

# Report on the FCC and IC Testing of the: Apple Inc. Model A1932

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: BCGA1932

IC: 579C-A1932



Product Service

Choose certainty.  
Add value.

## COMMERCIAL-IN-CONFIDENCE

Document Number: 75942371-13 | Issue: 01

### SIGNATURE

| NAME            | JOB TITLE      | RESPONSIBLE FOR      | ISSUE DATE      |
|-----------------|----------------|----------------------|-----------------|
| Matthew Russell | RF Team Leader | Authorised Signatory | 19 October 2018 |
| Simon Bennett   | Chief Engineer | Authorised Signatory | 19 October 2018 |

Signatures in this approval box have checked this document in line with the requirements of TÜV SÜD Product Service 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      |
|---------------------|-----------------|-----------------|-----------------|
| Graeme Lawler       | Test Engineer   | Testing         | 19 October 2018 |
| Tony Hubbard        | Test Engineer   | Testing         | 19 October 2018 |
| Cristian Onaca      | Engineer        | Testing         | 19 October 2018 |
| Sharif Sendagire    | Shift Engineer  | Testing         | 19 October 2018 |
| Phillip Harrison    | Senior Engineer | Testing         | 19 October 2018 |
| Matthew Russell     | RF Team Leader  | Testing         | 19 October 2018 |
| Nandhini Mathivanan | Engineer        | Testing         | 19 October 2018 |

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).



### DISCLAIMER AND COPYRIGHT

This non-binding report has been prepared by TÜV SÜD Product Service with all reasonable skill and care. The document is confidential to the potential Client and TÜV SÜD Product Service. No part of this document may be reproduced without the prior written approval of TÜV SÜD Product Service. © 2018 TÜV SÜD Product Service.

### ACCREDITATION

Our UKAS Accreditation does not cover opinions and interpretations and any expressed are outside the scope of our UKAS Accreditation. Results of tests not covered by our UKAS Accreditation Schedule are marked NUA (Not UKAS Accredited).

TÜV SÜD Product Service  
is a trading name of TÜV SÜD Ltd  
Registered in Scotland at East Kilbride,  
Glasgow G75 0QF, United Kingdom  
Registered number: SC215164

TÜV SÜD Ltd is a  
TÜV SÜD Group Company

Phone: +44 (0) 1489 558100  
Fax: +44 (0) 1489 558101  
[www.tuv-sud.co.uk](http://www.tuv-sud.co.uk)

TÜV SÜD Product Service  
Octagon House  
Concorde Way  
Fareham  
Hampshire PO15 5RL  
United Kingdom



Contents

**1      Report Summary .....2**

1.1    Report Modification Record.....2

1.2    Introduction.....2

1.3    Brief Summary of Results .....3

1.4    Product Information .....4

1.5    Deviations from the Standard.....7

1.6    EUT Modification Record .....7

1.7    Test Location.....8

**2      Test Details .....9**

2.1    Maximum Conducted Output Power .....9

2.2    Maximum Conducted Power Spectral Density.....33

2.3    Emission Bandwidth.....55

2.4    Authorised Band Edges .....251

2.5    Spurious Radiated Emissions .....267

2.6    Restricted Band Edges .....295

2.7    Channel Move Time, Channel Closing Transmission Time and Non-Occupancy Period .....304

**3      Measurement Uncertainty .....318**



## 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           | 19 October 2018 |

**Table 1**

### 1.2 Introduction

|                               |                                                                                                                           |
|-------------------------------|---------------------------------------------------------------------------------------------------------------------------|
| Applicant                     | Apple Inc.                                                                                                                |
| Manufacturer                  | Apple Inc.                                                                                                                |
| Model Number(s)               | A1932                                                                                                                     |
| Serial Number(s)              | C02X5003L3J3, C02X5003JL8Y,<br>C02X5003L3J0 & C02X5003JL93                                                                |
| Hardware Version(s)           | EVT2                                                                                                                      |
| Software Version(s)           | 18B2034                                                                                                                   |
| Number of Samples Tested      | 4                                                                                                                         |
| 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                  | 0540058293                                                                                                                |
| Date                          | 18-May-2018                                                                                                               |
| Date of Receipt of EUT        | 07-September-2018                                                                                                         |
| Start of Test                 | 28-August-2018                                                                                                            |
| Finish of Test                | 17-October-2018                                                                                                           |
| Name of Engineer(s)           | Sharifu Sendagire, Graeme Lawler, Tony Hubbard, Cristian Onaca, Nandhini Mathivanan, Phillip Harrison and Matthew Russell |
| Related Document(s)           | ANSI C63.10 (2013)<br>KDB 789033 D02 v02r01<br>KDB 662911 D01 v02r01<br>KDB 905462 D02 v02                                |



### 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             | 6.12    | 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<br>Transmission 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 b/g/a/n/ac capabilities in the 2.4GHz and 5GHz bands.

The EUT featured a 2x2 MIMO IEEE 802.11 radio (cores 0, 1) transmitting on 2 antennas. The EUT also featured a Bluetooth radio.

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

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

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

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



### 1.4.3 Test Set-up

For conducted tests the EUT antennas were disconnected and replaced with U.FL to SMA test cables to enable conducted testing on each core. 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 0 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 EUTs 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 ran from 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 Antenna Gain Table

Core 0 (WF1)

| Frequency (MHz) | Peak Gain (dBi) | Conducted Cable Loss (dB) |
|-----------------|-----------------|---------------------------|
| 5150 – 5250     | 2.8             | 1.50                      |
| 5250 – 5350     | 1.8             | 1.75                      |
| 5470 – 5725     | 2.6             | 1.60                      |
| 5725 – 5850     | 3.0             | 1.70                      |

Table 3

Core 1 (WF2)

| Frequency (MHz) | Peak Gain (dBi) | Conducted Cable Loss (dB) |
|-----------------|-----------------|---------------------------|
| 5150 – 5250     | 1.5             | 1.50                      |
| 5250 – 5350     | 1.9             | 1.75                      |
| 5470 – 5725     | 4.0             | 1.60                      |
| 5725 – 5850     | 3.9             | 1.70                      |

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: C02X5003JL8Y |                                                                          |                        |                          |
| 0                           | As supplied by the customer                                              | Not Applicable         | Not Applicable           |
| Serial Number: C02X5003L3J3 |                                                                          |                        |                          |
| 0                           | As supplied by the customer                                              | Not Applicable         | Not Applicable           |
| 1                           | Maximum conducted output power and PSD tests repeated at reduced powers. | Not Applicable         | 15 October 2018          |
| Serial Number: C02X5003L3J0 |                                                                          |                        |                          |
| 0                           | As supplied by the customer                                              | Not Applicable         | Not Applicable           |
| Serial Number: C02X5003JL93 |                                                                          |                        |                          |
| 0                           | As supplied by the customer                                              | Not Applicable         | Not Applicable           |

**Table 5**



Product Service

## 1.7 Test Location

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

| Test Name                                                                     | Name of Engineer(s)                                                                       | Accreditation |
|-------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------|---------------|
| Maximum Conducted Output Power                                                | Philip Harrison                                                                           | UKAS          |
| Maximum Conducted Power Spectral Density                                      | Philip Harrison                                                                           | UKAS          |
| Emission Bandwidth                                                            | Philip Harrison                                                                           | UKAS          |
| Authorised Band Edges                                                         | Sharifu Sendagire, Graeme Lawler,<br>Tony Hubbard, Cristian Onaca,<br>Nandhini Mathivanan | UKAS          |
| Spurious Radiated Emissions                                                   |                                                                                           | UKAS          |
| Restricted Band Edges                                                         |                                                                                           | UKAS          |
| Channel Move Time, Channel Closing Transmission Time and Non-Occupancy Period | Matthew Russell                                                                           | 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

A1932, S/N: C02X5003L3J3 - Modification State 0  
A1932, S/N: C02X5003L3J3 - Modification State 1  
A1932, S/N: C02X5003JL8Y - Modification State 0

#### 2.1.3 Date of Test

26-September-2018 to 17-October-2018

#### 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.

MIMO output port summing was performed in accordance with KDB 662911 D01.

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

MIMO output port summing was performed in accordance with KDB 662911 D01. Cyclic delay diversity (CDD) modes had the output cores summed using clause F)2)f)(i) with an array gain of 0 dB (802.11 devices with  $\leq 4$  antennas). Space-division multiplexing (SDM) modes were summed in accordance with F)2)d)(ii). Transmit beamforming (TxBF) modes were summed as per F)2)d)(i).

#### 2.1.5 Environmental Conditions

|                     |            |
|---------------------|------------|
| Ambient Temperature | 21 to 24°C |
| Relative Humidity   | 36 to 68%  |



## 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)     | 2.80   | 2.80   | 2.80  |
| 15.407 Conducted Power Limit (dBm) | 24.00  | 24.00  | 24.00 |
| Conducted Power (dBm)              | 15.09  | 15.08  | 15.17 |

Table 7

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

| Channel                        | Bottom | Middle | Top   |
|--------------------------------|--------|--------|-------|
| Frequency (MHz)                | 5180   | 5200   | 5240  |
| Conducted Power (dBm)          | 14.99  | 15.11  | 15.14 |
| Antenna Directional Gain (dBi) | 2.80   | 2.80   | 2.80  |
| RSS-247 EIRP Power Limit (dBm) | 22.18  | 22.19  | 22.19 |
| Total EIRP (dBm)               | 17.79  | 17.91  | 17.94 |

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)     | 2.80   | 2.80   | 2.80  |
| 15.407 Conducted Power Limit (dBm) | 24.00  | 24.00  | 24.00 |
| Conducted Power (dBm)              | 15.06  | 15.02  | 15.04 |

Table 9

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

| Channel                        | Bottom | Middle | Top   |
|--------------------------------|--------|--------|-------|
| Frequency (MHz)                | 5180   | 5200   | 5240  |
| Conducted Power (dBm)          | 15.19  | 15.04  | 15.01 |
| Antenna Directional Gain (dBi) | 2.80   | 2.80   | 2.80  |
| RSS-247 EIRP Power Limit (dBm) | 22.48  | 22.49  | 22.49 |
| Total EIRP (dBm)               | 17.99  | 17.84  | 17.81 |

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)       | 13.82  | 14.99  | 15.02 |
| Conducted Power Core 1 (dBm)       | 13.81  | 15.19  | 15.14 |
| Antenna Directional Gain (dBi)     | 2.80   | 2.80   | 2.80  |
| 15.407 Conducted Power Limit (dBm) | 24.00  | 24.00  | 24.00 |
| Total Conducted Power (dBm)        | 16.83  | 18.10  | 18.09 |

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)   | 10.16  | 10.41  | 10.39 |
| Conducted Power Core 1 (dBm)   | 10.37  | 10.28  | 10.22 |
| Total Conducted Power (dBm)    | 13.28  | 13.36  | 13.32 |
| Antenna Directional Gain (dBi) | 2.80   | 2.80   | 2.80  |
| RSS-247 EIRP Power Limit (dBm) | 22.50  | 22.49  | 22.50 |
| Total EIRP (dBm)               | 16.08  | 16.16  | 16.12 |

**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)       | 13.72  | 15.03  | 15.04 |
| Conducted Power Core 1 (dBm)       | 13.89  | 15.02  | 14.99 |
| Antenna Directional Gain (dBi)     | 2.20   | 2.20   | 2.20  |
| 15.407 Conducted Power Limit (dBm) | 24.00  | 24.00  | 24.00 |
| Total Conducted Power (dBm)        | 16.82  | 18.04  | 18.03 |

**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)   | 13.49  | 13.29  | 13.24 |
| Conducted Power Core 1 (dBm)   | 13.36  | 13.18  | 13.29 |
| Total Conducted Power (dBm)    | 16.44  | 16.25  | 16.28 |
| Antenna Directional Gain (dBi) | 2.20   | 2.20   | 2.20  |
| RSS-247 EIRP Power Limit (dBm) | 22.49  | 22.49  | 22.49 |
| Total EIRP (dBm)               | 18.63  | 18.44  | 18.47 |

**Table 14**

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

| Channel                            | Bottom | Top   |
|------------------------------------|--------|-------|
| Frequency (MHz)                    | 5190   | 5230  |
| Antenna Directional Gain (dBi)     | 2.80   | 2.80  |
| 15.407 Conducted Power Limit (dBm) | 24.00  | 24.00 |
| Conducted Power (dBm)              | 13.26  | 15.04 |

**Table 15**

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

| Channel                        | Bottom | Top   |
|--------------------------------|--------|-------|
| Frequency (MHz)                | 5190   | 5230  |
| Conducted Power (dBm)          | 13.26  | 13.27 |
| Antenna Directional Gain (dBi) | 2.80   | 2.80  |
| RSS-247 EIRP Power Limit (dBm) | 23.00  | 23.00 |
| Total EIRP (dBm)               | 16.06  | 16.07 |

**Table 16**



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

| Channel                            | Bottom | Top   |
|------------------------------------|--------|-------|
| Frequency (MHz)                    | 5190   | 5230  |
| Conducted Power Core 0 (dBm)       | 11.81  | 15.09 |
| Conducted Power Core 1 (dBm)       | 11.73  | 15.10 |
| Antenna Directional Gain (dBi)     | 2.80   | 2.80  |
| 15.407 Conducted Power Limit (dBm) | 24.00  | 24.00 |
| Total Conducted Power (dBm)        | 14.78  | 18.11 |

**Table 17**

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

| Channel                        | Bottom | Top   |
|--------------------------------|--------|-------|
| Frequency (MHz)                | 5190   | 5230  |
| Conducted Power Core 0 (dBm)   | 11.82  | 13.76 |
| Conducted Power Core 1 (dBm)   | 11.78  | 13.82 |
| Total Conducted Power (dBm)    | 14.81  | 16.80 |
| Antenna Directional Gain (dBi) | 2.80   | 2.80  |
| RSS-247 EIRP Power Limit (dBm) | 23.00  | 23.00 |
| Total EIRP (dBm)               | 17.61  | 19.60 |

**Table 18**

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

| Channel                            | Bottom | Top   |
|------------------------------------|--------|-------|
| Frequency (MHz)                    | 5190   | 5230  |
| Conducted Power Core 0 (dBm)       | 11.88  | 14.94 |
| Conducted Power Core 1 (dBm)       | 11.73  | 15.19 |
| Antenna Directional Gain (dBi)     | 2.20   | 2.20  |
| 15.407 Conducted Power Limit (dBm) | 24.00  | 24.00 |
| Total Conducted Power (dBm)        | 14.82  | 18.08 |

**Table 19**

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

| Channel                        | Bottom | Top   |
|--------------------------------|--------|-------|
| Frequency (MHz)                | 5190   | 5230  |
| Conducted Power Core 0 (dBm)   | 11.94  | 14.98 |
| Conducted Power Core 1 (dBm)   | 11.87  | 15.16 |
| Total Conducted Power (dBm)    | 14.92  | 18.08 |
| Antenna Directional Gain (dBi) | 2.20   | 2.20  |
| RSS-247 EIRP Power Limit (dBm) | 23.00  | 23.00 |
| Total EIRP (dBm)               | 17.11  | 20.28 |

**Table 20**



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

| Channel                            | Bottom | Middle | Top   |
|------------------------------------|--------|--------|-------|
| Frequency (MHz)                    | 5180   | 5200   | 5240  |
| Conducted Power Core 0 (dBm)       | 13.84  | 15.10  | 14.92 |
| Conducted Power Core 1 (dBm)       | 13.81  | 14.94  | 14.94 |
| Antenna Directional Gain (dBi)     | 5.18   | 5.18   | 5.18  |
| 15.407 Conducted Power Limit (dBm) | 24.00  | 24.00  | 24.00 |
| Total Conducted Power (dBm)        | 16.84  | 18.03  | 17.94 |

**Table 21**

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

| Channel                        | Bottom | Middle | Top   |
|--------------------------------|--------|--------|-------|
| Frequency (MHz)                | 5180   | 5200   | 5240  |
| Conducted Power Core 0 (dBm)   | 10.39  | 10.27  | 10.46 |
| Conducted Power Core 1 (dBm)   | 10.26  | 10.38  | 10.39 |
| Total Conducted Power (dBm)    | 13.34  | 13.34  | 13.44 |
| Antenna Directional Gain (dBi) | 5.18   | 5.18   | 5.18  |
| RSS-247 EIRP Power Limit (dBm) | 22.50  | 22.48  | 22.49 |
| Total EIRP (dBm)               | 18.52  | 18.52  | 18.62 |

**Table 22**

**802.11ac / VHT40 MCS0x1 / MIMO TxBF / Cores 0+1 / Country Code US**

| Channel                            | Bottom | Top   |
|------------------------------------|--------|-------|
| Frequency (MHz)                    | 5190   | 5230  |
| Conducted Power Core 0 (dBm)       | 10.87  | 15.01 |
| Conducted Power Core 1 (dBm)       | 10.73  | 14.99 |
| Antenna Directional Gain (dBi)     | 5.18   | 5.18  |
| 15.407 Conducted Power Limit (dBm) | 24.00  | 24.00 |
| Total Conducted Power (dBm)        | 13.81  | 18.01 |

**Table 23**

**802.11ac / VHT40 MCS0x1 / MIMO TxBF / Cores 0+1 / Country Code CA**

| Channel                        | Bottom | Top   |
|--------------------------------|--------|-------|
| Frequency (MHz)                | 5190   | 5230  |
| Conducted Power Core 0 (dBm)   | 10.80  | 13.61 |
| Conducted Power Core 1 (dBm)   | 10.81  | 13.67 |
| Total Conducted Power (dBm)    | 13.82  | 16.65 |
| Antenna Directional Gain (dBi) | 5.18   | 5.18  |
| RSS-247 EIRP Power Limit (dBm) | 23.00  | 23.00 |
| Total EIRP (dBm)               | 19.00  | 21.84 |

**Table 24**



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

|                                    |        |
|------------------------------------|--------|
| Channel                            | Middle |
| Frequency (MHz)                    | 5210   |
| Antenna Directional Gain (dBi)     | 2.80   |
| 15.407 Conducted Power Limit (dBm) | 24.00  |
| Conducted Power (dBm)              | 12.88  |

**Table 25**

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

|                                |        |
|--------------------------------|--------|
| Channel                        | Middle |
| Frequency (MHz)                | 5210   |
| Conducted Power (dBm)          | 12.97  |
| Antenna Directional Gain (dBi) | 2.80   |
| RSS-247 EIRP Power Limit (dBm) | 23.00  |
| Total EIRP (dBm)               | 15.77  |

**Table 26**

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

|                                    |        |
|------------------------------------|--------|
| Channel                            | Middle |
| Frequency (MHz)                    | 5210   |
| Conducted Power Core 0 (dBm)       | 11.26  |
| Conducted Power Core 1 (dBm)       | 11.38  |
| Antenna Directional Gain (dBi)     | 2.80   |
| 15.407 Conducted Power Limit (dBm) | 24.00  |
| Total Conducted Power (dBm)        | 14.33  |

**Table 27**

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

|                                |        |
|--------------------------------|--------|
| Channel                        | Middle |
| Frequency (MHz)                | 5210   |
| Conducted Power Core 0 (dBm)   | 11.25  |
| Conducted Power Core 1 (dBm)   | 11.37  |
| Total Conducted Power (dBm)    | 14.32  |
| Antenna Directional Gain (dBi) | 2.80   |
| RSS-247 EIRP Power Limit (dBm) | 23.00  |
| Total EIRP (dBm)               | 17.12  |

**Table 28**

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

|                                    |        |
|------------------------------------|--------|
| Channel                            | Middle |
| Frequency (MHz)                    | 5210   |
| Conducted Power Core 0 (dBm)       | 11.40  |
| Conducted Power Core 1 (dBm)       | 11.32  |
| Antenna Directional Gain (dBi)     | 2.20   |
| 15.407 Conducted Power Limit (dBm) | 24.00  |
| Total Conducted Power (dBm)        | 14.37  |

**Table 29**



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

|                                |        |
|--------------------------------|--------|
| Channel                        | Middle |
| Frequency (MHz)                | 5210   |
| Conducted Power Core 0 (dBm)   | 11.44  |
| Conducted Power Core 1 (dBm)   | 11.24  |
| Total Conducted Power (dBm)    | 14.35  |
| Antenna Directional Gain (dBi) | 2.20   |
| RSS-247 EIRP Power Limit (dBm) | 23.00  |
| Total EIRP (dBm)               | 16.55  |

**Table 30**

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

|                                    |        |
|------------------------------------|--------|
| Channel                            | Middle |
| Frequency (MHz)                    | 5210   |
| Conducted Power Core 0 (dBm)       | 10.71  |
| Conducted Power Core 1 (dBm)       | 10.87  |
| Antenna Directional Gain (dBi)     | 5.18   |
| 15.407 Conducted Power Limit (dBm) | 24.00  |
| Total Conducted Power (dBm)        | 13.80  |

**Table 31**

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

|                                |        |
|--------------------------------|--------|
| Channel                        | Middle |
| Frequency (MHz)                | 5210   |
| Conducted Power Core 0 (dBm)   | 10.67  |
| Conducted Power Core 1 (dBm)   | 10.88  |
| Total Conducted Power (dBm)    | 13.79  |
| Antenna Directional Gain (dBi) | 5.18   |
| RSS-247 EIRP Power Limit (dBm) | 23.00  |
| Total EIRP (dBm)               | 18.97  |

**Table 32**



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

### 802.11a / 6 Mbps / SISO / Core 1

| Channel                             | Bottom | Middle | Top   |
|-------------------------------------|--------|--------|-------|
| Frequency (MHz)                     | 5260   | 5280   | 5320  |
| Antenna Directional Gain (dBi)      | 1.90   | 1.90   | 1.90  |
| 15.407 Conducted Power Limit (dBm)  | 24.00  | 24.00  | 24.00 |
| RSS-247 Conducted Power Limit (dBm) | 23.18  | 23.17  | 23.19 |
| Conducted Power (dBm)               | 15.40  | 15.38  | 15.45 |
| 15.407 TPC EIRP Limit (dBm)         | 30.00  | 30.00  | 30.00 |
| RSS-247 TPC EIRP Limit (dBm)        | 29.18  | 29.17  | 29.19 |
| EIRP Power (dBm)                    | 17.30  | 17.28  | 17.35 |

Table 33

### 802.11n / HT20 MCS0 / SISO / Core 1

| Channel                             | Bottom | Middle | Top   |
|-------------------------------------|--------|--------|-------|
| Frequency (MHz)                     | 5260   | 5280   | 5320  |
| Antenna Directional Gain (dBi)      | 1.90   | 1.90   | 1.90  |
| 15.407 Conducted Power Limit (dBm)  | 24.00  | 24.00  | 24.00 |
| RSS-247 Conducted Power Limit (dBm) | 23.49  | 23.48  | 23.48 |
| Conducted Power (dBm)               | 15.44  | 15.49  | 15.50 |
| 15.407 TPC EIRP Limit (dBm)         | 30.00  | 30.00  | 30.00 |
| RSS-247 TPC EIRP Limit (dBm)        | 29.49  | 29.48  | 29.48 |
| EIRP Power (dBm)                    | 17.34  | 17.39  | 17.40 |

Table 34

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

| Channel                             | Bottom | Middle | Top   |
|-------------------------------------|--------|--------|-------|
| Frequency (MHz)                     | 5260   | 5280   | 5320  |
| Conducted Power Core 0 (dBm)        | 15.15  | 15.41  | 14.98 |
| Conducted Power Core 1 (dBm)        | 15.46  | 15.42  | 14.89 |
| Antenna Directional Gain (dBi)      | 1.90   | 1.90   | 1.90  |
| 15.407 Conducted Power Limit (dBm)  | 24.00  | 24.00  | 24.00 |
| RSS-247 Conducted Power Limit (dBm) | 23.48  | 23.49  | 23.49 |
| Total Conducted Power (dBm)         | 18.32  | 18.43  | 17.95 |
| 15.407 TPC EIRP Limit (dBm)         | 30.00  | 30.00  | 30.00 |
| RSS-247 TPC EIRP Limit (dBm)        | 29.48  | 29.49  | 29.49 |
| EIRP Power (dBm)                    | 20.22  | 20.33  | 19.85 |

Table 35



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

| Channel                             | Bottom | Middle | Top   |
|-------------------------------------|--------|--------|-------|
| Frequency (MHz)                     | 5260   | 5280   | 5320  |
| Conducted Power Core 0 (dBm)        | 15.32  | 15.37  | 15.49 |
| Conducted Power Core 1 (dBm)        | 15.22  | 15.47  | 15.39 |
| Antenna Directional Gain (dBi)      | 1.85   | 1.85   | 1.85  |
| 15.407 Conducted Power Limit (dBm)  | 24.00  | 24.00  | 24.00 |
| RSS-247 Conducted Power Limit (dBm) | 23.48  | 23.48  | 23.48 |
| Total Conducted Power (dBm)         | 18.28  | 18.43  | 18.45 |
| 15.407 TPC EIRP Limit (dBm)         | 30.00  | 30.00  | 30.00 |
| RSS-247 TPC EIRP Limit (dBm)        | 29.48  | 29.48  | 29.48 |
| EIRP Power (dBm)                    | 20.13  | 20.28  | 20.30 |

**Table 36**

**802.11n / HT40 MCS0 / SISO / Core 1**

| Channel                             | Bottom | Top   |
|-------------------------------------|--------|-------|
| Frequency (MHz)                     | 5270   | 5310  |
| Antenna Directional Gain (dBi)      | 1.90   | 1.90  |
| 15.407 Conducted Power Limit (dBm)  | 24.00  | 24.00 |
| RSS-247 Conducted Power Limit (dBm) | 24.00  | 24.00 |
| Conducted Power (dBm)               | 15.22  | 15.36 |
| 15.407 TPC EIRP Limit (dBm)         | 30.00  | 30.00 |
| RSS-247 TPC EIRP Limit (dBm)        | 30.00  | 30.00 |
| EIRP Power (dBm)                    | 17.12  | 17.26 |

**Table 37**

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

| Channel                             | Bottom | Top   |
|-------------------------------------|--------|-------|
| Frequency (MHz)                     | 5270   | 5310  |
| Conducted Power Core 0 (dBm)        | 15.38  | 14.70 |
| Conducted Power Core 1 (dBm)        | 15.35  | 14.66 |
| Antenna Directional Gain (dBi)      | 1.90   | 1.90  |
| 15.407 Conducted Power Limit (dBm)  | 24.00  | 24.00 |
| RSS-247 Conducted Power Limit (dBm) | 24.00  | 24.00 |
| Total Conducted Power (dBm)         | 18.38  | 17.69 |
| 15.407 TPC EIRP Limit (dBm)         | 30.00  | 30.00 |
| RSS-247 TPC EIRP Limit (dBm)        | 30.00  | 30.00 |
| EIRP Power (dBm)                    | 20.28  | 19.59 |

**Table 38**



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

| Channel                             | Bottom | Top   |
|-------------------------------------|--------|-------|
| Frequency (MHz)                     | 5270   | 5310  |
| Conducted Power Core 0 (dBm)        | 15.33  | 14.71 |
| Conducted Power Core 1 (dBm)        | 15.32  | 14.66 |
| Antenna Directional Gain (dBi)      | 1.85   | 1.85  |
| 15.407 Conducted Power Limit (dBm)  | 24.00  | 24.00 |
| RSS-247 Conducted Power Limit (dBm) | 24.00  | 24.00 |
| Total Conducted Power (dBm)         | 18.34  | 17.70 |
| 15.407 TPC EIRP Limit (dBm)         | 30.00  | 30.00 |
| RSS-247 TPC EIRP Limit (dBm)        | 30.00  | 30.00 |
| EIRP Power (dBm)                    | 20.19  | 19.55 |

**Table 39**

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

| Channel                             | Bottom | Middle | Top   |
|-------------------------------------|--------|--------|-------|
| Frequency (MHz)                     | 5260   | 5280   | 5320  |
| Conducted Power Core 0 (dBm)        | 15.16  | 15.24  | 14.71 |
| Conducted Power Core 1 (dBm)        | 15.23  | 15.46  | 14.99 |
| Antenna Directional Gain (dBi)      | 4.86   | 4.86   | 4.86  |
| 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)         | 18.21  | 18.36  | 17.86 |
| 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)                    | 23.07  | 23.22  | 22.72 |

**Table 40**

**802.11ac / VHT40 MCS0x1 / MIMO TxBF / Cores 0+1**

| Channel                             | Bottom | Top   |
|-------------------------------------|--------|-------|
| Frequency (MHz)                     | 5270   | 5310  |
| Conducted Power Core 0 (dBm)        | 15.19  | 14.40 |
| Conducted Power Core 1 (dBm)        | 15.34  | 14.43 |
| Antenna Directional Gain (dBi)      | 4.86   | 4.86  |
| 15.407 Conducted Power Limit (dBm)  | 24.00  | 24.00 |
| RSS-247 Conducted Power Limit (dBm) | 24.00  | 24.00 |
| Total Conducted Power (dBm)         | 18.28  | 17.43 |
| 15.407 TPC EIRP Limit (dBm)         | 30.00  | 30.00 |
| RSS-247 TPC EIRP Limit (dBm)        | 30.00  | 30.00 |
| EIRP Power (dBm)                    | 23.14  | 22.29 |

**Table 41**



**802.11ac / VHT80 MCS0x1 / SISO / Core 1**

|                                     |        |
|-------------------------------------|--------|
| Channel                             | Middle |
| Frequency (MHz)                     | 5290   |
| Antenna Directional Gain (dBi)      | 1.90   |
| 15.407 Conducted Power Limit (dBm)  | 24.00  |
| RSS-247 Conducted Power Limit (dBm) | 24.00  |
| Conducted Power (dBm)               | 15.21  |
| 15.407 TPC EIRP Limit (dBm)         | 30.00  |
| RSS-247 TPC EIRP Limit (dBm)        | 30.00  |
| EIRP Power (dBm)                    | 17.11  |

**Table 42**

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

|                                     |        |
|-------------------------------------|--------|
| Channel                             | Middle |
| Frequency (MHz)                     | 5290   |
| Conducted Power Core 0 (dBm)        | 14.41  |
| Conducted Power Core 1 (dBm)        | 14.42  |
| Antenna Directional Gain (dBi)      | 1.90   |
| 15.407 Conducted Power Limit (dBm)  | 24.00  |
| RSS-247 Conducted Power Limit (dBm) | 24.00  |
| Total Conducted Power (dBm)         | 17.43  |
| 15.407 TPC EIRP Limit (dBm)         | 30.00  |
| RSS-247 TPC EIRP Limit (dBm)        | 30.00  |
| EIRP Power (dBm)                    | 19.33  |

**Table 43**

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

|                                     |        |
|-------------------------------------|--------|
| Channel                             | Middle |
| Frequency (MHz)                     | 5290   |
| Conducted Power Core 0 (dBm)        | 14.22  |
| Conducted Power Core 1 (dBm)        | 14.36  |
| Antenna Directional Gain (dBi)      | 1.85   |
| 15.407 Conducted Power Limit (dBm)  | 24.00  |
| RSS-247 Conducted Power Limit (dBm) | 24.00  |
| Total Conducted Power (dBm)         | 17.30  |
| 15.407 TPC EIRP Limit (dBm)         | 30.00  |
| RSS-247 TPC EIRP Limit (dBm)        | 30.00  |
| EIRP Power (dBm)                    | 19.15  |

**Table 44**



Product Service

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

|                                     |        |
|-------------------------------------|--------|
| Channel                             | Middle |
| Frequency (MHz)                     | 5290   |
| Conducted Power Core 0 (dBm)        | 13.79  |
| Conducted Power Core 1 (dBm)        | 13.72  |
| Antenna Directional Gain (dBi)      | 4.86   |
| 15.407 Conducted Power Limit (dBm)  | 24.00  |
| RSS-247 Conducted Power Limit (dBm) | 24.00  |
| Total Conducted Power (dBm)         | 16.77  |
| 15.407 TPC EIRP Limit (dBm)         | 30.00  |
| RSS-247 TPC EIRP Limit (dBm)        | 30.00  |
| EIRP Power (dBm)                    | 21.63  |

**Table 45**



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

### 802.11a / 6 Mbps / SISO / Core 1

| Channel                             | Bottom | Middle | Top   | Straddle |
|-------------------------------------|--------|--------|-------|----------|
| Frequency (MHz)                     | 5500   | 5600   | 5700  | 5720     |
| Antenna Directional Gain (dBi)      | 4.00   | 4.00   | 4.00  | 4.00     |
| 15.407 Conducted Power Limit (dBm)  | 24.00  | 24.00  | 24.00 | 22.92    |
| RSS-247 Conducted Power Limit (dBm) | 23.19  | 23.19  | 23.18 | 23.19    |
| Conducted Power (dBm)               | 14.15  | 14.28  | 14.34 | 14.37    |
| 15.407 TPC EIRP Limit (dBm)         | 30.00  | 30.00  | 30.00 | 28.92    |
| RSS-247 TPC EIRP Limit (dBm)        | 29.19  | 29.19  | 29.18 | 29.19    |
| EIRP Power (dBm)                    | 18.15  | 18.28  | 18.34 | 18.37    |

Table 46

### 802.11n / HT20 MCS0 / SISO / Core 1

| Channel                             | Bottom | Middle | Top   | Straddle |
|-------------------------------------|--------|--------|-------|----------|
| Frequency (MHz)                     | 5500   | 5600   | 5700  | 5720     |
| Antenna Directional Gain (dBi)      | 4.00   | 4.00   | 4.00  | 4.00     |
| 15.407 Conducted Power Limit (dBm)  | 24.00  | 24.00  | 24.00 | 22.97    |
| RSS-247 Conducted Power Limit (dBm) | 23.48  | 23.48  | 23.49 | 23.48    |
| Conducted Power (dBm)               | 14.27  | 14.26  | 14.28 | 14.32    |
| 15.407 TPC EIRP Limit (dBm)         | 30.00  | 30.00  | 30.00 | 28.97    |
| RSS-247 TPC EIRP Limit (dBm)        | 29.48  | 29.48  | 29.49 | 29.48    |
| EIRP Power (dBm)                    | 18.27  | 18.26  | 18.28 | 18.32    |

Table 47

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

| Channel                             | Bottom | Middle | Top   | Straddle |
|-------------------------------------|--------|--------|-------|----------|
| Frequency (MHz)                     | 5500   | 5600   | 5700  | 5720     |
| Conducted Power Core 0 (dBm)        | 14.46  | 14.21  | 14.48 | 14.40    |
| Conducted Power Core 1 (dBm)        | 14.15  | 14.20  | 14.33 | 14.17    |
| Antenna Directional Gain (dBi)      | 4.00   | 4.00   | 4.00  | 4.00     |
| 15.407 Conducted Power Limit (dBm)  | 24.00  | 24.00  | 24.00 | 23.00    |
| RSS-247 Conducted Power Limit (dBm) | 23.48  | 23.49  | 23.49 | 23.50    |
| Total Conducted Power (dBm)         | 17.32  | 17.22  | 17.42 | 17.30    |
| 15.407 TPC EIRP Limit (dBm)         | 30.00  | 30.00  | 30.00 | 29.00    |
| RSS-247 TPC EIRP Limit (dBm)        | 29.48  | 29.49  | 29.49 | 29.50    |
| EIRP Power (dBm)                    | 21.32  | 21.22  | 21.42 | 21.30    |

Table 48



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

| Channel                             | Bottom | Middle | Top   | Straddle |
|-------------------------------------|--------|--------|-------|----------|
| Frequency (MHz)                     | 5500   | 5600   | 5700  | 5720     |
| Conducted Power Core 0 (dBm)        | 14.34  | 14.20  | 14.44 | 14.35    |
| Conducted Power Core 1 (dBm)        | 14.23  | 14.34  | 14.36 | 14.19    |
| Antenna Directional Gain (dBi)      | 3.36   | 3.36   | 3.36  | 3.36     |
| 15.407 Conducted Power Limit (dBm)  | 24.00  | 24.00  | 24.00 | 22.99    |
| RSS-247 Conducted Power Limit (dBm) | 23.48  | 23.48  | 23.49 | 23.49    |
| Total Conducted Power (dBm)         | 17.30  | 17.28  | 17.41 | 17.28    |
| 15.407 TPC EIRP Limit (dBm)         | 30.00  | 30.00  | 30.00 | 28.99    |
| RSS-247 TPC EIRP Limit (dBm)        | 29.48  | 29.48  | 29.49 | 29.49    |
| EIRP Power (dBm)                    | 20.65  | 20.64  | 20.77 | 20.64    |

**Table 49**

**802.11n / HT40 MCS0 / SISO / Core 1**

| Channel                             | Bottom | Middle | Top   | Straddle |
|-------------------------------------|--------|--------|-------|----------|
| Frequency (MHz)                     | 5510   | 5590   | 5670  | 5710     |
| Antenna Directional Gain (dBi)      | 4.00   | 4.00   | 4.00  | 4.00     |
| 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)               | 14.26  | 14.42  | 14.33 | 14.28    |
| 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)                    | 18.26  | 18.42  | 18.33 | 18.28    |

**Table 50**

**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)        | 14.37  | 14.24  | 14.33 | 14.23    |
| Conducted Power Core 1 (dBm)        | 14.33  | 14.29  | 14.43 | 14.37    |
| Antenna Directional Gain (dBi)      | 4.00   | 4.00   | 4.00  | 4.00     |
| 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)         | 17.36  | 17.28  | 17.39 | 17.31    |
| 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)                    | 21.36  | 21.28  | 21.39 | 21.31    |

**Table 51**

#### 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)        | 14.32  | 14.21  | 14.33 | 14.25    |
| Conducted Power Core 1 (dBm)        | 14.31  | 14.25  | 14.36 | 14.18    |
| Antenna Directional Gain (dBi)      | 3.36   | 3.36   | 3.36  | 3.36     |
| 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)         | 17.33  | 17.24  | 17.36 | 17.23    |
| 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)                    | 20.68  | 20.60  | 20.71 | 20.58    |

Table 52

#### 802.11ac / VHT20 MCS0x1 / MIMO TxBF / Cores 0+1

| Channel                             | Bottom | Middle | Top   | Straddle |
|-------------------------------------|--------|--------|-------|----------|
| Frequency (MHz)                     | 5500   | 5600   | 5700  | 5720     |
| Conducted Power Core 0 (dBm)        | 14.32  | 14.25  | 14.50 | 14.46    |
| Conducted Power Core 1 (dBm)        | 14.25  | 14.22  | 14.18 | 14.37    |
| Antenna Directional Gain (dBi)      | 6.34   | 6.34   | 6.34  | 6.34     |
| 15.407 Conducted Power Limit (dBm)  | 23.66  | 23.66  | 23.66 | 22.68    |
| RSS-247 Conducted Power Limit (dBm) | 23.50  | 23.49  | 23.48 | 23.49    |
| Total Conducted Power (dBm)         | 17.30  | 17.25  | 17.35 | 17.43    |
| 15.407 TPC EIRP Limit (dBm)         | 30.00  | 30.00  | 30.00 | 29.02    |
| RSS-247 TPC EIRP Limit (dBm)        | 29.50  | 29.49  | 29.48 | 29.49    |
| EIRP Power (dBm)                    | 23.63  | 23.58  | 23.69 | 23.76    |

Table 53

#### 802.11ac / VHT40 MCS0x1 / MIMO TxBF / Cores 0+1

| Channel                             | Bottom | Top   | Straddle |
|-------------------------------------|--------|-------|----------|
| Frequency (MHz)                     | 5510   | 5670  | 5710     |
| Conducted Power Core 0 (dBm)        | 13.32  | 14.23 | 14.25    |
| Conducted Power Core 1 (dBm)        | 13.37  | 14.32 | 14.36    |
| Antenna Directional Gain (dBi)      | 6.34   | 6.34  | 6.34     |
| 15.407 Conducted Power Limit (dBm)  | 23.66  | 23.66 | 23.66    |
| RSS-247 Conducted Power Limit (dBm) | 24.00  | 24.00 | 24.00    |
| Total Conducted Power (dBm)         | 16.36  | 17.29 | 17.32    |
| 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)                    | 22.69  | 23.62 | 23.65    |

Table 54

**802.11ac / VHT80 MCS0x1 / SISO / Core 1**

| Channel                             | Bottom | Top   | Straddle |
|-------------------------------------|--------|-------|----------|
| Frequency (MHz)                     | 5530   | 5610  | 5690     |
| Antenna Directional Gain (dBi)      | 4.00   | 4.00  | 4.00     |
| 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)               | 14.31  | 14.33 | 14.35    |
| 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)                    | 18.31  | 18.33 | 18.35    |

**Table 55**

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

| Channel                             | Bottom | Top   | Straddle |
|-------------------------------------|--------|-------|----------|
| Frequency (MHz)                     | 5530   | 5610  | 5690     |
| Conducted Power Core 0 (dBm)        | 13.83  | 14.30 | 14.25    |
| Conducted Power Core 1 (dBm)        | 13.81  | 14.35 | 14.28    |
| Antenna Directional Gain (dBi)      | 4.00   | 4.00  | 4.00     |
| 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)         | 16.83  | 17.34 | 17.28    |
| 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)                    | 20.83  | 21.34 | 21.28    |

**Table 56**

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

| Channel                             | Bottom | Top   | Straddle |
|-------------------------------------|--------|-------|----------|
| Frequency (MHz)                     | 5530   | 5610  | 5690     |
| Conducted Power Core 0 (dBm)        | 13.86  | 14.42 | 14.38    |
| Conducted Power Core 1 (dBm)        | 13.68  | 14.24 | 14.17    |
| Antenna Directional Gain (dBi)      | 3.36   | 3.36  | 3.36     |
| 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)         | 16.78  | 17.34 | 17.29    |
| 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)                    | 20.14  | 20.70 | 20.64    |

**Table 57**



Product Service

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

| Channel                             | Bottom | Top   | Straddle |
|-------------------------------------|--------|-------|----------|
| Frequency (MHz)                     | 5530   | 5610  | 5690     |
| Conducted Power Core 0 (dBm)        | 12.15  | 14.26 | 14.37    |
| Conducted Power Core 1 (dBm)        | 12.30  | 14.44 | 14.35    |
| Antenna Directional Gain (dBi)      | 6.34   | 6.34  | 6.34     |
| 15.407 Conducted Power Limit (dBm)  | 23.66  | 23.66 | 23.66    |
| RSS-247 Conducted Power Limit (dBm) | 24.00  | 24.00 | 24.00    |
| Total Conducted Power (dBm)         | 15.24  | 17.36 | 17.37    |
| 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)                    | 21.57  | 23.70 | 23.71    |

**Table 58**



## 2.1.9 Test Results: U-NII-3

### 802.11a / 6 Mbps / SISO / Core 1

| Channel                             | Straddle | Bottom | Middle | Top   |
|-------------------------------------|----------|--------|--------|-------|
| Frequency (MHz)                     | 5720     | 5745   | 5785   | 5825  |
| Antenna Directional Gain (dBi)      | 3.90     | 3.90   | 3.90   | 3.90  |
| 15.407 Conducted Power Limit (dBm)  | 30.00    | 30.00  | 30.00  | 30.00 |
| RSS-247 Conducted Power Limit (dBm) | 30.00    | 30.00  | 30.00  | 30.00 |
| Conducted Power (dBm)               | 14.24    | 13.35  | 13.34  | 13.29 |
| 15.407 EIRP Limit (dBm)             | 36.00    | 36.00  | 36.00  | 36.00 |
| RSS-247 EIRP Limit (dBm)            | 36.00    | 36.00  | 36.00  | 36.00 |
| EIRP Power (dBm)                    | 18.14    | 17.25  | 17.24  | 17.19 |

