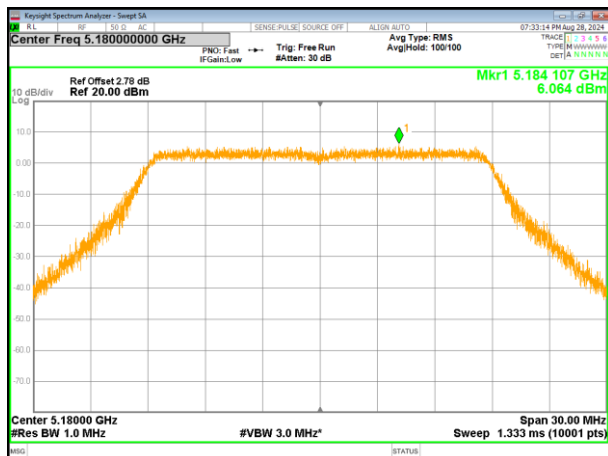
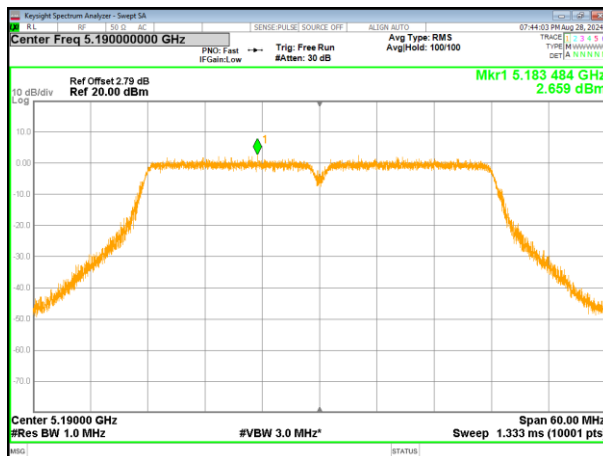


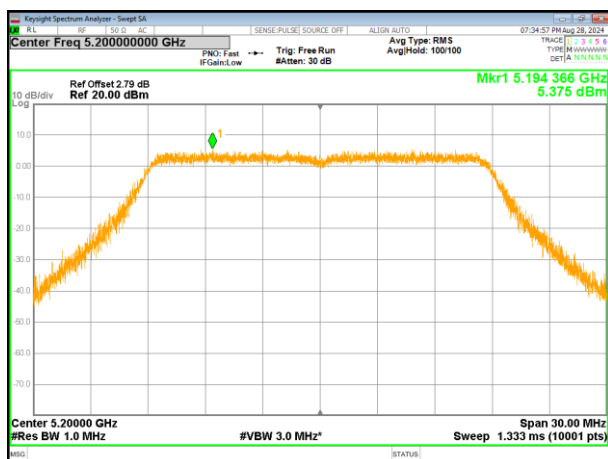
(802.11ac20) PSD plot on channel 36



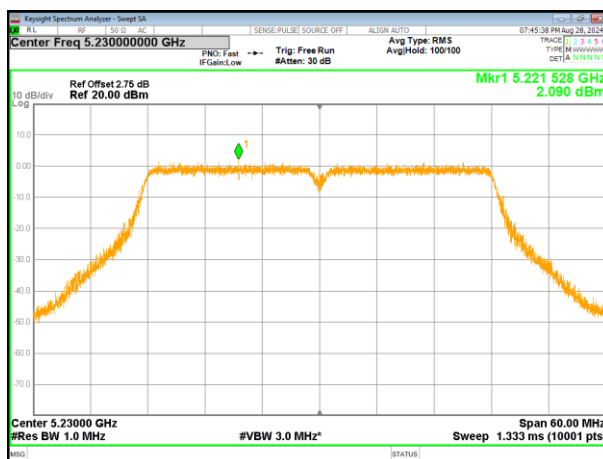
(802.11n40) PSD plot on channel 38



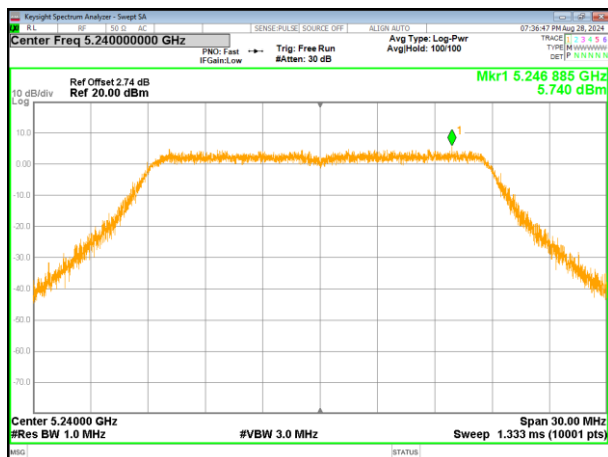
(802.11ac20) PSD plot on channel 40



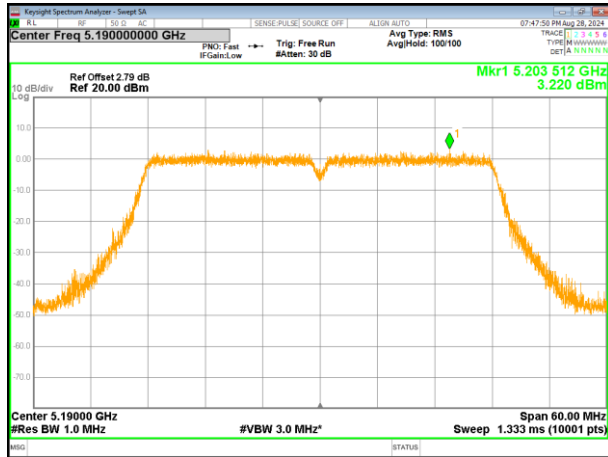
(802.11n40) PSD plot on channel 46



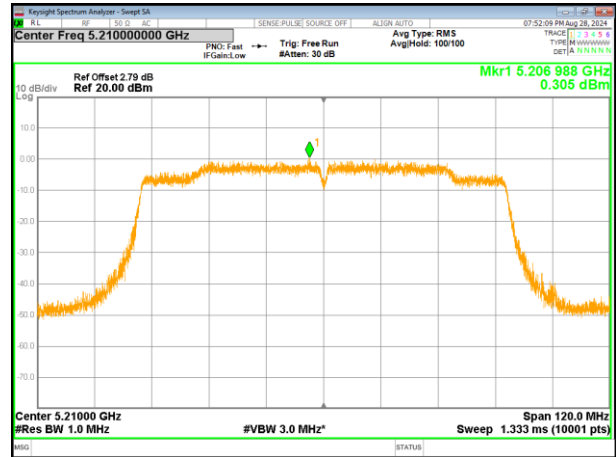
(802.11ac20) PSD plot on channel 48



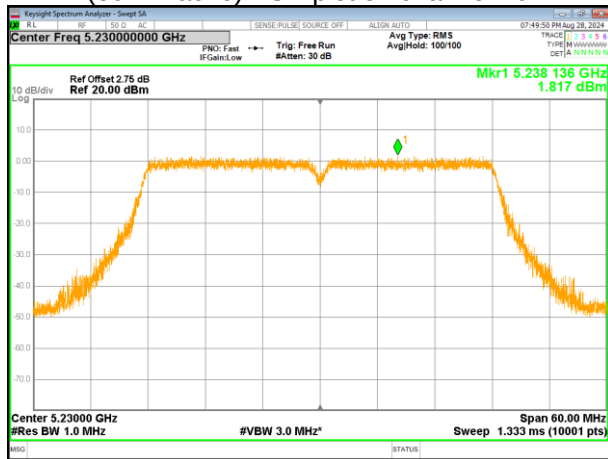
(802.11ac40) PSD plot on channel 38



(802.11ac80) PSD plot on channel 42



(802.11ac40) PSD plot on channel 46

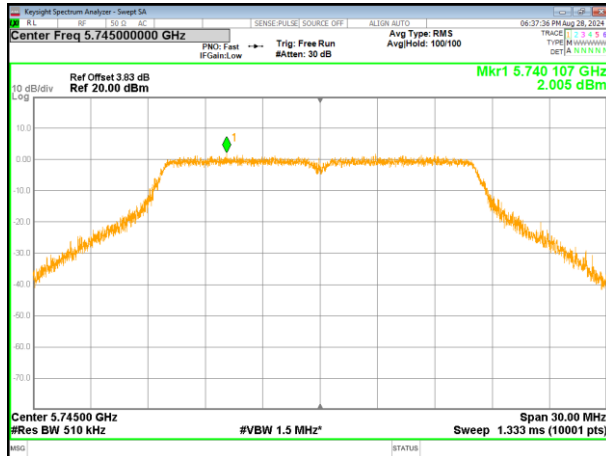


| Mode       | Frequency | Measured Power Density (dBm/510KHz) | Measured Power Density(dBm/500 KHz) | Correction Factor (dB) | Total Measured Power Density (dBm/500KHz) | Limit (dBm/MHz) |
|------------|-----------|-------------------------------------|-------------------------------------|------------------------|-------------------------------------------|-----------------|
| 802.11 a   | 5745 MHz  | 2.005                               | 1.919                               | 0.090                  | 2.009                                     | 30              |
|            | 5785 MHz  | 2.831                               | 2.745                               | 0.090                  | 2.835                                     | 30              |
|            | 5825 MHz  | 2.278                               | 2.192                               | 0.090                  | 2.282                                     | 30              |
| 802.11 n20 | 5745 MHz  | 0.603                               | 0.517                               | 0.360                  | 0.877                                     | 30              |
|            | 5785 MHz  | 1.717                               | 1.631                               | 0.360                  | 1.991                                     | 30              |
|            | 5825 MHz  | 2.534                               | 2.448                               | 0.360                  | 2.808                                     | 30              |
| 802.11ac20 | 5745 MHz  | 1.791                               | 1.705                               | 0.320                  | 2.025                                     | 30              |
|            | 5785 MHz  | 2.488                               | 2.402                               | 0.320                  | 2.722                                     | 30              |
|            | 5825 MHz  | 2.462                               | 2.376                               | 0.320                  | 2.696                                     | 30              |
| 802.11 n40 | 5755 MHz  | -0.737                              | -0.823                              | 0.080                  | -0.743                                    | 30              |
|            | 5795 MHz  | -0.101                              | -0.187                              | 0.080                  | -0.107                                    | 30              |
| 802.11ac40 | 5755 MHz  | -0.414                              | -0.500                              | 0.080                  | -0.420                                    | 30              |
|            | 5795 MHz  | -0.147                              | -0.233                              | 0.080                  | -0.153                                    | 30              |
| 802.11ac80 | 5775 MHz  | -3.374                              | -3.460                              | 0.280                  | -3.180                                    | 30              |

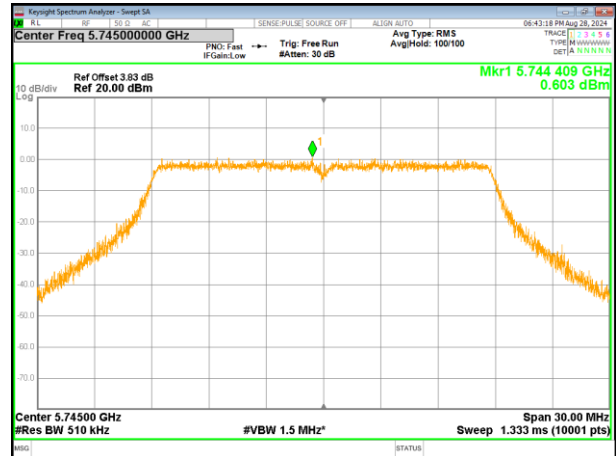
Note: 1. If the measurement is X dBm/510kHz, thus  $X \text{ dBm/510kHz} = (10^{X/10}) * (500 / 510) \text{ dBm/500kHz}$

