

# RF TEST REPORT

FCC ID: 2BCFYERO1X

According to

47 CFR FCC Part 15, Subpart C(Section 15.247)

ANSI C63.10:2013

Product description : HT Mesh  
Model No. : ERO1X  
Trade Mark : --  
Product No. : POC230809002-S002; POC230809002-S003  
Applicant : Heights Telecom T LTD  
Address : Ha-Sakhlav,6 Irus HaMerkaz 7680900 Israel  
Receipt date : 2023.08.10  
Test date : 2023.08.11~2023.09.12  
Issued Date : 2023.10.10

| Prepared By:      | Checked By:      | Approved By:    |  |
|-------------------|------------------|-----------------|---------------------------------------------------------------------------------------|
| Black ding        | Tim zhang        | Misue Su        |                                                                                       |
| <i>Black Ding</i> | <i>Tim.zhang</i> | <i>Misue Su</i> |                                                                                       |

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## History of this test report

Original Report Issue Date: 2023.10.10

- ☒ No additional attachment
- ☐ Additional attachments were issued following record

| Attachment No. | Issue Date | Description |
|----------------|------------|-------------|
|                |            |             |
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## 1. General Information

### 1.1 Applicant

Heights Telecom T LTD

Ha-Sakhlav,6 Irus HaMerkaz 7680900 Israel

### 1.2 Manufacturer

Heights Telecom T LTD

Ha-Sakhlav,6 Irus HaMerkaz 7680900 Israel

### 1.3 Basic Description of Equipment Under Test

| Items                                                 | Description                                                                                                                                                                              |                                    |
|-------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------|
| Equipment Name                                        | HT Mesh                                                                                                                                                                                  |                                    |
| Test Model No.                                        | ERO1X                                                                                                                                                                                    |                                    |
| Series Models.                                        | N/A                                                                                                                                                                                      |                                    |
| Spec. Difference                                      | N/A                                                                                                                                                                                      |                                    |
| Trade Mark                                            | N/A                                                                                                                                                                                      |                                    |
| Power Supply                                          | Input:100-240V AC 50/60Hz 0.5A<br>Output (USB): 5V 0.4A                                                                                                                                  |                                    |
| Adapter information                                   | N/A                                                                                                                                                                                      |                                    |
| Hardware Version                                      | --                                                                                                                                                                                       |                                    |
| Software Version                                      | --                                                                                                                                                                                       |                                    |
| Operate temperature                                   | 0°C-40°C                                                                                                                                                                                 |                                    |
| EUT Stage                                             | ○ Product Unit                                                                                                                                                                           | ● Final-Sample                     |
| Operating Band and Conducted Output Power (Max power) | 2400MHz ~ 2483.5MHz                                                                                                                                                                      | ●IEEE 802.11b:27.34dBm (0.54200 W) |
| Product Type                                          | IEEE 802.11b: WLAN (2TX, 2RX)<br>IEEE 802.11g: WLAN (2TX, 2RX)<br>IEEE 802.11n: WLAN (2TX, 2RX)<br>IEEE 802.11ax: WLAN (2TX, 2RX)                                                        |                                    |
| Nominal Bandwidth                                     | 20MHz/ 40MHz                                                                                                                                                                             |                                    |
| Modulation                                            | IEEE 802.11b: DSSS (DBPSK/DQPSK/CCK)<br>IEEE 802.11g: OFDM (BPSK/QPSK/16QAM/64QAM)<br>IEEE 802.11n: OFDM (BPSK/QPSK/16QAM/64QAM)<br>IEEE 802.11ax: OFDMA (BPSK/QPSK/16QAM/64QAM/1024QAM) |                                    |
| Data Rate (Mbps)                                      | IEEE 802.11b mode: DSSS (1/2/5.5/11Mbps)<br>IEEE 802.11g mode: OFDM (6/9/12/18/24/36/48/54Mbps)<br>IEEE 802.11n: up to 300Mbps<br>IEEE 802.11ax: up to 573.529Mbps                       |                                    |
| Antenna gain                                          | Ant1: 3.29dBi, Ant2: 3.33dBi                                                                                                                                                             |                                    |

Eleven channels are provided for 802.11b, 802.11g, 802.11n (20MHz), 802.11ax (20MHz):

| Frequency Band       | Channel No. | Frequency | Channel No. | Frequency |
|----------------------|-------------|-----------|-------------|-----------|
| 2400MHz ~ 2483.5 MHz | 01          | 2412MHz   | 07          | 2442MHz   |
|                      | 02          | 2417MHz   | 08          | 2447MHz   |
|                      | 03          | 2422MHz   | 09          | 2452MHz   |
|                      | 04          | 2427MHz   | 10          | 2457MHz   |
|                      | 05          | 2432MHz   | 11          | 2462MHz   |
|                      | 06          | 2437MHz   | /           | /         |

Seven channels are provided for 802.11n (40MHz), 802.11ax (40MHz):

| Frequency Band       | Channel No. | Frequency | Channel No. | Frequency |
|----------------------|-------------|-----------|-------------|-----------|
| 2400MHz ~ 2483.5 MHz | 03          | 2422 MHz  | 07          | 2442MHz   |
|                      | 04          | 2427MHz   | 08          | 2447MHz   |
|                      | 05          | 2432MHz   | 09          | 2452MHz   |
|                      | 06          | 2437MHz   | /           | /         |

Note: For 802.11ax mode only support full RU mode.

## 1.4 Transmit Operating Mode

| Transmit Operating Mode          |                                                       |                |                       |     |                       | Transmit Multiple Antennas |                                  |                       |     |                       |     |
|----------------------------------|-------------------------------------------------------|----------------|-----------------------|-----|-----------------------|----------------------------|----------------------------------|-----------------------|-----|-----------------------|-----|
| <input type="radio"/>            | Operating mode 1 (single antenna)                     |                |                       |     |                       | <input type="radio"/>      | 1TX                              |                       |     |                       |     |
| <input checked="" type="radio"/> | Operating mode 2 (multiple antenna, with beamforming) |                |                       |     |                       | <input type="radio"/>      | 2TX                              | <input type="radio"/> | 3TX | <input type="radio"/> | 4TX |
| <input type="radio"/>            | Operating mode 3 (multiple antenna, with beamforming) |                |                       |     |                       | <input type="radio"/>      | 2TX                              | <input type="radio"/> | 3TX | <input type="radio"/> | 4TX |
| <input checked="" type="radio"/> | 802.11b                                               | Operating mode | <input type="radio"/> | 1TX | <input type="radio"/> | 2TX                        | <input checked="" type="radio"/> | 2TX                   |     |                       |     |
| <input checked="" type="radio"/> | 802.11g                                               | Operating mode | <input type="radio"/> | 1TX | <input type="radio"/> | 2TX                        | <input checked="" type="radio"/> | 2TX                   |     |                       |     |
| <input checked="" type="radio"/> | 802.11n(HT20MHz)                                      | Operating mode | <input type="radio"/> | 1TX | <input type="radio"/> | 2TX                        | <input checked="" type="radio"/> | 2TX                   |     |                       |     |
| <input checked="" type="radio"/> | 802.11n(HT40MHz)                                      | Operating mode | <input type="radio"/> | 1TX | <input type="radio"/> | 2TX                        | <input checked="" type="radio"/> | 2TX                   |     |                       |     |
| <input checked="" type="radio"/> | 802.11ax(HE20MHz)                                     | Operating mode | <input type="radio"/> | 1TX | <input type="radio"/> | 2TX                        | <input checked="" type="radio"/> | 2TX                   |     |                       |     |
| <input checked="" type="radio"/> | 802.11ax(HE40MHz)                                     | Operating mode | <input type="radio"/> | 1TX | <input type="radio"/> | 2TX                        | <input checked="" type="radio"/> | 2TX                   |     |                       |     |
|                                  |                                                       |                |                       |     |                       |                            |                                  |                       |     |                       |     |
|                                  |                                                       |                |                       |     |                       |                            |                                  |                       |     |                       |     |

| Transmit Operating Mode |                      | Directional Gain (dBi) |       |
|-------------------------|----------------------|------------------------|-------|
|                         |                      | Power spectral density | Power |
| 802.11b                 | 2TX With Beamforming | 6.33                   | 6.33  |
| 802.11g                 | 2TX With Beamforming | 6.33                   | 6.33  |
| 802.11n(HT20MHz)        | 2TX With Beamforming | 6.33                   | 6.33  |
| 802.11n(HT40MHz)        | 2TX With Beamforming | 6.33                   | 6.33  |
| 802.11ax(HE20MHz)       | 2TX With Beamforming | 6.33                   | 6.33  |
| 802.11ax(HE40MHz)       | 2TX With Beamforming | 6.33                   | 6.33  |

Note: If antenna gains are not equal and each transmit antenna can be driven by more than one

spatial stream, directional gain may be calculated by either of the following formulas:

☒ Directional gain =  $G_{ANT\ MAX} + 10 \log(N_{ANT}/N_{SS})$  dBi, where  $N_{SS}$  = the number of independent spatial streams of data and  $G_{ANT\ MAX}$  is the gain of the antenna having the highest gain (in dBi).

Directional gain =  $3.33 + 10 \log(2/1)$  dBi = 6.33 dBi

If all antennas have the same gain,  $G_{ANT}$ :

☐ Directional gain =  $G_{ANT} + 10 \log(N_{ANT}/N_{SS})$  dBi, where  $N_{SS}$  = the number of independent spatial streams of data and  $G_{ANT}$  is the antenna gain in dBi. (This formula can also be applied when antennas have different gains if the highest antenna gain is substituted for  $G_{ANT}$ .)

EUT with the lowest possible  $N_{SS} = 1$

Ant gain provided by the manufacturer.

## 2. Summary of Test Results

### 2.1 Summary of Test Items

| 47 CFR FCC Part 15, Subpart C (Section 15.247)                                    |                             |            |                                   |
|-----------------------------------------------------------------------------------|-----------------------------|------------|-----------------------------------|
| Test item                                                                         | FCC Clause                  | Results    | Remarks                           |
| AC Power Conducted Emission                                                       | 15.207                      | Pass       | Meet the requirement of the limit |
| Radiated Emission and Band<br>Edge Measurement                                    | 15.205/15.209<br>/15.247(d) | Pass       | Meet the requirement of the limit |
| Spurious Emission at Antenna<br>Port                                              | 15.247(d)                   | Pass       | Meet the requirement of the limit |
| 6dB Bandwidth                                                                     | 15.247(a)(2)                | Pass       | Meet the requirement of the limit |
| Conducted Power                                                                   | 15.247(b)                   | Pass       | Meet the requirement of the limit |
| Power Spectral Density                                                            | 15.247(e)                   | Pass       | Meet the requirement of the limit |
| Antenna Requirements                                                              | 15.203                      | Compliance | Note                              |
| Note: The EUT has 2 internal antennas arrangement which was permanently attached. |                             |            |                                   |

### 2.2 Application of Standard

47 CFR FCC Part 15, Subpart C (Section 15.247)

KDB 558074 D01 15.247 Meas Guidance v05r02

KDB 662911 D01 Multiple Transmitter Output v02r01

ANSI C63.10:2013

## 2.3 Test Instruments

| Radiated Emissions    |                                         |                              |                 |                |                           |                               |
|-----------------------|-----------------------------------------|------------------------------|-----------------|----------------|---------------------------|-------------------------------|
| No.                   | Equipment                               | Manufacturer                 | Type No.        | Serial No.     | Cal. date<br>(yyyy/mm/dd) | Cal. Due date<br>(yyyy/mm/dd) |
| 1                     | Test receiver                           | Rohde&Schwarz                | ESU             | 100184         | 2023/5/3                  | 2024/5/2                      |
| 2                     | Horn Antenna                            | Schwarzbeck                  | BBHA<br>9120 D  | 9120D-127<br>3 | 2023/4/23                 | 2024/4/22                     |
| 3                     | Low frequency<br>amplifier              | Unknown                      | LNA<br>0920N    | 2014           | 2023/5/3                  | 2024/5/2                      |
| 4                     | High frequency<br>amplifier             | Schwarzbeck                  | BBV 9718        | 284            | 2023/5/3                  | 2024/5/2                      |
| 5                     | Loop Antenna                            | Schwarzbeck                  | FMZB1519<br>B   | 00029          | 2022/7/4                  | 2025/7/3                      |
| 6                     | Log periodic<br>antenna                 | Schwarzbeck                  | VULB 9168       | 1151           | 2023/4/23                 | 2024/4/22                     |
| 7                     | Horn Antenna                            | Schwarzbeck                  | BBHA<br>9120 D  | 9120D-127<br>3 | 2022/5/5                  | 2025/5/4                      |
| 8                     | Horn Antenna                            | Schwarzbeck                  | BBHA<br>9170    | 9170#685       | 2022/7/4                  | 2025/7/3                      |
| 9                     | Temp&Humidity<br>Recorder               | Meideshi                     | JR900           | /              | 2023/5/3                  | 2024/5/2                      |
| 10                    | RF cable(966<br>chamber)9kHz-1<br>GHz   | Unknown                      | Unknown         | Unknown        | 2023/5/3                  | 2024/5/2                      |
| 11                    | RF cable(966<br>chamber)1GHz-<br>18GHz  | Unknown                      | Unknown         | Unknown        | 2023/5/3                  | 2024/5/2                      |
| 12                    | RF cable(966<br>chamber)18GHz<br>-40GHz | Unknown                      | Unknown         | Unknown        | 2023/5/3                  | 2024/5/2                      |
| 13                    | Test software                           | Farad Technology<br>Co., Ltd | EZ-EMC          | /              | /                         | /                             |
| Conducted Emission    |                                         |                              |                 |                |                           |                               |
| 1                     | Test receiver                           | Rohde&Schwarz                | ESCI            | 100718         | 2023/5/3                  | 2024/5/2                      |
| 2                     | LISN                                    | Rohde&Schwarz                | ENV216          | 100075         | 2023/5/3                  | 2024/5/2                      |
| 3                     | Pulse limiter                           | Rohde&Schwarz                | ESH3-Z2         | 102299         | 2023/5/3                  | 2024/5/2                      |
| 4                     | RF cable<br>(9kHz-30MHz)                | Unknown                      | Unknown         | Unknown        | 2023/5/3                  | 2024/5/2                      |
| 5                     | Test software                           | Farad Technology<br>Co., Ltd | EZ-EMC          | /              | /                         | /                             |
| RF Conducted Emission |                                         |                              |                 |                |                           |                               |
| 1                     | MXA Signal<br>Analyzer                  | Keysight                     | N9021B          | MY60080<br>169 | 2023/4/23                 | 2024/4/22                     |
| 2                     | RF Control<br>Unit                      | dsusoft                      | JS0806-2        | 21G80604<br>49 | 2023/4/23                 | 2024/4/22                     |
| 3                     | power supply<br>unit                    | dsusoft                      | JS0806-4<br>ADC | N/A            | 2023/4/23                 | 2024/4/22                     |
| 4                     | VXG Signal<br>Generator                 | Keysight                     | M9384B          | MY61270<br>787 | 2023/4/23                 | 2024/4/22                     |
| 5                     | EXG Analog<br>Signal<br>Generator       | Keysight                     | N5173B          | MY59101<br>282 | 2023/4/23                 | 2024/4/22                     |
| 6                     | Test software                           | dsusoft                      | JS1120-3        | /              | /                         | /                             |

## 2.4 Test Mode

| Frequency Range : 2400~2483.5 MHz           |                 |           |          |         |
|---------------------------------------------|-----------------|-----------|----------|---------|
| Test Items                                  | Mode            | Data Rate | Channel  | Antenna |
| AC Power Conducted Emission                 | 802.11b         | 1Mbps     | 06       | 1&2     |
| Radiated Emission and Band Edge Measurement | 802.11b         | 1Mbps     | 01/06/11 | 1&2     |
|                                             | 802.11n(20MHz)  | MCS0      | 01/06/11 | 1&2     |
|                                             | 802.11n(40MHz)  | MCS0      | 03/06/09 | 1&2     |
| Spurious Emission at Antenna Port           | 802.11b         | 1Mbps     | 01/06/11 | 1&2     |
|                                             | 802.11n(20MHz)  | MCS0      | 01/06/11 | 1&2     |
|                                             | 802.11n(40MHz)  | MCS0      | 03/06/09 | 1&2     |
|                                             | 802.11ax(20MHz) | MCS0      | 01/06/11 | 1&2     |
|                                             | 802.11ax(40MHz) | MCS0      | 03/06/09 | 1&2     |
| 6dB Bandwidth                               | 802.11b         | 1Mbps     | 01/06/11 | 1&2     |
|                                             | 802.11n(20MHz)  | MCS0      | 01/06/11 | 1&2     |
|                                             | 802.11n(40MHz)  | MCS0      | 03/06/09 | 1&2     |
|                                             | 802.11ax(20MHz) | MCS0      | 01/06/11 | 1&2     |
|                                             | 802.11ax(40MHz) | MCS0      | 03/06/09 | 1&2     |
| Conducted Power                             | 802.11b         | 1Mbps     | 01/06/11 | 1&2     |
|                                             | 802.11n(20MHz)  | MCS0      | 01/06/11 | 1&2     |
|                                             | 802.11n(40MHz)  | MCS0      | 03/06/09 | 1&2     |
|                                             | 802.11ax(20MHz) | MCS0      | 01/06/11 | 1&2     |
|                                             | 802.11ax(40MHz) | MCS0      | 03/06/09 | 1&2     |
| Power Spectral Density                      | 802.11b         | 1Mbps     | 01/06/11 | 1&2     |
|                                             | 802.11n(20MHz)  | MCS0      | 01/06/11 | 1&2     |
|                                             | 802.11n(40MHz)  | MCS0      | 03/06/09 | 1&2     |
|                                             | 802.11ax(20MHz) | MCS0      | 01/06/11 | 1&2     |
|                                             | 802.11ax(40MHz) | MCS0      | 03/06/09 | 1&2     |

#### Parameters Of Test Software:

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

| Test Software Version | accessMTool_REL_3_2_1_3 |      |      |
|-----------------------|-------------------------|------|------|
| Frequency (MHz)       | 2412                    | 2437 | 2462 |
| IEEE 802.11b          | 80                      | 96   | 96   |
| IEEE 802.11g          | 80                      | 96   | 80   |
| IEEE 802.11n(HT20)    | 79                      | 91   | 81   |
| IEEE 802.11ax(HE20)   | 75                      | 92   | 78   |
| Frequency (MHz)       | 2422                    | 2437 | 2452 |
| IEEE 802.11n(HT40)    | 81                      | 78   | 78   |
| IEEE 802.11ax(HE40)   | 81                      | 78   | 78   |

11g and 11n mode have the same modulation, and the 11g mode power setting is not greater than 11n, so the test of 11g mode is covered by 11n.

The EUT supports non-beamforming and beamforming modes, both modes have the same power setting, after evaluating, the beamforming mode has been evaluated to be the worst case, so it was selected to Final test.

## 2.5 Test Condition

| Applicable to                               | Environmental conditions | Input Power  | Tested by   |
|---------------------------------------------|--------------------------|--------------|-------------|
| AC Power Conducted Emission                 | 25.3°C, 51% RH           | AC 120V/60Hz | Albert Fan  |
| Radiated Emission and Band Edge Measurement | 25.3°C, 55% RH           | AC 120V/60Hz | Albert Fan  |
| Spurious Emission at Antenna Port           | 25.2°C, 52% RH           | AC 120V/60Hz | Jason Huang |
| 6dB Bandwidth                               | 25.2°C, 52% RH           | AC 120V/60Hz | Jason Huang |
| Conducted Power                             | 25.2°C, 52% RH           | AC 120V/60Hz | Jason Huang |
| Power Spectral Density                      | 25.2°C, 52% RH           | AC 120V/60Hz | Jason Huang |

The applicant declare the operating environment of EUT as below:

Normal conditions: 120V AC, 15~35°C

## 2.6 Duty Cycle of Test Signal

If duty cycle is  $\geq 98\%$ , duty factor is not required.

If duty cycle is  $< 98\%$ , duty factor shall be considered.

All the duty factor of other test mode have been considered.

For radiated emissions frequency above 1 GHz, Final VBW represents the video bandwidth set by the receiver/spectrum analyzer.

| TestMode   | Antenna | Frequency[MHz] | Transmission Duration [ms] | Transmission Period [ms] | Duty Cycle | Duty Cycle | 1/T              | Final VBW(kHz) |
|------------|---------|----------------|----------------------------|--------------------------|------------|------------|------------------|----------------|
|            |         |                |                            |                          |            |            | Minimum VBW(kHz) |                |
| 11B-CDD    | Ant1    | 2437           | 12.41                      | 13.06                    | 95.02      | 0.22       | 0.08             | 1              |
|            | Ant2    | 2437           | 12.41                      | 13.06                    | 95.02      | 0.22       | 0.08             | 1              |
| 11N20MIMO  | Ant1    | 2437           | 1.92                       | 2.02                     | 95.05      | 0.22       | 0.52             | 1              |
|            | Ant2    | 2437           | 1.92                       | 2.02                     | 95.05      | 0.22       | 0.52             | 1              |
| 11N40MIMO  | Ant1    | 2437           | 0.94                       | 1.04                     | 90.38      | 0.44       | 1.06             | 2              |
|            | Ant2    | 2437           | 0.94                       | 1.04                     | 90.38      | 0.44       | 1.06             | 2              |
| 11AX20MIMO | Ant1    | 2437           | 1.48                       | 1.51                     | 98.01      | 0.09       | 0.68             | 1              |
|            | Ant2    | 2437           | 1.48                       | 1.51                     | 98.01      | 0.09       | 0.68             | 1              |
| 11AX40MIMO | Ant1    | 2437           | 0.78                       | 0.81                     | 96.3       | 0.16       | 1.28             | 2              |
|            | Ant2    | 2437           | 0.78                       | 0.81                     | 96.3       | 0.16       | 1.28             | 2              |

Note: The DUTY CYCLE of different channels in the same mode is the same, and the above test channels are represented in the report.

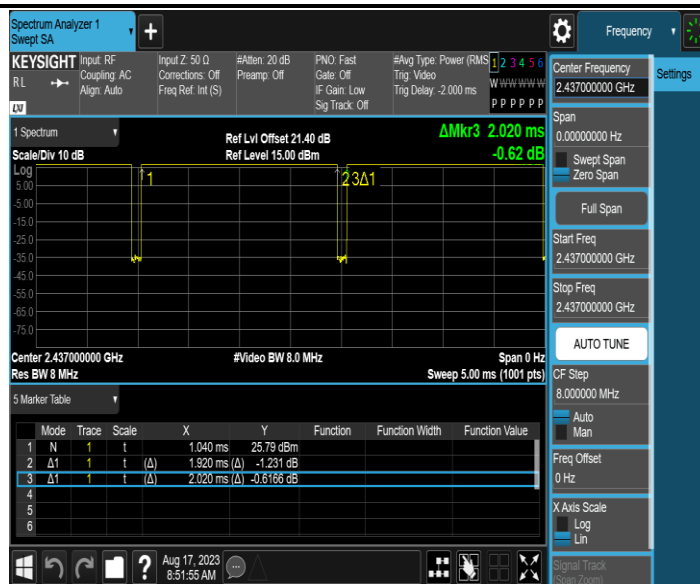
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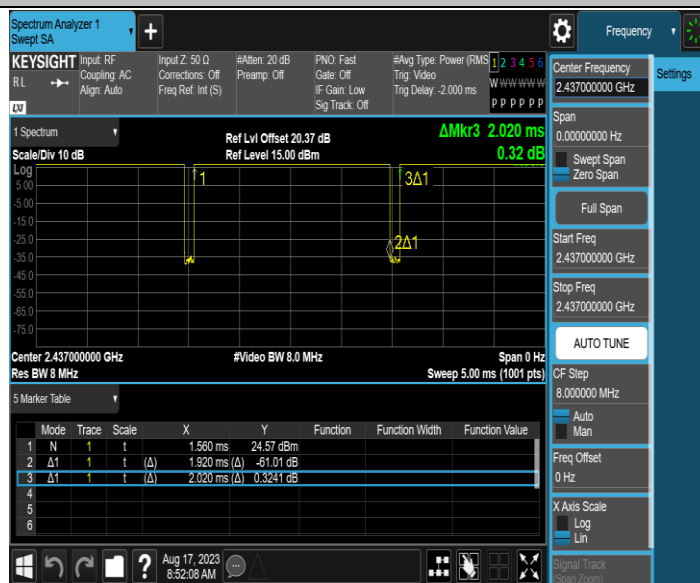
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### 11N20MIMO\_Ant1\_2437



11N20MIMO\_Ant2\_2437



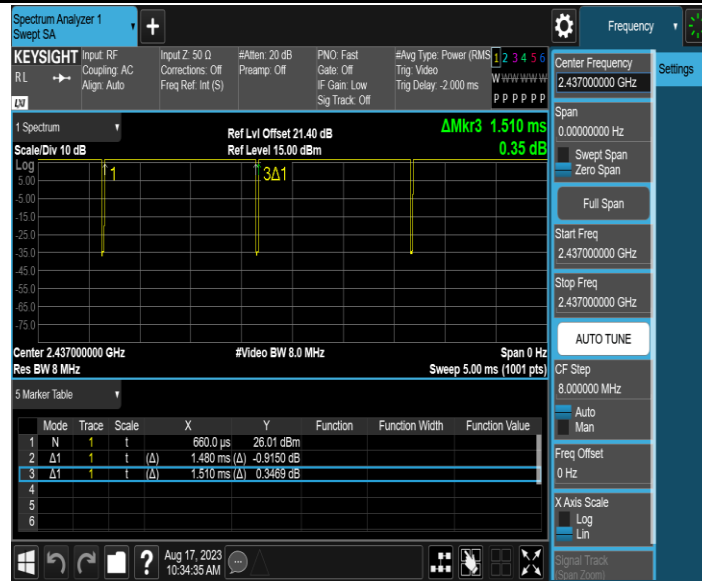
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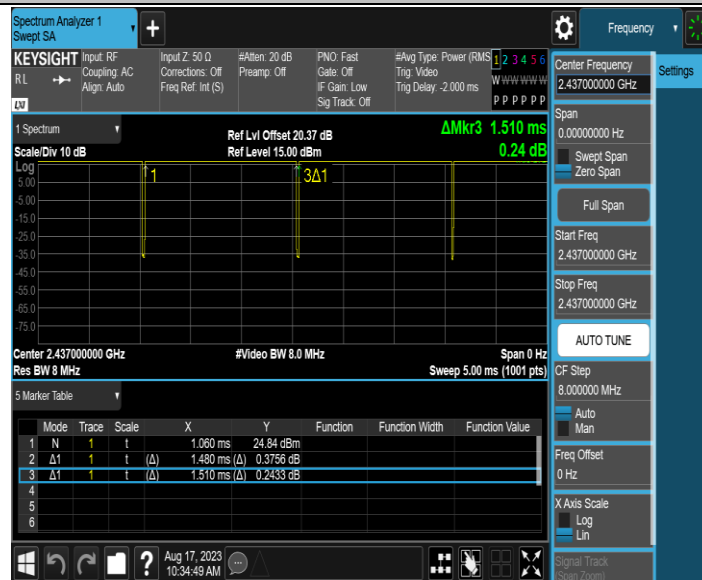
11N40MIMO\_Ant2\_2437



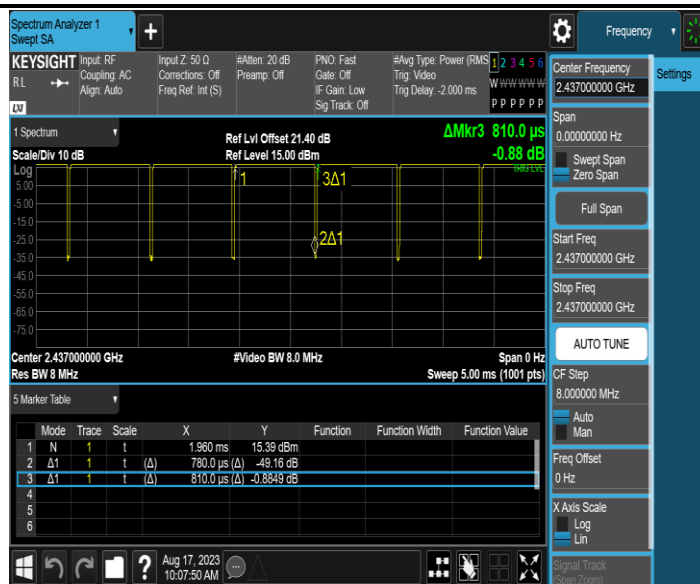
11AX20MIMO\_Ant1\_2437



11AX20MIMO\_Ant2\_2437



11AX40MIMO\_Ant1\_2437



### 11AX40MIMO\_Ant2\_2437



## 2.7 Measurement Uncertainty

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the EUT.