Table 59

### 802.11n / HT20 MCS0 / SISO / Core 1

| Channel                             | Straddle | Bottom | Middle | Top   |
|-------------------------------------|----------|--------|--------|-------|
| Frequency (MHz)                     | 5720     | 5745   | 5785   | 5825  |
| Antenna Directional Gain (dBi)      | 3.90     | 3.90   | 3.90   | 3.90  |
| 15.407 Conducted Power Limit (dBm)  | 30.00    | 30.00  | 30.00  | 30.00 |
| RSS-247 Conducted Power Limit (dBm) | 30.00    | 30.00  | 30.00  | 30.00 |
| Conducted Power (dBm)               | 14.30    | 13.47  | 13.38  | 13.47 |
| 15.407 EIRP Limit (dBm)             | 36.00    | 36.00  | 36.00  | 36.00 |
| RSS-247 EIRP Limit (dBm)            | 36.00    | 36.00  | 36.00  | 36.00 |
| EIRP Power (dBm)                    | 18.20    | 17.37  | 17.28  | 17.37 |

Table 60

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

| Channel                             | Straddle | Bottom | Middle | Top   |
|-------------------------------------|----------|--------|--------|-------|
| Frequency (MHz)                     | 5720     | 5745   | 5785   | 5825  |
| Conducted Power Core 0 (dBm)        | 14.23    | 13.42  | 13.25  | 13.29 |
| Conducted Power Core 1 (dBm)        | 14.24    | 13.36  | 13.48  | 13.33 |
| Antenna Directional Gain (dBi)      | 3.90     | 3.90   | 3.90   | 3.90  |
| 15.407 Conducted Power Limit (dBm)  | 30.00    | 30.00  | 30.00  | 30.00 |
| RSS-247 Conducted Power Limit (dBm) | 30.00    | 30.00  | 30.00  | 30.00 |
| Total Conducted Power (dBm)         | 17.25    | 16.40  | 16.38  | 16.32 |
| 15.407 EIRP Limit (dBm)             | 36.00    | 36.00  | 36.00  | 36.00 |
| RSS-247 EIRP Limit (dBm)            | 36.00    | 36.00  | 36.00  | 36.00 |
| EIRP Power (dBm)                    | 21.15    | 20.30  | 20.28  | 20.22 |

Table 61



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

| Channel                             | Straddle | Bottom | Middle | Top   |
|-------------------------------------|----------|--------|--------|-------|
| Frequency (MHz)                     | 5720     | 5745   | 5785   | 5825  |
| Conducted Power Core 0 (dBm)        | 14.22    | 13.24  | 13.24  | 13.48 |
| Conducted Power Core 1 (dBm)        | 14.33    | 13.39  | 13.31  | 13.26 |
| Antenna Directional Gain (dBi)      | 3.47     | 3.47   | 3.47   | 3.47  |
| 15.407 Conducted Power Limit (dBm)  | 30.00    | 30.00  | 30.00  | 30.00 |
| RSS-247 Conducted Power Limit (dBm) | 30.00    | 30.00  | 30.00  | 30.00 |
| Total Conducted Power (dBm)         | 17.29    | 16.33  | 16.29  | 16.38 |
| 15.407 EIRP Limit (dBm)             | 36.00    | 36.00  | 36.00  | 36.00 |
| RSS-247 EIRP Limit (dBm)            | 36.00    | 36.00  | 36.00  | 36.00 |
| EIRP Power (dBm)                    | 20.76    | 19.80  | 19.76  | 19.85 |

**Table 62**

**802.11n / HT40 MCS0 / SISO / Core 1**

| Channel                             | Straddle | Bottom | Top   |
|-------------------------------------|----------|--------|-------|
| Frequency (MHz)                     | 5710     | 5755   | 5795  |
| Antenna Directional Gain (dBi)      | 3.90     | 3.90   | 3.90  |
| 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)               | 14.50    | 13.36  | 13.45 |
| 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)                    | 18.40    | 17.26  | 17.35 |

**Table 63**

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

| Channel                             | Straddle | Bottom | Top   |
|-------------------------------------|----------|--------|-------|
| Frequency (MHz)                     | 5710     | 5755   | 5795  |
| Conducted Power Core 0 (dBm)        | 14.38    | 13.37  | 13.46 |
| Conducted Power Core 1 (dBm)        | 14.49    | 13.46  | 13.45 |
| Antenna Directional Gain (dBi)      | 3.90     | 3.90   | 3.90  |
| 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)         | 17.45    | 16.43  | 16.47 |
| 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)                    | 21.35    | 20.33  | 20.37 |

**Table 64**



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

| Channel                             | Straddle | Bottom | Top   |
|-------------------------------------|----------|--------|-------|
| Frequency (MHz)                     | 5710     | 5755   | 5795  |
| Conducted Power Core 0 (dBm)        | 14.31    | 13.43  | 13.42 |
| Conducted Power Core 1 (dBm)        | 14.47    | 13.50  | 13.40 |
| Antenna Directional Gain (dBi)      | 3.47     | 3.47   | 3.47  |
| 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)         | 17.40    | 16.48  | 16.42 |
| 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)                    | 20.87    | 19.95  | 19.89 |

**Table 65**

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

| Channel                             | Straddle | Bottom | Middle | Top   |
|-------------------------------------|----------|--------|--------|-------|
| Frequency (MHz)                     | 5720     | 5745   | 5785   | 5825  |
| Conducted Power Core 0 (dBm)        | 14.32    | 13.18  | 13.41  | 13.50 |
| Conducted Power Core 1 (dBm)        | 14.31    | 13.21  | 13.33  | 13.34 |
| Antenna Directional Gain (dBi)      | 6.47     | 6.47   | 6.47   | 6.47  |
| 15.407 Conducted Power Limit (dBm)  | 29.53    | 29.53  | 29.53  | 29.53 |
| RSS-247 Conducted Power Limit (dBm) | 29.53    | 29.53  | 29.53  | 29.53 |
| Total Conducted Power (dBm)         | 17.33    | 16.21  | 16.38  | 16.43 |
| 15.407 EIRP Limit (dBm)             | 36.00    | 36.00  | 36.00  | 36.00 |
| RSS-247 EIRP Limit (dBm)            | 36.00    | 36.00  | 36.00  | 36.00 |
| EIRP Power (dBm)                    | 23.80    | 22.68  | 22.85  | 22.90 |

**Table 66**

**802.11ac / VHT40 MCS0x1 / MIMO TxBF / Cores 0+1**

| Channel                             | Straddle | Bottom | Top   |
|-------------------------------------|----------|--------|-------|
| Frequency (MHz)                     | 5710     | 5755   | 5795  |
| Conducted Power Core 0 (dBm)        | 14.29    | 13.30  | 13.22 |
| Conducted Power Core 1 (dBm)        | 14.30    | 13.20  | 13.40 |
| Antenna Directional Gain (dBi)      | 6.47     | 6.47   | 6.47  |
| 15.407 Conducted Power Limit (dBm)  | 29.53    | 29.53  | 29.53 |
| RSS-247 Conducted Power Limit (dBm) | 29.53    | 29.53  | 29.53 |
| Total Conducted Power (dBm)         | 17.31    | 16.26  | 16.32 |
| 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)                    | 23.78    | 22.73  | 22.79 |

**Table 67**



**802.11ac / VHT80 MCS0x1 / SISO / Core 1**

| Channel                             | Straddle | Middle |
|-------------------------------------|----------|--------|
| Frequency (MHz)                     | 5690     | 5775   |
| Antenna Directional Gain (dBi)      | 3.90     | 3.90   |
| 15.407 Conducted Power Limit (dBm)  | 30.00    | 30.00  |
| RSS-247 Conducted Power Limit (dBm) | 30.00    | 30.00  |
| Conducted Power (dBm)               | 14.37    | 13.45  |
| 15.407 EIRP Limit (dBm)             | 36.00    | 36.00  |
| RSS-247 EIRP Limit (dBm)            | 36.00    | 36.00  |
| EIRP Power (dBm)                    | 18.27    | 17.35  |

**Table 68**

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

| Channel                             | Straddle | Middle |
|-------------------------------------|----------|--------|
| Frequency (MHz)                     | 5690     | 5775   |
| Conducted Power Core 0 (dBm)        | 14.27    | 13.29  |
| Conducted Power Core 1 (dBm)        | 14.43    | 13.50  |
| Antenna Directional Gain (dBi)      | 3.90     | 3.90   |
| 15.407 Conducted Power Limit (dBm)  | 30.00    | 30.00  |
| RSS-247 Conducted Power Limit (dBm) | 30.00    | 30.00  |
| Total Conducted Power (dBm)         | 17.36    | 16.41  |
| 15.407 EIRP Limit (dBm)             | 36.00    | 36.00  |
| RSS-247 EIRP Limit (dBm)            | 36.00    | 36.00  |
| EIRP Power (dBm)                    | 21.26    | 20.31  |

**Table 69**

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

| Channel                             | Straddle | Middle |
|-------------------------------------|----------|--------|
| Frequency (MHz)                     | 5690     | 5775   |
| Conducted Power Core 0 (dBm)        | 14.32    | 13.30  |
| Conducted Power Core 1 (dBm)        | 14.31    | 13.50  |
| Antenna Directional Gain (dBi)      | 3.47     | 3.47   |
| 15.407 Conducted Power Limit (dBm)  | 30.00    | 30.00  |
| RSS-247 Conducted Power Limit (dBm) | 30.00    | 30.00  |
| Total Conducted Power (dBm)         | 17.33    | 16.41  |
| 15.407 EIRP Limit (dBm)             | 36.00    | 36.00  |
| RSS-247 EIRP Limit (dBm)            | 36.00    | 36.00  |
| EIRP Power (dBm)                    | 20.80    | 19.88  |

**Table 70**



Product Service

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

| Channel                             | Straddle | Middle |
|-------------------------------------|----------|--------|
| Frequency (MHz)                     | 5690     | 5775   |
| Conducted Power Core 0 (dBm)        | 14.16    | 13.34  |
| Conducted Power Core 1 (dBm)        | 14.46    | 13.21  |
| Antenna Directional Gain (dBi)      | 6.47     | 6.47   |
| 15.407 Conducted Power Limit (dBm)  | 29.53    | 29.53  |
| RSS-247 Conducted Power Limit (dBm) | 29.53    | 29.53  |
| Total Conducted Power (dBm)         | 17.32    | 16.29  |
| 15.407 EIRP Limit (dBm)             | 36.00    | 36.00  |
| RSS-247 EIRP Limit (dBm)            | 36.00    | 36.00  |
| EIRP Power (dBm)                    | 23.79    | 22.76  |

**Table 71**



## 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><br>200 W (53 dBm) for fixed P-t-P application with 23 dBi antenna<br><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><br>No EIRP limit for fixed P-t-P application (i.e. no antenna gain limit) |

**Table 72**

### 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><br>$1.0 \text{ W}$ or $17 + 10 \log_{10}B$ dBm EIRP; whichever is less | 250 mW or $11 + 10 \log_{10}B$ ; whichever is less<br><br>$1.0 \text{ W}$ or $17 + 10 \log_{10}B$ dBm EIRP; whichever is less | $1 \text{ W}$<br><br>4W EIRP |

**Table 73**



### 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 |
|-------------------------------------|------------------------|--------------|-------|-----------------------------|-----------------|
| 20dB/2W Attenuator                  | Narda                  | 4772-20      | 462   | -                           | O/P Mon         |
| Hygrometer                          | Rotronic               | I-1000       | 2891  | 12                          | 18-Sept-2019    |
| Calibration Unit                    | Rohde & Schwarz        | ZV-Z54       | 4368  | 12                          | 06-Mar-2019     |
| Directional Coupler                 | Hewlett Packard        | 11692D       | 451   | 12                          | O/P Mon         |
| Attenuator (20dB, 2W)               | Pasternack             | PE7004-20    | 2943  | 12                          | 18-Jul-2019     |
| Attenuator (20dB, 150W)             | Narda                  | 769-20       | 3367  | 12                          | 17-Jul-2019     |
| Network Analyser                    | Rohde & Schwarz        | ZVA 40       | 3548  | 12                          | 09-Oct-2018     |
| DC - 12.4 GHz 10 dB Attenuator      | Suhner                 | 6810.17.A    | 3965  | 12                          | 18-Jul-2019     |
| PXA Signal Analyser                 | Keysight Technologies  | N9030A       | 4653  | 12                          | 5-Feb-2019      |
| Power splitter - 4 port             | Mini-Circuits          | ZN4PD1-63-S+ | 4744  | 12                          | 29-Sep-2019     |
| Attenuator (10dB, 150W)             | Narda                  | 769-10       | 3368  | 12                          | 17-Jul-2019     |
| P-Series Power Meter                | Agilent Technologies;  | N1911A       | 3981  | 12                          | 29-Sep-2019     |
| 50 MHz-18 GHz Wideband Power Sensor | Agilent Technologies;  | N1921A       | 3983  | 12                          | 29-Sep-2019     |
| PXA Signal Analyser                 | Keysight Technologies; | N9030A       | 4653  | 12                          | 05-Feb-2019     |
| Power splitter - 2 port             | Mini-Circuits          | ZN2PD-63-S+  | 4742  | 12                          | 29-Sep-2019     |
| Power splitter - 2 port             | Mini-Circuits          | ZN2PD-63-S+  | 4743  | 12                          | 29-Sep-2019     |
| EMI Receiver                        | Keysight Technologies  | N9038A MXE   | 4628  | 12                          | 4-July-2019     |

**Table 74**

All test equipment was in calibration at the time of use.

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**

A1932, S/N: C02X5003L3J3 - Modification State 0  
A1932, S/N: C02X5003L3J3 - Modification State 1  
A1932, S/N: C02X5003JL8Y - Modification State 0

### **2.2.3 Date of Test**

26-September-2018 to 17-October-2018

### **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. Cyclic delay diversity (CDD) modes had the output cores summed using clause F)2)f)(ii). Space-division multiplexing (SDM) modes were summed in accordance with F)2)d)(ii). Transmit beamforming (TxBF) modes were summed as per F)2)d)(i).

Antenna gain has been calculated and recorded in all cases even where only Conducted limits apply. This shows that the Conducted limits are not required to be reduced in cases where directional gain is <6 dBi.

### **2.2.5 Environmental Conditions**

|                     |            |
|---------------------|------------|
| Ambient Temperature | 21 to 24°C |
| Relative Humidity   | 36 to 68%  |



## 2.2.6 Test Results: U-NII-1

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

| Channel                              | Bottom   | Middle   | Top      |
|--------------------------------------|----------|----------|----------|
| Frequency (MHz)                      | 5180     | 5200     | 5240     |
| Raw Conducted PSD (dBm/MHz)          | 5.14     | 5.44     | 5.18     |
| Duty Cycle Correction (dB)           | N/A SA-1 | N/A SA-1 | N/A SA-1 |
| Antenna Directional Gain (dBi)       | 2.80     | 2.80     | 2.80     |
| 15.407 Conducted PSD Limit (dBm/MHz) | 11.00    | 11.00    | 11.00    |
| Conducted PSD Result (dBm/MHz)       | 5.14     | 5.44     | 5.18     |

Table 75

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

| Channel                                       | Bottom   | Middle   | Top      |
|-----------------------------------------------|----------|----------|----------|
| Frequency (MHz)                               | 5180     | 5200     | 5240     |
| Raw Conducted PSD (dBm/MHz)                   | 5.08     | 5.25     | 5.21     |
| Duty Cycle Correction (dB)                    | N/A SA-1 | N/A SA-1 | N/A SA-1 |
| Antenna Directional Gain (dBi)                | 2.80     | 2.80     | 2.80     |
| RSS-247 EIRP Spectral Density Limit (dBm/MHz) | 10.00    | 10.00    | 10.00    |
| EIRP Spectral Density Result (dBm/MHz)        | 7.88     | 8.05     | 8.01     |

Table 76

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

| Channel                              | Bottom   | Middle   | Top      |
|--------------------------------------|----------|----------|----------|
| Frequency (MHz)                      | 5180     | 5200     | 5240     |
| Raw Conducted PSD (dBm/MHz)          | 4.80     | 4.82     | 4.80     |
| Duty Cycle Correction (dB)           | N/A SA-1 | N/A SA-1 | N/A SA-1 |
| Antenna Directional Gain (dBi)       | 2.80     | 2.80     | 2.80     |
| 15.407 Conducted PSD Limit (dBm/MHz) | 11.00    | 11.00    | 11.00    |
| Conducted PSD Result (dBm/MHz)       | 4.80     | 4.82     | 4.80     |

Table 77

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

| Channel                                       | Bottom   | Middle   | Top      |
|-----------------------------------------------|----------|----------|----------|
| Frequency (MHz)                               | 5180     | 5200     | 5240     |
| Raw Conducted PSD (dBm/MHz)                   | 5.00     | 4.79     | 4.87     |
| Duty Cycle Correction (dB)                    | N/A SA-1 | N/A SA-1 | N/A SA-1 |
| Antenna Directional Gain (dBi)                | 2.80     | 2.80     | 2.80     |
| RSS-247 EIRP Spectral Density Limit (dBm/MHz) | 10.00    | 10.00    | 10.00    |
| EIRP Spectral Density Result (dBm/MHz)        | 7.80     | 7.59     | 7.67     |

Table 78



**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)       | 3.76     | 4.80     | 4.74     |
| Conducted PSD Core 1 (dBm/MHz)       | 3.33     | 4.97     | 4.81     |
| Duty Cycle Correction (dB)           | N/A SA-1 | N/A SA-1 | N/A SA-1 |
| Antenna Directional Gain (dBi)       | 5.18     | 5.18     | 5.18     |
| 15.407 Conducted PSD Limit (dBm/MHz) | 11.00    | 11.00    | 11.00    |
| Conducted PSD Result (dBm/MHz)       | 6.56     | 7.90     | 7.79     |

**Table 79**

**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)                | 0.13     | 0.29     | 0.05     |
| Conducted PSD Core 1 (dBm/MHz)                | -0.28    | -0.42    | -0.23    |
| Duty Cycle Correction (dB)                    | N/A SA-1 | N/A SA-1 | N/A SA-1 |
| Antenna Directional Gain (dBi)                | 5.18     | 5.18     | 5.18     |
| RSS-247 EIRP Spectral Density Limit (dBm/MHz) | 10.00    | 10.00    | 10.00    |
| EIRP Spectral Density Result (dBm/MHz)        | 8.13     | 8.14     | 8.11     |

**Table 80**

**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)       | 3.46     | 4.96     | 5.02     |
| Conducted PSD Core 1 (dBm/MHz)       | 3.29     | 4.49     | 4.45     |
| Duty Cycle Correction (dB)           | N/A SA-1 | N/A SA-1 | N/A SA-1 |
| Antenna Directional Gain (dBi)       | 2.20     | 2.20     | 2.20     |
| 15.407 Conducted PSD Limit (dBm/MHz) | 11.00    | 11.00    | 11.00    |
| Conducted PSD Result (dBm/MHz)       | 6.39     | 7.74     | 7.75     |

**Table 81**

**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)                | 3.08     | 3.17     | 3.14     |
| Conducted PSD Core 1 (dBm/MHz)                | 2.73     | 2.50     | 3.08     |
| Duty Cycle Correction (dB)                    | N/A SA-1 | N/A SA-1 | N/A SA-1 |
| Antenna Directional Gain (dBi)                | 2.20     | 2.20     | 2.20     |
| RSS-247 EIRP Spectral Density Limit (dBm/MHz) | 10.00    | 10.00    | 10.00    |
| EIRP Spectral Density Result (dBm/MHz)        | 8.12     | 8.06     | 8.32     |

**Table 82**



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

| Channel                              | Bottom   | Top      |
|--------------------------------------|----------|----------|
| Frequency (MHz)                      | 5190     | 5230     |
| Raw Conducted PSD (dBm/MHz)          | 0.13     | 2.07     |
| Duty Cycle Correction (dB)           | N/A SA-1 | N/A SA-1 |
| Antenna Directional Gain (dBi)       | 2.80     | 2.80     |
| 15.407 Conducted PSD Limit (dBm/MHz) | 11.00    | 11.00    |
| Conducted PSD Result (dBm/MHz)       | 0.13     | 2.07     |

**Table 83**

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

| Channel                                       | Bottom   | Top      |
|-----------------------------------------------|----------|----------|
| Frequency (MHz)                               | 5190     | 5230     |
| Raw Conducted PSD (dBm/MHz)                   | 0.15     | 0.46     |
| Duty Cycle Correction (dB)                    | N/A SA-1 | N/A SA-1 |
| Antenna Directional Gain (dBi)                | 2.80     | 2.80     |
| RSS-247 EIRP Spectral Density Limit (dBm/MHz) | 10.00    | 10.00    |
| EIRP Spectral Density Result (dBm/MHz)        | 2.95     | 3.26     |

**Table 84**

**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)       | -1.52    | 2.31     |
| Conducted PSD Core 1 (dBm/MHz)       | -1.67    | 1.81     |
| Duty Cycle Correction (dB)           | N/A SA-1 | N/A SA-1 |
| Antenna Directional Gain (dBi)       | 5.18     | 5.18     |
| 15.407 Conducted PSD Limit (dBm/MHz) | 11.00    | 11.00    |
| Conducted PSD Result (dBm/MHz)       | 1.41     | 5.07     |

**Table 85**

**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)                | -1.52    | 0.75     |
| Conducted PSD Core 1 (dBm/MHz)                | -1.68    | 0.56     |
| Duty Cycle Correction (dB)                    | N/A SA-1 | N/A SA-1 |
| Antenna Directional Gain (dBi)                | 5.18     | 5.18     |
| RSS-247 EIRP Spectral Density Limit (dBm/MHz) | 10.00    | 10.00    |
| EIRP Spectral Density Result (dBm/MHz)        | 6.60     | 8.85     |

**Table 86**



**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)       | -1.31  | 2.22  |
| Conducted PSD Core 1 (dBm/MHz)       | -1.78  | 1.69  |
| Duty Cycle Correction (dB)           | 0.14   | 0.14  |
| Antenna Directional Gain (dBi)       | 2.20   | 2.20  |
| 15.407 Conducted PSD Limit (dBm/MHz) | 11.00  | 11.00 |
| Conducted PSD Result (dBm/MHz)       | 1.61   | 5.11  |

**Table 87**

**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)                | -1.35  | 2.06  |
| Conducted PSD Core 1 (dBm/MHz)                | -1.63  | 1.76  |
| Duty Cycle Correction (dB)                    | 0.14   | 0.14  |
| Antenna Directional Gain (dBi)                | 2.20   | 2.20  |
| RSS-247 EIRP Spectral Density Limit (dBm/MHz) | 10.00  | 10.00 |
| EIRP Spectral Density Result (dBm/MHz)        | 3.86   | 7.26  |

**Table 88**

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

| Channel                              | Bottom   | Middle   | Top      |
|--------------------------------------|----------|----------|----------|
| Frequency (MHz)                      | 5180     | 5200     | 5240     |
| Conducted PSD Core 0 (dBm/MHz)       | 3.78     | 5.07     | 4.78     |
| Conducted PSD Core 1 (dBm/MHz)       | 3.90     | 4.85     | 4.57     |
| Duty Cycle Correction (dB)           | N/A SA-3 | N/A SA-3 | N/A SA-3 |
| Antenna Directional Gain (dBi)       | 5.18     | 5.18     | 5.18     |
| 15.407 Conducted PSD Limit (dBm/MHz) | 11.00    | 11.00    | 11.00    |
| Conducted PSD Result (dBm/MHz)       | 6.85     | 7.97     | 7.69     |

**Table 89**

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

| Channel                                       | Bottom   | Middle   | Top      |
|-----------------------------------------------|----------|----------|----------|
| Frequency (MHz)                               | 5180     | 5200     | 5240     |
| Conducted PSD Core 0 (dBm/MHz)                | 0.38     | 0.36     | 6.71     |
| Conducted PSD Core 1 (dBm/MHz)                | -0.62    | 0.21     | 0.32     |
| Duty Cycle Correction (dB)                    | N/A SA-3 | N/A SA-3 | N/A SA-3 |
| Antenna Directional Gain (dBi)                | 5.18     | 5.18     | 5.18     |
| RSS-247 EIRP Spectral Density Limit (dBm/MHz) | 10.00    | 10.00    | 10.00    |
| EIRP Spectral Density Result (dBm/MHz)        | 8.11     | 8.48     | 12.79    |

**Table 90**



**802.11ac / VHT40 MCS0x1 / MIMO TxBF / Cores 0+1 / Country Code US**

| Channel                              | Bottom   | Top      |
|--------------------------------------|----------|----------|
| Frequency (MHz)                      | 5190     | 5230     |
| Conducted PSD Core 0 (dBm/MHz)       | -1.86    | 1.80     |
| Conducted PSD Core 1 (dBm/MHz)       | -2.17    | 1.94     |
| Duty Cycle Correction (dB)           | N/A SA-3 | N/A SA-3 |
| Antenna Directional Gain (dBi)       | 5.18     | 5.18     |
| 15.407 Conducted PSD Limit (dBm/MHz) | 11.00    | 11.00    |
| Conducted PSD Result (dBm/MHz)       | 1.00     | 4.88     |

**Table 91**

**802.11ac / VHT40 MCS0x1 / MIMO TxBF / Cores 0+1 / Country Code CA**

| Channel                                       | Bottom   | Top      |
|-----------------------------------------------|----------|----------|
| Frequency (MHz)                               | 5190     | 5230     |
| Conducted PSD Core 0 (dBm/MHz)                | -2.21    | 0.79     |
| Conducted PSD Core 1 (dBm/MHz)                | -3.10    | 1.05     |
| Duty Cycle Correction (dB)                    | N/A SA-3 | N/A SA-3 |
| Antenna Directional Gain (dBi)                | 5.18     | 5.18     |
| RSS-247 EIRP Spectral Density Limit (dBm/MHz) | 10.00    | 10.00    |
| EIRP Spectral Density Result (dBm/MHz)        | 5.57     | 9.12     |

**Table 92**

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

| Channel                              | Middle |
|--------------------------------------|--------|
| Frequency (MHz)                      | 5210   |
| Raw Conducted PSD (dBm/MHz)          | -3.43  |
| Duty Cycle Correction (dB)           | 0.15   |
| Antenna Directional Gain (dBi)       | 2.80   |
| 15.407 Conducted PSD Limit (dBm/MHz) | 11.00  |
| Conducted PSD Result (dBm/MHz)       | -3.28  |

**Table 93**

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

| Channel                                       | Middle |
|-----------------------------------------------|--------|
| Frequency (MHz)                               | 5210   |
| Raw Conducted PSD (dBm/MHz)                   | -3.05  |
| Duty Cycle Correction (dB)                    | 0.15   |
| Antenna Directional Gain (dBi)                | 2.80   |
| RSS-247 EIRP Spectral Density Limit (dBm/MHz) | 10.00  |
| EIRP Spectral Density Result (dBm/MHz)        | -0.10  |

**Table 94**



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

|                                      |        |
|--------------------------------------|--------|
| Channel                              | Middle |
| Frequency (MHz)                      | 5210   |
| Conducted PSD Core 0 (dBm/MHz)       | -4.78  |
| Conducted PSD Core 1 (dBm/MHz)       | -4.99  |
| Duty Cycle Correction (dB)           | 0.15   |
| Antenna Directional Gain (dBi)       | 5.18   |
| 15.407 Conducted PSD Limit (dBm/MHz) | 11.00  |
| Conducted PSD Result (dBm/MHz)       | -1.72  |

**Table 95**

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

|                                               |        |
|-----------------------------------------------|--------|
| Channel                                       | Middle |
| Frequency (MHz)                               | 5210   |
| Conducted PSD Core 0 (dBm/MHz)                | -4.80  |
| Conducted PSD Core 1 (dBm/MHz)                | -5.04  |
| Duty Cycle Correction (dB)                    | 0.15   |
| Antenna Directional Gain (dBi)                | 5.18   |
| RSS-247 EIRP Spectral Density Limit (dBm/MHz) | 10.00  |
| EIRP Spectral Density Result (dBm/MHz)        | 3.43   |

**Table 96**

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

|                                      |        |
|--------------------------------------|--------|
| Channel                              | Middle |
| Frequency (MHz)                      | 5210   |
| Conducted PSD Core 0 (dBm/MHz)       | -4.38  |
| Conducted PSD Core 1 (dBm/MHz)       | -4.74  |
| Duty Cycle Correction (dB)           | 0.26   |
| Antenna Directional Gain (dBi)       | 2.20   |
| 15.407 Conducted PSD Limit (dBm/MHz) | 11.00  |
| Conducted PSD Result (dBm/MHz)       | -1.28  |

**Table 97**

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

|                                               |          |
|-----------------------------------------------|----------|
| Channel                                       | Middle   |
| Frequency (MHz)                               | 5210     |
| Conducted PSD Core 0 (dBm/MHz)                | -4.40    |
| Conducted PSD Core 1 (dBm/MHz)                | -5.07    |
| Duty Cycle Correction (dB)                    | N/A SA-1 |
| Antenna Directional Gain (dBi)                | 2.20     |
| RSS-247 EIRP Spectral Density Limit (dBm/MHz) | 10.00    |
| EIRP Spectral Density Result (dBm/MHz)        | 0.48     |

**Table 98**



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

|                                      |          |
|--------------------------------------|----------|
| Channel                              | Middle   |
| Frequency (MHz)                      | 5210     |
| Conducted PSD Core 0 (dBm/MHz)       | -5.48    |
| Conducted PSD Core 1 (dBm/MHz)       | -5.07    |
| Duty Cycle Correction (dB)           | N/A SA-3 |
| Antenna Directional Gain (dBi)       | 5.18     |
| 15.407 Conducted PSD Limit (dBm/MHz) | 11.00    |
| Conducted PSD Result (dBm/MHz)       | -2.26    |

**Table 99**

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

|                                               |          |
|-----------------------------------------------|----------|
| Channel                                       | Middle   |
| Frequency (MHz)                               | 5210     |
| Conducted PSD Core 0 (dBm/MHz)                | -5.57    |
| Conducted PSD Core 1 (dBm/MHz)                | -5.01    |
| Duty Cycle Correction (dB)                    | N/A SA-3 |
| Antenna Directional Gain (dBi)                | 5.18     |
| RSS-247 EIRP Spectral Density Limit (dBm/MHz) | 10.00    |
| EIRP Spectral Density Result (dBm/MHz)        | 2.91     |

**Table 100**

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

### 802.11a / 6 Mbps / SISO / Core 1

| Channel                               | Bottom   | Middle   | Top      |
|---------------------------------------|----------|----------|----------|
| Frequency (MHz)                       | 5260     | 5280     | 5320     |
| Raw Conducted PSD (dBm/MHz)           | 5.48     | 5.56     | 5.42     |
| Duty Cycle Correction (dB)            | N/A SA-1 | N/A SA-1 | N/A SA-1 |
| Antenna Directional Gain (dBi)        | 1.90     | 1.90     | 1.90     |
| 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)        | 5.48     | 5.56     | 5.42     |

Table 101

### 802.11n / HT20 MCS0 / SISO / Core 1

| Channel                               | Bottom   | Middle   | Top      |
|---------------------------------------|----------|----------|----------|
| Frequency (MHz)                       | 5260     | 5280     | 5320     |
| Raw Conducted PSD (dBm/MHz)           | 5.38     | 5.06     | 4.91     |
| Duty Cycle Correction (dB)            | N/A SA-1 | N/A SA-1 | N/A SA-1 |
| Antenna Directional Gain (dBi)        | 1.90     | 1.90     | 1.90     |
| 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)        | 5.38     | 5.06     | 4.91     |

Table 102

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

| Channel                               | Bottom   | Middle   | Top      |
|---------------------------------------|----------|----------|----------|
| Frequency (MHz)                       | 5260     | 5280     | 5320     |
| Conducted PSD Core 0 (dBm/MHz)        | 5.13     | 5.34     | 4.83     |
| Conducted PSD Core 1 (dBm/MHz)        | 5.31     | 5.18     | 4.50     |
| Duty Cycle Correction (dB)            | N/A SA-1 | N/A SA-1 | N/A SA-1 |
| Antenna Directional Gain (dBi)        | 4.86     | 4.86     | 4.86     |
| 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)        | 8.23     | 8.27     | 7.68     |

Table 103

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

| Channel                               | Bottom   | Middle   | Top      |
|---------------------------------------|----------|----------|----------|
| Frequency (MHz)                       | 5260     | 5280     | 5320     |
| Conducted PSD Core 0 (dBm/MHz)        | 5.15     | 5.51     | 5.48     |
| Conducted PSD Core 1 (dBm/MHz)        | 4.84     | 5.06     | 4.95     |
| Duty Cycle Correction (dB)            | N/A SA-1 | N/A SA-1 | N/A SA-1 |
| Antenna Directional Gain (dBi)        | 1.85     | 1.85     | 1.85     |
| 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)        | 8.01     | 8.30     | 8.23     |

Table 104



**802.11n / HT40 MCS0 / SISO / Core 1**

| Channel                               | Bottom   | Top      |
|---------------------------------------|----------|----------|
| Frequency (MHz)                       | 5270     | 5310     |
| Raw Conducted PSD (dBm/MHz)           | 1.98     | 1.92     |
| Duty Cycle Correction (dB)            | N/A SA-1 | N/A SA-1 |
| Antenna Directional Gain (dBi)        | 1.90     | 1.90     |
| 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)        | 1.98     | 1.92     |

**Table 105**

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

| Channel                               | Bottom   | Top      |
|---------------------------------------|----------|----------|
| Frequency (MHz)                       | 5270     | 5310     |
| Conducted PSD Core 0 (dBm/MHz)        | 2.51     | 1.74     |
| Conducted PSD Core 1 (dBm/MHz)        | 1.80     | 1.12     |
| Duty Cycle Correction (dB)            | N/A SA-1 | N/A SA-1 |
| Antenna Directional Gain (dBi)        | 4.86     | 4.86     |
| 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)        | 5.18     | 4.45     |

**Table 106**

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

| Channel                               | Bottom | Top   |
|---------------------------------------|--------|-------|
| Frequency (MHz)                       | 5270   | 5310  |
| Conducted PSD Core 0 (dBm/MHz)        | 2.42   | 1.56  |
| Conducted PSD Core 1 (dBm/MHz)        | 1.96   | 1.27  |
| Duty Cycle Correction (dB)            | 0.14   | 0.14  |
| Antenna Directional Gain (dBi)        | 1.85   | 1.85  |
| 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)        | 5.34   | 4.57  |

**Table 107**

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

| Channel                               | Bottom   | Middle   | Top      |
|---------------------------------------|----------|----------|----------|
| Frequency (MHz)                       | 5260     | 5280     | 5320     |
| Conducted PSD Core 0 (dBm/MHz)        | 5.14     | 5.18     | 4.63     |
| Conducted PSD Core 1 (dBm/MHz)        | 5.38     | 5.52     | 5.11     |
| Duty Cycle Correction (dB)            | N/A SA-3 | N/A SA-3 | N/A SA-3 |
| Antenna Directional Gain (dBi)        | 4.86     | 4.86     | 4.86     |
| 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)        | 8.27     | 8.36     | 7.88     |

**Table 108**



**802.11ac / VHT40 MCS0x1 / MIMO TxBF / Cores 0+1**

| Channel                               | Bottom   | Top      |
|---------------------------------------|----------|----------|
| Frequency (MHz)                       | 5270     | 5310     |
| Conducted PSD Core 0 (dBm/MHz)        | 2.33     | 1.45     |
| Conducted PSD Core 1 (dBm/MHz)        | 2.46     | 1.51     |
| Duty Cycle Correction (dB)            | N/A SA-3 | N/A SA-3 |
| Antenna Directional Gain (dBi)        | 4.86     | 4.86     |
| 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)        | 5.41     | 4.49     |

**Table 109**

**802.11ac / VHT80 MCS0x1 / SISO / Core 1**

| Channel                               | Middle |
|---------------------------------------|--------|
| Frequency (MHz)                       | 5290   |
| Raw Conducted PSD (dBm/MHz)           | -1.17  |
| Duty Cycle Correction (dB)            | 0.15   |
| Antenna Directional Gain (dBi)        | 1.90   |
| 15.407 Conducted PSD Limit (dBm/MHz)  | 11.00  |
| RSS-247 Conducted PSD Limit (dBm/MHz) | 11.00  |
| Conducted PSD Result (dBm/MHz)        | -1.02  |

**Table 110**

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

| Channel                               | Middle |
|---------------------------------------|--------|
| Frequency (MHz)                       | 5290   |
| Conducted PSD Core 0 (dBm/MHz)        | -1.71  |
| Conducted PSD Core 1 (dBm/MHz)        | -1.74  |
| Duty Cycle Correction (dB)            | 0.15   |
| Antenna Directional Gain (dBi)        | 4.86   |
| 15.407 Conducted PSD Limit (dBm/MHz)  | 11.00  |
| RSS-247 Conducted PSD Limit (dBm/MHz) | 11.00  |
| Conducted PSD Result (dBm/MHz)        | 1.43   |

**Table 111**

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

| Channel                               | Middle |
|---------------------------------------|--------|
| Frequency (MHz)                       | 5290   |
| Conducted PSD Core 0 (dBm/MHz)        | -1.77  |
| Conducted PSD Core 1 (dBm/MHz)        | -1.62  |
| Duty Cycle Correction (dB)            | 0.26   |
| Antenna Directional Gain (dBi)        | 1.85   |
| 15.407 Conducted PSD Limit (dBm/MHz)  | 11.00  |
| RSS-247 Conducted PSD Limit (dBm/MHz) | 11.00  |
| Conducted PSD Result (dBm/MHz)        | 1.58   |

**Table 112**



Product Service

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

|                                       |          |
|---------------------------------------|----------|
| Channel                               | Middle   |
| Frequency (MHz)                       | 5290     |
| Conducted PSD Core 0 (dBm/MHz)        | 3.64     |
| Conducted PSD Core 1 (dBm/MHz)        | -2.69    |
| Duty Cycle Correction (dB)            | N/A SA-3 |
| Antenna Directional Gain (dBi)        | 4.86     |
| 15.407 Conducted PSD Limit (dBm/MHz)  | 11.00    |
| RSS-247 Conducted PSD Limit (dBm/MHz) | 11.00    |
| Conducted PSD Result (dBm/MHz)        | 4.55     |

**Table 113**

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

### 802.11a / 6 Mbps / SISO / Core 1

| Channel                               | Bottom   | Middle   | Top      | Straddle |
|---------------------------------------|----------|----------|----------|----------|
| Frequency (MHz)                       | 5500     | 5600     | 5700     | 5720     |
| Raw Conducted PSD (dBm/MHz)           | 4.11     | 3.77     | 4.01     | 4.54     |
| Duty Cycle Correction (dB)            | N/A SA-1 | N/A SA-1 | N/A SA-1 | N/A SA-1 |
| Antenna Directional Gain (dBi)        | 4.00     | 4.00     | 4.00     | 4.00     |
| 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)        | 4.11     | 3.77     | 4.01     | 4.54     |

Table 114

### 802.11n / HT20 MCS0 / SISO / Core 1

| Channel                               | Bottom   | Middle   | Top      | Straddle |
|---------------------------------------|----------|----------|----------|----------|
| Frequency (MHz)                       | 5500     | 5600     | 5700     | 5720     |
| Raw Conducted PSD (dBm/MHz)           | 4.11     | 3.20     | 3.60     | 3.82     |
| Duty Cycle Correction (dB)            | N/A SA-1 | N/A SA-1 | N/A SA-1 | N/A SA-1 |
| Antenna Directional Gain (dBi)        | 4.00     | 4.00     | 4.00     | 4.00     |
| 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)        | 4.11     | 3.20     | 3.60     | 3.82     |

Table 115

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

| Channel                               | Bottom   | Middle   | Top      | Straddle |
|---------------------------------------|----------|----------|----------|----------|
| Frequency (MHz)                       | 5500     | 5600     | 5700     | 5720     |
| Conducted PSD Core 0 (dBm/MHz)        | 4.20     | 4.01     | 4.34     | 4.18     |
| Conducted PSD Core 1 (dBm/MHz)        | 3.74     | 3.61     | 4.26     | 3.70     |
| Duty Cycle Correction (dB)            | N/A SA-1 | N/A SA-1 | N/A SA-1 | N/A SA-1 |
| Antenna Directional Gain (dBi)        | 6.34     | 6.34     | 6.34     | 6.34     |
| 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)        | 6.99     | 6.83     | 7.31     | 6.96     |

Table 116

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

| Channel                               | Bottom   | Middle   | Top      | Straddle |
|---------------------------------------|----------|----------|----------|----------|
| Frequency (MHz)                       | 5500     | 5600     | 5700     | 5720     |
| Conducted PSD Core 0 (dBm/MHz)        | 4.31     | 3.87     | 4.70     | 4.44     |
| Conducted PSD Core 1 (dBm/MHz)        | 4.11     | 3.47     | 3.83     | 3.57     |
| Duty Cycle Correction (dB)            | N/A SA-1 | N/A SA-1 | N/A SA-1 | N/A SA-1 |
| Antenna Directional Gain (dBi)        | 3.36     | 3.36     | 3.36     | 3.36     |
| 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)        | 7.22     | 6.68     | 7.30     | 7.04     |

Table 117



### 802.11n / HT40 MCS0 / SISO / Core 1

| Channel                               | Bottom   | Middle   | Top      | Straddle |
|---------------------------------------|----------|----------|----------|----------|
| Frequency (MHz)                       | 5510     | 5590     | 5670     | 5710     |
| Raw Conducted PSD (dBm/MHz)           | 0.73     | 0.40     | 0.50     | 0.68     |
| Duty Cycle Correction (dB)            | N/A SA-1 | N/A SA-1 | N/A SA-1 | N/A SA-1 |
| Antenna Directional Gain (dBi)        | 4.00     | 4.00     | 4.00     | 4.00     |
| 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)        | 0.73     | 0.40     | 0.50     | 0.68     |

Table 118

### 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)        | 1.26     | 0.99     | 1.06     | 1.16     |
| Conducted PSD Core 1 (dBm/MHz)        | 0.64     | 0.30     | 0.47     | 0.83     |
| Duty Cycle Correction (dB)            | N/A SA-1 | N/A SA-1 | N/A SA-1 | N/A SA-1 |
| Antenna Directional Gain (dBi)        | 6.34     | 6.34     | 6.34     | 6.34     |
| 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)        | 3.97     | 3.67     | 3.78     | 4.01     |

Table 119

### 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)        | 1.14   | 0.94   | 0.98  | 1.09     |
| Conducted PSD Core 1 (dBm/MHz)        | 0.75   | 0.37   | 0.34  | 0.70     |
| Duty Cycle Correction (dB)            | 0.14   | 0.14   | 0.14  | 0.14     |
| Antenna Directional Gain (dBi)        | 3.36   | 3.36   | 3.36  | 3.36     |
| 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)        | 4.10   | 3.82   | 3.82  | 4.05     |

Table 120

### 802.11ac / VHT20 MCS0x1 / MIMO TxBF / Cores 0+1

| Channel                               | Bottom   | Middle   | Top      | Straddle |
|---------------------------------------|----------|----------|----------|----------|
| Frequency (MHz)                       | 5500     | 5600     | 5700     | 5720     |
| Conducted PSD Core 0 (dBm/MHz)        | 4.41     | 4.26     | 4.50     | 4.42     |
| Conducted PSD Core 1 (dBm/MHz)        | 4.31     | 4.86     | 4.05     | 4.40     |
| Duty Cycle Correction (dB)            | N/A SA-3 | N/A SA-3 | N/A SA-3 | N/A SA-3 |
| Antenna Directional Gain (dBi)        | 6.34     | 6.34     | 6.34     | 6.34     |
| 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)        | 7.37     | 7.58     | 7.29     | 7.42     |