2. Correction Factor (dB)= duty cycle factor+RBW factor

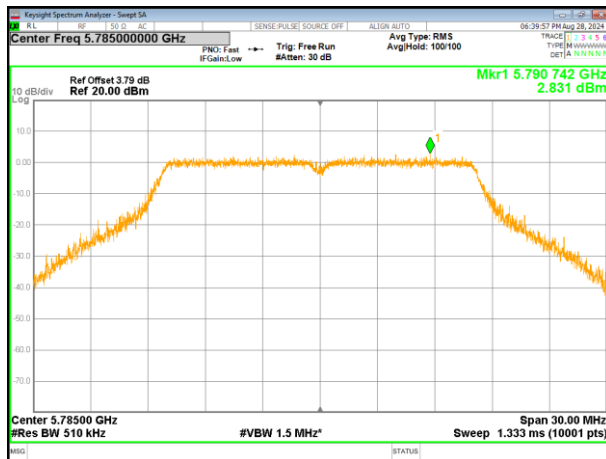
(802.11a) PSD plot on channel 149



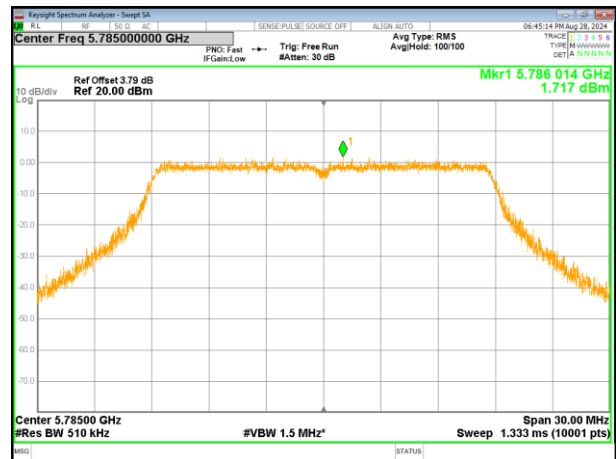
(802.11n20) PSD plot on channel 149



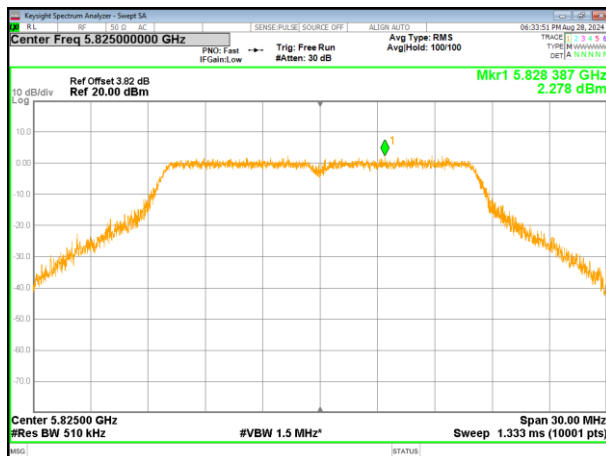
(802.11a) PSD plot on channel 157



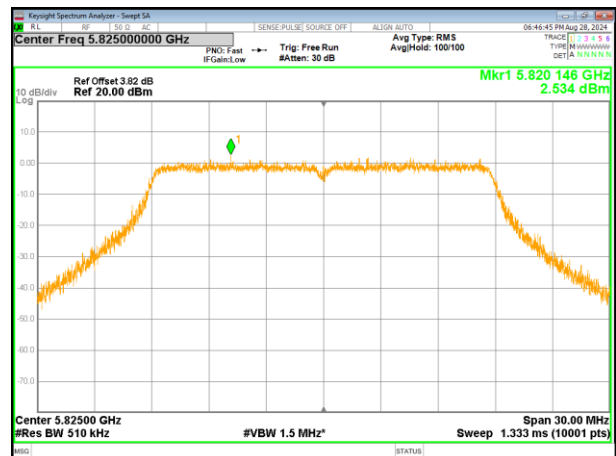
(802.11n20) PSD plot on channel 157



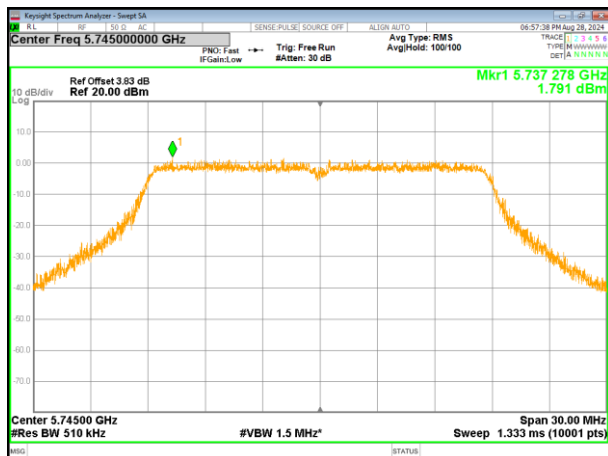
(802.11a) PSD plot on channel 165



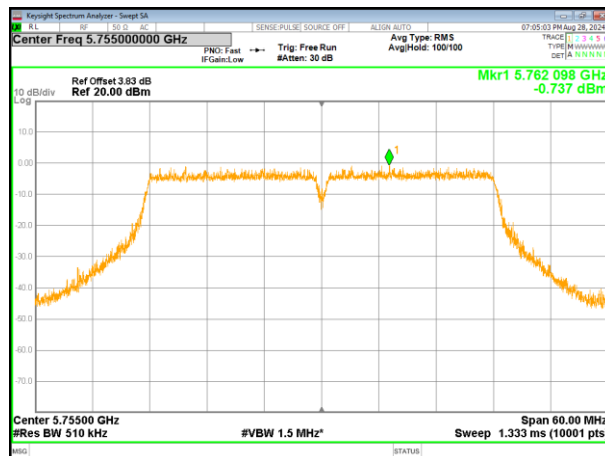
(802.11n20) PSD plot on channel 165



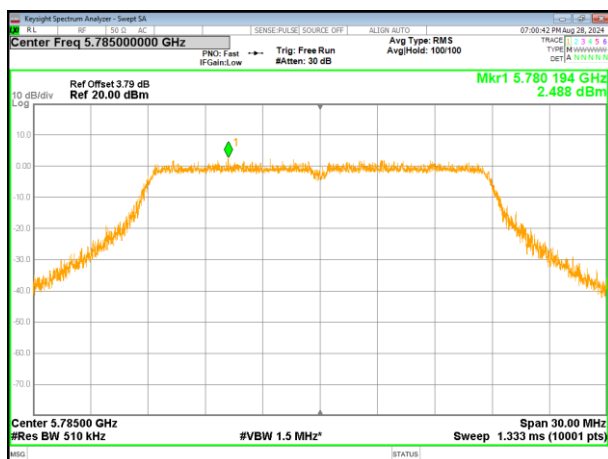
(802.11ac20) PSD plot on channel 149



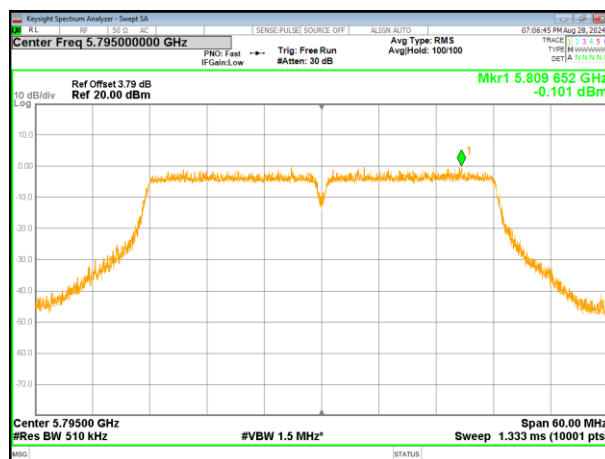
(802.11n40) PSD plot on channel 151



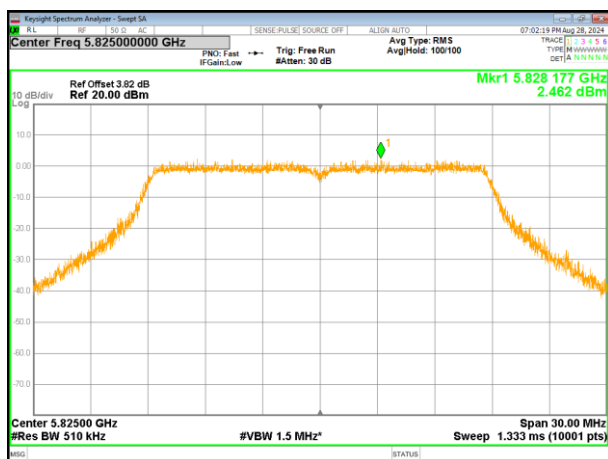
(802.11ac20) PSD plot on channel 157



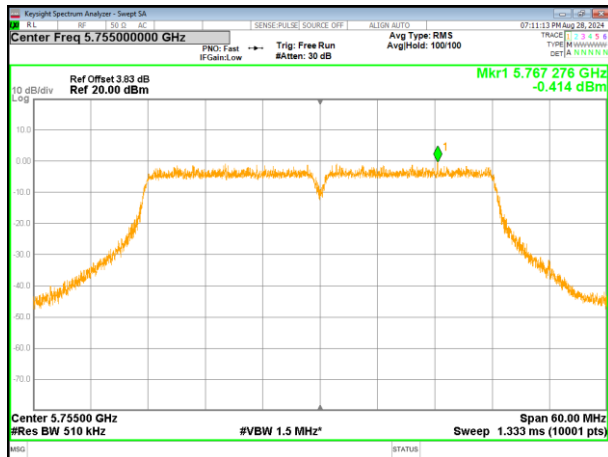
(802.11n40) PSD plot on channel 159



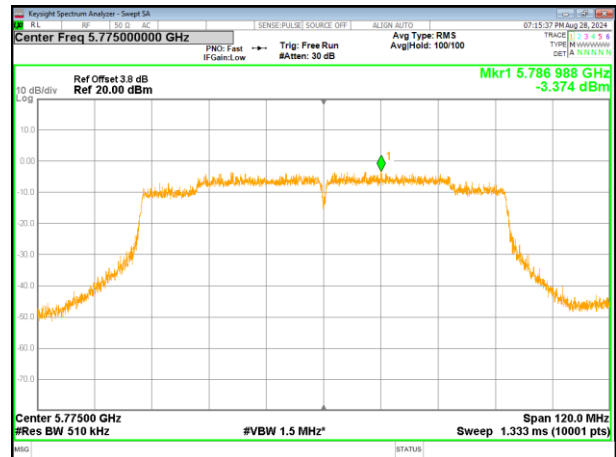
(802.11ac20) PSD plot on channel 165



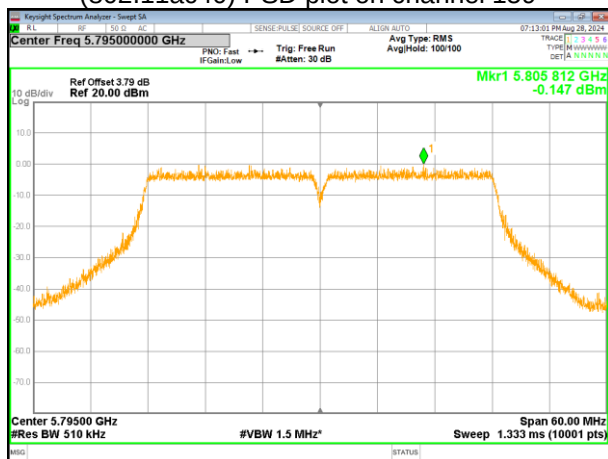
(802.11ac40) PSD plot on channel 151



(802.11ac80) PSD plot on channel 155

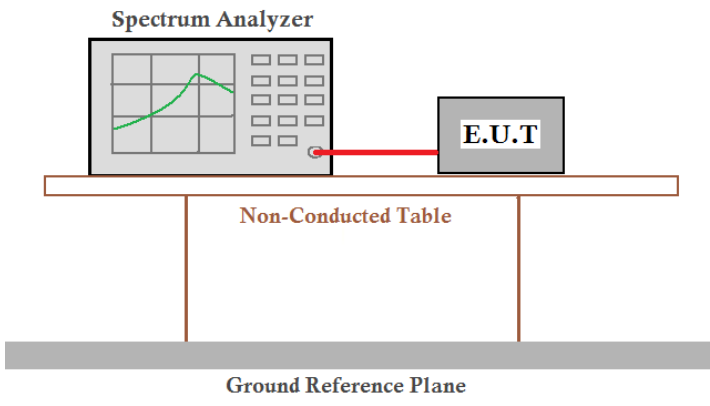


(802.11ac40) PSD plot on channel 159



## 4.7 Band edge

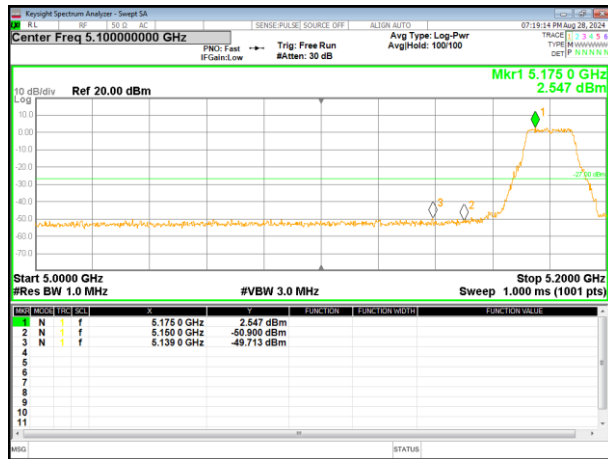
### 4.7.1 Conducted test Method

|                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |              |
|-------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------|
| Test Requirement: | FCC Part15 C Section 15.209 and 15.205                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |              |
| Test Method:      | ANSI C63.10: 2013                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |              |
| Limit:            | All emissions shall be limited to a level of -27 dBm/MHz at 75 MHz or more above or below the band edge increasing linearly to 10 dBm/MHz at 25 MHz above or below the band edge, and from 25 MHz above or below the band edge increasing linearly to a level of 15.6 dBm/MHz at 5 MHz above or below the band edge, and from 5 MHz above or below the band edge increasing linearly to a level of 27 dBm/MHz at the band edge.                                                                                                                                                                                                                                                                                                                                                                                                                            |              |
| Test setup:       |  <p>The diagram illustrates the test setup. A Spectrum Analyzer is connected to an E.U.T. (Equipment Under Test) via a red cable. Both are placed on a Non-Conducted Table, which is supported by a Ground Reference Plane.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |              |
| Test Procedure:   | <ol style="list-style-type: none"> <li>1. Check the calibration of the measuring instrument using either an internal calibrator or a known signal from an external generator.</li> <li>2. Position the EUT without connection to measurement instrument. Turn on the EUT and connect its antenna terminal to measurement instrument via a low loss cable. Then set it to any one measured frequency within its operating range, and make sure the instrument is operated in its linear range.</li> <li>3. Set RBW of spectrum analyzer to 1 MHz with a convenient frequency span.</li> <li>4. Measure the highest amplitude appearing on spectral display and set it as a reference level. Plot the graph with marking the highest point and edge frequency.</li> <li>5. Repeat above procedures until all measured frequencies were complete..</li> </ol> |              |
| Test Instruments: | Refer to section 3.0 for details                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |              |
| Test mode:        | Refer to section 2.2 for details                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |              |
| Test environment: | Temp.: 23.3°C                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | Humid.:56%RH |
| Test voltage:     | DC 19V                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |              |
| Test results:     | Pass                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |              |

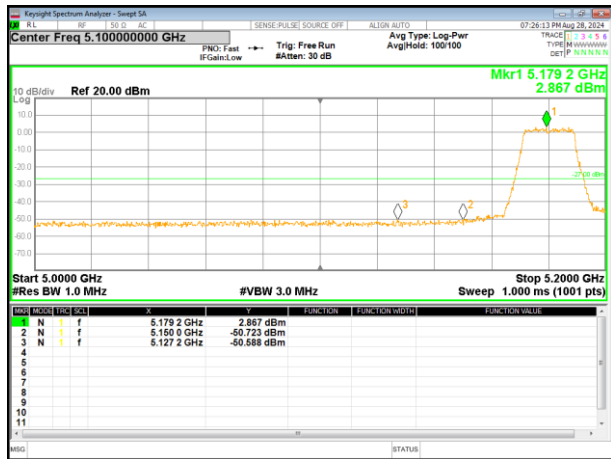
*Remark: Due to the margin value of the sideband test being greater than the antenna gain value, the test meets the requirements*

