 55.6            | 74.0            | 18.4           | 177            | 100         | 38.4             | 56.6           | 5.5            | H    |
| 5     | 13221.300      | 54.0            | 74.0            | 20.0           | 177            | 100         | 39.9             | 56.4           | 6.2            | H    |
| 6     | 16719.050      | 57.4            | 74.0            | 16.6           | 177            | 100         | 38.0             | 56.2           | 6.8            | H    |
| Avg   |                |                 |                 |                |                |             |                  |                |                |      |
| 1     | 2099.900       | 28.8            | 54.0            | 25.2           | 177            | 100         | 25.8             | 56.5           | 2.7            | H    |
| 2     | 5027.300       | 34.8            | 54.0            | 19.2           | 177            | 100         | 32.8             | 57.5           | 3.6            | H    |
| 3     | 7948.750       | 40.9            | 54.0            | 13.1           | 177            | 100         | 36.9             | 57.1           | 4.9            | H    |
| 4     | 10301.550      | 46.8            | 54.0            | 7.2            | 177            | 100         | 38.4             | 56.6           | 5.5            | H    |
| 5     | 13221.300      | 46.1            | 54.0            | 7.9            | 177            | 100         | 39.9             | 56.4           | 6.2            | H    |
| 6     | 16719.050      | 48.1            | 54.0            | 5.9            | 177            | 100         | 38.0             | 56.2           | 6.8            | H    |

|               |           |                    |          |
|---------------|-----------|--------------------|----------|
| Temperature:  | 23.4°C    | Relative Humidity: | 60%RH    |
| Test Voltage: | AC 24V    | Polarization:      | Vertical |
| Test Mode:    | TX Mode 4 |                    |          |

Remark:

1. Margin = Result (Result = Reading + Factor) - Limit
2. Factor = Antenna factor + Cable attenuation factor (cable loss) - Amplifier gain

Mode 4 Vertical



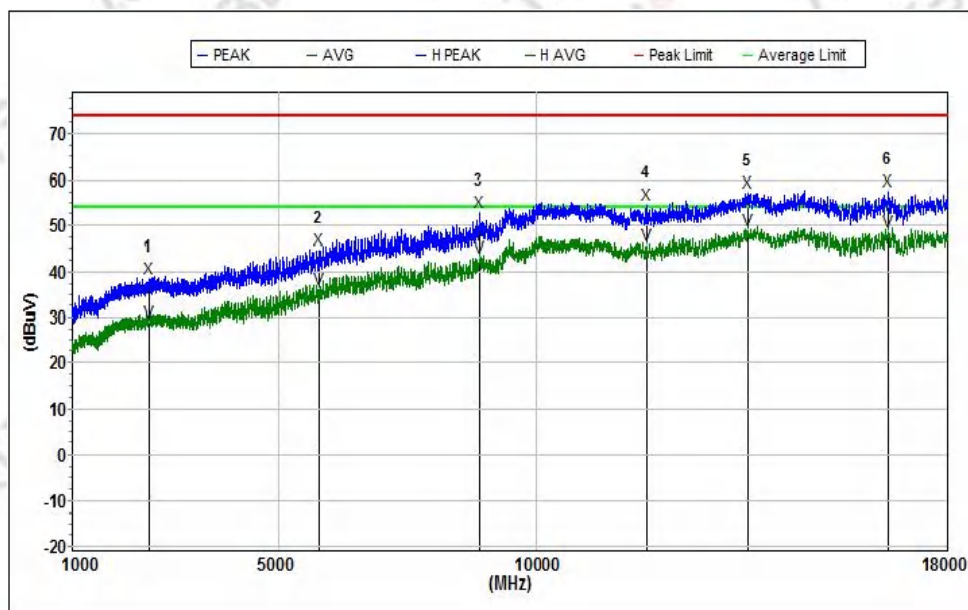
| Mk.   | Freq.<br>(MHz) | Level<br>(dBuV) | Limit<br>(dBuV) | Margin<br>(dB) | Deg.<br>(deg.) | Hi.<br>(cm) | Ant.F/G.<br>(dB) | Amp.G.<br>(dB) | Cbl.L.<br>(dB) | Pol. |
|-------|----------------|-----------------|-----------------|----------------|----------------|-------------|------------------|----------------|----------------|------|
| Peak: |                |                 |                 |                |                |             |                  |                |                |      |
| 1     | 1976.650       | 38.0            | 74.0            | 36.0           | 321            | 100         | 25.2             | 56.4           | 2.7            | V    |
| 2     | 4388.950       | 41.8            | 74.0            | 32.2           | 321            | 100         | 30.8             | 57.3           | 3.5            | V    |
| 3     | 6933.000       | 48.5            | 74.0            | 25.5           | 321            | 100         | 35.6             | 56.9           | 4.3            | V    |
| 4     | 10053.350      | 55.2            | 74.0            | 18.8           | 321            | 100         | 38.1             | 56.5           | 5.4            | V    |
| 5     | 12654.350      | 54.7            | 74.0            | 19.3           | 321            | 100         | 39.4             | 56.5           | 6.1            | V    |
| 6     | 15190.750      | 58.1            | 74.0            | 15.9           | 321            | 100         | 38.6             | 55.9           | 6.3            | V    |
| Avg   |                |                 |                 |                |                |             |                  |                |                |      |
| 1     | 1976.650       | 27.8            | 54.0            | 26.2           | 321            | 100         | 25.2             | 56.4           | 2.7            | V    |
| 2     | 4388.950       | 33.3            | 54.0            | 20.7           | 321            | 100         | 30.8             | 57.3           | 3.5            | V    |
| 3     | 6933.000       | 39.9            | 54.0            | 14.1           | 321            | 100         | 35.6             | 56.9           | 4.3            | V    |
| 4     | 10053.350      | 46.9            | 54.0            | 7.1            | 321            | 100         | 38.1             | 56.5           | 5.4            | V    |
| 5     | 12654.350      | 46.3            | 54.0            | 7.7            | 321            | 100         | 39.4             | 56.5           | 6.1            | V    |
| 6     | 15190.750      | 47.8            | 54.0            | 6.2            | 321            | 100         | 38.6             | 55.9           | 6.3            | V    |

|               |           |                    |            |
|---------------|-----------|--------------------|------------|
| Temperature:  | 23.4°C    | Relative Humidity: | 60%RH      |
| Test Voltage: | AC 24V    | Polarization:      | Horizontal |
| Test Mode:    | TX Mode 6 |                    |            |

Remark:

1. Margin = Result (Result = Reading + Factor) - Limit
2. Factor = Antenna factor + Cable attenuation factor (cable loss) - Amplifier gain

Mode 6 Horizontal



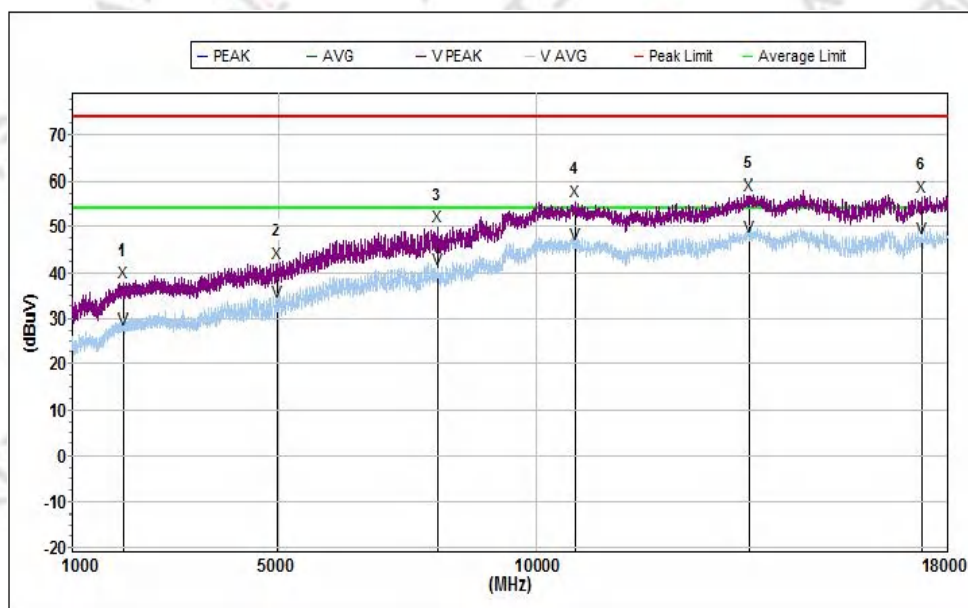
| Mk.   | Freq.<br>(MHz) | Level<br>(dBuV) | Limit<br>(dBuV) | Margin<br>(dB) | Deg.<br>(deg.) | Hi.<br>(cm) | Ant.F/G.<br>(dB) | Amp.G.<br>(dB) | Cbl.L.<br>(dB) | Pol. |
|-------|----------------|-----------------|-----------------|----------------|----------------|-------------|------------------|----------------|----------------|------|
| Peak: |                |                 |                 |                |                |             |                  |                |                |      |
| 1     | 2472.200       | 38.4            | 74.0            | 35.6           | 256            | 100         | 27.5             | 57.1           | 2.8            | H    |
| 2     | 5791.450       | 44.9            | 74.0            | 29.1           | 256            | 100         | 33.3             | 57.1           | 4.1            | H    |
| 3     | 8914.350       | 53.0            | 74.0            | 21.0           | 256            | 100         | 37.8             | 57.3           | 5.3            | H    |
| 4     | 12152.000      | 54.6            | 74.0            | 19.4           | 256            | 100         | 39.0             | 56.3           | 5.9            | H    |
| 5     | 14122.300      | 57.2            | 74.0            | 16.8           | 256            | 100         | 39.8             | 55.9           | 6.2            | H    |
| 6     | 16839.750      | 57.6            | 74.0            | 16.4           | 256            | 100         | 38.1             | 56.2           | 6.8            | H    |
| Avg   |                |                 |                 |                |                |             |                  |                |                |      |
| 1     | 2472.200       | 29.0            | 54.0            | 25.0           | 256            | 100         | 27.5             | 57.1           | 2.8            | H    |
| 2     | 5791.450       | 36.3            | 54.0            | 17.7           | 256            | 100         | 33.3             | 57.1           | 4.1            | H    |
| 3     | 8914.350       | 43.3            | 54.0            | 10.7           | 256            | 100         | 37.8             | 57.3           | 5.3            | H    |
| 4     | 12152.000      | 45.7            | 54.0            | 8.3            | 256            | 100         | 39.0             | 56.3           | 5.9            | H    |
| 5     | 14122.300      | 49.1            | 54.0            | 4.9            | 256            | 100         | 39.8             | 55.9           | 6.2            | H    |
| 6     | 16839.750      | 48.6            | 54.0            | 5.4            | 256            | 100         | 38.1             | 56.2           | 6.8            | H    |

|               |           |                    |          |
|---------------|-----------|--------------------|----------|
| Temperature:  | 23.4°C    | Relative Humidity: | 60%RH    |
| Test Voltage: | AC 24V    | Polarization:      | Vertical |
| Test Mode:    | TX Mode 6 |                    |          |

Remark:

1. Margin = Result (Result = Reading + Factor) - Limit
2. Factor = Antenna factor + Cable attenuation factor (cable loss) - Amplifier gain

