



# FCC TEST REPORT

## FCC ID:2A53E-G7

Report Number.....: **ZKT-25120829324E-2**

Date of Test..... Mar. 06, 2026 to Mar. 17, 2026

Date of issue.....: Mar. 17, 2026

Total number of pages..... 97

Test Result .....: PASS

**Testing Laboratory.....: Shenzhen ZKT Technology Co., Ltd.**Address .....: 1/F, No. 101, Building B, No. 6, Tangwei Community Industrial Avenue,  
Fuhai Street, Bao'an District, Shenzhen, China**Applicant's name .....: Shenzhen Haoqing Technology Co., LTD**Address .....: Room 405, Zongtai Future City, No.2007, Baoyuan Road, Xixiang  
Bao'an District Shenzhen China**Manufacturer's name .....: Shenzhen Haoqing Technology Co., LTD**Address .....: Room 405, Zongtai Future City, No.2007, Baoyuan Road, Xixiang  
Bao'an District Shenzhen China

Test specification:

Standard.....: FCC CFR Title 47 Part 15 Subpart E Section 15.407  
ANSI C63.10-2020+Cor 1-2023  
KDB 789033 D02 v02r01

Test procedure.....: /

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

**Test Report Form No.....: TRF-EL-111\_V0****Test Report Form(s) Originator.....: ZKT Testing****Master TRF .....: Dated: 2020-01-06**

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

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**Product name.....: E-book reader**

Trademark .....: N/A

Model/Type reference.....: G7  
G7S, G7CRatings.....: Input: DC 5V --- 2A  
Battery:DC 3.8V, 2500mAh, 9.5Wh



Testing procedure and testing location:

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

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

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

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

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





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1. VERSION

| Report No.         | Version | Description             | Approved      |
|--------------------|---------|-------------------------|---------------|
| ZKT-25120829324E-1 | Rev.01  | Initial issue of report | Mar. 17, 2026 |
|                    |         |                         |               |



## 2. SUMMARY OF TEST RESULTS

Test procedures according to the technical standards:

| FCC Part15 (15.407) , Subpart E                                          |                                                       |          |        |
|--------------------------------------------------------------------------|-------------------------------------------------------|----------|--------|
| Standard Section                                                         | Test Item                                             | Judgment | Remark |
| §15.207(a)                                                               | AC Power Line Conducted Emission                      | PASS     |        |
| §15.205(a)/§15.209(a)<br>§15.407(b)(1)<br>§15.407(b)(4)<br>§15.407(b)(8) | Radiated Emissions and Band Edge                      | PASS     |        |
| §15.407 (e)<br>789033 D02 General<br>U-NII                               | 26dB Emission Bandwidth and<br>6dB Occupied Bandwidth | PASS     |        |
| §15.407(a)(1)<br>§15.407 (a)(3) i                                        | Power Spectral Density                                | PASS     |        |
| §15.407(a)(1)<br>§15.407 (a)(3) i<br>§15.407(a)(12)                      | Maximum Conducted Output Power                        | PASS     |        |
| §15.407(b)(1)<br>§15.407(b)(4)<br>§15.407(b)(8)                          | Conducted Band Edge                                   | PASS     |        |
| §15.407(g)                                                               | Frequency Stability                                   | PASS     |        |
| 789033 D02 General<br>U-NII                                              | Duty Cycle                                            | PASS     |        |
| §15.203                                                                  | Antenna Requirement                                   | PASS     |        |

NOTE:

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



## 2.1 TEST FACILITY

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

FCC Test Firm Registration Number: 927491  
Designation Number: CN1431  
IC Registered No.: 27033  
CAB identifier: CN0110

## 2.2 MEASUREMENT UNCERTAINTY

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

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



### 3. GENERAL INFORMATION

#### 3.1 GENERAL DESCRIPTION OF EUT

|                      |                                                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |       |
|----------------------|-------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|
| Product Name:        | E-book reader                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |       |
| Model No.:           | G7                                                                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |       |
| Serial No.:          | G7S, G7C                                                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |       |
| Model Different.:    | All the model are the same circuit , only the model name are different. |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |       |
| Sample(s) Status:    | Engineer sample                                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |       |
| Sample Number:       | R1                                                                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |       |
| Product Description: | IEEE 802.11 WLAN Mode Supported                                         | <input checked="" type="checkbox"/> 802.11a/n/ac                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |       |
|                      | Data Rate                                                               | 802.11a: 6/9/12/24/18/36/48/54Mbit/s<br>802.11n: MCS0-MCS7<br>802.11ac: MCS0-MCS9                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |       |
|                      | Modulation                                                              | 802.11a/n/ac: Orthogonal Frequency Division Multiplexing (OFDM)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |       |
|                      | Frequency Range                                                         | <input checked="" type="checkbox"/> 5180-5240MHz for 802.11a/n/ac (20M)<br><input checked="" type="checkbox"/> 5180-5240MHz for 802.11n/ac (40M)<br><input checked="" type="checkbox"/> 5210MHz for 802.11ac (80M)<br><input checked="" type="checkbox"/> 5745-5825MHz for 802.11a/n/ac (20M)<br><input checked="" type="checkbox"/> 5745-5825MHz for 802.11n/ac (40M)<br><input checked="" type="checkbox"/> 5775MHz for 802.11ac (80M)                                                                                                                                           |       |
|                      | Number of Channels                                                      | <input checked="" type="checkbox"/> 4 channels for 802.11a/n/ac (20M) in the 5180-5240MHz band<br><input checked="" type="checkbox"/> 2 channels for 802.11n/ac (40M) in the 5190-5230MHz band<br><input checked="" type="checkbox"/> 1 channels for 802.11ac (80M) in the 5210MHz band<br><input checked="" type="checkbox"/> 5 channels for 802.11a/n/ac (20M) in the 5745-5825MHz band<br><input checked="" type="checkbox"/> 2 channels for 802.11n/ac (40M) in the 5755-5795MHz band<br><input checked="" type="checkbox"/> 1 channels for 802.11ac (80M) in the 5775MHz band |       |
| Channel List:        | Please refer to the Note 2.                                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |       |
| Antenna Type:        | FPC Antenna                                                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |       |
| Antenna Gain:        | Band                                                                    | 5.2G                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | 5.8G  |
|                      | Gain (dBi)                                                              | -1.19                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | -0.79 |
| Power Supply:        | Input: 5V <del>---</del> 2A                                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |       |
| Battery Capacity:    | DC 3.8V. 2500mAh. 9.5Wh                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |       |



## Note:

1. For a more detailed features description, please refer to the manufacturer's specifications or the User's Manual.

## 2. Channel List

| 802.11a/n/ac (20M) Frequency Channel for 5.2G |                 |         |                 |         |                 |         |                 |
|-----------------------------------------------|-----------------|---------|-----------------|---------|-----------------|---------|-----------------|
| Channel                                       | Frequency (MHz) | Channel | Frequency (MHz) | Channel | Frequency (MHz) | Channel | Frequency (MHz) |
| 36                                            | 5180            | 40      | 5200            | 44      | 5220            | 48      | 5240            |

| 802.11n/ac (40M) Frequency Channel For 5.2G |                 |         |                 |         |                 |         |                 |
|---------------------------------------------|-----------------|---------|-----------------|---------|-----------------|---------|-----------------|
| Channel                                     | Frequency (MHz) | Channel | Frequency (MHz) | Channel | Frequency (MHz) | Channel | Frequency (MHz) |
| 38                                          | 5190            | 46      | 5230            | -       | -               | -       | -               |

| 802.11ax (80M) Frequency Channel For 5.2G |                 |         |                 |         |                 |         |                 |
|-------------------------------------------|-----------------|---------|-----------------|---------|-----------------|---------|-----------------|
| Channel                                   | Frequency (MHz) | Channel | Frequency (MHz) | Channel | Frequency (MHz) | Channel | Frequency (MHz) |
| 42                                        | 5210            | -       | -               | -       | -               | -       | -               |

| 802.11a/n/ac (20M) Frequency Channel for 5.8G |                 |         |                 |         |                 |         |                 |
|-----------------------------------------------|-----------------|---------|-----------------|---------|-----------------|---------|-----------------|
| Channel                                       | Frequency (MHz) | Channel | Frequency (MHz) | Channel | Frequency (MHz) | Channel | Frequency (MHz) |
| 149                                           | 5745            | 153     | 5765            | 157     | 5785            | 161     | 5805            |
| 165                                           | 5825            | -       | -               | -       | -               | -       | -               |

| 802.11n/ac (40M) Frequency Channel for 5.8G |                 |         |                 |         |                 |         |                 |
|---------------------------------------------|-----------------|---------|-----------------|---------|-----------------|---------|-----------------|
| Channel                                     | Frequency (MHz) | Channel | Frequency (MHz) | Channel | Frequency (MHz) | Channel | Frequency (MHz) |
| 151                                         | 5755            | 159     | 5795            | -       | -               | -       | -               |

| 802.11ax (80M) Frequency Channel For 5.8G |                 |         |                 |         |                 |         |                 |
|-------------------------------------------|-----------------|---------|-----------------|---------|-----------------|---------|-----------------|
| Channel                                   | Frequency (MHz) | Channel | Frequency (MHz) | Channel | Frequency (MHz) | Channel | Frequency (MHz) |
| 155                                       | 5775            | -       | -               | -       | -               | -       | -               |



## 3.2 DESCRIPTION OF TEST MODES

| Pretest Mode | Description                                                                                             |
|--------------|---------------------------------------------------------------------------------------------------------|
| Mode 1       | 802.11a/n/ac (20M) CH 36 / CH 40 / CH 48 For 5.2G<br>802.11a/n/ac (20M) CH149 / CH157 / CH 165 For 5.8G |
| Mode 2       | 802.11n/ac(40M) CH 38 / CH 46 For 5.2G<br>802.11n/ac (40M) CH 151 / CH 159 For 5.8G                     |
| Mode 3       | 802.11ax (80M) CH42 For 5.2G<br>802.11ax (80M) CH 155 For 5.8G                                          |

| Final Test Mode | For Conducted                                                                                           |
|-----------------|---------------------------------------------------------------------------------------------------------|
|                 | Description                                                                                             |
| Mode 1          | 802.11a/n/ac (20M) CH 36 / CH 40 / CH 48 For 5.2G<br>802.11a/n/ac (20M) CH149 / CH157 / CH 165 For 5.8G |
| Mode 2          | 802.11n/ac(40M) CH 38 / CH 46 For 5.2G<br>802.11n/ac (40M) CH 151 / CH 159 For 5.8G                     |
| Mode 3          | 802.11ax (80M) CH42 For 5.2G<br>802.11ax (80M) CH 155 For 5.8G                                          |

| Final Test Mode | For Radiated                                                                                            |
|-----------------|---------------------------------------------------------------------------------------------------------|
|                 | Description                                                                                             |
| Mode 1          | 802.11a/n/ac (20M) CH 36 / CH 40 / CH 48 For 5.2G<br>802.11a/n/ac (20M) CH149 / CH157 / CH 165 For 5.8G |
| Mode 2          | 802.11n/ac(40M) CH 38 / CH 46 For 5.2G<br>802.11n/ac (40M) CH 151 / CH 159 For 5.8G                     |
| Mode 3          | 802.11ax (80M) CH42 For 5.2G<br>802.11ax (80M) CH 155 For 5.8G                                          |

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

|                                                                                                                                                                                                              |         |               |                      |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------|---------------|----------------------|
| We have verified the construction and function in typical operation. All the test modes were carried out with the EUT in transmitting operation, which was shown in this test report and defined as follows: |         |               |                      |
| Pre-scan all kind of data rate in lowest channel, and found the follow list which it was worst case.                                                                                                         |         |               |                      |
| Mode                                                                                                                                                                                                         | 802.11a | 802.11n20/n40 | 802.11ac20/ac40/ac80 |
| Data rate                                                                                                                                                                                                    | 6Mbps   | MCS0(HT0)     | MCS0(VHT0)           |

|                   |         |
|-------------------|---------|
| Test Software     | CMD     |
| Power level setup | Default |

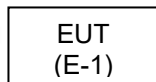


### 3.3 BLOCK DIGRAM SHOWING THE CONFIGURATION OF SYSTEM TESTED

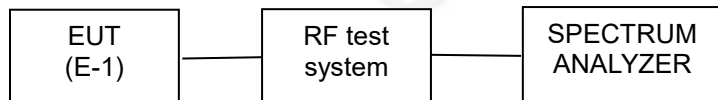
#### Conducted Emission



#### Radiated Emission



#### Conducted Spurious



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

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

| Item | Equipment     | Mfr/Brand | Model/Type No. | Series No. | Note      |
|------|---------------|-----------|----------------|------------|-----------|
| E-1  | E-book reader | N/A       | G7             | N/A        | EUT       |
| E-2  | AC/DC Adapter | N/A       | X569           | N/A        | Auxiliary |

| Item | Shielded Type | Ferrite Core | Length | Note    |
|------|---------------|--------------|--------|---------|
| C1   | NO            | NO           | 0.3M   | RF Line |
|      |               |              |        |         |

#### Note:

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



## 3.5 EQUIPMENTS LIST FOR ALL TEST ITEMS

## Conducted emissions Test

| Item | Kind of Equipment   | Manufacturer | Type No. | Serial No.           | Firmware Version | Last calibration | Calibrated until |
|------|---------------------|--------------|----------|----------------------|------------------|------------------|------------------|
| 1    | LISN                | R&S          | ENV216   | 101471               | N/A              | Sep. 23, 2025    | Sep. 22, 2026    |
| 2    | LISN                | CYBERTEK     | EM5040A  | E1850400149          | N/A              | Sep. 19, 2025    | Sep. 18, 2026    |
| 3    | Test Cable          | N/A          | C-01     | N/A                  | N/A              | May. 25, 2025    | May. 24, 2026    |
| 4    | Test Cable          | N/A          | C-02     | N/A                  | N/A              | May. 25, 2025    | May. 24, 2026    |
| 5    | Test Cable          | N/A          | C-03     | N/A                  | N/A              | May. 25, 2025    | May. 24, 2026    |
| 6    | EMI Test Receiver   | R&S          | ESCI3    | 101393               | 4.42 SP3         | Oct. 24, 2025    | Oct. 23, 2026    |
| 7    | Triple-Loop Antenna | N/A          | RF300    | 9194                 | N/A              | Sep. 19, 2025    | Sep. 18, 2026    |
| 8    | Absorbing Clamp     | DZ           | ZN23201  | 15034                | N/A              | Sep. 23, 2025    | Sep. 22, 2026    |
| 9    | EMC Software        | Frad         | EZ-EMC   | Ver.EMC-CON<br>3A1.1 | N/A              | \                | \                |

## Radiation Emissions Test

| Item | Equipment                         | Manufacturer   | Type No.        | Serial No.            | Firmware Version | Last calibration | Calibrated until |
|------|-----------------------------------|----------------|-----------------|-----------------------|------------------|------------------|------------------|
| 1    | Spectrum Analyzer (9kHz-26.5GHz)  | KEYSIGHT       | N9020A          | MY55370835            | A.17.05          | Sep. 20, 2025    | Sep. 19, 2026    |
| 2    | Spectrum Analyzer (10kHz-39.9GHz) | R&S            | FSV40-N         | 100363                | 1.71 SP2         | Sep. 20, 2025    | Sep. 19, 2026    |
| 3    | EMI Test Receiver (9kHz-7GHz)     | R&S            | ESCI7           | 100969                | 4.32             | Oct. 24, 2025    | Oct. 23, 2026    |
| 4    | Bilog Antenna (30MHz-1500MHz)     | Schwarzbeck    | VULB9168        | 00877                 | N/A              | Sep. 20, 2025    | Sep. 19, 2026    |
| 5    | Horn Antenna (1GHz-18GHz)         | Agilent        | AH-118          | 071145                | N/A              | Sep. 20, 2025    | Sep. 19, 2026    |
| 6    | Horn Antenna (15GHz-40GHz)        | A.H.System     | SAS-574         | 588                   | N/A              | Sep. 30, 2025    | Sep. 29, 2026    |
| 7    | Loop Antenna                      | TESEQ          | HLA6121         | 58357                 | N/A              | Sep. 20, 2025    | Sep. 19, 2026    |
| 8    | Amplifier (30-1000MHz)            | EM Electronics | EM330 Amplifier | 60747                 | N/A              | Sep. 19, 2025    | Sep. 18, 2026    |
| 9    | Amplifier (1GHz-26.5GHz)          | HuiPu          | 8449B           | 3008A00315            | N/A              | Sep. 19, 2025    | Sep. 18, 2026    |
| 10   | Amplifier (500MHz-40GHz)          | QuanJuDa       | DLE-161         | 097                   | N/A              | Oct. 24, 2025    | Oct. 23, 2026    |
| 11   | Test Cable                        | N/A            | R-01            | N/A                   | N/A              | May. 25, 2025    | May. 24, 2026    |
| 12   | Test Cable                        | N/A            | R-02            | N/A                   | N/A              | May. 25, 2025    | May. 24, 2026    |
| 13   | Test Cable                        | N/A            | R-03            | N/A                   | N/A              | May. 25, 2025    | May. 24, 2026    |
| 14   | D.C. Power Supply                 | LongWei        | TPR-6405D       | N/A                   | N/A              | \                | \                |
| 15   | EMC Software                      | Frad           | EZ-EMC          | Ver.EMC-CO<br>N 3A1.1 | N/A              | \                | \                |
| 16   | Turntable                         | MF             | MF-7802BS       | N/A                   | N/A              | \                | \                |
| 17   | Antenna tower                     | MF             | MF-7802BS       | N/A                   | N/A              | \                | \                |



## RF Conducted Test

| Item | Equipment                         | Manufacturer | Type No.    | Serial No.    | Firmware Version | Last calibration | Calibrated until |
|------|-----------------------------------|--------------|-------------|---------------|------------------|------------------|------------------|
| 1    | Spectrum Analyzer (9kHz-26.5GHz)  | KEYSIGHT     | N9020A      | MY55370835    | A.17.05          | Sep. 20, 2025    | Sep. 19, 2026    |
| 2    | Spectrum Analyzer (10kHz-39.9GHz) | R&S          | FSV40-N     | 100363        | 1.71 SP2         | Sep. 20, 2025    | Sep. 19, 2026    |
| 3    | Test Cable                        | N/A          | RF-01       | N/A           | N/A              | May. 25, 2025    | May. 24, 2026    |
| 4    | Test Cable                        | N/A          | RF-02       | N/A           | N/A              | May. 25, 2025    | May. 24, 2026    |
| 5    | Test Cable                        | N/A          | RF-03       | N/A           | N/A              | May. 25, 2025    | May. 24, 2026    |
| 6    | ESG Signal Generator              | Agilent      | E4421B      | N/A           | B.03.84          | Sep. 19, 2025    | Sep. 18, 2026    |
| 7    | Signal Generator                  | Agilent      | N5182A      | N/A           | A.01.87          | Sep. 20, 2025    | Sep. 19, 2026    |
| 8    | Magnetic Field Probe Tester       | Narda        | ELT-400     | 0-0344/M-1752 | N/A              | Sep. 25, 2025    | Sep. 24, 2026    |
| 9    | SHIELD BOX                        | TESCOM       | TC-5970C    | 5970C015553   | N/A              | Dec. 18, 2025    | Dec. 17, 2026    |
| 10   | Wideband Radio Communication Test | R&S          | CMW500      | 106504        | V 3.7.22         | Sep. 28, 2025    | Sep. 27, 2026    |
| 11   | MWRF Power Meter Test system      | MW           | MW100-RF CB | N/A           | N/A              | Sep. 19, 2025    | Sep. 18, 2026    |
| 12   | D.C. Power Supply                 | LongWei      | TPR-6405 D  | N/A           | N/A              | \                | \                |
| 13   | RF Software                       | MW           | MTS8310     | V2.0.0.0      | N/A              | \                | \                |



## 4. EMC EMISSION TEST

### 4.1 CONDUCTED EMISSION MEASUREMENT

|                       |                                      |
|-----------------------|--------------------------------------|
| Test Requirement:     | FCC Part15 C Section 15.207          |
| Test Method:          | ANSI C63.10-2020+Cor 1-2023          |
| Test Frequency Range: | 150KHz to 30MHz                      |
| Receiver setup:       | RBW=9KHz, VBW=30KHz, Sweep time=auto |

#### 4.1.1 POWER LINE CONDUCTED EMISSION LIMITS

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

Note:

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

#### 4.1.2 TEST PROCEDURE

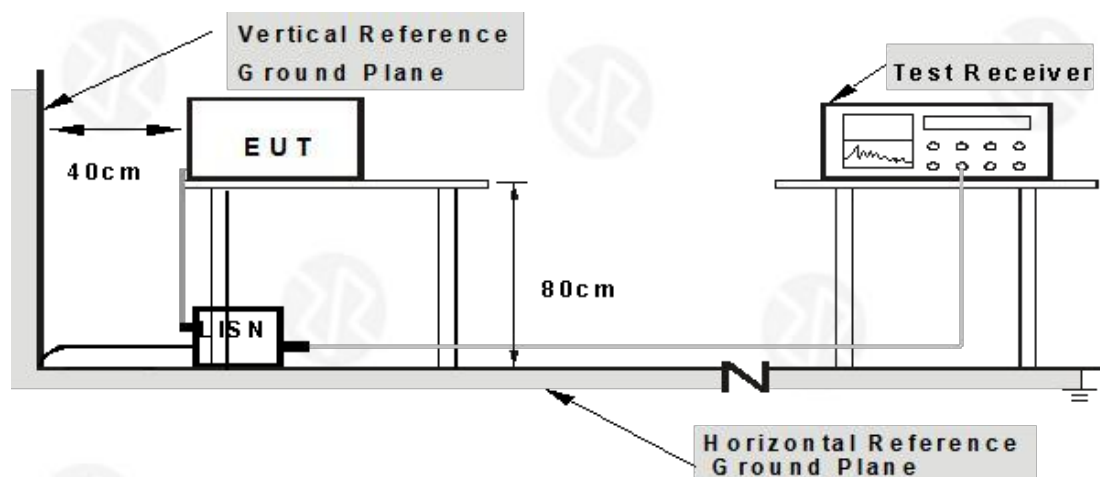
- The EUT was placed 0.8 meters from the horizontal ground plane with EUT being connected to the power mains through a line impedance stabilization network (LISN). All other support equipments
- powered from additional LISN(s). The LISN provide 50 Ohm/ 50uH of coupling impedance for the measuring instrument.
  - Interconnecting cables that hang closer than 40 cm to the ground plane shall be folded back and forth in the center forming a bundle 30 to 40 cm long.
  - I/O cables that are not connected to a peripheral shall be bundled in the center. The end of the cable may be terminated, if required, using the correct terminating impedance. The overall length shall not exceed 1 m.
  - LISN at least 80 cm from nearest part of EUT chassis.
  - For the actual test configuration, please refer to the related Item –EUT Test Photos.

#### 4.1.3 DEVIATION FROM TEST STANDARD

No deviation



#### 4.1.4 TEST SETUP



- Note: 1.Support units were connected to second LISN.**  
**2.Both of LISNs (AMN) are 80 cm from EUT and at least 80 cm from other units and other metal planes**

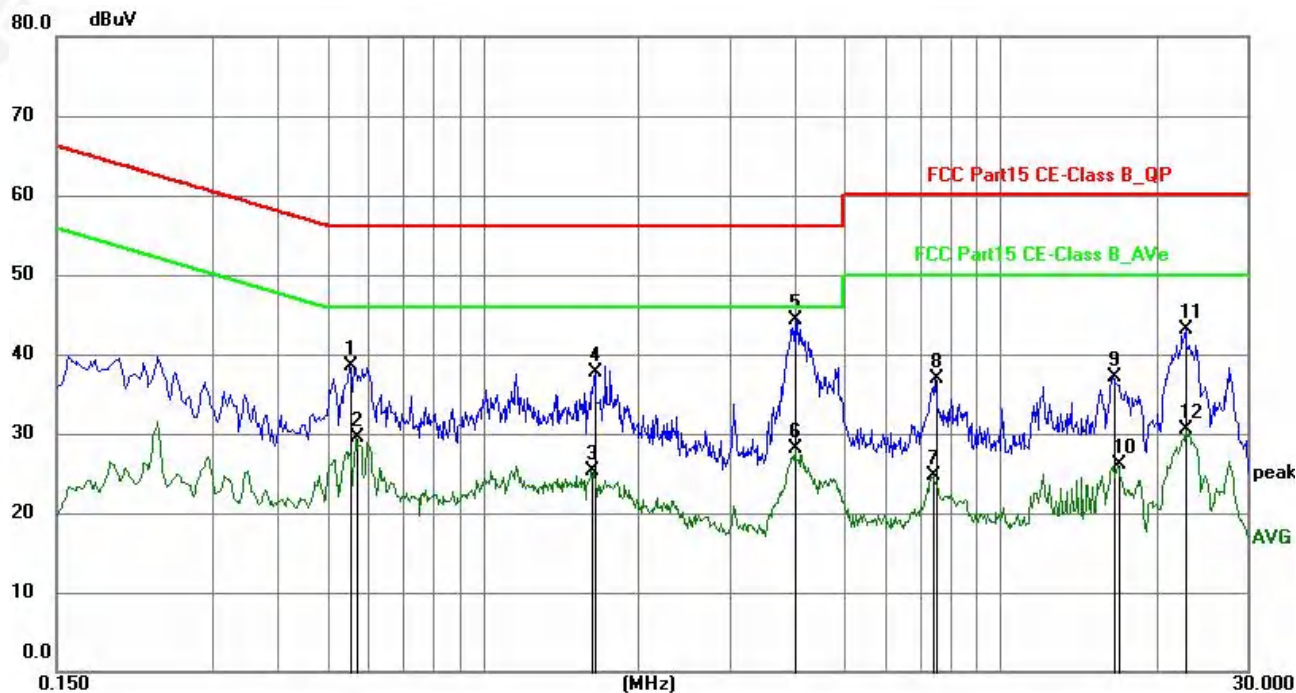
#### 4.1.5 EUT OPERATING CONDITIONS

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



## 4.1.6 TEST RESULT

|               |              |                    |                    |
|---------------|--------------|--------------------|--------------------|
| Temperature:  | 26℃          | Relative Humidity: | 54%                |
| Pressure:     | 101 kPa      | Polarization:      | L                  |
| Test Voltage: | AC 120V/60Hz | Test Mode:         | 802.11ac - 5180MHz |
| Test Band:    | 5.2G         |                    |                    |



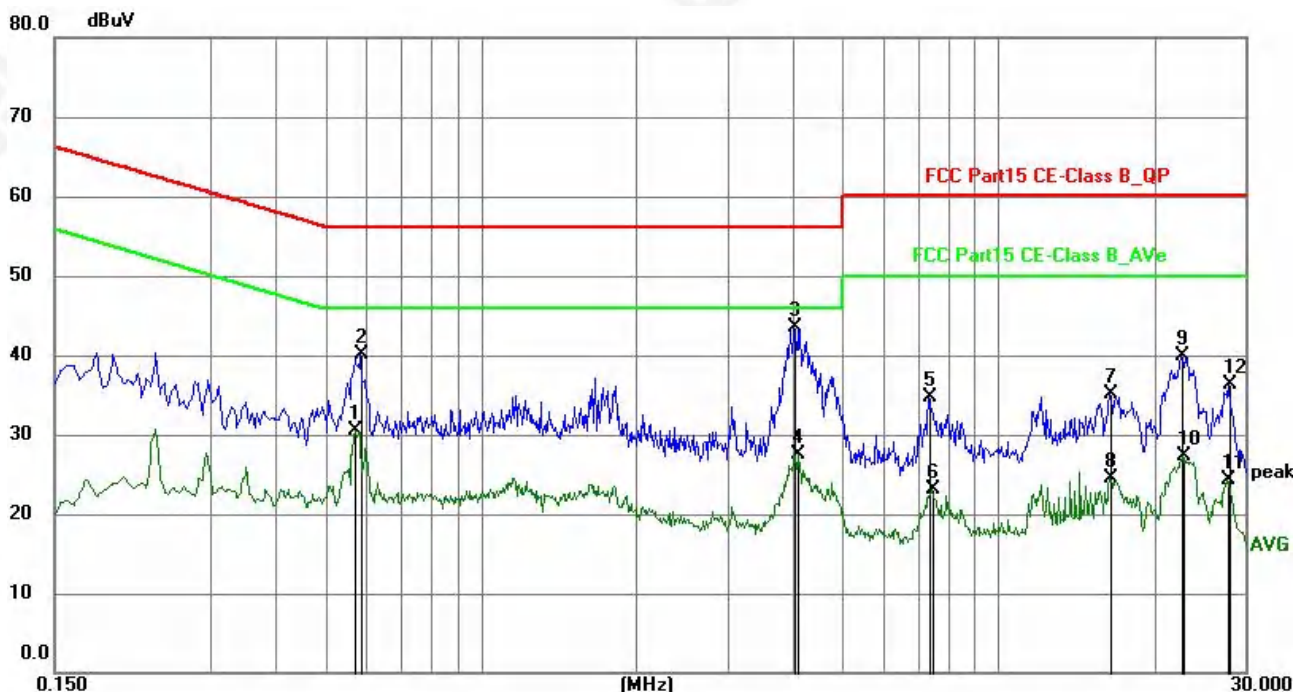
| No. | Frequency (MHz) | Reading (dBuV) | Factor (dB) | Level (dBuV) | Limit (dBuV) | Margin (dB) | Detector | P/F | Remark |
|-----|-----------------|----------------|-------------|--------------|--------------|-------------|----------|-----|--------|
| 1   | 0.5546          | 18.93          | 19.63       | 38.56        | 56.00        | -17.44      | QP       | P   |        |
| 2   | 0.5684          | 9.85           | 19.63       | 29.48        | 46.00        | -16.52      | AVG      | P   |        |
| 3   | 1.6255          | 5.65           | 19.67       | 25.32        | 46.00        | -20.68      | AVG      | P   |        |
| 4   | 1.6484          | 17.96          | 19.67       | 37.63        | 56.00        | -18.37      | QP       | P   |        |
| 5   | 4.0243          | 24.67          | 19.71       | 44.38        | 56.00        | -11.62      | QP       | P   |        |
| 6   | 4.0243          | 8.44           | 19.71       | 28.15        | 46.00        | -17.85      | AVG      | P   |        |
| 7   | 7.4218          | 4.88           | 19.74       | 24.62        | 50.00        | -25.38      | AVG      | P   |        |
| 8   | 7.4893          | 17.09          | 19.74       | 36.83        | 60.00        | -23.17      | QP       | P   |        |
| 9   | 16.5390         | 17.23          | 19.79       | 37.02        | 60.00        | -22.98      | QP       | P   |        |
| 10  | 16.8810         | 6.28           | 19.79       | 26.07        | 50.00        | -23.93      | AVG      | P   |        |
| 11  | 22.8567         | 23.29          | 19.79       | 43.08        | 60.00        | -16.92      | QP       | P   |        |
| 12  | 22.8567         | 10.74          | 19.79       | 30.53        | 50.00        | -19.47      | AVG      | P   |        |

## Notes:

1. An initial pre-scan was performed on the line and neutral lines with peak detector.
2. Quasi - Peak and Average measurement were performed at the frequencies with maximized peak emission.
3. Final Level = Reading level + Correct Factor.
4. Correct Factor = Liss factor+ Cable loss factor + limiter factor.
5. Margin = Measurement Level-Limit.
6. The test data shows only the worst case TX 802.11ac - 5180MHz.



|               |              |                    |                    |
|---------------|--------------|--------------------|--------------------|
| Temperature:  | 26℃          | Relative Humidity: | 54%                |
| Pressure:     | 101 kPa      | Polarization:      | N                  |
| Test Voltage: | AC 120V/60Hz | Test Mode:         | 802.11ac - 5180MHz |
| Test Band:    | 5.2G         |                    |                    |



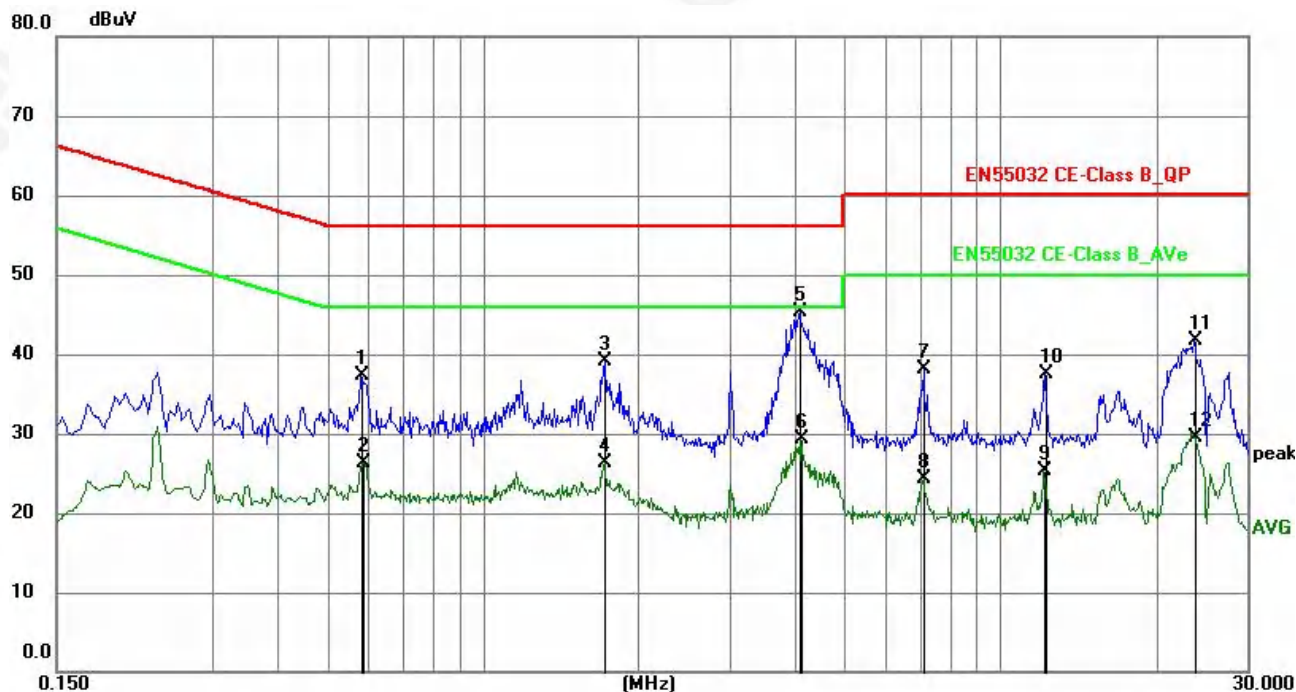
| No. | Frequency (MHz) | Reading (dBuV) | Factor (dB) | Level (dBuV) | Limit (dBuV) | Margin (dB) | Detector | P/F | Remark |
|-----|-----------------|----------------|-------------|--------------|--------------|-------------|----------|-----|--------|
| 1   | 0.5726          | 10.90          | 19.63       | 30.53        | 46.00        | -15.47      | AVG      | P   |        |
| 2   | 0.5864          | 20.51          | 19.62       | 40.13        | 56.00        | -15.87      | QP       | P   |        |
| 3   | 4.0380          | 23.82          | 19.69       | 43.51        | 56.00        | -12.49      | QP       | P   |        |
| 4   | 4.1055          | 7.89           | 19.69       | 27.58        | 46.00        | -18.42      | AVG      | P   |        |
| 5   | 7.3410          | 15.00          | 19.73       | 34.73        | 60.00        | -25.27      | QP       | P   |        |
| 6   | 7.4489          | 3.34           | 19.73       | 23.07        | 50.00        | -26.93      | AVG      | P   |        |
| 7   | 16.3993         | 15.27          | 19.76       | 35.03        | 60.00        | -24.97      | QP       | P   |        |
| 8   | 16.3993         | 4.78           | 19.76       | 24.54        | 50.00        | -25.46      | AVG      | P   |        |
| 9   | 22.6050         | 20.16          | 19.75       | 39.91        | 60.00        | -20.09      | QP       | P   |        |
| 10  | 22.6858         | 7.63           | 19.76       | 27.39        | 50.00        | -22.61      | AVG      | P   |        |
| 11  | 27.8068         | 4.66           | 19.73       | 24.39        | 50.00        | -25.61      | AVG      | P   |        |
| 12  | 27.9825         | 16.66          | 19.73       | 36.39        | 60.00        | -23.61      | QP       | P   |        |

**Notes:**

- 1.An initial pre-scan was performed on the line and neutral lines with peak detector.
- 2.Quasi - Peak and Average measurement were performed at the frequencies with maximized peak emission.
- 3.Final Level = Reading level + Correct Factor.
- 4.Correct Factor = Lissn factor+ Cable loss factor + limiter factor.
- 5.Margin = Measurement Level-Limit.
- 6.The test data shows only the worst case TX 802.11ac - 5180MHz.



|               |              |                    |                    |
|---------------|--------------|--------------------|--------------------|
| Temperature:  | 26℃          | Relative Humidity: | 54%                |
| Pressure:     | 101 kPa      | Polarization:      | L                  |
| Test Voltage: | AC 120V/60Hz | Test Mode:         | 802.11ac - 5745MHz |
| Test Band:    | 5.8G         |                    |                    |