### 5.180~5.240 GHz

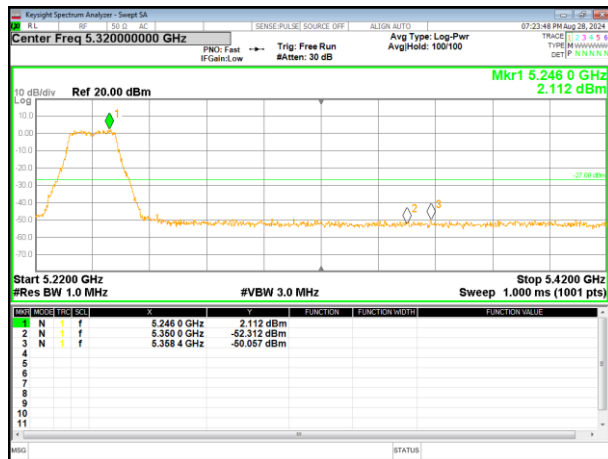
#### (802.11a) Band Edge, Left Side



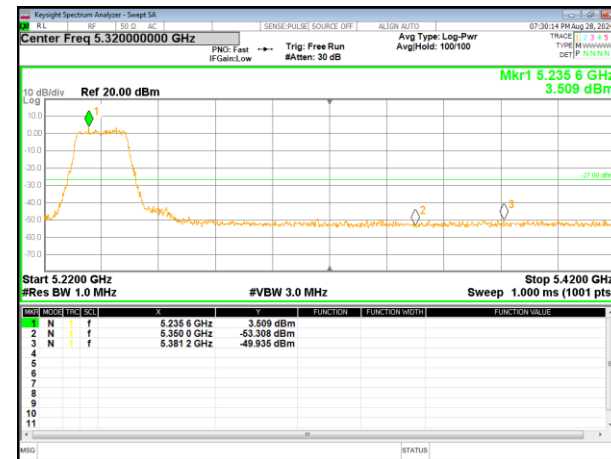
#### (802.11n20) Band Edge, Left Side



#### (802.11a) Band Edge, Right Side

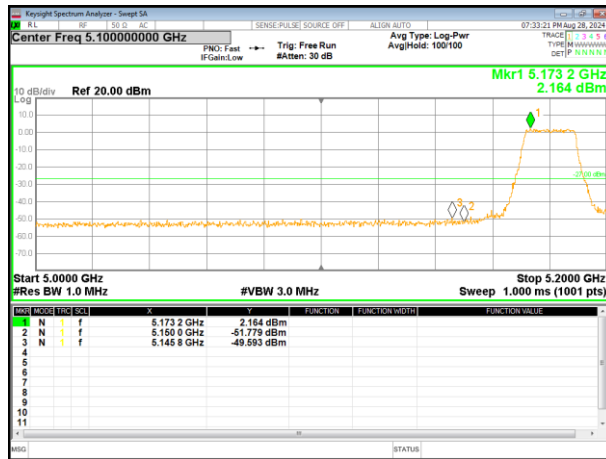


#### (802.11n20) Band Edge, Right Side

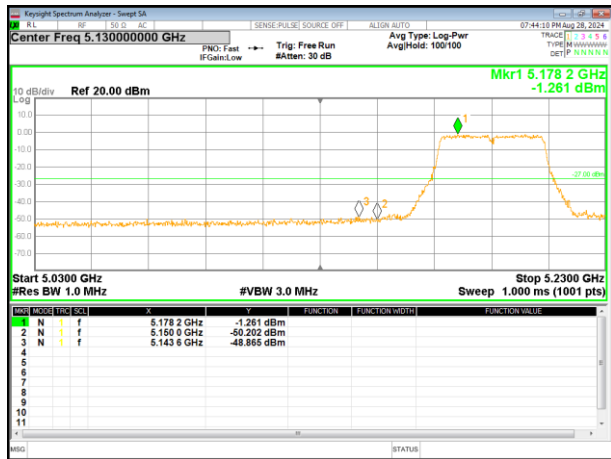


## 5.180~5.240 GHz

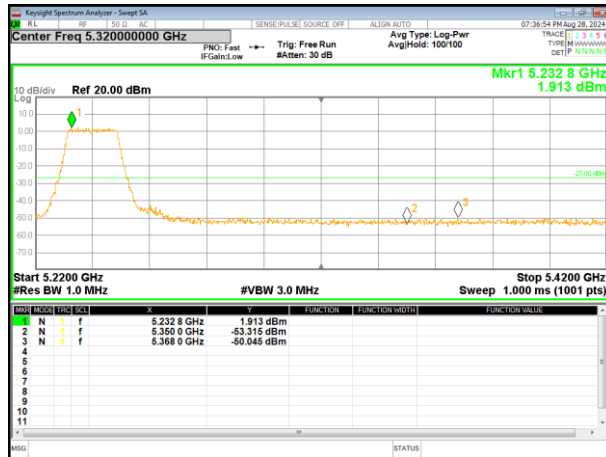
### (802.11ac20) Band Edge, Left Side



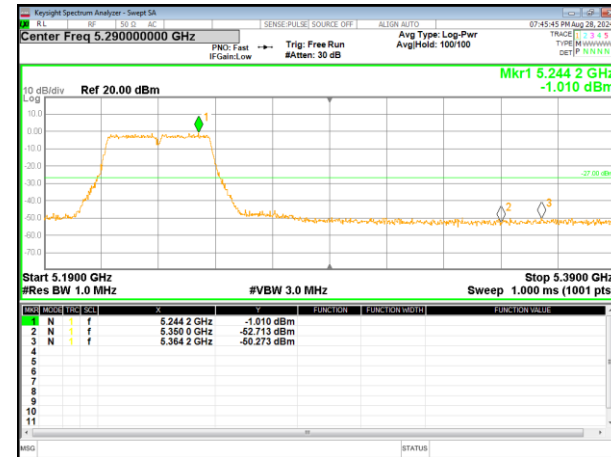
### (802.11n40) Band Edge, Left Side



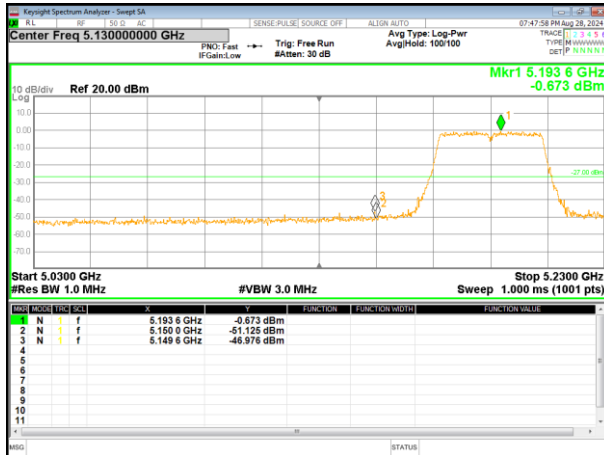
### (802.11ac20) Band Edge, Right Side



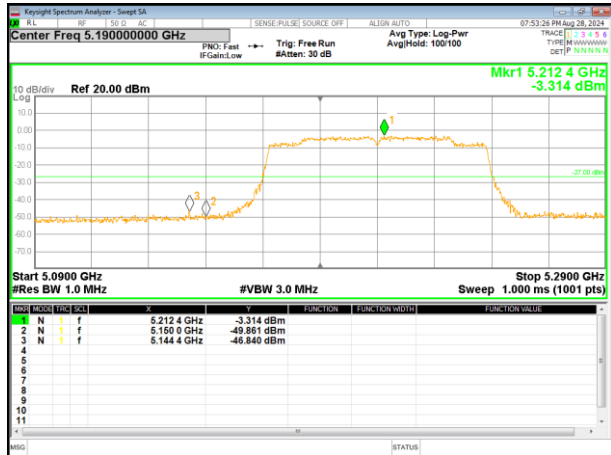
### (802.11n40) Band Edge, Right Side



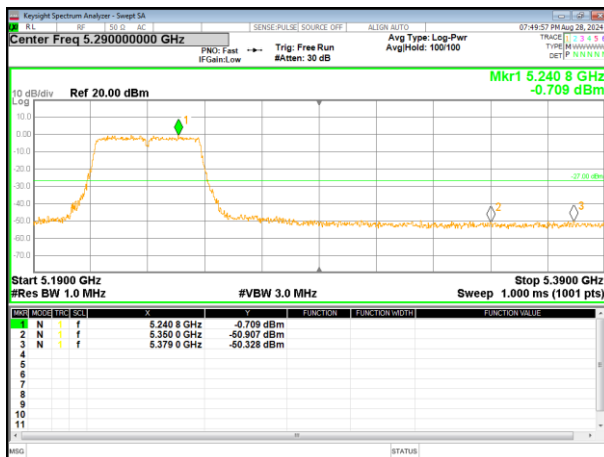
(802.11ac40) Band Edge, Left Side



(802.11ac80) Band Edge

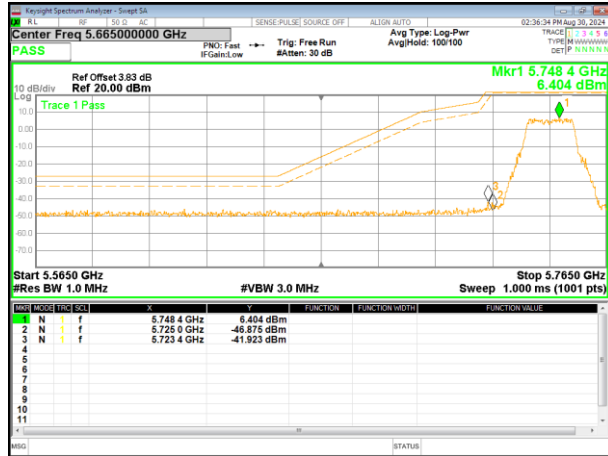


(802.11ac40) Band Edge, Right Side

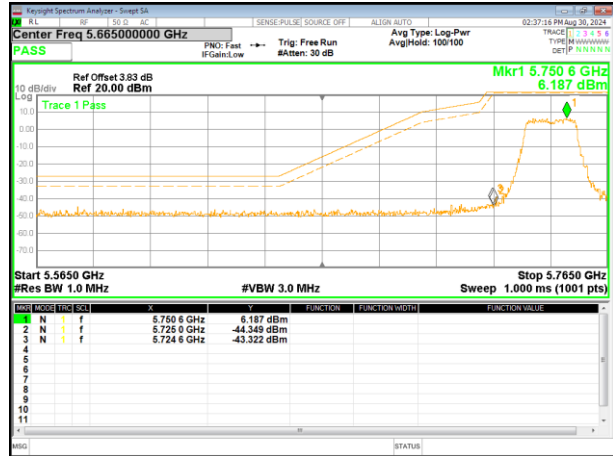


## 5.745~5.825 GHz

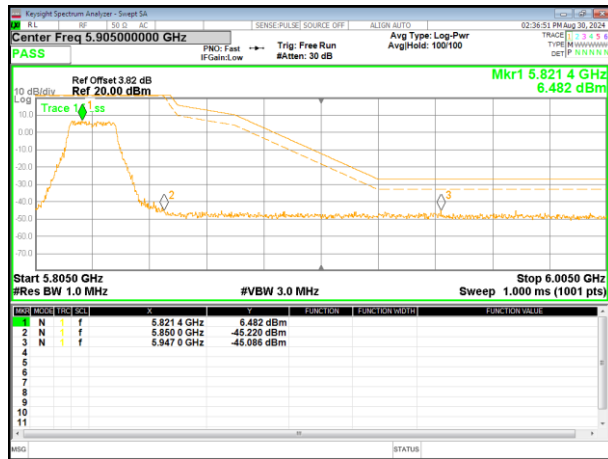
(802.11a) Band Edge, Left Side



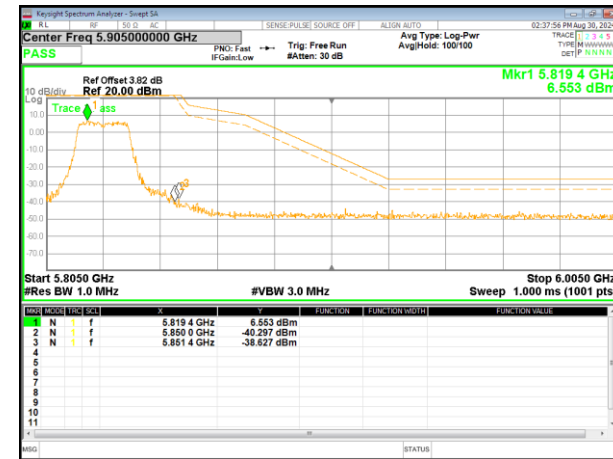
(802.11n20) Band Edge, Left Side



(802.11a) Band Edge, Right Side

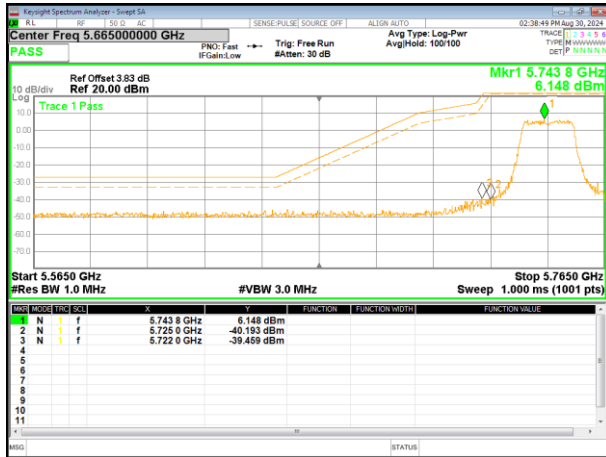


(802.11n20) Band Edge, Right Side

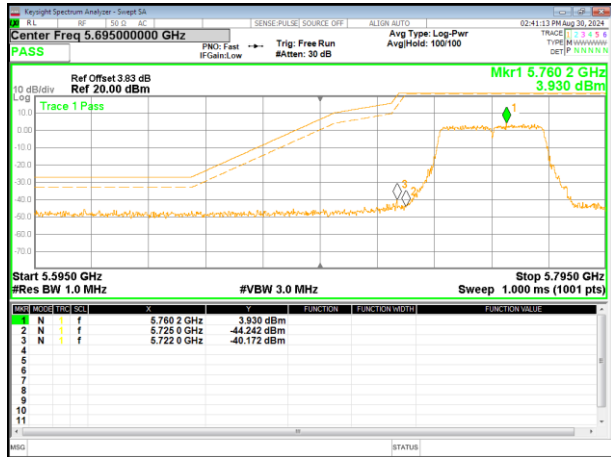


### 5.745~5.825 GHz

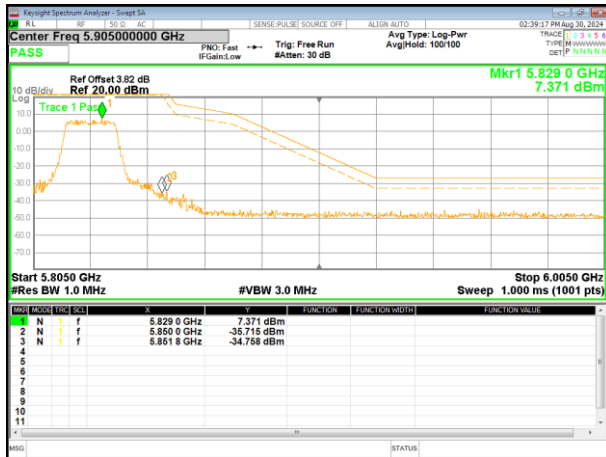
(802.11ac20) Band Edge, Left Side



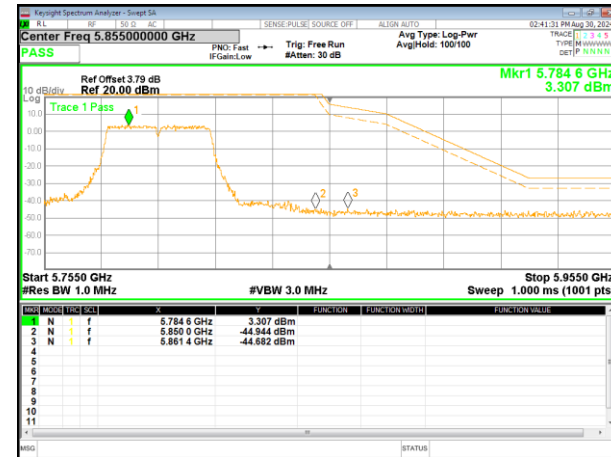
(802.11n40) Band Edge, Left Side



(802.11ac20) Band Edge, Right Side

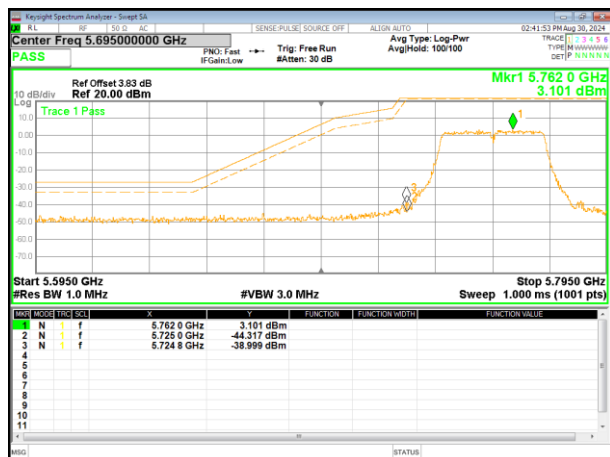


(802.11n40) Band Edge, Right Side

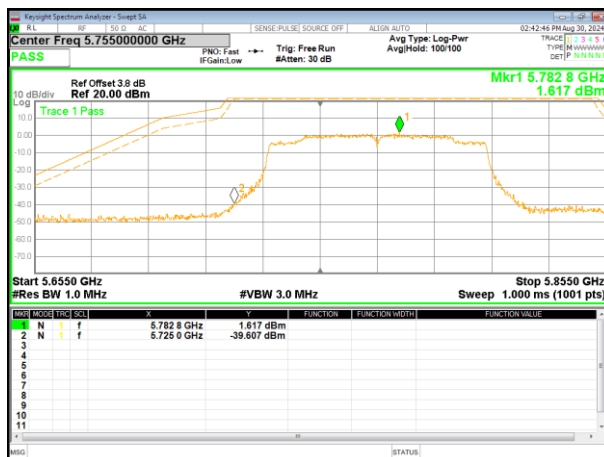


## 5.745~5.825 GHz

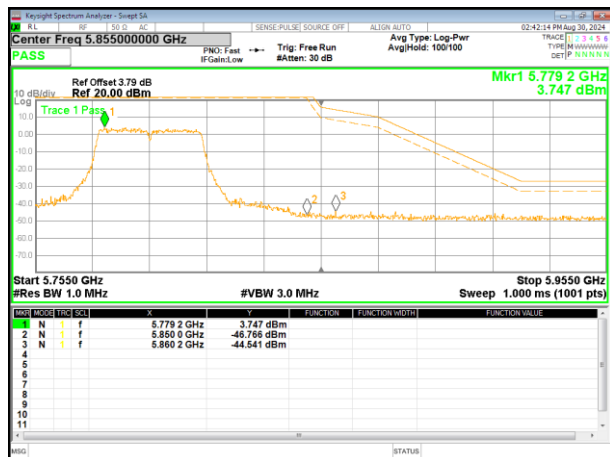
### (802.11ac40) Band Edge, Left Side



### (802.11ac80) Band Edge

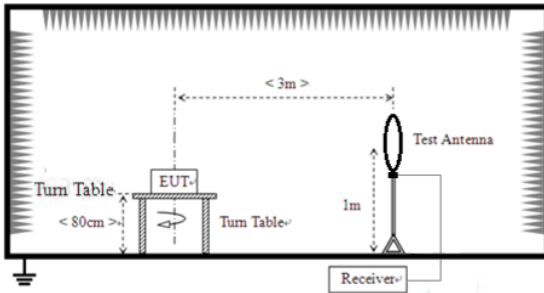
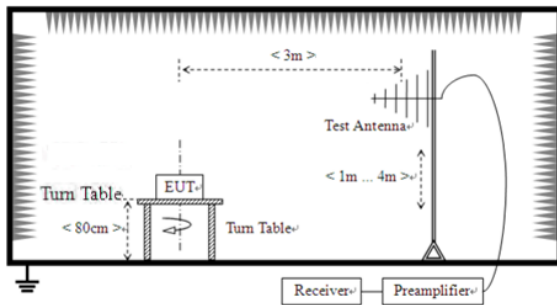