Mode 6 Vertical



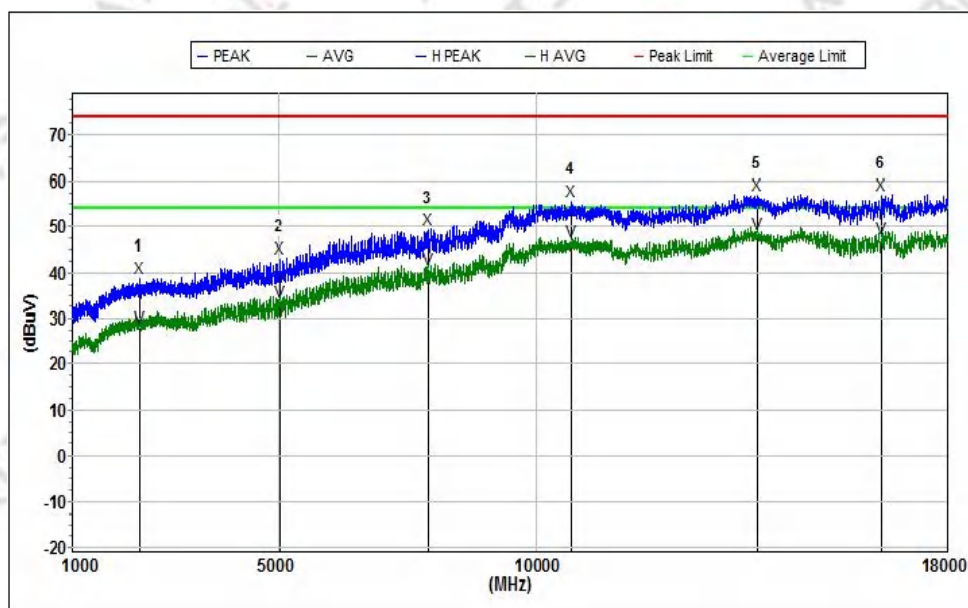
| Mk.   | Freq.<br>(MHz) | Level<br>(dBuV) | Limit<br>(dBuV) | Margin<br>(dB) | Deg.<br>(deg.) | Hi.<br>(cm) | Ant.F/G.<br>(dB) | Amp.G.<br>(dB) | Cbl.L.<br>(dB) | Pol. |
|-------|----------------|-----------------|-----------------|----------------|----------------|-------------|------------------|----------------|----------------|------|
| Peak: |                |                 |                 |                |                |             |                  |                |                |      |
| 1     | 1976.650       | 38.0            | 74.0            | 36.0           | 321            | 100         | 25.2             | 56.4           | 2.7            | V    |
| 2     | 4969.500       | 42.0            | 74.0            | 32.0           | 321            | 100         | 32.6             | 57.5           | 3.6            | V    |
| 3     | 8082.200       | 50.0            | 74.0            | 24.0           | 321            | 100         | 36.8             | 57.1           | 4.9            | V    |
| 4     | 10755.874      | 55.7            | 74.0            | 18.3           | 321            | 100         | 38.6             | 56.7           | 5.6            | V    |
| 5     | 14156.613      | 56.9            | 74.0            | 17.1           | 321            | 100         | 39.7             | 55.9           | 6.2            | V    |
| 6     | 17485.750      | 56.6            | 74.0            | 17.4           | 321            | 100         | 39.9             | 56.2           | 6.9            | V    |
| Avg   |                |                 |                 |                |                |             |                  |                |                |      |
| 1     | 1976.650       | 27.8            | 54.0            | 26.2           | 321            | 100         | 25.2             | 56.4           | 2.7            | V    |
| 2     | 4969.500       | 33.5            | 54.0            | 20.5           | 321            | 100         | 32.6             | 57.5           | 3.6            | V    |
| 3     | 8082.200       | 40.9            | 54.0            | 13.1           | 321            | 100         | 36.8             | 57.1           | 4.9            | V    |
| 4     | 10755.874      | 46.2            | 54.0            | 7.8            | 321            | 100         | 38.6             | 56.7           | 5.6            | V    |
| 5     | 14156.613      | 47.7            | 54.0            | 6.3            | 321            | 100         | 39.7             | 55.9           | 6.2            | V    |
| 6     | 17485.750      | 47.4            | 54.0            | 6.6            | 321            | 100         | 39.9             | 56.2           | 6.9            | V    |

|               |           |                    |            |
|---------------|-----------|--------------------|------------|
| Temperature:  | 23.4°C    | Relative Humidity: | 60%RH      |
| Test Voltage: | AC 24V    | Polarization:      | Horizontal |
| Test Mode:    | TX Mode 7 |                    |            |

Remark:

1. Margin = Result (Result = Reading + Factor) - Limit
2. Factor = Antenna factor + Cable attenuation factor (cable loss) - Amplifier gain

Mode 7 Horizontal



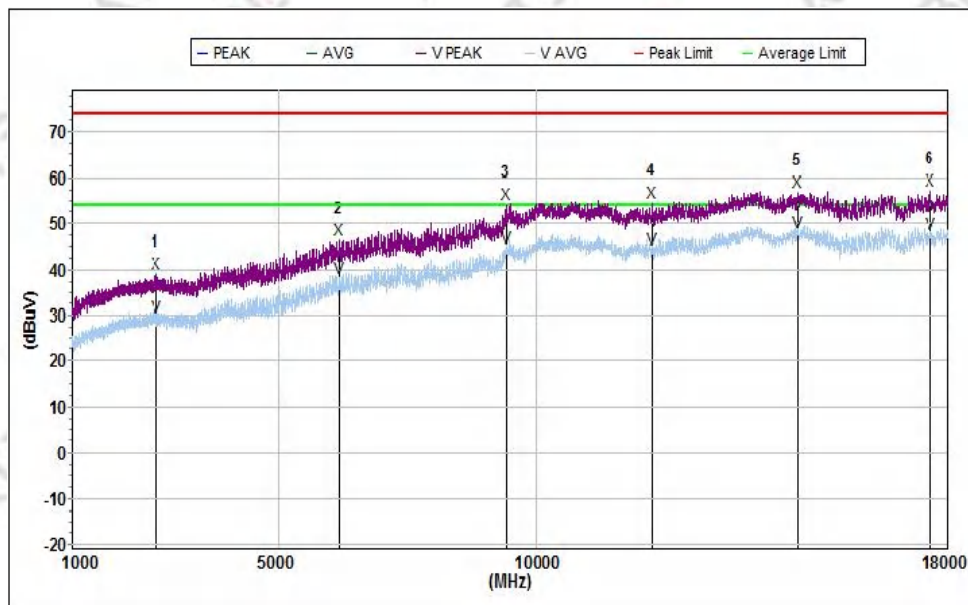
| Mk.   | Freq.<br>(MHz) | Level<br>(dBuV) | Limit<br>(dBuV) | Margin<br>(dB) | Deg.<br>(deg.) | Hi.<br>(cm) | Ant.F/G.<br>(dB) | Amp.G.<br>(dB) | Cbl.L.<br>(dB) | Pol. |
|-------|----------------|-----------------|-----------------|----------------|----------------|-------------|------------------|----------------|----------------|------|
| Peak: |                |                 |                 |                |                |             |                  |                |                |      |
| 1     | 2283.500       | 38.8            | 74.0            | 35.2           | 0              | 100         | 26.6             | 56.8           | 2.8            | H    |
| 2     | 5031.550       | 43.2            | 74.0            | 30.8           | 0              | 100         | 32.8             | 57.5           | 3.6            | H    |
| 3     | 7891.800       | 49.5            | 74.0            | 24.5           | 0              | 100         | 36.9             | 57.1           | 4.9            | H    |
| 4     | 10688.300      | 55.8            | 74.0            | 18.2           | 0              | 100         | 38.7             | 56.7           | 5.6            | H    |
| 5     | 14300.800      | 57.0            | 74.0            | 17.0           | 0              | 100         | 39.7             | 55.9           | 6.2            | H    |
| 6     | 16709.700      | 57.1            | 74.0            | 16.9           | 0              | 100         | 38.0             | 56.2           | 6.8            | H    |
| Avg   |                |                 |                 |                |                |             |                  |                |                |      |
| 1     | 2283.500       | 28.0            | 54.0            | 26.0           | 0              | 100         | 26.6             | 56.8           | 2.8            | H    |
| 2     | 5031.550       | 33.7            | 54.0            | 20.3           | 0              | 100         | 32.8             | 57.5           | 3.6            | H    |
| 3     | 7891.800       | 41.0            | 54.0            | 13.0           | 0              | 100         | 36.9             | 57.1           | 4.9            | H    |
| 4     | 10688.300      | 46.8            | 54.0            | 7.2            | 0              | 100         | 38.7             | 56.7           | 5.6            | H    |
| 5     | 14300.800      | 48.5            | 54.0            | 5.5            | 0              | 100         | 39.7             | 55.9           | 6.2            | H    |
| 6     | 16709.700      | 47.5            | 54.0            | 6.5            | 0              | 100         | 38.0             | 56.2           | 6.8            | H    |

|               |           |                    |          |
|---------------|-----------|--------------------|----------|
| Temperature:  | 23.4°C    | Relative Humidity: | 60%RH    |
| Test Voltage: | AC 24V    | Polarization:      | Vertical |
| Test Mode:    | TX Mode 7 |                    |          |

Remark:

1. Margin = Result (Result = Reading + Factor) - Limit
2. Factor = Antenna factor + Cable attenuation factor (cable loss) - Amplifier gain

Mode 7 Vertical



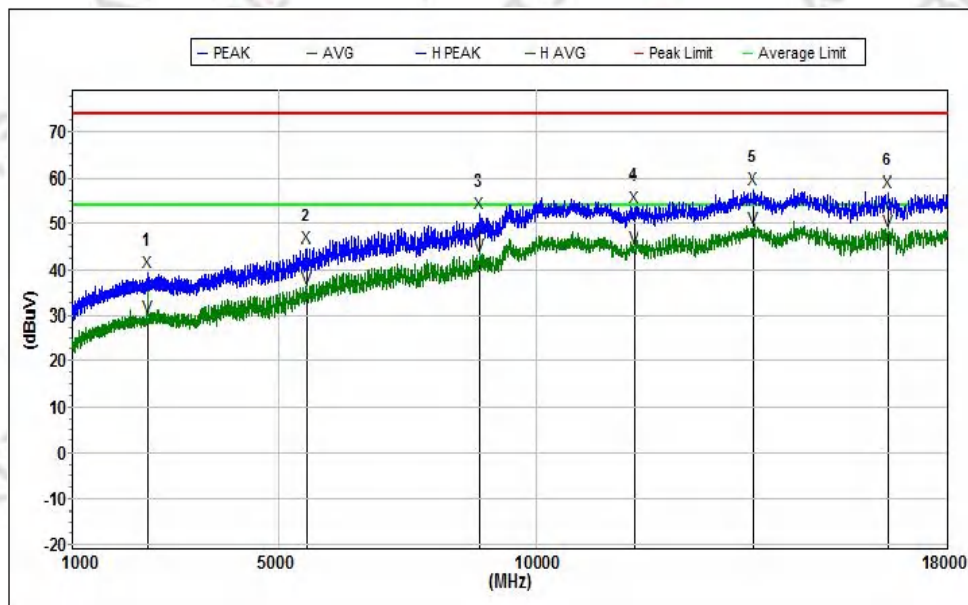
| Mk.   | Freq.<br>(MHz) | Level<br>(dBuV) | Limit<br>(dBuV) | Margin<br>(dB) | Deg.<br>(deg.) | Hi.<br>(cm) | Ant.F/G.<br>(dB) | Amp.G.<br>(dB) | Cbl.L.<br>(dB) | Pol. |
|-------|----------------|-----------------|-----------------|----------------|----------------|-------------|------------------|----------------|----------------|------|
| Peak: |                |                 |                 |                |                |             |                  |                |                |      |
| 1     | 2618.400       | 39.1            | 74.0            | 34.9           | 0              | 100         | 27.7             | 57.3           | 2.8            | V    |
| 2     | 6172.250       | 46.3            | 74.0            | 27.7           | 0              | 100         | 34.1             | 57.0           | 4.1            | V    |
| 3     | 9417.550       | 54.4            | 74.0            | 19.6           | 0              | 100         | 37.8             | 57.0           | 5.4            | V    |
| 4     | 12266.750      | 54.6            | 74.0            | 19.4           | 0              | 100         | 39.0             | 56.4           | 6.0            | V    |
| 5     | 15072.600      | 57.0            | 74.0            | 17.0           | 0              | 100         | 38.8             | 55.9           | 6.3            | V    |
| 6     | 17660.000      | 57.3            | 74.0            | 16.7           | 0              | 100         | 40.6             | 56.1           | 7.0            | V    |
| Avg   |                |                 |                 |                |                |             |                  |                |                |      |
| 1     | 2618.400       | 29.6            | 54.0            | 24.4           | 0              | 100         | 27.7             | 57.3           | 2.8            | V    |
| 2     | 6172.250       | 38.2            | 54.0            | 15.8           | 0              | 100         | 34.1             | 57.0           | 4.1            | V    |
| 3     | 9417.550       | 44.8            | 54.0            | 9.2            | 0              | 100         | 37.8             | 57.0           | 5.4            | V    |
| 4     | 12266.750      | 44.3            | 54.0            | 9.7            | 0              | 100         | 39.0             | 56.4           | 6.0            | V    |
| 5     | 15072.600      | 48.0            | 54.0            | 6.0            | 0              | 100         | 38.8             | 55.9           | 6.3            | V    |
| 6     | 17660.000      | 47.9            | 54.0            | 6.1            | 0              | 100         | 40.6             | 56.1           | 7.0            | V    |

|               |           |                    |            |
|---------------|-----------|--------------------|------------|
| Temperature:  | 23.4°C    | Relative Humidity: | 60%RH      |
| Test Voltage: | AC 24V    | Polarization:      | Horizontal |
| Test Mode:    | TX Mode 9 |                    |            |

Remark:

1. Margin = Result (Result = Reading + Factor) - Limit
2. Factor = Antenna factor + Cable attenuation factor (cable loss) - Amplifier gain

