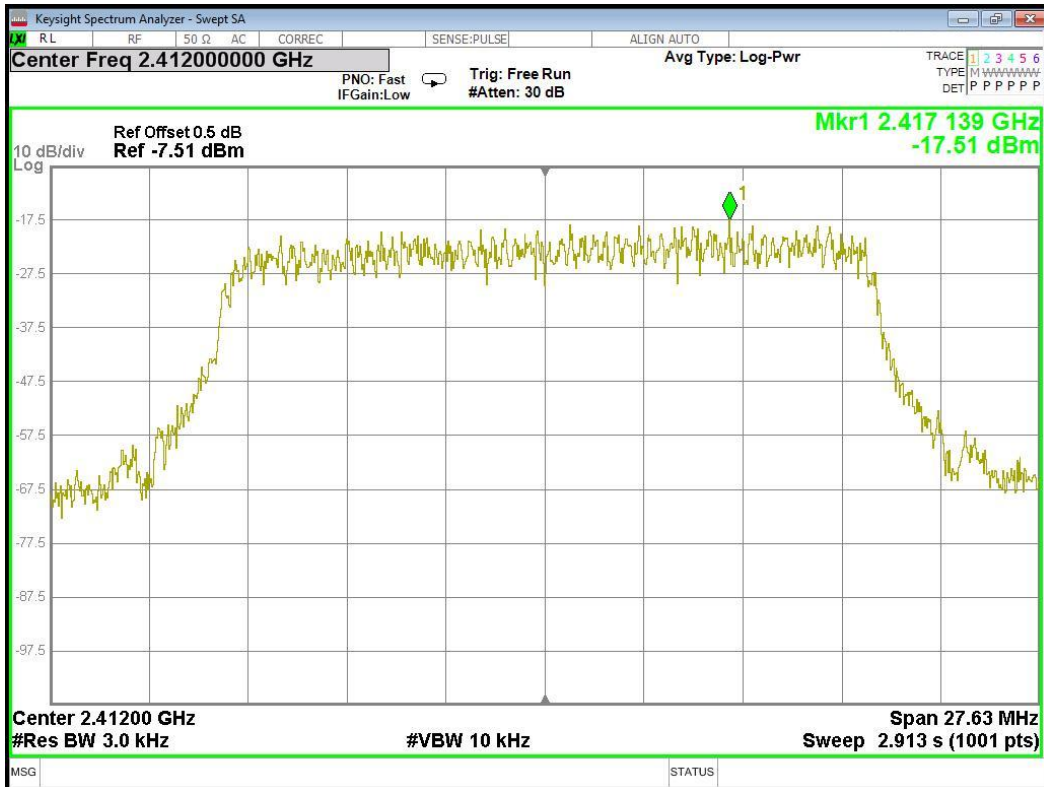
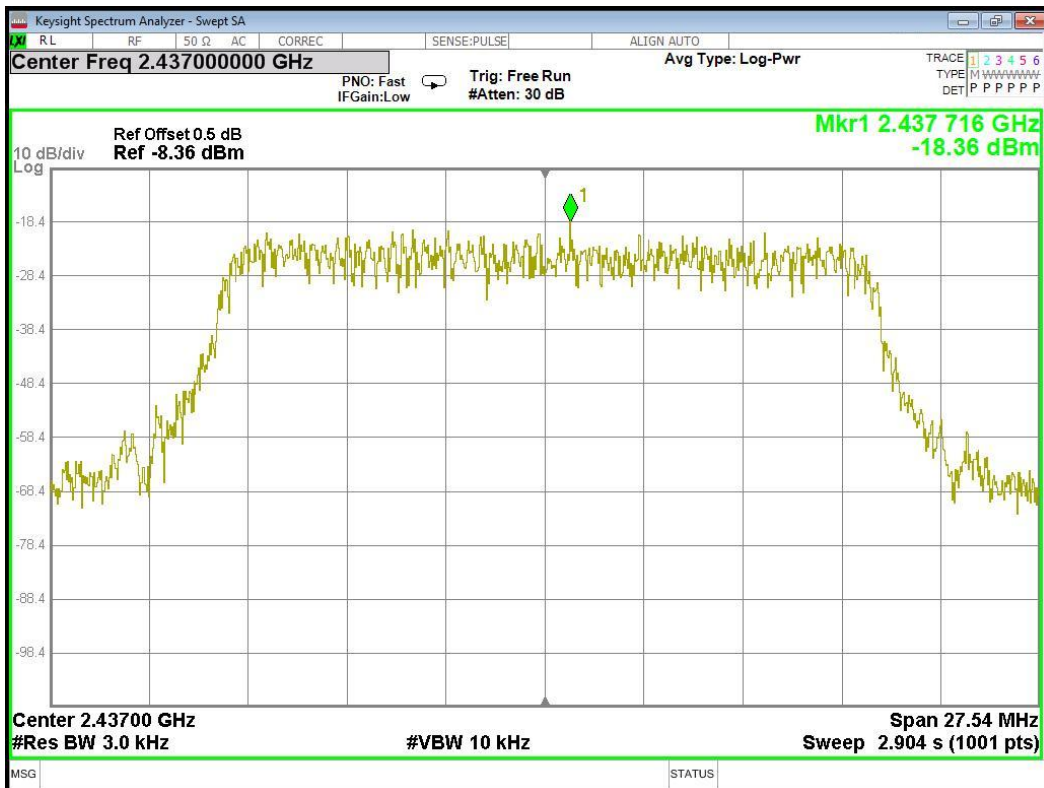
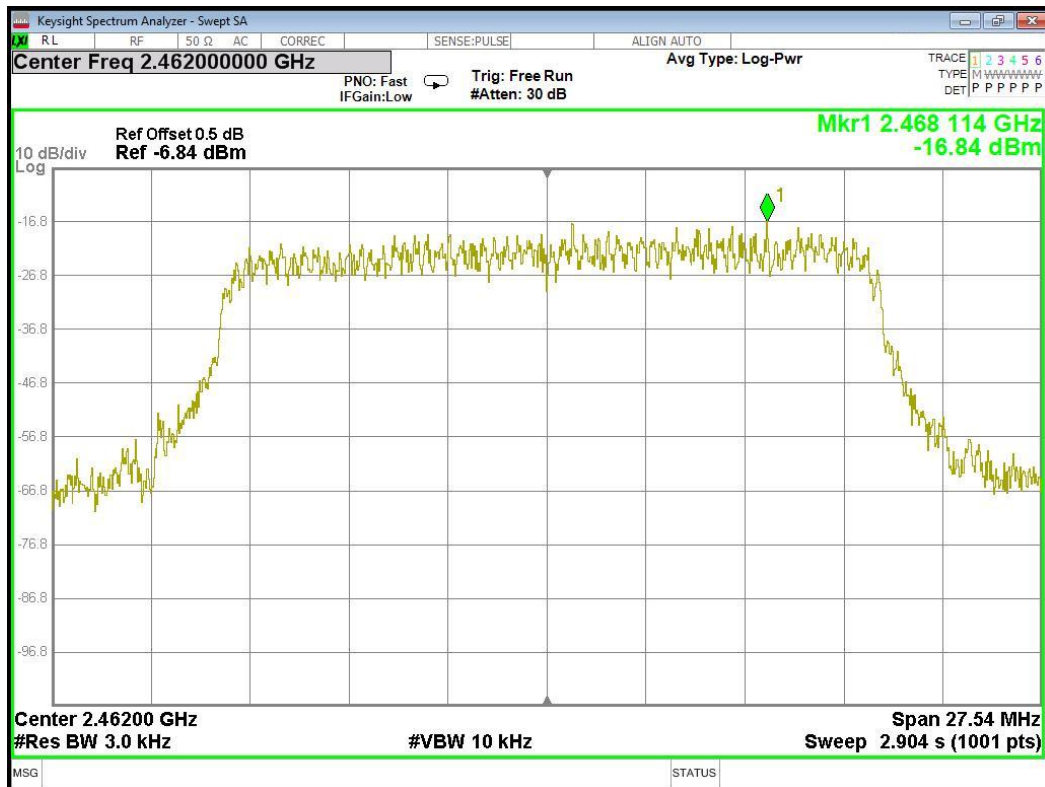




802.11n 20-2437MHz



## 802.11n 20-2462MHz



## 6. Band edge and spurious(conducted)

### 6.1 LIMIT

In any 100kHz 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 30dB below that in the 100kHz bandwidth within the band that contains the highest level of the desired power.

### 6.2 TEST PROCEDURE

(1) Connect EUT's antenna output to spectrum analyzer by RF cable.

(2) Establish a reference level by using the following procedure:

|                  |                              |
|------------------|------------------------------|
| Center frequency | DTS Channel center frequency |
| RBW:             | 100kHz                       |
| VBW:             | 300kHz                       |
| Span             | 1.5times the DTS bandwidth   |
| Detector Mode:   | Peak                         |
| Sweep time:      | auto                         |
| Trace mode       | Max hold                     |

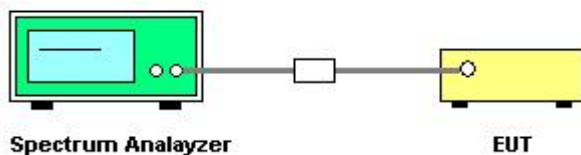
(3) Establish Allow the trace to stabilize, use the peak marker function to determine the maximum peak power level to establish the reference level.