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

| Uncertainty                            |                  |
|----------------------------------------|------------------|
| Parameter                              | Uncertainty      |
| Occupied Channel Bandwidth             | $\pm 143.88$ kHz |
| Power Spectral Density                 | $\pm 0.743$ dB   |
| Conducted Spurious Emission            | $\pm 1.328$ dB   |
| RF power conducted                     | $\pm 0.384$ dB   |
| Conducted emission(9kHz~30MHz) AC main | $\pm 2.72$ dB    |
| Radiated emission(9kHz~30MHz)          | $\pm 2.66$ dB    |
| Radiated emission (30MHz~1GHz)         | $\pm 4.62$ dB    |
| Radiated emission (1GHz~18GHz)         | $\pm 4.86$ dB    |
| Radiated emission (18GHz~40GHz)        | $\pm 3.80$ dB    |

## 2.8 Test Location

|                           |                                                                                             |
|---------------------------|---------------------------------------------------------------------------------------------|
| Company:                  | Shenzhen Haiyun Standard Technical CO., Ltd.                                                |
| Address:                  | No. 110-113, 115, 116, Block B, Jinyuan Business Building, Bao'an District, Shenzhen, China |
| CNAS Registration Number: | CNAS L18252                                                                                 |
| CAB identifier            | CN0145                                                                                      |
| A2LA Certificate Number   | 6823.01                                                                                     |
| Telephone:                | 0755-26024411                                                                               |

## 2.9 Description of Support Units

Test associated equipment

| No. | Equipment | Manufacturer | Model | Series No |
|-----|-----------|--------------|-------|-----------|
| 2   | Notebook  | L450         | Think | /         |

Cable and Interconnection

| Item | Interface | Shielded Type | Ferrite Core | Length |
|------|-----------|---------------|--------------|--------|
| 1    | RJ45      | No            | No           | 10m    |

---

## 2.10 Deviation from Standards

None

### 3. Test Procedure And Results

#### 3.1 AC Power Line Conducted Emission

##### 3.1.1 Limit

| Frequency       | Maximum RF Line Voltage    |                         |
|-----------------|----------------------------|-------------------------|
|                 | Quasi-Peak Level<br>dB(μV) | Average Level<br>dB(μV) |
| 150kHz ~ 500kHz | 66 ~ 56*                   | 56 ~ 46*                |
| 500kHz ~ 5MHz   | 56                         | 46                      |
| 5MHz ~ 30MHz    | 60                         | 50                      |

Notes: 1. \* Decreasing linearly with logarithm of frequency.

2. The lower limit shall apply at the transition frequencies.

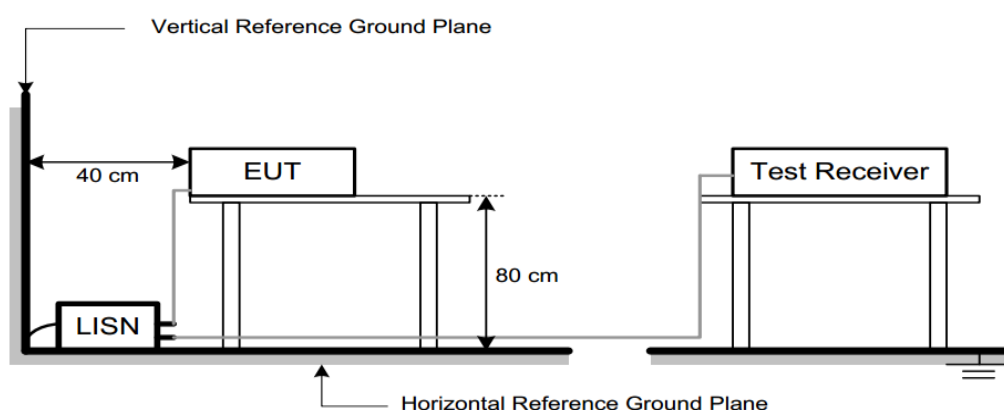
##### 3.1.2 Test Procedure

| Test Method                                              |                                                  |
|----------------------------------------------------------|--------------------------------------------------|
| <input checked="" type="radio"/> Conducted Measurement   | <input type="radio"/> Radiated Measurement       |
| Test Channels                                            |                                                  |
| <input type="radio"/> Lowest, Middle and Highest Channel | <input type="radio"/> Lowest and Highest Channel |
| Environmental conditions                                 |                                                  |
| <input checked="" type="radio"/> Normal                  | <input type="radio"/> Normal and Extreme         |

Note: ● : Test    ○ : No Test

- The EUT was placed 0.4 meters from the conducting wall of the shielded room with EUT being connected to the power mains through a line impedance stabilization network (LISN). Other support units were connected to the power mains through another LISN. The two LISNs provide 50 ohm/ 50uH of coupling impedance for the measuring instrument.
- Both lines of the power mains connected to the EUT were checked for maximum conducted interference.
- The frequency range from 150kHz to 30MHz was searched. Emission levels under (Limit - 20dB) was not recorded.

##### 3.1.3 Test Setup



### 3.1.4 Test Result

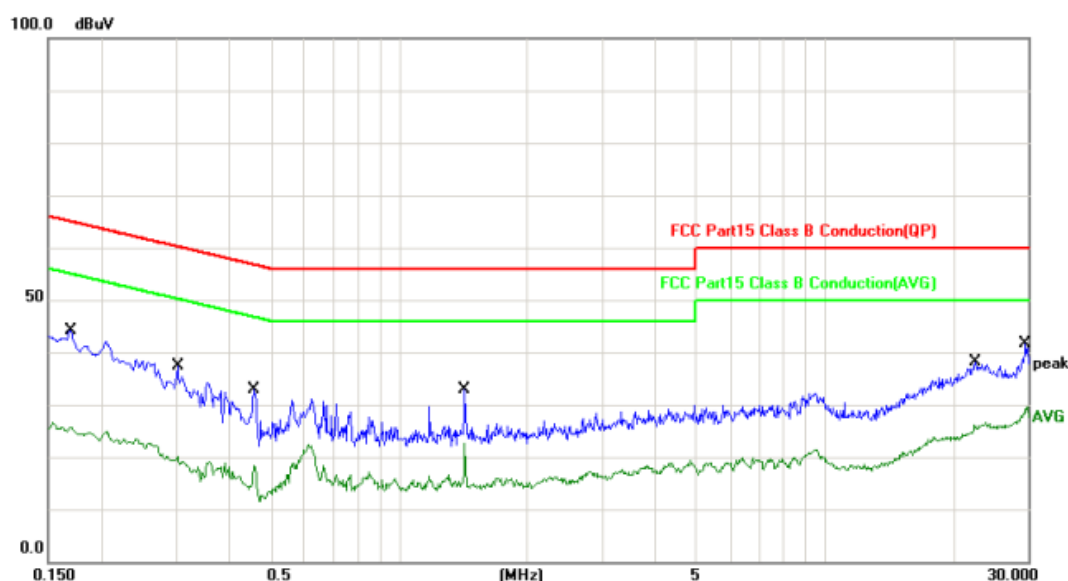
#### Note:

1. Correct Factor = LISN Factor + Cable Loss + Pulse Limiter Factor, the value was added to Original Receiver Reading by the software automatically.
2. Measurement = Reading + Correct Factor.
3. Over = Measurement – Limit

Note: We only recorded the data of the worst mode. Please see the following:

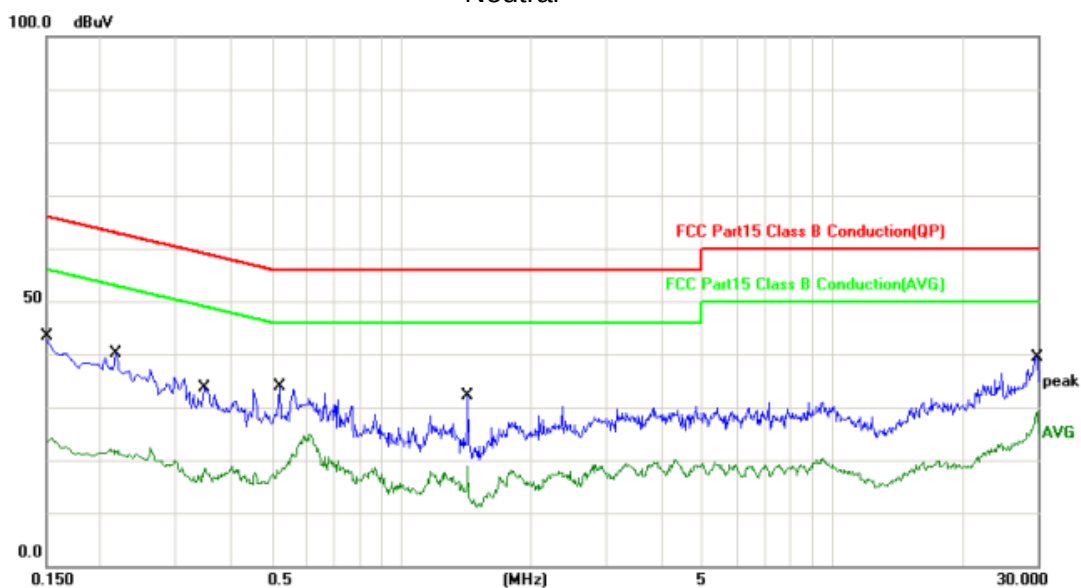
150kHz~30MHz Worst Case Operating Mode: 11b-MIMO \_ Channel:6

Line



| No. | Mk. | Freq.   | Reading Level | Correct Factor | Measurement | Limit | Over   |          |         |
|-----|-----|---------|---------------|----------------|-------------|-------|--------|----------|---------|
|     |     | MHz     | dBuV          | dB             | dBuV        | dBuV  | dB     | Detector | Comment |
| 1   |     | 0.1700  | 25.68         | 19.53          | 45.21       | 64.96 | -19.75 | QP       |         |
| 2   |     | 0.1700  | 3.35          | 19.53          | 22.88       | 54.96 | -32.08 | AVG      |         |
| 3   |     | 0.3020  | 18.35         | 19.52          | 37.87       | 60.19 | -22.32 | QP       |         |
| 4   |     | 0.3020  | 0.34          | 19.52          | 19.86       | 50.19 | -30.33 | AVG      |         |
| 5   |     | 0.4580  | 13.65         | 19.53          | 33.18       | 56.73 | -23.55 | QP       |         |
| 6 * |     | 0.4580  | 20.29         | 19.53          | 39.82       | 46.73 | -6.91  | AVG      |         |
| 7   |     | 1.4260  | 5.35          | 19.78          | 25.13       | 56.00 | -30.87 | QP       |         |
| 8   |     | 1.4260  | 4.35          | 19.78          | 24.13       | 46.00 | -21.87 | AVG      |         |
| 9   |     | 22.5580 | 19.65         | 20.87          | 40.52       | 60.00 | -19.48 | QP       |         |
| 10  |     | 22.5580 | 4.32          | 20.87          | 25.19       | 50.00 | -24.81 | AVG      |         |
| 11  |     | 29.6300 | 21.54         | 20.79          | 42.33       | 60.00 | -17.67 | QP       |         |
| 12  |     | 29.6300 | 8.32          | 20.79          | 29.11       | 50.00 | -20.89 | AVG      |         |

# Neutral



| No. | Mk. | Freq.   | Reading Level | Correct Factor | Measurement | Limit | Over   |          |         |
|-----|-----|---------|---------------|----------------|-------------|-------|--------|----------|---------|
|     |     | MHz     | dBuV          | dB             | dBuV        | dBuV  | dB     | Detector | Comment |
| 1   |     | 0.1500  | 20.65         | 19.70          | 40.35       | 66.00 | -25.65 | QP       |         |
| 2   |     | 0.1500  | 1.35          | 19.70          | 21.05       | 56.00 | -34.95 | AVG      |         |
| 3   |     | 0.2180  | 20.33         | 19.70          | 40.03       | 62.89 | -22.86 | QP       |         |
| 4   |     | 0.2180  | 2.16          | 19.70          | 21.86       | 52.89 | -31.03 | AVG      |         |
| 5   |     | 0.3500  | 10.65         | 19.70          | 30.35       | 58.96 | -28.61 | QP       |         |
| 6   |     | 0.3500  | -3.65         | 19.70          | 16.05       | 48.96 | -32.91 | AVG      |         |
| 7   |     | 0.5220  | 13.26         | 19.74          | 33.00       | 56.00 | -23.00 | QP       |         |
| 8   |     | 0.5220  | -1.35         | 19.74          | 18.39       | 46.00 | -27.61 | AVG      |         |
| 9   |     | 1.4260  | 10.16         | 20.03          | 30.19       | 56.00 | -25.81 | QP       |         |
| 10  |     | 1.4260  | -3.16         | 20.03          | 16.87       | 46.00 | -29.13 | AVG      |         |
| 11  | *   | 29.9060 | 19.68         | 20.51          | 40.19       | 60.00 | -19.81 | QP       |         |
| 12  |     | 29.9060 | 8.65          | 20.51          | 29.16       | 50.00 | -20.84 | AVG      |         |

## 3.2 Radiated Emission and Band Edge

### 3.2.1 Limit

Radiated emissions which fall in the restricted bands must comply with the radiated emission limits specified as below table. Other emissions shall be at least 20dB below the highest level of the desired power:

| Frequency<br>(MHz) | Distance<br>Meters(m) | Field Strength Limit                                                                              |                                   |
|--------------------|-----------------------|---------------------------------------------------------------------------------------------------|-----------------------------------|
|                    |                       | $\mu\text{V/m}$                                                                                   | $\text{dB}(\mu\text{V})/\text{m}$ |
| 0.009 – 0.49       | 300                   | 2400/F(kHz)                                                                                       | -                                 |
| 0.490 – 1.705      | 30                    | 24000/F(kHz)                                                                                      | -                                 |
| 1.705 – 30         | 30                    | 30                                                                                                | -                                 |
| 30~88              | 3                     | 100                                                                                               | 40.0                              |
| 88~216             | 3                     | 150                                                                                               | 43.5                              |
| 216~960            | 3                     | 200                                                                                               | 46.0                              |
| 960~1000           | 3                     | 500                                                                                               | 54.0                              |
| Above 1000         | 3                     | 74.0 $\text{dB}(\mu\text{V})/\text{m}$ (Peak)<br>54.0 $\text{dB}(\mu\text{V})/\text{m}$ (Average) |                                   |

Note: (1) Emission level  $\text{dB}\mu\text{V} = 20 \log$  Emission level  $\mu\text{V/m}$

(2) The smaller limit shall apply at the cross point between two frequency bands.

(3) Distance is the distance in meters between the measuring instrument, antenna and the closest point of any part of the device or system.

### 3.2.2 Test Procedure

| Test Method                                                                   |                                                       |
|-------------------------------------------------------------------------------|-------------------------------------------------------|
| <input type="radio"/> Conducted Measurement                                   | <input checked="" type="radio"/> Radiated Measurement |
| Test Channels                                                                 |                                                       |
| <input checked="" type="radio"/> Lowest, Middle and Highest Channel           | <input type="radio"/> Lowest and Highest Channel      |
| Environmental conditions                                                      |                                                       |
| <input checked="" type="radio"/> Normal                                       | <input type="radio"/> Normal and Extreme              |
| Note: <input checked="" type="radio"/> : Test <input type="radio"/> : No Test |                                                       |

- The measuring distance of 3 m shall be used for measurements. The EUT was placed on the top of a rotating table 0.8 meter above the ground at a 3 meter semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.(below 1 GHz)
- The measuring distance of 3 m or 1.5m shall be used for measurements. The EUT was placed on the top of a rotating table 1.5 meter above the ground at a 3 meter semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.(above 1GHz)
- The height of the equipment or of the substitution antenna shall be 0.8m or 1.5m; the height of

the test antenna shall vary between 1 m to 4 m. Both horizontal and vertical polarizations of the antenna are set to make the measurement.

- d) For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights find the maximum reading (used Bore sight function).
- e) The receiver system was set to peak and average detect function and specified bandwidth with maximum hold mode when the test frequency is above 1 GHz.
- f) The initial step in collecting radiated emission data is a receiver peak detector mode pre-scanning the measurement frequency range. Significant peaks are then marked and then Quasi Peak detector mode re-measured.
- g) All readings are Peak unless otherwise stated QP in column of Note. Peak denotes that the Peak reading compliance with the QP Limits and then QP Mode measurement didn't perform. (below 1 GHz)
- h) All readings are Peak Mode value unless otherwise stated AVG in column of Note. If the Peak Mode Measured value compliance with the Peak Limits and lower than AVG Limits, the EUT shall be deemed to meet both Peak & AVG Limits and then only Peak Mode was measured, but AVG Mode didn't perform. (above 1 GHz)
- i) For the actual test configuration, please refer to the related Item -EUT Test Photos.

The following table is the setting of the receiver:

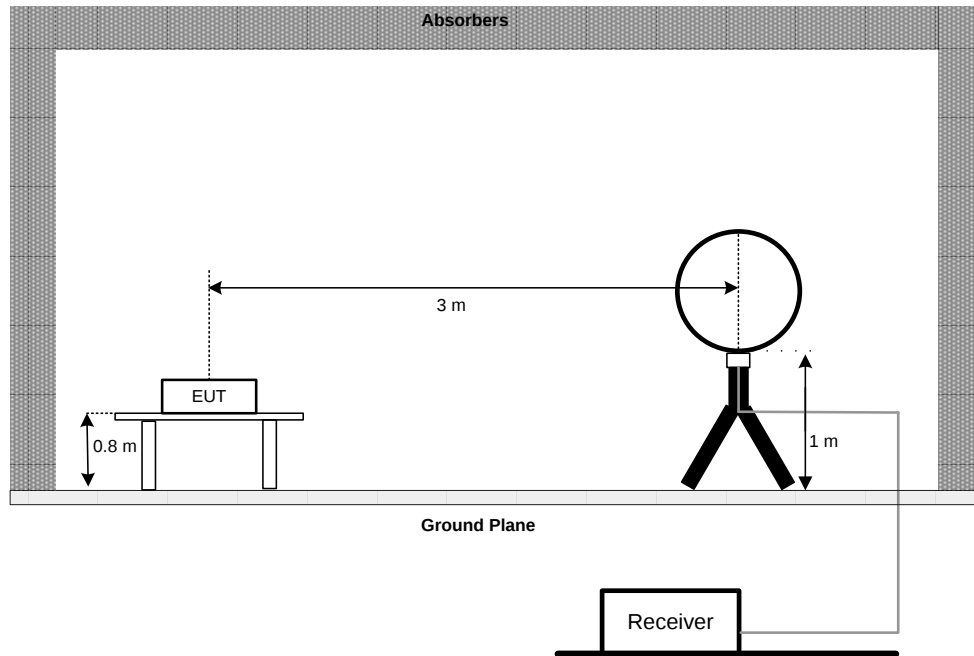
| Spectrum Parameters    | Setting                         |
|------------------------|---------------------------------|
| Start ~ Stop Frequency | 9 kHz~150 kHz for RBW 200 Hz    |
| Start ~ Stop Frequency | 0.15 MHz~30 MHz for RBW 9 kHz   |
| Start ~ Stop Frequency | 30 MHz~1000 MHz for RBW 100 kHz |

| Spectrum Parameters                        | Setting                                                                                    |
|--------------------------------------------|--------------------------------------------------------------------------------------------|
| Start Frequency                            | 1000 MHz                                                                                   |
| Stop Frequency                             | 10th carrier harmonic                                                                      |
| RBW / VBW<br>(Emission in restricted band) | 1 MHz / 3 MHz for PK value<br>1 MHz / 1/T (Refer to Final VBW in Section 2.6)for AVG value |

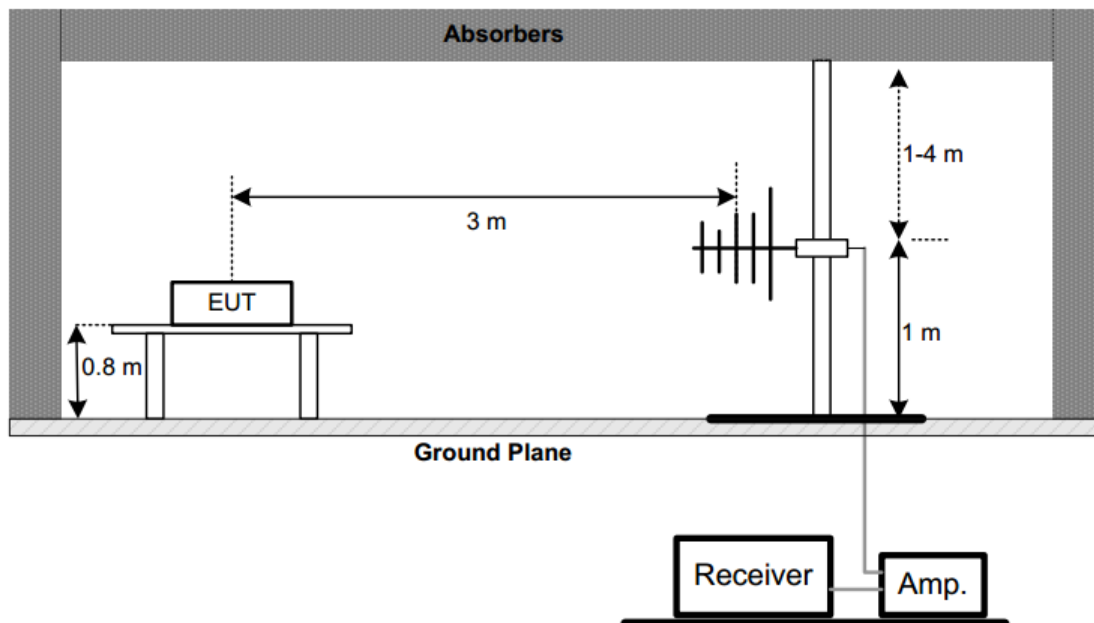
| Receiver Parameters    | Setting                             |
|------------------------|-------------------------------------|
| Start ~ Stop Frequency | 9 kHz~90 kHz for PK/AVG detector    |
| Start ~ Stop Frequency | 90 kHz~110 kHz for QP detector      |
| Start ~ Stop Frequency | 110 kHz~490 kHz for PK/AVG detector |
| Start ~ Stop Frequency | 490 kHz~30 MHz for QP detector      |
| Start ~ Stop Frequency | 30 MHz~1000 MHz for QP detector     |
| Start ~ Stop Frequency | 1 GHz~26.5 GHz for PK/AVG detector  |

### 3.2.3 Test Setup

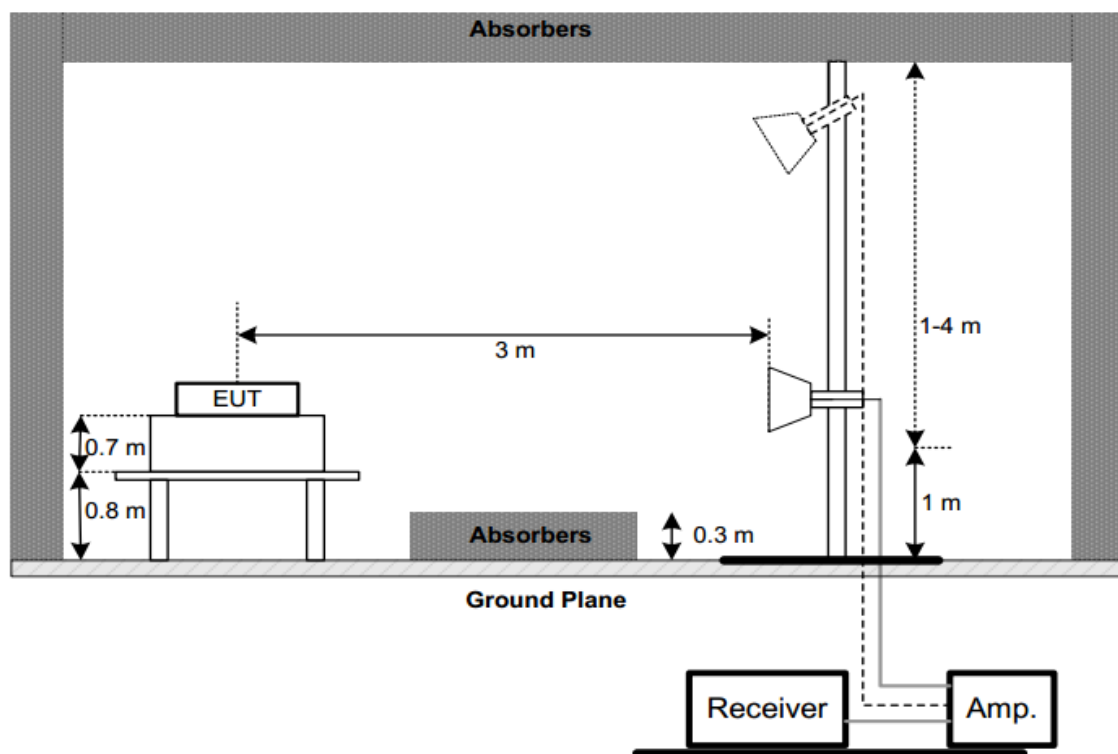
#### (A) Radiated Emission Test Set-Up Frequency Below 30 MHz



#### (B) Radiated Emission Test Set-Up Frequency 30 MHz-1000 MHz



(C) Radiated Emission Test Set-Up Frequency Above 1 GHz



### 3.2.4 Test Result

#### 1) Radiated emission: 9kHz-30MHz

The low frequency, which started from 9 kHz to 30MHz, was pre-scanned and the result which was 20dB lower than the limit line was not recorded in this report.