Mode 9 Horizontal



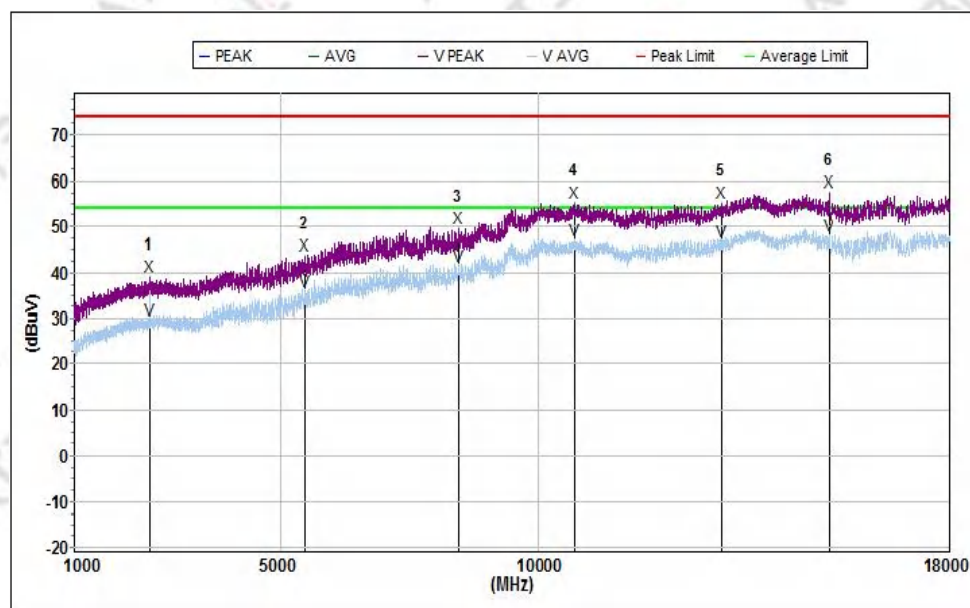
| Mk.   | Freq.<br>(MHz) | Level<br>(dBuV) | Limit<br>(dBuV) | Margin<br>(dB) | Deg.<br>(deg.) | Hi.<br>(cm) | Ant.F/G.<br>(dB) | Amp.G.<br>(dB) | Cbl.L.<br>(dB) | Pol. |
|-------|----------------|-----------------|-----------------|----------------|----------------|-------------|------------------|----------------|----------------|------|
| Peak: |                |                 |                 |                |                |             |                  |                |                |      |
| 1     | 2440.750       | 39.5            | 74.0            | 34.5           | 0              | 100         | 27.3             | 57.0           | 2.8            | H    |
| 2     | 5535.600       | 44.7            | 74.0            | 29.3           | 0              | 100         | 32.5             | 57.3           | 4.0            | H    |
| 3     | 8916.050       | 52.4            | 74.0            | 21.6           | 0              | 100         | 37.8             | 57.3           | 5.3            | H    |
| 4     | 11897.000      | 53.8            | 74.0            | 20.2           | 0              | 100         | 38.8             | 56.4           | 5.9            | H    |
| 5     | 14239.600      | 57.7            | 74.0            | 16.3           | 0              | 100         | 39.7             | 55.9           | 6.2            | H    |
| 6     | 16841.450      | 57.0            | 74.0            | 17.0           | 0              | 100         | 38.1             | 56.2           | 6.8            | H    |
| Avg   |                |                 |                 |                |                |             |                  |                |                |      |
| 1     | 2440.750       | 29.8            | 54.0            | 24.2           | 0              | 100         | 27.3             | 57.0           | 2.8            | H    |
| 2     | 5535.600       | 36.0            | 54.0            | 18.0           | 0              | 100         | 32.5             | 57.3           | 4.0            | H    |
| 3     | 8916.050       | 43.1            | 54.0            | 10.9           | 0              | 100         | 37.8             | 57.3           | 5.3            | H    |
| 4     | 11897.000      | 44.8            | 54.0            | 9.2            | 0              | 100         | 38.8             | 56.4           | 5.9            | H    |
| 5     | 14239.600      | 49.2            | 54.0            | 4.8            | 0              | 100         | 39.7             | 55.9           | 6.2            | H    |
| 6     | 16841.450      | 48.3            | 54.0            | 5.7            | 0              | 100         | 38.1             | 56.2           | 6.8            | H    |

|               |           |                    |          |
|---------------|-----------|--------------------|----------|
| Temperature:  | 23.4°C    | Relative Humidity: | 60%RH    |
| Test Voltage: | AC 24V    | Polarization:      | Vertical |
| Test Mode:    | TX Mode 9 |                    |          |

Remark:

1. Margin = Result (Result = Reading + Factor) - Limit
2. Factor = Antenna factor + Cable attenuation factor (cable loss) - Amplifier gain

Mode 9 Vertical



| Mk.   | Freq.<br>(MHz) | Level<br>(dBuV) | Limit<br>(dBuV) | Margin<br>(dB) | Deg.<br>(deg.) | Hi.<br>(cm) | Ant.F/G.<br>(dB) | Amp.G.<br>(dB) | Cbl.L.<br>(dB) | Pol. |
|-------|----------------|-----------------|-----------------|----------------|----------------|-------------|------------------|----------------|----------------|------|
| Peak: |                |                 |                 |                |                |             |                  |                |                |      |
| 1     | 2440.750       | 39.1            | 74.0            | 34.9           | 360            | 100         | 27.1             | 57.0           | 2.8            | V    |
| 2     | 5475.250       | 43.9            | 74.0            | 30.1           | 360            | 100         | 32.2             | 57.3           | 4.0            | V    |
| 3     | 8468.950       | 49.8            | 74.0            | 24.2           | 360            | 100         | 37.1             | 57.2           | 5.1            | V    |
| 4     | 10702.750      | 55.4            | 74.0            | 18.6           | 360            | 100         | 38.6             | 56.7           | 5.6            | V    |
| 5     | 13547.700      | 55.3            | 74.0            | 18.7           | 360            | 100         | 39.8             | 56.2           | 6.2            | V    |
| 6     | 15642.100      | 57.6            | 74.0            | 16.4           | 360            | 100         | 37.9             | 56.0           | 6.4            | V    |
| Avg   |                |                 |                 |                |                |             |                  |                |                |      |
| 1     | 2440.750       | 29.5            | 54.0            | 24.5           | 360            | 100         | 27.1             | 57.0           | 2.8            | V    |
| 2     | 5475.250       | 35.8            | 54.0            | 18.2           | 360            | 100         | 32.2             | 57.3           | 4.0            | V    |
| 3     | 8468.950       | 41.4            | 54.0            | 12.6           | 360            | 100         | 37.1             | 57.2           | 5.1            | V    |
| 4     | 10702.750      | 47.0            | 54.0            | 7.0            | 360            | 100         | 38.6             | 56.7           | 5.6            | V    |
| 5     | 13547.700      | 46.7            | 54.0            | 7.3            | 360            | 100         | 39.8             | 56.2           | 6.2            | V    |
| 6     | 15642.100      | 48.1            | 54.0            | 5.9            | 360            | 100         | 37.9             | 56.0           | 6.4            | V    |

## 3.5.4.4. For above 18GHz

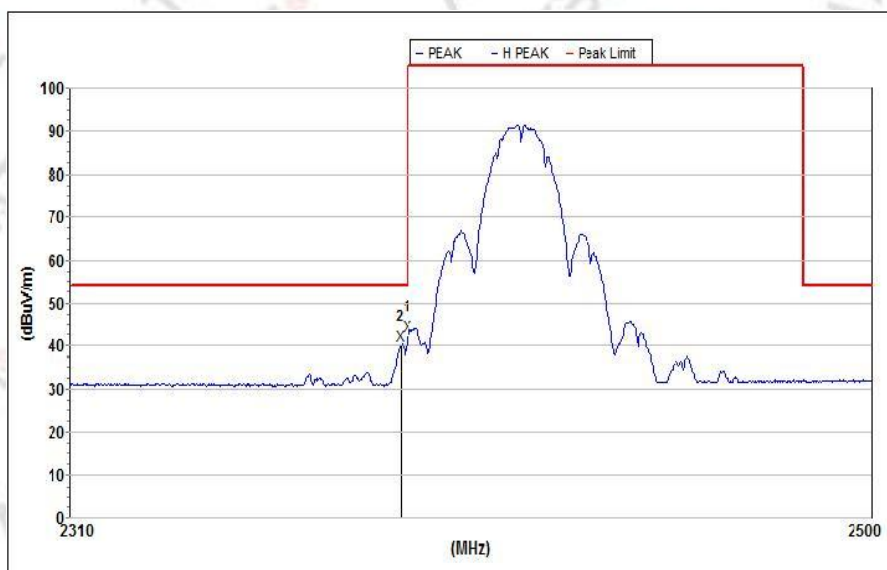
|               |         |                    |       |
|---------------|---------|--------------------|-------|
| Temperature:  | 23.4°C  | Relative Humidity: | 60%RH |
| Test Voltage: | AC 24V  | Polarization:      | --    |
| Test Mode:    | TX Mode |                    |       |

Note:

Other 18G-25G Emission detected are more than 20dB below the limit.

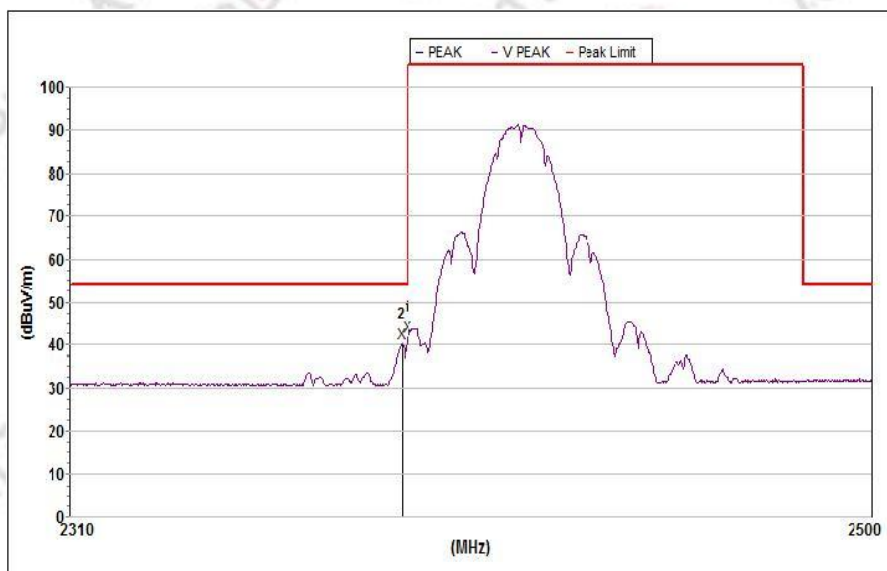
## 3.5.4.5. For above Restricted Band

### 802.11b-Low Mode 1 Horizontal



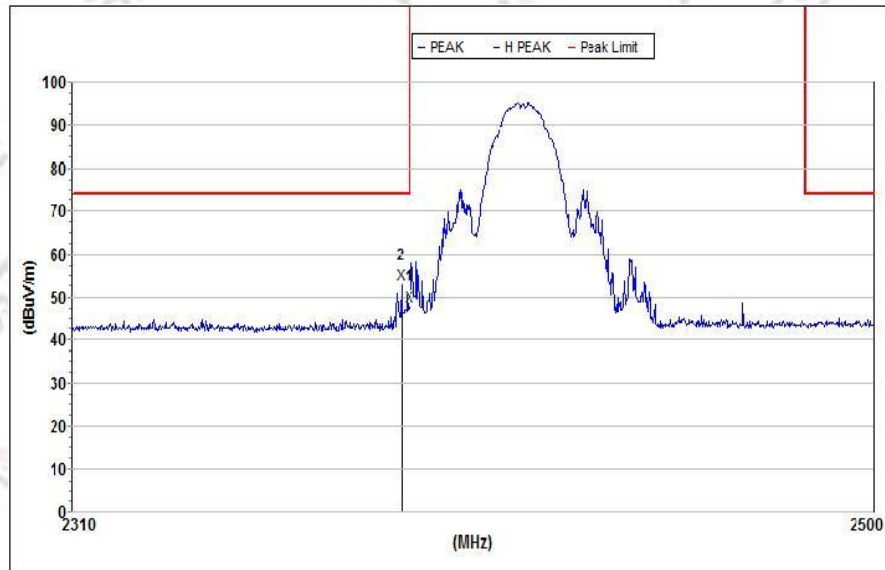
| Mk. | Freq. (MHz) | Level (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Deg. (deg.) | Hi. (cm) | Ant.F/G. (dB/m) | Amp.G. (dB) | Cbl.L. (dB) | Pol. |
|-----|-------------|----------------|----------------|-------------|-------------|----------|-----------------|-------------|-------------|------|
| Avg |             |                |                |             |             |          |                 |             |             |      |
| 1   | 2390.000    | 42.3           | 54.0           | 11.7        | 108         | 150      | 27.1            | 56.9        | 6.4         | H    |
| 2   | 2388.352    | 40.1           | 54.0           | 13.9        | 108         | 150      | 27.1            | 56.9        | 6.4         | H    |