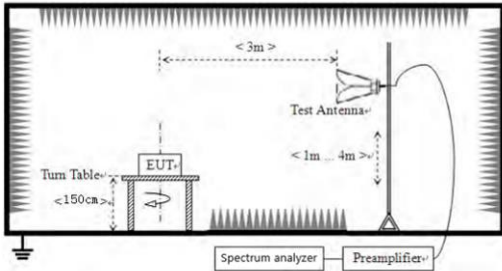
### (802.11ac40) Band Edge, Right Side



## 4.8 Spurious Emission

### 4.8.1 Radiated Emission Method

|                       |                                                                                      |            |                 |            |                      |
|-----------------------|--------------------------------------------------------------------------------------|------------|-----------------|------------|----------------------|
| Test Requirement:     | FCC Part15 C Section 15.209, Part 15E Section 15.407(b)(4)                           |            |                 |            |                      |
| Test Method:          | ANSI C63.10:2013                                                                     |            |                 |            |                      |
| Test Frequency Range: | 9kHz to 40GHz                                                                        |            |                 |            |                      |
| Test site:            | Measurement Distance: 3m                                                             |            |                 |            |                      |
| Receiver setup:       | Frequency                                                                            | Detector   | RBW             | VBW        | Value                |
|                       | 9kHz-150KHz                                                                          | Quasi-peak | 200Hz           | 1kHz       | Quasi-peak Value     |
|                       | 150kHz-30MHz                                                                         | Quasi-peak | 9kHz            | 30kHz      | Quasi-peak Value     |
|                       | 30MHz-1GHz                                                                           | Quasi-peak | 120KHz          | 300KHz     | Quasi-peak Value     |
|                       | Above 1GHz                                                                           | Peak       | 1MHz            | 3MHz       | Peak Value           |
|                       |                                                                                      | AV         | 1MHz            | 3MHz       | Average Value        |
| Limit:                | Frequency                                                                            |            | Limit (uV/m)    | Value      | Measurement Distance |
|                       | 0.009MHz-0.490MHz                                                                    |            | 2400/F(KHz)     | QP         | 300m                 |
|                       | 0.490MHz-1.705MHz                                                                    |            | 24000/F(KHz)    | QP         | 300m                 |
|                       | 1.705MHz-30MHz                                                                       |            | 30              | QP         | 30m                  |
|                       | 30MHz-88MHz                                                                          |            | 100             | QP         | 3m                   |
|                       | 88MHz-216MHz                                                                         |            | 150             | QP         |                      |
|                       | 216MHz-960MHz                                                                        |            | 200             | QP         |                      |
|                       | 960MHz-1GHz                                                                          |            | 500             | QP         |                      |
|                       | Frequency                                                                            |            | Limit (dBm/MHz) | Remark     |                      |
|                       | Above 1GHz                                                                           |            | -27.0           | Peak Value |                      |
| Test setup:           | For radiated emissions from 9kHz to 30MHz                                            |            |                 |            |                      |
|                       |  |            |                 |            |                      |
| Test setup:           | For radiated emissions from 30MHz to1GHz                                             |            |                 |            |                      |
|                       |  |            |                 |            |                      |

|                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|--------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                          | <p>For radiated emissions above 1GHz</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| <p>Test Procedure:</p>   | <ol style="list-style-type: none"> <li>1. The EUT was placed on the top of a rotating table (0.8m for below 1GHz and 1.5 meters for above 1GHz) above the ground at a 3 meter camber. The table was rotated 360 degrees to determine the position of the highest radiation.</li> <li>2. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.</li> <li>3. 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.</li> <li>4. 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.</li> <li>5. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.</li> <li>6. 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.</li> </ol> <p>The radiation measurements are performed in X, Y, Z axis positioning. And found the X axis positioning which it is worse case, only the test worst case mode is recorded in the report.</p> |
| <p>Test Instruments:</p> | <p>Refer to section 3.0 for details</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| <p>Test mode:</p>        | <p>Refer to section 2.2 for details</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| <p>Test results:</p>     | <p>Pass</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |

#### Remarks:

1. The report only shows the worst mode.
2. Pre-scan all kind of the place mode (X-axis, Y-axis, Z-axis), and found the Y-axis which it is worse case.

#### Measurement Data:

##### 9 kHz ~ 30 MHz

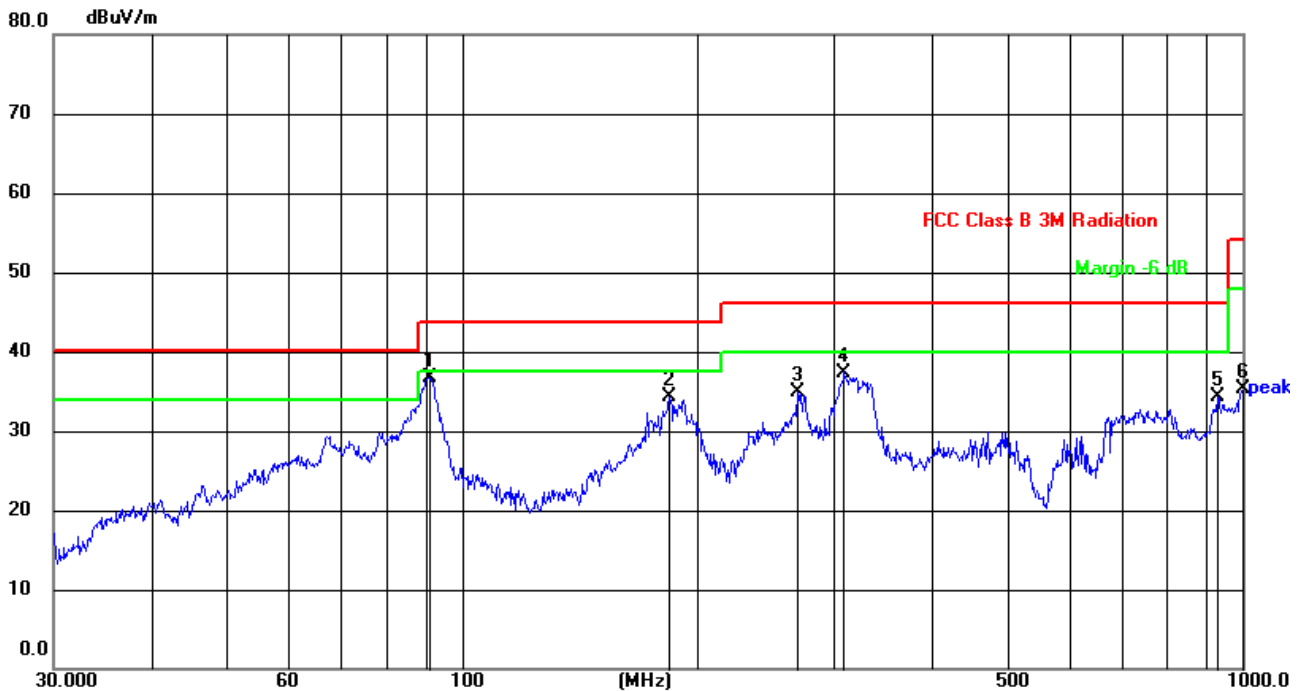
The emission from 9 kHz to 30MHz was pre-tested and found the result was 20dB lower than the limit, and according to 15.31(o) & RSS-Gen 6.13, the test result no need to reported.

## Below 1GHz

Remark: The test data shows only the worst case 802.11a mode.

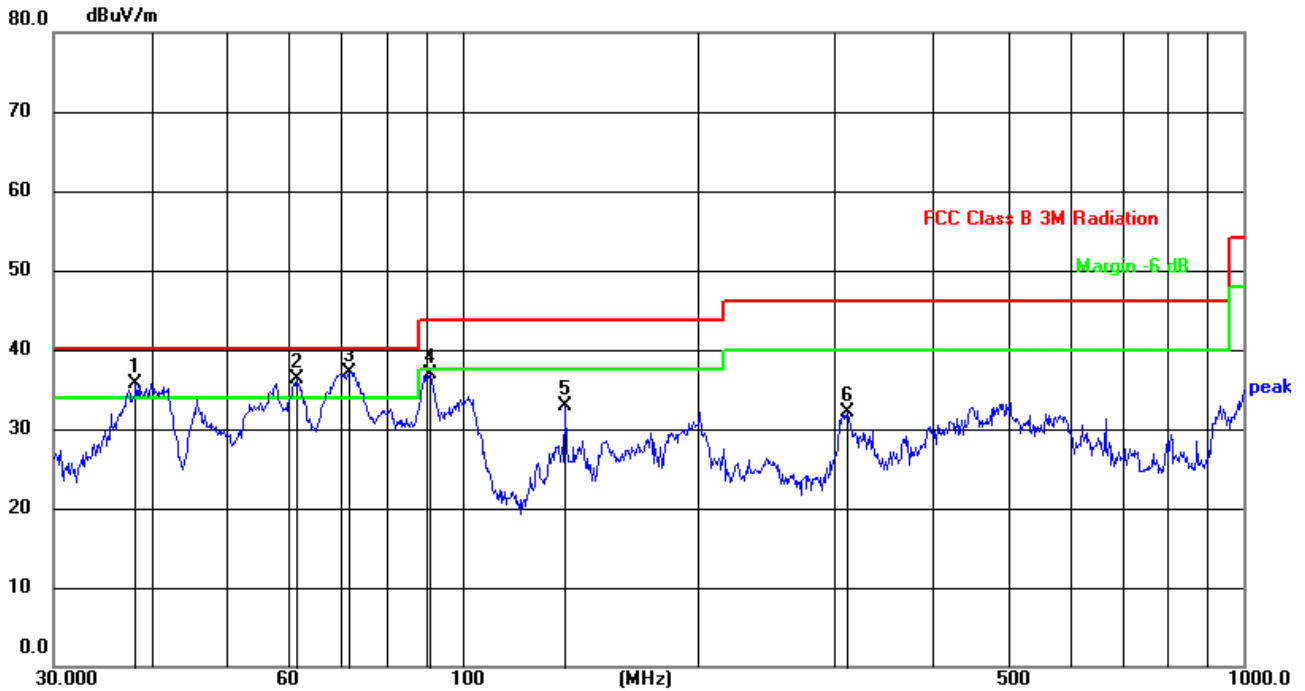
|              |                            |                    |        |
|--------------|----------------------------|--------------------|--------|
| Temperature: | 23.3°C                     | Relative Humidity: | 56%    |
| Pressure:    | 101.2kPa                   | Test Voltage :     | DC 19V |
| Test Mode :  | 5.8G TX- 802.11a (5785MHz) |                    |        |

### Horizontal:



| No. | Frequency (MHz) | Reading (dBuV) | Factor (dB/m) | Level (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Detector |
|-----|-----------------|----------------|---------------|----------------|----------------|-------------|----------|
| 1   | 91.1744         | 62.05          | -25.38        | 36.67          | 43.50          | -6.83       | QP       |
| 2   | 184.4898        | 57.05          | -22.78        | 34.27          | 43.50          | -9.23       | QP       |
| 3   | 269.4282        | 56.55          | -21.73        | 34.82          | 46.00          | -11.18      | QP       |
| 4   | 308.9125        | 57.30          | -19.90        | 37.40          | 46.00          | -8.60       | QP       |
| 5   | 929.0081        | 38.76          | -4.50         | 34.26          | 46.00          | -11.74      | QP       |
| 6   | 1000.0000       | 38.69          | -3.36         | 35.33          | 54.00          | -18.67      | QP       |

Vertical:



| No. | Frequency (MHz) | Reading (dBuV) | Factor (dB/m) | Level (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Detector |
|-----|-----------------|----------------|---------------|----------------|----------------|-------------|----------|
| 1   | 38.2120         | 56.90          | -21.22        | 35.68          | 40.00          | -4.32       | QP       |
| 2   | 61.3462         | 59.06          | -22.77        | 36.29          | 40.00          | -3.71       | QP       |
| 3   | 71.5805         | 61.61          | -24.47        | 37.14          | 40.00          | -2.86       | QP       |
| 4   | 90.8554         | 62.26          | -25.38        | 36.88          | 43.50          | -6.62       | QP       |
| 5   | 135.5061        | 54.91          | -22.04        | 32.87          | 43.50          | -10.63      | QP       |
| 6   | 311.0865        | 51.91          | -19.83        | 32.08          | 46.00          | -13.92      | QP       |

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 802.11a mode



Above 1GHz:

Remark: The test data shows only the worst case 802.11a mode.

|              |                  |                    |        |
|--------------|------------------|--------------------|--------|
| Temperature: | 23.3°C           | Relative Humidity: | 56%    |
| Pressure:    | 101.2kPa         | Test Voltage :     | DC 19V |
| Test Mode :  | 5.2G TX- 802.11a |                    |        |

| Polar<br>(H/V)      | Frequency | Meter<br>Reading | Pre-<br>amplifier | Cable<br>Loss | Antenna<br>Factor | Emission<br>Level | Limits | Margin | Detect<br>or<br>Type |
|---------------------|-----------|------------------|-------------------|---------------|-------------------|-------------------|--------|--------|----------------------|
|                     | MHz       | dBuV             | dB                | dB            | dB                | dBuV/m            | dBuV/m | dB     |                      |
| Low Channel:5180MHz |           |                  |                   |               |                   |                   |        |        |                      |
| V                   | 10360.00  | 48.13            | 46.20             | 8.27          | 38.50             | 48.70             | 68.20  | -19.50 | PK                   |
| V                   | 10360.00  | 38.56            | 46.20             | 8.27          | 38.50             | 39.13             | 54.00  | -14.87 | AV                   |
| V                   | 15540.00  | 45.35            | 46.30             | 10.35         | 38.70             | 48.10             | 74.00  | -25.90 | PK                   |
| V                   | 15540.00  | 35.74            | 46.30             | 10.35         | 38.70             | 38.49             | 54.00  | -15.51 | AV                   |
| V                   | 20720.00  | 54.08            | 57.40             | 11.93         | 37.80             | 46.41             | 68.20  | -21.80 | PK                   |
| V                   | 20720.00  | 44.48            | 57.40             | 11.93         | 37.80             | 36.81             | 54.00  | -17.19 | AV                   |
| V                   | 25900.00  | 51.82            | 56.50             | 13.45         | 39.70             | 48.47             | 68.20  | -19.73 | PK                   |
| V                   | 25900.00  | 41.84            | 56.50             | 13.45         | 39.70             | 38.49             | 54.00  | -15.51 | AV                   |
| V                   | 31080.00  | 48.04            | 56.10             | 16.12         | 41.60             | 49.66             | 68.20  | -18.54 | PK                   |
| V                   | 31080.00  | 41.15            | 56.10             | 16.12         | 41.60             | 42.77             | 54.00  | -11.23 | AV                   |
| V                   | 36260.00  | 44.85            | 56.80             | 18.29         | 42.80             | 49.84             | 68.20  | -18.36 | PK                   |
| V                   | 36260.00  | 39.14            | 56.80             | 18.29         | 42.80             | 44.13             | 54.00  | -9.87  | AV                   |
| H                   | 10360.00  | 48.06            | 46.20             | 8.27          | 38.50             | 48.63             | 68.20  | -19.57 | PK                   |
| H                   | 10360.00  | 37.26            | 46.20             | 8.27          | 38.50             | 37.83             | 54.00  | -16.17 | AV                   |
| H                   | 15540.00  | 44.42            | 46.30             | 10.35         | 38.70             | 47.17             | 74.00  | -26.83 | PK                   |
| H                   | 15540.00  | 33.43            | 46.30             | 10.35         | 38.70             | 36.18             | 54.00  | -17.82 | AV                   |
| H                   | 20720.00  | 56.20            | 57.40             | 11.93         | 37.80             | 48.53             | 68.20  | -19.67 | PK                   |
| H                   | 20720.00  | 45.32            | 57.40             | 11.93         | 37.80             | 37.65             | 54.00  | -16.35 | AV                   |
| H                   | 25900.00  | 52.79            | 56.50             | 13.45         | 39.70             | 49.44             | 68.20  | -18.76 | PK                   |
| H                   | 25900.00  | 41.87            | 56.50             | 13.45         | 39.70             | 38.52             | 54.00  | -15.48 | AV                   |
| H                   | 31080.00  | 48.34            | 56.10             | 16.12         | 41.60             | 49.96             | 68.20  | -18.24 | PK                   |
| H                   | 31080.00  | 42.80            | 56.10             | 16.12         | 41.60             | 44.42             | 54.00  | -9.58  | AV                   |
| H                   | 36260.00  | 43.80            | 56.80             | 18.29         | 42.80             | 48.79             | 68.20  | -19.41 | PK                   |
| H                   | 36260.00  | 39.12            | 56.80             | 18.29         | 42.80             | 44.11             | 54.00  | -9.89  | AV                   |



