



MEASUREMENT REPORT

FCC PART 15.407 / ISSED RSS-247 UNII 802.11ax OFDMA

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

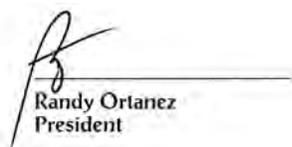
Date of Testing:
 11/9/2018 - 1/18/2019
Test Site/Location:
 PCTEST Lab. Columbia, MD, USA
Test Report Serial No.:
 1M1810250193-18.A3L

| | |
|-------------------|--------------------------------------|
| FCC ID: | A3LSMG970U |
| IC: | 649E-SMG970U |
| APPLICANT: | Samsung Electronics Co., Ltd. |

Application Type: Certification
Model: SM-G970U
Additional Model(s): SM-G970U1, SM-G970W, SM-G970XU
HVIN: SM-G970W
EUT Type: Portable Handset
Frequency Range: 5180 – 5825MHz
FCC Classification: Unlicensed National Information Infrastructure (UNII)
FCC Rule Part(s): Part 15 Subpart E (15.407)
ISED Specification: RSS-247 Issue 2
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 Ortañez
 President

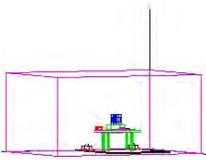


| | | | | |
|--|---|---|---|--|
| FCC ID: A3LSMG970U |  | MEASUREMENT REPORT (CERTIFICATION) |  | Approved by: Quality Manager |
| Test Report S/N: 1M1810250193-18.A3L | Test Dates: 11/9/2018 - 1/18/2019 | EUT Type: Portable Handset | Page 1 of 519 | |

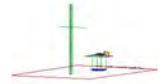
TABLE OF CONTENTS

| | | |
|--------|--|-----|
| 1.0 | INTRODUCTION..... | 4 |
| 1.1 | Scope..... | 4 |
| 1.2 | PCTEST Test Location..... | 4 |
| 1.3 | Test Facility / Accreditations..... | 4 |
| 2.0 | PRODUCT INFORMATION..... | 5 |
| 2.1 | Equipment Description..... | 5 |
| 2.2 | Device Capabilities..... | 5 |
| 2.3 | Test Configuration..... | 7 |
| 2.4 | EMI Suppression Device(s)/Modifications..... | 7 |
| 3.0 | DESCRIPTION OF TESTS..... | 8 |
| 3.1 | Evaluation Procedure..... | 8 |
| 3.2 | Radiated Emissions..... | 8 |
| 3.3 | Environmental Conditions..... | 8 |
| 4.0 | ANTENNA REQUIREMENTS..... | 9 |
| 5.0 | MEASUREMENT UNCERTAINTY..... | 10 |
| 6.0 | TEST EQUIPMENT CALIBRATION DATA..... | 11 |
| 7.0 | TEST RESULTS..... | 12 |
| 7.1 | Summary..... | 12 |
| 7.2 | 26dB Bandwidth Measurement – 802.11ax OFDMA..... | 14 |
| 7.3 | 6dB Bandwidth Measurement – 802.11ax OFDMA..... | 66 |
| 7.4 | UNII Output Power Measurement – 802.11ax OFDMA..... | 85 |
| 7.5 | Maximum Power Spectral Density – 802.11ax OFDMA..... | 105 |
| 7.6 | Radiated Spurious Emission Measurements – Above 1GHz..... | 405 |
| 7.6.1 | SISO Antenna-1 Radiated Spurious Emission Measurements..... | 408 |
| 7.6.2 | SISO Antenna-2 Radiated Spurious Emission Measurements..... | 428 |
| 7.6.3 | MIMO Radiated Spurious Emission Measurements..... | 448 |
| 7.6.4 | SISO Antenna-1 Radiated Band Edge Measurements (20MHz BW)..... | 468 |
| 7.6.5 | SISO Antenna-1 Radiated Band Edge Measurements (40MHz BW)..... | 473 |
| 7.6.6 | SISO Antenna-1 Radiated Band Edge Measurements (80MHz BW)..... | 478 |
| 7.6.7 | SISO Antenna-2 Radiated Band Edge Measurements (20MHz BW)..... | 483 |
| 7.6.8 | SISO Antenna-2 Radiated Band Edge Measurements (40MHz BW)..... | 488 |
| 7.6.9 | SISO Antenna-2 Radiated Band Edge Measurements (80MHz BW)..... | 493 |
| 7.6.10 | MIMO Radiated Band Edge Measurements (20MHz BW)..... | 498 |
| 7.6.11 | MIMO Radiated Band Edge Measurements (40MHz BW)..... | 503 |
| 7.6.12 | MIMO Radiated Band Edge Measurements (80MHz BW)..... | 508 |
| 7.7 | Radiated Spurious Emissions Measurements – Below 1GHz..... | 513 |
| 8.0 | CONCLUSION..... | 519 |

| | | | |
|--|--|---|--|
| FCC ID: A3LSMG970U |  MEASUREMENT REPORT (CERTIFICATION) |  | Approved by: Quality Manager |
| Test Report S/N: 1M1810250193-18.A3L | Test Dates: 11/9/2018 - 1/18/2019 | EUT Type: Portable Handset | Page 2 of 519 |



MEASUREMENT REPORT



| UNII Band | Channel Bandwidth (MHz) | Tx Frequency (MHz) | ANT1 | | ANT2 | | MIMO | |
|-----------|-------------------------|--------------------|-----------------|------------------|-----------------|------------------|-----------------|------------------|
| | | | Max. Power (mW) | Max. Power (dBm) | Max. Power (mW) | Max. Power (dBm) | Max. Power (mW) | Max. Power (dBm) |
| 1 | 20 | 5180 - 5240 | 56.494 | 17.52 | 61.518 | 17.89 | 56.023 | 17.48 |
| 2A | | 5260 - 5320 | 58.210 | 17.65 | 57.280 | 17.58 | 53.460 | 17.28 |
| 2C | | 5500 - 5720 | 61.094 | 17.86 | 59.020 | 17.71 | 59.125 | 17.72 |
| 3 | | 5745 - 5825 | 58.479 | 17.67 | 60.674 | 17.83 | 56.334 | 17.51 |
| 1 | 40 | 5190 - 5230 | 47.315 | 16.75 | 47.098 | 16.73 | 44.958 | 16.53 |
| 2A | | 5270 - 5310 | 46.452 | 16.67 | 47.973 | 16.81 | 46.696 | 16.69 |
| 2C | | 5510 - 5710 | 49.888 | 16.98 | 48.529 | 16.86 | 47.063 | 16.73 |
| 3 | | 5755 - 5795 | 49.659 | 16.96 | 50.003 | 16.99 | 46.639 | 16.69 |
| 1 | 80 | 5210 | 30.339 | 14.82 | 31.477 | 14.98 | 28.812 | 14.60 |
| 2A | | 5290 | 31.550 | 14.99 | 30.269 | 14.81 | 30.325 | 14.82 |
| 2C | | 5530 - 5690 | 39.719 | 15.99 | 39.719 | 15.99 | 39.049 | 15.92 |
| 3 | | 5775 | 38.548 | 15.86 | 39.084 | 15.92 | 36.843 | 15.66 |

EUT Overview

| | | | | | |
|---|---|------------------------------------|--|---|---------------------------------|
| FCC ID: A3LSMG970U |  | MEASUREMENT REPORT (CERTIFICATION) | |  | Approved by: Quality Manager |
| Test Report S/N: 1M1810250193-18.A3L | Test Dates: 11/9/2018 - 1/18/2019 | EUT Type: Portable Handset | | Page 3 of 519 | |

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 Engineering Laboratory, Inc. 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 Engineering Lab located in Columbia, MD 21046, U.S.A.

- PCTEST is an ISO 17025-2005 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.

| | | | | |
|--|---|---|---|--|
| FCC ID: A3LSMG970U |  | MEASUREMENT REPORT (CERTIFICATION) |  | Approved by: Quality Manager |
| Test Report S/N: 1M1810250193-18.A3L | Test Dates: 11/9/2018 - 1/18/2019 | EUT Type: Portable Handset | Page 4 of 519 | |

2.0 PRODUCT INFORMATION

2.1 Equipment Description

The Equipment Under Test (EUT) is the **Samsung Portable Handset FCC ID: A3LSMG970U**. The test data contained in this report pertains only to the emissions due to the EUT's UNII transmitter.

Test Device Serial No.: 0299M, 0500M, 0473M

2.2 Device Capabilities

This device contains the following capabilities:

850/1900 CDMA/EvDO Rev0/A, 1x Advanced (BC0, BC1, BC10), 850/1900 GSM/GPRS/EDGE, 850/1700/1900 WCDMA/HSPA, Multi-band LTE, 802.11b/g/n/ax WLAN, 802.11a/n/ac/ax UNII, Bluetooth (1x, EDR, LE), NFC, ANT+, 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. 802.11a / 802.11n / 802.11ac / 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. 802.11n / 802.11ac / 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. 802.11ac / 802.11ax (80MHz BW) Frequency / Channel Operations

| | | | | | |
|---|---|---------------------------------------|--|---|---------------------------------|
| FCC ID: A3LSMG970U |  | MEASUREMENT REPORT (CERTIFICATION) | |  | Approved by: Quality Manager |
| Test Report S/N: 1M1810250193-18.A3L | Test Dates: 11/9/2018 - 1/18/2019 | EUT Type: Portable Handset | | Page 5 of 519 | |

Notes:

- 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 OFDMA | 1 | 42 | 26T | 99.6 |
| | | | 52T | 99.6 |
| | | | 106T | 99.6 |
| | | | 242T | 99.6 |
| | | | 484T | 99.6 |
| | | | 996T | 99.5 |
| 802.11ax OFDMA | 2 | 122 | 26T | 99.6 |
| | | | 52T | 99.6 |
| | | | 106T | 99.6 |
| | | | 242T | 99.6 |
| | | | 484T | 99.6 |
| | | | 996T | 99.5 |
| 802.11ax OFDMA | MIMO CDD | 106 | 26T | 99.2 |
| | | | 52T | 98.8 |
| | | | 106T | 99.1 |
| | | | 242T | 99.4 |
| | | | 484T | 99.4 |
| | | | 996T | 99.4 |

Table 2-4. Measured Duty Cycles

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

| WiFi Configurations | | SISO | | SDM | | CDD/MIMO | |
|---------------------|-------------------|------|------|------|------|----------|------|
| | | ANT1 | ANT2 | ANT1 | ANT2 | ANT1 | ANT2 |
| 5GHz | 11a | ✓ | ✓ | ✗ | ✗ | ✓ | ✓ |
| | 11n/ac/ax (20MHz) | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| | 11n/ac/ax (40MHz) | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| | 11ac/ax (80MHz) | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |

Table 2-5. Frequency / Channel Operations

✓ = Support ; ✗ = NOT Support

SISO = Single Input Single Output

SDM = Spatial Diversity Multiplexing – MIMO function

CDD = Cyclic Delay Diversity - 2Tx Function

| | | | | |
|---|---|---------------------------------------|---|---------------------------------|
| FCC ID: A3LSMG970U |  | MEASUREMENT REPORT (CERTIFICATION) |  | Approved by: Quality Manager |
| Test Report S/N: 1M1810250193-18.A3L | Test Dates: 11/9/2018 - 1/18/2019 | EUT Type: Portable Handset | Page 6 of 519 | |

- This device supports simultaneous transmission operation, which allows for two SISO channels to operate independent of one another in the 2.4GHz (WLAN & BT) and 5GHz bands simultaneously on each antenna. The following tables show the worst case configurations determined during testing. The data for these configurations is contained in this test report. The BT + 5GHz case is not considered as worst case since the BT power is lower than the 2.4GHz WLAN power.

Configuration 1: ANT1 transmitting in 2.4GHz mode and ANT2 in 5GHz mode

| Description | 2.4 GHz Emission | 5 GHz Emission |
|---------------------------|------------------|----------------|
| Antenna | 1 | 2 |
| Channel | 6 | 144 |
| Operating Frequency (MHz) | 2437 | 5720 |
| Data Rate (Mbps) | 1 | 6 |
| Mode | 802.11b | 802.11a |

Table 2-6. Config-1 (ANT1 2.4GHz & ANT2 5GHz)

Configuration 2: ANT1 transmitting in 5GHz mode and ANT2 in 2.4GHz mode

| Description | 2.4 GHz Emission | 5 GHz Emission |
|---------------------------|------------------|----------------|
| Antenna | 2 | 1 |
| Channel | 6 | 144 |
| Operating Frequency (MHz) | 2437 | 5720 |
| Data Rate (Mbps) | 1 | 6 |
| Mode | 802.11b | 802.11a |

Table 2-7. Config-2 (ANT1 5GHz & ANT2 2.4GHz)

Configuration 3: ANT1 and ANT2 both transmitting in 2.4GHz and 5GHz modes simultaneously

| Description | 2.4 GHz Emission | 5 GHz Emission |
|---------------------------|------------------|----------------|
| Antenna | 1, 2 | 1, 2 |
| Channel | 6 | 157 |
| Operating Frequency (MHz) | 2437 | 5785 |
| Data Rate (Mbps) | 6 | 6 |
| Mode | 802.11g | 802.11a |

Table 2-8. Config-3 (ANT1 MIMO & ANT2 MIMO)

2.3 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 placed 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.

2.4 EMI Suppression Device(s)/Modifications

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

| | | | | |
|---|---|---------------------------------------|---|---------------------------------|
| FCC ID: A3LSMG970U |  | MEASUREMENT REPORT (CERTIFICATION) |  | Approved by: Quality Manager |
| Test Report S/N: 1M1810250193-18.A3L | Test Dates: 11/9/2018 - 1/18/2019 | EUT Type: Portable Handset | Page 7 of 519 | |

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

| | | | | |
|---|---|---------------------------------------|---|---------------------------------|
| FCC ID: A3LSMG970U |  | MEASUREMENT REPORT (CERTIFICATION) |  | Approved by: Quality Manager |
| Test Report S/N: 1M1810250193-18.A3L | Test Dates: 11/9/2018 - 1/18/2019 | EUT Type: Portable Handset | Page 8 of 519 | |

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.

| | | | | |
|--|---|---|---|--|
| FCC ID: A3LSMG970U |  | MEASUREMENT REPORT (CERTIFICATION) |  | Approved by: Quality Manager |
| Test Report S/N: 1M1810250193-18.A3L | Test Dates: 11/9/2018 - 1/18/2019 | EUT Type: Portable Handset | Page 9 of 519 | |

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 (\pm 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 |

| | | | | |
|--|---|---|---|--|
| FCC ID: A3LSMG970U |  | MEASUREMENT REPORT (CERTIFICATION) |  | Approved by: Quality Manager |
| Test Report S/N: 1M1810250193-18.A3L | Test Dates: 11/9/2018 - 1/18/2019 | EUT Type: Portable Handset | Page 10 of 519 | |

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) | 1/23/2018 | Annual | 1/23/2019 | WL25-1 |
| Agilent | N9020A | MXA Signal Analyzer | 1/24/2018 | Annual | 1/24/2019 | US46470561 |
| Agilent | N9030A | PXA Signal Analyzer (44GHz) | 5/25/2018 | Annual | 5/25/2019 | MY52350166 |
| Anritsu | MA2411B | Pulse Power Sensor | 10/30/2018 | Annual | 10/30/2019 | 846215 |
| Anritsu | ML2495A | Power Meter | 10/21/2018 | Annual | 10/21/2019 | 941001 |
| Com-Power | AL-130 | 9kHz - 30MHz Loop Antenna | 10/10/2017 | Biennial | 10/10/2019 | 121034 |
| COM-Power | PAM-103 | Pre-Amplifier (1-1000MHz) | 9/17/2018 | Annual | 9/17/2019 | 441119 |
| Emco | 3115 | Horn Antenna (1-18GHz) | 3/28/2018 | Biennial | 3/28/2020 | 9704-5182 |
| Emco | 3116 | Horn Antenna (18 - 40GHz) | 6/7/2018 | Triennial | 6/7/2021 | 9203-2178 |
| Huber + Suhner | Sucoflex 102A | 40GHz Radiated Cable Set | 1/23/2018 | Annual | 1/23/2019 | 251425001 |
| Rohde & Schwarz | ESU26 | EMI Test Receiver (26.5GHz) | 5/21/2018 | Annual | 5/21/2019 | 100342 |
| Rohde & Schwarz | ESU40 | EMI Test Receiver (40GHz) | 8/9/2018 | Annual | 8/9/2019 | 100348 |
| Rohde & Schwarz | SFUNIT-Rx | Shielded Filter Unit | 6/18/2018 | Annual | 6/18/2019 | 102134 |
| Rohde & Schwarz | SFUNIT-Rx | Shielded Filter Unit | 6/25/2018 | Annual | 6/25/2019 | 102133 |
| Rohde & Schwarz | TS-PR26 | 18-26.5 GHz Pre-Amplifier | 1/24/2018 | Annual | 1/24/2019 | 100040 |
| Rohde & Schwarz | TS-PR40 | 26.5-40 GHz Pre-Amplifier | 1/24/2018 | Annual | 1/24/2019 | 100037 |
| Seekonk | NC-100 | Torque Wrench | 5/9/2018 | Biennial | 5/9/2020 | 22217 |
| Sunol | DRH-118 | Horn Antenna (1-18GHz) | 8/11/2017 | Biennial | 8/11/2019 | A050307 |
| Sunol | JB5 | Bi-Log Antenna (30M - 5GHz) | 4/19/2018 | Biennial | 4/19/2020 | 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.

| | | | | | |
|---|---|---|--|---|---------------------------------|
| FCC ID: A3LSMG970U |  | MEASUREMENT REPORT (CERTIFICATION) | |  | Approved by: Quality Manager |
| Test Report S/N: 1M1810250193-18.A3L | Test Dates: 11/9/2018 - 1/18/2019 | EUT Type: Portable Handset | | Page 11 of 519 | |

7.0 TEST RESULTS

7.1 Summary

Company Name: Samsung Electronics Co., Ltd.
 FCC ID: A3LSMG970U
 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, 7.7 |
| 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 |
| 15.407 | RSS-Gen [8.8] | AC Conducted Emissions 150kHz – 30MHz | < FCC 15.207 (RSS-Gen [8.8]) limits | LINE CONDUCTED | PASS | See UNII Test Report |

Table 7-1. Summary of Test Results

| | | | |
|---|---|-------------------------------|---------------------------------|
| FCC ID: A3LSMG970U |  MEASUREMENT REPORT (CERTIFICATION)  | | Approved by: Quality Manager |
| Test Report S/N: 1M1810250193-18.A3L | Test Dates: 11/9/2018 - 1/18/2019 | EUT Type: Portable Handset | Page 12 of 519 |

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 4.6.
- 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 0.2.16.
- 6) Per RSS-247 Section 6.2.3, transmission on channels which overlap the 5600-5650 MHz is prohibited. This device operates under these frequencies only under the control of a certified master device and does not support active scanning on these channels. This device does not transmit any beacons or initiate any transmissions in UNII Bands 2A or 2C.
- 7) 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.
- 8) Only one RU index could be selected at a time so no contiguous or non-contiguous RU's were considered for testing.

| | | | | |
|--|---|---|---|--|
| FCC ID: A3LSMG970U |  | MEASUREMENT REPORT (CERTIFICATION) |  | Approved by: Quality Manager |
| Test Report S/N: 1M1810250193-18.A3L | Test Dates: 11/9/2018 - 1/18/2019 | EUT Type: Portable Handset | Page 13 of 519 | |

7.2 26dB Bandwidth Measurement – 802.11ax OFDMA

RSS-Gen [6.7]

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 $\geq 3 \times$ 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.

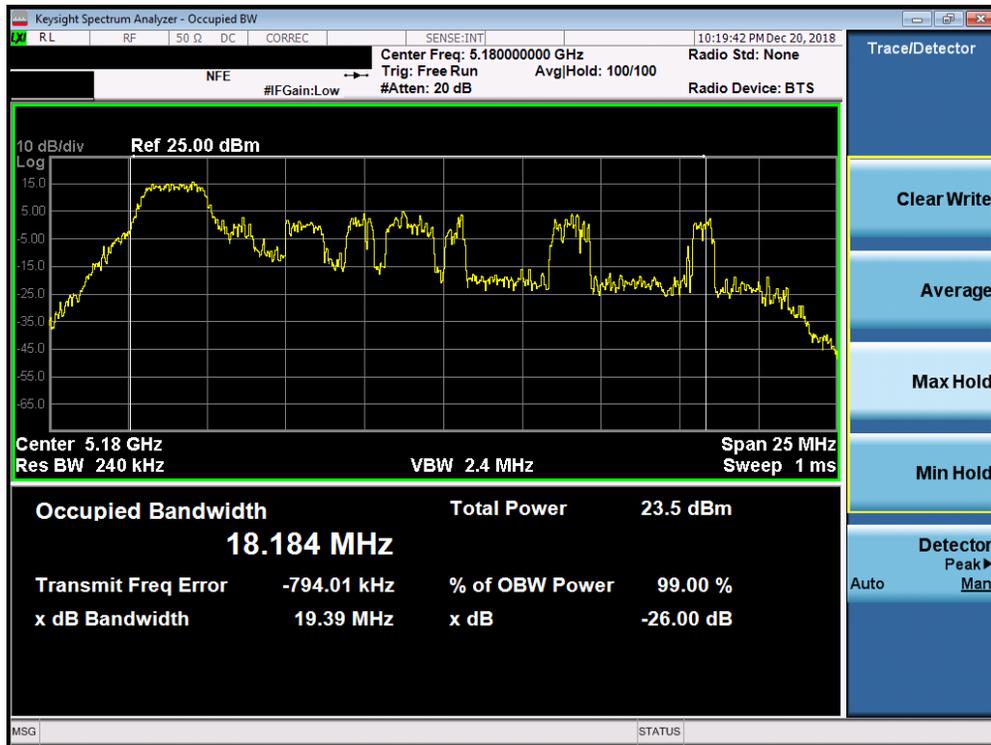
| | | | | |
|---|---|---------------------------------------|---|---------------------------------|
| FCC ID: A3LSMG970U |  | MEASUREMENT REPORT (CERTIFICATION) |  | Approved by: Quality Manager |
| Test Report S/N: 1M1810250193-18.A3L | Test Dates: 11/9/2018 - 1/18/2019 | EUT Type: Portable Handset | | Page 14 of 519 |

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

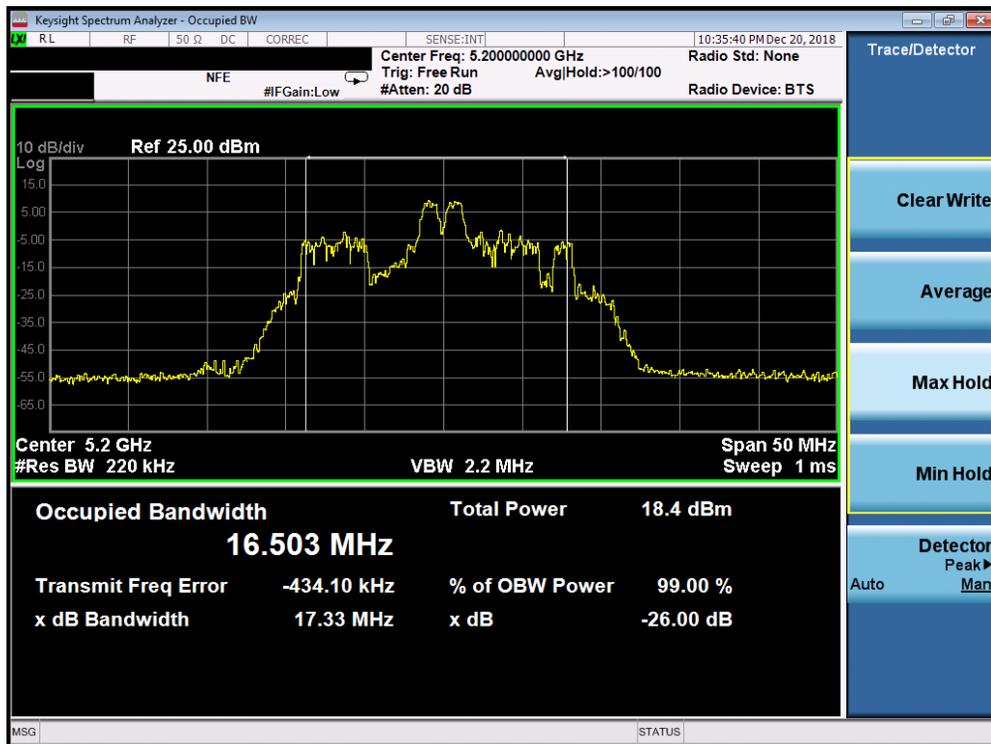
| | Frequency [MHz] | Channel No. | 802.11 Mode | Tones | Data Rate [Mbps] | Measured 26dB Bandwidth [MHz] |
|---------|-----------------|-------------|-------------|-------|------------------|-------------------------------|
| Band 1 | 5180 | 36 | ax (20MHz) | 26T | MCS0 | 19.39 |
| | 5200 | 40 | ax (20MHz) | 26T | MCS0 | 17.33 |
| | 5240 | 48 | ax (20MHz) | 26T | MCS0 | 17.66 |
| | 5190 | 38 | ax (40MHz) | 26T | MCS0 | 19.50 |
| | 5230 | 46 | ax (40MHz) | 26T | MCS0 | 22.48 |
| | 5210 | 42 | ax (80MHz) | 26T | MCS0 | 19.32 |
| Band 2A | 5260 | 52 | ax (20MHz) | 26T | MCS0 | 18.19 |
| | 5280 | 56 | ax (20MHz) | 26T | MCS0 | 18.57 |
| | 5320 | 64 | ax (20MHz) | 26T | MCS0 | 20.08 |
| | 5270 | 54 | ax (40MHz) | 26T | MCS0 | 18.87 |
| | 5310 | 62 | ax (40MHz) | 26T | MCS0 | 21.96 |
| | 5290 | 58 | ax (80MHz) | 26T | MCS0 | 19.50 |
| Band 2C | 5500 | 100 | ax (20MHz) | 26T | MCS0 | 19.78 |
| | 5600 | 120 | ax (20MHz) | 26T | MCS0 | 15.12 |
| | 5720 | 144 | ax (20MHz) | 26T | MCS0 | 19.41 |
| | 5510 | 102 | ax (40MHz) | 26T | MCS0 | 19.55 |
| | 5590 | 118 | ax (40MHz) | 26T | MCS0 | 19.17 |
| | 5710 | 142 | ax (40MHz) | 26T | MCS0 | 22.17 |
| | 5530 | 106 | ax (80MHz) | 26T | MCS0 | 38.06 |
| | 5610 | 122 | ax (80MHz) | 26T | MCS0 | 39.08 |
| | 5690 | 138 | ax (80MHz) | 26T | MCS0 | 38.16 |

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

| | | | | |
|---|---|------------------------------------|---|---------------------------------|
| FCC ID: A3LSMG970U |  | MEASUREMENT REPORT (CERTIFICATION) |  | Approved by: Quality Manager |
| Test Report S/N: 1M1810250193-18.A3L | Test Dates: 11/9/2018 - 1/18/2019 | EUT Type: Portable Handset | | Page 15 of 519 |



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

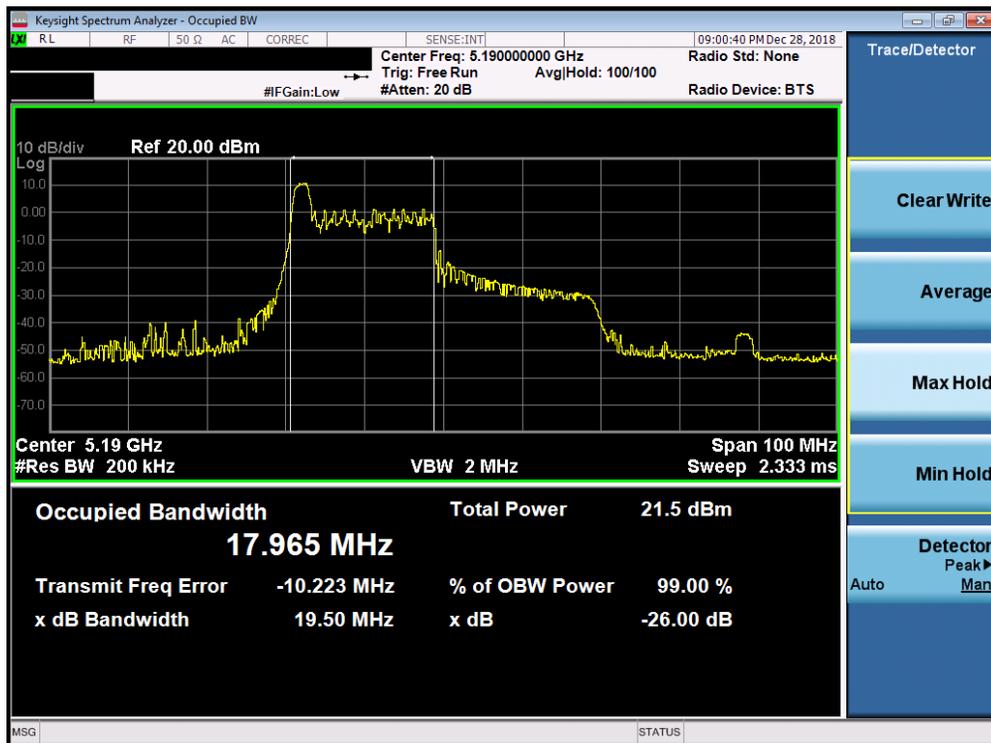


Plot 7-2. 26dB Bandwidth Plot SISO ANT1 (20MHz BW 802.11ax – 26 Tones (UNII Band 1) – Ch. 40)

| | | | | |
|---|--------------------------------------|---------------------------------------|--|---------------------------------|
| FCC ID: A3LSMG970U | | MEASUREMENT REPORT (CERTIFICATION) | | Approved by: Quality Manager |
| Test Report S/N: 1M1810250193-18.A3L | Test Dates: 11/9/2018 - 1/18/2019 | EUT Type: Portable Handset | | Page 16 of 519 |

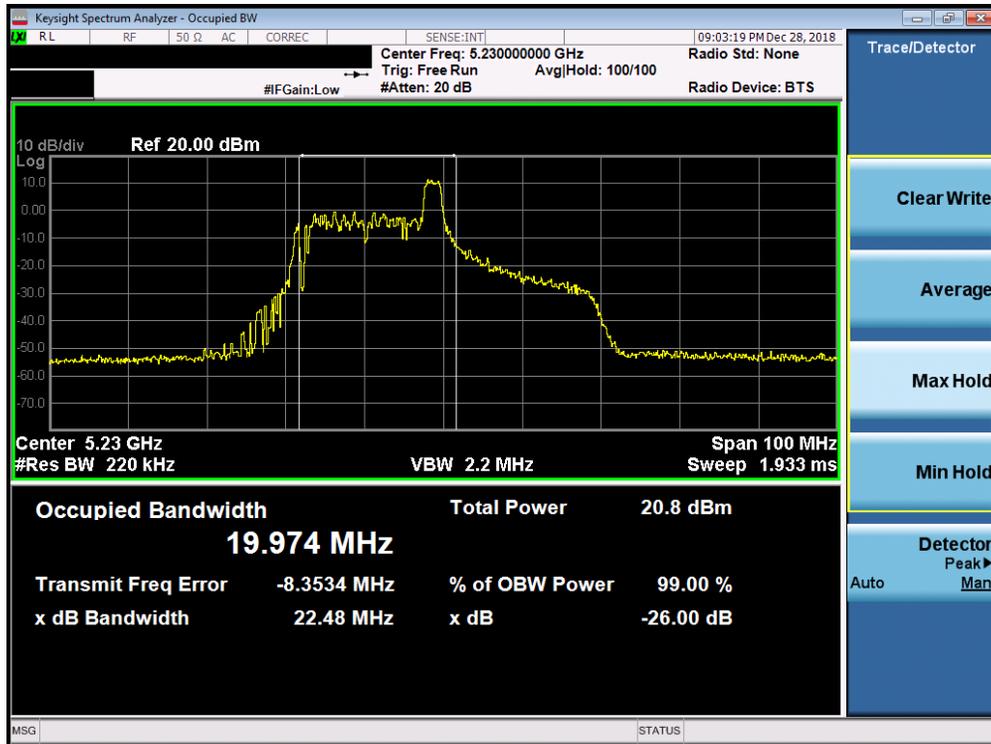


Plot 7-3. 26dB Bandwidth Plot SISO ANT1 (20MHz BW 802.11ax – 26 Tones (UNII Band 1) – Ch. 48)

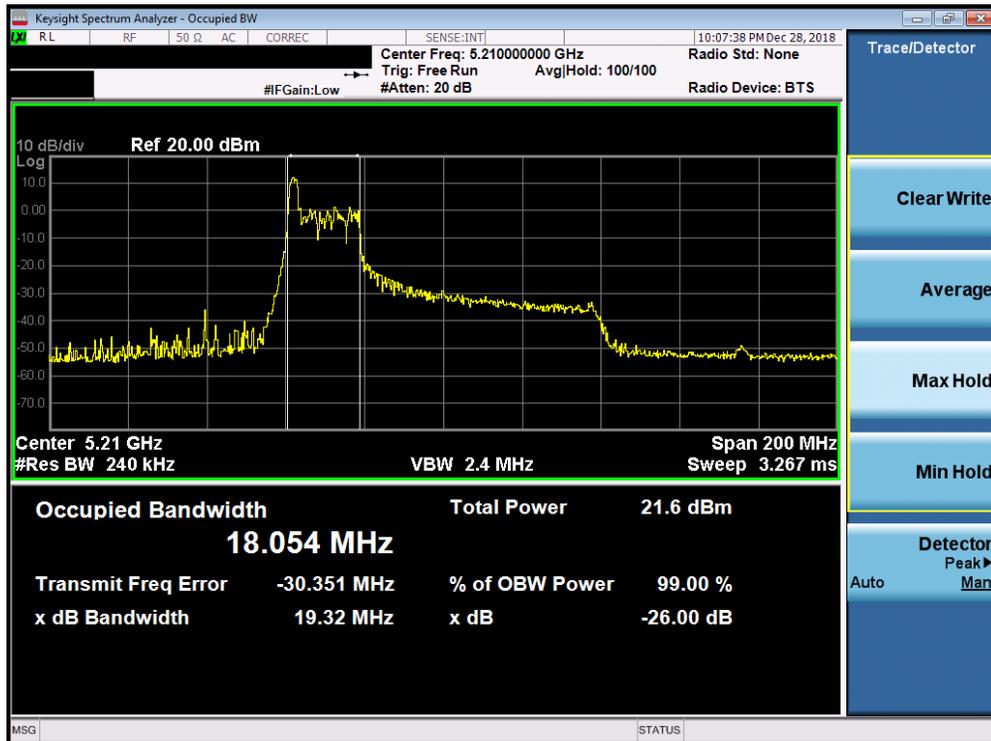


Plot 7-4. 26dB Bandwidth Plot SISO ANT1 (40MHz BW 802.11ax – 26 Tones (UNII Band 1) – Ch. 38)

| | | | | |
|---|--------------------------------------|---------------------------------------|--|---------------------------------|
| FCC ID: A3LSMG970U | | MEASUREMENT REPORT (CERTIFICATION) | | Approved by: Quality Manager |
| Test Report S/N: 1M1810250193-18.A3L | Test Dates: 11/9/2018 - 1/18/2019 | EUT Type: Portable Handset | | Page 17 of 519 |