### Mode 1 Vertical



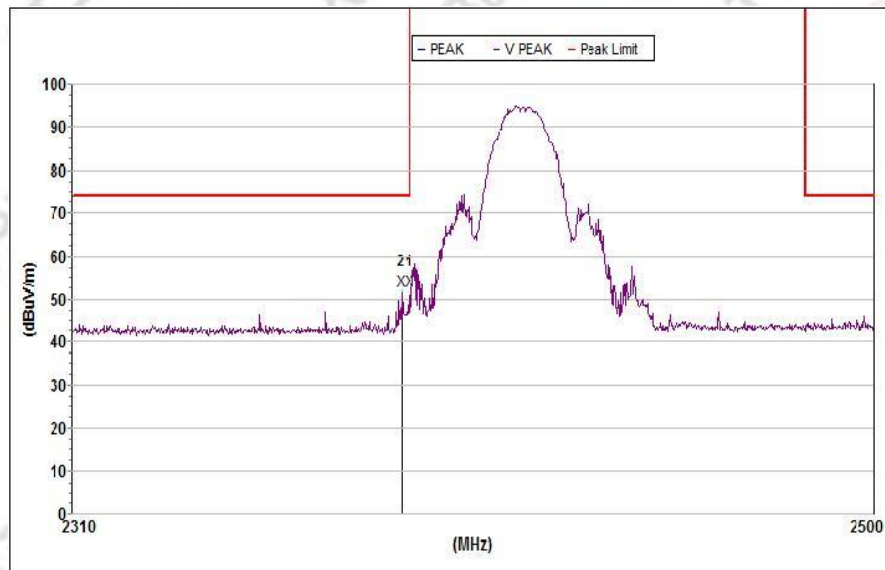
| Mk. | Freq. (MHz) | Level (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Deg. (deg.) | Hi. (cm) | Ant.F/G. (dB/m) | Amp.G. (dB) | Cbl.L. (dB) | Pol. |
|-----|-------------|----------------|----------------|-------------|-------------|----------|-----------------|-------------|-------------|------|
| Avg |             |                |                |             |             |          |                 |             |             |      |
| 1   | 2390.000    | 42.2           | 54.0           | 11.8        | 113         | 150      | 26.9            | 56.9        | 6.4         | V    |
| 2   | 2388.730    | 40.5           | 54.0           | 13.5        | 113         | 150      | 26.9            | 56.9        | 6.4         | V    |

### 802.11b-Low Mode 1 Horizontal



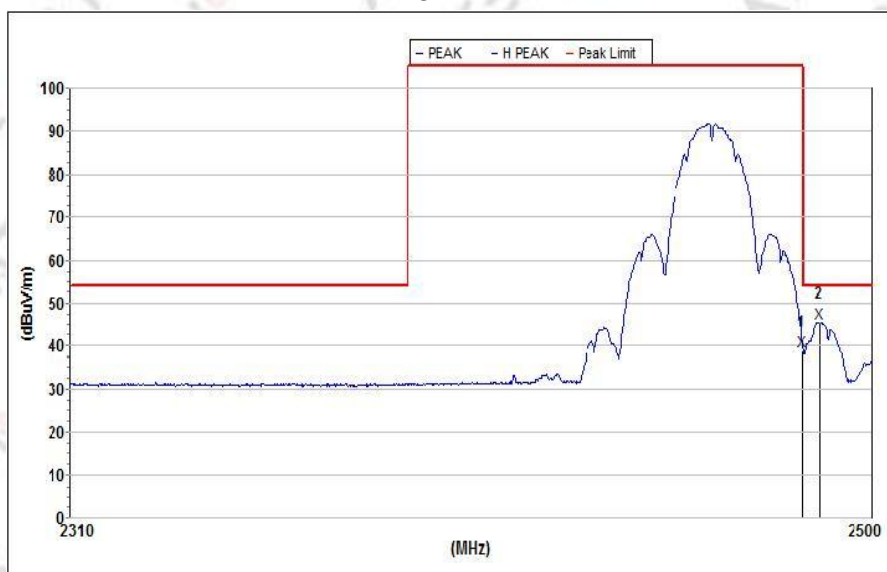
| Mk.  | Freq.<br>(MHz) | Level<br>(dBuV/m) | Limit<br>(dBuV/m) | Margin<br>(dB) | Deg.<br>(deg.) | Hi.<br>(cm) | Ant.F/G.<br>(dB/m) | Amp.G.<br>(dB) | Cbl.L.<br>(dB) | Pol. |
|------|----------------|-------------------|-------------------|----------------|----------------|-------------|--------------------|----------------|----------------|------|
| Peak |                |                   |                   |                |                |             |                    |                |                |      |
| 1    | 2390.000       | 48.0              | 74.0              | 26.0           | 116            | 150         | 27.1               | 56.9           | 6.4            | H    |
| 2    | 2387.975       | 52.9              | 74.0              | 21.1           | 80             | 150         | 27.1               | 56.9           | 6.4            | H    |

### Mode 1 Vertical



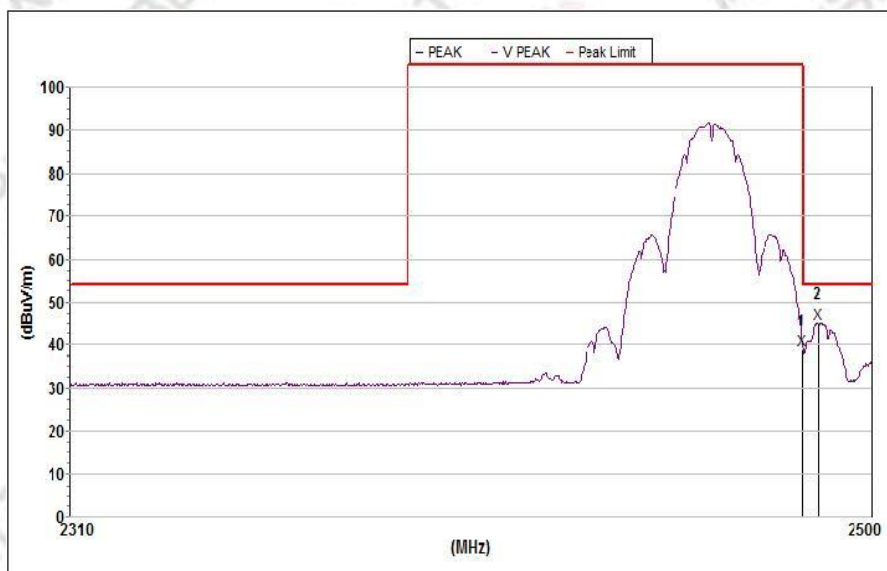
| Mk.  | Freq.<br>(MHz) | Level<br>(dBuV/m) | Limit<br>(dBuV/m) | Margin<br>(dB) | Deg.<br>(deg.) | Hi.<br>(cm) | Ant.F/G.<br>(dB/m) | Amp.G.<br>(dB) | Cbl.L.<br>(dB) | Pol. |
|------|----------------|-------------------|-------------------|----------------|----------------|-------------|--------------------|----------------|----------------|------|
| Peak |                |                   |                   |                |                |             |                    |                |                |      |
| 1    | 2390.000       | 52.1              | 74.0              | 21.9           | 76             | 150         | 26.9               | 56.9           | 6.4            | V    |
| 2    | 2388.164       | 51.9              | 74.0              | 22.1           | 101            | 150         | 26.9               | 56.9           | 6.4            | V    |

## 802.11b-High Mode 3 Horizontal



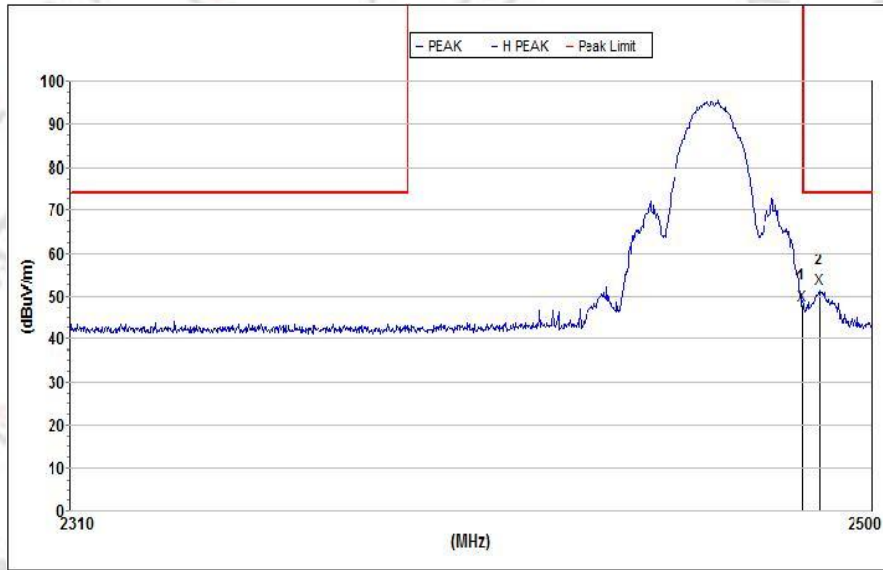
| Mk. | Freq.<br>(MHz) | Level<br>(dBuV/m) | Limit<br>(dBuV/m) | Margin<br>(dB) | Deg.<br>(deg.) | Hi.<br>(cm) | Ant.F/G.<br>(dB/m) | Amp.G.<br>(dB) | Cbl.L.<br>(dB) | Pol. |
|-----|----------------|-------------------|-------------------|----------------|----------------|-------------|--------------------|----------------|----------------|------|
| Avg |                |                   |                   |                |                |             |                    |                |                |      |
| 1   | 2483.501       | 38.7              | 54.0              | 15.3           | 113            | 150         | 27.5               | 57.1           | 6.5            | H    |
| 2   | 2487.582       | 45.4              | 54.0              | 8.6            | 113            | 150         | 27.5               | 57.1           | 6.5            | H    |

## Mode 3 Vertical



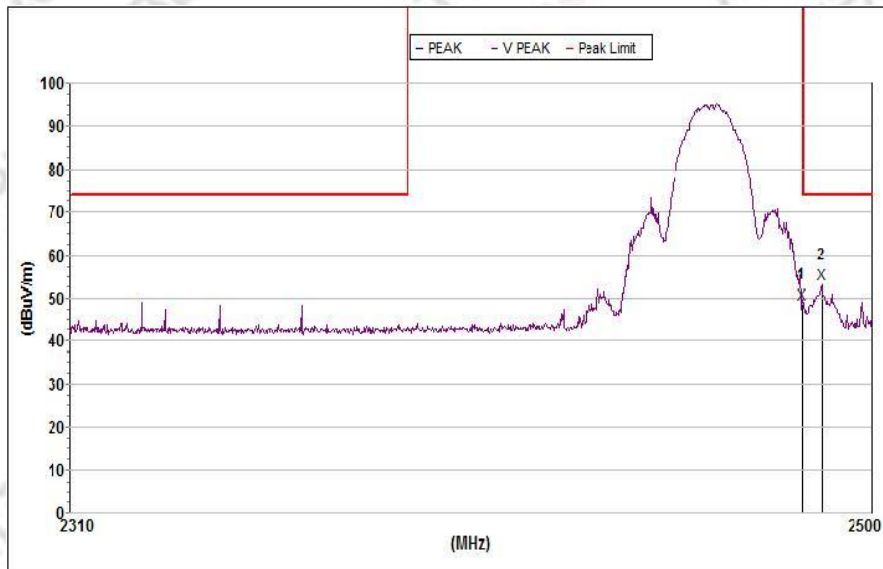
| Mk. | Freq.<br>(MHz) | Level<br>(dBuV/m) | Limit<br>(dBuV/m) | Margin<br>(dB) | Deg.<br>(deg.) | Hi.<br>(cm) | Ant.F/G.<br>(dB/m) | Amp.G.<br>(dB) | Cbl.L.<br>(dB) | Pol. |
|-----|----------------|-------------------|-------------------|----------------|----------------|-------------|--------------------|----------------|----------------|------|
| Avg |                |                   |                   |                |                |             |                    |                |                |      |
| 1   | 2483.501       | 38.8              | 54.0              | 15.2           | 75             | 150         | 27.3               | 57.1           | 6.5            | V    |
| 2   | 2487.188       | 45.1              | 54.0              | 8.9            | 112            | 150         | 27.3               | 57.1           | 6.5            | V    |

## 802.11b-High Mode 3 Horizontal



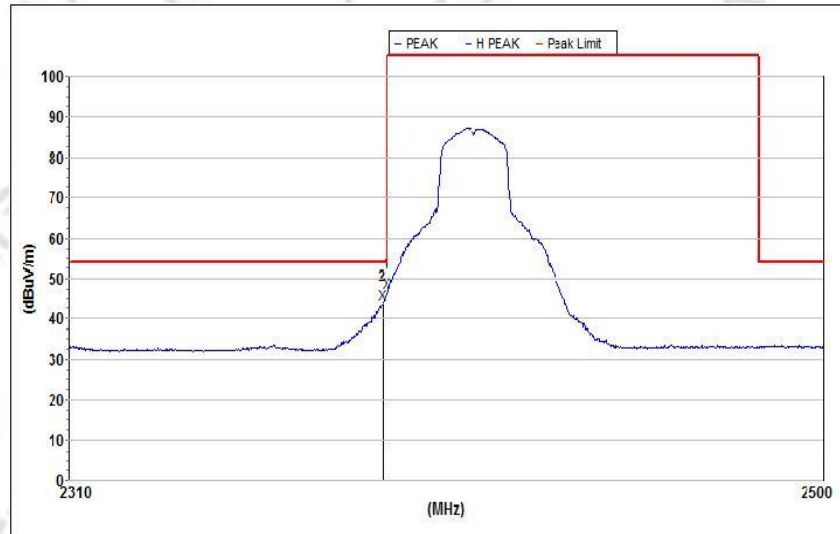
| Mk.  | Freq. (MHz) | Level (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Deg. (deg.) | Hi. (cm) | Ant.F/G. (dB/m) | Amp.G. (dB) | Cbl.L. (dB) | Pol. |
|------|-------------|----------------|----------------|-------------|-------------|----------|-----------------|-------------|-------------|------|
| Peak |             |                |                |             |             |          |                 |             |             |      |
| 1    | 2483.501    | 47.9           | 74.0           | 26.1        | 90          | 150      | 27.5            | 57.1        | 6.5         | H    |
| 2    | 2487.385    | 51.6           | 74.0           | 22.4        | 78          | 150      | 27.5            | 57.1        | 6.5         | H    |

