



# RF TEST REPORT

**Applicant** NOKIA Shanghai Bell CO., Ltd.  
**FCC ID** 2ADZRXS2426XA  
**Product** ONT  
**Brand** NOKIA  
**Model** XS-2426X-A  
**Report No.** R2112A1145-R2  
**Issue Date** May 5, 2022

TA Technology (Shanghai) Co., Ltd. tested the above equipment in accordance with the requirements in **FCC CFR47 Part 15E (2021)**. The test results show that the equipment tested is capable of demonstrating compliance with the requirements as documented in this report.

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## Summary of measurement results

| Number                                                                                                                                                                                                                                                                                                                                                                                                                                             | Test Case              | Clause in FCC rules | Verdict |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------|---------------------|---------|
| 1                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Average output power   | 15.407(a)           | PASS    |
| 2                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Occupied bandwidth     | 15.407(e)           | PASS    |
| 3                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Frequency stability    | 15.407(g)           | PASS    |
| 4                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Power spectral density | 15.407(a)           | PASS    |
| 5                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Unwanted Emissions     | 15.407(b)           | PASS    |
| 6                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Conducted Emissions    | 15.207              | PASS    |
| Date of Testing: January 21, 2022 ~ March 17, 2022                                                                                                                                                                                                                                                                                                                                                                                                 |                        |                     |         |
| Date of Sample Received: December 16, 2021                                                                                                                                                                                                                                                                                                                                                                                                         |                        |                     |         |
| Note: PASS: The EUT complies with the essential requirements in the standard.<br>FAIL: The EUT does not comply with the essential requirements in the standard.<br>All indications of Pass/Fail in this report are opinions expressed by TA Technology (Shanghai) Co., Ltd. based on interpretations and/or observations of test results. Measurement Uncertainties were not taken into account and are published for informational purposes only. |                        |                     |         |



## 1. Test Laboratory

### 1.1. Notes of the test report

This report shall not be reproduced in full or partial, without the written approval of **TA technology (shanghai) co., Ltd.** The results documented in this report apply only to the tested sample, under the conditions and modes of operation as described herein. Measurement Uncertainties were not taken into account and are published for informational purposes only. This report is written to support regulatory compliance of the applicable standards stated above.

### 1.2. Test facility

#### **FCC (Designation number: CN1179, Test Firm Registration Number: 446626)**

TA Technology (Shanghai) Co., Ltd. has been listed on the US Federal Communications Commission list of test facilities recognized to perform measurements.

#### **A2LA (Certificate Number: 3857.01)**

TA Technology (Shanghai) Co., Ltd. has been listed by American Association for Laboratory Accreditation to perform measurement.

### 1.3. Testing Location

Company: TA Technology (Shanghai) Co., Ltd.  
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## 2. General Description of Equipment under Test

### 2.1. Applicant and Manufacturer Information

|                             |                                                                          |
|-----------------------------|--------------------------------------------------------------------------|
| <b>Applicant</b>            | Nokia ShangHai Bell Co., Ltd.                                            |
| <b>Applicant address</b>    | No. 388, Ningqiao Rd. Pilot Free Trade Zone Shanghai 201206<br>P.R.China |
| <b>Manufacturer</b>         | Nokia ShangHai Bell Co., Ltd.                                            |
| <b>Manufacturer address</b> | No. 388, Ningqiao Rd. Pilot Free Trade Zone Shanghai 201206<br>P.R.China |

### 2.2. General information

| EUT Description  |                  |                  |                 |                 |                 |                 |
|------------------|------------------|------------------|-----------------|-----------------|-----------------|-----------------|
| Model            | XS-2426X-A       |                  |                 |                 |                 |                 |
| SN               | ALCL00861234     |                  |                 |                 |                 |                 |
| Hardware Version | PEM2.0           |                  |                 |                 |                 |                 |
| Software Version | 3FE49864T48612   |                  |                 |                 |                 |                 |
| Power Supply     | AC Adapter       |                  |                 |                 |                 |                 |
| Antenna Type     | Internal Antenna |                  |                 |                 |                 |                 |
| Antenna Gain     | Manufacturer     | Frequency (MHz)  | Antenna 1 (dBi) | Antenna 2 (dBi) | Antenna 3 (dBi) | Antenna 4 (dBi) |
|                  | INPAQ            | 5150~5250        | 3.38            | 3.12            | 3.24            | 3.00            |
|                  |                  | 5250~5350        | 3.38            | 3.12            | 3.24            | 3.00            |
|                  |                  | 5470~5725        | 3.14            | 3.33            | 3.02            | 3.16            |
|                  |                  | 5725~5850        | 3.31            | 3.43            | 2.80            | 3.03            |
|                  | Signal Plus      | 5150~5250        | 3.10            | 3.10            | 3.20            | 3.50            |
|                  |                  | 5250~5350        | 3.10            | 3.10            | 3.20            | 3.50            |
|                  |                  | 5470~5725        | 3.40            | 3.50            | 3.50            | 3.30            |
|                  |                  | 5725~5850        | 3.30            | 3.50            | 3.50            | 3.50            |
|                  | Directional Gain | Manufacturer     | Antenna         | Frequency(MHz)  |                 | Gain (dBi)      |
| INPAQ            |                  | MIMO (For Power) | 5150~5250       |                 | 3.38            |                 |
|                  |                  |                  | 5250~5350       |                 | 3.38            |                 |
|                  |                  |                  | 5470~5725       |                 | 3.33            |                 |
|                  |                  |                  | 5725~5850       |                 | 3.43            |                 |
|                  |                  | MIMO (For PSD)   | 5150~5250       |                 | 3.33            |                 |
|                  |                  |                  | 5250~5350       |                 | 3.33            |                 |
|                  |                  |                  | 5470~5725       |                 | 3.42            |                 |
|                  |                  |                  | 5725~5850       |                 | 4.43            |                 |
|                  |                  | Beamforming      | 5150~5250       |                 | 3.33            |                 |
|                  | 5250~5350        |                  | 3.33            |                 |                 |                 |



|                                                                                                                |                                                                                                                                  |                     |           |      |
|----------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------|---------------------|-----------|------|
|                                                                                                                |                                                                                                                                  |                     | 5470~5725 | 3.42 |
|                                                                                                                |                                                                                                                                  |                     | 5725~5850 | 4.43 |
|                                                                                                                | Signal Plus                                                                                                                      | MIMO<br>(For Power) | 5150~5250 | 3.50 |
|                                                                                                                |                                                                                                                                  |                     | 5250~5350 | 3.50 |
|                                                                                                                |                                                                                                                                  |                     | 5470~5725 | 3.50 |
|                                                                                                                |                                                                                                                                  |                     | 5725~5850 | 3.50 |
|                                                                                                                |                                                                                                                                  | MIMO<br>(For PSD)   | 5150~5250 | 5.00 |
|                                                                                                                |                                                                                                                                  |                     | 5250~5350 | 5.00 |
|                                                                                                                |                                                                                                                                  |                     | 5470~5725 | 3.80 |
|                                                                                                                |                                                                                                                                  |                     | 5725~5850 | 4.80 |
|                                                                                                                |                                                                                                                                  | Beamforming         | 5150~5250 | 5.00 |
|                                                                                                                |                                                                                                                                  |                     | 5250~5350 | 5.00 |
|                                                                                                                |                                                                                                                                  |                     | 5470~5725 | 3.80 |
|                                                                                                                |                                                                                                                                  |                     | 5725~5850 | 4.80 |
| Test Band                                                                                                      | U-NII-1(5150MHz-5250MHz)<br>U-NII-2A(5250MHz-5350MHz)<br>U-NII-2C(5470MHz-5725MHz)<br>U-NII-3(5725MHz-5850MHz)                   |                     |           |      |
| Modulation Type                                                                                                | 802.11a/n (HT20/ HT40) : OFDM<br>802.11ac (VHT20/ VHT40/ VHT80/ VHT160): OFDM<br>802.11ax (HE20/ HE40/ HE80/ HE160): OFDM, OFDMA |                     |           |      |
| Max. Conducted Power                                                                                           | 29.98 dBm                                                                                                                        |                     |           |      |
| Testing temperature range:                                                                                     | -20 ° C to 50° C                                                                                                                 |                     |           |      |
| Operating temperature range:                                                                                   | -5 ° C to 45° C                                                                                                                  |                     |           |      |
| Operating voltage range:                                                                                       | 11.4 V to 12.6 V                                                                                                                 |                     |           |      |
| State DC voltage:                                                                                              | 12V                                                                                                                              |                     |           |      |
| EUT Accessory                                                                                                  |                                                                                                                                  |                     |           |      |
| Internal Antenna 1                                                                                             | Manufacturer: INPAQ                                                                                                              |                     |           |      |
| Internal Antenna 2                                                                                             | Manufacturer: Signal plus                                                                                                        |                     |           |      |
| Note: 1. The EUT is sent from the applicant to TA and the information of the EUT is declared by the applicant. |                                                                                                                                  |                     |           |      |

**Information of Configuration:**

| No. | Name           | Model/Code No.                    | Edition | Serial No. or Quantity |
|-----|----------------|-----------------------------------|---------|------------------------|
| 1   | EMA-XS-2426X-A | 3FE 49691 AAAA                    | PEM2.0  | PEM2.0                 |
| 2   | Power adapter  | HONOR: ADS-40FKJ-12N<br>12036EPCU | A/0     | 1PCS                   |
| 3   | Power adapter  | FUHUA: UES36WU-120300SPA          | A/0     | 1PCS                   |
| 4   | UPS            | Cyber Power: DTC36U12V3-G         | A/0     | 1PCS                   |
| 5   | UPS            | PSI: PS36L-P7 and PS36L-EX-2      | A/0     | 1PCS                   |

| ONT Mnemonic | Kit Code   | EMA Code             | Part Description                                                                                | Power Adapter/UPS                    |                                       |
|--------------|------------|----------------------|-------------------------------------------------------------------------------------------------|--------------------------------------|---------------------------------------|
| XS-2426X-A   | 3FE49691AA | 3FE<br>49691<br>AAAA | Wi-Fi GPON RGW,<br>2xPOTS, 3xGE,<br>1x10GE, 1x USB, WiFi-6<br>4x4 + 4x4, Nokia logo             | ONT only                             | ONT only                              |
| XS-2426X-A   | 3FE49690AA | 3FE<br>49691<br>AAAA | Wi-Fi GPON RGW,<br>2xPOTS, 3xGE,<br>1x10GE, 1x USB, WiFi-6<br>4x4 + 4x4, Kit with US<br>plug PS | HONOR:<br>ADS-40FKJ-12N<br>12036EPCU | FUHUA:<br>UES36WU-1<br>20300SPA       |
| XS-2426X-A   | 3FE49690AA | 3FE<br>49691<br>AAAA | Wi-Fi GPON RGW,<br>2xPOTS, 3xGE,<br>1x10GE, 1x USB, WiFi-6<br>4x4 + 4x4, Kit with US<br>plug PS | Cyber Power:<br>DTC36U12V3-G         | PSI:<br>PS36L-P7<br>and<br>PS36L-EX-2 |
| XS-2426X-A   | 3FE49690AB | 3FE<br>49691<br>AAAA | Wi-Fi GPON RGW,<br>2xPOTS, 3xGE,<br>1x10GE, 1x USB, WiFi-6<br>4x4 + 4x4, Canada, US<br>plug     | HONOR:<br>ADS-40FKJ-12N<br>12036EPCU | FUHUA:<br>UES36WU-1<br>20300SPA       |
| XS-2426X-A   | 3FE49690AB | 3FE<br>49691<br>AAAA | Wi-Fi GPON RGW,<br>2xPOTS, 3xGE,<br>1x10GE, 1x USB, WiFi-6<br>4x4 + 4x4, Canada, US<br>plug     | Cyber Power:<br>DTC36U12V3-G         | PSI: PS36L-P7<br>and<br>PS36L-EX-2    |

NOTE: For KIT code 3FE49229AAAA, UPS equipment customers buy their own.

**Auxiliary equipment details**

| No. | Name        | Brand name | Model          | ASB code       | Valid Until      |
|-----|-------------|------------|----------------|----------------|------------------|
| 1   | Test Center | Spirent    | C1             | DE48D0         | No Cal. Required |
| 2   | OLT         | Nokia      | 7360 ISAM FX-4 | 7661MC4L3KW965 | No Cal. Required |
| 3   | PC          | DELL       | N/A            | -              | No Cal. Required |

**Information of Ports**

| No. | Port name | Number | Shielded or unshielded | Cable type (optic, twisted pair, etc.) | Max. Cable length |
|-----|-----------|--------|------------------------|----------------------------------------|-------------------|
| 1   | AC port   | 1      | Unshielded             | N/A                                    | N/A               |
| 2   | POTS      | 2      | Unshielded             | Twisted pair                           | 2M                |
| 3   | GE        | 3      | Unshielded             | CAT-5E or above                        | 1.5M              |
| 4   | 10GE      | 1      | shielded               | CAT-7 or above                         | 1.5M              |
| 5   | USB       | 1      | Unshielded             | N/A                                    | N/A               |

Description: The XS-2426X-A is a ONT which has one 10 GE LAN port, three GE LAN ports, one XGS-PON BOB, two POTS. The basic functional test in normal room conditions consists of the data traffic test. XS-2426X-A runs one data traffics on each line with Test Center, the each upstream is 8Gbps, and downstream is 8Gbps. Frame loss ratio less than 10e-7.



### 3. Applied Standards

According to the specifications of the manufacturer, it must comply with the requirements of the following standards:

**Test standards:**

**FCC CFR47 Part 15E (2020)** Unlicensed National Information Infrastructure Devices

**ANSI C63.10 (2013)**

**Reference standard:**

**KDB 789033 D02 General UNII Test Procedures New Rules v02r01**

**KDB 662911 D01 Multiple Transmitter Output v02r01**

## 4. Test Configuration

### Test Mode

The EUT has been associated with peripherals and configuration operated in a manner tended to maximize its emission characteristics in a typical application.

The radiated emission was measured in the following position: EUT stand-up position (Z axis), lie-down position (X, Y axis). The worst emission was found in stand-up position (Z axis) and the worst case was recorded.

In order to find the worst case condition, Pre-tests are needed at the presence of different data rate. Preliminary tests have been done on all the configuration for confirming worst case. Data rate below means worst-case rate of each test item.

Worst-case data rates are shown as following table.

| Mode            | Data Rate |             |
|-----------------|-----------|-------------|
|                 | MIMO      | Beamforming |
| 802.11a         | 6 Mbps    | 6 Mbps      |
| 802.11n HT20    | MCS24     | MCS24       |
| 802.11n HT40    | MCS24     | MCS24       |
| 802.11ac VHT20  | MCS0      | MCS0        |
| 802.11ac VHT40  | MCS0      | MCS0        |
| 802.11ac VHT80  | MCS0      | MCS0        |
| 802.11ac VHT160 | MCS0      | MCS0        |
| 802.11ax HE20   | MCS0      | MCS0        |
| 802.11ax HE40   | MCS0      | MCS0        |
| 802.11ax HE80   | MCS0      | MCS0        |
| 802.11ax HE160  | MCS0      | MCS0        |

The worst case Antenna mode for each of the following tests for Wi-Fi:

| Test Cases                     | Internal Antenna   | MIMO | Beamforming |
|--------------------------------|--------------------|------|-------------|
| Average conducted output power | INPAQ/ Signal plus | O    | O           |
| Occupied bandwidth             | INPAQ              | O    | --          |
| Frequency stability            | INPAQ              | O    | --          |
| Power Spectral Density         | INPAQ/ Signal plus | O    | O           |
| Unwanted Emissions             | INPAQ/ Signal plus | O    | --          |
| Conducted Emissions            | INPAQ/ Signal plus | O    | --          |
| Note: "O": test all bands      |                    |      |             |



## Wireless Technology and Frequency Range

| Wireless Technology |          | Bandwidth | Channel | Frequency |
|---------------------|----------|-----------|---------|-----------|
| Wi-Fi               | U-NII-1  | 20 MHz    | 36      | 5180MHz   |
|                     |          |           | 40      | 5200MHz   |
|                     |          |           | 44      | 5220MHz   |
|                     |          |           | 48      | 5240MHz   |
|                     |          | 40 MHz    | 38      | 5190MHz   |
|                     |          |           | 46      | 5230MHz   |
|                     |          | 80 MHz    | 42      | 5210MHz   |
|                     | U-NII-2A | 20 MHz    | 52      | 5260MHz   |
|                     |          |           | 56      | 5280MHz   |
|                     |          |           | 60      | 5300MHz   |
|                     |          |           | 64      | 5320MHz   |
|                     |          | 40 MHz    | 54      | 5270MHz   |
|                     |          |           | 62      | 5310MHz   |
|                     |          | 80 MHz    | 58      | 5290MHz   |
|                     |          | 160 MHz   | 50      | 5250MHz   |
|                     | U-NII-2C | 20 MHz    | 100     | 5500MHz   |
|                     |          |           | 104     | 5520MHz   |
|                     |          |           | 108     | 5540MHz   |
|                     |          |           | 112     | 5560MHz   |
|                     |          |           | 116     | 5580MHz   |
|                     |          |           | 120     | 5600MHz   |
|                     |          |           | 124     | 5620MHz   |
|                     |          |           | 128     | 5640MHz   |
|                     |          |           | 132     | 5660MHz   |
|                     |          |           | 136     | 5680MHz   |
|                     |          |           | 140     | 5700MHz   |
|                     |          | 40 MHz    | 102     | 5510MHz   |
|                     |          |           | 110     | 5550MHz   |
|                     |          |           | 118     | 5590MHz   |
|                     |          |           | 126     | 5630MHz   |
|                     |          |           | 134     | 5670MHz   |
|                     |          |           | 142     | 5710MHz   |
|                     |          | 80 MHz    | 106     | 5530MHz   |
|                     |          |           | 122     | 5610MHz   |
|                     |          |           | 138     | 5690MHz   |
|                     |          | 160 MHz   | 114     | 5570MHz   |
|                     | U-NII-3  | 20 MHz    | 149     | 5745MHz   |
|                     |          |           | 153     | 5765MHz   |
|                     |          |           | 157     | 5785MHz   |
|                     |          |           | 161     | 5805MHz   |
|                     |          |           | 165     | 5825MHz   |



|                                                                                                            |  |        |     |         |
|------------------------------------------------------------------------------------------------------------|--|--------|-----|---------|
|                                                                                                            |  | 40 MHz | 151 | 5755MHz |
|                                                                                                            |  |        | 159 | 5795MHz |
|                                                                                                            |  | 80 MHz | 155 | 5775MHz |
| Does this device support TPC Function? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No |  |        |     |         |
| Does this device support TDWR Band? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No    |  |        |     |         |

## 5. Test Case Results

### 5.1. Occupied Bandwidth

#### Ambient condition

| Temperature | Relative humidity | Pressure |
|-------------|-------------------|----------|
| 23°C ~25°C  | 45%~50%           | 101.5kPa |

#### Method of Measurement

The EUT was connected to the spectrum analyzer through an external attenuator (20dB) and a known loss cable.

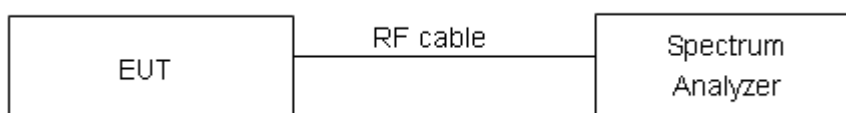
For U-NII-1/U-NII-2A/U-NII-2C, set RBW  $\approx$  1% OCB kHz, VBW  $\geq 3 \times$  RBW, measure the maximum width of the emission that is constrained by the frequencies associated with the two outermost amplitude points (upper and lower frequencies) that are attenuated by 26 dB relative to the maximum level measured in the fundamental emission.

For U-NII-3, Set RBW = 100 kHz, VBW  $\geq 3 \times$  RBW, measure the maximum width of the emission that is constrained by the frequencies associated with the two outermost amplitude points (upper and lower frequencies) that are attenuated by 6 dB relative to the maximum level measured in the fundamental emission.

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

Use the 99 % power bandwidth function of the instrument

#### Test Setup



#### Limits

Rule FCC Part §15.407(e)

Within the 5.725-5.85 GHz band, the minimum 6 dB bandwidth of U-NII devices shall be at least 500 kHz.

#### Measurement Uncertainty

The assessed measurement uncertainty to ensure 95% confidence level for the normal distribution is with the coverage factor  $k = 2$ ,  $U = 936$  Hz.

**Test Results:****INPAQ****U-NII-1**

| Mode           | Carrier frequency (MHz) | 99% bandwidth (MHz) | Minimum 26 dB bandwidth (MHz) | Conclusion |
|----------------|-------------------------|---------------------|-------------------------------|------------|
| 802.11a        | 36/5180                 | 16.49               | 19.61                         | PASS       |
|                | 40/5200                 | 16.50               | 19.95                         | PASS       |
|                | 48/5240                 | 16.50               | 20.16                         | PASS       |
| 802.11n HT20   | 36/5180                 | 17.73               | 20.88                         | PASS       |
|                | 40/5200                 | 17.71               | 21.20                         | PASS       |
|                | 48/5240                 | 17.72               | 20.75                         | PASS       |
| 802.11n HT40   | 38/5190                 | 35.92               | 39.18                         | PASS       |
|                | 46/5230                 | 35.94               | 39.11                         | PASS       |
| 802.11ac VHT20 | 36/5180                 | 17.70               | 21.34                         | PASS       |
|                | 40/5200                 | 17.71               | 20.84                         | PASS       |
|                | 48/5240                 | 17.71               | 20.79                         | PASS       |
| 802.11ac VHT40 | 38/5190                 | 36.25               | 42.37                         | PASS       |
|                | 46/5230                 | 36.01               | 39.11                         | PASS       |
| 802.11ac VHT80 | 42/5210                 | 75.85               | 86.23                         | PASS       |
| 802.11ax HE20  | 36/5180                 | 19.06               | 21.48                         | PASS       |
|                | 40/5200                 | 19.03               | 21.28                         | PASS       |
|                | 48/5240                 | 19.03               | 21.29                         | PASS       |
| 802.11ax HE40  | 38/5190                 | 37.59               | 39.95                         | PASS       |
|                | 46/5230                 | 37.66               | 40.30                         | PASS       |
| 802.11ax HE80  | 42/5210                 | 77.08               | 81.17                         | PASS       |



## U-NII-2A

| Mode            | Carrier frequency (MHz) | 99% bandwidth (MHz) | Minimum 26 dB bandwidth (MHz) | Conclusion |
|-----------------|-------------------------|---------------------|-------------------------------|------------|
| 802.11a         | 52/5260                 | 16.53               | 20.33                         | PASS       |
|                 | 60/5300                 | 16.51               | 20.30                         | PASS       |
|                 | 64/5320                 | 16.53               | 19.59                         | PASS       |
| 802.11n HT20    | 52/5260                 | 17.72               | 20.89                         | PASS       |
|                 | 60/5300                 | 17.70               | 20.97                         | PASS       |
|                 | 64/5320                 | 17.72               | 21.20                         | PASS       |
| 802.11n HT40    | 54/5270                 | 35.95               | 38.92                         | PASS       |
|                 | 62/5310                 | 35.94               | 39.04                         | PASS       |
| 802.11ac VHT20  | 52/5260                 | 17.72               | 20.45                         | PASS       |
|                 | 60/5300                 | 17.69               | 20.71                         | PASS       |
|                 | 64/5320                 | 17.72               | 20.76                         | PASS       |
| 802.11ac VHT40  | 54/5270                 | 35.95               | 38.96                         | PASS       |
|                 | 62/5310                 | 35.95               | 38.88                         | PASS       |
| 802.11ac VHT80  | 58/5290                 | 75.33               | 80.56                         | PASS       |
| 802.11ac VHT160 | 50/5250                 | 155.08              | 170.40                        | PASS       |
| 802.11ax HE20   | 52/5260                 | 19.05               | 21.35                         | PASS       |
|                 | 60/5300                 | 19.04               | 21.12                         | PASS       |
|                 | 64/5320                 | 19.03               | 21.19                         | PASS       |
| 802.11ax HE40   | 54/5270                 | 37.66               | 40.11                         | PASS       |
|                 | 62/5310                 | 37.69               | 40.09                         | PASS       |
| 802.11ax HE80   | 58/5290                 | 77.12               | 81.47                         | PASS       |
| 802.11ax HE160  | 50/5250                 | 156.64              | 167.21                        | PASS       |



## U-NII-2C

| Mode            | Carrier frequency (MHz) | 99% bandwidth (MHz) | Minimum 26 dB bandwidth (MHz) | Conclusion |
|-----------------|-------------------------|---------------------|-------------------------------|------------|
| 802.11a         | 100/5500                | 16.52               | 19.94                         | PASS       |
|                 | 120/5600                | 16.49               | 20.23                         | PASS       |
|                 | 140/5700                | 16.52               | 20.27                         | PASS       |
|                 | 144/5720                | 16.49               | 19.81                         | PASS       |
| 802.11n HT20    | 100/5500                | 17.73               | 21.11                         | PASS       |
|                 | 120/5600                | 17.71               | 21.41                         | PASS       |
|                 | 140/5700                | 17.71               | 21.13                         | PASS       |
|                 | 144/5720                | 17.72               | 20.70                         | PASS       |
| 802.11n HT40    | 102/5510                | 37.67               | 39.80                         | PASS       |
|                 | 110/5550                | 37.62               | 39.96                         | PASS       |
|                 | 134/5670                | 37.61               | 39.67                         | PASS       |
|                 | 142/5710                | 37.59               | 40.18                         | PASS       |
| 802.11ac VHT20  | 100/5500                | 17.71               | 20.92                         | PASS       |
|                 | 120/5600                | 17.71               | 21.41                         | PASS       |
|                 | 140/5700                | 17.74               | 20.95                         | PASS       |
|                 | 144/5720                | 17.73               | 20.78                         | PASS       |
| 802.11ac VHT40  | 102/5510                | 35.95               | 39.04                         | PASS       |
|                 | 110/5550                | 35.92               | 38.80                         | PASS       |
|                 | 134/5670                | 35.91               | 38.91                         | PASS       |
|                 | 142/5710                | 35.99               | 39.18                         | PASS       |
| 802.11ac VHT80  | 106/5530                | 75.33               | 80.23                         | PASS       |
|                 | 122/5610                | 75.31               | 80.55                         | PASS       |
|                 | 138/5690                | 75.36               | 80.58                         | PASS       |
| 802.11ac VHT160 | 114/5570                | 154.94              | 169.10                        | PASS       |
| 802.11ax HE20   | 100/5500                | 19.04               | 21.53                         | PASS       |
|                 | 120/5600                | 19.00               | 21.60                         | PASS       |
|                 | 140/5700                | 19.06               | 20.93                         | PASS       |
|                 | 144/5720                | 19.02               | 21.23                         | PASS       |
| 802.11ax HE40   | 102/5510                | 37.58               | 40.15                         | PASS       |
|                 | 110/5550                | 37.60               | 40.06                         | PASS       |
|                 | 134/5670                | 37.63               | 39.74                         | PASS       |
|                 | 142/5710                | 37.67               | 40.55                         | PASS       |
| 802.11ax HE80   | 106/5530                | 77.04               | 81.70                         | PASS       |
|                 | 122/5610                | 76.98               | 81.02                         | PASS       |
|                 | 138/5690                | 77.02               | 81.20                         | PASS       |
| 802.11ax HE160  | 114/5570                | 154.53              | 162.02                        | PASS       |



## U-NII-3

| Mode           | Carrier frequency (MHz) | 99% bandwidth (MHz) | Minimum 6 dB bandwidth (MHz) | Limit (kHz) | Conclusion |
|----------------|-------------------------|---------------------|------------------------------|-------------|------------|
| 802.11a        | 149/5745                | 16.50               | 16.35                        | 500         | PASS       |
|                | 157/5785                | 16.49               | 16.36                        | 500         | PASS       |
|                | 165/5825                | 16.52               | 16.34                        | 500         | PASS       |
| 802.11n HT20   | 149/5745                | 17.71               | 17.61                        | 500         | PASS       |
|                | 157/5785                | 17.72               | 17.60                        | 500         | PASS       |
|                | 165/5825                | 17.72               | 17.61                        | 500         | PASS       |
| 802.11n HT40   | 151/5755                | 36.32               | 36.31                        | 500         | PASS       |
|                | 159/5795                | 36.27               | 36.28                        | 500         | PASS       |
| 802.11ac VHT20 | 149/5745                | 17.70               | 17.62                        | 500         | PASS       |
|                | 157/5785                | 17.70               | 17.62                        | 500         | PASS       |
|                | 165/5825                | 17.71               | 17.61                        | 500         | PASS       |
| 802.11ac VHT40 | 151/5755                | 36.33               | 35.93                        | 500         | PASS       |
|                | 159/5795                | 36.25               | 36.31                        | 500         | PASS       |
| 802.11ac VHT80 | 155/5775                | 75.96               | 76.36                        | 500         | PASS       |
| 802.11ax HE20  | 149/5745                | 19.01               | 19.10                        | 500         | PASS       |
|                | 157/5785                | 18.99               | 19.17                        | 500         | PASS       |
|                | 165/5825                | 19.02               | 18.98                        | 500         | PASS       |
| 802.11ax HE40  | 151/5755                | 37.90               | 38.04                        | 500         | PASS       |
|                | 159/5795                | 37.87               | 37.63                        | 500         | PASS       |
| 802.11ax HE80  | 155/5775                | 77.49               | 78.01                        | 500         | PASS       |

U-NII-1, 802.11a  
Carrier frequency (MHz): 5180



U-NII-1, 802.11n HT20  
Carrier frequency (MHz): 5180



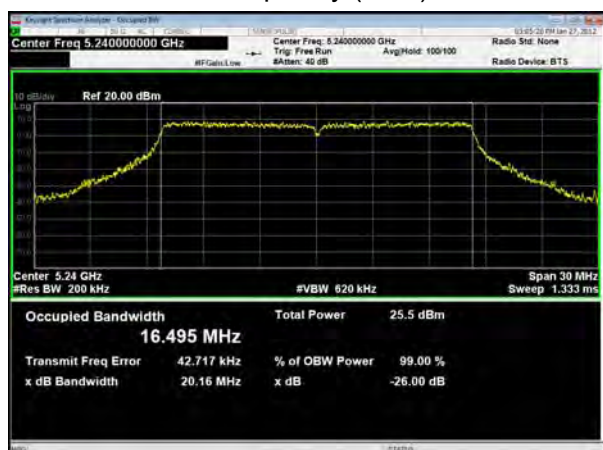
U-NII-1, 802.11a  
Carrier frequency (MHz): 5200



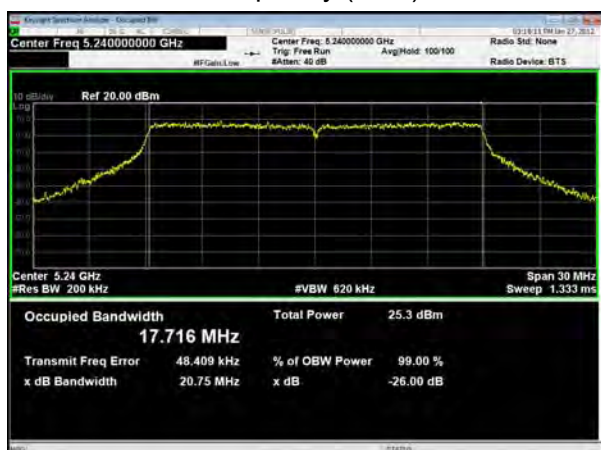
U-NII-1, 802.11n HT20  
Carrier frequency (MHz): 5200



U-NII-1, 802.11a  
Carrier frequency (MHz): 5240



U-NII-1, 802.11n HT20  
Carrier frequency (MHz): 5240



U-NII-1, 802.11n HT40  
Carrier frequency (MHz): 5190



U-NII-1, 802.11ac VHT20  
Carrier frequency (MHz): 5180



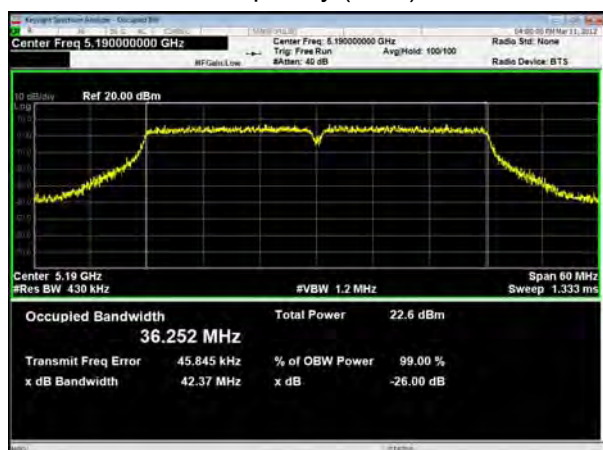
U-NII-1, 802.11n HT40  
Carrier frequency (MHz): 5230



U-NII-1, 802.11ac VHT20  
Carrier frequency (MHz): 5200



U-NII-1, 802.11ac VHT40  
Carrier frequency (MHz): 5190



U-NII-1, 802.11ac VHT20  
Carrier frequency (MHz): 5240



### U-NII-1, 802.11ac VHT40 Carrier frequency (MHz): 5230



### U-NII-1, 802.11ac VHT80 Carrier frequency (MHz): 5210



### U-NII-1, 802.11ax HE20 Carrier frequency (MHz): 5180



### U-NII-1, 802.11ax HE40 Carrier frequency (MHz): 5190



### U-NII-1, 802.11ax HE20 Carrier frequency (MHz): 5200



### U-NII-1, 802.11ax HE40 Carrier frequency (MHz): 5230



U-NII-1, 802.11ax HE20  
Carrier frequency (MHz):5240



U-NII-1, 802.11ax HE80  
Carrier frequency (MHz): 5210



U-NII-2A, 802.11a  
Carrier frequency (MHz): 5260



U-NII-2A, 802.11n HT20  
Carrier frequency (MHz): 5260



U-NII-2A, 802.11a  
Carrier frequency (MHz): 5300



U-NII-2A, 802.11n HT20  
Carrier frequency (MHz): 5300



U-NII-2A, 802.11a  
Carrier frequency (MHz):5320



U-NII-2A, 802.11n HT20  
Carrier frequency (MHz):5320



U-NII-2A, 802.11n HT40  
Carrier frequency (MHz): 5270



U-NII-2A, 802.11ac VHT20  
Carrier frequency (MHz):5260



U-NII-2A, 802.11n HT40  
Carrier frequency (MHz): 5310



U-NII-2A, 802.11ac VHT20  
Carrier frequency (MHz): 5300



### U-NII-2A, 802.11ac VHT40 Carrier frequency (MHz): 5270



### U-NII-2A, 802.11ac VHT20 Carrier frequency (MHz): 5320



### U-NII-2A, 802.11ac VHT40 Carrier frequency (MHz): 5310



### U-NII-2A, 802.11ac VHT80 Carrier frequency (MHz): 5290



### U-NII-2A, 802.11ax HE20 Carrier frequency (MHz): 5260



### U-NII-2A, 802.11ac VHT160 Carrier frequency (MHz): 5250



### U-NII-2A, 802.11ax HE20 Carrier frequency (MHz): 5300



### U-NII-2A, 802.11ax HE40 Carrier frequency (MHz): 5270



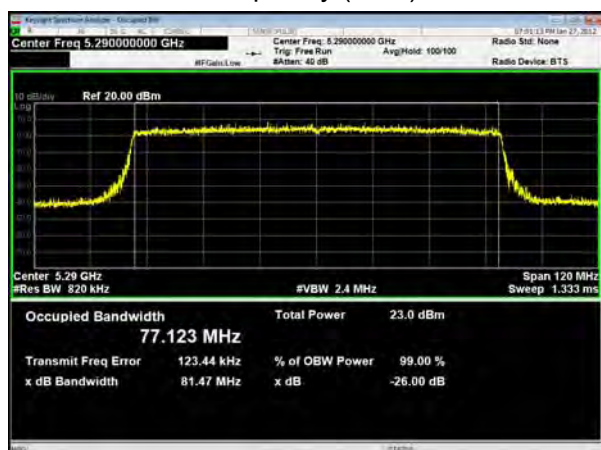
### U-NII-2A, 802.11ax HE20 Carrier frequency (MHz): 5320



### U-NII-2A, 802.11ax HE40 Carrier frequency (MHz): 5310



### U-NII-2A, 802.11ax HE80 Carrier frequency (MHz): 5290



### U-NII-2A, 802.11ax HE160 Carrier frequency (MHz): 5250



U-NII-2C, 802.11a  
Carrier frequency (MHz): 5500



U-NII-2C, 802.11n HT20  
Carrier frequency (MHz): 5500



U-NII-2C, 802.11a  
Carrier frequency (MHz): 5600



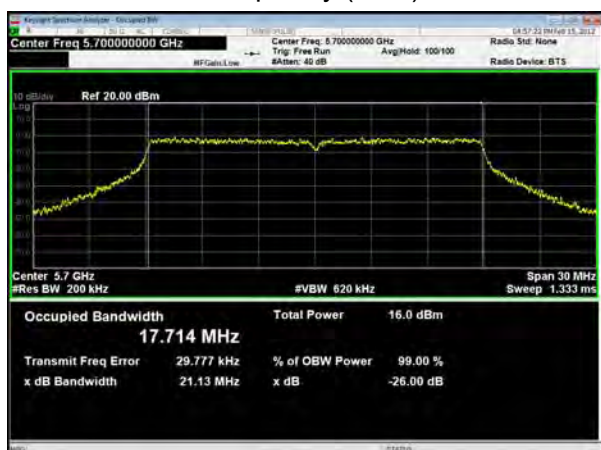
U-NII-2C, 802.11n HT20  
Carrier frequency (MHz): 5600



U-NII-2C, 802.11a  
Carrier frequency (MHz): 5700



U-NII-2C, 802.11n HT20  
Carrier frequency (MHz): 5700



U-NII-2C, 802.11a  
Carrier frequency (MHz):5720



U-NII-2C, 802.11n HT20  
Carrier frequency (MHz):5720



U-NII-2C, 802.11n HT40  
Carrier frequency (MHz): 5510



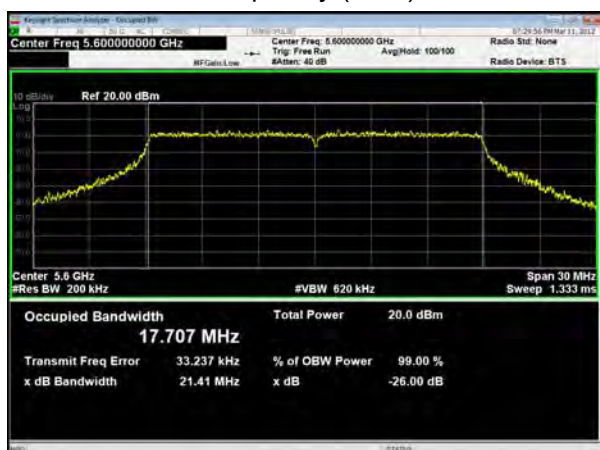
U-NII-2C, 802.11ac VHT20  
Carrier frequency (MHz): 5500



U-NII-2C, 802.11n HT40  
Carrier frequency (MHz): 5550



U-NII-2C, 802.11ac VHT20  
Carrier frequency (MHz): 5600



### U-NII-2C, 802.11n HT40 Carrier frequency (MHz): 5670



### U-NII-2C, 802.11ac VHT20 Carrier frequency (MHz): 5700



### U-NII-2C, 802.11n HT40 Carrier frequency (MHz): 5710



### U-NII-2C, 802.11ac VHT20 Carrier frequency (MHz): 5720



### U-NII-2C, 802.11ac VHT40 Carrier frequency (MHz): 5510



### U-NII-2C, 802.11ac VHT80 Carrier frequency (MHz): 5530



U-NII-2C, 802.11ac VHT40  
Carrier frequency (MHz): 5550



U-NII-2C, 802.11ac VHT80  
Carrier frequency (MHz): 5610



U-NII-2C, 802.11ac VHT40  
Carrier frequency (MHz): 5670



U-NII-2C, 802.11ac VHT80  
Carrier frequency (MHz): 5690



U-NII-2C, 802.11ac VHT40  
Carrier frequency (MHz): 5710



U-NII-2C, 802.11ac VHT160  
Carrier frequency (MHz): 5570



### U-NII-2C, 802.11ax HE40 Carrier frequency (MHz): 5510



### U-NII-2C, 802.11ax HE20 Carrier frequency (MHz): 5500



### U-NII-2C, 802.11ax HE40 Carrier frequency (MHz): 5550



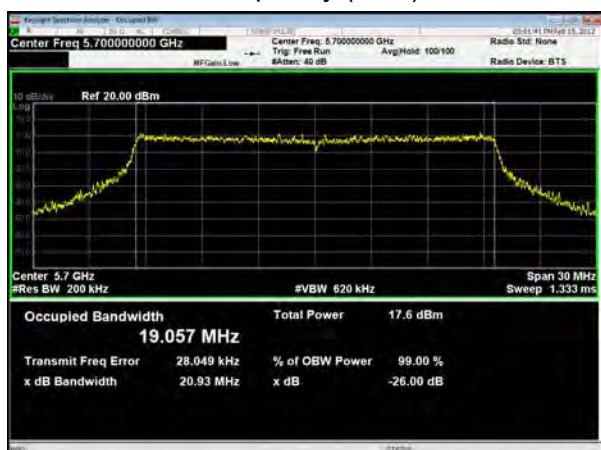
### U-NII-2C, 802.11ax HE20 Carrier frequency (MHz): 5600



### U-NII-2C, 802.11ax HE40 Carrier frequency (MHz): 5670



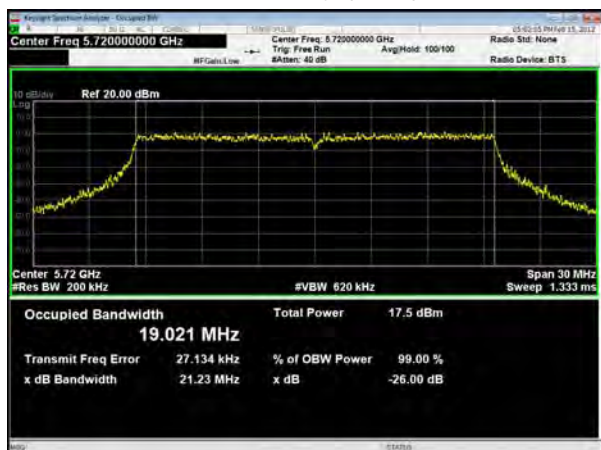
### U-NII-2C, 802.11ax HE20 Carrier frequency (MHz): 5700



### U-NII-2C, 802.11ax HE40 Carrier frequency (MHz): 5710



### U-NII-2C, 802.11ax HE20 Carrier frequency (MHz): 5720



### U-NII-2C, 802.11ax HE80 Carrier frequency (MHz): 5530



### U-NII-2C, 802.11ax HE80 Carrier frequency (MHz): 5610



### U-NII-2C, 802.11ax HE80 Carrier frequency (MHz): 5690



### U-NII-2C, 802.11ax HE160 Carrier frequency (MHz): 5570





## 99% bandwidth

U-NII-3, 802.11a

Carrier frequency (MHz): 5745



U-NII-3, 802.11n HT20

Carrier frequency (MHz): 5745



U-NII-3, 802.11a

Carrier frequency (MHz): 5785



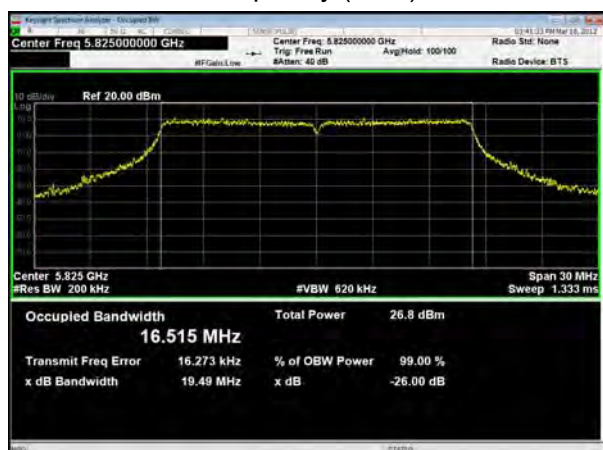
U-NII-3, 802.11n HT20

Carrier frequency (MHz): 5785



U-NII-3, 802.11a

Carrier frequency (MHz): 5825



U-NII-3, 802.11n HT20

Carrier frequency (MHz): 5825



### U-NII-3, 802.11n HT40 Carrier frequency (MHz): 5755



### U-NII-3, 802.11ac VHT20 Carrier frequency (MHz): 5745



### U-NII-3, 802.11n HT40 Carrier frequency (MHz): 5795



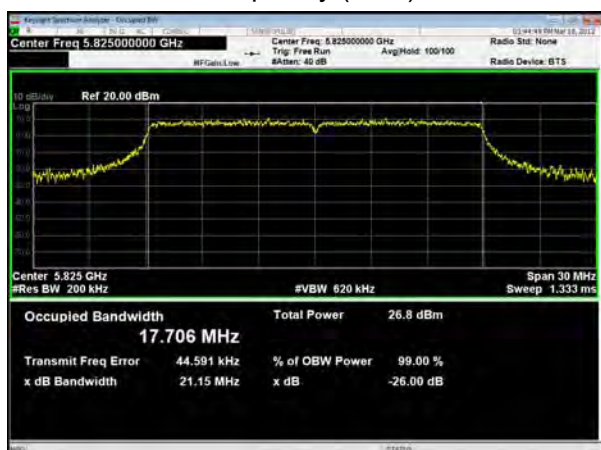
### U-NII-3, 802.11ac VHT20 Carrier frequency (MHz): 5785



### U-NII-3, 802.11ac VHT40 Carrier frequency (MHz): 5755



### U-NII-3, 802.11ac VHT20 Carrier frequency (MHz): 5825



### U-NII-3, 802.11ac VHT40 Carrier frequency (MHz): 5795



### U-NII-3, 802.11ac VHT80 Carrier frequency (MHz): 5775



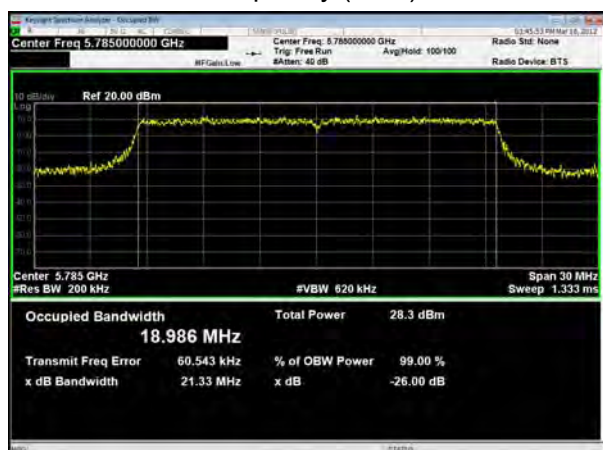
### U-NII-3, 802.11ax HE20 Carrier frequency (MHz): 5745



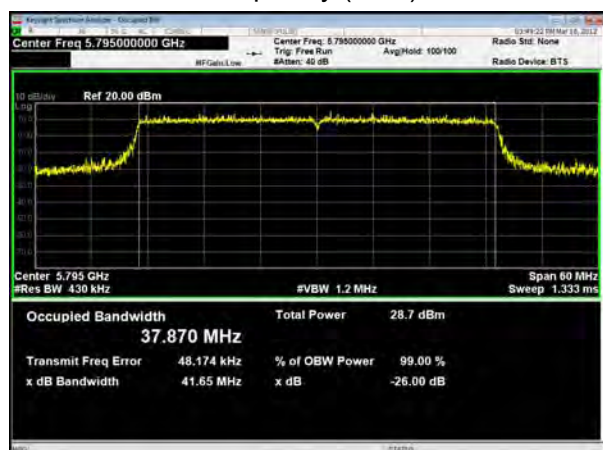
### U-NII-3, 802.11ax HE40 Carrier frequency (MHz): 5755



### U-NII-3, 802.11ax HE20 Carrier frequency (MHz): 5785

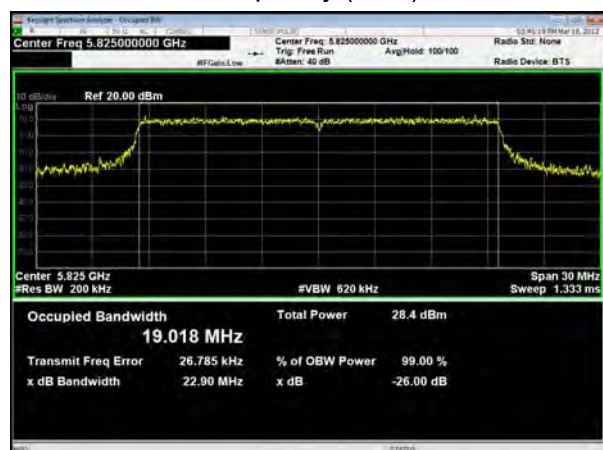


### U-NII-3, 802.11ax HE40 Carrier frequency (MHz): 5795

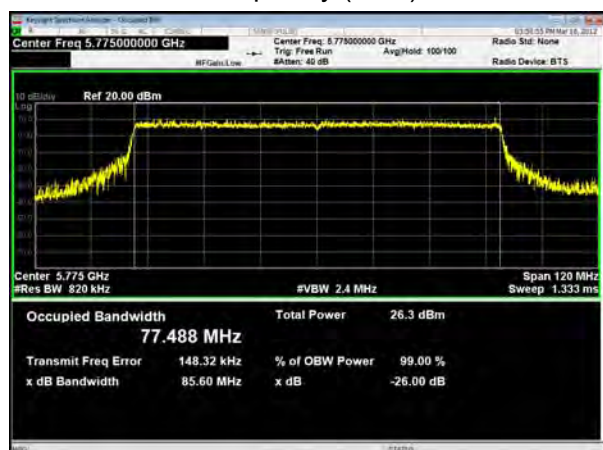




U-NII-3, 802.11ax HE20  
Carrier frequency (MHz): 5825



U-NII-3, 802.11ax HE80  
Carrier frequency (MHz): 5775





## Minimum 6 dB bandwidth

U-NII-3, 802.11a

Carrier frequency (MHz): 5745



U-NII-3, 802.11n HT20

Carrier frequency (MHz): 5745



U-NII-3, 802.11a

Carrier frequency (MHz): 5785



U-NII-3, 802.11n HT20

Carrier frequency (MHz): 5785



U-NII-3, 802.11a

Carrier frequency (MHz): 5825



U-NII-3, 802.11n HT20

Carrier frequency (MHz): 5825



U-NII-3, 802.11n HT40  
Carrier frequency (MHz): 5755



U-NII-3, 802.11ac VHT20  
Carrier frequency (MHz): 5745



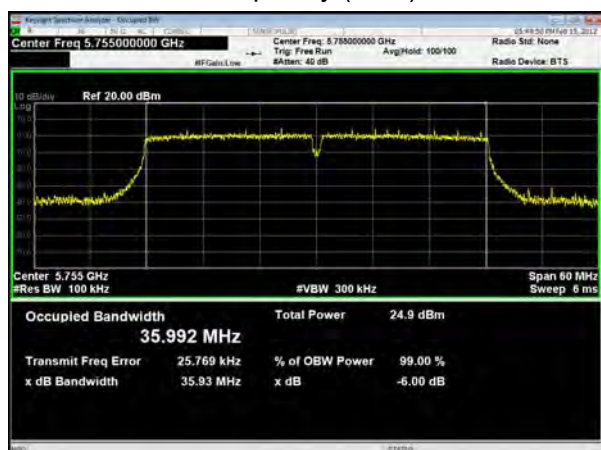
U-NII-3, 802.11n HT40  
Carrier frequency (MHz): 5795



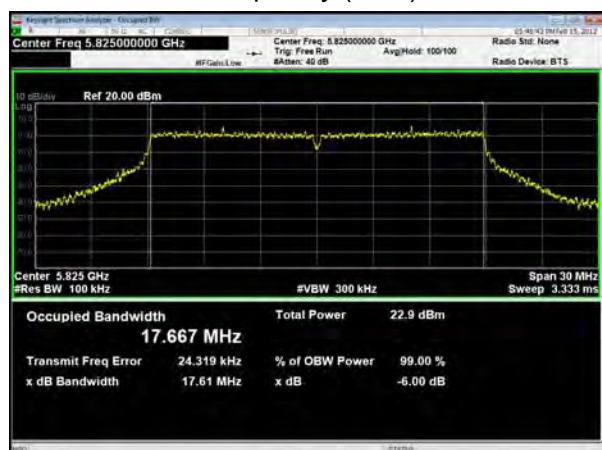
U-NII-3, 802.11ac VHT20  
Carrier frequency (MHz): 5785



U-NII-3, 802.11ac VHT40  
Carrier frequency (MHz): 5755



U-NII-3, 802.11ac VHT20  
Carrier frequency (MHz): 5825



### U-NII-3, 802.11ac VHT40 Carrier frequency (MHz): 5795



### U-NII-3, 802.11ac VHT80 Carrier frequency (MHz): 5775



### U-NII-3, 802.11ax HE20 Carrier frequency (MHz): 5745



### U-NII-3, 802.11ax HE40 Carrier frequency (MHz): 5755



### U-NII-3, 802.11ax HE20 Carrier frequency (MHz): 5785



### U-NII-3, 802.11ax HE40 Carrier frequency (MHz): 5795





U-NII-3, 802.11ax HE20  
Carrier frequency (MHz): 5825



U-NII-3, 802.11ax HE80  
Carrier frequency (MHz): 5775



## 5.2. Average Power Output

### Ambient condition

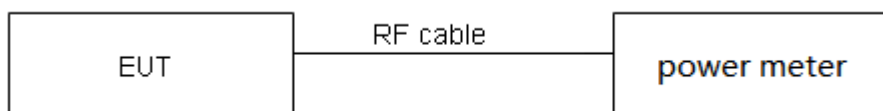
| Temperature | Relative humidity | Pressure |
|-------------|-------------------|----------|
| 23°C ~25°C  | 45%~50%           | 101.5kPa |

### Methods of Measurement

During the process of the testing, The EUT was connected to the average power meter through an external attenuator and a known loss cable. The EUT is max power transmission with proper modulation. We use Maximum average Conducted Output Power Level Method in KDB789033 for this test

The conducted Power is measured at each antenna port. The measured results at the various antenna ports are then summed mathematically.

### Test Setup



### Limits

Rule FCC Part 15.407(a)(1)(2)(3)

(1) For the band 5.15-5.25 GHz.

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

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

(iii) For fixed point-to-point access points operating in the band 5.15-5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W. In addition, the maximum power spectral density shall not exceed 17 dBm in any 1 megahertz band. Fixed point-to-point U-NII devices may employ antennas with directional gain up to 23 dBi without any corresponding reduction in the maximum conducted output power or maximum power spectral density. For fixed point-to-point transmitters that employ a directional antenna gain greater than 23

dBi, a 1 dB reduction in maximum conducted output power and maximum power spectral density is required for each 1 dB of antenna gain in excess of 23 dBi. Fixed, point-to-point operations exclude the use of point-to-multipoint systems, omnidirectional applications, and multiple collocated transmitters transmitting the same information. The operator of the U-NII device, or if the equipment is professionally installed, the installer, is responsible for ensuring that systems employing high gain directional antennas are used exclusively for fixed, point-to-point operations.

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

(2) For the 5.25-5.35 GHz and 5.47-5.725 GHz bands, the maximum conducted output power over the frequency bands of operation shall not exceed the lesser of 250 mW or  $11 \text{ dBm} + 10 \log B$ , where  $B$  is the 26 dB emission bandwidth in megahertz. In addition, the maximum power spectral density shall not exceed 11 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

(3) For the band 5.725-5.85 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W. In addition, the maximum power spectral density shall not exceed 30 dBm in any 500-kHz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

#### **Measurement Uncertainty**

The assessed measurement uncertainty to ensure 95% confidence level for the normal distribution is with the coverage factor  $k = 2$ ,  $U = 0.44 \text{ dB}$ .



