

FCC and ISEDC Test Report

Apple Inc
Model: A2179

In accordance with FCC 47 CFR Part 15E,
ISEDC RSS-247 and ISEDC RSS-GEN

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

FCC ID: BCGA2179

IC: 579C-A2179



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Document 75945251-13 Issue 02

SIGNATURE

NAME	JOB TITLE	RESPONSIBLE FOR	ISSUE DATE
Simon Bennett	Innovations Manager	Authorised Signatory	07 February 2020
Graeme Lawler	Senior Engineer	Authorised Signatory	07 February 2020

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

ENGINEERING STATEMENT

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

RESPONSIBLE FOR	NAME	DATE	SIGNATURE
Testing	George Porter	07 February 2020	
Testing	Nandhini Mathivanan	07 February 2020	
Testing	Ahmad Javid	07 February 2020	
Testing	Mohammad Malik	07 February 2020	
Testing	Jay Balendrarajah	07 February 2020	
Testing	Cristian Onaca	07 February 2020	
Testing	Faisal Malyar	07 February 2020	

FCC Accreditation
90987 Octagon House, Fareham Test Laboratory

ISEDC Accreditation
12669A 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 2018, ISEDC RSS-247: Issue 2 (2017-02) and ISEDC RSS-GEN: Issue 5 (04-2018) + A1 (03-2019) for the tests detailed in section 1.3.



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1 Report Summary

1.1 Report Modification Record

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

Issue	Description of Change	Date of Issue
1	First Issue	03 February 2020
2	Updated FCC ID	07 February 2020

Table 1

1.2 Introduction

Applicant	Apple Inc
Manufacturer	Apple Inc
Model Number(s)	A2179
Serial Number(s)	C02ZC002M8MM, C02ZC00WM8M5, C02ZD00FM8MC and C02ZC00BM8M0
Hardware Version(s)	REV 1.0
Software Version(s)	19C4 and 19E187
Number of Samples Tested	4
Test Specification/Issue/Date	FCC 47 CFR Part 15E: 2018 ISED RSS-247: Issue 2 (2017-02) ISED RSS-GEN: Issue 5 (04-2018) + A1 (03-2019)
Order Number	0540189084
Date	25-February-2019
Date of Receipt of EUT	04-October-2019, 14-November-2019 and 21-November-2019
Start of Test	18-November-2019
Finish of Test	19-December-2019
Name of Engineer(s)	George Porter, Nandhini Mathivanan, Ahmad Javid, Mohammad Malik, Jay Balendrarajah, Cristian Onaca and Faisal Malyar
Related Document(s)	ANSI C63.10 (2013) KDB 662911 D01 v02r01 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, ISED RSS-247 and ISED RSS-GEN is shown below.

Section	Specification Clause			Test Description	Result	Comments/Base Standard
	Part 15E	RSS-247	RSS-GEN			
Configuration and Mode: 5 GHz WLAN						
2.1	15.407 (a)	6.2	-	Maximum Conducted Output Power	Pass	ANSI C63.10 (2013) KDB 662911 D01 v02r01
2.2	15.407 (a)	6.2	-	Maximum Conducted Power Spectral Density	Pass	ANSI C63.10 (2013) KDB 662911 D01 v02r01
2.3	15.407 (a)	6.2	-	Emission Bandwidth	Pass	ANSI C63.10 (2013)
2.4	15.407 (b)	6.2	-	Authorised Band Edges	Pass	ANSI C63.10 (2013)
2.5	15.205	-	8.10	Restricted Band Edges	Pass	ANSI C63.10 (2013)
2.6	15.407 (b), 15.205 and 15.209	6.2	-	Spurious Radiated Emissions	Pass	ANSI C63.10 (2013)
2.7	15.407 (h)(2)(iii)(iv)	6.3.2(c)(d)(e)	-	Channel Move Time, Channel Closing Transmission Time and Non-Occupancy Period	Pass	KDB 905462 D02 v02
Configuration and Mode: 5 GHz WLAN - Client to Client						
2.7	15.407 (h)(2)(iii)(iv)	6.3.2(c)(d)(e)	-	Channel Move Time, Channel Closing Transmission Time and Non-Occupancy Period	Pass	KDB 905462 D02 v02

Table 2



1.4 Product Information

1.4.1 Technical Description

The Equipment Under Test (EUT) was a laptop computer with Bluetooth, Bluetooth Low Energy and 802.11 a/b/g/n/ac capabilities in the 2.4 GHz and 5 GHz bands.

The EUT featured two IEEE 802.11 radios, one set only for 2.4 GHz operation and one set only for 5 GHz operation. Both support up to 2x2 MIMO operation (cores 0 & 1). Both radios share common antenna connections, with the core 0 output also shared with the Bluetooth radio.

1.4.2 Test Modes

The EUT's 5 GHz 802.11 radio supports SISO and 2x2 MIMO. It support 802.11a for SISO only, and n and ac modes at 20 MHz, 40 MHz, and 80 MHz channel bandwidths for both SISO and MIMO.

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

US and CA country codes changed the power table for U-NII band 1. Therefore U-NII-1 channels were tested to both power settings for each country's respective limits.

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

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

* = 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 master (access point) to the slave (EUT). The iPerf throughput rate was then adjusted to give >17 % channel loading for each test mode and operating bandwidth.

1.4.4 Antenna Gain Table (5GHz WLAN)

Core 0

Frequency (MHz)	Peak Gain (dBi)	Conducted Cable Loss (dB)
5150 – 5250	2.92	1.5
5250 – 5350	2.75	1.6
5470 – 5725	4.27	1.6
5725 – 5850	4.03	1.6

Table 3

Core 1

Frequency (MHz)	Peak Gain (dBi)	Conducted Cable Loss (dB)
5150 – 5250	3.60	1.5
5250 – 5350	4.13	1.6
5470 – 5725	5.18	1.6
5725 – 5850	5.26	1.6

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
Model: A2179, Serial Number: C02ZC00WM8M5			
0	As supplied by the customer	Not Applicable	Not Applicable
Model: A2179, Serial Number: C02ZD00FM8MC			
0	As supplied by the customer	Not Applicable	Not Applicable
Model: A2179, Serial Number: C02ZC002M8MM			
0	As supplied by the customer	Not Applicable	Not Applicable
Model: A2179, Serial Number: C02ZC00BM8M0			
0	As supplied by the customer	Not Applicable	Not Applicable

Table 5



1.7 Test Location

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

Test Name	Name of Engineer(s)	Accreditation
Configuration and Mode: 5 GHz WLAN		
Maximum Conducted Output Power	George Porter	UKAS
Maximum Conducted Power Spectral Density	George Porter	UKAS
Emission Bandwidth	George Porter	UKAS
Authorised Band Edges	Ahmad Javid, Mohammad Malik, Jay Balendrarajah, Cristian Onaca, Faisal Malyar	UKAS
Restricted Band Edges	Ahmad Javid, Mohammad Malik, Jay Balendrarajah, Cristian Onaca, Faisal Malyar	UKAS
Spurious Radiated Emissions	Ahmad Javid, Mohammad Malik, Jay Balendrarajah, Cristian Onaca, Faisal Malyar	UKAS
Channel Move Time, Channel Closing Transmission Time and Non-Occupancy Period	Nandhini Mathivanan	UKAS
Configuration and Mode: 5 GHz WLAN - Client to Client		
Channel Move Time, Channel Closing Transmission Time and Non-Occupancy Period	Nandhini Mathivanan	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)
ISED RSS-247, Clause 6.2

2.1.2 Equipment Under Test and Modification State

A2179, S/N: C02ZC002M8MM - Modification State 0

2.1.3 Date of Test

20-November-2019 to 12-December-2019

2.1.4 Test Method

The test was performed in accordance with ANSI C63.10, clause 12.3.3.2 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 and 2TX MIMO modes the EUT was tested on the ports with the highest antenna gain combinations which would result in the highest EIRP output power.

For the CDD results the directional gain was calculated in accordance with clause F)2)f)(ii) using the calculations from F)2)f)(i) with worst-case individual gain and an array gain of zero.

For SDM modes Directional Gain was calculated in accordance with clause F)2)d)(ii).

For transmit beamforming (TxBF) mode it was calculated in accordance with clause F)2)d)(i).

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

2.1.5 Environmental Conditions

Ambient Temperature	22.7 - 25.6 °C
Relative Humidity	26.8 - 42.1 %



2.1.6 Test Results

5 GHz WLAN

U-NII-1

Channel	Bottom	Middle	Top
Frequency (MHz)	5180	5200	5240
Antenna Directional Gain (dBi)	3.60	3.60	3.60
15.407 Conducted Power Limit (dBm)	24.00	24.00	24.00
Conducted Power (dBm)	15.09	15.17	14.96

Table 7 - 802.11a / 6 Mbps / SISO / Core 1 / Country Code US

Channel	Bottom	Middle	Top
Frequency (MHz)	5180	5200	5240
Conducted Power (dBm)	14.77	14.69	14.73
Antenna Directional Gain (dBi)	3.60	3.60	3.60
RSS-247 EIRP Power Limit (dBm)	22.19	22.20	22.20
Total EIRP (dBm)	18.37	18.29	18.33

Table 8 - 802.11a / 6 Mbps / SISO / Core 1 / Country Code CA

Channel	Bottom	Middle	Top
Frequency (MHz)	5180	5200	5240
Antenna Directional Gain (dBi)	3.60	3.60	3.60
15.407 Conducted Power Limit (dBm)	24.00	24.00	24.00
Conducted Power (dBm)	15.05	14.90	14.90

Table 9 - 802.11n / HT20 MCS0 / SISO / Core 1 / Country Code US

Channel	Bottom	Middle	Top
Frequency (MHz)	5180	5200	5240
Conducted Power (dBm)	14.99	14.84	14.77
Antenna Directional Gain (dBi)	3.60	3.60	3.60
RSS-247 EIRP Power Limit (dBm)	22.49	22.48	22.49
Total EIRP (dBm)	18.59	18.44	18.37

Table 10 - 802.11n / HT20 MCS0 / SISO / Core 1 / Country Code CA



Channel	Bottom	Middle	Top
Frequency (MHz)	5180	5200	5240
Conducted Power Core 0 (dBm)	15.09	15.17	15.14
Conducted Power Core 1 (dBm)	15.24	14.99	15.03
Antenna Directional Gain (dBi)	3.60	3.60	3.60
15.407 Conducted Power Limit (dBm)	24.00	24.00	24.00
Total Conducted Power (dBm)	18.18	18.09	18.09

Table 11 - 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)	9.20	9.48	9.32
Conducted Power Core 1 (dBm)	9.37	9.34	9.36
Total Conducted Power (dBm)	12.30	12.42	12.35
Antenna Directional Gain (dBi)	3.60	3.60	3.60
RSS-247 EIRP Power Limit (dBm)	22.49	22.49	22.49
Total EIRP (dBm)	15.90	16.02	15.95

Table 12 - 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)	15.08	15.18	15.12
Conducted Power Core 1 (dBm)	14.96	15.21	15.18
Antenna Directional Gain (dBi)	3.27	3.27	3.27
15.407 Conducted Power Limit (dBm)	24.00	24.00	24.00
Total Conducted Power (dBm)	18.03	18.20	18.16

Table 13 - 802.11n / HT20 MCS8 / MIMO SDM / Cores 0+1 / Country Code US

Channel	Bottom	Middle	Top
Frequency (MHz)	5180	5200	5240
Conducted Power Core 0 (dBm)	12.30	12.49	12.46
Conducted Power Core 1 (dBm)	12.32	12.33	12.35
Total Conducted Power (dBm)	15.32	15.42	15.41
Antenna Directional Gain (dBi)	3.27	3.27	3.27
RSS-247 EIRP Power Limit (dBm)	22.49	22.49	22.49
Total EIRP (dBm)	18.59	18.69	18.69

Table 14 - 802.11n / HT20 MCS8 / MIMO SDM / Cores 0+1 / Country Code CA



Channel	Bottom	Top
Frequency (MHz)	5190	5230
Antenna Directional Gain (dBi)	3.60	3.60
15.407 Conducted Power Limit (dBm)	24.00	24.00
Conducted Power (dBm)	15.19	15.02

Table 15 - 802.11n / HT40 MCS0 / SISO / Core 1 / Country Code US

Channel	Bottom	Top
Frequency (MHz)	5190	5230
Conducted Power (dBm)	15.09	15.00
Antenna Directional Gain (dBi)	3.60	3.60
RSS-247 EIRP Power Limit (dBm)	23.00	23.00
Total EIRP (dBm)	18.69	18.60

Table 16 - 802.11n / HT40 MCS0 / SISO / Core 1 / Country Code CA

Channel	Bottom	Top
Frequency (MHz)	5190	5230
Conducted Power Core 0 (dBm)	14.37	15.08
Conducted Power Core 1 (dBm)	14.36	15.23
Antenna Directional Gain (dBi)	3.60	3.60
15.407 Conducted Power Limit (dBm)	24.00	24.00
Total Conducted Power (dBm)	17.38	18.17

Table 17 - 802.11n / HT40 MCS0 / MIMO CDD / Cores 0+1 / Country Code US

Channel	Bottom	Top
Frequency (MHz)	5190	5230
Conducted Power Core 0 (dBm)	12.37	12.31
Conducted Power Core 1 (dBm)	12.43	12.35
Total Conducted Power (dBm)	15.41	15.34
Antenna Directional Gain (dBi)	3.60	3.60
RSS-247 EIRP Power Limit (dBm)	23.00	23.00
Total EIRP (dBm)	19.01	18.94

Table 18 - 802.11n / HT40 MCS0 / MIMO CDD / Cores 0+1 / Country Code CA



Channel	Bottom	Top
Frequency (MHz)	5190	5230
Conducted Power Core 0 (dBm)	14.37	15.13
Conducted Power Core 1 (dBm)	14.42	15.11
Antenna Directional Gain (dBi)	3.27	3.27
15.407 Conducted Power Limit (dBm)	24.00	24.00
Total Conducted Power (dBm)	17.41	18.13

Table 19 - 802.11n / HT40 MCS8 / MIMO SDM / Cores 0+1 / Country Code US

Channel	Bottom	Top
Frequency (MHz)	5190	5230
Conducted Power Core 0 (dBm)	14.38	15.13
Conducted Power Core 1 (dBm)	14.39	15.15
Total Conducted Power (dBm)	17.39	18.15
Antenna Directional Gain (dBi)	3.27	3.27
RSS-247 EIRP Power Limit (dBm)	23.00	23.00
Total EIRP (dBm)	20.67	21.42

Table 20 - 802.11n / HT40 MCS8 / MIMO SDM / Cores 0+1 / Country Code CA

Channel	Bottom	Middle	Top
Frequency (MHz)	5180	5200	5240
Conducted Power Core 0 (dBm)	13.42	15.22	15.18
Conducted Power Core 1 (dBm)	13.30	14.93	15.07
Antenna Directional Gain (dBi)	6.28	6.28	6.28
15.407 Conducted Power Limit (dBm)	23.72	23.72	23.72
Total Conducted Power (dBm)	16.37	18.09	18.14

Table 21 - 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)	9.36	9.48	9.19
Conducted Power Core 1 (dBm)	9.17	9.38	9.21
Total Conducted Power (dBm)	12.28	12.44	12.21
Antenna Directional Gain (dBi)	6.28	6.28	6.28
RSS-247 EIRP Power Limit (dBm)	22.50	22.50	22.50
Total EIRP (dBm)	18.55	18.72	18.49

Table 22 - 802.11ac / VHT20 MCS0x1 / MIMO TxBF / Cores 0+1 / Country Code CA



Channel	Bottom	Top
Frequency (MHz)	5190	5230
Conducted Power Core 0 (dBm)	12.30	15.11
Conducted Power Core 1 (dBm)	12.38	14.97
Antenna Directional Gain (dBi)	6.28	6.28
15.407 Conducted Power Limit (dBm)	23.72	23.72
Total Conducted Power (dBm)	15.35	18.05

Table 23 - 802.11ac / VHT40 MCS0x1 / MIMO TxBF / Cores 0+1 / Country Code US

Channel	Bottom	Top
Frequency (MHz)	5190	5230
Conducted Power Core 0 (dBm)	12.36	12.33
Conducted Power Core 1 (dBm)	12.28	12.42
Total Conducted Power (dBm)	15.33	15.38
Antenna Directional Gain (dBi)	6.28	6.28
RSS-247 EIRP Power Limit (dBm)	23.00	23.00
Total EIRP (dBm)	21.61	21.66

Table 24 - 802.11ac / VHT40 MCS0x1 / MIMO TxBF / Cores 0+1 / Country Code CA

Channel	Middle
Frequency (MHz)	5210
Antenna Directional Gain (dBi)	3.60
15.407 Conducted Power Limit (dBm)	24.00
Conducted Power (dBm)	14.70

Table 25 - 802.11ac / VHT80 MCS0x1 / SISO / Core 1 / Country Code US

Channel	Middle
Frequency (MHz)	5210
Conducted Power (dBm)	14.98
Antenna Directional Gain (dBi)	3.60
RSS-247 EIRP Power Limit (dBm)	23.00
Total EIRP (dBm)	18.58

Table 26 - 802.11ac / VHT80 MCS0x1 / SISO / Core 1 / Country Code CA



Channel	Middle
Frequency (MHz)	5210
Conducted Power Core 0 (dBm)	13.77
Conducted Power Core 1 (dBm)	13.96
Antenna Directional Gain (dBi)	3.60
15.407 Conducted Power Limit (dBm)	24.00
Total Conducted Power (dBm)	16.88

Table 27 - 802.11ac / VHT80 MCS0x1 / MIMO CDD / Cores 0+1 / Country Code US

Channel	Middle
Frequency (MHz)	5210
Conducted Power Core 0 (dBm)	13.75
Conducted Power Core 1 (dBm)	13.95
Total Conducted Power (dBm)	16.86
Antenna Directional Gain (dBi)	3.60
RSS-247 EIRP Power Limit (dBm)	23.00
Total EIRP (dBm)	20.46

Table 28 - 802.11ac / VHT80 MCS0x1 / MIMO CDD / Cores 0+1 / Country Code CA

Channel	Middle
Frequency (MHz)	5210
Conducted Power Core 0 (dBm)	13.82
Conducted Power Core 1 (dBm)	13.87
Antenna Directional Gain (dBi)	3.27
15.407 Conducted Power Limit (dBm)	24.00
Total Conducted Power (dBm)	16.85

Table 29 - 802.11ac / VHT80 MCS0x2 / MIMO SDM / Cores 0+1 / Country Code US

Channel	Middle
Frequency (MHz)	5210
Conducted Power Core 0 (dBm)	13.80
Conducted Power Core 1 (dBm)	13.95
Total Conducted Power (dBm)	16.89
Antenna Directional Gain (dBi)	3.27
RSS-247 EIRP Power Limit (dBm)	23.00
Total EIRP (dBm)	20.16

Table 30 - 802.11ac / VHT80 MCS0x2 / MIMO SDM / Cores 0+1 / Country Code CA



Channel	Middle
Frequency (MHz)	5210
Conducted Power Core 0 (dBm)	11.73
Conducted Power Core 1 (dBm)	11.88
Antenna Directional Gain (dBi)	6.28
15.407 Conducted Power Limit (dBm)	23.72
Total Conducted Power (dBm)	14.81

Table 31 - 802.11ac / VHT80 MCS0x1 / MIMO TxBF / Cores 0+1 / Country Code US

Channel	Middle
Frequency (MHz)	5210
Conducted Power Core 0 (dBm)	11.84
Conducted Power Core 1 (dBm)	11.99
Total Conducted Power (dBm)	14.92
Antenna Directional Gain (dBi)	6.28
RSS-247 EIRP Power Limit (dBm)	23.00
Total EIRP (dBm)	21.20

Table 32 - 802.11ac / VHT80 MCS0x1 / MIMO TxBF / Cores 0+1 / Country Code CA



U-NII-2A

Channel	Bottom	Middle	Top
Frequency (MHz)	5260	5280	5320
Antenna Directional Gain (dBi)	4.13	4.13	4.13
15.407 Conducted Power Limit (dBm)	24.00	24.00	24.00
RSS-247 Conducted Power Limit (dBm)	23.20	23.19	23.20
Conducted Power (dBm)	15.26	15.17	15.37
15.407 TPC EIRP Limit (dBm)	30.00	30.00	30.00
RSS-247 TPC EIRP Limit (dBm)	29.20	29.19	29.20
EIRP Power (dBm)	19.39	19.30	19.50

Table 33 - 802.11a / 6 Mbps / SISO / Core 1

Channel	Bottom	Middle	Top
Frequency (MHz)	5260	5280	5320
Antenna Directional Gain (dBi)	4.13	4.13	4.13
15.407 Conducted Power Limit (dBm)	24.00	24.00	24.00
RSS-247 Conducted Power Limit (dBm)	23.49	23.48	23.49
Conducted Power (dBm)	15.17	15.19	15.29
15.407 TPC EIRP Limit (dBm)	30.00	30.00	30.00
RSS-247 TPC EIRP Limit (dBm)	29.49	29.48	29.49
EIRP Power (dBm)	19.30	19.32	19.42

Table 34 - 802.11n / HT20 MCS0 / SISO / Core 1

Channel	Bottom	Middle	Top
Frequency (MHz)	5260	5280	5320
Conducted Power Core 0 (dBm)	15.20	15.48	15.30
Conducted Power Core 1 (dBm)	15.44	15.31	15.20
Antenna Directional Gain (dBi)	4.13	4.13	4.13
15.407 Conducted Power Limit (dBm)	24.00	24.00	24.00
RSS-247 Conducted Power Limit (dBm)	23.50	23.49	23.49
Total Conducted Power (dBm)	18.33	18.41	18.26
15.407 TPC EIRP Limit (dBm)	30.00	30.00	30.00
RSS-247 TPC EIRP Limit (dBm)	29.50	29.49	29.49
EIRP Power (dBm)	22.46	22.54	22.39

Table 35 - 802.11n / HT20 MCS0 / MIMO CDD / Cores 0+1



Channel	Bottom	Middle	Top
Frequency (MHz)	5260	5280	5320
Conducted Power Core 0 (dBm)	15.23	15.19	15.38
Conducted Power Core 1 (dBm)	15.22	15.32	15.22
Antenna Directional Gain (dBi)	3.49	3.49	3.49
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)	18.23	18.27	18.31
15.407 TPC EIRP Limit (dBm)	30.00	30.00	30.00
RSS-247 TPC EIRP Limit (dBm)	29.49	29.49	29.49
EIRP Power (dBm)	21.73	21.76	21.81

Table 36 - 802.11n / HT20 MCS8 / MIMO SDM / Cores 0+1

Channel	Bottom	Top
Frequency (MHz)	5270	5310
Antenna Directional Gain (dBi)	4.13	4.13
15.407 Conducted Power Limit (dBm)	24.00	24.00
RSS-247 Conducted Power Limit (dBm)	24.00	24.00
Conducted Power (dBm)	15.36	15.32
15.407 TPC EIRP Limit (dBm)	30.00	30.00
RSS-247 TPC EIRP Limit (dBm)	30.00	30.00
EIRP Power (dBm)	19.49	19.45

Table 37 - 802.11n / HT40 MCS0 / SISO / Core 1

Channel	Bottom	Top
Frequency (MHz)	5270	5310
Conducted Power Core 0 (dBm)	15.28	14.71
Conducted Power Core 1 (dBm)	15.46	14.47
Antenna Directional Gain (dBi)	4.13	4.13
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	17.61
15.407 TPC EIRP Limit (dBm)	30.00	30.00
RSS-247 TPC EIRP Limit (dBm)	30.00	30.00
EIRP Power (dBm)	22.51	21.74

Table 38 - 802.11n / HT40 MCS0 / MIMO CDD / Cores 0+1



Channel	Bottom	Top
Frequency (MHz)	5270	5310
Conducted Power Core 0 (dBm)	15.21	14.48
Conducted Power Core 1 (dBm)	15.21	14.64
Antenna Directional Gain (dBi)	3.49	3.49
15.407 Conducted Power Limit (dBm)	24.00	24.00
RSS-247 Conducted Power Limit (dBm)	24.00	24.00
Total Conducted Power (dBm)	18.22	17.57
15.407 TPC EIRP Limit (dBm)	30.00	30.00
RSS-247 TPC EIRP Limit (dBm)	30.00	30.00
EIRP Power (dBm)	21.71	21.06

Table 39 - 802.11n / HT40 MCS8 / MIMO SDM / Cores 0+1

Channel	Bottom	Middle	Top
Frequency (MHz)	5260	5280	5320
Conducted Power Core 0 (dBm)	15.46	15.36	13.29
Conducted Power Core 1 (dBm)	15.19	15.42	13.19
Antenna Directional Gain (dBi)	6.48	6.48	6.48
15.407 Conducted Power Limit (dBm)	23.52	23.52	23.52
RSS-247 Conducted Power Limit (dBm)	23.50	23.50	23.50
Total Conducted Power (dBm)	18.34	18.40	16.25
15.407 TPC EIRP Limit (dBm)	30.00	30.00	30.00
RSS-247 TPC EIRP Limit (dBm)	29.50	29.50	29.50
EIRP Power (dBm)	24.81	24.88	22.73

Table 40 - 802.11ac / VHT20 MCS0x1 / MIMO TxBF / Cores 0+1



Channel	Bottom	Top
Frequency (MHz)	5270	5310
Conducted Power Core 0 (dBm)	15.19	12.50
Conducted Power Core 1 (dBm)	15.32	12.67
Antenna Directional Gain (dBi)	6.48	6.48
15.407 Conducted Power Limit (dBm)	23.52	23.52
RSS-247 Conducted Power Limit (dBm)	24.00	24.00
Total Conducted Power (dBm)	18.27	15.59
15.407 TPC EIRP Limit (dBm)	30.00	30.00
RSS-247 TPC EIRP Limit (dBm)	30.00	30.00
EIRP Power (dBm)	24.74	22.07

Table 41 - 802.11ac / VHT40 MCS0x1 / MIMO TxBF / Cores 0+1

Channel	Middle
Frequency (MHz)	5290
Antenna Directional Gain (dBi)	4.13
15.407 Conducted Power Limit (dBm)	24.00
RSS-247 Conducted Power Limit (dBm)	24.00
Conducted Power (dBm)	15.09
15.407 TPC EIRP Limit (dBm)	30.00
RSS-247 TPC EIRP Limit (dBm)	30.00
EIRP Power (dBm)	19.22

Table 42 - 802.11ac / VHT80 MCS0x1 / SISO / Core 1

Channel	Middle
Frequency (MHz)	5290
Conducted Power Core 0 (dBm)	13.99
Conducted Power Core 1 (dBm)	14.22
Antenna Directional Gain (dBi)	4.13
15.407 Conducted Power Limit (dBm)	24.00
RSS-247 Conducted Power Limit (dBm)	24.00
Total Conducted Power (dBm)	17.12
15.407 TPC EIRP Limit (dBm)	30.00
RSS-247 TPC EIRP Limit (dBm)	30.00
EIRP Power (dBm)	21.25

Table 43 - 802.11ac / VHT80 MCS0x1 / MIMO CDD / Cores 0+1



Channel	Middle
Frequency (MHz)	5290
Conducted Power Core 0 (dBm)	14.32
Conducted Power Core 1 (dBm)	14.31
Antenna Directional Gain (dBi)	3.49
15.407 Conducted Power Limit (dBm)	24.00
RSS-247 Conducted Power Limit (dBm)	24.00
Total Conducted Power (dBm)	17.33
15.407 TPC EIRP Limit (dBm)	30.00
RSS-247 TPC EIRP Limit (dBm)	30.00
EIRP Power (dBm)	20.82

Table 44 - 802.11ac / VHT80 MCS0x2 / MIMO SDM / Cores 0+1

Channel	Middle
Frequency (MHz)	5290
Conducted Power Core 0 (dBm)	11.94
Conducted Power Core 1 (dBm)	12.18
Antenna Directional Gain (dBi)	6.48
15.407 Conducted Power Limit (dBm)	23.52
RSS-247 Conducted Power Limit (dBm)	24.00
Total Conducted Power (dBm)	15.07
15.407 TPC EIRP Limit (dBm)	30.00
RSS-247 TPC EIRP Limit (dBm)	30.00
EIRP Power (dBm)	21.55

Table 45 - 802.11ac / VHT80 MCS0x1 / MIMO TxBF / Cores 0+1



U-NII-2C

Channel	Bottom	Middle	Top	Straddle
Frequency (MHz)	5500	5600	5700	5720
Antenna Directional Gain (dBi)	5.18	5.18	5.18	5.18
15.407 Conducted Power Limit (dBm)	24.00	24.00	24.00	23.02
RSS-247 Conducted Power Limit (dBm)	23.19	23.19	23.20	23.19
Conducted Power (dBm)	14.30	14.19	14.50	14.44
15.407 TPC EIRP Limit (dBm)	30.00	30.00	30.00	29.02
RSS-247 TPC EIRP Limit (dBm)	29.19	29.19	29.20	29.19
EIRP Power (dBm)	19.48	19.37	19.68	19.62

Table 46 - 802.11a / 6 Mbps / SISO / Core 1

Channel	Bottom	Middle	Top	Straddle
Frequency (MHz)	5500	5600	5700	5720
Antenna Directional Gain (dBi)	5.18	5.18	5.18	5.18
15.407 Conducted Power Limit (dBm)	24.00	24.00	24.00	23.04
RSS-247 Conducted Power Limit (dBm)	23.49	23.49	23.50	23.50
Conducted Power (dBm)	14.38	14.45	14.32	14.40
15.407 TPC EIRP Limit (dBm)	30.00	30.00	30.00	29.04
RSS-247 TPC EIRP Limit (dBm)	29.49	29.49	29.50	29.50
EIRP Power (dBm)	19.56	19.63	19.50	19.58

Table 47 - 802.11n / HT20 MCS0 / SISO / Core 1

Channel	Bottom	Middle	Top	Straddle
Frequency (MHz)	5500	5600	5700	5720
Conducted Power Core 0 (dBm)	14.31	14.24	14.42	14.39
Conducted Power Core 1 (dBm)	14.31	14.42	14.42	14.26
Antenna Directional Gain (dBi)	5.18	5.18	5.18	5.18
15.407 Conducted Power Limit (dBm)	24.00	24.00	24.00	23.05
RSS-247 Conducted Power Limit (dBm)	23.50	23.49	23.48	23.49
Total Conducted Power (dBm)	17.32	17.34	17.43	17.33
15.407 TPC EIRP Limit (dBm)	30.00	30.00	30.00	29.05
RSS-247 TPC EIRP Limit (dBm)	29.50	29.49	29.48	29.49
EIRP Power (dBm)	22.50	22.52	22.61	22.51

Table 48 - 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)	14.35	14.28	14.48	14.40
Conducted Power Core 1 (dBm)	14.39	14.23	14.43	14.42
Antenna Directional Gain (dBi)	4.75	4.75	4.75	4.75
15.407 Conducted Power Limit (dBm)	24.00	24.00	24.00	23.05
RSS-247 Conducted Power Limit (dBm)	23.49	23.48	23.49	23.49
Total Conducted Power (dBm)	17.38	17.27	17.47	17.42
15.407 TPC EIRP Limit (dBm)	30.00	30.00	30.00	29.05
RSS-247 TPC EIRP Limit (dBm)	29.49	29.48	29.49	29.49
EIRP Power (dBm)	22.13	22.02	22.22	22.17

Table 49 - 802.11n / HT20 MCS8 / MIMO SDM / Cores 0+1

Channel	Bottom	Middle	Top	Straddle
Frequency (MHz)	5510	5590	5670	5710
Antenna Directional Gain (dBi)	5.18	5.18	5.18	5.18
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)	14.39	14.36	14.29	14.40
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)	19.57	19.54	19.47	19.58

Table 50 - 802.11n / HT40 MCS0 / SISO / Core 1

Channel	Bottom	Middle	Top	Straddle
Frequency (MHz)	5510	5590	5670	5710
Conducted Power Core 0 (dBm)	14.29	14.41	14.28	14.23
Conducted Power Core 1 (dBm)	14.39	14.24	14.26	14.32
Antenna Directional Gain (dBi)	5.18	5.18	5.18	5.18
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)	17.35	17.34	17.28	17.29
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)	22.53	22.52	22.46	22.47

Table 51 - 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	14.28	14.37	14.29
Conducted Power Core 1 (dBm)	14.42	14.26	14.49	14.45
Antenna Directional Gain (dBi)	4.75	4.75	4.75	4.75
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)	17.40	17.28	17.44	17.38
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)	22.15	22.03	22.19	22.13

Table 52 - 802.11n / HT40 MCS8 / MIMO SDM / Cores 0+1

Channel	Bottom	Middle	Top	Straddle
Frequency (MHz)	5500	5600	5700	5720
Conducted Power Core 0 (dBm)	13.21	14.45	14.16	14.37
Conducted Power Core 1 (dBm)	13.36	14.49	14.16	14.17
Antenna Directional Gain (dBi)	7.75	7.75	7.75	7.75
15.407 Conducted Power Limit (dBm)	22.25	22.25	22.25	21.27
RSS-247 Conducted Power Limit (dBm)	23.50	23.50	23.50	23.49
Total Conducted Power (dBm)	16.30	17.48	17.17	17.28
15.407 TPC EIRP Limit (dBm)	30.00	30.00	30.00	29.02
RSS-247 TPC EIRP Limit (dBm)	29.50	29.50	29.50	29.49
EIRP Power (dBm)	24.04	25.23	24.92	25.03

Table 53 - 802.11ac / VHT20 MCS0x1 / MIMO TxBF / Cores 0+1



Channel	Bottom	Middle	Top	Straddle
Frequency (MHz)	5510	5590	5670	5710
Conducted Power Core 0 (dBm)	12.85	14.41	14.45	14.27
Conducted Power Core 1 (dBm)	12.81	14.49	14.42	14.25
Antenna Directional Gain (dBi)	7.75	7.75	7.75	7.75
15.407 Conducted Power Limit (dBm)	22.25	22.25	22.25	22.25
RSS-247 Conducted Power Limit (dBm)	24.00	24.00	24.00	24.00
Total Conducted Power (dBm)	15.84	17.46	17.44	17.27
15.407 TPC EIRP Limit (dBm)	30.00	30.00	30.00	30.00
RSS-247 TPC EIRP Limit (dBm)	30.00	30.00	30.00	30.00
EIRP Power (dBm)	23.59	25.21	25.19	25.02

Table 54 - 802.11ac / VHT40 MCS0x1 / MIMO TxBF / Cores 0+1

Channel	Bottom	Top	Straddle
Frequency (MHz)	5530	5610	5690
Antenna Directional Gain (dBi)	5.18	5.18	5.18
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)	14.43	14.38	14.20
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)	19.61	19.56	19.38

Table 55 - 802.11ac / VHT80 MCS0x1 / SISO / Core 1

Channel	Bottom	Top	Straddle
Frequency (MHz)	5530	5610	5690
Conducted Power Core 0 (dBm)	14.43	14.41	14.35
Conducted Power Core 1 (dBm)	14.49	14.28	14.22
Antenna Directional Gain (dBi)	5.18	5.18	5.18
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)	17.47	17.35	17.30
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)	22.65	22.53	22.48

Table 56 - 802.11ac / VHT80 MCS0x1 / MIMO CDD / Cores 0+1



Channel	Bottom	Top	Straddle
Frequency (MHz)	5530	5610	5690
Conducted Power Core 0 (dBm)	14.39	14.47	14.48
Conducted Power Core 1 (dBm)	14.23	14.18	14.21
Antenna Directional Gain (dBi)	4.75	4.75	4.75
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)	17.32	17.34	17.35
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)	22.07	22.09	22.10

Table 57 - 802.11ac / VHT80 MCS0x2 / MIMO SDM / Cores 0+1

Channel	Bottom	Top	Straddle
Frequency (MHz)	5530	5610	5690
Conducted Power Core 0 (dBm)	12.53	14.37	14.35
Conducted Power Core 1 (dBm)	12.53	14.49	14.37
Antenna Directional Gain (dBi)	7.75	7.75	7.75
15.407 Conducted Power Limit (dBm)	22.25	22.25	22.25
RSS-247 Conducted Power Limit (dBm)	24.00	24.00	24.00
Total Conducted Power (dBm)	15.54	17.44	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)	23.29	25.19	25.12