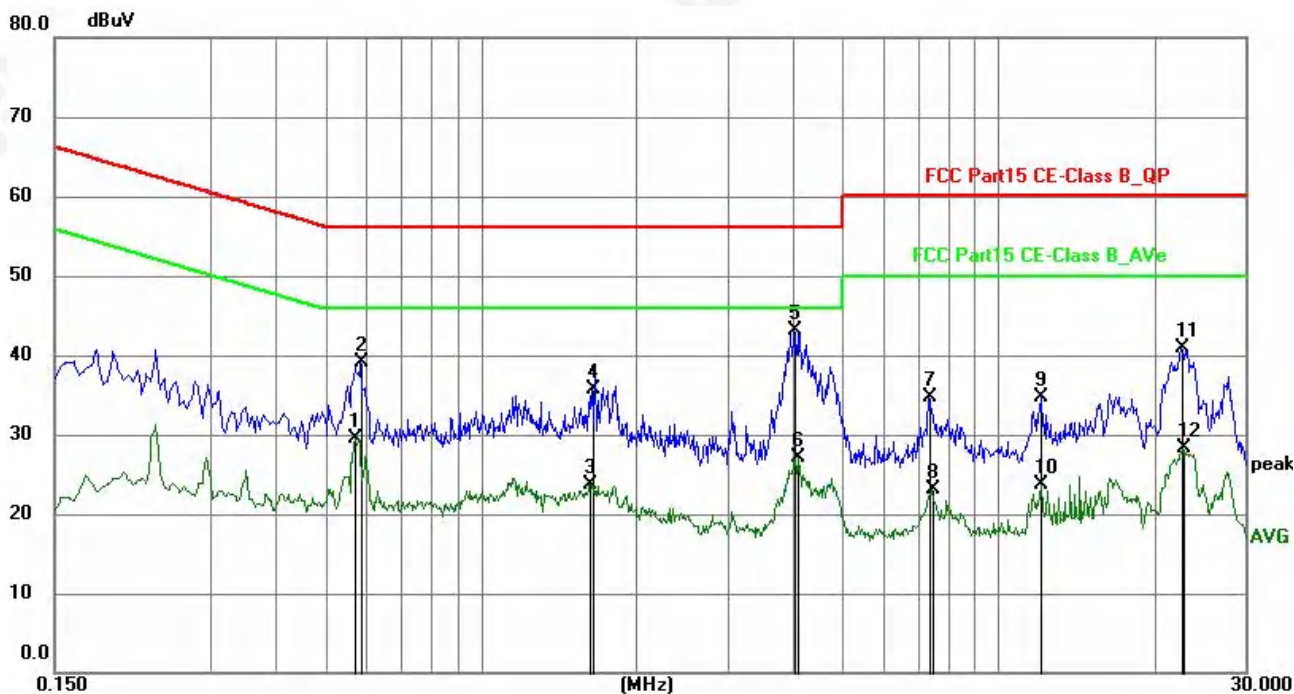
| No. | Frequency (MHz) | Reading (dBuV) | Factor (dB) | Level (dBuV) | Limit (dBuV) | Margin (dB) | Detector | P/F | Remark |
|-----|-----------------|----------------|-------------|--------------|--------------|-------------|----------|-----|--------|
| 1   | 0.5816          | 17.76          | 19.62       | 37.38        | 56.00        | -18.62      | QP       | P   |        |
| 2   | 0.5864          | 6.69           | 19.62       | 26.31        | 46.00        | -19.69      | AVG      | P   |        |
| 3   | 1.7249          | 19.52          | 19.66       | 39.18        | 56.00        | -16.82      | QP       | P   |        |
| 4   | 1.7249          | 6.55           | 19.66       | 26.21        | 46.00        | -19.79      | AVG      | P   |        |
| 5   | 4.1009          | 25.53          | 19.69       | 45.22        | 56.00        | -10.78      | QP       | P   |        |
| 6   | 4.1280          | 9.58           | 19.69       | 29.27        | 46.00        | -16.73      | AVG      | P   |        |
| 7   | 7.1340          | 18.44          | 19.73       | 38.17        | 60.00        | -21.83      | QP       | P   |        |
| 8   | 7.1340          | 4.54           | 19.73       | 24.27        | 50.00        | -25.73      | AVG      | P   |        |
| 9   | 12.1829         | 5.61           | 19.75       | 25.36        | 50.00        | -24.64      | AVG      | P   |        |
| 10  | 12.2100         | 17.66          | 19.75       | 37.41        | 60.00        | -22.59      | QP       | P   |        |
| 11  | 23.7435         | 21.98          | 19.75       | 41.73        | 60.00        | -18.27      | QP       | P   |        |
| 12  | 23.7791         | 9.84           | 19.75       | 29.59        | 50.00        | -20.41      | AVG      | P   |        |

## Notes:

1. An initial pre-scan was performed on the line and neutral lines with peak detector.
2. Quasi - Peak and Average measurement were performed at the frequencies with maximized peak emission.
3. Final Level = Reading level + Correct Factor.
4. Correct Factor = Lism factor+ Cable loss factor + limiter factor.
5. Margin = Measurement Level-Limit.
6. The test data shows only the worst case TX 802.11ac - 5745MHz



|               |              |                    |                    |
|---------------|--------------|--------------------|--------------------|
| Temperature:  | 26°C         | Relative Humidity: | 54%                |
| Pressure:     | 101 kPa      | Polarization:      | N                  |
| Test Voltage: | AC 120V/60Hz | Test Mode:         | 802.11ac - 5745MHz |
| Test Band:    | 5.8G         |                    |                    |



| No. | Frequency (MHz) | Reading (dBuV) | Factor (dB) | Level (dBuV) | Limit (dBuV) | Margin (dB) | Detector | P/F | Remark |
|-----|-----------------|----------------|-------------|--------------|--------------|-------------|----------|-----|--------|
| 1   | 0.5726          | 9.90           | 19.63       | 29.53        | 46.00        | -16.47      | AVG      | P   |        |
| 2   | 0.5864          | 19.51          | 19.62       | 39.13        | 56.00        | -16.87      | QP       | P   |        |
| 3   | 1.6255          | 4.07           | 19.66       | 23.73        | 46.00        | -22.27      | AVG      | P   |        |
| 4   | 1.6391          | 16.12          | 19.66       | 35.78        | 56.00        | -20.22      | QP       | P   |        |
| 5   | 4.0380          | 23.32          | 19.69       | 43.01        | 56.00        | -12.99      | QP       | P   |        |
| 6   | 4.1055          | 7.39           | 19.69       | 27.08        | 46.00        | -18.92      | AVG      | P   |        |
| 7   | 7.3410          | 15.00          | 19.73       | 34.73        | 60.00        | -25.27      | QP       | P   |        |
| 8   | 7.4489          | 3.34           | 19.73       | 23.07        | 50.00        | -26.93      | AVG      | P   |        |
| 9   | 12.0791         | 15.05          | 19.75       | 34.80        | 60.00        | -25.20      | QP       | P   |        |
| 10  | 12.0791         | 4.00           | 19.75       | 23.75        | 50.00        | -26.25      | AVG      | P   |        |
| 11  | 22.6050         | 21.16          | 19.75       | 40.91        | 60.00        | -19.09      | QP       | P   |        |
| 12  | 22.6858         | 8.63           | 19.76       | 28.39        | 50.00        | -21.61      | AVG      | P   |        |

## Notes:

1. An initial pre-scan was performed on the line and neutral lines with peak detector.
2. Quasi - Peak and Average measurement were performed at the frequencies with maximized peak emission.
3. Final Level = Reading level + Correct Factor.
4. Correct Factor = Lism factor+ Cable loss factor + limiter factor.
5. Margin = Measurement Level-Limit.
6. The test data shows only the worst case TX 802.11ac - 5745MHz.



## 4.2 RADIATED EMISSION AND BAND EDGE MEASUREMENT

### 4.2.1 APPLICABLE STANDARD

According to FCC Part 15.407(b)(1) and 15.407(b)(4)(i) and 15.205(a) and 15.209(a).

### 4.2.2 CONFORMANCE LIMIT

According to FCC Part 15.407(b)(1) Undesirable emission limits. Except as shown in paragraph (b)(10) of this section, the maximum emissions outside of the frequency bands of operation shall be attenuated in accordance with the following limits.

(1) For transmitters operating in the 5.15-5.25 GHz band: All emissions outside of the 5.15-5.35 GHz band shall not exceed an e.i.r.p. of -27 dBm/MHz.

| Frequency Range                                                  | Peak           | Average     |
|------------------------------------------------------------------|----------------|-------------|
| All emissions outside of the 5.15-5.35 GHz band shall not exceed | 68.20 (dBuV/m) | 54 (dBuV/m) |

(4) For transmitters operating solely in the 5.725-5.850 GHz band:

(i) 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.

| Frequency Range                | Peak            | Average     |
|--------------------------------|-----------------|-------------|
| All emissions shall be limited | 68.20 (dBuV/m)  | 54 (dBuV/m) |
| Band edge $\pm$ 75 MHz         | 105.20 (dBuV/m) | 54 (dBuV/m) |
| Band edge $\pm$ 25 MHz         | 110.80 (dBuV/m) | 54 (dBuV/m) |
| Band edge $\pm$ 5 MHz          | 122.20 (dBuV/m) | 54 (dBuV/m) |

According to FCC Part 15.407(b)(10): Radiated emissions which fall in the restricted bands, as defined in §15.205(a), must also comply with the radiated emission limits specified in §15.209(a) (see §15.205(c)).

According to FCC Part 15.205, Restricted bands:

| (MHz)             | (MHz)               | (MHz)         | (GHz)       |
|-------------------|---------------------|---------------|-------------|
| 0.090-0.110       | 16.42-16.423        | 399.9-410     | 4.5-5.15    |
| 10.495-0.505      | 16.69475-16.69525   | 608-614       | 5.35-5.46   |
| 2.1735-2.1905     | 16.80425-16.80475   | 960-1240      | 7.25-7.75   |
| 4.125-4.128       | 25.5-25.67          | 1300-1427     | 8.025-8.5   |
| 4.17725-4.17775   | 37.5-38.25          | 1435-1626.5   | 9.0-9.2     |
| 4.20725-4.20775   | 73-74.6             | 1645.5-1646.5 | 9.3-9.5     |
| 6.215-6.218       | 74.8-75.2           | 1660-1710     | 10.6-12.7   |
| 6.26775-6.26825   | 123-138             | 2200-2300     | 14.47-14.5  |
| 8.291-8.294       | 149.9-150.05        | 2310-2390     | 15.35-16.2  |
| 8.362-8.366       | 156.52475-156.52525 | 2483.5-2500   | 17.7-21.4   |
| 8.37625-8.38675   | 156.7-156.9         | 2690-2900     | 22.01-23.12 |
| 8.41425-8.41475   | 162.0125-167.17     | 3260-3267     | 23.6-24.0   |
| 12.29-12.293      | 167.72-173.2        | 3332-3339     | 31.2-31.8   |
| 12.51975-12.52025 | 240-285             | 3345.8-3358   | 36.43-36.5  |
| 12.57675-12.57725 | 322-335.4           | 3600-4400     | (2)         |
| 13.36-13.41       |                     |               |             |



| Restricted Frequency (MHz) | Field Strength (μV/m) | Field Strength (dBμV/m) | Measurement Distance |
|----------------------------|-----------------------|-------------------------|----------------------|
| 0.009~0.490                | 2400/F(KHz)           | 20 log (uV/m)           | 300                  |
| 0.490~1.705                | 2400/F(KHz)           | 20 log (uV/m)           | 30                   |
| 1.705~30.0                 | 30                    | 29.5                    | 30                   |
| 30-88                      | 100                   | 40                      | 3                    |
| 88-216                     | 150                   | 43.5                    | 3                    |
| 216-960                    | 200                   | 46                      | 3                    |
| Above 960                  | 500                   | 54                      | 3                    |

Limits of Radiated Emission Measurement(Above 1000MHz)

| Frequency (MHz) | Class B (dBuV/m) (at 3M) |         |
|-----------------|--------------------------|---------|
|                 | Peak                     | Average |
| Above 1000      | 74                       | 54      |

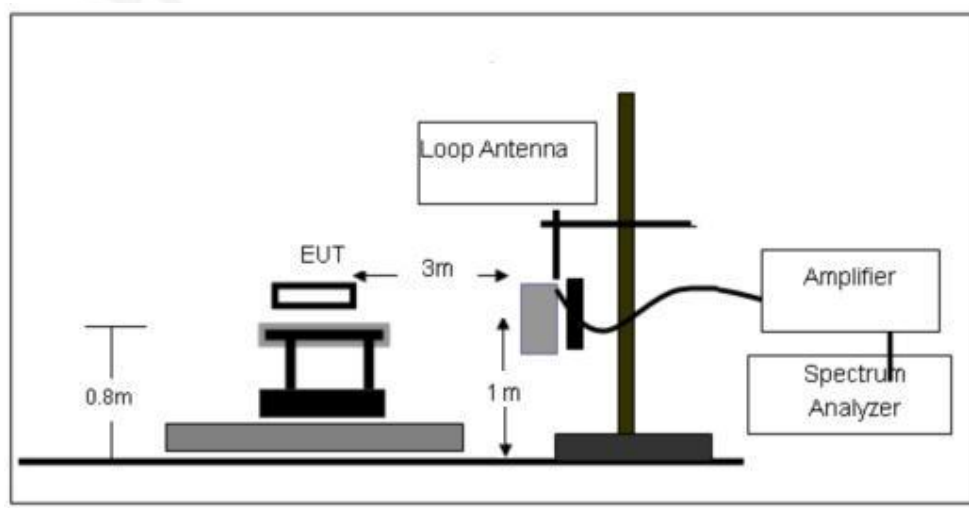
Remark: 1. Emission level in dBuV/m = 20 log (uV/m);  
2. Measurement was performed at an antenna to the closed point of EUT distance of meters;  
3. Distance extrapolation factor =40log(Specific distance/ test distance)( dB);  
4. Limit line=Specific limits(dBuV) + distance extrapolation factor;  
5. Emission level in dBuV/m = (dBm) + 95.2.

#### 4.2.3 MEASURING INSTRUMENTS

The Measuring equipment is listed in the section 3.5 of this test report.

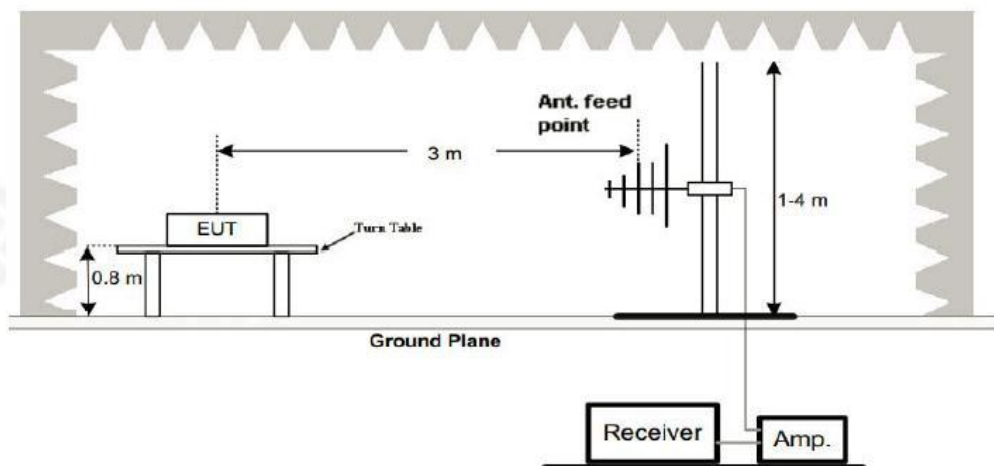
#### 4.2.4 TEST CONFIGURATION

1.For radiated emissions below 30MHz

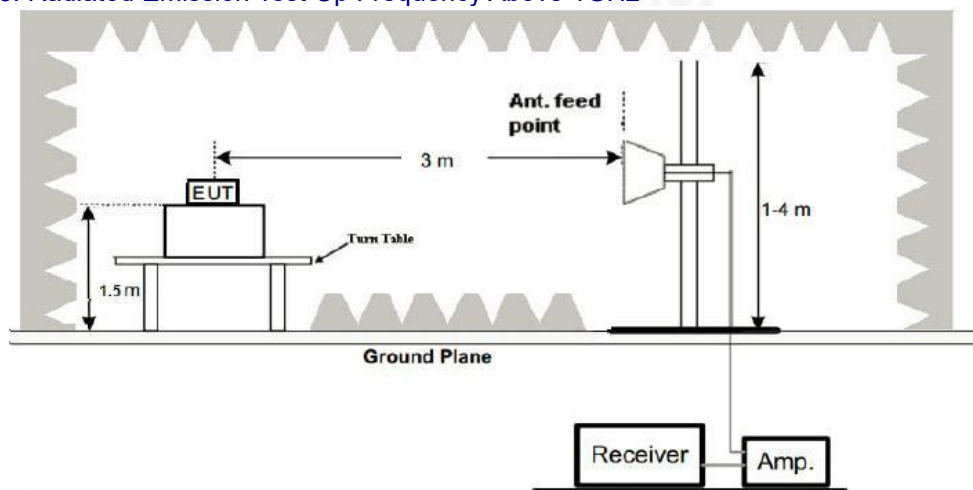




## 2. For radiated emissions from 30MHz to 1000MHz



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



### 4.2.5 TEST PROCEDURE

The test site semi-anechoic chamber has met the requirement of NSA tolerance 4 dB according to the standards: ANSI C63.10-2020+Cor 1-2023. The test distance is 3m. The setup is according to the requirements in Section 13.1.4.1 of ANSI C63.10-2020+Cor 1-2023 and CAN/CSA-CEI/IEC CISPR 22. This test is required for any spurious emission that falls in a Restricted Band, as defined in Section 15.205. It must be performed with the highest gain of each type of antenna proposed for use with the EUT. Use the following spectrum analyzer settings:

| Spectrum Parameter                    | Setting                                          |
|---------------------------------------|--------------------------------------------------|
| Attenuation                           | Auto                                             |
| Start Frequency                       | 1000 MHz                                         |
| Stop Frequency                        | 10th carrier harmonic                            |
| RB / VB (emission in restricted band) | 1 MHz / 1 MHz for Peak, 1 MHz / 10Hz for Average |

| Receiver Parameter     | Setting                          |
|------------------------|----------------------------------|
| Attenuation            | Auto                             |
| Start ~ Stop Frequency | 9kHz~150kHz / RB 200Hz for QP    |
| Start ~ Stop Frequency | 150kHz~30MHz / RB 9kHz for QP    |
| Start ~ Stop Frequency | 30MHz~1000MHz / RB 120kHz for QP |



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

Note:

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

During the radiated emission test, the Spectrum Analyzer was set with the following configurations:

| Frequency Band (MHz) | Function | Resolution Bandwidth | Video Bandwidth |
|----------------------|----------|----------------------|-----------------|
| 30 to 1000           | QP       | 120 kHz              | 300 kHz         |
| Above 1000           | Peak     | 1 MHz                | 1 MHz           |
|                      | Average  | 1 MHz                | 10 Hz           |

Note: for the frequency ranges below 30 MHz, a narrower RBW is used for these ranges but the measured value should add a RBW correction factor (RBWCF) where  $RBWCF [dB] = 10 \cdot \lg(100 [kHz] / \text{narrower RBW [kHz]})$ . , the narrower RBW is 1 kHz and RBWCF is 20 dB for the frequency 9 kHz to 150 kHz, and the narrower RBW is 10 kHz and RBWCF is 10 dB for the frequency 150 kHz to 30 MHz.

#### 4.2.6 RADIATED EMISSION TEST RESULT

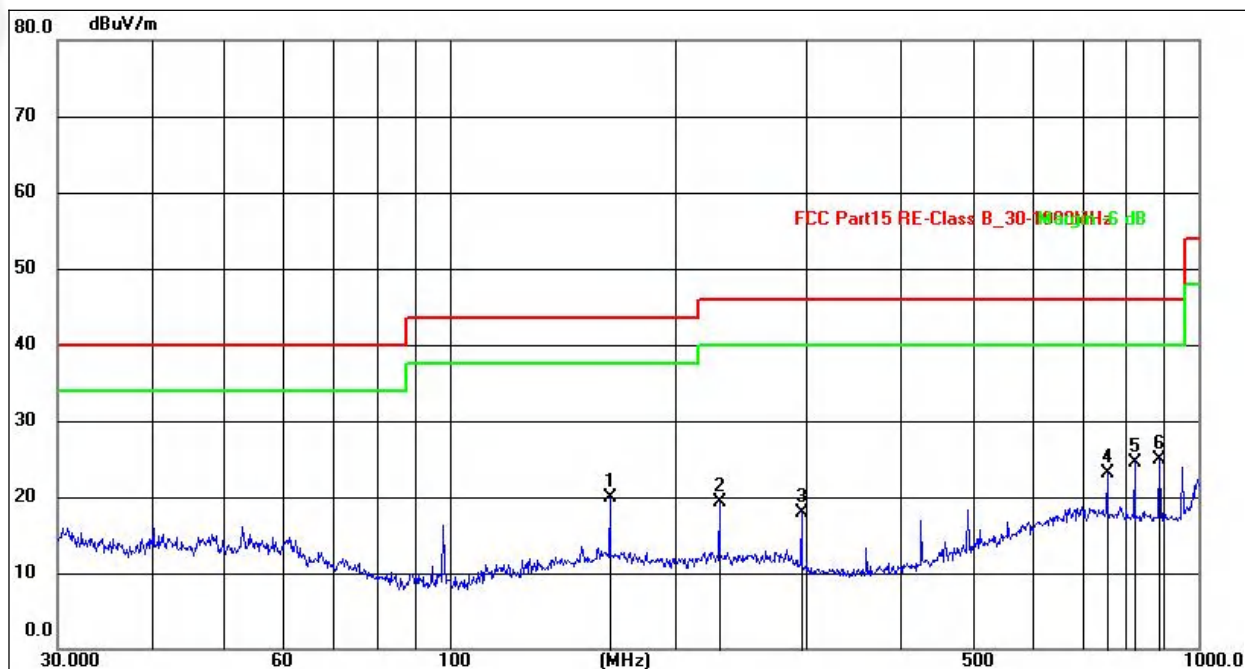
Between 9KHz – 30MHz

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



Between 30MHz – 1GHz:

|               |         |                    |                       |
|---------------|---------|--------------------|-----------------------|
| Temperature:  | 26°C    | Relative Humidity: | 54%                   |
| Pressure:     | 101 kPa | Polarization:      | Horizontal            |
| Test Voltage: | DC 3.8V | Test Mode :        | TX 802.11ac - 5180MHz |
| Test Band:    | 5.2G    |                    |                       |



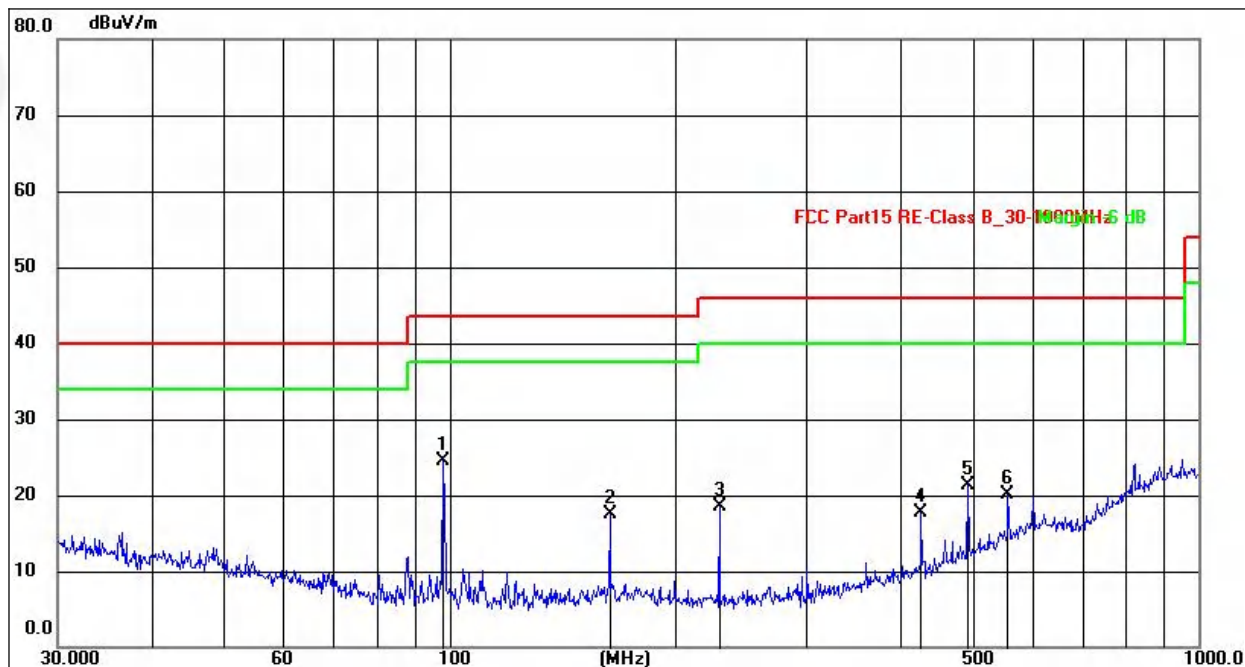
| No. | Frequency (MHz) | Reading (dBuV) | Factor (dB/m) | Level (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Detector |
|-----|-----------------|----------------|---------------|----------------|----------------|-------------|----------|
| 1   | 163.7547        | 38.94          | -19.10        | 19.84          | 43.50          | -23.66      | QP       |
| 2   | 229.2930        | 39.99          | -20.65        | 19.34          | 46.00          | -26.66      | QP       |
| 3   | 295.1467        | 38.67          | -20.84        | 17.83          | 46.00          | -28.17      | QP       |
| 4   | 755.3872        | 35.89          | -12.79        | 23.10          | 46.00          | -22.90      | QP       |
| 5   | 821.7103        | 37.70          | -13.12        | 24.58          | 46.00          | -21.42      | QP       |
| 6   | 887.6096        | 38.25          | -13.36        | 24.89          | 46.00          | -21.11      | QP       |

## Notes:

1. An initial pre-scan was performed on the peak detector.
2. Quasi - Peak measurement were performed at the frequencies with maximized peak emission.
3. The emission levels of other frequencies are very lower than the limit and not show in test report.
4. Final Level = Reading level + Correct Factor.
5. Correct Factor = Antenna factor+ Cable loss factor - Amplifier factor.
6. Margin = Measurement Level-Limit.
7. The test data shows only the worst case TX 802.11ac - 5180MHz.



|               |         |                    |                       |
|---------------|---------|--------------------|-----------------------|
| Temperature:  | 26°C    | Relative Humidity: | 54%                   |
| Pressure:     | 101kPa  | Polarization:      | Vertical              |
| Test Voltage: | DC 3.8V | Test Mode :        | TX 802.11ac - 5180MHz |
| Test Band:    | 5.2G    |                    |                       |



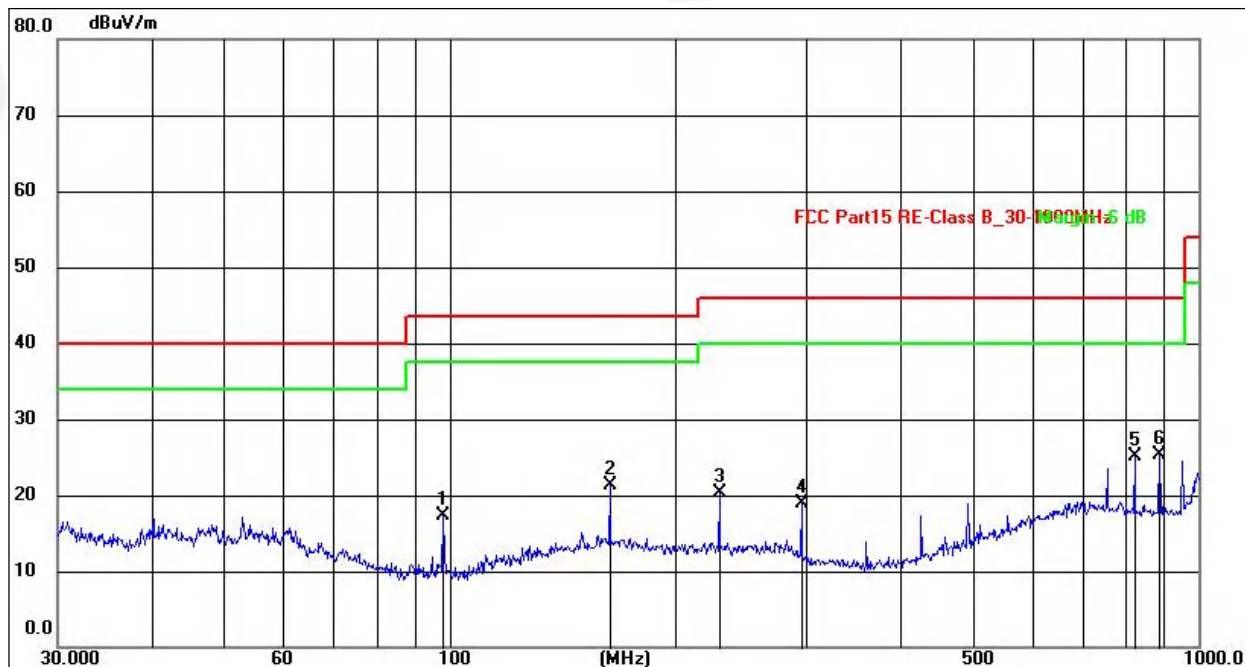
| No. | Frequency (MHz) | Reading (dBuV) | Factor (dB/m) | Level (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Detector |
|-----|-----------------|----------------|---------------|----------------|----------------|-------------|----------|
| 1   | 98.1418         | 47.46          | -22.88        | 24.58          | 43.50          | -18.92      | QP       |
| 2   | 163.7547        | 40.26          | -22.72        | 17.54          | 43.50          | -25.96      | QP       |
| 3   | 229.2930        | 42.31          | -23.90        | 18.41          | 46.00          | -27.59      | QP       |
| 4   | 426.5210        | 36.74          | -19.00        | 17.74          | 46.00          | -28.26      | QP       |
| 5   | 492.4685        | 38.19          | -16.89        | 21.30          | 46.00          | -24.70      | QP       |
| 6   | 556.7743        | 34.85          | -14.69        | 20.16          | 46.00          | -25.84      | QP       |

## Notes:

1. An initial pre-scan was performed on the peak detector.
2. Quasi - Peak measurement were performed at the frequencies with maximized peak emission.
3. The emission levels of other frequencies are very lower than the limit and not show in test report.
4. Final Level = Reading level + Correct Factor.
5. Correct Factor = Antenna factor+ Cable loss factor - Amplifier factor.
6. Margin = Measurement Level-Limit.
7. The test data shows only the worst case TX 802.11ac - 5180MHz.



|               |         |                    |                       |
|---------------|---------|--------------------|-----------------------|
| Temperature:  | 26℃     | Relative Humidity: | 54%                   |
| Pressure:     | 101 kPa | Polarization:      | Horizontal            |
| Test Voltage: | DC 3.8V | Test Mode :        | TX 802.11ac - 5745MHz |
| Test Band:    | 5.8G    |                    |                       |



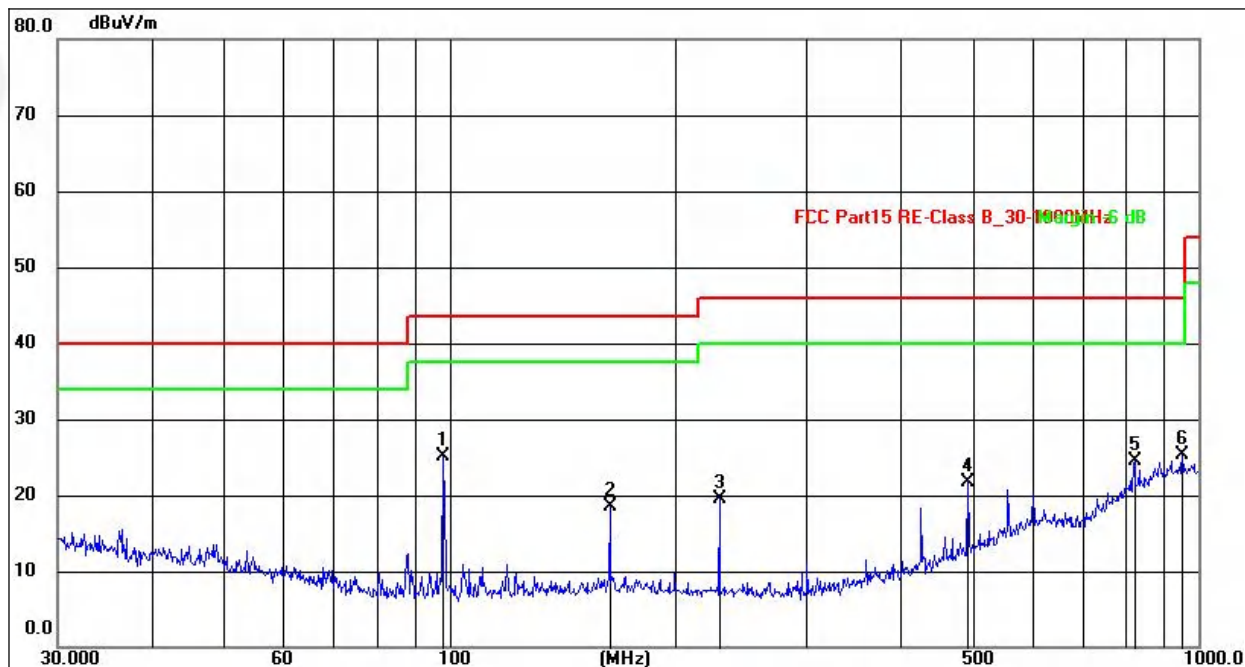
| No. | Frequency (MHz) | Reading (dBuV) | Factor (dB/m) | Level (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Detector |
|-----|-----------------|----------------|---------------|----------------|----------------|-------------|----------|
| 1   | 98.1418         | 38.76          | -21.50        | 17.26          | 43.50          | -26.24      | QP       |
| 2   | 163.7547        | 40.44          | -19.10        | 21.34          | 43.50          | -22.16      | QP       |
| 3   | 229.2930        | 40.99          | -20.65        | 20.34          | 46.00          | -25.66      | QP       |
| 4   | 295.1467        | 39.67          | -20.84        | 18.83          | 46.00          | -27.17      | QP       |
| 5   | 821.7103        | 38.20          | -13.12        | 25.08          | 46.00          | -20.92      | QP       |
| 6   | 887.6096        | 38.75          | -13.36        | 25.39          | 46.00          | -20.61      | QP       |

**Notes:**

- 1.An initial pre-scan was performed on the peak detector.
- 2.Quasi - Peak measurement were performed at the frequencies with maximized peak emission.
- 3.The emission levels of other frequencies are very lower than the limit and not show in test report.
- 4.Final Level = Reading level + Correct Factor.
- 5.Correct Factor = Antenna factor+ Cable loss factor - Amplifier factor.
- 6.Margin = Measurement Level-Limit.
- 7.The test data shows only the worst case TX 802.11ac - 5745MHz.



|               |         |                    |                       |
|---------------|---------|--------------------|-----------------------|
| Temperature:  | 26°C    | Relative Humidity: | 54%                   |
| Pressure:     | 101kPa  | Polarization:      | Vertical              |
| Test Voltage: | DC 3.8V | Test Mode :        | TX 802.11ac - 5745MHz |
| Test Band:    | 5.8G    |                    |                       |



| No. | Frequency (MHz) | Reading (dBuV) | Factor (dB/m) | Level (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Detector |
|-----|-----------------|----------------|---------------|----------------|----------------|-------------|----------|
| 1   | 98.1418         | 47.96          | -22.88        | 25.08          | 43.50          | -18.42      | QP       |
| 2   | 163.7547        | 41.26          | -22.72        | 18.54          | 43.50          | -24.96      | QP       |
| 3   | 229.2930        | 43.31          | -23.90        | 19.41          | 46.00          | -26.59      | QP       |
| 4   | 492.4685        | 38.69          | -16.89        | 21.80          | 46.00          | -24.20      | QP       |
| 5   | 821.7103        | 33.64          | -9.12         | 24.52          | 46.00          | -21.48      | QP       |
| 6   | 952.0937        | 32.30          | -7.03         | 25.27          | 46.00          | -20.73      | QP       |

## Notes:

1. An initial pre-scan was performed on the peak detector.
2. Quasi - Peak measurement were performed at the frequencies with maximized peak emission.
3. The emission levels of other frequencies are very lower than the limit and not show in test report.
4. Final Level = Reading level + Correct Factor.
5. Correct Factor = Antenna factor+ Cable loss factor - Amplifier factor.
6. Margin = Measurement Level-Limit.
7. The test data shows only the worst case TX 802.11ac - 5745MHz.