#### 2) Radiated emission: 30MHz-1G

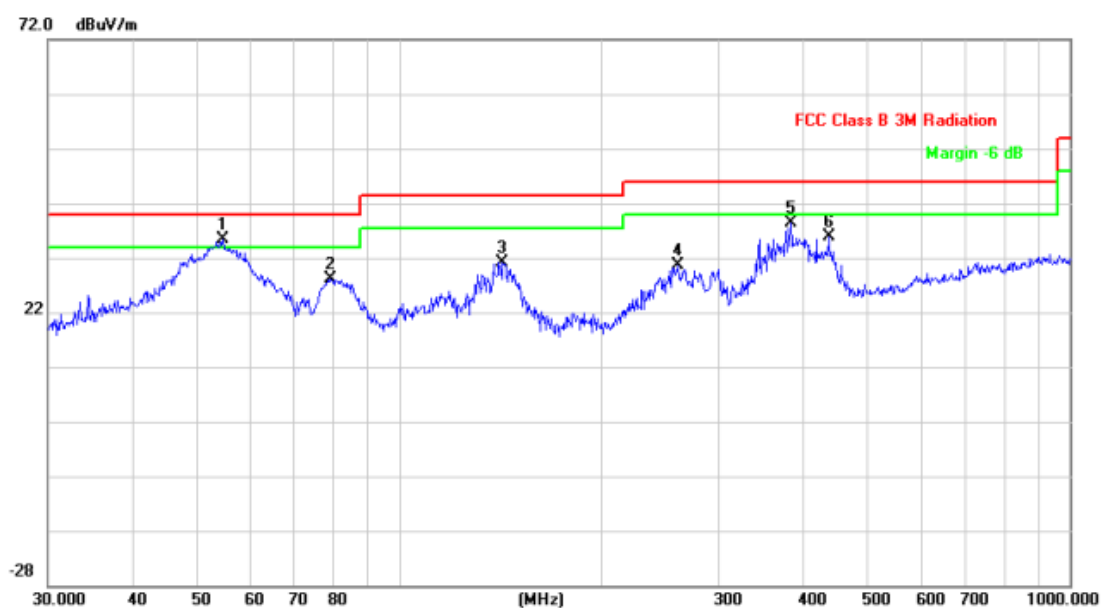
##### Note:

1. Measurement = Reading + Correct Factor.
2. Over = Measurement – Limit

We only recorded the data of the worst mode. Please see the following:

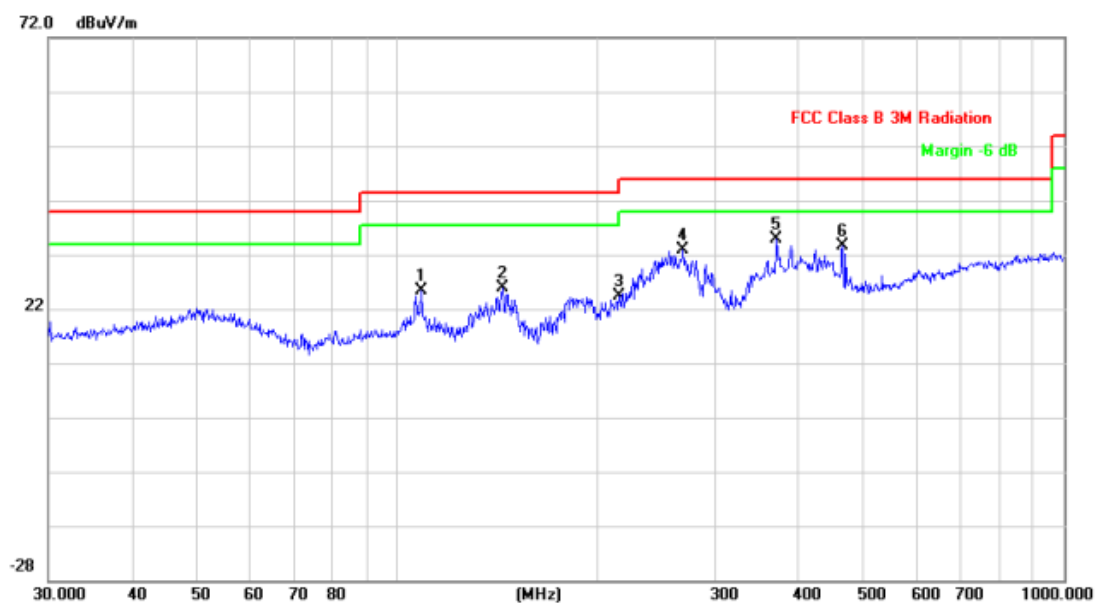
|                       |                                                 |
|-----------------------|-------------------------------------------------|
| Below 1G (30MHz~1GHz) | Worst Case Operating Mode: 11B-MIMO _ Channel:6 |
|-----------------------|-------------------------------------------------|

VERTICAL



| No. | Mk. | Freq.    | Reading Level | Correct Factor | Measurement | Limit  | Over   | Antenna Height | Table Degree |         |
|-----|-----|----------|---------------|----------------|-------------|--------|--------|----------------|--------------|---------|
|     |     | MHz      | dBuV          | dB             | dBuV/m      | dBuV/m | dB     | cm             | degree       | Comment |
| 1   | *   | 54.6428  | 15.22         | 20.25          | 35.47       | 40.00  | -4.53  | QP             | 100          | 256     |
| 2   |     | 78.9651  | 11.62         | 16.57          | 28.19       | 40.00  | -11.81 | QP             | 100          | 321     |
| 3   |     | 142.8242 | 14.80         | 16.24          | 31.04       | 43.50  | -12.46 | QP             | 100          | 142     |
| 4   |     | 261.0581 | 9.97          | 20.74          | 30.71       | 46.00  | -15.29 | QP             | 100          | 52      |
| 5   |     | 383.9318 | 14.59         | 23.79          | 38.38       | 46.00  | -7.62  | QP             | 200          | 112     |
| 6   |     | 437.1200 | 10.72         | 25.11          | 35.83       | 46.00  | -10.17 | QP             | 200          | 33      |

# HORIZONTAL



| No. | Mk. | Freq.    | Reading Level | Correct Factor | Measurement | Limit  | Over   | Antenna Height | Table Degree |        |
|-----|-----|----------|---------------|----------------|-------------|--------|--------|----------------|--------------|--------|
|     |     | MHz      | dBuV          | dB             | dBuV/m      | dBuV/m | dB     | Detector       | cm           | degree |
| 1   |     | 108.6470 | 5.85          | 19.62          | 25.47       | 43.50  | -18.03 | QP             | 200          | 265    |
| 2   |     | 143.8294 | 9.73          | 16.20          | 25.93       | 43.50  | -17.57 | QP             | 200          | 59     |
| 3   |     | 215.2677 | 5.13          | 19.22          | 24.35       | 43.50  | -19.15 | QP             | 100          | 29     |
| 4   |     | 268.4852 | 11.93         | 20.84          | 32.77       | 46.00  | -13.23 | QP             | 100          | 25     |
| 5 * |     | 370.7022 | 11.24         | 23.57          | 34.81       | 46.00  | -11.19 | QP             | 100          | 41     |
| 6   |     | 465.5994 | 8.28          | 25.24          | 33.52       | 46.00  | -12.48 | QP             | 200          | 142    |

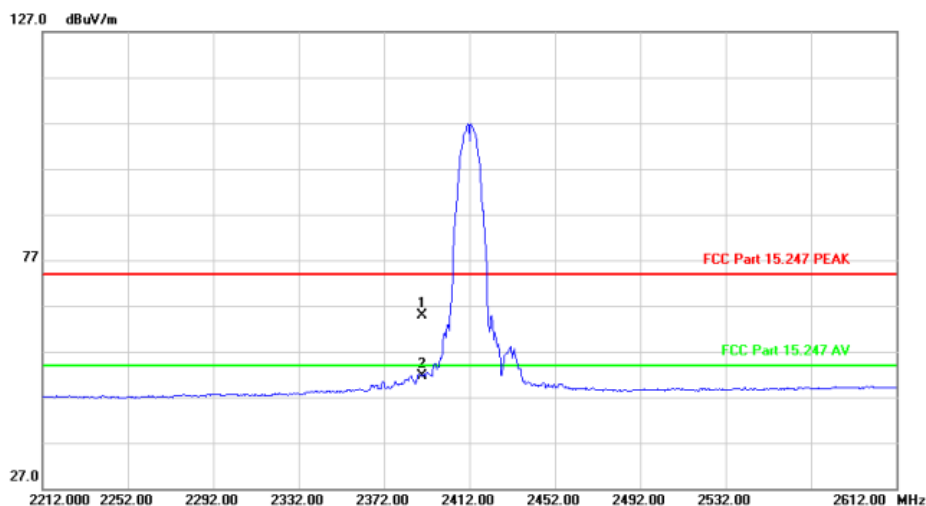
### 3) Radiated emission: Above 1G

#### Note:

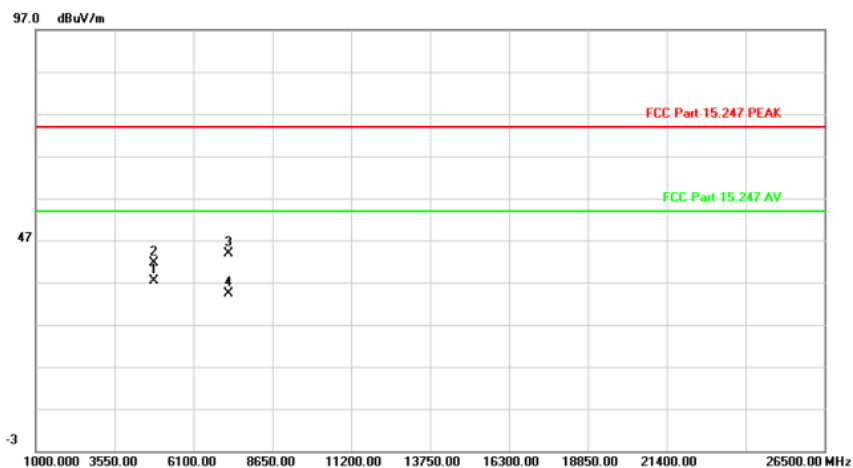
1. Measurement = Reading + Correct Factor.
2. Over = Measurement – Limit

|                       |                    |                |
|-----------------------|--------------------|----------------|
| Above 1G (1GHz~18GHz) | Test mode:11B-MIMO | Test Channel:1 |
|-----------------------|--------------------|----------------|

#### VERTICAL

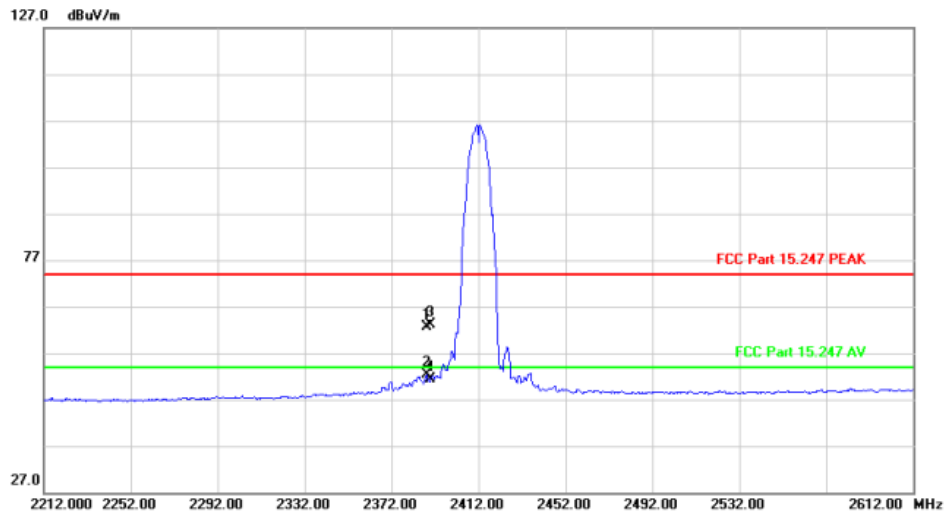


| No. | Mk. | Freq.    | Reading Level | Correct Factor | Measurement | Limit  | Over  | Antenna Height | Table Degree |         |
|-----|-----|----------|---------------|----------------|-------------|--------|-------|----------------|--------------|---------|
|     |     | MHz      | dBuV          | dB             | dBuV/m      | dBuV/m | dB    | cm             | degree       | Comment |
| 1   |     | 2390.000 | 36.99         | 27.91          | 64.90       | 74.00  | -9.10 | peak           |              |         |
| 2   | *   | 2390.000 | 23.70         | 27.91          | 51.61       | 54.00  | -2.39 | AVG            |              |         |

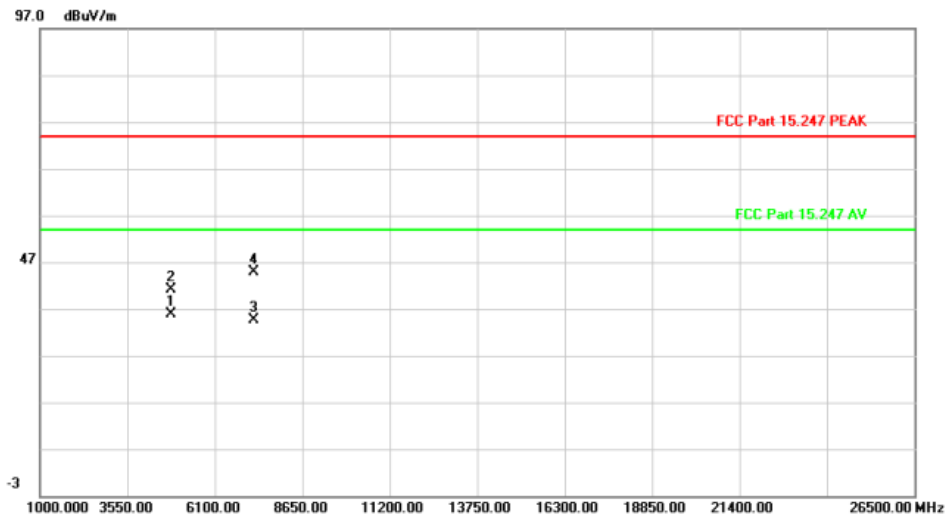


| No. | Mk. | Freq.    | Reading Level | Correct Factor | Measurement | Limit  | Over   | Antenna Height | Table Degree |         |
|-----|-----|----------|---------------|----------------|-------------|--------|--------|----------------|--------------|---------|
|     |     | MHz      | dBuV          | dB             | dBuV/m      | dBuV/m | dB     | cm             | degree       | Comment |
| 1   | *   | 4824.234 | 51.46         | -14.02         | 37.44       | 54.00  | -16.56 | AVG            |              |         |
| 2   |     | 4825.850 | 55.54         | -14.01         | 41.53       | 74.00  | -32.47 | peak           |              |         |
| 3   |     | 7236.500 | 53.25         | -9.33          | 43.92       | 74.00  | -30.08 | peak           |              |         |
| 4   |     | 7237.357 | 43.60         | -9.33          | 34.27       | 54.00  | -19.73 | AVG            |              |         |

## HORIZONTAL



| No. | Mk. | Freq.    | Reading Level | Correct Factor | Measurement | Limit  | Over   | Antenna Height | Table Degree |         |
|-----|-----|----------|---------------|----------------|-------------|--------|--------|----------------|--------------|---------|
|     |     | MHz      | dBuV          | dB             | dBuV/m      | dBuV/m | dB     | cm             | degree       | Comment |
| 1   |     | 2388.000 | 34.68         | 27.91          | 62.59       | 74.00  | -11.41 | peak           |              |         |
| 2 * |     | 2388.000 | 24.40         | 27.91          | 52.31       | 54.00  | -1.69  | AVG            |              |         |
| 3   |     | 2390.000 | 35.22         | 27.91          | 63.13       | 74.00  | -10.87 | peak           |              |         |
| 4   |     | 2390.000 | 23.53         | 27.91          | 51.44       | 54.00  | -2.56  | AVG            |              |         |



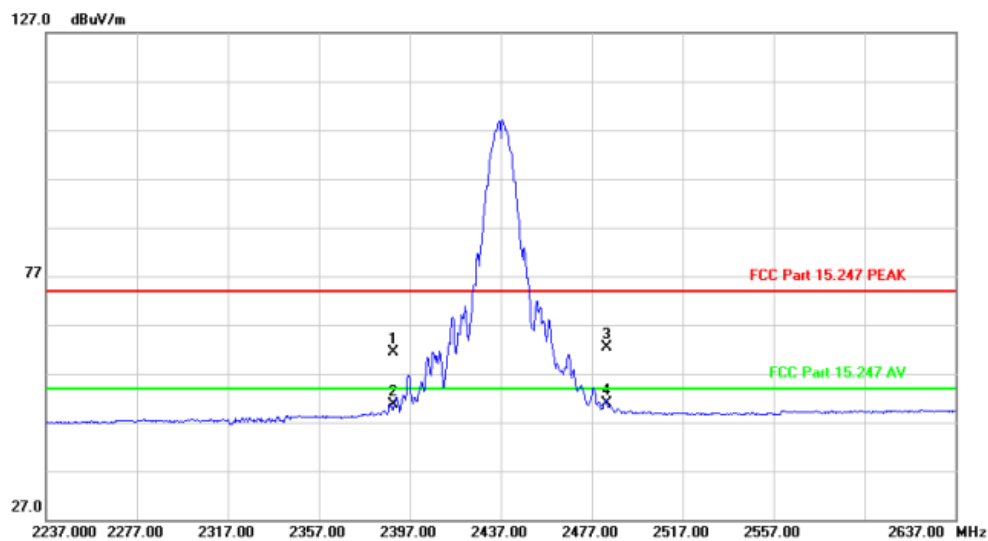
| No. | Mk. | Freq.    | Reading Level | Correct Factor | Measurement | Limit  | Over   | Antenna Height | Table Degree |         |
|-----|-----|----------|---------------|----------------|-------------|--------|--------|----------------|--------------|---------|
|     |     | MHz      | dBuV          | dB             | dBuV/m      | dBuV/m | dB     | cm             | degree       | Comment |
| 1 * |     | 4824.005 | 49.89         | -14.02         | 35.87       | 54.00  | -18.13 | AVG            |              |         |
| 2   |     | 4825.000 | 55.21         | -14.02         | 41.19       | 74.00  | -32.81 | peak           |              |         |
| 3   |     | 7235.127 | 43.87         | -9.34          | 34.53       | 54.00  | -19.47 | AVG            |              |         |
| 4   |     | 7236.000 | 54.30         | -9.33          | 44.97       | 74.00  | -29.03 | peak           |              |         |

Above 1G (1GHz~18GHz)

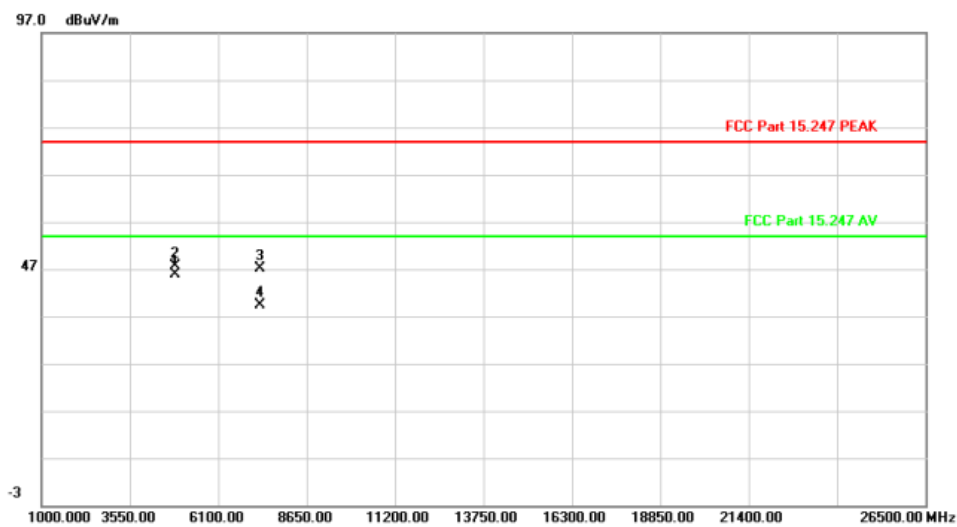
Test mode: 11B-MIMO

Test Channel: 6

VERTICAL



| No. | Mk. | Freq.    | Reading Level | Correct Factor | Measurement | Limit  | Over   | Antenna Height | Table Degree |         |
|-----|-----|----------|---------------|----------------|-------------|--------|--------|----------------|--------------|---------|
|     |     | MHz      | dBuV          | dB             | dBuV/m      | dBuV/m | dB     | cm             | degree       | Comment |
| 1   |     | 2390.000 | 33.37         | 27.91          | 61.28       | 74.00  | -12.72 |                |              | peak    |
| 2   |     | 2390.000 | 22.81         | 27.91          | 50.72       | 54.00  | -3.28  |                |              | AVG     |
| 3   |     | 2483.500 | 34.21         | 28.16          | 62.37       | 74.00  | -11.63 |                |              | peak    |
| 4 * |     | 2483.500 | 22.71         | 28.16          | 50.87       | 54.00  | -3.13  |                |              | AVG     |

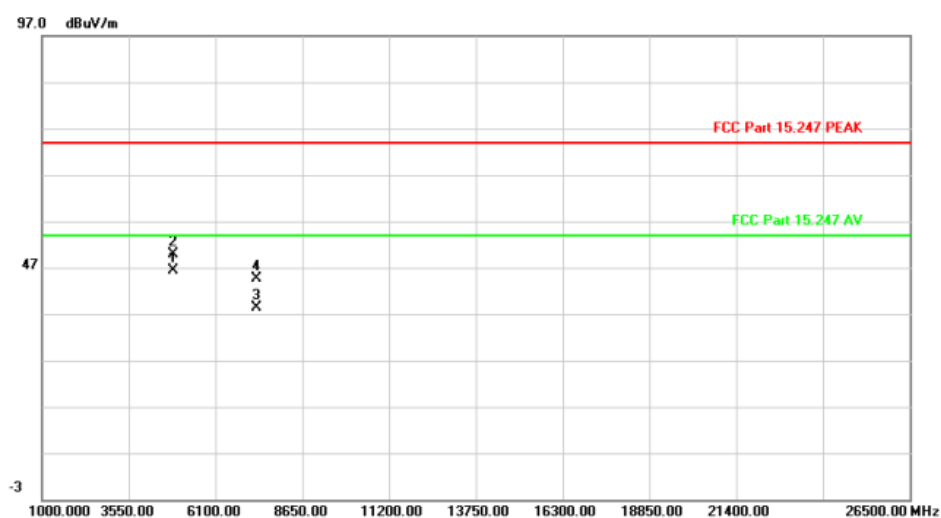


| No. | Mk. | Freq.    | Reading Level | Correct Factor | Measurement | Limit  | Over   | Antenna Height | Table Degree |         |
|-----|-----|----------|---------------|----------------|-------------|--------|--------|----------------|--------------|---------|
|     |     | MHz      | dBuV          | dB             | dBuV/m      | dBuV/m | dB     | cm             | degree       | Comment |
| 1 * |     | 4874.039 | 59.57         | -13.77         | 45.80       | 54.00  | -8.20  |                |              | AVG     |
| 2   |     | 4874.300 | 61.40         | -13.77         | 47.63       | 74.00  | -26.37 |                |              | peak    |
| 3   |     | 7309.550 | 56.17         | -9.11          | 47.06       | 74.00  | -26.94 |                |              | peak    |
| 4   |     | 7310.329 | 48.53         | -9.10          | 39.43       | 54.00  | -14.57 |                |              | AVG     |

## HORIZONTAL



| No. | Mk. | Freq.    | Reading Level | Correct Factor | Measurement | Limit  | Over   | Antenna Height | Table Degree |
|-----|-----|----------|---------------|----------------|-------------|--------|--------|----------------|--------------|
|     |     | MHz      | dBuV          | dB             | dBuV/m      | dBuV/m | dB     | cm             | degree       |
| 1   |     | 2388.200 | 35.26         | 27.91          | 63.17       | 74.00  | -10.83 | peak           |              |
| 2   | *   | 2388.200 | 24.78         | 27.91          | 52.69       | 54.00  | -1.31  | AVG            |              |
| 3   |     | 2390.000 | 34.32         | 27.91          | 62.23       | 74.00  | -11.77 | peak           |              |
| 4   |     | 2390.000 | 23.45         | 27.91          | 51.36       | 54.00  | -2.64  | AVG            |              |
| 5   |     | 2483.500 | 33.90         | 28.16          | 62.06       | 74.00  | -11.94 | peak           |              |
| 6   |     | 2483.500 | 22.58         | 28.16          | 50.74       | 54.00  | -3.26  | AVG            |              |



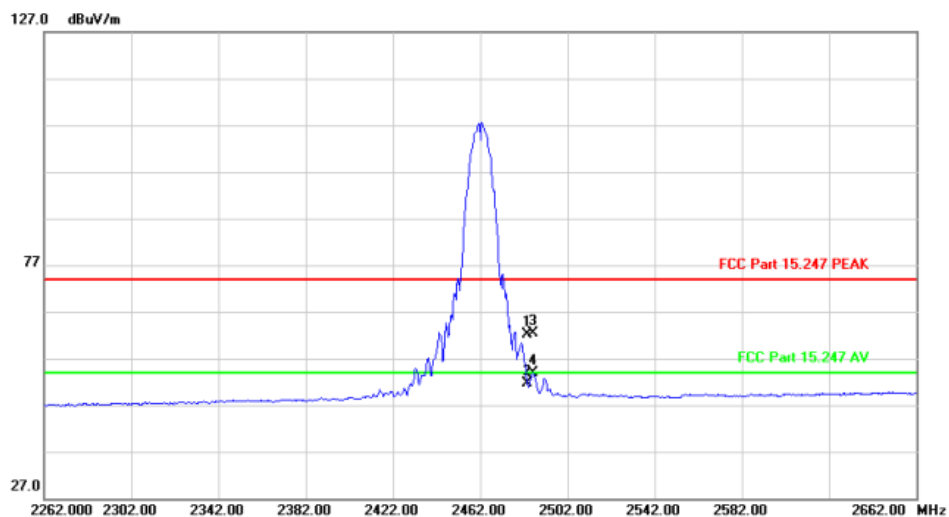
| No. | Mk. | Freq.    | Reading Level | Correct Factor | Measurement | Limit  | Over   | Antenna Height | Table Degree |
|-----|-----|----------|---------------|----------------|-------------|--------|--------|----------------|--------------|
|     |     | MHz      | dBuV          | dB             | dBuV/m      | dBuV/m | dB     | cm             | degree       |
| 1   | *   | 4874.005 | 60.25         | -13.77         | 46.48       | 54.00  | -7.52  | AVG            |              |
| 2   |     | 4874.300 | 63.75         | -13.77         | 49.98       | 74.00  | -24.02 | peak           |              |
| 3   |     | 7310.319 | 47.56         | -9.10          | 38.46       | 54.00  | -15.54 | AVG            |              |
| 4   |     | 7311.250 | 53.64         | -9.10          | 44.54       | 74.00  | -29.46 | peak           |              |

Above 1G (1GHz~18GHz)

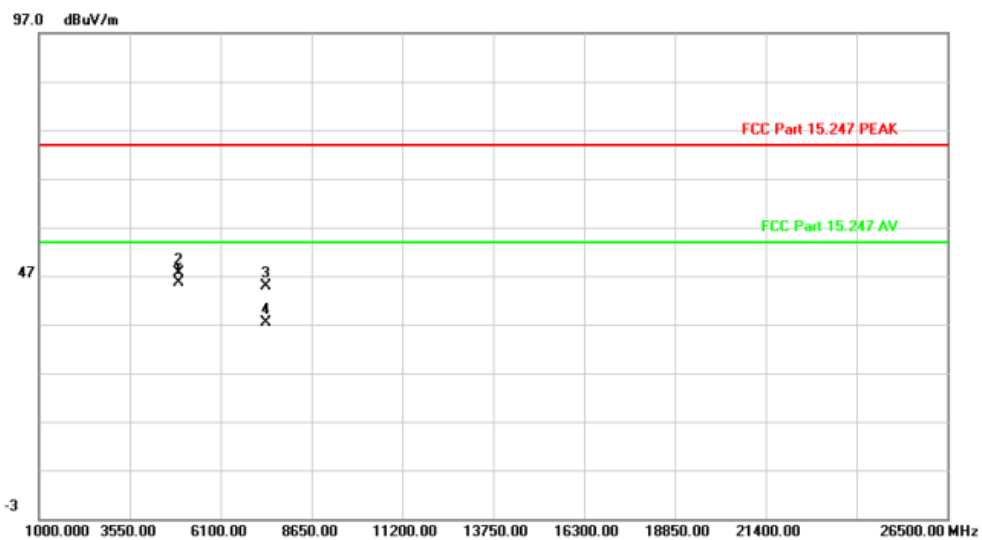
Test mode: 11B-MIMO

Test Channel:11

VERTICAL

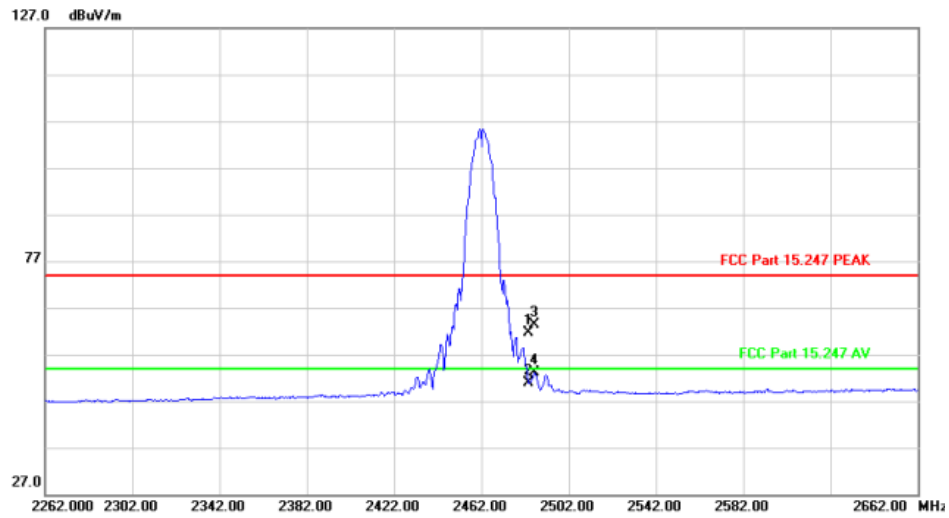


| No. | Mk. | Freq.    | Reading Level | Correct Factor | Measurement | Limit  | Over   | Antenna Height | Table Degree |         |
|-----|-----|----------|---------------|----------------|-------------|--------|--------|----------------|--------------|---------|
|     |     | MHz      | dBuV          | dB             | dBuV/m      | dBuV/m | dB     | cm             | degree       | Comment |
| 1   |     | 2483.500 | 33.90         | 28.16          | 62.06       | 74.00  | -11.94 | peak           |              |         |
| 2   |     | 2483.500 | 23.35         | 28.16          | 51.51       | 54.00  | -2.49  | AVG            |              |         |
| 3   |     | 2486.400 | 34.12         | 28.16          | 62.28       | 74.00  | -11.72 | peak           |              |         |
| 4 * |     | 2486.400 | 25.82         | 28.16          | 53.98       | 54.00  | -0.02  | AVG            |              |         |