Table 58 - 802.11ac / VHT80 MCS0x1 / MIMO TxBF / Cores 0+1



U-NII-3

Channel	Bottom	Middle	Top
Frequency (MHz)	5745	5785	5825
Antenna Directional Gain (dBi)	5.26	5.26	5.26
15.407 Conducted Power Limit (dBm)	30.00	30.00	30.00
RSS-247 Conducted Power Limit (dBm)	30.00	30.00	30.00
Conducted Power (dBm)	13.40	13.39	13.31
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)	18.66	18.65	18.57

Table 59 - 802.11a / 6 Mbps / SISO / Core 1

Channel	Bottom	Middle	Top
Frequency (MHz)	5745	5785	5825
Antenna Directional Gain (dBi)	5.26	5.26	5.26
15.407 Conducted Power Limit (dBm)	30.00	30.00	30.00
RSS-247 Conducted Power Limit (dBm)	30.00	30.00	30.00
Conducted Power (dBm)	13.46	13.17	13.31
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)	18.73	18.43	18.57

Table 60 - 802.11n / HT20 MCS0 / SISO / Core 1

Channel	Bottom	Middle	Top
Frequency (MHz)	5745	5785	5825
Conducted Power Core 0 (dBm)	13.23	13.40	13.26
Conducted Power Core 1 (dBm)	13.37	13.33	13.43
Antenna Directional Gain (dBi)	5.26	5.26	5.26
15.407 Conducted Power Limit (dBm)	30.00	30.00	30.00
RSS-247 Conducted Power Limit (dBm)	30.00	30.00	30.00
Total Conducted Power (dBm)	16.31	16.38	16.36
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)	21.57	21.64	21.62

Table 61 - 802.11n / HT20 MCS0 / MIMO CDD / Cores 0+1



Channel	Bottom	Middle	Top
Frequency (MHz)	5745	5785	5825
Conducted Power Core 0 (dBm)	13.46	13.28	13.35
Conducted Power Core 1 (dBm)	13.37	13.33	13.46
Antenna Directional Gain (dBi)	4.69	4.69	4.69
15.407 Conducted Power Limit (dBm)	30.00	30.00	30.00
RSS-247 Conducted Power Limit (dBm)	30.00	30.00	30.00
Total Conducted Power (dBm)	16.42	16.32	16.41
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)	21.11	21.00	21.10

Table 62 - 802.11n / HT20 MCS8 / MIMO SDM / Cores 0+1

Channel	Bottom	Top
Frequency (MHz)	5755	5795
Antenna Directional Gain (dBi)	5.26	5.26
15.407 Conducted Power Limit (dBm)	30.00	30.00
RSS-247 Conducted Power Limit (dBm)	30.00	30.00
Conducted Power (dBm)	13.40	13.43
15.407 EIRP Limit (dBm)	36.00	36.00
RSS-247 EIRP Limit (dBm)	36.00	36.00
EIRP Power (dBm)	18.66	18.69

Table 63 - 802.11n / HT40 MCS0 / SISO / Core 1

Channel	Bottom	Top
Frequency (MHz)	5755	5795
Conducted Power Core 0 (dBm)	13.40	13.32
Conducted Power Core 1 (dBm)	13.32	13.25
Antenna Directional Gain (dBi)	5.26	5.26
15.407 Conducted Power Limit (dBm)	30.00	30.00
RSS-247 Conducted Power Limit (dBm)	30.00	30.00
Total Conducted Power (dBm)	16.37	16.29
15.407 EIRP Limit (dBm)	36.00	36.00
RSS-247 EIRP Limit (dBm)	36.00	36.00
EIRP Power (dBm)	21.63	21.55

Table 64 - 802.11n / HT40 MCS0 / MIMO CDD / Cores 0+1



Channel	Bottom	Top
Frequency (MHz)	5755	5795
Conducted Power Core 0 (dBm)	13.17	13.41
Conducted Power Core 1 (dBm)	13.22	13.25
Antenna Directional Gain (dBi)	4.69	4.69
15.407 Conducted Power Limit (dBm)	30.00	30.00
RSS-247 Conducted Power Limit (dBm)	30.00	30.00
Total Conducted Power (dBm)	16.21	16.34
15.407 EIRP Limit (dBm)	36.00	36.00
RSS-247 EIRP Limit (dBm)	36.0	36.00
EIRP Power (dBm)	20.90	21.03

Table 65 - 802.11n / HT40 MCS8 / MIMO SDM / Cores 0+1

Channel	Bottom	Middle	Top
Frequency (MHz)	5745	5785	5825
Conducted Power Core 0 (dBm)	13.25	13.42	13.20
Conducted Power Core 1 (dBm)	13.39	13.24	13.29
Antenna Directional Gain (dBi)	7.68	7.68	7.68
15.407 Conducted Power Limit (dBm)	28.32	28.32	28.32
RSS-247 Conducted Power Limit (dBm)	28.32	28.32	28.32
Total Conducted Power (dBm)	16.33	16.34	16.25
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)	24.01	24.02	23.93

Table 66 - 802.11ac / VHT20 MCS0x1 / MIMO TxBF / Cores 0+1



Channel	Bottom	Top
Frequency (MHz)	5755	5795
Conducted Power Core 0 (dBm)	13.24	13.39
Conducted Power Core 1 (dBm)	13.34	13.21
Antenna Directional Gain (dBi)	7.68	7.68
15.407 Conducted Power Limit (dBm)	28.32	28.32
RSS-247 Conducted Power Limit (dBm)	28.32	28.32
Total Conducted Power (dBm)	16.30	16.31
15.407 EIRP Limit (dBm)	36.00	36.00
RSS-247 EIRP Limit (dBm)	36.00	36.00
EIRP Power (dBm)	23.98	23.99

Table 67 - 802.11ac / VHT40 MCS0x1 / MIMO TxBF / Cores 0+1

Channel	Middle
Frequency (MHz)	5775
Antenna Directional Gain (dBi)	5.26
15.407 Conducted Power Limit (dBm)	30.00
RSS-247 Conducted Power Limit (dBm)	30.00
Conducted Power (dBm)	13.20
15.407 EIRP Limit (dBm)	36.00
RSS-247 EIRP Limit (dBm)	36.00
EIRP Power (dBm)	18.46

Table 68 - 802.11ac / VHT80 MCS0x1 / SISO / Core 1

Channel	Middle
Frequency (MHz)	5775
Conducted Power Core 0 (dBm)	13.15
Conducted Power Core 1 (dBm)	13.35
Antenna Directional Gain (dBi)	5.26
15.407 Conducted Power Limit (dBm)	30.00
RSS-247 Conducted Power Limit (dBm)	30.00
Total Conducted Power (dBm)	16.26
15.407 EIRP Limit (dBm)	36.00
RSS-247 EIRP Limit (dBm)	36.00
EIRP Power (dBm)	21.52

Table 69 - 802.11ac / VHT80 MCS0x1 / MIMO CDD / Cores 0+1



Channel	Middle
Frequency (MHz)	5775
Conducted Power Core 0 (dBm)	13.21
Conducted Power Core 1 (dBm)	13.31
Antenna Directional Gain (dBi)	4.69
15.407 Conducted Power Limit (dBm)	30.00
RSS-247 Conducted Power Limit (dBm)	30.00
Total Conducted Power (dBm)	16.27
15.407 EIRP Limit (dBm)	36.00
RSS-247 EIRP Limit (dBm)	36.00
EIRP Power (dBm)	20.96

Table 70 - 802.11ac / VHT80 MCS0x2 / MIMO SDM / Cores 0+1

Channel	Middle
Frequency (MHz)	5775
Conducted Power Core 0 (dBm)	13.35
Conducted Power Core 1 (dBm)	13.36
Antenna Directional Gain (dBi)	7.68
15.407 Conducted Power Limit (dBm)	28.32
RSS-247 Conducted Power Limit (dBm)	28.32
Total Conducted Power (dBm)	16.36
15.407 EIRP Limit (dBm)	36.00
RSS-247 EIRP Limit (dBm)	36.00
EIRP Power (dBm)	24.04

Table 71 - 802.11ac / VHT80 MCS0x1 / MIMO TxBF / Cores 0+1



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 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 200 W (53 dBm) for fixed P-t-P application with 23 dBi antenna Additional rule for outdoor operation: 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. No EIRP limit for fixed P-t-P application (i.e. no antenna gain limit)

Table 72

ISED 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 1.0 W or $17 + 10 \log_{10} B$ dBm EIRP; whichever is less	250 mW or $11 + 10 \log_{10} B$; whichever is less 1.0 W or $17 + 10 \log_{10} B$ dBm EIRP; whichever is less	1W 4W EIRP

Table 73



2.1.7 Test Location and Test Equipment Used

This test was carried out in RF Laboratory 1.

Instrument	Manufacturer	Type No	TE No	Calibration Period (months)	Calibration Due
Attenuator (10 dB)	Weinschel	47-10-34	481	-	O/P Mon
Attenuator (20 dB, 2 W)	Pasternack	PE7004-20	489	-	O/P Mon
Multimeter	Fluke	79 Series III	611	12	11-Sep-2020
Rubidium Standard	Rohde & Schwarz	XSRM	1316	6	16-Apr-2020
Multimeter	Iso-tech	IDM101	2424	12	12-Dec-2020
Hygrometer	Rotronic	I-1000	3220	12	25-Sep-2020
1800-6000 MHz Power Splitter	Mini-Circuits	ZN2PD-63-S+	4055	-	O/P Mon
Frequency Standard	Spectracom	SecureSync 1200-0408-0601	4393	6	16-Apr-2020
2 metre N-Type Cable	Florida Labs	NMS-235SP-78.8-NMS	4622	12	12-Jul-2020
PXA Signal Analyser	Keysight Technologies	N9030A	4653	12	06-Feb-2020
Power splitter - 2 port	Mini-Circuits	ZN2PD-63-S+	4743	12	23-Sep-2020
Network Analyser	Keysight Technologies	E5063A	5018	12	20-May-2020
Cable (18 GHz)	Rosenberger	LU7-036-2000	5035	-	O/P Mon
Cable (18 GHz)	Rosenberger	LU7-071-1000	5098	12	06-Oct-2020
Cable (18 GHz)	Rosenberger	LU7-071-2000	5108	12	06-Oct-2020
Electronic Calibration Module	Keysight Technologies	85093C	5188	12	21-May-2020
AC Programmable Power Supply	iTech	IT7324	5227	-	O/P Mon
Power Splitter, 4 way	Mini-Circuits	ZN4PD1-63-S+	5235	-	O/P Mon
Power Splitter, 4 way	Mini-Circuits	ZN4PD1-63-S+	5236	-	O/P Mon

Table 74

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)
ISED RSS-247, Clause 6.2

2.2.2 Equipment Under Test and Modification State

A2179, S/N: C02ZC002M8MM - Modification State 0

2.2.3 Date of Test

20-November-2019 to 12-December-2019

2.2.4 Test Method

The test was performed in accordance with ANSI C63.10, clause 12.5.

Where the EUT duty cycle was < 98 % and repeatable within 2 %, the spectrum analyser was set to trace (power) averaging and a duty cycle correction was added as calculated in the result tables below (Method SA-2). Where the duty cycle was = 98 % the spectrum analyser was set to trace (power) averaging and no duty cycle correction made (Method SA-1). In all other cases the spectrum analyser trace was set to max hold (Method 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.

The output power was verified as being the same from each transmit core (within negligible tolerances), but the antenna gains were not identical. Therefore, the modes reported for SISO or 2TX MIMO operation are those giving the highest EIRP and/or lowest conducted limit based on the combination of antennas giving highest total directional gain.

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

For the CDD results the Directional Gain was calculated in accordance with the equation given in clause F)2)f)(ii) summed for a single spacial stream.

For SDM modes Directional Gain was calculated in accordance with clause F)2)d)(ii).

For transmit beamforming (TxBF) mode it was calculated in accordance with clause F)2)d)(i).

2.2.5 Environmental Conditions

Ambient Temperature	22.7 - 25.6 °C
Relative Humidity	26.8 - 42.1 %



2.2.6 Test Results

5 GHz WLAN

U-NII-1

Channel	Bottom	Middle	Top
Frequency (MHz)	5180	5200	5240
Raw Conducted PSD (dBm/MHz)	3.73	3.73	3.90
Duty Cycle Correction (dB)	N/A SA-1	N/A SA-1	N/A SA-1
Antenna Directional Gain (dBi)	3.60	3.60	3.60
15.407 Conducted PSD Limit (dBm/MHz)	11.00	11.00	11.00
Conducted PSD Result (dBm/MHz)	3.73	3.73	3.90

Table 75 - 802.11a / 6 Mbps / SISO / Core 1 / Country Code US

Channel	Bottom	Middle	Top
Frequency (MHz)	5180	5200	5240
Raw Conducted PSD (dBm/MHz)	3.53	3.51	3.66
Duty Cycle Correction (dB)	N/A SA-1	N/A SA-1	N/A SA-1
Antenna Directional Gain (dBi)	3.60	3.60	3.60
RSS-247 EIRP Spectral Density Limit (dBm/MHz)	10.00	10.00	10.00
EIRP Spectral Density Result (dBm/MHz)	7.13	7.11	7.26

Table 76 - 802.11a / 6 Mbps / SISO / Core 1 / Country Code CA

Channel	Bottom	Middle	Top
Frequency (MHz)	5180	5200	5240
Raw Conducted PSD (dBm/MHz)	3.42	3.08	3.52
Duty Cycle Correction (dB)	N/A SA-1	N/A SA-1	N/A SA-1
Antenna Directional Gain (dBi)	3.60	3.60	3.60
15.407 Conducted PSD Limit (dBm/MHz)	11.00	11.00	11.00
Conducted PSD Result (dBm/MHz)	3.42	3.08	3.52

Table 77 - 802.11n / HT20 MCS0 / SISO / Core 1 / Country Code US

Channel	Bottom	Middle	Top
Frequency (MHz)	5180	5200	5240
Raw Conducted PSD (dBm/MHz)	3.42	3.03	3.52
Duty Cycle Correction (dB)	N/A SA-1	N/A SA-1	N/A SA-1
Antenna Directional Gain (dBi)	3.60	3.60	3.60
RSS-247 EIRP Spectral Density Limit (dBm/MHz)	10.00	10.00	10.00
EIRP Spectral Density Result (dBm/MHz)	7.02	6.63	7.12

Table 78 - 802.11n / HT20 MCS0 / SISO / Core 1 / Country Code CA



Channel	Bottom	Middle	Top
Frequency (MHz)	5180	5200	5240
Conducted PSD Core 0 (dBm/MHz)	3.55	3.46	3.77
Conducted PSD Core 1 (dBm/MHz)	3.47	3.31	3.69
Duty Cycle Correction (dB)	N/A SA-1	N/A SA-1	N/A SA-1
Antenna Directional Gain (dBi)	6.28	6.28	6.28
15.407 Conducted PSD Limit (dBm/MHz)	10.72	10.72	10.72
Conducted PSD Result (dBm/MHz)	6.52	6.39	6.74

Table 79 - 802.11n / HT20 MCS0 / MIMO CDD / Cores 0+1 / Country Code US

Channel	Bottom	Middle	Top
Frequency (MHz)	5180	5200	5240
Conducted PSD Core 0 (dBm/MHz)	-2.39	-2.26	-2.17
Conducted PSD Core 1 (dBm/MHz)	-2.30	-2.29	-1.89
Duty Cycle Correction (dB)	N/A SA-1	N/A SA-1	N/A SA-1
Antenna Directional Gain (dBi)	6.28	6.28	6.28
RSS-247 EIRP Spectral Density Limit (dBm/MHz)	10.00	10.00	10.00
EIRP Spectral Density Result (dBm/MHz)	6.94	7.01	7.26

Table 80 - 802.11n / HT20 MCS0 / MIMO CDD / Cores 0+1 / Country Code CA

Channel	Bottom	Middle	Top
Frequency (MHz)	5180	5200	5240
Conducted PSD Core 0 (dBm/MHz)	3.58	3.46	3.70
Conducted PSD Core 1 (dBm/MHz)	3.36	3.30	3.58
Duty Cycle Correction (dB)	0.09	0.09	0.09
Antenna Directional Gain (dBi)	3.27	3.27	3.27
15.407 Conducted PSD Limit (dBm/MHz)	11.00	11.00	11.00
Conducted PSD Result (dBm/MHz)	6.57	6.48	6.74

Table 81 - 802.11n / HT20 MCS8 / MIMO SDM / Cores 0+1 / Country Code US



Channel	Bottom	Middle	Top
Frequency (MHz)	5180	5200	5240
Conducted PSD Core 0 (dBm/MHz)	0.49	0.69	1.12
Conducted PSD Core 1 (dBm/MHz)	0.62	0.52	1.04
Duty Cycle Correction (dB)	0.09	0.09	N/A SA-1
Antenna Directional Gain (dBi)	3.27	3.27	3.27
RSS-247 EIRP Spectral Density Limit (dBm/MHz)	10.00	10.00	10.00
EIRP Spectral Density Result (dBm/MHz)	6.93	6.98	7.36

Table 82 - 802.11n / HT20 MCS8 / MIMO SDM / Cores 0+1 / Country Code CA

Channel	Bottom	Top
Frequency (MHz)	5190	5230
Raw Conducted PSD (dBm/MHz)	0.91	0.69
Duty Cycle Correction (dB)	0.09	0.09
Antenna Directional Gain (dBi)	3.60	3.60
15.407 Conducted PSD Limit (dBm/MHz)	11.00	11.00
Conducted PSD Result (dBm/MHz)	1.00	0.78

Table 83 - 802.11n / HT40 MCS0 / SISO / Core 1 / Country Code US

Channel	Bottom	Top
Frequency (MHz)	5190	5230
Raw Conducted PSD (dBm/MHz)	0.73	0.89
Duty Cycle Correction (dB)	0.09	0.09
Antenna Directional Gain (dBi)	3.60	3.60
RSS-247 EIRP Spectral Density Limit (dBm/MHz)	10.00	10.00
EIRP Spectral Density Result (dBm/MHz)	4.42	4.58

Table 84 - 802.11n / HT40 MCS0 / SISO / Core 1 / Country Code CA

Channel	Bottom	Top
Frequency (MHz)	5190	5230
Conducted PSD Core 0 (dBm/MHz)	-0.02	0.84
Conducted PSD Core 1 (dBm/MHz)	0.10	0.92
Duty Cycle Correction (dB)	0.09	0.09
Antenna Directional Gain (dBi)	6.28	6.28
15.407 Conducted PSD Limit (dBm/MHz)	10.72	10.72
Conducted PSD Result (dBm/MHz)	3.14	3.98

Table 85 - 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)	-1.93	-2.08
Conducted PSD Core 1 (dBm/MHz)	-2.04	-2.08
Duty Cycle Correction (dB)	0.09	0.09
Antenna Directional Gain (dBi)	6.28	6.28
RSS-247 EIRP Spectral Density Limit (dBm/MHz)	10.00	10.00
EIRP Spectral Density Result (dBm/MHz)	7.39	7.30

Table 86 - 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)	0.17	0.78
Conducted PSD Core 1 (dBm/MHz)	0.09	0.88
Duty Cycle Correction (dB)	0.17	0.17
Antenna Directional Gain (dBi)	3.27	3.27
15.407 Conducted PSD Limit (dBm/MHz)	11.00	11.00
Conducted PSD Result (dBm/MHz)	3.31	4.01

Table 87 - 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)	0.06	0.83
Conducted PSD Core 1 (dBm/MHz)	-0.05	0.61
Duty Cycle Correction (dB)	0.17	0.17
Antenna Directional Gain (dBi)	3.27	3.27
RSS-247 EIRP Spectral Density Limit (dBm/MHz)	10.00	10.00
EIRP Spectral Density Result (dBm/MHz)	6.46	7.17

Table 88 - 802.11n / HT40 MCS8 / MIMO SDM / Cores 0+1 / Country Code CA



Channel	Bottom	Middle	Top
Frequency (MHz)	5180	5200	5240
Conducted PSD Core 0 (dBm/MHz)	0.67	2.51	1.88
Conducted PSD Core 1 (dBm/MHz)	0.67	1.92	2.45
Duty Cycle Correction (dB)	0.32	0.22	0.21
Antenna Directional Gain (dBi)	6.28	6.28	6.28
15.407 Conducted PSD Limit (dBm/MHz)	10.72	10.72	10.72
Conducted PSD Result (dBm/MHz)	4.00	5.45	5.40

Table 89 - 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)	-3.52	-3.67	-3.76
Conducted PSD Core 1 (dBm/MHz)	-4.13	-4.23	-3.85
Duty Cycle Correction (dB)	0.26	0.22	0.21
Antenna Directional Gain (dBi)	6.28	6.28	6.28
RSS-247 EIRP Spectral Density Limit (dBm/MHz)	10.00	10.00	10.00
EIRP Spectral Density Result (dBm/MHz)	5.74	5.56	5.69

Table 90 - 802.11ac / VHT20 MCS0x1 / MIMO TxBF / Cores 0+1 / Country Code CA

Channel	Bottom	Top
Frequency (MHz)	5190	5230
Conducted PSD Core 0 (dBm/MHz)	-3.33	0.45
Conducted PSD Core 1 (dBm/MHz)	-3.47	-0.07
Duty Cycle Correction (dB)	0.30	0.35
Antenna Directional Gain (dBi)	6.28	6.28
15.407 Conducted PSD Limit (dBm/MHz)	10.72	10.72
Conducted PSD Result (dBm/MHz)	-0.09	3.56

Table 91 - 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)	-3.16	-3.47
Conducted PSD Core 1 (dBm/MHz)	-3.41	-3.34
Duty Cycle Correction (dB)	0.27	0.26
Antenna Directional Gain (dBi)	6.28	6.28
RSS-247 EIRP Spectral Density Limit (dBm/MHz)	10.00	10.00
EIRP Spectral Density Result (dBm/MHz)	6.27	6.14

Table 92 - 802.11ac / VHT40 MCS0x1 / MIMO TxBF / Cores 0+1 / Country Code CA



Channel	Middle
Frequency (MHz)	5210
Raw Conducted PSD (dBm/MHz)	-2.57
Duty Cycle Correction (dB)	0.18
Antenna Directional Gain (dBi)	3.60
15.407 Conducted PSD Limit (dBm/MHz)	11.00
Conducted PSD Result (dBm/MHz)	-2.39

Table 93 - 802.11ac / VHT80 MCS0x1 / SISO / Core 1 / Country Code US

Channel	Middle
Frequency (MHz)	5210
Raw Conducted PSD (dBm/MHz)	-2.56
Duty Cycle Correction (dB)	0.18
Antenna Directional Gain (dBi)	3.60
RSS-247 EIRP Spectral Density Limit (dBm/MHz)	10.00
EIRP Spectral Density Result (dBm/MHz)	1.21

Table 94 - 802.11ac / VHT80 MCS0x1 / SISO / Core 1 / Country Code CA

Channel	Middle
Frequency (MHz)	5210
Conducted PSD Core 0 (dBm/MHz)	-3.88
Conducted PSD Core 1 (dBm/MHz)	-3.50
Duty Cycle Correction (dB)	0.18
Antenna Directional Gain (dBi)	6.28
15.407 Conducted PSD Limit (dBm/MHz)	10.72
Conducted PSD Result (dBm/MHz)	-0.49

Table 95 - 802.11ac / VHT80 MCS0x1 / MIMO CDD / Cores 0+1 / Country Code US

Channel	Middle
Frequency (MHz)	5210
Conducted PSD Core 0 (dBm/MHz)	-3.87
Conducted PSD Core 1 (dBm/MHz)	-3.48
Duty Cycle Correction (dB)	0.18
Antenna Directional Gain (dBi)	6.28
RSS-247 EIRP Spectral Density Limit (dBm/MHz)	10.00
EIRP Spectral Density Result (dBm/MHz)	5.80

Table 96 - 802.11ac / VHT80 MCS0x1 / MIMO CDD / Cores 0+1 / Country Code CA



Channel	Middle
Frequency (MHz)	5210
Conducted PSD Core 0 (dBm/MHz)	-3.91
Conducted PSD Core 1 (dBm/MHz)	-3.77
Duty Cycle Correction (dB)	0.32
Antenna Directional Gain (dBi)	3.27
15.407 Conducted PSD Limit (dBm/MHz)	11.00
Conducted PSD Result (dBm/MHz)	-0.51

Table 97 - 802.11ac / VHT80 MCS0x2 / MIMO SDM / Cores 0+1 / Country Code US

Channel	Middle
Frequency (MHz)	5210
Conducted PSD Core 0 (dBm/MHz)	-3.98
Conducted PSD Core 1 (dBm/MHz)	-3.50
Duty Cycle Correction (dB)	0.31
Antenna Directional Gain (dBi)	3.27
RSS-247 EIRP Spectral Density Limit (dBm/MHz)	10.00
EIRP Spectral Density Result (dBm/MHz)	2.86

Table 98 - 802.11ac / VHT80 MCS0x2 / MIMO SDM / Cores 0+1 / Country Code CA

Channel	Middle
Frequency (MHz)	5210
Conducted PSD Core 0 (dBm/MHz)	-6.83
Conducted PSD Core 1 (dBm/MHz)	-6.54
Duty Cycle Correction (dB)	0.27
Antenna Directional Gain (dBi)	6.28
15.407 Conducted PSD Limit (dBm/MHz)	10.72
Conducted PSD Result (dBm/MHz)	-3.40

Table 99 - 802.11ac / VHT80 MCS0x1 / MIMO TxBF / Cores 0+1 / Country Code US

Channel	Middle
Frequency (MHz)	5210
Conducted PSD Core 0 (dBm/MHz)	-9.70
Conducted PSD Core 1 (dBm/MHz)	-6.39
Duty Cycle Correction (dB)	0.37
Antenna Directional Gain (dBi)	6.28
RSS-247 EIRP Spectral Density Limit (dBm/MHz)	10.00
EIRP Spectral Density Result (dBm/MHz)	1.92

Table 100 - 802.11ac / VHT80 MCS0x1 / MIMO TxBF / Cores 0+1 / Country Code CA



U-NII-2A

Channel	Bottom	Middle	Top
Frequency (MHz)	5260	5280	5320
Raw Conducted PSD (dBm/MHz)	4.15	3.92	4.58
Duty Cycle Correction (dB)	N/A SA-1	N/A SA-1	N/A SA-1
Antenna Directional Gain (dBi)	4.13	4.13	4.13
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)	4.15	3.92	4.58

Table 101 - 802.11a / 6 Mbps / SISO / Core 1

Channel	Bottom	Middle	Top
Frequency (MHz)	5260	5280	5320
Raw Conducted PSD (dBm/MHz)	3.93	3.78	4.11
Duty Cycle Correction (dB)	N/A SA-1	N/A SA-1	N/A SA-1
Antenna Directional Gain (dBi)	4.13	4.13	4.13
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)	3.93	3.78	4.11

Table 102 - 802.11n / HT20 MCS0 / SISO / Core 1

Channel	Bottom	Middle	Top
Frequency (MHz)	5260	5280	5320
Conducted PSD Core 0 (dBm/MHz)	3.78	4.15	4.05
Conducted PSD Core 1 (dBm/MHz)	3.87	3.74	3.58
Duty Cycle Correction (dB)	N/A SA-1	N/A SA-1	N/A SA-1
Antenna Directional Gain (dBi)	6.48	6.48	6.48
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)	6.83	6.96	6.83

Table 103 - 802.11n / HT20 MCS0 / MIMO CDD / Cores 0+1



Channel	Bottom	Middle	Top
Frequency (MHz)	5260	5280	5320
Conducted PSD Core 0 (dBm/MHz)	3.71	3.82	4.24
Conducted PSD Core 1 (dBm/MHz)	3.57	3.94	3.48
Duty Cycle Correction (dB)	0.09	0.22	0.09
Antenna Directional Gain (dBi)	3.49	3.49	3.49
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)	6.74	7.11	6.97

Table 104 - 802.11n / HT20 MCS8 / MIMO SDM / Cores 0+1

Channel	Bottom	Top
Frequency (MHz)	5270	5310
Raw Conducted PSD (dBm/MHz)	0.97	1.23
Duty Cycle Correction (dB)	0.09	0.09
Antenna Directional Gain (dBi)	4.13	4.13
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)	1.06	1.32

Table 105 - 802.11n / HT40 MCS0 / SISO / Core 1

Channel	Bottom	Top
Frequency (MHz)	5270	5310
Conducted PSD Core 0 (dBm/MHz)	1.28	0.52
Conducted PSD Core 1 (dBm/MHz)	1.37	0.26
Duty Cycle Correction (dB)	0.09	0.09
Antenna Directional Gain (dBi)	6.48	6.48
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)	4.43	3.49

Table 106 - 802.11n / HT40 MCS0 / MIMO CDD / Cores 0+1

Channel	Bottom	Top
Frequency (MHz)	5270	5310
Conducted PSD Core 0 (dBm/MHz)	1.22	0.44
Conducted PSD Core 1 (dBm/MHz)	1.01	0.61
Duty Cycle Correction (dB)	0.17	0.17
Antenna Directional Gain (dBi)	3.49	3.49
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)	4.30	3.70

Table 107 - 802.11n / HT40 MCS8 / MIMO SDM / Cores 0+1



Channel	Bottom	Middle	Top
Frequency (MHz)	5260	5280	5320
Conducted PSD Core 0 (dBm/MHz)	2.66	3.02	0.28
Conducted PSD Core 1 (dBm/MHz)	2.39	2.54	0.04
Duty Cycle Correction (dB)	0.22	0.23	0.21
Antenna Directional Gain (dBi)	6.48	6.48	6.48
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)	5.76	6.02	3.38

Table 108 - 802.11ac / VHT20 MCS0x1 / MIMO TxBF / Cores 0+1

Channel	Bottom	Top
Frequency (MHz)	5270	5310
Conducted PSD Core 0 (dBm/MHz)	-0.40	-2.96
Conducted PSD Core 1 (dBm/MHz)	0.60	-2.64
Duty Cycle Correction (dB)	0.29	0.23
Antenna Directional Gain (dBi)	6.48	6.48
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)	3.43	0.44

Table 109 - 802.11ac / VHT40 MCS0x1 / MIMO TxBF / Cores 0+1

Channel	Middle
Frequency (MHz)	5290
Raw Conducted PSD (dBm/MHz)	-2.26
Duty Cycle Correction (dB)	0.18
Antenna Directional Gain (dBi)	4.13
15.407 Conducted PSD Limit (dBm/MHz)	11.00
RSS-247 Conducted PSD Limit (dBm/MHz)	11.00
Conducted PSD Result (dBm/MHz)	-2.08

Table 110 - 802.11ac / VHT80 MCS0x1 / SISO / Core 1

Channel	Middle
Frequency (MHz)	5290
Conducted PSD Core 0 (dBm/MHz)	-3.42
Conducted PSD Core 1 (dBm/MHz)	-3.00
Duty Cycle Correction (dB)	0.18
Antenna Directional Gain (dBi)	6.48
15.407 Conducted PSD Limit (dBm/MHz)	11.00
RSS-247 Conducted PSD Limit (dBm/MHz)	11.00
Conducted PSD Result (dBm/MHz)	-0.02

Table 111 - 802.11ac / VHT80 MCS0x1 / MIMO CDD / Cores 0+1



Channel	Middle
Frequency (MHz)	5290
Conducted PSD Core 0 (dBm/MHz)	-3.27
Conducted PSD Core 1 (dBm/MHz)	-3.30
Duty Cycle Correction (dB)	0.33
Antenna Directional Gain (dBi)	3.49
15.407 Conducted PSD Limit (dBm/MHz)	11.00
RSS-247 Conducted PSD Limit (dBm/MHz)	11.00
Conducted PSD Result (dBm/MHz)	0.06

Table 112 - 802.11ac / VHT80 MCS0x2 / MIMO SDM / Cores 0+1

Channel	Middle
Frequency (MHz)	5290
Conducted PSD Core 0 (dBm/MHz)	-6.66
Conducted PSD Core 1 (dBm/MHz)	-5.44
Duty Cycle Correction (dB)	0.25
Antenna Directional Gain (dBi)	6.48
15.407 Conducted PSD Limit (dBm/MHz)	11.00
RSS-247 Conducted PSD Limit (dBm/MHz)	11.00
Conducted PSD Result (dBm/MHz)	-2.74

Table 113 - 802.11ac / VHT80 MCS0x1 / MIMO TxBF / Cores 0+1



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Channel	Bottom	Middle	Top	Straddle
Frequency (MHz)	5500	5600	5700	5720
Raw Conducted PSD (dBm/MHz)	3.84	4.45	4.78	4.91
Duty Cycle Correction (dB)	N/A SA-1	N/A SA-1	N/A SA-1	N/A SA-1
Antenna Directional Gain (dBi)	5.18	5.18	5.18	5.18
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)	3.84	4.45	4.78	4.91

Table 114 - 802.11a / 6 Mbps / SISO / Core 1

Channel	Bottom	Middle	Top	Straddle
Frequency (MHz)	5500	5600	5700	5720
Raw Conducted PSD (dBm/MHz)	3.61	4.07	4.34	4.29
Duty Cycle Correction (dB)	N/A SA-1	N/A SA-1	N/A SA-1	N/A SA-1
Antenna Directional Gain (dBi)	5.18	5.18	5.18	5.18
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)	3.61	4.07	4.34	4.29

Table 115 - 802.11n / HT20 MCS0 / SISO / Core 1

Channel	Bottom	Middle	Top	Straddle
Frequency (MHz)	5500	5600	5700	5720
Conducted PSD Core 0 (dBm/MHz)	3.44	4.12	4.46	4.46
Conducted PSD Core 1 (dBm/MHz)	3.58	4.22	4.30	4.26
Duty Cycle Correction (dB)	N/A SA-1	N/A SA-1	N/A SA-1	N/A SA-1
Antenna Directional Gain (dBi)	7.75	7.75	7.75	7.75
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)	6.52	7.18	7.39	7.37

Table 116 - 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)	3.61	4.13	4.52	4.36
Conducted PSD Core 1 (dBm/MHz)	3.50	3.96	4.38	4.31
Duty Cycle Correction (dB)	0.09	0.09	0.09	0.09
Antenna Directional Gain (dBi)	4.75	4.75	4.75	4.75
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)	6.65	7.14	7.55	7.43

Table 117 - 802.11n / HT20 MCS8 / MIMO SDM / Cores 0+1

Channel	Bottom	Middle	Top	Straddle
Frequency (MHz)	5510	5590	5670	5710
Raw Conducted PSD (dBm/MHz)	0.72	1.10	1.14	1.78
Duty Cycle Correction (dB)	0.09	0.09	0.09	0.09
Antenna Directional Gain (dBi)	5.18	5.18	5.18	5.18
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)	0.81	1.19	1.23	1.87

Table 118 - 802.11n / HT40 MCS0 / SISO / Core 1

Channel	Bottom	Middle	Top	Straddle
Frequency (MHz)	5510	5590	5670	5710
Conducted PSD Core 0 (dBm/MHz)	0.44	1.13	1.20	1.74
Conducted PSD Core 1 (dBm/MHz)	0.60	1.35	0.96	1.65
Duty Cycle Correction (dB)	0.09	0.09	0.09	0.09
Antenna Directional Gain (dBi)	7.75	7.75	7.75	7.75
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)	3.62	4.34	4.18	4.79

Table 119 - 802.11n / HT40 MCS0 / MIMO CDD / Cores 0+1

Channel	Bottom	Middle	Top	Straddle
Frequency (MHz)	5510	5590	5670	5710
Conducted PSD Core 0 (dBm/MHz)	0.35	1.17	1.35	1.74
Conducted PSD Core 1 (dBm/MHz)	0.82	1.01	1.23	1.46
Duty Cycle Correction (dB)	0.17	0.17	0.17	0.17
Antenna Directional Gain (dBi)	4.75	4.75	4.75	4.75
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)	3.77	4.27	4.47	4.78

Table 120 - 802.11n / HT40 MCS8 / MIMO SDM / Cores 0+1



Channel	Bottom	Middle	Top	Straddle
Frequency (MHz)	5500	5600	5700	5720
Conducted PSD Core 0 (dBm/MHz)	1.11	1.88	2.71	2.95
Conducted PSD Core 1 (dBm/MHz)	0.33	1.69	2.35	1.55
Duty Cycle Correction (dB)	0.21	0.22	0.21	0.22
Antenna Directional Gain (dBi)	7.75	7.75	7.75	7.75
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)	3.96	5.02	5.76	5.54

