



# FCC TEST REPORT

## FCC ID:2A2LL-FV2000

**Report Number**..... : ZKT-241122L16323E-5

**Date of Test**..... Nov. 16, 2024~ Nov. 19, 2024

**Date of issue** ..... : Nov. 20, 2024

**Total number of pages** ..... 105

**Test Result** ..... : PASS

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

**Address** ..... 1/F, No. 101, Building B, No. 6, Tangwei Community Industrial Avenue, Fuhai Street, Bao'an District, Shenzhen, China

**Applicant's name** ..... : **FJ Dynamics Co., Ltd.**

**Address** ..... Floor 21, Das Tower, No. 28, 1st South Keji Road, High-tech Zone, Yuehai Subdistrict, Nanshan District, Shenzhen, China

**Manufacturer's name** ..... : **FJ Dynamics Co., Ltd.**

**Address** ..... Floor 21, Das Tower, No. 28, 1st South Keji Road, High-tech Zone, Yuehai Subdistrict, Nanshan District, Shenzhen, China

### Test specification:

**Standard** ..... FCC CFR Title 47 Part 15 Subpart C Section 15.247  
ANSI C63.10:2013

**Test procedure**..... : /

**Non-standard test method** ..... : N/A

**Test Report Form No.** ..... : TRF-EL-110\_V0

**Test Report Form(s) Originator** .... : ZKT Testing

**Master TRF** ..... : Dated: 2020-01-06

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

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**Product name**..... : **Robotic Lawn Mower**

**Trademark** ..... : 

**Model/Type reference** ..... : FV2000

**Ratings**..... : DC 24V



**Testing procedure and testing location:**

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

**Address**.....: 1/F, No. 101, Building B, No. 6, Tangwei Community  
Industrial Avenue, Fuhai Street, Bao'an District,  
Shenzhen, China

**Tested by (name + signature)** .....: Jim.Liu

**Reviewer (name + signature)**.....: Jackson.Fang

**Approved (name + signature)** .....: Lake Xie





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| <b>12. EUT CONSTRUCTIONAL DETAILS</b>                 | 错误!未定义书签。  |



1. VERSION

| Report No.          | Version | Description             | Approved      |
|---------------------|---------|-------------------------|---------------|
| ZKT-241122L16323E-5 | Rev.01  | Initial issue of report | Nov. 20, 2024 |
|                     |         |                         |               |
|                     |         |                         |               |



## 2. SUMMARY OF TEST RESULTS

Test procedures according to the technical standards:

| FCC Part15 (15.247) , Subpart C |                                  |        |        |
|---------------------------------|----------------------------------|--------|--------|
| Standard Section                | Test Item                        | Result | Remark |
| FCC part 15.203/15.247 (c)      | Antenna requirement              | PASS   |        |
| FCC part 15.207                 | AC Power Line Conducted Emission | PASS   |        |
| FCC part 15.247 (b)(3)          | Conducted Peak Output Power      | PASS   |        |
| FCC part 15.247 (a)(2)          | Channel Bandwidth& 99% OCB       | PASS   |        |
| FCC part 15.247 (e)             | Power Spectral Density           | PASS   |        |
| FCC part 15.247(d)              | Band Edge                        | PASS   |        |
| FCC part 15.205/15.209          | Spurious Emission                | PASS   |        |

NOTE:

(1)" N/A" denotes test is not applicable in this Test Report



## 2.1 TEST FACILITY

Shenzhen ZKT Technology Co., Ltd.

Add. : 1/F, No. 101, Building B, No. 6, Tangwei Community Industrial Avenue, Fuhai Street, Bao'an District, Shenzhen, China

FCC Test Firm Registration Number: 692225

Designation Number: CN1299

IC Registered No.: 27033

CAB identifier: CN0110

## 2.2 MEASUREMENT UNCERTAINTY

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

| No. | Item                                              | Uncertainty |
|-----|---------------------------------------------------|-------------|
| 1   | 3m chamber Radiated spurious emission(9KHz-30MHz) | U=4.5dB     |
| 2   | 3m chamber Radiated spurious emission(30MHz-1GHz) | U=4.8dB     |
| 3   | 3m chamber Radiated spurious emission(1GHz-6GHz)  | U=4.9dB     |
| 4   | 3m chamber Radiated spurious emission(6GHz-40GHz) | U=5.0dB     |
| 5   | Conducted disturbance                             | U=3.2dB     |
| 6   | RF Band Edge                                      | U=1.68dB    |
| 7   | RF power conducted                                | U=1.86dB    |
| 8   | RF conducted Spurious Emission                    | U=2.2dB     |
| 9   | RF Occupied Bandwidth                             | U=1.8KHz    |
| 10  | RF Power Spectral Density                         | U=1.75dB    |
| 11  | humidity uncertainty                              | U=5.3%      |
| 12  | Temperature uncertainty                           | U=0.59°C    |





### 3. GENERAL INFORMATION

#### 3.1 GENERAL DESCRIPTION OF EUT

|                                   |                                                                                                                                             |
|-----------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------|
| Product Name:                     | Robotic Lawn Mower                                                                                                                          |
| Model No.:                        | FV2000                                                                                                                                      |
| Model Different.:                 | N/A                                                                                                                                         |
| Serial No.:                       | N/A                                                                                                                                         |
| Sample ID                         | ZKT-241122L16323                                                                                                                            |
| Sample(s) Status:                 | Engineer sample                                                                                                                             |
| Channel numbers:                  | 802.11b/802.11g /802.11n(HT20)/ 802.11ax(HT20)                                                                                              |
| Channel separation:               | 5MHz                                                                                                                                        |
| Modulation technology:            | 802.11b: Direct Sequence Spread Spectrum(DSSS)<br>802.11g/802.11n(HT20)/ 802.11ax(HT20)<br>Orthogonal Frequency Division Multiplexing(OFDM) |
| Antenna Type and<br>Antenna gain: | 802.11b/g/n/ax: FPC Antenna<br>Antenna gain: 3.5dBi                                                                                         |
| Worst Case:                       | 2.4G WIFI 802.11n20                                                                                                                         |
| Power supply:                     | Input: DC 24V                                                                                                                               |
| SWITCHING POWER ADAPTER:          | Input:100-240VAC,50/60Hz,MAX 5A<br>Output:24VDC,7.5A,180W                                                                                   |

| Operation Frequency each of channel |           |             |           |             |           |             |           |
|-------------------------------------|-----------|-------------|-----------|-------------|-----------|-------------|-----------|
| Channel                             | Frequency | Chann<br>el | Frequency | Chann<br>el | Frequency | Chann<br>el | Frequency |
| 1                                   | 2412MHz   | 4           | 2427MHz   | 7           | 2442MHz   | 10          | 2457MHz   |
| 2                                   | 2417MHz   | 5           | 2432MHz   | 8           | 2447MHz   | 11          | 2462MHz   |
| 3                                   | 2422MHz   | 6           | 2437MHz   | 9           | 2452MHz   |             |           |

Note:

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

| Test channel    | Frequency (MHz)                                   |   |
|-----------------|---------------------------------------------------|---|
|                 | 802.11b/802.11g/802.11n(HT20)<br>/ 802.11ax(HT20) | / |
| Lowest channel  | 2412MHz                                           | / |
| Middle channel  | 2437MHz                                           | / |
| Highest channel | 2462MHz                                           | / |

#### 3.2 DESCRIPTION OF TEST MODES





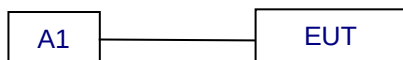
|                                                                                                                                                                                                                                                            |                                                |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------|
| Transmitting mode                                                                                                                                                                                                                                          | Keep the EUT in continuously transmitting mode |
| Remark: During the test, the duty cycle >98%, the test voltage was tuned from 85% to 115% of the nominal rated supply voltage, and found that the worst case was under the nominal rated supply condition. So the report just shows that condition's data. |                                                |

|                                                                                                                                                                                                              |         |         |               |                |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------|---------|---------------|----------------|
| We have verified the construction and function in typical operation. All the test modes were carried out with the EUT in transmitting operation, which was shown in this test report and defined as follows: |         |         |               |                |
| Pre-scan all kind of data rate in lowest channel, and found the follow list which it was worst case.                                                                                                         |         |         |               |                |
| Mode                                                                                                                                                                                                         | 802.11b | 802.11g | 802.11n(HT20) | 802.11ax(HT20) |
| Data rate                                                                                                                                                                                                    | 1Mbps   | 6Mbps   | 6.5Mbps       | 6.5Mbps        |

|                   |               |
|-------------------|---------------|
| Test Software     | MobaXterm.exe |
| Power level setup | 14            |

### 3.3 BLOCK DIGRAM SHOWING THE CONFIGURATION OF SYSTEM TESTED

#### Conducted Emission



#### Radiated Emission



#### Conducted Spurious



### 3.4 DESCRIPTION OF SUPPORT UNITS(CONDUCTED MODE)

The EUT has been tested as an independent unit together with other necessary accessories or support units. The following support units or accessories were used to form a representative test configuration during the tests.

| Item | Equipment | Mfr/Brand | Model/Type No. | Series No. | Note |
|------|-----------|-----------|----------------|------------|------|
| /    | /         | /         | /              | /          | /    |
|      |           |           |                |            |      |

| Item | Shielded Type | Ferrite Core | Length | Note |
|------|---------------|--------------|--------|------|
| /    | /             | /            | /      | /    |
|      |               |              |        |      |

#### Note:

- (1) The support equipment was authorized by Declaration of Confirmation.
- (2) For detachable type I/O cable should be specified the length in cm in 『Length』 column.



### 3.5EQUIPMENTS LIST FOR ALL TEST ITEMS

#### Radiation Test equipment

| Item | Equipment                            | Manufacturer   | Type No.        | Serial No.         | Last calibration | Calibrated until |
|------|--------------------------------------|----------------|-----------------|--------------------|------------------|------------------|
| 1    | Spectrum Analyzer<br>(9kHz-26.5GHz)  | KEYSIGHT       | 9020A           | MY55370835         | Sep. 29, 2024    | Sep. 28, 2025    |
| 2    | Spectrum Analyzer<br>(10kHz-39.9GHz) | R&S            | FSQ             | 100363             | Sep. 30, 2024    | Sep. 29, 2025    |
| 3    | EMI Test Receiver<br>(9kHz-7GHz)     | R&S            | ESCI7           | 101169             | Sep. 29, 2024    | Sep. 28, 2025    |
| 4    | Bilog Antenna<br>(30MHz-1500MHz)     | Schwarzbeck    | VULB9168        | 00877              | Sep. 30, 2024    | Sep. 29, 2025    |
| 5    | Horn Antenna<br>(1GHz-18GHz)         | Agilent        | AH-118          | 071145             | Sep. 30, 2024    | Sep. 29, 2025    |
| 6    | Horn Antenna<br>(15GHz-40GHz)        | A.H.System     | SAS-574         | 588                | Sep. 30, 2024    | Sep. 29, 2025    |
| 7    | Loop Antenna                         | TESEQ          | HLA6121         | 58357              | Oct. 11, 2024    | Oct. 10, 2025    |
| 8    | Amplifier<br>(30-1000MHz)            | EM Electronics | EM330 Amplifier | 060747             | Sep. 29, 2024    | Sep. 28, 2025    |
| 9    | Amplifier<br>(1GHz-26.5GHz)          | Agilent        | 8449B           | 3008A00315         | Sep. 29, 2024    | Sep. 28, 2025    |
| 10   | Amplifier<br>(18GHz -40GHz)          | Tonscend       | DLE-161         | 097                | Sep. 30, 2024    | Sep. 29, 2025    |
| 11   | Test Cable                           | N/A            | R-01            | N/A                | Sep. 30, 2024    | Sep. 29, 2025    |
| 12   | Test Cable                           | N/A            | R-02            | N/A                | Sep. 30, 2024    | Sep. 29, 2025    |
| 13   | Test Cable                           | N/A            | R-03            | N/A                | Sep. 30, 2024    | Sep. 29, 2025    |
| 14   | D.C. Power Supply                    | LongWei        | TPR-6405D       | N/A                | \                | \                |
| 15   | EMC Software                         | Frad           | EZ-EMC          | Ver.EMC-CO N 3A1.1 | \                | \                |
| 16   | Turntable                            | MF             | MF-7802BS       | N/A                | \                | \                |
| 17   | Antenna tower                        | MF             | MF-7802BS       | N/A                | \                | \                |

#### Conducted emissions Test

| Item | Kind of Equipment   | Manufacturer | Type No. | Serial No.         | Last calibration | Calibrated until |
|------|---------------------|--------------|----------|--------------------|------------------|------------------|
| 1    | LISN                | R&S          | ENV216   | 101471             | Sep. 30, 2024    | Sep. 29, 2025    |
| 2    | LISN                | CYBERTEK     | EM5040A  | E1850400149        | Sep. 30, 2024    | Sep. 29, 2025    |
| 3    | Test Cable          | N/A          | C-01     | N/A                | Sep. 30, 2024    | Sep. 29, 2025    |
| 4    | Test Cable          | N/A          | C-02     | N/A                | Sep. 30, 2024    | Sep. 29, 2025    |
| 5    | Test Cable          | N/A          | C-03     | N/A                | Sep. 30, 2024    | Sep. 29, 2025    |
| 6    | EMI Test Receiver   | R&S          | ESCI3    | 101393             | Sep. 29, 2024    | Sep. 28, 2025    |
| 7    | Triple-Loop Antenna | N/A          | RF300    | 9194               | Sep. 29, 2024    | Sep. 28, 2025    |
| 8    | Absorbing Clamp     | DZ           | ZN23201  | 15034              | Oct. 10, 2024    | Oct. 09, 2025    |
| 9    | EMC Software        | Frad         | EZ-EMC   | Ver.EMC-CO N 3A1.1 | \                | \                |



#### 4. EMC EMISSION TEST

##### 4.1 CONDUCTED EMISSION MEASUREMENT

|                       |                                      |
|-----------------------|--------------------------------------|
| Test Requirement:     | FCC Part15 C Section 15.207          |
| Test Method:          | ANSI C63.10:2013                     |
| Test Frequency Range: | 150KHz to 30MHz                      |
| Receiver setup:       | RBW=9KHz, VBW=30KHz, Sweep time=auto |

##### 4.1.1 POWER LINE CONDUCTED EMISSION Limits

| FREQUENCY (MHz) | Limit (dBuV) |           | Standard |
|-----------------|--------------|-----------|----------|
|                 | Quasi-peak   | Average   |          |
| 0.15 -0.5       | 66 - 56 *    | 56 - 46 * | FCC      |
| 0.50 -5.0       | 56.00        | 46.00     | FCC      |
| 5.0 -30.0       | 60.00        | 50.00     | FCC      |

Note:

(1) \*Decreases with the logarithm of the frequency.

##### 4.1.2 TEST PROCEDURE

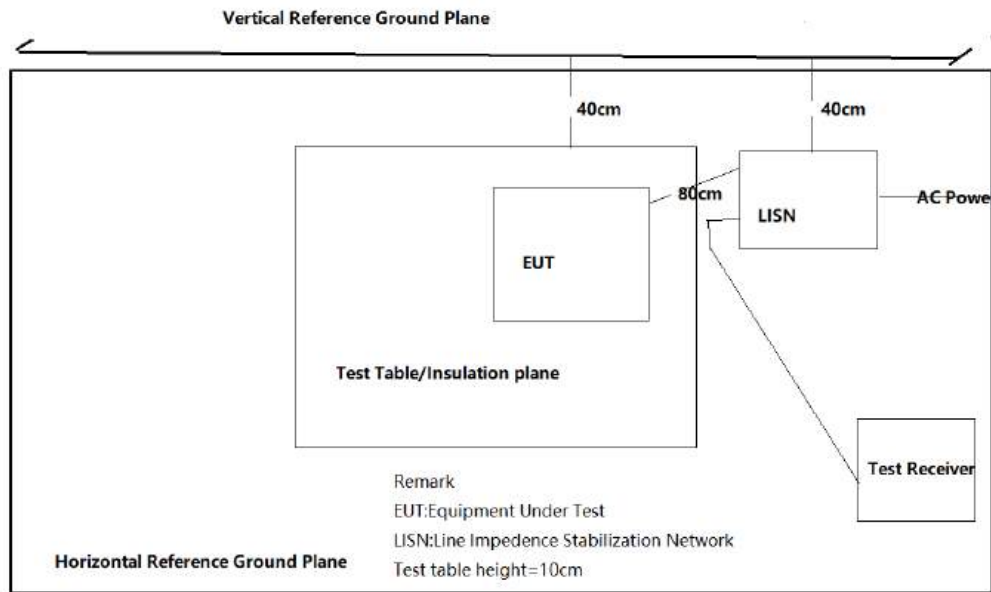
- The EUT was placed 0.1 meters from the horizontal ground plane with EUT being connected to the power mains through a line impedance stabilization network (LISN). All other support equipments powered from additional LISN(s). The LISN provide 50 Ohm/ 50uH of coupling impedance for the measuring instrument.
- Interconnecting cables that hang closer than 40 cm to the ground plane shall be folded back and forth in the center forming a bundle 30 to 40 cm long.
- I/O cables that are not connected to a peripheral shall be bundled in the center. The end of the cable may be terminated, if required, using the correct terminating impedance. The overall length shall not exceed 1 m.
- LISN at least 80 cm from nearest part of EUT chassis.
- For the actual test configuration, please refer to the related Item –EUT Test Photos.

##### 4.1.3 DEVIATION FROM TEST STANDARD

No deviation



#### 4.1.4 TEST SETUP



#### 4.1.5 EUT OPERATING CONDITIONS

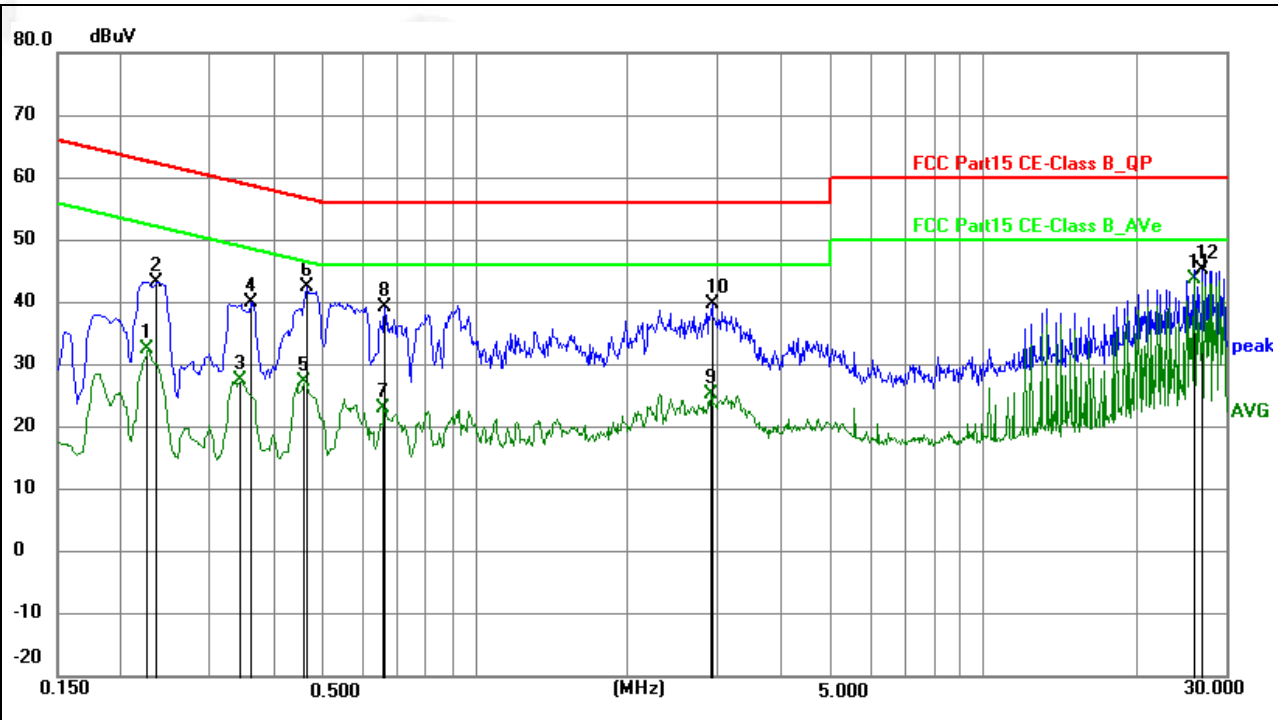
The EUT was configured for testing in a typical fashion (as a customer would normally use it). The EUT has been programmed to continuously transmit during test. This operating condition was tested and used to collect the included data.

We pretest AC 120V and AC 230V, the worst voltage was AC 120V and the data recording in the report.



#### 4.1.6 Test Result

|               |              |                    |     |
|---------------|--------------|--------------------|-----|
| Temperature:  | 26℃          | Relative Humidity: | 54% |
| Pressure:     | 101 kPa      | Polarization:      | L   |
| Test Voltage: | AC 120V/60Hz |                    |     |



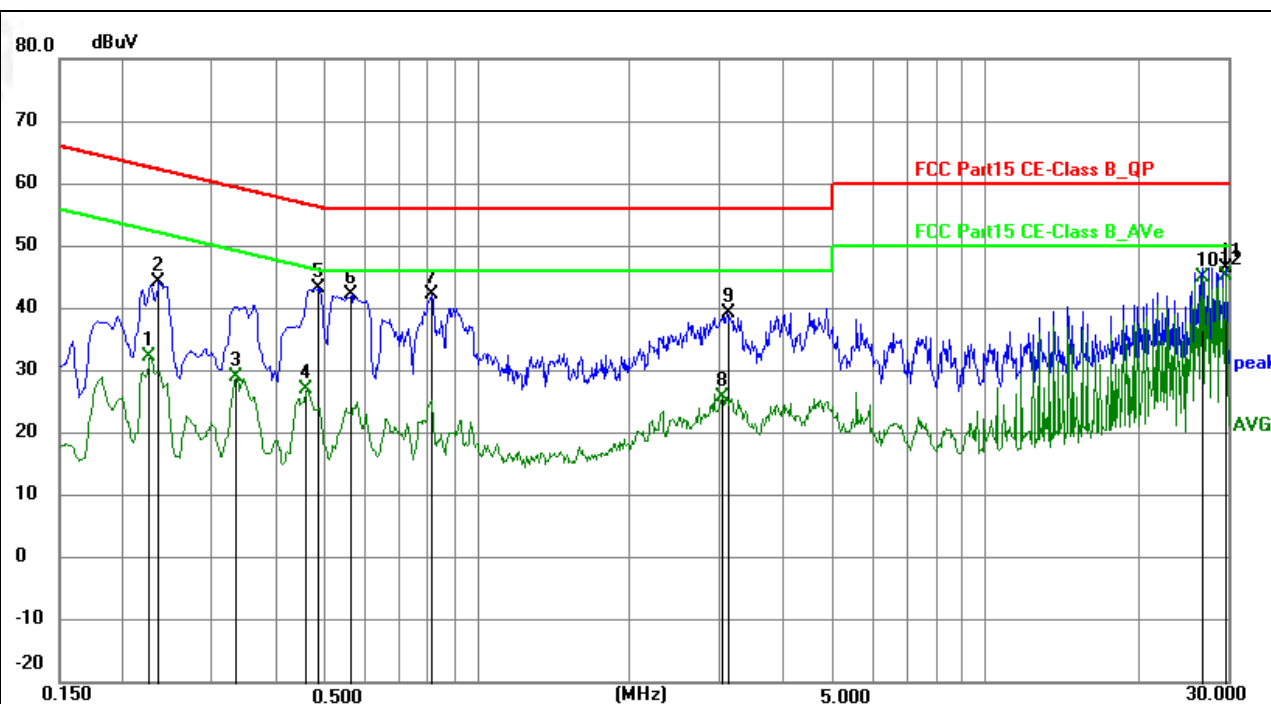
| No.↵ | Frequency↵ | Reading↵ | Correct↵ | Result↵ | Limit↵  | Margin↵ | Remark↵ |
|------|------------|----------|----------|---------|---------|---------|---------|
| ↵    | (MHz)↵     | (dBuV)↵  | (dB)↵    | (dBuV)↵ | (dBuV)↵ | (dB)↵   | ↵       |
| 1↵   | 0.2265↵    | 12.43↵   | 20.04↵   | 32.47↵  | 52.58↵  | -20.11↵ | AVG↵    |
| 2↵   | 0.2355↵    | 23.16↵   | 20.07↵   | 43.23↵  | 62.25↵  | -19.02↵ | peak↵   |
| 3↵   | 0.3435↵    | 7.31↵    | 20.20↵   | 27.51↵  | 49.12↵  | -21.61↵ | AVG↵    |
| 4↵   | 0.3615↵    | 19.91↵   | 20.17↵   | 40.08↵  | 58.69↵  | -18.61↵ | peak↵   |
| 5↵   | 0.4605↵    | 7.26↵    | 20.03↵   | 27.29↵  | 46.68↵  | -19.39↵ | AVG↵    |
| 6↵   | 0.4650↵    | 22.50↵   | 20.03↵   | 42.53↵  | 56.60↵  | -14.07↵ | peak↵   |
| 7↵   | 0.6585↵    | 3.07↵    | 20.07↵   | 23.14↵  | 46.00↵  | -22.86↵ | AVG↵    |
| 8↵   | 0.6630↵    | 19.24↵   | 20.07↵   | 39.31↵  | 56.00↵  | -16.69↵ | peak↵   |
| 9↵   | 2.9085↵    | 5.30↵    | 19.98↵   | 25.28↵  | 46.00↵  | -20.72↵ | AVG↵    |
| 10↵  | 2.9175↵    | 19.85↵   | 19.98↵   | 39.83↵  | 56.00↵  | -16.17↵ | peak↵   |
| 11↵  | 26.0700↵   | 23.05↵   | 20.58↵   | 43.63↵  | 50.00↵  | -6.37↵  | AVG↵    |
| 12↵  | 27.0015↵   | 24.78↵   | 20.52↵   | 45.30↵  | 60.00↵  | -14.70↵ | peak↵   |

#### Notes:

- 1.An initial pre-scan was performed on the line and neutral lines with peak detector.
- 2.Quasi-Peak and Average measurement were performed at the frequencies with maximized peak emission.
- 3.Measurement Level = Reading level + Correct Factor



|                |              |                    |     |
|----------------|--------------|--------------------|-----|
| Temperature :  | 26°C         | Relative Humidity: | 54% |
| Pressure :     | 101kPa       | Phase :            | N   |
| Test Voltage : | AC 120V/60Hz |                    |     |



| No. | Frequency | Reading | Correct | Result | Limit  | Margin | Remark |
|-----|-----------|---------|---------|--------|--------|--------|--------|
|     | (MHz)     | (dBuV)  | (dB)    | (dBuV) | (dBuV) | (dB)   |        |
| 1   | 0.2265    | 12.22   | 20.04   | 32.26  | 52.58  | -20.32 | AVG    |
| 2   | 0.2355    | 24.19   | 20.07   | 44.26  | 62.25  | -17.99 | peak   |
| 3   | 0.3345    | 8.68    | 20.22   | 28.90  | 49.34  | -20.44 | AVG    |
| 4   | 0.4605    | 7.07    | 20.03   | 27.10  | 46.68  | -19.58 | AVG    |
| 5   | 0.4875    | 23.25   | 20.01   | 43.26  | 56.21  | -12.95 | peak   |
| 6   | 0.5639    | 22.11   | 20.03   | 42.14  | 56.00  | -13.86 | peak   |
| 7   | 0.8115    | 22.10   | 20.04   | 42.14  | 56.00  | -13.86 | peak   |
| 8   | 3.0390    | 5.85    | 19.98   | 25.83  | 46.00  | -20.17 | AVG    |
| 9   | 3.1065    | 19.23   | 19.98   | 39.21  | 56.00  | -16.79 | peak   |
| 10  | 26.7000   | 24.52   | 20.54   | 45.06  | 50.00  | -4.94  | AVG    |
| 11  | 29.8050   | 26.21   | 20.34   | 46.55  | 60.00  | -13.45 | peak   |
| 12  | 29.8050   | 24.82   | 20.34   | 45.16  | 50.00  | -4.84  | AVG    |

Notes:

1. An initial pre-scan was performed on the line and neutral lines with peak detector.
2. Quasi-Peak and Average measurement were performed at the frequencies with maximized peak emission.
3. Measurement Level = Reading level + Correct Factor





#### 4.2 RADIATED EMISSION MEASUREMENT

|                       |                             |            |        |        |            |
|-----------------------|-----------------------------|------------|--------|--------|------------|
| Test Requirement:     | FCC Part15 C Section 15.209 |            |        |        |            |
| Test Method:          | ANSI C63.10:2013            |            |        |        |            |
| Test Frequency Range: | 9kHz to 25GHz               |            |        |        |            |
| Test site:            | Measurement Distance: 3m    |            |        |        |            |
| Receiver setup:       | Frequency                   | Detector   | RBW    | VBW    | Value      |
|                       | 9KHz-150KHz                 | Quasi-peak | 200Hz  | 600Hz  | Quasi-peak |
|                       | 150KHz-30MHz                | Quasi-peak | 9KHz   | 30KHz  | Quasi-peak |
|                       | 30MHz-1GHz                  | Quasi-peak | 100KHz | 300KHz | Quasi-peak |
|                       | Above 1GHz                  | Peak       | 1MHz   | 3MHz   | Peak       |
|                       |                             | Peak       | 1MHz   | 10Hz   | Average    |

##### 4.2.1 RADIATED EMISSION LIMITS

| Frequencies<br>(MHz) | Field Strength<br>(micorvolts/meter) | Measurement Distance<br>(meters) |
|----------------------|--------------------------------------|----------------------------------|
| 0.009~0.490          | 2400/F(KHz)                          | 300                              |
| 0.490~1.705          | 24000/F(KHz)                         | 30                               |
| 1.705~30.0           | 30                                   | 30                               |
| 30~88                | 100                                  | 3                                |
| 88~216               | 150                                  | 3                                |
| 216~960              | 200                                  | 3                                |
| Above 960            | 500                                  | 3                                |

##### LIMITS OF RADIATED EMISSION MEASUREMENT

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

Notes:

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





#### 4.2.2 TEST PROCEDURE

Below 1GHz test procedure as below:

- The EUT was placed on the top of a rotating table 0.1 meters above the ground at a 3 meter semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.
- The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of variable-height antenna tower.
- The antenna height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
- For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters (for the test frequency of below 30MHz, the antenna was tuned to heights 1 meter) and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.
- The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.
- If the emission level of the EUT in peak mode was 10dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10dB margin would be re-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet.

