

Report on the FCC and ISED Testing of:  
 Apple Inc. Model: A2159  
 In accordance with FCC 47 CFR Part 15E and Industry  
 Canada RSS-247 and Industry Canada RSS-GEN

Prepared for: Apple Inc.  
 One Apple Park Way  
 Cupertino, California 95014, USA

FCC ID: BCGA2159

ISED: 579C-A2159



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## COMMERCIAL-IN-CONFIDENCE

Document Number: 75945152-13 | Issue: 01

### SIGNATURE

| NAME            | JOB TITLE      | RESPONSIBLE FOR      | ISSUE DATE  |
|-----------------|----------------|----------------------|-------------|
| Matthew Russell | RF Team Leader | Authorised Signatory | 14 May 2019 |

Signatures in this approval box have checked this document in line with the requirements of TÜV SÜD document control rules.

### ENGINEERING STATEMENT

The measurements shown in this report were made in accordance with the procedures described on test pages. All reported testing was carried out on a sample equipment to demonstrate limited compliance with FCC 47 CFR Part 15E and Industry Canada RSS-247 and Industry Canada RSS-GEN. The sample tested was found to comply with the requirements defined in the applied rules.

### SIGNATURE

| NAME                            | JOB TITLE            | RESPONSIBLE FOR | ISSUE DATE  |
|---------------------------------|----------------------|-----------------|-------------|
| Philip Harrison                 | Senior Engineer      | Testing         | 14 May 2019 |
| Mehadi Choudhury                | Engineer             | Testing         | 14 May 2019 |
| George Porter / Daniel Bishop   | Assistant Engineer's | Testing         | 14 May 2019 |
| Cristian Onaca / Malik Mohammed | Shift Technician's   | Testing         | 14 May 2019 |
| Jay Balendrarajah               | Shift Technician     | Testing         | 14 May 2019 |

FCC Accreditation

90987 Octagon House, Fareham Test Laboratory

Industry Canada Accreditation

IC2932B-1 Octagon House, Fareham Test Laboratory

### EXECUTIVE SUMMARY

A sample of this product was tested and found to be compliant with FCC 47 CFR Part 15E: 2017, Industry Canada RSS-247: Issue 2 (2017-02) and Industry Canada RSS-GEN: Issue 5 (2018-04).



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# 1 Report Summary

## 1.1 Report Modification Record

Alterations and additions to this report will be issued to the holders of each copy in the form of a complete document.

| Issue | Description of Change | Date of Issue |
|-------|-----------------------|---------------|
| 1     | First Issue           | 14 May 2019   |

**Table 1**

## 1.2 Introduction

|                               |                                                                                                                       |
|-------------------------------|-----------------------------------------------------------------------------------------------------------------------|
| Applicant                     | Apple Inc                                                                                                             |
| Manufacturer                  | Apple Inc                                                                                                             |
| Model Number(s)               | A2159                                                                                                                 |
| Serial Number(s)              | C02Y4006L59F, C02Y3009L5C1, C02XR00DL54Y                                                                              |
| Hardware Version(s)           | REV 1.0                                                                                                               |
| Software Version(s)           | 18F65, 18F33                                                                                                          |
| Number of Samples Tested      | 3                                                                                                                     |
| Test Specification/Issue/Date | FCC 47 CFR Part 15E: 2017<br>Industry Canada RSS-247: Issue 2 (2017-02)<br>Industry Canada RSS-GEN: Issue 5 (2018-04) |
| Order Number                  | 0540175066                                                                                                            |
| Date                          | 21-February-2019                                                                                                      |
| Date of Receipt of EUT        | 06-February-2019                                                                                                      |
| Start of Test                 | 06-February-2019                                                                                                      |
| Finish of Test                | 09-May-2019                                                                                                           |
| Name of Engineer(s)           | Philip Harrison, Malik Mohammed, George Porter,<br>Cristian Onaca, Jay Balendrarajah, Daniel Bishop.                  |
| Related Document(s)           | ANSI C63.10 (2013)<br>KDB 662911 D01 v02r02<br>KDB 789033 D02 v02r01<br>KDB 905462 D02 v02<br>KDB 905462 D03 V01r02   |



### 1.3 Brief Summary of Results

A brief summary of the tests carried out in accordance with FCC 47 CFR Part 15E and Industry Canada RSS-247 and Industry Canada RSS-GEN is shown below.

| Section                               | Specification Clause      |                 |         | Test Description                                                                   | Result | Comments/Base Standard             |
|---------------------------------------|---------------------------|-----------------|---------|------------------------------------------------------------------------------------|--------|------------------------------------|
|                                       | Part 15E                  | RSS-247         | RSS-GEN |                                                                                    |        |                                    |
| Configuration and Mode: 802.11 a/n/ac |                           |                 |         |                                                                                    |        |                                    |
| 2.1                                   | 15.407 (a)                | 6.2             | 6.12    | Maximum Conducted Output Power                                                     | Pass   | ANSI C63.10 (2013), KDB 662911 D01 |
| 2.2                                   | 15.407 (a)                | 6.2             | -       | Maximum Conducted Power Spectral Density                                           | Pass   | ANSI C63.10 (2013), KDB 662911 D01 |
| 2.3                                   | 15.407 (a)(e)             | 6.2             | 6.7     | Emission Bandwidth                                                                 | Pass   | ANSI C63.10 (2013)                 |
| 2.4                                   | 15.407 (b)                | 6.2             | -       | Authorised Band Edges                                                              | Pass   | ANSI C63.10 (2013)                 |
| 2.5                                   | 15.407 (b),<br>15.205     | 6.2             | 6.13    | Spurious Radiated Emissions                                                        | Pass   | ANSI C63.10 (2013)                 |
| 2.6                                   | 15.205                    | -               | 8.10    | Restricted Band Edges                                                              | Pass   | ANSI C63.10 (2013)                 |
| 2.7                                   | 15.407(h)(2)(iii)<br>(iv) | 6.3.2 (c)(d)(e) | -       | Channel Move Time, Channel Closing Transmis-<br>sion Time and Non-Occupancy Period | Pass   | KDB 905462 D02                     |

**Table 2**



## 1.4 Product Information

### 1.4.1 Technical Description

The Equipment Under Test (EUT) was a laptop computer with Bluetooth, Bluetooth Low Energy and 802.11 a/b/g/n/ac capabilities in the 2.4 GHz and 5.0 GHz bands.

US and CA country codes changed the power table for U-NII band 1. Therefore U-NII-1 was tested to both powers. The CA country code also disabled any channels in the 5600-5650 MHz band

### 1.4.2 Test Modes

The EUT's radio supports SISO modes only for 802.11a operation, and SISO / 2x2 MIMO in 802.11n and ac modes, with 20 MHz, 40 MHz, and 80 MHz channel bandwidths.

The EUT uses different output powers per chain dependent on how many chains are employed. The EUT also uses different power tables for Cyclic Delay Diversity (CDD), Space Division Multiplexing (SDM), and transmit beamforming (TxBF) modes. It uses the same conducted power per chain in any given mode, but due to the different antenna gains the radiated powers per chain differ.

After preliminary investigations were performed, the EUT was tested in the following worst-case modes:

- SISO Modes:
  - Main 802.11a (Core 0 for U-NII-1 / 2A / 2C / 3)
  - Main 802.11n HT20 (Core 0 for U-NII-1 / 2A / 2C / 3)
  - Main 802.11n HT40 (Core 0 for U-NII-1 / 2A / 2C / 3)
  - Main 802.11ac VHT80 (Core 0 for U-NII-1 / 2A / 2C / 3)
- 2x2 MIMO Modes:
  - Main 802.11n/ac (V)HT20\* (Core 0+1 for U-NII-1 / 2A / 2C / 3)
  - Main 802.11n/ac (V)HT40\* (Core 0+1 for U-NII-1 / 2A / 2C / 3)
  - Main 802.11ac VHT80 (Core 0+1 for U-NII-1 / 2A / 2C / 3)

\* = 802.11n HT modes were used for CDD/SDM and 802.11ac VHT modes were used for TxBF modes.

### 1.4.3 Test Set-up

For conducted tests the EUT's antennas were disconnected and replaced with U.FL to SMA test cables to enable conducted testing on each chain. The loss of these test cables were known and compensated for in any conducted measurements.

For transmit beamforming (TxBF) modes the EUT was set up communicating with a support notebook computer provided by the applicant, configured with custom commands to act as an access point. The test laptop was also set to a low output power (approximately 5 dBm) so in conjunction with the rest of the set-up configuration, would give negligible power at the measuring equipment and would not affect the test result. The support laptop's test network set the channel and bandwidth to which the EUT could connect. The EUT then set up a communications link to the support laptop, operating in normal communications mode but with beamforming modes forced on, with auto rate and TPC disabled via terminal commands so the EUT could be limited to worst-case modes. The EUT transmit duty cycle was then maximized by using iPerf bandwidth testing software to keep the transmit output buffer full and generate more traffic from the EUT to the support laptop than the link could sustain. The EUT therefore could fully operate its beamforming mode but with strictly controlled test parameters.

For all other testing except DFS the EUT was put into a continuous transmit test mode with the chipset manufacturer's test commands via a script running in the EUT's terminal application. The EUT then transmitted the required type of packeted 802.11 data frames of fixed length, containing the standard headers and with pseudo-random data content, ensuring the measured signals were representative and contained all the symbols at the highest power control level.

For DFS testing the EUT was connected to a test access point as shown in section 2.7. The iPerf data throughput test application was set at the terminal to send UDP data packets from the EUT to the access point. The iPerf throughput rate was then adjusted to give >17 % duty cycle for each test mode.

### 1.4.4 Test Set-up Diagram(s)

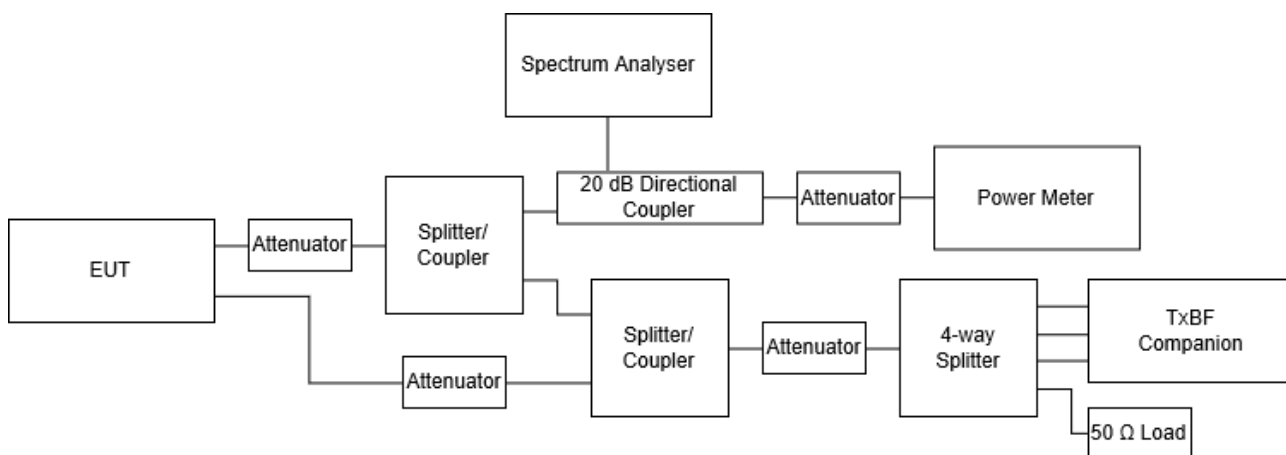
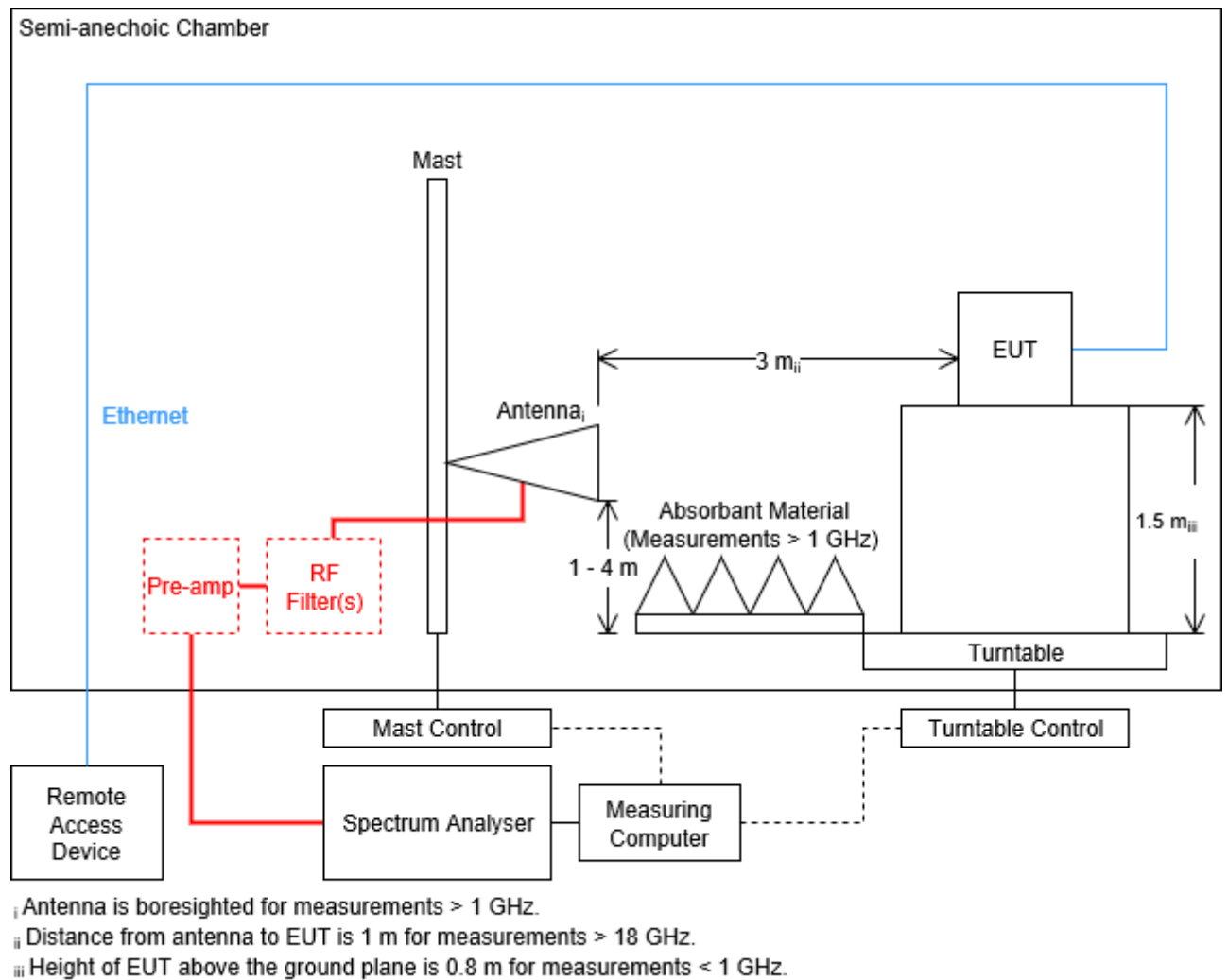


Figure 1 - Conducted Test Setup



**Figure 2 – Radiated Test Setup Diagram**

#### 1.4.5 EUT Configuration and Rationale for Radiated Spurious Emissions

The EUT was placed on the non-conducting platform in a manner typical of a normal installation. The lid was tilted to 90 degrees with reference to the ground plane.

Ports on the EUT were terminated with loads as described in ANSI C63.4 clause 6.2.4. Interconnecting cables were connected and pre-scans performed to determine whether the level of the emissions were increased by >2 dB and emission measurements performed in the worst-case configuration.



#### 1.4.6 Antenna Gain Table

Core 0

| Frequency (MHz) | Peak Gain (dBi) | Conducted Cable Loss (dB) |
|-----------------|-----------------|---------------------------|
| 5150 – 5250     | 5.20            | 1.2                       |
| 5250 – 5350     | 4.69            | 1.2                       |
| 5470 – 5725     | 5.29            | 1.2                       |
| 5725 – 5850     | 4.61            | 1.2                       |

**Table 3**

Core 1

| Frequency (MHz) | Peak Gain (dBi) | Conducted Cable Loss (dB) |
|-----------------|-----------------|---------------------------|
| 5150 – 5250     | 4.82            | 1.2                       |
| 5250 – 5350     | 4.22            | 1.2                       |
| 5470 – 5725     | 4.74            | 1.2                       |
| 5725 – 5850     | 3.27            | 1.2                       |

**Table 4**

#### 1.5 Deviations from the Standard

No deviations from the applicable test standard were made during testing.

#### 1.6 EUT Modification Record

The table below details modifications made to the EUT during the test programme.  
The modifications incorporated during each test are recorded on the appropriate test pages.

| Modification State          | Description of Modification still fitted to EUT | Modification Fitted By | Date Modification Fitted |
|-----------------------------|-------------------------------------------------|------------------------|--------------------------|
| Serial Number: C02Y4006L59F |                                                 |                        |                          |
| 0                           | As supplied by the customer                     | Not Applicable         | Not Applicable           |
| Serial Number: C02Y3009L5C1 |                                                 |                        |                          |
| 0                           | As supplied by the customer                     | Not Applicable         | Not Applicable           |
| Serial Number: C02XR00DL54Y |                                                 |                        |                          |
| 0                           | As supplied by the customer                     | Not Applicable         | Not Applicable           |

**Table 5**



## 1.7 Test Location

TÜV SÜD conducted the following tests at our Fareham Test Laboratory.

| Test Name                                                                     | Name of Engineer(s)                                                              | Accreditation |
|-------------------------------------------------------------------------------|----------------------------------------------------------------------------------|---------------|
| Configuration and Mode: 802.11 a/n/ac                                         |                                                                                  |               |
| Maximum Conducted Output Power                                                | Philip Harrison                                                                  | UKAS          |
| Maximum Conducted Power Spectral Density                                      | Philip Harrison                                                                  | UKAS          |
| Emission Bandwidth                                                            | Philip Harrison                                                                  | UKAS          |
| Authorised Band Edges                                                         | Malik Mohammed, George Porter, Cristian Onaca, Jay Balendrarajah, Daniel Bishop. | UKAS          |
| Spurious Radiated Emissions                                                   |                                                                                  | UKAS          |
| Restricted Band Edges                                                         |                                                                                  | UKAS          |
| Channel Move Time, Channel Closing Transmission Time and Non-Occupancy Period | Daniel Bishop                                                                    | UKAS          |

**Table 6**

Office Address:

Octagon House  
Concorde Way  
Segensworth North  
Fareham  
Hampshire  
PO15 5RL  
United Kingdom



## 2 Test Details

### 2.1 Maximum Conducted Output Power

#### 2.1.1 Specification Reference

FCC 47 CFR Part 15E, Clause 15.407 (a)  
Industry Canada RSS-247, Clause 6.2  
Industry Canada RSS-GEN, Clause 6.12.

#### 2.1.2 Equipment Under Test and Modification State

C02Y3009L5C1, S/N: TBC - Modification State 0

#### 2.1.3 Date of Test

05-March-2019 to 09-May-2019

#### 2.1.4 Test Method

The test was performed in accordance with ANSI C63.10 clause 12.3.3.2 and KDB 789033 D02 using method PM-G.

Since the gated power meter was used for method PM-G the EUT was measured only while transmitting and hence no duty cycle correction was necessary.

The EUT has equal conducted powers on all ports for each mode of operation, but unequal antenna gains. Therefore for SISO and 2x2 MIMO modes the EUT was tested on the ports with the highest antenna gain combinations which would result in the highest EIRP output power.

MIMO output port summing was performed in accordance with KDB 662911 D01. For the CDD results the Directional Gain was calculated in accordance with clause F)2)f)(ii) using the calculations from F)2)f)(i) with worst-case individual gain and an array gain of zero. For SDM modes Directional Gain was calculated in accordance with clause F)2)d)(ii). For transmit beamforming (TxBF) mode it was calculated in accordance with clause F)2)d)(i).

The 'straddle' channels which operate across the U-NII band 2C and 3 boundaries are reported by comparing the total output power to the stricter U-NII-2A band limits.

#### 2.1.5 Environmental Conditions

|                     |                |
|---------------------|----------------|
| Ambient Temperature | 21.2 - 24.3 °C |
| Relative Humidity   | 34.9 - 35.6 %  |



## 2.1.6 Test Results: U-NII-1

### 802.11a / 6 Mbps / SISO / Core 0 / Country Code US

| Channel                            | Bottom | Middle | Top   |
|------------------------------------|--------|--------|-------|
| Frequency (MHz)                    | 5180   | 5200   | 5240  |
| Antenna Directional Gain (dBi)     | 5.20   | 5.20   | 5.20  |
| 15.407 Conducted Power Limit (dBm) | 24.00  | 24.00  | 24.00 |
| Conducted Power (dBm)              | 12.46  | 12.52  | 12.67 |

Table 7

### 802.11a / 6 Mbps / SISO / Core 0 / Country Code CA

| Channel                        | Bottom | Middle | Top   |
|--------------------------------|--------|--------|-------|
| Frequency (MHz)                | 5180   | 5200   | 5240  |
| Conducted Power (dBm)          | 12.50  | 12.45  | 12.43 |
| Antenna Directional Gain (dBi) | 5.20   | 5.20   | 4.82  |
| RSS-247 EIRP Power Limit (dBm) | 22.20  | 22.19  | 22.20 |
| Total EIRP (dBm)               | 17.70  | 17.65  | 17.25 |

Table 8

### 802.11n / HT20 MCS0 / SISO / Core 0 / Country Code US

| Channel                            | Bottom | Middle | Top   |
|------------------------------------|--------|--------|-------|
| Frequency (MHz)                    | 5180   | 5200   | 5240  |
| Antenna Directional Gain (dBi)     | 5.20   | 5.20   | 5.20  |
| 15.407 Conducted Power Limit (dBm) | 24.00  | 24.00  | 24.00 |
| Conducted Power (dBm)              | 12.67  | 12.43  | 12.65 |

Table 9

### 802.11n / HT20 MCS0 / SISO / Core 0 / Country Code CA

| Channel                        | Bottom | Middle | Top   |
|--------------------------------|--------|--------|-------|
| Frequency (MHz)                | 5180   | 5200   | 5240  |
| Conducted Power (dBm)          | 12.27  | 12.23  | 12.49 |
| Antenna Directional Gain (dBi) | 5.20   | 5.20   | 5.20  |
| RSS-247 EIRP Power Limit (dBm) | 22.50  | 22.49  | 22.49 |
| Total EIRP (dBm)               | 17.47  | 17.43  | 17.69 |

Table 10

### 802.11n / HT20 MCS0 / MIMO CDD / Cores 0+1 / Country Code US

| Channel                            | Bottom | Middle | Top   |
|------------------------------------|--------|--------|-------|
| Frequency (MHz)                    | 5180   | 5200   | 5240  |
| Conducted Power Core 0 (dBm)       | 12.50  | 12.70  | 12.59 |
| Conducted Power Core 1 (dBm)       | 12.56  | 12.24  | 12.65 |
| Antenna Directional Gain (dBi)     | 5.20   | 5.20   | 5.20  |
| 15.407 Conducted Power Limit (dBm) | 24.00  | 24.00  | 24.00 |
| Total Conducted Power (dBm)        | 15.54  | 15.49  | 15.63 |

Table 11



**802.11n / HT20 MCS0 / MIMO CDD / Cores 0+1 / Country Code CA**

| Channel                        | Bottom | Middle | Top   |
|--------------------------------|--------|--------|-------|
| Frequency (MHz)                | 5180   | 5200   | 5240  |
| Conducted Power Core 0 (dBm)   | 6.82   | 6.96   | 7.00  |
| Conducted Power Core 1 (dBm)   | 6.81   | 6.86   | 6.76  |
| Total Conducted Power (dBm)    | 9.83   | 9.92   | 9.89  |
| Antenna Directional Gain (dBi) | 5.20   | 5.20   | 5.20  |
| RSS-247 EIRP Power Limit (dBm) | 22.50  | 22.50  | 22.49 |
| Total EIRP (dBm)               | 15.03  | 15.12  | 15.09 |

**Table 12**

**802.11n / HT20 MCS8 / MIMO SDM / Cores 0+1 / Country Code US**

| Channel                            | Bottom | Middle | Top   |
|------------------------------------|--------|--------|-------|
| Frequency (MHz)                    | 5180   | 5200   | 5240  |
| Conducted Power Core 0 (dBm)       | 12.50  | 12.42  | 12.42 |
| Conducted Power Core 1 (dBm)       | 12.60  | 12.56  | 12.54 |
| Antenna Directional Gain (dBi)     | 5.01   | 5.01   | 5.01  |
| 15.407 Conducted Power Limit (dBm) | 24.00  | 24.00  | 24.00 |
| Total Conducted Power (dBm)        | 15.56  | 15.50  | 15.50 |

**Table 13**

**802.11n / HT20 MCS8 / MIMO SDM / Cores 0+1 / Country Code CA**

| Channel                        | Bottom | Middle | Top   |
|--------------------------------|--------|--------|-------|
| Frequency (MHz)                | 5180   | 5200   | 5240  |
| Conducted Power Core 0 (dBm)   | 9.49   | 9.39   | 9.40  |
| Conducted Power Core 1 (dBm)   | 9.48   | 9.50   | 9.25  |
| Total Conducted Power (dBm)    | 12.50  | 12.46  | 12.34 |
| Antenna Directional Gain (dBi) | 5.01   | 5.01   | 4.82  |
| RSS-247 EIRP Power Limit (dBm) | 22.49  | 22.50  | 22.49 |
| Total EIRP (dBm)               | 17.51  | 17.47  | 17.16 |

**Table 14**

**802.11n / HT20 MCS0 / MIMO TxBF / Cores 0+1 / Country Code US**

| Channel                            | Bottom | Middle | Top   |
|------------------------------------|--------|--------|-------|
| Frequency (MHz)                    | 5180   | 5200   | 5240  |
| Conducted Power Core 0 (dBm)       | 11.76  | 12.45  | 12.72 |
| Conducted Power Core 1 (dBm)       | 11.86  | 12.68  | 12.72 |
| Antenna Directional Gain (dBi)     | 8.02   | 8.02   | 8.02  |
| 15.407 Conducted Power Limit (dBm) | 21.98  | 21.98  | 21.98 |
| Total Conducted Power (dBm)        | 14.82  | 15.58  | 15.73 |

**Table 15**



**802.11n / HT20 MCS0 / MIMO TxBF / Cores 0+1 / Country Code CA**

| Channel                        | Bottom | Middle | Top   |
|--------------------------------|--------|--------|-------|
| Frequency (MHz)                | 5180   | 5200   | 5240  |
| Conducted Power Core 0 (dBm)   | 6.95   | 6.93   | 6.84  |
| Conducted Power Core 1 (dBm)   | 6.95   | 6.88   | 6.82  |
| Total Conducted Power (dBm)    | 9.96   | 9.91   | 9.84  |
| Antenna Directional Gain (dBi) | 8.02   | 8.02   | 8.02  |
| RSS-247 EIRP Power Limit (dBm) | 22.50  | 22.50  | 22.50 |
| Total EIRP (dBm)               | 17.98  | 17.94  | 17.86 |

**Table 16**

**802.11n / HT40 MCS0 / SISO / Core 0 / Country Code US**

| Channel                            | Bottom | Top   |
|------------------------------------|--------|-------|
| Frequency (MHz)                    | 5190   | 5230  |
| Antenna Directional Gain (dBi)     | 5.20   | 5.20  |
| 15.407 Conducted Power Limit (dBm) | 24.00  | 24.00 |
| Conducted Power (dBm)              | 12.73  | 12.42 |

**Table 17**

**802.11n / HT40 MCS0 / SISO / Core 0 / Country Code CA**

| Channel                        | Bottom | Top   |
|--------------------------------|--------|-------|
| Frequency (MHz)                | 5190   | 5230  |
| Conducted Power (dBm)          | 12.43  | 12.52 |
| Antenna Directional Gain (dBi) | 5.20   | 5.20  |
| RSS-247 EIRP Power Limit (dBm) | 23.00  | 23.00 |
| Total EIRP (dBm)               | 17.63  | 17.72 |

**Table 18**

**802.11n / HT40 MCS0 / MIMO CDD / Cores 0+1 / Country Code US**

| Channel                            | Bottom | Top   |
|------------------------------------|--------|-------|
| Frequency (MHz)                    | 5190   | 5230  |
| Conducted Power Core 0 (dBm)       | 11.73  | 12.58 |
| Conducted Power Core 1 (dBm)       | 11.77  | 12.64 |
| Antenna Directional Gain (dBi)     | 5.20   | 5.20  |
| 15.407 Conducted Power Limit (dBm) | 24.00  | 24.00 |
| Total Conducted Power (dBm)        | 14.76  | 15.62 |

**Table 19**

**802.11n / HT40 MCS0 / MIMO CDD / Cores 0+1 / Country Code CA**

| Channel                        | Bottom | Top   |
|--------------------------------|--------|-------|
| Frequency (MHz)                | 5190   | 5230  |
| Conducted Power Core 0 (dBm)   | 9.38   | 9.46  |
| Conducted Power Core 1 (dBm)   | 9.24   | 9.36  |
| Total Conducted Power (dBm)    | 12.32  | 12.42 |
| Antenna Directional Gain (dBi) | 5.20   | 5.20  |
| RSS-247 EIRP Power Limit (dBm) | 23.00  | 23.00 |
| Total EIRP (dBm)               | 17.52  | 17.62 |

**Table 20**



**802.11n / HT40 MCS8 / MIMO SDM / Cores 0+1 / Country Code US**

| Channel                            | Bottom | Top   |
|------------------------------------|--------|-------|
| Frequency (MHz)                    | 5190   | 5230  |
| Conducted Power Core 0 (dBm)       | 12.47  | 12.69 |
| Conducted Power Core 1 (dBm)       | 12.60  | 12.66 |
| Antenna Directional Gain (dBi)     | 5.01   | 5.01  |
| 15.407 Conducted Power Limit (dBm) | 24.00  | 24.00 |
| Total Conducted Power (dBm)        | 15.55  | 15.68 |

**Table 21**

**802.11n / HT40 MCS8 / MIMO SDM / Cores 0+1 / Country Code CA**

| Channel                        | Bottom | Top   |
|--------------------------------|--------|-------|
| Frequency (MHz)                | 5190   | 5230  |
| Conducted Power Core 0 (dBm)   | 12.17  | 12.50 |
| Conducted Power Core 1 (dBm)   | 12.36  | 12.31 |
| Total Conducted Power (dBm)    | 15.28  | 15.41 |
| Antenna Directional Gain (dBi) | 5.01   | 5.01  |
| RSS-247 EIRP Power Limit (dBm) | 23.00  | 23.00 |
| Total EIRP (dBm)               | 20.29  | 20.43 |

**Table 22**

**802.11n / HT40 MCS0 / MIMO TxBF / Cores 0+1 / Country Code US**

| Channel                            | Bottom | Top   |
|------------------------------------|--------|-------|
| Frequency (MHz)                    | 5190   | 5230  |
| Conducted Power Core 0 (dBm)       | 11.20  | 12.44 |
| Conducted Power Core 1 (dBm)       | 11.32  | 12.42 |
| Antenna Directional Gain (dBi)     | 8.02   | 8.02  |
| 15.407 Conducted Power Limit (dBm) | 21.98  | 21.98 |
| Total Conducted Power (dBm)        | 14.27  | 15.44 |

**Table 23**

**802.11n / HT40 MCS0 / MIMO TxBF / Cores 0+1 / Country Code CA**

| Channel                        | Bottom | Top   |
|--------------------------------|--------|-------|
| Frequency (MHz)                | 5190   | 5230  |
| Conducted Power Core 0 (dBm)   | 9.34   | 9.38  |
| Conducted Power Core 1 (dBm)   | 9.38   | 9.31  |
| Total Conducted Power (dBm)    | 12.37  | 12.35 |
| Antenna Directional Gain (dBi) | 8.02   | 8.02  |
| RSS-247 EIRP Power Limit (dBm) | 23.00  | 23.00 |
| Total EIRP (dBm)               | 20.39  | 20.38 |

**Table 24**



**802.11ac / VHT20 MCS0x1 / MIMO TxBF / Cores 0+1 / Country Code US**

|                                    |        |
|------------------------------------|--------|
| Channel                            | Bottom |
| Frequency (MHz)                    | 5180   |
| Conducted Power Core 0 (dBm)       | 11.84  |
| Conducted Power Core 1 (dBm)       | 11.70  |
| Antenna Directional Gain (dBi)     | 8.02   |
| 15.407 Conducted Power Limit (dBm) | 21.98  |
| Total Conducted Power (dBm)        | 14.78  |

**Table 25**

**802.11ac / VHT80 MCS0x1 / SISO / Core 0 / Country Code US**

|                                    |        |
|------------------------------------|--------|
| Channel                            | Middle |
| Frequency (MHz)                    | 5210   |
| Antenna Directional Gain (dBi)     | 5.20   |
| 15.407 Conducted Power Limit (dBm) | 24.00  |
| Conducted Power (dBm)              | 12.67  |

**Table 26**

**802.11ac / VHT80 MCS0x1 / SISO / Core 0 / Country Code CA**

|                                |        |
|--------------------------------|--------|
| Channel                        | Middle |
| Frequency (MHz)                | 5210   |
| Conducted Power (dBm)          | 12.61  |
| Antenna Directional Gain (dBi) | 5.20   |
| RSS-247 EIRP Power Limit (dBm) | 23.00  |
| Total EIRP (dBm)               | 17.81  |

**Table 27**

**802.11ac / VHT80 MCS0x1 / MIMO CDD / Cores 0+1 / Country Code US**

|                                    |        |
|------------------------------------|--------|
| Channel                            | Middle |
| Frequency (MHz)                    | 5210   |
| Conducted Power Core 0 (dBm)       | 10.90  |
| Conducted Power Core 1 (dBm)       | 10.79  |
| Antenna Directional Gain (dBi)     | 5.20   |
| 15.407 Conducted Power Limit (dBm) | 24.00  |
| Total Conducted Power (dBm)        | 13.86  |

**Table 28**

**802.11ac / VHT80 MCS0x1 / MIMO CDD / Cores 0+1 / Country Code CA**

|                                |        |
|--------------------------------|--------|
| Channel                        | Middle |
| Frequency (MHz)                | 5210   |
| Conducted Power Core 0 (dBm)   | 10.88  |
| Conducted Power Core 1 (dBm)   | 10.97  |
| Total Conducted Power (dBm)    | 13.94  |
| Antenna Directional Gain (dBi) | 5.20   |
| RSS-247 EIRP Power Limit (dBm) | 23.00  |
| Total EIRP (dBm)               | 19.14  |

**Table 29**

**802.11ac / VHT80 MCS0x2 / MIMO SDM / Cores 0+1 / Country Code US**



| Channel                            | Middle |
|------------------------------------|--------|
| Frequency (MHz)                    | 5210   |
| Conducted Power Core 0 (dBm)       | 12.42  |
| Conducted Power Core 1 (dBm)       | 12.31  |
| Antenna Directional Gain (dBi)     | 5.01   |
| 15.407 Conducted Power Limit (dBm) | 24.00  |
| Total Conducted Power (dBm)        | 15.38  |

**Table 30**

**802.11ac / VHT80 MCS0x2 / MIMO SDM / Cores 0+1 / Country Code CA**

| Channel                        | Middle |
|--------------------------------|--------|
| Frequency (MHz)                | 5210   |
| Conducted Power Core 0 (dBm)   | 12.33  |
| Conducted Power Core 1 (dBm)   | 12.28  |
| Total Conducted Power (dBm)    | 15.32  |
| Antenna Directional Gain (dBi) | 5.01   |
| RSS-247 EIRP Power Limit (dBm) | 23.00  |
| Total EIRP (dBm)               | 20.33  |

**Table 31**

**802.11ac / VHT80 MCS0x1 / MIMO TxBF / Cores 0+1 / Country Code US**

| Channel                            | Middle |
|------------------------------------|--------|
| Frequency (MHz)                    | 5210   |
| Conducted Power Core 0 (dBm)       | 10.99  |
| Conducted Power Core 1 (dBm)       | 10.98  |
| Antenna Directional Gain (dBi)     | 8.02   |
| 15.407 Conducted Power Limit (dBm) | 21.98  |
| Total Conducted Power (dBm)        | 14.00  |

**Table 32**

**802.11ac / VHT80 MCS0x1 / MIMO TxBF / Cores 0+1 / Country Code CA**

| Channel                        | Middle |
|--------------------------------|--------|
| Frequency (MHz)                | 5210   |
| Conducted Power Core 0 (dBm)   | 9.79   |
| Conducted Power Core 1 (dBm)   | 9.71   |
| Total Conducted Power (dBm)    | 12.76  |
| Antenna Directional Gain (dBi) | 8.02   |
| RSS-247 EIRP Power Limit (dBm) | 23.00  |
| Total EIRP (dBm)               | 20.78  |

**Table 33**



## 2.1.7 Test Results: U-NII-2A

### 802.11a / 6 Mbps / SISO / Core 0

| Channel                             | Bottom | Middle | Top   |
|-------------------------------------|--------|--------|-------|
| Frequency (MHz)                     | 5260   | 5280   | 5320  |
| Antenna Directional Gain (dBi)      | 4.69   | 4.69   | 4.69  |
| 15.407 Conducted Power Limit (dBm)  | 24.00  | 24.00  | 24.00 |
| RSS-247 Conducted Power Limit (dBm) | 23.20  | 23.20  | 23.20 |
| Conducted Power (dBm)               | 13.53  | 13.53  | 13.46 |
| 15.407 TPC EIRP Limit (dBm)         | 30.00  | 30.00  | 30.00 |
| RSS-247 TPC EIRP Limit (dBm)        | 29.20  | 29.20  | 29.20 |
| EIRP Power (dBm)                    | 18.22  | 18.22  | 18.15 |

Table 34

### 802.11n / HT20 MCS0 / SISO / Core 0

| Channel                             | Bottom | Middle | Top   |
|-------------------------------------|--------|--------|-------|
| Frequency (MHz)                     | 5260   | 5280   | 5320  |
| Antenna Directional Gain (dBi)      | 4.69   | 4.69   | 4.69  |
| 15.407 Conducted Power Limit (dBm)  | 24.00  | 24.00  | 24.00 |
| RSS-247 Conducted Power Limit (dBm) | 23.49  | 23.50  | 23.50 |
| Conducted Power (dBm)               | 13.75  | 13.62  | 13.74 |
| 15.407 TPC EIRP Limit (dBm)         | 30.00  | 30.00  | 30.00 |
| RSS-247 TPC EIRP Limit (dBm)        | 29.49  | 29.50  | 29.50 |
| EIRP Power (dBm)                    | 18.44  | 18.31  | 18.43 |

Table 35

### 802.11n / HT20 MCS0 / MIMO CDD / Cores 0+1

| Channel                             | Bottom | Middle | Top   |
|-------------------------------------|--------|--------|-------|
| Frequency (MHz)                     | 5260   | 5280   | 5320  |
| Conducted Power Core 0 (dBm)        | 13.71  | 13.58  | 13.63 |
| Conducted Power Core 1 (dBm)        | 13.70  | 13.69  | 13.64 |
| Antenna Directional Gain (dBi)      | 4.69   | 4.69   | 4.69  |
| 15.407 Conducted Power Limit (dBm)  | 24.00  | 24.00  | 24.00 |
| RSS-247 Conducted Power Limit (dBm) | 23.51  | 23.49  | 23.48 |
| Total Conducted Power (dBm)         | 16.72  | 16.64  | 16.64 |
| 15.407 TPC EIRP Limit (dBm)         | 30.00  | 30.00  | 30.00 |
| RSS-247 TPC EIRP Limit (dBm)        | 29.51  | 29.49  | 29.48 |
| EIRP Power (dBm)                    | 21.41  | 21.33  | 21.33 |

Table 36



**802.11n / HT20 MCS8 / MIMO SDM / Cores 0+1**

| Channel                             | Bottom | Middle | Top   |
|-------------------------------------|--------|--------|-------|
| Frequency (MHz)                     | 5260   | 5280   | 5320  |
| Conducted Power Core 0 (dBm)        | 13.70  | 13.74  | 13.63 |
| Conducted Power Core 1 (dBm)        | 13.51  | 13.74  | 13.71 |
| Antenna Directional Gain (dBi)      | 4.46   | 4.46   | 4.46  |
| 15.407 Conducted Power Limit (dBm)  | 24.00  | 24.00  | 24.00 |
| RSS-247 Conducted Power Limit (dBm) | 23.49  | 23.49  | 23.49 |
| Total Conducted Power (dBm)         | 16.62  | 16.75  | 16.68 |
| 15.407 TPC EIRP Limit (dBm)         | 30.00  | 30.00  | 30.00 |
| RSS-247 TPC EIRP Limit (dBm)        | 29.49  | 29.49  | 29.49 |
| EIRP Power (dBm)                    | 21.08  | 21.21  | 21.14 |

**Table 37**

**802.11n / HT20 MCS0 / MIMO TxBF / Cores 0+1**

| Channel                             | Bottom | Middle | Top   |
|-------------------------------------|--------|--------|-------|
| Frequency (MHz)                     | 5260   | 5280   | 5320  |
| Conducted Power Core 0 (dBm)        | 13.65  | 13.54  | 13.68 |
| Conducted Power Core 1 (dBm)        | 13.65  | 13.51  | 13.62 |
| Antenna Directional Gain (dBi)      | 7.47   | 7.47   | 7.47  |
| 15.407 Conducted Power Limit (dBm)  | 22.53  | 22.53  | 22.53 |
| RSS-247 Conducted Power Limit (dBm) | 23.50  | 23.50  | 23.49 |
| Total Conducted Power (dBm)         | 16.66  | 16.54  | 16.66 |
| 15.407 TPC EIRP Limit (dBm)         | 30.00  | 30.00  | 30.00 |
| RSS-247 TPC EIRP Limit (dBm)        | 29.50  | 29.50  | 29.49 |
| EIRP Power (dBm)                    | 24.13  | 24.01  | 24.13 |

**Table 38**

**802.11n / HT40 MCS0 / SISO / Core 0**

| Channel                             | Bottom | Top   |
|-------------------------------------|--------|-------|
| Frequency (MHz)                     | 5270   | 5310  |
| Antenna Directional Gain (dBi)      | 4.69   | 4.69  |
| 15.407 Conducted Power Limit (dBm)  | 24.00  | 24.00 |
| RSS-247 Conducted Power Limit (dBm) | 24.00  | 24.00 |
| Conducted Power (dBm)               | 13.47  | 13.53 |
| 15.407 TPC EIRP Limit (dBm)         | 30.00  | 30.00 |
| RSS-247 TPC EIRP Limit (dBm)        | 30.00  | 30.00 |
| EIRP Power (dBm)                    | 18.16  | 18.22 |

**Table 39**



**802.11n / HT40 MCS0 / MIMO CDD / Cores 0+1**

| Channel                             | Bottom | Top   |
|-------------------------------------|--------|-------|
| Frequency (MHz)                     | 5270   | 5310  |
| Conducted Power Core 0 (dBm)        | 13.56  | 13.64 |
| Conducted Power Core 1 (dBm)        | 13.52  | 13.55 |
| Antenna Directional Gain (dBi)      | 4.69   | 4.69  |
| 15.407 Conducted Power Limit (dBm)  | 24.00  | 24.00 |
| RSS-247 Conducted Power Limit (dBm) | 24.00  | 24.00 |
| Total Conducted Power (dBm)         | 16.55  | 16.60 |
| 15.407 TPC EIRP Limit (dBm)         | 30.00  | 30.00 |
| RSS-247 TPC EIRP Limit (dBm)        | 30.00  | 30.00 |
| EIRP Power (dBm)                    | 21.24  | 21.29 |

**Table 40**

**802.11n / HT40 MCS8 / MIMO SDM / Cores 0+1**

| Channel                             | Bottom | Top   |
|-------------------------------------|--------|-------|
| Frequency (MHz)                     | 5270   | 5310  |
| Conducted Power Core 0 (dBm)        | 13.99  | 13.64 |
| Conducted Power Core 1 (dBm)        | 13.62  | 13.64 |
| Antenna Directional Gain (dBi)      | 4.46   | 4.46  |
| 15.407 Conducted Power Limit (dBm)  | 24.00  | 24.00 |
| RSS-247 Conducted Power Limit (dBm) | 24.00  | 24.00 |
| Total Conducted Power (dBm)         | 16.82  | 16.65 |
| 15.407 TPC EIRP Limit (dBm)         | 30.00  | 30.00 |
| RSS-247 TPC EIRP Limit (dBm)        | 30.00  | 30.00 |
| EIRP Power (dBm)                    | 21.28  | 21.11 |

**Table 41**

**802.11n / HT40 MCS0 / MIMO TxBF / Cores 0+1**

| Channel                             | Bottom | Top   |
|-------------------------------------|--------|-------|
| Frequency (MHz)                     | 5270   | 5310  |
| Conducted Power Core 0 (dBm)        | 13.50  | 13.37 |
| Conducted Power Core 1 (dBm)        | 13.70  | 13.29 |
| Antenna Directional Gain (dBi)      | 7.47   | 7.47  |
| 15.407 Conducted Power Limit (dBm)  | 22.53  | 22.53 |
| RSS-247 Conducted Power Limit (dBm) | 24.00  | 24.00 |
| Total Conducted Power (dBm)         | 16.61  | 16.34 |
| 15.407 TPC EIRP Limit (dBm)         | 30.00  | 30.00 |
| RSS-247 TPC EIRP Limit (dBm)        | 30.00  | 30.00 |
| EIRP Power (dBm)                    | 24.08  | 23.81 |