## Mode 3 Vertical



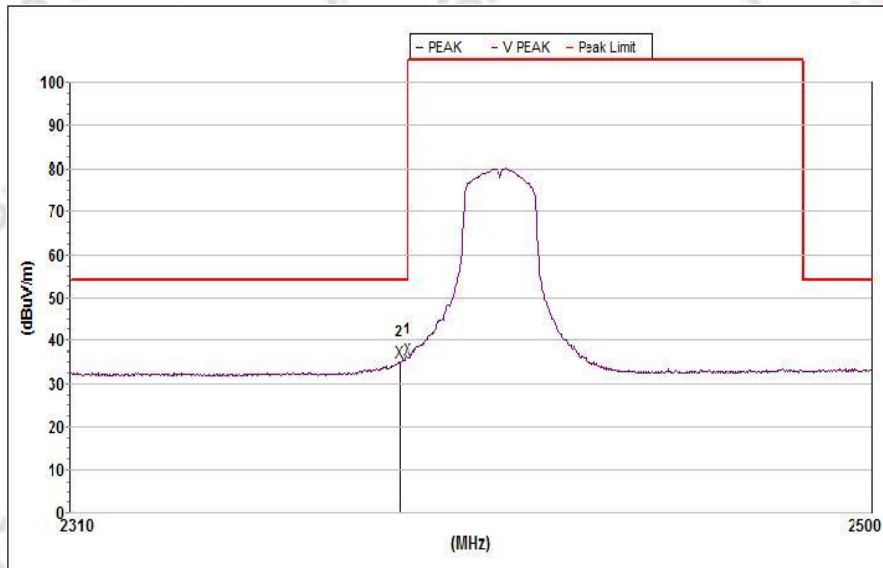
| Mk.  | Freq. (MHz) | Level (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Deg. (deg.) | Hi. (cm) | Ant.F/G. (dB/m) | Amp.G. (dB) | Cbl.L. (dB) | Pol. |
|------|-------------|----------------|----------------|-------------|-------------|----------|-----------------|-------------|-------------|------|
| Peak |             |                |                |             |             |          |                 |             |             |      |
| 1    | 2483.501    | 48.8           | 74.0           | 25.2        | 322         | 150      | 27.3            | 57.1        | 6.5         | V    |
| 2    | 2487.975    | 53.2           | 74.0           | 20.8        | 100         | 150      | 27.3            | 57.1        | 6.5         | V    |

### 802.11g-Low Mode 4 Horizontal



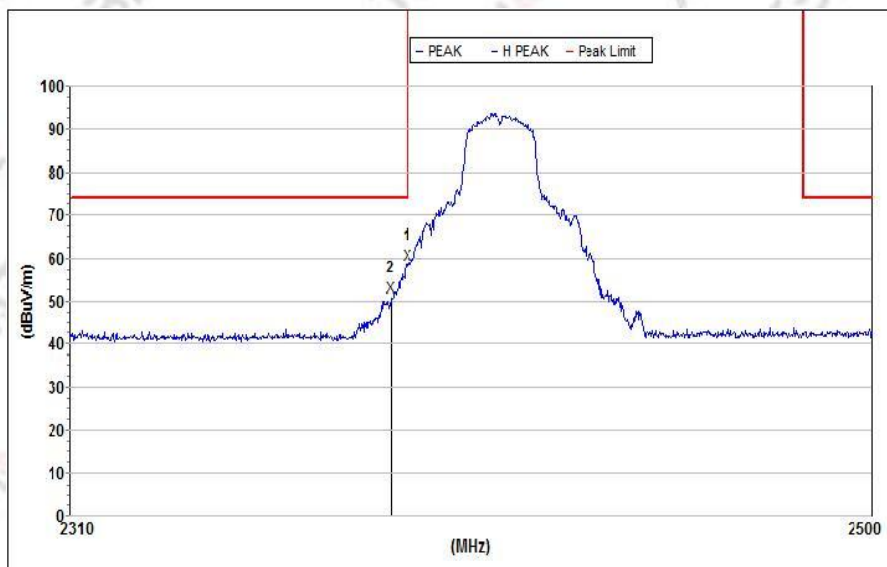
| Mk. | Freq.<br>(MHz) | Level<br>(dBuV/m) | Limit<br>(dBuV/m) | Margin<br>(dB) | Deg.<br>(deg.) | Hi.<br>(cm) | Ant.F/G.<br>(dB/m) | Amp.G.<br>(dB) | Cbl.L.<br>(dB) | Pol. |
|-----|----------------|-------------------|-------------------|----------------|----------------|-------------|--------------------|----------------|----------------|------|
| Avg |                |                   |                   |                |                |             |                    |                |                |      |
| 1   | 2390.000       | 46.7              | 54.0              | 7.3            | 93             | 150         | 27.1               | 56.9           | 6.4            | H    |
| 2   | 2388.919       | 43.9              | 54.0              | 10.1           | 106            | 150         | 27.1               | 56.9           | 6.3            | H    |

### Mode 4 Vertical



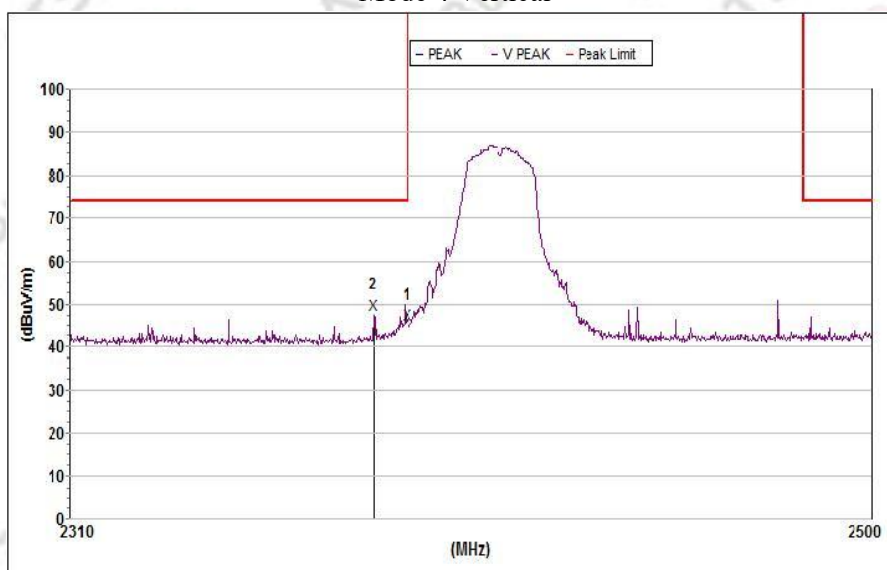
| Mk. | Freq.<br>(MHz) | Level<br>(dBuV/m) | Limit<br>(dBuV/m) | Margin<br>(dB) | Deg.<br>(deg.) | Hi.<br>(cm) | Ant.F/G.<br>(dB/m) | Amp.G.<br>(dB) | Cbl.L.<br>(dB) | Pol. |
|-----|----------------|-------------------|-------------------|----------------|----------------|-------------|--------------------|----------------|----------------|------|
| Avg |                |                   |                   |                |                |             |                    |                |                |      |
| 1   | 2390.000       | 35.8              | 54.0              | 18.2           | 55             | 150         | 26.9               | 56.9           | 6.4            | V    |
| 2   | 2388.164       | 35.3              | 54.0              | 18.7           | 311            | 150         | 26.9               | 56.9           | 6.3            | V    |

## 802.11g-Low Mode 4 Horizontal



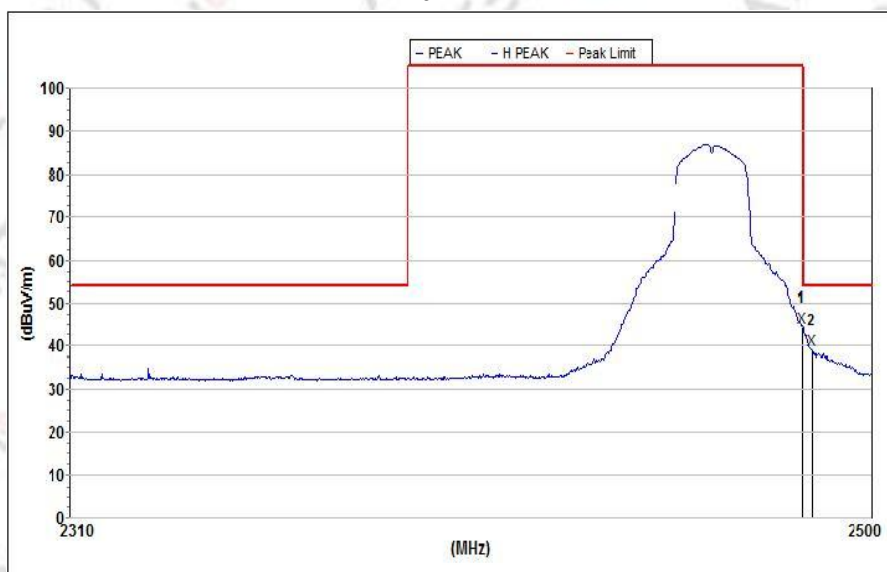
| Mk.  | Freq.<br>(MHz) | Level<br>(dBuV/m) | Limit<br>(dBuV/m) | Margin<br>(dB) | Deg.<br>(deg.) | Hi.<br>(cm) | Ant.F/G.<br>(dB/m) | Amp.G.<br>(dB) | Cbl.L.<br>(dB) | Pol. |
|------|----------------|-------------------|-------------------|----------------|----------------|-------------|--------------------|----------------|----------------|------|
| Peak |                |                   |                   |                |                |             |                    |                |                |      |
| 1    | 2390.000       | 58.5              | 74.0              | 15.5           | 297            | 150         | 27.1               | 56.9           | 6.4            | H    |
| 2    | 2386.088       | 51.1              | 74.0              | 22.9           | 98             | 150         | 27.1               | 56.9           | 6.3            | H    |

## Mode 4 Vertical



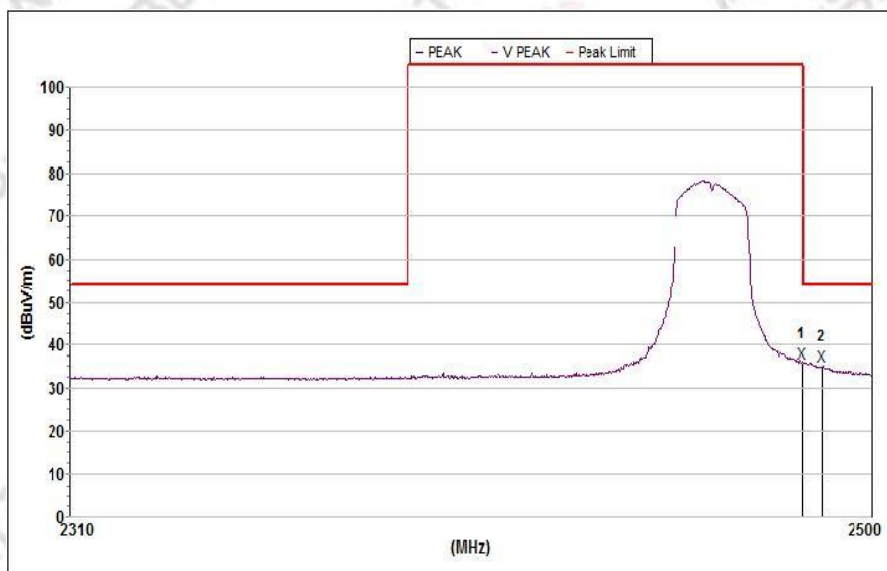
| Mk.  | Freq.<br>(MHz) | Level<br>(dBuV/m) | Limit<br>(dBuV/m) | Margin<br>(dB) | Deg.<br>(deg.) | Hi.<br>(cm) | Ant.F/G.<br>(dB/m) | Amp.G.<br>(dB) | Cbl.L.<br>(dB) | Pol. |
|------|----------------|-------------------|-------------------|----------------|----------------|-------------|--------------------|----------------|----------------|------|
| Peak |                |                   |                   |                |                |             |                    |                |                |      |
| 1    | 2390.000       | 45.4              | 74.0              | 28.6           | 170            | 150         | 26.9               | 56.9           | 6.4            | V    |
| 2    | 2381.942       | 47.7              | 74.0              | 26.3           | 183            | 150         | 26.9               | 56.9           | 6.3            | V    |