| Polar<br>(H/V)         | Frequency | Meter<br>Reading | Pre-<br>amplifier | Cable<br>Loss | Antenna<br>Factor | Emission<br>Level | Limits   | Margin | Detect<br>or<br>Type |
|------------------------|-----------|------------------|-------------------|---------------|-------------------|-------------------|----------|--------|----------------------|
|                        | (MHz)     | (dBuV)           | (dB)              | (dB)          | (dB)              | (dBuV/m)          | (dBuV/m) | (dB)   |                      |
| Middle Channel:5200MHz |           |                  |                   |               |                   |                   |          |        |                      |
| V                      | 10400.00  | 47.23            | 46.20             | 8.27          | 38.50             | 47.80             | 68.20    | -20.40 | PK                   |
| V                      | 10400.00  | 38.34            | 46.20             | 8.27          | 38.50             | 38.91             | 54.00    | -15.09 | AV                   |
| V                      | 15600.00  | 45.66            | 46.30             | 10.35         | 38.40             | 48.11             | 74.00    | -25.89 | PK                   |
| V                      | 15600.00  | 37.21            | 46.30             | 10.35         | 38.40             | 39.66             | 54.00    | -14.34 | AV                   |
| V                      | 20800.00  | 55.23            | 57.40             | 11.93         | 37.80             | 47.56             | 68.20    | -20.64 | PK                   |
| V                      | 20800.00  | 45.93            | 57.40             | 11.93         | 37.80             | 38.26             | 54.00    | -15.74 | AV                   |
| V                      | 26000.00  | 50.54            | 56.50             | 13.45         | 39.80             | 47.29             | 68.20    | -20.91 | PK                   |
| V                      | 26000.00  | 43.03            | 56.50             | 13.45         | 39.80             | 39.78             | 54.00    | -14.22 | AV                   |
| V                      | 31200.00  | 48.02            | 56.10             | 16.12         | 41.60             | 49.64             | 68.20    | -18.56 | PK                   |
| V                      | 31200.00  | 43.00            | 56.10             | 16.12         | 41.60             | 44.62             | 54.00    | -9.38  | AV                   |
| V                      | 36400.00  | 44.28            | 56.80             | 18.29         | 42.80             | 49.27             | 68.20    | -18.93 | PK                   |
| V                      | 36400.00  | 39.65            | 56.80             | 18.29         | 42.80             | 44.64             | 54.00    | -9.36  | AV                   |
| H                      | 10400.00  | 47.79            | 46.20             | 8.27          | 38.50             | 48.36             | 68.20    | -19.84 | PK                   |
| H                      | 10400.00  | 38.58            | 46.20             | 8.27          | 38.50             | 39.15             | 54.00    | -14.85 | AV                   |
| H                      | 15600.00  | 45.65            | 46.30             | 10.35         | 38.40             | 48.10             | 74.00    | -25.90 | PK                   |
| H                      | 15600.00  | 37.21            | 46.30             | 10.35         | 38.40             | 39.66             | 54.00    | -14.34 | AV                   |
| H                      | 20800.00  | 54.22            | 57.40             | 11.93         | 37.80             | 46.55             | 68.20    | -21.65 | PK                   |
| H                      | 20800.00  | 43.91            | 57.40             | 11.93         | 37.80             | 36.24             | 54.00    | -17.76 | AV                   |
| H                      | 26000.00  | 50.29            | 56.50             | 13.45         | 39.80             | 47.04             | 68.20    | -21.16 | PK                   |
| H                      | 26000.00  | 42.27            | 56.50             | 13.45         | 39.80             | 39.02             | 54.00    | -14.98 | AV                   |
| H                      | 31200.00  | 48.36            | 56.10             | 16.12         | 41.60             | 49.98             | 68.20    | -18.22 | PK                   |
| H                      | 31200.00  | 42.92            | 56.10             | 16.12         | 41.60             | 44.54             | 54.00    | -9.46  | AV                   |
| H                      | 36400.00  | 44.28            | 56.80             | 18.29         | 42.80             | 49.27             | 68.20    | -18.93 | PK                   |
| H                      | 36400.00  | 39.73            | 56.80             | 18.29         | 42.80             | 44.72             | 54.00    | -9.28  | AV                   |

| Polar<br>(H/V)       | Frequency | Meter<br>Reading | Pre-<br>amplifier | Cable<br>Loss | Antenna<br>Factor | Emission<br>Level | Limits   | Margin | Detect<br>or<br>Type |
|----------------------|-----------|------------------|-------------------|---------------|-------------------|-------------------|----------|--------|----------------------|
|                      | (MHz)     | (dBuV)           | (dB)              | (dB)          | (dB)              | (dBuV/m)          | (dBuV/m) | (dB)   |                      |
| High Channel:5240MHz |           |                  |                   |               |                   |                   |          |        |                      |
| V                    | 10480.00  | 44.17            | 46.20             | 8.27          | 38.60             | 44.84             | 68.20    | -23.36 | PK                   |
| V                    | 10480.00  | 34.57            | 46.20             | 8.27          | 38.60             | 35.24             | 54.00    | -18.76 | AV                   |
| V                    | 15720.00  | 41.84            | 46.30             | 10.35         | 38.40             | 44.29             | 74.00    | -29.71 | PK                   |
| V                    | 15720.00  | 32.40            | 46.30             | 10.35         | 38.40             | 34.85             | 54.00    | -19.15 | AV                   |
| V                    | 20960.00  | 51.52            | 57.40             | 11.93         | 37.50             | 43.55             | 68.20    | -24.65 | PK                   |
| V                    | 20960.00  | 43.31            | 57.40             | 11.93         | 37.50             | 35.34             | 54.00    | -18.66 | AV                   |
| V                    | 26200.00  | 47.67            | 56.50             | 13.45         | 40.10             | 44.72             | 68.20    | -23.48 | PK                   |
| V                    | 26200.00  | 38.64            | 56.50             | 13.45         | 40.10             | 35.69             | 54.00    | -18.31 | AV                   |
| V                    | 31440.00  | 48.27            | 56.10             | 16.12         | 41.30             | 49.59             | 68.20    | -18.61 | PK                   |
| V                    | 31440.00  | 42.86            | 56.10             | 16.12         | 41.30             | 44.18             | 54.00    | -9.82  | AV                   |
| V                    | 36680.00  | 43.38            | 56.80             | 18.29         | 43.10             | 48.67             | 68.20    | -19.53 | PK                   |
| V                    | 36680.00  | 38.53            | 56.80             | 18.29         | 43.10             | 43.82             | 54.00    | -10.18 | AV                   |
| H                    | 10480.00  | 44.39            | 46.20             | 8.27          | 38.60             | 45.06             | 68.20    | -23.14 | PK                   |
| H                    | 10480.00  | 34.57            | 46.20             | 8.27          | 38.60             | 35.24             | 54.00    | -18.76 | AV                   |
| H                    | 15720.00  | 42.14            | 46.30             | 10.35         | 38.40             | 44.59             | 74.00    | -29.41 | PK                   |
| H                    | 15720.00  | 32.49            | 46.30             | 10.35         | 38.40             | 34.94             | 54.00    | -19.06 | AV                   |
| H                    | 20960.00  | 51.71            | 57.40             | 11.93         | 37.50             | 43.74             | 68.20    | -24.46 | PK                   |
| H                    | 20960.00  | 43.20            | 57.40             | 11.93         | 37.50             | 35.23             | 54.00    | -18.77 | AV                   |
| H                    | 26200.00  | 47.39            | 56.50             | 13.45         | 40.10             | 44.44             | 68.20    | -23.76 | PK                   |
| H                    | 26200.00  | 38.04            | 56.50             | 13.45         | 40.10             | 35.09             | 54.00    | -18.91 | AV                   |
| H                    | 31440.00  | 47.73            | 56.10             | 16.12         | 41.30             | 49.05             | 68.20    | -19.15 | PK                   |
| H                    | 31440.00  | 42.56            | 56.10             | 16.12         | 41.30             | 43.88             | 54.00    | -10.12 | AV                   |
| H                    | 36680.00  | 44.22            | 56.80             | 18.29         | 43.10             | 49.51             | 68.20    | -18.69 | PK                   |
| H                    | 36680.00  | 39.54            | 56.80             | 18.29         | 43.10             | 44.83             | 54.00    | -9.17  | 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.



|              |                  |                    |        |
|--------------|------------------|--------------------|--------|
| Temperature: | 23.3°C           | Relative Humidity: | 56%    |
| Pressure:    | 101.2kPa         | Test Voltage :     | DC 19V |
| Test Mode :  | 5.8G TX- 802.11a |                    |        |

| Polar<br>(H/V)      | Frequency | Meter<br>Reading | Pre-<br>amplifier | Cable<br>Loss | Antenn<br>Factor | Emission<br>Level | Limits   | Margin | Detect<br>or<br>Typ |
|---------------------|-----------|------------------|-------------------|---------------|------------------|-------------------|----------|--------|---------------------|
|                     | (MHz)     | (dBuV)           | (dB)              | (dB)          | (dB)             | (dBuV/m)          | (dBuV/m) | (dB)   |                     |
| Low Channel:5745MHz |           |                  |                   |               |                  |                   |          |        |                     |
| V                   | 11490.00  | 43.52            | 46.10             | 8.77          | 39.10            | 45.29             | 74.00    | -28.71 | PK                  |
| V                   | 11490.00  | 35.97            | 46.10             | 8.77          | 39.10            | 37.74             | 54.00    | -16.26 | AV                  |
| V                   | 17235.00  | 41.29            | 47.60             | 11.10         | 38.70            | 43.49             | 68.20    | -24.71 | PK                  |
| V                   | 17235.00  | 34.53            | 47.60             | 11.10         | 38.70            | 36.73             | 54.00    | -17.27 | AV                  |
| V                   | 22980.00  | 49.39            | 56.90             | 12.73         | 37.70            | 42.92             | 74.00    | -31.08 | PK                  |
| V                   | 22980.00  | 41.94            | 56.90             | 12.73         | 37.70            | 35.47             | 54.00    | -18.53 | AV                  |
| V                   | 28725.00  | 46.42            | 55.60             | 14.25         | 40.30            | 45.37             | 68.20    | -22.83 | PK                  |
| V                   | 28725.00  | 38.53            | 55.60             | 14.25         | 40.30            | 37.48             | 54.00    | -16.52 | AV                  |
| V                   | 34470.00  | 46.29            | 55.90             | 17.26         | 42.10            | 49.75             | 68.20    | -18.45 | PK                  |
| V                   | 34470.00  | 41.27            | 55.90             | 17.26         | 42.10            | 44.73             | 54.00    | -9.27  | AV                  |
| H                   | 11490.00  | 43.97            | 46.10             | 8.77          | 39.10            | 45.74             | 74.00    | -28.26 | PK                  |
| H                   | 11490.00  | 35.79            | 46.10             | 8.77          | 39.10            | 37.56             | 54.00    | -16.44 | AV                  |
| H                   | 17235.00  | 42.23            | 47.60             | 11.10         | 38.70            | 44.43             | 68.20    | -23.77 | PK                  |
| H                   | 17235.00  | 34.89            | 47.60             | 11.10         | 38.70            | 37.09             | 54.00    | -16.91 | AV                  |
| H                   | 22980.00  | 51.44            | 56.90             | 12.73         | 37.70            | 44.97             | 74.00    | -29.03 | PK                  |
| H                   | 22980.00  | 41.74            | 56.90             | 12.73         | 37.70            | 35.27             | 54.00    | -18.73 | AV                  |
| H                   | 28725.00  | 48.25            | 55.60             | 14.25         | 40.30            | 47.20             | 68.20    | -21.00 | PK                  |
| H                   | 28725.00  | 39.12            | 55.60             | 14.25         | 40.30            | 38.07             | 54.00    | -15.93 | AV                  |
| H                   | 34470.00  | 46.35            | 55.90             | 17.26         | 42.10            | 49.81             | 68.20    | -18.39 | PK                  |
| H                   | 34470.00  | 41.11            | 55.90             | 17.26         | 42.10            | 44.57             | 54.00    | -9.43  | AV                  |



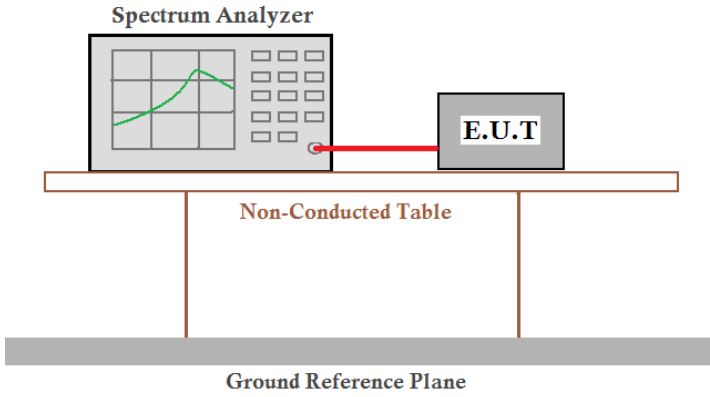
| Polar<br>(H/V)         | Frequency | Meter<br>Reading | Pre-<br>amplifier | Cable<br>Loss | Antenna<br>Factor | Emission<br>Level | Limits   | Margin | Detect<br>or<br>Type |
|------------------------|-----------|------------------|-------------------|---------------|-------------------|-------------------|----------|--------|----------------------|
|                        | (MHz)     | (dBuV)           | (dB)              | (dB)          | (dB)              | (dBuV/m)          | (dBuV/m) | (dB)   |                      |
| Middle Channel:5785MHz |           |                  |                   |               |                   |                   |          |        |                      |
| V                      | 11570.00  | 43.34            | 46.10             | 8.77          | 39.10             | 45.11             | 74.00    | -28.89 | PK                   |
| V                      | 11570.00  | 35.78            | 46.10             | 8.77          | 39.10             | 37.55             | 54.00    | -16.45 | AV                   |
| V                      | 17355.00  | 41.12            | 47.60             | 11.10         | 38.70             | 43.32             | 68.20    | -24.88 | PK                   |
| V                      | 17355.00  | 34.32            | 47.60             | 11.10         | 38.70             | 36.52             | 54.00    | -17.48 | AV                   |
| V                      | 23140.00  | 49.21            | 56.90             | 12.73         | 37.70             | 42.74             | 74.00    | -31.26 | PK                   |
| V                      | 23140.00  | 41.78            | 56.90             | 12.73         | 37.70             | 35.31             | 54.00    | -18.69 | AV                   |
| V                      | 28925.00  | 46.24            | 55.60             | 14.25         | 40.30             | 45.19             | 68.20    | -23.01 | PK                   |
| V                      | 28925.00  | 38.34            | 55.60             | 14.25         | 40.30             | 37.29             | 54.00    | -16.71 | AV                   |
| V                      | 34710.00  | 46.03            | 55.90             | 17.26         | 42.40             | 49.79             | 68.20    | -18.41 | PK                   |
| V                      | 34710.00  | 40.45            | 55.90             | 17.26         | 42.40             | 44.21             | 54.00    | -9.79  | AV                   |
| H                      | 11570.00  | 43.79            | 46.10             | 8.77          | 39.10             | 45.56             | 74.00    | -28.44 | PK                   |
| H                      | 11570.00  | 35.61            | 46.10             | 8.77          | 39.10             | 37.38             | 54.00    | -16.62 | AV                   |
| H                      | 17355.00  | 42.07            | 47.60             | 11.10         | 38.70             | 44.27             | 68.20    | -23.93 | PK                   |
| H                      | 17355.00  | 34.72            | 47.60             | 11.10         | 38.70             | 36.92             | 54.00    | -17.08 | AV                   |
| H                      | 23140.00  | 51.24            | 56.90             | 12.73         | 37.70             | 44.77             | 74.00    | -29.23 | PK                   |
| H                      | 23140.00  | 41.58            | 56.90             | 12.73         | 37.70             | 35.11             | 54.00    | -18.89 | AV                   |
| H                      | 28925.00  | 48.08            | 55.60             | 14.25         | 40.30             | 47.03             | 68.20    | -21.17 | PK                   |
| H                      | 28925.00  | 38.93            | 55.60             | 14.25         | 40.30             | 37.88             | 54.00    | -16.12 | AV                   |
| H                      | 34710.00  | 45.08            | 55.90             | 17.26         | 42.40             | 48.84             | 68.20    | -19.36 | PK                   |
| H                      | 34710.00  | 40.56            | 55.90             | 17.26         | 42.40             | 44.32             | 54.00    | -9.68  | AV                   |

| Polar<br>(H/V)       | Frequency | Meter<br>Reading | Pre-<br>amplifier | Cable<br>Loss | Antenna<br>Factor | Emission<br>Level | Limits   | Margin | Detect<br>or<br>Type |
|----------------------|-----------|------------------|-------------------|---------------|-------------------|-------------------|----------|--------|----------------------|
|                      | (MHz)     | (dBuV)           | (dB)              | (dB)          | (dB)              | (dBuV/m)          | (dBuV/m) | (dB)   |                      |
| High Channel:5825MHz |           |                  |                   |               |                   |                   |          |        |                      |
| V                    | 11650.00  | 44.35            | 46.10             | 8.77          | 39.10             | 46.12             | 74.00    | -27.88 | PK                   |
| V                    | 11650.00  | 35.97            | 46.10             | 8.77          | 39.10             | 37.74             | 54.00    | -16.26 | AV                   |
| V                    | 17475.00  | 42.37            | 47.90             | 11.23         | 38.90             | 44.60             | 68.20    | -23.60 | PK                   |
| V                    | 17475.00  | 35.29            | 47.90             | 11.23         | 38.90             | 37.52             | 54.00    | -16.48 | AV                   |
| V                    | 23300.00  | 51.37            | 57.10             | 12.73         | 37.80             | 44.80             | 68.20    | -23.40 | PK                   |
| V                    | 23300.00  | 42.64            | 57.10             | 12.73         | 37.80             | 36.07             | 54.00    | -17.93 | AV                   |
| V                    | 29125.00  | 48.33            | 55.80             | 14.25         | 40.50             | 47.28             | 68.20    | -20.92 | PK                   |
| V                    | 29125.00  | 40.10            | 55.80             | 14.25         | 40.50             | 39.05             | 54.00    | -14.95 | AV                   |
| V                    | 34950.00  | 45.32            | 56.30             | 17.91         | 42.50             | 49.43             | 68.20    | -18.77 | PK                   |
| V                    | 34950.00  | 40.50            | 56.30             | 17.91         | 42.50             | 44.61             | 54.00    | -9.39  | AV                   |
| H                    | 11650.00  | 46.22            | 46.10             | 8.77          | 39.10             | 47.99             | 74.00    | -26.01 | PK                   |
| H                    | 11650.00  | 38.17            | 46.10             | 8.77          | 39.10             | 39.94             | 54.00    | -14.06 | AV                   |
| H                    | 17475.00  | 43.51            | 47.90             | 11.23         | 38.90             | 45.74             | 68.20    | -22.46 | PK                   |
| H                    | 17475.00  | 36.46            | 47.90             | 11.23         | 38.90             | 38.69             | 54.00    | -15.31 | AV                   |
| H                    | 23300.00  | 52.65            | 57.10             | 12.73         | 37.80             | 46.08             | 68.20    | -22.12 | PK                   |
| H                    | 23300.00  | 43.99            | 57.10             | 12.73         | 37.80             | 37.42             | 54.00    | -16.58 | AV                   |
| H                    | 29125.00  | 49.31            | 55.80             | 14.25         | 40.50             | 48.26             | 68.20    | -19.94 | PK                   |
| H                    | 29125.00  | 40.78            | 55.80             | 14.25         | 40.50             | 39.73             | 54.00    | -14.27 | AV                   |
| H                    | 34950.00  | 45.36            | 56.30             | 17.91         | 42.50             | 49.47             | 68.20    | -18.73 | PK                   |
| H                    | 34950.00  | 40.38            | 56.30             | 17.91         | 42.50             | 44.49             | 54.00    | -9.51  | 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.

