

# TEST REPORT

Reference No. .... : WTS19S05031209W004 V1  
FCC ID..... : 2AOHG-LE02VSXS  
Applicant..... : Fanvision Entertainment LLC  
Address ..... : 1120 Park Ave, #8C New York, New York, 10128 United States  
Manufacturer ..... : Jie Mei Mould Co., Ltd  
Address ..... : No. 172 Yan Luo Road, Luo Tian, Song Gang Town, Bao'an District,  
ShenZhen, China  
Product Name ..... : Legend  
Model No. .... : LE-02VSX-S, LE-02VSX-S-RE, LE-02VSX-S-GR  
Brand..... : N/A  
Standards..... : FCC CFR47 Part 15 E Section 15.407: 2018  
Date of Receipt sample..... : 2019-05-17  
Date of Test..... : 2019-05-18 to 2019-06-04  
Date of Issue ..... : 2019-06-18  
Test Result ..... : Pass

## Remarks:

The results shown in this test report refer only to the sample(s) tested, this test report cannot be reproduced, except in full, without prior written permission of the company.  
The report would be invalid without specific stamp of test institute and the signatures of compiler and approver.

## Prepared By:

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## 2 Laboratories Introduction

**Waltek Services (Shenzhen) Co., Ltd** is a professional third-party testing and certification laboratory with multi-year product testing and certification experience, established strictly in accordance with ISO/IEC 17025 requirements, and accredited by ILAC (International Laboratory Accreditation Cooperation) member. A2LA (American Association for Laboratory Accreditation, the certification number is 4243.01) of USA, CNAS (China National Accreditation Service for Conformity Assessment, the registration number is L3110) of China. Meanwhile, Waltek has got recognition as registration and accreditation laboratory from EMSD (Electrical and Mechanical Services Department), and American Energy star, FCC (The Federal Communications Commission), CEC (California energy efficiency), ISED (Innovation, Science and Economic Development Canada). It's the strategic partner and data recognition laboratory of international authoritative organizations, such as Intertek (ETL-SEMKO), TÜV Rheinland, TÜV SÜD, etc.



Waltek Services (Shenzhen) Co., Ltd is one of the largest and the most comprehensive third party testing laboratory in China. Our test capability covered four large fields: safety test. Electro Magnetic Compatibility (EMC), and energy performance, wireless radio. As a professional, comprehensive, justice international test organization, we still keep the scientific and rigorous work attitude to help each client satisfy the international standards and assist their product enter into globe market smoothly.

**Test Facility:****A. Accreditations for Conformity Assessment (International)**

| Country/Region                                                      | Scope Covered By | Scope              | Note |
|---------------------------------------------------------------------|------------------|--------------------|------|
| USA                                                                 | ISO/IEC 17025    | FCC ID \ DOC \ VOC | 1    |
| Canada                                                              |                  | IC ID \ VOC        | 2    |
| Japan                                                               |                  | MIC-T \ MIC-R      | -    |
| Europe                                                              |                  | EMCD \ RED         | -    |
| Taiwan                                                              |                  | NCC                | -    |
| Hong Kong                                                           |                  | OFCA               | -    |
| Australia                                                           |                  | RCM                | -    |
| India                                                               |                  | WPC                | -    |
| Thailand                                                            |                  | NTC                | -    |
| Singapore                                                           |                  | IDA                | -    |
| Note:                                                               |                  |                    |      |
| 1. FCC Designation No.: CN1201. Test Firm Registration No.: 523476. |                  |                    |      |
| 2. ISED CAB identifier: CN0013                                      |                  |                    |      |

**B. TCBs and Notify Bodies Recognized Testing Laboratory.**

| Recognized Testing Laboratory of ...     | Notify body number |
|------------------------------------------|--------------------|
| TUV Rheinland                            | Optional.          |
| Intertek                                 |                    |
| TUV SUD                                  |                    |
| SGS                                      |                    |
| Phoenix Testlab GmbH                     | 0700               |
| Element Materials Technology Warwick Ltd | 0891               |
| Timco Engineering, Inc.                  | 1177               |
| Eurofins Product Service GmbH            | 0681               |

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## 4 Revision History

| Test report No.           | Date of Receipt sample | Date of Test                | Date of Issue | Purpose   | Comment | Approved |
|---------------------------|------------------------|-----------------------------|---------------|-----------|---------|----------|
| WTS19S05031<br>209W004    | 2019-05-17             | 2019-05-18<br>to 2019-06-04 | 2019-06-05    | original  | -       | Replaced |
| WTS19S05031<br>209W004 V1 | 2019-05-17             | 2019-05-18<br>to 2019-06-04 | 2019-06-18    | Version 1 | Updated | Valid    |

## 5 General Information

### 5.1 General Description of E.U.T.

|                                       |                                                                                                 |
|---------------------------------------|-------------------------------------------------------------------------------------------------|
| Product:                              | Legend                                                                                          |
| Model(s):                             | LE-02VSX-S, LE-02VSX-S-RE, LE-02VSX-S-GR                                                        |
|                                       | Only different for model names and colors.                                                      |
| Model Description:                    | LE-02VSX-S is black machine.<br>LE-02VSX-S-RE is gray machine.<br>LE-02VSX-S-GR is red machine. |
| Wi-Fi Specification:                  | 2.4G-802.11b/g/n HT20/n HT40<br>5G-802.11a/ n(HT20/40)/ac(HT20/40/80)                           |
| Bluetooth Version:                    | Bluetooth v4.0 with BLE                                                                         |
| GPS:                                  | Support                                                                                         |
| Hardware Version:                     | ET732-MB-V0.3                                                                                   |
| Software Version:                     | Legend_V4.02_20190419                                                                           |
| Highest frequency<br>(Exclude Radio): | 2.0GHz                                                                                          |
| Storage Location:                     | Internal Storage                                                                                |
| Note:                                 | N/A                                                                                             |

### 5.2 Details of E.U.T.

|                       |                                                                                                                  |
|-----------------------|------------------------------------------------------------------------------------------------------------------|
| Operation Frequency:  | 802.11a/ n(HT20/40)/ac(HT20/40/80): 5150MHz to 5250MHz<br>802.11a/ n(HT20/40)/ac(HT20/40/80): 5725MHz to 5850MHz |
| Max. RF output power: | U-NII-1: 6.45dBm<br>U-NII-3: 6.45dBm                                                                             |
| Type of Modulation:   | OFDM                                                                                                             |
| Antenna installation: | internal permanent antenna                                                                                       |
| Antenna Gain:         | U-NII-1: -1.0dBi<br>U-NII-3: -1.0dBi                                                                             |
| Ratings:              | Battery DC 3.8V, 4050mAh<br>DC 5V, 1.0A, charging from adapter<br>(Adapter Input: 100-240V~50/60Hz 0.4A)         |
| Adapter:              | Manufacturer: SAMSON POWER TECHNOLOGY CO.,LTD<br>Model No.: SC/5WM500100-US                                      |

### 5.3 Channel List

| U-NII-1 (5.15-5.25GHz) |                | U-NII-3 (5.725-5.85GHz) |                |
|------------------------|----------------|-------------------------|----------------|
| channel                | Frequency(MHz) | channel                 | Frequency(MHz) |
| 36                     | 5180           | 149                     | 5745           |
| 38                     | 5190           | 151                     | 5755           |
| 40                     | 5200           | 153                     | 5765           |
| 42                     | 5210           | 155                     | 5785           |
| 44                     | 5220           | 157                     | 5785           |
| 46                     | 5230           | 159                     | 5795           |
| 48                     | 5240           | 161                     | 5805           |
|                        |                | 165                     | 5825           |

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

For 802.11a/n(HT20)/ac(HT20):

| channel | Frequency(MHz) | channel | Frequency(MHz) |
|---------|----------------|---------|----------------|
| 36      | 5180           | 149     | 5745           |
| 40      | 5200           | 157     | 5785           |
| 48      | 5240           | 165     | 5825           |

For 802.11 n(HT40)/ac(HT40):

| channel | Frequency(MHz) | channel | Frequency(MHz) |
|---------|----------------|---------|----------------|
| 38      | 5190           | 151     | 5755           |
| 46      | 5230           | 159     | 5795           |

For 802.11 ac(HT80):

| channel | Frequency(MHz) | channel | Frequency(MHz) |
|---------|----------------|---------|----------------|
| 42      | 5210           | 155     | 5775           |

#### 5.4 Test Mode Description:

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

Transmitting duty cycle is no less 98%.

The software is installed in operation system, named "RFTestTool.apk", Version 1, date 20160518.

| Test Items         | Mode           | Data Rate | Channel                                 | TX/RX |
|--------------------|----------------|-----------|-----------------------------------------|-------|
| Radiated Emissions | 802.11a        | 6 Mbps    | U-NII-1 36/40/48<br>U-NII-3 149/155/165 | TX    |
|                    | 802.11n(HT20)  | MCS0      | U-NII-1 36/40/48<br>U-NII-3 149/155/165 | TX    |
|                    | 802.11n(HT40)  | MCS0      | U-NII-1 38/46<br>U-NII-3 151/159        | TX    |
|                    | 802.11ac(HT20) | MCS0      | U-NII-1 36/40/48<br>U-NII-3 149/155/165 | TX    |
|                    | 802.11ac(HT40) | MCS0      | U-NII-1 38/46<br>U-NII-3 151/159        | TX    |
|                    | 802.11ac(HT80) | MCS0      | U-NII-1 42<br>U-NII-3 155               | TX    |
| Duty Cycle         | 802.11a        | 6 Mbps    | U-NII-1 36/40/48<br>U-NII-3 149/155/165 | TX    |
|                    | 802.11n(HT20)  | MCS0      | U-NII-1 36/40/48<br>U-NII-3 149/155/165 | TX    |
|                    | 802.11n(HT40)  | MCS0      | U-NII-1 38/46<br>U-NII-3 151/159        | TX    |
|                    | 802.11ac(HT20) | MCS0      | U-NII-1 36/40/48<br>U-NII-3 149/155/165 | TX    |
|                    | 802.11ac(HT40) | MCS0      | U-NII-1 38/46<br>U-NII-3 151/159        | TX    |
|                    | 802.11ac(HT80) | MCS0      | U-NII-1 42<br>U-NII-3 155               | TX    |
| Band Edge          | 802.11a        | 6 Mbps    | U-NII-1 36/40/48<br>U-NII-3 149/155/165 | TX    |
|                    | 802.11n(HT20)  | MCS0      | U-NII-1 36/40/48<br>U-NII-3 149/155/165 | TX    |
|                    | 802.11n(HT40)  | MCS0      | U-NII-1 38/46<br>U-NII-3 151/159        | TX    |
|                    | 802.11ac(HT20) | MCS0      | U-NII-1 36/40/48<br>U-NII-3 149/155/165 | TX    |
|                    | 802.11ac(HT40) | MCS0      | U-NII-1 38/46<br>U-NII-3 151/159        | TX    |
|                    | 802.11ac(HT80) | MCS0      | U-NII-1 42<br>U-NII-3 155               | TX    |

|                                           |                |        |                                         |    |
|-------------------------------------------|----------------|--------|-----------------------------------------|----|
| 6dB Bandwidth                             | 802.11a        | 6 Mbps | U-NII-1 36/40/48<br>U-NII-3 149/155/165 | TX |
|                                           | 802.11n(HT20)  | MCS0   | U-NII-1 36/40/48<br>U-NII-3 149/155/165 | TX |
|                                           | 802.11n(HT40)  | MCS0   | U-NII-1 38/46<br>U-NII-3 151/159        | TX |
|                                           | 802.11ac(HT20) | MCS0   | U-NII-1 36/40/48<br>U-NII-3 149/155/165 | TX |
|                                           | 802.11ac(HT40) | MCS0   | U-NII-1 38/46<br>U-NII-3 151/159        | TX |
|                                           | 802.11ac(HT80) | MCS0   | U-NII-1 42<br>U-NII-3 155               | TX |
| 26dB Bandwidth and 99% Occupied Bandwidth | 802.11a        | 6 Mbps | U-NII-1 36/40/48<br>U-NII-3 149/155/165 | TX |
|                                           | 802.11n(HT20)  | MCS0   | U-NII-1 36/40/48<br>U-NII-3 149/155/165 | TX |
|                                           | 802.11n(HT40)  | MCS0   | U-NII-1 38/46<br>U-NII-3 151/159        | TX |
|                                           | 802.11ac(HT20) | MCS0   | U-NII-1 36/40/48<br>U-NII-3 149/155/165 | TX |
|                                           | 802.11ac(HT40) | MCS0   | U-NII-1 38/46<br>U-NII-3 151/159        | TX |
|                                           | 802.11ac(HT80) | MCS0   | U-NII-1 42<br>U-NII-3 155               | TX |
| Conducted Output Power                    | 802.11a        | 6 Mbps | U-NII-1 36/40/48<br>U-NII-3 149/155/165 | TX |
|                                           | 802.11n(HT20)  | MCS0   | U-NII-1 36/40/48<br>U-NII-3 149/155/165 | TX |
|                                           | 802.11n(HT40)  | MCS0   | U-NII-1 38/46<br>U-NII-3 151/159        | TX |
|                                           | 802.11ac(HT20) | MCS0   | U-NII-1 36/40/48<br>U-NII-3 149/155/165 | TX |
|                                           | 802.11ac(HT40) | MCS0   | U-NII-1 38/46<br>U-NII-3 151/159        | TX |
|                                           | 802.11ac(HT80) | MCS0   | U-NII-1 42<br>U-NII-3 155               | TX |
| Power Spectral Density                    | 802.11a        | 6 Mbps | U-NII-1 36/40/48<br>U-NII-3 149/155/165 | TX |
|                                           | 802.11n(HT20)  | MCS0   | U-NII-1 36/40/48<br>U-NII-3 149/155/165 | TX |
|                                           | 802.11n(HT40)  | MCS0   | U-NII-1 38/46<br>U-NII-3 151/159        | TX |
|                                           | 802.11ac(HT20) | MCS0   | U-NII-1 36/40/48<br>U-NII-3 149/155/165 | TX |

|                     |                |      |                                         |    |
|---------------------|----------------|------|-----------------------------------------|----|
|                     | 802.11ac(HT40) | MCS0 | U-NII-1 38/46<br>U-NII-3 151/159        | TX |
|                     | 802.11ac(HT80) | MCS0 | U-NII-1 42<br>U-NII-3 155               | TX |
| Frequency Stability | Un-modulation  | /    | U-NII-1 36/40/48<br>U-NII-3 149/155/165 | TX |

## 6 Equipment Used during Test

### 6.1 Equipments List

| Conducted Emissions Test Site 1#                              |                            |                                  |              |                 |                       |                      |
|---------------------------------------------------------------|----------------------------|----------------------------------|--------------|-----------------|-----------------------|----------------------|
| Item                                                          | Equipment                  | Manufacturer                     | Model No.    | Serial No.      | Last Calibration Date | Calibration Due Date |
| 1.                                                            | EMI Test Receiver          | R&S                              | ESCI         | 100947          | 2018-09-14            | 2019-09-13           |
| 2.                                                            | LISN                       | R&S                              | ENV216       | 101215          | 2018-09-14            | 2019-09-13           |
| 3.                                                            | Cable                      | Top                              | TYPE16(3.5M) | -               | 2018-09-14            | 2019-09-13           |
| Conducted Emissions Test Site 2#                              |                            |                                  |              |                 |                       |                      |
| Item                                                          | Equipment                  | Manufacturer                     | Model No.    | Serial No.      | Last Calibration Date | Calibration Due Date |
| 1.                                                            | EMI Test Receiver          | R&S                              | ESCI         | 101155          | 2018-09-14            | 2019-09-13           |
| 2.                                                            | LISN                       | SCHWARZBECK                      | NSLK 8128    | 8128-289        | 2018-09-14            | 2019-09-13           |
| 3.                                                            | Limiter                    | York                             | MTS-IMP-136  | 261115-001-0024 | 2018-09-14            | 2019-09-13           |
| 4.                                                            | Cable                      | LARGE                            | RF300        | -               | 2018-09-14            | 2019-09-13           |
| 3m Semi-anechoic Chamber for Radiation Emissions Test site 1# |                            |                                  |              |                 |                       |                      |
| Item                                                          | Equipment                  | Manufacturer                     | Model No.    | Serial No.      | Last Calibration Date | Calibration Due Date |
| 1                                                             | EMC Analyzer               | Agilent                          | E7405A       | MY45114943      | 2018-09-14            | 2019-09-13           |
| 2                                                             | Active Loop Antenna        | Beijing Dazhi                    | ZN30900A     | -               | 2018-09-14            | 2019-09-13           |
| 3                                                             | Trilog Broadband Antenna   | SCHWARZBECK                      | VULB9163     | 336             | 2018-09-14            | 2019-09-13           |
| 4                                                             | Coaxial Cable (below 1GHz) | Top                              | TYPE16(13M)  | -               | 2018-09-14            | 2019-09-13           |
| 5                                                             | Broad-band Horn Antenna    | SCHWARZBECK                      | BBHA 9120 D  | 667             | 2018-09-14            | 2019-09-13           |
| 6                                                             | Broad-band Horn Antenna    | SCHWARZBECK                      | BBHA 9170    | 335             | 2018-09-14            | 2019-09-13           |
| 7                                                             | Broadband Preamplifier     | COMPLIANCE DIRECTION             | PAP-1G18     | 2004            | 2018-09-14            | 2019-09-13           |
| 8                                                             | Coaxial Cable (above 1GHz) | Top                              | 1GHz-25GHz   | EW02014-7       | 2018-09-14            | 2019-09-13           |
| 3m Semi-anechoic Chamber for Radiation Emissions Test site 2# |                            |                                  |              |                 |                       |                      |
| Item                                                          | Equipment                  | Manufacturer                     | Model No.    | Serial No       | Last Calibration Date | Calibration Due Date |
| 1                                                             | Test Receiver              | R&S                              | ESCI         | 101296          | 2018-09-14            | 2019-09-13           |
| 2                                                             | Trilog Broadband Antenna   | SCHWARZBECK                      | VULB9160     | 9160-3325       | 2018-09-14            | 2019-09-13           |
| 3                                                             | Amplifier                  | Compliance pirection systems inc | PAP-0203     | 22024           | 2018-09-14            | 2019-09-13           |
| 4                                                             | Cable                      | HUBER+SUHNER                     | CBL2         | 525178          | 2018-09-14            | 2019-09-13           |
| RF Conducted Testing                                          |                            |                                  |              |                 |                       |                      |

| Item | Equipment                    | Manufacturer | Model No. | Serial No. | Last Calibration Date | Calibration Due Date |
|------|------------------------------|--------------|-----------|------------|-----------------------|----------------------|
| 1.   | EMC Analyzer (9k~26.5GHz)    | Agilent      | E7405A    | MY45114943 | 2018-09-14            | 2019-09-13           |
| 2.   | Spectrum Analyzer (9k~6GHz)  | R&S          | FSL6      | 100959     | 2018-09-14            | 2019-09-13           |
| 3.   | Signal Analyzer (9k~26.5GHz) | Agilent      | N9010A    | MY50520207 | 2018-09-14            | 2019-09-13           |

## 6.2 Description of Support Units

| Equipment | Manufacturer | Model No. | Series No. |
|-----------|--------------|-----------|------------|
| /         | /            | /         | /          |

## 6.3 Measurement Uncertainty

| Parameter                         | Uncertainty                           |
|-----------------------------------|---------------------------------------|
| Radio Frequency                   | $\pm 1 \times 10^{-6}$                |
| RF Power                          | $\pm 1.0$ dB                          |
| RF Power Density                  | $\pm 2.2$ dB                          |
| Radiated Spurious Emissions test  | $\pm 5.03$ dB (30M~1000MHz)           |
|                                   | $\pm 5.47$ dB (1000M~25000MHz)        |
| Conducted Spurious Emissions test | $\pm 3.64$ dB (AC mains 150KHz~30MHz) |

## 6.4 Test Equipment Calibration

All the test equipments used are valid and calibrated by CEPREI Certification Body that address is No.110 Dongguan Zhuang RD. Guangzhou, P.R.China.

## 7 Test Summary

| Test Items                                                        | Test Requirement                    | Result |
|-------------------------------------------------------------------|-------------------------------------|--------|
| Conducted Emissions                                               | 15.207(a)                           | PASS   |
| Radiated Emissions                                                | 15.407(a)<br>15.205(a)<br>15.209(a) | PASS   |
| Duty Cycle                                                        | KDB 789033                          | --     |
| 6dB Bandwidth                                                     | 15.407(a)                           | PASS   |
| 26 dB Emission Bandwidth<br>& 99% Occupied Bandwidth              | 15.407(a)                           | PASS   |
| Maximum Conducted Output Power                                    | 15.407(a)                           | PASS   |
| Power Spectral Density                                            | 15.407(a)                           | PASS   |
| Restricted bands around<br>fundamental frequency                  | 15.407(a)                           | PASS   |
| Antenna Requirement                                               | 15.203                              | PASS   |
| Maximum Permissible Exposure<br>(Exposure of Humans to RF Fields) | 1.1307(b)(1)                        | PASS   |

## 8 Conducted Emission

|                   |                                                                                                                        |
|-------------------|------------------------------------------------------------------------------------------------------------------------|
| Test Requirement: | FCC CFR 47 Part 15 Section 15.207                                                                                      |
| Test Method:      | ANSI C63.10:2013                                                                                                       |
| Test Result:      | PASS                                                                                                                   |
| Frequency Range:  | 150kHz to 30MHz                                                                                                        |
| Class/Severity:   | Class B                                                                                                                |
| Limit:            | 66-56 dB $\mu$ V between 0.15MHz & 0.5MHz<br>56 dB $\mu$ V between 0.5MHz & 5MHz<br>60 dB $\mu$ V between 5MHz & 30MHz |
| Detector:         | Peak for pre-scan (9kHz Resolution Bandwidth)                                                                          |

### 8.1 E.U.T. Operation

Operating Environment :

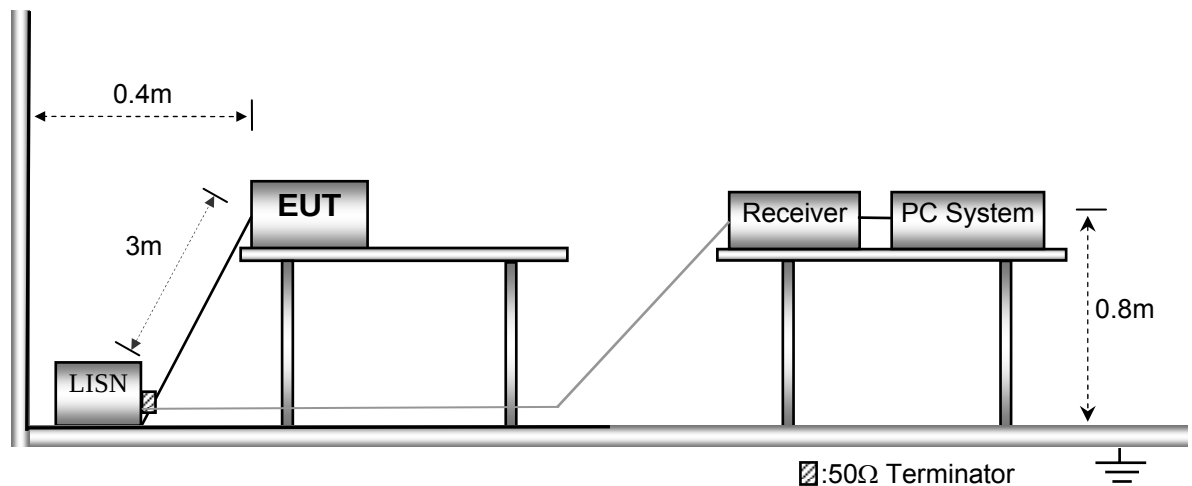
|                       |           |
|-----------------------|-----------|
| Temperature:          | 21.7 °C   |
| Humidity:             | 51.4 % RH |
| Atmospheric Pressure: | 101.2kPa  |

EUT Operation :

The test was performed in transmitting mode, the test data were shown in the report.

### 8.2 EUT Setup

The conducted emission tests were performed using the setup accordance with the ANSI C63.10:2013.