## 802.11g-High Mode 6 Horizontal



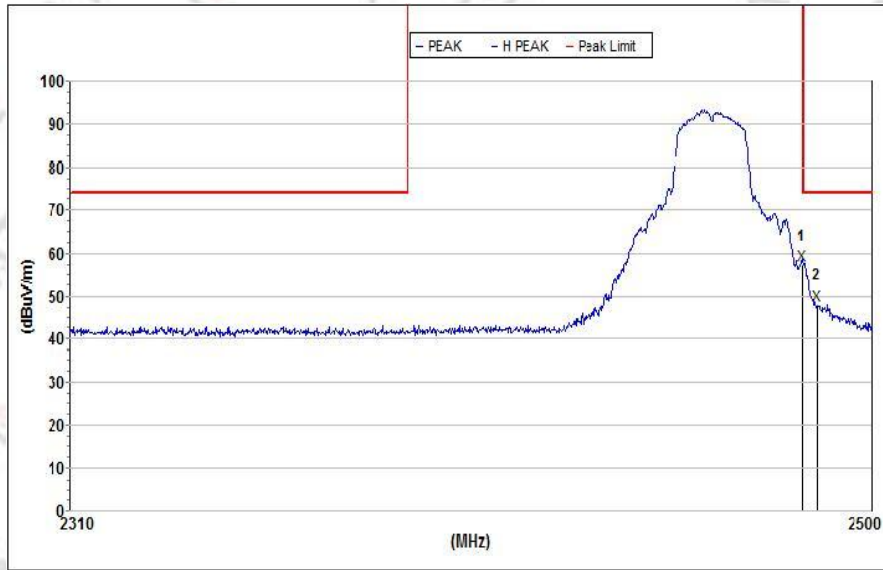
| Mk. | Freq.<br>(MHz) | Level<br>(dBuV/m) | Limit<br>(dBuV/m) | Margin<br>(dB) | Deg.<br>(deg.) | Hi.<br>(cm) | Ant.F/G.<br>(dB/m) | Amp.G.<br>(dB) | Cbl.L.<br>(dB) | Pol. |
|-----|----------------|-------------------|-------------------|----------------|----------------|-------------|--------------------|----------------|----------------|------|
| Avg |                |                   |                   |                |                |             |                    |                |                |      |
| 1   | 2483.501       | 44.4              | 54.0              | 9.6            | 122            | 150         | 27.5               | 57.1           | 6.5            | H    |
| 2   | 2485.813       | 39.2              | 54.0              | 14.8           | 103            | 150         | 27.5               | 57.1           | 6.5            | H    |

## Mode 6 Vertical



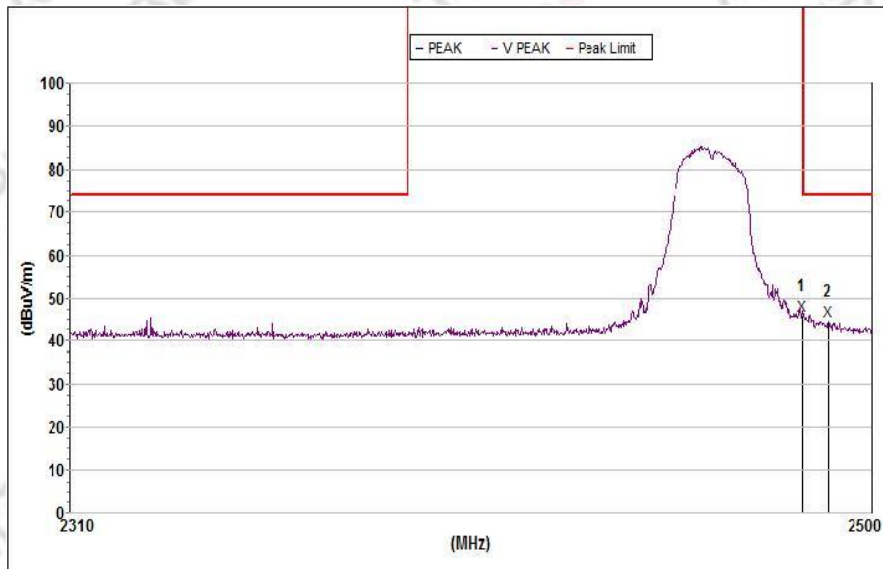
| Mk. | Freq.<br>(MHz) | Level<br>(dBuV/m) | Limit<br>(dBuV/m) | Margin<br>(dB) | Deg.<br>(deg.) | Hi.<br>(cm) | Ant.F/G.<br>(dB/m) | Amp.G.<br>(dB) | Cbl.L.<br>(dB) | Pol. |
|-----|----------------|-------------------|-------------------|----------------|----------------|-------------|--------------------|----------------|----------------|------|
| Avg |                |                   |                   |                |                |             |                    |                |                |      |
| 1   | 2483.501       | 35.9              | 54.0              | 18.1           | 173            | 150         | 27.3               | 57.1           | 6.5            | V    |
| 2   | 2488.172       | 35.2              | 54.0              | 18.8           | 154            | 150         | 27.3               | 57.1           | 6.5            | V    |

## 802.11g-High Mode 6 Horizontal



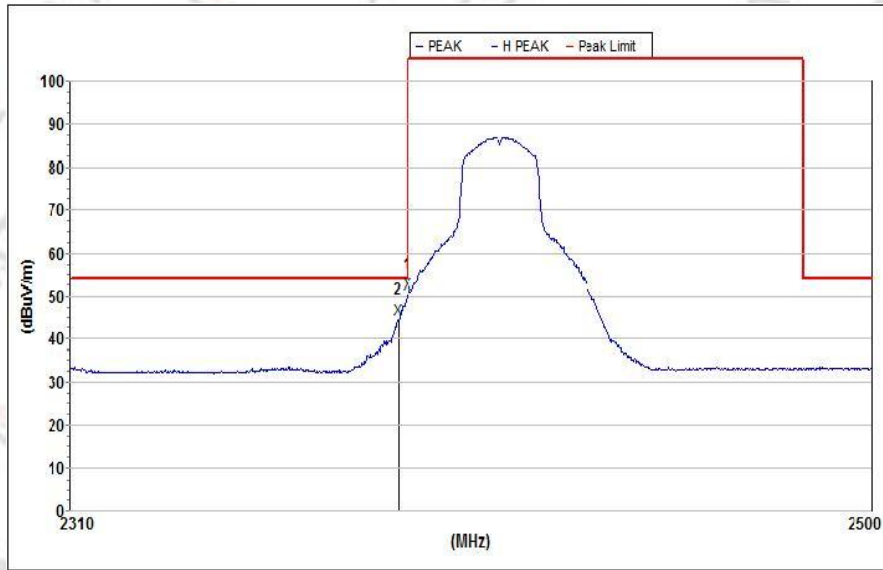
| Mk.  | Freq. (MHz) | Level (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Deg. (deg.) | Hi. (cm) | Ant.F/G. (dB/m) | Amp.G. (dB) | Cbl.L. (dB) | Pol. |
|------|-------------|----------------|----------------|-------------|-------------|----------|-----------------|-------------|-------------|------|
| Peak |             |                |                |             |             |          |                 |             |             |      |
| 1    | 2483.501    | 57.2           | 74.0           | 16.8        | 96          | 150      | 27.5            | 57.1        | 6.5         | H    |
| 2    | 2486.992    | 48.1           | 74.0           | 25.9        | 96          | 150      | 27.5            | 57.1        | 6.5         | H    |

## Mode 6 Vertical



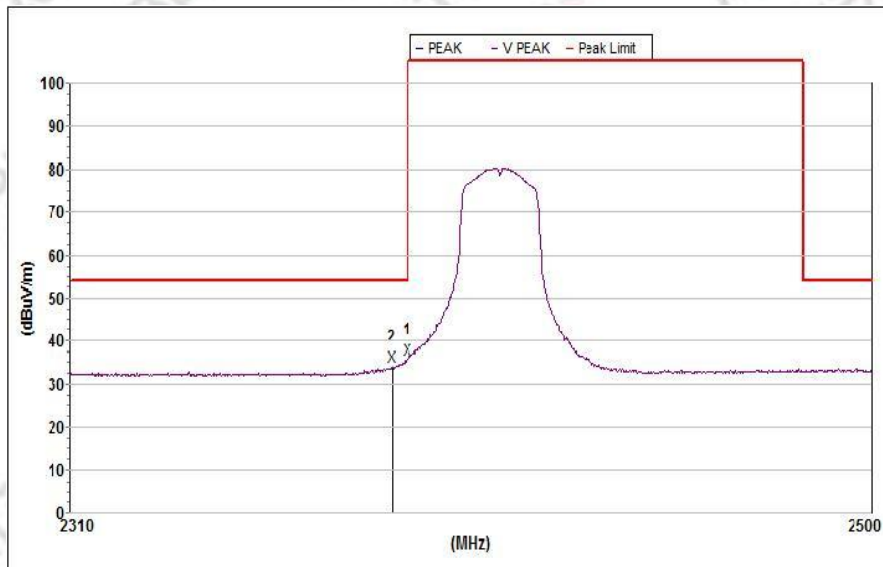
| Mk.  | Freq. (MHz) | Level (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Deg. (deg.) | Hi. (cm) | Ant.F/G. (dB/m) | Amp.G. (dB) | Cbl.L. (dB) | Pol. |
|------|-------------|----------------|----------------|-------------|-------------|----------|-----------------|-------------|-------------|------|
| Peak |             |                |                |             |             |          |                 |             |             |      |
| 1    | 2483.501    | 45.9           | 74.0           | 28.1        | 347         | 150      | 27.3            | 57.1        | 6.5         | V    |
| 2    | 2489.549    | 44.6           | 74.0           | 29.4        | 7           | 150      | 27.4            | 57.1        | 6.5         | V    |

## 802.11n20-Low Mode 7 Horizontal



| Mk. | Freq.<br>(MHz) | Level<br>(dBuV/m) | Limit<br>(dBuV/m) | Margin<br>(dB) | Deg.<br>(deg.) | Hi.<br>(cm) | Ant.F/G.<br>(dB/m) | Amp.G.<br>(dB) | Cbl.L.<br>(dB) | Pol. |
|-----|----------------|-------------------|-------------------|----------------|----------------|-------------|--------------------|----------------|----------------|------|
| Avg |                |                   |                   |                |                |             |                    |                |                |      |
| 1   | 2390.000       | 50.6              | 54.0              | 3.4            | 321            | 150         | 27.1               | 56.9           | 6.4            | H    |
| 2   | 2387.597       | 44.8              | 54.0              | 9.2            | 295            | 150         | 27.1               | 56.9           | 6.4            | H    |

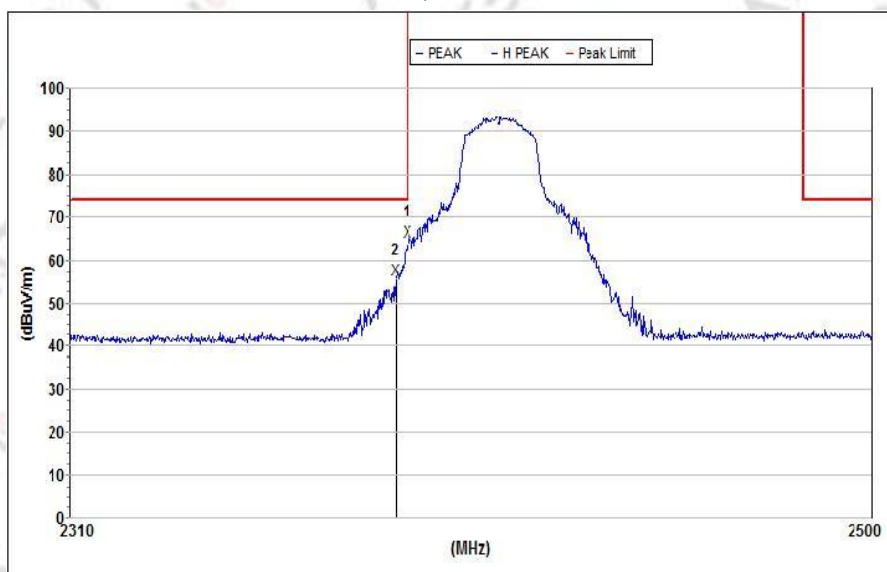
## Mode 7 Vertical



| Mk. | Freq.<br>(MHz) | Level<br>(dBuV/m) | Limit<br>(dBuV/m) | Margin<br>(dB) | Deg.<br>(deg.) | Hi.<br>(cm) | Ant.F/G.<br>(dB/m) | Amp.G.<br>(dB) | Cbl.L.<br>(dB) | Pol. |
|-----|----------------|-------------------|-------------------|----------------|----------------|-------------|--------------------|----------------|----------------|------|
| Avg |                |                   |                   |                |                |             |                    |                |                |      |
| 1   | 2390.000       | 35.7              | 54.0              | 18.3           | 9              | 150         | 26.9               | 56.9           | 6.4            | V    |
| 2   | 2386.277       | 34.1              | 54.0              | 19.9           | 39             | 150         | 26.9               | 56.9           | 6.4            | V    |