**Table 42**



**802.11ac / VHT80 MCS0x1 / SISO / Core 0**

|                                     |        |
|-------------------------------------|--------|
| Channel                             | Middle |
| Frequency (MHz)                     | 5290   |
| Antenna Directional Gain (dBi)      | 4.69   |
| 15.407 Conducted Power Limit (dBm)  | 24.00  |
| RSS-247 Conducted Power Limit (dBm) | 24.00  |
| Conducted Power (dBm)               | 13.59  |
| 15.407 TPC EIRP Limit (dBm)         | 30.00  |
| RSS-247 TPC EIRP Limit (dBm)        | 30.00  |
| EIRP Power (dBm)                    | 18.28  |

**Table 43**

**802.11ac / VHT80 MCS0x1 / MIMO CDD / Cores 0+1**

|                                     |        |
|-------------------------------------|--------|
| Channel                             | Middle |
| Frequency (MHz)                     | 5290   |
| Conducted Power Core 0 (dBm)        | 12.43  |
| Conducted Power Core 1 (dBm)        | 12.23  |
| Antenna Directional Gain (dBi)      | 4.22   |
| 15.407 Conducted Power Limit (dBm)  | 24.00  |
| RSS-247 Conducted Power Limit (dBm) | 24.00  |
| Total Conducted Power (dBm)         | 15.34  |
| 15.407 TPC EIRP Limit (dBm)         | 30.00  |
| RSS-247 TPC EIRP Limit (dBm)        | 30.00  |
| EIRP Power (dBm)                    | 19.56  |

**Table 44**

**802.11ac / VHT80 MCS0x2 / MIMO SDM / Cores 0+1**

|                                     |        |
|-------------------------------------|--------|
| Channel                             | Middle |
| Frequency (MHz)                     | 5290   |
| Conducted Power Core 0 (dBm)        | 12.24  |
| Conducted Power Core 1 (dBm)        | 12.44  |
| Antenna Directional Gain (dBi)      | 4.46   |
| 15.407 Conducted Power Limit (dBm)  | 24.00  |
| RSS-247 Conducted Power Limit (dBm) | 24.00  |
| Total Conducted Power (dBm)         | 15.35  |
| 15.407 TPC EIRP Limit (dBm)         | 30.00  |
| RSS-247 TPC EIRP Limit (dBm)        | 30.00  |
| EIRP Power (dBm)                    | 19.81  |

**Table 45**



802.11ac / VHT80 MCS0x1 / MIMO TxBF / Cores 0+1

|                                     |        |
|-------------------------------------|--------|
| Channel                             | Middle |
| Frequency (MHz)                     | 5290   |
| Conducted Power Core 0 (dBm)        | 11.78  |
| Conducted Power Core 1 (dBm)        | 11.99  |
| Antenna Directional Gain (dBi)      | 7.47   |
| 15.407 Conducted Power Limit (dBm)  | 22.53  |
| RSS-247 Conducted Power Limit (dBm) | 24.00  |
| Total Conducted Power (dBm)         | 14.89  |
| 15.407 TPC EIRP Limit (dBm)         | 30.00  |
| RSS-247 TPC EIRP Limit (dBm)        | 30.00  |
| EIRP Power (dBm)                    | 22.36  |

Table 46



## 2.1.8 Test Results: U-NII-2C

### 802.11a / 6 Mbps / SISO / Core 0

| Channel                             | Bottom | Middle | Top   | Straddle |
|-------------------------------------|--------|--------|-------|----------|
| Frequency (MHz)                     | 5500   | 5580   | 5700  | 5720     |
| Antenna Directional Gain (dBi)      | 5.29   | 5.29   | 5.29  | 5.29     |
| 15.407 Conducted Power Limit (dBm)  | 24.00  | 24.00  | 24.00 | 23.02    |
| RSS-247 Conducted Power Limit (dBm) | 23.19  | 23.19  | 23.19 | 23.19    |
| Conducted Power (dBm)               | 12.68  | 12.73  | 12.71 | 12.70    |
| 15.407 TPC EIRP Limit (dBm)         | 30.00  | 30.00  | 30.00 | 29.02    |
| RSS-247 TPC EIRP Limit (dBm)        | 29.19  | 29.19  | 29.19 | 29.19    |
| EIRP Power (dBm)                    | 17.97  | 18.02  | 18.00 | 17.99    |

Table 47

### 802.11n / HT20 MCS0 / SISO / Core 0

| Channel                             | Bottom | Middle | Top   | Straddle |
|-------------------------------------|--------|--------|-------|----------|
| Frequency (MHz)                     | 5500   | 5580   | 5700  | 5720     |
| Antenna Directional Gain (dBi)      | 5.29   | 5.29   | 5.29  | 5.29     |
| 15.407 Conducted Power Limit (dBm)  | 24.00  | 24.00  | 24.00 | 23.04    |
| RSS-247 Conducted Power Limit (dBm) | 23.50  | 23.49  | 23.49 | 23.49    |
| Conducted Power (dBm)               | 12.68  | 12.65  | 12.42 | 12.44    |
| 15.407 TPC EIRP Limit (dBm)         | 30.00  | 30.00  | 30.00 | 29.04    |
| RSS-247 TPC EIRP Limit (dBm)        | 29.50  | 29.49  | 29.49 | 29.49    |
| EIRP Power (dBm)                    | 17.97  | 17.94  | 17.70 | 17.73    |

Table 48

### 802.11n / HT20 MCS0 / MIMO CDD / Cores 0+1

| Channel                             | Bottom | Middle | Top   | Straddle |
|-------------------------------------|--------|--------|-------|----------|
| Frequency (MHz)                     | 5500   | 5580   | 5700  | 5720     |
| Conducted Power Core 0 (dBm)        | 12.54  | 12.49  | 12.61 | 12.57    |
| Conducted Power Core 1 (dBm)        | 12.57  | 12.67  | 12.54 | 12.72    |
| Antenna Directional Gain (dBi)      | 5.29   | 5.29   | 5.29  | 5.29     |
| 15.407 Conducted Power Limit (dBm)  | 24.00  | 24.00  | 24.00 | 23.05    |
| RSS-247 Conducted Power Limit (dBm) | 23.49  | 23.50  | 23.49 | 23.49    |
| Total Conducted Power (dBm)         | 15.56  | 15.59  | 15.59 | 15.66    |
| 15.407 TPC EIRP Limit (dBm)         | 30.00  | 30.00  | 30.00 | 29.05    |
| RSS-247 TPC EIRP Limit (dBm)        | 29.49  | 29.50  | 29.49 | 29.49    |
| EIRP Power (dBm)                    | 20.85  | 20.88  | 20.88 | 20.95    |

Table 49



**802.11n / HT20 MCS8 / MIMO SDM / Cores 0+1**

| Channel                             | Bottom | Middle | Top   | Straddle |
|-------------------------------------|--------|--------|-------|----------|
| Frequency (MHz)                     | 5500   | 5580   | 5700  | 5720     |
| Conducted Power Core 0 (dBm)        | 12.73  | 12.72  | 12.52 | 12.68    |
| Conducted Power Core 1 (dBm)        | 12.41  | 12.67  | 12.51 | 12.43    |
| Antenna Directional Gain (dBi)      | 5.02   | 5.02   | 5.02  | 5.02     |
| 15.407 Conducted Power Limit (dBm)  | 24.00  | 24.00  | 24.00 | 23.02    |
| RSS-247 Conducted Power Limit (dBm) | 23.49  | 23.48  | 23.49 | 23.49    |
| Total Conducted Power (dBm)         | 15.58  | 15.70  | 15.52 | 15.57    |
| 15.407 TPC EIRP Limit (dBm)         | 30.00  | 30.00  | 30.00 | 29.02    |
| RSS-247 TPC EIRP Limit (dBm)        | 29.49  | 29.48  | 29.49 | 29.49    |
| EIRP Power (dBm)                    | 20.61  | 20.73  | 20.55 | 20.59    |

**Table 50**

**802.11n / HT20 MCS0 / MIMO TxBF / Cores 0+1**

| Channel                             | Bottom | Middle | Top   | Straddle |
|-------------------------------------|--------|--------|-------|----------|
| Frequency (MHz)                     | 5500   | 5580   | 5700  | 5720     |
| Conducted Power Core 0 (dBm)        | 12.57  | 12.66  | 12.65 | 12.43    |
| Conducted Power Core 1 (dBm)        | 12.61  | 12.41  | 12.66 | 12.63    |
| Antenna Directional Gain (dBi)      | 8.03   | 8.03   | 8.03  | 8.03     |
| 15.407 Conducted Power Limit (dBm)  | 21.97  | 21.97  | 21.97 | 20.99    |
| RSS-247 Conducted Power Limit (dBm) | 23.50  | 23.50  | 23.49 | 23.49    |
| Total Conducted Power (dBm)         | 15.60  | 15.55  | 15.67 | 15.54    |
| 15.407 TPC EIRP Limit (dBm)         | 30.00  | 30.00  | 30.00 | 29.02    |
| RSS-247 TPC EIRP Limit (dBm)        | 29.50  | 29.50  | 29.49 | 29.49    |
| EIRP Power (dBm)                    | 23.63  | 23.58  | 23.70 | 23.57    |

**Table 51**

**802.11n / HT40 MCS0 / SISO / Core 0**

| Channel                             | Bottom | Middle | Top   | Straddle |
|-------------------------------------|--------|--------|-------|----------|
| Frequency (MHz)                     | 5510   | 5590   | 5670  | 5710     |
| Antenna Directional Gain (dBi)      | 5.29   | 5.29   | 5.29  | 5.29     |
| 15.407 Conducted Power Limit (dBm)  | 24.00  | 24.00  | 24.00 | 24.00    |
| RSS-247 Conducted Power Limit (dBm) | 24.00  | 24.00  | 24.00 | 24.00    |
| Conducted Power (dBm)               | 12.51  | 12.51  | 12.47 | 12.71    |
| 15.407 TPC EIRP Limit (dBm)         | 30.00  | 30.00  | 30.00 | 30.00    |
| RSS-247 TPC EIRP Limit (dBm)        | 30.00  | 30.00  | 30.00 | 30.00    |
| EIRP Power (dBm)                    | 17.80  | 17.80  | 17.76 | 18.00    |

**Table 52**



**802.11n / HT40 MCS0 / MIMO CDD / Cores 0+1**

| Channel                             | Bottom | Middle | Top   | Straddle |
|-------------------------------------|--------|--------|-------|----------|
| Frequency (MHz)                     | 5510   | 5590   | 5670  | 5710     |
| Conducted Power Core 0 (dBm)        | 12.64  | 12.45  | 12.65 | 12.67    |
| Conducted Power Core 1 (dBm)        | 12.88  | 12.64  | 12.55 | 12.72    |
| Antenna Directional Gain (dBi)      | 5.29   | 5.29   | 5.29  | 5.29     |
| 15.407 Conducted Power Limit (dBm)  | 24.00  | 24.00  | 24.00 | 24.00    |
| RSS-247 Conducted Power Limit (dBm) | 24.00  | 24.00  | 24.00 | 24.00    |
| Total Conducted Power (dBm)         | 15.77  | 15.55  | 15.61 | 15.70    |
| 15.407 TPC EIRP Limit (dBm)         | 30.00  | 30.00  | 30.00 | 30.00    |
| RSS-247 TPC EIRP Limit (dBm)        | 30.00  | 30.00  | 30.00 | 30.00    |
| EIRP Power (dBm)                    | 21.06  | 20.84  | 20.90 | 20.99    |

**Table 53**

**802.11n / HT40 MCS8 / MIMO SDM / Cores 0+1**

| Channel                             | Bottom | Middle | Top   | Straddle |
|-------------------------------------|--------|--------|-------|----------|
| Frequency (MHz)                     | 5510   | 5590   | 5670  | 5710     |
| Conducted Power Core 0 (dBm)        | 12.44  | 12.41  | 12.61 | 12.57    |
| Conducted Power Core 1 (dBm)        | 12.58  | 12.72  | 12.57 | 12.59    |
| Antenna Directional Gain (dBi)      | 5.02   | 5.02   | 5.02  | 5.02     |
| 15.407 Conducted Power Limit (dBm)  | 24.00  | 24.00  | 24.00 | 24.00    |
| RSS-247 Conducted Power Limit (dBm) | 24.00  | 24.00  | 24.00 | 24.00    |
| Total Conducted Power (dBm)         | 15.52  | 15.58  | 15.60 | 15.59    |
| 15.407 TPC EIRP Limit (dBm)         | 30.00  | 30.00  | 30.00 | 30.00    |
| RSS-247 TPC EIRP Limit (dBm)        | 30.00  | 30.00  | 30.00 | 30.00    |
| EIRP Power (dBm)                    | 20.55  | 20.61  | 20.62 | 20.61    |

**Table 54**

**802.11n / HT40 MCS0 / MIMO TxBF / Cores 0+1**

| Channel                             | Bottom | Middle | Top   | Straddle |
|-------------------------------------|--------|--------|-------|----------|
| Frequency (MHz)                     | 5510   | 5590   | 5670  | 5710     |
| Conducted Power Core 0 (dBm)        | 12.74  | 12.66  | 12.64 | 12.68    |
| Conducted Power Core 1 (dBm)        | 12.49  | 12.65  | 12.00 | 12.71    |
| Antenna Directional Gain (dBi)      | 8.03   | 8.03   | 8.03  | 8.03     |
| 15.407 Conducted Power Limit (dBm)  | 21.97  | 21.97  | 21.97 | 21.97    |
| RSS-247 Conducted Power Limit (dBm) | 24.00  | 24.00  | 24.00 | 24.00    |
| Total Conducted Power (dBm)         | 15.62  | 15.66  | 15.34 | 15.71    |
| 15.407 TPC EIRP Limit (dBm)         | 30.00  | 30.00  | 30.00 | 30.00    |
| RSS-247 TPC EIRP Limit (dBm)        | 30.00  | 30.00  | 30.00 | 30.00    |
| EIRP Power (dBm)                    | 23.65  | 23.69  | 23.37 | 23.73    |

**Table 55**



**802.11ac / VHT80 MCS0x1 / SISO / Core 0**

| Channel                             | Bottom | Top   | Straddle |
|-------------------------------------|--------|-------|----------|
| Frequency (MHz)                     | 5530   | 5610  | 5690     |
| Antenna Directional Gain (dBi)      | 5.29   | 5.29  | 5.29     |
| 15.407 Conducted Power Limit (dBm)  | 24.00  | 24.00 | 24.00    |
| RSS-247 Conducted Power Limit (dBm) | 24.00  | 24.00 | 24.00    |
| Conducted Power (dBm)               | 12.47  | 12.71 | 12.49    |
| 15.407 TPC EIRP Limit (dBm)         | 30.00  | 30.00 | 30.00    |
| RSS-247 TPC EIRP Limit (dBm)        | 30.00  | 30.00 | 30.00    |
| EIRP Power (dBm)                    | 17.76  | 18.00 | 17.78    |

**Table 56**

**802.11ac / VHT80 MCS0x1 / MIMO CDD / Cores 0+1**

| Channel                             | Bottom | Top   | Straddle |
|-------------------------------------|--------|-------|----------|
| Frequency (MHz)                     | 5530   | 5610  | 5690     |
| Conducted Power Core 0 (dBm)        | 12.64  | 12.75 | 12.57    |
| Conducted Power Core 1 (dBm)        | 12.61  | 12.54 | 12.66    |
| Antenna Directional Gain (dBi)      | 5.29   | 5.29  | 5.29     |
| 15.407 Conducted Power Limit (dBm)  | 24.00  | 24.00 | 24.00    |
| RSS-247 Conducted Power Limit (dBm) | 24.00  | 24.00 | 24.00    |
| Total Conducted Power (dBm)         | 15.64  | 15.66 | 15.63    |
| 15.407 TPC EIRP Limit (dBm)         | 30.00  | 30.00 | 30.00    |
| RSS-247 TPC EIRP Limit (dBm)        | 30.00  | 30.00 | 30.00    |
| EIRP Power (dBm)                    | 20.93  | 20.95 | 20.92    |

**Table 57**

**802.11ac / VHT80 MCS0x2 / MIMO SDM / Cores 0+1**

| Channel                             | Bottom | Top   | Straddle |
|-------------------------------------|--------|-------|----------|
| Frequency (MHz)                     | 5530   | 5610  | 5690     |
| Conducted Power Core 0 (dBm)        | 12.67  | 12.67 | 12.58    |
| Conducted Power Core 1 (dBm)        | 12.75  | 12.68 | 12.72    |
| Antenna Directional Gain (dBi)      | 5.02   | 5.02  | 5.02     |
| 15.407 Conducted Power Limit (dBm)  | 24.00  | 24.00 | 24.00    |
| RSS-247 Conducted Power Limit (dBm) | 24.00  | 24.00 | 24.00    |
| Total Conducted Power (dBm)         | 15.72  | 15.69 | 15.66    |
| 15.407 TPC EIRP Limit (dBm)         | 30.00  | 30.00 | 30.00    |
| RSS-247 TPC EIRP Limit (dBm)        | 30.00  | 30.00 | 30.00    |
| EIRP Power (dBm)                    | 20.74  | 20.71 | 20.68    |

**Table 58**



**802.11ac / VHT80 MCS0x1 / MIMO TxBF / Cores 0+1**

| Channel                             | Top   | Straddle |
|-------------------------------------|-------|----------|
| Frequency (MHz)                     | 5610  | 5690     |
| Conducted Power Core 0 (dBm)        | 12.74 | 12.63    |
| Conducted Power Core 1 (dBm)        | 12.44 | 12.58    |
| Antenna Directional Gain (dBi)      | 8.03  | 8.03     |
| 15.407 Conducted Power Limit (dBm)  | 21.97 | 21.97    |
| RSS-247 Conducted Power Limit (dBm) | 24.00 | 24.00    |
| Total Conducted Power (dBm)         | 15.60 | 15.62    |
| 15.407 TPC EIRP Limit (dBm)         | 30.00 | 30.00    |
| RSS-247 TPC EIRP Limit (dBm)        | 30.00 | 30.00    |
| EIRP Power (dBm)                    | 23.63 | 23.65    |

**Table 59**



## 2.1.9 Test Results: U-NII-3

### 802.11a / 6 Mbps / SISO / Core 0

| Channel                             | Bottom | Middle | Top   |
|-------------------------------------|--------|--------|-------|
| Frequency (MHz)                     | 5745   | 5785   | 5825  |
| Antenna Directional Gain (dBi)      | 4.61   | 4.61   | 4.61  |
| 15.407 Conducted Power Limit (dBm)  | 30.00  | 30.00  | 30.00 |
| RSS-247 Conducted Power Limit (dBm) | 30.00  | 30.00  | 30.00 |
| Conducted Power (dBm)               | 13.92  | 13.70  | 13.64 |
| 15.407 EIRP Limit (dBm)             | 36.00  | 36.00  | 36.00 |
| RSS-247 EIRP Limit (dBm)            | 36.00  | 36.00  | 36.00 |
| EIRP Power (dBm)                    | 18.53  | 18.30  | 18.25 |

Table 60

### 802.11n / HT20 MCS0 / SISO / Core 0

| Channel                             | Bottom | Middle | Top   |
|-------------------------------------|--------|--------|-------|
| Frequency (MHz)                     | 5745   | 5785   | 5825  |
| Antenna Directional Gain (dBi)      | 4.61   | 4.61   | 4.61  |
| 15.407 Conducted Power Limit (dBm)  | 30.00  | 30.00  | 30.00 |
| RSS-247 Conducted Power Limit (dBm) | 30.00  | 30.00  | 30.00 |
| Conducted Power (dBm)               | 13.92  | 13.70  | 13.78 |
| 15.407 EIRP Limit (dBm)             | 36.00  | 36.00  | 36.00 |
| RSS-247 EIRP Limit (dBm)            | 36.00  | 36.00  | 36.00 |
| EIRP Power (dBm)                    | 18.53  | 18.30  | 18.39 |

Table 61

### 802.11n / HT20 MCS0 / MIMO CDD / Cores 0+1

| Channel                             | Bottom | Middle | Top   |
|-------------------------------------|--------|--------|-------|
| Frequency (MHz)                     | 5745   | 5785   | 5825  |
| Conducted Power Core 0 (dBm)        | 13.71  | 13.95  | 13.74 |
| Conducted Power Core 1 (dBm)        | 13.70  | 13.91  | 13.87 |
| Antenna Directional Gain (dBi)      | 4.61   | 4.61   | 4.61  |
| 15.407 Conducted Power Limit (dBm)  | 30.00  | 30.00  | 30.00 |
| RSS-247 Conducted Power Limit (dBm) | 30.00  | 30.00  | 30.00 |
| Total Conducted Power (dBm)         | 16.71  | 16.94  | 16.82 |
| 15.407 EIRP Limit (dBm)             | 36.00  | 36.00  | 36.00 |
| RSS-247 EIRP Limit (dBm)            | 36.00  | 36.00  | 36.00 |
| EIRP Power (dBm)                    | 21.32  | 21.55  | 21.43 |

Table 62



**802.11n / HT20 MCS8 / MIMO SDM / Cores 0+1**

| Channel                             | Bottom | Middle | Top   |
|-------------------------------------|--------|--------|-------|
| Frequency (MHz)                     | 5745   | 5785   | 5825  |
| Conducted Power Core 0 (dBm)        | 13.69  | 13.82  | 13.95 |
| Conducted Power Core 1 (dBm)        | 13.85  | 13.83  | 13.92 |
| Antenna Directional Gain (dBi)      | 3.99   | 3.99   | 3.99  |
| 15.407 Conducted Power Limit (dBm)  | 30.00  | 30.00  | 30.00 |
| RSS-247 Conducted Power Limit (dBm) | 30.00  | 30.00  | 30.00 |
| Total Conducted Power (dBm)         | 16.78  | 16.84  | 16.94 |
| 15.407 EIRP Limit (dBm)             | 36.00  | 36.00  | 36.00 |
| RSS-247 EIRP Limit (dBm)            | 36.00  | 36.00  | 36.00 |
| EIRP Power (dBm)                    | 20.78  | 20.83  | 20.94 |

**Table 63**

**802.11n / HT20 MCS0 / MIMO TxBF / Cores 0+1**

| Channel                             | Bottom | Middle | Top   |
|-------------------------------------|--------|--------|-------|
| Frequency (MHz)                     | 5745   | 5785   | 5825  |
| Conducted Power Core 0 (dBm)        | 13.72  | 13.91  | 13.85 |
| Conducted Power Core 1 (dBm)        | 13.67  | 13.86  | 13.98 |
| Antenna Directional Gain (dBi)      | 6.98   | 6.98   | 6.98  |
| 15.407 Conducted Power Limit (dBm)  | 29.02  | 29.02  | 29.02 |
| RSS-247 Conducted Power Limit (dBm) | 29.02  | 29.02  | 29.02 |
| Total Conducted Power (dBm)         | 16.70  | 16.90  | 16.93 |
| 15.407 EIRP Limit (dBm)             | 36.00  | 36.00  | 36.00 |
| RSS-247 EIRP Limit (dBm)            | 36.00  | 36.00  | 36.00 |
| EIRP Power (dBm)                    | 23.68  | 23.87  | 23.90 |

**Table 64**

**802.11n / HT40 MCS0 / SISO / Core 0**

| Channel                             | Bottom | Top   |
|-------------------------------------|--------|-------|
| Frequency (MHz)                     | 5755   | 5795  |
| Antenna Directional Gain (dBi)      | 4.61   | 4.61  |
| 15.407 Conducted Power Limit (dBm)  | 30.00  | 30.00 |
| RSS-247 Conducted Power Limit (dBm) | 30.00  | 30.00 |
| Conducted Power (dBm)               | 13.82  | 13.91 |
| 15.407 EIRP Limit (dBm)             | 36.00  | 36.00 |
| RSS-247 EIRP Limit (dBm)            | 36.00  | 36.00 |
| EIRP Power (dBm)                    | 18.43  | 18.52 |

**Table 65**



**802.11n / HT40 MCS0 / MIMO CDD / Cores 0+1**

| Channel                             | Bottom | Top   |
|-------------------------------------|--------|-------|
| Frequency (MHz)                     | 5755   | 5795  |
| Conducted Power Core 0 (dBm)        | 13.80  | 13.98 |
| Conducted Power Core 1 (dBm)        | 13.94  | 13.77 |
| Antenna Directional Gain (dBi)      | 4.61   | 4.61  |
| 15.407 Conducted Power Limit (dBm)  | 30.00  | 30.00 |
| RSS-247 Conducted Power Limit (dBm) | 30.00  | 30.00 |
| Total Conducted Power (dBm)         | 16.88  | 16.89 |
| 15.407 EIRP Limit (dBm)             | 36.00  | 36.00 |
| RSS-247 EIRP Limit (dBm)            | 36.00  | 36.00 |
| EIRP Power (dBm)                    | 21.49  | 21.50 |

**Table 66**

**802.11n / HT40 MCS8 / MIMO SDM / Cores 0+1**

| Channel                             | Bottom | Top   |
|-------------------------------------|--------|-------|
| Frequency (MHz)                     | 5755   | 5795  |
| Conducted Power Core 0 (dBm)        | 13.80  | 13.78 |
| Conducted Power Core 1 (dBm)        | 13.82  | 13.96 |
| Antenna Directional Gain (dBi)      | 3.27   | 3.99  |
| 15.407 Conducted Power Limit (dBm)  | 30.00  | 30.00 |
| RSS-247 Conducted Power Limit (dBm) | 30.00  | 30.00 |
| Total Conducted Power (dBm)         | 16.82  | 16.88 |
| 15.407 EIRP Limit (dBm)             | 36.00  | 36.00 |
| RSS-247 EIRP Limit (dBm)            | 36.00  | 36.00 |
| EIRP Power (dBm)                    | 20.09  | 20.87 |

**Table 67**

**802.11n / HT40 MCS0 / MIMO TxBF / Cores 0+1**

| Channel                             | Bottom | Top   |
|-------------------------------------|--------|-------|
| Frequency (MHz)                     | 5755   | 5795  |
| Conducted Power Core 0 (dBm)        | 13.87  | 13.67 |
| Conducted Power Core 1 (dBm)        | 13.84  | 13.94 |
| Antenna Directional Gain (dBi)      | 6.98   | 6.98  |
| 15.407 Conducted Power Limit (dBm)  | 29.02  | 29.02 |
| RSS-247 Conducted Power Limit (dBm) | 29.02  | 29.02 |
| Total Conducted Power (dBm)         | 16.86  | 16.82 |
| 15.407 EIRP Limit (dBm)             | 36.00  | 36.00 |
| RSS-247 EIRP Limit (dBm)            | 36.00  | 36.00 |
| EIRP Power (dBm)                    | 23.84  | 23.79 |

**Table 68**



**802.11ac / VHT80 MCS0x1 / SISO / Core 0**

|                                     |        |
|-------------------------------------|--------|
| Channel                             | Middle |
| Frequency (MHz)                     | 5775   |
| Antenna Directional Gain (dBi)      | 4.61   |
| 15.407 Conducted Power Limit (dBm)  | 30.00  |
| RSS-247 Conducted Power Limit (dBm) | 30.00  |
| Conducted Power (dBm)               | 13.88  |
| 15.407 EIRP Limit (dBm)             | 36.00  |
| RSS-247 EIRP Limit (dBm)            | 36.00  |
| EIRP Power (dBm)                    | 18.49  |

**Table 69**

**802.11ac / VHT80 MCS0x1 / MIMO CDD / Cores 0+1**

|                                     |        |
|-------------------------------------|--------|
| Channel                             | Middle |
| Frequency (MHz)                     | 5775   |
| Conducted Power Core 0 (dBm)        | 13.93  |
| Conducted Power Core 1 (dBm)        | 13.82  |
| Antenna Directional Gain (dBi)      | 4.61   |
| 15.407 Conducted Power Limit (dBm)  | 30.00  |
| RSS-247 Conducted Power Limit (dBm) | 30.00  |
| Total Conducted Power (dBm)         | 16.89  |
| 15.407 EIRP Limit (dBm)             | 36.00  |
| RSS-247 EIRP Limit (dBm)            | 36.00  |
| EIRP Power (dBm)                    | 21.50  |

**Table 70**

**802.11ac / VHT80 MCS0x2 / MIMO SDM / Cores 0+1**

|                                     |        |
|-------------------------------------|--------|
| Channel                             | Middle |
| Frequency (MHz)                     | 5775   |
| Conducted Power Core 0 (dBm)        | 13.92  |
| Conducted Power Core 1 (dBm)        | 13.77  |
| Antenna Directional Gain (dBi)      | 3.99   |
| 15.407 Conducted Power Limit (dBm)  | 30.00  |
| RSS-247 Conducted Power Limit (dBm) | 30.00  |
| Total Conducted Power (dBm)         | 16.85  |
| 15.407 EIRP Limit (dBm)             | 36.00  |
| RSS-247 EIRP Limit (dBm)            | 36.00  |
| EIRP Power (dBm)                    | 20.85  |

**Table 71**



**802.11ac / VHT80 MCS0x1 / MIMO TxBF / Cores 0+1**

|                                     |        |
|-------------------------------------|--------|
| Channel                             | Middle |
| Frequency (MHz)                     | 5775   |
| Conducted Power Core 0 (dBm)        | 13.78  |
| Conducted Power Core 1 (dBm)        | 13.78  |
| Antenna Directional Gain (dBi)      | 6.98   |
| 15.407 Conducted Power Limit (dBm)  | 29.02  |
| RSS-247 Conducted Power Limit (dBm) | 29.02  |
| Total Conducted Power (dBm)         | 16.79  |
| 15.407 EIRP Limit (dBm)             | 36.00  |
| RSS-247 EIRP Limit (dBm)            | 36.00  |
| EIRP Power (dBm)                    | 23.77  |

**Table 72**



## 2.1.10 Limits

### FCC 47 CFR Part 15E, Limit Clause 15.407(a)

| Condition of Operation | Frequency Range (MHz)                                                                                                                                                                                               |                                                                                  |           |                                                                                                            |
|------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------|-----------|------------------------------------------------------------------------------------------------------------|
|                        | 5150-5250                                                                                                                                                                                                           | 5250-5350                                                                        | 5470-5725 | 5725-5850                                                                                                  |
| Max Conducted TX Power | 30 dBm (1W) for master device<br>24 dBm (250 mW) for client device                                                                                                                                                  | 24 dBm (250 mW) or 11 dBm + 10 Log B, whichever is lower (B = 26 dB emission BW) |           | 30 dBm (1 W)                                                                                               |
| Max EIRP               | 4W (36 dBm) with 6 dBi antenna<br>200 W (53 dBm) for fixed P-t-P application with 23 dBi antenna<br>Additional rule for outdoor operation:<br>Max_EIRP < 125 mW (21 dBm) at any elevation angle > 30° from horizon. | 1 W (30 dBm) with 6 dBi antenna                                                  |           | 4 W (36 dBm) with 6 dBi antenna.<br>No EIRP limit for fixed P-t-P application (i.e. no antenna gain limit) |

**Table 73**

### Industry Canada RSS-247, Limit Clause 6.2.1.1, 6.2.2.1, 6.2.3.1 and 6.2.4.1

| Device                    | Frequency Range (MHz)                                            |                                                                                                                   |                                                                                                                   |               |
|---------------------------|------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------|---------------|
|                           | 5150-5250                                                        | 5250-5350                                                                                                         | 5470-5725                                                                                                         | 5725-5850     |
| OEM installed in vehicles | 30 mW or $1.76 + 10 \log_{10} B$ , dBm (EIRP); whichever is less | 30 mW or $1.76 + 10 \log_{10} B$ , dBm (EIRP); whichever is less                                                  | -                                                                                                                 | -             |
| Other                     | 200 mW or $10 + 10 \log_{10} B$ dBm (EIRP); whichever is less    | 250 mW or $11 + 10 \log_{10} B$ ; whichever is less<br>1.0 W or $17 + 10 \log_{10} B$ dBm EIRP; whichever is less | 250 mW or $11 + 10 \log_{10} B$ ; whichever is less<br>1.0 W or $17 + 10 \log_{10} B$ dBm EIRP; whichever is less | 1W<br>4W EIRP |

**Table 74**



### 2.1.11 Test Location and Test Equipment Used

This test was carried out in RF Laboratory 3.

| Instrument                   | Manufacturer          | Type No      | TE No | Calibration Period (months) | Calibration Due |
|------------------------------|-----------------------|--------------|-------|-----------------------------|-----------------|
| Attenuator 10dB 10W          | Weinschel             | 47-10-34     | 398   | 12                          | 18-Jul-2019     |
| Multimeter                   | Iso-tech              | IDM101       | 2424  | 12                          | 12-Dec-2019     |
| Hygrometer                   | Rotronic              | I-1000       | 2891  | 12                          | 18-Sep-/2019    |
| ZVA40 Network Analyser       | Rohde & Schwarz       | 100127       | 3548  | 12                          | 17-Oct-2019     |
| ZV-Z54 Calibration Unit      | Rohde & Schwarz       | 1000001      | 4368  | 12                          | 22-Oct-2019     |
| PXA Signal Analyser          | Keysight Technologies | N9030A       | 4653  | 12                          | 06-Feb-2020     |
| Power splitter - 2 port      | Mini-Circuits         | ZN2PD-63-S+  | 4742  | 12                          | 19-Sep-2019     |
| Power splitter - 2 port      | Mini-Circuits         | ZN2PD-63-S+  | 4743  | 12                          | 19-Sep-2019     |
| USB Power Sensor             | Boonton               | RTP5006      | 5187  | 12                          | 12-Dec-2019     |
| AC Programmable Power Supply | iTech                 | IT7324       | 5225  | -                           | O/P Mon         |
| Power Splitter, 4 way        | Mini-Circuits         | ZN4PD1-63-S+ | 5235  | -                           | O/P Mon         |
| Attenuator 10dB 2W           | Telegartner           | J01156A0031  | N/A   | N/A                         | Not serialised. |
| Attenuator 10dB 2W           | Telegartner           | J01156A0031  | N/A   | N/A                         | Not serialised. |
| Attenuator 10dB 2W           | Telegartner           | J01156A0031  | N/A   | N/A                         | Not serialised. |

**Table 75**

O/P Mon – Output Monitored using Calibrated Equipment.



## **2.2 Maximum Conducted Power Spectral Density**

### **2.2.1 Specification Reference**

FCC 47 CFR Part 15E, Clause 15.407 (a)  
Industry Canada RSS-247, Clause 6.2  
Industry Canada RSS-GEN, Clause 6.12

### **2.2.2 Equipment Under Test and Modification State**

C02Y3009L5C1, S/N: TBC - Modification State 0

### **2.2.3 Date of Test**

05-March-2019 to 22-March-2019

### **2.2.4 Test Method**

The test was performed in accordance with ANSI C63.10 clause 12.5 and KDB 789033 D02.

Results shown in the table with a duty cycle correction factor were tested with the SA-2 method (duty cycle corrected). Other results showing duty cycle is not applicable state which method was used on a per measurement basis (SA-1 or SA-3).

Results for the U-NII-3 band were measured in a narrower bandwidth and integrated over 500 kHz using the spectrum analyzers channel power integration function.

MIMO output port summing was performed in accordance with KDB 662911 D01. MIMO output port summing was performed in accordance with KDB 662911 D01. For the CDD results the Directional Gain was calculated in accordance with clause F)2)f)(ii) using the calculations from F)2)f)(i) with worst-case individual gain and an array gain of  $10 \log (2/1)$  dB. For SDM modes Directional Gain was calculated in accordance with clause F)2)d)(ii). For transmit beamforming (TxBF) mode it was calculated in accordance with clause F)2)d)(i).

### **2.2.5 Environmental Conditions**

|                     |                |
|---------------------|----------------|
| Ambient Temperature | 21.2 - 24.3 °C |
| Relative Humidity   | 34.9 - 35.6 %  |



## 2.2.6 Test Results: U-NII-1

## 2.2.7 Test Results: U-NII-1

### 802.11a / 6 Mbps / SISO / Core 0 / Country Code US

| Channel                              | Bottom   | Middle   | Top      |
|--------------------------------------|----------|----------|----------|
| Frequency (MHz)                      | 5180     | 5200     | 5240     |
| Raw Conducted PSD (dBm/MHz)          | 1.56     | 1.71     | 1.76     |
| Duty Cycle Correction (dB)           | N/A SA-1 | N/A SA-1 | N/A SA-1 |
| Antenna Directional Gain (dBi)       | 5.20     | 5.20     | 5.20     |
| 15.407 Conducted PSD Limit (dBm/MHz) | 11.00    | 11.00    | 11.00    |
| Conducted PSD Result (dBm/MHz)       | 1.56     | 1.71     | 1.76     |

Table 76

### 802.11a / 6 Mbps / SISO / Core 0 / Country Code CA

| Channel                                       | Bottom   | Middle   | Top      |
|-----------------------------------------------|----------|----------|----------|
| Frequency (MHz)                               | 5180     | 5200     | 5240     |
| Raw Conducted PSD (dBm/MHz)                   | 1.58     | 1.65     | 2.68     |
| Duty Cycle Correction (dB)                    | N/A SA-1 | N/A SA-1 | N/A SA-1 |
| Antenna Directional Gain (dBi)                | 5.20     | 5.20     | 4.82     |
| RSS-247 EIRP Spectral Density Limit (dBm/MHz) | 10.00    | 10.00    | 10.00    |
| EIRP Spectral Density Result (dBm/MHz)        | 6.78     | 6.85     | 7.50     |

Table 77

### 802.11n / HT20 MCS0 / SISO / Core 0 / Country Code US

| Channel                              | Bottom   | Middle   | Top      |
|--------------------------------------|----------|----------|----------|
| Frequency (MHz)                      | 5180     | 5200     | 5240     |
| Raw Conducted PSD (dBm/MHz)          | 2.10     | 1.26     | 1.46     |
| Duty Cycle Correction (dB)           | N/A SA-1 | N/A SA-1 | N/A SA-1 |
| Antenna Directional Gain (dBi)       | 5.20     | 5.20     | 5.20     |
| 15.407 Conducted PSD Limit (dBm/MHz) | 11.00    | 11.00    | 11.00    |
| Conducted PSD Result (dBm/MHz)       | 2.10     | 1.26     | 1.46     |

Table 78

### 802.11n / HT20 MCS0 / SISO / Core 0 / Country Code CA

| Channel                                       | Bottom   | Middle   | Top      |
|-----------------------------------------------|----------|----------|----------|
| Frequency (MHz)                               | 5180     | 5200     | 5240     |
| Raw Conducted PSD (dBm/MHz)                   | 1.03     | 1.83     | 1.46     |
| Duty Cycle Correction (dB)                    | N/A SA-1 | N/A SA-1 | N/A SA-1 |
| Antenna Directional Gain (dBi)                | 5.20     | 5.20     | 5.20     |
| RSS-247 EIRP Spectral Density Limit (dBm/MHz) | 10.00    | 10.00    | 10.00    |
| EIRP Spectral Density Result (dBm/MHz)        | 6.23     | 7.03     | 6.66     |

Table 79



**802.11n / HT20 MCS0 / MIMO CDD / Cores 0+1 / Country Code US**

| Channel                              | Bottom   | Middle   | Top      |
|--------------------------------------|----------|----------|----------|
| Frequency (MHz)                      | 5180     | 5200     | 5240     |
| Conducted PSD Core 0 (dBm/MHz)       | 1.51     | 1.54     | 1.40     |
| Conducted PSD Core 1 (dBm/MHz)       | 1.64     | 0.75     | 1.57     |
| Duty Cycle Correction (dB)           | N/A SA-1 | N/A SA-1 | N/A SA-1 |
| Antenna Directional Gain (dBi)       | 8.02     | 8.02     | 8.02     |
| 15.407 Conducted PSD Limit (dBm/MHz) | 8.98     | 8.98     | 8.98     |
| Conducted PSD Result (dBm/MHz)       | 4.59     | 4.17     | 4.50     |

**Table 80**

**802.11n / HT20 MCS0 / MIMO CDD / Cores 0+1 / Country Code CA**

| Channel                                       | Bottom   | Middle   | Top      |
|-----------------------------------------------|----------|----------|----------|
| Frequency (MHz)                               | 5180     | 5200     | 5240     |
| Conducted PSD Core 0 (dBm/MHz)                | -4.17    | -4.07    | -3.44    |
| Conducted PSD Core 1 (dBm/MHz)                | -4.31    | -4.02    | -2.76    |
| Duty Cycle Correction (dB)                    | N/A SA-1 | N/A SA-1 | N/A SA-1 |
| Antenna Directional Gain (dBi)                | 8.02     | 8.02     | 8.02     |
| RSS-247 EIRP Spectral Density Limit (dBm/MHz) | 10.00    | 10.00    | 10.00    |
| EIRP Spectral Density Result (dBm/MHz)        | 6.79     | 6.99     | 7.95     |

**Table 81**

**802.11n / HT20 MCS8 / MIMO SDM / Cores 0+1 / Country Code US**

| Channel                              | Bottom   | Middle   | Top      |
|--------------------------------------|----------|----------|----------|
| Frequency (MHz)                      | 5180     | 5200     | 5240     |
| Conducted PSD Core 0 (dBm/MHz)       | 1.34     | 1.14     | 1.43     |
| Conducted PSD Core 1 (dBm/MHz)       | 1.22     | 1.76     | 1.45     |
| Duty Cycle Correction (dB)           | N/A SA-1 | N/A SA-1 | N/A SA-1 |
| Antenna Directional Gain (dBi)       | 5.01     | 5.01     | 5.01     |
| 15.407 Conducted PSD Limit (dBm/MHz) | 11.00    | 11.00    | 11.00    |
| Conducted PSD Result (dBm/MHz)       | 4.29     | 4.47     | 4.45     |

**Table 82**

**802.11n / HT20 MCS8 / MIMO SDM / Cores 0+1 / Country Code CA**

| Channel                                       | Bottom   | Middle   | Top      |
|-----------------------------------------------|----------|----------|----------|
| Frequency (MHz)                               | 5180     | 5200     | 5240     |
| Conducted PSD Core 0 (dBm/MHz)                | -1.72    | -1.82    | -0.43    |
| Conducted PSD Core 1 (dBm/MHz)                | -1.60    | -2.04    | -0.64    |
| Duty Cycle Correction (dB)                    | N/A SA-1 | N/A SA-1 | N/A SA-1 |
| Antenna Directional Gain (dBi)                | 5.01     | 5.01     | 4.82     |
| RSS-247 EIRP Spectral Density Limit (dBm/MHz) | 10.00    | 10.00    | 10.00    |
| EIRP Spectral Density Result (dBm/MHz)        | 6.36     | 6.10     | 7.30     |

**Table 83**



**802.11n / HT20 MCS0 / MIMO TxBF / Cores 0+1 / Country Code US**

| Channel                              | Bottom   | Middle   | Top      |
|--------------------------------------|----------|----------|----------|
| Frequency (MHz)                      | 5180     | 5200     | 5240     |
| Conducted PSD Core 0 (dBm/MHz)       | 1.00     | 1.19     | 2.06     |
| Conducted PSD Core 1 (dBm/MHz)       | 1.20     | 2.07     | 1.87     |
| Duty Cycle Correction (dB)           | N/A SA-3 | N/A SA-3 | N/A SA-3 |
| Antenna Directional Gain (dBi)       | 8.02     | 8.02     | 8.02     |
| 15.407 Conducted PSD Limit (dBm/MHz) | 8.98     | 8.98     | 8.98     |
| Conducted PSD Result (dBm/MHz)       | 4.11     | 4.66     | 4.98     |

**Table 84**

**802.11n / HT20 MCS0 / MIMO TxBF / Cores 0+1 / Country Code CA**

| Channel                                       | Bottom   | Middle   | Top      |
|-----------------------------------------------|----------|----------|----------|
| Frequency (MHz)                               | 5180     | 5200     | 5240     |
| Conducted PSD Core 0 (dBm/MHz)                | -3.94    | -4.45    | -3.72    |
| Conducted PSD Core 1 (dBm/MHz)                | -3.63    | -3.96    | -4.27    |
| Duty Cycle Correction (dB)                    | N/A SA-3 | N/A SA-3 | N/A SA-3 |
| Antenna Directional Gain (dBi)                | 8.02     | 8.02     | 8.02     |
| RSS-247 EIRP Spectral Density Limit (dBm/MHz) | 10.00    | 10.00    | 10.00    |
| EIRP Spectral Density Result (dBm/MHz)        | 7.25     | 6.83     | 7.05     |

**Table 85**

**802.11n / HT40 MCS0 / SISO / Core 0 / Country Code US**

| Channel                              | Bottom   | Top      |
|--------------------------------------|----------|----------|
| Frequency (MHz)                      | 5190     | 5230     |
| Raw Conducted PSD (dBm/MHz)          | -1.29    | -1.44    |
| Duty Cycle Correction (dB)           | N/A SA-1 | N/A SA-1 |
| Antenna Directional Gain (dBi)       | 5.20     | 5.20     |
| 15.407 Conducted PSD Limit (dBm/MHz) | 11.00    | 11.00    |
| Conducted PSD Result (dBm/MHz)       | -1.29    | -1.44    |