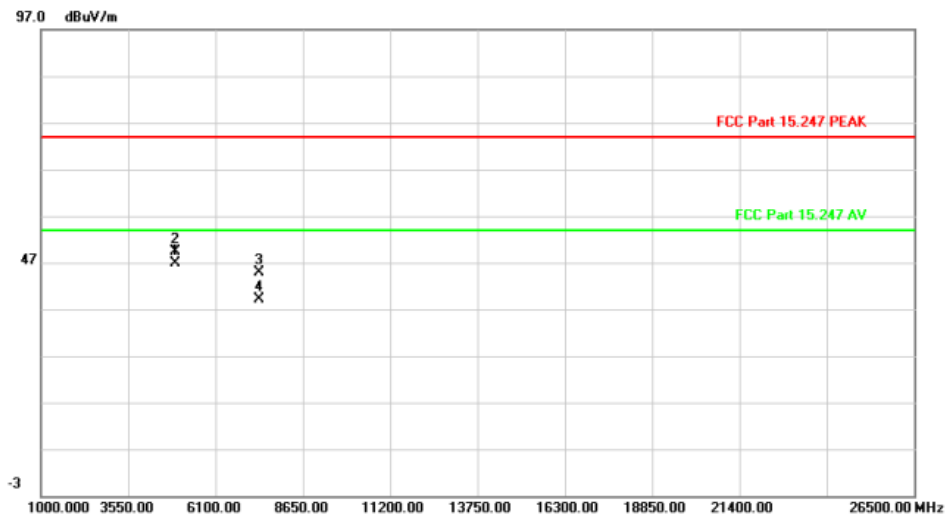


| No. | Mk. | Freq.    | Reading Level | Correct Factor | Measurement | Limit  | Over   | Antenna Height | Table Degree |         |
|-----|-----|----------|---------------|----------------|-------------|--------|--------|----------------|--------------|---------|
|     |     | MHz      | dBuV          | dB             | dBuV/m      | dBuV/m | dB     | cm             | degree       | Comment |
| 1 * |     | 4923.973 | 59.21         | -13.52         | 45.69       | 54.00  | -8.31  | AVG            |              |         |
| 2   |     | 4924.450 | 61.23         | -13.52         | 47.71       | 74.00  | -26.29 | peak           |              |         |
| 3   |     | 7386.050 | 53.84         | -8.87          | 44.97       | 74.00  | -29.03 | peak           |              |         |
| 4   |     | 7386.950 | 46.36         | -8.87          | 37.49       | 54.00  | -16.51 | AVG            |              |         |

## HORIZONTAL



| No. | Mk. | Freq.    | Reading Level | Correct Factor | Measurement | Limit  | Over   | Antenna Height | Table Degree |         |
|-----|-----|----------|---------------|----------------|-------------|--------|--------|----------------|--------------|---------|
|     |     | MHz      | dBuV          | dB             | dBuV/m      | dBuV/m | dB     | cm             | degree       | Comment |
| 1   |     | 2483.500 | 33.56         | 28.16          | 61.72       | 74.00  | -12.28 | peak           |              |         |
| 2   |     | 2483.500 | 22.60         | 28.16          | 50.76       | 54.00  | -3.24  | AVG            |              |         |
| 3   |     | 2486.400 | 35.18         | 28.16          | 63.34       | 74.00  | -10.66 | peak           |              |         |
| 4 * |     | 2486.400 | 24.97         | 28.16          | 53.13       | 54.00  | -0.87  | AVG            |              |         |



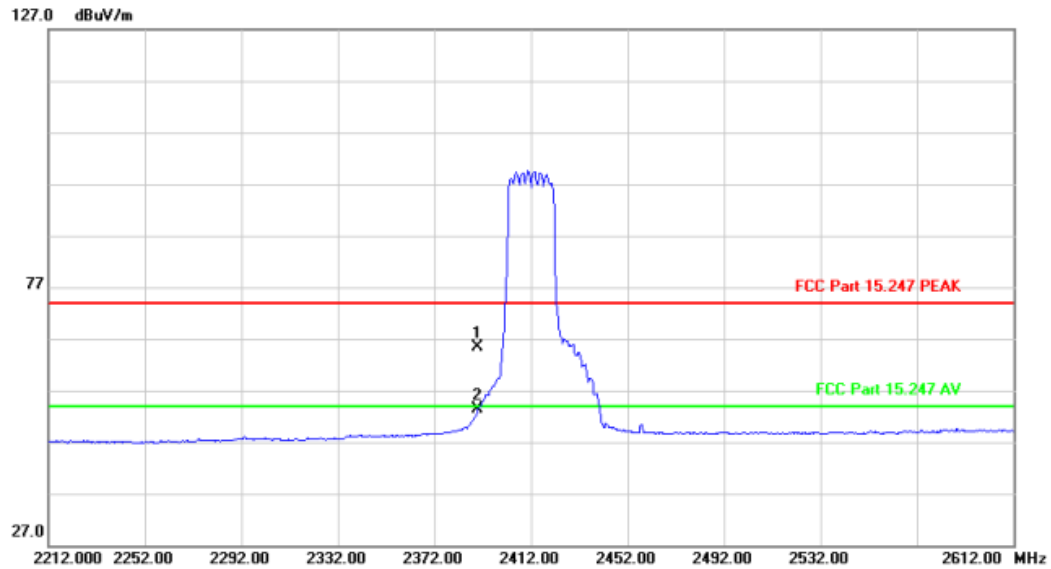
| No. | Mk. | Freq.    | Reading Level | Correct Factor | Measurement | Limit  | Over   | Antenna Height | Table Degree |         |
|-----|-----|----------|---------------|----------------|-------------|--------|--------|----------------|--------------|---------|
|     |     | MHz      | dBuV          | dB             | dBuV/m      | dBuV/m | dB     | cm             | degree       | Comment |
| 1 * |     | 4924.019 | 60.44         | -13.52         | 46.92       | 54.00  | -7.08  | AVG            |              |         |
| 2   |     | 4924.450 | 62.94         | -13.52         | 49.42       | 74.00  | -24.58 | peak           |              |         |
| 3   |     | 7385.200 | 53.70         | -8.87          | 44.83       | 74.00  | -29.17 | peak           |              |         |
| 4   |     | 7386.788 | 48.03         | -8.87          | 39.16       | 54.00  | -14.84 | AVG            |              |         |

Above 1G (1GHz~18GHz)

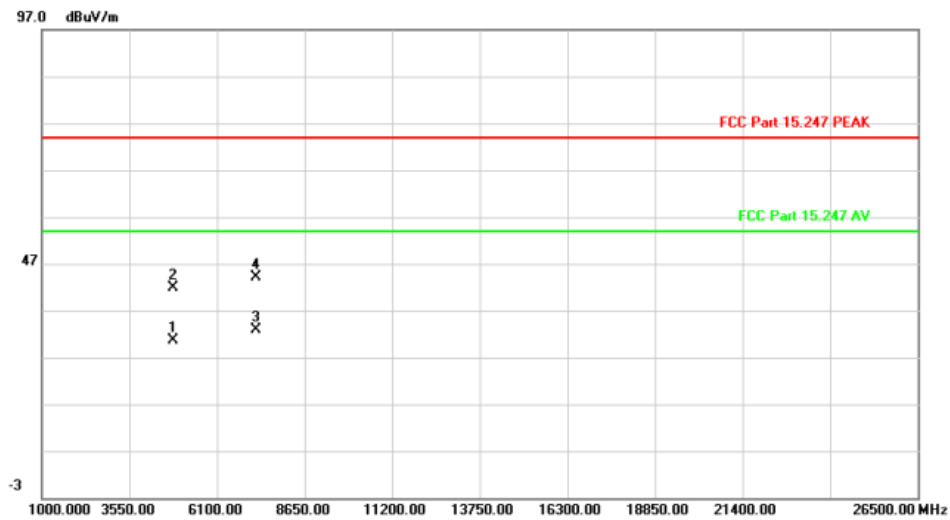
Test mode: 11N20MIMO

Test Channel:1

VERTICAL

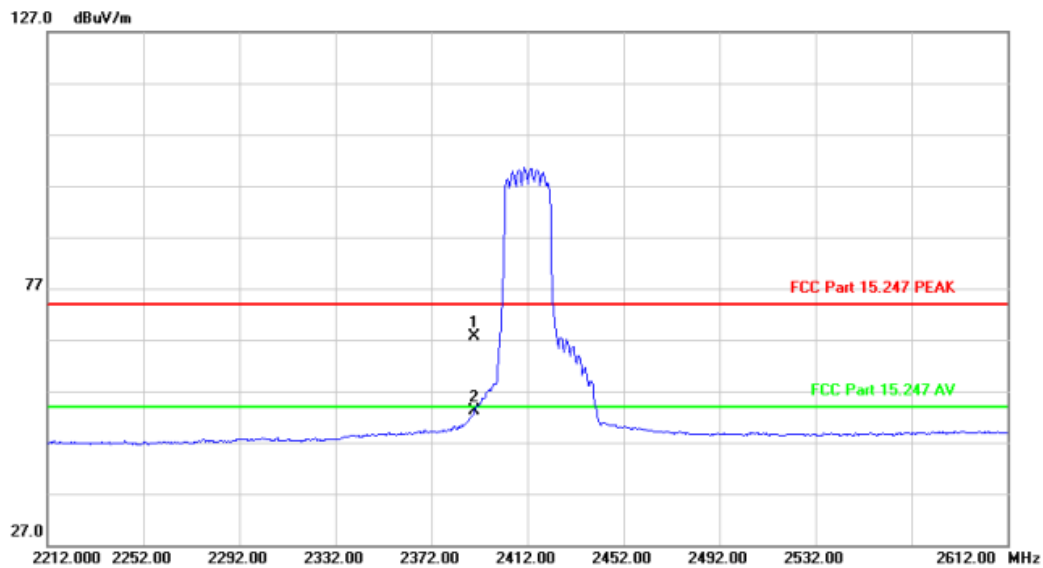


| No. | Mk. | Freq.    | Reading Level | Correct Factor | Measurement | Limit  | Over  | Antenna Height | Table Degree |         |
|-----|-----|----------|---------------|----------------|-------------|--------|-------|----------------|--------------|---------|
|     |     | MHz      | dBuV          | dB             | dBuV/m      | dBuV/m | dB    | cm             | degree       | Comment |
| 1   |     | 2390.000 | 37.41         | 27.91          | 65.32       | 74.00  | -8.68 | peak           |              |         |
| 2 * |     | 2390.000 | 25.37         | 27.91          | 53.28       | 54.00  | -0.72 | AVG            |              |         |

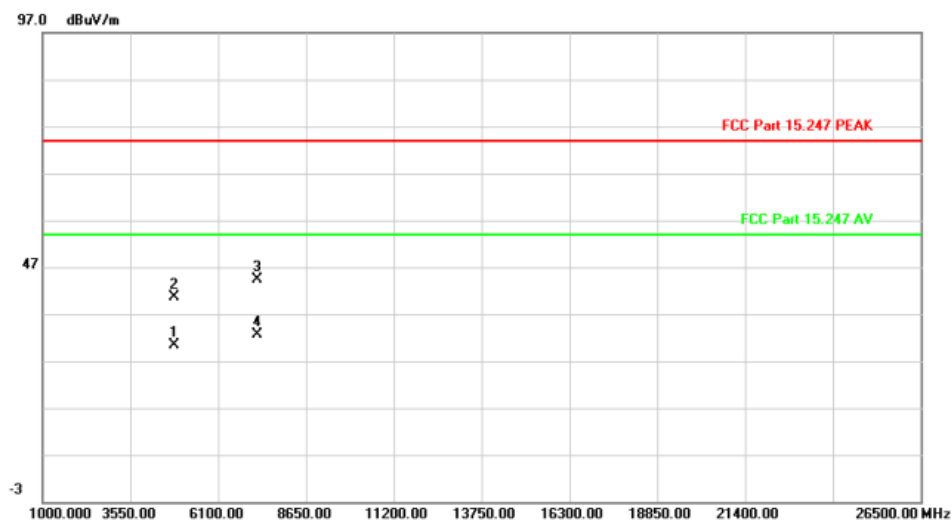


| No. | Mk. | Freq.    | Reading Level | Correct Factor | Measurement | Limit  | Over   | Antenna Height | Table Degree |         |
|-----|-----|----------|---------------|----------------|-------------|--------|--------|----------------|--------------|---------|
|     |     | MHz      | dBuV          | dB             | dBuV/m      | dBuV/m | dB     | cm             | degree       | Comment |
| 1   |     | 4823.238 | 44.74         | -14.02         | 30.72       | 54.00  | -23.28 | AVG            |              |         |
| 2   |     | 4828.400 | 55.80         | -14.00         | 41.80       | 74.00  | -32.20 | peak           |              |         |
| 3 * |     | 7235.753 | 42.15         | -9.33          | 32.82       | 54.00  | -21.18 | AVG            |              |         |
| 4   |     | 7236.500 | 53.54         | -9.33          | 44.21       | 74.00  | -29.79 | peak           |              |         |

## HORIZONTAL



| No. | Mk. | Freq.    | Reading Level | Correct Factor | Measurement | Limit  | Over  | Antenna Height | Table Degree |         |
|-----|-----|----------|---------------|----------------|-------------|--------|-------|----------------|--------------|---------|
|     |     | MHz      | dBuV          | dB             | dBuV/m      | dBuV/m | dB    | cm             | degree       | Comment |
| 1   |     | 2390.000 | 39.62         | 27.91          | 67.53       | 74.00  | -6.47 |                |              | peak    |
| 2 * |     | 2390.000 | 25.32         | 27.91          | 53.23       | 54.00  | -0.77 |                |              | AVG     |



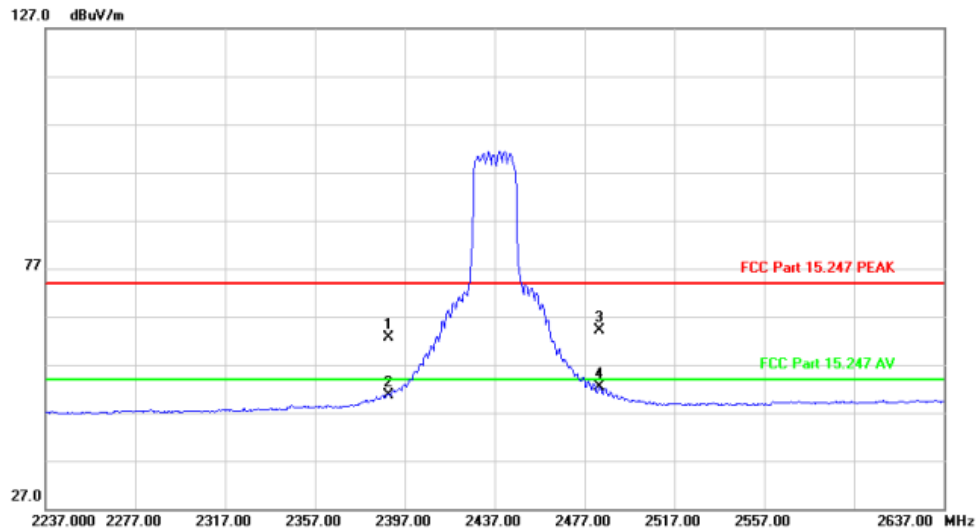
| No. | Mk. | Freq.    | Reading Level | Correct Factor | Measurement | Limit  | Over   | Antenna Height | Table Degree |         |
|-----|-----|----------|---------------|----------------|-------------|--------|--------|----------------|--------------|---------|
|     |     | MHz      | dBuV          | dB             | dBuV/m      | dBuV/m | dB     | cm             | degree       | Comment |
| 1   |     | 4823.109 | 44.29         | -14.02         | 30.27       | 54.00  | -23.73 |                |              | AVG     |
| 2   |     | 4827.550 | 54.51         | -14.00         | 40.51       | 74.00  | -33.49 |                |              | peak    |
| 3   |     | 7236.000 | 53.59         | -9.33          | 44.26       | 74.00  | -29.74 |                |              | peak    |
| 4 * |     | 7238.973 | 41.88         | -9.32          | 32.56       | 54.00  | -21.44 |                |              | AVG     |

Above 1G (1GHz~18GHz)

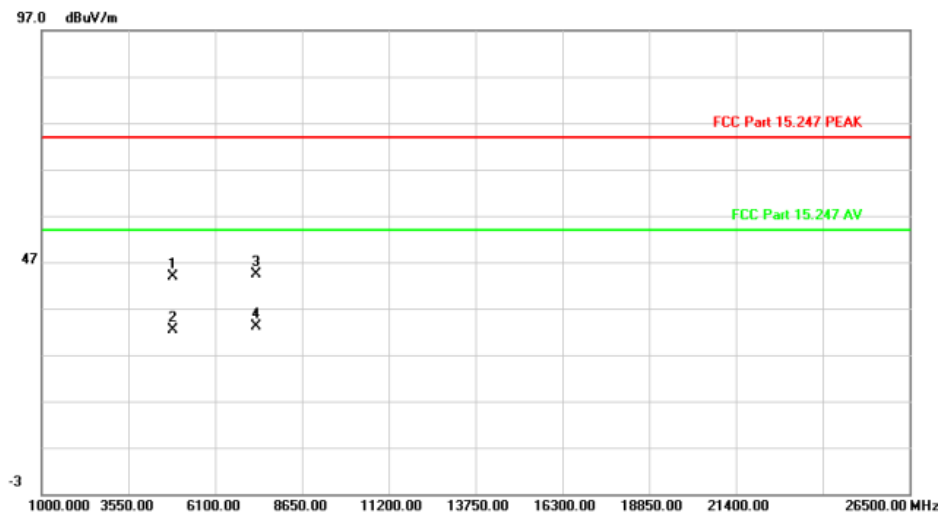
Test mode: 11N20MIMO

Test Channel: 6

VERTICAL

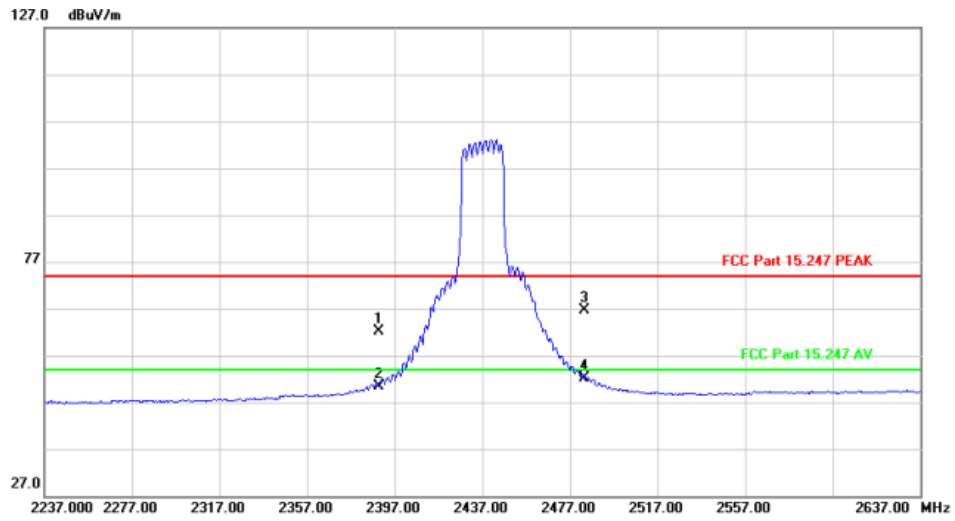


| No. | Mk. | Freq.    | Reading Level | Correct Factor | Measurement | Limit  | Over   | Antenna Height | Table Degree |         |
|-----|-----|----------|---------------|----------------|-------------|--------|--------|----------------|--------------|---------|
|     |     | MHz      | dBuV          | dB             | dBuV/m      | dBuV/m | dB     | cm             | degree       | Comment |
| 1   |     | 2390.000 | 34.64         | 27.91          | 62.55       | 74.00  | -11.45 | peak           |              |         |
| 2   |     | 2390.000 | 22.80         | 27.91          | 50.71       | 54.00  | -3.29  | AVG            |              |         |
| 3   |     | 2483.500 | 35.85         | 28.16          | 64.01       | 74.00  | -9.99  | peak           |              |         |
| 4 * |     | 2483.500 | 24.31         | 28.16          | 52.47       | 54.00  | -1.53  | AVG            |              |         |

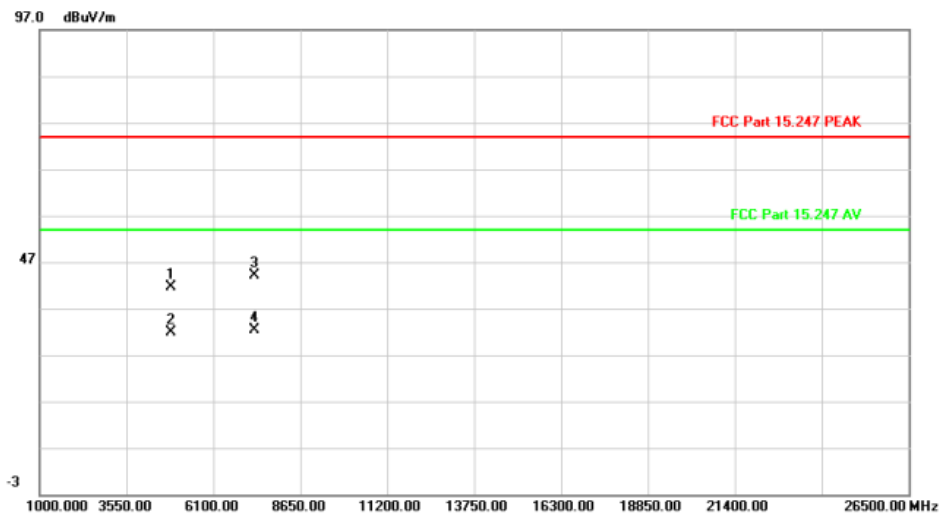


| No. | Mk. | Freq.    | Reading Level | Correct Factor | Measurement | Limit  | Over   | Antenna Height | Table Degree |         |
|-----|-----|----------|---------------|----------------|-------------|--------|--------|----------------|--------------|---------|
|     |     | MHz      | dBuV          | dB             | dBuV/m      | dBuV/m | dB     | cm             | degree       | Comment |
| 1   |     | 4870.900 | 57.62         | -13.79         | 43.83       | 74.00  | -30.17 | peak           |              |         |
| 2   |     | 4873.197 | 46.17         | -13.77         | 32.40       | 54.00  | -21.60 | AVG            |              |         |
| 3   |     | 7310.500 | 53.39         | -9.10          | 44.29       | 74.00  | -29.71 | peak           |              |         |
| 4 * |     | 7314.235 | 42.11         | -9.09          | 33.02       | 54.00  | -20.98 | AVG            |              |         |

## HORIZONTAL



| No. | Mk. | Freq.    | Reading Level | Correct Factor | Measurement | Limit  | Over   | Antenna Height | Table Degree |         |
|-----|-----|----------|---------------|----------------|-------------|--------|--------|----------------|--------------|---------|
|     |     | MHz      | dBuV          | dB             | dBuV/m      | dBuV/m | dB     | cm             | degree       | Comment |
| 1   |     | 2390.000 | 34.27         | 27.91          | 62.18       | 74.00  | -11.82 |                |              | peak    |
| 2   |     | 2390.000 | 22.56         | 27.91          | 50.47       | 54.00  | -3.53  |                |              | AVG     |
| 3   |     | 2483.500 | 38.56         | 28.16          | 66.72       | 74.00  | -7.28  |                |              | peak    |
| 4 * |     | 2483.500 | 23.96         | 28.16          | 52.12       | 54.00  | -1.88  |                |              | AVG     |



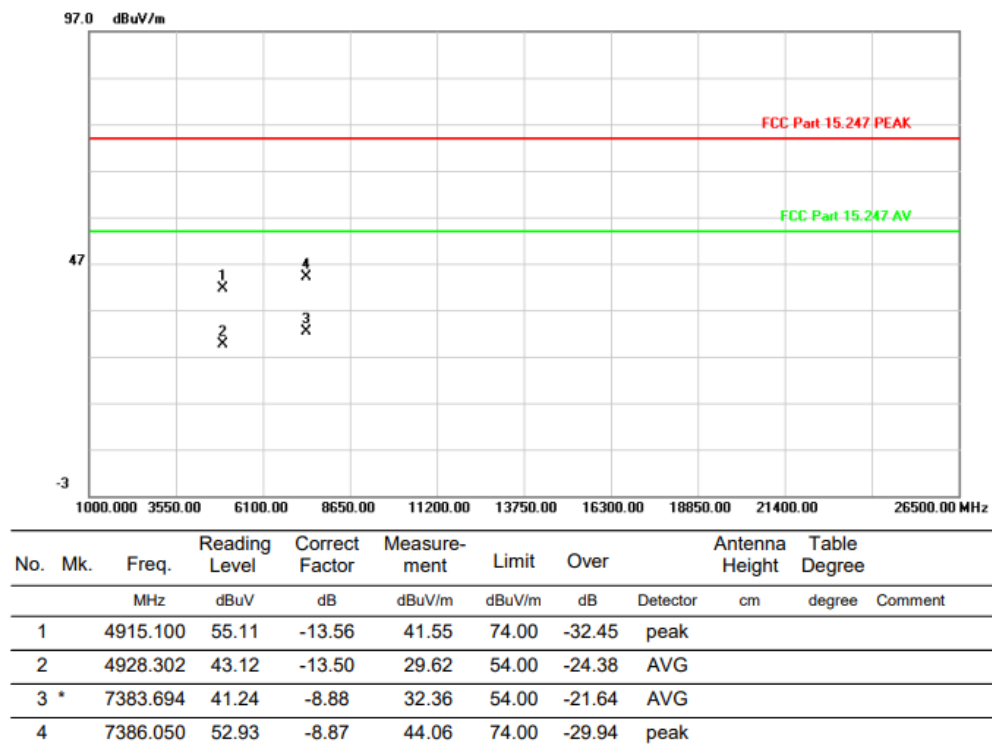
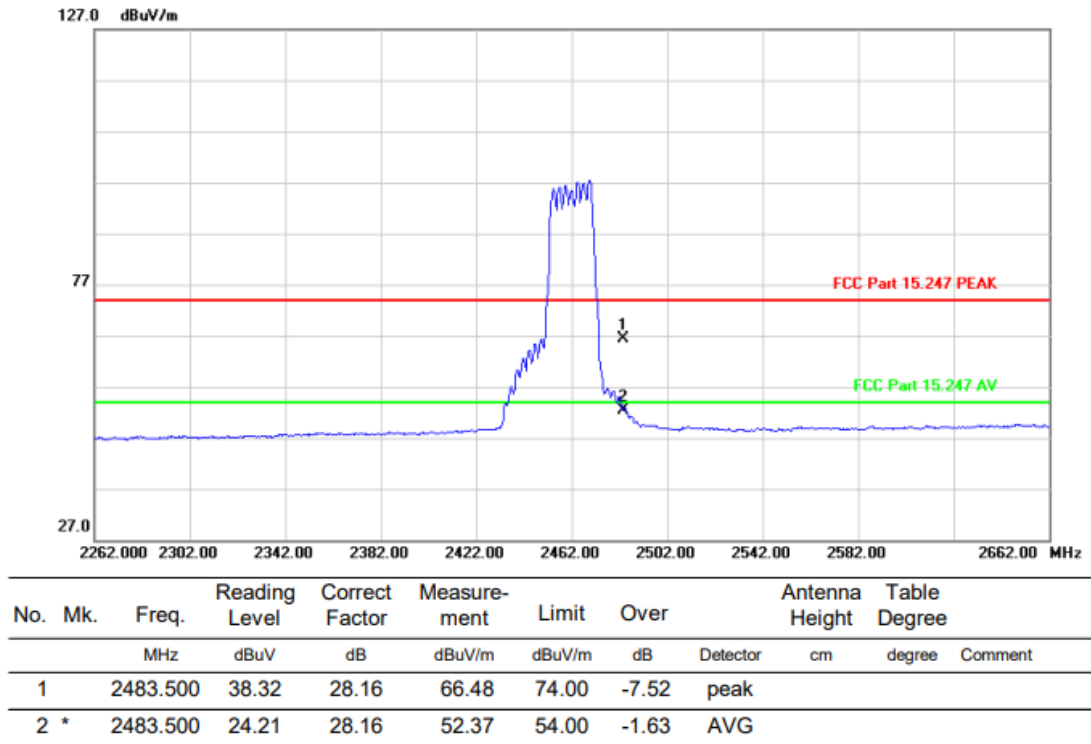
| No. | Mk. | Freq.    | Reading Level | Correct Factor | Measurement | Limit  | Over   | Antenna Height | Table Degree |         |
|-----|-----|----------|---------------|----------------|-------------|--------|--------|----------------|--------------|---------|
|     |     | MHz      | dBuV          | dB             | dBuV/m      | dBuV/m | dB     | cm             | degree       | Comment |
| 1   |     | 4869.200 | 55.53         | -13.79         | 41.74       | 74.00  | -32.26 |                |              | peak    |
| 2   |     | 4873.609 | 45.58         | -13.77         | 31.81       | 54.00  | -22.19 |                |              | AVG     |
| 3   |     | 7311.000 | 53.23         | -9.10          | 44.13       | 74.00  | -29.87 |                |              | peak    |
| 4 * |     | 7314.629 | 41.46         | -9.09          | 32.37       | 54.00  | -21.63 |                |              | AVG     |