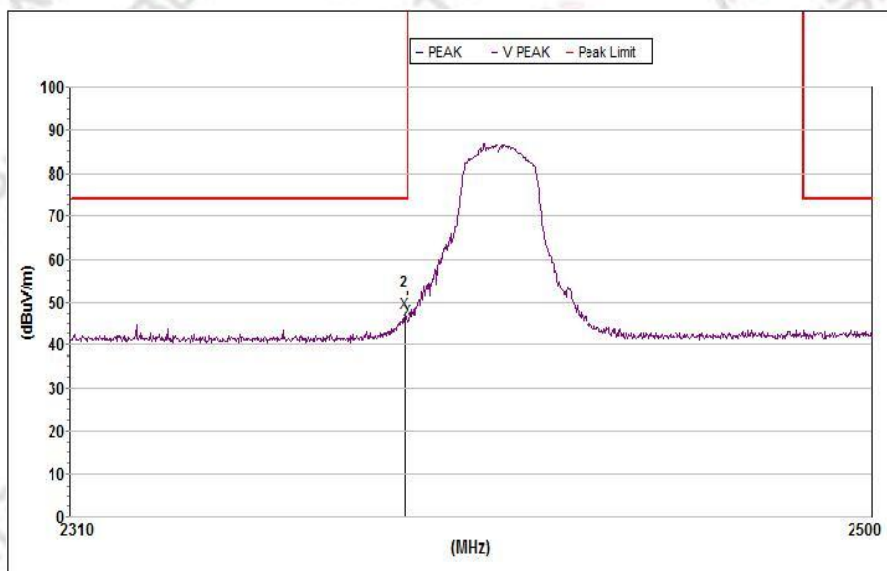
## 802.11n20-Low

### Mode 7 Horizontal



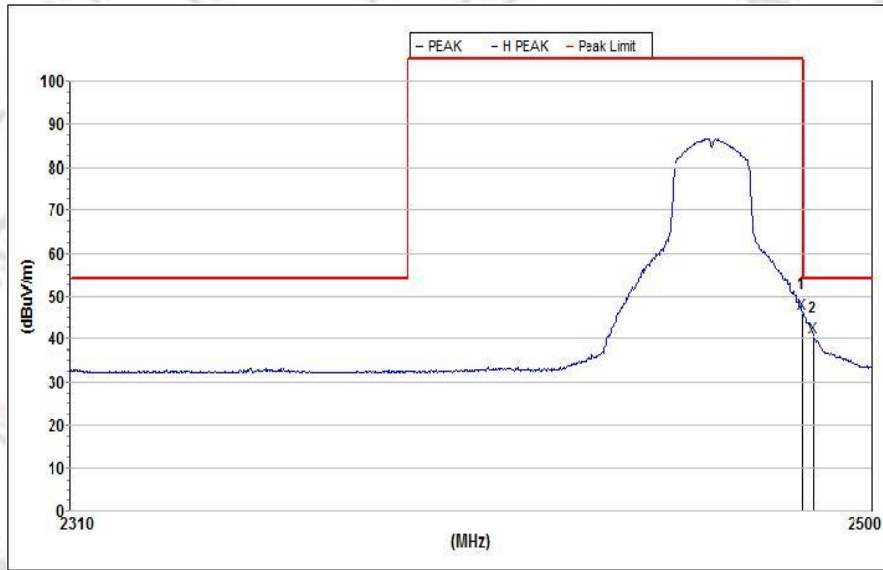
| Mk.  | Freq. (MHz) | Level (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Deg. (deg.) | Hi. (cm) | Ant.F/G. (dB/m) | Amp.G. (dB) | Cbl.L. (dB) | Pol. |
|------|-------------|----------------|----------------|-------------|-------------|----------|-----------------|-------------|-------------|------|
| Peak |             |                |                |             |             |          |                 |             |             |      |
| 1    | 2390.000    | 64.5           | 74.0           | 9.5         | 77          | 150      | 27.1            | 56.9        | 6.4         | H    |
| 2    | 2387.220    | 55.6           | 74.0           | 18.4        | 295         | 150      | 27.1            | 56.9        | 6.4         | H    |

### Mode 7 Vertical



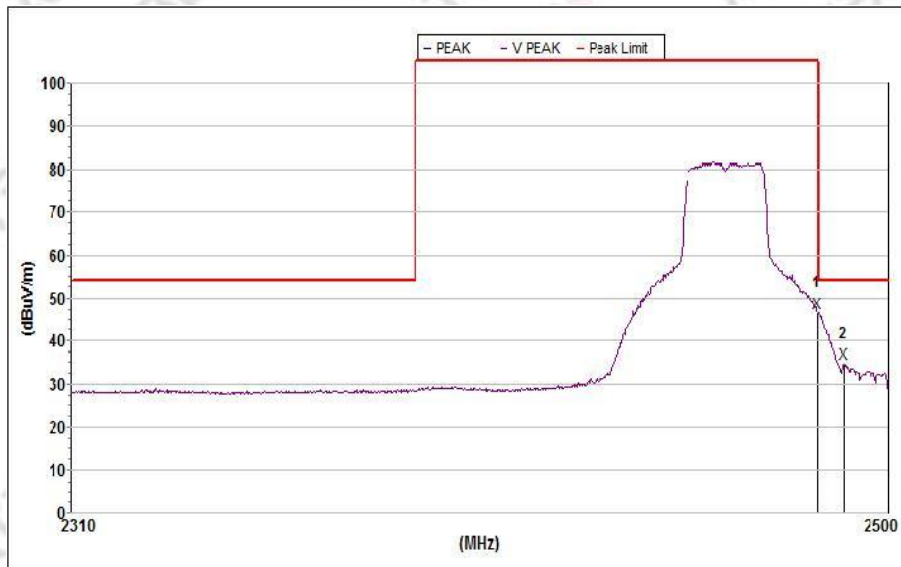
| Mk.  | Freq. (MHz) | Level (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Deg. (deg.) | Hi. (cm) | Ant.F/G. (dB/m) | Amp.G. (dB) | Cbl.L. (dB) | Pol. |
|------|-------------|----------------|----------------|-------------|-------------|----------|-----------------|-------------|-------------|------|
| Peak |             |                |                |             |             |          |                 |             |             |      |
| 1    | 2390.000    | 46.1           | 74.0           | 27.9        | 12          | 150      | 26.9            | 56.9        | 6.4         | V    |
| 2    | 2389.108    | 47.7           | 74.0           | 26.3        | 351         | 150      | 26.9            | 56.9        | 6.4         | V    |

### 802.11n20-High Mode 9 Horizontal



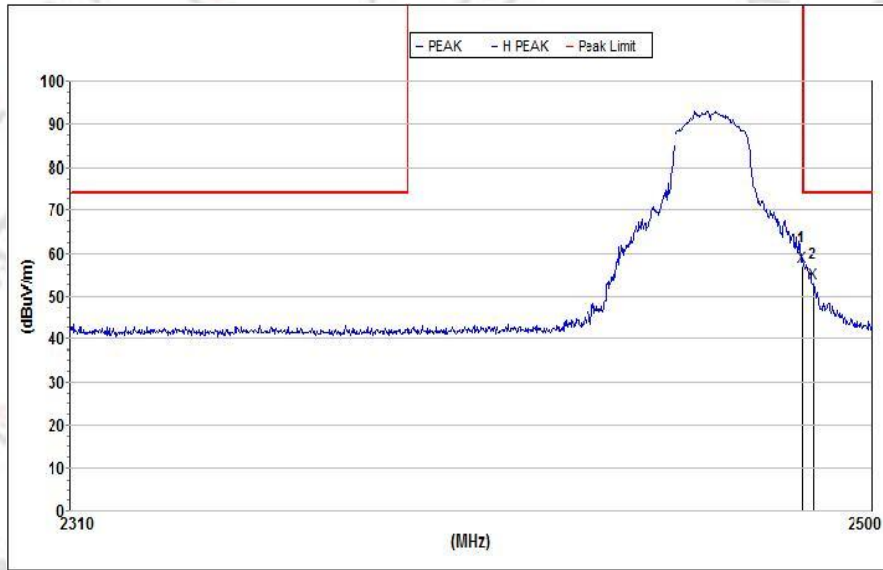
| Mk. | Freq.<br>(MHz) | Level<br>(dBuV/m) | Limit<br>(dBuV/m) | Margin<br>(dB) | Deg.<br>(deg.) | Hi.<br>(cm) | Ant.F/G.<br>(dB/m) | Amp.G.<br>(dB) | Cbl.L.<br>(dB) | Pol. |
|-----|----------------|-------------------|-------------------|----------------|----------------|-------------|--------------------|----------------|----------------|------|
| Avg |                |                   |                   |                |                |             |                    |                |                |      |
| 1   | 2483.501       | 46.2              | 54.0              | 7.8            | 106            | 150         | 27.5               | 57.1           | 6.5            | H    |
| 2   | 2486.206       | 40.5              | 54.0              | 13.5           | 290            | 150         | 27.5               | 57.1           | 6.5            | H    |

### Mode 9 Vertical



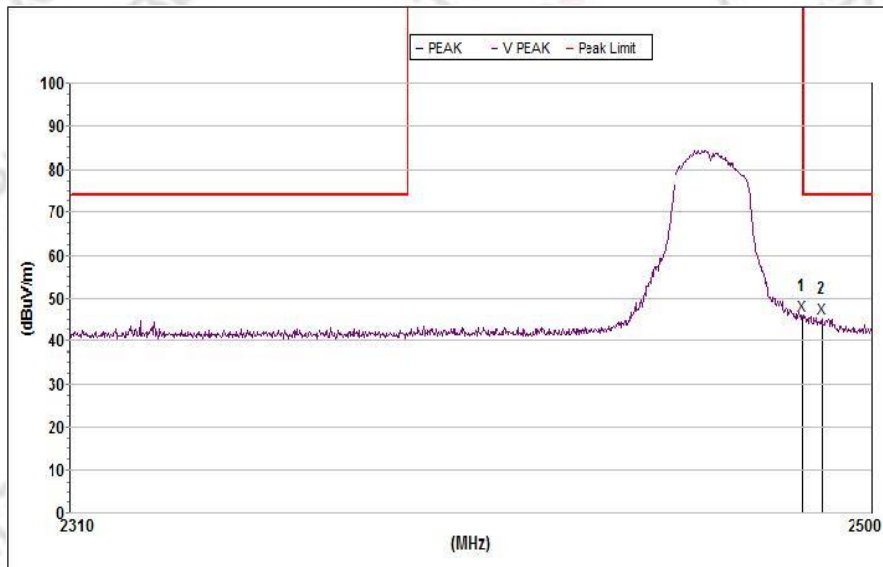
| Mk. | Freq.<br>(MHz) | Level<br>(dBuV/m) | Limit<br>(dBuV/m) | Margin<br>(dB) | Deg.<br>(deg.) | Hi.<br>(cm) | Ant.F/G.<br>(dB/m) | Amp.G.<br>(dB) | Cbl.L.<br>(dB) | Pol. |
|-----|----------------|-------------------|-------------------|----------------|----------------|-------------|--------------------|----------------|----------------|------|
| Avg |                |                   |                   |                |                |             |                    |                |                |      |
| 1   | 2483.501       | 46.8              | 54.0              | 7.2            | 170            | 150         | 27.3               | 57.1           | 7.1            | V    |
| 2   | 2489.549       | 34.9              | 54.0              | 19.1           | 231            | 150         | 27.4               | 57.1           | 7.1            | V    |

## 802.11n20-High Mode 9 Horizontal



| Mk.  | Freq. (MHz) | Level (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Deg. (deg.) | Hi. (cm) | Ant.F/G. (dB/m) | Amp.G. (dB) | Cbl.L. (dB) | Pol. |
|------|-------------|----------------|----------------|-------------|-------------|----------|-----------------|-------------|-------------|------|
| Peak |             |                |                |             |             |          |                 |             |             |      |
| 1    | 2483.501    | 56.9           | 74.0           | 17.1        | 100         | 150      | 27.5            | 57.1        | 6.5         | H    |
| 2    | 2486.206    | 52.9           | 74.0           | 21.1        | 198         | 150      | 27.5            | 57.1        | 6.5         | H    |

## Mode 9 Vertical



| Mk.  | Freq. (MHz) | Level (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Deg. (deg.) | Hi. (cm) | Ant.F/G. (dB/m) | Amp.G. (dB) | Cbl.L. (dB) | Pol. |
|------|-------------|----------------|----------------|-------------|-------------|----------|-----------------|-------------|-------------|------|
| Peak |             |                |                |             |             |          |                 |             |             |      |
| 1    | 2483.501    | 46.0           | 74.0           | 28.0        | 1           | 150      | 27.3            | 57.1        | 6.5         | V    |
| 2    | 2487.975    | 45.3           | 74.0           | 28.7        | 360         | 150      | 27.3            | 57.1        | 6.5         | V    |