(4) Set the spectrum analyzer as follows:

|                              |                                          |
|------------------------------|------------------------------------------|
| RBW:                         | 100kHz                                   |
| VBW:                         | 300kHz                                   |
| Span                         | Encompass frequency range to be measured |
| Number of measurement points | $\geq \text{span}/\text{RBW}$            |
| Detector Mode:               | Peak                                     |
| Sweep time:                  | auto                                     |
| Trace mode                   | Max hold                                 |

(5) Allow the trace to stabilize, use the peak marker function to determine the maximum amplitude of all unwanted emissions outside of the authorized frequency band

### 6.3 TEST SETUP

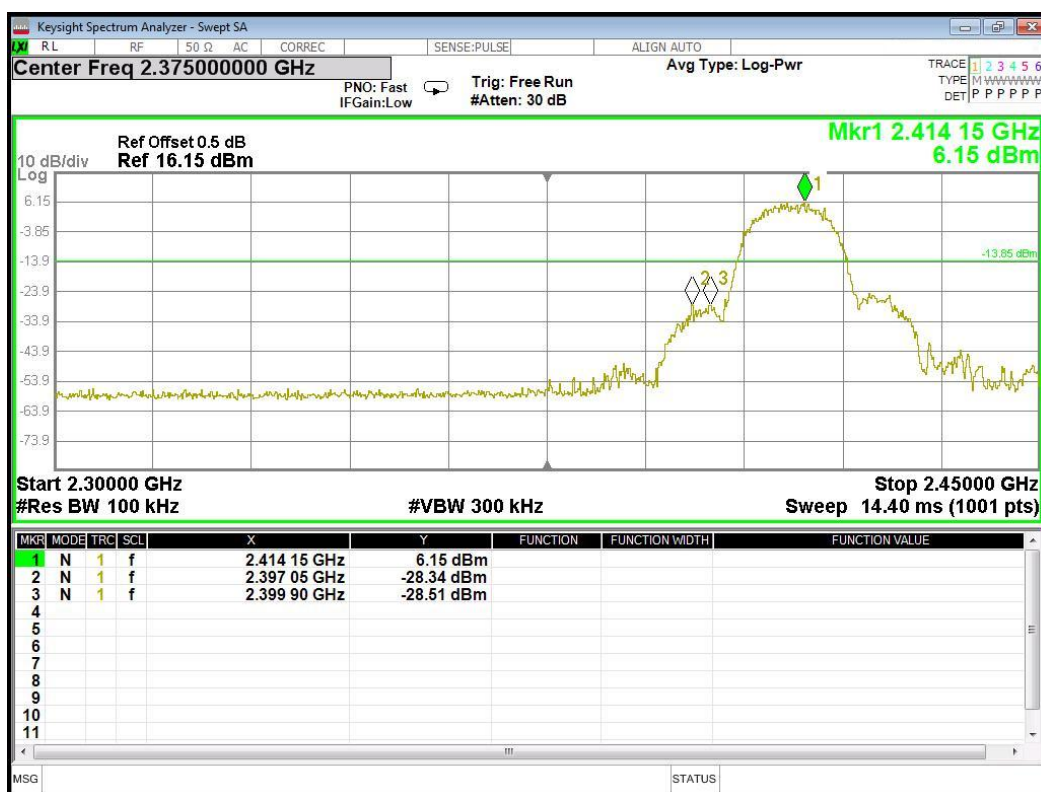


## 6.5 TEST RESULTS

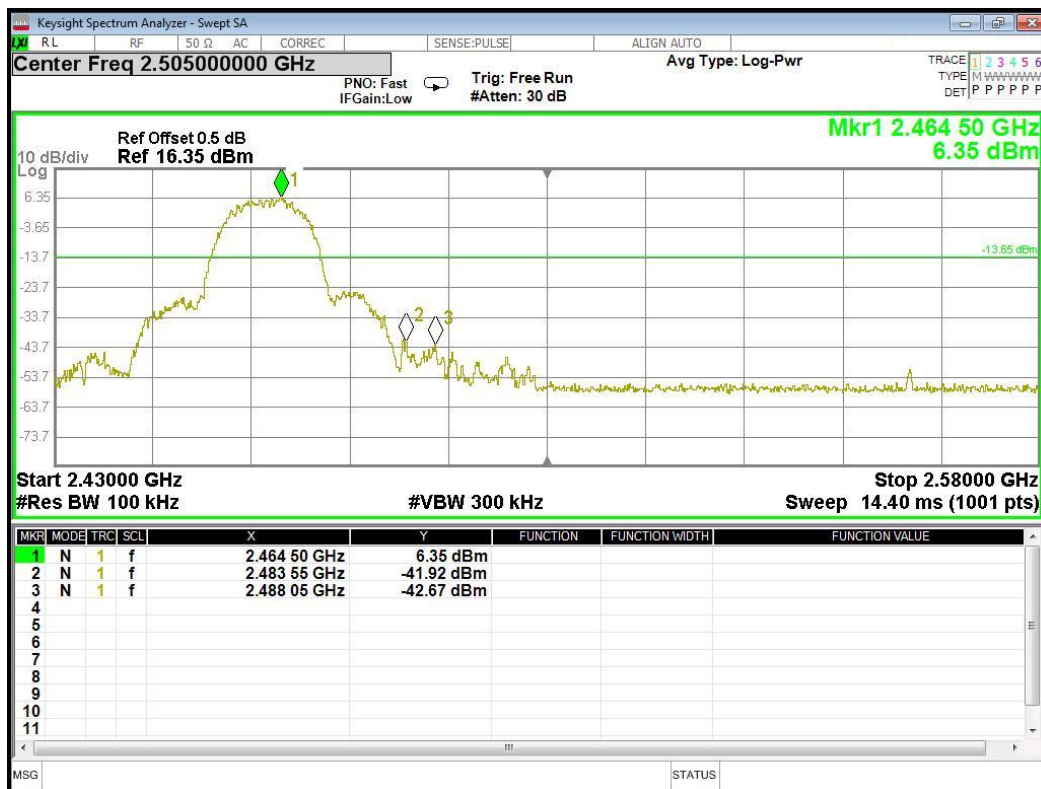
| Eut set mode | CH or Frequency | Result |
|--------------|-----------------|--------|
| 802.11b      | CH1             | Pass   |
|              | CH11            | Pass   |
| 802.11g      | CH1             | Pass   |
|              | CH11            | Pass   |
| 802.11n 20   | CH1             | Pass   |
|              | CH11            | Pass   |