Table 121



**802.11ac / VHT40 MCS0x1 / MIMO TxBF / Cores 0+1**

| Channel                               | Bottom   | Top      | Straddle |
|---------------------------------------|----------|----------|----------|
| Frequency (MHz)                       | 5510     | 5670     | 5710     |
| Conducted PSD Core 0 (dBm/MHz)        | 0.41     | 1.08     | 1.26     |
| Conducted PSD Core 1 (dBm/MHz)        | 0.60     | 1.68     | 1.45     |
| Duty Cycle Correction (dB)            | N/A SA-3 | N/A SA-3 | N/A SA-3 |
| Antenna Directional Gain (dBi)        | 6.34     | 6.34     | 6.34     |
| 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)        | 3.51     | 4.40     | 4.37     |

**Table 122**

**802.11ac / VHT80 MCS0x1 / SISO / Core 1**

| Channel                               | Bottom | Top   | Straddle |
|---------------------------------------|--------|-------|----------|
| Frequency (MHz)                       | 5530   | 5610  | 5690     |
| Raw Conducted PSD (dBm/MHz)           | -2.44  | -2.67 | -2.16    |
| Duty Cycle Correction (dB)            | 0.14   | 0.15  | 0.14     |
| Antenna Directional Gain (dBi)        | 4.00   | 4.00  | 4.00     |
| 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)        | -2.30  | -2.53 | -2.02    |

**Table 123**

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

| Channel                               | Bottom | Top   | Straddle |
|---------------------------------------|--------|-------|----------|
| Frequency (MHz)                       | 5530   | 5610  | 5690     |
| Conducted PSD Core 0 (dBm/MHz)        | -2.35  | -2.43 | -1.81    |
| Conducted PSD Core 1 (dBm/MHz)        | -2.50  | -2.61 | -2.26    |
| Duty Cycle Correction (dB)            | 0.15   | 0.15  | 0.15     |
| Antenna Directional Gain (dBi)        | 6.34   | 6.34  | 6.34     |
| 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)        | 0.73   | 0.64  | 1.13     |

**Table 124**

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

| Channel                               | Bottom | Top   | Straddle |
|---------------------------------------|--------|-------|----------|
| Frequency (MHz)                       | 5530   | 5610  | 5690     |
| Conducted PSD Core 0 (dBm/MHz)        | -2.44  | -2.33 | -1.91    |
| Conducted PSD Core 1 (dBm/MHz)        | -2.64  | -2.69 | -2.21    |
| Duty Cycle Correction (dB)            | 0.26   | 0.27  | 0.27     |
| Antenna Directional Gain (dBi)        | 3.36   | 3.36  | 3.36     |
| 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)        | 0.73   | 0.77  | 1.22     |

**Table 125**



Product Service

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

| Channel                               | Bottom   | Top      | Straddle |
|---------------------------------------|----------|----------|----------|
| Frequency (MHz)                       | 5530     | 5610     | 5690     |
| Conducted PSD Core 0 (dBm/MHz)        | 0.76     | 2.70     | -1.50    |
| Conducted PSD Core 1 (dBm/MHz)        | 1.31     | -1.22    | 2.42     |
| Duty Cycle Correction (dB)            | N/A SA-3 | N/A SA-3 | N/A SA-3 |
| Antenna Directional Gain (dBi)        | 6.34     | 6.34     | 6.34     |
| 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)        | 4.05     | 4.18     | 3.90     |

**Table 126**

## 2.2.9 Test Results: U-NII-3

### 802.11a / 6 Mbps / SISO / Core 1

| Channel                                  | Straddle | Bottom   | Middle   | Top      |
|------------------------------------------|----------|----------|----------|----------|
| Frequency (MHz)                          | 5720     | 5745     | 5785     | 5825     |
| Raw Conducted PSD (dBm/500kHz)           | -0.82    | -0.73    | -1.18    | -0.63    |
| Duty Cycle Correction (dB)               | N/A SA-1 | N/A SA-1 | N/A SA-1 | N/A SA-1 |
| Antenna Directional Gain (dBi)           | 3.90     | 3.90     | 3.90     | 3.90     |
| 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)        | -0.82    | -0.73    | -1.18    | -0.63    |

Table 127

### 802.11n / HT20 MCS0 / SISO / Core 1

| Channel                                  | Straddle | Bottom   | Middle   | Top      |
|------------------------------------------|----------|----------|----------|----------|
| Frequency (MHz)                          | 5720     | 5745     | 5785     | 5825     |
| Raw Conducted PSD (dBm/500kHz)           | -1.28    | -1.49    | -1.22    | -1.38    |
| Duty Cycle Correction (dB)               | N/A SA-1 | N/A SA-1 | N/A SA-1 | N/A SA-1 |
| Antenna Directional Gain (dBi)           | 3.90     | 3.90     | 3.90     | 3.90     |
| 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)        | -1.28    | -1.49    | -1.22    | -1.38    |

Table 128

### 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)        | -1.03    | -0.74    | -0.88    | -0.97    |
| Conducted PSD Core 1 (dBm/500kHz)        | -0.78    | -1.14    | -0.51    | -1.41    |
| Duty Cycle Correction (dB)               | N/A SA-1 | N/A SA-1 | N/A SA-1 | N/A SA-1 |
| Antenna Directional Gain (dBi)           | 6.47     | 6.47     | 6.47     | 6.47     |
| 15.407 Conducted PSD Limit (dBm/500kHz)  | 29.53    | 29.53    | 29.53    | 29.53    |
| RSS-247 Conducted PSD Limit (dBm/500kHz) | 29.53    | 29.53    | 29.53    | 29.53    |
| Conducted PSD Result (dBm/500kHz)        | 2.11     | 2.07     | 2.32     | 1.83     |

Table 129

### 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)        | -1.02    | -1.23    | -0.53    | -0.39    |
| Conducted PSD Core 1 (dBm/500kHz)        | -1.07    | -1.39    | -1.03    | -1.54    |
| Duty Cycle Correction (dB)               | N/A SA-1 | N/A SA-1 | N/A SA-1 | N/A SA-1 |
| Antenna Directional Gain (dBi)           | 3.47     | 3.47     | 3.47     | 3.47     |
| 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)        | 1.97     | 1.70     | 2.24     | 2.08     |

Table 130

### 802.11n / HT40 MCS0 / SISO / Core 1

| Channel                                  | Straddle | Bottom   | Top      |
|------------------------------------------|----------|----------|----------|
| Frequency (MHz)                          | 5710     | 5755     | 5795     |
| Raw Conducted PSD (dBm/500kHz)           | -4.52    | -4.11    | -3.78    |
| Duty Cycle Correction (dB)               | N/A SA-1 | N/A SA-1 | N/A SA-1 |
| Antenna Directional Gain (dBi)           | 3.90     | 3.90     | 3.90     |
| 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)        | -4.52    | -4.11    | -3.78    |

Table 131

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

| Channel                                  | Straddle | Bottom   | Top      |
|------------------------------------------|----------|----------|----------|
| Frequency (MHz)                          | 5710     | 5755     | 5795     |
| Conducted PSD Core 0 (dBm/500kHz)        | -5.05    | -3.76    | -3.70    |
| Conducted PSD Core 1 (dBm/500kHz)        | -5.11    | -4.35    | -4.39    |
| Duty Cycle Correction (dB)               | N/A SA-1 | N/A SA-1 | N/A SA-1 |
| Antenna Directional Gain (dBi)           | 6.47     | 6.47     | 6.47     |
| 15.407 Conducted PSD Limit (dBm/500kHz)  | 29.53    | 29.53    | 29.53    |
| RSS-247 Conducted PSD Limit (dBm/500kHz) | 29.53    | 29.53    | 29.53    |
| Conducted PSD Result (dBm/500kHz)        | -2.07    | -1.03    | -1.02    |

Table 132

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

| Channel                                  | Straddle | Bottom | Top   |
|------------------------------------------|----------|--------|-------|
| Frequency (MHz)                          | 5710     | 5755   | 5795  |
| Conducted PSD Core 0 (dBm/500kHz)        | -4.46    | -3.47  | -4.06 |
| Conducted PSD Core 1 (dBm/500kHz)        | -4.81    | -4.39  | -3.98 |
| Duty Cycle Correction (dB)               | 0.14     | 0.14   | 0.14  |
| Antenna Directional Gain (dBi)           | 3.47     | 3.47   | 3.47  |
| 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)        | -1.48    | -0.76  | -0.87 |

Table 133

### 802.11ac / VHT20 MCS0x1 / MIMO TxBF / Cores 0+1

| Channel                                  | Straddle | Bottom   | Middle   | Top      |
|------------------------------------------|----------|----------|----------|----------|
| Frequency (MHz)                          | 5720     | 5745     | 5785     | 5825     |
| Conducted PSD Core 0 (dBm/500kHz)        | -0.54    | -0.66    | -1.06    | -1.02    |
| Conducted PSD Core 1 (dBm/500kHz)        | -1.20    | -0.58    | -0.66    | -1.10    |
| Duty Cycle Correction (dB)               | N/A SA-3 | N/A SA-3 | N/A SA-3 | N/A SA-3 |
| Antenna Directional Gain (dBi)           | 6.47     | 6.47     | 6.47     | 6.47     |
| 15.407 Conducted PSD Limit (dBm/500kHz)  | 29.53    | 29.53    | 29.53    | 29.53    |
| RSS-247 Conducted PSD Limit (dBm/500kHz) | 29.53    | 29.53    | 29.53    | 29.53    |
| Conducted PSD Result (dBm/500kHz)        | 2.15     | 2.39     | 2.16     | 1.95     |

Table 134



**802.11ac / VHT40 MCS0x1 / MIMO TxBF / Cores 0+1**

| Channel                                  | Straddle | Bottom   | Top      |
|------------------------------------------|----------|----------|----------|
| Frequency (MHz)                          | 5710     | 5755     | 5795     |
| Conducted PSD Core 0 (dBm/500kHz)        | -5.08    | -4.00    | -4.32    |
| Conducted PSD Core 1 (dBm/500kHz)        | -5.42    | -3.73    | -4.05    |
| Duty Cycle Correction (dB)               | N/A SA-3 | N/A SA-3 | N/A SA-3 |
| Antenna Directional Gain (dBi)           | 6.47     | 6.47     | 6.47     |
| 15.407 Conducted PSD Limit (dBm/500kHz)  | 29.53    | 29.53    | 29.53    |
| RSS-247 Conducted PSD Limit (dBm/500kHz) | 29.53    | 29.53    | 29.53    |
| Conducted PSD Result (dBm/500kHz)        | -2.24    | -0.85    | -1.17    |

**Table 135**

**802.11ac / VHT80 MCS0x1 / SISO / Core 1**

| Channel                                  | Straddle | Middle |
|------------------------------------------|----------|--------|
| Frequency (MHz)                          | 5690     | 5775   |
| Raw Conducted PSD (dBm/500kHz)           | -7.38    | -7.16  |
| Duty Cycle Correction (dB)               | 0.15     | 0.15   |
| Antenna Directional Gain (dBi)           | 3.90     | 3.90   |
| 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)        | -7.23    | -7.01  |

**Table 136**

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

| Channel                                  | Straddle | Middle |
|------------------------------------------|----------|--------|
| Frequency (MHz)                          | 5690     | 5775   |
| Conducted PSD Core 0 (dBm/500kHz)        | -7.76    | -6.65  |
| Conducted PSD Core 1 (dBm/500kHz)        | -7.58    | -7.15  |
| Duty Cycle Correction (dB)               | 0.15     | 0.15   |
| Antenna Directional Gain (dBi)           | 6.47     | 6.47   |
| 15.407 Conducted PSD Limit (dBm/500kHz)  | 29.53    | 29.53  |
| RSS-247 Conducted PSD Limit (dBm/500kHz) | 29.53    | 29.53  |
| Conducted PSD Result (dBm/500kHz)        | -4.51    | -3.73  |

**Table 137**

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

| Channel                                  | Straddle | Middle |
|------------------------------------------|----------|--------|
| Frequency (MHz)                          | 5690     | 5775   |
| Conducted PSD Core 0 (dBm/500kHz)        | -7.44    | -6.69  |
| Conducted PSD Core 1 (dBm/500kHz)        | -8.09    | -6.01  |
| Duty Cycle Correction (dB)               | 0.27     | 0.27   |
| Antenna Directional Gain (dBi)           | 3.47     | 3.47   |
| 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)        | -4.48    | -3.06  |

**Table 138**



Product Service

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

| Channel                                  | Straddle | Middle   |
|------------------------------------------|----------|----------|
| Frequency (MHz)                          | 5690     | 5775     |
| Conducted PSD Core 0 (dBm/500kHz)        | -8.42    | -8.92    |
| Conducted PSD Core 1 (dBm/500kHz)        | -7.95    | -9.49    |
| Duty Cycle Correction (dB)               | N/A SA-3 | N/A SA-3 |
| Antenna Directional Gain (dBi)           | 6.47     | 6.47     |
| 15.407 Conducted PSD Limit (dBm/500kHz)  | 29.53    | 29.53    |
| RSS-247 Conducted PSD Limit (dBm/500kHz) | 29.53    | 29.53    |
| Conducted PSD Result (dBm/500kHz)        | -5.17    | -6.19    |

**Table 139**



## 2.2.10 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 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 140**

### 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 141**



## 2.2.11 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 |
|-------------------------------------|------------------------|--------------|-------|-----------------------------|-----------------|
| 20dB/2W Attenuator                  | Narda                  | 4772-20      | 462   | -                           | O/P Mon         |
| Hygrometer                          | Rotronic               | I-1000       | 2891  | 12                          | 19-Sept-2019    |
| Network Analyser                    | Rohde & Schwarz        | ZVA 40       | 3548  | 12                          | 09-Oct-2018     |
| Calibration Unit                    | Rohde & Schwarz        | ZV-Z54       | 4368  | 12                          | 06-Mar-2019     |
| Directional Coupler                 | Hewlett Packard        | 11692D       | 451   | -                           | O/P Mon         |
| Attenuator (20dB, 2W)               | Pasternack             | PE7004-20    | 2943  | 12                          | 18-Jul-2019     |
| Attenuator (20dB, 150W)             | Narda                  | 769-20       | 3367  | 12                          | 17-Jul-2019     |
| DC - 12.4 GHz 10 dB Attenuator      | Suhner                 | 6810.17.A    | 3965  | 12                          | 18-Jul-2019     |
| PXA Signal Analyser                 | Keysight Technologies  | N9030A       | 4653  | 12                          | 5-Feb-2019      |
| Attenuator (10dB, 150W)             | Narda                  | 769-10       | 3368  | 12                          | 17-Jul-2019     |
| P-Series Power Meter                | Agilent Technologies;  | N1911A       | 3981  | 12                          | 29-Sept-2019    |
| 50 MHz-18 GHz Wideband Power Sensor | Agilent Technologies;  | N1921A       | 3983  | 12                          | 29-Sept-2019    |
| PXA Signal Analyser                 | Keysight Technologies; | N9030A       | 4653  | 12                          | 05-Feb-2019     |
| Power splitter - 2 port             | Mini-Circuits          | ZN2PD-63-S+  | 4742  | 12                          | 19-Sept-2019    |
| Power splitter - 2 port             | Mini-Circuits          | ZN2PD-63-S+  | 4743  | 12                          | 19-Sept-2019    |
| Power splitter - 4 port             | Mini-Circuits          | ZN4PD1-63-S+ | 4744  | 12                          | 19-Sept-2019    |
| EMI Receiver                        | Keysight Technologies; | N9038A MXE   | 4628  | 12                          | 04-July-2019    |

**Table 142**

All test equipment was in calibration at the time of use.

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**

A1932, S/N: C02X5003L3J3 - Modification State 0  
A1932, S/N: C02X5003JL8Y - Modification State 0

### **2.3.3 Date of Test**

26-September-2018 to 08-October-2018

### **2.3.4 Test Method**

The test was performed in accordance with ANSI C63.10 clause 12.4.1 & 12.4.2, KDB 789033 D02 section C, and RSS-GEN 4.6.1 and 4.6.2

For modes of operation using multiple cores, measurements were made on each core 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 to 24°C |
| Relative Humidity   | 36 to 68%  |



## 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) | 21.720 | 21.600 | 21.480 |
| 99% Bandwidth (MHz)   | 16.514 | 16.544 | 16.658 |

Table 143

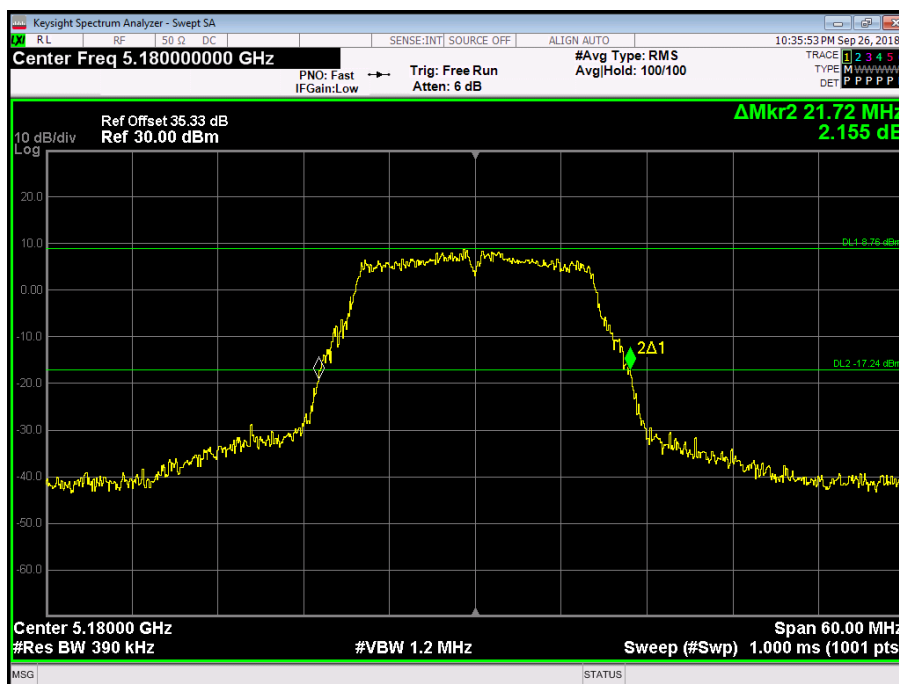
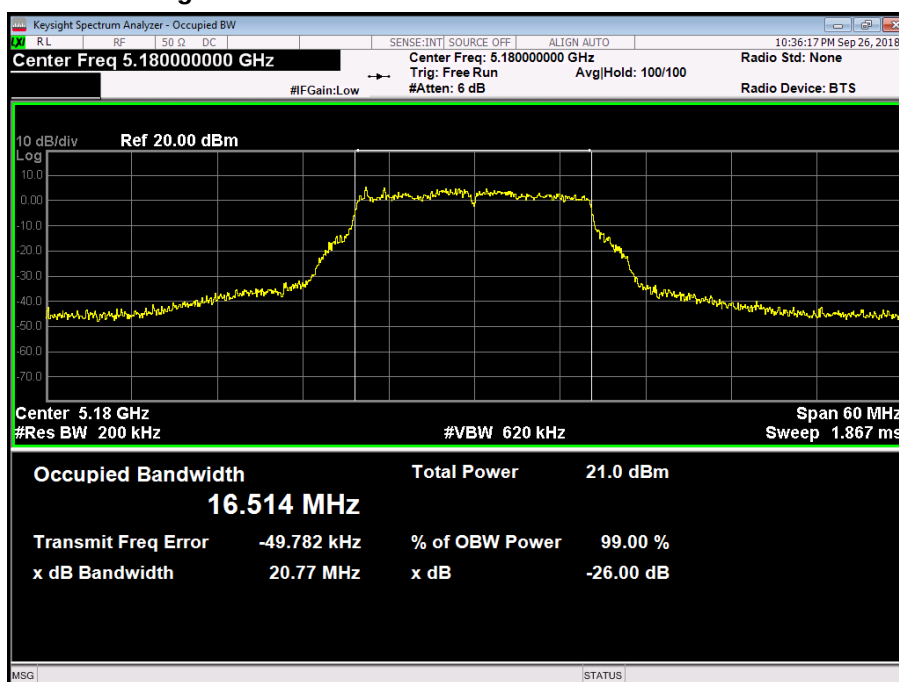


Figure 1 - 5180 MHz - 26 dB Emission Bandwidth





Product Service

Figure 2 - 5180 MHz - 99% Occupied Bandwidth

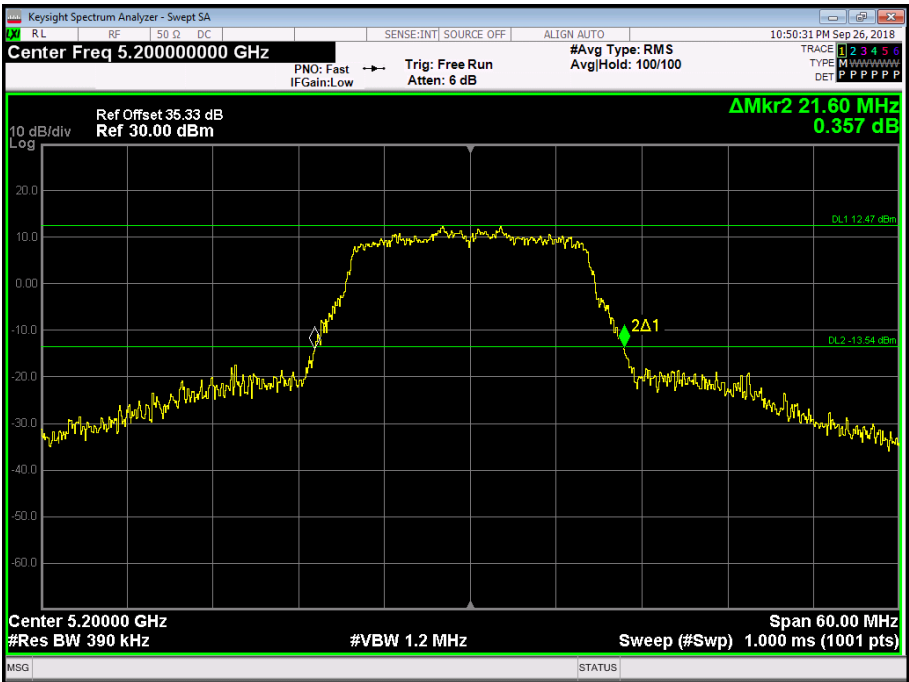


Figure 3 - 5200 MHz - 26 dB Emission Bandwidth

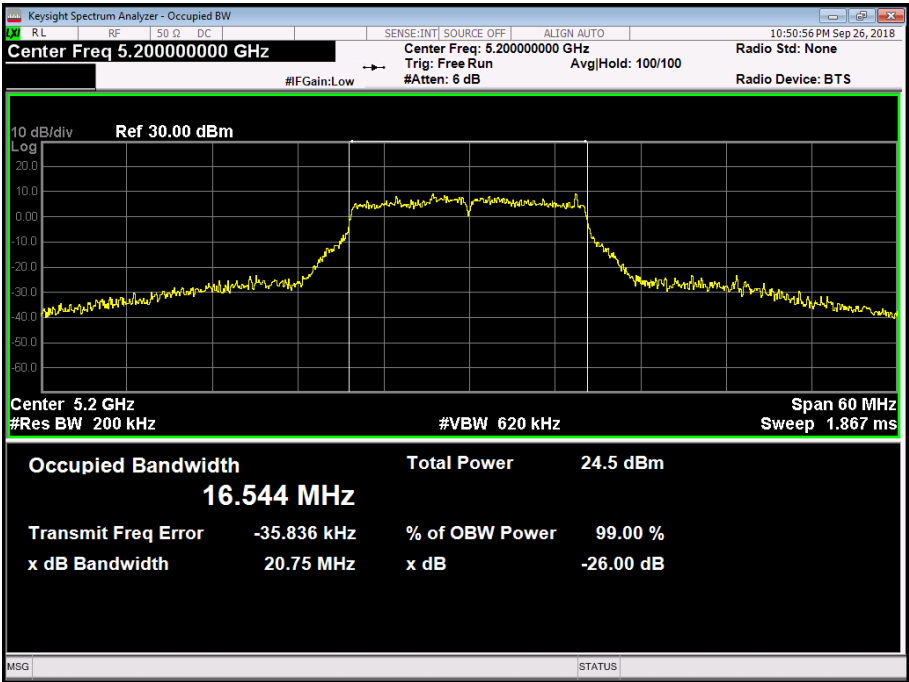


Figure 4 - 5200 MHz - 99% Occupied Bandwidth



Product Service

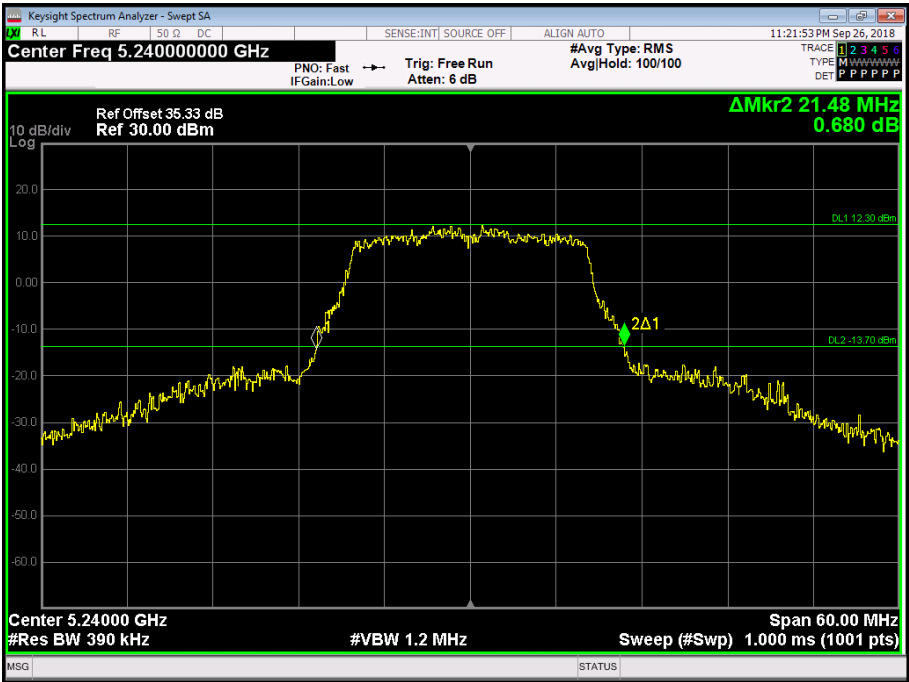


Figure 5 - 5240 MHz - 26 dB Emission Bandwidth

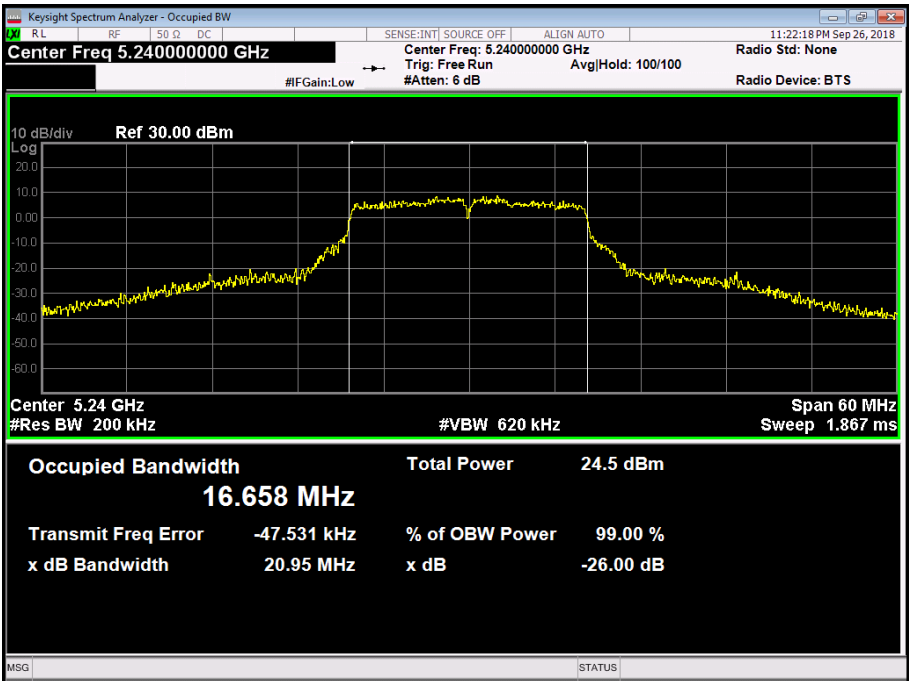


Figure 6 - 5240 MHz - 99% Occupied Bandwidth



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

| Channel               | Bottom | Middle | Top    |
|-----------------------|--------|--------|--------|
| Frequency (MHz)       | 5180   | 5200   | 5240   |
| 26 dB Bandwidth (MHz) | 21.420 | 21.720 | 21.720 |
| 99% Bandwidth (MHz)   | 16.564 | 16.547 | 16.606 |

Table 144

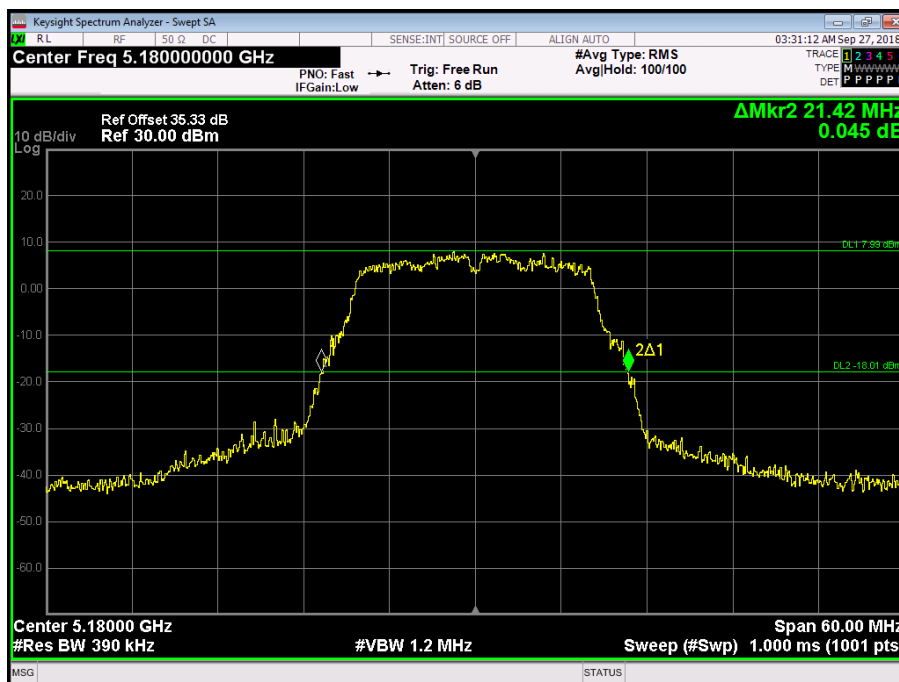


Figure 7 - 5180 MHz - 26 dB Emission Bandwidth

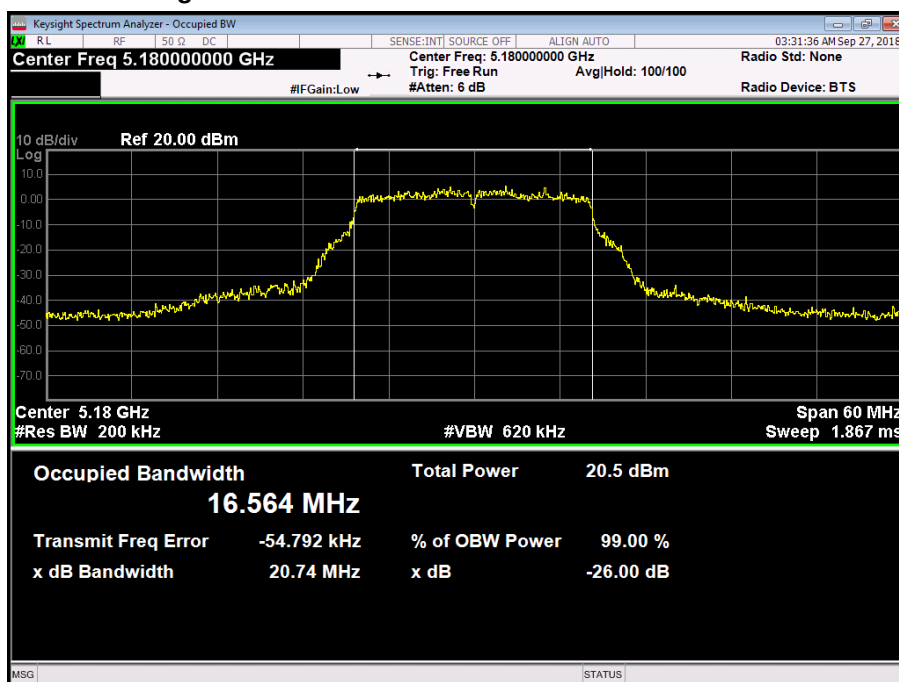


Figure 8 - 5180 MHz - 99% Occupied Bandwidth

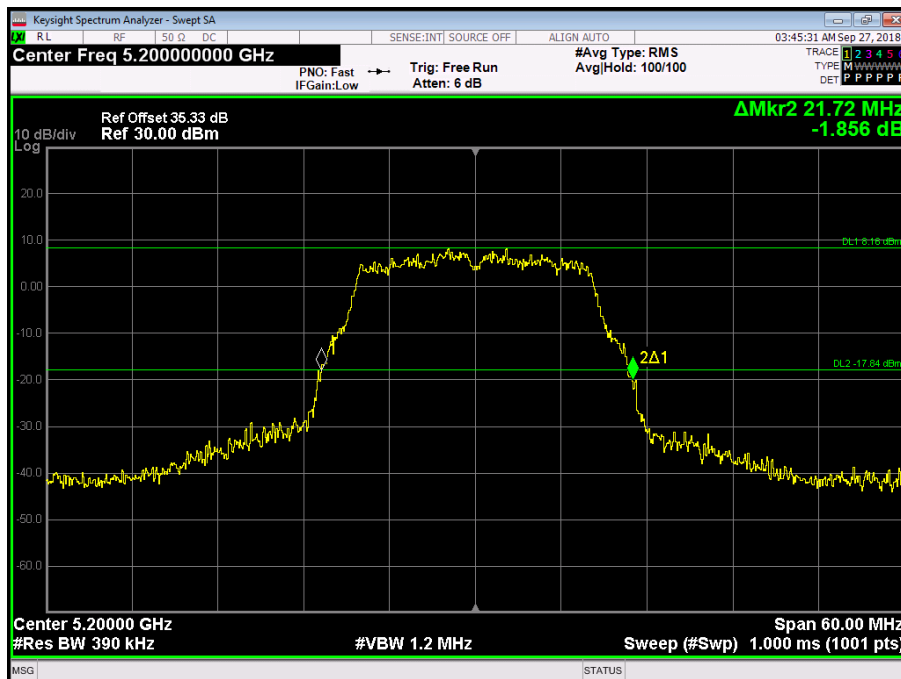


Figure 9 - 5200 MHz - 26 dB Emission Bandwidth

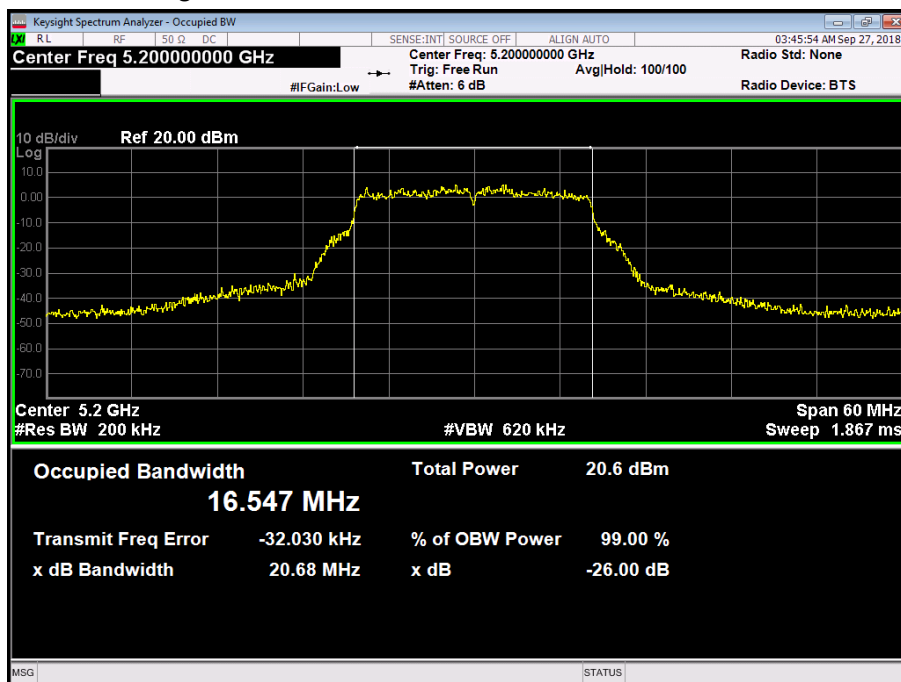


Figure 10 - 5200 MHz - 99% Occupied Bandwidth

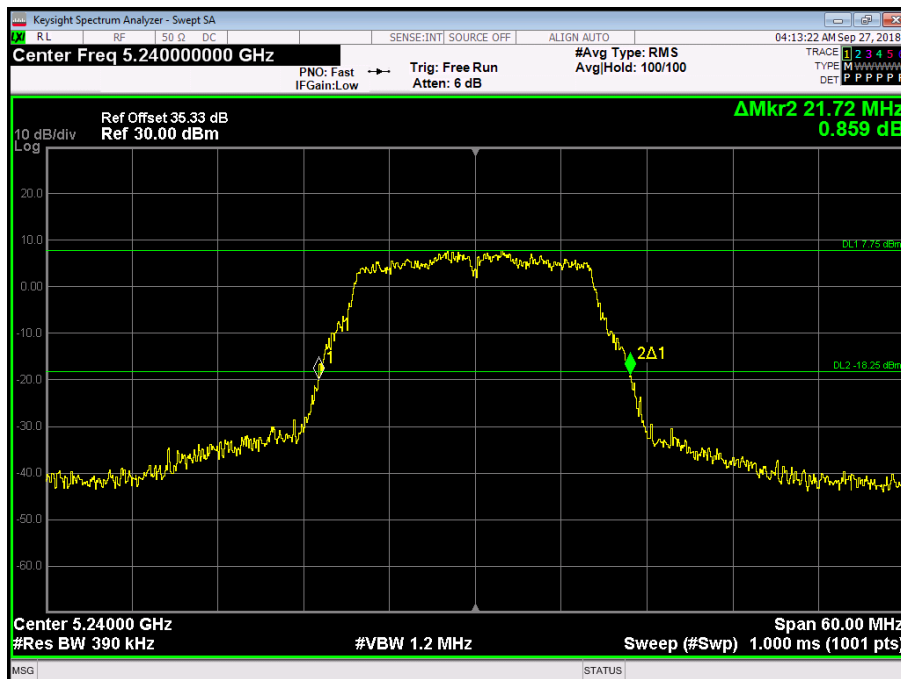


Figure 11 - 5240 MHz - 26 dB Emission Bandwidth

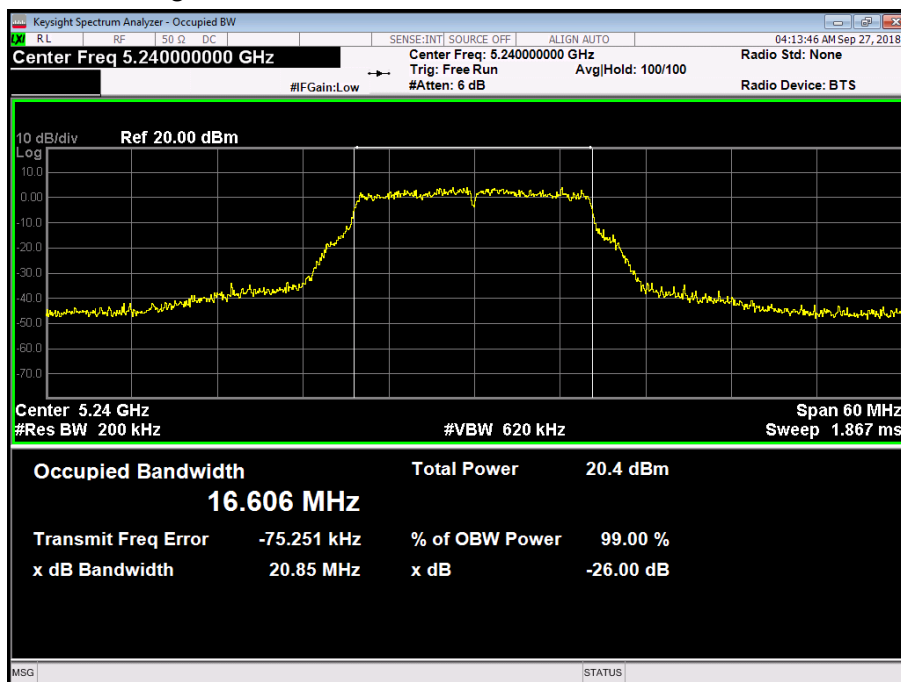


Figure 12 - 5240 MHz - 99% Occupied Bandwidth



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

| Channel               | Bottom | Middle | Top    |
|-----------------------|--------|--------|--------|
| Frequency (MHz)       | 5180   | 5200   | 5240   |
| 26 dB Bandwidth (MHz) | 21.720 | 22.140 | 21.840 |
| 99% Bandwidth (MHz)   | 17.741 | 17.792 | 17.784 |