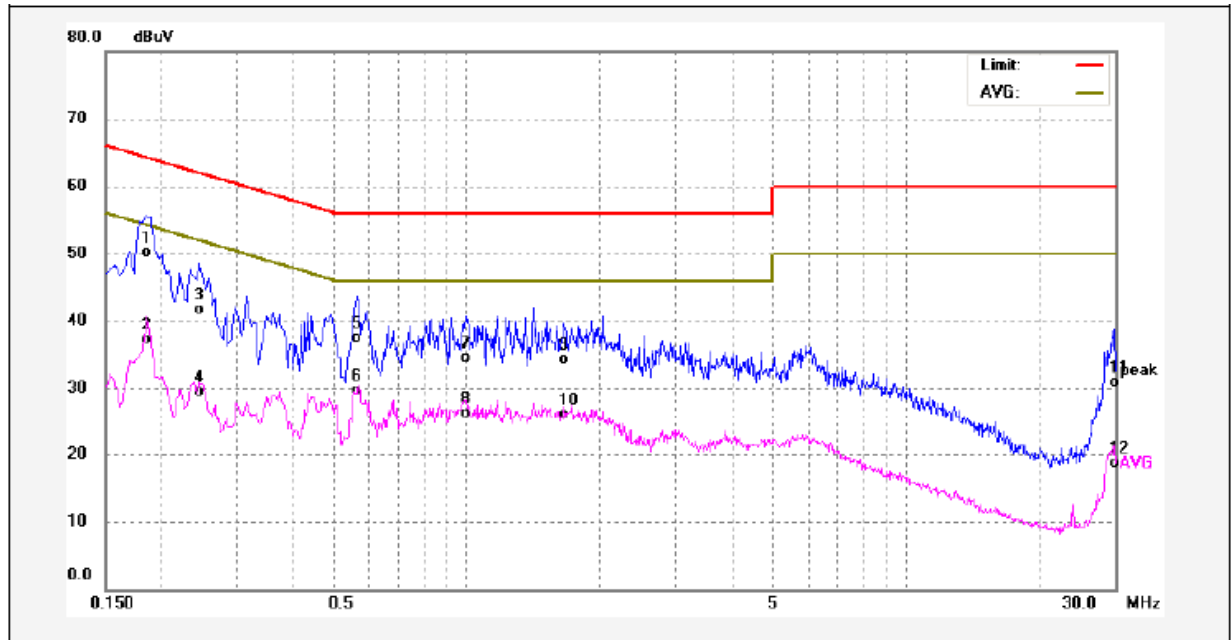
### 8.3 Measurement Description

The maximised peak emissions from the EUT was scanned and measured for both the Live and Neutral Lines. Quasi-peak & average measurements were performed if peak emissions were within 6dB of the average limit line.

## 8.4 Conducted Emission Test Result

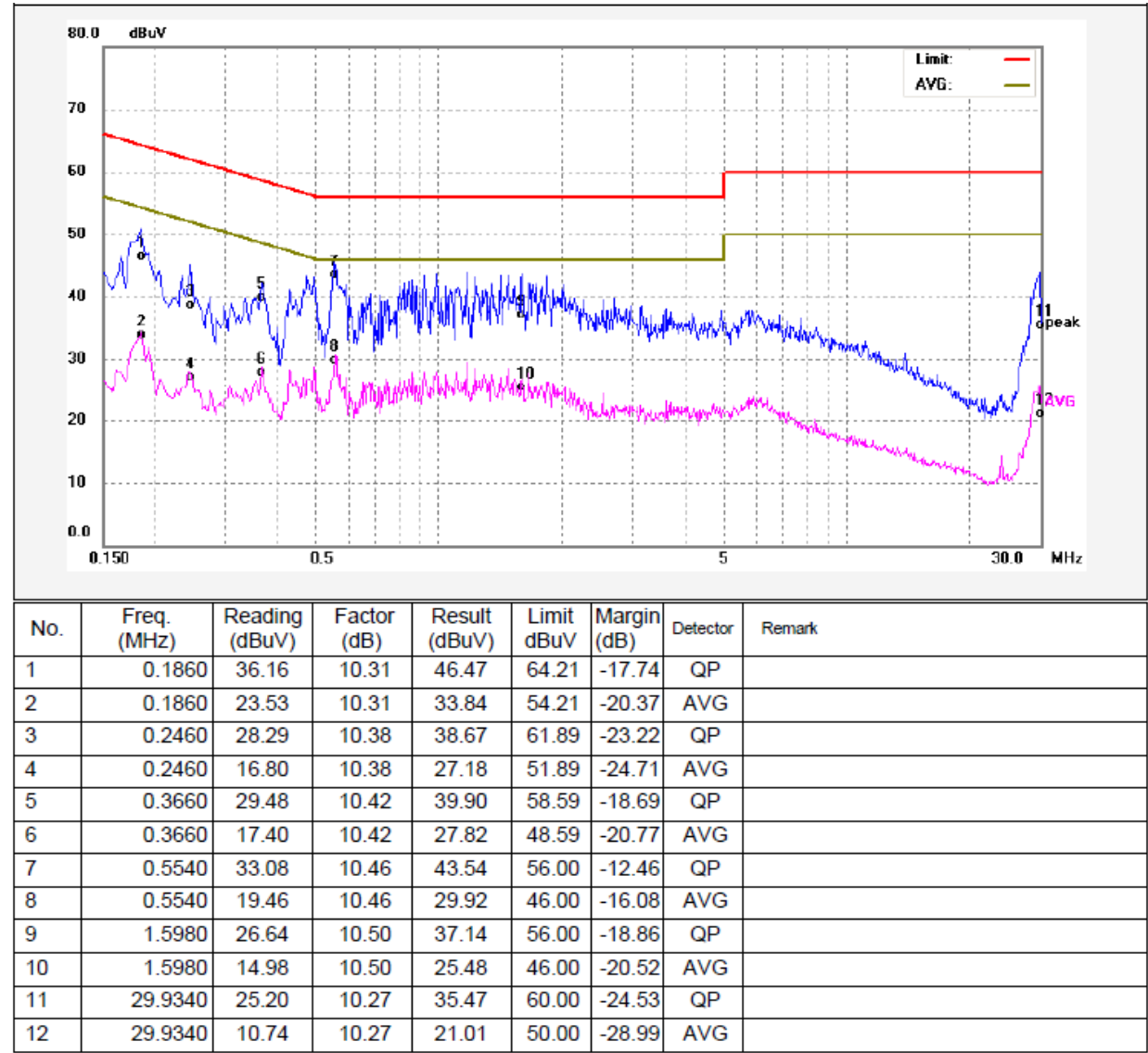
An initial pre-scan was performed on the live and neutral lines.

Live line:



| No. | Freq. (MHz) | Reading (dBuV) | Factor (dB) | Result (dBuV) | Limit dBuV | Margin (dB) | Detector | Remark |
|-----|-------------|----------------|-------------|---------------|------------|-------------|----------|--------|
| 1   | 0.1860      | 39.77          | 10.31       | 50.08         | 64.21      | -14.13      | QP       |        |
| 2   | 0.1860      | 26.94          | 10.31       | 37.25         | 54.21      | -16.96      | AVG      |        |
| 3   | 0.2460      | 31.40          | 10.38       | 41.78         | 61.89      | -20.11      | QP       |        |
| 4   | 0.2460      | 19.07          | 10.38       | 29.45         | 51.89      | -22.44      | AVG      |        |
| 5   | 0.5620      | 26.99          | 10.46       | 37.45         | 56.00      | -18.55      | QP       |        |
| 6   | 0.5620      | 19.24          | 10.46       | 29.70         | 46.00      | -16.30      | AVG      |        |
| 7   | 0.9980      | 24.05          | 10.44       | 34.49         | 56.00      | -21.51      | QP       |        |
| 8   | 0.9980      | 15.86          | 10.44       | 26.30         | 46.00      | -19.70      | AVG      |        |
| 9   | 1.6700      | 23.83          | 10.51       | 34.34         | 56.00      | -21.66      | QP       |        |
| 10  | 1.6700      | 15.61          | 10.51       | 26.12         | 46.00      | -19.88      | AVG      |        |
| 11  | 29.9540     | 20.59          | 10.27       | 30.86         | 60.00      | -29.14      | QP       |        |
| 12  | 29.9540     | 8.47           | 10.27       | 18.74         | 50.00      | -31.26      | AVG      |        |

Neutral line:



## 9 Radiated Emissions

Test Requirement: FCC CFR47 Part 15 Section 15.209 & 15.407

Test Method: ANSI C63.10:2013

Test Result: PASS

Measurement Distance: 3m

Limit:

| Frequency<br>(MHz) | Field Strength        |                 | Field Strength Limit at 3m Measurement<br>Distance |                                       |
|--------------------|-----------------------|-----------------|----------------------------------------------------|---------------------------------------|
|                    | uV/m                  | Distance<br>(m) | uV/m                                               | dBuV/m                                |
| 0.009 ~ 0.490      | $2400/F(\text{kHz})$  | 300             | $10000 * 2400/F(\text{kHz})$                       | $20\log^{(2400/F(\text{kHz}))} + 80$  |
| 0.490 ~ 1.705      | $24000/F(\text{kHz})$ | 30              | $100 * 24000/F(\text{kHz})$                        | $20\log^{(24000/F(\text{kHz}))} + 40$ |
| 1.705 ~ 30         | 30                    | 30              | $100 * 30$                                         | $20\log^{(30)} + 40$                  |
| 30 ~ 88            | 100                   | 3               | 100                                                | $20\log^{(100)}$                      |
| 88 ~ 216           | 150                   | 3               | 150                                                | $20\log^{(150)}$                      |
| 216 ~ 960          | 200                   | 3               | 200                                                | $20\log^{(200)}$                      |
| Above 960          | 500                   | 3               | 500                                                | $20\log^{(500)}$                      |

### 9.1 EUT Operation

Operating Environment :

Temperature: 23.5 °C

Humidity: 52.1 % RH

Atmospheric Pressure: 101.2kPa

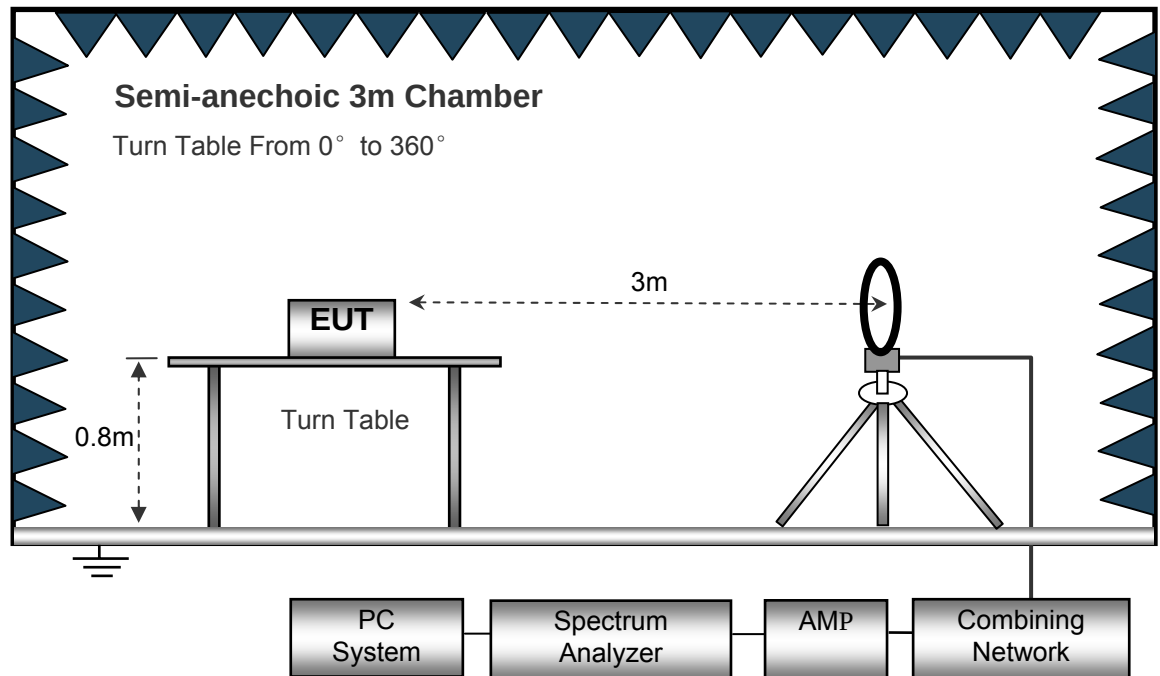
EUT Operation :

The test was performed in transmitting mode, the test data were shown in the report.

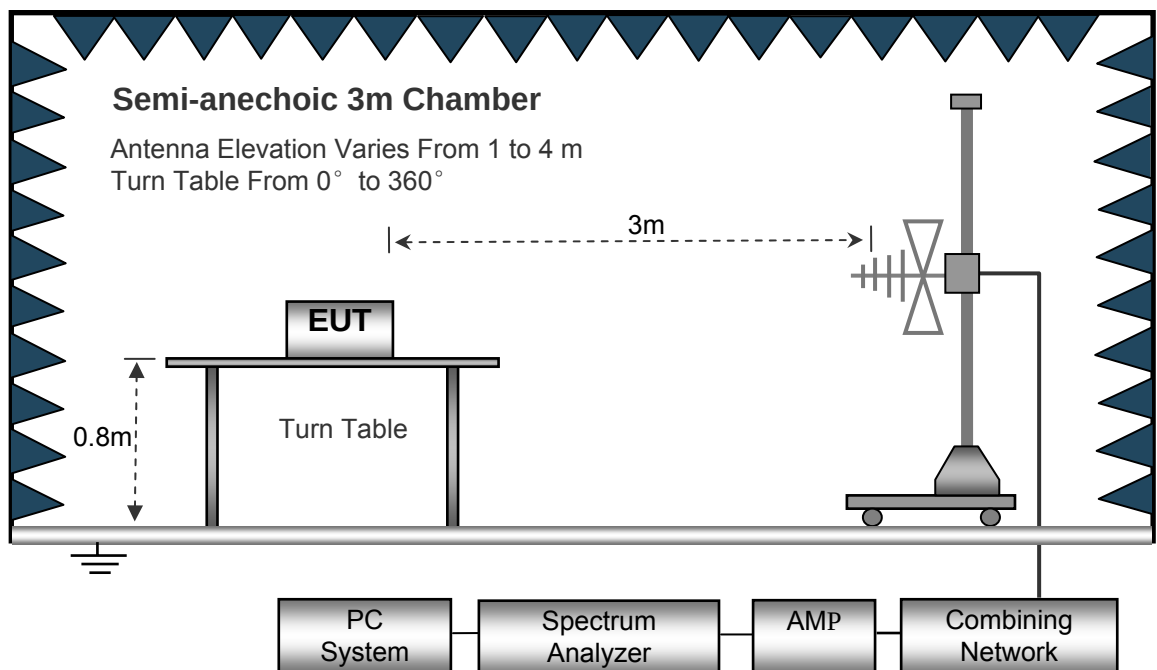
## 9.2 Test Setup

The radiated emission tests were performed in the 3m Semi- Anechoic Chamber test site, using the setup accordance with the ANSI C63.10: 2013.

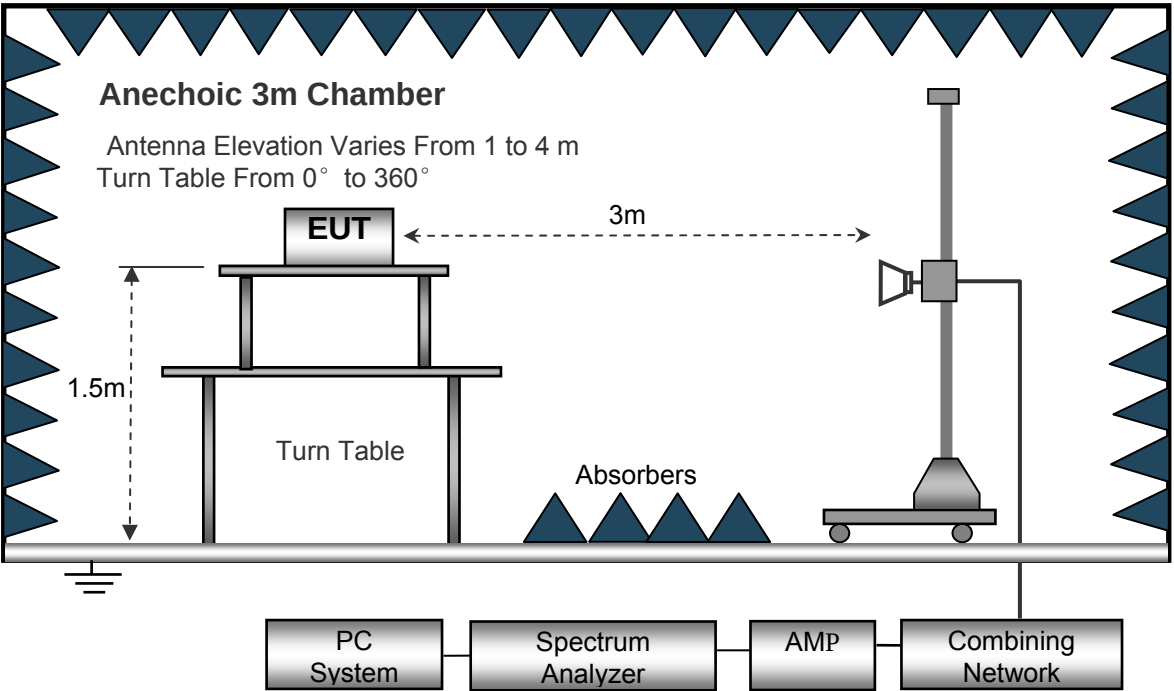
The test setup for emission measurement below 30MHz.



The test setup for emission measurement from 30 MHz to 1 GHz.



The test setup for emission measurement above 1 GHz.



### 9.3 Spectrum Analyzer Setup

Below 30MHz

Sweep Speed ..... Auto  
IF Bandwidth.....10kHz  
Video Bandwidth.....10kHz  
Resolution Bandwidth.....10kHz

30MHz ~ 1GHz

Sweep Speed ..... Auto  
Detector .....PK  
Resolution Bandwidth.....100kHz  
Video Bandwidth.....300kHz

Above 1GHz

Sweep Speed ..... Auto  
Detector .....PK  
Resolution Bandwidth.....1MHz  
Video Bandwidth.....3MHz  
Detector .....Ave.  
Resolution Bandwidth.....1MHz  
Video Bandwidth.....10Hz

## 9.4 Test Procedure

1. The EUT is placed on a turntable, which is 0.8m above ground plane for below 1GHz and 1.5m for above 1GHz.
2. The turntable shall be rotated for 360 degrees to determine the position of maximum emission level.
3. EUT is set 3m away from the receiving antenna, which is moved from 1m to 4m to find out the maximum emissions.
4. Maximum procedure was performed on the six highest emissions to ensure EUT compliance.
5. And also, each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical.
6. Repeat above procedures until the measurements for all frequencies are complete.
7. The radiation measurements are performed in X,Y and Z axis positioning(X denotes lying on the table, Y denotes side stand and Z denotes vertical stand),the worst condition was tested putting the eut in X axis,so the worst data were shown as follow.
8. A 2.4GHz high -pass filter is used during radiated emissions above 1GHz measurement.

## 9.5 Corrected Amplitude & Margin Calculation

The Corrected Amplitude is calculated by adding the Antenna Factor and Cable Factor, and subtracting the Amplifier Gain from the Amplitude reading. The basic equation is as follows:

$$\text{Corr. Ampl.} = \text{Indicated Reading} + \text{Antenna Factor} + \text{Cable Factor} - \text{Amplifier Gain}$$

The "Margin" column of the following data tables indicates the degree of compliance with the applicable limit. For example, a margin of -7dB means the emission is 7dB below the maximum limit for Class B. The equation for margin calculation is as follows:

$$\text{Margin} = \text{Corr. Ampl.} - \text{Limit}$$

## 9.6 Summary of Test Results

Test Frequency: 9KHz~30MHz

| Frequency                   | Measurement results dBμV @3m | Detector PK/QP | Correct factor dB/m | Extrapolation factor dB | Measurement results (calculated) dBμV/m @30m | Limits dBμV/m @30m | Margin dB |
|-----------------------------|------------------------------|----------------|---------------------|-------------------------|----------------------------------------------|--------------------|-----------|
| (MHz)                       | Measurement results          | Detector       | Correct factor      | Extrapolation factor    | Measurement results (calculated)             | Limits             | Margin    |
| U-NII-1:802.11a 5180MHz     |                              |                |                     |                         |                                              |                    |           |
| 6.021                       | 25.33                        | QP             | 21.84               | 40.00                   | 7.17                                         | 29.54              | -22.37    |
| 15.730                      | 25.16                        | QP             | 21.35               | 40.00                   | 6.51                                         | 29.54              | -23.03    |
| 25.680                      | 25.47                        | QP             | 20.67               | 40.00                   | 6.14                                         | 29.54              | -23.40    |
| U-NII-1:802.11n20 5180MHz   |                              |                |                     |                         |                                              |                    |           |
| 6.021                       | 25.09                        | QP             | 21.84               | 40.00                   | 6.93                                         | 29.54              | -22.61    |
| 15.730                      | 25.44                        | QP             | 21.35               | 40.00                   | 6.79                                         | 29.54              | -22.75    |
| 25.680                      | 25.39                        | QP             | 20.67               | 40.00                   | 6.06                                         | 29.54              | -23.48    |
| U-NII-1:802.11ac 20 5180MHz |                              |                |                     |                         |                                              |                    |           |
| 6.021                       | 25.12                        | QP             | 21.84               | 40.00                   | 6.96                                         | 29.54              | -22.58    |
| 15.730                      | 25.60                        | QP             | 21.35               | 40.00                   | 6.95                                         | 29.54              | -22.59    |
| 25.680                      | 24.59                        | QP             | 20.67               | 40.00                   | 5.26                                         | 29.54              | -24.28    |
| U-NII-1:802.11n40 5190MHz   |                              |                |                     |                         |                                              |                    |           |
| 6.021                       | 25.63                        | QP             | 21.84               | 40.00                   | 7.47                                         | 29.54              | -22.07    |
| 15.730                      | 24.87                        | QP             | 21.35               | 40.00                   | 6.22                                         | 29.54              | -23.32    |
| 25.680                      | 24.96                        | QP             | 20.67               | 40.00                   | 5.63                                         | 29.54              | -23.91    |
| U-NII-1:802.11ac40 5190MHz  |                              |                |                     |                         |                                              |                    |           |
| 6.021                       | 25.61                        | QP             | 21.84               | 40.00                   | 7.45                                         | 29.54              | -22.09    |
| 15.730                      | 25.20                        | QP             | 21.35               | 40.00                   | 6.55                                         | 29.54              | -22.99    |
| 25.680                      | 24.97                        | QP             | 20.67               | 40.00                   | 5.64                                         | 29.54              | -23.90    |
| U-NII-1:802.11ac80 5210MHz  |                              |                |                     |                         |                                              |                    |           |
| 6.021                       | 25.10                        | QP             | 21.84               | 40.00                   | 6.94                                         | 29.54              | -22.60    |
| 15.730                      | 24.52                        | QP             | 21.35               | 40.00                   | 5.87                                         | 29.54              | -23.67    |
| 25.680                      | 24.65                        | QP             | 20.67               | 40.00                   | 5.32                                         | 29.54              | -24.22    |

| Frequency                  | Measurement results dBμV @3m | Detector PK/QP | Correct factor dB/m | Extrapolation factor dB | Measurement results (calculated) dBμV/m @30m | Limits dBμV/m @30m | Margin dB |
|----------------------------|------------------------------|----------------|---------------------|-------------------------|----------------------------------------------|--------------------|-----------|
| (MHz)                      | Measurement results          | Detector       | Correct factor      | Extrapolation factor    | Measurement results (calculated)             | Limits             | Margin    |
| U-NII-3 802.11a 5745MHz    |                              |                |                     |                         |                                              |                    |           |
| 6.021                      | 24.57                        | QP             | 21.84               | 40.00                   | 6.41                                         | 29.54              | -23.13    |
| 15.730                     | 25.15                        | QP             | 21.35               | 40.00                   | 6.50                                         | 29.54              | -23.04    |
| 25.680                     | 25.69                        | QP             | 20.67               | 40.00                   | 6.36                                         | 29.54              | -23.18    |
| U-NII-3 802.11n20 5745MHz  |                              |                |                     |                         |                                              |                    |           |
| 6.021                      | 24.58                        | QP             | 21.84               | 40.00                   | 6.42                                         | 29.54              | -23.12    |
| 15.730                     | 25.43                        | QP             | 21.35               | 40.00                   | 6.78                                         | 29.54              | -22.76    |
| 25.680                     | 24.25                        | QP             | 20.67               | 40.00                   | 4.92                                         | 29.54              | -24.62    |
| U-NII-3 802.11ac 5745MHz   |                              |                |                     |                         |                                              |                    |           |
| 6.021                      | 25.34                        | QP             | 21.84               | 40.00                   | 7.18                                         | 29.54              | -22.36    |
| 15.730                     | 25.71                        | QP             | 21.35               | 40.00                   | 7.06                                         | 29.54              | -22.48    |
| 25.680                     | 24.80                        | QP             | 20.67               | 40.00                   | 5.47                                         | 29.54              | -24.07    |
| U-NII-3 802.11n40 5755MHz  |                              |                |                     |                         |                                              |                    |           |
| 6.021                      | 24.50                        | QP             | 21.84               | 40.00                   | 6.34                                         | 29.54              | -23.20    |
| 15.730                     | 24.64                        | QP             | 21.35               | 40.00                   | 5.99                                         | 29.54              | -23.55    |
| 25.680                     | 24.36                        | QP             | 20.67               | 40.00                   | 5.03                                         | 29.54              | -24.51    |
| U-NII-3 802.11ac40 5755MHz |                              |                |                     |                         |                                              |                    |           |
| 6.021                      | 25.28                        | QP             | 21.84               | 40.00                   | 7.12                                         | 29.54              | -22.42    |
| 15.730                     | 24.37                        | QP             | 21.35               | 40.00                   | 5.72                                         | 29.54              | -23.82    |
| 25.680                     | 24.19                        | QP             | 20.67               | 40.00                   | 4.86                                         | 29.54              | -24.68    |
| U-NII-3 802.11ac80 5775MHz |                              |                |                     |                         |                                              |                    |           |
| 6.021                      | 25.13                        | QP             | 21.84               | 40.00                   | 6.97                                         | 29.54              | -22.57    |
| 15.730                     | 24.57                        | QP             | 21.35               | 40.00                   | 5.92                                         | 29.54              | -23.62    |
| 25.680                     | 25.16                        | QP             | 20.67               | 40.00                   | 5.83                                         | 29.54              | -23.71    |