## Test Results

| Mode            | T <sub>on</sub> (ms) | T <sub>(on+off)</sub> (ms) | Duty cycle | Duty cycle correction Factor(dB) |
|-----------------|----------------------|----------------------------|------------|----------------------------------|
| 802.11a         | 1.98                 | 2.06                       | 0.96       | 0.19                             |
| 802.11n HT20    | 5.42                 | 6.32                       | 0.86       | 0.67                             |
| 802.11n HT40    | 5.38                 | 6.36                       | 0.85       | 0.73                             |
| 802.11ac VHT20  | 5.42                 | 6.32                       | 0.86       | 0.67                             |
| 802.11ac VHT40  | 5.40                 | 6.32                       | 0.85       | 0.73                             |
| 802.11ac VHT80  | 5.40                 | 6.34                       | 0.85       | 0.73                             |
| 802.11ac VHT160 | 5.42                 | 5.94                       | 0.91       | 0.40                             |
| 802.11ax HE20   | 5.40                 | 6.32                       | 0.85       | 0.73                             |
| 802.11ax HE40   | 5.38                 | 6.32                       | 0.85       | 0.73                             |
| 802.11ax HE80   | 5.40                 | 6.30                       | 0.86       | 0.67                             |
| 802.11ax HE160  | 5.40                 | 5.84                       | 0.92       | 0.34                             |

Note: when Duty cycle  $\geq 0.98$ , Duty cycle correction Factor not required.

| Network Standards |                 | Channel/Frequency (MHz) | B=26 dB bandwidth (MHz) | Limit 11 dBm + 10 log B (dBm) | Final Limit(dBm) |
|-------------------|-----------------|-------------------------|-------------------------|-------------------------------|------------------|
| U-NII-2A          | 802.11a         | 52/5260                 | 20.33                   | 24.08>24                      | 24.00            |
|                   |                 | 60/5300                 | 20.30                   | 24.08>24                      | 24.00            |
|                   |                 | 64/5320                 | 19.59                   | 23.92<24                      | 23.92            |
|                   | 802.11n HT20    | 52/5260                 | 20.89                   | 24.20>24                      | 24.00            |
|                   |                 | 60/5300                 | 20.97                   | 24.22>24                      | 24.00            |
|                   |                 | 64/5320                 | 21.20                   | 24.26>24                      | 24.00            |
|                   | 802.11n HT40    | 54/5270                 | 38.92                   | 26.90>24                      | 24.00            |
|                   |                 | 62/5310                 | 39.04                   | 26.92>24                      | 24.00            |
|                   | 802.11ac VHT20  | 52/5260                 | 20.45                   | 24.11>24                      | 24.00            |
|                   |                 | 60/5300                 | 20.71                   | 24.16>24                      | 24.00            |
|                   |                 | 64/5320                 | 20.76                   | 24.17>24                      | 24.00            |
|                   | 802.11ac VHT40  | 54/5270                 | 38.96                   | 26.91>24                      | 24.00            |
|                   |                 | 62/5310                 | 38.88                   | 26.90>24                      | 24.00            |
|                   | 802.11ac VHT80  | 58/5290                 | 80.56                   | 30.06>24                      | 24.00            |
|                   | 802.11ac VHT160 | 50/5250                 | 170.40                  | 33.31>24                      | 24.00            |
|                   | 802.11ax HE20   | 52/5260                 | 21.35                   | 24.29>24                      | 24.00            |
|                   |                 | 60/5300                 | 21.12                   | 24.25>24                      | 24.00            |
|                   |                 | 64/5320                 | 21.19                   | 24.26>24                      | 24.00            |
|                   | 802.11ax HE40   | 54/5270                 | 40.11                   | 27.03>24                      | 24.00            |
|                   |                 | 62/5310                 | 40.09                   | 27.03>24                      | 24.00            |
|                   | 802.11ax        | 58/5290                 | 81.47                   | 30.11>24                      | 24.00            |



|          |                    |          |        |          |       |
|----------|--------------------|----------|--------|----------|-------|
| U-NII-2C | HE80               |          |        |          |       |
|          | 802.11ax<br>HE160  | 50/5250  | 167.21 | 33.23>24 | 24.00 |
|          | 802.11a            | 100/5500 | 19.94  | 24.00    | 24.00 |
|          |                    | 120/5600 | 20.23  | 24.06>24 | 24.00 |
|          |                    | 140/5700 | 20.27  | 24.07>24 | 24.00 |
|          |                    | 144/5720 | 19.81  | 23.97<24 | 23.97 |
|          | 802.11n<br>HT20    | 100/5500 | 21.11  | 24.25>24 | 24.00 |
|          |                    | 120/5600 | 21.41  | 24.31>24 | 24.00 |
|          |                    | 140/5700 | 21.13  | 24.25>24 | 24.00 |
|          |                    | 144/5720 | 20.70  | 24.16>24 | 24.00 |
|          | 802.11n<br>HT40    | 102/5510 | 39.80  | 27.00>24 | 24.00 |
|          |                    | 110/5550 | 39.96  | 27.02>24 | 24.00 |
|          |                    | 134/5670 | 39.67  | 26.98>24 | 24.00 |
|          |                    | 142/5710 | 40.18  | 27.04>24 | 24.00 |
|          | 802.11ac<br>VHT20  | 100/5500 | 20.92  | 24.21>24 | 24.00 |
|          |                    | 120/5600 | 21.41  | 24.31>24 | 24.00 |
|          |                    | 140/5700 | 20.95  | 24.21>24 | 24.00 |
|          |                    | 144/5720 | 20.78  | 24.18>24 | 24.00 |
|          | 802.11ac<br>VHT40  | 102/5510 | 39.04  | 26.92>24 | 24.00 |
|          |                    | 110/5550 | 38.80  | 26.89>24 | 24.00 |
|          |                    | 134/5670 | 38.91  | 26.90>24 | 24.00 |
|          |                    | 142/5710 | 39.18  | 26.93>24 | 24.00 |
|          | 802.11ac<br>VHT80  | 106/5530 | 80.23  | 30.04>24 | 24.00 |
|          |                    | 122/5610 | 80.55  | 30.06>24 | 24.00 |
|          |                    | 138/5690 | 80.58  | 30.06>24 | 24.00 |
|          | 802.11ac<br>VHT160 | 114/5570 | 169.10 | 33.28>24 | 24.00 |
|          | 802.11ax<br>HE20   | 100/5500 | 21.53  | 24.33>24 | 24.00 |
|          |                    | 120/5600 | 21.60  | 24.34>24 | 24.00 |
|          |                    | 140/5700 | 20.93  | 24.21>24 | 24.00 |
|          |                    | 144/5720 | 21.23  | 24.27>24 | 24.00 |
|          | 802.11ax<br>HE40   | 102/5510 | 40.15  | 27.04>24 | 24.00 |
|          |                    | 110/5550 | 40.06  | 27.03>24 | 24.00 |
|          |                    | 134/5670 | 39.74  | 26.99>24 | 24.00 |
|          |                    | 142/5710 | 40.55  | 27.08>24 | 24.00 |
|          | 802.11ax<br>HE80   | 106/5530 | 81.70  | 30.12>24 | 24.00 |
|          |                    | 122/5610 | 81.02  | 30.09>24 | 24.00 |
|          |                    | 138/5690 | 81.20  | 30.10>24 | 24.00 |
|          | 802.11ax<br>HE160  | 114/5570 | 162.02 | 33.10>24 | 24.00 |

Note: 250mW=24dBm

Note: Average Power with duty factor = Average Power Measured +Duty cycle correction factor



## INPAQ:

## MIMO Antenna

## U-NII-1

| Network Standards | Channel/<br>Frequency (MHz) | MIMO Antenna 1               |                                      | MIMO Antenna 2               |                                      | MIMO Antenna3                |                                      | MIMO Antenna4                |                                      | Total Power (dBm) | Limit (dBm) | Conclusion |
|-------------------|-----------------------------|------------------------------|--------------------------------------|------------------------------|--------------------------------------|------------------------------|--------------------------------------|------------------------------|--------------------------------------|-------------------|-------------|------------|
|                   |                             | Average Power Measured (dBm) | Average Power with duty factor (dBm) | Average Power Measured (dBm) | Average Power with duty factor (dBm) | Average Power Measured (dBm) | Average Power with duty factor (dBm) | Average Power Measured (dBm) | Average Power with duty factor (dBm) |                   |             |            |
| 802.11a           | 36/5180                     | 21.49                        | 21.68                                | 20.54                        | 20.73                                | 20.06                        | 20.25                                | 20.85                        | 21.04                                | 26.98             | 30.00       | PASS       |
|                   | 44/5220                     | 20.56                        | 20.75                                | 20.99                        | 21.18                                | 19.93                        | 20.12                                | 20.59                        | 20.78                                | 26.74             | 30.00       | PASS       |
|                   | 48/5240                     | 21.64                        | 21.83                                | 20.49                        | 20.68                                | 19.74                        | 19.93                                | 20.69                        | 20.88                                | 26.90             | 30.00       | PASS       |
| 802.11n HT20      | 36/5180                     | 19.64                        | 20.31                                | 18.95                        | 19.62                                | 18.36                        | 19.03                                | 18.84                        | 19.51                                | 25.66             | 30.00       | PASS       |
|                   | 44/5220                     | 20.66                        | 21.33                                | 20.49                        | 21.16                                | 19.35                        | 20.02                                | 19.76                        | 20.43                                | 26.79             | 30.00       | PASS       |
|                   | 48/5240                     | 21.18                        | 21.85                                | 20.07                        | 20.74                                | 19.26                        | 19.93                                | 20.01                        | 20.68                                | 26.87             | 30.00       | PASS       |
| 802.11n HT40      | 38/5190                     | 18.06                        | 18.79                                | 17.11                        | 17.84                                | 16.86                        | 17.59                                | 16.93                        | 17.66                                | 24.02             | 30.00       | PASS       |
|                   | 46/5230                     | 23.31                        | 24.04                                | 22.62                        | 23.35                                | 21.77                        | 22.50                                | 22.68                        | 23.41                                | 29.38             | 30.00       | PASS       |
| 802.11ac VHT20    | 36/5180                     | 20.20                        | 20.87                                | 19.23                        | 19.90                                | 18.60                        | 19.27                                | 19.01                        | 19.68                                | 25.99             | 30.00       | PASS       |
|                   | 44/5220                     | 20.87                        | 21.54                                | 20.45                        | 21.12                                | 19.41                        | 20.08                                | 19.91                        | 20.58                                | 26.88             | 30.00       | PASS       |
|                   | 48/5240                     | 21.12                        | 21.79                                | 20.07                        | 20.74                                | 19.28                        | 19.95                                | 20.04                        | 20.71                                | 26.87             | 30.00       | PASS       |
| 802.11ac VHT40    | 38/5190                     | 18.00                        | 18.73                                | 17.06                        | 17.79                                | 16.90                        | 17.63                                | 17.02                        | 17.75                                | 24.02             | 30.00       | PASS       |
|                   | 46/5230                     | 23.31                        | 24.04                                | 22.73                        | 23.46                                | 21.68                        | 22.41                                | 22.60                        | 23.33                                | 29.37             | 30.00       | PASS       |
| 802.11ac VHT80    | 42/5210                     | 16.15                        | 16.88                                | 15.74                        | 16.47                                | 15.19                        | 15.92                                | 14.99                        | 15.72                                | 22.29             | 30.00       | PASS       |
| 802.11ax HE20     | 36/5180                     | 19.99                        | 20.72                                | 19.45                        | 20.18                                | 18.87                        | 19.60                                | 19.43                        | 20.16                                | 26.20             | 30.00       | PASS       |
|                   | 44/5220                     | 21.51                        | 22.24                                | 21.01                        | 21.74                                | 19.87                        | 20.60                                | 20.42                        | 21.15                                | 27.50             | 30.00       | PASS       |
|                   | 48/5240                     | 21.69                        | 22.42                                | 20.52                        | 21.25                                | 19.87                        | 20.60                                | 20.42                        | 21.15                                | 27.43             | 30.00       | PASS       |
| 802.11ax HE40     | 38/5190                     | 18.48                        | 19.21                                | 17.61                        | 18.34                                | 17.18                        | 17.91                                | 17.53                        | 18.26                                | 24.48             | 30.00       | PASS       |
|                   | 46/5230                     | 23.51                        | 24.24                                | 22.61                        | 23.34                                | 21.91                        | 22.64                                | 22.72                        | 23.45                                | 29.47             | 30.00       | PASS       |
| 802.11ax HE80     | 42/5210                     | 15.72                        | 16.39                                | 15.35                        | 16.02                                | 14.92                        | 15.59                                | 14.73                        | 15.40                                | 21.89             | 30.00       | PASS       |

Note: 1. Average Power with duty factor = Average Power Measured +Duty cycle correction factor

2. For Total Power, according to KDB 662911 D01 Multiple Transmitter Output v02r01 1),

The Total Power =  $10\log(10^{(\text{Power antenna1 in dBm}/10)} + 10^{(\text{Power antenna2 in dBm}/10)} + 10^{(\text{Power antenna3 in dBm}/10)} + 10^{(\text{Power antenna4 in dBm}/10)})$ .

3. The manufacturer declared that the directional gain = 3.38dBi<6dBi. So the power limit is 30dBm.



## U-NII-2A

| Network Standards                                                                                                                                                                                                                                                                               | Channel/<br>Frequency (MHz) | MIMO Antenna 1               |                                      | MIMO Antenna 2               |                                      | MIMO Antenna3                |                                      | MIMO Antenna4                |                                      | Total Power (dBm) | Limit (dBm) | Conclusion |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------|------------------------------|--------------------------------------|------------------------------|--------------------------------------|------------------------------|--------------------------------------|------------------------------|--------------------------------------|-------------------|-------------|------------|
|                                                                                                                                                                                                                                                                                                 |                             | Average Power Measured (dBm) | Average Power with duty factor (dBm) | Average Power Measured (dBm) | Average Power with duty factor (dBm) | Average Power Measured (dBm) | Average Power with duty factor (dBm) | Average Power Measured (dBm) | Average Power with duty factor (dBm) |                   |             |            |
| 802.11a                                                                                                                                                                                                                                                                                         | 52/5260                     | 14.82                        | 15.01                                | 14.81                        | 15.00                                | 13.43                        | 13.62                                | 14.30                        | 14.49                                | 20.59             | 24.00       | PASS       |
|                                                                                                                                                                                                                                                                                                 | 60/5300                     | 14.81                        | 15.00                                | 14.44                        | 14.63                                | 13.08                        | 13.27                                | 14.40                        | 14.59                                | 20.44             | 24.00       | PASS       |
|                                                                                                                                                                                                                                                                                                 | 64/5320                     | 14.34                        | 14.53                                | 14.24                        | 14.43                                | 13.21                        | 13.40                                | 14.95                        | 15.14                                | 20.44             | 23.92       | PASS       |
| 802.11n HT20                                                                                                                                                                                                                                                                                    | 52/5260                     | 14.49                        | 15.16                                | 14.48                        | 15.15                                | 13.02                        | 13.69                                | 14.11                        | 14.78                                | 20.75             | 24.00       | PASS       |
|                                                                                                                                                                                                                                                                                                 | 60/5300                     | 13.87                        | 14.54                                | 13.61                        | 14.28                                | 14.30                        | 14.97                                | 14.26                        | 14.93                                | 20.71             | 24.00       | PASS       |
|                                                                                                                                                                                                                                                                                                 | 64/5320                     | 14.46                        | 15.13                                | 14.45                        | 15.12                                | 14.28                        | 14.95                                | 14.37                        | 15.04                                | 21.08             | 24.00       | PASS       |
| 802.11n HT40                                                                                                                                                                                                                                                                                    | 54/5270                     | 17.52                        | 18.25                                | 16.72                        | 17.45                                | 17.25                        | 17.98                                | 17.08                        | 17.81                                | 23.90             | 24.00       | PASS       |
|                                                                                                                                                                                                                                                                                                 | 62/5310                     | 17.05                        | 17.78                                | 16.18                        | 16.91                                | 16.77                        | 17.50                                | 17.17                        | 17.90                                | 23.56             | 24.00       | PASS       |
| 802.11ac VHT20                                                                                                                                                                                                                                                                                  | 52/5260                     | 14.86                        | 15.53                                | 14.29                        | 14.96                                | 14.39                        | 15.06                                | 14.31                        | 14.98                                | 21.16             | 24.00       | PASS       |
|                                                                                                                                                                                                                                                                                                 | 60/5300                     | 14.50                        | 15.17                                | 14.20                        | 14.87                                | 14.42                        | 15.09                                | 14.55                        | 15.22                                | 21.11             | 24.00       | PASS       |
|                                                                                                                                                                                                                                                                                                 | 64/5320                     | 14.25                        | 14.92                                | 13.61                        | 14.28                                | 14.27                        | 14.94                                | 14.56                        | 15.23                                | 20.87             | 24.00       | PASS       |
| 802.11ac VHT40                                                                                                                                                                                                                                                                                  | 54/5270                     | 17.03                        | 17.76                                | 16.67                        | 17.40                                | 17.05                        | 17.78                                | 17.00                        | 17.73                                | 23.69             | 24.00       | PASS       |
|                                                                                                                                                                                                                                                                                                 | 62/5310                     | 16.84                        | 17.57                                | 15.95                        | 16.68                                | 16.90                        | 17.63                                | 17.09                        | 17.82                                | 23.47             | 24.00       | PASS       |
| 802.11ac VHT80                                                                                                                                                                                                                                                                                  | 58/5290                     | 16.51                        | 17.24                                | 16.12                        | 16.85                                | 16.73                        | 17.46                                | 16.79                        | 17.52                                | 23.30             | 24.00       | PASS       |
| 802.11ac VHT160                                                                                                                                                                                                                                                                                 | 50/5250                     | 12.93                        | 13.33                                | 12.36                        | 12.76                                | 12.23                        | 12.63                                | 11.78                        | 12.18                                | 18.76             | 24.00       | PASS       |
| 802.11ax HE20                                                                                                                                                                                                                                                                                   | 52/5260                     | 14.27                        | 15.00                                | 14.05                        | 14.78                                | 14.09                        | 14.82                                | 13.77                        | 14.50                                | 20.80             | 24.00       | PASS       |
|                                                                                                                                                                                                                                                                                                 | 60/5300                     | 14.06                        | 14.79                                | 13.73                        | 14.46                                | 14.28                        | 15.01                                | 13.95                        | 14.68                                | 20.76             | 24.00       | PASS       |
|                                                                                                                                                                                                                                                                                                 | 64/5320                     | 13.80                        | 14.53                                | 13.31                        | 14.04                                | 14.21                        | 14.94                                | 14.01                        | 14.74                                | 20.60             | 24.00       | PASS       |
| 802.11ax HE40                                                                                                                                                                                                                                                                                   | 54/5270                     | 17.29                        | 18.02                                | 16.76                        | 17.49                                | 17.15                        | 17.88                                | 17.00                        | 17.73                                | 23.81             | 24.00       | PASS       |
|                                                                                                                                                                                                                                                                                                 | 62/5310                     | 17.00                        | 17.73                                | 16.18                        | 16.91                                | 17.16                        | 17.89                                | 17.16                        | 17.89                                | 23.64             | 24.00       | PASS       |
| 802.11ax HE80                                                                                                                                                                                                                                                                                   | 58/5290                     | 17.28                        | 17.95                                | 16.59                        | 17.26                                | 17.27                        | 17.94                                | 17.31                        | 17.98                                | 23.81             | 24.00       | PASS       |
| 802.11ax HE160                                                                                                                                                                                                                                                                                  | 50/5250                     | 13.31                        | 13.65                                | 12.78                        | 13.12                                | 12.54                        | 12.88                                | 12.03                        | 12.37                                | 19.05             | 24.00       | PASS       |
| Note: 1. For Total Power, according to KDB 662911 D01 Multiple Transmitter Output v02r01 1),<br>The Total Power = $10\log(10^{(\text{Power antenna1 in dBm}/10)} + 10^{(\text{Power antenna2 in dBm}/10)} + 10^{(\text{Power antenna3 in dBm}/10)} + 10^{(\text{Power antenna4 in dBm}/10)})$ . |                             |                              |                                      |                              |                                      |                              |                                      |                              |                                      |                   |             |            |



## U-NII-2C

| Network Standards  | Channel/<br>Frequency<br>(MHz) | MIMO<br>Antenna 1                     |                                                     | MIMO<br>Antenna 2                     |                                                     | MIMO<br>Antenna3                      |                                                     | MIMO<br>Antenna4                      |                                                     | Total<br>Power<br>(dBm) | Limit<br>(dBm) | Conclusion |
|--------------------|--------------------------------|---------------------------------------|-----------------------------------------------------|---------------------------------------|-----------------------------------------------------|---------------------------------------|-----------------------------------------------------|---------------------------------------|-----------------------------------------------------|-------------------------|----------------|------------|
|                    |                                | Average<br>Power<br>Measured<br>(dBm) | Average<br>Power<br>with<br>duty<br>factor<br>(dBm) | Average<br>Power<br>Measured<br>(dBm) | Average<br>Power<br>with<br>duty<br>factor<br>(dBm) | Average<br>Power<br>Measured<br>(dBm) | Average<br>Power<br>with<br>duty<br>factor<br>(dBm) | Average<br>Power<br>Measured<br>(dBm) | Average<br>Power<br>with<br>duty<br>factor<br>(dBm) |                         |                |            |
| 802.11a            | 100/5500                       | 14.60                                 | 14.79                                               | 13.46                                 | 13.65                                               | 13.94                                 | 14.13                                               | 13.41                                 | 13.60                                               | 20.09                   | 24.00          | PASS       |
|                    | 120/5600                       | 14.68                                 | 14.87                                               | 14.41                                 | 14.60                                               | 14.44                                 | 14.63                                               | 13.87                                 | 14.06                                               | 20.57                   | 24.00          | PASS       |
|                    | 140/5700                       | 14.64                                 | 14.83                                               | 13.27                                 | 13.46                                               | 14.54                                 | 14.73                                               | 14.84                                 | 15.03                                               | 20.57                   | 24.00          | PASS       |
|                    | 144/5720                       | 13.79                                 | 13.98                                               | 13.59                                 | 13.78                                               | 14.05                                 | 14.24                                               | 14.46                                 | 14.65                                               | 20.19                   | 23.97          | PASS       |
| 802.11n<br>HT20    | 100/5500                       | 14.84                                 | 15.51                                               | 13.81                                 | 14.48                                               | 14.36                                 | 15.03                                               | 13.80                                 | 14.47                                               | 20.91                   | 24.00          | PASS       |
|                    | 120/5600                       | 14.53                                 | 15.20                                               | 14.31                                 | 14.98                                               | 14.54                                 | 15.21                                               | 14.36                                 | 15.03                                               | 21.12                   | 24.00          | PASS       |
|                    | 140/5700                       | 14.70                                 | 15.37                                               | 13.52                                 | 14.19                                               | 14.36                                 | 15.03                                               | 15.17                                 | 15.84                                               | 21.17                   | 24.00          | PASS       |
|                    | 144/5720                       | 14.07                                 | 14.74                                               | 13.61                                 | 14.28                                               | 13.97                                 | 14.64                                               | 14.18                                 | 14.85                                               | 20.65                   | 24.00          | PASS       |
| 802.11n<br>HT40    | 102/5510                       | 17.73                                 | 18.46                                               | 16.66                                 | 17.39                                               | 16.93                                 | 17.66                                               | 16.24                                 | 16.97                                               | 23.67                   | 24.00          | PASS       |
|                    | 110/5550                       | 18.00                                 | 18.73                                               | 17.04                                 | 17.77                                               | 16.92                                 | 17.65                                               | 16.86                                 | 17.59                                               | 23.98                   | 24.00          | PASS       |
|                    | 134/5670                       | 16.91                                 | 17.64                                               | 15.93                                 | 16.66                                               | 16.45                                 | 17.18                                               | 16.72                                 | 17.45                                               | 23.27                   | 24.00          | PASS       |
|                    | 142/5710                       | 17.25                                 | 17.98                                               | 16.22                                 | 16.95                                               | 17.02                                 | 17.75                                               | 17.67                                 | 18.40                                               | 23.82                   | 24.00          | PASS       |
| 802.11ac<br>VHT20  | 100/5500                       | 15.01                                 | 15.68                                               | 13.92                                 | 14.59                                               | 14.52                                 | 15.19                                               | 13.81                                 | 14.48                                               | 21.03                   | 24.00          | PASS       |
|                    | 120/5600                       | 14.35                                 | 15.02                                               | 14.38                                 | 15.05                                               | 14.50                                 | 15.17                                               | 14.40                                 | 15.07                                               | 21.10                   | 24.00          | PASS       |
|                    | 140/5700                       | 14.25                                 | 14.92                                               | 12.73                                 | 13.40                                               | 14.08                                 | 14.75                                               | 14.26                                 | 14.93                                               | 20.56                   | 24.00          | PASS       |
|                    | 144/5720                       | 14.46                                 | 15.13                                               | 13.91                                 | 14.58                                               | 14.31                                 | 14.98                                               | 14.25                                 | 14.92                                               | 20.92                   | 24.00          | PASS       |
| 802.11ac<br>VHT40  | 102/5510                       | 17.82                                 | 18.55                                               | 16.30                                 | 17.03                                               | 16.93                                 | 17.66                                               | 16.33                                 | 17.06                                               | 23.64                   | 24.00          | PASS       |
|                    | 110/5550                       | 17.91                                 | 18.64                                               | 16.95                                 | 17.68                                               | 17.04                                 | 17.77                                               | 16.50                                 | 17.23                                               | 23.88                   | 24.00          | PASS       |
|                    | 134/5670                       | 16.75                                 | 17.48                                               | 15.86                                 | 16.59                                               | 16.24                                 | 16.97                                               | 16.72                                 | 17.45                                               | 23.16                   | 24.00          | PASS       |
|                    | 142/5710                       | 17.29                                 | 18.02                                               | 16.38                                 | 17.11                                               | 17.09                                 | 17.82                                               | 17.51                                 | 18.24                                               | 23.84                   | 24.00          | PASS       |
| 802.11ac<br>VHT80  | 106/5530                       | 17.67                                 | 18.40                                               | 16.44                                 | 17.17                                               | 16.47                                 | 17.20                                               | 16.14                                 | 16.87                                               | 23.47                   | 24.00          | PASS       |
|                    | 122/5610                       | 17.32                                 | 18.05                                               | 17.08                                 | 17.81                                               | 17.02                                 | 17.75                                               | 16.20                                 | 16.93                                               | 23.68                   | 24.00          | PASS       |
|                    | 138/5690                       | 17.37                                 | 18.10                                               | 16.41                                 | 17.14                                               | 17.15                                 | 17.88                                               | 17.52                                 | 18.25                                               | 23.88                   | 24.00          | PASS       |
| 802.11ac<br>VHT160 | 114/5570                       | 15.16                                 | 15.56                                               | 14.65                                 | 15.05                                               | 14.76                                 | 15.16                                               | 14.07                                 | 14.47                                               | 21.10                   | 24.00          | PASS       |
| 802.11ax<br>HE20   | 100/5500                       | 14.96                                 | 15.69                                               | 13.61                                 | 14.34                                               | 14.19                                 | 14.92                                               | 13.67                                 | 14.40                                               | 20.89                   | 24.00          | PASS       |
|                    | 120/5600                       | 14.62                                 | 15.35                                               | 14.03                                 | 14.76                                               | 14.48                                 | 15.21                                               | 13.91                                 | 14.64                                               | 21.02                   | 24.00          | PASS       |
|                    | 140/5700                       | 14.54                                 | 15.27                                               | 13.38                                 | 14.11                                               | 14.63                                 | 15.36                                               | 14.32                                 | 15.05                                               | 21.00                   | 24.00          | PASS       |
|                    | 144/5720                       | 14.24                                 | 14.97                                               | 13.45                                 | 14.18                                               | 14.00                                 | 14.73                                               | 14.40                                 | 15.13                                               | 20.79                   | 24.00          | PASS       |
| 802.11ax<br>HE40   | 102/5510                       | 16.71                                 | 17.44                                               | 16.31                                 | 17.04                                               | 16.86                                 | 17.59                                               | 16.37                                 | 17.10                                               | 23.32                   | 24.00          | PASS       |
|                    | 110/5550                       | 17.02                                 | 17.75                                               | 16.76                                 | 17.49                                               | 17.12                                 | 17.85                                               | 16.60                                 | 17.33                                               | 23.63                   | 24.00          | PASS       |



|                                                                                                                                                                                                                                                                                                 |          |       |       |       |       |       |       |       |       |       |       |      |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|------|
|                                                                                                                                                                                                                                                                                                 | 134/5670 | 16.79 | 17.52 | 15.85 | 16.58 | 16.41 | 17.14 | 16.32 | 17.05 | 23.11 | 24.00 | PASS |
|                                                                                                                                                                                                                                                                                                 | 142/5710 | 16.70 | 17.43 | 15.28 | 16.01 | 16.32 | 17.05 | 16.35 | 17.08 | 22.94 | 24.00 | PASS |
| 802.11ax<br>HE80                                                                                                                                                                                                                                                                                | 106/5530 | 18.10 | 18.77 | 17.04 | 17.71 | 17.27 | 17.94 | 16.57 | 17.24 | 23.97 | 24.00 | PASS |
|                                                                                                                                                                                                                                                                                                 | 122/5610 | 17.93 | 18.60 | 17.14 | 17.81 | 17.33 | 18.00 | 16.60 | 17.27 | 23.97 | 24.00 | PASS |
|                                                                                                                                                                                                                                                                                                 | 138/5690 | 17.22 | 17.89 | 15.54 | 16.21 | 16.74 | 17.41 | 16.52 | 17.19 | 23.24 | 24.00 | PASS |
| 802.11ax<br>HE160                                                                                                                                                                                                                                                                               | 114/5570 | 17.38 | 17.72 | 16.60 | 16.94 | 16.75 | 17.09 | 16.50 | 16.84 | 23.18 | 24.00 | PASS |
| Note: 1. For Total Power, according to KDB 662911 D01 Multiple Transmitter Output v02r01 1),<br>The Total Power = $10\log(10^{(\text{Power antenna1 in dBm}/10)} + 10^{(\text{Power antenna2 in dBm}/10)} + 10^{(\text{Power antenna3 in dBm}/10)} + 10^{(\text{Power antenna4 in dBm}/10)})$ . |          |       |       |       |       |       |       |       |       |       |       |      |



## U-NII-3

| Network Standards | Channel/<br>Frequency (MHz) | MIMO Antenna 1               |                                      | MIMO Antenna 2               |                                      | MIMO Antenna3                |                                      | MIMO Antenna4                |                                      | Total Power (dBm) | Limit (dBm) | Conclusion |
|-------------------|-----------------------------|------------------------------|--------------------------------------|------------------------------|--------------------------------------|------------------------------|--------------------------------------|------------------------------|--------------------------------------|-------------------|-------------|------------|
|                   |                             | Average Power Measured (dBm) | Average Power with duty factor (dBm) | Average Power Measured (dBm) | Average Power with duty factor (dBm) | Average Power Measured (dBm) | Average Power with duty factor (dBm) | Average Power Measured (dBm) | Average Power with duty factor (dBm) |                   |             |            |
| 802.11a           | 149/5745                    | 23.35                        | 23.54                                | 23.93                        | 24.12                                | 23.43                        | 23.62                                | 23.03                        | 23.22                                | 29.66             | 30.00       | PASS       |
|                   | 157/5785                    | 22.72                        | 22.91                                | 23.74                        | 23.93                                | 22.62                        | 22.81                                | 22.21                        | 22.40                                | 29.07             | 30.00       | PASS       |
|                   | 165/5825                    | 22.55                        | 22.74                                | 23.13                        | 23.32                                | 22.78                        | 22.97                                | 22.38                        | 22.57                                | 28.93             | 30.00       | PASS       |
| 802.11n HT20      | 149/5745                    | 22.87                        | 23.54                                | 23.58                        | 24.25                                | 22.77                        | 23.44                                | 22.47                        | 23.14                                | 29.63             | 30.00       | PASS       |
|                   | 157/5785                    | 22.20                        | 22.87                                | 23.19                        | 23.86                                | 22.14                        | 22.81                                | 21.80                        | 22.47                                | 29.05             | 30.00       | PASS       |
|                   | 165/5825                    | 22.19                        | 22.86                                | 22.79                        | 23.46                                | 22.24                        | 22.91                                | 21.69                        | 22.36                                | 28.93             | 30.00       | PASS       |
| 802.11n HT40      | 151/5755                    | 23.35                        | 24.08                                | 22.42                        | 23.15                                | 23.46                        | 24.19                                | 23.14                        | 23.87                                | 29.86             | 30.00       | PASS       |
|                   | 159/5795                    | 23.15                        | 23.88                                | 22.29                        | 23.02                                | 22.57                        | 23.30                                | 21.97                        | 22.70                                | 29.26             | 30.00       | PASS       |
| 802.11ac VHT20    | 149/5745                    | 22.94                        | 23.61                                | 22.03                        | 22.70                                | 22.81                        | 23.48                                | 22.64                        | 23.31                                | 29.31             | 30.00       | PASS       |
|                   | 157/5785                    | 22.58                        | 23.25                                | 21.55                        | 22.22                                | 21.92                        | 22.59                                | 21.70                        | 22.37                                | 28.64             | 30.00       | PASS       |
|                   | 165/5825                    | 22.66                        | 23.33                                | 21.25                        | 21.92                                | 22.26                        | 22.93                                | 21.64                        | 22.31                                | 28.67             | 30.00       | PASS       |
| 802.11ac VHT40    | 151/5755                    | 23.68                        | 24.41                                | 22.34                        | 23.07                                | 23.33                        | 24.06                                | 23.05                        | 23.78                                | 29.88             | 30.00       | PASS       |
|                   | 159/5795                    | 22.92                        | 23.65                                | 22.36                        | 23.09                                | 22.84                        | 23.57                                | 22.00                        | 22.73                                | 29.30             | 30.00       | PASS       |
| 802.11ac VHT80    | 155/5775                    | 20.52                        | 21.25                                | 19.67                        | 20.40                                | 20.58                        | 21.31                                | 19.42                        | 20.15                                | 26.83             | 30.00       | PASS       |
| 802.11ax HE20     | 149/5745                    | 23.38                        | 24.11                                | 22.73                        | 23.46                                | 23.18                        | 23.91                                | 22.58                        | 23.31                                | 29.73             | 30.00       | PASS       |
|                   | 157/5785                    | 23.10                        | 23.83                                | 22.48                        | 23.21                                | 22.65                        | 23.38                                | 22.17                        | 22.90                                | 29.36             | 30.00       | PASS       |
|                   | 165/5825                    | 23.01                        | 23.74                                | 21.74                        | 22.47                                | 22.94                        | 23.67                                | 22.14                        | 22.87                                | 29.24             | 30.00       | PASS       |
| 802.11ax HE40     | 151/5755                    | 22.74                        | 23.47                                | 22.16                        | 22.89                                | 22.53                        | 23.26                                | 22.03                        | 22.76                                | 29.12             | 30.00       | PASS       |
|                   | 159/5795                    | 23.31                        | 24.04                                | 22.40                        | 23.13                                | 22.98                        | 23.71                                | 22.28                        | 23.01                                | 29.51             | 30.00       | PASS       |
| 802.11ax HE80     | 155/5775                    | 20.26                        | 20.93                                | 19.41                        | 20.08                                | 19.83                        | 20.50                                | 19.00                        | 19.67                                | 26.34             | 30.00       | PASS       |

Note: 1. 1.Average Power with duty factor = Average Power Measured +Duty cycle correction factor  
2. For Total Power, according to KDB 662911 D01 Multiple Transmitter Output v02r01 1),  
The Total Power =  $10\log(10^{(\text{Power antenna1 in dBm}/10)} + 10^{(\text{Power antenna2 in dBm}/10)} + 10^{(\text{Power antenna3 in dBm}/10)} + 10^{(\text{Power antenna4 in dBm}/10)})$ .  
3. The manufacturer declared that the directional gain = 3.43dBi<6dBi. So the power limit is 30dBm.



## MIMO with Beamforming

## U-NII-1

| Network Standards | Channel/<br>Frequency (MHz) | MIMO Antenna 1               |                                      | MIMO Antenna 2               |                                      | MIMO Antenna3                |                                      | MIMO Antenna4                |                                      | Total Power (dBm) | Limit (dBm) | Conclusion |
|-------------------|-----------------------------|------------------------------|--------------------------------------|------------------------------|--------------------------------------|------------------------------|--------------------------------------|------------------------------|--------------------------------------|-------------------|-------------|------------|
|                   |                             | Average Power Measured (dBm) | Average Power with duty factor (dBm) | Average Power Measured (dBm) | Average Power with duty factor (dBm) | Average Power Measured (dBm) | Average Power with duty factor (dBm) | Average Power Measured (dBm) | Average Power with duty factor (dBm) |                   |             |            |
| 802.11a           | 36/5180                     | 21.74                        | 21.93                                | 20.34                        | 20.53                                | 19.07                        | 19.26                                | 20.46                        | 20.65                                | 26.71             | 30.00       | PASS       |
|                   | 44/5220                     | 21.84                        | 22.03                                | 20.18                        | 20.37                                | 20.83                        | 21.02                                | 20.14                        | 20.33                                | 27.01             | 30.00       | PASS       |
|                   | 48/5240                     | 21.79                        | 21.98                                | 20.35                        | 20.54                                | 20.92                        | 21.11                                | 20.16                        | 20.35                                | 27.06             | 30.00       | PASS       |
| 802.11n HT20      | 36/5180                     | 19.93                        | 20.60                                | 18.76                        | 19.43                                | 18.59                        | 19.26                                | 18.95                        | 19.62                                | 25.78             | 30.00       | PASS       |
|                   | 44/5220                     | 21.26                        | 21.93                                | 20.65                        | 21.32                                | 20.30                        | 20.97                                | 19.53                        | 20.20                                | 27.17             | 30.00       | PASS       |
|                   | 48/5240                     | 21.32                        | 21.99                                | 20.28                        | 20.95                                | 20.43                        | 21.10                                | 19.67                        | 20.34                                | 27.15             | 30.00       | PASS       |
| 802.11n HT40      | 38/5190                     | 18.00                        | 18.73                                | 17.16                        | 17.89                                | 17.00                        | 17.73                                | 16.88                        | 17.61                                | 24.03             | 30.00       | PASS       |
|                   | 46/5230                     | 23.75                        | 24.48                                | 23.04                        | 23.77                                | 22.91                        | 23.64                                | 22.21                        | 22.94                                | 29.76             | 30.00       | PASS       |
| 802.11ac VHT20    | 36/5180                     | 20.35                        | 21.02                                | 19.14                        | 19.81                                | 18.30                        | 18.97                                | 19.06                        | 19.73                                | 25.96             | 30.00       | PASS       |
|                   | 44/5220                     | 20.99                        | 21.66                                | 20.42                        | 21.09                                | 20.41                        | 21.08                                | 19.59                        | 20.26                                | 27.07             | 30.00       | PASS       |
|                   | 48/5240                     | 21.13                        | 21.80                                | 20.32                        | 20.99                                | 20.51                        | 21.18                                | 19.75                        | 20.42                                | 27.14             | 30.00       | PASS       |
| 802.11ac VHT40    | 38/5190                     | 18.08                        | 18.81                                | 17.19                        | 17.92                                | 16.90                        | 17.63                                | 17.20                        | 17.93                                | 24.12             | 30.00       | PASS       |
|                   | 46/5230                     | 23.78                        | 24.51                                | 23.15                        | 23.88                                | 22.60                        | 23.33                                | 22.29                        | 23.02                                | 29.74             | 30.00       | PASS       |
| 802.11ac VHT80    | 42/5210                     | 15.64                        | 16.37                                | 15.57                        | 16.30                                | 14.69                        | 15.42                                | 14.89                        | 15.62                                | 21.97             | 30.00       | PASS       |
| 802.11ax HE20     | 36/5180                     | 20.00                        | 20.73                                | 19.42                        | 20.15                                | 18.99                        | 19.72                                | 19.42                        | 20.15                                | 26.22             | 30.00       | PASS       |
|                   | 44/5220                     | 21.72                        | 22.45                                | 20.96                        | 21.69                                | 20.83                        | 21.56                                | 20.15                        | 20.88                                | 27.70             | 30.00       | PASS       |
|                   | 48/5240                     | 21.85                        | 22.58                                | 20.86                        | 21.59                                | 21.01                        | 21.74                                | 19.99                        | 20.72                                | 27.73             | 30.00       | PASS       |
| 802.11ax HE40     | 38/5190                     | 18.32                        | 19.05                                | 17.47                        | 18.20                                | 17.11                        | 17.84                                | 17.38                        | 18.11                                | 24.34             | 30.00       | PASS       |
|                   | 46/5230                     | 23.51                        | 24.24                                | 22.86                        | 23.59                                | 22.76                        | 23.49                                | 22.32                        | 23.05                                | 29.63             | 30.00       | PASS       |
| 802.11ax HE80     | 42/5210                     | 15.79                        | 16.46                                | 15.45                        | 16.12                                | 14.99                        | 15.66                                | 14.79                        | 15.46                                | 21.96             | 30.00       | PASS       |

Note: 1. 1.Average Power with duty factor = Average Power Measured +Duty cycle correction factor

2. For Total Power, according to KDB 662911 D01 Multiple Transmitter Output v02r01 1),

The Total Power =  $10\log(10^{(\text{Power antenna1 in dBm}/10)} + 10^{(\text{Power antenna2 in dBm}/10)} + 10^{(\text{Power antenna3 in dBm}/10)} + 10^{(\text{Power antenna4 in dBm}/10)})$ .

3. The manufacturer declared that the directional gain =3.33dBi<6dBi. So the power limit is 30dBm.



## U-NII-2A

| Network Standards | Channel/<br>Frequency (MHz) | MIMO Antenna 1               |                                      | MIMO Antenna 2               |                                      | MIMO Antenna3                |                                      | MIMO Antenna4                |                                      | Total Power (dBm) | Limit (dBm) | Conclusion |
|-------------------|-----------------------------|------------------------------|--------------------------------------|------------------------------|--------------------------------------|------------------------------|--------------------------------------|------------------------------|--------------------------------------|-------------------|-------------|------------|
|                   |                             | Average Power Measured (dBm) | Average Power with duty factor (dBm) | Average Power Measured (dBm) | Average Power with duty factor (dBm) | Average Power Measured (dBm) | Average Power with duty factor (dBm) | Average Power Measured (dBm) | Average Power with duty factor (dBm) |                   |             |            |
| 802.11a           | 52/5260                     | 15.05                        | 15.24                                | 14.90                        | 15.09                                | 15.10                        | 15.29                                | 14.12                        | 14.31                                | 21.02             | 24.00       | PASS       |
|                   | 60/5300                     | 15.10                        | 15.29                                | 14.70                        | 14.89                                | 15.00                        | 15.19                                | 14.82                        | 15.01                                | 21.12             | 24.00       | PASS       |
|                   | 64/5320                     | 14.61                        | 14.80                                | 14.17                        | 14.36                                | 14.62                        | 14.81                                | 14.75                        | 14.94                                | 20.75             | 23.92       | PASS       |
| 802.11n HT20      | 52/5260                     | 14.65                        | 15.32                                | 14.47                        | 15.14                                | 14.44                        | 15.11                                | 13.56                        | 14.23                                | 20.99             | 24.00       | PASS       |
|                   | 60/5300                     | 14.58                        | 15.25                                | 14.04                        | 14.71                                | 14.35                        | 15.02                                | 14.04                        | 14.71                                | 20.95             | 24.00       | PASS       |
|                   | 64/5320                     | 14.03                        | 14.70                                | 13.60                        | 14.27                                | 14.00                        | 14.67                                | 14.11                        | 14.78                                | 20.63             | 24.00       | PASS       |
| 802.11n HT40      | 54/5270                     | 16.65                        | 17.38                                | 17.01                        | 17.74                                | 17.16                        | 17.89                                | 16.30                        | 17.03                                | 23.54             | 24.00       | PASS       |
|                   | 62/5310                     | 16.69                        | 17.42                                | 16.40                        | 17.3                                 | 16.92                        | 17.65                                | 16.53                        | 17.26                                | 23.39             | 24.00       | PASS       |
| 802.11ac VHT20    | 52/5260                     | 14.54                        | 15.21                                | 14.44                        | 15.11                                | 14.62                        | 15.29                                | 13.55                        | 14.22                                | 21.00             | 24.00       | PASS       |
|                   | 60/5300                     | 14.55                        | 15.22                                | 14.25                        | 14.92                                | 14.52                        | 15.19                                | 14.26                        | 14.93                                | 21.09             | 24.00       | PASS       |
|                   | 64/5320                     | 14.11                        | 14.78                                | 13.77                        | 14.44                                | 13.75                        | 14.42                                | 14.19                        | 14.86                                | 20.65             | 24.00       | PASS       |
| 802.11ac VHT40    | 54/5270                     | 16.58                        | 17.31                                | 16.64                        | 17.37                                | 16.86                        | 17.59                                | 16.29                        | 17.02                                | 23.35             | 24.00       | PASS       |
|                   | 62/5310                     | 16.79                        | 17.52                                | 16.46                        | 17.19                                | 16.73                        | 17.46                                | 16.37                        | 17.10                                | 23.34             | 24.00       | PASS       |
| 802.11ac VHT80    | 58/5290                     | 16.50                        | 17.23                                | 16.26                        | 16.99                                | 16.52                        | 17.25                                | 16.01                        | 16.74                                | 23.08             | 24.00       | PASS       |
| 802.11ac VHT160   | 50/5250                     | 13.02                        | 13.42                                | 12.42                        | 12.82                                | 12.05                        | 12.45                                | 11.57                        | 11.97                                | 18.72             | 24.00       | PASS       |
| 802.11ax HE20     | 52/5260                     | 14.16                        | 14.89                                | 13.87                        | 14.60                                | 14.07                        | 14.80                                | 13.07                        | 13.80                                | 20.56             | 24.00       | PASS       |
|                   | 60/5300                     | 14.26                        | 14.99                                | 13.99                        | 14.72                                | 14.39                        | 15.12                                | 13.90                        | 14.63                                | 20.89             | 24.00       | PASS       |
|                   | 64/5320                     | 13.62                        | 14.35                                | 13.19                        | 13.92                                | 13.74                        | 14.47                                | 13.79                        | 14.52                                | 20.34             | 24.00       | PASS       |
| 802.11ax HE40     | 54/5270                     | 17.21                        | 17.94                                | 17.60                        | 18.33                                | 17.18                        | 17.91                                | 16.60                        | 17.33                                | 23.91             | 24.00       | PASS       |
|                   | 62/5310                     | 17.08                        | 17.81                                | 16.95                        | 17.68                                | 17.47                        | 18.20                                | 16.95                        | 17.68                                | 23.87             | 24.00       | PASS       |
| 802.11ax HE80     | 58/5290                     | 17.51                        | 18.18                                | 17.11                        | 17.78                                | 17.55                        | 18.22                                | 16.90                        | 17.57                                | 23.97             | 24.00       | PASS       |
| 802.11ax HE160    | 50/5250                     | 13.43                        | 13.77                                | 12.77                        | 13.11                                | 12.39                        | 12.73                                | 11.78                        | 12.12                                | 18.99             | 24.00       | PASS       |

Note: 1. For Total Power, according to KDB 662911 D01 Multiple Transmitter Output v02r01 1),  
The Total Power =  $10\log(10^{(\text{Power antenna1 in dBm}/10)} + 10^{(\text{Power antenna2 in dBm}/10)} + 10^{(\text{Power antenna3 in dBm}/10)} + 10^{(\text{Power antenna4 in dBm}/10)})$ .