Table 145

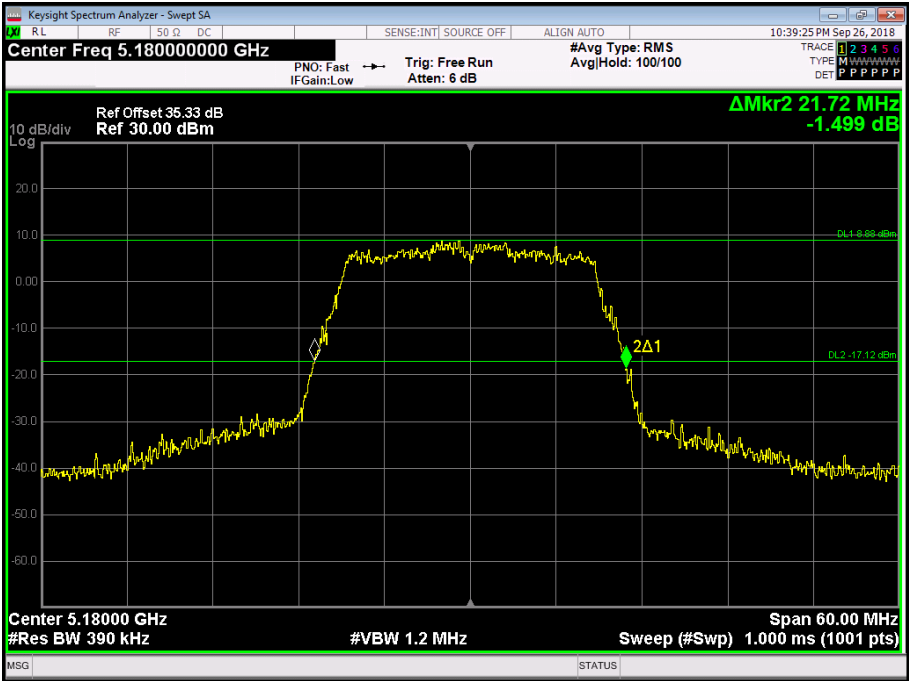


Figure 13 - 5180 MHz - 26 dB Emission Bandwidth

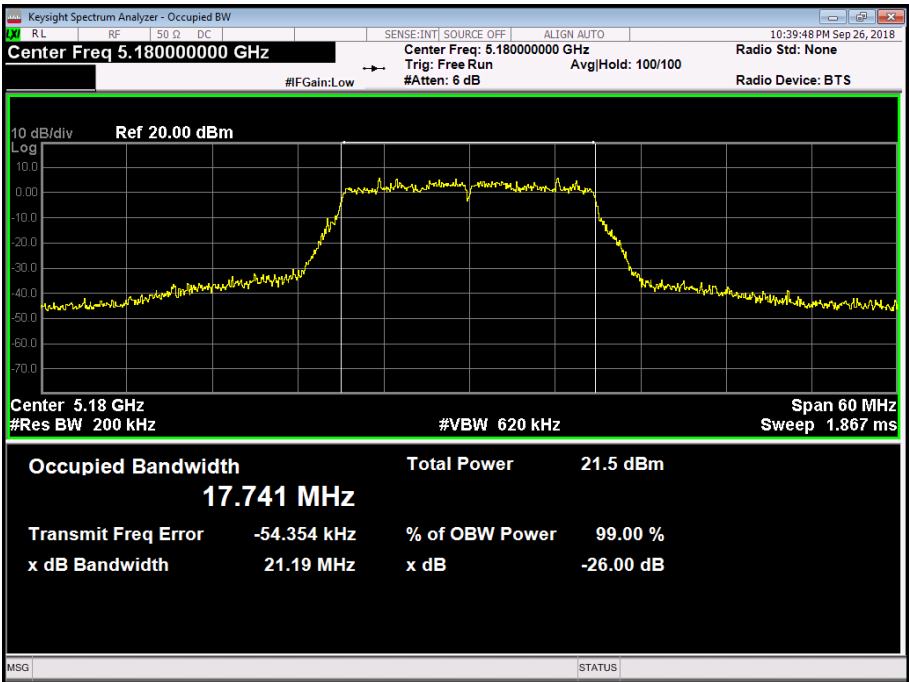


Figure 14 - 5180 MHz - 99% Occupied Bandwidth



Product Service



Figure 15 - 5200 MHz - 26 dB Emission Bandwidth

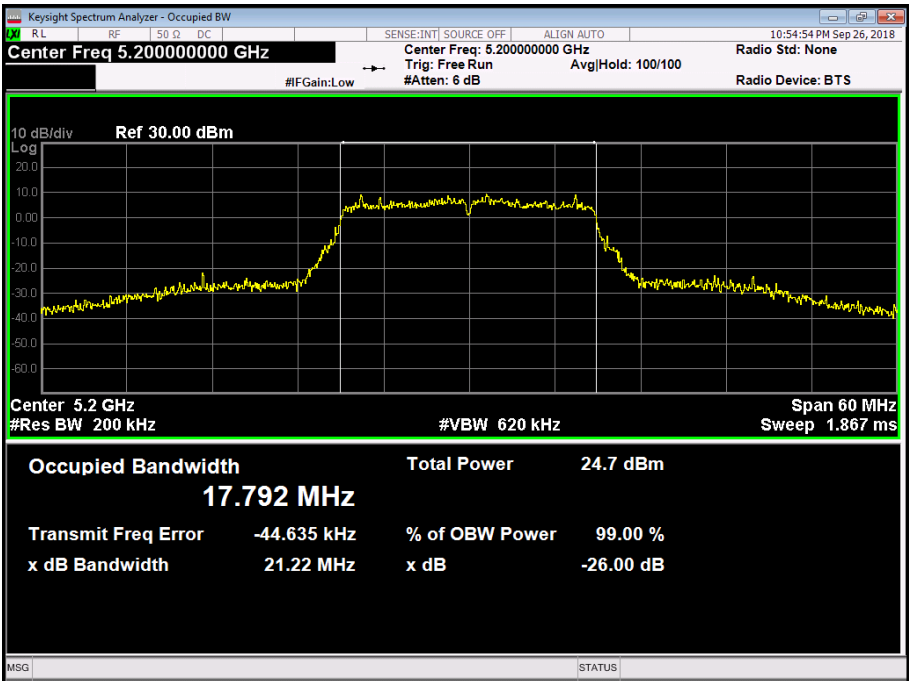


Figure 16 - 5200 MHz - 99% Occupied Bandwidth



Product Service



Figure 17 - 5240 MHz - 26 dB Emission Bandwidth

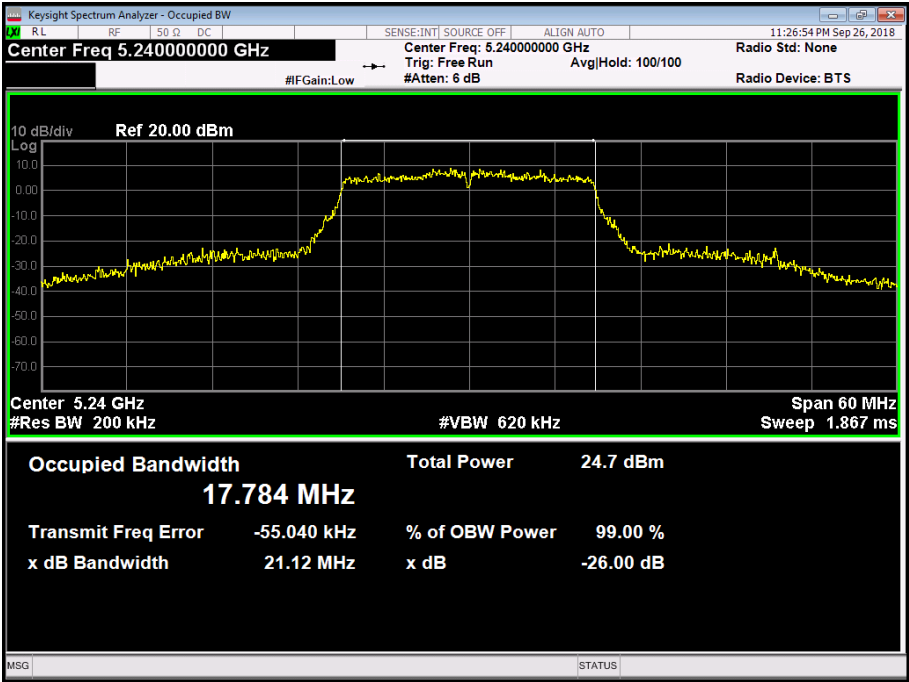


Figure 18 - 5240 MHz - 99% Occupied Bandwidth



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

| Channel               | Bottom | Middle | Top    |
|-----------------------|--------|--------|--------|
| Frequency (MHz)       | 5180   | 5200   | 5240   |
| 26 dB Bandwidth (MHz) | 21.840 | 21.840 | 21.900 |
| 99% Bandwidth (MHz)   | 17.706 | 17.718 | 17.728 |

Table 146

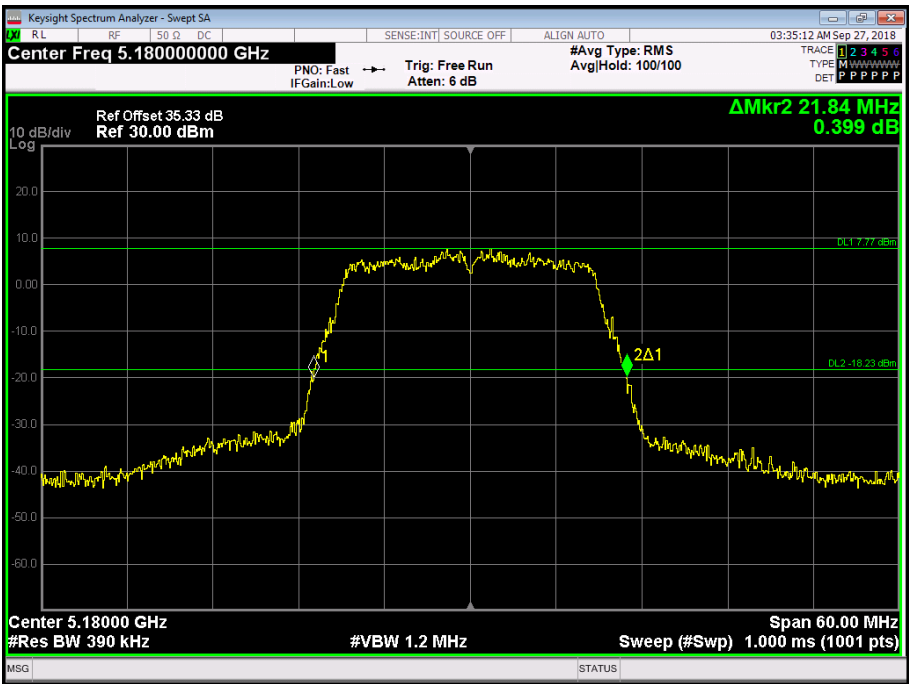


Figure 19 - 5180 MHz - 26 dB Emission Bandwidth

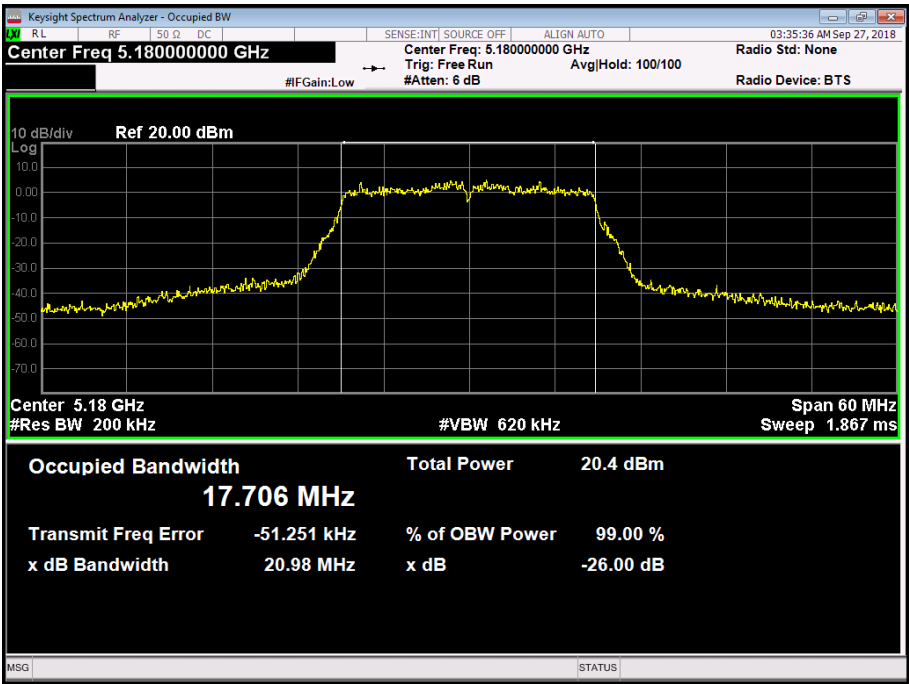


Figure 20 - 5180 MHz - 99% Occupied Bandwidth



Figure 21 - 5200 MHz - 26 dB Emission Bandwidth

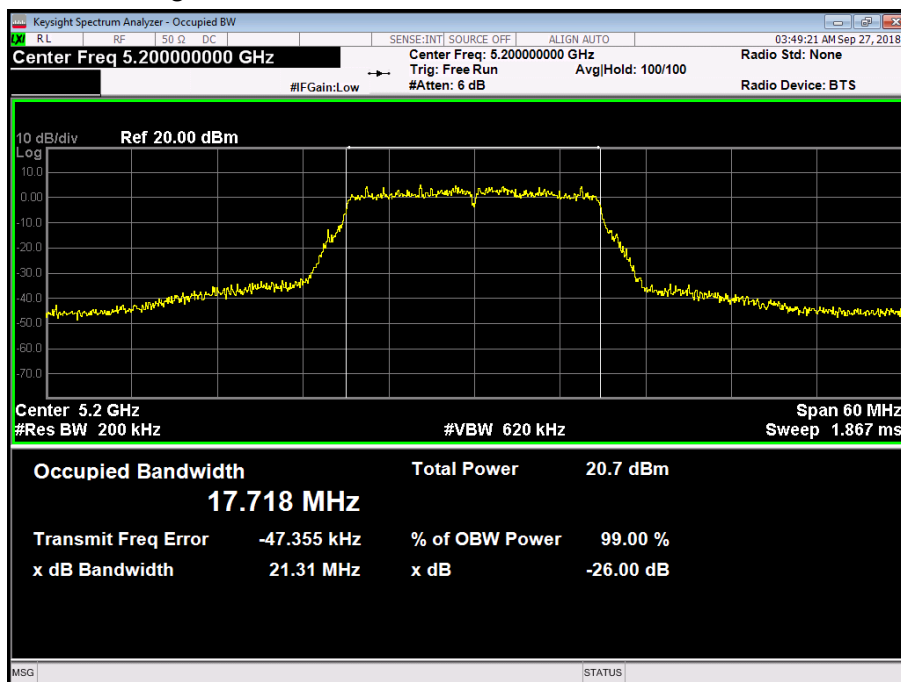


Figure 22 - 5200 MHz - 99% Occupied Bandwidth



Product Service



Figure 23 - 5240 MHz - 26 dB Emission Bandwidth

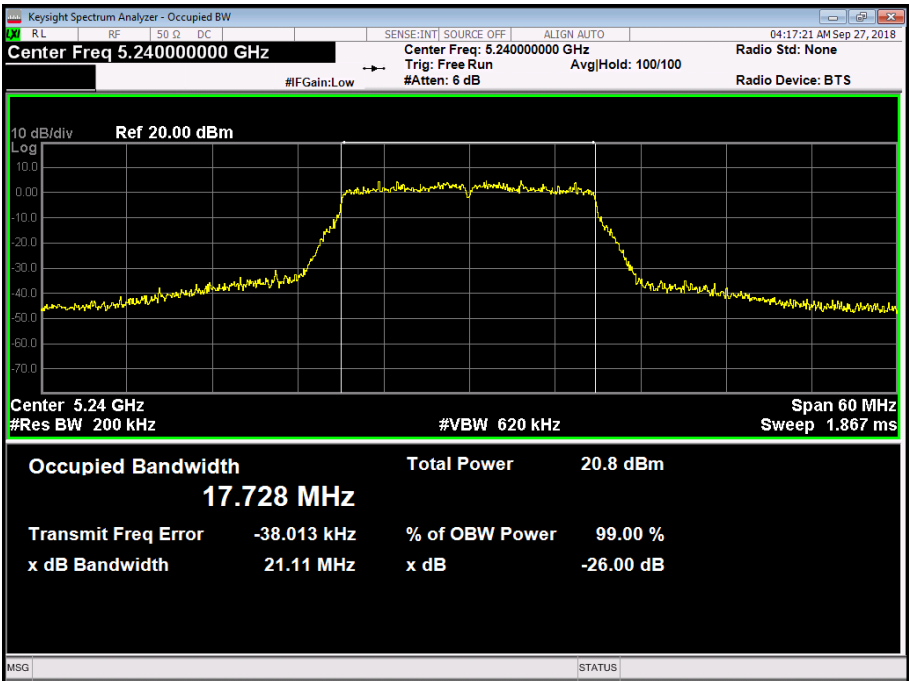


Figure 24 - 5240 MHz - 99% Occupied Bandwidth



Product Service

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) | 21.720 | 21.900 | 21.720 |
| 99% Bandwidth (MHz)   | 17.789 | 17.782 | 17.782 |

Table 147

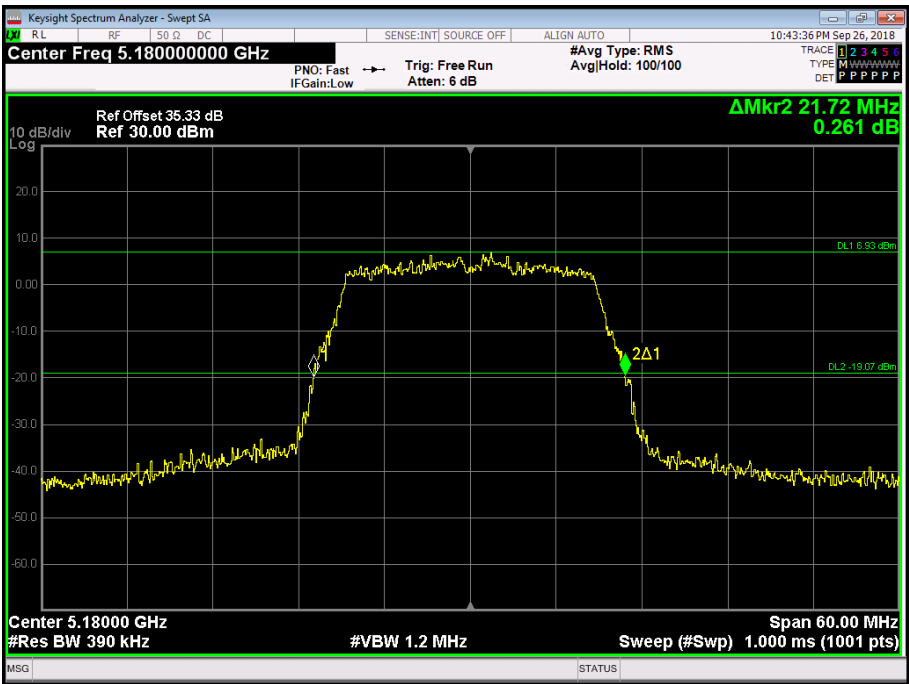


Figure 25 - 5180 MHz - 26 dB Emission Bandwidth

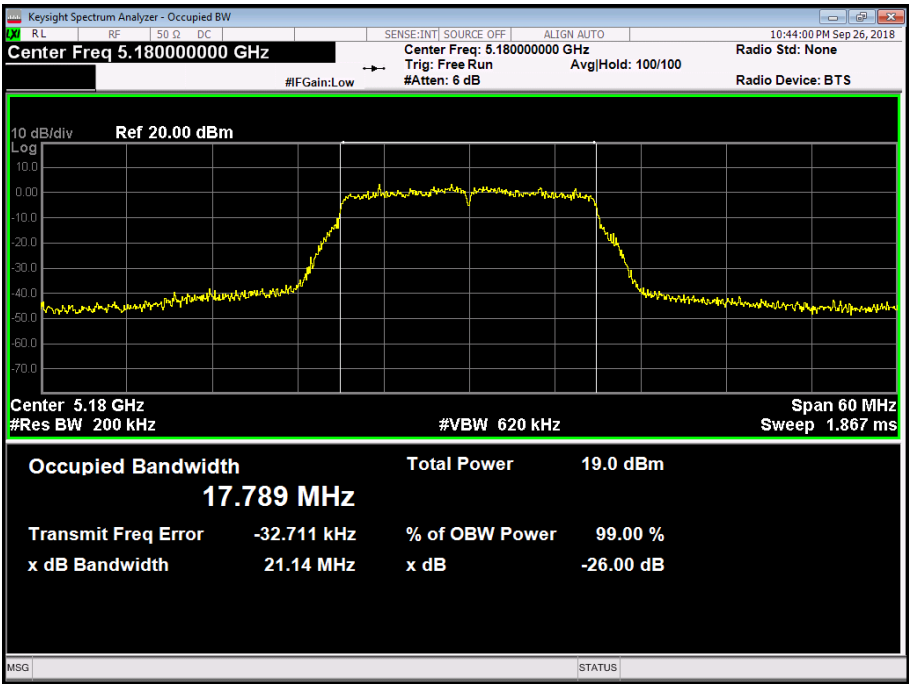


Figure 26 - 5180 MHz - 99% Occupied Bandwidth



Product Service

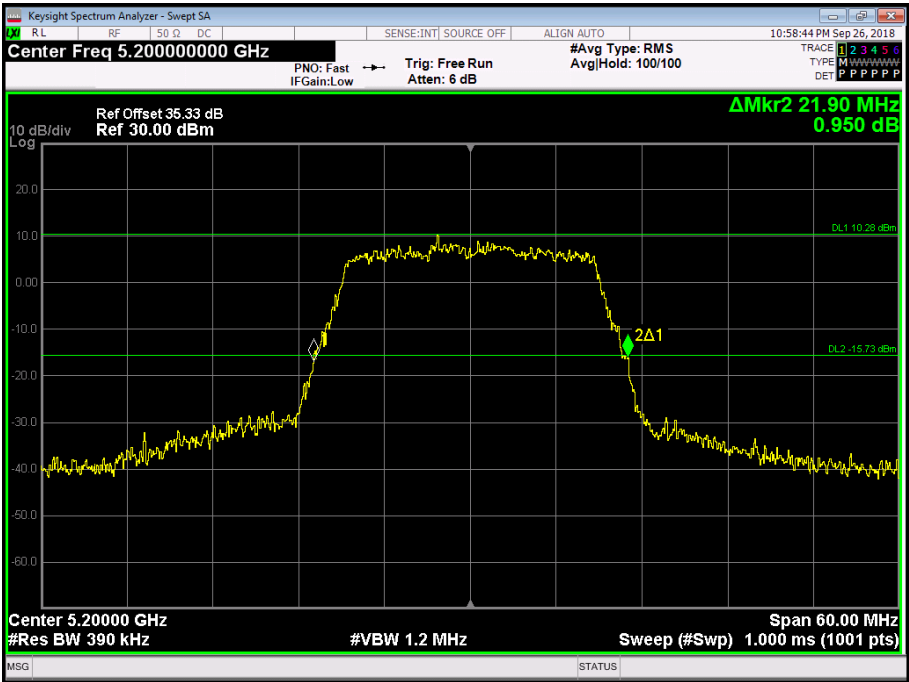


Figure 27 - 5200 MHz - 26 dB Emission Bandwidth

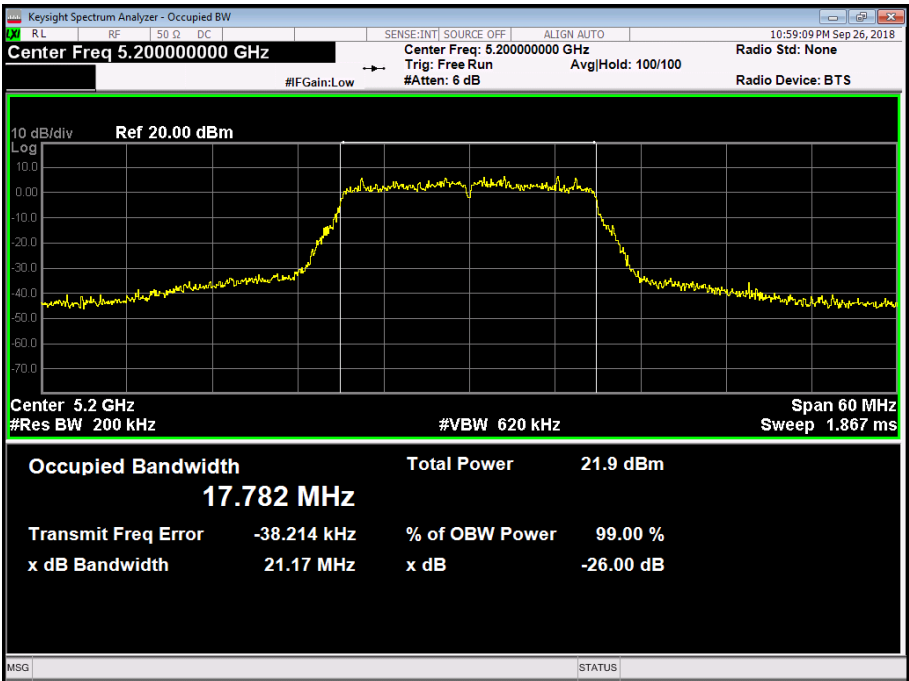


Figure 28 - 5200 MHz - 99% Occupied Bandwidth



Product Service

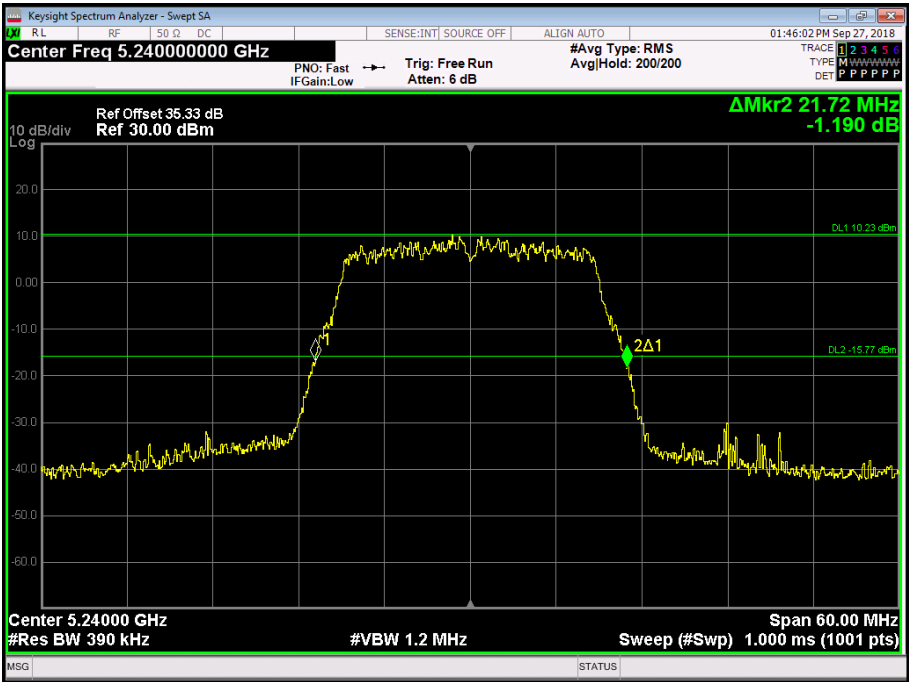


Figure 29 - 5240 MHz - 26 dB Emission Bandwidth

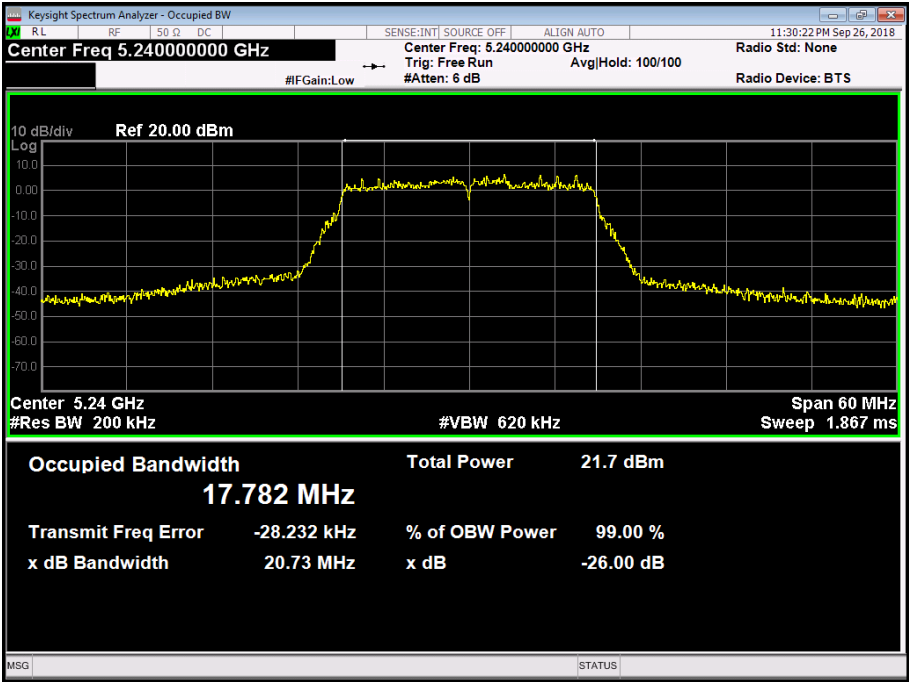


Figure 30 - 5240 MHz - 99% Occupied Bandwidth



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) | 21.720 | 21.780 | 21.780 |
| 99% Bandwidth (MHz)   | 17.714 | 17.736 | 17.722 |

Table 148

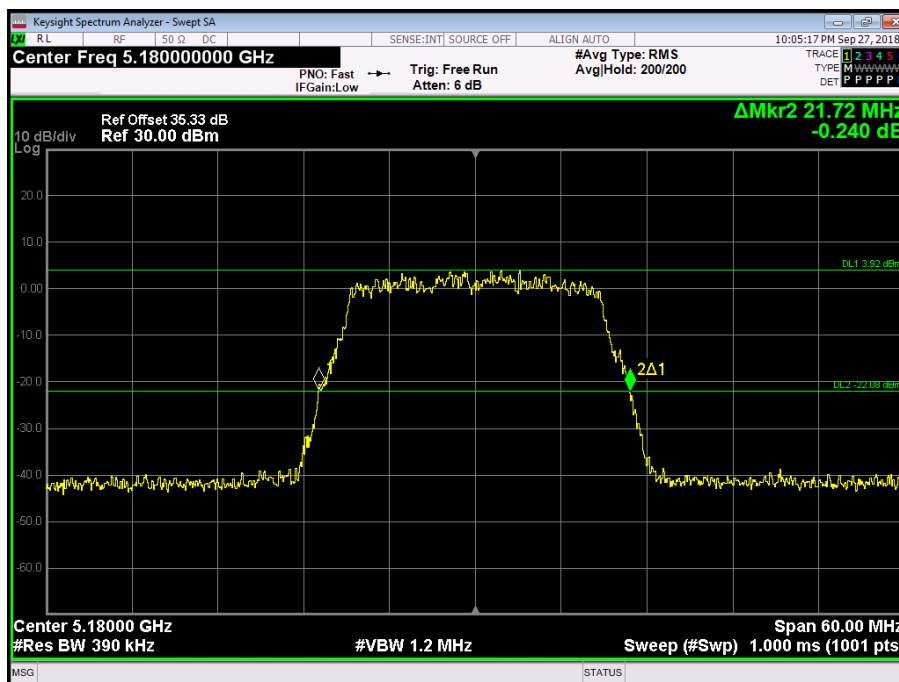


Figure 31 - 5180 MHz - 26 dB Emission Bandwidth

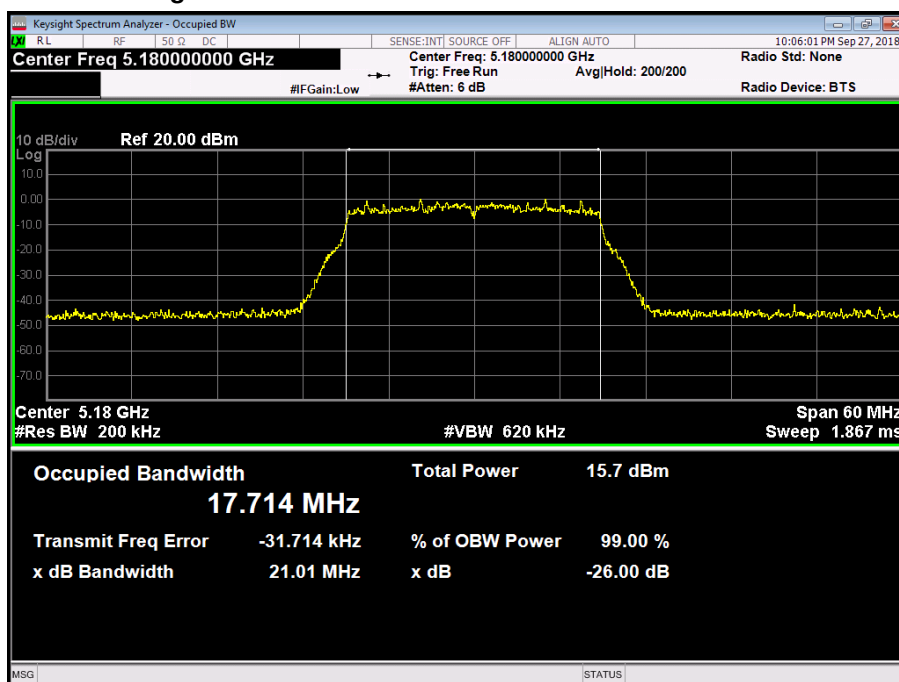


Figure 32 - 5180 MHz - 99% Occupied Bandwidth



Product Service

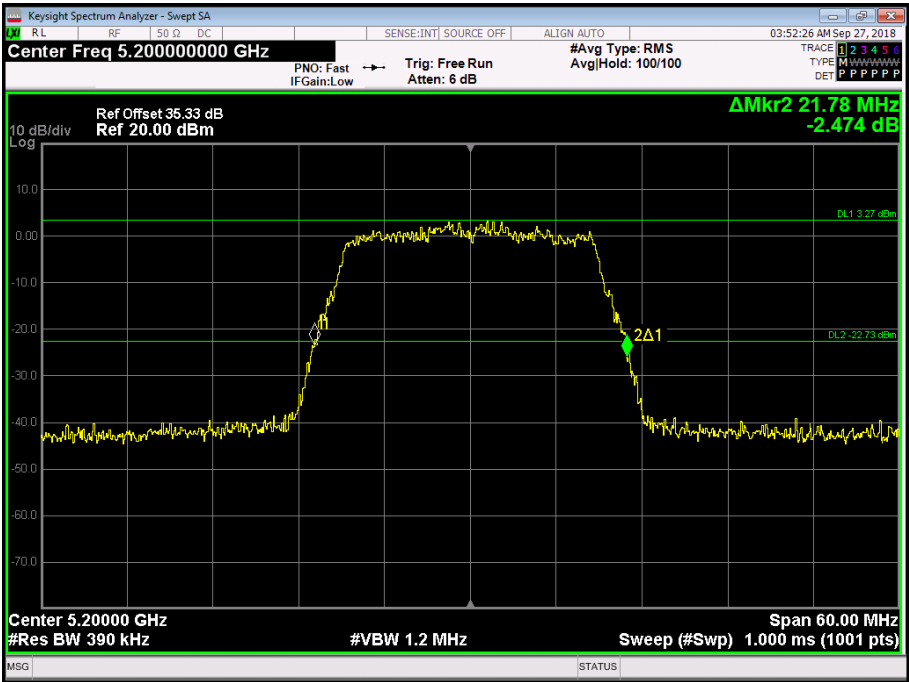


Figure 33 - 5200 MHz - 26 dB Emission Bandwidth

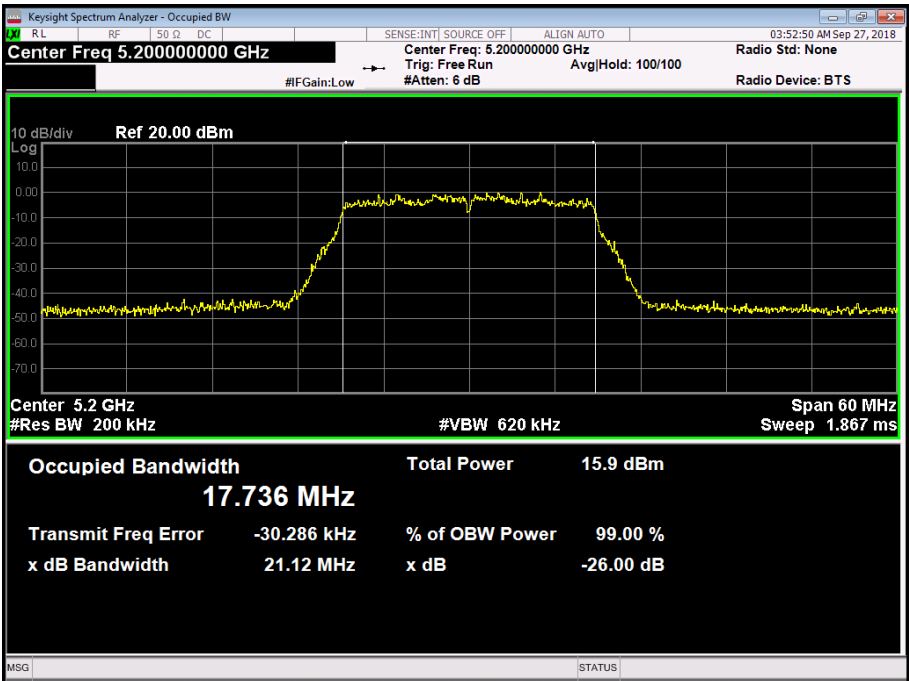


Figure 34 - 5200 MHz - 99% Occupied Bandwidth

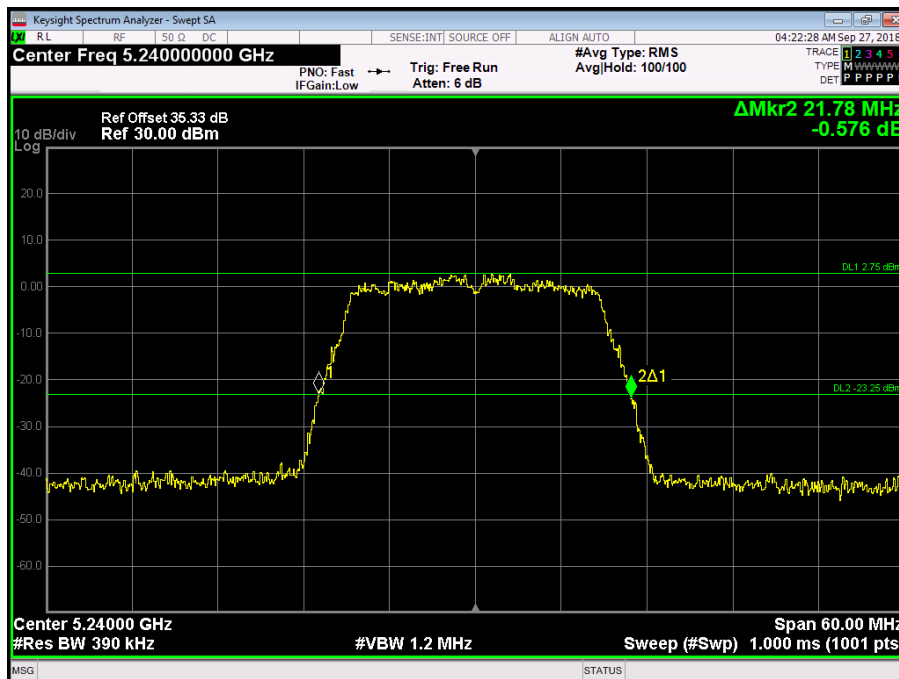


Figure 35 - 5240 MHz - 26 dB Emission Bandwidth

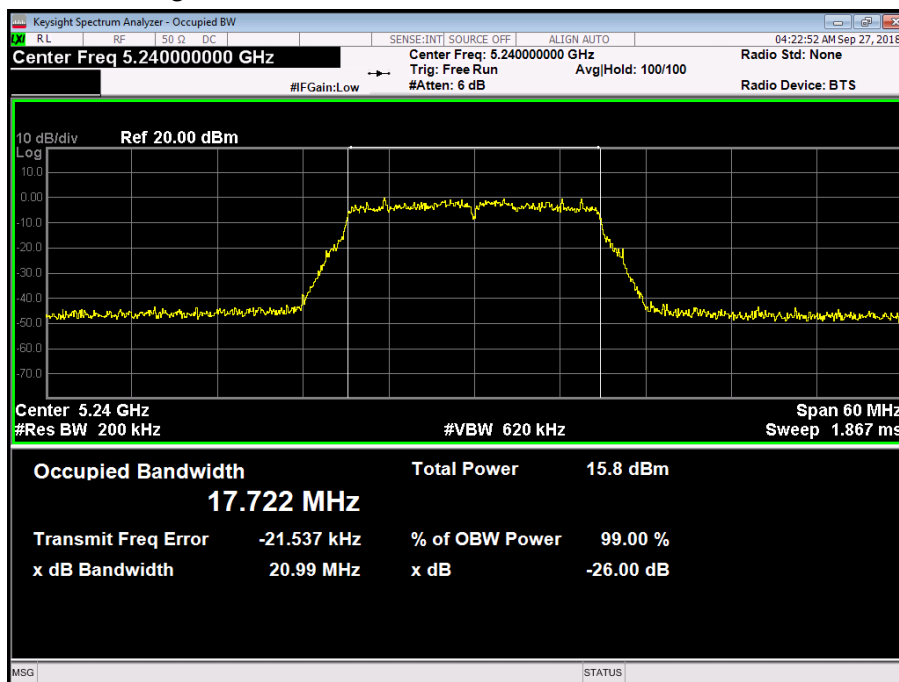


Figure 36 - 5240 MHz - 99% Occupied Bandwidth



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) | 21.900 | 21.720 | 21.600 |
| 99% Bandwidth (MHz)   | 17.713 | 17.768 | 17.713 |