Between 1GHz – 40GHz:

|                                                                                                               |                                         |                     |         |
|---------------------------------------------------------------------------------------------------------------|-----------------------------------------|---------------------|---------|
| Temperature :                                                                                                 | 26℃                                     | Relative Humidity : | 54%     |
| Pressure :                                                                                                    | 1010 hPa                                | Test Voltage :      | DC 3.8V |
| Test Band :                                                                                                   | 5.2G TX -802.11a/n20/n40/ac20/ac40/ac80 |                     |         |
| Note: All patterns have been tested, and only the worst test data recorded in this report is 802.11a/n20/ac20 |                                         |                     |         |

## 802.11a

| Polar<br>(H/V)         | Frequency | Meter<br>Reading | Pre-ampl<br>ifier | Cable<br>Loss | Antenna<br>Factor | Emission<br>Level | Limits   | Margin | Detect<br>or<br>Type |
|------------------------|-----------|------------------|-------------------|---------------|-------------------|-------------------|----------|--------|----------------------|
|                        | (MHz)     | (dBuV)           | (dB)              | (dB)          | (dB)              | (dBuV/m)          | (dBuV/m) | (dB)   |                      |
| Low Channel:5180MHz    |           |                  |                   |               |                   |                   |          |        |                      |
| V                      | 10360.00  | 35.44            | 34.30             | 5.70          | 40.40             | 47.24             | 68.20    | -20.96 | PK                   |
| V                      | 10360.00  | 24.34            | 34.30             | 5.70          | 40.40             | 36.14             | 54.00    | -17.86 | AV                   |
| V                      | 15540.00  | 37.02            | 31.70             | 5.90          | 40.20             | 51.42             | 74.00    | -22.58 | PK                   |
| V                      | 15540.00  | 26.74            | 31.70             | 5.90          | 40.20             | 41.14             | 54.00    | -12.86 | AV                   |
| V                      | 20720.00  | 38.63            | 30.70             | 6.10          | 45.40             | 59.43             | 74.00    | -14.57 | PK                   |
| V                      | 20720.00  | 27.81            | 30.70             | 6.10          | 45.40             | 48.61             | 54.00    | -5.39  | AV                   |
| V                      | 25900.00  | 40.57            | 30.30             | 6.30          | 45.60             | 62.17             | 68.20    | -6.03  | PK                   |
| V                      | 25900.00  | 29.72            | 30.30             | 6.30          | 45.60             | 51.32             | 54.00    | -2.68  | AV                   |
| H                      | 10360.00  | 35.51            | 34.30             | 5.70          | 40.40             | 47.31             | 68.20    | -20.89 | PK                   |
| H                      | 10360.00  | 24.30            | 34.30             | 5.70          | 40.40             | 36.10             | 54.00    | -17.90 | AV                   |
| H                      | 15540.00  | 36.98            | 31.70             | 5.90          | 40.20             | 51.38             | 74.00    | -22.62 | PK                   |
| H                      | 15540.00  | 26.81            | 31.70             | 5.90          | 40.20             | 41.21             | 54.00    | -12.79 | AV                   |
| H                      | 20720.00  | 38.56            | 30.70             | 6.10          | 45.40             | 59.36             | 74.00    | -14.64 | PK                   |
| H                      | 20720.00  | 27.63            | 30.70             | 6.10          | 45.40             | 48.43             | 54.00    | -5.57  | AV                   |
| H                      | 25900.00  | 40.57            | 30.30             | 6.30          | 45.60             | 62.17             | 68.20    | -6.03  | PK                   |
| H                      | 25900.00  | 29.78            | 30.30             | 6.30          | 45.60             | 51.38             | 54.00    | -2.62  | AV                   |
| Middle Channel:5200MHz |           |                  |                   |               |                   |                   |          |        |                      |
| V                      | 10400.00  | 35.38            | 34.30             | 5.70          | 40.40             | 47.18             | 68.20    | -21.02 | PK                   |
| V                      | 10400.00  | 24.32            | 34.30             | 5.70          | 40.40             | 36.12             | 54.00    | -17.88 | AV                   |
| V                      | 15600.00  | 36.95            | 31.70             | 5.90          | 40.20             | 51.35             | 74.00    | -22.65 | PK                   |
| V                      | 15600.00  | 26.70            | 31.70             | 5.90          | 40.20             | 41.10             | 54.00    | -12.90 | AV                   |
| V                      | 20800.00  | 38.48            | 30.70             | 6.10          | 45.40             | 59.28             | 74.00    | -14.72 | PK                   |
| V                      | 20800.00  | 27.86            | 30.70             | 6.10          | 45.40             | 48.66             | 54.00    | -5.34  | AV                   |
| V                      | 26000.00  | 40.57            | 30.30             | 6.30          | 45.60             | 62.17             | 68.20    | -6.03  | PK                   |
| V                      | 26000.00  | 29.68            | 30.30             | 6.30          | 45.60             | 51.28             | 54.00    | -2.72  | AV                   |
| H                      | 10400.00  | 35.55            | 34.30             | 5.70          | 40.40             | 47.35             | 68.20    | -20.85 | PK                   |
| H                      | 10400.00  | 24.39            | 34.30             | 5.70          | 40.40             | 36.19             | 54.00    | -17.81 | AV                   |
| H                      | 15600.00  | 36.87            | 31.70             | 5.90          | 40.20             | 51.27             | 74.00    | -22.73 | PK                   |
| H                      | 15600.00  | 26.92            | 31.70             | 5.90          | 40.20             | 41.32             | 54.00    | -12.68 | AV                   |
| H                      | 20800.00  | 38.48            | 30.70             | 6.10          | 45.40             | 59.28             | 74.00    | -14.72 | PK                   |
| H                      | 20800.00  | 27.69            | 30.70             | 6.10          | 45.40             | 48.49             | 54.00    | -5.51  | AV                   |
| H                      | 26000.00  | 40.45            | 30.30             | 6.30          | 45.60             | 62.05             | 68.20    | -6.15  | PK                   |
| H                      | 26000.00  | 29.80            | 30.30             | 6.30          | 45.60             | 51.40             | 54.00    | -2.60  | AV                   |



| High Channel:5240MHz |          |       |       |      |       |       |       |        |    |
|----------------------|----------|-------|-------|------|-------|-------|-------|--------|----|
| V                    | 10480.00 | 35.44 | 34.30 | 5.70 | 40.40 | 47.24 | 68.20 | -20.96 | PK |
| V                    | 10480.00 | 24.41 | 34.30 | 5.70 | 40.40 | 36.21 | 54.00 | -17.79 | AV |
| V                    | 15720.00 | 37.14 | 31.70 | 5.90 | 40.20 | 51.54 | 74.00 | -22.46 | PK |
| V                    | 15720.00 | 26.91 | 31.70 | 5.90 | 40.20 | 41.31 | 54.00 | -12.69 | AV |
| V                    | 20960.00 | 38.73 | 30.70 | 6.10 | 45.40 | 59.53 | 74.00 | -14.47 | PK |
| V                    | 20960.00 | 27.90 | 30.70 | 6.10 | 45.40 | 48.70 | 54.00 | -5.30  | AV |
| V                    | 26200.00 | 39.67 | 30.30 | 6.30 | 45.60 | 61.27 | 68.20 | -6.93  | PK |
| V                    | 26200.00 | 29.73 | 30.30 | 6.30 | 45.60 | 51.33 | 54.00 | -2.67  | AV |
| H                    | 10480.00 | 35.53 | 34.30 | 5.70 | 40.40 | 47.33 | 68.20 | -20.87 | PK |
| H                    | 10480.00 | 24.52 | 34.30 | 5.70 | 40.40 | 36.32 | 54.00 | -17.68 | AV |
| H                    | 15720.00 | 36.99 | 31.70 | 5.90 | 40.20 | 51.39 | 74.00 | -22.61 | PK |
| H                    | 15720.00 | 26.82 | 31.70 | 5.90 | 40.20 | 41.22 | 54.00 | -12.78 | AV |
| H                    | 20960.00 | 38.51 | 30.70 | 6.10 | 45.40 | 59.31 | 74.00 | -14.69 | PK |
| H                    | 20960.00 | 27.60 | 30.70 | 6.10 | 45.40 | 48.40 | 54.00 | -5.60  | AV |
| H                    | 26200.00 | 40.43 | 30.30 | 6.30 | 45.60 | 62.03 | 68.20 | -6.17  | PK |
| H                    | 26200.00 | 29.88 | 30.30 | 6.30 | 45.60 | 51.48 | 54.00 | -2.52  | 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.



802.11n20

| Polar<br>(H/V)         | Frequency | Meter<br>Reading | Pre-ampl<br>ifier | Cable<br>Loss | Antenna<br>Factor | Emission<br>Level | Limits   | Margin | Detect<br>or<br>Type |
|------------------------|-----------|------------------|-------------------|---------------|-------------------|-------------------|----------|--------|----------------------|
|                        | (MHz)     | (dBuV)           | (dB)              | (dB)          | (dB)              | (dBuV/m)          | (dBuV/m) | (dB)   |                      |
| Low Channel:5180MHz    |           |                  |                   |               |                   |                   |          |        |                      |
| V                      | 10360.00  | 35.37            | 34.30             | 5.70          | 40.40             | 47.17             | 68.20    | -21.03 | PK                   |
| V                      | 10360.00  | 24.30            | 34.30             | 5.70          | 40.40             | 36.10             | 54.00    | -17.90 | AV                   |
| V                      | 15540.00  | 37.06            | 31.70             | 5.90          | 40.20             | 51.46             | 74.00    | -22.54 | PK                   |
| V                      | 15540.00  | 26.69            | 31.70             | 5.90          | 40.20             | 41.09             | 54.00    | -12.91 | AV                   |
| V                      | 20720.00  | 38.65            | 30.70             | 6.10          | 45.40             | 59.45             | 74.00    | -14.55 | PK                   |
| V                      | 20720.00  | 27.72            | 30.70             | 6.10          | 45.40             | 48.52             | 54.00    | -5.48  | AV                   |
| V                      | 25900.00  | 40.54            | 30.30             | 6.30          | 45.60             | 62.14             | 68.20    | -6.06  | PK                   |
| V                      | 25900.00  | 29.68            | 30.30             | 6.30          | 45.60             | 51.28             | 54.00    | -2.72  | AV                   |
| H                      | 10360.00  | 35.55            | 34.30             | 5.70          | 40.40             | 47.35             | 68.20    | -20.85 | PK                   |
| H                      | 10360.00  | 24.28            | 34.30             | 5.70          | 40.40             | 36.08             | 54.00    | -17.92 | AV                   |
| H                      | 15540.00  | 37.05            | 31.70             | 5.90          | 40.20             | 51.45             | 74.00    | -22.55 | PK                   |
| H                      | 15540.00  | 26.87            | 31.70             | 5.90          | 40.20             | 41.27             | 54.00    | -12.73 | AV                   |
| H                      | 20720.00  | 38.57            | 30.70             | 6.10          | 45.40             | 59.37             | 74.00    | -14.63 | PK                   |
| H                      | 20720.00  | 27.73            | 30.70             | 6.10          | 45.40             | 48.53             | 54.00    | -5.47  | AV                   |
| H                      | 25900.00  | 40.38            | 30.30             | 6.30          | 45.60             | 61.98             | 68.20    | -6.22  | PK                   |
| H                      | 25900.00  | 29.67            | 30.30             | 6.30          | 45.60             | 51.27             | 54.00    | -2.73  | AV                   |
| Middle Channel:5200MHz |           |                  |                   |               |                   |                   |          |        |                      |
| V                      | 10400.00  | 35.58            | 34.30             | 5.70          | 40.40             | 47.38             | 68.20    | -20.82 | PK                   |
| V                      | 10400.00  | 24.27            | 34.30             | 5.70          | 40.40             | 36.07             | 54.00    | -17.93 | AV                   |
| V                      | 15600.00  | 36.86            | 31.70             | 5.90          | 40.20             | 51.26             | 74.00    | -22.74 | PK                   |
| V                      | 15600.00  | 26.86            | 31.70             | 5.90          | 40.20             | 41.26             | 54.00    | -12.74 | AV                   |
| V                      | 20800.00  | 38.74            | 30.70             | 6.10          | 45.40             | 59.54             | 74.00    | -14.46 | PK                   |
| V                      | 20800.00  | 27.63            | 30.70             | 6.10          | 45.40             | 48.43             | 54.00    | -5.57  | AV                   |
| V                      | 26000.00  | 40.43            | 30.30             | 6.30          | 45.60             | 62.03             | 68.20    | -6.17  | PK                   |
| V                      | 26000.00  | 29.72            | 30.30             | 6.30          | 45.60             | 51.32             | 54.00    | -2.68  | AV                   |
| H                      | 10400.00  | 35.53            | 34.30             | 5.70          | 40.40             | 47.33             | 68.20    | -20.87 | PK                   |
| H                      | 10400.00  | 24.34            | 34.30             | 5.70          | 40.40             | 36.14             | 54.00    | -17.86 | AV                   |
| H                      | 15600.00  | 37.01            | 31.70             | 5.90          | 40.20             | 51.41             | 74.00    | -22.59 | PK                   |
| H                      | 15600.00  | 26.77            | 31.70             | 5.90          | 40.20             | 41.17             | 54.00    | -12.83 | AV                   |
| H                      | 20800.00  | 38.75            | 30.70             | 6.10          | 45.40             | 59.55             | 74.00    | -14.45 | PK                   |
| H                      | 20800.00  | 27.74            | 30.70             | 6.10          | 45.40             | 48.54             | 54.00    | -5.46  | AV                   |
| H                      | 26000.00  | 40.36            | 30.30             | 6.30          | 45.60             | 61.96             | 68.20    | -6.24  | PK                   |
| H                      | 26000.00  | 29.71            | 30.30             | 6.30          | 45.60             | 51.31             | 54.00    | -2.69  | AV                   |



| High Channel:5240MHz |          |       |       |      |       |       |       |        |    |
|----------------------|----------|-------|-------|------|-------|-------|-------|--------|----|
| V                    | 10480.00 | 35.51 | 34.30 | 5.70 | 40.40 | 47.31 | 68.20 | -20.89 | PK |
| V                    | 10480.00 | 24.36 | 34.30 | 5.70 | 40.40 | 36.16 | 54.00 | -17.84 | AV |
| V                    | 15720.00 | 37.08 | 31.70 | 5.90 | 40.20 | 51.48 | 74.00 | -22.52 | PK |
| V                    | 15720.00 | 26.70 | 31.70 | 5.90 | 40.20 | 41.10 | 54.00 | -12.90 | AV |
| V                    | 20960.00 | 38.71 | 30.70 | 6.10 | 45.40 | 59.51 | 74.00 | -14.49 | PK |
| V                    | 20960.00 | 27.77 | 30.70 | 6.10 | 45.40 | 48.57 | 54.00 | -5.43  | AV |
| V                    | 26200.00 | 39.63 | 30.30 | 6.30 | 45.60 | 61.23 | 68.20 | -6.97  | PK |
| V                    | 26200.00 | 29.67 | 30.30 | 6.30 | 45.60 | 51.27 | 54.00 | -2.73  | AV |
| H                    | 10480.00 | 35.45 | 34.30 | 5.70 | 40.40 | 47.25 | 68.20 | -20.95 | PK |
| H                    | 10480.00 | 24.50 | 34.30 | 5.70 | 40.40 | 36.30 | 54.00 | -17.70 | AV |
| H                    | 15720.00 | 36.91 | 31.70 | 5.90 | 40.20 | 51.31 | 74.00 | -22.69 | PK |
| H                    | 15720.00 | 26.77 | 31.70 | 5.90 | 40.20 | 41.17 | 54.00 | -12.83 | AV |
| H                    | 20960.00 | 38.51 | 30.70 | 6.10 | 45.40 | 59.31 | 74.00 | -14.69 | PK |
| H                    | 20960.00 | 27.66 | 30.70 | 6.10 | 45.40 | 48.46 | 54.00 | -5.54  | AV |
| H                    | 26200.00 | 40.58 | 30.30 | 6.30 | 45.60 | 62.18 | 68.20 | -6.02  | PK |
| H                    | 26200.00 | 29.61 | 30.30 | 6.30 | 45.60 | 51.21 | 54.00 | -2.79  | 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.



## 802.11ac20

| Polar<br>(H/V)         | Frequency | Meter<br>Reading | Pre-ampl<br>ifier | Cable<br>Loss | Antenna<br>Factor | Emission<br>Level | Limits   | Margin | Detect<br>or<br>Type |
|------------------------|-----------|------------------|-------------------|---------------|-------------------|-------------------|----------|--------|----------------------|
|                        | (MHz)     | (dBuV)           | (dB)              | (dB)          | (dB)              | (dBuV/m)          | (dBuV/m) | (dB)   |                      |
| Low Channel:5180MHz    |           |                  |                   |               |                   |                   |          |        |                      |
| V                      | 10360.00  | 35.48            | 34.30             | 5.70          | 40.40             | 47.28             | 68.20    | -20.92 | PK                   |
| V                      | 10360.00  | 24.33            | 34.30             | 5.70          | 40.40             | 36.13             | 54.00    | -17.87 | AV                   |
| V                      | 15540.00  | 36.97            | 31.70             | 5.90          | 40.20             | 51.37             | 74.00    | -22.63 | PK                   |
| V                      | 15540.00  | 26.88            | 31.70             | 5.90          | 40.20             | 41.28             | 54.00    | -12.72 | AV                   |
| V                      | 20720.00  | 38.61            | 30.70             | 6.10          | 45.40             | 59.41             | 74.00    | -14.59 | PK                   |
| V                      | 20720.00  | 27.71            | 30.70             | 6.10          | 45.40             | 48.51             | 54.00    | -5.49  | AV                   |
| V                      | 25900.00  | 40.51            | 30.30             | 6.30          | 45.60             | 62.11             | 68.20    | -6.09  | PK                   |
| V                      | 25900.00  | 29.64            | 30.30             | 6.30          | 45.60             | 51.24             | 54.00    | -2.76  | AV                   |
| H                      | 10360.00  | 35.54            | 34.30             | 5.70          | 40.40             | 47.34             | 68.20    | -20.86 | PK                   |
| H                      | 10360.00  | 24.28            | 34.30             | 5.70          | 40.40             | 36.08             | 54.00    | -17.92 | AV                   |
| H                      | 15540.00  | 36.95            | 31.70             | 5.90          | 40.20             | 51.35             | 74.00    | -22.65 | PK                   |
| H                      | 15540.00  | 26.90            | 31.70             | 5.90          | 40.20             | 41.30             | 54.00    | -12.70 | AV                   |
| H                      | 20720.00  | 38.69            | 30.70             | 6.10          | 45.40             | 59.49             | 74.00    | -14.51 | PK                   |
| H                      | 20720.00  | 27.74            | 30.70             | 6.10          | 45.40             | 48.54             | 54.00    | -5.46  | AV                   |
| H                      | 25900.00  | 40.60            | 30.30             | 6.30          | 45.60             | 62.20             | 68.20    | -6.00  | PK                   |
| H                      | 25900.00  | 29.66            | 30.30             | 6.30          | 45.60             | 51.26             | 54.00    | -2.74  | AV                   |
| Middle Channel:5200MHz |           |                  |                   |               |                   |                   |          |        |                      |
| V                      | 10400.00  | 35.40            | 34.30             | 5.70          | 40.40             | 47.20             | 68.20    | -21.00 | PK                   |
| V                      | 10400.00  | 24.48            | 34.30             | 5.70          | 40.40             | 36.28             | 54.00    | -17.72 | AV                   |
| V                      | 15600.00  | 36.87            | 31.70             | 5.90          | 40.20             | 51.27             | 74.00    | -22.73 | PK                   |
| V                      | 15600.00  | 26.69            | 31.70             | 5.90          | 40.20             | 41.09             | 54.00    | -12.91 | AV                   |
| V                      | 20800.00  | 38.64            | 30.70             | 6.10          | 45.40             | 59.44             | 74.00    | -14.56 | PK                   |
| V                      | 20800.00  | 27.72            | 30.70             | 6.10          | 45.40             | 48.52             | 54.00    | -5.48  | AV                   |
| V                      | 26000.00  | 40.37            | 30.30             | 6.30          | 45.60             | 61.97             | 68.20    | -6.23  | PK                   |
| V                      | 26000.00  | 29.83            | 30.30             | 6.30          | 45.60             | 51.43             | 54.00    | -2.57  | AV                   |
| H                      | 10400.00  | 35.58            | 34.30             | 5.70          | 40.40             | 47.38             | 68.20    | -20.82 | PK                   |
| H                      | 10400.00  | 24.33            | 34.30             | 5.70          | 40.40             | 36.13             | 54.00    | -17.87 | AV                   |
| H                      | 15600.00  | 37.00            | 31.70             | 5.90          | 40.20             | 51.40             | 74.00    | -22.60 | PK                   |
| H                      | 15600.00  | 26.83            | 31.70             | 5.90          | 40.20             | 41.23             | 54.00    | -12.77 | AV                   |
| H                      | 20800.00  | 38.68            | 30.70             | 6.10          | 45.40             | 59.48             | 74.00    | -14.52 | PK                   |
| H                      | 20800.00  | 27.63            | 30.70             | 6.10          | 45.40             | 48.43             | 54.00    | -5.57  | AV                   |
| H                      | 26000.00  | 40.49            | 30.30             | 6.30          | 45.60             | 62.09             | 68.20    | -6.11  | PK                   |
| H                      | 26000.00  | 29.86            | 30.30             | 6.30          | 45.60             | 51.46             | 54.00    | -2.54  | AV                   |
|                        |           |                  |                   |               |                   |                   |          |        |                      |



| High Channel:5240MHz |          |       |       |      |       |       |       |        |    |
|----------------------|----------|-------|-------|------|-------|-------|-------|--------|----|
| V                    | 10480.00 | 35.50 | 34.30 | 5.70 | 40.40 | 47.30 | 68.20 | -20.90 | PK |
| V                    | 10480.00 | 24.44 | 34.30 | 5.70 | 40.40 | 36.24 | 54.00 | -17.76 | AV |
| V                    | 15720.00 | 36.87 | 31.70 | 5.90 | 40.20 | 51.27 | 74.00 | -22.73 | PK |
| V                    | 15720.00 | 26.97 | 31.70 | 5.90 | 40.20 | 41.37 | 54.00 | -12.63 | AV |
| V                    | 20960.00 | 38.54 | 30.70 | 6.10 | 45.40 | 59.34 | 74.00 | -14.66 | PK |
| V                    | 20960.00 | 27.87 | 30.70 | 6.10 | 45.40 | 48.67 | 54.00 | -5.33  | AV |
| V                    | 26200.00 | 39.69 | 30.30 | 6.30 | 45.60 | 61.29 | 68.20 | -6.91  | PK |
| V                    | 26200.00 | 29.74 | 30.30 | 6.30 | 45.60 | 51.34 | 54.00 | -2.66  | AV |
| H                    | 10480.00 | 35.57 | 34.30 | 5.70 | 40.40 | 47.37 | 68.20 | -20.83 | PK |
| H                    | 10480.00 | 24.37 | 34.30 | 5.70 | 40.40 | 36.17 | 54.00 | -17.83 | AV |
| H                    | 15720.00 | 36.97 | 31.70 | 5.90 | 40.20 | 51.37 | 74.00 | -22.63 | PK |
| H                    | 15720.00 | 26.76 | 31.70 | 5.90 | 40.20 | 41.16 | 54.00 | -12.84 | AV |
| H                    | 20960.00 | 38.48 | 30.70 | 6.10 | 45.40 | 59.28 | 74.00 | -14.72 | PK |
| H                    | 20960.00 | 27.74 | 30.70 | 6.10 | 45.40 | 48.54 | 54.00 | -5.46  | AV |
| H                    | 26200.00 | 40.66 | 30.30 | 6.30 | 45.60 | 62.26 | 68.20 | -5.94  | PK |
| H                    | 26200.00 | 29.86 | 30.30 | 6.30 | 45.60 | 51.46 | 54.00 | -2.54  | 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 :                                                                                                  | 26℃                                     | Relative Humidity : | 54%     |
| Pressure :                                                                                                     | 1010 hPa                                | Test Voltage :      | DC 3.8V |
| Test Band :                                                                                                    | 5.8G TX -802.11a/n20/n40/ac20/ac40/ac80 |                     |         |
| Note: All patterns have been tested, and only the worst test data recorded in this report is 802.11a/n20/ac20. |                                         |                     |         |

## 802.11a

| Polar (H/V)          | Frequency (MHz) | Meter Reading (dBuV) | Pre-amplifier (dB) | Cable Loss (dB) | Antenna Factor (dB) | Emission Level (dBuV/m) | Limits (dBuV/m) | Margin (dB) | Detect or Type |
|----------------------|-----------------|----------------------|--------------------|-----------------|---------------------|-------------------------|-----------------|-------------|----------------|
| High Channel:5745MHz |                 |                      |                    |                 |                     |                         |                 |             |                |
| V                    | 11490.00        | 37.84                | 34.30              | 5.80            | 41.20               | 50.54                   | 74.00           | -23.46      | PK             |
| V                    | 11490.00        | 26.14                | 34.30              | 5.80            | 41.20               | 38.84                   | 54.00           | -15.16      | AV             |
| V                    | 17235.00        | 38.21                | 32.10              | 6.00            | 43.50               | 55.61                   | 68.20           | -12.59      | PK             |
| V                    | 17235.00        | 26.71                | 32.10              | 6.00            | 43.50               | 44.11                   | 54.00           | -9.89       | AV             |
| V                    | 22980.00        | 39.77                | 31.00              | 6.20            | 45.50               | 60.47                   | 74.00           | -13.53      | PK             |
| V                    | 22980.00        | 27.72                | 31.00              | 6.20            | 45.50               | 48.42                   | 54.00           | -5.58       | AV             |
| V                    | 28725.00        | 41.09                | 29.10              | 6.40            | 45.70               | 64.09                   | 68.20           | -4.11       | PK             |
| V                    | 28725.00        | 28.84                | 29.10              | 6.40            | 45.70               | 51.84                   | 54.00           | -2.16       | AV             |
| H                    | 11490.00        | 37.88                | 34.30              | 5.80            | 41.20               | 50.58                   | 74.00           | -23.42      | PK             |
| H                    | 11490.00        | 26.17                | 34.30              | 5.80            | 41.20               | 38.87                   | 54.00           | -15.13      | AV             |
| H                    | 17235.00        | 38.16                | 32.10              | 6.00            | 43.50               | 55.56                   | 68.20           | -12.64      | PK             |
| H                    | 17235.00        | 26.72                | 32.10              | 6.00            | 43.50               | 44.12                   | 54.00           | -9.88       | AV             |
| H                    | 22980.00        | 39.80                | 31.00              | 6.20            | 45.50               | 60.50                   | 74.00           | -13.50      | PK             |
| H                    | 22980.00        | 27.59                | 31.00              | 6.20            | 45.50               | 48.29                   | 54.00           | -5.71       | AV             |
| H                    | 28725.00        | 41.06                | 29.10              | 6.40            | 45.70               | 64.06                   | 68.20           | -4.14       | PK             |
| H                    | 28725.00        | 28.86                | 29.10              | 6.40            | 45.70               | 51.86                   | 54.00           | -2.14       | AV             |
| Low Channel:5785MHz  |                 |                      |                    |                 |                     |                         |                 |             |                |
| V                    | 11490.00        | 37.80                | 34.30              | 5.80            | 41.20               | 50.50                   | 74.00           | -23.50      | PK             |
| V                    | 11490.00        | 26.09                | 34.30              | 5.80            | 41.20               | 38.79                   | 54.00           | -15.21      | AV             |
| V                    | 17235.00        | 38.08                | 32.10              | 6.00            | 43.50               | 55.48                   | 68.20           | -12.72      | PK             |
| V                    | 17235.00        | 26.59                | 32.10              | 6.00            | 43.50               | 43.99                   | 54.00           | -10.01      | AV             |
| V                    | 22980.00        | 39.56                | 31.00              | 6.20            | 45.50               | 60.26                   | 68.20           | -7.94       | PK             |
| V                    | 22980.00        | 27.46                | 31.00              | 6.20            | 45.50               | 48.16                   | 54.00           | -5.84       | AV             |
| V                    | 28725.00        | 40.88                | 29.10              | 6.40            | 45.70               | 63.88                   | 68.20           | -4.32       | PK             |
| V                    | 28725.00        | 28.70                | 29.10              | 6.40            | 45.70               | 51.70                   | 54.00           | -2.30       | AV             |
| H                    | 11490.00        | 37.78                | 34.30              | 5.80            | 41.20               | 50.48                   | 74.00           | -23.52      | PK             |
| H                    | 11490.00        | 25.97                | 34.30              | 5.80            | 41.20               | 38.67                   | 54.00           | -15.33      | AV             |
| H                    | 17235.00        | 37.97                | 32.10              | 6.00            | 43.50               | 55.37                   | 68.20           | -12.83      | PK             |
| H                    | 17235.00        | 26.60                | 32.10              | 6.00            | 43.50               | 44.00                   | 54.00           | -10.00      | AV             |
| H                    | 22980.00        | 39.63                | 31.00              | 6.20            | 45.50               | 60.33                   | 68.20           | -7.87       | PK             |
| H                    | 22980.00        | 27.48                | 31.00              | 6.20            | 45.50               | 48.18                   | 54.00           | -5.82       | AV             |
| H                    | 28725.00        | 40.83                | 29.10              | 6.40            | 45.70               | 63.83                   | 68.20           | -4.37       | PK             |
| H                    | 28725.00        | 28.62                | 29.10              | 6.40            | 45.70               | 51.62                   | 54.00           | -2.38       | AV             |



| Middle Channel:5825MHz |          |       |       |      |       |       |       |        |    |
|------------------------|----------|-------|-------|------|-------|-------|-------|--------|----|
| V                      | 11650.00 | 37.78 | 34.30 | 5.80 | 41.20 | 50.48 | 74.00 | -23.52 | PK |
| V                      | 11650.00 | 26.11 | 34.30 | 5.80 | 41.20 | 38.81 | 54.00 | -15.19 | AV |
| V                      | 17475.00 | 37.94 | 32.10 | 6.00 | 43.50 | 55.34 | 68.20 | -12.86 | PK |
| V                      | 17475.00 | 26.63 | 32.10 | 6.00 | 43.50 | 44.03 | 54.00 | -9.97  | AV |
| V                      | 23300.00 | 39.64 | 31.00 | 6.20 | 45.50 | 60.34 | 68.20 | -7.86  | PK |
| V                      | 23300.00 | 27.57 | 31.00 | 6.20 | 45.50 | 48.27 | 54.00 | -5.73  | AV |
| V                      | 29125.00 | 40.76 | 29.10 | 6.40 | 45.70 | 63.76 | 68.20 | -4.44  | PK |
| V                      | 29125.00 | 28.74 | 29.10 | 6.40 | 45.70 | 51.74 | 54.00 | -2.26  | AV |
| H                      | 11650.00 | 37.83 | 34.30 | 5.80 | 41.20 | 50.53 | 74.00 | -23.47 | PK |
| H                      | 11650.00 | 26.03 | 34.30 | 5.80 | 41.20 | 38.73 | 54.00 | -15.27 | AV |
| H                      | 17475.00 | 38.04 | 32.10 | 6.00 | 43.50 | 55.44 | 68.20 | -12.76 | PK |
| H                      | 17475.00 | 26.45 | 32.10 | 6.00 | 43.50 | 43.85 | 54.00 | -10.15 | AV |
| H                      | 23300.00 | 39.63 | 31.00 | 6.20 | 45.50 | 60.33 | 68.20 | -7.87  | PK |
| H                      | 23300.00 | 27.56 | 31.00 | 6.20 | 45.50 | 48.26 | 54.00 | -5.74  | AV |
| H                      | 29125.00 | 40.89 | 29.10 | 6.40 | 45.70 | 63.89 | 68.20 | -4.31  | PK |
| H                      | 29125.00 | 28.61 | 29.10 | 6.40 | 45.70 | 51.61 | 54.00 | -2.39  | 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.



802.11n20

| Polar<br>(H/V)         | Frequency<br>(MHz) | Meter<br>Reading<br>(dBuV) | Pre-ampl<br>ifier<br>(dB) | Cable<br>Loss<br>(dB) | Antenna<br>Factor<br>(dB) | Emission<br>Level<br>(dBuV/m) | Limits<br>(dBuV/m) | Margin<br>(dB) | Detect<br>or<br>Type |
|------------------------|--------------------|----------------------------|---------------------------|-----------------------|---------------------------|-------------------------------|--------------------|----------------|----------------------|
| Low Channel:5745MHz    |                    |                            |                           |                       |                           |                               |                    |                |                      |
| V                      | 11490.00           | 37.85                      | 34.30                     | 5.80                  | 41.20                     | 50.55                         | 74.00              | -23.45         | PK                   |
| V                      | 11490.00           | 26.19                      | 34.30                     | 5.80                  | 41.20                     | 38.89                         | 54.00              | -15.11         | AV                   |
| V                      | 17235.00           | 38.12                      | 32.10                     | 6.00                  | 43.50                     | 55.52                         | 68.20              | -12.68         | PK                   |
| V                      | 17235.00           | 26.67                      | 32.10                     | 6.00                  | 43.50                     | 44.07                         | 54.00              | -9.93          | AV                   |
| V                      | 22980.00           | 39.76                      | 31.00                     | 6.20                  | 45.50                     | 60.46                         | 74.00              | -13.54         | PK                   |
| V                      | 22980.00           | 27.73                      | 31.00                     | 6.20                  | 45.50                     | 48.43                         | 54.00              | -5.57          | AV                   |
| V                      | 28725.00           | 41.05                      | 29.10                     | 6.40                  | 45.70                     | 64.05                         | 68.20              | -4.15          | PK                   |
| V                      | 28725.00           | 28.87                      | 29.10                     | 6.40                  | 45.70                     | 51.87                         | 54.00              | -2.13          | AV                   |
| H                      | 11490.00           | 37.87                      | 34.30                     | 5.80                  | 41.20                     | 50.57                         | 74.00              | -23.43         | PK                   |
| H                      | 11490.00           | 26.21                      | 34.30                     | 5.80                  | 41.20                     | 38.91                         | 54.00              | -15.09         | AV                   |
| H                      | 17235.00           | 38.25                      | 32.10                     | 6.00                  | 43.50                     | 55.65                         | 68.20              | -12.55         | PK                   |
| H                      | 17235.00           | 26.80                      | 32.10                     | 6.00                  | 43.50                     | 44.20                         | 54.00              | -9.80          | AV                   |
| H                      | 22980.00           | 39.72                      | 31.00                     | 6.20                  | 45.50                     | 60.42                         | 74.00              | -13.58         | PK                   |
| H                      | 22980.00           | 27.58                      | 31.00                     | 6.20                  | 45.50                     | 48.28                         | 54.00              | -5.72          | AV                   |
| H                      | 28725.00           | 40.99                      | 29.10                     | 6.40                  | 45.70                     | 63.99                         | 68.20              | -4.21          | PK                   |
| H                      | 28725.00           | 28.86                      | 29.10                     | 6.40                  | 45.70                     | 51.86                         | 54.00              | -2.14          | AV                   |
| Middle Channel:5785MHz |                    |                            |                           |                       |                           |                               |                    |                |                      |
| V                      | 11570.00           | 37.75                      | 34.30                     | 5.80                  | 41.20                     | 50.45                         | 74.00              | -23.55         | PK                   |
| V                      | 11570.00           | 26.08                      | 34.30                     | 5.80                  | 41.20                     | 38.78                         | 54.00              | -15.22         | AV                   |
| V                      | 17355.00           | 37.99                      | 32.10                     | 6.00                  | 43.50                     | 55.39                         | 68.20              | -12.81         | PK                   |
| V                      | 17355.00           | 26.50                      | 32.10                     | 6.00                  | 43.50                     | 43.90                         | 54.00              | -10.10         | AV                   |
| V                      | 23140.00           | 39.69                      | 31.00                     | 6.20                  | 45.50                     | 60.39                         | 68.20              | -7.81          | PK                   |
| V                      | 23140.00           | 27.46                      | 31.00                     | 6.20                  | 45.50                     | 48.16                         | 54.00              | -5.84          | AV                   |
| V                      | 28925.00           | 40.82                      | 29.10                     | 6.40                  | 45.70                     | 63.82                         | 68.20              | -4.38          | PK                   |
| V                      | 28925.00           | 28.67                      | 29.10                     | 6.40                  | 45.70                     | 51.67                         | 54.00              | -2.33          | AV                   |
| H                      | 11570.00           | 37.78                      | 34.30                     | 5.80                  | 41.20                     | 50.48                         | 74.00              | -23.52         | PK                   |
| H                      | 11570.00           | 25.96                      | 34.30                     | 5.80                  | 41.20                     | 38.66                         | 54.00              | -15.34         | AV                   |
| H                      | 17355.00           | 38.09                      | 32.10                     | 6.00                  | 43.50                     | 55.49                         | 68.20              | -12.71         | PK                   |
| H                      | 17355.00           | 26.55                      | 32.10                     | 6.00                  | 43.50                     | 43.95                         | 54.00              | -10.05         | AV                   |
| H                      | 23140.00           | 39.66                      | 31.00                     | 6.20                  | 45.50                     | 60.36                         | 68.20              | -7.84          | PK                   |
| H                      | 23140.00           | 27.48                      | 31.00                     | 6.20                  | 45.50                     | 48.18                         | 54.00              | -5.82          | AV                   |
| H                      | 28925.00           | 40.92                      | 29.10                     | 6.40                  | 45.70                     | 63.92                         | 68.20              | -4.28          | PK                   |
| H                      | 28925.00           | 28.75                      | 29.10                     | 6.40                  | 45.70                     | 51.75                         | 54.00              | -2.25          | AV                   |
|                        |                    |                            |                           |                       |                           |                               |                    |                |                      |



| High Channel:5825MHz |          |       |       |      |       |       |       |        |    |
|----------------------|----------|-------|-------|------|-------|-------|-------|--------|----|
| V                    | 11650.00 | 37.70 | 34.30 | 5.80 | 41.20 | 50.40 | 74.00 | -23.60 | PK |
| V                    | 11650.00 | 26.01 | 34.30 | 5.80 | 41.20 | 38.71 | 54.00 | -15.29 | AV |
| V                    | 17475.00 | 38.09 | 32.10 | 6.00 | 43.50 | 55.49 | 68.20 | -12.71 | PK |
| V                    | 17475.00 | 26.57 | 32.10 | 6.00 | 43.50 | 43.97 | 54.00 | -10.03 | AV |
| V                    | 23300.00 | 39.55 | 31.00 | 6.20 | 45.50 | 60.25 | 68.20 | -7.95  | PK |
| V                    | 23300.00 | 27.54 | 31.00 | 6.20 | 45.50 | 48.24 | 54.00 | -5.76  | AV |
| V                    | 29125.00 | 40.80 | 29.10 | 6.40 | 45.70 | 63.80 | 68.20 | -4.40  | PK |
| V                    | 29125.00 | 28.65 | 29.10 | 6.40 | 45.70 | 51.65 | 54.00 | -2.35  | AV |
| H                    | 11650.00 | 37.76 | 34.30 | 5.80 | 41.20 | 50.46 | 74.00 | -23.54 | PK |
| H                    | 11650.00 | 26.04 | 34.30 | 5.80 | 41.20 | 38.74 | 54.00 | -15.26 | AV |
| H                    | 17475.00 | 37.99 | 32.10 | 6.00 | 43.50 | 55.39 | 68.20 | -12.81 | PK |
| H                    | 17475.00 | 26.55 | 32.10 | 6.00 | 43.50 | 43.95 | 54.00 | -10.05 | AV |
| H                    | 23300.00 | 39.58 | 31.00 | 6.20 | 45.50 | 60.28 | 68.20 | -7.92  | PK |
| H                    | 23300.00 | 27.40 | 31.00 | 6.20 | 45.50 | 48.10 | 54.00 | -5.90  | AV |
| H                    | 29125.00 | 40.75 | 29.10 | 6.40 | 45.70 | 63.75 | 68.20 | -4.45  | PK |
| H                    | 29125.00 | 28.77 | 29.10 | 6.40 | 45.70 | 51.77 | 54.00 | -2.23  | 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.