## 6.5 Original test data

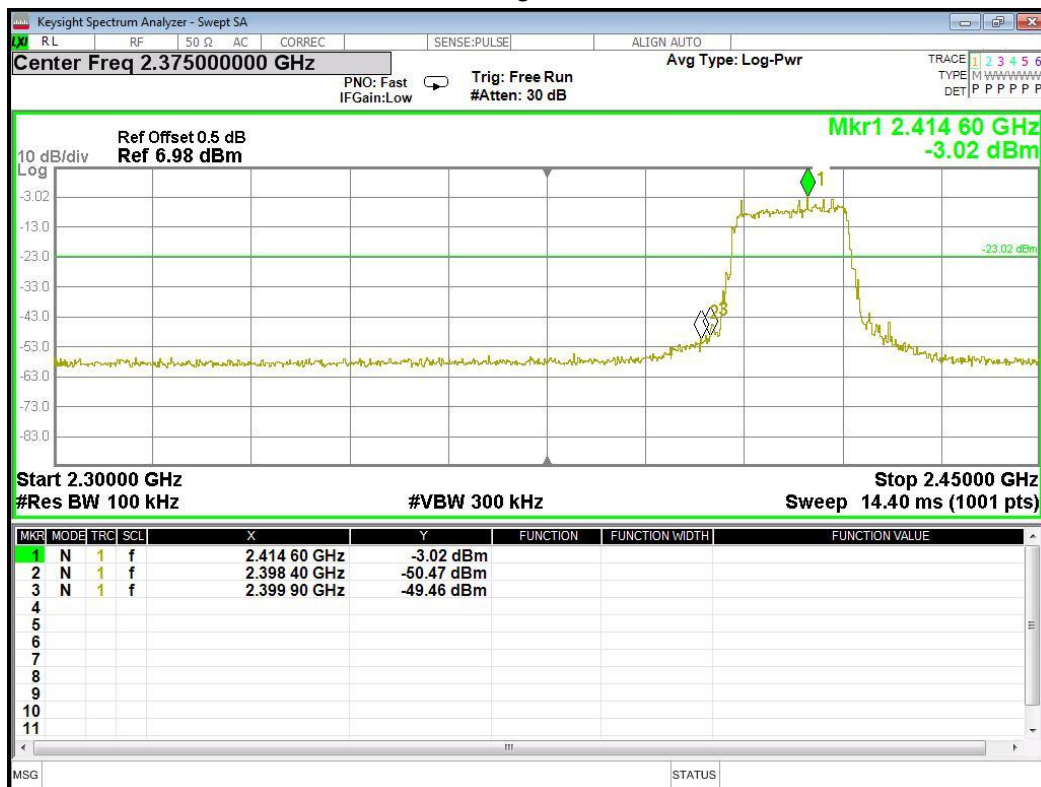
### 802.11b Low CH



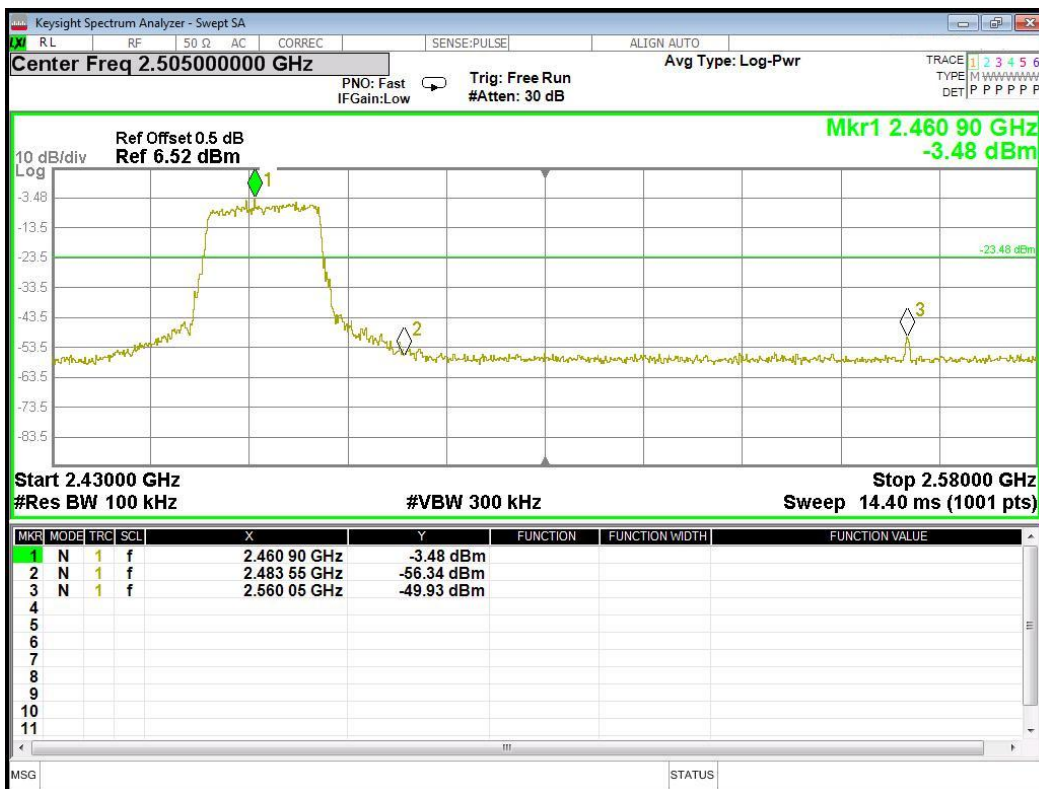
### 802.11b High CH



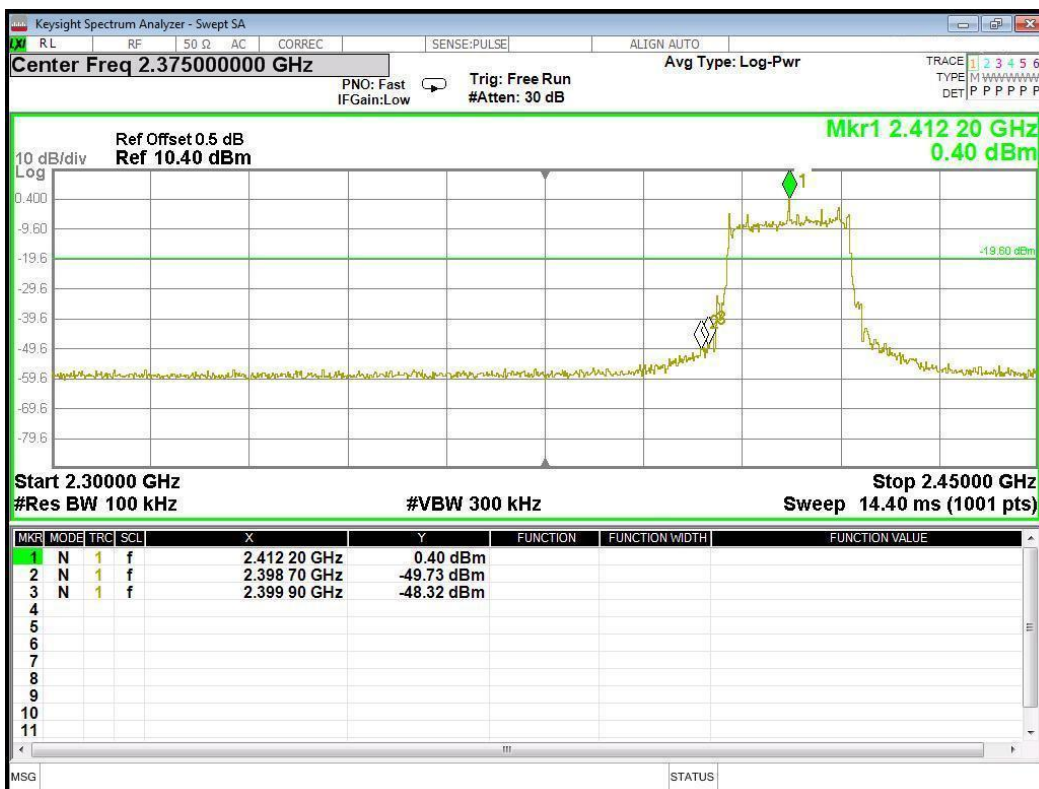
### 802.11g low CH



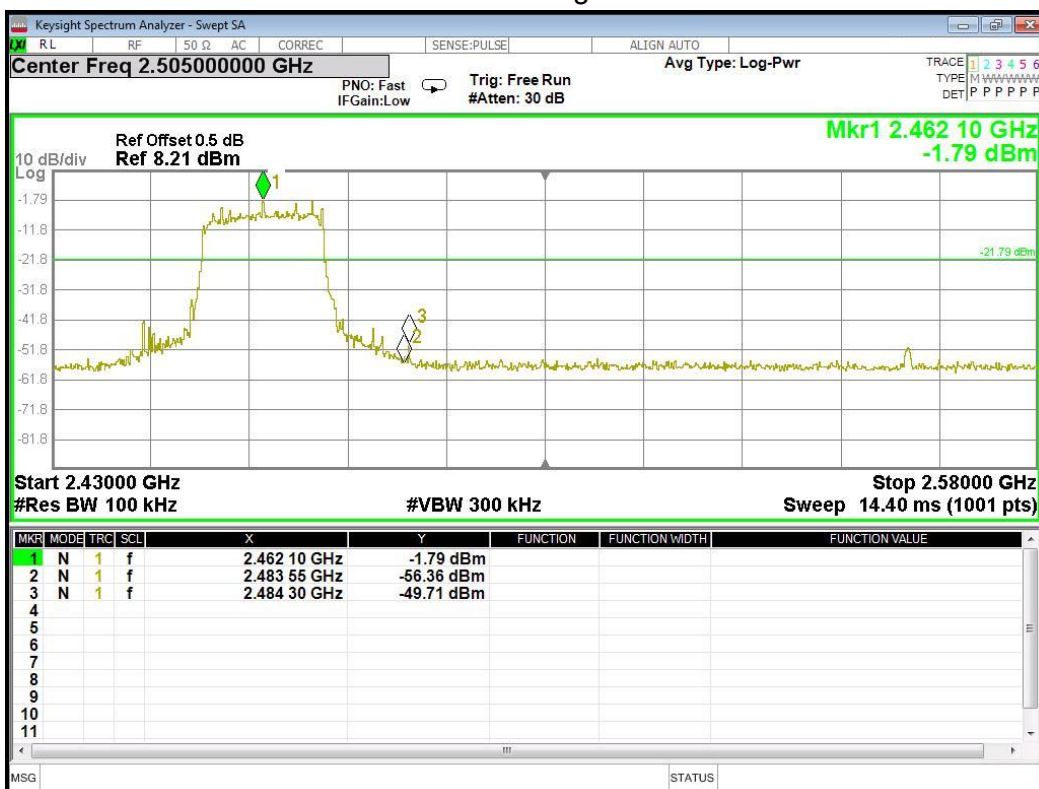
### 802.11g high CH



### 802.11n20 Low CH

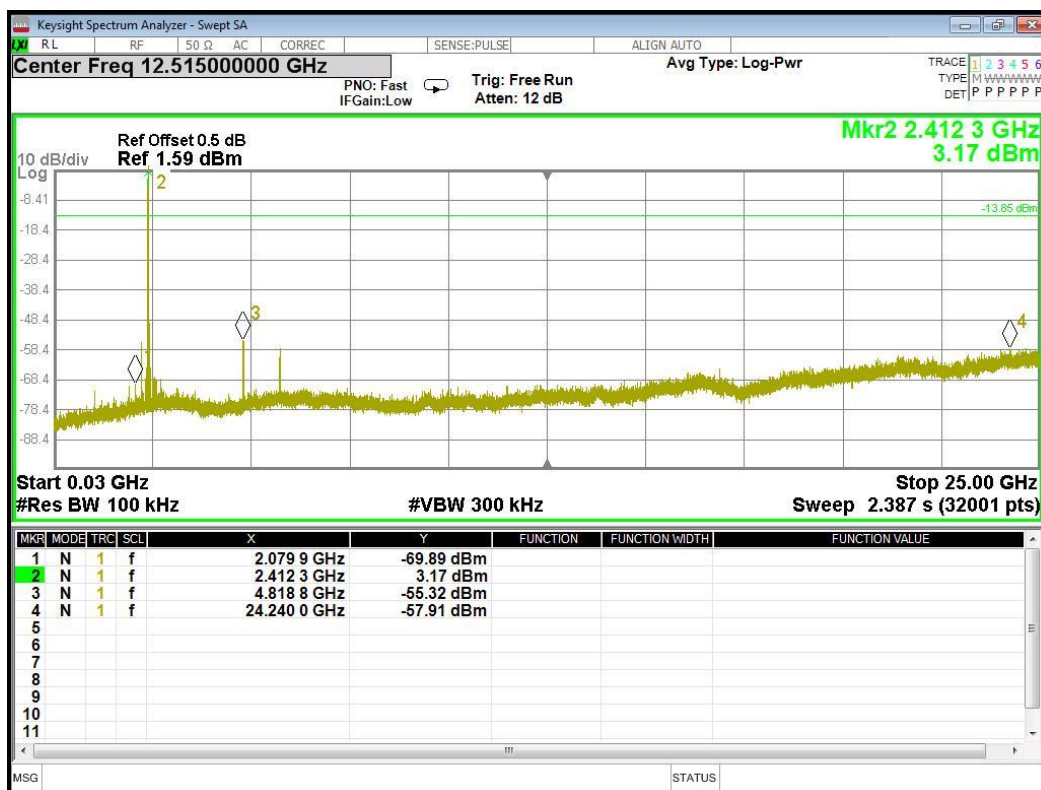