**Test Frequency : 30MHz ~ 18GHz**

| Frequency                              | Receiver Reading | Detector    | Turn table Angle | RX Antenna |       | Corrected Factor | Corrected Amplitude | FCC Part 15.407/209/205 |        |
|----------------------------------------|------------------|-------------|------------------|------------|-------|------------------|---------------------|-------------------------|--------|
|                                        |                  |             |                  | Height     | Polar |                  |                     | Limit                   | Margin |
| (MHz)                                  | (dBμV)           | (PK/QP/Ave) | Degree           | (m)        | (H/V) | (dB)             | (dBμV/m)            | (dBμV/m)                | (dB)   |
| 802.11a U-NII-1 Low Channel 5180MHz    |                  |             |                  |            |       |                  |                     |                         |        |
| 223.45                                 | 41.05            | QP          | 295              | 1.6        | H     | -11.62           | 29.43               | 46.00                   | -16.57 |
| 223.45                                 | 36.26            | QP          | 152              | 1.9        | V     | -11.62           | 24.64               | 46.00                   | -21.36 |
| 4526.71                                | 50.44            | PK          | 308              | 1.2        | H     | -2.03            | 48.41               | 74.00                   | -25.59 |
| 4526.71                                | 46.32            | Ave         | 308              | 1.2        | H     | -2.03            | 44.29               | 54.00                   | -9.71  |
| 5115.39                                | 52.53            | PK          | 52               | 1.9        | H     | -1.02            | 51.51               | 74.00                   | -22.49 |
| 5115.39                                | 48.18            | Ave         | 52               | 1.9        | H     | -1.02            | 47.16               | 54.00                   | -6.84  |
| 10360.00                               | 41.08            | PK          | 194              | 1.3        | H     | 5.33             | 46.41               | 74.00                   | -27.59 |
| 10360.00                               | 36.85            | Ave         | 194              | 1.3        | H     | 5.33             | 42.18               | 54.00                   | -11.82 |
| 802.11a U-NII-1 Middle channel 5200MHz |                  |             |                  |            |       |                  |                     |                         |        |
| 223.45                                 | 40.79            | QP          | 286              | 1.2        | H     | -11.62           | 29.17               | 46.00                   | -16.83 |
| 223.45                                 | 34.59            | QP          | 164              | 1.2        | V     | -11.62           | 22.97               | 46.00                   | -23.03 |
| 4531.52                                | 50.05            | PK          | 246              | 1.8        | H     | -1.94            | 48.11               | 74.00                   | -25.89 |
| 4531.52                                | 44.98            | Ave         | 246              | 1.8        | H     | -1.94            | 43.04               | 54.00                   | -10.96 |
| 5120.05                                | 53.58            | PK          | 3                | 1.1        | H     | -1.06            | 52.52               | 74.00                   | -21.48 |
| 5120.05                                | 50.80            | Ave         | 3                | 1.1        | H     | -1.06            | 49.74               | 54.00                   | -4.26  |
| 10400.00                               | 42.05            | PK          | 110              | 1.6        | H     | 5.21             | 47.26               | 74.00                   | -26.74 |
| 10400.00                               | 36.17            | Ave         | 110              | 1.6        | H     | 5.21             | 41.38               | 54.00                   | -12.62 |

| Frequency                            | Receiver Reading | Detector    | Turn table Angle | RX Antenna |       | Corrected Factor | Corrected Amplitude | FCC Part 15.407/209/205 |        |
|--------------------------------------|------------------|-------------|------------------|------------|-------|------------------|---------------------|-------------------------|--------|
|                                      |                  |             |                  | Height     | Polar |                  |                     | Limit                   | Margin |
| (MHz)                                | (dBμV)           | (PK/QP/Ave) | Degree           | (m)        | (H/V) | (dB)             | (dBμV/m)            | (dBμV/m)                | (dB)   |
| 802.11a U-NII-1 High channel 5240MHz |                  |             |                  |            |       |                  |                     |                         |        |
| 223.45                               | 41.65            | QP          | 111              | 1.2        | H     | -11.62           | 30.03               | 46.00                   | -15.97 |
| 223.45                               | 36.02            | QP          | 52               | 1.5        | V     | -11.62           | 24.40               | 46.00                   | -21.60 |
| 4533.83                              | 50.51            | PK          | 278              | 1.3        | H     | -2.24            | 48.27               | 74.00                   | -25.73 |
| 4533.83                              | 43.72            | Ave         | 278              | 1.3        | H     | -2.24            | 41.48               | 54.00                   | -12.52 |
| 5125.58                              | 54.61            | PK          | 201              | 2.0        | H     | -1.09            | 53.52               | 74.00                   | -20.48 |
| 5125.58                              | 50.56            | Ave         | 201              | 2.0        | H     | -1.09            | 49.47               | 54.00                   | -4.53  |
| 10480.00                             | 40.64            | PK          | 228              | 1.6        | H     | 5.14             | 45.78               | 74.00                   | -28.22 |
| 10480.00                             | 37.29            | Ave         | 228              | 1.6        | H     | 5.14             | 42.43               | 54.00                   | -11.57 |
| 802.11a U-NII-3 Low Channel 5745MHz  |                  |             |                  |            |       |                  |                     |                         |        |
| 223.45                               | 39.11            | QP          | 339              | 1.4        | H     | -11.62           | 27.49               | 46.00                   | -18.51 |
| 223.45                               | 33.84            | QP          | 97               | 2.0        | V     | -11.62           | 22.22               | 46.00                   | -23.78 |
| 4504.10                              | 49.22            | PK          | 114              | 1.3        | H     | -2.06            | 47.16               | 74.00                   | -26.84 |
| 4504.10                              | 44.02            | Ave         | 114              | 1.3        | H     | -2.06            | 41.96               | 54.00                   | -12.04 |
| 11490.00                             | 43.05            | PK          | 327              | 1.5        | H     | 5.93             | 48.98               | 74.00                   | -25.02 |
| 11490.00                             | 37.22            | Ave         | 327              | 1.5        | H     | 5.93             | 43.15               | 54.00                   | -10.85 |
| 5352.43                              | 46.70            | PK          | 116              | 1.1        | H     | -1.25            | 45.45               | 74.00                   | -28.55 |
| 5352.43                              | 37.57            | Ave         | 116              | 1.1        | H     | -1.25            | 36.32               | 54.00                   | -17.68 |

| Frequency                              | Receiver Reading | Detector    | Turn table Angle | RX Antenna |       | Corrected Factor | Corrected Amplitude | FCC Part 15.407/209/205 |        |
|----------------------------------------|------------------|-------------|------------------|------------|-------|------------------|---------------------|-------------------------|--------|
|                                        |                  |             |                  | Height     | Polar |                  |                     | Limit                   | Margin |
| (MHz)                                  | (dBμV)           | (PK/QP/Ave) | Degree           | (m)        | (H/V) | (dB)             | (dBμV/m)            | (dBμV/m)                | (dB)   |
| 802.11a U-NII-3 Middle channel 5785MHz |                  |             |                  |            |       |                  |                     |                         |        |
| 223.45                                 | 37.86            | QP          | 197              | 1.2        | H     | -11.62           | 26.24               | 46.00                   | -19.76 |
| 223.45                                 | 33.33            | QP          | 359              | 1.1        | V     | -11.62           | 21.71               | 46.00                   | -24.29 |
| 4505.68                                | 49.64            | PK          | 301              | 1.1        | H     | -2.03            | 47.61               | 74.00                   | -26.39 |
| 4505.68                                | 44.19            | Ave         | 301              | 1.1        | H     | -2.03            | 42.16               | 54.00                   | -11.84 |
| 11570.00                               | 42.39            | PK          | 67               | 1.2        | H     | 5.81             | 48.20               | 74.00                   | -25.80 |
| 11570.00                               | 37.03            | Ave         | 67               | 1.2        | H     | 5.81             | 42.84               | 54.00                   | -11.16 |
| 5350.34                                | 45.93            | PK          | 234              | 1.9        | H     | -1.22            | 44.71               | 74.00                   | -29.29 |
| 5350.34                                | 39.54            | Ave         | 234              | 1.9        | H     | -1.22            | 38.32               | 54.00                   | -15.68 |
| 802.11a U-NII-3 High channel 5825MHz   |                  |             |                  |            |       |                  |                     |                         |        |
| 223.45                                 | 36.43            | QP          | 134              | 1.3        | H     | -11.62           | 24.81               | 46.00                   | -21.19 |
| 223.45                                 | 33.58            | QP          | 238              | 1.1        | V     | -11.62           | 21.96               | 46.00                   | -24.04 |
| 4506.47                                | 49.90            | PK          | 27               | 1.2        | H     | -1.84            | 48.06               | 74.00                   | -25.94 |
| 4506.47                                | 45.26            | Ave         | 27               | 1.2        | H     | -1.84            | 43.42               | 54.00                   | -10.58 |
| 11650.00                               | 40.65            | PK          | 188              | 1.5        | H     | 5.84             | 46.49               | 74.00                   | -27.51 |
| 11650.00                               | 36.39            | Ave         | 188              | 1.5        | H     | 5.84             | 42.23               | 54.00                   | -11.77 |
| 5355.40                                | 46.85            | PK          | 4                | 1.3        | H     | -1.30            | 45.55               | 74.00                   | -28.45 |
| 5355.40                                | 38.75            | Ave         | 4                | 1.3        | H     | -1.30            | 37.45               | 54.00                   | -16.55 |

| Frequency                                    | Receiver Reading | Detector    | Turn table Angle | RX Antenna |       | Corrected Factor | Corrected Amplitude | FCC Part 15.407/209/205 |        |
|----------------------------------------------|------------------|-------------|------------------|------------|-------|------------------|---------------------|-------------------------|--------|
|                                              |                  |             |                  | Height     | Polar |                  |                     | Limit                   | Margin |
| (MHz)                                        | (dBμV)           | (PK/QP/Ave) | Degree           | (m)        | (H/V) | (dB)             | (dBμV/m)            | (dBμV/m)                | (dB)   |
| 802.11n(HT20) U-NII-1 Low Channel 5180MHz    |                  |             |                  |            |       |                  |                     |                         |        |
| 223.45                                       | 37.91            | QP          | 161              | 1.6        | H     | -11.62           | 26.29               | 46.00                   | -19.71 |
| 223.45                                       | 34.78            | QP          | 354              | 1.5        | V     | -11.62           | 23.16               | 46.00                   | -22.84 |
| 4501.82                                      | 48.54            | PK          | 162              | 1.4        | H     | -2.14            | 46.40               | 74.00                   | -27.60 |
| 4501.82                                      | 45.07            | Ave         | 162              | 1.4        | H     | -2.14            | 42.93               | 54.00                   | -11.07 |
| 5112.78                                      | 46.91            | PK          | 258              | 1.3        | H     | -1.06            | 45.85               | 74.00                   | -28.15 |
| 5112.78                                      | 38.62            | Ave         | 258              | 1.3        | H     | -1.06            | 37.56               | 54.00                   | -16.44 |
| 10360.00                                     | 42.12            | PK          | 37               | 1.6        | H     | 5.33             | 47.45               | 74.00                   | -26.55 |
| 10360.00                                     | 34.80            | Ave         | 37               | 1.6        | H     | 5.33             | 40.13               | 54.00                   | -13.87 |
| 802.11n(HT20) U-NII-1 Middle channel 5200MHz |                  |             |                  |            |       |                  |                     |                         |        |
| 223.45                                       | 39.01            | QP          | 173              | 1.6        | H     | -11.62           | 27.39               | 46.00                   | -18.61 |
| 223.45                                       | 33.92            | QP          | 233              | 1.9        | V     | -11.62           | 22.30               | 46.00                   | -23.70 |
| 4536.90                                      | 49.22            | PK          | 143              | 1.5        | H     | -2.12            | 47.10               | 74.00                   | -26.90 |
| 4536.90                                      | 46.16            | Ave         | 143              | 1.5        | H     | -2.12            | 44.04               | 54.00                   | -9.96  |
| 5140.65                                      | 46.27            | PK          | 228              | 1.6        | H     | -1.06            | 45.21               | 74.00                   | -28.79 |
| 5140.65                                      | 38.03            | Ave         | 228              | 1.6        | H     | -1.06            | 36.97               | 54.00                   | -17.03 |
| 10400.00                                     | 42.80            | PK          | 21               | 1.9        | H     | 5.21             | 48.01               | 74.00                   | -25.99 |
| 10400.00                                     | 36.07            | Ave         | 21               | 1.9        | H     | 5.21             | 41.28               | 54.00                   | -12.72 |

| Frequency                                  | Receiver Reading | Detector    | Turn table Angle | RX Antenna |       | Corrected Factor | Corrected Amplitude | FCC Part 15.407/209/205 |        |
|--------------------------------------------|------------------|-------------|------------------|------------|-------|------------------|---------------------|-------------------------|--------|
|                                            |                  |             |                  | Height     | Polar |                  |                     | Limit                   | Margin |
| (MHz)                                      | (dBμV)           | (PK/QP/Ave) | Degree           | (m)        | (H/V) | (dB)             | (dBμV/m)            | (dBμV/m)                | (dB)   |
| 802.11n(HT20) U-NII-1 High channel 5240MHz |                  |             |                  |            |       |                  |                     |                         |        |
| 223.45                                     | 39.96            | QP          | 68               | 1.7        | H     | -11.62           | 28.34               | 46.00                   | -17.66 |
| 223.45                                     | 33.13            | QP          | 22               | 1.1        | V     | -11.62           | 21.51               | 46.00                   | -24.49 |
| 4512.97                                    | 48.22            | PK          | 257              | 1.6        | H     | -1.96            | 46.26               | 74.00                   | -27.74 |
| 4512.97                                    | 45.88            | Ave         | 257              | 1.6        | H     | -1.96            | 43.92               | 54.00                   | -10.08 |
| 5117.00                                    | 46.13            | PK          | 30               | 1.8        | H     | -1.06            | 45.07               | 74.00                   | -28.93 |
| 5117.00                                    | 37.05            | Ave         | 30               | 1.8        | H     | -1.06            | 35.99               | 54.00                   | -18.01 |
| 10480.00                                   | 41.17            | PK          | 162              | 1.4        | H     | 5.14             | 46.31               | 74.00                   | -27.69 |
| 10480.00                                   | 36.78            | Ave         | 162              | 1.4        | H     | 5.14             | 41.92               | 54.00                   | -12.08 |
| 802.11n(HT20) U-NII-3 Low Channel 5745MHz  |                  |             |                  |            |       |                  |                     |                         |        |
| 223.45                                     | 38.74            | QP          | 114              | 1.0        | H     | -11.62           | 27.12               | 46.00                   | -18.88 |
| 223.45                                     | 32.93            | QP          | 1                | 1.7        | V     | -11.62           | 21.31               | 46.00                   | -24.69 |
| 4528.18                                    | 46.98            | PK          | 330              | 2.0        | H     | -1.85            | 45.13               | 74.00                   | -28.87 |
| 4528.18                                    | 44.16            | Ave         | 330              | 2.0        | H     | -1.85            | 42.31               | 54.00                   | -11.69 |
| 11490.00                                   | 40.72            | PK          | 328              | 1.9        | H     | 5.93             | 46.65               | 74.00                   | -27.35 |
| 11490.00                                   | 34.03            | Ave         | 328              | 1.9        | H     | 5.93             | 39.96               | 54.00                   | -14.04 |
| 5365.50                                    | 45.76            | PK          | 114              | 1.5        | H     | -1.01            | 44.75               | 74.00                   | -29.25 |
| 5365.50                                    | 37.06            | Ave         | 114              | 1.5        | H     | -1.01            | 36.05               | 54.00                   | -17.95 |

| Frequency                                    | Receiver Reading | Detector    | Turn table Angle | RX Antenna |       | Corrected Factor | Corrected Amplitude | FCC Part 15.407/209/205 |        |
|----------------------------------------------|------------------|-------------|------------------|------------|-------|------------------|---------------------|-------------------------|--------|
|                                              |                  |             |                  | Height     | Polar |                  |                     | Limit                   | Margin |
| (MHz)                                        | (dBμV)           | (PK/QP/Ave) | Degree           | (m)        | (H/V) | (dB)             | (dBμV/m)            | (dBμV/m)                | (dB)   |
| 802.11n(HT20) U-NII-3 Middle channel 5785MHz |                  |             |                  |            |       |                  |                     |                         |        |
| 223.45                                       | 38.19            | QP          | 295              | 1.9        | H     | -11.62           | 26.57               | 46.00                   | -19.43 |
| 223.45                                       | 33.03            | QP          | 303              | 1.2        | V     | -11.62           | 21.41               | 46.00                   | -24.59 |
| 4507.05                                      | 46.06            | PK          | 219              | 1.9        | H     | -1.89            | 44.17               | 74.00                   | -29.83 |
| 4507.05                                      | 44.49            | Ave         | 219              | 1.9        | H     | -1.89            | 42.60               | 54.00                   | -11.40 |
| 11570.00                                     | 42.16            | PK          | 90               | 2.0        | H     | 5.81             | 47.97               | 74.00                   | -26.03 |
| 11570.00                                     | 35.03            | Ave         | 90               | 2.0        | H     | 5.81             | 40.84               | 54.00                   | -13.16 |
| 5378.03                                      | 46.83            | PK          | 189              | 1.6        | H     | -1.04            | 45.79               | 74.00                   | -28.21 |
| 5378.03                                      | 39.99            | Ave         | 189              | 1.6        | H     | -1.04            | 38.95               | 54.00                   | -15.05 |
| 802.11n(HT20) U-NII-3 High channel 5825MHz   |                  |             |                  |            |       |                  |                     |                         |        |
| 223.45                                       | 37.19            | QP          | 266              | 1.2        | H     | -11.62           | 25.57               | 46.00                   | -20.43 |
| 223.45                                       | 32.94            | QP          | 238              | 1.6        | V     | -11.62           | 21.32               | 46.00                   | -24.68 |
| 4505.36                                      | 45.70            | PK          | 182              | 1.4        | H     | -1.97            | 43.73               | 74.00                   | -30.27 |
| 4505.36                                      | 43.93            | Ave         | 182              | 1.4        | H     | -1.97            | 41.96               | 54.00                   | -12.04 |
| 11650.00                                     | 42.30            | PK          | 89               | 1.9        | H     | 5.84             | 48.14               | 74.00                   | -25.86 |
| 11650.00                                     | 35.48            | Ave         | 89               | 1.9        | H     | 5.84             | 41.32               | 54.00                   | -12.68 |
| 5352.16                                      | 46.88            | PK          | 109              | 1.3        | H     | -1.12            | 45.76               | 74.00                   | -28.24 |
| 5352.16                                      | 39.77            | Ave         | 109              | 1.3        | H     | -1.12            | 38.65               | 54.00                   | -15.35 |

| Frequency                                  | Receiver Reading | Detector    | Turn table Angle | RX Antenna |       | Corrected Factor | Corrected Amplitude | FCC Part 15.407/209/205 |        |
|--------------------------------------------|------------------|-------------|------------------|------------|-------|------------------|---------------------|-------------------------|--------|
|                                            |                  |             |                  | Height     | Polar |                  |                     | Limit                   | Margin |
| (MHz)                                      | (dBμV)           | (PK/QP/Ave) | Degree           | (m)        | (H/V) | (dB)             | (dBμV/m)            | (dBμV/m)                | (dB)   |
| 802.11n(HT40) U-NII-1 Low Channel 5190MHz  |                  |             |                  |            |       |                  |                     |                         |        |
| 223.45                                     | 39.25            | QP          | 313              | 1.4        | H     | -11.62           | 27.63               | 46.00                   | -18.37 |
| 223.45                                     | 32.75            | QP          | 244              | 1.6        | V     | -11.62           | 21.13               | 46.00                   | -24.87 |
| 4506.90                                    | 39.13            | PK          | 6                | 1.8        | H     | -1.89            | 37.24               | 74.00                   | -36.76 |
| 4506.90                                    | 39.39            | Ave         | 6                | 1.8        | H     | -1.89            | 37.50               | 54.00                   | -16.50 |
| 5127.16                                    | 45.66            | PK          | 189              | 1.5        | H     | -1.06            | 44.60               | 74.00                   | -29.40 |
| 5127.16                                    | 39.80            | Ave         | 189              | 1.5        | H     | -1.06            | 38.74               | 54.00                   | -15.26 |
| 10380.00                                   | 39.66            | PK          | 122              | 1.1        | H     | 5.26             | 44.92               | 74.00                   | -29.08 |
| 10380.00                                   | 34.53            | Ave         | 122              | 1.1        | H     | 5.26             | 39.79               | 54.00                   | -14.21 |
| 802.11n(HT40) U-NII-1 High channel 5230MHz |                  |             |                  |            |       |                  |                     |                         |        |
| 223.45                                     | 40.38            | QP          | 173              | 1.0        | H     | -11.62           | 28.76               | 46.00                   | -17.24 |
| 223.45                                     | 33.60            | QP          | 197              | 2.0        | V     | -11.62           | 21.98               | 46.00                   | -24.02 |
| 4507.99                                    | 38.61            | PK          | 64               | 1.3        | H     | -1.94            | 36.67               | 74.00                   | -37.33 |
| 4507.99                                    | 34.99            | Ave         | 64               | 1.3        | H     | -1.94            | 33.05               | 54.00                   | -20.95 |
| 5148.79                                    | 47.24            | PK          | 175              | 1.6        | H     | -1.06            | 46.18               | 74.00                   | -27.82 |
| 5148.79                                    | 38.33            | Ave         | 175              | 1.6        | H     | -1.06            | 37.27               | 54.00                   | -16.73 |
| 10480.00                                   | 42.10            | PK          | 98               | 1.2        | H     | 5.28             | 47.38               | 74.00                   | -26.62 |
| 10480.00                                   | 36.23            | Ave         | 98               | 1.2        | H     | 5.28             | 41.51               | 54.00                   | -12.49 |

| Frequency                                  | Receiver Reading | Detector    | Turn table Angle | RX Antenna |       | Corrected Factor | Corrected Amplitude | FCC Part 15.407/209/205 |        |
|--------------------------------------------|------------------|-------------|------------------|------------|-------|------------------|---------------------|-------------------------|--------|
|                                            |                  |             |                  | Height     | Polar |                  |                     | Limit                   | Margin |
| (MHz)                                      | (dBμV)           | (PK/QP/Ave) | Degree           | (m)        | (H/V) | (dB)             | (dBμV/m)            | (dBμV/m)                | (dB)   |
| 802.11n(HT40) U-NII-3 Low Channel 5755MHz  |                  |             |                  |            |       |                  |                     |                         |        |
| 223.45                                     | 41.46            | QP          | 239              | 1.8        | H     | -11.62           | 29.84               | 74.00                   | -44.16 |
| 223.45                                     | 34.05            | QP          | 233              | 1.7        | V     | -11.62           | 22.43               | 74.00                   | -51.57 |
| 4536.61                                    | 37.23            | PK          | 154              | 1.3        | H     | -1.96            | 35.27               | 74.00                   | -38.73 |
| 4536.61                                    | 33.12            | Ave         | 154              | 1.3        | H     | -1.96            | 31.16               | 54.00                   | -22.84 |
| 11510.00                                   | 39.07            | PK          | 95               | 2.0        | H     | 5.88             | 44.95               | 74.00                   | -29.05 |
| 11510.00                                   | 33.93            | Ave         | 95               | 2.0        | H     | 5.88             | 39.81               | 54.00                   | -14.19 |
| 5361.29                                    | 46.35            | PK          | 336              | 1.2        | H     | -1.01            | 45.34               | 74.00                   | -28.66 |
| 5361.29                                    | 37.09            | Ave         | 336              | 1.2        | H     | -1.01            | 36.08               | 54.00                   | -17.92 |
| 802.11n(HT40) U-NII-3 High channel 5795MHz |                  |             |                  |            |       |                  |                     |                         |        |
| 223.45                                     | 42.24            | QP          | 250              | 1.4        | H     | -11.62           | 30.62               | 74.00                   | -43.38 |
| 223.45                                     | 35.00            | QP          | 265              | 1.2        | V     | -11.62           | 23.38               | 74.00                   | -50.62 |
| 4538.78                                    | 37.27            | PK          | 98               | 1.1        | H     | -1.92            | 35.35               | 74.00                   | -38.65 |
| 4538.78                                    | 33.15            | Ave         | 98               | 1.1        | H     | -1.92            | 31.23               | 54.00                   | -22.77 |
| 11590.00                                   | 42.07            | PK          | 182              | 1.5        | H     | 5.63             | 47.70               | 74.00                   | -26.30 |
| 11590.00                                   | 35.50            | Ave         | 182              | 1.5        | H     | 5.63             | 41.13               | 54.00                   | -12.87 |
| 5379.25                                    | 46.45            | PK          | 256              | 1.7        | H     | -1.04            | 45.41               | 74.00                   | -28.59 |
| 5379.25                                    | 39.44            | Ave         | 256              | 1.7        | H     | -1.04            | 38.40               | 54.00                   | -15.60 |