## U-NII-2C

| Network Standards  | Channel/<br>Frequency<br>(MHz) | MIMO<br>Antenna 1                     |                                                     | MIMO<br>Antenna 2                     |                                                     | MIMO<br>Antenna3                      |                                                     | MIMO<br>Antenna4                      |                                                     | Total<br>Power<br>(dBm) | Limit<br>(dBm) | Conclusion |
|--------------------|--------------------------------|---------------------------------------|-----------------------------------------------------|---------------------------------------|-----------------------------------------------------|---------------------------------------|-----------------------------------------------------|---------------------------------------|-----------------------------------------------------|-------------------------|----------------|------------|
|                    |                                | Average<br>Power<br>Measured<br>(dBm) | Average<br>Power<br>with<br>duty<br>factor<br>(dBm) | Average<br>Power<br>Measured<br>(dBm) | Average<br>Power<br>with<br>duty<br>factor<br>(dBm) | Average<br>Power<br>Measured<br>(dBm) | Average<br>Power<br>with<br>duty<br>factor<br>(dBm) | Average<br>Power<br>Measured<br>(dBm) | Average<br>Power<br>with<br>duty<br>factor<br>(dBm) |                         |                |            |
| 802.11a            | 100/5500                       | 15.44                                 | 15.63                                               | 14.81                                 | 15.00                                               | 14.75                                 | 14.94                                               | 14.55                                 | 14.74                                               | 21.11                   | 24.00          | PASS       |
|                    | 120/5600                       | 14.66                                 | 14.85                                               | 14.69                                 | 14.88                                               | 14.86                                 | 15.05                                               | 14.16                                 | 14.35                                               | 20.81                   | 24.00          | PASS       |
|                    | 140/5700                       | 14.81                                 | 15.00                                               | 14.20                                 | 14.39                                               | 14.46                                 | 14.65                                               | 15.00                                 | 15.19                                               | 20.84                   | 24.00          | PASS       |
|                    | 144/5720                       | 14.37                                 | 14.56                                               | 14.65                                 | 14.84                                               | 14.83                                 | 15.02                                               | 14.55                                 | 14.74                                               | 20.81                   | 23.97          | PASS       |
| 802.11n<br>HT20    | 100/5500                       | 14.98                                 | 15.65                                               | 14.51                                 | 15.18                                               | 14.29                                 | 14.96                                               | 14.13                                 | 14.80                                               | 21.18                   | 24.00          | PASS       |
|                    | 120/5600                       | 14.06                                 | 14.73                                               | 14.09                                 | 14.76                                               | 14.50                                 | 15.17                                               | 13.90                                 | 14.57                                               | 20.83                   | 24.00          | PASS       |
|                    | 140/5700                       | 15.25                                 | 15.92                                               | 13.81                                 | 14.48                                               | 14.02                                 | 14.69                                               | 14.00                                 | 14.67                                               | 21.00                   | 24.00          | PASS       |
|                    | 144/5720                       | 14.44                                 | 15.11                                               | 13.82                                 | 14.49                                               | 13.83                                 | 14.50                                               | 13.34                                 | 14.01                                               | 20.56                   | 24.00          | PASS       |
| 802.11n<br>HT40    | 102/5510                       | 17.00                                 | 17.73                                               | 16.80                                 | 17.53                                               | 16.60                                 | 17.33                                               | 16.00                                 | 16.73                                               | 23.36                   | 24.00          | PASS       |
|                    | 110/5550                       | 17.51                                 | 18.24                                               | 17.20                                 | 17.93                                               | 17.10                                 | 17.83                                               | 16.40                                 | 17.13                                               | 23.82                   | 24.00          | PASS       |
|                    | 134/5670                       | 17.31                                 | 18.04                                               | 17.39                                 | 18.12                                               | 17.15                                 | 17.88                                               | 16.90                                 | 17.63                                               | 23.94                   | 24.00          | PASS       |
|                    | 142/5710                       | 16.58                                 | 17.31                                               | 16.92                                 | 17.65                                               | 16.63                                 | 17.36                                               | 16.29                                 | 17.02                                               | 23.36                   | 24.00          | PASS       |
| 802.11ac<br>VHT20  | 100/5500                       | 14.70                                 | 15.37                                               | 14.36                                 | 15.03                                               | 14.06                                 | 14.73                                               | 13.66                                 | 14.33                                               | 20.90                   | 24.00          | PASS       |
|                    | 120/5600                       | 14.10                                 | 14.77                                               | 14.04                                 | 14.71                                               | 14.29                                 | 14.96                                               | 13.27                                 | 13.94                                               | 20.63                   | 24.00          | PASS       |
|                    | 140/5700                       | 14.37                                 | 15.04                                               | 14.11                                 | 14.78                                               | 14.48                                 | 15.15                                               | 14.02                                 | 14.69                                               | 20.94                   | 24.00          | PASS       |
|                    | 144/5720                       | 13.64                                 | 14.31                                               | 14.07                                 | 14.74                                               | 14.21                                 | 14.88                                               | 13.39                                 | 14.06                                               | 20.53                   | 24.00          | PASS       |
| 802.11ac<br>VHT40  | 102/5510                       | 17.37                                 | 18.10                                               | 16.83                                 | 17.56                                               | 16.76                                 | 17.49                                               | 16.15                                 | 16.88                                               | 23.55                   | 24.00          | PASS       |
|                    | 110/5550                       | 17.16                                 | 17.89                                               | 17.12                                 | 17.85                                               | 16.86                                 | 17.59                                               | 16.45                                 | 17.18                                               | 23.66                   | 24.00          | PASS       |
|                    | 134/5670                       | 16.85                                 | 17.58                                               | 17.14                                 | 17.87                                               | 17.11                                 | 17.84                                               | 16.79                                 | 17.52                                               | 23.73                   | 24.00          | PASS       |
|                    | 142/5710                       | 16.82                                 | 17.55                                               | 16.75                                 | 17.48                                               | 16.39                                 | 17.12                                               | 16.06                                 | 16.79                                               | 23.27                   | 24.00          | PASS       |
| 802.11ac<br>VHT80  | 106/5530                       | 16.94                                 | 17.67                                               | 16.69                                 | 17.42                                               | 16.64                                 | 17.37                                               | 16.13                                 | 16.86                                               | 23.36                   | 24.00          | PASS       |
|                    | 122/5610                       | 17.01                                 | 17.74                                               | 17.28                                 | 18.01                                               | 17.13                                 | 17.86                                               | 17.00                                 | 17.73                                               | 23.86                   | 24.00          | PASS       |
|                    | 138/5690                       | 16.92                                 | 17.65                                               | 16.56                                 | 17.29                                               | 16.73                                 | 17.46                                               | 16.37                                 | 17.10                                               | 23.40                   | 24.00          | PASS       |
| 802.11ac<br>VHT160 | 114/5570                       | 15.38                                 | 15.78                                               | 14.51                                 | 14.91                                               | 14.67                                 | 15.07                                               | 14.17                                 | 14.57                                               | 21.12                   | 24.00          | PASS       |
| 802.11ax<br>HE20   | 100/5500                       | 14.80                                 | 15.53                                               | 14.68                                 | 15.41                                               | 14.48                                 | 15.21                                               | 13.99                                 | 14.72                                               | 21.25                   | 24.00          | PASS       |
|                    | 120/5600                       | 14.40                                 | 15.13                                               | 14.65                                 | 15.38                                               | 14.71                                 | 15.44                                               | 13.69                                 | 14.42                                               | 21.13                   | 24.00          | PASS       |
|                    | 140/5700                       | 14.29                                 | 15.02                                               | 13.91                                 | 14.64                                               | 13.85                                 | 14.58                                               | 13.64                                 | 14.37                                               | 20.68                   | 24.00          | PASS       |
|                    | 144/5720                       | 14.50                                 | 15.23                                               | 14.65                                 | 15.38                                               | 14.87                                 | 15.60                                               | 14.00                                 | 14.73                                               | 21.27                   | 24.00          | PASS       |
| 802.11ax<br>HE40   | 102/5510                       | 17.37                                 | 18.10                                               | 17.05                                 | 17.78                                               | 16.70                                 | 17.43                                               | 16.60                                 | 17.33                                               | 23.69                   | 24.00          | PASS       |
|                    | 110/5550                       | 17.57                                 | 18.30                                               | 17.21                                 | 17.94                                               | 17.30                                 | 18.03                                               | 16.60                                 | 17.33                                               | 23.93                   | 24.00          | PASS       |



|                                                                                                                                                                                                                                                                                                 |          |       |       |       |       |       |       |       |       |       |       |      |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|------|
|                                                                                                                                                                                                                                                                                                 | 134/5670 | 16.58 | 17.31 | 16.39 | 17.12 | 16.55 | 17.28 | 16.71 | 17.44 | 23.31 | 24.00 | PASS |
|                                                                                                                                                                                                                                                                                                 | 142/5710 | 16.12 | 16.85 | 16.53 | 17.26 | 16.50 | 17.23 | 16.41 | 17.14 | 23.14 | 24.00 | PASS |
| 802.11ax<br>HE80                                                                                                                                                                                                                                                                                | 106/5530 | 17.10 | 17.77 | 16.94 | 17.61 | 16.83 | 17.50 | 16.43 | 17.10 | 23.52 | 24.00 | PASS |
|                                                                                                                                                                                                                                                                                                 | 122/5610 | 17.25 | 17.92 | 17.17 | 17.84 | 17.19 | 17.86 | 17.18 | 17.85 | 23.89 | 24.00 | PASS |
|                                                                                                                                                                                                                                                                                                 | 138/5690 | 16.93 | 17.60 | 16.84 | 17.51 | 16.98 | 17.65 | 17.00 | 17.67 | 23.63 | 24.00 | PASS |
| 802.11ax<br>HE160                                                                                                                                                                                                                                                                               | 114/5570 | 17.74 | 18.08 | 17.79 | 18.13 | 17.41 | 17.75 | 17.34 | 17.68 | 23.94 | 24.00 | PASS |
| Note: 1. For Total Power, according to KDB 662911 D01 Multiple Transmitter Output v02r01 1),<br>The Total Power = $10\log(10^{(\text{Power antenna1 in dBm}/10)} + 10^{(\text{Power antenna2 in dBm}/10)} + 10^{(\text{Power antenna3 in dBm}/10)} + 10^{(\text{Power antenna4 in dBm}/10)})$ . |          |       |       |       |       |       |       |       |       |       |       |      |



## U-NII-3

| Network Standards | Channel/<br>Frequency<br>(MHz) | MIMO<br>Antenna 1                     |                                                     | MIMO<br>Antenna 2                     |                                                     | MIMO<br>Antenna3                      |                                                     | MIMO<br>Antenna4                      |                                                     | Total<br>Power<br>(dBm) | Limit<br>(dBm) | Conclusion |
|-------------------|--------------------------------|---------------------------------------|-----------------------------------------------------|---------------------------------------|-----------------------------------------------------|---------------------------------------|-----------------------------------------------------|---------------------------------------|-----------------------------------------------------|-------------------------|----------------|------------|
|                   |                                | Average<br>Power<br>Measured<br>(dBm) | Average<br>Power<br>with<br>duty<br>factor<br>(dBm) | Average<br>Power<br>Measured<br>(dBm) | Average<br>Power<br>with<br>duty<br>factor<br>(dBm) | Average<br>Power<br>Measured<br>(dBm) | Average<br>Power<br>with<br>duty<br>factor<br>(dBm) | Average<br>Power<br>Measured<br>(dBm) | Average<br>Power<br>with<br>duty<br>factor<br>(dBm) |                         |                |            |
| 802.11a           | 149/5745                       | 23.41                                 | 23.60                                               | 23.42                                 | 23.61                                               | 23.85                                 | 24.04                                               | 23.13                                 | 23.32                                               | 29.67                   | 30.00          | PASS       |
|                   | 157/5785                       | 22.68                                 | 22.87                                               | 23.19                                 | 23.38                                               | 23.30                                 | 23.49                                               | 22.11                                 | 22.30                                               | 29.05                   | 30.00          | PASS       |
|                   | 165/5825                       | 22.60                                 | 22.79                                               | 23.10                                 | 23.29                                               | 22.99                                 | 23.18                                               | 22.60                                 | 22.79                                               | 29.04                   | 30.00          | PASS       |
| 802.11n<br>HT20   | 149/5745                       | 22.99                                 | 23.66                                               | 23.10                                 | 23.77                                               | 23.50                                 | 24.17                                               | 22.89                                 | 23.56                                               | 29.81                   | 30.00          | PASS       |
|                   | 157/5785                       | 22.78                                 | 23.45                                               | 22.85                                 | 23.52                                               | 22.74                                 | 23.41                                               | 22.67                                 | 23.34                                               | 29.45                   | 30.00          | PASS       |
|                   | 165/5825                       | 22.47                                 | 23.14                                               | 22.89                                 | 23.56                                               | 22.68                                 | 23.35                                               | 22.00                                 | 22.67                                               | 29.21                   | 30.00          | PASS       |
| 802.11n<br>HT40   | 151/5755                       | 22.75                                 | 23.48                                               | 22.58                                 | 23.31                                               | 22.29                                 | 23.02                                               | 22.28                                 | 23.01                                               | 29.23                   | 30.00          | PASS       |
|                   | 159/5795                       | 22.43                                 | 23.16                                               | 23.78                                 | 24.51                                               | 23.36                                 | 24.09                                               | 22.40                                 | 23.13                                               | 29.78                   | 30.00          | PASS       |
| 802.11ac<br>VHT20 | 149/5745                       | 22.40                                 | 23.07                                               | 23.40                                 | 24.07                                               | 23.78                                 | 24.45                                               | 22.70                                 | 23.37                                               | 29.79                   | 30.00          | PASS       |
|                   | 157/5785                       | 22.60                                 | 23.27                                               | 23.16                                 | 23.83                                               | 23.10                                 | 23.77                                               | 22.14                                 | 22.81                                               | 29.46                   | 30.00          | PASS       |
|                   | 165/5825                       | 22.17                                 | 22.84                                               | 22.50                                 | 23.17                                               | 22.40                                 | 23.07                                               | 22.36                                 | 23.03                                               | 29.05                   | 30.00          | PASS       |
| 802.11ac<br>VHT40 | 151/5755                       | 22.79                                 | 23.52                                               | 22.94                                 | 23.67                                               | 22.60                                 | 23.33                                               | 22.40                                 | 23.13                                               | 29.44                   | 30.00          | PASS       |
|                   | 159/5795                       | 23.40                                 | 24.13                                               | 23.70                                 | 24.43                                               | 23.30                                 | 24.03                                               | 22.40                                 | 23.13                                               | 29.98                   | 30.00          | PASS       |
| 802.11ac<br>VHT80 | 155/5775                       | 20.51                                 | 21.24                                               | 19.95                                 | 20.68                                               | 20.42                                 | 21.15                                               | 19.40                                 | 20.13                                               | 26.84                   | 30.00          | PASS       |
| 802.11ax<br>HE20  | 149/5745                       | 22.90                                 | 23.63                                               | 22.80                                 | 23.53                                               | 22.60                                 | 23.33                                               | 23.11                                 | 23.84                                               | 29.61                   | 30.00          | PASS       |
|                   | 157/5785                       | 22.75                                 | 23.48                                               | 22.79                                 | 23.52                                               | 22.87                                 | 23.60                                               | 22.00                                 | 22.73                                               | 29.37                   | 30.00          | PASS       |
|                   | 165/5825                       | 22.12                                 | 22.85                                               | 22.24                                 | 22.97                                               | 22.26                                 | 22.99                                               | 22.00                                 | 22.73                                               | 28.91                   | 30.00          | PASS       |
| 802.11ax<br>HE40  | 151/5755                       | 22.83                                 | 23.56                                               | 22.12                                 | 22.85                                               | 22.25                                 | 22.98                                               | 22.55                                 | 23.28                                               | 29.20                   | 30.00          | PASS       |
|                   | 159/5795                       | 22.49                                 | 23.22                                               | 22.76                                 | 23.49                                               | 22.40                                 | 23.13                                               | 22.00                                 | 22.73                                               | 29.17                   | 30.00          | PASS       |
| 802.11ax<br>HE80  | 155/5775                       | 20.16                                 | 20.83                                               | 19.45                                 | 20.12                                               | 19.96                                 | 20.63                                               | 19.06                                 | 19.73                                               | 26.37                   | 30.00          | PASS       |

Note: 1. 1.Average Power with duty factor = Average Power Measured +Duty cycle correction factor  
2. For Total Power, according to KDB 662911 D01 Multiple Transmitter Output v02r01 1),  
The Total Power =  $10\log(10^{(\text{Power antenna1 in dBm}/10)} + 10^{(\text{Power antenna2 in dBm}/10)} + 10^{(\text{Power antenna3 in dBm}/10)} + 10^{(\text{Power antenna4 in dBm}/10)})$ .  
3. The manufacturer declared that the directional gain =4.43dBi<6dBi. So the power limit is 30dBm.



## Signal Plus:

## MIMO Antenna

## U-NII-1

| Network Standards | Channel/<br>Frequency (MHz) | MIMO Antenna 1               |                                      | MIMO Antenna 2               |                                      | MIMO Antenna3                |                                      | MIMO Antenna4                |                                      | Total Power (dBm) | Limit (dBm) | Conclusion |
|-------------------|-----------------------------|------------------------------|--------------------------------------|------------------------------|--------------------------------------|------------------------------|--------------------------------------|------------------------------|--------------------------------------|-------------------|-------------|------------|
|                   |                             | Average Power Measured (dBm) | Average Power with duty factor (dBm) | Average Power Measured (dBm) | Average Power with duty factor (dBm) | Average Power Measured (dBm) | Average Power with duty factor (dBm) | Average Power Measured (dBm) | Average Power with duty factor (dBm) |                   |             |            |
| 802.11a           | 36/5180                     | 21.49                        | 21.68                                | 20.54                        | 20.73                                | 20.06                        | 20.25                                | 20.85                        | 21.04                                | 26.98             | 30.00       | PASS       |
|                   | 44/5220                     | 20.56                        | 20.75                                | 20.99                        | 21.18                                | 19.93                        | 20.12                                | 20.59                        | 20.78                                | 26.74             | 30.00       | PASS       |
|                   | 48/5240                     | 21.64                        | 21.83                                | 20.49                        | 20.68                                | 19.74                        | 19.93                                | 20.69                        | 20.88                                | 26.90             | 30.00       | PASS       |
| 802.11n HT20      | 36/5180                     | 20.87                        | 21.54                                | 20.18                        | 20.85                                | 19.47                        | 20.14                                | 20.16                        | 20.83                                | 26.89             | 30.00       | PASS       |
|                   | 44/5220                     | 20.66                        | 21.33                                | 20.49                        | 21.16                                | 19.35                        | 20.02                                | 19.76                        | 20.43                                | 26.79             | 30.00       | PASS       |
|                   | 48/5240                     | 21.18                        | 21.85                                | 20.07                        | 20.74                                | 19.26                        | 19.93                                | 20.01                        | 20.68                                | 26.87             | 30.00       | PASS       |
| 802.11n HT40      | 38/5190                     | 20.22                        | 20.95                                | 19.78                        | 20.51                                | 19.79                        | 20.52                                | 19.35                        | 20.08                                | 26.54             | 30.00       | PASS       |
|                   | 46/5230                     | 23.31                        | 24.04                                | 22.62                        | 23.35                                | 21.77                        | 22.50                                | 22.68                        | 23.41                                | 29.38             | 30.00       | PASS       |
| 802.11ac VHT20    | 36/5180                     | 20.89                        | 21.56                                | 20.11                        | 20.78                                | 19.52                        | 20.19                                | 20.30                        | 20.97                                | 26.92             | 30.00       | PASS       |
|                   | 44/5220                     | 20.87                        | 21.54                                | 20.45                        | 21.12                                | 19.41                        | 20.08                                | 19.91                        | 20.58                                | 26.88             | 30.00       | PASS       |
|                   | 48/5240                     | 21.12                        | 21.79                                | 20.07                        | 20.74                                | 19.28                        | 19.95                                | 20.04                        | 20.71                                | 26.87             | 30.00       | PASS       |
| 802.11ac VHT40    | 38/5190                     | 20.48                        | 21.21                                | 19.87                        | 20.60                                | 19.24                        | 19.97                                | 19.60                        | 20.33                                | 26.57             | 30.00       | PASS       |
|                   | 46/5230                     | 23.31                        | 24.04                                | 22.73                        | 23.46                                | 21.68                        | 22.41                                | 22.60                        | 23.33                                | 29.37             | 30.00       | PASS       |
| 802.11ac VHT80    | 42/5210                     | 19.81                        | 20.54                                | 19.43                        | 20.16                                | 19.02                        | 19.75                                | 18.59                        | 19.32                                | 25.99             | 30.00       | PASS       |
| 802.11ax HE20     | 36/5180                     | 20.83                        | 21.56                                | 19.93                        | 20.66                                | 19.64                        | 20.37                                | 19.70                        | 20.43                                | 26.80             | 30.00       | PASS       |
|                   | 44/5220                     | 21.51                        | 22.24                                | 21.01                        | 21.74                                | 19.87                        | 20.60                                | 20.42                        | 21.15                                | 27.50             | 30.00       | PASS       |
|                   | 48/5240                     | 21.69                        | 22.42                                | 20.52                        | 21.25                                | 19.87                        | 20.60                                | 20.42                        | 21.15                                | 27.43             | 30.00       | PASS       |
| 802.11ax HE40     | 38/5190                     | 17.12                        | 17.85                                | 17.21                        | 17.94                                | 17.08                        | 17.81                                | 17.00                        | 17.73                                | 23.85             | 30.00       | PASS       |
|                   | 46/5230                     | 23.51                        | 24.24                                | 22.61                        | 23.34                                | 21.91                        | 22.64                                | 22.72                        | 23.45                                | 29.47             | 30.00       | PASS       |
| 802.11ax HE80     | 42/5210                     | 17.01                        | 17.68                                | 16.99                        | 17.66                                | 16.99                        | 17.66                                | 17.16                        | 17.83                                | 23.73             | 30.00       | PASS       |

Note: 1. For Total Power, according to KDB 662911 D01 Multiple Transmitter Output v02r01 1),

The Total Power =  $10\log(10^{(\text{Power antenna1 in dBm}/10)} + 10^{(\text{Power antenna2 in dBm}/10)} + 10^{(\text{Power antenna3 in dBm}/10)} + 10^{(\text{Power antenna4 in dBm}/10)})$ .

2. The manufacturer declared that the directional gain = 3.50 <6dBi. So the power limit is 30dBm..



## U-NII-2A

| Network Standards | Channel/<br>Frequency (MHz) | MIMO Antenna 1               |                                      | MIMO Antenna 2               |                                      | MIMO Antenna3                |                                      | MIMO Antenna4                |                                      | Total Power (dBm) | Limit (dBm) | Conclusion |
|-------------------|-----------------------------|------------------------------|--------------------------------------|------------------------------|--------------------------------------|------------------------------|--------------------------------------|------------------------------|--------------------------------------|-------------------|-------------|------------|
|                   |                             | Average Power Measured (dBm) | Average Power with duty factor (dBm) | Average Power Measured (dBm) | Average Power with duty factor (dBm) | Average Power Measured (dBm) | Average Power with duty factor (dBm) | Average Power Measured (dBm) | Average Power with duty factor (dBm) |                   |             |            |
| 802.11a           | 52/5260                     | 14.82                        | 15.01                                | 14.81                        | 15.00                                | 13.43                        | 13.62                                | 14.30                        | 14.49                                | 20.59             | 24.00       | PASS       |
|                   | 60/5300                     | 14.81                        | 15.00                                | 14.44                        | 14.63                                | 13.08                        | 13.27                                | 14.40                        | 14.59                                | 20.44             | 24.00       | PASS       |
|                   | 64/5320                     | 14.34                        | 14.53                                | 14.24                        | 14.43                                | 13.21                        | 13.40                                | 14.95                        | 15.14                                | 20.44             | 23.92       | PASS       |
| 802.11n HT20      | 52/5260                     | 14.49                        | 15.16                                | 14.48                        | 15.15                                | 13.02                        | 13.69                                | 14.11                        | 14.78                                | 20.75             | 24.00       | PASS       |
|                   | 60/5300                     | 13.87                        | 14.54                                | 13.61                        | 14.28                                | 14.30                        | 14.97                                | 14.26                        | 14.93                                | 20.71             | 24.00       | PASS       |
|                   | 64/5320                     | 14.46                        | 15.13                                | 14.45                        | 15.12                                | 14.28                        | 14.95                                | 14.37                        | 15.04                                | 21.08             | 24.00       | PASS       |
| 802.11n HT40      | 54/5270                     | 17.52                        | 18.25                                | 16.72                        | 17.45                                | 17.25                        | 17.98                                | 17.08                        | 17.81                                | 23.90             | 24.00       | PASS       |
|                   | 62/5310                     | 17.05                        | 17.78                                | 16.18                        | 16.91                                | 16.77                        | 17.50                                | 17.17                        | 17.90                                | 23.56             | 24.00       | PASS       |
| 802.11ac VHT20    | 52/5260                     | 14.86                        | 15.53                                | 14.29                        | 14.96                                | 14.39                        | 15.06                                | 14.31                        | 14.98                                | 21.16             | 24.00       | PASS       |
|                   | 60/5300                     | 14.50                        | 15.17                                | 14.20                        | 14.87                                | 14.42                        | 15.09                                | 14.55                        | 15.22                                | 21.11             | 24.00       | PASS       |
|                   | 64/5320                     | 14.25                        | 14.92                                | 13.61                        | 14.28                                | 14.27                        | 14.94                                | 14.56                        | 15.23                                | 20.87             | 24.00       | PASS       |
| 802.11ac VHT40    | 54/5270                     | 17.03                        | 17.76                                | 16.67                        | 17.40                                | 17.05                        | 17.78                                | 17.00                        | 17.73                                | 23.69             | 24.00       | PASS       |
|                   | 62/5310                     | 16.84                        | 17.57                                | 15.95                        | 16.68                                | 16.90                        | 17.63                                | 17.09                        | 17.82                                | 23.47             | 24.00       | PASS       |
| 802.11ac VHT80    | 58/5290                     | 16.51                        | 17.24                                | 16.12                        | 16.85                                | 16.73                        | 17.46                                | 16.79                        | 17.52                                | 23.30             | 24.00       | PASS       |
| 802.11ac VHT160   | 50/5250                     | 13.87                        | 14.27                                | 13.37                        | 13.77                                | 13.18                        | 13.58                                | 13.77                        | 14.17                                | 19.98             | 24.00       | PASS       |
| 802.11ax HE20     | 52/5260                     | 14.27                        | 15.00                                | 14.05                        | 14.78                                | 14.09                        | 14.82                                | 13.77                        | 14.50                                | 20.80             | 24.00       | PASS       |
|                   | 60/5300                     | 14.06                        | 14.79                                | 13.73                        | 14.46                                | 14.28                        | 15.01                                | 13.95                        | 14.68                                | 20.76             | 24.00       | PASS       |
|                   | 64/5320                     | 13.80                        | 14.53                                | 13.31                        | 14.04                                | 14.21                        | 14.94                                | 14.01                        | 14.74                                | 20.60             | 24.00       | PASS       |
| 802.11ax HE40     | 54/5270                     | 17.29                        | 18.02                                | 16.76                        | 17.49                                | 17.15                        | 17.88                                | 17.00                        | 17.73                                | 23.81             | 24.00       | PASS       |
|                   | 62/5310                     | 17.00                        | 17.73                                | 16.18                        | 16.91                                | 17.16                        | 17.89                                | 17.16                        | 17.89                                | 23.64             | 24.00       | PASS       |
| 802.11ax HE80     | 58/5290                     | 17.28                        | 17.95                                | 16.59                        | 17.26                                | 17.27                        | 17.94                                | 17.31                        | 17.98                                | 23.81             | 24.00       | PASS       |
| 802.11ax HE160    | 50/5250                     | 13.57                        | 13.91                                | 12.84                        | 13.18                                | 12.89                        | 13.23                                | 12.99                        | 13.33                                | 19.44             | 24.00       | PASS       |

Note: 1. For Total Power, according to KDB 662911 D01 Multiple Transmitter Output v02r01 1),

The Total Power =  $10\log(10^{(\text{Power antenna1 in dBm}/10)} + 10^{(\text{Power antenna2 in dBm}/10)} + 10^{(\text{Power antenna3 in dBm}/10)} + 10^{(\text{Power antenna4 in dBm}/10)})$ .



## U-NII-2C

| Network Standards  | Channel/<br>Frequency<br>(MHz) | MIMO<br>Antenna 1                     |                                                     | MIMO<br>Antenna 2                     |                                                     | MIMO<br>Antenna3                      |                                                     | MIMO<br>Antenna4                      |                                                     | Total<br>Power<br>(dBm) | Limit<br>(dBm) | Conclusion |
|--------------------|--------------------------------|---------------------------------------|-----------------------------------------------------|---------------------------------------|-----------------------------------------------------|---------------------------------------|-----------------------------------------------------|---------------------------------------|-----------------------------------------------------|-------------------------|----------------|------------|
|                    |                                | Average<br>Power<br>Measured<br>(dBm) | Average<br>Power<br>with<br>duty<br>factor<br>(dBm) | Average<br>Power<br>Measured<br>(dBm) | Average<br>Power<br>with<br>duty<br>factor<br>(dBm) | Average<br>Power<br>Measured<br>(dBm) | Average<br>Power<br>with<br>duty<br>factor<br>(dBm) | Average<br>Power<br>Measured<br>(dBm) | Average<br>Power<br>with<br>duty<br>factor<br>(dBm) |                         |                |            |
| 802.11a            | 100/5500                       | 14.60                                 | 14.79                                               | 13.46                                 | 13.65                                               | 13.94                                 | 14.13                                               | 13.41                                 | 13.60                                               | 20.09                   | 24.00          | PASS       |
|                    | 120/5600                       | 14.68                                 | 14.87                                               | 14.41                                 | 14.60                                               | 14.44                                 | 14.63                                               | 13.87                                 | 14.06                                               | 20.57                   | 24.00          | PASS       |
|                    | 140/5700                       | 14.64                                 | 14.83                                               | 13.27                                 | 13.46                                               | 14.54                                 | 14.73                                               | 14.84                                 | 15.03                                               | 20.57                   | 24.00          | PASS       |
|                    | 144/5720                       | 13.79                                 | 13.98                                               | 13.59                                 | 13.78                                               | 14.05                                 | 14.24                                               | 14.46                                 | 14.65                                               | 20.19                   | 23.97          | PASS       |
| 802.11n<br>HT20    | 100/5500                       | 14.84                                 | 15.51                                               | 13.81                                 | 14.48                                               | 14.36                                 | 15.03                                               | 13.80                                 | 14.47                                               | 20.91                   | 24.00          | PASS       |
|                    | 120/5600                       | 14.53                                 | 15.20                                               | 14.31                                 | 14.98                                               | 14.54                                 | 15.21                                               | 14.36                                 | 15.03                                               | 21.12                   | 24.00          | PASS       |
|                    | 140/5700                       | 14.70                                 | 15.37                                               | 13.52                                 | 14.19                                               | 14.36                                 | 15.03                                               | 15.17                                 | 15.84                                               | 21.17                   | 24.00          | PASS       |
|                    | 144/5720                       | 14.07                                 | 14.74                                               | 13.61                                 | 14.28                                               | 13.97                                 | 14.64                                               | 14.18                                 | 14.85                                               | 20.65                   | 24.00          | PASS       |
| 802.11n<br>HT40    | 102/5510                       | 17.73                                 | 18.46                                               | 16.66                                 | 17.39                                               | 16.93                                 | 17.66                                               | 16.24                                 | 16.97                                               | 23.67                   | 24.00          | PASS       |
|                    | 110/5550                       | 18.00                                 | 18.73                                               | 17.04                                 | 17.77                                               | 16.92                                 | 17.65                                               | 16.86                                 | 17.59                                               | 23.98                   | 24.00          | PASS       |
|                    | 134/5670                       | 16.91                                 | 17.64                                               | 15.93                                 | 16.66                                               | 16.45                                 | 17.18                                               | 16.72                                 | 17.45                                               | 23.27                   | 24.00          | PASS       |
|                    | 142/5710                       | 17.25                                 | 17.98                                               | 16.22                                 | 16.95                                               | 17.02                                 | 17.75                                               | 17.67                                 | 18.40                                               | 23.82                   | 24.00          | PASS       |
| 802.11ac<br>VHT20  | 100/5500                       | 15.01                                 | 15.68                                               | 13.92                                 | 14.59                                               | 14.52                                 | 15.19                                               | 13.81                                 | 14.48                                               | 21.03                   | 24.00          | PASS       |
|                    | 120/5600                       | 14.35                                 | 15.02                                               | 14.38                                 | 15.05                                               | 14.50                                 | 15.17                                               | 14.40                                 | 15.07                                               | 21.10                   | 24.00          | PASS       |
|                    | 140/5700                       | 14.25                                 | 14.92                                               | 12.73                                 | 13.40                                               | 14.08                                 | 14.75                                               | 14.26                                 | 14.93                                               | 20.56                   | 24.00          | PASS       |
|                    | 144/5720                       | 14.46                                 | 15.13                                               | 13.91                                 | 14.58                                               | 14.31                                 | 14.98                                               | 14.25                                 | 14.92                                               | 20.92                   | 24.00          | PASS       |
| 802.11ac<br>VHT40  | 102/5510                       | 17.82                                 | 18.55                                               | 16.30                                 | 17.03                                               | 16.93                                 | 17.66                                               | 16.33                                 | 17.06                                               | 23.64                   | 24.00          | PASS       |
|                    | 110/5550                       | 17.91                                 | 18.64                                               | 16.95                                 | 17.68                                               | 17.04                                 | 17.77                                               | 16.50                                 | 17.23                                               | 23.88                   | 24.00          | PASS       |
|                    | 134/5670                       | 16.75                                 | 17.48                                               | 15.86                                 | 16.59                                               | 16.24                                 | 16.97                                               | 16.72                                 | 17.45                                               | 23.16                   | 24.00          | PASS       |
|                    | 142/5710                       | 17.29                                 | 18.02                                               | 16.38                                 | 17.11                                               | 17.09                                 | 17.82                                               | 17.51                                 | 18.24                                               | 23.84                   | 24.00          | PASS       |
| 802.11ac<br>VHT80  | 106/5530                       | 17.67                                 | 18.40                                               | 16.44                                 | 17.17                                               | 16.47                                 | 17.20                                               | 16.14                                 | 16.87                                               | 23.47                   | 24.00          | PASS       |
|                    | 122/5610                       | 17.32                                 | 18.05                                               | 17.08                                 | 17.81                                               | 17.02                                 | 17.75                                               | 16.20                                 | 16.93                                               | 23.68                   | 24.00          | PASS       |
|                    | 138/5690                       | 17.37                                 | 18.10                                               | 16.41                                 | 17.14                                               | 17.15                                 | 17.88                                               | 17.52                                 | 18.25                                               | 23.88                   | 24.00          | PASS       |
| 802.11ac<br>VHT160 | 114/5570                       | 16.07                                 | 16.47                                               | 15.36                                 | 15.76                                               | 15.82                                 | 16.22                                               | 15.54                                 | 15.94                                               | 22.12                   | 24.00          | PASS       |
| 802.11ax<br>HE20   | 100/5500                       | 14.96                                 | 15.69                                               | 13.61                                 | 14.34                                               | 14.19                                 | 14.92                                               | 13.67                                 | 14.40                                               | 20.89                   | 24.00          | PASS       |
|                    | 120/5600                       | 14.62                                 | 15.35                                               | 14.03                                 | 14.76                                               | 14.48                                 | 15.21                                               | 13.91                                 | 14.64                                               | 21.02                   | 24.00          | PASS       |
|                    | 140/5700                       | 14.54                                 | 15.27                                               | 13.38                                 | 14.11                                               | 14.63                                 | 15.36                                               | 14.32                                 | 15.05                                               | 21.00                   | 24.00          | PASS       |
|                    | 144/5720                       | 14.24                                 | 14.97                                               | 13.45                                 | 14.18                                               | 14.00                                 | 14.73                                               | 14.40                                 | 15.13                                               | 20.79                   | 24.00          | PASS       |
| 802.11ax<br>HE40   | 102/5510                       | 16.36                                 | 17.09                                               | 15.01                                 | 15.74                                               | 15.35                                 | 16.08                                               | 15.15                                 | 15.88                                               | 22.25                   | 24.00          | PASS       |
|                    | 110/5550                       | 17.02                                 | 17.75                                               | 16.76                                 | 17.49                                               | 17.12                                 | 17.85                                               | 16.60                                 | 17.33                                               | 23.63                   | 24.00          | PASS       |

**RF Test Report****Report No.: R2112A1145-R2**

|                                                                                                                                                                                                                                                                                                 |          |       |       |       |       |       |       |       |       |       |       |      |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|------|
|                                                                                                                                                                                                                                                                                                 | 134/5670 | 16.79 | 17.52 | 15.85 | 16.58 | 16.41 | 17.14 | 16.32 | 17.05 | 23.11 | 24.00 | PASS |
|                                                                                                                                                                                                                                                                                                 | 142/5710 | 16.70 | 17.43 | 15.28 | 16.01 | 16.32 | 17.05 | 16.35 | 17.08 | 22.94 | 24.00 | PASS |
| 802.11ax<br>HE80                                                                                                                                                                                                                                                                                | 106/5530 | 18.10 | 18.77 | 17.04 | 17.71 | 17.27 | 17.94 | 16.57 | 17.24 | 23.97 | 24.00 | PASS |
|                                                                                                                                                                                                                                                                                                 | 122/5610 | 17.93 | 18.60 | 17.14 | 17.81 | 17.33 | 18.00 | 16.60 | 17.27 | 23.97 | 24.00 | PASS |
|                                                                                                                                                                                                                                                                                                 | 138/5690 | 17.22 | 17.89 | 15.54 | 16.21 | 16.74 | 17.41 | 16.52 | 17.19 | 23.24 | 24.00 | PASS |
| 802.11ax<br>HE160                                                                                                                                                                                                                                                                               | 114/5570 | 17.38 | 17.72 | 16.60 | 16.94 | 16.75 | 17.09 | 16.50 | 16.84 | 23.18 | 24.00 | PASS |
| Note: 1. For Total Power, according to KDB 662911 D01 Multiple Transmitter Output v02r01 1),<br>The Total Power = $10\log(10^{(\text{Power antenna1 in dBm}/10)} + 10^{(\text{Power antenna2 in dBm}/10)} + 10^{(\text{Power antenna3 in dBm}/10)} + 10^{(\text{Power antenna4 in dBm}/10)})$ . |          |       |       |       |       |       |       |       |       |       |       |      |



## U-NII-3

| Network Standards | Channel/<br>Frequency<br>(MHz) | MIMO<br>Antenna 1                     |                                                     | MIMO<br>Antenna 2                     |                                                     | MIMO<br>Antenna3                      |                                                     | MIMO<br>Antenna4                      |                                                     | Total<br>Power<br>(dBm) | Limit<br>(dBm) | Conclusion |
|-------------------|--------------------------------|---------------------------------------|-----------------------------------------------------|---------------------------------------|-----------------------------------------------------|---------------------------------------|-----------------------------------------------------|---------------------------------------|-----------------------------------------------------|-------------------------|----------------|------------|
|                   |                                | Average<br>Power<br>Measured<br>(dBm) | Average<br>Power<br>with<br>duty<br>factor<br>(dBm) | Average<br>Power<br>Measured<br>(dBm) | Average<br>Power<br>with<br>duty<br>factor<br>(dBm) | Average<br>Power<br>Measured<br>(dBm) | Average<br>Power<br>with<br>duty<br>factor<br>(dBm) | Average<br>Power<br>Measured<br>(dBm) | Average<br>Power<br>with<br>duty<br>factor<br>(dBm) |                         |                |            |
| 802.11a           | 149/5745                       | 23.35                                 | 23.54                                               | 23.93                                 | 24.12                                               | 23.43                                 | 23.62                                               | 23.03                                 | 23.22                                               | 29.66                   | 30.00          | PASS       |
|                   | 157/5785                       | 22.72                                 | 22.91                                               | 23.74                                 | 23.93                                               | 22.62                                 | 22.81                                               | 22.21                                 | 22.40                                               | 29.07                   | 30.00          | PASS       |
|                   | 165/5825                       | 22.55                                 | 22.74                                               | 23.13                                 | 23.32                                               | 22.78                                 | 22.97                                               | 22.38                                 | 22.57                                               | 28.93                   | 30.00          | PASS       |
| 802.11n<br>HT20   | 149/5745                       | 22.87                                 | 23.54                                               | 23.58                                 | 24.25                                               | 22.77                                 | 23.44                                               | 22.47                                 | 23.14                                               | 29.63                   | 30.00          | PASS       |
|                   | 157/5785                       | 22.20                                 | 22.87                                               | 23.19                                 | 23.86                                               | 22.14                                 | 22.81                                               | 21.80                                 | 22.47                                               | 29.05                   | 30.00          | PASS       |
|                   | 165/5825                       | 22.19                                 | 22.86                                               | 22.79                                 | 23.46                                               | 22.24                                 | 22.91                                               | 21.69                                 | 22.36                                               | 28.93                   | 30.00          | PASS       |
| 802.11n<br>HT40   | 151/5755                       | 23.35                                 | 24.08                                               | 22.42                                 | 23.15                                               | 23.46                                 | 24.19                                               | 23.14                                 | 23.87                                               | 29.86                   | 30.00          | PASS       |
|                   | 159/5795                       | 23.15                                 | 23.88                                               | 22.29                                 | 23.02                                               | 22.57                                 | 23.30                                               | 21.97                                 | 22.70                                               | 29.26                   | 30.00          | PASS       |
| 802.11ac<br>VHT20 | 149/5745                       | 22.94                                 | 23.61                                               | 22.03                                 | 22.70                                               | 22.81                                 | 23.48                                               | 22.64                                 | 23.31                                               | 29.31                   | 30.00          | PASS       |
|                   | 157/5785                       | 22.58                                 | 23.25                                               | 21.55                                 | 22.22                                               | 21.92                                 | 22.59                                               | 21.70                                 | 22.37                                               | 28.64                   | 30.00          | PASS       |
|                   | 165/5825                       | 22.66                                 | 23.33                                               | 21.25                                 | 21.92                                               | 22.26                                 | 22.93                                               | 21.64                                 | 22.31                                               | 28.67                   | 30.00          | PASS       |
| 802.11ac<br>VHT40 | 151/5755                       | 23.68                                 | 24.41                                               | 22.34                                 | 23.07                                               | 23.33                                 | 24.06                                               | 23.05                                 | 23.78                                               | 29.88                   | 30.00          | PASS       |
|                   | 159/5795                       | 22.92                                 | 23.65                                               | 22.36                                 | 23.09                                               | 22.84                                 | 23.57                                               | 22.00                                 | 22.73                                               | 29.30                   | 30.00          | PASS       |
| 802.11ac<br>VHT80 | 155/5775                       | 22.66                                 | 23.39                                               | 22.23                                 | 22.96                                               | 22.73                                 | 23.46                                               | 22.01                                 | 22.74                                               | 29.17                   | 30.00          | PASS       |
| 802.11ax<br>HE20  | 149/5745                       | 23.38                                 | 24.11                                               | 22.73                                 | 23.46                                               | 23.18                                 | 23.91                                               | 22.58                                 | 23.31                                               | 29.73                   | 30.00          | PASS       |
|                   | 157/5785                       | 23.10                                 | 23.83                                               | 22.48                                 | 23.21                                               | 22.65                                 | 23.38                                               | 22.17                                 | 22.90                                               | 29.36                   | 30.00          | PASS       |
|                   | 165/5825                       | 23.01                                 | 23.74                                               | 21.74                                 | 22.47                                               | 22.94                                 | 23.67                                               | 22.14                                 | 22.87                                               | 29.24                   | 30.00          | PASS       |
| 802.11ax<br>HE40  | 151/5755                       | 23.74                                 | 24.47                                               | 22.58                                 | 23.31                                               | 23.01                                 | 23.74                                               | 22.48                                 | 23.21                                               | 29.73                   | 30.00          | PASS       |
|                   | 159/5795                       | 23.31                                 | 24.04                                               | 22.40                                 | 23.13                                               | 22.98                                 | 23.71                                               | 22.28                                 | 23.01                                               | 29.51                   | 30.00          | PASS       |
| 802.11ax<br>HE80  | 155/5775                       | 21.10                                 | 21.77                                               | 20.16                                 | 20.83                                               | 20.90                                 | 21.57                                               | 20.02                                 | 20.69                                               | 27.26                   | 30.00          | PASS       |

Note: 1. For Total Power, according to KDB 662911 D01 Multiple Transmitter Output v02r01 1),  
The Total Power =  $10\log(10^{(\text{Power antenna1 in dBm}/10)} + 10^{(\text{Power antenna2 in dBm}/10)} + 10^{(\text{Power antenna3 in dBm}/10)} + 10^{(\text{Power antenna4 in dBm}/10)})$ .

2. The manufacturer declared that the directional gain = 3.50dBi < 6dBi. So the power limit is 30dBm.

**MIMO with Beamforming****U-NII-1**

| Network Standards | Channel/<br>Frequency<br>(MHz) | MIMO<br>Antenna 1                     |                                                     | MIMO<br>Antenna 2                     |                                                     | MIMO<br>Antenna3                      |                                                     | MIMO<br>Antenna4                      |                                                     | Total<br>Power<br>(dBm) | Limit<br>(dBm) | Conclusion |
|-------------------|--------------------------------|---------------------------------------|-----------------------------------------------------|---------------------------------------|-----------------------------------------------------|---------------------------------------|-----------------------------------------------------|---------------------------------------|-----------------------------------------------------|-------------------------|----------------|------------|
|                   |                                | Average<br>Power<br>Measured<br>(dBm) | Average<br>Power<br>with<br>duty<br>factor<br>(dBm) | Average<br>Power<br>Measured<br>(dBm) | Average<br>Power<br>with<br>duty<br>factor<br>(dBm) | Average<br>Power<br>Measured<br>(dBm) | Average<br>Power<br>with<br>duty<br>factor<br>(dBm) | Average<br>Power<br>Measured<br>(dBm) | Average<br>Power<br>with<br>duty<br>factor<br>(dBm) |                         |                |            |
| 802.11a           | 36/5180                        | 21.74                                 | 21.93                                               | 20.34                                 | 20.53                                               | 19.07                                 | 19.26                                               | 20.46                                 | 20.65                                               | 26.71                   | 30.00          | PASS       |
|                   | 44/5220                        | 21.84                                 | 22.03                                               | 20.18                                 | 20.37                                               | 20.83                                 | 21.02                                               | 20.14                                 | 20.33                                               | 27.01                   | 30.00          | PASS       |
|                   | 48/5240                        | 21.79                                 | 21.98                                               | 20.35                                 | 20.54                                               | 20.92                                 | 21.11                                               | 20.16                                 | 20.35                                               | 27.06                   | 30.00          | PASS       |
| 802.11n<br>HT20   | 36/5180                        | 21.12                                 | 21.79                                               | 19.60                                 | 20.27                                               | 19.91                                 | 20.58                                               | 19.76                                 | 20.43                                               | 26.83                   | 30.00          | PASS       |
|                   | 44/5220                        | 21.26                                 | 21.93                                               | 20.65                                 | 21.32                                               | 20.30                                 | 20.97                                               | 19.53                                 | 20.20                                               | 27.17                   | 30.00          | PASS       |
|                   | 48/5240                        | 21.32                                 | 21.99                                               | 20.28                                 | 20.95                                               | 20.43                                 | 21.10                                               | 19.67                                 | 20.34                                               | 27.15                   | 30.00          | PASS       |
| 802.11n<br>HT40   | 38/5190                        | 19.78                                 | 20.51                                               | 19.89                                 | 20.62                                               | 19.76                                 | 20.49                                               | 19.59                                 | 20.32                                               | 26.50                   | 30.00          | PASS       |
|                   | 46/5230                        | 23.75                                 | 24.48                                               | 23.04                                 | 23.77                                               | 22.91                                 | 23.64                                               | 22.21                                 | 22.94                                               | 29.76                   | 30.00          | PASS       |
| 802.11ac<br>VHT20 | 36/5180                        | 21.31                                 | 21.98                                               | 19.98                                 | 20.65                                               | 19.71                                 | 20.38                                               | 19.87                                 | 20.54                                               | 26.95                   | 30.00          | PASS       |
|                   | 44/5220                        | 20.99                                 | 21.66                                               | 20.42                                 | 21.09                                               | 20.41                                 | 21.08                                               | 19.59                                 | 20.26                                               | 27.07                   | 30.00          | PASS       |
|                   | 48/5240                        | 21.13                                 | 21.80                                               | 20.32                                 | 20.99                                               | 20.51                                 | 21.18                                               | 19.75                                 | 20.42                                               | 27.14                   | 30.00          | PASS       |
| 802.11ac<br>VHT40 | 38/5190                        | 19.59                                 | 20.32                                               | 19.69                                 | 20.42                                               | 19.91                                 | 20.64                                               | 20.10                                 | 20.83                                               | 26.58                   | 30.00          | PASS       |
|                   | 46/5230                        | 23.78                                 | 24.51                                               | 23.15                                 | 23.88                                               | 22.60                                 | 23.33                                               | 22.29                                 | 23.02                                               | 29.74                   | 30.00          | PASS       |
| 802.11ac<br>VHT80 | 42/5210                        | 18.88                                 | 19.61                                               | 18.69                                 | 19.42                                               | 18.79                                 | 19.52                                               | 18.51                                 | 19.24                                               | 25.47                   | 30.00          | PASS       |
| 802.11ax<br>HE20  | 36/5180                        | 19.87                                 | 20.60                                               | 19.66                                 | 20.39                                               | 19.83                                 | 20.56                                               | 19.69                                 | 20.42                                               | 26.51                   | 30.00          | PASS       |
|                   | 44/5220                        | 21.72                                 | 22.45                                               | 20.96                                 | 21.69                                               | 20.83                                 | 21.56                                               | 20.15                                 | 20.88                                               | 27.70                   | 30.00          | PASS       |
|                   | 48/5240                        | 21.85                                 | 22.58                                               | 20.86                                 | 21.59                                               | 21.01                                 | 21.74                                               | 19.99                                 | 20.72                                               | 27.73                   | 30.00          | PASS       |
| 802.11ax<br>HE40  | 38/5190                        | 17.01                                 | 17.74                                               | 17.15                                 | 17.88                                               | 16.99                                 | 17.72                                               | 17.04                                 | 17.77                                               | 23.80                   | 30.00          | PASS       |
|                   | 46/5230                        | 23.51                                 | 24.24                                               | 22.86                                 | 23.59                                               | 22.76                                 | 23.49                                               | 22.32                                 | 23.05                                               | 29.63                   | 30.00          | PASS       |
| 802.11ax<br>HE80  | 42/5210                        | 16.99                                 | 17.66                                               | 17.05                                 | 17.72                                               | 17.10                                 | 17.77                                               | 16.95                                 | 17.62                                               | 23.71                   | 30.00          | PASS       |

Note: 1. For Total Power, according to KDB 662911 D01 Multiple Transmitter Output v02r01 1),

The Total Power =  $10 \log(10^{(\text{Power antenna1 in dBm}/10)} + 10^{(\text{Power antenna2 in dBm}/10)} + 10^{(\text{Power antenna3 in dBm}/10)} + 10^{(\text{Power antenna4 in dBm}/10)})$ .

2. The manufacturer declared that the directional gain = 5.00dBi < 6dBi. So the power limit is 30dBm..



## U-NII-2A

| Network Standards | Channel/<br>Frequency (MHz) | MIMO Antenna 1               |                                      | MIMO Antenna 2               |                                      | MIMO Antenna3                |                                      | MIMO Antenna4                |                                      | Total Power (dBm) | Limit (dBm) | Conclusion |
|-------------------|-----------------------------|------------------------------|--------------------------------------|------------------------------|--------------------------------------|------------------------------|--------------------------------------|------------------------------|--------------------------------------|-------------------|-------------|------------|
|                   |                             | Average Power Measured (dBm) | Average Power with duty factor (dBm) | Average Power Measured (dBm) | Average Power with duty factor (dBm) | Average Power Measured (dBm) | Average Power with duty factor (dBm) | Average Power Measured (dBm) | Average Power with duty factor (dBm) |                   |             |            |
| 802.11a           | 52/5260                     | 15.05                        | 15.24                                | 14.90                        | 15.09                                | 15.10                        | 15.29                                | 14.12                        | 14.31                                | 21.02             | 24.00       | PASS       |
|                   | 60/5300                     | 15.10                        | 15.29                                | 14.70                        | 14.89                                | 15.00                        | 15.19                                | 14.82                        | 15.01                                | 21.12             | 24.00       | PASS       |
|                   | 64/5320                     | 14.61                        | 14.80                                | 14.17                        | 14.36                                | 14.62                        | 14.81                                | 14.75                        | 14.94                                | 20.75             | 23.92       | PASS       |
| 802.11n HT20      | 52/5260                     | 14.65                        | 15.32                                | 14.47                        | 15.14                                | 14.44                        | 15.11                                | 13.56                        | 14.23                                | 20.99             | 24.00       | PASS       |
|                   | 60/5300                     | 14.58                        | 15.25                                | 14.04                        | 14.71                                | 14.35                        | 15.02                                | 14.04                        | 14.71                                | 20.95             | 24.00       | PASS       |
|                   | 64/5320                     | 14.03                        | 14.70                                | 13.60                        | 14.27                                | 14.00                        | 14.67                                | 14.11                        | 14.78                                | 20.63             | 24.00       | PASS       |
| 802.11n HT40      | 54/5270                     | 16.65                        | 17.38                                | 17.01                        | 17.74                                | 17.16                        | 17.89                                | 16.30                        | 17.03                                | 23.54             | 24.00       | PASS       |
|                   | 62/5310                     | 16.69                        | 17.42                                | 16.40                        | 17.13                                | 16.92                        | 17.65                                | 16.53                        | 17.26                                | 23.39             | 24.00       | PASS       |
| 802.11ac VHT20    | 52/5260                     | 14.54                        | 15.21                                | 14.44                        | 15.11                                | 14.62                        | 15.29                                | 13.55                        | 14.22                                | 21.00             | 24.00       | PASS       |
|                   | 60/5300                     | 14.55                        | 15.22                                | 14.25                        | 14.92                                | 14.52                        | 15.19                                | 14.26                        | 14.93                                | 21.09             | 24.00       | PASS       |
|                   | 64/5320                     | 14.11                        | 14.78                                | 13.77                        | 14.44                                | 13.75                        | 14.42                                | 14.19                        | 14.86                                | 20.65             | 24.00       | PASS       |
| 802.11ac VHT40    | 54/5270                     | 16.58                        | 17.31                                | 16.64                        | 17.37                                | 16.86                        | 17.59                                | 16.29                        | 17.02                                | 23.35             | 24.00       | PASS       |
|                   | 62/5310                     | 16.79                        | 17.52                                | 16.46                        | 17.19                                | 16.73                        | 17.46                                | 16.37                        | 17.10                                | 23.34             | 24.00       | PASS       |
| 802.11ac VHT80    | 58/5290                     | 16.50                        | 17.23                                | 16.26                        | 16.99                                | 16.52                        | 17.25                                | 16.01                        | 16.74                                | 23.08             | 24.00       | PASS       |
| 802.11ac VHT160   | 50/5250                     | 13.36                        | 13.76                                | 13.60                        | 14.00                                | 13.19                        | 13.59                                | 13.42                        | 13.82                                | 19.81             | 24.00       | PASS       |
| 802.11ax HE20     | 52/5260                     | 14.16                        | 14.89                                | 13.87                        | 14.60                                | 14.07                        | 14.80                                | 13.07                        | 13.80                                | 20.56             | 24.00       | PASS       |
|                   | 60/5300                     | 14.26                        | 14.99                                | 13.99                        | 14.72                                | 14.39                        | 15.12                                | 13.90                        | 14.63                                | 20.89             | 24.00       | PASS       |
|                   | 64/5320                     | 13.62                        | 14.35                                | 13.19                        | 13.92                                | 13.74                        | 14.47                                | 13.79                        | 14.52                                | 20.34             | 24.00       | PASS       |
| 802.11ax HE40     | 54/5270                     | 17.21                        | 17.94                                | 17.60                        | 18.33                                | 17.18                        | 17.91                                | 16.60                        | 17.33                                | 23.91             | 24.00       | PASS       |
|                   | 62/5310                     | 17.08                        | 17.81                                | 16.95                        | 17.68                                | 17.47                        | 18.20                                | 16.95                        | 17.68                                | 23.87             | 24.00       | PASS       |
| 802.11ax HE80     | 58/5290                     | 17.51                        | 18.18                                | 17.11                        | 17.78                                | 17.55                        | 18.22                                | 16.90                        | 17.57                                | 23.97             | 24.00       | PASS       |
| 802.11ax HE160    | 50/5250                     | 13.66                        | 14.00                                | 12.83                        | 13.17                                | 12.76                        | 13.10                                | 12.97                        | 13.31                                | 19.43             | 24.00       | PASS       |

Note: 1. For Total Power, according to KDB 662911 D01 Multiple Transmitter Output v02r01 1),

The Total Power =  $10\log(10^{(\text{Power antenna1 in dBm}/10)} + 10^{(\text{Power antenna2 in dBm}/10)} + 10^{(\text{Power antenna3 in dBm}/10)} + 10^{(\text{Power antenna4 in dBm}/10)})$ .



## U-NII-2C

| Network Standards  | Channel/<br>Frequency<br>(MHz) | MIMO<br>Antenna 1                     |                                                     | MIMO<br>Antenna 2                     |                                                     | MIMO<br>Antenna3                      |                                                     | MIMO<br>Antenna4                      |                                                     | Total<br>Power<br>(dBm) | Limit<br>(dBm) | Conclusion |
|--------------------|--------------------------------|---------------------------------------|-----------------------------------------------------|---------------------------------------|-----------------------------------------------------|---------------------------------------|-----------------------------------------------------|---------------------------------------|-----------------------------------------------------|-------------------------|----------------|------------|
|                    |                                | Average<br>Power<br>Measured<br>(dBm) | Average<br>Power<br>with<br>duty<br>factor<br>(dBm) | Average<br>Power<br>Measured<br>(dBm) | Average<br>Power<br>with<br>duty<br>factor<br>(dBm) | Average<br>Power<br>Measured<br>(dBm) | Average<br>Power<br>with<br>duty<br>factor<br>(dBm) | Average<br>Power<br>Measured<br>(dBm) | Average<br>Power<br>with<br>duty<br>factor<br>(dBm) |                         |                |            |
| 802.11a            | 100/5500                       | 15.44                                 | 15.63                                               | 14.81                                 | 15.00                                               | 14.75                                 | 14.94                                               | 14.55                                 | 14.74                                               | 21.11                   | 24.00          | PASS       |
|                    | 120/5600                       | 14.66                                 | 14.85                                               | 14.69                                 | 14.88                                               | 14.86                                 | 15.05                                               | 14.16                                 | 14.35                                               | 20.81                   | 24.00          | PASS       |
|                    | 140/5700                       | 14.81                                 | 15.00                                               | 14.20                                 | 14.39                                               | 14.46                                 | 14.65                                               | 15.00                                 | 15.19                                               | 20.84                   | 24.00          | PASS       |
|                    | 144/5720                       | 14.37                                 | 14.56                                               | 14.65                                 | 14.84                                               | 14.83                                 | 15.02                                               | 14.55                                 | 14.74                                               | 20.81                   | 23.97          | PASS       |
| 802.11n<br>HT20    | 100/5500                       | 14.98                                 | 15.65                                               | 14.51                                 | 15.18                                               | 14.29                                 | 14.96                                               | 14.13                                 | 14.80                                               | 21.18                   | 24.00          | PASS       |
|                    | 120/5600                       | 14.06                                 | 14.73                                               | 14.09                                 | 14.76                                               | 14.50                                 | 15.17                                               | 13.90                                 | 14.57                                               | 20.83                   | 24.00          | PASS       |
|                    | 140/5700                       | 15.25                                 | 15.92                                               | 13.81                                 | 14.48                                               | 14.02                                 | 14.69                                               | 14.00                                 | 14.67                                               | 21.00                   | 24.00          | PASS       |
|                    | 144/5720                       | 14.44                                 | 15.11                                               | 13.82                                 | 14.49                                               | 13.83                                 | 14.50                                               | 13.34                                 | 14.01                                               | 20.56                   | 24.00          | PASS       |
| 802.11n<br>HT40    | 102/5510                       | 17.00                                 | 17.73                                               | 16.80                                 | 17.53                                               | 16.60                                 | 17.33                                               | 16.00                                 | 16.73                                               | 23.36                   | 24.00          | PASS       |
|                    | 110/5550                       | 17.51                                 | 18.24                                               | 17.20                                 | 17.93                                               | 17.10                                 | 17.83                                               | 16.40                                 | 17.13                                               | 23.82                   | 24.00          | PASS       |
|                    | 134/5670                       | 17.31                                 | 18.04                                               | 17.39                                 | 18.12                                               | 17.15                                 | 17.88                                               | 16.90                                 | 17.63                                               | 23.94                   | 24.00          | PASS       |
|                    | 142/5710                       | 16.58                                 | 17.31                                               | 16.92                                 | 17.65                                               | 16.63                                 | 17.36                                               | 16.29                                 | 17.02                                               | 23.36                   | 24.00          | PASS       |
| 802.11ac<br>VHT20  | 100/5500                       | 14.70                                 | 15.37                                               | 14.36                                 | 15.03                                               | 14.06                                 | 14.73                                               | 13.66                                 | 14.33                                               | 20.90                   | 24.00          | PASS       |
|                    | 120/5600                       | 14.10                                 | 14.77                                               | 14.04                                 | 14.71                                               | 14.29                                 | 14.96                                               | 13.27                                 | 13.94                                               | 20.63                   | 24.00          | PASS       |
|                    | 140/5700                       | 14.37                                 | 15.04                                               | 14.11                                 | 14.78                                               | 14.48                                 | 15.15                                               | 14.02                                 | 14.69                                               | 20.94                   | 24.00          | PASS       |
|                    | 144/5720                       | 13.64                                 | 14.31                                               | 14.07                                 | 14.74                                               | 14.21                                 | 14.88                                               | 13.39                                 | 14.06                                               | 20.53                   | 24.00          | PASS       |
| 802.11ac<br>VHT40  | 102/5510                       | 17.37                                 | 18.10                                               | 16.83                                 | 17.56                                               | 16.76                                 | 17.49                                               | 16.15                                 | 16.88                                               | 23.55                   | 24.00          | PASS       |
|                    | 110/5550                       | 17.16                                 | 17.89                                               | 17.12                                 | 17.85                                               | 16.86                                 | 17.59                                               | 16.45                                 | 17.18                                               | 23.66                   | 24.00          | PASS       |
|                    | 134/5670                       | 16.85                                 | 17.58                                               | 17.14                                 | 17.87                                               | 17.11                                 | 17.84                                               | 16.79                                 | 17.52                                               | 23.73                   | 24.00          | PASS       |
|                    | 142/5710                       | 16.82                                 | 17.55                                               | 16.75                                 | 17.48                                               | 16.39                                 | 17.12                                               | 16.06                                 | 16.79                                               | 23.27                   | 24.00          | PASS       |
| 802.11ac<br>VHT80  | 106/5530                       | 16.94                                 | 17.67                                               | 16.69                                 | 17.42                                               | 16.64                                 | 17.37                                               | 16.13                                 | 16.86                                               | 23.36                   | 24.00          | PASS       |
|                    | 122/5610                       | 17.01                                 | 17.74                                               | 17.28                                 | 18.01                                               | 17.13                                 | 17.86                                               | 17.00                                 | 17.73                                               | 23.86                   | 24.00          | PASS       |
|                    | 138/5690                       | 16.92                                 | 17.65                                               | 16.56                                 | 17.29                                               | 16.73                                 | 17.46                                               | 16.37                                 | 17.10                                               | 23.40                   | 24.00          | PASS       |
| 802.11ac<br>VHT160 | 114/5570                       | 16.40                                 | 16.80                                               | 15.42                                 | 15.82                                               | 15.88                                 | 16.28                                               | 15.43                                 | 15.83                                               | 22.22                   | 24.00          | PASS       |
| 802.11ax<br>HE20   | 100/5500                       | 14.80                                 | 15.53                                               | 14.68                                 | 15.41                                               | 14.48                                 | 15.21                                               | 13.99                                 | 14.72                                               | 21.25                   | 24.00          | PASS       |
|                    | 120/5600                       | 14.40                                 | 15.13                                               | 14.65                                 | 15.38                                               | 14.71                                 | 15.44                                               | 13.69                                 | 14.42                                               | 21.13                   | 24.00          | PASS       |
|                    | 140/5700                       | 14.29                                 | 15.02                                               | 13.91                                 | 14.64                                               | 13.85                                 | 14.58                                               | 13.64                                 | 14.37                                               | 20.68                   | 24.00          | PASS       |
|                    | 144/5720                       | 14.50                                 | 15.23                                               | 14.65                                 | 15.38                                               | 14.87                                 | 15.60                                               | 14.00                                 | 14.73                                               | 21.27                   | 24.00          | PASS       |
| 802.11ax<br>HE40   | 102/5510                       | 16.51                                 | 17.24                                               | 14.94                                 | 15.67                                               | 15.48                                 | 16.21                                               | 15.25                                 | 15.98                                               | 22.34                   | 24.00          | PASS       |
|                    | 110/5550                       | 17.57                                 | 18.30                                               | 17.21                                 | 17.94                                               | 17.30                                 | 18.03                                               | 16.60                                 | 17.33                                               | 23.93                   | 24.00          | PASS       |

**RF Test Report****Report No.: R2112A1145-R2**

|                   |          |       |       |       |       |       |       |       |       |       |       |      |
|-------------------|----------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|------|
|                   | 134/5670 | 16.58 | 17.31 | 16.39 | 17.12 | 16.55 | 17.28 | 16.71 | 17.44 | 23.31 | 24.00 | PASS |
|                   | 142/5710 | 16.12 | 16.85 | 16.53 | 17.26 | 16.50 | 17.23 | 16.41 | 17.14 | 23.14 | 24.00 | PASS |
| 802.11ax<br>HE80  | 106/5530 | 17.10 | 17.77 | 16.94 | 17.61 | 16.83 | 17.50 | 16.43 | 17.10 | 23.52 | 24.00 | PASS |
|                   | 122/5610 | 17.25 | 17.92 | 17.17 | 17.84 | 17.19 | 17.86 | 17.18 | 17.85 | 23.89 | 24.00 | PASS |
|                   | 138/5690 | 16.93 | 17.60 | 16.84 | 17.51 | 16.98 | 17.65 | 17.00 | 17.67 | 23.63 | 24.00 | PASS |
| 802.11ax<br>HE160 | 114/5570 | 17.74 | 18.08 | 17.79 | 18.13 | 17.41 | 17.75 | 17.34 | 17.68 | 23.94 | 24.00 | PASS |

Note: 1. For Total Power, according to KDB 662911 D01 Multiple Transmitter Output v02r01 1),  
The Total Power =  $10\log(10^{(\text{Power antenna1 in dBm}/10)} + 10^{(\text{Power antenna2 in dBm}/10)} + 10^{(\text{Power antenna3 in dBm}/10)} + 10^{(\text{Power antenna4 in dBm}/10)})$ .



