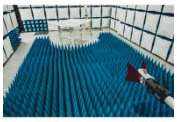
PCTEST
7185 Oakland Mills Road, Columbia, MD 21046 USA
Tel. 410.290.6652 / Fax 410.290.6654
http://www.pctest.com



# MEASUREMENT REPORT
## FCC PART 15.407 UNII OFDMA

**Applicant Name:**
Samsung Electronics Co., Ltd.
129, Samsung-ro,
Yeongtong-gu, Suwon-si
Gyeonggi-do, 16677, Korea

**Date of Testing:**
04/12/2021 – 07/16/2021
**Test Site/Location:**
PCTEST Lab. Columbia, MD, USA
**Test Report Serial No.:**
1M2106100066-12.A3L

| | |
|---|---|
| **FCC ID:** | **A3LSMF711JPN** |
| **APPLICANT:** | **Samsung Electronics Co., Ltd.** |

| | |
|---|---|
| **Application Type:** | Certification |
| **Model:** | SC-54B |
| **Additional Model(s):** | SCG12 |
| **EUT Type:** | Portable Handset |
| **Frequency Range:** | 5180 – 5825MHz |
| **Modulation Type:** | OFDMA |
| **FCC Classification:** | Unlicensed National Information Infrastructure (UNII) |
| **FCC Rule Part(s):** | Part 15 Subpart E (15.407) |
| **Test Procedure(s):** | ANSI C63.10-2013, KDB 789033 D02 v02r01, KDB 648474 D03 v01r04, KDB 662911 D01 v02r01 |

This equipment has been shown to be capable of compliance with the applicable technical standards as indicated in the measurement report and was tested in accordance with the measurement procedures specified in ANSI C63.10-2013 and KDB 789033 D02 v02r01. Test results reported herein relate only to the item(s) tested.

I attest to the accuracy of data. All measurements reported herein were performed by me or were made under my supervision and are correct to the best of my knowledge and belief. I assume full responsibility for the completeness of these measurements and vouch for the qualifications of all persons taking them.

Randy Ortanez
President

ACCREDITED
CERT #2041.01

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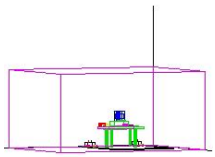
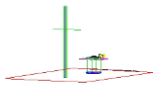


# MEASUREMENT REPORT



| UNII Band | Channel Bandwidth (MHz) | Tx Frequency (MHz) | ANT1 | | MIMO | |
|---|---|---|---|---|---|---|
| | | | Max. Power (mW) | Max. Power (dBm) | Max. Power (mW) | Max. Power (dBm) |
| 1 | 20 | 5180 - 5240 | 29.717 | 14.73 | 60.407 | 17.81 |
| 2A | | 5260 - 5320 | 29.512 | 14.70 | 59.271 | 17.73 |
| 2C | | 5500 - 5720 | 30.479 | 14.84 | 60.399 | 17.81 |
| 3 | | 5745 - 5825 | 30.832 | 14.89 | 59.130 | 17.72 |
| 1 | 40 | 5190 - 5230 | 30.903 | 14.90 | 61.473 | 17.89 |
| 2A | | 5270 - 5310 | 31.405 | 14.97 | 61.952 | 17.92 |
| 2C | | 5510 - 5710 | 29.107 | 14.64 | 61.243 | 17.87 |
| 3 | | 5755 - 5795 | 28.973 | 14.62 | 59.040 | 17.71 |
| 1 | 80 | 5210 | 27.669 | 14.42 | 54.576 | 17.37 |
| 2A | | 5290 | 27.102 | 14.33 | 53.703 | 17.30 |
| 2C | | 5530 - 5690 | 31.550 | 14.99 | 62.165 | 17.94 |
| 3 | | 5775 | 31.550 | 14.99 | 61.889 | 17.92 |

**EUT Overview**

# 1.0 INTRODUCTION

## 1.1 Scope

Measurement and determination of electromagnetic emissions (EMC) of radio frequency devices including intentional and/or unintentional radiators for compliance with the technical rules and regulations of the Federal Communications Commission and the Innovation, Science and Economic Development Canada.

## 1.2 PCTEST Test Location

These measurement tests were conducted at the PCTEST facility located at 7185 Oakland Mills Road, Columbia, MD 21046. The measurement facility is compliant with the test site requirements specified in ANSI C63.4-2014.

## 1.3 Test Facility / Accreditations

**Measurements were performed at PCTEST located in Columbia, MD 21046, U.S.A.**

- PCTEST is an ISO 17025-2017 accredited test facility under the American Association for Laboratory Accreditation (A2LA) with Certificate number 2041.01 for Specific Absorption Rate (SAR), Hearing Aid Compatibility (HAC) testing, where applicable, and Electromagnetic Compatibility (EMC) testing for FCC and Innovation, Science, and Economic Development Canada rules.

- PCTEST TCB is a Telecommunication Certification Body (TCB) accredited to ISO/IEC 17065-2012 by A2LA (Certificate number 2041.03) in all scopes of FCC Rules and ISED Standards (RSS).

- PCTEST facility is a registered (2451B) test laboratory with the site description on file with ISED.

# 2.0 PRODUCT INFORMATION

## 2.1 Equipment Description

The Equipment Under Test (EUT) is the **Samsung Portable Handset FCC ID: A3LSMF711JPN**. The test data contained in this report pertains only to the emissions due to the EUT's UNII transmitter.

**Test Device Serial No.:** 0189M, 0837M, 0843M, 0174M, 0863M, 0677M, 0209M, 0059S, 0585S, 1600S

## 2.2 Device Capabilities

This device contains the following capabilities:

850/1900 GSM/GPRS/EDGE, 850 WCDMA/HSPA, Multi-band LTE, 802.11b/g/n/ax
WLAN, 802.11a/n/ac/ax UNII (5GHz), Bluetooth (1x, EDR, LE), NFC, Wireless Power Transfer

| Band 1 | | Band 2A | | Band 2C | | Band 3 | |
|---|---|---|---|---|---|---|---|
| Ch. | Frequency (MHz) | Ch. | Frequency (MHz) | Ch. | Frequency (MHz) | Ch. | Frequency (MHz) |
| 36 | 5180 | 52 | 5260 | 100 | 5500 | 149 | 5745 |
| : | : | : | : | : | : | : | : |
| 42 | 5210 | 56 | 5280 | 120 | 5600 | 157 | 5785 |
| : | : | : | : | : | : | : | : |
| 48 | 5240 | 64 | 5320 | 144 | 5720 | 165 | 5825 |

**Table 2-1. 802.11ax (20MHz) Frequency / Channel Operations**

| Band 1 | | Band 2A | | Band 2C | | Band 3 | |
|---|---|---|---|---|---|---|---|
| Ch. | Frequency (MHz) | Ch. | Frequency (MHz) | Ch. | Frequency (MHz) | Ch. | Frequency (MHz) |
| 38 | 5190 | 54 | 5270 | 102 | 5510 | 151 | 5755 |
| : | : | : | : | : | : | : | : |
| 46 | 5230 | 62 | 5310 | 118 | 5590 | 159 | 5795 |
| | | | | : | : | | |
| | | | | 142 | 5710 | | |

**Table 2-2. 802.11ax (40MHz BW) Frequency / Channel Operations**

| Band 1 | | Band 2A | | Band 2C | | Band 3 | |
|---|---|---|---|---|---|---|---|
| Ch. | Frequency (MHz) | Ch. | Frequency (MHz) | Ch. | Frequency (MHz) | Ch. | Frequency (MHz) |
| 42 | 5210 | 58 | 5290 | 106 | 5530 | 155 | 5775 |
| | | | | : | : | | |
| | | | | 138 | 5690 | | |

**Table 2-3. 802.11ax (80MHz BW) Frequency / Channel Operations**

**Notes:**

1. 5GHz NII operation is possible in 20MHz, and 40MHz, and 80MHz channel bandwidths. The maximum achievable duty cycles for all modes were determined based on measurements performed on a spectrum analyzer in zero-span mode with RBW = 8MHz, VBW = 50MHz, and detector = peak per the guidance of Section B)2)b) of ANSI C63.10-2013 and KDB 789033 D02 v02r01. The RBW and VBW were both greater than 50/T, where T is the minimum transmission duration, and the number of sweep points across T was greater than 100. The duty cycles are as follows:

| Mode | Antenna | Channel | Tone | Duty Cycle |
|---|---|---|---|---|
| 802.11ax NII RU | 1 | 36 | 26T | 99.7 |
| | | | 52T | 99.7 |
| | | | 106T | 99.7 |
| | | | 242T | 99.7 |
| 802.11ax NII RU | MIMO CDD | 36 | 26T | 99.7 |
| | | | 52T | 99.7 |
| | | | 106T | 99.7 |
| | | | 242T | 99.7 |
| 802.11ax NII RU | 1 | 38 | 26T | 99.7 |
| | | | 52T | 99.7 |
| | | | 106T | 99.7 |
| | | | 242T | 99.7 |
| | | | 484T | 99.7 |
| 802.11ax NII RU | MIMO CDD | 38 | 26T | 99.7 |
| | | | 52T | 99.7 |
| | | | 106T | 99.7 |
| | | | 242T | 99.7 |
| | | | 484T | 99.7 |
| 802.11ax NII RU | 1 | 42 | 26T | 99.7 |
| | | | 52T | 99.7 |
| | | | 106T | 99.6 |
| | | | 242T | 99.7 |
| | | | 484T | 99.7 |
| | | | 996T | 99.7 |
| 802.11ax NII RU | MIMO CDD | 42 | 26T | 99.6 |
| | | | 52T | 99.7 |
| | | | 106T | 99.5 |
| | | | 242T | 99.7 |
| | | | 484T | 99.7 |
| | | | 996T | 99.6 |

**Table 2-4. Measured Duty Cycles**

2. The device employs MIMO technology. Below are the possible configurations.

| WiFi Configurations | | SISO | | SDM | | MIMO | |
|---|---|---|---|---|---|---|---|
| | | ANT1 | ANT2 | ANT1 | ANT2 | ANT1 | ANT2 |
| 5GHz | 11ax (20MHz) | ✓ | × | ✓ | ✓ | ✓ | ✓ |
| | 11ax (40MHz) | ✓ | × | ✓ | ✓ | ✓ | ✓ |
| | 11ax (80MHz) | ✓ | × | ✓ | ✓ | ✓ | ✓ |

**Table 2-5. Frequency / Channel Operations**

✓= Support ; × = NOT Support
**SDM** = Spatial Diversity Multiplexing – MIMO function

## 2.3 Antenna Description

Following antenna was used for the testing.

| Frequency [GHz] | Antenna 1 Gain (dBi) | Antenna 2 Gain (dBi) |
|---|---|---|
| 5.20 | -6.6 | -6.1 |
| 5.30 | -8.1 | -6.3 |
| 5.50 | -9.8 | -7.3 |
| 5.80 | -7.7 | -8.0 |

**Table 2-6. Antenna Peak Gain**

## 2.4 Test Configuration

The EUT was tested per the guidance of KDB 789033 D02 v02r01. ANSI C63.10-2013 was used to reference the appropriate EUT setup for radiated spurious emissions testing.

This device supports wireless charging capability and, thus, is subject to the test requirements of KDB 648474 D03 v01r04. Additional radiated spurious emission measurements were performed with the EUT lying flat on an authorized wireless charging pad (WCP) Model: EP-N5100 while operating under normal conditions in a simulated call or data transmission configuration. The worst case radiated emissions data is shown in this report.

This device supports two configurations: one is with screen open, and one is with screen closed. Both configurations for each chipset are tested, and the worst case radiated emissions data is shown in this report.

## 2.5 Software and Firmware

The test was conducted with firmware version 711USQU0AUEF installed on the EUT.

## 2.6 EMI Suppression Device(s)/Modifications

No EMI suppression device(s) were added and/or no modifications were made during testing.

# 3.0 DESCRIPTION OF TESTS

## 3.1 Evaluation Procedure

The measurement procedures described in the American National Standard of Procedures for Compliance Testing of Unlicensed Wireless Devices (ANSI C63.10-2013) and the guidance provided in KDB 789033 D02 v02r01 were used in the measurement of the EUT.

**Deviation from measurement procedure……..…….....None**

## 3.2 Radiated Emissions

The radiated test facilities consisted of an indoor 3 meter semi-anechoic chamber used for final measurements and exploratory measurements, when necessary. The measurement area is contained within the semi-anechoic chamber which is shielded from any ambient interference. The test site inside the chamber is a 6m x 5.2m elliptical, obstruction-free area in accordance with Figure 5.7 of Clause 5 in ANSI C63.4-2014. Absorbers are arranged on the floor between the turn table and the antenna mast in such a way so as to maximize the reduction of reflections for measurements above 1GHz. An 80cm tall test table made of Styrodur is placed on top of the turn table. For measurements above 1GHz, an additional Styrodur pedestal is placed on top of the test table to bring the total table height to 1.5m.

For all measurements, the spectrum was scanned through all EUT azimuths and from 1 to 4 meter receive antenna height using a broadband antenna from 30MHz up to the upper frequency shown in 15.33 depending on the highest frequency generated or used in the device or on which the device operates or tunes. For frequencies above 1GHz, linearly polarized double ridge horn antennas were used. For frequencies below 30MHz, a calibrated loop antenna was used. When exploratory measurements were necessary, they were performed at 1 meter test distance inside the semi-anechoic chamber using broadband antennas, broadband amplifiers, and spectrum analyzers to determine the frequencies and modes producing the maximum emissions. Sufficient time for the EUT, support equipment, and test equipment was allowed in order for them to warm up to their normal operating condition. The test set-up was placed on top of the 1 x 1.5 meter table. The EUT, support equipment, and interconnecting cables were arranged and manipulated to maximize each emission. Appropriate precaution was taken to ensure that all emissions from the EUT were maximized and investigated. The system configuration, mode of operation, turntable azimuth, and receive antenna height was noted for each frequency found.

Final measurements were made in the semi-anechoic chamber using calibrated, linearly polarized broadband and horn antennas. The test setup was configured to the setup that produced the worst case emissions. The spectrum analyzer was set to investigate all frequencies required for testing to compare the highest radiated disturbances with respect to the specified limits. The turntable containing the EUT was rotated through 360 degrees and the height of the receive antenna was varied 1 to 4 meters and stopped at the azimuth and height producing the maximum emission. Each emission was maximized by changing the orientation of the EUT through three orthogonal planes and changing the polarity of the receive antenna, whichever produced the worst-case emissions.

All radiated measurements are performed in a chamber that meets the site requirements per ANSI C63.4-2014. Additionally, radiated emissions below 30MHz are also validated on an Open Area Test Site to assert correlation with the chamber measurements per the requirements of KDB 474788 D01.

## 3.3 Environmental Conditions

The temperature is controlled within range of 15ºC to 35ºC. The relative humidity is controlled within range of 10% to 75%. The atmospheric pressure is monitored within the range 86-106kPa (860-1060mbar).

# 4.0 ANTENNA REQUIREMENTS

**Excerpt from §15.203 of the FCC Rules/Regulations:**
"An intentional radiator antenna shall be designed to ensure that no antenna other than that furnished by the responsible party can be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the provisions of this section."

- The antennas of the EUT are **permanently attached.**
- There are no provisions for connection to an external antenna.

**Conclusion:**

The EUT complies with the requirement of §15.203.

# 5.0 MEASUREMENT UNCERTAINTY

The measurement uncertainties shown below were calculated in accordance with the requirements of ANSI C63.10-2013. All measurement uncertainty values are shown with a coverage factor of k = 2 to indicate a 95% level of confidence. The measurement uncertainty shown below meets or exceeds the $U_{CISPR}$ measurement uncertainty values specified in CISPR 16-4-2 and, thus, can be compared directly to specified limits to determine compliance.

| Contribution | Expanded Uncertainty (±dB) |
|---|---|
| Conducted Bench Top Measurements | 1.13 |
| Line Conducted Disturbance | 3.09 |
| Radiated Disturbance (<1GHz) | 4.98 |
| Radiated Disturbance (>1GHz) | 5.07 |
| Radiated Disturbance (>18GHz) | 5.09 |

# 6.0 TEST EQUIPMENT CALIBRATION DATA

Test Equipment Calibration is traceable to the National Institute of Standards and Technology (NIST). Measurements antennas used during testing were calibrated in accordance to the requirements of ANSI C63.5-2017.

| Manufacturer | Model | Description | Cal Date | Cal Interval | Cal Due | Serial Number |
|---|---|---|---|---|---|---|
| - | WL25-1 | Conducted Cable Set (25GHz) | 2/23/2021 | Annual | 2/23/2022 | WL25-1 |
| - | WL40-1 | WLAN Cable Set (40GHz) | 2/23/2021 | Annual | 2/23/2022 | WL40-1 |
| - | WL25-2 | WLAN Cable Set (25GHz) | 2/23/2021 | Annual | 2/23/2022 | WL25-2 |
| - | WL25-3 | Conducted Cable Set (25GHz) | 3/12/2021 | Annual | 3/12/2022 | WL25-3 |
| - | WL40-2 | WLAN Cable Set (40GHz) | 3/12/2021 | Annual | 3/12/2022 | WL40-2 |
| Anritsu | ML2495A | Power Meter | 3/4/2021 | Annual | 3/4/2022 | 1328004 |
| Anritsu | MA2411B | Pulse Power Sensor | 10/19/2020 | Annual | 10/19/2021 | 1339026 |
| Anritsu | MS46322A | Vector Network Analyzer | 11/6/2020 | Annual | 11/6/2021 | 1521001 |
| Anritsu | 36585K-2F | Precision Autocal 2-Port | 10/24/2020 | Annual | 10/24/2021 | 1628014 |
| Com-Power | AL-130 | 9kHz - 30MHz Loop Antenna | 10/10/2019 | Biennial | 10/10/2021 | 121034 |
| Emco | 3115 | Horn Antenna (1-18GHz) | 6/18/2020 | Biennial | 6/18/2022 | 9704-5182 |
| Emco | 3116 | Horn Antenna (18 - 40GHz) | 8/7/2018 | Triennial | 8/7/2021 | 9203-2178 |
| Espec | ESX-2CA | Environmental Chamber | 8/27/2020 | Biennial | 8/27/2022 | 17620 |
| ETS-Lindgren | 3816/2NM | LISN | 7/9/2020 | Biennial | 7/9/2022 | 114451 |
| ETS-Lindgren | 3115 | Double Ridged Guide Horn 750MHz - 18GHz | 3/12/2020 | Biennial | 3/12/2022 | 150693 |
| Keysight Technologies | N9020A | MXA Signal Analyzer | 8/14/2020 | Annual | 8/14/2021 | US46470561 |
| Keysight Technologies | N9038A | MXE EMI Receiver | 8/11/2020 | Annual | 8/11/2021 | MY51210133 |
| Keysight Technologies | N9030A | PXA Signal Analyzer (44GHz) | 8/17/2020 | Annual | 8/17/2021 | MY52350166 |
| Keysight Technologies | N9020A | MXA Signal Analyzer | 9/22/2020 | Annual | 9/22/2021 | MY54500644 |
| Pasternack | NMLC-2 | Line Conducted Emissions Cable (NM) | 2/25/2021 | Annual | 2/25/2022 | NMLC-2 |
| Rohde & Schwarz | ESU26 | EMI Test Receiver (26.5GHz) | 7/15/2020 | Annual | 7/15/2021 | 100342 |
| Rohde & Schwarz | ESU40 | EMI Test Receiver (40GHz) | 5/25/2021 | Annual | 5/25/2022 | 100348 |
| Rohde & Schwarz | FSW67 | Signal / Spectrum Analyzer | 8/10/2020 | Annual | 8/10/2021 | 103200 |
| Solar Electronics | 8012-50-R-24-BNC | Line Impedance Stabilization Network | 10/1/2019 | Biennial | 10/1/2021 | 310233 |
| Sunol | DRH-118 | Horn Antenna (1-18 GHz) | 8/27/2019 | Biennial | 8/27/2021 | A042511 |
| Sunol Science | JB5 | Bi-Log Antenna (30M - 5GHz) | 7/27/2020 | Biennial | 7/27/2022 | A051107 |

**Table 6-1. Annual Test Equipment Calibration Schedule**

**Note:**

For equipment listed above that has a calibration date or calibration due date that falls within the test date range, care was taken to ensure that this equipment was used after the calibration date and before the calibration due date.

# 7.0 TEST RESULTS

## 7.1 Summary

Company Name: Samsung Electronics Co., Ltd.
FCC ID: A3LSMF711JPN
FCC Classification: Unlicensed National Information Infrastructure (UNII)

| FCC Part Section(s) | RSS Section(s) | Test Description | Test Limit | Test Condition | Test Result | Reference |
|---|---|---|---|---|---|---|
| N/A | RSS-Gen [6.7] | 26dB Bandwidth | N/A | CONDUCTED | PASS | Section 7.2 |
| 15.407(e) | RSS-Gen [6.7] | 6dB Bandwidth | >500kHz(5725-5850MHz) | | PASS | Section 7.3 |
| 15.407 (a.1.iv), (a.2), (a.3) | RSS-247 [6.2] | Maximum Conducted Output Power | Maximum conducted powers must meet the limits detailed in 15.407 (a) (RSS-247 [6.2]) | | PASS | Section 7.4 |
| 15.407 (a.1.iv), (a.2), (a.3) | RSS-247 [6.2] | Maximum Power Spectral Density | Maximum power spectral density must meet the limits detailed in 15.407 (a) (RSS-247 [6.2]) | | PASS | Section 7.5 |
| 15.407(h) | RSS-247 [6.3] | Dynamic Frequency Selection | See DFS Test Report | | PASS | See DFS Test Report |
| 15.407(b.1), (2), (3), (4) | RSS-247 [6.2] | Undesirable Emissions | Undesirable emissions must meet the limits detailed in 15.407(b) (RSS-247 [6.2]) | RADIATED | PASS | Section 7.6 |
| 15.205, 15.407(b.1), (4), (5), (6) | RSS-Gen [8.9] | General Field Strength Limits (Restricted Bands and Radiated Emission Limits) | Emissions in restricted bands must meet the radiated limits detailed in 15.209 (RSS-Gen [8.9]) | | PASS | Section 7.6, 7.7 |

**Table 7-1. Summary of Test Results**

**Notes:**

1) All channels, modes, and modulations/data rates were investigated among all UNII bands. The test results shown in the following sections represent the worst case emissions.
2) The analyzer plots shown in this section were all taken with a correction table loaded into the analyzer. The correction table was used to account for the losses of the cables and attenuators used as part of the system to connect the EUT to the analyzer at all frequencies of interest.
3) All antenna port conducted emissions testing was performed on a test bench with the antenna port of the EUT connected to the spectrum analyzer through calibrated cables and attenuators.
4) For conducted spurious emissions, automated test software was used to measure emissions and capture the corresponding plots necessary to show compliance. The measurement software utilized is PCTEST "UNII Automation," Version 4.7.
5) For radiated band edge, automated test software was used to measure emissions and capture the corresponding plots necessary to show compliance. The measurement software utilized is PCTEST "Chamber Automation," Version 1.3.1.
6) 802.11ax OFDMA testing was performed for all signal tone configurations as specified by the 802.11ax standard. Worst case results are determined and reported per the guidance provided at the October 2018 TCB Workshop.
7) Only one RU index could be selected at a time so no contiguous or non-contiguous RU's were considered for testing.

## 7.2 26dB Bandwidth Measurement – 802.11ax OFDMA

**Test Overview and Limit**

The bandwidth at 26dB down from the highest in-band spectral density is measured with a spectrum analyzer connected to the antenna terminal while the EUT is operating at its maximum duty cycle, at its maximum power control level, as defined in ANSI C63.10-2013 and KDB 789033 D02 v02r01, and at the appropriate frequencies. The spectrum analyzer's bandwidth measurement function is configured to measure the 26dB bandwidth.

***The 26dB bandwidth is used to determine the conducted power limits.***

**Test Procedure Used**

ANSI C63.10-2013 – Section 12.4
KDB 789033 D02 v02r01 – Section C

**Test Settings**

1. The signal analyzers' automatic bandwidth measurement capability was used to perform the 26dB bandwidth measurement. The "X" dB bandwidth parameter was set to X = 26. The automatic bandwidth measurement function also has the capability of simultaneously measuring the 99% occupied bandwidth. The bandwidth measurement was not influenced by any intermediate power nulls in the fundamental emission.
2. RBW = approximately 1% of the emission bandwidth
3. VBW $\geq$ 3 x RBW
4. Detector = Peak
5. Trace mode = max hold

**Test Setup**

The EUT and measurement equipment were set up as shown in the diagram below.


**Figure 7-1. Test Instrument & Measurement Setup**

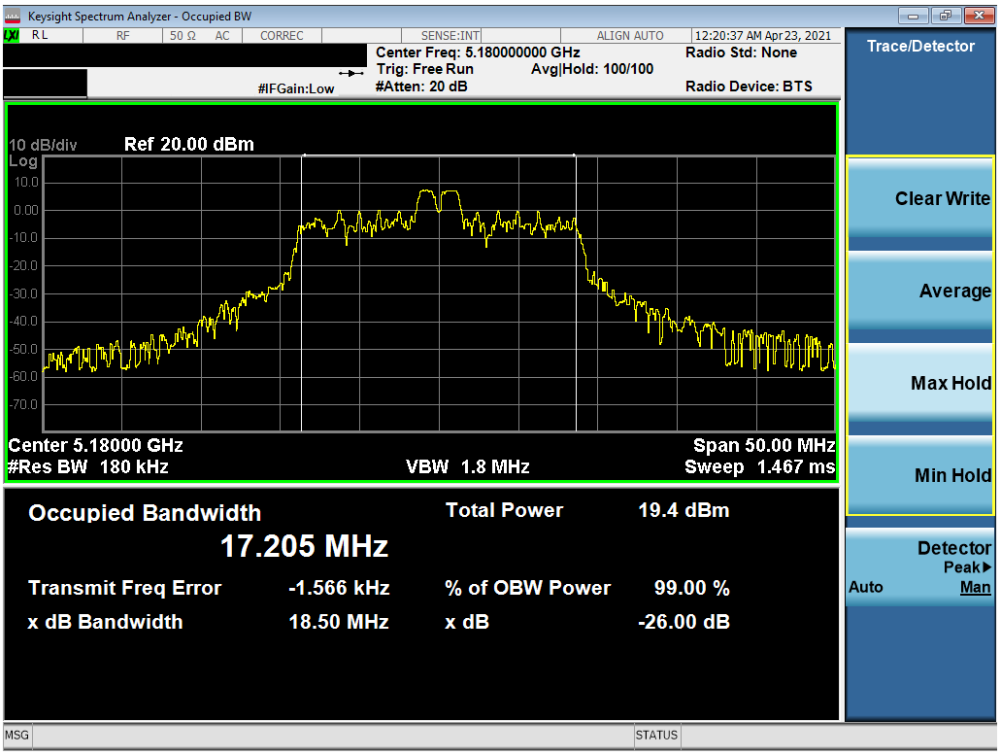
**Test Notes**

The 26dB Bandwidth measurement for each channel was measured with the RU index showing the highest conducted power.

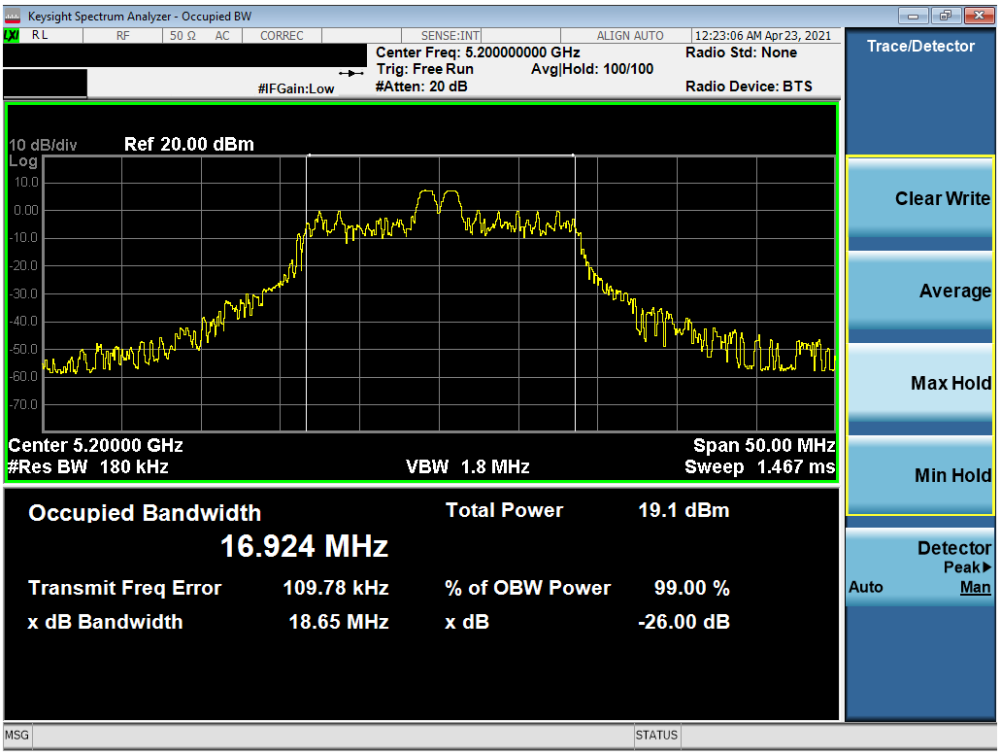
## SISO Antenna-1 26 dB Bandwidth Measurements (26 Tones)

| | Frequency [MHz] | Channel No. | 802.11 Mode | Tones | Data Rate [Mbps] | Measured 26dB Bandwidth [MHz] |
|---|---|---|---|---|---|---|
| Band 1 | 5180 | 36 | ax (20MHz) | 26T | MCS0 | 18.50 |
| | 5200 | 40 | ax (20MHz) | 26T | MCS0 | 18.65 |
| | 5240 | 48 | ax (20MHz) | 26T | MCS0 | 18.22 |
| | 5190 | 38 | ax (40MHz) | 26T | MCS0 | 37.94 |
| | 5230 | 46 | ax (40MHz) | 26T | MCS0 | 39.86 |
| | 5210 | 42 | ax (80MHz) | 26T | MCS0 | 78.10 |
| Band 2A | 5260 | 52 | ax (20MHz) | 26T | MCS0 | 19.92 |
| | 5280 | 56 | ax (20MHz) | 26T | MCS0 | 19.78 |
| | 5320 | 64 | ax (20MHz) | 26T | MCS0 | 19.90 |
| | 5270 | 54 | ax (40MHz) | 26T | MCS0 | 37.94 |
| | 5310 | 62 | ax (40MHz) | 26T | MCS0 | 37.87 |
| | 5290 | 58 | ax (80MHz) | 26T | MCS0 | 78.04 |
| Band 2C | 5500 | 100 | ax (20MHz) | 26T | MCS0 | 18.06 |
| | 5600 | 120 | ax (20MHz) | 26T | MCS0 | 18.20 |
| | 5720 | 144 | ax (20MHz) | 26T | MCS0 | 19.45 |
| | 5510 | 102 | ax (40MHz) | 26T | MCS0 | 39.46 |
| | 5590 | 118 | ax (40MHz) | 26T | MCS0 | 39.70 |
| | 5710 | 142 | ax (40MHz) | 26T | MCS0 | 38.06 |
| | 5530 | 106 | ax (80MHz) | 26T | MCS0 | 81.47 |
| | 5610 | 122 | ax (80MHz) | 26T | MCS0 | 80.67 |
| | 5690 | 138 | ax (80MHz) | 26T | MCS0 | 77.25 |

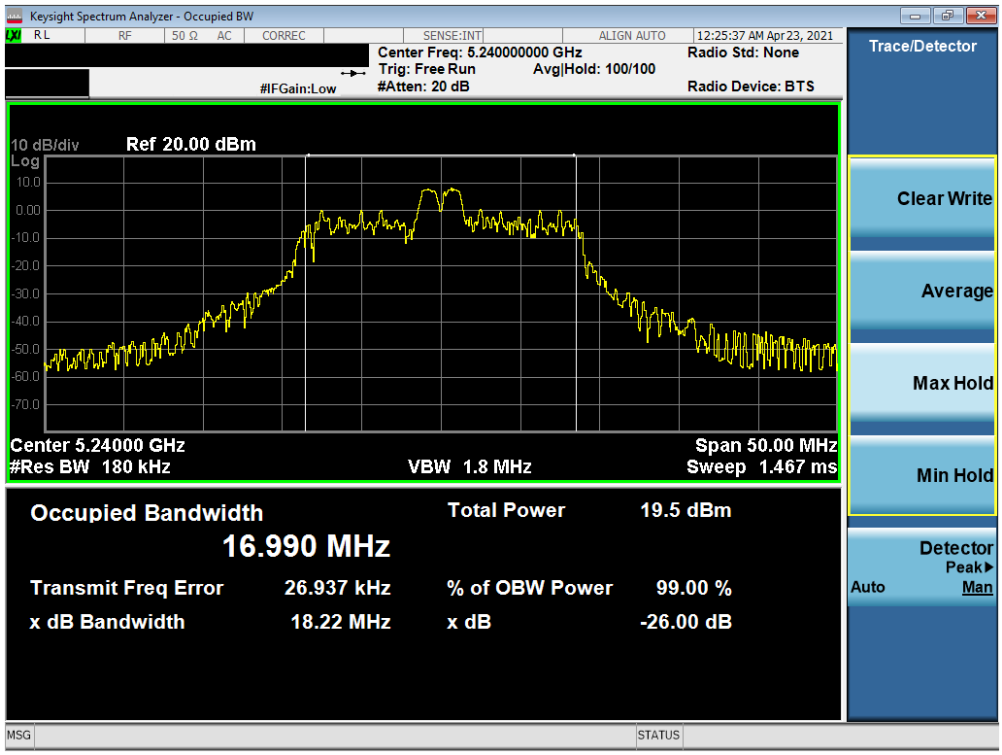
**Table 7-2. Conducted Bandwidth Measurements SISO ANT1 (26 Tones)**