Above 1GHz test procedure as below:

- Different between above is the test site, change from Semi- Anechoic Chamber to fully Anechoic Chamber and change from table 0.8 meter to 1.5 meter (Above 18GHz the distance is 1 meter and table is 1.5 meter).
- Test the EUT in the lowest channel, the middle channel, the Highest channel

Note:

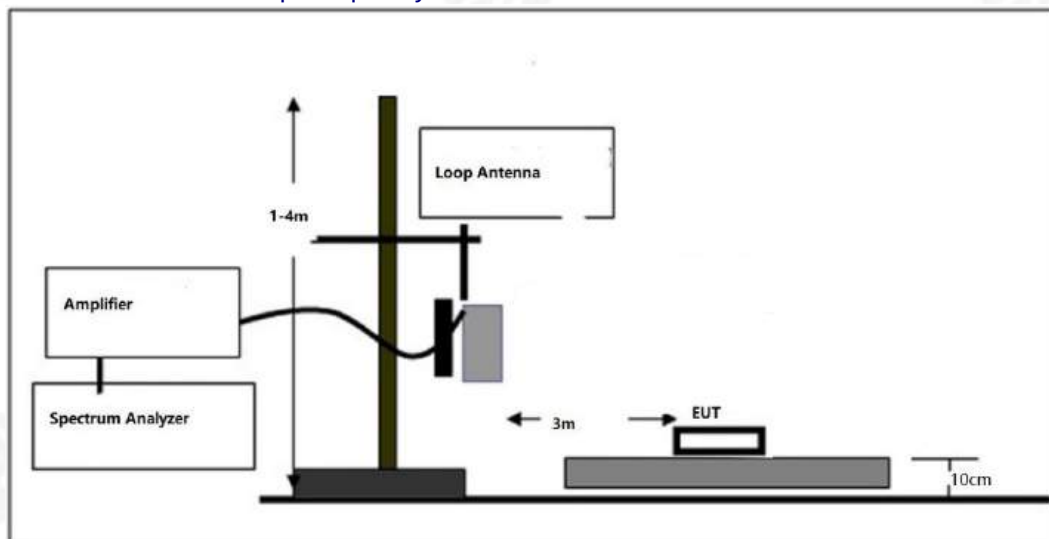
Both horizontal and vertical antenna polarities were tested and performed pretest to three orthogonal axis. The worst case emissions were reported

#### 4.2.3 DEVIATION FROM TEST STANDARD

No deviation

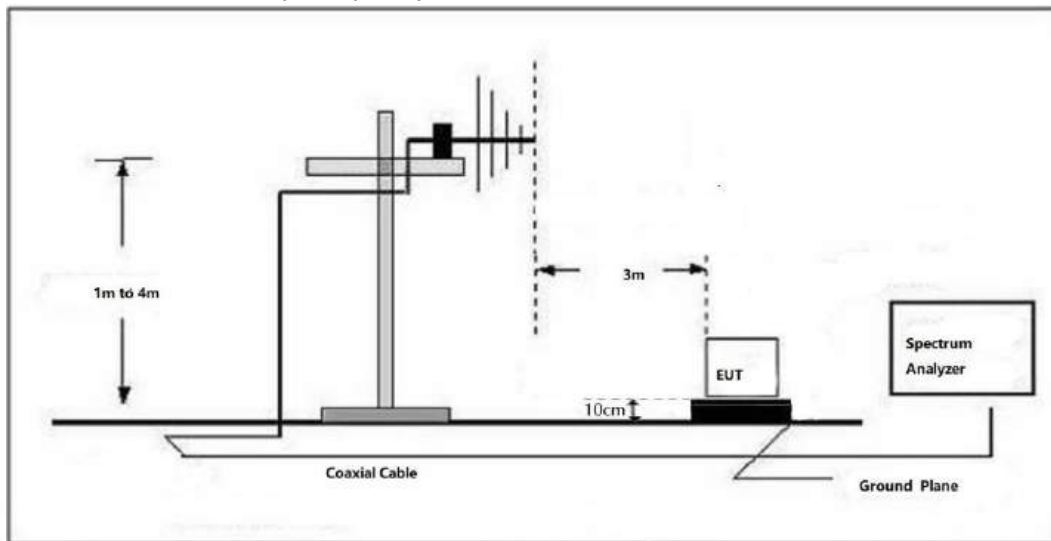
#### 4.2.4 TEST SETUP

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

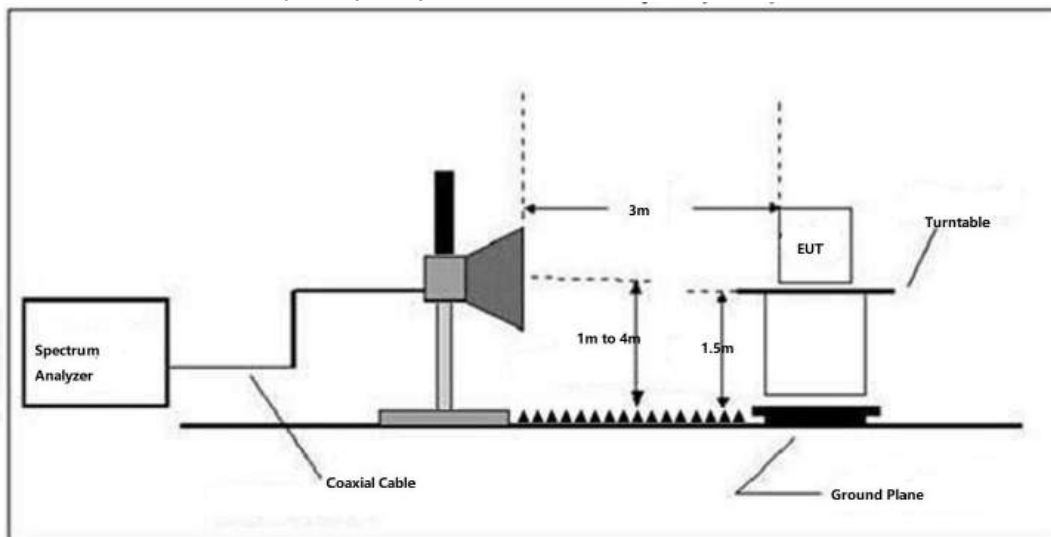




(B) Radiated Emission Test-Up Frequency 30MHz~1GHz



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



#### 4.2.5 EUT OPERATING CONDITIONS

The EUT tested system was configured as the statements of 2.4 Unless otherwise a special operating condition is specified in the follows during the testing.

#### 4.2.6 TEST RESULTS

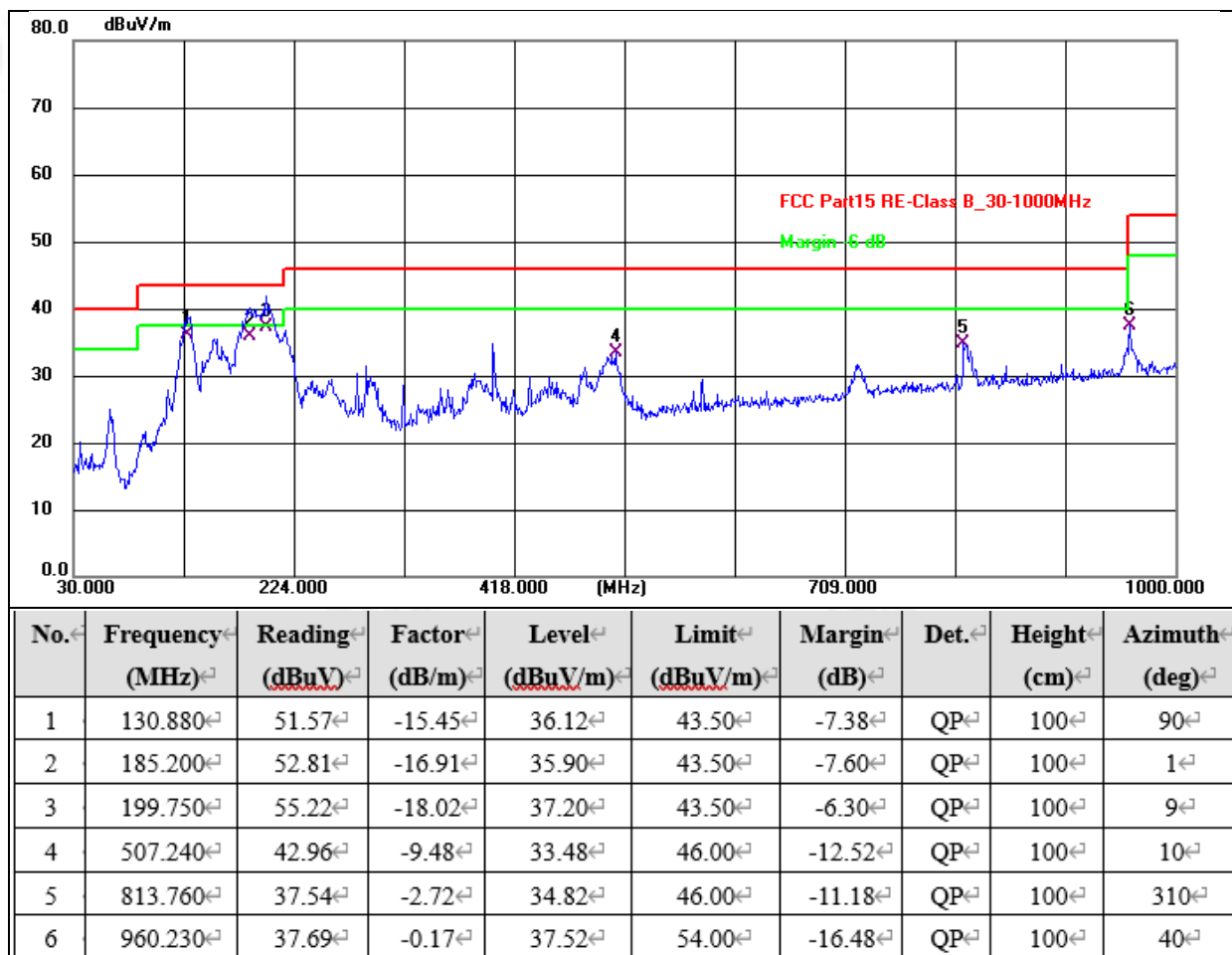
Between 9KHz – 30MHz

The emission from 9 kHz to 30MHz was pre-tested and found the result was 20dB lower than the limit, and according to 15.31(o) & RSS-Gen 6.13, the test result no need to reported.



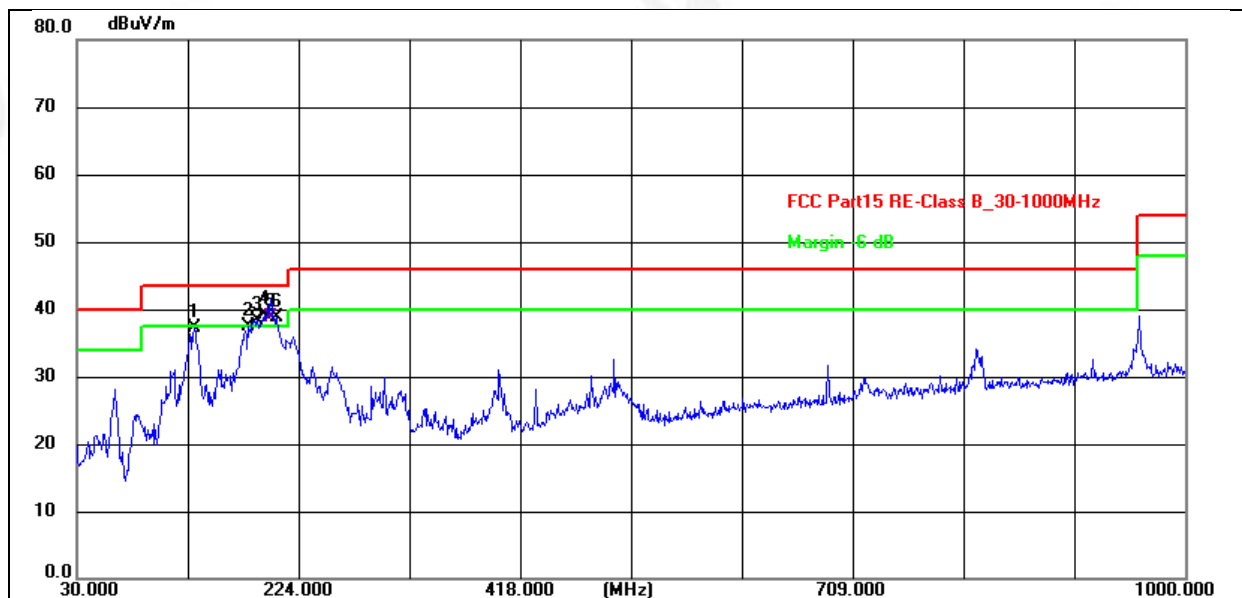
Between 30MHz – 1GHz

|               |         |                    |            |
|---------------|---------|--------------------|------------|
| Temperature:  | 26°C    | Relative Humidity: | 54%        |
| Pressure:     | 101 kPa | Polarization:      | Horizontal |
| Test Voltage: | DC 24V  | Test Mode          | Working    |





|               |        |                    |          |
|---------------|--------|--------------------|----------|
| Temperature:  | 26℃    | Relative Humidity: | 54%      |
| Pressure:     | 101kPa | Polarization:      | Vertical |
| Test Voltage: | DC 24V | Test Mode          | Working  |



| No. | Frequency (MHz) | Reading (dBuV) | Factor (dB/m) | Level (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Det. | Height (cm) | Azimuth (deg) |
|-----|-----------------|----------------|---------------|----------------|----------------|-------------|------|-------------|---------------|
| 1   | 132.820         | 52.53          | -15.34        | 37.19          | 43.50          | -6.31       | QP   | 100         | 95            |
| 2   | 180.350         | 53.81          | -16.40        | 37.41          | 43.50          | -6.09       | QP   | 100         | 17            |
| 3   | 188.110         | 55.62          | -17.20        | 38.42          | 43.50          | -5.08       | QP   | 100         | 2             |
| 4   | 193.930         | 56.86          | -17.65        | 39.21          | 43.50          | -4.29       | QP   | 100         | 14            |
| 5   | 199.750         | 56.73          | -18.02        | 38.71          | 43.50          | -4.79       | QP   | 199         | 306           |
| 6   | 204.600         | 56.69          | -17.89        | 38.80          | 43.50          | -4.70       | QP   | 100         | 35            |

Remarks:

- 1.Final Level =Receiver Read level + Antenna Factor + Cable Loss – Preamplifier Factor
- 2.The emission levels of other frequencies are very lower than the limit and not show in test report.
- 3.The test data shows only the worst case 802.11n20.



1GHz~25GHz  
ANT1

802.11b

| Polar<br>(H/V)      | Frequency | Meter<br>Reading | Pre-amplifier | Cable<br>Loss | Antenna<br>Factor | Emission<br>Level | Limits   | Margin | Detector<br>Type |
|---------------------|-----------|------------------|---------------|---------------|-------------------|-------------------|----------|--------|------------------|
|                     | (MHz)     | (dBuV)           | (dB)          | (dB)          | (dB)              | (dBuV/m)          | (dBuV/m) | (dB)   |                  |
| Low Channel:2412MHz |           |                  |               |               |                   |                   |          |        |                  |
| V                   | 4824.00   | 52.11            | 30.55         | 5.77          | 24.66             | 51.99             | 74.00    | -22.01 | PK               |
| V                   | 4824.00   | 43.42            | 30.55         | 5.77          | 24.66             | 43.30             | 54.00    | -10.70 | AV               |
| V                   | 7236.00   | 51.79            | 30.33         | 6.32          | 24.55             | 52.33             | 74.00    | -21.67 | PK               |
| V                   | 7236.00   | 43.13            | 30.33         | 6.32          | 24.55             | 43.67             | 54.00    | -10.33 | AV               |
| V                   | 9648.00   | 49.17            | 30.85         | 7.45          | 24.69             | 50.46             | 74.00    | -23.54 | PK               |
| V                   | 9648.00   | 44.27            | 30.85         | 7.45          | 24.69             | 45.56             | 54.00    | -8.44  | AV               |
| V                   | 12060.00  | 52.59            | 31.02         | 8.99          | 25.57             | 56.13             | 74.00    | -17.87 | PK               |
| V                   | 12060.00  | 43.94            | 31.02         | 8.99          | 25.57             | 47.48             | 54.00    | -6.52  | AV               |
| H                   | 4824.00   | 50.75            | 30.55         | 5.77          | 24.66             | 50.63             | 74.00    | -23.37 | PK               |
| H                   | 4824.00   | 43.71            | 30.55         | 5.77          | 24.66             | 43.59             | 54.00    | -10.41 | AV               |
| H                   | 7236.00   | 53.17            | 30.33         | 6.32          | 24.55             | 53.71             | 74.00    | -20.29 | PK               |
| H                   | 7236.00   | 42.63            | 30.33         | 6.32          | 24.55             | 43.17             | 54.00    | -10.83 | AV               |
| H                   | 9648.00   | 51.90            | 30.85         | 7.45          | 24.69             | 53.19             | 74.00    | -20.81 | PK               |
| H                   | 9648.00   | 43.45            | 30.85         | 7.45          | 24.69             | 44.74             | 54.00    | -9.26  | AV               |
| H                   | 12060.00  | 51.89            | 31.02         | 8.99          | 25.57             | 55.43             | 74.00    | -18.57 | PK               |
| H                   | 12060.00  | 43.95            | 31.02         | 8.99          | 25.57             | 47.49             | 54.00    | -6.51  | AV               |

| Polar<br>(H/V)         | Frequency | Meter<br>Reading | Pre-amplifier | Cable<br>Loss | Antenna<br>Factor | Emission<br>Level | Limits   | Margin | Detector<br>Type |
|------------------------|-----------|------------------|---------------|---------------|-------------------|-------------------|----------|--------|------------------|
|                        | (MHz)     | (dBuV)           | (dB)          | (dB)          | (dB)              | (dBuV/m)          | (dBuV/m) | (dB)   |                  |
| Middle Channel:2437MHz |           |                  |               |               |                   |                   |          |        |                  |
| V                      | 4874.00   | 52.91            | 30.55         | 5.77          | 24.66             | 52.79             | 74.00    | -21.21 | PK               |
| V                      | 4874.00   | 44.11            | 30.55         | 5.77          | 24.66             | 43.99             | 54.00    | -10.01 | AV               |
| V                      | 7311.00   | 52.96            | 30.33         | 6.32          | 24.55             | 53.50             | 74.00    | -20.50 | PK               |
| V                      | 7311.00   | 43.55            | 30.33         | 6.32          | 24.55             | 44.09             | 54.00    | -9.91  | AV               |
| V                      | 9748.00   | 50.83            | 30.85         | 7.45          | 24.69             | 52.12             | 74.00    | -21.88 | PK               |
| V                      | 9748.00   | 43.22            | 30.85         | 7.45          | 24.69             | 44.51             | 54.00    | -9.49  | AV               |
| V                      | 12185.00  | 53.03            | 31.02         | 8.99          | 25.57             | 56.57             | 74.00    | -17.43 | PK               |
| V                      | 12185.00  | 44.71            | 31.02         | 8.99          | 25.57             | 48.25             | 54.00    | -5.75  | AV               |
| H                      | 4874.00   | 51.34            | 30.55         | 5.77          | 24.66             | 51.22             | 74.00    | -22.78 | PK               |
| H                      | 4874.00   | 43.99            | 30.55         | 5.77          | 24.66             | 43.87             | 54.00    | -10.13 | AV               |
| H                      | 7311.00   | 49.76            | 30.33         | 6.32          | 24.55             | 50.30             | 74.00    | -23.70 | PK               |
| H                      | 7311.00   | 42.89            | 30.33         | 6.32          | 24.55             | 43.43             | 54.00    | -10.57 | AV               |
| H                      | 9748.00   | 51.25            | 30.85         | 7.45          | 24.69             | 52.54             | 74.00    | -21.46 | PK               |
| H                      | 9748.00   | 42.83            | 30.85         | 7.45          | 24.69             | 44.12             | 54.00    | -9.88  | AV               |
| H                      | 12185.00  | 52.05            | 31.02         | 8.99          | 25.57             | 55.59             | 74.00    | -18.41 | PK               |
| H                      | 12185.00  | 44.23            | 31.02         | 8.99          | 25.57             | 47.77             | 54.00    | -6.23  | AV               |



| Polar<br>(H/V)       | Frequency | Meter<br>Reading | Pre-ampli<br>fier | Cable<br>Loss | Antenna<br>Factor | Emission<br>Level | Limits       | Margin | Detect<br>or<br>Type |
|----------------------|-----------|------------------|-------------------|---------------|-------------------|-------------------|--------------|--------|----------------------|
|                      | (MHz)     | (dBuV)           | (dB)              | (dB)          | (dB)              | (dBuV/m)          | (dBuV/<br>m) | (dB)   |                      |
| High Channel:2462MHz |           |                  |                   |               |                   |                   |              |        |                      |
| V                    | 4924.00   | 51.67            | 30.55             | 5.77          | 24.66             | 51.55             | 74.00        | -22.45 | PK                   |
| V                    | 4924.00   | 43.39            | 30.55             | 5.77          | 24.66             | 43.27             | 54.00        | -10.73 | AV                   |
| V                    | 7386.00   | 52.65            | 30.33             | 6.32          | 24.55             | 53.19             | 74.00        | -20.81 | PK                   |
| V                    | 7386.00   | 44.20            | 30.33             | 6.32          | 24.55             | 44.74             | 54.00        | -9.26  | AV                   |
| V                    | 9848.00   | 51.06            | 30.85             | 7.45          | 24.69             | 52.35             | 74.00        | -21.65 | PK                   |
| V                    | 9848.00   | 43.04            | 30.85             | 7.45          | 24.69             | 44.33             | 54.00        | -9.67  | AV                   |
| V                    | 12310.00  | 52.72            | 31.02             | 8.99          | 25.57             | 56.26             | 74.00        | -17.74 | PK                   |
| V                    | 12310.00  | 42.62            | 31.02             | 8.99          | 25.57             | 46.16             | 54.00        | -7.84  | AV                   |
| H                    | 4924.00   | 54.67            | 30.55             | 5.77          | 24.66             | 54.55             | 74.00        | -19.45 | PK                   |
| H                    | 4924.00   | 44.00            | 30.55             | 5.77          | 24.66             | 43.88             | 54.00        | -10.12 | AV                   |
| H                    | 7386.00   | 53.25            | 30.33             | 6.32          | 24.55             | 53.79             | 74.00        | -20.21 | PK                   |
| H                    | 7386.00   | 43.08            | 30.33             | 6.32          | 24.55             | 43.62             | 54.00        | -10.38 | AV                   |
| H                    | 9848.00   | 49.57            | 30.85             | 7.45          | 24.69             | 50.86             | 74.00        | -23.14 | PK                   |
| H                    | 9848.00   | 44.01            | 30.85             | 7.45          | 24.69             | 45.30             | 54.00        | -8.70  | AV                   |
| H                    | 12310.00  | 52.04            | 31.02             | 8.99          | 25.57             | 55.58             | 74.00        | -18.42 | PK                   |
| H                    | 12310.00  | 42.97            | 31.02             | 8.99          | 25.57             | 46.51             | 54.00        | -7.49  | AV                   |

## Remark:

1. Emission Level = Meter Reading + Antenna Factor + Cable Loss – Pre-amplifier,  
Margin= Emission Level - Limit
2. If peak below the average limit, the average emission was no test.
3. The amplitude of spurious emissions which are attenuated by more than 20dB below the permissible value has no need to be reported.
4. The test data shows only the worst case.