#### 4.8.2 Conducted Emission Method

|                   |                                                                                    |              |
|-------------------|------------------------------------------------------------------------------------|--------------|
| Test Requirement: | FCC Part15 C Section 15.209, Part 15E Section 15.407(b)(4)                         |              |
| Test Method:      | ANSI C63.10:2013                                                                   |              |
| Limit:            | -27dBm/MHz                                                                         |              |
| Test setup:       |  |              |
| Test Instruments: | Refer to section 3.0 for details                                                   |              |
| Test mode:        | Refer to section 2.2 for details                                                   |              |
| Test environment: | Temp.: 23.3°C                                                                      | Humid.:56%RH |
| Test voltage:     | DC 19V                                                                             |              |
| Test results:     | Pass                                                                               |              |

**Remark:**

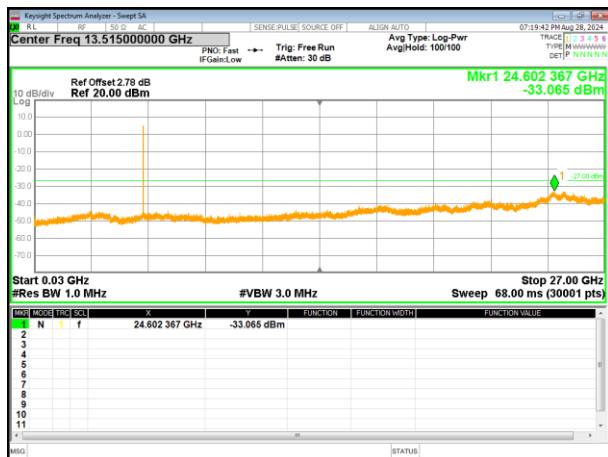
1. Antenna gain and cable loss data included in Offset.
2. We tested 30MHz-40GHz frequency and found 27GHz-40GHz test data was very lower (close to the noise of the spectrum analyzer). The test report only showed data for 30MHz-27GHz.