Table 121 - 802.11ac / VHT20 MCS0x1 / MIMO TxBF / Cores 0+1

Channel	Bottom	Middle	Top	Straddle
Frequency (MHz)	5510	5590	5670	5710
Conducted PSD Core 0 (dBm/MHz)	-1.02	0.78	-2.81	-2.05
Conducted PSD Core 1 (dBm/MHz)	-2.37	-0.08	-2.42	-2.82
Duty Cycle Correction (dB)	0.25	0.20	0.21	0.22
Antenna Directional Gain (dBi)	7.75	7.75	7.75	7.75
15.407 Conducted PSD Limit (dBm/MHz)	11.00	11.00	11.00	11.00
RSS-247 Conducted PSD Limit (dBm/MHz)	11.00	11.00	11.00	11.00
Conducted PSD Result (dBm/MHz)	1.62	3.58	0.61	0.81

Table 122 - 802.11ac / VHT40 MCS0x1 / MIMO TxBF / Cores 0+1

Channel	Bottom	Top	Straddle
Frequency (MHz)	5530	5610	5690
Raw Conducted PSD (dBm/MHz)	-2.18	-2.16	-1.88
Duty Cycle Correction (dB)	0.18	0.18	0.18
Antenna Directional Gain (dBi)	5.18	5.18	5.18
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)	-2.00	-1.98	-1.70

Table 123 - 802.11ac / VHT80 MCS0x1 / SISO / Core 1

Channel	Bottom	Top	Straddle
Frequency (MHz)	5530	5610	5690
Conducted PSD Core 0 (dBm/MHz)	-2.12	-2.06	-1.75
Conducted PSD Core 1 (dBm/MHz)	-1.99	-2.15	-1.73
Duty Cycle Correction (dB)	0.18	0.18	0.18
Antenna Directional Gain (dBi)	7.75	7.75	7.75
15.407 Conducted PSD Limit (dBm/MHz)	11.00	11.00	11.00
RSS-247 Conducted PSD Limit (dBm/MHz)	11.00	11.00	11.00
Conducted PSD Result (dBm/MHz)	1.14	1.08	1.45

Table 124 - 802.11ac / VHT80 MCS0x1 / MIMO CDD / Cores 0+1



Channel	Bottom	Top	Straddle
Frequency (MHz)	5530	5610	5690
Conducted PSD Core 0 (dBm/MHz)	-2.42	-2.20	-1.66
Conducted PSD Core 1 (dBm/MHz)	-2.10	-2.38	-1.90
Duty Cycle Correction (dB)	0.33	0.33	0.33
Antenna Directional Gain (dBi)	4.75	4.75	4.75
15.407 Conducted PSD Limit (dBm/MHz)	11.00	11.00	11.00
RSS-247 Conducted PSD Limit (dBm/MHz)	11.00	11.00	11.00
Conducted PSD Result (dBm/MHz)	1.09	1.05	1.57

Table 125 - 802.11ac / VHT80 MCS0x2 / MIMO SDM / Cores 0+1

Channel	Bottom	Top	Straddle
Frequency (MHz)	5530	5610	5690
Conducted PSD Core 0 (dBm/MHz)	-5.50	-5.66	-5.19
Conducted PSD Core 1 (dBm/MHz)	-4.87	-3.30	-5.29
Duty Cycle Correction (dB)	0.27	0.26	0.33
Antenna Directional Gain (dBi)	7.75	7.75	7.75
15.407 Conducted PSD Limit (dBm/MHz)	11.00	11.00	11.00
RSS-247 Conducted PSD Limit (dBm/MHz)	11.00	11.00	11.00
Conducted PSD Result (dBm/MHz)	-1.89	-1.06	-1.90

Table 126 - 802.11ac / VHT80 MCS0x1 / MIMO TxBF / Cores 0+1



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Channel	Straddle	Bottom	Middle	Top
Frequency (MHz)	5720	5745	5785	5825
Raw Conducted PSD (dBm/500kHz)	0.20	0.11	0.14	0.56
Duty Cycle Correction (dB)	N/A SA-1	N/A SA-1	N/A SA-1	N/A SA-1
Antenna Directional Gain (dBi)	5.18	5.26	5.26	5.26
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)	0.20	0.11	0.14	0.56

Table 127 - 802.11a / 6 Mbps / SISO / Core 1

Channel	Straddle	Bottom	Middle	Top
Frequency (MHz)	5720	5745	5785	5825
Raw Conducted PSD (dBm/500kHz)	0.26	0.43	0.43	0.24
Duty Cycle Correction (dB)	N/A SA-1	N/A SA-1	N/A SA-1	N/A SA-1
Antenna Directional Gain (dBi)	5.18	5.26	5.26	5.26
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)	0.26	0.43	0.43	0.24

Table 128 - 802.11n / HT20 MCS0 / SISO / Core 1

Channel	Straddle	Bottom	Middle	Top
Frequency (MHz)	5720	5745	5785	5825
Conducted PSD Core 0 (dBm/500kHz)	0.30	-0.57	0.00	0.00
Conducted PSD Core 1 (dBm/500kHz)	0.41	0.34	0.70	0.40
Duty Cycle Correction (dB)	N/A SA-1	N/A SA-1	N/A SA-1	N/A SA-1
Antenna Directional Gain (dBi)	7.75	7.68	7.68	7.68
15.407 Conducted PSD Limit (dBm/500kHz)	28.25	28.32	28.32	28.32
RSS-247 Conducted PSD Limit (dBm/500kHz)	28.25	28.32	28.32	28.32
Conducted PSD Result (dBm/500kHz)	3.36	2.92	3.37	3.22

Table 129 - 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)	-0.57	-0.38	-0.14	-0.11
Conducted PSD Core 1 (dBm/500kHz)	0.52	0.14	-0.13	-0.01
Duty Cycle Correction (dB)	0.09	0.09	N/A SA-1	0.09
Antenna Directional Gain (dBi)	4.75	4.69	4.69	4.69
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)	3.11	2.99	2.88	3.04

Table 130 - 802.11n / HT20 MCS8 / MIMO SDM / Cores 0+1

Channel	Straddle	Bottom	Top
Frequency (MHz)	5710	5755	5795
Raw Conducted PSD (dBm/500kHz)	-4.25	-3.02	-2.37
Duty Cycle Correction (dB)	0.09	0.09	0.09
Antenna Directional Gain (dBi)	5.18	5.26	5.26
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)	-4.16	-2.93	-2.28

Table 131 - 802.11n / HT40 MCS0 / SISO / Core 1

Channel	Straddle	Bottom	Top
Frequency (MHz)	5710	5755	5795
Conducted PSD Core 0 (dBm/500kHz)	-3.66	-2.12	-2.87
Conducted PSD Core 1 (dBm/500kHz)	-4.56	-2.77	-2.89
Duty Cycle Correction (dB)	0.09	0.09	0.09
Antenna Directional Gain (dBi)	7.75	7.68	7.68
15.407 Conducted PSD Limit (dBm/500kHz)	28.25	28.32	28.32
RSS-247 Conducted PSD Limit (dBm/500kHz)	28.25	28.32	28.32
Conducted PSD Result (dBm/500kHz)	-0.99	0.67	0.22

Table 132 - 802.11n / HT40 MCS0 / MIMO CDD / Cores 0+1

Channel	Straddle	Bottom	Top
Frequency (MHz)	5710	5755	5795
Conducted PSD Core 0 (dBm/500kHz)	-3.56	-2.65	-2.52
Conducted PSD Core 1 (dBm/500kHz)	-3.61	-2.76	-2.81
Duty Cycle Correction (dB)	0.16	0.17	0.17
Antenna Directional Gain (dBi)	4.75	4.69	4.69
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)	-0.41	0.47	0.52

Table 133 - 802.11n / HT40 MCS8 / MIMO SDM / Cores 0+1



Channel	Straddle	Bottom	Middle	Top
Frequency (MHz)	5720	5745	5785	5825
Conducted PSD Core 0 (dBm/500kHz)	-1.09	-1.54	-1.18	-1.66
Conducted PSD Core 1 (dBm/500kHz)	-1.24	-1.09	-1.91	-1.34
Duty Cycle Correction (dB)	0.21	0.20	0.28	0.24
Antenna Directional Gain (dBi)	7.75	7.68	7.68	7.68
15.407 Conducted PSD Limit (dBm/500kHz)	28.25	28.32	28.32	28.32
RSS-247 Conducted PSD Limit (dBm/500kHz)	28.25	28.32	28.32	28.32
Conducted PSD Result (dBm/500kHz)	2.06	1.90	1.76	1.76

Table 134 - 802.11ac / VHT20 MCS0x1 / MIMO TxBF / Cores 0+1

Channel	Straddle	Bottom	Top
Frequency (MHz)	5710	5755	5795
Conducted PSD Core 0 (dBm/500kHz)	-4.89	-3.75	-7.62
Conducted PSD Core 1 (dBm/500kHz)	-6.45	-4.10	-8.19
Duty Cycle Correction (dB)	0.22	0.23	0.20
Antenna Directional Gain (dBi)	7.75	7.68	7.68
15.407 Conducted PSD Limit (dBm/500kHz)	28.25	28.32	28.32
RSS-247 Conducted PSD Limit (dBm/500kHz)	28.25	28.32	28.32
Conducted PSD Result (dBm/500kHz)	-2.37	-0.68	-4.69

Table 135 - 802.11ac / VHT40 MCS0x1 / MIMO TxBF / Cores 0+1

Channel	Straddle	Middle
Frequency (MHz)	5690	5775
Raw Conducted PSD (dBm/500kHz)	-8.12	-6.19
Duty Cycle Correction (dB)	0.18	0.18
Antenna Directional Gain (dBi)	5.18	5.26
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)	-7.94	-6.02

Table 136 - 802.11ac / VHT80 MCS0x1 / SISO / Core 1

Channel	Straddle	Middle
Frequency (MHz)	5690	5775
Conducted PSD Core 0 (dBm/500kHz)	-7.49	-5.68
Conducted PSD Core 1 (dBm/500kHz)	-8.47	-5.97
Duty Cycle Correction (dB)	0.18	0.18
Antenna Directional Gain (dBi)	7.75	7.68
15.407 Conducted PSD Limit (dBm/500kHz)	28.25	28.32
RSS-247 Conducted PSD Limit (dBm/500kHz)	28.25	28.32
Conducted PSD Result (dBm/500kHz)	-4.76	-2.64

Table 137 - 802.11ac / VHT80 MCS0x1 / MIMO CDD / Cores 0+1



Channel	Straddle	Middle
Frequency (MHz)	5690	5775
Conducted PSD Core 0 (dBm/500kHz)	-7.38	-5.68
Conducted PSD Core 1 (dBm/500kHz)	-8.47	-6.24
Duty Cycle Correction (dB)	0.33	0.33
Antenna Directional Gain (dBi)	4.75	4.69
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)	-4.55	-2.61

Table 138 - 802.11ac / VHT80 MCS0x2 / MIMO SDM / Cores 0+1

Channel	Straddle	Middle
Frequency (MHz)	5690	5775
Conducted PSD Core 0 (dBm/500kHz)	-9.50	-7.13
Conducted PSD Core 1 (dBm/500kHz)	-10.90	-7.08
Duty Cycle Correction (dB)	0.26	0.31
Antenna Directional Gain (dBi)	7.75	7.68
15.407 Conducted PSD Limit (dBm/500kHz)	28.25	28.32
RSS-247 Conducted PSD Limit (dBm/500kHz)	28.25	28.32
Conducted PSD Result (dBm/500kHz)	-6.88	-3.78

Table 139 - 802.11ac / VHT80 MCS0x1 / MIMO TxBF / Cores 0+1

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 11 dBm/MHz for mobile/portable client device	11 dBm/MHz		30 dBm/500 kHz

Table 140

ISED 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



2.2.7 Test Location and Test Equipment Used

This test was carried out in RF Laboratory 1.

Instrument	Manufacturer	Type No	TE No	Calibration Period (months)	Calibration Due
Attenuator (10 dB)	Weinschel	47-10-34	481	-	O/P Mon
Attenuator (20 dB, 2 W)	Pasternack	PE7004-20	489	-	O/P Mon
Multimeter	Fluke	79 Series III	611	12	11-Sep-2020
Rubidium Standard	Rohde & Schwarz	XSRM	1316	6	16-Apr-2020
Multimeter	Iso-tech	IDM101	2424	12	12-Dec-2020
Hygrometer	Rotronic	I-1000	3220	12	25-Sep-2020
1800-6000 MHz Power Splitter	Mini-Circuits	ZN2PD-63-S+	4055	-	O/P Mon
Frequency Standard	Spectracom	SecureSync 1200-0408-0601	4393	6	16-Apr-2020
2 metre N-Type Cable	Florida Labs	NMS-235SP-78.8-NMS	4622	12	12-Jul-2020
PXA Signal Analyser	Keysight Technologies	N9030A	4653	12	06-Feb-2020
Power splitter - 2 port	Mini-Circuits	ZN2PD-63-S+	4743	12	23-Sep-2020
Network Analyser	Keysight Technologies	E5063A	5018	12	20-May-2020
Cable (18 GHz)	Rosenberger	LU7-036-2000	5035	-	O/P Mon
Cable (18 GHz)	Rosenberger	LU7-071-1000	5098	12	06-Oct-2020
Cable (18 GHz)	Rosenberger	LU7-071-2000	5108	12	06-Oct-2020
Electronic Calibration Module	Keysight Technologies	85093C	5188	12	21-May-2020
AC Programmable Power Supply	iTech	IT7324	5227	-	O/P Mon
Power Splitter, 4 way	Mini-Circuits	ZN4PD1-63-S+	5235	-	O/P Mon
Power Splitter, 4 way	Mini-Circuits	ZN4PD1-63-S+	5236	-	O/P Mon

Table 142

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)
ISED RSS-247, Clause 6.2

2.3.2 Equipment Under Test and Modification State

A2179, S/N: C02ZC002M8MM - Modification State 0

2.3.3 Date of Test

20-November-2019 to 12-December-2019

2.3.4 Test Method

The test was performed in accordance with ANSI C63.10, clause 12.4.1 and 12.4.2.

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	22.7 - 25.6 °C
Relative Humidity	26.8 - 42.1 %



2.3.6 Test Results

5 GHz WLAN

U-NII-1

Channel	Bottom	Middle	Top
Frequency (MHz)	5180	5200	5240
26 dB Bandwidth (MHz)	21.480	21.780	21.600
99% Bandwidth (MHz)	16.604	16.575	16.576

Table 143 - 802.11a / 6 Mbps / SISO / Core 1 / Country Code US

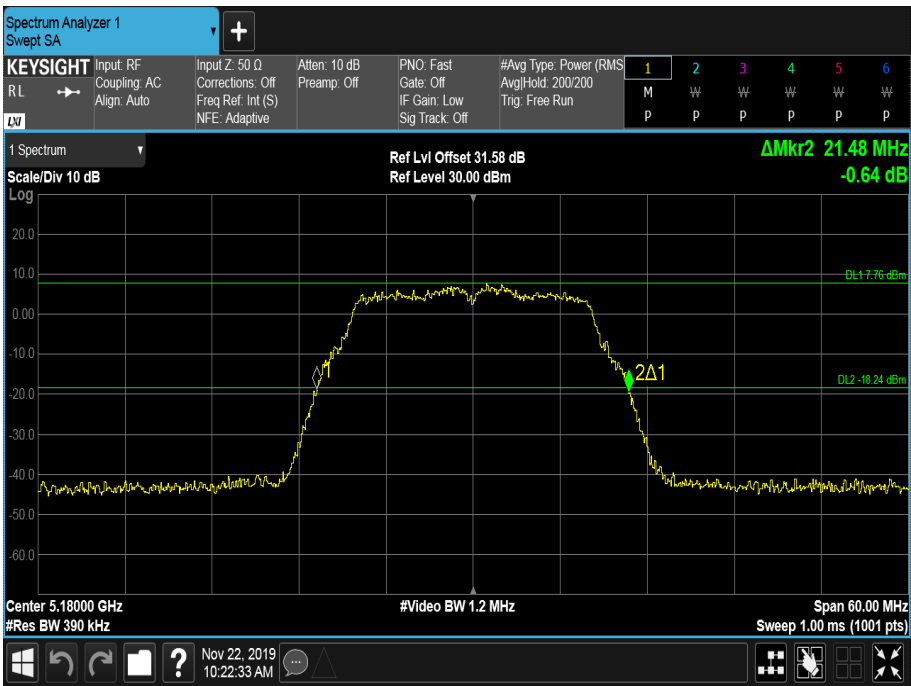


Figure 1 - 5180 MHz - 26 dB Emission Bandwidth

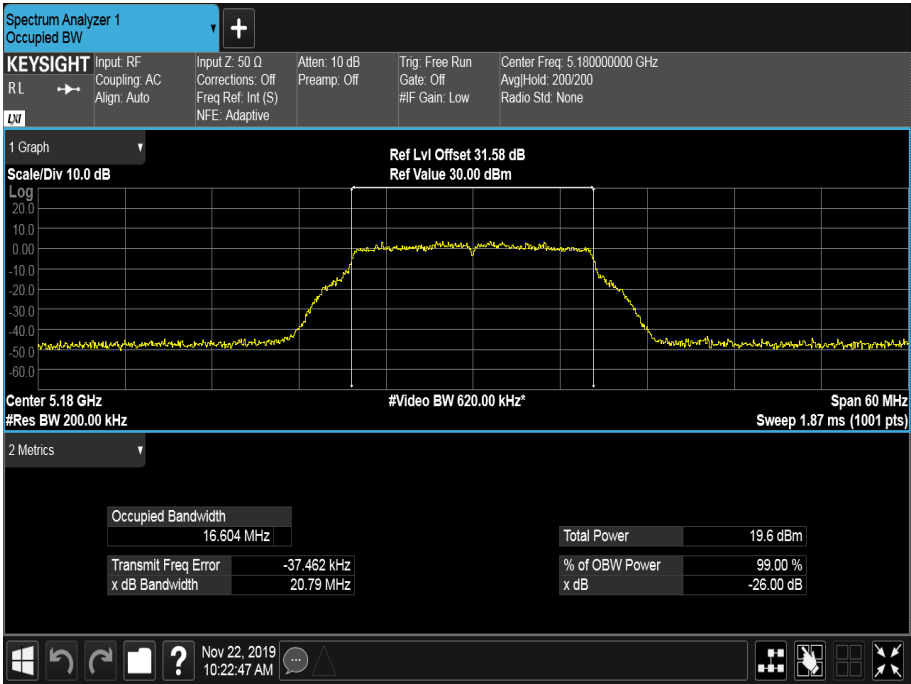


Figure 2 - 5180 MHz - 99% Occupied Bandwidth

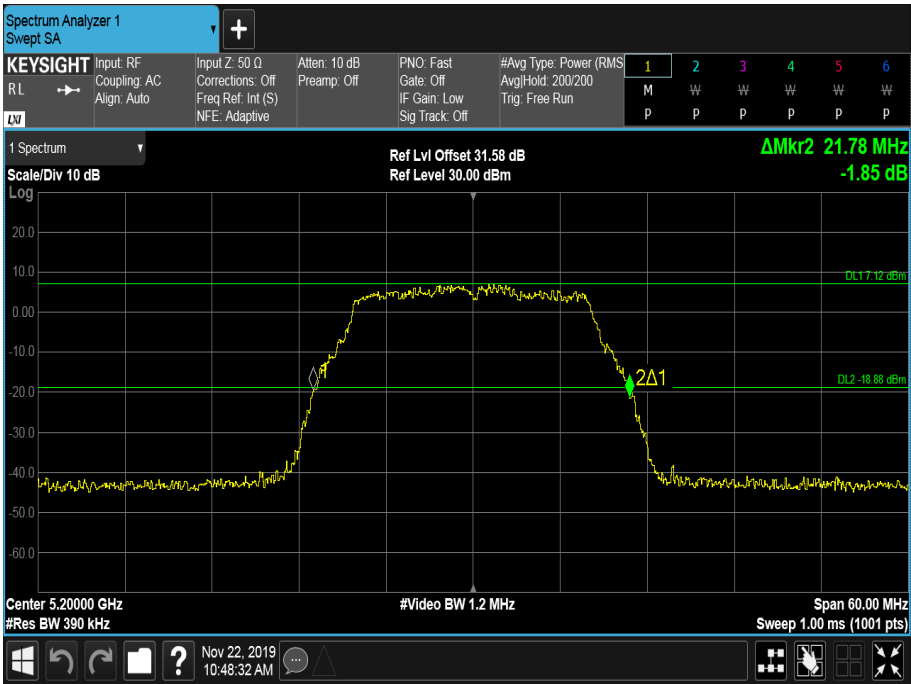


Figure 3 - 5200 MHz - 26 dB Emission Bandwidth

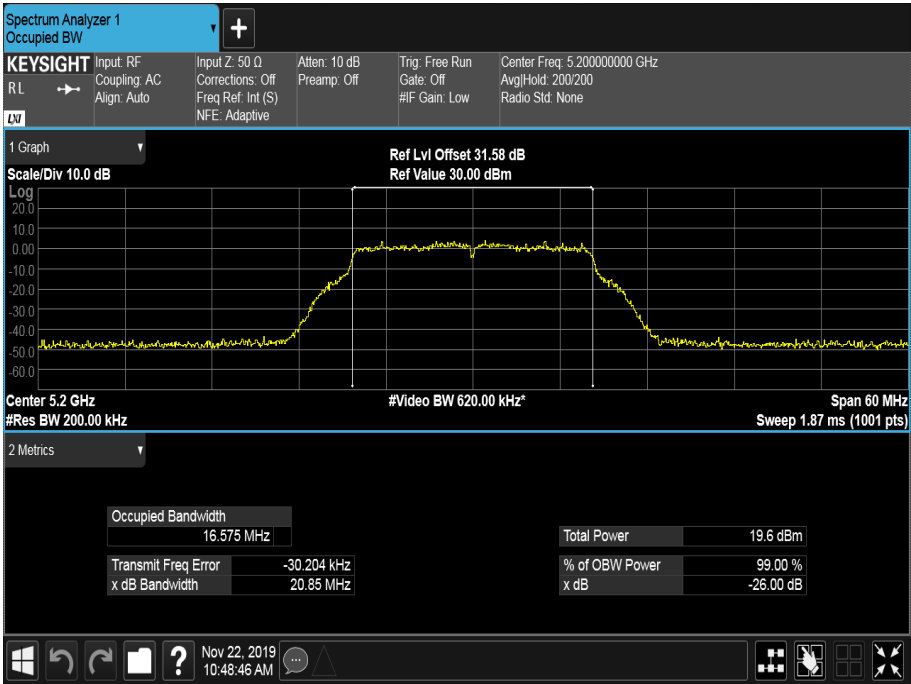


Figure 4 - 5200 MHz - 99% Occupied Bandwidth

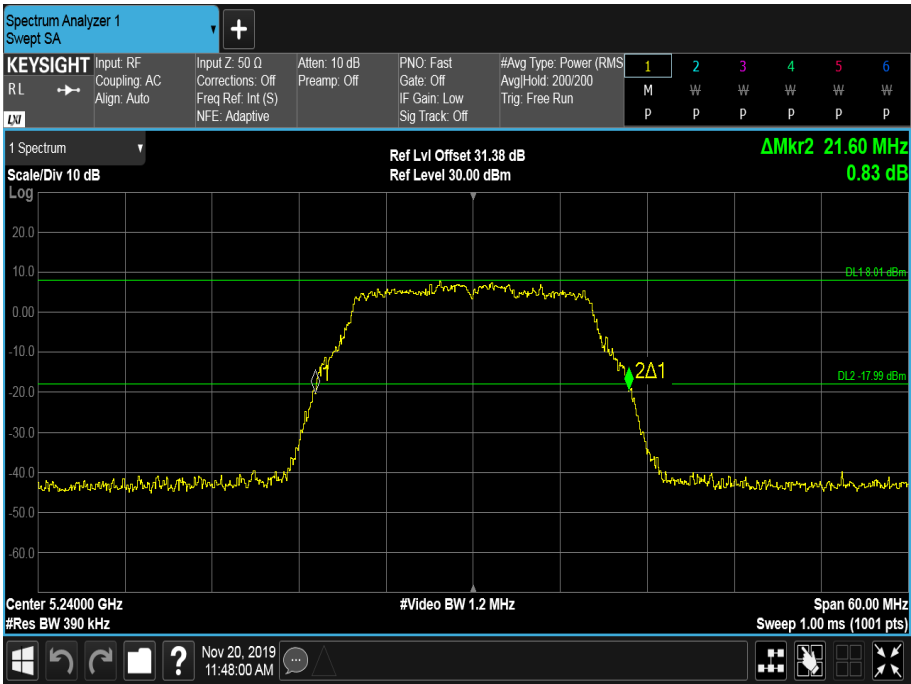


Figure 5 - 5240 MHz - 26 dB Emission Bandwidth

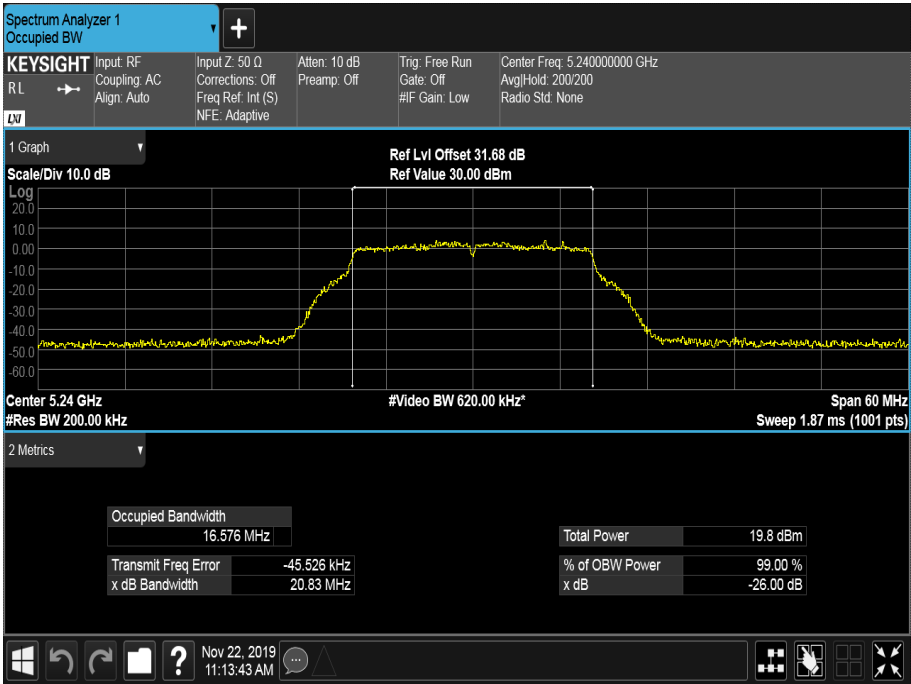


Figure 6 - 5240 MHz - 99% Occupied Bandwidth

Channel	Bottom	Middle	Top
Frequency (MHz)	5180	5200	5240
26 dB Bandwidth (MHz)	21.600	21.660	21.660
99% Bandwidth (MHz)	16.564	16.613	16.578

Table 144 - 802.11a / 6 Mbps / SISO / Core 1 / Country Code CA

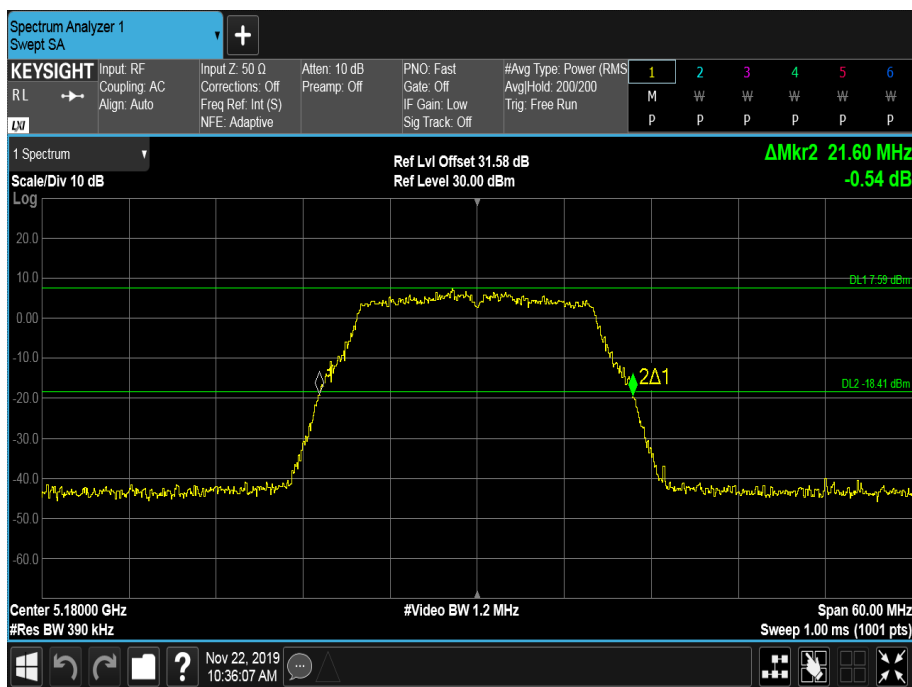


Figure 7 - 5180 MHz - 26 dB Emission Bandwidth

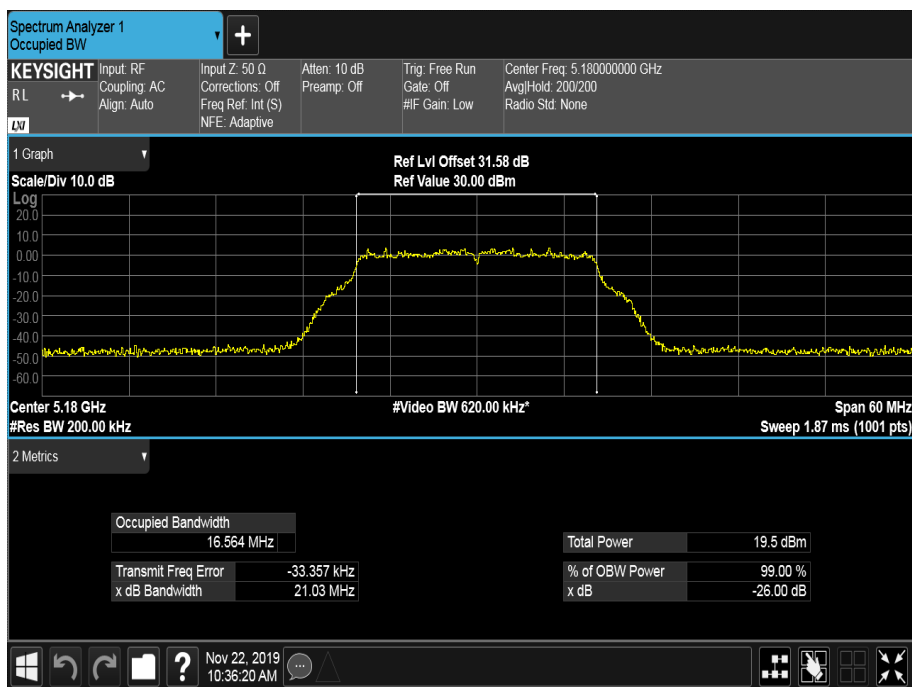


Figure 8 - 5180 MHz - 99% Occupied Bandwidth

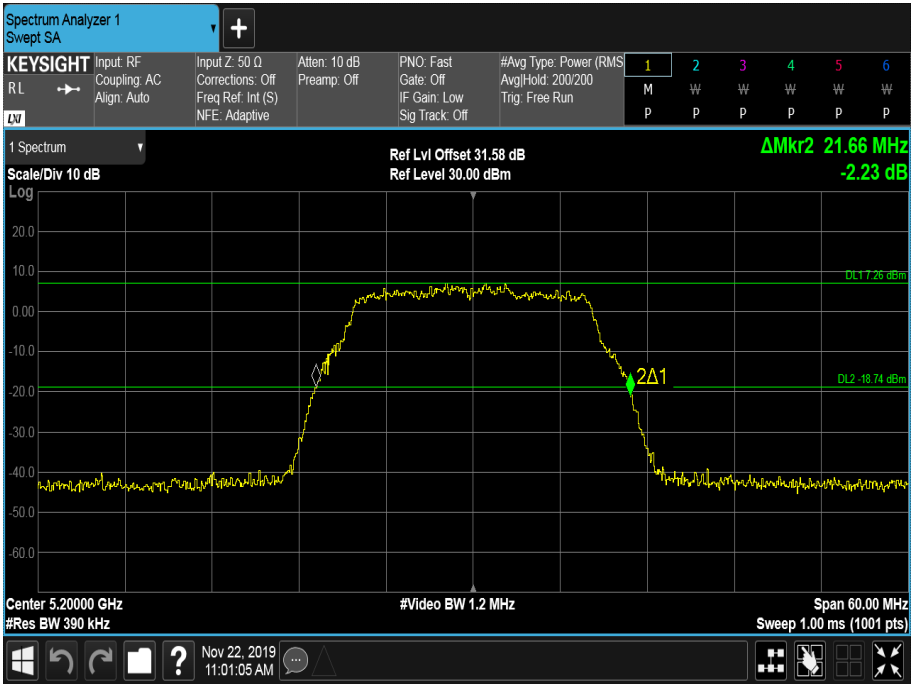


Figure 9 - 5200 MHz - 26 dB Emission Bandwidth

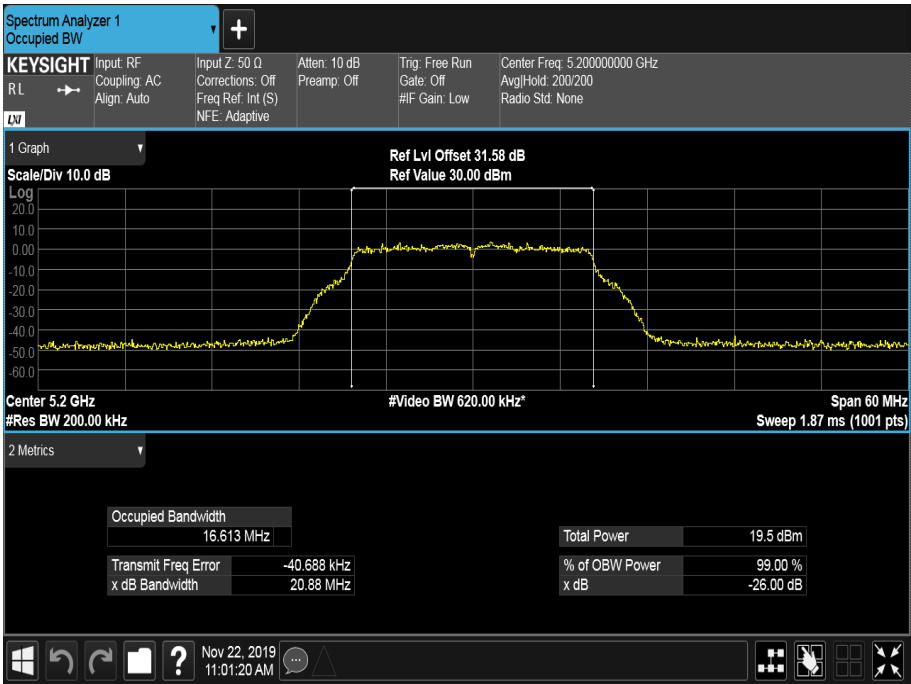


Figure 10 - 5200 MHz - 99% Occupied Bandwidth

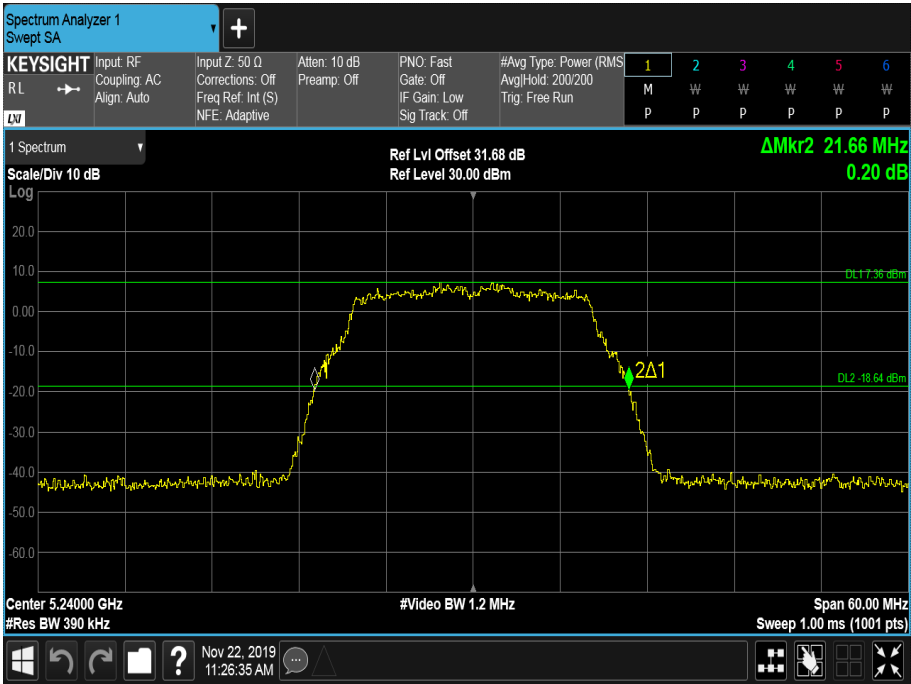


Figure 11 - 5240 MHz - 26 dB Emission Bandwidth

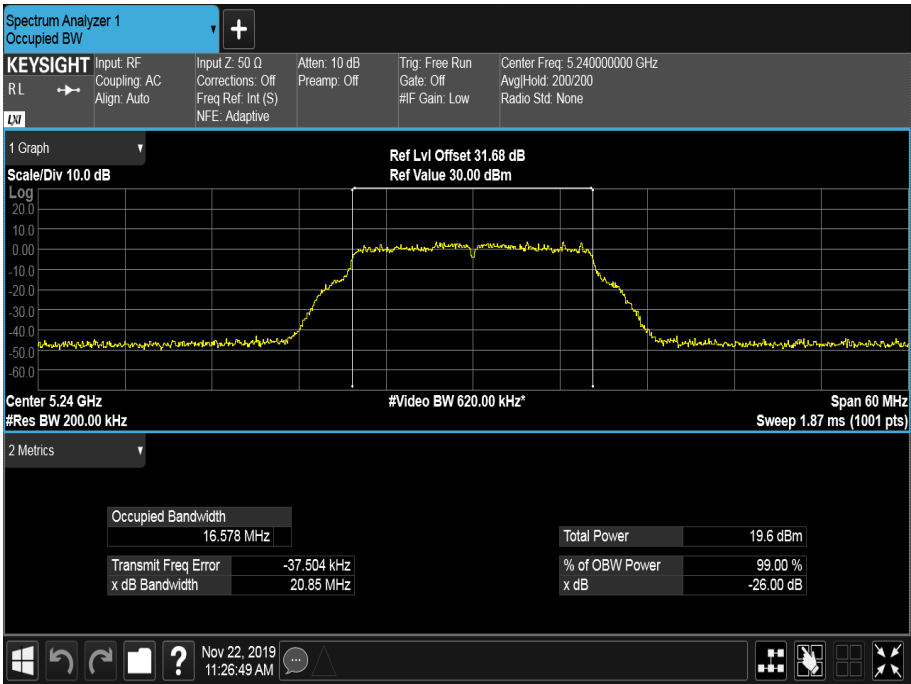


Figure 12 - 5240 MHz - 99% Occupied Bandwidth



Channel	Bottom	Middle	Top
Frequency (MHz)	5180	5200	5240
26 dB Bandwidth (MHz)	22.140	21.900	21.660
99% Bandwidth (MHz)	17.753	17.760	17.756