802.11g

| Polar (H/V )        | Frequency | Meter Reading | Pre-amplifier | Cable Loss | Antenna Factor | Emission Level | Limits    | Margin | Detector Type |
|---------------------|-----------|---------------|---------------|------------|----------------|----------------|-----------|--------|---------------|
|                     | (MHz)     | (dBuV)        | (dB)          | (dB)       | (dB)           | (dBuV/m )      | (dBuV/m ) | (dB)   |               |
| Low Channel:2412MHz |           |               |               |            |                |                |           |        |               |
| V                   | 4824.00   | 50.77         | 30.55         | 5.77       | 24.66          | 50.65          | 74.00     | -23.35 | PK            |
| V                   | 4824.00   | 43.18         | 30.55         | 5.77       | 24.66          | 43.06          | 54.00     | -10.94 | AV            |
| V                   | 7236.00   | 52.18         | 30.33         | 6.32       | 24.55          | 52.72          | 74.00     | -21.28 | PK            |
| V                   | 7236.00   | 43.12         | 30.33         | 6.32       | 24.55          | 43.66          | 54.00     | -10.34 | AV            |
| V                   | 9648.00   | 53.82         | 30.85         | 7.45       | 24.69          | 55.11          | 74.00     | -18.89 | PK            |
| V                   | 9648.00   | 43.06         | 30.85         | 7.45       | 24.69          | 44.35          | 54.00     | -9.65  | AV            |
| V                   | 12060.00  | 50.44         | 31.02         | 8.99       | 25.57          | 53.98          | 74.00     | -20.02 | PK            |
| V                   | 12060.00  | 43.43         | 31.02         | 8.99       | 25.57          | 46.97          | 54.00     | -7.03  | AV            |
| H                   | 4824.00   | 50.75         | 30.55         | 5.77       | 24.66          | 50.63          | 74.00     | -23.37 | PK            |
| H                   | 4824.00   | 43.03         | 30.55         | 5.77       | 24.66          | 42.91          | 54.00     | -11.09 | AV            |
| H                   | 7236.00   | 51.82         | 30.33         | 6.32       | 24.55          | 52.36          | 74.00     | -21.64 | PK            |
| H                   | 7236.00   | 43.20         | 30.33         | 6.32       | 24.55          | 43.74          | 54.00     | -10.26 | AV            |
| H                   | 9648.00   | 53.32         | 30.85         | 7.45       | 24.69          | 54.61          | 74.00     | -19.39 | PK            |
| H                   | 9648.00   | 43.35         | 30.85         | 7.45       | 24.69          | 44.64          | 54.00     | -9.36  | AV            |
| H                   | 12060.00  | 54.04         | 31.02         | 8.99       | 25.57          | 57.58          | 74.00     | -16.42 | PK            |
| H                   | 12060.00  | 43.23         | 31.02         | 8.99       | 25.57          | 46.77          | 54.00     | -7.23  | AV            |

| Polar (H/V)            | Frequency | Meter Reading | Pre-amplifier | Cable Loss | Antenna Factor | Emission Level | Limits   | Margin | Detector Type |
|------------------------|-----------|---------------|---------------|------------|----------------|----------------|----------|--------|---------------|
|                        | (MHz)     | (dBuV)        | (dB)          | (dB)       | (dB)           | (dBuV/m)       | (dBuV/m) | (dB)   |               |
| Middle Channel:2437MHz |           |               |               |            |                |                |          |        |               |
| V                      | 4874.00   | 51.91         | 30.55         | 5.77       | 24.66          | 51.79          | 74.00    | -22.21 | PK            |
| V                      | 4874.00   | 44.54         | 30.55         | 5.77       | 24.66          | 44.42          | 54.00    | -9.58  | AV            |
| V                      | 7311.00   | 51.68         | 30.33         | 6.32       | 24.55          | 52.22          | 74.00    | -21.78 | PK            |
| V                      | 7311.00   | 43.61         | 30.33         | 6.32       | 24.55          | 44.15          | 54.00    | -9.85  | AV            |
| V                      | 9748.00   | 51.23         | 30.85         | 7.45       | 24.69          | 52.52          | 74.00    | -21.48 | PK            |
| V                      | 9748.00   | 43.22         | 30.85         | 7.45       | 24.69          | 44.51          | 54.00    | -9.49  | AV            |
| V                      | 12185.00  | 55.28         | 31.02         | 8.99       | 25.57          | 58.82          | 74.00    | -15.18 | PK            |
| V                      | 12185.00  | 43.03         | 31.02         | 8.99       | 25.57          | 46.57          | 54.00    | -7.43  | AV            |
| H                      | 4874.00   | 54.19         | 30.55         | 5.77       | 24.66          | 54.07          | 74.00    | -19.93 | PK            |
| H                      | 4874.00   | 42.92         | 30.55         | 5.77       | 24.66          | 42.80          | 54.00    | -11.20 | AV            |
| H                      | 7311.00   | 52.00         | 30.33         | 6.32       | 24.55          | 52.54          | 74.00    | -21.46 | PK            |
| H                      | 7311.00   | 43.38         | 30.33         | 6.32       | 24.55          | 43.92          | 54.00    | -10.08 | AV            |
| H                      | 9748.00   | 52.73         | 30.85         | 7.45       | 24.69          | 54.02          | 74.00    | -19.98 | PK            |
| H                      | 9748.00   | 43.27         | 30.85         | 7.45       | 24.69          | 44.56          | 54.00    | -9.44  | AV            |
| H                      | 12185.00  | 54.74         | 31.02         | 8.99       | 25.57          | 58.28          | 74.00    | -15.72 | PK            |
| H                      | 12185.00  | 43.94         | 31.02         | 8.99       | 25.57          | 47.48          | 54.00    | -6.52  | AV            |





| Polar (H/V)          | Frequency (MHz) | Meter Reading (dBuV) | Pre-amplifier (dB) | Cable Loss (dB) | Antenna Factor (dB) | Emission Level (dBuV/m) | Limits (dBuV/m) | Margin (dB) | Detector Type |
|----------------------|-----------------|----------------------|--------------------|-----------------|---------------------|-------------------------|-----------------|-------------|---------------|
| High Channel:2462MHz |                 |                      |                    |                 |                     |                         |                 |             |               |
| V                    | 4924.00         | 52.40                | 30.55              | 5.77            | 24.66               | 52.28                   | 74.00           | -21.72      | PK            |
| V                    | 4924.00         | 43.92                | 30.55              | 5.77            | 24.66               | 43.80                   | 54.00           | -10.20      | AV            |
| V                    | 7386.00         | 52.84                | 30.33              | 6.32            | 24.55               | 53.38                   | 74.00           | -20.62      | PK            |
| V                    | 7386.00         | 42.86                | 30.33              | 6.32            | 24.55               | 43.40                   | 54.00           | -10.60      | AV            |
| V                    | 9848.00         | 52.29                | 30.85              | 7.45            | 24.69               | 53.58                   | 74.00           | -20.42      | PK            |
| V                    | 9848.00         | 43.71                | 30.85              | 7.45            | 24.69               | 45.00                   | 54.00           | -9.00       | AV            |
| V                    | 12310.00        | 51.39                | 31.02              | 8.99            | 25.57               | 54.93                   | 74.00           | -19.07      | PK            |
| V                    | 12310.00        | 43.37                | 31.02              | 8.99            | 25.57               | 46.91                   | 54.00           | -7.09       | AV            |
| H                    | 4924.00         | 51.62                | 30.55              | 5.77            | 24.66               | 51.50                   | 74.00           | -22.50      | PK            |
| H                    | 4924.00         | 43.56                | 30.55              | 5.77            | 24.66               | 43.44                   | 54.00           | -10.56      | AV            |
| H                    | 7386.00         | 50.31                | 30.33              | 6.32            | 24.55               | 50.85                   | 74.00           | -23.15      | PK            |
| H                    | 7386.00         | 42.86                | 30.33              | 6.32            | 24.55               | 43.40                   | 54.00           | -10.60      | AV            |
| H                    | 9848.00         | 54.82                | 30.85              | 7.45            | 24.69               | 56.11                   | 74.00           | -17.89      | PK            |
| H                    | 9848.00         | 43.67                | 30.85              | 7.45            | 24.69               | 44.96                   | 54.00           | -9.04       | AV            |
| H                    | 12310.00        | 53.15                | 31.02              | 8.99            | 25.57               | 56.69                   | 74.00           | -17.31      | PK            |
| H                    | 12310.00        | 43.40                | 31.02              | 8.99            | 25.57               | 46.94                   | 54.00           | -7.06       | AV            |

Remark:

1. Emission Level = Meter Reading + Antenna Factor + Cable Loss – Pre-amplifier, Margin= Emission Level - Limit
2. If peak below the average limit, the average emission was no test.
3. The amplitude of spurious emissions which are attenuated by more than 20dB below the permissible value has no need to be reported.
4. The test data shows only the worst case.



1GHz~25GHz  
ANT2

802.11b

| Polar<br>(H/V)      | Frequency | Meter<br>Reading | Pre-amplifier | Cable<br>Loss | Antenna<br>Factor | Emission<br>Level | Limits   | Margin | Detector<br>Type |
|---------------------|-----------|------------------|---------------|---------------|-------------------|-------------------|----------|--------|------------------|
|                     | (MHz)     | (dBuV)           | (dB)          | (dB)          | (dB)              | (dBuV/m)          | (dBuV/m) | (dB)   |                  |
| Low Channel:2412MHz |           |                  |               |               |                   |                   |          |        |                  |
| V                   | 4824.00   | 52.40            | 30.55         | 5.77          | 24.66             | 52.28             | 74.00    | -21.72 | PK               |
| V                   | 4824.00   | 44.20            | 30.55         | 5.77          | 24.66             | 44.08             | 54.00    | -9.92  | AV               |
| V                   | 7236.00   | 51.59            | 30.33         | 6.32          | 24.55             | 52.13             | 74.00    | -21.87 | PK               |
| V                   | 7236.00   | 43.38            | 30.33         | 6.32          | 24.55             | 43.92             | 54.00    | -10.08 | AV               |
| V                   | 9648.00   | 49.68            | 30.85         | 7.45          | 24.69             | 50.97             | 74.00    | -23.03 | PK               |
| V                   | 9648.00   | 44.72            | 30.85         | 7.45          | 24.69             | 46.01             | 54.00    | -7.99  | AV               |
| V                   | 12060.00  | 53.22            | 31.02         | 8.99          | 25.57             | 56.76             | 74.00    | -17.24 | PK               |
| V                   | 12060.00  | 43.94            | 31.02         | 8.99          | 25.57             | 47.48             | 54.00    | -6.52  | AV               |
| H                   | 4824.00   | 50.69            | 30.55         | 5.77          | 24.66             | 50.57             | 74.00    | -23.43 | PK               |
| H                   | 4824.00   | 43.67            | 30.55         | 5.77          | 24.66             | 43.55             | 54.00    | -10.45 | AV               |
| H                   | 7236.00   | 53.65            | 30.33         | 6.32          | 24.55             | 54.19             | 74.00    | -19.81 | PK               |
| H                   | 7236.00   | 42.85            | 30.33         | 6.32          | 24.55             | 43.39             | 54.00    | -10.61 | AV               |
| H                   | 9648.00   | 51.36            | 30.85         | 7.45          | 24.69             | 52.65             | 74.00    | -21.35 | PK               |
| H                   | 9648.00   | 43.93            | 30.85         | 7.45          | 24.69             | 45.22             | 54.00    | -8.78  | AV               |
| H                   | 12060.00  | 51.32            | 31.02         | 8.99          | 25.57             | 54.86             | 74.00    | -19.14 | PK               |
| H                   | 12060.00  | 43.76            | 31.02         | 8.99          | 25.57             | 47.30             | 54.00    | -6.70  | AV               |

| Polar<br>(H/V)         | Frequency | Meter<br>Reading | Pre-amplifier | Cable<br>Loss | Antenna<br>Factor | Emission<br>Level | Limits   | Margin | Detector<br>Type |
|------------------------|-----------|------------------|---------------|---------------|-------------------|-------------------|----------|--------|------------------|
|                        | (MHz)     | (dBuV)           | (dB)          | (dB)          | (dB)              | (dBuV/m)          | (dBuV/m) | (dB)   |                  |
| Middle Channel:2437MHz |           |                  |               |               |                   |                   |          |        |                  |
| V                      | 4874.00   | 53.15            | 30.55         | 5.77          | 24.66             | 53.03             | 74.00    | -20.97 | PK               |
| V                      | 4874.00   | 43.99            | 30.55         | 5.77          | 24.66             | 43.87             | 54.00    | -10.13 | AV               |
| V                      | 7311.00   | 52.20            | 30.33         | 6.32          | 24.55             | 52.74             | 74.00    | -21.26 | PK               |
| V                      | 7311.00   | 43.02            | 30.33         | 6.32          | 24.55             | 43.56             | 54.00    | -10.44 | AV               |
| V                      | 9748.00   | 51.61            | 30.85         | 7.45          | 24.69             | 52.90             | 74.00    | -21.10 | PK               |
| V                      | 9748.00   | 43.26            | 30.85         | 7.45          | 24.69             | 44.55             | 54.00    | -9.45  | AV               |
| V                      | 12185.00  | 54.00            | 31.02         | 8.99          | 25.57             | 57.54             | 74.00    | -16.46 | PK               |
| V                      | 12185.00  | 44.80            | 31.02         | 8.99          | 25.57             | 48.34             | 54.00    | -5.66  | AV               |
| H                      | 4874.00   | 52.52            | 30.55         | 5.77          | 24.66             | 52.40             | 74.00    | -21.60 | PK               |
| H                      | 4874.00   | 43.93            | 30.55         | 5.77          | 24.66             | 43.81             | 54.00    | -10.19 | AV               |
| H                      | 7311.00   | 50.35            | 30.33         | 6.32          | 24.55             | 50.89             | 74.00    | -23.11 | PK               |
| H                      | 7311.00   | 42.88            | 30.33         | 6.32          | 24.55             | 43.42             | 54.00    | -10.58 | AV               |
| H                      | 9748.00   | 51.77            | 30.85         | 7.45          | 24.69             | 53.06             | 74.00    | -20.94 | PK               |
| H                      | 9748.00   | 42.56            | 30.85         | 7.45          | 24.69             | 43.85             | 54.00    | -10.15 | AV               |
| H                      | 12185.00  | 51.88            | 31.02         | 8.99          | 25.57             | 55.42             | 74.00    | -18.58 | PK               |
| H                      | 12185.00  | 43.21            | 31.02         | 8.99          | 25.57             | 46.75             | 54.00    | -7.25  | AV               |



| Polar<br>(H/V)       | Frequency | Meter<br>Reading | Pre-ampli<br>fier | Cable<br>Loss | Antenna<br>Factor | Emission<br>Level | Limits       | Margin | Detect<br>or<br>Type |
|----------------------|-----------|------------------|-------------------|---------------|-------------------|-------------------|--------------|--------|----------------------|
|                      | (MHz)     | (dBuV)           | (dB)              | (dB)          | (dB)              | (dBuV/m)          | (dBuV/<br>m) | (dB)   |                      |
| High Channel:2462MHz |           |                  |                   |               |                   |                   |              |        |                      |
| V                    | 4924.00   | 51.18            | 30.55             | 5.77          | 24.66             | 51.06             | 74.00        | -22.94 | PK                   |
| V                    | 4924.00   | 43.19            | 30.55             | 5.77          | 24.66             | 43.07             | 54.00        | -10.93 | AV                   |
| V                    | 7386.00   | 51.98            | 30.33             | 6.32          | 24.55             | 52.52             | 74.00        | -21.48 | PK                   |
| V                    | 7386.00   | 44.45            | 30.33             | 6.32          | 24.55             | 44.99             | 54.00        | -9.01  | AV                   |
| V                    | 9848.00   | 51.07            | 30.85             | 7.45          | 24.69             | 52.36             | 74.00        | -21.64 | PK                   |
| V                    | 9848.00   | 43.25            | 30.85             | 7.45          | 24.69             | 44.54             | 54.00        | -9.46  | AV                   |
| V                    | 12310.00  | 51.55            | 31.02             | 8.99          | 25.57             | 55.09             | 74.00        | -18.91 | PK                   |
| V                    | 12310.00  | 42.28            | 31.02             | 8.99          | 25.57             | 45.82             | 54.00        | -8.18  | AV                   |
| H                    | 4924.00   | 54.70            | 30.55             | 5.77          | 24.66             | 54.58             | 74.00        | -19.42 | PK                   |
| H                    | 4924.00   | 44.04            | 30.55             | 5.77          | 24.66             | 43.92             | 54.00        | -10.08 | AV                   |
| H                    | 7386.00   | 52.87            | 30.33             | 6.32          | 24.55             | 53.41             | 74.00        | -20.59 | PK                   |
| H                    | 7386.00   | 43.37            | 30.33             | 6.32          | 24.55             | 43.91             | 54.00        | -10.09 | AV                   |
| H                    | 9848.00   | 49.43            | 30.85             | 7.45          | 24.69             | 50.72             | 74.00        | -23.28 | PK                   |
| H                    | 9848.00   | 44.09            | 30.85             | 7.45          | 24.69             | 45.38             | 54.00        | -8.62  | AV                   |
| H                    | 12310.00  | 51.63            | 31.02             | 8.99          | 25.57             | 55.17             | 74.00        | -18.83 | PK                   |
| H                    | 12310.00  | 42.59            | 31.02             | 8.99          | 25.57             | 46.13             | 54.00        | -7.87  | AV                   |

Remark:

1. Emission Level = Meter Reading + Antenna Factor + Cable Loss – Pre-amplifier,  
Margin= Emission Level - Limit
2. If peak below the average limit, the average emission was no test.
3. The amplitude of spurious emissions which are attenuated by more than 20dB below the permissible value has no need to be reported.
4. The test data shows only the worst case.



802.11g

| Polar (H/V)         | Frequency | Meter Reading | Pre-amplifier | Cable Loss | Antenna Factor | Emission Level | Limits   | Margin | Detector Type |
|---------------------|-----------|---------------|---------------|------------|----------------|----------------|----------|--------|---------------|
|                     | (MHz)     | (dBuV)        | (dB)          | (dB)       | (dB)           | (dBuV/m)       | (dBuV/m) | (dB)   |               |
| Low Channel:2412MHz |           |               |               |            |                |                |          |        |               |
| V                   | 4824.00   | 50.53         | 30.55         | 5.77       | 24.66          | 50.41          | 74.00    | -23.59 | PK            |
| V                   | 4824.00   | 43.27         | 30.55         | 5.77       | 24.66          | 43.15          | 54.00    | -10.85 | AV            |
| V                   | 7236.00   | 51.85         | 30.33         | 6.32       | 24.55          | 52.39          | 74.00    | -21.61 | PK            |
| V                   | 7236.00   | 43.90         | 30.33         | 6.32       | 24.55          | 44.44          | 54.00    | -9.56  | AV            |
| V                   | 9648.00   | 53.72         | 30.85         | 7.45       | 24.69          | 55.01          | 74.00    | -18.99 | PK            |
| V                   | 9648.00   | 43.74         | 30.85         | 7.45       | 24.69          | 45.03          | 54.00    | -8.97  | AV            |
| V                   | 12060.00  | 51.33         | 31.02         | 8.99       | 25.57          | 54.87          | 74.00    | -19.13 | PK            |
| V                   | 12060.00  | 43.01         | 31.02         | 8.99       | 25.57          | 46.55          | 54.00    | -7.45  | AV            |
| H                   | 4824.00   | 51.00         | 30.55         | 5.77       | 24.66          | 50.88          | 74.00    | -23.12 | PK            |
| H                   | 4824.00   | 43.32         | 30.55         | 5.77       | 24.66          | 43.20          | 54.00    | -10.80 | AV            |
| H                   | 7236.00   | 52.15         | 30.33         | 6.32       | 24.55          | 52.69          | 74.00    | -21.31 | PK            |
| H                   | 7236.00   | 43.39         | 30.33         | 6.32       | 24.55          | 43.93          | 54.00    | -10.07 | AV            |
| H                   | 9648.00   | 52.79         | 30.85         | 7.45       | 24.69          | 54.08          | 74.00    | -19.92 | PK            |
| H                   | 9648.00   | 43.54         | 30.85         | 7.45       | 24.69          | 44.83          | 54.00    | -9.17  | AV            |
| H                   | 12060.00  | 53.77         | 31.02         | 8.99       | 25.57          | 57.31          | 74.00    | -16.69 | PK            |
| H                   | 12060.00  | 43.86         | 31.02         | 8.99       | 25.57          | 47.40          | 54.00    | -6.60  | AV            |

| Polar<br>(H/V)         | Frequency | Meter<br>Reading | Pre-amplifier | Cable<br>Loss | Antenna<br>Factor | Emission<br>Level | Limits   | Margin | Detector<br>Type |
|------------------------|-----------|------------------|---------------|---------------|-------------------|-------------------|----------|--------|------------------|
|                        | (MHz)     | (dBuV)           | (dB)          | (dB)          | (dB)              | (dBuV/m)          | (dBuV/m) | (dB)   |                  |
| Middle Channel:2437MHz |           |                  |               |               |                   |                   |          |        |                  |
| V                      | 4874.00   | 51.93            | 30.55         | 5.77          | 24.66             | 51.81             | 74.00    | -22.19 | PK               |
| V                      | 4874.00   | 44.52            | 30.55         | 5.77          | 24.66             | 44.40             | 54.00    | -9.60  | AV               |
| V                      | 7311.00   | 51.78            | 30.33         | 6.32          | 24.55             | 52.32             | 74.00    | -21.68 | PK               |
| V                      | 7311.00   | 43.56            | 30.33         | 6.32          | 24.55             | 44.10             | 54.00    | -9.90  | AV               |
| V                      | 9748.00   | 50.01            | 30.85         | 7.45          | 24.69             | 51.30             | 74.00    | -22.70 | PK               |
| V                      | 9748.00   | 43.09            | 30.85         | 7.45          | 24.69             | 44.38             | 54.00    | -9.62  | AV               |
| V                      | 12185.00  | 54.56            | 31.02         | 8.99          | 25.57             | 58.10             | 74.00    | -15.90 | PK               |
| V                      | 12185.00  | 42.35            | 31.02         | 8.99          | 25.57             | 45.89             | 54.00    | -8.11  | AV               |
| H                      | 4874.00   | 54.94            | 30.55         | 5.77          | 24.66             | 54.82             | 74.00    | -19.18 | PK               |
| H                      | 4874.00   | 43.27            | 30.55         | 5.77          | 24.66             | 43.15             | 54.00    | -10.85 | AV               |
| H                      | 7311.00   | 51.89            | 30.33         | 6.32          | 24.55             | 52.43             | 74.00    | -21.57 | PK               |
| H                      | 7311.00   | 43.72            | 30.33         | 6.32          | 24.55             | 44.26             | 54.00    | -9.74  | AV               |
| H                      | 9748.00   | 52.58            | 30.85         | 7.45          | 24.69             | 53.87             | 74.00    | -20.13 | PK               |
| H                      | 9748.00   | 43.91            | 30.85         | 7.45          | 24.69             | 45.20             | 54.00    | -8.80  | AV               |
| H                      | 12185.00  | 53.97            | 31.02         | 8.99          | 25.57             | 57.51             | 74.00    | -16.49 | PK               |
| H                      | 12185.00  | 44.18            | 31.02         | 8.99          | 25.57             | 47.72             | 54.00    | -6.28  | AV               |



| Polar<br>(H/V)       | Frequency<br>(MHz) | Meter<br>Reading<br>(dBuV) | Pre-amplifier<br>(dB) | Cable<br>Loss<br>(dB) | Antenna<br>Factor<br>(dB) | Emission<br>Level<br>(dBuV/m) | Limits<br>(dBuV/m) | Margin<br>(dB) | Detector<br>Type |
|----------------------|--------------------|----------------------------|-----------------------|-----------------------|---------------------------|-------------------------------|--------------------|----------------|------------------|
| High Channel:2462MHz |                    |                            |                       |                       |                           |                               |                    |                |                  |
| V                    | 4924.00            | 53.30                      | 30.55                 | 5.77                  | 24.66                     | 53.18                         | 74.00              | -20.82         | PK               |
| V                    | 4924.00            | 43.61                      | 30.55                 | 5.77                  | 24.66                     | 43.49                         | 54.00              | -10.51         | AV               |
| V                    | 7386.00            | 53.26                      | 30.33                 | 6.32                  | 24.55                     | 53.80                         | 74.00              | -20.20         | PK               |
| V                    | 7386.00            | 43.61                      | 30.33                 | 6.32                  | 24.55                     | 44.15                         | 54.00              | -9.85          | AV               |
| V                    | 9848.00            | 52.61                      | 30.85                 | 7.45                  | 24.69                     | 53.90                         | 74.00              | -20.10         | PK               |
| V                    | 9848.00            | 43.63                      | 30.85                 | 7.45                  | 24.69                     | 44.92                         | 54.00              | -9.08          | AV               |
| V                    | 12310.00           | 51.20                      | 31.02                 | 8.99                  | 25.57                     | 54.74                         | 74.00              | -19.26         | PK               |
| V                    | 12310.00           | 43.79                      | 31.02                 | 8.99                  | 25.57                     | 47.33                         | 54.00              | -6.67          | AV               |
| H                    | 4924.00            | 51.66                      | 30.55                 | 5.77                  | 24.66                     | 51.54                         | 74.00              | -22.46         | PK               |
| H                    | 4924.00            | 43.37                      | 30.55                 | 5.77                  | 24.66                     | 43.25                         | 54.00              | -10.75         | AV               |
| H                    | 7386.00            | 50.38                      | 30.33                 | 6.32                  | 24.55                     | 50.92                         | 74.00              | -23.08         | PK               |
| H                    | 7386.00            | 43.92                      | 30.33                 | 6.32                  | 24.55                     | 44.46                         | 54.00              | -9.54          | AV               |
| H                    | 9848.00            | 54.88                      | 30.85                 | 7.45                  | 24.69                     | 56.17                         | 74.00              | -17.83         | PK               |
| H                    | 9848.00            | 44.03                      | 30.85                 | 7.45                  | 24.69                     | 45.32                         | 54.00              | -8.68          | AV               |
| H                    | 12310.00           | 52.83                      | 31.02                 | 8.99                  | 25.57                     | 56.37                         | 74.00              | -17.63         | PK               |
| H                    | 12310.00           | 43.19                      | 31.02                 | 8.99                  | 25.57                     | 46.73                         | 54.00              | -7.27          | AV               |

Remark:

1. Emission Level = Meter Reading + Antenna Factor + Cable Loss – Pre-amplifier,  
Margin= Emission Level - Limit
2. If peak below the average limit, the average emission was no test.
3. The amplitude of spurious emissions which are attenuated by more than 20dB below the permissible value has no need to be reported.
4. The test data shows only the worst case.