## U-NII-3

| Network Standards | Channel/<br>Frequency<br>(MHz) | MIMO<br>Antenna 1                     |                                                     | MIMO<br>Antenna 2                     |                                                     | MIMO<br>Antenna3                      |                                                     | MIMO<br>Antenna4                      |                                                     | Total<br>Power<br>(dBm) | Limit<br>(dBm) | Conclusion |
|-------------------|--------------------------------|---------------------------------------|-----------------------------------------------------|---------------------------------------|-----------------------------------------------------|---------------------------------------|-----------------------------------------------------|---------------------------------------|-----------------------------------------------------|-------------------------|----------------|------------|
|                   |                                | Average<br>Power<br>Measured<br>(dBm) | Average<br>Power<br>with<br>duty<br>factor<br>(dBm) | Average<br>Power<br>Measured<br>(dBm) | Average<br>Power<br>with<br>duty<br>factor<br>(dBm) | Average<br>Power<br>Measured<br>(dBm) | Average<br>Power<br>with<br>duty<br>factor<br>(dBm) | Average<br>Power<br>Measured<br>(dBm) | Average<br>Power<br>with<br>duty<br>factor<br>(dBm) |                         |                |            |
| 802.11a           | 149/5745                       | 23.41                                 | 23.60                                               | 23.42                                 | 23.61                                               | 23.85                                 | 24.04                                               | 23.13                                 | 23.32                                               | 29.67                   | 30.00          | PASS       |
|                   | 157/5785                       | 22.68                                 | 22.87                                               | 23.19                                 | 23.38                                               | 23.30                                 | 23.49                                               | 22.11                                 | 22.30                                               | 29.05                   | 30.00          | PASS       |
|                   | 165/5825                       | 22.60                                 | 22.79                                               | 23.10                                 | 23.29                                               | 22.99                                 | 23.18                                               | 22.60                                 | 22.79                                               | 29.04                   | 30.00          | PASS       |
| 802.11n<br>HT20   | 149/5745                       | 22.99                                 | 23.66                                               | 23.10                                 | 23.77                                               | 23.50                                 | 24.17                                               | 22.89                                 | 23.56                                               | 29.81                   | 30.00          | PASS       |
|                   | 157/5785                       | 22.78                                 | 23.45                                               | 22.85                                 | 23.52                                               | 22.74                                 | 23.41                                               | 22.67                                 | 23.34                                               | 29.45                   | 30.00          | PASS       |
|                   | 165/5825                       | 22.47                                 | 23.14                                               | 22.89                                 | 23.56                                               | 22.68                                 | 23.35                                               | 22.00                                 | 22.67                                               | 29.21                   | 30.00          | PASS       |
| 802.11n<br>HT40   | 151/5755                       | 22.75                                 | 23.48                                               | 22.58                                 | 23.31                                               | 22.29                                 | 23.02                                               | 22.28                                 | 23.01                                               | 29.23                   | 30.00          | PASS       |
|                   | 159/5795                       | 22.43                                 | 23.16                                               | 23.78                                 | 24.51                                               | 23.36                                 | 24.09                                               | 22.40                                 | 23.13                                               | 29.78                   | 30.00          | PASS       |
| 802.11ac<br>VHT20 | 149/5745                       | 22.40                                 | 23.07                                               | 23.40                                 | 24.07                                               | 23.78                                 | 24.45                                               | 22.70                                 | 23.37                                               | 29.79                   | 30.00          | PASS       |
|                   | 157/5785                       | 22.60                                 | 23.27                                               | 23.16                                 | 23.83                                               | 23.10                                 | 23.77                                               | 22.14                                 | 22.81                                               | 29.46                   | 30.00          | PASS       |
|                   | 165/5825                       | 22.17                                 | 22.84                                               | 22.50                                 | 23.17                                               | 22.40                                 | 23.07                                               | 22.36                                 | 23.03                                               | 29.05                   | 30.00          | PASS       |
| 802.11ac<br>VHT40 | 151/5755                       | 22.79                                 | 23.52                                               | 22.94                                 | 23.67                                               | 22.60                                 | 23.33                                               | 22.40                                 | 23.13                                               | 29.44                   | 30.00          | PASS       |
|                   | 159/5795                       | 23.40                                 | 24.13                                               | 23.70                                 | 24.43                                               | 23.30                                 | 24.03                                               | 22.40                                 | 23.13                                               | 29.98                   | 30.00          | PASS       |
| 802.11ac<br>VHT80 | 155/5775                       | 22.99                                 | 23.72                                               | 23.39                                 | 24.12                                               | 23.14                                 | 23.87                                               | 22.60                                 | 23.33                                               | 29.79                   | 30.00          | PASS       |
| 802.11ax<br>HE20  | 149/5745                       | 22.90                                 | 23.63                                               | 22.80                                 | 23.53                                               | 22.60                                 | 23.33                                               | 23.11                                 | 23.84                                               | 29.61                   | 30.00          | PASS       |
|                   | 157/5785                       | 22.75                                 | 23.48                                               | 22.79                                 | 23.52                                               | 22.87                                 | 23.60                                               | 22.00                                 | 22.73                                               | 29.37                   | 30.00          | PASS       |
|                   | 165/5825                       | 22.12                                 | 22.85                                               | 22.24                                 | 22.97                                               | 22.26                                 | 22.99                                               | 22.00                                 | 22.73                                               | 28.91                   | 30.00          | PASS       |
| 802.11ax<br>HE40  | 151/5755                       | 23.14                                 | 23.87                                               | 22.83                                 | 23.56                                               | 22.87                                 | 23.60                                               | 22.98                                 | 23.71                                               | 29.71                   | 30.00          | PASS       |
|                   | 159/5795                       | 22.49                                 | 23.22                                               | 22.76                                 | 23.49                                               | 22.40                                 | 23.13                                               | 22.00                                 | 22.73                                               | 29.17                   | 30.00          | PASS       |
| 802.11ax<br>HE80  | 155/5775                       | 20.97                                 | 21.64                                               | 20.31                                 | 20.98                                               | 20.89                                 | 21.56                                               | 20.03                                 | 20.70                                               | 27.26                   | 30.00          | PASS       |

Note: 1. For Total Power, according to KDB 662911 D01 Multiple Transmitter Output v02r01 1),

The Total Power =  $10\log(10^{(\text{Power antenna1 in dBm}/10)} + 10^{(\text{Power antenna2 in dBm}/10)} + 10^{(\text{Power antenna3 in dBm}/10)} + 10^{(\text{Power antenna4 in dBm}/10)})$ .

2. The manufacturer declared that the directional gain = 4.80dBi<6dBi. So the power limit is 30dBm.

### 5.3. Frequency Stability

#### Ambient condition

| Temperature | Relative humidity | Pressure |
|-------------|-------------------|----------|
| 23°C ~25°C  | 45%~50%           | 101.5kPa |

#### Method of Measurement

##### 1. Frequency stability with respect to ambient temperature

- Supply the EUT with a nominal ac voltage or install a new or fully charged battery in the EUT. If possible, a dummy load shall be connected to the EUT because an antenna near the metallic walls of an environmental test chamber could affect the output frequency of the EUT. If the EUT is equipped with a permanently attached, adjustable-length antenna, then the EUT shall be placed in the center of the chamber with the antenna adjusted to the shortest length possible. Turn ON the EUT and tune it to one of the number of frequencies shown in 5.6.
- Couple the unlicensed wireless device output to the measuring instrument by connecting an antenna to the measuring instrument with a suitable length of coaxial cable and placing the measuring antenna near the EUT (e.g., 15 cm away), or by connecting a dummy load to the measuring instrument, through an attenuator if necessary.
- Adjust the location of the measurement antenna and the controls on the measurement instrument to obtain a suitable signal level (i.e., a level that will not overload the measurement instrument but is strong enough to allow measurement of the operating or fundamental frequency of the EUT).
- Turn the EUT OFF and place it inside the environmental temperature chamber. For devices that have oscillator heaters, energize only the heater circuit.
- Set the temperature control on the chamber to the highest specified in the regulatory requirements for the type of device and allow the oscillator heater and the chamber temperature to stabilize.
- While maintaining a constant temperature inside the environmental chamber, turn the EUT ON and record the operating frequency at startup, and at 2 minutes, 5 minutes, and 10 minutes after the EUT is energized. Four measurements in total are made.
- Measure the frequency at each of frequencies specified in 5.6.
- Switch OFF the EUT but do not switch OFF the oscillator heater.
- Lower the chamber temperature by not more than 10°C, and allow the temperature inside the chamber to stabilize.
- Repeat step f) through step i) down to the lowest specified temperature.

##### 2. Frequency stability when varying supply voltage

Unless otherwise specified, these tests shall be made at ambient room temperature (+15°C to +25 °C). An antenna shall be connected to the antenna output terminals of the EUT if possible. If the EUT is equipped with or uses an adjustable-length antenna, then it shall be fully extended.

- Supply the EUT with nominal voltage or install a new or fully charged battery in the EUT. Turn ON the EUT and couple its output to a frequency counter or other frequency-measuring instrument.



- b) Tune the EUT to one of the number of frequencies required in 5.6. Adjust the location of the measurement antenna and the controls on the measurement instrument to obtain a suitable signal level (i.e., a level that will not overload the measurement instrument but is strong enough to allow measurement of the operating or fundamental frequency of the EUT).
- c) Measure the frequency at each of the frequencies specified in 5.6.
- d) Repeat the above procedure at 85% and 115% of the nominal supply voltage.

**Limit**

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

**Measurement Uncertainty**

The assessed measurement uncertainty to ensure 95% confidence level for the normal distribution is with the coverage factor  $k = 2$ ,  $U = 936\text{Hz}$

**Test Results****INPAQ**

| Voltage<br>(V) | Temperature<br>(°C) | U-NII-1 Test Results |              |              |              |
|----------------|---------------------|----------------------|--------------|--------------|--------------|
|                |                     | 5200MHz              |              |              |              |
|                |                     | 1min                 | 2min         | 5min         | 10min        |
| 12             | -20                 | 5200.001088          | 5199.999427  | 5199.997023  | 5199.988782  |
| 12             | -10                 | 5199.995074          | 5199.990648  | 5199.992072  | 5199.983060  |
| 12             | 0                   | 5199.990299          | 5199.980855  | 5199.982088  | 5199.974972  |
| 12             | 10                  | 5199.989948          | 5199.977305  | 5199.972279  | 5199.970807  |
| 12             | 20                  | 5199.981015          | 5199.967675  | 5199.965023  | 5199.969040  |
| 12             | 30                  | 5199.977785          | 5199.961276  | 5199.964325  | 5199.967924  |
| 12             | 40                  | 5199.976117          | 5199.954244  | 5199.958062  | 5199.958968  |
| 12             | 50                  | 5199.97470           | 5199.947133  | 5199.952698  | 5199.949010  |
| 11.4           | 25                  | 5199.968173          | 5199.940854  | 5199.948807  | 5199.947527  |
| 12.6           | 25                  | 5199.958472          | 5199.937307  | 5199.944983  | 5199.939084  |
| MHz            |                     | -0.041528371         | -0.062692749 | -0.055017414 | -0.060915696 |
| PPM            |                     | -7.986225175         | -12.0562978  | -10.58027189 | -11.71455684 |

| Voltage<br>(V) | Temperature<br>(°C) | U-NII-2A Test Results |              |              |              |
|----------------|---------------------|-----------------------|--------------|--------------|--------------|
|                |                     | 5300MHz               |              |              |              |
|                |                     | 1min                  | 2min         | 5min         | 10min        |
| 12             | -20                 | 5300.000520           | 5299.992763  | 5299.990704  | 5299.990613  |
| 12             | -10                 | 5299.997863           | 5299.991032  | 5299.981804  | 5299.985107  |
| 12             | 0                   | 5299.996401           | 5299.986707  | 5299.978574  | 5299.978503  |
| 12             | 10                  | 5299.991537           | 5299.977497  | 5299.969682  | 5299.976224  |
| 12             | 20                  | 5299.982618           | 5299.976234  | 5299.966118  | 5299.973776  |
| 12             | 30                  | 5299.979495           | 5299.966731  | 5299.963952  | 5299.970046  |
| 12             | 40                  | 5299.976579           | 5299.963586  | 5299.960287  | 5299.960953  |
| 12             | 50                  | 5299.972439           | 5299.957797  | 5299.955426  | 5299.951483  |
| 11.4           | 25                  | 5299.970258           | 5299.956856  | 5299.950844  | 5299.949097  |
| 12.6           | 25                  | 5299.968711           | 5299.955502  | 5299.942477  | 5299.942857  |
| MHz            |                     | -0.031288894          | -0.044498202 | -0.057522561 | -0.057142779 |
| PPM            |                     | -5.903564957          | -8.395887127 | -10.85331346 | -10.78165638 |



| Voltage<br>(V) | Temperature<br>(°C) | U-NII-2C Test Results |              |              |              |
|----------------|---------------------|-----------------------|--------------|--------------|--------------|
|                |                     | 5580MHz               |              |              |              |
|                |                     | 1min                  | 2min         | 5min         | 10min        |
| 12             | -20                 | 5579.996554           | 5579.992331  | 5579.990614  | 5579.986509  |
| 12             | -10                 | 5579.991565           | 5579.986721  | 5579.988483  | 5579.982923  |
| 12             | 0                   | 5579.985283           | 5579.978426  | 5579.985952  | 5579.973700  |
| 12             | 10                  | 5579.977492           | 5579.971389  | 5579.977135  | 5579.968847  |
| 12             | 20                  | 5579.971890           | 5579.965010  | 5579.972087  | 5579.960279  |
| 12             | 30                  | 5579.971199           | 5579.963504  | 5579.968870  | 5579.957246  |
| 12             | 40                  | 5579.965571           | 5579.953912  | 5579.964551  | 5579.953975  |
| 12             | 50                  | 5579.957282           | 5579.945611  | 5579.962100  | 5579.947701  |
| 11.4           | 25                  | 5579.947897           | 5579.937675  | 5579.953388  | 5579.943875  |
| 12.6           | 25                  | 5579.944835           | 5579.932151  | 5579.949137  | 5579.940408  |
| MHz            |                     | -0.055165491          | -0.067848737 | -0.050862597 | -0.05959214  |
| PPM            |                     | -9.886288741          | -12.15927193 | -9.115160723 | -10.67959494 |

| Voltage<br>(V) | Temperature<br>(°C) | U-NII-3 Test Results |              |              |              |
|----------------|---------------------|----------------------|--------------|--------------|--------------|
|                |                     | 5785MHz              |              |              |              |
|                |                     | 1min                 | 2min         | 5min         | 10min        |
| 12             | -20                 | 5784.991521          | 5784.982993  | 5784.976063  | 5784.971344  |
| 12             | -10                 | 5784.990856          | 5784.975285  | 5784.970419  | 5784.970872  |
| 12             | 0                   | 5784.981343          | 5784.973478  | 5784.965074  | 5784.964316  |
| 12             | 10                  | 5784.978942          | 5784.970793  | 5784.955194  | 5784.960226  |
| 12             | 20                  | 5784.976735          | 5784.965060  | 5784.949793  | 5784.956424  |
| 12             | 30                  | 5784.975588          | 5784.962934  | 5784.943492  | 5784.949669  |
| 12             | 40                  | 5784.966979          | 5784.957905  | 5784.943227  | 5784.940943  |
| 12             | 50                  | 5784.957270          | 5784.949182  | 5784.937243  | 5784.939538  |
| 11.4           | 25                  | 5784.950740          | 5784.944782  | 5784.934058  | 5784.936522  |
| 12.6           | 25                  | 5784.941580          | 5784.940155  | 5784.924961  | 5784.928398  |
| MHz            |                     | -0.058420072         | -0.059845049 | -0.075038722 | -0.07160187  |
| PPM            |                     | -10.09854305         | -10.34486582 | -12.97125701 | -12.37715995 |

## 5.4. Power Spectral Density

### Ambient condition

| Temperature | Relative humidity | Pressure |
|-------------|-------------------|----------|
| 23°C ~25°C  | 45%~50%           | 101.5kPa |

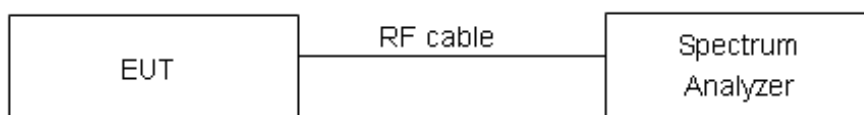
### Method of Measurement

The EUT was connected to the spectrum analyzer through an external attenuator (20dB) and a known loss cable.

Set RBW = 1MHz, VBW =3MHz for the band 5.150-5.250GHz, 5.250-5.350GHz, 5.470-5.725GHz.  
Set RBW = 470kHz, VBW =1.5MHz for the band 5.725-5.850GHz

The conducted PSD is measured at each antenna port. The measured results at the various antenna ports are then summed mathematically.

### Test setup



### Limits

Rule FCC Part 15.407(a)(1)/ Part 15.407(a)(2) / Part 15.407(a)(3)

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

For the 5.25-5.35 GHz and 5.47-5.725 GHz bands, the maximum power spectral density shall not exceed 11 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

For the band 5.725-5.85 GHz, the maximum power spectral density shall not exceed 30 dBm in any 500kHz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

| Frequency Bands/MHz              | Limits       |
|----------------------------------|--------------|
| 5150-5250                        | 17 dBm/MHz   |
| 5.25-5.35 GHz and 5.47-5.725 GHz | 11dBm/MHz    |
| 5725-5850                        | 30dBm/500kHz |



## Measurement Uncertainty

The assessed measurement uncertainty to ensure 95% confidence level for the normal distribution is with the coverage factor  $k = 2$ ,  $U = 0.75\text{dB}$ .

**Test Results:**

Note: Power Spectral Density = Read Value + Duty cycle correction factor

**INPAQ:****MIMO****U-NII-1**

| Mode              | Channel/<br>Frequency<br>(MHz) | Power Spectral Density         |                      |                                |                      |                                |                      |                                |                      |                                 | Limit<br>(dBm/<br>MHz) | Conclusion |
|-------------------|--------------------------------|--------------------------------|----------------------|--------------------------------|----------------------|--------------------------------|----------------------|--------------------------------|----------------------|---------------------------------|------------------------|------------|
|                   |                                | Antenna 1                      |                      | Antenna 2                      |                      | Antenna 3                      |                      | Antenna 4                      |                      | Total<br>Power<br>(dBm<br>/MHz) |                        |            |
|                   |                                | Read<br>Value<br>(dBm/<br>MHz) | PSD<br>(dBm/<br>MHz) | Read<br>Value<br>(dBm/<br>MHz) | PSD<br>(dBm/<br>MHz) | Read<br>Value<br>(dBm/<br>MHz) | PSD<br>(dBm/<br>MHz) | Read<br>Value<br>(dBm/<br>MHz) | PSD<br>(dBm/<br>MHz) |                                 |                        |            |
| 802.11a           | 36/5180                        | 11.47                          | 11.66                | 10.50                          | 10.69                | 9.98                           | 10.17                | 10.60                          | 10.79                | 16.88                           | 17.00                  | PASS       |
|                   | 40/5200                        | 11.18                          | 11.37                | 11.04                          | 11.23                | 9.57                           | 9.76                 | 10.54                          | 10.73                | 16.84                           | 17.00                  | PASS       |
|                   | 48/5240                        | 11.21                          | 11.40                | 10.34                          | 10.53                | 9.41                           | 9.60                 | 10.29                          | 10.48                | 16.57                           | 17.00                  | PASS       |
| 802.11n<br>HT20   | 36/5180                        | 9.46                           | 10.13                | 8.38                           | 9.05                 | 7.63                           | 8.30                 | 8.38                           | 9.05                 | 15.20                           | 17.00                  | PASS       |
|                   | 40/5200                        | 10.59                          | 11.26                | 9.96                           | 10.63                | 8.87                           | 9.54                 | 9.19                           | 9.86                 | 16.39                           | 17.00                  | PASS       |
|                   | 48/5240                        | 10.79                          | 11.46                | 9.78                           | 10.45                | 8.96                           | 9.63                 | 9.57                           | 10.24                | 16.51                           | 17.00                  | PASS       |
| 802.11n<br>HT40   | 38/5190                        | 4.26                           | 4.99                 | 3.59                           | 4.32                 | 3.37                           | 4.10                 | 3.15                           | 3.88                 | 10.36                           | 17.00                  | PASS       |
|                   | 46/5230                        | 9.79                           | 10.52                | 9.23                           | 9.96                 | 8.10                           | 8.83                 | 8.81                           | 9.54                 | 15.77                           | 17.00                  | PASS       |
| 802.11ac<br>VHT20 | 36/5180                        | 9.30                           | 9.97                 | 8.48                           | 9.15                 | 7.82                           | 8.49                 | 8.07                           | 8.74                 | 15.14                           | 17.00                  | PASS       |
|                   | 40/5200                        | 10.38                          | 11.05                | 10.12                          | 10.79                | 8.86                           | 9.53                 | 9.27                           | 9.94                 | 16.39                           | 17.00                  | PASS       |
|                   | 48/5240                        | 10.60                          | 11.27                | 9.26                           | 9.93                 | 9.25                           | 9.92                 | 9.37                           | 10.04                | 16.35                           | 17.00                  | PASS       |
| 802.11ac<br>VHT40 | 38/5190                        | 4.53                           | 5.26                 | 3.40                           | 4.13                 | 3.36                           | 4.09                 | 3.25                           | 3.98                 | 10.42                           | 17.00                  | PASS       |
|                   | 46/5230                        | 9.77                           | 10.50                | 9.17                           | 9.90                 | 8.32                           | 9.05                 | 9.21                           | 9.94                 | 15.90                           | 17.00                  | PASS       |
| 802.11ac<br>VHT80 | 42/5210                        | -1.13                          | -0.40                | -1.27                          | -0.54                | -1.93                          | -1.20                | -2.31                          | -1.58                | 5.12                            | 17.00                  | PASS       |
| 802.11ax<br>HE20  | 36/5180                        | 9.82                           | 10.55                | 8.49                           | 9.22                 | 8.00                           | 8.73                 | 8.35                           | 9.08                 | 15.47                           | 17.00                  | PASS       |
|                   | 44/5220                        | 10.92                          | 11.65                | 10.12                          | 10.85                | 9.57                           | 10.30                | 9.78                           | 10.51                | 16.88                           | 17.00                  | PASS       |
|                   | 48/5240                        | 11.28                          | 12.01                | 9.93                           | 10.66                | 9.29                           | 10.02                | 9.94                           | 10.67                | 16.92                           | 17.00                  | PASS       |
| 802.11ax<br>HE40  | 38/5190                        | 4.45                           | 5.18                 | 3.60                           | 4.33                 | 3.87                           | 4.60                 | 3.55                           | 4.28                 | 10.63                           | 17.00                  | PASS       |
|                   | 46/5230                        | 9.91                           | 10.64                | 9.31                           | 10.04                | 8.18                           | 8.91                 | 9.04                           | 9.77                 | 15.90                           | 17.00                  | PASS       |
| 802.11ax<br>HE80  | 42/5210                        | -1.62                          | -0.95                | -1.72                          | -1.05                | -2.31                          | -1.64                | -2.33                          | -1.66                | 4.71                            | 17.00                  | PASS       |

Note: 1. Power Spectral Density = Read Value + Duty cycle correction factor

2. For Total PSD, according to KDB 662911 D01 Multiple Transmitter Output v02r01 2)a), the power spectral density =  $10 \log(10^{(\text{PSD antenna1 in dBm/10})} + 10^{(\text{PSD antenna2 in dBm/10})} + 10^{(\text{PSD antenna3 in dBm/10})} + 10^{(\text{PSD antenna4 in dBm/10})})$ 

3. The manufacturer declared that the directional gain = 3.33dBi &lt; 6dBi. So the PSD limit is 17dBm.



## U-NII-2A

| Mode               | Channel/<br>Frequency<br>(MHz) | Power Spectral Density         |                      |                                |                      |                                |                      |                                |                      |                                 | Limit<br>(dBm/<br>MHz) | Conclusion |
|--------------------|--------------------------------|--------------------------------|----------------------|--------------------------------|----------------------|--------------------------------|----------------------|--------------------------------|----------------------|---------------------------------|------------------------|------------|
|                    |                                | Antenna 1                      |                      | Antenna 2                      |                      | Antenna 3                      |                      | Antenna 4                      |                      | Total<br>Power<br>(dBm<br>/MHz) |                        |            |
|                    |                                | Read<br>Value<br>(dBm/<br>MHz) | PSD<br>(dBm/<br>MHz) | Read<br>Value<br>(dBm/<br>MHz) | PSD<br>(dBm/<br>MHz) | Read<br>Value<br>(dBm/<br>MHz) | PSD<br>(dBm/<br>MHz) | Read<br>Value<br>(dBm/<br>MHz) | PSD<br>(dBm/<br>MHz) |                                 |                        |            |
| 802.11a            | 52/5260                        | 5.01                           | 5.20                 | 4.42                           | 4.61                 | 3.11                           | 3.30                 | 4.37                           | 4.56                 | 10.49                           | 11.00                  | PASS       |
|                    | 60/5300                        | 4.85                           | 5.04                 | 4.03                           | 4.22                 | 3.22                           | 3.41                 | 4.26                           | 4.45                 | 10.34                           | 11.00                  | PASS       |
|                    | 64/5320                        | 4.35                           | 4.54                 | 4.08                           | 4.27                 | 4.91                           | 5.10                 | 4.64                           | 4.83                 | 10.72                           | 11.00                  | PASS       |
| 802.11n<br>HT20    | 52/5260                        | 4.36                           | 5.03                 | 3.78                           | 4.45                 | 4.11                           | 4.78                 | 4.13                           | 4.80                 | 10.79                           | 11.00                  | PASS       |
|                    | 60/5300                        | 3.52                           | 4.19                 | 3.32                           | 3.99                 | 4.19                           | 4.86                 | 4.21                           | 4.88                 | 10.52                           | 11.00                  | PASS       |
|                    | 64/5320                        | 3.77                           | 4.44                 | 3.16                           | 3.83                 | 3.99                           | 4.66                 | 4.47                           | 5.14                 | 10.56                           | 11.00                  | PASS       |
| 802.11n<br>HT40    | 54/5270                        | 3.82                           | 4.55                 | 3.53                           | 4.26                 | 3.52                           | 4.25                 | 3.38                           | 4.11                 | 10.31                           | 11.00                  | PASS       |
|                    | 62/5310                        | 3.33                           | 4.06                 | 3.07                           | 3.80                 | 3.74                           | 4.47                 | 3.39                           | 4.12                 | 10.14                           | 11.00                  | PASS       |
| 802.11ac<br>VHT20  | 52/5260                        | 4.43                           | 5.10                 | 3.74                           | 4.41                 | 4.12                           | 4.79                 | 3.67                           | 4.34                 | 10.69                           | 11.00                  | PASS       |
|                    | 60/5300                        | 4.04                           | 4.71                 | 3.58                           | 4.25                 | 4.64                           | 5.31                 | 4.04                           | 4.71                 | 10.78                           | 11.00                  | PASS       |
|                    | 64/5320                        | 3.94                           | 4.61                 | 3.33                           | 4.00                 | 3.79                           | 4.46                 | 3.95                           | 4.62                 | 10.45                           | 11.00                  | PASS       |
| 802.11ac<br>VHT40  | 54/5270                        | 3.61                           | 4.34                 | 3.00                           | 3.73                 | 3.78                           | 4.51                 | 3.71                           | 4.44                 | 10.29                           | 11.00                  | PASS       |
|                    | 62/5310                        | 2.92                           | 3.65                 | 2.90                           | 3.63                 | 3.55                           | 4.28                 | 3.72                           | 4.45                 | 10.04                           | 11.00                  | PASS       |
| 802.11ac<br>VHT80  | 58/5290                        | 0.16                           | 0.89                 | -0.56                          | 0.17                 | 0.14                           | 0.87                 | 0.66                           | 1.39                 | 6.87                            | 11.00                  | PASS       |
| 802.11ac<br>VHT160 | 50/5250                        | -7.51                          | -7.11                | -7.69                          | -7.29                | -8.07                          | -7.67                | -9.01                          | -8.61                | -1.61                           | 11.00                  | PASS       |
| 802.11ax<br>HE20   | 52/5260                        | 4.11                           | 4.84                 | 3.29                           | 4.02                 | 3.40                           | 4.13                 | 3.22                           | 3.95                 | 10.27                           | 11.00                  | PASS       |
|                    | 60/5300                        | 3.40                           | 4.13                 | 3.03                           | 3.76                 | 3.76                           | 4.49                 | 3.51                           | 4.24                 | 10.18                           | 11.00                  | PASS       |
|                    | 64/5320                        | 3.28                           | 4.01                 | 2.61                           | 3.34                 | 3.61                           | 4.34                 | 3.53                           | 4.26                 | 10.03                           | 11.00                  | PASS       |
| 802.11ax<br>HE40   | 54/5270                        | 3.66                           | 4.39                 | 3.00                           | 3.73                 | 3.87                           | 4.60                 | 3.66                           | 4.39                 | 10.31                           | 11.00                  | PASS       |
|                    | 62/5310                        | 3.42                           | 4.15                 | 2.48                           | 3.21                 | 3.79                           | 4.52                 | 3.51                           | 4.24                 | 10.08                           | 11.00                  | PASS       |
| 802.11ax<br>HE80   | 58/5290                        | 0.51                           | 1.18                 | 0.01                           | 0.68                 | 0.52                           | 1.19                 | 0.97                           | 1.64                 | 7.21                            | 11.00                  | PASS       |
| 802.11ax<br>HE160  | 50/5250                        | -6.93                          | -6.59                | -7.18                          | -6.84                | -7.88                          | -7.54                | -8.05                          | -7.71                | -1.12                           | 11.00                  | PASS       |

Note: 1. Power Spectral Density = Read Value + Duty cycle correction factor

2. For Total PSD, according to KDB 662911 D01 Multiple Transmitter Output v02r01 2)a), the power spectral density =  $10 \log(10^{(\text{PSD antenna1 in dBm/10})} + 10^{(\text{PSD antenna2 in dBm/10})} + 10^{(\text{PSD antenna3 in dBm/10})} + 10^{(\text{PSD antenna4 in dBm/10})})$

3. The manufacturer declared that the directional gain = 3.33dBi < 6dBi. So the PSD limit is 11dBm.



## U-NII-2C

| Mode               | Channel/<br>Frequency<br>(MHz) | Power Spectral Density         |                      |                                |                      |                                |                      |                                |                      |                                 | Limit<br>(dBm/<br>MHz) | Conclusion |
|--------------------|--------------------------------|--------------------------------|----------------------|--------------------------------|----------------------|--------------------------------|----------------------|--------------------------------|----------------------|---------------------------------|------------------------|------------|
|                    |                                | Antenna 1                      |                      | Antenna 2                      |                      | Antenna 3                      |                      | Antenna 4                      |                      | Total<br>Power<br>(dBm<br>/MHz) |                        |            |
|                    |                                | Read<br>Value<br>(dBm/<br>MHz) | PSD<br>(dBm/<br>MHz) | Read<br>Value<br>(dBm/<br>MHz) | PSD<br>(dBm/<br>MHz) | Read<br>Value<br>(dBm/<br>MHz) | PSD<br>(dBm/<br>MHz) | Read<br>Value<br>(dBm/<br>MHz) | PSD<br>(dBm/<br>MHz) |                                 |                        |            |
| 802.11a            | 100/5500                       | 5.17                           | 5.36                 | 3.71                           | 3.90                 | 4.43                           | 4.62                 | 4.01                           | 4.20                 | 10.58                           | 11.00                  | PASS       |
|                    | 120/5600                       | 3.93                           | 4.12                 | 3.70                           | 3.89                 | 3.75                           | 3.94                 | 3.25                           | 3.44                 | 9.87                            | 11.00                  | PASS       |
|                    | 140/5700                       | 4.38                           | 4.57                 | 3.12                           | 3.31                 | 4.32                           | 4.51                 | 4.56                           | 4.75                 | 10.34                           | 11.00                  | PASS       |
|                    | 144/5720                       | 3.49                           | 3.68                 | 3.21                           | 3.40                 | 4.37                           | 4.56                 | 4.14                           | 4.33                 | 10.04                           | 11.00                  | PASS       |
| 802.11n<br>HT20    | 100/5500                       | 4.60                           | 5.27                 | 3.51                           | 4.18                 | 3.72                           | 4.39                 | 3.39                           | 4.06                 | 10.52                           | 11.00                  | PASS       |
|                    | 120/5600                       | 4.02                           | 4.69                 | 4.22                           | 4.89                 | 3.94                           | 4.61                 | 3.62                           | 4.29                 | 10.64                           | 11.00                  | PASS       |
|                    | 140/5700                       | 4.54                           | 5.21                 | 2.76                           | 3.43                 | 3.84                           | 4.51                 | 4.38                           | 5.05                 | 10.62                           | 11.00                  | PASS       |
|                    | 144/5720                       | 3.91                           | 4.58                 | 3.10                           | 3.77                 | 3.91                           | 4.58                 | 3.48                           | 4.15                 | 10.30                           | 11.00                  | PASS       |
| 802.11n<br>HT40    | 102/5510                       | 4.31                           | 5.04                 | 2.76                           | 3.49                 | 3.32                           | 4.05                 | 2.89                           | 3.62                 | 10.11                           | 11.00                  | PASS       |
|                    | 110/5550                       | 4.35                           | 5.08                 | 3.61                           | 4.34                 | 3.47                           | 4.20                 | 3.38                           | 4.11                 | 10.47                           | 11.00                  | PASS       |
|                    | 134/5670                       | 3.36                           | 4.09                 | 2.36                           | 3.09                 | 2.60                           | 3.33                 | 3.13                           | 3.86                 | 9.63                            | 11.00                  | PASS       |
|                    | 142/5710                       | 3.55                           | 4.28                 | 2.98                           | 3.71                 | 3.39                           | 4.12                 | 4.19                           | 4.92                 | 10.30                           | 11.00                  | PASS       |
| 802.11ac<br>VHT20  | 100/5500                       | 4.76                           | 5.43                 | 3.34                           | 4.01                 | 4.24                           | 4.91                 | 3.50                           | 4.17                 | 10.69                           | 11.00                  | PASS       |
|                    | 120/5600                       | 3.96                           | 4.63                 | 4.01                           | 4.68                 | 4.05                           | 4.72                 | 3.58                           | 4.25                 | 10.59                           | 11.00                  | PASS       |
|                    | 140/5700                       | 3.39                           | 4.06                 | 2.47                           | 3.14                 | 3.65                           | 4.32                 | 3.99                           | 4.66                 | 10.10                           | 11.00                  | PASS       |
|                    | 144/5720                       | 4.20                           | 4.87                 | 3.83                           | 4.50                 | 4.15                           | 4.82                 | 4.17                           | 4.84                 | 10.78                           | 11.00                  | PASS       |
| 802.11ac<br>VHT40  | 102/5510                       | 4.18                           | 4.91                 | 2.95                           | 3.68                 | 3.43                           | 4.16                 | 2.56                           | 3.29                 | 10.07                           | 11.00                  | PASS       |
|                    | 110/5550                       | 4.66                           | 5.39                 | 3.22                           | 3.95                 | 3.68                           | 4.41                 | 3.02                           | 3.75                 | 10.44                           | 11.00                  | PASS       |
|                    | 134/5670                       | 3.39                           | 4.12                 | 2.83                           | 3.56                 | 2.95                           | 3.68                 | 3.17                           | 3.90                 | 9.84                            | 11.00                  | PASS       |
|                    | 142/5710                       | 3.48                           | 4.21                 | 2.94                           | 3.67                 | 3.61                           | 4.34                 | 4.14                           | 4.87                 | 10.31                           | 11.00                  | PASS       |
| 802.11ac<br>VHT80  | 106/5530                       | 1.30                           | 2.03                 | -0.30                          | 0.43                 | 0.12                           | 0.85                 | -0.52                          | 0.21                 | 6.96                            | 11.00                  | PASS       |
|                    | 122/5610                       | 0.71                           | 1.44                 | 0.34                           | 1.07                 | 0.35                           | 1.08                 | -0.29                          | 0.44                 | 7.04                            | 11.00                  | PASS       |
|                    | 138/5690                       | 0.97                           | 1.70                 | -0.55                          | 0.18                 | 0.58                           | 1.31                 | 1.06                           | 1.79                 | 7.31                            | 11.00                  | PASS       |
| 802.11ac<br>VHT160 | 114/5570                       | -4.85                          | -4.45                | -5.56                          | -5.16                | -5.31                          | -4.91                | -6.06                          | -5.66                | 1.00                            | 11.00                  | PASS       |
| 802.11ax<br>HE20   | 100/5500                       | 4.28                           | 5.01                 | 3.05                           | 3.78                 | 3.73                           | 4.46                 | 2.63                           | 3.36                 | 10.22                           | 11.00                  | PASS       |
|                    | 120/5600                       | 3.52                           | 4.25                 | 3.37                           | 4.10                 | 3.37                           | 4.10                 | 0.47                           | 1.20                 | 9.60                            | 11.00                  | PASS       |
|                    | 140/5700                       | 4.51                           | 5.24                 | 3.26                           | 3.99                 | 4.40                           | 5.13                 | 4.29                           | 5.02                 | 10.89                           | 11.00                  | PASS       |
|                    | 144/5720                       | 3.72                           | 4.45                 | 2.85                           | 3.58                 | 3.63                           | 4.36                 | 3.76                           | 4.49                 | 10.26                           | 11.00                  | PASS       |
| 802.11ax<br>HE40   | 102/5510                       | 4.36                           | 5.09                 | 2.73                           | 3.46                 | 3.42                           | 4.15                 | 2.45                           | 3.18                 | 10.05                           | 11.00                  | PASS       |
|                    | 110/5550                       | 4.50                           | 5.23                 | 3.35                           | 4.08                 | 3.43                           | 4.16                 | 3.22                           | 3.95                 | 10.41                           | 11.00                  | PASS       |
|                    | 134/5670                       | 3.54                           | 4.27                 | 2.36                           | 3.09                 | 3.35                           | 4.08                 | 2.82                           | 3.55                 | 9.79                            | 11.00                  | PASS       |
|                    | 142/5710                       | 2.77                           | 3.50                 | 2.12                           | 2.85                 | 2.59                           | 3.32                 | 2.99                           | 3.72                 | 9.38                            | 11.00                  | PASS       |

**RF Test Report****Report No.: R2112A1145-R2**

|                   |          |       |       |       |       |       |       |       |       |      |       |      |
|-------------------|----------|-------|-------|-------|-------|-------|-------|-------|-------|------|-------|------|
| 802.11ax<br>HE80  | 106/5530 | 1.52  | 2.19  | 0.60  | 1.27  | 0.50  | 1.17  | -0.33 | 0.34  | 7.31 | 11.00 | PASS |
|                   | 122/5610 | 1.16  | 1.83  | 0.96  | 1.63  | 0.65  | 1.32  | 0.01  | 0.68  | 7.41 | 11.00 | PASS |
|                   | 138/5690 | 0.61  | 1.28  | -1.42 | -0.75 | 0.02  | 0.69  | 0.29  | 0.96  | 6.63 | 11.00 | PASS |
| 802.11ax<br>HE160 | 114/5570 | -2.15 | -1.81 | -2.93 | -2.59 | -2.94 | -2.60 | -3.34 | -3.00 | 3.54 | 11.00 | PASS |

Note: 1. Power Spectral Density =Read Value+Duty cycle correction factor

2. For Total PSD, according to KDB 662911 D01 Multiple Transmitter Output v02r01 2)a),the power spectral density= $10\log(10^{(\text{PSD antenna1 in dBm/10})} + 10^{(\text{PSD antenna2 in dBm/10})} + 10^{(\text{PSD antenna3 in dBm/10})} + 10^{(\text{PSD antenna4 in dBm/10})})$

3. The manufacturer declared that the directional gain =3.42dBi<6dBi. So the PSD limit is 11dBm.



## U-NII-3

| Mode              | Channel/<br>Frequency<br>(MHz) | Power Spectral Density            |                         |                                   |                         |                                   |                         |                                   |                         |                                    | Limit<br>(dBm/<br>500kHz) | Conclusion |
|-------------------|--------------------------------|-----------------------------------|-------------------------|-----------------------------------|-------------------------|-----------------------------------|-------------------------|-----------------------------------|-------------------------|------------------------------------|---------------------------|------------|
|                   |                                | Antenna 1                         |                         | Antenna 2                         |                         | Antenna 3                         |                         | Antenna 4                         |                         | Total<br>Power<br>(dBm/<br>500kHz) |                           |            |
|                   |                                | Read<br>Value<br>(dBm/<br>470kHz) | PSD<br>(dBm/<br>500kHz) | Read<br>Value<br>(dBm/<br>470kHz) | PSD<br>(dBm/<br>500kHz) | Read<br>Value<br>(dBm/<br>470kHz) | PSD<br>(dBm/<br>500kHz) | Read<br>Value<br>(dBm/<br>470kHz) | PSD<br>(dBm/<br>500kHz) |                                    |                           |            |
| 802.11a           | 149/5745                       | 9.56                              | 10.02                   | 10.30                             | 10.76                   | 9.62                              | 10.08                   | 9.62                              | 10.08                   | 16.27                              | 30.00                     | PASS       |
|                   | 157/5785                       | 9.12                              | 9.58                    | 10.11                             | 10.57                   | 9.06                              | 9.52                    | 8.99                              | 9.45                    | 15.82                              | 30.00                     | PASS       |
|                   | 165/5825                       | 8.70                              | 9.16                    | 9.79                              | 10.25                   | 9.87                              | 10.33                   | 8.97                              | 9.43                    | 15.84                              | 30.00                     | PASS       |
| 802.11n<br>HT20   | 149/5745                       | 8.93                              | 9.87                    | 9.77                              | 10.71                   | 9.43                              | 10.37                   | 8.76                              | 9.70                    | 16.20                              | 30.00                     | PASS       |
|                   | 157/5785                       | 8.79                              | 9.73                    | 9.61                              | 10.55                   | 8.20                              | 9.14                    | 8.11                              | 9.05                    | 15.68                              | 30.00                     | PASS       |
|                   | 165/5825                       | 8.18                              | 9.12                    | 7.51                              | 8.45                    | 8.58                              | 9.52                    | 7.97                              | 8.91                    | 15.03                              | 30.00                     | PASS       |
| 802.11n<br>HT40   | 151/5755                       | 6.63                              | 7.63                    | 5.45                              | 6.45                    | 6.40                              | 7.40                    | 6.55                              | 7.55                    | 13.30                              | 30.00                     | PASS       |
|                   | 159/5795                       | 6.24                              | 7.24                    | 5.45                              | 6.45                    | 5.92                              | 6.92                    | 5.14                              | 6.14                    | 12.73                              | 30.00                     | PASS       |
| 802.11ac<br>VHT20 | 149/5745                       | 8.88                              | 9.82                    | 8.43                              | 9.37                    | 9.06                              | 10.00                   | 8.62                              | 9.56                    | 15.71                              | 30.00                     | PASS       |
|                   | 157/5785                       | 8.18                              | 9.12                    | 8.15                              | 9.09                    | 8.50                              | 9.44                    | 7.87                              | 8.81                    | 15.14                              | 30.00                     | PASS       |
|                   | 165/5825                       | 8.35                              | 9.29                    | 7.38                              | 8.32                    | 8.94                              | 9.88                    | 8.07                              | 9.01                    | 15.18                              | 30.00                     | PASS       |
| 802.11ac<br>VHT40 | 151/5755                       | 6.31                              | 7.31                    | 5.34                              | 6.34                    | 6.55                              | 7.55                    | 6.06                              | 7.06                    | 13.11                              | 30.00                     | PASS       |
|                   | 159/5795                       | 6.65                              | 7.65                    | 5.59                              | 6.59                    | 6.03                              | 7.03                    | 5.52                              | 6.52                    | 12.99                              | 30.00                     | PASS       |
| 802.11ac<br>VHT80 | 155/5775                       | -0.04                             | 0.96                    | -0.81                             | 0.19                    | -0.10                             | 0.90                    | -1.02                             | -0.02                   | 6.55                               | 30.00                     | PASS       |
| 802.11ax<br>HE20  | 149/5745                       | 9.88                              | 10.88                   | 8.95                              | 9.95                    | 9.34                              | 10.34                   | 8.99                              | 9.99                    | 16.33                              | 30.00                     | PASS       |
|                   | 157/5785                       | 9.25                              | 10.25                   | 8.30                              | 9.30                    | 9.22                              | 10.22                   | 8.36                              | 9.36                    | 15.83                              | 30.00                     | PASS       |
|                   | 165/5825                       | 8.93                              | 9.93                    | 7.94                              | 8.94                    | 9.24                              | 10.24                   | 8.58                              | 9.58                    | 15.72                              | 30.00                     | PASS       |
| 802.11ax<br>HE40  | 151/5755                       | 5.40                              | 6.40                    | 4.63                              | 5.63                    | 5.36                              | 6.36                    | 5.09                              | 6.09                    | 12.15                              | 30.00                     | PASS       |
|                   | 159/5795                       | 6.45                              | 7.45                    | 5.93                              | 6.93                    | 6.54                              | 7.54                    | 5.34                              | 6.34                    | 13.11                              | 30.00                     | PASS       |
| 802.11ax<br>HE80  | 155/5775                       | -0.39                             | 0.55                    | -0.96                             | -0.02                   | -0.44                             | 0.50                    | -1.39                             | -0.45                   | 6.18                               | 30.00                     | PASS       |

Note: 1. Power Spectral Density = Read Value + Duty cycle correction factor

2. For Total PSD, according to KDB 662911 D01 Multiple Transmitter Output v02r01 2)a), the power spectral density =  $10 \log(10^{(\text{PSD antenna1 in dBm}/10)} + 10^{(\text{PSD antenna2 in dBm}/10)} + 10^{(\text{PSD antenna3 in dBm}/10)} + 10^{(\text{PSD antenna4 in dBm}/10)})$

3. The manufacturer declared that the directional gain = 4.43dBi < 6dBi. So the PSD limit is 30dBm.



## MIMO with Beamforming

## U-NII-1

| Mode              | Channel/<br>Frequency<br>(MHz) | Power Spectral Density         |                      |                                |                      |                                |                      |                                |                      |                                 | Limit<br>(dBm/<br>MHz) | Conclusion |
|-------------------|--------------------------------|--------------------------------|----------------------|--------------------------------|----------------------|--------------------------------|----------------------|--------------------------------|----------------------|---------------------------------|------------------------|------------|
|                   |                                | Antenna 1                      |                      | Antenna 2                      |                      | Antenna 3                      |                      | Antenna 4                      |                      | Total<br>Power<br>(dBm<br>/MHz) |                        |            |
|                   |                                | Read<br>Value<br>(dBm/<br>MHz) | PSD<br>(dBm/<br>MHz) | Read<br>Value<br>(dBm/<br>MHz) | PSD<br>(dBm/<br>MHz) | Read<br>Value<br>(dBm/<br>MHz) | PSD<br>(dBm/<br>MHz) | Read<br>Value<br>(dBm/<br>MHz) | PSD<br>(dBm/<br>MHz) |                                 |                        |            |
| 802.11a           | 36/5180                        | 11.60                          | 11.79                | 9.97                           | 10.16                | 10.24                          | 10.43                | 9.95                           | 10.14                | 16.71                           | 17.00                  | PASS       |
|                   | 40/5200                        | 11.57                          | 11.76                | 10.03                          | 10.22                | 10.70                          | 10.89                | 9.96                           | 10.15                | 16.82                           | 17.00                  | PASS       |
|                   | 48/5240                        | 11.55                          | 11.74                | 10.12                          | 10.31                | 10.46                          | 10.65                | 10.07                          | 10.26                | 16.80                           | 17.00                  | PASS       |
| 802.11n<br>HT20   | 36/5180                        | 9.17                           | 9.84                 | 8.24                           | 8.91                 | 7.59                           | 8.26                 | 8.23                           | 8.90                 | 15.03                           | 17.00                  | PASS       |
|                   | 40/5200                        | 10.68                          | 11.35                | 10.26                          | 10.93                | 9.86                           | 10.53                | 9.41                           | 10.08                | 16.77                           | 17.00                  | PASS       |
|                   | 48/5240                        | 10.68                          | 11.35                | 9.91                           | 10.58                | 10.24                          | 10.91                | 9.05                           | 9.72                 | 16.70                           | 17.00                  | PASS       |
| 802.11n<br>HT40   | 38/5190                        | 4.36                           | 5.09                 | 3.56                           | 4.29                 | 3.33                           | 4.06                 | 3.07                           | 3.80                 | 10.35                           | 17.00                  | PASS       |
|                   | 46/5230                        | 10.54                          | 11.27                | 9.61                           | 10.34                | 8.89                           | 9.62                 | 9.16                           | 9.89                 | 16.34                           | 17.00                  | PASS       |
| 802.11ac<br>VHT20 | 36/5180                        | 9.57                           | 10.24                | 8.10                           | 8.77                 | 7.86                           | 8.53                 | 8.67                           | 9.34                 | 15.29                           | 17.00                  | PASS       |
|                   | 40/5200                        | 10.77                          | 11.44                | 10.27                          | 10.94                | 10.01                          | 10.68                | 9.18                           | 9.85                 | 16.78                           | 17.00                  | PASS       |
|                   | 48/5240                        | 10.67                          | 11.34                | 9.59                           | 10.26                | 9.96                           | 10.63                | 8.92                           | 9.59                 | 16.52                           | 17.00                  | PASS       |
| 802.11ac<br>VHT40 | 38/5190                        | 4.37                           | 5.10                 | 3.30                           | 4.03                 | 3.16                           | 3.89                 | 3.18                           | 3.91                 | 10.28                           | 17.00                  | PASS       |
|                   | 46/5230                        | 10.40                          | 11.13                | 9.36                           | 10.09                | 9.04                           | 9.77                 | 9.25                           | 9.98                 | 16.30                           | 17.00                  | PASS       |
| 802.11ac<br>VHT80 | 42/5210                        | -0.89                          | -0.16                | -1.13                          | -0.40                | -1.98                          | -1.25                | -1.86                          | -1.13                | 5.31                            | 17.00                  | PASS       |
| 802.11ax<br>HE20  | 36/5180                        | 9.77                           | 10.50                | 8.35                           | 9.08                 | 8.58                           | 9.31                 | 8.14                           | 8.87                 | 15.51                           | 17.00                  | PASS       |
|                   | 44/5220                        | 10.98                          | 11.71                | 9.96                           | 10.69                | 10.15                          | 10.88                | 9.46                           | 10.19                | 16.92                           | 17.00                  | PASS       |
|                   | 48/5240                        | 10.73                          | 11.46                | 9.87                           | 10.60                | 10.32                          | 11.05                | 9.31                           | 10.04                | 16.84                           | 17.00                  | PASS       |
| 802.11ax<br>HE40  | 38/5190                        | 4.81                           | 5.54                 | 3.48                           | 4.21                 | 3.58                           | 4.31                 | 3.42                           | 4.15                 | 10.61                           | 17.00                  | PASS       |
|                   | 46/5230                        | 10.28                          | 11.01                | 9.17                           | 9.90                 | 8.86                           | 9.59                 | 8.79                           | 9.52                 | 16.07                           | 17.00                  | PASS       |
| 802.11ax<br>HE80  | 42/5210                        | -1.46                          | -0.79                | -1.84                          | -1.17                | -2.03                          | -1.36                | -2.62                          | -1.95                | 4.72                            | 17.00                  | PASS       |

Note: 1. Power Spectral Density = Read Value + Duty cycle correction factor

2. For Total PSD, according to KDB 662911 D01 Multiple Transmitter Output v02r01 2)a), the power spectral density =  $10 \log(10^{(\text{PSD antenna1 in dBm/10})} + 10^{(\text{PSD antenna2 in dBm/10})} + 10^{(\text{PSD antenna3 in dBm/10})} + 10^{(\text{PSD antenna4 in dBm/10})})$