Table 145 - 802.11n / HT20 MCS0 / SISO / Core 1 / Country Code US

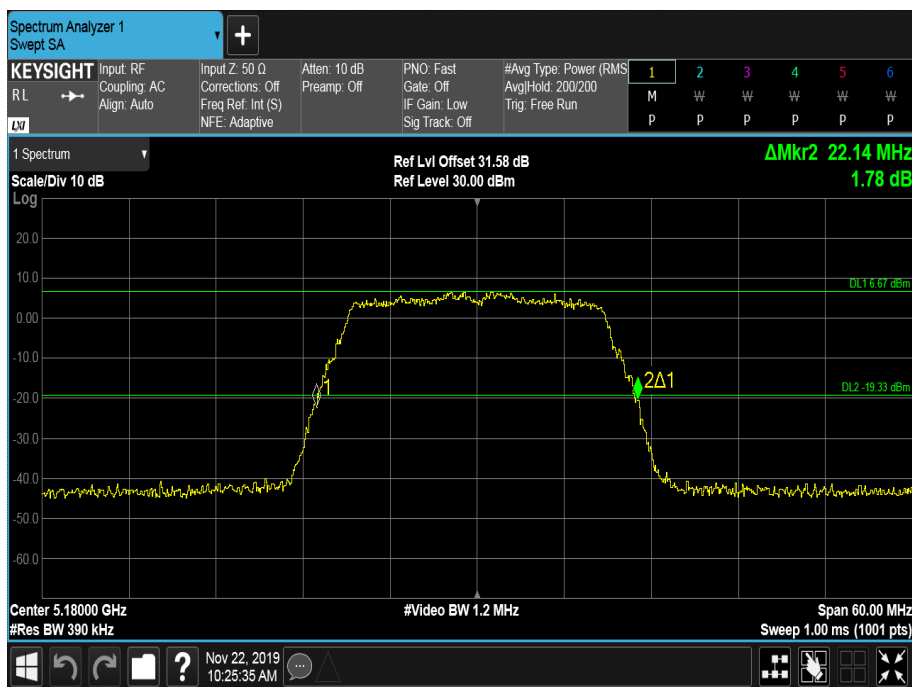


Figure 13 - 5180 MHz - 26 dB Emission Bandwidth

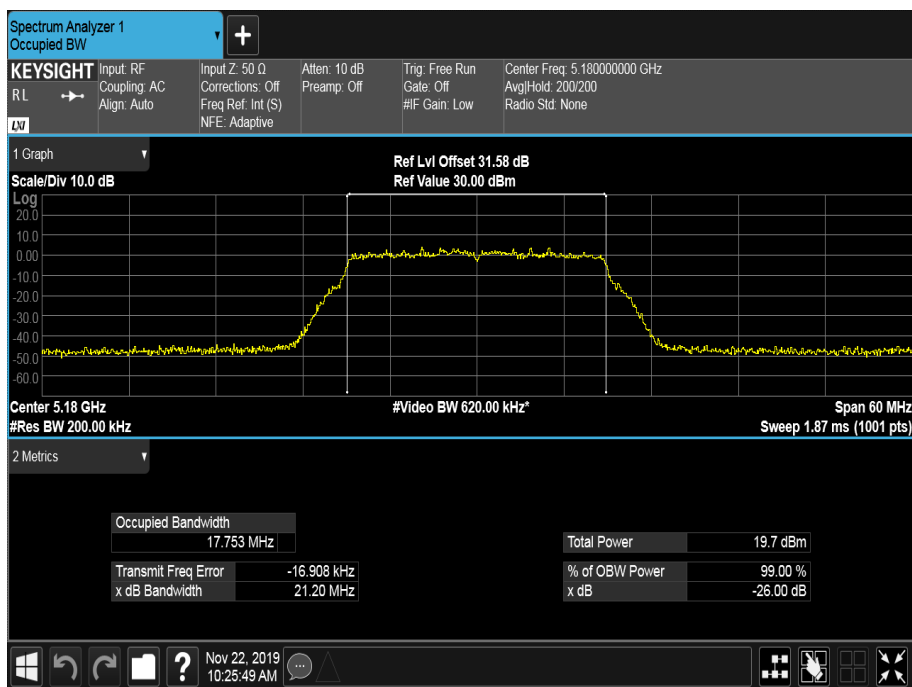


Figure 14 - 5180 MHz - 99% Occupied Bandwidth

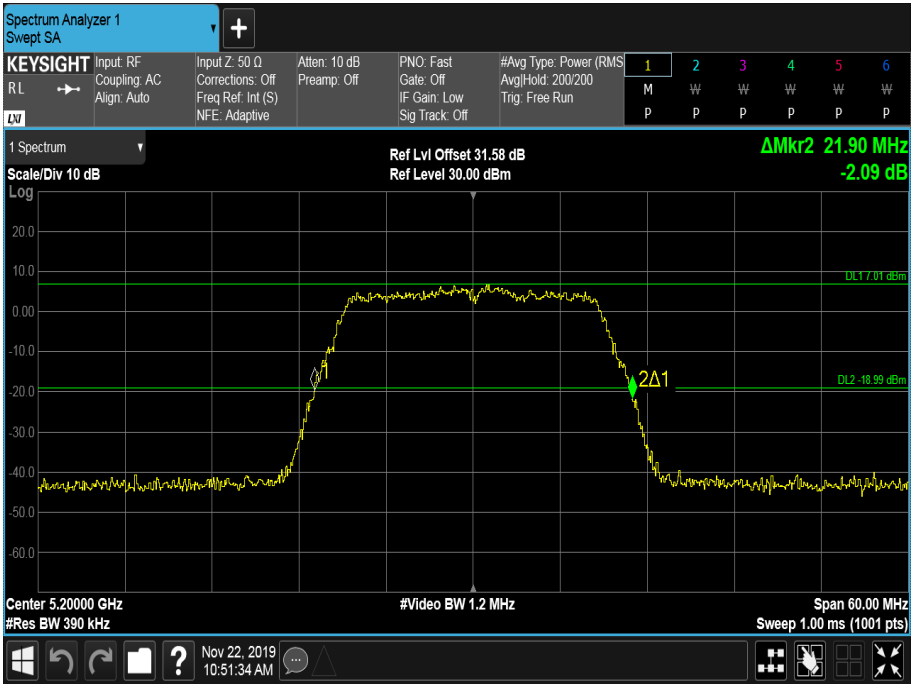


Figure 15 - 5200 MHz - 26 dB Emission Bandwidth

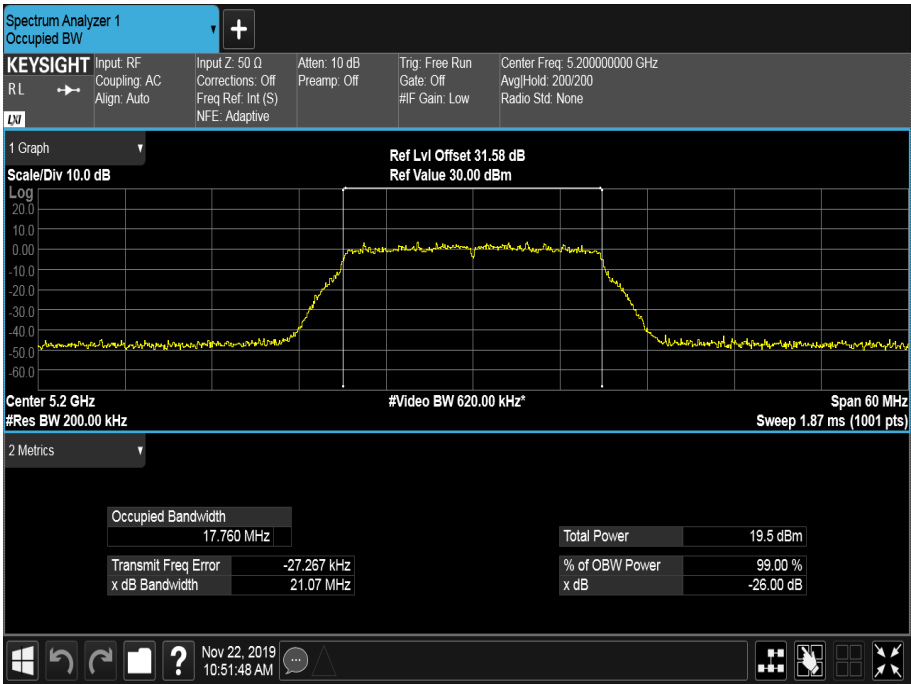


Figure 16 - 5200 MHz - 99% Occupied Bandwidth

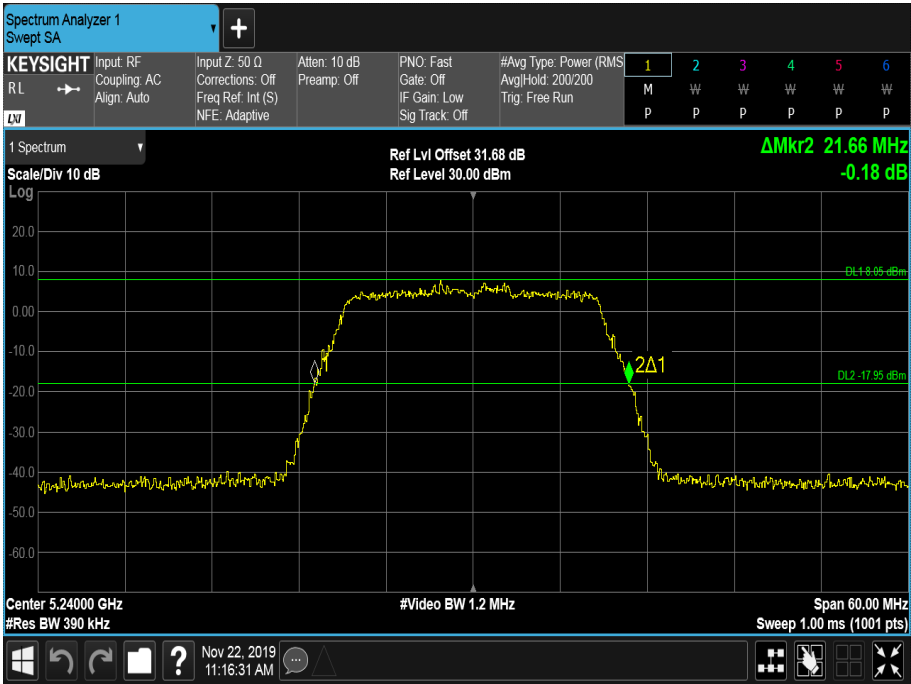


Figure 17 - 5240 MHz - 26 dB Emission Bandwidth

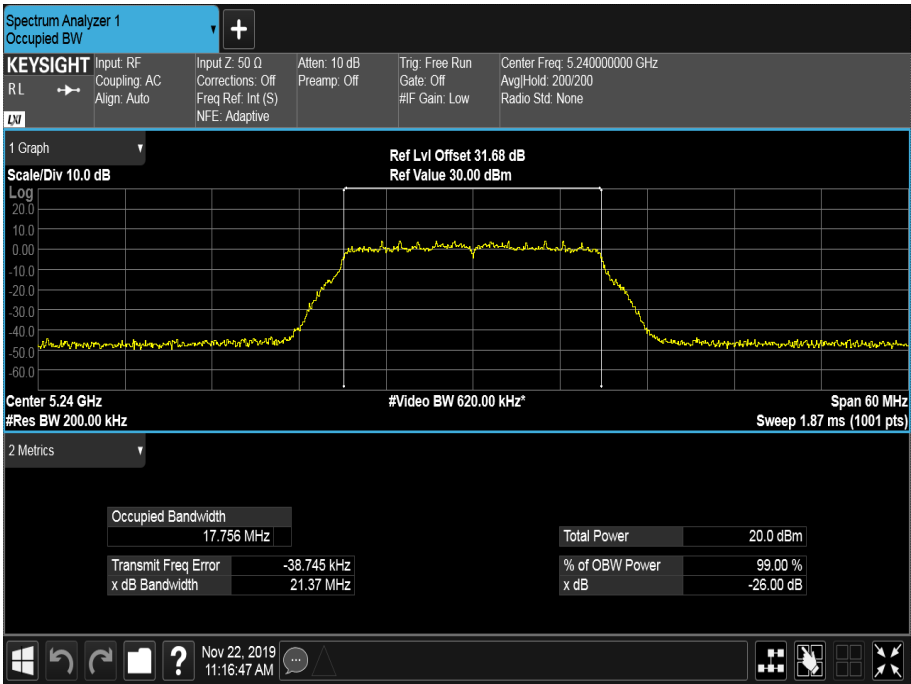


Figure 18 - 5240 MHz - 99% Occupied Bandwidth



Channel	Bottom	Middle	Top
Frequency (MHz)	5180	5200	5240
26 dB Bandwidth (MHz)	21.960	21.780	22.260
99% Bandwidth (MHz)	17.761	17.699	17.723

Table 146 - 802.11n / HT20 MCS0 / SISO / Core 1 / Country Code CA

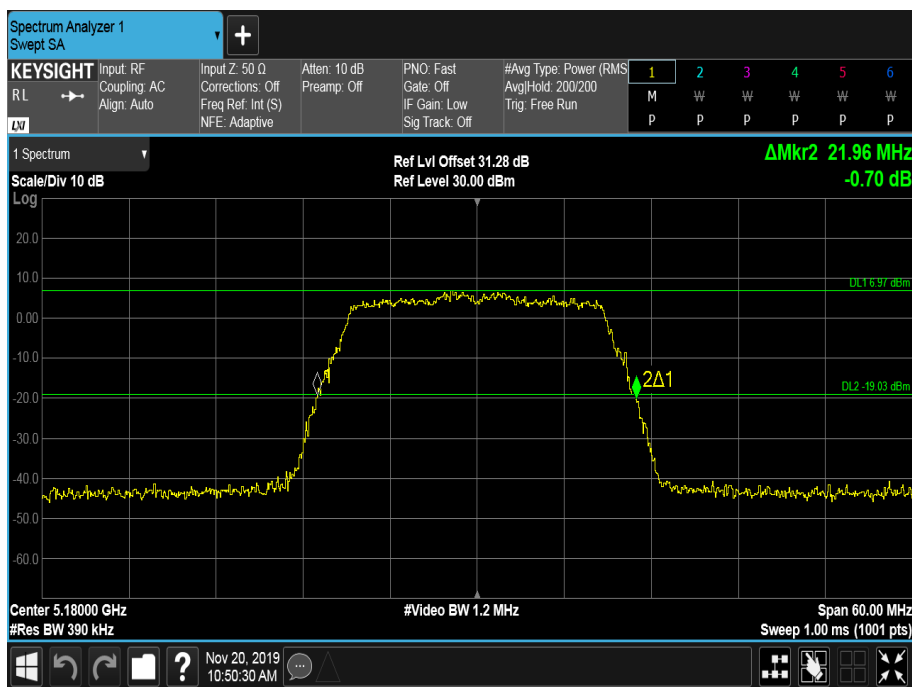


Figure 19 - 5180 MHz - 26 dB Emission Bandwidth

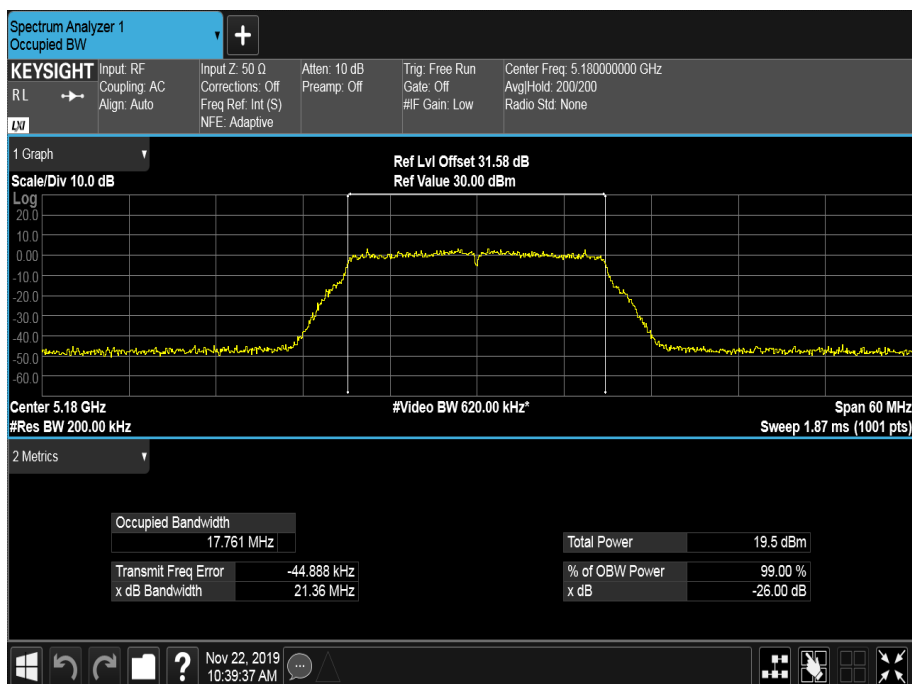


Figure 20 - 5180 MHz - 99% Occupied Bandwidth

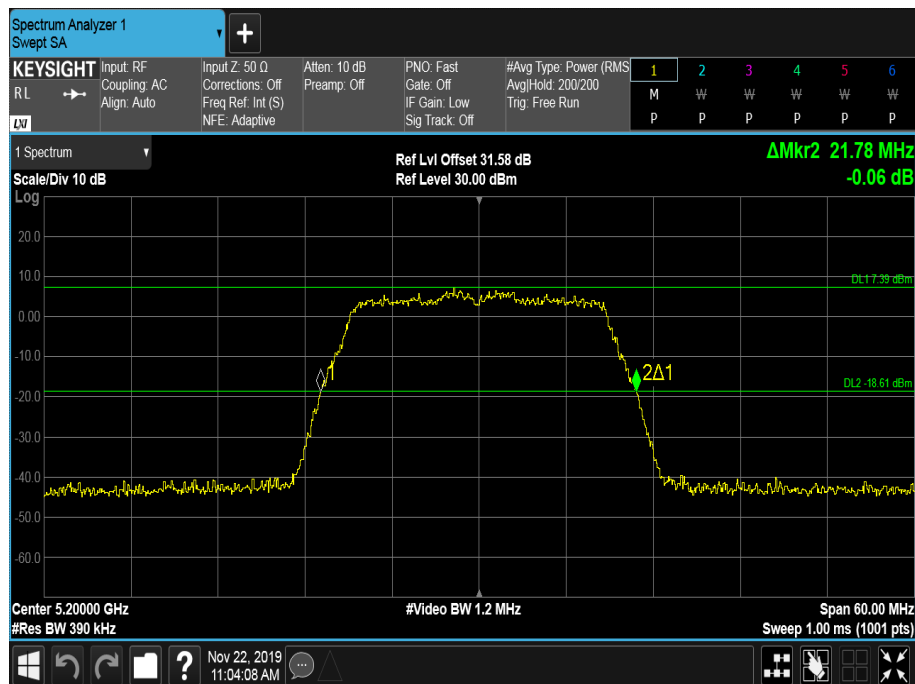


Figure 21 - 5200 MHz - 26 dB Emission Bandwidth

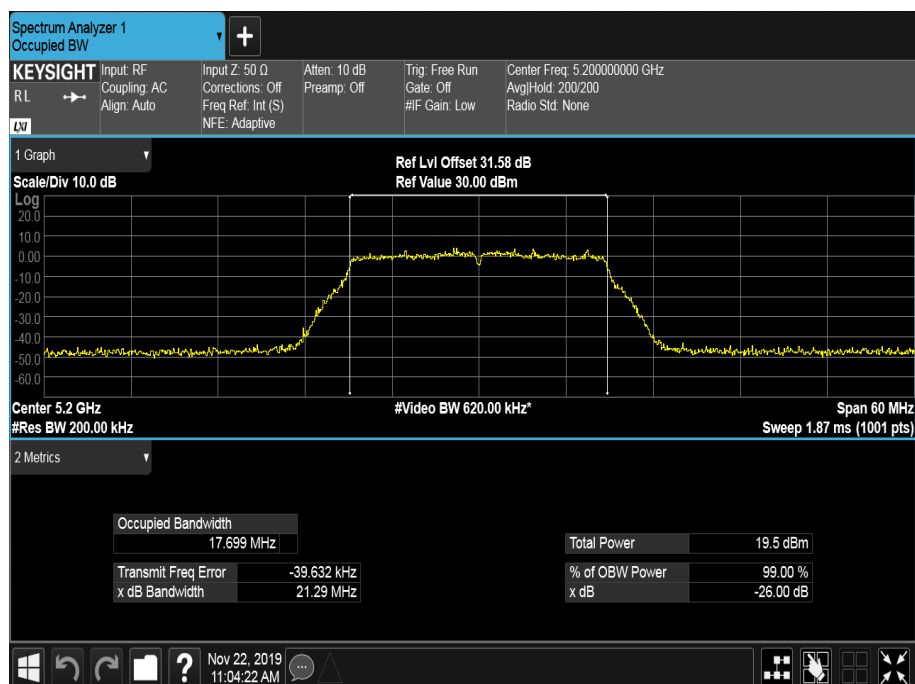


Figure 22 - 5200 MHz - 99% Occupied Bandwidth

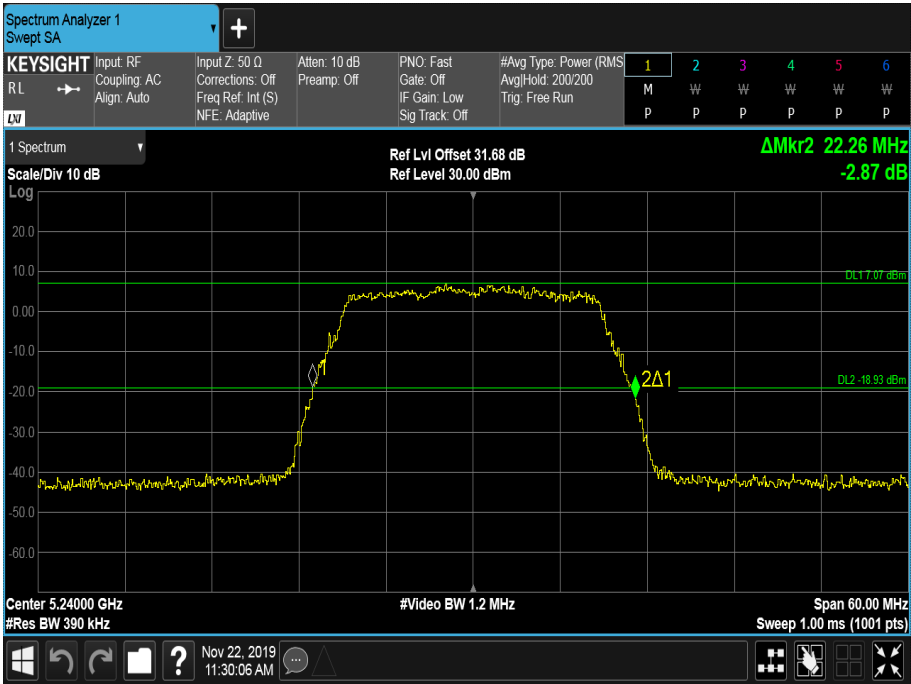


Figure 23 - 5240 MHz - 26 dB Emission Bandwidth

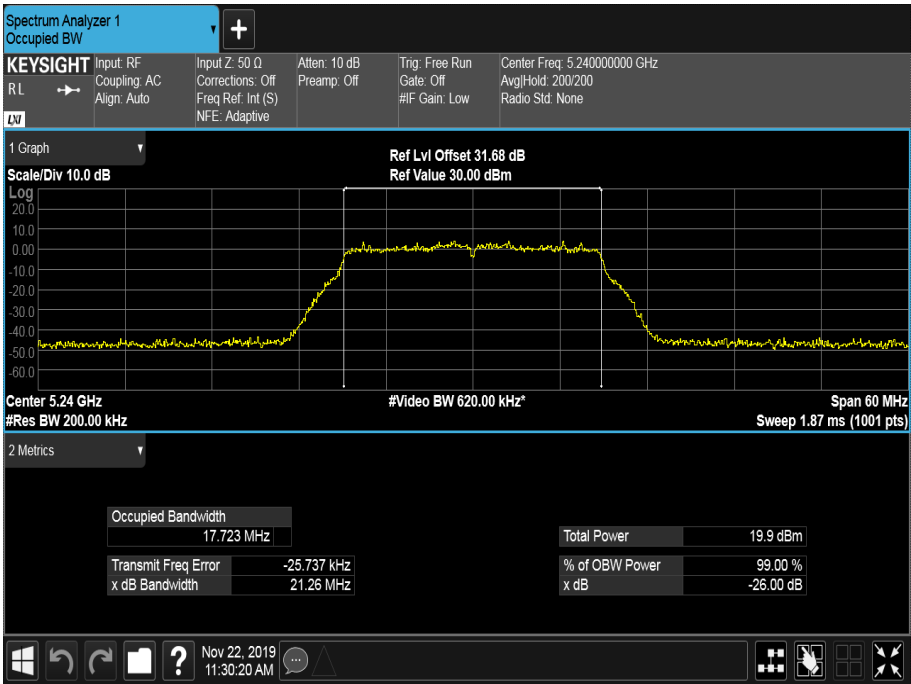


Figure 24 - 5240 MHz - 99% Occupied Bandwidth

Channel	Bottom	Middle	Top
Frequency (MHz)	5180	5200	5240
26 dB Bandwidth (MHz)	22.320	22.020	22.080
99% Bandwidth (MHz)	17.732	17.775	17.716

Table 147 - 802.11n / HT20 MCS0 / MIMO CDD / Cores 0+1 / Country Code US

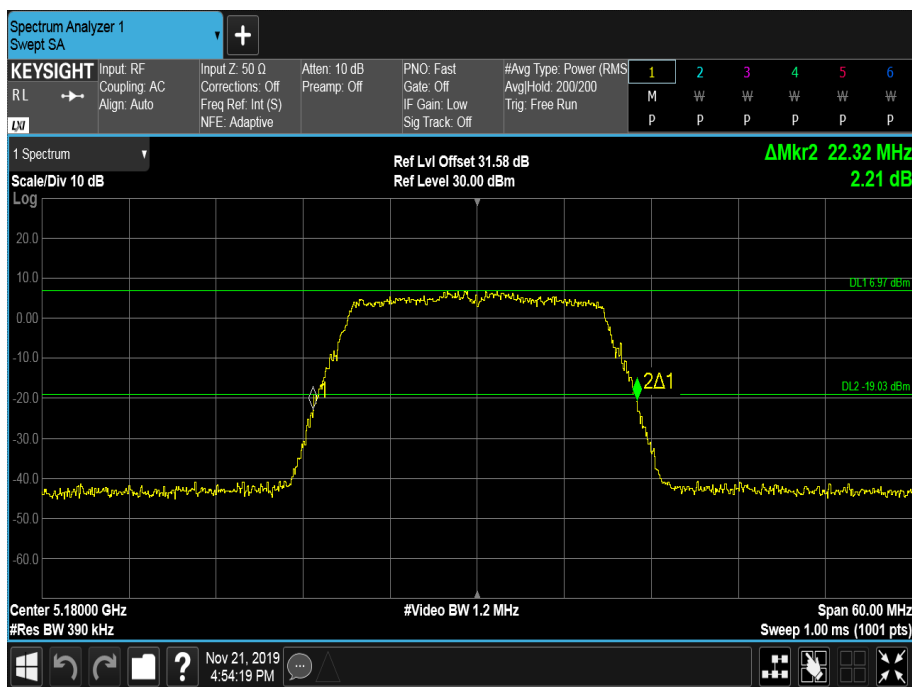


Figure 25 - 5180 MHz - 26 dB Emission Bandwidth

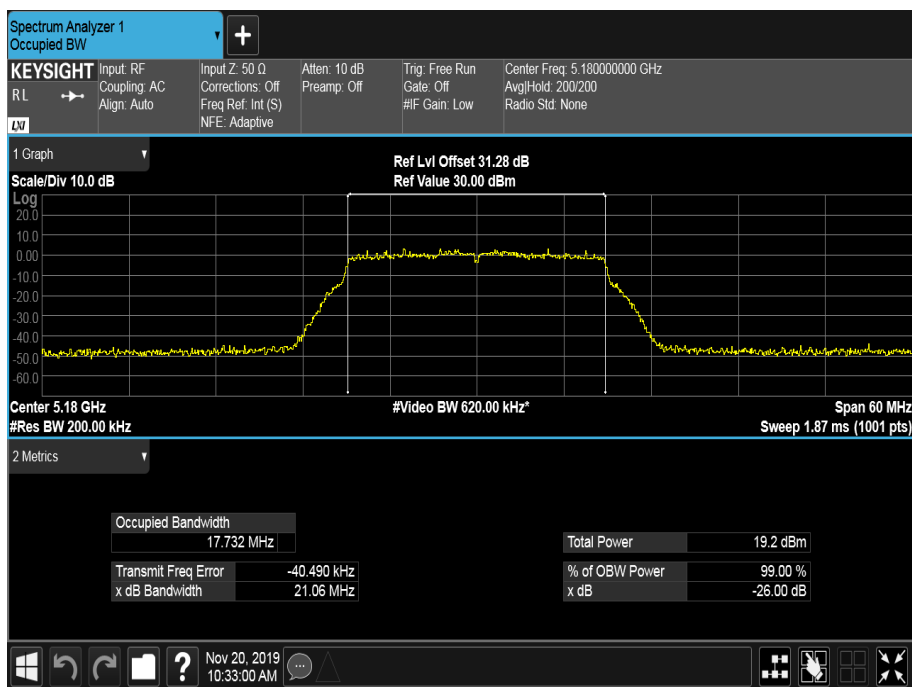


Figure 26 - 5180 MHz - 99% Occupied Bandwidth

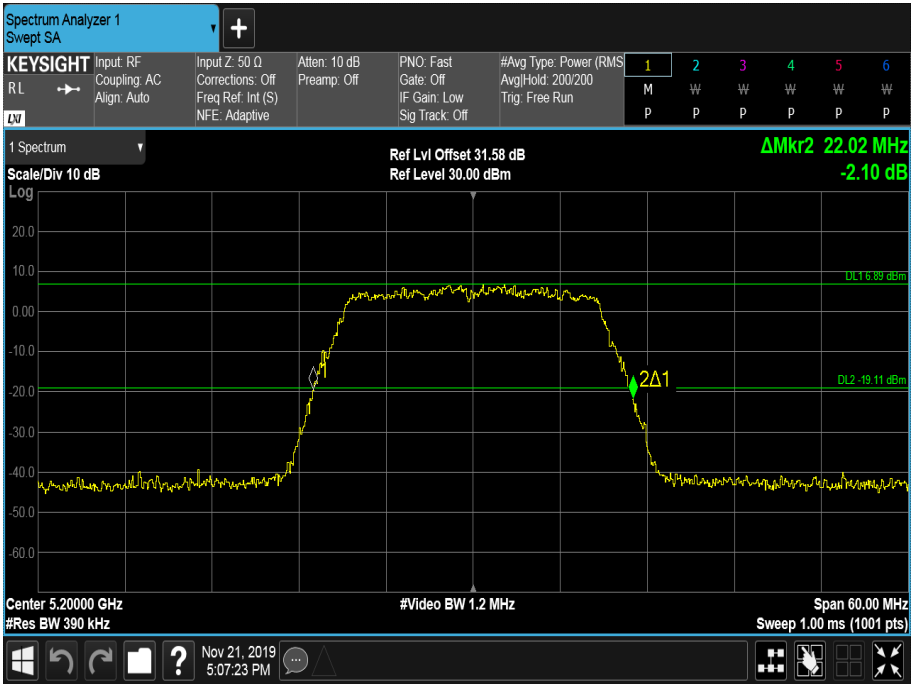


Figure 27 - 5200 MHz - 26 dB Emission Bandwidth

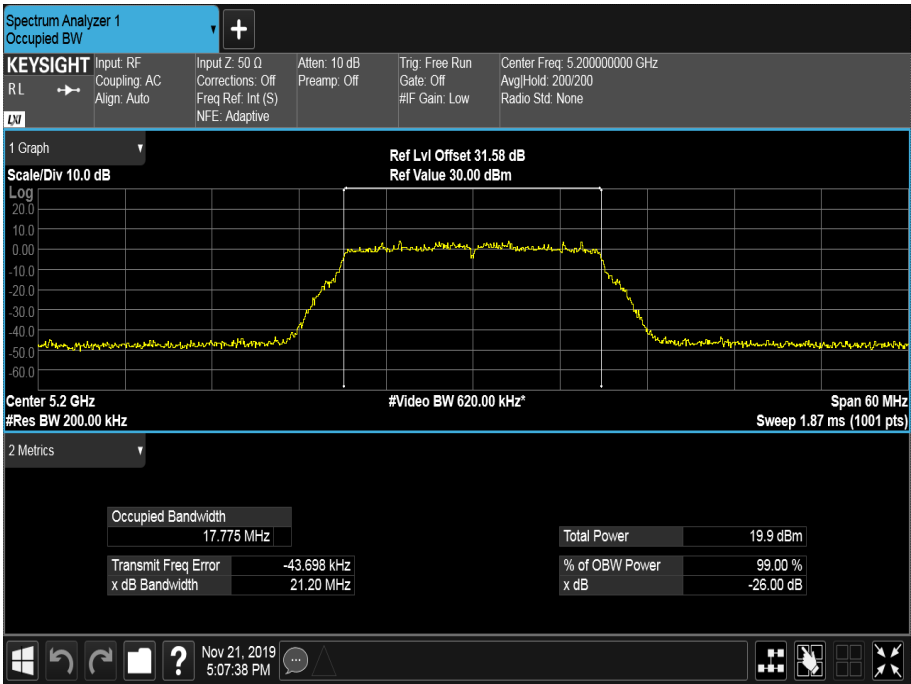


Figure 28 - 5200 MHz - 99% Occupied Bandwidth

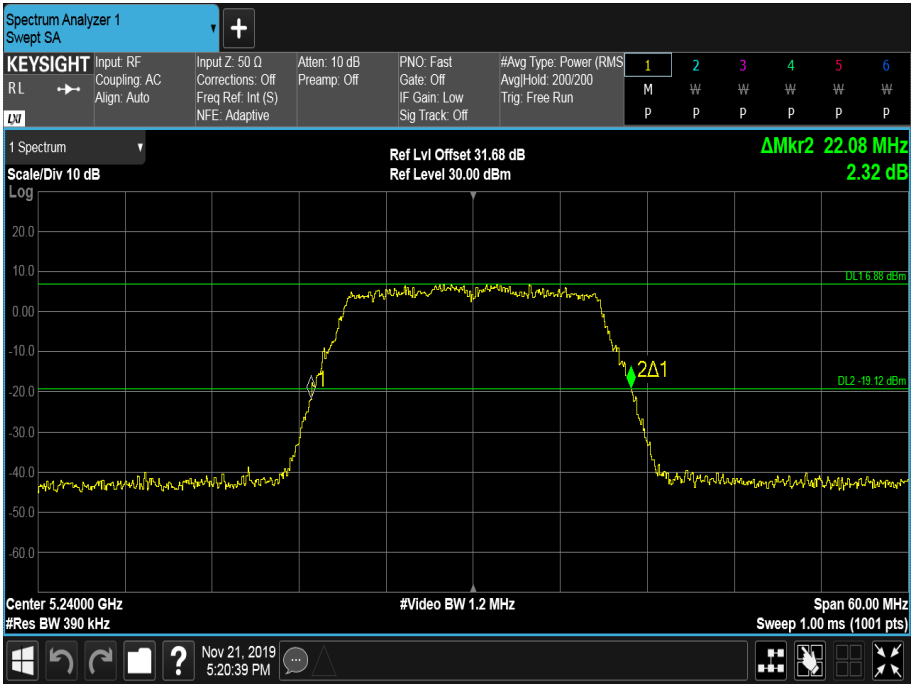


Figure 29 - 5240 MHz - 26 dB Emission Bandwidth

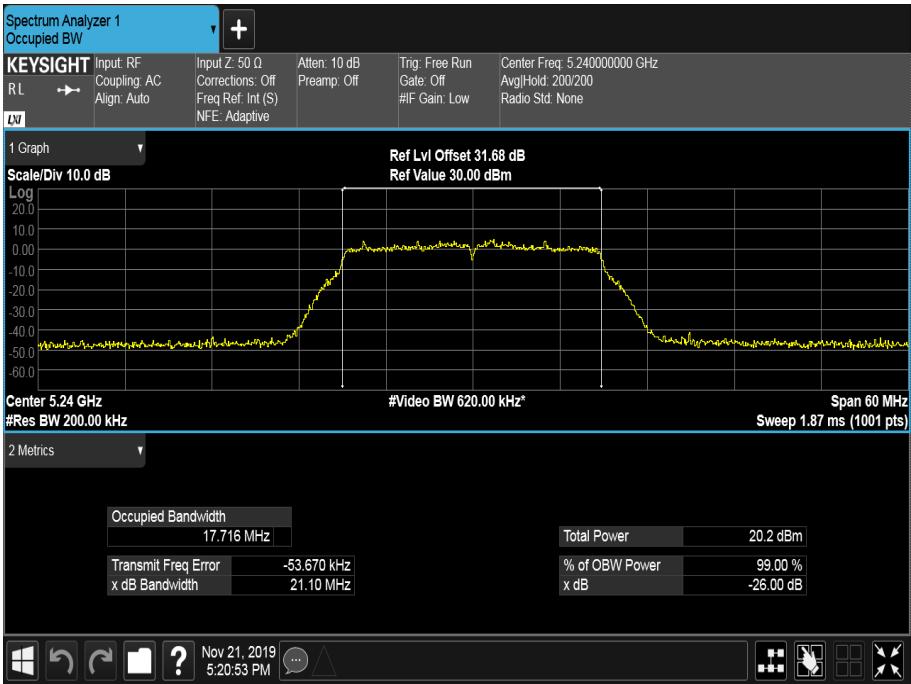


Figure 30 - 5240 MHz - 99% Occupied Bandwidth

Channel	Bottom	Middle	Top
Frequency (MHz)	5180	5200	5240
26 dB Bandwidth (MHz)	21.960	21.960	21.780
99% Bandwidth (MHz)	17.760	17.731	17.730