802.11n20 (ANT1+ANT2)

| Polar<br>(H/V)      | Frequency | Meter<br>Reading | Pre-amplifier | Cable<br>Loss | Antenna<br>Factor | Emission<br>Level | Limits   | Margin | Detector<br>Type |
|---------------------|-----------|------------------|---------------|---------------|-------------------|-------------------|----------|--------|------------------|
|                     | (MHz)     | (dBuV)           | (dB)          | (dB)          | (dB)              | (dBuV/m)          | (dBuV/m) | (dB)   |                  |
| Low Channel:2412MHz |           |                  |               |               |                   |                   |          |        |                  |
| V                   | 4824.00   | 54.15            | 30.55         | 5.77          | 24.66             | 54.03             | 74.00    | -19.97 | PK               |
| V                   | 4824.00   | 43.07            | 30.55         | 5.77          | 24.66             | 42.95             | 54.00    | -11.05 | AV               |
| V                   | 7236.00   | 50.10            | 30.33         | 6.32          | 24.55             | 50.64             | 74.00    | -23.36 | PK               |
| V                   | 7236.00   | 43.91            | 30.33         | 6.32          | 24.55             | 44.45             | 54.00    | -9.55  | AV               |
| V                   | 9648.00   | 50.82            | 30.85         | 7.45          | 24.69             | 52.11             | 74.00    | -21.89 | PK               |
| V                   | 9648.00   | 44.62            | 30.85         | 7.45          | 24.69             | 45.91             | 54.00    | -8.09  | AV               |
| V                   | 12060.00  | 52.92            | 31.02         | 8.99          | 25.57             | 56.46             | 74.00    | -17.54 | PK               |
| V                   | 12060.00  | 42.73            | 31.02         | 8.99          | 25.57             | 46.27             | 54.00    | -7.73  | AV               |
| H                   | 4824.00   | 50.19            | 30.55         | 5.77          | 24.66             | 50.07             | 74.00    | -23.93 | PK               |
| H                   | 4824.00   | 42.69            | 30.55         | 5.77          | 24.66             | 42.57             | 54.00    | -11.43 | AV               |
| H                   | 7236.00   | 52.28            | 30.33         | 6.32          | 24.55             | 52.82             | 74.00    | -21.18 | PK               |
| H                   | 7236.00   | 43.28            | 30.33         | 6.32          | 24.55             | 43.82             | 54.00    | -10.18 | AV               |
| H                   | 9648.00   | 52.11            | 30.85         | 7.45          | 24.69             | 53.40             | 74.00    | -20.60 | PK               |
| H                   | 9648.00   | 43.02            | 30.85         | 7.45          | 24.69             | 44.31             | 54.00    | -9.69  | AV               |
| H                   | 12060.00  | 52.28            | 31.02         | 8.99          | 25.57             | 55.82             | 74.00    | -18.18 | PK               |
| H                   | 12060.00  | 43.84            | 31.02         | 8.99          | 25.57             | 47.38             | 54.00    | -6.62  | AV               |

| Polar<br>(H/V)         | Frequency | Meter<br>Reading | Pre-amplifier | Cable<br>Loss | Antenna<br>Factor | Emission<br>Level | Limits   | Margin | Detector<br>Type |
|------------------------|-----------|------------------|---------------|---------------|-------------------|-------------------|----------|--------|------------------|
|                        | (MHz)     | (dBuV)           | (dB)          | (dB)          | (dB)              | (dBuV/m)          | (dBuV/m) | (dB)   |                  |
| Middle Channel:2437MHz |           |                  |               |               |                   |                   |          |        |                  |
| V                      | 4874.00   | 51.83            | 30.55         | 5.77          | 24.66             | 51.71             | 74.00    | -22.29 | PK               |
| V                      | 4874.00   | 43.22            | 30.55         | 5.77          | 24.66             | 43.10             | 54.00    | -10.90 | AV               |
| V                      | 7311.00   | 52.53            | 30.33         | 6.32          | 24.55             | 53.07             | 74.00    | -20.93 | PK               |
| V                      | 7311.00   | 44.03            | 30.33         | 6.32          | 24.55             | 44.57             | 54.00    | -9.43  | AV               |
| V                      | 9748.00   | 51.15            | 30.85         | 7.45          | 24.69             | 52.44             | 74.00    | -21.56 | PK               |
| V                      | 9748.00   | 42.25            | 30.85         | 7.45          | 24.69             | 43.54             | 54.00    | -10.46 | AV               |
| V                      | 12185.00  | 52.56            | 31.02         | 8.99          | 25.57             | 56.10             | 74.00    | -17.90 | PK               |
| V                      | 12185.00  | 43.17            | 31.02         | 8.99          | 25.57             | 46.71             | 54.00    | -7.29  | AV               |
| H                      | 4874.00   | 51.22            | 30.55         | 5.77          | 24.66             | 51.10             | 74.00    | -22.90 | PK               |
| H                      | 4874.00   | 43.32            | 30.55         | 5.77          | 24.66             | 43.20             | 54.00    | -10.80 | AV               |
| H                      | 7311.00   | 53.43            | 30.33         | 6.32          | 24.55             | 53.97             | 74.00    | -20.03 | PK               |
| H                      | 7311.00   | 43.86            | 30.33         | 6.32          | 24.55             | 44.40             | 54.00    | -9.60  | AV               |
| H                      | 9748.00   | 50.08            | 30.85         | 7.45          | 24.69             | 51.37             | 74.00    | -22.63 | PK               |
| H                      | 9748.00   | 44.83            | 30.85         | 7.45          | 24.69             | 46.12             | 54.00    | -7.88  | AV               |
| H                      | 12185.00  | 54.34            | 31.02         | 8.99          | 25.57             | 57.88             | 74.00    | -16.12 | PK               |
| H                      | 12185.00  | 43.54            | 31.02         | 8.99          | 25.57             | 47.08             | 54.00    | -6.92  | AV               |





| Polar<br>(H/V)       | Frequency | Meter<br>Reading | Pre-ampl<br>ifier | Cable<br>Loss | Antenna<br>Factor | Emission<br>Level | Limits       | Margin | Detect<br>or<br>Type |
|----------------------|-----------|------------------|-------------------|---------------|-------------------|-------------------|--------------|--------|----------------------|
|                      | (MHz)     | (dBuV)           | (dB)              | (dB)          | (dB)              | (dBuV/m)          | (dBuV/<br>m) | (dB)   |                      |
| High Channel:2462MHz |           |                  |                   |               |                   |                   |              |        |                      |
| V                    | 4924.00   | 52.47            | 30.55             | 5.77          | 24.66             | 52.35             | 74.00        | -21.65 | PK                   |
| V                    | 4924.00   | 42.10            | 30.55             | 5.77          | 24.66             | 41.98             | 54.00        | -12.02 | AV                   |
| V                    | 7386.00   | 52.82            | 30.33             | 6.32          | 24.55             | 53.36             | 74.00        | -20.64 | PK                   |
| V                    | 7386.00   | 43.21            | 30.33             | 6.32          | 24.55             | 43.75             | 54.00        | -10.25 | AV                   |
| V                    | 9848.00   | 54.92            | 30.85             | 7.45          | 24.69             | 56.21             | 74.00        | -17.79 | PK                   |
| V                    | 9848.00   | 43.66            | 30.85             | 7.45          | 24.69             | 44.95             | 54.00        | -9.05  | AV                   |
| V                    | 12310.00  | 51.63            | 31.02             | 8.99          | 25.57             | 55.17             | 74.00        | -18.83 | PK                   |
| V                    | 12310.00  | 43.89            | 31.02             | 8.99          | 25.57             | 47.43             | 54.00        | -6.57  | AV                   |
| H                    | 4924.00   | 53.15            | 30.55             | 5.77          | 24.66             | 53.03             | 74.00        | -20.97 | PK                   |
| H                    | 4924.00   | 43.84            | 30.55             | 5.77          | 24.66             | 43.72             | 54.00        | -10.28 | AV                   |
| H                    | 7386.00   | 49.41            | 30.33             | 6.32          | 24.55             | 49.95             | 74.00        | -24.05 | PK                   |
| H                    | 7386.00   | 42.62            | 30.33             | 6.32          | 24.55             | 43.16             | 54.00        | -10.84 | AV                   |
| H                    | 9848.00   | 52.06            | 30.85             | 7.45          | 24.69             | 53.35             | 74.00        | -20.65 | PK                   |
| H                    | 9848.00   | 43.69            | 30.85             | 7.45          | 24.69             | 44.98             | 54.00        | -9.02  | AV                   |
| H                    | 12310.00  | 53.79            | 31.02             | 8.99          | 25.57             | 57.33             | 74.00        | -16.67 | PK                   |
| H                    | 12310.00  | 42.02            | 31.02             | 8.99          | 25.57             | 45.56             | 54.00        | -8.44  | AV                   |

Remark:

1. Emission Level = Meter Reading + Antenna Factor + Cable Loss – Pre-amplifier,  
Margin= Emission Level - Limit
2. If peak below the average limit, the average emission was no test.
3. The amplitude of spurious emissions which are attenuated by more than 20dB below the permissible value has no need to be reported.
4. The test data shows only the worst case.



## 802.11ax20 (ANT1+ANT2)

| Polar<br>(H/V)      | Frequency | Meter<br>Reading | Pre-amplifier | Cable<br>Loss | Antenna<br>Factor | Emission<br>Level | Limits   | Margin | Detector<br>Type |
|---------------------|-----------|------------------|---------------|---------------|-------------------|-------------------|----------|--------|------------------|
|                     | (MHz)     | (dBuV)           | (dB)          | (dB)          | (dB)              | (dBuV/m)          | (dBuV/m) | (dB)   |                  |
| Low Channel:2412MHz |           |                  |               |               |                   |                   |          |        |                  |
| V                   | 4824.00   | 54.69            | 30.55         | 5.77          | 24.66             | 54.57             | 74.00    | -19.43 | PK               |
| V                   | 4824.00   | 43.28            | 30.55         | 5.77          | 24.66             | 43.16             | 54.00    | -10.84 | AV               |
| V                   | 7236.00   | 50.42            | 30.33         | 6.32          | 24.55             | 50.96             | 74.00    | -23.04 | PK               |
| V                   | 7236.00   | 43.91            | 30.33         | 6.32          | 24.55             | 44.45             | 54.00    | -9.55  | AV               |
| V                   | 9648.00   | 50.64            | 30.85         | 7.45          | 24.69             | 51.93             | 74.00    | -22.07 | PK               |
| V                   | 9648.00   | 44.44            | 30.85         | 7.45          | 24.69             | 45.73             | 54.00    | -8.27  | AV               |
| V                   | 12060.00  | 53.20            | 31.02         | 8.99          | 25.57             | 56.74             | 74.00    | -17.26 | PK               |
| V                   | 12060.00  | 43.27            | 31.02         | 8.99          | 25.57             | 46.81             | 54.00    | -7.19  | AV               |
| H                   | 4824.00   | 50.61            | 30.55         | 5.77          | 24.66             | 50.49             | 74.00    | -23.51 | PK               |
| H                   | 4824.00   | 42.60            | 30.55         | 5.77          | 24.66             | 42.48             | 54.00    | -11.52 | AV               |
| H                   | 7236.00   | 52.79            | 30.33         | 6.32          | 24.55             | 53.33             | 74.00    | -20.67 | PK               |
| H                   | 7236.00   | 43.32            | 30.33         | 6.32          | 24.55             | 43.86             | 54.00    | -10.14 | AV               |
| H                   | 9648.00   | 51.92            | 30.85         | 7.45          | 24.69             | 53.21             | 74.00    | -20.79 | PK               |
| H                   | 9648.00   | 42.91            | 30.85         | 7.45          | 24.69             | 44.20             | 54.00    | -9.80  | AV               |
| H                   | 12060.00  | 52.78            | 31.02         | 8.99          | 25.57             | 56.32             | 74.00    | -17.68 | PK               |
| H                   | 12060.00  | 43.34            | 31.02         | 8.99          | 25.57             | 46.88             | 54.00    | -7.12  | AV               |

| Polar<br>(H/V)         | Frequency | Meter<br>Reading | Pre-amplifier | Cable<br>Loss | Antenna<br>Factor | Emission<br>Level | Limits   | Margin | Detector<br>Type |
|------------------------|-----------|------------------|---------------|---------------|-------------------|-------------------|----------|--------|------------------|
|                        | (MHz)     | (dBuV)           | (dB)          | (dB)          | (dB)              | (dBuV/m)          | (dBuV/m) | (dB)   |                  |
| Middle Channel:2437MHz |           |                  |               |               |                   |                   |          |        |                  |
| V                      | 4874.00   | 51.71            | 30.55         | 5.77          | 24.66             | 51.59             | 74.00    | -22.41 | PK               |
| V                      | 4874.00   | 43.93            | 30.55         | 5.77          | 24.66             | 43.81             | 54.00    | -10.19 | AV               |
| V                      | 7311.00   | 52.77            | 30.33         | 6.32          | 24.55             | 53.31             | 74.00    | -20.69 | PK               |
| V                      | 7311.00   | 44.30            | 30.33         | 6.32          | 24.55             | 44.84             | 54.00    | -9.16  | AV               |
| V                      | 9748.00   | 51.69            | 30.85         | 7.45          | 24.69             | 52.98             | 74.00    | -21.02 | PK               |
| V                      | 9748.00   | 42.45            | 30.85         | 7.45          | 24.69             | 43.74             | 54.00    | -10.26 | AV               |
| V                      | 12185.00  | 52.59            | 31.02         | 8.99          | 25.57             | 56.13             | 74.00    | -17.87 | PK               |
| V                      | 12185.00  | 42.61            | 31.02         | 8.99          | 25.57             | 46.15             | 54.00    | -7.85  | AV               |
| H                      | 4874.00   | 51.17            | 30.55         | 5.77          | 24.66             | 51.05             | 74.00    | -22.95 | PK               |
| H                      | 4874.00   | 43.37            | 30.55         | 5.77          | 24.66             | 43.25             | 54.00    | -10.75 | AV               |
| H                      | 7311.00   | 54.28            | 30.33         | 6.32          | 24.55             | 54.82             | 74.00    | -19.18 | PK               |
| H                      | 7311.00   | 44.43            | 30.33         | 6.32          | 24.55             | 44.97             | 54.00    | -9.03  | AV               |
| H                      | 9748.00   | 50.04            | 30.85         | 7.45          | 24.69             | 51.33             | 74.00    | -22.67 | PK               |
| H                      | 9748.00   | 44.94            | 30.85         | 7.45          | 24.69             | 46.23             | 54.00    | -7.77  | AV               |
| H                      | 12185.00  | 53.80            | 31.02         | 8.99          | 25.57             | 57.34             | 74.00    | -16.66 | PK               |
| H                      | 12185.00  | 43.15            | 31.02         | 8.99          | 25.57             | 46.69             | 54.00    | -7.31  | AV               |



| Polar<br>(H/V)       | Frequency | Meter<br>Reading | Pre-ampl<br>ifier | Cable<br>Loss | Antenna<br>Factor | Emission<br>Level | Limits       | Margin | Detect<br>or<br>Type |
|----------------------|-----------|------------------|-------------------|---------------|-------------------|-------------------|--------------|--------|----------------------|
|                      | (MHz)     | (dBuV)           | (dB)              | (dB)          | (dB)              | (dBuV/m)          | (dBuV/<br>m) | (dB)   |                      |
| High Channel:2462MHz |           |                  |                   |               |                   |                   |              |        |                      |
| V                    | 4924.00   | 52.23            | 30.55             | 5.77          | 24.66             | 52.11             | 74.00        | -21.89 | PK                   |
| V                    | 4924.00   | 42.14            | 30.55             | 5.77          | 24.66             | 42.02             | 54.00        | -11.98 | AV                   |
| V                    | 7386.00   | 53.17            | 30.33             | 6.32          | 24.55             | 53.71             | 74.00        | -20.29 | PK                   |
| V                    | 7386.00   | 43.55            | 30.33             | 6.32          | 24.55             | 44.09             | 54.00        | -9.91  | AV                   |
| V                    | 9848.00   | 54.76            | 30.85             | 7.45          | 24.69             | 56.05             | 74.00        | -17.95 | PK                   |
| V                    | 9848.00   | 43.77            | 30.85             | 7.45          | 24.69             | 45.06             | 54.00        | -8.94  | AV                   |
| V                    | 12310.00  | 51.95            | 31.02             | 8.99          | 25.57             | 55.49             | 74.00        | -18.51 | PK                   |
| V                    | 12310.00  | 43.63            | 31.02             | 8.99          | 25.57             | 47.17             | 54.00        | -6.83  | AV                   |
| H                    | 4924.00   | 53.10            | 30.55             | 5.77          | 24.66             | 52.98             | 74.00        | -21.02 | PK                   |
| H                    | 4924.00   | 43.84            | 30.55             | 5.77          | 24.66             | 43.72             | 54.00        | -10.28 | AV                   |
| H                    | 7386.00   | 49.74            | 30.33             | 6.32          | 24.55             | 50.28             | 74.00        | -23.72 | PK                   |
| H                    | 7386.00   | 42.91            | 30.33             | 6.32          | 24.55             | 43.45             | 54.00        | -10.55 | AV                   |
| H                    | 9848.00   | 52.08            | 30.85             | 7.45          | 24.69             | 53.37             | 74.00        | -20.63 | PK                   |
| H                    | 9848.00   | 44.31            | 30.85             | 7.45          | 24.69             | 45.60             | 54.00        | -8.40  | AV                   |
| H                    | 12310.00  | 53.56            | 31.02             | 8.99          | 25.57             | 57.10             | 74.00        | -16.90 | PK                   |
| H                    | 12310.00  | 41.93            | 31.02             | 8.99          | 25.57             | 45.47             | 54.00        | -8.53  | AV                   |

Remark:

1. Emission Level = Meter Reading + Antenna Factor + Cable Loss – Pre-amplifier,  
Margin= Emission Level - Limit
2. If peak below the average limit, the average emission was no test.
3. The amplitude of spurious emissions which are attenuated by more than 20dB below the permissible value has no need to be reported.
4. The test data shows only the worst case.



## 5. RADIATED BAND EMISSION MEASUREMENT

### 5.1 TEST REQUIREMENT:

|                       |                                                                                                    |          |      |      |         |
|-----------------------|----------------------------------------------------------------------------------------------------|----------|------|------|---------|
| Test Requirement:     | FCC Part 15 C Section 15.209 and 15.205                                                            |          |      |      |         |
| Test Method:          | ANSI C63.10: 2013                                                                                  |          |      |      |         |
| Test Frequency Range: | All of the restrict bands were tested, only the worst band's (2310MHz to 2500MHz) data was showed. |          |      |      |         |
| Test site:            | Measurement Distance: 3m                                                                           |          |      |      |         |
| Receiver setup:       | Frequency                                                                                          | Detector | RBW  | VBW  | Value   |
|                       | Above                                                                                              | Peak     | 1MHz | 3MHz | Peak    |
|                       | 1GHz                                                                                               | Average  | 1MHz | 3MHz | Average |

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

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

Notes:

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

### 5.2 TEST PROCEDURE

Above 1GHz test procedure as below:

- The EUT was placed on the top of a rotating table 1.5 meters above the ground at a 3 meter camber. The table was rotated 360 degrees to determine the position of the highest radiation.
- The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
- The antenna height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
- For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rota table was turned from 0 degrees to 360 degrees to find the maximum reading.
- The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.
- If the emission level of the EUT in peak mode was 10dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10dB margin would be re-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet.
- Test the EUT in the lowest channel, the Highest channel

Note:

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

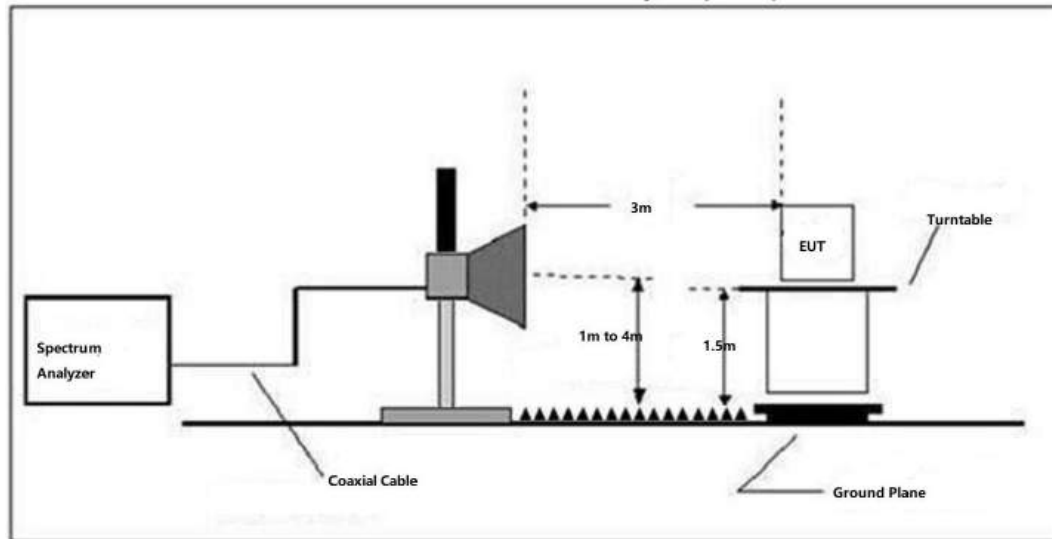
### 5.3 DEVIATION FROM TEST STANDARD

No deviation



## 5.4 TEST SETUP

### Radiated Emission Test-Up Frequency Above 1GHz



## 5.5 EUT OPERATING CONDITIONS

The EUT tested system was configured as the statements of 2.3 Unless otherwise a special operating condition is specified in the follows during the testing.



## 5.6 TEST RESULT

### ANT1

|                                                                                                                | Polar<br>(H/V)       | Frequenc<br>y<br>(MHz) | Meter<br>Reading<br>(dBuV) | Pre-<br>amplifier<br>(dB) | Cable<br>Loss<br>(dB) | Antenna<br>Factor<br>(dB/m) | Emission<br>level<br>(dBuV/m) | Limit<br>(dBuV<br>/m) | Detec<br>tor<br>Type | Result |
|----------------------------------------------------------------------------------------------------------------|----------------------|------------------------|----------------------------|---------------------------|-----------------------|-----------------------------|-------------------------------|-----------------------|----------------------|--------|
| 802.11b                                                                                                        | Low Channel 2412MHz  |                        |                            |                           |                       |                             |                               |                       |                      |        |
|                                                                                                                | H                    | 2390.00                | 54.08                      | 30.22                     | 4.85                  | 23.98                       | 52.69                         | 74.00                 | PK                   | PASS   |
|                                                                                                                | H                    | 2390.00                | 44.39                      | 30.22                     | 4.85                  | 23.98                       | 43.00                         | 54.00                 | AV                   | PASS   |
|                                                                                                                | H                    | 2400.00                | 54.63                      | 30.22                     | 4.85                  | 23.98                       | 53.24                         | 74.00                 | PK                   | PASS   |
|                                                                                                                | H                    | 2400.00                | 43.93                      | 30.22                     | 4.85                  | 23.98                       | 42.54                         | 54.00                 | AV                   | PASS   |
|                                                                                                                | V                    | 2390.00                | 53.19                      | 30.22                     | 4.85                  | 23.98                       | 51.80                         | 74.00                 | PK                   | PASS   |
|                                                                                                                | V                    | 2390.00                | 44.53                      | 30.22                     | 4.85                  | 23.98                       | 43.14                         | 54.00                 | AV                   | PASS   |
|                                                                                                                | V                    | 2400.00                | 52.70                      | 30.22                     | 4.85                  | 23.98                       | 51.31                         | 74.00                 | PK                   | PASS   |
|                                                                                                                | V                    | 2400.00                | 43.04                      | 30.22                     | 4.85                  | 23.98                       | 41.65                         | 54.00                 | AV                   | PASS   |
|                                                                                                                | High Channel 2462MHz |                        |                            |                           |                       |                             |                               |                       |                      |        |
|                                                                                                                | H                    | 2483.50                | 54.55                      | 30.22                     | 4.85                  | 23.98                       | 53.16                         | 74.00                 | PK                   | PASS   |
|                                                                                                                | H                    | 2483.50                | 44.58                      | 30.22                     | 4.85                  | 23.98                       | 43.19                         | 54.00                 | AV                   | PASS   |
|                                                                                                                | H                    | 2500.00                | 54.46                      | 30.22                     | 4.85                  | 23.98                       | 53.07                         | 74.00                 | PK                   | PASS   |
|                                                                                                                | H                    | 2500.00                | 45.49                      | 30.22                     | 4.85                  | 23.98                       | 44.10                         | 54.00                 | AV                   | PASS   |
|                                                                                                                | V                    | 2483.50                | 52.92                      | 30.22                     | 4.85                  | 23.98                       | 51.53                         | 74.00                 | PK                   | PASS   |
|                                                                                                                | V                    | 2483.50                | 44.39                      | 30.22                     | 4.85                  | 23.98                       | 43.00                         | 54.00                 | AV                   | PASS   |
|                                                                                                                | V                    | 2500.00                | 54.12                      | 30.22                     | 4.85                  | 23.98                       | 52.73                         | 74.00                 | PK                   | PASS   |
|                                                                                                                | V                    | 2500.00                | 44.72                      | 30.22                     | 4.85                  | 23.98                       | 43.33                         | 54.00                 | AV                   | PASS   |
| 802.11g                                                                                                        | Low Channel 2412MHz  |                        |                            |                           |                       |                             |                               |                       |                      |        |
|                                                                                                                | H                    | 2390.00                | 53.48                      | 30.22                     | 4.85                  | 23.98                       | 52.09                         | 74.00                 | PK                   | PASS   |
|                                                                                                                | H                    | 2390.00                | 44.52                      | 30.22                     | 4.85                  | 23.98                       | 43.13                         | 54.00                 | AV                   | PASS   |
|                                                                                                                | H                    | 2400.00                | 54.83                      | 30.22                     | 4.85                  | 23.98                       | 53.44                         | 74.00                 | PK                   | PASS   |
|                                                                                                                | H                    | 2400.00                | 44.79                      | 30.22                     | 4.85                  | 23.98                       | 43.40                         | 54.00                 | AV                   | PASS   |
|                                                                                                                | V                    | 2390.00                | 52.33                      | 30.22                     | 4.85                  | 23.98                       | 50.94                         | 74.00                 | PK                   | PASS   |
|                                                                                                                | V                    | 2390.00                | 44.17                      | 30.22                     | 4.85                  | 23.98                       | 42.78                         | 54.00                 | AV                   | PASS   |
|                                                                                                                | V                    | 2400.00                | 54.31                      | 30.22                     | 4.85                  | 23.98                       | 52.92                         | 74.00                 | PK                   | PASS   |
|                                                                                                                | V                    | 2400.00                | 45.10                      | 30.22                     | 4.85                  | 23.98                       | 43.71                         | 54.00                 | AV                   | PASS   |
|                                                                                                                | High Channel 2462MHz |                        |                            |                           |                       |                             |                               |                       |                      |        |
|                                                                                                                | H                    | 2483.50                | 54.37                      | 30.22                     | 4.85                  | 23.98                       | 52.98                         | 74.00                 | PK                   | PASS   |
|                                                                                                                | H                    | 2483.50                | 43.98                      | 30.22                     | 4.85                  | 23.98                       | 42.59                         | 54.00                 | AV                   | PASS   |
|                                                                                                                | H                    | 2500.00                | 54.43                      | 30.22                     | 4.85                  | 23.98                       | 53.04                         | 74.00                 | PK                   | PASS   |
|                                                                                                                | H                    | 2500.00                | 45.23                      | 30.22                     | 4.85                  | 23.98                       | 43.84                         | 54.00                 | AV                   | PASS   |
|                                                                                                                | V                    | 2483.50                | 55.43                      | 30.22                     | 4.85                  | 23.98                       | 54.04                         | 74.00                 | PK                   | PASS   |
|                                                                                                                | V                    | 2483.50                | 44.32                      | 30.22                     | 4.85                  | 23.98                       | 42.93                         | 54.00                 | AV                   | PASS   |
|                                                                                                                | V                    | 2500.00                | 53.08                      | 30.22                     | 4.85                  | 23.98                       | 51.69                         | 74.00                 | PK                   | PASS   |
|                                                                                                                | V                    | 2500.00                | 43.42                      | 30.22                     | 4.85                  | 23.98                       | 42.03                         | 54.00                 | AV                   | PASS   |
| Remark:                                                                                                        |                      |                        |                            |                           |                       |                             |                               |                       |                      |        |
| 1. Emission Level = Meter Reading + Antenna Factor + Cable Loss – Pre-amplifier, Margin= Emission Level - Limi |                      |                        |                            |                           |                       |                             |                               |                       |                      |        |