## 802.11ac20

| Polar (H/V)            | Frequency (MHz) | Meter Reading (dBuV) | Pre-amplifier (dB) | Cable Loss (dB) | Antenna Factor (dB) | Emission Level (dBuV/m) | Limits (dBuV/m) | Margin (dB) | Detect or Type |
|------------------------|-----------------|----------------------|--------------------|-----------------|---------------------|-------------------------|-----------------|-------------|----------------|
| Low Channel:5745MHz    |                 |                      |                    |                 |                     |                         |                 |             |                |
| V                      | 11490.00        | 37.88                | 34.30              | 5.80            | 41.20               | 50.58                   | 74.00           | -23.42      | PK             |
| V                      | 11490.00        | 26.21                | 34.30              | 5.80            | 41.20               | 38.91                   | 54.00           | -15.09      | AV             |
| V                      | 17235.00        | 38.11                | 32.10              | 6.00            | 43.50               | 55.51                   | 68.20           | -12.69      | PK             |
| V                      | 17235.00        | 26.72                | 32.10              | 6.00            | 43.50               | 44.12                   | 54.00           | -9.88       | AV             |
| V                      | 22980.00        | 39.80                | 31.00              | 6.20            | 45.50               | 60.50                   | 74.00           | -13.50      | PK             |
| V                      | 22980.00        | 27.59                | 31.00              | 6.20            | 45.50               | 48.29                   | 54.00           | -5.71       | AV             |
| V                      | 28725.00        | 41.11                | 29.10              | 6.40            | 45.70               | 64.11                   | 68.20           | -4.09       | PK             |
| V                      | 28725.00        | 28.94                | 29.10              | 6.40            | 45.70               | 51.94                   | 54.00           | -2.06       | AV             |
| H                      | 11490.00        | 37.87                | 34.30              | 5.80            | 41.20               | 50.57                   | 74.00           | -23.43      | PK             |
| H                      | 11490.00        | 26.16                | 34.30              | 5.80            | 41.20               | 38.86                   | 54.00           | -15.14      | AV             |
| H                      | 17235.00        | 38.17                | 32.10              | 6.00            | 43.50               | 55.57                   | 68.20           | -12.63      | PK             |
| H                      | 17235.00        | 26.79                | 32.10              | 6.00            | 43.50               | 44.19                   | 54.00           | -9.81       | AV             |
| H                      | 22980.00        | 39.76                | 31.00              | 6.20            | 45.50               | 60.46                   | 74.00           | -13.54      | PK             |
| H                      | 22980.00        | 27.73                | 31.00              | 6.20            | 45.50               | 48.43                   | 54.00           | -5.57       | AV             |
| H                      | 28725.00        | 41.11                | 29.10              | 6.40            | 45.70               | 64.11                   | 68.20           | -4.09       | PK             |
| H                      | 28725.00        | 28.96                | 29.10              | 6.40            | 45.70               | 51.96                   | 54.00           | -2.04       | AV             |
| Middle Channel:5785MHz |                 |                      |                    |                 |                     |                         |                 |             |                |
| V                      | 11570.00        | 37.83                | 34.30              | 5.80            | 41.20               | 50.53                   | 74.00           | -23.47      | PK             |
| V                      | 11570.00        | 26.10                | 34.30              | 5.80            | 41.20               | 38.80                   | 54.00           | -15.20      | AV             |
| V                      | 17355.00        | 38.04                | 32.10              | 6.00            | 43.50               | 55.44                   | 68.20           | -12.76      | PK             |
| V                      | 17355.00        | 26.61                | 32.10              | 6.00            | 43.50               | 44.01                   | 54.00           | -9.99       | AV             |
| V                      | 23140.00        | 39.56                | 31.00              | 6.20            | 45.50               | 60.26                   | 68.20           | -7.94       | PK             |
| V                      | 23140.00        | 27.53                | 31.00              | 6.20            | 45.50               | 48.23                   | 54.00           | -5.77       | AV             |
| V                      | 28925.00        | 40.93                | 29.10              | 6.40            | 45.70               | 63.93                   | 68.20           | -4.27       | PK             |
| V                      | 28925.00        | 28.76                | 29.10              | 6.40            | 45.70               | 51.76                   | 54.00           | -2.24       | AV             |
| H                      | 11570.00        | 37.75                | 34.30              | 5.80            | 41.20               | 50.45                   | 74.00           | -23.55      | PK             |
| H                      | 11570.00        | 26.04                | 34.30              | 5.80            | 41.20               | 38.74                   | 54.00           | -15.26      | AV             |
| H                      | 17355.00        | 37.99                | 32.10              | 6.00            | 43.50               | 55.39                   | 68.20           | -12.81      | PK             |
| H                      | 17355.00        | 26.55                | 32.10              | 6.00            | 43.50               | 43.95                   | 54.00           | -10.05      | AV             |
| H                      | 23140.00        | 39.63                | 31.00              | 6.20            | 45.50               | 60.33                   | 68.20           | -7.87       | PK             |
| H                      | 23140.00        | 27.49                | 31.00              | 6.20            | 45.50               | 48.19                   | 54.00           | -5.81       | AV             |
| H                      | 28925.00        | 40.83                | 29.10              | 6.40            | 45.70               | 63.83                   | 68.20           | -4.37       | PK             |
| H                      | 28925.00        | 28.72                | 29.10              | 6.40            | 45.70               | 51.72                   | 54.00           | -2.28       | AV             |
|                        |                 |                      |                    |                 |                     |                         |                 |             |                |



| High Channel:5825MHz |          |       |       |      |       |       |       |        |    |
|----------------------|----------|-------|-------|------|-------|-------|-------|--------|----|
| V                    | 11650.00 | 37.84 | 34.30 | 5.80 | 41.20 | 50.54 | 74.00 | -23.46 | PK |
| V                    | 11650.00 | 26.11 | 34.30 | 5.80 | 41.20 | 38.81 | 54.00 | -15.19 | AV |
| V                    | 17475.00 | 38.01 | 32.10 | 6.00 | 43.50 | 55.41 | 68.20 | -12.79 | PK |
| V                    | 17475.00 | 26.57 | 32.10 | 6.00 | 43.50 | 43.97 | 54.00 | -10.03 | AV |
| V                    | 23300.00 | 39.61 | 31.00 | 6.20 | 45.50 | 60.31 | 68.20 | -7.89  | PK |
| V                    | 23300.00 | 27.51 | 31.00 | 6.20 | 45.50 | 48.21 | 54.00 | -5.79  | AV |
| V                    | 29125.00 | 40.97 | 29.10 | 6.40 | 45.70 | 63.97 | 68.20 | -4.23  | PK |
| V                    | 29125.00 | 28.62 | 29.10 | 6.40 | 45.70 | 51.62 | 54.00 | -2.38  | AV |
| H                    | 11650.00 | 37.72 | 34.30 | 5.80 | 41.20 | 50.42 | 74.00 | -23.58 | PK |
| H                    | 11650.00 | 25.96 | 34.30 | 5.80 | 41.20 | 38.66 | 54.00 | -15.34 | AV |
| H                    | 17475.00 | 37.93 | 32.10 | 6.00 | 43.50 | 55.33 | 68.20 | -12.87 | PK |
| H                    | 17475.00 | 26.52 | 32.10 | 6.00 | 43.50 | 43.92 | 54.00 | -10.08 | AV |
| H                    | 23300.00 | 39.55 | 31.00 | 6.20 | 45.50 | 60.25 | 68.20 | -7.95  | PK |
| H                    | 23300.00 | 27.48 | 31.00 | 6.20 | 45.50 | 48.18 | 54.00 | -5.82  | AV |
| H                    | 29125.00 | 40.90 | 29.10 | 6.40 | 45.70 | 63.90 | 68.20 | -4.30  | PK |
| H                    | 29125.00 | 28.57 | 29.10 | 6.40 | 45.70 | 51.57 | 54.00 | -2.43  | 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.



## 4.2.7 RADIATED BAND EDGE TEST RESULT

|                                                                                                               |                                       |                     |         |
|---------------------------------------------------------------------------------------------------------------|---------------------------------------|---------------------|---------|
| Temperature :                                                                                                 | 26℃                                   | Relative Humidity : | 54%     |
| Pressure :                                                                                                    | 1010 hPa                              | Test Voltage :      | DC 3.8V |
| Test Band :                                                                                                   | 5.2G TX-802.11a/n20/n40/ac20/ac40ac80 |                     |         |
| Note: All patterns have been tested, and only the worst test data recorded in this report is 802.11a/n20/ac20 |                                       |                     |         |

## 802.11a

| Polar (H/V)          | Frequency (MHz) | Meter Reading (dBuV) | Pre-amplifier (dB) | Cable Loss (dB) | Antenna Factor (dB) | Emission Level (dBuV/m) | Limits (dBuV/m) | Margin (dB) | Detect or Type |
|----------------------|-----------------|----------------------|--------------------|-----------------|---------------------|-------------------------|-----------------|-------------|----------------|
| Low Channel:5180MHz  |                 |                      |                    |                 |                     |                         |                 |             |                |
| V                    | 4500.00         | 44.66                | 34.10              | 3.60            | 33.90               | 48.06                   | 74.00           | -25.94      | PK             |
| V                    | 4500.00         | 30.79                | 34.10              | 3.60            | 33.90               | 34.19                   | 54.00           | -19.81      | AV             |
| V                    | 5100.00         | 44.75                | 34.20              | 3.70            | 36.00               | 50.25                   | 74.00           | -23.75      | PK             |
| V                    | 5100.00         | 31.77                | 34.20              | 3.70            | 36.00               | 37.27                   | 54.00           | -16.73      | AV             |
| V                    | 5150.00         | 45.29                | 34.20              | 3.71            | 36.20               | 51.00                   | 74.00           | -23.00      | PK             |
| V                    | 5150.00         | 32.08                | 34.20              | 3.71            | 36.20               | 37.79                   | 54.00           | -16.21      | AV             |
| H                    | 4500.00         | 44.64                | 34.10              | 3.60            | 33.90               | 48.04                   | 74.00           | -25.96      | PK             |
| H                    | 4500.00         | 31.36                | 34.10              | 3.60            | 33.90               | 34.76                   | 54.00           | -19.24      | AV             |
| H                    | 5100.00         | 44.57                | 34.20              | 3.70            | 36.00               | 50.07                   | 74.00           | -23.93      | PK             |
| H                    | 5100.00         | 31.05                | 34.20              | 3.70            | 36.00               | 36.55                   | 54.00           | -17.45      | AV             |
| H                    | 5150.00         | 43.45                | 34.20              | 3.71            | 36.20               | 49.16                   | 74.00           | -24.84      | PK             |
| H                    | 5150.00         | 30.40                | 34.20              | 3.71            | 36.20               | 36.11                   | 54.00           | -17.89      | PK             |
| High Channel:5240MHz |                 |                      |                    |                 |                     |                         |                 |             |                |
| V                    | 5350.00         | 44.54                | 34.20              | 3.80            | 35.80               | 49.94                   | 74.00           | -24.06      | PK             |
| V                    | 5350.00         | 30.28                | 34.20              | 3.80            | 35.80               | 35.68                   | 54.00           | -18.32      | AV             |
| V                    | 5400.00         | 44.54                | 34.20              | 3.81            | 35.90               | 50.05                   | 74.00           | -23.95      | PK             |
| V                    | 5400.00         | 31.79                | 34.20              | 3.81            | 35.90               | 37.30                   | 54.00           | -16.70      | AV             |
| V                    | 5460.00         | 44.57                | 34.20              | 3.82            | 36.00               | 50.19                   | 74.00           | -23.81      | PK             |
| V                    | 5460.00         | 32.04                | 34.20              | 3.82            | 36.00               | 37.66                   | 54.00           | -16.34      | AV             |
| H                    | 5350.00         | 43.91                | 34.20              | 3.80            | 35.80               | 49.31                   | 74.00           | -24.69      | PK             |
| H                    | 5350.00         | 31.47                | 34.20              | 3.80            | 35.80               | 36.87                   | 54.00           | -17.13      | AV             |
| H                    | 5400.00         | 44.59                | 34.20              | 3.81            | 35.90               | 50.10                   | 74.00           | -23.90      | PK             |
| H                    | 5400.00         | 31.10                | 34.20              | 3.81            | 35.90               | 36.61                   | 54.00           | -17.39      | AV             |
| H                    | 5460.00         | 43.99                | 34.20              | 3.82            | 36.00               | 49.61                   | 74.00           | -24.39      | PK             |
| H                    | 5460.00         | 30.56                | 34.20              | 3.82            | 36.00               | 36.18                   | 54.00           | -17.82      | 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.



802.11n20

| Polar<br>(H/V)       | Frequency | Meter<br>Reading | Pre-ampl<br>ifier | Cable<br>Loss | Antenna<br>Factor | Emission<br>Level | Limits   | Margin | Detect<br>or<br>Type |
|----------------------|-----------|------------------|-------------------|---------------|-------------------|-------------------|----------|--------|----------------------|
|                      | (MHz)     | (dBuV)           | (dB)              | (dB)          | (dB)              | (dBuV/m)          | (dBuV/m) | (dB)   |                      |
| Low Channel:5180MHz  |           |                  |                   |               |                   |                   |          |        |                      |
| V                    | 4500.00   | 44.68            | 34.10             | 3.60          | 33.90             | 48.08             | 74.00    | -25.92 | PK                   |
| V                    | 4500.00   | 30.58            | 34.10             | 3.60          | 33.90             | 33.98             | 54.00    | -20.02 | AV                   |
| V                    | 5100.00   | 44.92            | 34.20             | 3.70          | 36.00             | 50.42             | 74.00    | -23.58 | PK                   |
| V                    | 5100.00   | 31.65            | 34.20             | 3.70          | 36.00             | 37.15             | 54.00    | -16.85 | AV                   |
| V                    | 5150.00   | 44.81            | 34.20             | 3.71          | 36.20             | 50.52             | 74.00    | -23.48 | PK                   |
| V                    | 5150.00   | 32.22            | 34.20             | 3.71          | 36.20             | 37.93             | 54.00    | -16.07 | AV                   |
| H                    | 4500.00   | 44.02            | 34.10             | 3.60          | 33.90             | 47.42             | 74.00    | -26.58 | PK                   |
| H                    | 4500.00   | 30.86            | 34.10             | 3.60          | 33.90             | 34.26             | 54.00    | -19.74 | AV                   |
| H                    | 5100.00   | 44.23            | 34.20             | 3.70          | 36.00             | 49.73             | 74.00    | -24.27 | PK                   |
| H                    | 5100.00   | 31.42            | 34.20             | 3.70          | 36.00             | 36.92             | 54.00    | -17.08 | AV                   |
| H                    | 5150.00   | 44.03            | 34.20             | 3.71          | 36.20             | 49.74             | 74.00    | -24.26 | PK                   |
| H                    | 5150.00   | 30.74            | 34.20             | 3.71          | 36.20             | 36.45             | 54.00    | -17.55 | PK                   |
| High Channel:5240MHz |           |                  |                   |               |                   |                   |          |        |                      |
| V                    | 5350.00   | 44.27            | 34.20             | 3.80          | 35.80             | 49.67             | 74.00    | -24.33 | PK                   |
| V                    | 5350.00   | 30.91            | 34.20             | 3.80          | 35.80             | 36.31             | 54.00    | -17.69 | AV                   |
| V                    | 5400.00   | 44.79            | 34.20             | 3.81          | 35.90             | 50.30             | 74.00    | -23.70 | PK                   |
| V                    | 5400.00   | 31.63            | 34.20             | 3.81          | 35.90             | 37.14             | 54.00    | -16.86 | AV                   |
| V                    | 5460.00   | 44.86            | 34.20             | 3.82          | 36.00             | 50.48             | 74.00    | -23.52 | PK                   |
| V                    | 5460.00   | 31.81            | 34.20             | 3.82          | 36.00             | 37.43             | 54.00    | -16.57 | AV                   |
| H                    | 5350.00   | 43.87            | 34.20             | 3.80          | 35.80             | 49.27             | 74.00    | -24.73 | PK                   |
| H                    | 5350.00   | 31.23            | 34.20             | 3.80          | 35.80             | 36.63             | 54.00    | -17.37 | AV                   |
| H                    | 5400.00   | 44.46            | 34.20             | 3.81          | 35.90             | 49.97             | 74.00    | -24.03 | PK                   |
| H                    | 5400.00   | 31.47            | 34.20             | 3.81          | 35.90             | 36.98             | 54.00    | -17.02 | AV                   |
| H                    | 5460.00   | 43.83            | 34.20             | 3.82          | 36.00             | 49.45             | 74.00    | -24.55 | PK                   |
| H                    | 5460.00   | 30.62            | 34.20             | 3.82          | 36.00             | 36.24             | 54.00    | -17.76 | 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.



## 802.11ac20

| Polar<br>(H/V)       | Frequency | Meter<br>Reading | Pre-ampl<br>ifier | Cable<br>Loss | Antenna<br>Factor | Emission<br>Level | Limits   | Margin | Detect<br>or<br>Type |
|----------------------|-----------|------------------|-------------------|---------------|-------------------|-------------------|----------|--------|----------------------|
|                      | (MHz)     | (dBuV)           | (dB)              | (dB)          | (dB)              | (dBuV/m)          | (dBuV/m) | (dB)   |                      |
| Low Channel:5180MHz  |           |                  |                   |               |                   |                   |          |        |                      |
| V                    | 4500.00   | 44.81            | 34.10             | 3.60          | 33.90             | 48.21             | 74.00    | -25.79 | PK                   |
| V                    | 4500.00   | 30.80            | 34.10             | 3.60          | 33.90             | 34.20             | 54.00    | -19.80 | AV                   |
| V                    | 5100.00   | 44.80            | 34.20             | 3.70          | 36.00             | 50.30             | 74.00    | -23.70 | PK                   |
| V                    | 5100.00   | 31.51            | 34.20             | 3.70          | 36.00             | 37.01             | 54.00    | -16.99 | AV                   |
| V                    | 5150.00   | 45.23            | 34.20             | 3.71          | 36.20             | 50.94             | 74.00    | -23.06 | PK                   |
| V                    | 5150.00   | 31.79            | 34.20             | 3.71          | 36.20             | 37.50             | 54.00    | -16.50 | AV                   |
| H                    | 4500.00   | 44.65            | 34.10             | 3.60          | 33.90             | 48.05             | 74.00    | -25.95 | PK                   |
| H                    | 4500.00   | 30.61            | 34.10             | 3.60          | 33.90             | 34.01             | 54.00    | -19.99 | AV                   |
| H                    | 5100.00   | 44.56            | 34.20             | 3.70          | 36.00             | 50.06             | 74.00    | -23.94 | PK                   |
| H                    | 5100.00   | 31.20            | 34.20             | 3.70          | 36.00             | 36.70             | 54.00    | -17.30 | AV                   |
| H                    | 5150.00   | 43.68            | 34.20             | 3.71          | 36.20             | 49.39             | 74.00    | -24.61 | PK                   |
| H                    | 5150.00   | 30.88            | 34.20             | 3.71          | 36.20             | 36.59             | 54.00    | -17.41 | PK                   |
| High Channel:5240MHz |           |                  |                   |               |                   |                   |          |        |                      |
| V                    | 5350.00   | 44.76            | 34.20             | 3.80          | 35.80             | 50.16             | 74.00    | -23.84 | PK                   |
| V                    | 5350.00   | 30.71            | 34.20             | 3.80          | 35.80             | 36.11             | 54.00    | -17.89 | AV                   |
| V                    | 5400.00   | 45.22            | 34.20             | 3.81          | 35.90             | 50.73             | 74.00    | -23.27 | PK                   |
| V                    | 5400.00   | 32.06            | 34.20             | 3.81          | 35.90             | 37.57             | 54.00    | -16.43 | AV                   |
| V                    | 5460.00   | 45.06            | 34.20             | 3.82          | 36.00             | 50.68             | 74.00    | -23.32 | PK                   |
| V                    | 5460.00   | 31.78            | 34.20             | 3.82          | 36.00             | 37.40             | 54.00    | -16.60 | AV                   |
| H                    | 5350.00   | 44.43            | 34.20             | 3.80          | 35.80             | 49.83             | 74.00    | -24.17 | PK                   |
| H                    | 5350.00   | 30.70            | 34.20             | 3.80          | 35.80             | 36.10             | 54.00    | -17.90 | AV                   |
| H                    | 5400.00   | 44.02            | 34.20             | 3.81          | 35.90             | 49.53             | 74.00    | -24.47 | PK                   |
| H                    | 5400.00   | 31.19            | 34.20             | 3.81          | 35.90             | 36.70             | 54.00    | -17.30 | AV                   |
| H                    | 5460.00   | 43.61            | 34.20             | 3.82          | 36.00             | 49.23             | 74.00    | -24.77 | PK                   |
| H                    | 5460.00   | 31.12            | 34.20             | 3.82          | 36.00             | 36.74             | 54.00    | -17.26 | 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 :                                                                                                 | 26℃                                     | Relative Humidity : | 54%     |
| Pressure :                                                                                                    | 1010 hPa                                | Test Voltage :      | DC 3.8V |
| Test Band :                                                                                                   | 5.8G TX -802.11a/n20/n40/ac20/ac40/ac80 |                     |         |
| Note: All patterns have been tested, and only the worst test data recorded in this report is 802.11a/n20/ac20 |                                         |                     |         |

## 802.11a

| Polar<br>(H/V)       | Frequency | Meter<br>Reading | Pre-ampl<br>ifier | Cable<br>Loss | Antenna<br>Factor | Emission<br>Level | Limits   | Margin | Detect<br>or<br>Type |
|----------------------|-----------|------------------|-------------------|---------------|-------------------|-------------------|----------|--------|----------------------|
|                      | (MHz)     | (dBuV)           | (dB)              | (dB)          | (dB)              | (dBuV/m)          | (dBuV/m) | (dB)   |                      |
| Low Channel:5745MHz  |           |                  |                   |               |                   |                   |          |        |                      |
| V                    | 5700.00   | 64.97            | 34.20             | 3.86          | 36.20             | 70.83             | 110.80   | -39.97 | PK                   |
| V                    | 5700.00   | 35.36            | 34.20             | 3.86          | 36.20             | 41.22             | 54.00    | -12.78 | AV                   |
| V                    | 5725.00   | 63.07            | 34.20             | 3.86          | 36.20             | 68.93             | 122.20   | -53.27 | PK                   |
| V                    | 5725.00   | 35.18            | 34.20             | 3.86          | 36.20             | 41.04             | 54.00    | -12.96 | AV                   |
| H                    | 5700.00   | 64.33            | 34.20             | 3.86          | 36.20             | 70.19             | 110.80   | -40.61 | PK                   |
| H                    | 5700.00   | 35.57            | 34.20             | 3.86          | 36.20             | 41.43             | 54.00    | -12.57 | AV                   |
| H                    | 5725.00   | 65.51            | 34.20             | 3.86          | 36.20             | 71.37             | 122.20   | -50.83 | PK                   |
| H                    | 5725.00   | 36.02            | 34.20             | 3.86          | 36.20             | 41.88             | 54.00    | -12.12 | AV                   |
| High Channel:5825MHz |           |                  |                   |               |                   |                   |          |        |                      |
| V                    | 5850.00   | 65.51            | 34.20             | 3.88          | 36.30             | 71.49             | 122.20   | -50.71 | PK                   |
| V                    | 5850.00   | 34.39            | 34.20             | 3.88          | 36.30             | 40.37             | 54.00    | -13.63 | AV                   |
| V                    | 5875.00   | 64.82            | 34.20             | 3.88          | 36.30             | 70.80             | 110.80   | -40.00 | PK                   |
| V                    | 5875.00   | 33.89            | 34.20             | 3.88          | 36.30             | 39.87             | 54.00    | -14.13 | AV                   |
| H                    | 5850.00   | 65.64            | 34.20             | 3.88          | 36.30             | 71.62             | 122.20   | -50.58 | PK                   |
| H                    | 5850.00   | 36.23            | 34.20             | 3.88          | 36.30             | 42.21             | 54.00    | -11.79 | AV                   |
| H                    | 5875.00   | 64.29            | 34.20             | 3.88          | 36.30             | 70.27             | 110.80   | -40.53 | PK                   |
| H                    | 5875.00   | 35.32            | 34.20             | 3.88          | 36.30             | 41.30             | 54.00    | -12.70 | 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.



802.11n20

| Polar<br>(H/V)       | Frequency | Meter<br>Reading | Pre-ampl<br>ifier | Cable<br>Loss | Antenna<br>Factor | Emission<br>Level | Limits   | Margin | Detect<br>or<br>Type |
|----------------------|-----------|------------------|-------------------|---------------|-------------------|-------------------|----------|--------|----------------------|
|                      | (MHz)     | (dBuV)           | (dB)              | (dB)          | (dB)              | (dBuV/m)          | (dBuV/m) | (dB)   |                      |
| Low Channel:5745MHz  |           |                  |                   |               |                   |                   |          |        |                      |
| V                    | 5700.00   | 64.53            | 34.20             | 3.86          | 36.20             | 70.39             | 110.80   | -40.41 | PK                   |
| V                    | 5700.00   | 35.76            | 34.20             | 3.86          | 36.20             | 41.62             | 54.00    | -12.38 | AV                   |
| V                    | 5725.00   | 62.57            | 34.20             | 3.86          | 36.20             | 68.43             | 122.20   | -53.77 | PK                   |
| V                    | 5725.00   | 35.18            | 34.20             | 3.86          | 36.20             | 41.04             | 54.00    | -12.96 | AV                   |
| H                    | 5700.00   | 64.23            | 34.20             | 3.86          | 36.20             | 70.09             | 110.80   | -40.71 | PK                   |
| H                    | 5700.00   | 34.84            | 34.20             | 3.86          | 36.20             | 40.70             | 54.00    | -13.30 | AV                   |
| H                    | 5725.00   | 64.85            | 34.20             | 3.86          | 36.20             | 70.71             | 122.20   | -51.49 | PK                   |
| H                    | 5725.00   | 36.21            | 34.20             | 3.86          | 36.20             | 42.07             | 54.00    | -11.93 | AV                   |
| High Channel:5825MHz |           |                  |                   |               |                   |                   |          |        |                      |
| V                    | 5850.00   | 65.63            | 34.20             | 3.88          | 36.30             | 71.61             | 122.20   | -50.59 | PK                   |
| V                    | 5850.00   | 34.29            | 34.20             | 3.88          | 36.30             | 40.27             | 54.00    | -13.73 | AV                   |
| V                    | 5875.00   | 64.61            | 34.20             | 3.88          | 36.30             | 70.59             | 110.80   | -40.21 | PK                   |
| V                    | 5875.00   | 33.55            | 34.20             | 3.88          | 36.30             | 39.53             | 54.00    | -14.47 | AV                   |
| H                    | 5850.00   | 65.83            | 34.20             | 3.88          | 36.30             | 71.81             | 122.20   | -50.39 | PK                   |
| H                    | 5850.00   | 35.93            | 34.20             | 3.88          | 36.30             | 41.91             | 54.00    | -12.09 | AV                   |
| H                    | 5875.00   | 64.50            | 34.20             | 3.88          | 36.30             | 70.48             | 110.80   | -40.32 | PK                   |
| H                    | 5875.00   | 35.11            | 34.20             | 3.88          | 36.30             | 41.09             | 54.00    | -12.91 | 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.



802.11ac20

| Polar<br>(H/V)       | Frequency | Meter<br>Reading | Pre-ampl<br>ifier | Cable<br>Loss | Antenna<br>Factor | Emission<br>Level | Limits   | Margin | Detect<br>or<br>Type |
|----------------------|-----------|------------------|-------------------|---------------|-------------------|-------------------|----------|--------|----------------------|
|                      | (MHz)     | (dBuV)           | (dB)              | (dB)          | (dB)              | (dBuV/m)          | (dBuV/m) | (dB)   |                      |
| Low Channel:5745MHz  |           |                  |                   |               |                   |                   |          |        |                      |
| V                    | 5700.00   | 64.78            | 34.20             | 3.86          | 36.20             | 70.64             | 110.80   | -40.16 | PK                   |
| V                    | 5700.00   | 35.97            | 34.20             | 3.86          | 36.20             | 41.83             | 54.00    | -12.17 | AV                   |
| V                    | 5725.00   | 62.57            | 34.20             | 3.86          | 36.20             | 68.43             | 122.20   | -53.77 | PK                   |
| V                    | 5725.00   | 34.48            | 34.20             | 3.86          | 36.20             | 40.34             | 54.00    | -13.66 | AV                   |
| H                    | 5700.00   | 63.48            | 34.20             | 3.86          | 36.20             | 69.34             | 110.80   | -41.46 | PK                   |
| H                    | 5700.00   | 35.56            | 34.20             | 3.86          | 36.20             | 41.42             | 54.00    | -12.58 | AV                   |
| H                    | 5725.00   | 65.63            | 34.20             | 3.86          | 36.20             | 71.49             | 122.20   | -50.71 | PK                   |
| H                    | 5725.00   | 35.91            | 34.20             | 3.86          | 36.20             | 41.77             | 54.00    | -12.23 | AV                   |
| High Channel:5825MHz |           |                  |                   |               |                   |                   |          |        |                      |
| V                    | 5850.00   | 65.92            | 34.20             | 3.88          | 36.30             | 71.90             | 122.20   | -50.30 | PK                   |
| V                    | 5850.00   | 35.02            | 34.20             | 3.88          | 36.30             | 41.00             | 54.00    | -13.00 | AV                   |
| V                    | 5875.00   | 64.56            | 34.20             | 3.88          | 36.30             | 70.54             | 110.80   | -40.26 | PK                   |
| V                    | 5875.00   | 34.12            | 34.20             | 3.88          | 36.30             | 40.10             | 54.00    | -13.90 | AV                   |
| H                    | 5850.00   | 65.63            | 34.20             | 3.88          | 36.30             | 71.61             | 122.20   | -50.59 | PK                   |
| H                    | 5850.00   | 36.08            | 34.20             | 3.88          | 36.30             | 42.06             | 54.00    | -11.94 | AV                   |
| H                    | 5875.00   | 63.91            | 34.20             | 3.88          | 36.30             | 69.89             | 110.80   | -40.91 | PK                   |
| H                    | 5875.00   | 35.22            | 34.20             | 3.88          | 36.30             | 41.20             | 54.00    | -12.80 | 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.



## 5. POWER SPECTRAL DENSITY TEST

### 5.1 APPLIED PROCEDURES / LIMIT

According to FCC §15.407(a) (1) Power limits:

(i) For an outdoor access point operating in the band 5.15-5.25 GHz, the maximum power spectral density shall not exceed 17 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi. The maximum e.i.r.p. at any elevation angle above 30 degrees as measured from the horizon must not exceed 125 mW (21 dBm).

(ii) For an indoor access point operating in the band 5.15-5.25 GHz, the maximum power spectral density shall not exceed 17 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

(iii) For fixed point-to-point access points operating in the band 5.15-5.25 GHz, the maximum power spectral density shall not exceed 17 dBm in any 1 megahertz band. Fixed point-to-point U-NII devices may employ antennas with directional gain up to 23 dBi without any corresponding reduction in the maximum conducted output power or maximum power spectral density. For fixed point-to-point transmitters that employ a directional antenna gain greater than 23 dBi, a 1 dB reduction in maximum conducted output power and maximum power spectral density is required for each 1 dB of antenna gain in excess of 23 dBi. Fixed, point-to-point operations exclude the use of point-to-multipoint systems, omnidirectional applications, and multiple collocated transmitters transmitting the same information. The operator of the U-NII device, or if the equipment is professionally installed, the installer, is responsible for ensuring that systems employing high gain directional antennas are used exclusively for fixed, point-to-point operations.

(iv) For client devices in the 5.15-5.25 GHz band, the maximum conducted output power over the frequency band of operation shall not exceed 250 mW provided the maximum antenna gain does not exceed 6 dBi. In addition, the maximum power spectral density shall not exceed 11 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

According to FCC §15.407(a) (3) Power limits:

For the band 5.725-5.85 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W. In addition, the maximum power spectral density shall not exceed 30 dBm in any 500-kHz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi. However, fixed point-to-point U-NII devices operating in this band may employ transmitting antennas with directional gain greater than 6 dBi without any corresponding reduction in transmitter conducted power. Fixed, point-to-point operations exclude the use of point-to-multipoint systems, omnidirectional applications, and multiple collocated transmitters transmitting the same information. The operator of the U-NII device, or if the equipment is professionally installed, the installer, is responsible for ensuring that systems employing high gain directional antennas are used exclusively for fixed, point-to-point operations.



## 5.2 TEST PROCEDURE

For devices operating in the bands 5.15-5.25 GHz, 5.25-5.35 GHz, and 5.47-5.725 GHz, the above procedures make use of 1 MHz RBW to satisfy directly the 1 MHz reference bandwidth specified in § 15.407(a)(5). For devices operating in the band 5.725-5.85 GHz, the rules specify a measurement bandwidth of 500 kHz. Many spectrum analyzers do not have 500 kHz RBW, thus a narrower RBW may need to be used. The rules permit the use of a RBWs less than 1 MHz, or 500 kHz, “provided that the measured power is integrated over the full reference bandwidth” to show the total power over the specified measurement bandwidth (i.e., 1 MHz, or 500 kHz). If measurements are performed using a reduced resolution bandwidth ( $< 1$  MHz, or  $< 500$  kHz) and integrated over 1 MHz, or 500 KHz bandwidth, the following adjustments to the procedures apply:

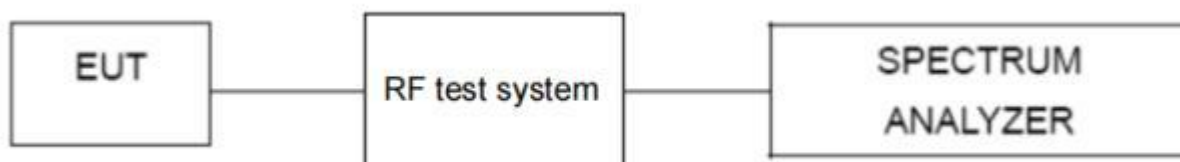
- a) Set  $RBW \geq 1/T$ , where T is defined in section II.B.I.a).
- b) Set  $VBW \geq 3$  RBW.
- c) If measurement bandwidth of Maximum PSD is specified in 500 kHz, add  $10\log(500\text{kHz}/RBW)$  to the measured result, whereas RBW ( $< 500$  kHz) is the reduced resolution bandwidth of the spectrum analyzer set during measurement.
- d) If measurement bandwidth of Maximum PSD is specified in 1 MHz, add  $10\log(1\text{MHz}/RBW)$  to the measured result, whereas RBW ( $< 1$  MHz) is the reduced resolution bandwidth of spectrum analyzer set during measurement.
- e) Care must be taken to ensure that the measurements are performed during a period of continuous transmission or are corrected upward for duty cycle.

Note: As a practical matter, it is recommended to use reduced RBW of 100 kHz for the sections 5.c) and 5.d) above, since RBW=100 kHz is available on nearly all spectrum analyzers.

## 5.3 DEVIATION FROM STANDARD

No deviation.

## 5.4 TEST SETUP



## 5.5 EUT OPERATION CONDITIONS

The EUT tested system was configured as the statements of chapter 3, Unless otherwise a special operating condition is specified in the follows during the testing.



## 5.6 TEST RESULTS

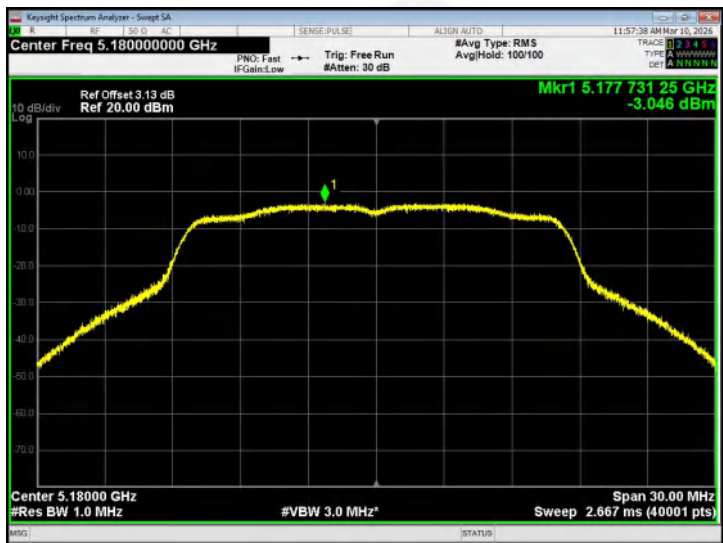
|               |          |                     |         |
|---------------|----------|---------------------|---------|
| Temperature : | 26 °C    | Relative Humidity : | 54%     |
| Pressure :    | 1015 hPa | Test Voltage :      | DC 3.8V |
| Test Band :   | 5.2G     |                     |         |

| Test mode  | Frequency (MHz) | PSD (dBm) | Duty cycle factor (dB) | Total PSD (dBm) | Limit (dBm) | Result |
|------------|-----------------|-----------|------------------------|-----------------|-------------|--------|
| 802.11a    | 5180            | -3.046    | 0.1                    | -2.946          | 11          | Pass   |
|            | 5200            | -3.114    | 0.1                    | -3.014          | 11          | Pass   |
|            | 5240            | -2.943    | 0.1                    | -2.843          | 11          | Pass   |
| 802.11n20  | 5180            | -3.349    | 0                      | -3.349          | 11          | Pass   |
|            | 5200            | -3.564    | 0                      | -3.564          | 11          | Pass   |
|            | 5240            | -3.020    | 0                      | -3.020          | 11          | Pass   |
| 802.11n40  | 5190            | -6.862    | 0                      | -6.862          | 11          | Pass   |
|            | 5230            | -6.504    | 0                      | -6.504          | 11          | Pass   |
| 802.11ac20 | 5180            | -3.240    | 0                      | -3.240          | 11          | Pass   |
|            | 5200            | -3.632    | 0                      | -3.632          | 11          | Pass   |
|            | 5240            | -3.294    | 0                      | -3.294          | 11          | Pass   |
| 802.11ac40 | 5190            | -6.652    | 0                      | -6.652          | 11          | Pass   |
|            | 5230            | -6.550    | 0                      | -6.550          | 11          | Pass   |
| 802.11ac80 | 5210            | -9.465    | 0                      | -9.465          | 11          | Pass   |

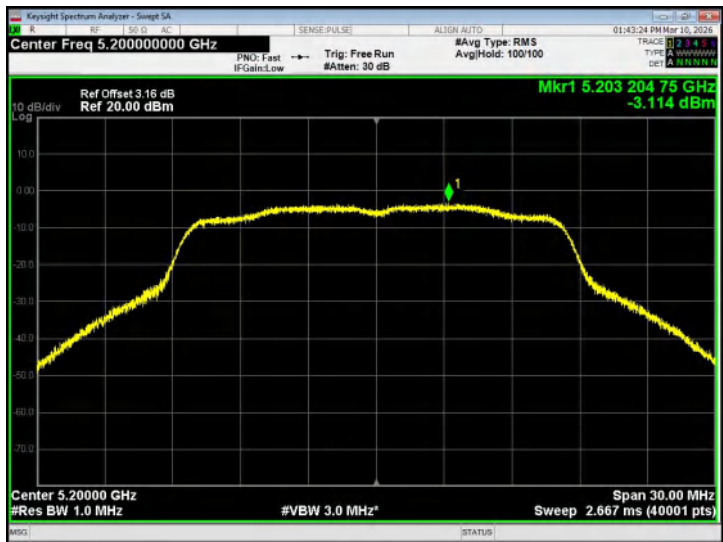
Note: Total PSD = PSD + Duty cycle factor.