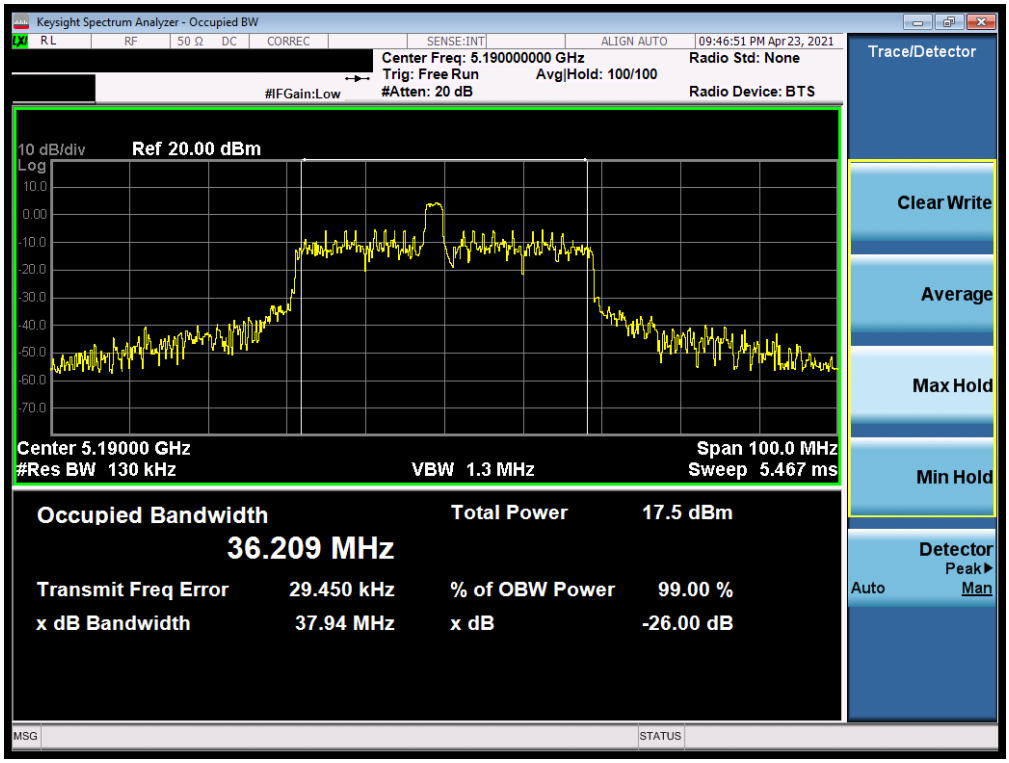

**Plot 7-1. 26dB Bandwidth Plot SISO ANT1 (20MHz BW 802.11ax – 26 Tones (UNII Band 1) – Ch. 36)**



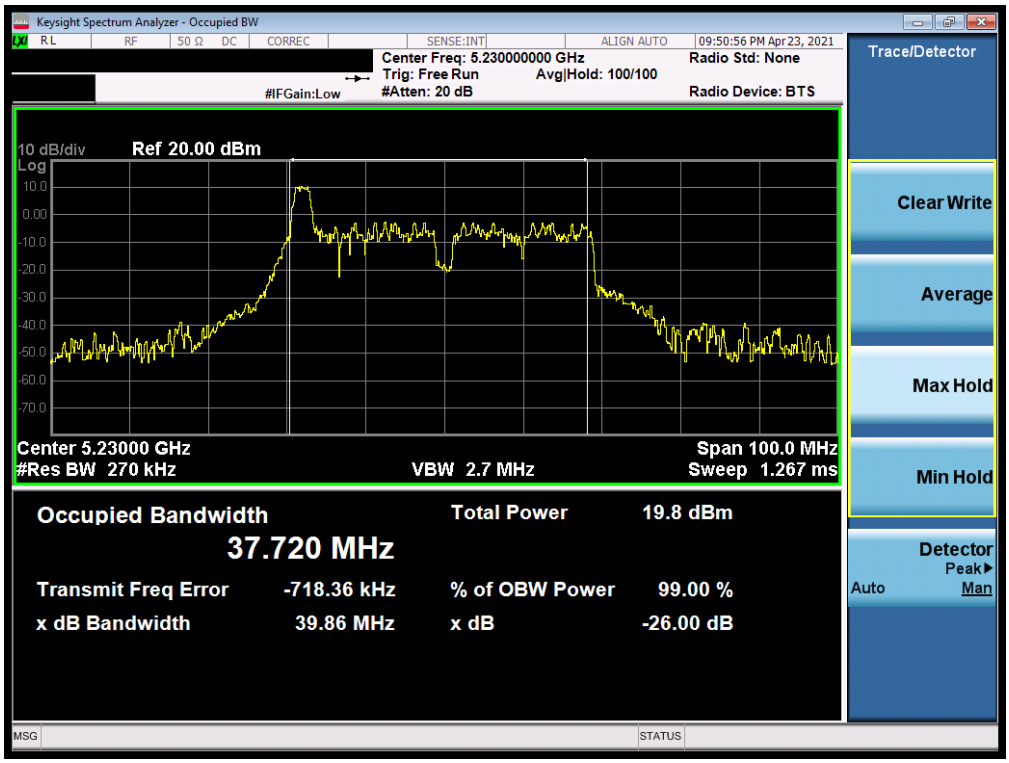

**Plot 7-2. 26dB Bandwidth Plot SISO ANT1 (20MHz BW 802.11ax – 26 Tones (UNII Band 1) – Ch. 40)**



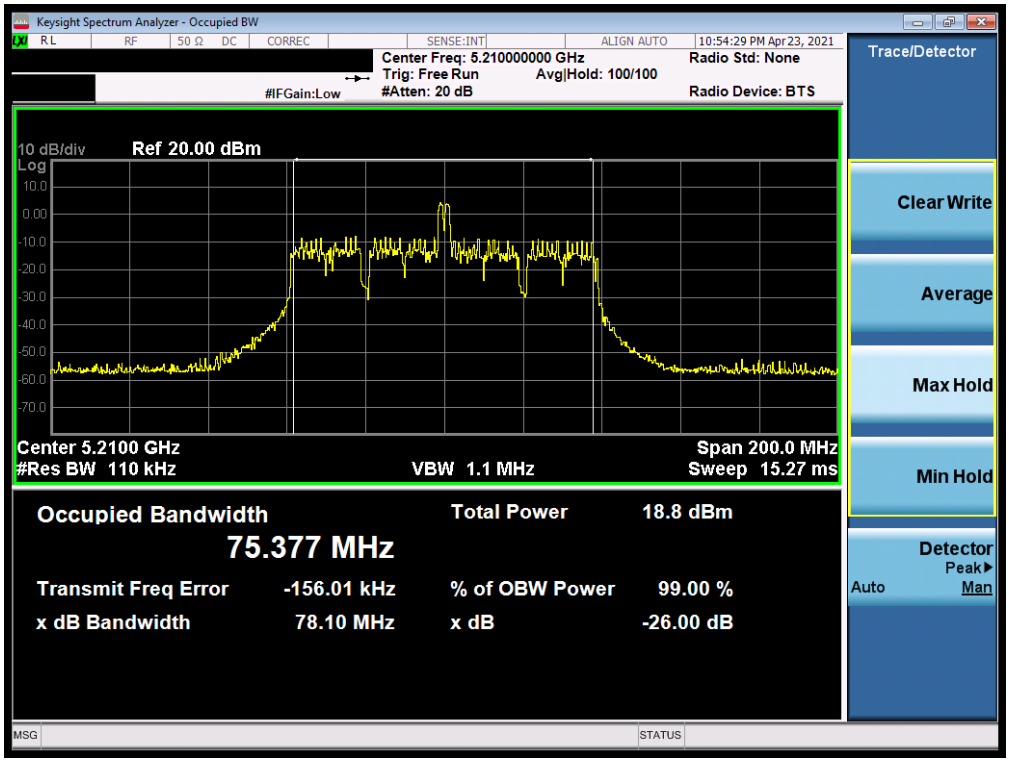

**Plot 7-3. 26dB Bandwidth Plot SISO ANT1 (20MHz BW 802.11ax – 26 Tones (UNII Band 1) – Ch. 48)**



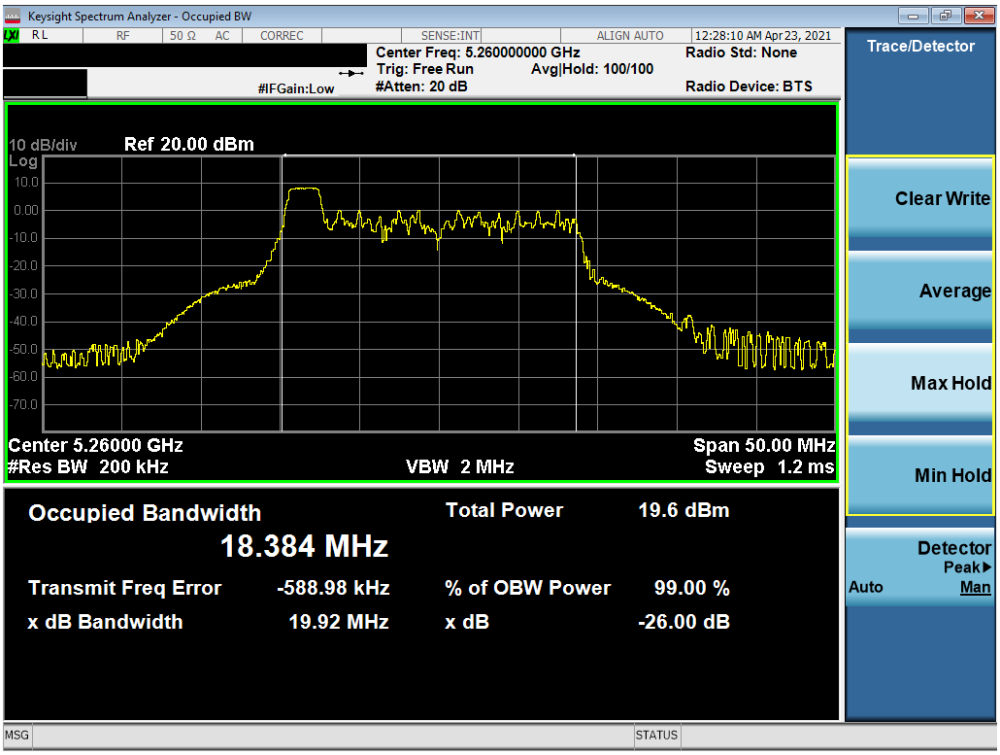

**Plot 7-4. 26dB Bandwidth Plot SISO ANT1 (40MHz BW 802.11ax – 26 Tones (UNII Band 1) – Ch. 38)**



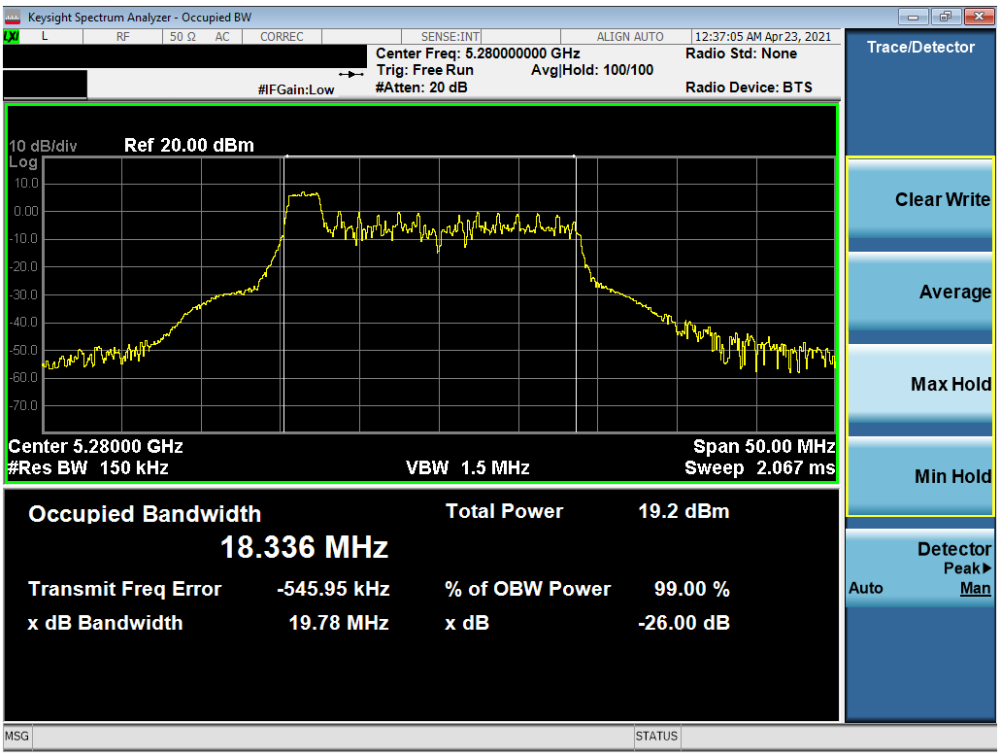

**Plot 7-5. 26dB Bandwidth Plot SISO ANT1 (40MHz BW 802.11ax – 26 Tones (UNII Band 1) – Ch. 46)**



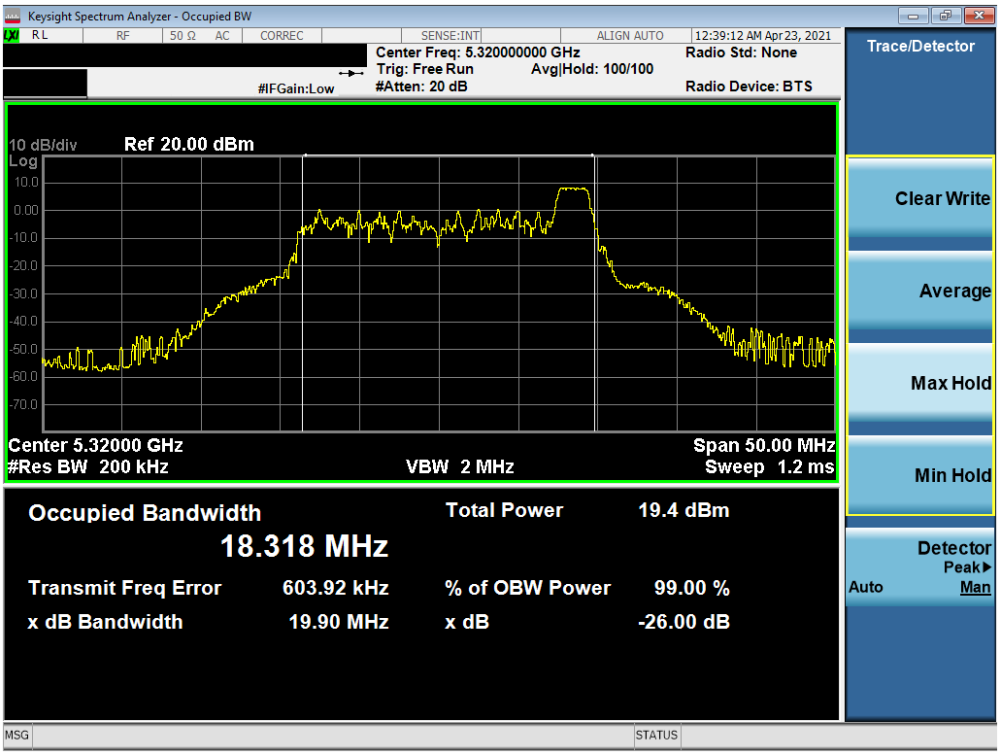

**Plot 7-6. 26dB Bandwidth Plot SISO ANT1 (80MHz BW 802.11ax – 26 Tones (UNII Band 1) – Ch. 42)**



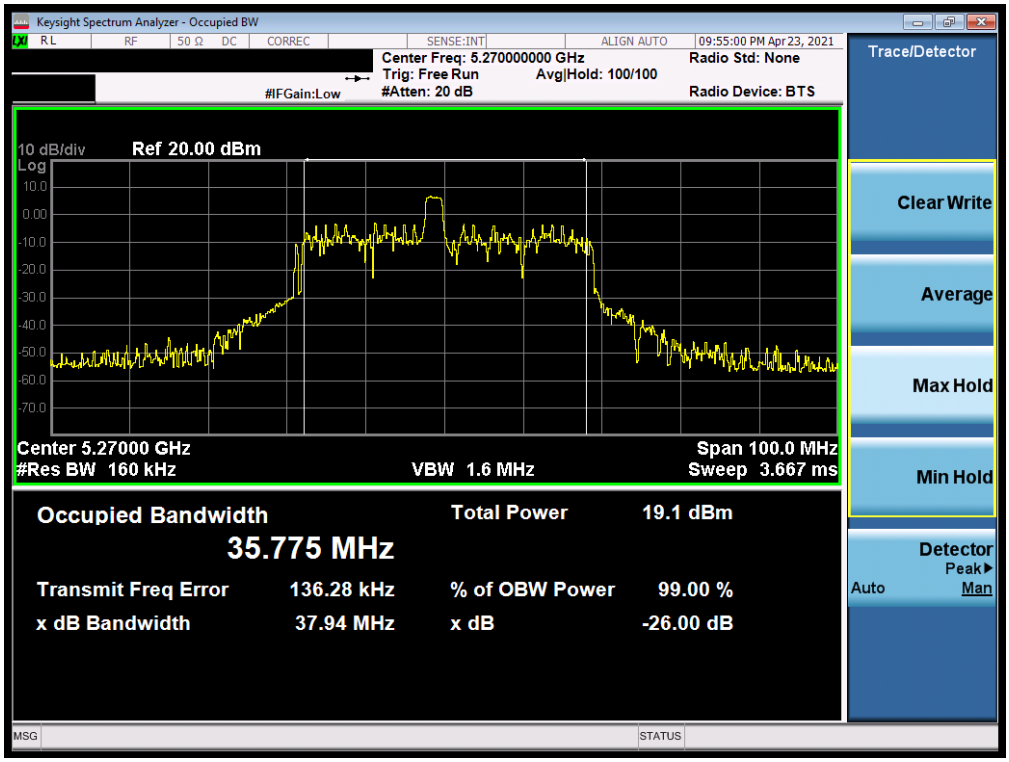

**Plot 7-7. 26dB Bandwidth Plot SISO ANT1 (20MHz BW 802.11ax – 26 Tones (UNII Band 2A) – Ch. 52)**



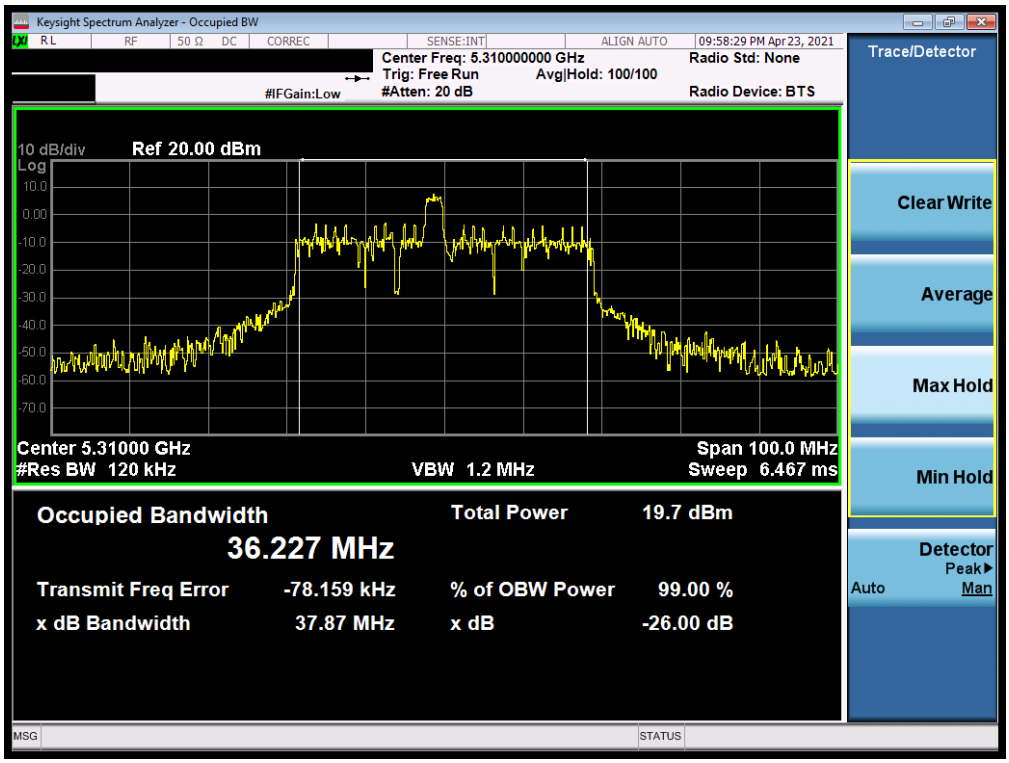

**Plot 7-8. 26dB Bandwidth Plot SISO ANT1 (20MHz BW 802.11ax – 26 Tones (UNII Band 2A) – Ch. 56)**



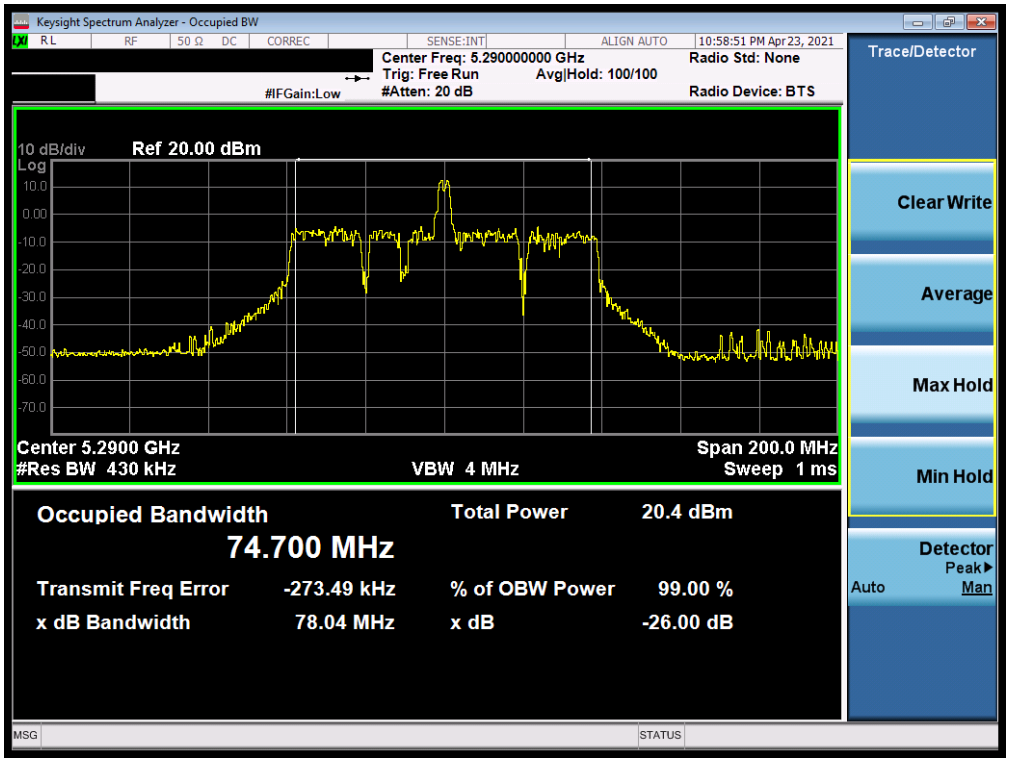

**Plot 7-9. 26dB Bandwidth Plot SISO ANT1 (20MHz BW 802.11ax – 26 Tones (UNII Band 2A) – Ch. 64)**



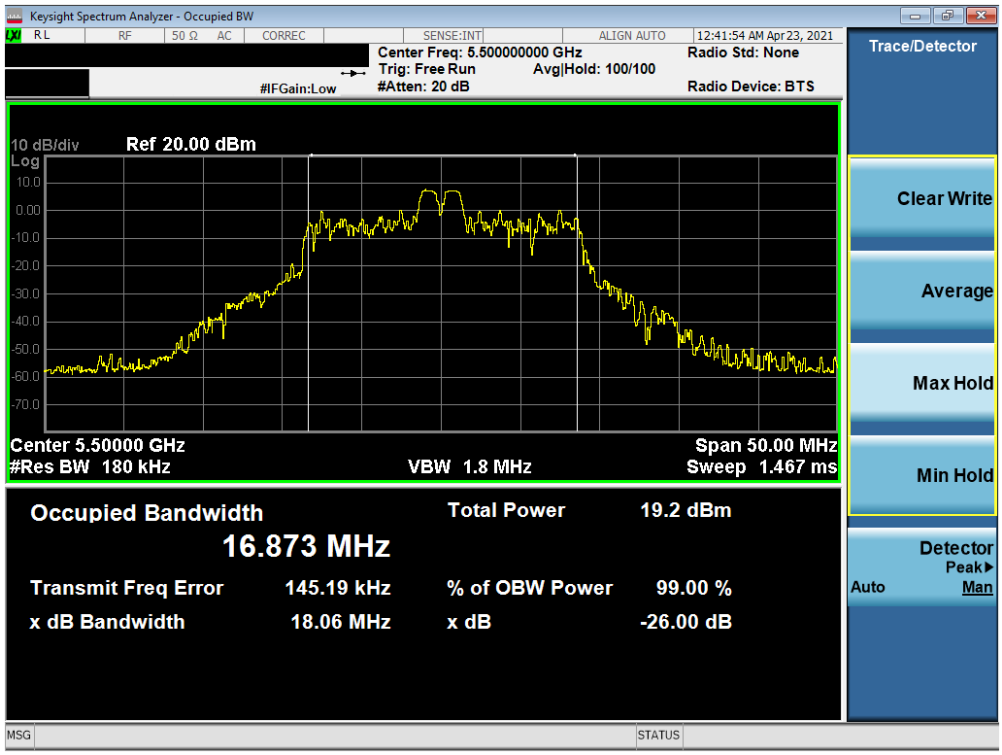

**Plot 7-10. 26dB Bandwidth Plot SISO ANT1 (40MHz BW 802.11ax – 26 Tones (UNII Band 2A) – Ch. 54)**



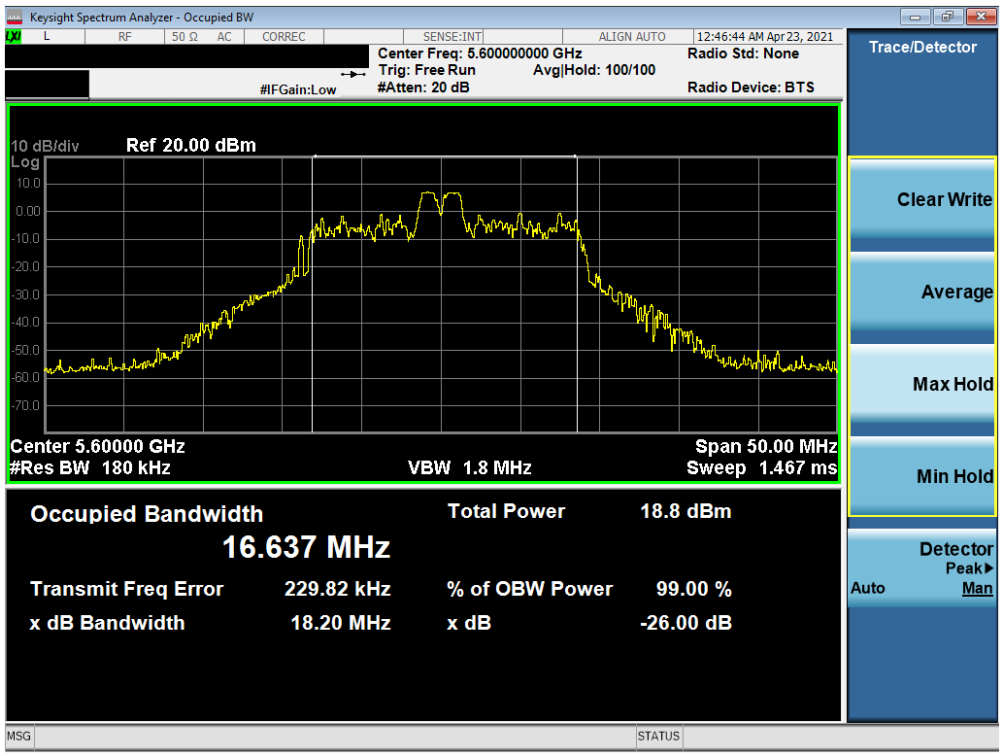

**Plot 7-11. 26dB Bandwidth Plot SISO ANT1 (40MHz BW 802.11ax – 26 Tones (UNII Band 2A) – Ch. 62)**



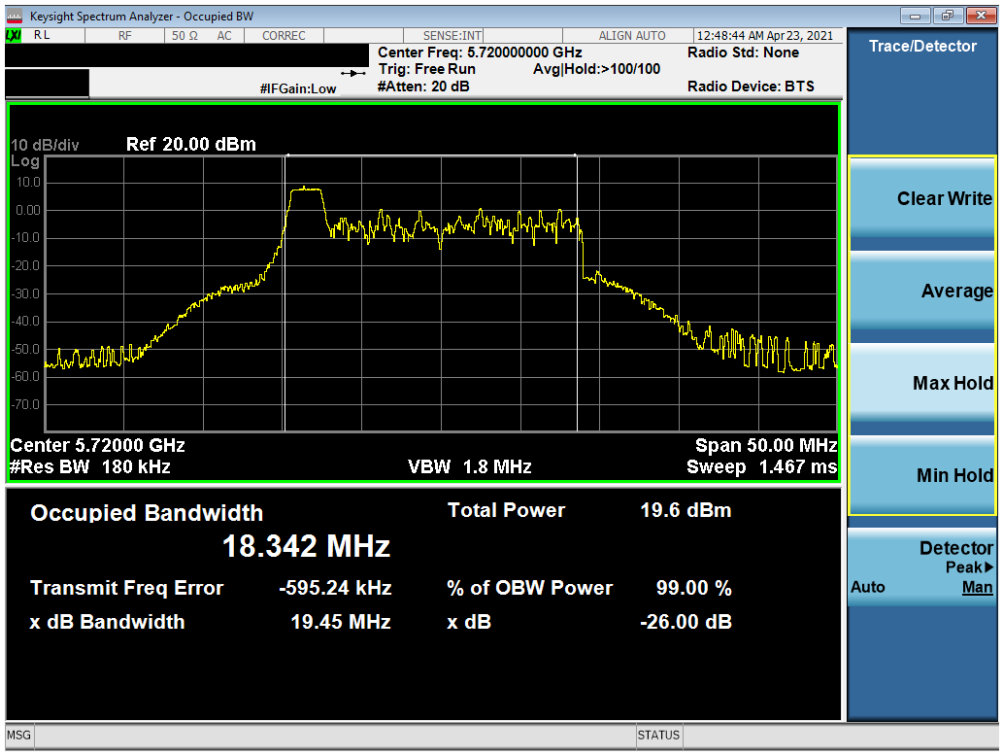

**Plot 7-12. 26dB Bandwidth Plot SISO ANT1 (80MHz BW 802.11ax – 26 Tones (UNII Band 2A) – Ch. 58)**



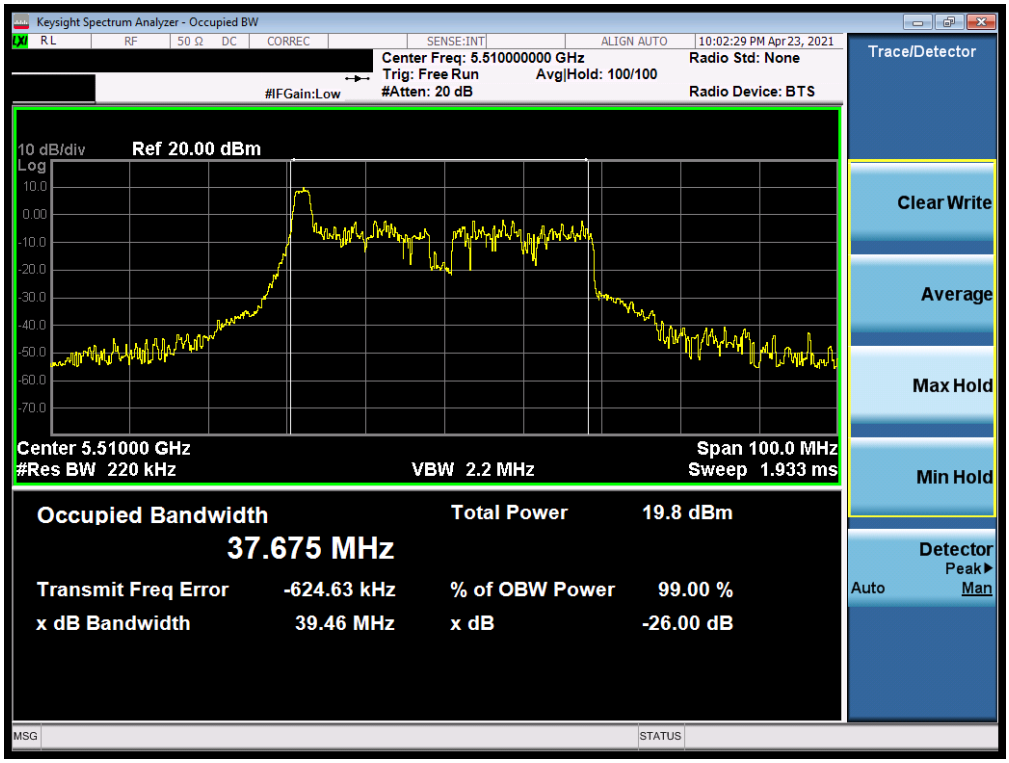

**Plot 7-13. 26dB Bandwidth Plot SISO ANT1 (20MHz BW 802.11ax – 26 Tones (UNII Band 2C) – Ch. 100)**



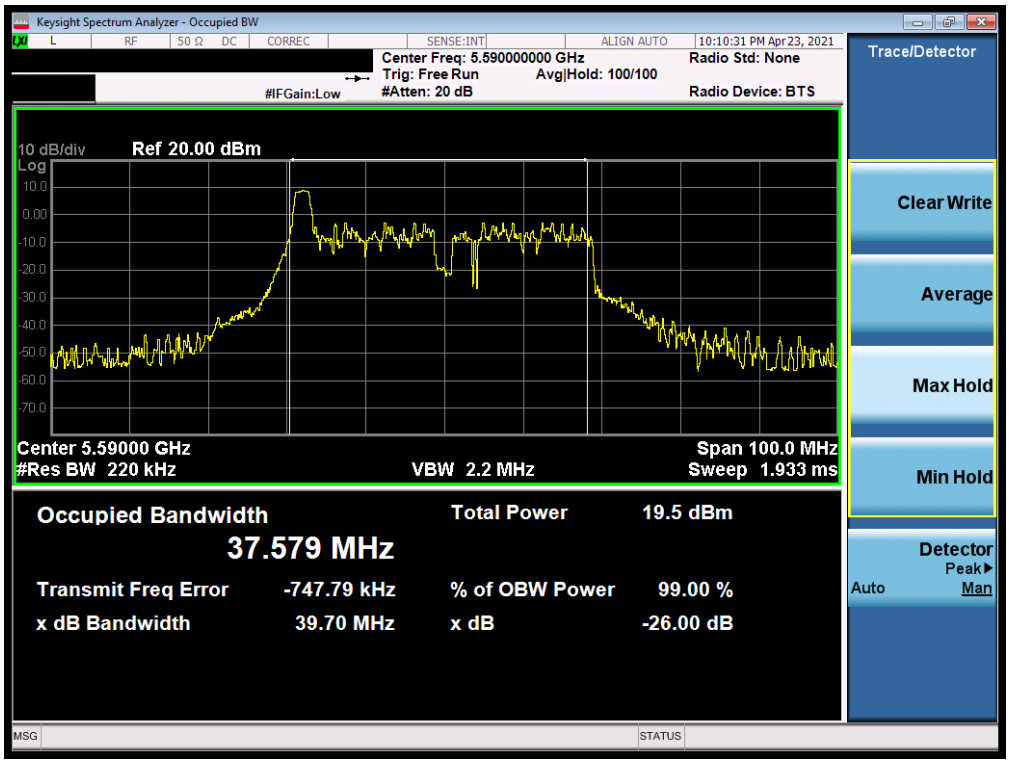

**Plot 7-14. 26dB Bandwidth Plot SISO ANT1 (20MHz BW 802.11ax – 26 Tones (UNII Band 2C) – Ch. 120)**



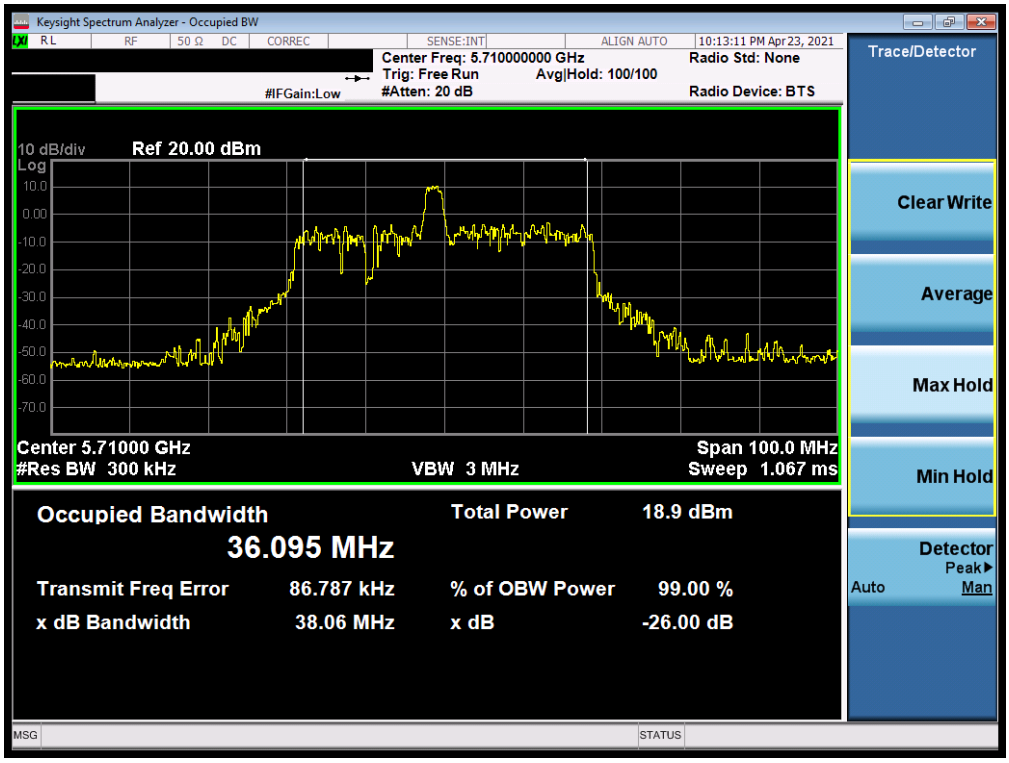

**Plot 7-15. 26dB Bandwidth Plot SISO ANT1 (20MHz BW 802.11ax – 26 Tones (UNII Band 2C) – Ch. 144)**



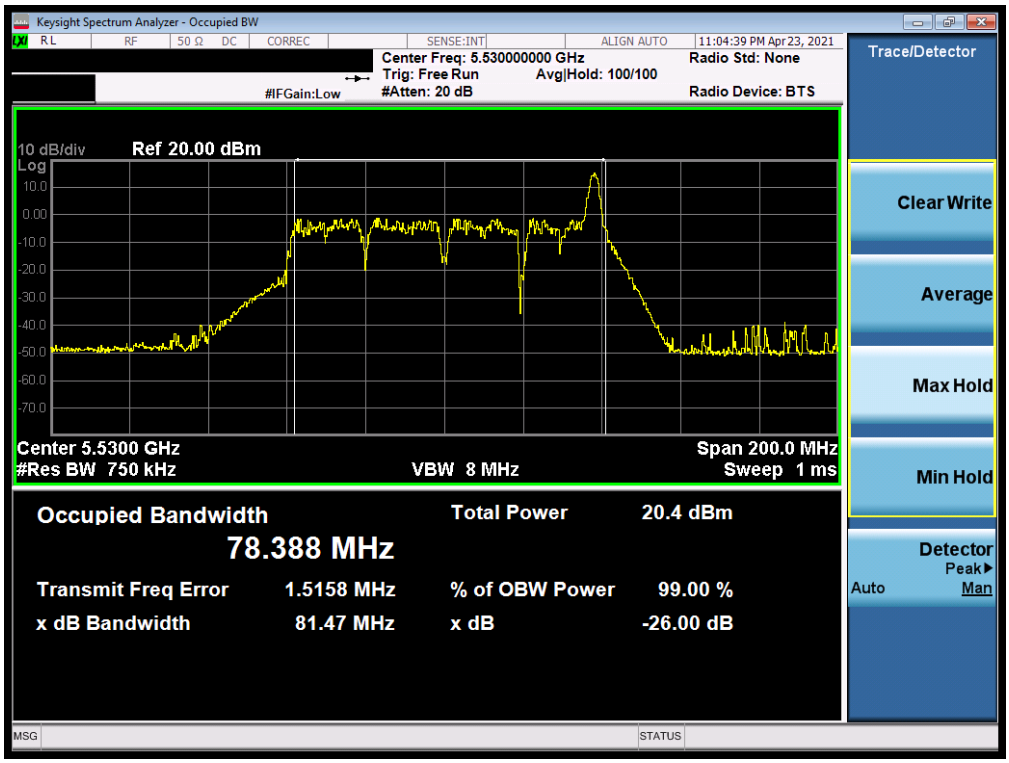

**Plot 7-16. 26dB Bandwidth Plot SISO ANT1 (40MHz BW 802.11ax – 26 Tones (UNII Band 2C) – Ch. 102)**



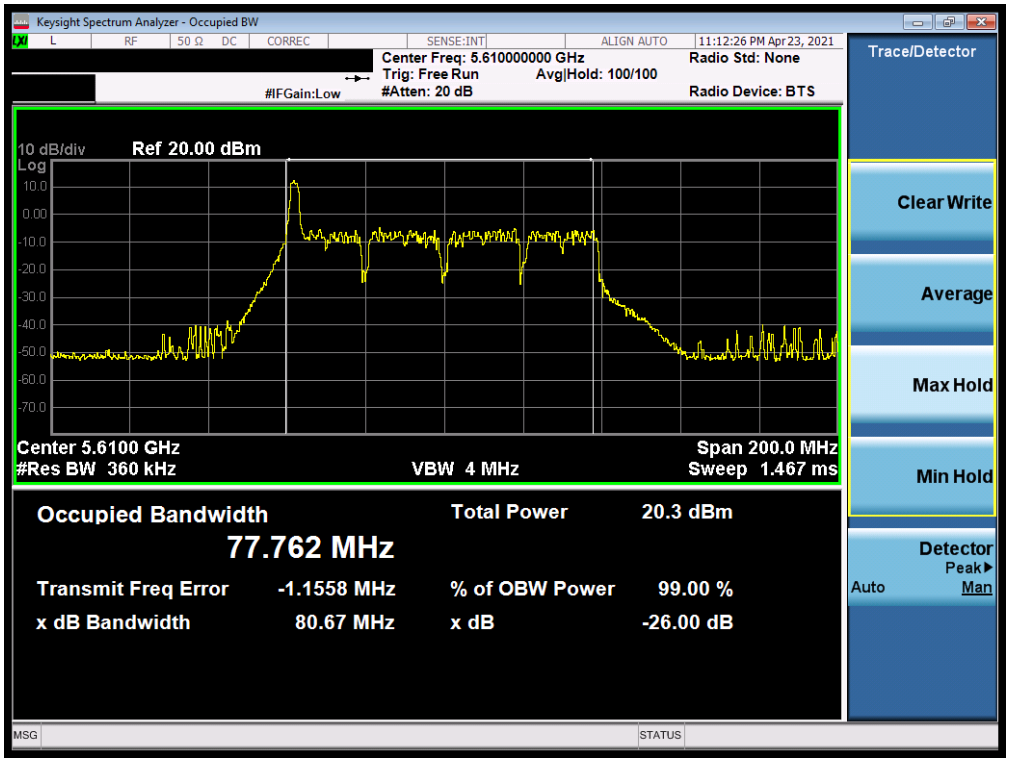

**Plot 7-17. 26dB Bandwidth Plot SISO ANT1 (40MHz BW 802.11ax – 26 Tones (UNII Band 2C) – Ch. 118)**



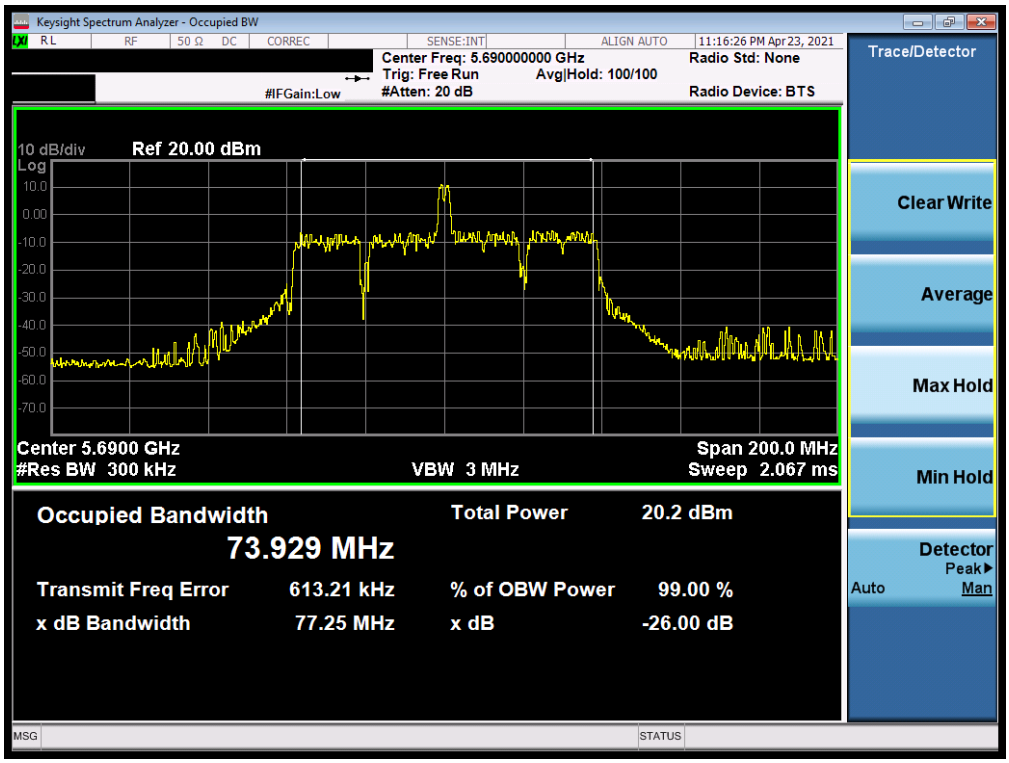

**Plot 7-18. 26dB Bandwidth Plot SISO ANT1 (40MHz BW 802.11ax – 26 Tones (UNII Band 2C) – Ch. 142)**




**Plot 7-19. 26dB Bandwidth Plot SISO ANT1 (80MHz BW 802.11ax – 26 Tones (UNII Band 2C) – Ch. 106)**




**Plot 7-20. 26dB Bandwidth Plot SISO ANT1 (80MHz BW 802.11ax – 26 Tones (UNII Band 2C) – Ch. 122)**

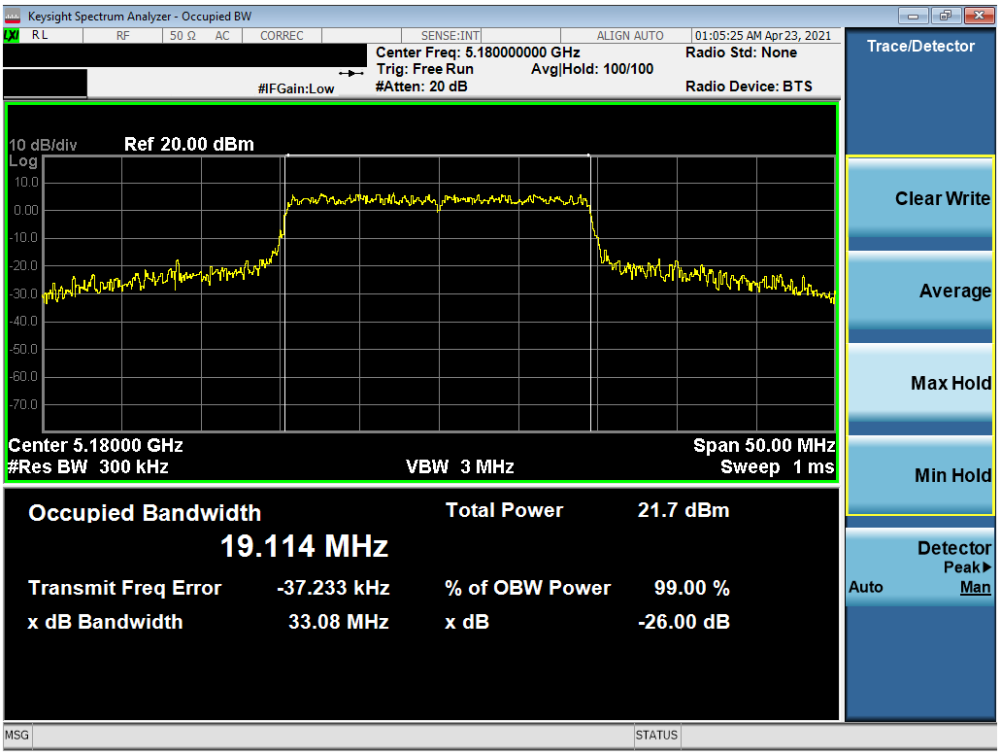



**Plot 7-21. 26dB Bandwidth Plot SISO ANT1 (80MHz BW 802.11ax – 26 Tones (UNII Band 2C) – Ch. 138)**

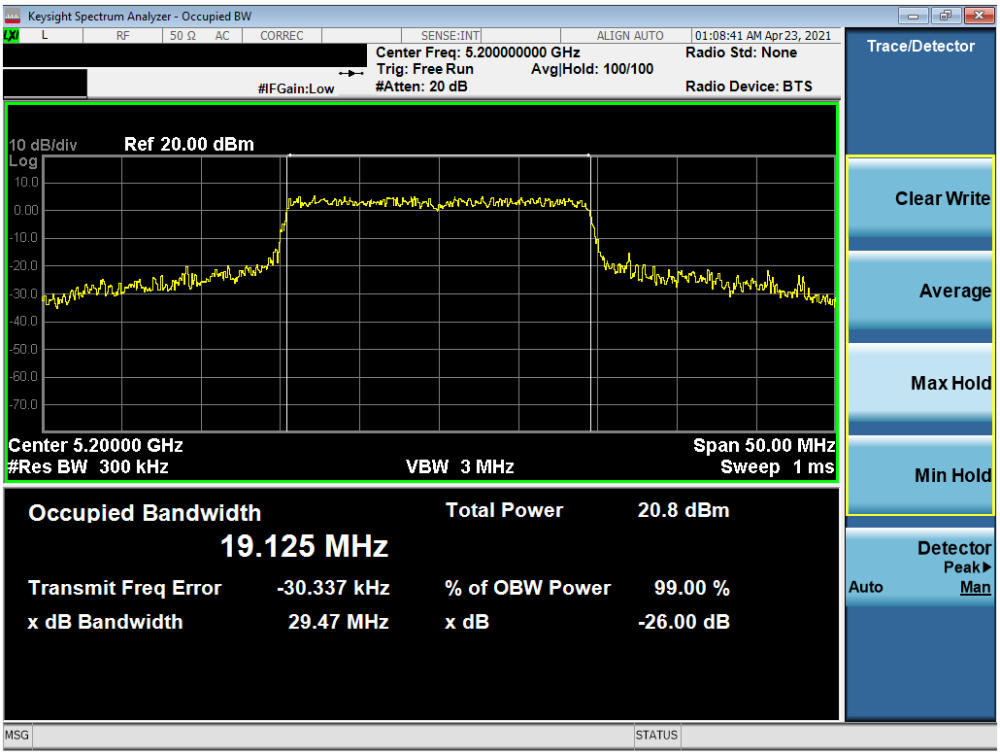
## SISO Antenna-1 26 dB Bandwidth Measurements (Full Tones)

| | Frequency [MHz] | Channel No. | 802.11 Mode | Tones | Data Rate [Mbps] | Measured 26dB Bandwidth [MHz] |
|---|---|---|---|---|---|---|
| Band 1 | 5180 | 36 | ax (20MHz) | 242T | MCS0 | 33.08 |
| | 5200 | 40 | ax (20MHz) | 242T | MCS0 | 29.47 |
| | 5240 | 48 | ax (20MHz) | 242T | MCS0 | 28.56 |
| | 5190 | 38 | ax (40MHz) | 484T | MCS0 | 41.35 |
| | 5230 | 46 | ax (40MHz) | 484T | MCS0 | 44.53 |
| | 5210 | 42 | ax (80MHz) | 996T | MCS0 | 86.07 |
| Band 2A | 5260 | 52 | ax (20MHz) | 242T | MCS0 | 24.44 |
| | 5280 | 56 | ax (20MHz) | 242T | MCS0 | 25.63 |
| | 5320 | 64 | ax (20MHz) | 242T | MCS0 | 22.77 |
| | 5270 | 54 | ax (40MHz) | 484T | MCS0 | 48.37 |
| | 5310 | 62 | ax (40MHz) | 484T | MCS0 | 48.17 |
| | 5290 | 58 | ax (80MHz) | 996T | MCS0 | 89.46 |
| Band 2C | 5500 | 100 | ax (20MHz) | 242T | MCS0 | 24.28 |
| | 5600 | 120 | ax (20MHz) | 242T | MCS0 | 21.66 |
| | 5720 | 144 | ax (20MHz) | 242T | MCS0 | 25.46 |
| | 5510 | 102 | ax (40MHz) | 484T | MCS0 | 42.36 |
| | 5590 | 118 | ax (40MHz) | 484T | MCS0 | 43.89 |
| | 5710 | 142 | ax (40MHz) | 484T | MCS0 | 43.94 |
| | 5530 | 106 | ax (80MHz) | 996T | MCS0 | 84.41 |
| | 5610 | 122 | ax (80MHz) | 996T | MCS0 | 89.33 |
| | 5690 | 138 | ax (80MHz) | 996T | MCS0 | 98.75 |

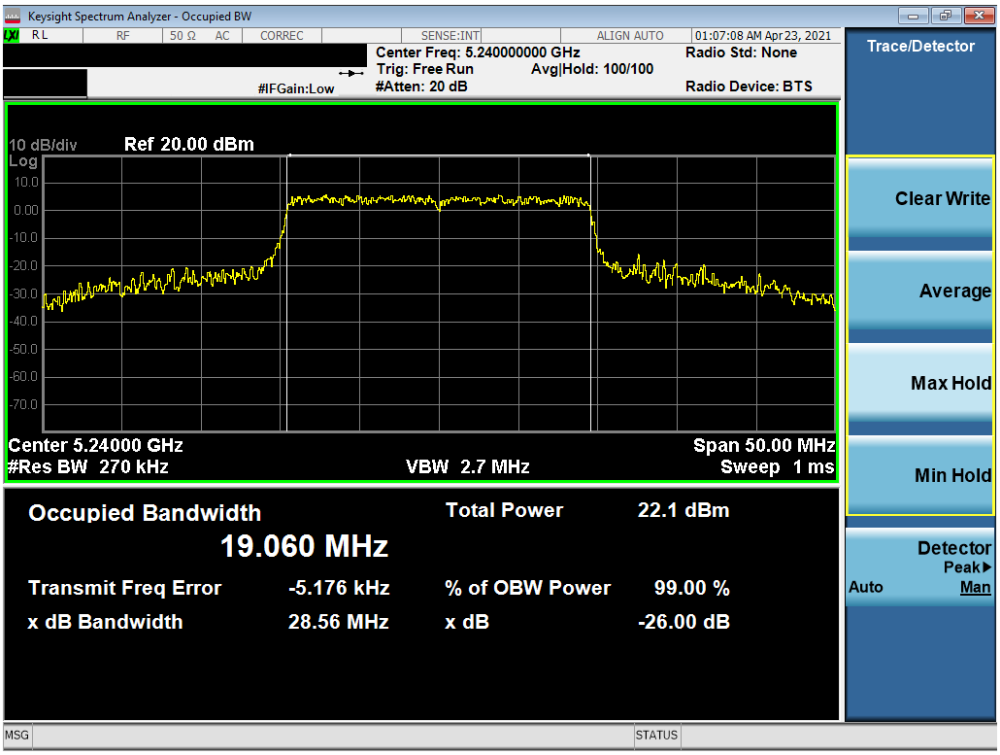
**Table 7-3. Conducted Bandwidth Measurements SISO ANT1 (Full Tones)**