Above 1G (1GHz~18GHz)

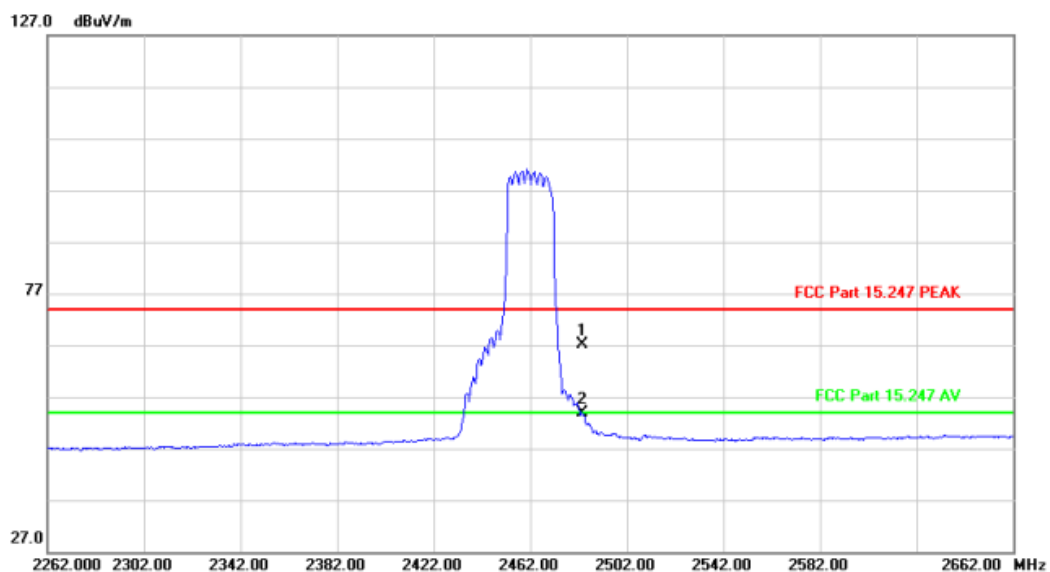
Test mode: 11N20MIMO

Test Channel:11

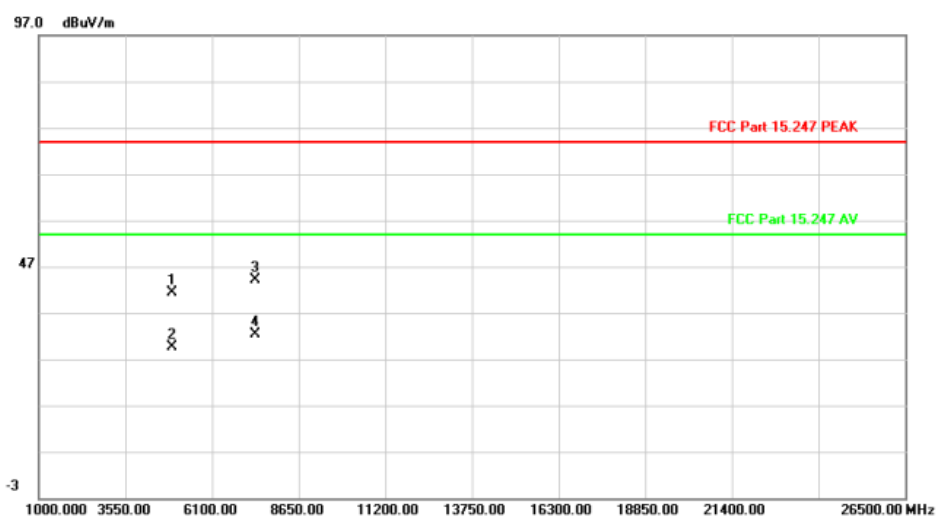
VERTICAL



## HORIZONTAL



| No. | Mk. | Freq.    | Reading Level | Correct Factor | Measurement | Limit  | Over  | Antenna Height | Table Degree |         |
|-----|-----|----------|---------------|----------------|-------------|--------|-------|----------------|--------------|---------|
|     |     | MHz      | dBuV          | dB             | dBuV/m      | dBuV/m | dB    | cm             | degree       | Comment |
| 1   |     | 2483.500 | 38.97         | 28.16          | 67.13       | 74.00  | -6.87 | peak           |              |         |
| 2 * |     | 2483.500 | 25.82         | 28.16          | 53.98       | 54.00  | -0.02 | AVG            |              |         |



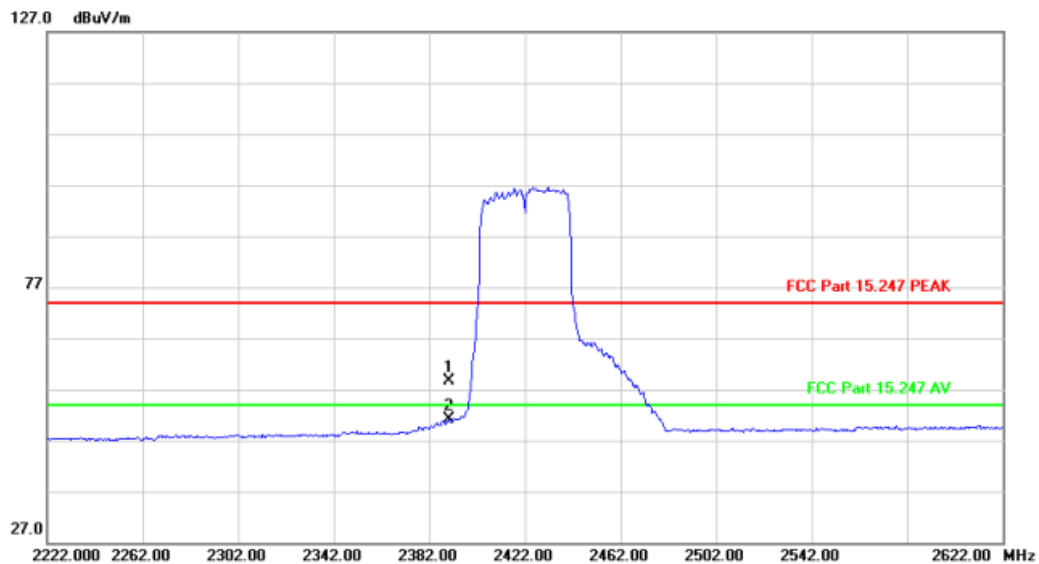
| No. | Mk. | Freq.    | Reading Level | Correct Factor | Measurement | Limit  | Over   | Antenna Height | Table Degree |         |
|-----|-----|----------|---------------|----------------|-------------|--------|--------|----------------|--------------|---------|
|     |     | MHz      | dBuV          | dB             | dBuV/m      | dBuV/m | dB     | cm             | degree       | Comment |
| 1   |     | 4927.850 | 54.86         | -13.50         | 41.36       | 74.00  | -32.64 | peak           |              |         |
| 2   |     | 4930.614 | 43.21         | -13.49         | 29.72       | 54.00  | -24.28 | AVG            |              |         |
| 3   |     | 7380.100 | 52.95         | -8.89          | 44.06       | 74.00  | -29.94 | peak           |              |         |
| 4 * |     | 7387.318 | 41.33         | -8.87          | 32.46       | 54.00  | -21.54 | AVG            |              |         |

Above 1G (1GHz~18GHz)

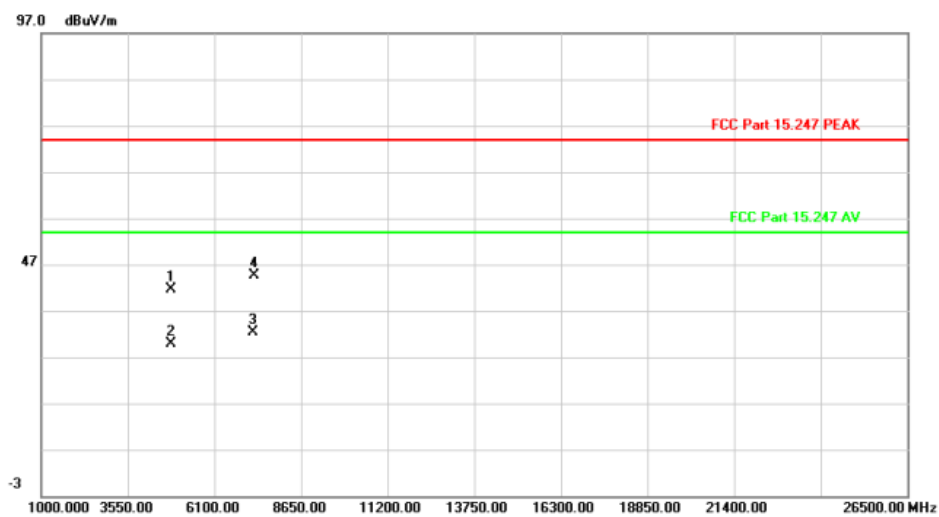
Test mode: 11N40MIMO

Test Channel:3

VERTICAL

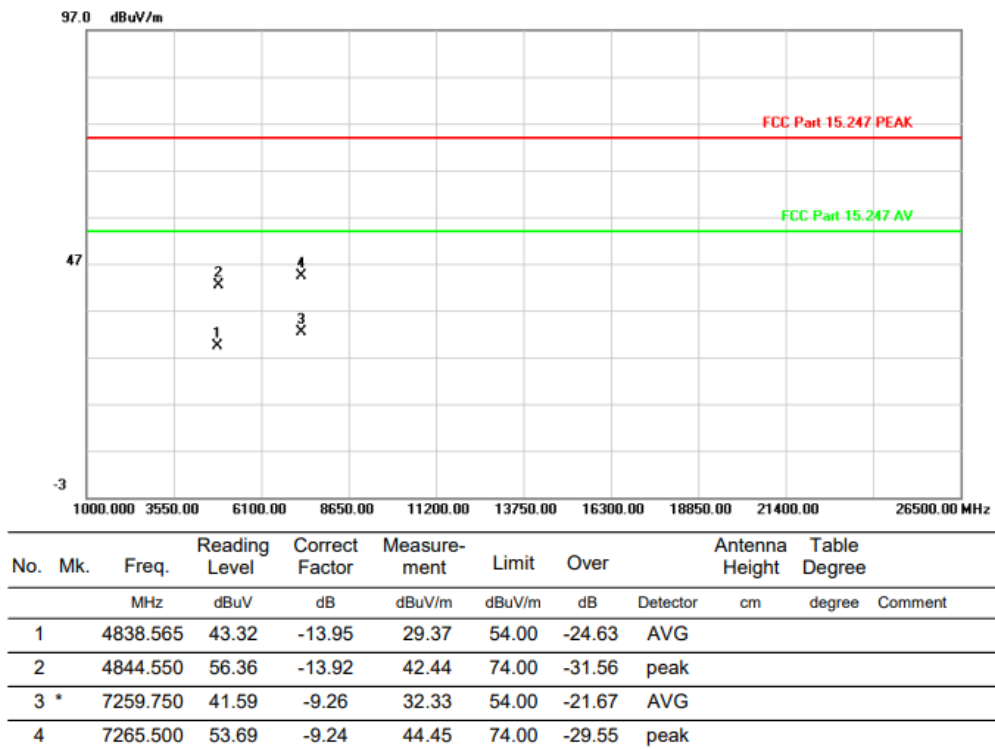
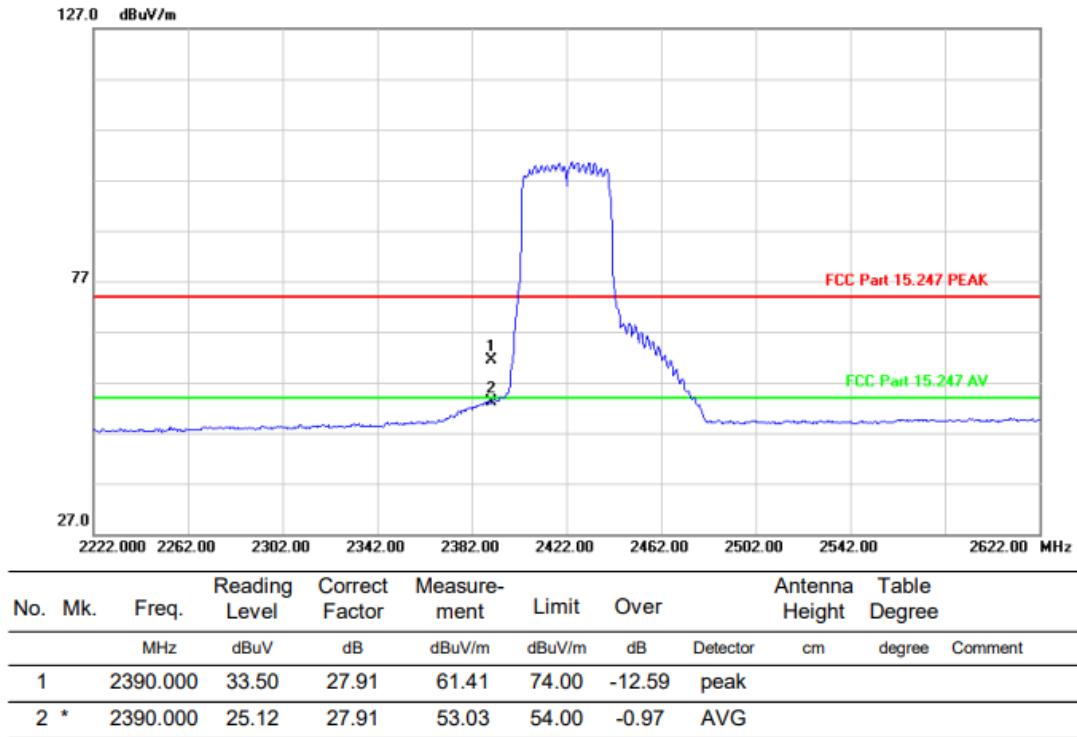


| No. | Mk. | Freq.    | Reading Level | Correct Factor | Measurement | Limit  | Over   | Antenna Height | Table Degree |         |
|-----|-----|----------|---------------|----------------|-------------|--------|--------|----------------|--------------|---------|
|     |     | MHz      | dBuV          | dB             | dBuV/m      | dBuV/m | dB     | cm             | degree       | Comment |
| 1   |     | 2390.000 | 30.65         | 27.91          | 58.56       | 74.00  | -15.44 | peak           |              |         |
| 2 * |     | 2390.000 | 23.18         | 27.91          | 51.09       | 54.00  | -2.91  | AVG            |              |         |



| No. | Mk. | Freq.    | Reading Level | Correct Factor | Measurement | Limit  | Over   | Antenna Height | Table Degree |         |
|-----|-----|----------|---------------|----------------|-------------|--------|--------|----------------|--------------|---------|
|     |     | MHz      | dBuV          | dB             | dBuV/m      | dBuV/m | dB     | cm             | degree       | Comment |
| 1   |     | 4833.500 | 55.71         | -13.97         | 41.74       | 74.00  | -32.26 | peak           |              |         |
| 2   |     | 4838.063 | 43.73         | -13.95         | 29.78       | 54.00  | -24.22 | AVG            |              |         |
| 3 * |     | 7252.600 | 41.62         | -9.28          | 32.34       | 54.00  | -21.66 | AVG            |              |         |
| 4   |     | 7266.500 | 53.81         | -9.24          | 44.57       | 74.00  | -29.43 | peak           |              |         |

## HORIZONTAL

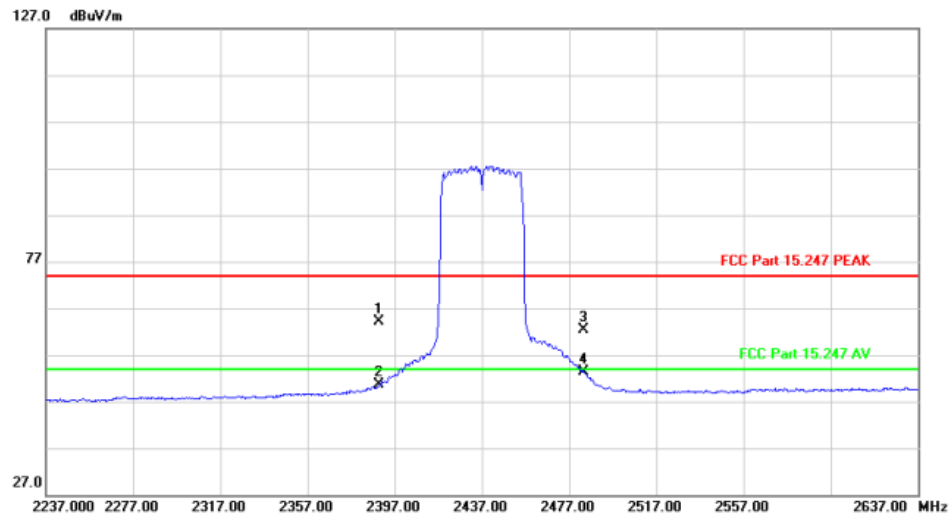


Above 1G (1GHz~18GHz)

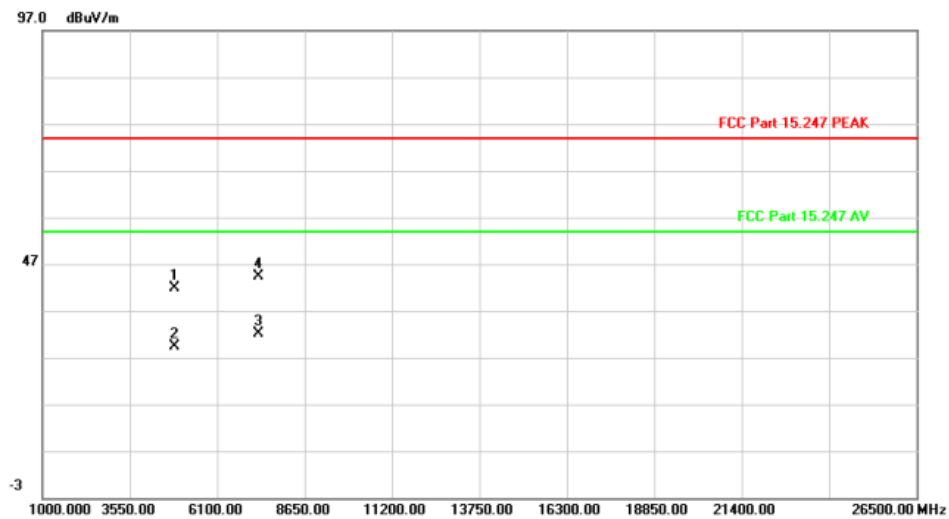
Test mode: 11N40MIMO

Test Channel: 6

VERTICAL

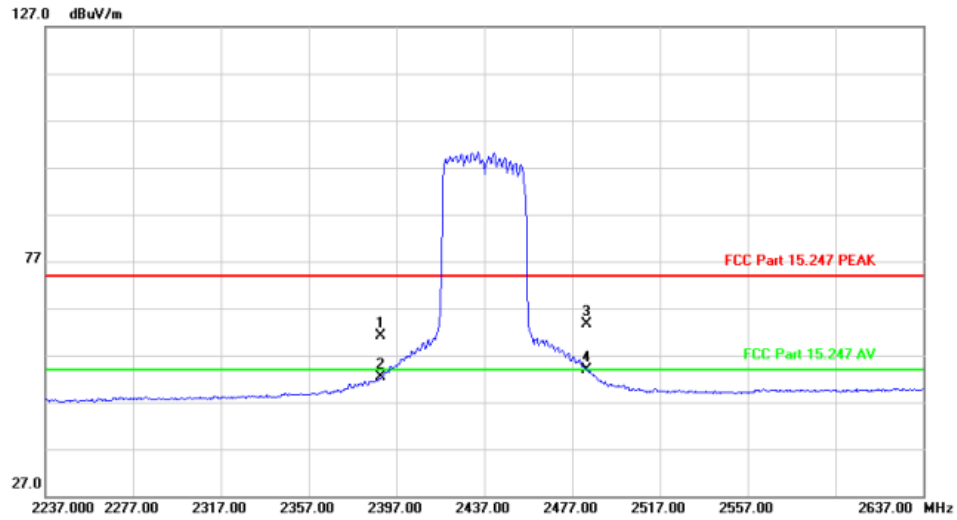


| No. | Mk. | Freq.    | Reading Level | Correct Factor | Measurement | Limit  | Over   | Antenna Height | Table Degree |         |
|-----|-----|----------|---------------|----------------|-------------|--------|--------|----------------|--------------|---------|
|     |     | MHz      | dBuV          | dB             | dBuV/m      | dBuV/m | dB     | cm             | degree       | Comment |
| 1   |     | 2390.000 | 36.32         | 27.91          | 64.23       | 74.00  | -9.77  |                |              | peak    |
| 2   |     | 2390.000 | 22.63         | 27.91          | 50.54       | 54.00  | -3.46  |                |              | AVG     |
| 3   |     | 2483.500 | 34.22         | 28.16          | 62.38       | 74.00  | -11.62 |                |              | peak    |
| 4 * |     | 2483.500 | 25.24         | 28.16          | 53.40       | 54.00  | -0.60  |                |              | AVG     |

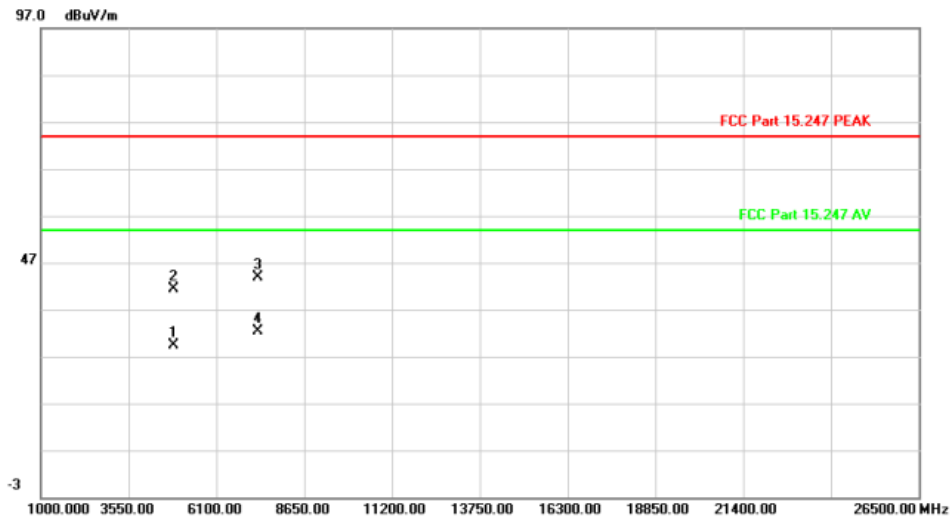


| No. | Mk. | Freq.    | Reading Level | Correct Factor | Measurement | Limit  | Over   | Antenna Height | Table Degree |         |
|-----|-----|----------|---------------|----------------|-------------|--------|--------|----------------|--------------|---------|
|     |     | MHz      | dBuV          | dB             | dBuV/m      | dBuV/m | dB     | cm             | degree       | Comment |
| 1   |     | 4869.200 | 55.63         | -13.79         | 41.84       | 74.00  | -32.16 |                |              | peak    |
| 2   |     | 4872.574 | 43.24         | -13.78         | 29.46       | 54.00  | -24.54 |                |              | AVG     |
| 3 * |     | 7303.865 | 41.29         | -9.12          | 32.17       | 54.00  | -21.83 |                |              | AVG     |
| 4   |     | 7311.000 | 53.55         | -9.10          | 44.45       | 74.00  | -29.55 |                |              | peak    |

## HORIZONTAL



| No. | Mk. | Freq.    | Reading Level | Correct Factor | Measurement | Limit  | Over   | Antenna Height | Table Degree |         |
|-----|-----|----------|---------------|----------------|-------------|--------|--------|----------------|--------------|---------|
|     |     | MHz      | dBuV          | dB             | dBuV/m      | dBuV/m | dB     | cm             | degree       | Comment |
| 1   |     | 2390.000 | 33.12         | 27.91          | 61.03       | 74.00  | -12.97 | peak           |              |         |
| 2   |     | 2390.000 | 24.47         | 27.91          | 52.38       | 54.00  | -1.62  | AVG            |              |         |
| 3   |     | 2483.500 | 35.41         | 28.16          | 63.57       | 74.00  | -10.43 | peak           |              |         |
| 4 * |     | 2483.500 | 25.67         | 28.16          | 53.83       | 54.00  | -0.17  | AVG            |              |         |



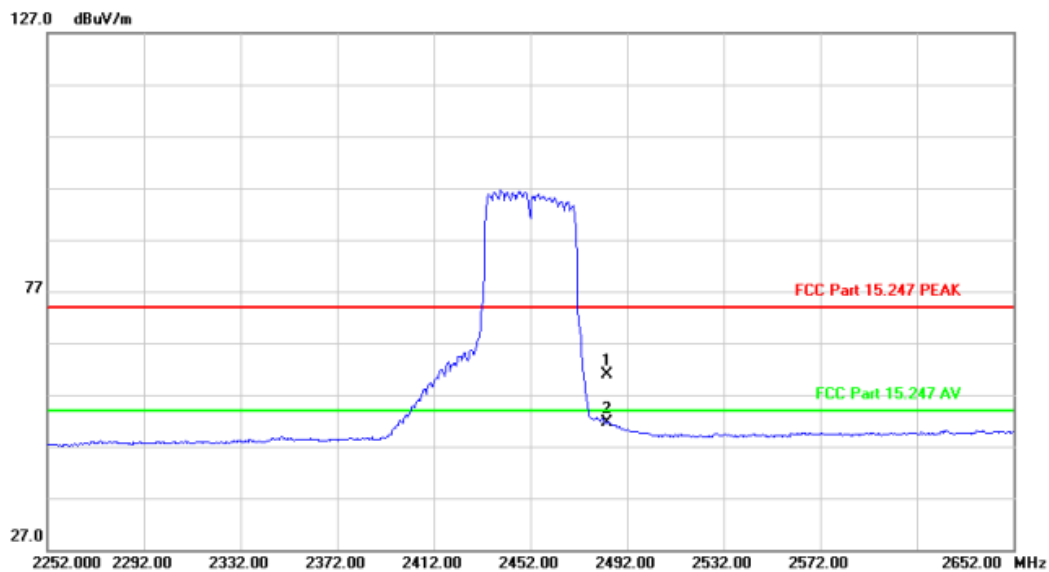
| No. | Mk. | Freq.    | Reading Level | Correct Factor | Measurement | Limit  | Over   | Antenna Height | Table Degree |         |
|-----|-----|----------|---------------|----------------|-------------|--------|--------|----------------|--------------|---------|
|     |     | MHz      | dBuV          | dB             | dBuV/m      | dBuV/m | dB     | cm             | degree       | Comment |
| 1   |     | 4873.551 | 43.08         | -13.77         | 29.31       | 54.00  | -24.69 | AVG            |              |         |
| 2   |     | 4874.500 | 55.25         | -13.77         | 41.48       | 74.00  | -32.52 | peak           |              |         |
| 3   |     | 7310.000 | 52.93         | -9.11          | 43.82       | 74.00  | -30.18 | peak           |              |         |
| 4 * |     | 7318.914 | 41.36         | -9.08          | 32.28       | 54.00  | -21.72 | AVG            |              |         |