Table 148 - 802.11n / HT20 MCS0 / MIMO CDD / Cores 0+1 / Country Code CA

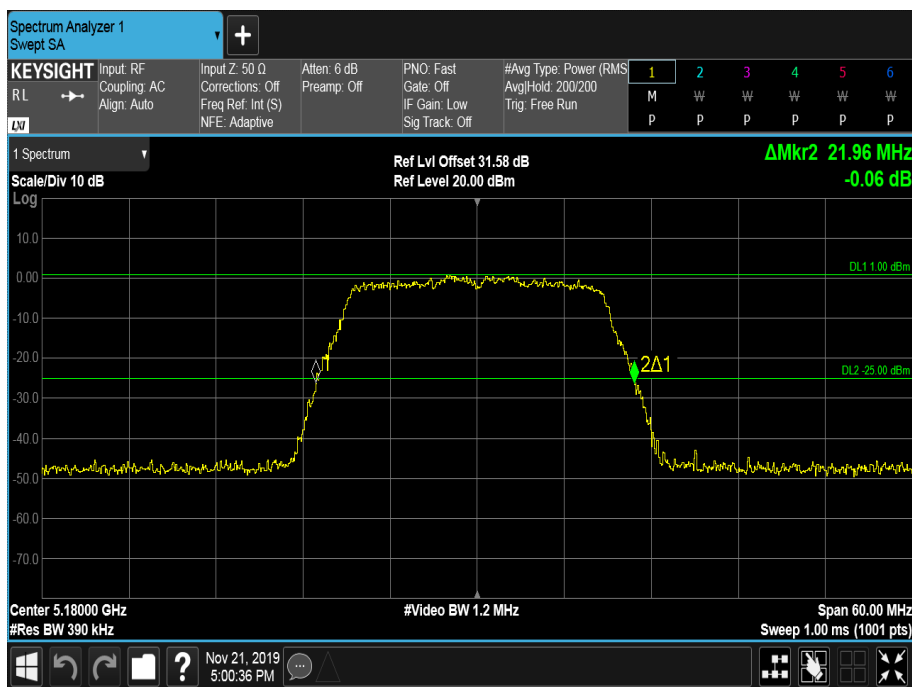


Figure 31 - 5180 MHz - 26 dB Emission Bandwidth

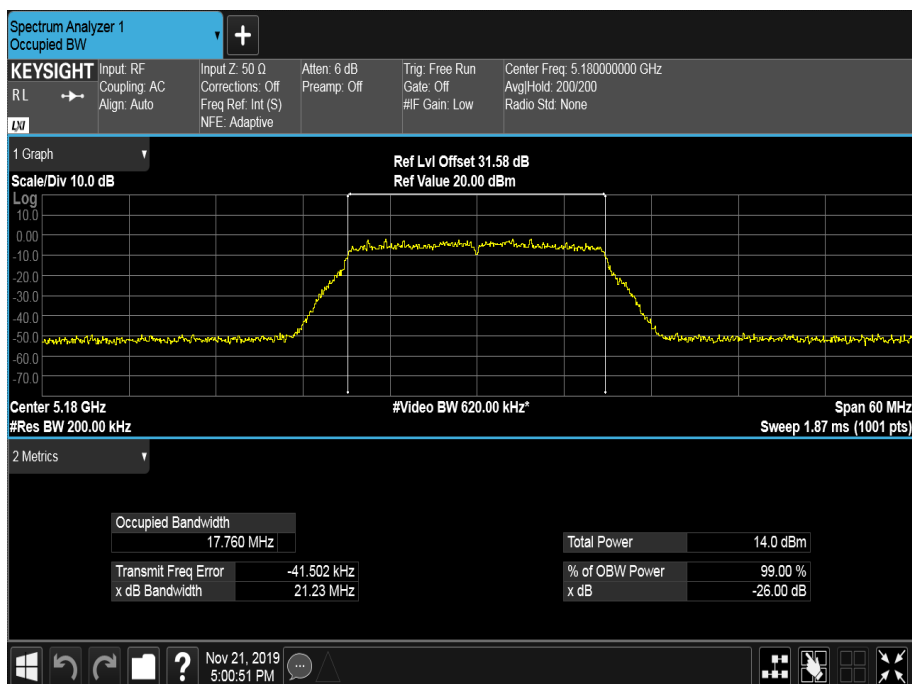


Figure 32 - 5180 MHz - 99% Occupied Bandwidth

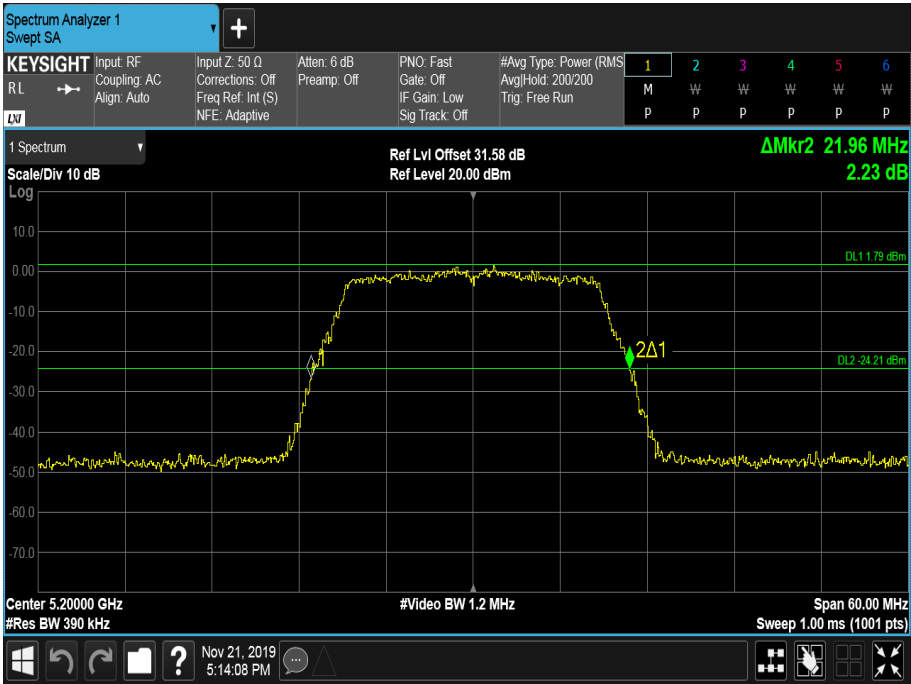


Figure 33 - 5200 MHz - 26 dB Emission Bandwidth

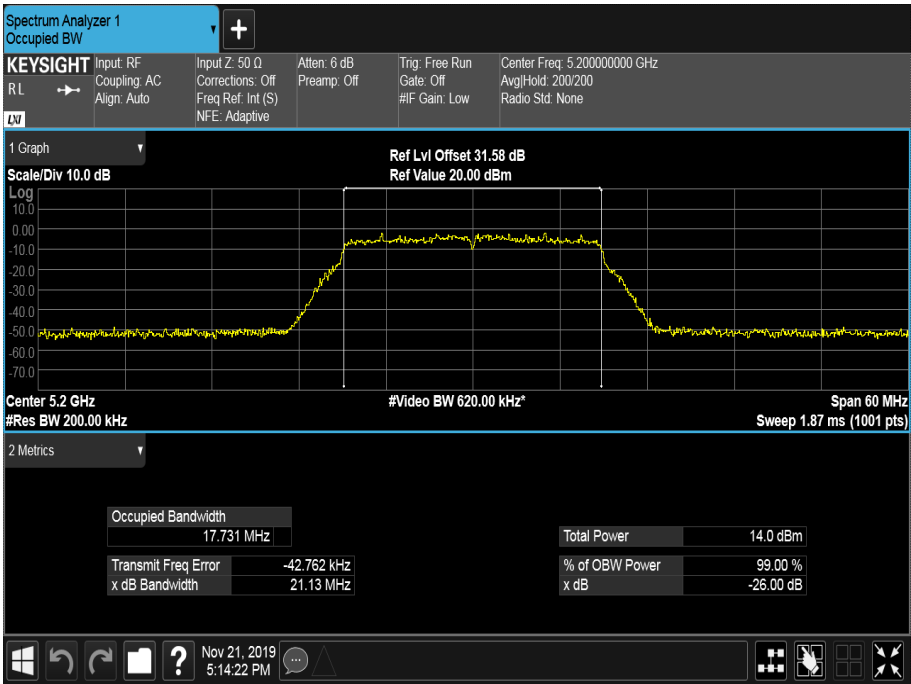


Figure 34 - 5200 MHz - 99% Occupied Bandwidth

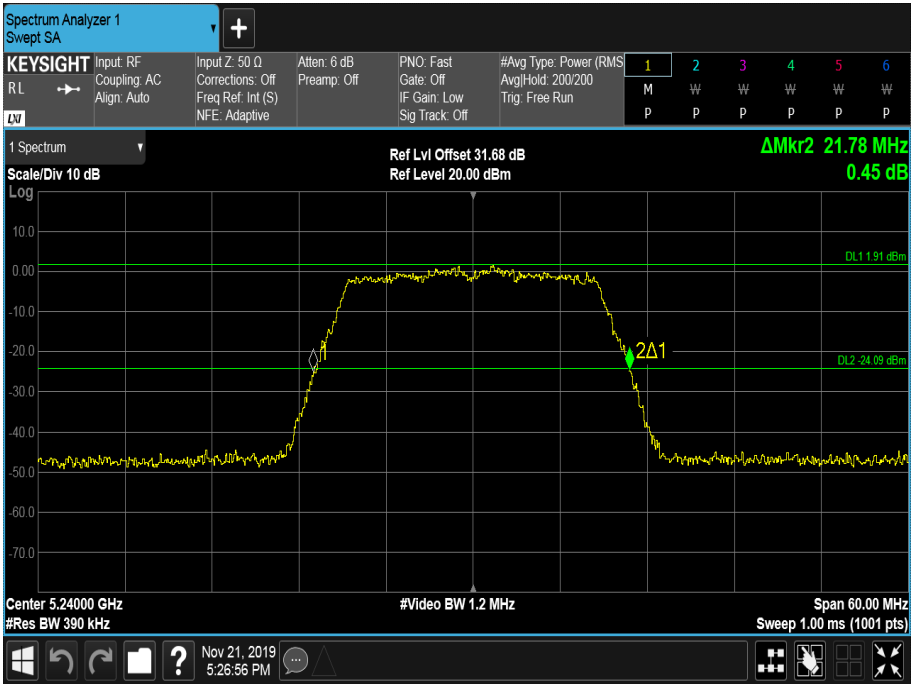


Figure 35 - 5240 MHz - 26 dB Emission Bandwidth

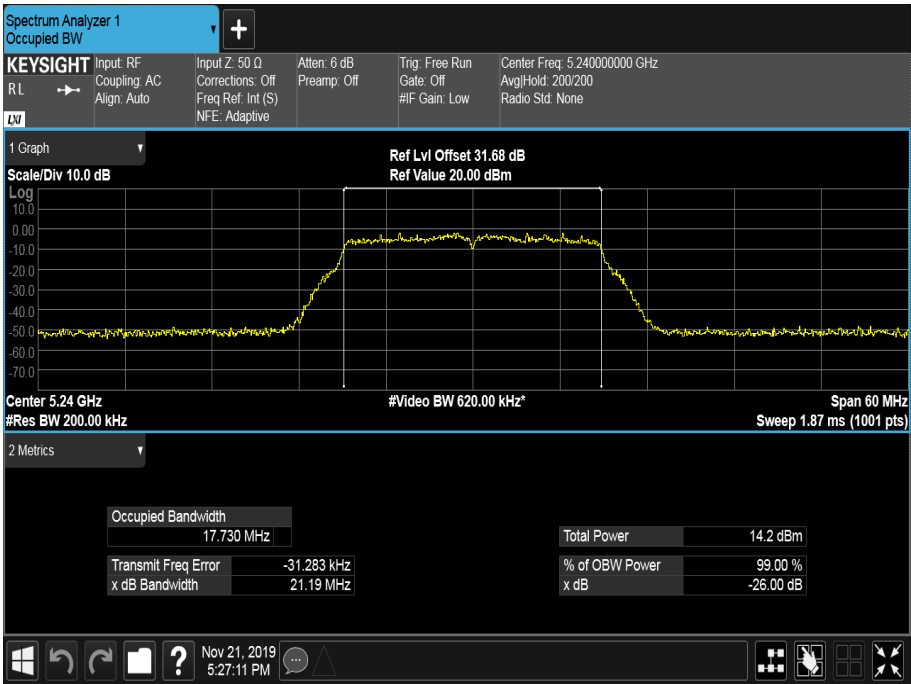


Figure 36 - 5240 MHz - 99% Occupied Bandwidth

Channel	Bottom	Middle	Top
Frequency (MHz)	5180	5200	5240
26 dB Bandwidth (MHz)	21.720	21.960	22.020
99% Bandwidth (MHz)	17.717	17.734	17.727

Table 149 - 802.11n / HT20 MCS8 / MIMO SDM / Cores 0+1 / Country Code US

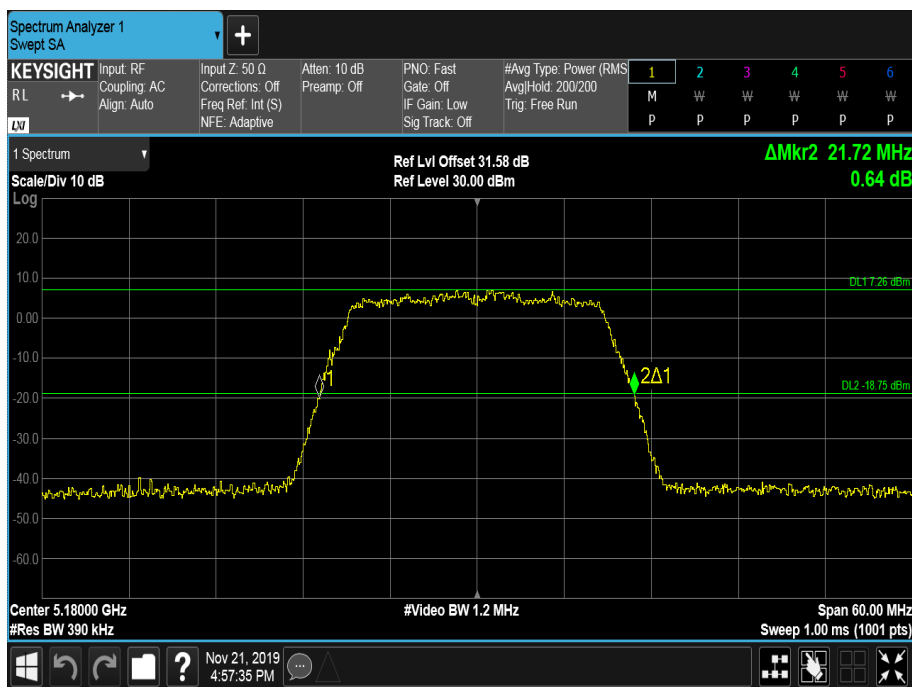


Figure 37 - 5180 MHz - 26 dB Emission Bandwidth

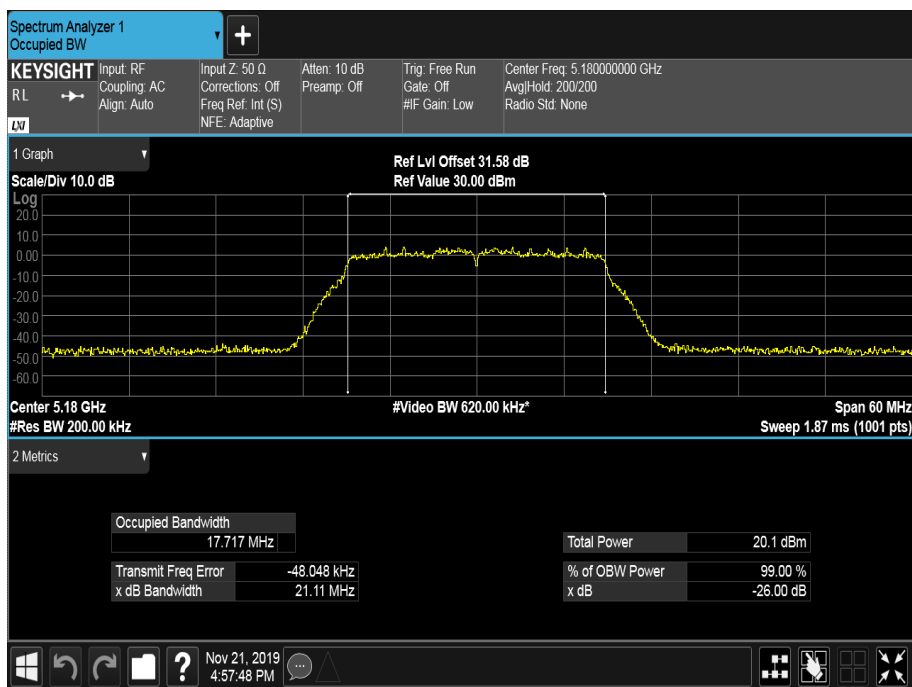


Figure 38 - 5180 MHz - 99% Occupied Bandwidth

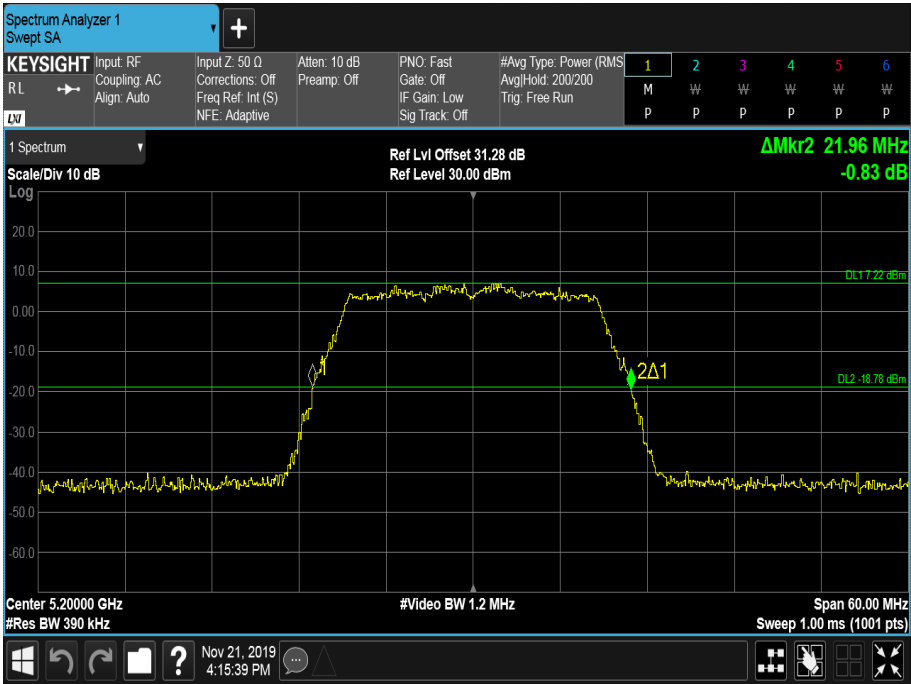


Figure 39 - 5200 MHz - 26 dB Emission Bandwidth

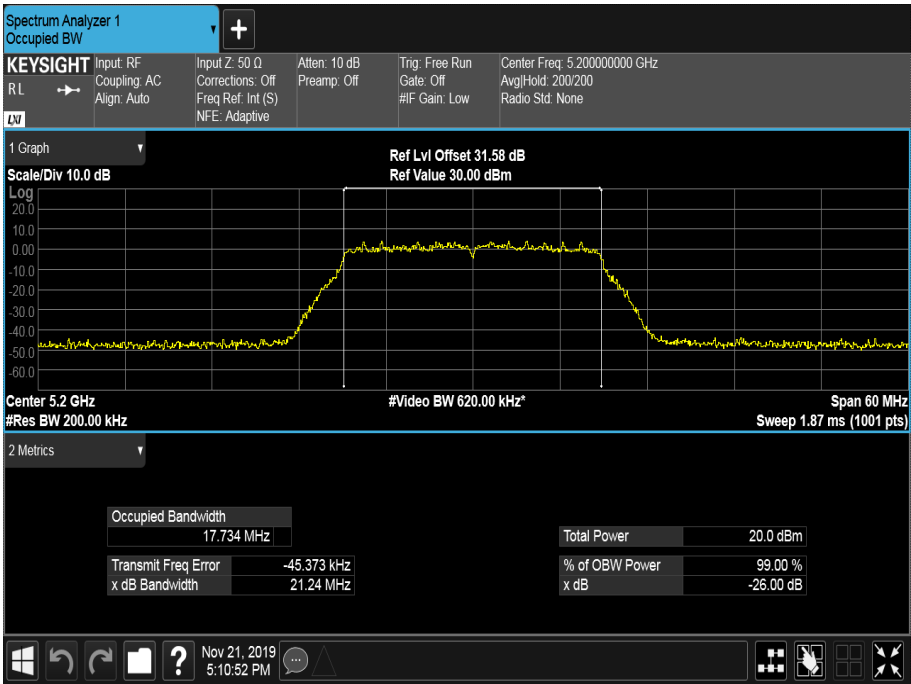


Figure 40 - 5200 MHz - 99% Occupied Bandwidth

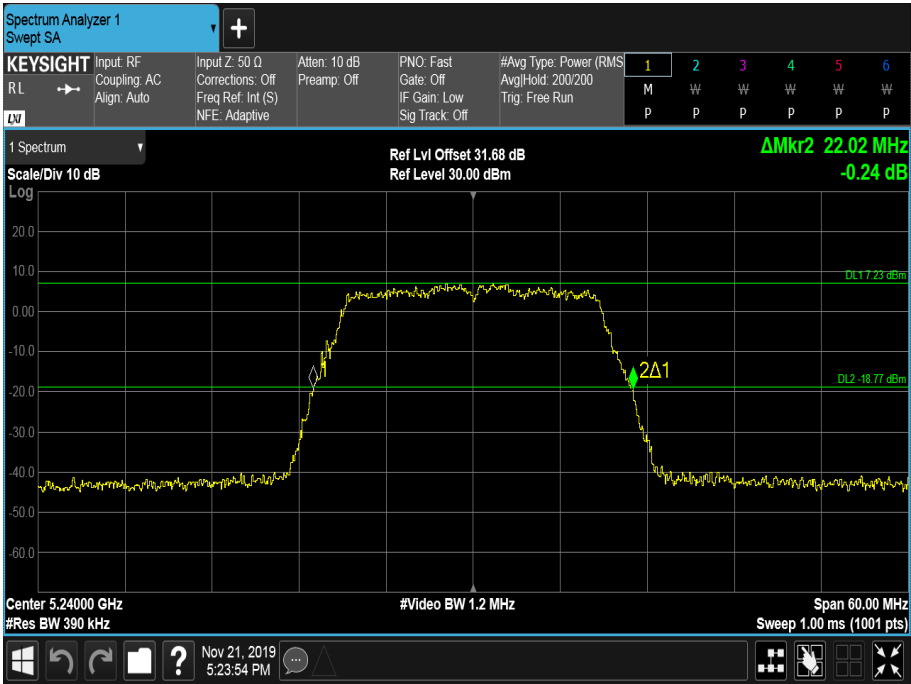


Figure 41 - 5240 MHz - 26 dB Emission Bandwidth

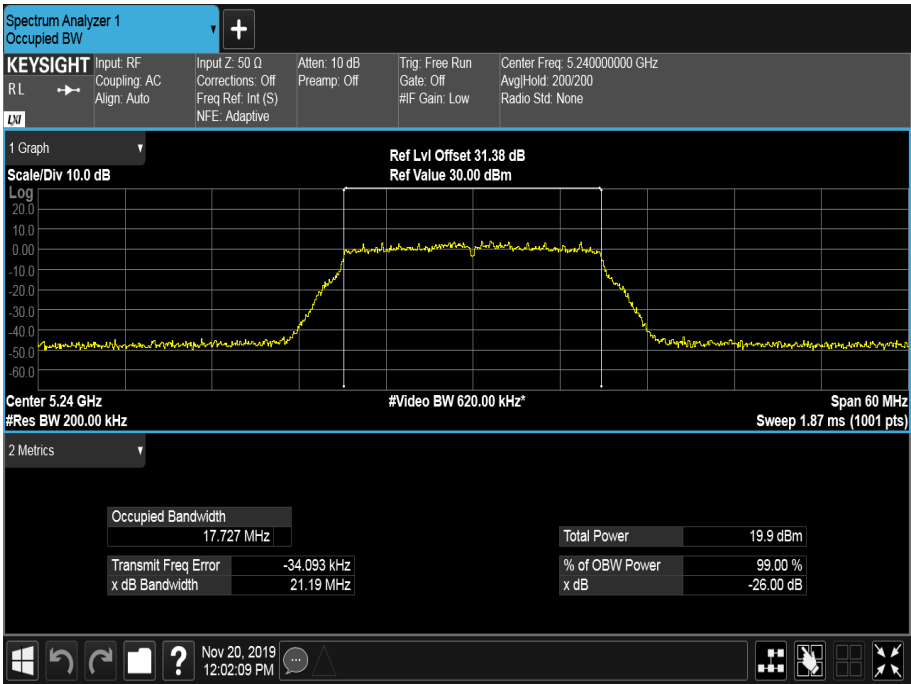


Figure 42 - 5240 MHz - 99% Occupied Bandwidth

Channel	Bottom	Middle	Top
Frequency (MHz)	5180	5200	5240
26 dB Bandwidth (MHz)	21.780	21.840	21.720
99% Bandwidth (MHz)	17.735	17.724	17.755