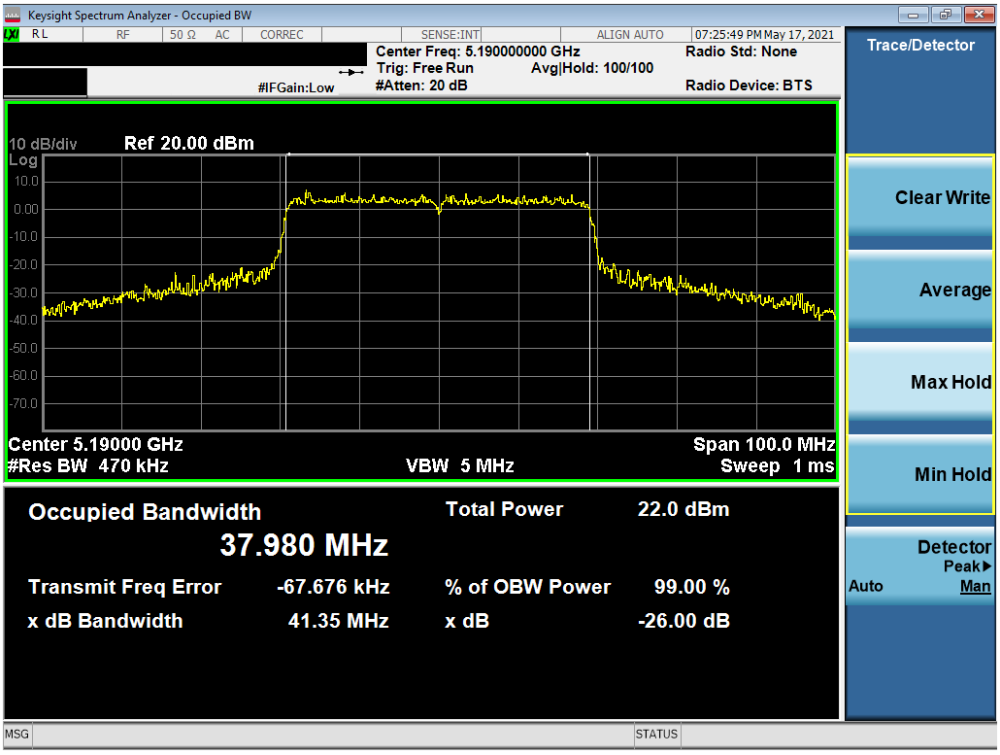

**Plot 7-22. 26dB Bandwidth Plot SISO ANT1 (20MHz BW 802.11ax – 242 Tones (UNII Band 1) – Ch. 36)**



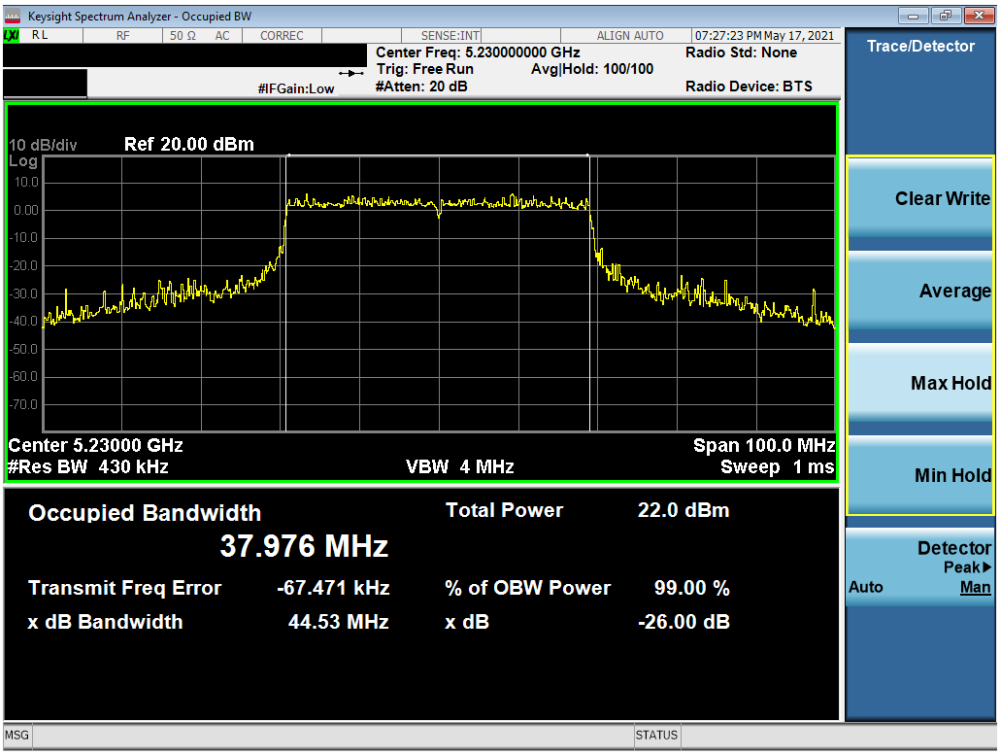

**Plot 7-23. 26dB Bandwidth Plot SISO ANT1 (20MHz BW 802.11ax – 242 Tones (UNII Band 1) – Ch. 40)**



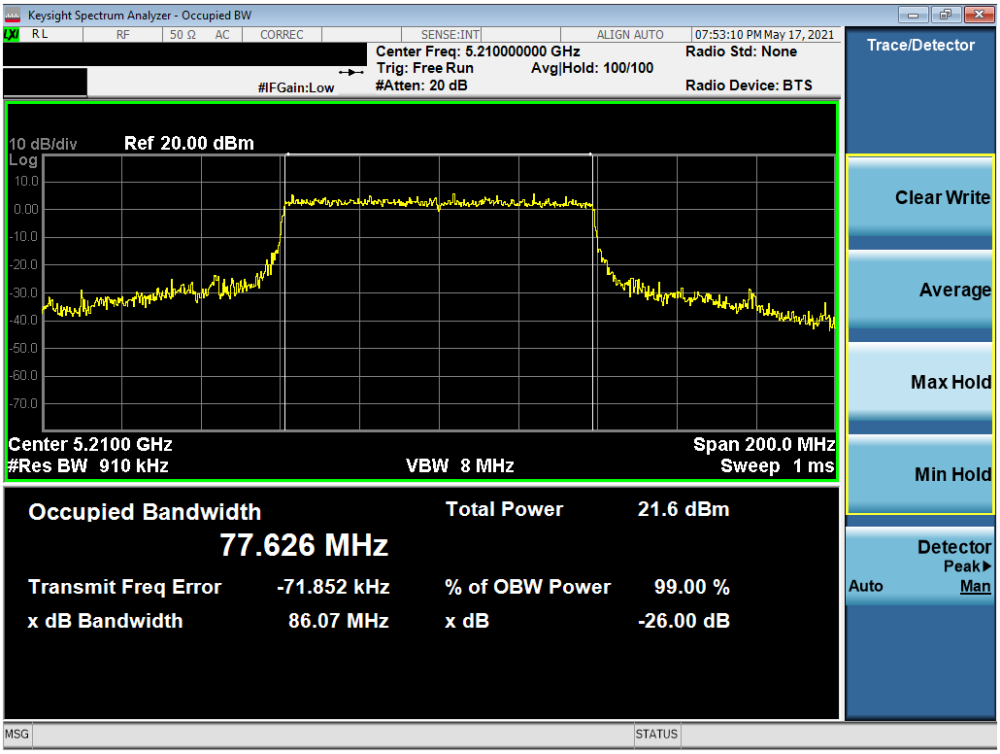

**Plot 7-24. 26dB Bandwidth Plot SISO ANT1 (20MHz BW 802.11ax – 242 Tones (UNII Band 1) – Ch. 48)**




**Plot 7-25. 26dB Bandwidth Plot SISO ANT1 (40MHz BW 802.11ax – 484 Tones (UNII Band 1) – Ch. 38)**

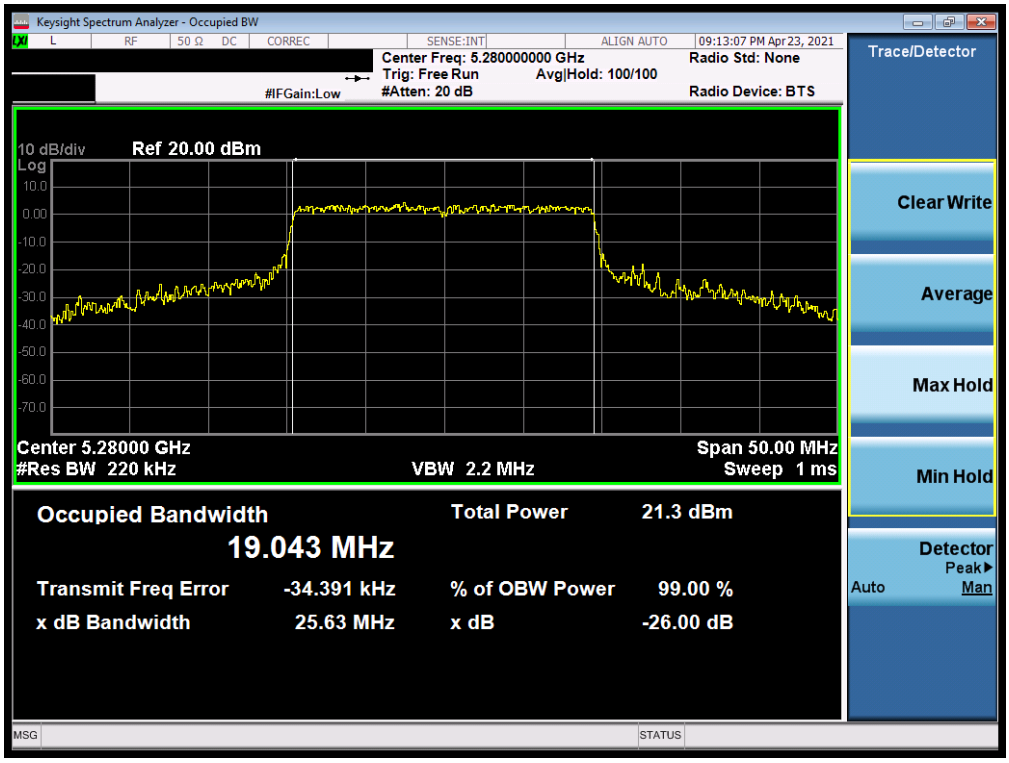



**Plot 7-26. 26dB Bandwidth Plot SISO ANT1 (40MHz BW 802.11ax – 484 Tones (UNII Band 1) – Ch. 46)**



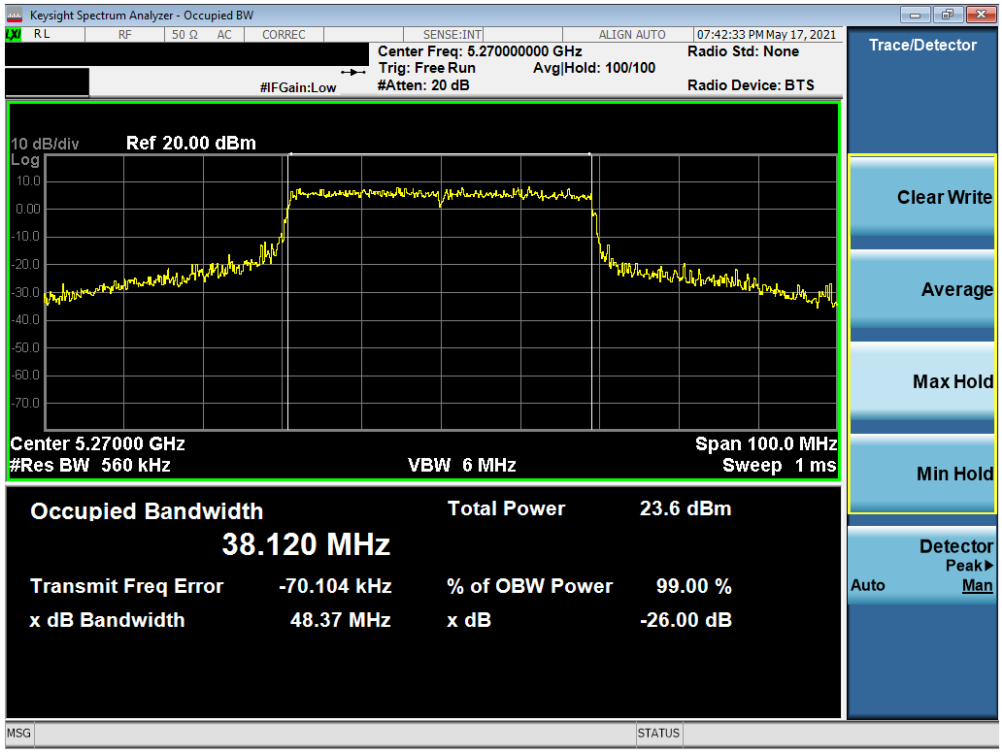

**Plot 7-27. 26dB Bandwidth Plot SISO ANT1 (80MHz BW 802.11ax – 996 Tones (UNII Band 1) – Ch. 42)**


**Plot 7-28. 26dB Bandwidth Plot SISO ANT1 (20MHz BW 802.11ax – 242 Tones (UNII Band 2A) – Ch. 52)**

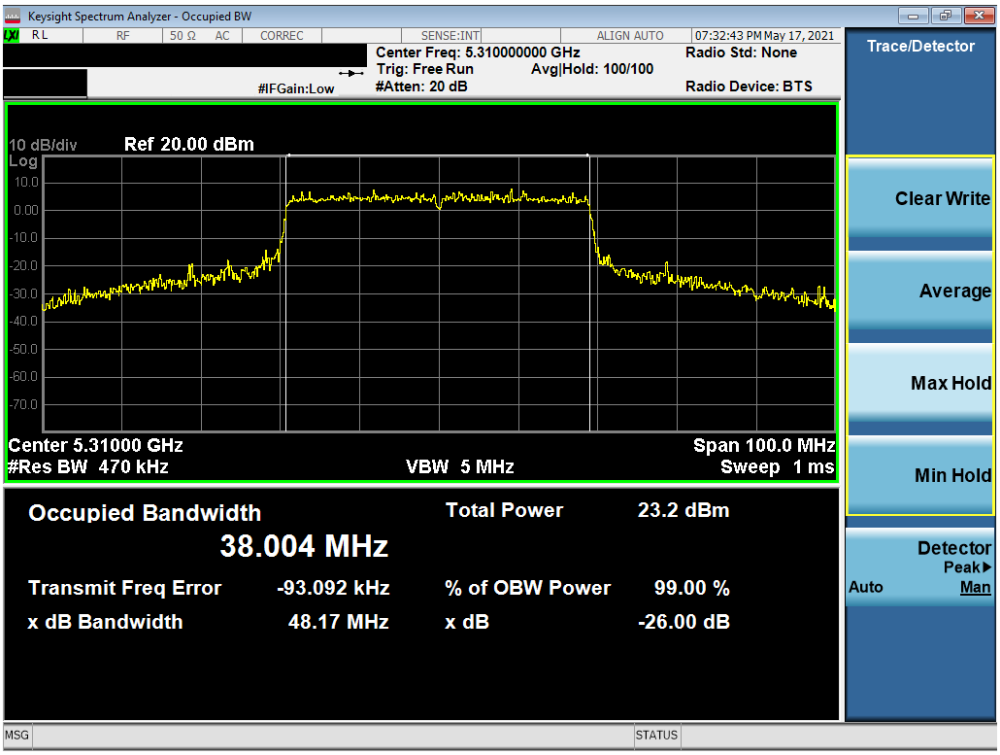



**Plot 7-29. 26dB Bandwidth Plot SISO ANT1 (20MHz BW 802.11ax – 242 Tones (UNII Band 2A) – Ch. 56)**

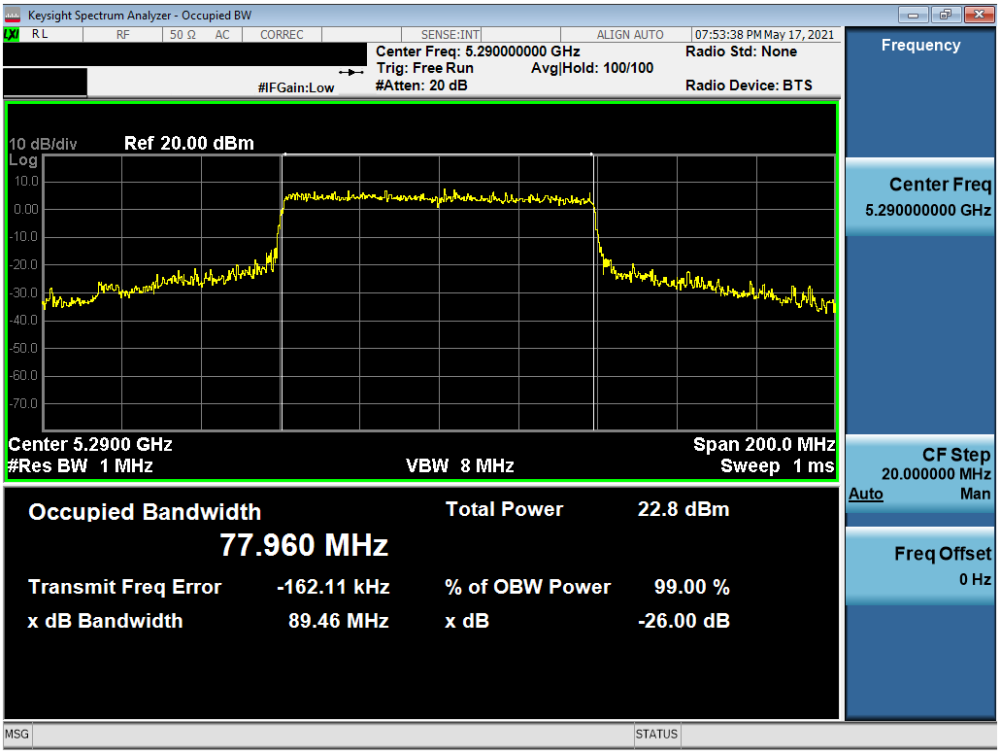

**Plot 7-30. 26dB Bandwidth Plot SISO ANT1 (20MHz BW 802.11ax – 242 Tones (UNII Band 2A) – Ch. 64)**



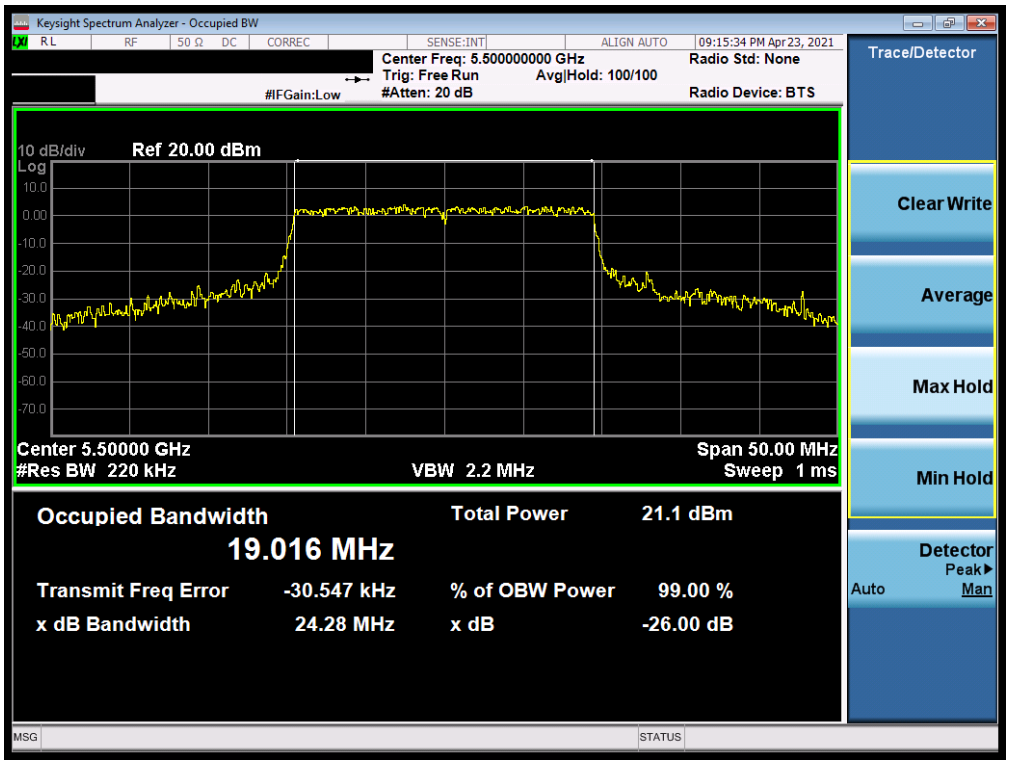

**Plot 7-31. 26dB Bandwidth Plot SISO ANT1 (40MHz BW 802.11ax – 484 Tones (UNII Band 2A) – Ch. 54)**



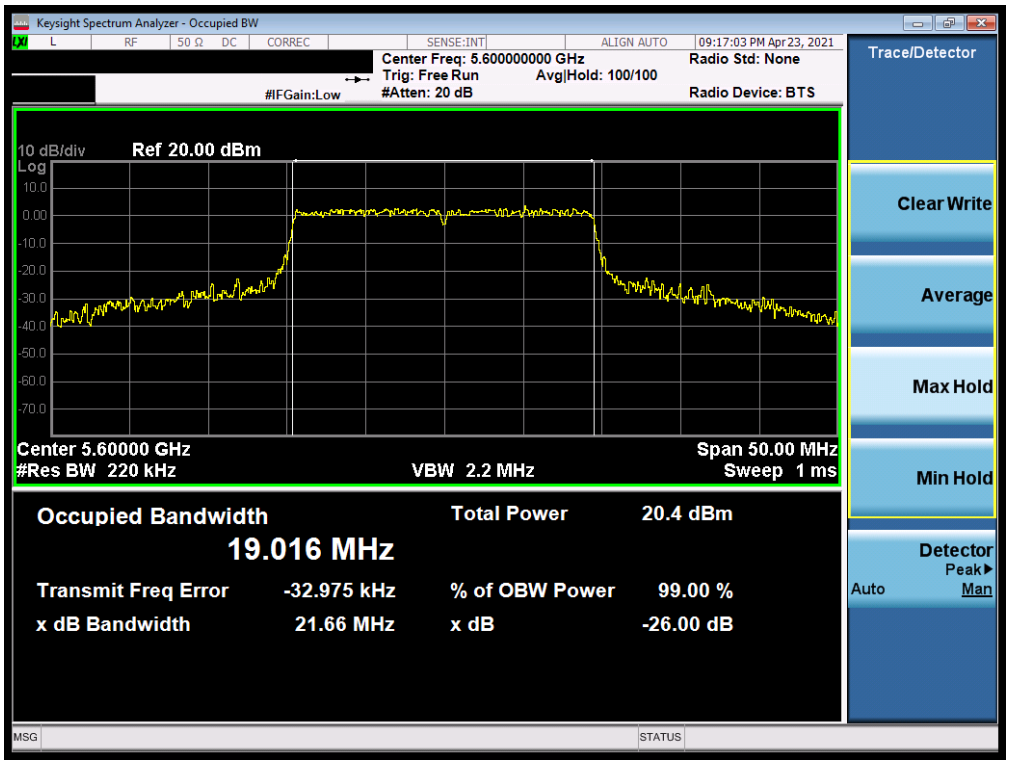

**Plot 7-32. 26dB Bandwidth Plot SISO ANT1 (40MHz BW 802.11ax – 484 Tones (UNII Band 2A) – Ch. 62)**



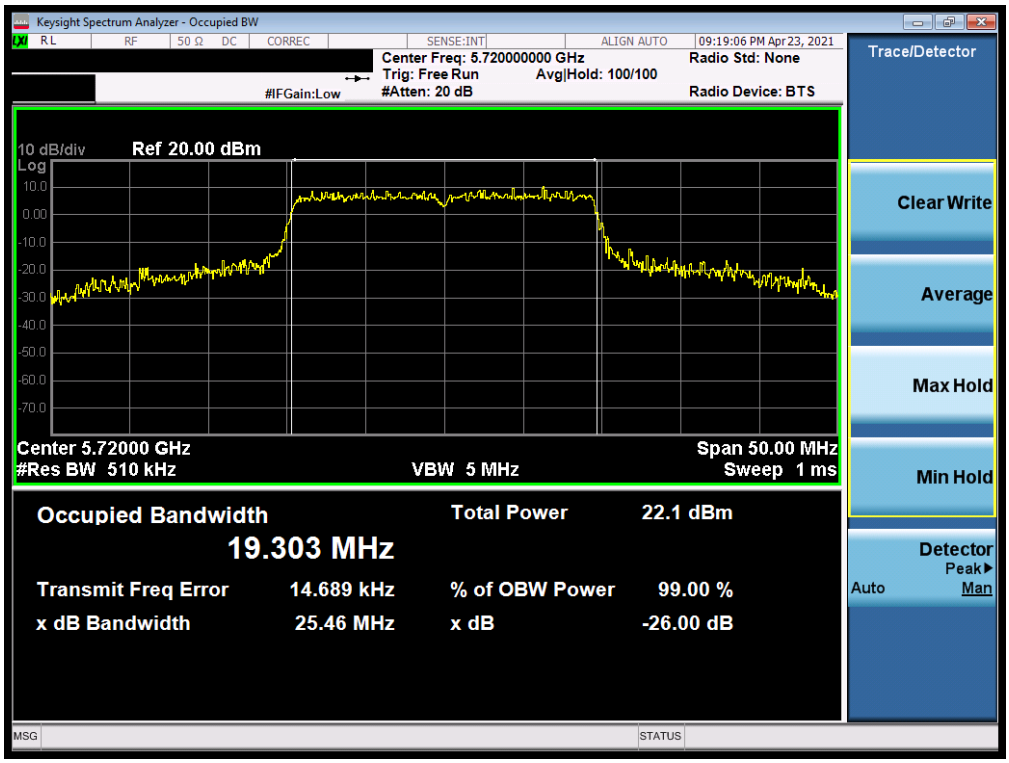

**Plot 7-33. 26dB Bandwidth Plot SISO ANT1 (80MHz BW 802.11ax – 996 Tones (UNII Band 2A) – Ch. 58)**



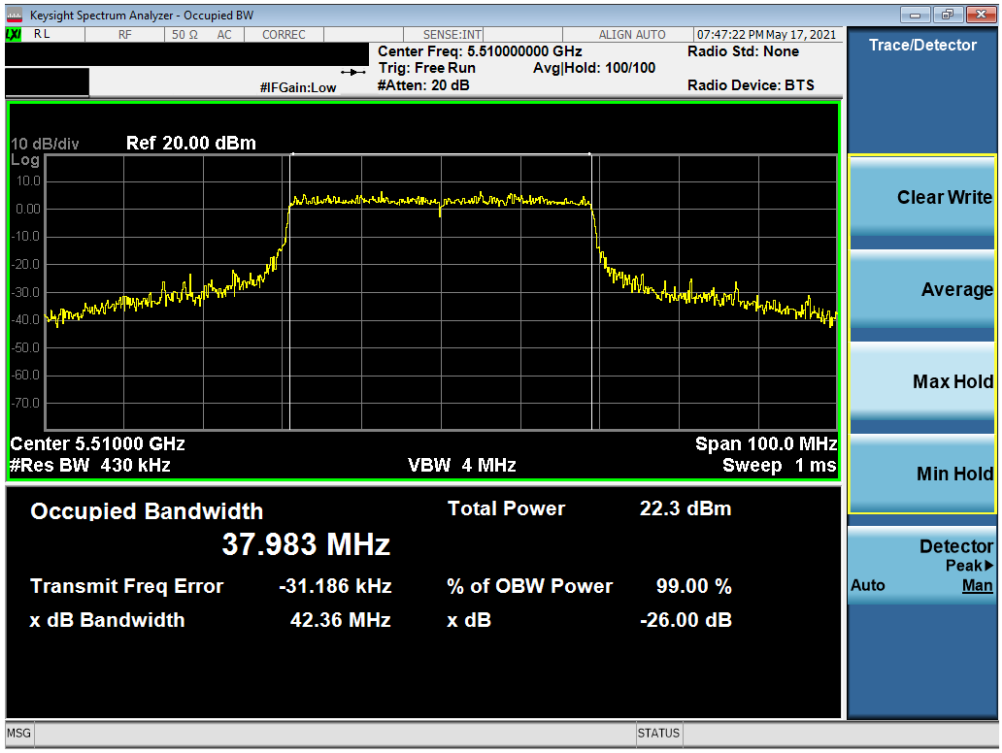

**Plot 7-34. 26dB Bandwidth Plot SISO ANT1 (20MHz BW 802.11ax – 242 Tones (UNII Band 2C) – Ch. 100)**



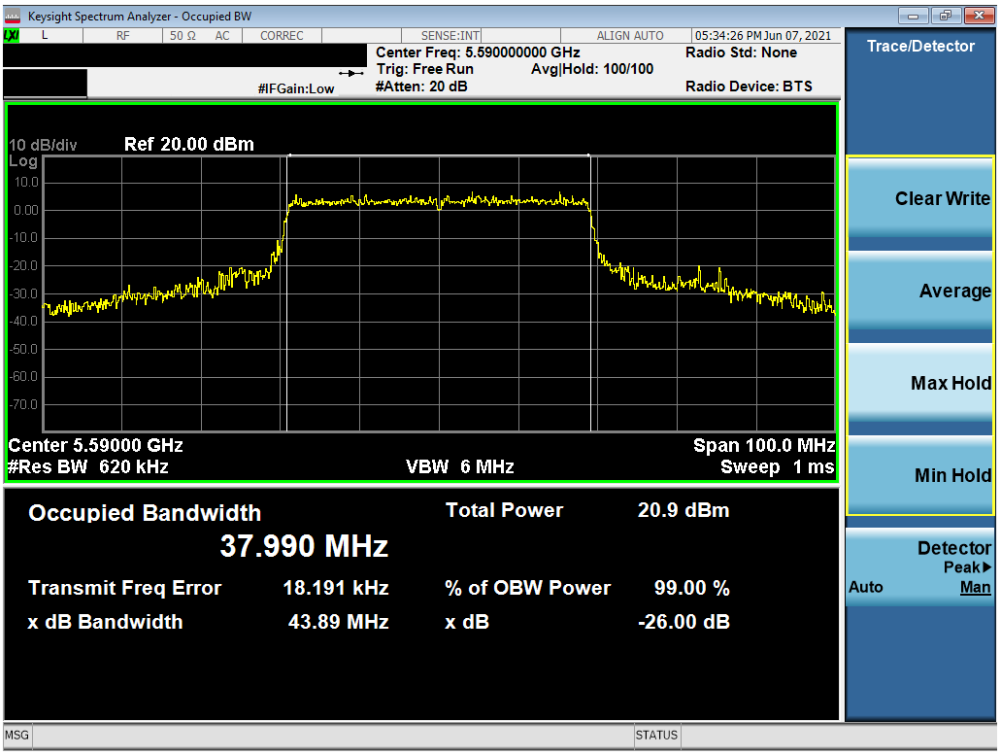

**Plot 7-35. 26dB Bandwidth Plot SISO ANT1 (20MHz BW 802.11ax – 242 Tones (UNII Band 2C) – Ch. 120)**



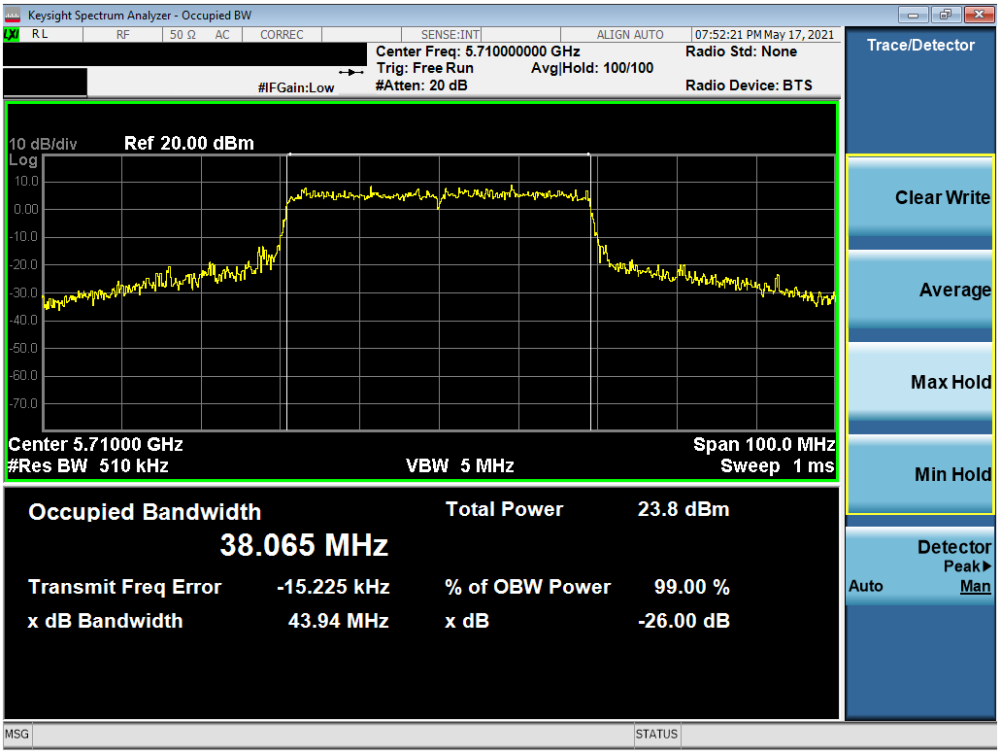

**Plot 7-36. 26dB Bandwidth Plot SISO ANT1 (20MHz BW 802.11ax – 242 Tones (UNII Band 2C) – Ch. 144)**



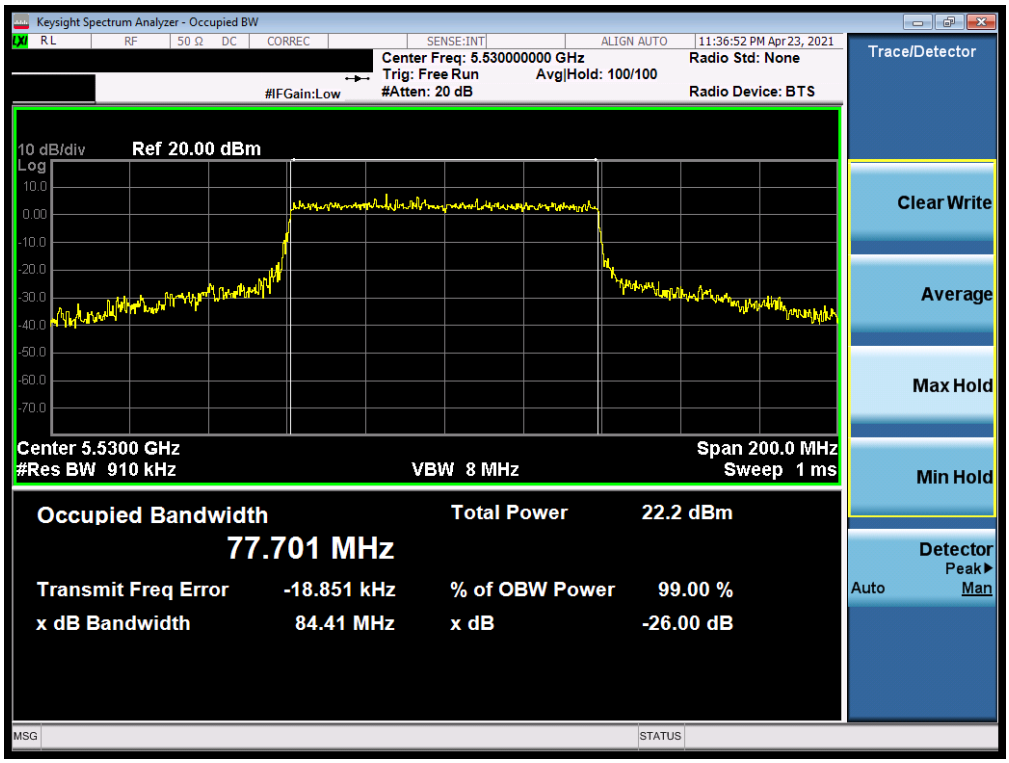

**Plot 7-37. 26dB Bandwidth Plot SISO ANT1 (40MHz BW 802.11ax – 484 Tones (UNII Band 2C) – Ch. 102)**



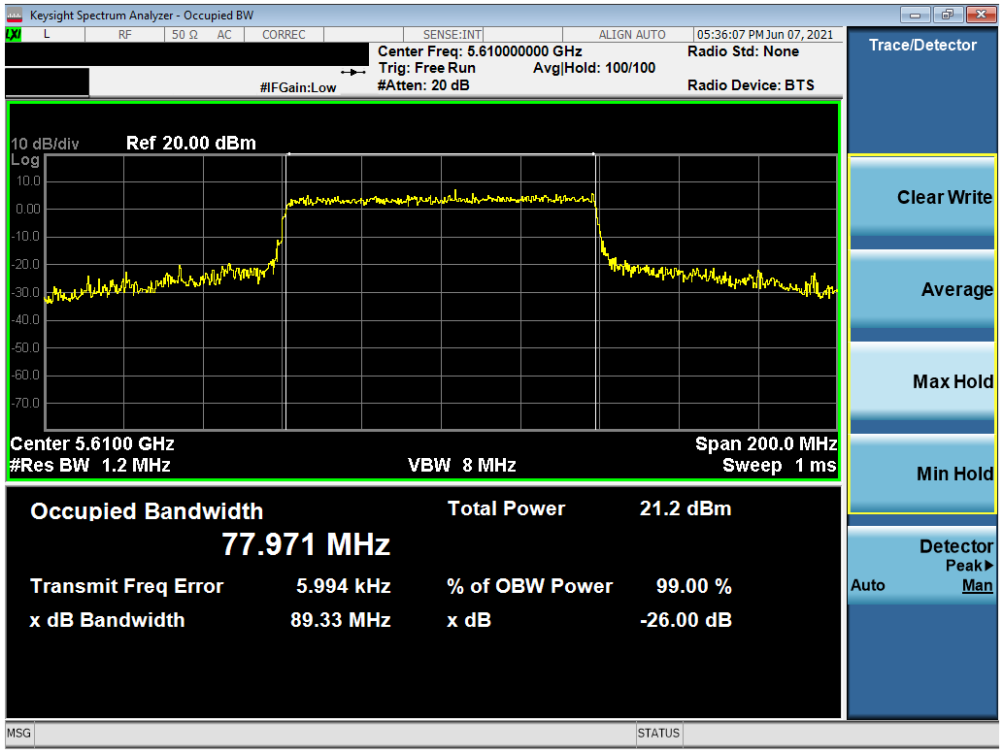

**Plot 7-38. 26dB Bandwidth Plot SISO ANT1 (40MHz BW 802.11ax – 484 Tones (UNII Band 2C) – Ch. 118)**



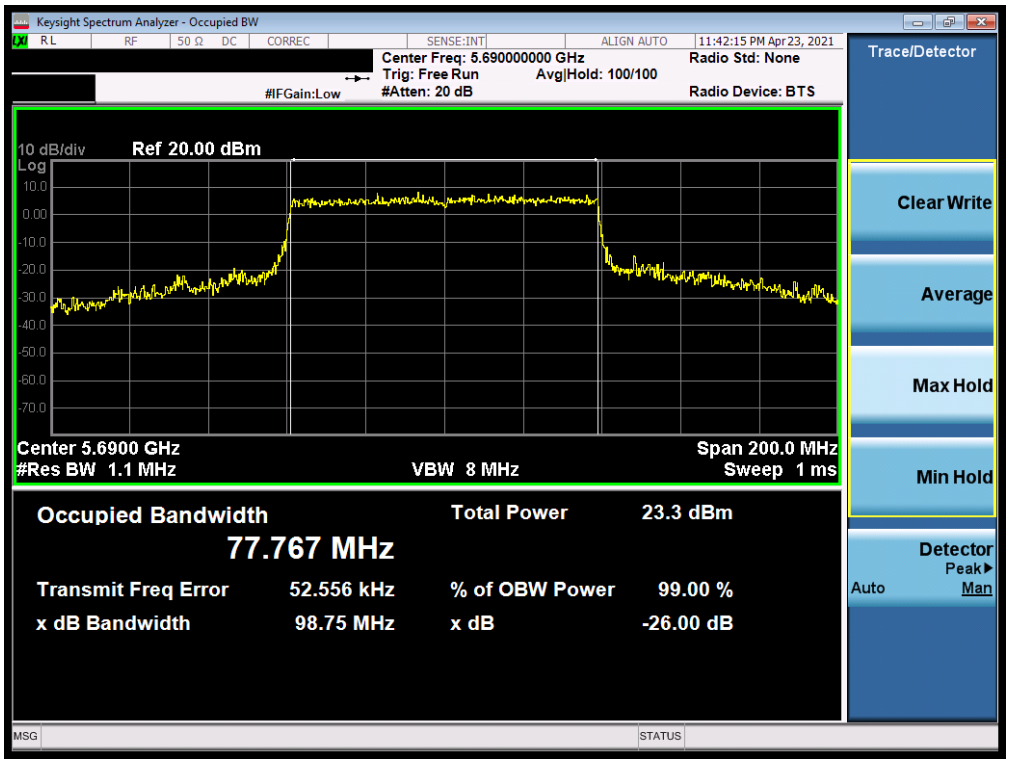

**Plot 7-39. 26dB Bandwidth Plot SISO ANT1 (40MHz BW 802.11ax – 484 Tones (UNII Band 2C) – Ch. 142)**




**Plot 7-40. 26dB Bandwidth Plot SISO ANT1 (80MHz BW 802.11ax – 996 Tones (UNII Band 2C) – Ch. 106)**




**Plot 7-41. 26dB Bandwidth Plot SISO ANT1 (80MHz BW 802.11ax – 996 Tones (UNII Band 2C) – Ch. 122)**

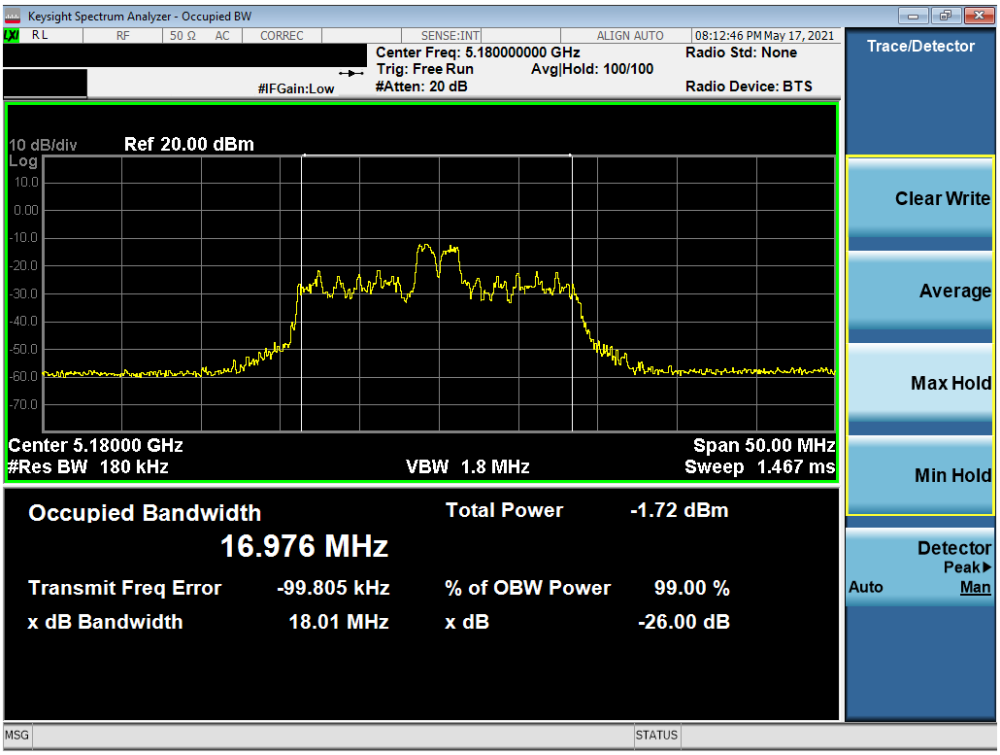



**Plot 7-42. 26dB Bandwidth Plot SISO ANT1 (80MHz BW 802.11ax – 996 Tones (UNII Band 2C) – Ch. 138)**

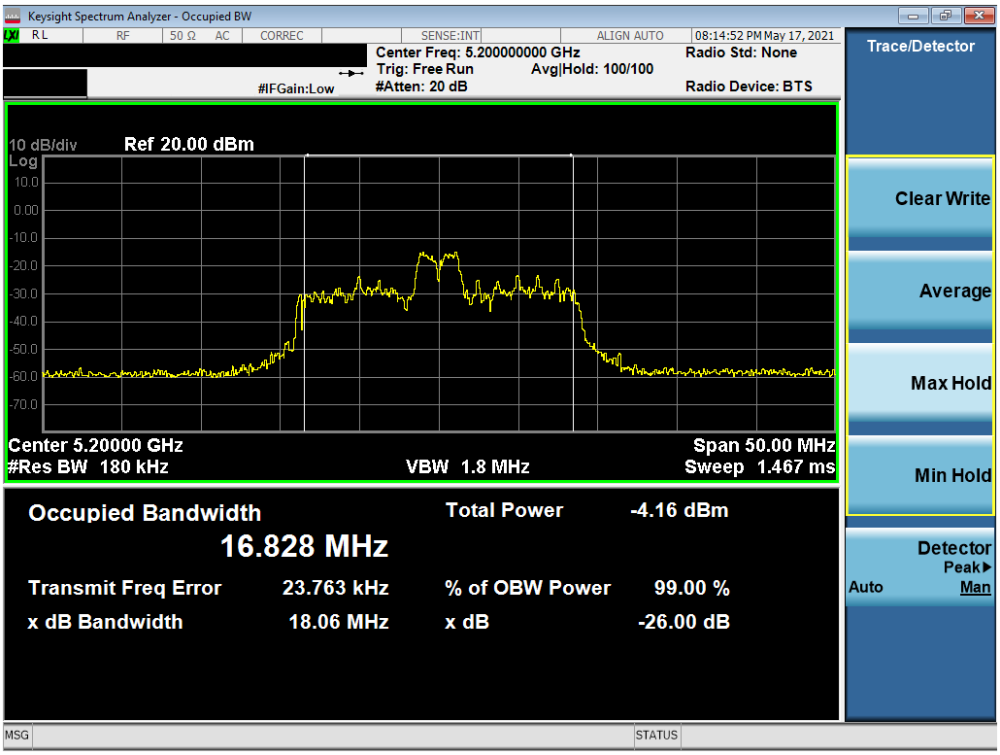
## MIMO 26dB Bandwidth Measurements (26 Tones)

| | Frequency [MHz] | Channel No. | 802.11 Mode | Tones | Data Rate [Mbps] | Measured 26dB Bandwidth [MHz] |
|---|---|---|---|---|---|---|
| Band 1 | 5180 | 36 | ax (20MHz) | 26T | MCS0 | 18.01 |
| | 5200 | 40 | ax (20MHz) | 26T | MCS0 | 18.06 |
| | 5240 | 48 | ax (20MHz) | 26T | MCS0 | 18.38 |
| | 5190 | 38 | ax (40MHz) | 26T | MCS0 | 38.13 |
| | 5230 | 46 | ax (40MHz) | 26T | MCS0 | 37.89 |
| | 5210 | 42 | ax (80MHz) | 26T | MCS0 | 78.59 |
| Band 2A | 5260 | 52 | ax (20MHz) | 26T | MCS0 | 18.31 |
| | 5280 | 56 | ax (20MHz) | 26T | MCS0 | 18.29 |
| | 5320 | 64 | ax (20MHz) | 26T | MCS0 | 19.43 |
| | 5270 | 54 | ax (40MHz) | 26T | MCS0 | 38.04 |
| | 5310 | 62 | ax (40MHz) | 26T | MCS0 | 38.10 |
| | 5290 | 58 | ax (80MHz) | 26T | MCS0 | 78.41 |
| Band 2C | 5500 | 100 | ax (20MHz) | 26T | MCS0 | 18.16 |
| | 5600 | 120 | ax (20MHz) | 26T | MCS0 | 18.41 |
| | 5720 | 144 | ax (20MHz) | 26T | MCS0 | 19.72 |
| | 5510 | 102 | ax (40MHz) | 26T | MCS0 | 39.65 |
| | 5590 | 118 | ax (40MHz) | 26T | MCS0 | 38.21 |
| | 5710 | 142 | ax (40MHz) | 26T | MCS0 | 39.90 |
| | 5530 | 106 | ax (80MHz) | 26T | MCS0 | 81.99 |
| | 5610 | 122 | ax (80MHz) | 26T | MCS0 | 81.80 |
| | 5690 | 138 | ax (80MHz) | 26T | MCS0 | 78.50 |

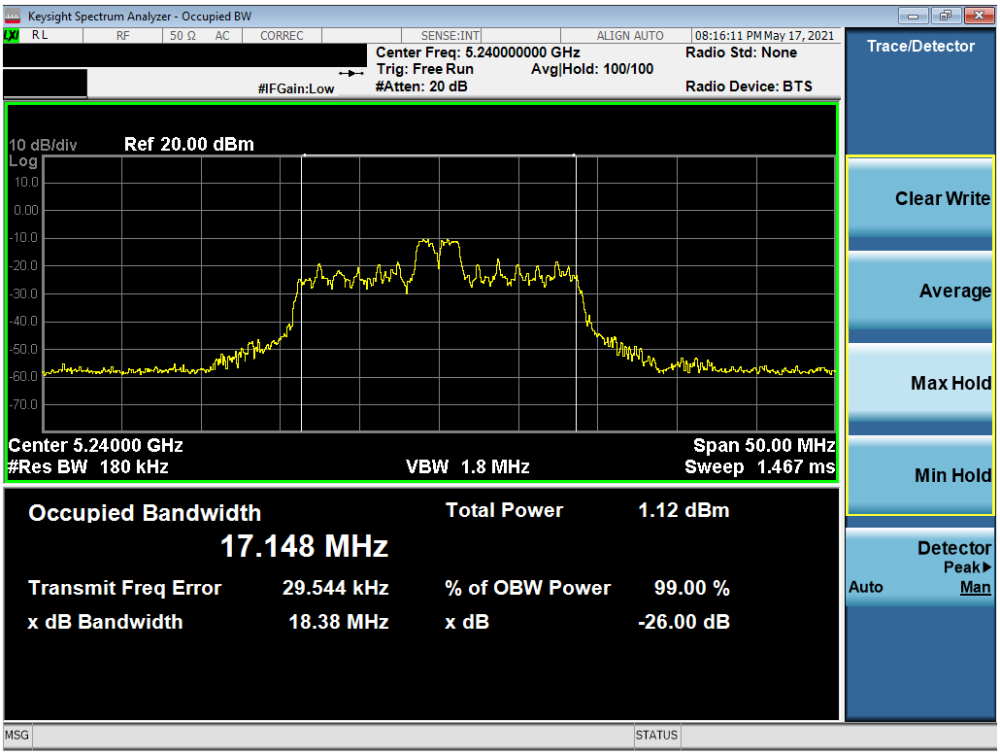
**Table 7-4. Conducted Bandwidth Measurements MIMO (26 Tones)**