**Table 86**

**802.11n / HT40 MCS0 / SISO / Core 0 / Country Code CA**

| Channel                                       | Bottom   | Top      |
|-----------------------------------------------|----------|----------|
| Frequency (MHz)                               | 5190     | 5230     |
| Raw Conducted PSD (dBm/MHz)                   | -1.63    | -1.73    |
| Duty Cycle Correction (dB)                    | N/A SA-1 | N/A SA-1 |
| Antenna Directional Gain (dBi)                | 5.20     | 5.20     |
| RSS-247 EIRP Spectral Density Limit (dBm/MHz) | 10.00    | 10.00    |
| EIRP Spectral Density Result (dBm/MHz)        | 3.57     | 3.47     |

**Table 87**



**802.11n / HT40 MCS0 / MIMO CDD / Cores 0+1 / Country Code US**

| Channel                              | Bottom   | Top      |
|--------------------------------------|----------|----------|
| Frequency (MHz)                      | 5190     | 5230     |
| Conducted PSD Core 0 (dBm/MHz)       | -2.53    | -1.59    |
| Conducted PSD Core 1 (dBm/MHz)       | -2.61    | -1.38    |
| Duty Cycle Correction (dB)           | N/A SA-1 | N/A SA-1 |
| Antenna Directional Gain (dBi)       | 8.02     | 8.02     |
| 15.407 Conducted PSD Limit (dBm/MHz) | 8.98     | 8.98     |
| Conducted PSD Result (dBm/MHz)       | 0.44     | 1.53     |

**Table 88**

**802.11n / HT40 MCS0 / MIMO CDD / Cores 0+1 / Country Code CA**

| Channel                                       | Bottom   | Top      |
|-----------------------------------------------|----------|----------|
| Frequency (MHz)                               | 5190     | 5230     |
| Conducted PSD Core 0 (dBm/MHz)                | -5.03    | -5.13    |
| Conducted PSD Core 1 (dBm/MHz)                | -4.97    | -4.80    |
| Duty Cycle Correction (dB)                    | N/A SA-1 | N/A SA-1 |
| Antenna Directional Gain (dBi)                | 8.02     | 8.02     |
| RSS-247 EIRP Spectral Density Limit (dBm/MHz) | 10.00    | 10.00    |
| EIRP Spectral Density Result (dBm/MHz)        | 6.03     | 6.07     |

**Table 89**

**802.11n / HT40 MCS8 / MIMO SDM / Cores 0+1 / Country Code US**

| Channel                              | Bottom | Top   |
|--------------------------------------|--------|-------|
| Frequency (MHz)                      | 5190   | 5230  |
| Conducted PSD Core 0 (dBm/MHz)       | -1.85  | -2.01 |
| Conducted PSD Core 1 (dBm/MHz)       | -1.95  | -1.69 |
| Duty Cycle Correction (dB)           | 0.12   | 0.13  |
| Antenna Directional Gain (dBi)       | 5.01   | 5.01  |
| 15.407 Conducted PSD Limit (dBm/MHz) | 11.00  | 11.00 |
| Conducted PSD Result (dBm/MHz)       | 1.23   | 1.29  |

**Table 90**

**802.11n / HT40 MCS8 / MIMO SDM / Cores 0+1 / Country Code CA**

| Channel                                       | Bottom | Top   |
|-----------------------------------------------|--------|-------|
| Frequency (MHz)                               | 5190   | 5230  |
| Conducted PSD Core 0 (dBm/MHz)                | -1.79  | -1.91 |
| Conducted PSD Core 1 (dBm/MHz)                | -2.30  | -2.09 |
| Duty Cycle Correction (dB)                    | 0.13   | 0.12  |
| Antenna Directional Gain (dBi)                | 5.01   | 5.01  |
| RSS-247 EIRP Spectral Density Limit (dBm/MHz) | 10.00  | 10.00 |
| EIRP Spectral Density Result (dBm/MHz)        | 6.11   | 6.15  |

**Table 91**



**802.11n / HT40 MCS0 / MIMO TxBF / Cores 0+1 / Country Code US**

| Channel                              | Bottom   | Top      |
|--------------------------------------|----------|----------|
| Frequency (MHz)                      | 5190     | 5230     |
| Conducted PSD Core 0 (dBm/MHz)       | -2.49    | -1.14    |
| Conducted PSD Core 1 (dBm/MHz)       | -2.52    | -1.74    |
| Duty Cycle Correction (dB)           | N/A SA-3 | N/A SA-3 |
| Antenna Directional Gain (dBi)       | 8.02     | 8.02     |
| 15.407 Conducted PSD Limit (dBm/MHz) | 8.98     | 8.98     |
| Conducted PSD Result (dBm/MHz)       | 0.51     | 1.58     |

**Table 92**

**802.11n / HT40 MCS0 / MIMO TxBF / Cores 0+1 / Country Code CA**

| Channel                                       | Bottom   | Top      |
|-----------------------------------------------|----------|----------|
| Frequency (MHz)                               | 5190     | 5230     |
| Conducted PSD Core 0 (dBm/MHz)                | -4.69    | -4.30    |
| Conducted PSD Core 1 (dBm/MHz)                | -4.32    | -4.42    |
| Duty Cycle Correction (dB)                    | N/A SA-3 | N/A SA-3 |
| Antenna Directional Gain (dBi)                | 8.02     | 8.02     |
| RSS-247 EIRP Spectral Density Limit (dBm/MHz) | 10.00    | 10.00    |
| EIRP Spectral Density Result (dBm/MHz)        | 6.53     | 6.67     |

**Table 93**

**802.11ac / VHT20 MCS0x1 / MIMO TxBF / Cores 0+1 / Country Code US**

| Channel                              | Bottom   |
|--------------------------------------|----------|
| Frequency (MHz)                      | 5180     |
| Conducted PSD Core 0 (dBm/MHz)       | 0.69     |
| Conducted PSD Core 1 (dBm/MHz)       | 0.37     |
| Duty Cycle Correction (dB)           | N/A SA-3 |
| Antenna Directional Gain (dBi)       | 8.02     |
| 15.407 Conducted PSD Limit (dBm/MHz) | 8.98     |
| Conducted PSD Result (dBm/MHz)       | 3.54     |

**Table 94**

**802.11ac / VHT80 MCS0x1 / SISO / Core 0 / Country Code US**

| Channel                              | Middle |
|--------------------------------------|--------|
| Frequency (MHz)                      | 5210   |
| Raw Conducted PSD (dBm/MHz)          | -4.76  |
| Duty Cycle Correction (dB)           | 0.15   |
| Antenna Directional Gain (dBi)       | 5.20   |
| 15.407 Conducted PSD Limit (dBm/MHz) | 11.00  |
| Conducted PSD Result (dBm/MHz)       | -4.61  |

**Table 95**



**802.11ac / VHT80 MCS0x1 / SISO / Core 0 / Country Code CA**

|                                               |        |
|-----------------------------------------------|--------|
| Channel                                       | Middle |
| Frequency (MHz)                               | 5210   |
| Raw Conducted PSD (dBm/MHz)                   | -4.67  |
| Duty Cycle Correction (dB)                    | 0.14   |
| Antenna Directional Gain (dBi)                | 5.20   |
| RSS-247 EIRP Spectral Density Limit (dBm/MHz) | 10.00  |
| EIRP Spectral Density Result (dBm/MHz)        | 0.67   |

**Table 96**

**802.11ac / VHT80 MCS0x1 / MIMO CDD / Cores 0+1 / Country Code US**

|                                      |        |
|--------------------------------------|--------|
| Channel                              | Middle |
| Frequency (MHz)                      | 5210   |
| Conducted PSD Core 0 (dBm/MHz)       | -6.66  |
| Conducted PSD Core 1 (dBm/MHz)       | -5.90  |
| Duty Cycle Correction (dB)           | 0.15   |
| Antenna Directional Gain (dBi)       | 8.02   |
| 15.407 Conducted PSD Limit (dBm/MHz) | 8.98   |
| Conducted PSD Result (dBm/MHz)       | -3.11  |

**Table 97**

**802.11ac / VHT80 MCS0x1 / MIMO CDD / Cores 0+1 / Country Code CA**

|                                               |        |
|-----------------------------------------------|--------|
| Channel                                       | Middle |
| Frequency (MHz)                               | 5210   |
| Conducted PSD Core 0 (dBm/MHz)                | -6.26  |
| Conducted PSD Core 1 (dBm/MHz)                | -5.64  |
| Duty Cycle Correction (dB)                    | 0.13   |
| Antenna Directional Gain (dBi)                | 8.02   |
| RSS-247 EIRP Spectral Density Limit (dBm/MHz) | 10.00  |
| EIRP Spectral Density Result (dBm/MHz)        | 5.22   |

**Table 98**

**802.11ac / VHT80 MCS0x2 / MIMO SDM / Cores 0+1 / Country Code US**

|                                      |        |
|--------------------------------------|--------|
| Channel                              | Middle |
| Frequency (MHz)                      | 5210   |
| Conducted PSD Core 0 (dBm/MHz)       | -4.88  |
| Conducted PSD Core 1 (dBm/MHz)       | -4.88  |
| Duty Cycle Correction (dB)           | 0.24   |
| Antenna Directional Gain (dBi)       | 5.01   |
| 15.407 Conducted PSD Limit (dBm/MHz) | 11.00  |
| Conducted PSD Result (dBm/MHz)       | -1.63  |

**Table 99**



**802.11ac / VHT80 MCS0x2 / MIMO SDM / Cores 0+1 / Country Code CA**

|                                               |          |
|-----------------------------------------------|----------|
| Channel                                       | Middle   |
| Frequency (MHz)                               | 5210     |
| Conducted PSD Core 0 (dBm/MHz)                | -2.97    |
| Conducted PSD Core 1 (dBm/MHz)                | -4.73    |
| Duty Cycle Correction (dB)                    | N/A SA-1 |
| Antenna Directional Gain (dBi)                | 5.01     |
| RSS-247 EIRP Spectral Density Limit (dBm/MHz) | 10.00    |
| EIRP Spectral Density Result (dBm/MHz)        | 4.26     |

**Table 100**

**802.11ac / VHT80 MCS0x1 / MIMO TxBF / Cores 0+1 / Country Code US**

|                                      |          |
|--------------------------------------|----------|
| Channel                              | Middle   |
| Frequency (MHz)                      | 5210     |
| Conducted PSD Core 0 (dBm/MHz)       | -6.13    |
| Conducted PSD Core 1 (dBm/MHz)       | -5.94    |
| Duty Cycle Correction (dB)           | N/A SA-3 |
| Antenna Directional Gain (dBi)       | 8.02     |
| 15.407 Conducted PSD Limit (dBm/MHz) | 8.98     |
| Conducted PSD Result (dBm/MHz)       | -3.02    |

**Table 101**

**802.11ac / VHT80 MCS0x1 / MIMO TxBF / Cores 0+1 / Country Code CA**

|                                               |          |
|-----------------------------------------------|----------|
| Channel                                       | Middle   |
| Frequency (MHz)                               | 5210     |
| Conducted PSD Core 0 (dBm/MHz)                | -6.99    |
| Conducted PSD Core 1 (dBm/MHz)                | -7.21    |
| Duty Cycle Correction (dB)                    | N/A SA-3 |
| Antenna Directional Gain (dBi)                | 8.02     |
| RSS-247 EIRP Spectral Density Limit (dBm/MHz) | 10.00    |
| EIRP Spectral Density Result (dBm/MHz)        | 3.94     |

**Table 102**



## 2.2.8 Test Results: U-NII-2A

### 802.11a / 6 Mbps / SISO / Core 0

| Channel                               | Bottom   | Middle   | Top      |
|---------------------------------------|----------|----------|----------|
| Frequency (MHz)                       | 5260     | 5280     | 5320     |
| Raw Conducted PSD (dBm/MHz)           | 2.79     | 3.20     | 3.10     |
| Duty Cycle Correction (dB)            | N/A SA-1 | N/A SA-1 | N/A SA-1 |
| Antenna Directional Gain (dBi)        | 4.69     | 4.69     | 4.69     |
| 15.407 Conducted PSD Limit (dBm/MHz)  | 11.00    | 11.00    | 11.00    |
| RSS-247 Conducted PSD Limit (dBm/MHz) | 11.00    | 11.00    | 11.00    |
| Conducted PSD Result (dBm/MHz)        | 2.79     | 3.20     | 3.10     |

Table 103

### 802.11n / HT20 MCS0 / SISO / Core 0

| Channel                               | Bottom   | Middle   | Top      |
|---------------------------------------|----------|----------|----------|
| Frequency (MHz)                       | 5260     | 5280     | 5320     |
| Raw Conducted PSD (dBm/MHz)           | 2.82     | 2.62     | 2.71     |
| Duty Cycle Correction (dB)            | N/A SA-1 | N/A SA-1 | N/A SA-1 |
| Antenna Directional Gain (dBi)        | 4.69     | 4.69     | 4.69     |
| 15.407 Conducted PSD Limit (dBm/MHz)  | 11.00    | 11.00    | 11.00    |
| RSS-247 Conducted PSD Limit (dBm/MHz) | 11.00    | 11.00    | 11.00    |
| Conducted PSD Result (dBm/MHz)        | 2.82     | 2.62     | 2.71     |

Table 104

### 802.11n / HT20 MCS0 / MIMO CDD / Cores 0+1

| Channel                               | Bottom   | Middle   | Top      |
|---------------------------------------|----------|----------|----------|
| Frequency (MHz)                       | 5260     | 5280     | 5320     |
| Conducted PSD Core 0 (dBm/MHz)        | 2.43     | 2.81     | 2.56     |
| Conducted PSD Core 1 (dBm/MHz)        | 2.84     | 2.51     | 3.04     |
| Duty Cycle Correction (dB)            | N/A SA-1 | N/A SA-1 | N/A SA-1 |
| Antenna Directional Gain (dBi)        | 7.47     | 7.47     | 7.47     |
| 15.407 Conducted PSD Limit (dBm/MHz)  | 11.00    | 11.00    | 11.00    |
| RSS-247 Conducted PSD Limit (dBm/MHz) | 11.00    | 11.00    | 11.00    |
| Conducted PSD Result (dBm/MHz)        | 5.65     | 5.67     | 5.82     |

Table 105

### 802.11n / HT20 MCS8 / MIMO SDM / Cores 0+1

| Channel                               | Bottom   | Middle | Top      |
|---------------------------------------|----------|--------|----------|
| Frequency (MHz)                       | 5260     | 5280   | 5320     |
| Conducted PSD Core 0 (dBm/MHz)        | 2.38     | 2.47   | 2.98     |
| Conducted PSD Core 1 (dBm/MHz)        | 2.42     | 2.84   | 2.79     |
| Duty Cycle Correction (dB)            | N/A SA-1 | 0.17   | N/A SA-1 |
| Antenna Directional Gain (dBi)        | 4.46     | 4.46   | 4.46     |
| 15.407 Conducted PSD Limit (dBm/MHz)  | 11.00    | 11.00  | 11.00    |
| RSS-247 Conducted PSD Limit (dBm/MHz) | 11.00    | 11.00  | 11.00    |
| Conducted PSD Result (dBm/MHz)        | 5.41     | 5.84   | 5.89     |

Table 106



**802.11n / HT20 MCS0 / MIMO TxBF / Cores 0+1**

| Channel                               | Bottom   | Middle   | Top      |
|---------------------------------------|----------|----------|----------|
| Frequency (MHz)                       | 5260     | 5280     | 5320     |
| Conducted PSD Core 0 (dBm/MHz)        | 2.95     | 2.98     | 3.09     |
| Conducted PSD Core 1 (dBm/MHz)        | 2.72     | 2.79     | 2.65     |
| Duty Cycle Correction (dB)            | N/A SA-3 | N/A SA-3 | N/A SA-3 |
| Antenna Directional Gain (dBi)        | 7.47     | 7.47     | 7.47     |
| 15.407 Conducted PSD Limit (dBm/MHz)  | 11.00    | 11.00    | 11.00    |
| RSS-247 Conducted PSD Limit (dBm/MHz) | 11.00    | 11.00    | 11.00    |
| Conducted PSD Result (dBm/MHz)        | 5.85     | 5.90     | 5.89     |

**Table 107**

**802.11n / HT40 MCS0 / SISO / Core 0**

| Channel                               | Bottom   | Top      |
|---------------------------------------|----------|----------|
| Frequency (MHz)                       | 5270     | 5310     |
| Raw Conducted PSD (dBm/MHz)           | -0.74    | -0.67    |
| Duty Cycle Correction (dB)            | N/A SA-1 | N/A SA-1 |
| Antenna Directional Gain (dBi)        | 4.69     | 4.69     |
| 15.407 Conducted PSD Limit (dBm/MHz)  | 11.00    | 11.00    |
| RSS-247 Conducted PSD Limit (dBm/MHz) | 11.00    | 11.00    |
| Conducted PSD Result (dBm/MHz)        | -0.74    | -0.67    |

**Table 108**

**802.11n / HT40 MCS0 / MIMO CDD / Cores 0+1**

| Channel                               | Bottom   | Top      |
|---------------------------------------|----------|----------|
| Frequency (MHz)                       | 5270     | 5310     |
| Conducted PSD Core 0 (dBm/MHz)        | -0.95    | -0.66    |
| Conducted PSD Core 1 (dBm/MHz)        | -0.72    | -0.29    |
| Duty Cycle Correction (dB)            | N/A SA-1 | N/A SA-1 |
| Antenna Directional Gain (dBi)        | 7.47     | 7.47     |
| 15.407 Conducted PSD Limit (dBm/MHz)  | 11.00    | 11.00    |
| RSS-247 Conducted PSD Limit (dBm/MHz) | 11.00    | 11.00    |
| Conducted PSD Result (dBm/MHz)        | 2.18     | 2.54     |

**Table 109**

**802.11n / HT40 MCS8 / MIMO SDM / Cores 0+1**

| Channel                               | Bottom | Top   |
|---------------------------------------|--------|-------|
| Frequency (MHz)                       | 5270   | 5310  |
| Conducted PSD Core 0 (dBm/MHz)        | -0.82  | -0.82 |
| Conducted PSD Core 1 (dBm/MHz)        | -0.81  | -0.38 |
| Duty Cycle Correction (dB)            | 0.12   | 0.14  |
| Antenna Directional Gain (dBi)        | 4.46   | 4.46  |
| 15.407 Conducted PSD Limit (dBm/MHz)  | 11.00  | 11.00 |
| RSS-247 Conducted PSD Limit (dBm/MHz) | 11.00  | 11.00 |
| Conducted PSD Result (dBm/MHz)        | 2.32   | 2.55  |

**Table 110**



**802.11n / HT40 MCS0 / MIMO TxBF / Cores 0+1**

| Channel                               | Bottom   | Top      |
|---------------------------------------|----------|----------|
| Frequency (MHz)                       | 5270     | 5310     |
| Conducted PSD Core 0 (dBm/MHz)        | -0.11    | -0.58    |
| Conducted PSD Core 1 (dBm/MHz)        | 0.07     | -0.22    |
| Duty Cycle Correction (dB)            | N/A SA-3 | N/A SA-3 |
| Antenna Directional Gain (dBi)        | 7.47     | 7.47     |
| 15.407 Conducted PSD Limit (dBm/MHz)  | 11.00    | 11.00    |
| RSS-247 Conducted PSD Limit (dBm/MHz) | 11.00    | 11.00    |
| Conducted PSD Result (dBm/MHz)        | 2.99     | 2.62     |

**Table 111**

**802.11ac / VHT80 MCS0x1 / SISO / Core 0**

| Channel                               | Middle |
|---------------------------------------|--------|
| Frequency (MHz)                       | 5290   |
| Raw Conducted PSD (dBm/MHz)           | -3.23  |
| Duty Cycle Correction (dB)            | 0.14   |
| Antenna Directional Gain (dBi)        | 4.69   |
| 15.407 Conducted PSD Limit (dBm/MHz)  | 11.00  |
| RSS-247 Conducted PSD Limit (dBm/MHz) | 11.00  |
| Conducted PSD Result (dBm/MHz)        | -3.09  |

**Table 112**

**802.11ac / VHT80 MCS0x1 / MIMO CDD / Cores 0+1**

| Channel                               | Middle |
|---------------------------------------|--------|
| Frequency (MHz)                       | 5290   |
| Conducted PSD Core 0 (dBm/MHz)        | -3.30  |
| Conducted PSD Core 1 (dBm/MHz)        | -3.42  |
| Duty Cycle Correction (dB)            | 0.13   |
| Antenna Directional Gain (dBi)        | 7.23   |
| 15.407 Conducted PSD Limit (dBm/MHz)  | 11.00  |
| RSS-247 Conducted PSD Limit (dBm/MHz) | 11.00  |
| Conducted PSD Result (dBm/MHz)        | -0.21  |

**Table 113**

**802.11ac / VHT80 MCS0x2 / MIMO SDM / Cores 0+1**

| Channel                               | Middle |
|---------------------------------------|--------|
| Frequency (MHz)                       | 5290   |
| Conducted PSD Core 0 (dBm/MHz)        | -4.95  |
| Conducted PSD Core 1 (dBm/MHz)        | -3.52  |
| Duty Cycle Correction (dB)            | 0.24   |
| Antenna Directional Gain (dBi)        | 4.46   |
| 15.407 Conducted PSD Limit (dBm/MHz)  | 11.00  |
| RSS-247 Conducted PSD Limit (dBm/MHz) | 11.00  |
| Conducted PSD Result (dBm/MHz)        | -0.92  |

**Table 114**



802.11ac / VHT80 MCS0x1 / MIMO TxBF / Cores 0+1

|                                       |          |
|---------------------------------------|----------|
| Channel                               | Middle   |
| Frequency (MHz)                       | 5290     |
| Conducted PSD Core 0 (dBm/MHz)        | -4.74    |
| Conducted PSD Core 1 (dBm/MHz)        | -5.16    |
| Duty Cycle Correction (dB)            | N/A SA-3 |
| Antenna Directional Gain (dBi)        | 7.47     |
| 15.407 Conducted PSD Limit (dBm/MHz)  | 11.00    |
| RSS-247 Conducted PSD Limit (dBm/MHz) | 11.00    |
| Conducted PSD Result (dBm/MHz)        | -1.93    |

Table 115



## 2.2.9 Test Results: U-NII-2C

### 802.11a / 6 Mbps / SISO / Core 0

| Channel                               | Bottom   | Middle   | Top      | Straddle |
|---------------------------------------|----------|----------|----------|----------|
| Frequency (MHz)                       | 5500     | 5580     | 5700     | 5720     |
| Raw Conducted PSD (dBm/MHz)           | 2.56     | 3.07     | 4.06     | 3.92     |
| Duty Cycle Correction (dB)            | N/A SA-1 | N/A SA-1 | N/A SA-1 | N/A SA-1 |
| Antenna Directional Gain (dBi)        | 5.29     | 5.29     | 5.29     | 5.29     |
| 15.407 Conducted PSD Limit (dBm/MHz)  | 11.00    | 11.00    | 11.00    | 11.00    |
| RSS-247 Conducted PSD Limit (dBm/MHz) | 11.00    | 11.00    | 11.00    | 11.00    |
| Conducted PSD Result (dBm/MHz)        | 2.56     | 3.07     | 4.06     | 3.92     |

Table 116

### 802.11n / HT20 MCS0 / SISO / Core 0

| Channel                               | Bottom   | Middle   | Top      | Straddle |
|---------------------------------------|----------|----------|----------|----------|
| Frequency (MHz)                       | 5500     | 5580     | 5700     | 5720     |
| Raw Conducted PSD (dBm/MHz)           | 2.31     | 2.83     | 2.63     | 2.99     |
| Duty Cycle Correction (dB)            | N/A SA-1 | N/A SA-1 | N/A SA-1 | N/A SA-1 |
| Antenna Directional Gain (dBi)        | 5.29     | 5.29     | 5.29     | 5.29     |
| 15.407 Conducted PSD Limit (dBm/MHz)  | 11.00    | 11.00    | 11.00    | 11.00    |
| RSS-247 Conducted PSD Limit (dBm/MHz) | 11.00    | 11.00    | 11.00    | 11.00    |
| Conducted PSD Result (dBm/MHz)        | 2.31     | 2.83     | 2.63     | 2.99     |

Table 117

### 802.11n / HT20 MCS0 / MIMO CDD / Cores 0+1

| Channel                               | Bottom   | Middle   | Top      | Straddle |
|---------------------------------------|----------|----------|----------|----------|
| Frequency (MHz)                       | 5500     | 5580     | 5700     | 5720     |
| Conducted PSD Core 0 (dBm/MHz)        | 2.23     | 2.47     | 2.59     | 3.50     |
| Conducted PSD Core 1 (dBm/MHz)        | 1.94     | 2.57     | 2.88     | 3.14     |
| Duty Cycle Correction (dB)            | N/A SA-1 | N/A SA-1 | N/A SA-1 | N/A SA-1 |
| Antenna Directional Gain (dBi)        | 8.03     | 8.03     | 8.03     | 8.03     |
| 15.407 Conducted PSD Limit (dBm/MHz)  | 11.00    | 11.00    | 11.00    | 11.00    |
| RSS-247 Conducted PSD Limit (dBm/MHz) | 11.00    | 11.00    | 11.00    | 11.00    |
| Conducted PSD Result (dBm/MHz)        | 5.10     | 5.53     | 5.75     | 6.34     |

Table 118

### 802.11n / HT20 MCS8 / MIMO SDM / Cores 0+1

| Channel                               | Bottom   | Middle   | Top   | Straddle |
|---------------------------------------|----------|----------|-------|----------|
| Frequency (MHz)                       | 5500     | 5580     | 5700  | 5720     |
| Conducted PSD Core 0 (dBm/MHz)        | 2.75     | 2.80     | 3.07  | 3.56     |
| Conducted PSD Core 1 (dBm/MHz)        | 2.42     | 2.58     | 2.71  | 3.16     |
| Duty Cycle Correction (dB)            | N/A SA-1 | N/A SA-1 | 0.09  | N/A SA-1 |
| Antenna Directional Gain (dBi)        | 5.02     | 5.02     | 5.02  | 5.02     |
| 15.407 Conducted PSD Limit (dBm/MHz)  | 11.00    | 11.00    | 11.00 | 11.00    |
| RSS-247 Conducted PSD Limit (dBm/MHz) | 11.00    | 11.00    | 11.00 | 11.00    |
| Conducted PSD Result (dBm/MHz)        | 5.60     | 5.70     | 5.99  | 6.37     |

Table 119



**802.11n / HT20 MCS0 / MIMO TxBF / Cores 0+1**

| Channel                               | Bottom   | Middle   | Top      | Straddle |
|---------------------------------------|----------|----------|----------|----------|
| Frequency (MHz)                       | 5500     | 5580     | 5700     | 5720     |
| Conducted PSD Core 0 (dBm/MHz)        | 2.67     | 3.07     | 3.38     | 3.55     |
| Conducted PSD Core 1 (dBm/MHz)        | 2.88     | 2.98     | 3.19     | 3.46     |
| Duty Cycle Correction (dB)            | N/A SA-3 | N/A SA-3 | N/A SA-3 | N/A SA-3 |
| Antenna Directional Gain (dBi)        | 8.03     | 8.03     | 8.03     | 8.03     |
| 15.407 Conducted PSD Limit (dBm/MHz)  | 11.00    | 11.00    | 11.00    | 11.00    |
| RSS-247 Conducted PSD Limit (dBm/MHz) | 11.00    | 11.00    | 11.00    | 11.00    |
| Conducted PSD Result (dBm/MHz)        | 5.78     | 6.03     | 6.29     | 6.52     |

**Table 120**

**802.11n / HT40 MCS0 / SISO / Core 0**

| Channel                               | Bottom   | Middle   | Top      | Straddle |
|---------------------------------------|----------|----------|----------|----------|
| Frequency (MHz)                       | 5510     | 5590     | 5670     | 5710     |
| Raw Conducted PSD (dBm/MHz)           | -1.17    | -0.18    | -0.02    | 0.36     |
| Duty Cycle Correction (dB)            | N/A SA-1 | N/A SA-1 | N/A SA-1 | N/A SA-1 |
| Antenna Directional Gain (dBi)        | 5.29     | 5.29     | 5.29     | 5.29     |
| 15.407 Conducted PSD Limit (dBm/MHz)  | 11.00    | 11.00    | 11.00    | 11.00    |
| RSS-247 Conducted PSD Limit (dBm/MHz) | 11.00    | 11.00    | 11.00    | 11.00    |
| Conducted PSD Result (dBm/MHz)        | -1.17    | -0.18    | -0.02    | 0.36     |

**Table 121**

**802.11n / HT40 MCS0 / MIMO CDD / Cores 0+1**

| Channel                               | Bottom   | Middle   | Top   | Straddle |
|---------------------------------------|----------|----------|-------|----------|
| Frequency (MHz)                       | 5510     | 5590     | 5670  | 5710     |
| Conducted PSD Core 0 (dBm/MHz)        | -0.87    | -0.34    | -0.22 | -0.40    |
| Conducted PSD Core 1 (dBm/MHz)        | -1.13    | -0.38    | -0.06 | -0.14    |
| Duty Cycle Correction (dB)            | N/A SA-1 | N/A SA-1 | 0.10  | N/A SA-1 |
| Antenna Directional Gain (dBi)        | 8.03     | 8.03     | 8.03  | 8.03     |
| 15.407 Conducted PSD Limit (dBm/MHz)  | 11.00    | 11.00    | 11.00 | 11.00    |
| RSS-247 Conducted PSD Limit (dBm/MHz) | 11.00    | 11.00    | 11.00 | 11.00    |
| Conducted PSD Result (dBm/MHz)        | 2.01     | 2.65     | 2.97  | 2.75     |

**Table 122**

**802.11n / HT40 MCS8 / MIMO SDM / Cores 0+1**

| Channel                               | Bottom | Middle | Top   | Straddle |
|---------------------------------------|--------|--------|-------|----------|
| Frequency (MHz)                       | 5510   | 5590   | 5670  | 5710     |
| Conducted PSD Core 0 (dBm/MHz)        | -0.73  | -0.90  | -0.51 | -0.53    |
| Conducted PSD Core 1 (dBm/MHz)        | -0.66  | -0.91  | -0.14 | -0.08    |
| Duty Cycle Correction (dB)            | 0.14   | 0.13   | 0.13  | 0.12     |
| Antenna Directional Gain (dBi)        | 5.02   | 5.02   | 5.02  | 5.02     |
| 15.407 Conducted PSD Limit (dBm/MHz)  | 11.00  | 11.00  | 11.00 | 11.00    |
| RSS-247 Conducted PSD Limit (dBm/MHz) | 11.00  | 11.00  | 11.00 | 11.00    |
| Conducted PSD Result (dBm/MHz)        | 2.45   | 2.23   | 2.81  | 2.84     |

**Table 123**



**802.11n / HT40 MCS0 / MIMO TxBF / Cores 0+1**

| Channel                               | Bottom   | Middle   | Top      | Straddle |
|---------------------------------------|----------|----------|----------|----------|
| Frequency (MHz)                       | 5510     | 5590     | 5670     | 5710     |
| Conducted PSD Core 0 (dBm/MHz)        | -0.35    | -0.16    | 0.21     | 0.54     |
| Conducted PSD Core 1 (dBm/MHz)        | -0.83    | 0.00     | -0.49    | 0.23     |
| Duty Cycle Correction (dB)            | N/A SA-3 | N/A SA-3 | N/A SA-3 | N/A SA-3 |
| Antenna Directional Gain (dBi)        | 8.03     | 8.03     | 8.03     | 8.03     |
| 15.407 Conducted PSD Limit (dBm/MHz)  | 11.00    | 11.00    | 11.00    | 11.00    |
| RSS-247 Conducted PSD Limit (dBm/MHz) | 11.00    | 11.00    | 11.00    | 11.00    |
| Conducted PSD Result (dBm/MHz)        | 2.43     | 2.94     | 2.89     | 3.40     |

**Table 124**

**802.11ac / VHT80 MCS0x1 / SISO / Core 0**

| Channel                               | Bottom | Top   | Straddle |
|---------------------------------------|--------|-------|----------|
| Frequency (MHz)                       | 5530   | 5610  | 5690     |
| Raw Conducted PSD (dBm/MHz)           | -3.70  | -1.01 | -0.80    |
| Duty Cycle Correction (dB)            | 0.15   | 0.13  | 0.13     |
| Antenna Directional Gain (dBi)        | 5.29   | 5.29  | 5.29     |
| 15.407 Conducted PSD Limit (dBm/MHz)  | 11.00  | 11.00 | 11.00    |
| RSS-247 Conducted PSD Limit (dBm/MHz) | 11.00  | 11.00 | 11.00    |
| Conducted PSD Result (dBm/MHz)        | -3.55  | -0.88 | -0.67    |

**Table 125**

**802.11ac / VHT80 MCS0x1 / MIMO CDD / Cores 0+1**

| Channel                               | Bottom | Top   | Straddle |
|---------------------------------------|--------|-------|----------|
| Frequency (MHz)                       | 5530   | 5610  | 5690     |
| Conducted PSD Core 0 (dBm/MHz)        | -3.90  | -3.57 | -3.32    |
| Conducted PSD Core 1 (dBm/MHz)        | -2.47  | -2.35 | -2.39    |
| Duty Cycle Correction (dB)            | 0.13   | 0.13  | 0.13     |
| Antenna Directional Gain (dBi)        | 8.03   | 8.03  | 8.03     |
| 15.407 Conducted PSD Limit (dBm/MHz)  | 11.00  | 11.00 | 11.00    |
| RSS-247 Conducted PSD Limit (dBm/MHz) | 11.00  | 11.00 | 11.00    |
| Conducted PSD Result (dBm/MHz)        | 0.02   | 0.23  | 0.31     |

**Table 126**

**802.11ac / VHT80 MCS0x2 / MIMO SDM / Cores 0+1**

| Channel                               | Bottom | Top   | Straddle |
|---------------------------------------|--------|-------|----------|
| Frequency (MHz)                       | 5530   | 5610  | 5690     |
| Conducted PSD Core 0 (dBm/MHz)        | -1.21  | -4.07 | -3.23    |
| Conducted PSD Core 1 (dBm/MHz)        | -2.44  | -2.40 | -2.73    |
| Duty Cycle Correction (dB)            | 0.24   | 0.24  | 0.24     |
| Antenna Directional Gain (dBi)        | 5.02   | 5.02  | 5.02     |
| 15.407 Conducted PSD Limit (dBm/MHz)  | 11.00  | 11.00 | 11.00    |
| RSS-247 Conducted PSD Limit (dBm/MHz) | 11.00  | 11.00 | 11.00    |
| Conducted PSD Result (dBm/MHz)        | 1.46   | 0.10  | 0.28     |

**Table 127**



**802.11ac / VHT80 MCS0x1 / MIMO TxBF / Cores 0+1**

| Channel                               | Top      | Straddle |
|---------------------------------------|----------|----------|
| Frequency (MHz)                       | 5610     | 5690     |
| Conducted PSD Core 0 (dBm/MHz)        | -3.08    | -2.96    |
| Conducted PSD Core 1 (dBm/MHz)        | -3.34    | -3.20    |
| Duty Cycle Correction (dB)            | N/A SA-3 | N/A SA-3 |
| Antenna Directional Gain (dBi)        | 8.03     | 8.03     |
| 15.407 Conducted PSD Limit (dBm/MHz)  | 11.00    | 11.00    |
| RSS-247 Conducted PSD Limit (dBm/MHz) | 11.00    | 11.00    |
| Conducted PSD Result (dBm/MHz)        | -0.20    | -0.07    |

**Table 128**



## 2.2.10 Test Results: U-NII-3

### 802.11a / 6 Mbps / SISO / Core 0

| Channel                                  | Straddle | Bottom   | Middle   | Top      |
|------------------------------------------|----------|----------|----------|----------|
| Frequency (MHz)                          | 5720     | 5745     | 5785     | 5825     |
| Raw Conducted PSD (dBm/500kHz)           | -1.52    | 1.70     | 1.74     | 0.91     |
| Duty Cycle Correction (dB)               | N/A SA-1 | N/A SA-1 | N/A SA-1 | N/A SA-1 |
| Antenna Directional Gain (dBi)           | 5.29     | 4.61     | 4.61     | 4.61     |
| 15.407 Conducted PSD Limit (dBm/500kHz)  | 30.00    | 30.00    | 30.00    | 30.00    |
| RSS-247 Conducted PSD Limit (dBm/500kHz) | 30.00    | 30.00    | 30.00    | 30.00    |
| Conducted PSD Result (dBm/500kHz)        | -1.52    | 1.70     | 1.74     | 0.91     |

Table 129

### 802.11n / HT20 MCS0 / SISO / Core 0

| Channel                                  | Straddle | Bottom   | Middle   | Top      |
|------------------------------------------|----------|----------|----------|----------|
| Frequency (MHz)                          | 5720     | 5745     | 5785     | 5825     |
| Raw Conducted PSD (dBm/500kHz)           | -1.77    | 0.79     | 1.72     | 0.78     |
| Duty Cycle Correction (dB)               | N/A SA-1 | N/A SA-1 | N/A SA-1 | N/A SA-1 |
| Antenna Directional Gain (dBi)           | 5.29     | 4.61     | 4.61     | 4.61     |
| 15.407 Conducted PSD Limit (dBm/500kHz)  | 30.00    | 30.00    | 30.00    | 30.00    |
| RSS-247 Conducted PSD Limit (dBm/500kHz) | 30.00    | 30.00    | 30.00    | 30.00    |
| Conducted PSD Result (dBm/500kHz)        | -1.77    | 0.79     | 1.72     | 0.78     |

Table 130

### 802.11n / HT20 MCS0 / MIMO CDD / Cores 0+1

| Channel                                  | Straddle | Bottom   | Middle   | Top      |
|------------------------------------------|----------|----------|----------|----------|
| Frequency (MHz)                          | 5720     | 5745     | 5785     | 5825     |
| Conducted PSD Core 0 (dBm/500kHz)        | -1.25    | 0.08     | 0.18     | 1.35     |
| Conducted PSD Core 1 (dBm/500kHz)        | -1.74    | 0.58     | 0.36     | 0.32     |
| Duty Cycle Correction (dB)               | N/A SA-1 | N/A SA-1 | N/A SA-1 | N/A SA-1 |
| Antenna Directional Gain (dBi)           | 8.03     | 6.98     | 6.98     | 6.98     |
| 15.407 Conducted PSD Limit (dBm/500kHz)  | 27.97    | 29.02    | 29.02    | 29.02    |
| RSS-247 Conducted PSD Limit (dBm/500kHz) | 27.97    | 29.02    | 29.02    | 29.02    |
| Conducted PSD Result (dBm/500kHz)        | 1.53     | 3.35     | 3.28     | 3.88     |

Table 131

### 802.11n / HT20 MCS8 / MIMO SDM / Cores 0+1

| Channel                                  | Straddle | Bottom   | Middle   | Top      |
|------------------------------------------|----------|----------|----------|----------|
| Frequency (MHz)                          | 5720     | 5745     | 5785     | 5825     |
| Conducted PSD Core 0 (dBm/500kHz)        | -1.66    | 0.21     | 0.34     | 0.26     |
| Conducted PSD Core 1 (dBm/500kHz)        | -2.05    | 0.76     | 0.94     | 1.03     |
| Duty Cycle Correction (dB)               | N/A SA-1 | N/A SA-1 | N/A SA-1 | N/A SA-1 |
| Antenna Directional Gain (dBi)           | 5.02     | 3.99     | 3.99     | 3.99     |
| 15.407 Conducted PSD Limit (dBm/500kHz)  | 30.00    | 30.00    | 30.00    | 30.00    |
| RSS-247 Conducted PSD Limit (dBm/500kHz) | 30.00    | 30.00    | 30.00    | 30.00    |
| Conducted PSD Result (dBm/500kHz)        | 1.16     | 3.51     | 3.66     | 3.67     |

Table 132



**802.11n / HT20 MCS0 / MIMO TxBF / Cores 0+1**

| Channel                                  | Straddle | Bottom   | Middle   | Top      |
|------------------------------------------|----------|----------|----------|----------|
| Frequency (MHz)                          | 5720     | 5745     | 5785     | 5825     |
| Conducted PSD Core 0 (dBm/500kHz)        | -1.93    | -0.17    | -0.50    | 0.02     |
| Conducted PSD Core 1 (dBm/500kHz)        | -1.71    | 0.03     | 0.15     | -0.59    |
| Duty Cycle Correction (dB)               | N/A SA-3 | N/A SA-3 | N/A SA-3 | N/A SA-3 |
| Antenna Directional Gain (dBi)           | 7.75     | 6.98     | 6.98     | 6.98     |
| 15.407 Conducted PSD Limit (dBm/500kHz)  | 28.25    | 29.02    | 29.02    | 29.02    |
| RSS-247 Conducted PSD Limit (dBm/500kHz) | 28.25    | 29.02    | 29.02    | 29.02    |
| Conducted PSD Result (dBm/500kHz)        | 1.19     | 2.94     | 2.85     | 2.73     |

**Table 133**

**802.11n / HT40 MCS0 / SISO / Core 0**

| Channel                                  | Straddle | Bottom   | Top      |
|------------------------------------------|----------|----------|----------|
| Frequency (MHz)                          | 5710     | 5755     | 5795     |
| Raw Conducted PSD (dBm/500kHz)           | -5.55    | -1.80    | -2.26    |
| Duty Cycle Correction (dB)               | N/A SA-1 | N/A SA-1 | N/A SA-1 |
| Antenna Directional Gain (dBi)           | 5.29     | 4.61     | 4.61     |
| 15.407 Conducted PSD Limit (dBm/500kHz)  | 30.00    | 30.00    | 30.00    |
| RSS-247 Conducted PSD Limit (dBm/500kHz) | 30.00    | 30.00    | 30.00    |
| Conducted PSD Result (dBm/500kHz)        | -5.55    | -1.80    | -2.26    |

**Table 134**

**802.11n / HT40 MCS0 / MIMO CDD / Cores 0+1**

| Channel                                  | Straddle | Bottom | Top      |
|------------------------------------------|----------|--------|----------|
| Frequency (MHz)                          | 5710     | 5755   | 5795     |
| Conducted PSD Core 0 (dBm/500kHz)        | -6.03    | -2.06  | -2.86    |
| Conducted PSD Core 1 (dBm/500kHz)        | -6.44    | -1.92  | -1.97    |
| Duty Cycle Correction (dB)               | N/A SA-1 | 0.10   | N/A SA-1 |
| Antenna Directional Gain (dBi)           | 8.03     | 6.98   | 6.98     |
| 15.407 Conducted PSD Limit (dBm/500kHz)  | 27.97    | 29.02  | 29.02    |
| RSS-247 Conducted PSD Limit (dBm/500kHz) | 27.97    | 29.02  | 29.02    |
| Conducted PSD Result (dBm/500kHz)        | -3.22    | 1.12   | 0.62     |

**Table 135**

**802.11n / HT40 MCS8 / MIMO SDM / Cores 0+1**

| Channel                                  | Straddle | Bottom | Top   |
|------------------------------------------|----------|--------|-------|
| Frequency (MHz)                          | 5710     | 5755   | 5795  |
| Conducted PSD Core 0 (dBm/500kHz)        | -6.03    | -2.35  | -2.40 |
| Conducted PSD Core 1 (dBm/500kHz)        | -5.70    | -2.49  | -2.65 |
| Duty Cycle Correction (dB)               | 0.12     | 0.13   | 0.12  |
| Antenna Directional Gain (dBi)           | 5.02     | 3.27   | 3.99  |
| 15.407 Conducted PSD Limit (dBm/500kHz)  | 30.00    | 30.00  | 30.00 |
| RSS-247 Conducted PSD Limit (dBm/500kHz) | 30.00    | 30.00  | 30.00 |
| Conducted PSD Result (dBm/500kHz)        | -2.73    | 0.71   | 0.61  |

**Table 136**



**802.11n / HT40 MCS0 / MIMO TxBF / Cores 0+1**

| Channel                                  | Straddle | Bottom   | Top      |
|------------------------------------------|----------|----------|----------|
| Frequency (MHz)                          | 5710     | 5755     | 5795     |
| Conducted PSD Core 0 (dBm/500kHz)        | -6.10    | -2.99    | -3.44    |
| Conducted PSD Core 1 (dBm/500kHz)        | -6.10    | -2.69    | -2.64    |
| Duty Cycle Correction (dB)               | N/A SA-3 | N/A SA-3 | N/A SA-3 |
| Antenna Directional Gain (dBi)           | 8.03     | 6.98     | 6.98     |
| 15.407 Conducted PSD Limit (dBm/500kHz)  | 27.97    | 29.02    | 29.02    |
| RSS-247 Conducted PSD Limit (dBm/500kHz) | 27.97    | 29.02    | 29.02    |
| Conducted PSD Result (dBm/500kHz)        | -3.09    | 0.17     | -0.01    |

**Table 137**

**802.11ac / VHT80 MCS0x1 / SISO / Core 0**

| Channel                                  | Straddle | Middle |
|------------------------------------------|----------|--------|
| Frequency (MHz)                          | 5690     | 5775   |
| Raw Conducted PSD (dBm/500kHz)           | -9.91    | -5.57  |
| Duty Cycle Correction (dB)               | 0.13     | 0.14   |
| Antenna Directional Gain (dBi)           | 5.29     | 4.61   |
| 15.407 Conducted PSD Limit (dBm/500kHz)  | 30.00    | 30.00  |
| RSS-247 Conducted PSD Limit (dBm/500kHz) | 30.00    | 30.00  |
| Conducted PSD Result (dBm/500kHz)        | -9.78    | -5.43  |

**Table 138**

**802.11ac / VHT80 MCS0x1 / MIMO CDD / Cores 0+1**

| Channel                                  | Straddle | Middle |
|------------------------------------------|----------|--------|
| Frequency (MHz)                          | 5690     | 5775   |
| Conducted PSD Core 0 (dBm/500kHz)        | -9.78    | -0.76  |
| Conducted PSD Core 1 (dBm/500kHz)        | -9.89    | -1.82  |
| Duty Cycle Correction (dB)               | 0.13     | 0.13   |
| Antenna Directional Gain (dBi)           | 8.03     | 6.98   |
| 15.407 Conducted PSD Limit (dBm/500kHz)  | 27.97    | 29.02  |
| RSS-247 Conducted PSD Limit (dBm/500kHz) | 27.97    | 29.02  |
| Conducted PSD Result (dBm/500kHz)        | -6.69    | 1.88   |

**Table 139**

**802.11ac / VHT80 MCS0x2 / MIMO SDM / Cores 0+1**

| Channel                                  | Straddle | Middle |
|------------------------------------------|----------|--------|
| Frequency (MHz)                          | 5690     | 5775   |
| Conducted PSD Core 0 (dBm/500kHz)        | -10.06   | -1.55  |
| Conducted PSD Core 1 (dBm/500kHz)        | -9.87    | -2.08  |
| Duty Cycle Correction (dB)               | 0.24     | 0.24   |
| Antenna Directional Gain (dBi)           | 5.02     | 3.99   |
| 15.407 Conducted PSD Limit (dBm/500kHz)  | 30.00    | 30.00  |
| RSS-247 Conducted PSD Limit (dBm/500kHz) | 30.00    | 30.00  |
| Conducted PSD Result (dBm/500kHz)        | -6.72    | 1.45   |

**Table 140**



**802.11ac / VHT80 MCS0x1 / MIMO TxBF / Cores 0+1**

| Channel                                  | Straddle | Middle   |
|------------------------------------------|----------|----------|
| Frequency (MHz)                          | 5690     | 5775     |
| Conducted PSD Core 0 (dBm/500kHz)        | -10.50   | -5.87    |
| Conducted PSD Core 1 (dBm/500kHz)        | -11.02   | -6.16    |
| Duty Cycle Correction (dB)               | N/A SA-3 | N/A SA-3 |
| Antenna Directional Gain (dBi)           | 8.03     | 6.98     |
| 15.407 Conducted PSD Limit (dBm/500kHz)  | 27.97    | 29.02    |
| RSS-247 Conducted PSD Limit (dBm/500kHz) | 27.97    | 29.02    |
| Conducted PSD Result (dBm/500kHz)        | -7.74    | -3.00    |

**Table 141**

**2.2.11 Limits**

FCC 47 CFR Part 15E, Limit Clause 15.407(a)

| Condition of Operation               | Frequency Range (MHz)                                                        |            |           |                |
|--------------------------------------|------------------------------------------------------------------------------|------------|-----------|----------------|
|                                      | 5150-5250                                                                    | 5250-5350  | 5470-5725 | 5725-5850      |
| Max Conducted Power Spectral Density | 17 dBm/MHz for master device<br>11 dBm/MHz for mobile/portable client device | 11 dBm/MHz |           | 30 dBm/500 kHz |

**Table 142**

Industry Canada RSS-247, Limit Clause 6.2.1.1, 6.2.2.1, 6.2.3.1 and 6.2.4.1

| Device                    | Frequency Range (MHz) |             |             |                |
|---------------------------|-----------------------|-------------|-------------|----------------|
|                           | 5150-5250             | 5250-5350   | 5470-5725   | 5725-5850      |
| OEM installed in vehicles | -                     | -           | -           | -              |
| Other                     | ≤10 dBm/MHz EIRP      | ≤11 dBm/MHz | ≤11 dBm/MHz | ≤30 dBm/500kHz |

**Table 143**



## 2.2.12 Test Location and Test Equipment Used

This test was carried out in RF Laboratory 3.

| Instrument                   | Manufacturer          | Type No      | TE No | Calibration Period (months) | Calibration Due |
|------------------------------|-----------------------|--------------|-------|-----------------------------|-----------------|
| Attenuator 10dB 10W          | Weinschel             | 47-10-34     | 398   | 12                          | 18-Jul-2019     |
| Multimeter                   | Iso-tech              | IDM101       | 2424  | 12                          | 12-Dec-2019     |
| Hygrometer                   | Rotronic              | I-1000       | 2891  | 12                          | 18-Sep-/2019    |
| ZVA40 Network Analyser       | Rohde & Schwarz       | 100127       | 3548  | 12                          | 17-Oct-2019     |
| ZV-Z54 Calibration Unit      | Rohde & Schwarz       | 1000001      | 4368  | 12                          | 22-Oct-2019     |
| PXA Signal Analyser          | Keysight Technologies | N9030A       | 4653  | 12                          | 06-Feb-2020     |
| Power splitter - 2 port      | Mini-Circuits         | ZN2PD-63-S+  | 4742  | 12                          | 19-Sep-2019     |
| Power splitter - 2 port      | Mini-Circuits         | ZN2PD-63-S+  | 4743  | 12                          | 19-Sep-2019     |
| USB Power Sensor             | Boonton               | RTP5006      | 5187  | 12                          | 12-Dec-2019     |
| AC Programmable Power Supply | iTech                 | IT7324       | 5225  | -                           | O/P Mon         |
| Power Splitter, 4 way        | Mini-Circuits         | ZN4PD1-63-S+ | 5235  | 0                           | O/P Mon         |
| Attenuator 10dB 2W           | Telegartner           | J01156A0031  | N/A   | N/A                         | Not serialised. |
| Attenuator 10dB 2W           | Telegartner           | J01156A0031  | N/A   | N/A                         | Not serialised. |
| Attenuator 10dB 2W           | Telegartner           | J01156A0031  | N/A   | N/A                         | Not serialised. |

**Table 144**

O/P Mon – Output Monitored using Calibrated Equipment.