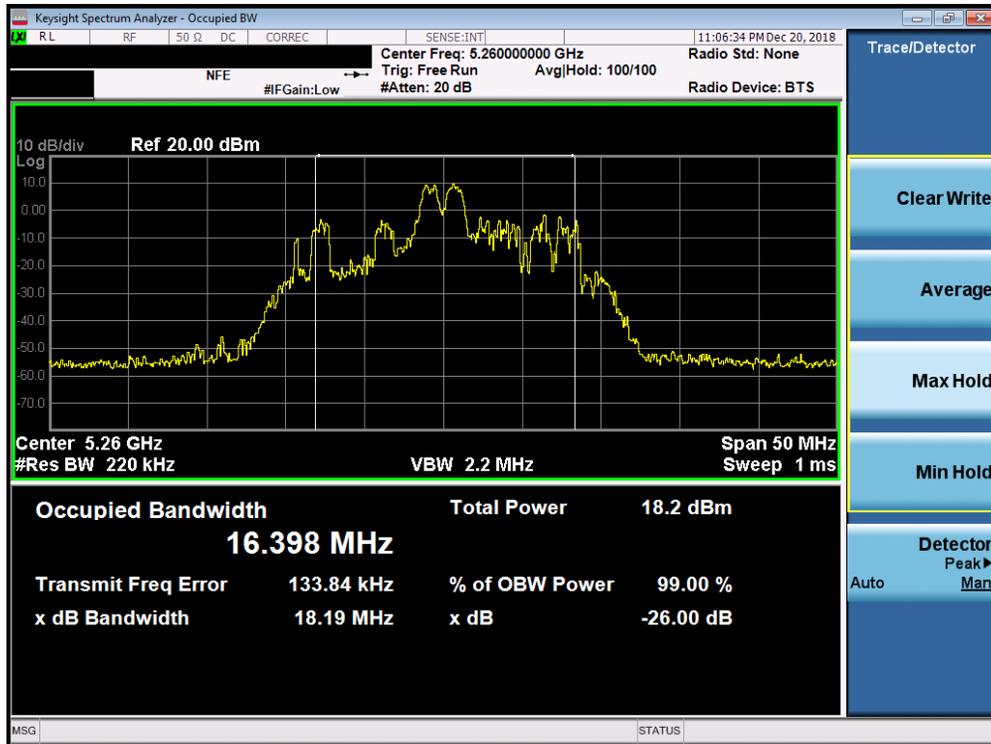


Plot 7-5. 26dB Bandwidth Plot SISO ANT1 (40MHz BW 802.11ax – 26 Tones (UNII Band 1) – Ch. 46)

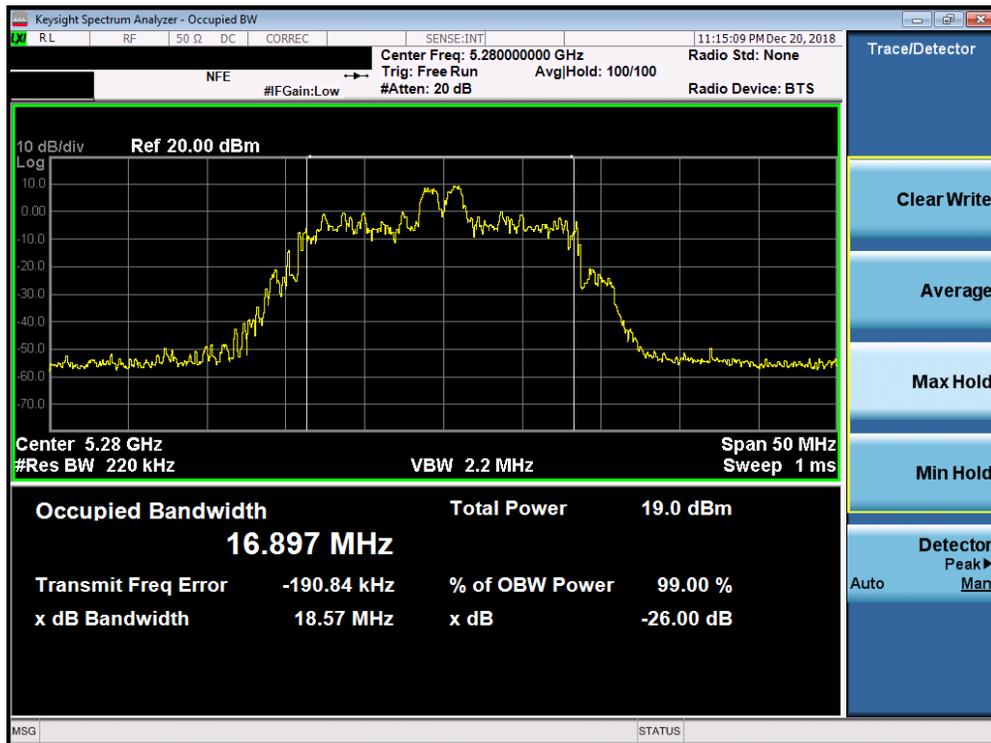


Plot 7-6. 26dB Bandwidth Plot SISO ANT1 (80MHz BW 802.11ax – 26 Tones (UNII Band 1) – Ch. 42)

| | | | | |
|---|--------------------------------------|---------------------------------------|--|---------------------------------|
| FCC ID: A3LSMG970U | | MEASUREMENT REPORT (CERTIFICATION) | | Approved by: Quality Manager |
| Test Report S/N: 1M1810250193-18.A3L | Test Dates: 11/9/2018 - 1/18/2019 | EUT Type: Portable Handset | | Page 18 of 519 |

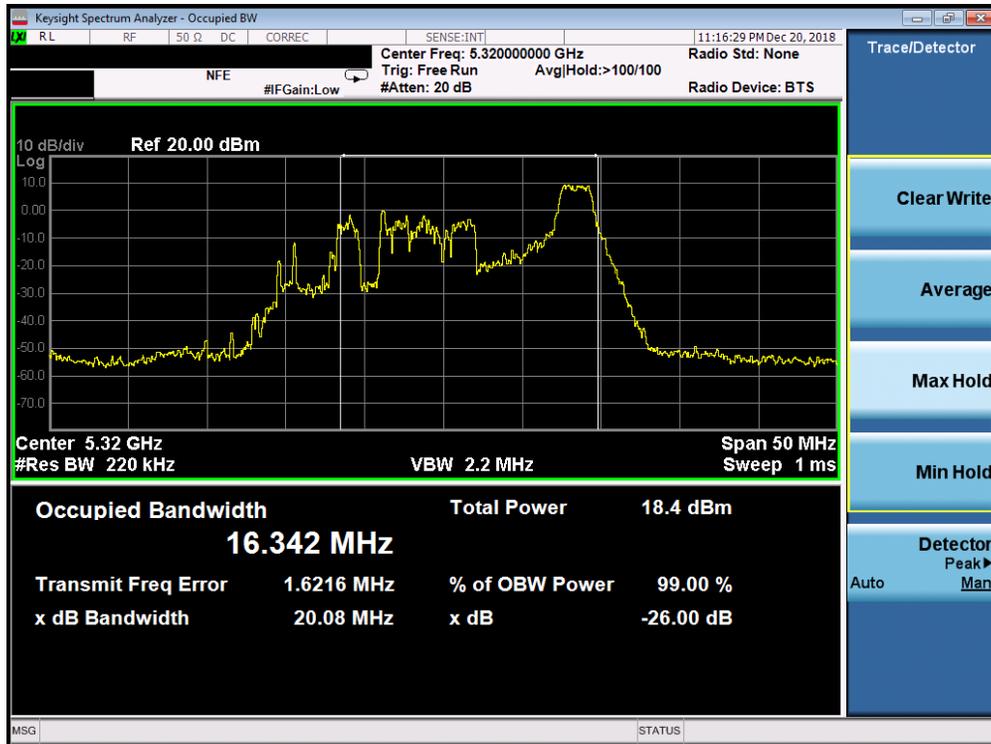


Plot 7-7. 26dB Bandwidth Plot SISO ANT1 (20MHz BW 802.11ax – 26 Tones (UNII Band 2A) – Ch. 52)

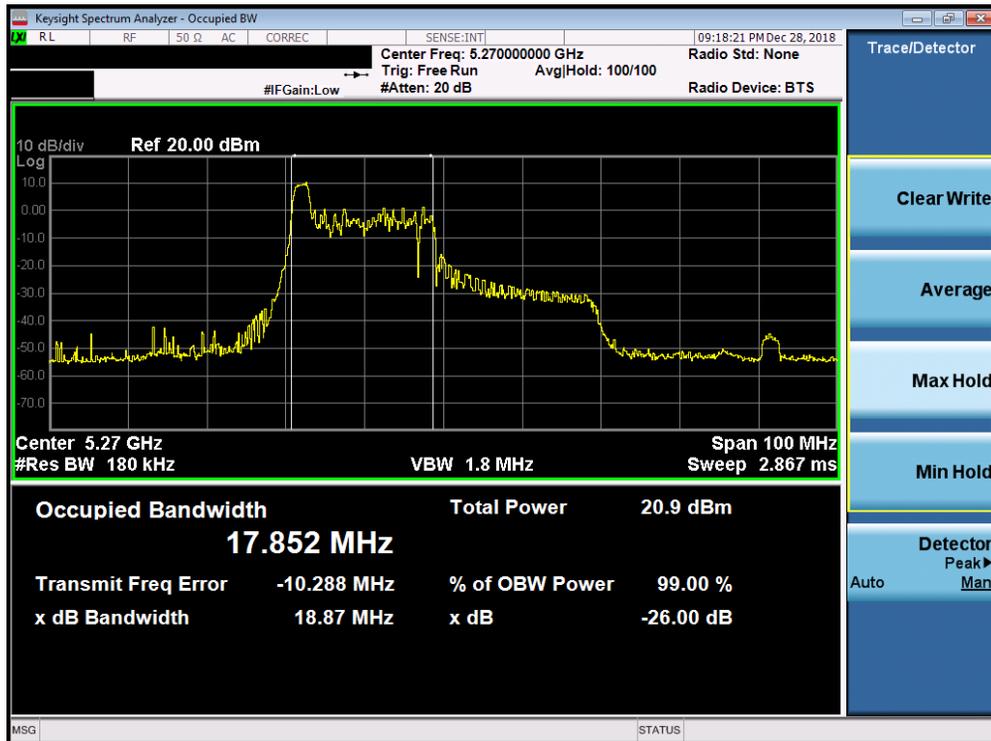


Plot 7-8. 26dB Bandwidth Plot SISO ANT1 (20MHz BW 802.11ax – 26 Tones (UNII Band 2A) – Ch. 56)

| | | | | |
|---|--------------------------------------|---------------------------------------|--|---------------------------------|
| FCC ID: A3LSMG970U | | MEASUREMENT REPORT (CERTIFICATION) | | Approved by: Quality Manager |
| Test Report S/N: 1M1810250193-18.A3L | Test Dates: 11/9/2018 - 1/18/2019 | EUT Type: Portable Handset | | Page 19 of 519 |

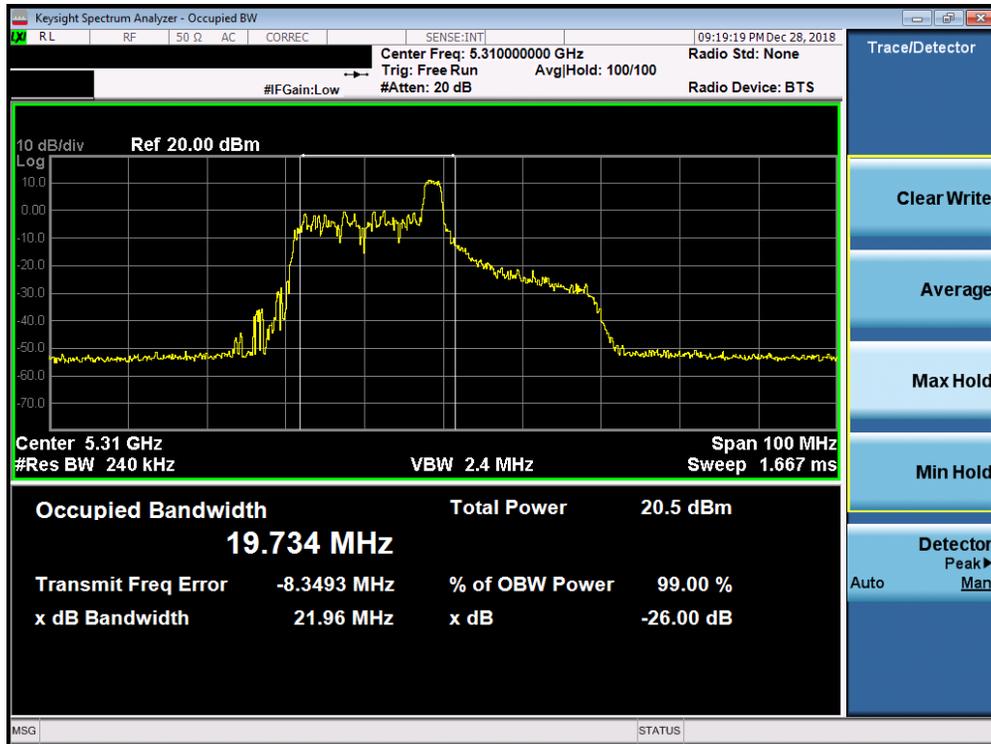


Plot 7-9. 26dB Bandwidth Plot SISO ANT1 (20MHz BW 802.11ax – 26 Tones (UNII Band 2A) – Ch. 64)

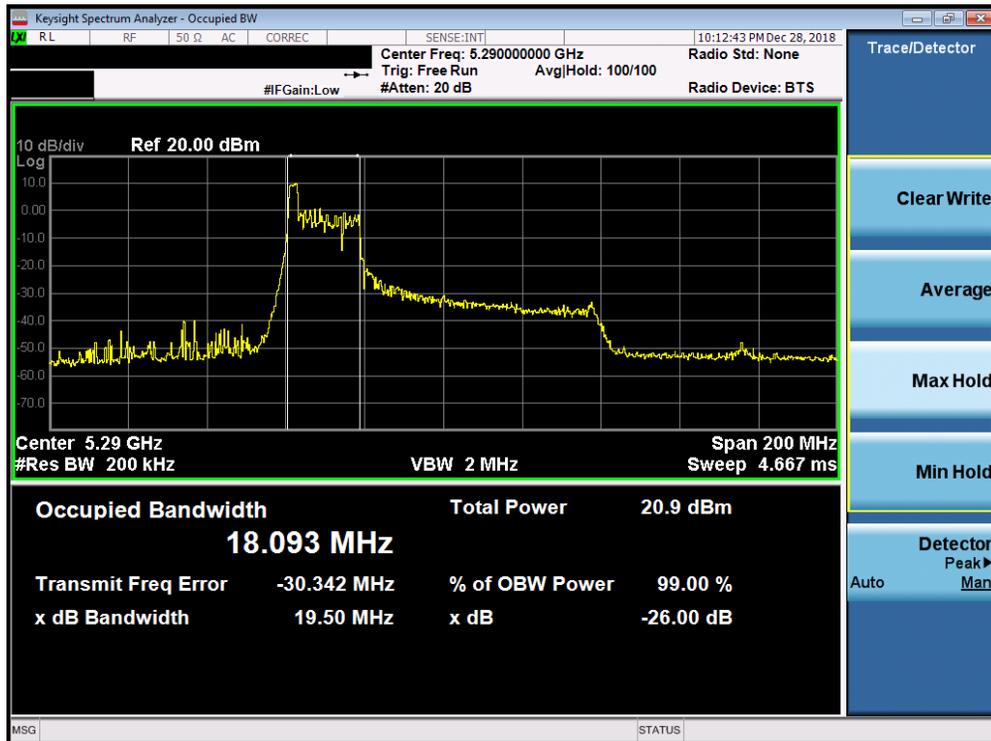


Plot 7-10. 26dB Bandwidth Plot SISO ANT1 (40MHz BW 802.11ax – 26 Tones (UNII Band 2A) – Ch. 54)

| | | | | |
|---|--------------------------------------|---------------------------------------|--|---------------------------------|
| FCC ID: A3LSMG970U | | MEASUREMENT REPORT (CERTIFICATION) | | Approved by: Quality Manager |
| Test Report S/N: 1M1810250193-18.A3L | Test Dates: 11/9/2018 - 1/18/2019 | EUT Type: Portable Handset | | Page 20 of 519 |

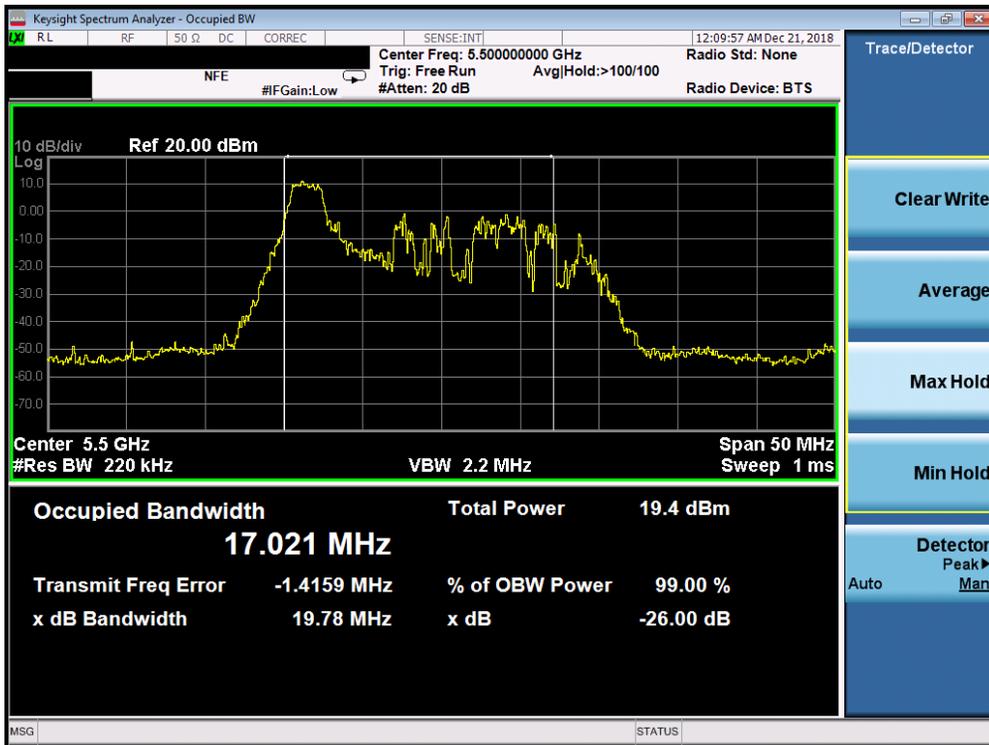


Plot 7-11. 26dB Bandwidth Plot SISO ANT1 (40MHz BW 802.11ax – 26 Tones (UNII Band 2A) – Ch. 62)

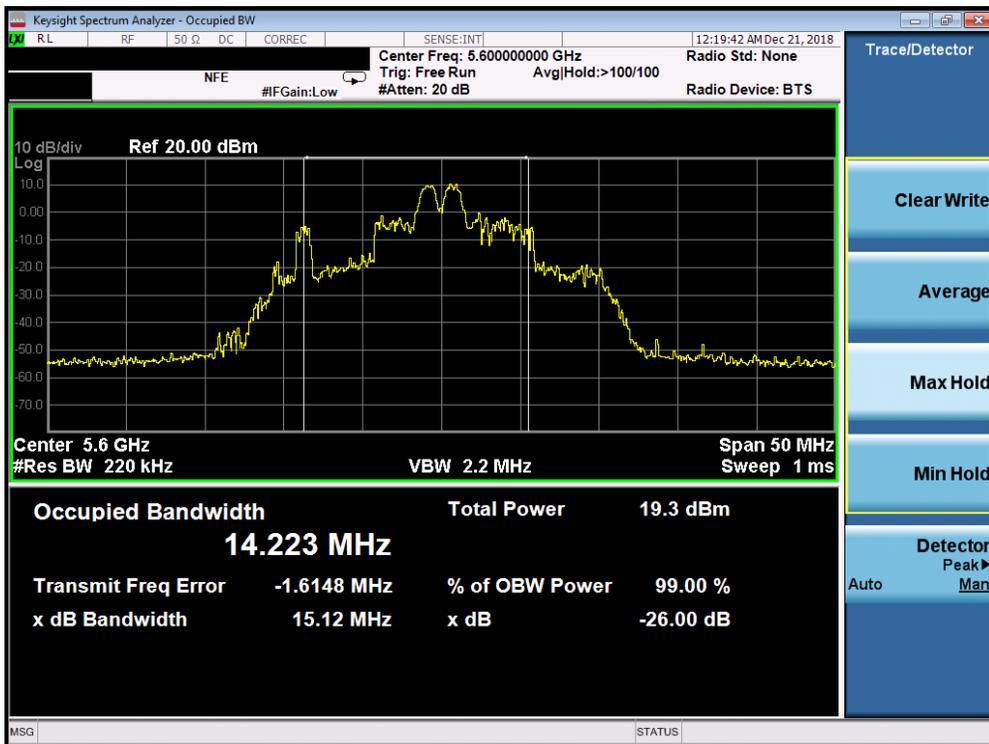


Plot 7-12. 26dB Bandwidth Plot SISO ANT1 (80MHz BW 802.11ax – 26 Tones (UNII Band 2A) – Ch. 58)

| | | | | |
|---|--------------------------------------|---------------------------------------|--|---------------------------------|
| FCC ID: A3LSMG970U | | MEASUREMENT REPORT (CERTIFICATION) | | Approved by: Quality Manager |
| Test Report S/N: 1M1810250193-18.A3L | Test Dates: 11/9/2018 - 1/18/2019 | EUT Type: Portable Handset | | Page 21 of 519 |

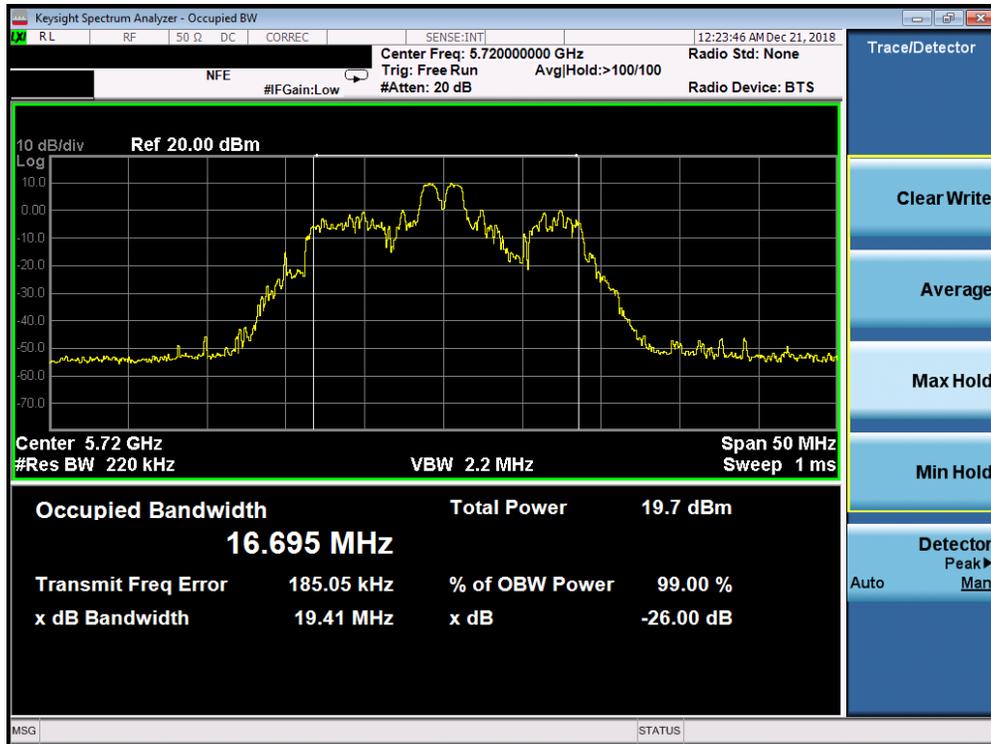


Plot 7-13. 26dB Bandwidth Plot SISO ANT1 (20MHz BW 802.11ax – 26 Tones (UNII Band 2C) – Ch. 100)

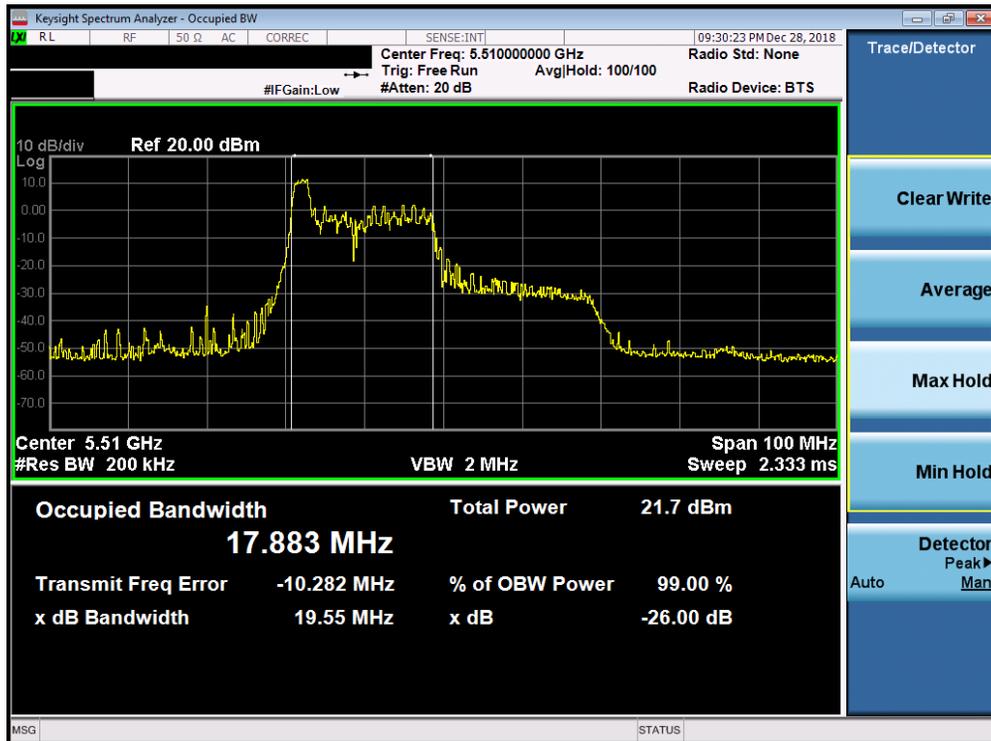


Plot 7-14. 26dB Bandwidth Plot SISO ANT1 (20MHz BW 802.11ax – 26 Tones (UNII Band 2C) – Ch. 120)

| | | | | |
|---|--------------------------------------|---------------------------------------|--|---------------------------------|
| FCC ID: A3LSMG970U | | MEASUREMENT REPORT (CERTIFICATION) | | Approved by: Quality Manager |
| Test Report S/N: 1M1810250193-18.A3L | Test Dates: 11/9/2018 - 1/18/2019 | EUT Type: Portable Handset | | Page 22 of 519 |

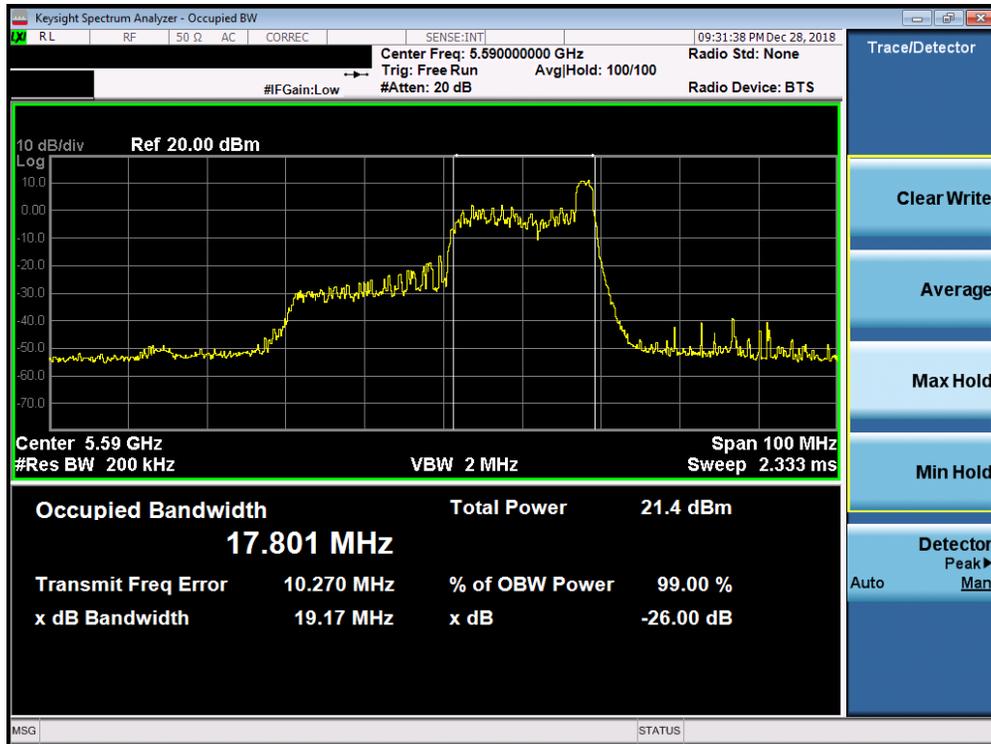


Plot 7-15. 26dB Bandwidth Plot SISO ANT1 (20MHz BW 802.11ax – 26 Tones (UNII Band 2C) – Ch. 144)

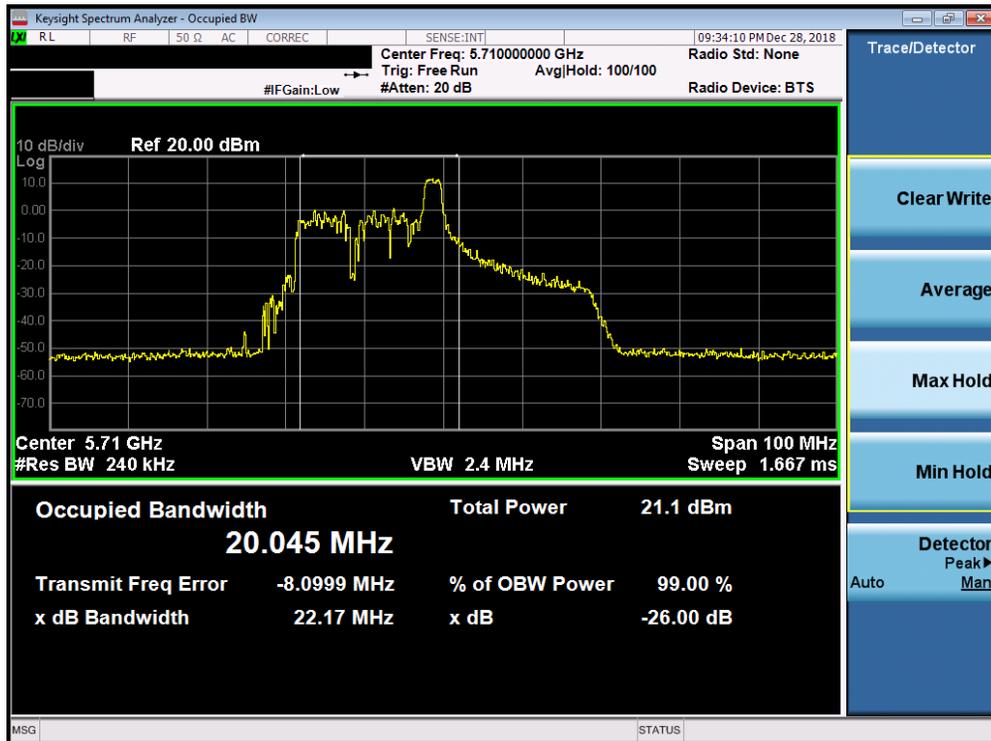


Plot 7-16. 26dB Bandwidth Plot SISO ANT1 (40MHz BW 802.11ax – 26 Tones (UNII Band 2C) – Ch. 102)

| | | | | |
|---|--------------------------------------|---------------------------------------|--|---------------------------------|
| FCC ID: A3LSMG970U | | MEASUREMENT REPORT (CERTIFICATION) | | Approved by: Quality Manager |
| Test Report S/N: 1M1810250193-18.A3L | Test Dates: 11/9/2018 - 1/18/2019 | EUT Type: Portable Handset | | Page 23 of 519 |

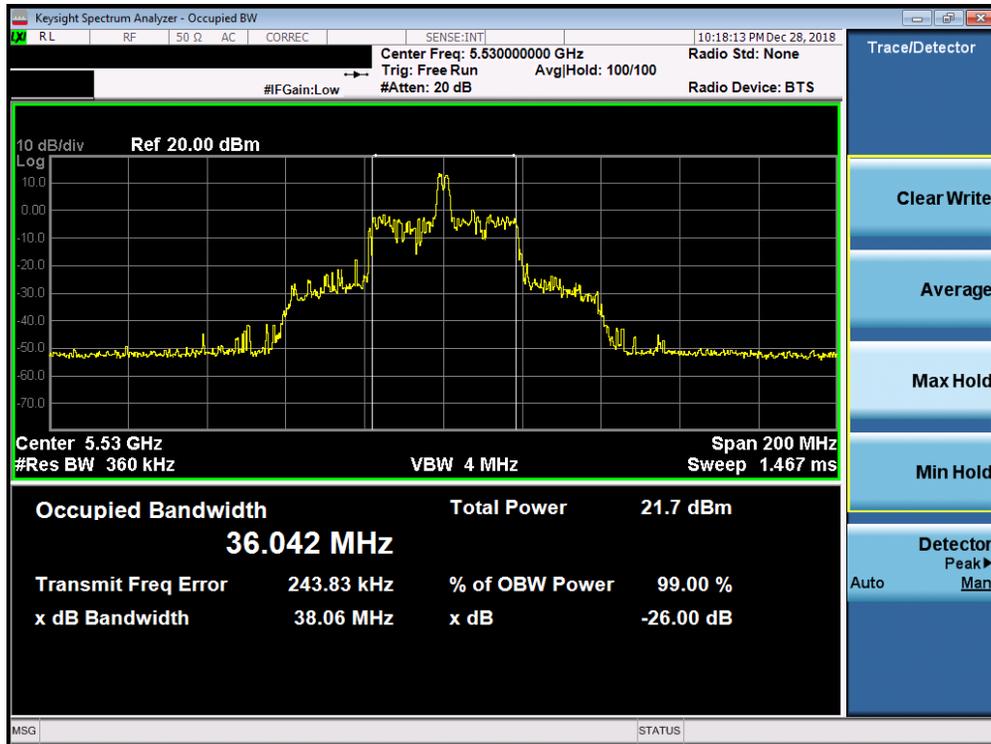


Plot 7-17. 26dB Bandwidth Plot SISO ANT1 (40MHz BW 802.11ax – 26 Tones (UNII Band 2C) – Ch. 118)