ANT2

|         | Polar<br>(H/V)       | Frequenc<br>y<br>(MHz) | Meter<br>Reading<br>(dBuV) | Pre-<br>amplifier<br>(dB) | Cable<br>Loss<br>(dB) | Antenna<br>Factor<br>(dB/m) | Emission<br>level<br>(dBuV/m) | Limit<br>(dBuV<br>/m) | Detec<br>tor<br>Type | Result |
|---------|----------------------|------------------------|----------------------------|---------------------------|-----------------------|-----------------------------|-------------------------------|-----------------------|----------------------|--------|
| 802.11b | Low Channel 2412MHz  |                        |                            |                           |                       |                             |                               |                       |                      |        |
|         | H                    | 2390.00                | 53.25                      | 30.22                     | 4.85                  | 23.98                       | 51.86                         | 74.00                 | PK                   | PASS   |
|         | H                    | 2390.00                | 44.34                      | 30.22                     | 4.85                  | 23.98                       | 42.95                         | 54.00                 | AV                   | PASS   |
|         | H                    | 2400.00                | 54.16                      | 30.22                     | 4.85                  | 23.98                       | 52.77                         | 74.00                 | PK                   | PASS   |
|         | H                    | 2400.00                | 44.01                      | 30.22                     | 4.85                  | 23.98                       | 42.62                         | 54.00                 | AV                   | PASS   |
|         | V                    | 2390.00                | 53.93                      | 30.22                     | 4.85                  | 23.98                       | 52.54                         | 74.00                 | PK                   | PASS   |
|         | V                    | 2390.00                | 45.54                      | 30.22                     | 4.85                  | 23.98                       | 44.15                         | 54.00                 | AV                   | PASS   |
|         | V                    | 2400.00                | 53.69                      | 30.22                     | 4.85                  | 23.98                       | 52.30                         | 74.00                 | PK                   | PASS   |
|         | V                    | 2400.00                | 44.16                      | 30.22                     | 4.85                  | 23.98                       | 42.77                         | 54.00                 | AV                   | PASS   |
|         | High Channel 2462MHz |                        |                            |                           |                       |                             |                               |                       |                      |        |
|         | H                    | 2483.50                | 55.03                      | 30.22                     | 4.85                  | 23.98                       | 53.64                         | 74.00                 | PK                   | PASS   |
|         | H                    | 2483.50                | 43.40                      | 30.22                     | 4.85                  | 23.98                       | 42.01                         | 54.00                 | AV                   | PASS   |
|         | H                    | 2500.00                | 53.15                      | 30.22                     | 4.85                  | 23.98                       | 51.76                         | 74.00                 | PK                   | PASS   |
|         | H                    | 2500.00                | 44.36                      | 30.22                     | 4.85                  | 23.98                       | 42.97                         | 54.00                 | AV                   | PASS   |
|         | V                    | 2483.50                | 52.25                      | 30.22                     | 4.85                  | 23.98                       | 50.86                         | 74.00                 | PK                   | PASS   |
|         | V                    | 2483.50                | 45.37                      | 30.22                     | 4.85                  | 23.98                       | 43.98                         | 54.00                 | AV                   | PASS   |
|         | V                    | 2500.00                | 55.49                      | 30.22                     | 4.85                  | 23.98                       | 54.10                         | 74.00                 | PK                   | PASS   |
|         | V                    | 2500.00                | 45.06                      | 30.22                     | 4.85                  | 23.98                       | 43.67                         | 54.00                 | AV                   | PASS   |
| 802.11g | Low Channel 2412MHz  |                        |                            |                           |                       |                             |                               |                       |                      |        |
|         | H                    | 2390.00                | 53.76                      | 30.22                     | 4.85                  | 23.98                       | 52.37                         | 74.00                 | PK                   | PASS   |
|         | H                    | 2390.00                | 43.25                      | 30.22                     | 4.85                  | 23.98                       | 41.86                         | 54.00                 | AV                   | PASS   |
|         | H                    | 2400.00                | 54.44                      | 30.22                     | 4.85                  | 23.98                       | 53.05                         | 74.00                 | PK                   | PASS   |
|         | H                    | 2400.00                | 43.78                      | 30.22                     | 4.85                  | 23.98                       | 42.39                         | 54.00                 | AV                   | PASS   |
|         | V                    | 2390.00                | 52.49                      | 30.22                     | 4.85                  | 23.98                       | 51.10                         | 74.00                 | PK                   | PASS   |
|         | V                    | 2390.00                | 44.35                      | 30.22                     | 4.85                  | 23.98                       | 42.96                         | 54.00                 | AV                   | PASS   |
|         | V                    | 2400.00                | 55.08                      | 30.22                     | 4.85                  | 23.98                       | 53.69                         | 74.00                 | PK                   | PASS   |
|         | V                    | 2400.00                | 45.02                      | 30.22                     | 4.85                  | 23.98                       | 43.63                         | 54.00                 | AV                   | PASS   |
|         | High Channel 2462MHz |                        |                            |                           |                       |                             |                               |                       |                      |        |
|         | H                    | 2483.50                | 53.65                      | 30.22                     | 4.85                  | 23.98                       | 52.26                         | 74.00                 | PK                   | PASS   |
|         | H                    | 2483.50                | 45.06                      | 30.22                     | 4.85                  | 23.98                       | 43.67                         | 54.00                 | AV                   | PASS   |
|         | H                    | 2500.00                | 54.60                      | 30.22                     | 4.85                  | 23.98                       | 53.21                         | 74.00                 | PK                   | PASS   |
|         | H                    | 2500.00                | 43.93                      | 30.22                     | 4.85                  | 23.98                       | 42.54                         | 54.00                 | AV                   | PASS   |
|         | V                    | 2483.50                | 55.03                      | 30.22                     | 4.85                  | 23.98                       | 53.64                         | 74.00                 | PK                   | PASS   |
|         | V                    | 2483.50                | 43.21                      | 30.22                     | 4.85                  | 23.98                       | 41.82                         | 54.00                 | AV                   | PASS   |
|         | V                    | 2500.00                | 53.96                      | 30.22                     | 4.85                  | 23.98                       | 52.57                         | 74.00                 | PK                   | PASS   |
|         | V                    | 2500.00                | 44.62                      | 30.22                     | 4.85                  | 23.98                       | 43.23                         | 54.00                 | AV                   | PASS   |

Remark:

1. Emission Level = Meter Reading + Antenna Factor + Cable Loss – Pre-amplifier, Margin= Emission Level - Limi



802.11n20 (MIMO)

|                                                                                                                 |                      |         |       |       |      |       |       |       |    |      |
|-----------------------------------------------------------------------------------------------------------------|----------------------|---------|-------|-------|------|-------|-------|-------|----|------|
| 802.11n20                                                                                                       | Low Channel 2412MHz  |         |       |       |      |       |       |       |    |      |
|                                                                                                                 | H                    | 2390.00 | 53.07 | 30.22 | 4.85 | 23.98 | 51.68 | 74.00 | PK | PASS |
|                                                                                                                 | H                    | 2390.00 | 45.13 | 30.22 | 4.85 | 23.98 | 43.74 | 54.00 | AV | PASS |
|                                                                                                                 | H                    | 2400.00 | 53.76 | 30.22 | 4.85 | 23.98 | 52.37 | 74.00 | PK | PASS |
|                                                                                                                 | H                    | 2400.00 | 45.72 | 30.22 | 4.85 | 23.98 | 44.33 | 54.00 | AV | PASS |
|                                                                                                                 | V                    | 2390.00 | 53.37 | 30.22 | 4.85 | 23.98 | 51.98 | 74.00 | PK | PASS |
|                                                                                                                 | V                    | 2390.00 | 46.00 | 30.22 | 4.85 | 23.98 | 44.61 | 54.00 | AV | PASS |
|                                                                                                                 | V                    | 2400.00 | 53.18 | 30.22 | 4.85 | 23.98 | 51.79 | 74.00 | PK | PASS |
|                                                                                                                 | V                    | 2400.00 | 43.80 | 30.22 | 4.85 | 23.98 | 42.41 | 54.00 | AV | PASS |
|                                                                                                                 | High Channel 2462MHz |         |       |       |      |       |       |       |    |      |
|                                                                                                                 | H                    | 2483.50 | 52.90 | 30.22 | 4.85 | 23.98 | 51.51 | 74.00 | PK | PASS |
|                                                                                                                 | H                    | 2483.50 | 45.18 | 30.22 | 4.85 | 23.98 | 43.79 | 54.00 | AV | PASS |
|                                                                                                                 | H                    | 2500.00 | 54.01 | 30.22 | 4.85 | 23.98 | 52.62 | 74.00 | PK | PASS |
|                                                                                                                 | H                    | 2500.00 | 44.54 | 30.22 | 4.85 | 23.98 | 43.15 | 54.00 | AV | PASS |
|                                                                                                                 | V                    | 2483.50 | 53.70 | 30.22 | 4.85 | 23.98 | 52.31 | 74.00 | PK | PASS |
|                                                                                                                 | V                    | 2483.50 | 44.51 | 30.22 | 4.85 | 23.98 | 43.12 | 54.00 | AV | PASS |
|                                                                                                                 | V                    | 2500.00 | 54.43 | 30.22 | 4.85 | 23.98 | 53.04 | 74.00 | PK | PASS |
|                                                                                                                 | V                    | 2500.00 | 44.14 | 30.22 | 4.85 | 23.98 | 42.75 | 54.00 | AV | PASS |
| Remark:                                                                                                         |                      |         |       |       |      |       |       |       |    |      |
| 1. Emission Level = Meter Reading + Antenna Factor + Cable Loss – Pre-amplifier, Margin= Emission Level - Limit |                      |         |       |       |      |       |       |       |    |      |

802.11ax20 (MIMO)

|                                                                                                                 |                      |         |       |       |      |       |       |       |    |      |
|-----------------------------------------------------------------------------------------------------------------|----------------------|---------|-------|-------|------|-------|-------|-------|----|------|
| 802.11ax20                                                                                                      | Low Channel 2412MHz  |         |       |       |      |       |       |       |    |      |
|                                                                                                                 | H                    | 2390.00 | 52.99 | 30.22 | 4.85 | 23.98 | 51.60 | 74.00 | PK | PASS |
|                                                                                                                 | H                    | 2390.00 | 44.51 | 30.22 | 4.85 | 23.98 | 43.12 | 54.00 | AV | PASS |
|                                                                                                                 | H                    | 2400.00 | 53.88 | 30.22 | 4.85 | 23.98 | 52.49 | 74.00 | PK | PASS |
|                                                                                                                 | H                    | 2400.00 | 45.82 | 30.22 | 4.85 | 23.98 | 44.43 | 54.00 | AV | PASS |
|                                                                                                                 | V                    | 2390.00 | 53.65 | 30.22 | 4.85 | 23.98 | 52.26 | 74.00 | PK | PASS |
|                                                                                                                 | V                    | 2390.00 | 44.76 | 30.22 | 4.85 | 23.98 | 43.37 | 54.00 | AV | PASS |
|                                                                                                                 | V                    | 2400.00 | 53.14 | 30.22 | 4.85 | 23.98 | 51.75 | 74.00 | PK | PASS |
|                                                                                                                 | V                    | 2400.00 | 43.20 | 30.22 | 4.85 | 23.98 | 41.81 | 54.00 | AV | PASS |
|                                                                                                                 | High Channel 2462MHz |         |       |       |      |       |       |       |    |      |
|                                                                                                                 | H                    | 2483.50 | 53.68 | 30.22 | 4.85 | 23.98 | 52.29 | 74.00 | PK | PASS |
|                                                                                                                 | H                    | 2483.50 | 44.26 | 30.22 | 4.85 | 23.98 | 42.87 | 54.00 | AV | PASS |
|                                                                                                                 | H                    | 2500.00 | 52.49 | 30.22 | 4.85 | 23.98 | 51.10 | 74.00 | PK | PASS |
|                                                                                                                 | H                    | 2500.00 | 44.08 | 30.22 | 4.85 | 23.98 | 42.69 | 54.00 | AV | PASS |
|                                                                                                                 | V                    | 2483.50 | 52.82 | 30.22 | 4.85 | 23.98 | 51.43 | 74.00 | PK | PASS |
|                                                                                                                 | V                    | 2483.50 | 44.37 | 30.22 | 4.85 | 23.98 | 42.98 | 54.00 | AV | PASS |
|                                                                                                                 | V                    | 2500.00 | 53.49 | 30.22 | 4.85 | 23.98 | 52.10 | 74.00 | PK | PASS |
|                                                                                                                 | V                    | 2500.00 | 43.36 | 30.22 | 4.85 | 23.98 | 41.97 | 54.00 | AV | PASS |
| Remark:                                                                                                         |                      |         |       |       |      |       |       |       |    |      |
| 1. Emission Level = Meter Reading + Antenna Factor + Cable Loss – Pre-amplifier, Margin= Emission Level - Limit |                      |         |       |       |      |       |       |       |    |      |



## 6. POWER SPECTRAL DENSITY TEST

|                   |                                                           |
|-------------------|-----------------------------------------------------------|
| Test Requirement: | FCC Part15 C Section 15.247 (e)                           |
| Test Method:      | ANSI C63.10:2013 and KDB558074 D01DTS Meas Guidancev05r02 |

### 6.1 APPLIED PROCEDURES / LIMIT

| FCC Part15 (15.247) , Subpart C |                        |           |                       |        |
|---------------------------------|------------------------|-----------|-----------------------|--------|
| Section                         | Test Item              | Limit     | Frequency Range (MHz) | Result |
| 15.247                          | Power Spectral Density | 8dBm/3kHz | 2400-2483.5           | PASS   |

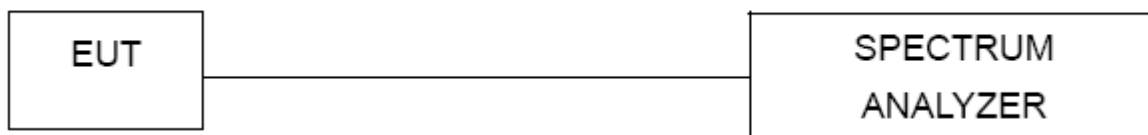
### 6.2 TEST PROCEDURE

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

### 6.3 DEVIATION FROM STANDARD

No deviation.

### 6.4 TEST SETUP



### 6.5 EUT OPERATION CONDITIONS

The EUT tested system was configured as the statements of 2.1 Unless otherwise a special operating condition is specified in the follows during the testing.



## 6.6 TEST RESULT

|               |         |                     |        |
|---------------|---------|---------------------|--------|
| Temperature : | 26°C    | Relative Humidity : | 54%    |
| Pressure :    | 101kPa  | Test Voltage :      | DC 24V |
| Test Mode :   | TX Mode |                     |        |

| TestMode   | Antenna | Frequency[MHz] | Result[dBm/3-100kHz] | Limit[dBm/3kHz] | Verdict |
|------------|---------|----------------|----------------------|-----------------|---------|
| 11B        | Ant1    | 2412           | -9.75                | ≤8.00           | PASS    |
|            | Ant2    | 2412           | -9.25                | ≤8.00           | PASS    |
|            | Ant1    | 2437           | -8.21                | ≤8.00           | PASS    |
|            | Ant2    | 2437           | -9.96                | ≤8.00           | PASS    |
|            | Ant1    | 2462           | -9.54                | ≤8.00           | PASS    |
|            | Ant2    | 2462           | -8.98                | ≤8.00           | PASS    |
| 11G        | Ant1    | 2412           | -11.26               | ≤8.00           | PASS    |
|            | Ant2    | 2412           | -11.27               | ≤8.00           | PASS    |
|            | Ant1    | 2437           | -10.98               | ≤8.00           | PASS    |
|            | Ant2    | 2437           | -12.45               | ≤8.00           | PASS    |
|            | Ant1    | 2462           | -12.11               | ≤8.00           | PASS    |
|            | Ant2    | 2462           | -12.23               | ≤8.00           | PASS    |
| 11N20MIMO  | Ant1    | 2412           | -15.36               | ≤8.00           | PASS    |
|            | Ant2    | 2412           | -23.11               | ≤8.00           | PASS    |
|            | total   | 2412           | -14.69               | ≤7.49           | PASS    |
|            | Ant1    | 2437           | -14.96               | ≤8.00           | PASS    |
|            | Ant2    | 2437           | -23.24               | ≤8.00           | PASS    |
|            | total   | 2437           | -14.36               | ≤7.49           | PASS    |
|            | Ant1    | 2462           | -15.87               | ≤8.00           | PASS    |
|            | Ant2    | 2462           | -23.25               | ≤8.00           | PASS    |
|            | total   | 2462           | -15.14               | ≤7.49           | PASS    |
| 11AX20MIMO | Ant1    | 2412           | -15.81               | ≤8.00           | PASS    |
|            | Ant2    | 2412           | -15.97               | ≤8.00           | PASS    |
|            | total   | 2412           | -12.88               | ≤7.49           | PASS    |
|            | Ant1    | 2437           | -16.48               | ≤8.00           | PASS    |
|            | Ant2    | 2437           | -16.55               | ≤8.00           | PASS    |
|            | total   | 2437           | -13.50               | ≤7.49           | PASS    |
|            | Ant1    | 2462           | -16.4                | ≤8.00           | PASS    |
|            | Ant2    | 2462           | -16.34               | ≤8.00           | PASS    |
|            | total   | 2462           | -13.36               | ≤7.49           | PASS    |

### Remark:

Directional gain = GANT + Array Gain=3.5 dBi+3.01 dBi =6.51 dBi;

Array Gain = 10 log(NANT/NSS) dB (NANT=2;NSS=1)