3. The manufacturer declared that the directional gain = 3.33dBi < 6dBi. So the PSD limit is 17dBm.



## U-NII-2A

| Mode               | Channel/<br>Frequency<br>(MHz) | Power Spectral Density         |                      |                                |                      |                                |                      |                                |                      |                                 | Limit<br>(dBm/<br>MHz) | Conclusion |
|--------------------|--------------------------------|--------------------------------|----------------------|--------------------------------|----------------------|--------------------------------|----------------------|--------------------------------|----------------------|---------------------------------|------------------------|------------|
|                    |                                | Antenna 1                      |                      | Antenna 2                      |                      | Antenna 3                      |                      | Antenna 4                      |                      | Total<br>Power<br>(dBm<br>/MHz) |                        |            |
|                    |                                | Read<br>Value<br>(dBm/<br>MHz) | PSD<br>(dBm/<br>MHz) | Read<br>Value<br>(dBm/<br>MHz) | PSD<br>(dBm/<br>MHz) | Read<br>Value<br>(dBm/<br>MHz) | PSD<br>(dBm/<br>MHz) | Read<br>Value<br>(dBm/<br>MHz) | PSD<br>(dBm/<br>MHz) |                                 |                        |            |
| 802.11a            | 52/5260                        | 5.04                           | 5.23                 | 4.83                           | 5.02                 | 4.96                           | 5.15                 | 4.03                           | 4.22                 | 10.94                           | 11.00                  | PASS       |
|                    | 60/5300                        | 5.04                           | 5.23                 | 4.69                           | 4.88                 | 4.69                           | 4.88                 | 4.58                           | 4.77                 | 10.96                           | 11.00                  | PASS       |
|                    | 64/5320                        | 4.34                           | 4.53                 | 3.87                           | 4.06                 | 4.50                           | 4.69                 | 4.45                           | 4.64                 | 10.51                           | 11.00                  | PASS       |
| 802.11n<br>HT20    | 52/5260                        | 4.11                           | 4.78                 | 3.91                           | 4.58                 | 4.19                           | 4.86                 | 3.10                           | 3.77                 | 10.54                           | 11.00                  | PASS       |
|                    | 60/5300                        | 3.71                           | 4.38                 | 3.33                           | 4.00                 | 3.93                           | 4.60                 | 3.67                           | 4.34                 | 10.35                           | 11.00                  | PASS       |
|                    | 64/5320                        | 3.80                           | 4.47                 | 3.27                           | 3.94                 | 3.74                           | 4.41                 | 3.86                           | 4.53                 | 10.36                           | 11.00                  | PASS       |
| 802.11n<br>HT40    | 54/5270                        | 2.88                           | 3.61                 | 3.33                           | 4.06                 | 3.24                           | 3.97                 | 2.92                           | 3.65                 | 9.84                            | 11.00                  | PASS       |
|                    | 62/5310                        | 3.39                           | 4.12                 | 2.66                           | 3.39                 | 3.27                           | 4.00                 | 2.69                           | 3.42                 | 9.76                            | 11.00                  | PASS       |
| 802.11ac<br>VHT20  | 52/5260                        | 3.98                           | 4.65                 | 3.76                           | 4.43                 | 4.38                           | 5.05                 | 3.23                           | 3.90                 | 10.54                           | 11.00                  | PASS       |
|                    | 60/5300                        | 4.25                           | 4.92                 | 3.49                           | 4.16                 | 3.84                           | 4.51                 | 3.74                           | 4.41                 | 10.53                           | 11.00                  | PASS       |
|                    | 64/5320                        | 3.78                           | 4.45                 | 3.07                           | 3.74                 | 3.68                           | 4.35                 | 3.28                           | 3.95                 | 10.15                           | 11.00                  | PASS       |
| 802.11ac<br>VHT40  | 54/5270                        | 2.99                           | 3.72                 | 3.41                           | 4.14                 | 3.28                           | 4.01                 | 2.52                           | 3.25                 | 9.81                            | 11.00                  | PASS       |
|                    | 62/5310                        | 3.32                           | 4.05                 | 2.98                           | 3.71                 | 3.05                           | 3.78                 | 2.78                           | 3.51                 | 9.79                            | 11.00                  | PASS       |
| 802.11ac<br>VHT80  | 58/5290                        | 0.29                           | 1.02                 | -0.04                          | 0.69                 | 0.25                           | 0.98                 | -0.09                          | 0.64                 | 6.86                            | 11.00                  | PASS       |
| 802.11ac<br>VHT160 | 50/5250                        | -7.60                          | -7.20                | -7.61                          | -7.21                | -8.28                          | -7.88                | -8.64                          | -8.24                | -1.59                           | 11.00                  | PASS       |
| 802.11ax<br>HE20   | 52/5260                        | 3.72                           | 4.45                 | 3.56                           | 4.29                 | 3.74                           | 4.47                 | 2.97                           | 3.70                 | 10.26                           | 11.00                  | PASS       |
|                    | 60/5300                        | 3.53                           | 4.26                 | 3.11                           | 3.84                 | 3.60                           | 4.33                 | 3.25                           | 3.98                 | 10.13                           | 11.00                  | PASS       |
|                    | 64/5320                        | 3.43                           | 4.16                 | 3.20                           | 3.93                 | 3.74                           | 4.47                 | 3.19                           | 3.92                 | 10.15                           | 11.00                  | PASS       |
| 802.11ax<br>HE40   | 54/5270                        | 3.47                           | 4.20                 | 3.95                           | 4.68                 | 3.83                           | 4.56                 | 3.36                           | 4.09                 | 10.41                           | 11.00                  | PASS       |
|                    | 62/5310                        | 3.89                           | 4.62                 | 3.56                           | 4.29                 | 3.68                           | 4.41                 | 3.18                           | 3.91                 | 10.34                           | 11.00                  | PASS       |
| 802.11ax<br>HE80   | 58/5290                        | 1.09                           | 1.76                 | 0.88                           | 1.55                 | 1.00                           | 1.67                 | 0.12                           | 0.79                 | 7.48                            | 11.00                  | PASS       |
| 802.11ax<br>HE160  | 50/5250                        | -6.87                          | -6.53                | -7.21                          | -6.87                | -7.84                          | -7.50                | -8.07                          | -7.73                | -1.11                           | 11.00                  | PASS       |

Note: 1. Power Spectral Density = Read Value + Duty cycle correction factor

2. For Total PSD, according to KDB 662911 D01 Multiple Transmitter Output v02r01 2)a), the power spectral density =  $10 \log(10^{(\text{PSD antenna1 in dBm/10})} + 10^{(\text{PSD antenna2 in dBm/10})} + 10^{(\text{PSD antenna3 in dBm/10})} + 10^{(\text{PSD antenna4 in dBm/10})})$

3. The manufacturer declared that the directional gain = 3.33dBi < 6dBi. So the PSD limit is 11dBm.



## U-NII-2C

| Mode               | Channel/<br>Frequency<br>(MHz) | Power Spectral Density         |                      |                                |                      |                                |                      |                                |                      |                                 | Limit<br>(dBm/<br>MHz) | Conclusion |
|--------------------|--------------------------------|--------------------------------|----------------------|--------------------------------|----------------------|--------------------------------|----------------------|--------------------------------|----------------------|---------------------------------|------------------------|------------|
|                    |                                | Antenna 1                      |                      | Antenna 2                      |                      | Antenna 3                      |                      | Antenna 4                      |                      | Total<br>Power<br>(dBm<br>/MHz) |                        |            |
|                    |                                | Read<br>Value<br>(dBm/<br>MHz) | PSD<br>(dBm/<br>MHz) | Read<br>Value<br>(dBm/<br>MHz) | PSD<br>(dBm/<br>MHz) | Read<br>Value<br>(dBm/<br>MHz) | PSD<br>(dBm/<br>MHz) | Read<br>Value<br>(dBm/<br>MHz) | PSD<br>(dBm/<br>MHz) |                                 |                        |            |
| 802.11a            | 100/5500                       | 4.99                           | 5.18                 | 4.63                           | 4.82                 | 4.19                           | 4.38                 | 4.46                           | 4.65                 | 10.79                           | 11.00                  | PASS       |
|                    | 120/5600                       | 5.00                           | 5.19                 | 4.58                           | 4.77                 | 4.72                           | 4.91                 | 4.02                           | 4.21                 | 10.80                           | 11.00                  | PASS       |
|                    | 140/5700                       | 4.39                           | 4.58                 | 4.35                           | 4.54                 | 4.34                           | 4.53                 | 4.98                           | 5.17                 | 10.73                           | 11.00                  | PASS       |
|                    | 144/5720                       | 4.18                           | 4.37                 | 4.52                           | 4.71                 | 4.59                           | 4.78                 | 4.47                           | 4.66                 | 10.65                           | 11.00                  | PASS       |
| 802.11n<br>HT20    | 100/5500                       | 4.72                           | 5.39                 | 3.90                           | 4.57                 | 3.68                           | 4.35                 | 3.78                           | 4.45                 | 10.73                           | 11.00                  | PASS       |
|                    | 120/5600                       | 4.30                           | 4.97                 | 3.83                           | 4.50                 | 4.07                           | 4.74                 | 3.49                           | 4.16                 | 10.62                           | 11.00                  | PASS       |
|                    | 140/5700                       | 4.93                           | 5.60                 | 3.47                           | 4.14                 | 3.89                           | 4.56                 | 3.86                           | 4.53                 | 10.76                           | 11.00                  | PASS       |
|                    | 144/5720                       | 4.29                           | 4.96                 | 3.72                           | 4.39                 | 3.82                           | 4.49                 | 3.31                           | 3.98                 | 10.49                           | 11.00                  | PASS       |
| 802.11n<br>HT40    | 102/5510                       | 3.67                           | 4.40                 | 3.29                           | 4.02                 | 2.87                           | 3.60                 | 2.60                           | 3.33                 | 9.87                            | 11.00                  | PASS       |
|                    | 110/5550                       | 4.04                           | 4.77                 | 3.66                           | 4.39                 | 3.67                           | 4.40                 | 3.08                           | 3.81                 | 10.37                           | 11.00                  | PASS       |
|                    | 134/5670                       | 3.43                           | 4.16                 | 3.91                           | 4.64                 | 3.62                           | 4.35                 | 3.31                           | 4.04                 | 10.32                           | 11.00                  | PASS       |
|                    | 142/5710                       | 2.95                           | 3.68                 | 3.26                           | 3.99                 | 3.14                           | 3.87                 | 2.81                           | 3.54                 | 9.79                            | 11.00                  | PASS       |
| 802.11ac<br>VHT20  | 100/5500                       | 4.65                           | 5.32                 | 3.88                           | 4.55                 | 3.58                           | 4.25                 | 3.38                           | 4.05                 | 10.59                           | 11.00                  | PASS       |
|                    | 120/5600                       | 4.24                           | 4.91                 | 4.01                           | 4.68                 | 3.98                           | 4.65                 | 3.57                           | 4.24                 | 10.64                           | 11.00                  | PASS       |
|                    | 140/5700                       | 3.62                           | 4.29                 | 3.76                           | 4.43                 | 4.19                           | 4.86                 | 4.00                           | 4.67                 | 10.59                           | 11.00                  | PASS       |
|                    | 144/5720                       | 3.88                           | 4.55                 | 3.37                           | 4.04                 | 4.05                           | 4.72                 | 3.10                           | 3.77                 | 10.30                           | 11.00                  | PASS       |
| 802.11ac<br>VHT40  | 102/5510                       | 3.72                           | 4.45                 | 2.94                           | 3.67                 | 2.96                           | 3.69                 | 2.29                           | 3.02                 | 9.76                            | 11.00                  | PASS       |
|                    | 110/5550                       | 3.44                           | 4.17                 | 3.46                           | 4.19                 | 3.67                           | 4.40                 | 2.67                           | 3.40                 | 10.08                           | 11.00                  | PASS       |
|                    | 134/5670                       | 3.54                           | 4.27                 | 3.81                           | 4.54                 | 3.91                           | 4.64                 | 3.07                           | 3.80                 | 10.35                           | 11.00                  | PASS       |
|                    | 142/5710                       | 2.69                           | 3.42                 | 3.34                           | 4.07                 | 2.75                           | 3.48                 | 2.68                           | 3.41                 | 9.62                            | 11.00                  | PASS       |
| 802.11ac<br>VHT80  | 106/5530                       | 0.34                           | 1.07                 | 0.45                           | 1.18                 | -0.28                          | 0.45                 | -0.58                          | 0.15                 | 6.75                            | 11.00                  | PASS       |
|                    | 122/5610                       | 0.24                           | 0.64                 | 0.44                           | 0.84                 | 0.19                           | 0.59                 | -0.59                          | -0.19                | 6.51                            | 11.00                  | PASS       |
|                    | 138/5690                       | -0.44                          | 0.29                 | -0.19                          | 0.54                 | 0.13                           | 0.86                 | -0.12                          | 0.61                 | 6.60                            | 11.00                  | PASS       |
| 802.11ac<br>VHT160 | 114/5570                       | -4.67                          | -4.27                | -5.44                          | -5.04                | -5.47                          | -5.07                | -6.31                          | -5.91                | 0.98                            | 11.00                  | PASS       |
| 802.11ax<br>HE20   | 100/5500                       | 4.36                           | 5.09                 | 4.03                           | 4.76                 | 4.20                           | 4.93                 | 3.51                           | 4.24                 | 10.79                           | 11.00                  | PASS       |
|                    | 120/5600                       | 4.26                           | 4.99                 | 4.13                           | 4.86                 | 4.28                           | 5.01                 | 3.61                           | 4.34                 | 10.83                           | 11.00                  | PASS       |
|                    | 140/5700                       | 3.75                           | 4.48                 | 3.23                           | 3.96                 | 3.62                           | 4.35                 | 3.59                           | 4.32                 | 10.30                           | 11.00                  | PASS       |
|                    | 144/5720                       | 4.31                           | 5.04                 | 4.14                           | 4.87                 | 4.31                           | 5.04                 | 3.40                           | 4.13                 | 10.81                           | 11.00                  | PASS       |
| 802.11ax<br>HE40   | 102/5510                       | 3.37                           | 4.10                 | 3.38                           | 4.11                 | 3.25                           | 3.98                 | 2.80                           | 3.53                 | 9.96                            | 11.00                  | PASS       |
|                    | 110/5550                       | 4.04                           | 4.77                 | 3.42                           | 4.15                 | 3.42                           | 4.15                 | 3.20                           | 3.93                 | 10.28                           | 11.00                  | PASS       |
|                    | 134/5670                       | 2.41                           | 3.14                 | 2.83                           | 3.56                 | 2.77                           | 3.50                 | 2.35                           | 3.08                 | 9.35                            | 11.00                  | PASS       |
|                    | 142/5710                       | 3.20                           | 3.93                 | 3.16                           | 3.89                 | 2.82                           | 3.55                 | 3.26                           | 3.99                 | 9.86                            | 11.00                  | PASS       |

**RF Test Report****Report No.: R2112A1145-R2**

|                   |          |       |       |       |       |       |       |       |       |      |       |      |
|-------------------|----------|-------|-------|-------|-------|-------|-------|-------|-------|------|-------|------|
| 802.11ax<br>HE80  | 106/5530 | 0.35  | 1.02  | 0.15  | 0.82  | 0.20  | 0.87  | -0.35 | 0.32  | 6.79 | 11.00 | PASS |
|                   | 122/5610 | 0.91  | 1.25  | 0.56  | 0.90  | 0.55  | 0.89  | 0.41  | 0.75  | 6.97 | 11.00 | PASS |
|                   | 138/5690 | 0.20  | 0.87  | -0.15 | 0.52  | 0.05  | 0.72  | 0.48  | 1.15  | 6.84 | 11.00 | PASS |
| 802.11ax<br>HE160 | 114/5570 | -1.72 | -1.38 | -1.86 | -1.52 | -1.95 | -1.61 | -2.37 | -2.03 | 4.39 | 11.00 | PASS |

Note: 1. Power Spectral Density = Read Value + Duty cycle correction factor

2. For Total PSD, according to KDB 662911 D01 Multiple Transmitter Output v02r01 2)a), the power spectral density =  $10\log(10^{(\text{PSD antenna1 in dBm/10})} + 10^{(\text{PSD antenna2 in dBm/10})} + 10^{(\text{PSD antenna3 in dBm/10})} + 10^{(\text{PSD antenna4 in dBm/10})})$

3. The manufacturer declared that the directional gain = 3.42dBi < 6dBi. So the PSD limit is 11dBm.



## U-NII-3

| Mode              | Channel/<br>Frequency<br>(MHz) | Power Spectral Density            |                         |                                   |                         |                                   |                         |                                   |                         |                                    | Limit<br>(dBm/<br>500kHz) | Conclusion |
|-------------------|--------------------------------|-----------------------------------|-------------------------|-----------------------------------|-------------------------|-----------------------------------|-------------------------|-----------------------------------|-------------------------|------------------------------------|---------------------------|------------|
|                   |                                | Antenna 1                         |                         | Antenna 2                         |                         | Antenna 3                         |                         | Antenna 4                         |                         | Total<br>Power<br>(dBm/<br>500kHz) |                           |            |
|                   |                                | Read<br>Value<br>(dBm/<br>470kHz) | PSD<br>(dBm/<br>500kHz) | Read<br>Value<br>(dBm/<br>470kHz) | PSD<br>(dBm/<br>500kHz) | Read<br>Value<br>(dBm/<br>470kHz) | PSD<br>(dBm/<br>500kHz) | Read<br>Value<br>(dBm/<br>470kHz) | PSD<br>(dBm/<br>500kHz) |                                    |                           |            |
| 802.11a           | 149/5745                       | 7.74                              | 8.20                    | 8.04                              | 8.50                    | 8.32                              | 8.78                    | 7.58                              | 8.04                    | 14.41                              | 30.00                     | PASS       |
|                   | 157/5785                       | 9.11                              | 9.57                    | 9.92                              | 10.38                   | 9.43                              | 9.89                    | 8.83                              | 9.29                    | 15.82                              | 30.00                     | PASS       |
|                   | 165/5825                       | 8.78                              | 9.24                    | 9.34                              | 9.80                    | 9.14                              | 9.60                    | 8.81                              | 9.27                    | 15.50                              | 30.00                     | PASS       |
| 802.11n<br>HT20   | 149/5745                       | 9.10                              | 10.04                   | 9.30                              | 10.24                   | 9.19                              | 10.13                   | 8.79                              | 9.73                    | 16.06                              | 30.00                     | PASS       |
|                   | 157/5785                       | 8.38                              | 9.32                    | 8.74                              | 9.68                    | 8.97                              | 9.91                    | 7.75                              | 8.69                    | 15.44                              | 30.00                     | PASS       |
|                   | 165/5825                       | 9.07                              | 10.01                   | 8.85                              | 9.79                    | 8.96                              | 9.90                    | 8.35                              | 9.29                    | 15.77                              | 30.00                     | PASS       |
| 802.11n<br>HT40   | 151/5755                       | 5.97                              | 6.97                    | 5.45                              | 6.45                    | 5.45                              | 6.45                    | 5.45                              | 6.45                    | 12.60                              | 30.00                     | PASS       |
|                   | 159/5795                       | 5.91                              | 6.91                    | 6.67                              | 7.67                    | 6.66                              | 7.66                    | 5.67                              | 6.67                    | 13.27                              | 30.00                     | PASS       |
| 802.11ac<br>VHT20 | 149/5745                       | 9.33                              | 10.27                   | 9.71                              | 10.65                   | 9.85                              | 10.79                   | 8.89                              | 9.83                    | 16.42                              | 30.00                     | PASS       |
|                   | 157/5785                       | 8.75                              | 9.69                    | 9.51                              | 10.45                   | 8.93                              | 9.87                    | 8.36                              | 9.30                    | 15.87                              | 30.00                     | PASS       |
|                   | 165/5825                       | 8.06                              | 9.00                    | 8.76                              | 9.70                    | 8.78                              | 9.72                    | 7.74                              | 8.68                    | 15.32                              | 30.00                     | PASS       |
| 802.11ac<br>VHT40 | 151/5755                       | 5.23                              | 6.23                    | 5.21                              | 6.21                    | 5.54                              | 6.54                    | 5.51                              | 6.51                    | 12.40                              | 30.00                     | PASS       |
|                   | 159/5795                       | 6.59                              | 7.59                    | 6.66                              | 7.66                    | 6.44                              | 7.44                    | 5.91                              | 6.91                    | 13.43                              | 30.00                     | PASS       |
| 802.11ac<br>VHT80 | 155/5775                       | 0.10                              | 1.10                    | -0.78                             | 0.22                    | 0.03                              | 1.03                    | -1.25                             | -0.25                   | 6.58                               | 30.00                     | PASS       |
| 802.11ax<br>HE20  | 149/5745                       | 9.15                              | 10.15                   | 8.89                              | 9.89                    | 9.81                              | 10.81                   | 8.84                              | 9.84                    | 16.21                              | 30.00                     | PASS       |
|                   | 157/5785                       | 8.74                              | 9.74                    | 9.15                              | 10.15                   | 8.68                              | 9.68                    | 8.01                              | 9.01                    | 15.68                              | 30.00                     | PASS       |
|                   | 165/5825                       | 8.19                              | 9.19                    | 8.23                              | 9.23                    | 8.30                              | 9.30                    | 7.89                              | 8.89                    | 15.18                              | 30.00                     | PASS       |
| 802.11ax<br>HE40  | 151/5755                       | 5.74                              | 6.74                    | 5.04                              | 6.04                    | 5.48                              | 6.48                    | 4.88                              | 5.88                    | 12.32                              | 30.00                     | PASS       |
|                   | 159/5795                       | 5.61                              | 6.61                    | 5.76                              | 6.76                    | 5.46                              | 6.46                    | 4.59                              | 5.59                    | 12.40                              | 30.00                     | PASS       |
| 802.11ax<br>HE80  | 155/5775                       | -0.03                             | 0.91                    | -1.08                             | -0.14                   | -0.28                             | 0.66                    | -1.26                             | -0.32                   | 6.33                               | 30.00                     | PASS       |

Note: 1. Power Spectral Density = Read Value + Duty cycle correction factor +  $10 \cdot \log_{10}(500/470)$

2. For Total PSD, according to KDB 662911 D01 Multiple Transmitter Output v02r01 2)a), the power spectral density =  $10 \log_{10}(10^{(PSD_{antenna1} \text{ in dBm/10})} + 10^{(PSD_{antenna2} \text{ in dBm/10})} + 10^{(PSD_{antenna3} \text{ in dBm/10})} + 10^{(PSD_{antenna4} \text{ in dBm/10})})$

3. The manufacturer declared that the directional gain = 4.43dBi < 6dBi. So the PSD limit is 30dBm.



Signal Plus:

MIMO:

U-NII-1

| Mode              | Channel/<br>Frequency<br>(MHz) | Power Spectral Density         |                      |                                |                      |                                |                      |                                |                      |                                 | Limit<br>(dBm/<br>MHz) | Conclusion |
|-------------------|--------------------------------|--------------------------------|----------------------|--------------------------------|----------------------|--------------------------------|----------------------|--------------------------------|----------------------|---------------------------------|------------------------|------------|
|                   |                                | Antenna 1                      |                      | Antenna 2                      |                      | Antenna 3                      |                      | Antenna 4                      |                      | Total<br>Power<br>(dBm<br>/MHz) |                        |            |
|                   |                                | Read<br>Value<br>(dBm/<br>MHz) | PSD<br>(dBm/<br>MHz) | Read<br>Value<br>(dBm/<br>MHz) | PSD<br>(dBm/<br>MHz) | Read<br>Value<br>(dBm/<br>MHz) | PSD<br>(dBm/<br>MHz) | Read<br>Value<br>(dBm/<br>MHz) | PSD<br>(dBm/<br>MHz) |                                 |                        |            |
| 802.11a           | 36/5180                        | 11.47                          | 11.66                | 10.50                          | 10.69                | 9.98                           | 10.17                | 10.60                          | 10.79                | 16.88                           | 17.00                  | PASS       |
|                   | 40/5200                        | 11.18                          | 11.37                | 11.04                          | 11.23                | 9.57                           | 9.76                 | 10.54                          | 10.73                | 16.84                           | 17.00                  | PASS       |
|                   | 48/5240                        | 11.21                          | 11.40                | 10.34                          | 10.53                | 9.41                           | 9.60                 | 10.29                          | 10.48                | 16.57                           | 17.00                  | PASS       |
| 802.11n<br>HT20   | 36/5180                        | 10.55                          | 11.22                | 9.39                           | 10.06                | 9.14                           | 9.81                 | 9.74                           | 10.41                | 16.43                           | 17.00                  | PASS       |
|                   | 40/5200                        | 10.59                          | 11.26                | 9.96                           | 10.63                | 8.87                           | 9.54                 | 9.19                           | 9.86                 | 16.39                           | 17.00                  | PASS       |
|                   | 48/5240                        | 10.79                          | 11.46                | 9.78                           | 10.45                | 8.96                           | 9.63                 | 9.57                           | 10.24                | 16.51                           | 17.00                  | PASS       |
| 802.11n<br>HT40   | 38/5190                        | 6.78                           | 7.51                 | 5.81                           | 6.54                 | 5.63                           | 6.36                 | 5.60                           | 6.33                 | 12.73                           | 17.00                  | PASS       |
|                   | 46/5230                        | 9.79                           | 10.52                | 9.23                           | 9.96                 | 8.10                           | 8.83                 | 8.81                           | 9.54                 | 15.77                           | 17.00                  | PASS       |
| 802.11ac<br>VHT20 | 36/5180                        | 10.88                          | 11.55                | 9.16                           | 9.83                 | 9.05                           | 9.72                 | 9.41                           | 10.08                | 16.38                           | 17.00                  | PASS       |
|                   | 40/5200                        | 10.38                          | 11.05                | 10.12                          | 10.79                | 8.86                           | 9.53                 | 9.27                           | 9.94                 | 16.39                           | 17.00                  | PASS       |
|                   | 48/5240                        | 10.60                          | 11.27                | 9.26                           | 9.93                 | 9.25                           | 9.92                 | 9.37                           | 10.04                | 16.35                           | 17.00                  | PASS       |
| 802.11ac<br>VHT40 | 38/5190                        | 6.66                           | 7.39                 | 5.90                           | 6.63                 | 5.40                           | 6.13                 | 5.78                           | 6.51                 | 12.71                           | 17.00                  | PASS       |
|                   | 46/5230                        | 6.83                           | 7.56                 | 6.09                           | 6.82                 | 6.08                           | 6.81                 | 5.80                           | 6.53                 | 12.97                           | 17.00                  | PASS       |
| 802.11ac<br>VHT80 | 42/5210                        | 2.54                           | 3.27                 | 2.28                           | 3.01                 | 1.92                           | 2.65                 | 1.47                           | 2.20                 | 8.82                            | 17.00                  | PASS       |
| 802.11ax<br>HE20  | 36/5180                        | 10.05                          | 10.78                | 8.58                           | 9.31                 | 8.48                           | 9.21                 | 8.85                           | 9.58                 | 15.79                           | 17.00                  | PASS       |
|                   | 44/5220                        | 10.92                          | 11.65                | 10.12                          | 10.85                | 9.57                           | 10.30                | 9.78                           | 10.51                | 16.88                           | 17.00                  | PASS       |
|                   | 48/5240                        | 11.28                          | 12.01                | 9.93                           | 10.66                | 9.29                           | 10.02                | 9.94                           | 10.67                | 16.92                           | 17.00                  | PASS       |
| 802.11ax<br>HE40  | 38/5190                        | 2.37                           | 3.10                 | 3.19                           | 3.92                 | 3.34                           | 4.07                 | 3.75                           | 4.48                 | 9.94                            | 17.00                  | PASS       |
|                   | 46/5230                        | 9.91                           | 10.64                | 9.31                           | 10.04                | 8.18                           | 8.91                 | 9.04                           | 9.77                 | 15.90                           | 17.00                  | PASS       |
| 802.11ax<br>HE80  | 42/5210                        | 0.76                           | 1.43                 | 0.78                           | 1.45                 | 0.08                           | 0.75                 | -0.15                          | 0.52                 | 7.08                            | 17.00                  | PASS       |

Note: 1. For Total PSD, according to KDB 662911 D01 Multiple Transmitter Output v02r01 2)a), the power spectral density =  $10\log(10^{(\text{PSD antenna1 in dBm}/10)} + 10^{(\text{PSD antenna2 in dBm}/10)} + 10^{(\text{PSD antenna3 in dBm}/10)} + 10^{(\text{PSD antenna4 in dBm}/10)})$

2. The manufacturer declared that the directional gain = 5.00dBi < 6dBi. So the PSD limit is 11dBm.



## U-NII-2A

| Mode               | Channel/<br>Frequency<br>(MHz) | Power Spectral Density         |                      |                                |                      |                                |                      |                                |                      |                                 | Limit<br>(dBm/<br>MHz) | Conclusion |
|--------------------|--------------------------------|--------------------------------|----------------------|--------------------------------|----------------------|--------------------------------|----------------------|--------------------------------|----------------------|---------------------------------|------------------------|------------|
|                    |                                | Antenna 1                      |                      | Antenna 2                      |                      | Antenna 3                      |                      | Antenna 4                      |                      | Total<br>Power<br>(dBm<br>/MHz) |                        |            |
|                    |                                | Read<br>Value<br>(dBm/<br>MHz) | PSD<br>(dBm/<br>MHz) | Read<br>Value<br>(dBm/<br>MHz) | PSD<br>(dBm/<br>MHz) | Read<br>Value<br>(dBm/<br>MHz) | PSD<br>(dBm/<br>MHz) | Read<br>Value<br>(dBm/<br>MHz) | PSD<br>(dBm/<br>MHz) |                                 |                        |            |
| 802.11a            | 52/5260                        | 5.01                           | 5.20                 | 4.42                           | 4.61                 | 3.11                           | 3.30                 | 4.37                           | 4.56                 | 10.49                           | 11.00                  | PASS       |
|                    | 60/5300                        | 4.85                           | 5.04                 | 4.03                           | 4.22                 | 3.22                           | 3.41                 | 4.26                           | 4.45                 | 10.34                           | 11.00                  | PASS       |
|                    | 64/5320                        | 4.35                           | 4.54                 | 4.08                           | 4.27                 | 4.91                           | 5.10                 | 4.64                           | 4.83                 | 10.72                           | 11.00                  | PASS       |
| 802.11n<br>HT20    | 52/5260                        | 4.36                           | 5.03                 | 3.78                           | 4.45                 | 4.11                           | 4.78                 | 4.13                           | 4.80                 | 10.79                           | 11.00                  | PASS       |
|                    | 60/5300                        | 3.52                           | 4.19                 | 3.32                           | 3.99                 | 4.19                           | 4.86                 | 4.21                           | 4.88                 | 10.52                           | 11.00                  | PASS       |
|                    | 64/5320                        | 3.77                           | 4.44                 | 3.16                           | 3.83                 | 3.99                           | 4.66                 | 4.47                           | 5.14                 | 10.56                           | 11.00                  | PASS       |
| 802.11n<br>HT40    | 54/5270                        | 3.82                           | 4.55                 | 3.53                           | 4.26                 | 3.52                           | 4.25                 | 3.38                           | 4.11                 | 10.31                           | 11.00                  | PASS       |
|                    | 62/5310                        | 3.33                           | 4.06                 | 3.07                           | 3.80                 | 3.74                           | 4.47                 | 3.39                           | 4.12                 | 10.14                           | 11.00                  | PASS       |
| 802.11ac<br>VHT20  | 52/5260                        | 4.43                           | 5.10                 | 3.74                           | 4.41                 | 4.12                           | 4.79                 | 3.67                           | 4.34                 | 10.69                           | 11.00                  | PASS       |
|                    | 60/5300                        | 4.04                           | 4.71                 | 3.58                           | 4.25                 | 4.64                           | 5.31                 | 4.04                           | 4.71                 | 10.78                           | 11.00                  | PASS       |
|                    | 64/5320                        | 3.94                           | 4.61                 | 3.33                           | 4.00                 | 3.79                           | 4.46                 | 3.95                           | 4.62                 | 10.45                           | 11.00                  | PASS       |
| 802.11ac<br>VHT40  | 54/5270                        | 3.61                           | 4.34                 | 3.00                           | 3.73                 | 3.78                           | 4.51                 | 3.71                           | 4.44                 | 10.29                           | 11.00                  | PASS       |
|                    | 62/5310                        | 2.92                           | 3.65                 | 2.90                           | 3.63                 | 3.55                           | 4.28                 | 3.72                           | 4.45                 | 10.04                           | 11.00                  | PASS       |
| 802.11ac<br>VHT80  | 58/5290                        | 0.16                           | 0.89                 | -0.56                          | 0.17                 | 0.14                           | 0.87                 | 0.66                           | 1.39                 | 6.87                            | 11.00                  | PASS       |
| 802.11ac<br>VHT160 | 50/5250                        | -6.58                          | -6.18                | -6.64                          | -6.24                | -7.10                          | -6.70                | -6.85                          | -6.45                | -0.37                           | 11.00                  | PASS       |
| 802.11ax<br>HE20   | 52/5260                        | 4.11                           | 4.84                 | 3.29                           | 4.02                 | 3.40                           | 4.13                 | 3.22                           | 3.95                 | 10.27                           | 11.00                  | PASS       |
|                    | 60/5300                        | 3.40                           | 4.13                 | 3.03                           | 3.76                 | 3.76                           | 4.49                 | 3.51                           | 4.24                 | 10.18                           | 11.00                  | PASS       |
|                    | 64/5320                        | 3.28                           | 4.01                 | 2.61                           | 3.34                 | 3.61                           | 4.34                 | 3.53                           | 4.26                 | 10.03                           | 11.00                  | PASS       |
| 802.11ax<br>HE40   | 54/5270                        | 3.66                           | 4.39                 | 3.00                           | 3.73                 | 3.87                           | 4.60                 | 3.66                           | 4.39                 | 10.31                           | 11.00                  | PASS       |
|                    | 62/5310                        | 3.42                           | 4.15                 | 2.48                           | 3.21                 | 3.79                           | 4.52                 | 3.51                           | 4.24                 | 10.08                           | 11.00                  | PASS       |
| 802.11ax<br>HE80   | 58/5290                        | 0.51                           | 1.18                 | 0.01                           | 0.68                 | 0.52                           | 1.19                 | 0.97                           | 1.64                 | 7.21                            | 11.00                  | PASS       |
| 802.11ax<br>HE160  | 50/5250                        | -6.68                          | -6.34                | -7.36                          | -7.02                | -7.27                          | -6.93                | -7.46                          | -7.12                | -0.82                           | 11.00                  | PASS       |

Note: 1. For Total PSD, according to KDB 662911 D01 Multiple Transmitter Output v02r01 2)a), the power spectral density =  $10\log(10^{(\text{PSD antenna1 in dBm}/10)} + 10^{(\text{PSD antenna2 in dBm}/10)} + 10^{(\text{PSD antenna3 in dBm}/10)} + 10^{(\text{PSD antenna4 in dBm}/10)})$

2. The manufacturer declared that the directional gain = 5.00dBi < 6dBi. So the PSD limit is 11dBm.



## U-NII-2C

| Mode               | Channel/<br>Frequency<br>(MHz) | Power Spectral Density         |                      |                                |                      |                                |                      |                                |                      |                                 | Limit<br>(dBm/<br>MHz) | Conclusion |
|--------------------|--------------------------------|--------------------------------|----------------------|--------------------------------|----------------------|--------------------------------|----------------------|--------------------------------|----------------------|---------------------------------|------------------------|------------|
|                    |                                | Antenna 1                      |                      | Antenna 2                      |                      | Antenna 3                      |                      | Antenna 4                      |                      | Total<br>Power<br>(dBm<br>/MHz) |                        |            |
|                    |                                | Read<br>Value<br>(dBm/<br>MHz) | PSD<br>(dBm/<br>MHz) | Read<br>Value<br>(dBm/<br>MHz) | PSD<br>(dBm/<br>MHz) | Read<br>Value<br>(dBm/<br>MHz) | PSD<br>(dBm/<br>MHz) | Read<br>Value<br>(dBm/<br>MHz) | PSD<br>(dBm/<br>MHz) |                                 |                        |            |
| 802.11a            | 100/5500                       | 5.17                           | 5.36                 | 3.71                           | 3.90                 | 4.43                           | 4.62                 | 4.01                           | 4.20                 | 10.58                           | 11.00                  | PASS       |
|                    | 120/5600                       | 3.93                           | 4.12                 | 3.70                           | 3.89                 | 3.75                           | 3.94                 | 3.25                           | 3.44                 | 9.87                            | 11.00                  | PASS       |
|                    | 140/5700                       | 4.38                           | 4.57                 | 3.12                           | 3.31                 | 4.32                           | 4.51                 | 4.56                           | 4.75                 | 10.34                           | 11.00                  | PASS       |
|                    | 144/5720                       | 3.49                           | 3.68                 | 3.21                           | 3.40                 | 4.37                           | 4.56                 | 4.14                           | 4.33                 | 10.04                           | 11.00                  | PASS       |
| 802.11n<br>HT20    | 100/5500                       | 4.60                           | 5.27                 | 3.51                           | 4.18                 | 3.72                           | 4.39                 | 3.39                           | 4.06                 | 10.52                           | 11.00                  | PASS       |
|                    | 120/5600                       | 4.02                           | 4.69                 | 4.22                           | 4.89                 | 3.94                           | 4.61                 | 3.62                           | 4.29                 | 10.64                           | 11.00                  | PASS       |
|                    | 140/5700                       | 4.54                           | 5.21                 | 2.76                           | 3.43                 | 3.84                           | 4.51                 | 4.38                           | 5.05                 | 10.62                           | 11.00                  | PASS       |
|                    | 144/5720                       | 3.91                           | 4.58                 | 3.10                           | 3.77                 | 3.91                           | 4.58                 | 3.48                           | 4.15                 | 10.30                           | 11.00                  | PASS       |
| 802.11n<br>HT40    | 102/5510                       | 4.31                           | 5.04                 | 2.76                           | 3.49                 | 3.32                           | 4.05                 | 2.89                           | 3.62                 | 10.11                           | 11.00                  | PASS       |
|                    | 110/5550                       | 4.35                           | 5.08                 | 3.61                           | 4.34                 | 3.47                           | 4.20                 | 3.38                           | 4.11                 | 10.47                           | 11.00                  | PASS       |
|                    | 134/5670                       | 3.36                           | 4.09                 | 2.36                           | 3.09                 | 2.60                           | 3.33                 | 3.13                           | 3.86                 | 9.63                            | 11.00                  | PASS       |
|                    | 142/5710                       | 3.55                           | 4.28                 | 2.98                           | 3.71                 | 3.39                           | 4.12                 | 4.19                           | 4.92                 | 10.30                           | 11.00                  | PASS       |
| 802.11ac<br>VHT20  | 100/5500                       | 4.76                           | 5.43                 | 3.34                           | 4.01                 | 4.24                           | 4.91                 | 3.50                           | 4.17                 | 10.69                           | 11.00                  | PASS       |
|                    | 120/5600                       | 3.96                           | 4.63                 | 4.01                           | 4.68                 | 4.05                           | 4.72                 | 3.58                           | 4.25                 | 10.59                           | 11.00                  | PASS       |
|                    | 140/5700                       | 3.39                           | 4.06                 | 2.47                           | 3.14                 | 3.65                           | 4.32                 | 3.99                           | 4.66                 | 10.10                           | 11.00                  | PASS       |
|                    | 144/5720                       | 4.20                           | 4.87                 | 3.83                           | 4.50                 | 4.15                           | 4.82                 | 4.17                           | 4.84                 | 10.78                           | 11.00                  | PASS       |
| 802.11ac<br>VHT40  | 102/5510                       | 4.18                           | 4.91                 | 2.95                           | 3.68                 | 3.43                           | 4.16                 | 2.56                           | 3.29                 | 10.07                           | 11.00                  | PASS       |
|                    | 110/5550                       | 4.66                           | 5.39                 | 3.22                           | 3.95                 | 3.68                           | 4.41                 | 3.02                           | 3.75                 | 10.44                           | 11.00                  | PASS       |
|                    | 134/5670                       | 3.39                           | 4.12                 | 2.83                           | 3.56                 | 2.95                           | 3.68                 | 3.17                           | 3.90                 | 9.84                            | 11.00                  | PASS       |
|                    | 142/5710                       | 3.48                           | 4.21                 | 2.94                           | 3.67                 | 3.61                           | 4.34                 | 4.14                           | 4.87                 | 10.31                           | 11.00                  | PASS       |
| 802.11ac<br>VHT80  | 106/5530                       | 1.30                           | 2.03                 | -0.30                          | 0.43                 | 0.12                           | 0.85                 | -0.52                          | 0.21                 | 6.96                            | 11.00                  | PASS       |
|                    | 122/5610                       | 0.71                           | 1.44                 | 0.34                           | 1.07                 | 0.35                           | 1.08                 | -0.29                          | 0.44                 | 7.04                            | 11.00                  | PASS       |
|                    | 138/5690                       | 0.97                           | 1.70                 | -0.55                          | 0.18                 | 0.58                           | 1.31                 | 1.06                           | 1.79                 | 7.31                            | 11.00                  | PASS       |
| 802.11ac<br>VHT160 | 114/5570                       | -3.44                          | -3.04                | -4.74                          | -4.34                | -4.25                          | -3.85                | -4.70                          | -4.30                | 2.17                            | 11.00                  | PASS       |
| 802.11ax<br>HE20   | 100/5500                       | 4.28                           | 5.01                 | 3.05                           | 3.78                 | 3.73                           | 4.46                 | 2.63                           | 3.36                 | 10.22                           | 11.00                  | PASS       |
|                    | 120/5600                       | 3.52                           | 4.25                 | 3.37                           | 4.10                 | 3.37                           | 4.10                 | 2.47                           | 3.20                 | 9.95                            | 11.00                  | PASS       |
|                    | 140/5700                       | 4.51                           | 5.24                 | 3.26                           | 3.99                 | 4.40                           | 5.13                 | 4.29                           | 5.02                 | 10.89                           | 11.00                  | PASS       |
|                    | 144/5720                       | 3.72                           | 4.45                 | 2.85                           | 3.58                 | 3.63                           | 4.36                 | 3.76                           | 4.49                 | 10.26                           | 11.00                  | PASS       |
| 802.11ax<br>HE40   | 102/5510                       | 2.67                           | 3.40                 | 1.08                           | 1.81                 | 1.65                           | 2.38                 | 1.35                           | 2.08                 | 8.48                            | 11.00                  | PASS       |
|                    | 110/5550                       | 4.50                           | 5.23                 | 3.35                           | 4.08                 | 3.43                           | 4.16                 | 3.22                           | 3.95                 | 10.41                           | 11.00                  | PASS       |
|                    | 134/5670                       | 3.54                           | 4.27                 | 2.36                           | 3.09                 | 3.35                           | 4.08                 | 2.82                           | 3.55                 | 9.79                            | 11.00                  | PASS       |
|                    | 142/5710                       | 2.77                           | 3.50                 | 2.12                           | 2.85                 | 2.59                           | 3.32                 | 2.99                           | 3.72                 | 9.38                            | 11.00                  | PASS       |

**RF Test Report****Report No.: R2112A1145-R2**

|                   |          |       |       |       |       |       |       |       |       |      |       |      |
|-------------------|----------|-------|-------|-------|-------|-------|-------|-------|-------|------|-------|------|
| 802.11ax<br>HE80  | 106/5530 | 1.52  | 2.19  | 0.60  | 1.27  | 0.50  | 1.17  | -0.33 | 0.34  | 7.31 | 11.00 | PASS |
|                   | 122/5610 | 1.16  | 1.83  | 0.96  | 1.63  | 0.65  | 1.32  | 0.01  | 0.68  | 7.41 | 11.00 | PASS |
|                   | 138/5690 | 0.61  | 1.28  | -1.42 | -0.75 | 0.02  | 0.69  | 0.29  | 0.96  | 6.63 | 11.00 | PASS |
| 802.11ax<br>HE160 | 114/5570 | -2.15 | -1.81 | -2.93 | -2.59 | -2.94 | -2.60 | -3.34 | -3.00 | 3.54 | 11.00 | PASS |

Note: 1.For Total PSD, according to KDB 662911 D01 Multiple Transmitter Output v02r01 2)a),the power spectral density= $10\log(10^{(\text{PSD antenna1 in dBm/10})}+10^{(\text{PSD antenna2 in dBm/10})}+10^{(\text{PSD antenna3 in dBm/10})}+10^{(\text{PSD antenna4 in dBm/10})})$

2. The manufacturer declared that the directional gain =3.80dBi<6dBi. So the PSD limit is 11dBm.



## U-NII-3

| Mode              | Channel/<br>Frequency<br>(MHz) | Power Spectral Density            |                         |                                   |                         |                                   |                         |                                   |                         |                                    | Limit<br>(dBm/<br>500kHz) | Conclusion |
|-------------------|--------------------------------|-----------------------------------|-------------------------|-----------------------------------|-------------------------|-----------------------------------|-------------------------|-----------------------------------|-------------------------|------------------------------------|---------------------------|------------|
|                   |                                | Antenna 1                         |                         | Antenna 2                         |                         | Antenna 3                         |                         | Antenna 4                         |                         | Total<br>Power<br>(dBm/<br>500kHz) |                           |            |
|                   |                                | Read<br>Value<br>(dBm/<br>470kHz) | PSD<br>(dBm/<br>500kHz) | Read<br>Value<br>(dBm/<br>470kHz) | PSD<br>(dBm/<br>500kHz) | Read<br>Value<br>(dBm/<br>470kHz) | PSD<br>(dBm/<br>500kHz) | Read<br>Value<br>(dBm/<br>470kHz) | PSD<br>(dBm/<br>500kHz) |                                    |                           |            |
| 802.11a           | 149/5745                       | 9.56                              | 10.02                   | 10.30                             | 10.76                   | 9.62                              | 10.08                   | 9.62                              | 10.08                   | 16.27                              | 30.00                     | PASS       |
|                   | 157/5785                       | 9.12                              | 9.58                    | 10.11                             | 10.57                   | 9.06                              | 9.52                    | 8.99                              | 9.45                    | 15.82                              | 30.00                     | PASS       |
|                   | 165/5825                       | 8.70                              | 9.16                    | 9.79                              | 10.25                   | 9.87                              | 10.33                   | 8.97                              | 9.43                    | 15.84                              | 30.00                     | PASS       |
| 802.11n<br>HT20   | 149/5745                       | 8.93                              | 9.87                    | 9.77                              | 10.71                   | 9.43                              | 10.37                   | 8.76                              | 9.70                    | 16.20                              | 30.00                     | PASS       |
|                   | 157/5785                       | 8.79                              | 9.73                    | 9.61                              | 10.55                   | 8.20                              | 9.14                    | 8.11                              | 9.05                    | 15.68                              | 30.00                     | PASS       |
|                   | 165/5825                       | 8.18                              | 9.12                    | 7.51                              | 8.45                    | 8.58                              | 9.52                    | 7.97                              | 8.91                    | 15.03                              | 30.00                     | PASS       |
| 802.11n<br>HT40   | 151/5755                       | 6.63                              | 7.63                    | 5.45                              | 6.45                    | 6.40                              | 7.40                    | 6.55                              | 7.55                    | 13.30                              | 30.00                     | PASS       |
|                   | 159/5795                       | 6.24                              | 7.24                    | 5.45                              | 6.45                    | 5.92                              | 6.92                    | 5.14                              | 6.14                    | 12.73                              | 30.00                     | PASS       |
| 802.11ac<br>VHT20 | 149/5745                       | 8.88                              | 9.82                    | 8.43                              | 9.37                    | 9.06                              | 10.00                   | 8.62                              | 9.56                    | 15.71                              | 30.00                     | PASS       |
|                   | 157/5785                       | 8.18                              | 9.12                    | 8.15                              | 9.09                    | 8.50                              | 9.44                    | 7.87                              | 8.81                    | 15.14                              | 30.00                     | PASS       |
|                   | 165/5825                       | 8.35                              | 9.29                    | 7.38                              | 8.32                    | 8.94                              | 9.88                    | 8.07                              | 9.01                    | 15.18                              | 30.00                     | PASS       |
| 802.11ac<br>VHT40 | 151/5755                       | 6.31                              | 7.31                    | 5.34                              | 6.34                    | 6.55                              | 7.55                    | 6.06                              | 7.06                    | 13.11                              | 30.00                     | PASS       |
|                   | 159/5795                       | 6.65                              | 7.65                    | 5.59                              | 6.59                    | 6.03                              | 7.03                    | 5.52                              | 6.52                    | 12.99                              | 30.00                     | PASS       |
| 802.11ac<br>VHT80 | 155/5775                       | 2.20                              | 3.20                    | 1.26                              | 2.26                    | 1.12                              | 2.12                    | 0.93                              | 1.93                    | 8.43                               | 30.00                     | PASS       |
| 802.11ax<br>HE20  | 149/5745                       | 9.88                              | 10.88                   | 8.95                              | 9.95                    | 9.34                              | 10.34                   | 8.99                              | 9.99                    | 16.33                              | 30.00                     | PASS       |
|                   | 157/5785                       | 9.25                              | 10.25                   | 8.30                              | 9.30                    | 9.22                              | 10.22                   | 8.36                              | 9.36                    | 15.83                              | 30.00                     | PASS       |
|                   | 165/5825                       | 8.93                              | 9.93                    | 7.94                              | 8.94                    | 9.24                              | 10.24                   | 8.58                              | 9.58                    | 15.72                              | 30.00                     | PASS       |
| 802.11ax<br>HE40  | 151/5755                       | 6.85                              | 7.85                    | 5.36                              | 6.36                    | 6.70                              | 7.70                    | 6.37                              | 7.37                    | 13.38                              | 30.00                     | PASS       |
|                   | 159/5795                       | 6.45                              | 7.45                    | 5.93                              | 6.93                    | 6.54                              | 7.54                    | 5.34                              | 6.34                    | 13.11                              | 30.00                     | PASS       |
| 802.11ax<br>HE80  | 155/5775                       | 0.85                              | 1.79                    | -0.19                             | 0.75                    | 0.46                              | 1.40                    | -0.21                             | 0.73                    | 7.21                               | 30.00                     | PASS       |

Note: 1. PSD=Read Value+Duty cycle+10\*LOG(500/470) correction factor

2. For Total PSD, according to KDB 662911 D01 Multiple Transmitter Output v02r01 2)a), the power spectral density= $10\log(10^{(\text{PSD antenna1 in dBm}/10)} + 10^{(\text{PSD antenna2 in dBm}/10)} + 10^{(\text{PSD antenna3 in dBm}/10)} + 10^{(\text{PSD antenna4 in dBm}/10)})$ .