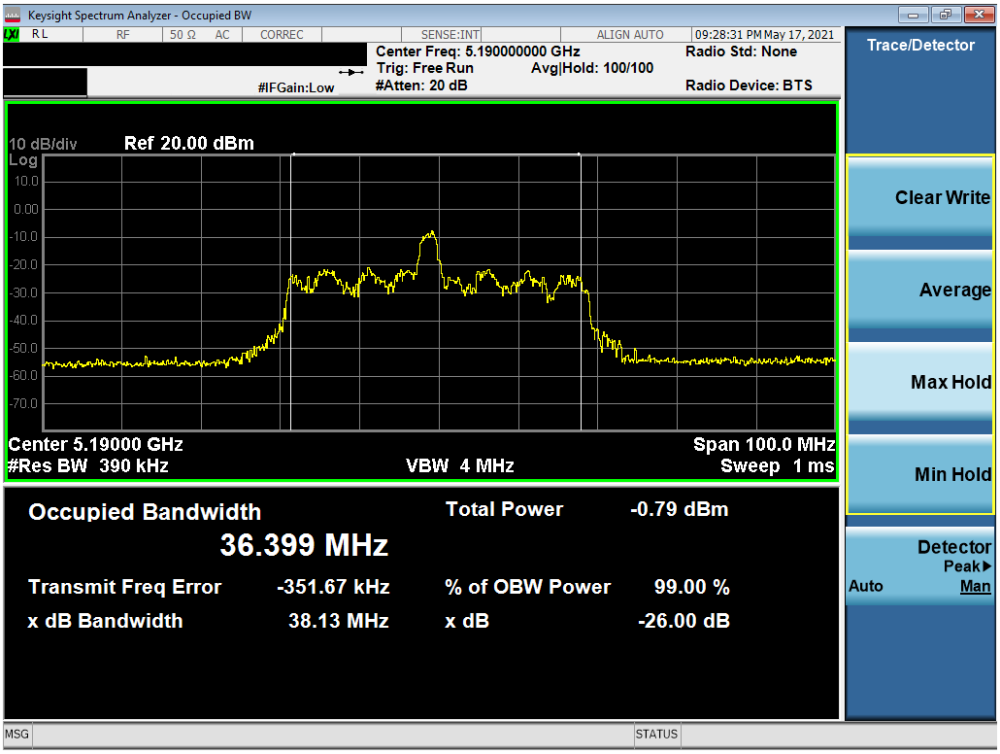

**Plot 7-43. 26dB Bandwidth Plot MIMO (20MHz BW 802.11ax – 26 Tones (UNII Band 1) – Ch. 36)**



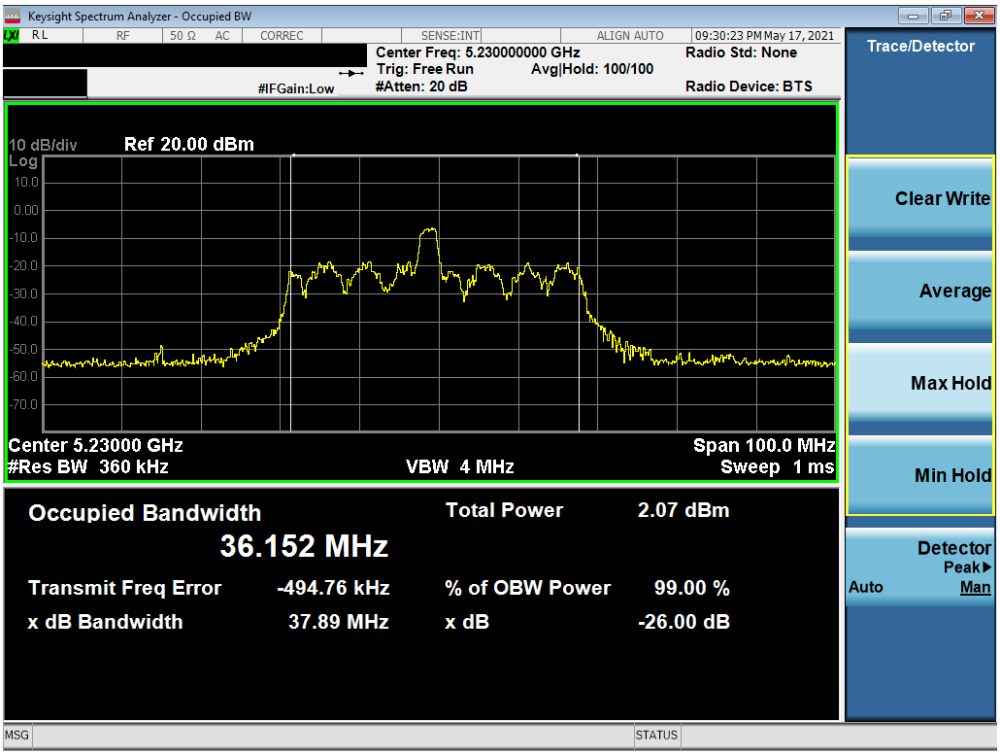

**Plot 7-44. 26dB Bandwidth Plot MIMO (20MHz BW 802.11ax – 26 Tones (UNII Band 1) – Ch. 40)**



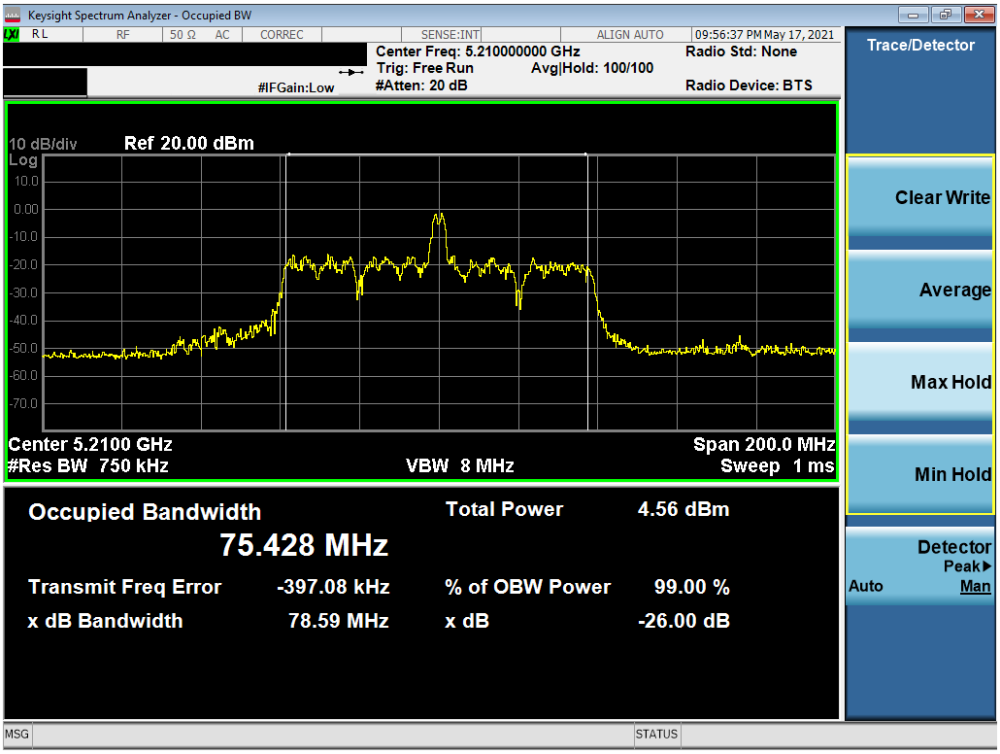

**Plot 7-45. 26dB Bandwidth Plot MIMO (20MHz BW 802.11ax – 26 Tones (UNII Band 1) – Ch. 48)**



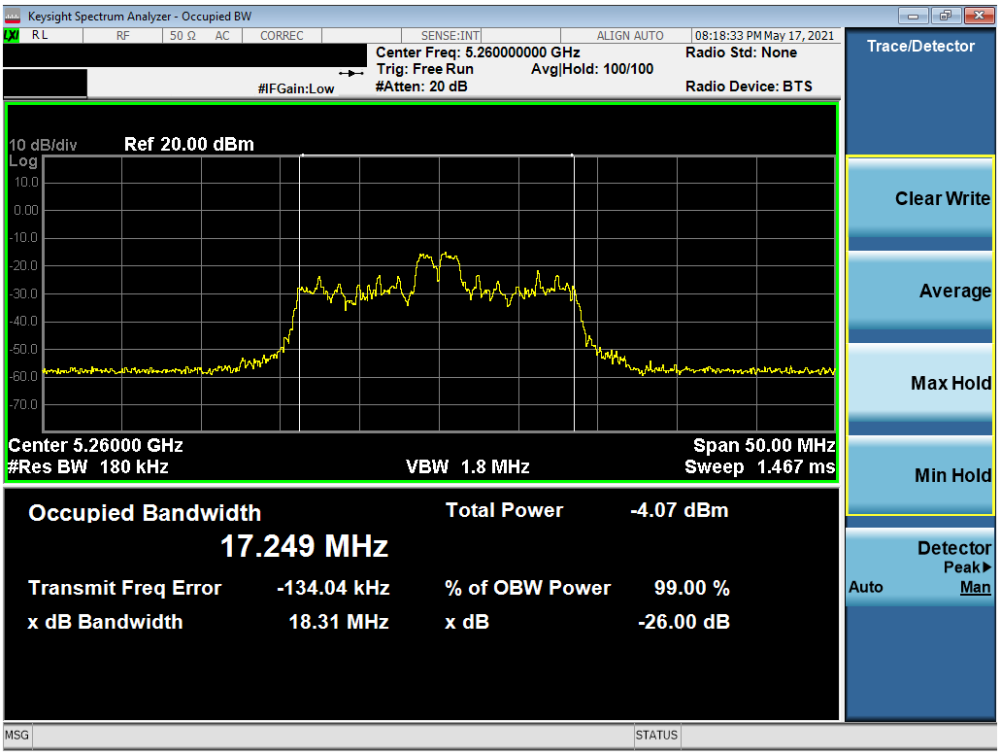

**Plot 7-46. 26dB Bandwidth Plot MIMO (40MHz BW 802.11ax – 26 Tones (UNII Band 1) – Ch. 38)**



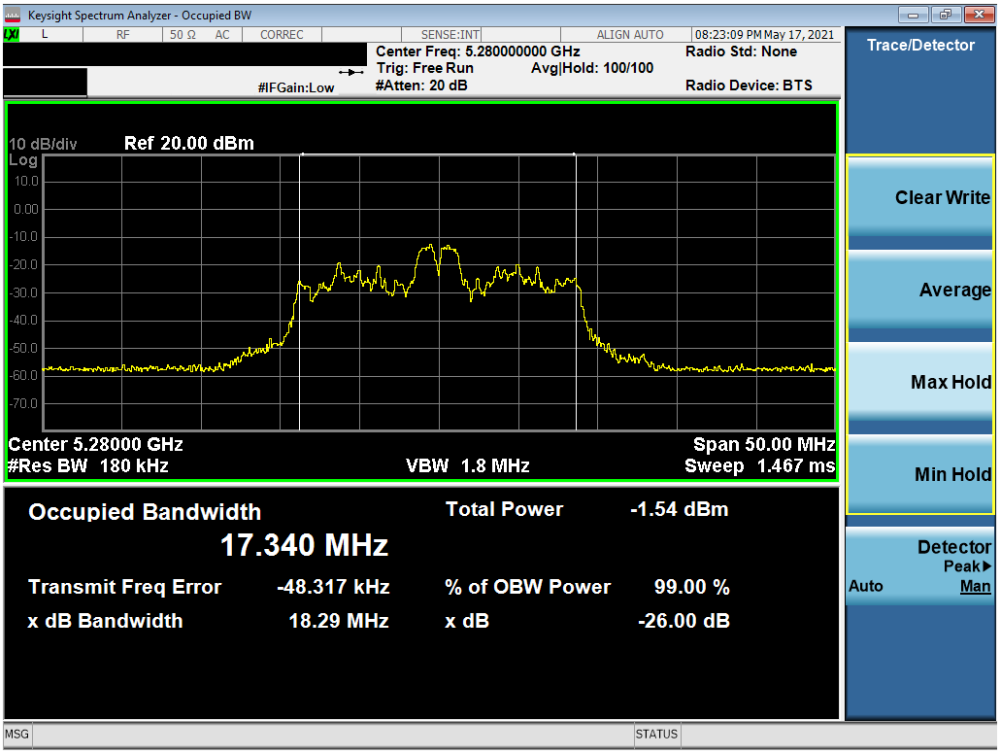

**Plot 7-47. 26dB Bandwidth Plot MIMO ANT2 (40MHz BW 802.11ax – 26 Tones (UNII Band 1) – Ch. 46)**



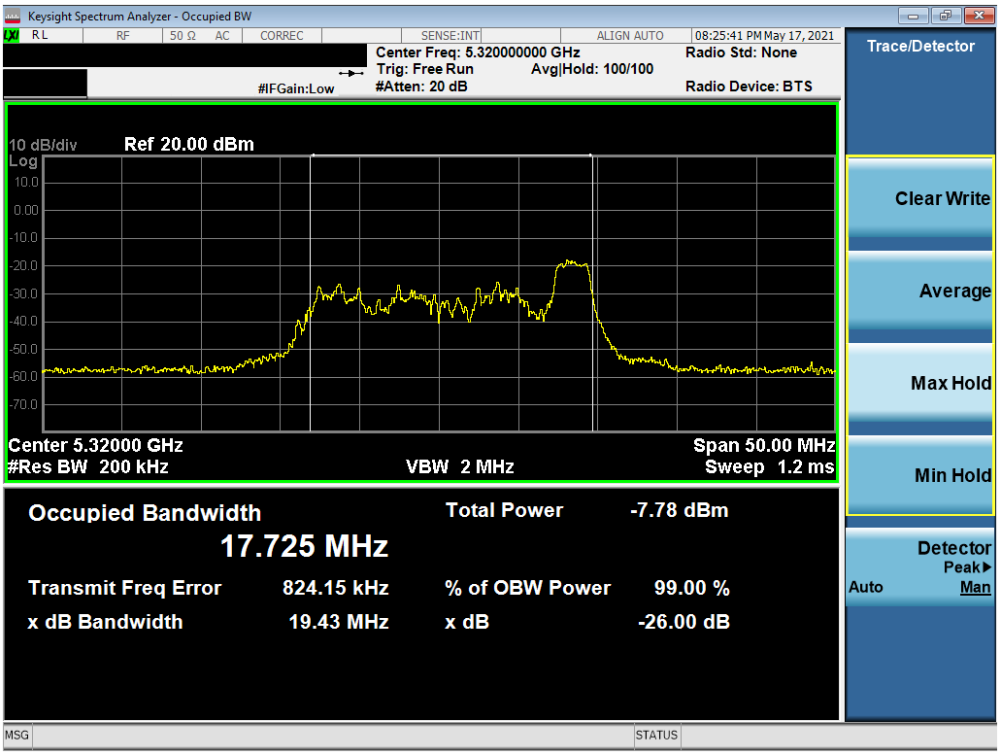

**Plot 7-48. 26dB Bandwidth Plot MIMO (80MHz BW 802.11ax – 26 Tones (UNII Band 1) – Ch. 42)**



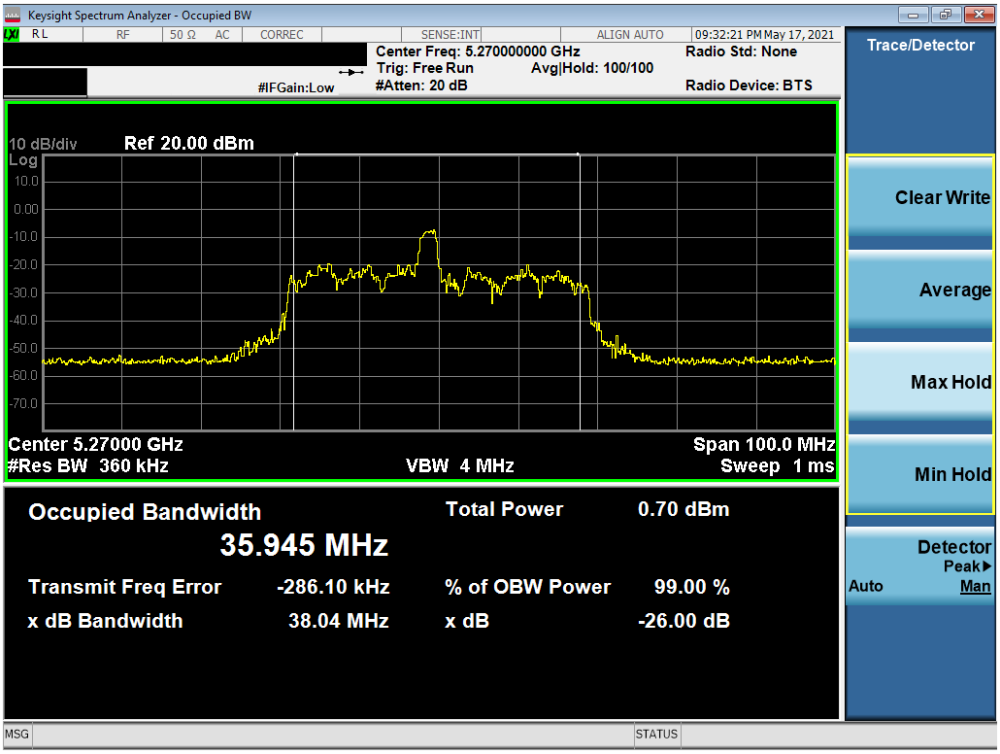

**Plot 7-49. 26dB Bandwidth Plot MIMO (20MHz BW 802.11ax – 26 Tones (UNII Band 2A) – Ch. 52)**



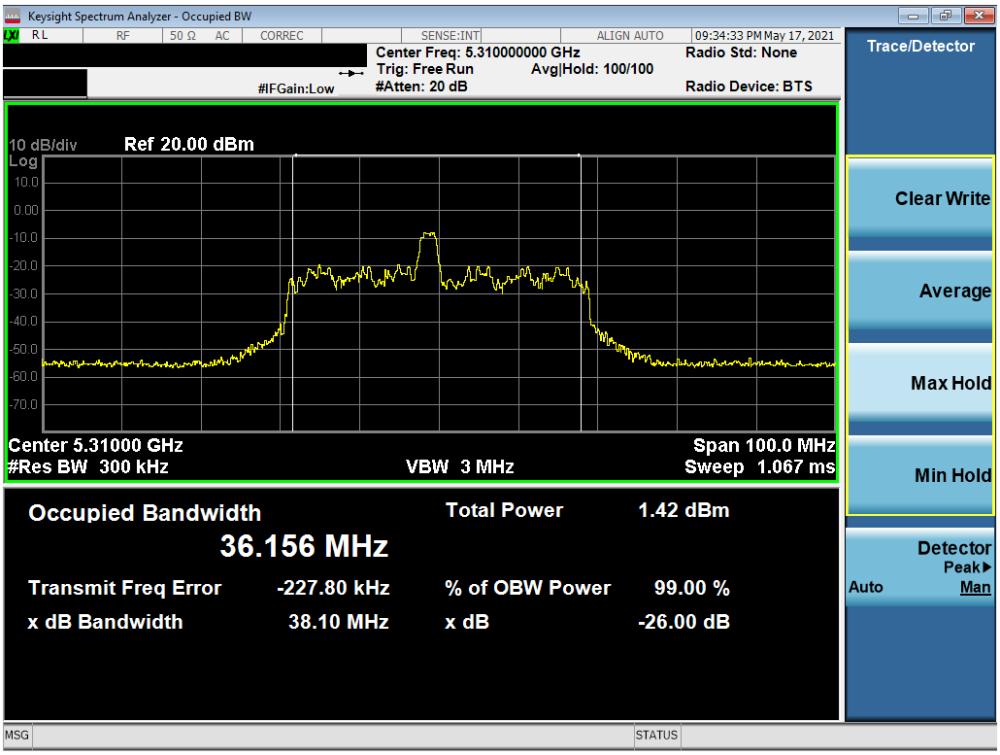

**Plot 7-50. 26dB Bandwidth Plot MIMO (20MHz BW 802.11ax – 26 Tones (UNII Band 2A) – Ch. 56)**



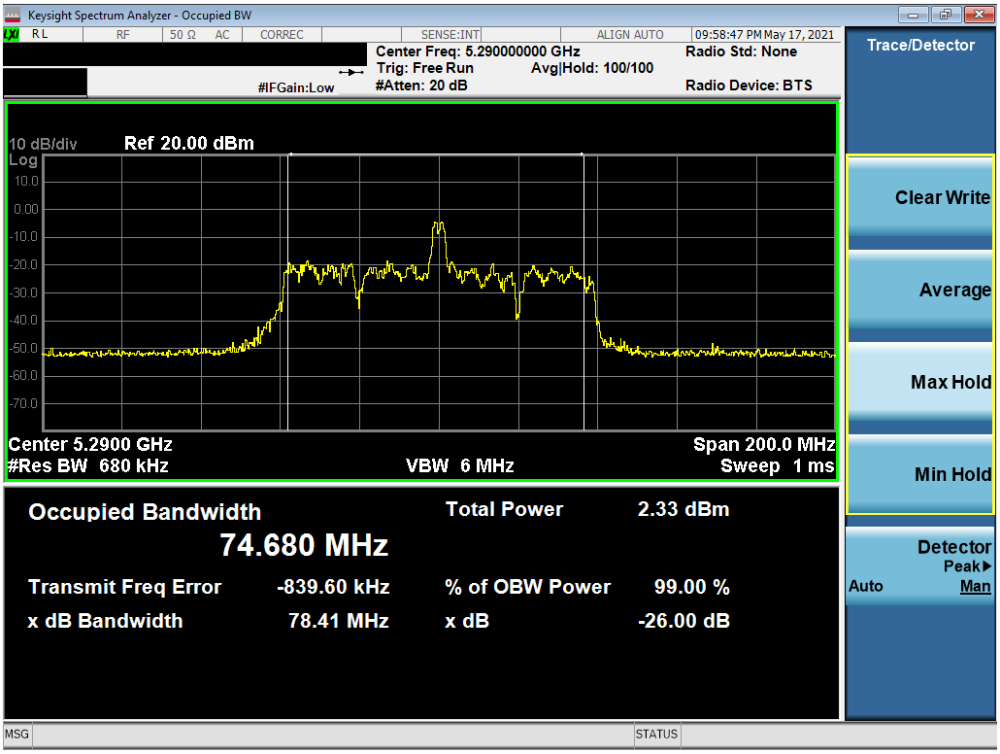

**Plot 7-51. 26dB Bandwidth Plot MIMO (20MHz BW 802.11ax – 26 Tones (UNII Band 2A) – Ch. 64)**



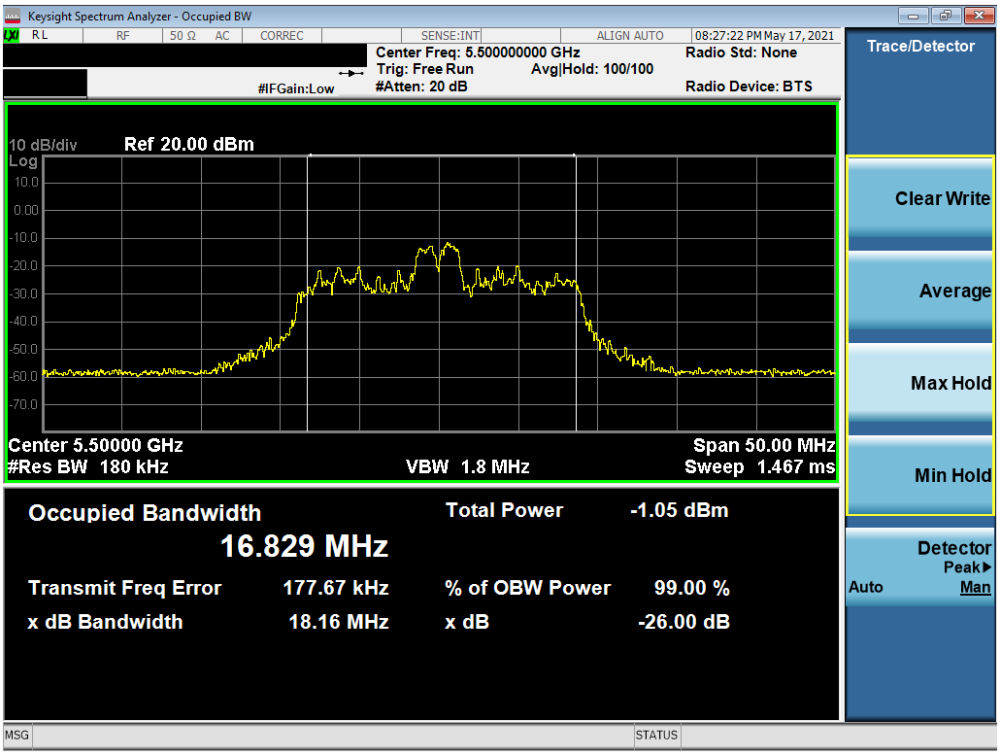

**Plot 7-52. 26dB Bandwidth Plot MIMO (40MHz BW 802.11ax – 26 Tones (UNII Band 2A) – Ch. 54)**



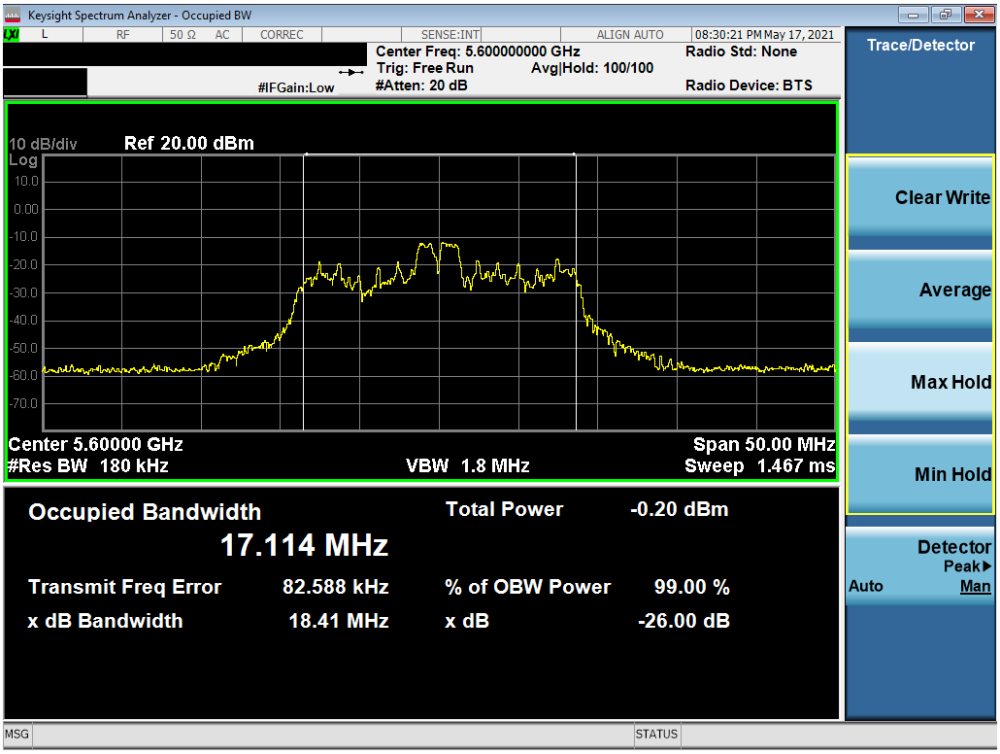

**Plot 7-53. 26dB Bandwidth Plot MIMO (40MHz BW 802.11ax – 26 Tones (UNII Band 2A) – Ch. 62)**



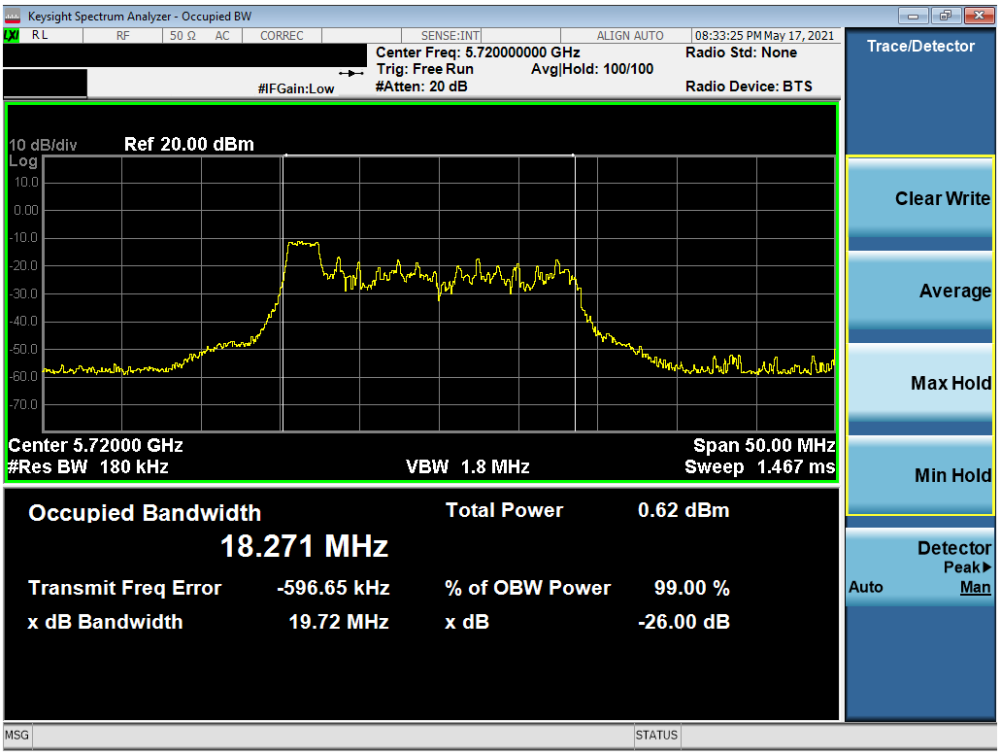

**Plot 7-54. 26dB Bandwidth Plot MIMO (80MHz BW 802.11ax – 26 Tones (UNII Band 2A) – Ch. 58)**



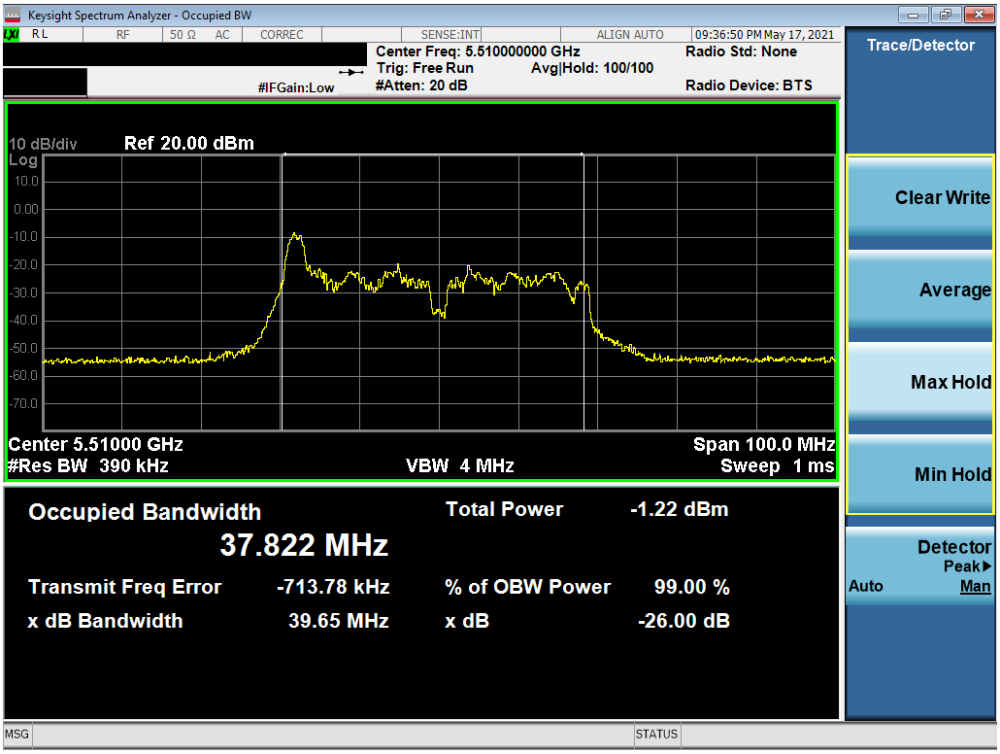

**Plot 7-55. 26dB Bandwidth Plot MIMO (20MHz BW 802.11ax – 26 Tones (UNII Band 2C) – Ch. 100)**



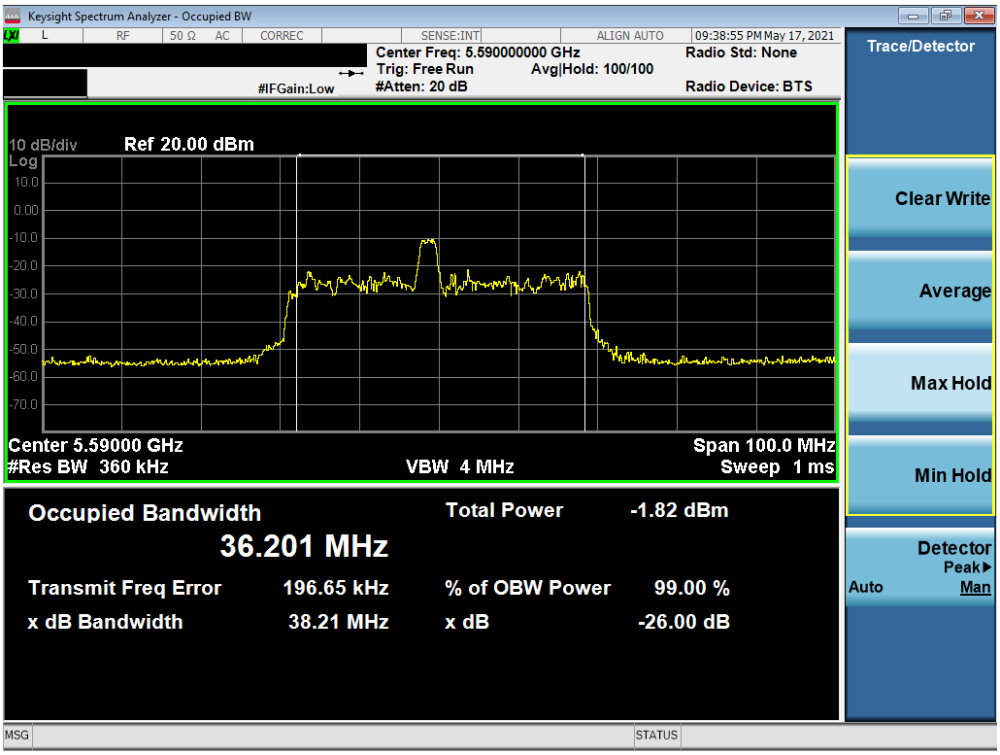

**Plot 7-56. 26dB Bandwidth Plot MIMO (20MHz BW 802.11ax – 26 Tones (UNII Band 2C) – Ch. 120)**



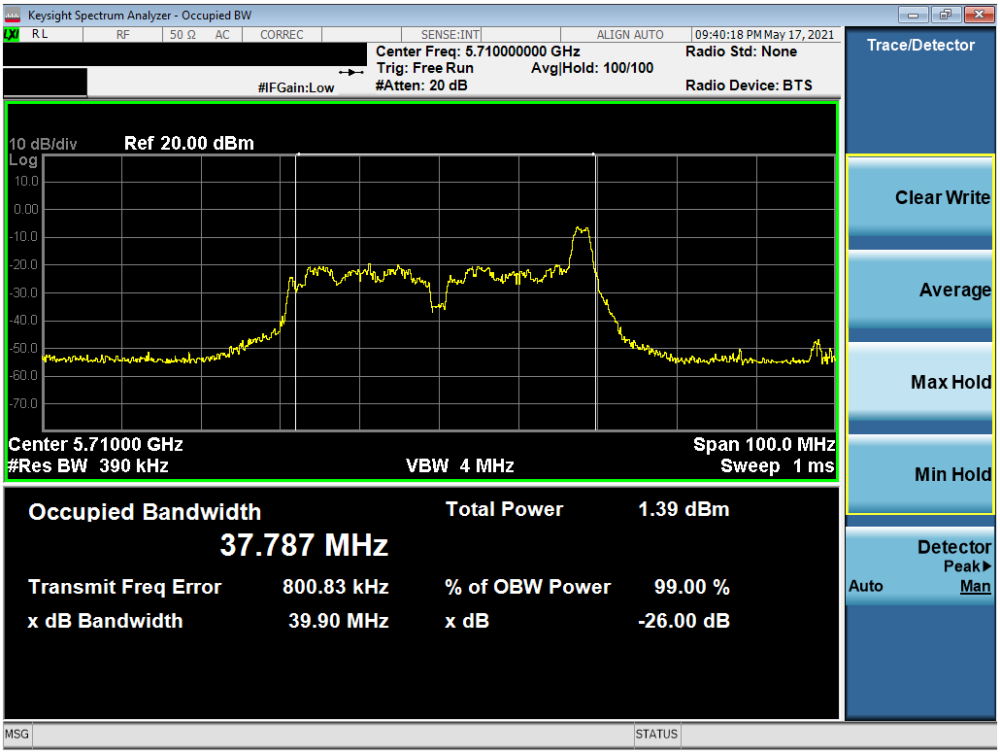

**Plot 7-57. 26dB Bandwidth Plot MIMO (20MHz BW 802.11ax – 26 Tones (UNII Band 2C) – Ch. 144)**



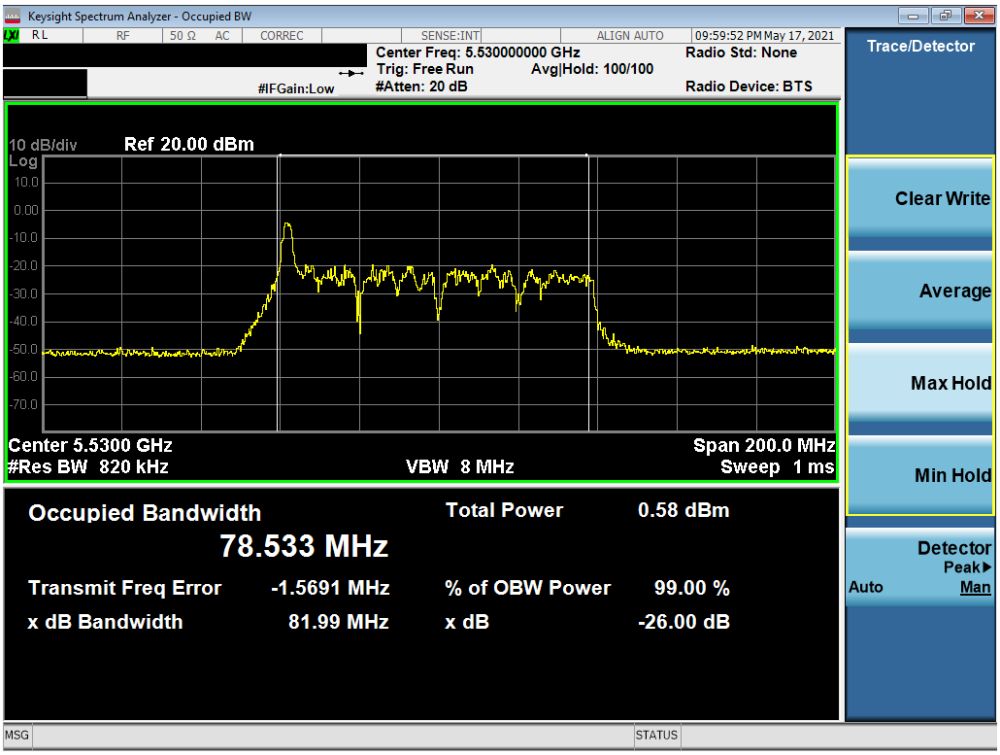

**Plot 7-58. 26dB Bandwidth Plot MIMO (40MHz BW 802.11ax – 26 Tones (UNII Band 2C) – Ch. 102)**



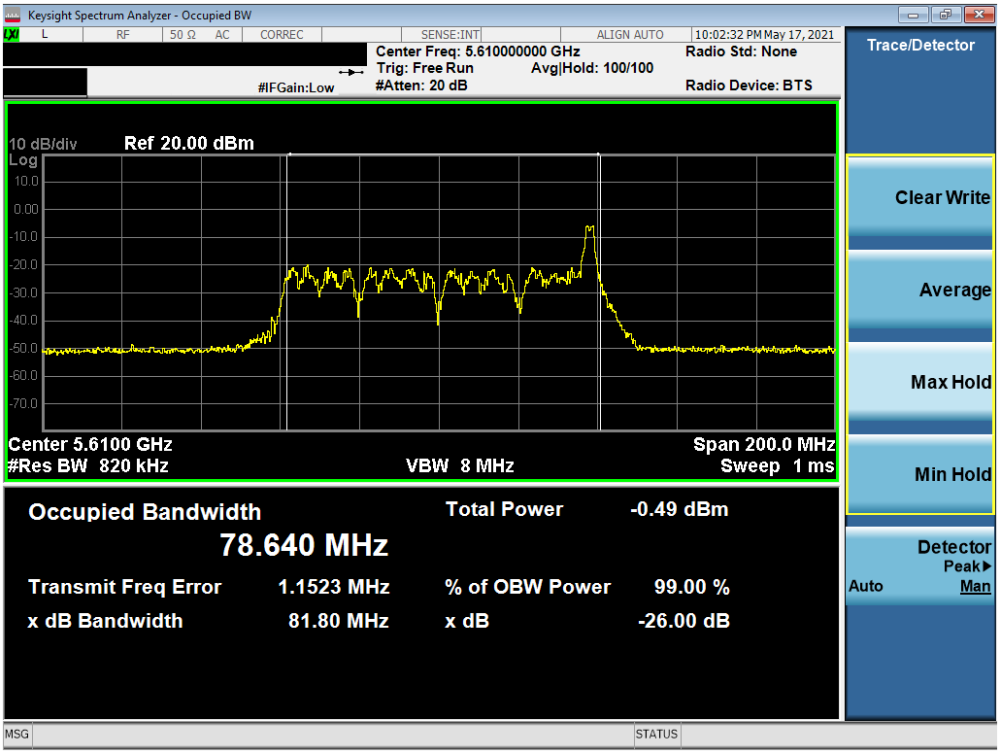

**Plot 7-59. 26dB Bandwidth Plot MIMO (40MHz BW 802.11ax – 26 Tones (UNII Band 2C) – Ch. 118)**



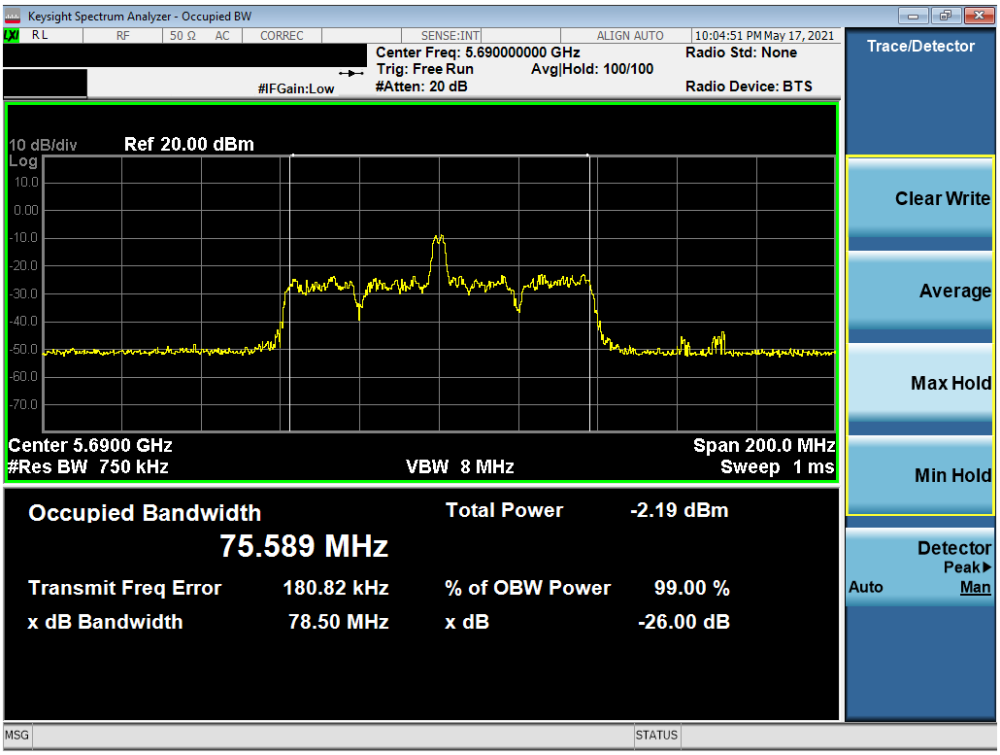

**Plot 7-60. 26dB Bandwidth Plot MIMO (40MHz BW 802.11ax – 26 Tones (UNII Band 2C) – Ch. 142)**




**Plot 7-61. 26dB Bandwidth Plot MIMO (80MHz BW 802.11ax – 26 Tones (UNII Band 2C) – Ch. 106)**




**Plot 7-62. 26dB Bandwidth Plot MIMO (80MHz BW 802.11ax – 26 Tones (UNII Band 2C) – Ch. 122)**

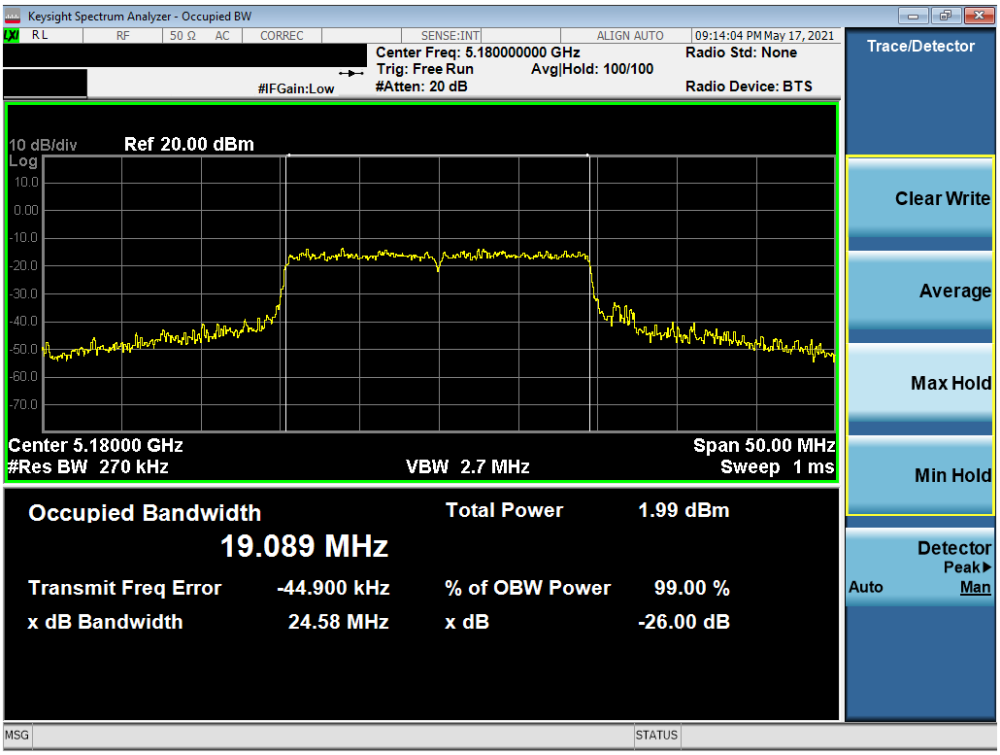



**Plot 7-63. 26dB Bandwidth Plot MIMO (80MHz BW 802.11ax – 26 Tones (UNII Band 2C) – Ch. 138)**

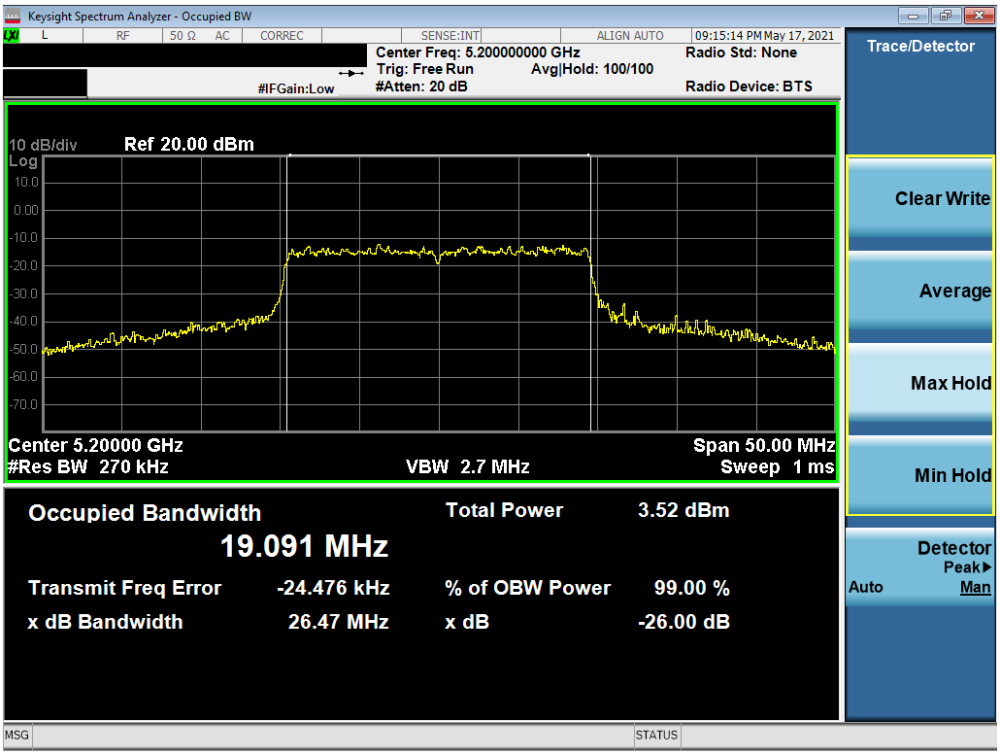
## MIMO 26dB Bandwidth Measurements (Full Tones)

| | Frequency [MHz] | Channel No. | 802.11 Mode | Tones | Data Rate [Mbps] | Measured 26dB Bandwidth [MHz] |
|---|---|---|---|---|---|---|
| Band 1 | 5180 | 36 | ax (20MHz) | 242T | MCS0 | 24.58 |
| | 5200 | 40 | ax (20MHz) | 242T | MCS0 | 26.47 |
| | 5240 | 48 | ax (20MHz) | 242T | MCS0 | 30.31 |
| | 5190 | 38 | ax (40MHz) | 484T | MCS0 | 66.72 |
| | 5230 | 46 | ax (40MHz) | 484T | MCS0 | 68.13 |
| | 5210 | 42 | ax (80MHz) | 996T | MCS0 | 115.90 |
| Band 2A | 5260 | 52 | ax (20MHz) | 242T | MCS0 | 26.25 |
| | 5280 | 56 | ax (20MHz) | 242T | MCS0 | 23.01 |
| | 5320 | 64 | ax (20MHz) | 242T | MCS0 | 21.42 |
| | 5270 | 54 | ax (40MHz) | 484T | MCS0 | 63.24 |
| | 5310 | 62 | ax (40MHz) | 484T | MCS0 | 54.61 |
| | 5290 | 58 | ax (80MHz) | 996T | MCS0 | 104.10 |
| Band 2C | 5500 | 100 | ax (20MHz) | 242T | MCS0 | 22.58 |
| | 5600 | 120 | ax (20MHz) | 242T | MCS0 | 22.74 |
| | 5720 | 144 | ax (20MHz) | 242T | MCS0 | 21.72 |
| | 5510 | 102 | ax (40MHz) | 484T | MCS0 | 46.30 |
| | 5590 | 118 | ax (40MHz) | 484T | MCS0 | 69.51 |
| | 5710 | 142 | ax (40MHz) | 484T | MCS0 | 62.26 |
| | 5530 | 106 | ax (80MHz) | 996T | MCS0 | 91.83 |
| | 5610 | 122 | ax (80MHz) | 996T | MCS0 | 101.30 |
| | 5690 | 138 | ax (80MHz) | 996T | MCS0 | 100.90 |

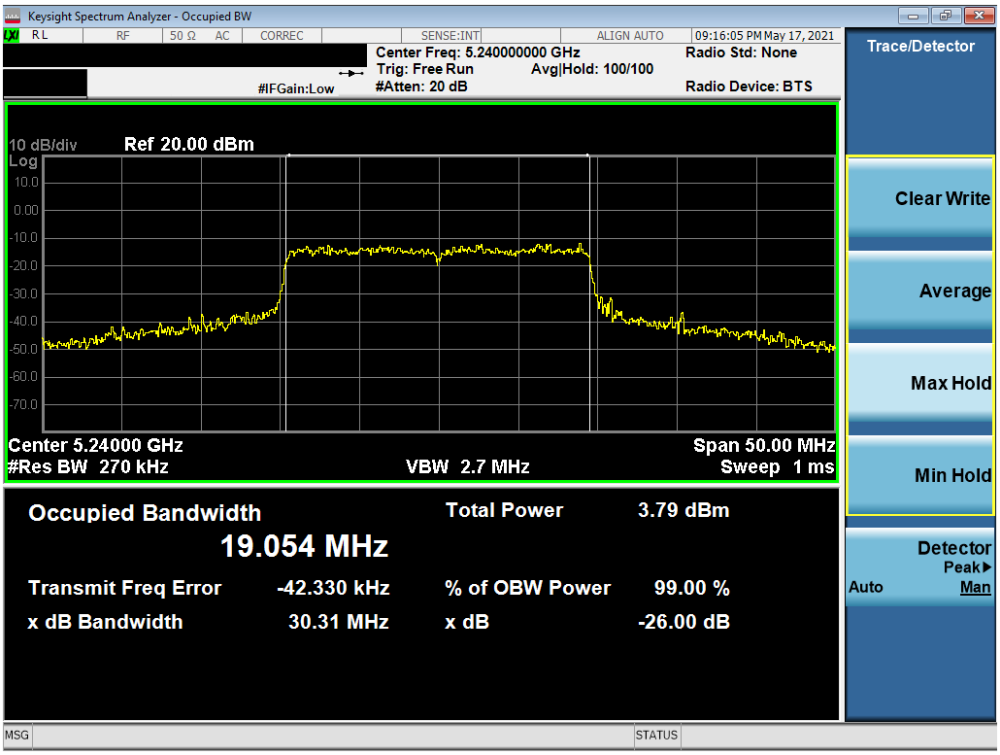
**Table 7-5. Conducted Bandwidth Measurements MIMO (Full Tones)**