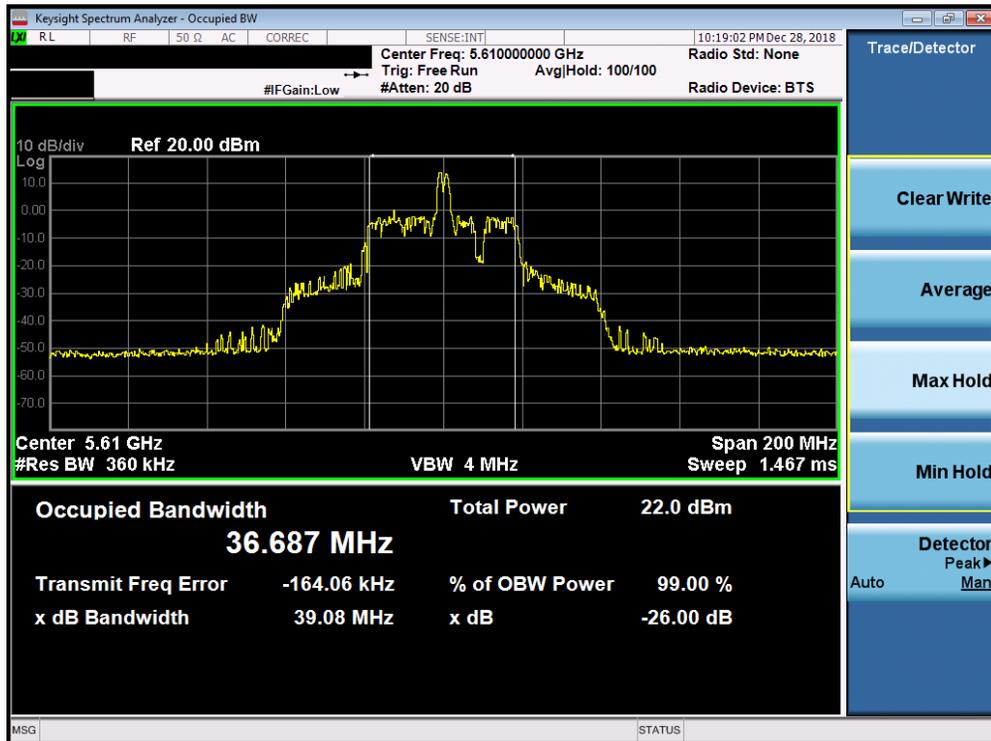


Plot 7-18. 26dB Bandwidth Plot SISO ANT1 (40MHz BW 802.11ax – 26 Tones (UNII Band 2C) – Ch. 142)

| | | | | |
|---|--------------------------------------|---------------------------------------|--|---------------------------------|
| FCC ID: A3LSMG970U | | MEASUREMENT REPORT (CERTIFICATION) | | Approved by: Quality Manager |
| Test Report S/N: 1M1810250193-18.A3L | Test Dates: 11/9/2018 - 1/18/2019 | EUT Type: Portable Handset | | Page 24 of 519 |

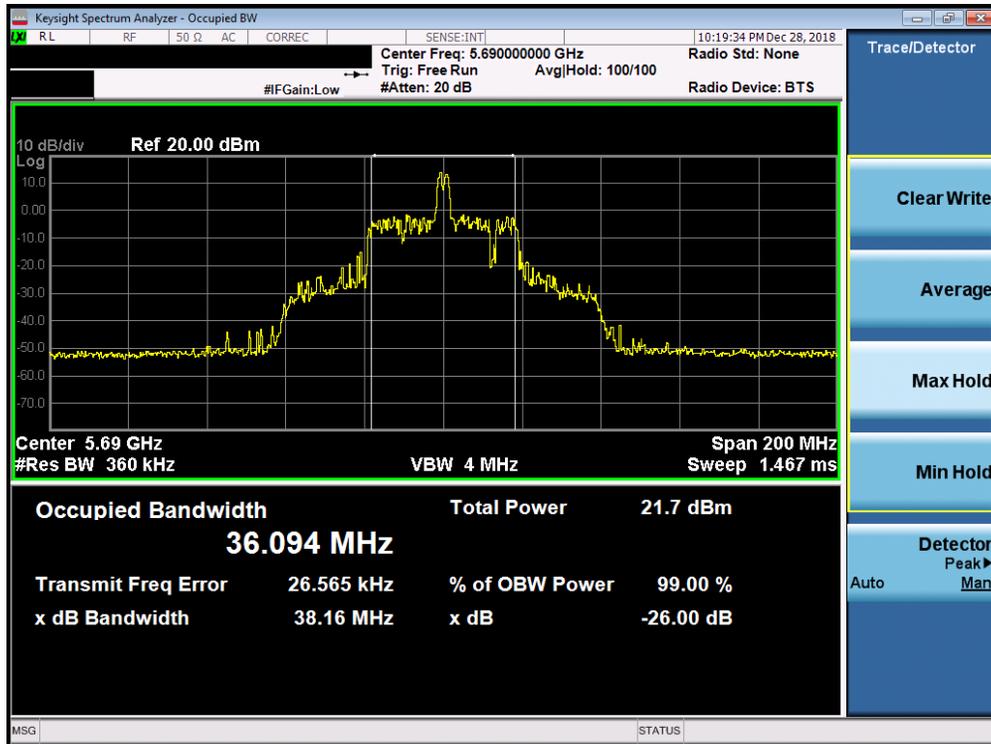


Plot 7-19. 26dB Bandwidth Plot SISO ANT1 (80MHz BW 802.11ax – 26 Tones (UNII Band 2C) – Ch. 106)



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

| | | | | |
|---|--------------------------------------|---------------------------------------|--|---------------------------------|
| FCC ID: A3LSMG970U | | MEASUREMENT REPORT (CERTIFICATION) | | Approved by: Quality Manager |
| Test Report S/N: 1M1810250193-18.A3L | Test Dates: 11/9/2018 - 1/18/2019 | EUT Type: Portable Handset | | Page 25 of 519 |



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

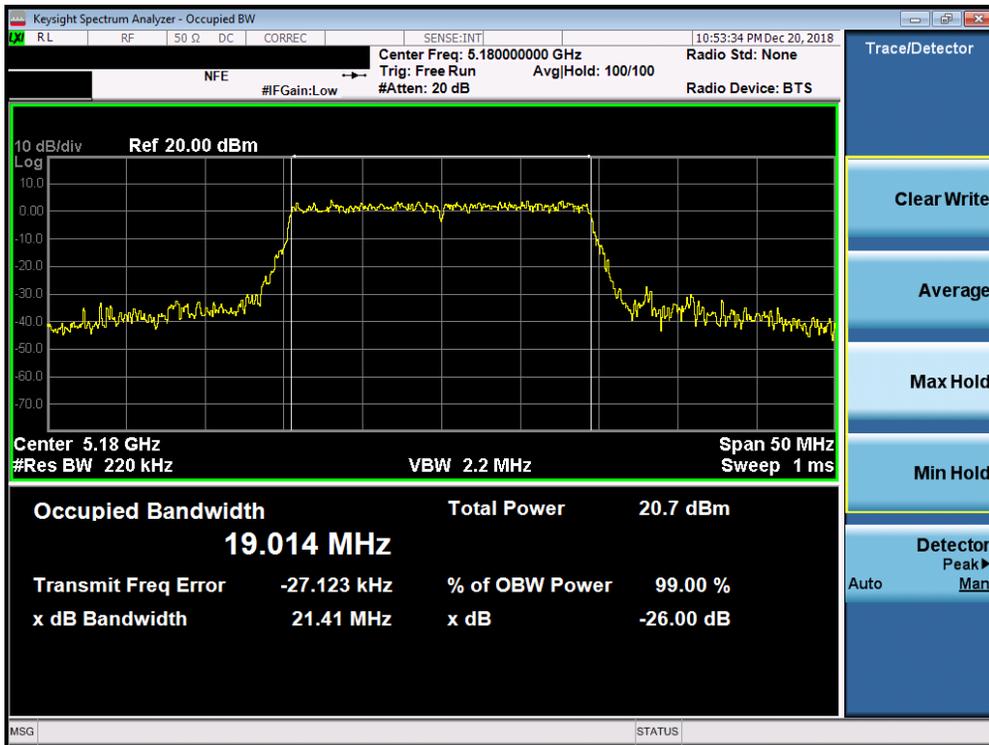
| | | | | |
|---|---|-------------------------------|---|---------------------------------|
| FCC ID: A3LSMG970U |  MEASUREMENT REPORT (CERTIFICATION) | |  | Approved by: Quality Manager |
| Test Report S/N: 1M1810250193-18.A3L | Test Dates: 11/9/2018 - 1/18/2019 | EUT Type: Portable Handset | Page 26 of 519 | |

SISO Antenna-1 26 dB Bandwidth Measurements (242 Tones)

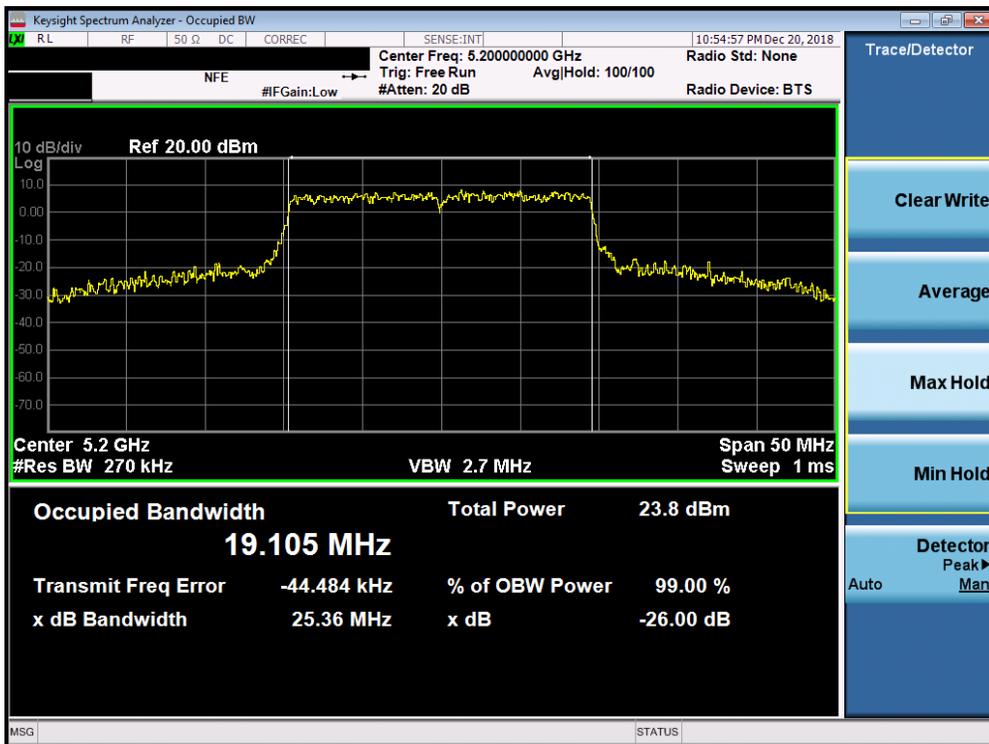
| | Frequency [MHz] | Channel No. | 802.11 Mode | Tones | Data Rate [Mbps] | Measured 26dB Bandwidth [MHz] |
|---------|-----------------|-------------|-------------|-------|------------------|-------------------------------|
| Band 1 | 5180 | 36 | ax (20MHz) | 242T | MCS0 | 21.41 |
| | 5200 | 40 | ax (20MHz) | 242T | MCS0 | 25.36 |
| | 5240 | 48 | ax (20MHz) | 242T | MCS0 | 24.94 |
| Band 2A | 5260 | 52 | ax (20MHz) | 242T | MCS0 | 28.54 |
| | 5280 | 56 | ax (20MHz) | 242T | MCS0 | 29.90 |
| | 5320 | 64 | ax (20MHz) | 242T | MCS0 | 21.67 |
| Band 2C | 5500 | 100 | ax (20MHz) | 242T | MCS0 | 26.53 |
| | 5600 | 120 | ax (20MHz) | 242T | MCS0 | 26.73 |
| | 5720 | 144 | ax (20MHz) | 242T | MCS0 | 32.96 |

Table 7-3. Conducted Bandwidth Measurements SISO ANT1 (242 Tones)

| | | | | |
|---|---|---|---|---------------------------------|
| FCC ID: A3LSMG970U |  | MEASUREMENT REPORT (CERTIFICATION) |  | Approved by: Quality Manager |
| Test Report S/N: 1M1810250193-18.A3L | Test Dates: 11/9/2018 - 1/18/2019 | EUT Type: Portable Handset | | Page 27 of 519 |

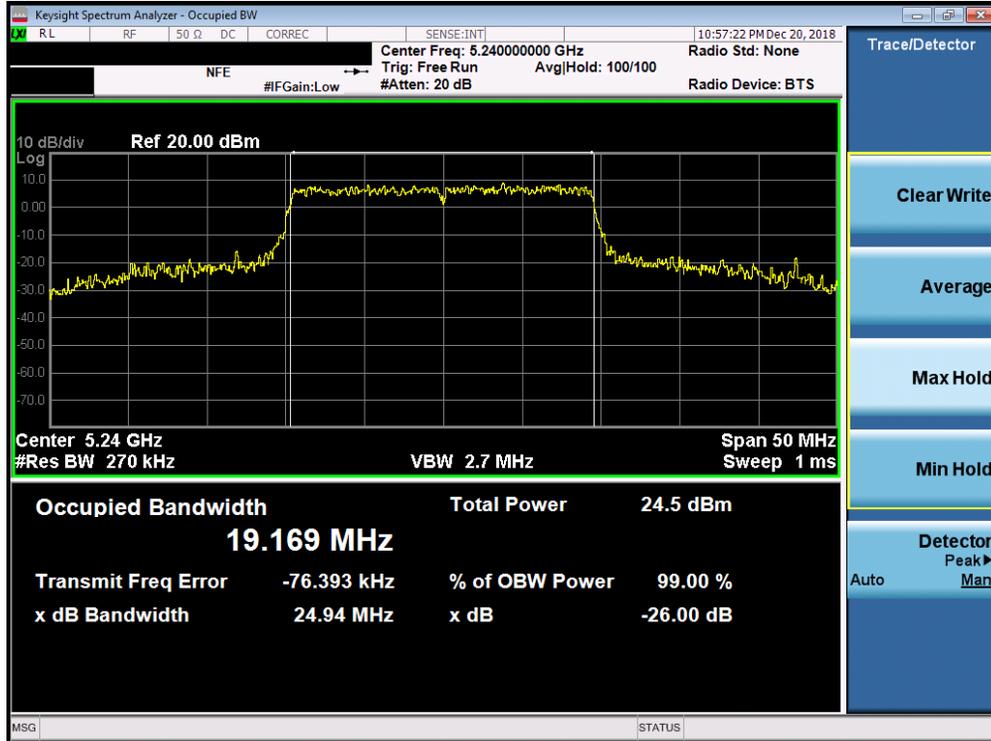


Plot 7-22. 26dB Bandwidth Plot SISO ANT1 (20MHz BW 802.11ax – 242 Tones (UNII Band 1) – Ch. 36)

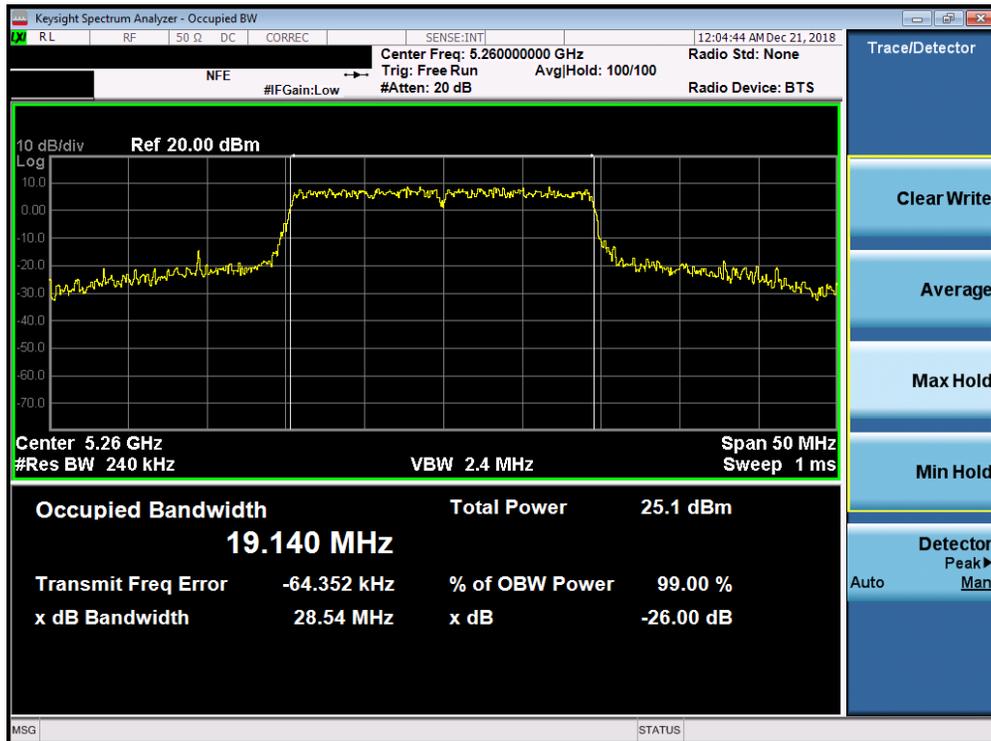


Plot 7-23. 26dB Bandwidth Plot SISO ANT1 (20MHz BW 802.11ax – 242 Tones (UNII Band 1) – Ch. 40)

| | | | | |
|---|--------------------------------------|---------------------------------------|--|---------------------------------|
| FCC ID: A3LSMG970U | | MEASUREMENT REPORT (CERTIFICATION) | | Approved by: Quality Manager |
| Test Report S/N: 1M1810250193-18.A3L | Test Dates: 11/9/2018 - 1/18/2019 | EUT Type: Portable Handset | | Page 28 of 519 |

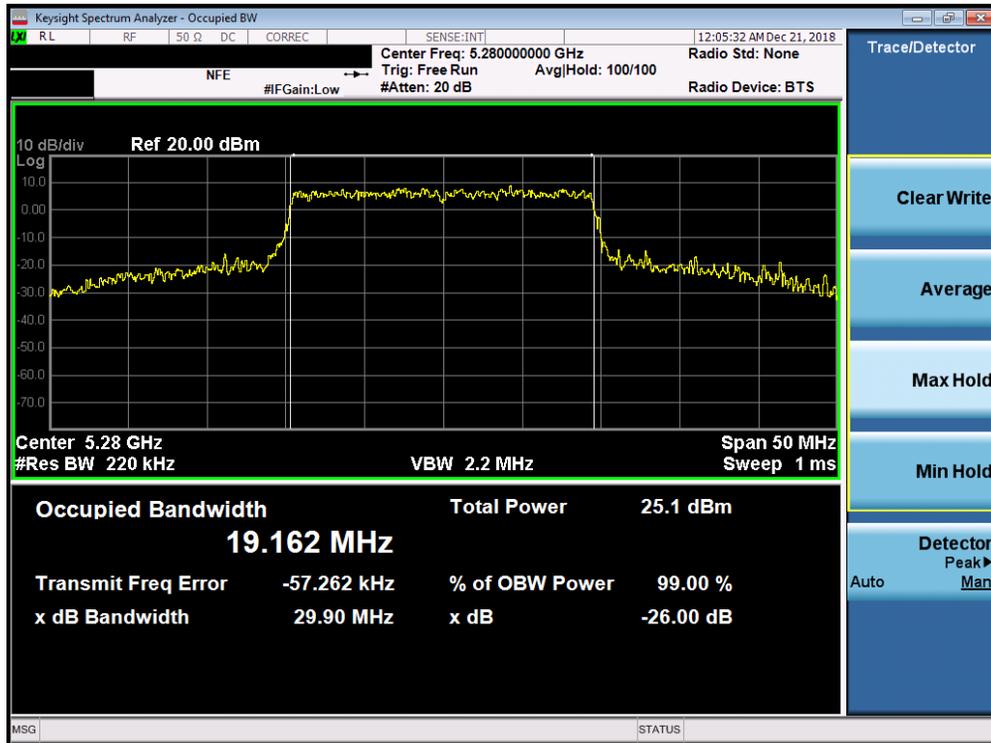


Plot 7-24. 26dB Bandwidth Plot SISO ANT1 (20MHz BW 802.11ax – 242 Tones (UNII Band 1) – Ch. 48)

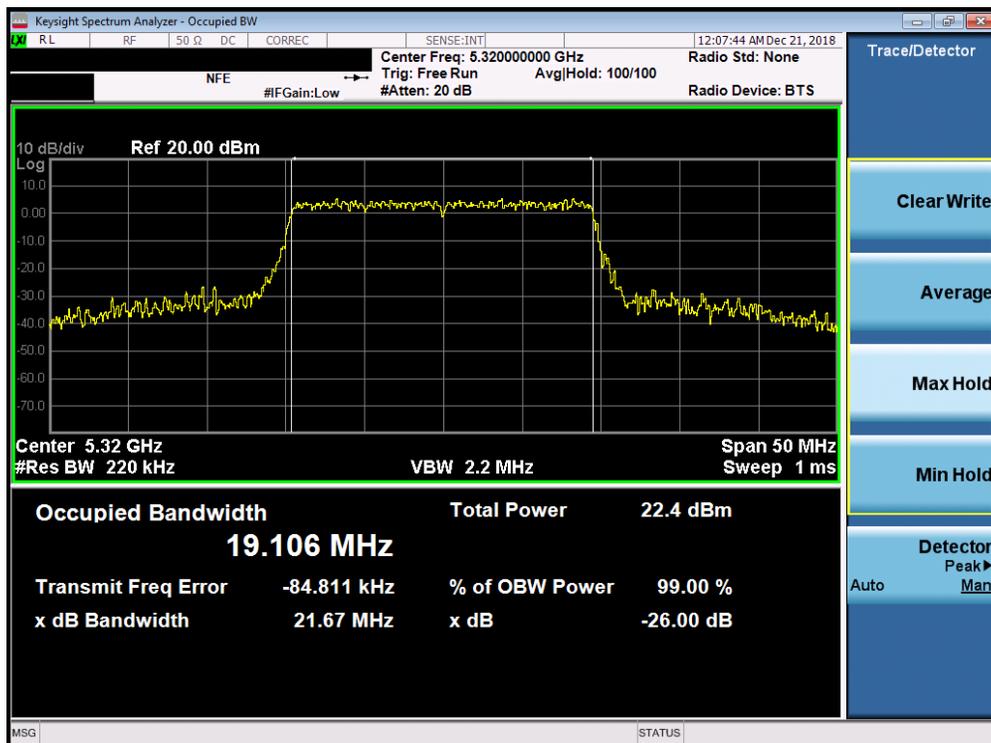


Plot 7-25. 26dB Bandwidth Plot SISO ANT1 (20MHz BW 802.11ax – 242 Tones (UNII Band 2A) – Ch. 52)

| | | | | |
|---|--------------------------------------|---------------------------------------|--|---------------------------------|
| FCC ID: A3LSMG970U | | MEASUREMENT REPORT (CERTIFICATION) | | Approved by: Quality Manager |
| Test Report S/N: 1M1810250193-18.A3L | Test Dates: 11/9/2018 - 1/18/2019 | EUT Type: Portable Handset | | Page 29 of 519 |

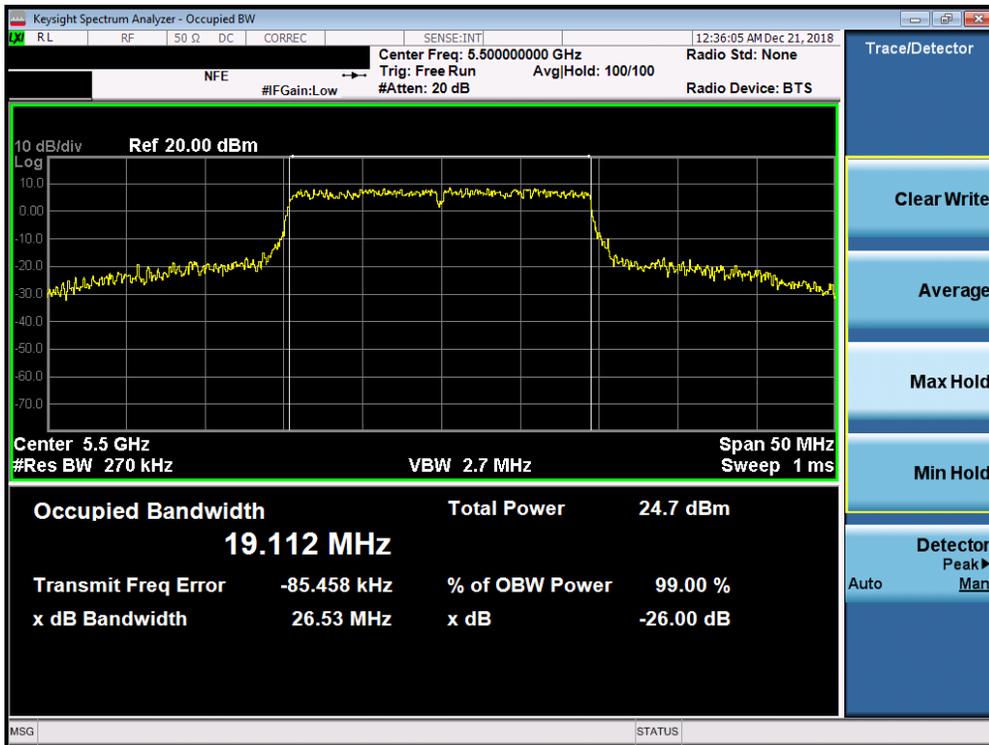


Plot 7-26. 26dB Bandwidth Plot SISO ANT1 (20MHz BW 802.11ax – 242 Tones (UNII Band 2A) – Ch. 56)

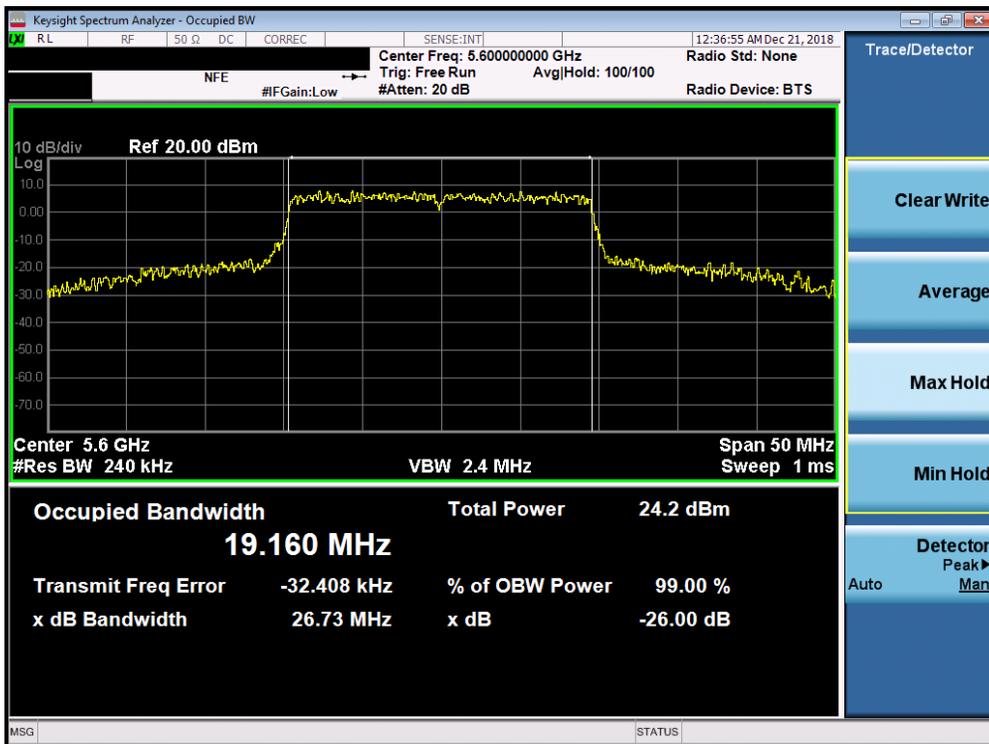


Plot 7-27. 26dB Bandwidth Plot SISO ANT1 (20MHz BW 802.11ax – 242 Tones (UNII Band 2A) – Ch. 64)

| | | | | |
|---|--------------------------------------|---------------------------------------|--|---------------------------------|
| FCC ID: A3LSMG970U | | MEASUREMENT REPORT (CERTIFICATION) | | Approved by: Quality Manager |
| Test Report S/N: 1M1810250193-18.A3L | Test Dates: 11/9/2018 - 1/18/2019 | EUT Type: Portable Handset | | Page 30 of 519 |

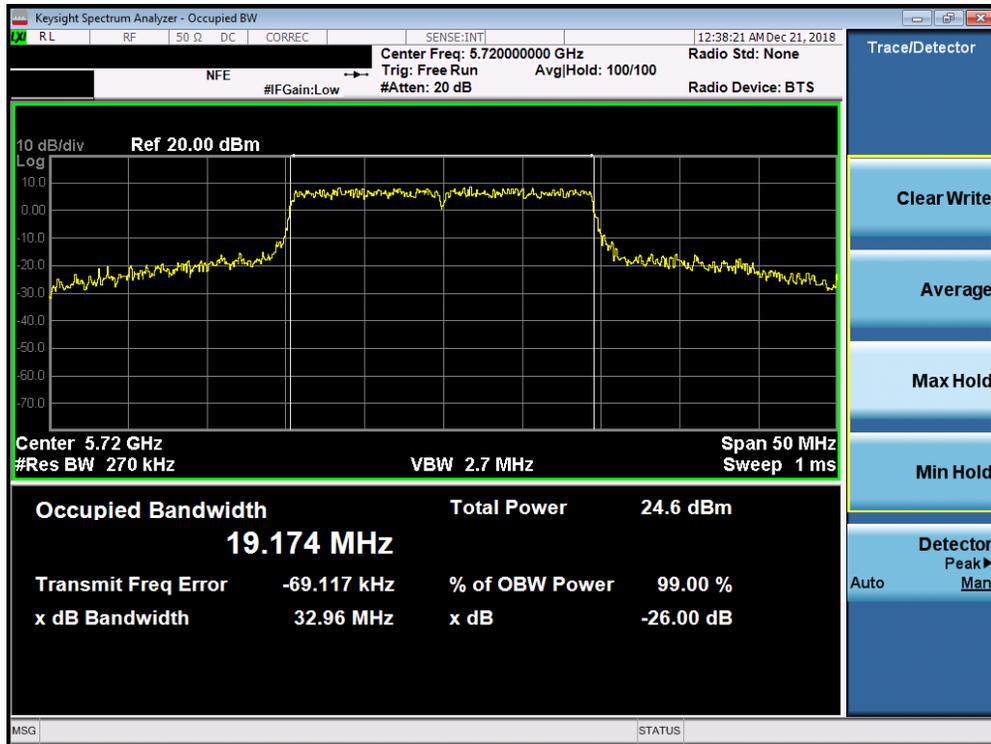


Plot 7-28. 26dB Bandwidth Plot SISO ANT1 (20MHz BW 802.11ax – 242 Tones (UNII Band 2C) – Ch. 100)



Plot 7-29. 26dB Bandwidth Plot SISO ANT1 (20MHz BW 802.11ax – 242 Tones (UNII Band 2C) – Ch. 120)

| | | | | |
|---|--------------------------------------|---------------------------------------|--|---------------------------------|
| FCC ID: A3LSMG970U | | MEASUREMENT REPORT (CERTIFICATION) | | Approved by: Quality Manager |
| Test Report S/N: 1M1810250193-18.A3L | Test Dates: 11/9/2018 - 1/18/2019 | EUT Type: Portable Handset | | Page 31 of 519 |



Plot 7-30. 26dB Bandwidth Plot SISO ANT1 (20MHz BW 802.11ax – 242 Tones (UNII Band 2C) – Ch. 144)

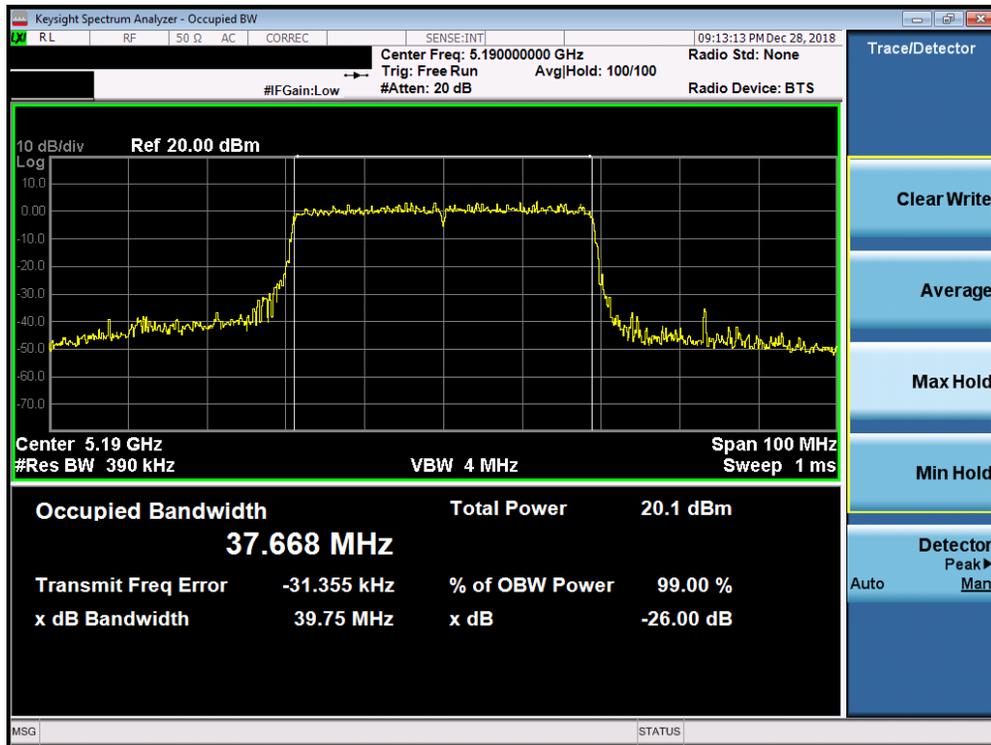
| | | | | | |
|---|--------------------------------------|---|--|--|---------------------------------|
| FCC ID: A3LSMG970U | | MEASUREMENT REPORT (CERTIFICATION) | | | Approved by: Quality Manager |
| Test Report S/N: 1M1810250193-18.A3L | Test Dates: 11/9/2018 - 1/18/2019 | EUT Type: Portable Handset | | | Page 32 of 519 |