Table 150 - 802.11n / HT20 MCS8 / MIMO SDM / Cores 0+1 / Country Code CA

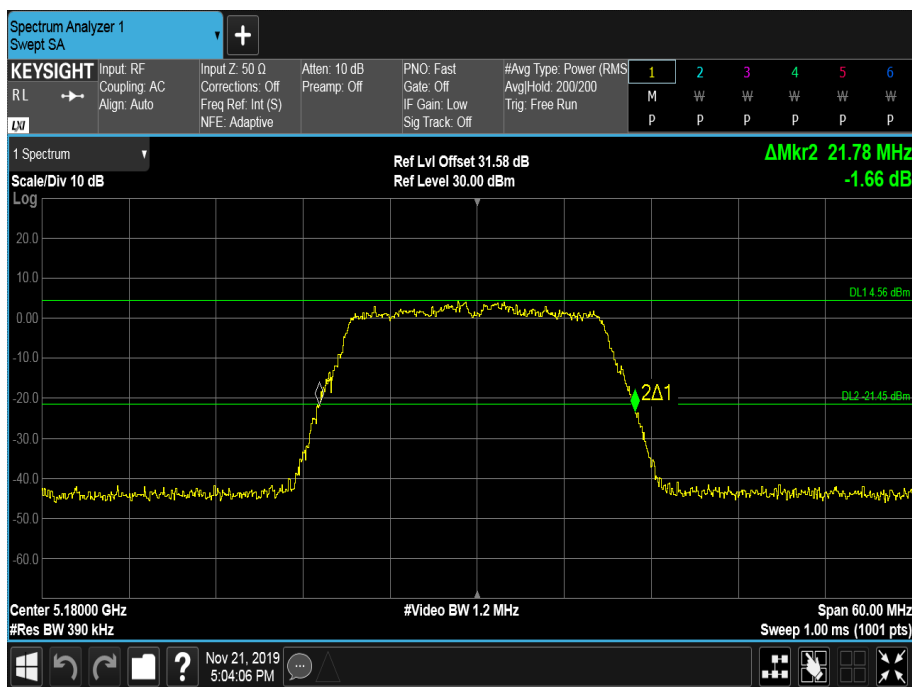


Figure 43 - 5180 MHz - 26 dB Emission Bandwidth

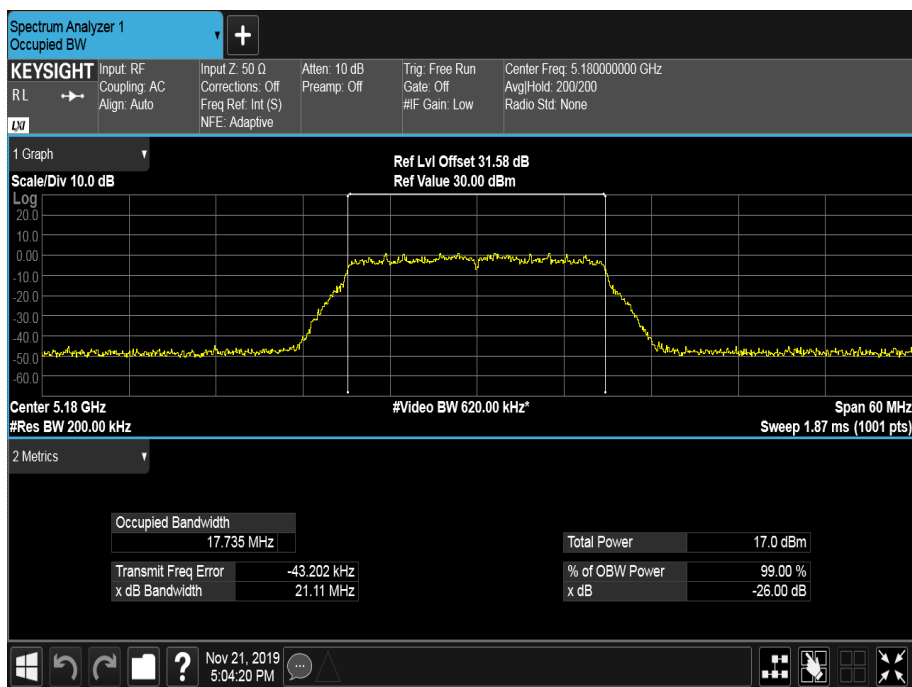


Figure 44 - 5180 MHz - 99% Occupied Bandwidth

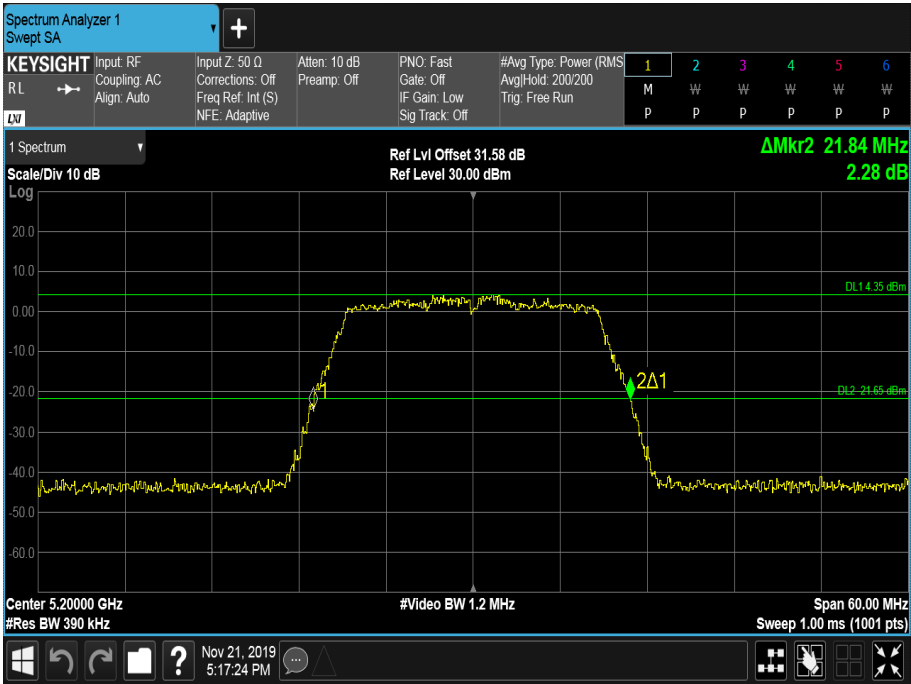


Figure 45 - 5200 MHz - 26 dB Emission Bandwidth

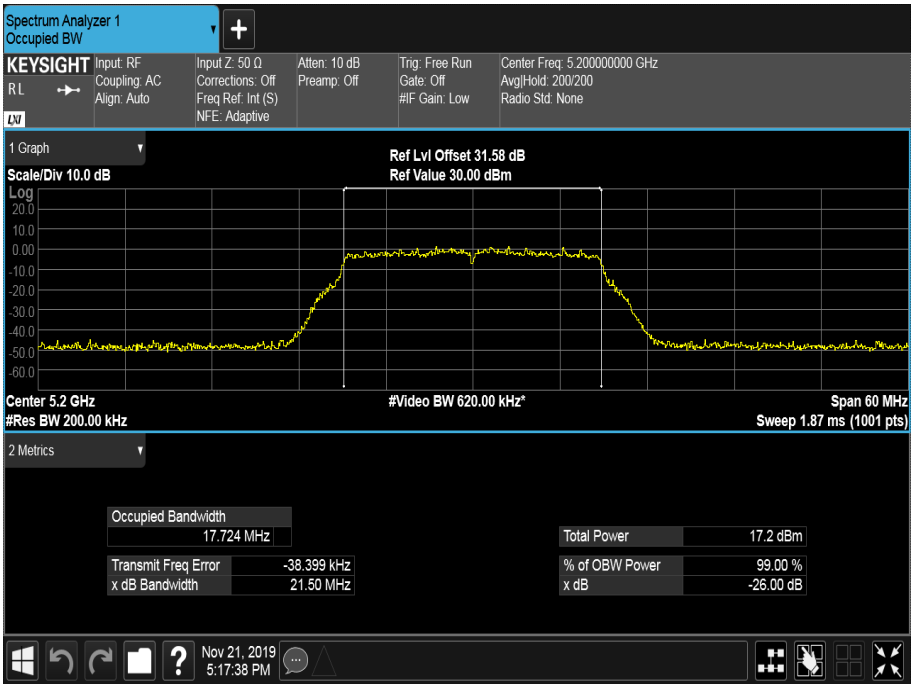


Figure 46 - 5200 MHz - 99% Occupied Bandwidth

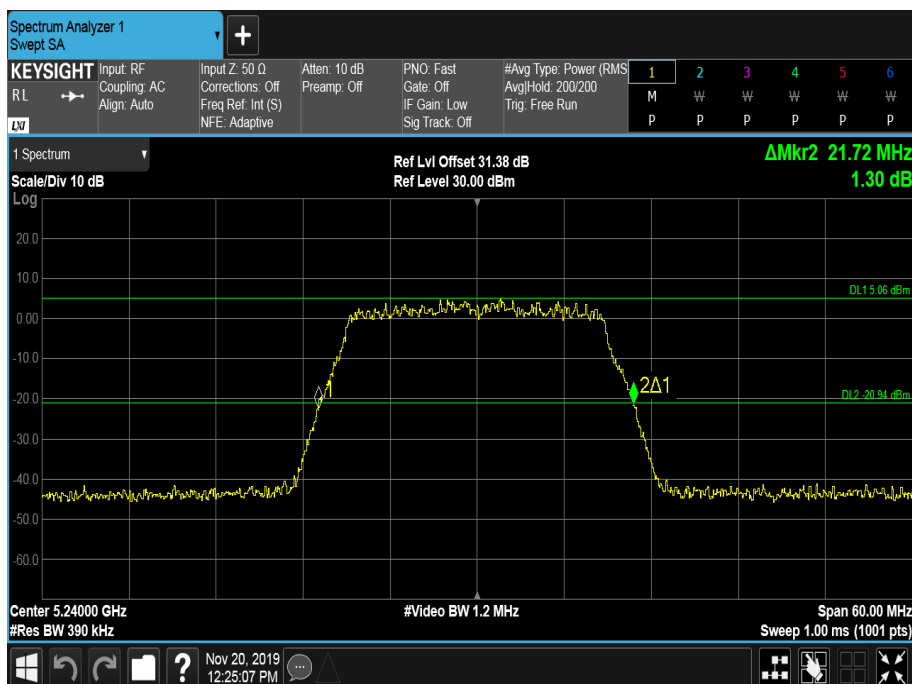


Figure 47 - 5240 MHz - 26 dB Emission Bandwidth

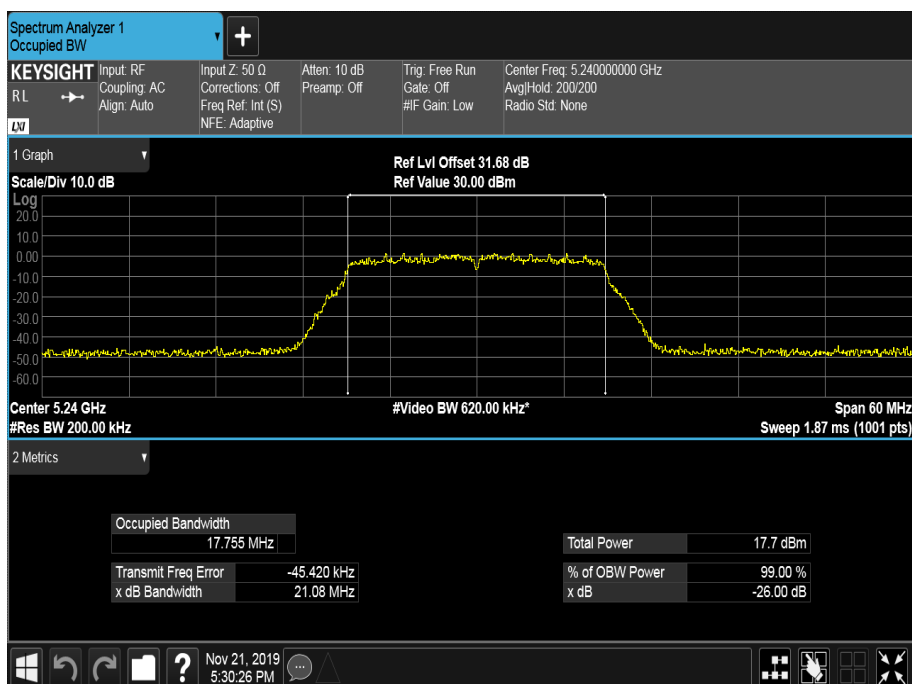


Figure 48 - 5240 MHz - 99% Occupied Bandwidth



Channel	Bottom	Top
Frequency (MHz)	5190	5230
26 dB Bandwidth (MHz)	40.800	40.560
99% Bandwidth (MHz)	36.115	36.103

Table 151 - 802.11n / HT40 MCS0 / SISO / Core 1 / Country Code US

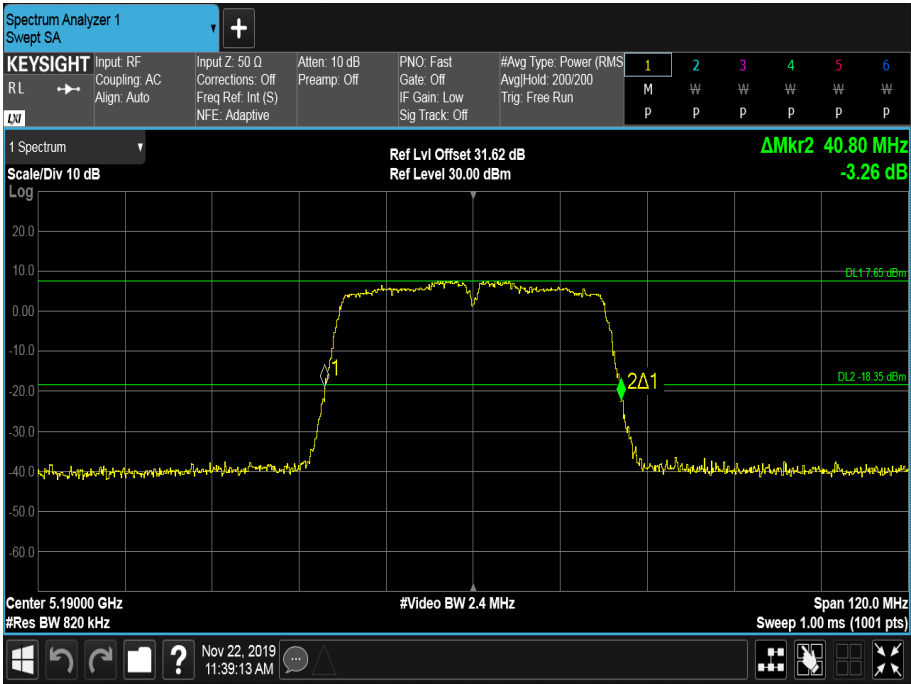


Figure 49 - 5190 MHz - 26 dB Emission Bandwidth

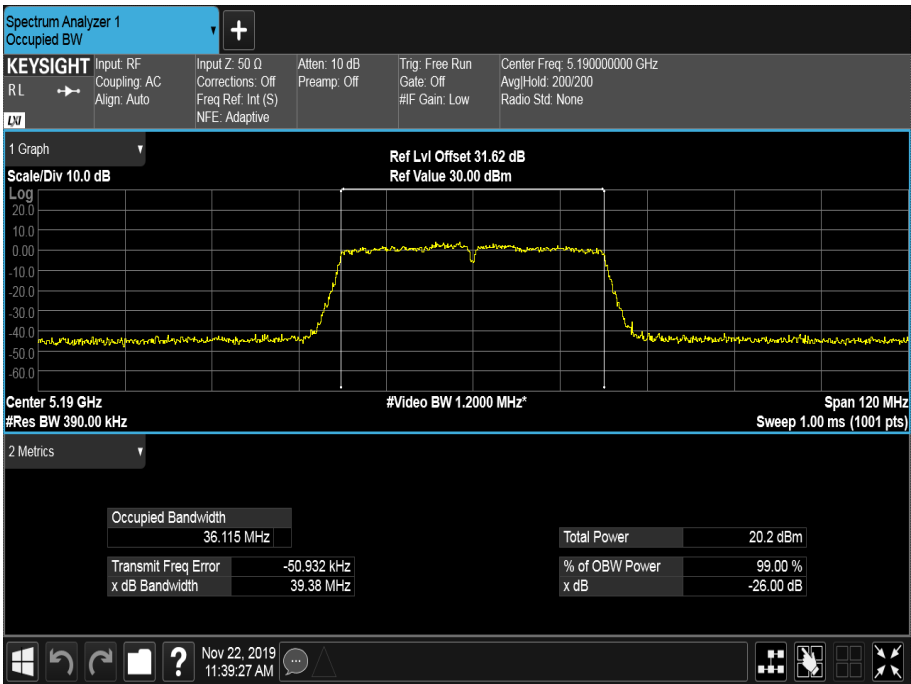


Figure 50 - 5190 MHz - 99% Occupied Bandwidth

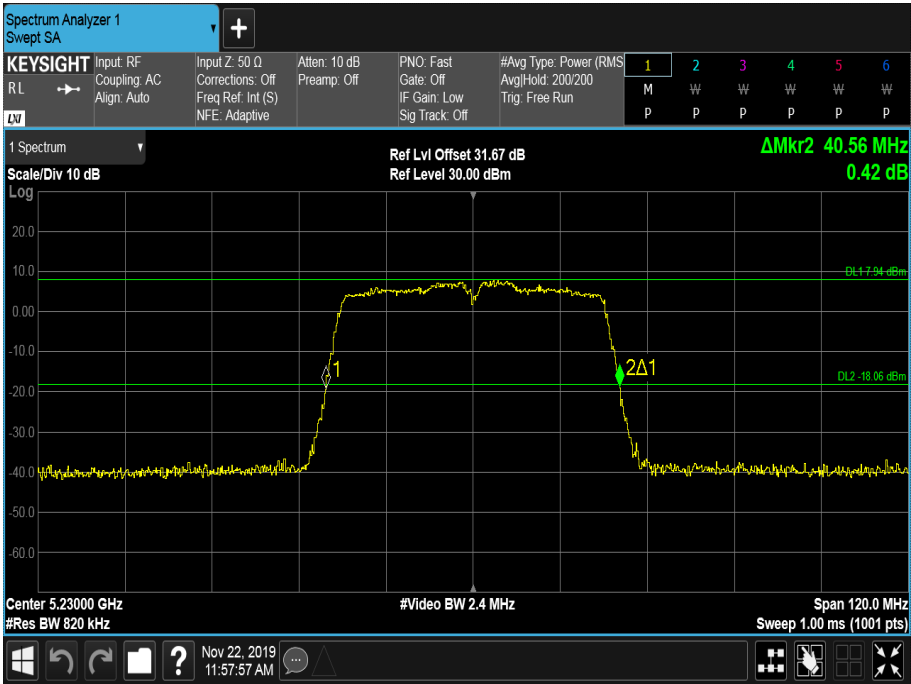


Figure 51 - 5230 MHz - 26 dB Emission Bandwidth

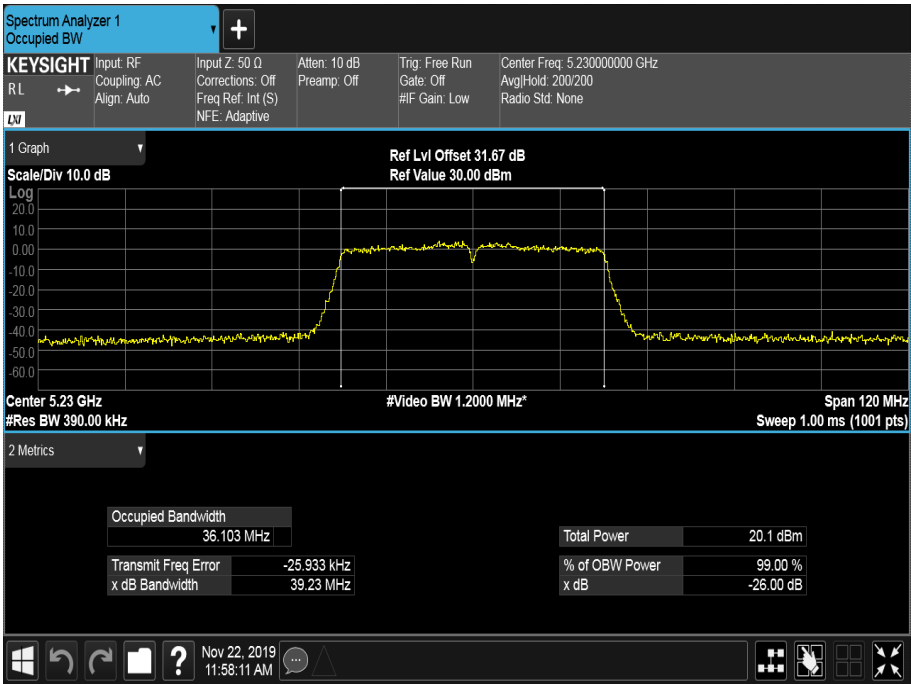


Figure 52 - 5230 MHz - 99% Occupied Bandwidth



Channel	Bottom	Top
Frequency (MHz)	5190	5230
26 dB Bandwidth (MHz)	40.560	40.440
99% Bandwidth (MHz)	36.072	36.109

Table 152 - 802.11n / HT40 MCS0 / SISO / Core 1 / Country Code CA

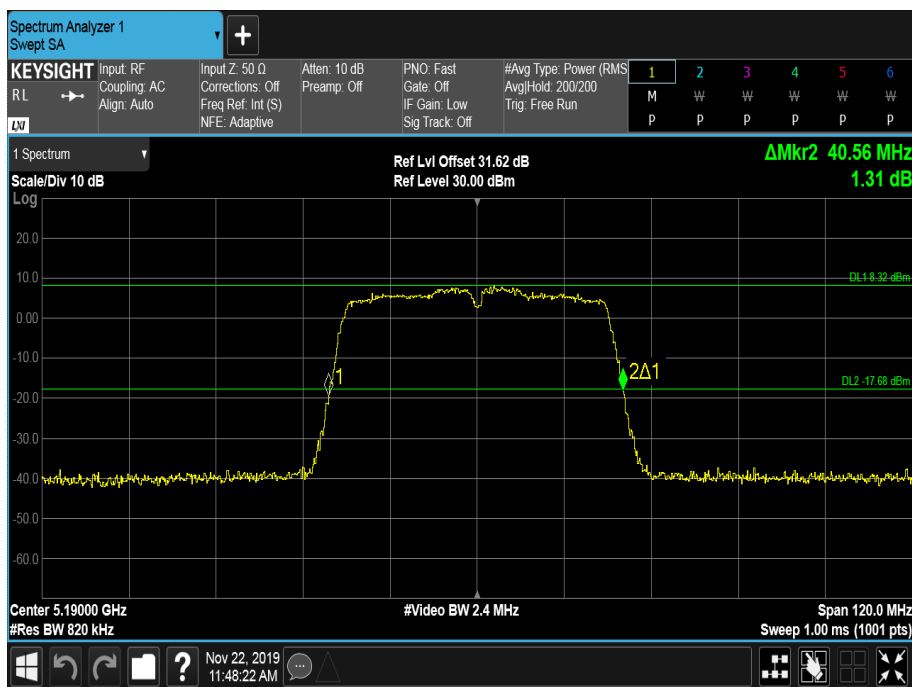


Figure 53 - 5190 MHz - 26 dB Emission Bandwidth

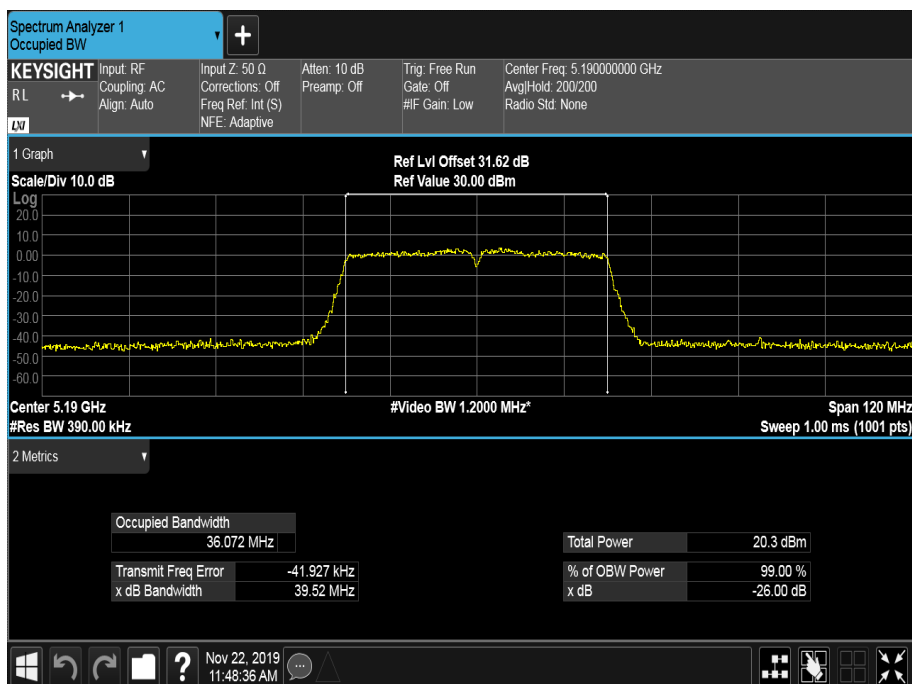


Figure 54 - 5190 MHz - 99% Occupied Bandwidth

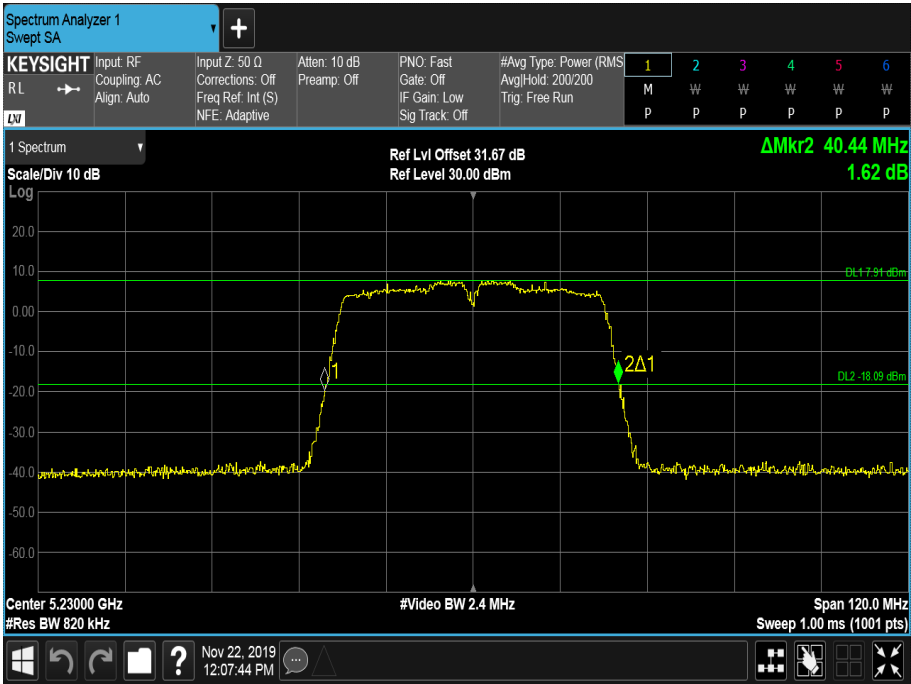


Figure 55 - 5230 MHz - 26 dB Emission Bandwidth

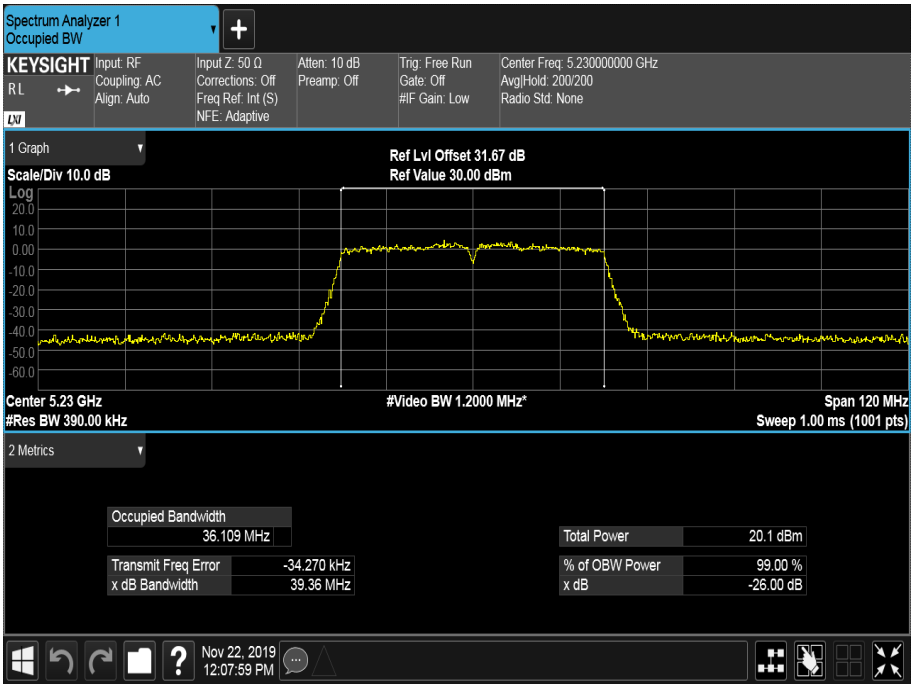


Figure 56 - 5230 MHz - 99% Occupied Bandwidth



Channel	Bottom	Top
Frequency (MHz)	5190	5230
26 dB Bandwidth (MHz)	40.440	40.080
99% Bandwidth (MHz)	36.111	36.145

Table 153 - 802.11n / HT40 MCS0 / MIMO CDD / Cores 0+1 / Country Code US

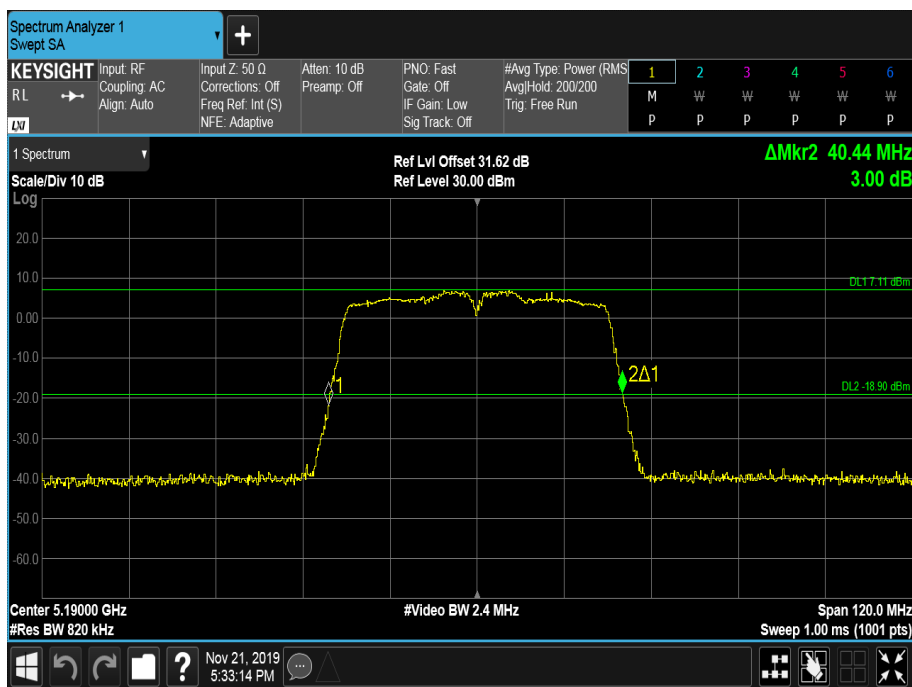


Figure 57 - 5190 MHz - 26 dB Emission Bandwidth

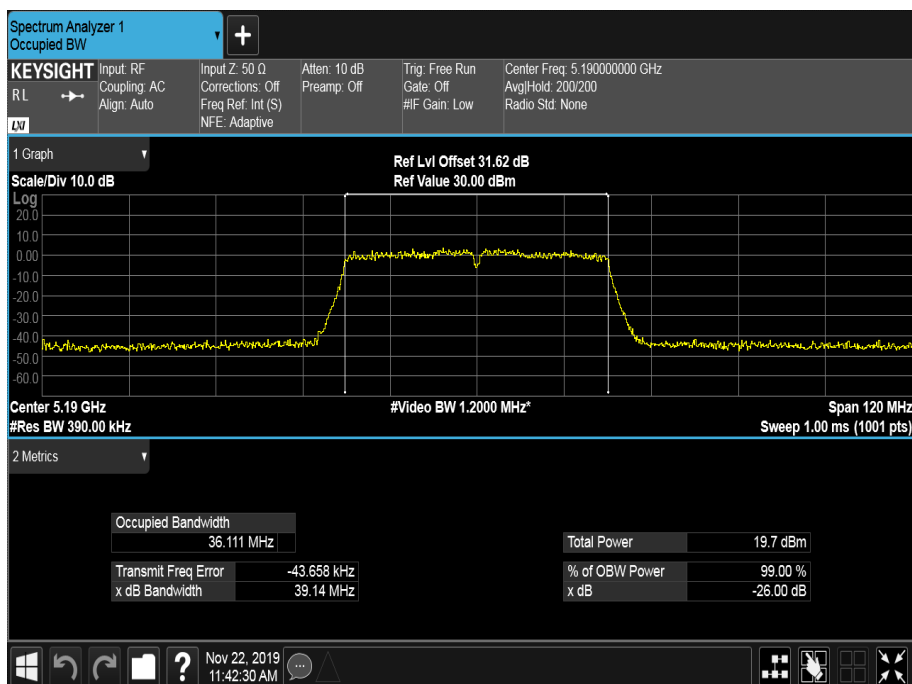
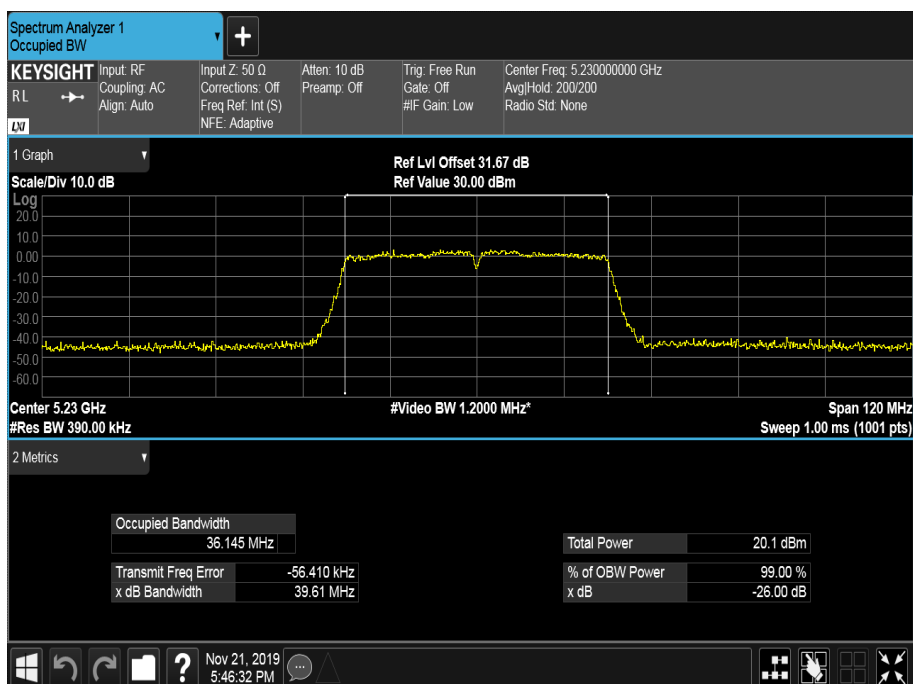
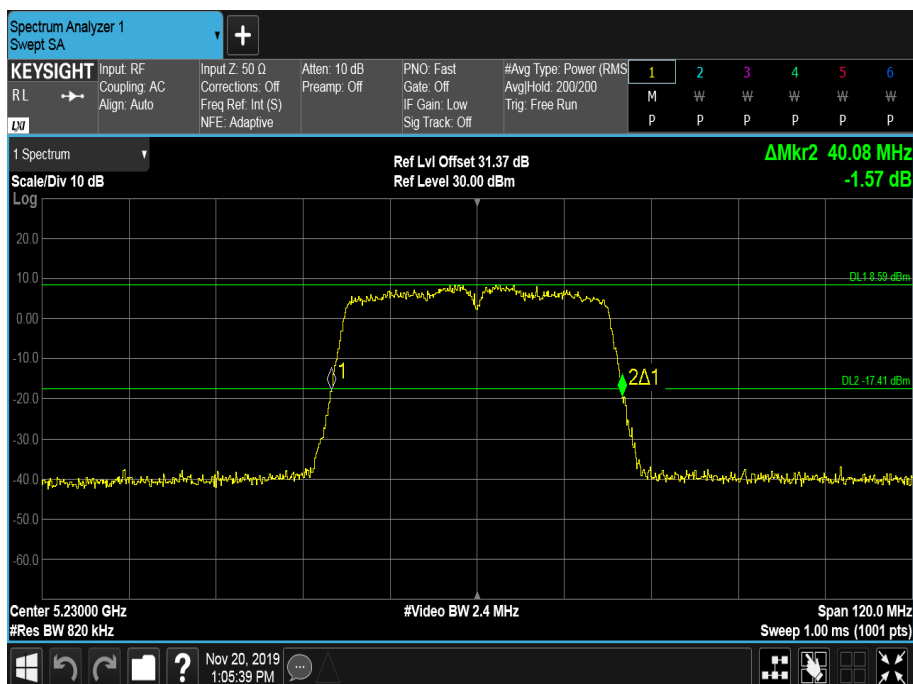


Figure 58 - 5190 MHz - 99% Occupied Bandwidth



Channel	Bottom	Top
Frequency (MHz)	5190	5230
26 dB Bandwidth (MHz)	40.320	40.320
99% Bandwidth (MHz)	36.162	36.121