## **2.3 Emission Bandwidth**

### **2.3.1 Specification Reference**

FCC 47 CFR Part 15E, Clause 15.407 (a),  
Industry Canada RSS-247, Clause 6.2  
Industry Canada RSS-GEN, Clause 6.7

### **2.3.2 Equipment Under Test and Modification State**

C02Y3009L5C1, S/N: TBC - Modification State 0

### **2.3.3 Date of Test**

05-March-2019 to 09-May-2019

### **2.3.4 Test Method**

The test was performed in accordance with ANSI C63.10 clause 12.4.1 & 6.9.3, KDB 789033 D02 section C, and RSS-GEN 4.6.1 and 4.6.2

For modes of operation using multiple chains, measurements were made on each chain but only the worst case results are reported. Worst case was considered as the narrowest results for 6 dB bandwidth and the widest result for 26 dB bandwidth and 99% occupied bandwidth.

### **2.3.5 Environmental Conditions**

|                     |                |
|---------------------|----------------|
| Ambient Temperature | 21.2 - 24.3 °C |
| Relative Humidity   | 34.9 - 35.6 %  |



## 2.3.6 Test Results: U-NII-1

### 802.11a / 6 Mbps / SISO / Core 0 / Country Code US

| Channel               | Bottom | Middle | Top    |
|-----------------------|--------|--------|--------|
| Frequency (MHz)       | 5180   | 5200   | 5240   |
| 26 dB Bandwidth (MHz) | 21.480 | 21.840 | 21.600 |
| 99% Bandwidth (MHz)   | 16.572 | 16.578 | 16.567 |

Table 145



Figure 3 - 5180 MHz - 26 dB Emission Bandwidth

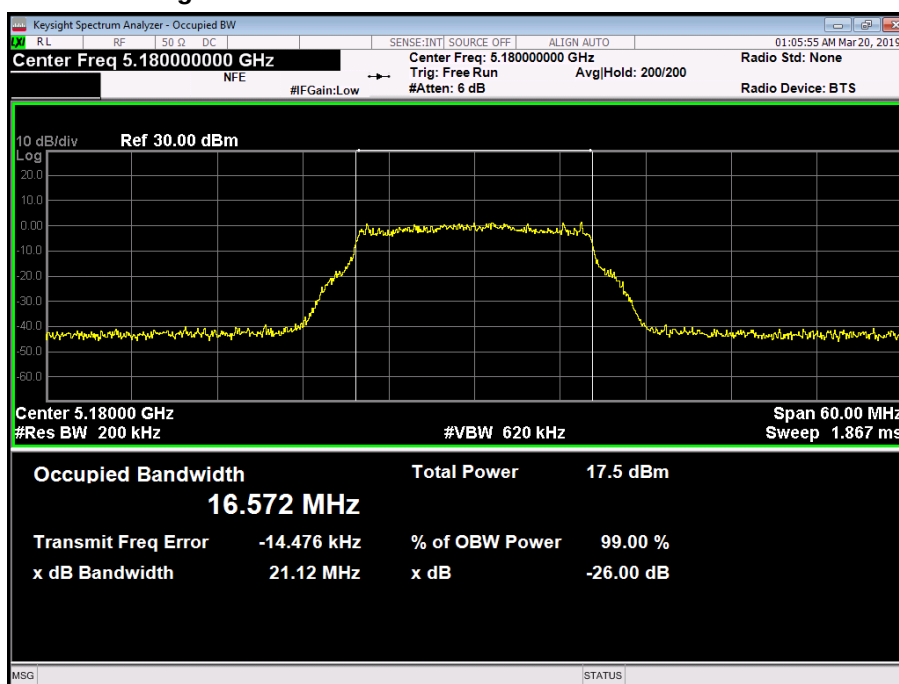


Figure 4 - 5180 MHz - 99% Occupied Bandwidth

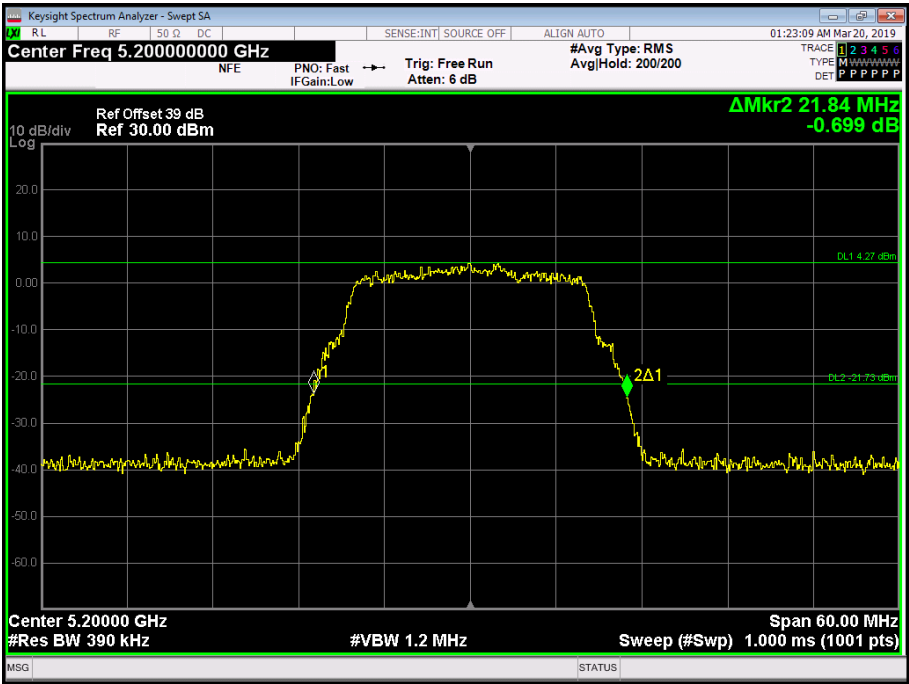


Figure 5 - 5200 MHz - 26 dB Emission Bandwidth

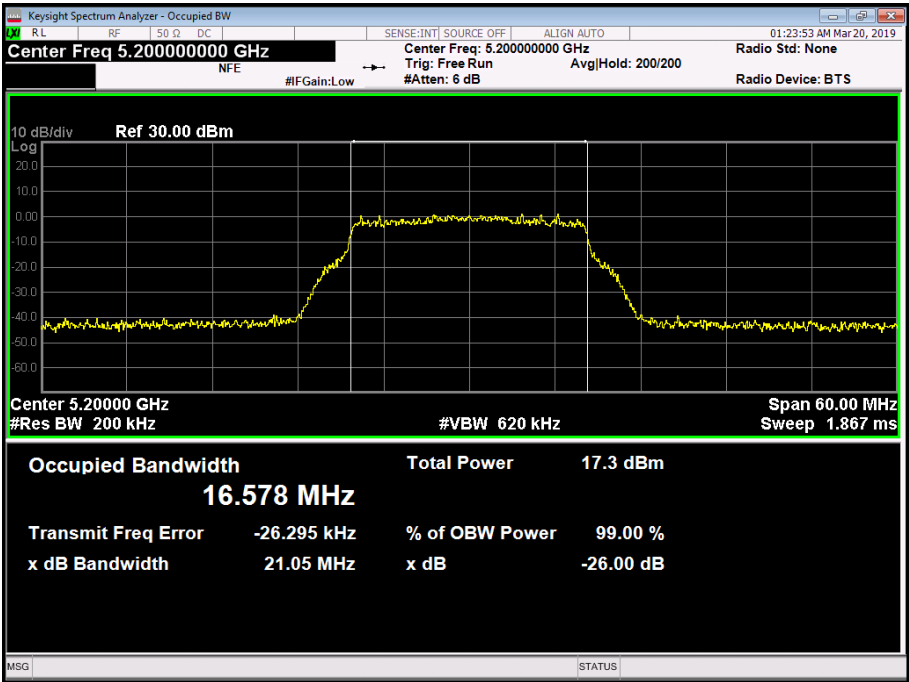


Figure 6 - 5200 MHz - 99% Occupied Bandwidth

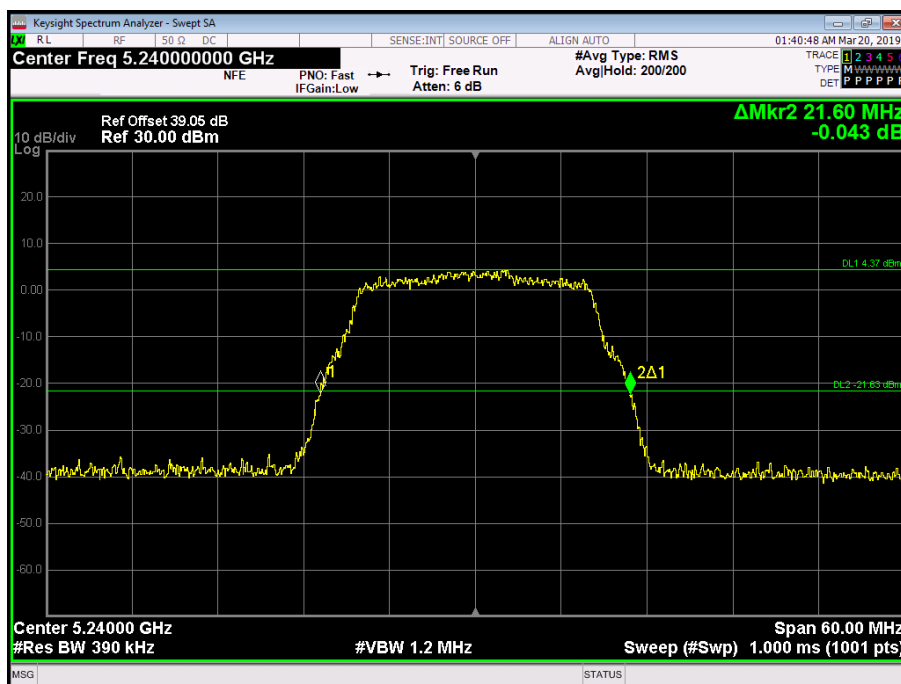


Figure 7 - 5240 MHz - 26 dB Emission Bandwidth

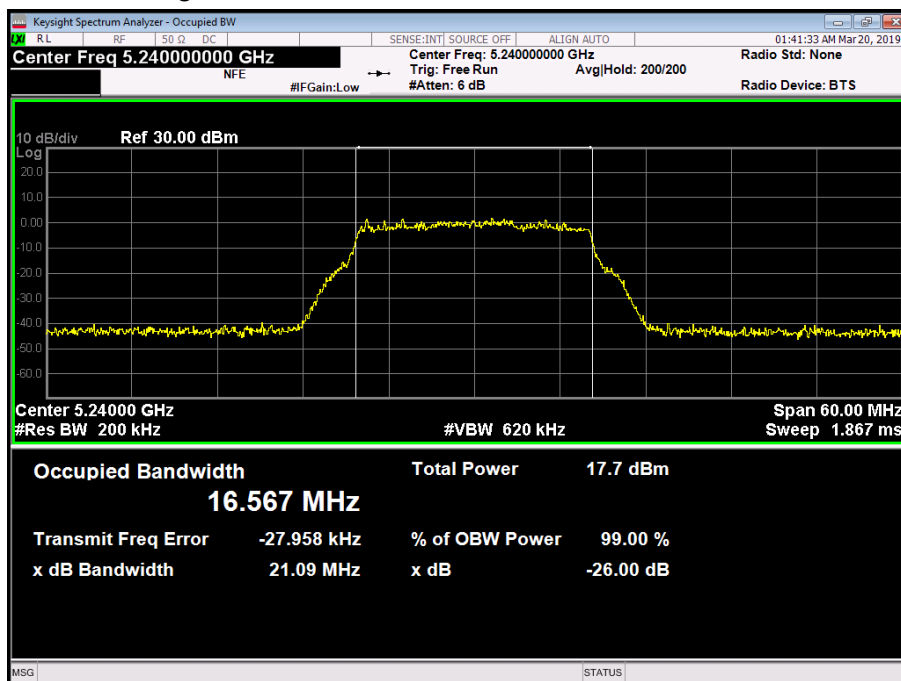


Figure 8 - 5240 MHz - 99% Occupied Bandwidth



### 802.11a / 6 Mbps / SISO / Core 0 / Country Code CA

| Channel               | Bottom | Middle | Top    |
|-----------------------|--------|--------|--------|
| Frequency (MHz)       | 5180   | 5200   | 5240   |
| 26 dB Bandwidth (MHz) | 21.600 | 21.540 | 21.660 |
| 99% Bandwidth (MHz)   | 16.580 | 16.562 | 16.587 |

Table 146

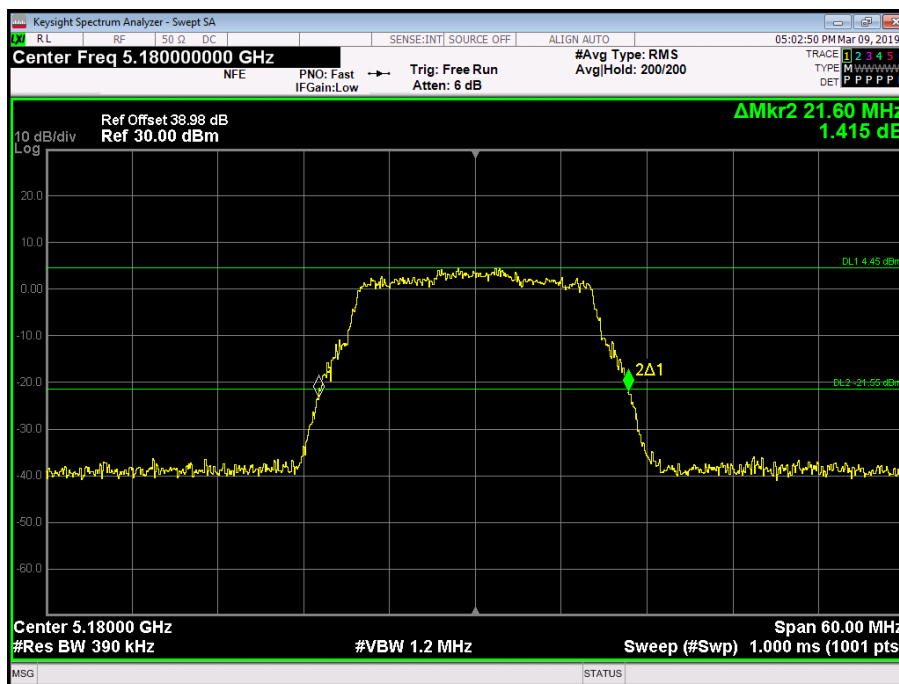


Figure 9 - 5180 MHz - 26 dB Emission Bandwidth

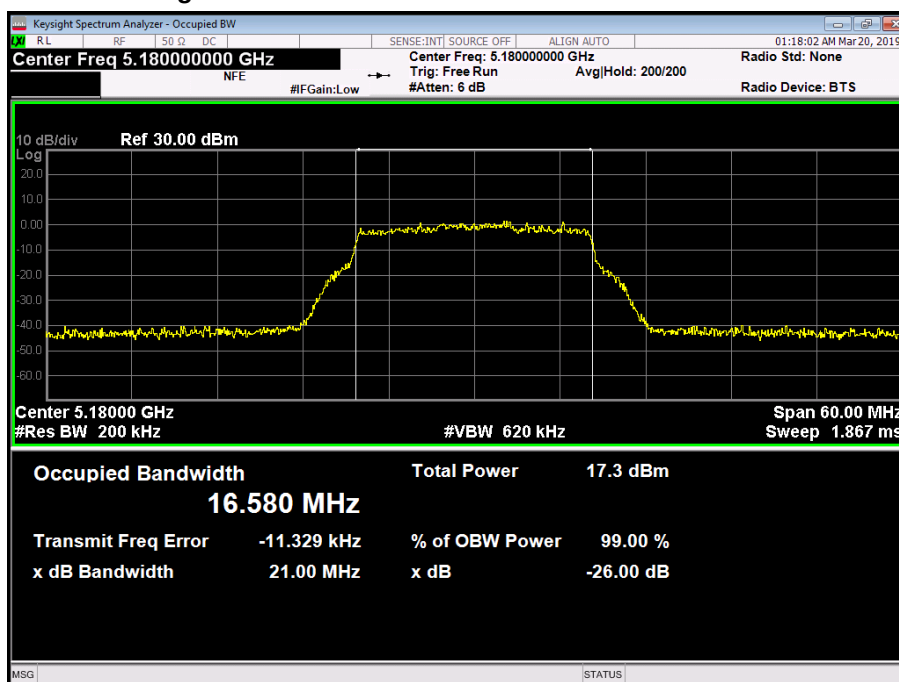


Figure 10 - 5180 MHz - 99% Occupied Bandwidth

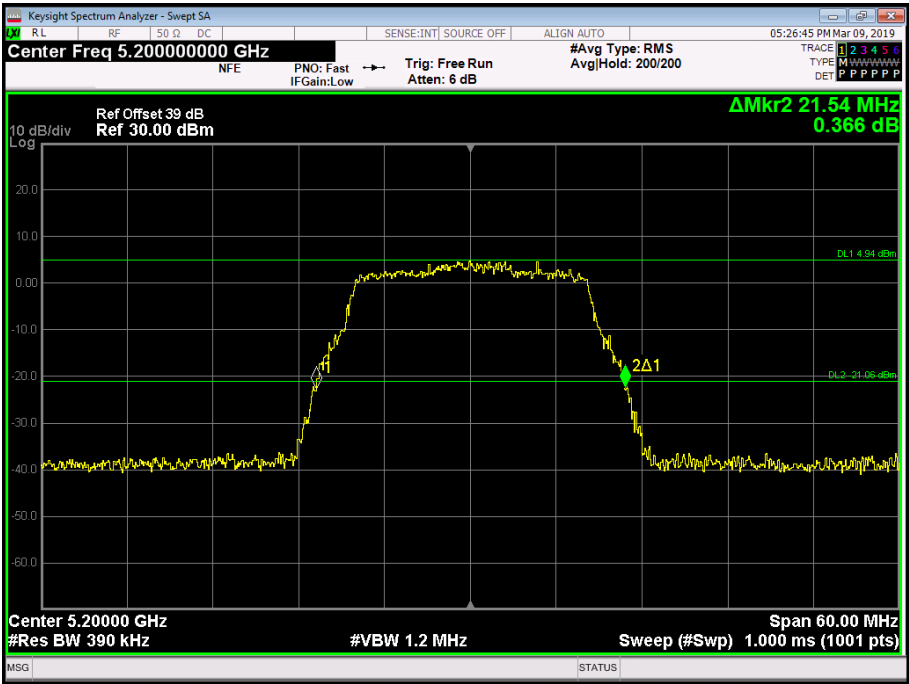


Figure 11 - 5200 MHz - 26 dB Emission Bandwidth

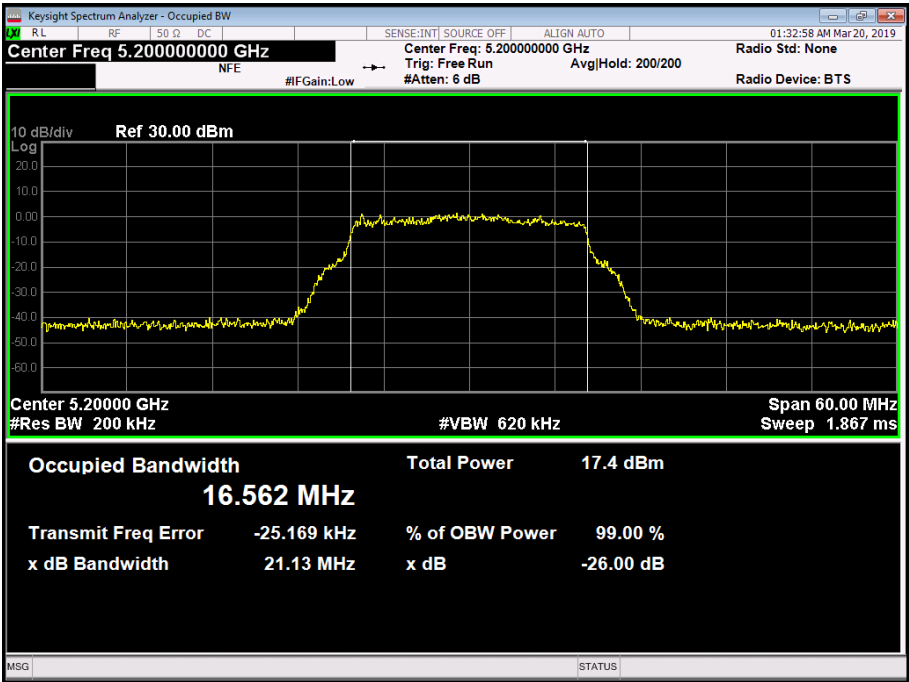


Figure 12 - 5200 MHz - 99% Occupied Bandwidth

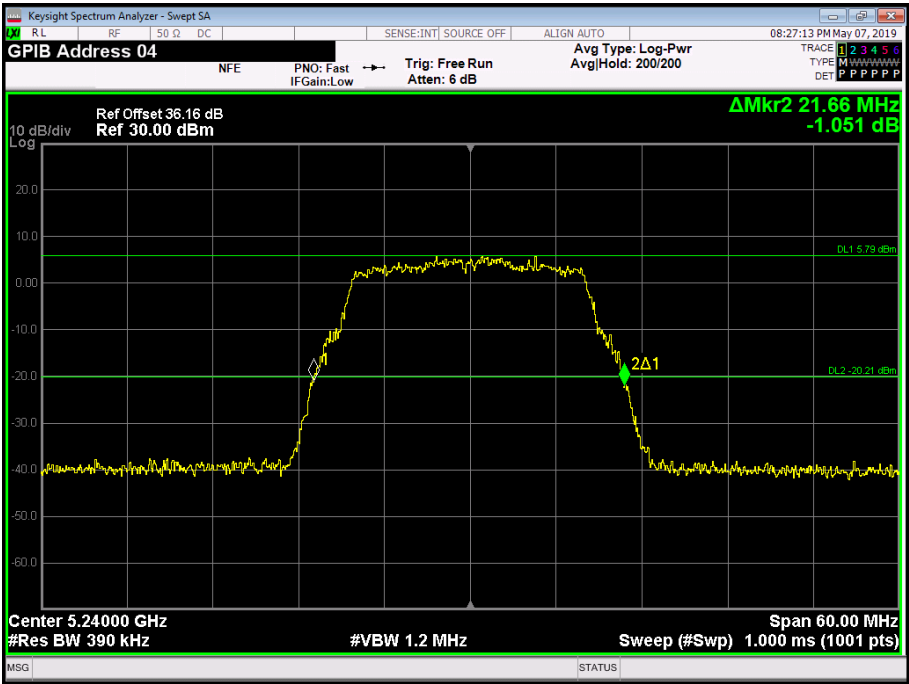


Figure 13 - 5240 MHz - 26 dB Emission Bandwidth

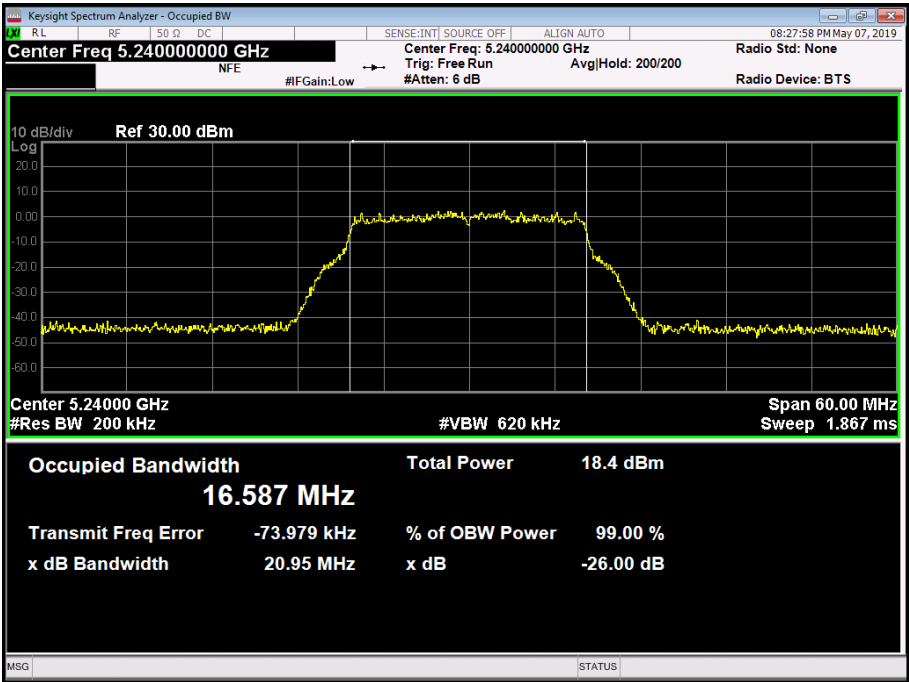


Figure 14 - 5240 MHz - 99% Occupied Bandwidth



802.11n / HT20 MCS0 / SISO / Core 0 / Country Code US

| Channel               | Bottom | Middle | Top    |
|-----------------------|--------|--------|--------|
| Frequency (MHz)       | 5180   | 5200   | 5240   |
| 26 dB Bandwidth (MHz) | 21.600 | 21.780 | 21.660 |
| 99% Bandwidth (MHz)   | 17.745 | 17.747 | 17.750 |

Table 147

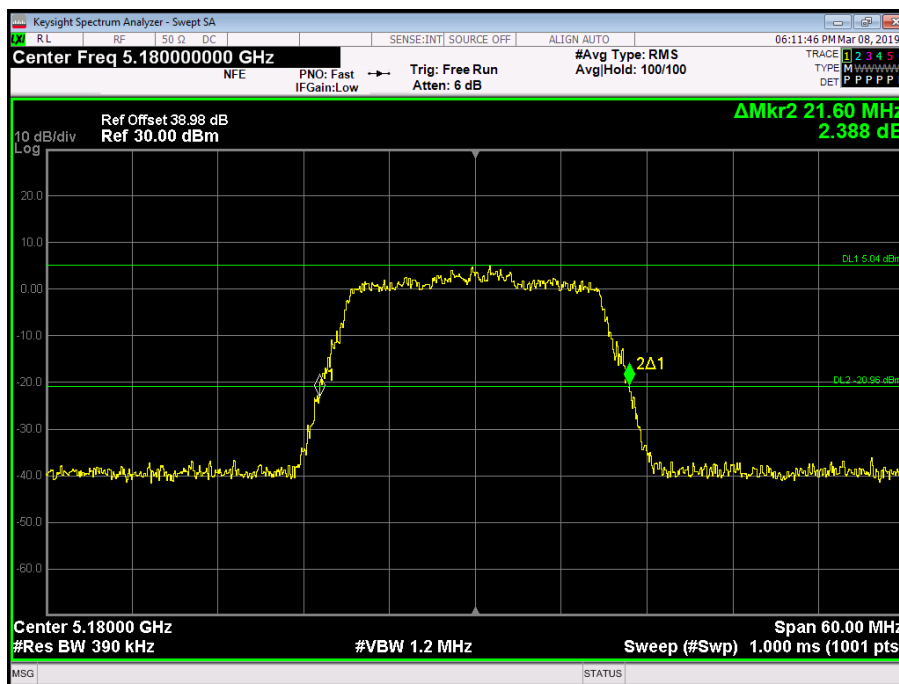


Figure 15 - 5180 MHz - 26 dB Emission Bandwidth

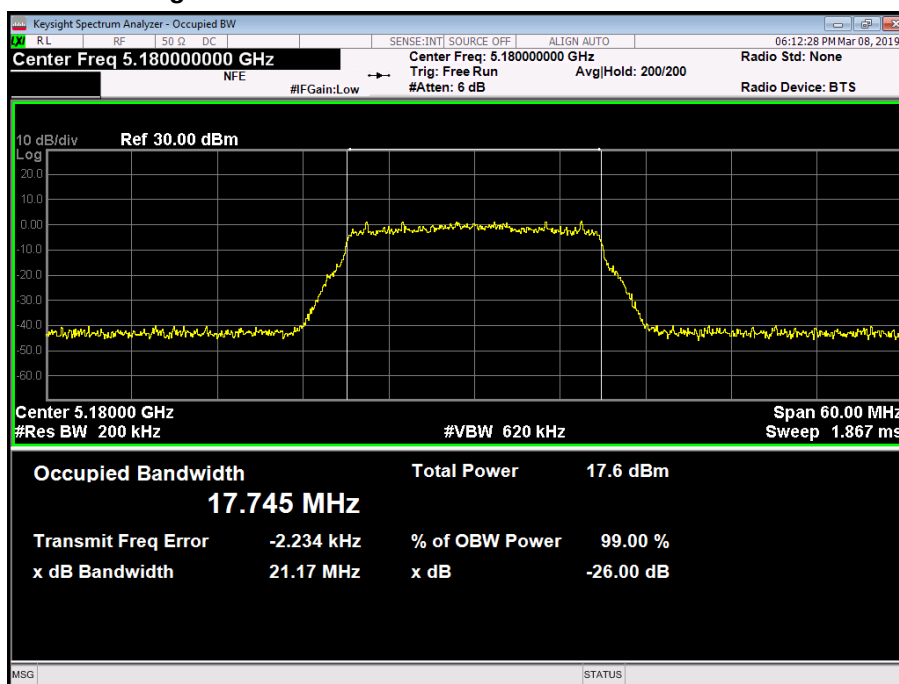


Figure 16 - 5180 MHz - 99% Occupied Bandwidth

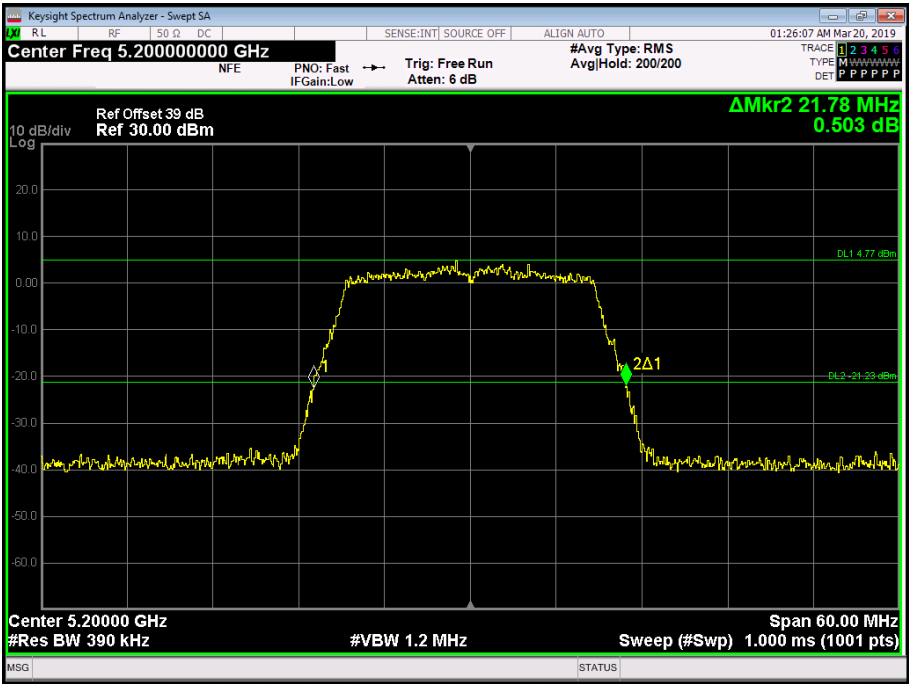


Figure 17 - 5200 MHz - 26 dB Emission Bandwidth

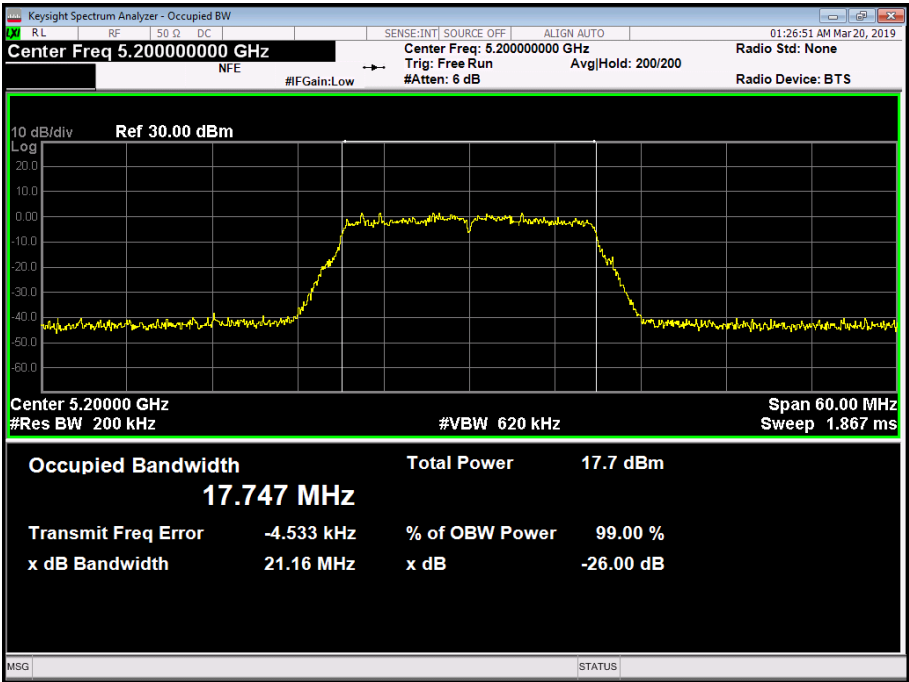


Figure 18 - 5200 MHz - 99% Occupied Bandwidth

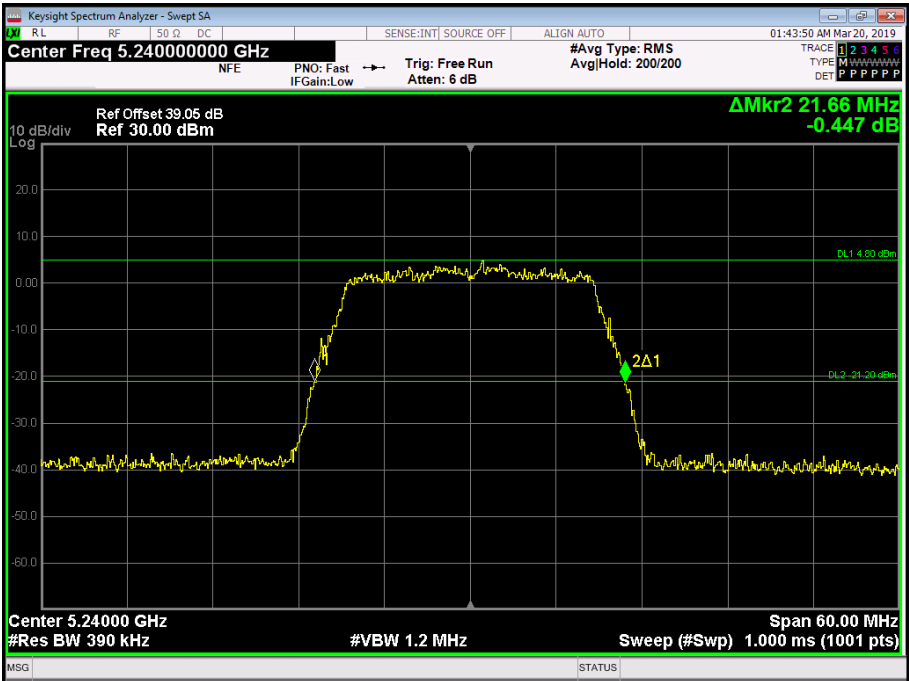


Figure 19 - 5240 MHz - 26 dB Emission Bandwidth

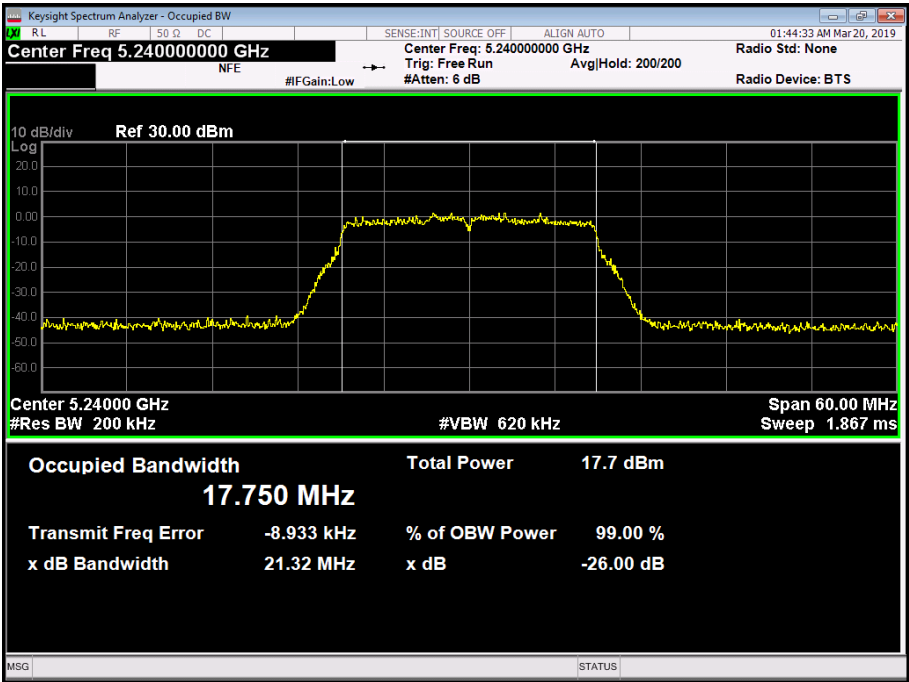


Figure 20 - 5240 MHz - 99% Occupied Bandwidth



### 802.11n / HT20 MCS0 / SISO / Core 0 / Country Code CA

| Channel               | Bottom | Middle | Top    |
|-----------------------|--------|--------|--------|
| Frequency (MHz)       | 5180   | 5200   | 5240   |
| 26 dB Bandwidth (MHz) | 21.960 | 21.840 | 21.720 |
| 99% Bandwidth (MHz)   | 17.763 | 17.760 | 17.752 |