SISO Antenna-1 26 dB Bandwidth Measurements (484 Tones)

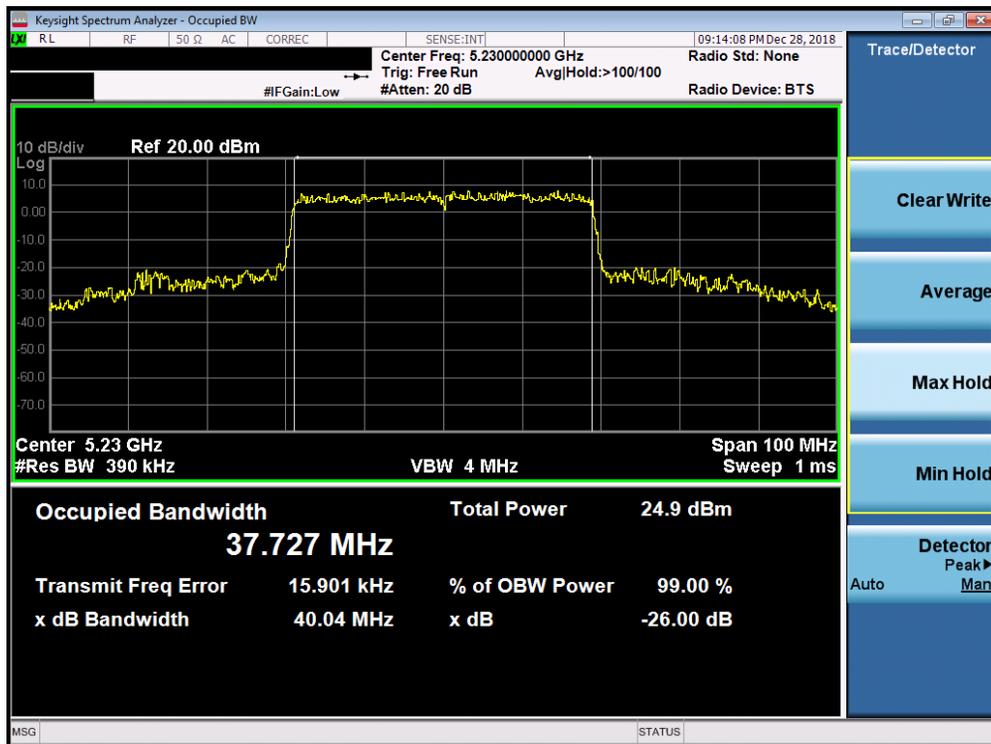
| | Frequency [MHz] | Channel No. | 802.11 Mode | Tones | Data Rate [Mbps] | Measured 26dB Bandwidth [MHz] |
|---------|-----------------|-------------|-------------|-------|------------------|-------------------------------|
| Band 1 | 5190 | 38 | ax (40MHz) | 484T | MCS0 | 39.75 |
| | 5230 | 46 | ax (40MHz) | 484T | MCS0 | 40.04 |
| Band 2A | 5270 | 54 | ax (40MHz) | 484T | MCS0 | 40.08 |
| | 5310 | 62 | ax (40MHz) | 484T | MCS0 | 39.56 |
| Band 2C | 5510 | 102 | ax (40MHz) | 484T | MCS0 | 40.05 |
| | 5590 | 118 | ax (40MHz) | 484T | MCS0 | 39.86 |
| | 5710 | 142 | ax (40MHz) | 484T | MCS0 | 39.86 |

Table 7-4. Conducted Bandwidth Measurements SISO ANT1 (484 Tones)

| | | | | |
|---|---|---------------------------------------|---|---------------------------------|
| FCC ID: A3LSMG970U |  | MEASUREMENT REPORT (CERTIFICATION) |  | Approved by: Quality Manager |
| Test Report S/N: 1M1810250193-18.A3L | Test Dates: 11/9/2018 - 1/18/2019 | EUT Type: Portable Handset | Page 33 of 519 | |

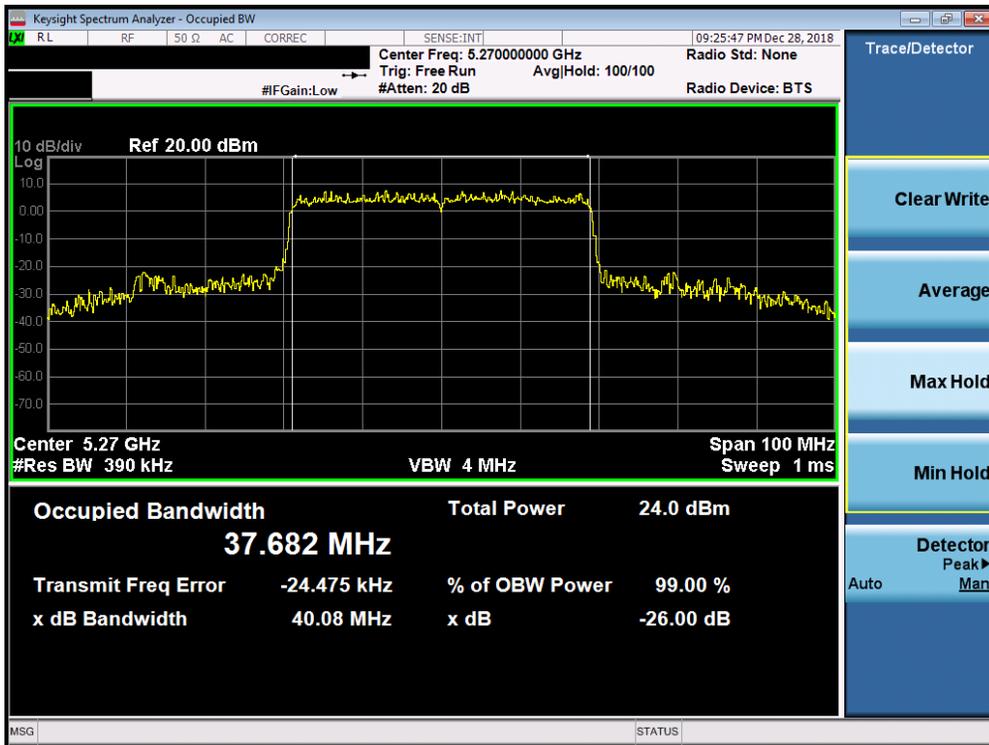


Plot 7-31. 26dB Bandwidth Plot SISO ANT1 (40MHz BW 802.11ax – 484 Tones (UNII Band 1) – Ch. 38)

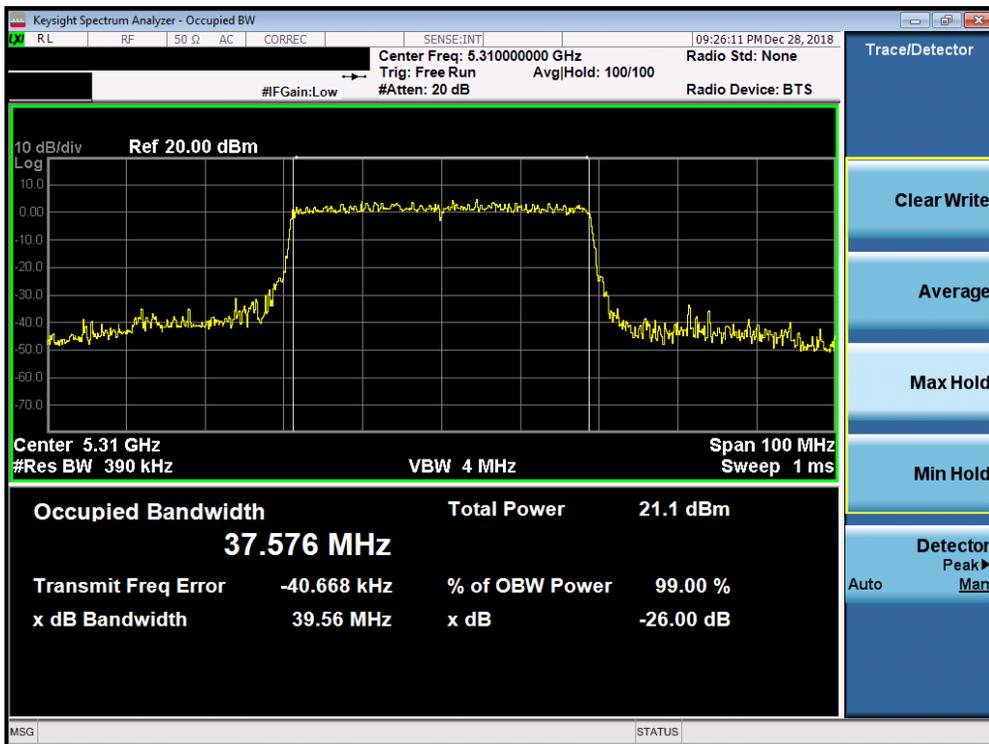


Plot 7-32. 26dB Bandwidth Plot SISO ANT1 (40MHz BW 802.11ax – 484 Tones (UNII Band 1) – Ch. 46)

| | | | | |
|---|--------------------------------------|---------------------------------------|--|---------------------------------|
| FCC ID: A3LSMG970U | | MEASUREMENT REPORT (CERTIFICATION) | | Approved by: Quality Manager |
| Test Report S/N: 1M1810250193-18.A3L | Test Dates: 11/9/2018 - 1/18/2019 | EUT Type: Portable Handset | | Page 34 of 519 |

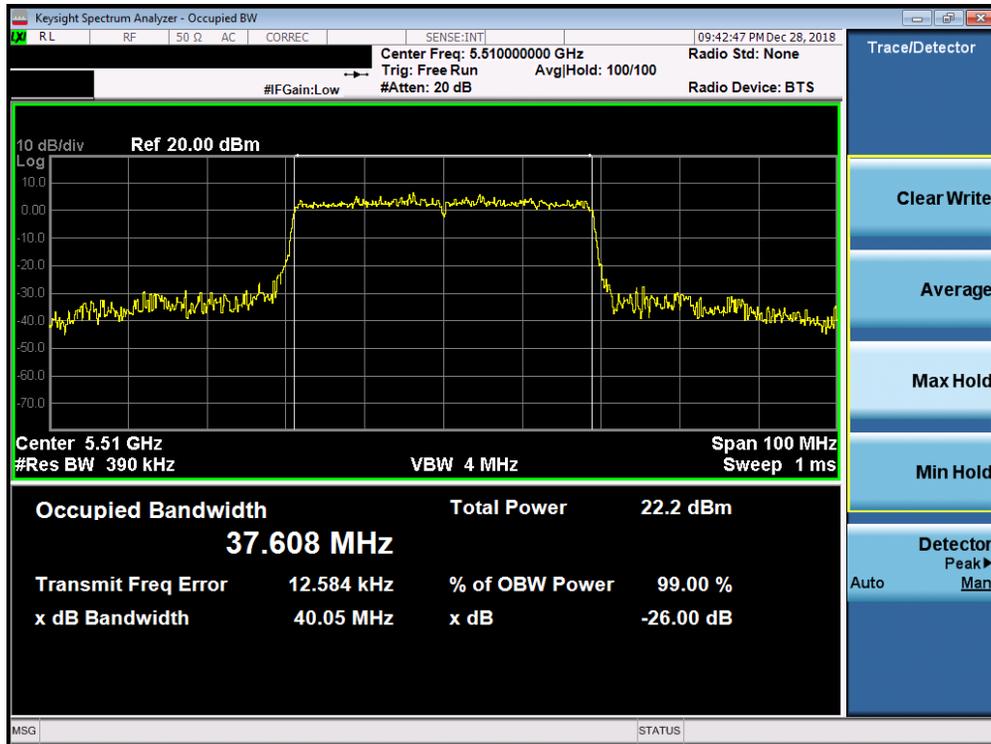


Plot 7-33. 26dB Bandwidth Plot SISO ANT1 (40MHz BW 802.11ax – 484 Tones (UNII Band 2A) – Ch. 54)

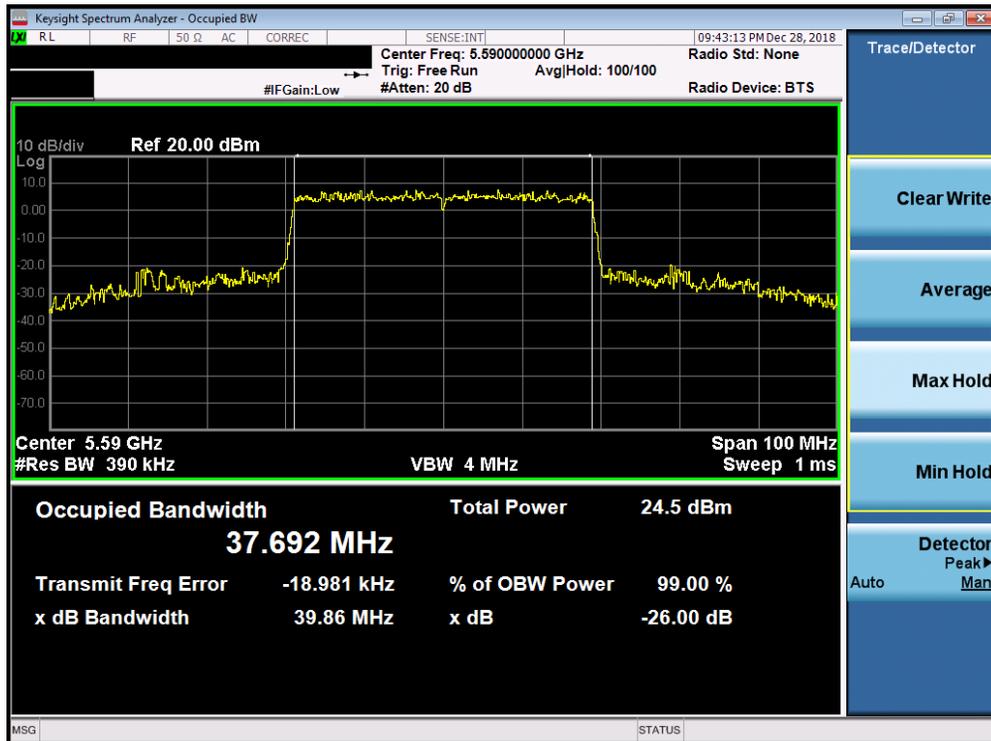


Plot 7-34. 26dB Bandwidth Plot SISO ANT1 (40MHz BW 802.11ax – 484 Tones (UNII Band 2A) – Ch. 62)

| | | | | |
|---|--------------------------------------|---------------------------------------|--|---------------------------------|
| FCC ID: A3LSMG970U | | MEASUREMENT REPORT (CERTIFICATION) | | Approved by: Quality Manager |
| Test Report S/N: 1M1810250193-18.A3L | Test Dates: 11/9/2018 - 1/18/2019 | EUT Type: Portable Handset | | Page 35 of 519 |

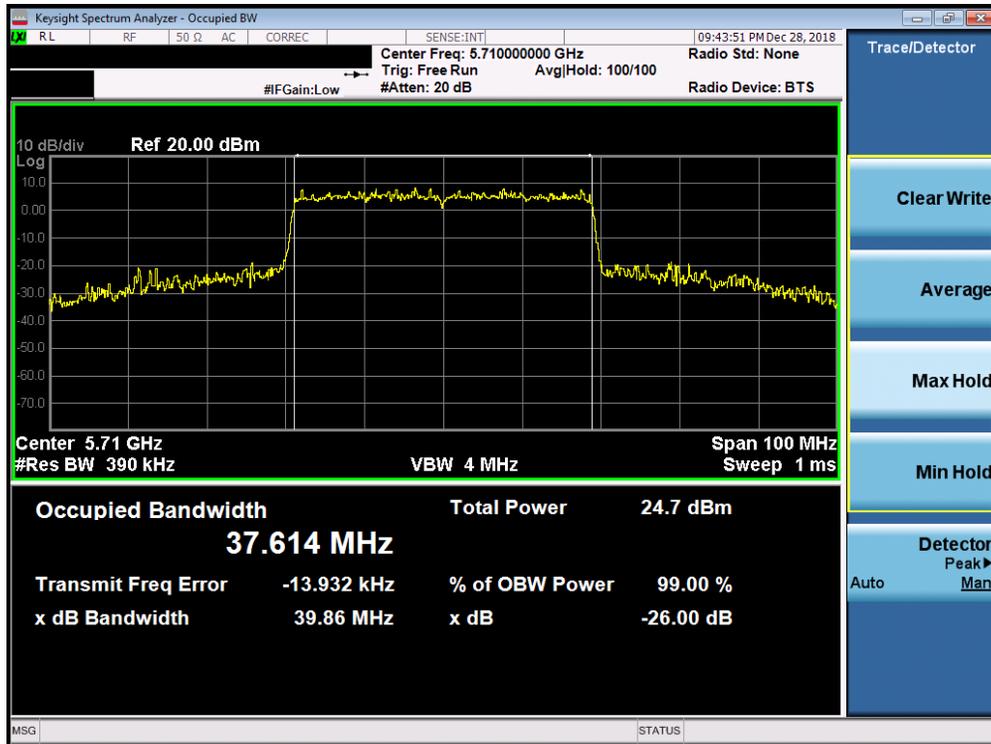


Plot 7-35. 26dB Bandwidth Plot SISO ANT1 (40MHz BW 802.11ax – 484 Tones (UNII Band 2C) – Ch. 102)



Plot 7-36. 26dB Bandwidth Plot SISO ANT1 (40MHz BW 802.11ax – 484 Tones (UNII Band 2C) – Ch. 118)

| | | | | |
|---|--------------------------------------|---|--|---------------------------------|
| FCC ID: A3LSMG970U | | MEASUREMENT REPORT (CERTIFICATION) | | Approved by: Quality Manager |
| Test Report S/N: 1M1810250193-18.A3L | Test Dates: 11/9/2018 - 1/18/2019 | EUT Type: Portable Handset | | Page 36 of 519 |



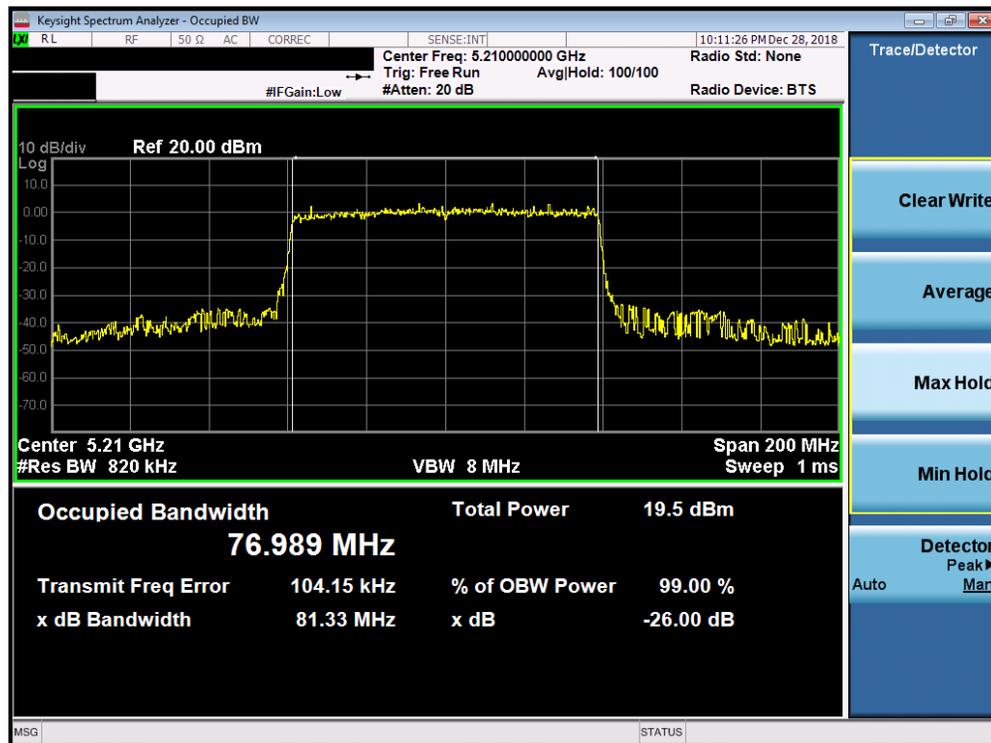
Plot 7-37. 26dB Bandwidth Plot SISO ANT1 (40MHz BW 802.11ax – 484 Tones (UNII Band 2C) – Ch. 142)

| | | | | |
|---|--------------------------------------|---|--|---------------------------------|
| FCC ID: A3LSMG970U | | MEASUREMENT REPORT (CERTIFICATION) | | Approved by: Quality Manager |
| Test Report S/N: 1M1810250193-18.A3L | Test Dates: 11/9/2018 - 1/18/2019 | EUT Type: Portable Handset | | Page 37 of 519 |

SISO Antenna-1 26 dB Bandwidth Measurements (996 Tones)

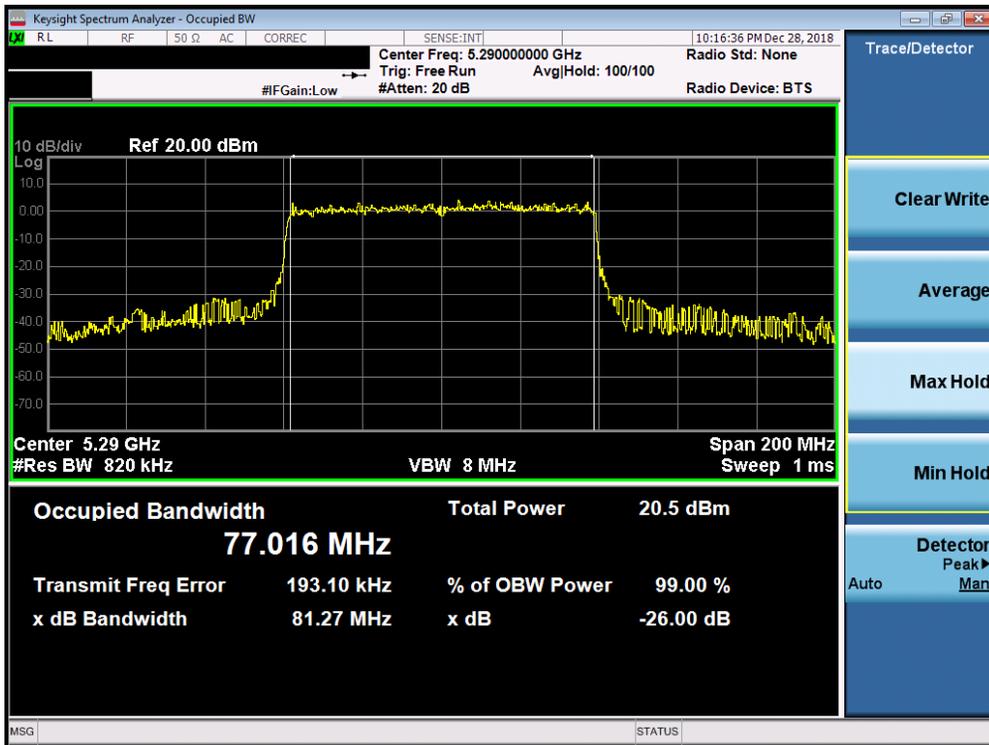
| | Frequency [MHz] | Channel No. | 802.11 Mode | Tones | Data Rate [Mbps] | Measured 26dB Bandwidth [MHz] |
|----------------|-----------------|-------------|-------------|-------|------------------|-------------------------------|
| Band 1 | 5210 | 42 | ax (80MHz) | 996T | MCS0 | 81.33 |
| Band 2A | 5290 | 58 | ax (80MHz) | 996T | MCS0 | 81.27 |
| Band 2C | 5530 | 106 | ax (80MHz) | 996T | MCS0 | 81.41 |
| | 5610 | 122 | ax (80MHz) | 996T | MCS0 | 97.97 |
| | 5690 | 138 | ax (80MHz) | 996T | MCS0 | 98.28 |

Table 7-5. Conducted Bandwidth Measurements SISO ANT1 (996 Tones)

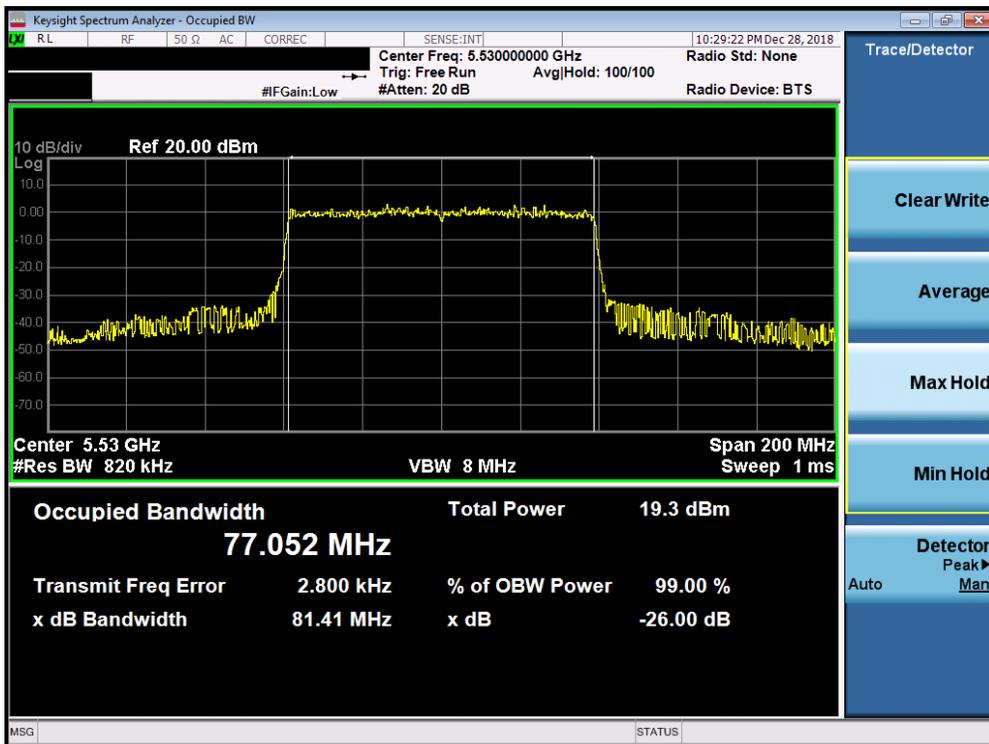


Plot 7-38. 26dB Bandwidth Plot SISO ANT1 (80MHz BW 802.11ax – 996 Tones (UNII Band 1) – Ch. 42)

| | | | | |
|---|--------------------------------------|------------------------------------|--|---------------------------------|
| FCC ID: A3LSMG970U | | MEASUREMENT REPORT (CERTIFICATION) | | Approved by: Quality Manager |
| Test Report S/N: 1M1810250193-18.A3L | Test Dates: 11/9/2018 - 1/18/2019 | EUT Type: Portable Handset | | Page 38 of 519 |

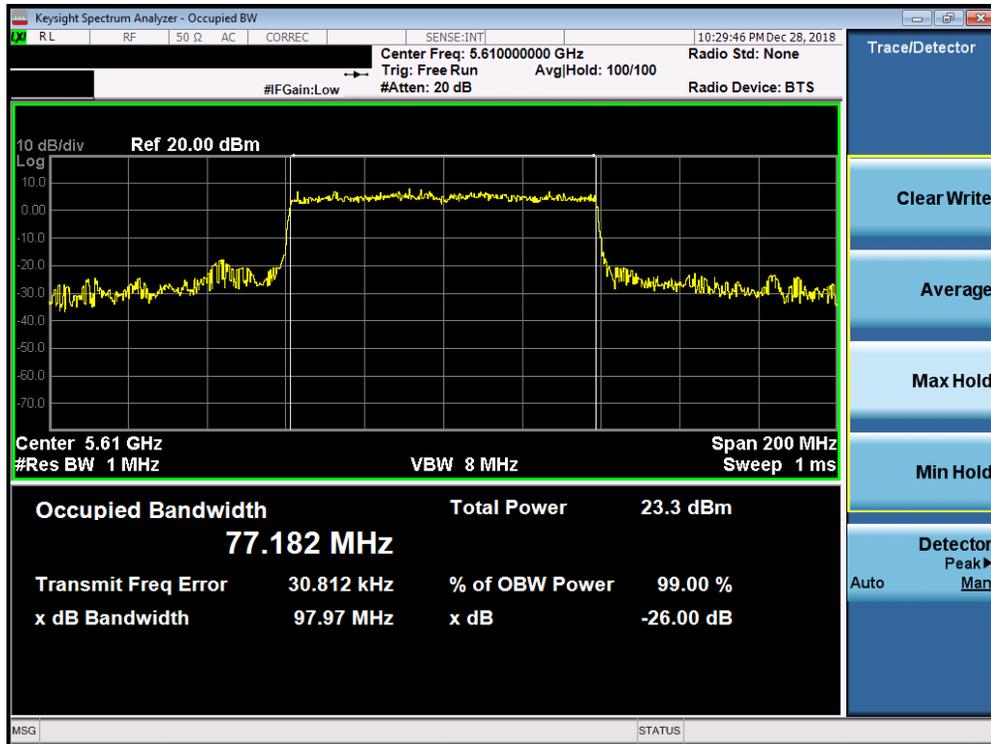


Plot 7-39. 26dB Bandwidth Plot SISO ANT1 (80MHz BW 802.11ax – 996 Tones (UNII Band 2A) – Ch. 58)

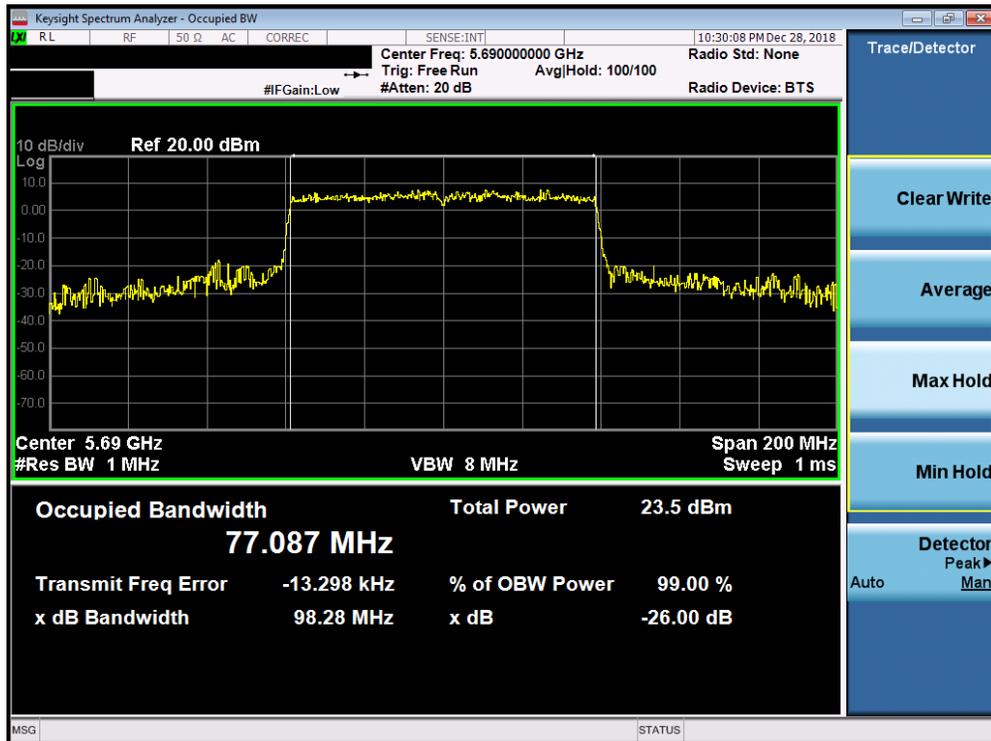


Plot 7-40. 26dB Bandwidth Plot SISO ANT1 (80MHz BW 802.11ax – 996 Tones (UNII Band 2C) – Ch. 106)

| | | | | |
|---|--------------------------------------|---------------------------------------|--|---------------------------------|
| FCC ID: A3LSMG970U | | MEASUREMENT REPORT (CERTIFICATION) | | Approved by: Quality Manager |
| Test Report S/N: 1M1810250193-18.A3L | Test Dates: 11/9/2018 - 1/18/2019 | EUT Type: Portable Handset | | Page 39 of 519 |



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)

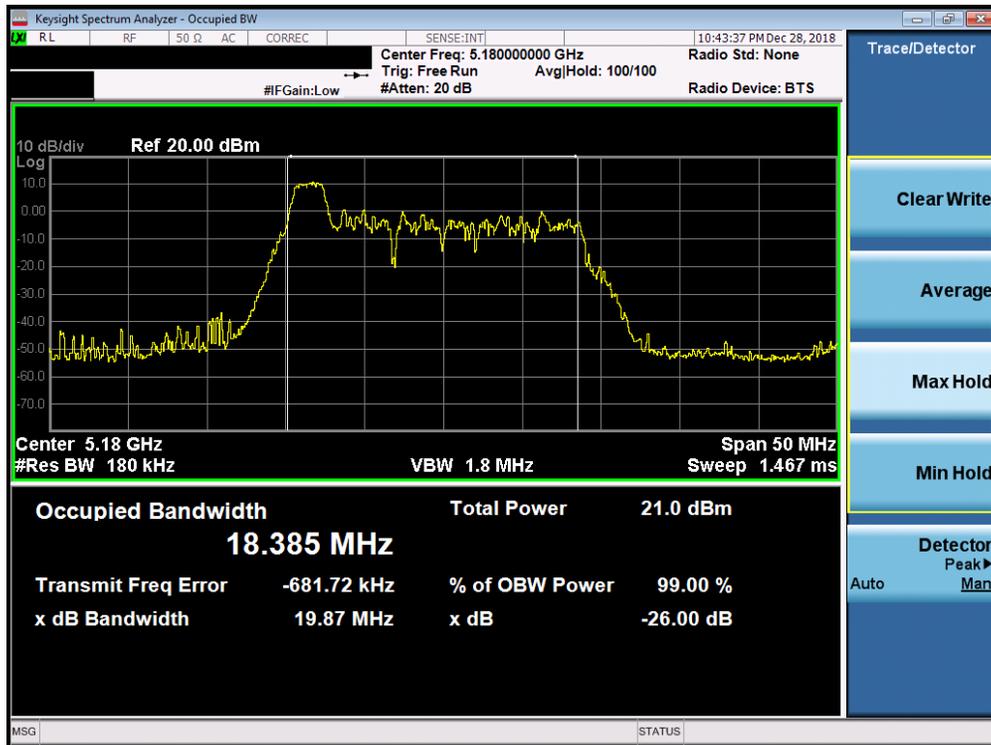
| | | | | |
|---|--------------------------------------|---------------------------------------|--|---------------------------------|
| FCC ID: A3LSMG970U | | MEASUREMENT REPORT (CERTIFICATION) | | Approved by: Quality Manager |
| Test Report S/N: 1M1810250193-18.A3L | Test Dates: 11/9/2018 - 1/18/2019 | EUT Type: Portable Handset | | Page 40 of 519 |