Table 149

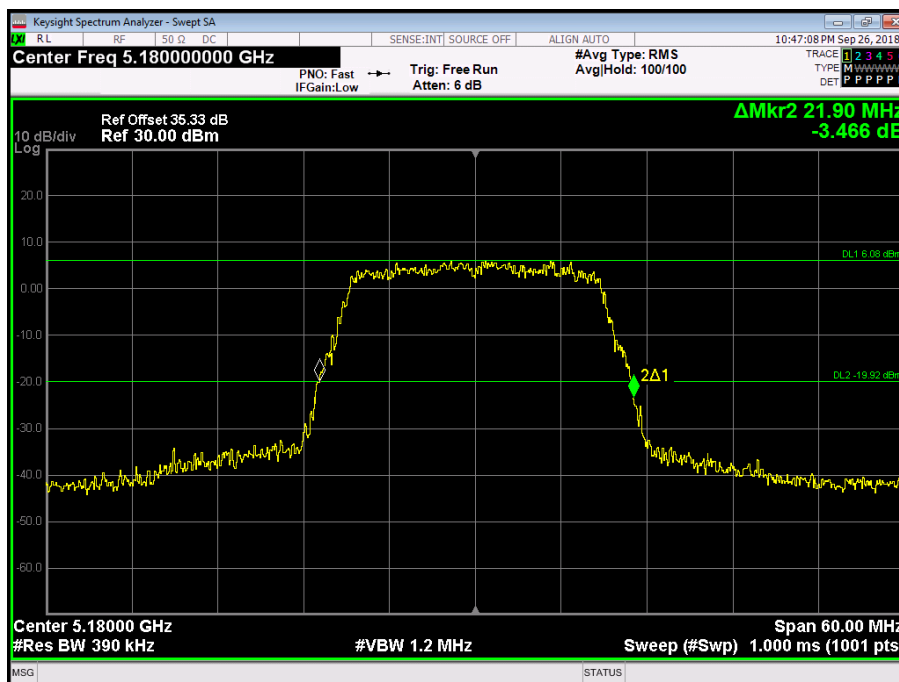


Figure 37 - 5180 MHz - 26 dB Emission Bandwidth

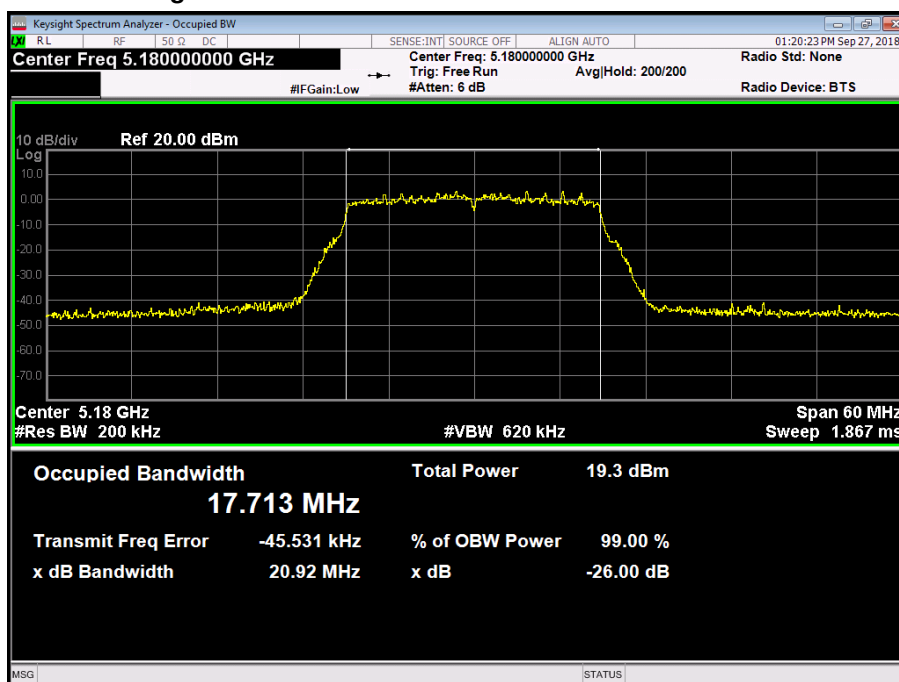


Figure 38 - 5180 MHz - 99% Occupied Bandwidth



Figure 39 - 5200 MHz - 26 dB Emission Bandwidth

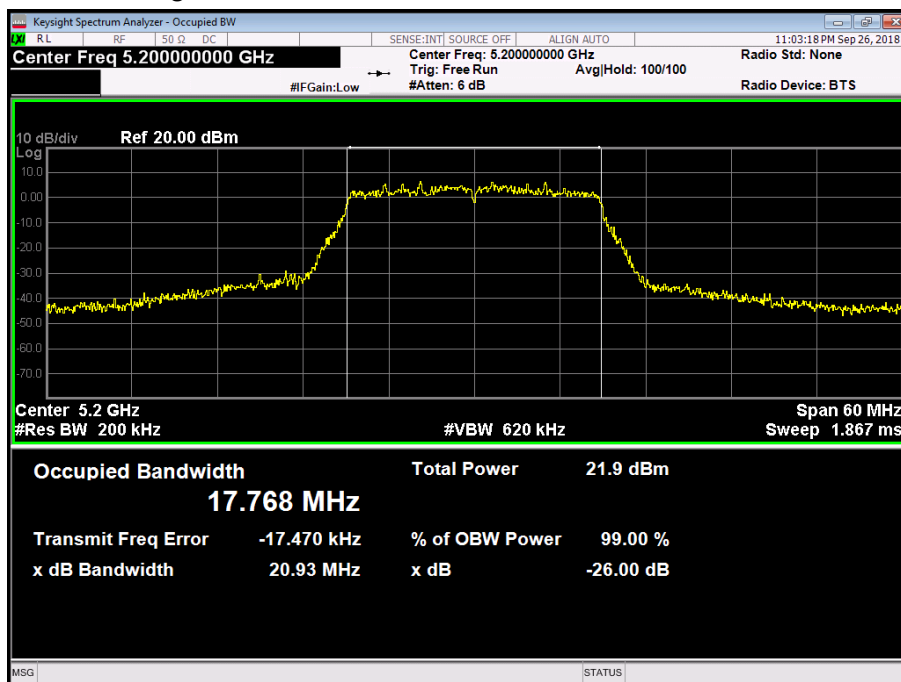


Figure 40 - 5200 MHz - 99% Occupied Bandwidth



Product Service



Figure 41 - 5240 MHz - 26 dB Emission Bandwidth

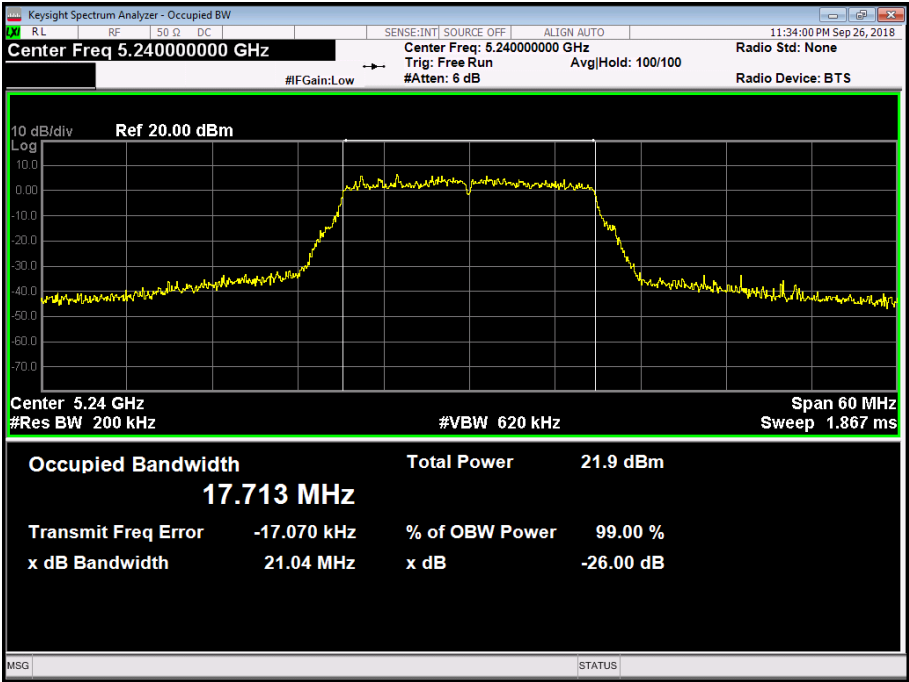


Figure 42 - 5240 MHz - 99% Occupied Bandwidth



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 | 21.900 | 21.960 |
| 99% Bandwidth (MHz)   | 17.724 | 17.706 | 17.747 |

Table 150

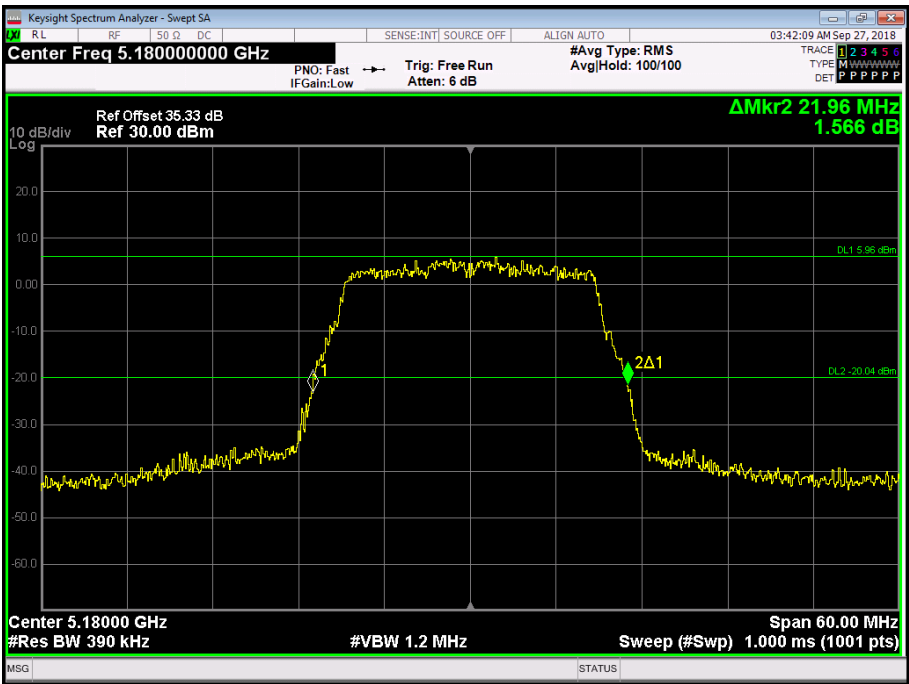


Figure 43 - 5180 MHz - 26 dB Emission Bandwidth

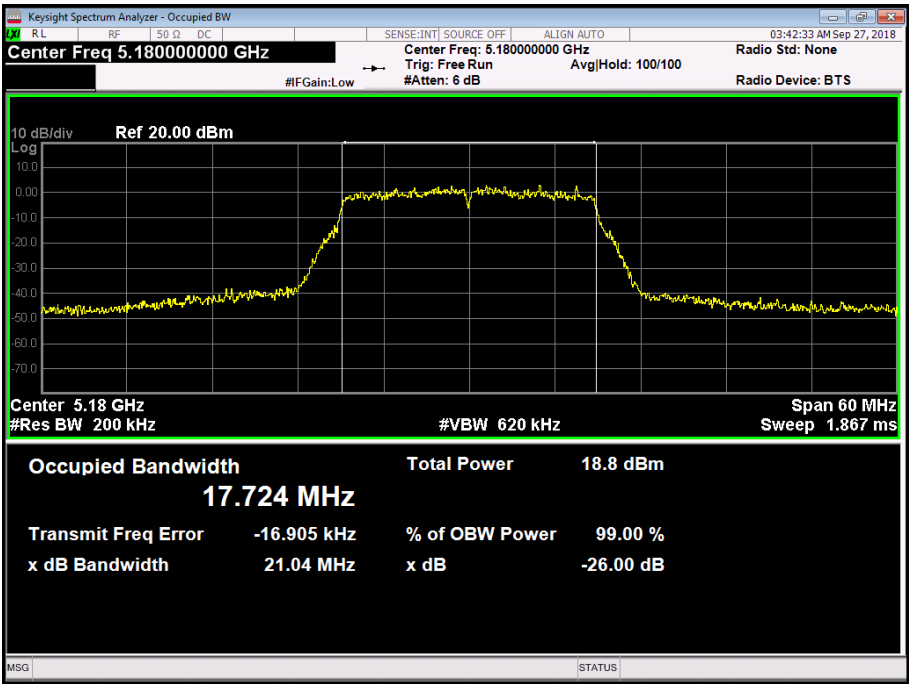


Figure 44 - 5180 MHz - 99% Occupied Bandwidth

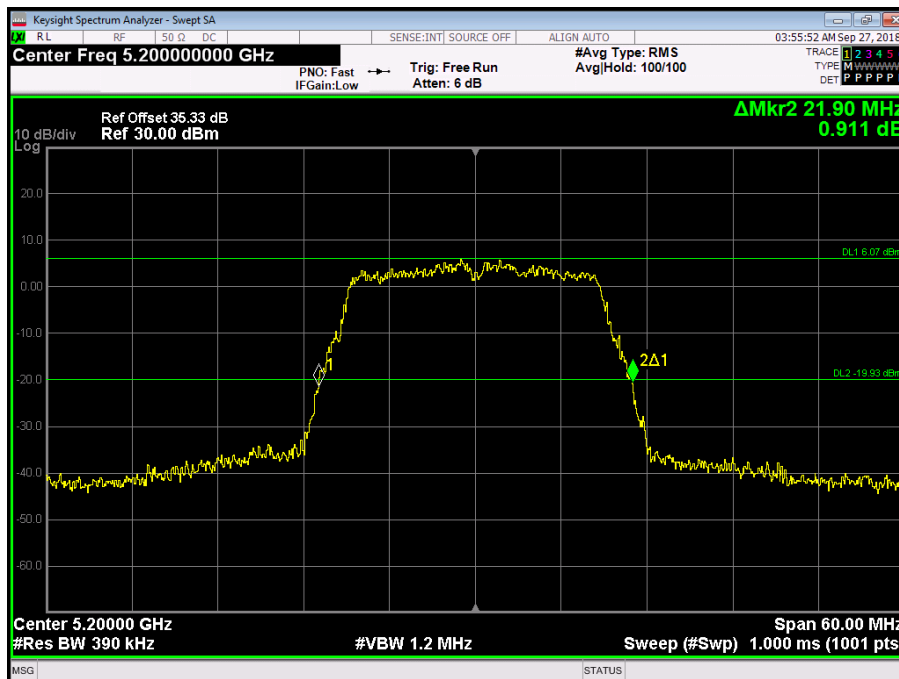


Figure 45 - 5200 MHz - 26 dB Emission Bandwidth

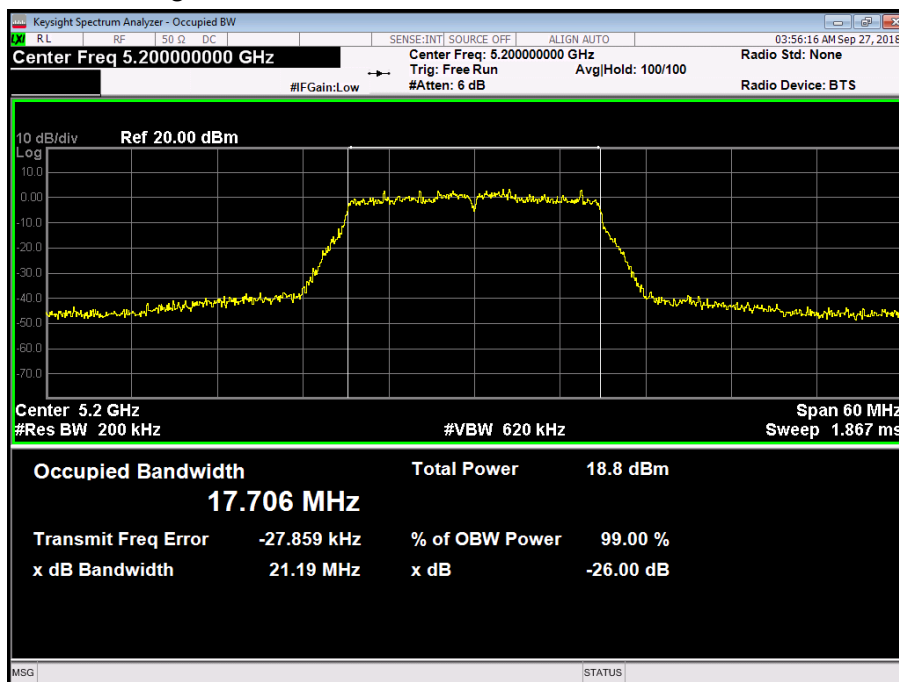


Figure 46 - 5200 MHz - 99% Occupied Bandwidth



Product Service

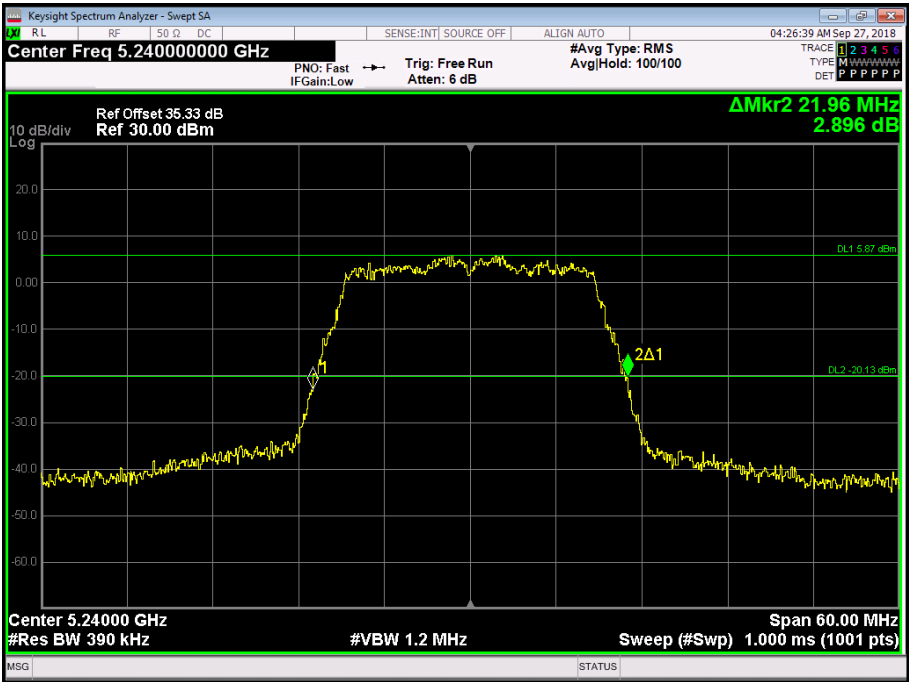


Figure 47 - 5240 MHz - 26 dB Emission Bandwidth

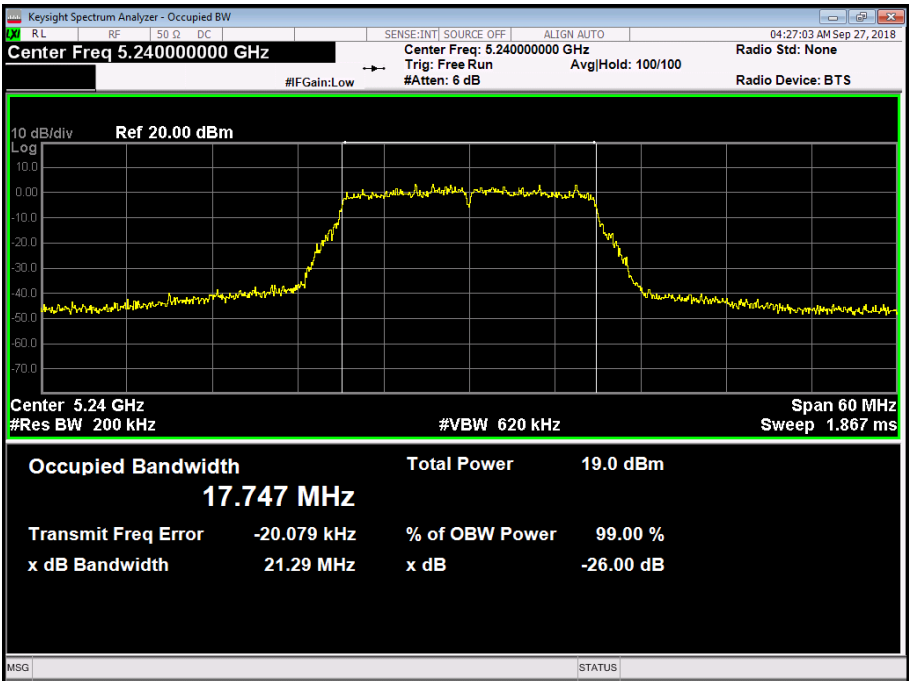


Figure 48 - 5240 MHz - 99% Occupied Bandwidth



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

| Channel               | Bottom | Top    |
|-----------------------|--------|--------|
| Frequency (MHz)       | 5190   | 5230   |
| 26 dB Bandwidth (MHz) | 40.680 | 40.560 |
| 99% Bandwidth (MHz)   | 36.224 | 36.223 |

Table 151

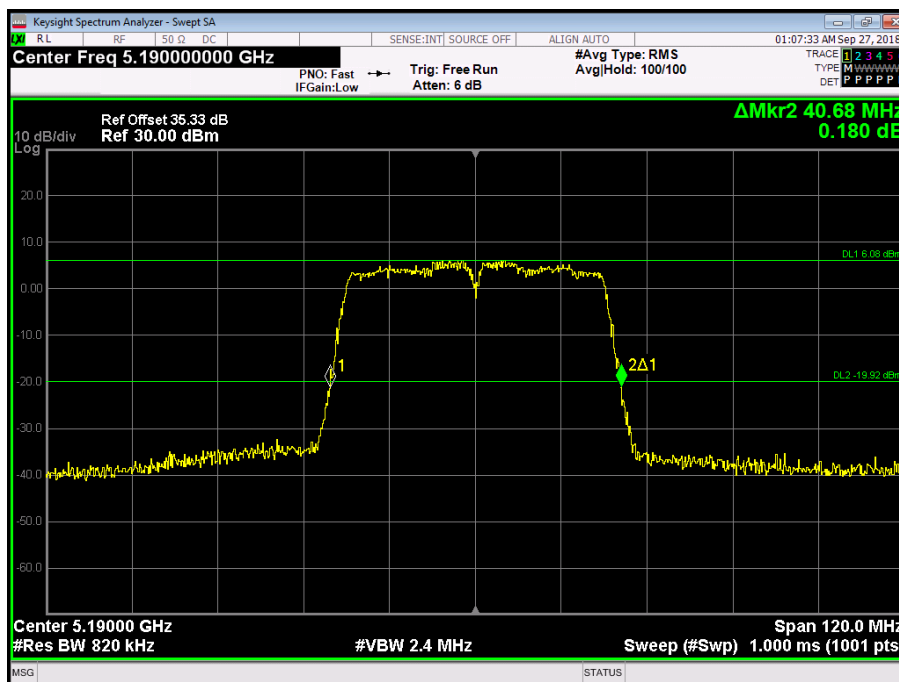


Figure 49 - 5190 MHz - 26 dB Emission Bandwidth

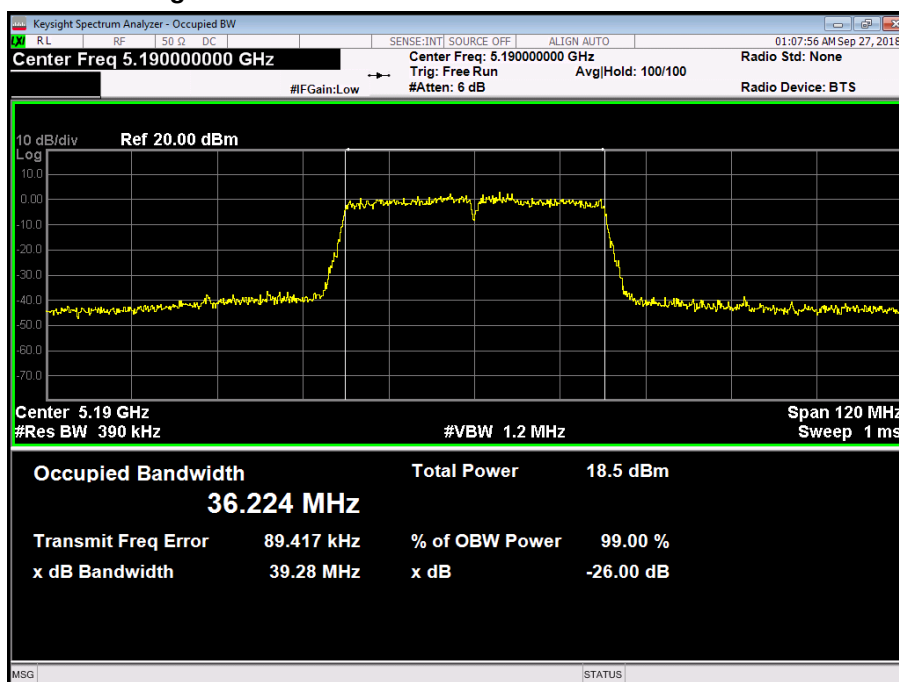


Figure 50 - 5190 MHz - 99% Occupied Bandwidth

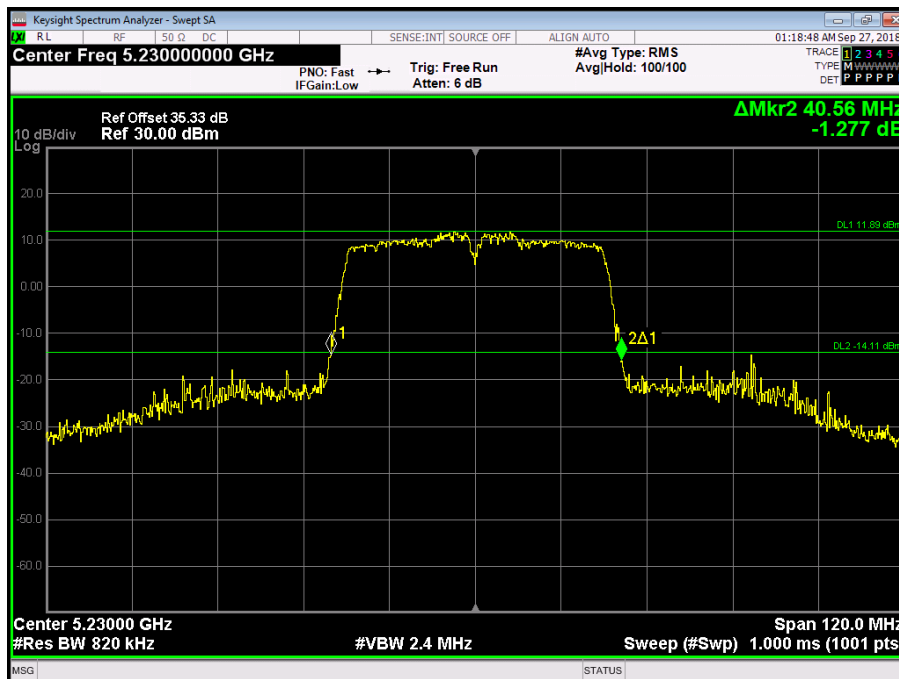


Figure 51 - 5230 MHz - 26 dB Emission Bandwidth

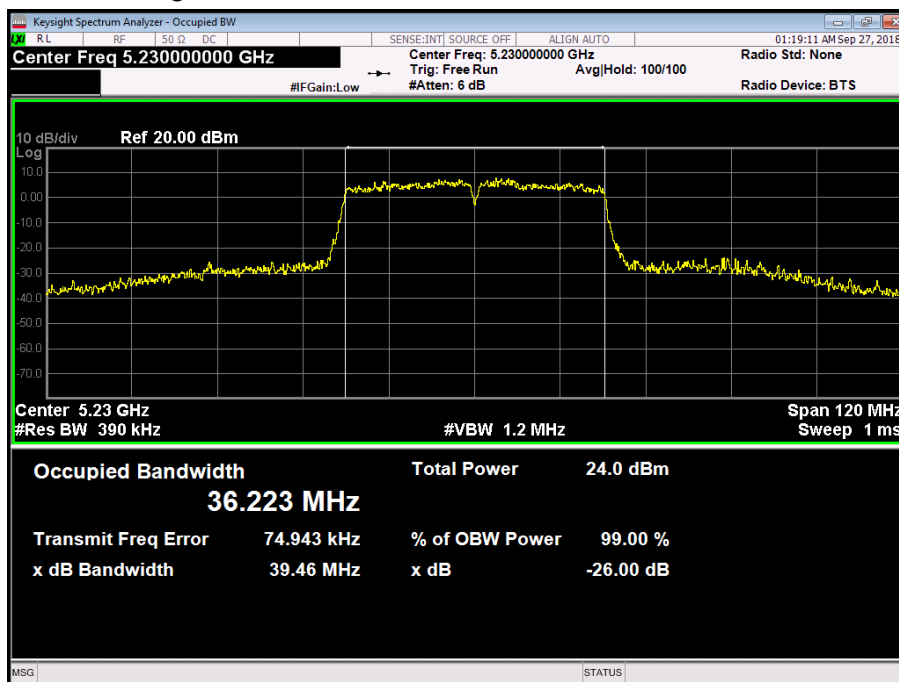


Figure 52 - 5230 MHz - 99% Occupied Bandwidth



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)   | 36.131 | 36.194 |

Table 152

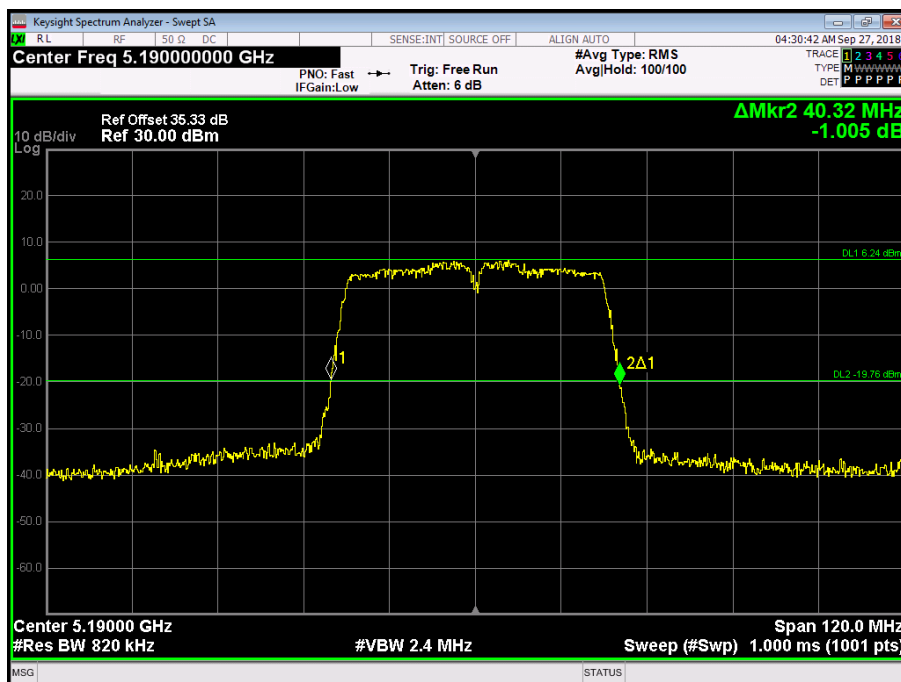


Figure 53 - 5190 MHz - 26 dB Emission Bandwidth

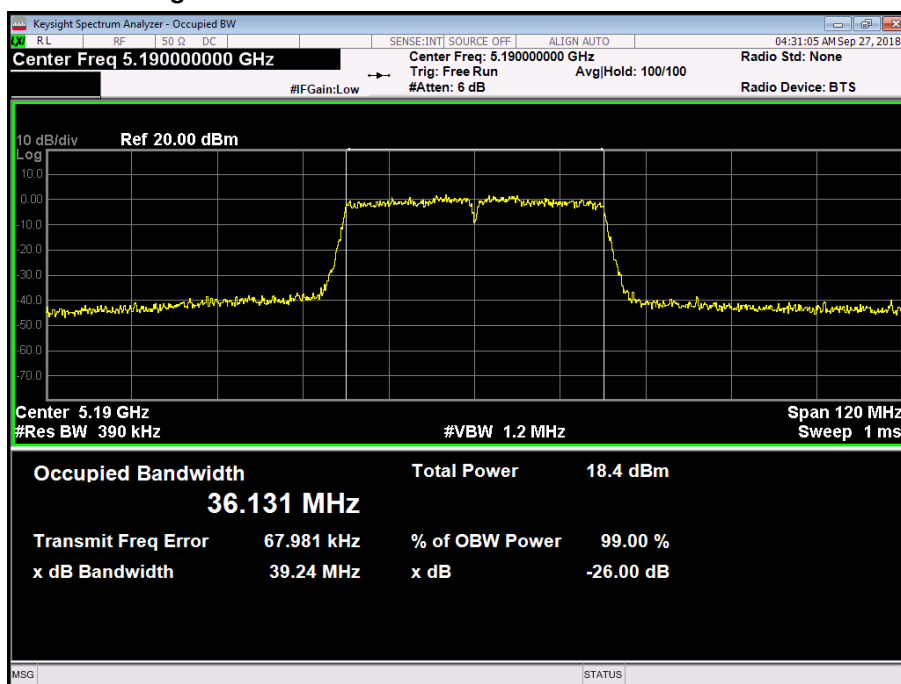


Figure 54 - 5190 MHz - 99% Occupied Bandwidth



Product Service

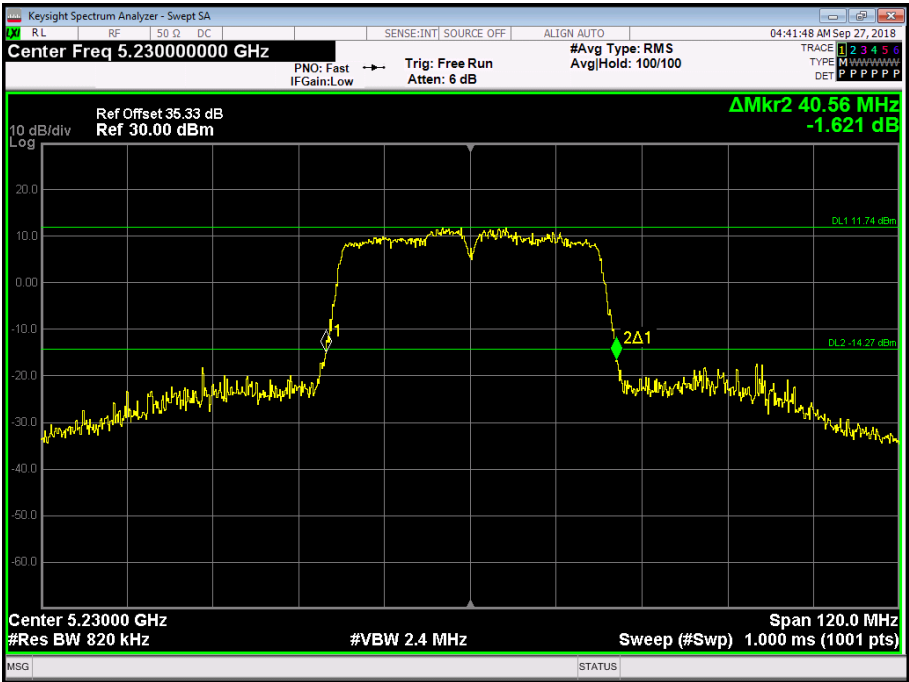


Figure 55 - 5230 MHz - 26 dB Emission Bandwidth

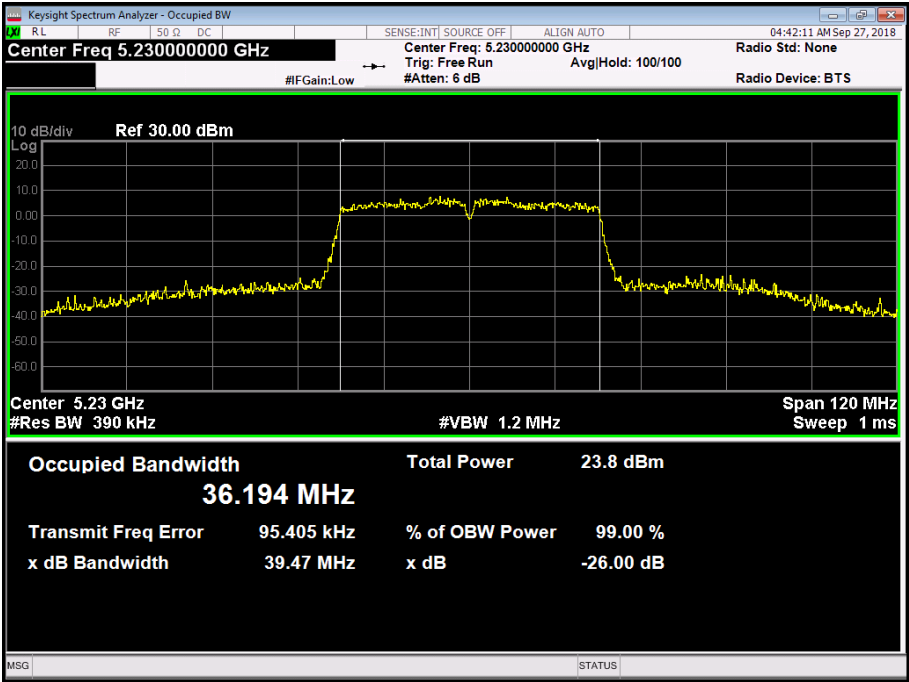


Figure 56 - 5230 MHz - 99% Occupied Bandwidth



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)   | 36.203 | 36.179 |

Table 153

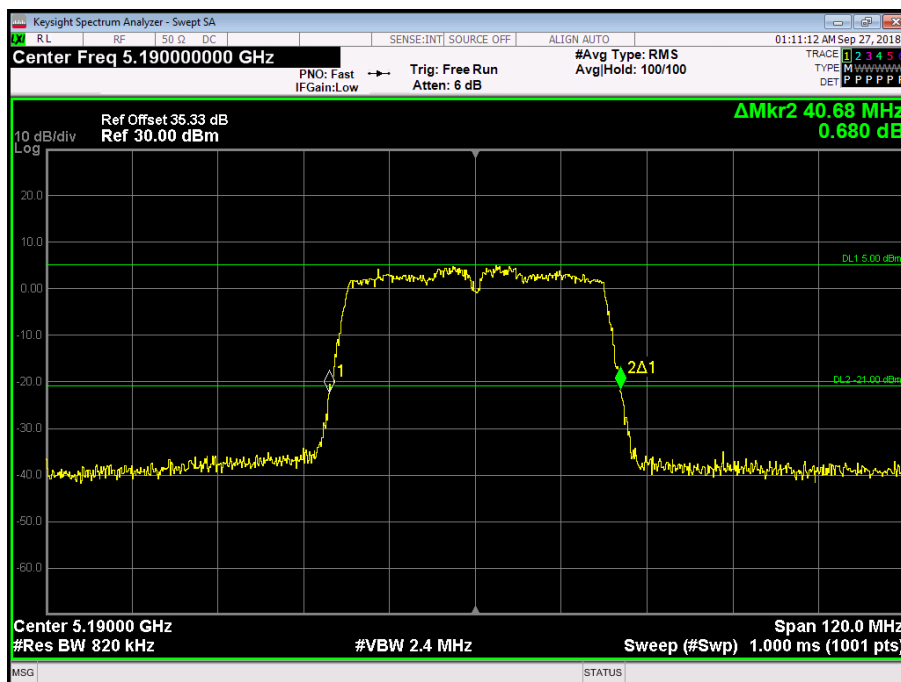


Figure 57 - 5190 MHz - 26 dB Emission Bandwidth

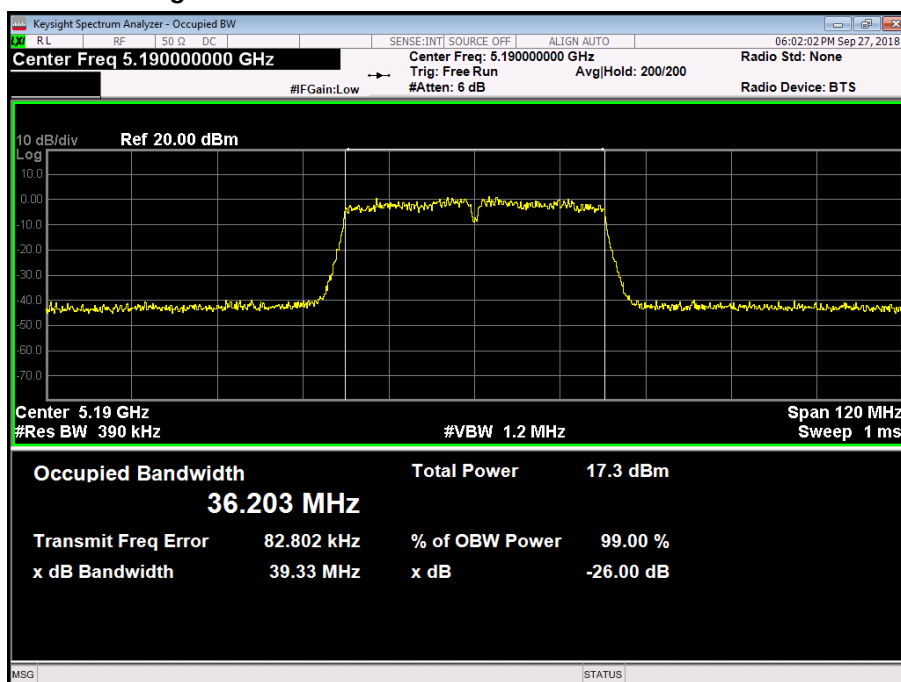


Figure 58 - 5190 MHz - 99% Occupied Bandwidth

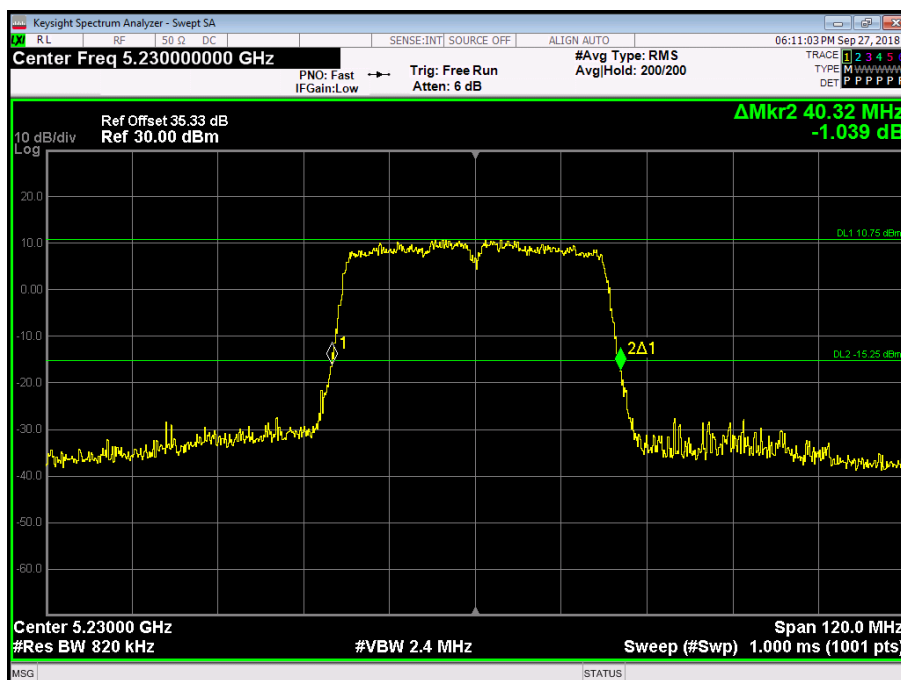


Figure 59 - 5230 MHz - 26 dB Emission Bandwidth

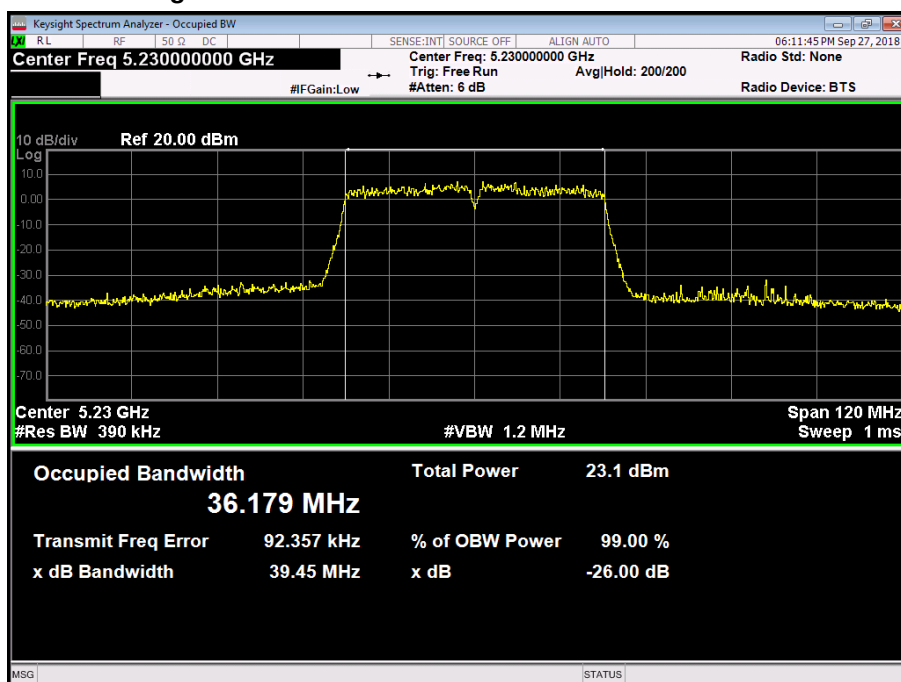


Figure 60 - 5230 MHz - 99% Occupied Bandwidth



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

| Channel               | Bottom | Top    |
|-----------------------|--------|--------|
| Frequency (MHz)       | 5190   | 5230   |
| 26 dB Bandwidth (MHz) | 40.440 | 40.680 |
| 99% Bandwidth (MHz)   | 36.189 | 36.168 |