Table 148

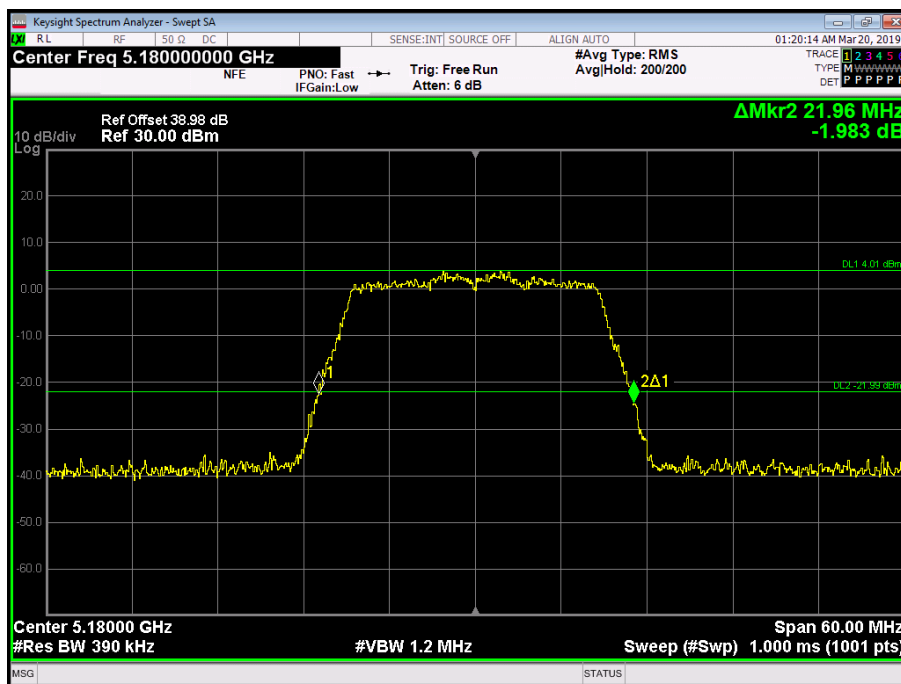


Figure 21 - 5180 MHz - 26 dB Emission Bandwidth

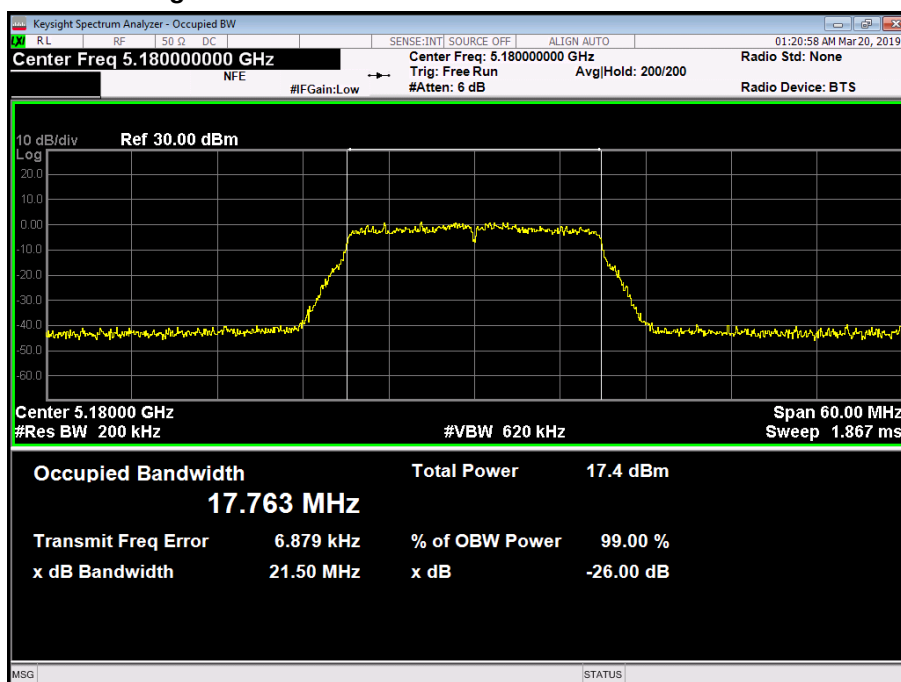


Figure 22 - 5180 MHz - 99% Occupied Bandwidth

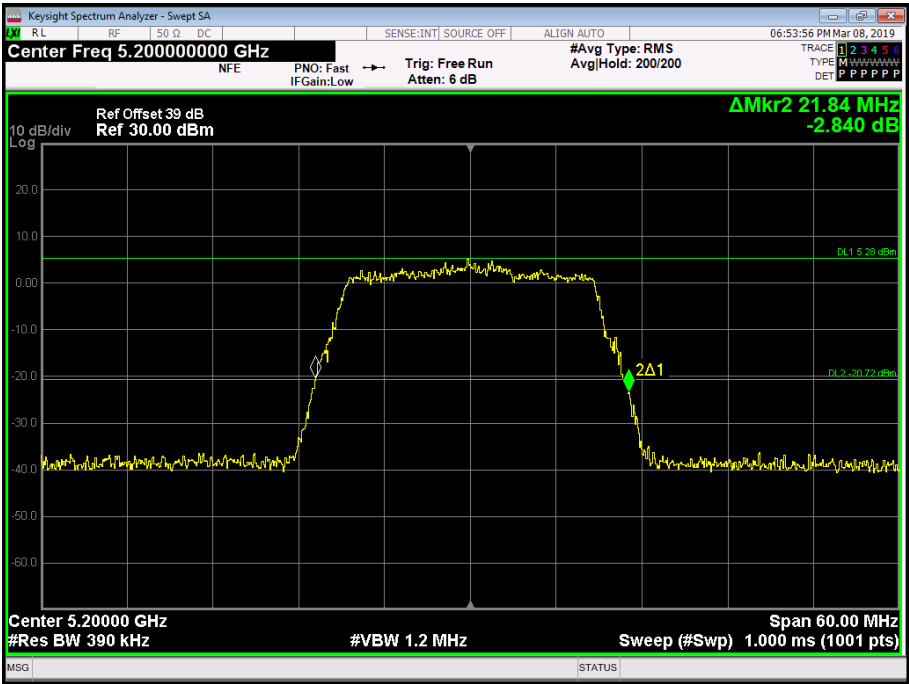


Figure 23 - 5200 MHz - 26 dB Emission Bandwidth

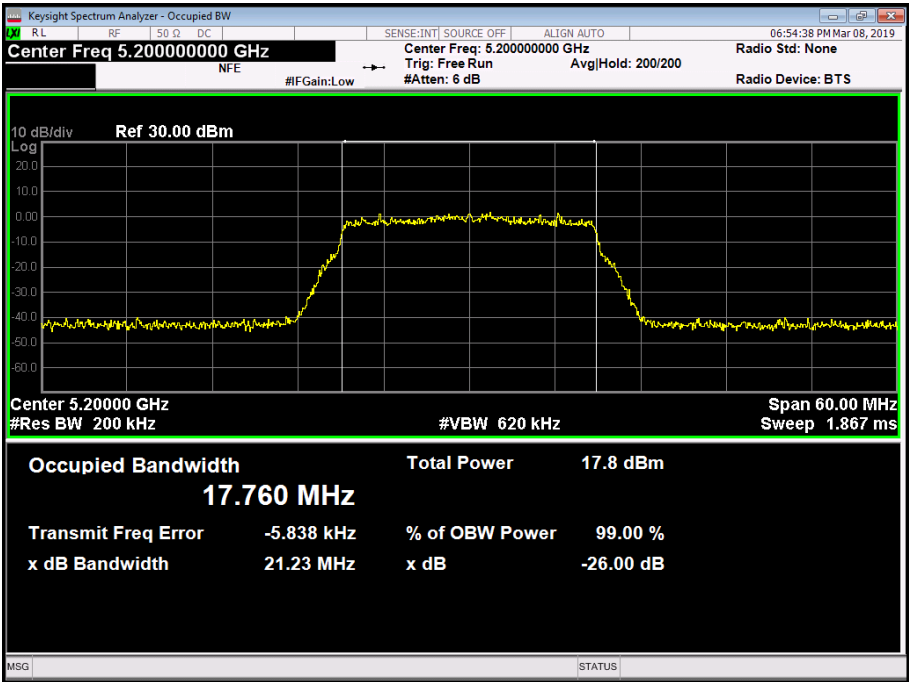


Figure 24 - 5200 MHz - 99% Occupied Bandwidth

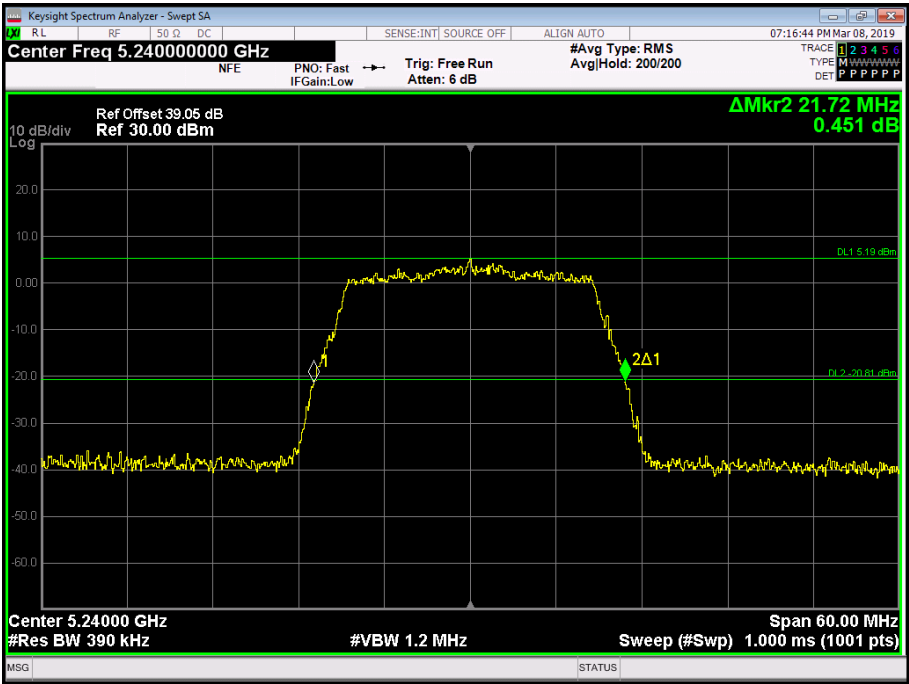


Figure 25 - 5240 MHz - 26 dB Emission Bandwidth

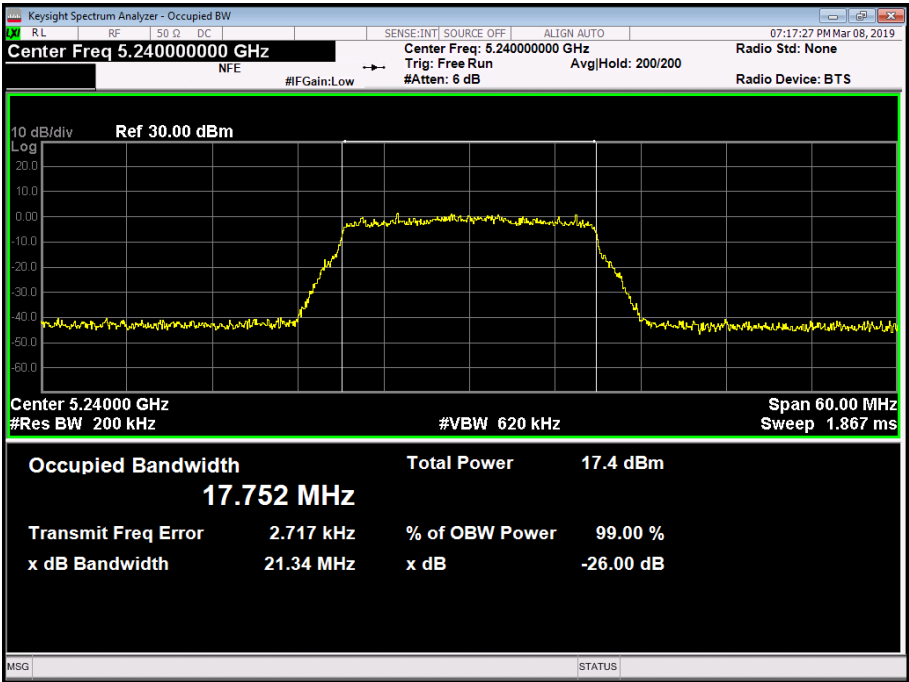


Figure 26 - 5240 MHz - 99% Occupied Bandwidth



802.11n / HT20 MCS0 / MIMO CDD / Cores 0+1 / Country Code US

| Channel               | Bottom | Middle | Top    |
|-----------------------|--------|--------|--------|
| Frequency (MHz)       | 5180   | 5200   | 5240   |
| 26 dB Bandwidth (MHz) | 22.020 | 21.720 | 21.900 |
| 99% Bandwidth (MHz)   | 17.763 | 17.761 | 17.764 |

Table 149



Figure 27 - 5180 MHz - 26 dB Emission Bandwidth

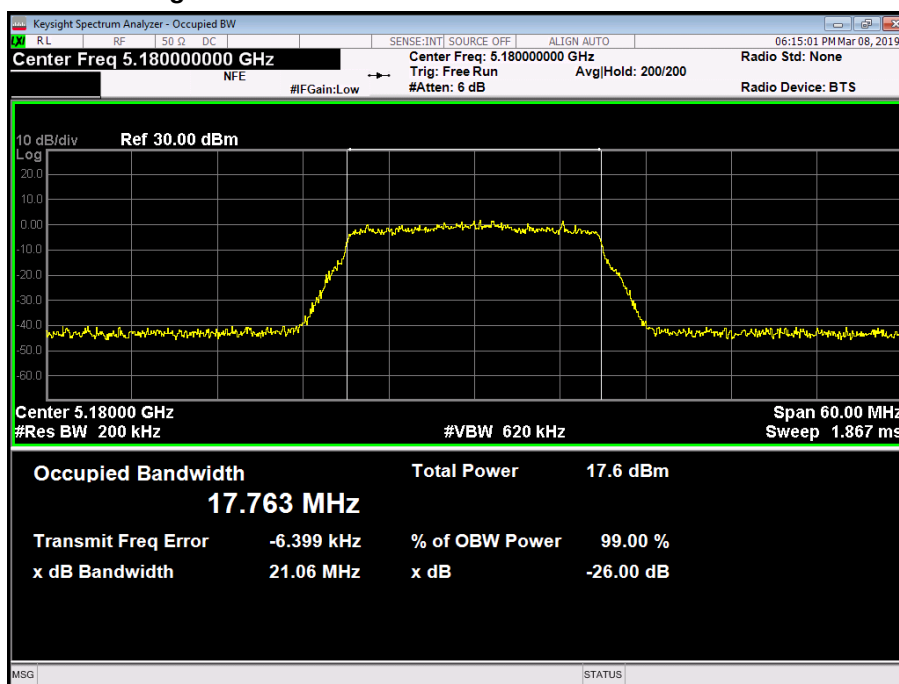


Figure 28 - 5180 MHz - 99% Occupied Bandwidth

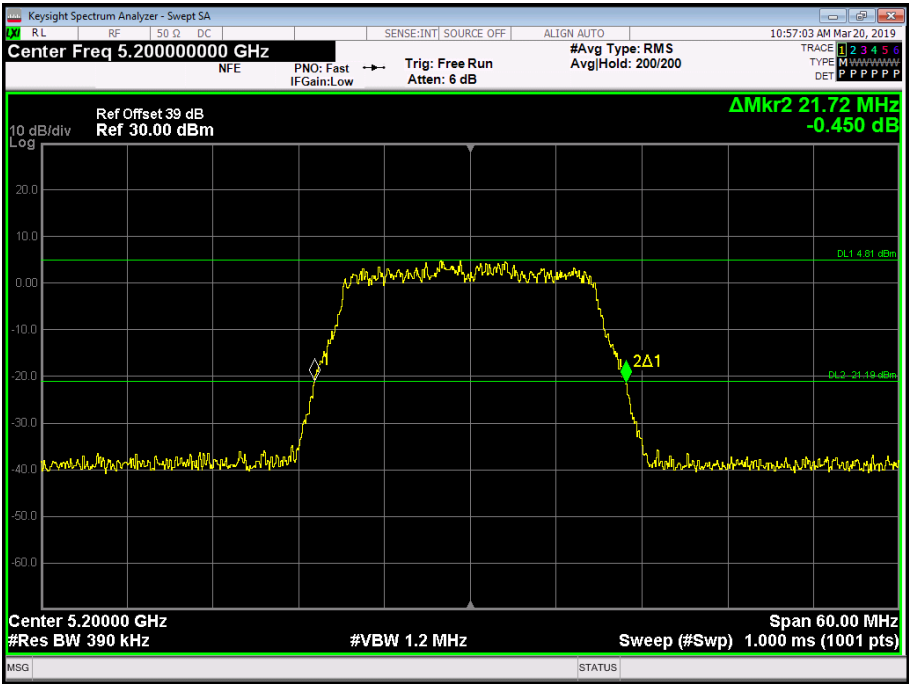


Figure 29 - 5200 MHz - 26 dB Emission Bandwidth

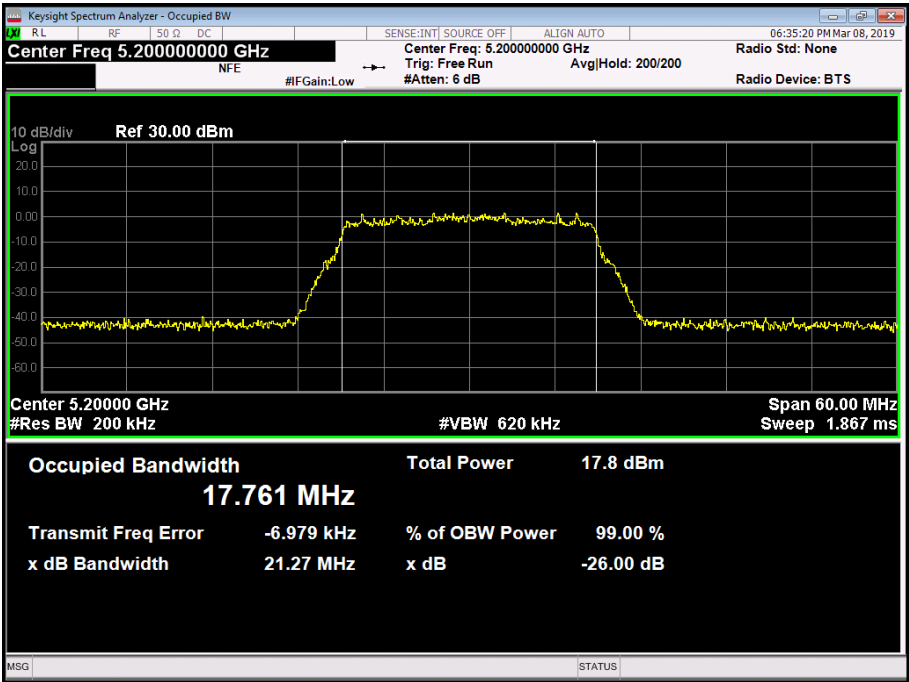


Figure 30 - 5200 MHz - 99% Occupied Bandwidth

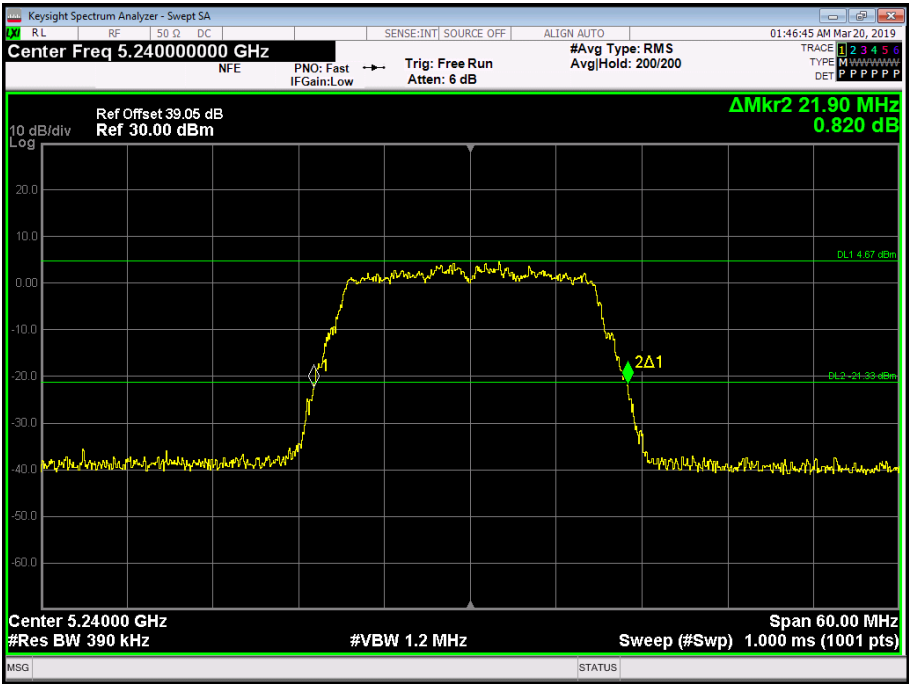


Figure 31 - 5240 MHz - 26 dB Emission Bandwidth

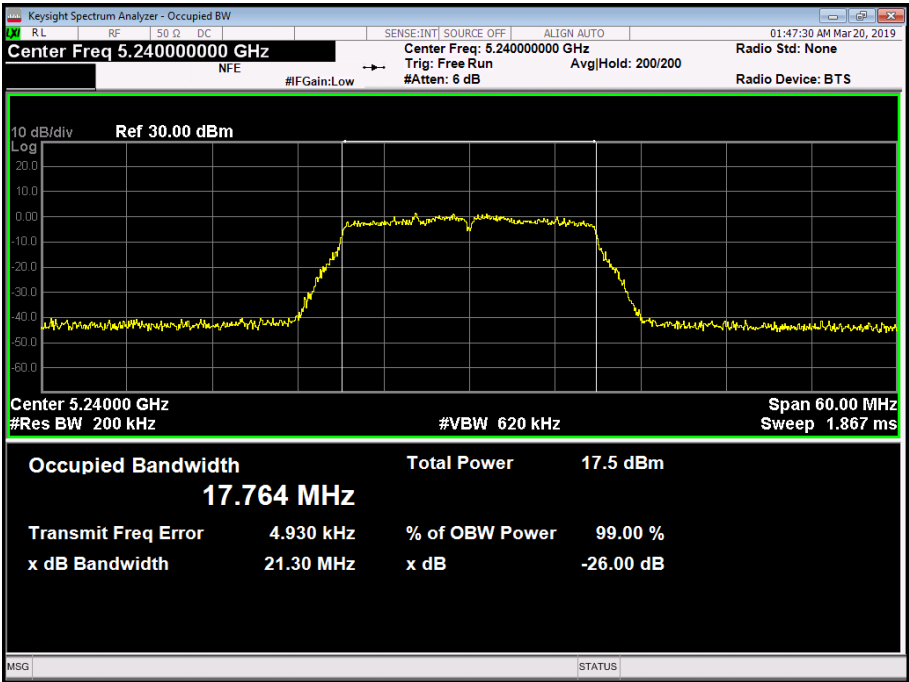


Figure 32 - 5240 MHz - 99% Occupied Bandwidth



802.11n / HT20 MCS0 / MIMO CDD / Cores 0+1 / Country Code CA

| Channel               | Bottom | Middle | Top    |
|-----------------------|--------|--------|--------|
| Frequency (MHz)       | 5180   | 5200   | 5240   |
| 26 dB Bandwidth (MHz) | 21.780 | 22.020 | 21.840 |
| 99% Bandwidth (MHz)   | 17.788 | 17.774 | 17.745 |

Table 150

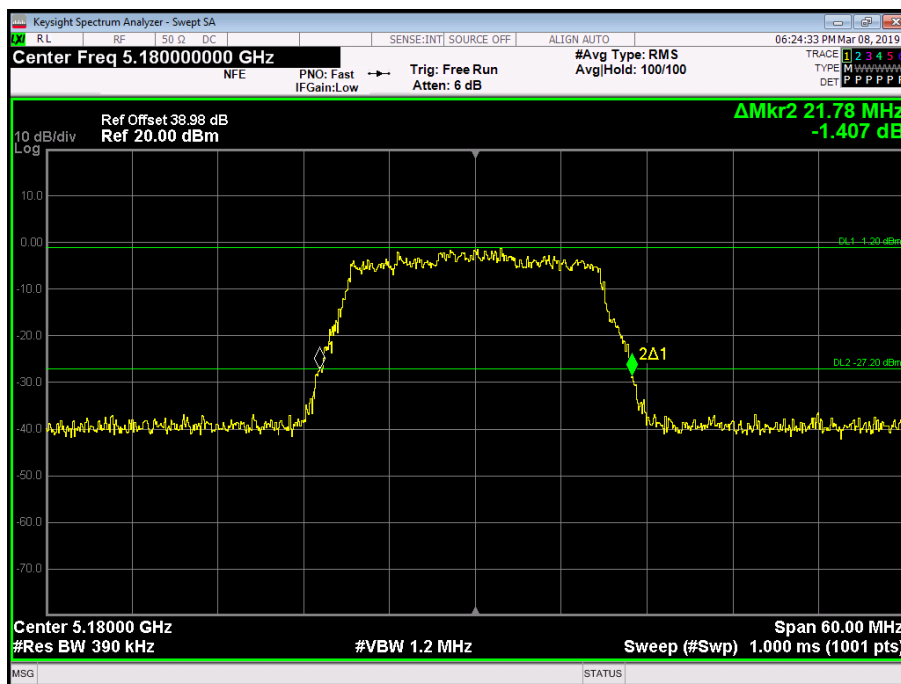


Figure 33 - 5180 MHz - 26 dB Emission Bandwidth

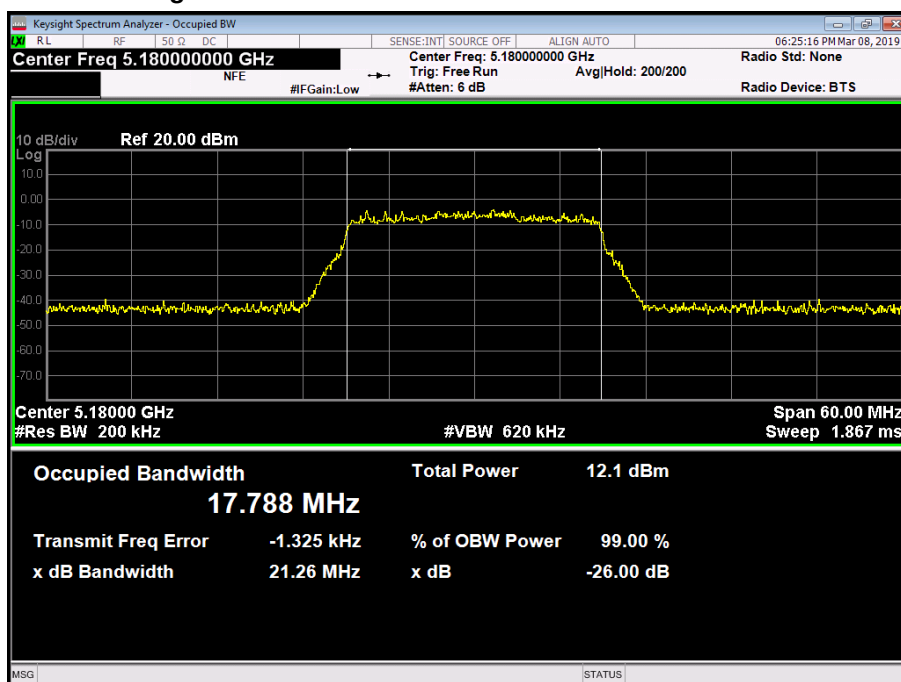


Figure 34 - 5180 MHz - 99% Occupied Bandwidth

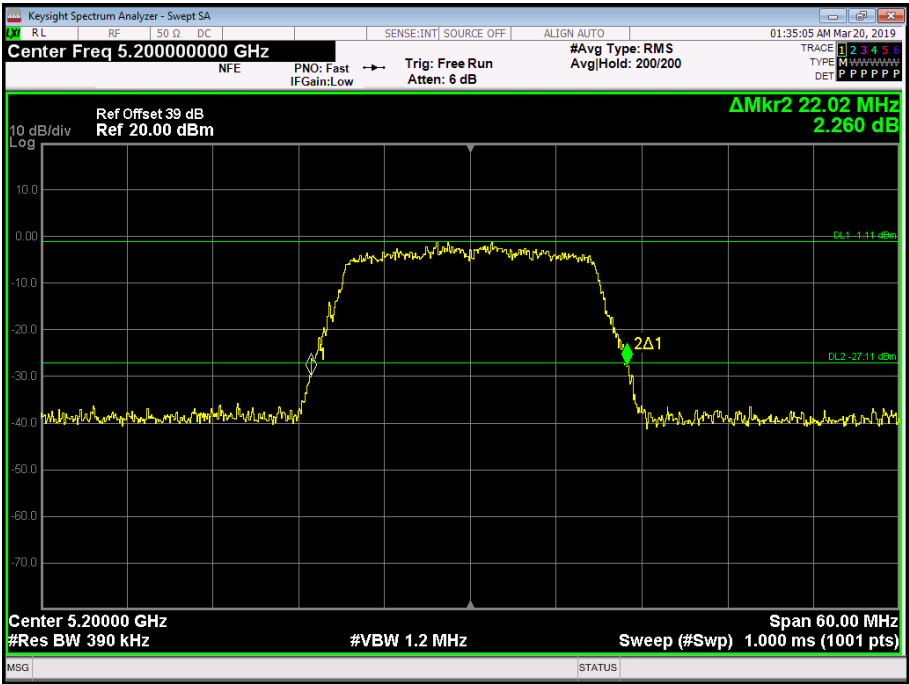


Figure 35 - 5200 MHz - 26 dB Emission Bandwidth

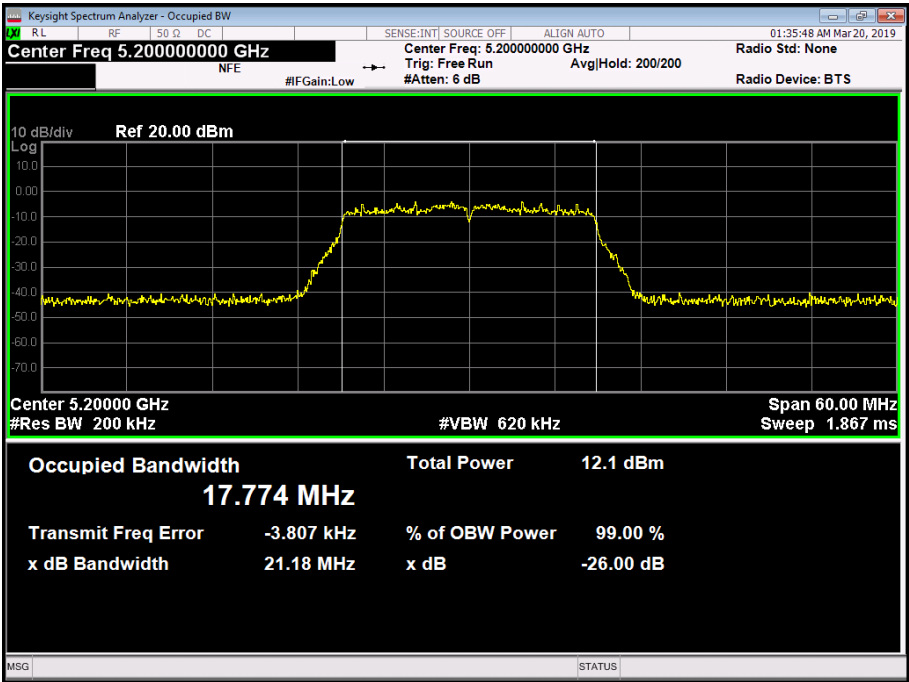


Figure 36 - 5200 MHz - 99% Occupied Bandwidth

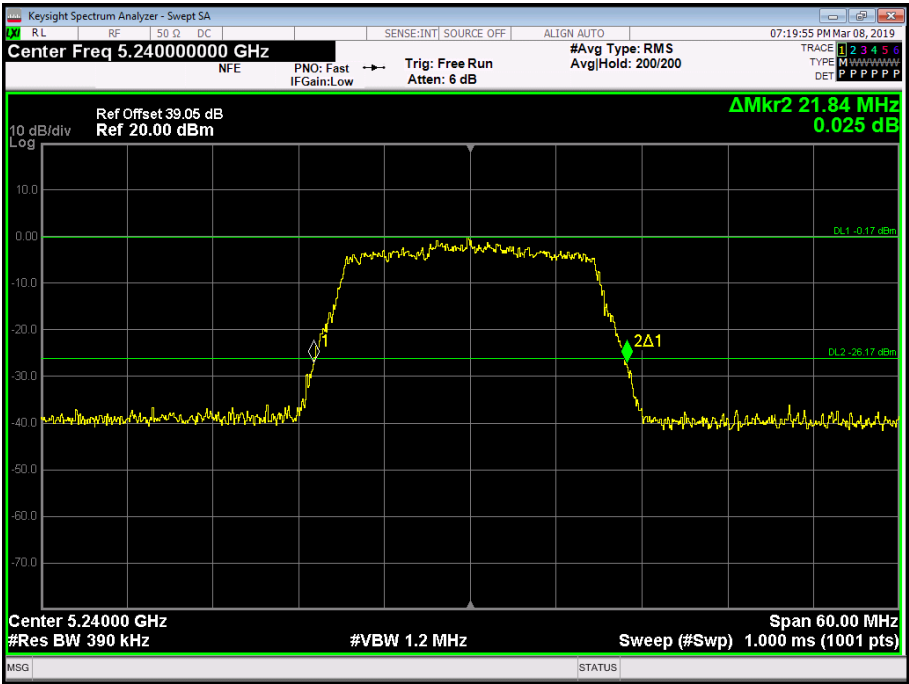


Figure 37 - 5240 MHz - 26 dB Emission Bandwidth

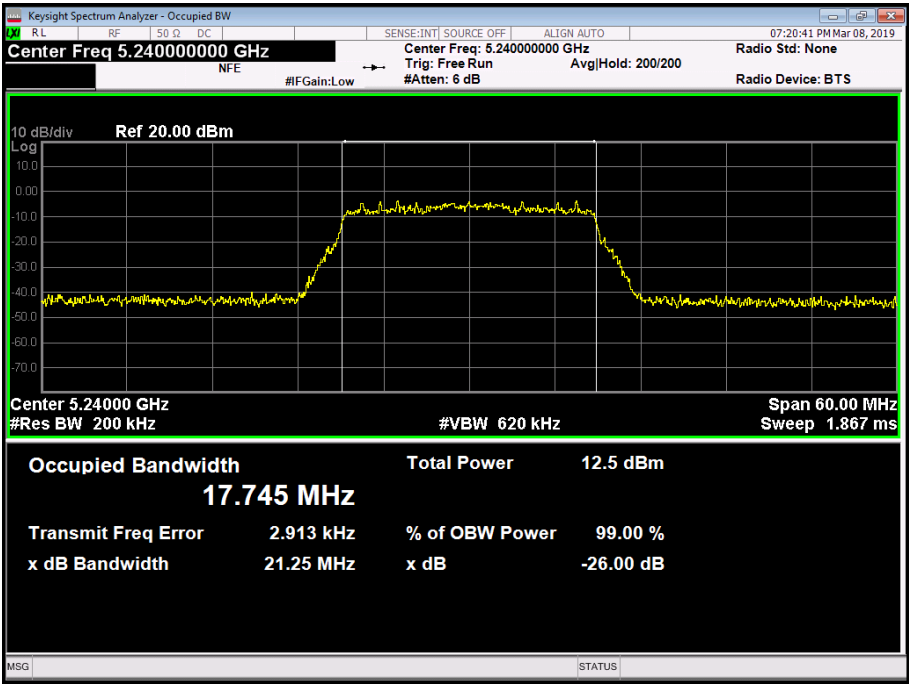


Figure 38 - 5240 MHz - 99% Occupied Bandwidth



802.11n / HT20 MCS8 / MIMO SDM / Cores 0+1 / Country Code US

| Channel               | Bottom | Middle | Top    |
|-----------------------|--------|--------|--------|
| Frequency (MHz)       | 5180   | 5200   | 5240   |
| 26 dB Bandwidth (MHz) | 21.780 | 22.200 | 21.960 |
| 99% Bandwidth (MHz)   | 17.743 | 17.762 | 17.722 |

Table 151

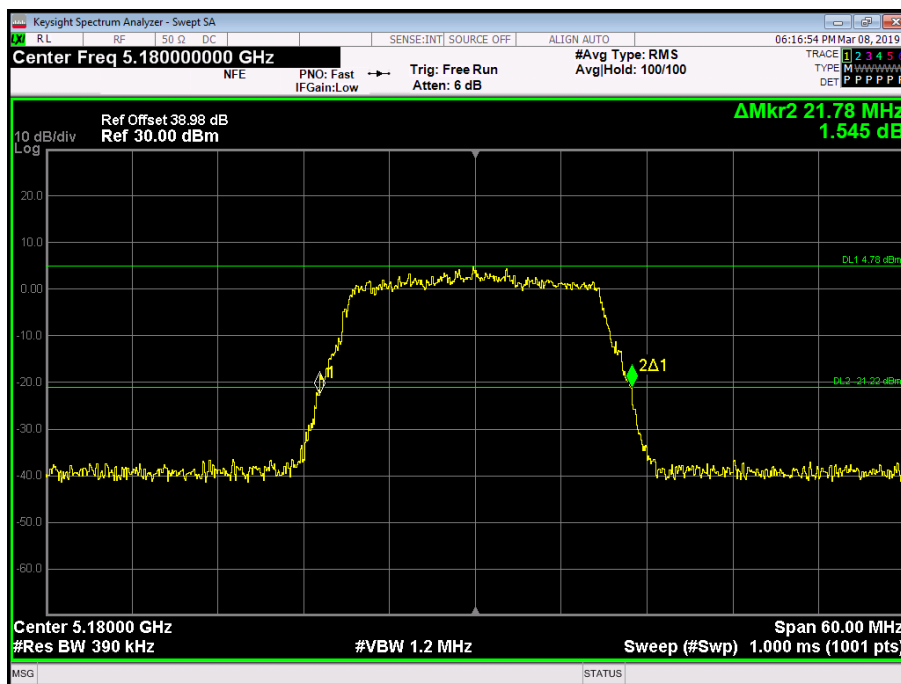


Figure 39 - 5180 MHz - 26 dB Emission Bandwidth

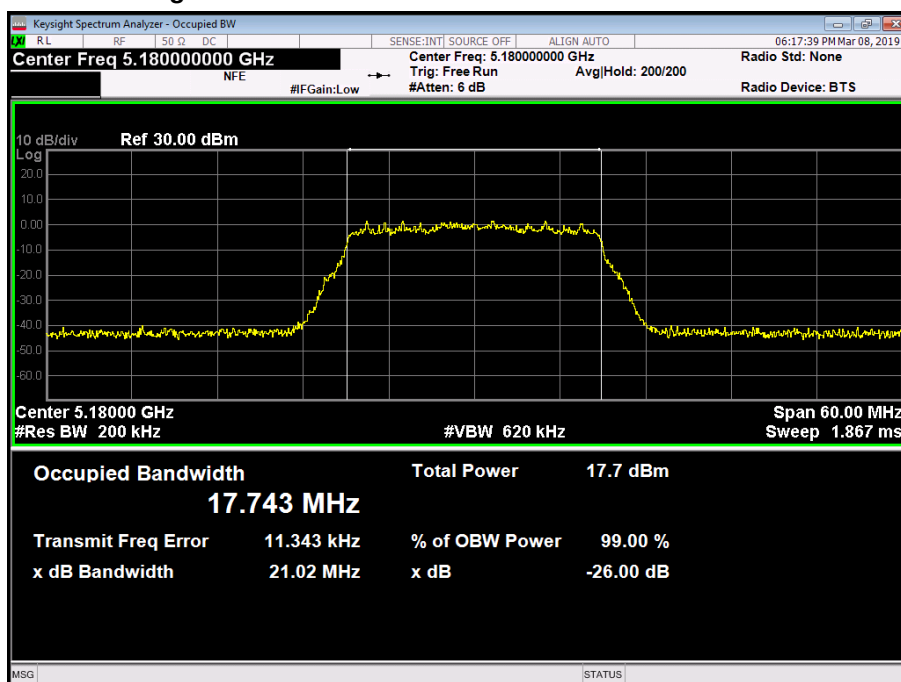


Figure 40 - 5180 MHz - 99% Occupied Bandwidth

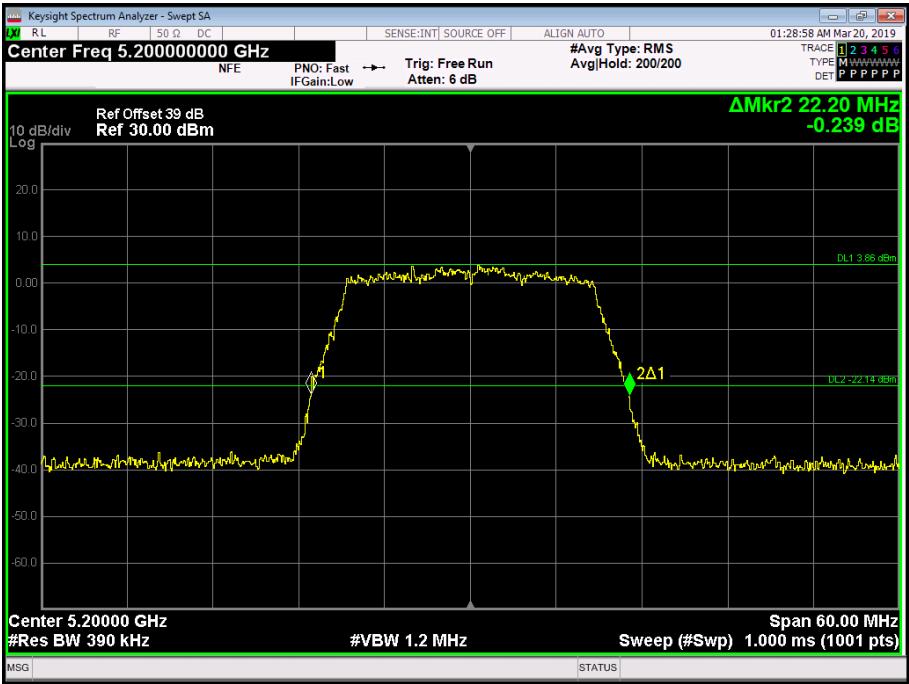


Figure 41 - 5200 MHz - 26 dB Emission Bandwidth

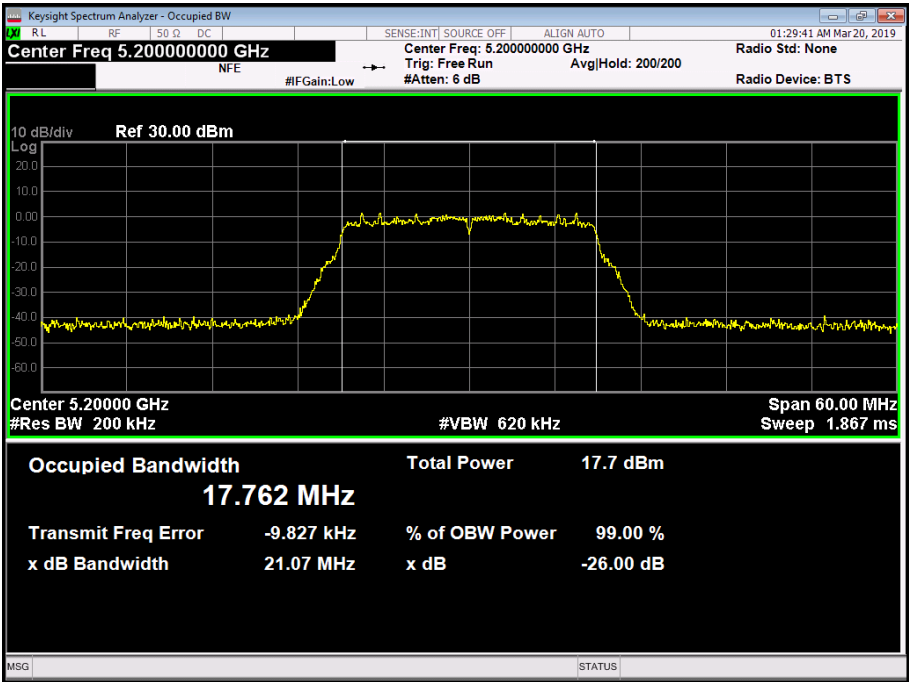


Figure 42 - 5200 MHz - 99% Occupied Bandwidth

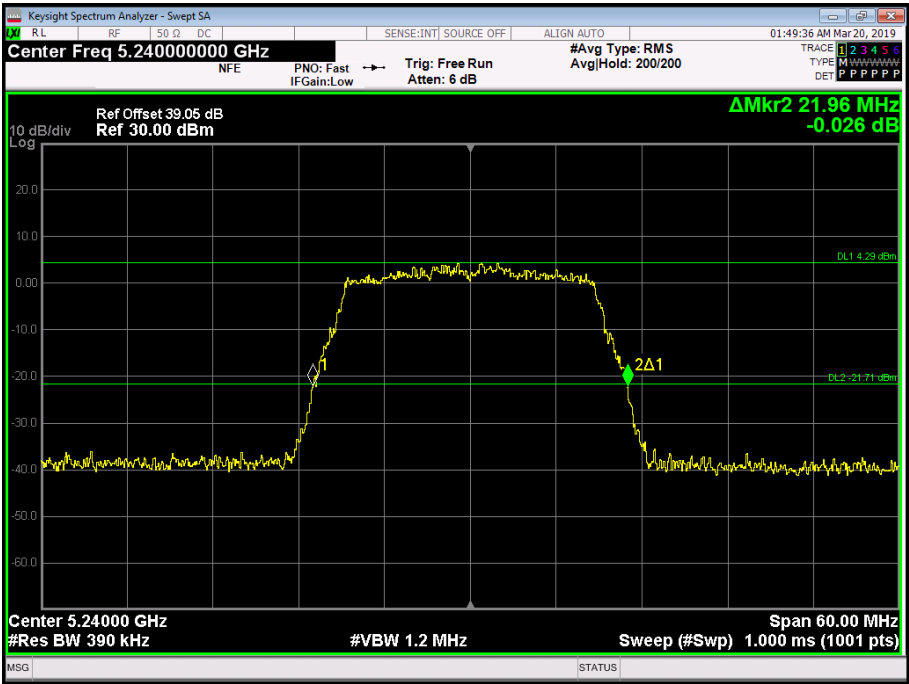


Figure 43 - 5240 MHz - 26 dB Emission Bandwidth

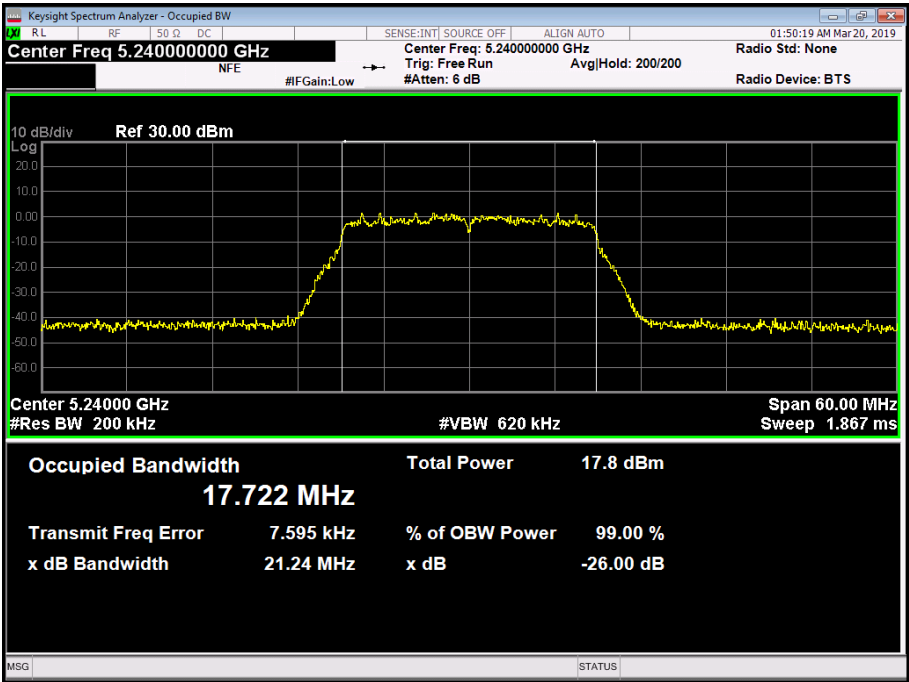


Figure 44 - 5240 MHz - 99% Occupied Bandwidth



802.11n / HT20 MCS8 / MIMO SDM / Cores 0+1 / Country Code CA

| Channel               | Bottom | Middle | Top    |
|-----------------------|--------|--------|--------|
| Frequency (MHz)       | 5180   | 5200   | 5240   |
| 26 dB Bandwidth (MHz) | 21.960 | 22.080 | 21.840 |
| 99% Bandwidth (MHz)   | 17.724 | 17.774 | 17.742 |