Above 1G (1GHz~18GHz)

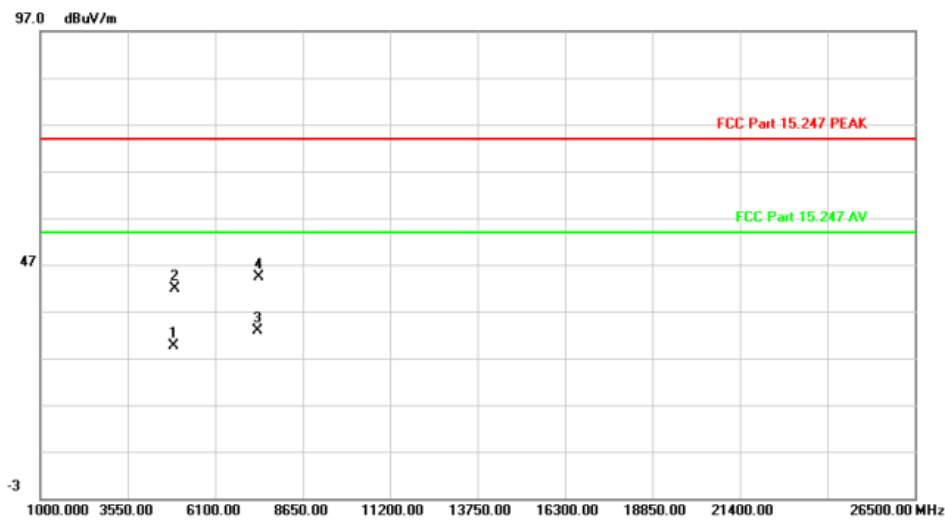
Test mode: 11N40MIMO

Test Channel:9

VERTICAL

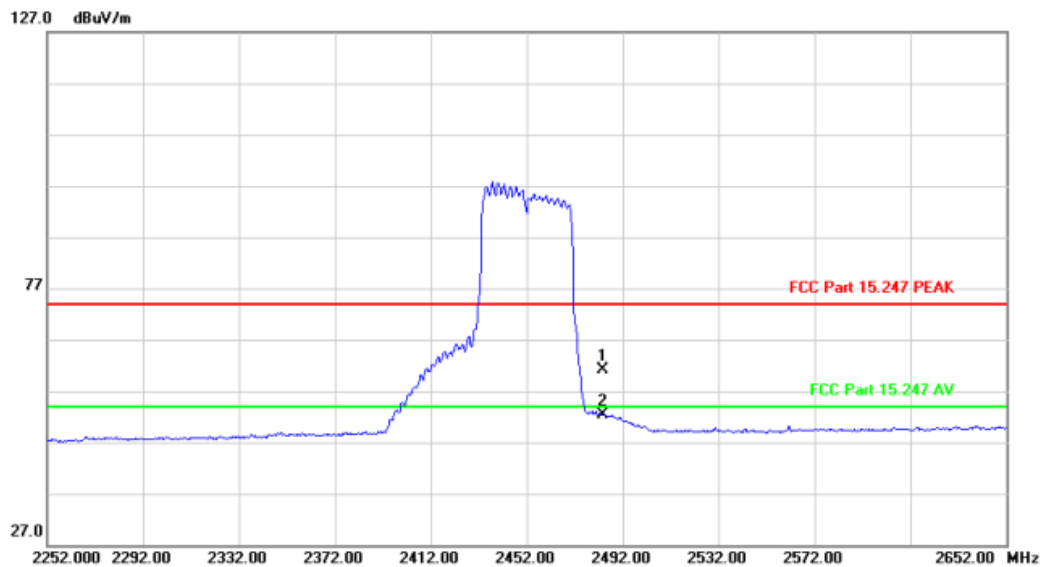


| No. | Mk. | Freq.    | Reading Level | Correct Factor | Measurement | Limit  | Over   | Antenna Height | Table Degree |         |
|-----|-----|----------|---------------|----------------|-------------|--------|--------|----------------|--------------|---------|
|     |     | MHz      | dBuV          | dB             | dBuV/m      | dBuV/m | dB     | cm             | degree       | Comment |
| 1   |     | 2483.500 | 32.74         | 28.16          | 60.90       | 74.00  | -13.10 | peak           |              |         |
| 2 * |     | 2483.500 | 23.51         | 28.16          | 51.67       | 54.00  | -2.33  | AVG            |              |         |

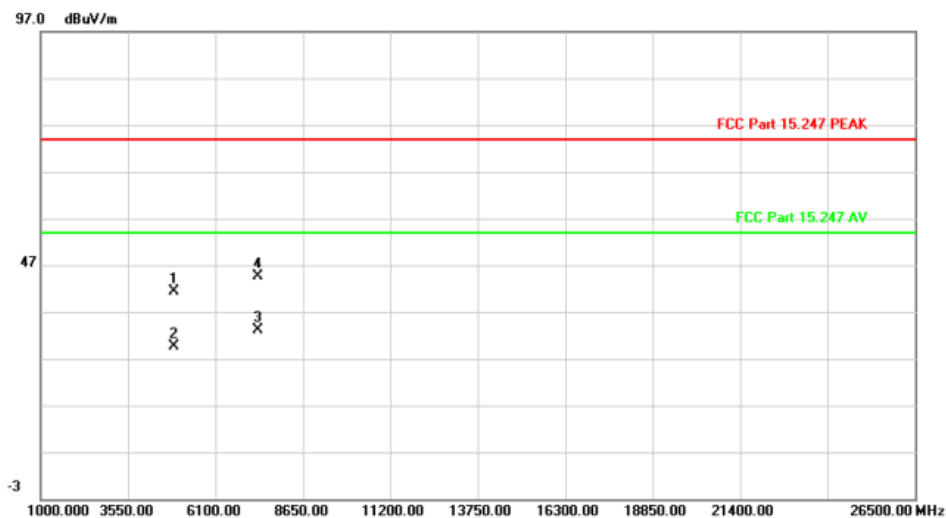


| No. | Mk. | Freq.    | Reading Level | Correct Factor | Measurement | Limit  | Over   | Antenna Height | Table Degree |         |
|-----|-----|----------|---------------|----------------|-------------|--------|--------|----------------|--------------|---------|
|     |     | MHz      | dBuV          | dB             | dBuV/m      | dBuV/m | dB     | cm             | degree       | Comment |
| 1   |     | 4909.543 | 43.19         | -13.59         | 29.60       | 54.00  | -24.40 | AVG            |              |         |
| 2   |     | 4912.550 | 55.38         | -13.58         | 41.80       | 74.00  | -32.20 | peak           |              |         |
| 3 * |     | 7350.955 | 41.82         | -8.98          | 32.84       | 54.00  | -21.16 | AVG            |              |         |
| 4   |     | 7359.700 | 53.29         | -8.95          | 44.34       | 74.00  | -29.66 | peak           |              |         |

## HORIZONTAL



| No. | Mk. | Freq.    | Reading Level | Correct Factor | Measurement | Limit  | Over   | Antenna Height | Table Degree |        |
|-----|-----|----------|---------------|----------------|-------------|--------|--------|----------------|--------------|--------|
|     |     | MHz      | dBuV          | dB             | dBuV/m      | dBuV/m | dB     | Detector       | cm           | degree |
| 1   |     | 2483.500 | 32.86         | 28.16          | 61.02       | 74.00  | -12.98 | peak           |              |        |
| 2   | *   | 2483.500 | 24.34         | 28.16          | 52.50       | 54.00  | -1.50  | AVG            |              |        |



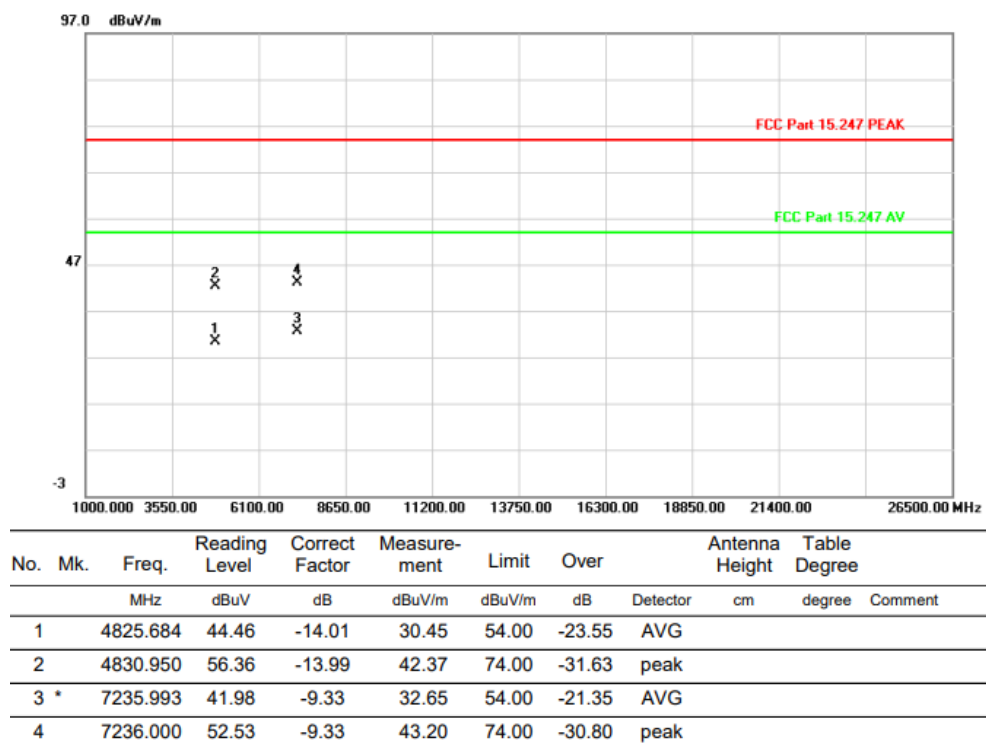
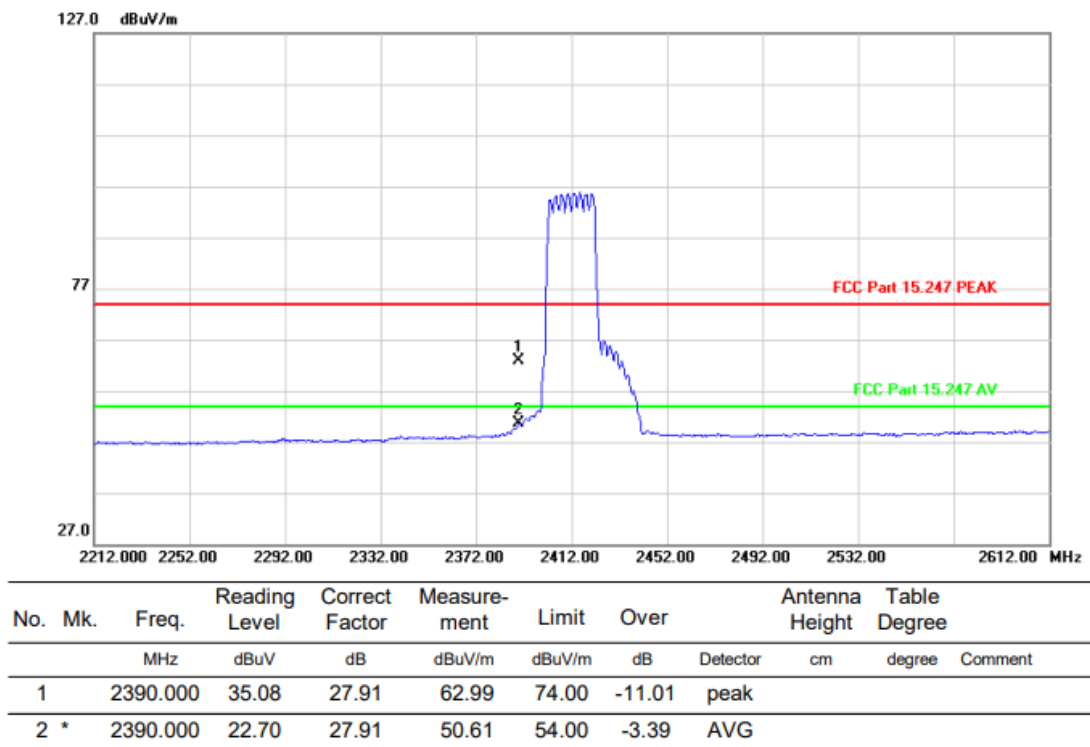
| No. | Mk. | Freq.    | Reading Level | Correct Factor | Measurement | Limit  | Over   | Antenna Height | Table Degree |        |
|-----|-----|----------|---------------|----------------|-------------|--------|--------|----------------|--------------|--------|
|     |     | MHz      | dBuV          | dB             | dBuV/m      | dBuV/m | dB     | Detector       | cm           | degree |
| 1   |     | 4908.300 | 55.09         | -13.60         | 41.49       | 74.00  | -32.51 | peak           |              |        |
| 2   |     | 4908.321 | 43.23         | -13.60         | 29.63       | 54.00  | -24.37 | AVG            |              |        |
| 3   | *   | 7350.664 | 42.03         | -8.98          | 33.05       | 54.00  | -20.95 | AVG            |              |        |
| 4   |     | 7357.150 | 53.62         | -8.96          | 44.66       | 74.00  | -29.34 | peak           |              |        |

Above 1G (1GHz~18GHz)

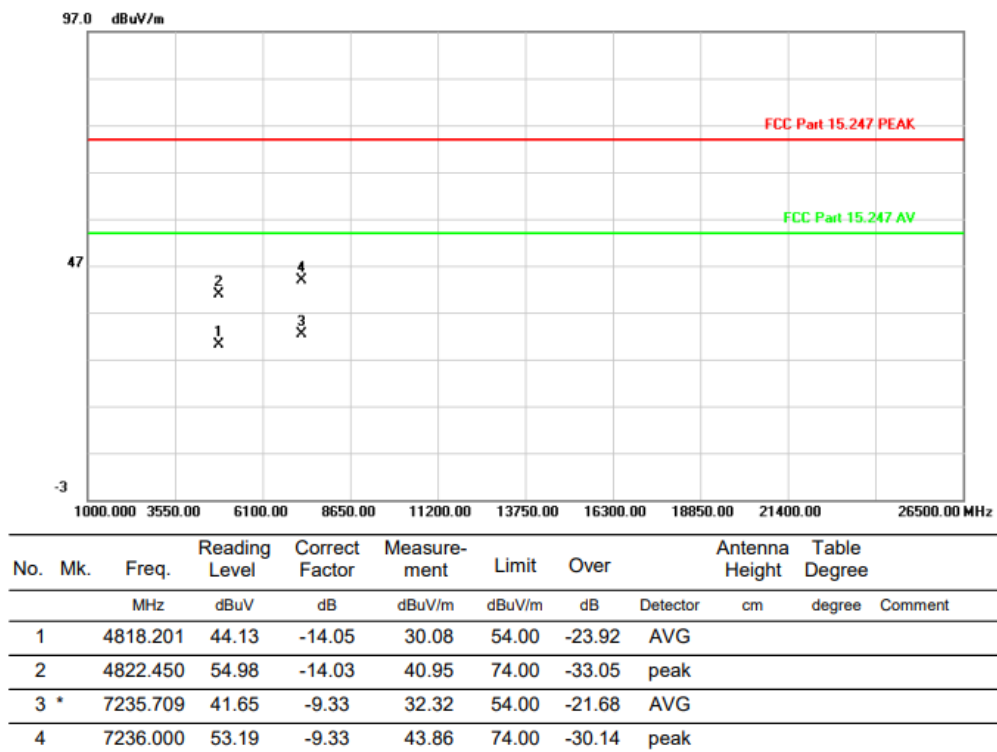
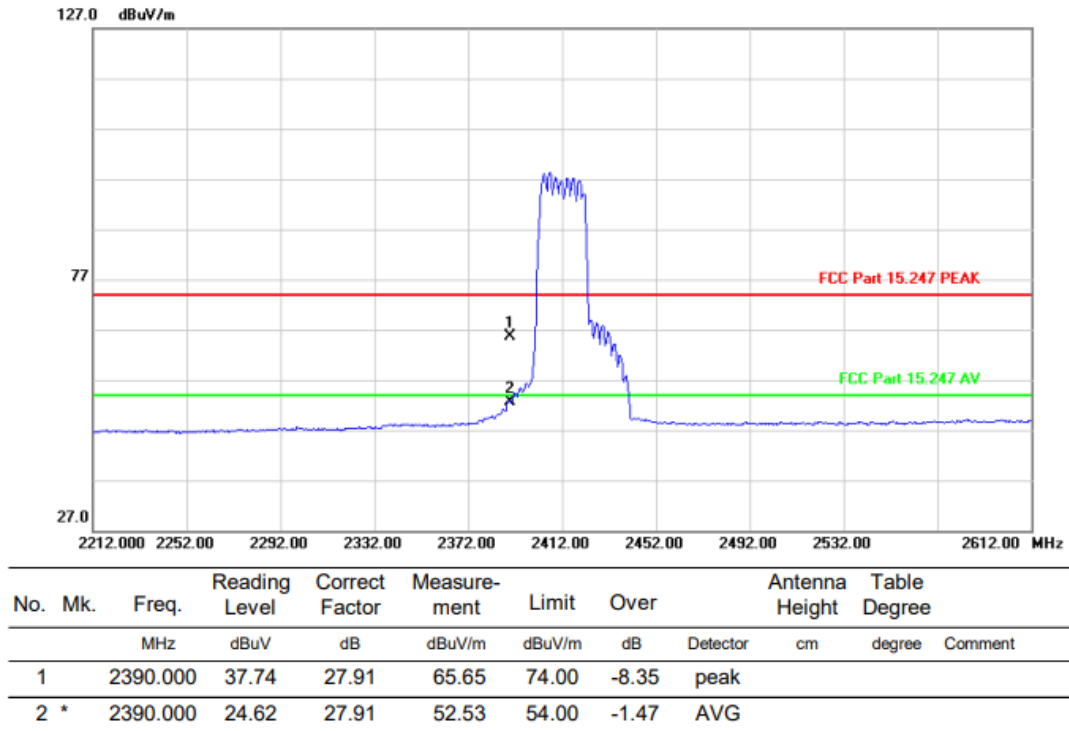
Test mode: 11AX20MIMO

Test Channel:1

VERTICAL



# HORIZONTAL

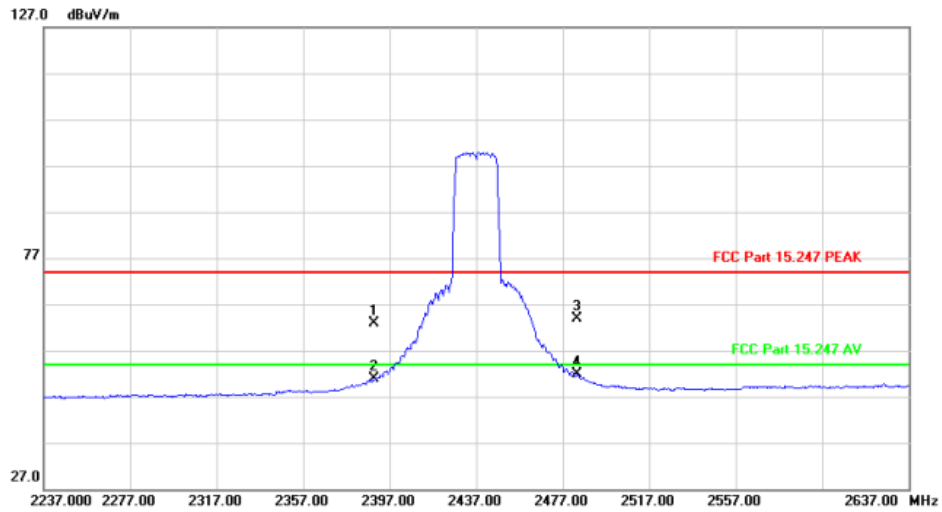


Above 1G (1GHz~18GHz)

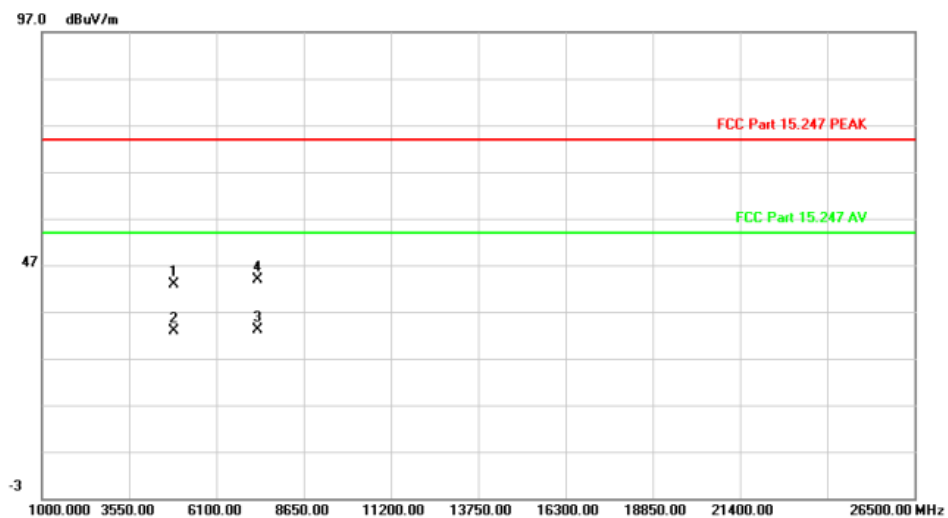
Test mode: 11AX20MIMO

Test Channel: 6

VERTICAL

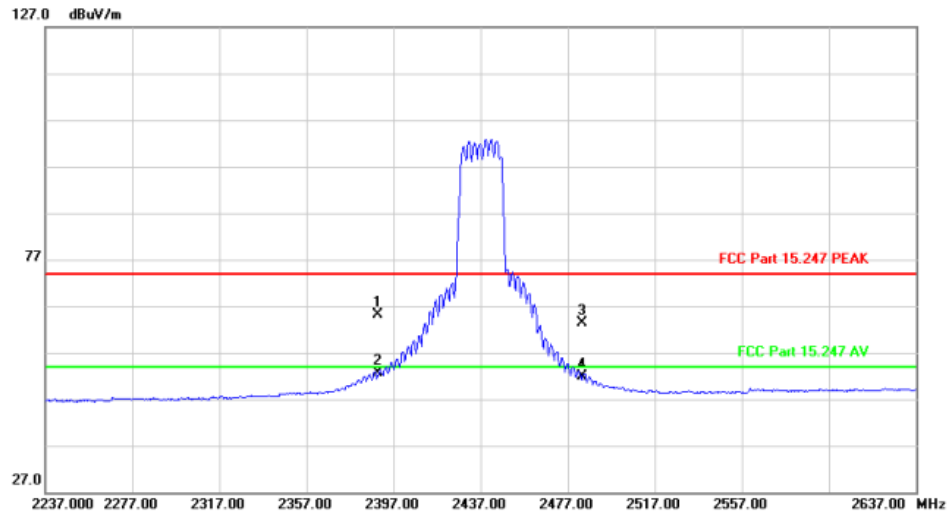


| No. | Mk. | Freq.    | Reading Level | Correct Factor | Measurement | Limit  | Over   | Antenna Height | Table Degree |         |
|-----|-----|----------|---------------|----------------|-------------|--------|--------|----------------|--------------|---------|
|     |     | MHz      | dBuV          | dB             | dBuV/m      | dBuV/m | dB     | cm             | degree       | Comment |
| 1   |     | 2390.000 | 34.97         | 27.91          | 62.88       | 74.00  | -11.12 | peak           |              |         |
| 2   |     | 2390.000 | 22.96         | 27.91          | 50.87       | 54.00  | -3.13  | AVG            |              |         |
| 3   |     | 2483.500 | 35.72         | 28.16          | 63.88       | 74.00  | -10.12 | peak           |              |         |
| 4 * |     | 2483.500 | 23.75         | 28.16          | 51.91       | 54.00  | -2.09  | AVG            |              |         |

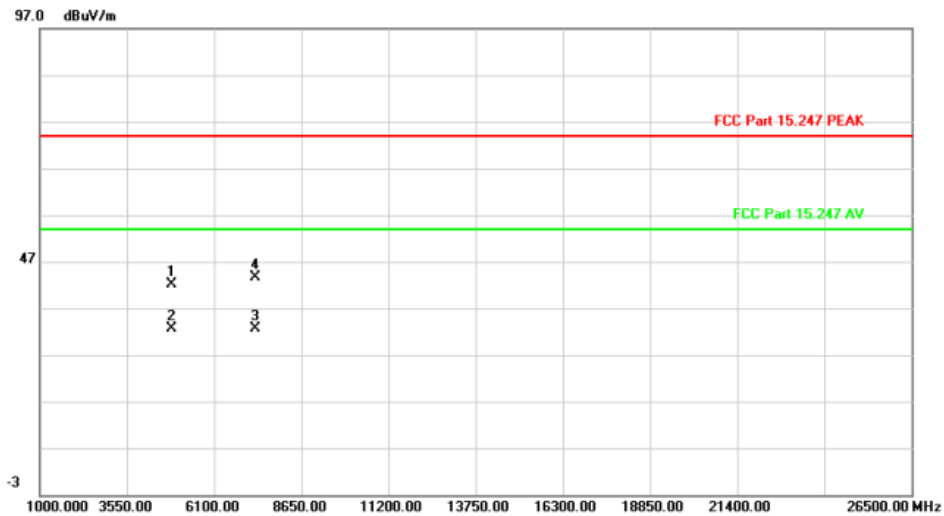


| No. | Mk. | Freq.    | Reading Level | Correct Factor | Measurement | Limit  | Over   | Antenna Height | Table Degree |         |
|-----|-----|----------|---------------|----------------|-------------|--------|--------|----------------|--------------|---------|
|     |     | MHz      | dBuV          | dB             | dBuV/m      | dBuV/m | dB     | cm             | degree       | Comment |
| 1   |     | 4872.600 | 56.65         | -13.78         | 42.87       | 74.00  | -31.13 | peak           |              |         |
| 2   |     | 4873.414 | 46.57         | -13.77         | 32.80       | 54.00  | -21.20 | AVG            |              |         |
| 3 * |     | 7307.899 | 42.28         | -9.11          | 33.17       | 54.00  | -20.83 | AVG            |              |         |
| 4   |     | 7308.700 | 53.05         | -9.11          | 43.94       | 74.00  | -30.06 | peak           |              |         |

## HORIZONTAL



| No. | Mk. | Freq.    | Reading Level | Correct Factor | Measurement | Limit  | Over   | Antenna Height | Table Degree |        |
|-----|-----|----------|---------------|----------------|-------------|--------|--------|----------------|--------------|--------|
|     |     | MHz      | dBuV          | dB             | dBuV/m      | dBuV/m | dB     | Detector       | cm           | degree |
| 1   |     | 2390.000 | 37.17         | 27.91          | 65.08       | 74.00  | -8.92  | peak           |              |        |
| 2 * |     | 2390.000 | 24.72         | 27.91          | 52.63       | 54.00  | -1.37  | AVG            |              |        |
| 3   |     | 2483.500 | 35.19         | 28.16          | 63.35       | 74.00  | -10.65 | peak           |              |        |
| 4   |     | 2483.500 | 23.76         | 28.16          | 51.92       | 54.00  | -2.08  | AVG            |              |        |