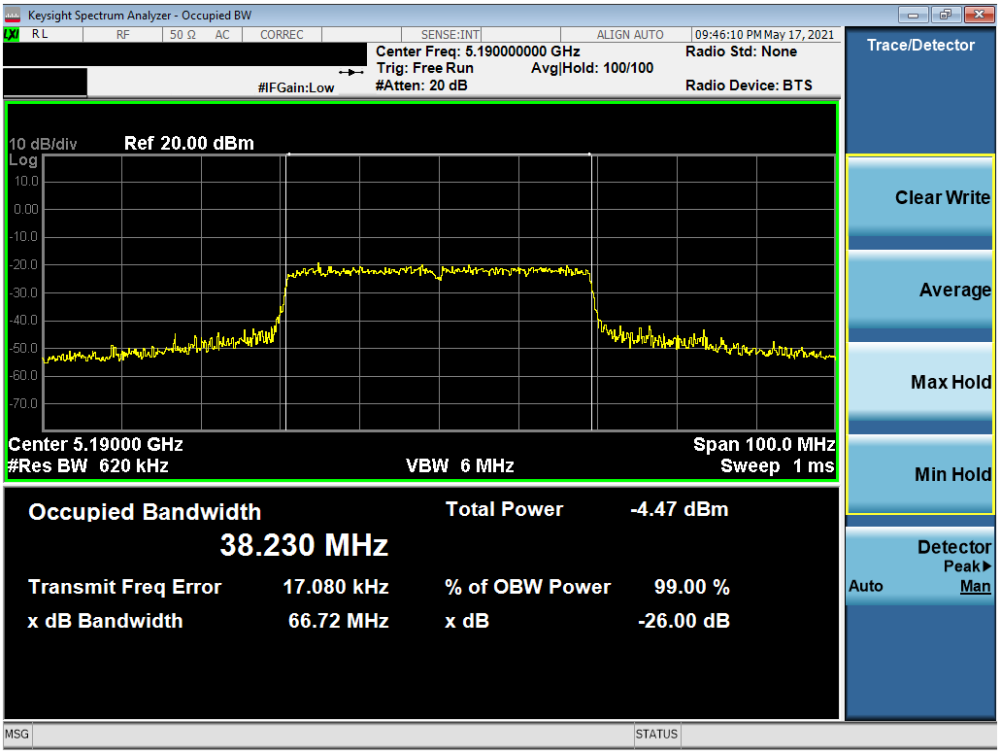

**Plot 7-64. 26dB Bandwidth Plot MIMO (20MHz BW 802.11ax – 242 Tones (UNII Band 1) – Ch. 36)**



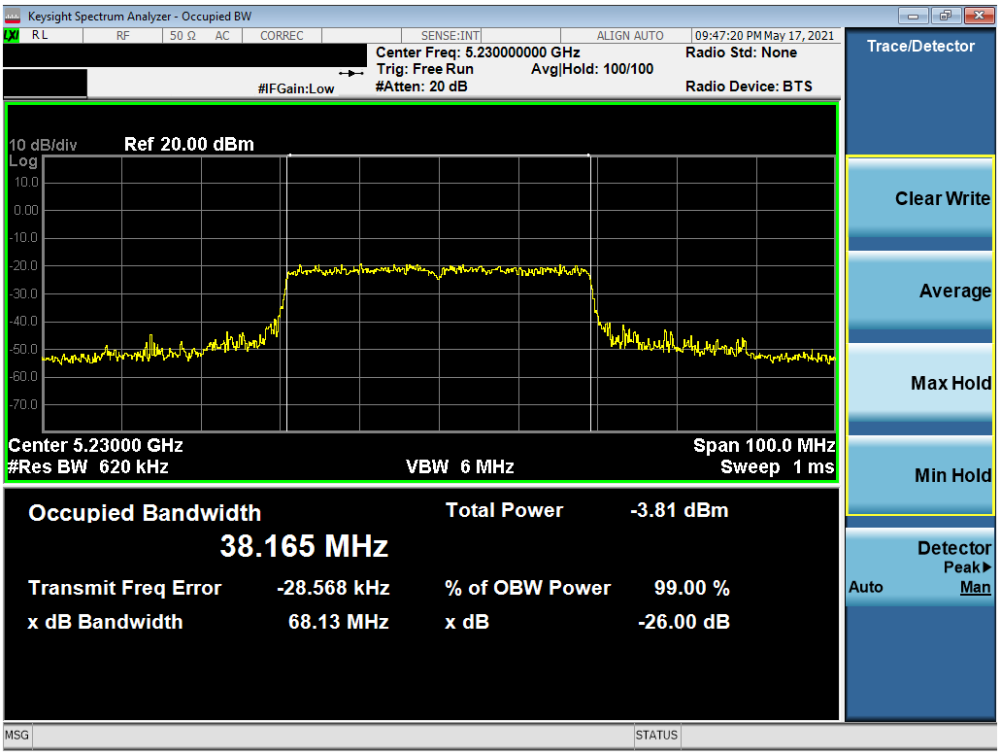

**Plot 7-65. 26dB Bandwidth Plot MIMO (20MHz BW 802.11ax – 242 Tones (UNII Band 1) – Ch. 40)**



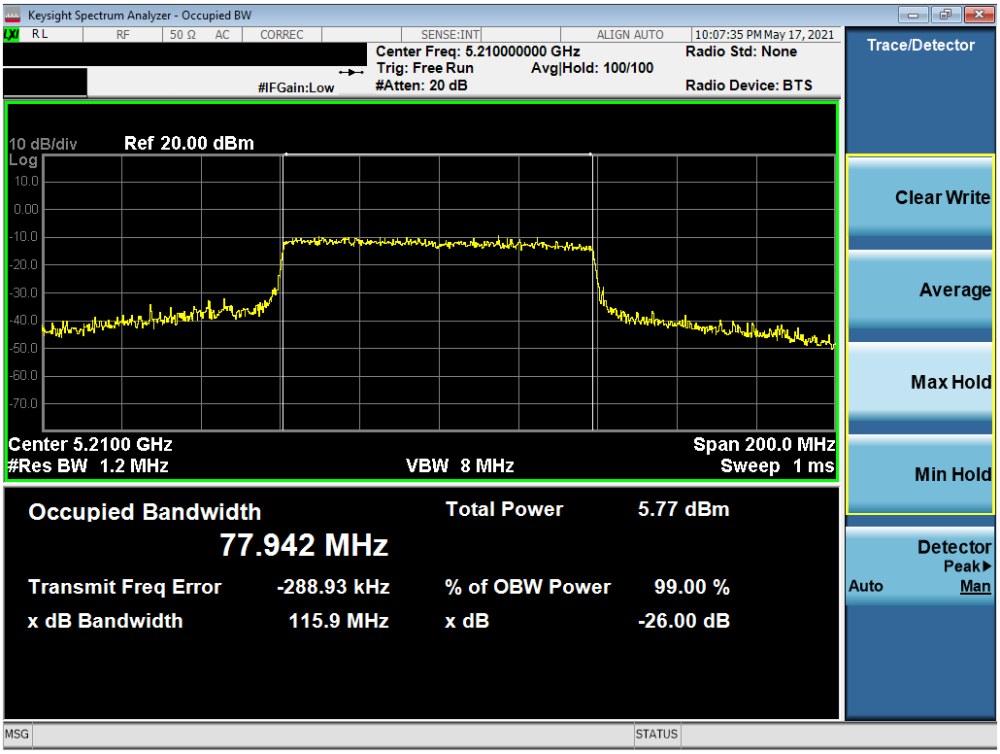

**Plot 7-66. 26dB Bandwidth Plot MIMO (20MHz BW 802.11ax – 242 Tones (UNII Band 1) – Ch. 48)**



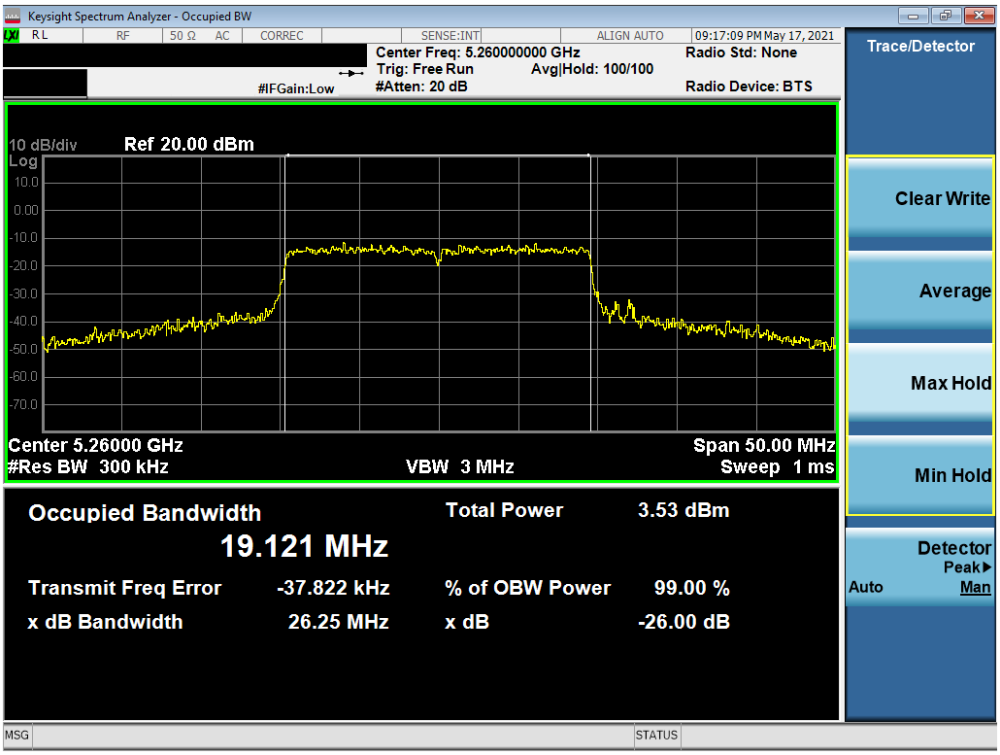

**Plot 7-67. 26dB Bandwidth Plot MIMO (40MHz BW 802.11ax – 484 Tones (UNII Band 1) – Ch. 38)**



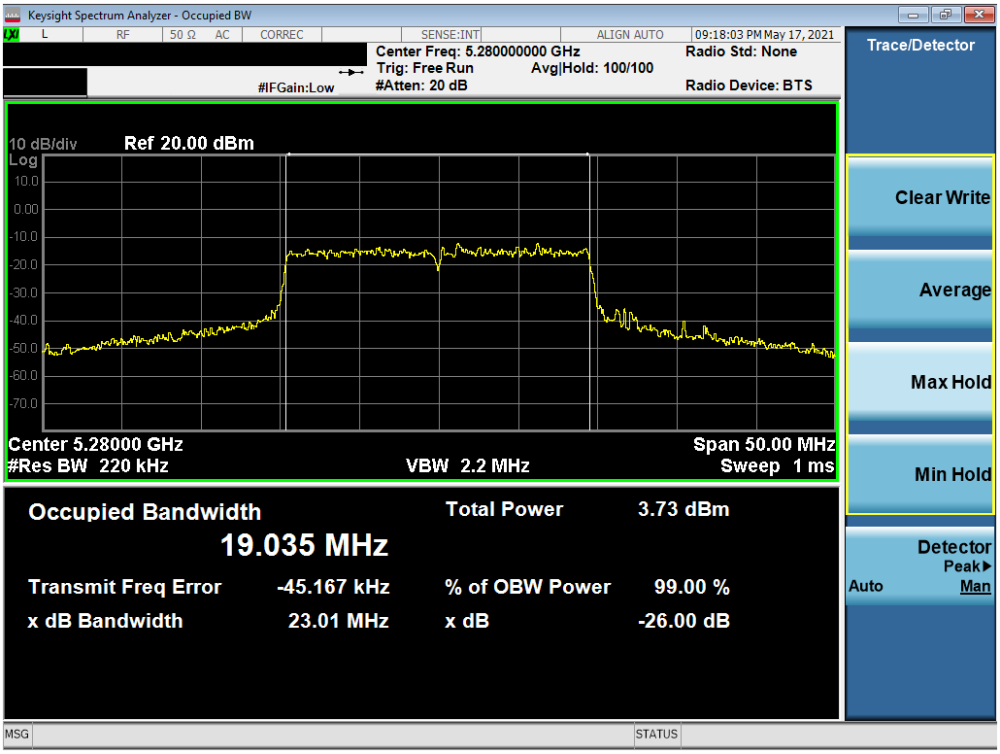

**Plot 7-68. 26dB Bandwidth Plot MIMO (40MHz BW 802.11ax – 484 Tones (UNII Band 1) – Ch. 46)**



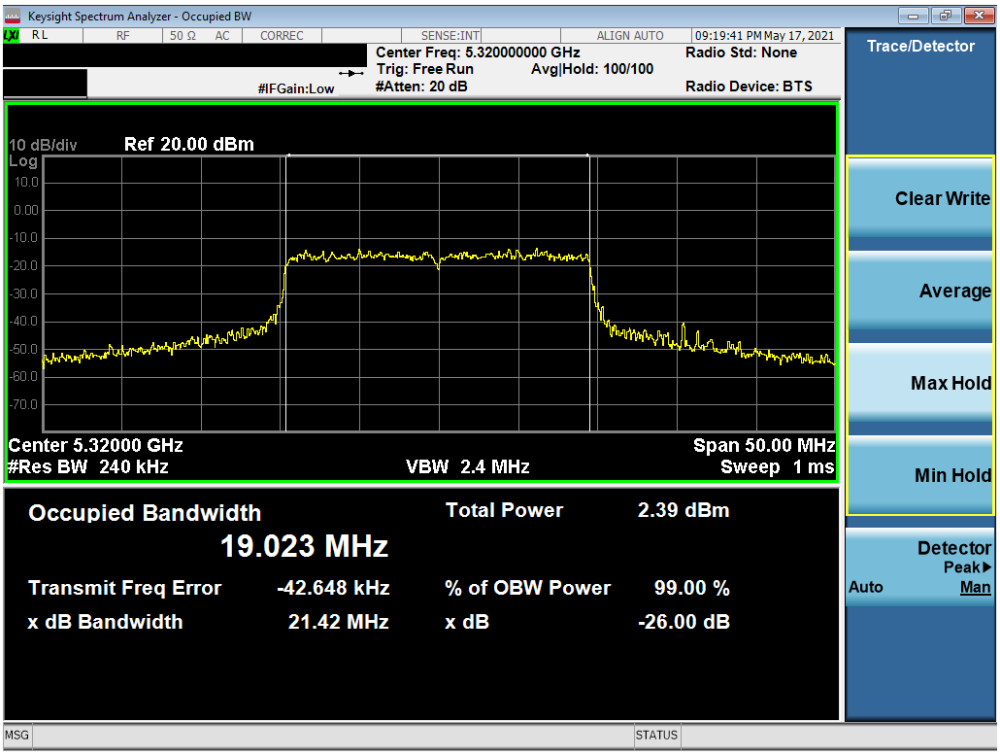

**Plot 7-69. 26dB Bandwidth Plot MIMO (80MHz BW 802.11ax – 996 Tones (UNII Band 1) – Ch. 42)**



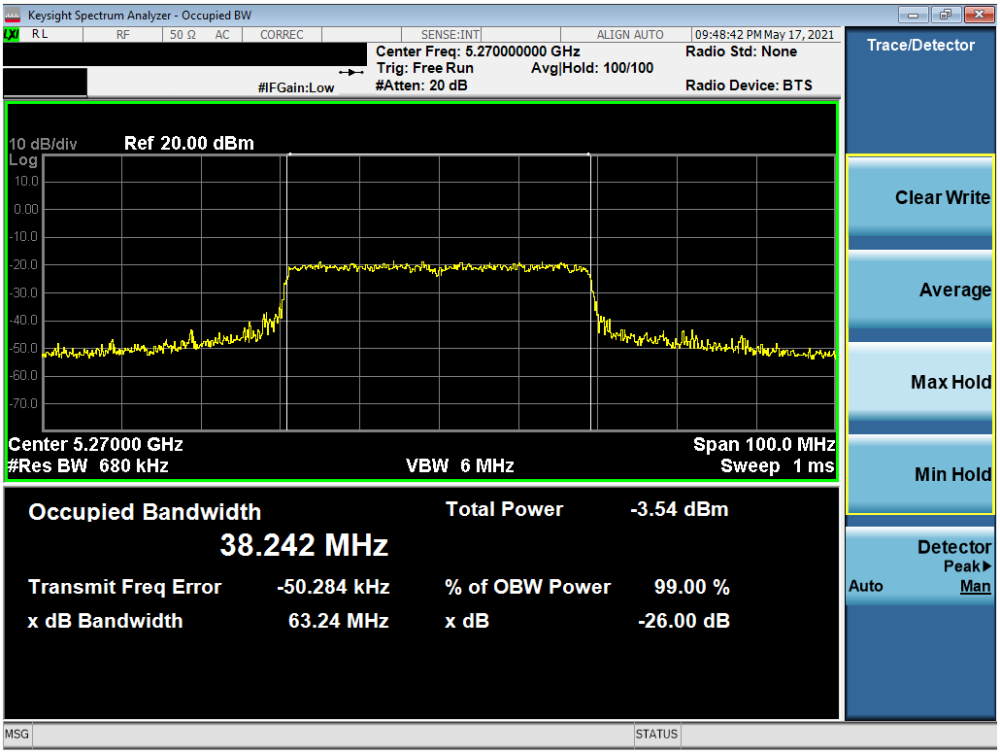

**Plot 7-70. 26dB Bandwidth Plot MIMO (20MHz BW 802.11ax – 242 Tones (UNII Band 2A) – Ch. 52)**



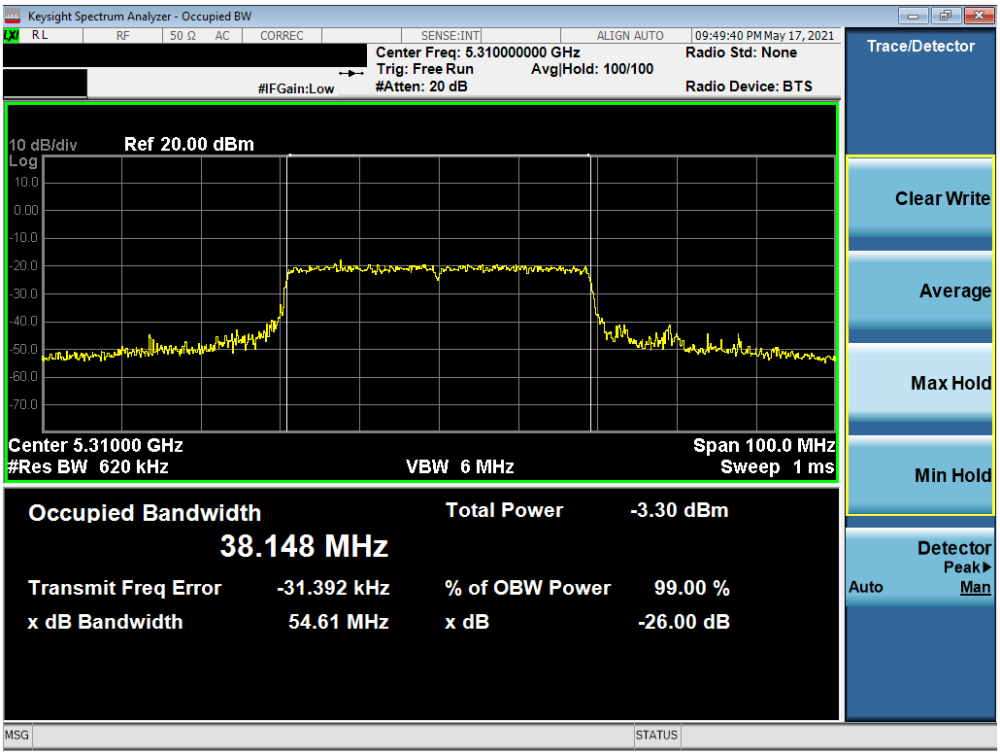

**Plot 7-71. 26dB Bandwidth Plot MIMO (20MHz BW 802.11ax – 242 Tones (UNII Band 2A) – Ch. 56)**



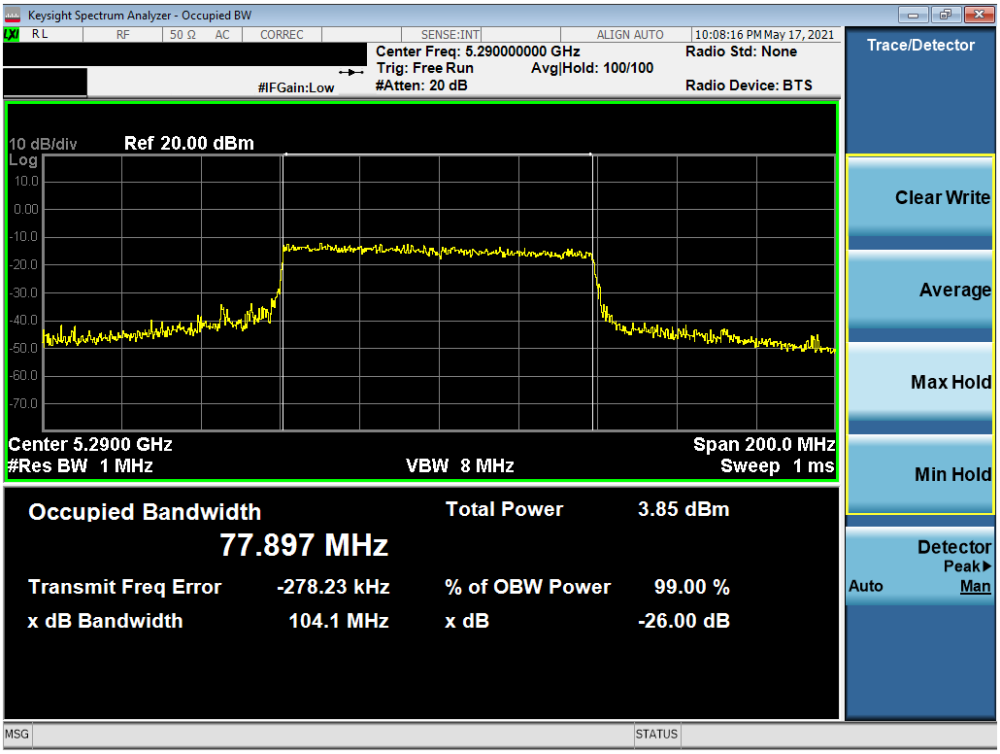

**Plot 7-72. 26dB Bandwidth Plot MIMO (20MHz BW 802.11ax – 242 Tones (UNII Band 2A) – Ch. 64)**



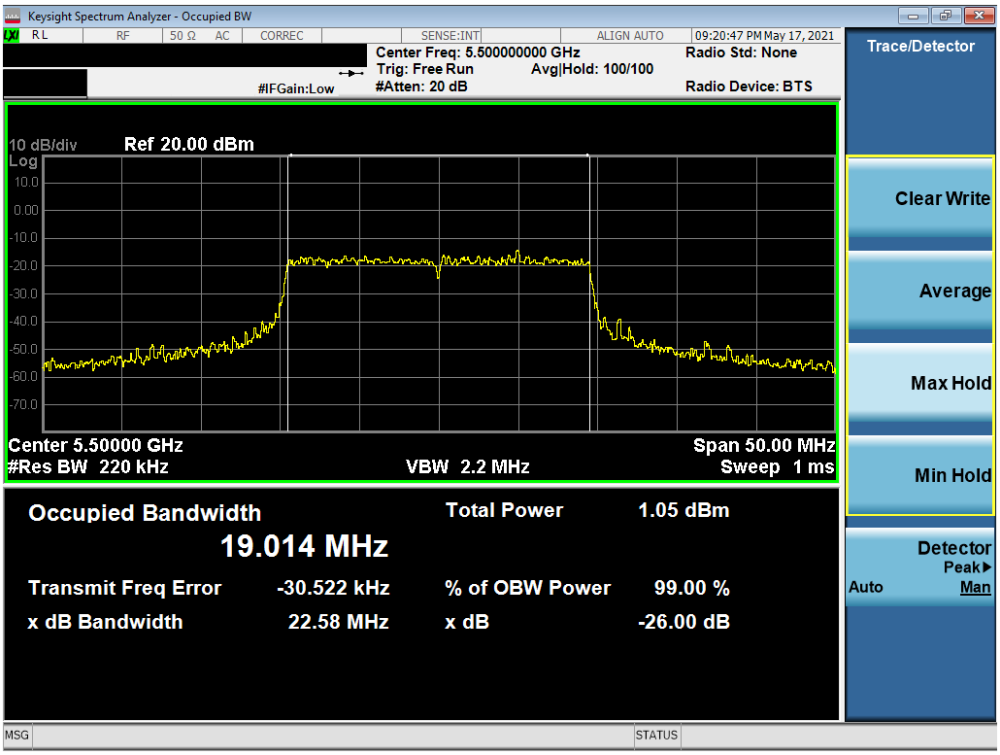

**Plot 7-73. 26dB Bandwidth Plot MIMO (40MHz BW 802.11ax – 484 Tones (UNII Band 2A) – Ch. 54)**



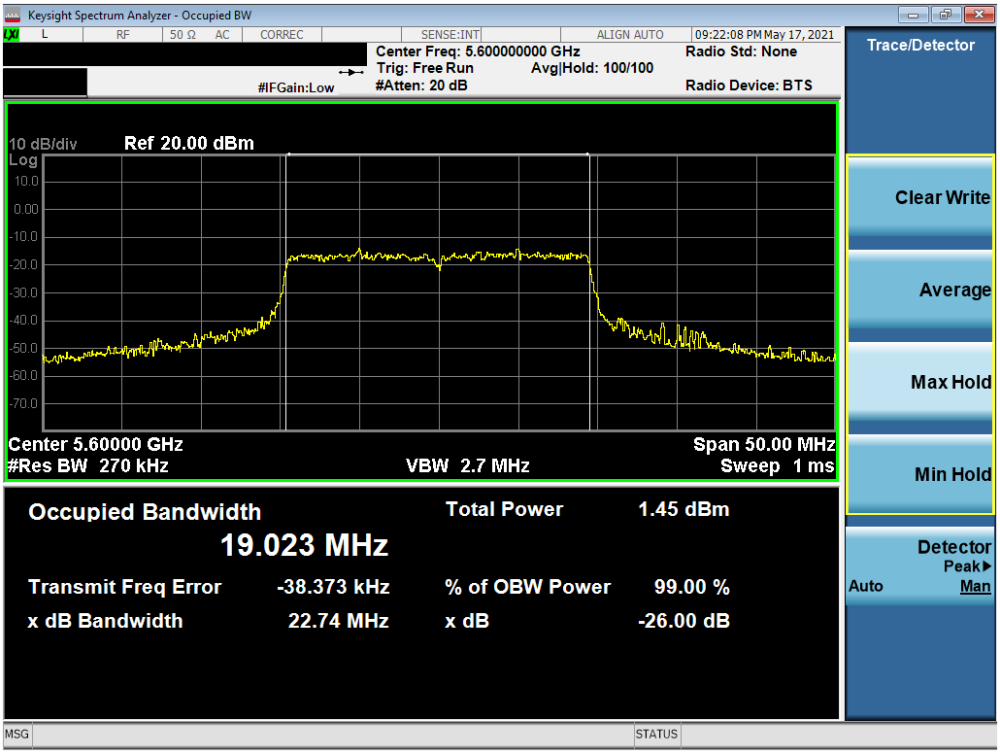

**Plot 7-74. 26dB Bandwidth Plot MIMO (40MHz BW 802.11ax – 484 Tones (UNII Band 2A) – Ch. 62)**



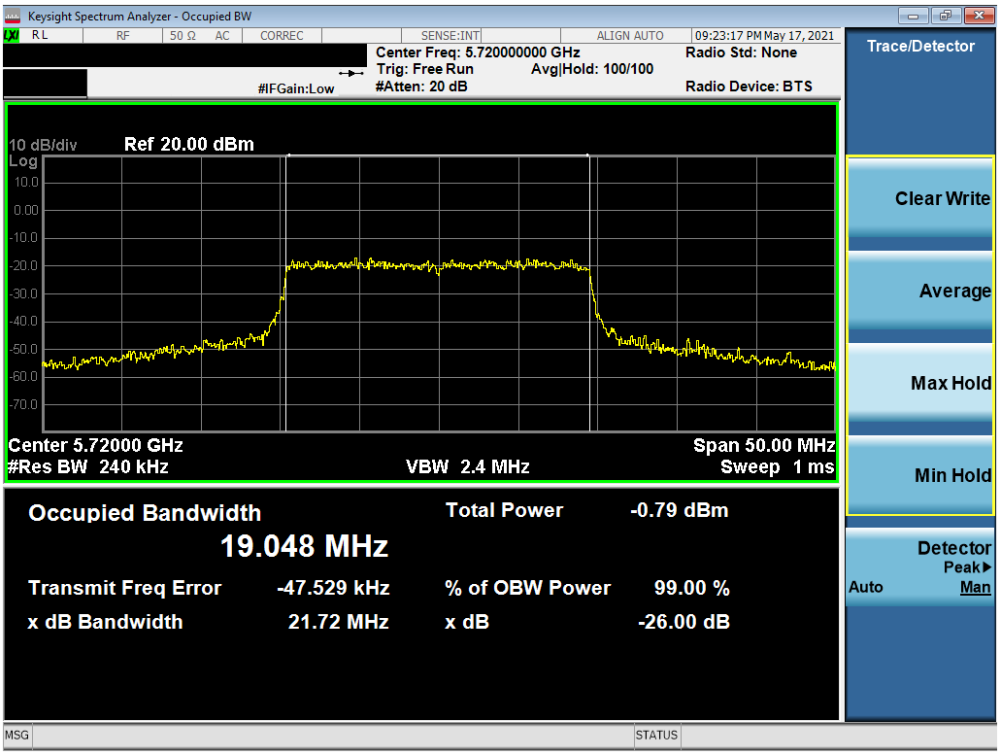

**Plot 7-75. 26dB Bandwidth Plot MIMO (80MHz BW 802.11ax – 996 Tones (UNII Band 2A) – Ch. 58)**



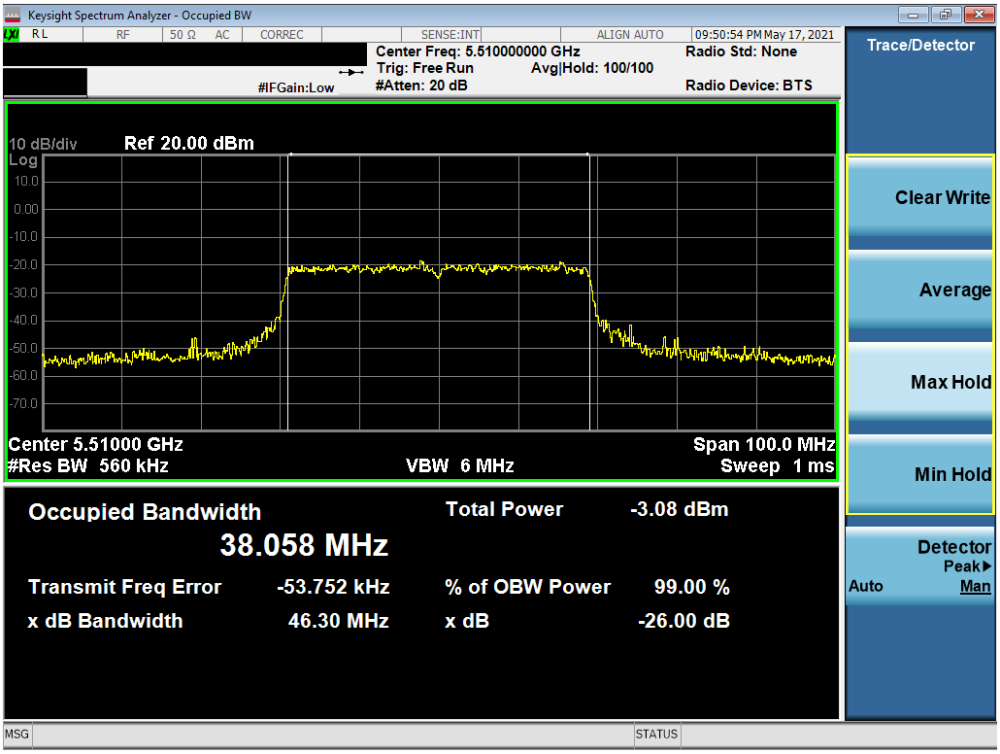

**Plot 7-76. 26dB Bandwidth Plot MIMO (20MHz BW 802.11ax – 242 Tones (UNII Band 2C) – Ch. 100)**



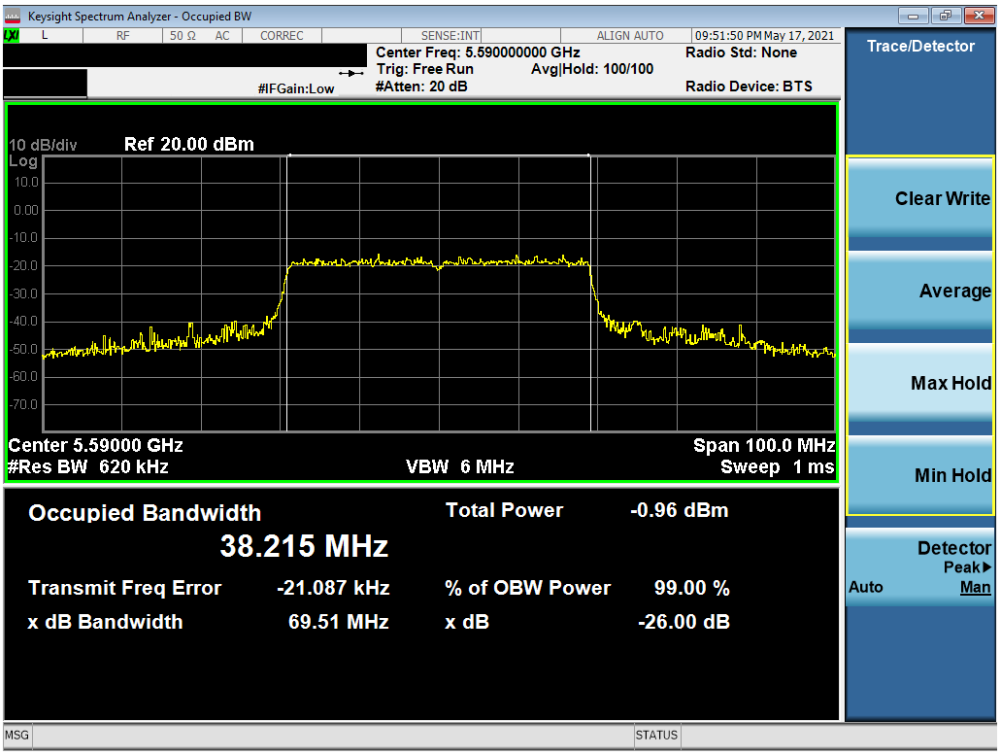

**Plot 7-77. 26dB Bandwidth Plot MIMO (20MHz BW 802.11ax – 242 Tones (UNII Band 2C) – Ch. 120)**



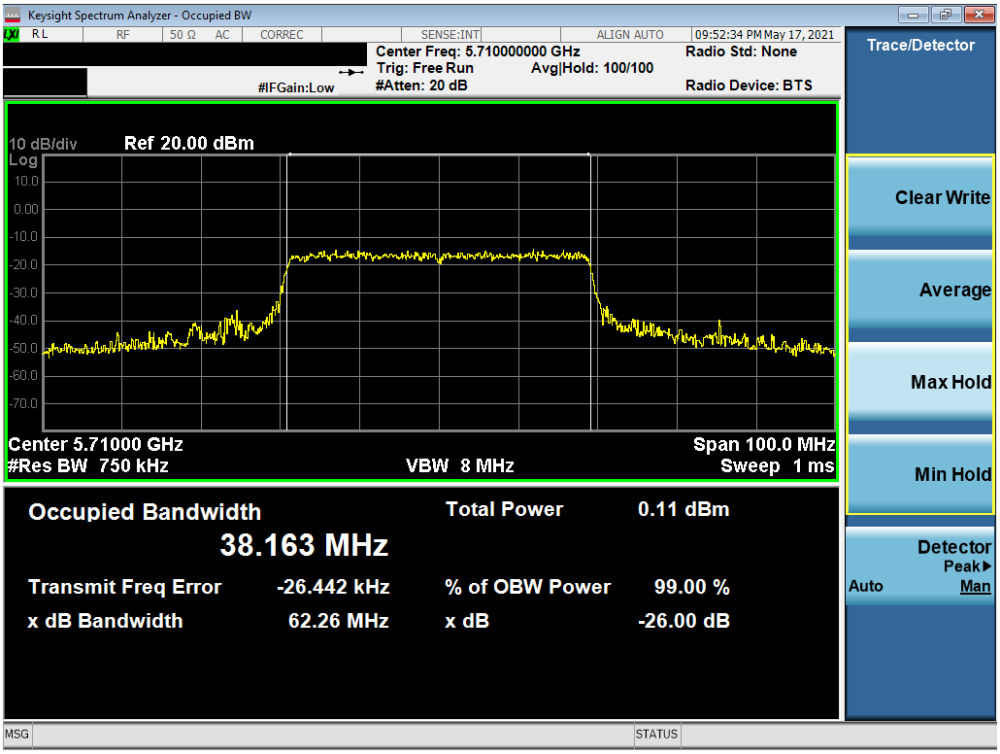

**Plot 7-78. 26dB Bandwidth Plot MIMO (20MHz BW 802.11ax – 242 Tones (UNII Band 2C) – Ch. 144)**



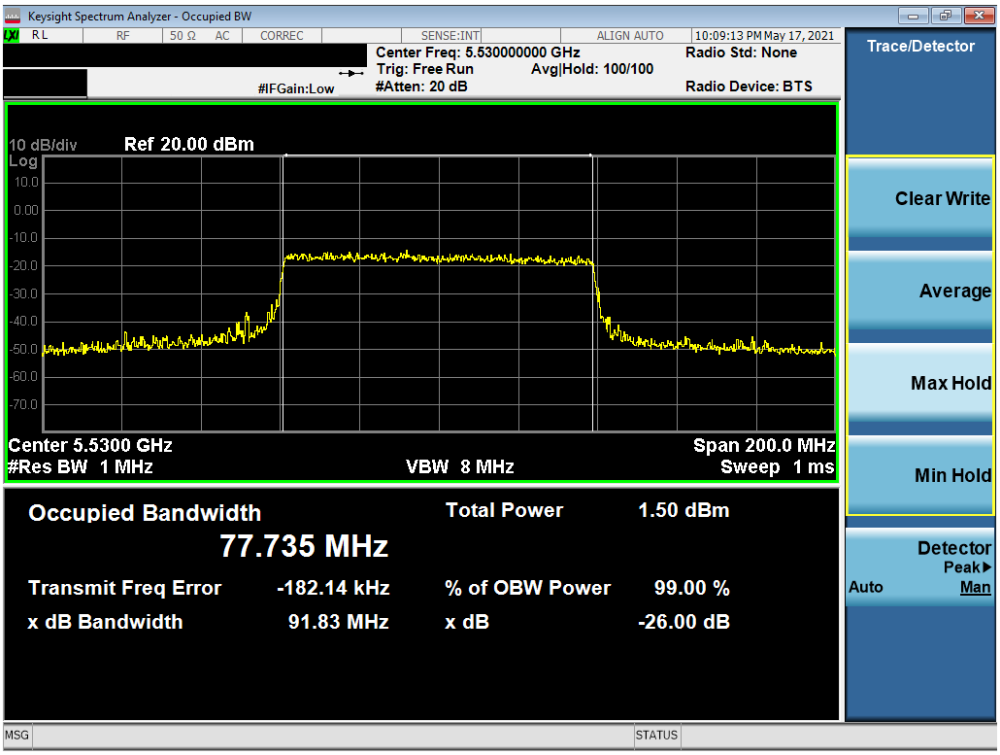

**Plot 7-79. 26dB Bandwidth Plot MIMO (40MHz BW 802.11ax – 484 Tones (UNII Band 2C) – Ch. 102)**



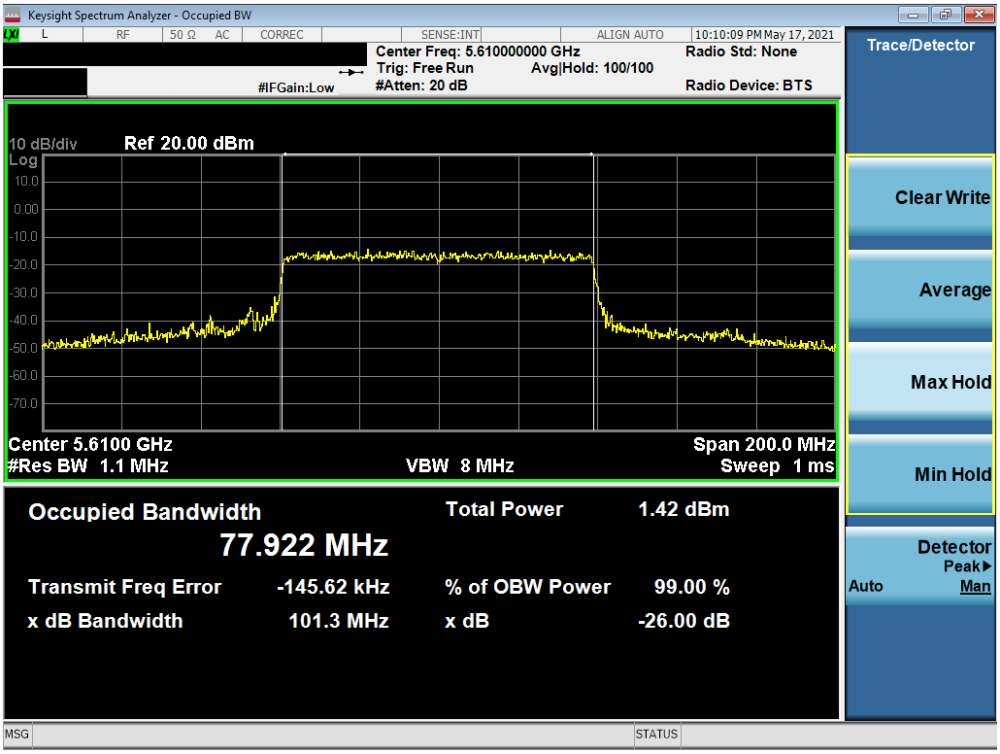

**Plot 7-80. 26dB Bandwidth Plot MIMO (40MHz BW 802.11ax – 484 Tones (UNII Band 2C) – Ch. 118)**



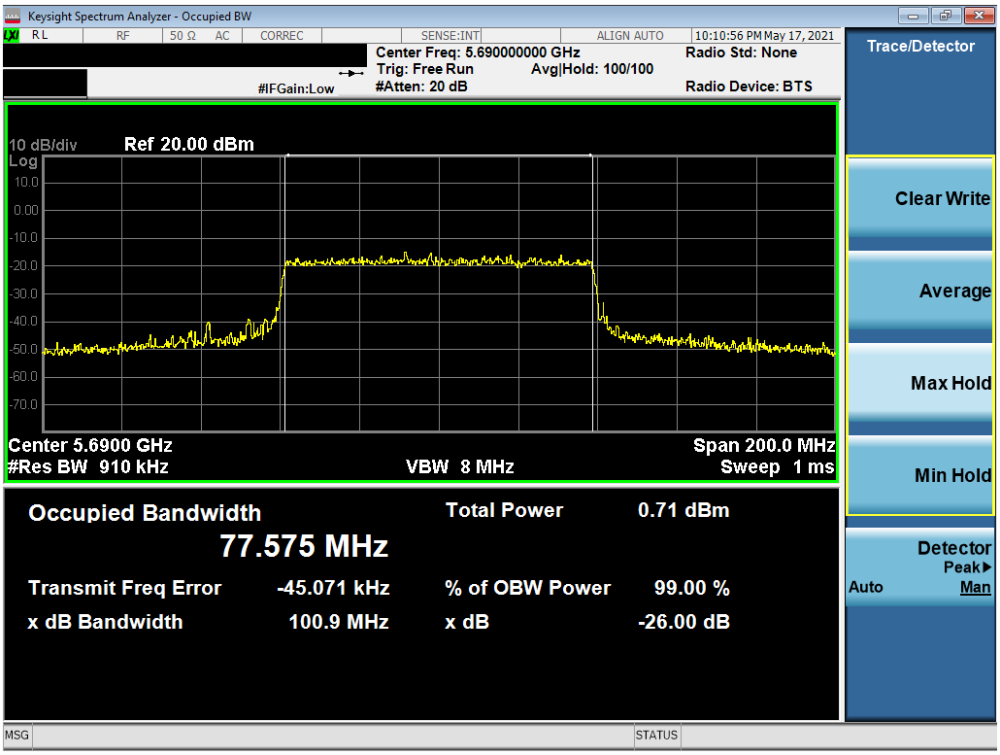

**Plot 7-81. 26dB Bandwidth Plot MIMO (40MHz BW 802.11ax – 484 Tones (UNII Band 2C) – Ch. 142)**




**Plot 7-82. 26dB Bandwidth Plot MIMO (80MHz BW 802.11ax – 996 Tones (UNII Band 2C) – Ch. 106)**




**Plot 7-83. 26dB Bandwidth Plot MIMO (80MHz BW 802.11ax – 996 Tones (UNII Band 2C) – Ch. 122)**




**Plot 7-84. 26dB Bandwidth Plot MIMO (80MHz BW 802.11ax – 996 Tones (UNII Band 2C) – Ch. 138)**

## 7.3 6dB Bandwidth Measurement – 802.11ax OFDMA

**§15.407 (e); RSS-Gen [6.7]**

### Test Overview and Limit

The bandwidth at 6dB down from the highest in-band spectral density is measured with a spectrum analyzer connected to the antenna terminal while the EUT is operating at its maximum duty cycle, at its maximum power control level, as defined in ANSI C63.10-2013 and KDB 789033 D02 v02r01, and at the appropriate frequencies. The spectrum analyzer's bandwidth measurement function is configured to measure the 6dB bandwidth.

***In the 5.725 – 5.850GHz band, the 6dB bandwidth must be ≥ 500 kHz.***

### Test Procedure Used

ANSI C63.10-2013 – Section 6.9.2
KDB 789033 D02 v02r01 – Section C

### Test Settings

1. The signal analyzers' automatic bandwidth measurement capability was used to perform the 6dB bandwidth measurement. The "X" dB bandwidth parameter was set to X = 6. The automatic bandwidth measurement function also has the capability of simultaneously measuring the 99% occupied bandwidth. The bandwidth measurement was not influenced by any intermediate power nulls in the fundamental emission.
2. RBW = 100 kHz
3. VBW ≥ 3 x RBW
4. Detector = Peak
5. Trace mode = max hold
6. Sweep = auto couple

### Test Setup

The EUT and measurement equipment were set up as shown in the diagram below.


**Figure 7-2. Test Instrument & Measurement Setup**

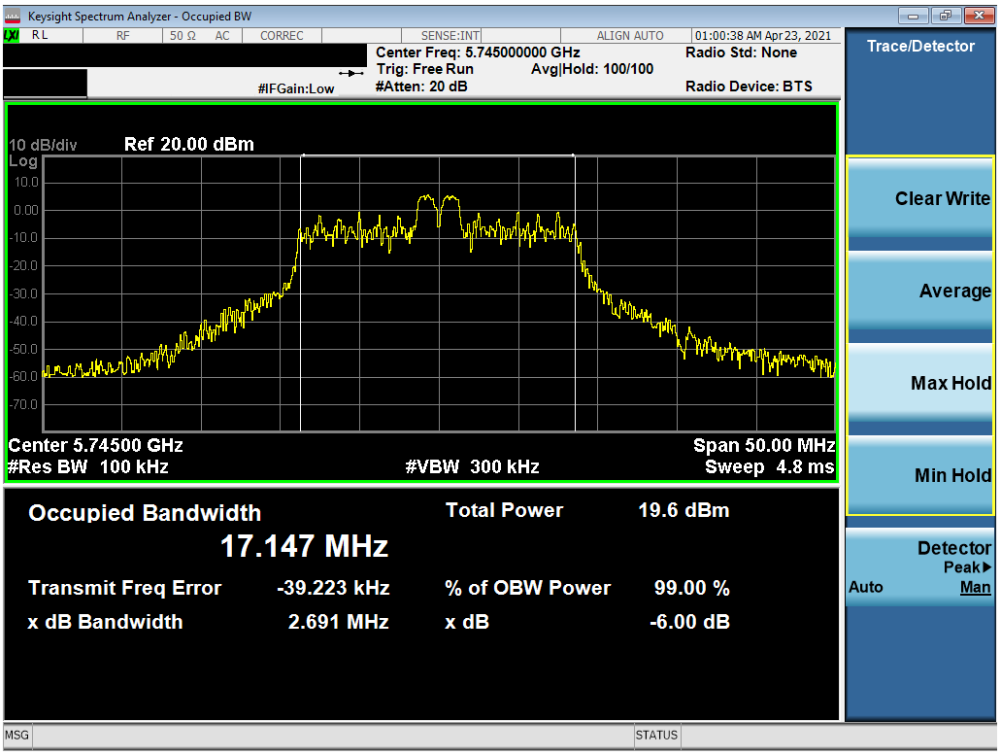
### Test Notes

The 6dB Bandwidth measurement for each channel was measured with the RU index showing the highest conducted power.