\*\*\*\*\*END OF APPENDIX B\*\*\*\*\*

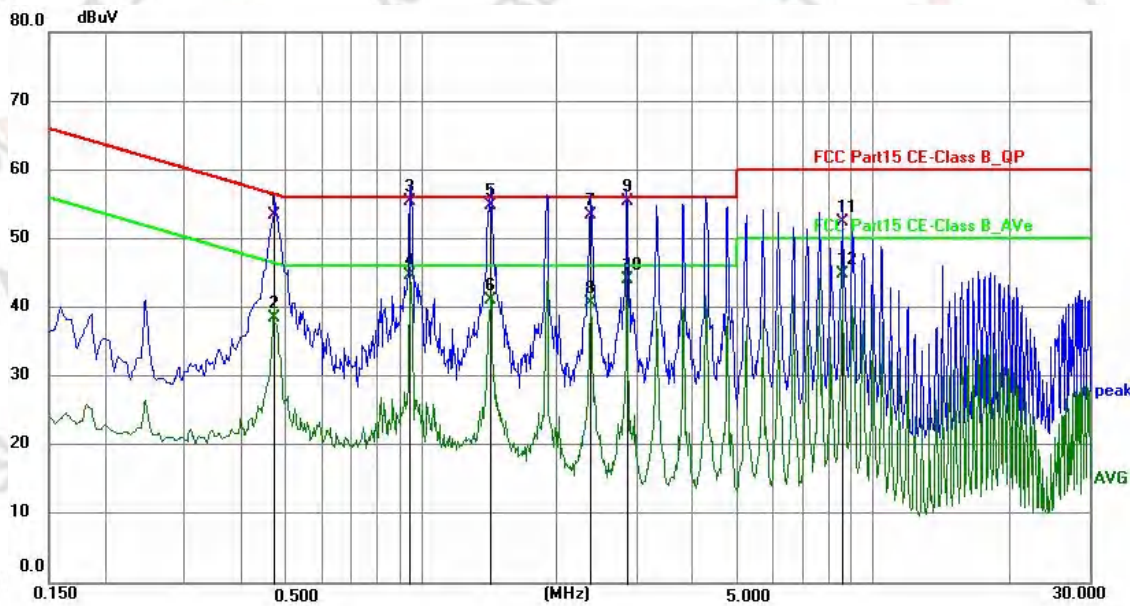
## Appendix C \_ AC Power-Line Conducted Emission Test Data

### 3.6.4. Test Result of AC Power-Line Conducted Emission

|               |             |                    |       |
|---------------|-------------|--------------------|-------|
| Temperature:  | 26.2°C      | Relative Humidity: | 53%RH |
| Test Voltage: | AC 24V/60Hz | Phase:             | L     |
| Test Mode:    | Mode 10     |                    |       |

Remark:

1. All readings are Quasi-Peak and Average values.
2. Margin = Result (Result = Reading + Factor) – Limit.
3. Factor = LISN factor + Cable loss + Limiter (10dB)

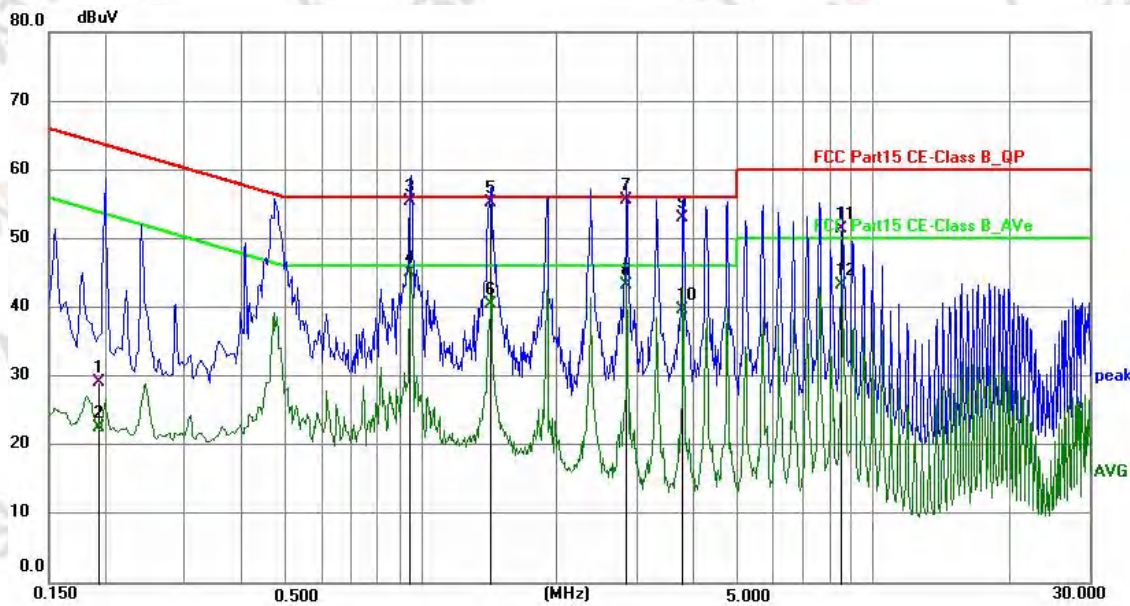


| No. | Frequency<br>(MHz) | Reading<br>(dBuV) | Correct<br>(dB) | Result<br>(dBuV) | Limit<br>(dBuV) | Margin<br>(dB) | Remark |
|-----|--------------------|-------------------|-----------------|------------------|-----------------|----------------|--------|
| 1   | 0.4736             | 43.50             | 9.86            | 53.36            | 56.45           | -3.09          | QP     |
| 2   | 0.4736             | 28.61             | 9.86            | 38.47            | 46.45           | -7.98          | AVG    |
| 3   | 0.9467             | 45.53             | 9.92            | 55.45            | 56.00           | -0.55          | QP     |
| 4   | 0.9467             | 34.77             | 9.92            | 44.69            | 46.00           | -1.31          | AVG    |
| 5   | 1.4237             | 44.92             | 9.95            | 54.87            | 56.00           | -1.13          | QP     |
| 6   | 1.4237             | 31.08             | 9.95            | 41.03            | 46.00           | -4.97          | AVG    |
| 7   | 2.3733             | 43.36             | 9.99            | 53.35            | 56.00           | -2.65          | QP     |
| 8   | 2.3733             | 30.62             | 9.99            | 40.61            | 46.00           | -5.39          | AVG    |
| 9   | 2.8548             | 45.42             | 10.00           | 55.42            | 56.00           | -0.58          | QP     |
| 10  | 2.8548             | 34.13             | 10.00           | 44.13            | 46.00           | -1.87          | AVG    |
| 11  | 8.5437             | 42.23             | 10.12           | 52.35            | 60.00           | -7.65          | QP     |
| 12  | 8.5437             | 34.80             | 10.12           | 44.92            | 50.00           | -5.08          | AVG    |

|               |             |                    |       |
|---------------|-------------|--------------------|-------|
| Temperature:  | 26.2°C      | Relative Humidity: | 53%RH |
| Test Voltage: | AC 24V/60Hz | Phase:             | N     |
| Test Mode:    | Mode 10     |                    |       |

Remark:

1. All readings are Quasi-Peak and Average values.
2. Margin = Result (Result = Reading + Factor) – Limit.
3. Factor = LISN factor + Cable loss + Limiter (10dB)

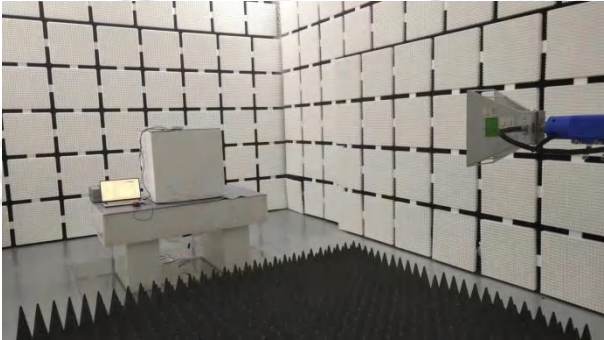
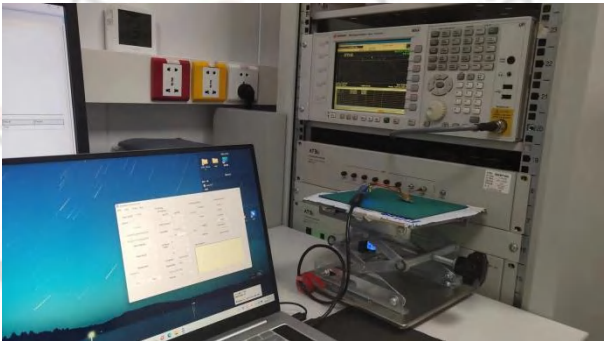
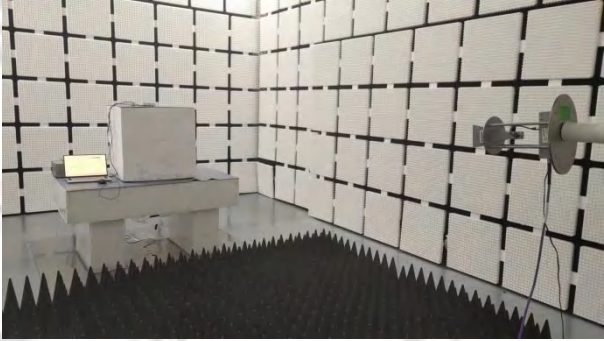
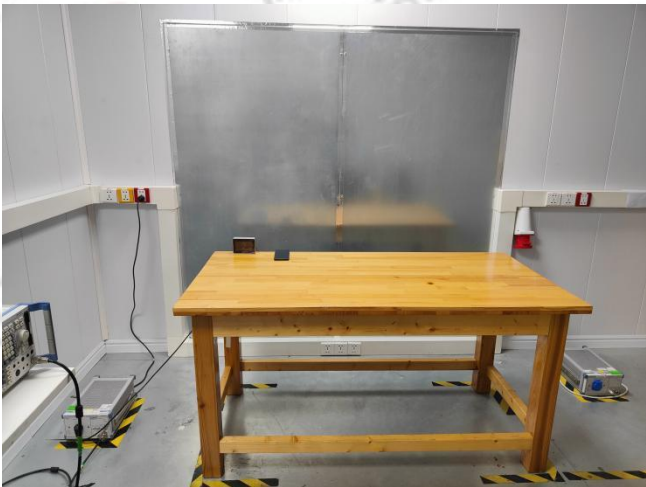


| No. | Frequency<br>(MHz) | Reading<br>(dBuV) | Correct<br>(dB) | Result<br>(dBuV) | Limit<br>(dBuV) | Margin<br>(dB) | Remark |
|-----|--------------------|-------------------|-----------------|------------------|-----------------|----------------|--------|
| 1   | 0.1935             | 19.31             | 9.82            | 29.13            | 63.88           | -34.75         | QP     |
| 2   | 0.1935             | 12.83             | 9.82            | 22.65            | 53.88           | -31.23         | AVG    |
| 3   | 0.9503             | 45.70             | 9.79            | 55.49            | 56.00           | -0.51          | QP     |
| 4   | 0.9503             | 35.34             | 9.79            | 45.13            | 46.00           | -0.87          | AVG    |
| 5   | 1.4232             | 45.36             | 9.84            | 55.20            | 56.00           | -0.80          | QP     |
| 6   | 1.4232             | 30.67             | 9.84            | 40.51            | 46.00           | -5.49          | AVG    |
| 7   | 2.8456             | 45.63             | 9.97            | 55.60            | 56.00           | -0.40          | QP     |
| 8   | 2.8456             | 33.28             | 9.97            | 43.25            | 46.00           | -2.75          | AVG    |
| 9   | 3.7921             | 43.02             | 9.99            | 53.01            | 56.00           | -2.99          | QP     |
| 10  | 3.7921             | 29.78             | 9.99            | 39.77            | 46.00           | -6.23          | AVG    |
| 11  | 8.5405             | 41.54             | 10.00           | 51.54            | 60.00           | -8.46          | QP     |
| 12  | 8.5405             | 33.33             | 10.00           | 43.33            | 50.00           | -6.67          | AVG    |

\*\*\*\*\*END OF APPENDIX C\*\*\*\*\*

## Appendix D \_ Test Setup

### 4. TEST SETUP PHOTOGRAPHS

|                                                                                                                               |                                                                                                                               |
|-------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------|
| <p>Radiated Emissions for 30MHz~1GHz</p>     | <p>Radiated Emissions for 1GHz~18GHz</p>    |
| <p>Radiated Emissions for 9kHz~30MHz</p>    | <p>Conducted for RF</p>                    |
| <p>Radiated Emissions for above 18GHz</p>  | <p>AC Power Line Conducted Emissions</p>  |

\*\*\*\*\*END OF APPENDIX D\*\*\*\*\*