3. The manufacturer declared that the directional gain =4.80dBi<6dBi. So the PSD limit is 30dBm.



## MIMO with Beamforming

## U-NII-1

| Mode              | Channel/<br>Frequency<br>(MHz) | Power Spectral Density         |                      |                                |                      |                                |                      |                                |                      |                                 | Limit<br>(dBm/<br>MHz) | Conclusion |
|-------------------|--------------------------------|--------------------------------|----------------------|--------------------------------|----------------------|--------------------------------|----------------------|--------------------------------|----------------------|---------------------------------|------------------------|------------|
|                   |                                | Antenna 1                      |                      | Antenna 2                      |                      | Antenna 3                      |                      | Antenna 4                      |                      | Total<br>Power<br>(dBm<br>/MHz) |                        |            |
|                   |                                | Read<br>Value<br>(dBm/<br>MHz) | PSD<br>(dBm/<br>MHz) | Read<br>Value<br>(dBm/<br>MHz) | PSD<br>(dBm/<br>MHz) | Read<br>Value<br>(dBm/<br>MHz) | PSD<br>(dBm/<br>MHz) | Read<br>Value<br>(dBm/<br>MHz) | PSD<br>(dBm/<br>MHz) |                                 |                        |            |
| 802.11a           | 36/5180                        | 11.60                          | 11.79                | 9.97                           | 10.16                | 10.24                          | 10.43                | 9.95                           | 10.14                | 16.71                           | 17.00                  | PASS       |
|                   | 40/5200                        | 11.57                          | 11.76                | 10.03                          | 10.22                | 10.70                          | 10.89                | 9.96                           | 10.15                | 16.82                           | 17.00                  | PASS       |
|                   | 48/5240                        | 11.55                          | 11.74                | 10.12                          | 10.31                | 10.46                          | 10.65                | 10.07                          | 10.26                | 16.80                           | 17.00                  | PASS       |
| 802.11n<br>HT20   | 36/5180                        | 9.17                           | 9.84                 | 8.24                           | 8.91                 | 7.59                           | 8.26                 | 8.23                           | 8.90                 | 15.03                           | 17.00                  | PASS       |
|                   | 40/5200                        | 10.68                          | 11.35                | 10.26                          | 10.93                | 9.86                           | 10.53                | 9.41                           | 10.08                | 16.77                           | 17.00                  | PASS       |
|                   | 48/5240                        | 10.68                          | 11.35                | 9.91                           | 10.58                | 10.24                          | 10.91                | 9.05                           | 9.72                 | 16.70                           | 17.00                  | PASS       |
| 802.11n<br>HT40   | 38/5190                        | 6.50                           | 7.23                 | 5.83                           | 6.56                 | 5.85                           | 6.58                 | 5.74                           | 6.47                 | 12.74                           | 17.00                  | PASS       |
|                   | 46/5230                        | 10.54                          | 11.27                | 9.61                           | 10.34                | 8.89                           | 9.62                 | 9.16                           | 9.89                 | 16.34                           | 17.00                  | PASS       |
| 802.11ac<br>VHT20 | 36/5180                        | 10.88                          | 11.55                | 9.16                           | 9.83                 | 9.05                           | 9.72                 | 9.41                           | 10.08                | 16.38                           | 17.00                  | PASS       |
|                   | 40/5200                        | 10.77                          | 11.44                | 10.27                          | 10.94                | 10.01                          | 10.68                | 9.18                           | 9.85                 | 16.78                           | 17.00                  | PASS       |
|                   | 48/5240                        | 10.67                          | 11.34                | 9.59                           | 10.26                | 9.96                           | 10.63                | 8.92                           | 9.59                 | 16.52                           | 17.00                  | PASS       |
| 802.11ac<br>VHT40 | 38/5190                        | 6.66                           | 7.39                 | 5.85                           | 6.58                 | 5.52                           | 6.25                 | 5.85                           | 6.58                 | 12.74                           | 17.00                  | PASS       |
|                   | 46/5230                        | 10.40                          | 11.13                | 9.36                           | 10.09                | 9.04                           | 9.77                 | 9.25                           | 9.98                 | 16.30                           | 17.00                  | PASS       |
| 802.11ac<br>VHT80 | 42/5210                        | 2.39                           | 3.12                 | 2.45                           | 3.18                 | 1.57                           | 2.30                 | 1.51                           | 2.24                 | 8.75                            | 17.00                  | PASS       |
| 802.11ax<br>HE20  | 36/5180                        | 9.94                           | 10.67                | 9.04                           | 9.77                 | 8.20                           | 8.93                 | 8.60                           | 9.33                 | 15.74                           | 17.00                  | PASS       |
|                   | 44/5220                        | 10.98                          | 11.71                | 9.96                           | 10.69                | 10.15                          | 10.88                | 9.46                           | 10.19                | 16.92                           | 17.00                  | PASS       |
|                   | 48/5240                        | 10.73                          | 11.46                | 9.87                           | 10.60                | 10.32                          | 11.05                | 9.31                           | 10.04                | 16.84                           | 17.00                  | PASS       |
| 802.11ax<br>HE40  | 38/5190                        | 3.26                           | 3.99                 | 3.59                           | 4.32                 | 2.98                           | 3.71                 | 3.73                           | 4.46                 | 10.15                           | 17.00                  | PASS       |
|                   | 46/5230                        | 10.28                          | 11.01                | 9.17                           | 9.90                 | 8.86                           | 9.59                 | 8.79                           | 9.52                 | 16.07                           | 17.00                  | PASS       |
| 802.11ax<br>HE80  | 42/5210                        | 0.66                           | 1.33                 | 0.63                           | 1.30                 | 0.18                           | 0.85                 | -0.26                          | 0.41                 | 7.01                            | 17.00                  | PASS       |

Note: 1. For Total PSD, according to KDB 662911 D01 Multiple Transmitter Output v02r01 2)a), the power spectral density =  $10\log(10^{(\text{PSD antenna1 in dBm/10})} + 10^{(\text{PSD antenna2 in dBm/10})} + 10^{(\text{PSD antenna3 in dBm/10})} + 10^{(\text{PSD antenna4 in dBm/10})})$

2. The manufacturer declared that the directional gain = 5.00dBi < 6dBi. So the PSD limit is 11dBm.



## U-NII-2A

| Mode               | Channel/<br>Frequency<br>(MHz) | Power Spectral Density         |                      |                                |                      |                                |                      |                                |                      |                                 | Limit<br>(dBm/<br>MHz) | Conclusion |
|--------------------|--------------------------------|--------------------------------|----------------------|--------------------------------|----------------------|--------------------------------|----------------------|--------------------------------|----------------------|---------------------------------|------------------------|------------|
|                    |                                | Antenna 1                      |                      | Antenna 2                      |                      | Antenna 3                      |                      | Antenna 4                      |                      | Total<br>Power<br>(dBm<br>/MHz) |                        |            |
|                    |                                | Read<br>Value<br>(dBm/<br>MHz) | PSD<br>(dBm/<br>MHz) | Read<br>Value<br>(dBm/<br>MHz) | PSD<br>(dBm/<br>MHz) | Read<br>Value<br>(dBm/<br>MHz) | PSD<br>(dBm/<br>MHz) | Read<br>Value<br>(dBm/<br>MHz) | PSD<br>(dBm/<br>MHz) |                                 |                        |            |
| 802.11a            | 52/5260                        | 5.04                           | 5.23                 | 4.83                           | 5.02                 | 4.96                           | 5.15                 | 4.03                           | 4.22                 | 10.94                           | 11.00                  | PASS       |
|                    | 60/5300                        | 5.04                           | 5.23                 | 4.69                           | 4.88                 | 4.69                           | 4.88                 | 4.58                           | 4.77                 | 10.96                           | 11.00                  | PASS       |
|                    | 64/5320                        | 4.34                           | 4.53                 | 3.87                           | 4.06                 | 4.50                           | 4.69                 | 4.45                           | 4.64                 | 10.51                           | 11.00                  | PASS       |
| 802.11n<br>HT20    | 52/5260                        | 4.11                           | 4.78                 | 3.91                           | 4.58                 | 4.19                           | 4.86                 | 3.10                           | 3.77                 | 10.54                           | 11.00                  | PASS       |
|                    | 60/5300                        | 3.71                           | 4.38                 | 3.33                           | 4.00                 | 3.93                           | 4.60                 | 3.67                           | 4.34                 | 10.35                           | 11.00                  | PASS       |
|                    | 64/5320                        | 3.80                           | 4.47                 | 3.27                           | 3.94                 | 3.74                           | 4.41                 | 3.86                           | 4.53                 | 10.36                           | 11.00                  | PASS       |
| 802.11n<br>HT40    | 54/5270                        | 2.88                           | 3.61                 | 3.33                           | 4.06                 | 3.24                           | 3.97                 | 2.92                           | 3.65                 | 9.84                            | 11.00                  | PASS       |
|                    | 62/5310                        | 3.39                           | 4.12                 | 2.66                           | 3.39                 | 3.27                           | 4.00                 | 2.69                           | 3.42                 | 9.76                            | 11.00                  | PASS       |
| 802.11ac<br>VHT20  | 52/5260                        | 3.98                           | 4.65                 | 3.76                           | 4.43                 | 4.38                           | 5.05                 | 3.23                           | 3.90                 | 10.54                           | 11.00                  | PASS       |
|                    | 60/5300                        | 4.25                           | 4.92                 | 3.49                           | 4.16                 | 3.84                           | 4.51                 | 3.74                           | 4.41                 | 10.53                           | 11.00                  | PASS       |
|                    | 64/5320                        | 3.78                           | 4.45                 | 3.07                           | 3.74                 | 3.68                           | 4.35                 | 3.28                           | 3.95                 | 10.15                           | 11.00                  | PASS       |
| 802.11ac<br>VHT40  | 54/5270                        | 2.99                           | 3.72                 | 3.41                           | 4.14                 | 3.28                           | 4.01                 | 2.52                           | 3.25                 | 9.81                            | 11.00                  | PASS       |
|                    | 62/5310                        | 3.32                           | 4.05                 | 2.98                           | 3.71                 | 3.05                           | 3.78                 | 2.78                           | 3.51                 | 9.79                            | 11.00                  | PASS       |
| 802.11ac<br>VHT80  | 58/5290                        | 0.29                           | 1.02                 | -0.04                          | 0.69                 | 0.25                           | 0.98                 | -0.09                          | 0.64                 | 6.86                            | 11.00                  | PASS       |
| 802.11ac<br>VHT160 | 50/5250                        | -6.31                          | -5.91                | -6.87                          | -6.47                | -6.90                          | -6.50                | -6.92                          | -6.52                | -0.32                           | 11.00                  | PASS       |
| 802.11ax<br>HE20   | 52/5260                        | 3.72                           | 4.45                 | 3.56                           | 4.29                 | 3.74                           | 4.47                 | 2.97                           | 3.70                 | 10.26                           | 11.00                  | PASS       |
|                    | 60/5300                        | 3.53                           | 4.26                 | 3.11                           | 3.84                 | 3.60                           | 4.33                 | 3.25                           | 3.98                 | 10.13                           | 11.00                  | PASS       |
|                    | 64/5320                        | 3.43                           | 4.16                 | 3.20                           | 3.93                 | 3.74                           | 4.47                 | 3.19                           | 3.92                 | 10.15                           | 11.00                  | PASS       |
| 802.11ax<br>HE40   | 54/5270                        | 3.47                           | 4.20                 | 3.95                           | 4.68                 | 3.83                           | 4.56                 | 3.36                           | 4.09                 | 10.41                           | 11.00                  | PASS       |
|                    | 62/5310                        | 3.89                           | 4.62                 | 3.56                           | 4.29                 | 3.68                           | 4.41                 | 3.18                           | 3.91                 | 10.34                           | 11.00                  | PASS       |
| 802.11ax<br>HE80   | 58/5290                        | 1.09                           | 1.76                 | 0.88                           | 1.55                 | 1.00                           | 1.67                 | 0.12                           | 0.79                 | 7.48                            | 11.00                  | PASS       |
| 802.11ax<br>HE160  | 50/5250                        | -6.89                          | -6.55                | -7.29                          | -6.95                | -7.42                          | -7.08                | -7.51                          | -7.17                | -0.91                           | 11.00                  | PASS       |

Note: 1.For Total PSD, according to KDB 662911 D01 Multiple Transmitter Output v02r01 2)a),the power spectral density= $10\log(10^{(\text{PSD antenna1 in dBm}/10)}+10^{(\text{PSD antenna2 in dBm}/10)}+10^{(\text{PSD antenna3 in dBm}/10)}+10^{(\text{PSD antenna4 in dBm}/10)})$

2. The manufacturer declared that the directional gain =5.00dBi<6dBi. So the PSD limit is 11dBm.



## U-NII-2C

| Mode               | Channel/<br>Frequency<br>(MHz) | Power Spectral Density         |                      |                                |                      |                                |                      |                                |                      |                                 | Limit<br>(dBm/<br>MHz) | Conclusion |
|--------------------|--------------------------------|--------------------------------|----------------------|--------------------------------|----------------------|--------------------------------|----------------------|--------------------------------|----------------------|---------------------------------|------------------------|------------|
|                    |                                | Antenna 1                      |                      | Antenna 2                      |                      | Antenna 3                      |                      | Antenna 4                      |                      | Total<br>Power<br>(dBm<br>/MHz) |                        |            |
|                    |                                | Read<br>Value<br>(dBm/<br>MHz) | PSD<br>(dBm/<br>MHz) | Read<br>Value<br>(dBm/<br>MHz) | PSD<br>(dBm/<br>MHz) | Read<br>Value<br>(dBm/<br>MHz) | PSD<br>(dBm/<br>MHz) | Read<br>Value<br>(dBm/<br>MHz) | PSD<br>(dBm/<br>MHz) |                                 |                        |            |
| 802.11a            | 100/5500                       | 4.99                           | 5.18                 | 4.63                           | 4.82                 | 4.19                           | 4.38                 | 4.46                           | 4.65                 | 10.79                           | 11.00                  | PASS       |
|                    | 120/5600                       | 5.00                           | 5.19                 | 4.58                           | 4.77                 | 4.72                           | 4.91                 | 4.02                           | 4.21                 | 10.80                           | 11.00                  | PASS       |
|                    | 140/5700                       | 4.39                           | 4.58                 | 4.35                           | 4.54                 | 4.34                           | 4.53                 | 4.98                           | 5.17                 | 10.73                           | 11.00                  | PASS       |
|                    | 144/5720                       | 4.18                           | 4.37                 | 4.52                           | 4.71                 | 4.59                           | 4.78                 | 4.47                           | 4.66                 | 10.65                           | 11.00                  | PASS       |
| 802.11n<br>HT20    | 100/5500                       | 4.72                           | 5.39                 | 3.90                           | 4.57                 | 3.68                           | 4.35                 | 3.78                           | 4.45                 | 10.73                           | 11.00                  | PASS       |
|                    | 120/5600                       | 4.30                           | 4.97                 | 3.83                           | 4.50                 | 4.07                           | 4.74                 | 3.49                           | 4.16                 | 10.62                           | 11.00                  | PASS       |
|                    | 140/5700                       | 4.93                           | 5.60                 | 3.47                           | 4.14                 | 3.89                           | 4.56                 | 3.86                           | 4.53                 | 10.76                           | 11.00                  | PASS       |
|                    | 144/5720                       | 4.29                           | 4.96                 | 3.72                           | 4.39                 | 3.82                           | 4.49                 | 3.31                           | 3.98                 | 10.49                           | 11.00                  | PASS       |
| 802.11n<br>HT40    | 102/5510                       | 3.67                           | 4.40                 | 3.29                           | 4.02                 | 2.87                           | 3.60                 | 2.60                           | 3.33                 | 9.87                            | 11.00                  | PASS       |
|                    | 110/5550                       | 4.04                           | 4.77                 | 3.66                           | 4.39                 | 3.67                           | 4.40                 | 3.08                           | 3.81                 | 10.37                           | 11.00                  | PASS       |
|                    | 134/5670                       | 3.43                           | 4.16                 | 3.91                           | 4.64                 | 3.62                           | 4.35                 | 3.31                           | 4.04                 | 10.32                           | 11.00                  | PASS       |
|                    | 142/5710                       | 2.95                           | 3.68                 | 3.26                           | 3.99                 | 3.14                           | 3.87                 | 2.81                           | 3.54                 | 9.79                            | 11.00                  | PASS       |
| 802.11ac<br>VHT20  | 100/5500                       | 4.65                           | 5.32                 | 3.88                           | 4.55                 | 3.58                           | 4.25                 | 3.38                           | 4.05                 | 10.59                           | 11.00                  | PASS       |
|                    | 120/5600                       | 4.24                           | 4.91                 | 4.01                           | 4.68                 | 3.98                           | 4.65                 | 3.57                           | 4.24                 | 10.64                           | 11.00                  | PASS       |
|                    | 140/5700                       | 3.62                           | 4.29                 | 3.76                           | 4.43                 | 4.19                           | 4.86                 | 4.00                           | 4.67                 | 10.59                           | 11.00                  | PASS       |
|                    | 144/5720                       | 3.89                           | 4.56                 | 3.37                           | 4.04                 | 4.05                           | 4.72                 | 3.10                           | 3.77                 | 10.31                           | 11.00                  | PASS       |
| 802.11ac<br>VHT40  | 102/5510                       | 3.72                           | 4.45                 | 2.94                           | 3.67                 | 2.96                           | 3.69                 | 2.29                           | 3.02                 | 9.76                            | 11.00                  | PASS       |
|                    | 110/5550                       | 3.44                           | 4.17                 | 3.46                           | 4.19                 | 3.67                           | 4.40                 | 2.67                           | 3.40                 | 10.08                           | 11.00                  | PASS       |
|                    | 134/5670                       | 3.54                           | 4.27                 | 3.81                           | 4.54                 | 3.91                           | 4.64                 | 3.07                           | 3.80                 | 10.35                           | 11.00                  | PASS       |
|                    | 142/5710                       | 2.69                           | 3.42                 | 3.34                           | 4.07                 | 2.75                           | 3.48                 | 2.68                           | 3.41                 | 9.62                            | 11.00                  | PASS       |
| 802.11ac<br>VHT80  | 106/5530                       | 0.34                           | 1.07                 | 0.45                           | 1.18                 | -0.28                          | 0.45                 | -0.58                          | 0.15                 | 6.75                            | 11.00                  | PASS       |
|                    | 122/5610                       | 0.24                           | 0.64                 | 0.44                           | 0.84                 | 0.19                           | 0.59                 | -0.59                          | -0.19                | 6.51                            | 11.00                  | PASS       |
|                    | 138/5690                       | -0.44                          | 0.29                 | -0.19                          | 0.54                 | 0.13                           | 0.86                 | -0.12                          | 0.61                 | 6.60                            | 11.00                  | PASS       |
| 802.11ac<br>VHT160 | 114/5570                       | -3.44                          | -3.04                | -4.74                          | -4.34                | -4.25                          | -3.85                | -4.70                          | -4.30                | 2.17                            | 11.00                  | PASS       |
| 802.11ax<br>HE20   | 100/5500                       | 4.36                           | 5.09                 | 4.03                           | 4.76                 | 4.20                           | 4.93                 | 3.51                           | 4.24                 | 10.79                           | 11.00                  | PASS       |
|                    | 120/5600                       | 4.26                           | 4.99                 | 4.13                           | 4.86                 | 4.28                           | 5.01                 | 3.61                           | 4.34                 | 10.83                           | 11.00                  | PASS       |
|                    | 140/5700                       | 3.75                           | 4.48                 | 3.23                           | 3.96                 | 3.62                           | 4.35                 | 3.59                           | 4.32                 | 10.30                           | 11.00                  | PASS       |
|                    | 144/5720                       | 4.31                           | 5.04                 | 4.14                           | 4.87                 | 4.31                           | 5.04                 | 3.40                           | 4.13                 | 10.81                           | 11.00                  | PASS       |
| 802.11ax<br>HE40   | 102/5510                       | 2.55                           | 3.28                 | 1.18                           | 1.91                 | 1.65                           | 2.38                 | 1.05                           | 1.78                 | 8.40                            | 11.00                  | PASS       |
|                    | 110/5550                       | 4.04                           | 4.77                 | 3.42                           | 4.15                 | 3.42                           | 4.15                 | 3.20                           | 3.93                 | 10.28                           | 11.00                  | PASS       |
|                    | 134/5670                       | 2.41                           | 3.14                 | 2.83                           | 3.56                 | 2.77                           | 3.50                 | 2.35                           | 3.08                 | 9.35                            | 11.00                  | PASS       |
|                    | 142/5710                       | 3.20                           | 3.93                 | 3.16                           | 3.89                 | 2.82                           | 3.55                 | 3.26                           | 3.99                 | 9.86                            | 11.00                  | PASS       |

**RF Test Report****Report No.: R2112A1145-R2**

|                   |          |       |       |       |       |       |       |       |       |      |       |      |
|-------------------|----------|-------|-------|-------|-------|-------|-------|-------|-------|------|-------|------|
| 802.11ax<br>HE80  | 106/5530 | 0.35  | 1.02  | 0.15  | 0.82  | 0.20  | 0.87  | -0.35 | 0.32  | 6.79 | 11.00 | PASS |
|                   | 122/5610 | 0.91  | 1.25  | 0.56  | 0.90  | 0.55  | 0.89  | 0.41  | 0.75  | 6.97 | 11.00 | PASS |
|                   | 138/5690 | 0.20  | 0.87  | -0.15 | 0.52  | 0.05  | 0.72  | 0.48  | 1.15  | 6.84 | 11.00 | PASS |
| 802.11ax<br>HE160 | 114/5570 | -1.72 | -1.38 | -1.86 | -1.52 | -1.95 | -1.61 | -2.37 | -2.03 | 4.39 | 11.00 | PASS |

Note: 1.For Total PSD, according to KDB 662911 D01 Multiple Transmitter Output v02r01 2)a),the power spectral density= $10\log(10^{(\text{PSD antenna1 in dBm}/10)}+10^{(\text{PSD antenna2 in dBm}/10)}+10^{(\text{PSD antenna3 in dBm}/10)}+10^{(\text{PSD antenna4 in dBm}/10)})$

2. The manufacturer declared that the directional gain = 3.80dBi<6dBi. So the PSD limit is 11dBm.



## U-NII-3

| Mode              | Channel/<br>Frequency<br>(MHz) | Power Spectral Density            |                         |                                   |                         |                                   |                         |                                   |                         |                                    | Limit<br>(dBm/<br>500kHz) | Conclusion |
|-------------------|--------------------------------|-----------------------------------|-------------------------|-----------------------------------|-------------------------|-----------------------------------|-------------------------|-----------------------------------|-------------------------|------------------------------------|---------------------------|------------|
|                   |                                | Antenna 1                         |                         | Antenna 2                         |                         | Antenna 3                         |                         | Antenna 4                         |                         | Total<br>Power<br>(dBm/<br>500kHz) |                           |            |
|                   |                                | Read<br>Value<br>(dBm/<br>470kHz) | PSD<br>(dBm/<br>500kHz) | Read<br>Value<br>(dBm/<br>470kHz) | PSD<br>(dBm/<br>500kHz) | Read<br>Value<br>(dBm/<br>470kHz) | PSD<br>(dBm/<br>500kHz) | Read<br>Value<br>(dBm/<br>470kHz) | PSD<br>(dBm/<br>500kHz) |                                    |                           |            |
| 802.11a           | 149/5745                       | 7.74                              | 8.20                    | 8.04                              | 8.50                    | 8.32                              | 8.78                    | 7.58                              | 8.04                    | 14.41                              | 30.00                     | PASS       |
|                   | 157/5785                       | 9.11                              | 9.57                    | 9.92                              | 10.38                   | 9.43                              | 9.89                    | 8.83                              | 9.29                    | 15.82                              | 30.00                     | PASS       |
|                   | 165/5825                       | 8.78                              | 9.24                    | 9.34                              | 9.80                    | 9.14                              | 9.60                    | 8.81                              | 9.27                    | 15.50                              | 30.00                     | PASS       |
| 802.11n<br>HT20   | 149/5745                       | 9.10                              | 10.04                   | 9.30                              | 10.24                   | 9.19                              | 10.13                   | 8.79                              | 9.73                    | 16.06                              | 30.00                     | PASS       |
|                   | 157/5785                       | 8.38                              | 9.32                    | 8.74                              | 9.68                    | 8.97                              | 9.91                    | 7.75                              | 8.69                    | 15.44                              | 30.00                     | PASS       |
|                   | 165/5825                       | 9.07                              | 10.01                   | 8.85                              | 9.79                    | 8.96                              | 9.90                    | 8.35                              | 9.29                    | 15.77                              | 30.00                     | PASS       |
| 802.11n<br>HT40   | 151/5755                       | 5.97                              | 6.97                    | 5.45                              | 6.45                    | 5.45                              | 6.45                    | 5.45                              | 6.45                    | 12.60                              | 30.00                     | PASS       |
|                   | 159/5795                       | 5.91                              | 6.91                    | 6.67                              | 7.67                    | 6.66                              | 7.66                    | 5.67                              | 6.67                    | 13.27                              | 30.00                     | PASS       |
| 802.11ac<br>VHT20 | 149/5745                       | 9.33                              | 10.27                   | 9.71                              | 10.65                   | 9.85                              | 10.79                   | 8.89                              | 9.83                    | 16.42                              | 30.00                     | PASS       |
|                   | 157/5785                       | 8.75                              | 9.69                    | 9.51                              | 10.45                   | 8.93                              | 9.87                    | 8.36                              | 9.30                    | 15.87                              | 30.00                     | PASS       |
|                   | 165/5825                       | 8.06                              | 9.00                    | 8.76                              | 9.70                    | 8.78                              | 9.72                    | 7.74                              | 8.68                    | 15.32                              | 30.00                     | PASS       |
| 802.11ac<br>VHT40 | 151/5755                       | 5.23                              | 6.23                    | 5.21                              | 6.21                    | 5.54                              | 6.54                    | 5.51                              | 6.51                    | 12.40                              | 30.00                     | PASS       |
|                   | 159/5795                       | 6.59                              | 7.59                    | 6.66                              | 7.66                    | 6.44                              | 7.44                    | 5.91                              | 6.91                    | 13.43                              | 30.00                     | PASS       |
| 802.11ac<br>VHT80 | 155/5775                       | 3.08                              | 4.08                    | 3.20                              | 4.20                    | 3.25                              | 4.25                    | 2.67                              | 3.67                    | 10.08                              | 30.00                     | PASS       |
| 802.11ax<br>HE20  | 149/5745                       | 9.15                              | 10.15                   | 8.89                              | 9.89                    | 9.81                              | 10.81                   | 8.84                              | 9.84                    | 16.21                              | 30.00                     | PASS       |
|                   | 157/5785                       | 8.74                              | 9.74                    | 9.15                              | 10.15                   | 8.68                              | 9.68                    | 8.01                              | 9.01                    | 15.68                              | 30.00                     | PASS       |
|                   | 165/5825                       | 8.19                              | 9.19                    | 8.23                              | 9.23                    | 8.30                              | 9.30                    | 7.89                              | 8.89                    | 15.18                              | 30.00                     | PASS       |
| 802.11ax<br>HE40  | 151/5755                       | 6.31                              | 7.31                    | 5.74                              | 6.74                    | 5.92                              | 6.92                    | 6.08                              | 7.08                    | 13.04                              | 30.00                     | PASS       |
|                   | 159/5795                       | 5.61                              | 6.61                    | 5.76                              | 6.76                    | 5.46                              | 6.46                    | 4.59                              | 5.59                    | 12.40                              | 30.00                     | PASS       |
| 802.11ax<br>HE80  | 155/5775                       | 0.46                              | 1.40                    | -0.14                             | 0.80                    | 0.86                              | 1.80                    | -0.57                             | 0.37                    | 7.15                               | 30.00                     | PASS       |

Note: 1. PSD=Read Value+Duty cycle+10\*LOG(500/470) correction factor

2. For Total PSD, according to KDB 662911 D01 Multiple Transmitter Output v02r01 2)a), the power spectral density= $10\log(10^{(\text{PSD antenna1 in dBm}/10)} + 10^{(\text{PSD antenna2 in dBm}/10)} + 10^{(\text{PSD antenna3 in dBm}/10)} + 10^{(\text{PSD antenna4 in dBm}/10)})$ .

3. The manufacturer declared that the directional gain = 4.80dBi<6dBi. So the PSD limit is 30dBm.

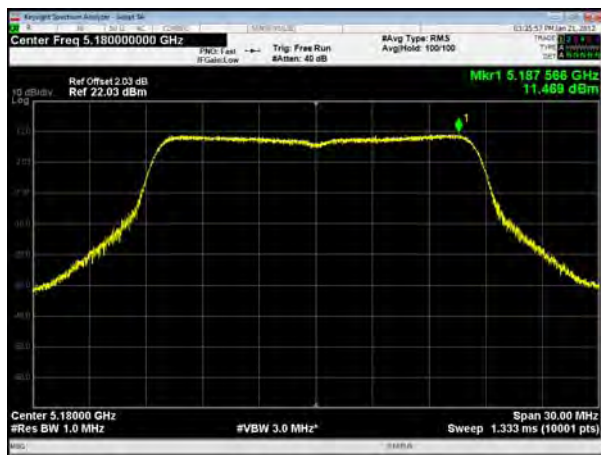


INPAQ:

MIMO

Antenna 1

U-NII-1, 802.11a, Channel No.: 36



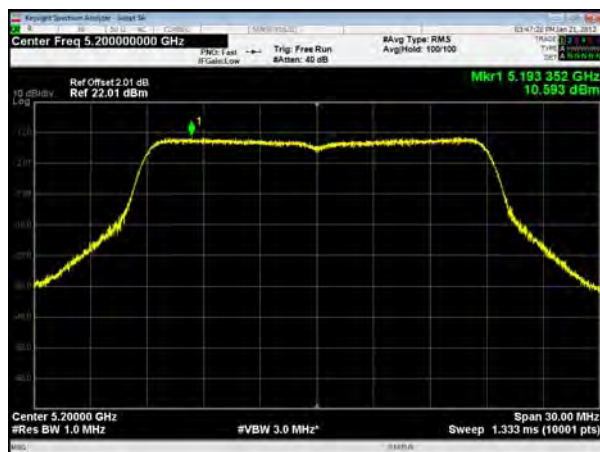
U-NII-1, 802.11n HT20, Channel No.: 36



U-NII-1, 802.11a, Channel No.: 40



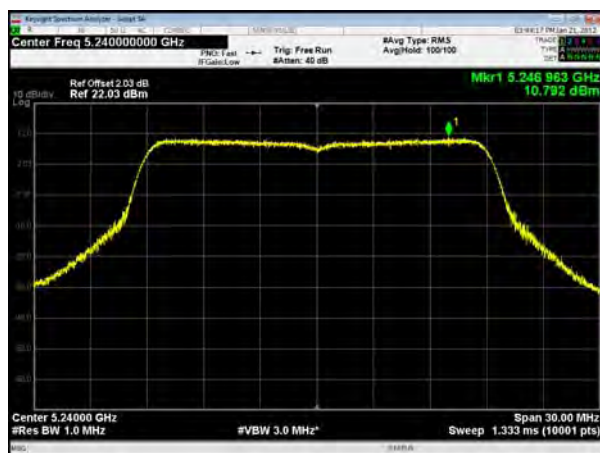
U-NII-1, 802.11n HT20, Channel No.: 40



U-NII-1, 802.11a, Channel No.: 48



U-NII-1, 802.11n HT20, Channel No.: 48



U-NII-1, 802.11n HT40, Channel No.: 38



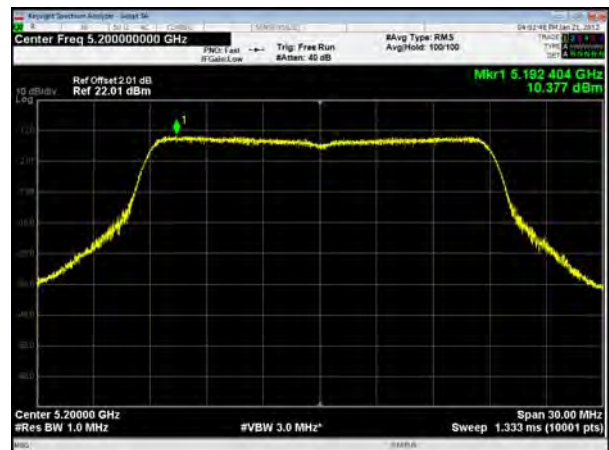
U-NII-1, 802.11ac VHT20, Channel No.: 36



U-NII-1, 802.11n HT40, Channel No.: 46



U-NII-1, 802.11ac VHT20, Channel No.: 40



U-NII-1, 802.11ac VHT40, Channel No.: 38



U-NII-1, 802.11ac VHT20, Channel No.: 48





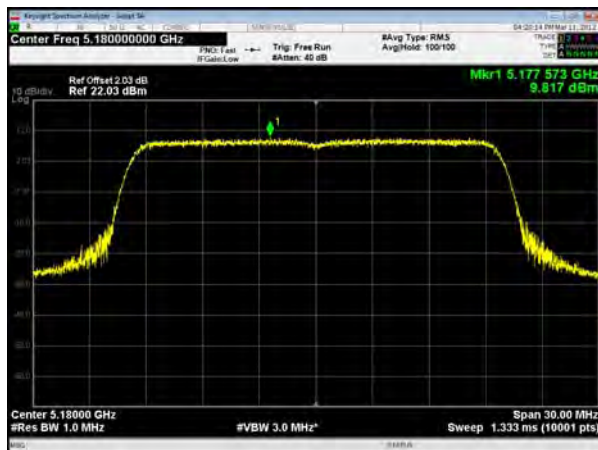
U-NII-1, 802.11ac VHT40, Channel No.: 46



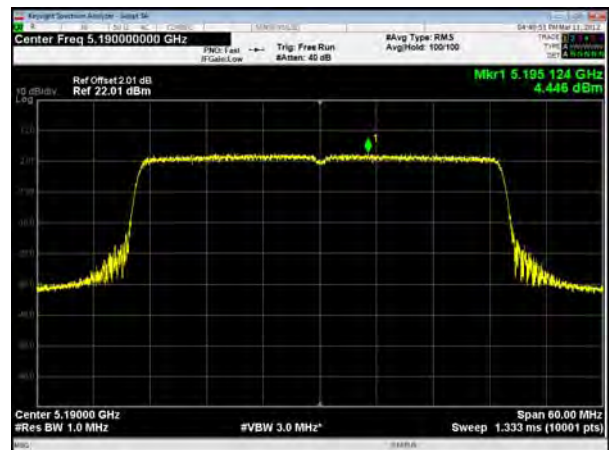
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U-NII-1, 802.11ax HE20, Channel No.: 36



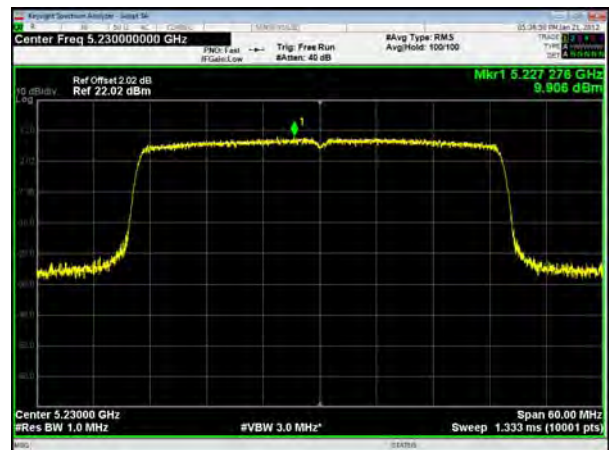
U-NII-1, 802.11ax HE40, Channel No.: 38



U-NII-1, 802.11ax HE20, Channel No.: 40



U-NII-1, 802.11ax HE40, Channel No.: 46

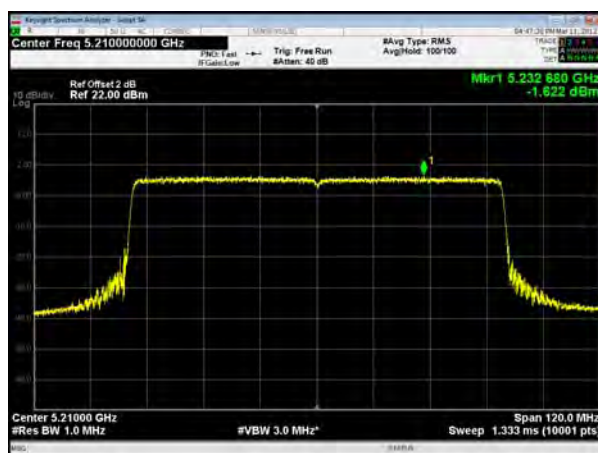




U-NII-1, 802.11ax HE20, Channel No.: 48



U-NII-1, 802.11ax HE80, Channel No.: 42



U-NII-2A, 802.11a, Channel No.: 52



U-NII-2A, 802.11n HT20, Channel No.: 52



U-NII-2A, 802.11a, Channel No.: 60



U-NII-2A, 802.11n HT20, Channel No.: 60





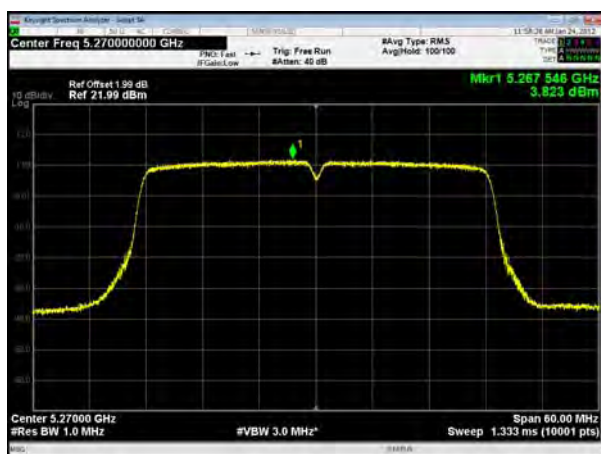
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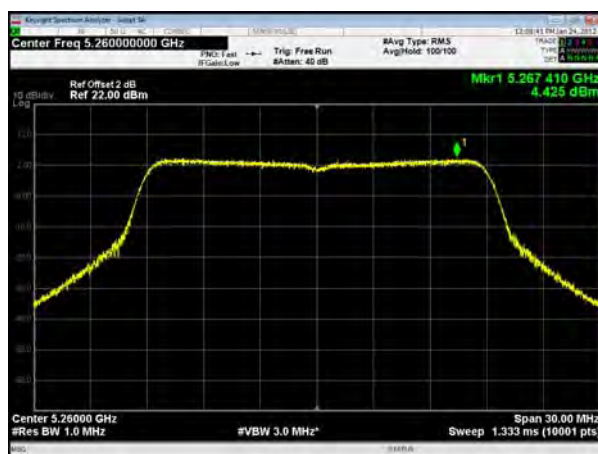
U-NII-2A, 802.11n HT20, Channel No.: 64



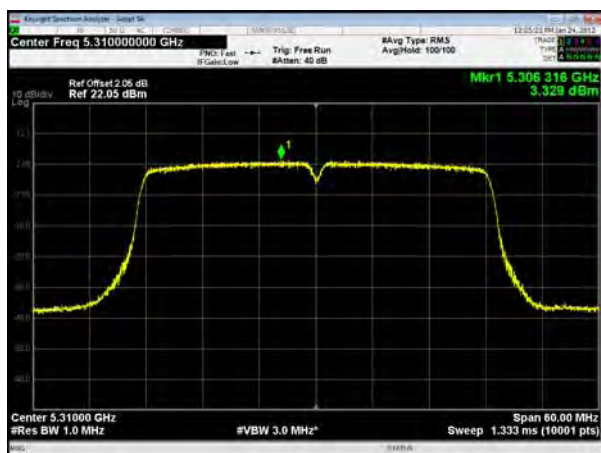
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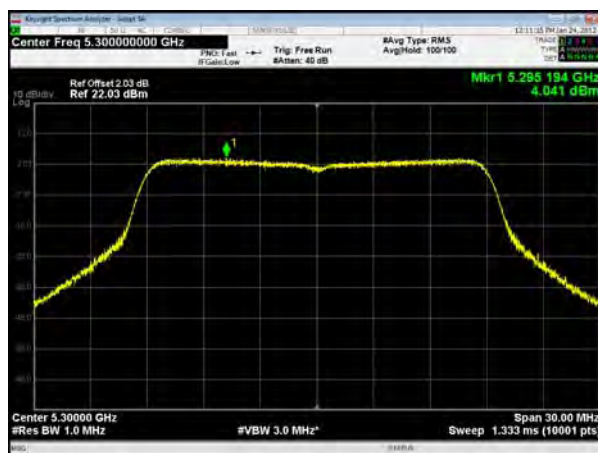
U-NII-2A, 802.11ac VHT20, Channel No.: 52



U-NII-2A, 802.11n HT40, Channel No.: 62

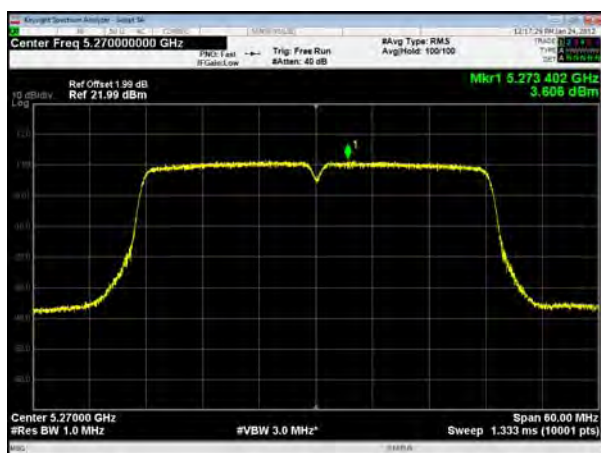


U-NII-2A, 802.11ac VHT20, Channel No.: 60





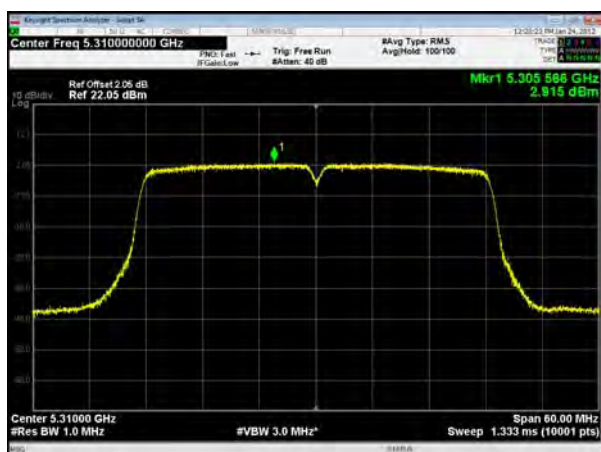
U-NII-2A, 802.11ac VHT40, Channel No.: 54



U-NII-2A, 802.11ac VHT20, Channel No.: 64



U-NII-2A, 802.11ac VHT40, Channel No.: 62



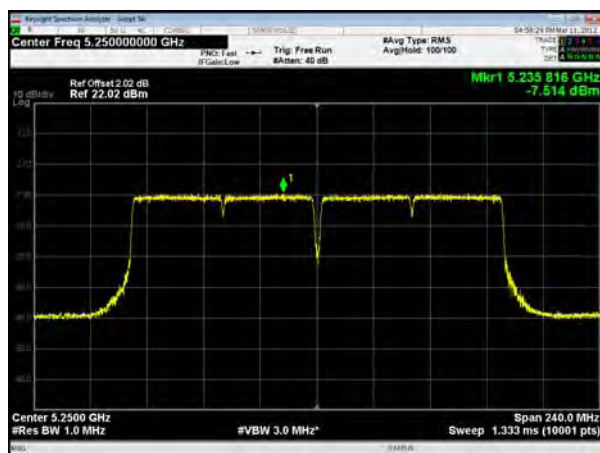
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U-NII-2A, 802.11ax HE20, Channel No.: 52



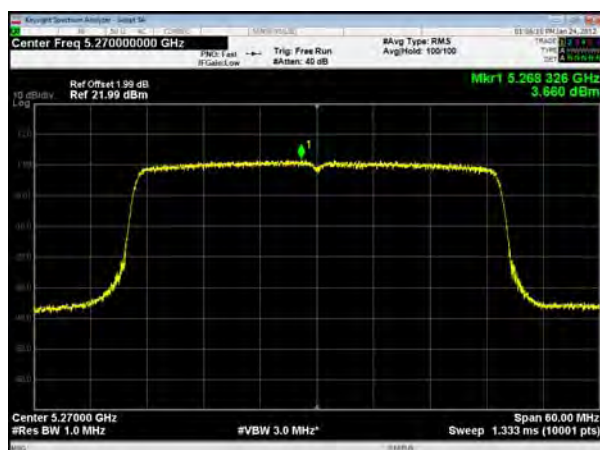
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U-NII-2A, 802.11ax HE20, Channel No.: 60



U-NII-2A, 802.11ax HE40, Channel No.: 54



U-NII-2A, 802.11ax HE20, Channel No.: 64



U-NII-2A, 802.11ax HE40, Channel No.: 62



U-NII-2A, 802.11ax HE80, Channel No.: 58



U-NII-2A, 802.11ax HE160, Channel No.: 50

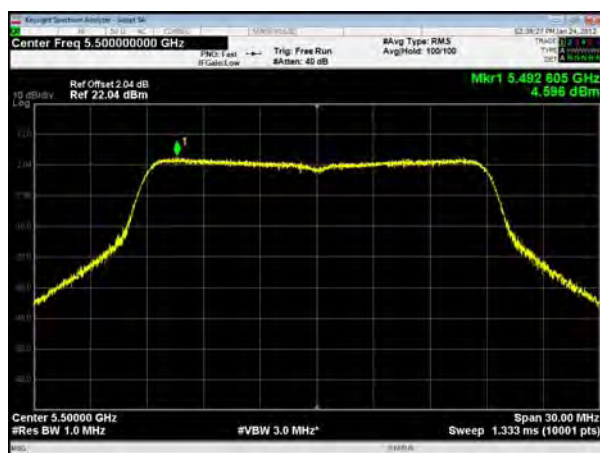




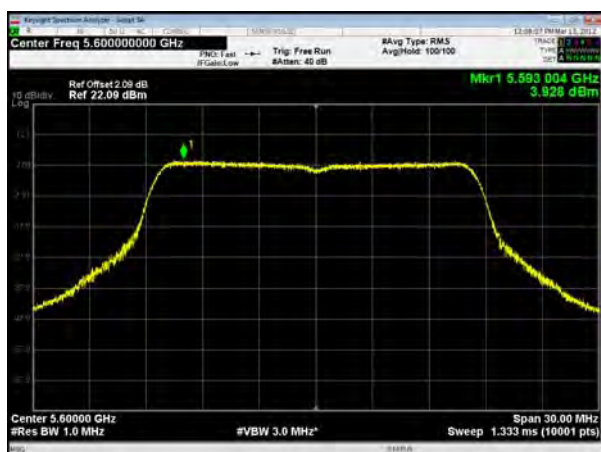
U-NII-2C, 802.11a, Channel No.: 100



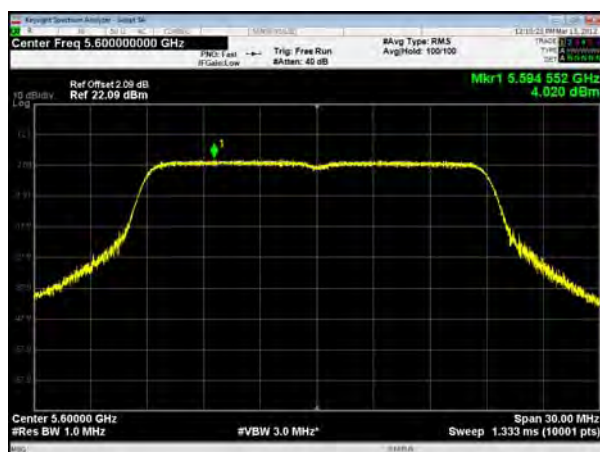
U-NII-2C, 802.11n HT20, Channel No.: 100



U-NII-2C, 802.11a, Channel No.: 120



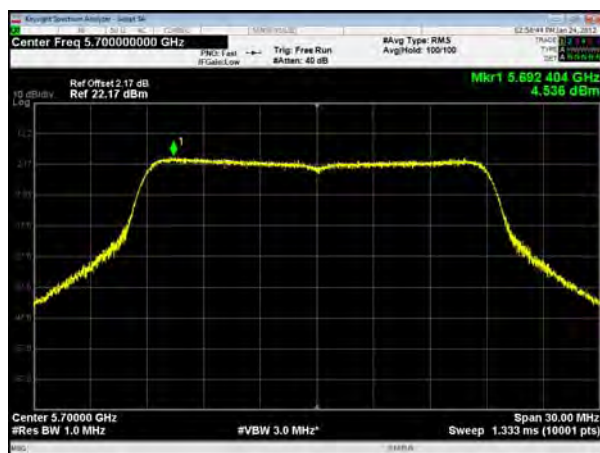
U-NII-2C, 802.11n HT20, Channel No.: 120



U-NII-2C, 802.11a, Channel No.: 140

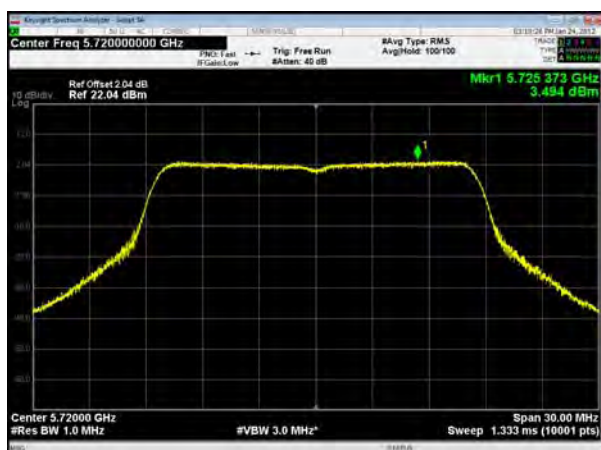


U-NII-2C, 802.11n HT20, Channel No.: 140





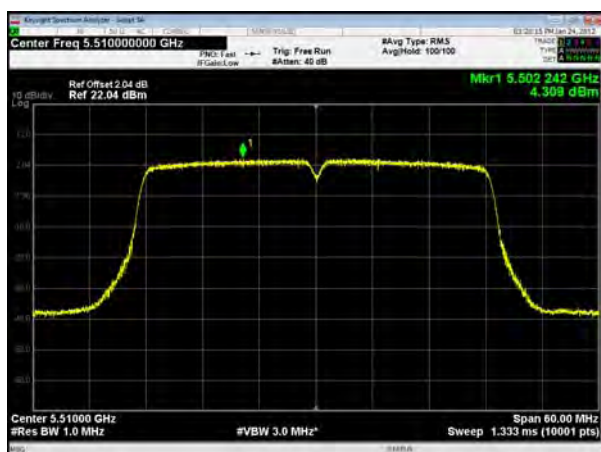
U-NII-2C, 802.11a, Channel No.: 144



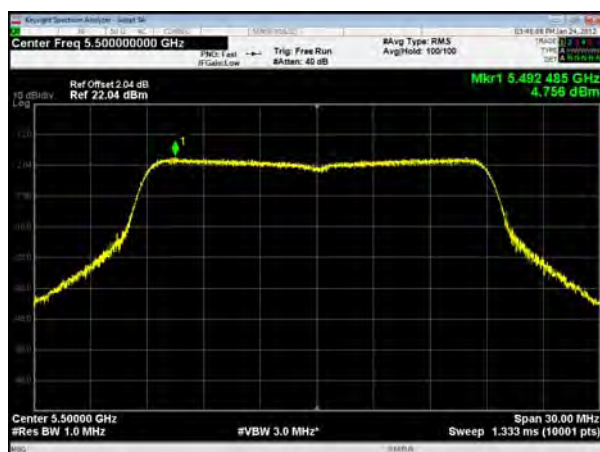
U-NII-2C, 802.11n HT20, Channel No.: 144



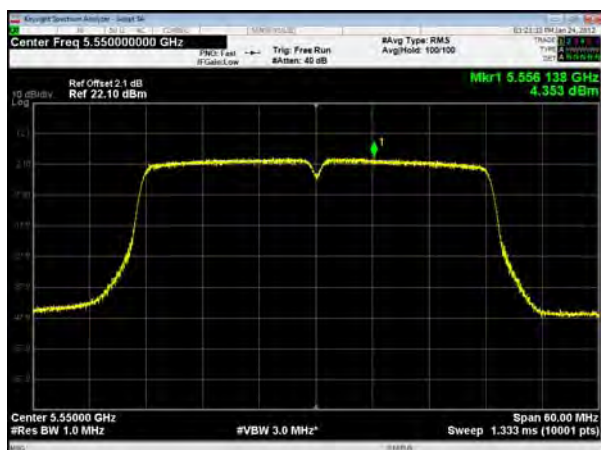
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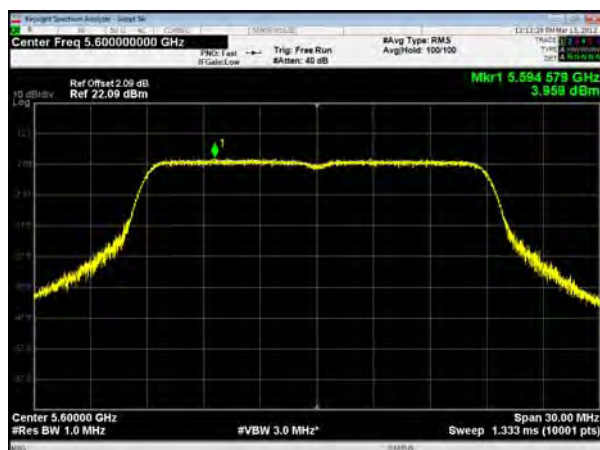
U-NII-2C, 802.11ac VHT20, Channel No.: 100



U-NII-2C, 802.11n HT40, Channel No.: 118



U-NII-2C, 802.11ac VHT20, Channel No.: 120





U-NII-2C, 802.11n HT40, Channel No.: 134



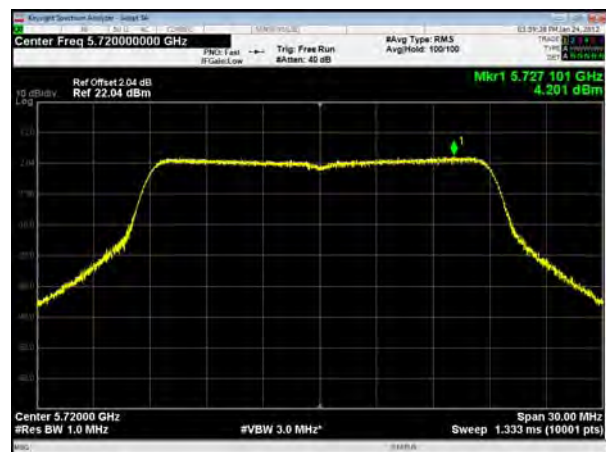
U-NII-2C, 802.11ac VHT20, Channel No.: 140



U-NII-2C, 802.11n HT40, Channel No.: 142



U-NII-2C, 802.11ac VHT20, Channel No.: 144



U-NII-2C, 802.11ac VHT40, Channel No.: 102

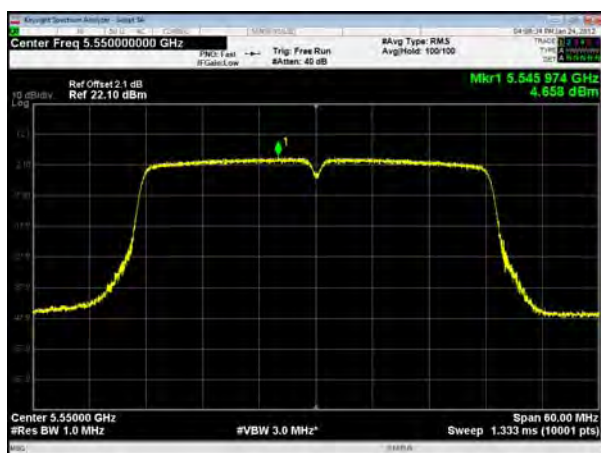


U-NII-2C, 802.11ac VHT80, Channel No.: 106





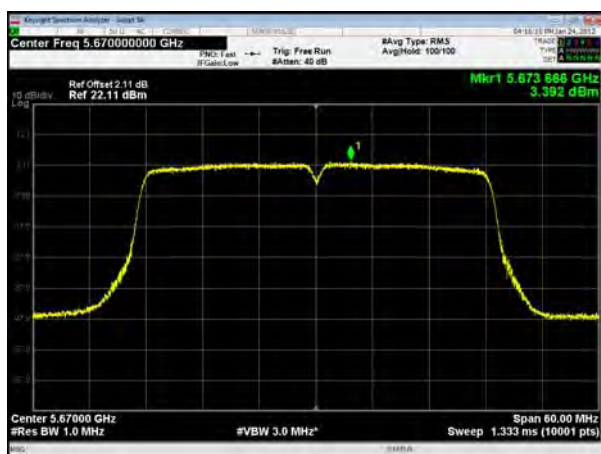
U-NII-2C, 802.11ac VHT40, Channel No.: 118



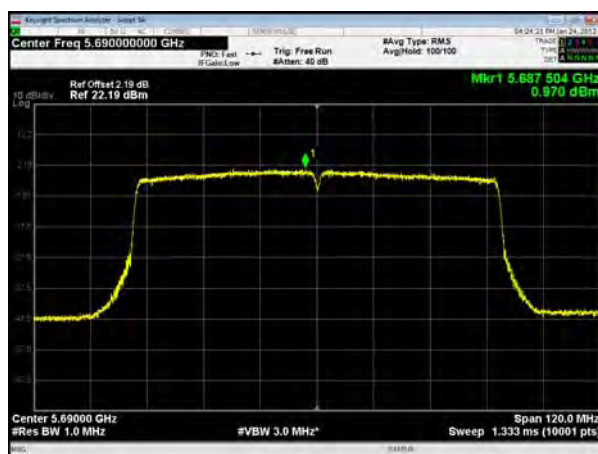
U-NII-2C, 802.11ac VHT80, Channel No.: 122



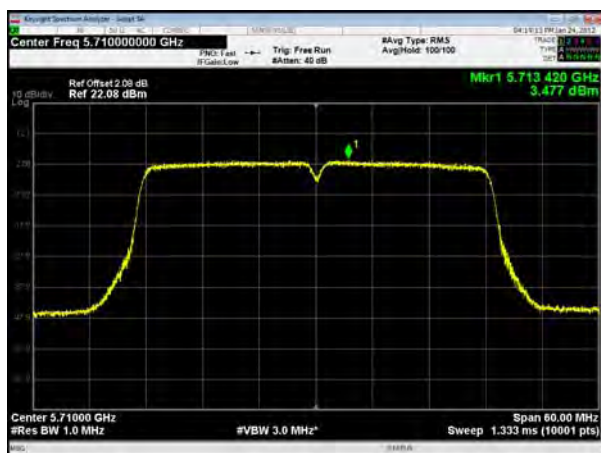
U-NII-2C, 802.11ac VHT40, Channel No.: 134



U-NII-2C, 802.11ac VHT80, Channel No.: 138



U-NII-2C, 802.11ac VHT40, Channel No.: 142

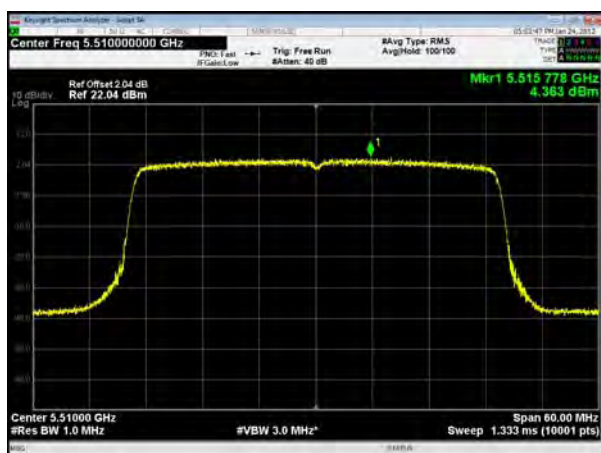


U-NII-2C, 802.11ac VHT160, Channel No.: 114

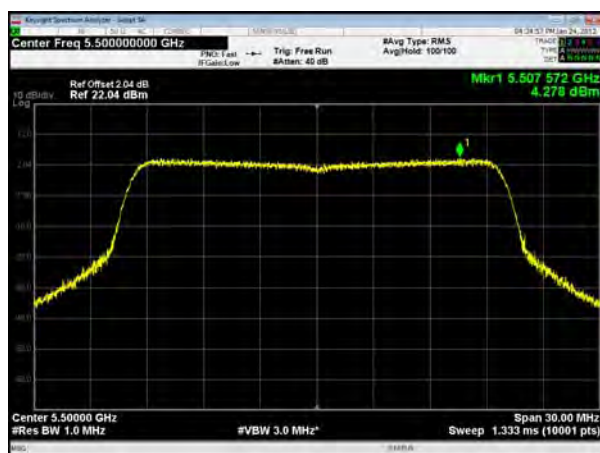




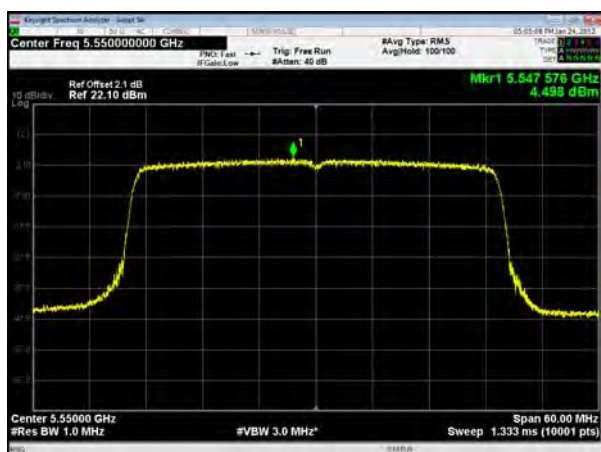
U-NII-2C, 802.11ax HE40, Channel No.: 102