Table 152

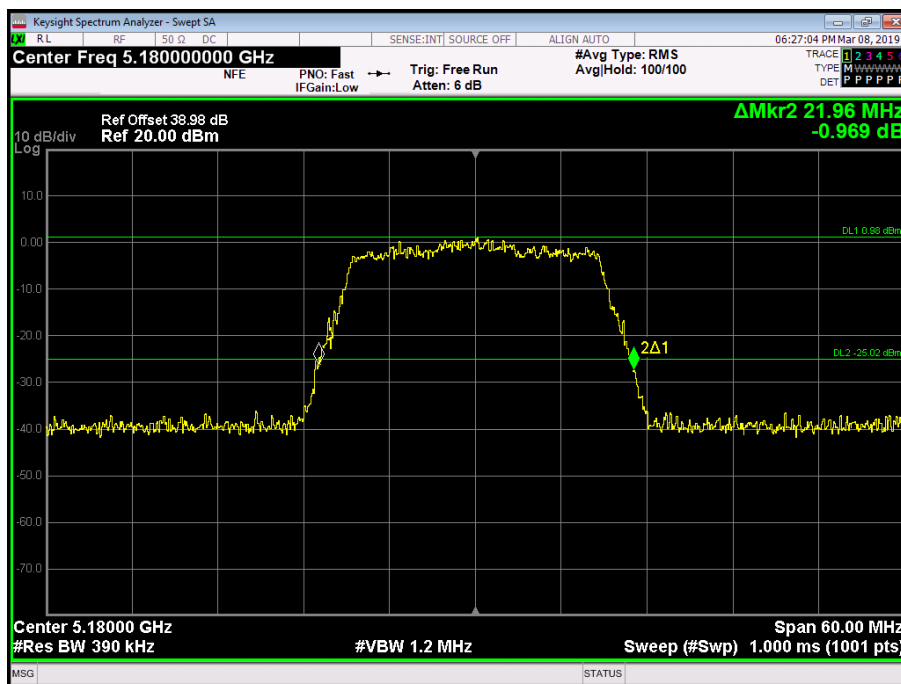


Figure 45 - 5180 MHz - 26 dB Emission Bandwidth

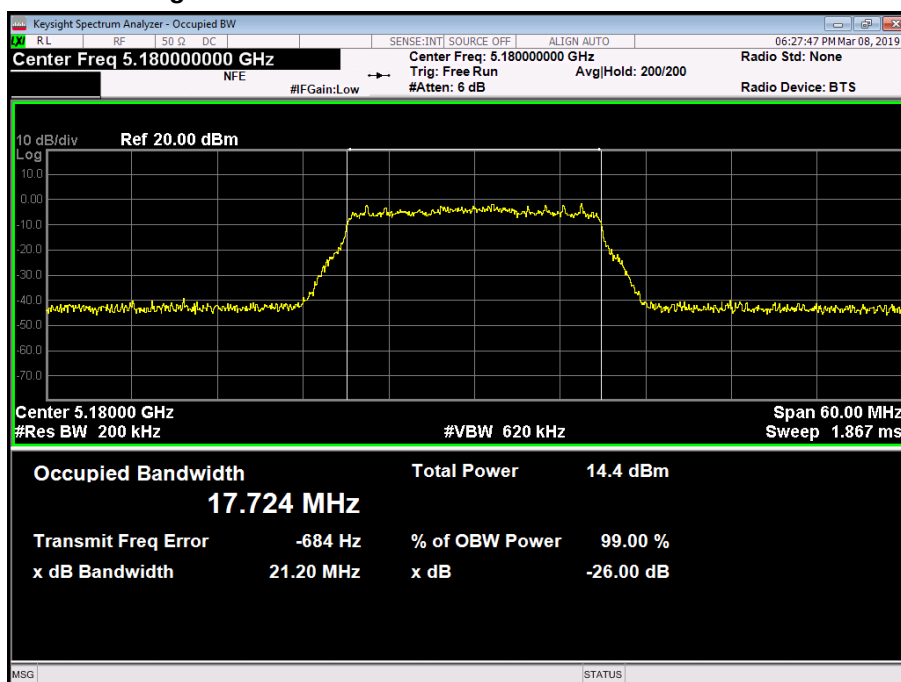


Figure 46 - 5180 MHz - 99% Occupied Bandwidth

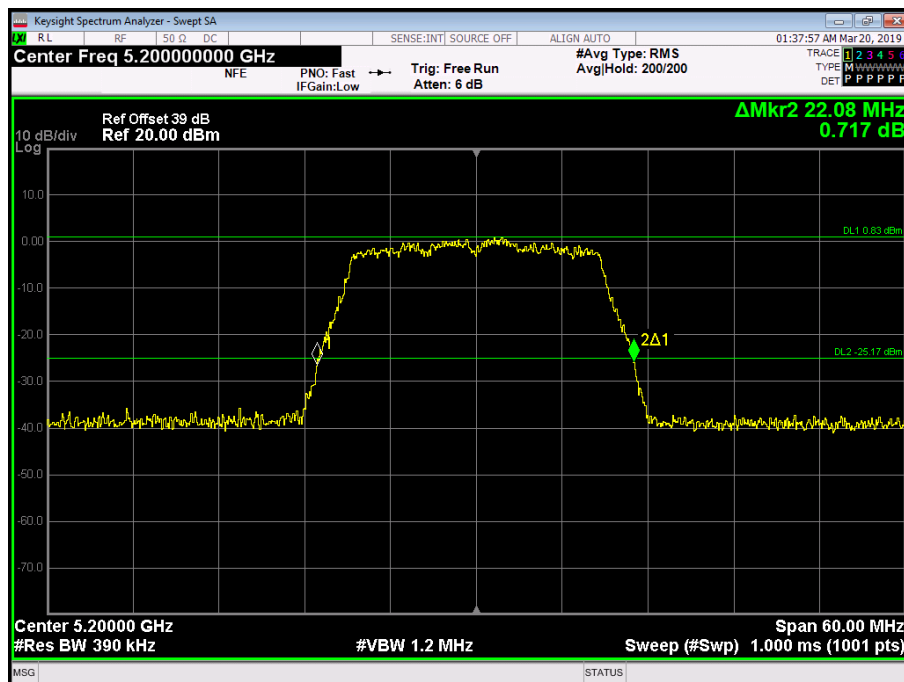


Figure 47 - 5200 MHz - 26 dB Emission Bandwidth

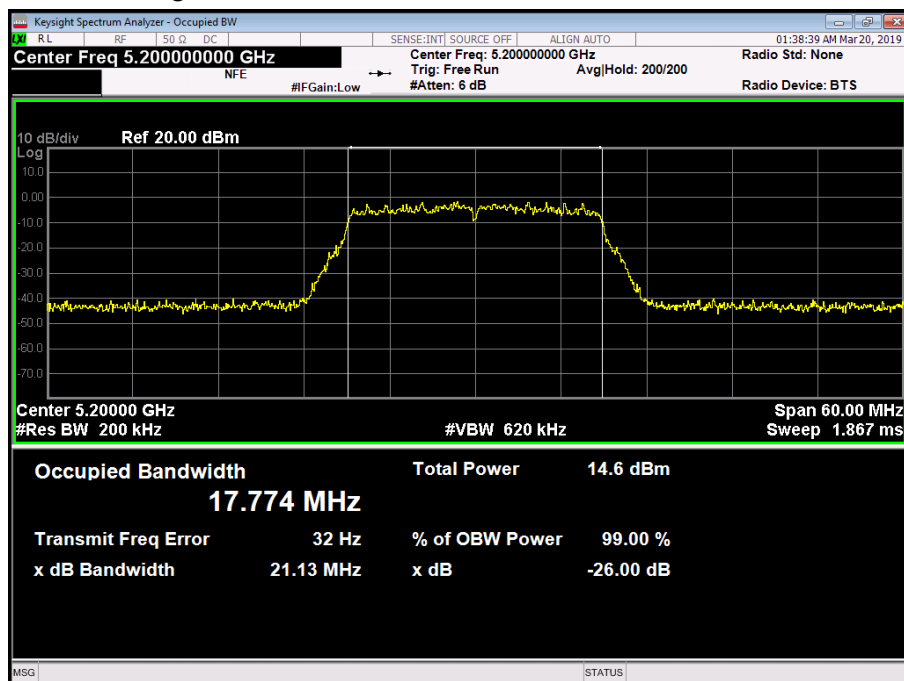


Figure 48 - 5200 MHz - 99% Occupied Bandwidth

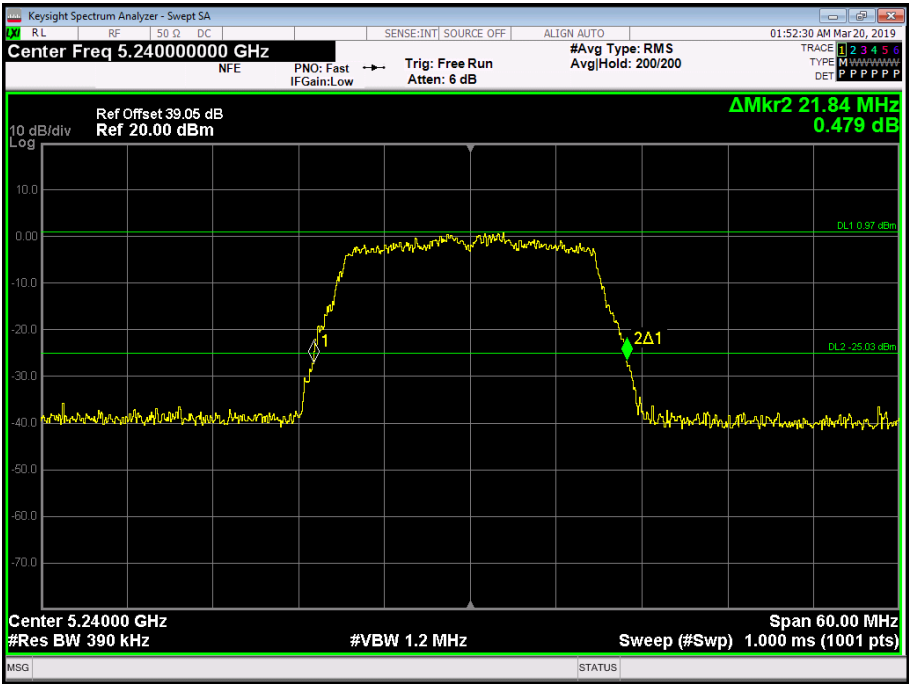


Figure 49 - 5240 MHz - 26 dB Emission Bandwidth

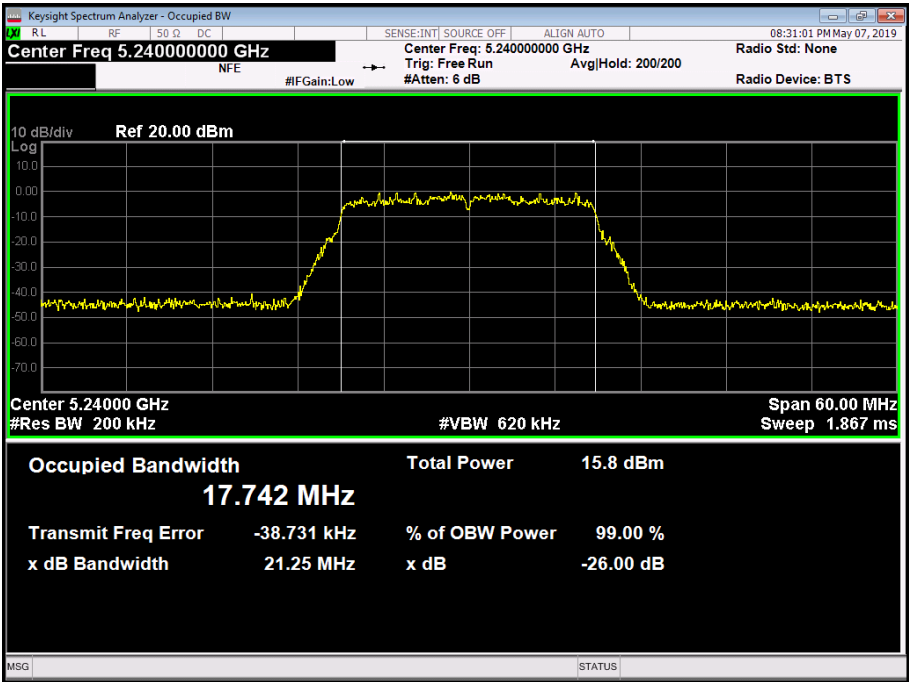


Figure 50 - 5240 MHz - 99% Occupied Bandwidth



802.11n / HT20 MCS0 / MIMO TxBF / Cores 0+1 / Country Code US

| Channel               | Bottom | Middle | Top    |
|-----------------------|--------|--------|--------|
| Frequency (MHz)       | 5180   | 5200   | 5240   |
| 26 dB Bandwidth (MHz) | 21.840 | 21.720 | 21.960 |
| 99% Bandwidth (MHz)   | 17.766 | 17.768 | 17.762 |

Table 153

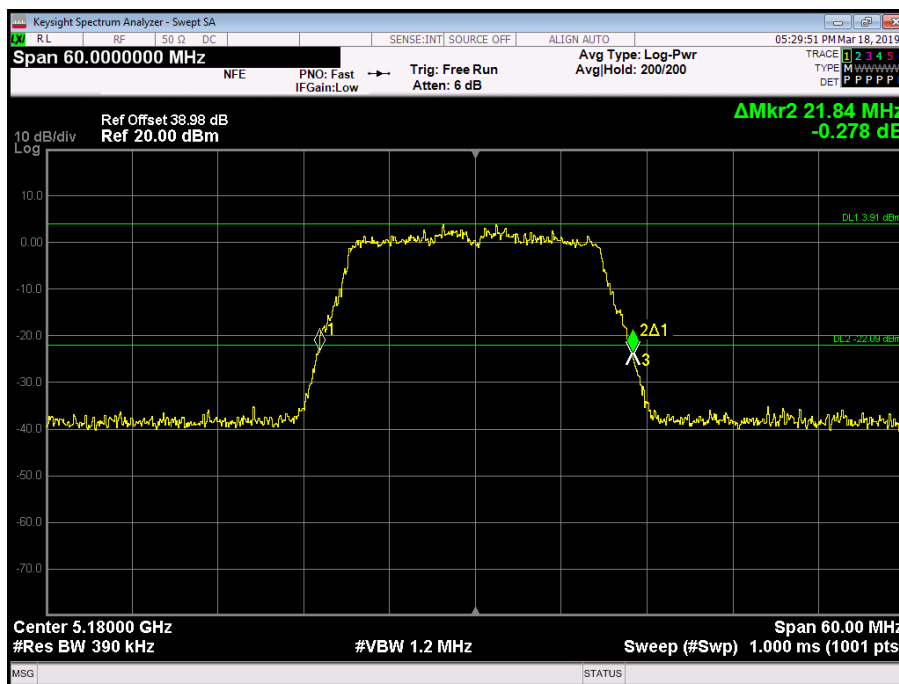


Figure 51 - 5180 MHz - 26 dB Emission Bandwidth

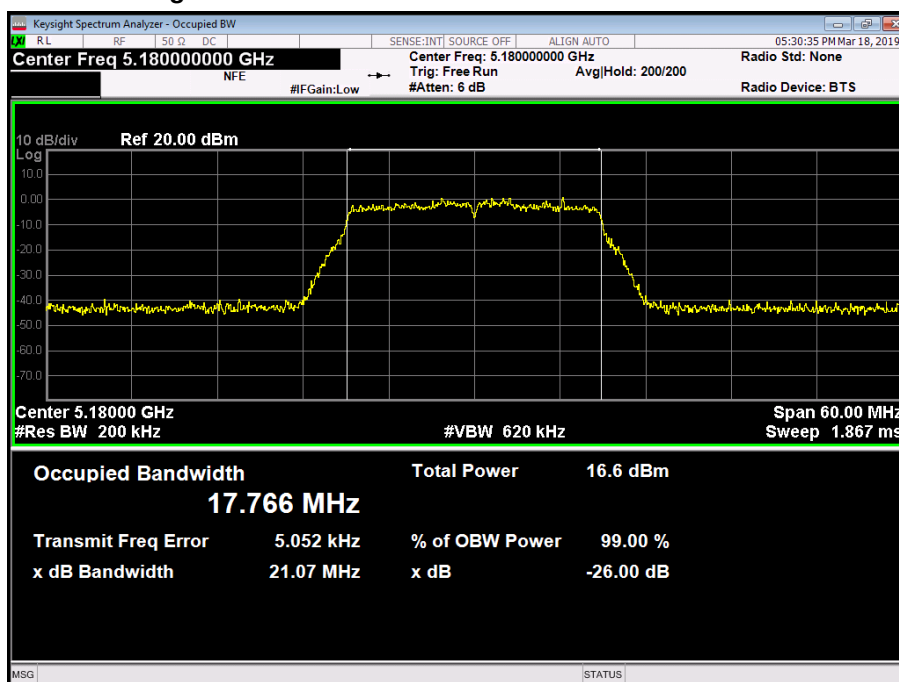


Figure 52 - 5180 MHz - 99% Occupied Bandwidth

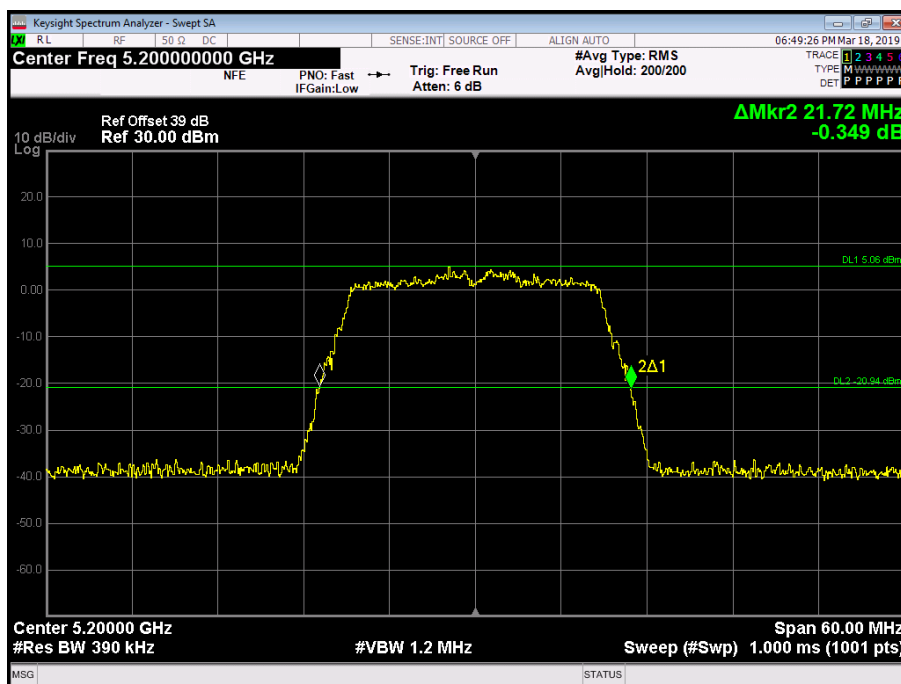


Figure 53 - 5200 MHz - 26 dB Emission Bandwidth

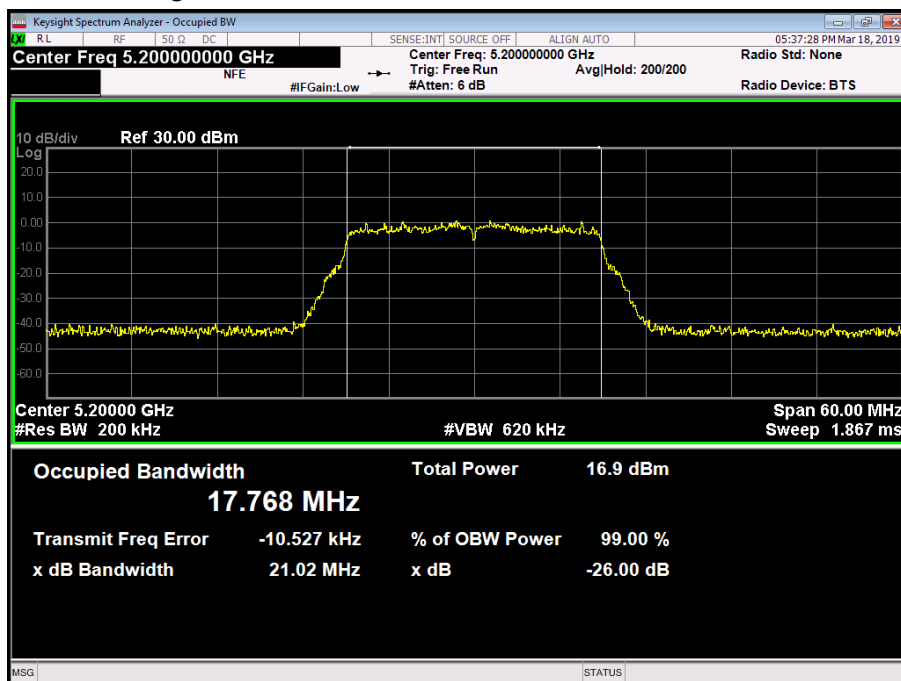


Figure 54 - 5200 MHz - 99% Occupied Bandwidth

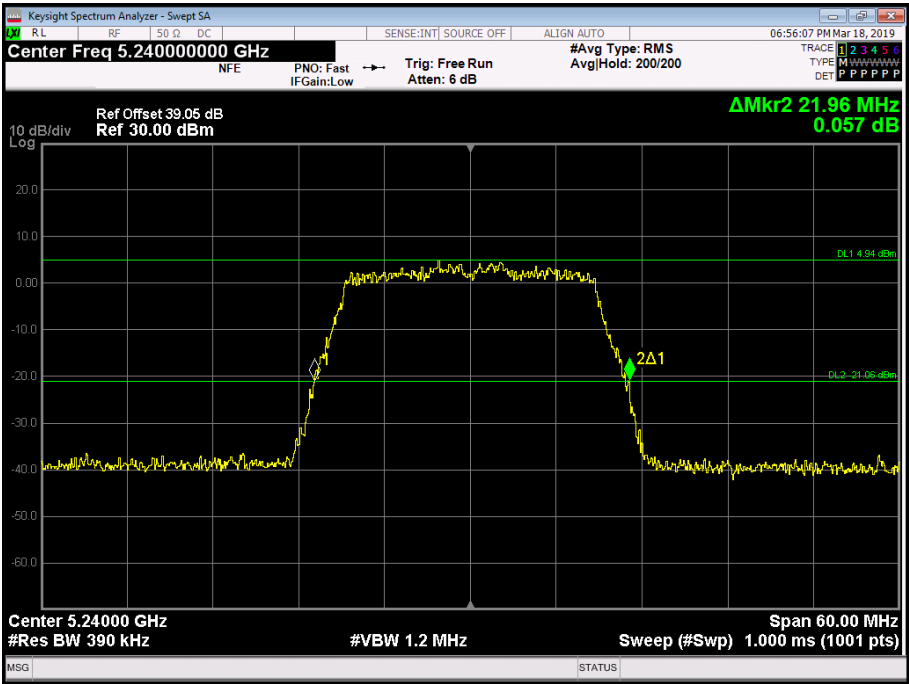


Figure 55 - 5240 MHz - 26 dB Emission Bandwidth

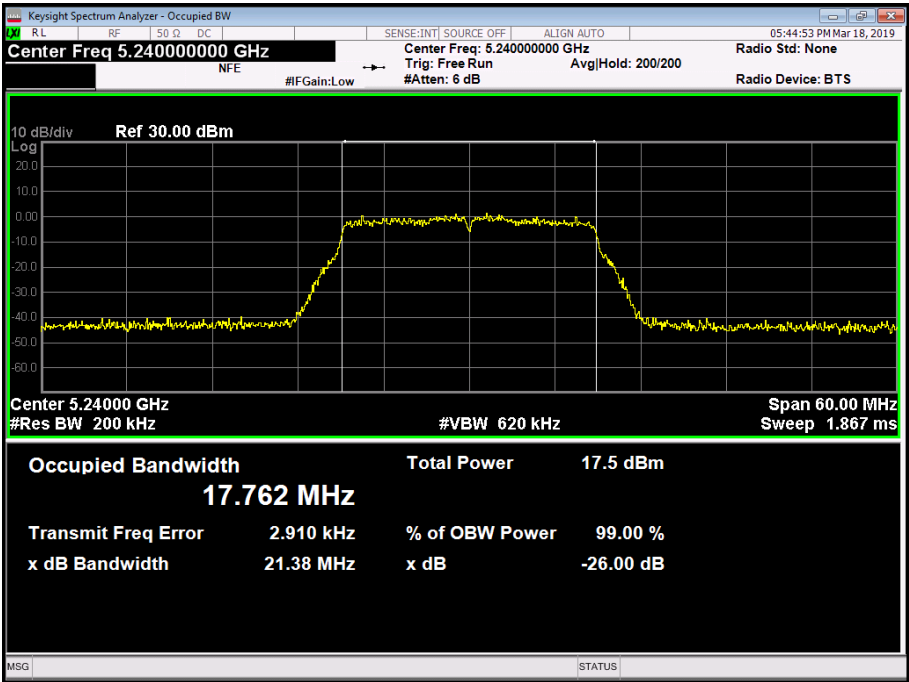


Figure 56 - 5240 MHz - 99% Occupied Bandwidth



802.11n / HT20 MCS0 / MIMO TxBF / Cores 0+1 / Country Code CA

| Channel               | Bottom | Middle | Top    |
|-----------------------|--------|--------|--------|
| Frequency (MHz)       | 5180   | 5200   | 5240   |
| 26 dB Bandwidth (MHz) | 21.780 | 22.140 | 21.900 |
| 99% Bandwidth (MHz)   | 17.785 | 17.775 | 17.782 |

Table 154

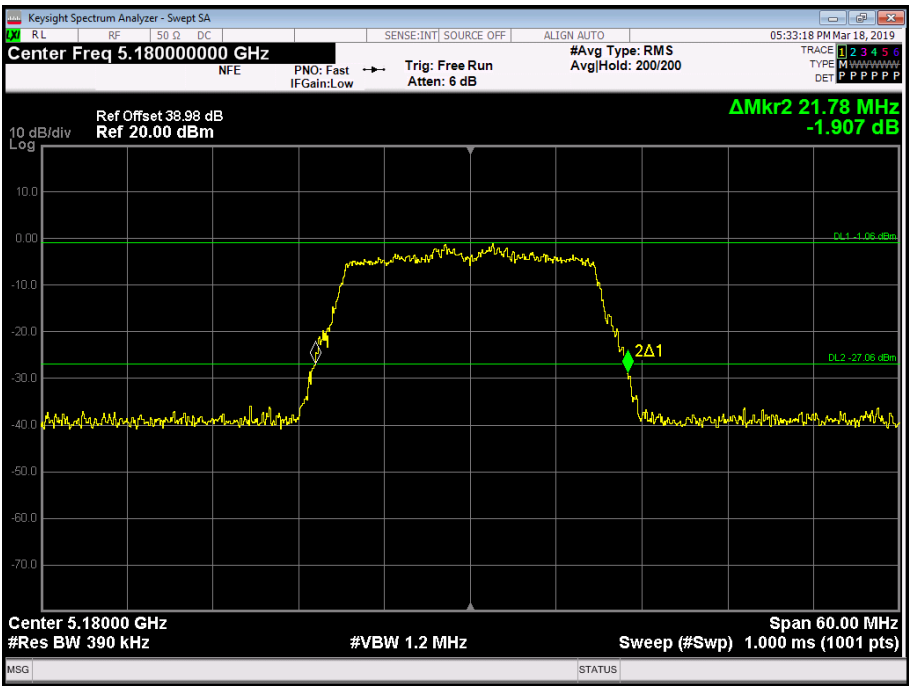


Figure 57 - 5180 MHz - 26 dB Emission Bandwidth

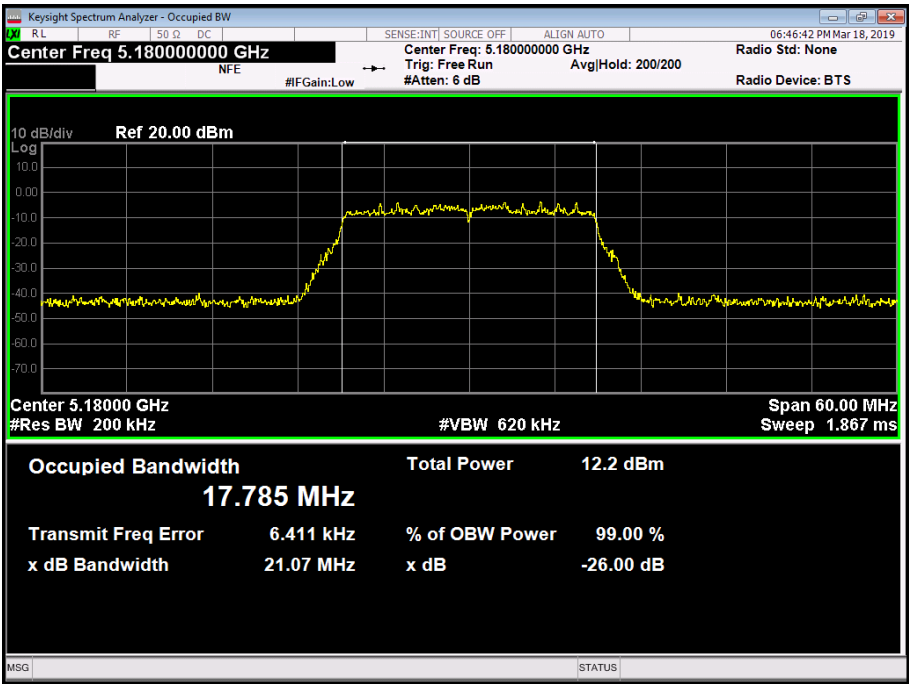


Figure 58 - 5180 MHz - 99% Occupied Bandwidth

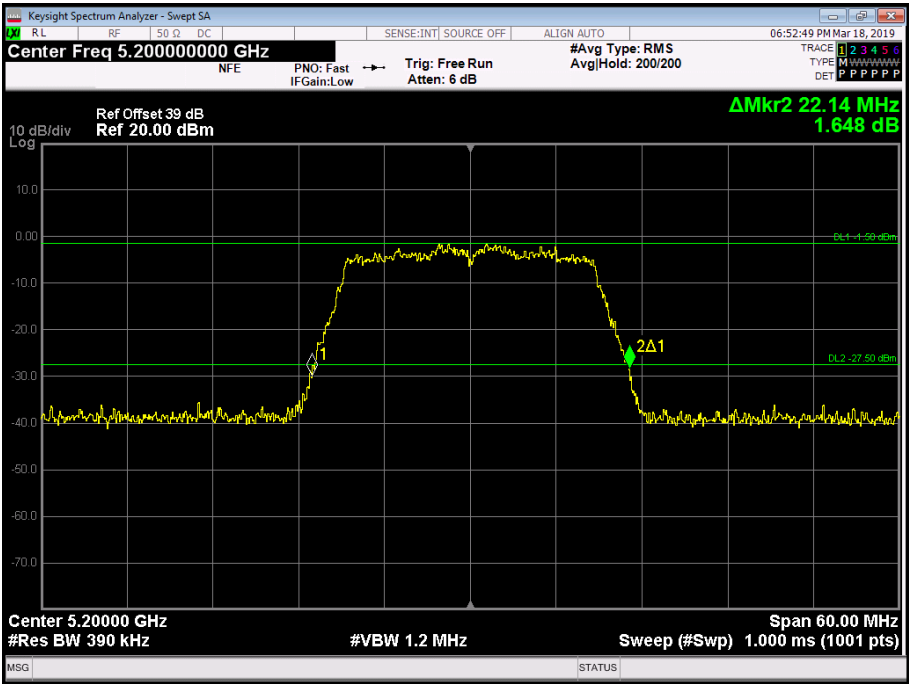


Figure 59 - 5200 MHz - 26 dB Emission Bandwidth

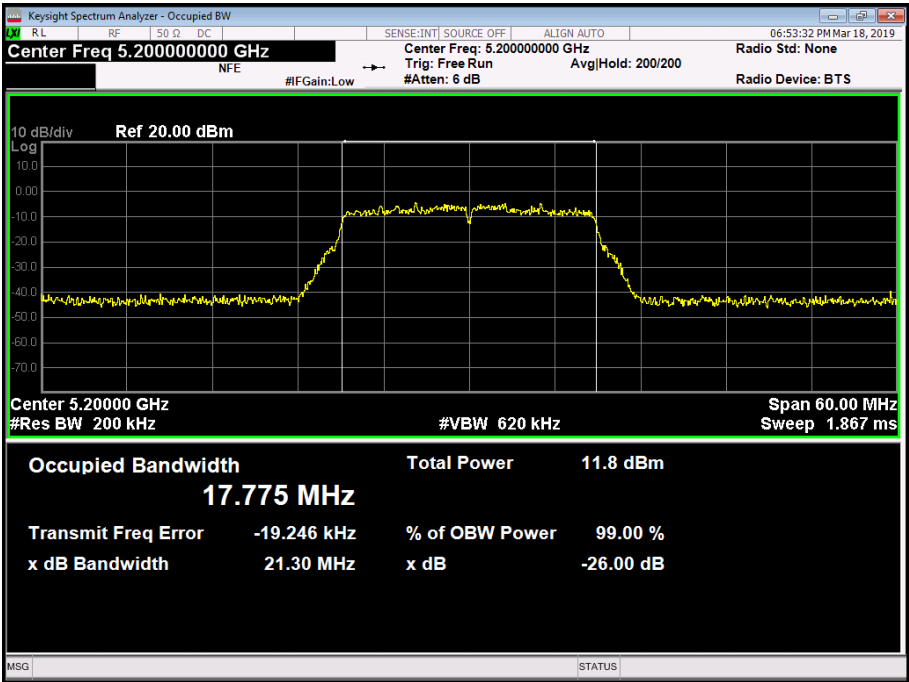


Figure 60 - 5200 MHz - 99% Occupied Bandwidth

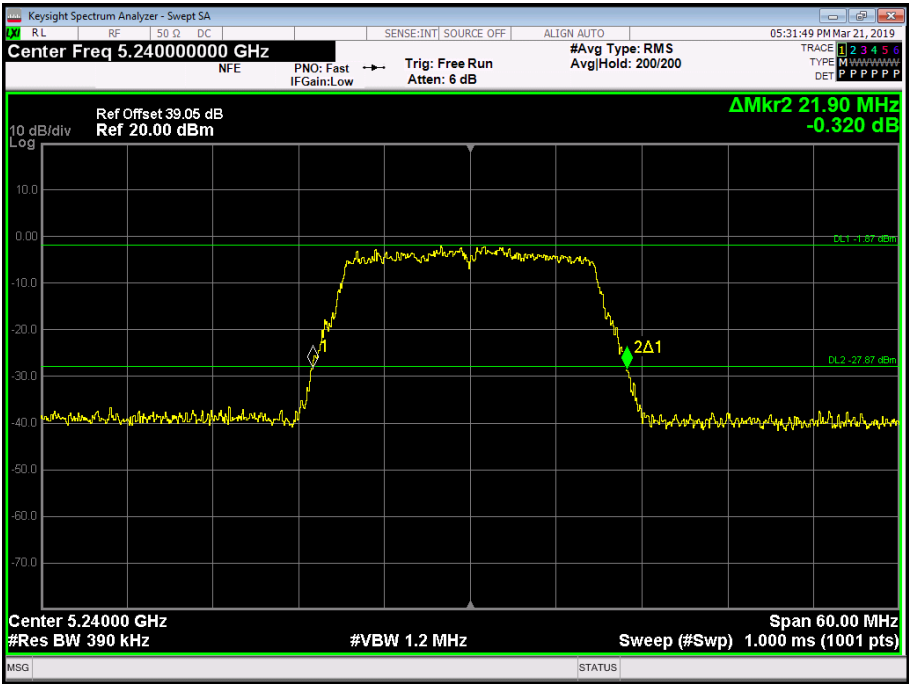


Figure 61 - 5240 MHz - 26 dB Emission Bandwidth

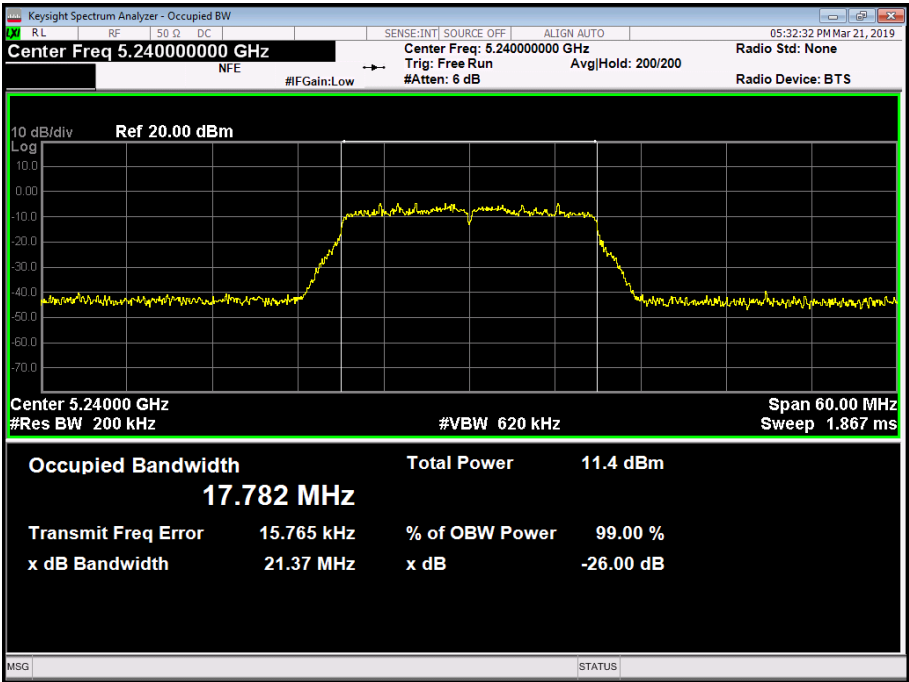


Figure 62 - 5240 MHz - 99% Occupied Bandwidth



802.11n / HT40 MCS0 / SISO / Core 0 / Country Code US

| Channel               | Bottom | Top    |
|-----------------------|--------|--------|
| Frequency (MHz)       | 5190   | 5230   |
| 26 dB Bandwidth (MHz) | 40.440 | 40.440 |
| 99% Bandwidth (MHz)   | 36.117 | 36.104 |