| Frequency                                     | Receiver Reading | Detector    | Turn table Angle | RX Antenna |       | Corrected Factor | Corrected Amplitude | FCC Part 15.407/209/205 |        |
|-----------------------------------------------|------------------|-------------|------------------|------------|-------|------------------|---------------------|-------------------------|--------|
|                                               |                  |             |                  | Height     | Polar |                  |                     | Limit                   | Margin |
| (MHz)                                         | (dBμV)           | (PK/QP/Ave) | Degree           | (m)        | (H/V) | (dB)             | (dBμV/m)            | (dBμV/m)                | (dB)   |
| 802.11ac(HT20) U-NII-1 Low Channel 5180MHz    |                  |             |                  |            |       |                  |                     |                         |        |
| 223.45                                        | 38.32            | QP          | 273              | 1.2        | H     | -11.62           | 26.70               | 46.00                   | -19.30 |
| 223.45                                        | 33.86            | QP          | 43               | 1.4        | V     | -11.62           | 22.24               | 46.00                   | -23.76 |
| 4538.56                                       | 43.02            | PK          | 185              | 1.9        | H     | -1.86            | 41.16               | 74.00                   | -32.84 |
| 4538.56                                       | 42.55            | Ave         | 185              | 1.9        | H     | -1.86            | 40.69               | 54.00                   | -13.31 |
| 5121.90                                       | 45.20            | PK          | 106              | 1.2        | H     | -1.06            | 44.14               | 74.00                   | -29.86 |
| 5121.90                                       | 39.37            | Ave         | 106              | 1.2        | H     | -1.06            | 38.31               | 54.00                   | -15.69 |
| 10360.00                                      | 40.79            | PK          | 180              | 1.6        | H     | 5.33             | 46.12               | 74.00                   | -27.88 |
| 10360.00                                      | 34.62            | Ave         | 180              | 1.6        | H     | 5.33             | 39.95               | 54.00                   | -14.05 |
| 802.11ac(HT20) U-NII-1 Middle channel 5200MHz |                  |             |                  |            |       |                  |                     |                         |        |
| 223.45                                        | 39.29            | QP          | 246              | 1.2        | H     | -11.62           | 27.67               | 46.00                   | -18.33 |
| 223.45                                        | 33.82            | QP          | 37               | 2.0        | V     | -11.62           | 22.20               | 46.00                   | -23.80 |
| 4526.69                                       | 43.22            | PK          | 27               | 1.8        | H     | -1.82            | 41.40               | 74.00                   | -32.60 |
| 4526.69                                       | 42.56            | Ave         | 27               | 1.8        | H     | -1.82            | 40.74               | 54.00                   | -13.26 |
| 5115.13                                       | 46.03            | PK          | 195              | 1.5        | H     | -1.06            | 44.97               | 74.00                   | -29.03 |
| 5115.13                                       | 40.87            | Ave         | 195              | 1.5        | H     | -1.06            | 39.81               | 54.00                   | -14.19 |
| 10400.00                                      | 42.18            | PK          | 338              | 1.9        | H     | 5.21             | 47.39               | 74.00                   | -26.61 |
| 10400.00                                      | 36.67            | Ave         | 338              | 1.9        | H     | 5.21             | 41.88               | 54.00                   | -12.12 |

| Frequency                                   | Receiver Reading | Detector    | Turn table Angle | RX Antenna |       | Corrected Factor | Corrected Amplitude | FCC Part 15.407/209/205 |        |
|---------------------------------------------|------------------|-------------|------------------|------------|-------|------------------|---------------------|-------------------------|--------|
|                                             |                  |             |                  | Height     | Polar |                  |                     | Limit                   | Margin |
| (MHz)                                       | (dBμV)           | (PK/QP/Ave) | Degree           | (m)        | (H/V) | (dB)             | (dBμV/m)            | (dBμV/m)                | (dB)   |
| 802.11ac(HT20) U-NII-1 High channel 5240MHz |                  |             |                  |            |       |                  |                     |                         |        |
| 223.45                                      | 39.24            | QP          | 346              | 1.5        | H     | -11.62           | 27.62               | 46.00                   | -18.38 |
| 223.45                                      | 34.80            | QP          | 134              | 1.4        | V     | -11.62           | 23.18               | 46.00                   | -22.82 |
| 4519.50                                     | 43.03            | PK          | 167              | 1.4        | H     | -1.81            | 41.22               | 74.00                   | -32.78 |
| 4519.50                                     | 43.01            | Ave         | 167              | 1.4        | H     | -1.81            | 41.20               | 54.00                   | -12.80 |
| 5122.32                                     | 47.31            | PK          | 303              | 1.3        | H     | -1.06            | 46.25               | 74.00                   | -27.75 |
| 5122.32                                     | 40.75            | Ave         | 303              | 1.3        | H     | -1.06            | 39.69               | 54.00                   | -14.31 |
| 10480.00                                    | 41.80            | PK          | 52               | 1.5        | H     | 5.14             | 46.94               | 74.00                   | -27.06 |
| 10480.00                                    | 35.40            | Ave         | 52               | 1.5        | H     | 5.14             | 40.54               | 54.00                   | -13.46 |
| 802.11ac(HT20) U-NII-3 Low Channel 5745MHz  |                  |             |                  |            |       |                  |                     |                         |        |
| 223.45                                      | 38.92            | QP          | 49               | 1.3        | H     | -11.62           | 27.30               | 46.00                   | -18.70 |
| 223.45                                      | 34.49            | QP          | 221              | 1.2        | V     | -11.62           | 22.87               | 46.00                   | -23.13 |
| 4503.04                                     | 41.31            | PK          | 106              | 2.0        | H     | -1.92            | 39.39               | 74.00                   | -34.61 |
| 4503.04                                     | 41.82            | Ave         | 106              | 2.0        | H     | -1.92            | 39.90               | 54.00                   | -14.10 |
| 11490.00                                    | 40.05            | PK          | 252              | 1.9        | H     | 5.93             | 45.98               | 74.00                   | -28.02 |
| 11490.00                                    | 33.97            | Ave         | 252              | 1.9        | H     | 5.93             | 39.90               | 54.00                   | -14.10 |
| 5384.27                                     | 46.11            | PK          | 267              | 2.0        | H     | -1.03            | 45.08               | 74.00                   | -28.92 |
| 5384.27                                     | 38.78            | Ave         | 267              | 2.0        | H     | -1.03            | 37.75               | 54.00                   | -16.25 |

| Frequency                                     | Receiver Reading | Detector    | Turn table Angle | RX Antenna |       | Corrected Factor | Corrected Amplitude | FCC Part 15.407/209/205 |        |
|-----------------------------------------------|------------------|-------------|------------------|------------|-------|------------------|---------------------|-------------------------|--------|
|                                               |                  |             |                  | Height     | Polar |                  |                     | Limit                   | Margin |
| (MHz)                                         | (dBμV)           | (PK/QP/Ave) | Degree           | (m)        | (H/V) | (dB)             | (dBμV/m)            | (dBμV/m)                | (dB)   |
| 802.11ac(HT20) U-NII-3 Middle channel 5785MHz |                  |             |                  |            |       |                  |                     |                         |        |
| 223.45                                        | 39.73            | QP          | 326              | 1.5        | H     | -11.62           | 28.11               | 46.00                   | -17.89 |
| 223.45                                        | 34.07            | QP          | 60               | 1.5        | V     | -11.62           | 22.45               | 46.00                   | -23.55 |
| 4525.33                                       | 41.40            | PK          | 25               | 1.5        | H     | -1.97            | 39.43               | 74.00                   | -34.57 |
| 4525.33                                       | 42.19            | Ave         | 25               | 1.5        | H     | -1.97            | 40.22               | 54.00                   | -13.78 |
| 11570.00                                      | 41.71            | PK          | 322              | 1.0        | H     | 5.81             | 47.52               | 74.00                   | -26.48 |
| 11570.00                                      | 36.95            | Ave         | 322              | 1.0        | H     | 5.81             | 42.76               | 54.00                   | -11.24 |
| 5357.26                                       | 46.04            | PK          | 211              | 1.2        | H     | -1.05            | 44.99               | 74.00                   | -29.01 |
| 5357.26                                       | 38.79            | Ave         | 211              | 1.2        | H     | -1.05            | 37.74               | 54.00                   | -16.26 |
| 802.11ac(HT20) U-NII-3 High channel 5825MHz   |                  |             |                  |            |       |                  |                     |                         |        |
| 223.45                                        | 40.27            | QP          | 300              | 1.3        | H     | -11.62           | 28.65               | 46.00                   | -17.35 |
| 223.45                                        | 33.48            | QP          | 239              | 1.1        | V     | -11.62           | 21.86               | 46.00                   | -24.14 |
| 4535.36                                       | 41.97            | PK          | 149              | 1.2        | H     | -1.88            | 40.09               | 74.00                   | -33.91 |
| 4535.36                                       | 41.84            | Ave         | 149              | 1.2        | H     | -1.88            | 39.96               | 54.00                   | -14.04 |
| 11650.00                                      | 41.30            | PK          | 332              | 1.8        | H     | 5.84             | 47.14               | 74.00                   | -26.86 |
| 11650.00                                      | 35.69            | Ave         | 332              | 1.8        | H     | 5.84             | 41.53               | 54.00                   | -12.47 |
| 5360.82                                       | 46.78            | PK          | 261              | 1.0        | H     | -1.06            | 45.72               | 74.00                   | -28.28 |
| 5360.82                                       | 39.90            | Ave         | 261              | 1.0        | H     | -1.06            | 38.84               | 54.00                   | -15.16 |

| Frequency                                   | Receiver Reading | Detector    | Turn table Angle | RX Antenna |       | Corrected Factor | Corrected Amplitude | FCC Part 15.407/209/205 |        |
|---------------------------------------------|------------------|-------------|------------------|------------|-------|------------------|---------------------|-------------------------|--------|
|                                             |                  |             |                  | Height     | Polar |                  |                     | Limit                   | Margin |
| (MHz)                                       | (dBμV)           | (PK/QP/Ave) | Degree           | (m)        | (H/V) | (dB)             | (dBμV/m)            | (dBμV/m)                | (dB)   |
| 802.11ac(HT40) U-NII-1 Low Channel 5190MHz  |                  |             |                  |            |       |                  |                     |                         |        |
| 223.45                                      | 42.47            | QP          | 145              | 1.7        | H     | -11.62           | 30.85               | 74.00                   | -43.15 |
| 223.45                                      | 34.72            | QP          | 22               | 1.7        | V     | -11.62           | 23.10               | 74.00                   | -50.90 |
| 4500.14                                     | 35.59            | PK          | 141              | 1.2        | H     | -1.91            | 33.68               | 74.00                   | -40.32 |
| 4500.14                                     | 30.29            | Ave         | 141              | 1.2        | H     | -1.91            | 28.38               | 54.00                   | -25.62 |
| 5126.98                                     | 46.05            | PK          | 108              | 1.5        | H     | -1.06            | 44.99               | 74.00                   | -29.01 |
| 5126.98                                     | 41.09            | Ave         | 108              | 1.5        | H     | -1.06            | 40.03               | 54.00                   | -13.97 |
| 10380.00                                    | 39.59            | PK          | 151              | 1.9        | H     | 5.26             | 44.85               | 74.00                   | -29.15 |
| 10380.00                                    | 34.79            | Ave         | 151              | 1.9        | H     | 5.26             | 40.05               | 54.00                   | -13.95 |
| 802.11ac(HT40) U-NII-1 High channel 5230MHz |                  |             |                  |            |       |                  |                     |                         |        |
| 223.45                                      | 42.93            | QP          | 199              | 1.7        | H     | -11.62           | 31.31               | 74.00                   | -42.69 |
| 223.45                                      | 34.22            | QP          | 185              | 1.5        | V     | -11.62           | 22.60               | 74.00                   | -51.40 |
| 4503.44                                     | 36.59            | PK          | 293              | 1.4        | H     | -1.93            | 34.66               | 74.00                   | -39.34 |
| 4503.44                                     | 31.09            | Ave         | 293              | 1.4        | H     | -1.93            | 29.16               | 54.00                   | -24.84 |
| 5146.22                                     | 46.91            | PK          | 119              | 1.4        | H     | -1.06            | 45.85               | 74.00                   | -28.15 |
| 5146.22                                     | 42.33            | Ave         | 119              | 1.4        | H     | -1.06            | 41.27               | 54.00                   | -12.73 |
| 10460.00                                    | 40.89            | PK          | 87               | 2.0        | H     | 5.28             | 46.17               | 74.00                   | -27.83 |
| 10480.00                                    | 36.20            | Ave         | 87               | 2.0        | H     | 5.28             | 41.48               | 54.00                   | -12.52 |

| Frequency                                   | Receiver Reading | Detector    | Turn table Angle | RX Antenna |       | Corrected Factor | Corrected Amplitude | FCC Part 15.407/209/205 |        |
|---------------------------------------------|------------------|-------------|------------------|------------|-------|------------------|---------------------|-------------------------|--------|
|                                             |                  |             |                  | Height     | Polar |                  |                     | Limit                   | Margin |
| (MHz)                                       | (dBμV)           | (PK/QP/Ave) | Degree           | (m)        | (H/V) | (dB)             | (dBμV/m)            | (dBμV/m)                | (dB)   |
| 802.11ac(HT40) U-NII-3 Low Channel 5755MHz  |                  |             |                  |            |       |                  |                     |                         |        |
| 223.45                                      | 42.52            | QP          | 159              | 1.9        | H     | -11.62           | 30.90               | 74.00                   | -43.10 |
| 223.45                                      | 35.33            | QP          | 292              | 1.9        | V     | -11.62           | 23.71               | 74.00                   | -50.29 |
| 4536.79                                     | 35.47            | PK          | 244              | 1.4        | H     | -1.92            | 33.55               | 74.00                   | -40.45 |
| 4536.79                                     | 29.88            | Ave         | 244              | 1.4        | H     | -1.92            | 27.96               | 54.00                   | -26.04 |
| 11510.00                                    | 40.00            | PK          | 208              | 2.0        | H     | 5.88             | 45.88               | 74.00                   | -28.12 |
| 11510.00                                    | 33.47            | Ave         | 208              | 2.0        | H     | 5.88             | 39.35               | 54.00                   | -14.65 |
| 5360.66                                     | 45.48            | PK          | 317              | 1.4        | H     | -1.07            | 44.41               | 74.00                   | -29.59 |
| 5360.66                                     | 38.82            | Ave         | 317              | 1.4        | H     | -1.07            | 37.75               | 54.00                   | -16.25 |
| 802.11ac(HT40) U-NII-3 High channel 5795MHz |                  |             |                  |            |       |                  |                     |                         |        |
| 223.45                                      | 42.13            | QP          | 24               | 1.6        | H     | -11.62           | 30.51               | 74.00                   | -43.49 |
| 223.45                                      | 34.98            | QP          | 110              | 1.6        | V     | -11.62           | 23.36               | 74.00                   | -50.64 |
| 4524.10                                     | 34.49            | PK          | 256              | 1.1        | H     | -1.86            | 32.63               | 74.00                   | -41.37 |
| 4524.10                                     | 29.45            | Ave         | 256              | 1.1        | H     | -1.86            | 27.59               | 54.00                   | -26.41 |
| 11590.00                                    | 42.63            | PK          | 347              | 1.1        | H     | 5.63             | 48.26               | 74.00                   | -25.74 |
| 11590.00                                    | 36.04            | Ave         | 347              | 1.1        | H     | 5.63             | 41.67               | 54.00                   | -12.33 |
| 5386.14                                     | 45.10            | PK          | 180              | 1.6        | H     | -1.03            | 44.07               | 74.00                   | -29.93 |
| 5386.14                                     | 39.76            | Ave         | 180              | 1.6        | H     | -1.03            | 38.73               | 54.00                   | -15.27 |

| Frequency                                  | Receiver Reading | Detector    | Turn table Angle | RX Antenna |       | Corrected Factor | Corrected Amplitude | FCC Part 15.407/209/205 |        |
|--------------------------------------------|------------------|-------------|------------------|------------|-------|------------------|---------------------|-------------------------|--------|
|                                            |                  |             |                  | Height     | Polar |                  |                     | Limit                   | Margin |
| (MHz)                                      | (dBμV)           | (PK/QP/Ave) | Degree           | (m)        | (H/V) | (dB)             | (dBμV/m)            | (dBμV/m)                | (dB)   |
| 802.11ac(HT80) U-NII-1 Low Channel 5210MHz |                  |             |                  |            |       |                  |                     |                         |        |
| 223.45                                     | 35.80            | QP          | 14               | 1.1        | H     | -11.62           | 24.18               | 54.00                   | -29.82 |
| 223.45                                     | 33.98            | QP          | 200              | 1.2        | V     | -11.62           | 22.36               | 54.00                   | -31.64 |
| 4534.47                                    | 28.57            | PK          | 298              | 1.9        | H     | -1.88            | 26.69               | 74.00                   | -47.31 |
| 4534.47                                    | 42.75            | Ave         | 298              | 1.9        | H     | -1.88            | 40.87               | 54.00                   | -13.13 |
| 5110.53                                    | 37.86            | PK          | 332              | 1.9        | H     | -1.06            | 36.80               | 74.00                   | -37.20 |
| 5110.53                                    | 45.69            | Ave         | 332              | 1.9        | H     | -1.06            | 44.63               | 54.00                   | -9.37  |
| 10420.00                                   | 41.85            | PK          | 82               | 1.3        | H     | 4.65             | 46.50               | 74.00                   | -27.50 |
| 10420.00                                   | 35.78            | Ave         | 82               | 1.3        | H     | 4.65             | 40.43               | 54.00                   | -13.57 |
| 802.11ac(HT80) U-NII-3 Low Channel 5775MHz |                  |             |                  |            |       |                  |                     |                         |        |
| 223.45                                     | 34.12            | QP          | 355              | 1.2        | H     | -11.62           | 22.50               | 74.00                   | -51.50 |
| 223.45                                     | 29.23            | QP          | 84               | 1.4        | V     | -11.62           | 17.61               | 74.00                   | -56.39 |
| 4535.74                                    | 43.22            | PK          | 192              | 1.6        | H     | -1.85            | 41.37               | 74.00                   | -32.63 |
| 4535.74                                    | 42.71            | Ave         | 192              | 1.6        | H     | -1.85            | 40.86               | 54.00                   | -13.14 |
| 5364.28                                    | 42.71            | PK          | 149              | 1.8        | H     | 4.83             | 47.54               | 74.00                   | -26.46 |
| 5364.28                                    | 35.86            | Ave         | 149              | 1.8        | H     | 4.83             | 40.69               | 54.00                   | -13.31 |
| 11550.00                                   | 45.50            | PK          | 82               | 1.1        | H     | -1.14            | 44.36               | 74.00                   | -29.64 |
| 11550.00                                   | 37.31            | Ave         | 82               | 1.1        | H     | -1.14            | 36.17               | 54.00                   | -17.83 |

**Test Frequency: 18GHz~40GHz**

The measurements were more than 20 dB below the limit and not reported.

## 10 Duty cycle

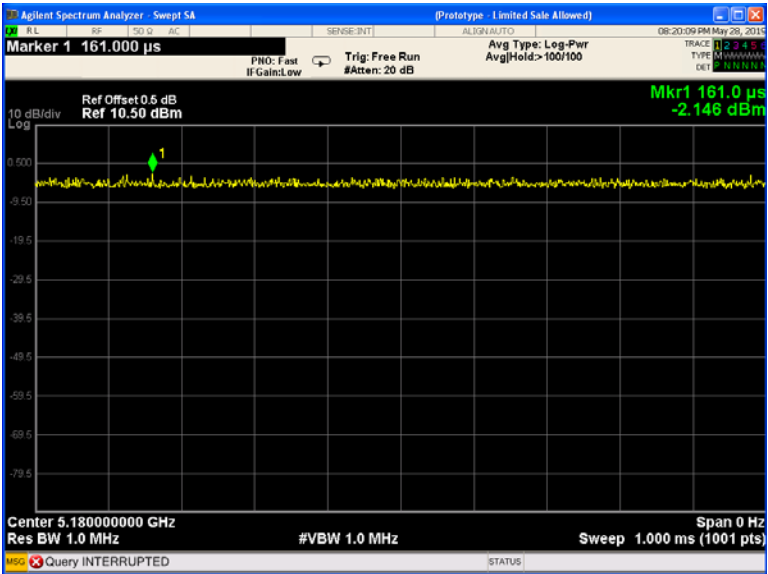
|                   |                                                                                                                         |
|-------------------|-------------------------------------------------------------------------------------------------------------------------|
| Test Requirement: | 47 CFR Part 15C 15.407<br>KDB789033 D02 General U-NII Test Procedures New Rules v02r01,<br>Section (B)                  |
| Test Method:      | ANSI C63.10: 2013                                                                                                       |
| Test Limit:       | N/A                                                                                                                     |
| Test Result:      | PASS                                                                                                                    |
| Remark:           | Through Pre-scan, and found 802.11a at lowest channel is the worst case. Only the worst case is recorded in the report. |

### 10.1 Summary of Test Results

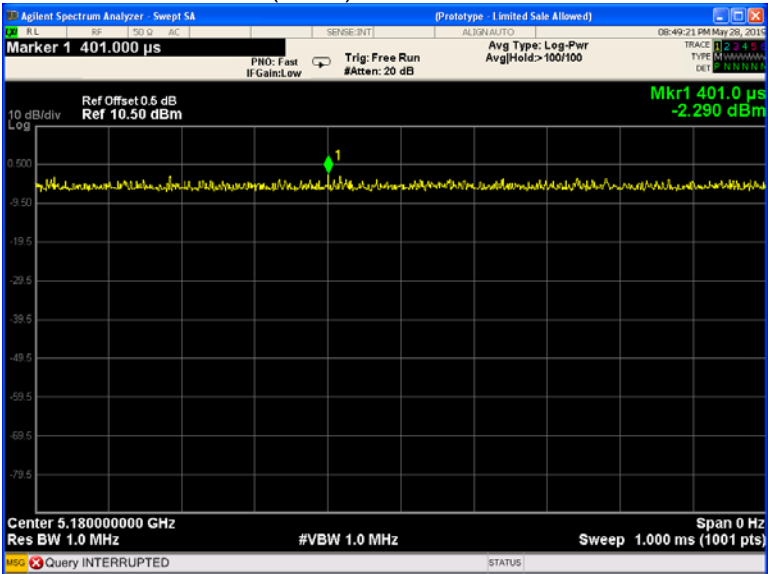
| 802.11a mode        |             |            |               |
|---------------------|-------------|------------|---------------|
| channel             | On time(ms) | Period(ms) | Duty Cycle(%) |
| 36                  | 100         | 100        | 100           |
| 149                 | 100         | 100        | 100           |
| 802.11n(HT20) mode  |             |            |               |
| channel             | On time(ms) | Period(ms) | Duty Cycle(%) |
| 36                  | 100         | 100        | 100           |
| 149                 | 100         | 100        | 100           |
| 802.11n(HT40) mode  |             |            |               |
| channel             | On time(ms) | Period(ms) | Duty Cycle(%) |
| 38                  | 100         | 100        | 100           |
| 151                 | 100         | 100        | 100           |
| 802.11ac(HT20) mode |             |            |               |
| channel             | On time(ms) | Period(ms) | Duty Cycle(%) |
| 36                  | 100         | 100        | 100           |
| 149                 | 100         | 100        | 100           |
| 802.11ac(HT40) mode |             |            |               |
| channel             | On time(ms) | Period(ms) | Duty Cycle(%) |
| 38                  | 100         | 100        | 100           |
| 151                 | 100         | 100        | 100           |
| 802.11ac(HT80) mode |             |            |               |
| channel             | On time(ms) | Period(ms) | Duty Cycle(%) |
| 42                  | 100         | 100        | 100           |
| 155                 | 100         | 100        | 100           |

Test result plots shown as follows:

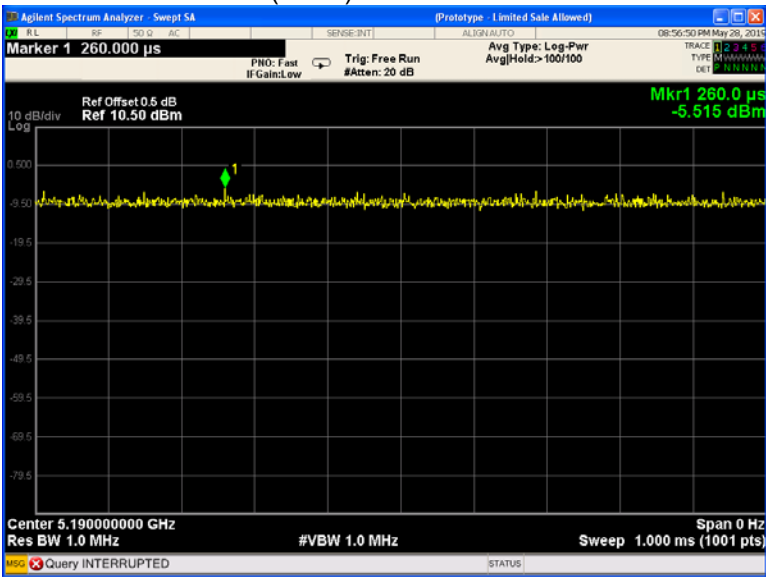
802.11a U-NII-1 Low channel



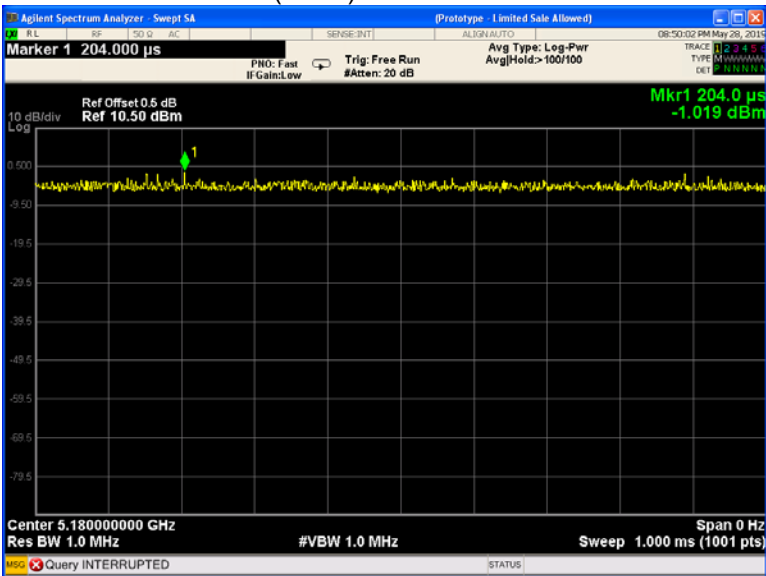
802.11n(HT20) U-NII-1 Low channel



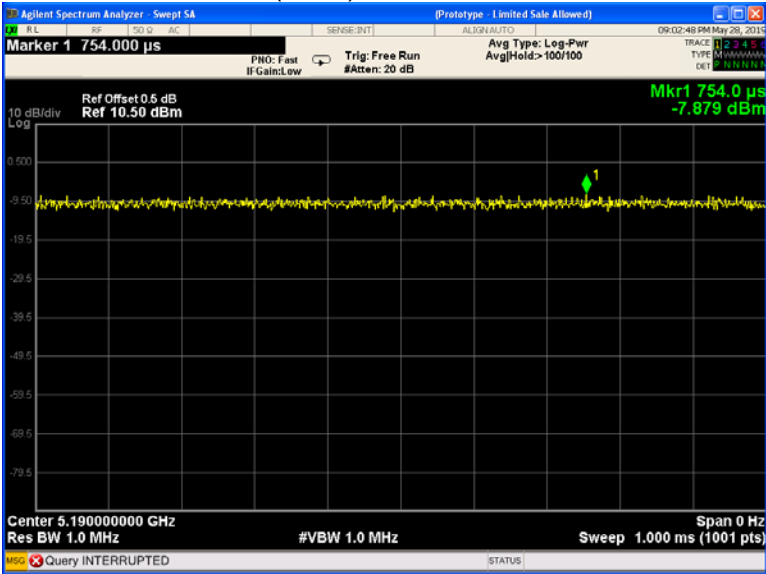
802.11n(HT40) U-NII-1 Low channel



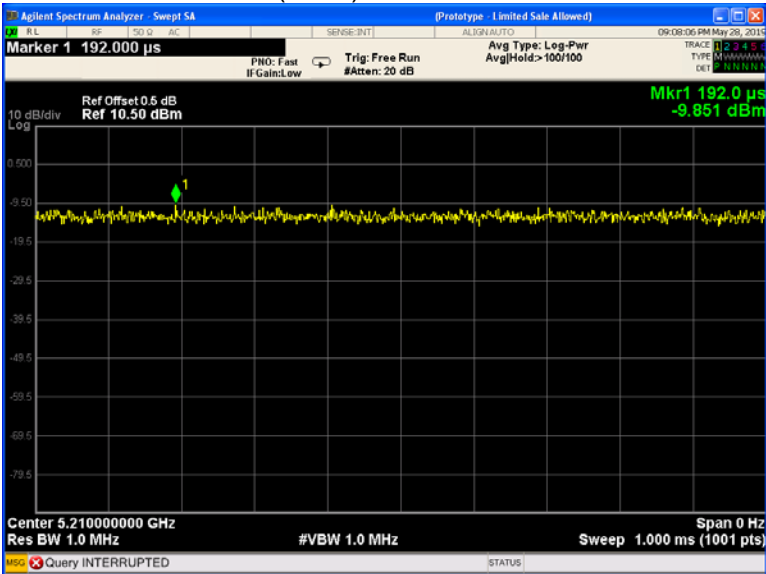
802.11ac(HT20) U-NII-1 Low channel



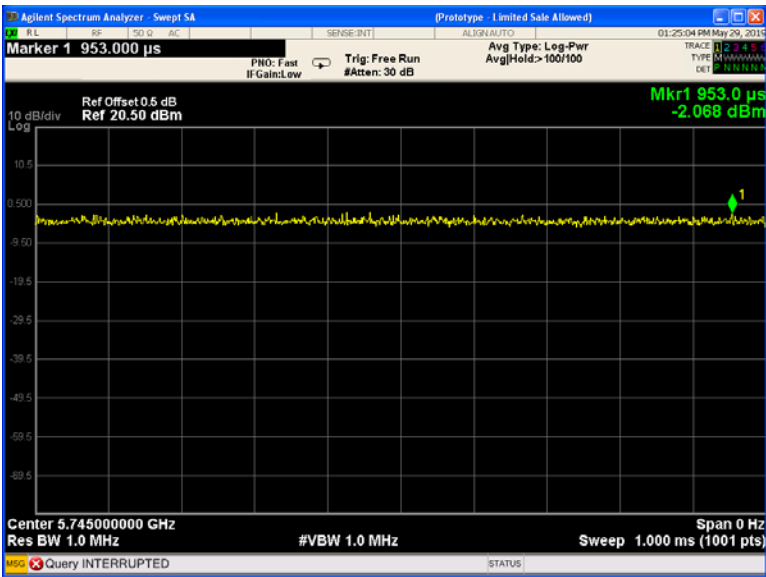
802.11ac(HT40) U-NII-1 Low channel



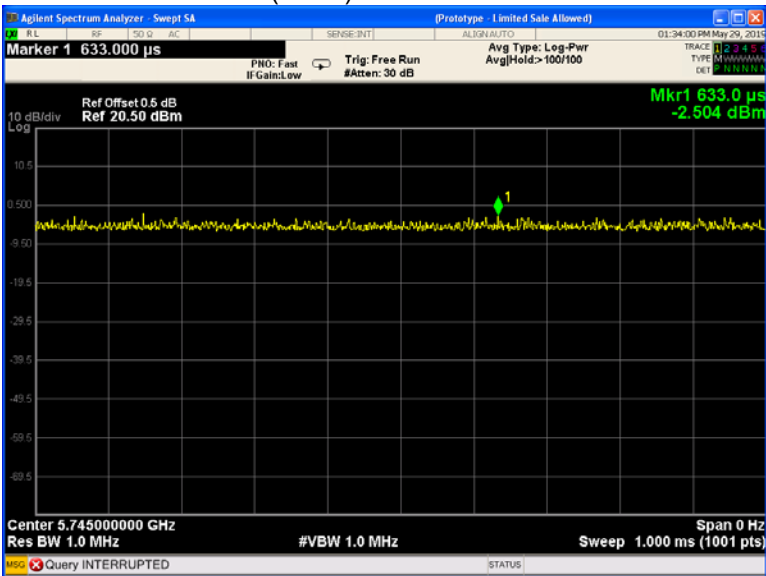
802.11ac(HT80) U-NII-1 Low channel



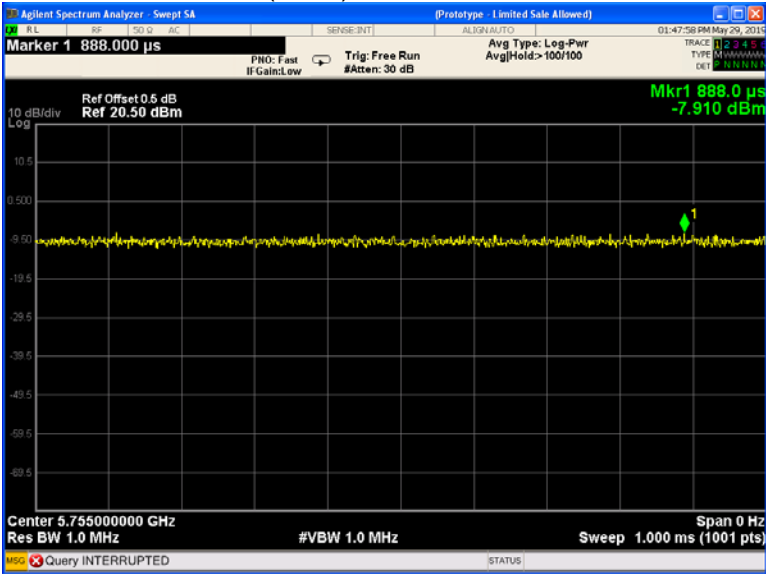
802.11a U-NII-3 Low channel



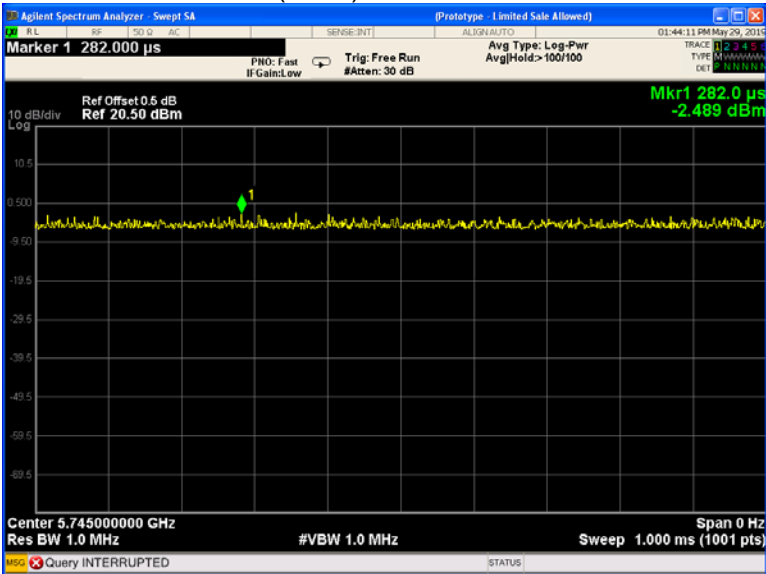
802.11n(HT20) U-NII-3 Low channel



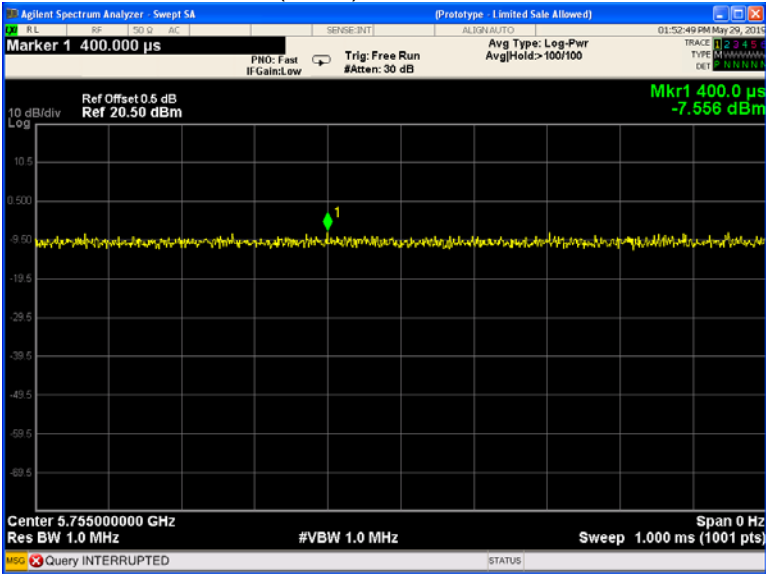
802.11n(HT40) U-NII-3 Low channel



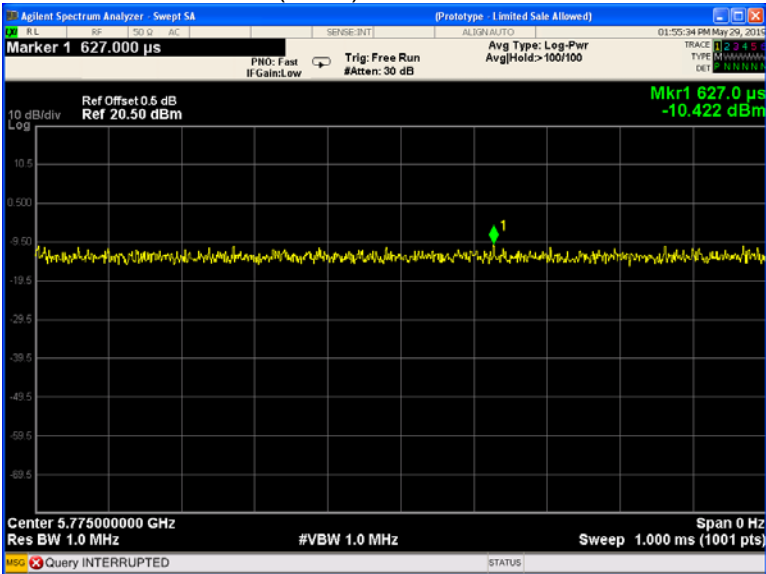
802.11ac(HT20) U-NII-3 Low channel



802.11ac(HT40) U-NII-3 Low channel



802.11ac(HT80) U-NII-3 Low channel



## 11 Band Edge

|                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
|-------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Test Requirement: | FCC CFR47 Part 15 Section 15.407                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| Test Method:      | ANSI C63.10 2013                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| Test Limit:       | (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 -27dBm/MHz.<br>(2) For transmitters operating in the 5.725-5.85 GHz band: All emissions within the frequency range from the band edge to 10 MHz above or below the band edge shall not exceed an e.i.r.p. of -17 dBm/MHz; for frequencies 10 MHz or greater above or below the band edge, emissions shall not exceed an e.i.r.p. of -27 dBm/MHz. |
| Test Result:      | PASS                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |

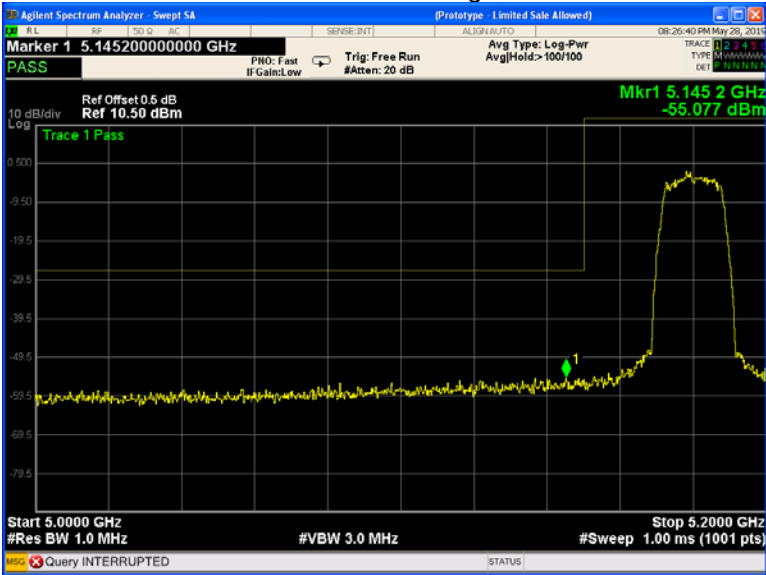
### 11.1 Test Produce

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 to 100 kHz and VBW of spectrum analyzer to 300 kHz with a convenient frequency span including 100 kHz bandwidth from band edge.
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.

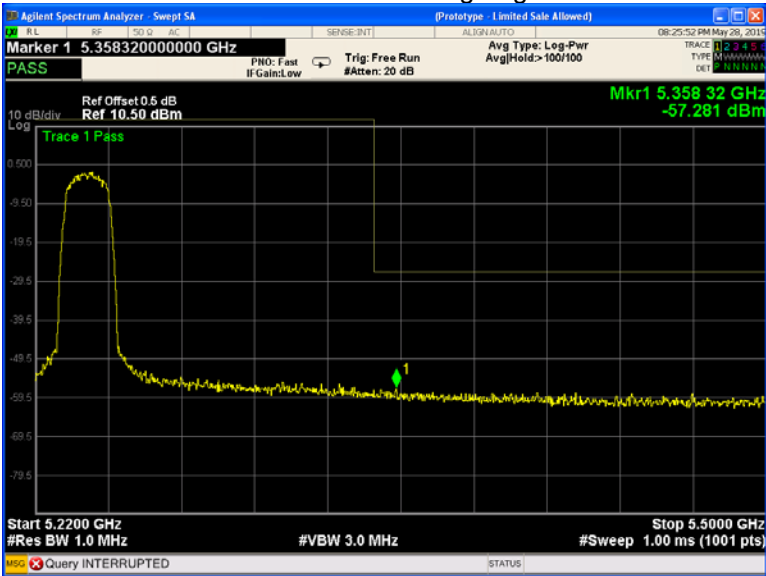
11.2 Test Result

Test result plots shown as follows:

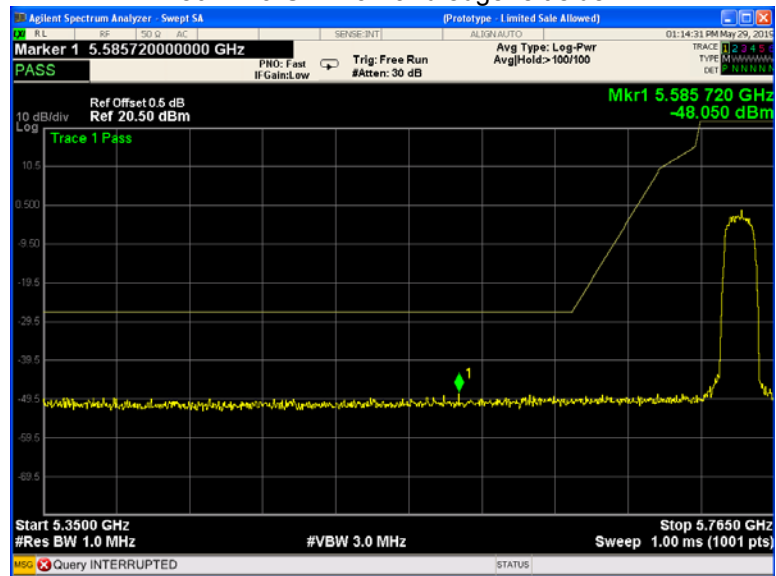
802.11a U-NII-1 Band edge-left side



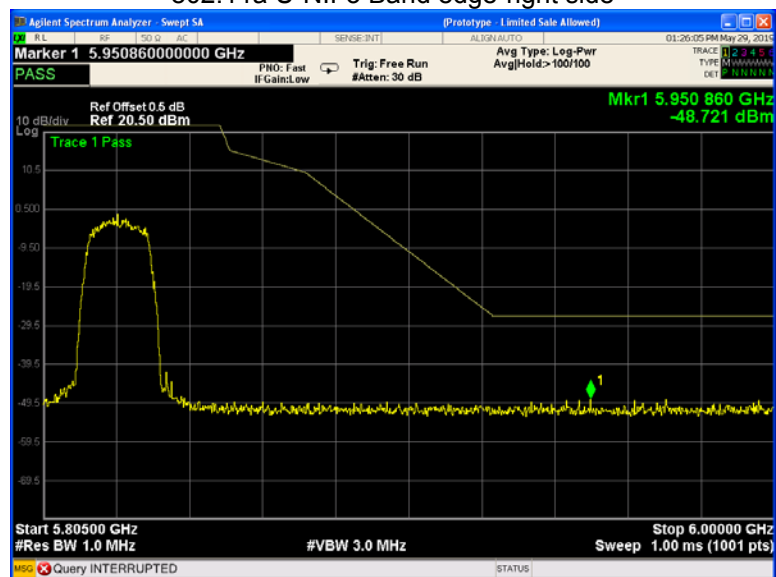
802.11a U-NII-1 Band edge-right side



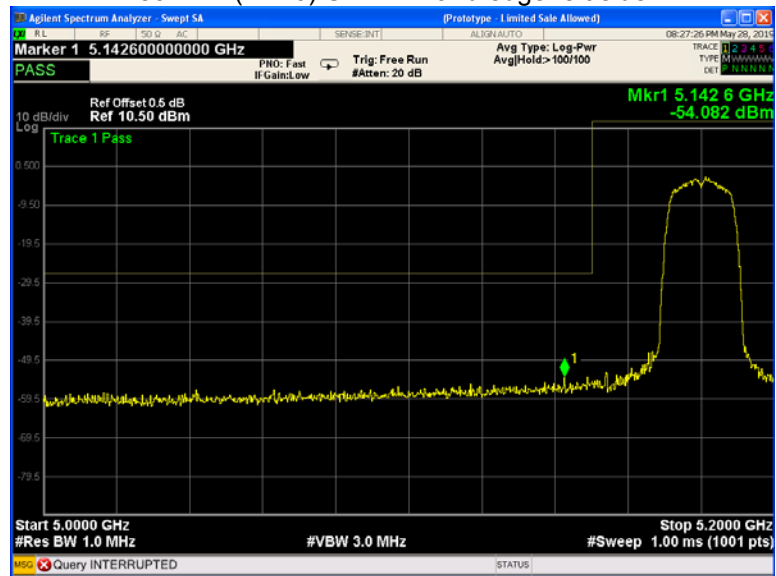
802.11a U-NII-3 Band edge-left side



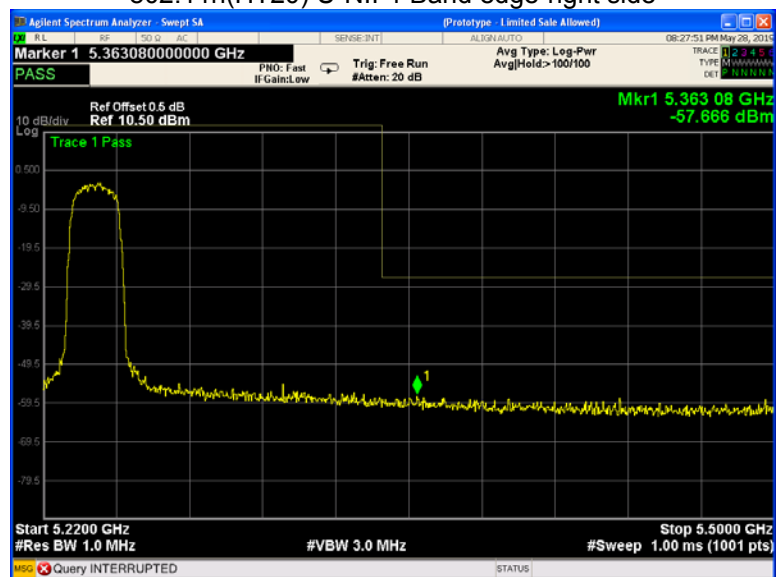
802.11a U-NII-3 Band edge-right side



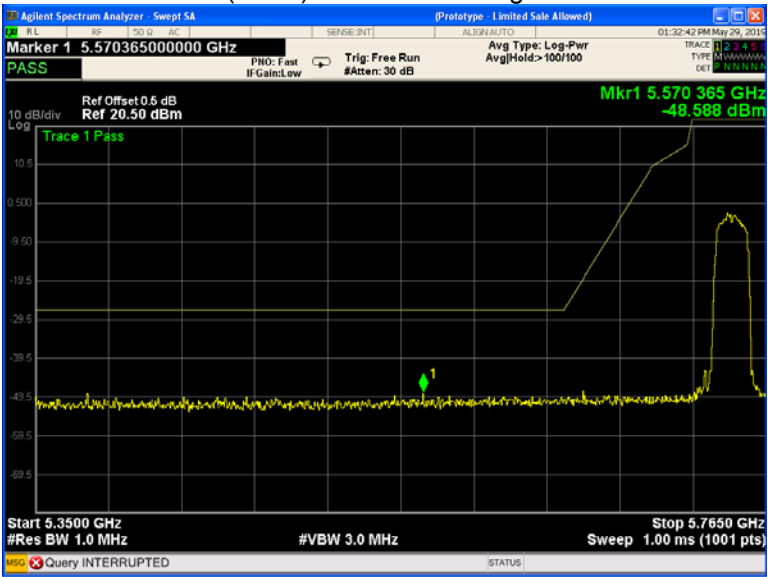
802.11n(HT20) U-NII-1 Band edge-left side