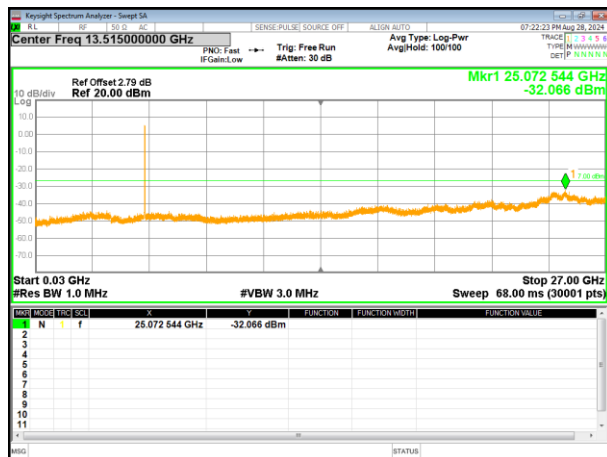
5180-5240MHz

### Test Plot

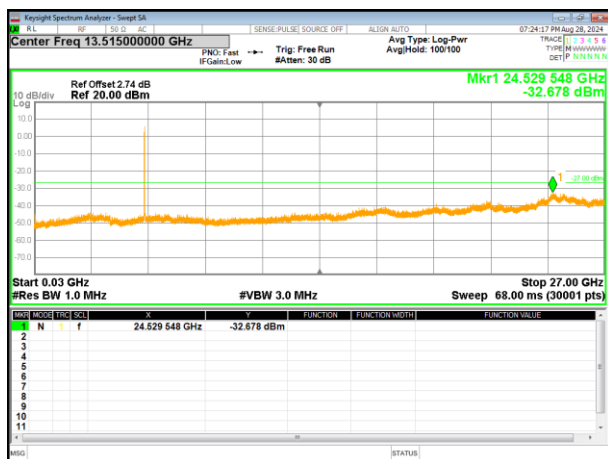
802.11a on channel 36



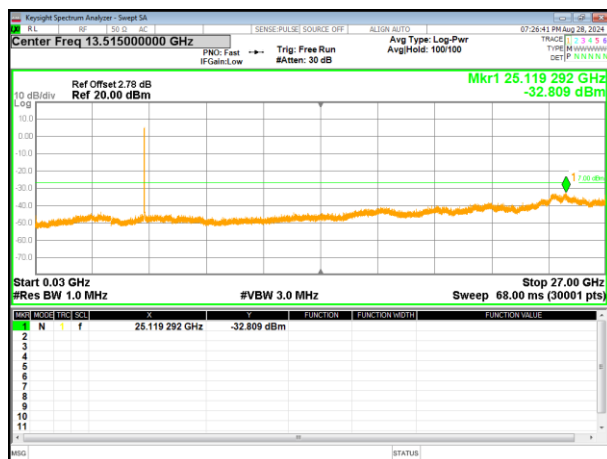
802.11a on channel 40



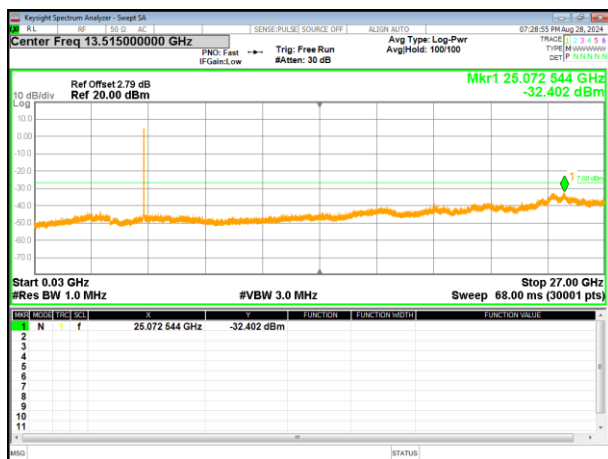
802.11a on channel 48



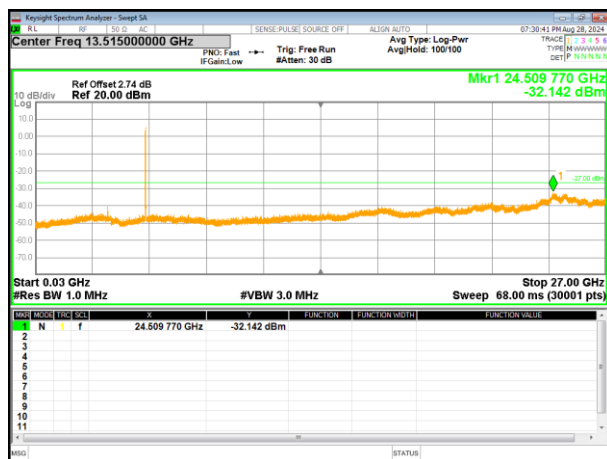
802.11n20 on channel 36



802.11n20 on channel 40

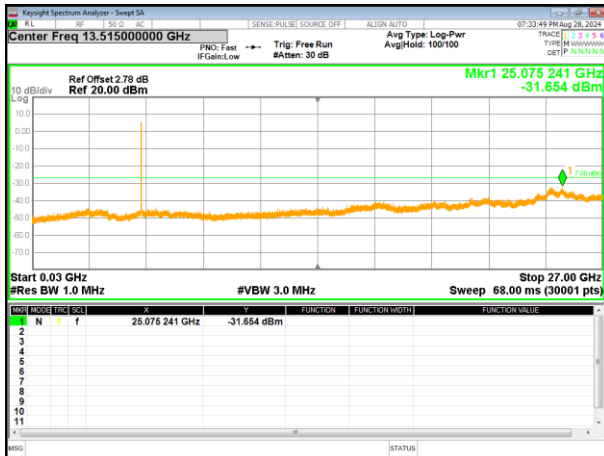


802.11n20 on channel 48

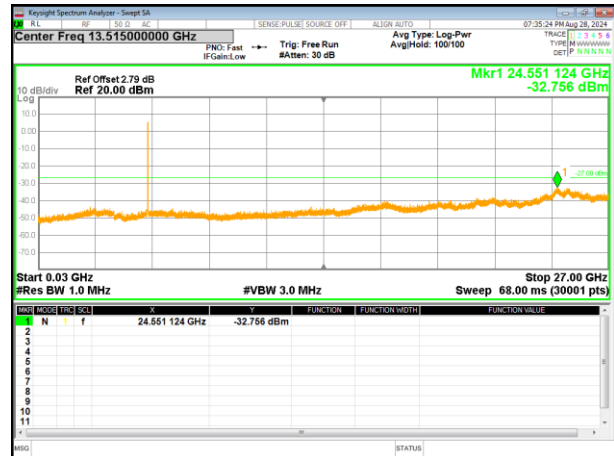


## Test Plot

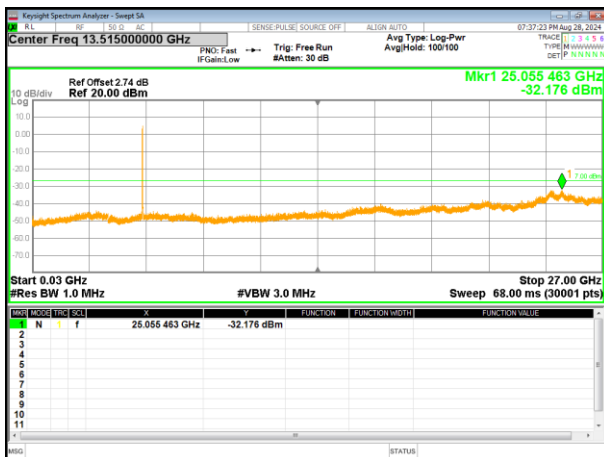
802.11ac20 on channel 36



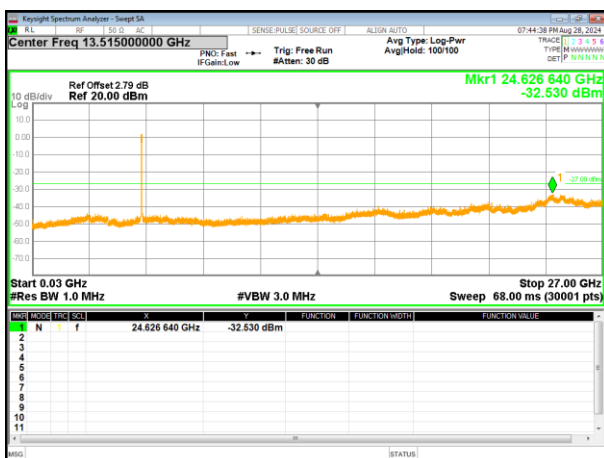
802.11ac20 on channel 40



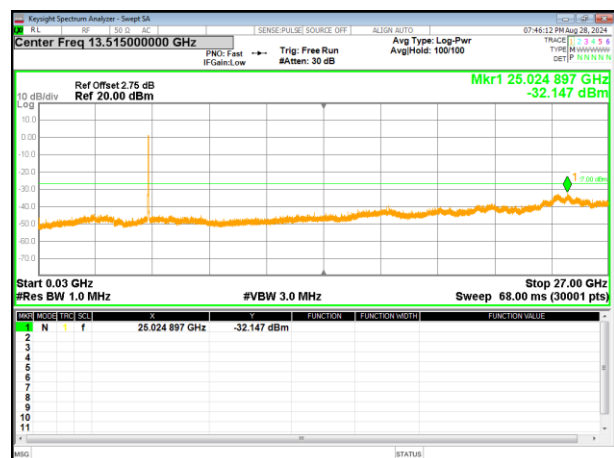
802.11ac20 on channel 48



802.11n40 on channel 38

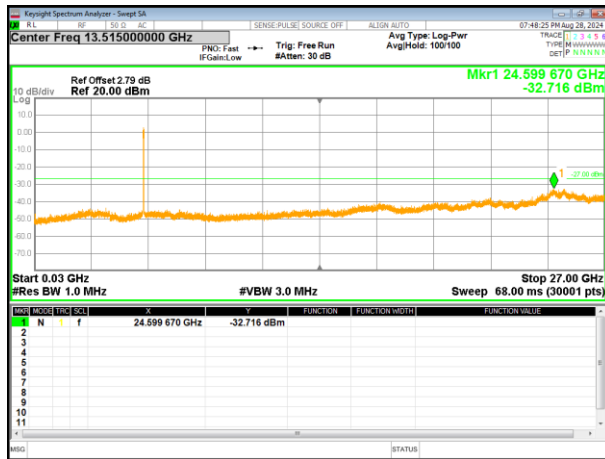


802.11n40 on channel 46

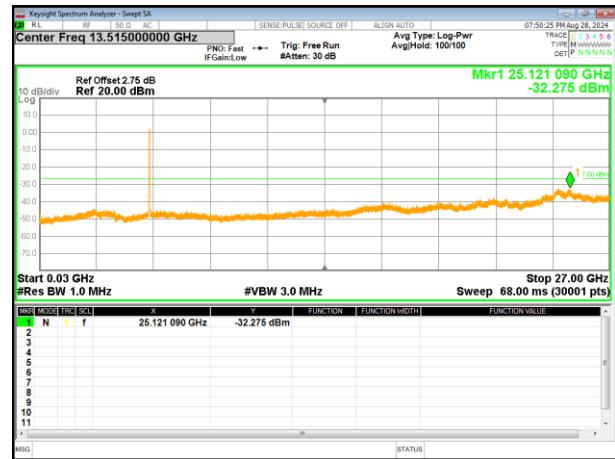


## Test Plot

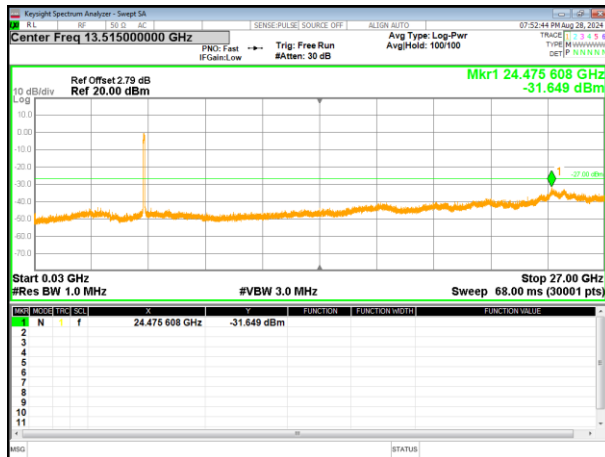
802.11ac40 on channel 38



802.11ac40 on channel 46



802.11ac80 on channel 42

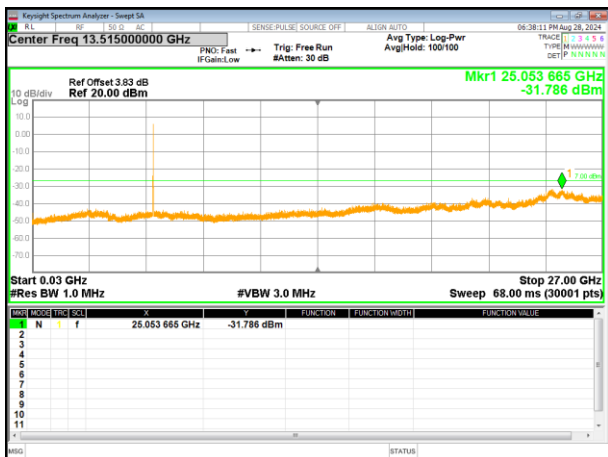




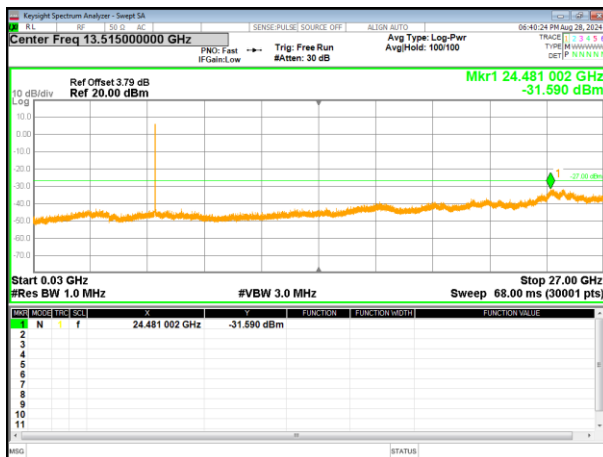
5745-5825MHz

Test Plot

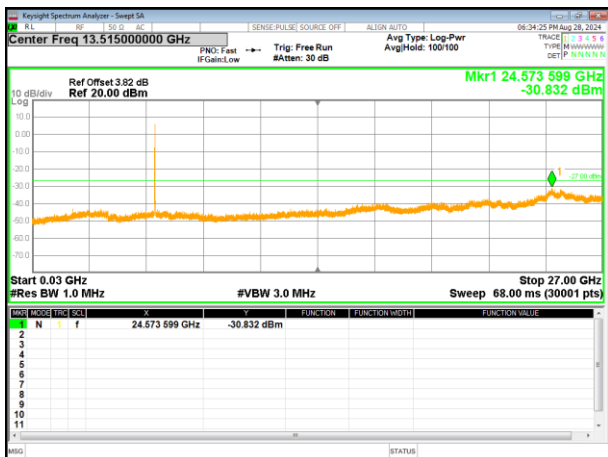
802.11a on channel 149



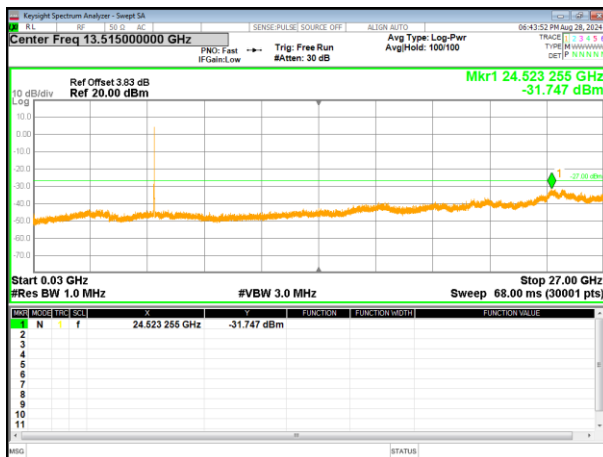
802.11a on channel 157



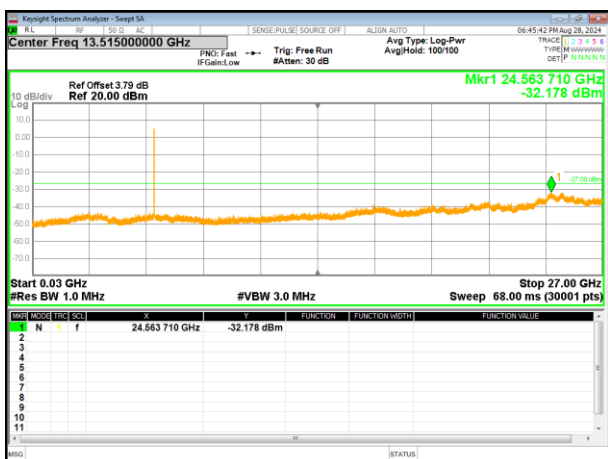
802.11a on channel 165



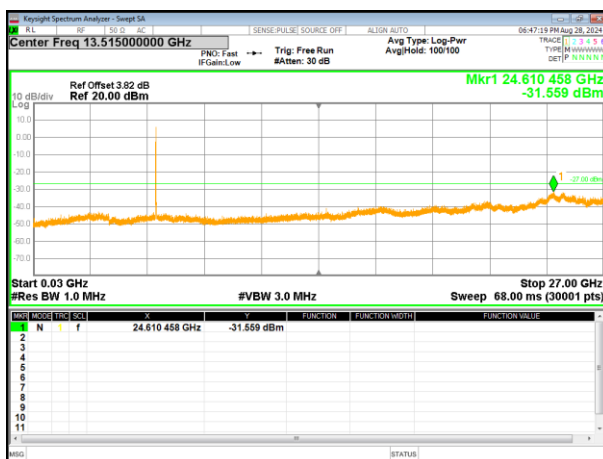
802.11n20 on channel 149



802.11n20 on channel 157

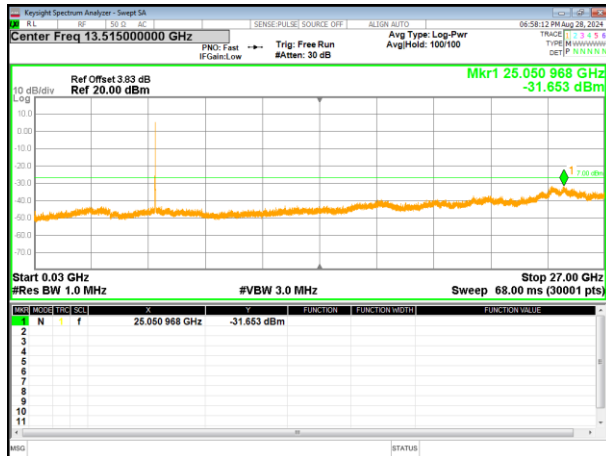


802.11n20 on channel 165

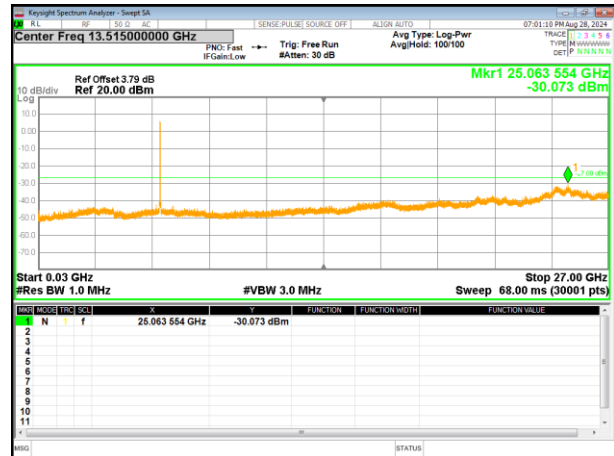


## Test Plot

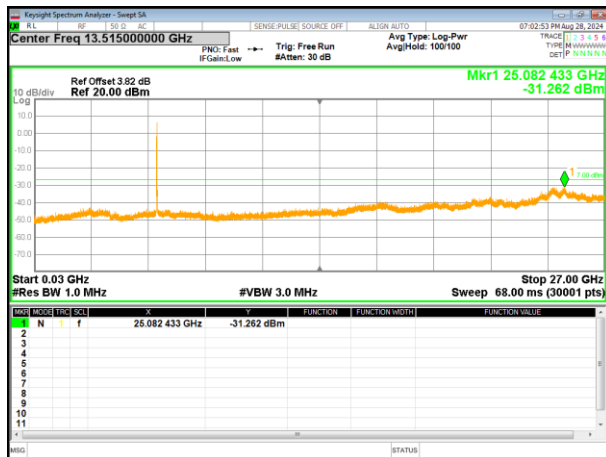
802.11ac20 on channel 149



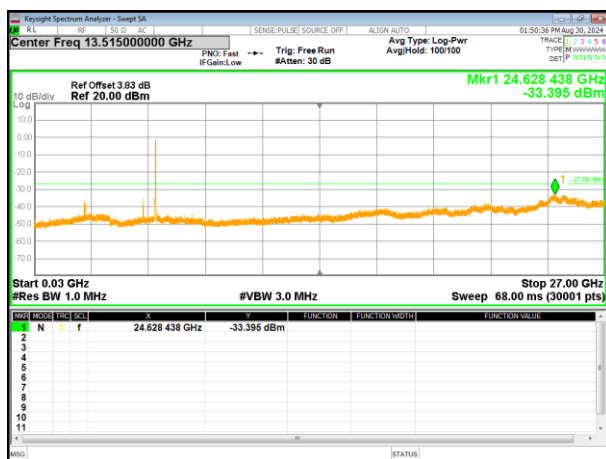
802.11ac20 on channel 157



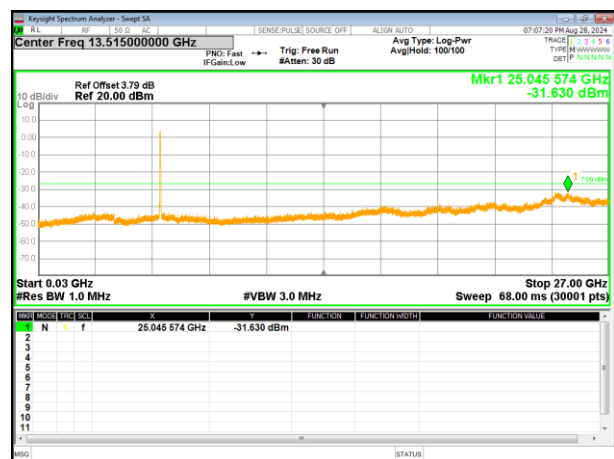
802.11ac20 on channel 165



802.11n40 on channel 151

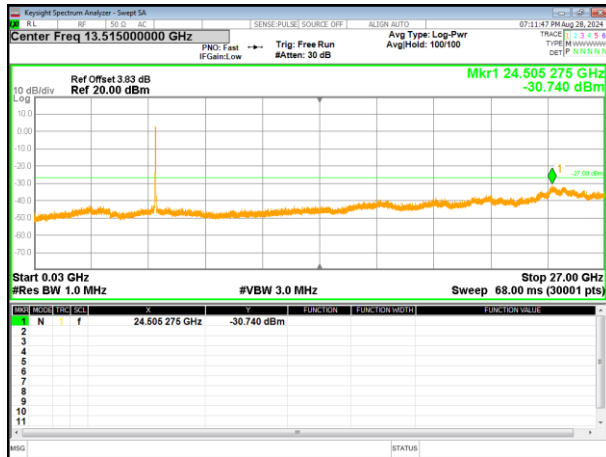


802.11n40 on channel 159

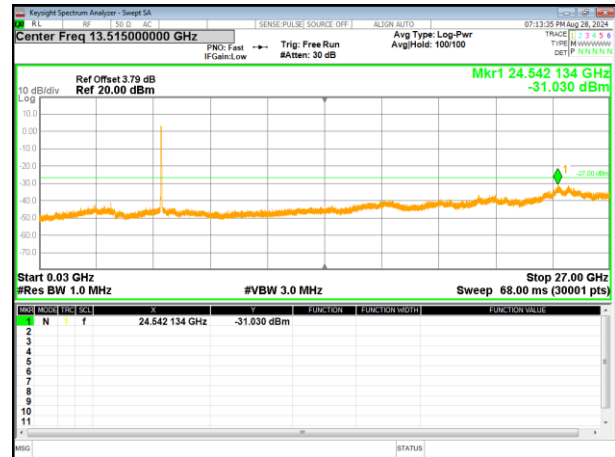


## Test Plot

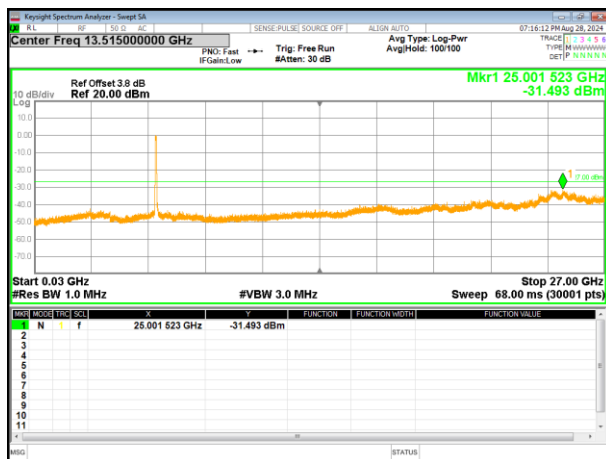
802.11ac40 on channel 151



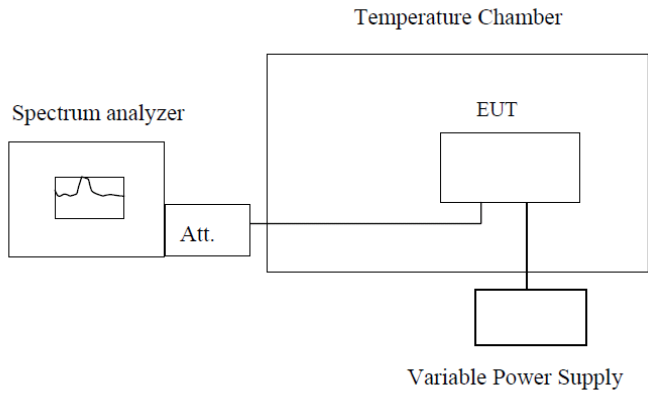
802.11ac40 on channel 159



802.11ac80 on channel 155



## 4.9 Frequency stability

|                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
|-------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Test Requirement: | FCC Part15 C Section 15.407(g)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| Test Method:      | ANSI C63.10:2013, FCC Part 2.1055                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| Limit:            | Manufactures of U-NII devices are responsible for ensuring frequency stability such that an emission is maintained within the band of operation under all conditions of normal operation as specified                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| Test Procedure:   | <p>a. The EUT was placed inside the environmental test chamber and powered by nominal DC voltage.</p> <p>b. Turn the EUT on and couple its output to a spectrum analyzer.</p> <p>c. Turn the EUT off and set the chamber to the highest temperature specified.</p> <p>d. Allow sufficient time (approximately 30 min) for the temperature of the chamber to stabilize, turn the EUT on and measure the operating frequency after 2, 5, and 10 Minutes.</p> <p>e. Repeat step 2 and 3 with the temperature chamber set to the lowest temperature.</p> <p>f. The test chamber was allowed to stabilize at +20 degree C for a minimum of 30 Minute</p> <p>s. The supply voltage was then adjusted on the EUT from 85% to 115% and the frequency record.</p> |
| Test setup:       |  <p><b>Note :</b> Measurement setup for testing on Antenna connector</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| Test Instruments: | Refer to section 3.0 for details                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| Test mode:        | Refer to section 2.2 for details                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| Test results:     | Pass                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |

Remark: Set the EUT transmits at un-modulation mode to test frequency stability.