SISO Antenna-2 26 dB Bandwidth Measurements (26 Tones)

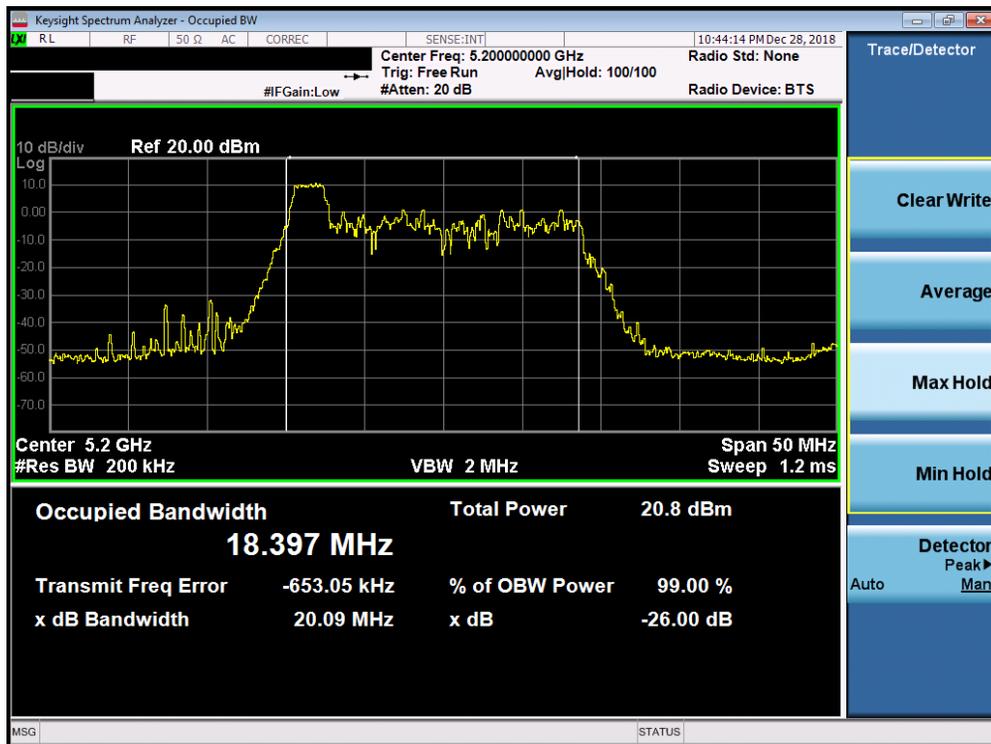
| | Frequency [MHz] | Channel No. | 802.11 Mode | Tones | Data Rate [Mbps] | Measured 26dB Bandwidth [MHz] |
|---------|-----------------|-------------|-------------|-------|------------------|-------------------------------|
| Band 1 | 5180 | 36 | ax (20MHz) | 26T | MCS0 | 19.87 |
| | 5200 | 40 | ax (20MHz) | 26T | MCS0 | 20.09 |
| | 5240 | 48 | ax (20MHz) | 26T | MCS0 | 18.49 |
| | 5190 | 38 | ax (40MHz) | 26T | MCS0 | 19.67 |
| | 5230 | 46 | ax (40MHz) | 26T | MCS0 | 19.43 |
| | 5210 | 42 | ax (80MHz) | 26T | MCS0 | 20.22 |
| Band 2A | 5260 | 52 | ax (20MHz) | 26T | MCS0 | 19.11 |
| | 5280 | 56 | ax (20MHz) | 26T | MCS0 | 18.60 |
| | 5320 | 64 | ax (20MHz) | 26T | MCS0 | 17.81 |
| | 5270 | 54 | ax (40MHz) | 26T | MCS0 | 21.86 |
| | 5310 | 62 | ax (40MHz) | 26T | MCS0 | 19.25 |
| | 5290 | 58 | ax (80MHz) | 26T | MCS0 | 20.20 |
| Band 2C | 5500 | 100 | ax (20MHz) | 26T | MCS0 | 18.61 |
| | 5600 | 120 | ax (20MHz) | 26T | MCS0 | 18.80 |
| | 5720 | 144 | ax (20MHz) | 26T | MCS0 | 18.96 |
| | 5510 | 102 | ax (40MHz) | 26T | MCS0 | 19.41 |
| | 5590 | 118 | ax (40MHz) | 26T | MCS0 | 19.58 |
| | 5710 | 142 | ax (40MHz) | 26T | MCS0 | 20.05 |
| | 5530 | 106 | ax (80MHz) | 26T | MCS0 | 19.28 |
| | 5610 | 122 | ax (80MHz) | 26T | MCS0 | 19.36 |
| | 5690 | 138 | ax (80MHz) | 26T | MCS0 | 38.19 |

Table 7-6. Conducted Bandwidth Measurements SISO ANT2 (26 Tones)

| | | | | |
|---|---|------------------------------------|---|---------------------------------|
| FCC ID: A3LSMG970U |  | MEASUREMENT REPORT (CERTIFICATION) |  | Approved by: Quality Manager |
| Test Report S/N: 1M1810250193-18.A3L | Test Dates: 11/9/2018 - 1/18/2019 | EUT Type: Portable Handset | | Page 41 of 519 |

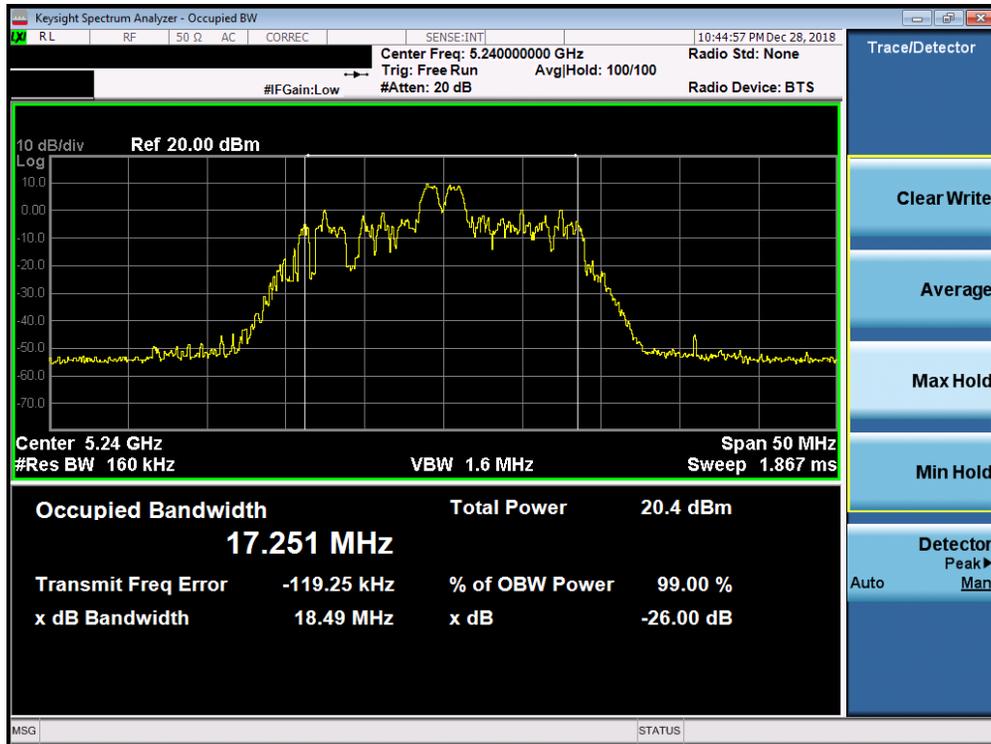


Plot 7-43. 26dB Bandwidth Plot SISO ANT2 (20MHz BW 802.11ax – 26 Tones (UNII Band 1) – Ch. 36)

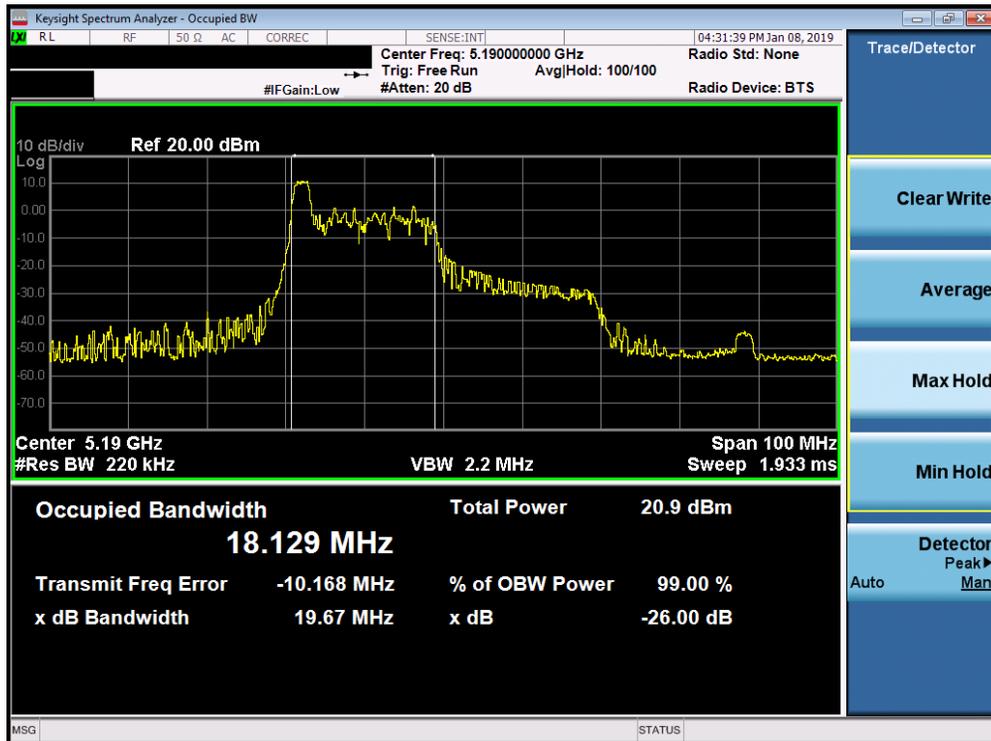


Plot 7-44. 26dB Bandwidth Plot SISO ANT2 (20MHz BW 802.11ax – 26 Tones (UNII Band 1) – Ch. 40)

| | | | | |
|---|--------------------------------------|---------------------------------------|--|---------------------------------|
| FCC ID: A3LSMG970U | | MEASUREMENT REPORT (CERTIFICATION) | | Approved by: Quality Manager |
| Test Report S/N: 1M1810250193-18.A3L | Test Dates: 11/9/2018 - 1/18/2019 | EUT Type: Portable Handset | | Page 42 of 519 |

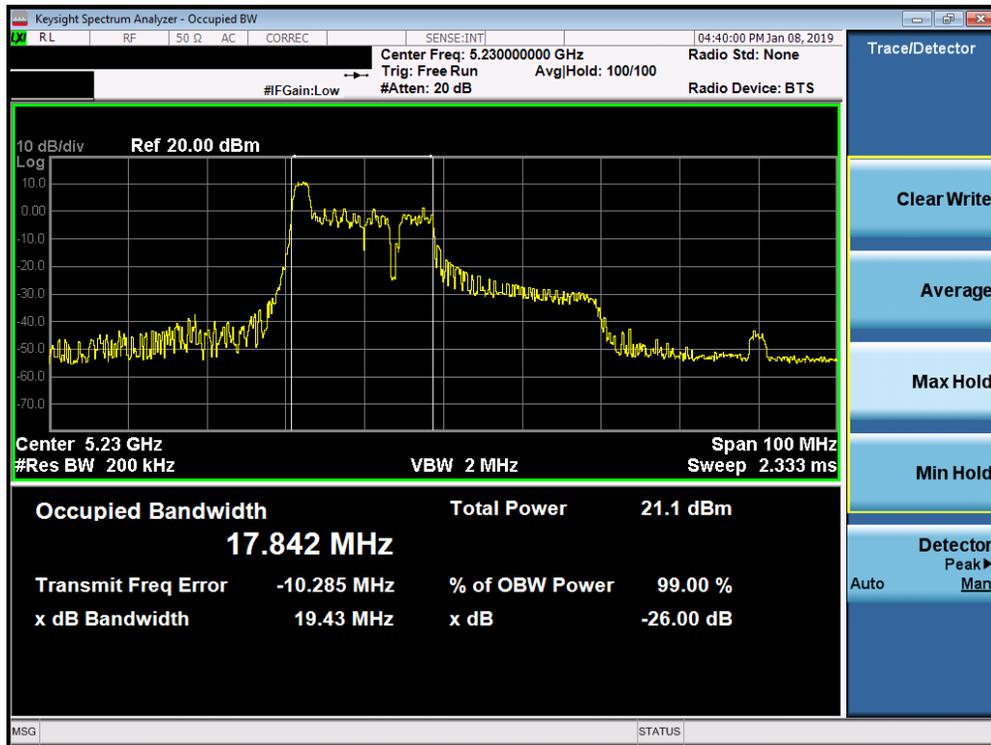


Plot 7-45. 26dB Bandwidth Plot SISO ANT2 (20MHz BW 802.11ax – 26 Tones (UNII Band 1) – Ch. 48)

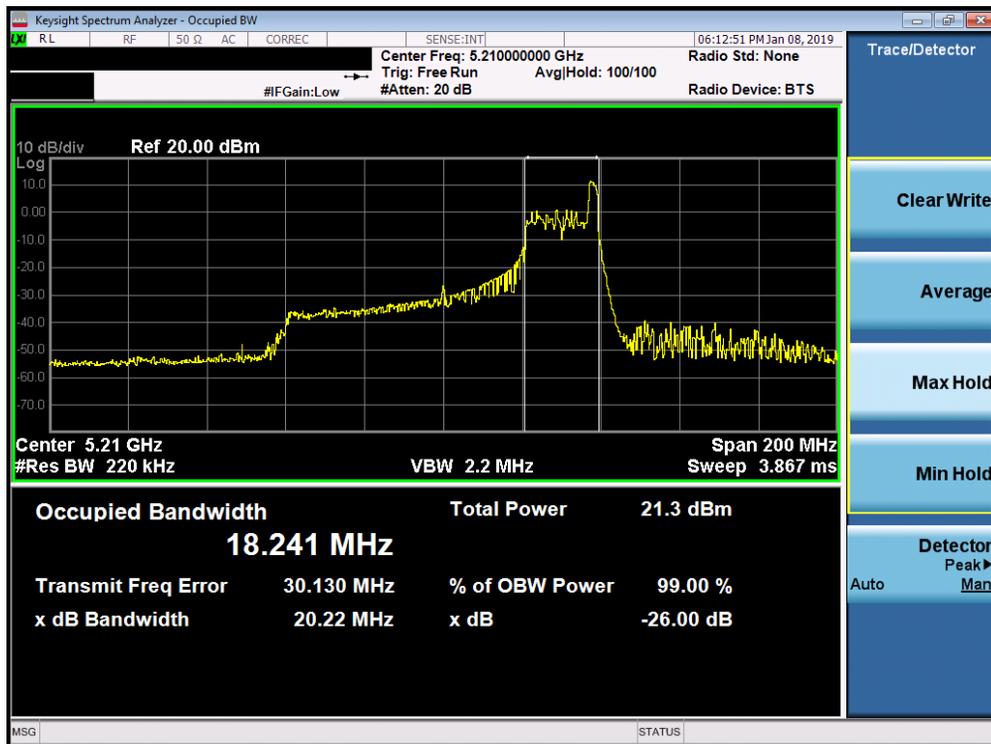


Plot 7-46. 26dB Bandwidth Plot SISO ANT2 (40MHz BW 802.11ax – 26 Tones (UNII Band 1) – Ch. 38)

| | | | | |
|---|--------------------------------------|---------------------------------------|--|---------------------------------|
| FCC ID: A3LSMG970U | | MEASUREMENT REPORT (CERTIFICATION) | | Approved by: Quality Manager |
| Test Report S/N: 1M1810250193-18.A3L | Test Dates: 11/9/2018 - 1/18/2019 | EUT Type: Portable Handset | | Page 43 of 519 |

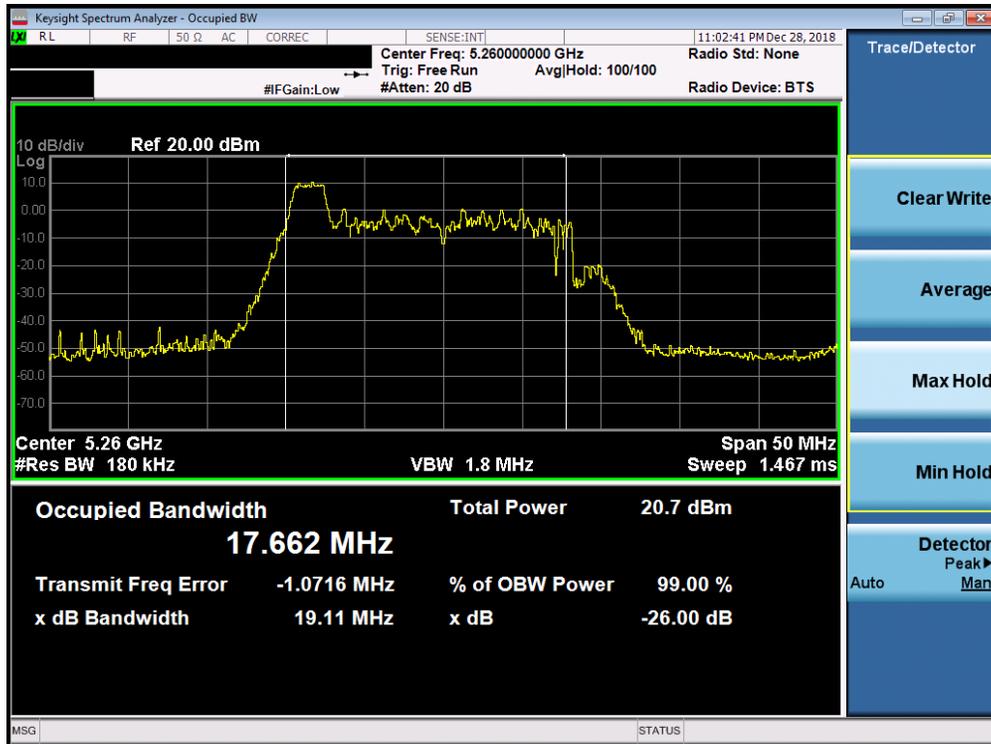


Plot 7-47. 26dB Bandwidth Plot SISO ANT2 (40MHz BW 802.11ax – 26 Tones (UNII Band 1) – Ch. 46)

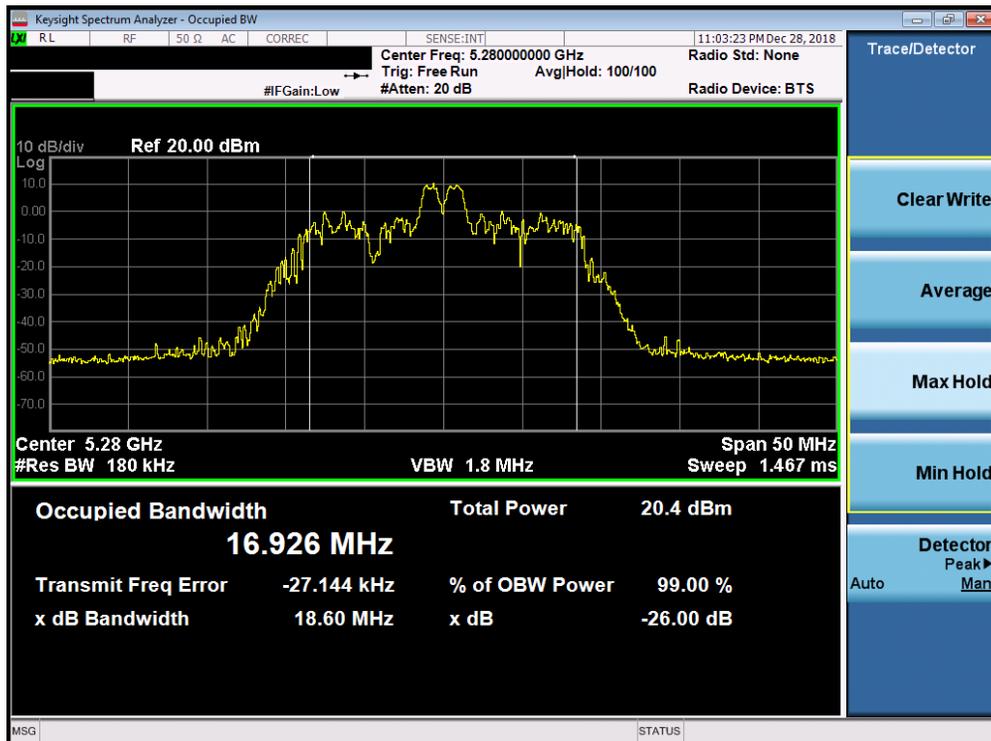


Plot 7-48. 26dB Bandwidth Plot SISO ANT2 (80MHz BW 802.11ax – 26 Tones (UNII Band 1) – Ch. 42)

| | | | | |
|---|--------------------------------------|---------------------------------------|--|---------------------------------|
| FCC ID: A3LSMG970U | | MEASUREMENT REPORT (CERTIFICATION) | | Approved by: Quality Manager |
| Test Report S/N: 1M1810250193-18.A3L | Test Dates: 11/9/2018 - 1/18/2019 | EUT Type: Portable Handset | | Page 44 of 519 |

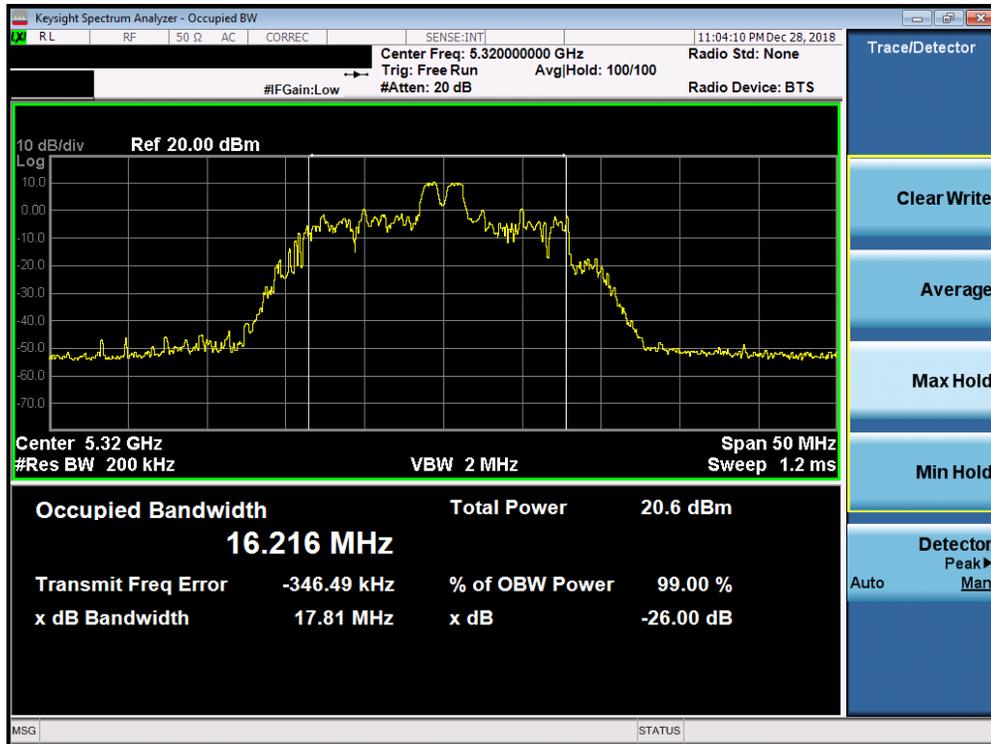


Plot 7-49. 26dB Bandwidth Plot SISO ANT2 (20MHz BW 802.11ax – 26 Tones (UNII Band 2A) – Ch. 52)

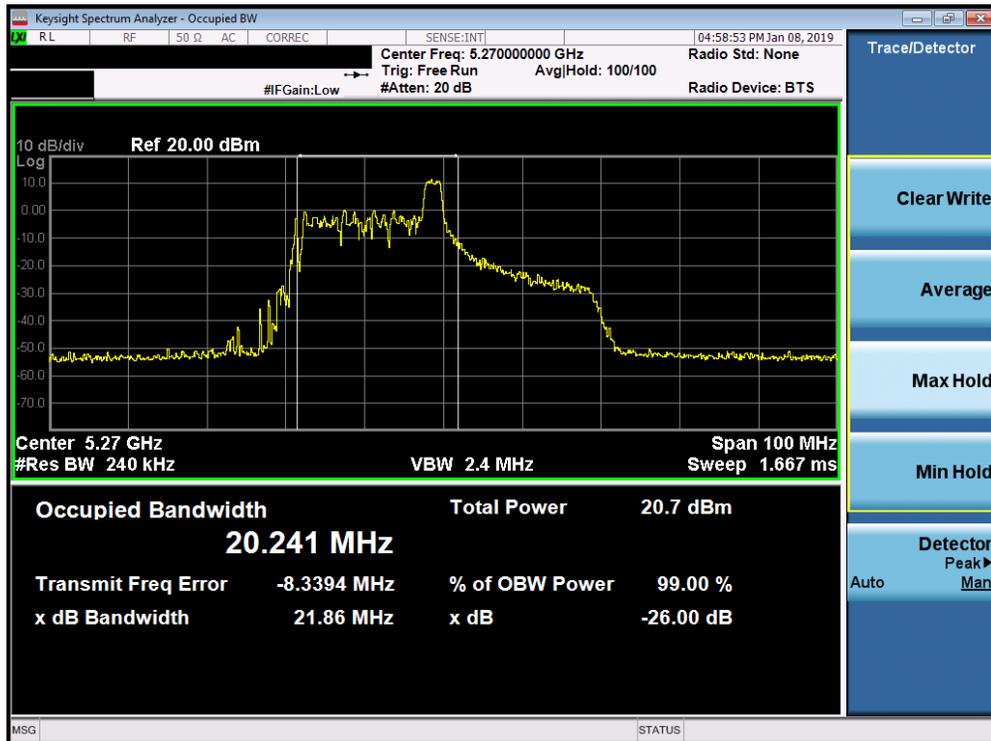


Plot 7-50. 26dB Bandwidth Plot SISO ANT2 (20MHz BW 802.11ax – 26 Tones (UNII Band 2A) – Ch. 56)

| | | | | |
|---|--------------------------------------|---------------------------------------|--|---------------------------------|
| FCC ID: A3LSMG970U | | MEASUREMENT REPORT (CERTIFICATION) | | Approved by: Quality Manager |
| Test Report S/N: 1M1810250193-18.A3L | Test Dates: 11/9/2018 - 1/18/2019 | EUT Type: Portable Handset | | Page 45 of 519 |

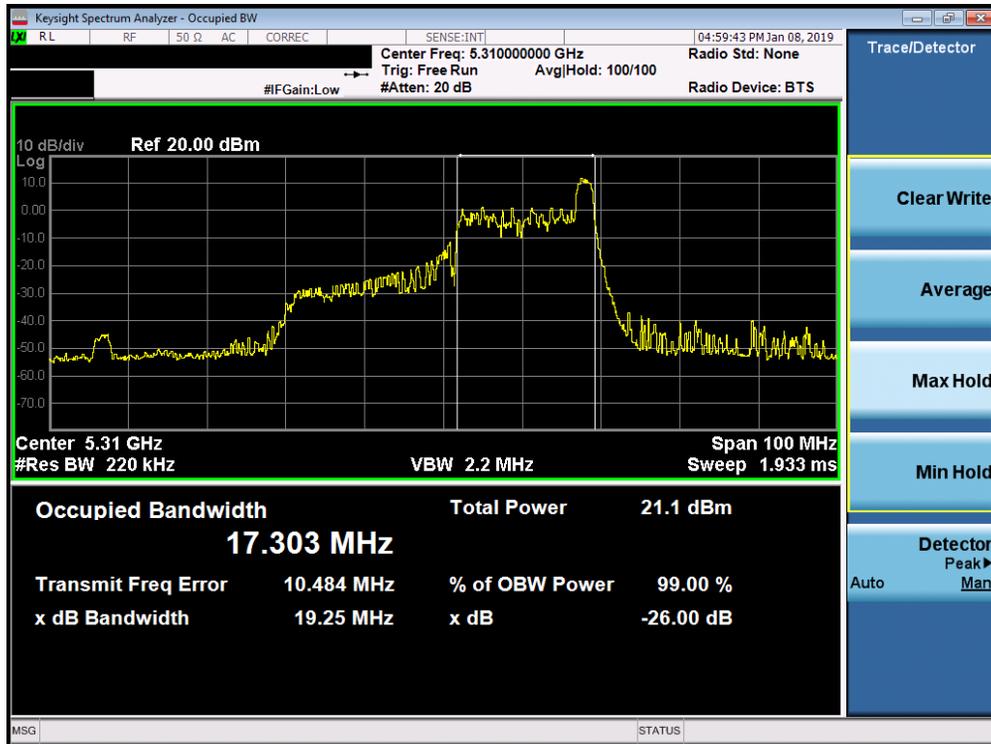


Plot 7-51. 26dB Bandwidth Plot SISO ANT2 (20MHz BW 802.11ax – 26 Tones (UNII Band 2A) – Ch. 64)

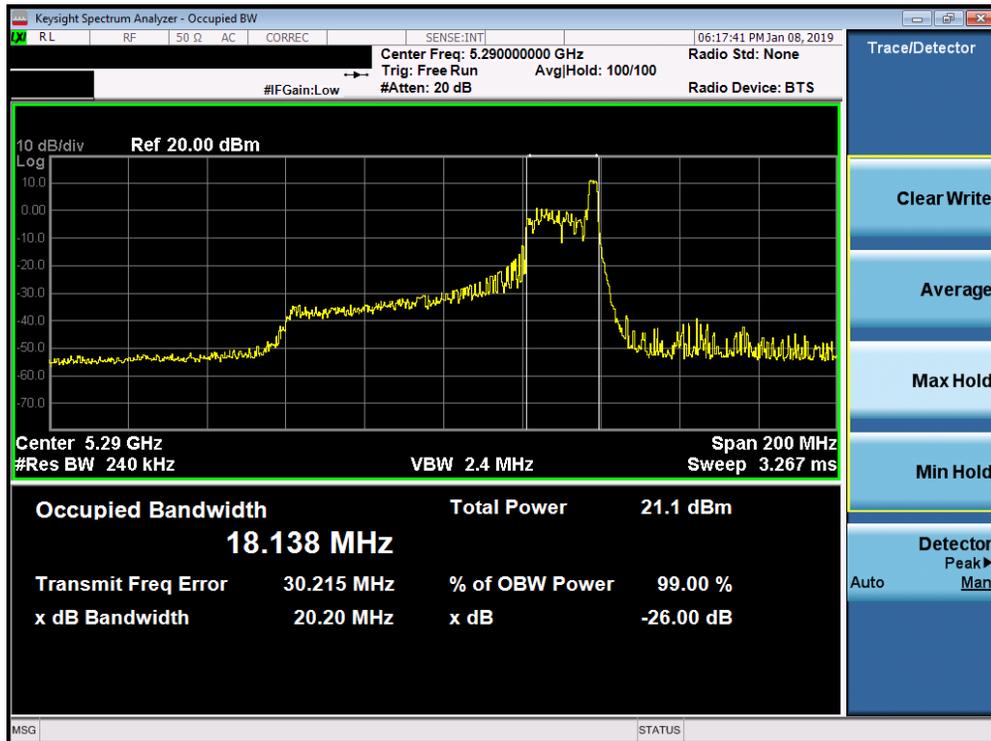


Plot 7-52. 26dB Bandwidth Plot SISO ANT2 (40MHz BW 802.11ax – 26 Tones (UNII Band 2A) – Ch. 54)

| | | | | |
|---|--------------------------------------|---------------------------------------|--|---------------------------------|
| FCC ID: A3LSMG970U | | MEASUREMENT REPORT (CERTIFICATION) | | Approved by: Quality Manager |
| Test Report S/N: 1M1810250193-18.A3L | Test Dates: 11/9/2018 - 1/18/2019 | EUT Type: Portable Handset | | Page 46 of 519 |

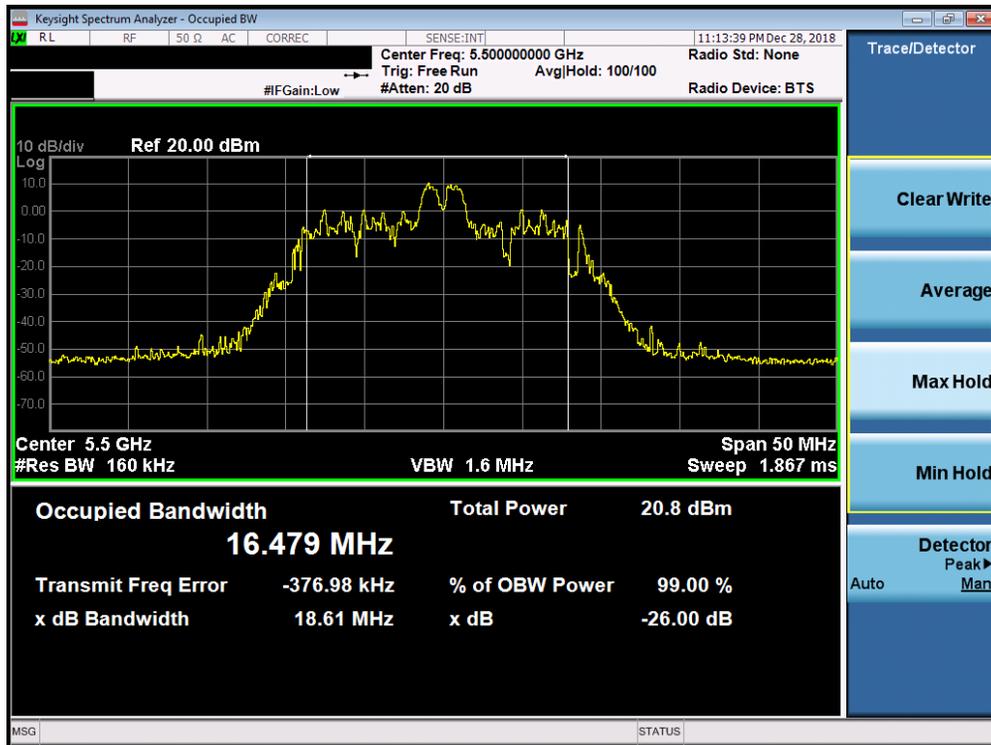


Plot 7-53. 26dB Bandwidth Plot SISO ANT2 (40MHz BW 802.11ax – 26 Tones (UNII Band 2A) – Ch. 62)