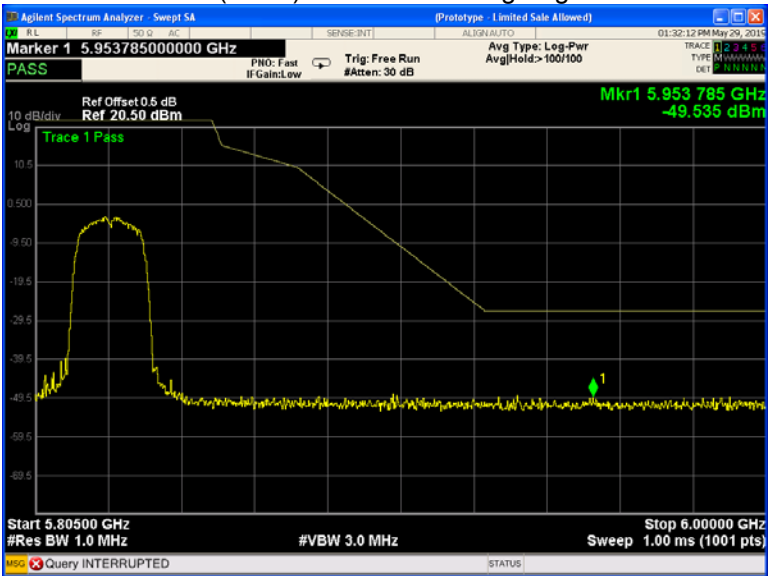
802.11n(HT20) U-NII-1 Band edge-right side



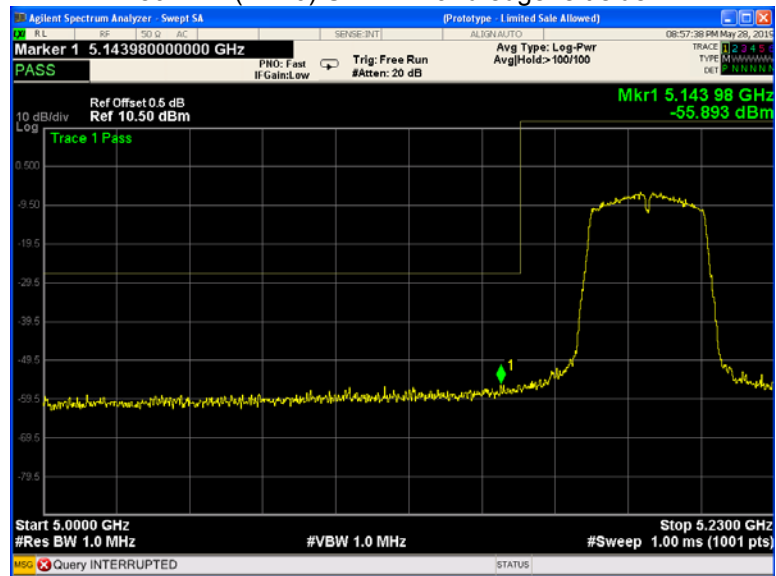
802.11n(HT20) U-NII-3 Band edge-left side



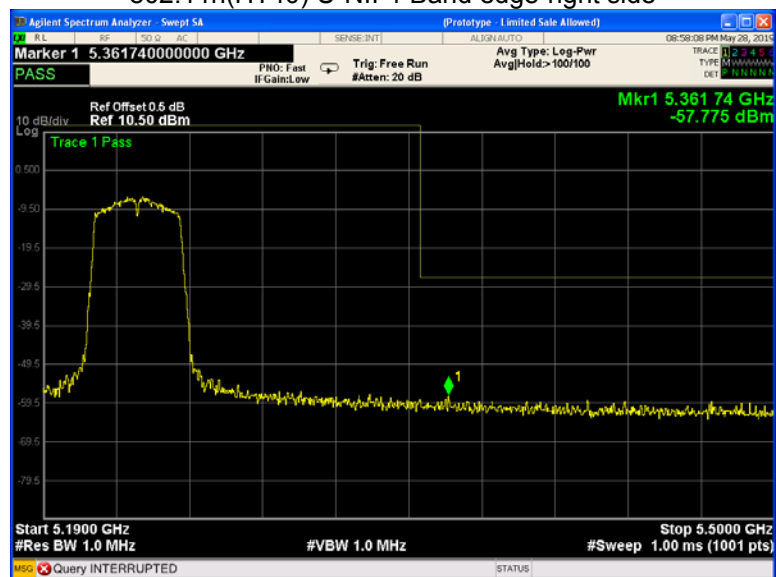
802.11n(HT20) U-NII-3 Band edge-right side



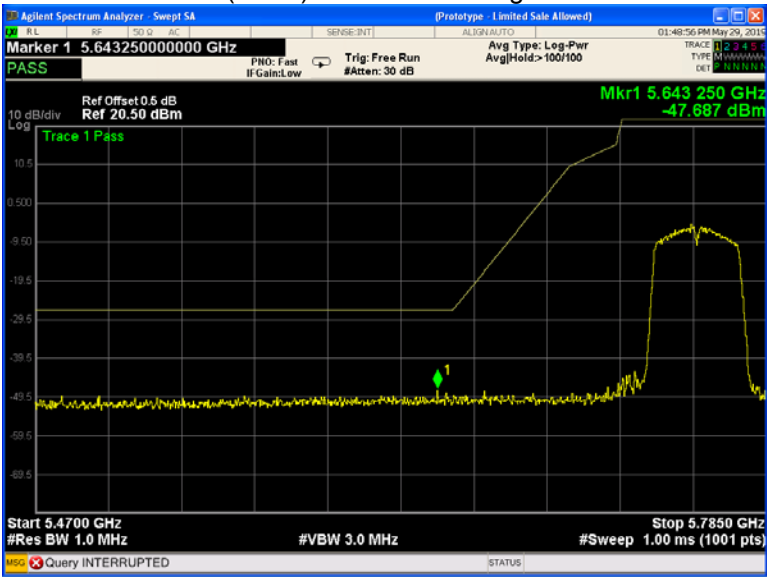
802.11n(HT40) U-NII-1 Band edge-left side



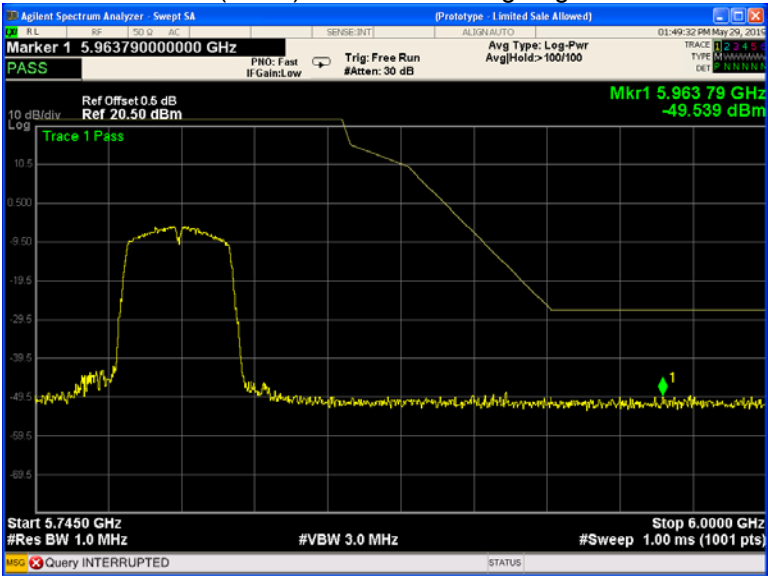
802.11n(HT40) U-NII-1 Band edge-right side



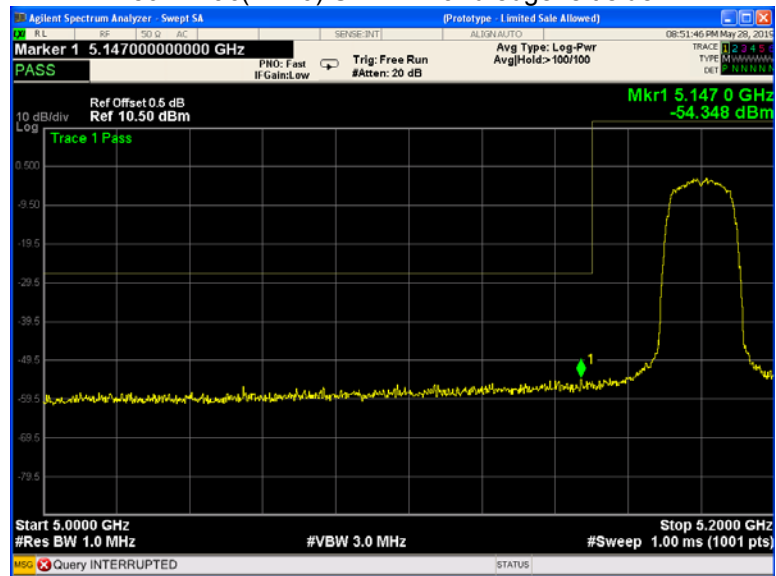
802.11n(HT40) U-NII-3 Band edge-left side



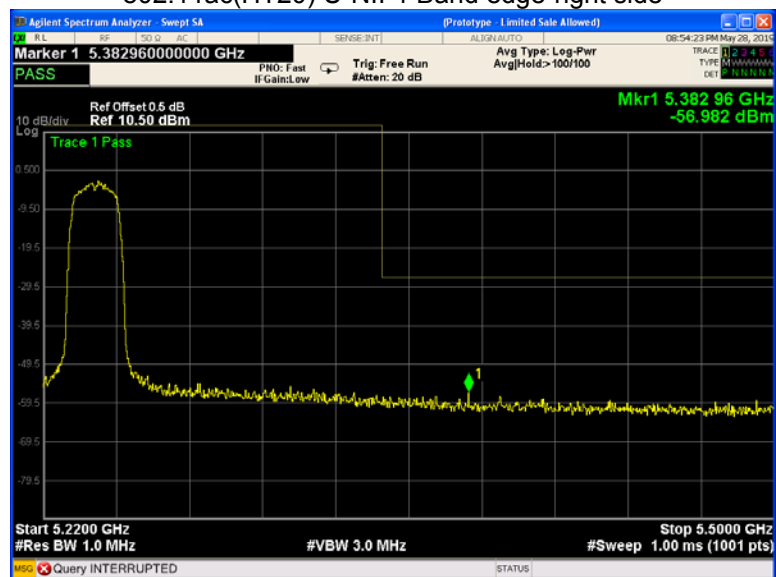
802.11n(HT40) U-NII-3 Band edge-right side



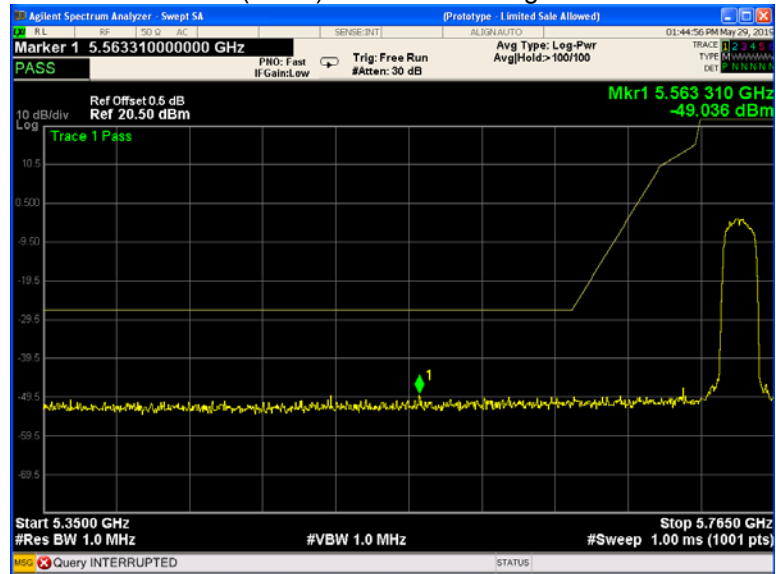
802.11ac(HT20) U-NII-1 Band edge-left side



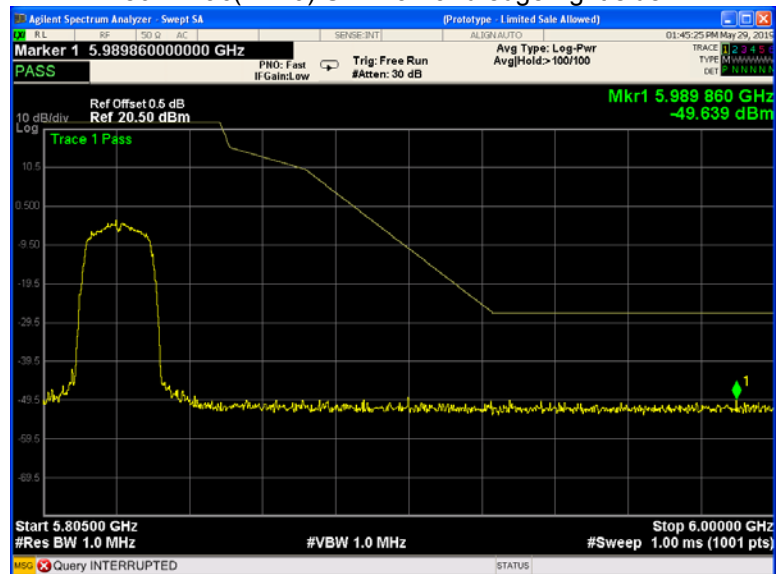
802.11ac(HT20) U-NII-1 Band edge-right side



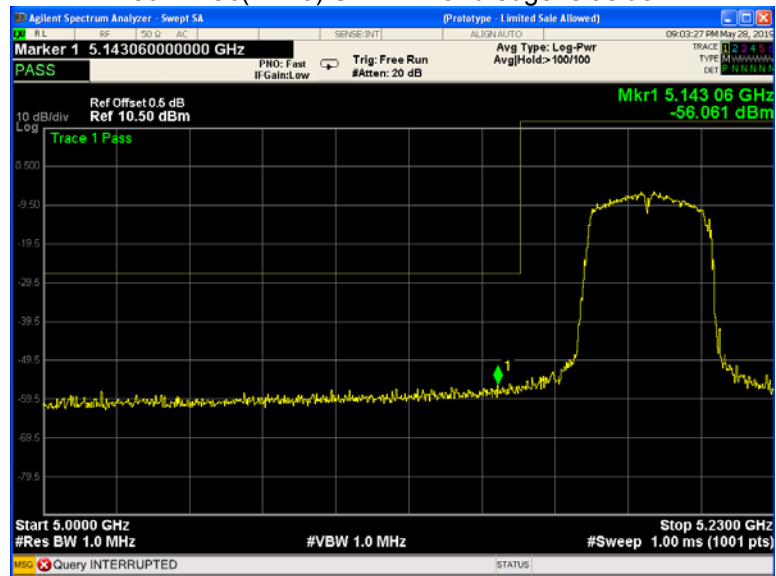
802.11ac(HT20) U-NII-3 Band edge-left side



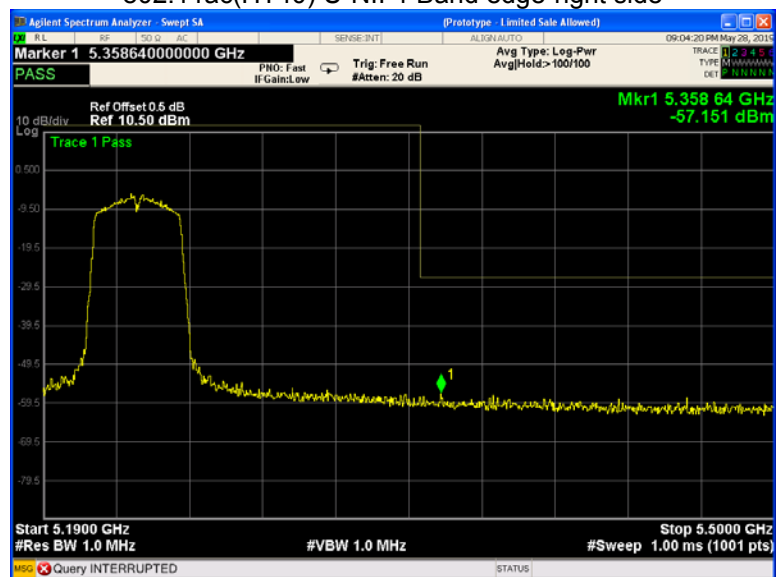
802.11ac(HT20) U-NII-3 Band edge-right side



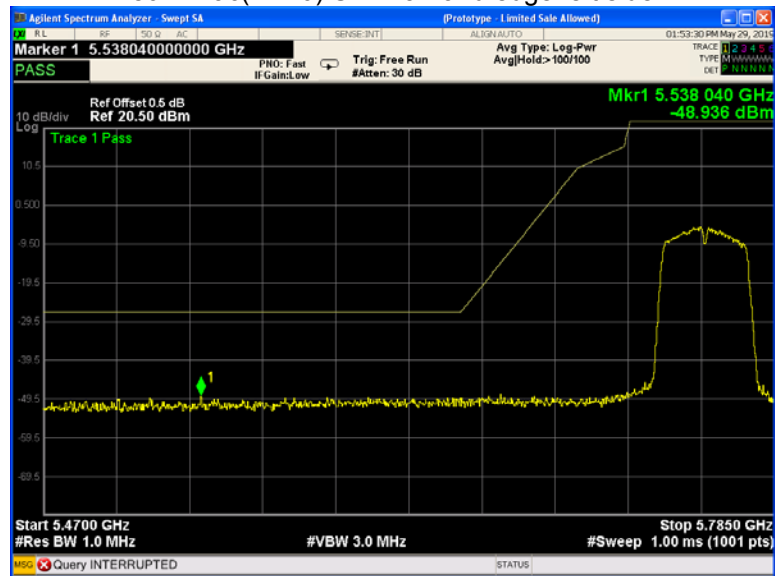
802.11ac(HT40) U-NII-1 Band edge-left side



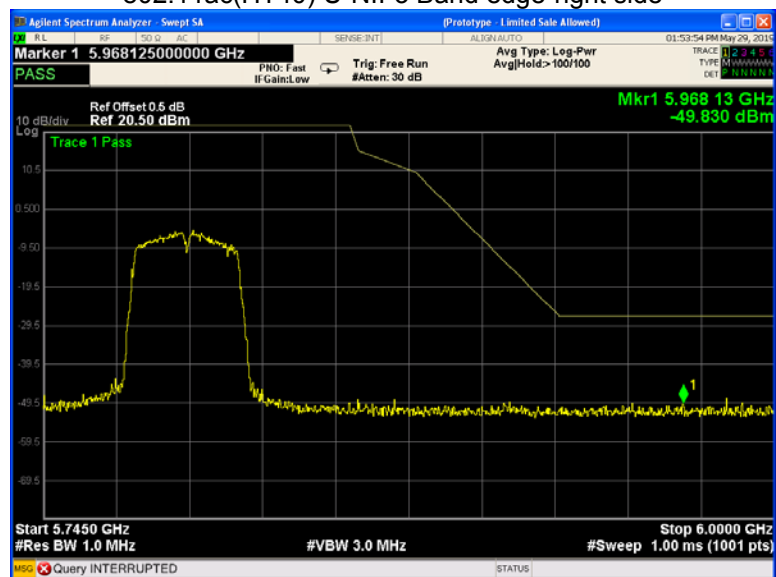
802.11ac(HT40) U-NII-1 Band edge-right side



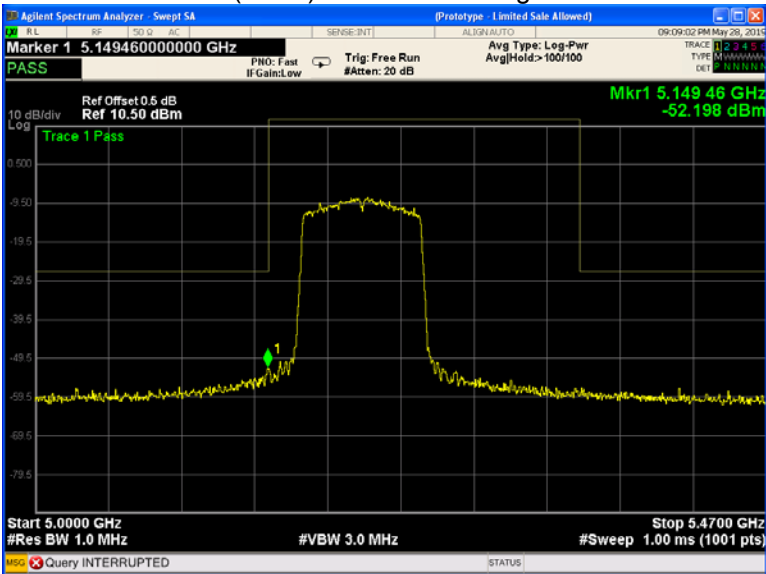
802.11ac(HT40) U-NII-3 Band edge-left side



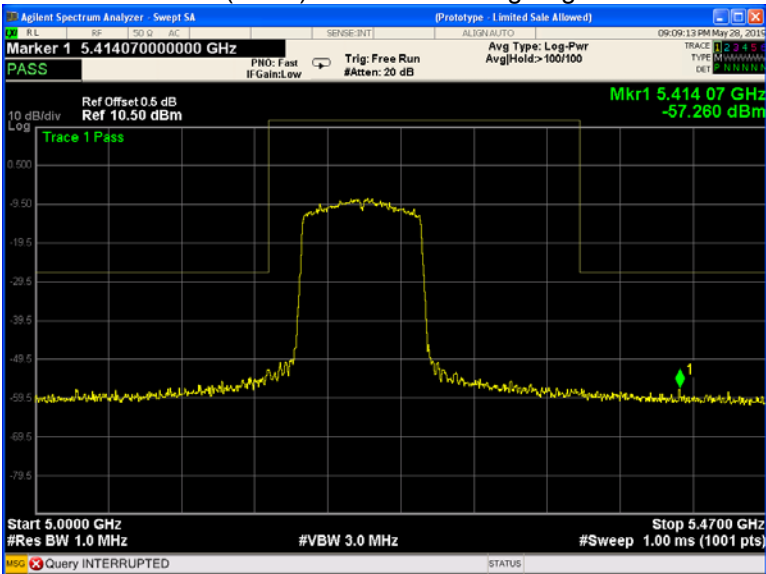
802.11ac(HT40) U-NII-3 Band edge-right side



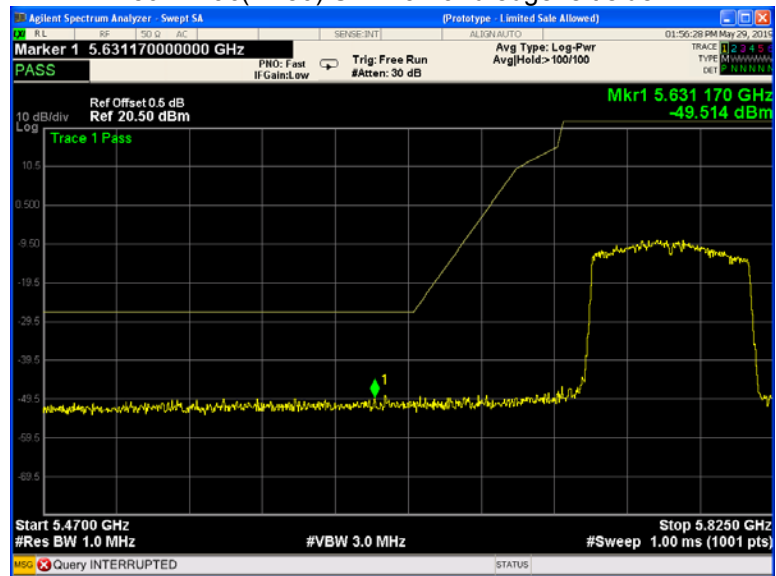
802.11ac(HT80) U-NII-1 Band edge-left side



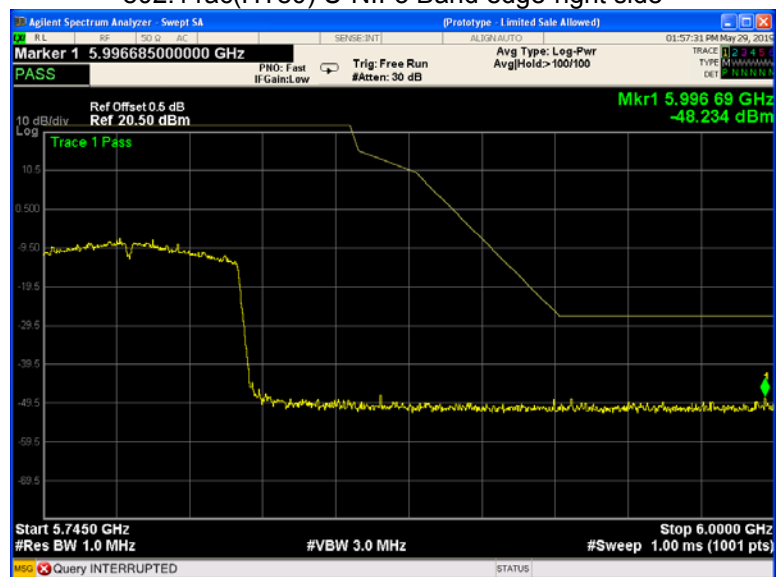
802.11ac(HT80) U-NII-1 Band edge-right side