Table 154

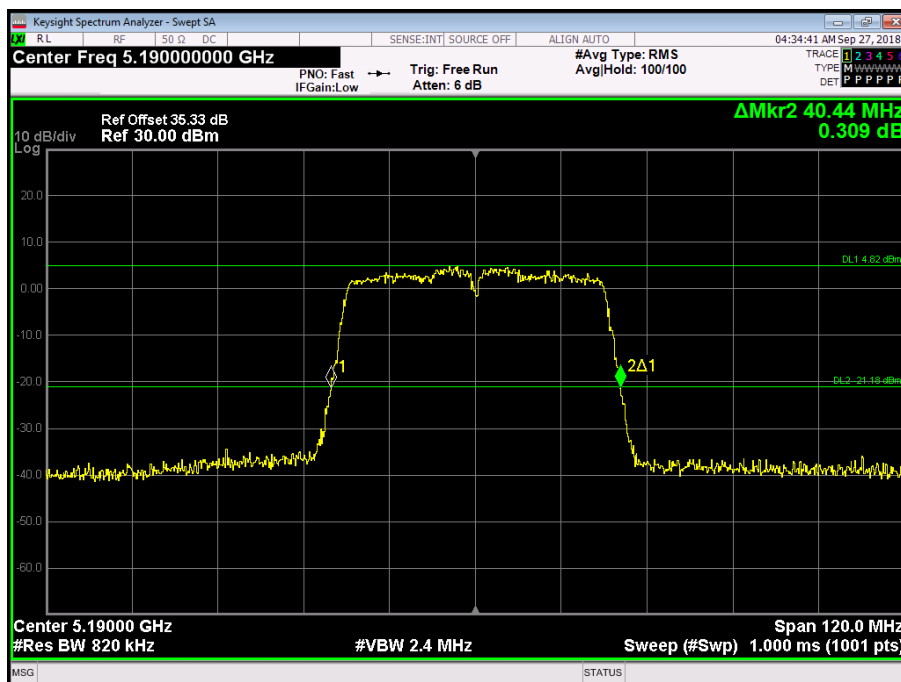


Figure 61 - 5190 MHz - 26 dB Emission Bandwidth

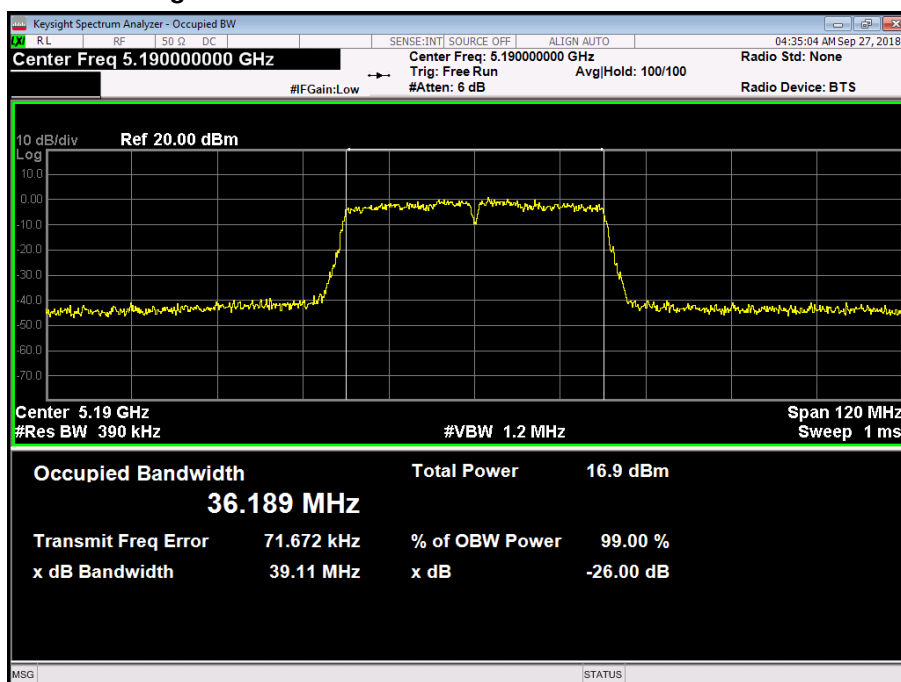


Figure 62 - 5190 MHz - 99% Occupied Bandwidth

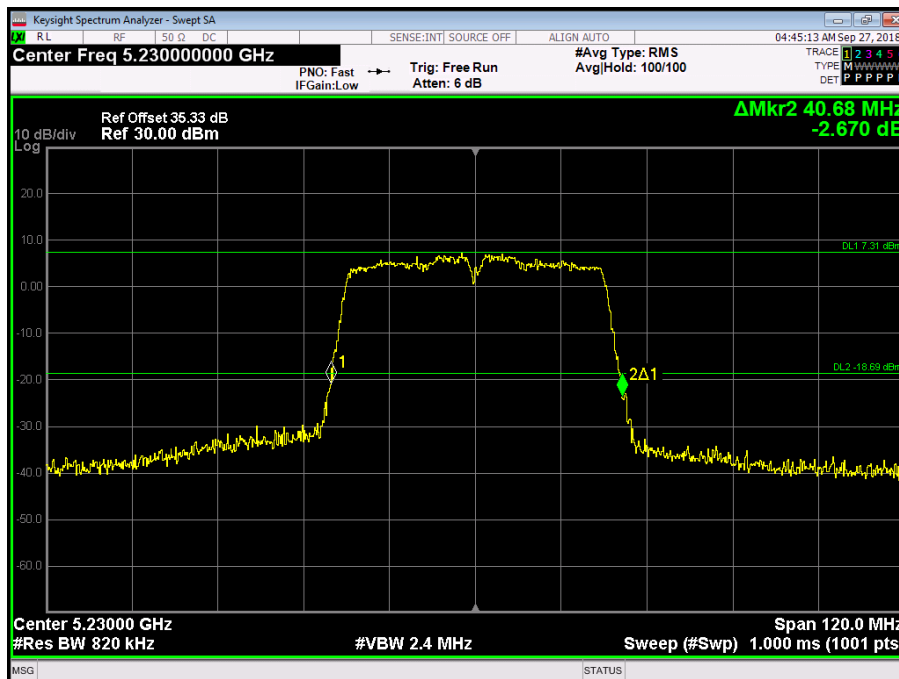


Figure 63 - 5230 MHz - 26 dB Emission Bandwidth

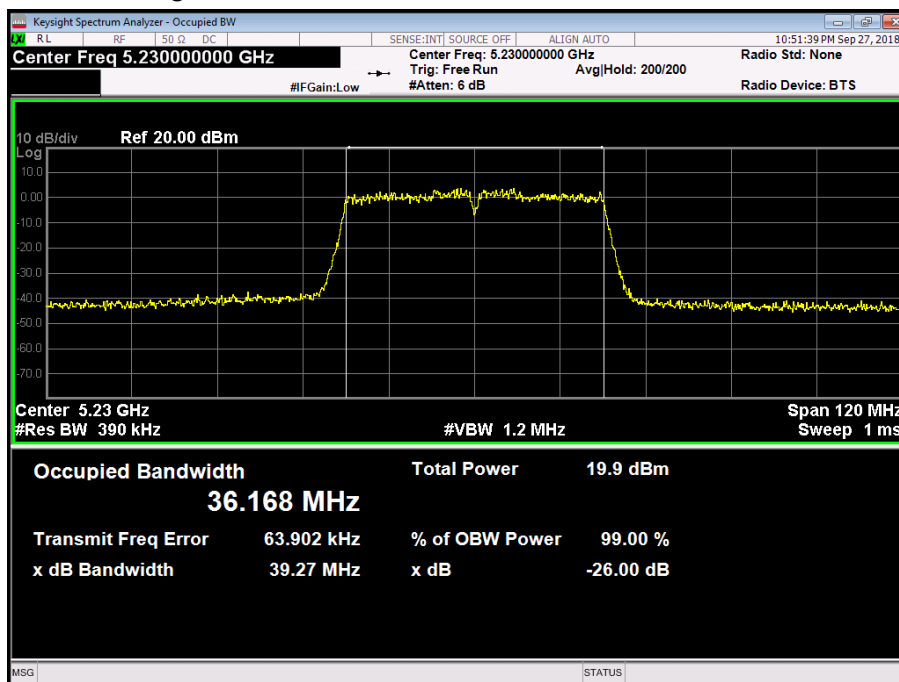


Figure 64 - 5230 MHz - 99% Occupied Bandwidth



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

| Channel               | Bottom | Top    |
|-----------------------|--------|--------|
| Frequency (MHz)       | 5190   | 5230   |
| 26 dB Bandwidth (MHz) | 40.440 | 40.680 |
| 99% Bandwidth (MHz)   | 36.156 | 36.282 |

Table 155

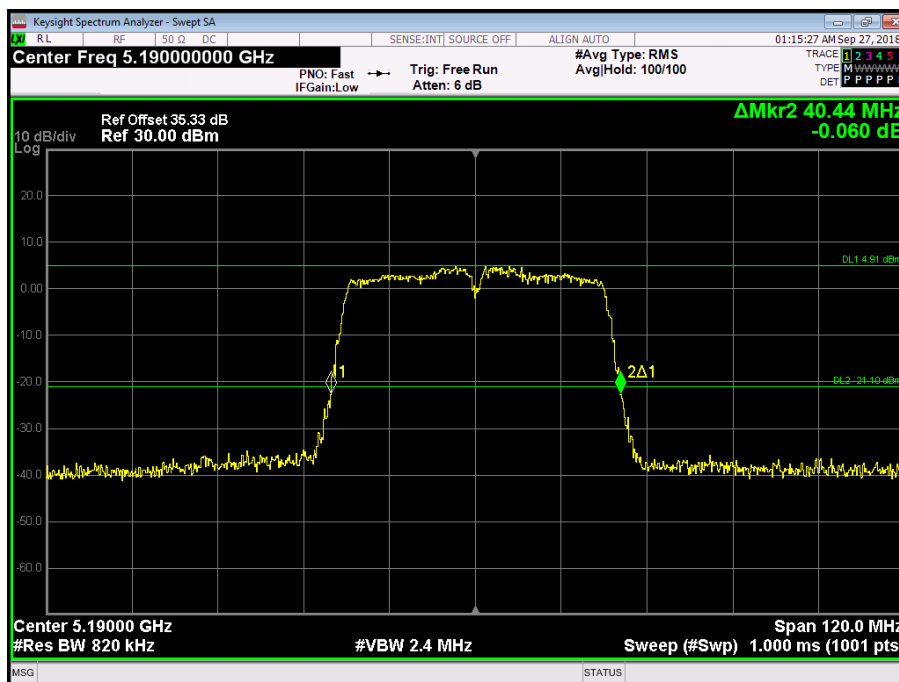


Figure 65 - 5190 MHz - 26 dB Emission Bandwidth

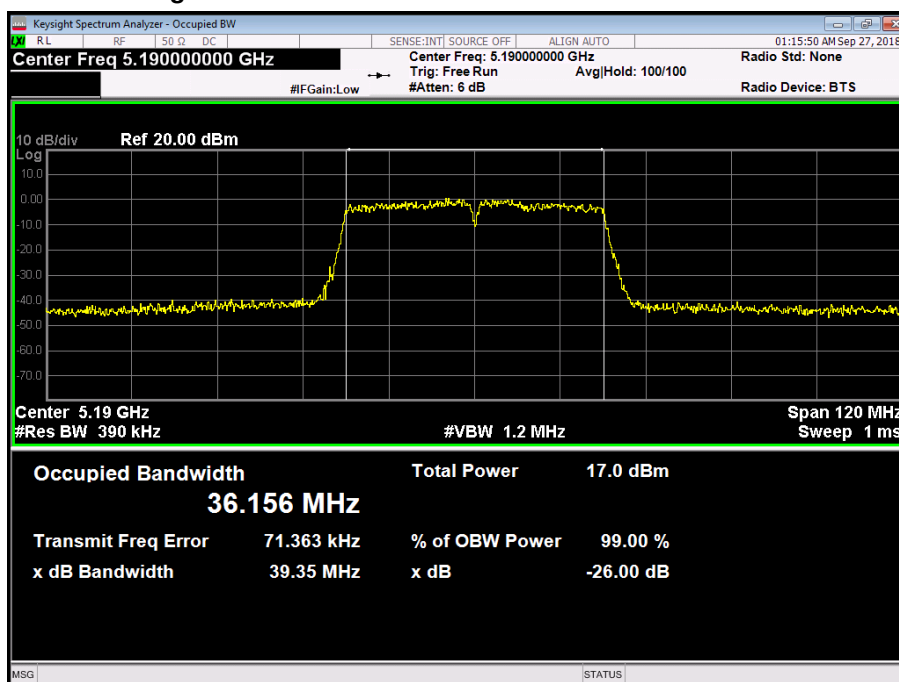


Figure 66 - 5190 MHz - 99% Occupied Bandwidth

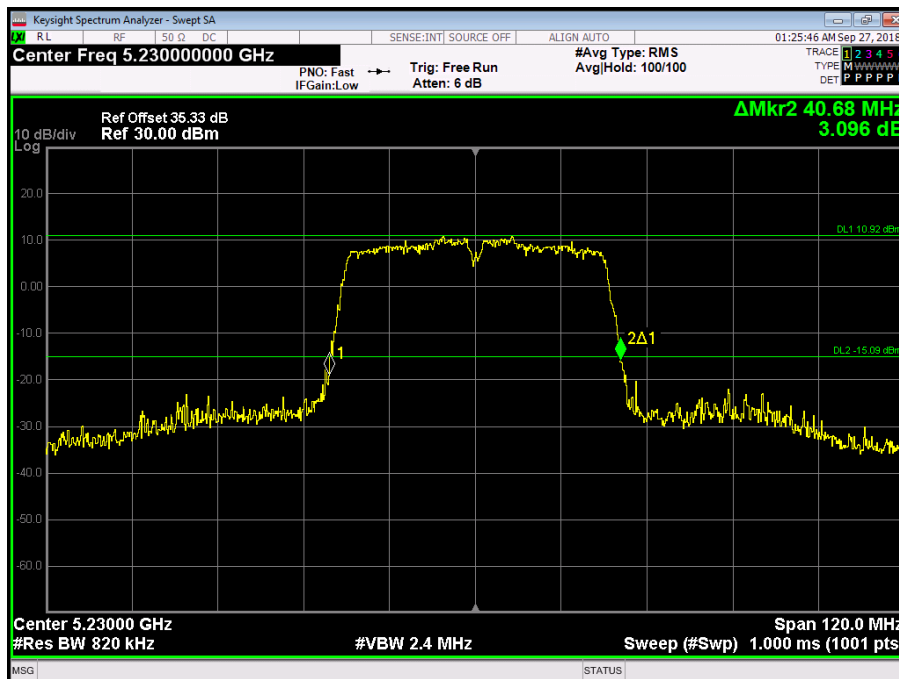


Figure 67 - 5230 MHz - 26 dB Emission Bandwidth

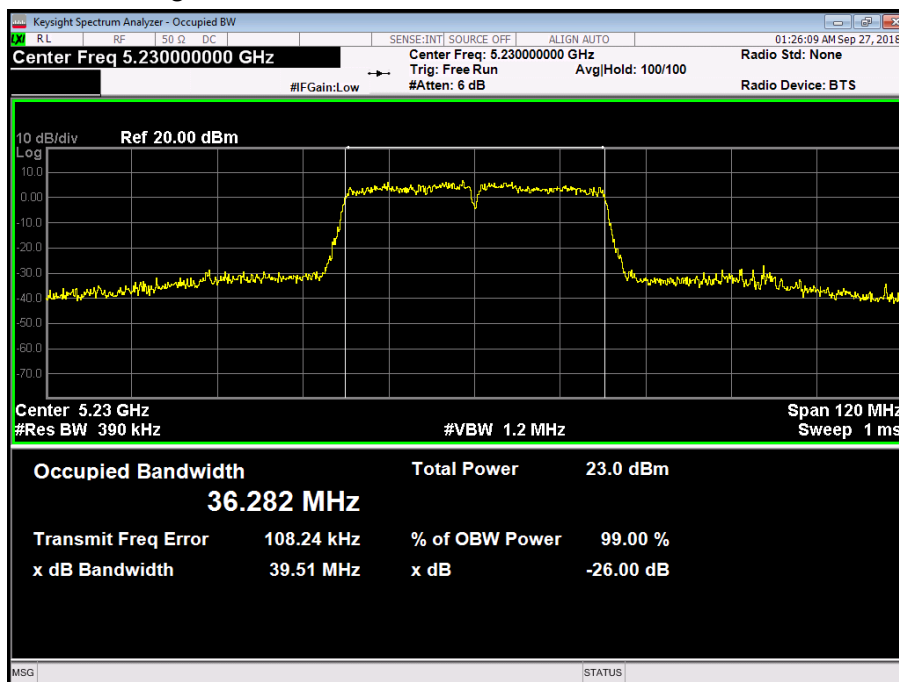


Figure 68 - 5230 MHz - 99% Occupied Bandwidth



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

| Channel               | Bottom | Top    |
|-----------------------|--------|--------|
| Frequency (MHz)       | 5190   | 5230   |
| 26 dB Bandwidth (MHz) | 40.440 | 40.800 |
| 99% Bandwidth (MHz)   | 36.221 | 36.172 |

Table 156

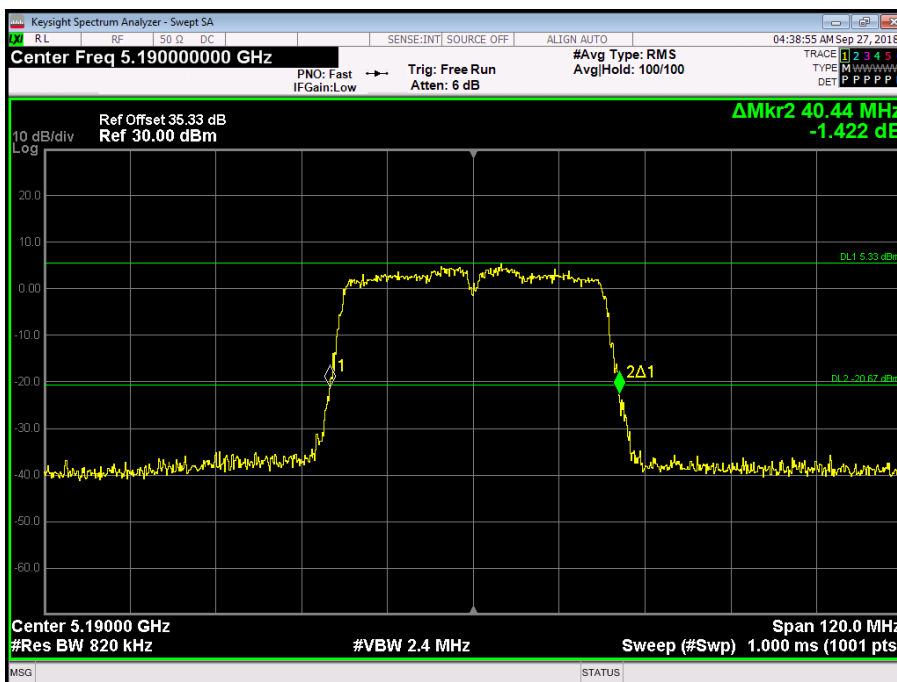


Figure 69 - 5190 MHz - 26 dB Emission Bandwidth

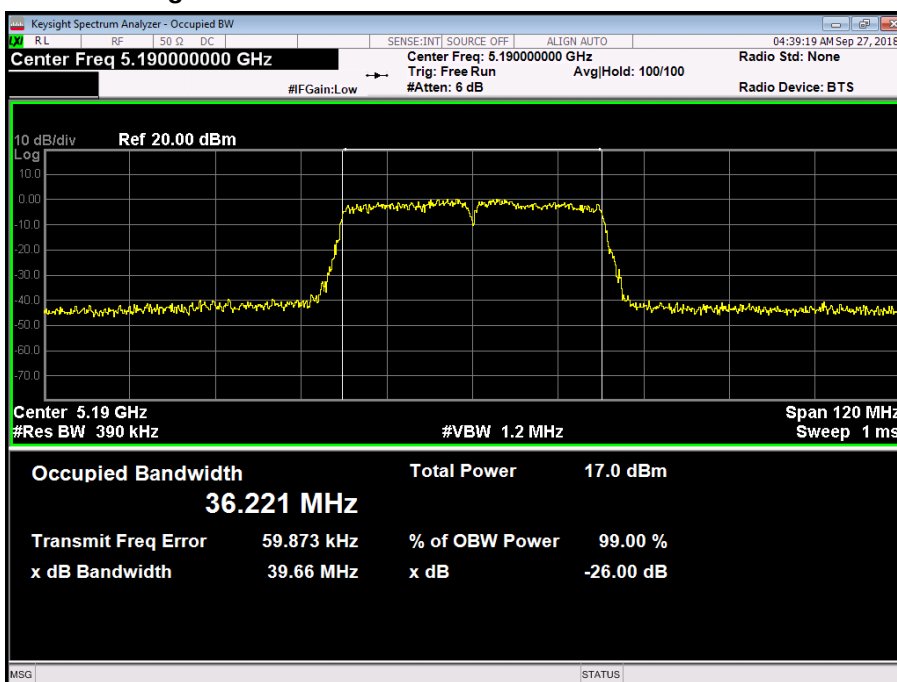


Figure 70 - 5190 MHz - 99% Occupied Bandwidth



Product Service



Figure 71 - 5230 MHz - 26 dB Emission Bandwidth

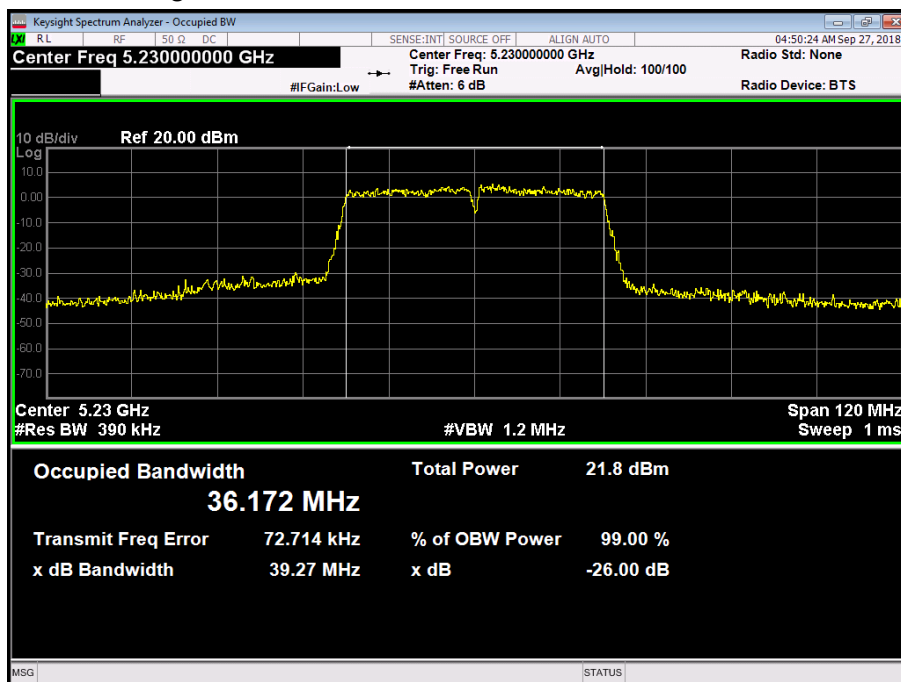


Figure 72 - 5230 MHz - 99% Occupied Bandwidth



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

| Channel               | Bottom | Middle | Top    |
|-----------------------|--------|--------|--------|
| Frequency (MHz)       | 5180   | 5200   | 5240   |
| 26 dB Bandwidth (MHz) | 21.780 | 21.780 | 21.960 |
| 99% Bandwidth (MHz)   | 17.760 | 17.734 | 17.743 |

Table 157

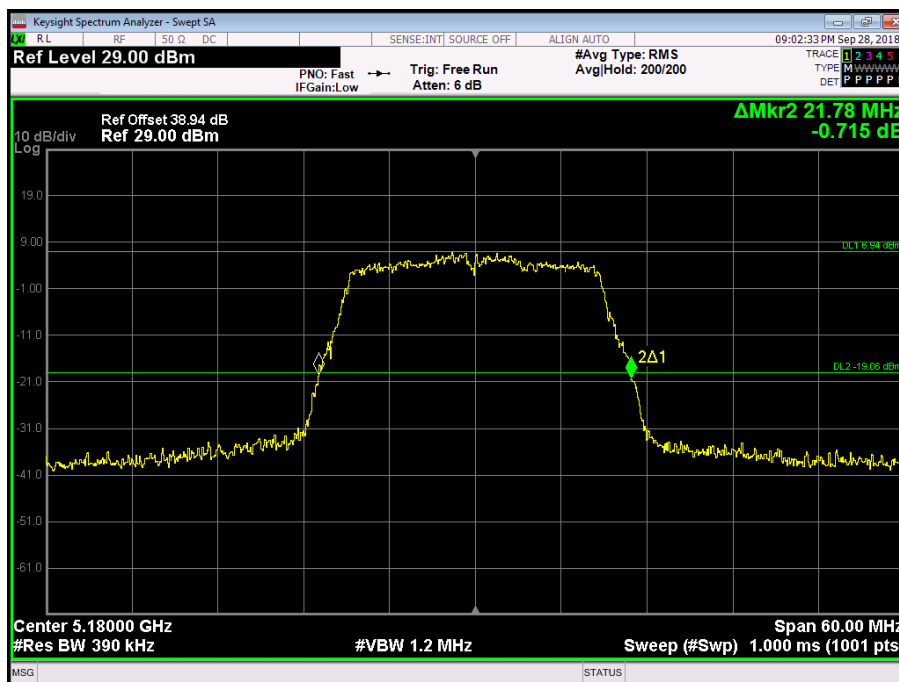


Figure 73 - 5180 MHz - 26 dB Emission Bandwidth

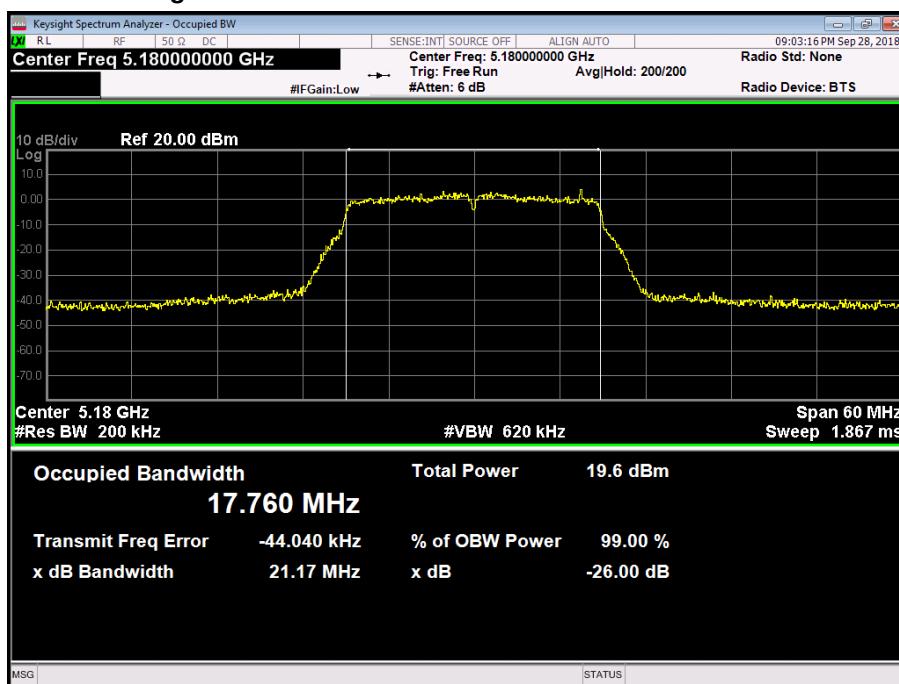


Figure 74 - 5180 MHz - 99% Occupied Bandwidth



Product Service



Figure 75 - 5200 MHz - 26 dB Emission Bandwidth

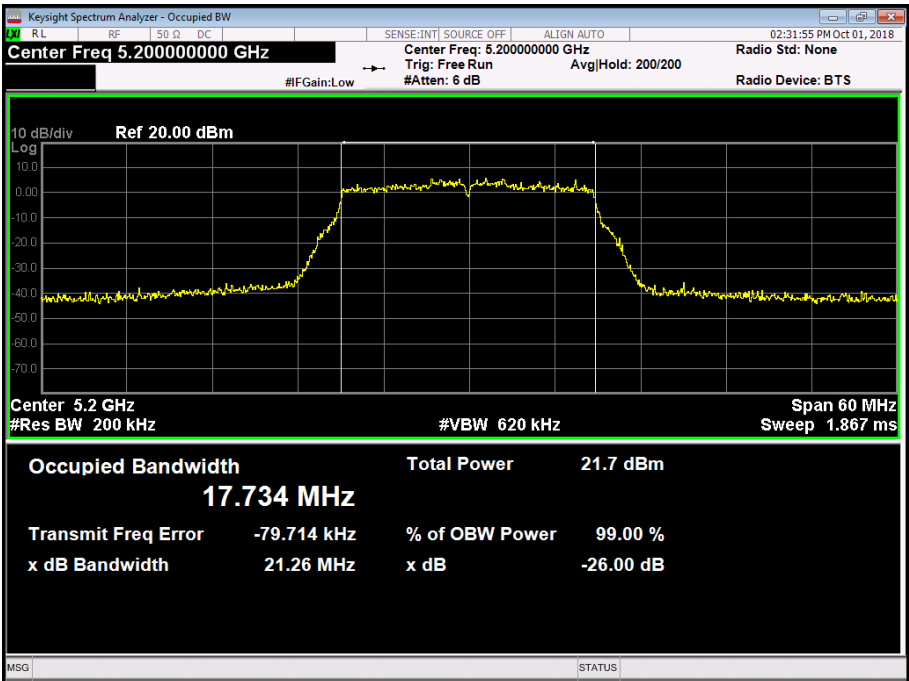


Figure 76 - 5200 MHz - 99% Occupied Bandwidth



Product Service

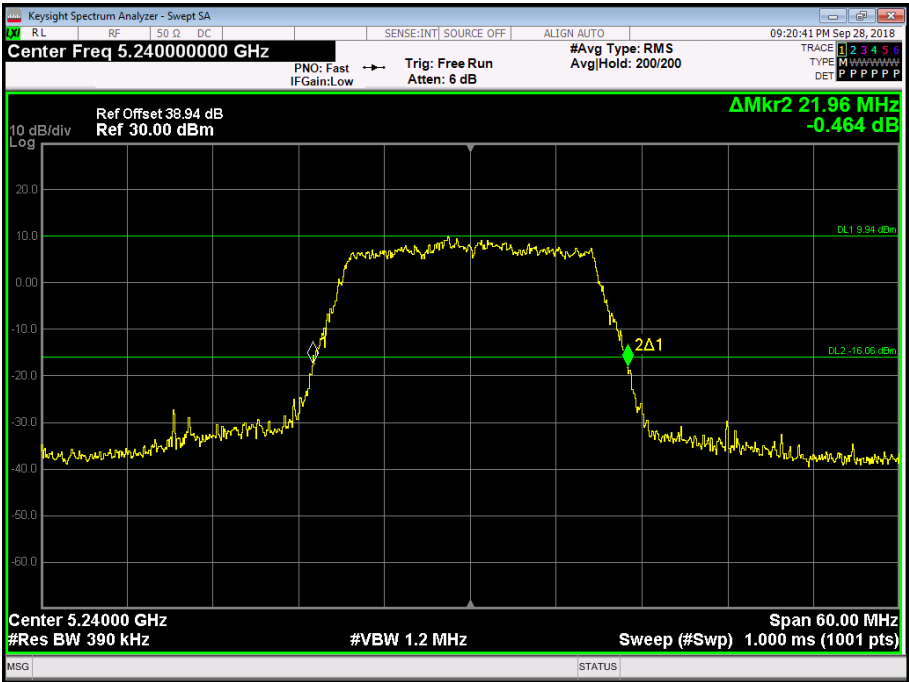


Figure 77 - 5240 MHz - 26 dB Emission Bandwidth

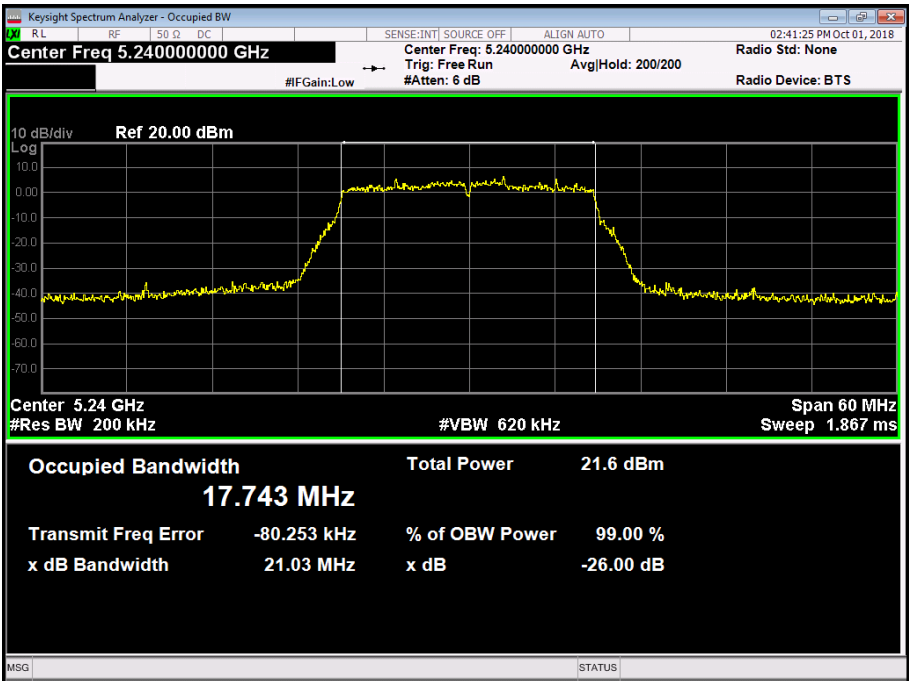


Figure 78 - 5240 MHz - 99% Occupied Bandwidth



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

| Channel               | Bottom | Middle | Top    |
|-----------------------|--------|--------|--------|
| Frequency (MHz)       | 5180   | 5200   | 5240   |
| 26 dB Bandwidth (MHz) | 21.840 | 21.900 | 21.780 |
| 99% Bandwidth (MHz)   | 17.747 | 17.778 | 17.731 |

Table 158

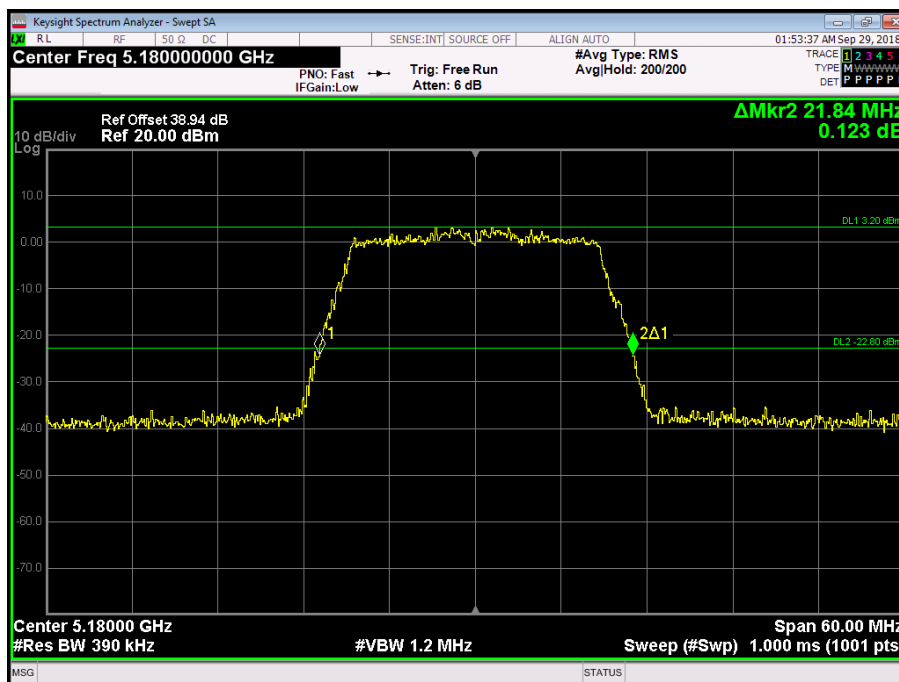


Figure 79 - 5180 MHz - 26 dB Emission Bandwidth

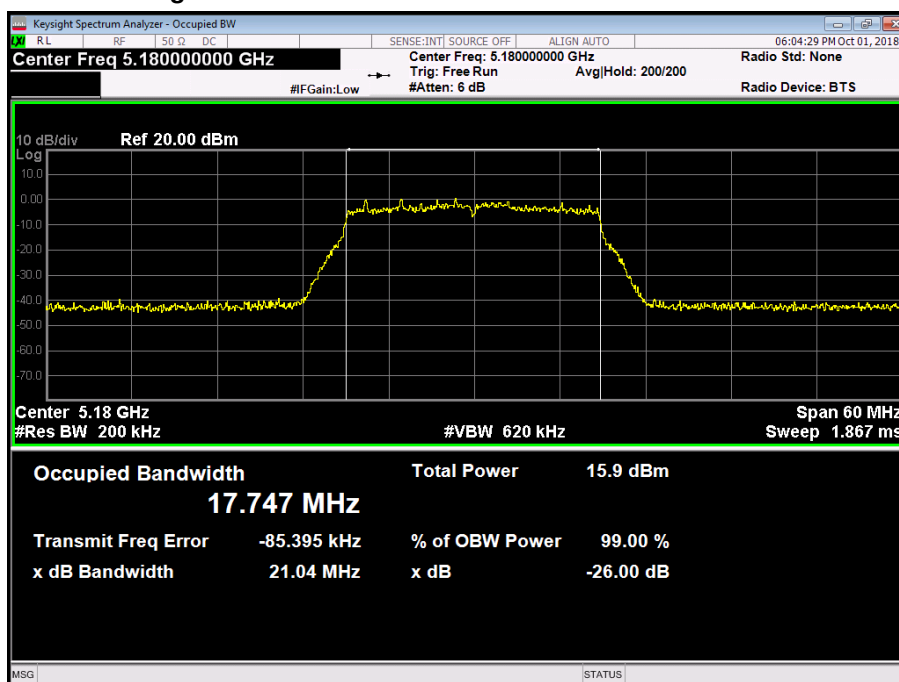


Figure 80 - 5180 MHz - 99% Occupied Bandwidth



Product Service

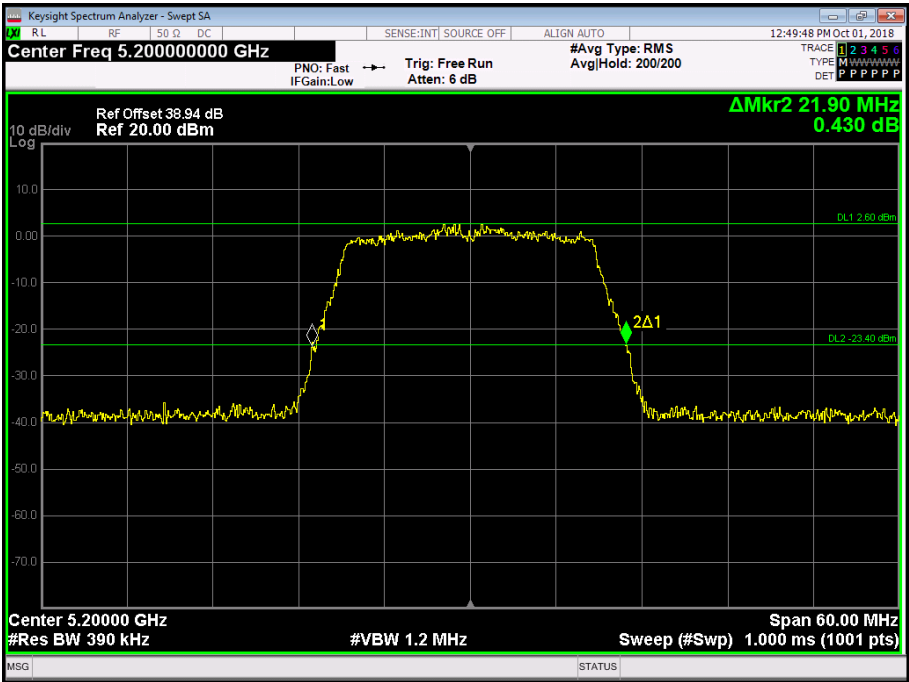


Figure 81 - 5200 MHz - 26 dB Emission Bandwidth

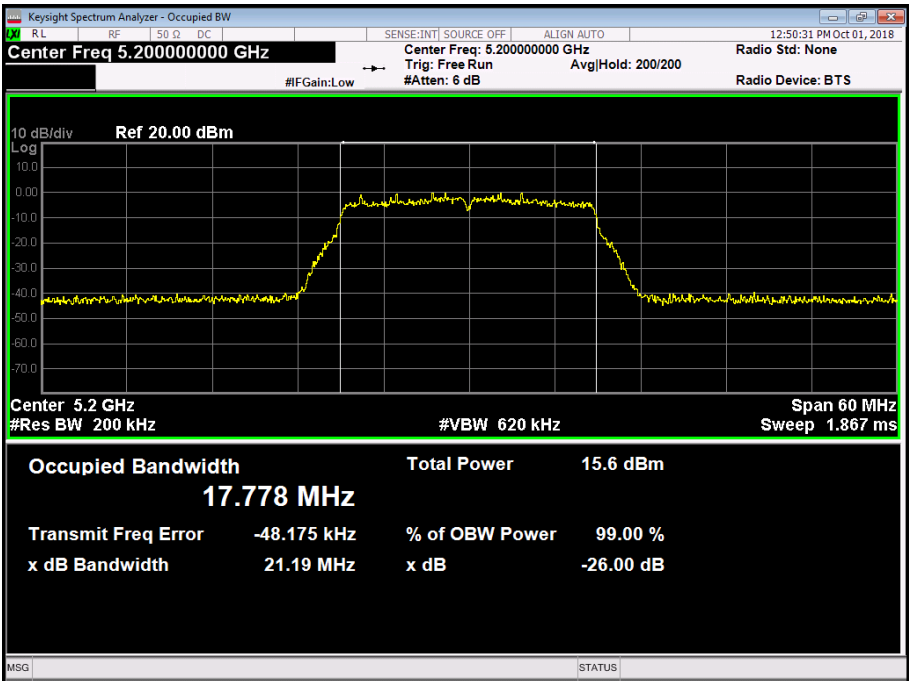


Figure 82 - 5200 MHz - 99% Occupied Bandwidth



Product Service

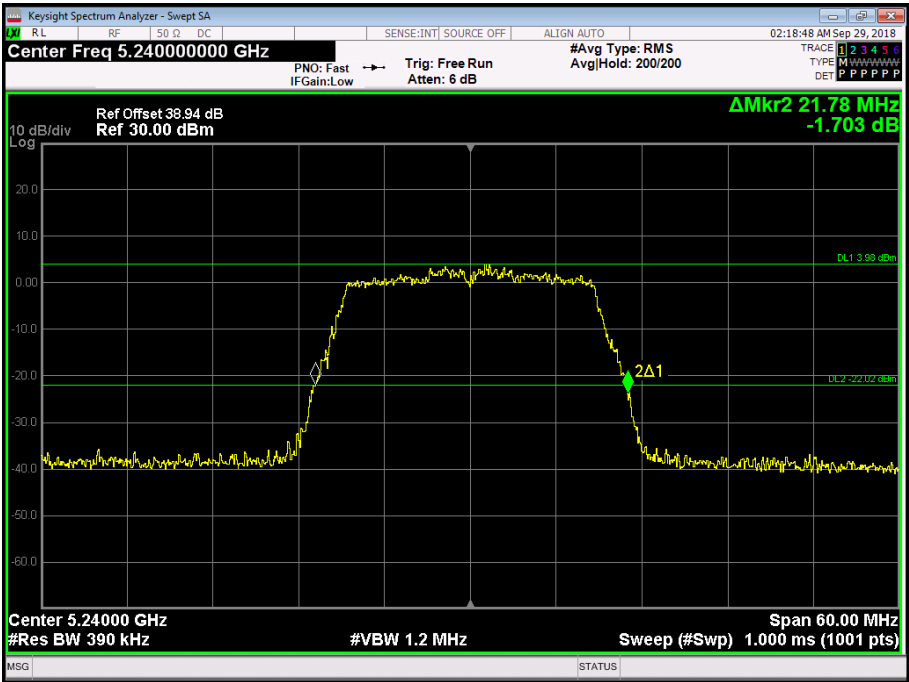


Figure 83 - 5240 MHz - 26 dB Emission Bandwidth

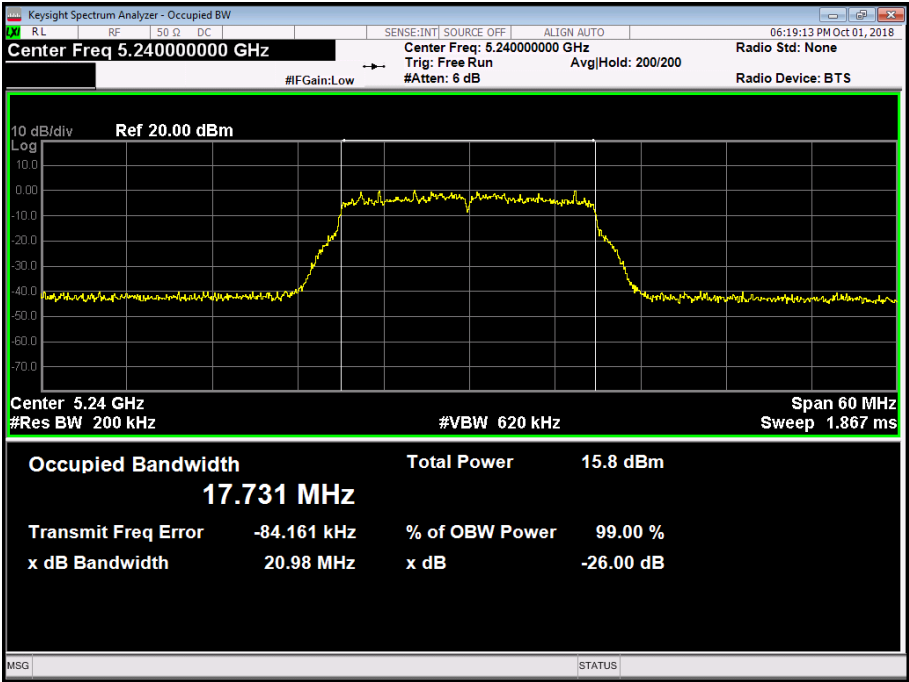


Figure 84 - 5240 MHz - 99% Occupied Bandwidth



802.11ac / VHT40 MCS0x1 / MIMO TxBF / Cores 0+1 / Country Code US

| Channel               | Bottom | Top    |
|-----------------------|--------|--------|
| Frequency (MHz)       | 5190   | 5230   |
| 26 dB Bandwidth (MHz) | 40.320 | 40.200 |
| 99% Bandwidth (MHz)   | 36.199 | 36.206 |