802.11a  
CH36



CH40

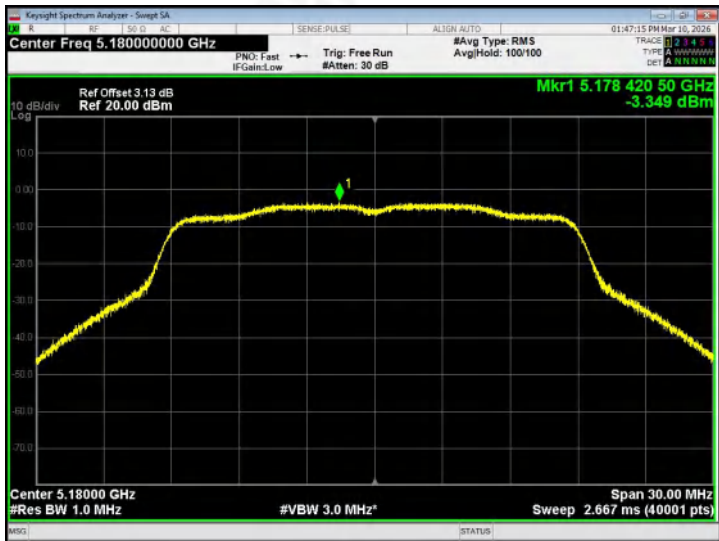


CH48

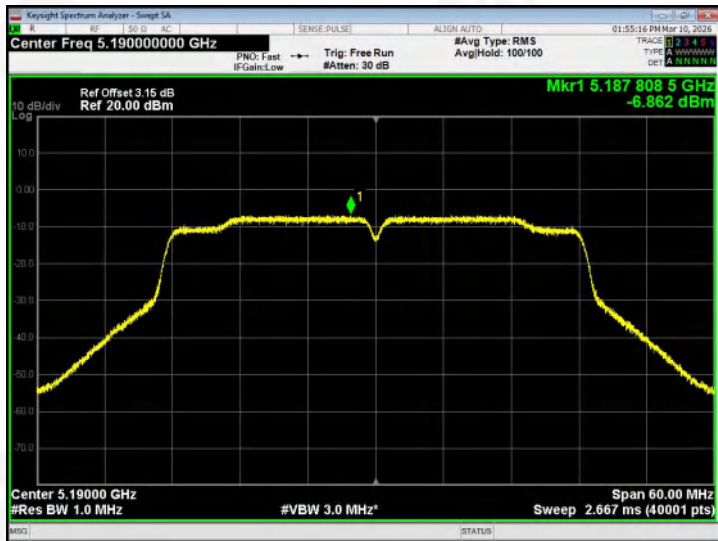




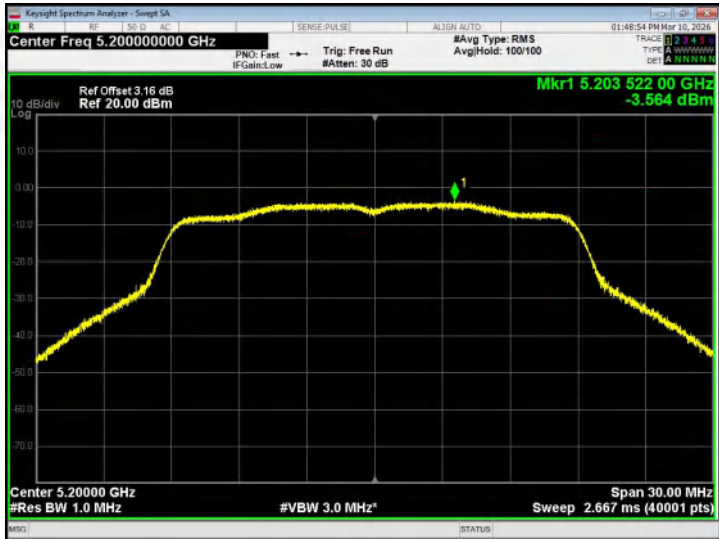
802.11n20  
CH36



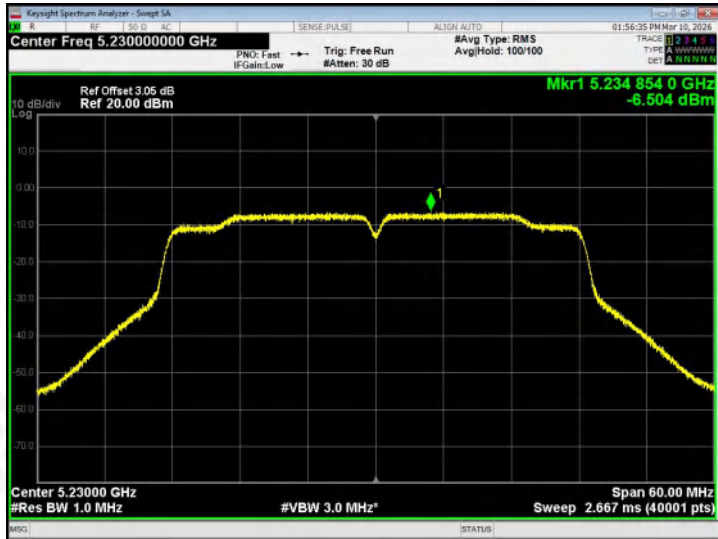
802.11n40  
CH38



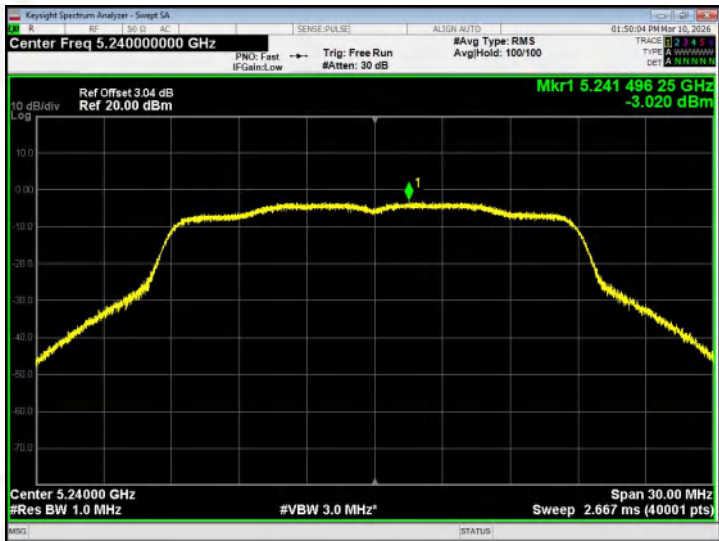
CH40



CH46

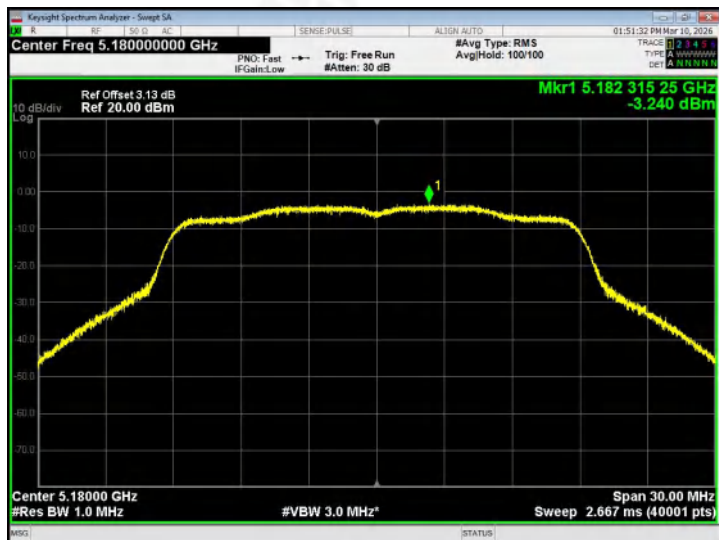


CH48

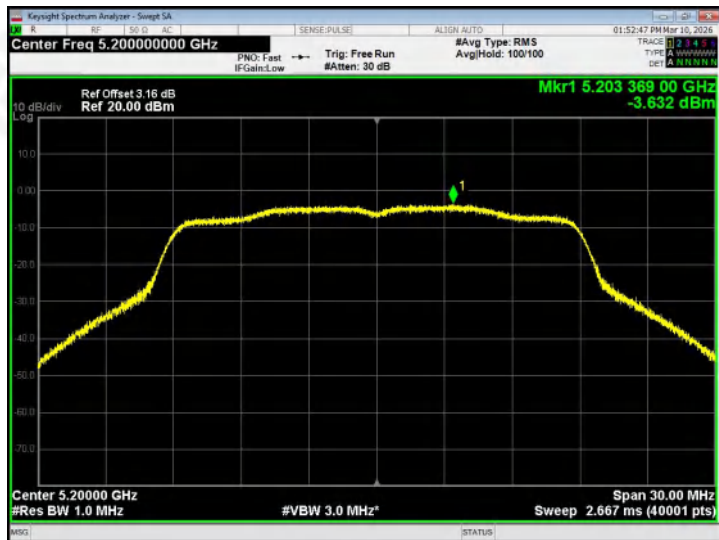




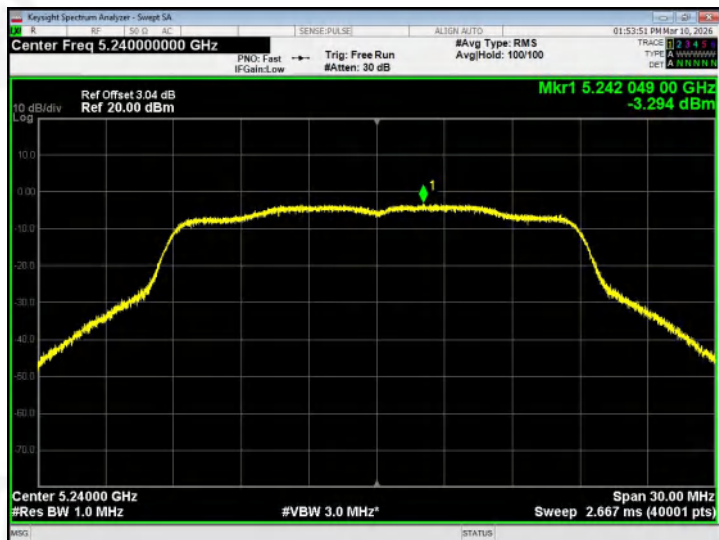
802.11ac20  
CH36



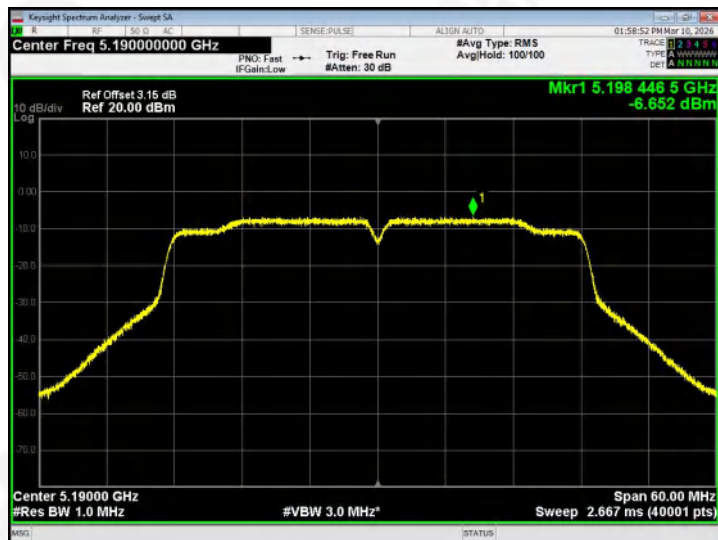
CH40



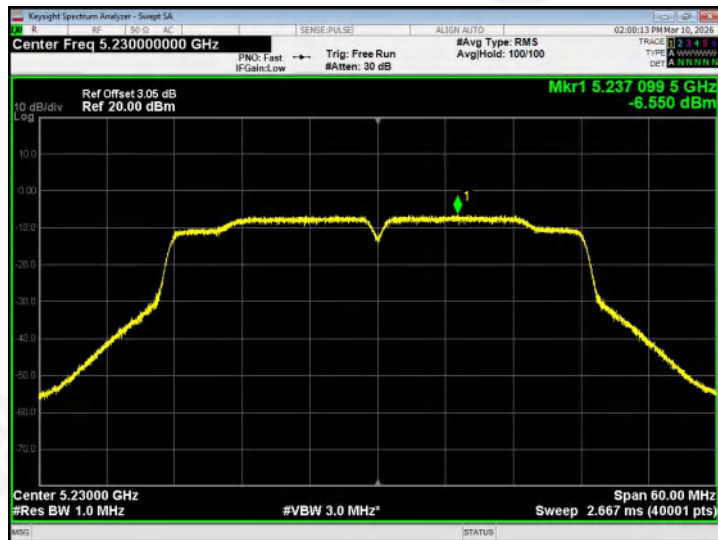
CH48



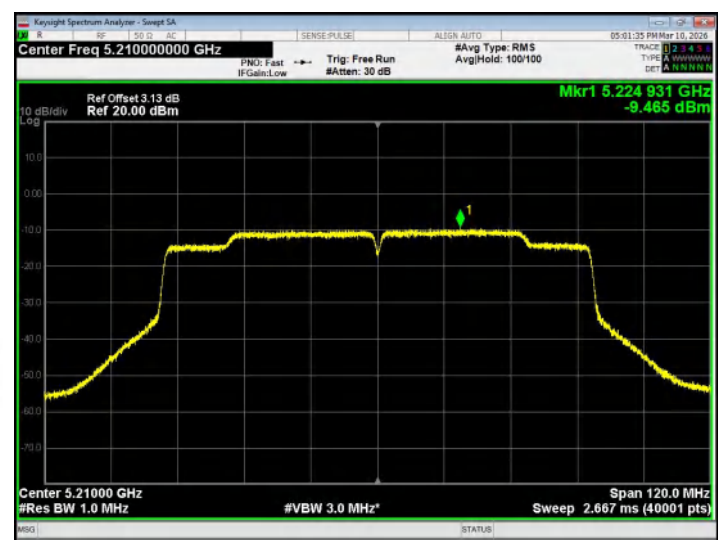
802.11ac40  
CH38



CH46



802.11ac80-CH 42





|               |          |                     |         |
|---------------|----------|---------------------|---------|
| Temperature : | 26 °C    | Relative Humidity : | 54%     |
| Pressure :    | 1015 hPa | Test Voltage :      | DC 3.8V |
| Test Band :   | 5.8G     |                     |         |

| Test mode  | Test Channel<br>(MHz) | PSD<br>(dBm/500kHz) | Duty cycle<br>factor<br>(dB) | Total PSD<br>(dBm/500kHz) | Limit<br>(dBm/500kHz) | Result |
|------------|-----------------------|---------------------|------------------------------|---------------------------|-----------------------|--------|
| 802.11a    | 5745                  | -7.719              | 0.1                          | -7.619                    | 30                    | Pass   |
|            | 5785                  | -6.851              | 0.1                          | -6.751                    | 30                    | Pass   |
|            | 5825                  | -6.475              | 0.1                          | -6.375                    | 30                    | Pass   |
| 802.11n20  | 5745                  | -7.979              | 0                            | -7.979                    | 30                    | Pass   |
|            | 5785                  | -7.279              | 0                            | -7.279                    | 30                    | Pass   |
|            | 5825                  | -6.806              | 0                            | -6.806                    | 30                    | Pass   |
| 802.11n40  | 5755                  | -10.334             | 0                            | -10.334                   | 30                    | Pass   |
|            | 5795                  | -9.902              | 0                            | -9.902                    | 30                    | Pass   |
| 802.11ac20 | 5745                  | -7.852              | 0                            | -7.852                    | 30                    | Pass   |
|            | 5785                  | -7.088              | 0                            | -7.088                    | 30                    | Pass   |
|            | 5825                  | -6.753              | 0                            | -6.753                    | 30                    | Pass   |
| 802.11ac40 | 5755                  | -10.403             | 0                            | -10.403                   | 30                    | Pass   |
|            | 5795                  | -10.038             | 0                            | -10.038                   | 30                    | Pass   |
| 802.11ac80 | 5775                  | -12.917             | 0                            | -12.917                   | 30                    | Pass   |

Note: Total PSD = PSD + Duty cycle factor.



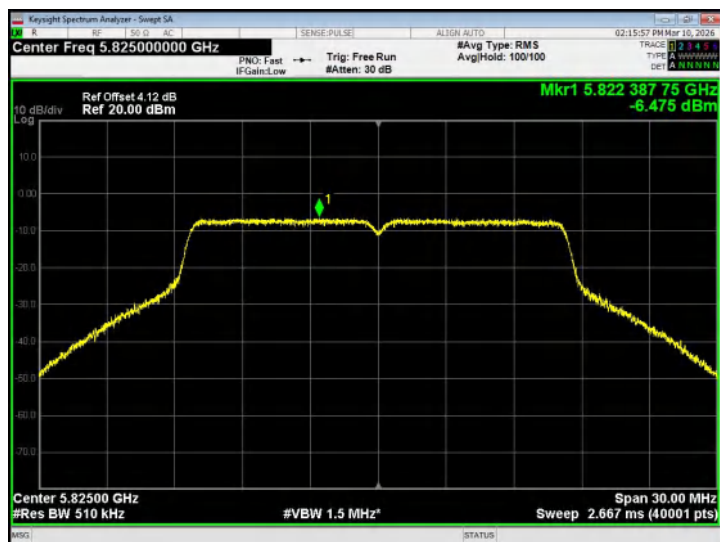
802.11a  
CH149



CH157



CH165





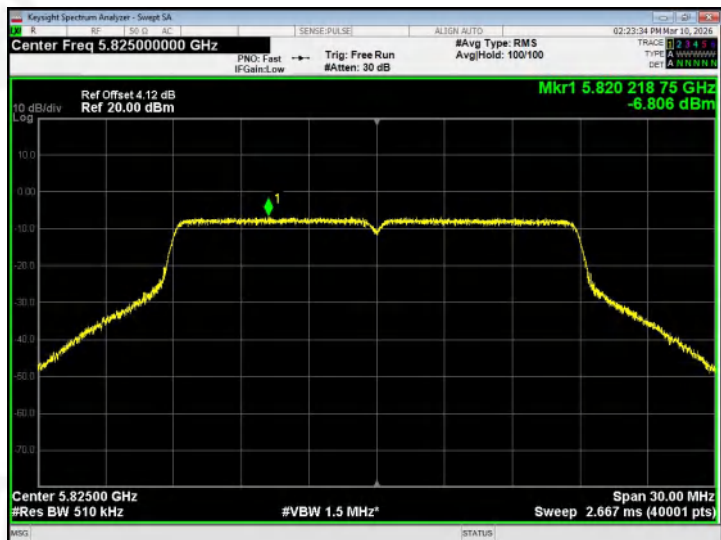
802.11n20  
CH149



CH157



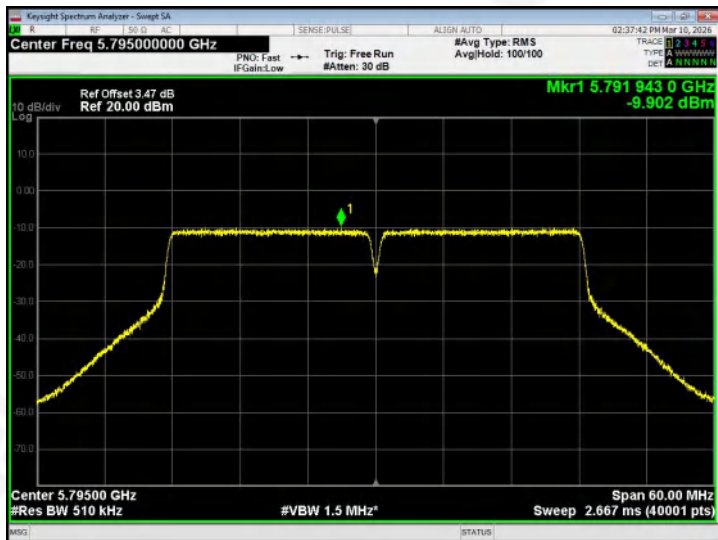
CH165



802.11n40  
CH151

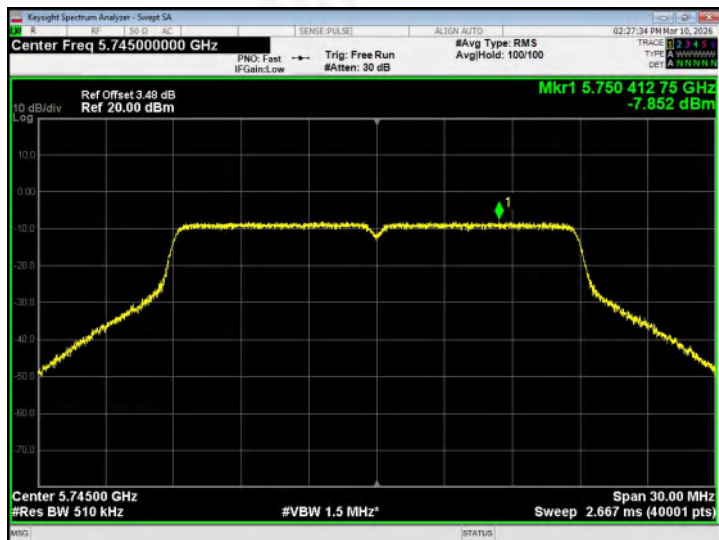


CH159





802.11ac20  
CH149



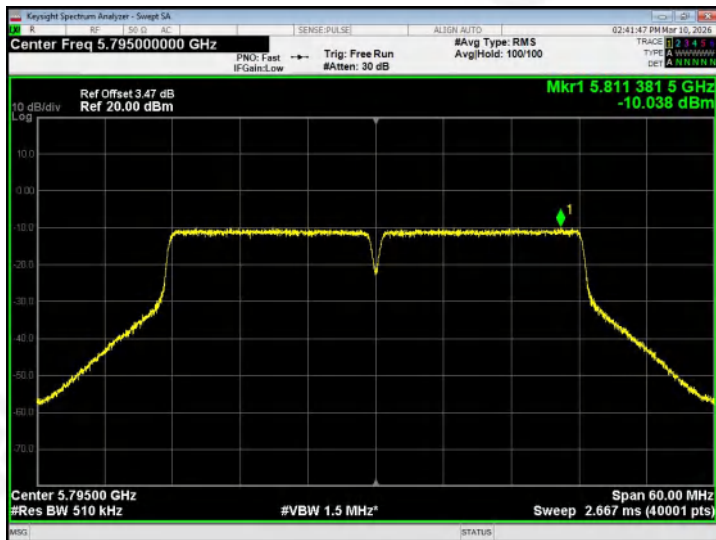
802.11ac40  
CH151



CH157



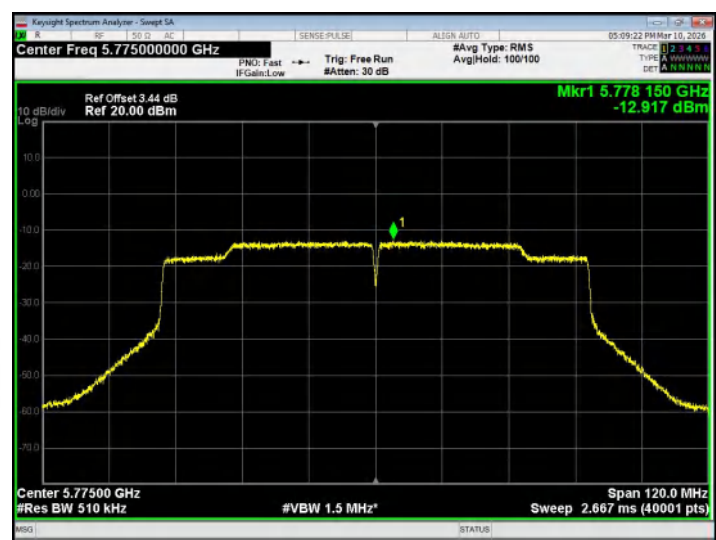
CH159



CH165



802.11ac80 - CH 155





## 6. 26DB EMISSION BANDWIDTH & 6DB OCCUPIED BANDWIDTH

### 6.1 APPLIED PROCEDURES / LIMIT

The maximum power spectral density is measured as a conducted emission by direct connection of a calibrated test instrument to the equipment under test. If the device cannot be connected directly, alternative techniques acceptable to the Commission may be used. Measurements in the 5.725-5.85 GHz band, the minimum bandwidth 6 dB bandwidth of U-NII devices shall be at least 500KHz. Measurements in the 5.15-5.25 GHz, 5.25-5.35 GHz, and the 5.47-5.725 GHz bands are made over a bandwidth of 1 MHz or the 26 dB emission bandwidth of the device, whichever is less. A narrower resolution bandwidth can be used, provided that the measured power is integrated over the full reference bandwidth.

### 6.2 TEST PROCEDURE

#### 1) Emission bandwidth for the band 5.725 GHz to 5.85 GHz.

The following procedure shall be used for measuring this bandwidth:

- a) Set RBW = 100 kHz.
- b) Set the video bandwidth (VBW)  $\geq 3 \times \text{RBW}$ .
- c) Detector = Peak.
- d) Trace mode = max-hold.
- e) Sweep = No faster than coupled (auto) time.
- f) Allow the trace to stabilize.
- g) Measure the maximum width of the emission that is constrained by the frequencies associated with the two outermost amplitude points (upper and lower frequencies) that are attenuated by 6 dB relative to the maximum level measured in the fundamental emission.

#### 2) Emission bandwidth for all other bands 5.15 GHz to 5.35 GHz.

The procedure for this method is as follows:

- a) Set RBW = shall be in the range of 1% to 5% of the emission bandwidth.
- b) Set the VBW  $\geq \text{RBW}$ .
- c) Detector = peak.
- d) Trace mode = max-hold.
- e) Measure the maximum width of the emission that is 26 dB down from the peak of the emission.  
Compare this with the RBW setting of the instrument. Readjust RBW and repeat measurement as needed until the RBW/EBW ratio is in the range of 1% to 5%.

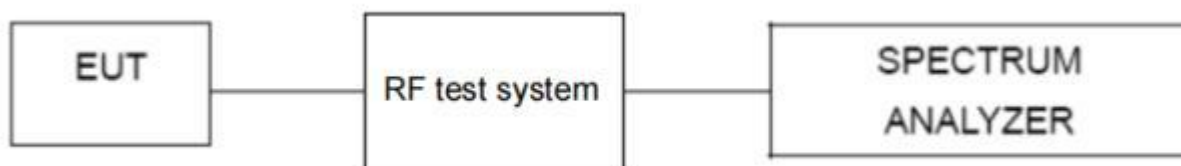
Note: The automatic bandwidth measurement capability of a spectrum analyzer or an EMI receiver may be employed if it implements the functionality described in the preceding items.

### 6.3 DEVIATION FROM STANDARD

No deviation.



#### 6.4 TEST SETUP



#### 6.5 EUT OPERATION CONDITIONS

The EUT tested system was configured as the statements of chapter 3, Unless otherwise a special operating condition is specified in the follows during the testing.

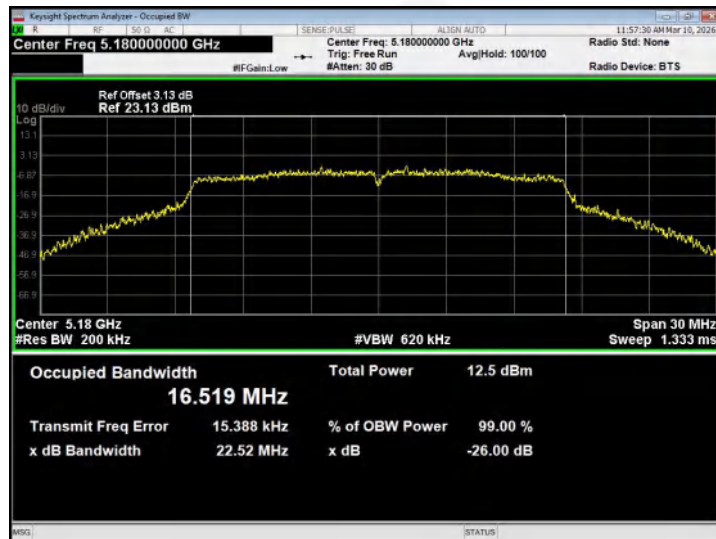
#### 6.6 TEST RESULTS

|               |        |                     |         |
|---------------|--------|---------------------|---------|
| Temperature : | 26 °C  | Relative Humidity : | 54%     |
| Pressure :    | 101kPa | Test Voltage :      | DC 3.8V |
| Test Band :   | 5.2G   |                     |         |

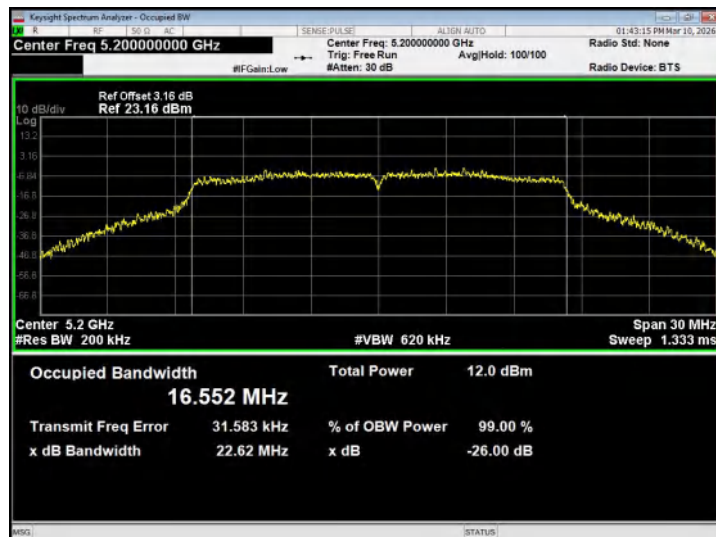
| Test Mode  | Frequency (MHz) | 26dB Emission Bandwidth (MHz) | Limit (MHz) | Result |
|------------|-----------------|-------------------------------|-------------|--------|
| 802.11a    | 5180            | 22.52                         | N/A         | Pass   |
|            | 5200            | 22.62                         |             |        |
|            | 5240            | 22.80                         |             |        |
| 802.11n20  | 5180            | 22.43                         | N/A         | Pass   |
|            | 5200            | 22.48                         |             |        |
|            | 5240            | 22.56                         |             |        |
| 802.11n40  | 5190            | 42.99                         | N/A         | Pass   |
|            | 5230            | 42.06                         |             |        |
| 802.11ac20 | 5180            | 23.59                         | N/A         | Pass   |
|            | 5200            | 23.74                         |             |        |
|            | 5240            | 23.60                         |             |        |
| 802.11ac40 | 5190            | 43.38                         | N/A         | Pass   |
|            | 5230            | 42.25                         |             |        |
| 802.11ac80 | 5210            | 84.77                         | N/A         | Pass   |



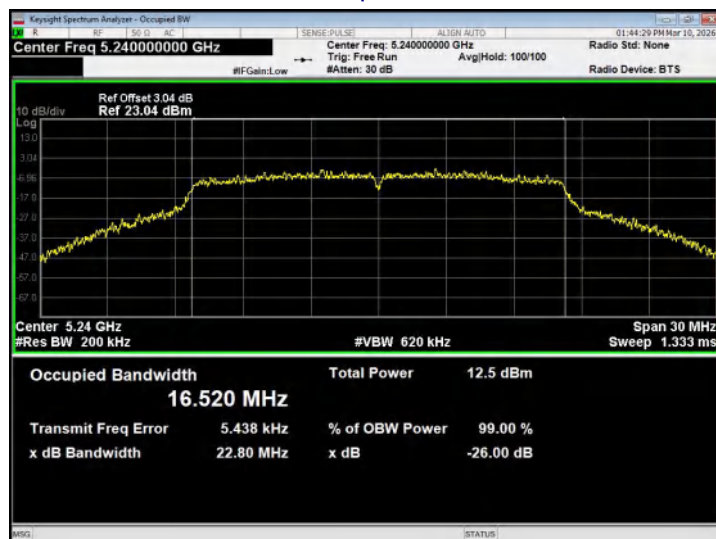
802.11a  
26dB Bandwidth plot on channel 36



26dB Bandwidth plot on channel 40



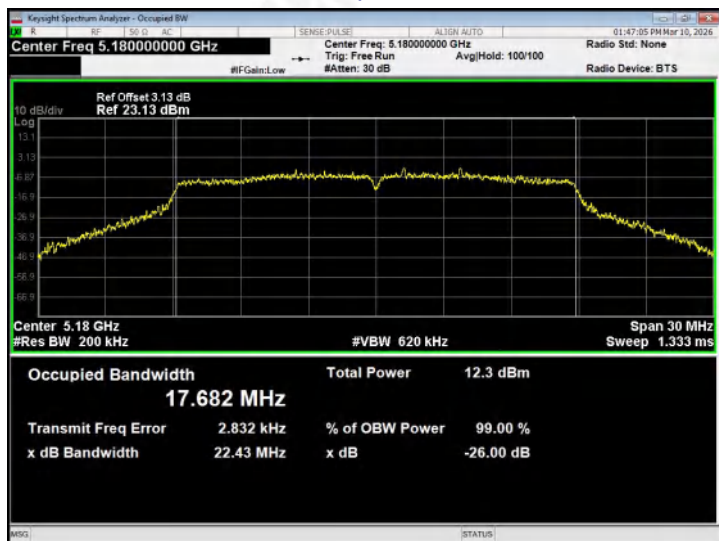
26dB Bandwidth plot on channel 48





802.11n20

26dB Bandwidth plot on channel 36

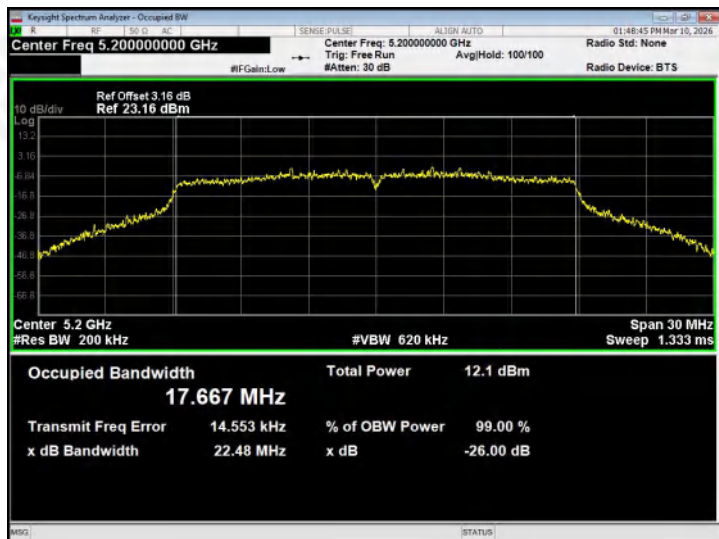


802.11n40

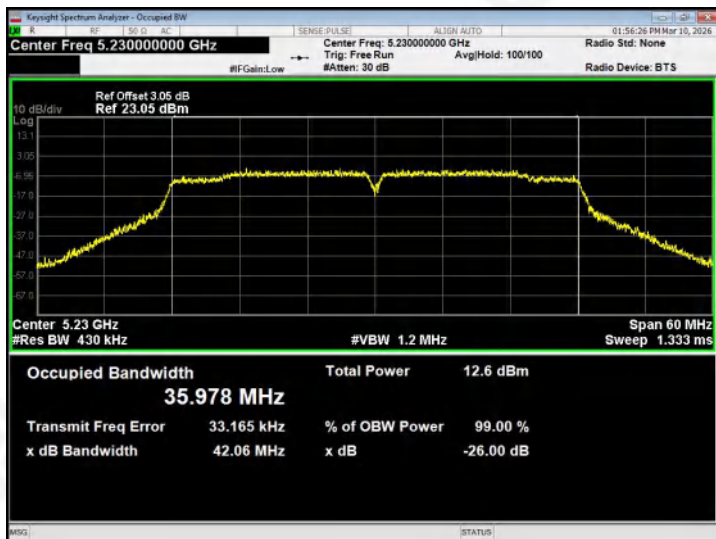
26dB Bandwidth plot on channel 38



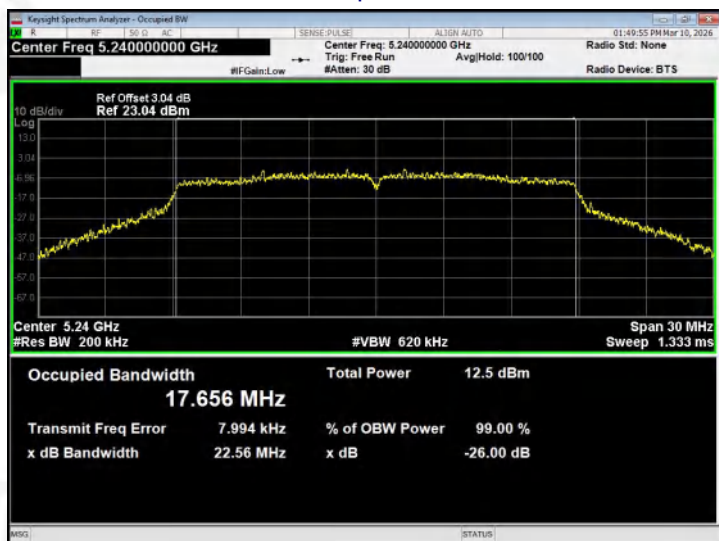
26dB Bandwidth plot on channel 40



26dB Bandwidth plot on channel 46



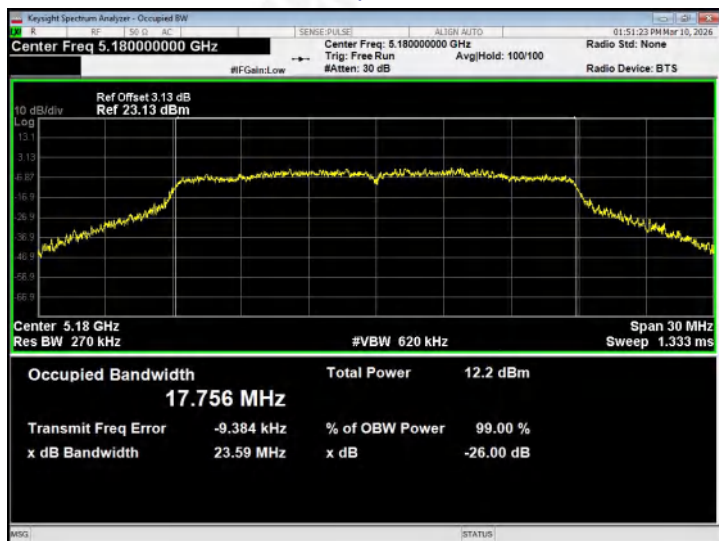
26dB Bandwidth plot on channel 48





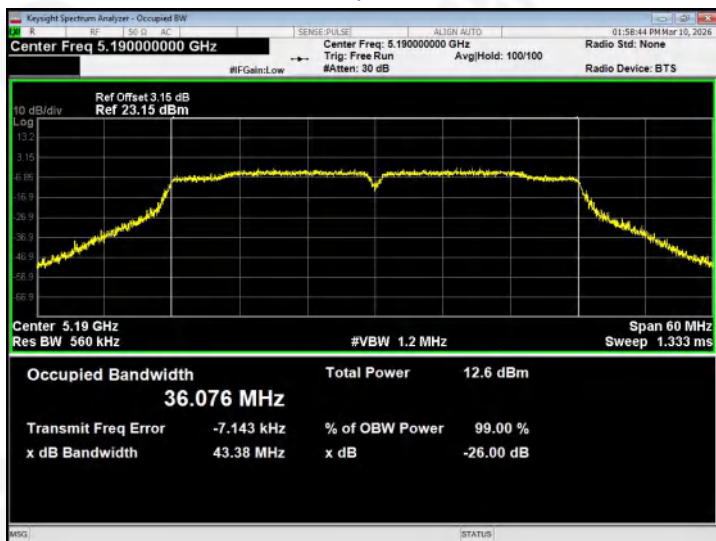
### 802.11ac20

#### 26dB Bandwidth plot on channel 36

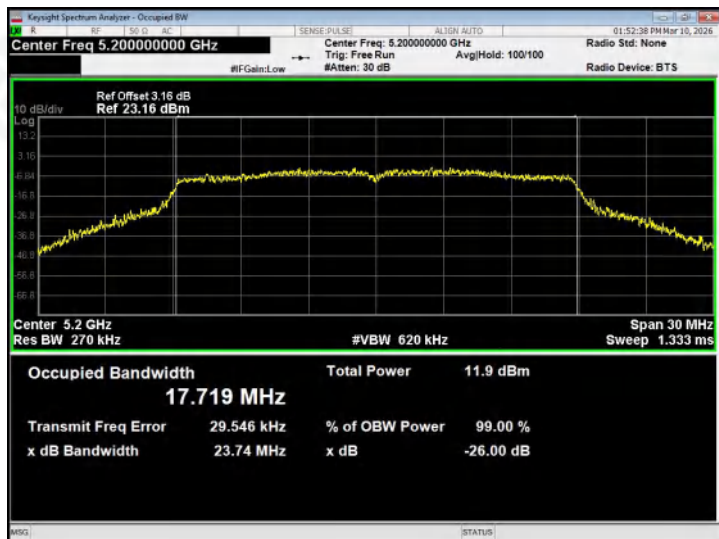


### 802.11ac40

#### 26dB Bandwidth plot on channel 38



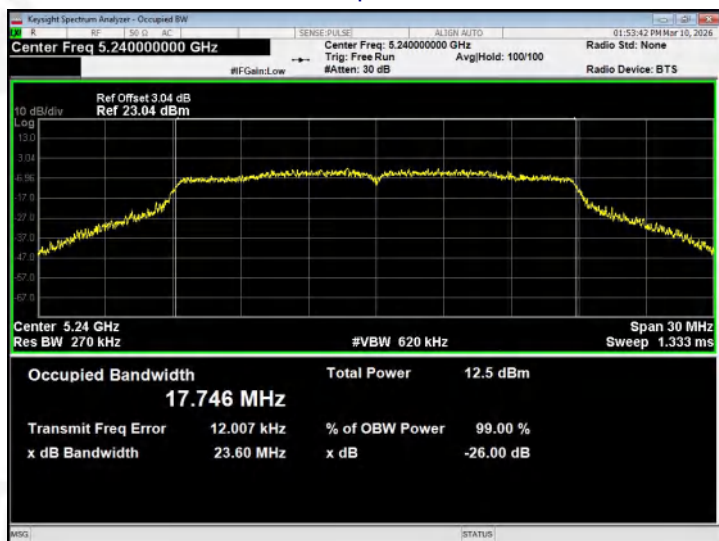
#### 26dB Bandwidth plot on channel 40



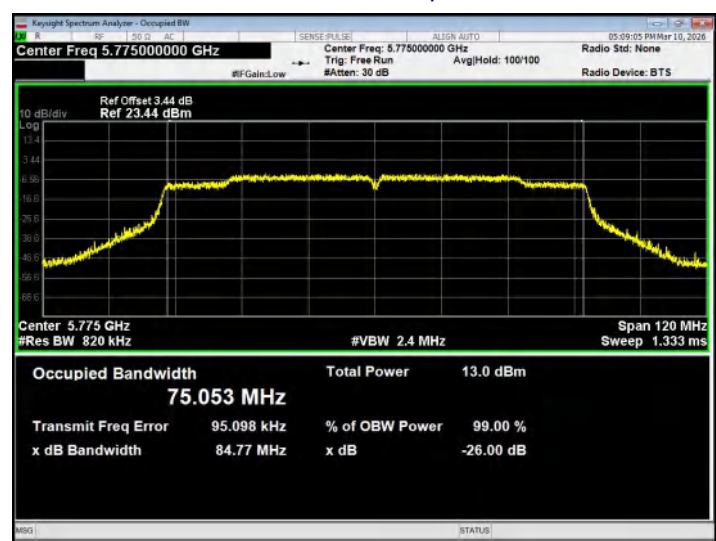
#### 26dB Bandwidth plot on channel 46



#### 26dB Bandwidth plot on channel 48



#### 802.11ac80-26dB Bandwidth plot on channel 42





|               |        |                     |         |
|---------------|--------|---------------------|---------|
| Temperature : | 26 °C  | Relative Humidity : | 54%     |
| Pressure :    | 101kPa | Test Voltage :      | DC 3.8V |
| Test Band :   | 5.8G   |                     |         |