802.11ac(HT80) U-NII-3 Band edge-left side



802.11ac(HT80) U-NII-3 Band edge-right side



## 12 6 dB Bandwidth

Test Requirement: FCC CFR47 Part 15 Section 15.407(e)  
 KDB662911 D01 Multiple Transmitter Output v02r01  
 Test Method: KDB789033 D02 General U-NII Test Procedures New Rules v02r01  
 Section C  
 Test Limit:  $\geq 500$  kHz  
 Test Result: PASS

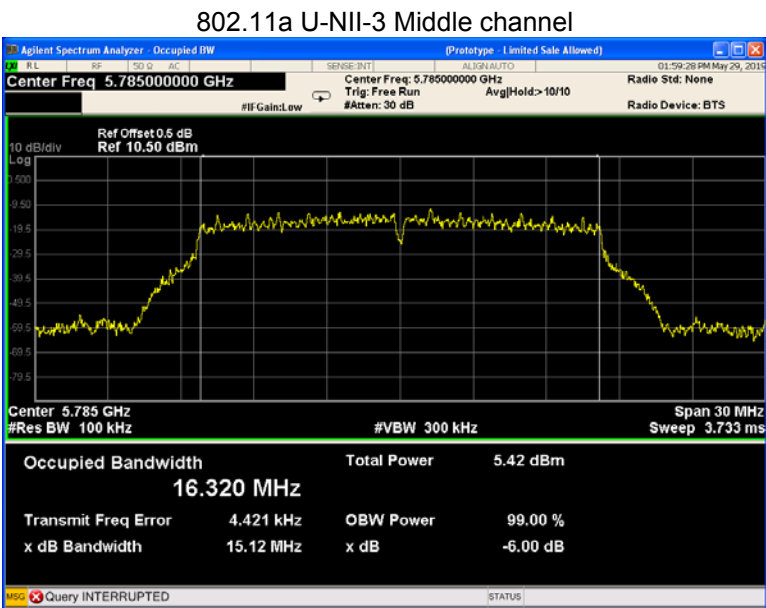
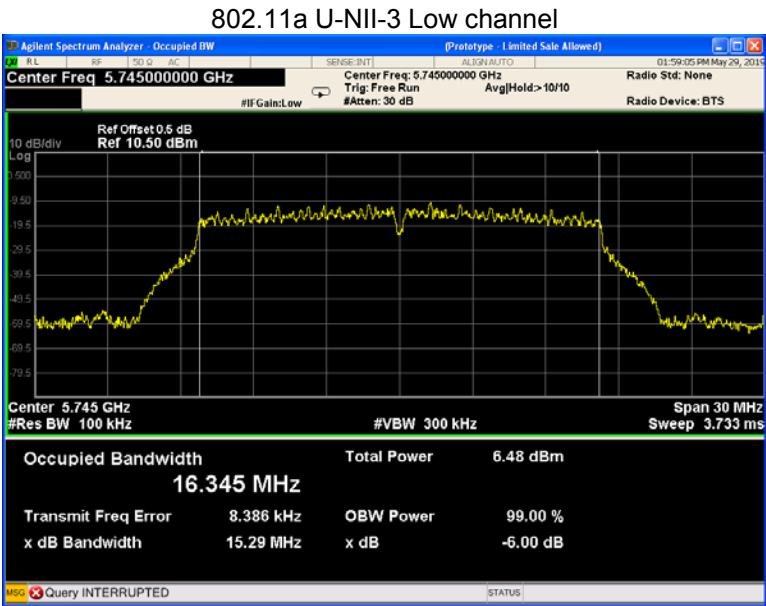
### 12.1 Test Procedure:

1. Remove the antenna from the EUT and then connect a low RF cable from the antenna port to the spectrum;
2. Set the spectrum analyzer: RBW = 100kHz, VBW = 300kHz

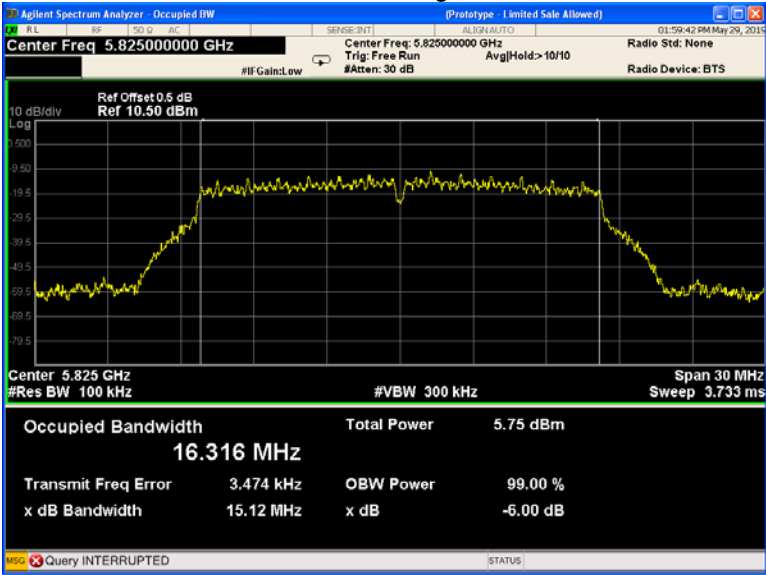
### 12.2 Test Result:

| Band    | Operation mode | 6 dB Bandwidth (MHz) |        |       |
|---------|----------------|----------------------|--------|-------|
|         |                | Low                  | Middle | High  |
| U-NII-3 | 802.11a        | 15.29                | 15.12  | 15.12 |
|         | 802.11n(HT20)  | 15.86                | 14.90  | 15.06 |
|         | 802.11n(HT40)  | 35.10                | /      | 35.10 |
|         | 802.11ac(HT20) | 17.14                | 15.06  | 15.26 |
|         | 802.11ac(HT40) | 33.89                | /      | 35.10 |
|         | 802.11ac(HT80) | 75.11                | /      | /     |

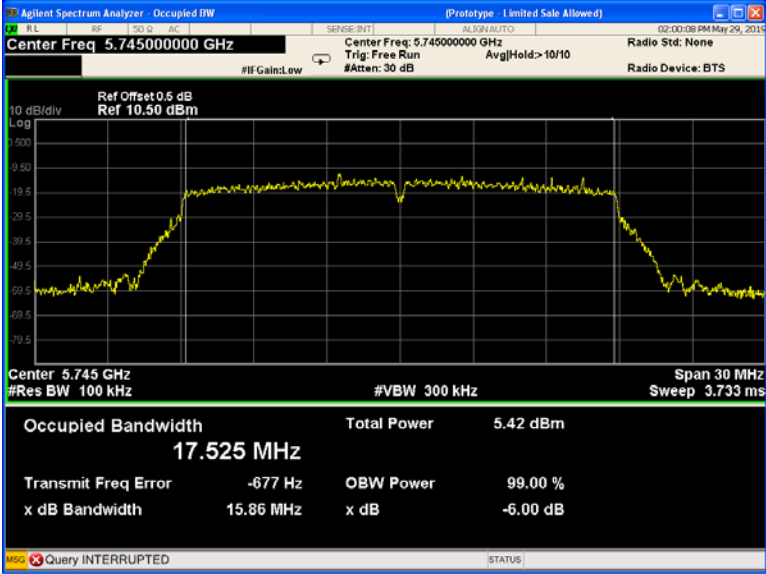
Test result plots shown as follows:



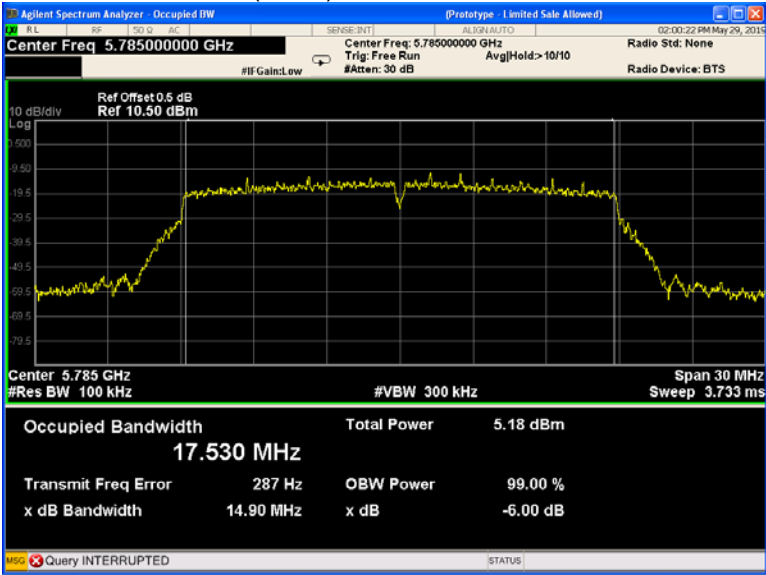
802.11a U-NII-3 High channel



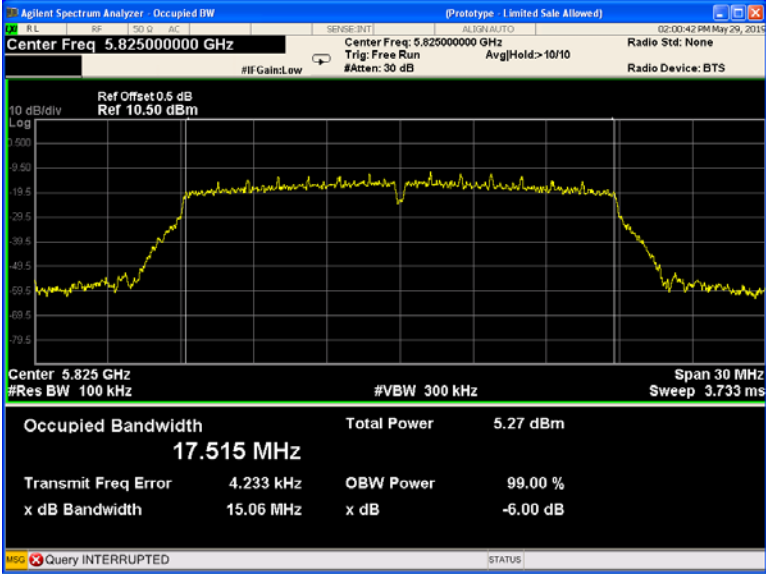
802.11n(HT20) U-NII-3 Low channel



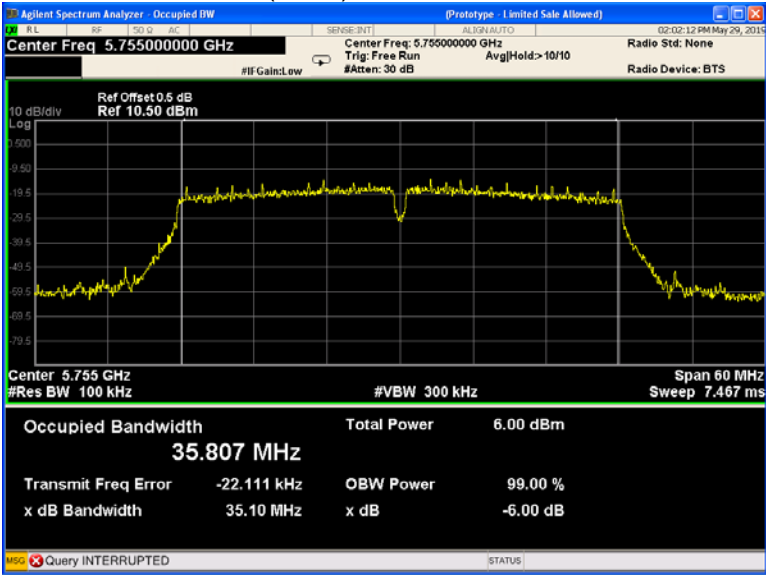
802.11n(HT20) U-NII-3 Middle channel



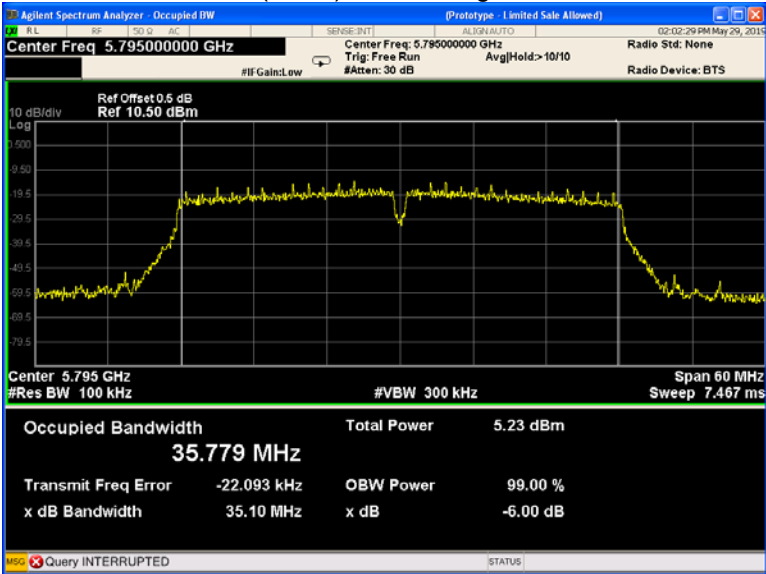
802.11n(HT20) U-NII-3 High channel



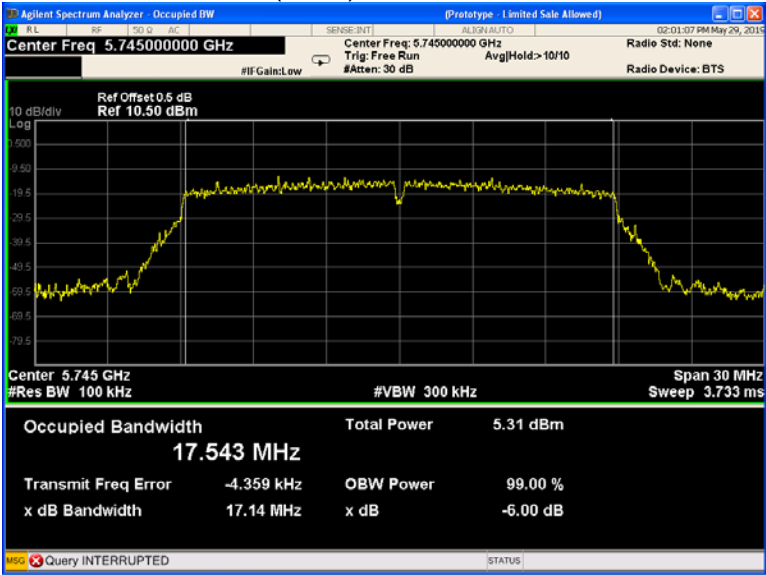
802.11n(HT40) U-NII-3 Low channel



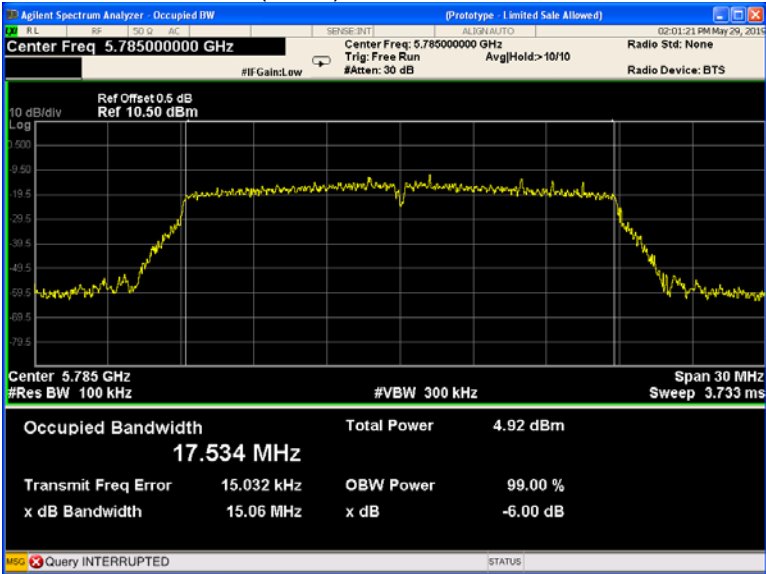
802.11n(HT40) U-NII-3 High channel



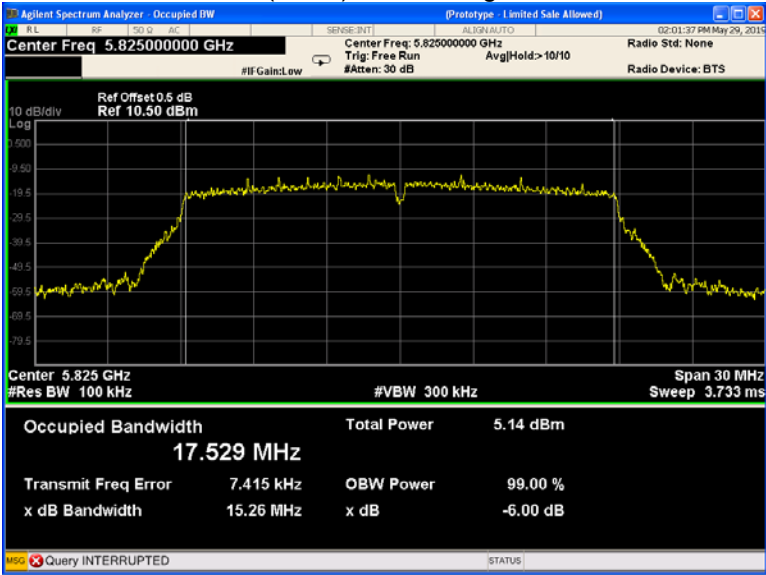
802.11ac(HT20) U-NII-3 Low channel



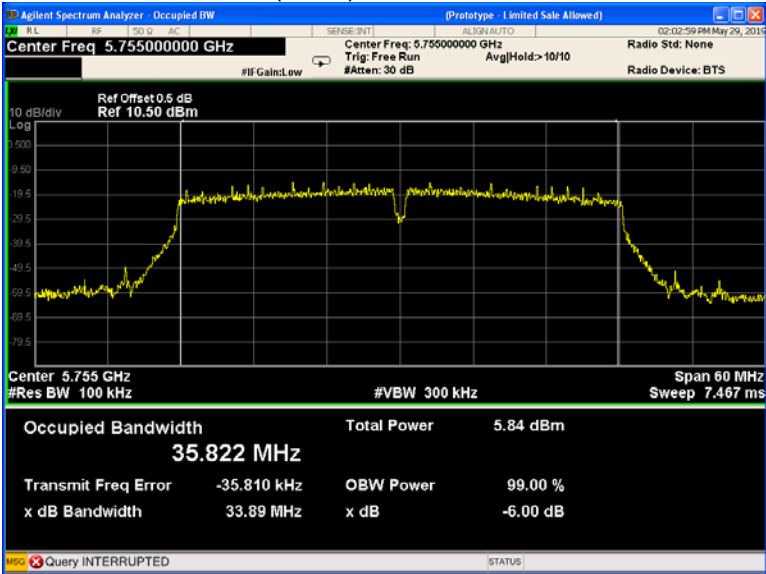
802.11ac(HT20) U-NII-3 Middle channel



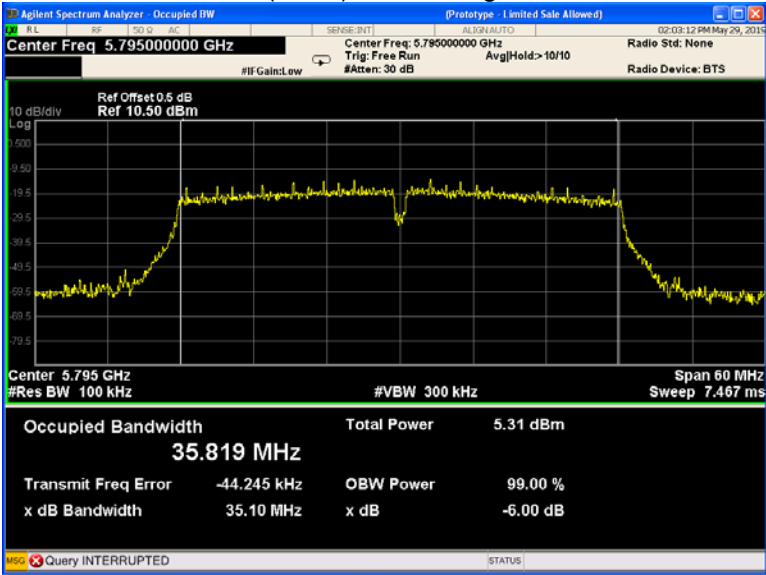
802.11ac(HT20) U-NII-3 High channel



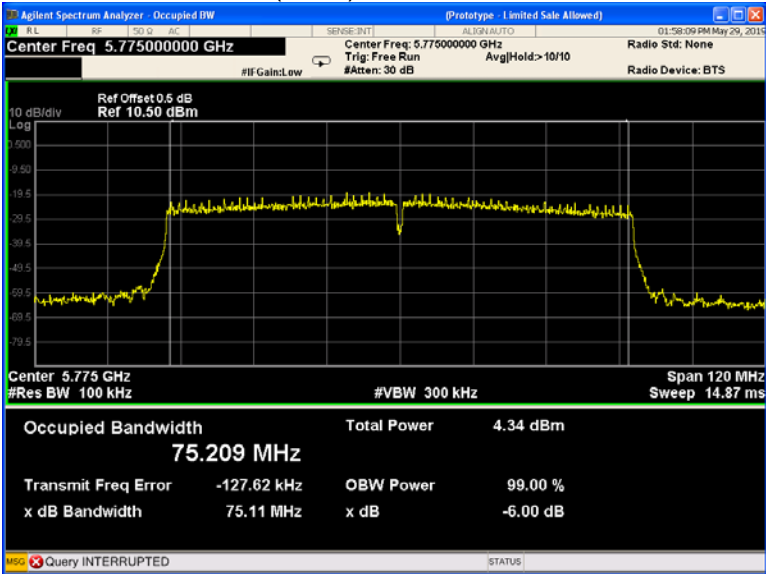
802.11ac(HT40) U-NII-3 Low channel



802.11ac(HT40) U-NII-3 High channel



802.11ac(HT80) U-NII-3 Low channel



### 13 26 dB Bandwidth and 99% Occupied Bandwidth

|                   |                                                                                        |
|-------------------|----------------------------------------------------------------------------------------|
| Test Requirement: | 47 CFR Part 15C Section 15.407 (a)<br>KDB662911 D01 Multiple Transmitter Output v02r01 |
| Test Method:      | KDB789033 D02 General U-NII Test Procedures New Rules v02r01<br>Section D              |
| Test Limit:       | No restriction limits                                                                  |
| Test Result:      | PASS                                                                                   |

#### 13.1 Test Procedure:

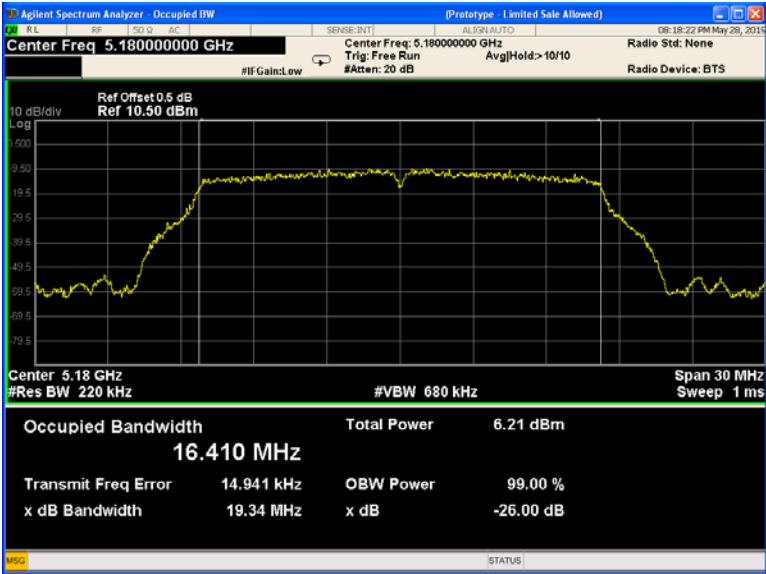
1. Remove the antenna from the EUT and then connect a low RF cable from the antenna port to the spectrum;
2. Set the spectrum analyzer: RBW = 1% to 5% of the OBW, VBW = 3x RBW