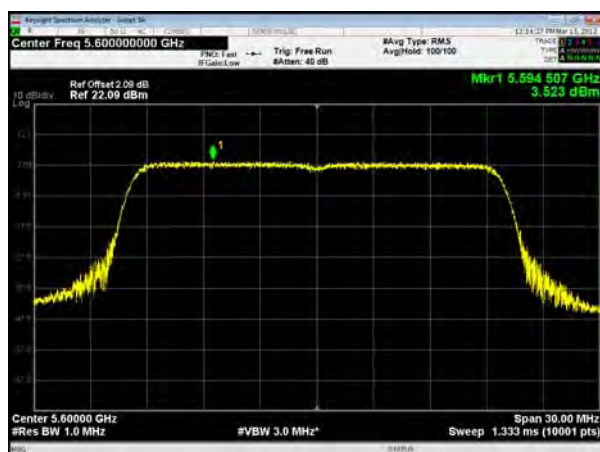
U-NII-2C, 802.11ax HE20, Channel No.: 100



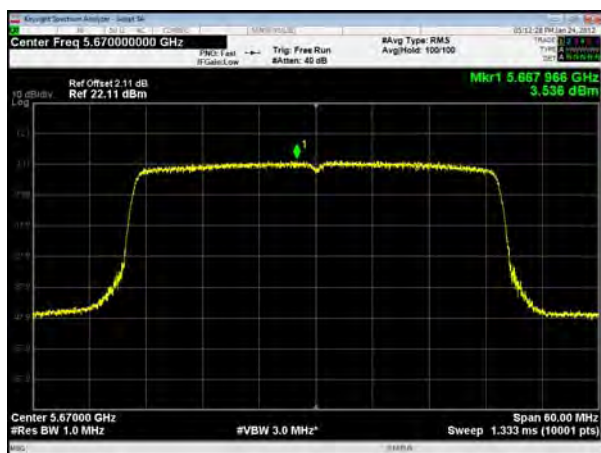
U-NII-2C, 802.11ax HE40, Channel No.: 118



U-NII-2C, 802.11ax HE20, Channel No.: 120



U-NII-2C, 802.11ax HE40, Channel No.: 134

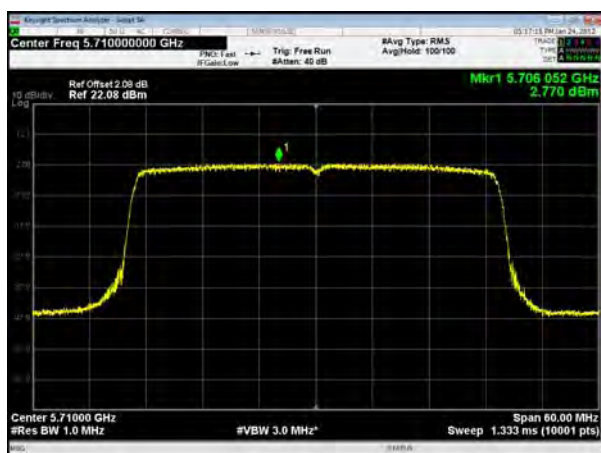


U-NII-2C, 802.11ax HE20, Channel No.: 140

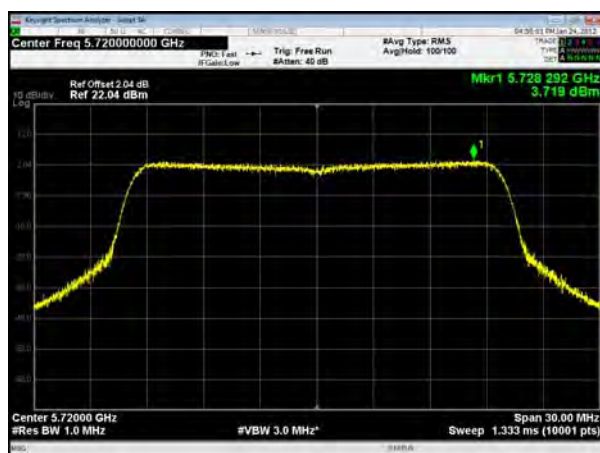




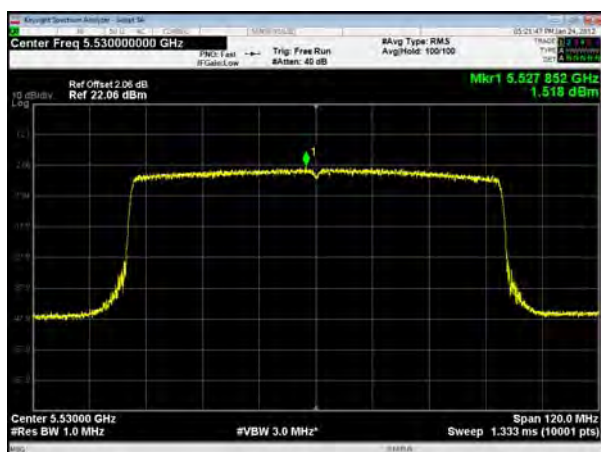
U-NII-2C, 802.11ax HE40, Channel No.: 142



U-NII-2C, 802.11ax HE20, Channel No.: 144



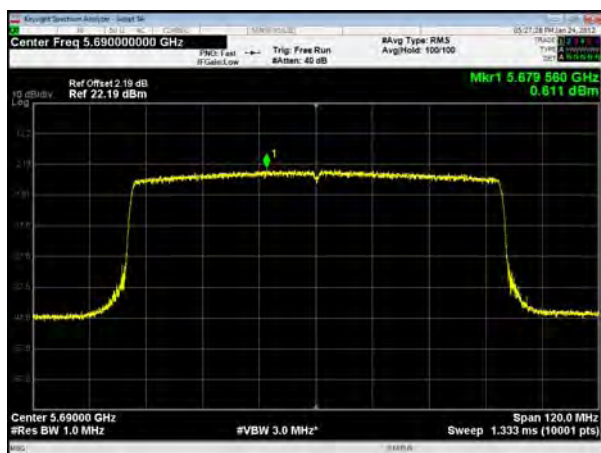
U-NII-2C, 802.11ax HE80, Channel No.: 106



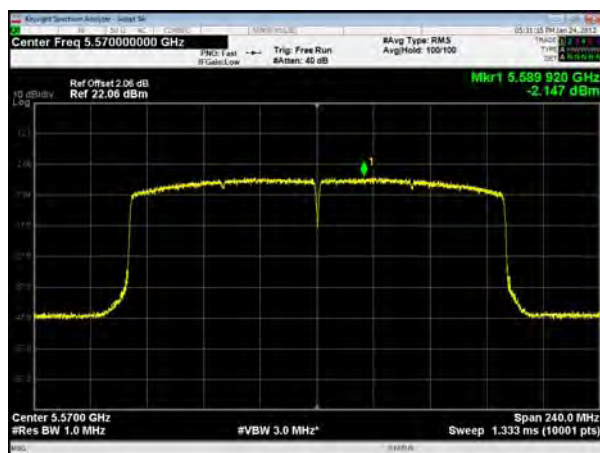
U-NII-2C, 802.11ax HE80, Channel No.: 122



U-NII-2C, 802.11ax HE80, Channel No.: 138



U-NII-2C, 802.11ax HE160, Channel No.: 114





U-NII-3, 802.11a, Channel No.: 149



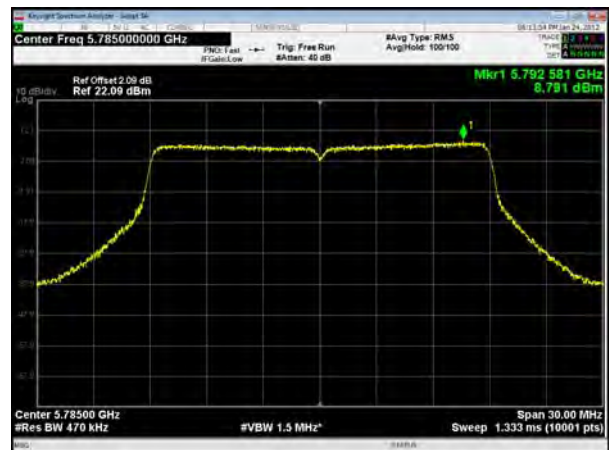
U-NII-3, 802.11n HT20, Channel No.: 149



U-NII-3, 802.11a, Channel No.: 157



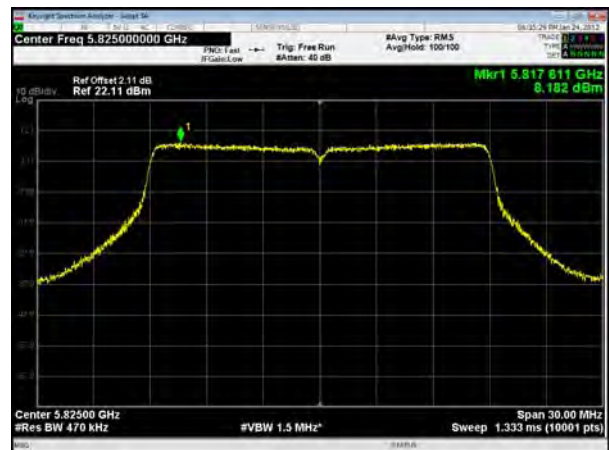
U-NII-3, 802.11n HT20, Channel No.: 157



U-NII-3, 802.11a, Channel No.: 165

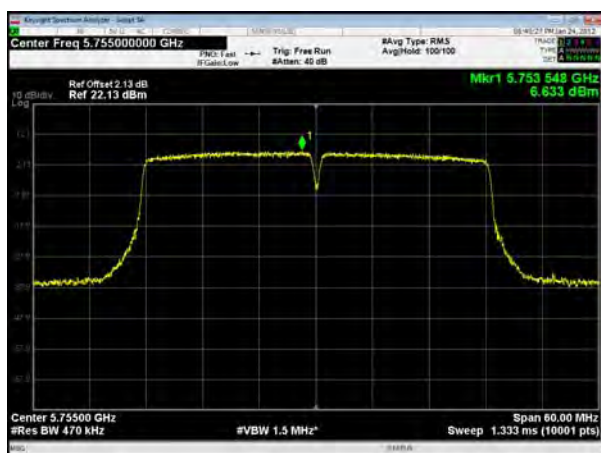


U-NII-3, 802.11n HT20, Channel No.: 165





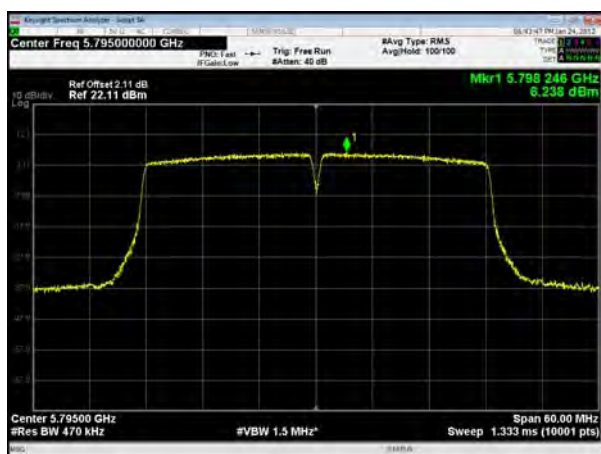
U-NII-3, 802.11n HT40, Channel No.: 151



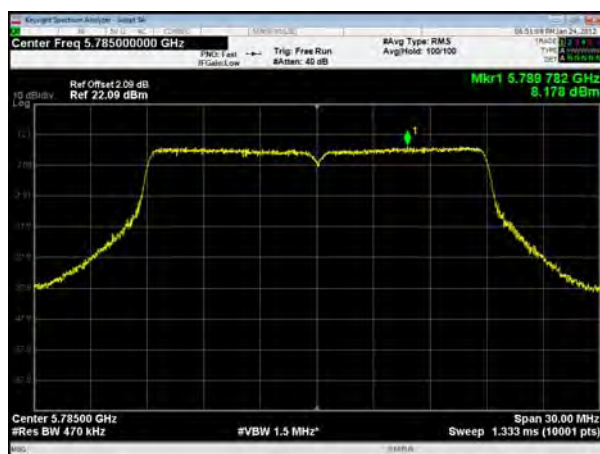
U-NII-3, 802.11ac VHT20, Channel No.: 149



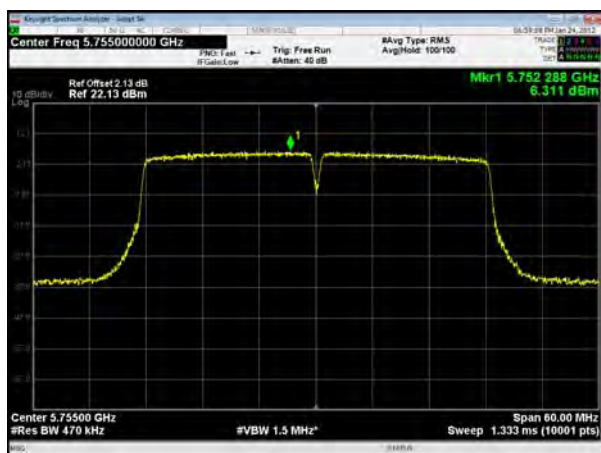
U-NII-3, 802.11n HT40, Channel No.: 159



U-NII-3, 802.11ac VHT20, Channel No.: 157



U-NII-3, 802.11ac VHT40, Channel No.: 151

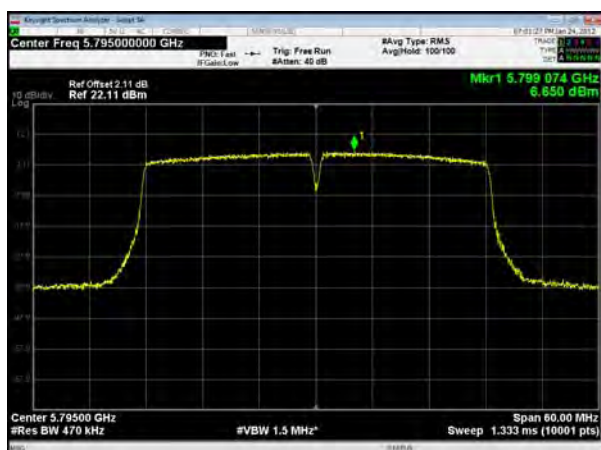


U-NII-3, 802.11ac VHT20, Channel No.: 165





U-NII-3, 802.11ac VHT40, Channel No.: 159



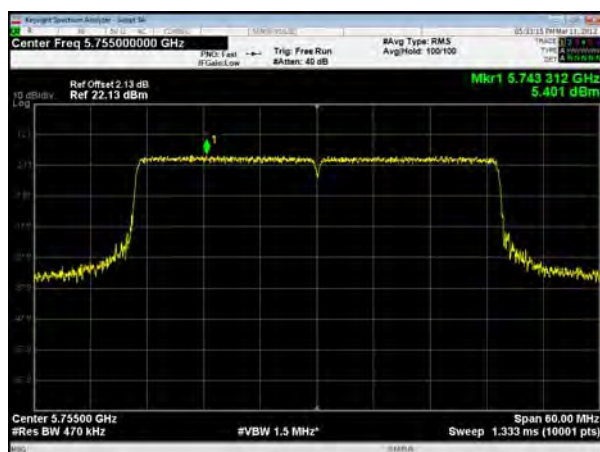
U-NII-3, 802.11ac VHT80, Channel No.: 155



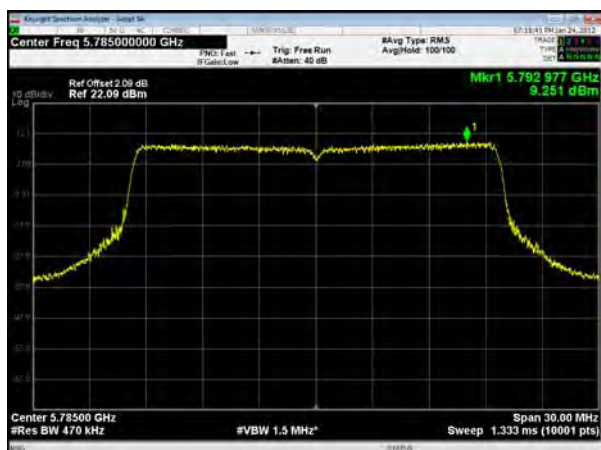
U-NII-3, 802.11ax HE20, Channel No.: 149



U-NII-3, 802.11ax HE40, Channel No.: 151



U-NII-3, 802.11ax HE20, Channel No.: 157



U-NII-3, 802.11ax HE40, Channel No.: 159





U-NII-3, 802.11ax HE20, Channel No.: 165



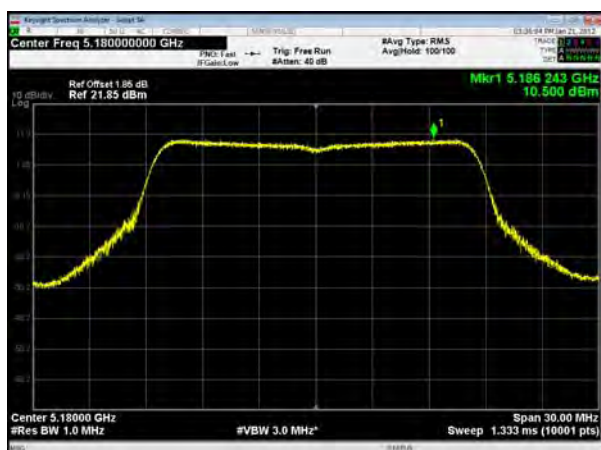
U-NII-3, 802.11ax HE80, Channel No.: 155





## Antenna 2

U-NII-1, 802.11a, Channel No.: 36



U-NII-1, 802.11n HT20, Channel No.: 36



U-NII-1, 802.11a, Channel No.: 40



U-NII-1, 802.11n HT20, Channel No.: 40



U-NII-1, 802.11a, Channel No.: 48

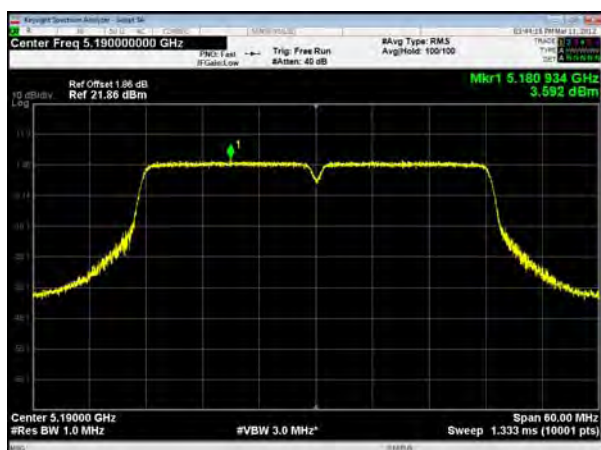


U-NII-1, 802.11n HT20, Channel No.: 48





U-NII-1, 802.11n HT40, Channel No.: 38



U-NII-1, 802.11ac VHT20, Channel No.: 36



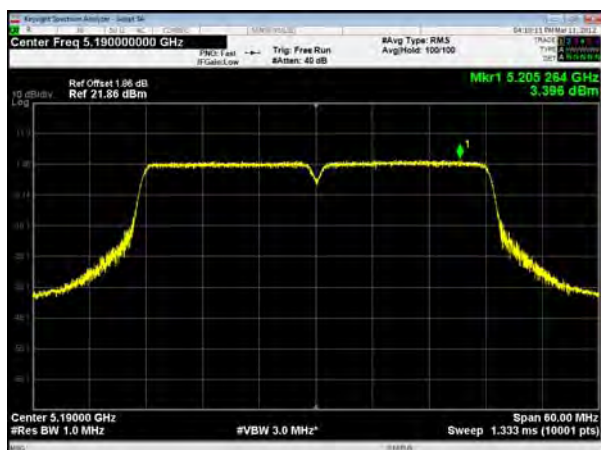
U-NII-1, 802.11n HT40, Channel No.: 46



U-NII-1, 802.11ac VHT20, Channel No.: 40



U-NII-1, 802.11ac VHT40, Channel No.: 38



U-NII-1, 802.11ac VHT20, Channel No.: 48

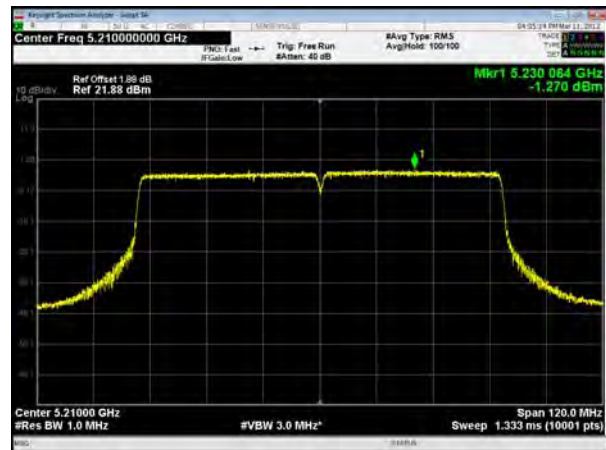




U-NII-1, 802.11ac VHT40, Channel No.: 46



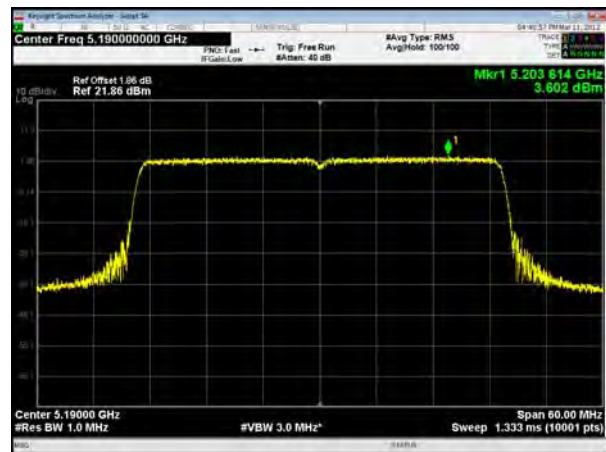
U-NII-1, 802.11ac VHT80, Channel No.: 42



U-NII-1, 802.11ax HE20, Channel No.: 36



U-NII-1, 802.11ax HE40, Channel No.: 38



U-NII-1, 802.11ax HE20, Channel No.: 40

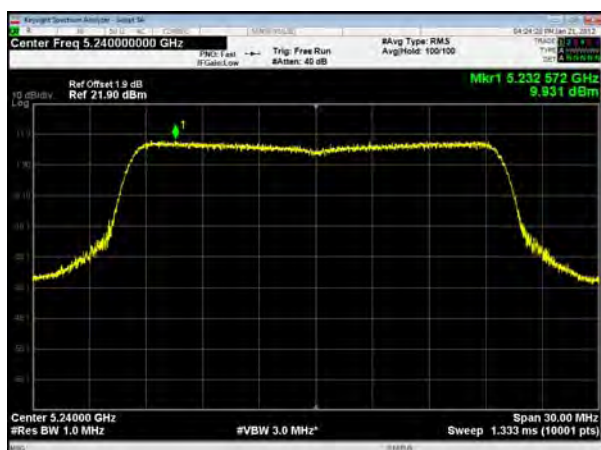


U-NII-1, 802.11ax HE40, Channel No.: 46

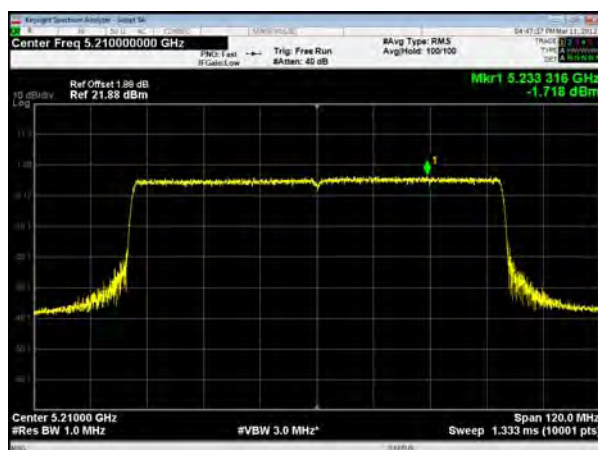




U-NII-1, 802.11ax HE20, Channel No.: 48



U-NII-1, 802.11ax HE80, Channel No.: 42



U-NII-2A, 802.11a, Channel No.: 52



U-NII-2A, 802.11n HT20, Channel No.: 52



U-NII-2A, 802.11a, Channel No.: 60



U-NII-2A, 802.11n HT20, Channel No.: 60





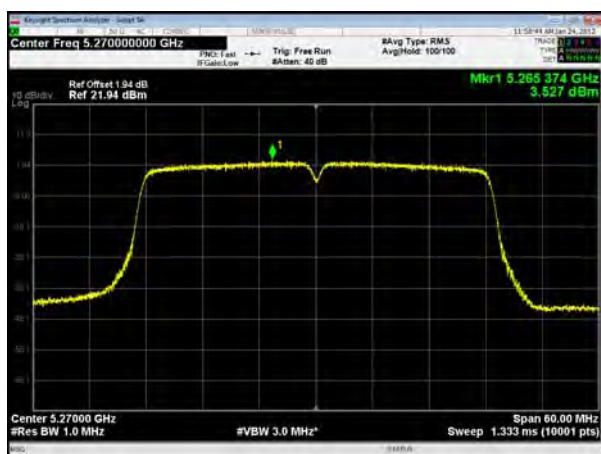
U-NII-2A, 802.11a, Channel No.: 64



U-NII-2A, 802.11n HT20, Channel No.: 64



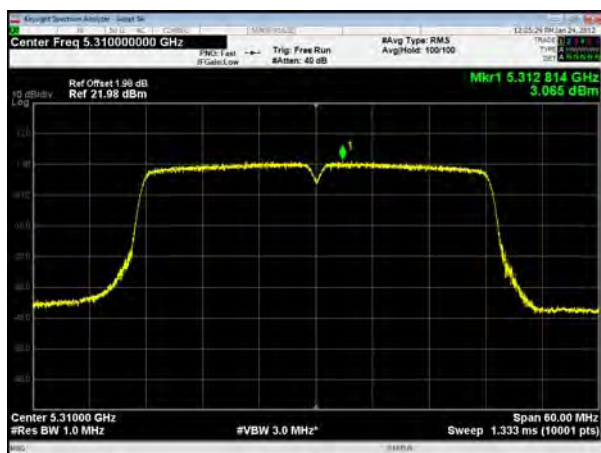
U-NII-2A, 802.11n HT40, Channel No.: 54



U-NII-2A, 802.11ac VHT20, Channel No.: 52



U-NII-2A, 802.11n HT40, Channel No.: 62

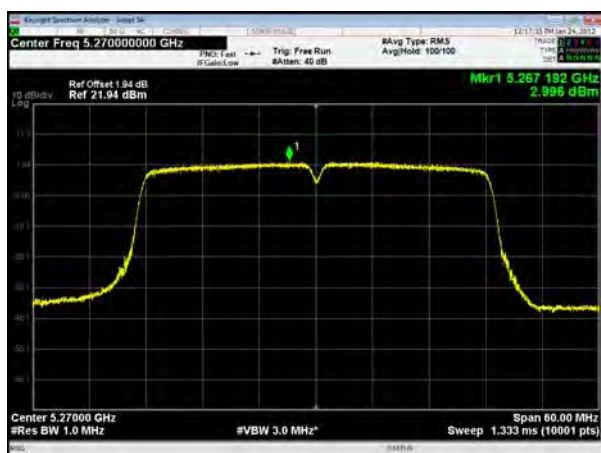


U-NII-2A, 802.11ac VHT20, Channel No.: 60





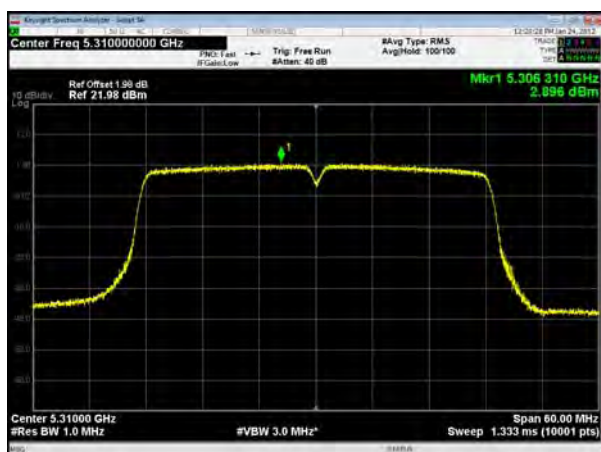
U-NII-2A, 802.11ac VHT40, Channel No.: 54



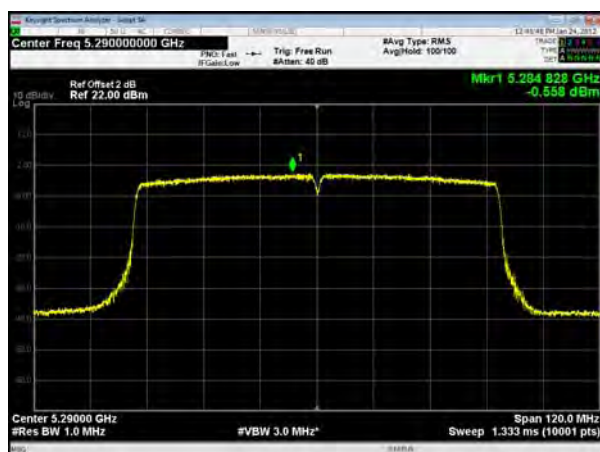
U-NII-2A, 802.11ac VHT20, Channel No.: 64



U-NII-2A, 802.11ac VHT40, Channel No.: 62



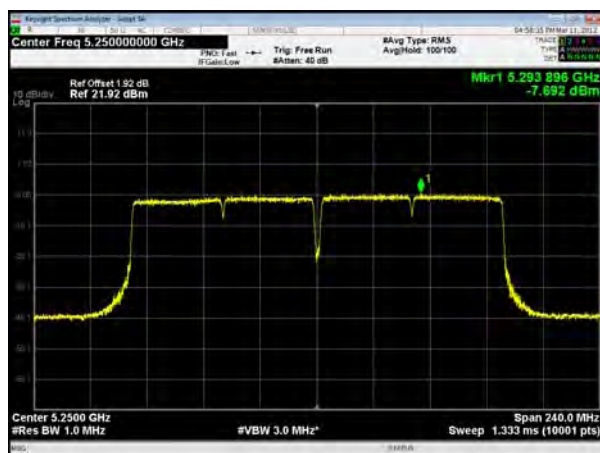
U-NII-2A, 802.11ac VHT80, Channel No.: 58



U-NII-2A, 802.11ax HE20, Channel No.: 52



U-NII-2A, 802.11ac VHT160, Channel No.: 50

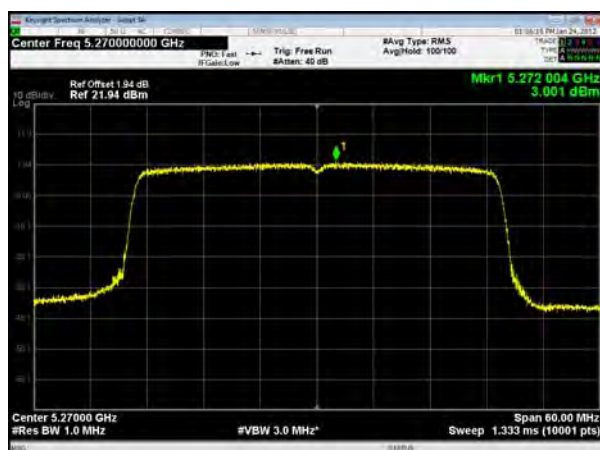




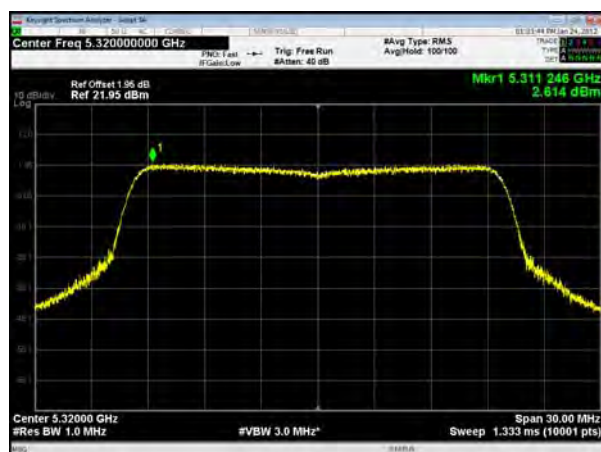
U-NII-2A, 802.11ax HE20, Channel No.: 60



U-NII-2A, 802.11ax HE40, Channel No.: 54



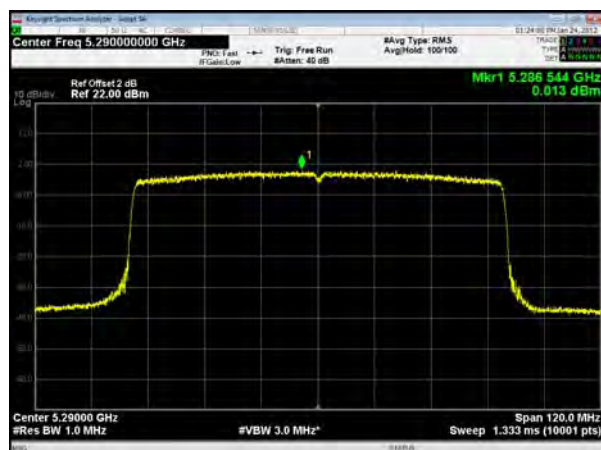
U-NII-2A, 802.11ax HE20, Channel No.: 64



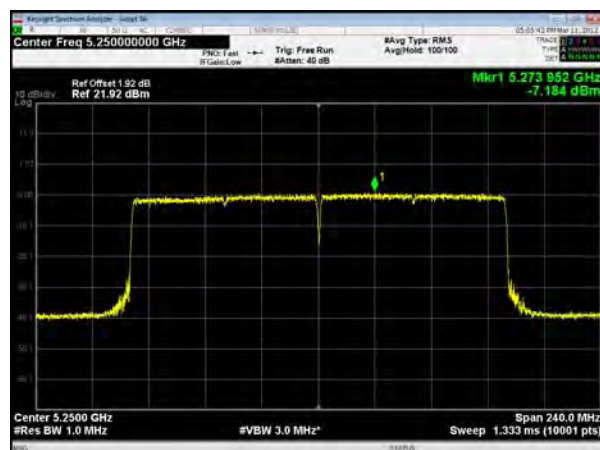
U-NII-2A, 802.11ax HE40, Channel No.: 62



U-NII-2A, 802.11ax HE80, Channel No.: 58



U-NII-2A, 802.11ax HE160, Channel No.: 50

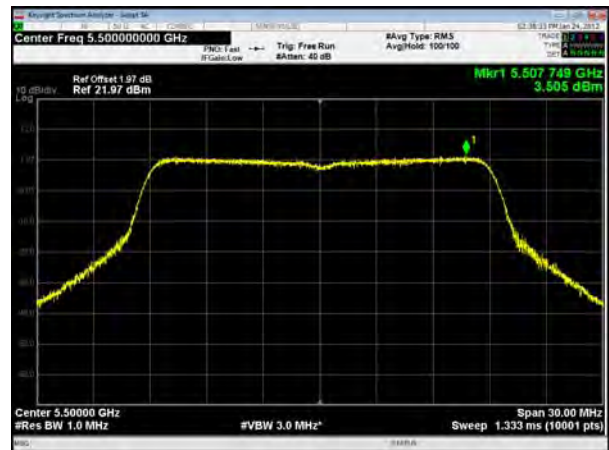




U-NII-2C, 802.11a, Channel No.: 100



U-NII-2C, 802.11n HT20, Channel No.: 100



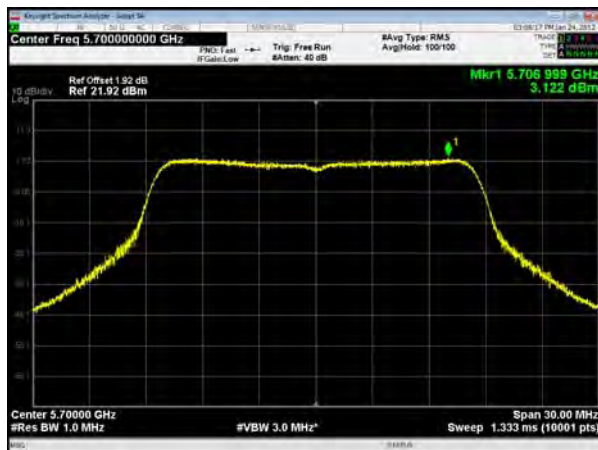
U-NII-2C, 802.11a, Channel No.: 120



U-NII-2C, 802.11n HT20, Channel No.: 120



U-NII-2C, 802.11a, Channel No.: 140

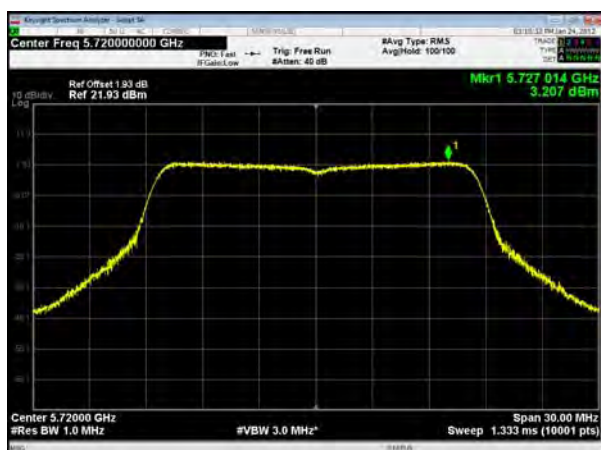


U-NII-2C, 802.11n HT20, Channel No.: 140

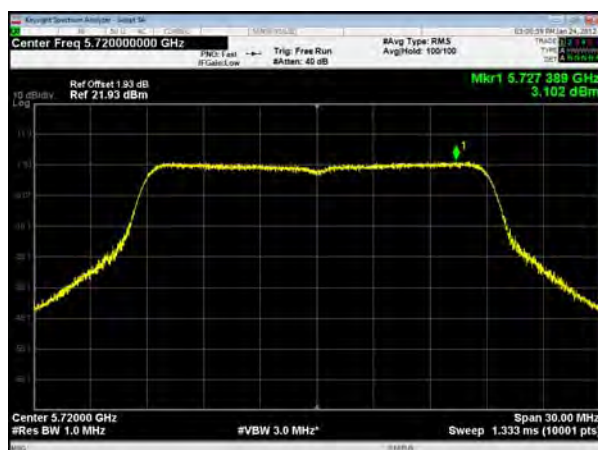




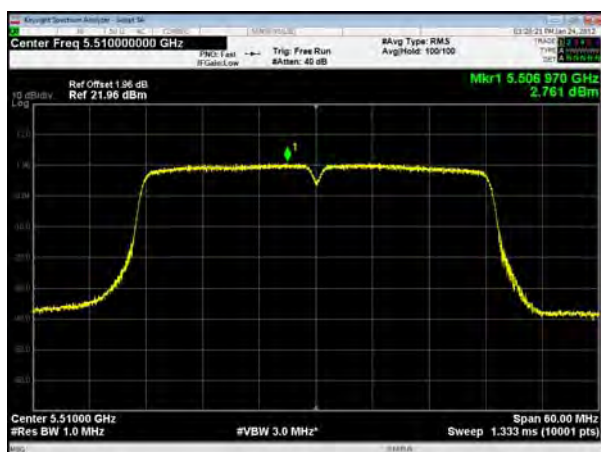
U-NII-2C, 802.11a, Channel No.: 144



U-NII-2C, 802.11n HT20, Channel No.: 144



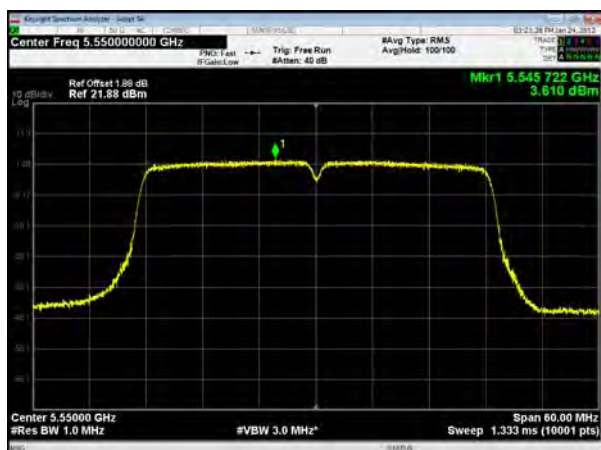
U-NII-2C, 802.11n HT40, Channel No.: 102



U-NII-2C, 802.11ac VHT20, Channel No.: 100



U-NII-2C, 802.11n HT40, Channel No.: 118

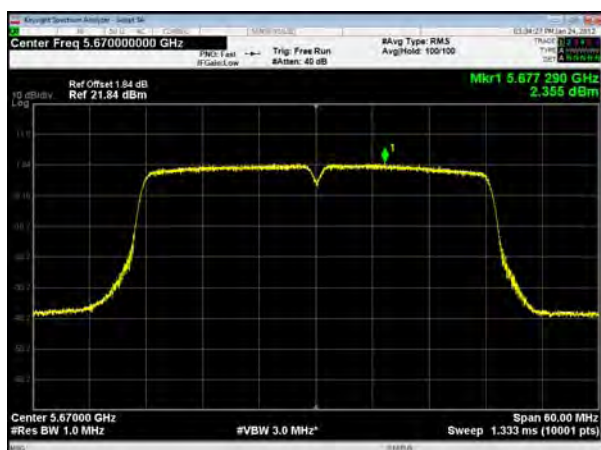


U-NII-2C, 802.11ac VHT20, Channel No.: 120





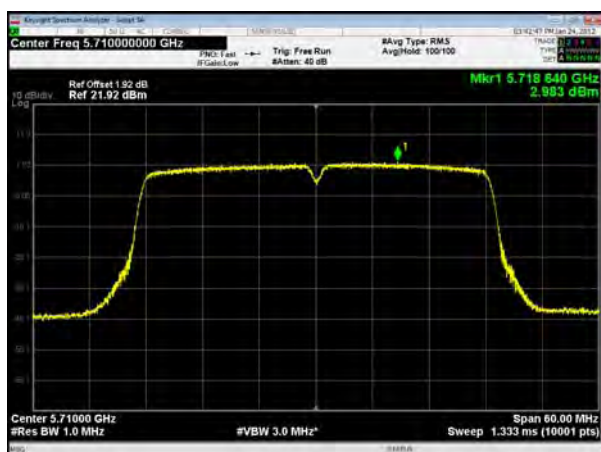
U-NII-2C, 802.11n HT40, Channel No.: 134



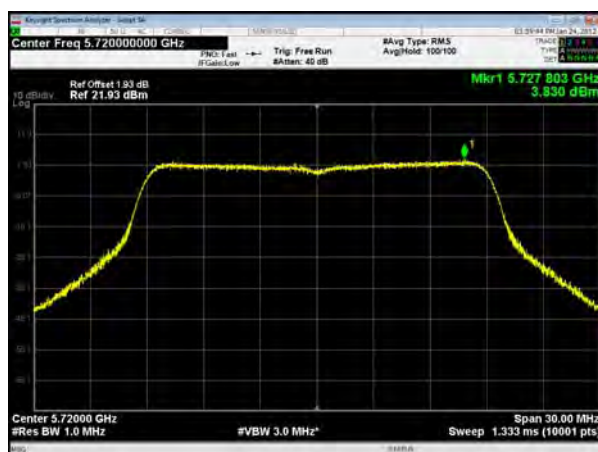
U-NII-2C, 802.11ac VHT20, Channel No.: 140



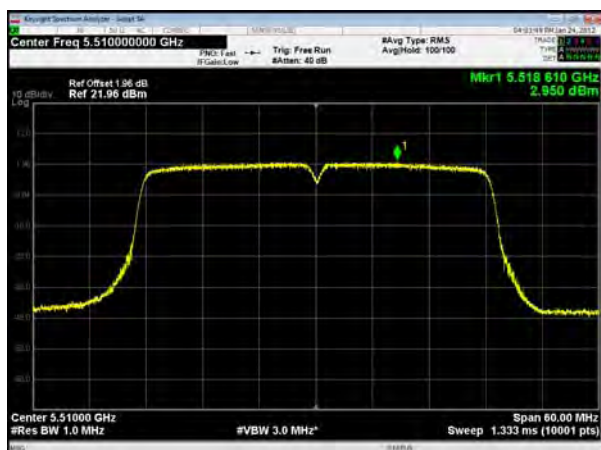
U-NII-2C, 802.11n HT40, Channel No.: 142



U-NII-2C, 802.11ac VHT20, Channel No.: 144



U-NII-2C, 802.11ac VHT40, Channel No.: 102

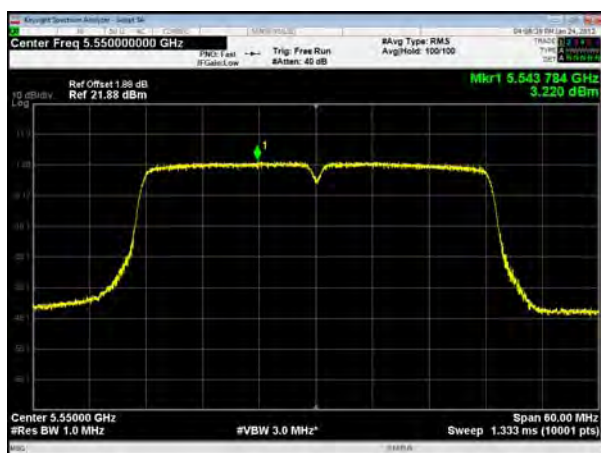


U-NII-2C, 802.11ac VHT80, Channel No.: 106





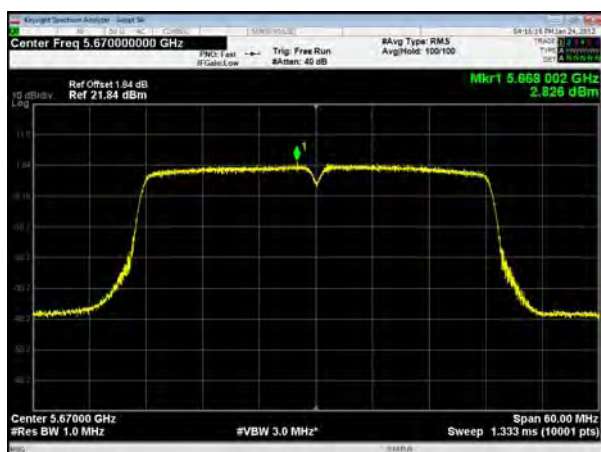
U-NII-2C, 802.11ac VHT40, Channel No.: 118



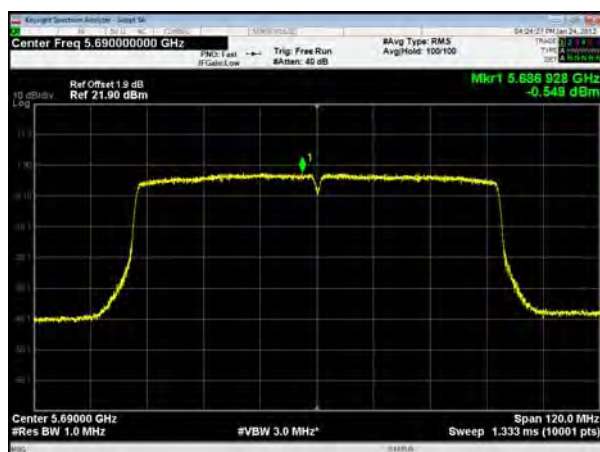
U-NII-2C, 802.11ac VHT80, Channel No.: 122



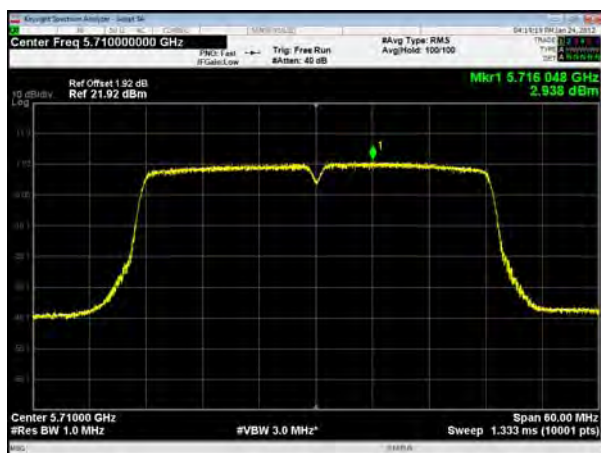
U-NII-2C, 802.11ac VHT40, Channel No.: 134



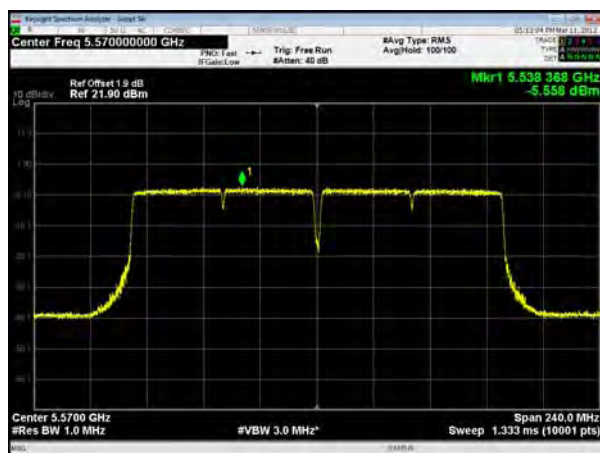
U-NII-2C, 802.11ac VHT80, Channel No.: 138



U-NII-2C, 802.11ac VHT40, Channel No.: 142

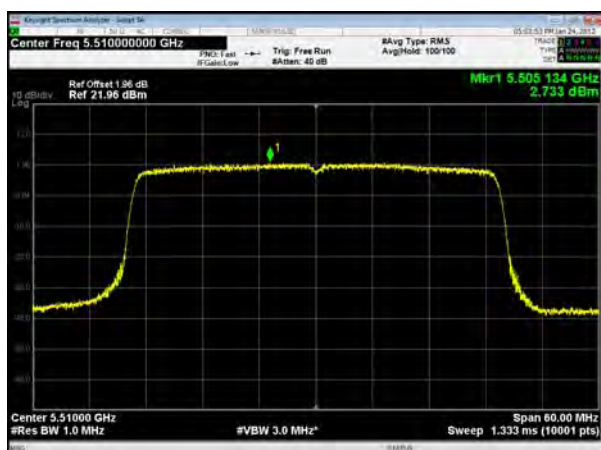


U-NII-2C, 802.11ac VHT160, Channel No.: 114





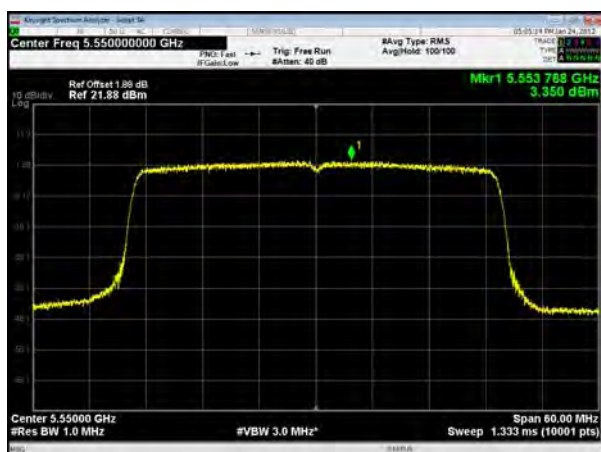
U-NII-2C, 802.11ax HE40, Channel No.: 102



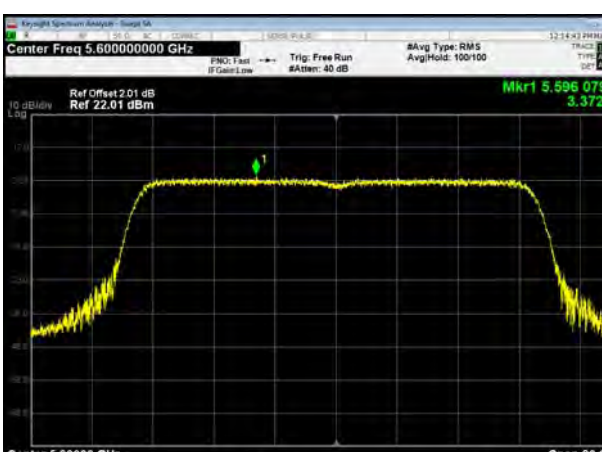
U-NII-2C, 802.11ax HE20, Channel No.: 100



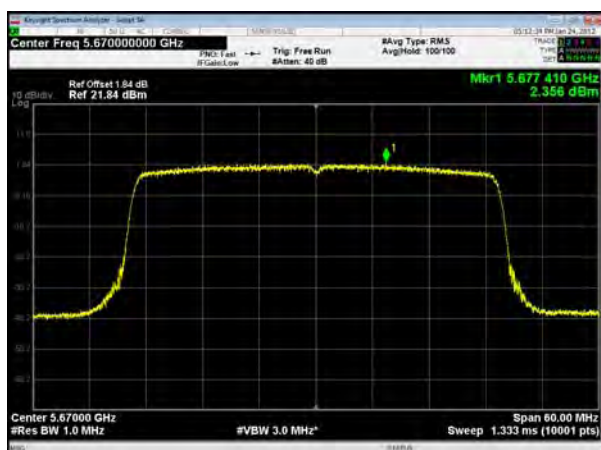
U-NII-2C, 802.11ax HE40, Channel No.: 118



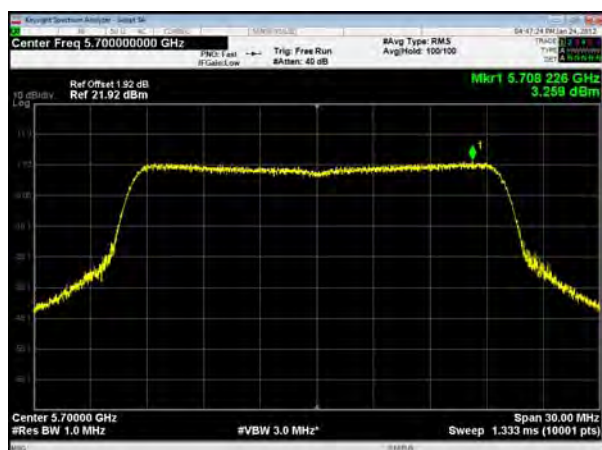
U-NII-2C, 802.11ax HE20, Channel No.: 120