Table 154 - 802.11n / HT40 MCS0 / MIMO CDD / Cores 0+1 / Country Code CA

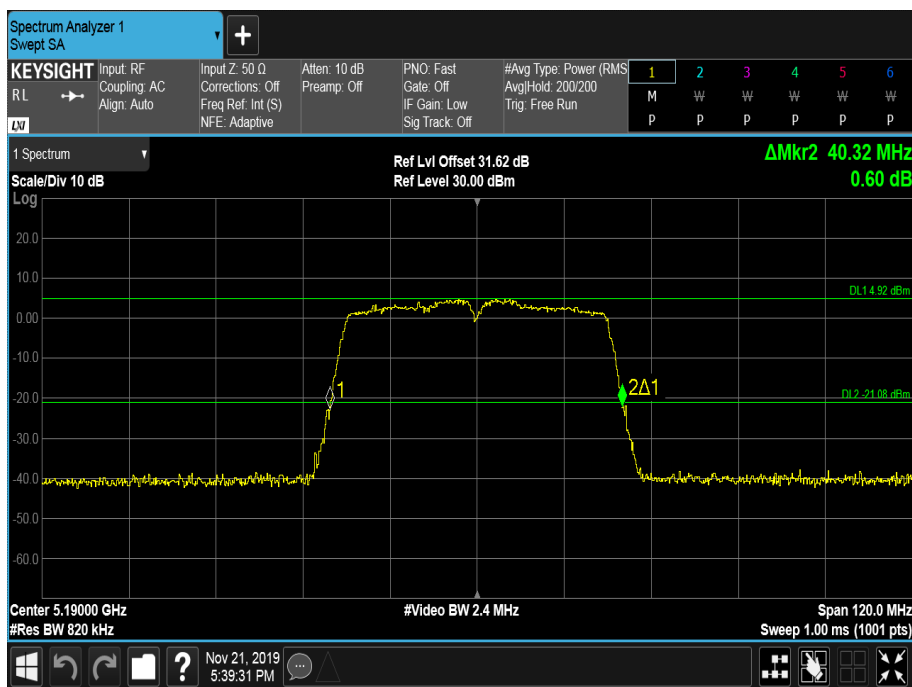


Figure 61 - 5190 MHz - 26 dB Emission Bandwidth

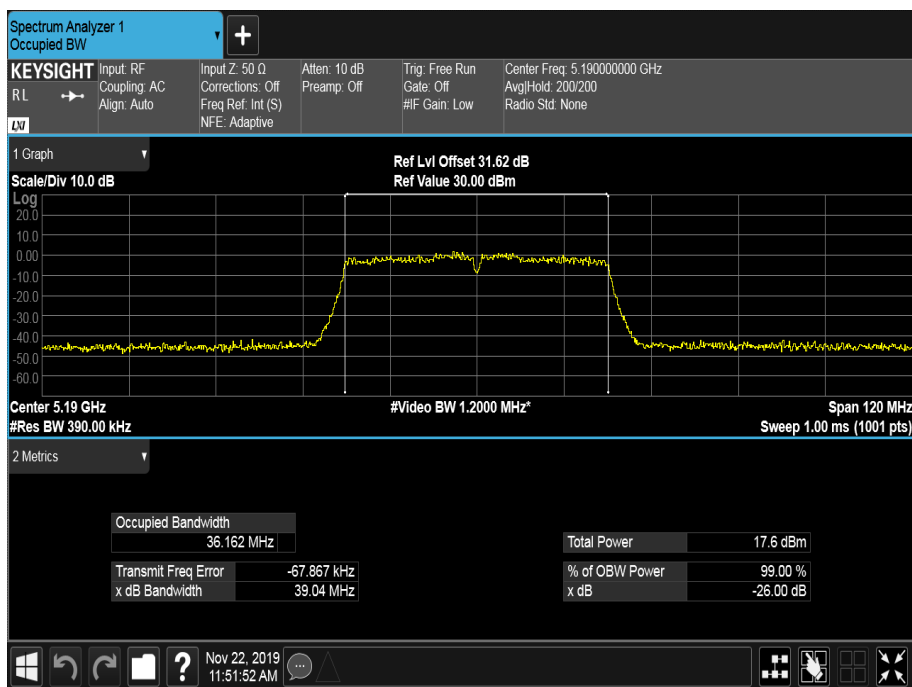


Figure 62 - 5190 MHz - 99% Occupied Bandwidth

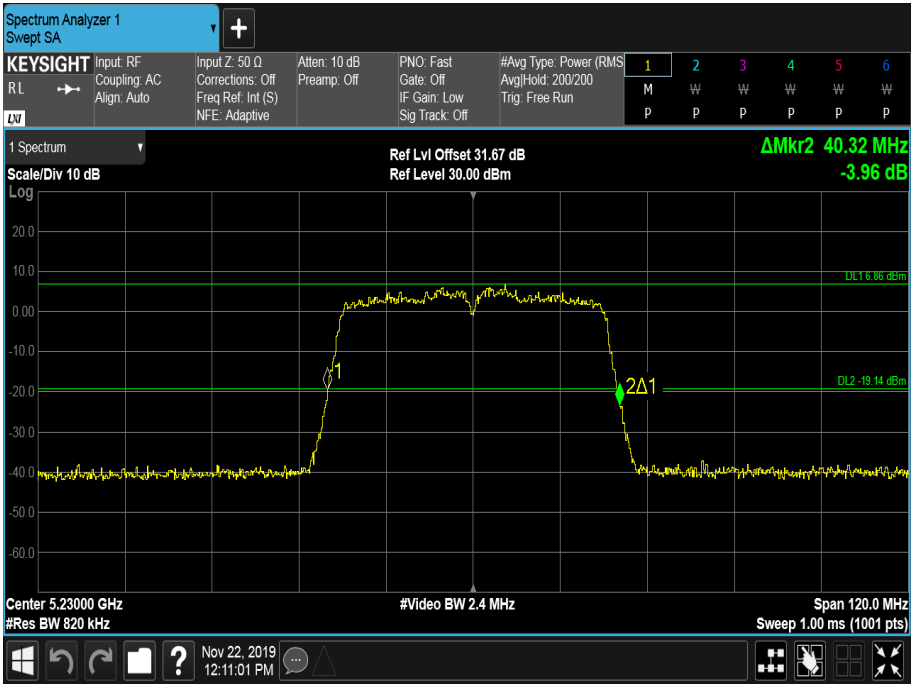


Figure 63 - 5230 MHz - 26 dB Emission Bandwidth

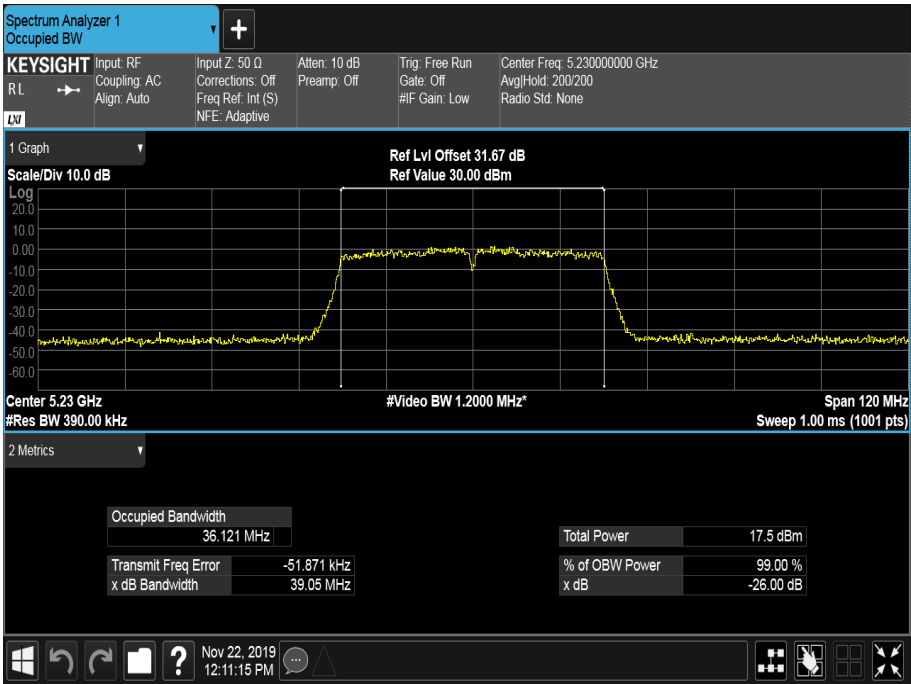


Figure 64 - 5230 MHz - 99% Occupied Bandwidth



Channel	Bottom	Top
Frequency (MHz)	5190	5230
26 dB Bandwidth (MHz)	40.440	40.440
99% Bandwidth (MHz)	36.120	36.124

Table 155 - 802.11n / HT40 MCS8 / MIMO SDM / Cores 0+1 / Country Code US

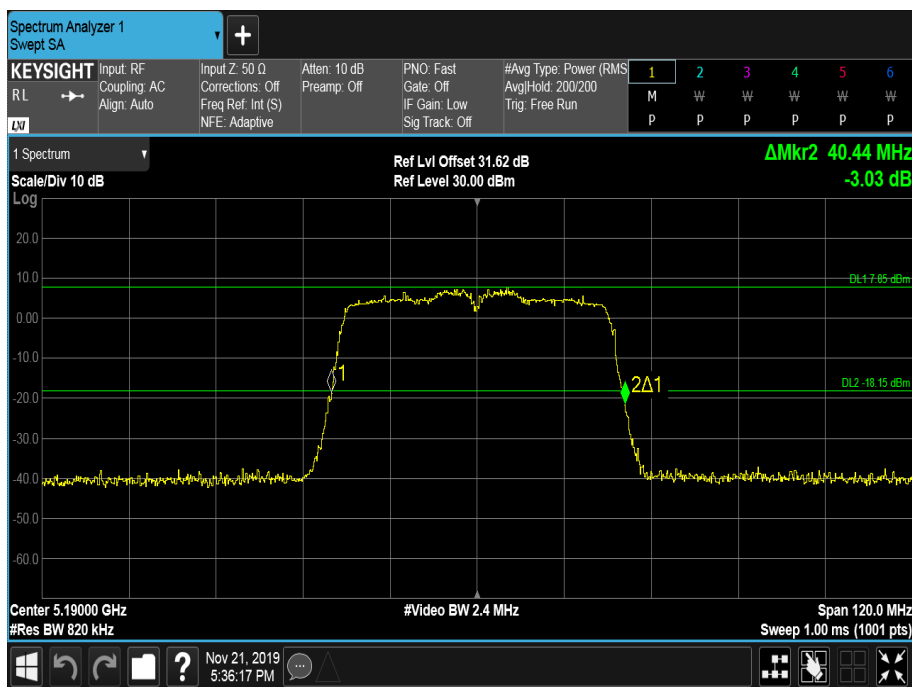


Figure 65 - 5190 MHz - 26 dB Emission Bandwidth

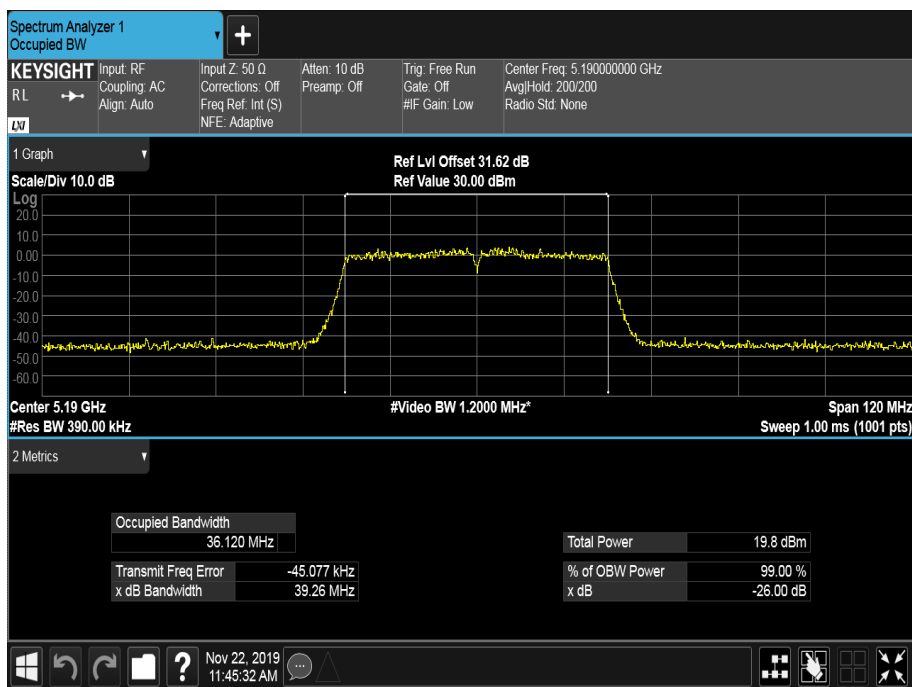


Figure 66 - 5190 MHz - 99% Occupied Bandwidth

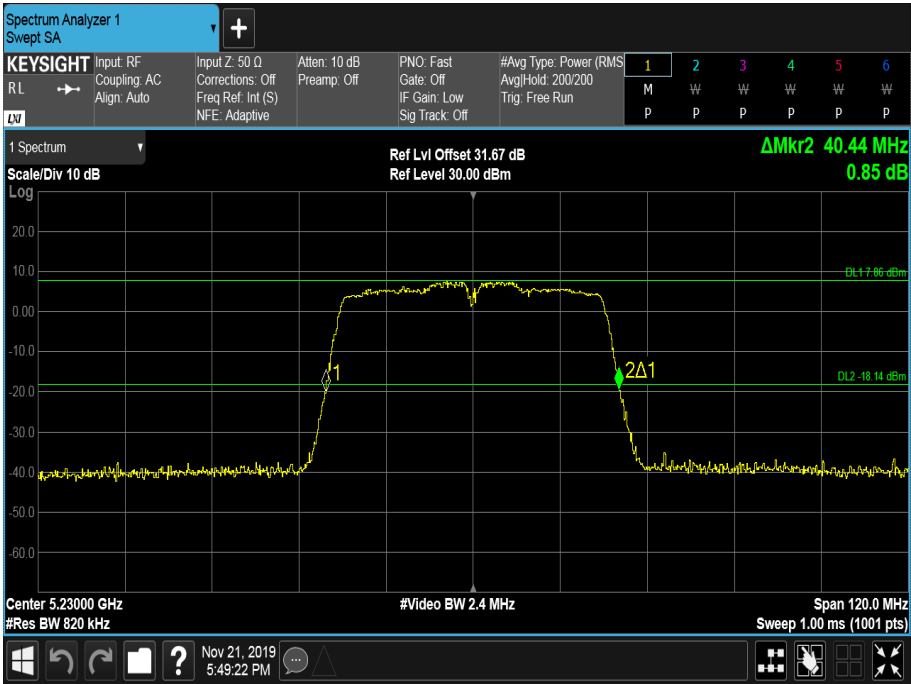


Figure 67 - 5230 MHz - 26 dB Emission Bandwidth

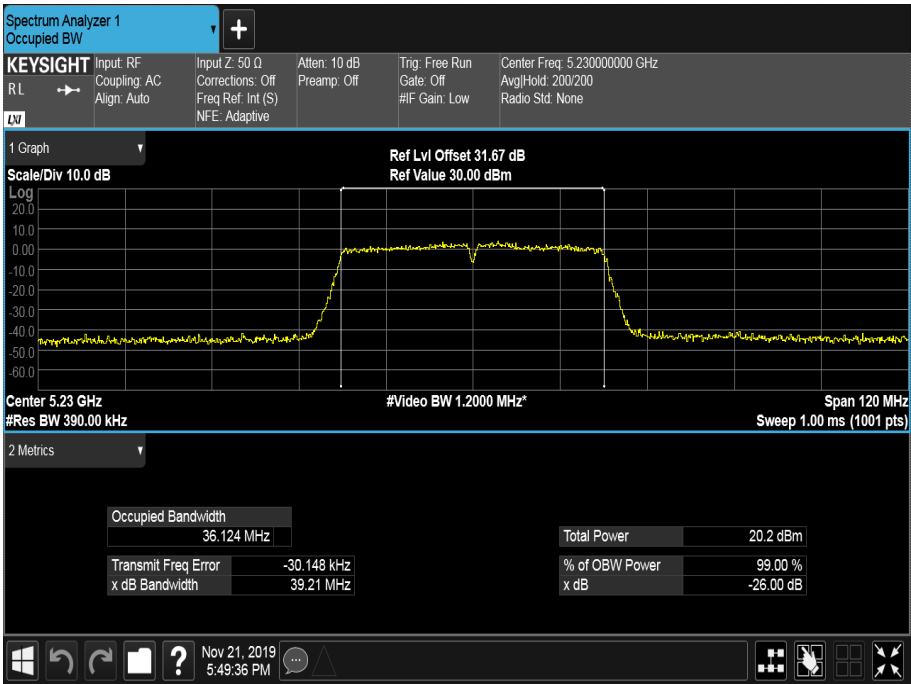


Figure 68 - 5230 MHz - 99% Occupied Bandwidth



Channel	Bottom	Top
Frequency (MHz)	5190	5230
26 dB Bandwidth (MHz)	40.320	40.320
99% Bandwidth (MHz)	36.135	36.116

Table 156 - 802.11n / HT40 MCS8 / MIMO SDM / Cores 0+1 / Country Code CA

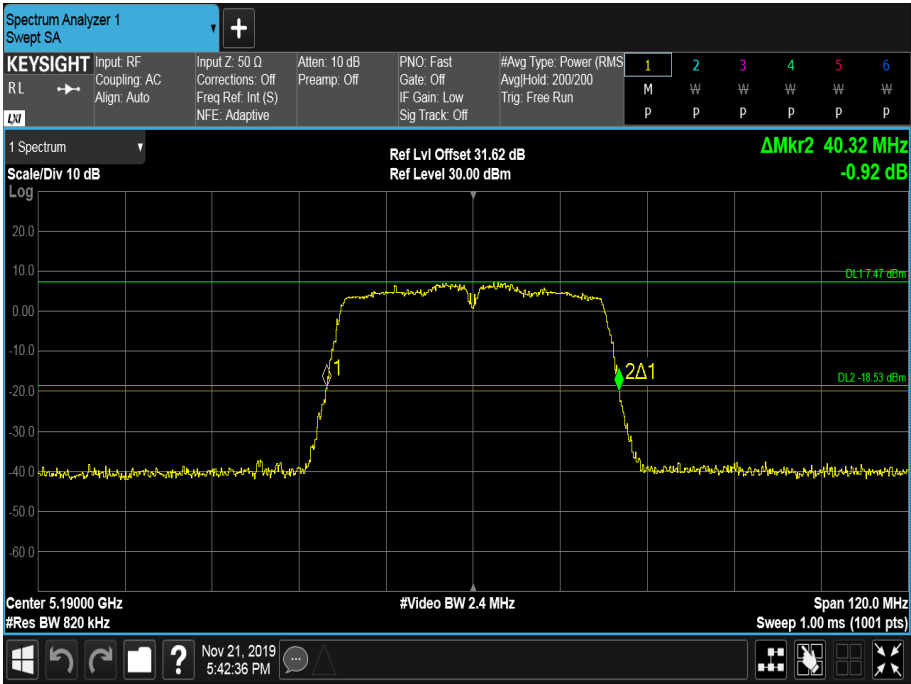


Figure 69 - 5190 MHz - 26 dB Emission Bandwidth

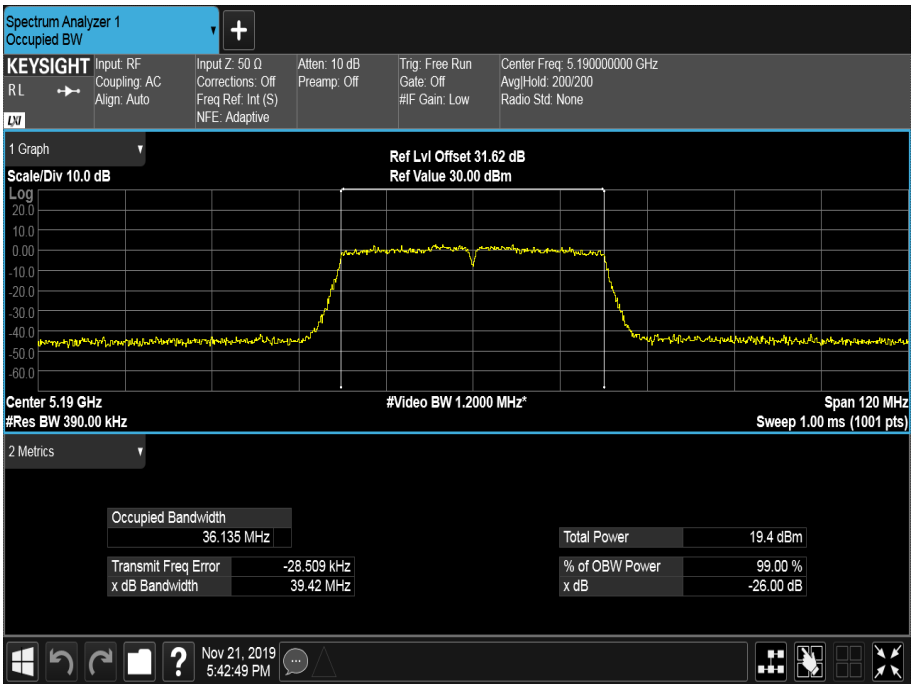


Figure 70 - 5190 MHz - 99% Occupied Bandwidth

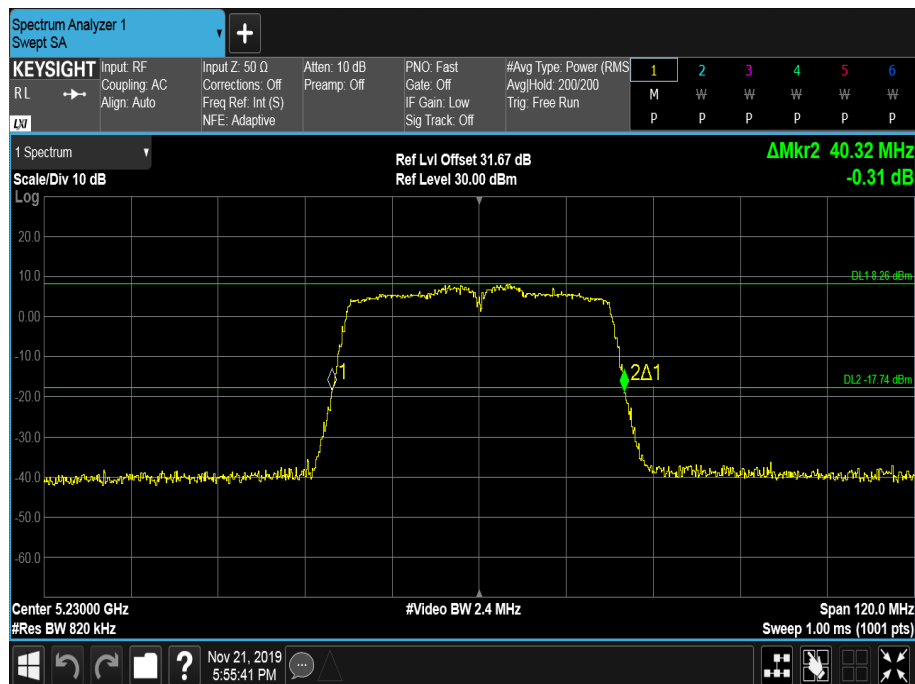


Figure 71 - 5230 MHz - 26 dB Emission Bandwidth

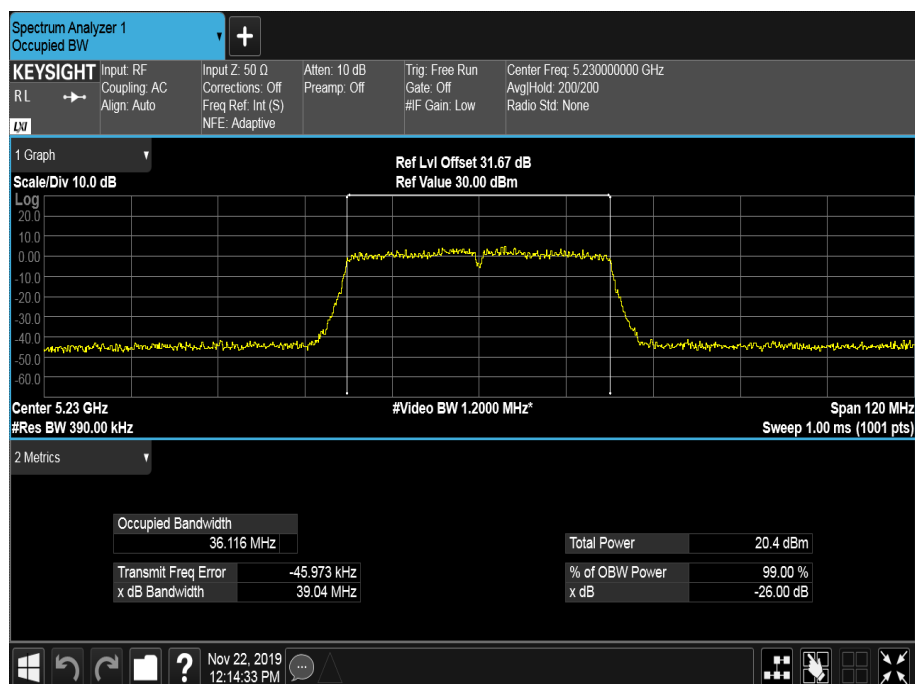


Figure 72 - 5230 MHz - 99% Occupied Bandwidth



Channel	Bottom	Middle	Top
Frequency (MHz)	5180	5200	5240
26 dB Bandwidth (MHz)	21.900	21.840	21.840
99% Bandwidth (MHz)	17.785	17.751	17.781

Table 157 - 802.11ac / VHT20 MCS0x1 / MIMO TxBF / Cores 0+1 / Country Code US

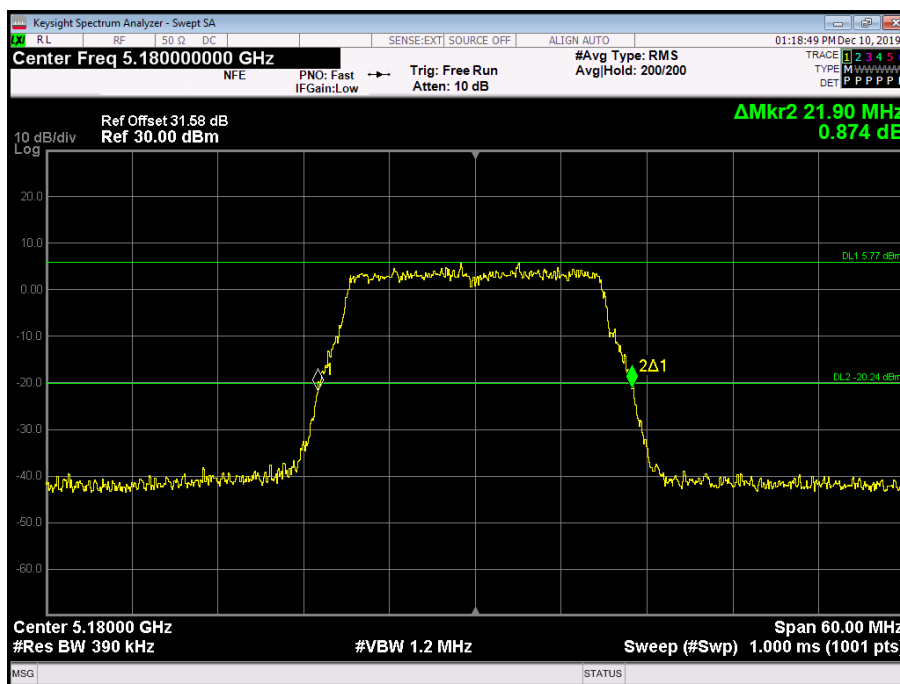


Figure 73 - 5180 MHz - 26 dB Emission Bandwidth

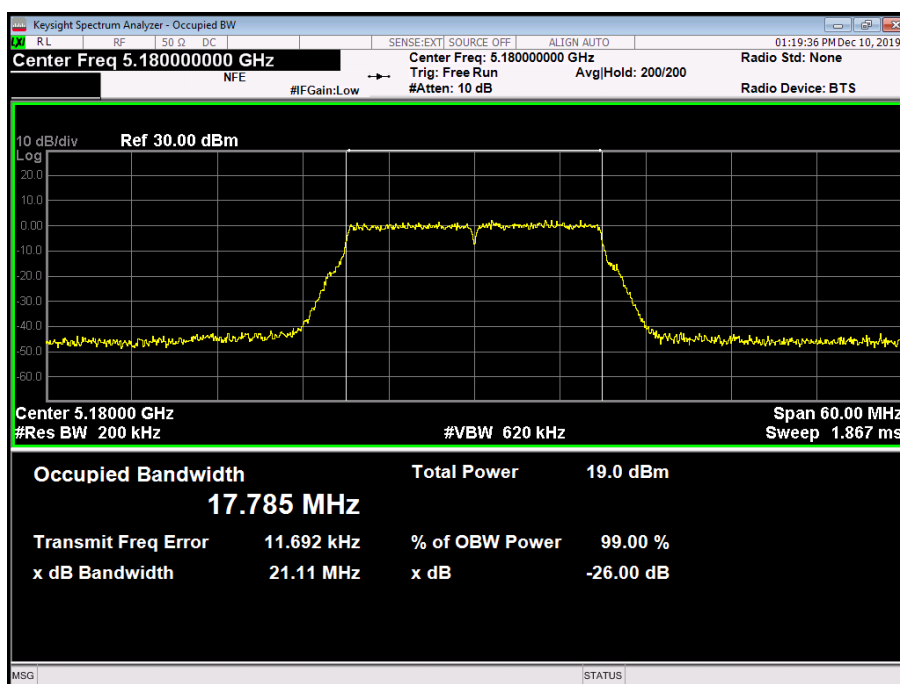


Figure 74 - 5180 MHz - 99% Occupied Bandwidth

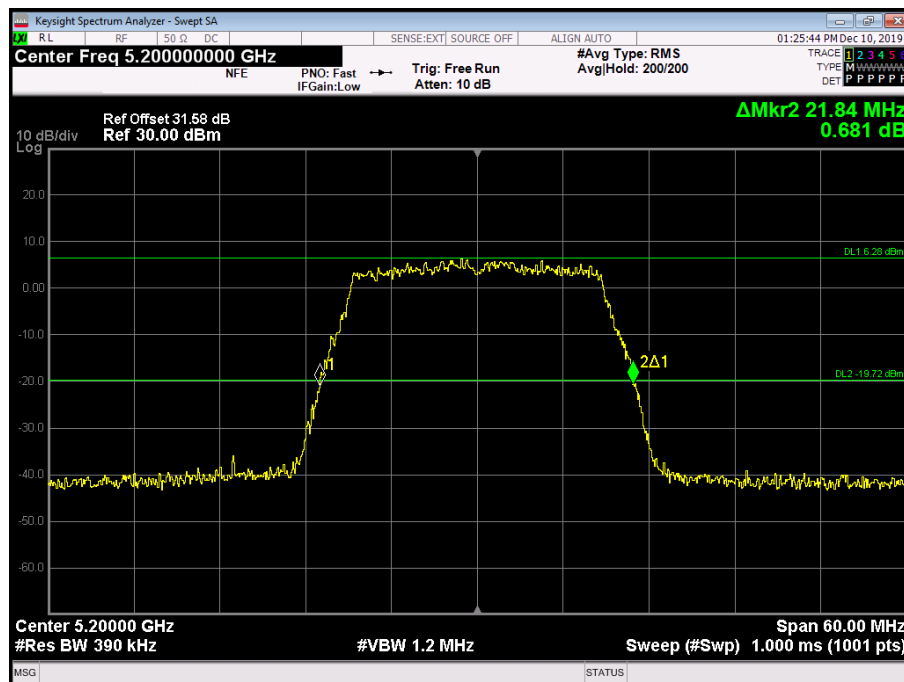


Figure 75 - 5200 MHz - 26 dB Emission Bandwidth

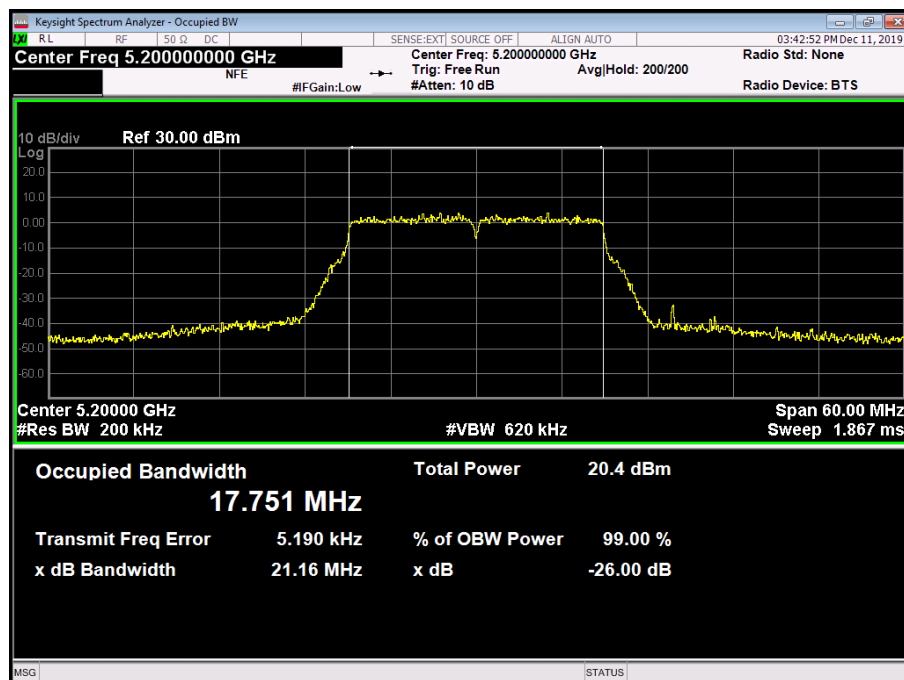


Figure 76 - 5200 MHz - 99% Occupied Bandwidth

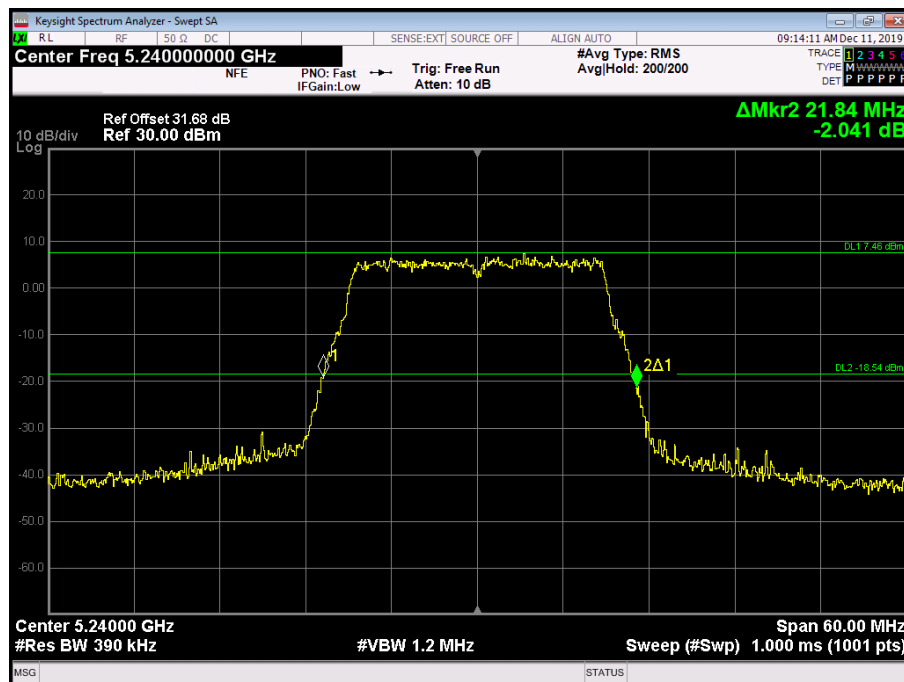


Figure 77 - 5240 MHz - 26 dB Emission Bandwidth

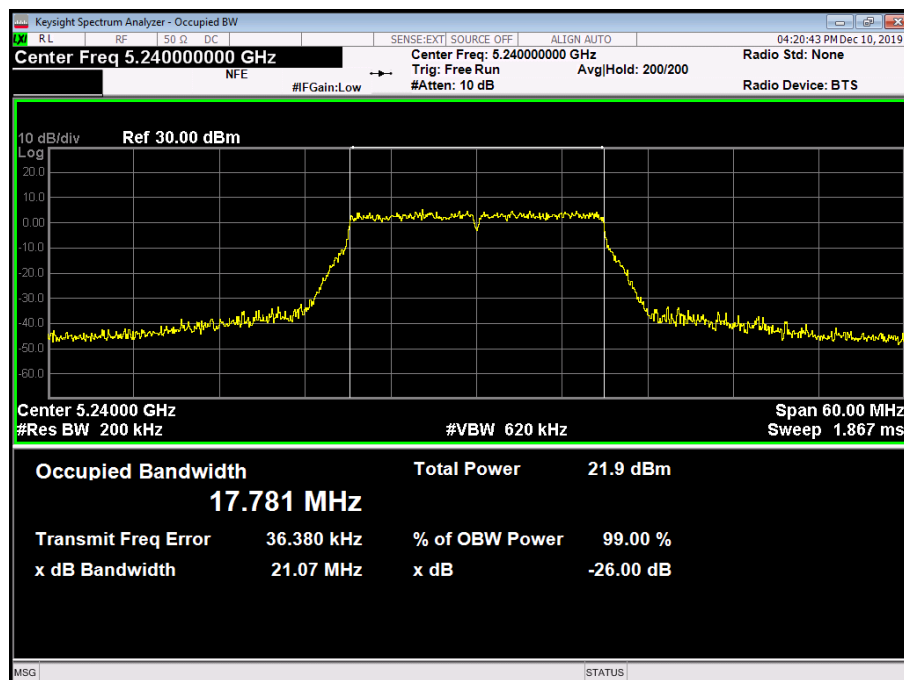


Figure 78 - 5240 MHz - 99% Occupied Bandwidth



Channel	Bottom	Middle	Top
Frequency (MHz)	5180	5200	5240
26 dB Bandwidth (MHz)	21.960	22.020	21.840
99% Bandwidth (MHz)	17.782	17.771	17.792