Limit[dBm/3kHz]=8.00- (Directional gain -6dB) when Directional gain ≥6dB



## TEST GRAPHS

11B Ant1 2412



11B Ant2 2412



11B Ant1 2437



11B Ant2 2437





11B Ant1 2462

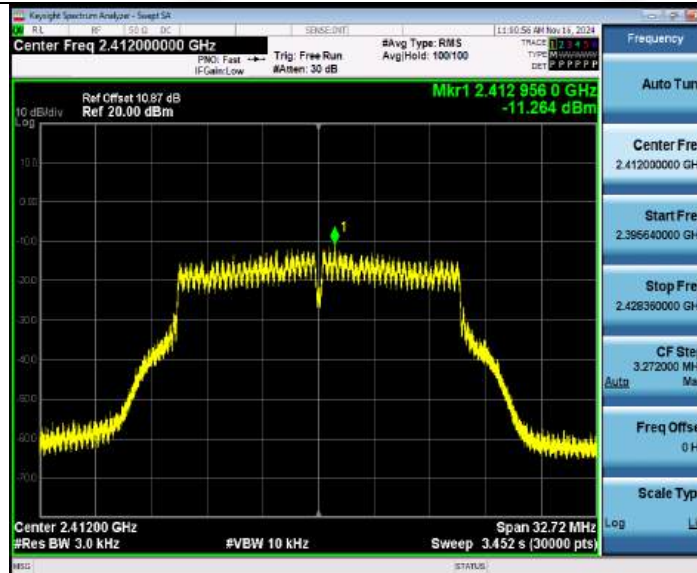


11B Ant2 2462



11G Ant1 2412





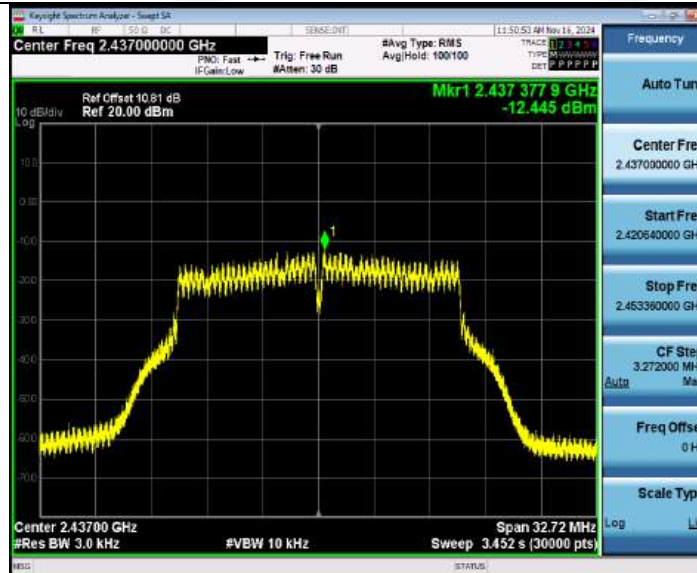
11G\_Ant2\_2412



11G\_Ant1\_2437



11G\_Ant2\_2437



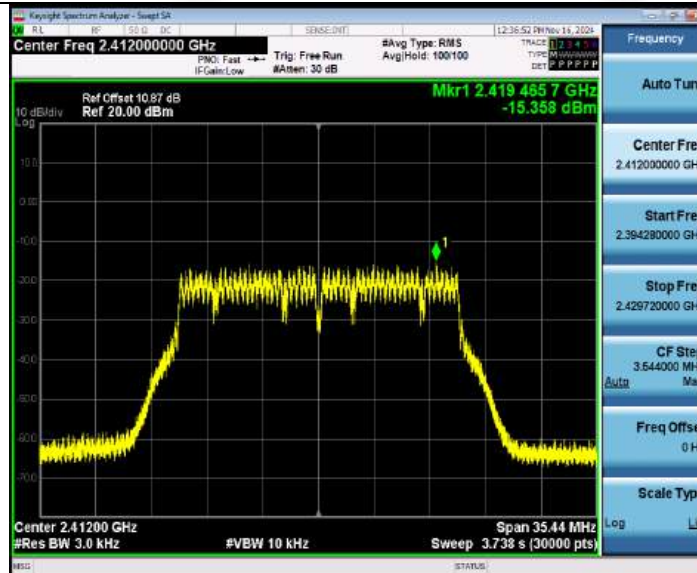
11G\_Ant1\_2462



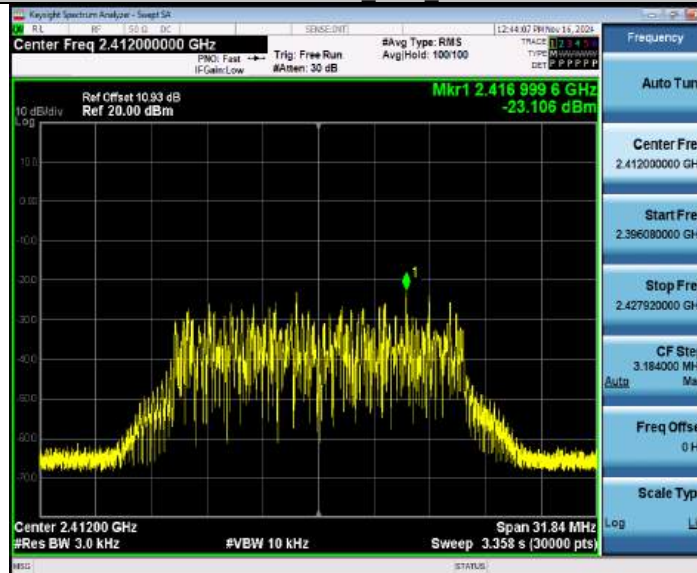
11G\_Ant2\_2462



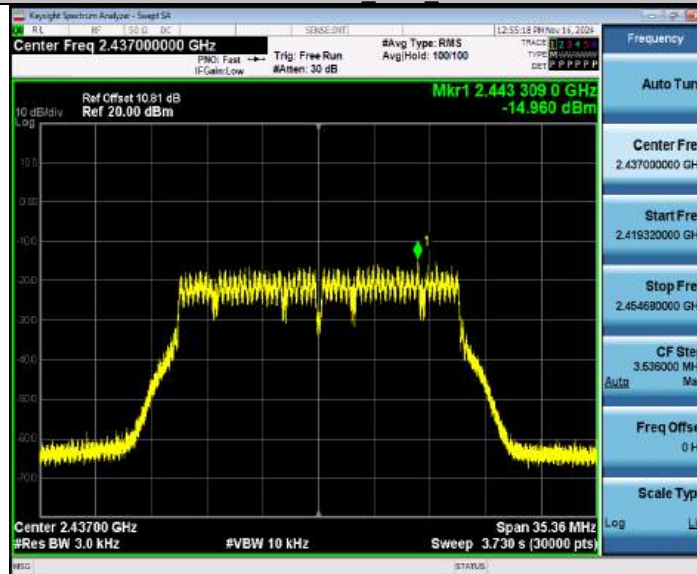
11N20MIMO\_Ant1\_2412



11N20MIMO\_Ant2\_2412

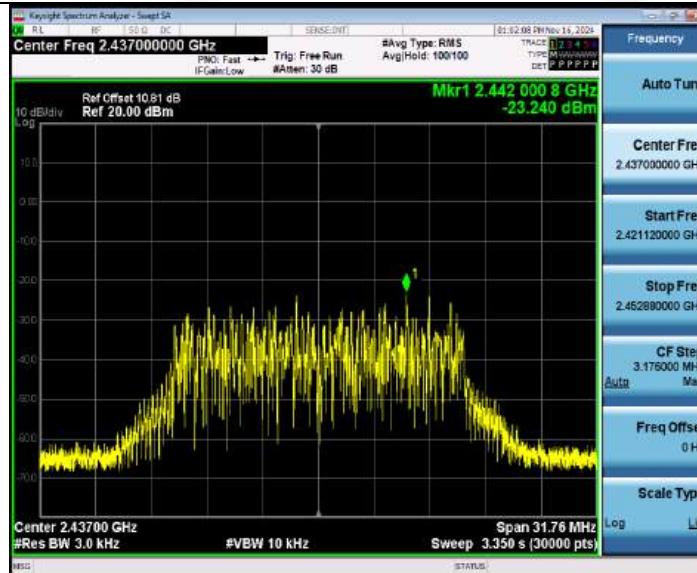


11N20MIMO\_Ant1\_2437

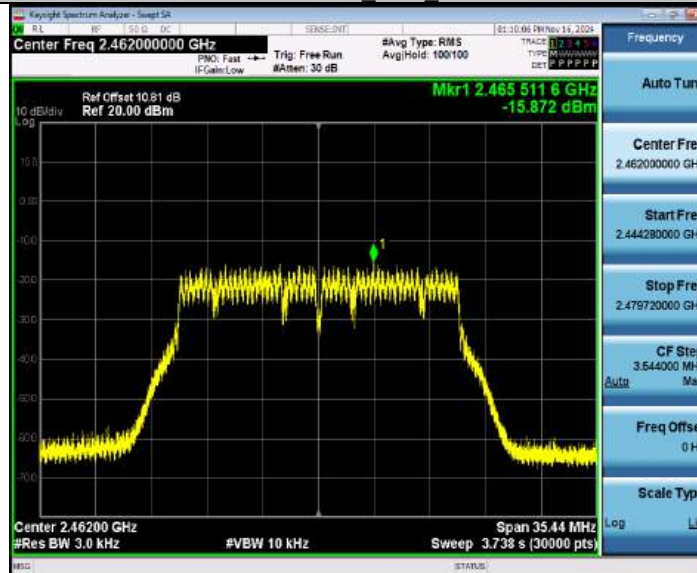


11N20MIMO\_Ant2\_2437

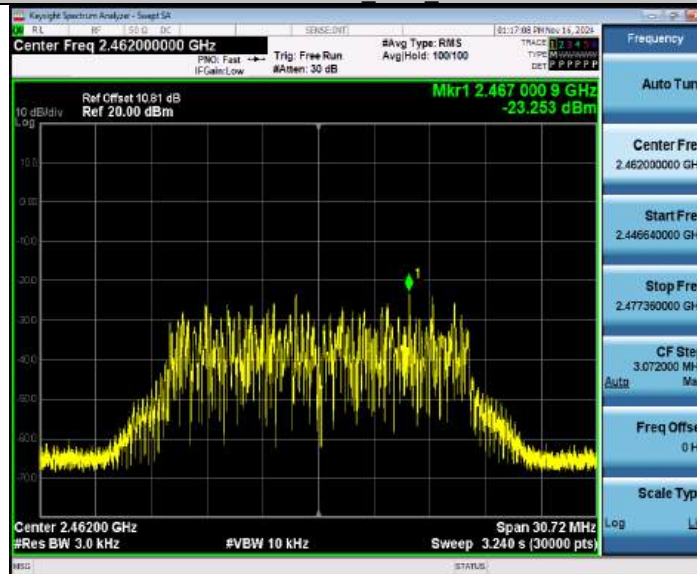




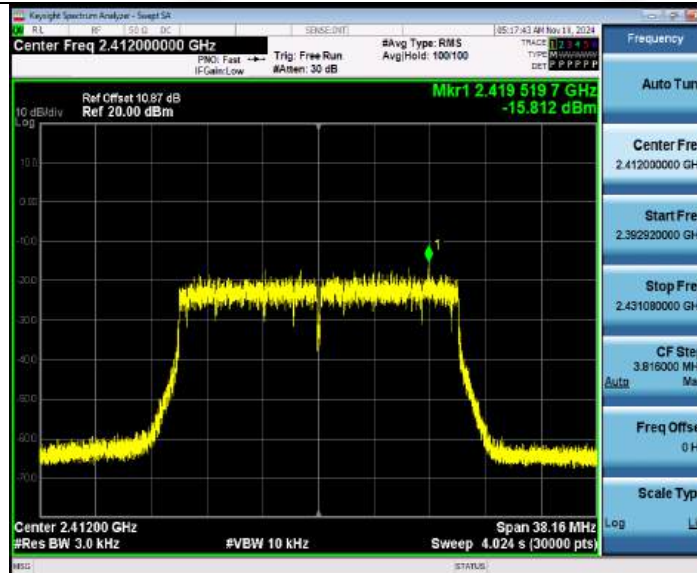
11N20MIMO\_Ant1\_2462



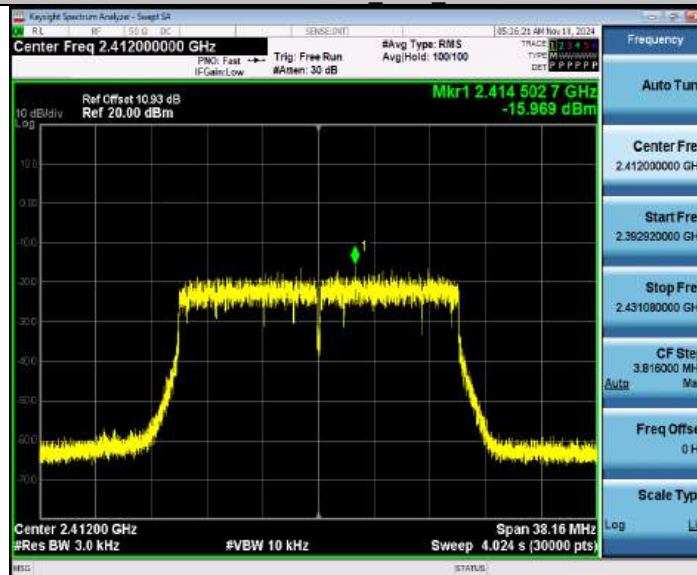
11N20MIMO\_Ant2\_2462



11AX20MIMO\_Ant1\_2412



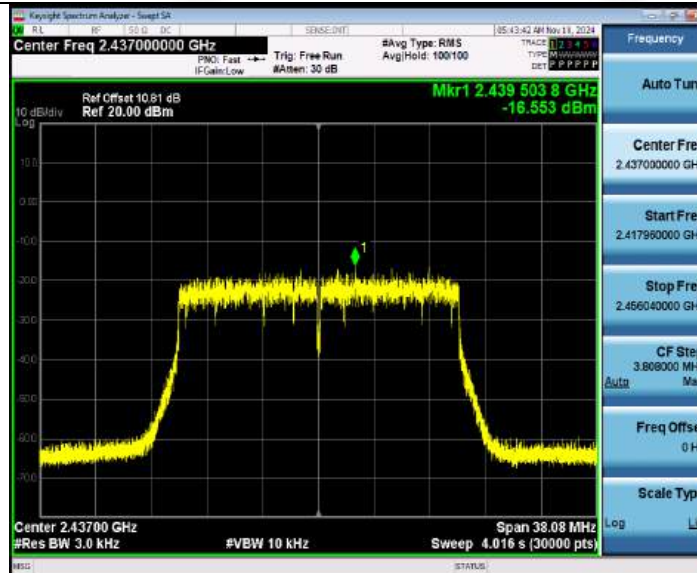
11AX20MIMO\_Ant2\_2412



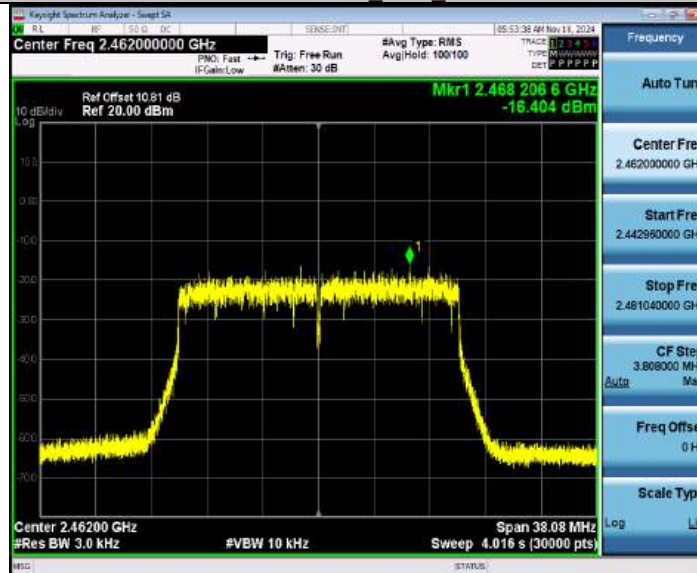
11AX20MIMO\_Ant1\_2437



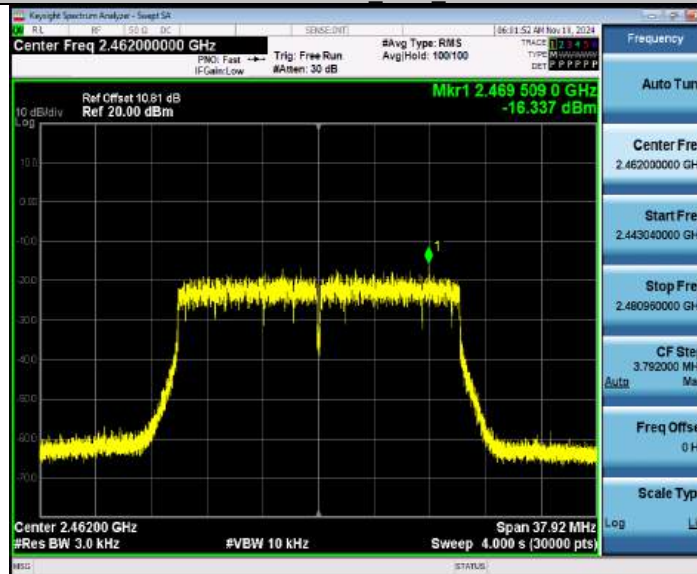
11AX20MIMO\_Ant2\_2437



11AX20MIMO\_Ant1\_2462



11AX20MIMO\_Ant2\_2462







## 7. CHANNEL BANDWIDTH& 99% OCCUPY BANDWIDTH

|                   |                                                           |
|-------------------|-----------------------------------------------------------|
| Test Requirement: | FCC Part15 C Section 15.247 (a)(2)                        |
| Test Method:      | ANSI C63.10:2013 and KDB558074 D01DTS Meas Guidancev05r02 |

### 7.1 APPLIED PROCEDURES / LIMIT

| FCC Part15 (15.247) , Subpart C |           |                                         |                       |        |
|---------------------------------|-----------|-----------------------------------------|-----------------------|--------|
| Section                         | Test Item | Limit                                   | Frequency Range (MHz) | Result |
| 15.247(a)(2)                    | Bandwidth | $\geq 500\text{KHz}$<br>(6dB bandwidth) | 2400-2483.5           | PASS   |

### 7.2 TEST PROCEDURE

1. Set RBW = 100 kHz.
2. Set the video bandwidth (VBW)  $\geq 3 \times \text{RBW}$ .
3. Detector = Peak.
4. Trace mode = max hold.
5. Sweep = auto couple.
6. Allow the trace to stabilize.
7. Measure the maximum width of the emission that is constrained by the frequencies associated with the two outermost amplitude points (upper and lower frequencies) that are attenuated by 6 dB relative to the maximum level measured in the fundamental emission.

### 7.3 DEVIATION FROM STANDARD

No deviation.

### 7.4 TEST SETUP



### 7.5 EUT OPERATION CONDITIONS

The EUT tested system was configured as the statements of 2.4 Unless otherwise a special operating condition is specified in the follows during the testing.



## 7.6 TEST RESULT

|               |         |                     |        |
|---------------|---------|---------------------|--------|
| Temperature : | 26°C    | Relative Humidity : | 54%    |
| Pressure :    | 101kPa  | Test Voltage :      | DC 24V |
| Test Mode :   | TX Mode |                     |        |

| TestMode   | Antenna | Channel Frequency[MHz] | OCB [MHz] | -6dB Occupy Bandwidth [MHz] |
|------------|---------|------------------------|-----------|-----------------------------|
| 11B        | Ant1    | 2412                   | 12.079    | 7.560                       |
|            | Ant2    | 2412                   | 11.956    | 7.080                       |
|            | Ant1    | 2437                   | 12.062    | 8.040                       |
|            | Ant2    | 2437                   | 11.967    | 7.520                       |
|            | Ant1    | 2462                   | 12.080    | 7.560                       |
|            | Ant2    | 2462                   | 11.944    | 7.560                       |
| 11G        | Ant1    | 2412                   | 17.160    | 16.360                      |
|            | Ant2    | 2412                   | 17.238    | 16.360                      |
|            | Ant1    | 2437                   | 17.167    | 16.320                      |
|            | Ant2    | 2437                   | 17.218    | 16.360                      |
|            | Ant1    | 2462                   | 17.148    | 16.360                      |
|            | Ant2    | 2462                   | 17.178    | 16.360                      |
| 11N20MIMO  | Ant1    | 2412                   | 18.161    | 17.720                      |
|            | Ant2    | 2412                   | 17.037    | 15.920                      |
|            | Ant1    | 2437                   | 18.138    | 17.680                      |
|            | Ant2    | 2437                   | 17.225    | 15.880                      |
|            | Ant1    | 2462                   | 18.174    | 17.720                      |
|            | Ant2    | 2462                   | 16.931    | 15.360                      |
| 11AX20MIMO | Ant1    | 2412                   | 19.112    | 19.080                      |
|            | Ant2    | 2412                   | 19.164    | 19.080                      |
|            | Ant1    | 2437                   | 19.084    | 19.080                      |
|            | Ant2    | 2437                   | 19.209    | 19.040                      |
|            | Ant1    | 2462                   | 19.126    | 19.040                      |
|            | Ant2    | 2462                   | 19.105    | 18.960                      |



Test plot as follows:  
OCB





11B Ant2 2437



11B Ant1 2462



11B Ant2 2462



11G\_Ant1\_2412



11G\_Ant2\_2412



11G\_Ant1\_2437





11G\_Ant2\_2437



11G\_Ant1\_2462



11G\_Ant2\_2462



11N20MIMO\_Ant1\_2412



11N20MIMO\_Ant2\_2412



11N20MIMO\_Ant1\_2437



11N20MIMO\_Ant2\_2437



11N20MIMO\_Ant1\_2462



11N20MIMO\_Ant2\_2462





11AX20MIMO\_Ant1\_2412



11AX20MIMO\_Ant2\_2412



11AX20MIMO\_Ant1\_2437



11AX20MIMO\_Ant2\_2437



11AX20MIMO\_Ant1\_2462



11AX20MIMO\_Ant2\_2462







## -6dB Occupy Bandwidth





11B Ant1 2462



11B Ant2 2462



11G Ant1 2412





11G Ant2 2412



11G Ant1 2437



11G Ant2 2437



11G Ant1 2462



11G Ant2 2462



11N20MIMO Ant1 2412





11N20MIMO Ant2 2412



11N20MIMO Ant1 2437



11N20MIMO Ant2 2437



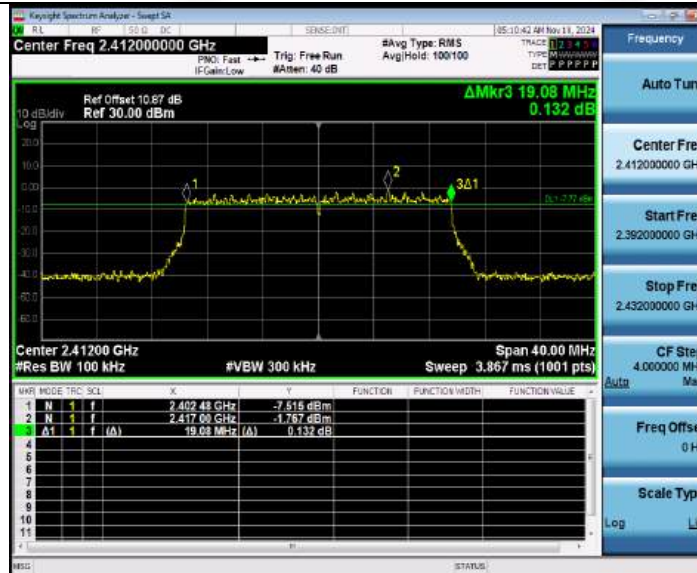
11N20MIMO Ant1 2462



11N20MIMO Ant2 2462



11AX20MIMO Ant1 2412



11AX20MIMO\_Ant2\_2412



11AX20MIMO\_Ant1\_2437



11AX20MIMO\_Ant2\_2437





11AX20MIMO Ant1\_2462



11AX20MIMO Ant2\_2462





## 8. PEAK OUTPUT POWER TEST

|                   |                                                           |
|-------------------|-----------------------------------------------------------|
| Test Requirement: | FCC Part15 C Section 15.247 (b)(3)                        |
| Test Method:      | ANSI C63.10:2013 and KDB558074 D01DTS Meas Guidancev05r02 |

### 8.1 APPLIED PROCEDURES/LIMIT

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

### 8.2 TEST PROCEDURE

- a. The EUT was directly connected to the Power meter

### 8.3 DEVIATION FROM STANDARD

No deviation.

### 8.4 TEST SETUP



### 8.5 EUT OPERATION CONDITIONS

The EUT tested system was configured as the statements of 2.4 Unless otherwise a special operating condition is specified in the follows during the testing.





## 8.6 TEST RESULT

|               |        |                     |        |
|---------------|--------|---------------------|--------|
| Temperature : | 26°C   | Relative Humidity : | 54%    |
| Pressure :    | 101kPa | Test Voltage :      | DC 24V |

| Test Mode  | Antenna | Frequency [MHz] | Peak Power [dBm] | Result [dBm] | Limit [dBm] | Eirp [dBm] | Limit [dBm] | Verdict |
|------------|---------|-----------------|------------------|--------------|-------------|------------|-------------|---------|
| 11B        | Ant1    | 2412            | 13.85            | 13.85        | ≤30.00      | 17.35      | ≤36.00      | PASS    |
|            | Ant2    | 2412            | 13.45            | 13.45        | ≤30.00      | 16.95      | ≤36.00      | PASS    |
|            | Ant1    | 2437            | 14.05            | 14.05        | ≤30.00      | 17.55      | ≤36.00      | PASS    |
|            | Ant2    | 2437            | 13.26            | 13.26        | ≤30.00      | 16.76      | ≤36.00      | PASS    |
|            | Ant1    | 2462            | 14.08            | 14.08        | ≤30.00      | 17.58      | ≤36.00      | PASS    |
|            | Ant2    | 2462            | 13.76            | 13.76        | ≤30.00      | 17.26      | ≤36.00      | PASS    |
| 11G        | Ant1    | 2412            | 19.12            | 19.12        | ≤30.00      | 22.62      | ≤36.00      | PASS    |
|            | Ant2    | 2412            | 19.07            | 19.07        | ≤30.00      | 22.57      | ≤36.00      | PASS    |
|            | Ant1    | 2437            | 19.08            | 19.08        | ≤30.00      | 22.58      | ≤36.00      | PASS    |
|            | Ant2    | 2437            | 18.33            | 18.33        | ≤30.00      | 21.83      | ≤36.00      | PASS    |
|            | Ant1    | 2462            | 18.88            | 18.88        | ≤30.00      | 22.38      | ≤36.00      | PASS    |
|            | Ant2    | 2462            | 18.62            | 18.62        | ≤30.00      | 22.12      | ≤36.00      | PASS    |
| 11N20MIMO  | Ant1    | 2412            | 17.17            | 17.17        | ≤30.00      | 20.67      | ≤36.00      | PASS    |
|            | Ant2    | 2412            | 14.77            | 14.77        | ≤30.00      | 18.27      | ≤36.00      | PASS    |
|            | total   | 2412            | ---              | 19.14        | ≤30.00      | 22.64      | ≤35.49      | PASS    |
|            | Ant1    | 2437            | 17.11            | 17.11        | ≤30.00      | 20.61      | ≤36.00      | PASS    |
|            | Ant2    | 2437            | 14.53            | 14.53        | ≤30.00      | 18.03      | ≤36.00      | PASS    |
|            | total   | 2437            | ---              | 19.02        | ≤30.00      | 22.52      | ≤35.49      | PASS    |
|            | Ant1    | 2462            | 17.03            | 17.03        | ≤30.00      | 20.53      | ≤36.00      | PASS    |
|            | Ant2    | 2462            | 14.57            | 14.57        | ≤30.00      | 18.07      | ≤36.00      | PASS    |
|            | total   | 2462            | ---              | 18.98        | ≤30.00      | 22.48      | ≤35.49      | PASS    |
| 11AX20MIMO | Ant1    | 2412            | 17.47            | 17.47        | ≤30.00      | 20.97      | ≤36.00      | PASS    |
|            | Ant2    | 2412            | 17.59            | 17.59        | ≤30.00      | 21.09      | ≤36.00      | PASS    |
|            | total   | 2412            | ---              | 20.54        | ≤30.00      | 24.04      | ≤35.49      | PASS    |
|            | Ant1    | 2437            | 17.20            | 17.20        | ≤30.00      | 20.7       | ≤36.00      | PASS    |
|            | Ant2    | 2437            | 17.43            | 17.43        | ≤30.00      | 20.93      | ≤36.00      | PASS    |
|            | total   | 2437            | ---              | 20.33        | ≤30.00      | 23.83      | ≤35.49      | PASS    |
|            | Ant1    | 2462            | 17.34            | 17.34        | ≤30.00      | 20.84      | ≤36.00      | PASS    |
|            | Ant2    | 2462            | 17.40            | 17.40        | ≤30.00      | 20.9       | ≤36.00      | PASS    |
|            | total   | 2462            | ---              | 20.38        | ≤30.00      | 23.88      | ≤35.49      | PASS    |

Remark: The results obtained include the antenna gain factor.

Directional gain = GANT + Array Gain=3.5 dBi+0 dBi =3.5 dBi;

Array Gain = 0 dB (i.e., no array gain) for NANT ≤4; (NANT=2)



## 9. CONDUCTED BAND EDGE AND SPURIOUS EMISSION

|                   |                                                           |
|-------------------|-----------------------------------------------------------|
| Test Requirement: | FCC Part15 C Section 15.247 (d)                           |
| Test Method:      | ANSI C63.10:2013 and KDB558074 D01DTS Meas Guidancev05r02 |

### 9.1 APPLICABLE STANDARD

in any 100 kHz bandwidth outside the frequency bands in which the spread spectrum intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20dB below that in the 100kHz bandwidth within the band that contains the highest level of the desired power, In addition, radiated emissions which fall in the restricted bands, as defined in§15.205(a), must also comply with the radiated emission limits specified in15.209(a).

### 9.2 TEST PROCEDURE

Using the following spectrum analyzer setting:

- A) Set the RBW = 100KHz.
- B) Set the VBW = 300KHz.
- C) Sweep time = auto couple.
- D) Detector function = peak.
- E) Trace mode = max hold.
- F) Allow trace to fully stabilize.

### 9.3 DEVIATION FROM STANDARD

No deviation.

### 9.4 TEST SETUP



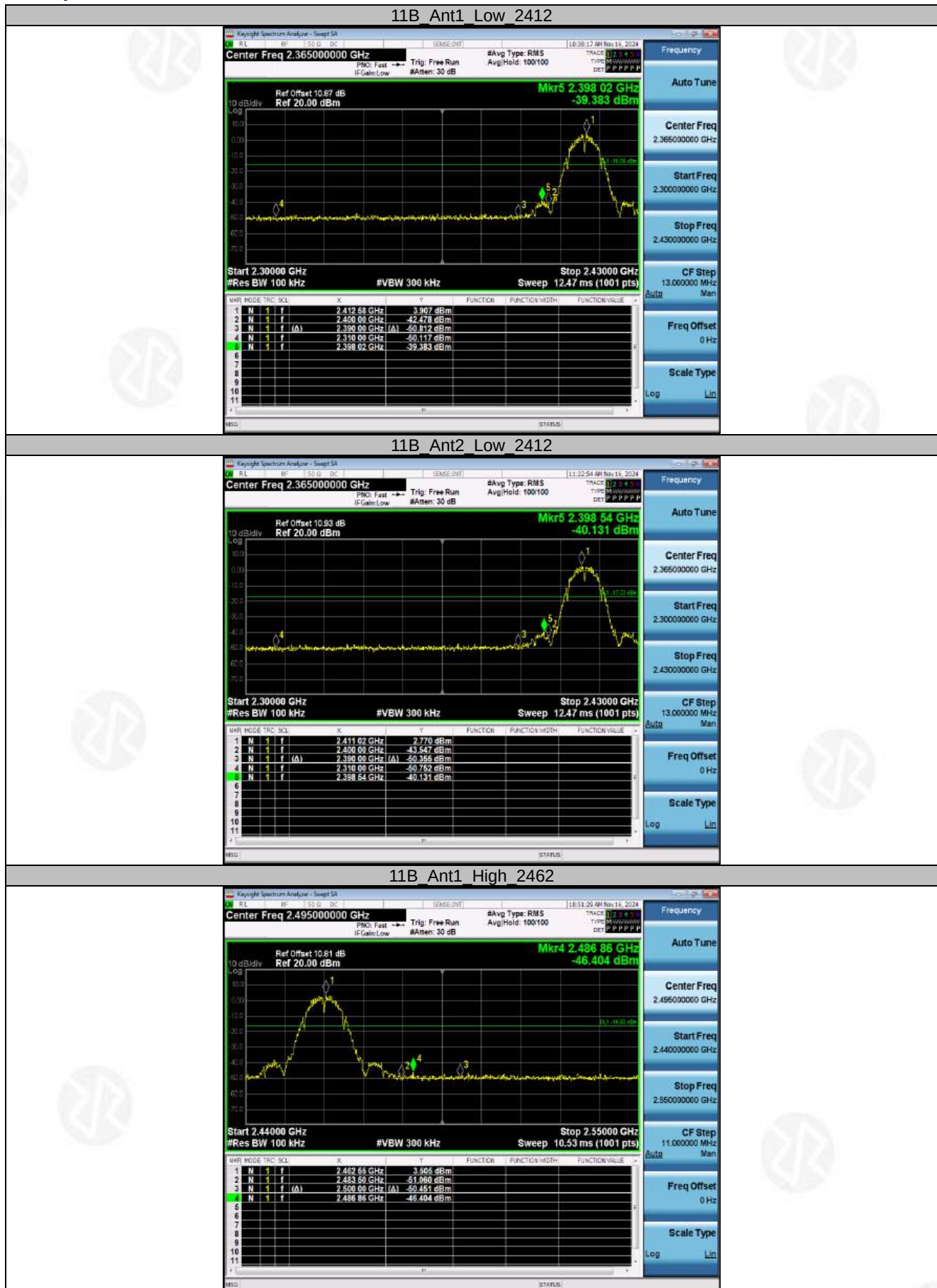
### 9.5 EUT OPERATION CONDITIONS

The EUT tested system was configured as the statements of 2.4 Unless otherwise a special operating condition is specified in the follows during the testing.