Table 159

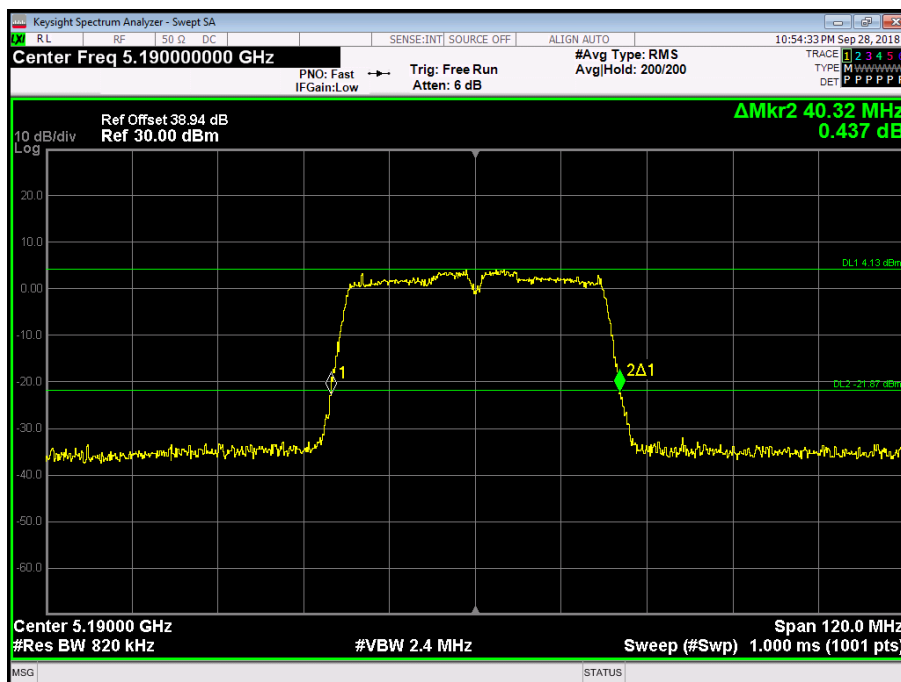


Figure 85 - 5190 MHz - 26 dB Emission Bandwidth

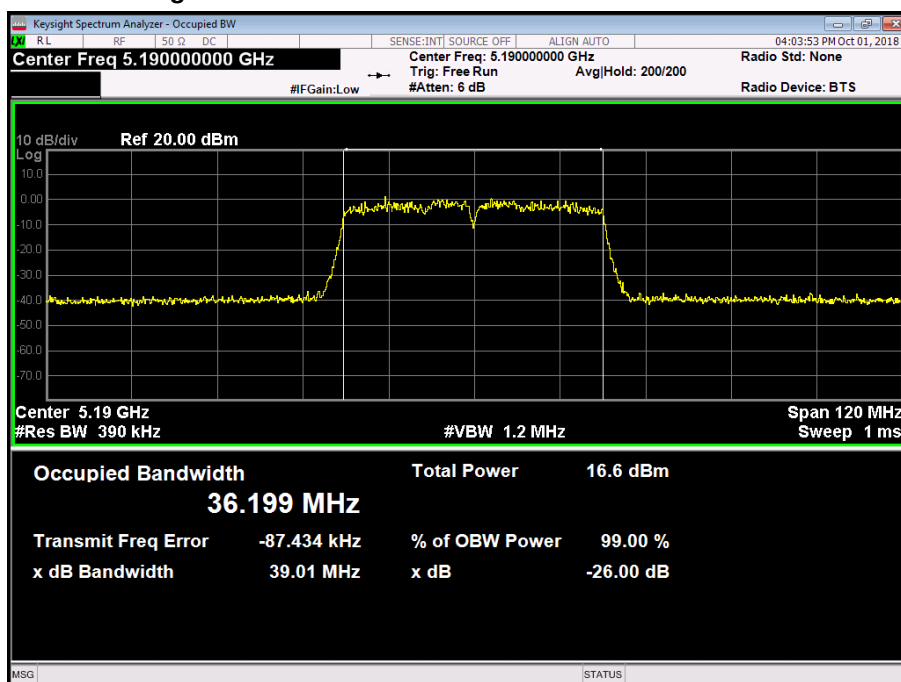


Figure 86 - 5190 MHz - 99% Occupied Bandwidth

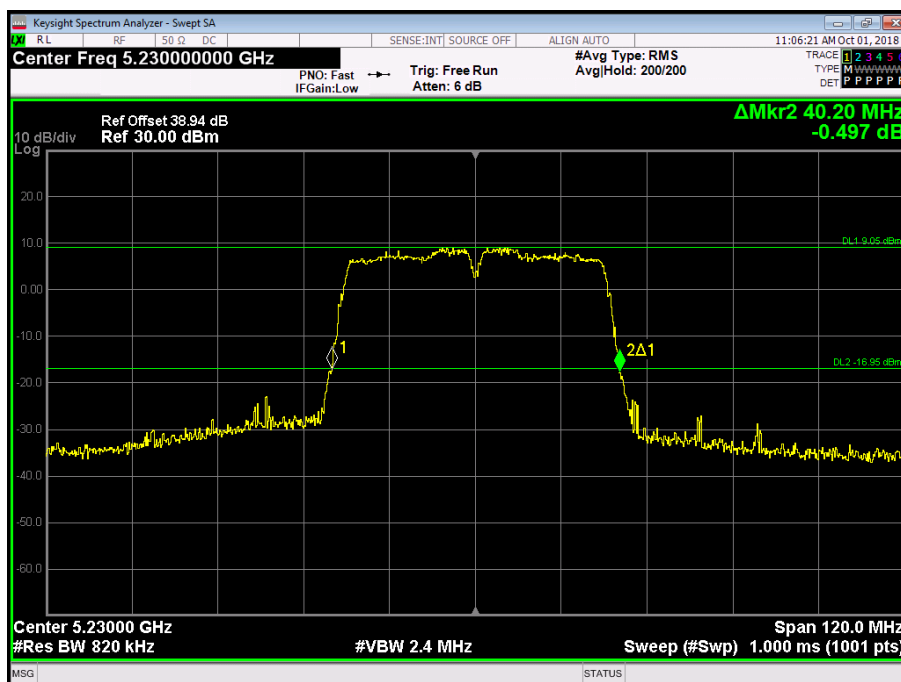


Figure 87 - 5230 MHz - 26 dB Emission Bandwidth

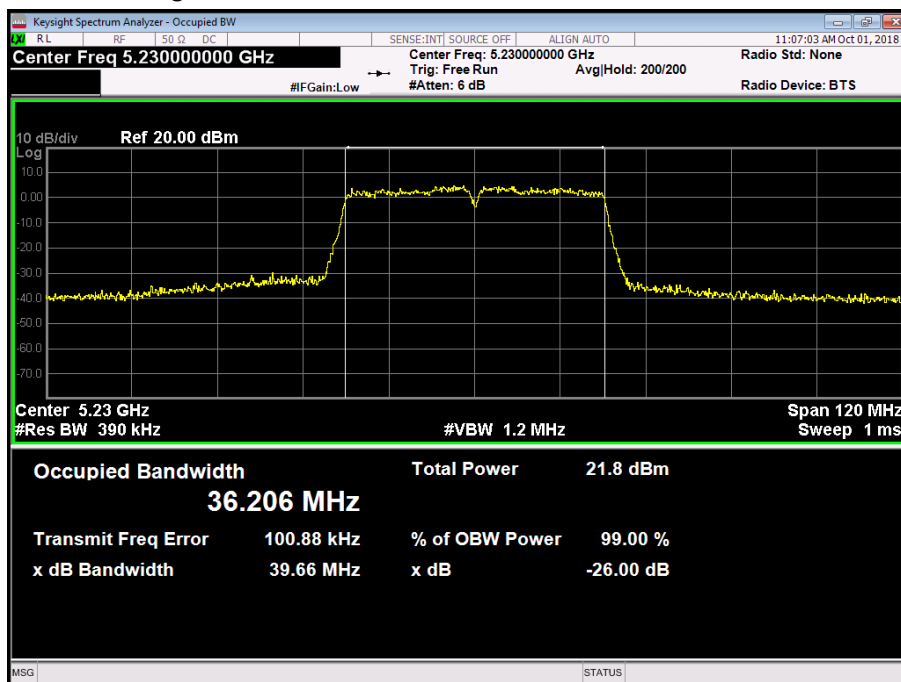


Figure 88 - 5230 MHz - 99% Occupied Bandwidth



802.11ac / VHT40 MCS0x1 / MIMO TxBF / Cores 0+1 / Country Code CA

| Channel               | Bottom | Top    |
|-----------------------|--------|--------|
| Frequency (MHz)       | 5190   | 5230   |
| 26 dB Bandwidth (MHz) | 40.560 | 40.200 |
| 99% Bandwidth (MHz)   | 36.274 | 36.173 |

Table 160

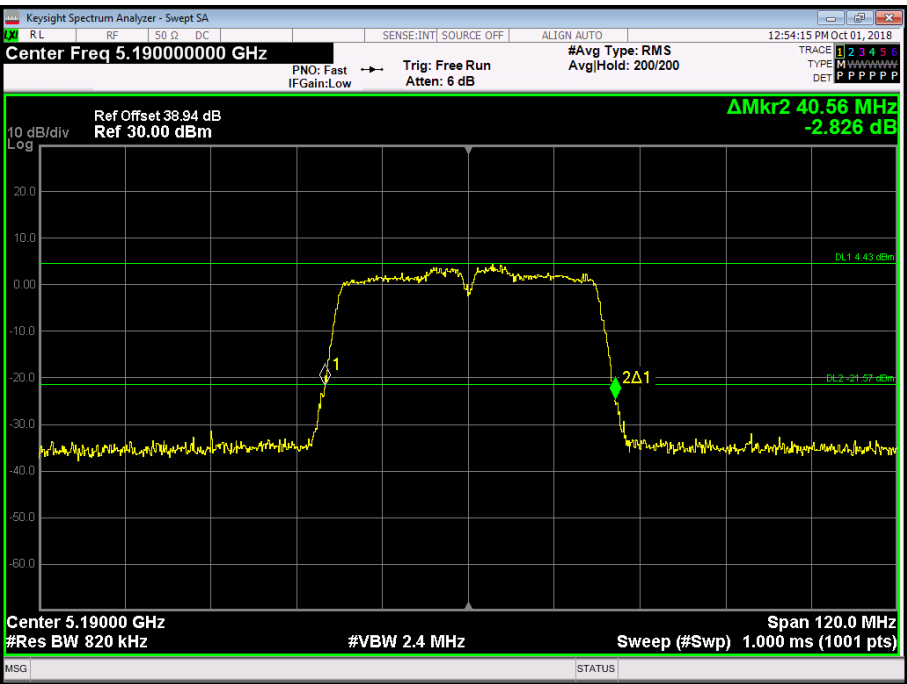


Figure 89 - 5190 MHz - 26 dB Emission Bandwidth

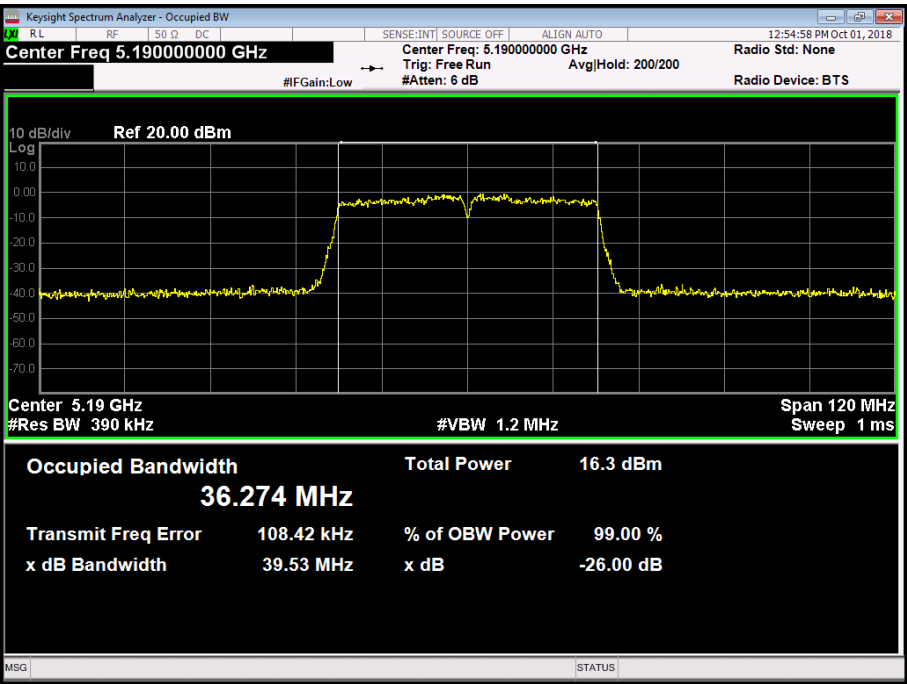


Figure 90 - 5190 MHz - 99% Occupied Bandwidth



Product Service



Figure 91 - 5230 MHz - 26 dB Emission Bandwidth

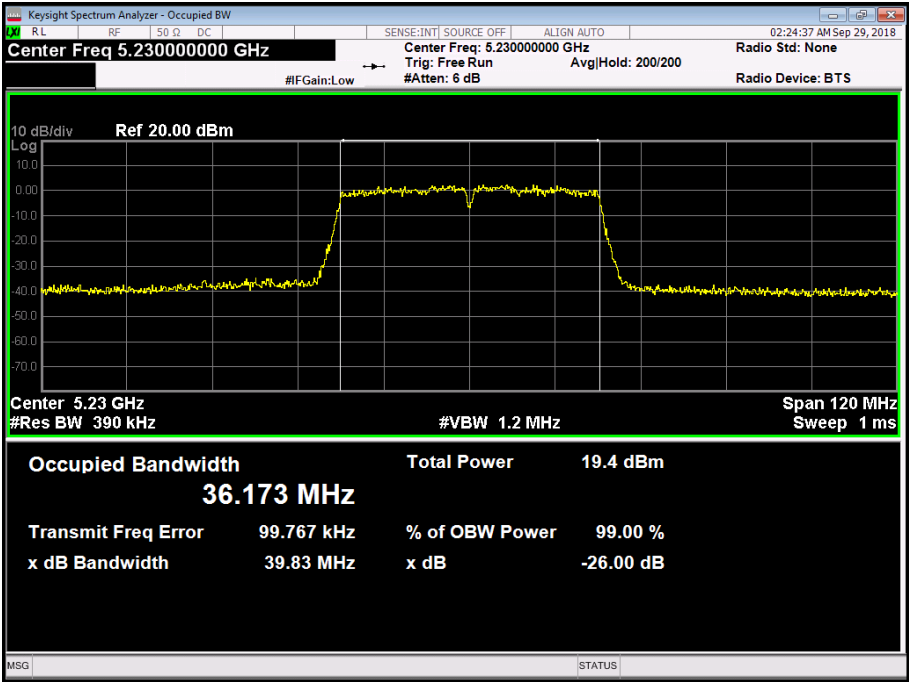


Figure 92 - 5230 MHz - 99% Occupied Bandwidth



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

|                       |        |
|-----------------------|--------|
| Channel               | Middle |
| Frequency (MHz)       | 5210   |
| 26 dB Bandwidth (MHz) | 81.120 |
| 99% Bandwidth (MHz)   | 75.615 |

Table 161

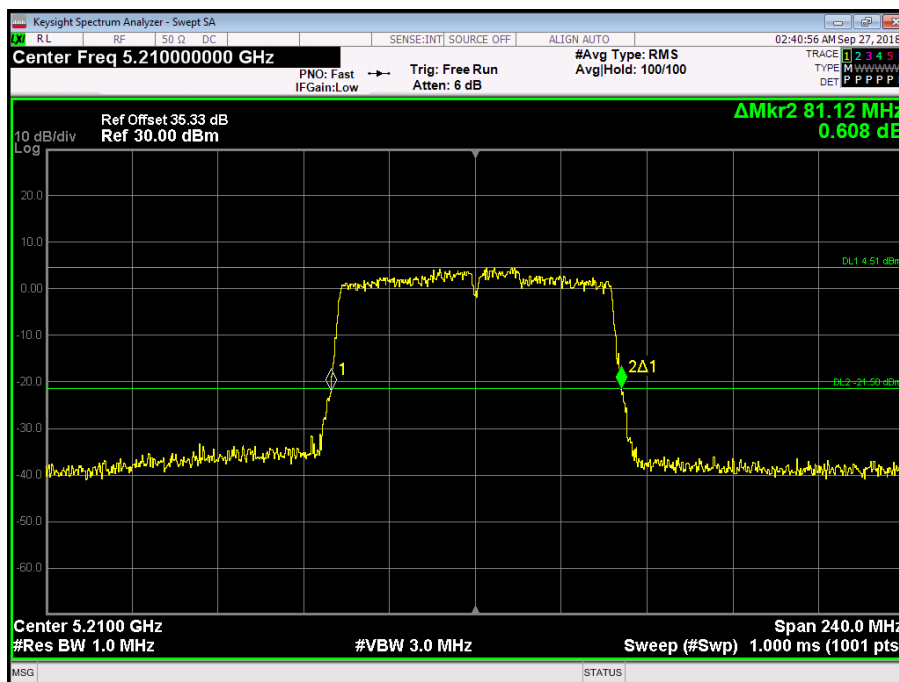


Figure 93 - 5210 MHz - 26 dB Emission Bandwidth

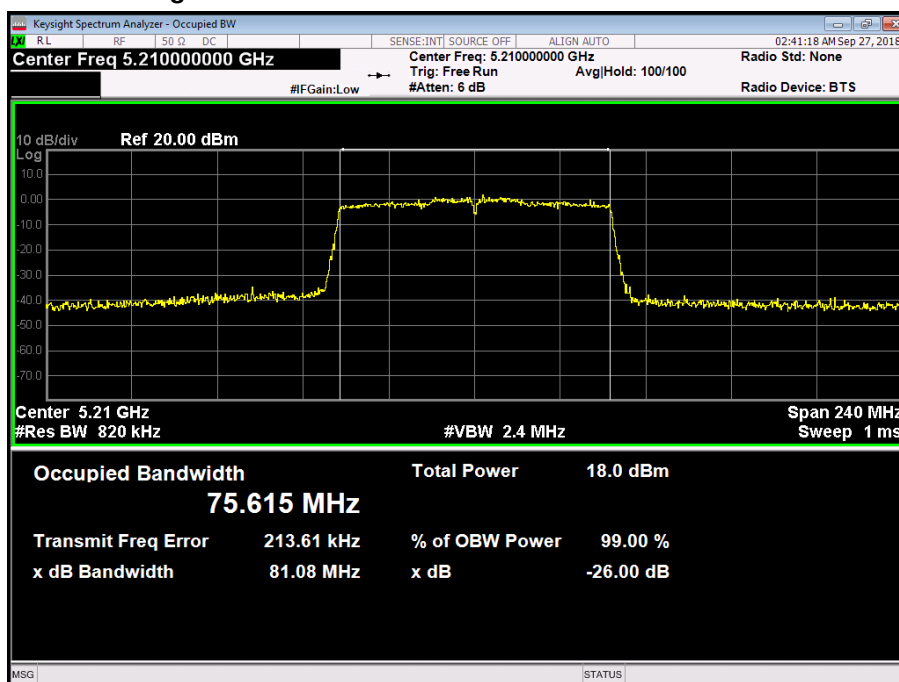


Figure 94 - 5210 MHz - 99% Occupied Bandwidth



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

|                       |        |
|-----------------------|--------|
| Channel               | Middle |
| Frequency (MHz)       | 5210   |
| 26 dB Bandwidth (MHz) | 81.360 |
| 99% Bandwidth (MHz)   | 75.795 |

Table 162

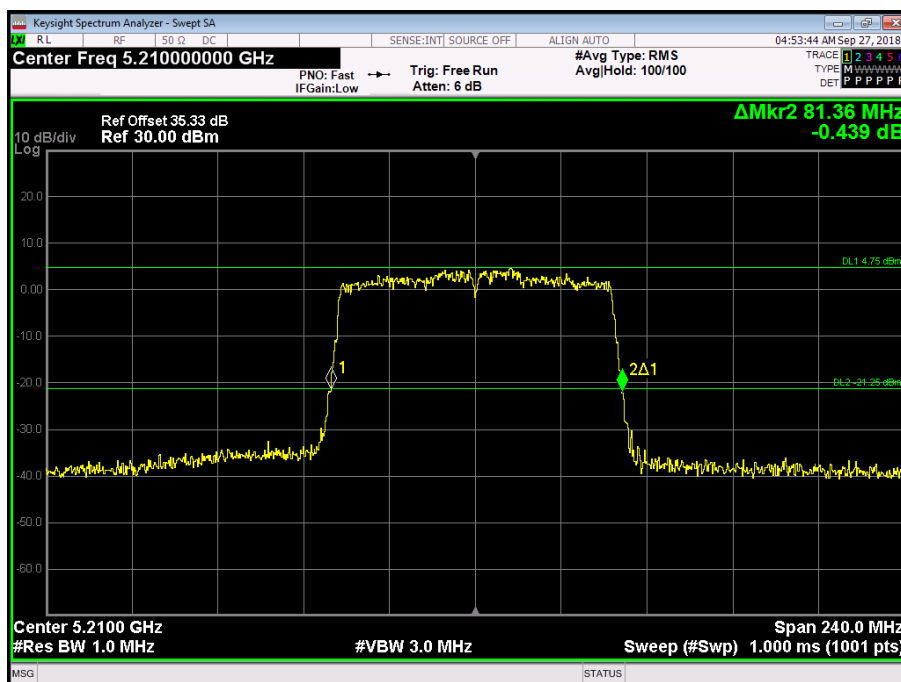


Figure 95 - 5210 MHz - 26 dB Emission Bandwidth

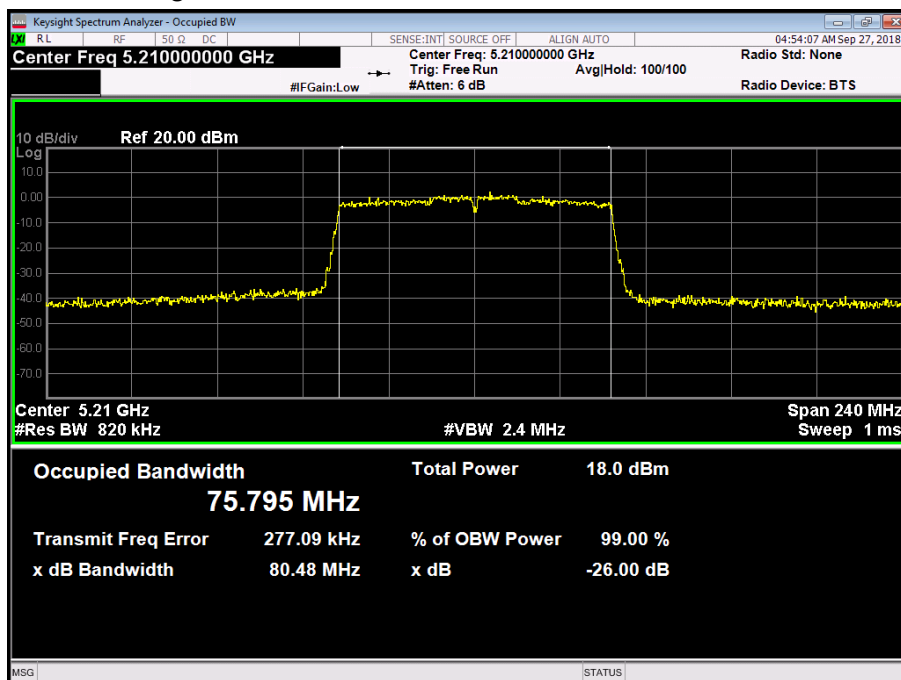


Figure 96 - 5210 MHz - 99% Occupied Bandwidth



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

|                       |        |
|-----------------------|--------|
| Channel               | Middle |
| Frequency (MHz)       | 5210   |
| 26 dB Bandwidth (MHz) | 81.840 |
| 99% Bandwidth (MHz)   | 75.639 |

Table 163

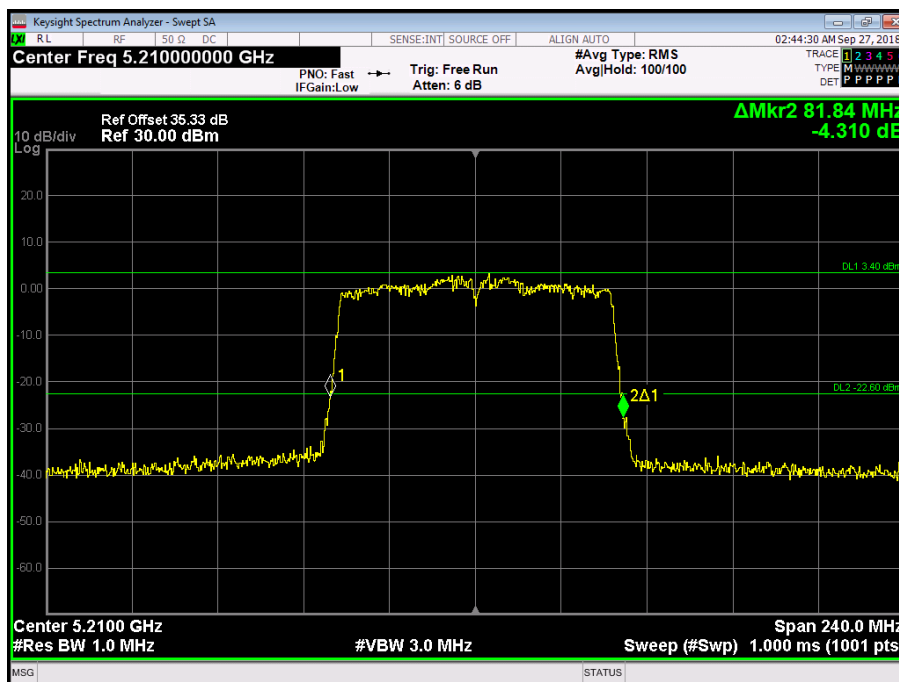


Figure 97 - 5210 MHz - 26 dB Emission Bandwidth

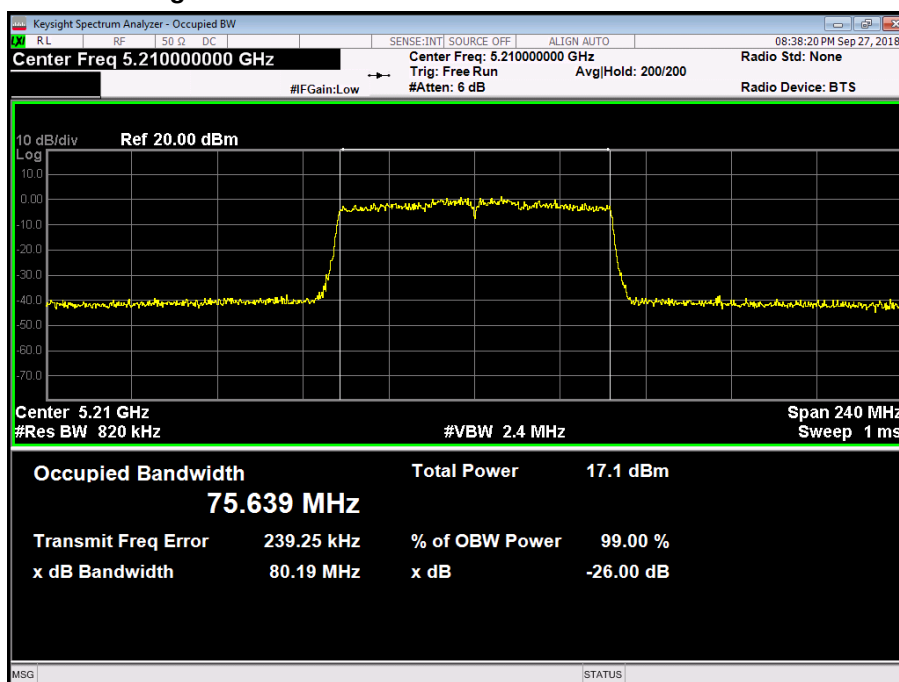


Figure 98 - 5210 MHz - 99% Occupied Bandwidth



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

|                       |        |
|-----------------------|--------|
| Channel               | Middle |
| Frequency (MHz)       | 5210   |
| 26 dB Bandwidth (MHz) | 81.840 |
| 99% Bandwidth (MHz)   | 75.706 |

Table 164



Figure 99 - 5210 MHz - 26 dB Emission Bandwidth

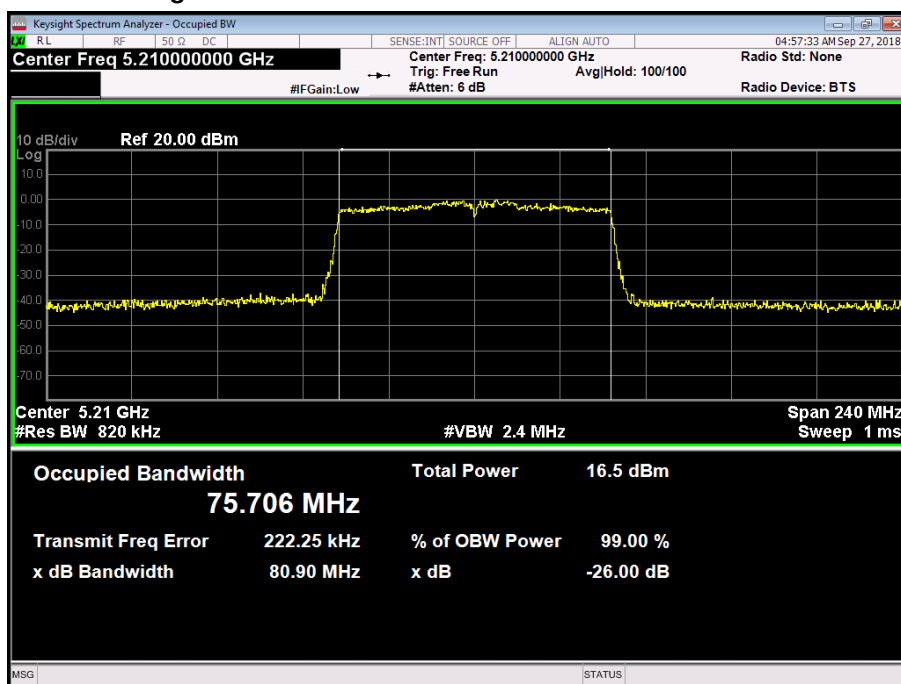


Figure 100 - 5210 MHz - 99% Occupied Bandwidth



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

|                       |        |
|-----------------------|--------|
| Channel               | Middle |
| Frequency (MHz)       | 5210   |
| 26 dB Bandwidth (MHz) | 81.840 |
| 99% Bandwidth (MHz)   | 75.623 |

Table 165

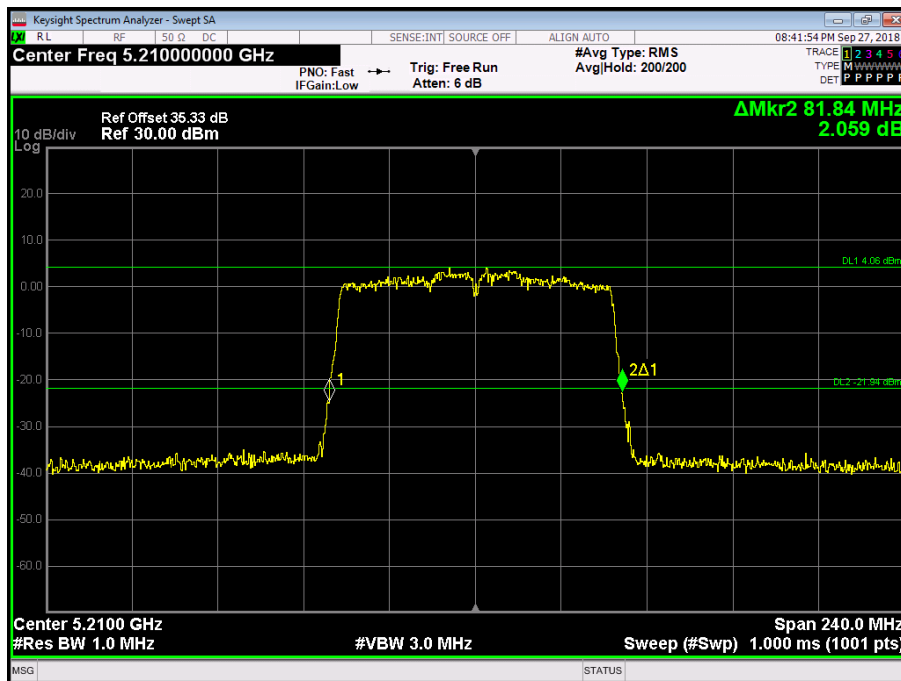


Figure 101 - 5210 MHz - 26 dB Emission Bandwidth

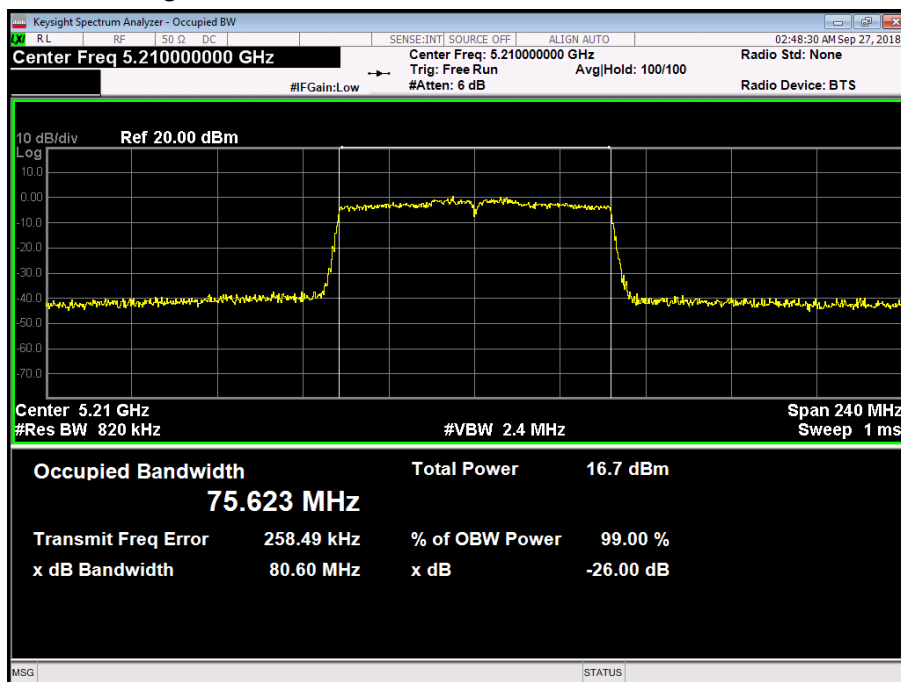


Figure 102 - 5210 MHz - 99% Occupied Bandwidth



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

|                       |        |
|-----------------------|--------|
| Channel               | Middle |
| Frequency (MHz)       | 5210   |
| 26 dB Bandwidth (MHz) | 81.360 |
| 99% Bandwidth (MHz)   | 75.684 |

Table 166

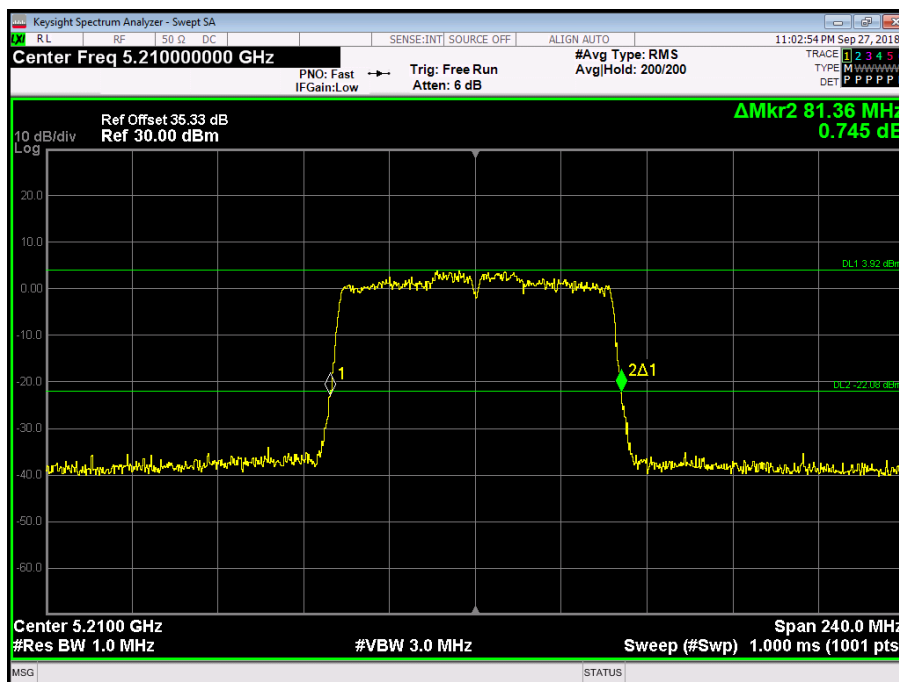


Figure 103 - 5210 MHz - 26 dB Emission Bandwidth

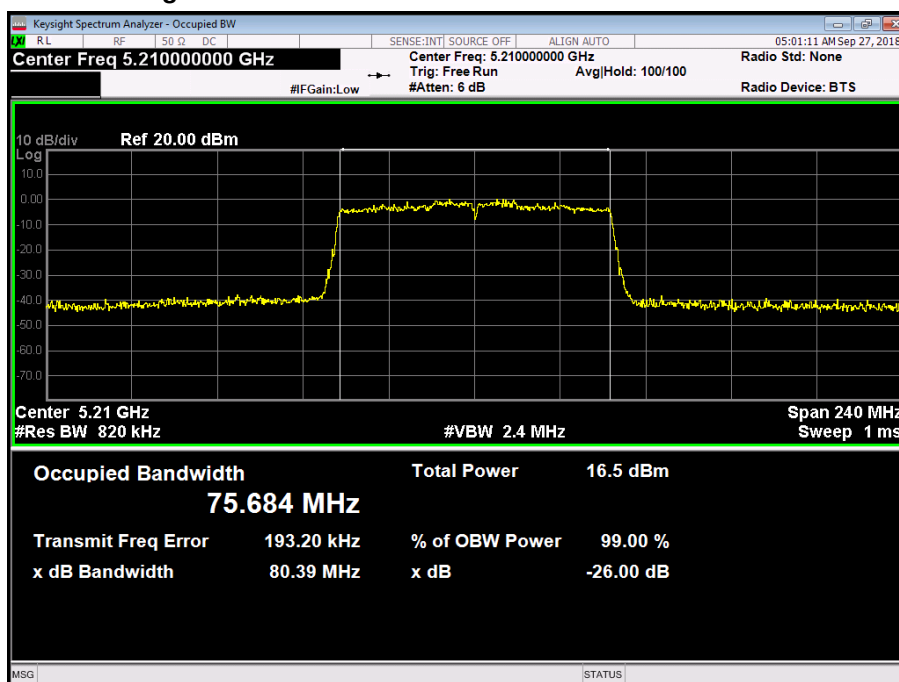


Figure 104 - 5210 MHz - 99% Occupied Bandwidth



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

|                       |        |
|-----------------------|--------|
| Channel               | Middle |
| Frequency (MHz)       | 5210   |
| 26 dB Bandwidth (MHz) | 81.840 |
| 99% Bandwidth (MHz)   | 75.642 |