## 802.11n20 High CH

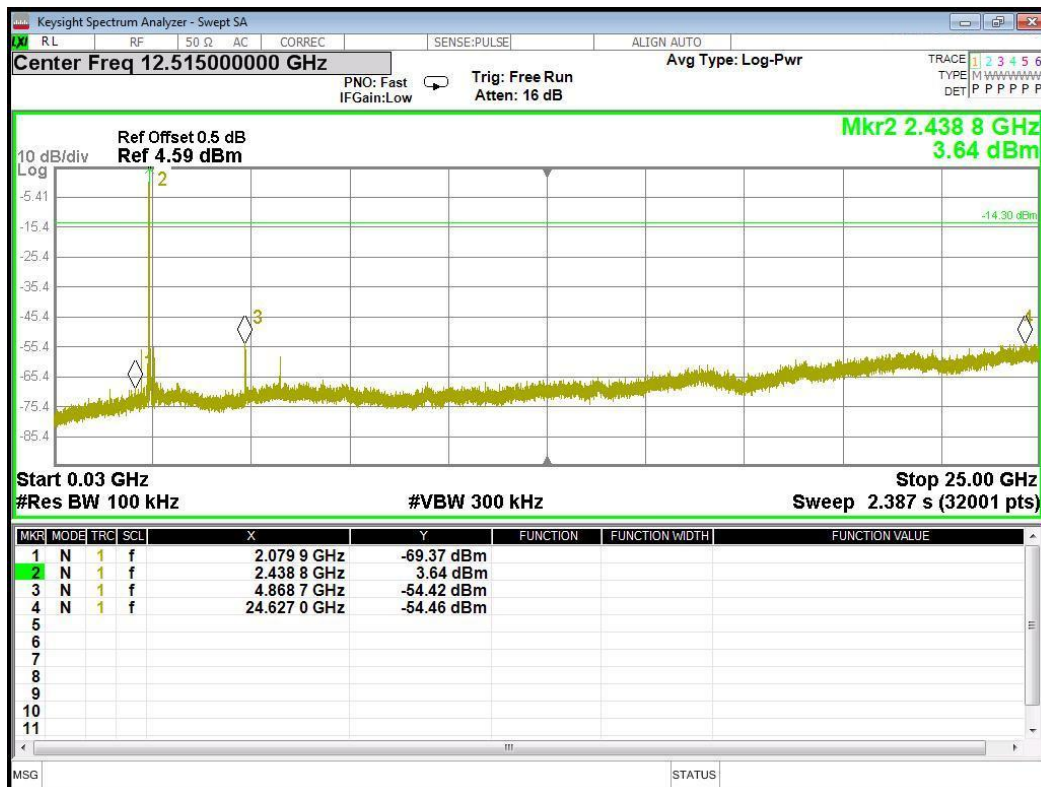


# Spurious emissions (802.11b)

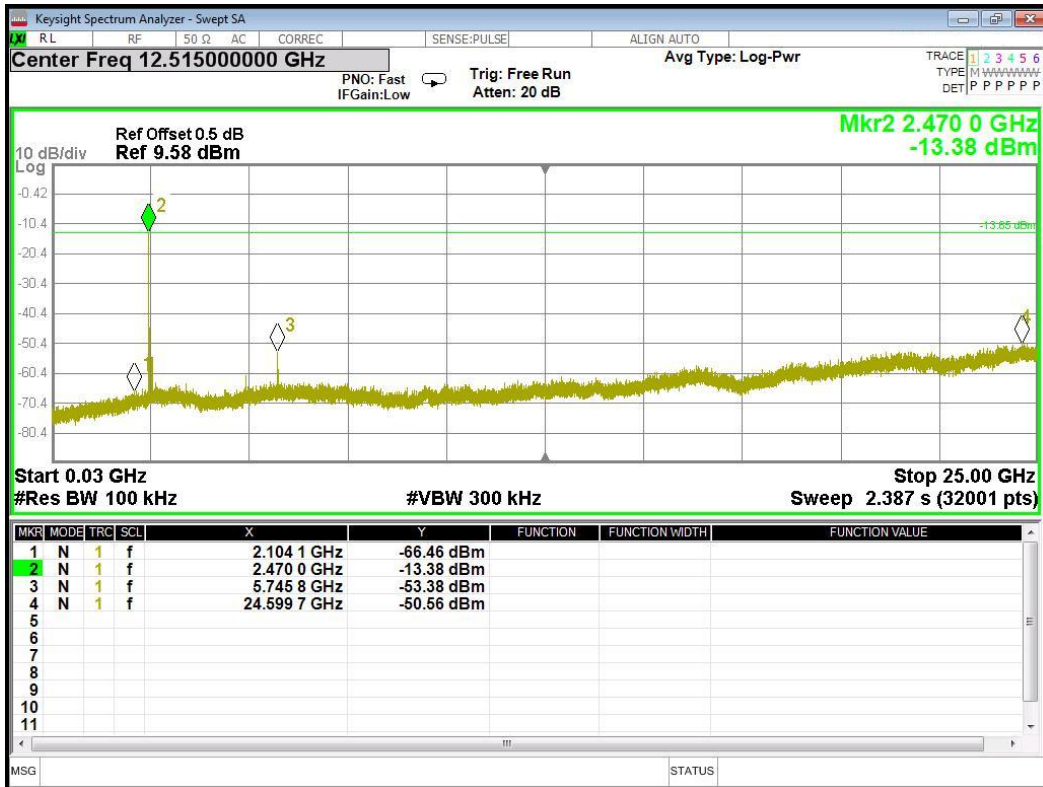
## 802.11b low CH, 2412MHz 30MHz-25GHz



## 802.11b Middle CH, 2437MHz 30MHz-25GHz

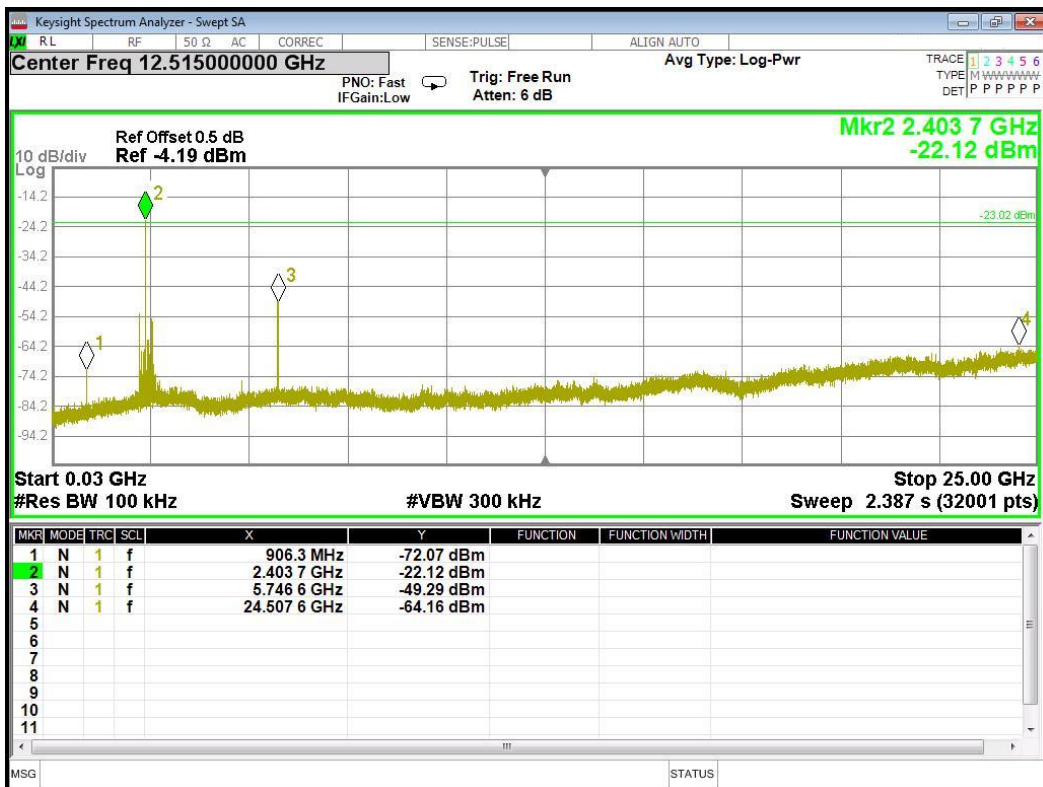


### 802.11b High CH, 2462MHz 30MHz-25GHZ

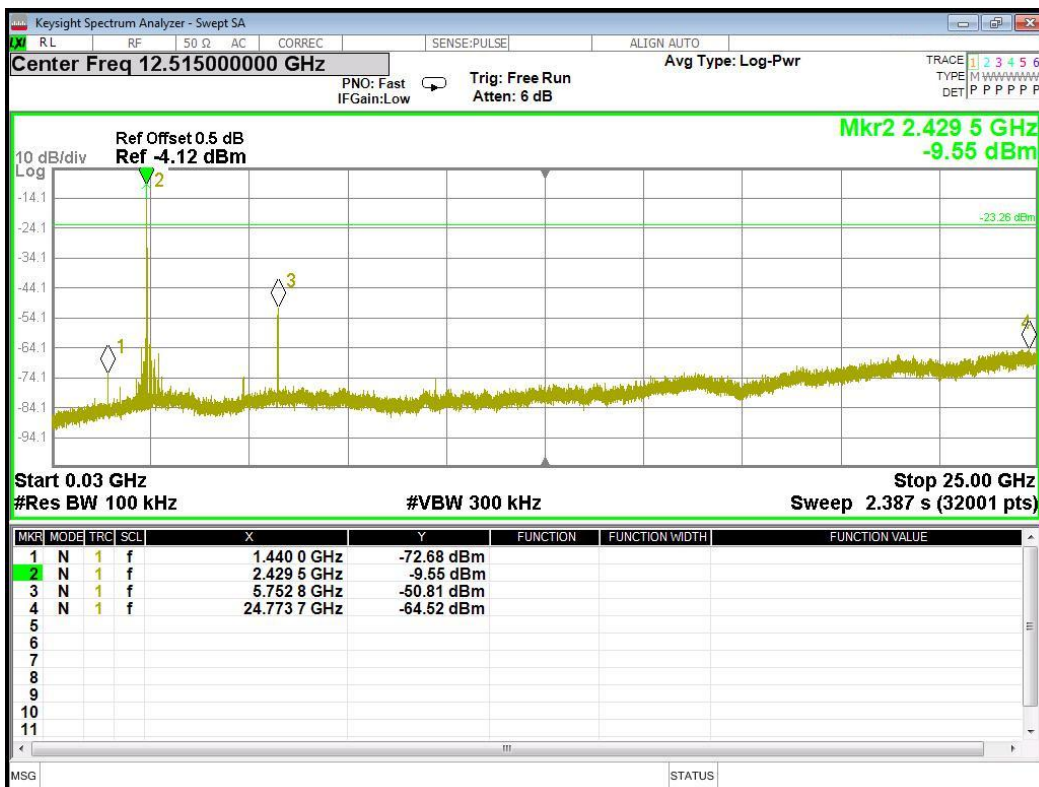


(802.11g)