**Measurement data:**

| Frequency stability versus Temp. |                           |                                   |                                   |                                   |                                    |
|----------------------------------|---------------------------|-----------------------------------|-----------------------------------|-----------------------------------|------------------------------------|
| Power Supply: DC 19V             |                           |                                   |                                   |                                   |                                    |
| Temp. (°C)                       | Operating Frequency (MHz) | 0 minute Measured Frequency (MHz) | 2 minute Measured Frequency (MHz) | 5 minute Measured Frequency (MHz) | 10 minute Measured Frequency (MHz) |
| -30                              | 5180                      | 5180.112                          | 5179.825                          | 5180.430                          | 5180.213                           |
|                                  | 5190                      | 5190.101                          | 5199.840                          | 5200.306                          | 5190.224                           |
|                                  | 5200                      | 5200.104                          | 5199.825                          | 5200.331                          | 5200.215                           |
|                                  | 5210                      | 5210.109                          | 5209.803                          | 5210.309                          | 5210.217                           |
|                                  | 5220                      | 5220.103                          | 5219.818                          | 5220.325                          | 5220.222                           |
|                                  | 5230                      | 5230.102                          | 5229.811                          | 5230.317                          | 5230.240                           |
|                                  | 5240                      | 5240.074                          | 5239.820                          | 5240.326                          | 5240.226                           |
| -20                              | 5180                      | 5180.105                          | 5179.801                          | 5180.315                          | 5180.234                           |
|                                  | 5190                      | 5190.095                          | 5189.792                          | 5190.315                          | 5190.230                           |
|                                  | 5200                      | 5200.103                          | 5199.800                          | 5200.309                          | 5200.225                           |
|                                  | 5210                      | 5210.094                          | 5209.792                          | 5210.299                          | 5210.232                           |
|                                  | 5220                      | 5220.114                          | 5219.813                          | 5220.310                          | 5220.225                           |
|                                  | 5230                      | 5230.093                          | 5229.791                          | 5300.309                          | 5230.223                           |
|                                  | 5240                      | 5240.110                          | 5239.810                          | 5240.312                          | 5240.197                           |
| -10                              | 5180                      | 5180.114                          | 5179.810                          | 5180.294                          | 5180.213                           |
|                                  | 5190                      | 5190.109                          | 5189.806                          | 5190.306                          | 5190.224                           |
|                                  | 5200                      | 5200.104                          | 5199.801                          | 5200.297                          | 5200.215                           |
|                                  | 5210                      | 5210.109                          | 5209.807                          | 5210.298                          | 5210.217                           |
|                                  | 5220                      | 5220.103                          | 5219.802                          | 5220.306                          | 5220.222                           |
|                                  | 5230                      | 5230.102                          | 5229.800                          | 5230.323                          | 5230.240                           |
|                                  | 5240                      | 5240.074                          | 5239.774                          | 5240.296                          | 5240.213                           |
| 0                                | 5180                      | 5179.891                          | 5179.789                          | 5180.306                          | 5180.224                           |
|                                  | 5190                      | 5200.062                          | 5189.800                          | 5190.298                          | 5190.225                           |
|                                  | 5200                      | 5200.060                          | 5199.791                          | 5200.306                          | 5200.216                           |
|                                  | 5210                      | 5210.114                          | 5209.792                          | 5210.298                          | 5300.224                           |
|                                  | 5220                      | 5220.102                          | 5219.799                          | 5220.320                          | 5220.215                           |
|                                  | 5230                      | 5230.090                          | 5229.817                          | 5230.297                          | 5230.236                           |
|                                  | 5240                      | 5240.106                          | 5239.790                          | 5240.316                          | 5240.215                           |
| 10                               | 5180                      | 5180.093                          | 5179.801                          | 5180.315                          | 5180.225                           |
|                                  | 5190                      | 5190.103                          | 5189.792                          | 5190.312                          | 5190.216                           |
|                                  | 5200                      | 5200.094                          | 5199.800                          | 5200.307                          | 5200.224                           |

|    |      |          |          |          |          |
|----|------|----------|----------|----------|----------|
|    | 5210 | 5210.094 | 5209.792 | 5210.313 | 5210.217 |
|    | 5220 | 5220.100 | 5219.813 | 5220.309 | 5220.236 |
|    | 5230 | 5230.119 | 5229.791 | 5230.306 | 5230.214 |
|    | 5240 | 5240.103 | 5239.810 | 5240.280 | 5240.233 |
| 20 | 5180 | 5180.171 | 5179.054 | 5180.564 | 5179.987 |
|    | 5190 | 5190.113 | 5189.843 | 5190.609 | 5190.252 |
|    | 5200 | 5200.108 | 5199.834 | 5200.618 | 5200.277 |
|    | 5210 | 5210.113 | 5299.844 | 5210.611 | 5210.262 |
|    | 5220 | 5220.107 | 5219.834 | 5220.633 | 5220.252 |
|    | 5230 | 5230.106 | 5229.855 | 5230.611 | 5230.280 |
|    | 5240 | 5240.078 | 5239.834 | 5240.630 | 5240.269 |
| 30 | 5180 | 5180.097 | 5179.842 | 5180.617 | 5180.270 |
|    | 5190 | 5190.107 | 5189.834 | 5190.609 | 5180.270 |
|    | 5200 | 5200.098 | 5199.842 | 5200.618 | 5190.266 |
|    | 5210 | 5210.098 | 5209.834 | 5210.611 | 5200.261 |
|    | 5220 | 5220.104 | 5219.855 | 5220.633 | 5210.268 |
|    | 5230 | 5230.123 | 5229.833 | 5230.611 | 5220.262 |
|    | 5240 | 5240.094 | 5239.852 | 5240.630 | 5230.260 |
| 40 | 5180 | 5180.109 | 5179.841 | 5180.403 | 5180.249 |
|    | 5190 | 5190.099 | 5189.843 | 5200.577 | 5190.260 |
|    | 5200 | 5200.107 | 5199.834 | 5200.575 | 5200.251 |
|    | 5210 | 5210.098 | 5299.844 | 5210.631 | 5210.253 |
|    | 5220 | 5220.118 | 5219.834 | 5220.621 | 5220.259 |
|    | 5230 | 5230.097 | 5229.855 | 5230.608 | 5230.277 |
|    | 5240 | 5240.114 | 5239.834 | 5240.626 | 5240.250 |
| 50 | 5180 | 5180.109 | 5179.842 | 5180.617 | 5180.222 |
|    | 5190 | 5190.099 | 5189.834 | 5190.609 | 5190.252 |
|    | 5200 | 5200.107 | 5199.842 | 5200.618 | 5200.277 |
|    | 5210 | 5210.098 | 5209.834 | 5210.611 | 5210.262 |
|    | 5220 | 5220.118 | 5219.855 | 5220.633 | 5220.252 |
|    | 5230 | 5230.097 | 5229.833 | 5230.611 | 5230.280 |
|    | 5240 | 5240.114 | 5239.852 | 5240.630 | 5240.269 |

| Frequency stability versus Voltage |                           |                          |                          |                          |                          |
|------------------------------------|---------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| Temperature: 25°C                  |                           |                          |                          |                          |                          |
| Power Supply (VDC)                 | Operating Frequency (MHz) | 0 minute                 | 2 minute                 | 5 minute                 | 10 minute                |
|                                    |                           | Measured Frequency (MHz) | Measured Frequency (MHz) | Measured Frequency (MHz) | Measured Frequency (MHz) |
| DC 16.15V                          | 5180                      | 5180.014                 | 5179.845                 | 5180.637                 | 5180.390                 |
|                                    | 5190                      | 5190.009                 | 5199.839                 | 5190.629                 | 5200.265                 |
|                                    | 5200                      | 5200.004                 | 5199.867                 | 5200.638                 | 5200.290                 |
|                                    | 5210                      | 5210.009                 | 5209.845                 | 5210.631                 | 5210.269                 |
|                                    | 5220                      | 5220.003                 | 5219.860                 | 5220.653                 | 5220.283                 |
|                                    | 5230                      | 5230.001                 | 5229.853                 | 5230.631                 | 5230.276                 |
|                                    | 5240                      | 5239.973                 | 5239.862                 | 5240.646                 | 5240.285                 |
| DC 19V                             | 5180                      | 5180.000                 | 5179.860                 | 5180.636                 | 5180.275                 |
|                                    | 5190                      | 5189.995                 | 5179.966                 | 5190.638                 | 5190.274                 |
|                                    | 5200                      | 5200.003                 | 5199.842                 | 5200.630                 | 5200.268                 |
|                                    | 5210                      | 5209.995                 | 5209.867                 | 5300.646                 | 5210.259                 |
|                                    | 5220                      | 5220.014                 | 5219.845                 | 5220.632                 | 5220.268                 |
|                                    | 5230                      | 5229.992                 | 5229.860                 | 5230.652                 | 5300.267                 |
|                                    | 5240                      | 5240.009                 | 5239.854                 | 5240.632                 | 5240.271                 |
| DC 21.85V                          | 5180                      | 5180.014                 | 5179.851                 | 5180.625                 | 5180.254                 |
|                                    | 5190                      | 5190.009                 | 5189.848                 | 5190.637                 | 5190.265                 |
|                                    | 5200                      | 5200.004                 | 5199.843                 | 5200.629                 | 5200.255                 |
|                                    | 5210                      | 5210.009                 | 5209.849                 | 5210.631                 | 5210.258                 |
|                                    | 5220                      | 5220.003                 | 5219.844                 | 5220.639                 | 5220.264                 |
|                                    | 5230                      | 5230.001                 | 5229.842                 | 5230.657                 | 5230.287                 |
|                                    | 5240                      | 5239.973                 | 5239.816                 | 5240.630                 | 5240.255                 |

| Frequency stability versus Temp. |                                 |                                         |                                         |                                         |                                          |
|----------------------------------|---------------------------------|-----------------------------------------|-----------------------------------------|-----------------------------------------|------------------------------------------|
| Power Supply: DC 19V             |                                 |                                         |                                         |                                         |                                          |
| Temp.<br>(°C)                    | Operating<br>Frequency<br>(MHz) | 0 minute<br>Measured<br>Frequency (MHz) | 2 minute<br>Measured<br>Frequency (MHz) | 5 minute<br>Measured<br>Frequency (MHz) | 10 minute<br>Measured<br>Frequency (MHz) |
| -30                              | 5745                            | 5744.956                                | 5744.852                                | 5745.674                                | 5745.264                                 |
|                                  | 5755                            | 5754.965                                | 5754.858                                | 5755.682                                | 5755.252                                 |
|                                  | 5775                            | 5774.985                                | 5774.851                                | 5775.701                                | 5775.264                                 |
|                                  | 5785                            | 5784.960                                | 5784.844                                | 5785.677                                | 5785.270                                 |
|                                  | 5795                            | 5794.956                                | 5794.851                                | 5795.674                                | 5795.289                                 |
|                                  | 5825                            | 5824.952                                | 5824.781                                | 5825.680                                | 5825.281                                 |
| -20                              | 5745                            | 5744.953                                | 5744.863                                | 5745.668                                | 5745.275                                 |
|                                  | 5755                            | 5754.967                                | 5754.864                                | 5755.694                                | 5755.288                                 |
|                                  | 5775                            | 5774.965                                | 5774.868                                | 5775.677                                | 5775.274                                 |
|                                  | 5785                            | 5784.967                                | 5784.861                                | 5785.686                                | 5785.260                                 |
|                                  | 5795                            | 5794.977                                | 5794.852                                | 5795.685                                | 5795.255                                 |
|                                  | 5825                            | 5824.957                                | 5824.862                                | 5825.698                                | 5825.289                                 |
| -10                              | 5745                            | 5744.963                                | 5744.853                                | 5745.684                                | 5744.894                                 |
|                                  | 5755                            | 5754.988                                | 5754.859                                | 5755.687                                | 5755.277                                 |
|                                  | 5775                            | 5774.983                                | 5774.877                                | 5775.692                                | 5775.279                                 |
|                                  | 5785                            | 5784.966                                | 5784.854                                | 5785.684                                | 5785.281                                 |
|                                  | 5795                            | 5794.955                                | 5794.850                                | 5795.676                                | 5795.265                                 |
|                                  | 5825                            | 5824.888                                | 5824.853                                | 5825.688                                | 5825.261                                 |
| 0                                | 5745                            | 5744.957                                | 5744.842                                | 5745.684                                | 5745.265                                 |
|                                  | 5755                            | 5754.981                                | 5754.857                                | 5755.687                                | 5755.290                                 |
|                                  | 5775                            | 5774.961                                | 5774.857                                | 5775.692                                | 5775.287                                 |
|                                  | 5785                            | 5784.969                                | 5784.861                                | 5785.684                                | 5785.270                                 |
|                                  | 5795                            | 5794.967                                | 5794.874                                | 5795.676                                | 5795.260                                 |
|                                  | 5825                            | 5824.975                                | 5824.854                                | 5825.688                                | 5825.195                                 |
| 10                               | 5745                            | 5744.957                                | 5744.852                                | 5745.673                                | 5745.260                                 |
|                                  | 5755                            | 5754.981                                | 5754.868                                | 5755.681                                | 5755.271                                 |
|                                  | 5775                            | 5774.961                                | 5774.870                                | 5775.675                                | 5775.289                                 |
|                                  | 5785                            | 5784.969                                | 5784.853                                | 5785.667                                | 5785.264                                 |
|                                  | 5795                            | 5794.967                                | 5794.870                                | 5795.675                                | 5795.261                                 |
|                                  | 5825                            | 5824.975                                | 5824.869                                | 5825.607                                | 5825.264                                 |
| 20                               | 5745                            | 5744.973                                | 5744.877                                | 5745.682                                | 5745.264                                 |
|                                  | 5755                            | 5754.986                                | 5754.848                                | 5755.699                                | 5755.282                                 |
|                                  | 5775                            | 5774.970                                | 5774.872                                | 5775.686                                | 5775.263                                 |
|                                  | 5785                            | 5784.956                                | 5784.873                                | 5785.673                                | 5785.289                                 |
|                                  | 5795                            | 5794.950                                | 5794.864                                | 5795.668                                | 5795.282                                 |
|                                  | 5825                            | 5824.982                                | 5824.880                                | 5825.705                                | 5825.291                                 |
| 30                               | 5745                            | 5744.963                                | 5744.863                                | 5745.667                                | 5745.289                                 |
|                                  | 5755                            | 5754.969                                | 5754.864                                | 5755.691                                | 5755.260                                 |
|                                  | 5775                            | 5774.985                                | 5774.868                                | 5775.694                                | 5775.284                                 |
|                                  | 5785                            | 5784.960                                | 5784.861                                | 5785.676                                | 5785.283                                 |
|                                  | 5795                            | 5794.956                                | 5794.852                                | 5795.694                                | 5795.275                                 |
|                                  | 5825                            | 5824.957                                | 5824.862                                | 5825.695                                | 5825.290                                 |
| 40                               | 5745                            | 5744.973                                | 5744.847                                | 5745.684                                | 5745.258                                 |



|    |      |          |          |          |          |
|----|------|----------|----------|----------|----------|
|    | 5755 | 5754.986 | 5754.871 | 5755.687 | 5755.290 |
|    | 5775 | 5774.970 | 5774.853 | 5775.692 | 5775.287 |
|    | 5785 | 5784.956 | 5784.863 | 5785.684 | 5785.270 |
|    | 5795 | 5794.950 | 5794.861 | 5795.676 | 5795.260 |
|    | 5825 | 5824.982 | 5824.872 | 5825.688 | 5825.195 |
| 50 | 5745 | 5744.973 | 5744.877 | 5745.684 | 5745.264 |
|    | 5755 | 5754.966 | 5754.848 | 5755.698 | 5755.282 |
|    | 5775 | 5774.970 | 5774.872 | 5775.686 | 5775.263 |
|    | 5785 | 5784.956 | 5784.873 | 5785.673 | 5785.290 |
|    | 5795 | 5794.950 | 5794.863 | 5795.668 | 5795.282 |
|    | 5825 | 5824.982 | 5824.884 | 5825.705 | 5825.291 |

| Frequency stability versus Voltage |                           |                                   |                                   |                                   |                                    |
|------------------------------------|---------------------------|-----------------------------------|-----------------------------------|-----------------------------------|------------------------------------|
| Temperature: 25°C                  |                           |                                   |                                   |                                   |                                    |
| Power Supply (VAC)                 | Operating Frequency (MHz) | 0 minute Measured Frequency (MHz) | 2 minute Measured Frequency (MHz) | 5 minute Measured Frequency (MHz) | 10 minute Measured Frequency (MHz) |
| DC 16.15V                          | 5745                      | 5745.067                          | 5744.852                          | 5745.653                          | 5745.253                           |
|                                    | 5755                      | 5755.082                          | 5754.858                          | 5755.671                          | 5755.277                           |
|                                    | 5775                      | 5775.081                          | 5774.851                          | 5775.674                          | 5775.259                           |
|                                    | 5785                      | 5785.083                          | 5784.844                          | 5785.656                          | 5785.267                           |
|                                    | 5795                      | 5795.094                          | 5794.851                          | 5795.675                          | 5795.266                           |
|                                    | 5825                      | 5825.074                          | 5824.781                          | 5825.675                          | 5825.276                           |
| DC 19V                             | 5745                      | 5745.067                          | 5744.863                          | 5745.648                          | 5745.269                           |
|                                    | 5755                      | 5755.082                          | 5754.864                          | 5755.674                          | 5755.282                           |
|                                    | 5775                      | 5775.081                          | 5774.868                          | 5775.657                          | 5775.268                           |
|                                    | 5785                      | 5785.083                          | 5784.861                          | 5785.666                          | 5785.254                           |
|                                    | 5795                      | 5795.090                          | 5794.852                          | 5795.665                          | 5795.249                           |
|                                    | 5825                      | 5825.074                          | 5824.862                          | 5825.678                          | 5825.283                           |
| DC 21.85V                          | 5745                      | 5745.088                          | 5744.876                          | 5745.664                          | 5745.258                           |
|                                    | 5755                      | 5755.101                          | 5754.848                          | 5755.679                          | 5755.276                           |
|                                    | 5775                      | 5775.086                          | 5774.872                          | 5775.666                          | 5775.257                           |
|                                    | 5785                      | 5785.072                          | 5784.873                          | 5785.653                          | 5785.283                           |
|                                    | 5795                      | 5795.066                          | 5794.864                          | 5795.648                          | 5795.276                           |
|                                    | 5825                      | 5825.099                          | 5824.880                          | 5825.685                          | 5825.285                           |

## 5 Test Setup Photo

Reference to the **appendix I** for details.

## 6 EUT Constructional Details

Reference to the **appendix II** for details.

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