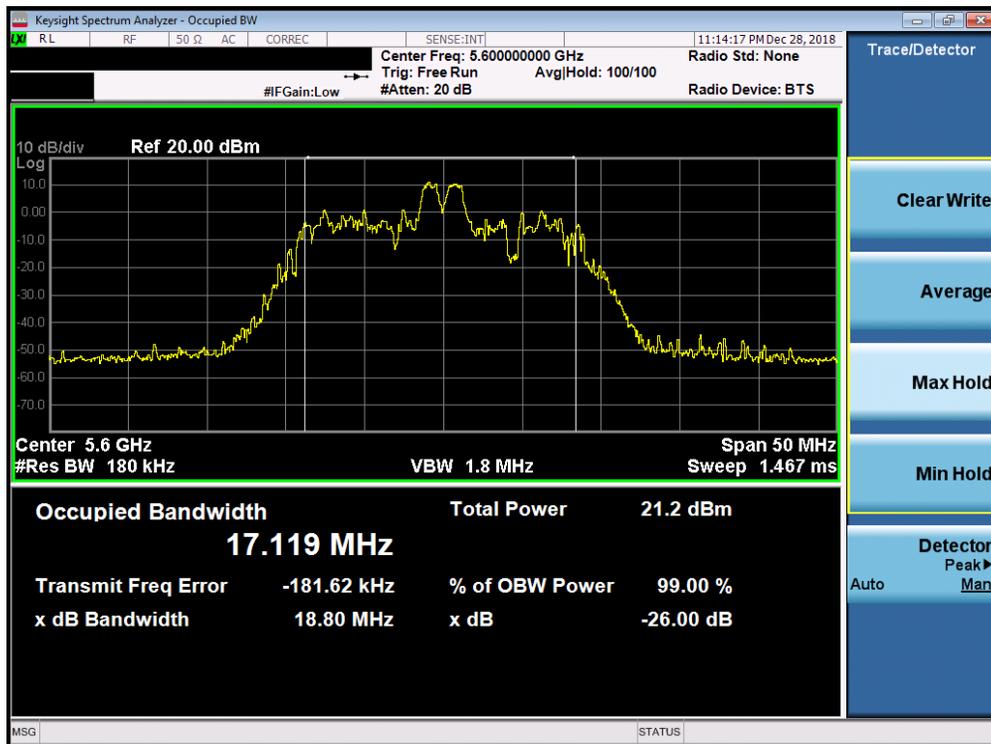


Plot 7-54. 26dB Bandwidth Plot SISO ANT2 (80MHz BW 802.11ax – 26 Tones (UNII Band 2A) – Ch. 58)

| | | | | |
|---|--------------------------------------|---------------------------------------|--|---------------------------------|
| FCC ID: A3LSMG970U | | MEASUREMENT REPORT (CERTIFICATION) | | Approved by: Quality Manager |
| Test Report S/N: 1M1810250193-18.A3L | Test Dates: 11/9/2018 - 1/18/2019 | EUT Type: Portable Handset | | Page 47 of 519 |

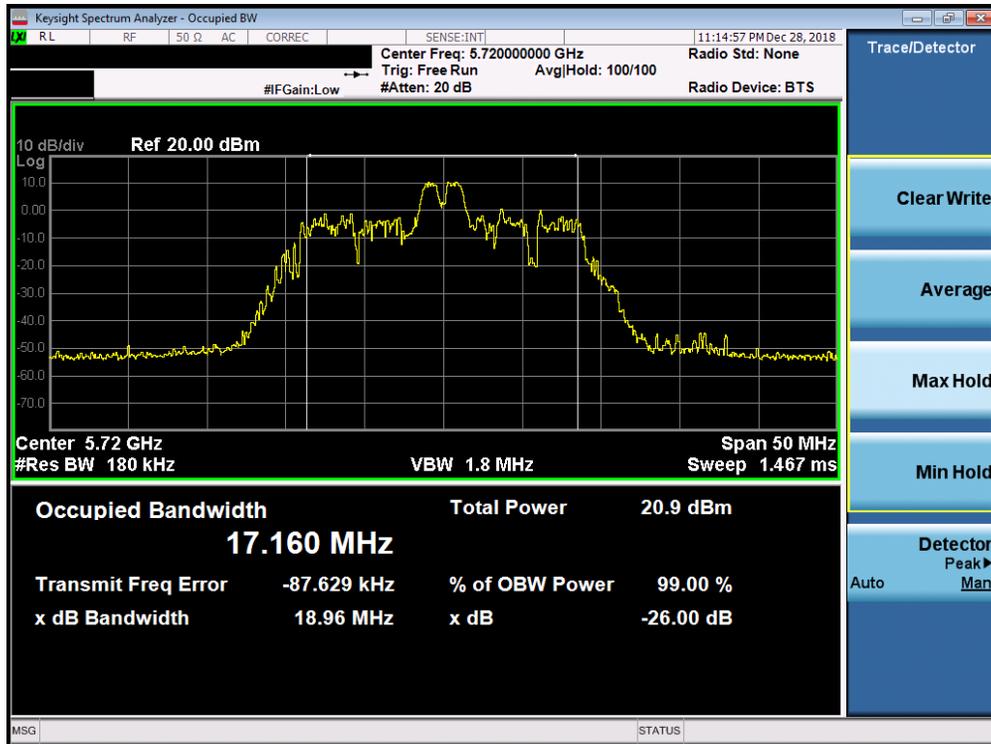


Plot 7-55. 26dB Bandwidth Plot SISO ANT2 (20MHz BW 802.11ax – 26 Tones (UNII Band 2C) – Ch. 100)

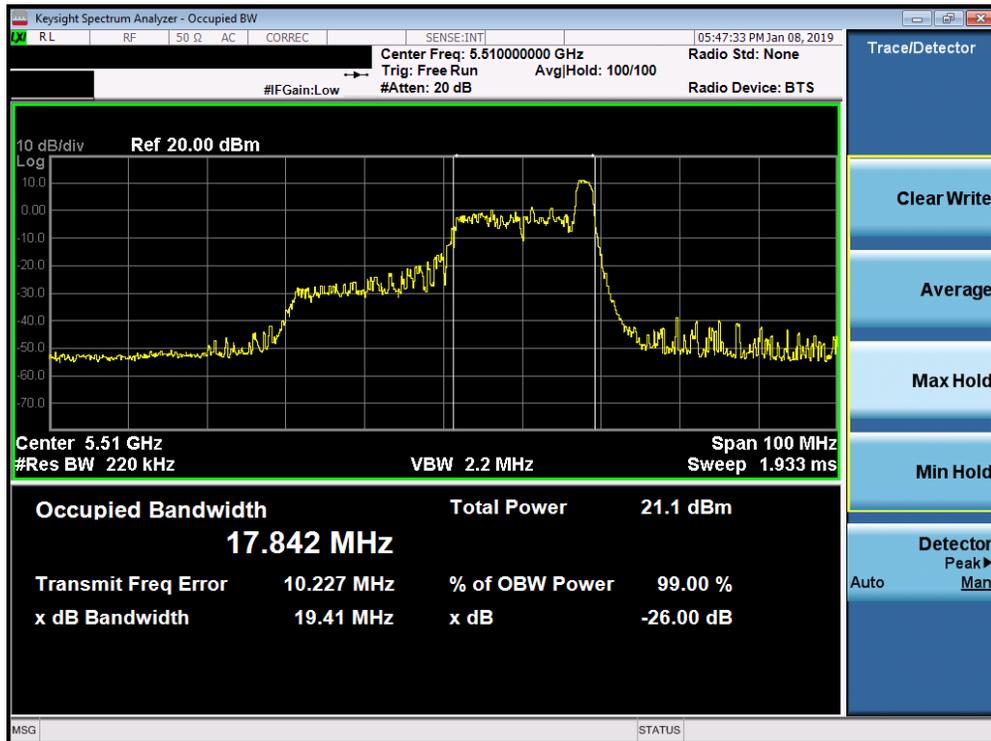


Plot 7-56. 26dB Bandwidth Plot SISO ANT2 (20MHz BW 802.11ax – 26 Tones (UNII Band 2C) – Ch. 120)

| | | | | |
|---|--------------------------------------|---------------------------------------|--|---------------------------------|
| FCC ID: A3LSMG970U | | MEASUREMENT REPORT (CERTIFICATION) | | Approved by: Quality Manager |
| Test Report S/N: 1M1810250193-18.A3L | Test Dates: 11/9/2018 - 1/18/2019 | EUT Type: Portable Handset | | Page 48 of 519 |

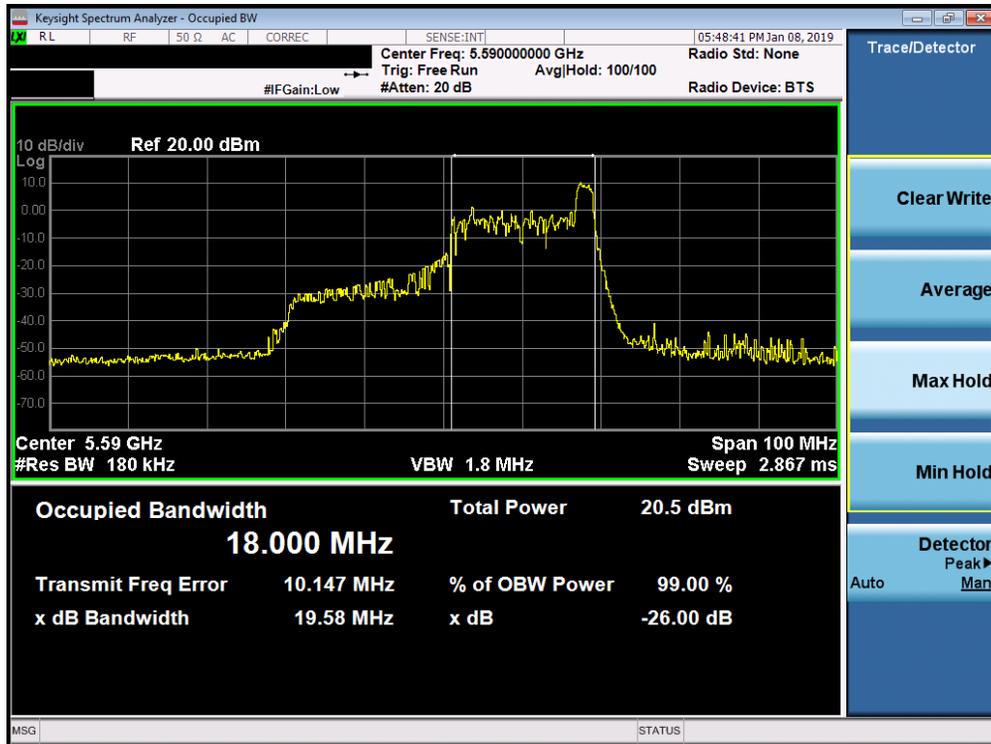


Plot 7-57. 26dB Bandwidth Plot SISO ANT2 (20MHz BW 802.11ax – 26 Tones (UNII Band 2C) – Ch. 144)

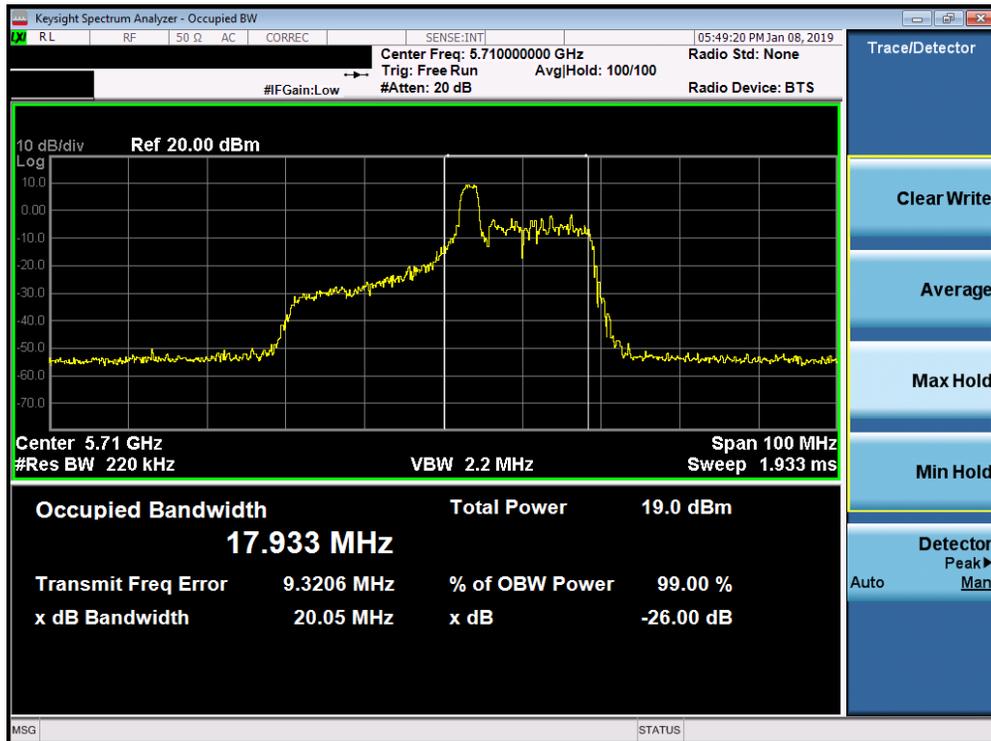


Plot 7-58. 26dB Bandwidth Plot SISO ANT2 (40MHz BW 802.11ax – 26 Tones (UNII Band 2C) – Ch. 102)

| | | | | |
|---|--------------------------------------|---------------------------------------|--|---------------------------------|
| FCC ID: A3LSMG970U | | MEASUREMENT REPORT (CERTIFICATION) | | Approved by: Quality Manager |
| Test Report S/N: 1M1810250193-18.A3L | Test Dates: 11/9/2018 - 1/18/2019 | EUT Type: Portable Handset | | Page 49 of 519 |

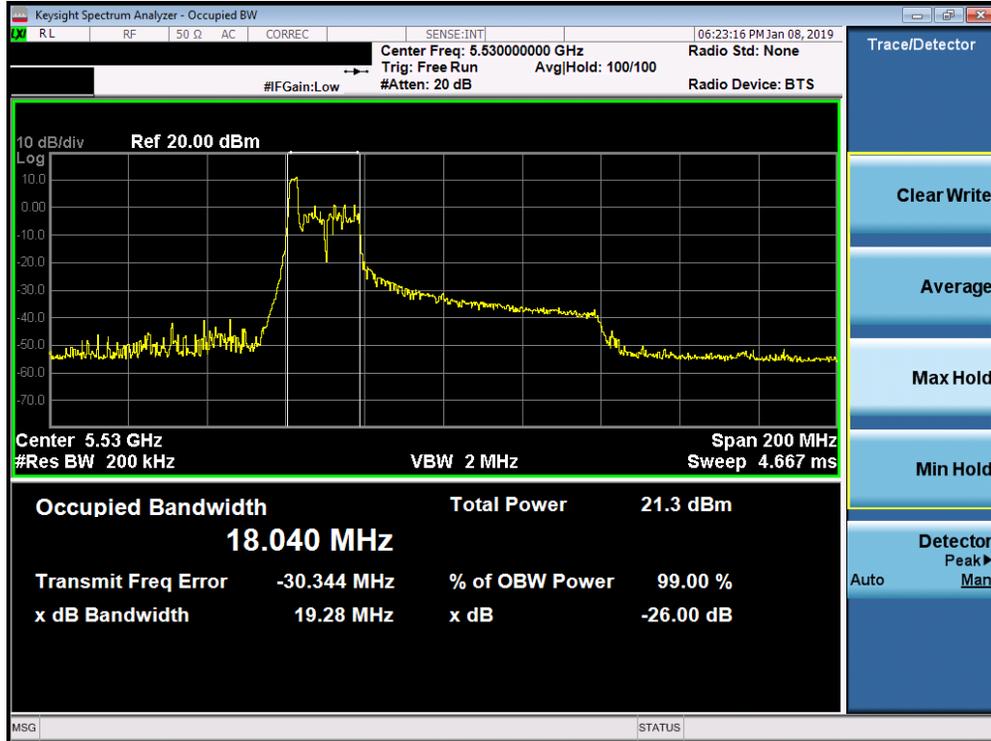


Plot 7-59. 26dB Bandwidth Plot SISO ANT2 (40MHz BW 802.11ax – 26 Tones (UNII Band 2C) – Ch. 118)

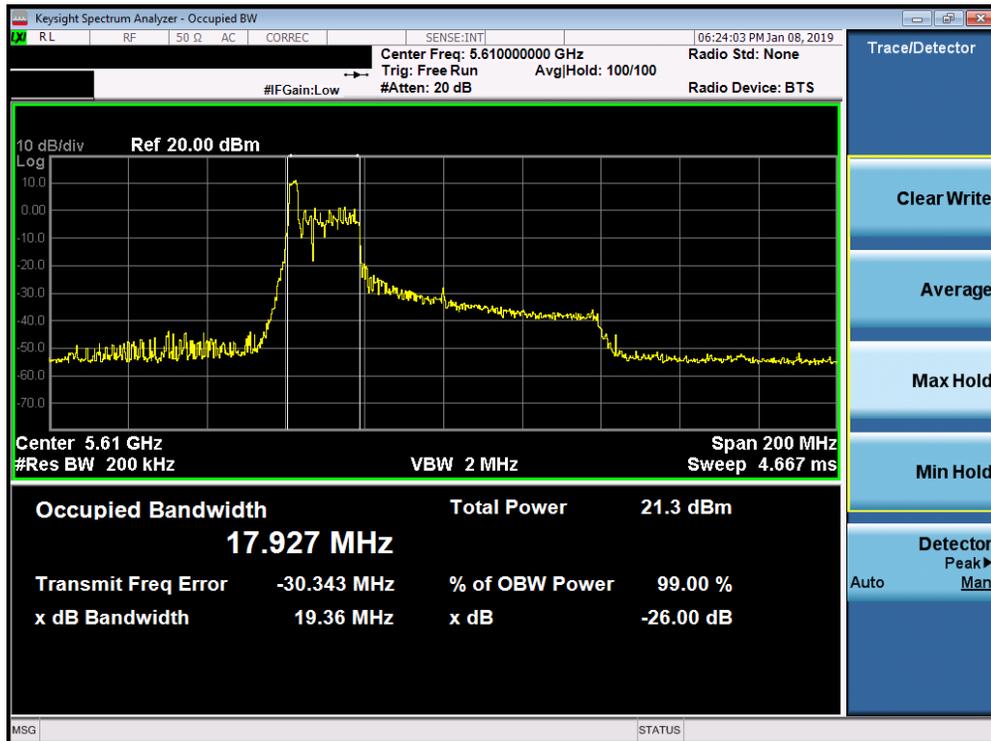


Plot 7-60. 26dB Bandwidth Plot SISO ANT2 (40MHz BW 802.11ax – 26 Tones (UNII Band 2C) – Ch. 142)

| | | | | |
|---|--------------------------------------|---------------------------------------|--|---------------------------------|
| FCC ID: A3LSMG970U | | MEASUREMENT REPORT (CERTIFICATION) | | Approved by: Quality Manager |
| Test Report S/N: 1M1810250193-18.A3L | Test Dates: 11/9/2018 - 1/18/2019 | EUT Type: Portable Handset | | Page 50 of 519 |

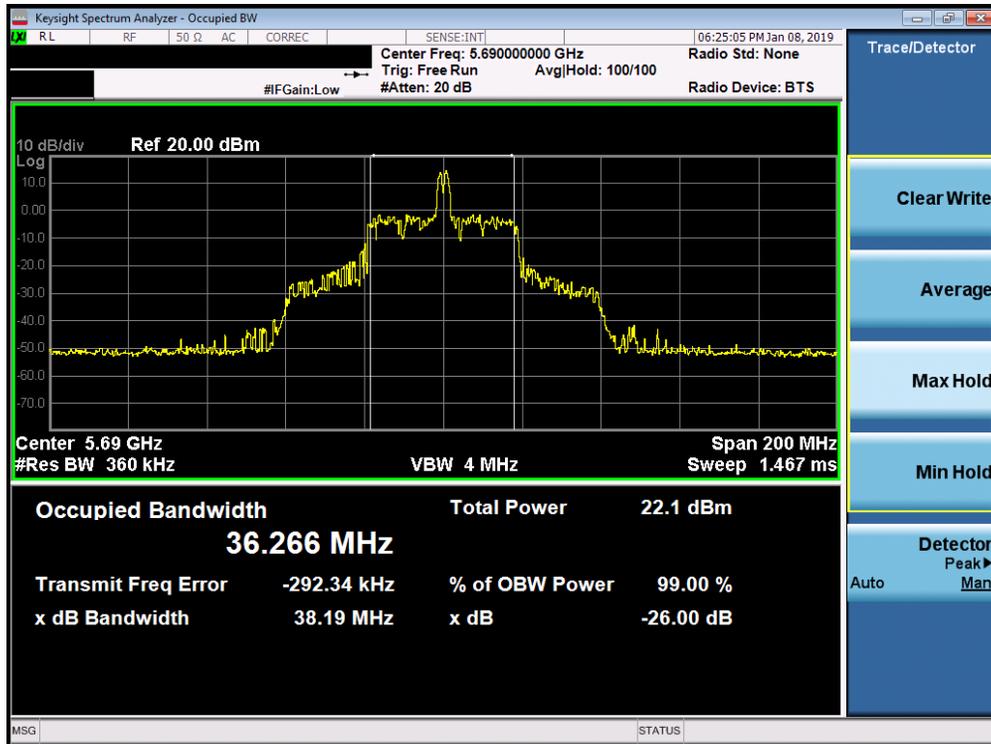


Plot 7-61. 26dB Bandwidth Plot SISO ANT2 (80MHz BW 802.11ax – 26 Tones (UNII Band 2C) – Ch. 106)



Plot 7-62. 26dB Bandwidth Plot SISO ANT2 (80MHz BW 802.11ax – 26 Tones (UNII Band 2C) – Ch. 122)

| | | | | |
|---|--------------------------------------|---------------------------------------|--|---------------------------------|
| FCC ID: A3LSMG970U | | MEASUREMENT REPORT (CERTIFICATION) | | Approved by: Quality Manager |
| Test Report S/N: 1M1810250193-18.A3L | Test Dates: 11/9/2018 - 1/18/2019 | EUT Type: Portable Handset | | Page 51 of 519 |



Plot 7-63. 26dB Bandwidth Plot SISO ANT2 (80MHz BW 802.11ax – 26 Tones (UNII Band 2C) – Ch. 138)

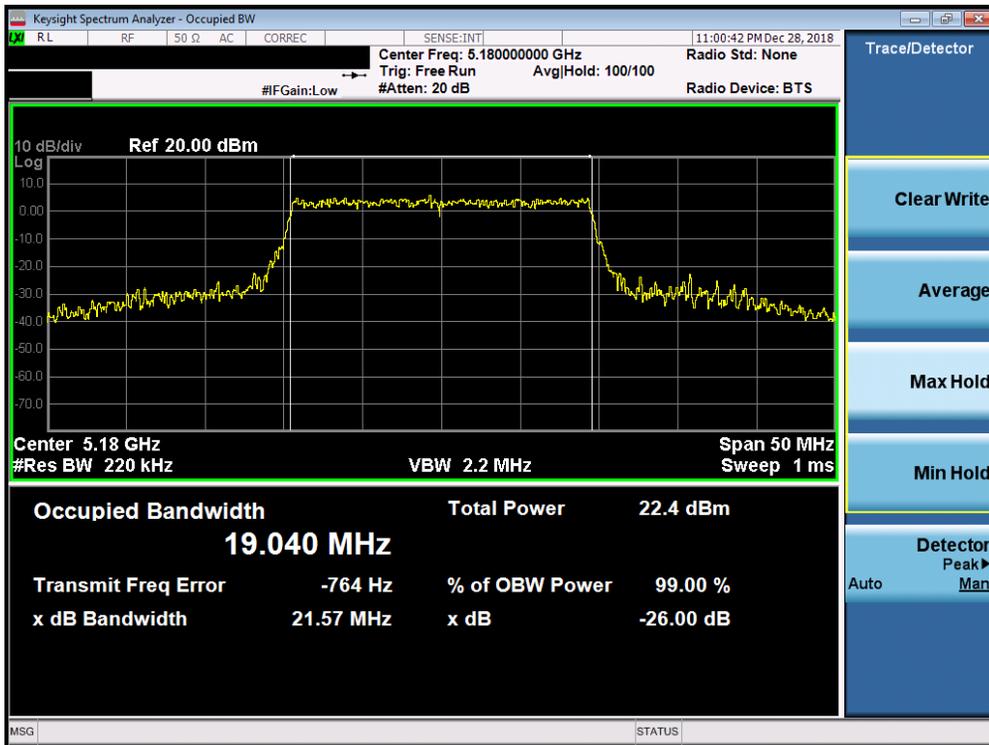
| | | | | |
|---|--------------------------------------|---|--|---------------------------------|
| FCC ID: A3LSMG970U | | MEASUREMENT REPORT (CERTIFICATION) | | Approved by: Quality Manager |
| Test Report S/N: 1M1810250193-18.A3L | Test Dates: 11/9/2018 - 1/18/2019 | EUT Type: Portable Handset | | Page 52 of 519 |

SISO Antenna-2 26 dB Bandwidth Measurements (242 Tones)

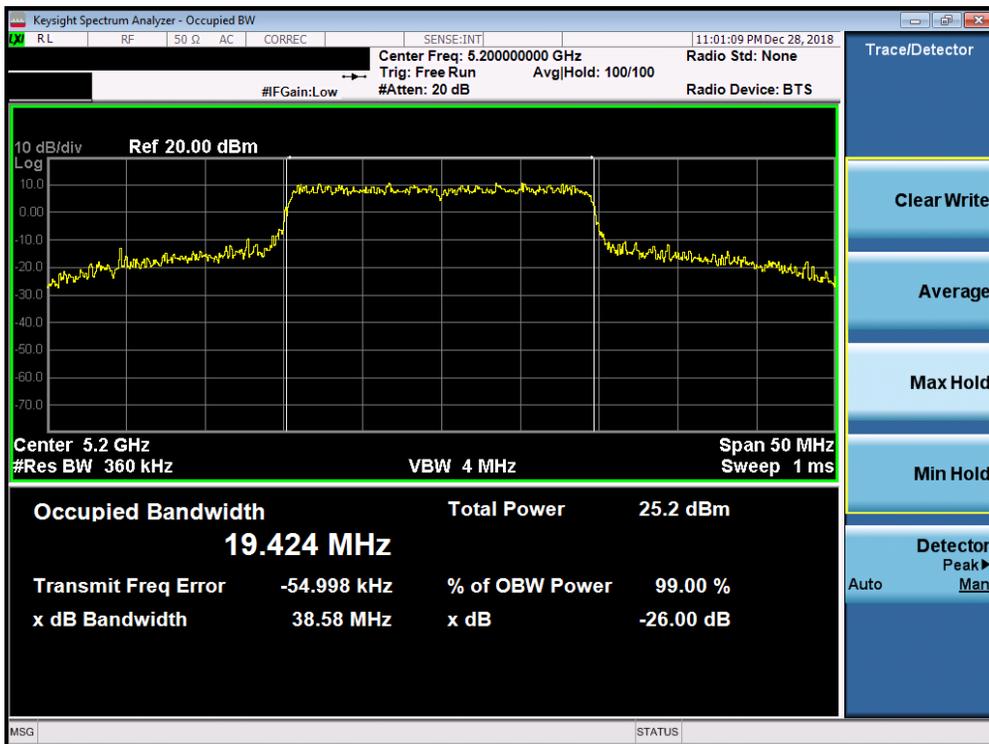
| | Frequency [MHz] | Channel No. | 802.11 Mode | Tones | Data Rate [Mbps] | Measured 26dB Bandwidth [MHz] |
|---------|-----------------|-------------|-------------|-------|------------------|-------------------------------|
| Band 1 | 5180 | 36 | ax (20MHz) | 242T | MCS0 | 21.57 |
| | 5200 | 40 | ax (20MHz) | 242T | MCS0 | 38.58 |
| | 5240 | 48 | ax (20MHz) | 242T | MCS0 | 34.18 |
| Band 2A | 5260 | 52 | ax (20MHz) | 242T | MCS0 | 34.48 |
| | 5280 | 56 | ax (20MHz) | 242T | MCS0 | 32.82 |
| | 5320 | 64 | ax (20MHz) | 242T | MCS0 | 28.15 |
| Band 2C | 5500 | 100 | ax (20MHz) | 242T | MCS0 | 32.41 |
| | 5600 | 120 | ax (20MHz) | 242T | MCS0 | 31.24 |
| | 5720 | 144 | ax (20MHz) | 242T | MCS0 | 32.11 |

Table 7-7. Conducted Bandwidth Measurements SISO ANT2 (242 Tones)

| | | | | |
|---|---|---|---|---------------------------------|
| FCC ID: A3LSMG970U |  | MEASUREMENT REPORT (CERTIFICATION) |  | Approved by: Quality Manager |
| Test Report S/N: 1M1810250193-18.A3L | Test Dates: 11/9/2018 - 1/18/2019 | EUT Type: Portable Handset | | Page 53 of 519 |

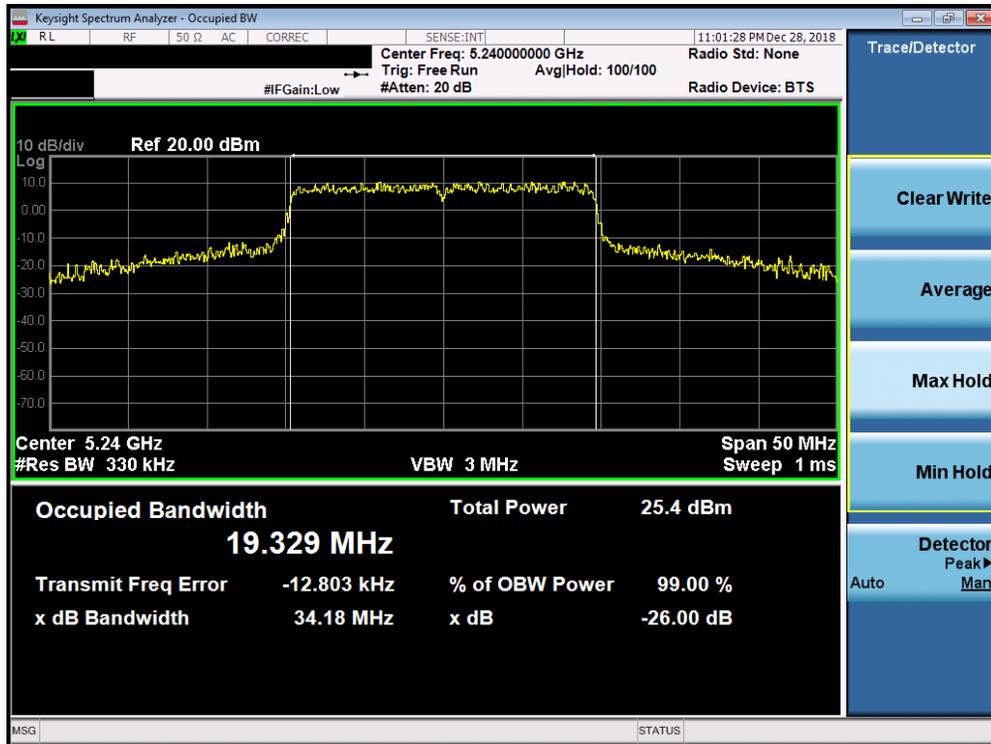


Plot 7-64. 26dB Bandwidth Plot SISO ANT2 (20MHz BW 802.11ax – 242 Tones (UNII Band 1) – Ch. 36)

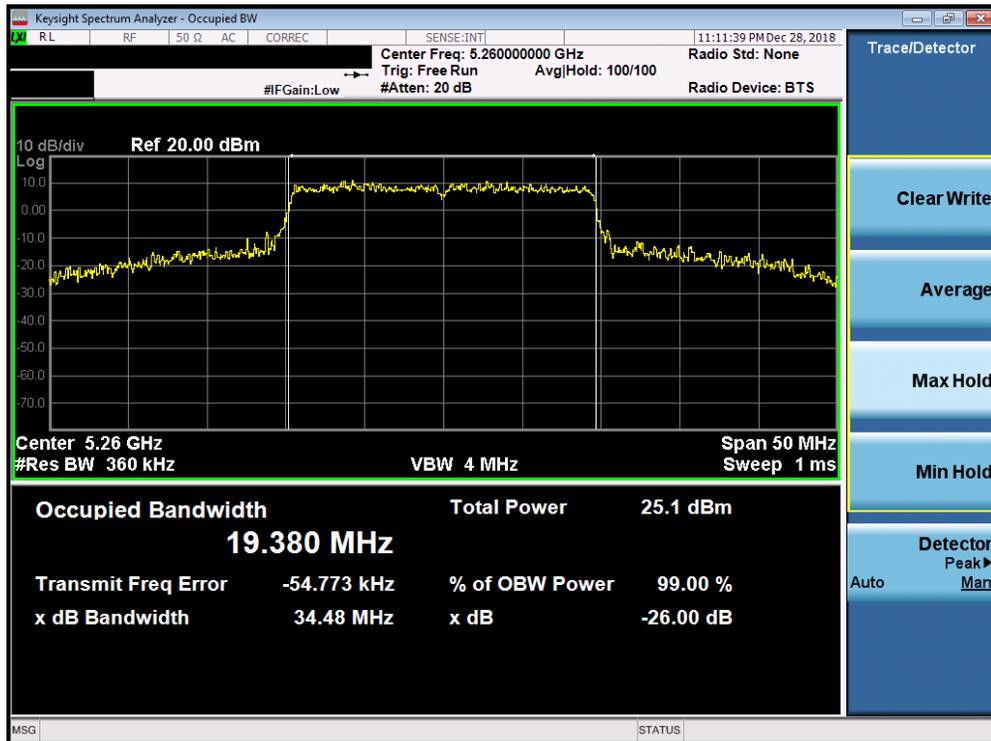


Plot 7-65. 26dB Bandwidth Plot SISO ANT2 (20MHz BW 802.11ax – 242 Tones (UNII Band 1) – Ch. 40)

| | | | | |
|---|--------------------------------------|---------------------------------------|--|---------------------------------|
| FCC ID: A3LSMG970U | | MEASUREMENT REPORT (CERTIFICATION) | | Approved by: Quality Manager |
| Test Report S/N: 1M1810250193-18.A3L | Test Dates: 11/9/2018 - 1/18/2019 | EUT Type: Portable Handset | | Page 54 of 519 |