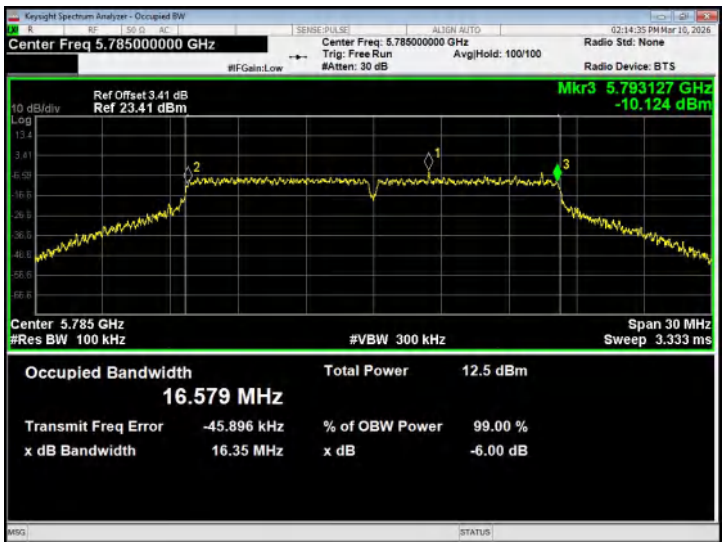
| Test Mode  | Test Channel<br>(MHz) | 6dB Bandwidth<br>(MHz) | Limit<br>(kHz) | Result |
|------------|-----------------------|------------------------|----------------|--------|
| 802.11a    | 5745                  | 16.35                  | >500           | Pass   |
|            | 5785                  | 16.35                  |                |        |
|            | 5825                  | 16.34                  |                |        |
| 802.11n20  | 5745                  | 17.57                  | >500           | Pass   |
|            | 5785                  | 17.58                  |                |        |
|            | 5825                  | 17.58                  |                |        |
| 802.11n40  | 5755                  | 36.42                  | >500           | Pass   |
|            | 5795                  | 36.34                  |                |        |
| 802.11ac20 | 5745                  | 17.56                  | >500           | Pass   |
|            | 5785                  | 17.75                  |                |        |
|            | 5825                  | 17.57                  |                |        |
| 802.11ac40 | 5755                  | 36.35                  | >500           | Pass   |
|            | 5795                  | 36.34                  |                |        |
| 802.11ac80 | 5755                  | 67.50                  | >500           | Pass   |



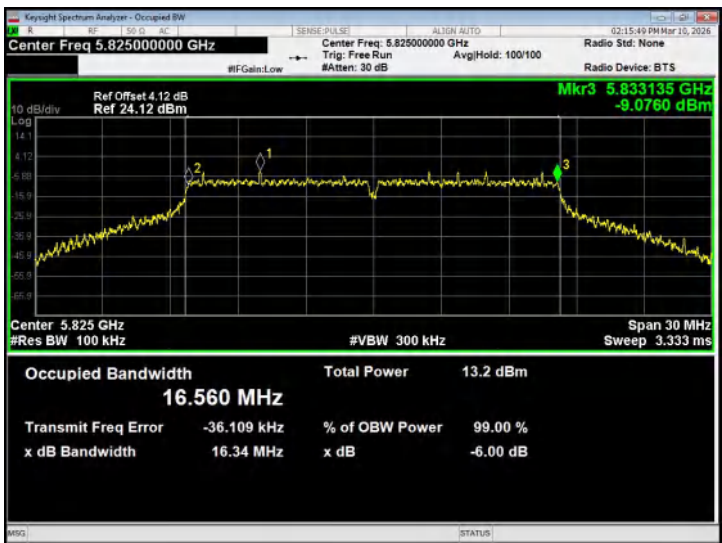
802.11a  
6dB Bandwidth plot on channel 149



6dB Bandwidth plot on channel 157



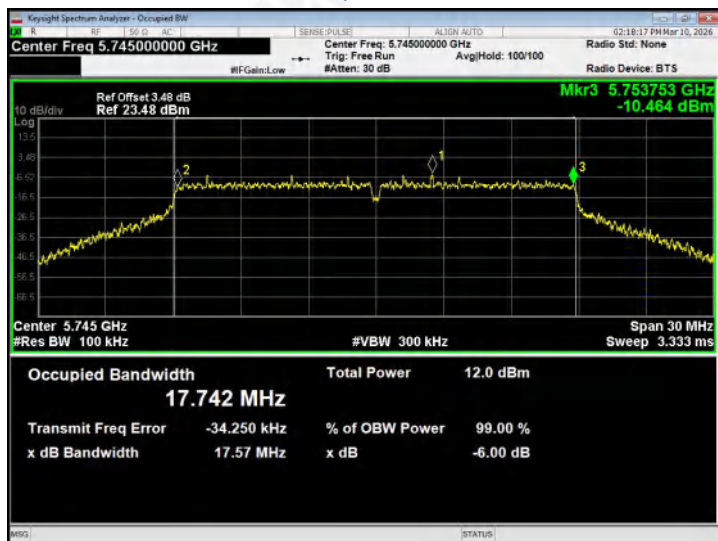
6dB Bandwidth plot on channel 165





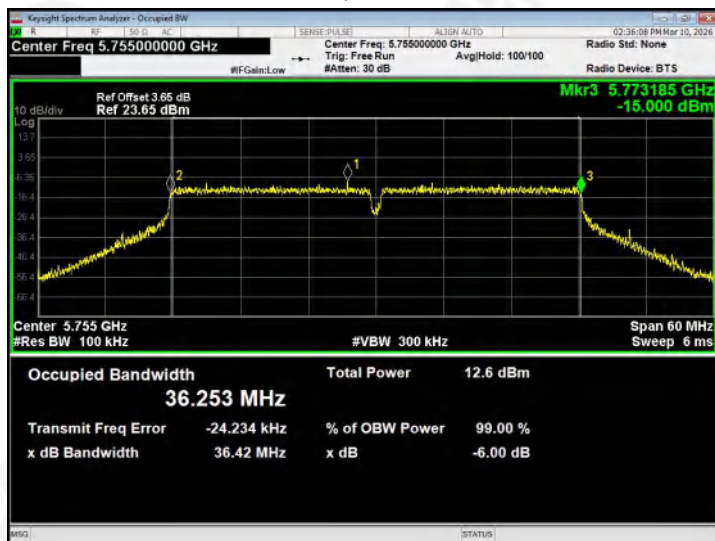
802.11n20

6dB Bandwidth plot on channel 149

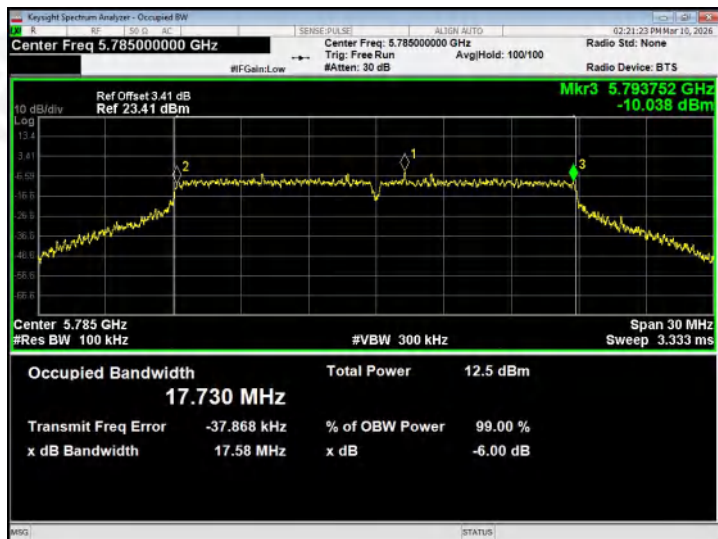


802.11n40

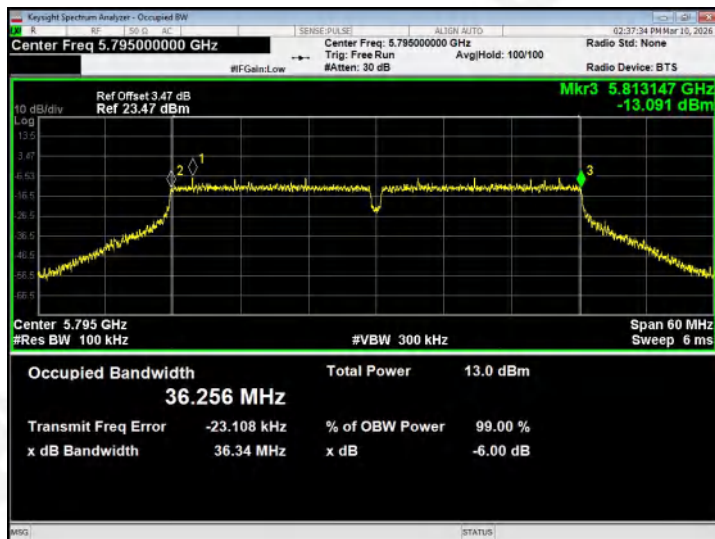
6dB Bandwidth plot on channel 151



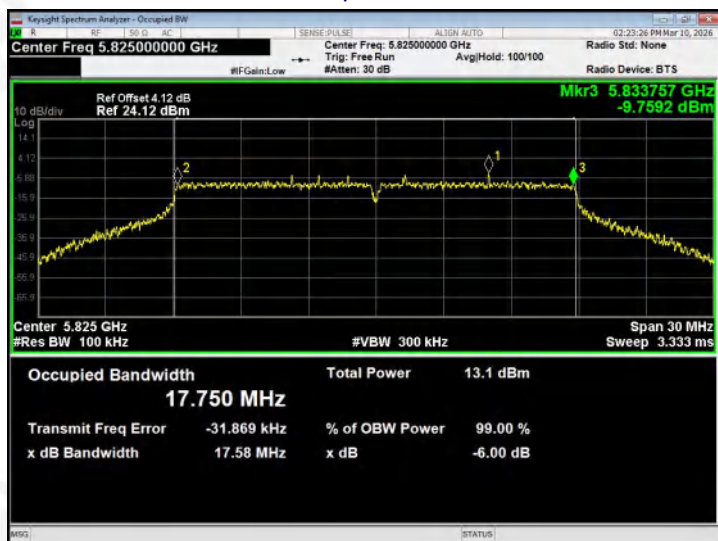
6dB Bandwidth plot on channel 157



6dB Bandwidth plot on channel 159



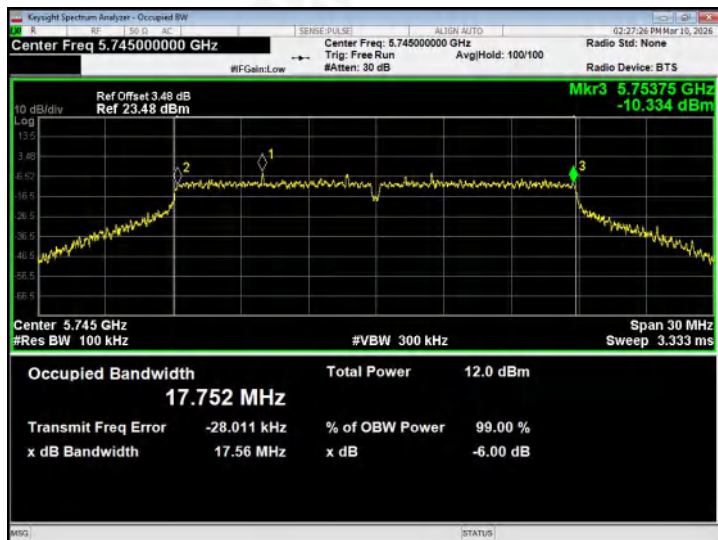
6dB Bandwidth plot on channel 165





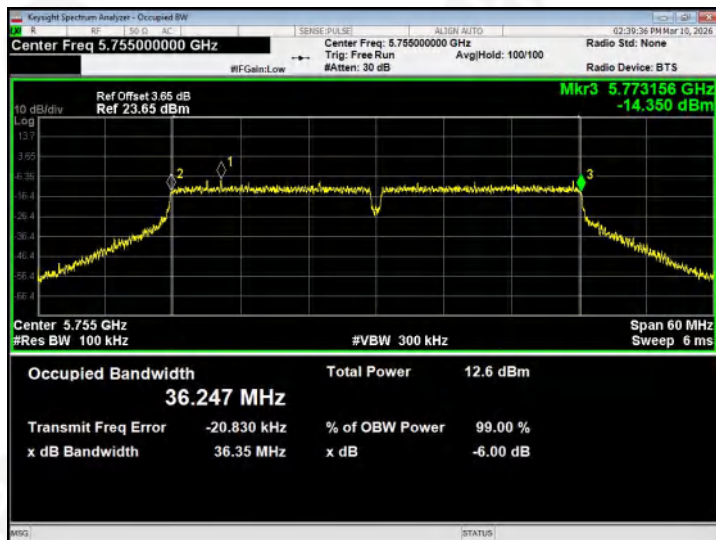
802.11ac20

6dB Bandwidth plot on channel 149

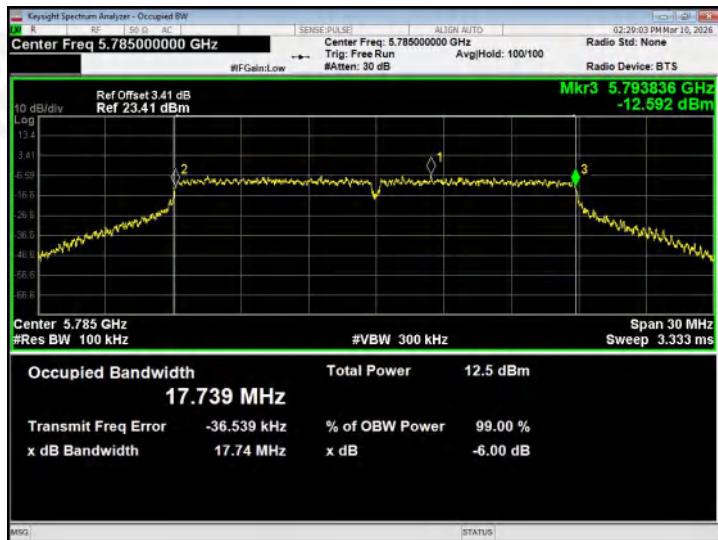


802.11ac40

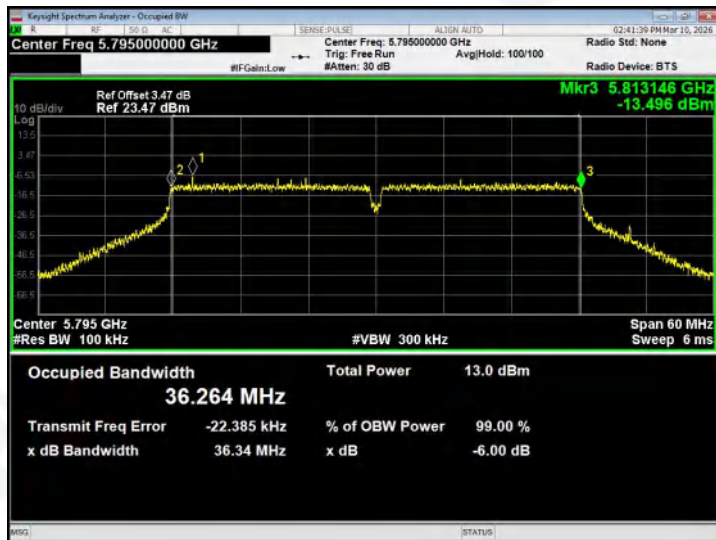
6dB Bandwidth plot on channel 151



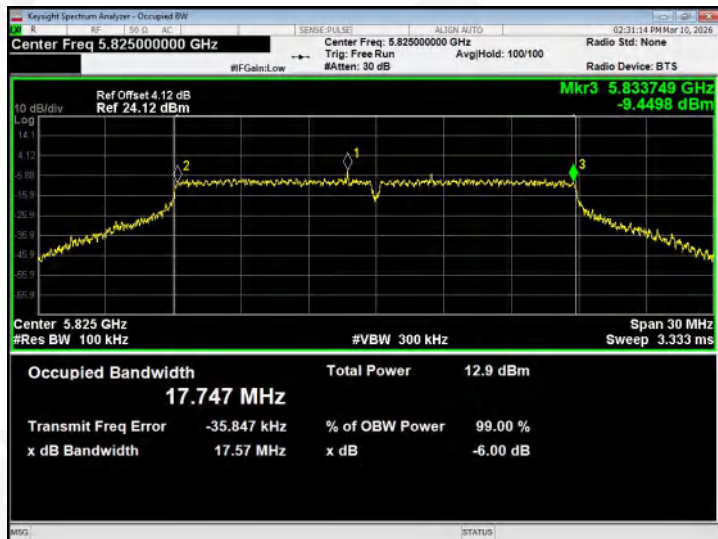
6dB Bandwidth plot on channel 157



6dB Bandwidth plot on channel 159

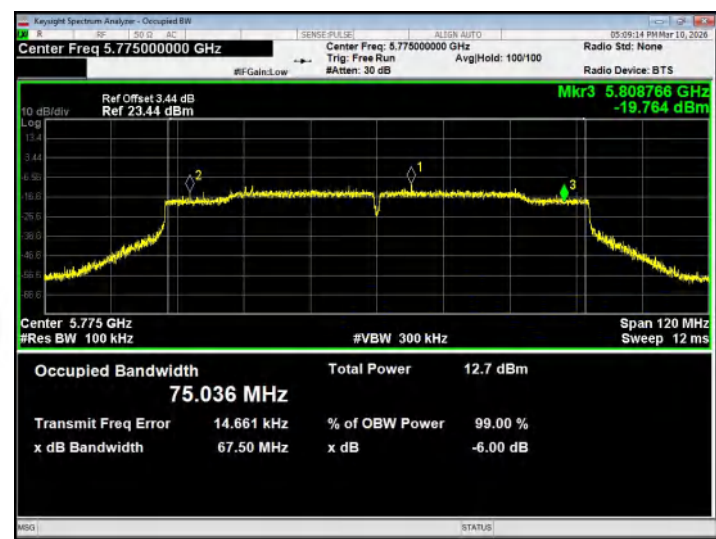


6dB Bandwidth plot on channel 165



802.11ac80

6dB Bandwidth plot on channel 155





## 7. MAXIMUM CONDUCTED OUTPUT POWER

### 7.1 PPLIED PROCEDURES / LIMIT

According to FCC §15.407 (a)(1) & (a)(3)(i)  
The maximum conducted output power should not exceed:

| Frequency Band(MHz) | Limit |
|---------------------|-------|
| 5150~5250           | 250mW |
| 5725~5850           | 1W    |

### 7.2 TEST PROCEDURE

According 789033 D02 General UNII Test Procedures New Rules v02r01.

EUT Measurement using a Power Meter (PM)

a) Method PM (Measurement using an RF average power meter):

(i) Measurements may be performed using a wideband RF power meter with a thermocouple detector or equivalent if all of the following conditions are satisfied:

- The EUT is configured to transmit continuously or to transmit with a constant duty cycle.
- At all times when the EUT is transmitting, it must be transmitting at its maximum power control level.
- The integration period of the power meter exceeds the repetition period of the transmitted signal by at least a factor of five.

(ii) If the transmitter does not transmit continuously, measure the duty cycle,  $x$ , of the transmitter output signal as described in II.B.

(iii) Measure the average power of the transmitter. This measurement is an average over both the on and off periods of the transmitter.

(iv) Adjust the measurement in dBm by adding  $10 \log (1/x)$  where  $x$  is the duty cycle (e.g.,  $10 \log (1/0.25)$  if the duty cycle is 25%).

### 7.3 DEVIATION FROM STANDARD

No deviation.

### 7.4 TEST SETUP



### 7.5 EUT OPERATION CONDITIONS

The EUT tested system was configured as the statements of chapter 3, Unless otherwise a special operating condition is specified in the follows during the testing.



## 7.6 TEST RESULTS

|               |          |                     |         |
|---------------|----------|---------------------|---------|
| Temperature : | 26 °C    | Relative Humidity : | 54%     |
| Pressure :    | 1012 hPa | Test Voltage :      | DC 3.8V |
| Test Band :   | 5.2G     |                     |         |

| Test Mode   | Frequency (MHz) | Output Power (dBm) | Duty cycle factor (dB) | Total Power (dBm) | Limit (dBm) | Result |
|-------------|-----------------|--------------------|------------------------|-------------------|-------------|--------|
| 802.11 a    | 5180            | 6.897              | 0.1                    | 6.997             | 23.98       | Pass   |
|             | 5200            | 6.268              | 0.1                    | 6.368             | 23.98       | Pass   |
|             | 5240            | 6.797              | 0.1                    | 6.897             | 23.98       | Pass   |
| 802.11 n20  | 5180            | 6.595              | 0                      | 6.595             | 23.98       | Pass   |
|             | 5200            | 6.253              | 0                      | 6.253             | 23.98       | Pass   |
|             | 5240            | 6.820              | 0                      | 6.820             | 23.98       | Pass   |
| 802.11 n40  | 5190            | 6.686              | 0                      | 6.686             | 23.98       | Pass   |
|             | 5230            | 6.902              | 0                      | 6.902             | 23.98       | Pass   |
| 802.11 ac20 | 5180            | 6.644              | 0                      | 6.644             | 23.98       | Pass   |
|             | 5200            | 6.298              | 0                      | 6.298             | 23.98       | Pass   |
|             | 5240            | 6.808              | 0                      | 6.808             | 23.98       | Pass   |
| 802.11 ac40 | 5190            | 6.695              | 0                      | 6.695             | 23.98       | Pass   |
|             | 5230            | 6.908              | 0                      | 6.908             | 23.98       | Pass   |
| 802.11 ac80 | 5210            | 6.581              | 0                      | 6.581             | 23.98       | Pass   |

Note: Total Power = Output Power + Duty cycle factor.



|               |          |                     |         |
|---------------|----------|---------------------|---------|
| Temperature : | 26 °C    | Relative Humidity : | 54%     |
| Pressure :    | 1012 hPa | Test Voltage :      | DC 3.8V |
| Test Band :   | 5.8G     |                     |         |

| Test Mode   | Frequency (MHz) | Output Power (dBm) | Duty cycle factor (dB) | Total Power (dBm) | Limit (dBm) | Result |
|-------------|-----------------|--------------------|------------------------|-------------------|-------------|--------|
| 802.11 a    | 5745            | 5.037              | 0.1                    | 5.037             | 30          | Pass   |
|             | 5785            | 5.617              | 0.1                    | 5.617             | 30          | Pass   |
|             | 5825            | 5.205              | 0.1                    | 5.205             | 30          | Pass   |
| 802.11 n20  | 5745            | 5.998              | 0                      | 5.998             | 30          | Pass   |
|             | 5785            | 5.591              | 0                      | 5.591             | 30          | Pass   |
|             | 5825            | 6.231              | 0                      | 6.231             | 30          | Pass   |
| 802.11 n40  | 5755            | 6.704              | 0                      | 6.704             | 30          | Pass   |
|             | 5785            | 6.059              | 0                      | 6.059             | 30          | Pass   |
| 802.11 ac20 | 5745            | 6.018              | 0                      | 6.018             | 30          | Pass   |
|             | 5785            | 6.613              | 0                      | 6.613             | 30          | Pass   |
|             | 5825            | 6.166              | 0                      | 6.166             | 30          | Pass   |
| 802.11 ac40 | 5755            | 6.661              | 0                      | 6.661             | 30          | Pass   |
|             | 5785            | 6.053              | 0                      | 6.053             | 30          | Pass   |
| 802.11 ac80 | 5775            | 6.581              | 0                      | 6.581             | 30          | Pass   |

Note: Total Power = Output Power + Duty cycle factor.



## 8. CONDUCTED BAND EDGE

### 8.1 APPLICABLE STANDARD

According to FCC §15.407(b)

Undesirable emission limits. Except as shown in paragraph (b)(7) of this section, the maximum emissions outside of the frequency bands of operation shall be attenuated in accordance with the following limits:

(1) For transmitters operating in the 5.15-5.25 GHz band: All emissions outside of the 5.15-5.35 GHz band shall not exceed an e.i.r.p. of -27 dBm/MHz.

(2) For transmitters operating in the 5.725-5.85 GHz band:

(i) 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.

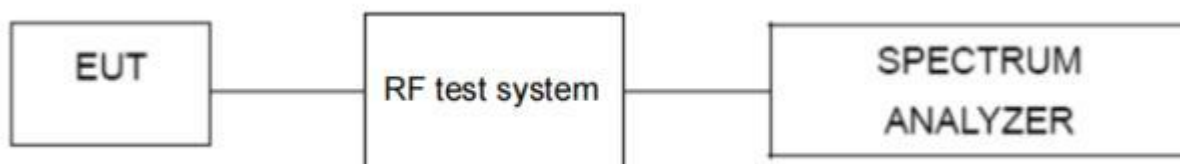
### 8.2 TEST PROCEDURE

1. Check the calibration of the measuring instrument using either an internal calibrator or a known signal from an external generator.
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.
3. Set RBW of spectrum analyzer to 1 MHz with a convenient frequency span.
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.
5. Repeat above procedures until all measured frequencies were complete.

### 8.3 DEVIATION FROM STANDARD

No deviation.

### 8.4 TEST SETUP



### 8.5 EUT OPERATION CONDITIONS

The EUT tested system was configured as the statements of chapter 3, Unless otherwise a special operating condition is specified in the follows during the testing.



## 8.6 TEST RESULTS

|               |          |                     |         |
|---------------|----------|---------------------|---------|
| Temperature : | 26 °C    | Relative Humidity : | 54%     |
| Pressure :    | 1012 hPa | Test Voltage :      | DC 3.8V |
| Test band :   | 5.2G     |                     |         |

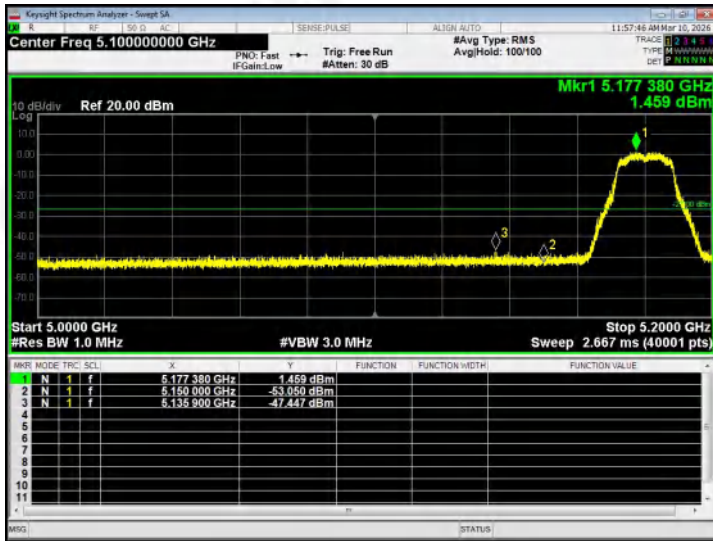
| Test Mode  | Frequency (MHz) | Emission Frequency (MHz) | Measurement Value Max (dBm) | Antenna gain (dBi) | RF Cable Loss (dB) | Total Value Max (dBm) | Result |
|------------|-----------------|--------------------------|-----------------------------|--------------------|--------------------|-----------------------|--------|
| 802.11a    | 5180            | 5135.900                 | -48.867                     | 0.32               | 1.10               | -47.447               | Pass   |
|            | 5240            | 5414.600                 | -48.341                     | 0.32               | 1.10               | -46.921               | Pass   |
| 802.11n20  | 5180            | 5142.666                 | -49.127                     | 0.32               | 1.10               | -47.707               | Pass   |
|            | 5240            | 407.360                  | -49.402                     | 0.32               | 1.10               | -47.982               | Pass   |
| 802.11n40  | 5190            | 5127.205                 | -49.070                     | 0.32               | 1.10               | -47.650               | Pass   |
|            | 5230            | 5373.150                 | -50.254                     | 0.32               | 1.10               | -48.834               | Pass   |
| 802.11ac20 | 5180            | 5040.440                 | -49.318                     | 0.32               | 1.10               | -47.898               | Pass   |
|            | 5240            | 5407.840                 | -49.899                     | 0.32               | 1.10               | -48.479               | Pass   |
| 802.11ac40 | 5190            | 5108.830                 | -49.692                     | 0.32               | 1.10               | -48.272               | Pass   |
|            | 5230            | 5372.110                 | -49.517                     | 0.32               | 1.10               | -48.097               | Pass   |
| 802.11ac80 | 5210            | 5135.725                 | -50.059                     | 0.32               | 1.10               | -48.639               | Pass   |

Note: Total Value = Measurement Value + RF Cable Loss + Antenna gain.  
The test diagram has added a calibration factor.