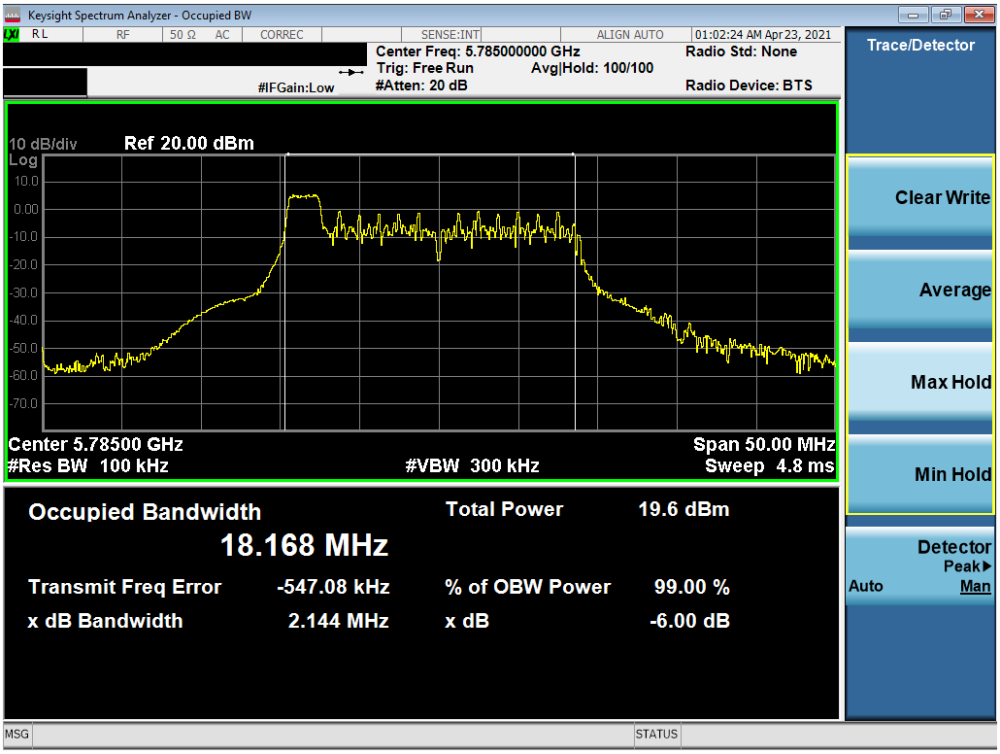
## SISO Antenna-1 6 dB Bandwidth Measurements (26 Tones)

| | Frequency [MHz] | Channel No. | 802.11 Mode | Tones | Data Rate [Mbps] | Measured 6dB Bandwidth [MHz] |
|---|---|---|---|---|---|---|
| Band 3 | 5745 | 149 | ax (20MHz) | 26T | MCS0 | 2.69 |
| | 5785 | 157 | ax (20MHz) | 26T | MCS0 | 2.14 |
| | 5825 | 165 | ax (20MHz) | 26T | MCS0 | 2.67 |
| | 5755 | 151 | ax (40MHz) | 26T | MCS0 | 2.20 |
| | 5795 | 159 | ax (40MHz) | 26T | MCS0 | 2.15 |
| | 5775 | 155 | ax (80MHz) | 26T | MCS0 | 2.86 |

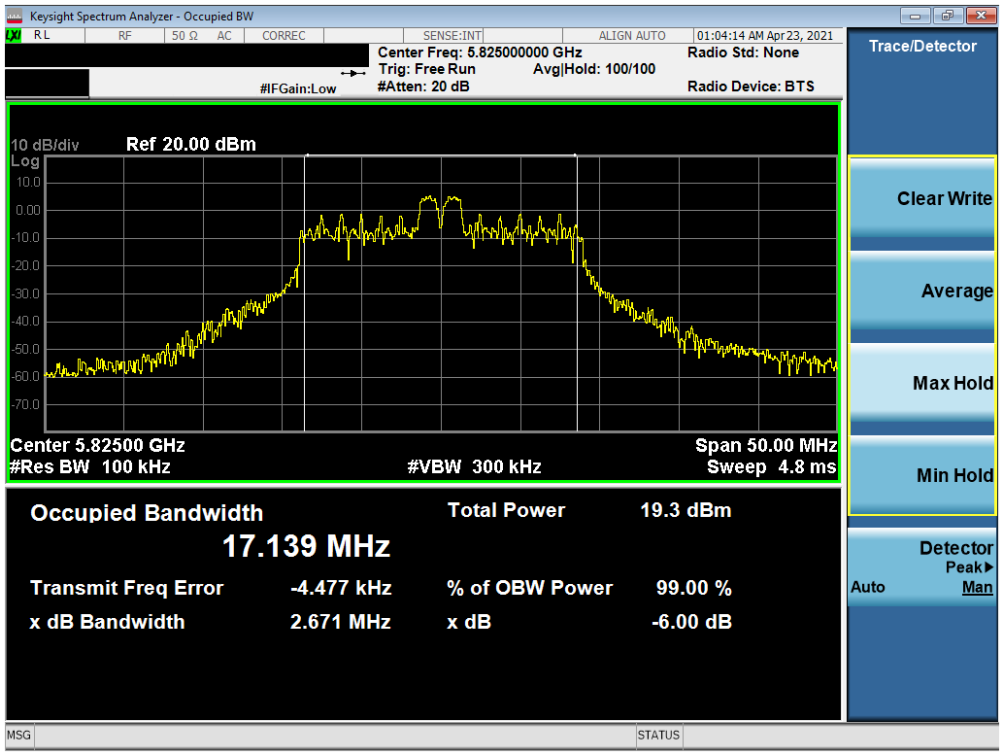
**Table 7-6. Conducted Bandwidth Measurements SISO ANT1 (26 Tones)**



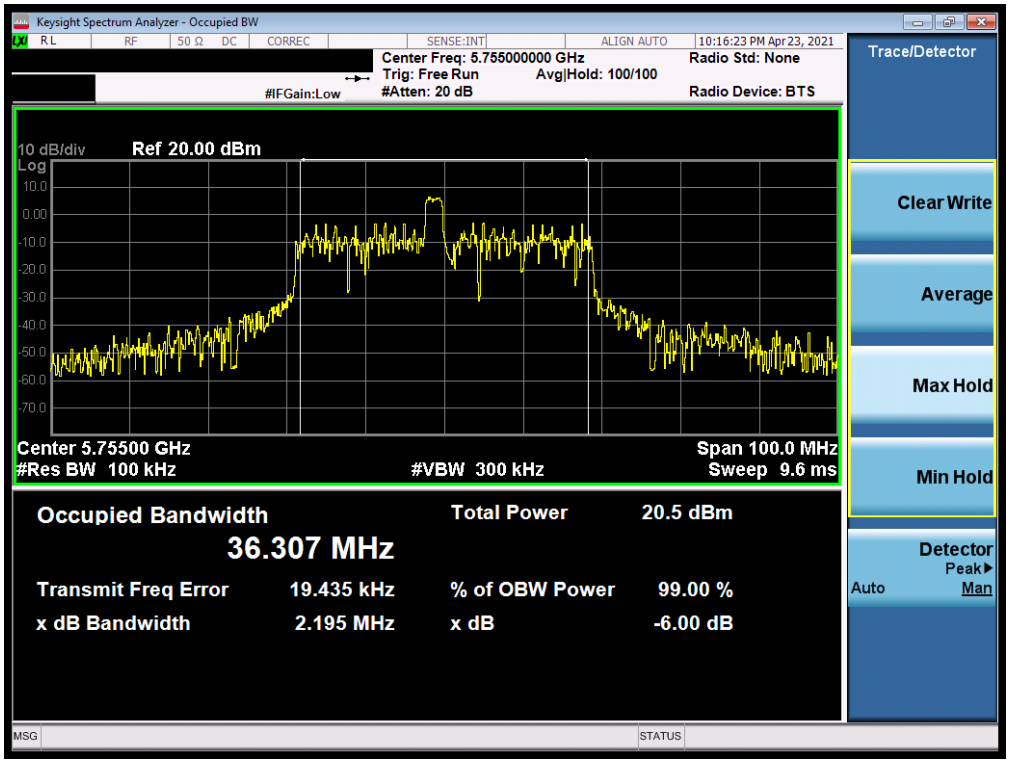

**Plot 7-85. 6dB Bandwidth Plot SISO ANT1 (20MHz BW 802.11ax – 26 Tones (UNII Band 3) – Ch. 149)**



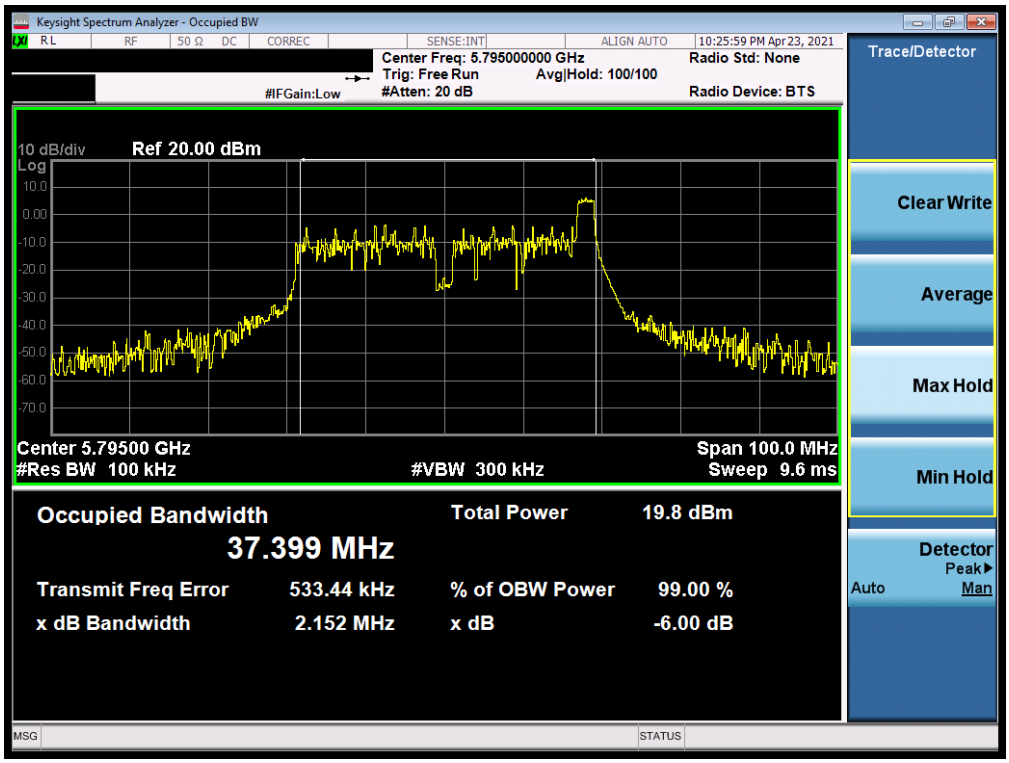

**Plot 7-86. 6dB Bandwidth Plot SISO ANT1 (20MHz BW 802.11ax – 26 Tones (UNII Band 3) – Ch. 157)**



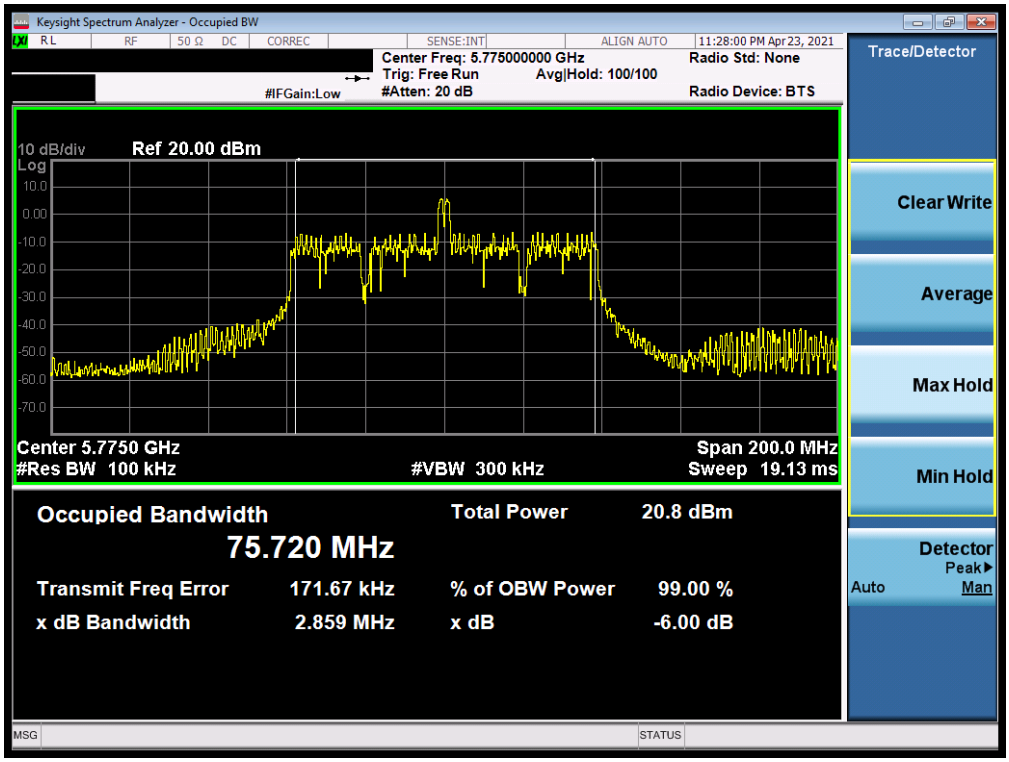

**Plot 7-87. 6dB Bandwidth Plot SISO ANT1 (20MHz BW 802.11ax – 26 Tones (UNII Band 3) – Ch. 165)**




**Plot 7-88. 6dB Bandwidth Plot SISO ANT1 (40MHz BW 802.11ax – 26 Tones (UNII Band 3) – Ch. 151)**




**Plot 7-89. 6dB Bandwidth Plot SISO ANT1 (40MHz BW 802.11ax – 26 Tones (UNII Band 3) – Ch. 159)**

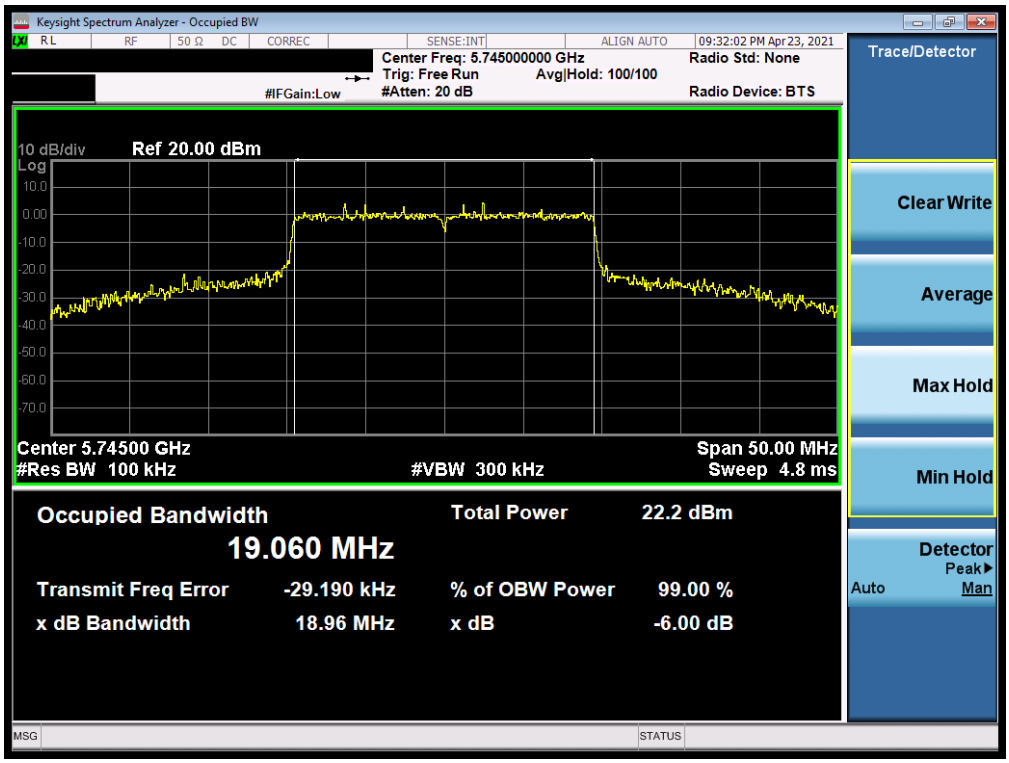



**Plot 7-90. 6dB Bandwidth Plot SISO ANT1 (80MHz BW 802.11ax – 26 Tones (UNII Band 3) – Ch. 155)**

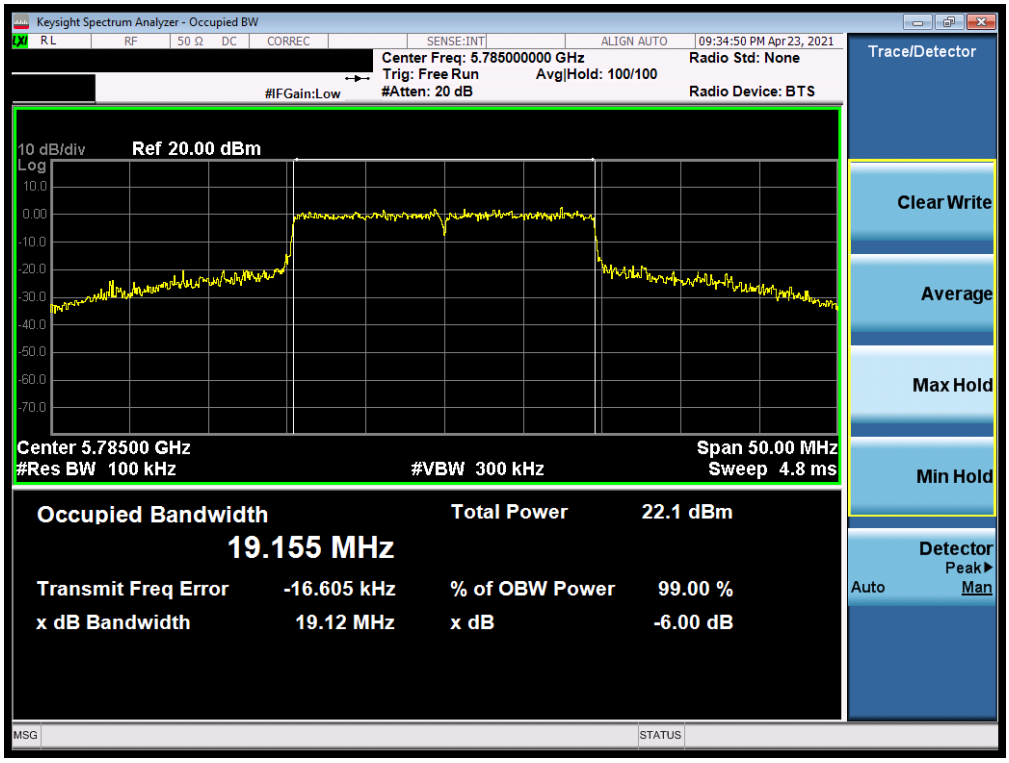
## SISO Antenna-1 6 dB Bandwidth Measurements (Full Tones)

| | Frequency [MHz] | Channel No. | 802.11 Mode | Tones | Data Rate [Mbps] | Measured 6dB Bandwidth [MHz] |
|---|---|---|---|---|---|---|
| Band 3 | 5745 | 149 | ax (20MHz) | 242T | MCS0 | 18.96 |
| | 5785 | 157 | ax (20MHz) | 242T | MCS0 | 19.12 |
| | 5825 | 165 | ax (20MHz) | 242T | MCS0 | 19.06 |
| | 5755 | 151 | ax (40MHz) | 484T | MCS0 | 38.17 |
| | 5795 | 159 | ax (40MHz) | 484T | MCS0 | 38.19 |
| | 5775 | 155 | ax (80MHz) | 996T | MCS0 | 78.13 |

**Table 7-7. Conducted Bandwidth Measurements SISO ANT1 (Full Tones)**

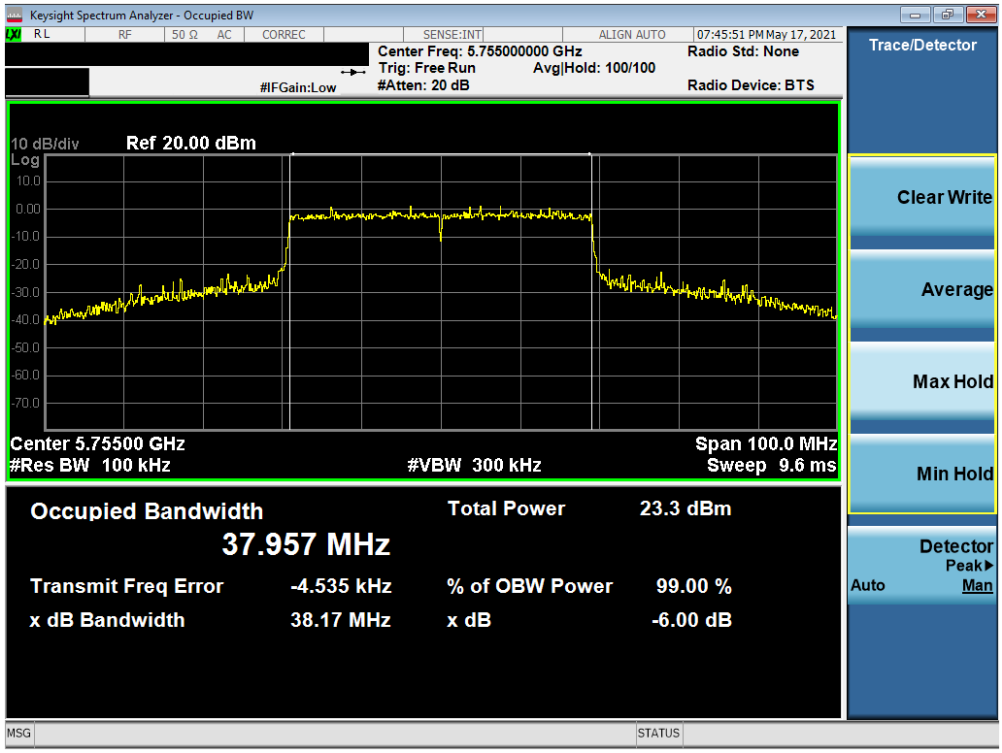



**Plot 7-91. 6dB Bandwidth Plot SISO ANT1 (20MHz BW 802.11ax – 242 Tones (UNII Band 3) – Ch. 149)**

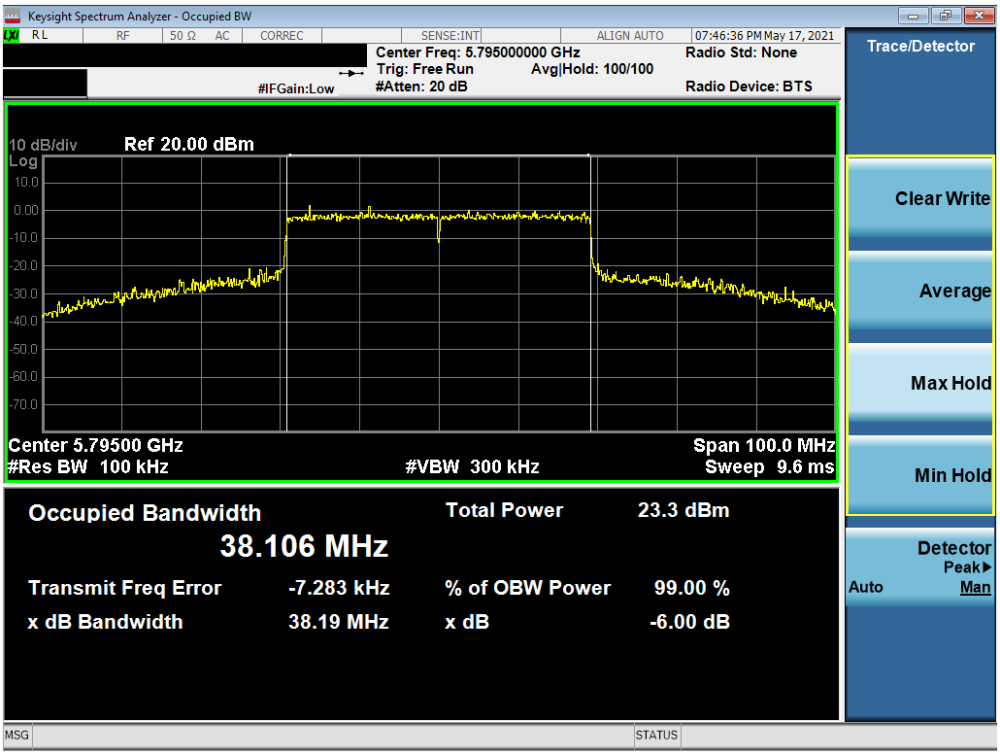



**Plot 7-92. 6dB Bandwidth Plot SISO ANT1 (20MHz BW 802.11ax – 242 Tones (UNII Band 3) – Ch. 157)**


**Plot 7-93. 6dB Bandwidth Plot SISO ANT1 (20MHz BW 802.11ax – 242 Tones (UNII Band 3) – Ch. 165)**




**Plot 7-94. 6dB Bandwidth Plot SISO ANT1 (40MHz BW 802.11ax – 484 Tones (UNII Band 3) – Ch. 151)**



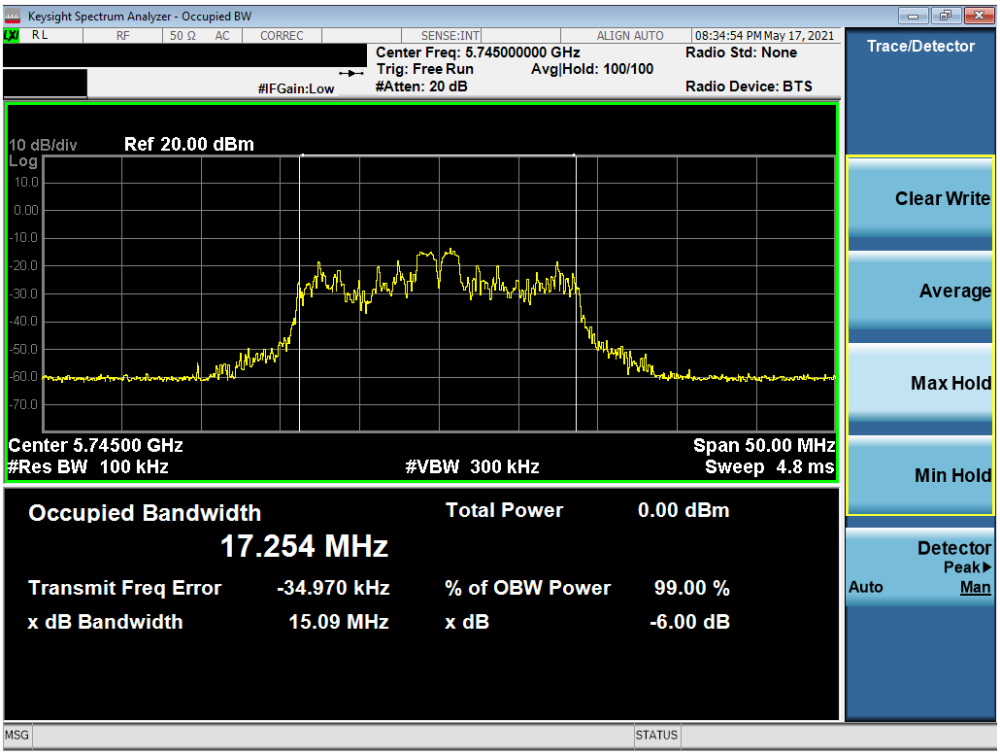

**Plot 7-95. 6dB Bandwidth Plot SISO ANT1 (40MHz BW 802.11ax – 484 Tones (UNII Band 3) – Ch. 159)**


**Plot 7-96. 6dB Bandwidth Plot SISO ANT1 (80MHz BW 802.11ax – 996 Tones (UNII Band 3) – Ch. 155)**

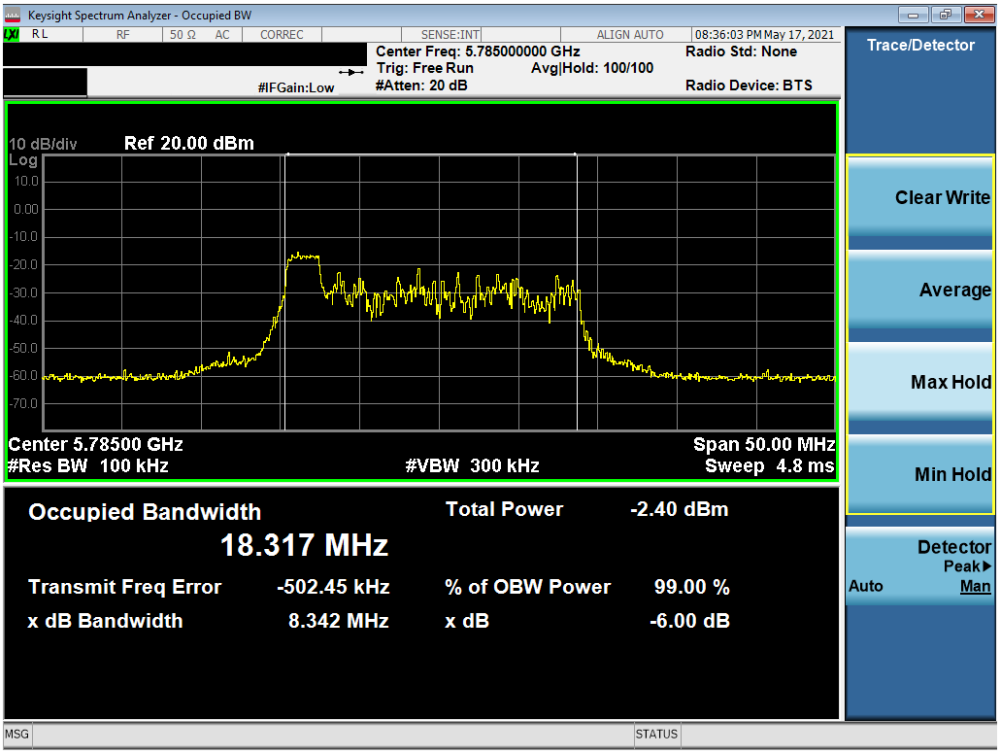
## MIMO 6dB Bandwidth Measurements (26 Tones)

| | Frequency [MHz] | Channel No. | 802.11 Mode | Tones | Data Rate [Mbps] | Measured 6dB Bandwidth [MHz] |
|---|---|---|---|---|---|---|
| Band 3 | 5745 | 149 | ax (20MHz) | 26T | MCS0 | 15.09 |
| | 5785 | 157 | ax (20MHz) | 26T | MCS0 | 8.34 |
| | 5825 | 165 | ax (20MHz) | 26T | MCS0 | 2.06 |
| | 5755 | 151 | ax (40MHz) | 26T | MCS0 | 2.12 |
| | 5795 | 159 | ax (40MHz) | 26T | MCS0 | 2.13 |
| | 5775 | 155 | ax (80MHz) | 26T | MCS0 | 2.83 |

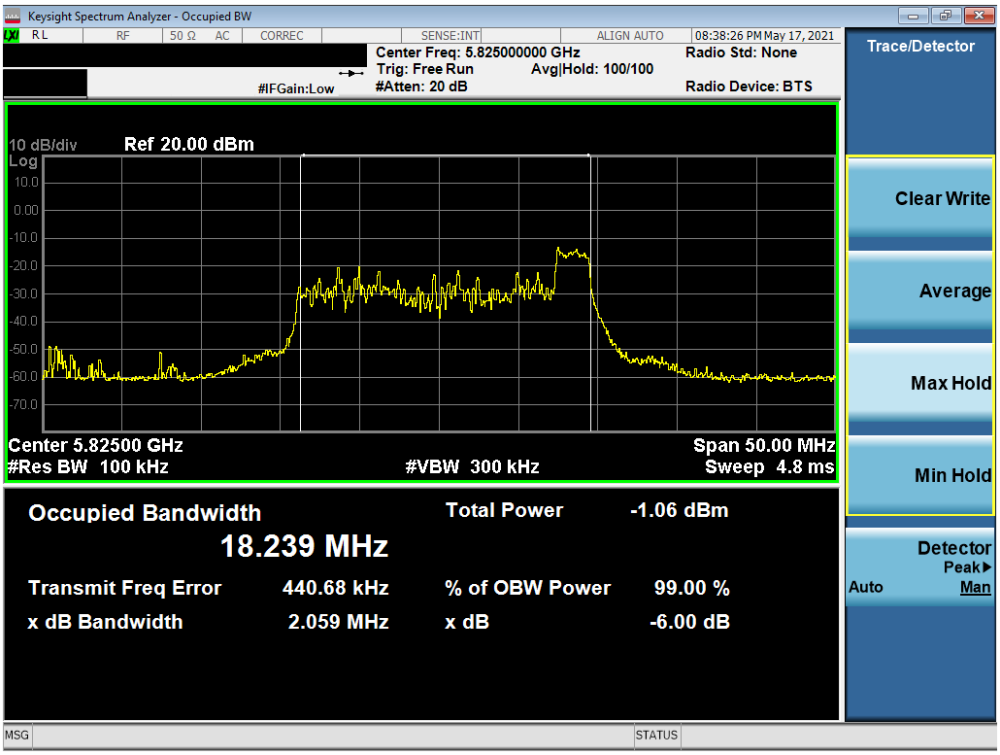
**Table 7-8. Conducted Bandwidth Measurements MIMO (26 Tones)**



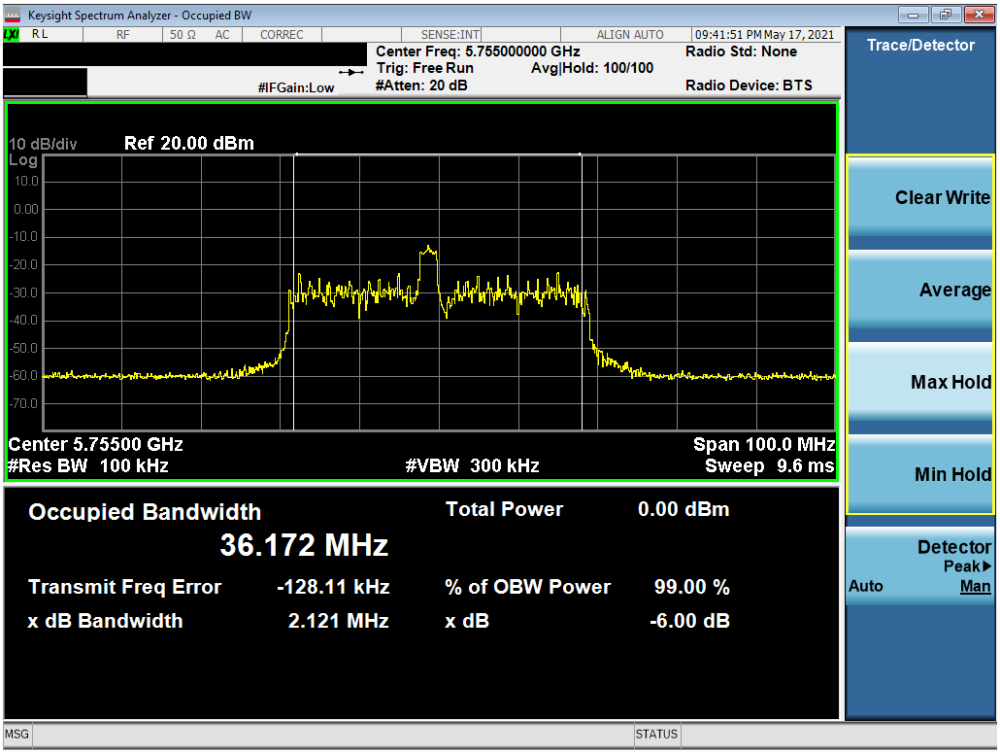

**Plot 7-97. 6dB Bandwidth Plot MIMO (20MHz BW 802.11ax – 26 Tones (UNII Band 3) – Ch. 149)**



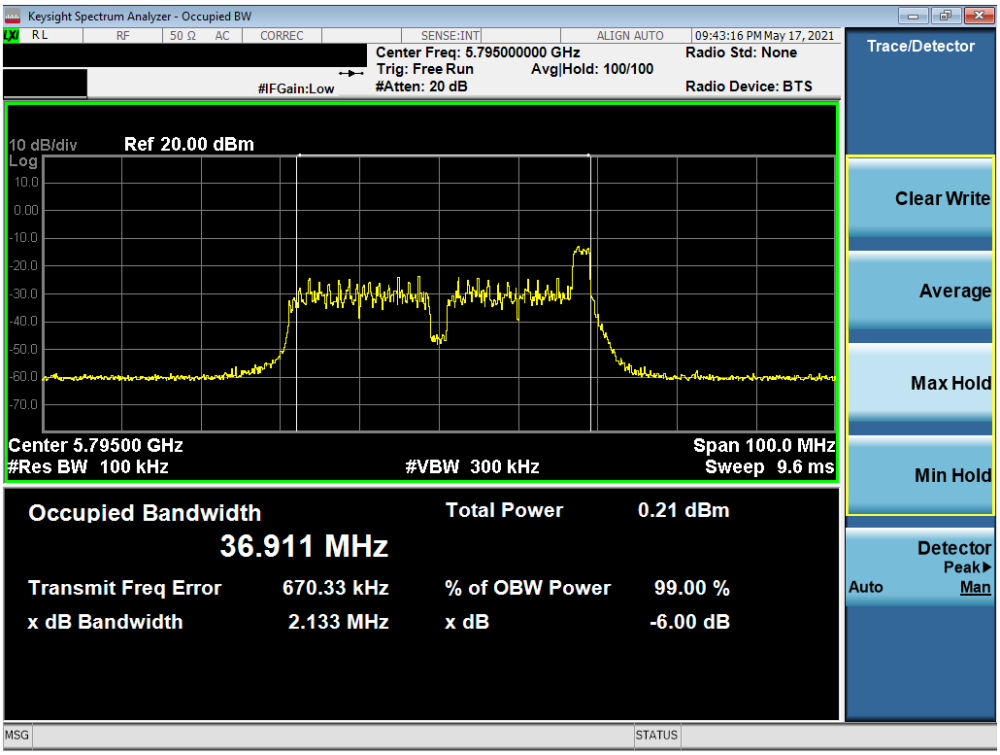

**Plot 7-98. 6dB Bandwidth Plot MIMO (20MHz BW 802.11ax – 26 Tones (UNII Band 3) – Ch. 157)**



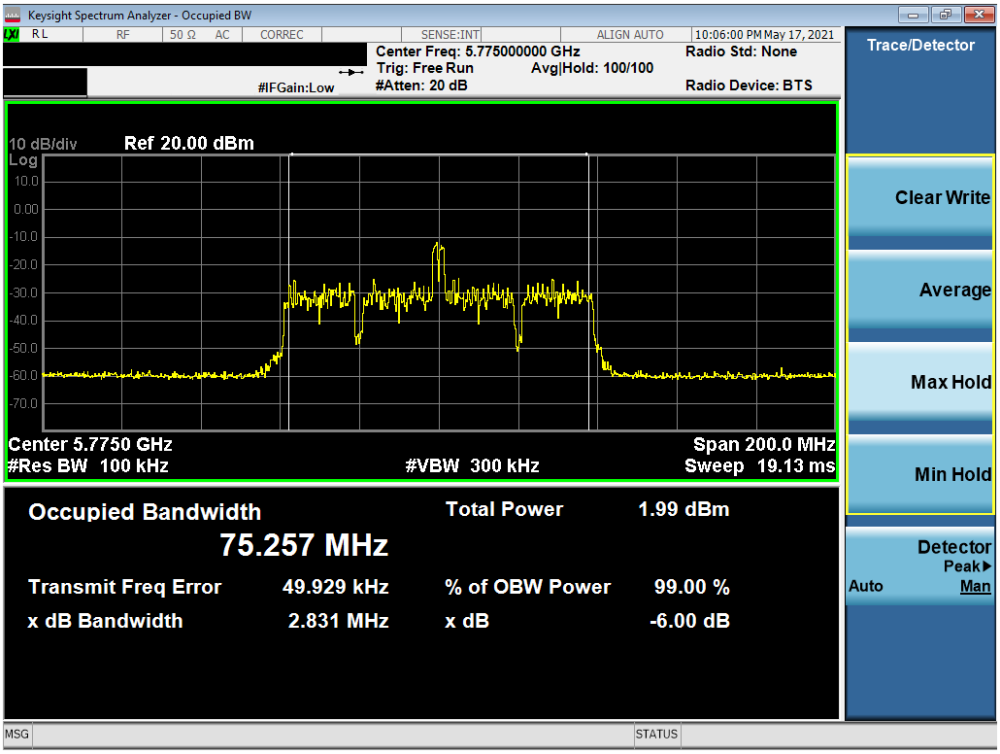

**Plot 7-99. 6dB Bandwidth Plot MIMO (20MHz BW 802.11ax – 26 Tones (UNII Band 3) – Ch. 165)**




**Plot 7-100. 6dB Bandwidth Plot MIMO (40MHz BW 802.11ax – 26 Tones (UNII Band 3) – Ch. 151)**




**Plot 7-101. 6dB Bandwidth Plot MIMO (40MHz BW 802.11ax – 26 Tones (UNII Band 3) – Ch. 159)**

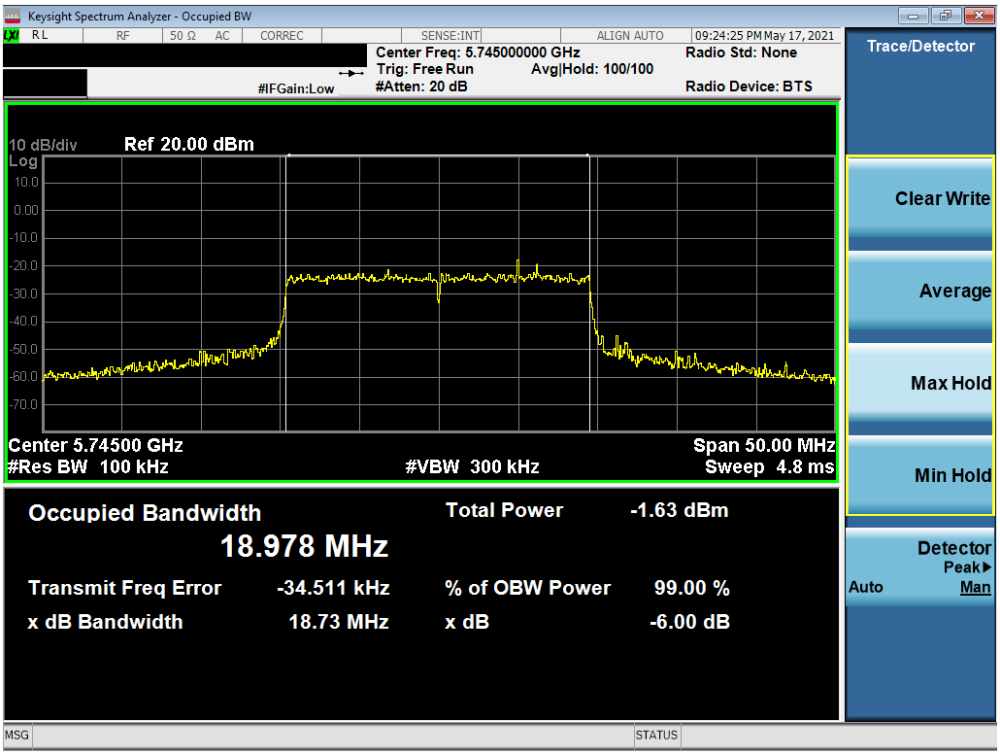



**Plot 7-102. 6dB Bandwidth Plot MIMO (80MHz BW 802.11ax – 26 Tones (UNII Band 3) – Ch. 155)**

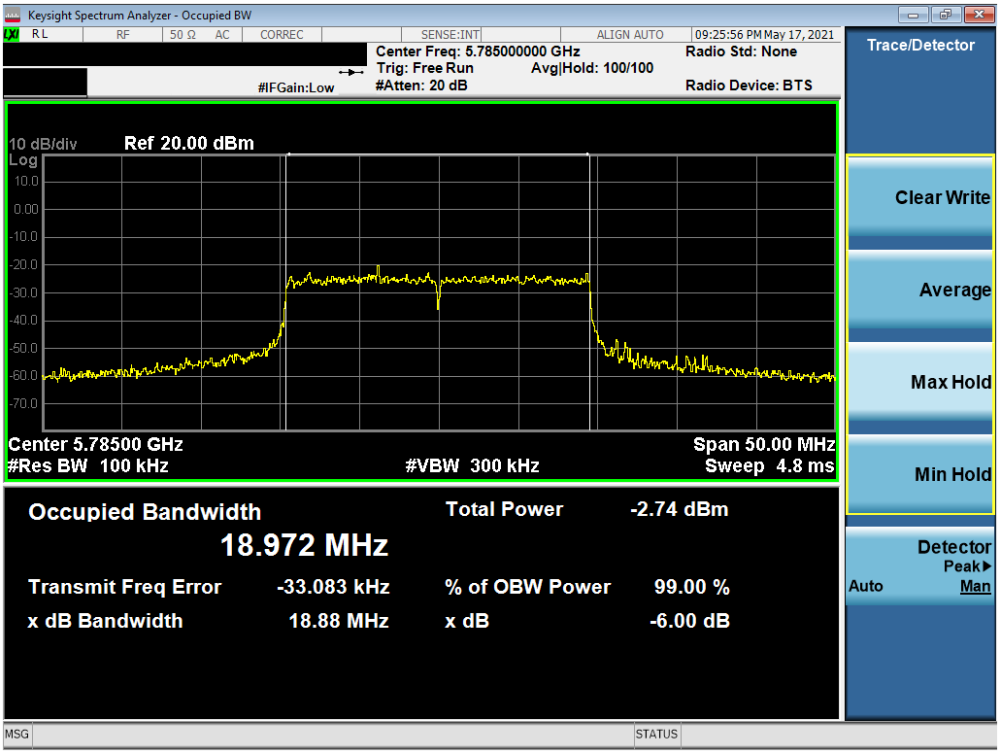
## MIMO 6dB Bandwidth Measurements (Full Tones)

| | Frequency [MHz] | Channel No. | 802.11 Mode | Tones | Data Rate [Mbps] | Measured 6dB Bandwidth [MHz] |
|---|---|---|---|---|---|---|
| Band 3 | 5745 | 149 | ax (20MHz) | 242T | MCS0 | 18.73 |
| | 5785 | 157 | ax (20MHz) | 242T | MCS0 | 18.88 |
| | 5825 | 165 | ax (20MHz) | 242T | MCS0 | 18.80 |
| | 5755 | 151 | ax (40MHz) | 484T | MCS0 | 37.90 |
| | 5795 | 159 | ax (40MHz) | 484T | MCS0 | 37.94 |
| | 5775 | 155 | ax (80MHz) | 996T | MCS0 | 74.71 |

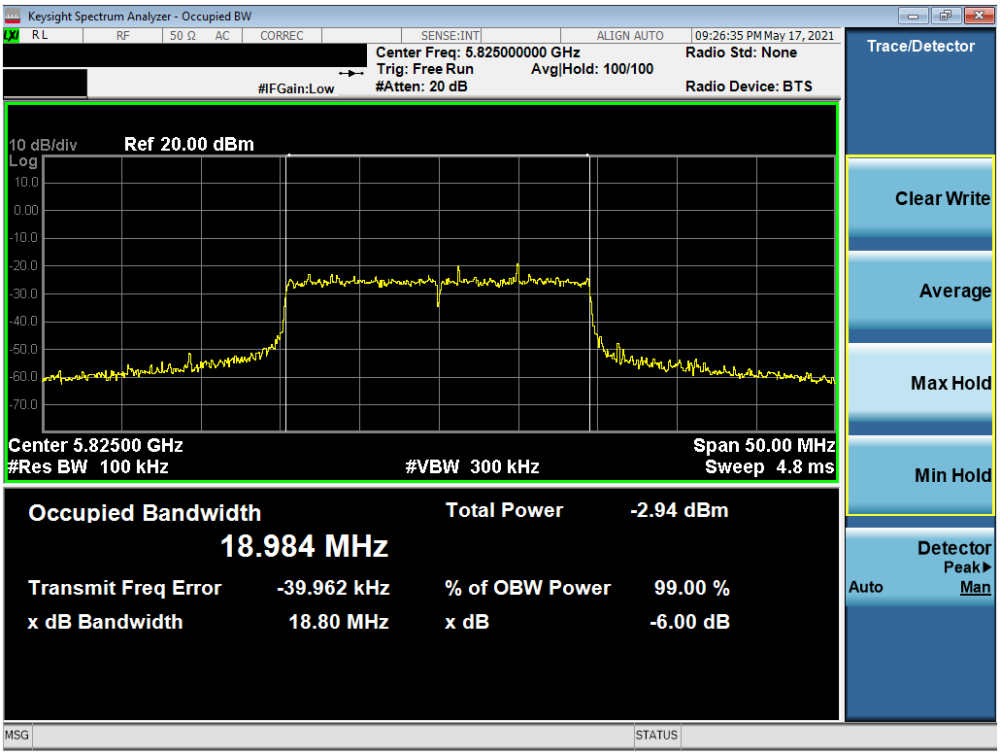
**Table 7-9. Conducted Bandwidth Measurements MIMO (Full Tones)**



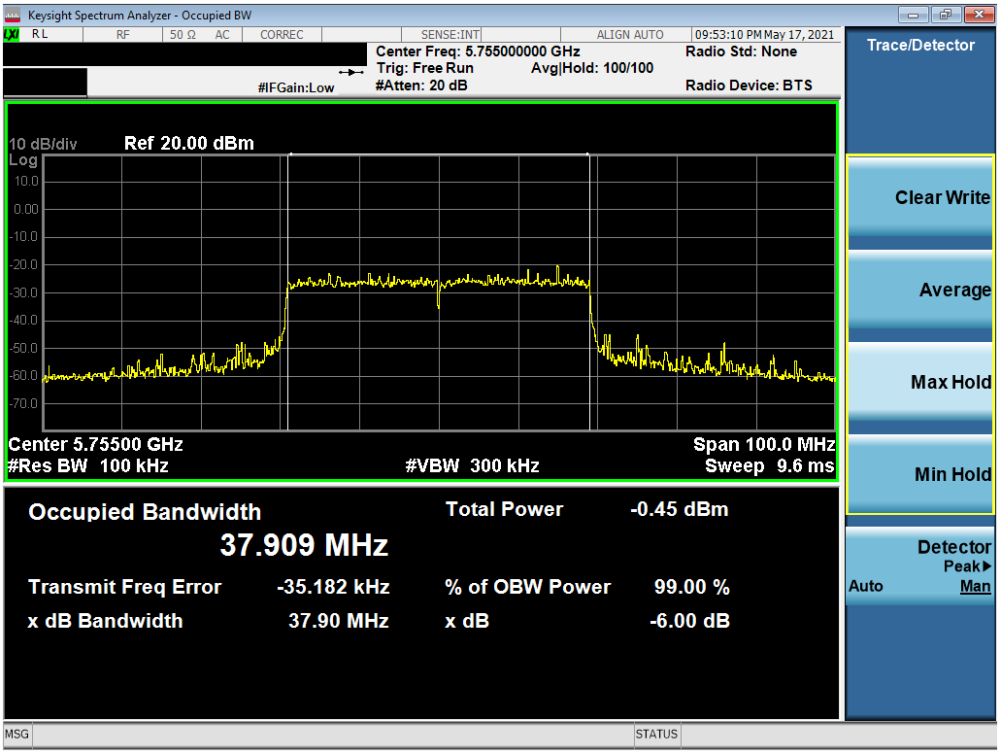

**Plot 7-103. 6dB Bandwidth Plot MIMO (20MHz BW 802.11ax – 242 Tones (UNII Band 3) – Ch. 149)**



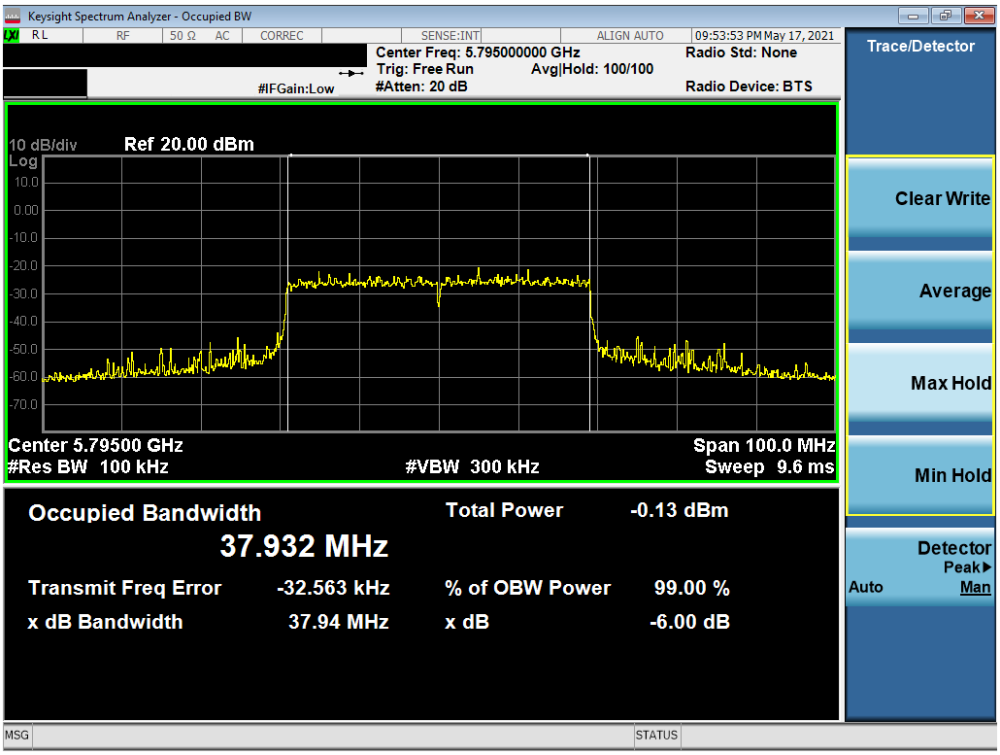

**Plot 7-104. 6dB Bandwidth Plot MIMO (20MHz BW 802.11ax – 242 Tones (UNII Band 3) – Ch. 157)**



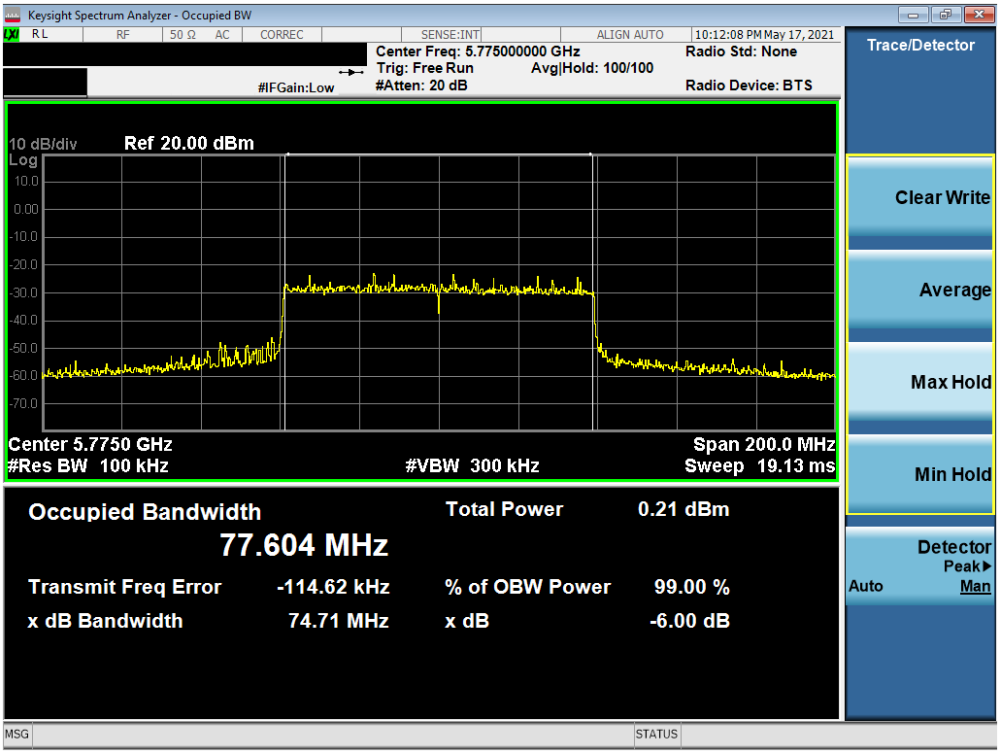

**Plot 7-105. 6dB Bandwidth Plot MIMO (20MHz BW 802.11ax – 242 Tones (UNII Band 3) – Ch. 165)**




**Plot 7-106. 6dB Bandwidth Plot MIMO (40MHz BW 802.11ax – 484 Tones (UNII Band 3) – Ch. 151)**




**Plot 7-107. 6dB Bandwidth Plot MIMO (40MHz BW 802.11ax – 484 Tones (UNII Band 3) – Ch. 159)**




**Plot 7-108. 6dB Bandwidth Plot MIMO (80MHz BW 802.11ax – 996 Tones (UNII Band 3) – Ch. 155)**

## 7.4 UNII Output Power Measurement – 802.11ax OFDMA

**§15.407(a.1.iv) §15.407(a.2) §15.407(a.3); RSS-247 [6.2]**

### Test Overview and Limits

A transmitter antenna terminal of the EUT is connected to the input of an RF pulse power sensor. Measurement is made using a broadband average power meter while the EUT is operating at its maximum duty cycle, at its maximum power control level, as defined in ANSI C63.10-2013 and KDB 789033 D02 v02r01, and at the appropriate frequencies.