Table 158 - 802.11ac / VHT20 MCS0x1 / MIMO TxBF / Cores 0+1 / Country Code CA

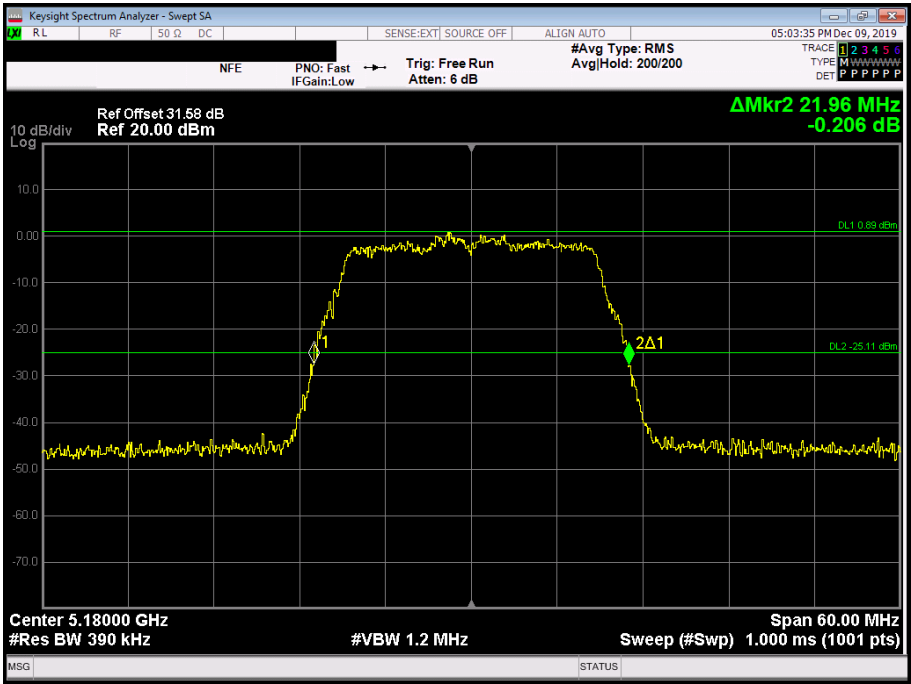


Figure 79 - 5180 MHz - 26 dB Emission Bandwidth

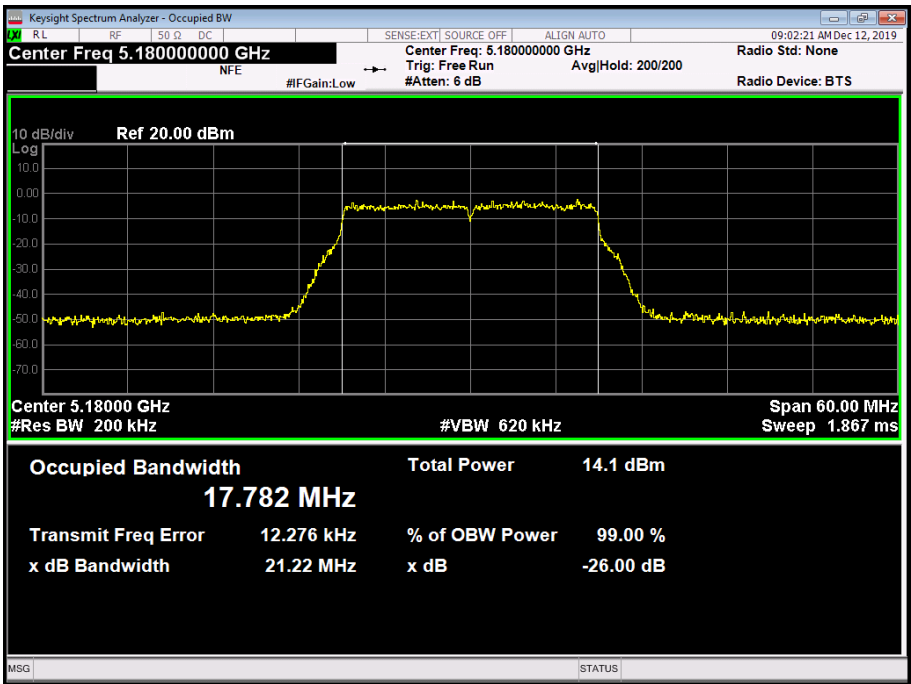


Figure 80 - 5180 MHz - 99% Occupied Bandwidth

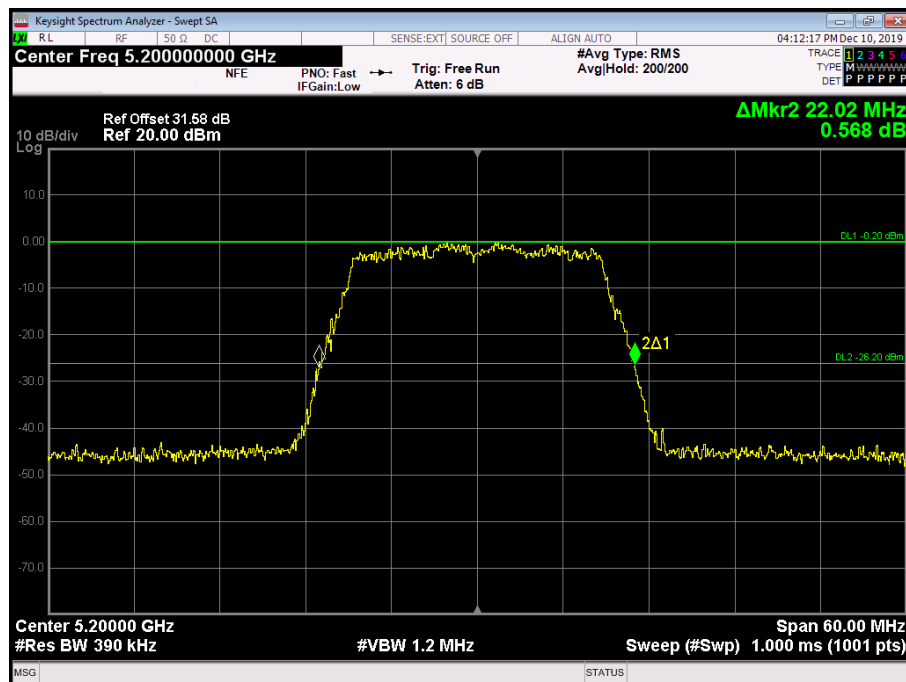


Figure 81 - 5200 MHz - 26 dB Emission Bandwidth

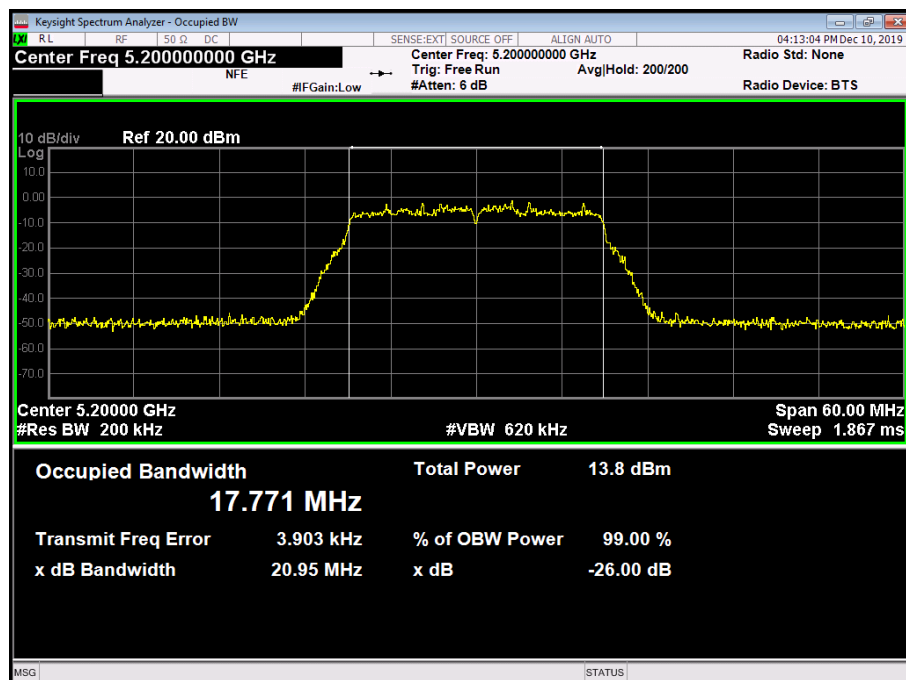


Figure 82 - 5200 MHz - 99% Occupied Bandwidth

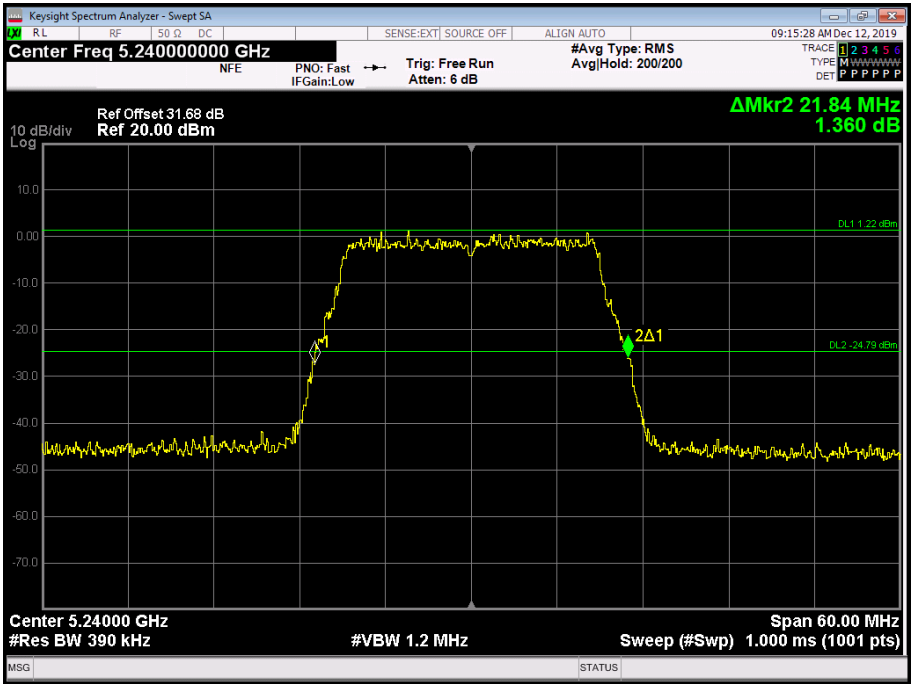


Figure 83 - 5240 MHz - 26 dB Emission Bandwidth

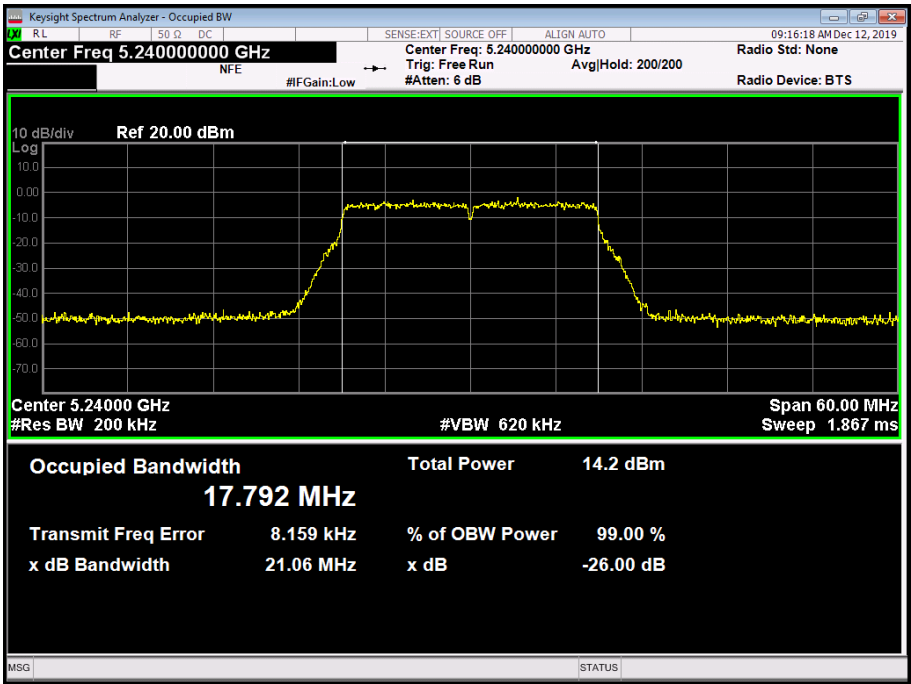


Figure 84 - 5240 MHz - 99% Occupied Bandwidth

Channel	Bottom	Top
Frequency (MHz)	5190	5230
26 dB Bandwidth (MHz)	40.320	40.680
99% Bandwidth (MHz)	36.254	36.167

Table 159 - 802.11ac / VHT40 MCS0x1 / MIMO TxBF / Cores 0+1 / Country Code US

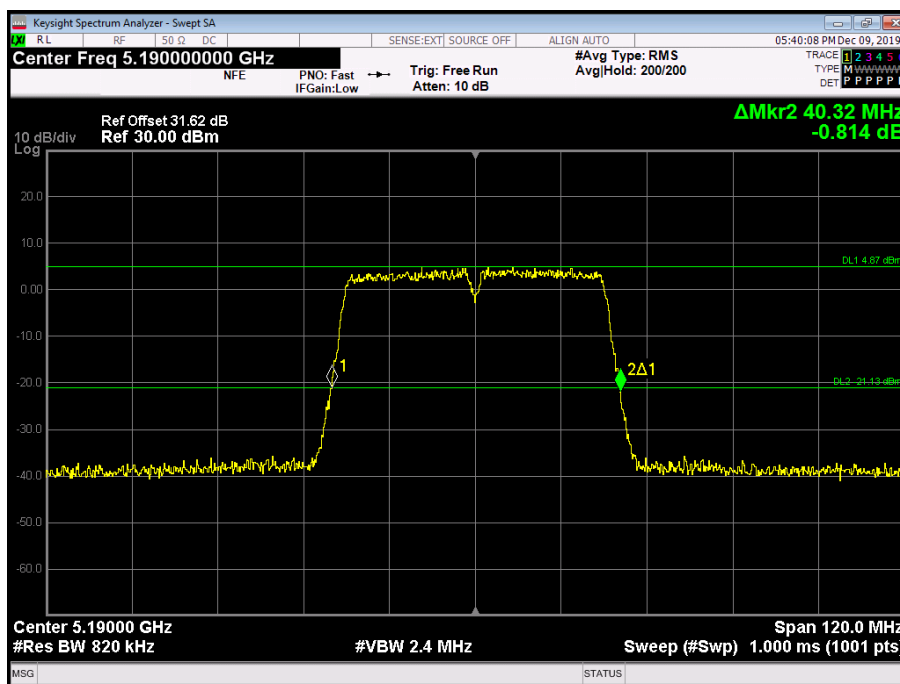


Figure 85 - 5190 MHz - 26 dB Emission Bandwidth

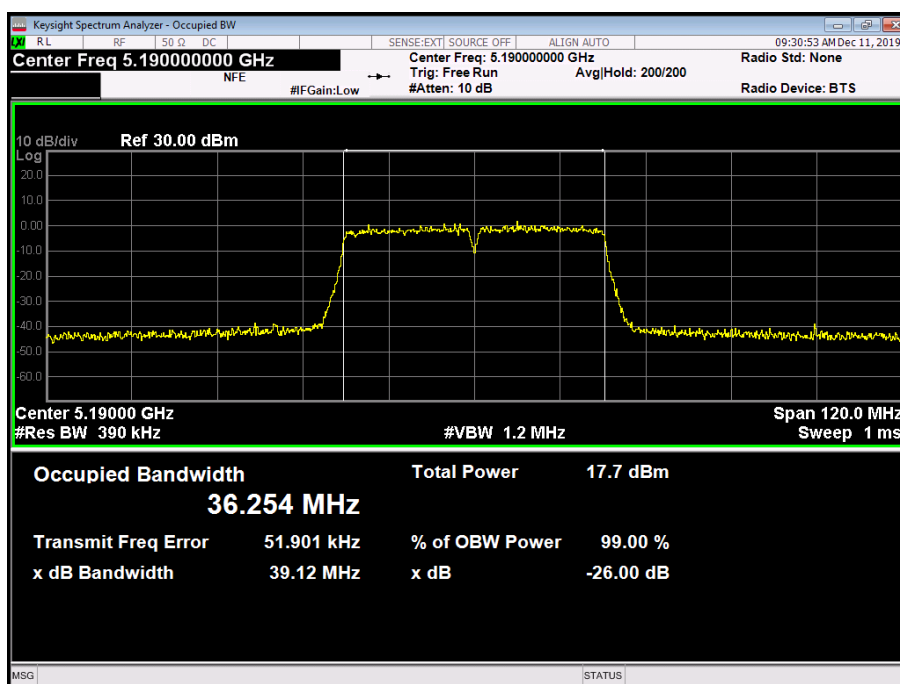


Figure 86 - 5190 MHz - 99% Occupied Bandwidth

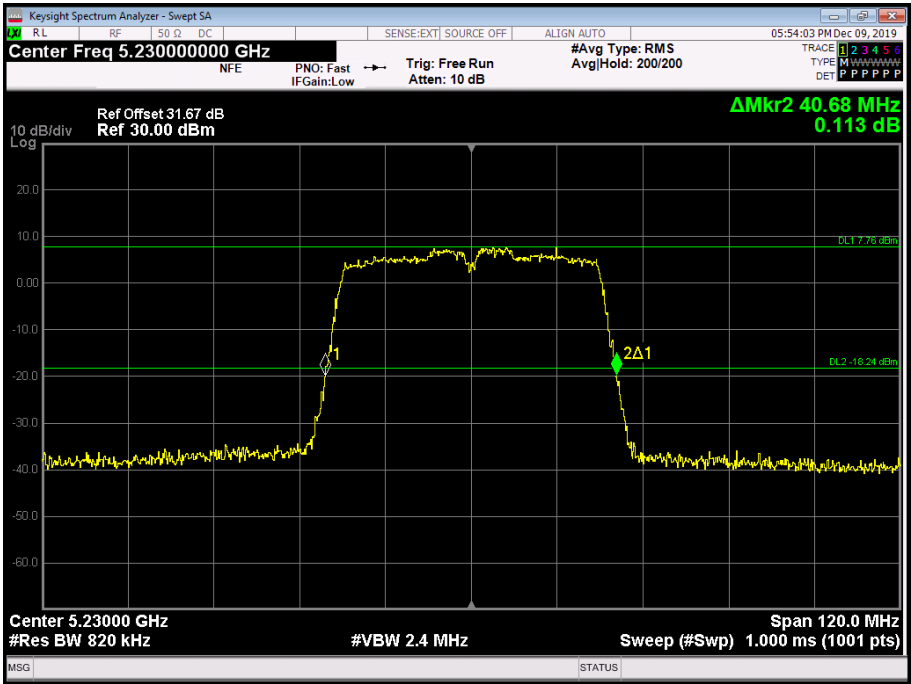


Figure 87 - 5230 MHz - 26 dB Emission Bandwidth

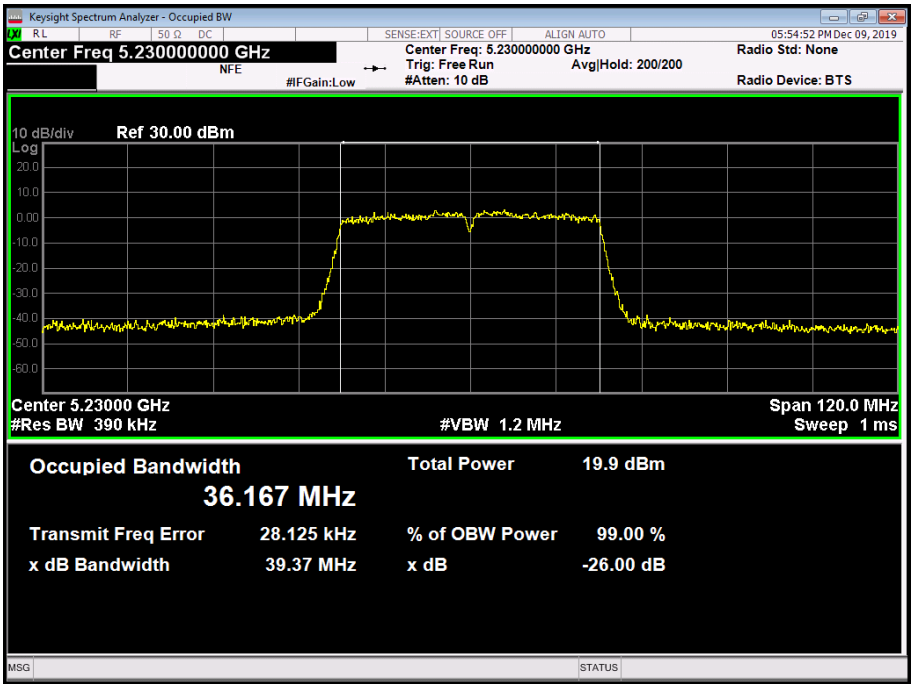


Figure 88 - 5230 MHz - 99% Occupied Bandwidth



Channel	Bottom	Top
Frequency (MHz)	5190	5230
26 dB Bandwidth (MHz)	40.320	40.320
99% Bandwidth (MHz)	36.248	36.277

Table 160 - 802.11ac / VHT40 MCS0x1 / MIMO TxBF / Cores 0+1 / Country Code CA

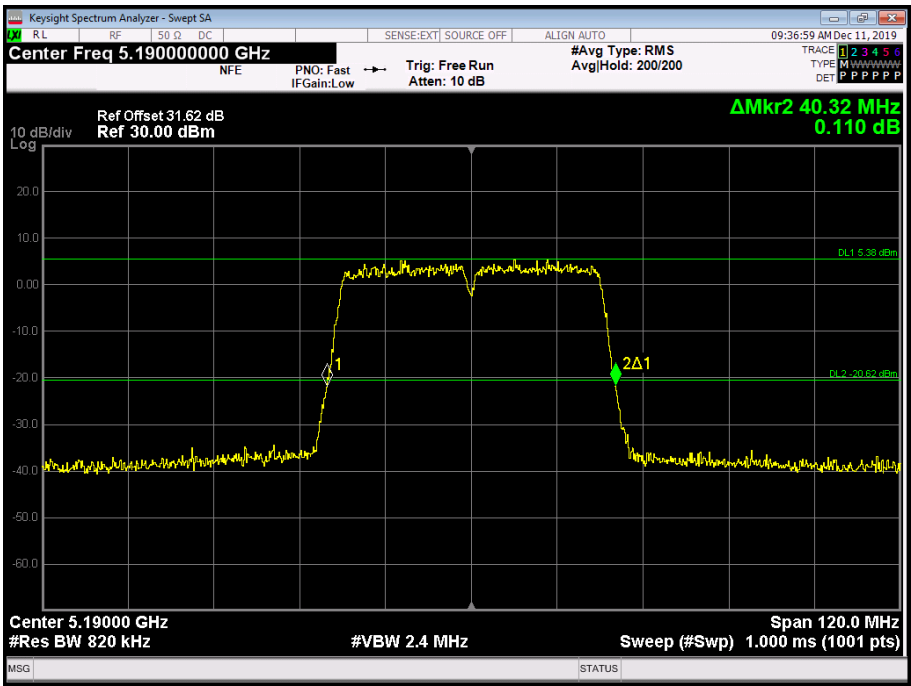


Figure 89 - 5190 MHz - 26 dB Emission Bandwidth

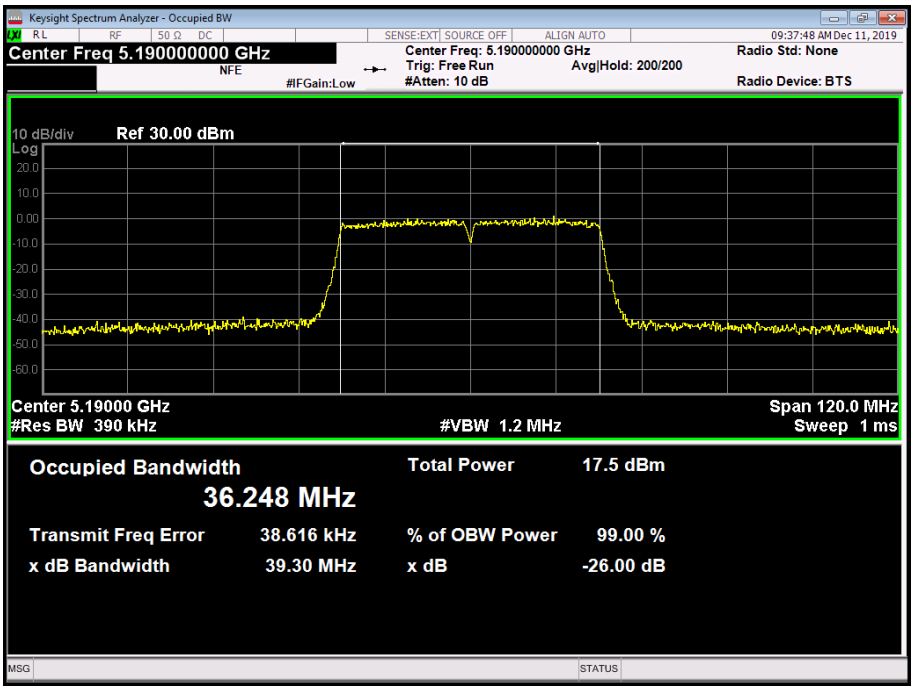


Figure 90 - 5190 MHz - 99% Occupied Bandwidth

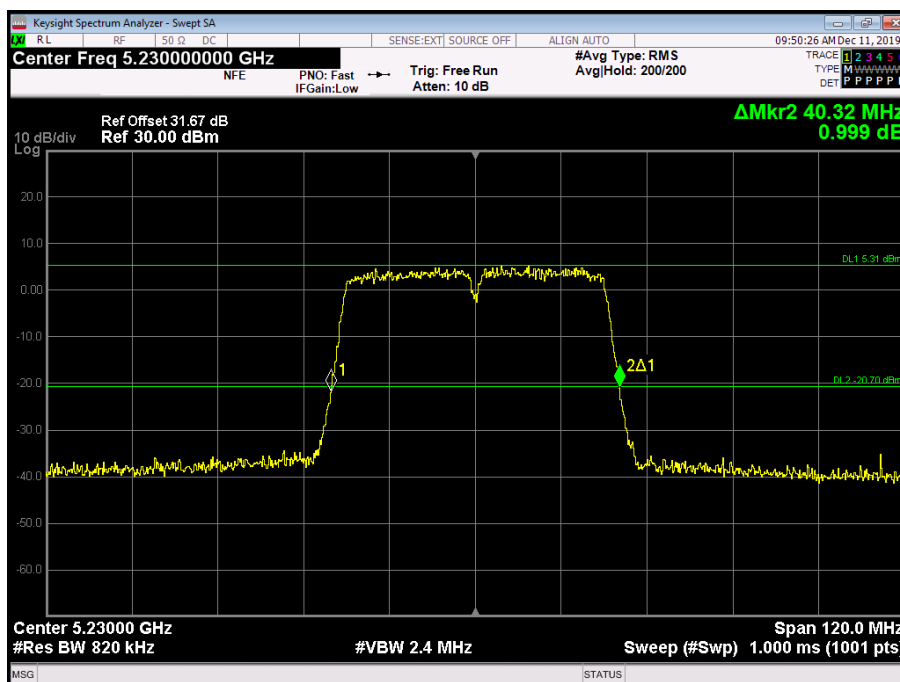


Figure 91 - 5230 MHz - 26 dB Emission Bandwidth

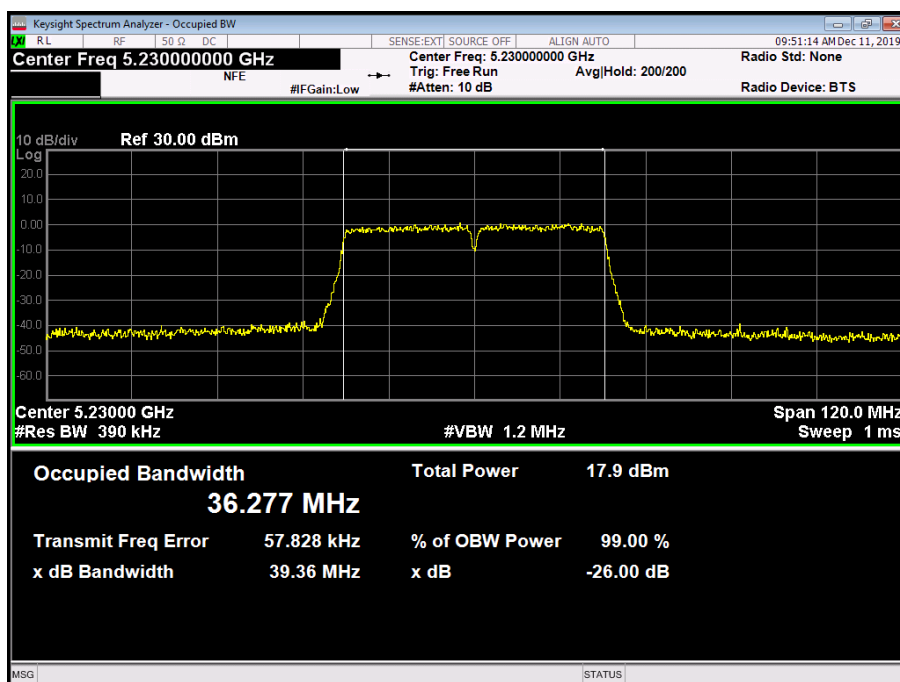


Figure 92 - 5230 MHz - 99% Occupied Bandwidth



Channel	Middle
Frequency (MHz)	5210
26 dB Bandwidth (MHz)	81.360
99% Bandwidth (MHz)	75.531

Table 161 - 802.11ac / VHT80 MCS0x1 / SISO / Core 1 / Country Code US

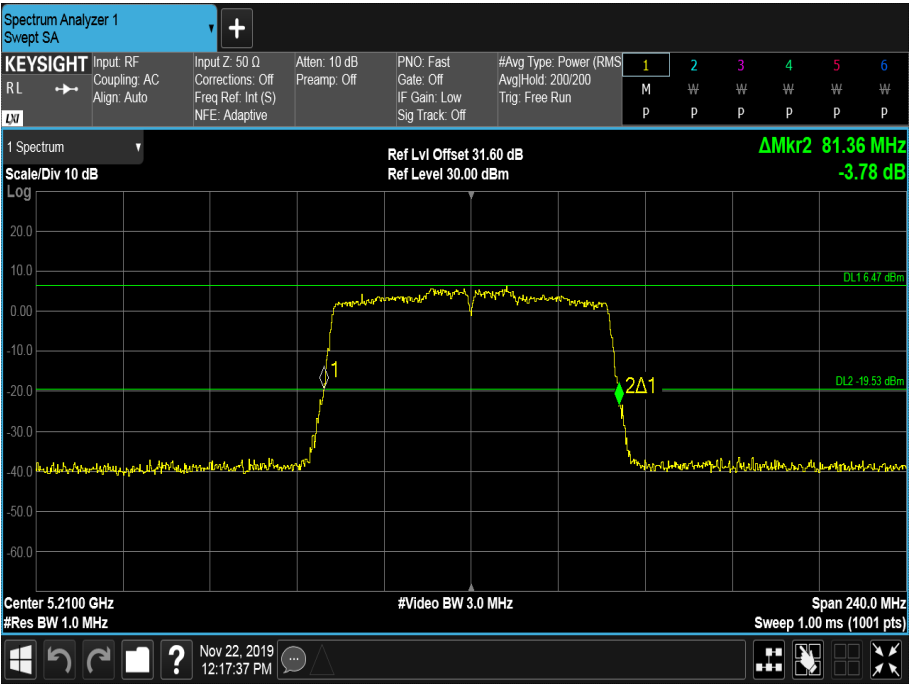


Figure 93 - 5210 MHz - 26 dB Emission Bandwidth

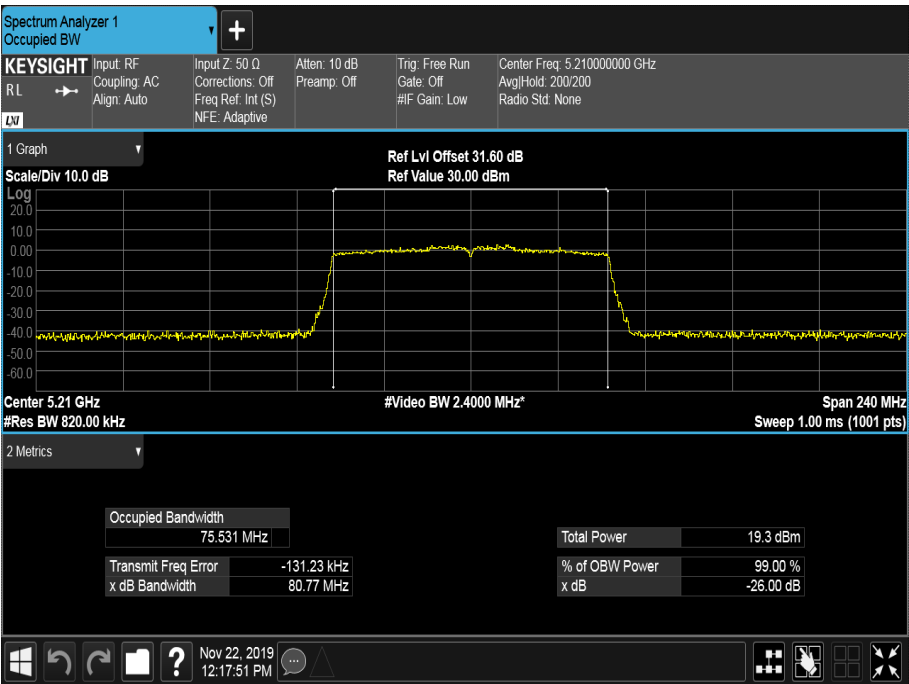


Figure 94 - 5210 MHz - 99% Occupied Bandwidth



Channel	Middle
Frequency (MHz)	5210
26 dB Bandwidth (MHz)	81.360
99% Bandwidth (MHz)	75.525

Table 162 - 802.11ac / VHT80 MCS0x1 / SISO / Core 1 / Country Code CA

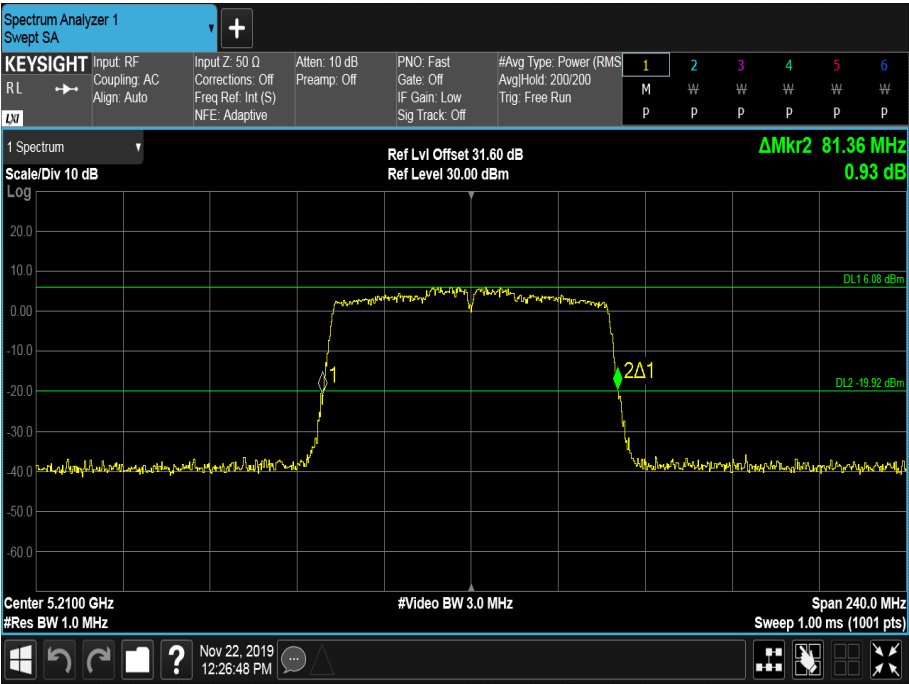


Figure 95 - 5210 MHz - 26 dB Emission Bandwidth

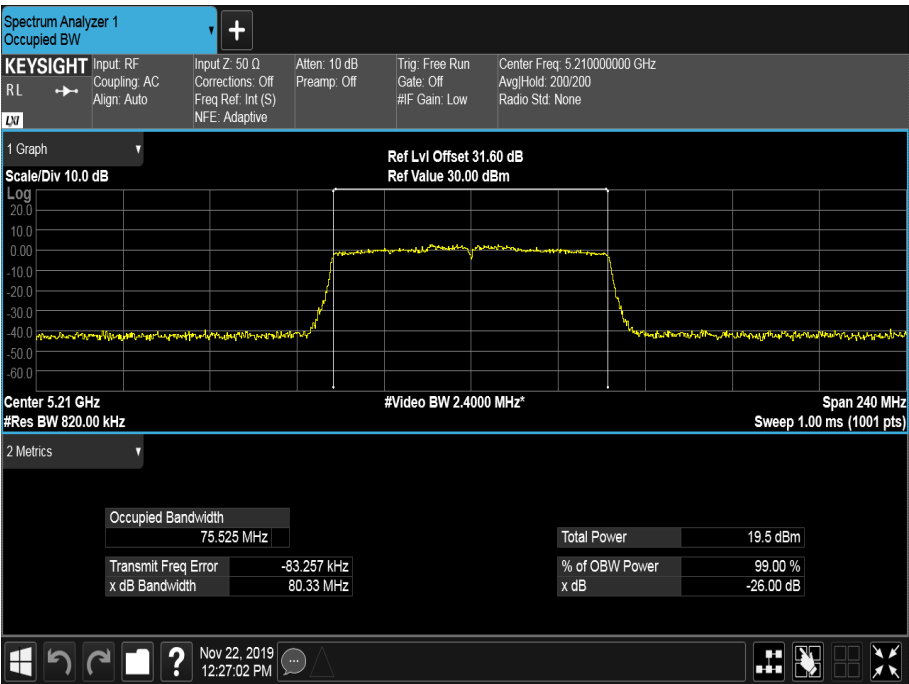


Figure 96 - 5210 MHz - 99% Occupied Bandwidth