U-NII-2C, 802.11ax HE40, Channel No.: 134



U-NII-2C, 802.11ax HE20, Channel No.: 140

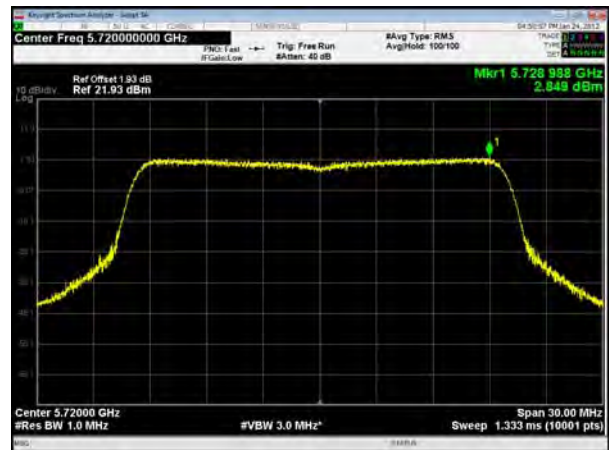




U-NII-2C, 802.11ax HE40, Channel No.: 142



U-NII-2C, 802.11ax HE20, Channel No.: 144



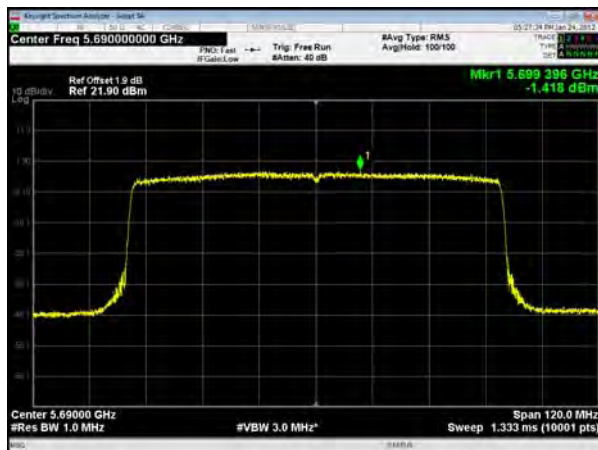
U-NII-2C, 802.11ax HE80, Channel No.: 106



U-NII-2C, 802.11ax HE80, Channel No.: 122



U-NII-2C, 802.11ax HE80, Channel No.: 138



U-NII-2C, 802.11ax HE160, Channel No.: 114





U-NII-3, 802.11a, Channel No.: 149



U-NII-3, 802.11n HT20, Channel No.: 149



U-NII-3, 802.11a, Channel No.: 157



U-NII-3, 802.11n HT20, Channel No.: 157



U-NII-3, 802.11a, Channel No.: 165

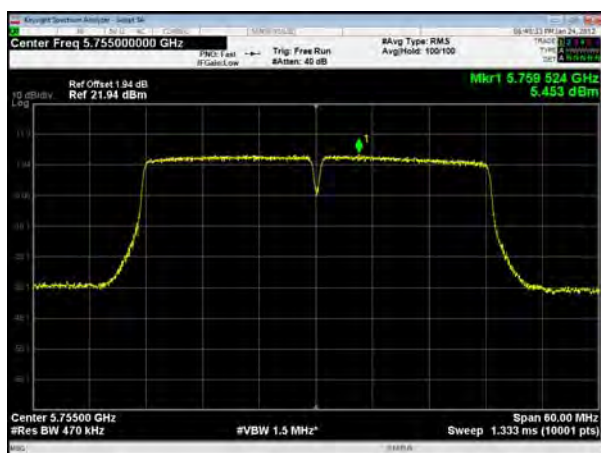


U-NII-3, 802.11n HT20, Channel No.: 165

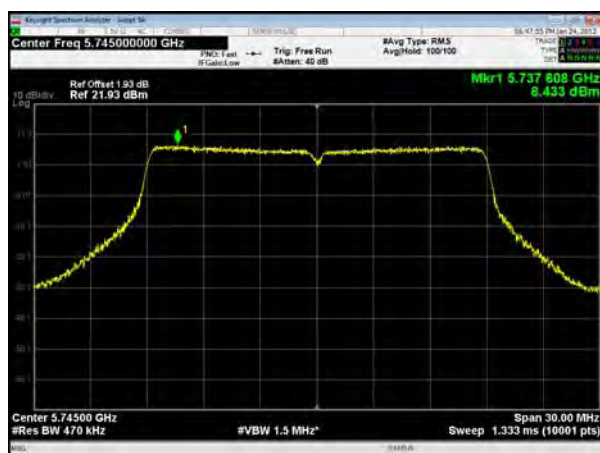




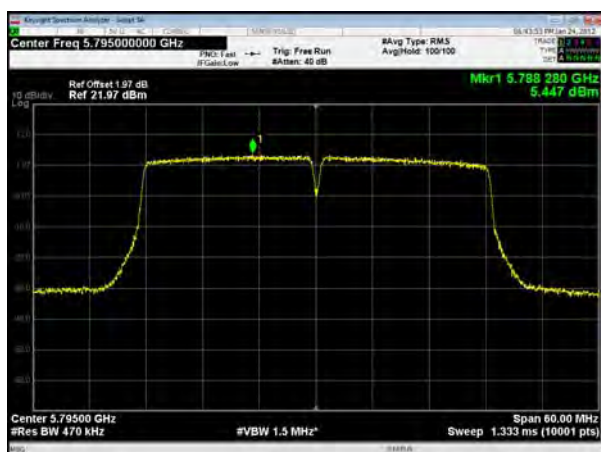
U-NII-3, 802.11n HT40, Channel No.: 151



U-NII-3, 802.11ac VHT20, Channel No.: 149



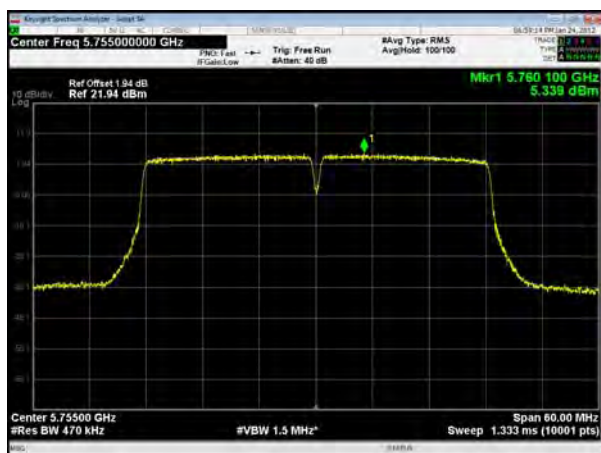
U-NII-3, 802.11n HT40, Channel No.: 159



U-NII-3, 802.11ac VHT20, Channel No.: 157



U-NII-3, 802.11ac VHT40, Channel No.: 151

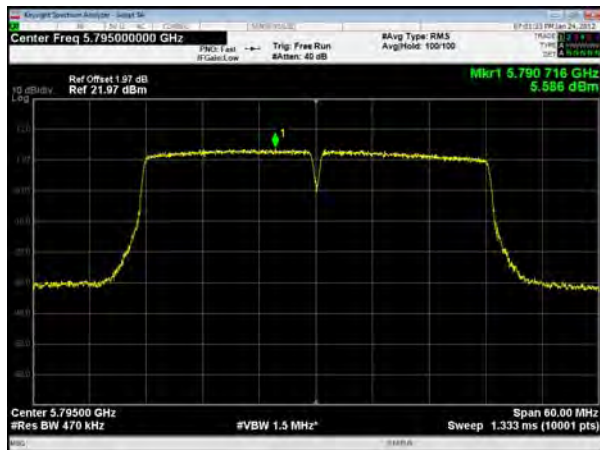


U-NII-3, 802.11ac VHT20, Channel No.: 165

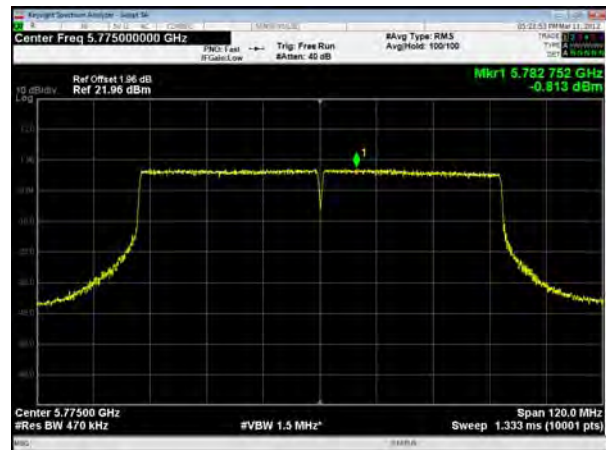




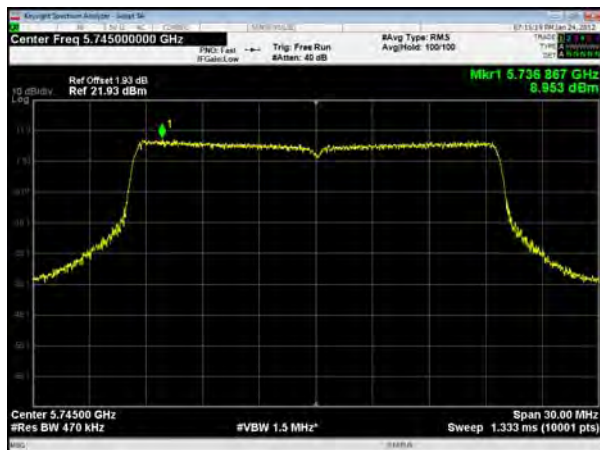
U-NII-3, 802.11ac VHT40, Channel No.: 159



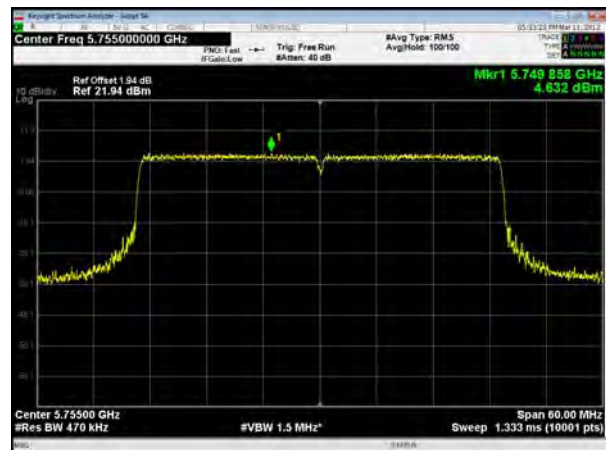
U-NII-3, 802.11ac VHT80, Channel No.: 155



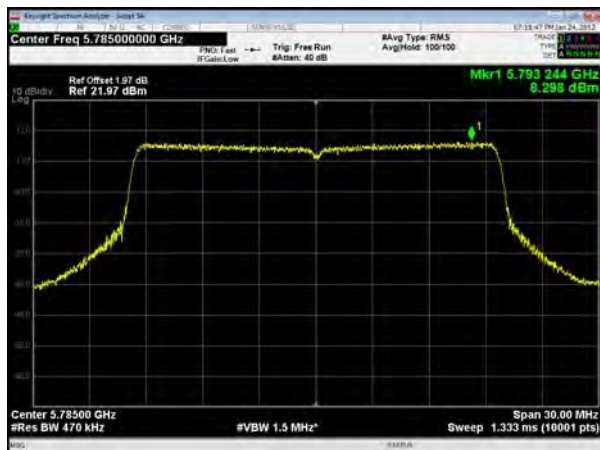
U-NII-3, 802.11ax HE20, Channel No.: 149



U-NII-3, 802.11ax HE40, Channel No.: 151



U-NII-3, 802.11ax HE20, Channel No.: 157

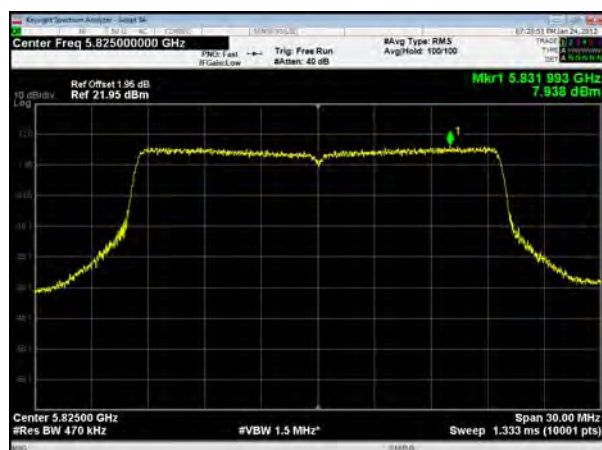


U-NII-3, 802.11ax HE40, Channel No.: 159

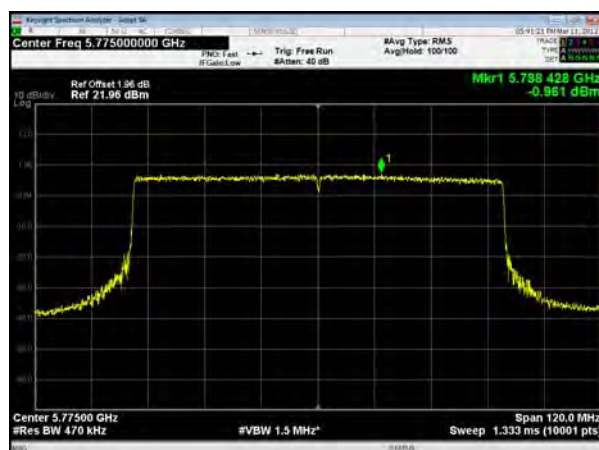




U-NII-3, 802.11ax HE20, Channel No.: 165



U-NII-3, 802.11ax HE80, Channel No.: 155



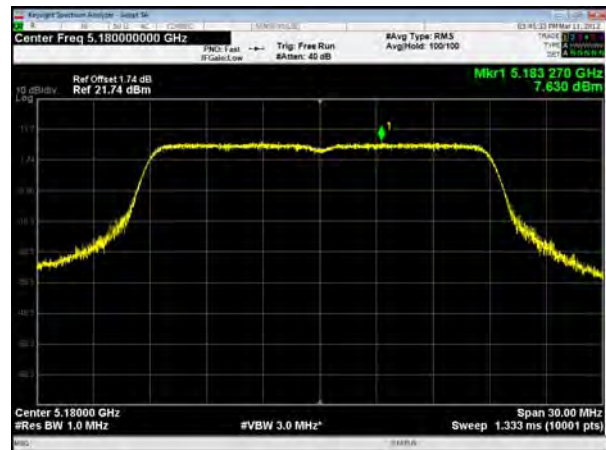


## Antenna 3

U-NII-1, 802.11a, Channel No.: 36



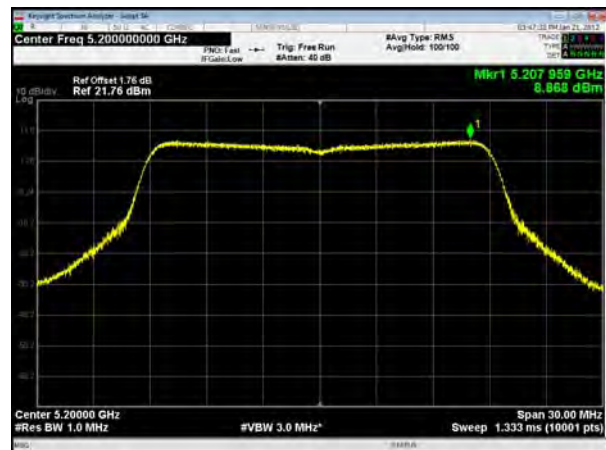
U-NII-1, 802.11n HT20, Channel No.: 36



U-NII-1, 802.11a, Channel No.: 40



U-NII-1, 802.11n HT20, Channel No.: 40



U-NII-1, 802.11a, Channel No.: 48



U-NII-1, 802.11n HT20, Channel No.: 48





U-NII-1, 802.11n HT40, Channel No.: 38



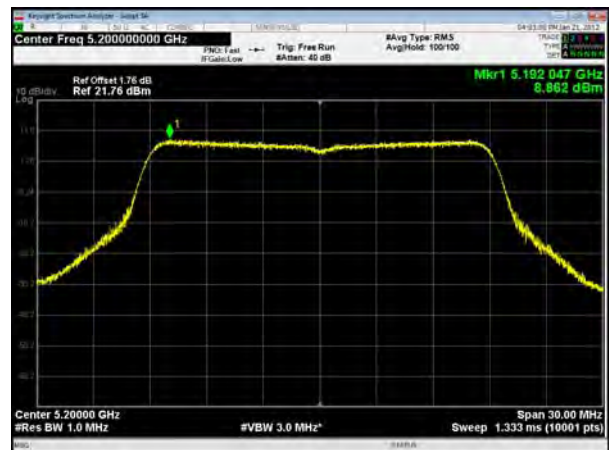
U-NII-1, 802.11ac VHT20, Channel No.: 36



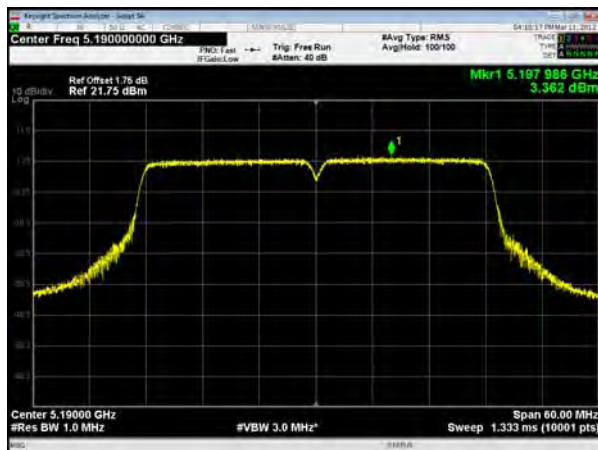
U-NII-1, 802.11n HT40, Channel No.: 46



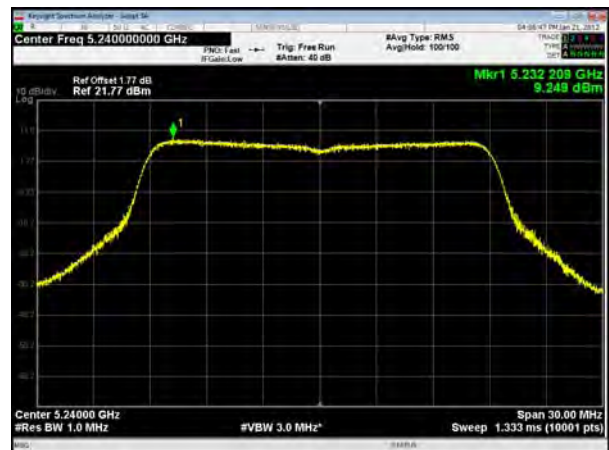
U-NII-1, 802.11ac VHT20, Channel No.: 40



U-NII-1, 802.11ac VHT40, Channel No.: 38



U-NII-1, 802.11ac VHT20, Channel No.: 48





U-NII-1, 802.11ac VHT40, Channel No.: 46



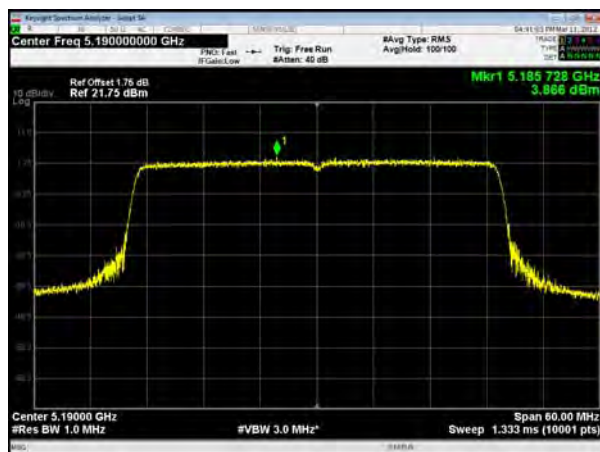
U-NII-1, 802.11ac VHT80, Channel No.: 42



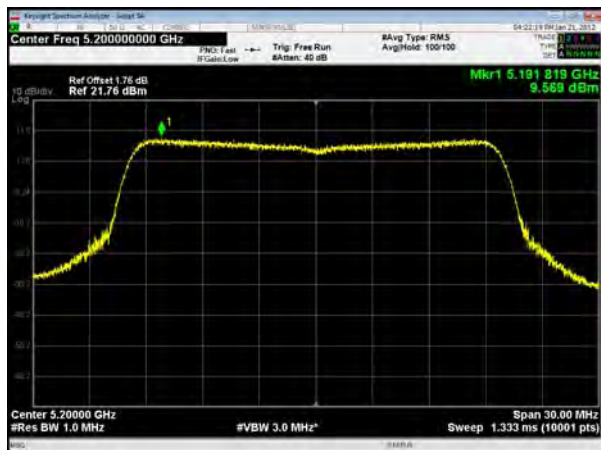
U-NII-1, 802.11ax HE20, Channel No.: 36



U-NII-1, 802.11ax HE40, Channel No.: 38



U-NII-1, 802.11ax HE20, Channel No.: 40



U-NII-1, 802.11ax HE40, Channel No.: 46

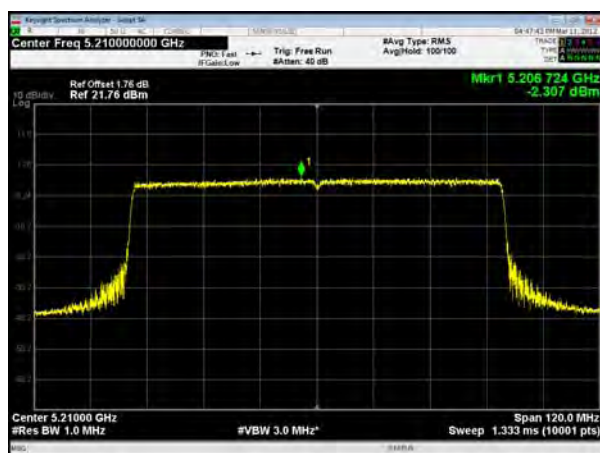




U-NII-1, 802.11ax HE20, Channel No.: 48



U-NII-1, 802.11ax HE80, Channel No.: 42



U-NII-2A, 802.11a, Channel No.: 52



U-NII-2A, 802.11n HT20, Channel No.: 52



U-NII-2A, 802.11a, Channel No.: 60



U-NII-2A, 802.11n HT20, Channel No.: 60





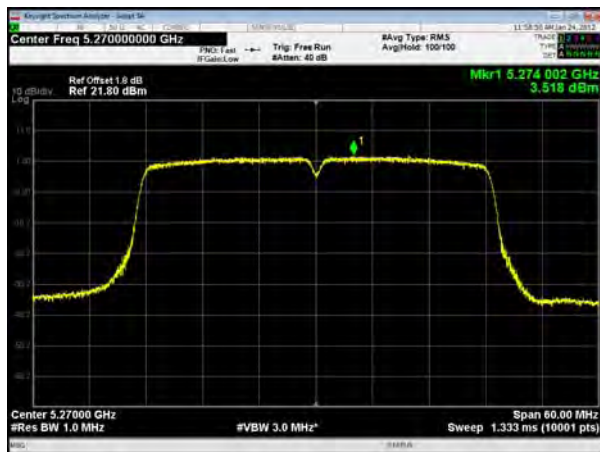
U-NII-2A, 802.11a, Channel No.: 64



U-NII-2A, 802.11n HT20, Channel No.: 64



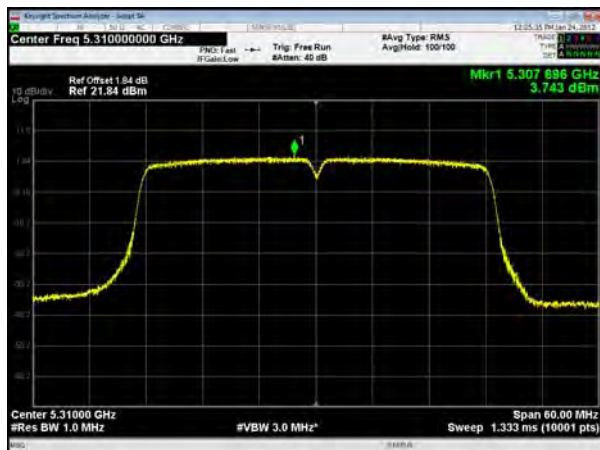
U-NII-2A, 802.11n HT40, Channel No.: 54



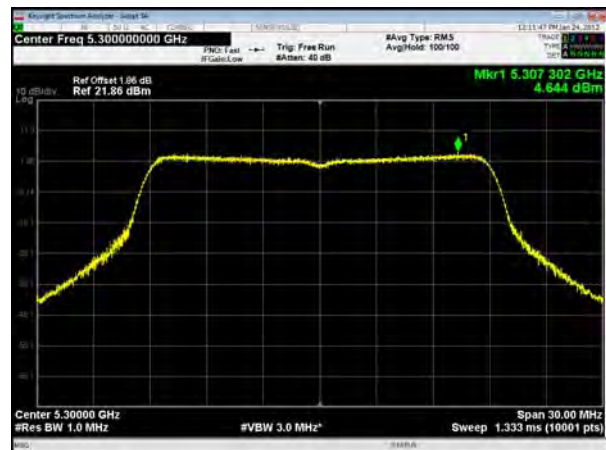
U-NII-2A, 802.11ac VHT20, Channel No.: 52



U-NII-2A, 802.11n HT40, Channel No.: 62

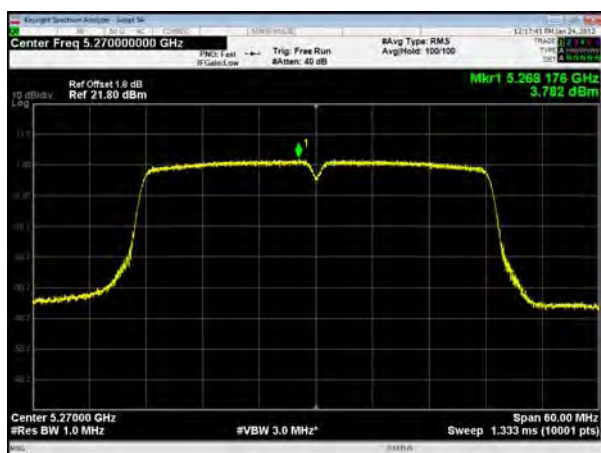


U-NII-2A, 802.11ac VHT20, Channel No.: 60





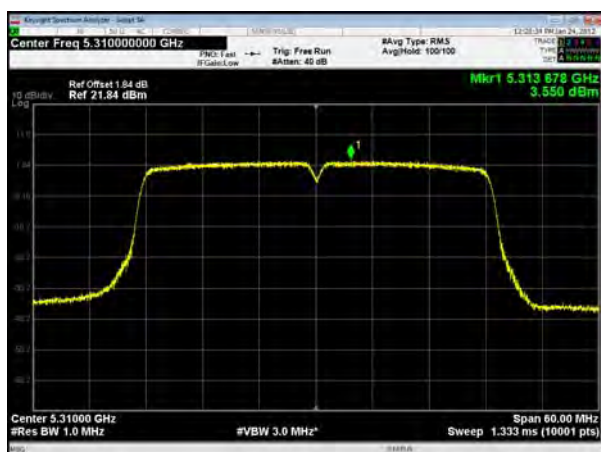
U-NII-2A, 802.11ac VHT40, Channel No.: 54



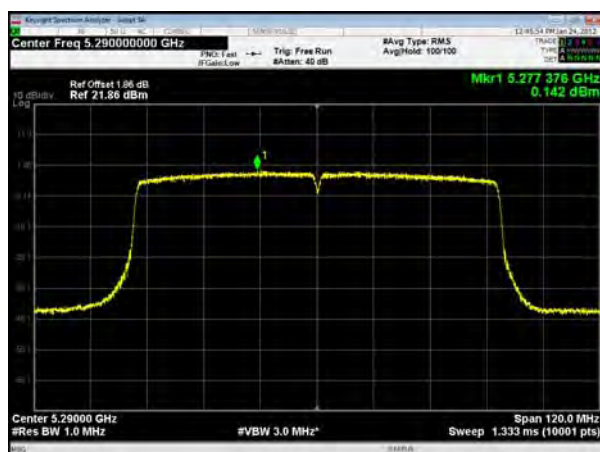
U-NII-2A, 802.11ac VHT20, Channel No.: 64



U-NII-2A, 802.11ac VHT40, Channel No.: 62



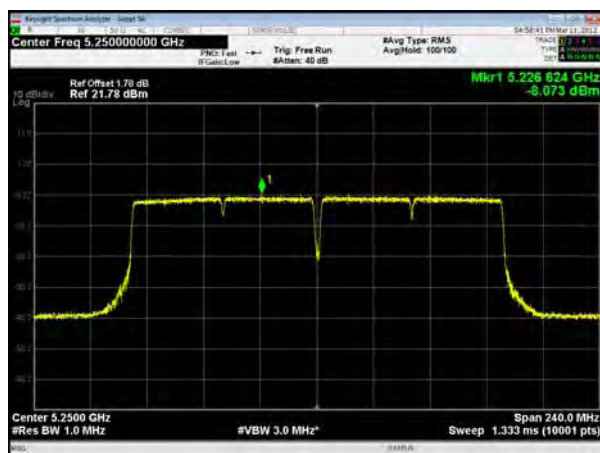
U-NII-2A, 802.11ac VHT80, Channel No.: 58



U-NII-2A, 802.11ax HE20, Channel No.: 52

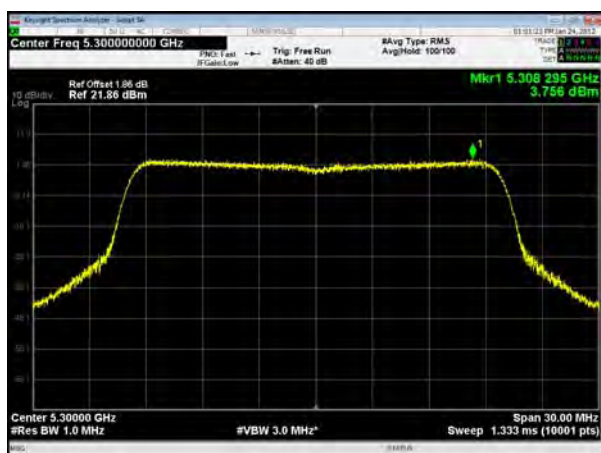


U-NII-2A, 802.11ac VHT160, Channel No.: 50

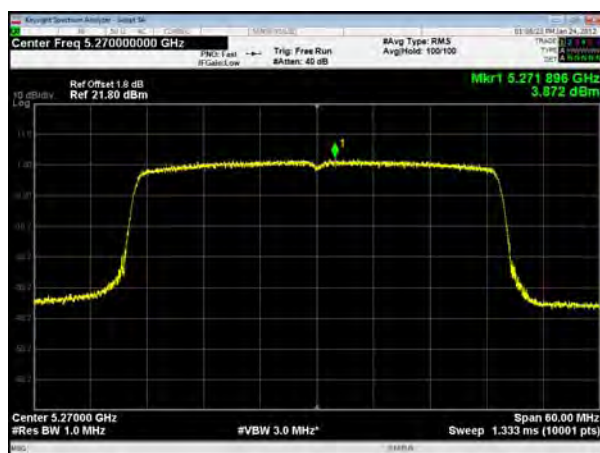




U-NII-2A, 802.11ax HE20, Channel No.: 60



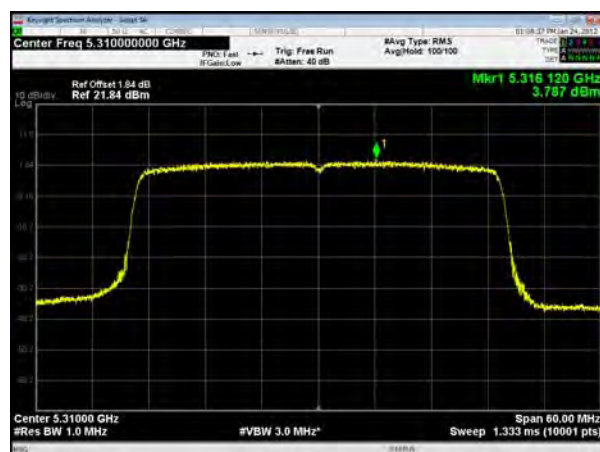
U-NII-2A, 802.11ax HE40, Channel No.: 54



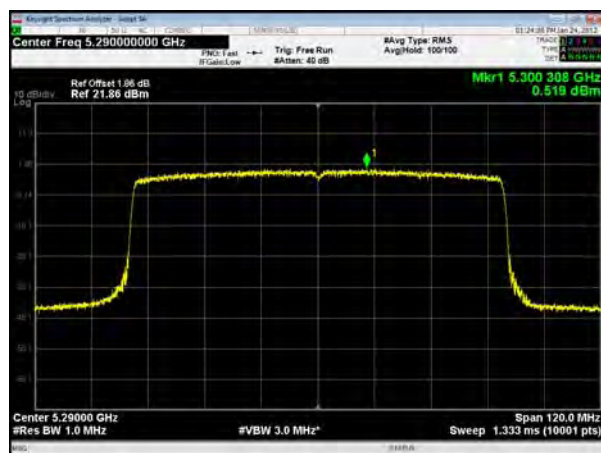
U-NII-2A, 802.11ax HE20, Channel No.: 64



U-NII-2A, 802.11ax HE40, Channel No.: 62



U-NII-2A, 802.11ax HE80, Channel No.: 58



U-NII-2A, 802.11ax HE160, Channel No.: 50





U-NII-2C, 802.11a, Channel No.: 100



U-NII-2C, 802.11n HT20, Channel No.: 100



U-NII-2C, 802.11a, Channel No.: 120



U-NII-2C, 802.11n HT20, Channel No.: 120



U-NII-2C, 802.11a, Channel No.: 140

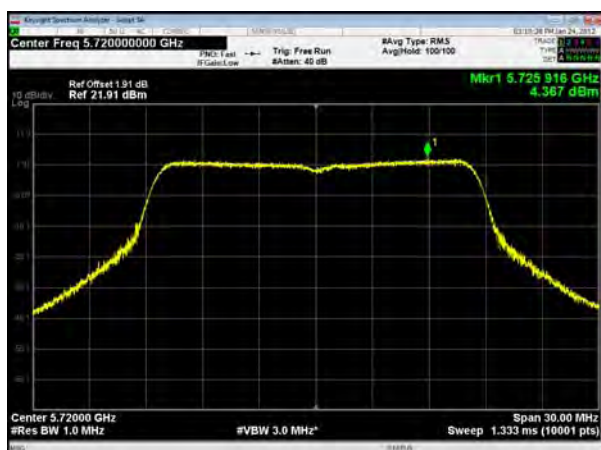


U-NII-2C, 802.11n HT20, Channel No.: 140

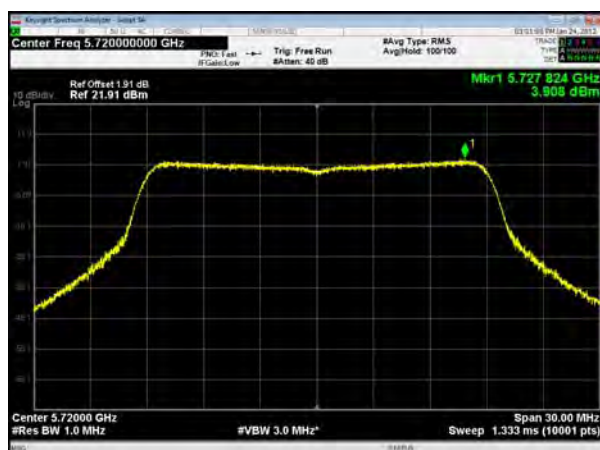




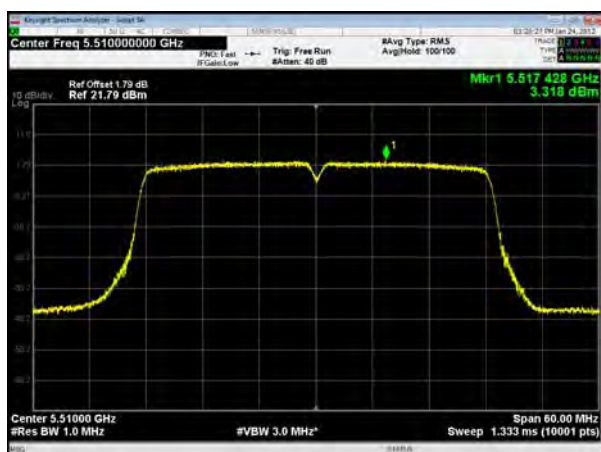
U-NII-2C, 802.11a, Channel No.: 144



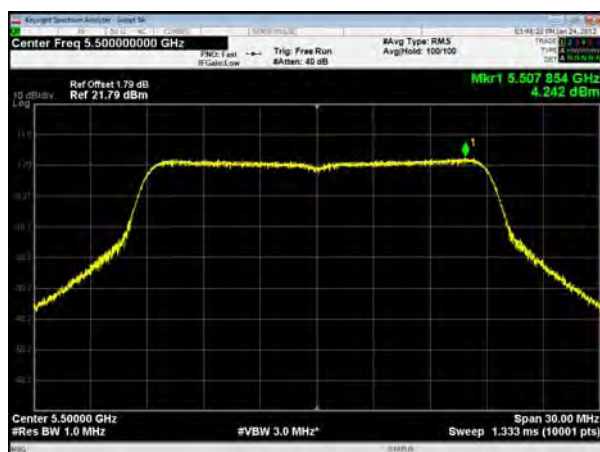
U-NII-2C, 802.11n HT20, Channel No.: 144



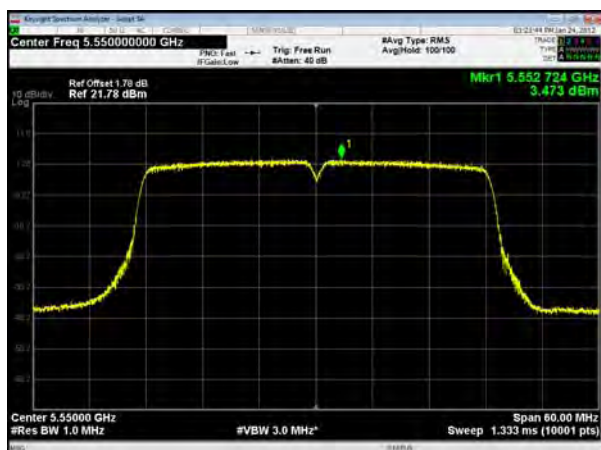
U-NII-2C, 802.11n HT40, Channel No.: 102



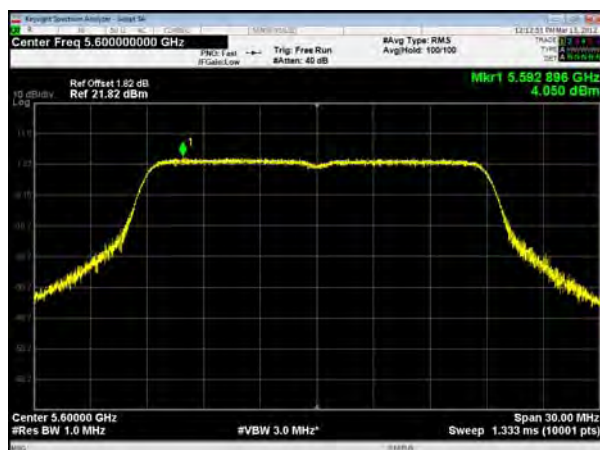
U-NII-2C, 802.11ac VHT20, Channel No.: 100



U-NII-2C, 802.11n HT40, Channel No.: 118

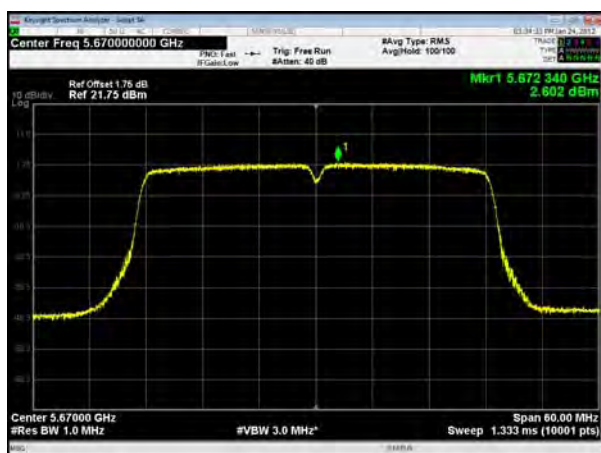


U-NII-2C, 802.11ac VHT20, Channel No.: 120

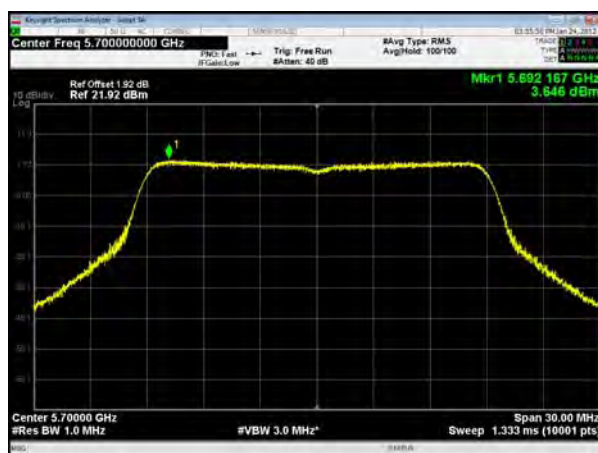




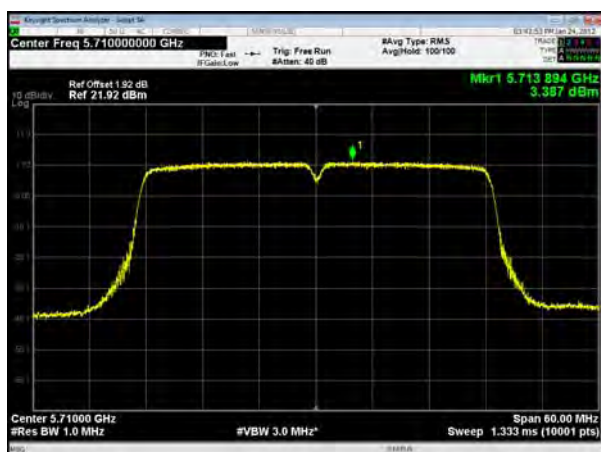
U-NII-2C, 802.11n HT40, Channel No.: 134



U-NII-2C, 802.11ac VHT20, Channel No.: 140



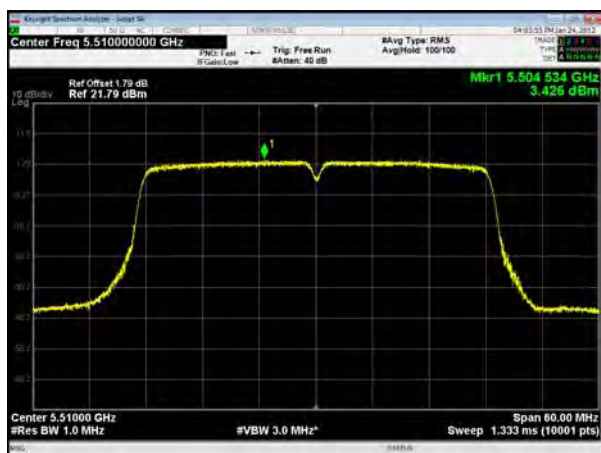
U-NII-2C, 802.11n HT40, Channel No.: 142



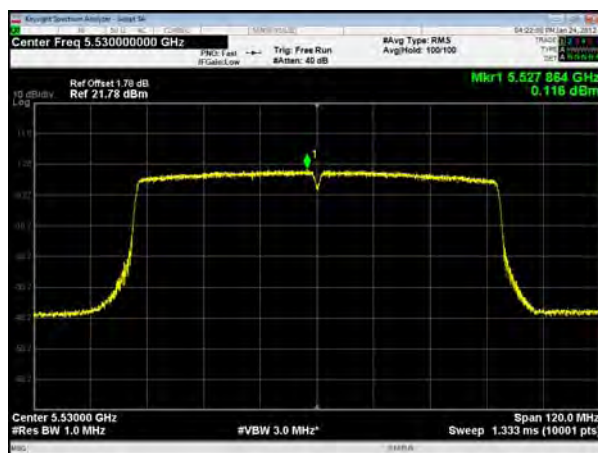
U-NII-2C, 802.11ac VHT20, Channel No.: 144



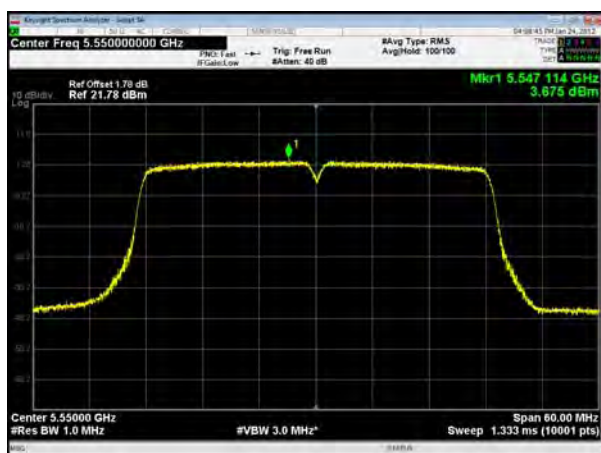
U-NII-2C, 802.11ac VHT40, Channel No.: 102



U-NII-2C, 802.11ac VHT80, Channel No.: 106



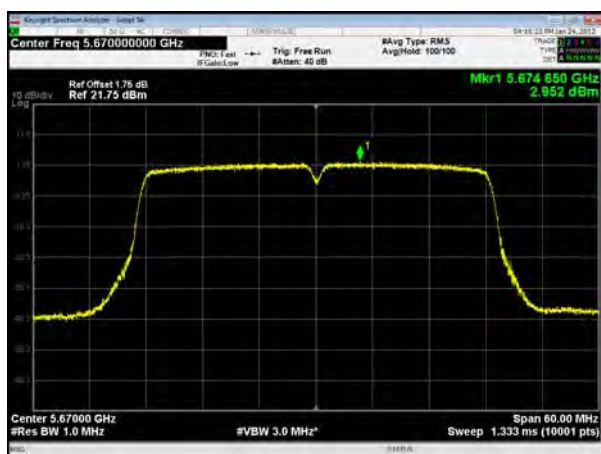
U-NII-2C, 802.11ac VHT40, Channel No.: 118



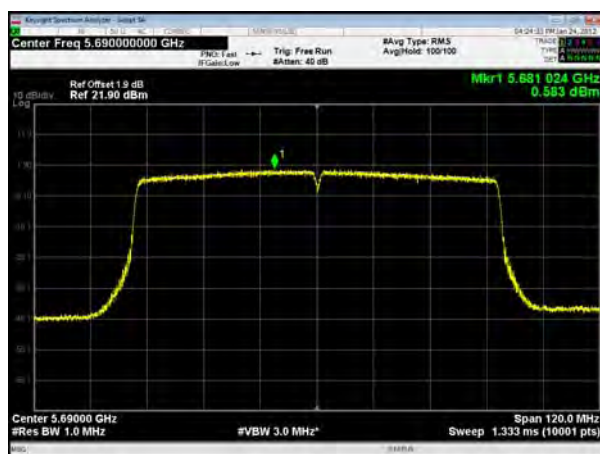
U-NII-2C, 802.11ac VHT80, Channel No.: 122



U-NII-2C, 802.11ac VHT40, Channel No.: 134



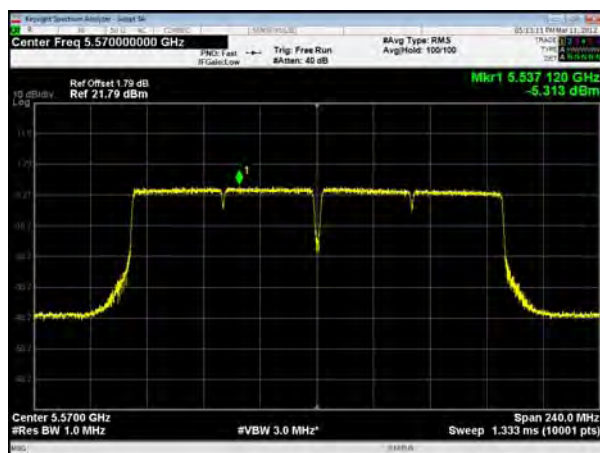
U-NII-2C, 802.11ac VHT80, Channel No.: 138



U-NII-2C, 802.11ac VHT40, Channel No.: 142

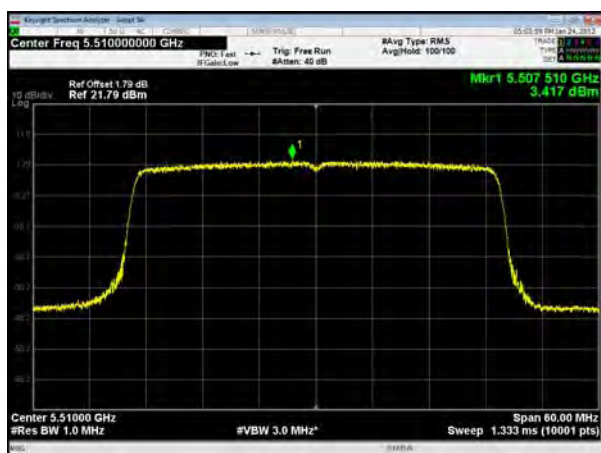


U-NII-2C, 802.11ac VHT160, Channel No.: 114

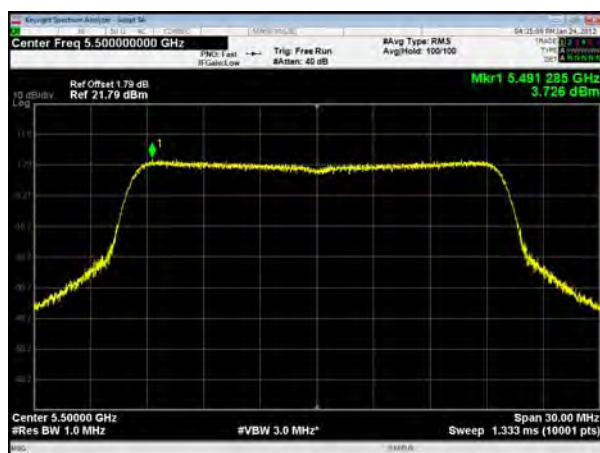




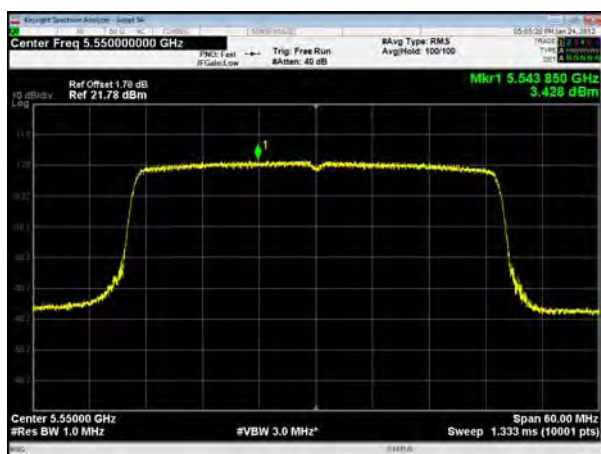
U-NII-2C, 802.11ax HE40, Channel No.: 102



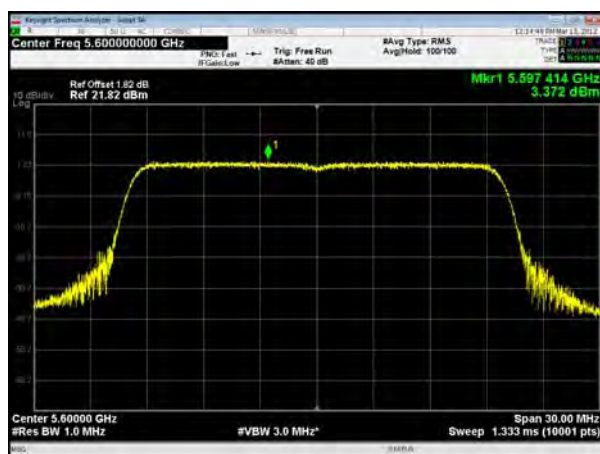
U-NII-2C, 802.11ax HE20, Channel No.: 100



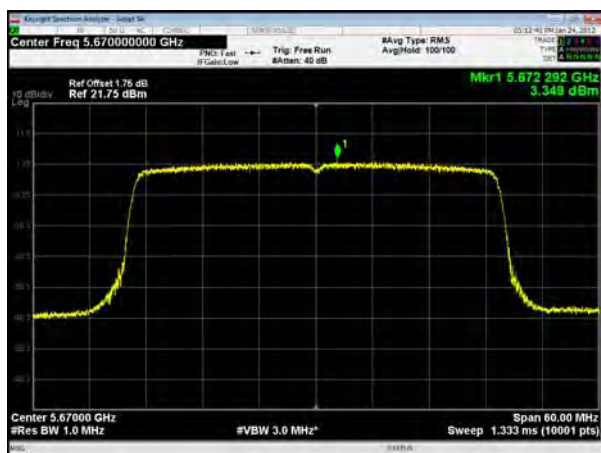
U-NII-2C, 802.11ax HE40, Channel No.: 118



U-NII-2C, 802.11ax HE20, Channel No.: 120



U-NII-2C, 802.11ax HE40, Channel No.: 134

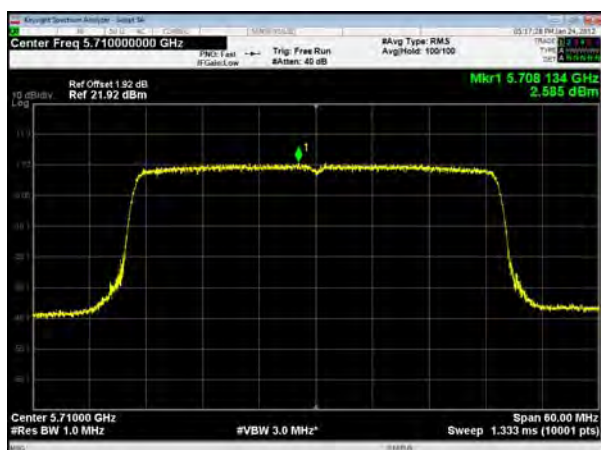


U-NII-2C, 802.11ax HE20, Channel No.: 140





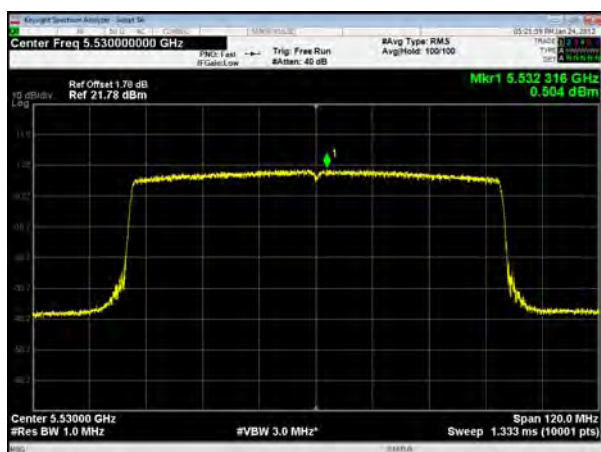
U-NII-2C, 802.11ax HE40, Channel No.: 142



U-NII-2C, 802.11ax HE20, Channel No.: 144



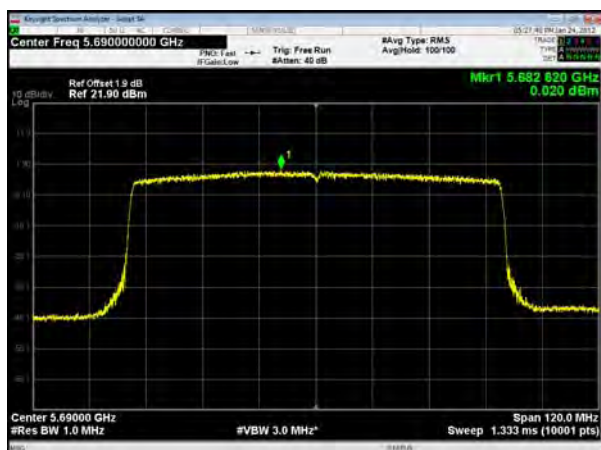
U-NII-2C, 802.11ax HE80, Channel No.: 106



U-NII-2C, 802.11ax HE80, Channel No.: 122



U-NII-2C, 802.11ax HE80, Channel No.: 138



U-NII-2C, 802.11ax HE160, Channel No.: 114