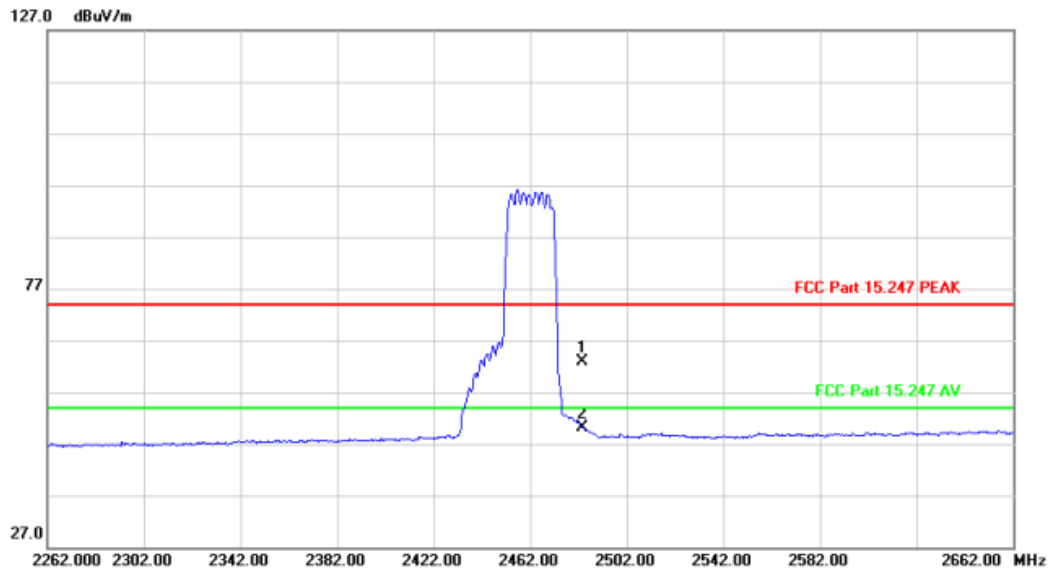
| No. | Mk. | Freq.    | Reading Level | Correct Factor | Measurement | Limit  | Over   | Antenna Height | Table Degree |        |
|-----|-----|----------|---------------|----------------|-------------|--------|--------|----------------|--------------|--------|
|     |     | MHz      | dBuV          | dB             | dBuV/m      | dBuV/m | dB     | Detector       | cm           | degree |
| 1   |     | 4873.450 | 55.99         | -13.77         | 42.22       | 74.00  | -31.78 | peak           |              |        |
| 2 * |     | 4873.743 | 46.35         | -13.77         | 32.58       | 54.00  | -21.42 | AVG            |              |        |
| 3   |     | 7312.973 | 41.64         | -9.10          | 32.54       | 54.00  | -21.46 | AVG            |              |        |
| 4   |     | 7318.900 | 52.60         | -9.08          | 43.52       | 74.00  | -30.48 | peak           |              |        |

Above 1G (1GHz~18GHz)

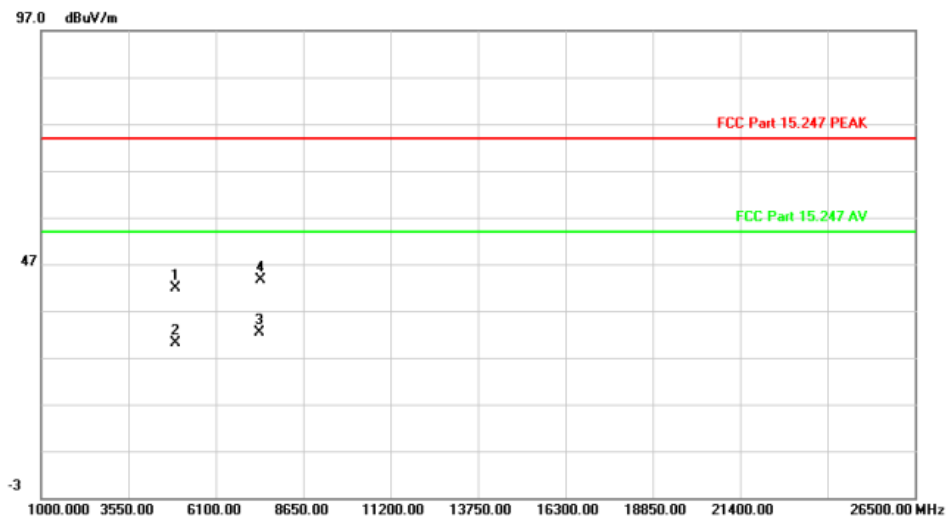
Test mode: 11AX20MIMO

Test Channel:11

VERTICAL

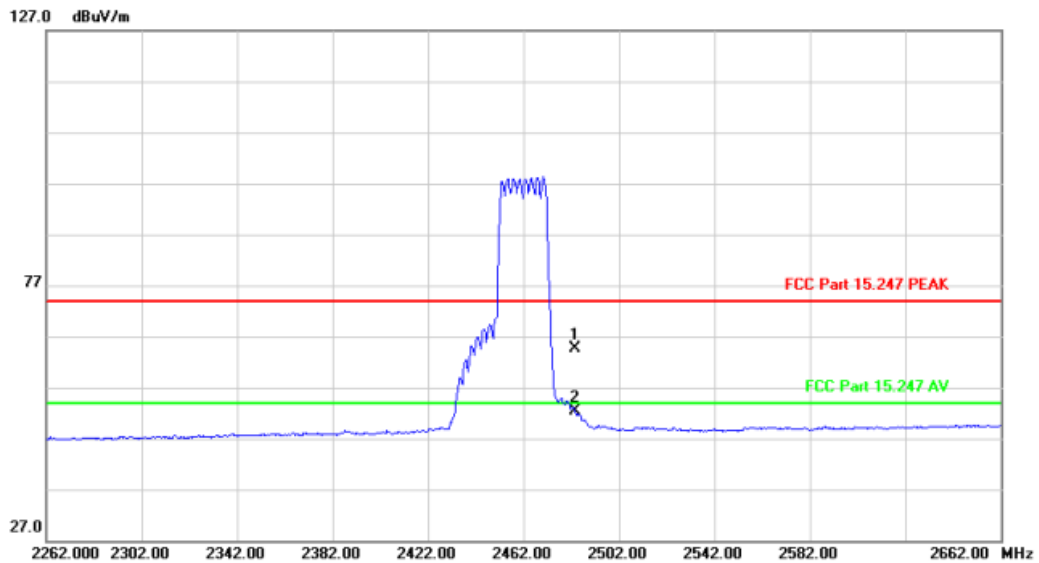


| No. | Mk. | Freq.    | Reading Level | Correct Factor | Measurement | Limit  | Over   | Antenna Height | Table Degree |         |
|-----|-----|----------|---------------|----------------|-------------|--------|--------|----------------|--------------|---------|
|     |     | MHz      | dBuV          | dB             | dBuV/m      | dBuV/m | dB     | cm             | degree       | Comment |
| 1   |     | 2483.500 | 34.68         | 28.16          | 62.84       | 74.00  | -11.16 | peak           |              |         |
| 2 * |     | 2483.500 | 22.00         | 28.16          | 50.16       | 54.00  | -3.84  | AVG            |              |         |

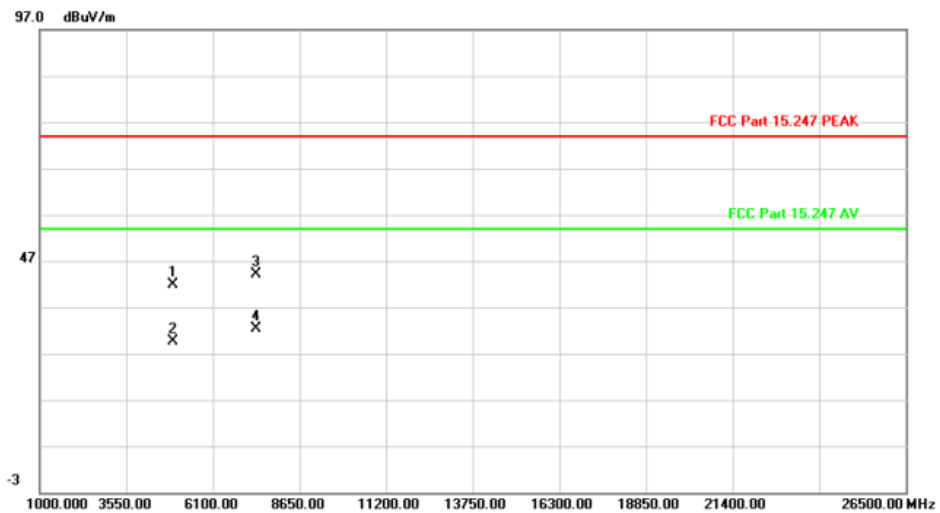


| No. | Mk. | Freq.    | Reading Level | Correct Factor | Measurement | Limit  | Over   | Antenna Height | Table Degree |         |
|-----|-----|----------|---------------|----------------|-------------|--------|--------|----------------|--------------|---------|
|     |     | MHz      | dBuV          | dB             | dBuV/m      | dBuV/m | dB     | cm             | degree       | Comment |
| 1   |     | 4924.000 | 55.32         | -13.52         | 41.80       | 74.00  | -32.20 | peak           |              |         |
| 2   |     | 4930.952 | 43.53         | -13.49         | 30.04       | 54.00  | -23.96 | AVG            |              |         |
| 3 * |     | 7390.212 | 41.17         | -8.86          | 32.31       | 54.00  | -21.69 | AVG            |              |         |
| 4   |     | 7398.800 | 52.46         | -8.83          | 43.63       | 74.00  | -30.37 | peak           |              |         |

## HORIZONTAL



| No. | Mk. | Freq.    | Reading Level | Correct Factor | Measurement | Limit  | Over  | Antenna Height | Table Degree |         |
|-----|-----|----------|---------------|----------------|-------------|--------|-------|----------------|--------------|---------|
|     |     | MHz      | dBuV          | dB             | dBuV/m      | dBuV/m | dB    | cm             | degree       | Comment |
| 1   |     | 2483.500 | 36.44         | 28.16          | 64.60       | 74.00  | -9.40 | peak           |              |         |
| 2 * |     | 2483.500 | 24.14         | 28.16          | 52.30       | 54.00  | -1.70 | AVG            |              |         |



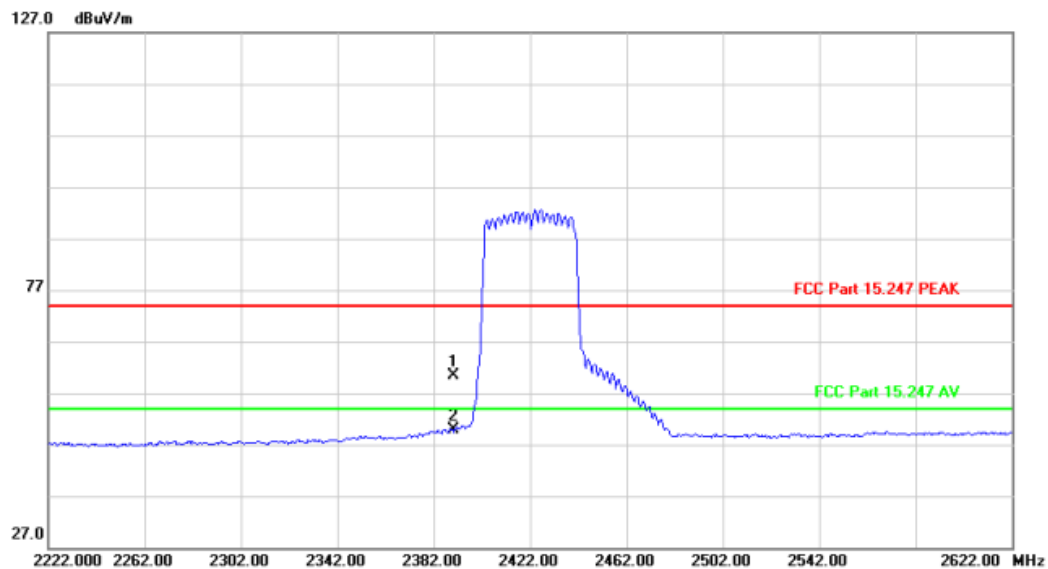
| No. | Mk. | Freq.    | Reading Level | Correct Factor | Measurement | Limit  | Over   | Antenna Height | Table Degree |         |
|-----|-----|----------|---------------|----------------|-------------|--------|--------|----------------|--------------|---------|
|     |     | MHz      | dBuV          | dB             | dBuV/m      | dBuV/m | dB     | cm             | degree       | Comment |
| 1   |     | 4935.500 | 55.46         | -13.46         | 42.00       | 74.00  | -32.00 | peak           |              |         |
| 2   |     | 4937.249 | 43.15         | -13.45         | 29.70       | 54.00  | -24.30 | AVG            |              |         |
| 3   |     | 7380.100 | 53.11         | -8.89          | 44.22       | 74.00  | -29.78 | peak           |              |         |
| 4 * |     | 7380.245 | 41.28         | -8.89          | 32.39       | 54.00  | -21.61 | AVG            |              |         |

Above 1G (1GHz~18GHz)

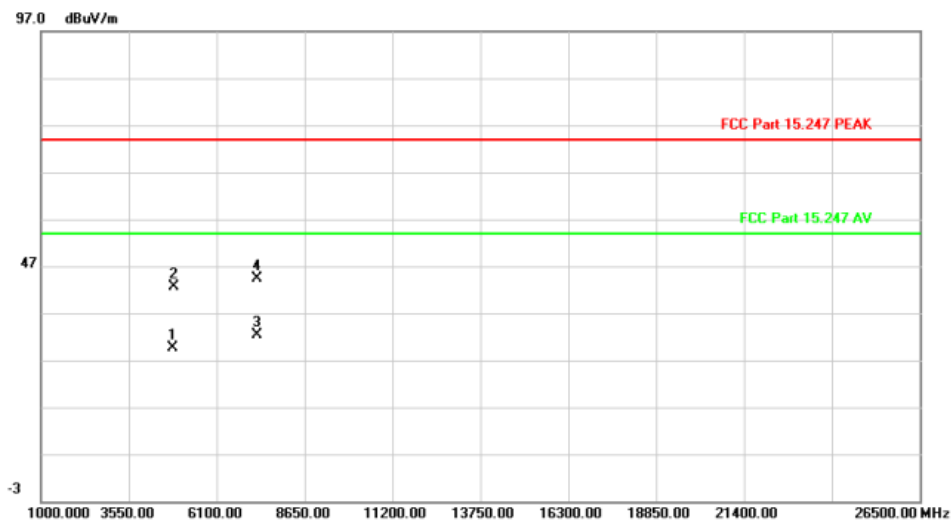
Test mode: 11AX40MIMO

Test Channel:3

VERTICAL

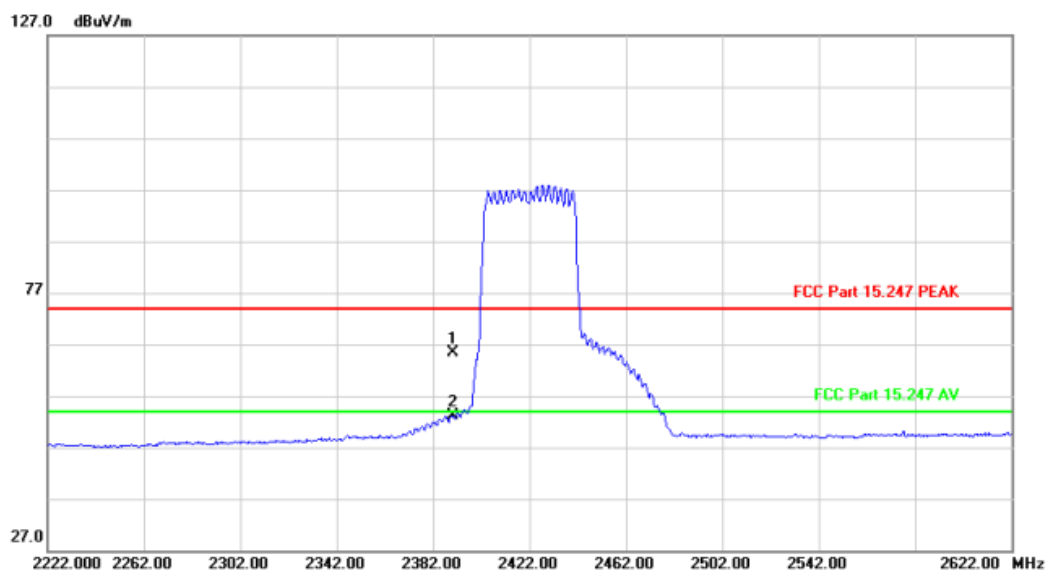


| No. | Mk. | Freq.    | Reading Level | Correct Factor | Measurement | Limit  | Over   | Antenna Height | Table Degree |         |
|-----|-----|----------|---------------|----------------|-------------|--------|--------|----------------|--------------|---------|
|     |     | MHz      | dBuV          | dB             | dBuV/m      | dBuV/m | dB     | cm             | degree       | Comment |
| 1   |     | 2390.000 | 32.51         | 27.91          | 60.42       | 74.00  | -13.58 |                |              | peak    |
| 2 * |     | 2390.000 | 21.93         | 27.91          | 49.84       | 54.00  | -4.16  |                |              | AVG     |

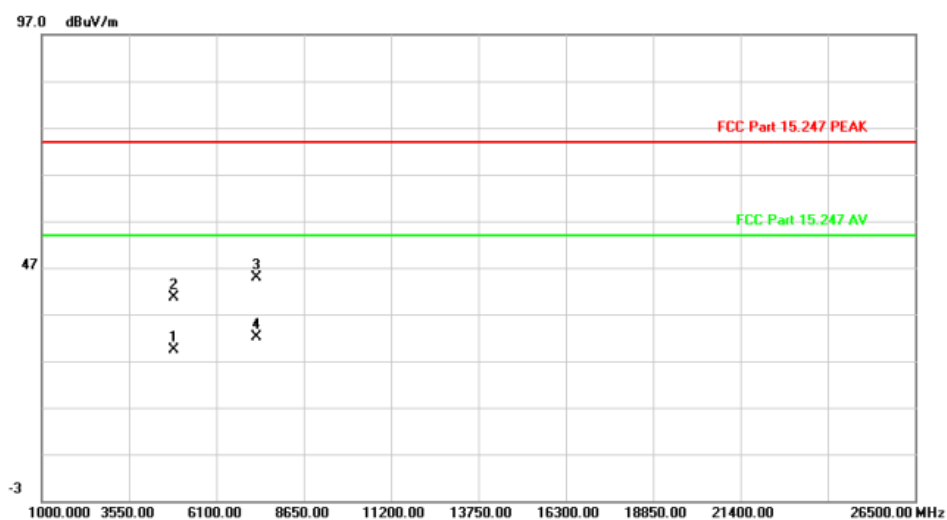


| No. | Mk. | Freq.    | Reading Level | Correct Factor | Measurement | Limit  | Over   | Antenna Height | Table Degree |         |
|-----|-----|----------|---------------|----------------|-------------|--------|--------|----------------|--------------|---------|
|     |     | MHz      | dBuV          | dB             | dBuV/m      | dBuV/m | dB     | cm             | degree       | Comment |
| 1   |     | 4838.100 | 43.66         | -13.95         | 29.71       | 54.00  | -24.29 |                |              | AVG     |
| 2   |     | 4843.700 | 56.51         | -13.92         | 42.59       | 74.00  | -31.41 |                |              | peak    |
| 3 * |     | 7259.404 | 41.62         | -9.26          | 32.36       | 54.00  | -21.64 |                |              | AVG     |
| 4   |     | 7266.500 | 53.60         | -9.24          | 44.36       | 74.00  | -29.64 |                |              | peak    |

## HORIZONTAL



| No. | Mk. | Freq.    | Reading Level | Correct Factor | Measurement | Limit  | Over  | Antenna Height | Table Degree |         |
|-----|-----|----------|---------------|----------------|-------------|--------|-------|----------------|--------------|---------|
|     |     | MHz      | dBuV          | dB             | dBuV/m      | dBuV/m | dB    | cm             | degree       | Comment |
| 1   |     | 2390.000 | 37.48         | 27.91          | 65.39       | 74.00  | -8.61 |                |              | peak    |
| 2 * |     | 2390.000 | 25.25         | 27.91          | 53.16       | 54.00  | -0.84 |                |              | AVG     |



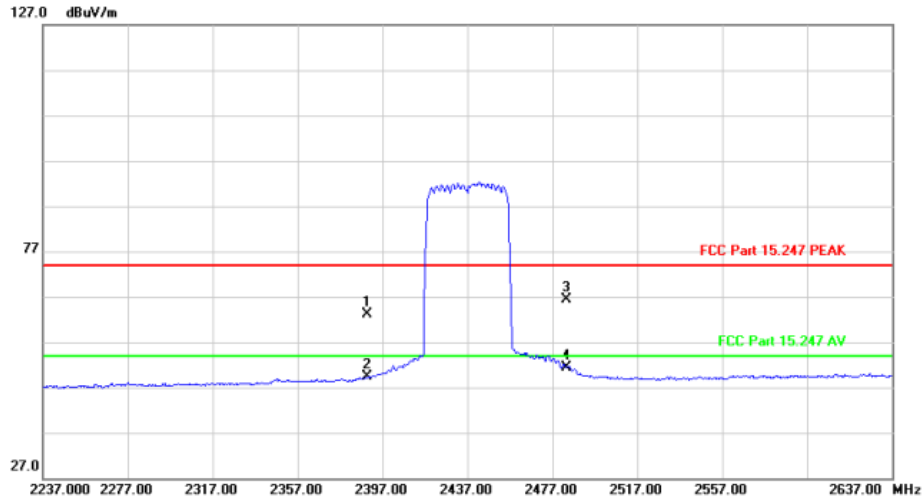
| No. | Mk. | Freq.    | Reading Level | Correct Factor | Measurement | Limit  | Over   | Antenna Height | Table Degree |         |
|-----|-----|----------|---------------|----------------|-------------|--------|--------|----------------|--------------|---------|
|     |     | MHz      | dBuV          | dB             | dBuV/m      | dBuV/m | dB     | cm             | degree       | Comment |
| 1   |     | 4843.304 | 43.19         | -13.92         | 29.27       | 54.00  | -24.73 |                |              | AVG     |
| 2   |     | 4851.350 | 54.59         | -13.88         | 40.71       | 74.00  | -33.29 |                |              | peak    |
| 3   |     | 7274.700 | 54.14         | -9.21          | 44.93       | 74.00  | -29.07 |                |              | peak    |
| 4 * |     | 7280.282 | 41.42         | -9.20          | 32.22       | 54.00  | -21.78 |                |              | AVG     |

Above 1G (1GHz~18GHz)

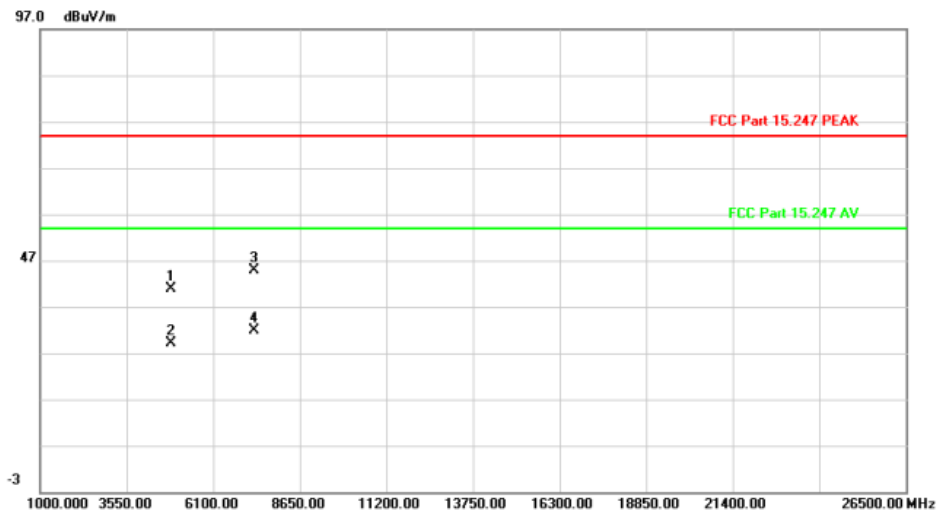
Test mode: 11AX40MIMO

Test Channel: 6

VERTICAL

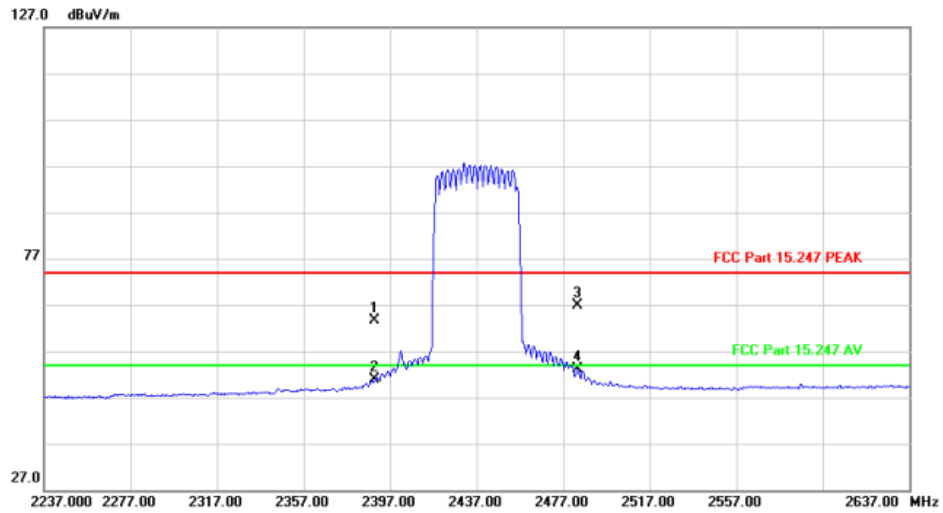


| No. | Mk. | Freq.    | Reading | Correct | Measure- | Limit  | Over   | Antenna | Table  |         |
|-----|-----|----------|---------|---------|----------|--------|--------|---------|--------|---------|
|     |     | MHz      | Level   | Factor  | ment     |        |        | Height  | Degree |         |
|     |     |          | dBuV    | dB      | dBuV/m   | dBuV/m | dB     | cm      | degree | Comment |
| 1   |     | 2390.000 | 35.24   | 27.91   | 63.15    | 74.00  | -10.85 | peak    |        |         |
| 2   |     | 2390.000 | 21.35   | 27.91   | 49.26    | 54.00  | -4.74  | AVG     |        |         |
| 3   |     | 2483.500 | 38.15   | 28.16   | 66.31    | 74.00  | -7.69  | peak    |        |         |
| 4 * |     | 2483.500 | 23.22   | 28.16   | 51.38    | 54.00  | -2.62  | AVG     |        |         |

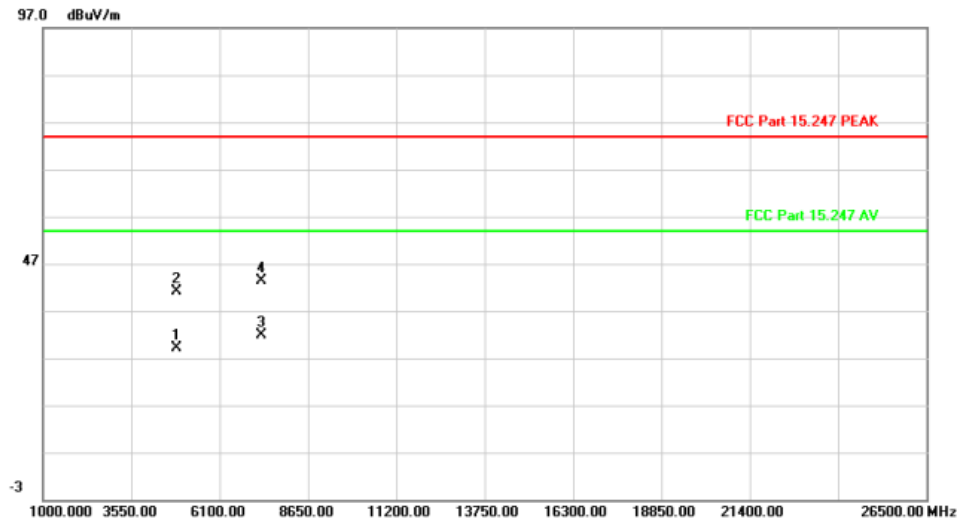


| No. | Mk. | Freq.    | Reading | Correct | Measure- | Limit  | Over   | Antenna | Table  |         |
|-----|-----|----------|---------|---------|----------|--------|--------|---------|--------|---------|
|     |     | MHz      | Level   | Factor  | ment     |        |        | Height  | Degree |         |
|     |     |          | dBuV    | dB      | dBuV/m   | dBuV/m | dB     | cm      | degree | Comment |
| 1   |     | 4870.900 | 54.61   | -13.79  | 40.82    | 74.00  | -33.18 | peak    |        |         |
| 2   |     | 4870.933 | 42.91   | -13.79  | 29.12    | 54.00  | -24.88 | AVG     |        |         |
| 3   |     | 7310.500 | 53.94   | -9.10   | 44.84    | 74.00  | -29.16 | peak    |        |         |
| 4 * |     | 7318.196 | 41.00   | -9.08   | 31.92    | 54.00  | -22.08 | AVG     |        |         |