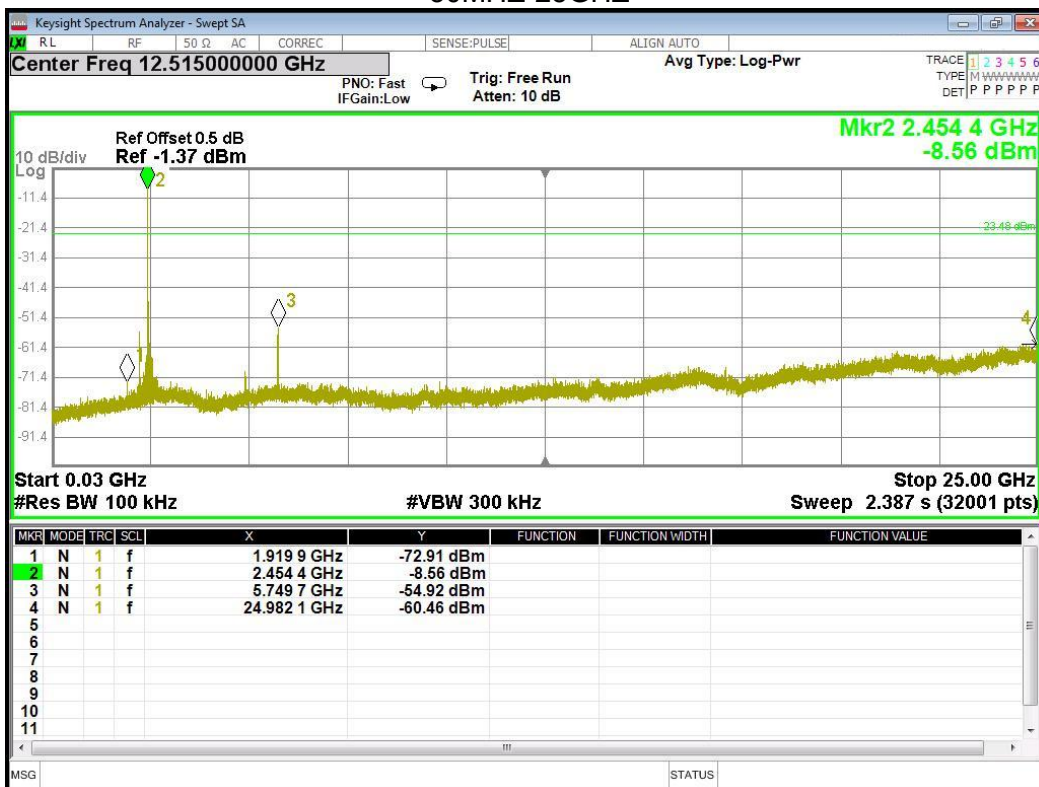
### 802.11g Low CH, 2412MHz 30MHz-10GHZ



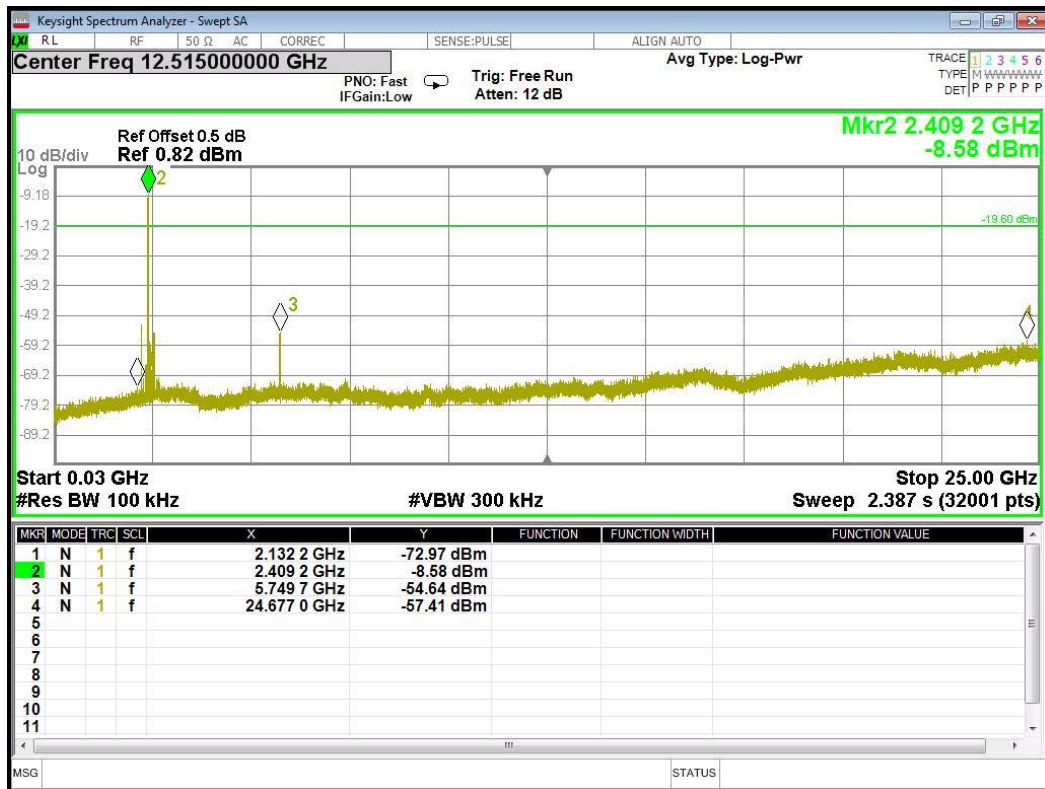
### 802.11g Middle CH, 2437MHz 30MHz-25GHz



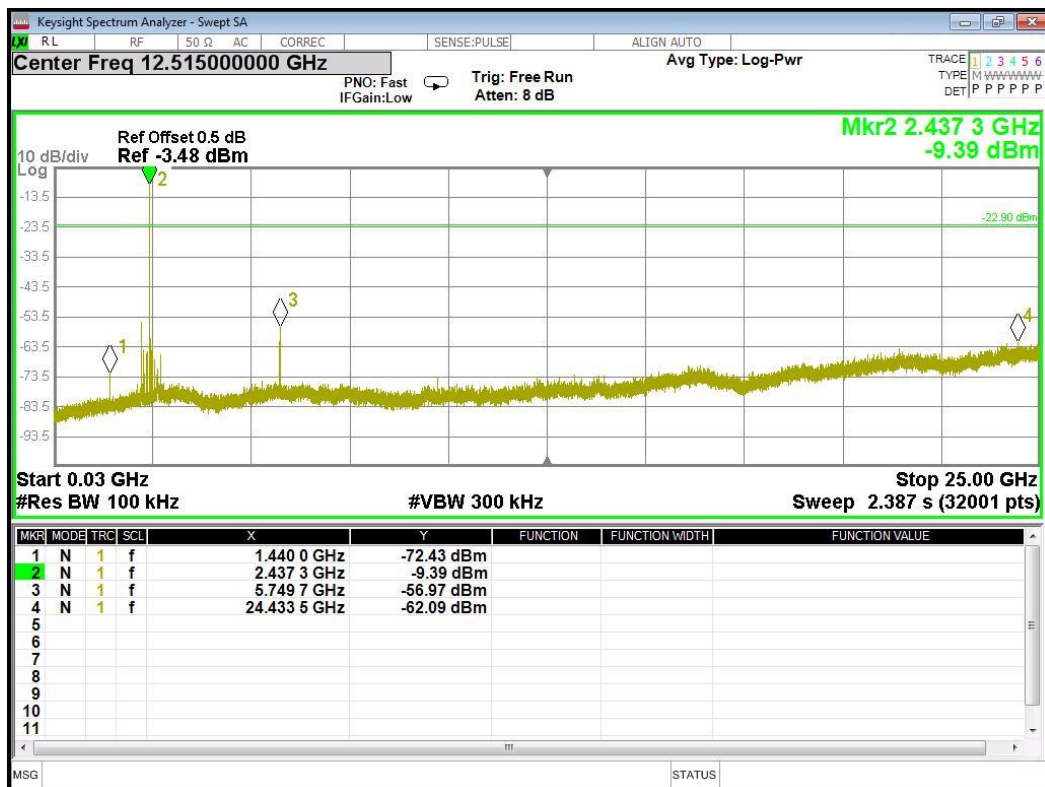
### 802.11g High CH, 2462MHz 30MHz-25GHz



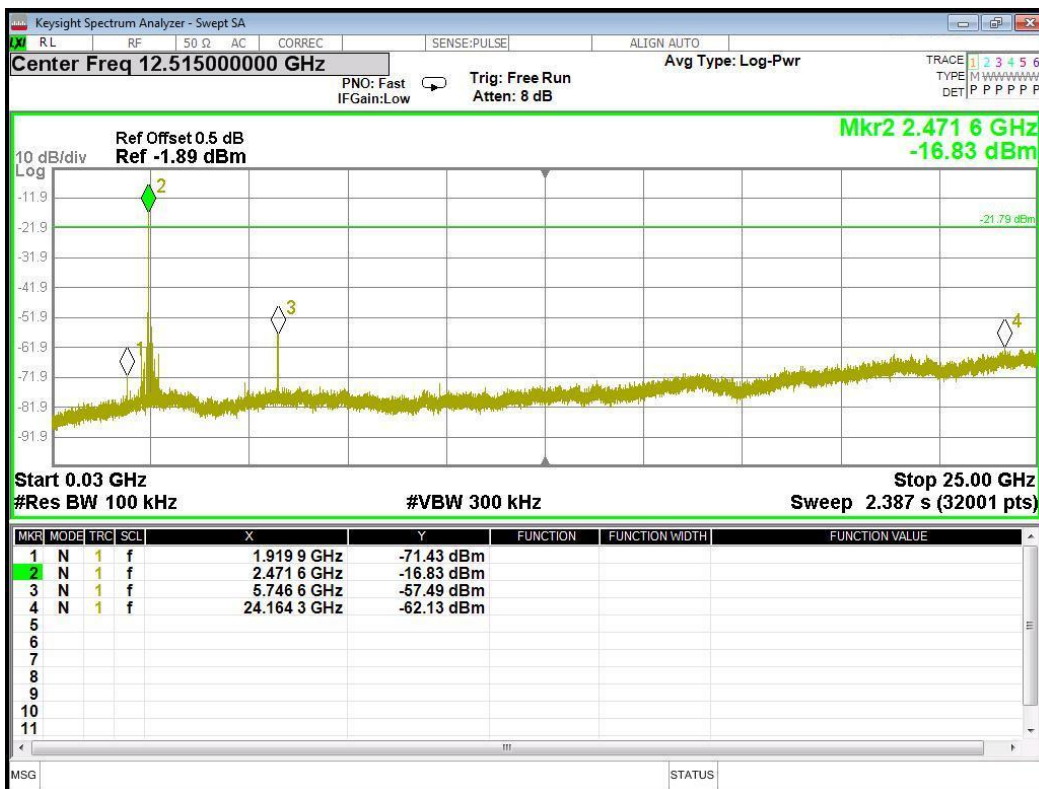
### 802.11n 20 Low CH, 2412MHz 30MHZ-25GHZ



### 802.11n 20 Middle CH, 2437MHz 30MHZ-25GHZ



# 802.11n 20 High CH, 2462MHz 30MHZ-25GHZ



## 7 RADIATED EMISSION MEASUREMENT

### 7.1 RADIATED EMISSION LIMITS

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

LIMITS OF RADIATED EMISSION MEASUREMENT (0.009MHz - 1000MHz)

| 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 (1GHz-25 GHz)

| FREQUENCY (MHz) | (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).

For Radiated Emission

| Spectrum Parameter                    | Setting                         |
|---------------------------------------|---------------------------------|
| Attenuation                           | Auto                            |
| Detector                              | Peak/AV                         |
| Start Frequency                       | 1000 MHz(Peak/AV)               |
| Stop Frequency                        | 10th carrier hamonic(Peak/AV)   |
| RB / VB (emission in restricted band) | PK=1MHz / 1MHz, AV=1 MHz /10 Hz |

For Band edge

| Spectrum Parameter                    | Setting                                                                |
|---------------------------------------|------------------------------------------------------------------------|
| Detector                              | Peak/AV                                                                |
| Start/Stop Frequency                  | Lower Band Edge: 2300 to 2403 MHz<br>Upper Band Edge: 2479 to 2500 MHz |
| RB / VB (emission in restricted band) | PK=1MHz / 1MHz, AV=1 MHz / 10 Hz                                       |

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

## 7.2 TEST PROCEDURE

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

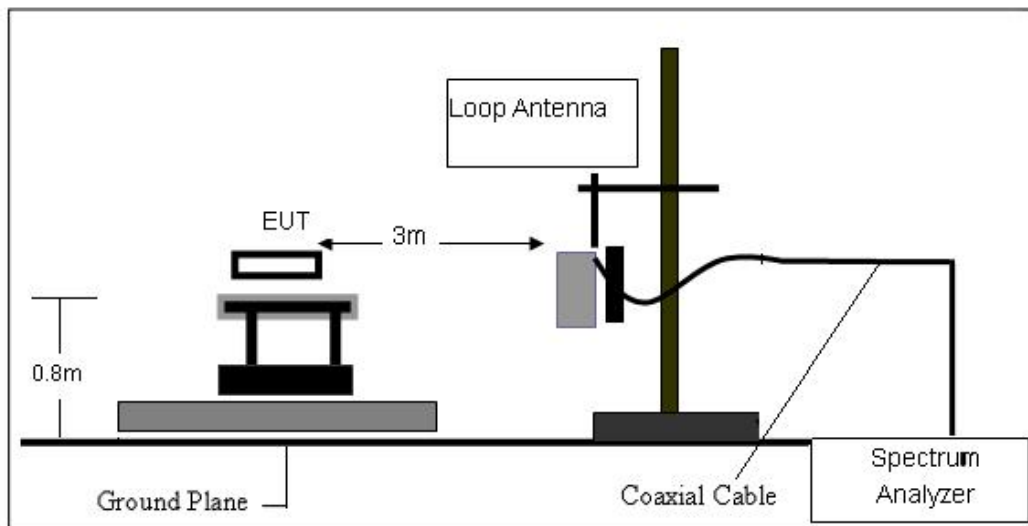
### Note:

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

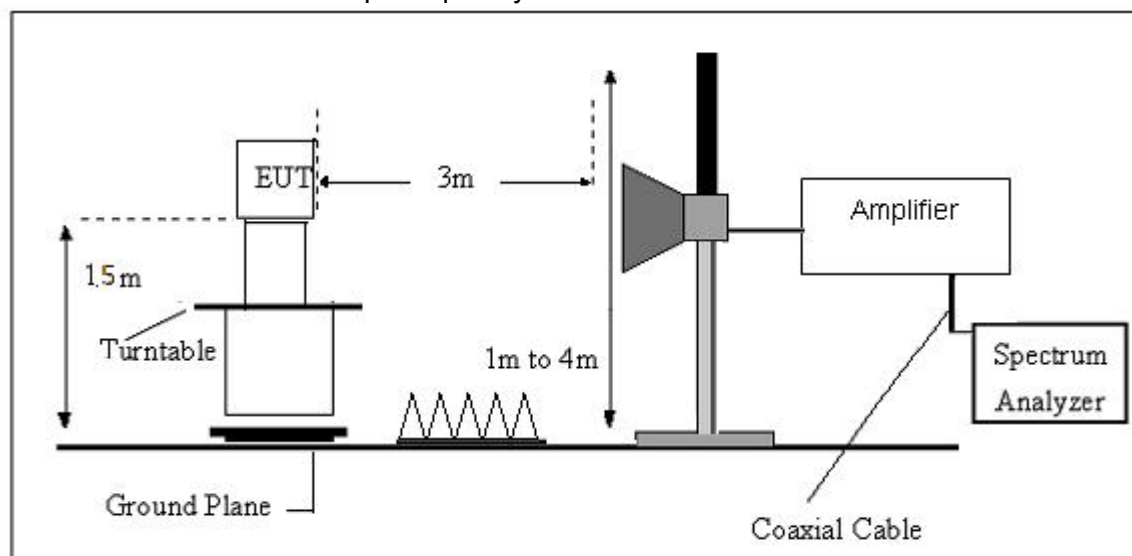
### 7.3 TESTSETUP

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

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



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



## 7.4. TEST RESULTS

(9KHz-30MHz)

|               |        |                    |         |
|---------------|--------|--------------------|---------|
| Temperature:  | 22.7°C | Relative Humidity: | 61%     |
| Test Voltage: | DC 12V | Test Mode:         | 802.11b |

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

### Note:

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

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

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

(30MHz-1000MHz)

|               |                |                    |            |
|---------------|----------------|--------------------|------------|
| Temperature:  | 24.7°C         | Relative Humidity: | 61%        |
| Test Voltage: | DC 12V         | Phase:             | Horizontal |
| Test Mode:    | 802.11b(worst) |                    |            |



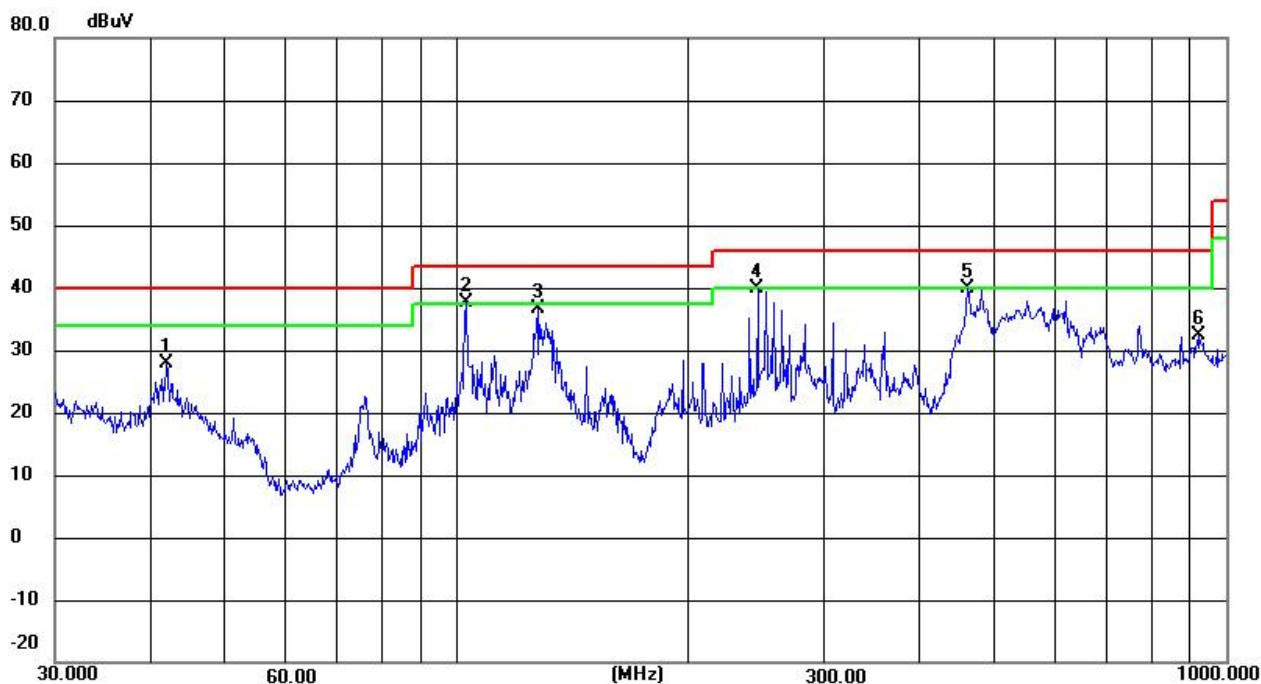
| No. | Frequency (MHz) | Reading (dBuV) | Correction (dB/m) | Result (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Remark |
|-----|-----------------|----------------|-------------------|-----------------|----------------|-------------|--------|
| 1   | 33.0950         | 29.65          | -9.26             | 20.39           | 40.00          | -19.61      | QP     |
| 2   | 102.7192        | 66.23          | -32.20            | 34.03           | 43.50          | -9.47       | QP     |
| 3   | 356.6758        | 71.72          | -31.73            | 39.99           | 46.00          | -6.01       | QP     |
| 4   | 528.2458        | 70.06          | -31.25            | 38.81           | 46.00          | -7.19       | QP     |
| 5   | 721.7259        | 67.96          | -30.93            | 37.03           | 46.00          | -8.97       | QP     |
| 6   | 972.3374        | 61.12          | -30.63            | 30.49           | 54.00          | -23.51      | QP     |

Note: 1. Margin = Result (Result =Reading + Factor )-Limit

2. If Peak Result complies with QP limit, QP Result is deemed to comply with QP limit.

3. Test setup: RBW: 120 kHz, VBW: 300 kHz, Sweep time: auto.

|               |                |                    |          |
|---------------|----------------|--------------------|----------|
| Temperature:  | 22.7°C         | Relative Humidity: | 61%      |
| Test Voltage: | DC 12V         | Phase:             | Vertical |
| Test Mode:    | 802.11b(worst) |                    |          |



| No. | Frequency (MHz) | Reading (dBuV) | Correction (dB/m) | Result (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Remark |
|-----|-----------------|----------------|-------------------|-----------------|----------------|-------------|--------|
| 1   | 41.8596         | 42.26          | -14.40            | 27.86           | 40.00          | -12.14      | QP     |
| 2   | 102.7192        | 69.77          | -32.20            | 37.57           | 43.50          | -5.93       | QP     |
| 3   | 127.2176        | 68.68          | -32.16            | 36.52           | 43.50          | -6.98       | QP     |
| 4   | 245.9509        | 71.95          | -31.98            | 39.97           | 46.00          | -6.03       | QP     |
| 5   | 460.7271        | 71.25          | -31.42            | 39.83           | 46.00          | -6.17       | QP     |
| 6   | 922.5157        | 63.14          | -30.68            | 32.46           | 46.00          | -13.54      | QP     |

Note: 1. Margin = Result (Result = Reading + Factor )-Limit

2. If Peak Result complies with QP limit, QP Result is deemed to comply with QP limit.

3. Test setup: RBW: 120 kHz, VBW: 300 kHz, Sweep time: auto.

## (1GHz~25GHz) Restricted band and Spurious emission Requirements

802.11b(Worst)-Low

**Peak value:**

| Frequency (MHz) | Read Level (dBuV) | Antenna Factor (dB/m) | Cable Loss (dB) | Preamplifier Factor (dB) | Level (dBuV/m) | Limit Line (dBuV/m) | Over Limit (dB) | polarization |
|-----------------|-------------------|-----------------------|-----------------|--------------------------|----------------|---------------------|-----------------|--------------|
| 4824.00         | 40.17             | 31.79                 | 8.62            | 32.10                    | 48.48          | 74.00               | -25.52          | Vertical     |
| 7236.00         | 34.14             | 36.19                 | 11.68           | 31.97                    | 50.04          | 74.00               | -23.96          | Vertical     |
| 9648.00         | 32.66             | 38.07                 | 14.16           | 31.56                    | 53.33          | 74.00               | -20.67          | Vertical     |
| 12060.00        | *                 |                       |                 |                          |                | 74.00               |                 | Vertical     |
| 14472.00        | *                 |                       |                 |                          |                | 74.00               |                 | Vertical     |
| 16884.00        | *                 |                       |                 |                          |                | 74.00               |                 | Vertical     |
| 4824.00         | 38.85             | 31.79                 | 8.62            | 32.10                    | 47.16          | 74.00               | -26.84          | Horizontal   |
| 7236.00         | 33.90             | 36.19                 | 11.68           | 31.97                    | 49.80          | 74.00               | -24.20          | Horizontal   |
| 9648.00         | 32.24             | 38.07                 | 14.16           | 31.56                    | 52.91          | 74.00               | -21.09          | Horizontal   |
| 12060.00        | *                 |                       |                 |                          |                | 74.00               |                 | Horizontal   |
| 14472.00        | *                 |                       |                 |                          |                | 74.00               |                 | Horizontal   |
| 16884.00        | *                 |                       |                 |                          |                | 74.00               |                 | Horizontal   |