Table 155

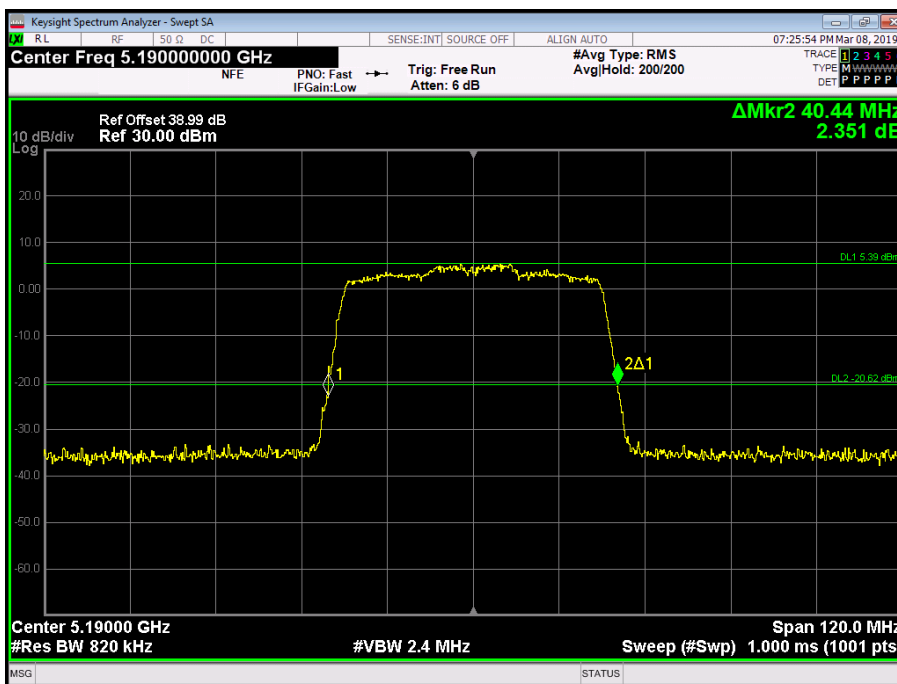


Figure 63 - 5190 MHz - 26 dB Emission Bandwidth

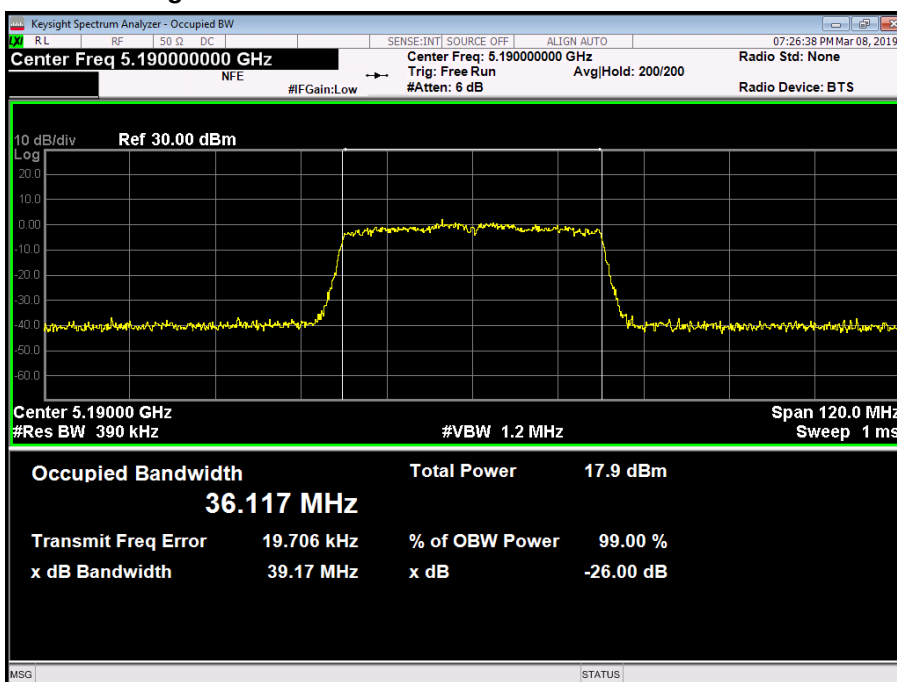


Figure 64 - 5190 MHz - 99% Occupied Bandwidth

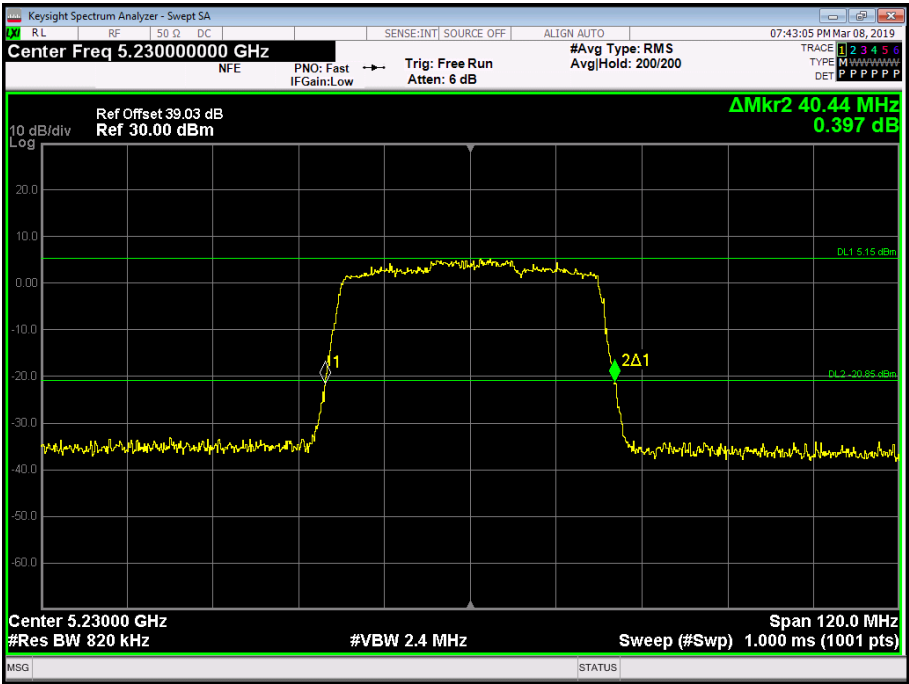


Figure 65 - 5230 MHz - 26 dB Emission Bandwidth

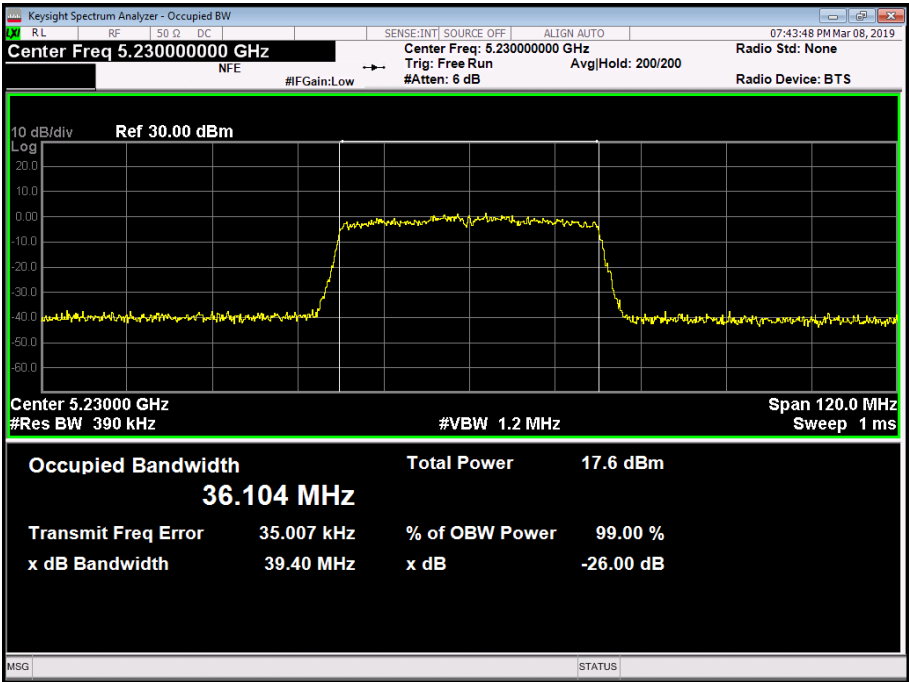


Figure 66 - 5230 MHz - 99% Occupied Bandwidth



802.11n / HT40 MCS0 / SISO / Core 0 / Country Code CA

| Channel               | Bottom | Top    |
|-----------------------|--------|--------|
| Frequency (MHz)       | 5190   | 5230   |
| 26 dB Bandwidth (MHz) | 40.320 | 40.560 |
| 99% Bandwidth (MHz)   | 36.111 | 36.114 |

Table 156



Figure 67 - 5190 MHz - 26 dB Emission Bandwidth

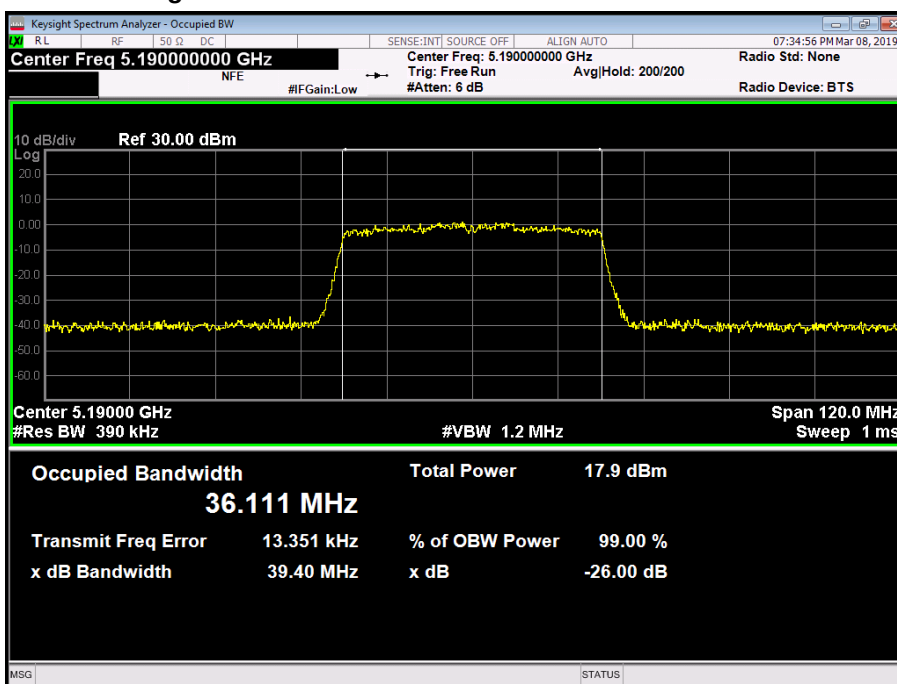


Figure 68 - 5190 MHz - 99% Occupied Bandwidth

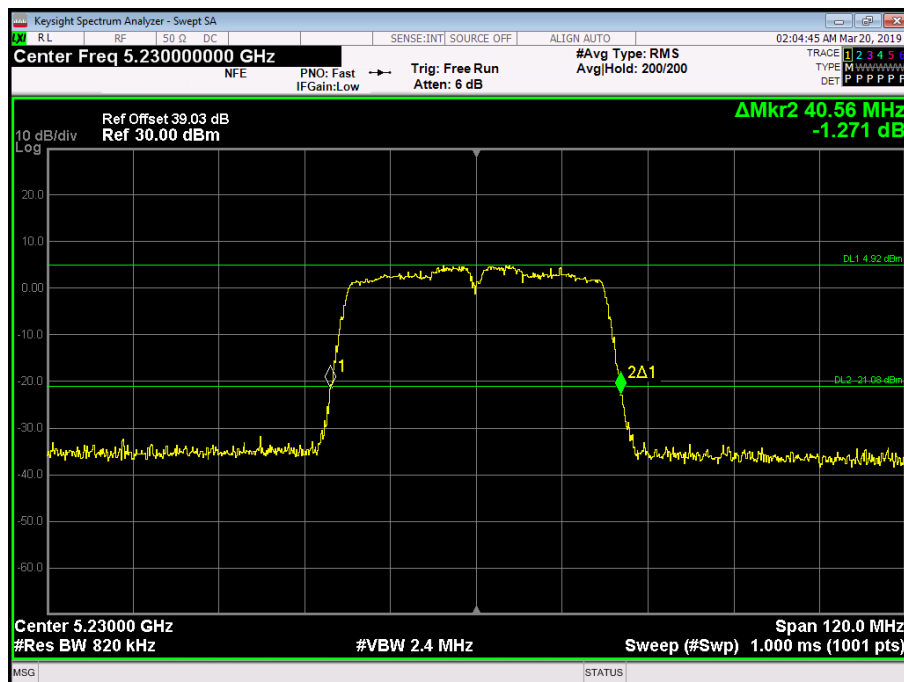


Figure 69 - 5230 MHz - 26 dB Emission Bandwidth

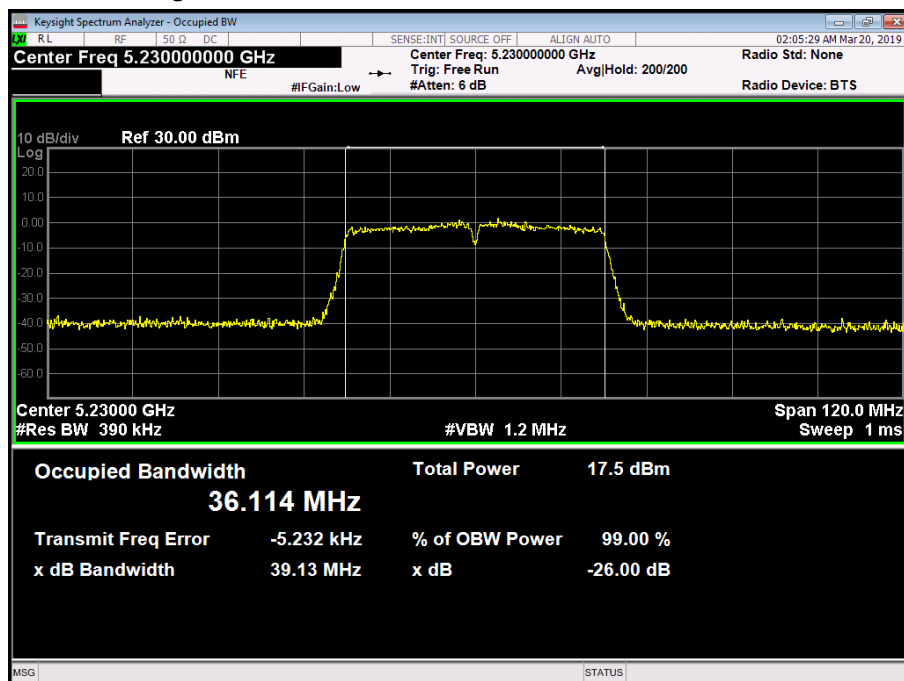


Figure 70 - 5230 MHz - 99% Occupied Bandwidth



802.11n / HT40 MCS0 / MIMO CDD / Cores 0+1 / Country Code US

| Channel               | Bottom | Top    |
|-----------------------|--------|--------|
| Frequency (MHz)       | 5190   | 5230   |
| 26 dB Bandwidth (MHz) | 40.680 | 40.320 |
| 99% Bandwidth (MHz)   | 36.120 | 36.204 |

Table 157

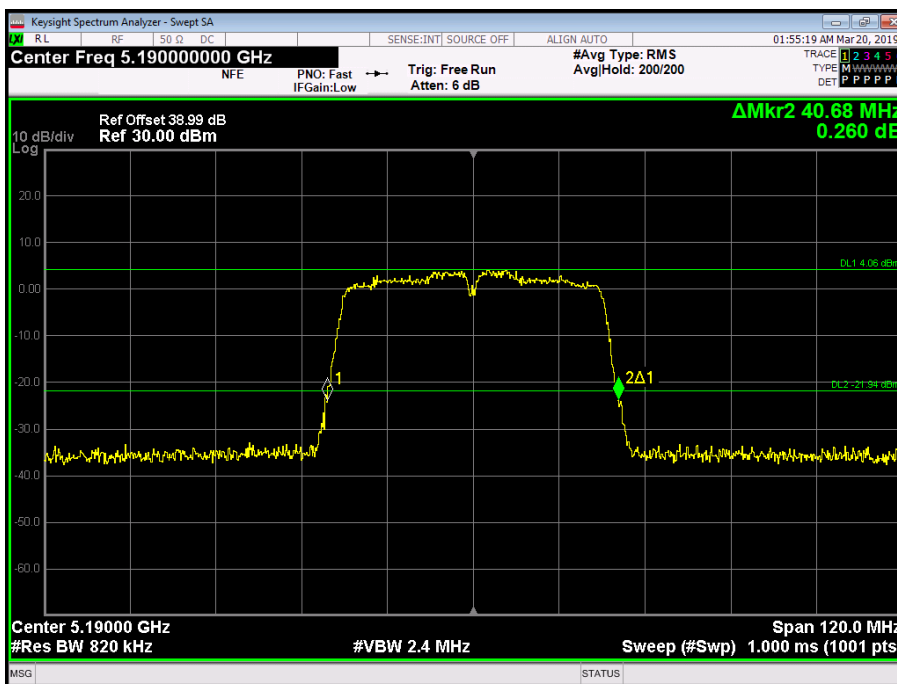


Figure 71 - 5190 MHz - 26 dB Emission Bandwidth

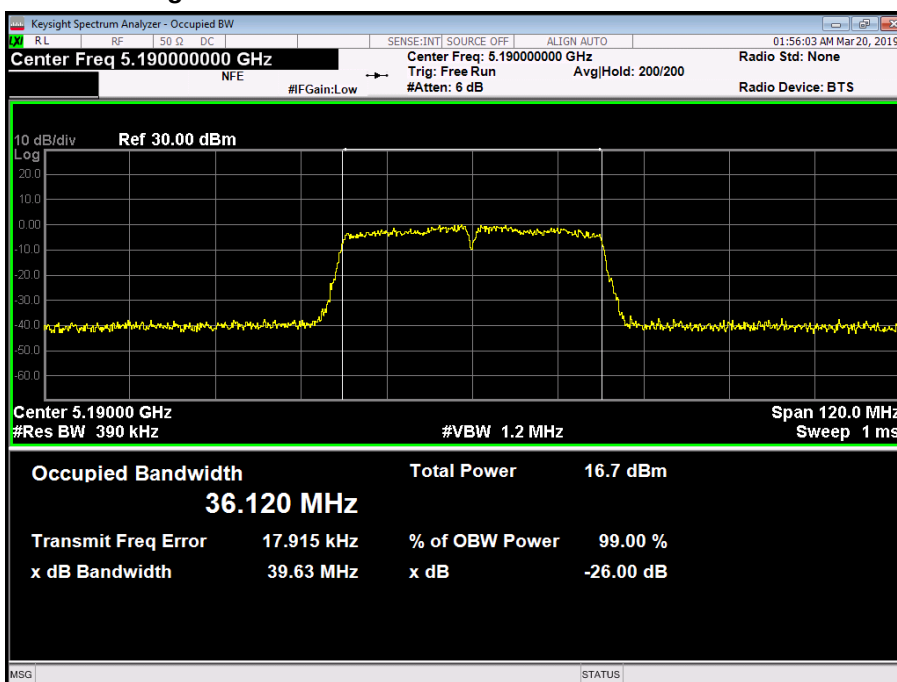


Figure 72 - 5190 MHz - 99% Occupied Bandwidth

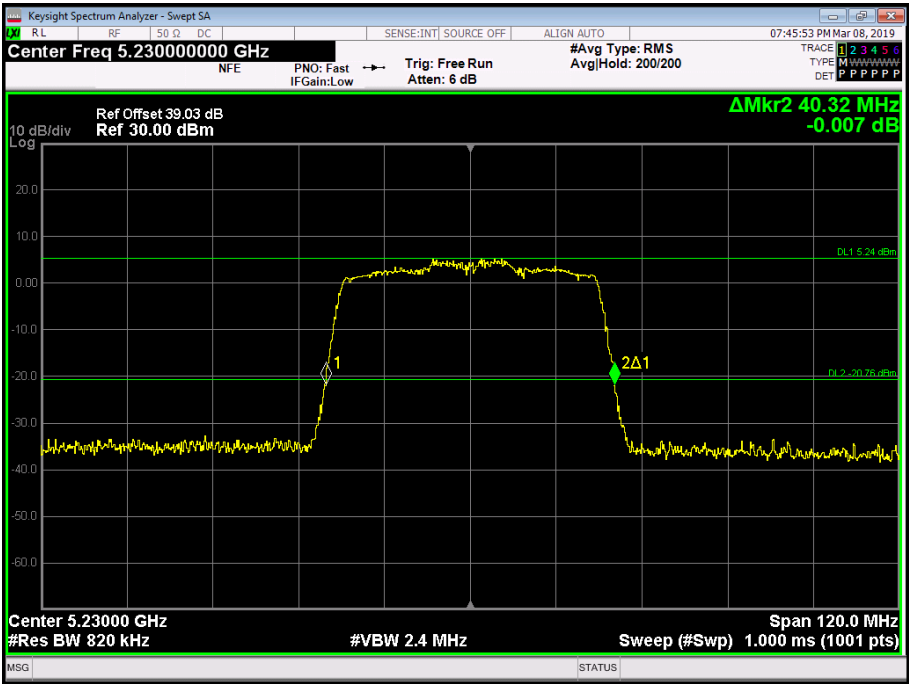


Figure 73 - 5230 MHz - 26 dB Emission Bandwidth

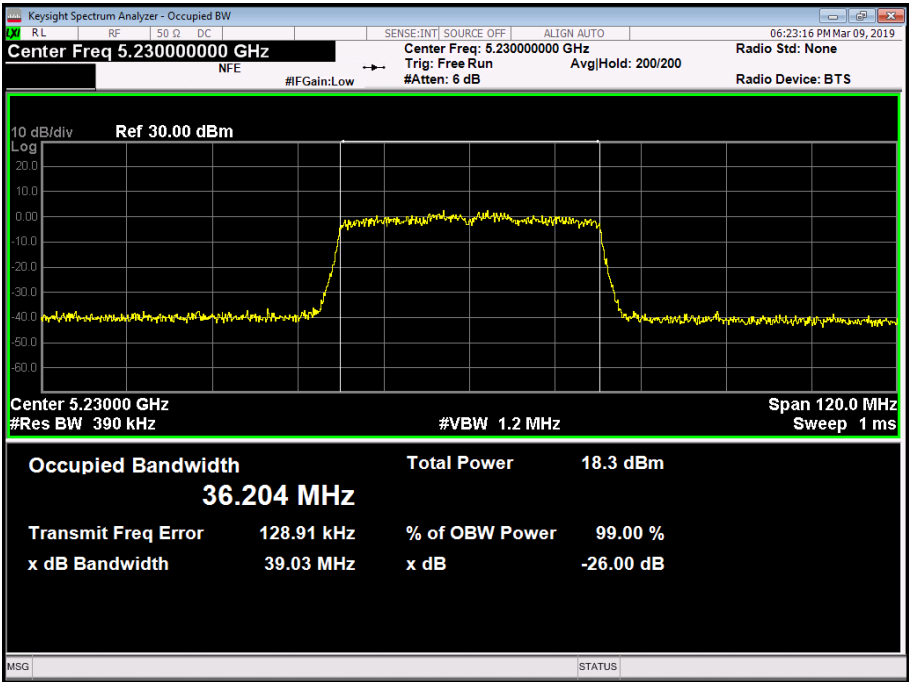


Figure 74 - 5230 MHz - 99% Occupied Bandwidth



802.11n / HT40 MCS0 / MIMO CDD / Cores 0+1 / Country Code CA

| Channel               | Bottom | Top    |
|-----------------------|--------|--------|
| Frequency (MHz)       | 5190   | 5230   |
| 26 dB Bandwidth (MHz) | 40.680 | 40.200 |
| 99% Bandwidth (MHz)   | 36.178 | 36.165 |

Table 158

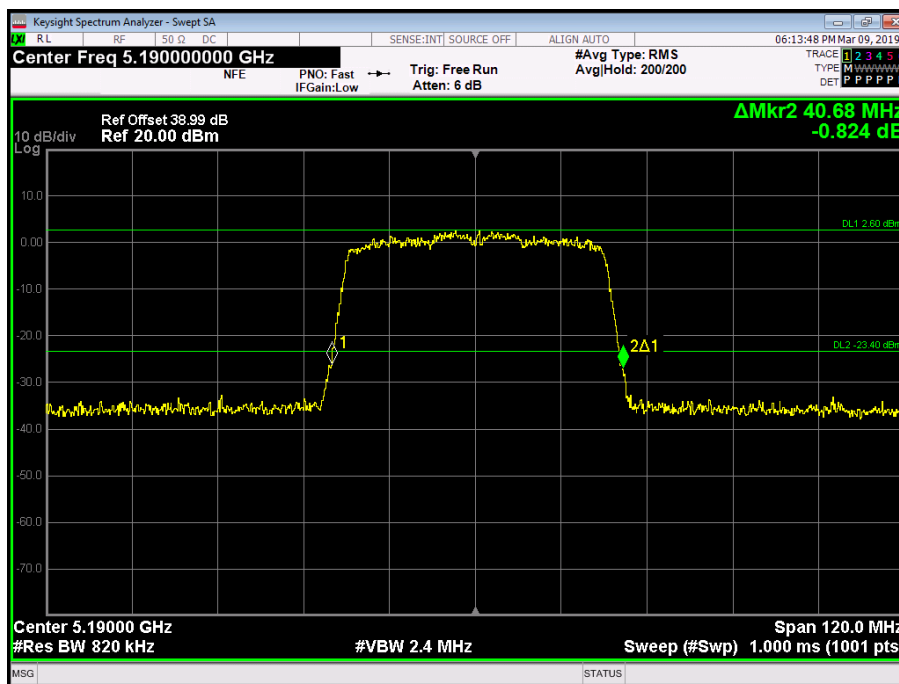


Figure 75 - 5190 MHz - 26 dB Emission Bandwidth

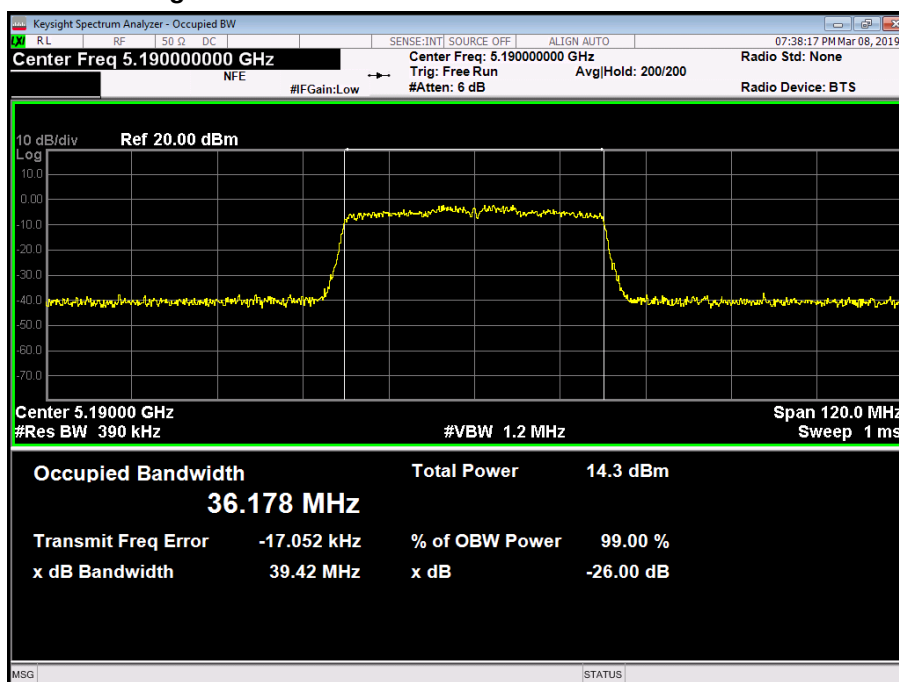


Figure 76 - 5190 MHz - 99% Occupied Bandwidth

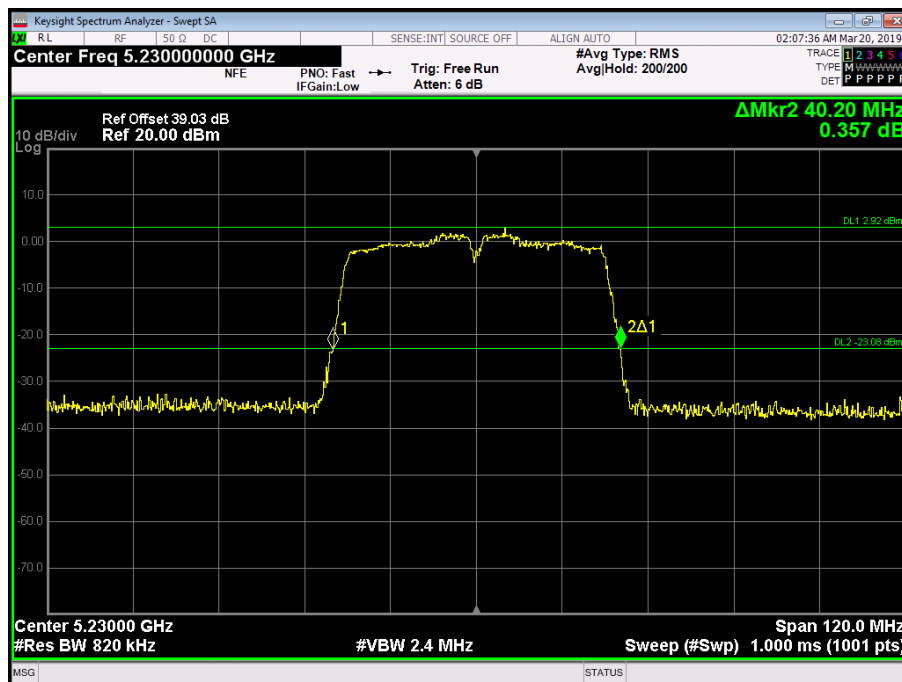


Figure 77 - 5230 MHz - 26 dB Emission Bandwidth

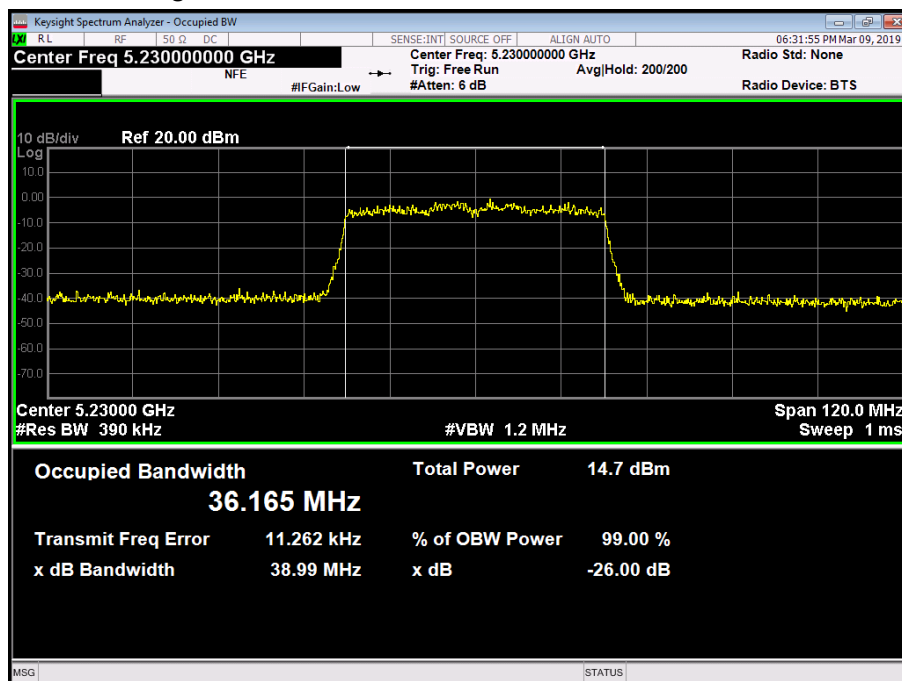


Figure 78 - 5230 MHz - 99% Occupied Bandwidth



802.11n / HT40 MCS8 / MIMO SDM / Cores 0+1 / Country Code US

| Channel               | Bottom | Top    |
|-----------------------|--------|--------|
| Frequency (MHz)       | 5190   | 5230   |
| 26 dB Bandwidth (MHz) | 40.680 | 40.680 |
| 99% Bandwidth (MHz)   | 36.149 | 36.223 |

Table 159



Figure 79 - 5190 MHz - 26 dB Emission Bandwidth

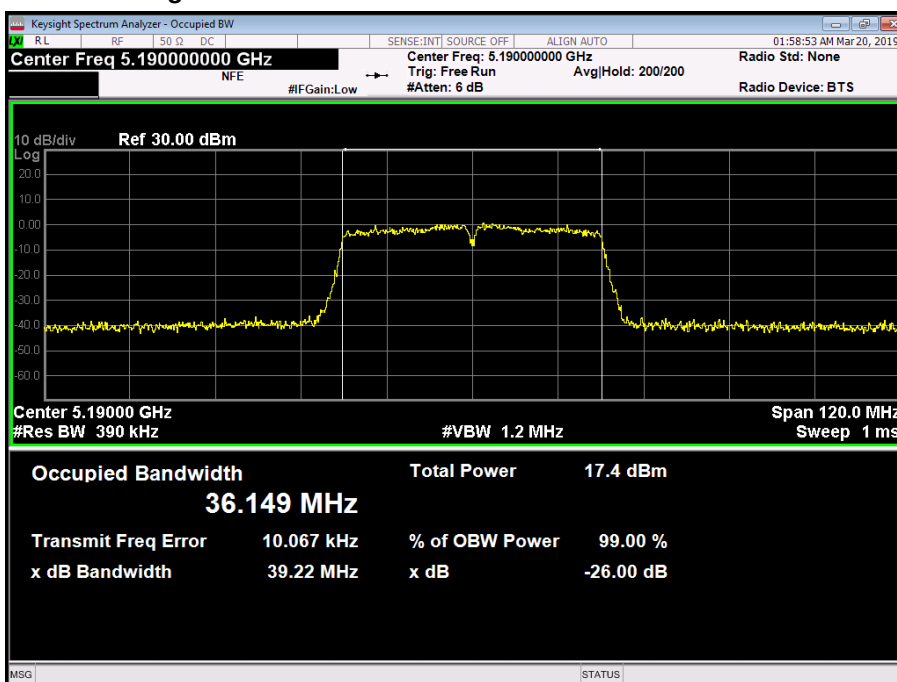


Figure 80 - 5190 MHz - 99% Occupied Bandwidth

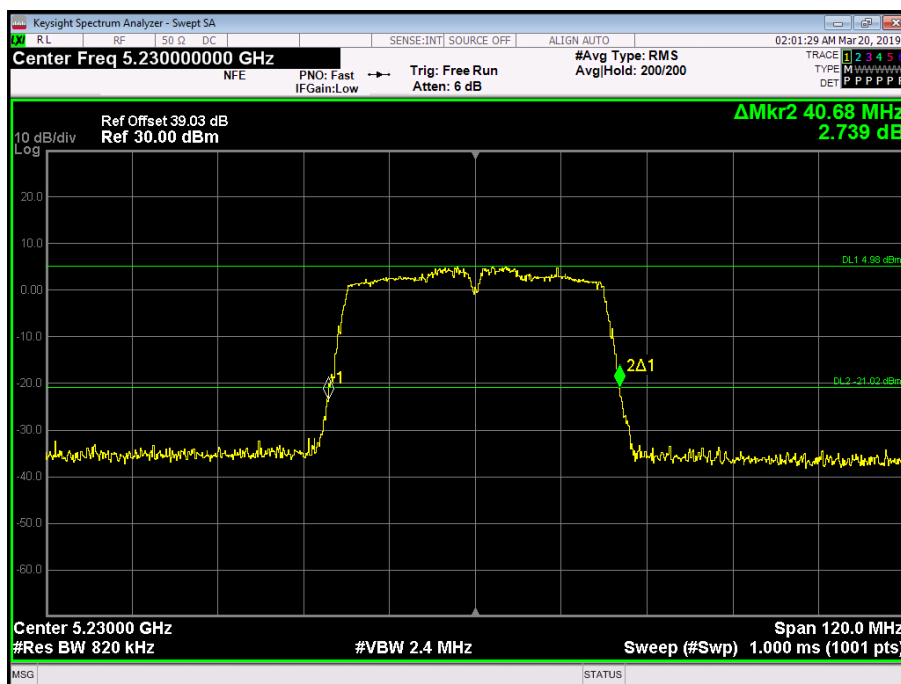


Figure 81 - 5230 MHz - 26 dB Emission Bandwidth

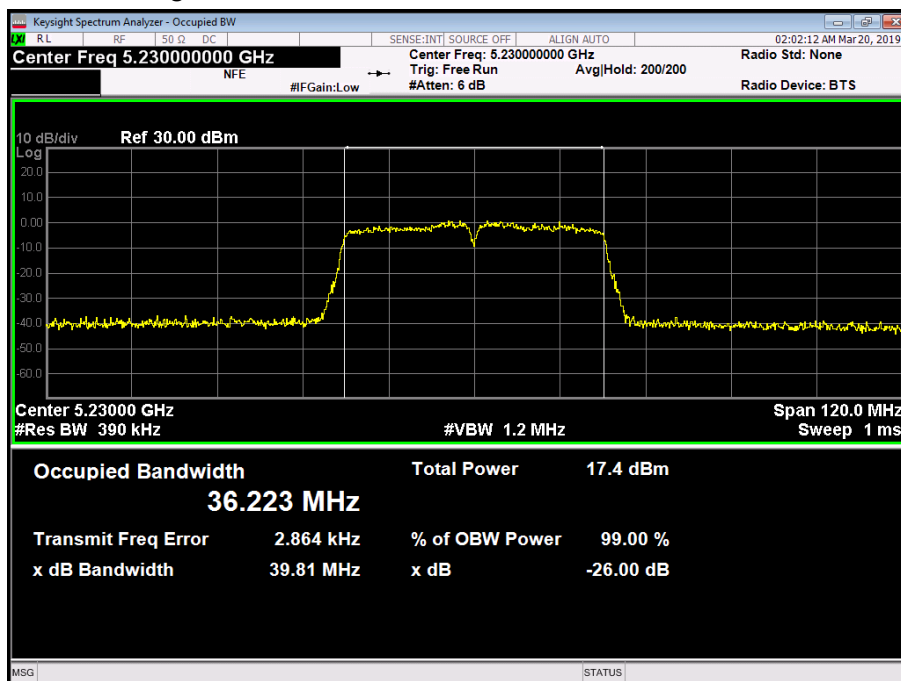


Figure 82 - 5230 MHz - 99% Occupied Bandwidth



802.11n / HT40 MCS8 / MIMO SDM / Cores 0+1 / Country Code CA

| Channel               | Bottom | Top    |
|-----------------------|--------|--------|
| Frequency (MHz)       | 5190   | 5230   |
| 26 dB Bandwidth (MHz) | 40.800 | 40.440 |
| 99% Bandwidth (MHz)   | 36.163 | 36.194 |

Table 160

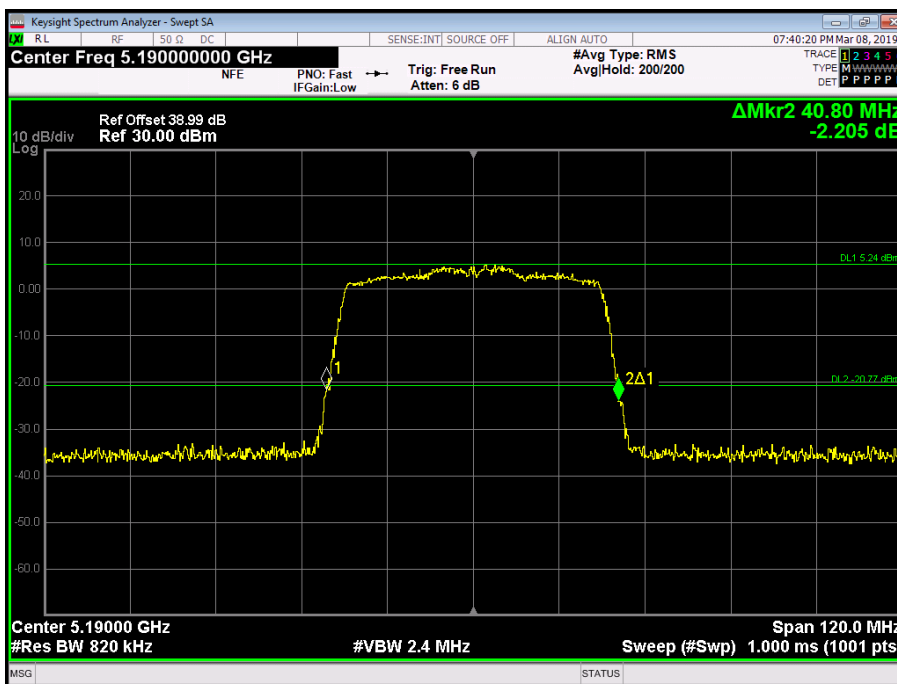


Figure 83 - 5190 MHz - 26 dB Emission Bandwidth

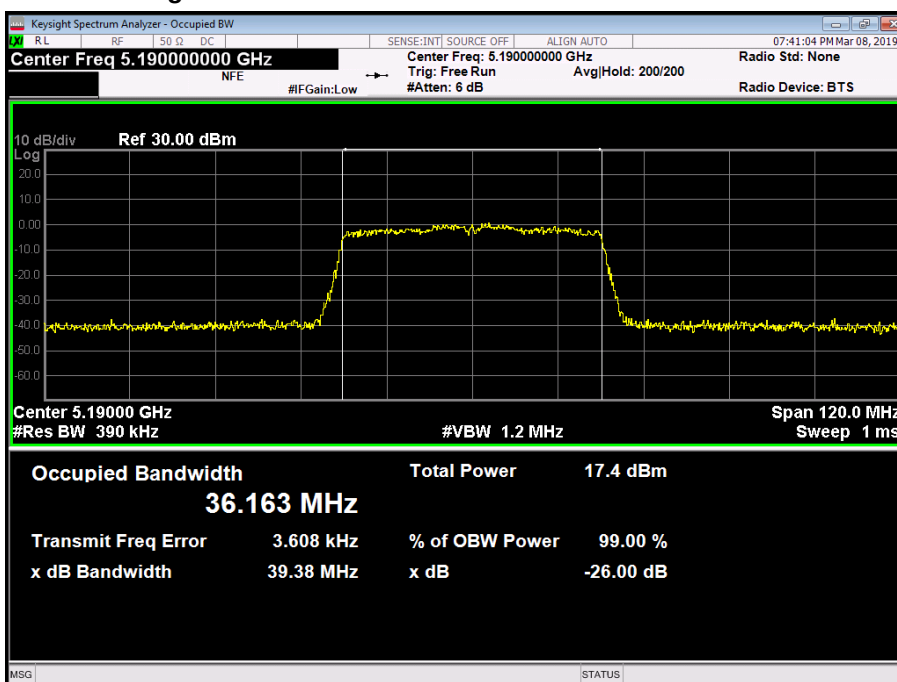


Figure 84 - 5190 MHz - 99% Occupied Bandwidth

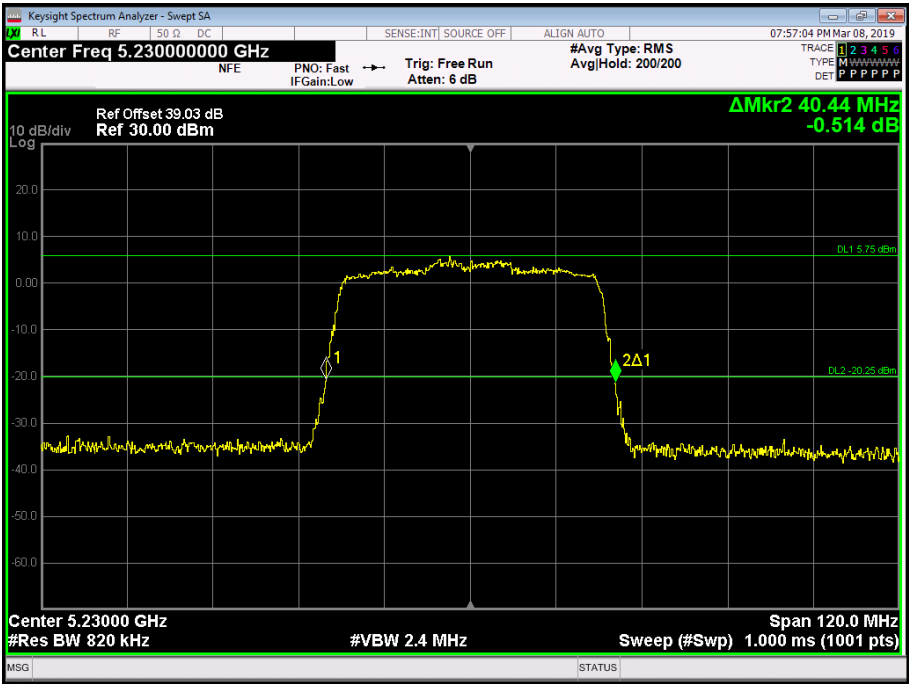


Figure 85 - 5230 MHz - 26 dB Emission Bandwidth

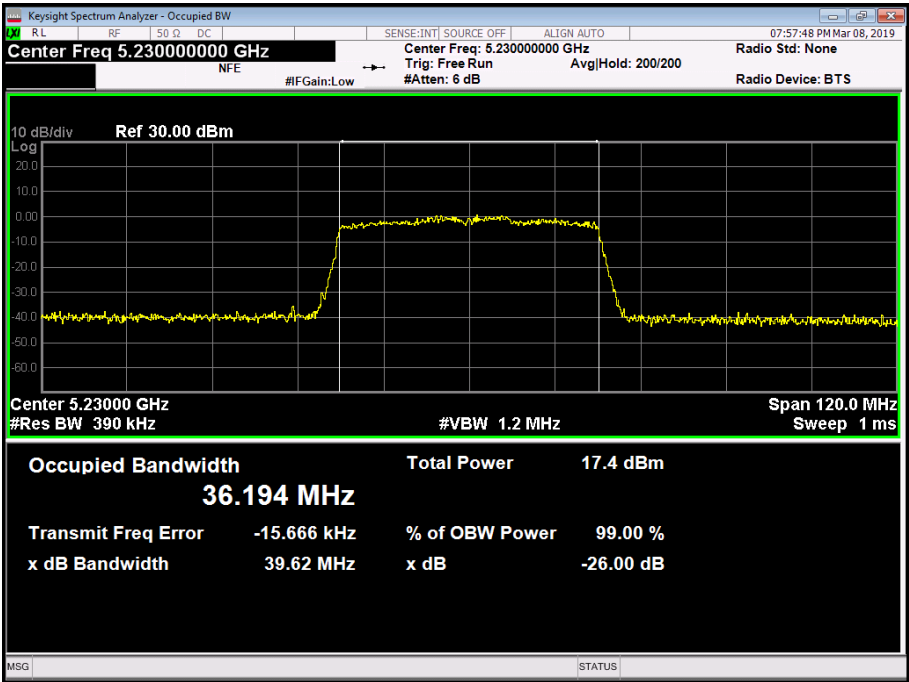


Figure 86 - 5230 MHz - 99% Occupied Bandwidth



802.11n / HT40 MCS0 / MIMO TxBF / Cores 0+1 / Country Code US

| Channel               | Bottom | Top    |
|-----------------------|--------|--------|
| Frequency (MHz)       | 5190   | 5230   |
| 26 dB Bandwidth (MHz) | 40.680 | 40.320 |
| 99% Bandwidth (MHz)   | 36.134 | 36.165 |