## HORIZONTAL



| No. | Mk. | Freq.    | Reading Level | Correct Factor | Measurement | Limit  | Over   | Antenna Height | Table Degree |         |
|-----|-----|----------|---------------|----------------|-------------|--------|--------|----------------|--------------|---------|
|     |     | MHz      | dBuV          | dB             | dBuV/m      | dBuV/m | dB     | cm             | degree       | Comment |
| 1   |     | 2390.000 | 35.63         | 27.91          | 63.54       | 74.00  | -10.46 | peak           |              |         |
| 2   |     | 2390.000 | 22.95         | 27.91          | 50.86       | 54.00  | -3.14  | AVG            |              |         |
| 3   |     | 2483.500 | 38.80         | 28.16          | 66.96       | 74.00  | -7.04  | peak           |              |         |
| 4 * |     | 2483.500 | 24.91         | 28.16          | 53.07       | 54.00  | -0.93  | AVG            |              |         |



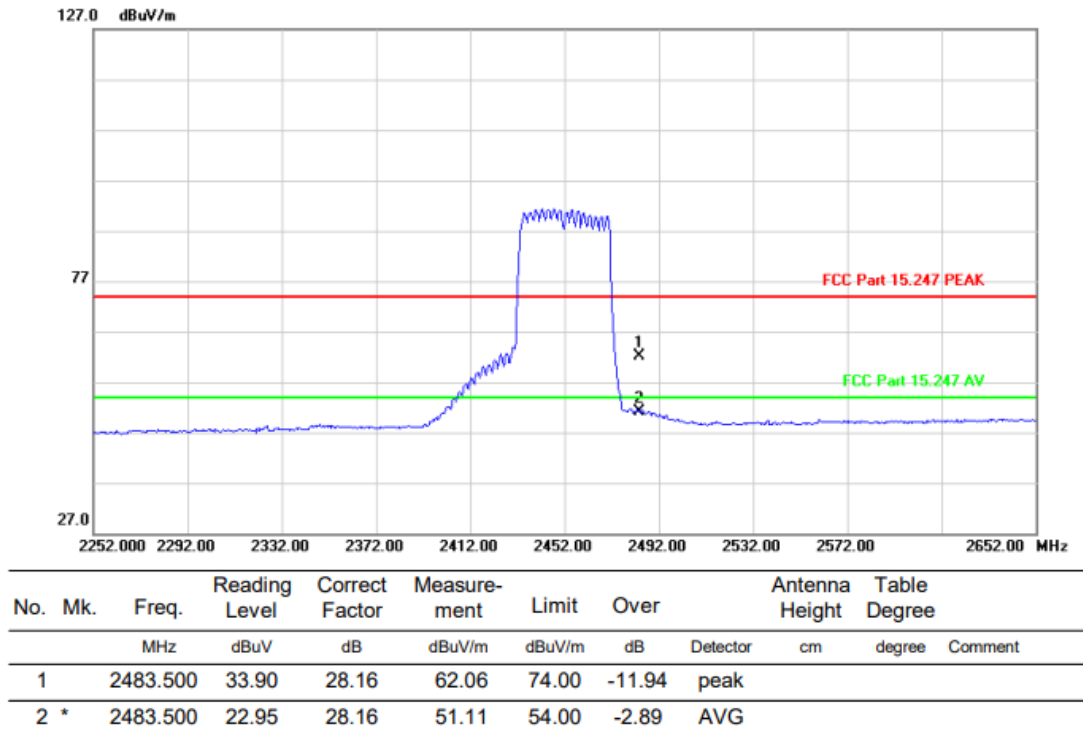
| No. | Mk. | Freq.    | Reading Level | Correct Factor | Measurement | Limit  | Over   | Antenna Height | Table Degree |         |
|-----|-----|----------|---------------|----------------|-------------|--------|--------|----------------|--------------|---------|
|     |     | MHz      | dBuV          | dB             | dBuV/m      | dBuV/m | dB     | cm             | degree       | Comment |
| 1   |     | 4870.641 | 42.80         | -13.79         | 29.01       | 54.00  | -24.99 | AVG            |              |         |
| 2   |     | 4874.000 | 54.83         | -13.77         | 41.06       | 74.00  | -32.94 | peak           |              |         |
| 3 * |     | 7302.184 | 41.06         | -9.13          | 31.93       | 54.00  | -22.07 | AVG            |              |         |
| 4   |     | 7311.000 | 52.42         | -9.10          | 43.32       | 74.00  | -30.68 | peak           |              |         |

Above 1G (1GHz~18GHz)

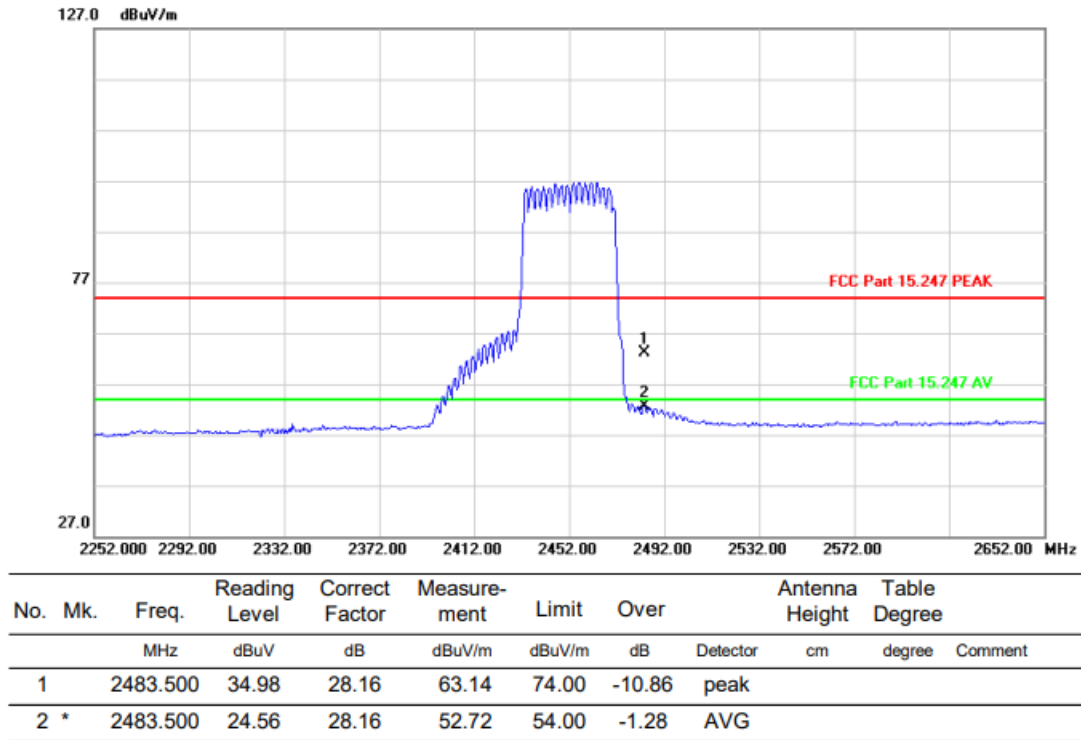
Test mode: 11AX40MIMO

Test Channel:9

VERTICAL



## HORIZONTAL



Note: All the EUT's emissions had been evaluated for simultaneous transmission with the WIFI 2.4GHz and WIFI 5GHz, and there were no any additional or worse emissions found.

### 3.3 Spurious Emission at Antenna Port

#### 3.3.1 Limit

In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak Output Power limits. If the transmitter complies with the Output Power limits based on the use of RMS averaging over a time interval, as permitted under paragraph (b)(3) of this section, the attenuation required under this paragraph shall be 30 dB instead of 20 dB. Attenuation below the general limits specified in Section 15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in Section 15.205(a), must also comply with the radiated emission limits specified in Section 15.209(a) (see Section 15.205(c)).

#### 3.3.2 Test Procedure

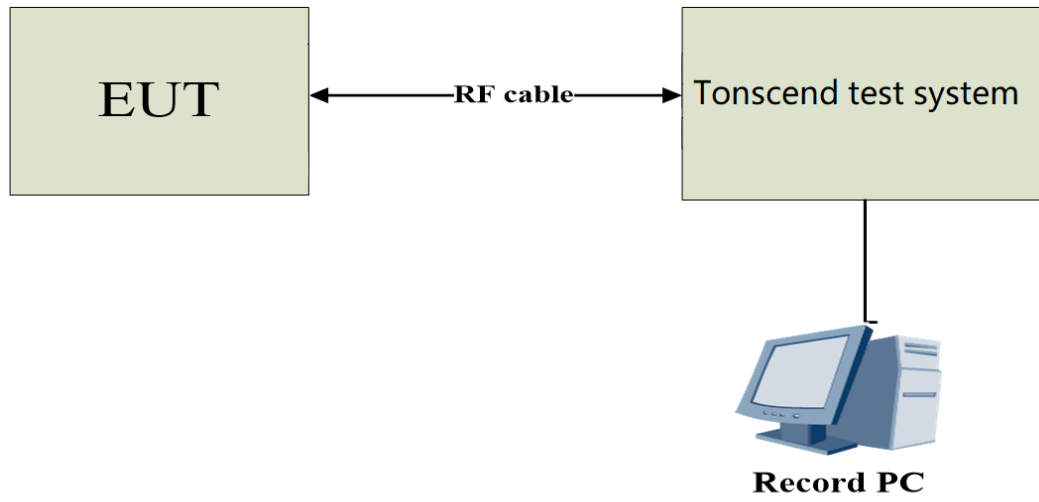
| Test Method                                                         |                                                  |
|---------------------------------------------------------------------|--------------------------------------------------|
| <input checked="" type="radio"/> Conducted Measurement              | <input type="radio"/> Radiated Measurement       |
| Test Channels                                                       |                                                  |
| <input checked="" type="radio"/> Lowest, Middle and Highest Channel | <input type="radio"/> Lowest and Highest Channel |
| Environmental conditions                                            |                                                  |
| <input checked="" type="radio"/> Normal                             | <input type="radio"/> Normal and Extreme         |
| Note: ● : Test    ○ : No Test                                       |                                                  |

a) The EUT was directly connected to the tonscond test system and antenna output port as show in the block diagram below.

b) Spectrum Setting as below:

|                     |                                                |
|---------------------|------------------------------------------------|
| Centre Frequency    | The centre frequency of the channel under test |
| Spectrum Parameters | Setting                                        |
| Start Frequency     | 30 MHz                                         |
| Stop Frequency      | 26.5 GHz                                       |
| RBW                 | 100 kHz                                        |
| VBW                 | 300 kHz                                        |
| Detector            | Peak                                           |
| Trace               | Max Hold                                       |
| Sweep Time          | Auto                                           |

### 3.3.3 Test Setup



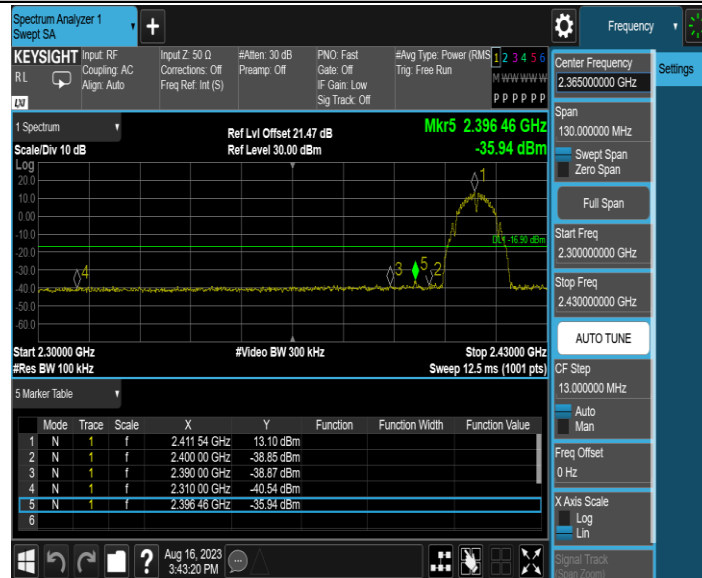
### 3.3.4 Test Result

#### Conducted Band edge measurements

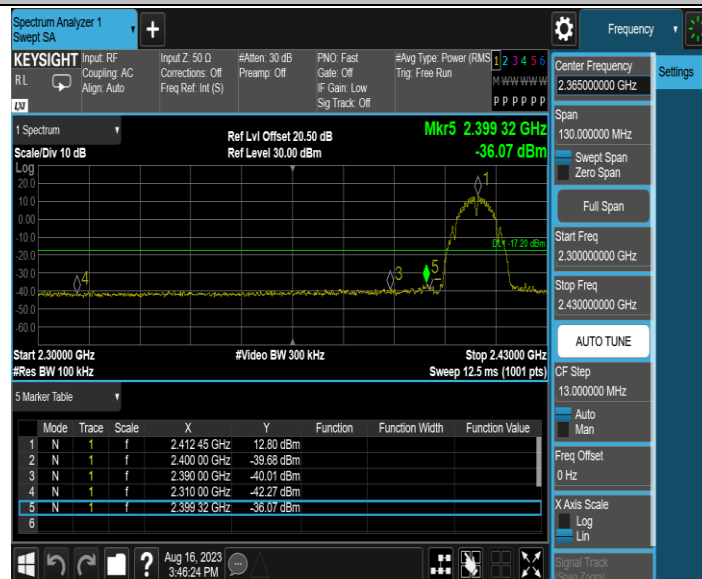
| TestMode   | Antenna | ChName | Frequency[MHz] | RefLevel[dBm] | Result[dBm] | Limit[dBm]    | Verdict |
|------------|---------|--------|----------------|---------------|-------------|---------------|---------|
| 11B-MIMO   | Ant1    | Low    | 2412           | 13.10         | -35.95      | $\leq -16.9$  | PASS    |
|            | Ant2    | Low    | 2412           | 12.80         | -36.07      | $\leq -17.2$  | PASS    |
|            | Ant1    | High   | 2462           | 17.33         | -30.43      | $\leq -12.67$ | PASS    |
|            | Ant2    | High   | 2462           | 15.85         | -28.68      | $\leq -14.16$ | PASS    |
| 11N20MIMO  | Ant1    | Low    | 2412           | 9.33          | -34.71      | $\leq -20.67$ | PASS    |
|            | Ant2    | Low    | 2412           | 9.13          | -36.19      | $\leq -20.87$ | PASS    |
|            | Ant1    | High   | 2462           | 9.23          | -26.1       | $\leq -20.77$ | PASS    |
|            | Ant2    | High   | 2462           | 8.69          | -26.26      | $\leq -21.32$ | PASS    |
| 11N40MIMO  | Ant1    | Low    | 2422           | 7.40          | -27.28      | $\leq -22.6$  | PASS    |
|            | Ant2    | Low    | 2422           | 6.81          | -27.23      | $\leq -23.19$ | PASS    |
|            | Ant1    | High   | 2452           | 6.63          | -32.28      | $\leq -23.37$ | PASS    |
|            | Ant2    | High   | 2452           | 5.72          | -35.07      | $\leq -24.28$ | PASS    |
| 11AX20MIMO | Ant1    | Low    | 2412           | 8.51          | -34.41      | $\leq -21.49$ | PASS    |
|            | Ant2    | Low    | 2412           | 7.70          | -33.97      | $\leq -22.3$  | PASS    |
|            | Ant1    | High   | 2462           | 9.03          | -37.64      | $\leq -20.97$ | PASS    |
|            | Ant2    | High   | 2462           | 8.20          | -38.95      | $\leq -21.8$  | PASS    |
| 11AX40MIMO | Ant1    | Low    | 2422           | 7.71          | -27.24      | $\leq -22.29$ | PASS    |
|            | Ant2    | Low    | 2422           | 6.60          | -26.12      | $\leq -23.41$ | PASS    |
|            | Ant1    | High   | 2452           | 6.77          | -33.94      | $\leq -23.23$ | PASS    |
|            | Ant2    | High   | 2452           | 5.80          | -33.81      | $\leq -24.2$  | PASS    |

## Test Graphs

11B-MIMO\_Ant1\_Low\_2412



11B-MIMO\_Ant2\_Low\_2412



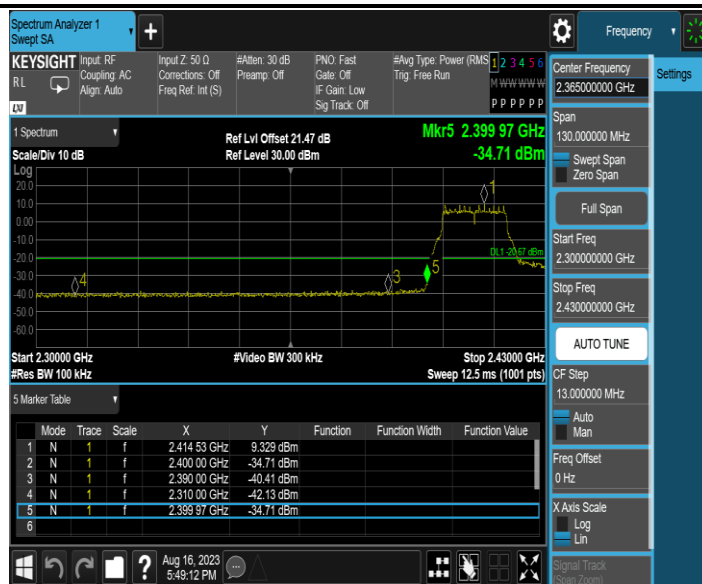
11B-MIMO\_Ant1\_High\_2462



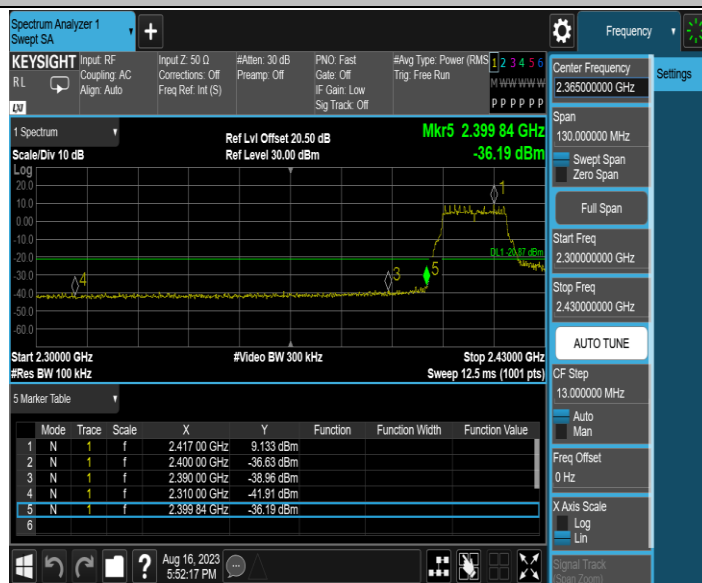
11B-MIMO\_Ant2\_High\_2462



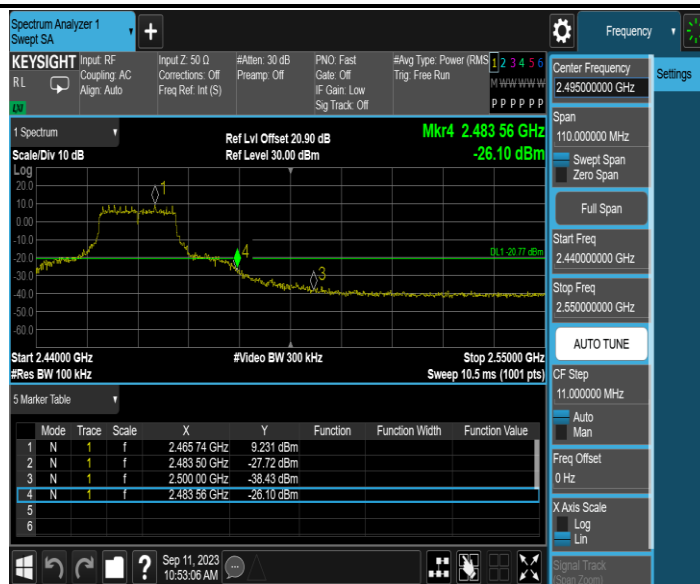
11N20MIMO\_Ant1\_Low\_2412



11N20MIMO\_Ant2\_Low\_2412



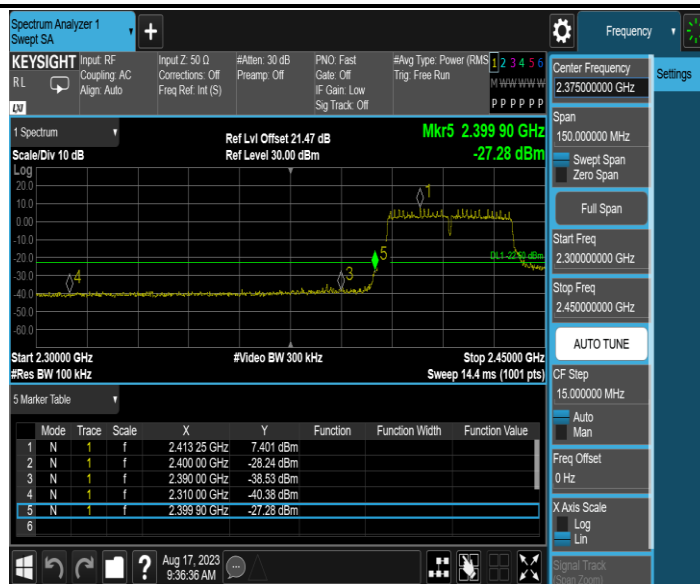
11N20MIMO\_Ant1\_High\_2462



11N20MIMO\_Ant2\_High\_2462



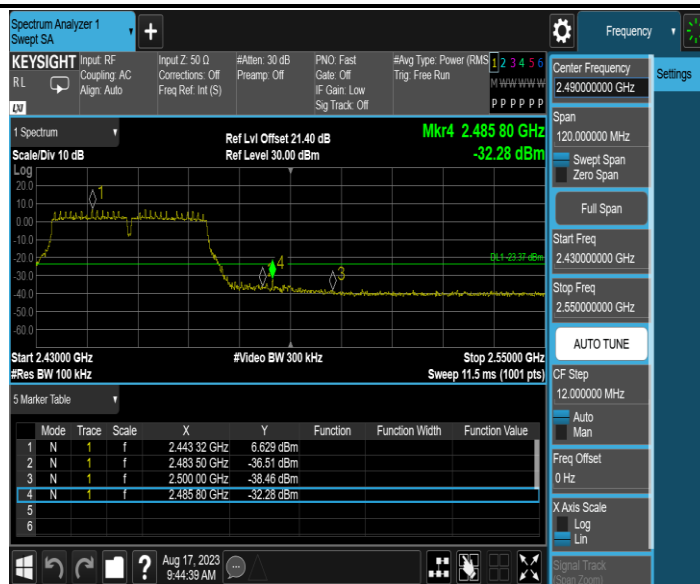
11N40MIMO\_Ant1\_Low\_2422



11N40MIMO\_Ant2\_Low\_2422



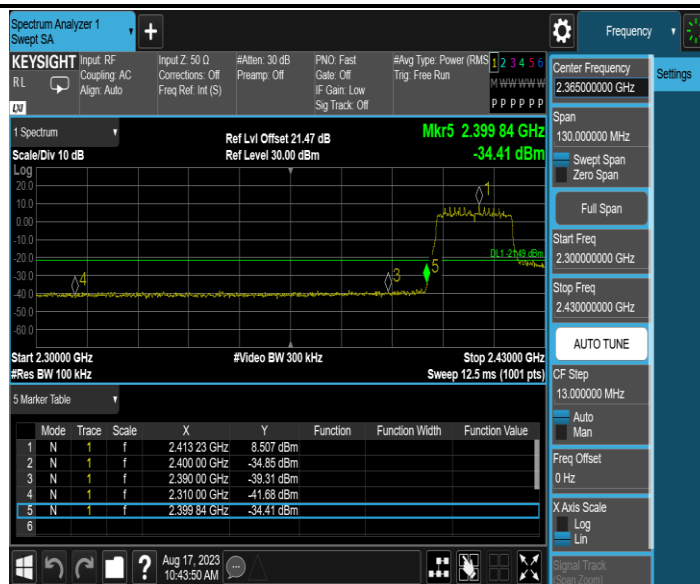
11N40MIMO\_Ant1\_High\_2452



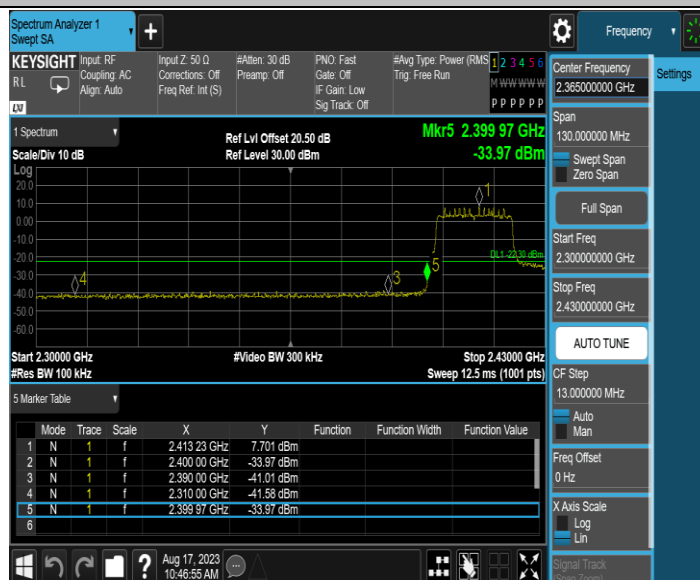
11N40MIMO\_Ant2\_High\_2452



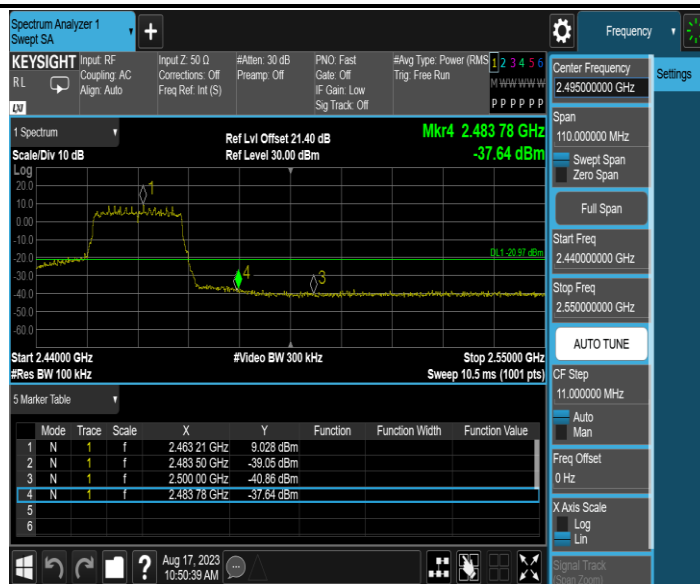
11AX20MIMO\_Ant1\_Low\_2412



11AX20MIMO\_Ant2\_Low\_2412



11AX20MIMO\_Ant1\_High\_2462



11AX20MIMO\_Ant2\_High\_2462



11AX40MIMO\_Ant1\_Low\_2422