**Average value:**

| Frequency (MHz) | Read Level (dBuV) | Antenna Factor (dB/m) | Cable Loss (dB) | Preamplifier Factor (dB) | Level (dBuV/m) | Limit Line (dBuV/m) | Over Limit (dB) | polarization |
|-----------------|-------------------|-----------------------|-----------------|--------------------------|----------------|---------------------|-----------------|--------------|
| 4824.00         | 29.26             | 31.79                 | 8.62            | 32.10                    | 37.57          | 54.00               | -16.43          | Vertical     |
| 7236.00         | 23.01             | 36.19                 | 11.68           | 31.97                    | 38.91          | 54.00               | -15.09          | Vertical     |
| 9648.00         | 23.00             | 38.07                 | 14.16           | 31.56                    | 43.67          | 54.00               | -10.33          | Vertical     |
| 12060.00        | *                 |                       |                 |                          |                | 54.00               |                 | Vertical     |
| 14472.00        | *                 |                       |                 |                          |                | 54.00               |                 | Vertical     |
| 16884.00        | *                 |                       |                 |                          |                | 54.00               |                 | Vertical     |
| 4824.00         | 28.40             | 31.79                 | 8.62            | 32.10                    | 36.71          | 54.00               | -17.29          | Horizontal   |
| 7236.00         | 22.48             | 36.19                 | 11.68           | 31.97                    | 38.38          | 54.00               | -15.62          | Horizontal   |
| 9648.00         | 21.99             | 38.07                 | 14.16           | 31.56                    | 42.66          | 54.00               | -11.34          | Horizontal   |
| 12060.00        | *                 |                       |                 |                          |                | 54.00               |                 | Horizontal   |
| 14472.00        | *                 |                       |                 |                          |                | 54.00               |                 | Horizontal   |
| 16884.00        | *                 |                       |                 |                          |                | 54.00               |                 | Horizontal   |

## 802.11b(Worst)-Middle

**Peak value:**

| Frequency (MHz) | Read Level (dBuV) | Antenna Factor (dB/m) | Cable Loss (dB) | Preamplifier Factor (dB) | Level (dBuV/m) | Limit Line (dBuV/m) | Over Limit (dB) | polarization |
|-----------------|-------------------|-----------------------|-----------------|--------------------------|----------------|---------------------|-----------------|--------------|
| 4874.00         | 39.24             | 31.85                 | 8.66            | 32.12                    | 47.63          | 74.00               | -26.37          | Vertical     |
| 7311.00         | 34.22             | 36.37                 | 11.71           | 31.91                    | 50.39          | 74.00               | -23.61          | Vertical     |
| 9748.00         | 33.68             | 38.27                 | 14.25           | 31.56                    | 54.64          | 74.00               | -19.36          | Vertical     |
| 12185.00        | *                 |                       |                 |                          |                | 74.00               |                 | Vertical     |
| 14622.00        | *                 |                       |                 |                          |                | 74.00               |                 | Vertical     |
| 17059.00        | *                 |                       |                 |                          |                | 74.00               |                 | Vertical     |
| 4874.00         | 39.74             | 31.85                 | 8.66            | 32.12                    | 48.13          | 74.00               | -25.87          | Horizontal   |
| 7311.00         | 32.87             | 36.37                 | 11.71           | 31.91                    | 49.04          | 74.00               | -24.96          | Horizontal   |
| 9748.00         | 33.58             | 38.27                 | 14.25           | 31.56                    | 54.54          | 74.00               | -19.46          | Horizontal   |
| 12185.00        | *                 |                       |                 |                          |                | 74.00               |                 | Horizontal   |
| 14622.00        | *                 |                       |                 |                          |                | 74.00               |                 | Horizontal   |
| 17059.00        | *                 |                       |                 |                          |                | 74.00               |                 | Horizontal   |

**Average value:**

| Frequency (MHz) | Read Level (dBuV) | Antenna Factor (dB/m) | Cable Loss (dB) | Preamplifier Factor (dB) | Level (dBuV/m) | Limit Line (dBuV/m) | Over Limit (dB) | polarization |
|-----------------|-------------------|-----------------------|-----------------|--------------------------|----------------|---------------------|-----------------|--------------|
| 4874.00         | 30.11             | 31.85                 | 8.66            | 32.12                    | 38.50          | 54.00               | -15.50          | Vertical     |
| 7311.00         | 22.54             | 36.37                 | 11.71           | 31.91                    | 38.71          | 54.00               | -15.29          | Vertical     |
| 9748.00         | 22.94             | 38.27                 | 14.25           | 31.56                    | 43.90          | 54.00               | -10.10          | Vertical     |
| 12185.00        | *                 |                       |                 |                          |                | 54.00               |                 | Vertical     |
| 14622.00        | *                 |                       |                 |                          |                | 54.00               |                 | Vertical     |
| 17059.00        | *                 |                       |                 |                          |                | 54.00               |                 | Vertical     |
| 4874.00         | 29.86             | 31.85                 | 8.66            | 32.12                    | 38.25          | 54.00               | -15.75          | Horizontal   |
| 7311.00         | 21.96             | 36.37                 | 11.71           | 31.91                    | 38.13          | 54.00               | -15.87          | Horizontal   |
| 9748.00         | 23.29             | 38.27                 | 14.25           | 31.56                    | 44.25          | 54.00               | -9.75           | Horizontal   |
| 12185.00        | *                 |                       |                 |                          |                | 54.00               |                 | Horizontal   |
| 14622.00        | *                 |                       |                 |                          |                | 54.00               |                 | Horizontal   |
| 17059.00        | *                 |                       |                 |                          |                | 54.00               |                 | Horizontal   |

### 802.11b(Worst)-High

#### Peak value:

| Frequency (MHz) | Read Level (dBuV) | Antenna Factor (dB/m) | Cable Loss (dB) | Preamplifier Factor (dB) | Level (dBuV/m) | Limit Line (dBuV/m) | Over Limit (dB) | polarization |
|-----------------|-------------------|-----------------------|-----------------|--------------------------|----------------|---------------------|-----------------|--------------|
| 4924.00         | 44.70             | 31.90                 | 8.70            | 32.15                    | 53.15          | 74.00               | -20.85          | Vertical     |
| 7386.00         | 34.85             | 36.49                 | 11.76           | 31.83                    | 51.27          | 74.00               | -22.73          | Vertical     |
| 9848.00         | 36.95             | 38.62                 | 14.31           | 31.77                    | 58.11          | 74.00               | -15.89          | Vertical     |
| 12310.00        | *                 |                       |                 |                          |                | 74.00               |                 | Vertical     |
| 14772.00        | *                 |                       |                 |                          |                | 74.00               |                 | Vertical     |
| 17234.00        | *                 |                       |                 |                          |                | 74.00               |                 | Vertical     |
| 4924.00         | 44.03             | 31.90                 | 8.70            | 32.15                    | 52.48          | 74.00               | -21.52          | Horizontal   |
| 7386.00         | 33.76             | 36.49                 | 11.76           | 31.83                    | 50.18          | 74.00               | -23.82          | Horizontal   |
| 9848.00         | 33.12             | 38.62                 | 14.31           | 31.77                    | 54.28          | 74.00               | -19.72          | Horizontal   |
| 12310.00        | *                 |                       |                 |                          |                | 74.00               |                 | Horizontal   |
| 14772.00        | *                 |                       |                 |                          |                | 74.00               |                 | Horizontal   |
| 17234.00        | *                 |                       |                 |                          |                | 74.00               |                 | Horizontal   |

#### Average value:

| Frequency (MHz) | Read Level (dBuV) | Antenna Factor (dB/m) | Cable Loss (dB) | Preamplifier Factor (dB) | Level (dBuV/m) | Limit Line (dBuV/m) | Over Limit (dB) | polarization |
|-----------------|-------------------|-----------------------|-----------------|--------------------------|----------------|---------------------|-----------------|--------------|
| 4924.00         | 35.63             | 31.90                 | 8.70            | 32.15                    | 44.08          | 54.00               | -9.92           | Vertical     |
| 7386.00         | 24.77             | 36.49                 | 11.76           | 31.83                    | 41.19          | 54.00               | -12.81          | Vertical     |
| 9848.00         | 25.45             | 38.62                 | 14.31           | 31.77                    | 46.61          | 54.00               | -7.39           | Vertical     |
| 12310.00        | *                 |                       |                 |                          |                | 54.00               |                 | Vertical     |
| 14772.00        | *                 |                       |                 |                          |                | 54.00               |                 | Vertical     |
| 17234.00        | *                 |                       |                 |                          |                | 54.00               |                 | Vertical     |
| 4924.00         | 34.40             | 31.90                 | 8.70            | 32.15                    | 42.85          | 54.00               | -11.15          | Horizontal   |
| 7386.00         | 23.16             | 36.49                 | 11.76           | 31.83                    | 39.58          | 54.00               | -14.42          | Horizontal   |
| 9848.00         | 22.39             | 38.62                 | 14.31           | 31.77                    | 43.55          | 54.00               | -10.45          | Horizontal   |
| 12310.00        | *                 |                       |                 |                          |                | 54.00               |                 | Horizontal   |
| 14772.00        | *                 |                       |                 |                          |                | 54.00               |                 | Horizontal   |
| 17234.00        | *                 |                       |                 |                          |                | 54.00               |                 | Horizontal   |

#### Remark:

- 1.Final Level =Receiver Read level + Antenna Factor + Cable Loss- Preamplifier Factor
2. “\*”, means this data is the too weak instrument of signal is unable to test.
- 3.The amplitude of spurious emissions which are attenuated more than 20 dB below the limits are not reported.

## Radiated Band Edge data

Remark: All restriction band have been tested, and only the worst case is shown in report

### 802.11 b low CH

#### Peak value:

| Frequency (MHz) | Read Level (dBuV) | Antenna Factor (dB/m) | Cable Loss (dB) | Preamp Factor (dB) | Level (dBuV/m) | Limit Line (dBuV/m) | Over Limit (dB) | Polarization |
|-----------------|-------------------|-----------------------|-----------------|--------------------|----------------|---------------------|-----------------|--------------|
| 2390.00         | 52.82             | 27.59                 | 5.38            | 34.01              | 51.78          | 74.00               | -22.22          | Horizontal   |
| 2400.00         | 61.64             | 27.58                 | 5.39            | 34.01              | 60.60          | 74.00               | -13.40          | Horizontal   |
| 2390.00         | 54.66             | 27.59                 | 5.38            | 34.01              | 53.62          | 74.00               | -20.38          | Vertical     |
| 2400.00         | 63.65             | 27.58                 | 5.39            | 34.01              | 62.61          | 74.00               | -11.39          | Vertical     |

#### Average value:

| Frequency (MHz) | Read Level (dBuV) | Antenna Factor (dB/m) | Cable Loss (dB) | Preamp Factor (dB) | Level (dBuV/m) | Limit Line (dBuV/m) | Over Limit (dB) | Polarization |
|-----------------|-------------------|-----------------------|-----------------|--------------------|----------------|---------------------|-----------------|--------------|
| 2390.00         | 39.49             | 27.59                 | 5.38            | 34.01              | 38.45          | 54.00               | -15.55          | Horizontal   |
| 2400.00         | 47.89             | 27.58                 | 5.39            | 34.01              | 46.85          | 54.00               | -7.15           | Horizontal   |
| 2390.00         | 41.06             | 27.59                 | 5.38            | 34.01              | 40.02          | 54.00               | -13.98          | Vertical     |
| 2400.00         | 49.08             | 27.58                 | 5.39            | 34.01              | 48.04          | 54.00               | -5.96           | Vertical     |