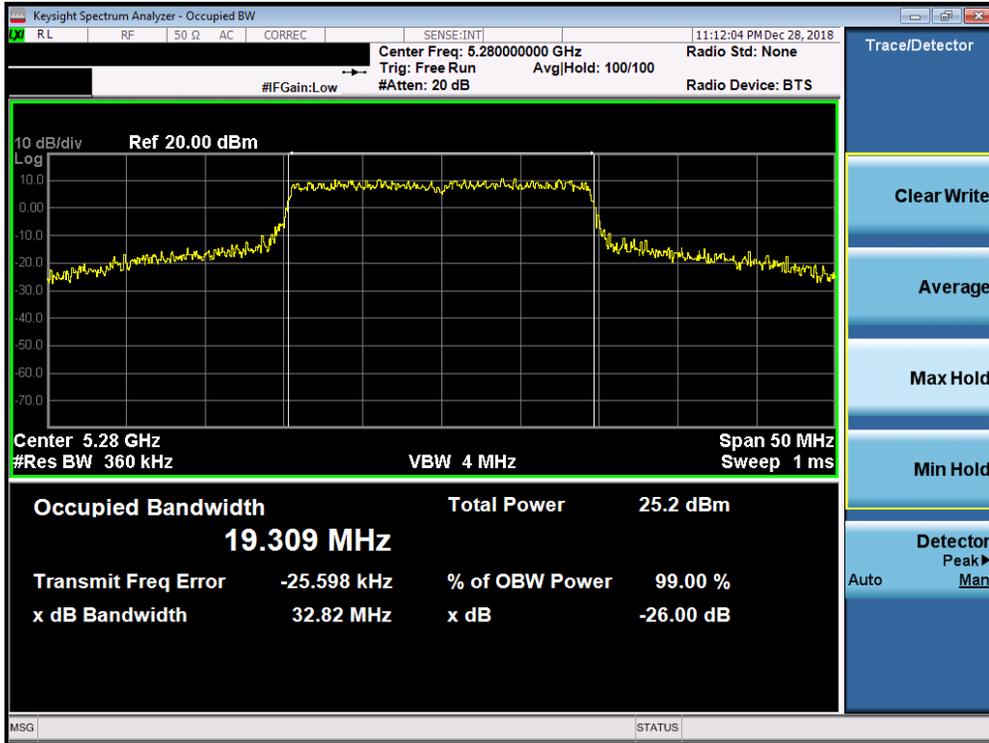


Plot 7-66. 26dB Bandwidth Plot SISO ANT2 (20MHz BW 802.11ax – 242 Tones (UNII Band 1) – Ch. 48)

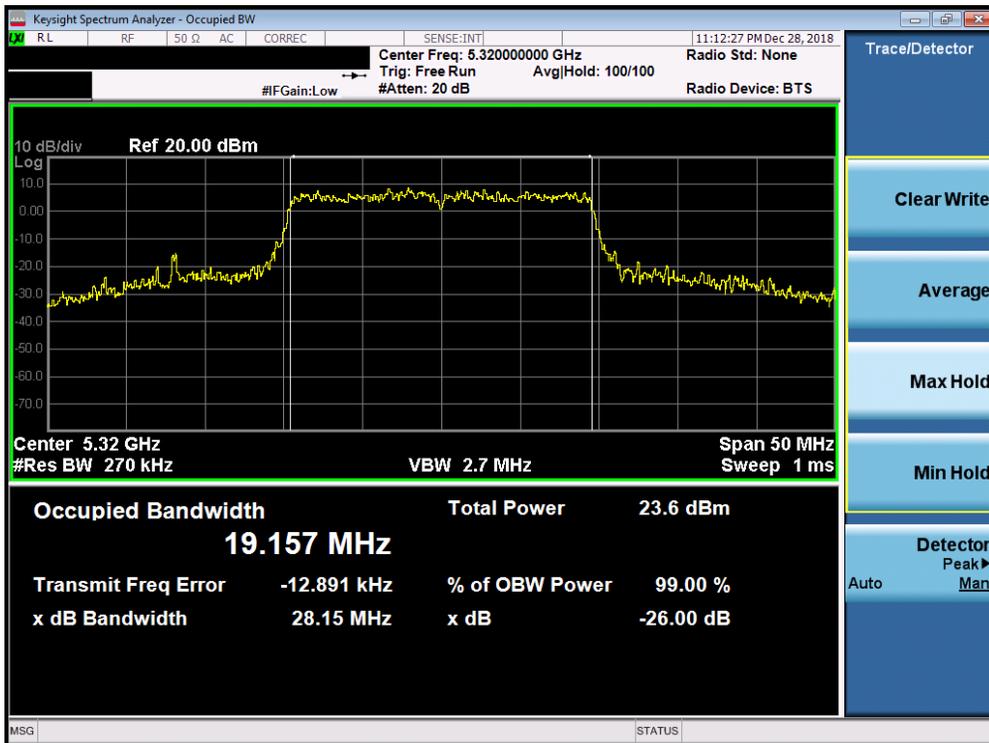


Plot 7-67. 26dB Bandwidth Plot SISO ANT2 (20MHz BW 802.11ax – 242 Tones (UNII Band 2A) – Ch. 52)

| | | | | |
|---|--------------------------------------|---------------------------------------|--|---------------------------------|
| FCC ID: A3LSMG970U | | MEASUREMENT REPORT (CERTIFICATION) | | Approved by: Quality Manager |
| Test Report S/N: 1M1810250193-18.A3L | Test Dates: 11/9/2018 - 1/18/2019 | EUT Type: Portable Handset | | Page 55 of 519 |

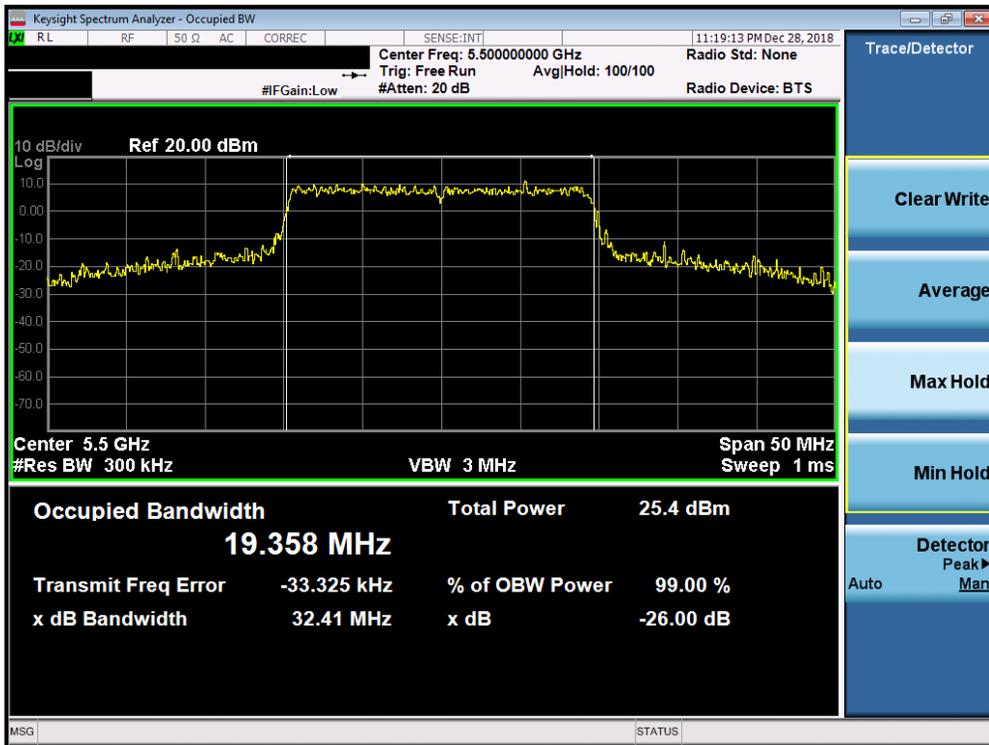


Plot 7-68. 26dB Bandwidth Plot SISO ANT2 (20MHz BW 802.11ax – 242 Tones (UNII Band 2A) – Ch. 56)

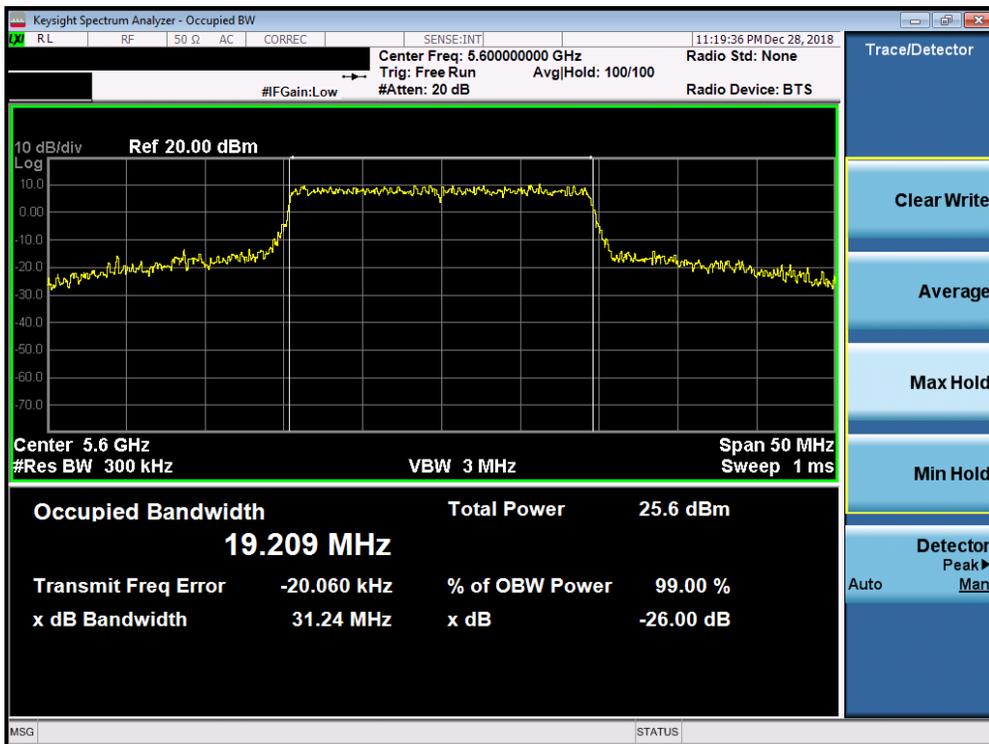


Plot 7-69. 26dB Bandwidth Plot SISO ANT2 (20MHz BW 802.11ax – 242 Tones (UNII Band 2A) – Ch. 64)

| | | | | |
|---|--------------------------------------|---|--|---------------------------------|
| FCC ID: A3LSMG970U | | MEASUREMENT REPORT (CERTIFICATION) | | Approved by: Quality Manager |
| Test Report S/N: 1M1810250193-18.A3L | Test Dates: 11/9/2018 - 1/18/2019 | EUT Type: Portable Handset | | Page 56 of 519 |

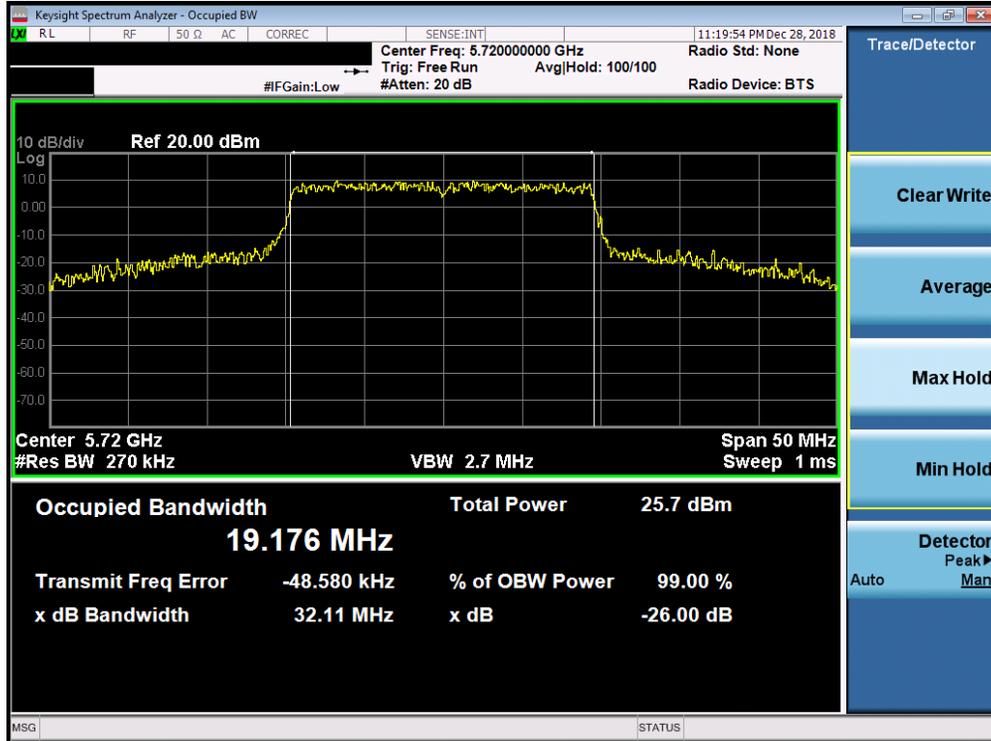


Plot 7-70. 26dB Bandwidth Plot SISO ANT2 (20MHz BW 802.11ax – 242 Tones (UNII Band 2C) – Ch. 100)



Plot 7-71. 26dB Bandwidth Plot SISO ANT2 (20MHz BW 802.11ax – 242 Tones (UNII Band 2C) – Ch. 120)

| | | | | |
|---|--------------------------------------|---------------------------------------|--|---------------------------------|
| FCC ID: A3LSMG970U | | MEASUREMENT REPORT (CERTIFICATION) | | Approved by: Quality Manager |
| Test Report S/N: 1M1810250193-18.A3L | Test Dates: 11/9/2018 - 1/18/2019 | EUT Type: Portable Handset | | Page 57 of 519 |



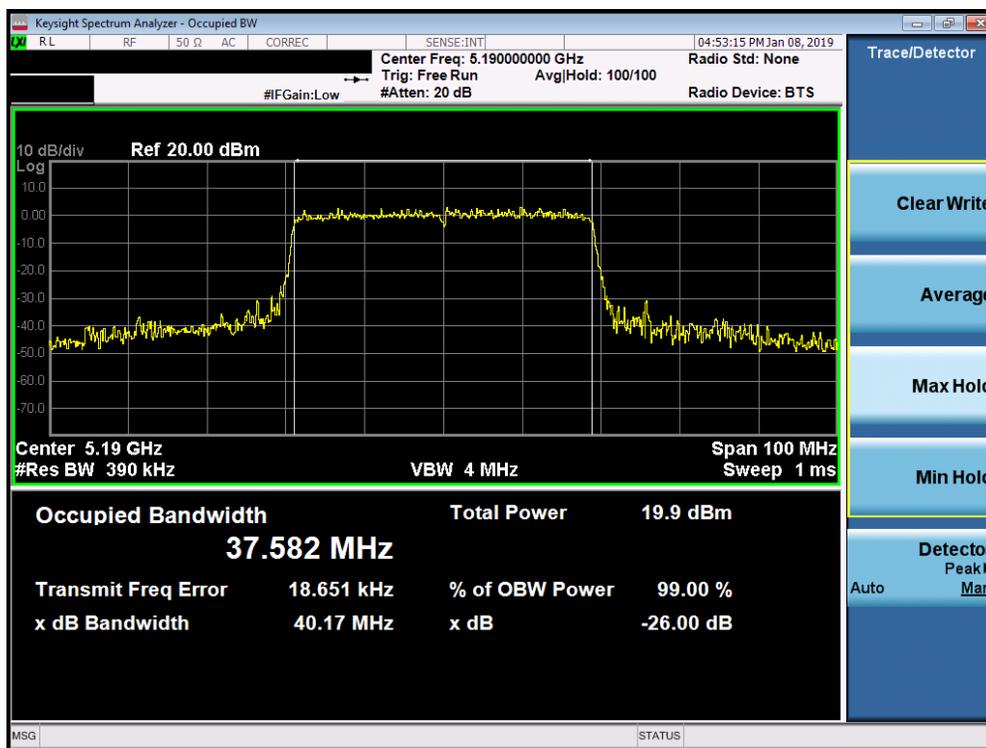
Plot 7-72. 26dB Bandwidth Plot SISO ANT2 (20MHz BW 802.11ax – 242 Tones (UNII Band 2C) – Ch. 144)

| | | | | |
|---|--------------------------------------|---------------------------------------|--|---------------------------------|
| FCC ID: A3LSMG970U | | MEASUREMENT REPORT (CERTIFICATION) | | Approved by: Quality Manager |
| Test Report S/N: 1M1810250193-18.A3L | Test Dates: 11/9/2018 - 1/18/2019 | EUT Type: Portable Handset | | Page 58 of 519 |

SISO Antenna-2 26 dB Bandwidth Measurements (484 Tones)

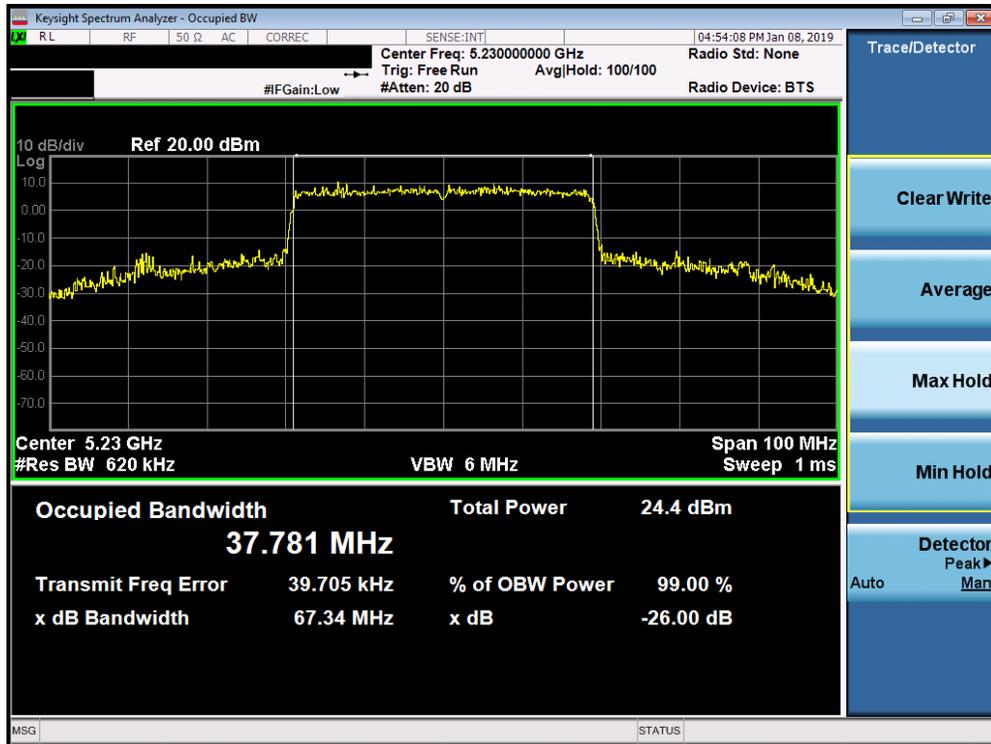
| | Frequency [MHz] | Channel No. | 802.11 Mode | Tones | Data Rate [Mbps] | Measured 26dB Bandwidth [MHz] |
|---------|-----------------|-------------|-------------|-------|------------------|-------------------------------|
| Band 1 | 5190 | 38 | ax (40MHz) | 484T | MCS0 | 40.17 |
| | 5230 | 46 | ax (40MHz) | 484T | MCS0 | 67.34 |
| Band 2A | 5270 | 54 | ax (40MHz) | 484T | MCS0 | 63.04 |
| | 5310 | 62 | ax (40MHz) | 484T | MCS0 | 40.16 |
| Band 2C | 5510 | 102 | ax (40MHz) | 484T | MCS0 | 39.89 |
| | 5590 | 118 | ax (40MHz) | 484T | MCS0 | 43.57 |
| | 5710 | 142 | ax (40MHz) | 484T | MCS0 | 40.51 |

Table 7-8. Conducted Bandwidth Measurements SISO ANT2 (484 Tones)

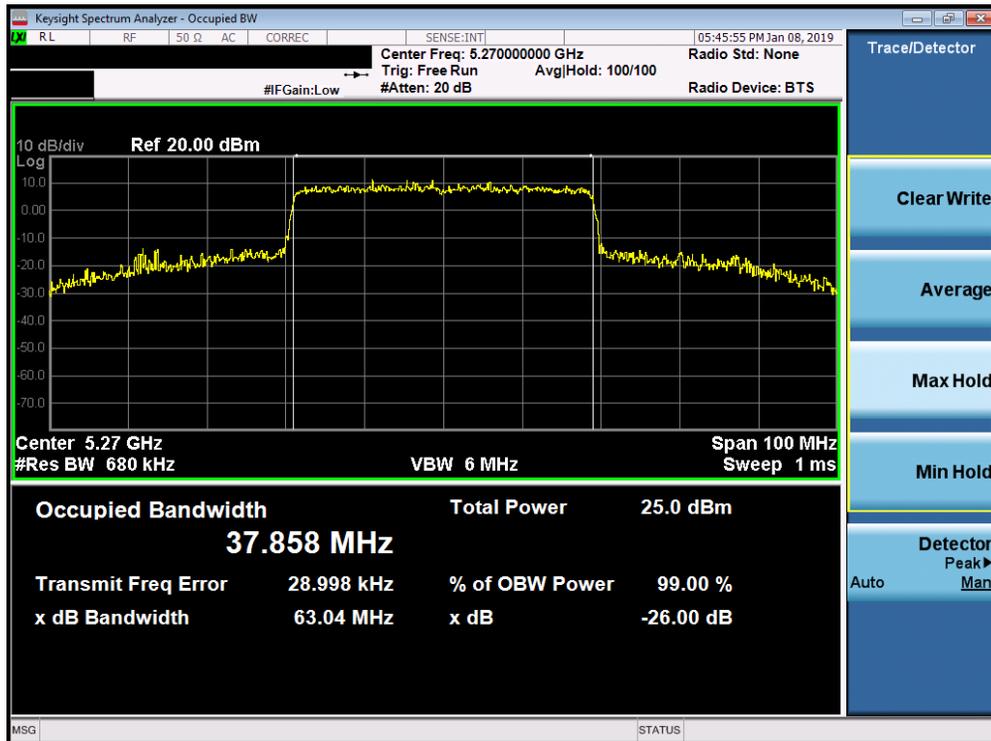


Plot 7-73. 26dB Bandwidth Plot SISO ANT2 (40MHz BW 802.11ax – 484 Tones (UNII Band 1) – Ch. 38)

| | | | | |
|---|--------------------------------------|------------------------------------|--|---------------------------------|
| FCC ID: A3LSMG970U | | MEASUREMENT REPORT (CERTIFICATION) | | Approved by: Quality Manager |
| Test Report S/N: 1M1810250193-18.A3L | Test Dates: 11/9/2018 - 1/18/2019 | EUT Type: Portable Handset | | Page 59 of 519 |

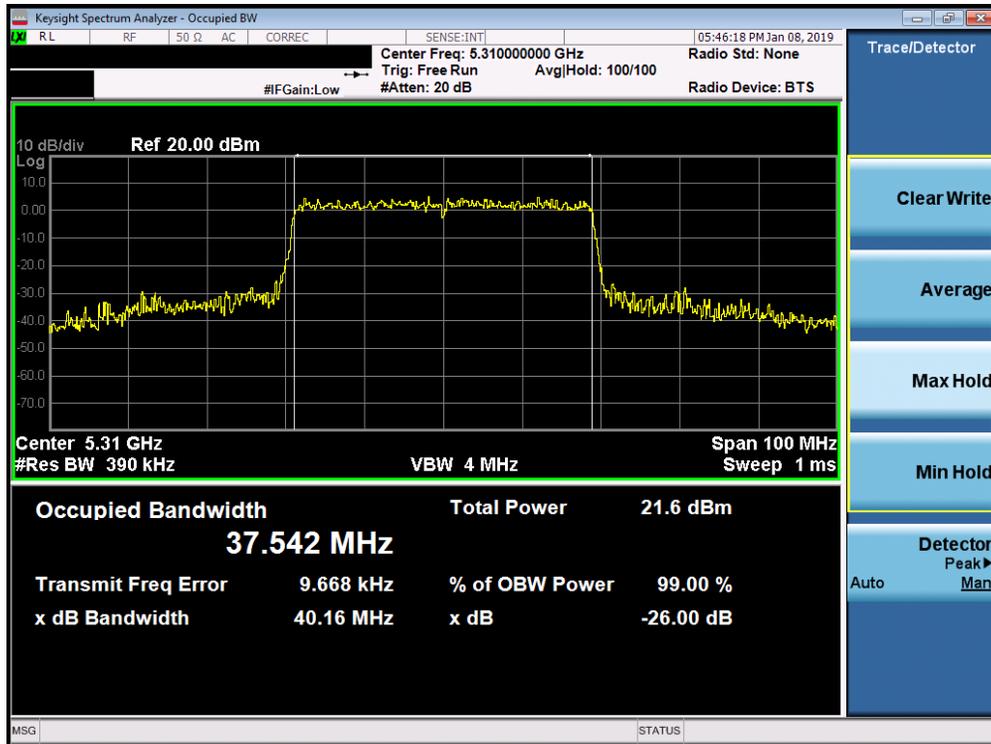


Plot 7-74. 26dB Bandwidth Plot SISO ANT2 (40MHz BW 802.11ax – 484 Tones (UNII Band 1) – Ch. 46)

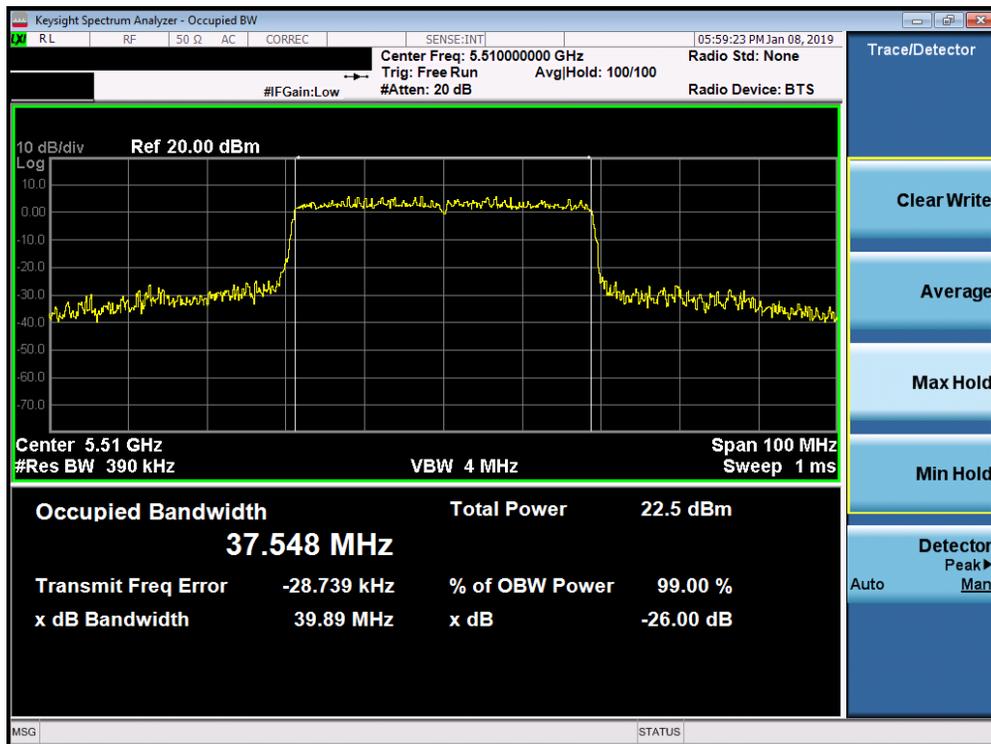


Plot 7-75. 26dB Bandwidth Plot SISO ANT2 (40MHz BW 802.11ax – 484 Tones (UNII Band 2A) – Ch. 54)

| | | | | |
|---|--------------------------------------|---------------------------------------|--|---------------------------------|
| FCC ID: A3LSMG970U | | MEASUREMENT REPORT (CERTIFICATION) | | Approved by: Quality Manager |
| Test Report S/N: 1M1810250193-18.A3L | Test Dates: 11/9/2018 - 1/18/2019 | EUT Type: Portable Handset | | Page 60 of 519 |

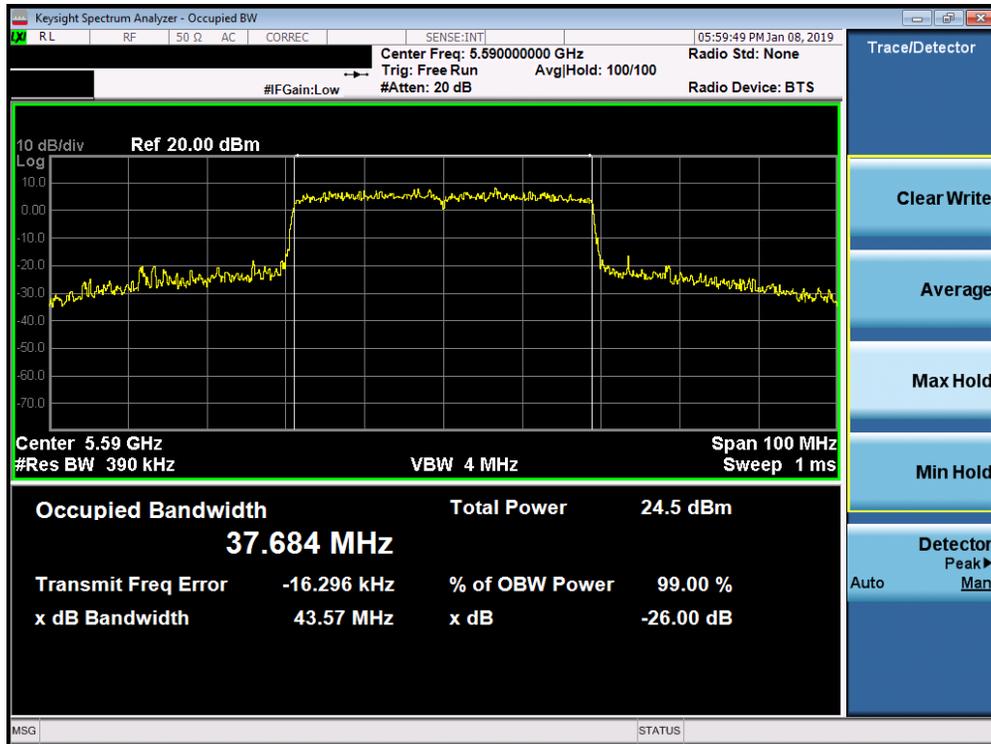


Plot 7-76. 26dB Bandwidth Plot SISO ANT2 (40MHz BW 802.11ax – 484 Tones (UNII Band 2A) – Ch. 62)

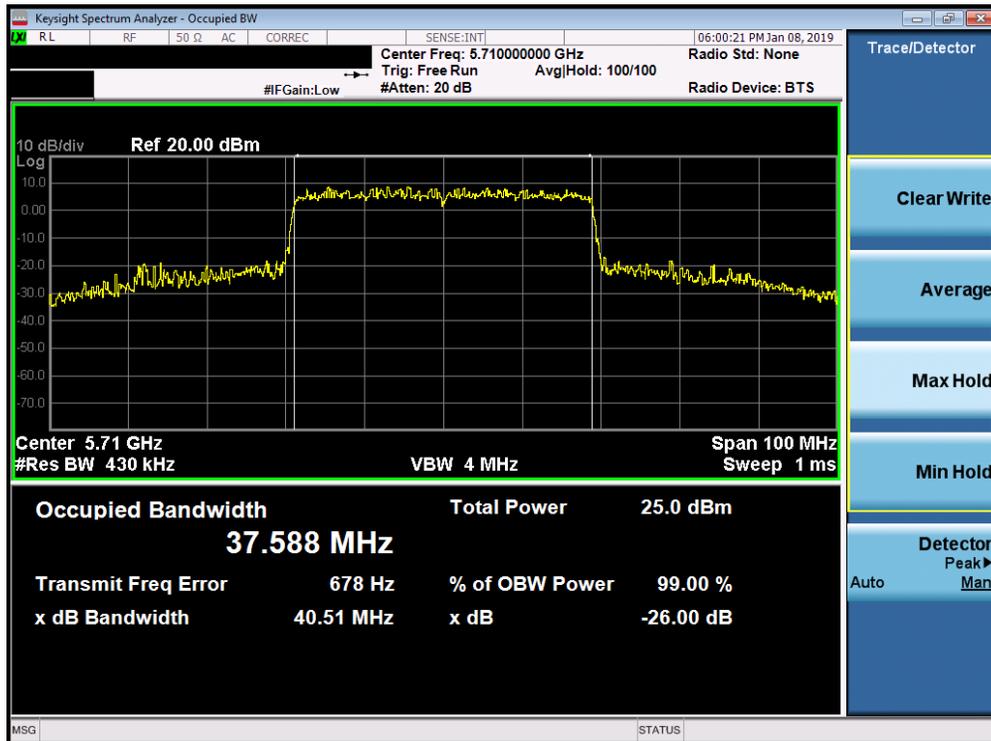


Plot 7-77. 26dB Bandwidth Plot SISO ANT2 (40MHz BW 802.11ax – 484 Tones (UNII Band 2C) – Ch. 102)

| | | | | |
|---|--------------------------------------|---------------------------------------|--|---------------------------------|
| FCC ID: A3LSMG970U | | MEASUREMENT REPORT (CERTIFICATION) | | Approved by: Quality Manager |
| Test Report S/N: 1M1810250193-18.A3L | Test Dates: 11/9/2018 - 1/18/2019 | EUT Type: Portable Handset | | Page 61 of 519 |