***In the 5.15 – 5.25GHz band, the maximum permissible conducted output power is 250mW (23.98dBm). The maximum e.i.r.p. shall not exceed the lesser of 200 mW or 10 + 10 log10B, dBm.***

***In the 5.25 – 5.35GHz band, the maximum permissible conducted output power is the lesser of 250mW (23.98dBm) or 11 dBm + 10log$_{10}$(26dB BW) = 11 dBm + 10log$_{10}$(17.93) = 23.54dBm. The maximum e.i.r.p. shall not exceed the lesser of 1.0 W or 17 + 10 log10B, dBm.***

***In the 5.47 – 5.725GHz band, the maximum permissible conducted output power is the lesser of 250mW (23.98dBm) or 11 dBm + 10log$_{10}$(26dB BW) = 11 dBm + 10log$_{10}$(17.98) = 23.55 dBm. The maximum e.i.r.p. shall not exceed the lesser of 1.0 W or 17 + 10 log10B, dBm.***

***In the 5.725 – 5.850GHz band, the maximum permissible conducted output power is 1W (30dBm). The maximum e.i.r.p. is 36 dBm.***

### Test Procedure Used

ANSI C63.10-2013 – Section 12.3.3.2 Method PM-G
KDB 789033 D02 v02r01 – Section E)3)b) Method PM-G
ANSI C63.10-2013 – Section 14.2 Measure-and-Sum Technique
KDB 662911 v02r01 – Section E)1) Measure-and-Sum Technique

### Test Settings

Average power measurements were performed only when the EUT was transmitting at its maximum power control level using a broadband power meter with a pulse sensor. The power meter implemented triggering and gating capabilities which were set up such that power measurements were recorded only during the ON time of the transmitter. The trace was averaged over 100 traces to obtain the final measured average power.

### Test Setup

The EUT and measurement equipment were set up as shown in the diagram below.


**Figure 7-3. Test Instrument & Measurement Setup**

# SISO ANT 1 Maximum Conducted Output Power Measurements (26 Tones)

| | Freq [MHz] | Channel | Detector | Tones | RU Index | | | Conducted Power Limit [dBm] | Conducted Power Margin [dB] | Ant. Gain [dBi] | Max e.i.r.p. [dBm] | Max e.i.r.p. Limit [dBm] | e.i.r.p. Margin [dB] |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | 0 | 4 | 8 | | | | | | |
| 5GHz (20MHz Bandwidth) | 5180 | 36 | AVG | 26T | 10.43 | 10.48 | 10.41 | 23.98 | -13.50 | -6.60 | 3.88 | 22.39 | -18.51 |
| | 5200 | 40 | AVG | 26T | 10.21 | 10.26 | 10.09 | 23.98 | -13.72 | -6.60 | 3.66 | 22.39 | -18.73 |
| | 5240 | 48 | AVG | 26T | 10.37 | 10.39 | 10.23 | 23.98 | -13.59 | -6.60 | 3.79 | 22.39 | -18.60 |
| | 5260 | 52 | AVG | 26T | 10.35 | 10.34 | 10.15 | 23.47 | -13.12 | -8.10 | 2.25 | 29.47 | -27.22 |
| | 5280 | 56 | AVG | 26T | 10.42 | 10.45 | 10.27 | 23.47 | -13.02 | -8.10 | 2.35 | 29.47 | -27.12 |
| | 5320 | 64 | AVG | 26T | 10.23 | 10.24 | 10.49 | 23.47 | -12.98 | -8.10 | 2.39 | 29.47 | -27.08 |
| | 5500 | 100 | AVG | 26T | 10.26 | 10.38 | 10.34 | 22.80 | -12.42 | -9.80 | 0.58 | 28.80 | -28.22 |
| | 5600 | 120 | AVG | 26T | 10.07 | 10.12 | 10.08 | 22.80 | -12.68 | -9.80 | 0.32 | 28.80 | -28.48 |
| | 5720 | 144 | AVG | 26T | 10.48 | 10.11 | 10.08 | 22.80 | -12.32 | -9.80 | 0.68 | 28.80 | -28.12 |
| | 5745 | 149 | AVG | 26T | 10.41 | 10.48 | 10.47 | 30.00 | -19.52 | -7.70 | 2.78 | - | - |
| | 5785 | 157 | AVG | 26T | 10.48 | 10.13 | 10.09 | 30.00 | -19.52 | -7.70 | 2.78 | - | - |
| | 5825 | 165 | AVG | 26T | 10.32 | 10.44 | 10.35 | 30.00 | -19.56 | -7.70 | 2.74 | - | - |

**Table 7-10. 20MHz BW (UNII) Maximum Conducted Output Power (26 Tones)**

| | Freq [MHz] | Channel | Detector | Tones | RU Index | | | Conducted Power Limit [dBm] | Conducted Power Margin [dB] | Ant. Gain [dBi] | Max e.i.r.p. [dBm] | Max e.i.r.p. Limit [dBm] | e.i.r.p. Margin [dB] |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | 0 | 8 | 17 | | | | | | |
| 5GHz (40MHz Bandwidth) | 5190 | 38 | AVG | 26T | 10.11 | 10.16 | 10.02 | 23.98 | -13.82 | -6.60 | 3.56 | 22.39 | -18.83 |
| | 5230 | 46 | AVG | 26T | 10.42 | 10.25 | 10.07 | 23.98 | -13.56 | -6.60 | 3.82 | 22.39 | -18.57 |
| | 5270 | 54 | AVG | 26T | 10.13 | 10.49 | 10.42 | 23.47 | -12.98 | -8.10 | 2.39 | 29.47 | -27.08 |
| | 5310 | 62 | AVG | 26T | 10.13 | 10.48 | 10.46 | 23.47 | -12.99 | -8.10 | 2.38 | 29.47 | -27.09 |
| | 5510 | 102 | AVG | 26T | 10.10 | 9.89 | 10.01 | 22.80 | -12.70 | -9.80 | 0.30 | 28.80 | -28.50 |
| | 5590 | 118 | AVG | 26T | 10.24 | 10.06 | 10.17 | 22.80 | -12.56 | -9.80 | 0.44 | 28.80 | -28.36 |
| | 5710 | 142 | AVG | 26T | 10.02 | 10.28 | 10.02 | 22.80 | -12.52 | -9.80 | 0.48 | 28.80 | -28.32 |
| | 5755 | 151 | AVG | 26T | 10.41 | 10.46 | 10.07 | 30.00 | -19.54 | -7.70 | 2.76 | - | - |
| | 5795 | 159 | AVG | 26T | 10.13 | 10.23 | 10.44 | 30.00 | -19.56 | -7.70 | 2.74 | - | - |

**Table 7-11. MIMO 40MHz BW (UNII) Maximum Conducted Output Power (26 Tones)**

| | Freq [MHz] | Channel | Detector | Tones | RU Index | | | Conducted Power Limit [dBm] | Conducted Power Margin [dB] | Ant. Gain [dBi] | Max e.i.r.p. [dBm] | Max e.i.r.p. Limit [dBm] | e.i.r.p. Margin [dB] |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | 0 | 18 | 36 | | | | | | |
| 5GHz (80MHz Bandwidth) | 5210 | 42 | AVG | 26T | 10.26 | 10.39 | 10.27 | 23.98 | -13.59 | -6.60 | 3.79 | 22.39 | -18.60 |
| | 5290 | 58 | AVG | 26T | 10.35 | 10.47 | 10.23 | 23.47 | -13.00 | -8.10 | 2.37 | 29.47 | -27.10 |
| | 5530 | 106 | AVG | 26T | 10.27 | 10.14 | 10.46 | 22.80 | -12.34 | -9.80 | 0.66 | 28.80 | -28.14 |
| | 5610 | 122 | AVG | 26T | 10.42 | 10.36 | 10.25 | 22.80 | -12.38 | -9.80 | 0.62 | 28.80 | -28.18 |
| | 5690 | 138 | AVG | 26T | 9.91 | 10.44 | 10.43 | 22.80 | -12.36 | -9.80 | 0.64 | 28.80 | -28.16 |
| | 5775 | 155 | AVG | 26T | 9.97 | 10.23 | 10.02 | 30.00 | -19.77 | -7.70 | 2.53 | - | - |

**Table 7-12. MIMO 80MHz BW (UNII) Maximum Conducted Output Power (26 Tones)**

# SISO ANT 1 Conducted Output Power Measurements (52 Tones)

| | Freq [MHz] | Channel | Detector | Tones | RU Index | | | Conducted Power Limit [dBm] | Conducted Power Margin [dB] | Ant. Gain [dBi] | Max e.i.r.p. [dBm] | Max e.i.r.p. Limit [dBm] | e.i.r.p. Margin [dB] |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | 37 | 39 | 40 | | | | | | |
| 5GHz (20MHz Bandwidth) | 5180 | 36 | AVG | 52T | 10.93 | 10.97 | 10.91 | 23.98 | -13.01 | -6.60 | 4.37 | 22.39 | -18.02 |
| | 5200 | 40 | AVG | 52T | 10.92 | 10.86 | 10.79 | 23.98 | -13.06 | -6.60 | 4.32 | 22.39 | -18.07 |
| | 5240 | 48 | AVG | 52T | 10.86 | 10.91 | 10.76 | 23.98 | -13.07 | -6.60 | 4.31 | 22.39 | -18.08 |
| | 5260 | 52 | AVG | 52T | 10.88 | 10.89 | 10.77 | 23.47 | -12.58 | -8.10 | 2.79 | 29.47 | -26.68 |
| | 5280 | 56 | AVG | 52T | 10.92 | 10.91 | 10.78 | 23.47 | -12.55 | -8.10 | 2.82 | 29.47 | -26.65 |
| | 5320 | 64 | AVG | 52T | 10.67 | 10.66 | 10.98 | 23.47 | -12.49 | -8.10 | 2.88 | 29.47 | -26.59 |
| | 5500 | 100 | AVG | 52T | 10.41 | 10.48 | 10.39 | 22.80 | -12.32 | -9.80 | 0.68 | 28.80 | -28.12 |
| | 5600 | 120 | AVG | 52T | 10.72 | 10.79 | 10.65 | 22.80 | -12.01 | -9.80 | 0.99 | 28.80 | -27.81 |
| | 5720 | 144 | AVG | 52T | 10.62 | 10.81 | 10.79 | 22.80 | -11.99 | -9.80 | 1.01 | 28.80 | -27.79 |
| | 5745 | 149 | AVG | 52T | 10.91 | 10.63 | 10.58 | 30.00 | -19.09 | -7.70 | 3.21 | - | - |
| | 5785 | 157 | AVG | 52T | 10.97 | 10.76 | 10.71 | 30.00 | -19.03 | -7.70 | 3.27 | - | - |
| | 5825 | 165 | AVG | 52T | 10.94 | 10.98 | 10.96 | 30.00 | -19.02 | -7.70 | 3.28 | - | - |

**Table 7-13. 20MHz BW (UNII) Maximum Conducted Output Power (52 Tones)**

| | Freq [MHz] | Channel | Detector | Tones | RU Index | | | Conducted Power Limit [dBm] | Conducted Power Margin [dB] | Ant. Gain [dBi] | Max e.i.r.p. [dBm] | Max e.i.r.p. Limit [dBm] | e.i.r.p. Margin [dB] |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | 37 | 40 | 44 | | | | | | |
| 5GHz (40MHz Bandwidth) | 5190 | 38 | AVG | 52T | 10.73 | 10.54 | 10.55 | 23.98 | -13.25 | -6.60 | 4.13 | 22.39 | -18.26 |
| | 5230 | 46 | AVG | 52T | 10.47 | 10.76 | 10.68 | 23.98 | -13.22 | -6.60 | 4.16 | 22.39 | -18.23 |
| | 5270 | 54 | AVG | 52T | 10.67 | 10.99 | 10.50 | 23.47 | -12.48 | -8.10 | 2.89 | 29.47 | -26.58 |
| | 5310 | 62 | AVG | 52T | 10.72 | 10.48 | 10.57 | 23.47 | -12.75 | -8.10 | 2.62 | 29.47 | -26.85 |
| | 5510 | 102 | AVG | 52T | 10.25 | 10.67 | 10.23 | 22.80 | -12.13 | -9.80 | 0.87 | 28.80 | -27.93 |
| | 5590 | 118 | AVG | 52T | 10.34 | 10.81 | 10.48 | 22.80 | -11.99 | -9.80 | 1.01 | 28.80 | -27.79 |
| | 5710 | 142 | AVG | 52T | 10.75 | 10.79 | 10.52 | 22.80 | -12.01 | -9.80 | 0.99 | 28.80 | -27.81 |
| | 5755 | 151 | AVG | 52T | 10.59 | 10.76 | 10.41 | 30.00 | -19.24 | -7.70 | 3.06 | - | - |
| | 5795 | 159 | AVG | 52T | 10.72 | 10.80 | 10.53 | 30.00 | -19.20 | -7.70 | 3.10 | - | - |

**Table 7-14. 40MHz BW (UNII) Maximum Conducted Output Power (52 Tones)**

| | Freq [MHz] | Channel | Detector | Tones | RU Index | | | Conducted Power Limit [dBm] | Conducted Power Margin [dB] | Ant. Gain [dBi] | Max e.i.r.p. [dBm] | Max e.i.r.p. Limit [dBm] | e.i.r.p. Margin [dB] |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | 37 | 44 | 52 | | | | | | |
| 5GHz (80MHz Bandwidth) | 5210 | 42 | AVG | 52T | 10.75 | 10.89 | 10.81 | 23.98 | -13.09 | -6.60 | 4.29 | 22.39 | -18.10 |
| | 5290 | 58 | AVG | 52T | 10.87 | 10.81 | 10.74 | 23.47 | -12.60 | -8.10 | 2.77 | 29.47 | -26.70 |
| | 5530 | 106 | AVG | 52T | 10.57 | 10.88 | 10.73 | 22.80 | -11.92 | -9.80 | 1.08 | 28.80 | -27.72 |
| | 5610 | 122 | AVG | 52T | 10.93 | 10.88 | 10.76 | 22.80 | -11.87 | -9.80 | 1.13 | 28.80 | -27.67 |
| | 5690 | 138 | AVG | 52T | 10.64 | 10.62 | 10.69 | 22.80 | -12.11 | -9.80 | 0.89 | 28.80 | -27.91 |
| | 5775 | 155 | AVG | 52T | 10.36 | 10.97 | 10.77 | 30.00 | -19.03 | -7.70 | 3.27 | - | - |

**Table 7-15. 80MHz BW (UNII) Maximum Conducted Output Power (52 Tones)**

# SISO ANT 1 Conducted Output Power Measurements (106 Tones)

| 5GHz (20MHz Bandwidth) | Freq [MHz] | Channel | Detector | Tones | RU Index | | Conducted Power Limit [dBm] | Conducted Power Margin [dB] | Ant. Gain [dBi] | Max e.i.r.p. [dBm] | Max e.i.r.p. Limit [dBm] | e.i.r.p. Margin [dB] |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | 53 | 54 | | | | | | |
| | 5180 | 36 | AVG | 106T | 14.32 | 14.27 | 23.98 | -9.66 | -6.60 | 7.72 | 22.39 | -14.67 |
| | 5200 | 40 | AVG | 106T | 14.15 | 14.05 | 23.98 | -9.83 | -6.60 | 7.55 | 22.39 | -14.84 |
| | 5240 | 48 | AVG | 106T | 14.11 | 14.03 | 23.98 | -9.87 | -6.60 | 7.51 | 22.39 | -14.88 |
| | 5260 | 52 | AVG | 106T | 14.15 | 14.04 | 23.47 | -9.32 | -8.10 | 6.05 | 29.47 | -23.42 |
| | 5280 | 56 | AVG | 106T | 14.15 | 14.08 | 23.47 | -9.32 | -8.10 | 6.05 | 29.47 | -23.42 |
| | 5320 | 64 | AVG | 106T | 14.05 | 14.02 | 23.47 | -9.42 | -8.10 | 5.95 | 29.47 | -23.52 |
| | 5500 | 100 | AVG | 106T | 14.27 | 14.27 | 22.80 | -8.53 | -9.80 | 4.47 | 28.80 | -24.33 |
| | 5600 | 120 | AVG | 106T | 14.19 | 14.10 | 22.80 | -8.61 | -9.80 | 4.39 | 28.80 | -24.41 |
| | 5720 | 144 | AVG | 106T | 14.01 | 14.06 | 22.80 | -8.74 | -9.80 | 4.26 | 28.80 | -24.54 |
| | 5745 | 149 | AVG | 106T | 14.25 | 14.29 | 30.00 | -15.71 | -7.70 | 6.59 | - | - |
| | 5785 | 157 | AVG | 106T | 14.22 | 14.27 | 30.00 | -15.73 | -7.70 | 6.57 | - | - |
| | 5825 | 165 | AVG | 106T | 14.43 | 14.45 | 30.00 | -15.55 | -7.70 | 6.75 | - | - |

**Table 7-16. 20MHz BW (UNII) Maximum Conducted Output Power (106 Tones)**

| 5GHz (40MHz Bandwidth) | Freq [MHz] | Channel | Detector | Tones | RU Index | | | Conducted Power Limit [dBm] | Conducted Power Margin [dB] | Ant. Gain [dBi] | Max e.i.r.p. [dBm] | Max e.i.r.p. Limit [dBm] | e.i.r.p. Margin [dB] |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | 53 | 54 | 56 | | | | | | |
| | 5190 | 38 | AVG | 106T | 14.18 | 14.47 | 14.07 | 23.98 | -9.51 | -6.60 | 7.87 | 22.39 | -14.52 |
| | 5230 | 46 | AVG | 106T | 14.17 | 14.25 | 13.96 | 23.98 | -9.73 | -6.60 | 7.65 | 22.39 | -14.74 |
| | 5270 | 54 | AVG | 106T | 14.19 | 14.28 | 13.94 | 23.47 | -9.19 | -8.10 | 6.18 | 29.47 | -23.29 |
| | 5310 | 62 | AVG | 106T | 14.44 | 14.10 | 14.29 | 23.47 | -9.03 | -8.10 | 6.34 | 29.47 | -23.13 |
| | 5510 | 102 | AVG | 106T | 14.43 | 14.04 | 14.33 | 22.80 | -8.37 | -9.80 | 4.63 | 28.80 | -24.17 |
| | 5590 | 118 | AVG | 106T | 14.12 | 14.42 | 14.16 | 22.80 | -8.38 | -9.80 | 4.62 | 28.80 | -24.18 |
| | 5710 | 142 | AVG | 106T | 14.09 | 14.46 | 14.20 | 22.80 | -8.34 | -9.80 | 4.66 | 28.80 | -24.14 |
| | 5755 | 151 | AVG | 106T | 14.04 | 14.32 | 14.11 | 30.00 | -15.68 | -7.70 | 6.62 | - | - |
| | 5795 | 159 | AVG | 106T | 14.08 | 14.34 | 14.06 | 30.00 | -15.66 | -7.70 | 6.64 | - | - |

**Table 7-17. 40MHz BW (UNII) Maximum Conducted Output Power (106 Tones)**

| 5GHz (80MHz Bandwidth) | Freq [MHz] | Channel | Detector | Tones | RU Index | | | Conducted Power Limit [dBm] | Conducted Power Margin [dB] | Ant. Gain [dBi] | Max e.i.r.p. [dBm] | Max e.i.r.p. Limit [dBm] | e.i.r.p. Margin [dB] |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | 53 | 56 | 60 | | | | | | |
| | 5210 | 42 | AVG | 106T | 14.37 | 14.42 | 14.26 | 23.98 | -9.56 | -6.60 | 7.82 | 22.39 | -14.57 |
| | 5290 | 58 | AVG | 106T | 14.28 | 14.33 | 14.23 | 23.47 | -9.14 | -8.10 | 6.23 | 29.47 | -23.24 |
| | 5530 | 106 | AVG | 106T | 14.20 | 14.45 | 14.32 | 22.80 | -8.35 | -9.80 | 4.65 | 28.80 | -24.15 |
| | 5610 | 122 | AVG | 106T | 14.22 | 14.49 | 14.48 | 22.80 | -8.31 | -9.80 | 4.69 | 28.80 | -24.11 |
| | 5690 | 138 | AVG | 106T | 13.89 | 14.37 | 14.38 | 22.80 | -8.42 | -9.80 | 4.58 | 28.80 | -24.22 |
| | 5775 | 155 | AVG | 106T | 13.86 | 14.32 | 14.17 | 30.00 | -15.68 | -7.70 | 6.62 | - | - |

**Table 7-18. 80MHz BW (UNII) Maximum Conducted Output Power (106 Tones)**

## SISO ANT 1 Conducted Output Power Measurements (242 Tones)

| 5GHz (20MHz Bandwidth) | Freq [MHz] | Channel | Detector | Tones | RU Index | Conducted Power Limit [dBm] | Conducted Power Margin [dB] | Ant. Gain [dBi] | Max e.i.r.p. [dBm] | Max e.i.r.p. Limit [dBm] | e.i.r.p. Margin [dB] |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | 61 | | | | | | |
| | 5180 | 36 | AVG | 242T | 14.73 | 23.98 | -9.25 | -6.60 | 8.13 | 22.39 | -14.26 |
| | 5200 | 40 | AVG | 242T | 14.62 | 23.98 | -9.36 | -6.60 | 8.02 | 22.39 | -14.37 |
| | 5240 | 48 | AVG | 242T | 14.64 | 23.98 | -9.34 | -6.60 | 8.04 | 22.39 | -14.35 |
| | 5260 | 52 | AVG | 242T | 14.55 | 23.47 | -8.92 | -8.10 | 6.45 | 29.47 | -23.02 |
| | 5280 | 56 | AVG | 242T | 14.70 | 23.47 | -8.77 | -8.10 | 6.60 | 29.47 | -22.87 |
| | 5320 | 64 | AVG | 242T | 14.65 | 23.47 | -8.82 | -8.10 | 6.55 | 29.47 | -22.92 |
| | 5500 | 100 | AVG | 242T | 14.57 | 22.80 | -8.23 | -9.80 | 4.77 | 28.80 | -24.03 |
| | 5600 | 120 | AVG | 242T | 14.84 | 22.80 | -7.96 | -9.80 | 5.04 | 28.80 | -23.76 |
| | 5720 | 144 | AVG | 242T | 14.81 | 22.80 | -7.99 | -9.80 | 5.01 | 28.80 | -23.79 |
| | 5745 | 149 | AVG | 242T | 14.44 | 30.00 | -15.56 | -7.70 | 6.74 | - | - |
| | 5785 | 157 | AVG | 242T | 14.89 | 30.00 | -15.11 | -7.70 | 7.19 | - | - |
| | 5825 | 165 | AVG | 242T | 14.69 | 30.00 | -15.31 | -7.70 | 6.99 | - | - |

**Table 7-19. 20MHz BW (UNII) Maximum Conducted Output Power (242 Tones)**

| 5GHz (40MHz Bandwidth) | Freq [MHz] | Channel | Detector | Tones | RU Index | | Conducted Power Limit [dBm] | Conducted Power Margin [dB] | Ant. Gain [dBi] | Max e.i.r.p. [dBm] | Max e.i.r.p. Limit [dBm] | e.i.r.p. Margin [dB] |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | 61 | 62 | | | | | | |
| | 5190 | 38 | AVG | 242T | 13.25 | 13.07 | 23.98 | -10.73 | -6.60 | 6.65 | 22.39 | -15.74 |
| | 5230 | 46 | AVG | 242T | 14.90 | 14.76 | 23.98 | -9.08 | -6.60 | 8.30 | 22.39 | -14.09 |
| | 5270 | 54 | AVG | 242T | 14.97 | 14.80 | 23.47 | -8.50 | -8.10 | 6.87 | 29.47 | -22.60 |
| | 5310 | 62 | AVG | 242T | 12.63 | 12.97 | 23.47 | -10.50 | -8.10 | 4.87 | 29.47 | -24.60 |
| | 5510 | 102 | AVG | 242T | 12.94 | 12.85 | 22.80 | -9.86 | -9.80 | 3.14 | 28.80 | -25.66 |
| | 5590 | 118 | AVG | 242T | 14.50 | 14.59 | 22.80 | -8.21 | -9.80 | 4.79 | 28.80 | -24.01 |
| | 5710 | 142 | AVG | 242T | 14.58 | 14.81 | 22.80 | -7.99 | -9.80 | 5.01 | 28.80 | -23.79 |
| | 5755 | 151 | AVG | 242T | 14.46 | 14.62 | 30.00 | -15.38 | -7.70 | 6.92 | - | - |
| | 5795 | 159 | AVG | 242T | 14.60 | 14.56 | 30.00 | -15.40 | -7.70 | 6.90 | - | - |

**Table 7-20. 40MHz BW (UNII) Maximum Conducted Output Power (242 Tones)**

| 5GHz (80MHz Bandwidth) | Freq [MHz] | Channel | Detector | Tones | RU Index | | | Conducted Power Limit [dBm] | Conducted Power Margin [dB] | Ant. Gain [dBi] | Max e.i.r.p. [dBm] | Max e.i.r.p. Limit [dBm] | e.i.r.p. Margin [dB] |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | 61 | 62 | 64 | | | | | | |
| | 5210 | 42 | AVG | 242T | 12.81 | 12.82 | 12.42 | 23.98 | -11.16 | -6.60 | 6.22 | 22.39 | -16.17 |
| | 5290 | 58 | AVG | 242T | 11.16 | 11.04 | 10.93 | 23.47 | -12.31 | -8.10 | 3.06 | 29.47 | -26.41 |
| | 5530 | 106 | AVG | 242T | 11.06 | 11.23 | 11.20 | 22.80 | -11.57 | -9.80 | 1.43 | 28.80 | -27.37 |
| | 5610 | 122 | AVG | 242T | 14.80 | 14.96 | 14.99 | 22.80 | -7.81 | -9.80 | 5.19 | 28.80 | -23.61 |
| | 5690 | 138 | AVG | 242T | 14.96 | 14.32 | 14.48 | 22.80 | -7.84 | -9.80 | 5.16 | 28.80 | -23.64 |
| | 5775 | 155 | AVG | 242T | 14.82 | 14.95 | 14.99 | 30.00 | -15.01 | -7.70 | 7.29 | - | - |

**Table 7-21. 80MHz BW (UNII) Maximum Conducted Output Power (242 Tones)**

## SISO ANT 1 Conducted Output Power Measurements (484 Tones)

| 5GHz (40MHz Bandwidth) | Freq [MHz] | Channel | Detector | Tones | RU Index | Conducted Power Limit [dBm] | Conducted Power Margin [dB] | Ant. Gain [dBi] | Max e.i.r.p. [dBm] | Max e.i.r.p. Limit [dBm] | e.i.r.p. Margin [dB] |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | 65 | | | | | | |
| | 5190 | 38 | AVG | 484T | 13.47 | 23.98 | -10.51 | -6.60 | 6.87 | 22.39 | -15.52 |
| | 5230 | 46 | AVG | 484T | 14.85 | 23.98 | -9.13 | -6.60 | 8.25 | 22.39 | -14.14 |
| | 5270 | 54 | AVG | 484T | 14.86 | 23.47 | -8.61 | -8.10 | 6.76 | 29.47 | -22.71 |
| | 5310 | 62 | AVG | 484T | 12.77 | 23.47 | -10.70 | -8.10 | 4.67 | 29.47 | -24.80 |
| | 5510 | 102 | AVG | 484T | 12.98 | 22.80 | -9.82 | -9.80 | 3.18 | 28.80 | -25.62 |
| | 5590 | 118 | AVG | 484T | 14.49 | 22.80 | -8.31 | -9.80 | 4.69 | 28.80 | -24.11 |
| | 5710 | 142 | AVG | 484T | 14.64 | 22.80 | -8.16 | -9.80 | 4.84 | 28.80 | -23.96 |
| | 5755 | 151 | AVG | 484T | 14.53 | 30.00 | -15.47 | -7.70 | 6.83 | - | - |
| | 5795 | 159 | AVG | 484T | 14.54 | 30.00 | -15.46 | -7.70 | 6.84 | - | - |

**Table 7-22. 40MHz BW (UNII) Maximum Conducted Output Power (484 Tones)**

| 5GHz (80MHz Bandwidth) | Freq [MHz] | Channel | Detector | Tones | RU Index | | Conducted Power Limit [dBm] | Conducted Power Margin [dB] | Ant. Gain [dBi] | Max e.i.r.p. [dBm] | Max e.i.r.p. Limit [dBm] | e.i.r.p. Margin [dB] |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | 65 | 66 | | | | | | |
| | 5210 | 42 | AVG | 484T | 12.79 | 12.55 | 23.98 | -11.19 | -6.60 | 6.19 | 22.39 | -16.20 |
| | 5290 | 58 | AVG | 484T | 11.16 | 11.07 | 23.47 | -12.31 | -8.10 | 3.06 | 29.47 | -26.41 |
| | 5530 | 106 | AVG | 484T | 11.32 | 11.49 | 22.80 | -11.31 | -9.80 | 1.69 | 28.80 | -27.11 |
| | 5610 | 122 | AVG | 484T | 14.89 | 14.98 | 22.80 | -7.82 | -9.80 | 5.18 | 28.80 | -23.62 |
| | 5690 | 138 | AVG | 484T | 14.28 | 14.49 | 22.80 | -8.31 | -9.80 | 4.69 | 28.80 | -24.11 |
| | 5775 | 155 | AVG | 484T | 14.82 | 14.99 | 30.00 | -15.01 | -7.70 | 7.29 | - | - |

**Table 7-23. 80MHz BW (UNII) Maximum Conducted Output Power (484 Tones)**

## SISO ANT 1 Conducted Output Power Measurements (996 Tones)

| | Freq [MHz] | Channel | Detector | Tones | RU Index | Conducted Power Limit [dBm] | Conducted Power Margin [dB] | Ant. Gain [dBi] | Max e.i.r.p. [dBm] | Max e.i.r.p. Limit [dBm] | e.i.r.p. Margin [dB] |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | 67 | | | | | | |
| 5GHz (80MHz Bandwidth) | 5210 | 42 | AVG | 996T | 12.84 | 23.98 | -11.14 | -6.60 | 6.24 | 22.39 | -16.15 |
| | 5290 | 58 | AVG | 996T | 11.30 | 23.47 | -12.17 | -8.10 | 3.20 | 29.47 | -26.27 |
| | 5530 | 106 | AVG | 996T | 11.47 | 22.80 | -11.33 | -9.80 | 1.67 | 28.80 | -27.13 |
| | 5610 | 122 | AVG | 996T | 14.72 | 22.80 | -8.08 | -9.80 | 4.92 | 28.80 | -23.88 |
| | 5690 | 138 | AVG | 996T | 14.96 | 22.80 | -7.84 | -9.80 | 5.16 | 28.80 | -23.64 |
| | 5775 | 155 | AVG | 996T | 14.74 | 30.00 | -15.26 | -7.70 | 7.04 | - | - |

**Table 7-24. 80MHz BW (UNII) Maximum Conducted Output Power (996 Tones)**

# MIMO Maximum Conducted Output Power Measurements (26 Tones)

| 5GHz (20MHz Bandwidth) | Freq [MHz] | Channel | Detector | Tones | RU Index | | | | | | | | | Conducted Power Limit [dBm] | Conducted Power Margin [dB] | Directional Ant. Gain [dBi] | Max e.i.r.p. [dBm] | Max e.i.r.p. Limit [dBm] | e.i.r.p. Margin [dB] |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | 0 | | | 4 | | | 8 | | | | | | | | |
| | | | | | ANT1 | ANT2 | MIMO | ANT1 | ANT2 | MIMO | ANT1 | ANT2 | MIMO | | | | | | |
| | 5180 | 36 | AVG | 26T | 10.43 | 10.17 | 13.31 | 10.48 | 10.29 | 13.40 | 10.41 | 10.13 | 13.28 | 23.98 | -10.58 | -3.34 | 10.06 | 22.39 | -12.33 |
| | 5200 | 40 | AVG | 26T | 10.21 | 10.33 | 13.28 | 10.26 | 10.46 | 13.37 | 10.09 | 10.33 | 13.22 | 23.98 | -10.61 | -3.34 | 10.03 | 22.39 | -12.36 |
| | 5240 | 48 | AVG | 26T | 10.37 | 10.29 | 13.34 | 10.39 | 10.43 | 13.42 | 10.23 | 10.33 | 13.29 | 23.98 | -10.56 | -3.34 | 10.08 | 22.39 | -12.31 |
| | 5260 | 52 | AVG | 26T | 10.35 | 10.39 | 13.38 | 10.34 | 10.48 | 13.42 | 10.15 | 10.37 | 13.27 | 23.47 | -10.05 | -4.14 | 9.28 | 29.47 | -20.19 |
| | 5280 | 56 | AVG | 26T | 10.42 | 9.79 | 13.13 | 10.45 | 10.20 | 13.34 | 10.27 | 10.01 | 13.15 | 23.47 | -10.13 | -4.14 | 9.20 | 29.47 | -20.27 |
| | 5320 | 64 | AVG | 26T | 10.23 | 9.96 | 13.11 | 10.24 | 10.14 | 13.20 | 10.49 | 10.45 | 13.48 | 23.47 | -9.99 | -4.14 | 9.34 | 29.47 | -20.13 |
| | 5500 | 100 | AVG | 26T | 10.26 | 10.25 | 13.27 | 10.38 | 10.38 | 13.39 | 10.34 | 10.25 | 13.31 | 22.80 | -9.41 | -5.45 | 7.94 | 28.80 | -20.86 |
| | 5600 | 120 | AVG | 26T | 10.07 | 10.01 | 13.05 | 10.12 | 10.18 | 13.16 | 10.08 | 9.91 | 13.01 | 22.80 | -9.64 | -5.45 | 7.71 | 28.80 | -21.09 |
| | 5720 | 144 | AVG | 26T | 10.48 | 10.36 | 13.43 | 10.11 | 10.44 | 13.29 | 10.08 | 10.27 | 13.19 | 22.80 | -9.37 | -5.45 | 7.98 | 28.80 | -20.82 |
| | 5745 | 149 | AVG | 26T | 10.41 | 10.27 | 13.35 | 10.48 | 10.30 | 13.40 | 10.47 | 10.18 | 13.34 | 30.00 | -16.60 | -4.84 | 8.56 | - | - |
| | 5785 | 157 | AVG | 26T | 10.48 | 10.38 | 13.44 | 10.13 | 10.46 | 13.31 | 10.09 | 10.30 | 13.21 | 30.00 | -16.56 | -4.84 | 8.60 | - | - |
| | 5825 | 165 | AVG | 26T | 10.32 | 10.10 | 13.22 | 10.44 | 10.07 | 13.27 | 10.35 | 10.37 | 13.37 | 30.00 | -16.63 | -4.84 | 8.53 | - | - |

**Table 7-25. MIMO 20MHz BW (UNII) Maximum Conducted Output Power (26 Tones)**

| 5GHz (40MHz Bandwidth) | Freq [MHz] | Channel | Detector | Tones | RU Index | | | | | | | | | Conducted Power Limit [dBm] | Conducted Power Margin [dB] | Directional Ant. Gain [dBi] | Max e.i.r.p. [dBm] | Max e.i.r.p. Limit [dBm] | e.i.r.p. Margin [dB] |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | 0 | | | 8 | | | 17 | | | | | | | | |
| | | | | | ANT1 | ANT2 | MIMO | ANT1 | ANT2 | MIMO | ANT1 | ANT2 | MIMO | | | | | | |
| | 5190 | 38 | AVG | 26T | 10.11 | 10.13 | 13.13 | 10.16 | 10.30 | 13.24 | 10.02 | 10.11 | 13.08 | 23.98 | -10.74 | -3.34 | 9.90 | 22.39 | -12.49 |
| | 5230 | 46 | AVG | 26T | 10.42 | 9.95 | 13.20 | 10.25 | 10.34 | 13.31 | 10.07 | 9.69 | 12.89 | 23.98 | -10.67 | -3.34 | 9.97 | 22.39 | -12.42 |
| | 5270 | 54 | AVG | 26T | 10.13 | 10.28 | 13.22 | 10.49 | 10.25 | 13.38 | 10.42 | 10.25 | 13.35 | 23.47 | -10.09 | -4.14 | 9.24 | 29.47 | -20.23 |
| | 5310 | 62 | AVG | 26T | 10.13 | 10.29 | 13.22 | 10.48 | 10.25 | 13.38 | 10.46 | 10.13 | 13.31 | 23.47 | -10.09 | -4.14 | 9.24 | 29.47 | -20.23 |
| | 5510 | 102 | AVG | 26T | 10.10 | 10.19 | 13.16 | 9.89 | 10.18 | 13.05 | 10.01 | 10.13 | 13.08 | 22.80 | -9.64 | -5.45 | 7.71 | 28.80 | -21.09 |
| | 5590 | 118 | AVG | 26T | 10.24 | 9.88 | 13.07 | 10.06 | 10.32 | 13.20 | 10.17 | 9.81 | 13.00 | 22.80 | -9.60 | -5.45 | 7.75 | 28.80 | -21.05 |
| | 5710 | 142 | AVG | 26T | 10.02 | 10.17 | 13.11 | 10.28 | 10.48 | 13.39 | 10.02 | 9.85 | 12.95 | 22.80 | -9.41 | -5.45 | 7.94 | 28.80 | -20.86 |
| | 5755 | 151 | AVG | 26T | 10.41 | 10.17 | 13.30 | 10.46 | 10.47 | 13.48 | 10.07 | 9.94 | 13.02 | 30.00 | -16.52 | -4.84 | 8.64 | - | - |
| | 5795 | 159 | AVG | 26T | 10.13 | 10.42 | 13.29 | 10.23 | 10.35 | 13.30 | 10.44 | 10.19 | 13.33 | 30.00 | -16.67 | -4.84 | 8.49 | - | - |

**Table 7-26. MIMO 40MHz BW (UNII) Maximum Conducted Output Power (26 Tones)**

| 5GHz (80MHz Bandwidth) | Freq [MHz] | Channel | Detector | Tones | RU Index | | | | | | | | | Conducted Power Limit [dBm] | Conducted Power Margin [dB] | Directional Ant. Gain [dBi] | Max e.i.r.p. [dBm] | Max e.i.r.p. Limit [dBm] | e.i.r.p. Margin [dB] |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | 0 | | | 18 | | | 36 | | | | | | | | |
| | | | | | ANT1 | ANT2 | MIMO | ANT1 | ANT2 | MIMO | ANT1 | ANT2 | MIMO | | | | | | |
| | 5210 | 42 | AVG | 26T | 10.26 | 10.27 | 13.28 | 10.39 | 10.49 | 13.45 | 10.27 | 9.98 | 13.14 | 23.98 | -10.53 | -3.34 | 10.11 | 22.39 | -12.28 |
| | 5290 | 58 | AVG | 26T | 10.35 | 10.16 | 13.27 | 10.47 | 10.30 | 13.40 | 10.23 | 10.29 | 13.27 | 23.47 | -10.07 | -4.14 | 9.26 | 29.47 | -20.21 |
| | 5530 | 106 | AVG | 26T | 10.27 | 10.40 | 13.35 | 10.14 | 10.10 | 13.13 | 10.46 | 10.11 | 13.30 | 22.80 | -9.45 | -5.45 | 7.90 | 28.80 | -20.90 |
| | 5610 | 122 | AVG | 26T | 10.42 | 10.10 | 13.27 | 10.36 | 10.31 | 13.35 | 10.25 | 10.43 | 13.35 | 22.80 | -9.45 | -5.45 | 7.90 | 28.80 | -20.90 |
| | 5690 | 138 | AVG | 26T | 9.91 | 10.44 | 13.19 | 10.44 | 10.48 | 13.47 | 10.43 | 10.31 | 13.38 | 22.80 | -9.33 | -5.45 | 8.02 | 28.80 | -20.78 |
| | 5775 | 155 | AVG | 26T | 9.97 | 10.44 | 13.22 | 10.23 | 10.43 | 13.34 | 10.02 | 10.14 | 13.09 | 30.00 | -16.66 | -4.84 | 8.50 | - | - |

**Table 7-27. MIMO 80MHz BW (UNII) Maximum Conducted Output Power (26 Tones)**

# MIMO Conducted Output Power Measurements (52 Tones)

| 5GHz (20MHz Bandwidth) | Freq [MHz] | Channel | Detector | Tones | RU Index | | | | | | | | | Conducted Power Limit [dBm] | Conducted Power Margin [dB] | Directional Ant. Gain [dBi] | Max e.i.r.p. [dBm] | Max e.i.r.p. Limit [dBm] | e.i.r.p. Margin [dB] |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | 37 | | | 39 | | | 40 | | | | | | | | |
| | | | | | ANT1 | ANT2 | MIMO | ANT1 | ANT2 | MIMO | ANT1 | ANT2 | MIMO | | | | | | |
| | 5180 | 36 | AVG | 52T | 10.93 | 10.77 | 13.86 | 10.97 | 10.80 | 13.90 | 10.91 | 10.60 | 13.77 | 23.98 | -10.08 | -3.34 | 10.56 | 22.39 | -11.83 |
| | 5200 | 40 | AVG | 52T | 10.92 | 10.96 | 13.95 | 10.86 | 10.87 | 13.88 | 10.79 | 10.85 | 13.83 | 23.98 | -10.03 | -3.34 | 10.61 | 22.39 | -11.78 |
| | 5240 | 48 | AVG | 52T | 10.86 | 10.83 | 13.86 | 10.91 | 10.96 | 13.95 | 10.76 | 10.80 | 13.79 | 23.98 | -10.03 | -3.34 | 10.61 | 22.39 | -11.78 |
| | 5260 | 52 | AVG | 52T | 10.88 | 10.92 | 13.91 | 10.89 | 10.90 | 13.91 | 10.77 | 10.84 | 13.82 | 23.47 | -9.56 | -4.14 | 9.77 | 29.47 | -19.70 |
| | 5280 | 56 | AVG | 52T | 10.92 | 10.60 | 13.77 | 10.91 | 10.57 | 13.75 | 10.78 | 10.50 | 13.65 | 23.47 | -9.70 | -4.14 | 9.63 | 29.47 | -19.84 |
| | 5320 | 64 | AVG | 52T | 10.67 | 10.51 | 13.60 | 10.66 | 10.49 | 13.59 | 10.98 | 10.46 | 13.74 | 23.47 | -9.73 | -4.14 | 9.60 | 29.47 | -19.87 |
| | 5500 | 100 | AVG | 52T | 10.41 | 10.86 | 13.65 | 10.48 | 10.82 | 13.66 | 10.39 | 10.75 | 13.58 | 22.80 | -9.14 | -5.45 | 8.21 | 28.80 | -20.59 |
| | 5600 | 120 | AVG | 52T | 10.72 | 10.97 | 13.86 | 10.79 | 10.99 | 13.90 | 10.65 | 10.88 | 13.78 | 22.80 | -8.90 | -5.45 | 8.45 | 28.80 | -20.35 |
| | 5720 | 144 | AVG | 52T | 10.62 | 10.49 | 13.57 | 10.81 | 10.43 | 13.63 | 10.79 | 10.27 | 13.55 | 22.80 | -9.17 | -5.45 | 8.18 | 28.80 | -20.62 |
| | 5745 | 149 | AVG | 52T | 10.91 | 10.89 | 13.91 | 10.63 | 10.84 | 13.75 | 10.58 | 10.77 | 13.69 | 30.00 | -16.09 | -4.84 | 9.07 | - | - |
| | 5785 | 157 | AVG | 52T | 10.97 | 10.47 | 13.74 | 10.76 | 10.38 | 13.58 | 10.71 | 10.24 | 13.49 | 30.00 | -16.26 | -4.84 | 8.90 | - | - |
| | 5825 | 165 | AVG | 52T | 10.94 | 10.48 | 13.73 | 10.98 | 10.43 | 13.72 | 10.96 | 10.31 | 13.66 | 30.00 | -16.27 | -4.84 | 8.89 | - | - |