### 802.11 b High CH

#### Peak value:

| Frequency (MHz) | Read Level (dBuV) | Antenna Factor (dB/m) | Cable Loss (dB) | Preamp Factor (dB) | Level (dBuV/m) | Limit Line (dBuV/m) | Over Limit (dB) | Polarization |
|-----------------|-------------------|-----------------------|-----------------|--------------------|----------------|---------------------|-----------------|--------------|
| 2483.50         | 54.32             | 27.53                 | 5.47            | 33.92              | 53.40          | 74.00               | -20.60          | Horizontal   |
| 2500.00         | 49.69             | 27.55                 | 5.49            | 29.93              | 52.80          | 74.00               | -21.20          | Horizontal   |
| 2483.50         | 56.86             | 27.53                 | 5.47            | 33.92              | 55.94          | 74.00               | -18.06          | Vertical     |
| 2500.00         | 52.47             | 27.55                 | 5.49            | 29.93              | 55.58          | 74.00               | -18.42          | Vertical     |

#### Average value:

| Frequency (MHz) | Read Level (dBuV) | Antenna Factor (dB/m) | Cable Loss (dB) | Preamp Factor (dB) | Level (dBuV/m) | Limit Line (dBuV/m) | Over Limit (dB) | Polarization |
|-----------------|-------------------|-----------------------|-----------------|--------------------|----------------|---------------------|-----------------|--------------|
| 2483.50         | 39.99             | 27.53                 | 5.47            | 33.92              | 39.07          | 54.00               | -14.93          | Horizontal   |
| 2500.00         | 35.82             | 27.55                 | 5.49            | 29.93              | 38.93          | 54.00               | -15.07          | Horizontal   |
| 2483.50         | 42.06             | 27.53                 | 5.47            | 33.92              | 41.14          | 54.00               | -12.86          | Vertical     |
| 2500.00         | 37.76             | 27.55                 | 5.49            | 29.93              | 40.87          | 54.00               | -13.13          | Vertical     |

Note: The amplitude of spurious emissions which are attenuated more than 20 dB below the limits are not reported.

## 802.11 g Low CH

**Peak value:**

| Frequency (MHz) | Read Level (dBuV) | Antenna Factor (dB/m) | Cable Loss (dB) | Preamplifier Factor (dB) | Level (dBuV/m) | Limit Line (dBuV/m) | Over Limit (dB) | Polarization |
|-----------------|-------------------|-----------------------|-----------------|--------------------------|----------------|---------------------|-----------------|--------------|
| 2390.00         | 51.14             | 27.59                 | 5.38            | 34.01                    | 50.10          | 74.00               | -23.90          | Horizontal   |
| 2400.00         | 60.02             | 27.58                 | 5.39            | 34.01                    | 58.98          | 74.00               | -15.02          | Horizontal   |
| 2390.00         | 53.18             | 27.59                 | 5.38            | 34.01                    | 52.14          | 74.00               | -21.86          | Vertical     |
| 2400.00         | 61.97             | 27.58                 | 5.39            | 34.01                    | 60.93          | 74.00               | -13.07          | Vertical     |

**Average value:**

| Frequency (MHz) | Read Level (dBuV) | Antenna Factor (dB/m) | Cable Loss (dB) | Preamplifier Factor (dB) | Level (dBuV/m) | Limit Line (dBuV/m) | Over Limit (dB) | Polarization |
|-----------------|-------------------|-----------------------|-----------------|--------------------------|----------------|---------------------|-----------------|--------------|
| 2390.00         | 38.56             | 27.59                 | 5.38            | 34.01                    | 37.52          | 54.00               | -16.48          | Horizontal   |
| 2400.00         | 47.08             | 27.58                 | 5.39            | 34.01                    | 46.04          | 54.00               | -7.96           | Horizontal   |
| 2390.00         | 40.10             | 27.59                 | 5.38            | 34.01                    | 39.06          | 54.00               | -14.95          | Vertical     |
| 2400.00         | 47.39             | 27.58                 | 5.39            | 34.01                    | 46.35          | 54.00               | -7.65           | Vertical     |

## 802.11 g High CH

**Peak value:**

| Frequency (MHz) | Read Level (dBuV) | Antenna Factor (dB/m) | Cable Loss (dB) | Preamplifier Factor (dB) | Level (dBuV/m) | Limit Line (dBuV/m) | Over Limit (dB) | Polarization |
|-----------------|-------------------|-----------------------|-----------------|--------------------------|----------------|---------------------|-----------------|--------------|
| 2483.50         | 52.47             | 27.53                 | 5.47            | 33.92                    | 51.55          | 74.00               | -22.45          | Horizontal   |
| 2500.00         | 48.26             | 27.55                 | 5.49            | 29.93                    | 51.37          | 74.00               | -22.63          | Horizontal   |
| 2483.50         | 54.75             | 27.53                 | 5.47            | 33.92                    | 53.83          | 74.00               | -20.17          | Vertical     |
| 2500.00         | 50.79             | 27.55                 | 5.49            | 29.93                    | 53.90          | 74.00               | -20.10          | Vertical     |

**Average value:**

| Frequency (MHz) | Read Level (dBuV) | Antenna Factor (dB/m) | Cable Loss (dB) | Preamplifier Factor (dB) | Level (dBuV/m) | Limit Line (dBuV/m) | Over Limit (dB) | Polarization |
|-----------------|-------------------|-----------------------|-----------------|--------------------------|----------------|---------------------|-----------------|--------------|
| 2483.50         | 38.87             | 27.53                 | 5.47            | 33.92                    | 37.95          | 54.00               | -16.05          | Horizontal   |
| 2500.00         | 34.95             | 27.55                 | 5.49            | 29.93                    | 38.06          | 54.00               | -15.94          | Horizontal   |
| 2483.50         | 40.83             | 27.53                 | 5.47            | 33.92                    | 39.91          | 54.00               | -14.09          | Vertical     |
| 2500.00         | 36.84             | 27.55                 | 5.49            | 29.93                    | 39.95          | 54.00               | -14.05          | Vertical     |

Note: The amplitude of spurious emissions which are attenuated more than 20 dB below the limits are not reported.

## 802.11 N 20 Low CH

**Peak value:**

| Frequency (MHz) | Read Level (dBuV) | Antenna Factor (dB/m) | Cable Loss (dB) | Preamplifier Factor (dB) | Level (dBuV/m) | Limit Line (dBuV/m) | Over Limit (dB) | Polarization |
|-----------------|-------------------|-----------------------|-----------------|--------------------------|----------------|---------------------|-----------------|--------------|
| 2390.00         | 51.06             | 27.59                 | 5.38            | 34.01                    | 50.02          | 74.00               | -23.98          | Horizontal   |
| 2400.00         | 59.92             | 27.58                 | 5.39            | 34.01                    | 58.88          | 74.00               | -15.12          | Horizontal   |
| 2390.00         | 53.10             | 27.59                 | 5.38            | 34.01                    | 52.06          | 74.00               | -21.94          | Vertical     |
| 2400.00         | 61.84             | 27.58                 | 5.39            | 34.01                    | 60.80          | 74.00               | -13.20          | Vertical     |

**Average value:**

| Frequency (MHz) | Read Level (dBuV) | Antenna Factor (dB/m) | Cable Loss (dB) | Preamplifier Factor (dB) | Level (dBuV/m) | Limit Line (dBuV/m) | Over Limit (dB) | Polarization |
|-----------------|-------------------|-----------------------|-----------------|--------------------------|----------------|---------------------|-----------------|--------------|
| 2390.00         | 38.50             | 27.59                 | 5.38            | 34.01                    | 37.46          | 54.00               | -16.54          | Horizontal   |
| 2400.00         | 47.01             | 27.58                 | 5.39            | 34.01                    | 45.97          | 54.00               | -8.03           | Horizontal   |
| 2390.00         | 40.04             | 27.59                 | 5.38            | 34.01                    | 39.00          | 54.00               | -15.01          | Vertical     |
| 2400.00         | 47.32             | 27.58                 | 5.39            | 34.01                    | 46.28          | 54.00               | -7.72           | Vertical     |

## 802.11 N 20 High CH

**Peak value:**

| Frequency (MHz) | Read Level (dBuV) | Antenna Factor (dB/m) | Cable Loss (dB) | Preamplifier Factor (dB) | Level (dBuV/m) | Limit Line (dBuV/m) | Over Limit (dB) | Polarization |
|-----------------|-------------------|-----------------------|-----------------|--------------------------|----------------|---------------------|-----------------|--------------|
| 2483.50         | 52.74             | 27.53                 | 5.47            | 33.92                    | 51.82          | 74.00               | -22.18          | Horizontal   |
| 2500.00         | 48.47             | 27.55                 | 5.49            | 29.93                    | 51.58          | 74.00               | -22.42          | Horizontal   |
| 2483.50         | 55.06             | 27.53                 | 5.47            | 33.92                    | 54.14          | 74.00               | -19.86          | Vertical     |
| 2500.00         | 51.04             | 27.55                 | 5.49            | 29.93                    | 54.15          | 74.00               | -19.85          | Vertical     |

**Average value:**

| Frequency (MHz) | Read Level (dBuV) | Antenna Factor (dB/m) | Cable Loss (dB) | Preamplifier Factor (dB) | Level (dBuV/m) | Limit Line (dBuV/m) | Over Limit (dB) | Polarization |
|-----------------|-------------------|-----------------------|-----------------|--------------------------|----------------|---------------------|-----------------|--------------|
| 2483.50         | 39.04             | 27.53                 | 5.47            | 33.92                    | 38.12          | 54.00               | -15.88          | Horizontal   |
| 2500.00         | 35.08             | 27.55                 | 5.49            | 29.93                    | 38.19          | 54.00               | -15.81          | Horizontal   |
| 2483.50         | 41.01             | 27.53                 | 5.47            | 33.92                    | 40.09          | 54.00               | -13.91          | Vertical     |
| 2500.00         | 36.97             | 27.55                 | 5.49            | 29.93                    | 40.08          | 54.00               | -13.92          | Vertical     |

Note: The amplitude of spurious emissions which are attenuated more than 20 dB below the limits are not reported.

## 8. ANTENNA REQUIREMENT

### 8.1 STANDARD REQUIREMENT

For intentional device, according to FCC 47 CFR Section 15.203, an intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. And according to FCC 47 CFR Section 15.247 (b), if transmitting antennas of directional gain greater than 6dBi are used, the power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6dBi.

### 8.2 RESULT

The antennas used for this product are external antenna and other than that furnished by the responsible party shall be used with the device, the maximum peak gain of the transmit antenna is 3.29dBi.

XXXXXXXXEND OF THE REPORTXXXXXXXX