## 13.2 Test Result:

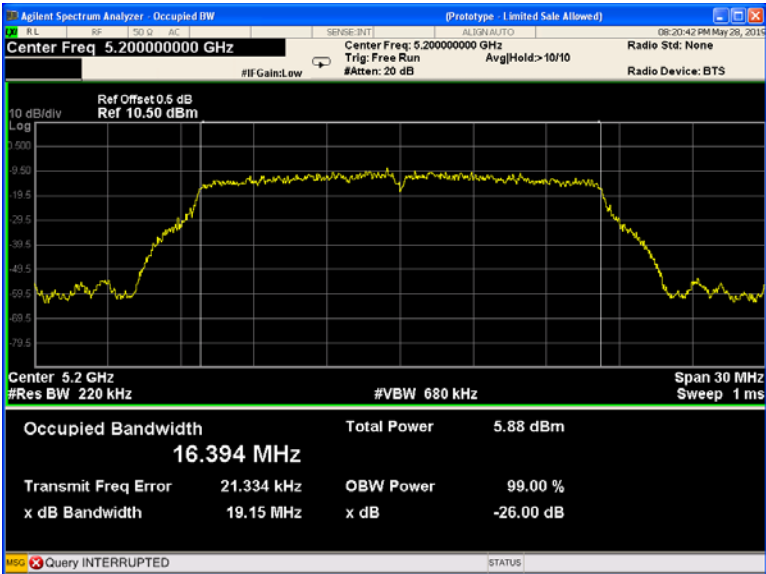
| Band    | Operation mode | 26 dB Bandwidth (MHz) |        |       | 99% Bandwidth (MHz) |        |        |
|---------|----------------|-----------------------|--------|-------|---------------------|--------|--------|
|         |                | Low                   | Middle | High  | Low                 | Middle | High   |
| U-NII-1 | 802.11a        | 19.34                 | 19.15  | 19.68 | 16.410              | 16.394 | 16.413 |
|         | 802.11n(HT20)  | 20.07                 | 20.00  | 20.15 | 17.541              | 17.525 | 17.534 |
|         | 802.11n(HT40)  | 40.40                 | /      | 40.07 | 35.948              | /      | 35.916 |
|         | 802.11ac(HT20) | 20.09                 | 20.05  | 20.21 | 17.565              | 17.571 | 17.555 |
|         | 802.11ac(HT40) | 40.01                 | /      | 39.95 | 35.948              | /      | 35.961 |
|         | 802.11ac(HT80) | 80.49                 | /      | /     | 75.135              | /      | /      |
| U-NII-3 | 802.11a        | 19.25                 | 19.60  | 19.62 | 16.390              | 16.377 | 16.388 |
|         | 802.11n(HT20)  | 20.16                 | 20.05  | 20.07 | 17.567              | 17.517 | 17.535 |
|         | 802.11n(HT40)  | 40.03                 | /      | 40.34 | 36.047              | /      | 35.966 |
|         | 802.11ac(HT20) | 20.18                 | 20.12  | 20.08 | 17.557              | 17.525 | 17.543 |
|         | 802.11ac(HT40) | 40.12                 | /      | 39.96 | 36.013              | /      | 35.962 |
|         | 802.11ac(HT80) | 79.89                 | /      | /     | 75.234              | /      | /      |

Test result plots shown as follows:

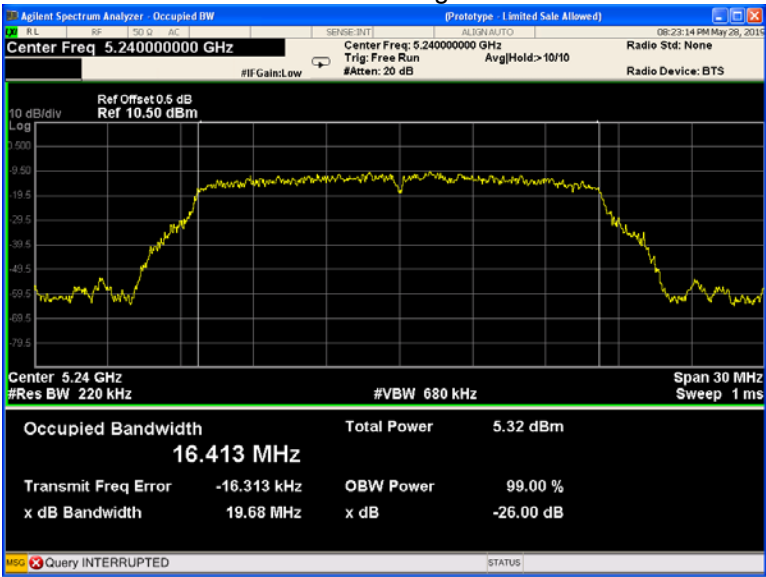
802.11a U-NII-1 Low channel



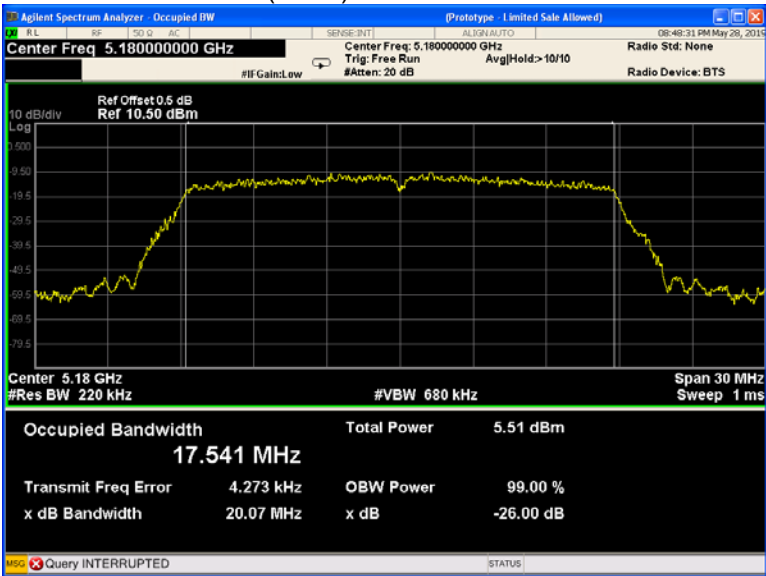
802.11a U-NII-1 Middle channel



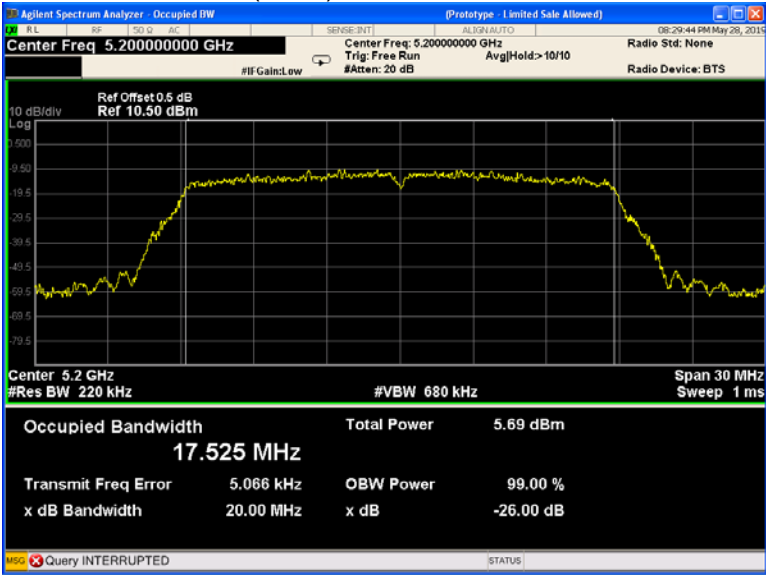
802.11a U-NII-1 High channel



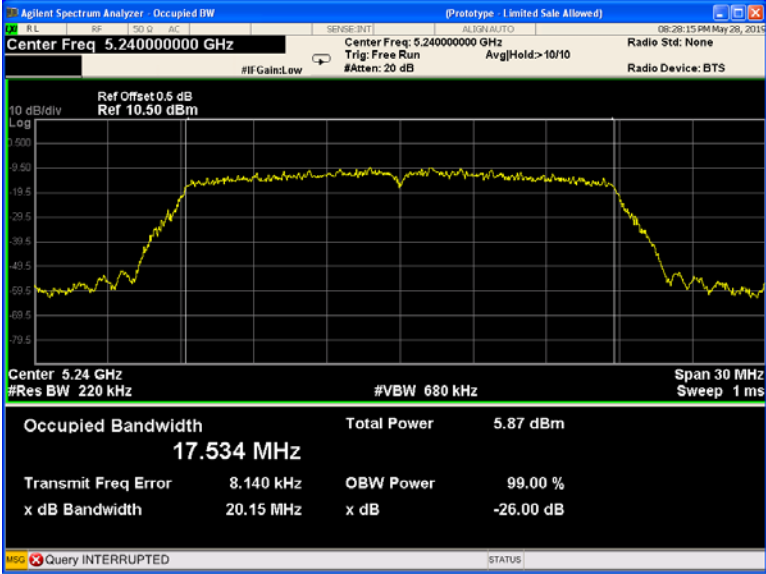
802.11n(HT20) U-NII-1 Low channel



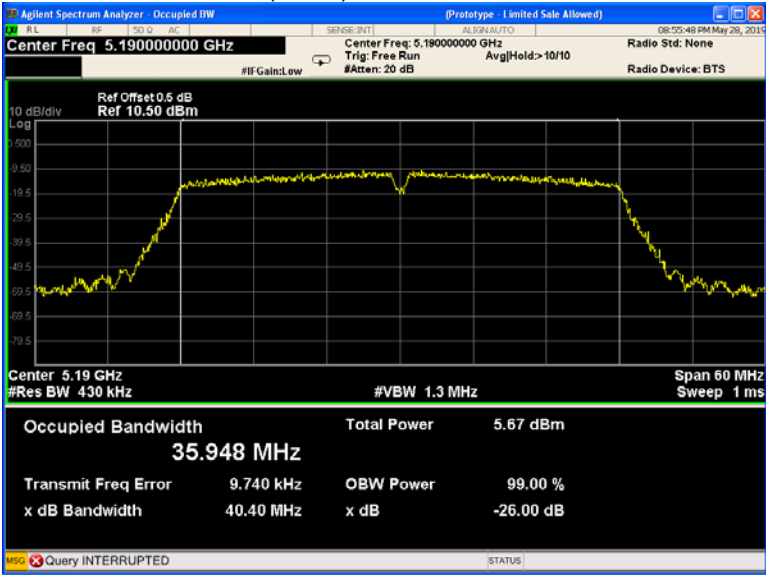
802.11n(HT20) U-NII-1 Middle channel



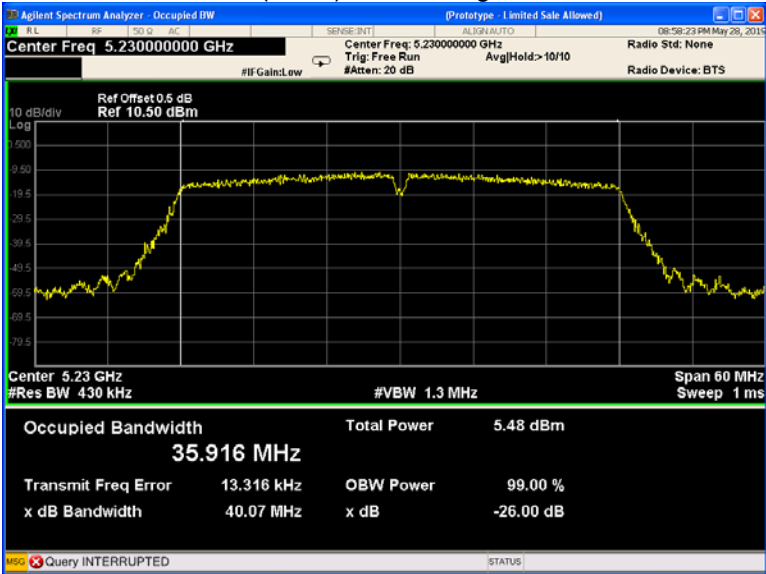
802.11n(HT20) U-NII-1 High channel



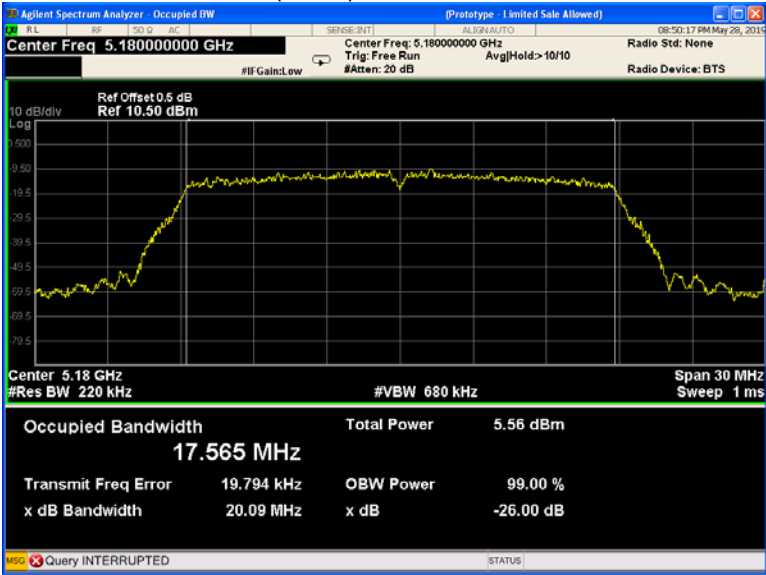
802.11n(HT40) U-NII-1 Low channel



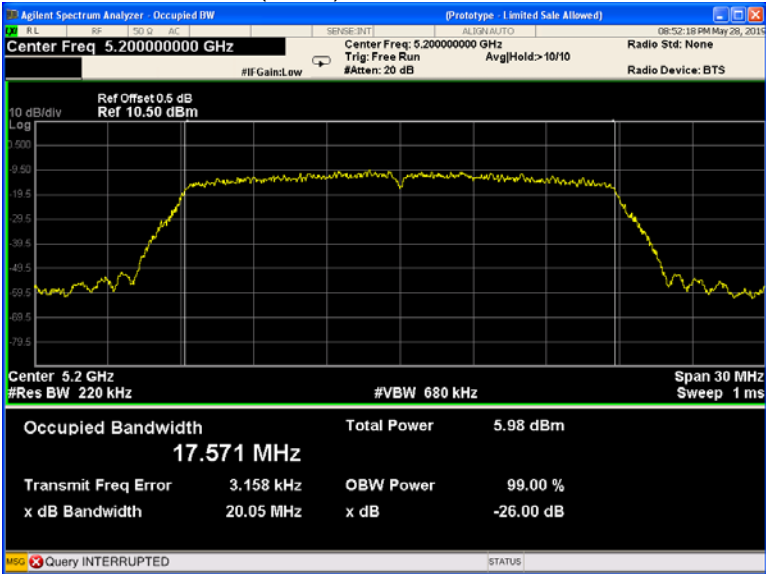
802.11n(HT40) U-NII-1 High channel



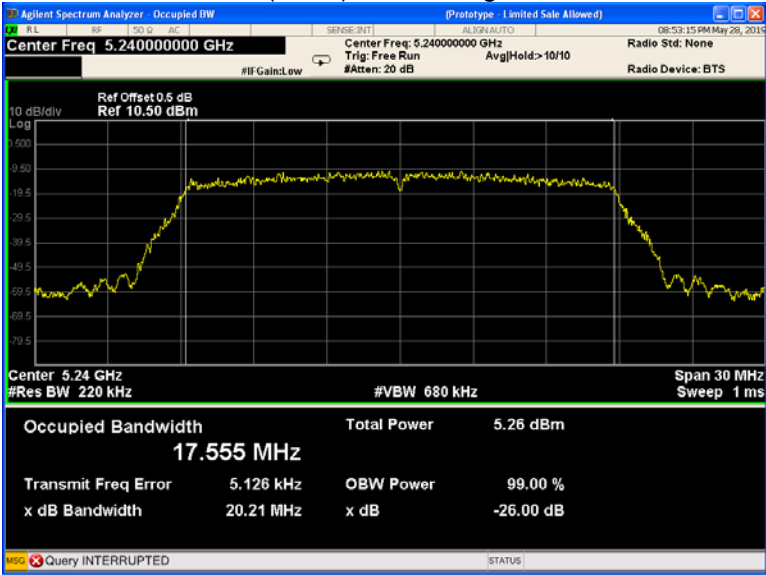
802.11ac(HT20) U-NII-1 Low channel



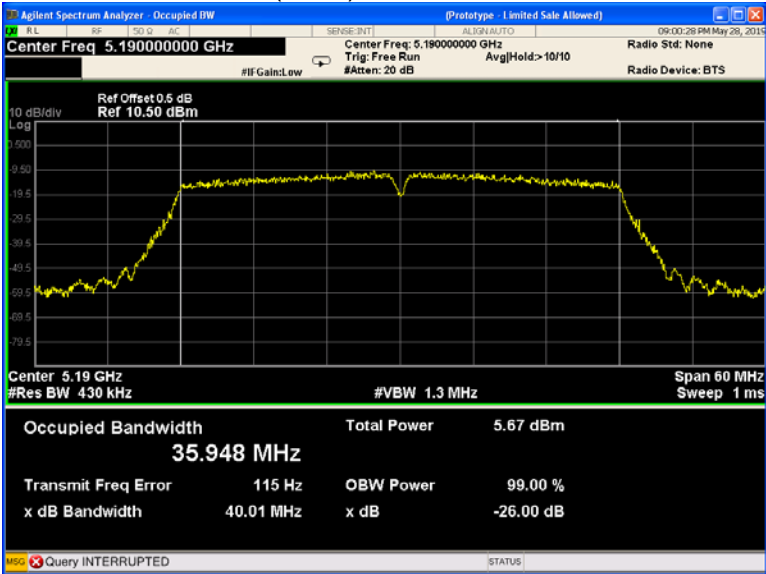
802.11ac(HT20) U-NII-1 Middle channel



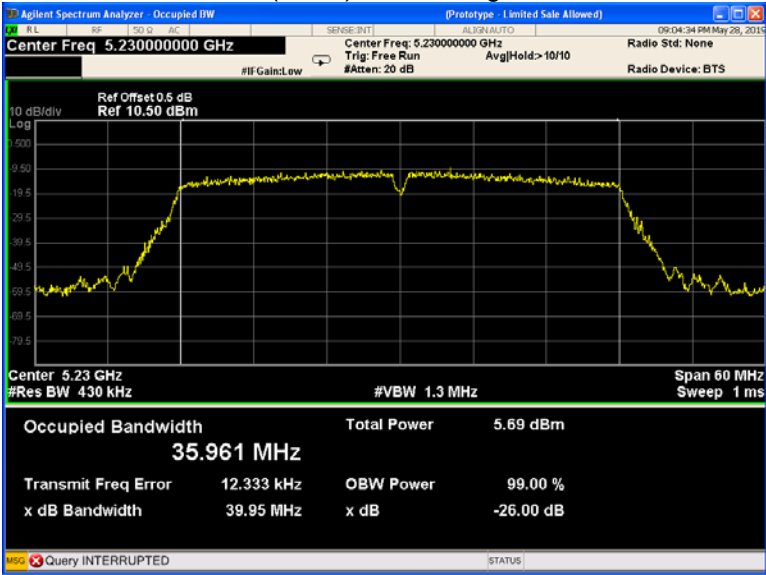
802.11ac(HT20) U-NII-1 High channel



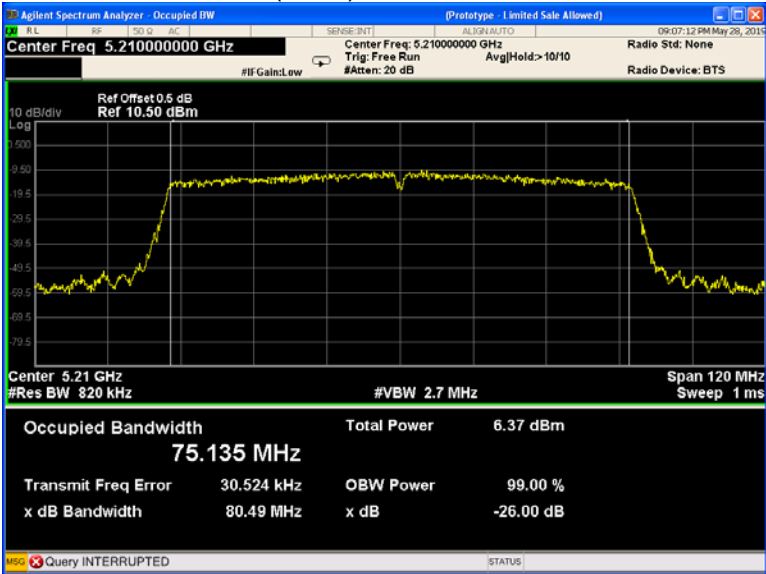
802.11ac(HT40) U-NII-1 Low channel



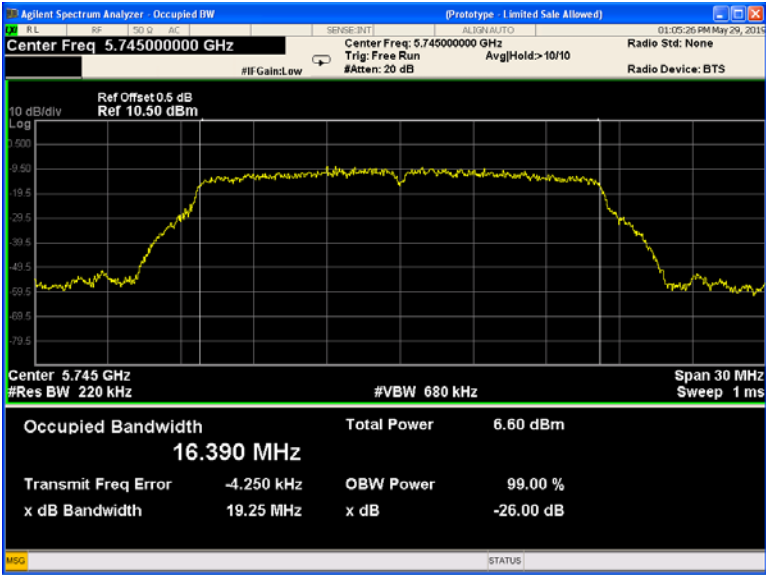
802.11 ac(HT40) U-NII-1 High channel



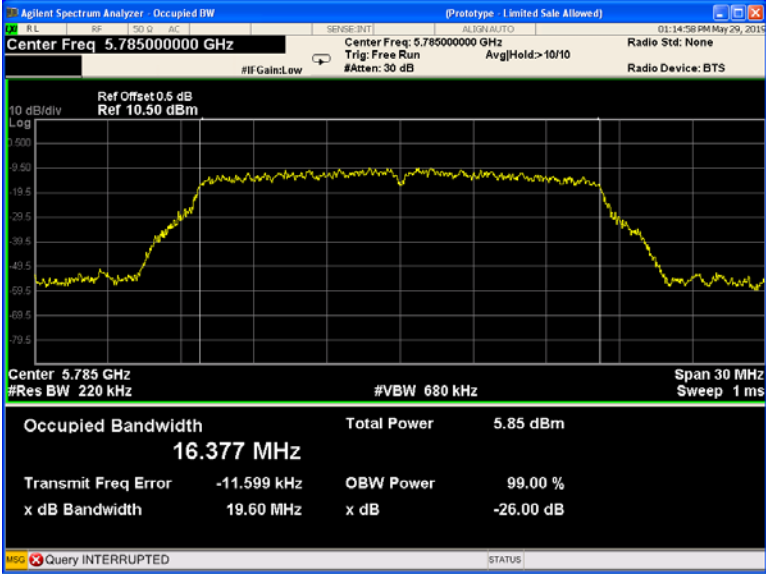
802.11ac(HT80) U-NII-1 Low channel



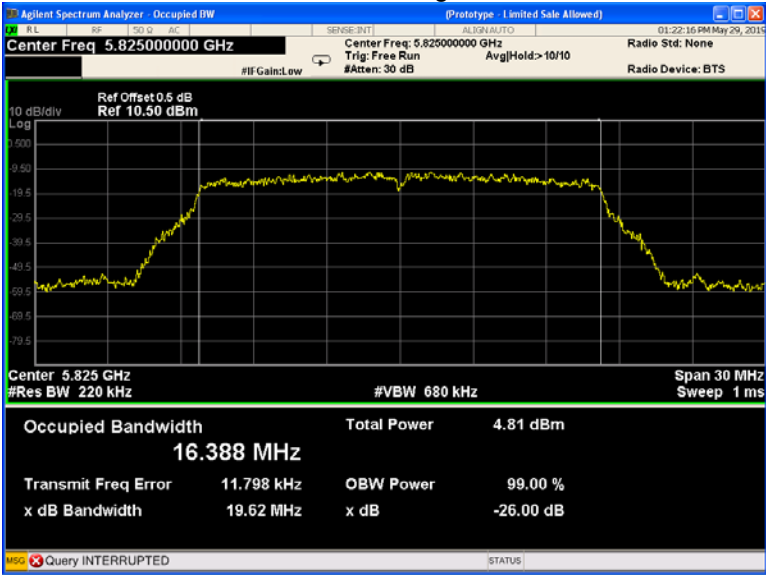
802.11a U-NII-3 Low channel



802.11a U-NII-3 Middle channel



802.11a U-NII-3 High channel



802.11n(HT20) U-NII-3 Low channel