**Table 7-28. MIMO 20MHz BW (UNII) Maximum Conducted Output Power (52 Tones)**

| 5GHz (40MHz Bandwidth) | Freq [MHz] | Channel | Detector | Tones | RU Index | | | | | | | | | Conducted Power Limit [dBm] | Conducted Power Margin [dB] | Directional Ant. Gain [dBi] | Max e.i.r.p. [dBm] | Max e.i.r.p. Limit [dBm] | e.i.r.p. Margin [dB] |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | 37 | | | 40 | | | 44 | | | | | | | | |
| | | | | | ANT1 | ANT2 | MIMO | ANT1 | ANT2 | MIMO | ANT1 | ANT2 | MIMO | | | | | | |
| | 5190 | 38 | AVG | 52T | 10.73 | 10.79 | 13.77 | 10.54 | 10.70 | 13.63 | 10.55 | 10.69 | 13.63 | 23.98 | -10.21 | -3.34 | 10.43 | 22.39 | -11.96 |
| | 5230 | 46 | AVG | 52T | 10.47 | 10.72 | 13.61 | 10.76 | 10.98 | 13.88 | 10.68 | 10.53 | 13.62 | 23.98 | -10.10 | -3.34 | 10.54 | 22.39 | -11.85 |
| | 5270 | 54 | AVG | 52T | 10.67 | 10.95 | 13.82 | 10.99 | 10.67 | 13.84 | 10.50 | 10.71 | 13.62 | 23.47 | -9.63 | -4.14 | 9.70 | 29.47 | -19.77 |
| | 5310 | 62 | AVG | 52T | 10.72 | 10.87 | 13.81 | 10.48 | 10.67 | 13.59 | 10.57 | 10.74 | 13.67 | 23.47 | -9.66 | -4.14 | 9.67 | 29.47 | -19.80 |
| | 5510 | 102 | AVG | 52T | 10.25 | 10.68 | 13.48 | 10.67 | 10.96 | 13.83 | 10.23 | 10.61 | 13.43 | 22.80 | -8.97 | -5.45 | 8.38 | 28.80 | -20.42 |
| | 5590 | 118 | AVG | 52T | 10.34 | 10.68 | 13.52 | 10.81 | 10.90 | 13.87 | 10.48 | 10.55 | 13.53 | 22.80 | -8.93 | -5.45 | 8.42 | 28.80 | -20.38 |
| | 5710 | 142 | AVG | 52T | 10.75 | 10.27 | 13.53 | 10.79 | 10.46 | 13.64 | 10.52 | 10.01 | 13.28 | 22.80 | -9.16 | -5.45 | 8.19 | 28.80 | -20.61 |
| | 5755 | 151 | AVG | 52T | 10.59 | 10.89 | 13.75 | 10.76 | 10.54 | 13.66 | 10.41 | 10.58 | 13.51 | 30.00 | -16.25 | -4.84 | 8.91 | - | - |
| | 5795 | 159 | AVG | 52T | 10.72 | 10.60 | 13.67 | 10.80 | 10.79 | 13.81 | 10.53 | 10.89 | 13.72 | 30.00 | -16.19 | -4.84 | 8.97 | - | - |

**Table 7-29. MIMO 40MHz BW (UNII) Maximum Conducted Output Power (52 Tones)**

| 5GHz (80MHz Bandwidth) | Freq [MHz] | Channel | Detector | Tones | RU Index | | | | | | | | | Conducted Power Limit [dBm] | Conducted Power Margin [dB] | Directional Ant. Gain [dBi] | Max e.i.r.p. [dBm] | Max e.i.r.p. Limit [dBm] | e.i.r.p. Margin [dB] |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | 37 | | | 44 | | | 52 | | | | | | | | |
| | | | | | ANT1 | ANT2 | MIMO | ANT1 | ANT2 | MIMO | ANT1 | ANT2 | MIMO | | | | | | |
| | 5210 | 42 | AVG | 52T | 10.75 | 10.84 | 13.81 | 10.89 | 10.97 | 13.94 | 10.81 | 10.83 | 13.83 | 23.98 | -10.04 | -3.34 | 10.60 | 22.39 | -11.79 |
| | 5290 | 58 | AVG | 52T | 10.87 | 10.68 | 13.79 | 10.81 | 10.80 | 13.82 | 10.74 | 10.74 | 13.75 | 23.47 | -9.65 | -4.14 | 9.68 | 29.47 | -19.79 |
| | 5530 | 106 | AVG | 52T | 10.57 | 10.72 | 13.66 | 10.88 | 10.90 | 13.90 | 10.73 | 10.51 | 13.63 | 22.80 | -8.90 | -5.45 | 8.45 | 28.80 | -20.35 |
| | 5610 | 122 | AVG | 52T | 10.93 | 10.94 | 13.95 | 10.88 | 10.74 | 13.82 | 10.76 | 10.55 | 13.67 | 22.80 | -8.85 | -5.45 | 8.50 | 28.80 | -20.30 |
| | 5690 | 138 | AVG | 52T | 10.64 | 10.92 | 13.79 | 10.62 | 10.97 | 13.81 | 10.69 | 10.67 | 13.69 | 22.80 | -8.99 | -5.45 | 8.36 | 28.80 | -20.44 |
| | 5775 | 155 | AVG | 52T | 10.36 | 10.92 | 13.66 | 10.97 | 10.82 | 13.91 | 10.77 | 10.53 | 13.66 | 30.00 | -16.09 | -4.84 | 9.07 | - | - |

**Table 7-30. MIMO 80MHz BW (UNII) Maximum Conducted Output Power (52 Tones)**

# MIMO Conducted Output Power Measurements (106 Tones)

| 5GHz (20MHz Bandwidth) | Freq [MHz] | Channel | Detector | Tones | RU Index | | | | | | Conducted Power Limit [dBm] | Conducted Power Margin [dB] | Directional Ant. Gain [dBi] | Max e.i.r.p. [dBm] | Max e.i.r.p. Limit [dBm] | e.i.r.p. Margin [dB] |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | 53 | | | 54 | | | | | | | | |
| | | | | | ANT1 | ANT2 | MIMO | ANT1 | ANT2 | MIMO | | | | | | |
| | 5180 | 36 | AVG | 106T | 14.32 | 14.13 | 17.24 | 14.27 | 14.10 | 17.20 | 23.98 | -6.74 | -3.34 | 13.90 | 22.39 | -8.49 |
| | 5200 | 40 | AVG | 106T | 14.15 | 14.22 | 17.20 | 14.05 | 14.16 | 17.12 | 23.98 | -6.78 | -3.34 | 13.86 | 22.39 | -8.53 |
| | 5240 | 48 | AVG | 106T | 14.11 | 14.16 | 17.15 | 14.03 | 14.08 | 17.07 | 23.98 | -6.83 | -3.34 | 13.81 | 22.39 | -8.58 |
| | 5260 | 52 | AVG | 106T | 14.15 | 14.16 | 17.17 | 14.04 | 14.19 | 17.13 | 23.47 | -6.30 | -4.14 | 13.03 | 29.47 | -16.44 |
| | 5280 | 56 | AVG | 106T | 14.15 | 13.94 | 17.06 | 14.08 | 13.85 | 16.98 | 23.47 | -6.41 | -4.14 | 12.92 | 29.47 | -16.55 |
| | 5320 | 64 | AVG | 106T | 14.05 | 13.93 | 17.00 | 14.02 | 13.81 | 16.93 | 23.47 | -6.47 | -4.14 | 12.86 | 29.47 | -16.61 |
| | 5500 | 100 | AVG | 106T | 14.27 | 13.97 | 17.13 | 14.27 | 13.89 | 17.09 | 22.80 | -5.67 | -5.45 | 11.68 | 28.80 | -17.12 |
| | 5600 | 120 | AVG | 106T | 14.19 | 14.38 | 17.30 | 14.10 | 14.31 | 17.22 | 22.80 | -5.50 | -5.45 | 11.85 | 28.80 | -16.95 |
| | 5720 | 144 | AVG | 106T | 14.14 | 14.23 | 17.20 | 14.06 | 14.11 | 17.10 | 22.80 | -5.60 | -5.45 | 11.75 | 28.80 | -17.05 |
| | 5745 | 149 | AVG | 106T | 14.14 | 14.05 | 17.11 | 14.29 | 13.94 | 17.13 | 30.00 | -12.87 | -4.84 | 12.29 | - | - |
| | 5785 | 157 | AVG | 106T | 14.22 | 14.45 | 17.35 | 14.27 | 14.28 | 17.29 | 30.00 | -12.65 | -4.84 | 12.51 | - | - |
| | 5825 | 165 | AVG | 106T | 14.43 | 14.33 | 17.39 | 14.45 | 14.26 | 17.37 | 30.00 | -12.61 | -4.84 | 12.55 | - | - |

**Table 7-31. MIMO 20MHz BW (UNII) Maximum Conducted Output Power (106 Tones)**

| 5GHz (40MHz Bandwidth) | Freq [MHz] | Channel | Detector | Tones | RU Index | | | | | | | | | Conducted Power Limit [dBm] | Conducted Power Margin [dB] | Directional Ant. Gain [dBi] | Max e.i.r.p. [dBm] | Max e.i.r.p. Limit [dBm] | e.i.r.p. Margin [dB] |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | 53 | | | 54 | | | 56 | | | | | | | | |
| | | | | | ANT1 | ANT2 | MIMO | ANT1 | ANT2 | MIMO | ANT1 | ANT2 | MIMO | | | | | | |
| | 5190 | 38 | AVG | 106T | 14.18 | 14.00 | 17.10 | 14.47 | 14.26 | 17.38 | 14.07 | 13.94 | 17.02 | 23.98 | -6.60 | -3.34 | 14.04 | 22.39 | -8.35 |
| | 5230 | 46 | AVG | 106T | 14.17 | 13.93 | 17.06 | 14.25 | 14.15 | 17.21 | 13.96 | 14.19 | 17.09 | 23.98 | -6.77 | -3.34 | 13.87 | 22.39 | -8.52 |
| | 5270 | 54 | AVG | 106T | 14.19 | 14.35 | 17.28 | 14.28 | 13.98 | 17.14 | 13.94 | 14.22 | 17.09 | 23.47 | -6.19 | -4.14 | 13.14 | 29.47 | -16.33 |
| | 5310 | 62 | AVG | 106T | 14.44 | 13.98 | 17.23 | 14.10 | 14.14 | 17.13 | 14.29 | 14.29 | 17.30 | 23.47 | -6.17 | -4.14 | 13.16 | 29.47 | -16.31 |
| | 5510 | 102 | AVG | 106T | 14.43 | 14.13 | 17.29 | 14.04 | 14.34 | 17.20 | 14.33 | 14.39 | 17.37 | 22.80 | -5.43 | -5.45 | 11.92 | 28.80 | -16.88 |
| | 5590 | 118 | AVG | 106T | 14.12 | 14.21 | 17.18 | 14.42 | 14.49 | 17.47 | 14.16 | 14.11 | 17.15 | 22.80 | -5.33 | -5.45 | 12.02 | 28.80 | -16.78 |
| | 5710 | 142 | AVG | 106T | 14.09 | 13.73 | 16.92 | 14.46 | 13.94 | 17.22 | 14.20 | 14.25 | 17.24 | 22.80 | -5.56 | -5.45 | 11.79 | 28.80 | -17.01 |
| | 5755 | 151 | AVG | 106T | 14.04 | 14.29 | 17.18 | 14.32 | 14.47 | 17.41 | 14.11 | 13.97 | 17.05 | 30.00 | -12.59 | -4.84 | 12.57 | - | - |
| | 5795 | 159 | AVG | 106T | 14.08 | 14.15 | 17.13 | 14.34 | 14.23 | 17.30 | 14.06 | 14.39 | 17.24 | 30.00 | -12.70 | -4.84 | 12.46 | - | - |

**Table 7-32. MIMO 40MHz BW (UNII) Maximum Conducted Output Power (106 Tones)**

| 5GHz (80MHz Bandwidth) | Freq [MHz] | Channel | Detector | Tones | RU Index | | | | | | | | | Conducted Power Limit [dBm] | Conducted Power Margin [dB] | Directional Ant. Gain [dBi] | Max e.i.r.p. [dBm] | Max e.i.r.p. Limit [dBm] | e.i.r.p. Margin [dB] |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | 53 | | | 56 | | | 60 | | | | | | | | |
| | | | | | ANT1 | ANT2 | MIMO | ANT1 | ANT2 | MIMO | ANT1 | ANT2 | MIMO | | | | | | |
| | 5210 | 42 | AVG | 106T | 14.37 | 14.19 | 17.29 | 14.42 | 14.30 | 17.37 | 14.26 | 14.35 | 17.32 | 23.98 | -6.61 | -3.34 | 14.03 | 22.39 | -8.36 |
| | 5290 | 58 | AVG | 106T | 14.28 | 14.13 | 17.22 | 14.33 | 14.25 | 17.30 | 14.23 | 14.25 | 17.25 | 23.47 | -6.17 | -4.14 | 13.16 | 29.47 | -16.31 |
| | 5530 | 106 | AVG | 106T | 14.20 | 14.19 | 17.21 | 14.45 | 14.24 | 17.36 | 14.32 | 14.28 | 17.31 | 22.80 | -5.44 | -5.45 | 11.91 | 28.80 | -16.89 |
| | 5610 | 122 | AVG | 106T | 14.22 | 14.02 | 17.13 | 14.49 | 14.12 | 17.32 | 14.48 | 14.02 | 17.27 | 22.80 | -5.48 | -5.45 | 11.87 | 28.80 | -16.93 |
| | 5690 | 138 | AVG | 106T | 13.89 | 14.17 | 17.04 | 14.37 | 14.15 | 17.27 | 14.38 | 13.93 | 17.17 | 22.80 | -5.53 | -5.45 | 11.82 | 28.80 | -16.98 |
| | 5775 | 155 | AVG | 106T | 13.86 | 14.44 | 17.17 | 14.32 | 14.35 | 17.35 | 14.17 | 14.29 | 17.24 | 30.00 | -12.65 | -4.84 | 12.51 | - | - |

**Table 7-33. MIMO 80MHz BW (UNII) Maximum Conducted Output Power (106 Tones)**

# MIMO Conducted Output Power Measurements (242 Tones)

| | Freq [MHz] | Channel | Detector | Tones | RU Index 61 ANT1 | RU Index 61 ANT2 | RU Index 61 MIMO | Conducted Power Limit [dBm] | Conducted Power Margin [dB] | Directional Ant. Gain [dBi] | Max e.i.r.p. [dBm] | Max e.i.r.p. Limit [dBm] | e.i.r.p. Margin [dB] |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 5GHz (20MHz Bandwidth) | 5180 | 36 | AVG | 242T | 14.73 | 14.87 | 17.81 | 23.98 | -6.17 | -3.34 | 14.47 | 22.39 | -7.92 |
| | 5200 | 40 | AVG | 242T | 14.62 | 14.80 | 17.72 | 23.98 | -6.26 | -3.34 | 14.38 | 22.39 | -8.01 |
| | 5240 | 48 | AVG | 242T | 14.64 | 14.88 | 17.77 | 23.98 | -6.21 | -3.34 | 14.43 | 22.39 | -7.96 |
| | 5260 | 52 | AVG | 242T | 14.55 | 14.88 | 17.73 | 23.47 | -5.74 | -4.14 | 13.59 | 29.47 | -15.88 |
| | 5280 | 56 | AVG | 242T | 14.70 | 14.62 | 17.67 | 23.47 | -5.80 | -4.14 | 13.53 | 29.47 | -15.94 |
| | 5320 | 64 | AVG | 242T | 14.65 | 14.44 | 17.56 | 23.47 | -5.91 | -4.14 | 13.42 | 29.47 | -16.05 |
| | 5500 | 100 | AVG | 242T | 14.57 | 14.51 | 17.55 | 22.80 | -5.25 | -5.45 | 12.10 | 28.80 | -16.70 |
| | 5600 | 120 | AVG | 242T | 14.84 | 14.73 | 17.80 | 22.80 | -5.00 | -5.45 | 12.35 | 28.80 | -16.45 |
| | 5720 | 144 | AVG | 242T | 14.81 | 14.79 | 17.81 | 22.80 | -4.99 | -5.45 | 12.36 | 28.80 | -16.44 |
| | 5745 | 149 | AVG | 242T | 14.44 | 14.96 | 17.72 | 30.00 | -12.28 | -4.84 | 12.88 | - | - |
| | 5785 | 157 | AVG | 242T | 14.46 | 14.64 | 17.56 | 30.00 | -12.44 | -4.84 | 12.72 | - | - |
| | 5825 | 165 | AVG | 242T | 14.69 | 14.51 | 17.61 | 30.00 | -12.39 | -4.84 | 12.77 | - | - |

**Table 7-34. MIMO 20MHz BW (UNII) Maximum Conducted Output Power (242 Tones)**

| | Freq [MHz] | Channel | Detector | Tones | RU Index 61 ANT1 | RU Index 61 ANT2 | RU Index 61 MIMO | RU Index 62 ANT1 | RU Index 62 ANT2 | RU Index 62 MIMO | Conducted Power Limit [dBm] | Conducted Power Margin [dB] | Directional Ant. Gain [dBi] | Max e.i.r.p. [dBm] | Max e.i.r.p. Limit [dBm] | e.i.r.p. Margin [dB] |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 5GHz (40MHz Bandwidth) | 5190 | 38 | AVG | 242T | 13.25 | 13.04 | 16.16 | 13.07 | 13.33 | 16.21 | 23.98 | -7.77 | -3.34 | 12.87 | 22.39 | -9.52 |
| | 5230 | 46 | AVG | 242T | 14.90 | 14.44 | 17.69 | 14.76 | 14.99 | 17.89 | 23.98 | -6.09 | -3.34 | 14.55 | 22.39 | -7.84 |
| | 5270 | 54 | AVG | 242T | 14.97 | 14.46 | 17.73 | 14.80 | 14.88 | 17.85 | 23.47 | -5.62 | -4.14 | 13.71 | 29.47 | -15.76 |
| | 5310 | 62 | AVG | 242T | 12.63 | 12.72 | 15.69 | 12.97 | 12.63 | 15.81 | 23.47 | -7.66 | -4.14 | 11.67 | 29.47 | -17.80 |
| | 5510 | 102 | AVG | 242T | 12.94 | 12.95 | 15.96 | 12.85 | 12.82 | 15.85 | 22.80 | -6.84 | -5.45 | 10.51 | 28.80 | -18.29 |
| | 5590 | 118 | AVG | 242T | 14.50 | 14.67 | 17.60 | 14.59 | 14.59 | 17.60 | 22.80 | -5.20 | -5.45 | 12.15 | 28.80 | -16.65 |
| | 5710 | 142 | AVG | 242T | 14.58 | 14.63 | 17.62 | 14.81 | 14.91 | 17.87 | 22.80 | -4.93 | -5.45 | 12.42 | 28.80 | -16.38 |
| | 5755 | 151 | AVG | 242T | 14.46 | 14.72 | 17.60 | 14.62 | 14.44 | 17.54 | 30.00 | -12.40 | -4.84 | 12.76 | - | - |
| | 5795 | 159 | AVG | 242T | 14.60 | 14.80 | 17.71 | 14.56 | 14.51 | 17.55 | 30.00 | -12.29 | -4.84 | 12.87 | - | - |

**Table 7-35. MIMO 40MHz BW (UNII) Maximum Conducted Output Power (242 Tones)**

| | Freq [MHz] | Channel | Detector | Tones | RU Index 61 ANT1 | RU Index 61 ANT2 | RU Index 61 MIMO | RU Index 62 ANT1 | RU Index 62 ANT2 | RU Index 62 MIMO | RU Index 64 ANT1 | RU Index 64 ANT2 | RU Index 64 MIMO | Conducted Power Limit [dBm] | Conducted Power Margin [dB] | Directional Ant. Gain [dBi] | Max e.i.r.p. [dBm] | Max e.i.r.p. Limit [dBm] | e.i.r.p. Margin [dB] |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 5GHz (80MHz Bandwidth) | 5210 | 42 | AVG | 242T | 12.81 | 12.41 | 15.62 | 12.82 | 12.83 | 15.84 | 12.42 | 12.79 | 15.62 | 23.98 | -8.14 | -3.34 | 12.50 | 22.39 | -9.89 |
| | 5290 | 58 | AVG | 242T | 11.16 | 11.41 | 14.30 | 11.04 | 11.44 | 14.25 | 10.93 | 11.32 | 14.14 | 23.47 | -9.17 | -4.14 | 10.16 | 29.47 | -19.31 |
| | 5530 | 106 | AVG | 242T | 11.06 | 10.85 | 13.97 | 11.23 | 11.05 | 14.15 | 11.20 | 10.96 | 14.09 | 22.80 | -8.65 | -5.45 | 8.70 | 28.80 | -20.10 |
| | 5610 | 122 | AVG | 242T | 14.80 | 14.53 | 17.68 | 14.96 | 14.60 | 17.79 | 14.99 | 14.72 | 17.87 | 22.80 | -4.93 | -5.45 | 12.42 | 28.80 | -16.38 |
| | 5690 | 138 | AVG | 242T | 14.96 | 14.73 | 17.86 | 14.32 | 14.66 | 17.50 | 14.48 | 14.69 | 17.60 | 22.80 | -4.94 | -5.45 | 12.41 | 28.80 | -16.39 |
| | 5775 | 155 | AVG | 242T | 14.82 | 14.52 | 17.68 | 14.95 | 14.40 | 17.69 | 14.99 | 14.51 | 17.77 | 30.00 | -12.23 | -4.84 | 12.93 | - | - |

**Table 7-36. MIMO 80MHz BW (UNII) Maximum Conducted Output Power (242 Tones)**

## MIMO Conducted Output Power Measurements (484 Tones)

| | Freq [MHz] | Channel | Detector | Tones | RU Index 65 ANT1 | RU Index 65 ANT2 | RU Index 65 MIMO | Conducted Power Limit [dBm] | Conducted Power Margin [dB] | Directional Ant. Gain [dBi] | Max e.i.r.p. [dBm] | Max e.i.r.p. Limit [dBm] | e.i.r.p. Margin [dB] |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 5GHz (40MHz Bandwidth) | 5190 | 38 | AVG | 484T | 13.47 | 13.47 | 16.48 | 23.98 | -7.50 | -3.34 | 13.14 | 22.39 | -9.25 |
| | 5230 | 46 | AVG | 484T | 14.85 | 14.65 | 17.76 | 23.98 | -6.22 | -3.34 | 14.42 | 22.39 | -7.97 |
| | 5270 | 54 | AVG | 484T | 14.86 | 14.96 | 17.92 | 23.47 | -5.55 | -4.14 | 13.78 | 29.47 | -15.69 |
| | 5310 | 62 | AVG | 484T | 12.77 | 12.73 | 15.76 | 23.47 | -7.71 | -4.14 | 11.62 | 29.47 | -17.85 |
| | 5510 | 102 | AVG | 484T | 12.98 | 12.97 | 15.99 | 22.80 | -6.81 | -5.45 | 10.54 | 28.80 | -18.26 |
| | 5590 | 118 | AVG | 484T | 14.49 | 14.47 | 17.49 | 22.80 | -5.31 | -5.45 | 12.04 | 28.80 | -16.76 |
| | 5710 | 142 | AVG | 484T | 14.64 | 14.72 | 17.69 | 22.80 | -5.11 | -5.45 | 12.24 | 28.80 | -16.56 |
| | 5755 | 151 | AVG | 484T | 14.53 | 14.64 | 17.60 | 30.00 | -12.40 | -4.84 | 12.76 | - | - |
| | 5795 | 159 | AVG | 484T | 14.54 | 14.69 | 17.63 | 30.00 | -12.37 | -4.84 | 12.79 | - | - |

**Table 7-37. MIMO 40MHz BW (UNII) Maximum Conducted Output Power (484 Tones)**

| | Freq [MHz] | Channel | Detector | Tones | RU Index 65 ANT1 | RU Index 65 ANT2 | RU Index 65 MIMO | RU Index 66 ANT1 | RU Index 66 ANT2 | RU Index 66 MIMO | Conducted Power Limit [dBm] | Conducted Power Margin [dB] | Directional Ant. Gain [dBi] | Max e.i.r.p. [dBm] | Max e.i.r.p. Limit [dBm] | e.i.r.p. Margin [dB] |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 5GHz (80MHz Bandwidth) | 5210 | 42 | AVG | 484T | 12.79 | 12.61 | 15.71 | 12.55 | 12.79 | 15.68 | 23.98 | -8.27 | -3.34 | 12.37 | 22.39 | -10.02 |
| | 5290 | 58 | AVG | 484T | 11.16 | 11.38 | 14.28 | 11.07 | 11.41 | 14.25 | 23.47 | -9.19 | -4.14 | 10.14 | 29.47 | -19.33 |
| | 5530 | 106 | AVG | 484T | 11.32 | 11.46 | 14.40 | 11.49 | 11.49 | 14.50 | 22.80 | -8.30 | -5.45 | 9.05 | 28.80 | -19.75 |
| | 5610 | 122 | AVG | 484T | 14.89 | 14.57 | 17.74 | 14.98 | 14.85 | 17.93 | 22.80 | -4.87 | -5.45 | 12.48 | 28.80 | -16.32 |
| | 5690 | 138 | AVG | 484T | 14.28 | 14.67 | 17.49 | 14.49 | 14.85 | 17.68 | 22.80 | -5.12 | -5.45 | 12.23 | 28.80 | -16.57 |
| | 5775 | 155 | AVG | 484T | 14.82 | 14.99 | 17.92 | 14.99 | 14.55 | 17.79 | 30.00 | -12.08 | -4.84 | 13.08 | - | - |

**Table 7-38. MIMO 80MHz BW (UNII) Maximum Conducted Output Power (484 Tones)**

## MIMO Conducted Output Power Measurements (996 Tones)

| | Freq [MHz] | Channel | Detector | Tones | RU Index | | | Conducted Power Limit [dBm] | Conducted Power Margin [dB] | Directional Ant. Gain [dBi] | Max e.i.r.p. [dBm] | Max e.i.r.p. Limit [dBm] | e.i.r.p. Margin [dB] |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | 67 | | | | | | | | |
| | | | | | ANT1 | ANT2 | MIMO | | | | | | |
| 5GHz (80MHz Bandwidth) | 5210 | 42 | AVG | 996T | 12.84 | 12.62 | 15.74 | 23.98 | -8.24 | -3.34 | 12.40 | 22.39 | -9.99 |
| | 5290 | 58 | AVG | 996T | 11.30 | 11.48 | 14.40 | 23.47 | -9.07 | -4.14 | 10.26 | 29.47 | -19.21 |
| | 5530 | 106 | AVG | 996T | 11.47 | 11.11 | 14.30 | 22.80 | -8.50 | -5.45 | 8.85 | 28.80 | -19.95 |
| | 5610 | 122 | AVG | 996T | 14.72 | 14.73 | 17.74 | 22.80 | -5.06 | -5.45 | 12.29 | 28.80 | -16.51 |
| | 5690 | 138 | AVG | 996T | 14.96 | 14.89 | 17.94 | 22.80 | -4.86 | -5.45 | 12.49 | 28.80 | -16.31 |
| | 5775 | 155 | AVG | 996T | 14.74 | 14.63 | 17.70 | 30.00 | -12.30 | -4.84 | 12.86 | - | - |

**Table 7-39. MIMO 80MHz BW (UNII) Maximum Conducted Output Power (996 Tones)**

**Note:**

Per ANSI C63.10-2013 and KDB 662911 D01 v02r01 Section E)1), the conducted powers at Antenna 1 and Antenna 2 were first measured separately during MIMO transmission as shown in the section above. The measured values were then summed in linear power units then converted back to dBm.

Per ANSI C63.10-2013 Section 14.4.3, the directional gain is calculated using the following formula, where $G_N$ is the gain of the nth antenna and $N_{ANT}$, the total number of antennas used.

$$\text{Directional gain} = 10 \log[(10^{G1/20} + 10^{G2/20} + \ldots + 10^{GN/20})^2 / N_{ANT}] \text{ dBi}$$

**Sample MIMO Calculation:**

At 5180MHz in 802.11n (20MHz BW) mode, the average conducted output power was measured to be 17.97 dBm for Antenna-1 and 17.15 dBm for Antenna-2.

Antenna 1 + Antenna 2 = MIMO

(17.97 dBm + 17.15 dBm) = (62.66 mW + 51.88 mW) = 114.54 mW = 20.59 dBm

## 7.5 Maximum Power Spectral Density – 802.11ax OFDMA

**§15.407(a.1.iv) §15.407(a.2) §15.407(a.3); RSS-247 [6.2]**

### Test Overview and Limit

The spectrum analyzer was connected to the antenna terminal while the EUT was operating at its maximum duty cycle, at its maximum power control level, as defined in ANSI C63.10-2013 and KDB 789033 D02 v02r01, and at the appropriate frequencies. Method SA-1, as defined in ANSI C63.10-2013 and KDB 789033 D02 v02r01, was used to measure the power spectral density.

***In the 5.15 – 5.25GHz, 5.25 – 5.35GHz, 5.47 – 5.725GHz bands, the maximum permissible power spectral density is 11dBm/MHz.***

***In the 5.725 – 5.850GHz band, the maximum permissible power spectral density is 30dBm/500kHz.***

### Test Procedure Used

ANSI C63.10-2013 – Section 12.3.2.2
KDB 789033 D02 v02r01 – Section F
ANSI C63.10-2013 – Section 14.3.2.2 Measure-and-Sum Technique
KDB 662911 v02r01 – Section E)2) Measure-and-Sum Technique

### Test Settings

1. Analyzer was set to the center frequency of the UNII channel under investigation
2. Span was set to encompass the entire emission bandwidth of the signal
3. RBW = 1MHz
4. VBW = 3MHz
5. Number of sweep points $\geq$ 2 x (span/RBW)
6. Sweep time = auto
7. Detector = power averaging (RMS)
8. Trigger was set to free run for all modes
9. Trace was averaged over 100 sweeps
10. The peak search function of the spectrum analyzer was used to find the peak of the spectrum.

### Test Setup

The EUT and measurement equipment were set up as shown in the diagram below.


**Figure 7-4. Test Instrument & Measurement Setup**

### Test Notes

The power spectral density for each channel was measured with the RU index showing the highest conducted power.

## SISO ANT 1 Power Spectral Density Measurements (26 Tones)

| | Frequency [MHz] | Channel No. | 802.11 Mode | Tones | Data Rate [Mbps] | Measured Power Density [dBm] | Max Power Density [dBm/MHz] | Margin [dB] |
|---|---|---|---|---|---|---|---|---|
| Band 1 | 5180 | 36 | ax (20MHz) | 26T | MCS0 | 6.79 | 11.0 | -4.21 |
| | 5200 | 40 | ax (20MHz) | 26T | MCS0 | 6.75 | 11.0 | -4.25 |
| | 5240 | 48 | ax (20MHz) | 26T | MCS0 | 7.04 | 11.0 | -3.96 |
| | 5190 | 38 | ax (40MHz) | 26T | MCS0 | 6.90 | 11.0 | -4.10 |
| | 5230 | 46 | ax (40MHz) | 26T | MCS0 | 7.84 | 11.0 | -3.16 |
| | 5210 | 42 | ax (80MHz) | 26T | MCS0 | 5.02 | 11.0 | -5.98 |
| Band 2A | 5260 | 52 | ax (20MHz) | 26T | MCS0 | 7.89 | 11.0 | -3.11 |
| | 5280 | 56 | ax (20MHz) | 26T | MCS0 | 7.84 | 11.0 | -3.16 |
| | 5320 | 64 | ax (20MHz) | 26T | MCS0 | 7.87 | 11.0 | -3.13 |
| | 5270 | 54 | ax (40MHz) | 26T | MCS0 | 7.65 | 11.0 | -3.35 |
| | 5310 | 62 | ax (40MHz) | 26T | MCS0 | 7.33 | 11.0 | -3.67 |
| | 5290 | 58 | ax (80MHz) | 26T | MCS0 | 6.28 | 11.0 | -4.72 |
| Band 2C | 5500 | 100 | ax (20MHz) | 26T | MCS0 | 6.89 | 11.0 | -4.11 |
| | 5600 | 120 | ax (20MHz) | 26T | MCS0 | 6.45 | 11.0 | -4.55 |
| | 5720 | 144 | ax (20MHz) | 26T | MCS0 | 8.37 | 11.0 | -2.63 |
| | 5510 | 102 | ax (40MHz) | 26T | MCS0 | 7.34 | 11.0 | -3.66 |
| | 5590 | 118 | ax (40MHz) | 26T | MCS0 | 7.65 | 11.0 | -3.35 |
| | 5710 | 142 | ax (40MHz) | 26T | MCS0 | 8.06 | 11.0 | -2.94 |
| | 5530 | 106 | ax (80MHz) | 26T | MCS0 | 7.21 | 11.0 | -3.79 |
| | 5610 | 122 | ax (80MHz) | 26T | MCS0 | 7.47 | 11.0 | -3.53 |
| | 5690 | 138 | ax (80MHz) | 26T | MCS0 | 6.97 | 11.0 | -4.03 |

**Table 7-40. Bands 1, 2A, 2C Conducted Power Spectral Density Measurements (26 Tones)**

| | Frequency [MHz] | Channel No. | 802.11 Mode | Tones | Data Rate [Mbps] | Measured Power Density [dBm] | Max Permissible Power Density | Margin [dB] |
|---|---|---|---|---|---|---|---|---|
| Band 3 | 5745 | 149 | ax (20MHz) | 26T | MCS0 | 5.12 | 30.00 | -24.88 |
| | 5785 | 157 | ax (20MHz) | 26T | MCS0 | 5.11 | 30.00 | -24.89 |
| | 5825 | 165 | ax (20MHz) | 26T | MCS0 | 4.78 | 30.00 | -25.22 |
| | 5755 | 151 | ax (40MHz) | 26T | MCS0 | 5.94 | 30.00 | -24.06 |
| | 5795 | 159 | ax (40MHz) | 26T | MCS0 | 5.65 | 30.00 | -24.35 |
| | 5775 | 155 | ax (80MHz) | 26T | MCS0 | 5.45 | 30.00 | -24.55 |

**Table 7-41. Band 3 Conducted Power Spectral Density Measurements (26 Tones)**

## SISO ANT 1 Power Spectral Density Measurements (Full Tones)

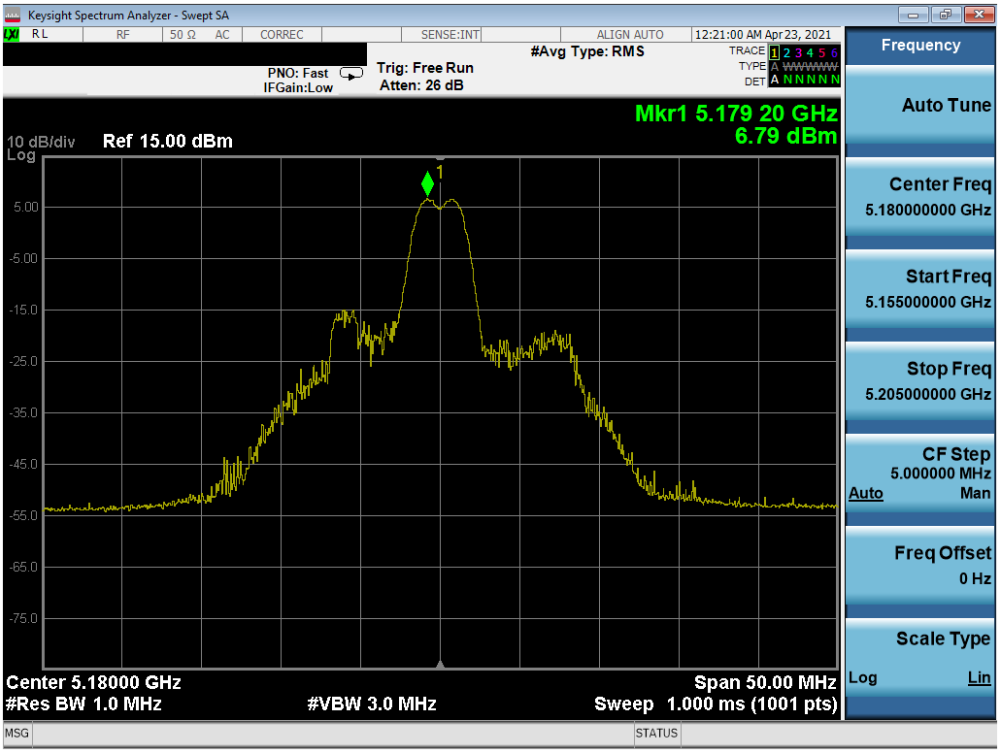
| | Frequency [MHz] | Channel No. | 802.11 Mode | Tones | Data Rate [Mbps] | Measured Power Density [dBm] | Max Power Density [dBm/MHz] | Margin [dB] |
|---|---|---|---|---|---|---|---|---|
| Band 1 | 5180 | 36 | ax (20MHz) | 242T | MCS0 | 2.91 | 11.0 | -8.09 |
| | 5200 | 40 | ax (20MHz) | 242T | MCS0 | 2.96 | 11.0 | -8.04 |
| | 5240 | 48 | ax (20MHz) | 242T | MCS0 | 3.30 | 11.0 | -7.70 |
| | 5190 | 38 | ax (40MHz) | 484T | MCS0 | 0.04 | 11.0 | -10.96 |
| | 5230 | 46 | ax (40MHz) | 484T | MCS0 | -0.15 | 11.0 | -11.15 |
| | 5210 | 42 | ax (80MHz) | 996T | MCS0 | -3.36 | 11.0 | -14.36 |
| Band 2A | 5260 | 52 | ax (20MHz) | 242T | MCS0 | 2.81 | 11.0 | -8.19 |
| | 5280 | 56 | ax (20MHz) | 242T | MCS0 | 2.88 | 11.0 | -8.12 |
| | 5320 | 64 | ax (20MHz) | 242T | MCS0 | 2.66 | 11.0 | -8.34 |
| | 5270 | 54 | ax (40MHz) | 484T | MCS0 | 1.16 | 11.0 | -9.84 |
| | 5310 | 62 | ax (40MHz) | 484T | MCS0 | 1.13 | 11.0 | -9.87 |
| | 5290 | 58 | ax (80MHz) | 996T | MCS0 | -2.31 | 11.0 | -13.31 |
| Band 2C | 5500 | 100 | ax (20MHz) | 242T | MCS0 | 2.80 | 11.0 | -8.20 |
| | 5600 | 120 | ax (20MHz) | 242T | MCS0 | 2.00 | 11.0 | -9.00 |
| | 5720 | 144 | ax (20MHz) | 242T | MCS0 | 2.99 | 11.0 | -8.01 |
| | 5510 | 102 | ax (40MHz) | 484T | MCS0 | 0.34 | 11.0 | -10.66 |
| | 5590 | 118 | ax (40MHz) | 484T | MCS0 | 0.98 | 11.0 | -10.02 |
| | 5710 | 142 | ax (40MHz) | 484T | MCS0 | 1.40 | 11.0 | -9.60 |
| | 5530 | 106 | ax (80MHz) | 996T | MCS0 | -3.58 | 11.0 | -14.58 |
| | 5610 | 122 | ax (80MHz) | 996T | MCS0 | -3.51 | 11.0 | -14.51 |
| | 5690 | 138 | ax (80MHz) | 996T | MCS0 | -2.42 | 11.0 | -13.42 |

**Table 7-42. Bands 1, 2A, 2C Conducted Power Spectral Density Measurements (Full Tones)**

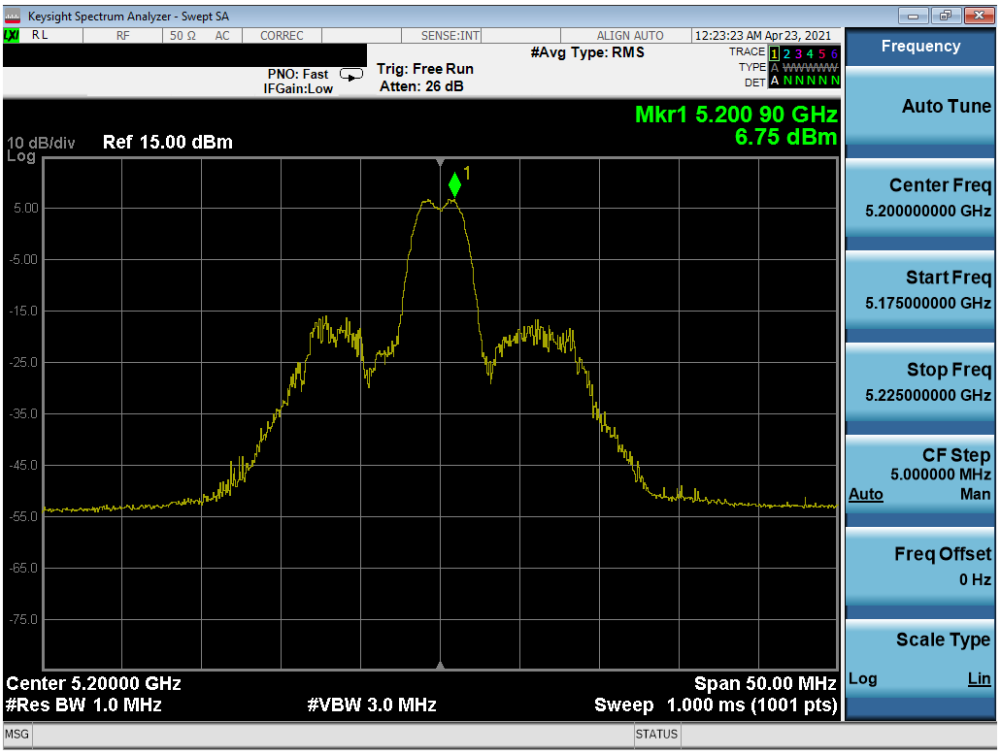
| | Frequency [MHz] | Channel No. | 802.11 Mode | Tones | Data Rate [Mbps] | Measured Power Density [dBm] | Max Permissible Power Density | Margin [dB] |
|---|---|---|---|---|---|---|---|---|
| Band 3 | 5745 | 149 | ax (20MHz) | 242T | MCS0 | 0.35 | 30.00 | -29.65 |
| | 5785 | 157 | ax (20MHz) | 242T | MCS0 | 1.00 | 30.00 | -29.00 |
| | 5825 | 165 | ax (20MHz) | 242T | MCS0 | 0.49 | 30.00 | -29.51 |
| | 5755 | 151 | ax (40MHz) | 484T | MCS0 | -1.03 | 30.00 | -31.03 |
| | 5795 | 159 | ax (40MHz) | 484T | MCS0 | -0.80 | 30.00 | -30.80 |
| | 5775 | 155 | ax (80MHz) | 996T | MCS0 | -4.13 | 30.00 | -34.13 |

**Table 7-43. Band 3 Conducted Power Spectral Density Measurements (Full Tones)**

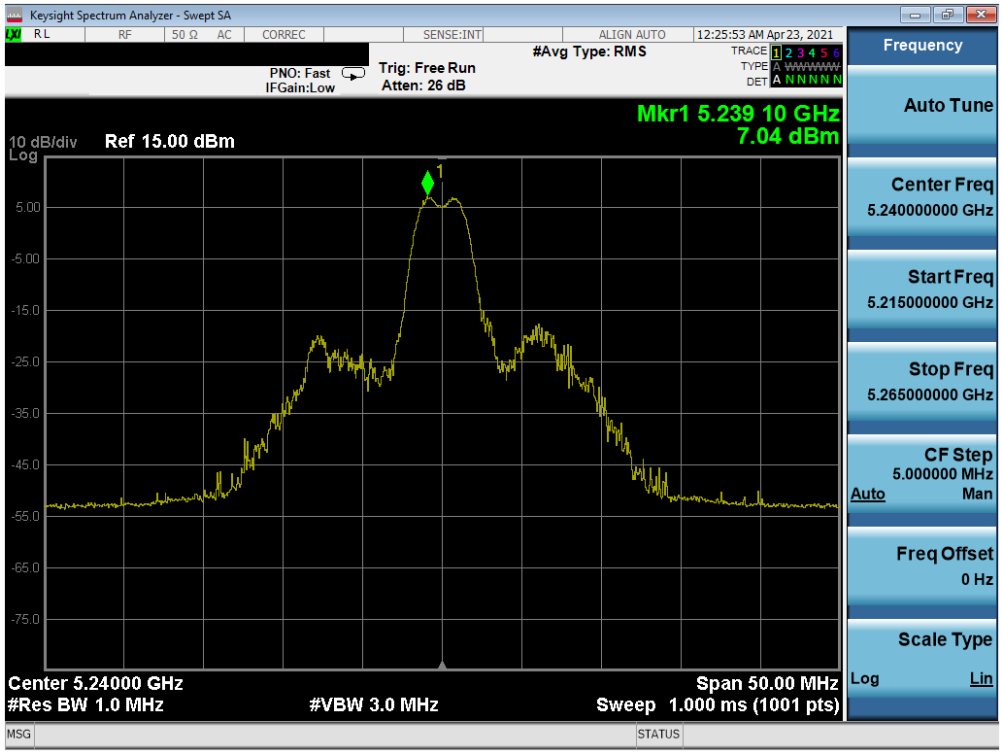
## SISO ANT 1 Power Spectral Density Measurements (26 Tones)



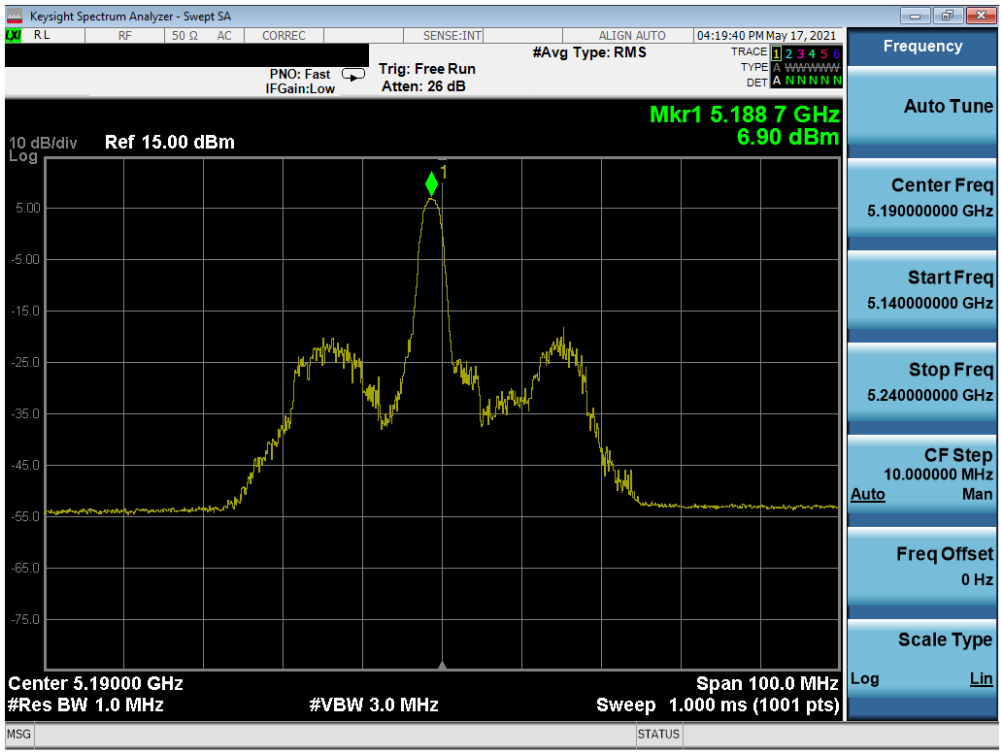

**Plot 7-109. Power Spectral Density Plot SISO ANT1 (20MHz BW 802.11ax – 26 Tones (UNII Band 1) – Ch. 36)**




**Plot 7-110. Power Spectral Density Plot SISO ANT1 (20MHz BW 802.11ax – 26 Tones (UNII Band 1) – Ch. 40)**




**Plot 7-111. Power Spectral Density Plot SISO ANT1 (20MHz BW 802.11ax – 26 Tones (UNII Band 1) – Ch. 48)**




**Plot 7-112. Power Spectral Density Plot SISO ANT1 (40MHz BW 802.11ax – 26 Tones (UNII Band 1) – Ch. 38)**