Table 161



Figure 87 - 5190 MHz - 26 dB Emission Bandwidth

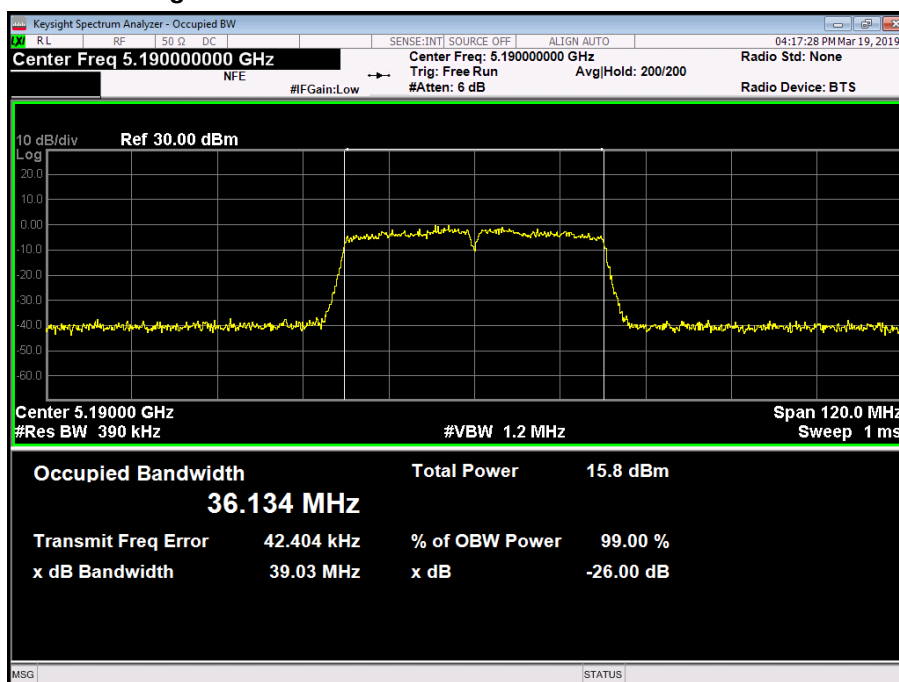


Figure 88 - 5190 MHz - 99% Occupied Bandwidth

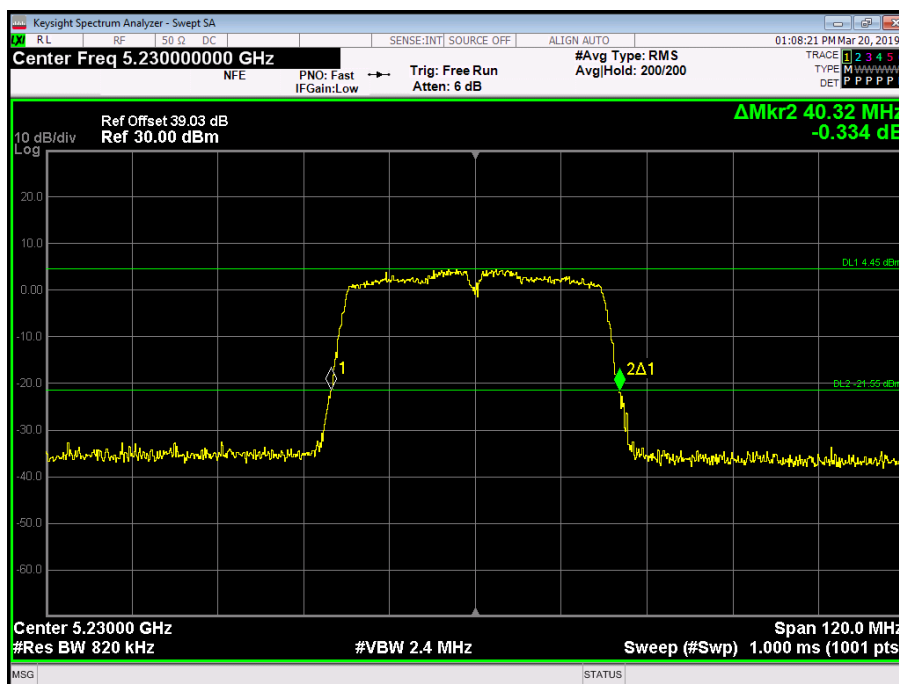


Figure 89 - 5230 MHz - 26 dB Emission Bandwidth

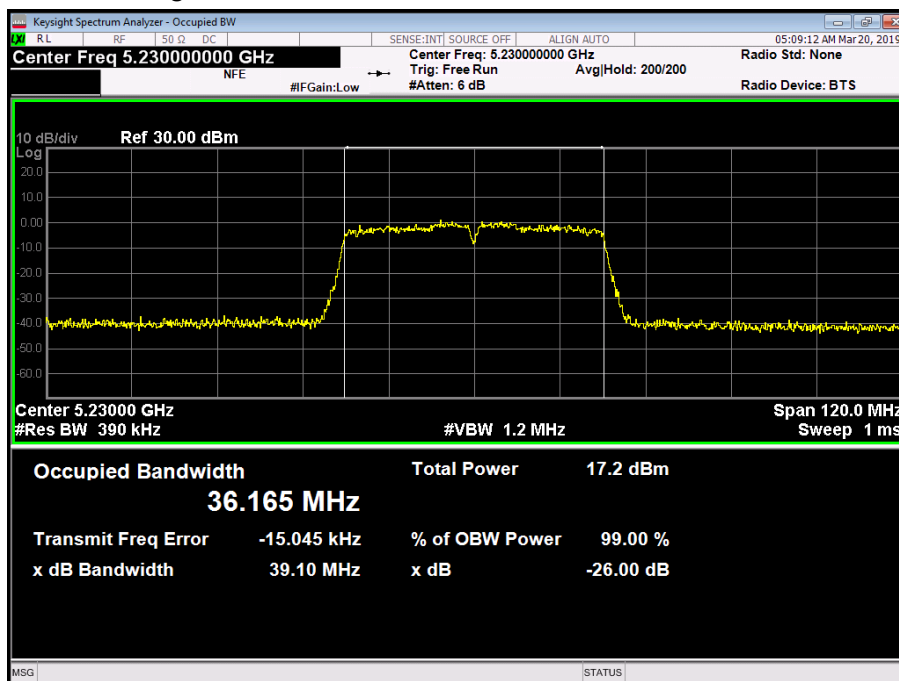


Figure 90 - 5230 MHz - 99% Occupied Bandwidth



802.11n / HT40 MCS0 / MIMO TxBF / Cores 0+1 / Country Code CA

| Channel               | Bottom | Top    |
|-----------------------|--------|--------|
| Frequency (MHz)       | 5190   | 5230   |
| 26 dB Bandwidth (MHz) | 40.560 | 40.440 |
| 99% Bandwidth (MHz)   | 36.137 | 36.209 |

Table 162

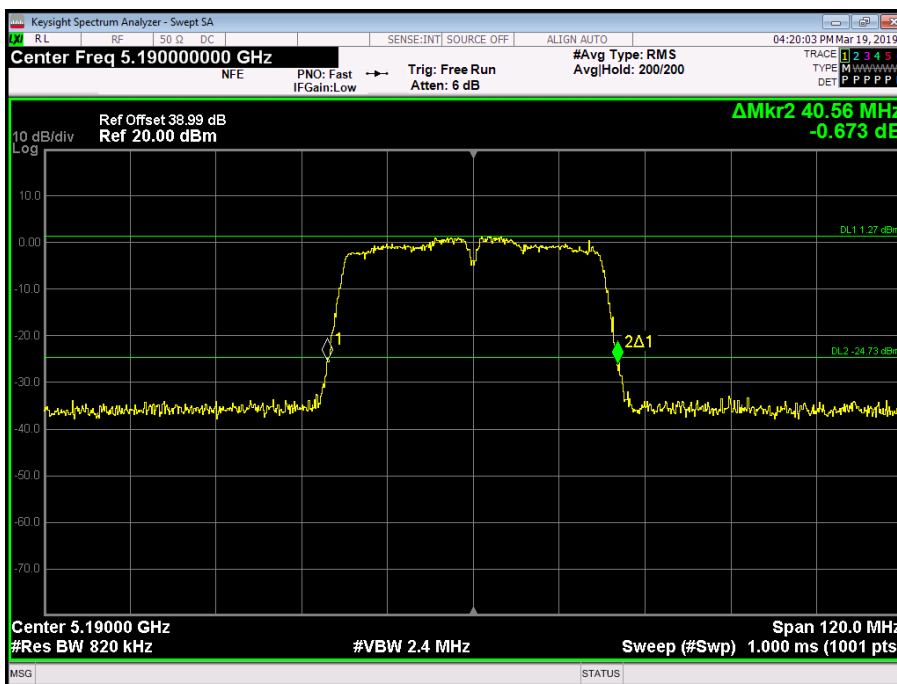


Figure 91 - 5190 MHz - 26 dB Emission Bandwidth

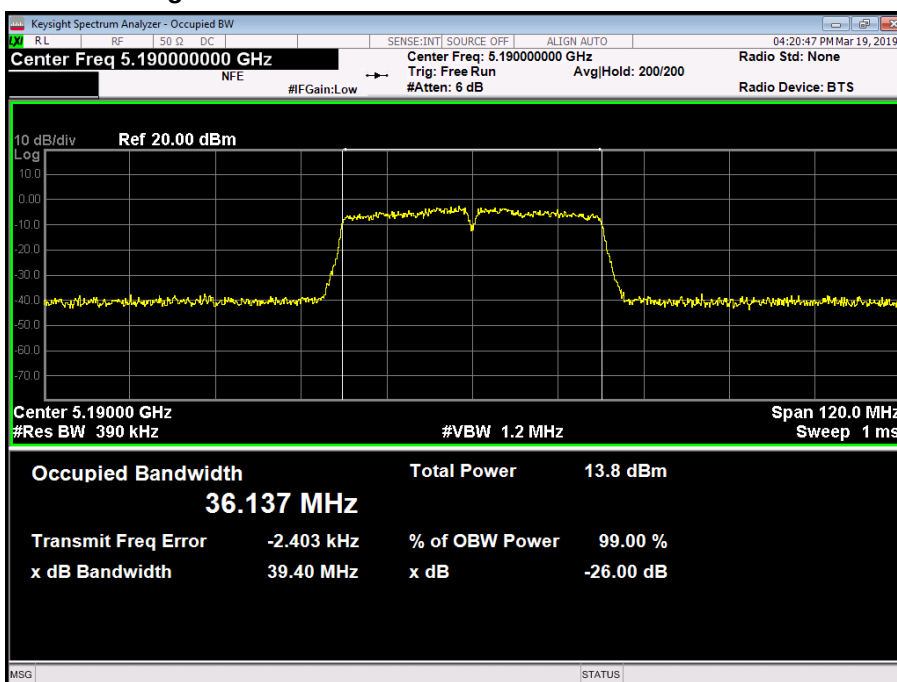


Figure 92 - 5190 MHz - 99% Occupied Bandwidth

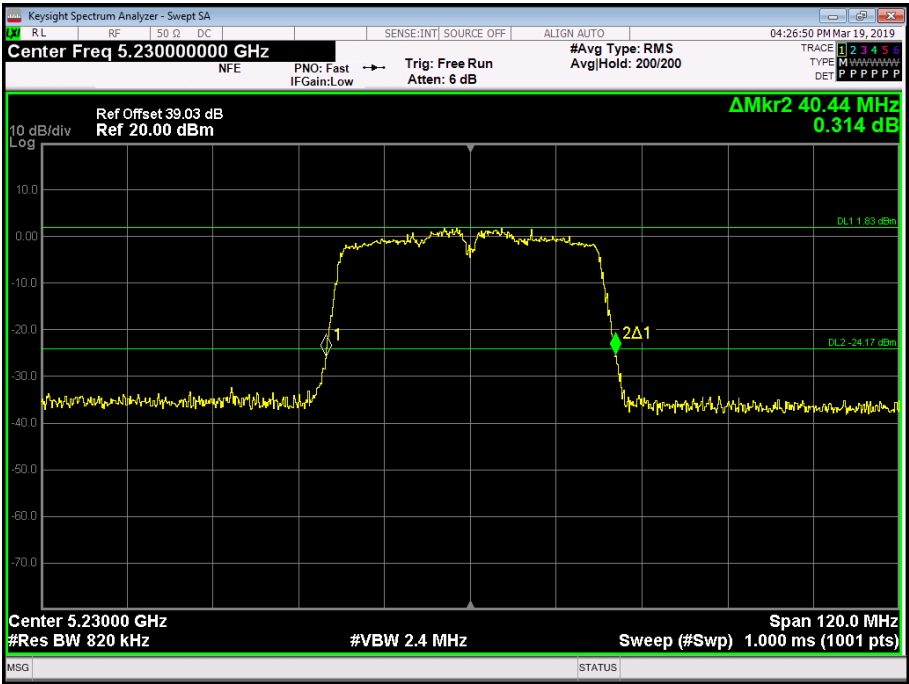


Figure 93 - 5230 MHz - 26 dB Emission Bandwidth

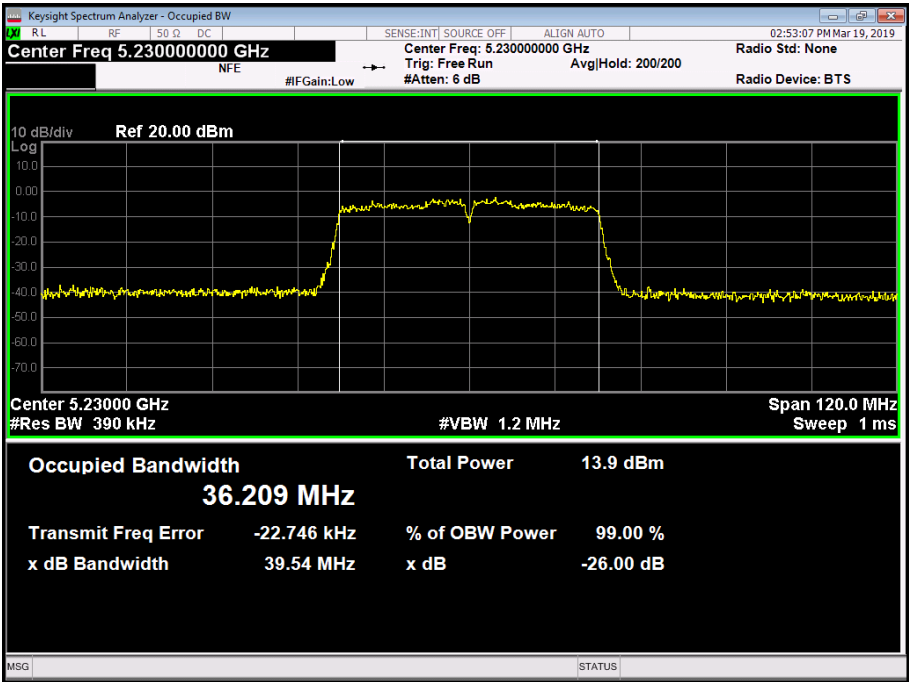


Figure 94 - 5230 MHz - 99% Occupied Bandwidth



802.11ac / VHT20 MCS0x1 / MIMO TxBF / Cores 0+1 / Country Code US

|                       |        |
|-----------------------|--------|
| Channel               | Bottom |
| Frequency (MHz)       | 5180   |
| 26 dB Bandwidth (MHz) | 21.840 |
| 99% Bandwidth (MHz)   | 17.775 |

Table 163



Figure 95 - 5180 MHz - 26 dB Emission Bandwidth

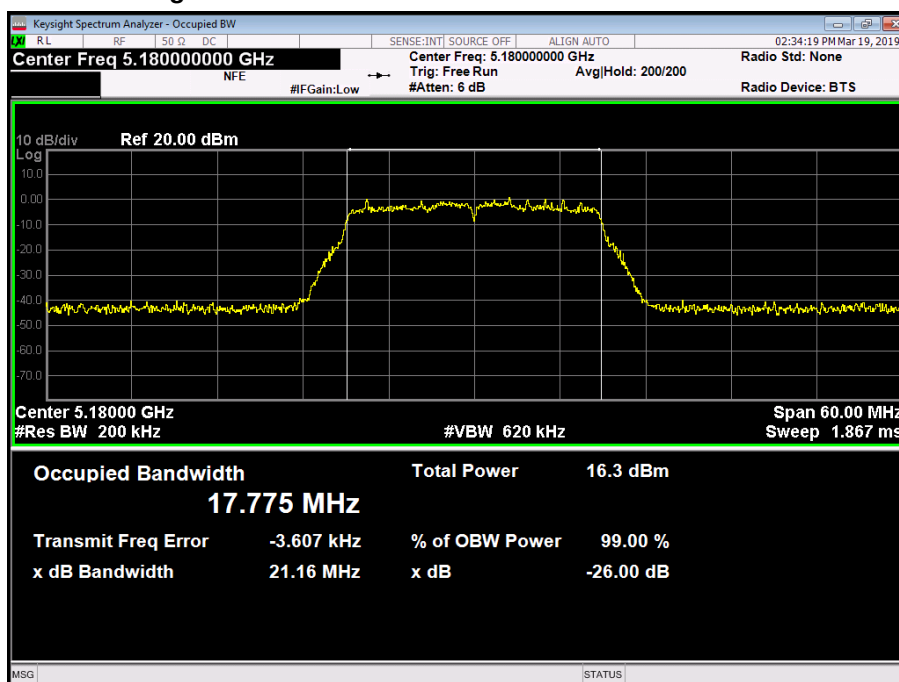


Figure 96 - 5180 MHz - 99% Occupied Bandwidth

802.11ac / VHT80 MCS0x1 / SISO / Core 0 / Country Code US



|                       |        |
|-----------------------|--------|
| Channel               | Middle |
| Frequency (MHz)       | 5210   |
| 26 dB Bandwidth (MHz) | 81.600 |
| 99% Bandwidth (MHz)   | 75.524 |

Table 164

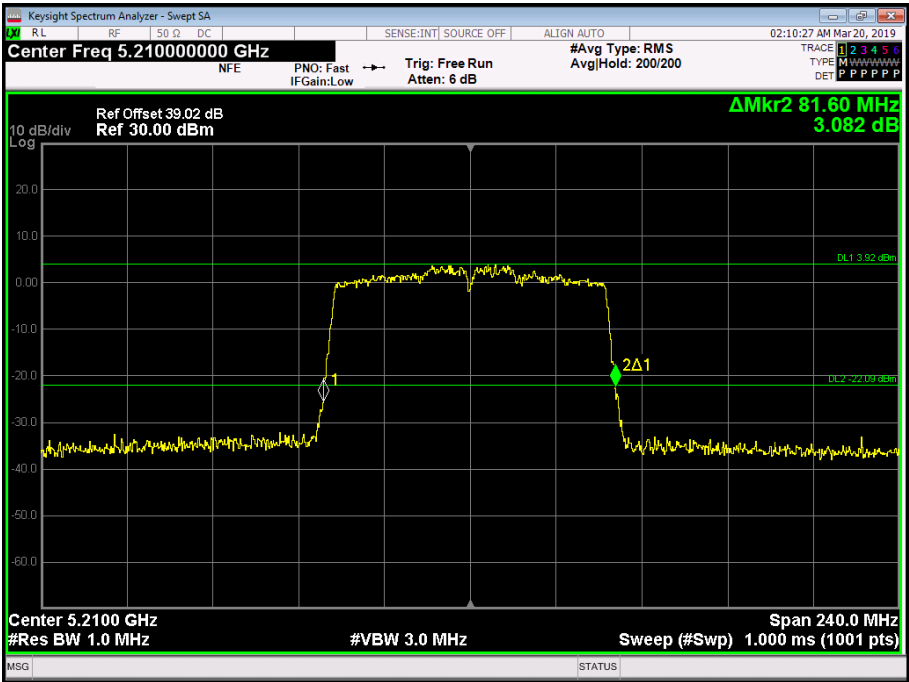


Figure 97 - 5210 MHz - 26 dB Emission Bandwidth

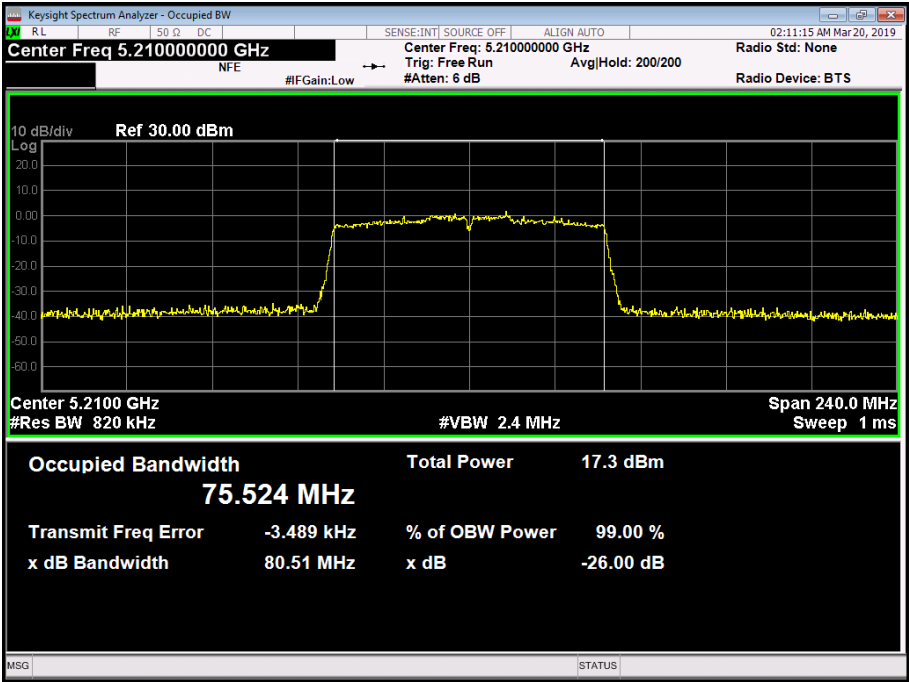


Figure 98 - 5210 MHz - 99% Occupied Bandwidth

802.11ac / VHT80 MCS0x1 / SISO / Core 0 / Country Code CA

|         |        |
|---------|--------|
| Channel | Middle |
|---------|--------|

Table 165

**Figure 99 - 5210 MHz - 26 dB Emission Bandwidth**

**Figure 100 - 5210 MHz - 99% Occupied Bandwidth**  
**802.11ac / VHT80 MCS0x1 / MIMO CDD / Cores 0+1 / Country Code US**

|                 |        |
|-----------------|--------|
| Channel         | Middle |
| Frequency (MHz) | 5210   |



|                       |        |
|-----------------------|--------|
| 26 dB Bandwidth (MHz) | 82.080 |
| 99% Bandwidth (MHz)   | 75.531 |

Table 166

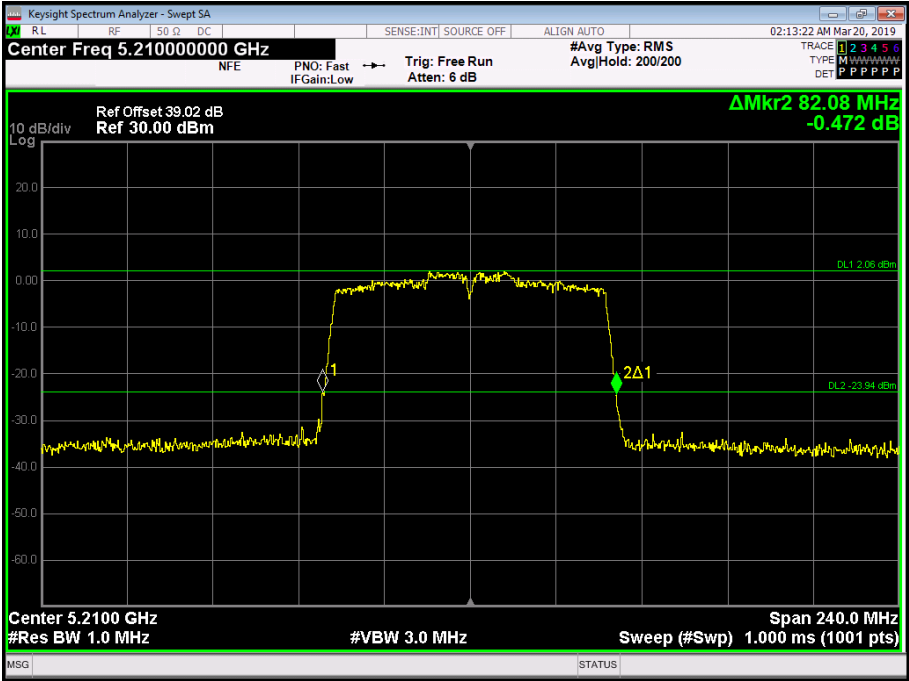


Figure 101 - 5210 MHz - 26 dB Emission Bandwidth

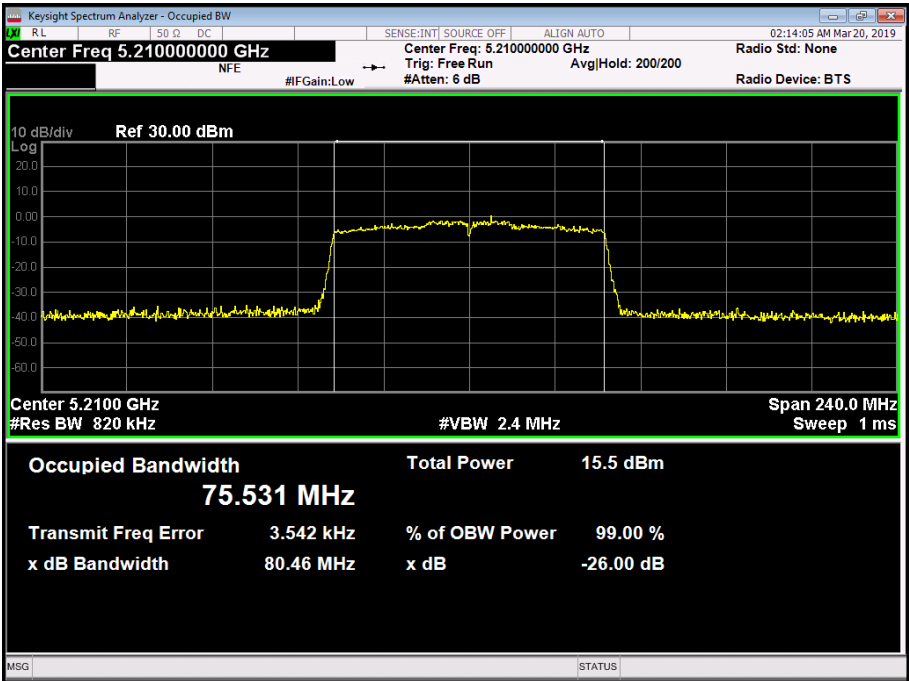


Figure 102 - 5210 MHz - 99% Occupied Bandwidth  
802.11ac / VHT80 MCS0x1 / MIMO CDD / Cores 0+1 / Country Code CA

|                       |        |
|-----------------------|--------|
| Channel               | Middle |
| Frequency (MHz)       | 5210   |
| 26 dB Bandwidth (MHz) | 81.600 |



|                     |        |
|---------------------|--------|
| 99% Bandwidth (MHz) | 75.591 |
|---------------------|--------|

Table 167

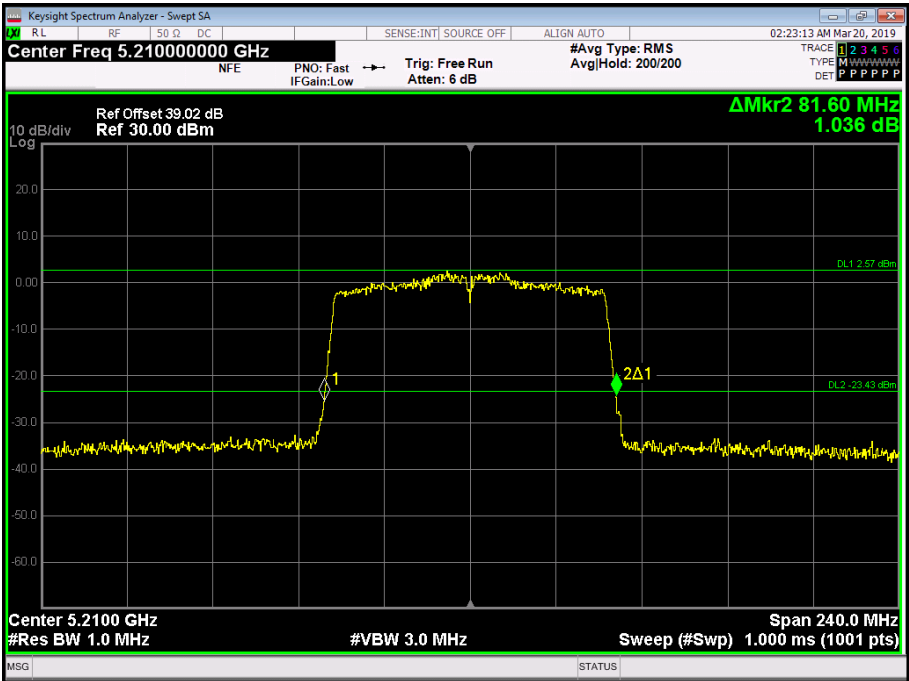


Figure 103 - 5210 MHz - 26 dB Emission Bandwidth

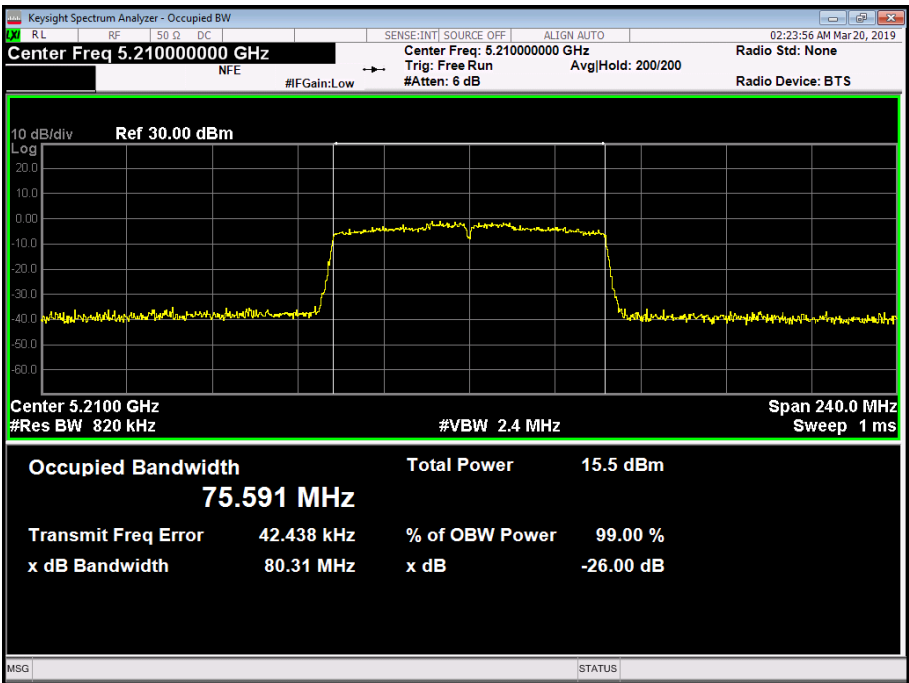


Figure 104 - 5210 MHz - 99% Occupied Bandwidth  
802.11ac / VHT80 MCS0x2 / MIMO SDM / Cores 0+1 / Country Code US

|                       |        |
|-----------------------|--------|
| Channel               | Middle |
| Frequency (MHz)       | 5210   |
| 26 dB Bandwidth (MHz) | 81.600 |
| 99% Bandwidth (MHz)   | 75.538 |

Keysight Spectrum Analyzer - Swept SA

02:17:04 AM Mar 20, 2019

Center Freq 5.21000000 GHz

Ref Offset 39.02 dB  
Ref 30.00 dBm

10 dB/div  
Log

ΔMkr2 81.60 MHz  
-1.643 dB

1

2Δ1

Center 5.2100 GHz  
#Res BW 1.0 MHz  
#VBW 3.0 MHz  
Sweep (#Swp) 1.000 ms (1001 pts)

Keysight Spectrum Analyzer - Occupied BW

11:33:08 AM Mar 20, 2019

Center Freq 5.21000000 GHz

Center Freq: 5.210000000 GHz  
Trig: Free Run  
#Atten: 6 dB

Radio Std: None

Radio Device: BTS

10 dB/div Ref 30.00 dBm

Center 5.2100 GHz

Span 240.0 MHz

#Res BW 820 kHz

#VBW 2.4 MHz

Sweep 1 ms

| Occupied Bandwidth | Total Power |
|--------------------|-------------|
| 75.538 MHz         | 17.6 dBm    |

| Transmit Freq Error | % of OBW Power |
|---------------------|----------------|
| -19.976 kHz         | 99.00 %        |

| x dB Bandwidth | x dB      |
|----------------|-----------|
| 80.07 MHz      | -26.00 dB |

MSG STATUS

|                       |        |
|-----------------------|--------|
| Channel               | Middle |
| Frequency (MHz)       | 5210   |
| 26 dB Bandwidth (MHz) | 81.360 |
| 99% Bandwidth (MHz)   | 75.494 |

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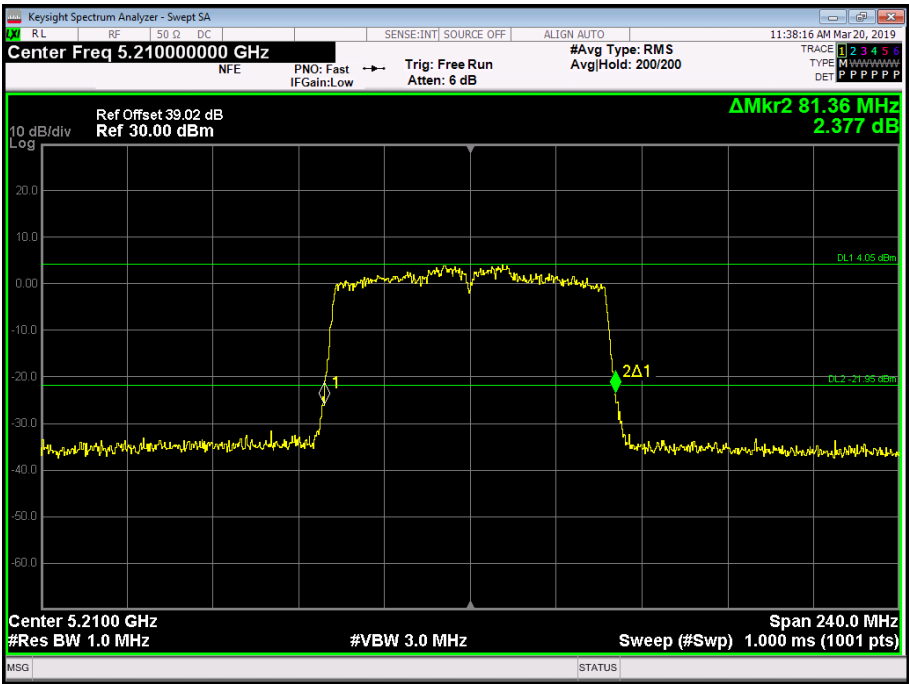


Figure 107 - 5210 MHz - 26 dB Emission Bandwidth

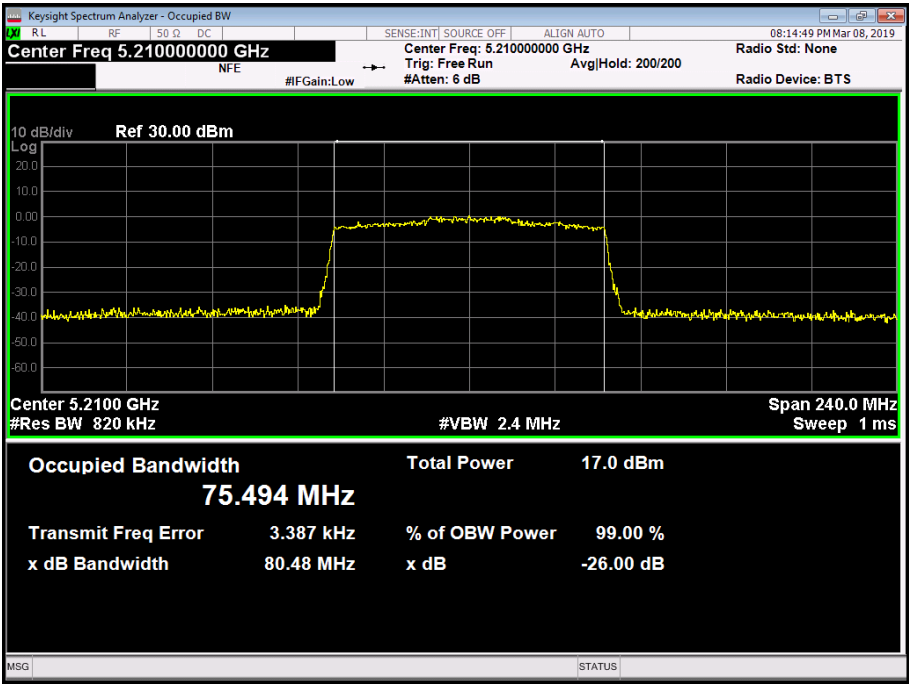


Figure 108 - 5210 MHz - 99% Occupied Bandwidth

802.11ac / VHT80 MCS0x1 / MIMO TxBF / Cores 0+1 / Country Code US

|                       |        |
|-----------------------|--------|
| Channel               | Middle |
| Frequency (MHz)       | 5210   |
| 26 dB Bandwidth (MHz) | 82.080 |
| 99% Bandwidth (MHz)   | 75.606 |

Table 170

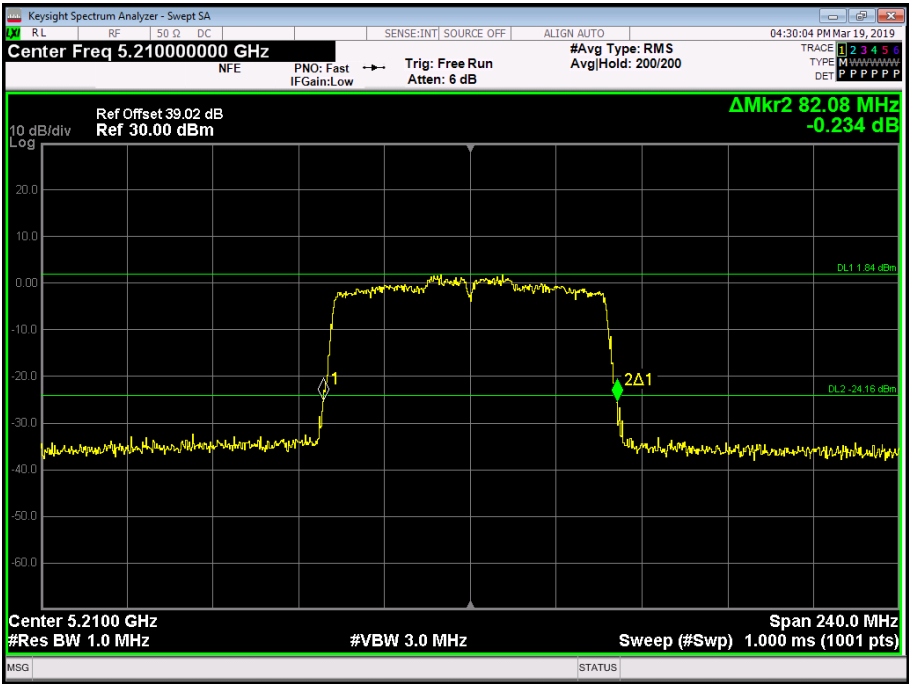


Figure 109 - 5210 MHz - 26 dB Emission Bandwidth

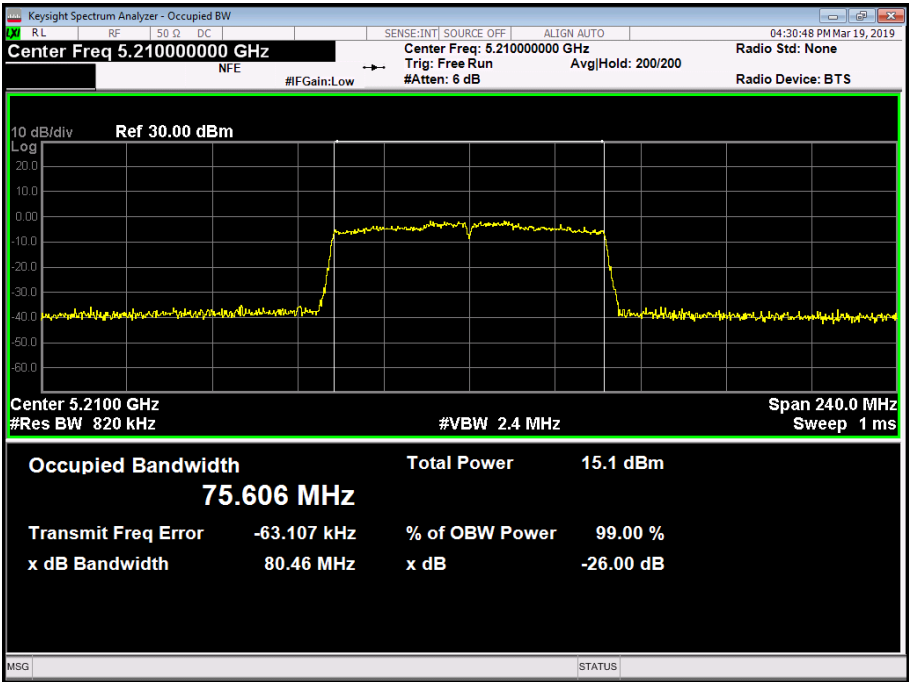


Figure 110 - 5210 MHz - 99% Occupied Bandwidth  
802.11ac / VHT80 MCS0x1 / MIMO TxBF / Cores 0+1 / Country Code CA

|                       |        |
|-----------------------|--------|
| Channel               | Middle |
| Frequency (MHz)       | 5210   |
| 26 dB Bandwidth (MHz) | 81.600 |
| 99% Bandwidth (MHz)   | 75.581 |

Table 171

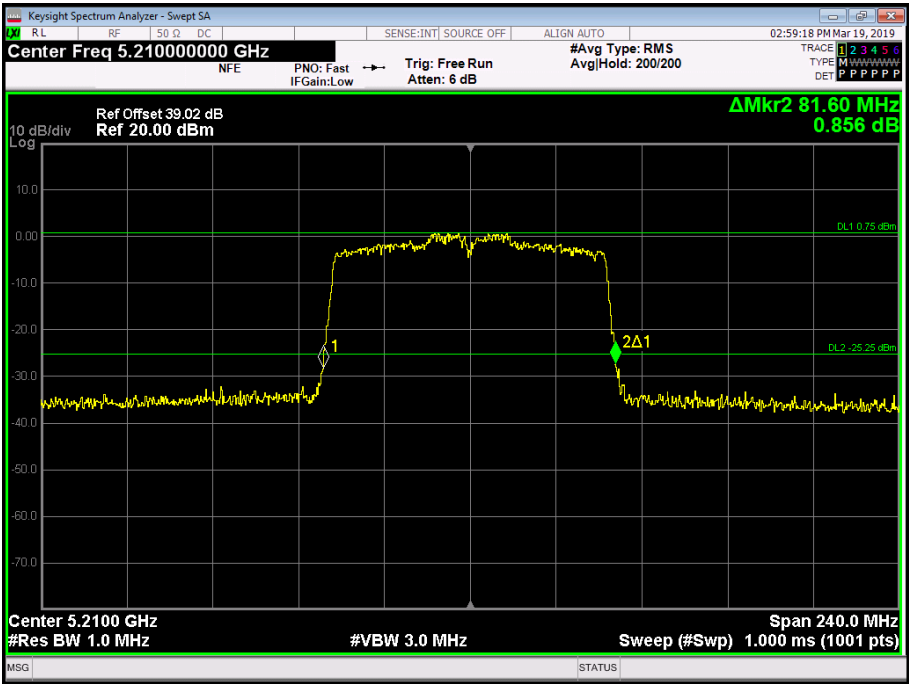


Figure 111 - 5210 MHz - 26 dB Emission Bandwidth

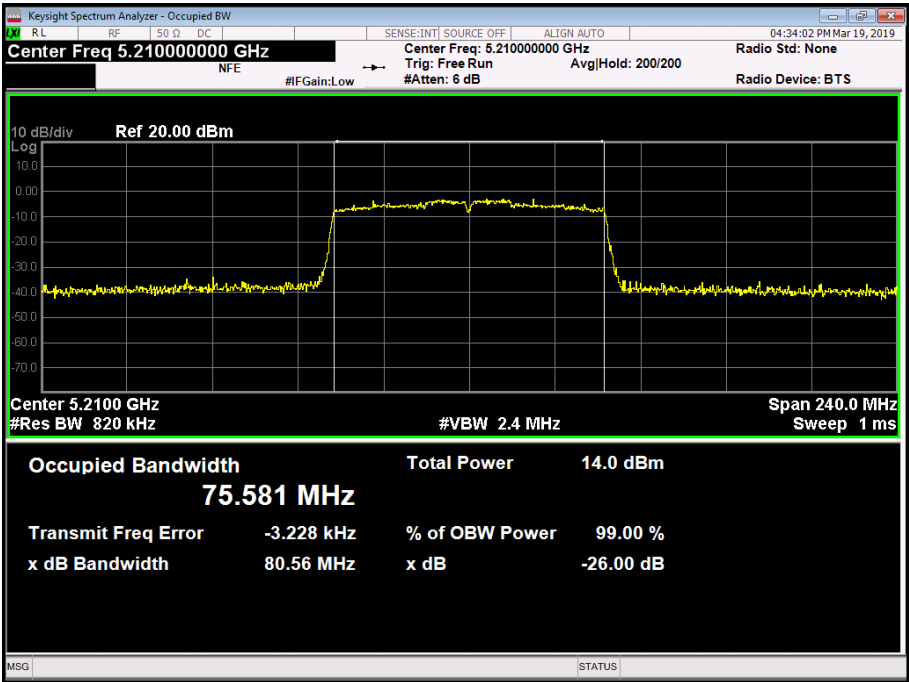


Figure 112 - 5210 MHz - 99% Occupied Bandwidth

2.3.7 Test Results: U-NII-2A  
802.11a / 6 Mbps / SISO / Core 0

| Channel               | Bottom | Middle | Top    |
|-----------------------|--------|--------|--------|
| Frequency (MHz)       | 5260   | 5280   | 5320   |
| 26 dB Bandwidth (MHz) | 21.720 | 21.420 | 21.480 |
| 99% Bandwidth (MHz)   | 16.579 | 16.589 | 16.578 |

Table 172