Table 167

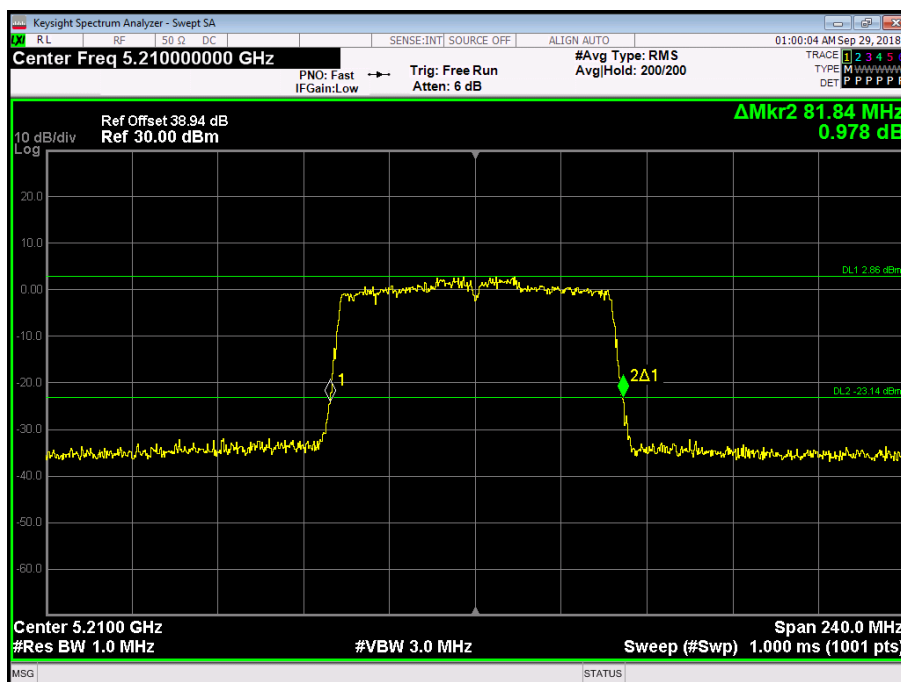


Figure 105 - 5210 MHz - 26 dB Emission Bandwidth

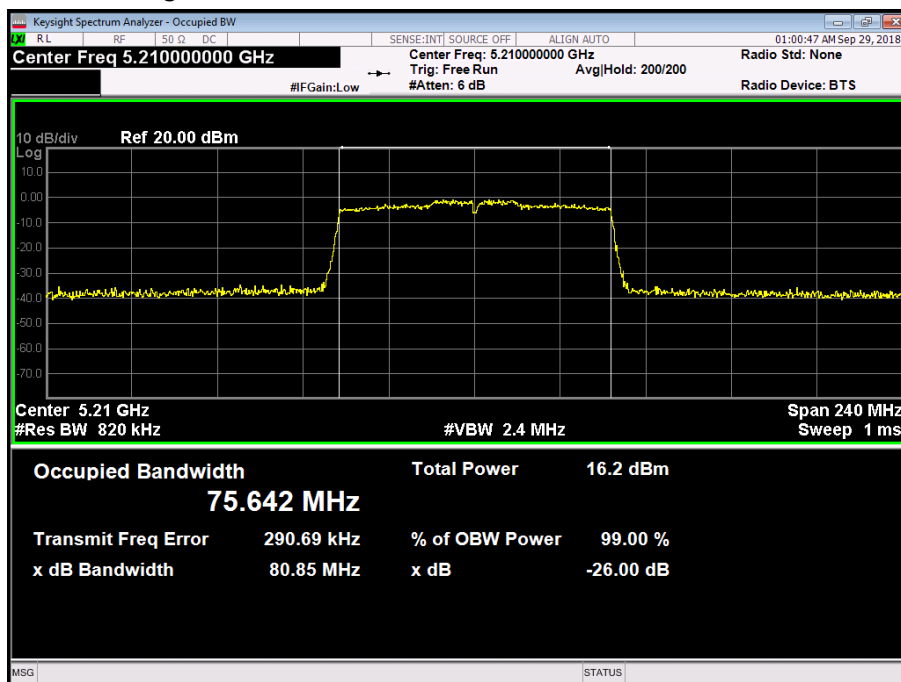


Figure 106 - 5210 MHz - 99% Occupied Bandwidth



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

|                       |        |
|-----------------------|--------|
| Channel               | Middle |
| Frequency (MHz)       | 5210   |
| 26 dB Bandwidth (MHz) | 82.080 |
| 99% Bandwidth (MHz)   | 75.730 |

Table 168



Figure 107 - 5210 MHz - 26 dB Emission Bandwidth

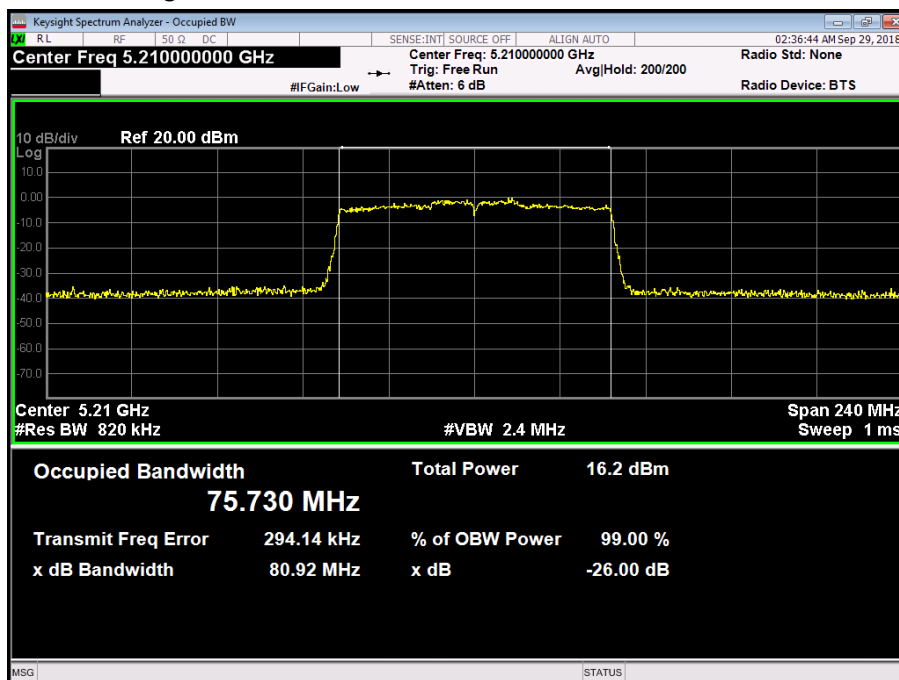


Figure 108 - 5210 MHz - 99% Occupied Bandwidth



2.3.7 Test Results: U-NII-2A

802.11a / 6 Mbps / SISO / Core 1

|                       |        |        |        |
|-----------------------|--------|--------|--------|
| Channel               | Bottom | Middle | Top    |
| Frequency (MHz)       | 5260   | 5280   | 5320   |
| 26 dB Bandwidth (MHz) | 21.780 | 21.540 | 21.840 |
| 99% Bandwidth (MHz)   | 16.552 | 16.574 | 16.566 |

Table 169

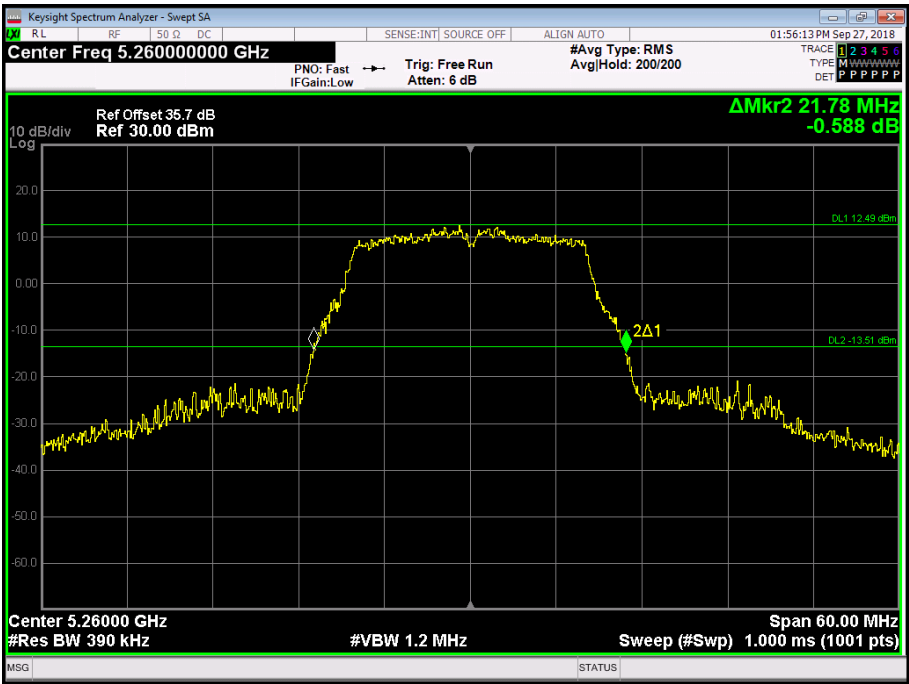


Figure 109 - 5260 MHz - 26 dB Emission Bandwidth



Product Service

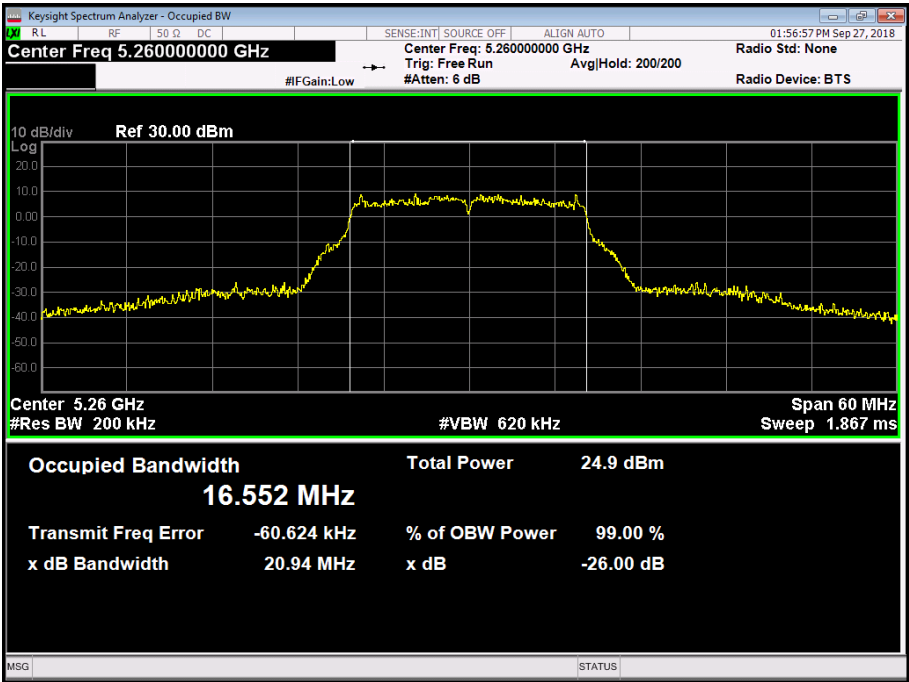


Figure 110 - 5260 MHz - 99% Occupied Bandwidth

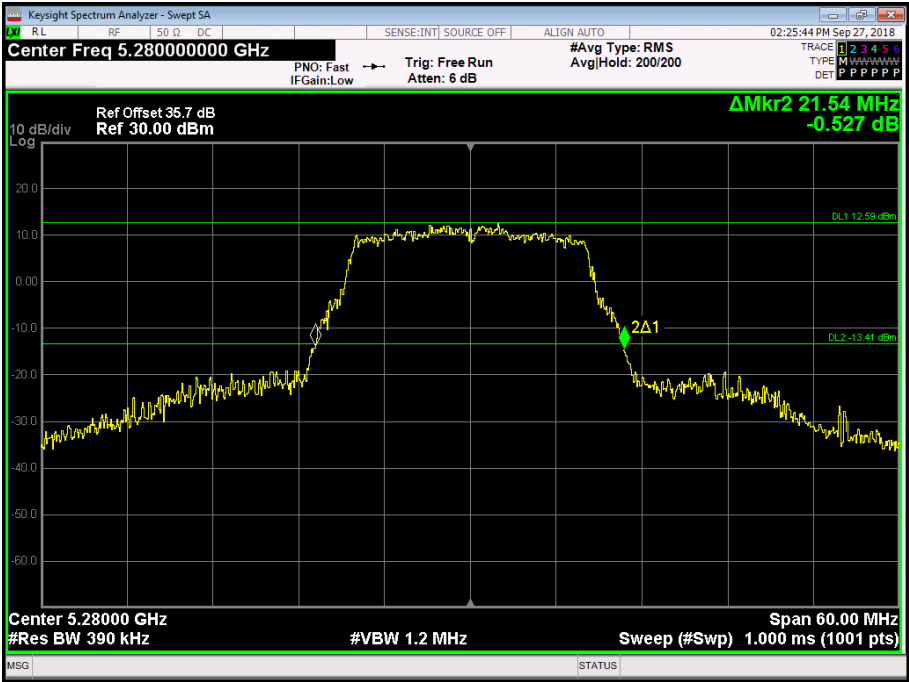


Figure 111 - 5280 MHz - 26 dB Emission Bandwidth



Product Service

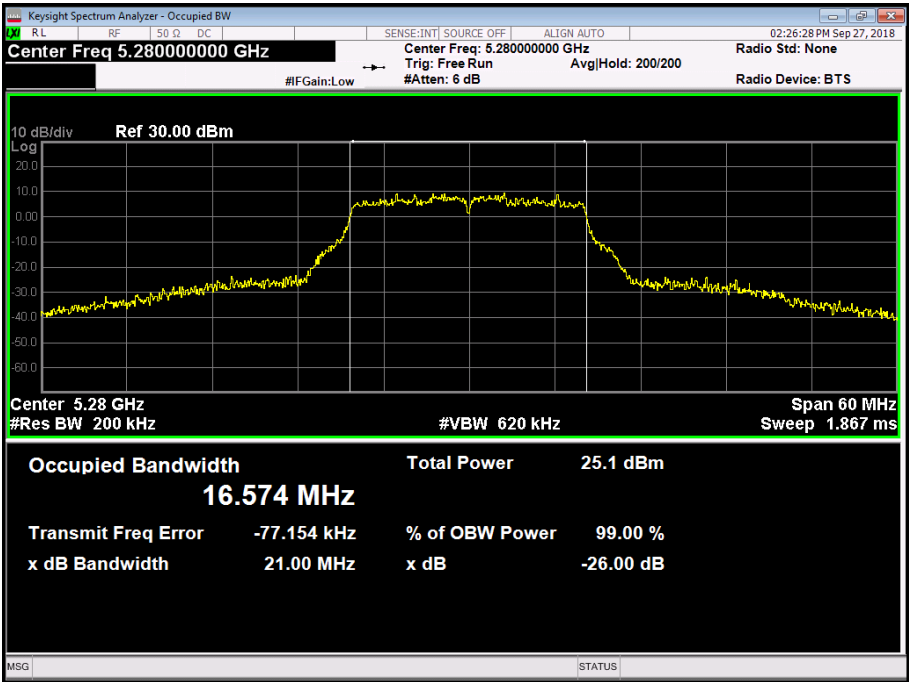


Figure 112 - 5280 MHz - 99% Occupied Bandwidth

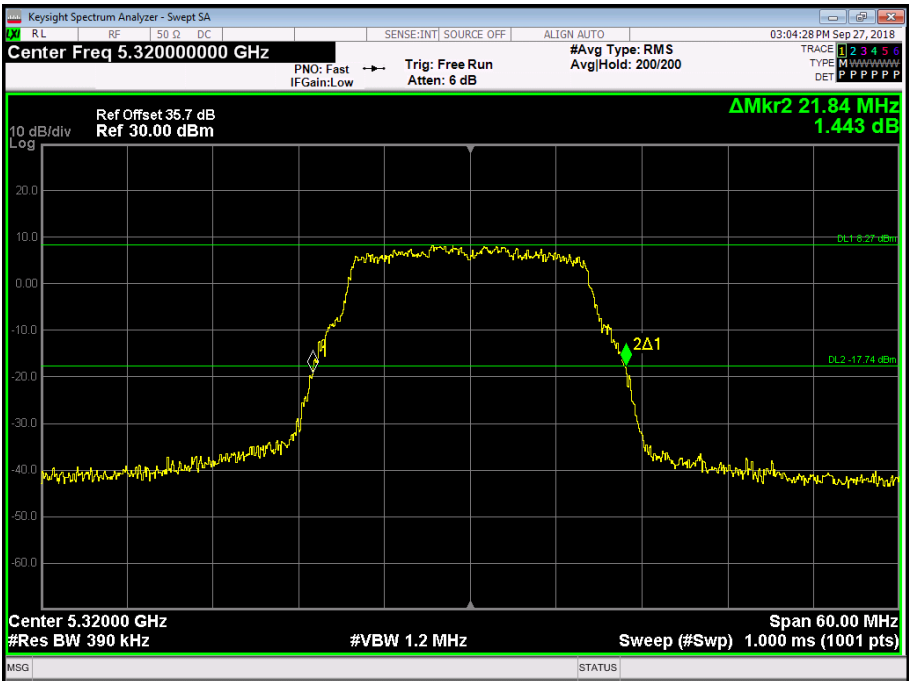


Figure 113 - 5320 MHz - 26 dB Emission Bandwidth



Product Service

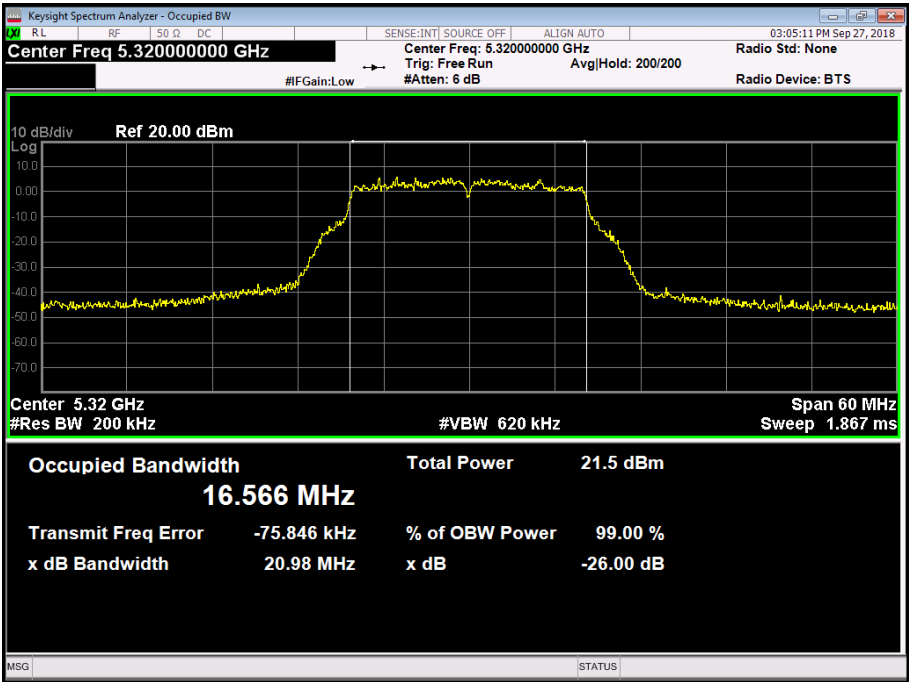


Figure 114 - 5320 MHz - 99% Occupied Bandwidth



### 802.11n / HT20 MCS0 / SISO / Core 1

| Channel               | Bottom | Middle | Top    |
|-----------------------|--------|--------|--------|
| Frequency (MHz)       | 5260   | 5280   | 5320   |
| 26 dB Bandwidth (MHz) | 21.960 | 21.900 | 21.720 |
| 99% Bandwidth (MHz)   | 17.782 | 17.772 | 17.728 |

Table 170

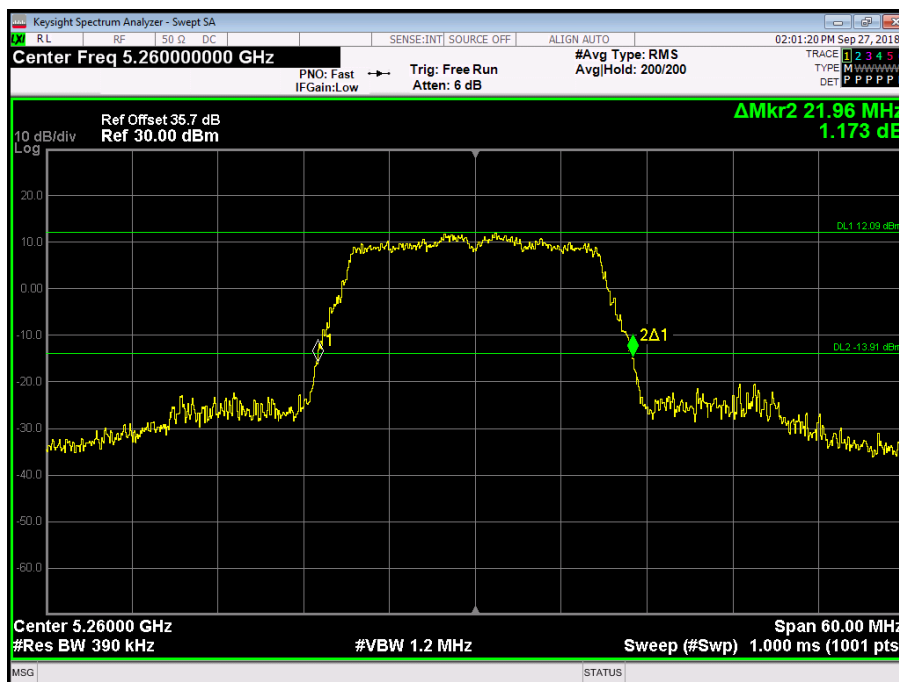


Figure 115 - 5260 MHz - 26 dB Emission Bandwidth

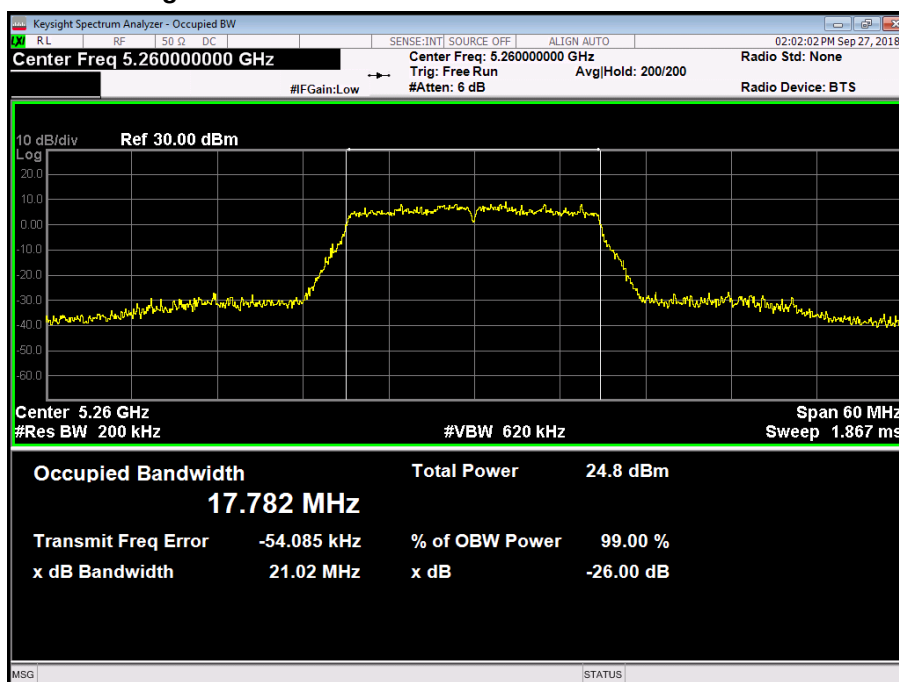


Figure 116 - 5260 MHz - 99% Occupied Bandwidth



Product Service



Figure 117 - 5280 MHz - 26 dB Emission Bandwidth

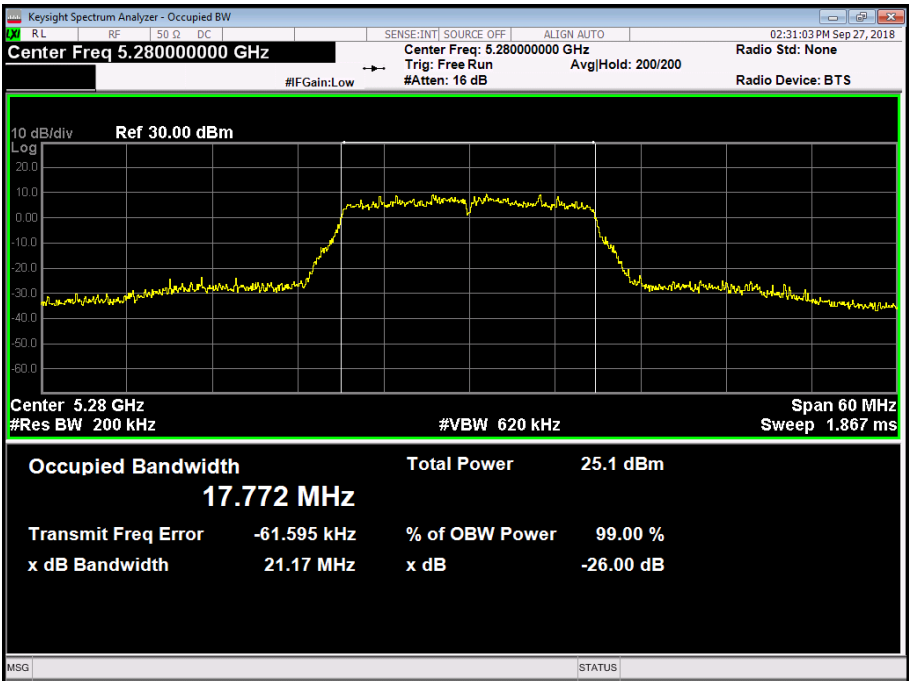


Figure 118 - 5280 MHz - 99% Occupied Bandwidth



Product Service

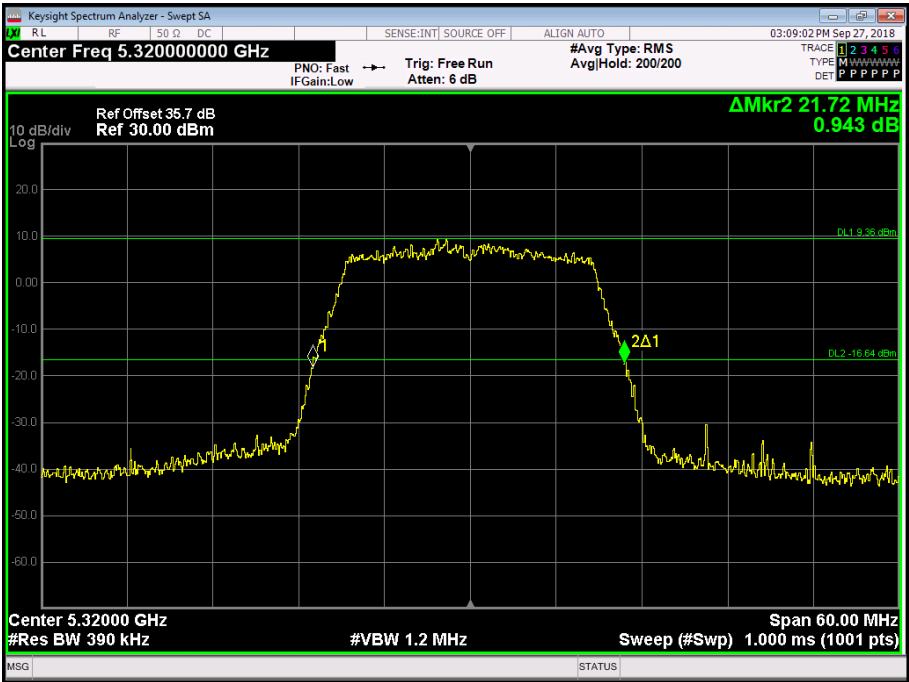


Figure 119 - 5320 MHz - 26 dB Emission Bandwidth

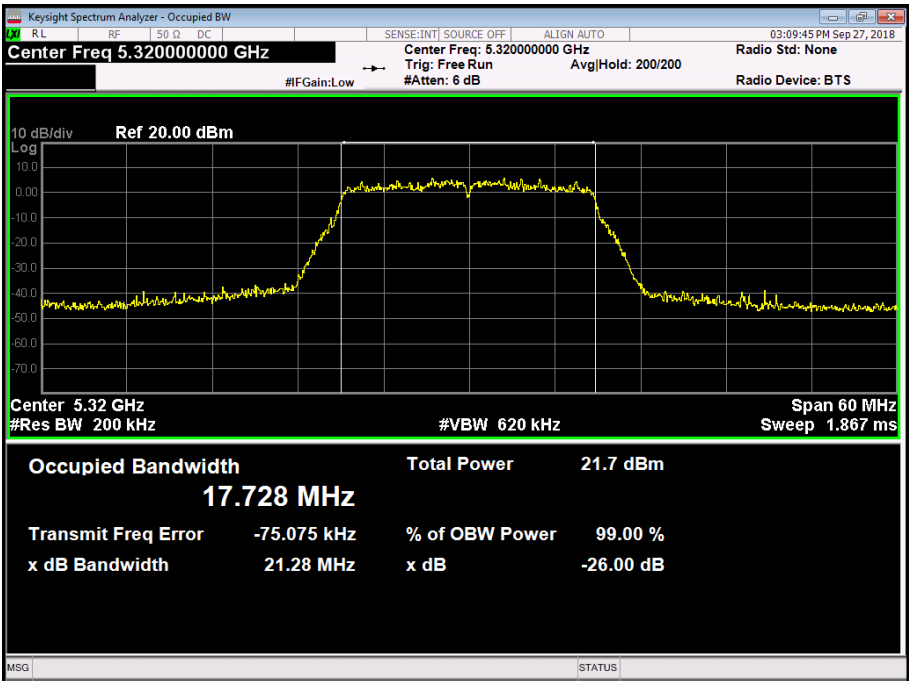


Figure 120 - 5320 MHz - 99% Occupied Bandwidth



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

| Channel               | Bottom | Middle | Top    |
|-----------------------|--------|--------|--------|
| Frequency (MHz)       | 5260   | 5280   | 5320   |
| 26 dB Bandwidth (MHz) | 21.720 | 21.840 | 21.900 |
| 99% Bandwidth (MHz)   | 17.714 | 17.743 | 17.733 |

Table 171

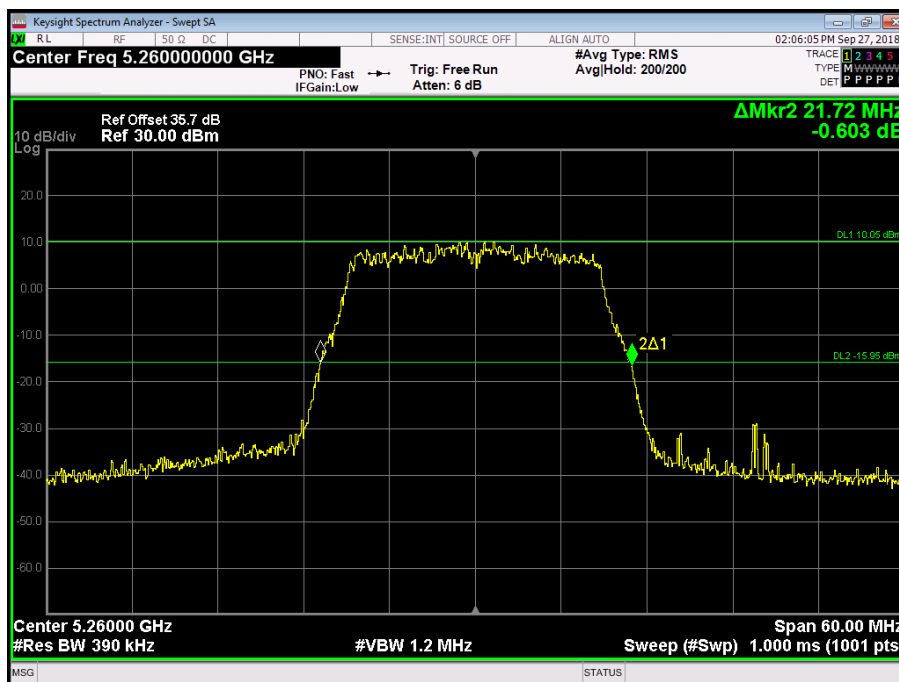


Figure 121 - 5260 MHz - 26 dB Emission Bandwidth

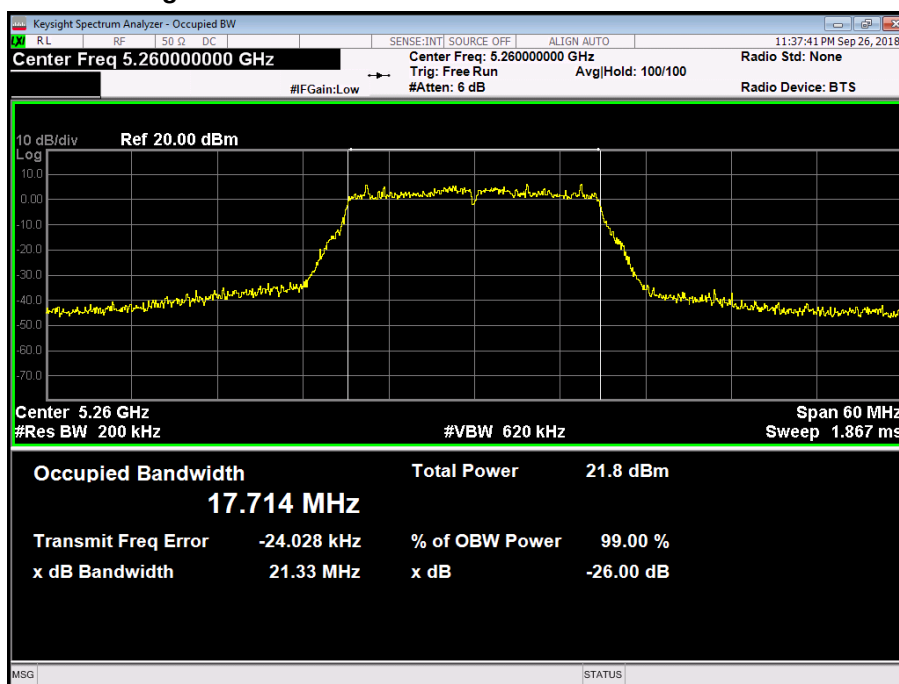


Figure 122 - 5260 MHz - 99% Occupied Bandwidth



Product Service

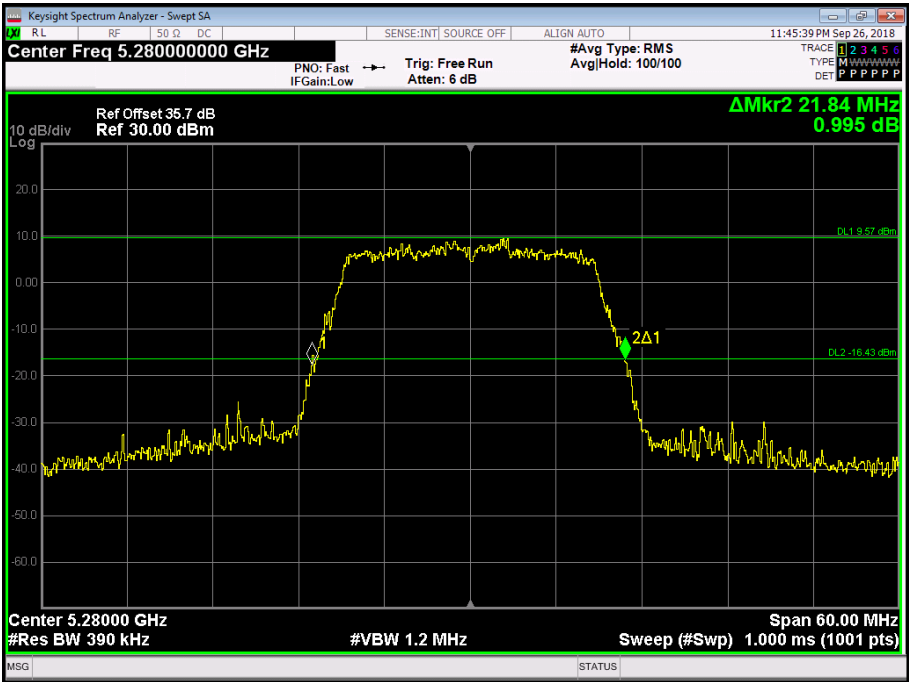


Figure 123 - 5280 MHz - 26 dB Emission Bandwidth

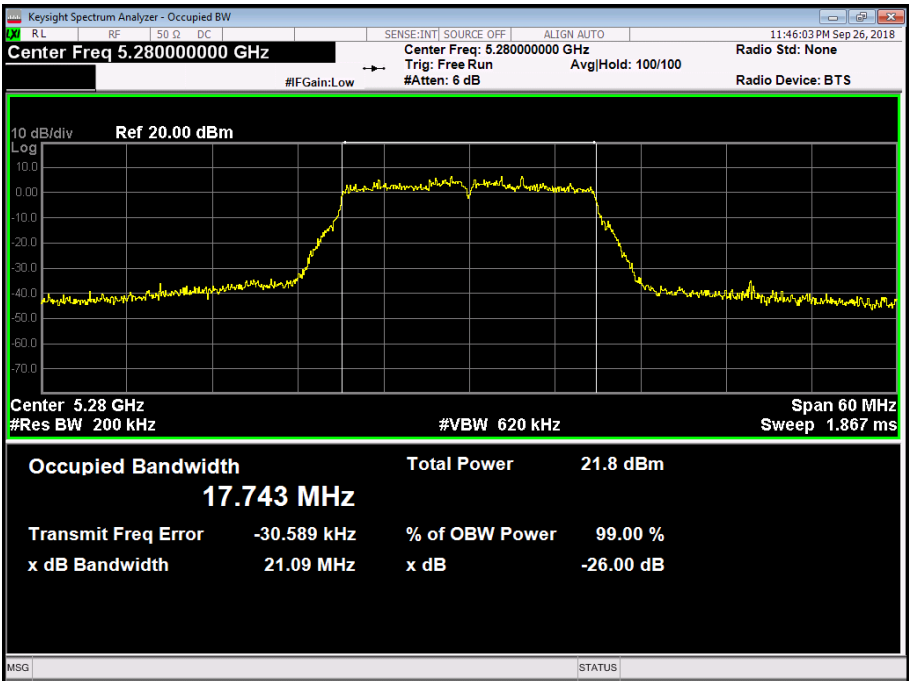


Figure 124 - 5280 MHz - 99% Occupied Bandwidth



Product Service

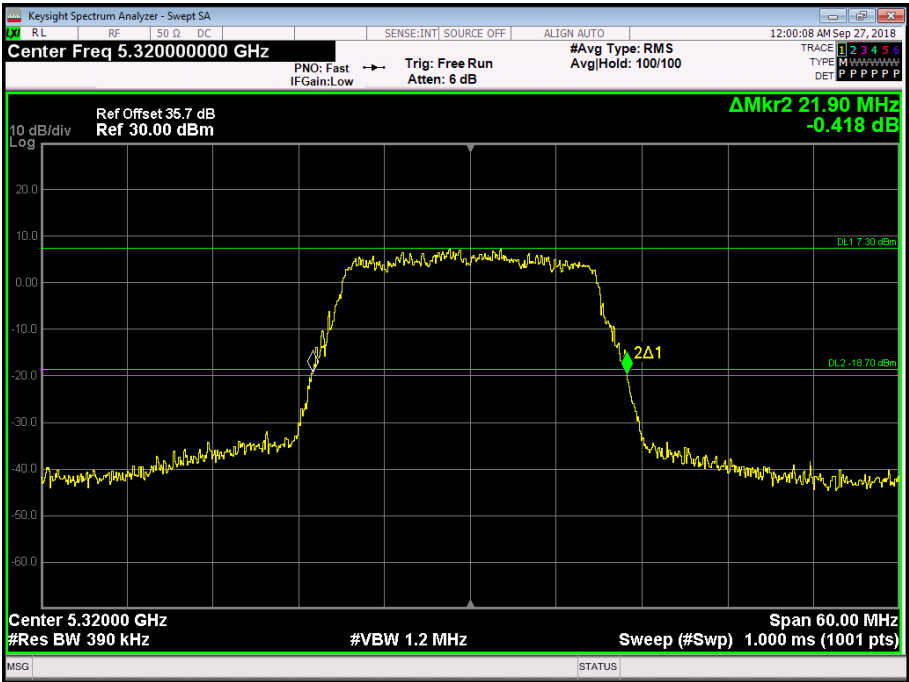


Figure 125 - 5320 MHz - 26 dB Emission Bandwidth

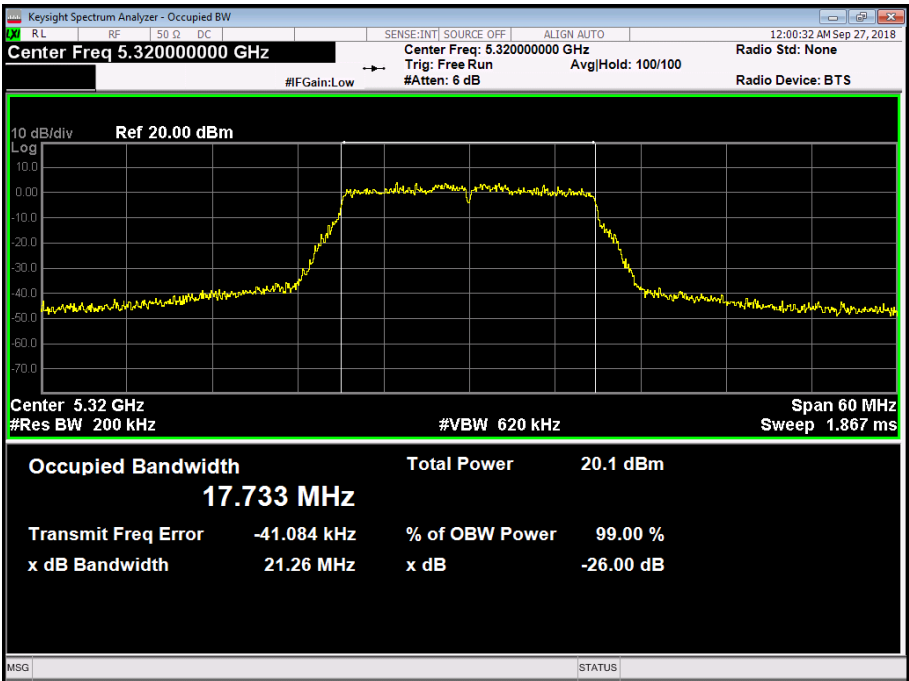


Figure 126 - 5320 MHz - 99% Occupied Bandwidth