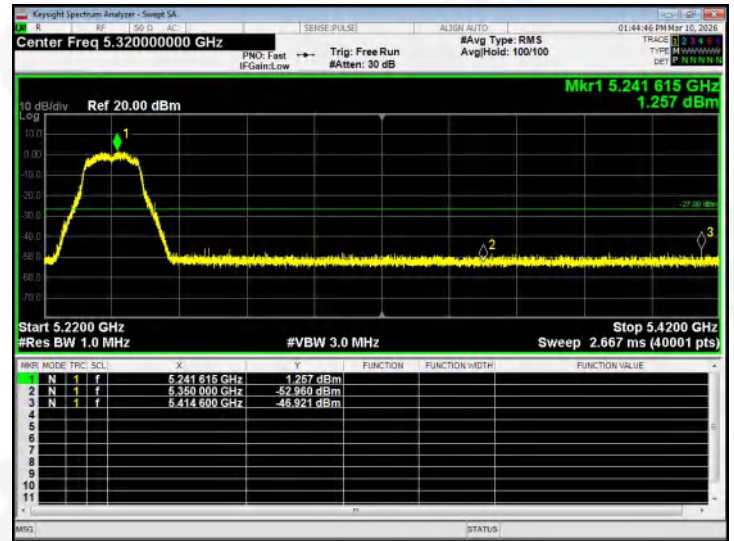


## 5.180~5.240 GHz

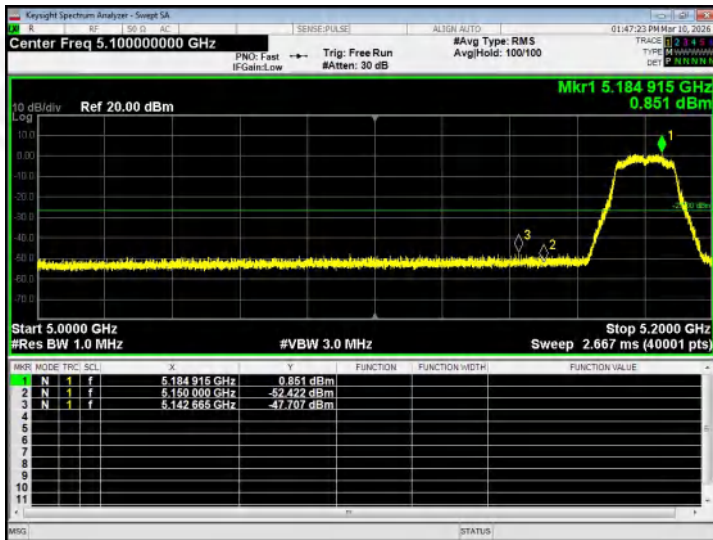
(802.11a) Band Edge, Left Side



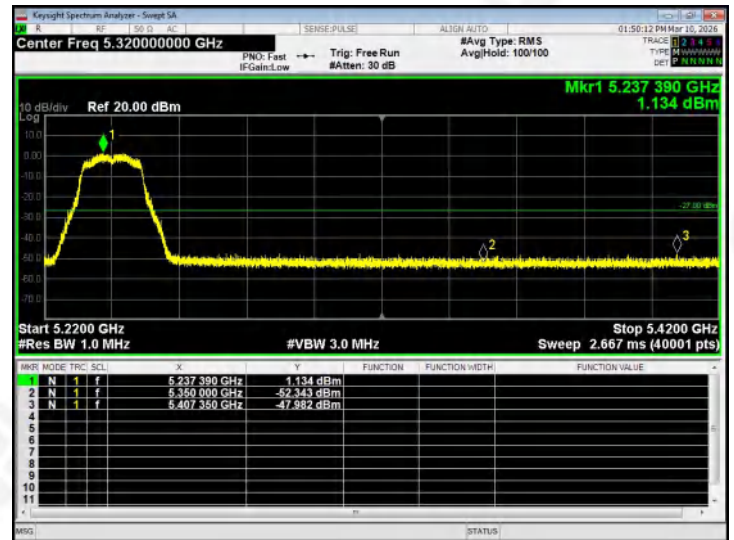
(802.11a) Band Edge, Right Side



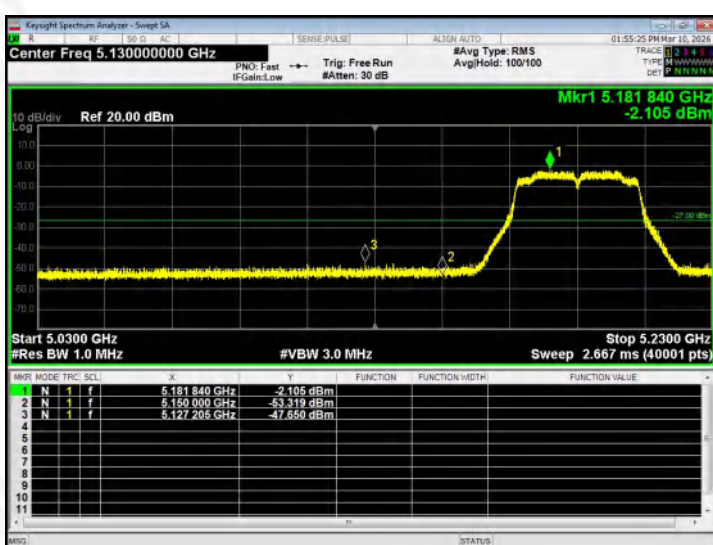
(802.11n20) Band Edge, Left Side



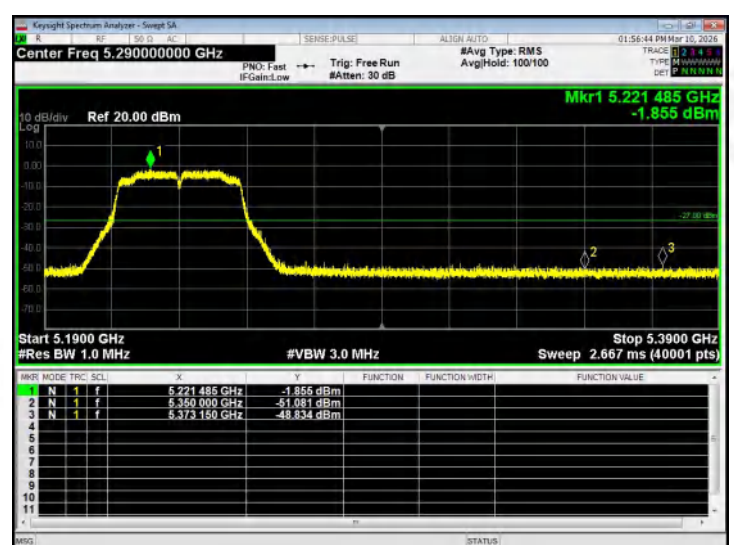
(802.11n20) Band Edge, Right Side



(802.11n40) Band Edge, Left Side

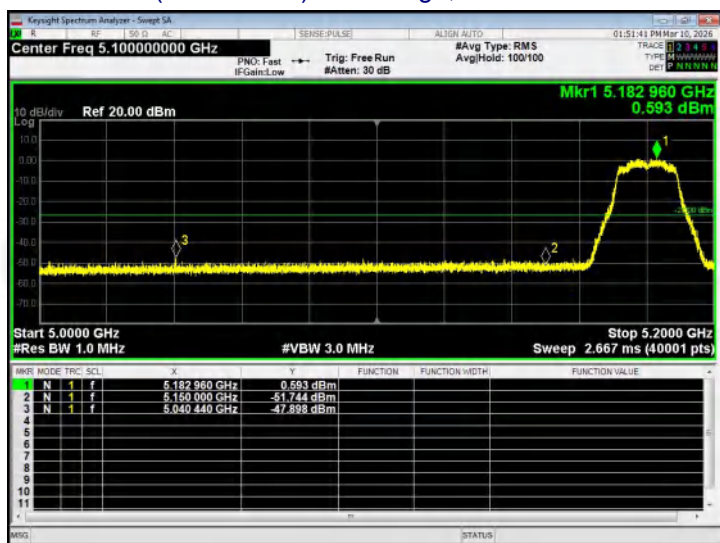


(802.11n40) Band Edge, Right Side

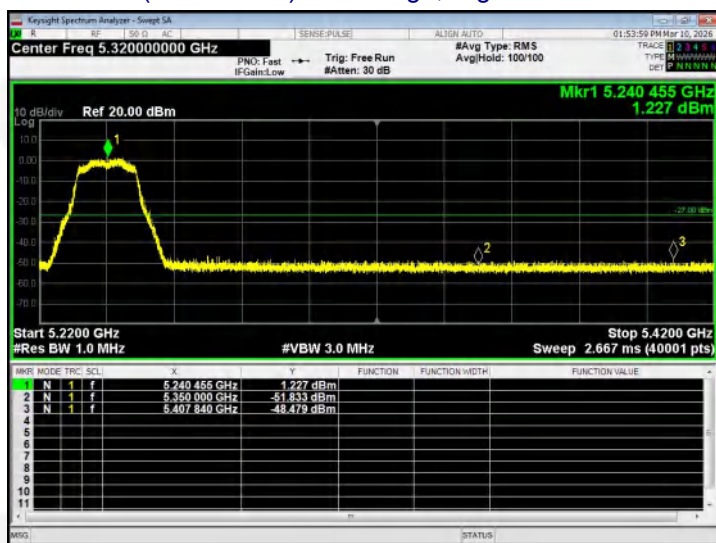




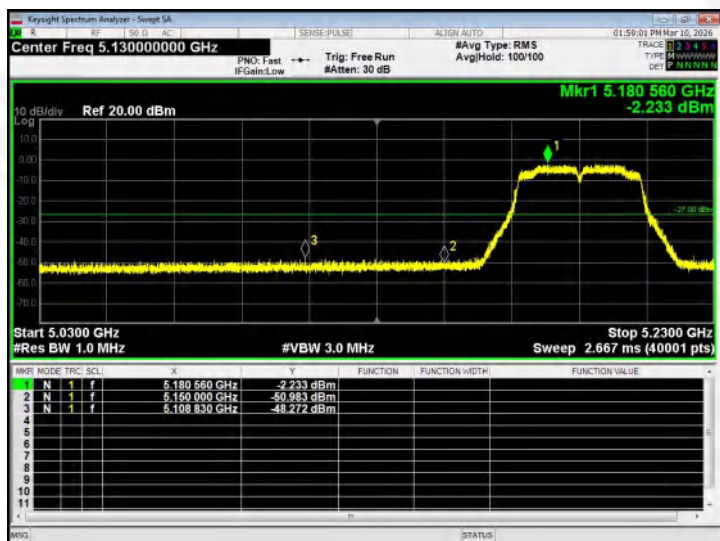
(802.11ac20) Band Edge, Left Side



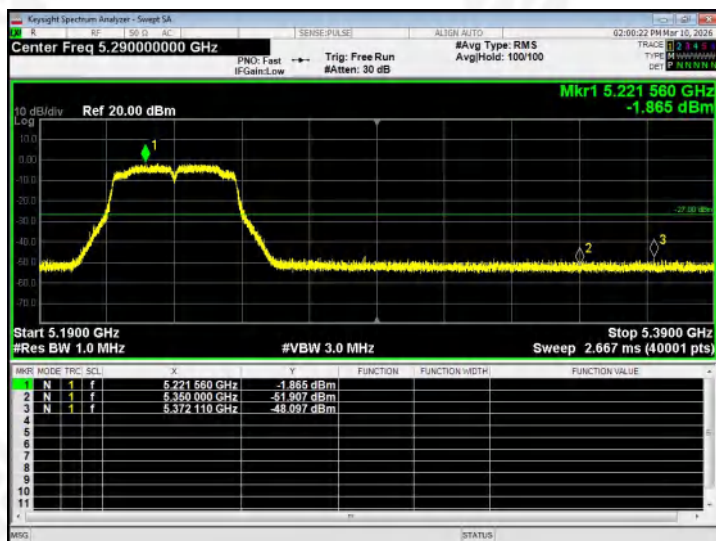
(802.11ac20) Band Edge, Right Side



(802.11ac40) Band Edge, Left Side

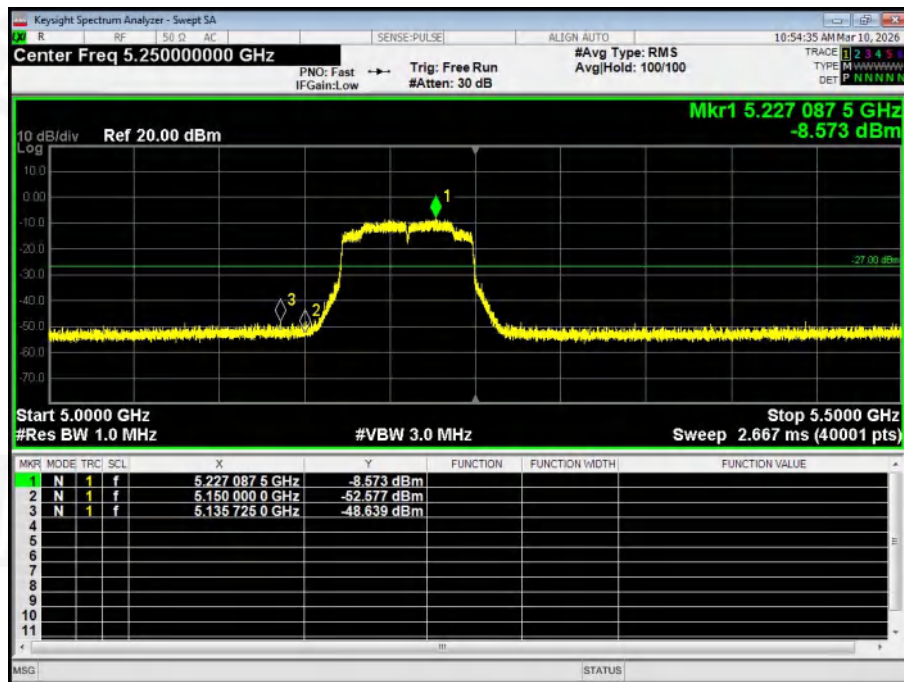


(802.11ac40) Band Edge, Right Side





(802.11ac80)Band Edge -Channel 42





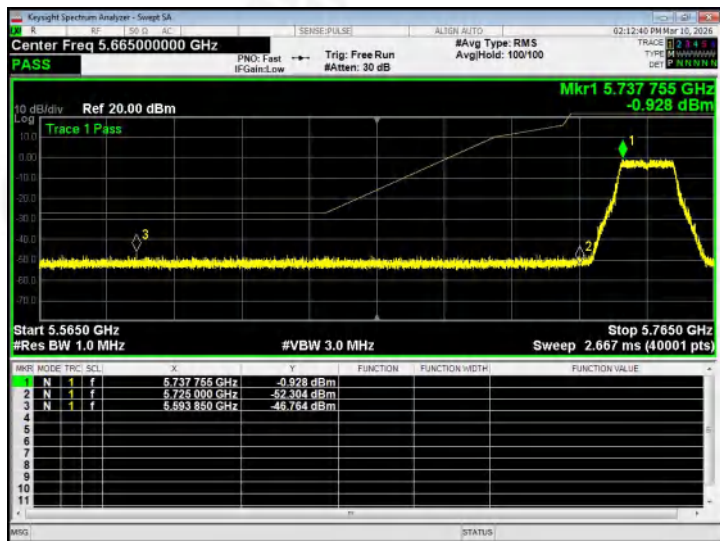
|               |          |                     |         |
|---------------|----------|---------------------|---------|
| Temperature : | 26 °C    | Relative Humidity : | 54%     |
| Pressure :    | 1012 hPa | Test Voltage :      | DC 3.8V |
| Test band :   | 5.8G     |                     |         |

| Test Mode                                                                                                                 | Frequency (MHz) | Emission Frequency (MHz) | Measurement Value Max (dBm) | Antenna gain (dBi) | RF Cable Loss (dB) | Total Value Max (dBm) | Result |
|---------------------------------------------------------------------------------------------------------------------------|-----------------|--------------------------|-----------------------------|--------------------|--------------------|-----------------------|--------|
| 802.11a                                                                                                                   | 5745            | 5593.850                 | -48.114                     | 0.25               | 1.10               | -46.764               | Pass   |
|                                                                                                                           | 5825            | 5906.875                 | -48.933                     | 0.25               | 1.10               | -47.583               | Pass   |
| 802.11n20                                                                                                                 | 5745            | 5716.645                 | -46.109                     | 0.25               | 1.10               | -44.759               | Pass   |
|                                                                                                                           | 5825            | 5942.859                 | -49.108                     | 0.25               | 1.10               | -47.758               | Pass   |
| 802.11n40                                                                                                                 | 5755            | 5724.155                 | -48.061                     | 0.25               | 1.10               | -46.711               | Pass   |
|                                                                                                                           | 5785            | 5918.745                 | -49.001                     | 0.25               | 1.10               | -47.651               | Pass   |
| 802.11ac20                                                                                                                | 5745            | 5713.870                 | -47.697                     | 0.25               | 1.10               | -46.347               | Pass   |
|                                                                                                                           | 5825            | 5969.510                 | -48.479                     | 0.25               | 1.10               | -47.129               | Pass   |
| 802.11ac40                                                                                                                | 5755            | 5721.206                 | -47.895                     | 0.25               | 1.10               | -46.545               | Pass   |
|                                                                                                                           | 5785            | 5896.045                 | -48.708                     | 0.25               | 1.10               | -47.358               | Pass   |
| 802.11ac80                                                                                                                | 5775            | 5724.687                 | -45.172                     | 0.25               | 1.10               | -43.822               | Pass   |
| Note: Total Value = Measurement Value + RF Cable Loss + Antenna gain.<br>The test diagram has added a calibration factor. |                 |                          |                             |                    |                    |                       |        |



## 5.745~5.825 GHz

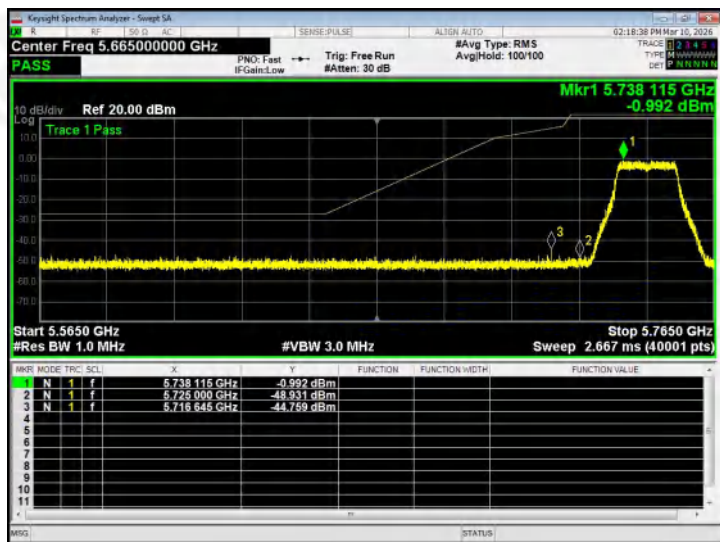
(802.11a) Band Edge, Left Side



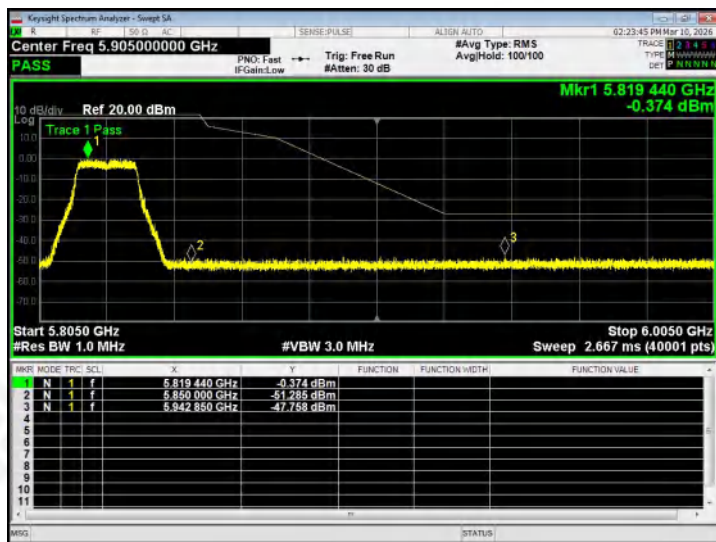
(802.11a) Band Edge, Right Side



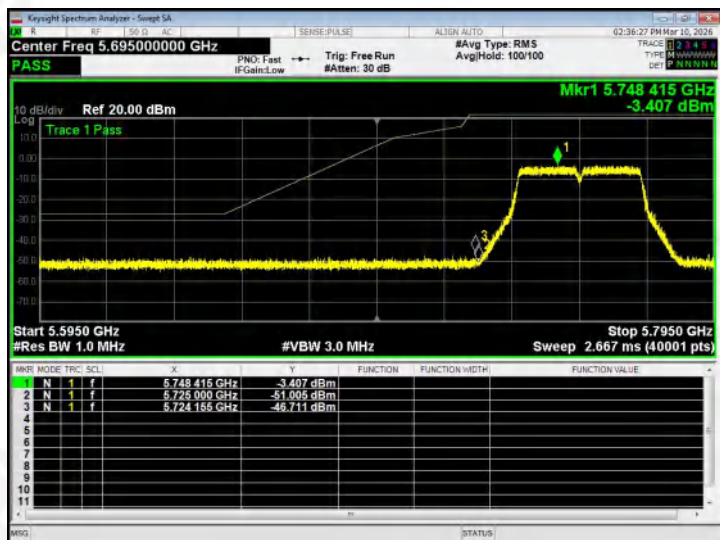
(802.11n20) Band Edge, Left Side



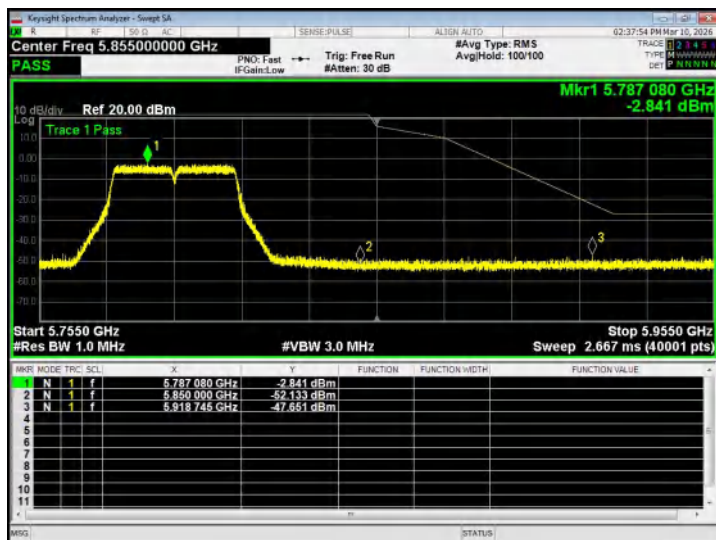
(802.11n20) Band Edge, Right Side



(802.11n40) Band Edge, Left Side

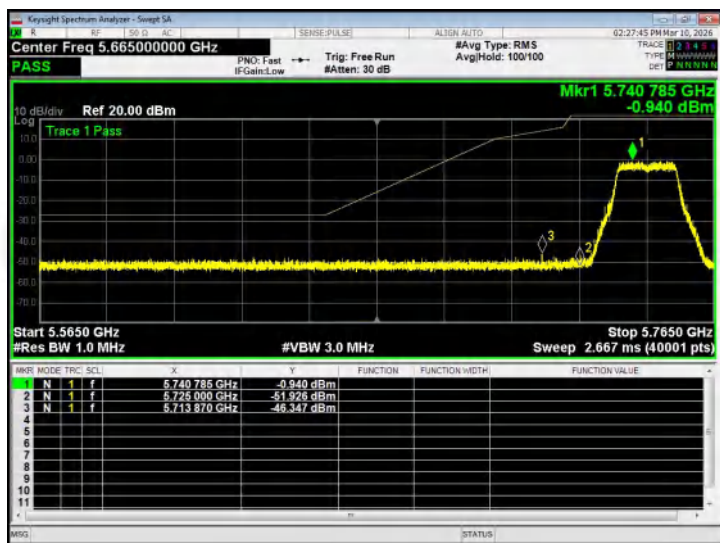


(802.11n40) Band Edge, Right Side





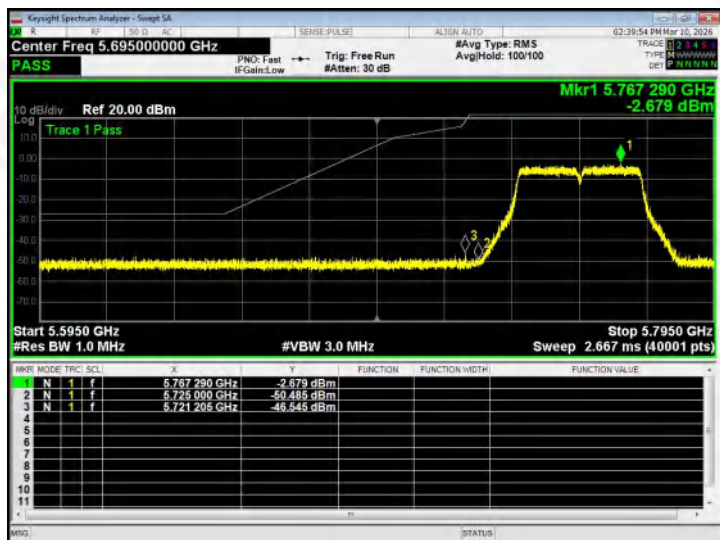
(802.11ac20) Band Edge, Left Side



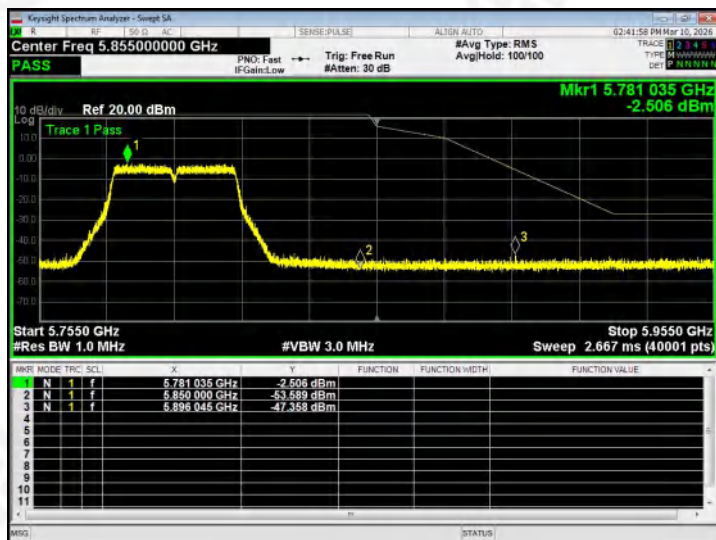
(802.11ac20) Band Edge, Right Side



(802.11ac40) Band Edge, Left Side

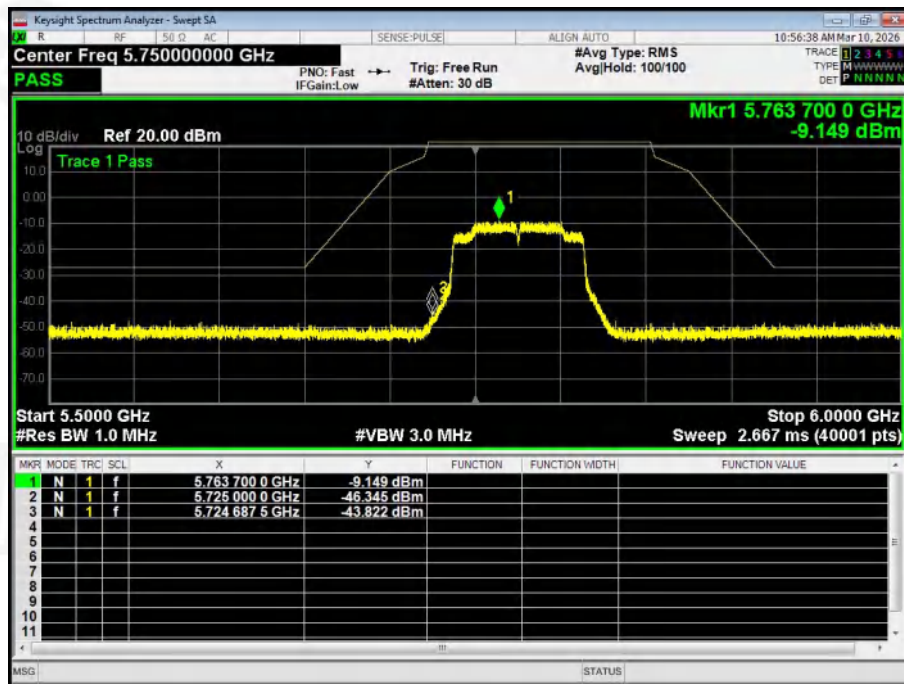


(802.11ac40) Band Edge, Right Side





(802.11ac80) Band Edge -Channel 155





## 9. FREQUENCY STABILITY MEASUREMENT

### 9.1 LIMIT

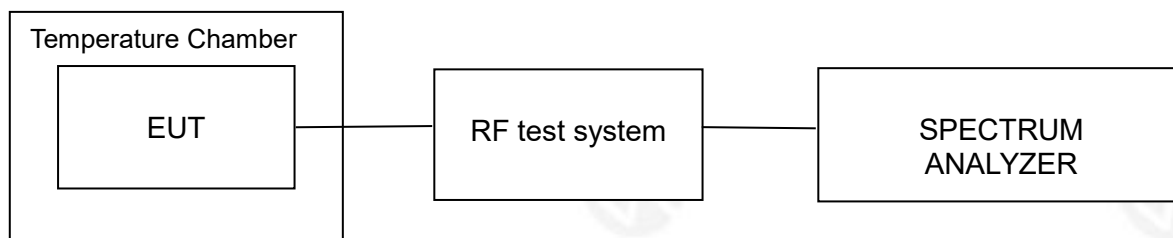
Manufactures of U-NII devices are responsible for ensuring frequency stability such that an emission is maintained within the band of operation under all conditions of normal operation as specified in the user's manual.

The transmitter center frequency tolerance shall be (IEEE 802.11n specification).

### 9.2 TEST PROCEDURES

1. The transmitter output (antenna port) was connected to the spectrum analyzer.
2. EUT have transmitted absence of modulation signal and fixed channelize.
3. Set the spectrum analyzer span to view the entire absence of modulation emissions bandwidth.
4. Set RBW = 10 kHz, VBW = 10 kHz with peak detector and maxhold settings.
5.  $f_c$  is declaring of channel frequency. Then the frequency error formula is  $(f_c - f)/f_c \times 106 \text{ ppm}$ .
6. The test extreme voltage is to change the primary supply voltage from 85% to 115% percent of the nominal value.
7. Extreme temperature is  $-20^{\circ}\text{C} \sim 70^{\circ}\text{C}$ .

### 9.3 TEST SETUP LAYOUT



### 9.4 EUT OPERATION DURING TEST

The EUT tested system was configured as the statements of chapter 3, Unless otherwise a special operating condition is specified in the follows during the testing.



## 9.5 TEST RESULTS

|                                                                                                     |          |                     |         |
|-----------------------------------------------------------------------------------------------------|----------|---------------------|---------|
| Temperature :                                                                                       | 26 °C    | Relative Humidity : | 54%     |
| Pressure :                                                                                          | 1012 hPa | Test Voltage :      | DC 3.8V |
| Note: Note: All channels have been tested, and only the worst test data is recorded in this report. |          |                     |         |

Extreme temperature frequency stability:

| Reference Frequency: 802.11a - 5180MHz |                      |                                     |                 |
|----------------------------------------|----------------------|-------------------------------------|-----------------|
| Environment Temperature (°C)           | Power Supplied (VDC) | Frequency Measure with Time Elapsed |                 |
|                                        |                      | Measured Frequency (MHz)            | Deviation (ppm) |
| 70                                     | 3.8                  | 5179.985                            | -2.942          |
| 60                                     | 3.8                  | 5179.968                            | -6.104          |
| 50                                     | 3.8                  | 5179.989                            | -2.168          |
| 40                                     | 3.8                  | 5179.986                            | -2.733          |
| 30                                     | 3.8                  | 5179.983                            | -3.315          |
| 25                                     | 3.8                  | 5179.987                            | -2.587          |
| 10                                     | 3.8                  | 5179.985                            | -2.938          |
| 0                                      | 3.8                  | 5179.986                            | -2.787          |
| -10                                    | 3.8                  | 5179.975                            | -4.734          |
| -20                                    | 3.8                  | 5179.978                            | -4.294          |

| Reference Frequency: 802.11n20 - 5180MHz |                      |                                     |                 |
|------------------------------------------|----------------------|-------------------------------------|-----------------|
| Environment Temperature (°C)             | Power Supplied (VDC) | Frequency Measure with Time Elapsed |                 |
|                                          |                      | Measured Frequency (MHz)            | Deviation (ppm) |
| 70                                       | 3.8                  | 5179.985                            | -2.969          |
| 60                                       | 3.8                  | 5179.966                            | -6.511          |
| 50                                       | 3.8                  | 5179.973                            | -5.210          |
| 40                                       | 3.8                  | 5179.981                            | -3.750          |
| 30                                       | 3.8                  | 5179.987                            | -2.590          |
| 25                                       | 3.8                  | 5179.977                            | -4.507          |
| 10                                       | 3.8                  | 5179.988                            | -2.375          |
| 0                                        | 3.8                  | 5179.990                            | -1.987          |
| -10                                      | 3.8                  | 5179.977                            | -4.424          |
| -20                                      | 3.8                  | 5179.989                            | -2.163          |



| Reference Frequency: 802.11n40 - 5190MHz |                      |                                     |                 |
|------------------------------------------|----------------------|-------------------------------------|-----------------|
| Environment Temperature (°C)             | Power Supplied (VDC) | Frequency Measure with Time Elapsed |                 |
|                                          |                      | Measured Frequency (MHz)            | Deviation (ppm) |
| 70                                       | 3.8                  | 5189.990                            | -1.964          |
| 60                                       | 3.8                  | 5189.964                            | -7.000          |
| 50                                       | 3.8                  | 5189.980                            | -3.844          |
| 40                                       | 3.8                  | 5189.972                            | -5.464          |
| 30                                       | 3.8                  | 5189.977                            | -4.392          |
| 25                                       | 3.8                  | 5189.989                            | -2.095          |
| 10                                       | 3.8                  | 5189.971                            | -5.654          |
| 0                                        | 3.8                  | 5189.983                            | -3.194          |
| -10                                      | 3.8                  | 5189.977                            | -4.370          |
| -20                                      | 3.8                  | 5189.973                            | -5.195          |

| Reference Frequency: 802.11ac20 - 5180MHz |                      |                                     |                 |
|-------------------------------------------|----------------------|-------------------------------------|-----------------|
| Environment Temperature (°C)              | Power Supplied (VDC) | Frequency Measure with Time Elapsed |                 |
|                                           |                      | Measured Frequency (MHz)            | Deviation (ppm) |
| 70                                        | 3.8                  | 5179.983                            | -3.220          |
| 60                                        | 3.8                  | 5179.962                            | -7.281          |
| 50                                        | 3.8                  | 5179.989                            | -2.097          |
| 40                                        | 3.8                  | 5179.985                            | -2.925          |
| 30                                        | 3.8                  | 5179.972                            | -5.349          |
| 25                                        | 3.8                  | 5179.976                            | -4.653          |
| 10                                        | 3.8                  | 5179.988                            | -2.270          |
| 0                                         | 3.8                  | 5179.988                            | -2.409          |
| -10                                       | 3.8                  | 5179.972                            | -5.420          |
| -20                                       | 3.8                  | 5179.985                            | -2.941          |



| Reference Frequency: 802.11ac40 - 5190MHz |                      |                                     |                 |
|-------------------------------------------|----------------------|-------------------------------------|-----------------|
| Environment Temperature (°C)              | Power Supplied (VDC) | Frequency Measure with Time Elapsed |                 |
|                                           |                      | Measured Frequency (MHz)            | Deviation (ppm) |
| 70                                        | 3.8                  | 5189.985                            | -2.855          |
| 60                                        | 3.8                  | 5189.977                            | -4.344          |
| 50                                        | 3.8                  | 5189.979                            | -4.000          |
| 40                                        | 3.8                  | 5189.986                            | -2.769          |
| 30                                        | 3.8                  | 5189.979                            | -4.141          |
| 25                                        | 3.8                  | 5189.978                            | -4.236          |
| 10                                        | 3.8                  | 5189.975                            | -4.830          |
| 0                                         | 3.8                  | 5189.982                            | -3.422          |
| -10                                       | 3.8                  | 5189.983                            | -3.357          |
| -20                                       | 3.8                  | 5189.976                            | -4.700          |

| Reference Frequency: 802.11ac80 - 5210MHz |                      |                                     |                 |
|-------------------------------------------|----------------------|-------------------------------------|-----------------|
| Environment Temperature (°C)              | Power Supplied (VDC) | Frequency Measure with Time Elapsed |                 |
|                                           |                      | Measured Frequency (MHz)            | Deviation (ppm) |
| 70                                        | 3.8                  | 5209.981                            | -3.727          |
| 60                                        | 3.8                  | 5209.987                            | -2.527          |
| 50                                        | 3.8                  | 5209.984                            | -3.150          |
| 40                                        | 3.8                  | 5209.988                            | -2.325          |
| 30                                        | 3.8                  | 5209.982                            | -3.429          |
| 25                                        | 3.8                  | 5209.985                            | -2.933          |
| 10                                        | 3.8                  | 5209.983                            | -3.188          |
| 0                                         | 3.8                  | 5209.985                            | -2.927          |
| -10                                       | 3.8                  | 5209.985                            | -2.826          |
| -20                                       | 3.8                  | 5209.987                            | -2.454          |



| Reference Frequency: 802.11a - 5745MHz |                      |                                     |                 |
|----------------------------------------|----------------------|-------------------------------------|-----------------|
| Environment Temperature (°C)           | Power Supplied (VDC) | Frequency Measure with Time Elapsed |                 |
|                                        |                      | Measured Frequency (MHz)            | Deviation (ppm) |
| 70                                     | 3.8                  | 5744.964                            | -6.194          |
| 60                                     | 3.8                  | 5744.973                            | -4.726          |
| 50                                     | 3.8                  | 5744.977                            | -4.031          |
| 40                                     | 3.8                  | 5744.968                            | -5.509          |
| 30                                     | 3.8                  | 5744.975                            | -4.423          |
| 25                                     | 3.8                  | 5744.969                            | -5.455          |
| 10                                     | 3.8                  | 5744.952                            | -8.437          |
| 0                                      | 3.8                  | 5744.976                            | -4.148          |
| -10                                    | 3.8                  | 5744.967                            | -5.683          |
| -20                                    | 3.8                  | 5744.971                            | -4.995          |

| Reference Frequency: 802.11n20 - 5745MHz |                      |                                     |                 |
|------------------------------------------|----------------------|-------------------------------------|-----------------|
| Environment Temperature (°C)             | Power Supplied (VDC) | Frequency Measure with Time Elapsed |                 |
|                                          |                      | Measured Frequency (MHz)            | Deviation (ppm) |
| 70                                       | 3.8                  | 5744.974                            | -4.565          |
| 60                                       | 3.8                  | 5744.957                            | -7.571          |
| 50                                       | 3.8                  | 5744.961                            | -6.722          |
| 40                                       | 3.8                  | 5744.950                            | -8.626          |
| 30                                       | 3.8                  | 5744.980                            | -3.550          |
| 25                                       | 3.8                  | 5744.979                            | -3.620          |
| 10                                       | 3.8                  | 5744.963                            | -6.444          |
| 0                                        | 3.8                  | 5744.978                            | -3.768          |
| -10                                      | 3.8                  | 5744.963                            | -6.437          |
| -20                                      | 3.8                  | 5744.979                            | -3.728          |



| Reference Frequency: 802.11n40 - 5755MHz |                      |                                     |                 |
|------------------------------------------|----------------------|-------------------------------------|-----------------|
| Environment Temperature (°C)             | Power Supplied (VDC) | Frequency Measure with Time Elapsed |                 |
|                                          |                      | Measured Frequency (MHz)            | Deviation (ppm) |
| 70                                       | 3.8                  | 5754.976                            | -4.144          |
| 60                                       | 3.8                  | 5754.962                            | -6.611          |
| 50                                       | 3.8                  | 5754.974                            | -4.565          |
| 40                                       | 3.8                  | 5754.954                            | -8.048          |
| 30                                       | 3.8                  | 5754.964                            | -6.255          |
| 25                                       | 3.8                  | 5754.958                            | -7.285          |
| 10                                       | 3.8                  | 5754.962                            | -6.648          |
| 0                                        | 3.8                  | 5754.977                            | -4.072          |
| -10                                      | 3.8                  | 5754.958                            | -7.381          |
| -20                                      | 3.8                  | 5754.968                            | -5.642          |

| Reference Frequency: 802.11ac20 - 5745MHz |                      |                                     |                 |
|-------------------------------------------|----------------------|-------------------------------------|-----------------|
| Environment Temperature (°C)              | Power Supplied (VDC) | Frequency Measure with Time Elapsed |                 |
|                                           |                      | Measured Frequency (MHz)            | Deviation (ppm) |
| 70                                        | 3.8                  | 5744.974                            | -4.565          |
| 60                                        | 3.8                  | 5744.957                            | -7.571          |
| 50                                        | 3.8                  | 5744.961                            | -6.722          |
| 40                                        | 3.8                  | 5744.950                            | -8.626          |
| 30                                        | 3.8                  | 5744.980                            | -3.550          |
| 25                                        | 3.8                  | 5744.979                            | -3.620          |
| 10                                        | 3.8                  | 5744.963                            | -6.444          |
| 0                                         | 3.8                  | 5744.978                            | -3.768          |
| -10                                       | 3.8                  | 5744.963                            | -6.437          |
| -20                                       | 3.8                  | 5744.979                            | -3.728          |



| Reference Frequency: 802.11ac40 - 5755MHz |                      |                                     |                 |
|-------------------------------------------|----------------------|-------------------------------------|-----------------|
| Environment Temperature (°C)              | Power Supplied (VDC) | Frequency Measure with Time Elapsed |                 |
|                                           |                      | Measured Frequency (MHz)            | Deviation (ppm) |
| 70                                        | 3.8                  | 5754.962                            | -6.584          |
| 60                                        | 3.8                  | 5754.952                            | -8.333          |
| 50                                        | 3.8                  | 5754.975                            | -4.349          |
| 40                                        | 3.8                  | 5754.970                            | -5.286          |
| 30                                        | 3.8                  | 5754.978                            | -3.817          |
| 25                                        | 3.8                  | 5754.952                            | -8.320          |
| 10                                        | 3.8                  | 5754.980                            | -3.482          |
| 0                                         | 3.8                  | 5754.967                            | -5.816          |
| -10                                       | 3.8                  | 5754.969                            | -5.456          |
| -20                                       | 3.8                  | 5754.971                            | -5.022          |

| Reference Frequency: 802.11ac80 - 5775MHz |                      |                                     |                 |
|-------------------------------------------|----------------------|-------------------------------------|-----------------|
| Environment Temperature (°C)              | Power Supplied (VDC) | Frequency Measure with Time Elapsed |                 |
|                                           |                      | Measured Frequency (MHz)            | Deviation (ppm) |
| 70                                        | 3.8                  | 5774.990                            | -1.802          |
| 60                                        | 3.8                  | 5774.977                            | -4.010          |
| 50                                        | 3.8                  | 5774.987                            | -2.248          |
| 40                                        | 3.8                  | 5774.986                            | -2.370          |
| 30                                        | 3.8                  | 5774.981                            | -3.291          |
| 25                                        | 3.8                  | 5774.976                            | -4.229          |
| 10                                        | 3.8                  | 5774.971                            | -4.956          |
| 0                                         | 3.8                  | 5774.985                            | -2.672          |
| -10                                       | 3.8                  | 5774.979                            | -3.602          |
| -20                                       | 3.8                  | 5774.987                            | -2.193          |



|                                                                                                     |          |                     |         |
|-----------------------------------------------------------------------------------------------------|----------|---------------------|---------|
| Temperature :                                                                                       | 26 °C    | Relative Humidity : | 54%     |
| Pressure :                                                                                          | 1012 hPa | Test Voltage :      | DC 3.8V |
| Note: Note: All channels have been tested, and only the worst test data is recorded in this report. |          |                     |         |