### 9.6 TEST RESULTS

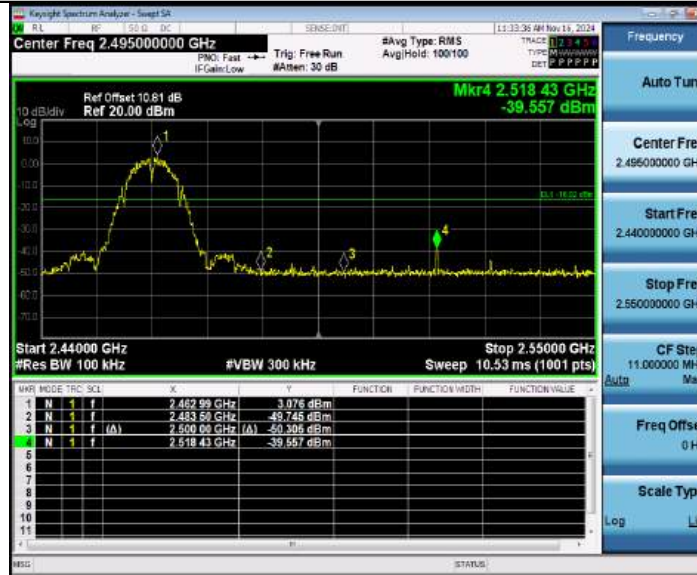


Test plot as follows:





11B\_Ant2\_High\_2462



11G\_Ant1\_Low\_2412



11G\_Ant2\_Low\_2412

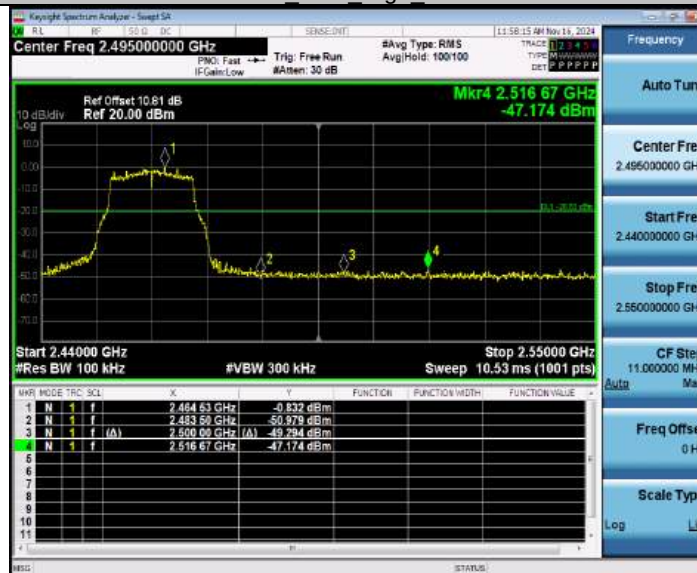


11G\_Ant1\_High\_2462





11G\_Ant2\_High\_2462



11N20MIMO\_Ant1\_Low\_2412

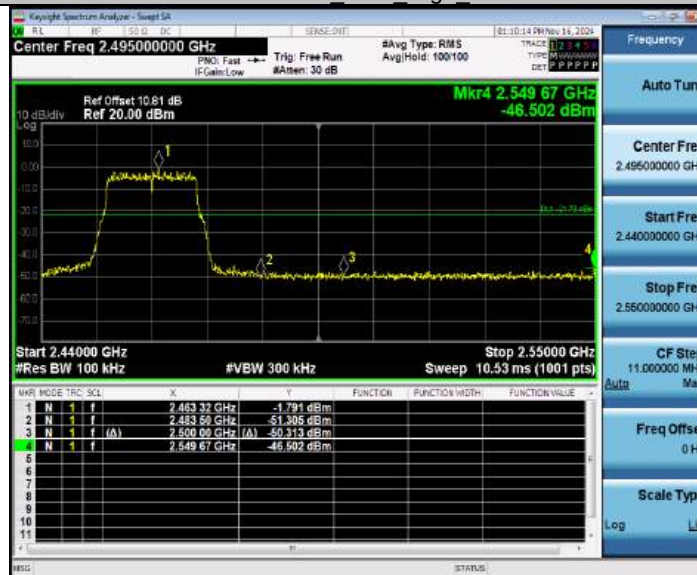


11N20MIMO\_Ant2\_Low\_2412





11N20MIMO Ant1 High 2462



11N20MIMO Ant2 High 2462



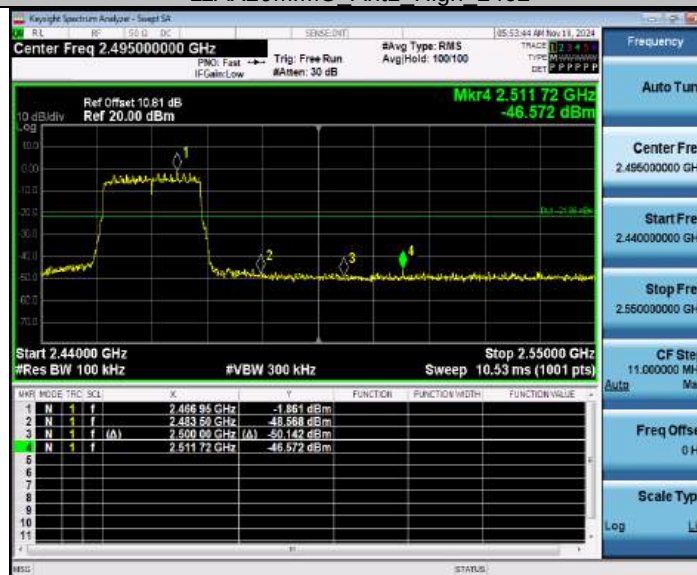
11AX20MIMO Ant1 Low 2412



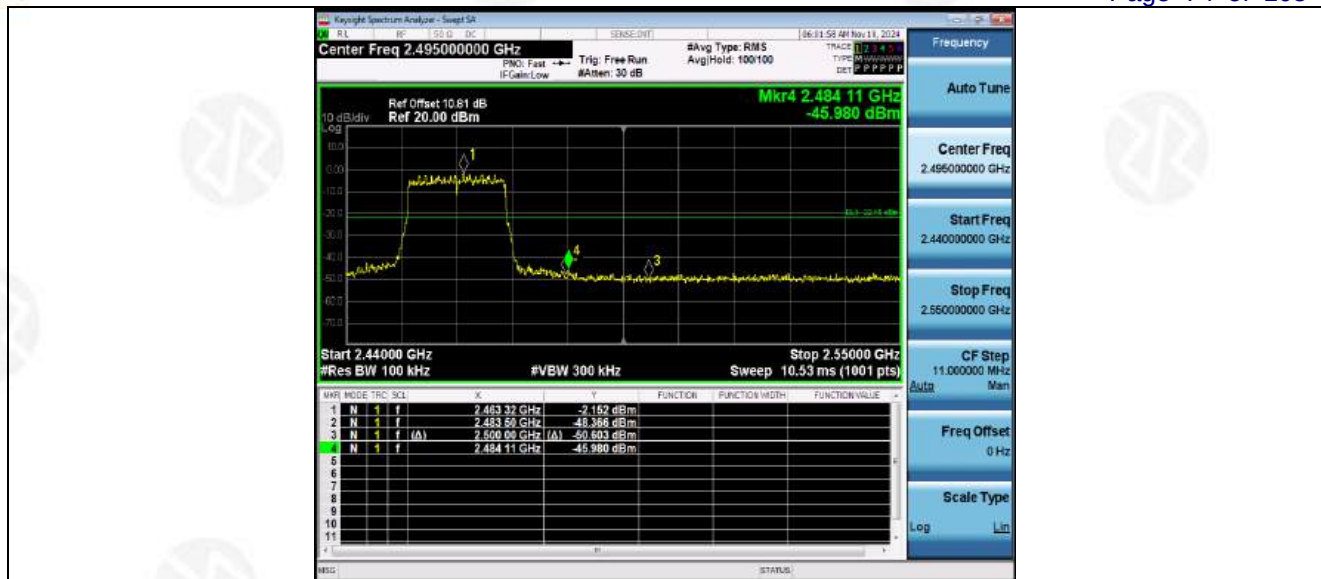
11AX20MIMO\_Ant2\_Low\_2412



11AX20MIMO\_Ant1\_High\_2462



11AX20MIMO\_Ant2\_High\_2462

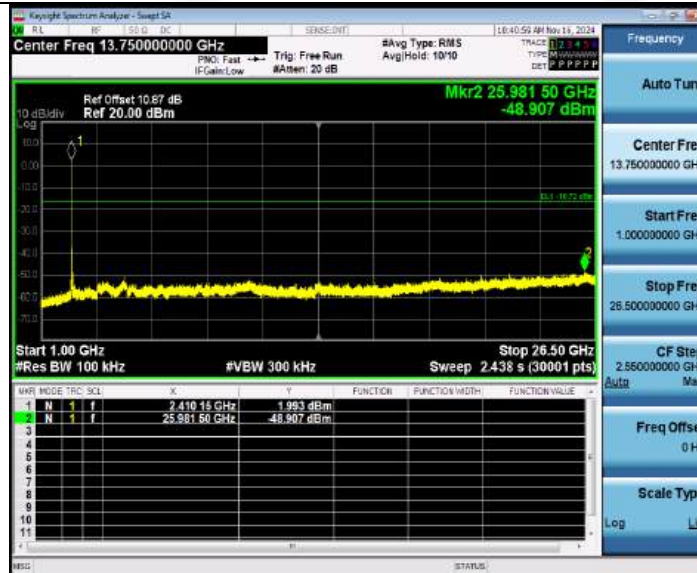




Test plot as follows:







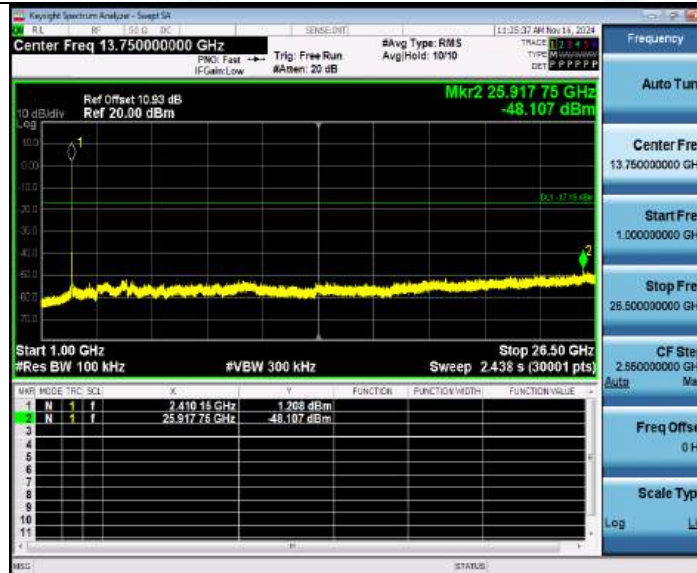
11B\_Ant2\_2412\_0-Reference



11B\_Ant2\_2412\_30-1000



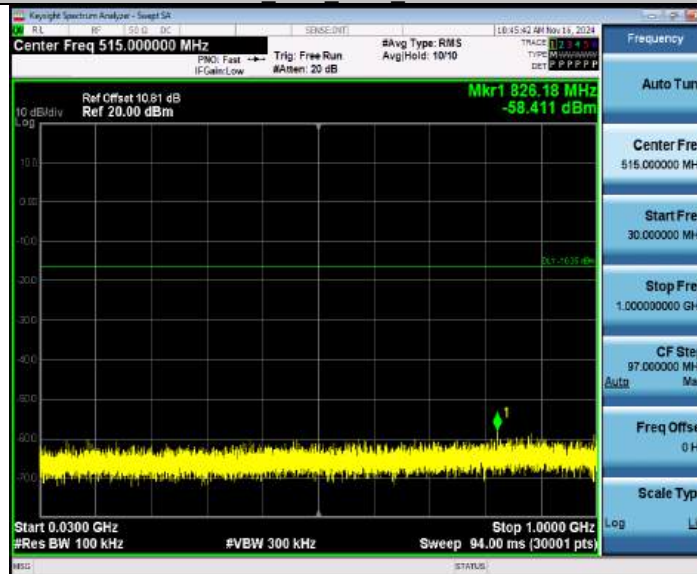
11B\_Ant2\_2412\_1000-26500



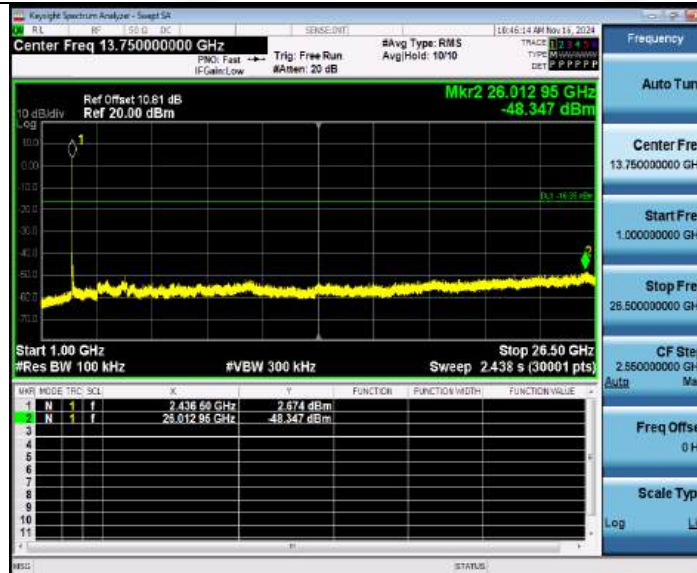
11B\_Ant1\_2437\_0-Reference



11B\_Ant1\_2437\_30-1000



11B\_Ant1\_2437\_1000-26500



11B\_Ant2\_2437\_0-Reference

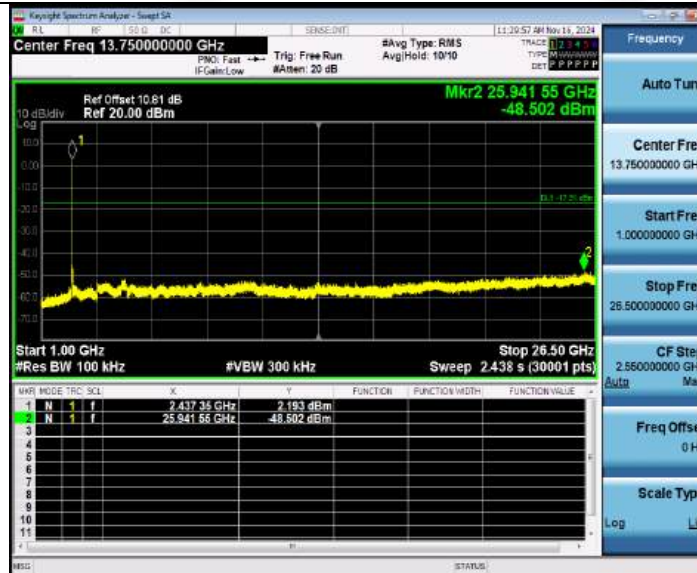


11B\_Ant2\_2437\_30-1000



11B\_Ant2\_2437\_1000-26500





11B\_Ant1\_2462\_0-Reference

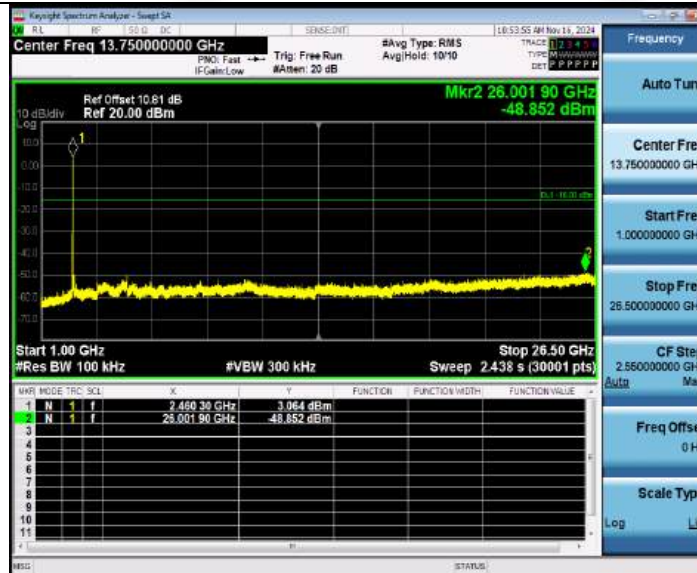


11B\_Ant1\_2462\_30-1000



11B\_Ant1\_2462\_1000-26500





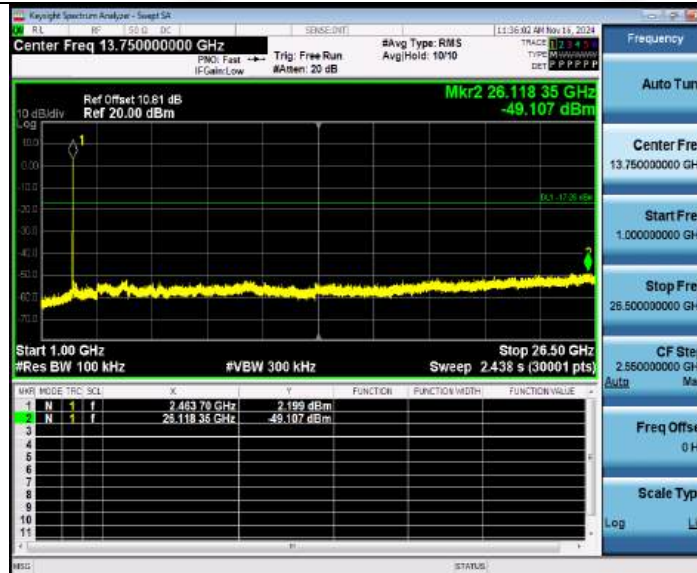
11B\_Ant2\_2462\_0-Reference



11B\_Ant2\_2462\_30-1000



11B\_Ant2\_2462\_1000-26500



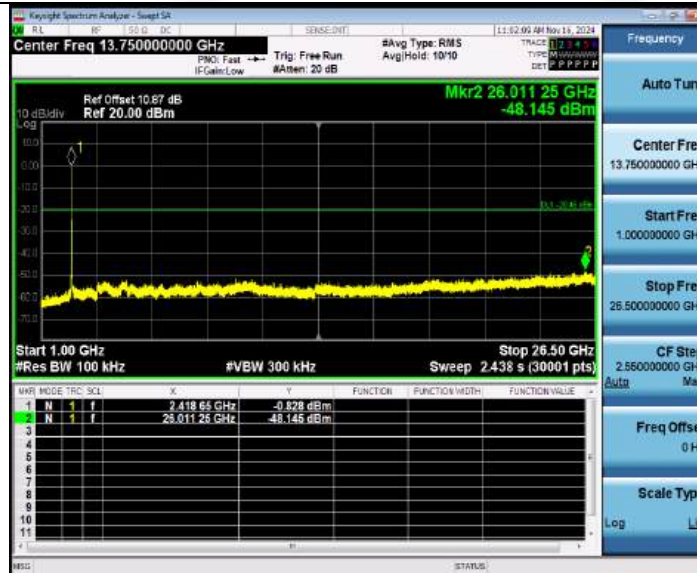
11G\_Ant1\_2412\_0-Reference



11G\_Ant1\_2412\_30-1000



11G\_Ant1\_2412\_1000-26500



11G\_Ant2\_2412\_0-Reference

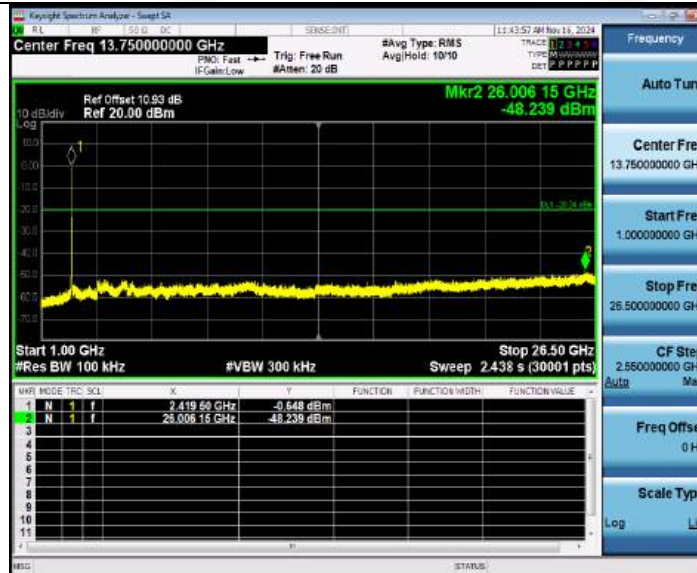


11G\_Ant2\_2412\_30~1000



11G\_Ant2\_2412\_1000~26500





11G\_Ant1\_2437\_0-Reference

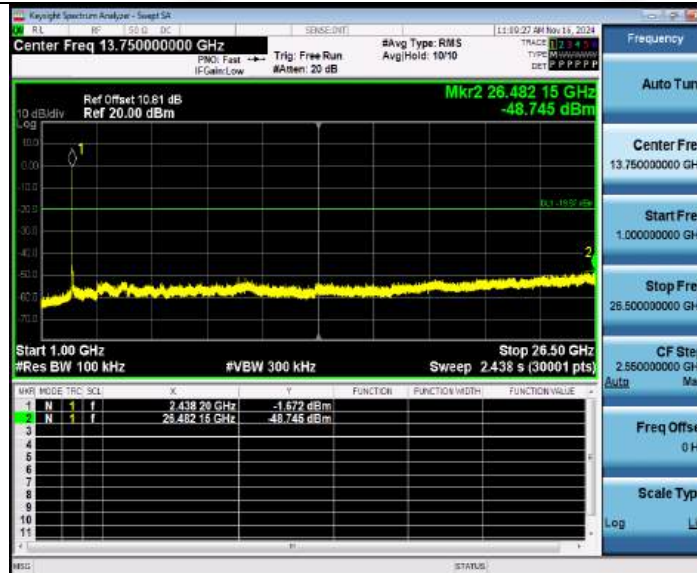


11G\_Ant1\_2437\_30-1000



11G\_Ant1\_2437\_1000-26500

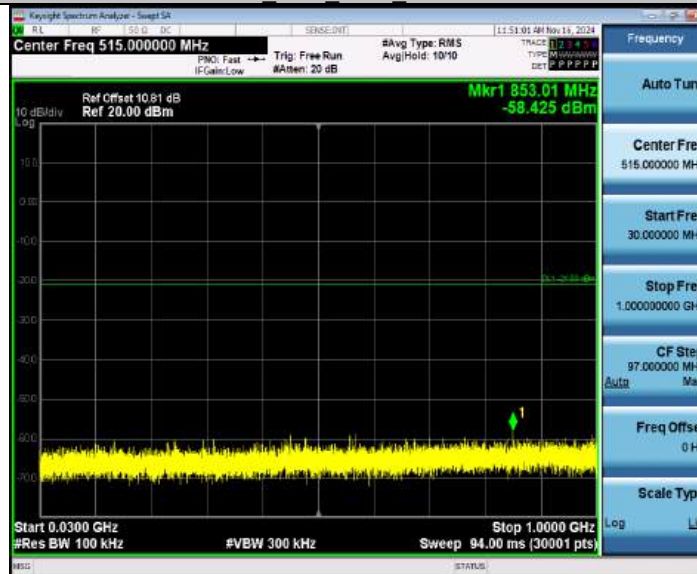




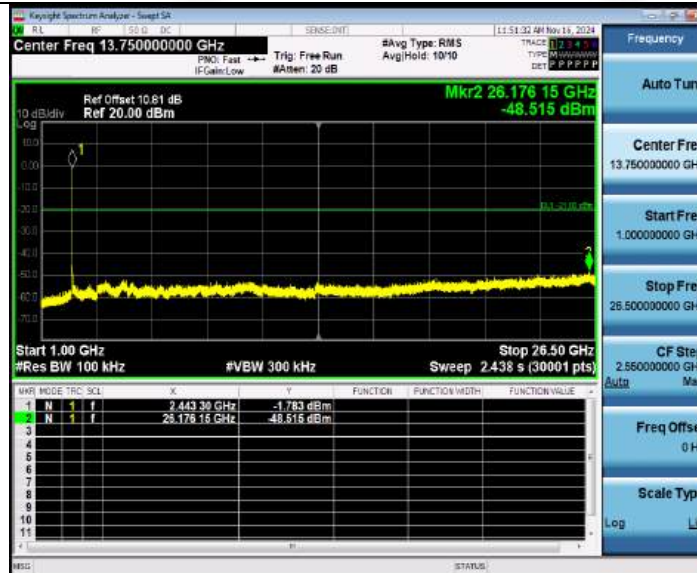
11G\_Ant2\_2437\_0-Reference



11G\_Ant2\_2437\_30-1000



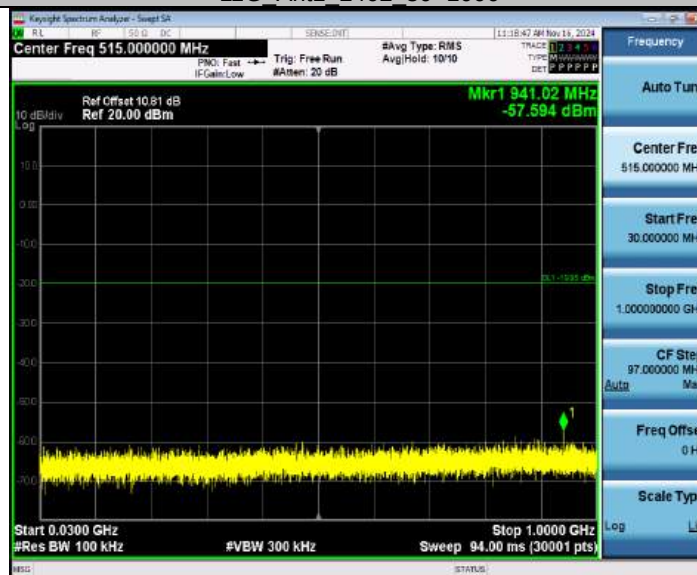
11G\_Ant2\_2437\_1000-26500



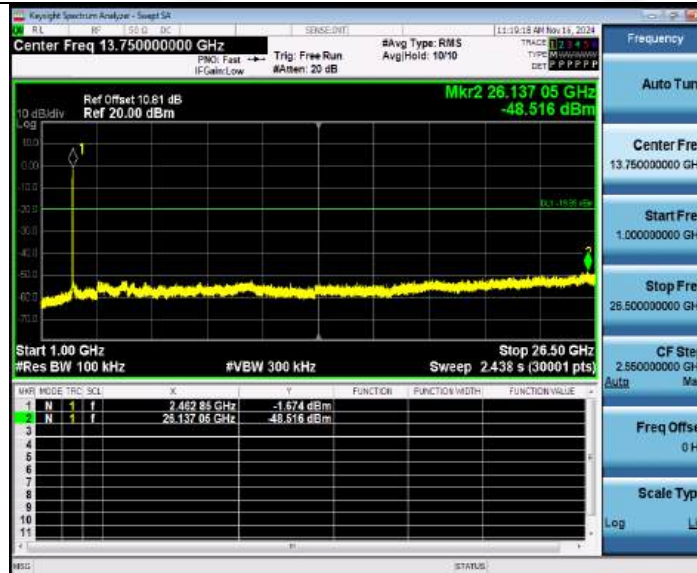
11G\_Ant1\_2462\_0-Reference



11G\_Ant1\_2462\_30-1000



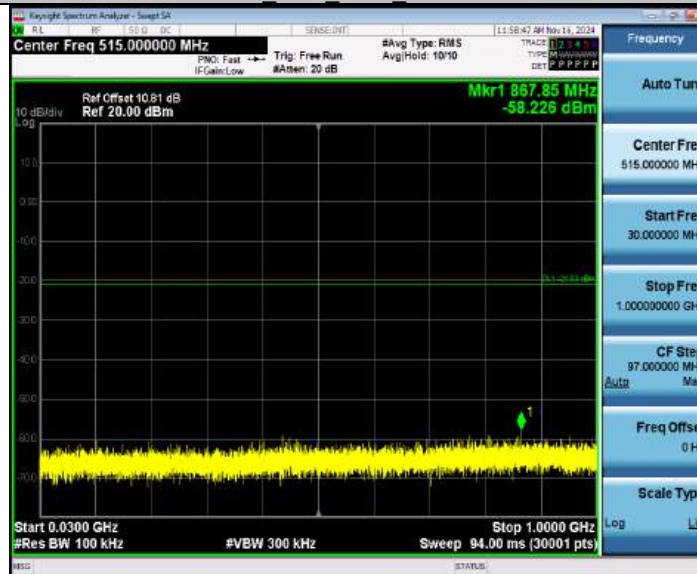
11G\_Ant1\_2462\_1000-26500



11G\_Ant2\_2462\_0-Reference

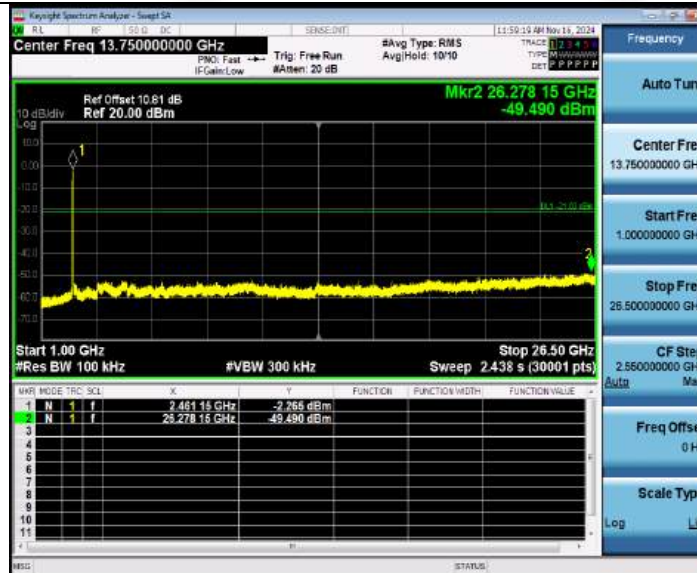


11G\_Ant2\_2462\_30-1000



11G\_Ant2\_2462\_1000-26500





11N20MIMO\_Ant1\_2412\_0-Reference



11N20MIMO\_Ant1\_2412\_30-1000



11N20MIMO\_Ant1\_2412\_1000-26500





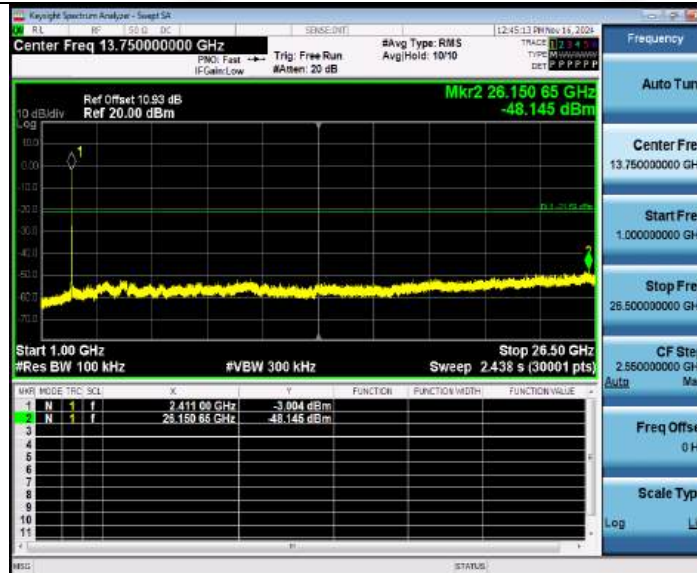
11N20MIMO\_Ant2\_2412\_0-Reference



11N20MIMO\_Ant2\_2412\_30-1000



11N20MIMO\_Ant2\_2412\_1000-26500



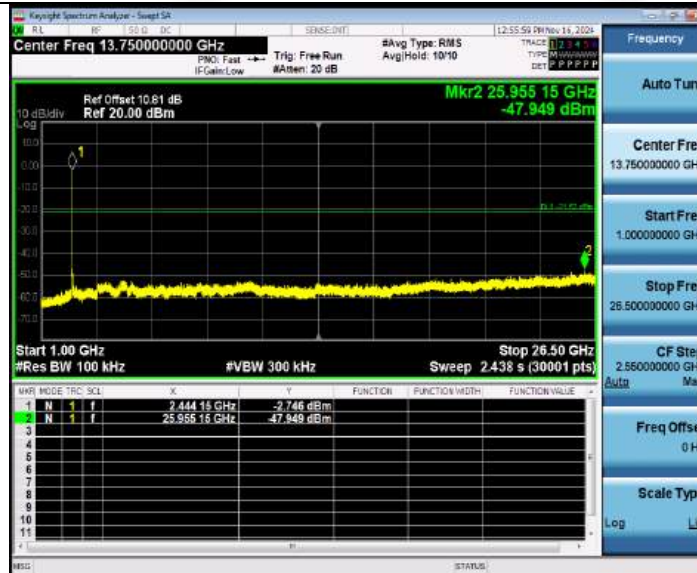
11N20MIMO\_Ant1\_2437\_0-Reference



11N20MIMO\_Ant1\_2437\_30-1000



11N20MIMO\_Ant1\_2437\_1000-26500



11N20MIMO\_Ant2\_2437\_0-Reference

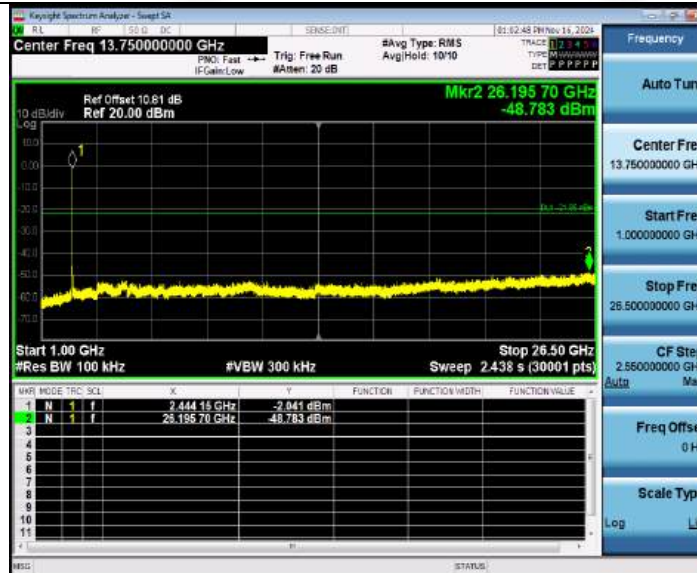


11N20MIMO\_Ant2\_2437\_30-1000



11N20MIMO\_Ant2\_2437\_1000-26500





11N20MIMO\_Ant1\_2462\_0-Reference

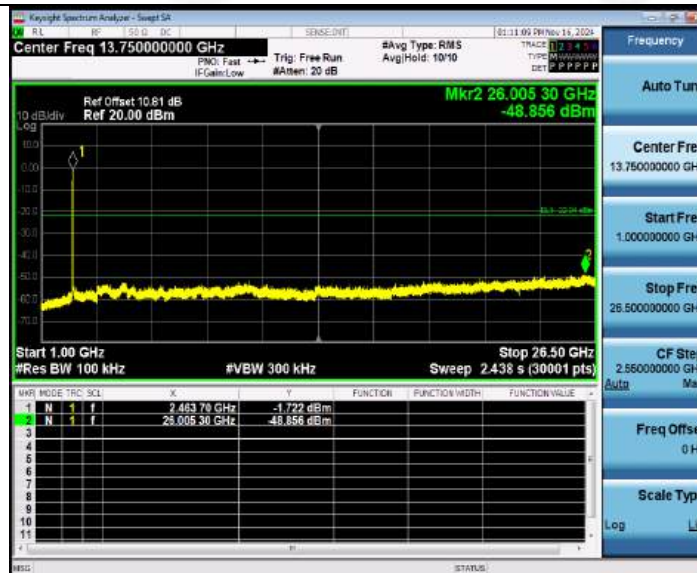


11N20MIMO\_Ant1\_2462\_30-1000



11N20MIMO\_Ant1\_2462\_1000-26500





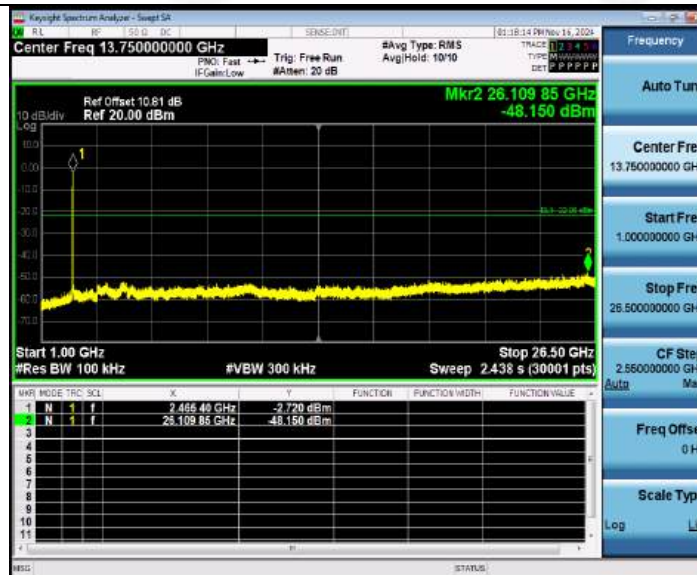
11N20MIMO\_Ant2\_2462\_0-Reference



11N20MIMO\_Ant2\_2462\_30-1000



11N20MIMO\_Ant2\_2462\_1000-26500



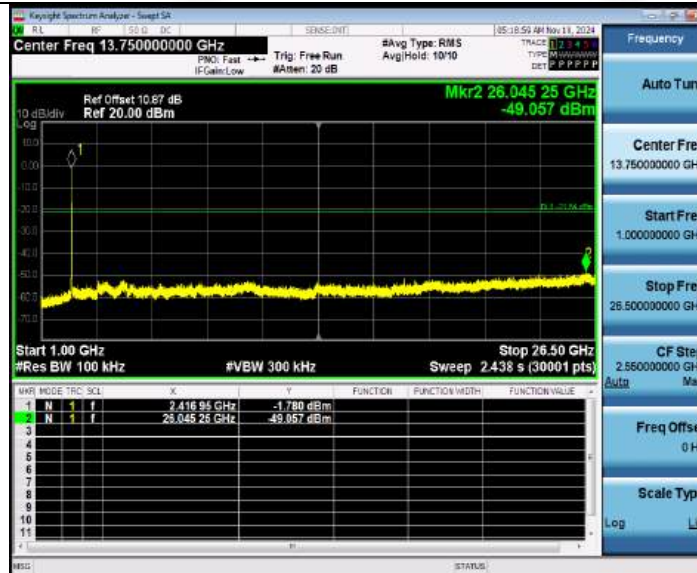
11AX20MIMO\_Ant1\_2412\_0~Reference



11AX20MIMO\_Ant1\_2412\_30~1000



11AX20MIMO\_Ant1\_2412\_1000~26500



11AX20MIMO\_Ant2\_2412\_0~Reference

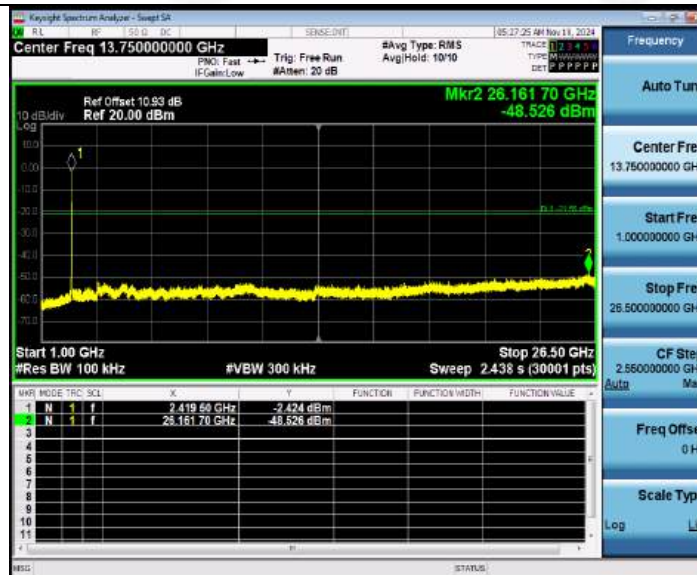


11AX20MIMO\_Ant2\_2412\_30~1000



11AX20MIMO\_Ant2\_2412\_1000~26500





11AX20MIMO\_Ant1\_2437\_0~Reference

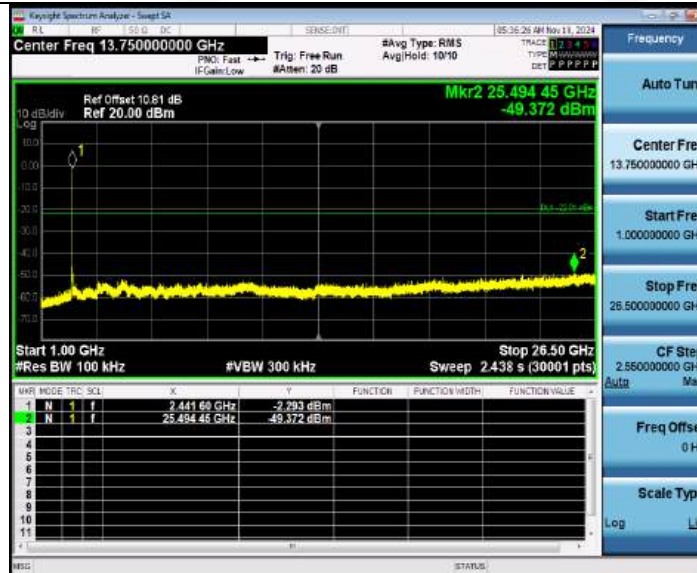


11AX20MIMO\_Ant1\_2437\_30~1000



11AX20MIMO\_Ant1\_2437\_1000~26500





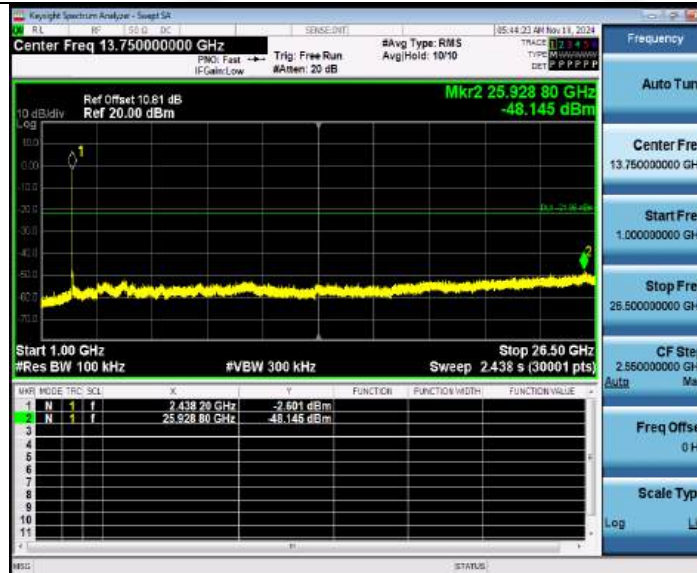
11AX20MIMO\_Ant2\_2437\_0~Reference



11AX20MIMO\_Ant2\_2437\_30~1000



11AX20MIMO\_Ant2\_2437\_1000~26500



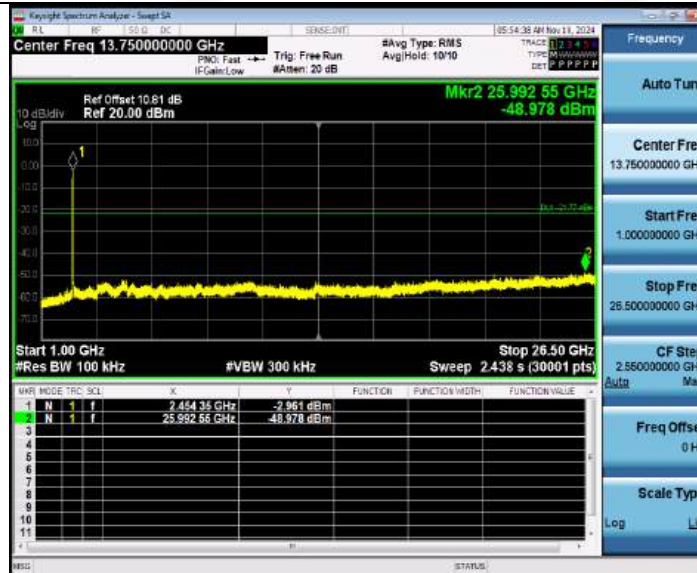
11AX20MIMO\_Ant1\_2462\_0-Reference



11AX20MIMO\_Ant1\_2462\_30~1000



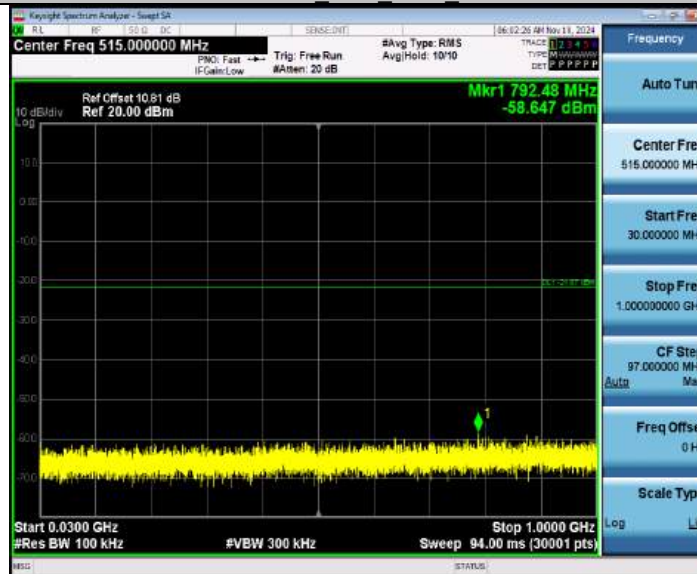
11AX20MIMO\_Ant1\_2462\_1000~26500



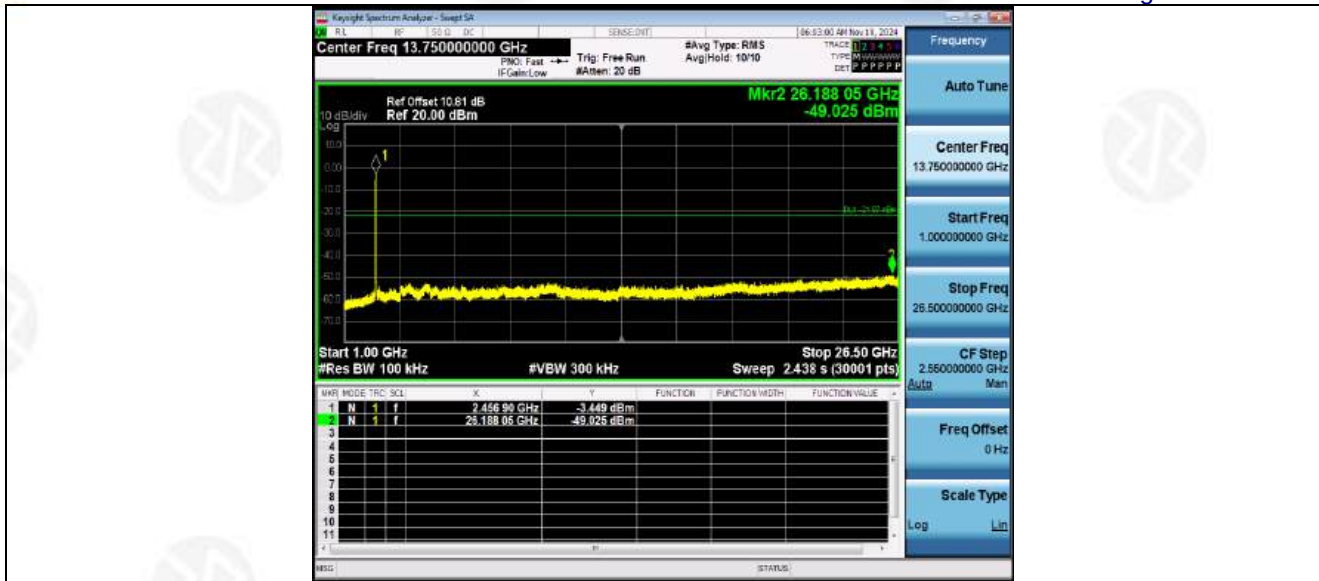
11AX20MIMO\_Ant2\_2462\_0~Reference



11AX20MIMO\_Ant2\_2462\_30~1000



11AX20MIMO\_Ant2\_2462\_1000~26500







## 10. DUTY CYCLE

|              |                  |
|--------------|------------------|
| Test Method: | ANSI C63.10:2013 |
|--------------|------------------|

### 10.1 APPLIED PROCEDURES / LIMIT

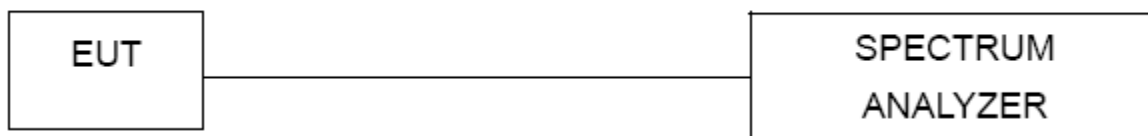
Measurements of duty cycle and transmission duration shall be performed using one of the following techniques:

- a) A diode detector and an oscilloscope that together have a sufficiently short response time to permit accurate measurements of the ON and OFF times of the transmitted signal.
- b) The zero-span mode on a spectrum analyzer or EMI receiver if the response time and spacing between bins on the sweep are sufficient to permit accurate measurements of the ON and OFF times of the transmitted signal:
  - 1) Set the center frequency of the instrument to the center frequency of the transmission.
  - 2) Set  $RBW \geq OBW$  if possible; otherwise, set RBW to the largest available value.
  - 3) Set  $VBW \geq RBW$ . Set detector = peak or average.
  - 4) The zero-span measurement method shall not be used unless both RBW and VBW are  $> 50/T$  and the number of sweep points across duration  $T$  exceeds 100. (For example, if VBW and/or RBW are limited to 3 MHz, then the zero-span method of measuring the duty cycle shall not be used if  $T \leq 16.7 \mu s$ .)

### 10.2 DEVIATION FROM STANDARD

No deviation.

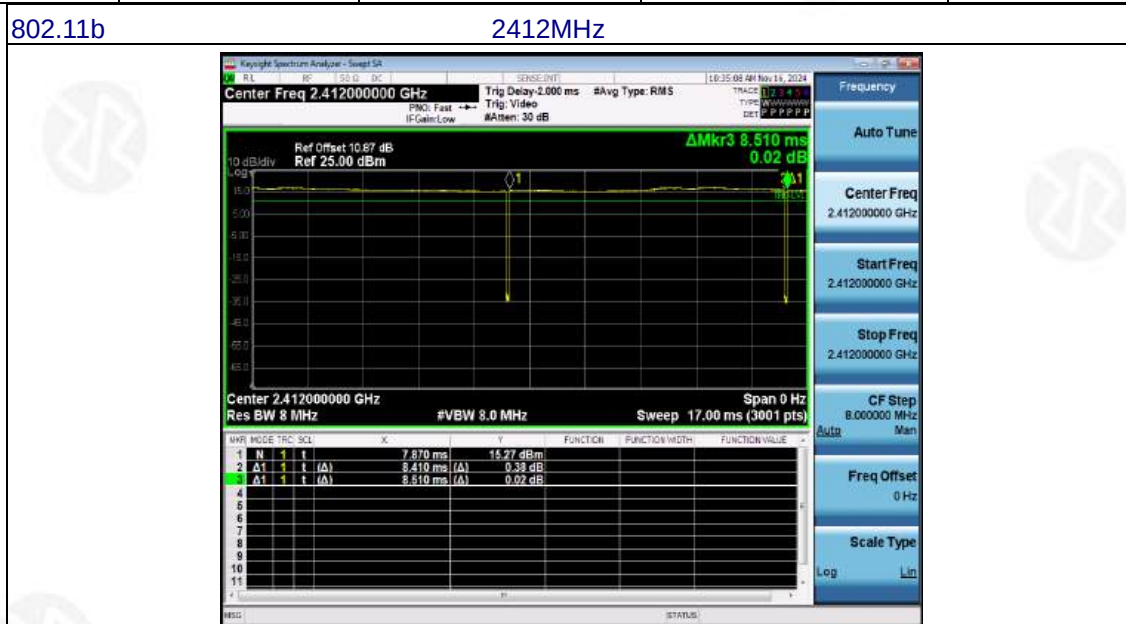
### 10.3 TEST SETUP





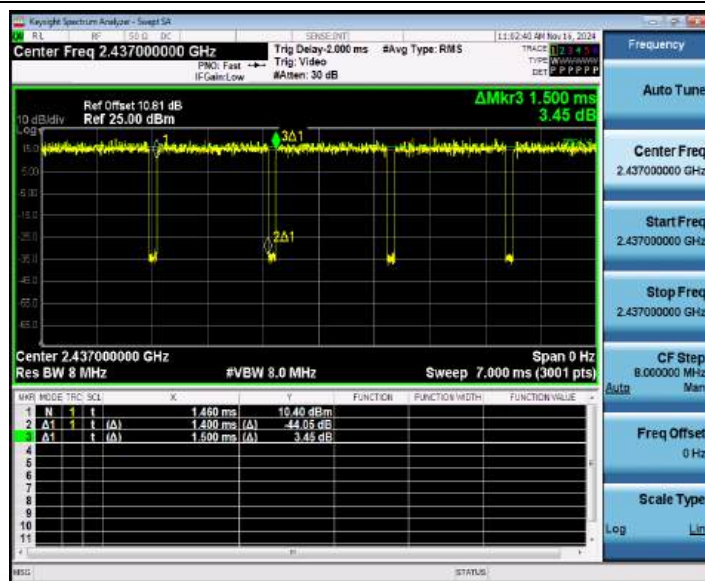
#### 10.4 TEST RESULTS

| Mode            | Frequency (MHz) | Duty Cycle (%) | Duty Cycle Correction Factor (dB) | Result |
|-----------------|-----------------|----------------|-----------------------------------|--------|
| 802.11b ant 1   | 2412            | 98.82          | 0.052                             | Pass   |
| 802.11g ant 1   | 2412            | 98.83          | 0.051                             | Pass   |
| 802.11n20 ant 1 | 2437            | 93.33          | 0.300                             | Pass   |
| 802.11n40 ant 1 | 2462            | 93.29          | 0.302                             | Pass   |





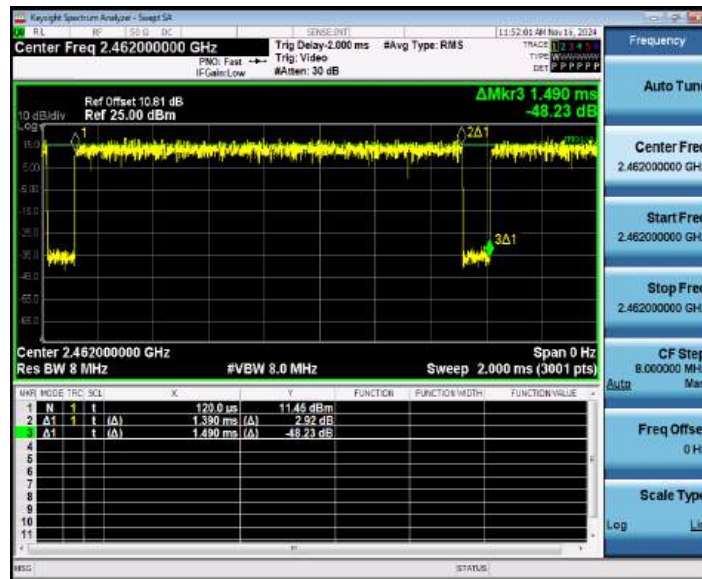
2412MHz





802.11ax20

2462MHz



Note: All channel and ant have been tested, and the report only reflects the worst case data.  
Duty Cycle= Ton /Total\*100%  
Duty Cycle Correction Factor = 10log (1/Duty Cycle)





## 11. ANTENNA REQUIREMENT

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                     |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------|
| Standard requirement:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | FCC Part15 C Section 15.203 /247(c) |
| <p>15.203 requirement:<br/>An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator, the manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited.</p> <p>15.247(c) (1)(i) requirement:<br/>(i) Systems operating in the 2400-2483.5 MHz band that is used exclusively for fixed. Point-to-point operations may employ transmitting antennas with directional gain greater than 6dBi provided the maximum conducted output power of the intentional radiator is reduced by 1 dB for every 3 dB that the directional gain of the antenna exceeds 6dBi.<br/>A transmitter can only be sold or operated with antennas with which it was approved.</p> |                                     |
| EUT Antenna:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                     |
| The antenna is FPC Antenna, the best case gain of the antenna is 3.5dBi, reference to the appendix II for details                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                     |



## 12. TEST SETUP PHOTO

Reference to the appendix I for details.

## 13. EUT CONSTRUCTIONAL DETAILS

Reference to the appendix II for details.

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