Extreme voltage frequency stability:

| Reference Frequency: 802.11a - 5180MHz |                      |                                     |                 |
|----------------------------------------|----------------------|-------------------------------------|-----------------|
| Environment Temperature (°C)           | Power Supplied (VDC) | Frequency Measure with Time Elapsed |                 |
|                                        |                      | Measured Frequency (MHz)            | Deviation (ppm) |
| 25                                     | 4.37                 | 5179.975                            | -4.747          |
| 25                                     | 3.99                 | 5179.968                            | -6.149          |
| 25                                     | 3.8                  | 5179.976                            | -4.594          |
| 25                                     | 3.61                 | 5179.980                            | -3.774          |
| 25                                     | 3.23                 | 5179.985                            | -2.810          |

| Reference Frequency: 802.11n20 - 5180MHz |                      |                                     |                 |
|------------------------------------------|----------------------|-------------------------------------|-----------------|
| Environment Temperature (°C)             | Power Supplied (VDC) | Frequency Measure with Time Elapsed |                 |
|                                          |                      | Measured Frequency (MHz)            | Deviation (ppm) |
| 25                                       | 4.37                 | 5179.973                            | -5.308          |
| 25                                       | 3.99                 | 5179.976                            | -4.575          |
| 25                                       | 3.8                  | 5179.985                            | -2.958          |
| 25                                       | 3.61                 | 5179.971                            | -5.644          |
| 25                                       | 3.23                 | 5179.971                            | -5.653          |

| Reference Frequency: 802.11n40 - 5190MHz |                      |                                     |                 |
|------------------------------------------|----------------------|-------------------------------------|-----------------|
| Environment Temperature (°C)             | Power Supplied (VDC) | Frequency Measure with Time Elapsed |                 |
|                                          |                      | Measured Frequency (MHz)            | Deviation (ppm) |
| 25                                       | 4.37                 | 5189.978                            | -4.316          |
| 25                                       | 3.99                 | 5189.974                            | -5.085          |
| 25                                       | 3.8                  | 5189.981                            | -3.686          |
| 25                                       | 3.61                 | 5189.985                            | -2.937          |
| 25                                       | 3.23                 | 5189.985                            | -2.836          |



| Reference Frequency: 802.11ac20 - 5180MHz |                      |                                     |                 |
|-------------------------------------------|----------------------|-------------------------------------|-----------------|
| Environment Temperature (°C)              | Power Supplied (VDC) | Frequency Measure with Time Elapsed |                 |
|                                           |                      | Measured Frequency (MHz)            | Deviation (ppm) |
| 25                                        | 4.37                 | 5179.974                            | -4.973          |
| 25                                        | 3.99                 | 5179.961                            | -7.598          |
| 25                                        | 3.8                  | 5179.978                            | -4.225          |
| 25                                        | 3.61                 | 5179.979                            | -4.044          |
| 25                                        | 3.23                 | 5179.986                            | -2.661          |

| Reference Frequency: 802.11ac40 - 5190MHz |                      |                                     |                 |
|-------------------------------------------|----------------------|-------------------------------------|-----------------|
| Environment Temperature (°C)              | Power Supplied (VDC) | Frequency Measure with Time Elapsed |                 |
|                                           |                      | Measured Frequency (MHz)            | Deviation (ppm) |
| 25                                        | 4.37                 | 5189.982                            | -3.428          |
| 25                                        | 3.99                 | 5189.975                            | -4.828          |
| 25                                        | 3.8                  | 5189.982                            | -3.498          |
| 25                                        | 3.61                 | 5189.983                            | -3.315          |
| 25                                        | 3.23                 | 5189.975                            | -4.808          |

| Reference Frequency: 802.11ac80 - 5210MHz |                      |                                     |                 |
|-------------------------------------------|----------------------|-------------------------------------|-----------------|
| Environment Temperature (°C)              | Power Supplied (VDC) | Frequency Measure with Time Elapsed |                 |
|                                           |                      | Measured Frequency (MHz)            | Deviation (ppm) |
| 25                                        | 4.37                 | 5209.986                            | -2.747          |
| 25                                        | 3.99                 | 5209.983                            | -3.226          |
| 25                                        | 3.8                  | 5209.989                            | -2.171          |
| 25                                        | 3.61                 | 5209.980                            | -3.772          |
| 25                                        | 3.23                 | 5209.987                            | -2.539          |



| Reference Frequency: 802.11a - 5745MHz |                      |                                     |                 |
|----------------------------------------|----------------------|-------------------------------------|-----------------|
| Environment Temperature (°C)           | Power Supplied (VDC) | Frequency Measure with Time Elapsed |                 |
|                                        |                      | Measured Frequency (MHz)            | Deviation (ppm) |
| 25                                     | 4.37                 | 5744.961                            | -6.829          |
| 25                                     | 3.99                 | 5744.980                            | -3.503          |
| 25                                     | 3.8                  | 5744.962                            | -6.669          |
| 25                                     | 3.61                 | 5744.976                            | -4.247          |
| 25                                     | 3.23                 | 5744.977                            | -4.057          |

| Reference Frequency: 802.11n20 - 5745MHz |                      |                                     |                 |
|------------------------------------------|----------------------|-------------------------------------|-----------------|
| Environment Temperature (°C)             | Power Supplied (VDC) | Frequency Measure with Time Elapsed |                 |
|                                          |                      | Measured Frequency (MHz)            | Deviation (ppm) |
| 25                                       | 4.37                 | 5744.950                            | -8.624          |
| 25                                       | 3.99                 | 5744.956                            | -7.687          |
| 25                                       | 3.8                  | 5744.962                            | -6.611          |
| 25                                       | 3.61                 | 5744.978                            | -3.816          |
| 25                                       | 3.23                 | 5744.978                            | -3.906          |

| Reference Frequency: 802.11n40 - 5755MHz |                      |                                     |                 |
|------------------------------------------|----------------------|-------------------------------------|-----------------|
| Environment Temperature (°C)             | Power Supplied (VDC) | Frequency Measure with Time Elapsed |                 |
|                                          |                      | Measured Frequency (MHz)            | Deviation (ppm) |
| 25                                       | 4.37                 | 5754.965                            | -6.085          |
| 25                                       | 3.99                 | 5754.978                            | -3.907          |
| 25                                       | 3.8                  | 5754.978                            | -3.763          |
| 25                                       | 3.61                 | 5754.957                            | -7.516          |
| 25                                       | 3.23                 | 5754.972                            | -4.790          |

| Reference Frequency: 802.11ac20 - 5745MHz |                      |                                     |                 |
|-------------------------------------------|----------------------|-------------------------------------|-----------------|
| Environment Temperature (°C)              | Power Supplied (VDC) | Frequency Measure with Time Elapsed |                 |
|                                           |                      | Measured Frequency (MHz)            | Deviation (ppm) |
| 25                                        | 4.43                 | 5744.972                            | -4.804          |
| 25                                        | 4.04                 | 5744.977                            | -3.965          |
| 25                                        | 3.8                  | 5744.972                            | -4.803          |
| 25                                        | 3.67                 | 5744.964                            | -6.349          |
| 25                                        | 3.27                 | 5744.969                            | -5.385          |



| Reference Frequency: 802.11ac40 - 5755MHz |                      |                                     |                 |
|-------------------------------------------|----------------------|-------------------------------------|-----------------|
| Environment Temperature (°C)              | Power Supplied (VDC) | Frequency Measure with Time Elapsed |                 |
|                                           |                      | Measured Frequency (MHz)            | Deviation (ppm) |
| 25                                        | 4.37                 | 5754.965                            | -6.053          |
| 25                                        | 3.99                 | 5754.963                            | -6.404          |
| 25                                        | 3.8                  | 5754.978                            | -3.770          |
| 25                                        | 3.61                 | 5754.971                            | -5.093          |
| 25                                        | 3.23                 | 5754.966                            | -5.988          |

| Reference Frequency: 802.11ac80 - 5775MHz |                      |                                     |                 |
|-------------------------------------------|----------------------|-------------------------------------|-----------------|
| Environment Temperature (°C)              | Power Supplied (VDC) | Frequency Measure with Time Elapsed |                 |
|                                           |                      | Measured Frequency (MHz)            | Deviation (ppm) |
| 25                                        | 4.37                 | 5774.978                            | -3.771          |
| 25                                        | 3.99                 | 5774.984                            | -2.822          |
| 25                                        | 3.8                  | 5774.986                            | -2.400          |
| 25                                        | 3.61                 | 5774.977                            | -3.942          |
| 25                                        | 3.23                 | 5774.984                            | -2.796          |



## 10. DUTY CYCLE

### 10.1 APPLIED PROCEDURES / LIMIT

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

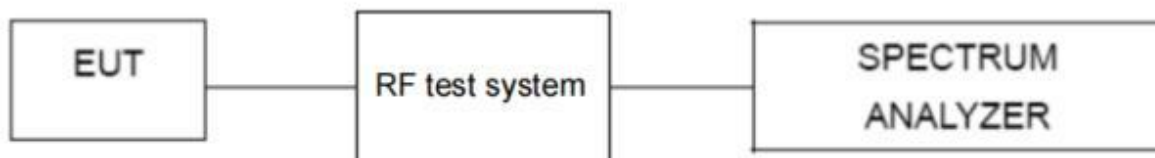
- 1) A diode detector and an oscilloscope that together have sufficiently short response time to permit accurate measurements of the ON and OFF times of the transmitted signal.
- 2) The zero-span mode on a spectrum analyzer or EMI receiver, if the response time and spacing between bins on the sweep are sufficient to permit accurate measurements of the ON and OFF times of the transmitted signal:
  - i) Set the center frequency of the instrument to the center frequency of the transmission.
  - ii) Set  $RBW \geq EBW$  if possible; otherwise, set RBW to the largest available value.
  - iii) Set  $VBW \geq RBW$ .
  - iv) Set detector = peak.
- v) The zero-span measurement method shall not be used unless both RBW and VBW are  $> 50/T$ , where T is defined in item a1) of 12.2, and the number of sweep points across duration T exceeds 100.

For example, if VBW and/or RBW are limited to 3 MHz, then the zero-span method of measuring duty cycle shall not be used if  $T \leq 16.7 \mu s$ .

### 10.2 DEVIATION FROM STANDARD

No deviation.

### 10.3 TEST SETUP



### 10.4 EUT OPERATION CONDITIONS

The EUT tested system was configured as the statements of chapter 3, Unless otherwise a special operating condition is specified in the follows during the testing.



## 10.5 TEST RESULTS

|                                                                                               |          |                     |         |
|-----------------------------------------------------------------------------------------------|----------|---------------------|---------|
| Temperature :                                                                                 | 26 °C    | Relative Humidity : | 54%     |
| Pressure :                                                                                    | 1012 hPa | Test Voltage :      | DC 3.8V |
| Note: All channels have been tested, and only the worst test data is recorded in this report. |          |                     |         |

| Test Mode  | Frequency (MHz) | Duty Cycle (%) | Factor (dB) | Result |
|------------|-----------------|----------------|-------------|--------|
| 802.11a    | 5180            | 97.66          | 0.1         | Pass   |
| 802.11n20  | 5180            | 98.51          | 0           | Pass   |
| 802.11n40  | 5190            | 99.00          | 0           | Pass   |
| 802.11ac20 | 5180            | 99.00          | 0           | Pass   |
| 802.11ac40 | 5190            | 98.75          | 0           | Pass   |
| 802.11ac80 | 5210            | 99.00          | 0           | Pass   |

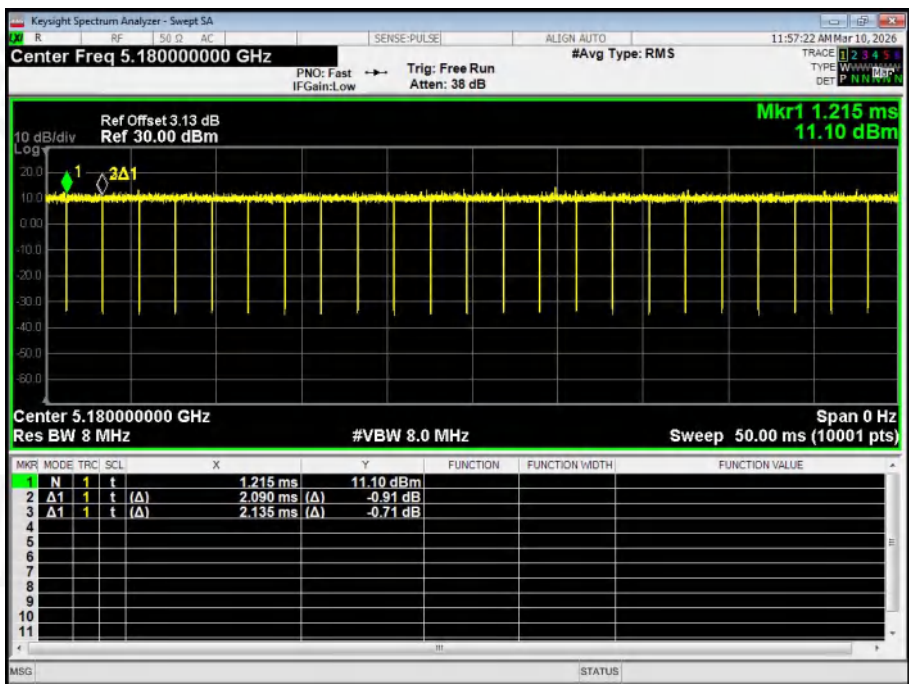
Note: Duty Cycle= Ton /Total\*100%  
Duty Cycle Correction Factor = 10log (1/Duty Cycle)

| Test Mode  | Frequency (MHz) | Duty Cycle (%) | Factor (dB) | Result |
|------------|-----------------|----------------|-------------|--------|
| 802.11a    | 5745            | 97.66          | 0.1         | Pass   |
| 802.11n20  | 5745            | 98.76          | 0           | Pass   |
| 802.11n40  | 5755            | 99.00          | 0           | Pass   |
| 802.11ac20 | 5745            | 98.75          | 0           | Pass   |
| 802.11ac40 | 5755            | 98.75          | 0           | Pass   |
| 802.11ac80 | 5775            | 98.76          | 0           | Pass   |

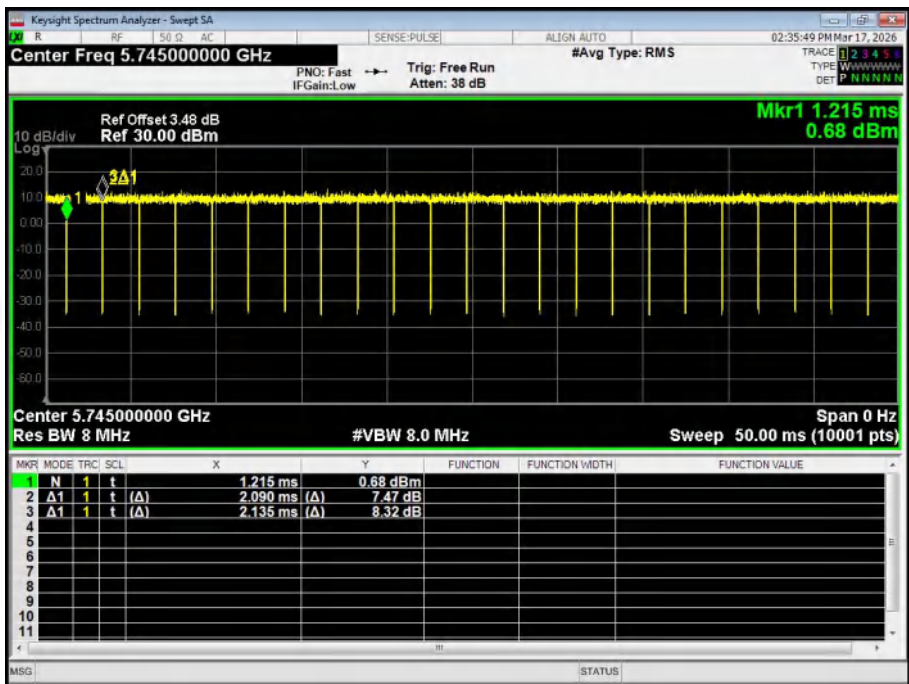
Note: Duty Cycle= Ton /Total\*100%  
Duty Cycle Correction Factor = 10log (1/Duty Cycle)



802.11a - 5180MHz



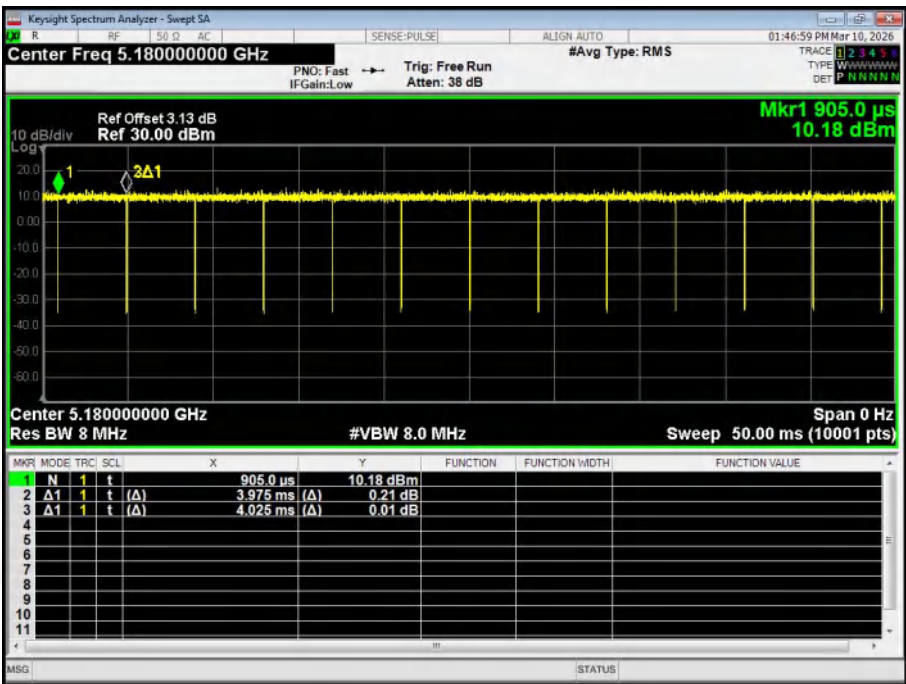
802.11a - 5745MHz



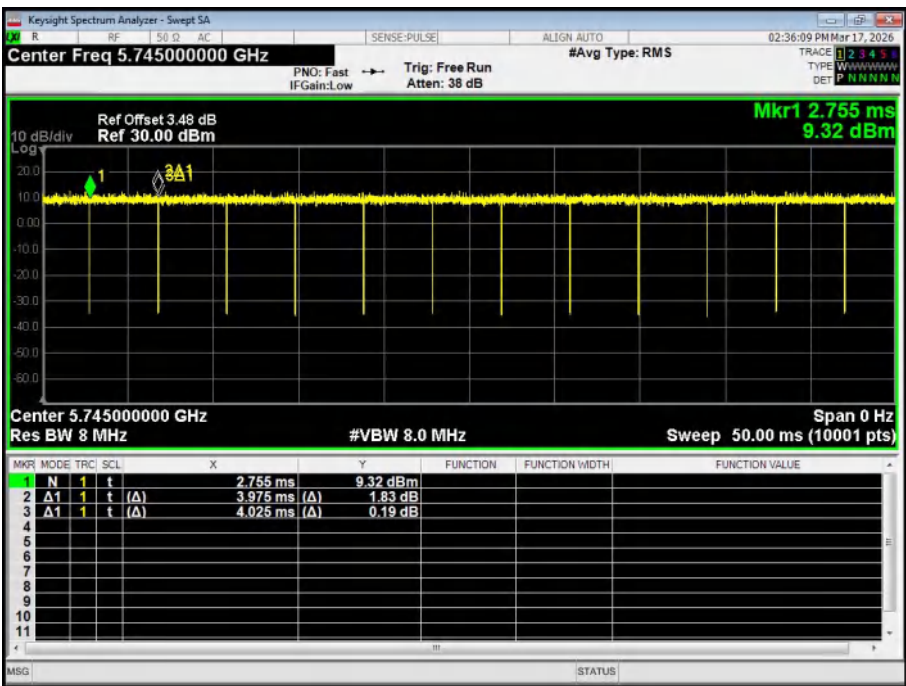
Note: All channel have been tested, and the report only reflects the worst case data.



802.11n20 - 5180MHz



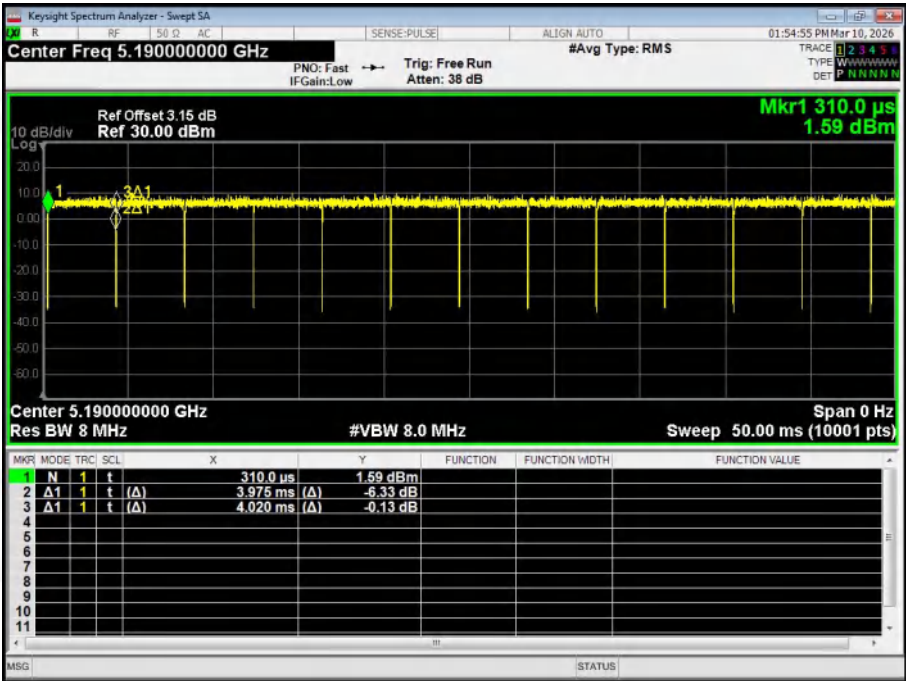
802.11n20 - 5745MHz



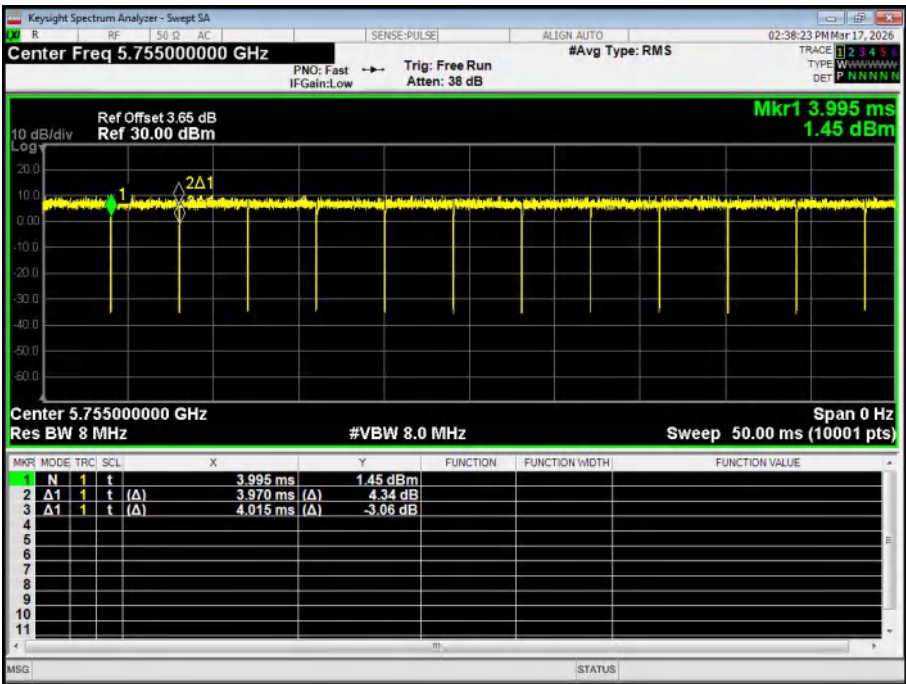
Note: All channel have been tested, and the report only reflects the worst case data.



802.11n40 - 5190MHz



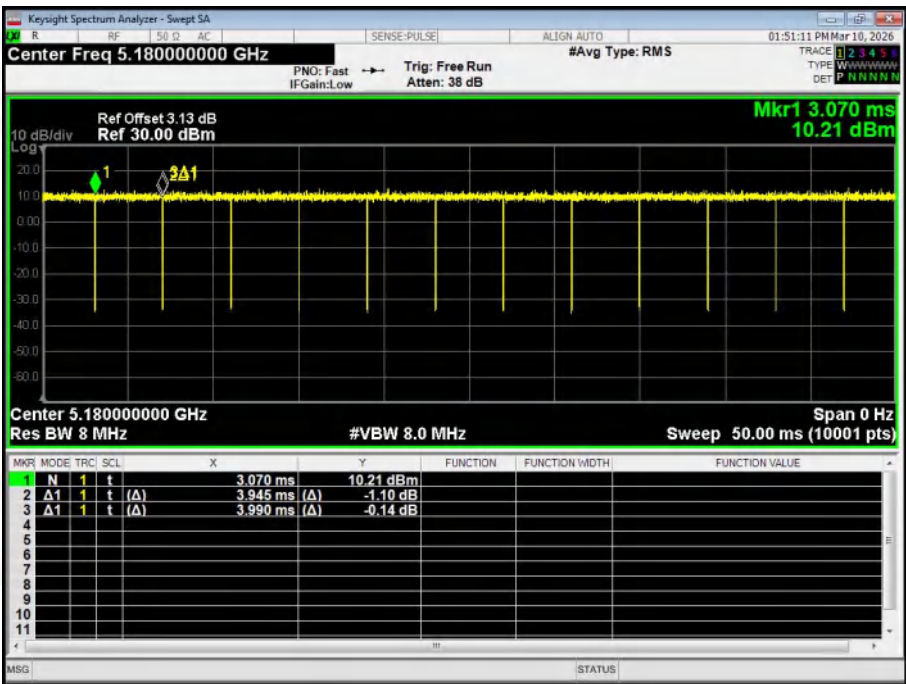
802.11n40 - 5755MHz



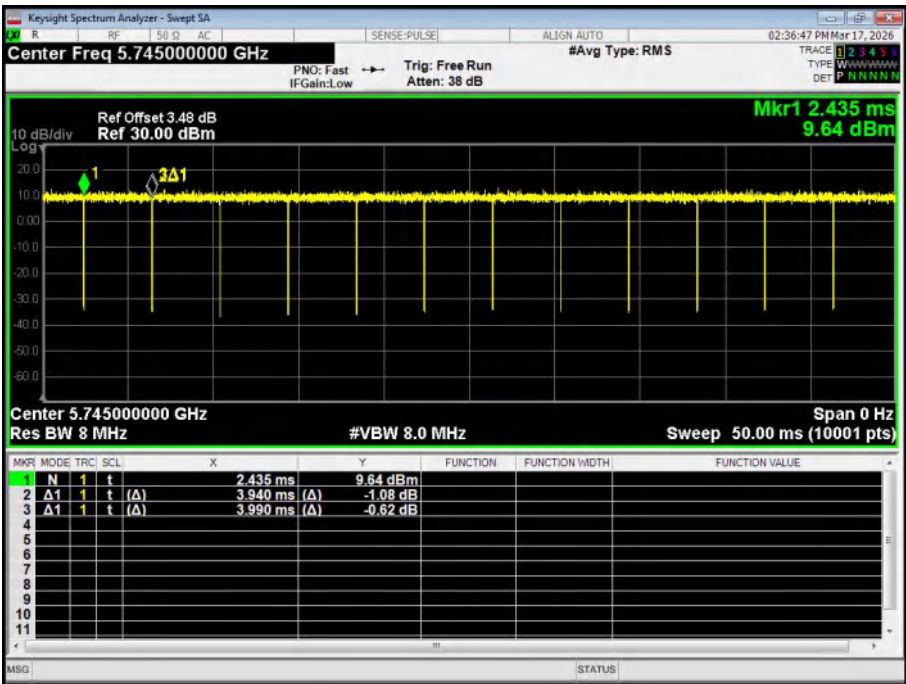
Note: All channel have been tested, and the report only reflects the worst case data.



802.11ac20 - 5180MHz



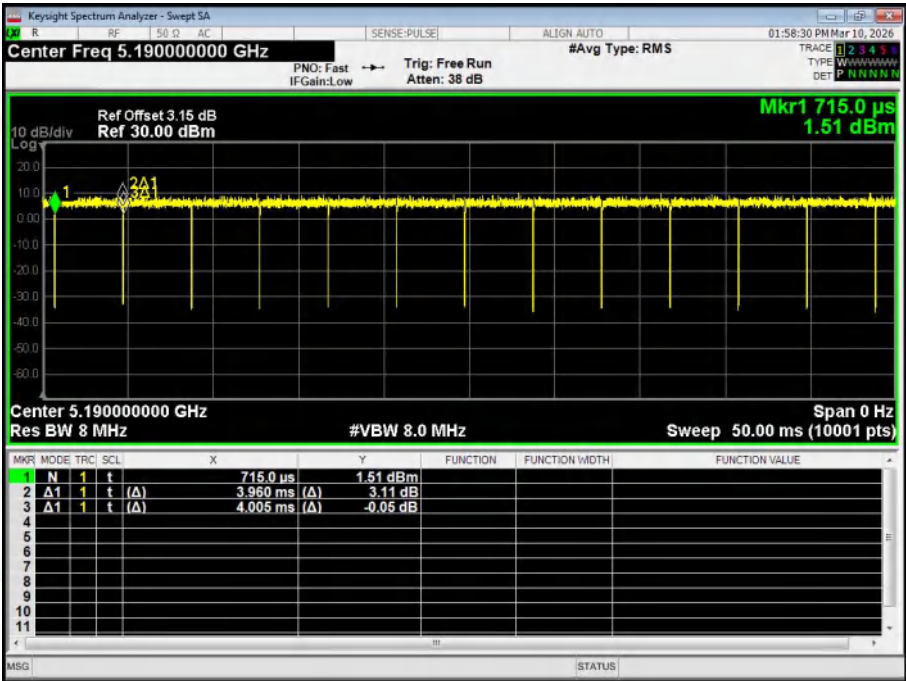
802.11ac20 - 5745MHz



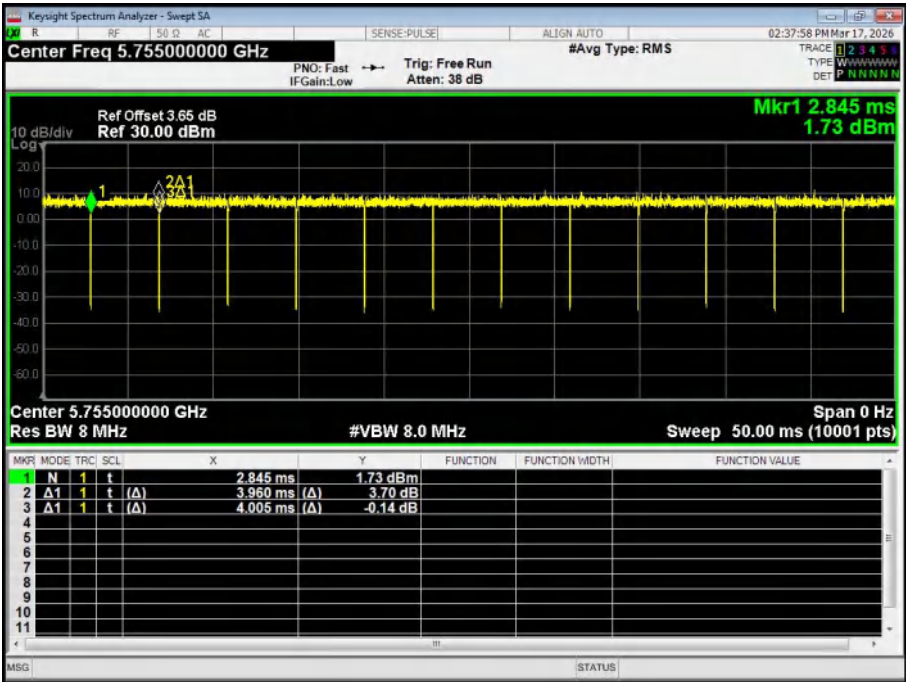
Note: All channel have been tested, and the report only reflects the worst case data.



802.11ac40 - 5190MHz



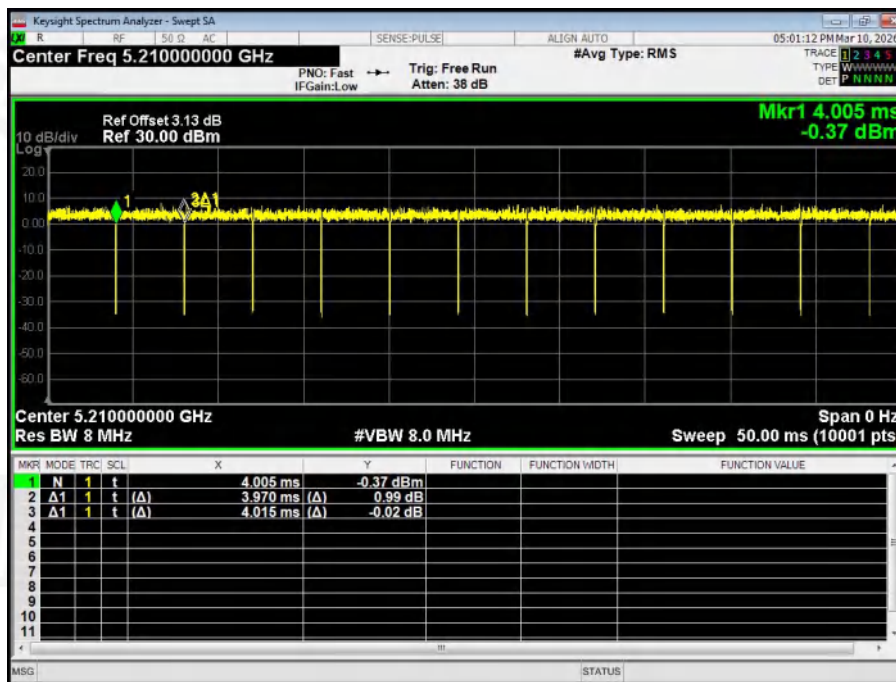
802.11ac40 - 5755MHz



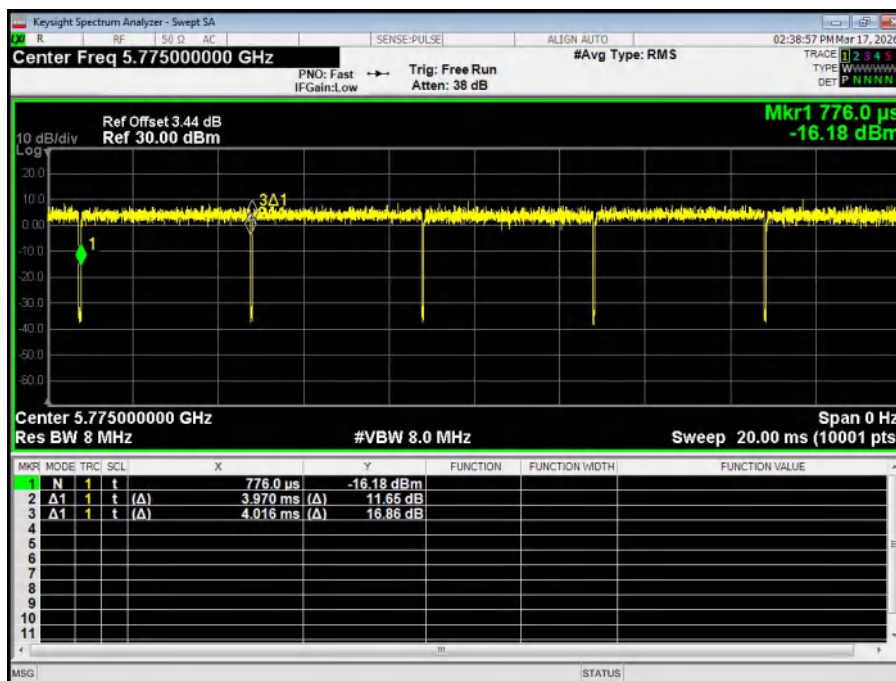
Note: All channel have been tested, and the report only reflects the worst case data.



### 802.11ac80 - 5210MHz



### 802.11ac80 - 5775MHz



Note: All channel have been tested, and the report only reflects the worst case data.



## 11. ANTENNA REQUIREMENT

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                             |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------|
| Standard requirement:                                                                                                                                                                                                                                                                                                                                                                                                                                                     | FCC Part15 C Section 15.203 |
| 15.203 requirement:<br>An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator, the manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited. |                             |
| EUT Antenna:                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                             |
| The antenna is FPC Antenna, the best case gain of the antenna is -1.19dBi for 5.2G and -0.79dBi for 5.8G, reference to the appendix II for details.                                                                                                                                                                                                                                                                                                                       |                             |



## 12. TEST SETUP PHOTO

Reference to the appendix I for details.

## 13. EUT CONSTRUCTIONAL DETAILS

Reference to the appendix II for details.

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