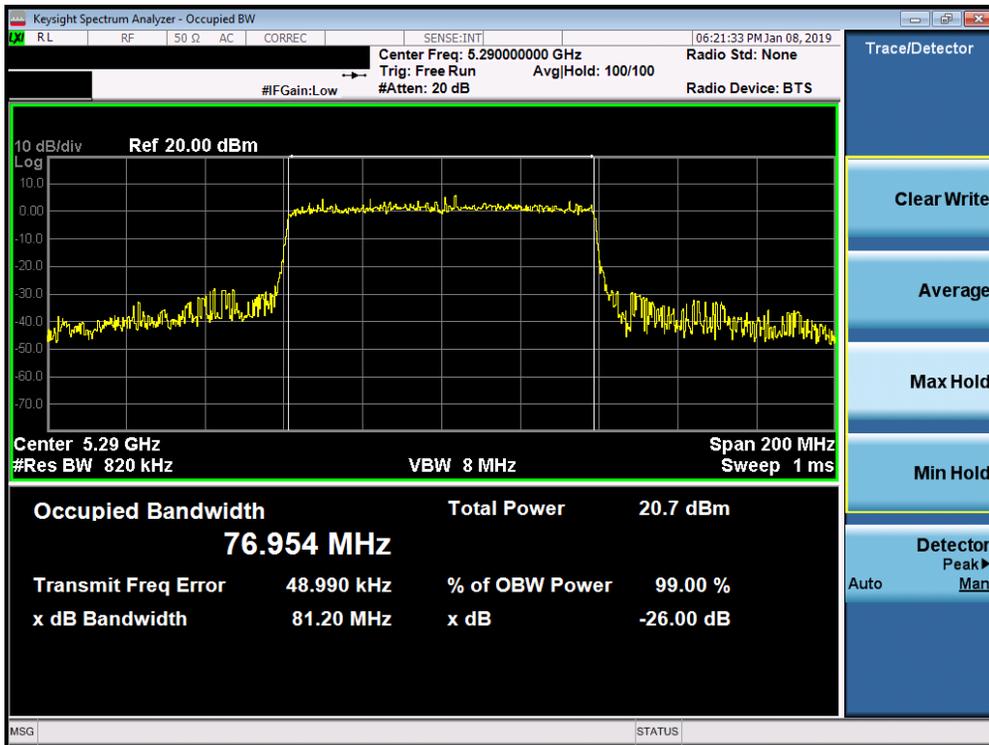


Plot 7-78. 26dB Bandwidth Plot SISO ANT2 (40MHz BW 802.11ax – 484 Tones (UNII Band 2C) – Ch. 118)

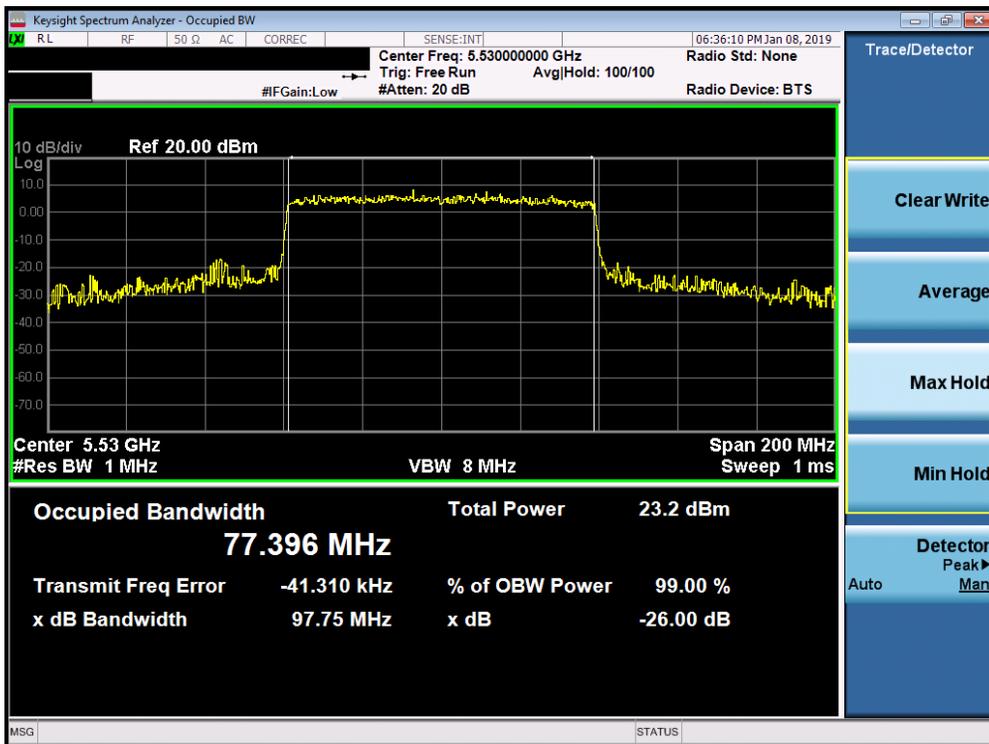


Plot 7-79. 26dB Bandwidth Plot SISO ANT2 (40MHz BW 802.11ax – 484 Tones (UNII Band 2C) – Ch. 142)

| | | | | |
|---|--------------------------------------|---------------------------------------|--|---------------------------------|
| FCC ID: A3LSMG970U | | MEASUREMENT REPORT (CERTIFICATION) | | Approved by: Quality Manager |
| Test Report S/N: 1M1810250193-18.A3L | Test Dates: 11/9/2018 - 1/18/2019 | EUT Type: Portable Handset | | Page 62 of 519 |

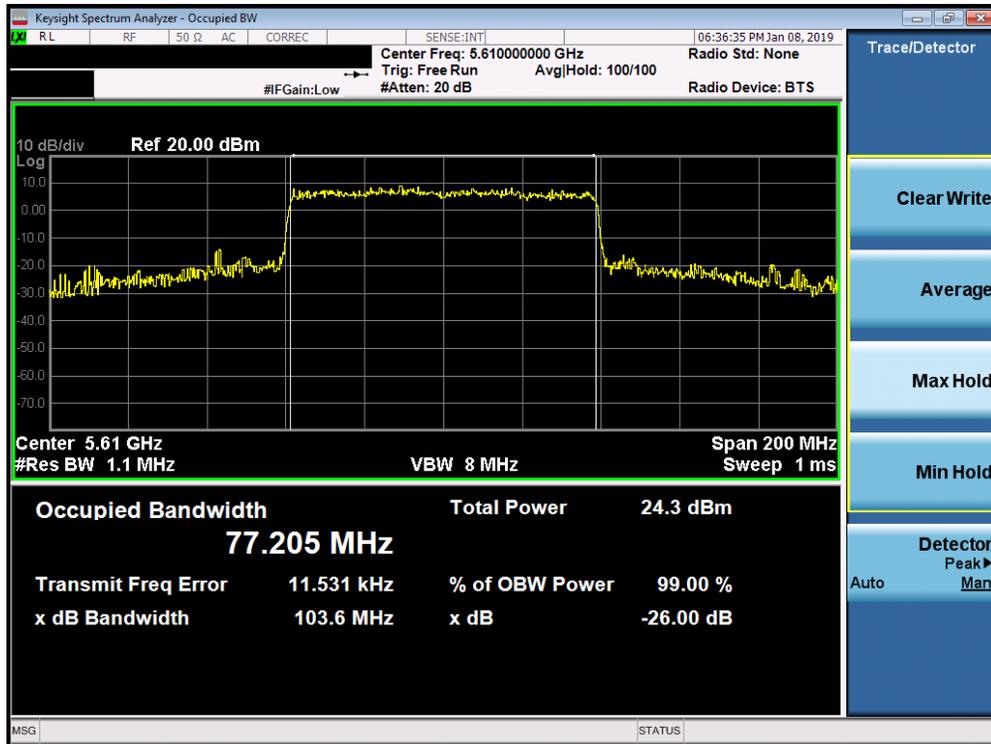


Plot 7-81. 26dB Bandwidth Plot SISO ANT2 (80MHz BW 802.11ax – 996 Tones (UNII Band 2A) – Ch. 58)

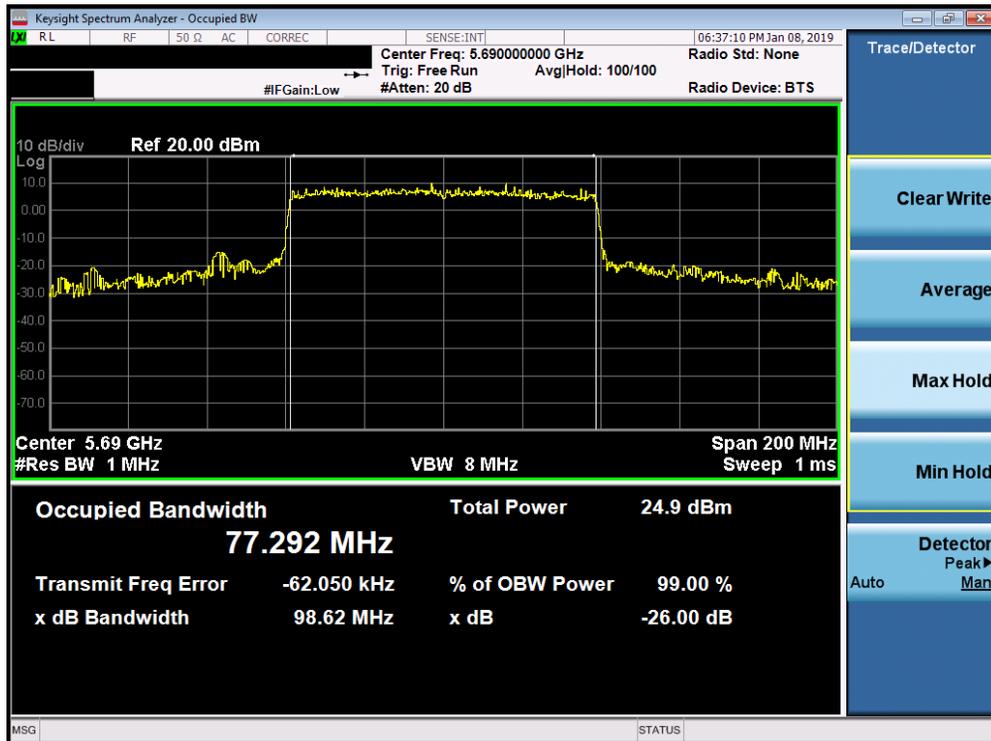


Plot 7-82. 26dB Bandwidth Plot SISO ANT2 (80MHz BW 802.11ax – 996 Tones (UNII Band 2C) – Ch. 106)

| | | | | |
|---|--------------------------------------|---------------------------------------|--|---------------------------------|
| FCC ID: A3LSMG970U | | MEASUREMENT REPORT (CERTIFICATION) | | Approved by: Quality Manager |
| Test Report S/N: 1M1810250193-18.A3L | Test Dates: 11/9/2018 - 1/18/2019 | EUT Type: Portable Handset | | Page 64 of 519 |



Plot 7-83. 26dB Bandwidth Plot SISO ANT2 (80MHz BW 802.11ax – 996 Tones (UNII Band 2C) – Ch. 122)



Plot 7-84. 26dB Bandwidth Plot SISO ANT2 (80MHz BW 802.11ax – 996 Tones (UNII Band 2C) – Ch. 138)

| | | | | |
|---|--------------------------------------|---|--|---------------------------------|
| FCC ID: A3LSMG970U | | MEASUREMENT REPORT (CERTIFICATION) | | Approved by: Quality Manager |
| Test Report S/N: 1M1810250193-18.A3L | Test Dates: 11/9/2018 - 1/18/2019 | EUT Type: Portable Handset | | Page 65 of 519 |

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

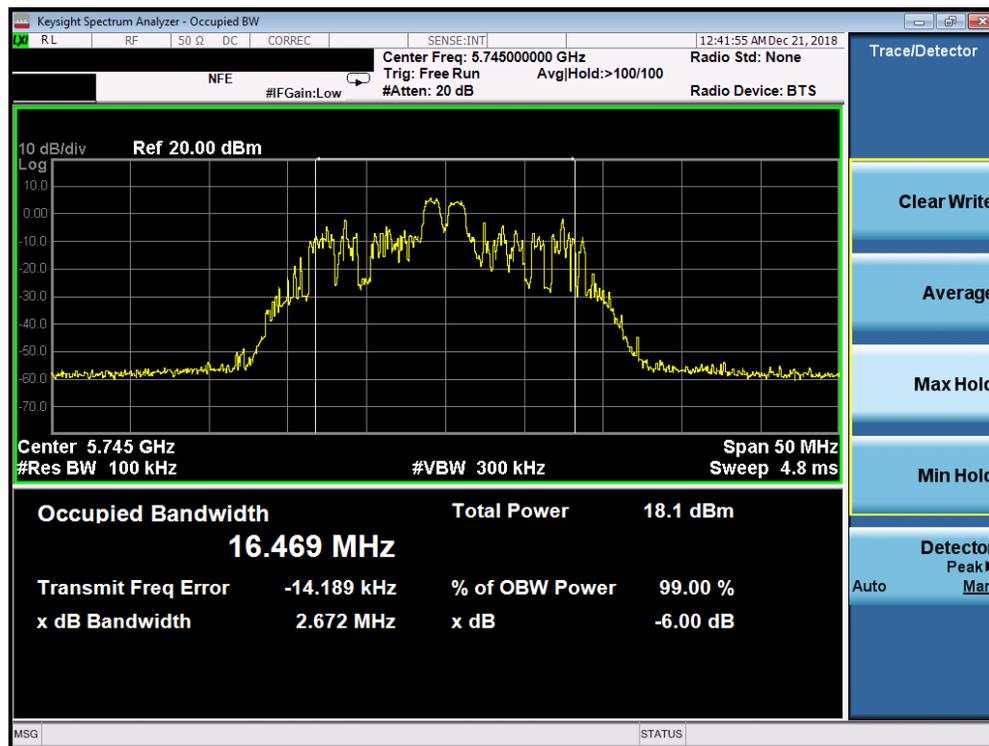
The 6dB Bandwidth measurement for each channel was measured with the RU index showing the highest conducted power.

| | | | | |
|---|---|---------------------------------------|---|---------------------------------|
| FCC ID: A3LSMG970U |  | MEASUREMENT REPORT (CERTIFICATION) |  | Approved by: Quality Manager |
| Test Report S/N: 1M1810250193-18.A3L | Test Dates: 11/9/2018 - 1/18/2019 | EUT Type: Portable Handset | | Page 66 of 519 |

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

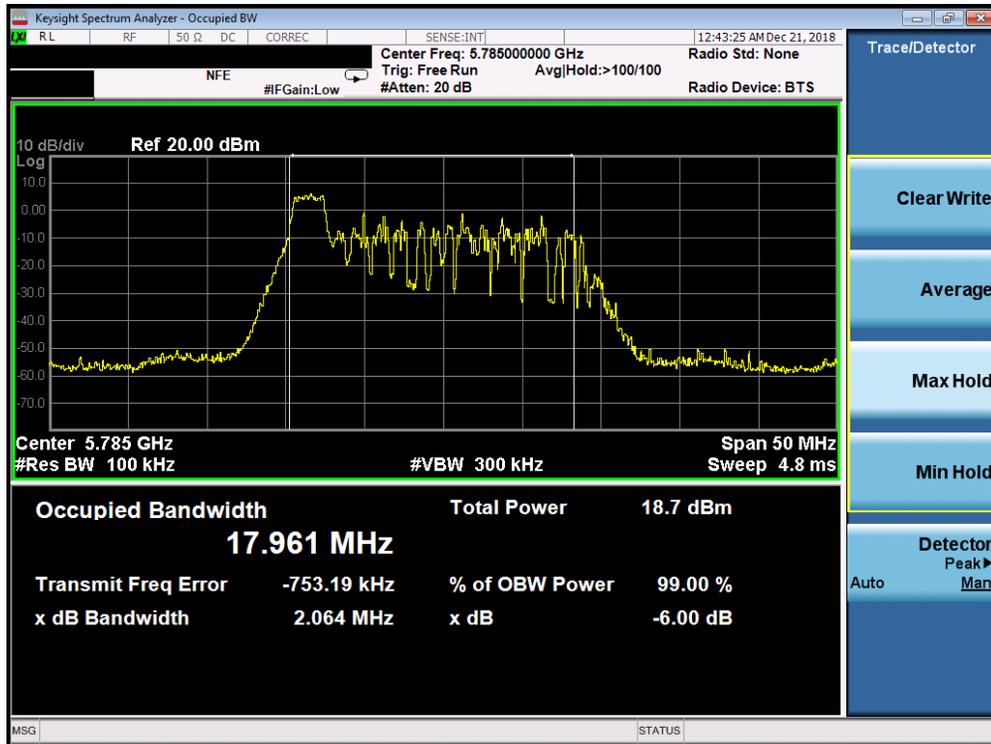
| | Frequency [MHz] | Channel No. | 802.11 Mode | Tones | Data Rate [Mbps] | Measured 6dB Bandwidth [MHz] |
|---------------|-----------------|-------------|-------------|-------|------------------|------------------------------|
| Band 3 | 5745 | 149 | ax (20MHz) | 26T | MCS0 | 2.67 |
| | 5785 | 157 | ax (20MHz) | 26T | MCS0 | 2.06 |
| | 5825 | 165 | ax (20MHz) | 26T | MCS0 | 2.08 |
| | 5755 | 151 | ax (40MHz) | 26T | MCS0 | 2.14 |
| | 5795 | 159 | ax (40MHz) | 26T | MCS0 | 2.12 |
| | 5775 | 155 | ax (80MHz) | 26T | MCS0 | 2.27 |

Table 7-10. Conducted Bandwidth Measurements SISO ANT1 (26 Tones)

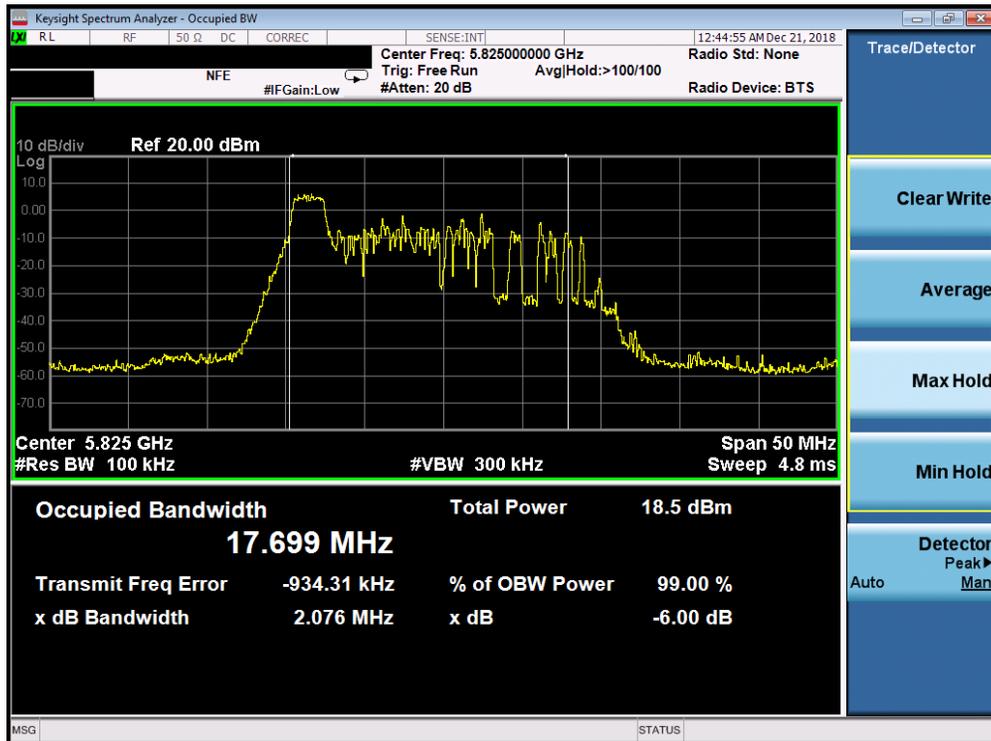


Plot 7-85. 6dB Bandwidth Plot SISO ANT1 (20MHz BW 802.11ax – 26 Tones (UNII Band 3) – Ch. 149)

| | | | | |
|---|--------------------------------------|---|--|---------------------------------|
| FCC ID: A3LSMG970U | | MEASUREMENT REPORT (CERTIFICATION) | | Approved by: Quality Manager |
| Test Report S/N: 1M1810250193-18.A3L | Test Dates: 11/9/2018 - 1/18/2019 | EUT Type: Portable Handset | | Page 67 of 519 |

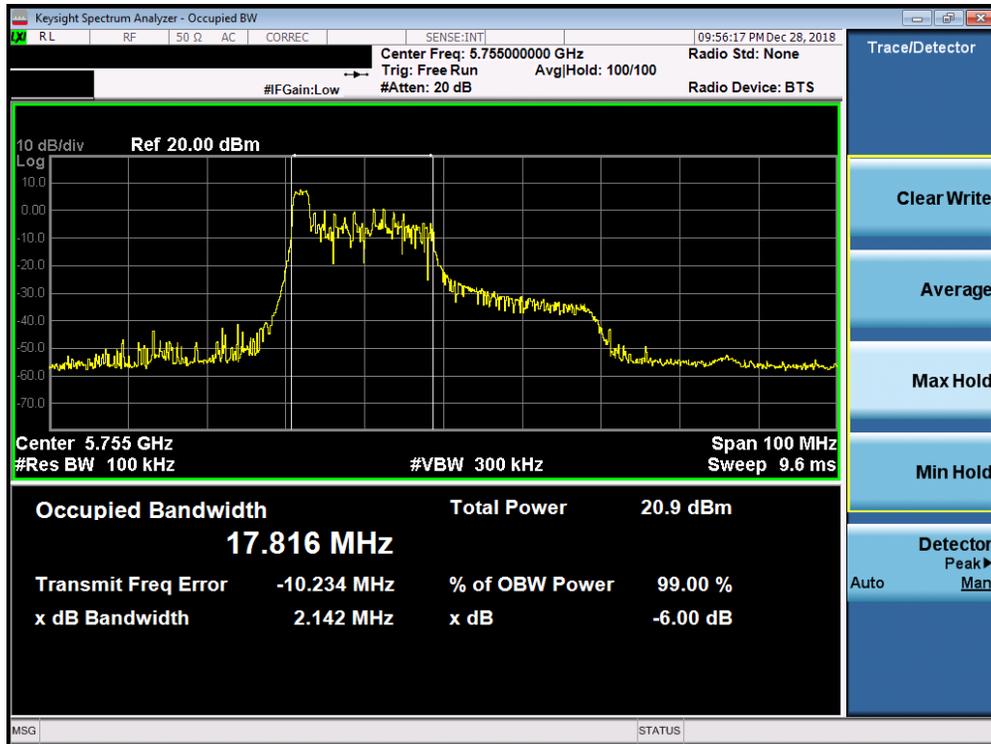


Plot 7-86. 6dB Bandwidth Plot SISO ANT1 (20MHz BW 802.11ax – 26 Tones (UNII Band 3) – Ch. 157)

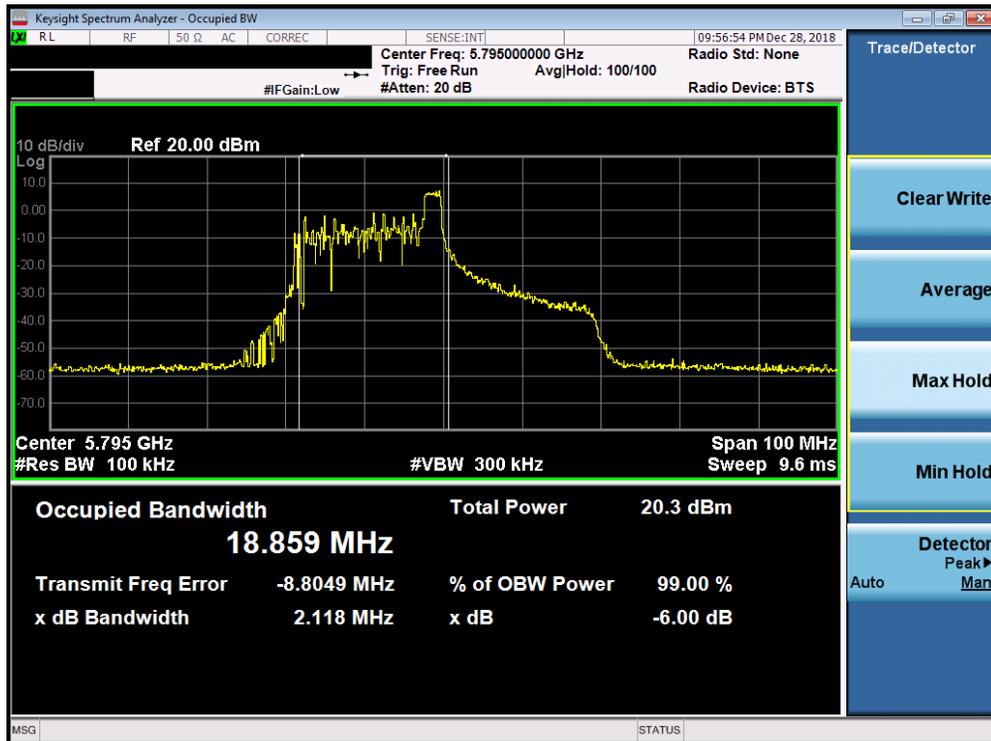


Plot 7-87. 6dB Bandwidth Plot SISO ANT1 (20MHz BW 802.11ax – 26 Tones (UNII Band 3) – Ch. 165)

| | | | | |
|---|--------------------------------------|---------------------------------------|--|---------------------------------|
| FCC ID: A3LSMG970U | | MEASUREMENT REPORT (CERTIFICATION) | | Approved by: Quality Manager |
| Test Report S/N: 1M1810250193-18.A3L | Test Dates: 11/9/2018 - 1/18/2019 | EUT Type: Portable Handset | | Page 68 of 519 |

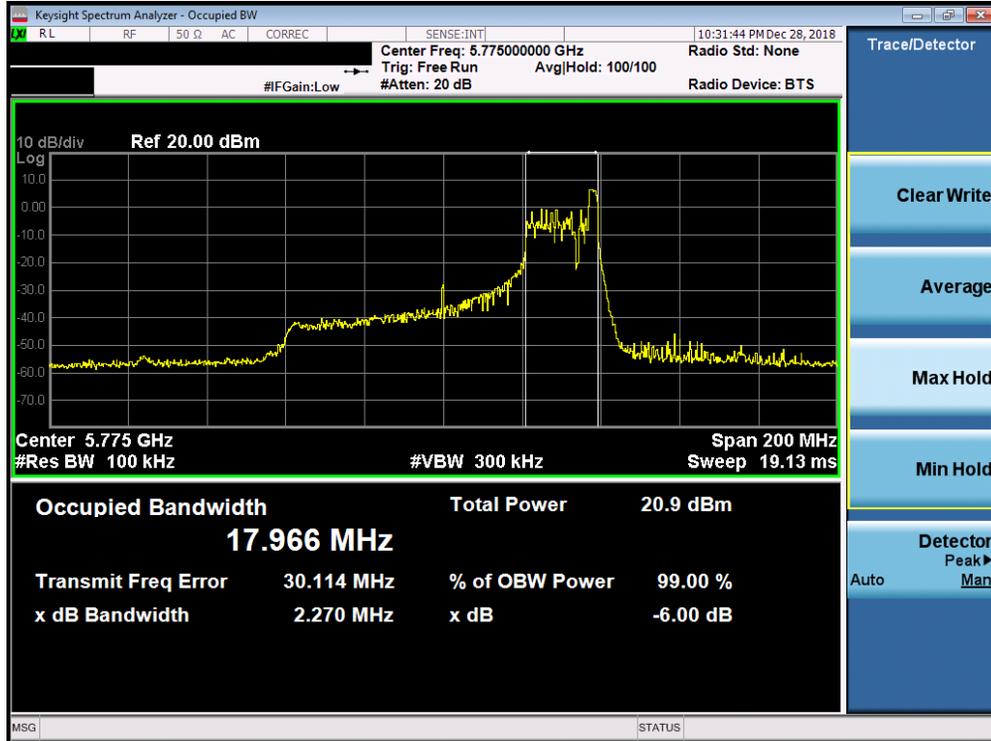


Plot 7-88. 6dB Bandwidth Plot SISO ANT1 (40MHz BW 802.11ax – 26 Tones (UNII Band 3) – Ch. 151)



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

| | | | | |
|---|--------------------------------------|---------------------------------------|--|---------------------------------|
| FCC ID: A3LSMG970U | | MEASUREMENT REPORT (CERTIFICATION) | | Approved by: Quality Manager |
| Test Report S/N: 1M1810250193-18.A3L | Test Dates: 11/9/2018 - 1/18/2019 | EUT Type: Portable Handset | | Page 69 of 519 |



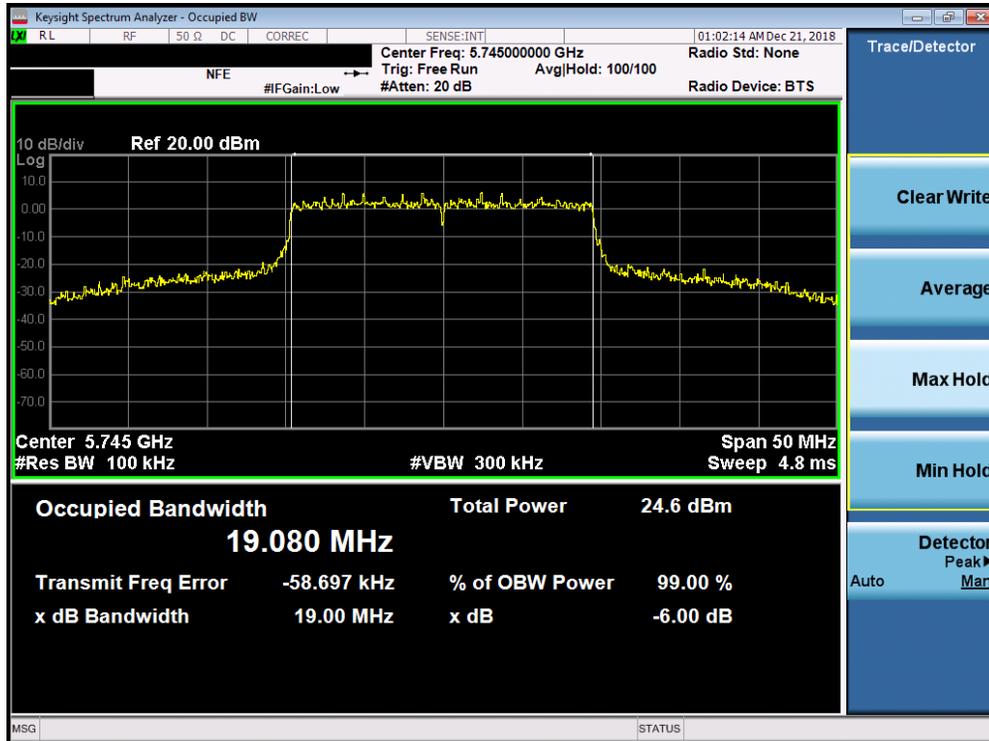
Plot 7-90. 6dB Bandwidth Plot SISO ANT1 (80MHz BW 802.11ax – 26 Tones (UNII Band 3) – Ch. 155)

| | | | | | |
|---|--------------------------------------|---------------------------------------|--|--|---------------------------------|
| FCC ID: A3LSMG970U | | MEASUREMENT REPORT (CERTIFICATION) | | | Approved by: Quality Manager |
| Test Report S/N: 1M1810250193-18.A3L | Test Dates: 11/9/2018 - 1/18/2019 | EUT Type: Portable Handset | | | Page 70 of 519 |

SISO Antenna-1 6 dB Bandwidth Measurements (242 Tones)

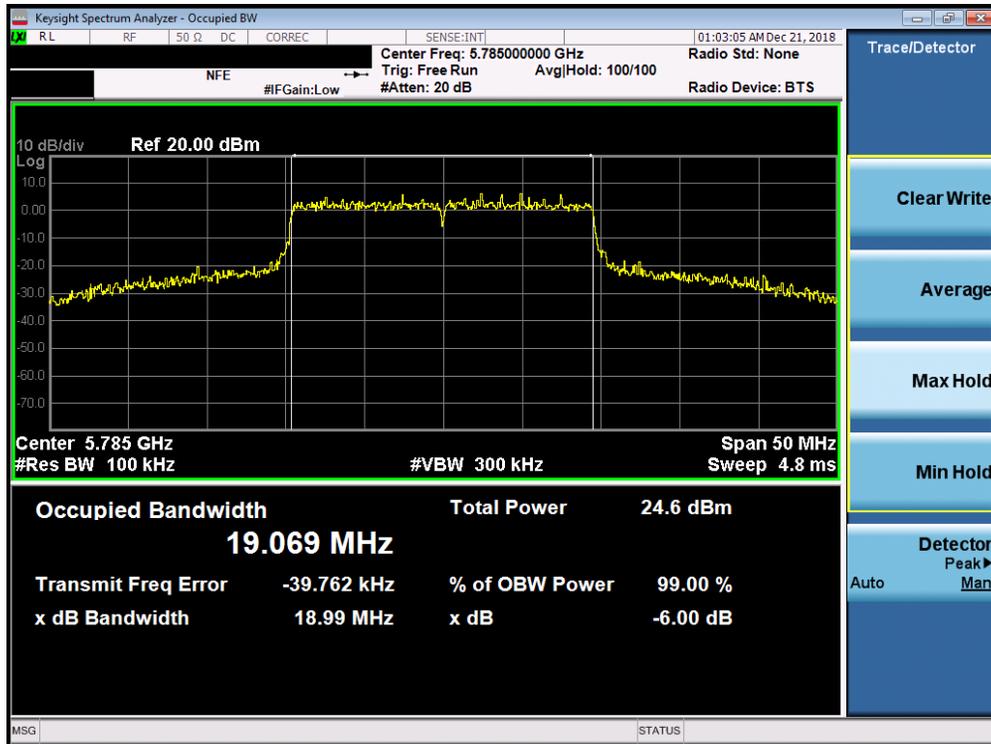
| | Frequency [MHz] | Channel No. | 802.11 Mode | Tones | Data Rate [Mbps] | Measured 6dB Bandwidth [MHz] |
|---------------|-----------------|-------------|-------------|-------|------------------|------------------------------|
| Band 3 | 5745 | 149 | ax (20MHz) | 242T | MCS0 | 19.00 |
| | 5785 | 157 | ax (20MHz) | 242T | MCS0 | 18.99 |
| | 5825 | 165 | ax (20MHz) | 242T | MCS0 | 18.96 |

Table 7-11. Conducted Bandwidth Measurements SISO ANT1 (242 Tones)

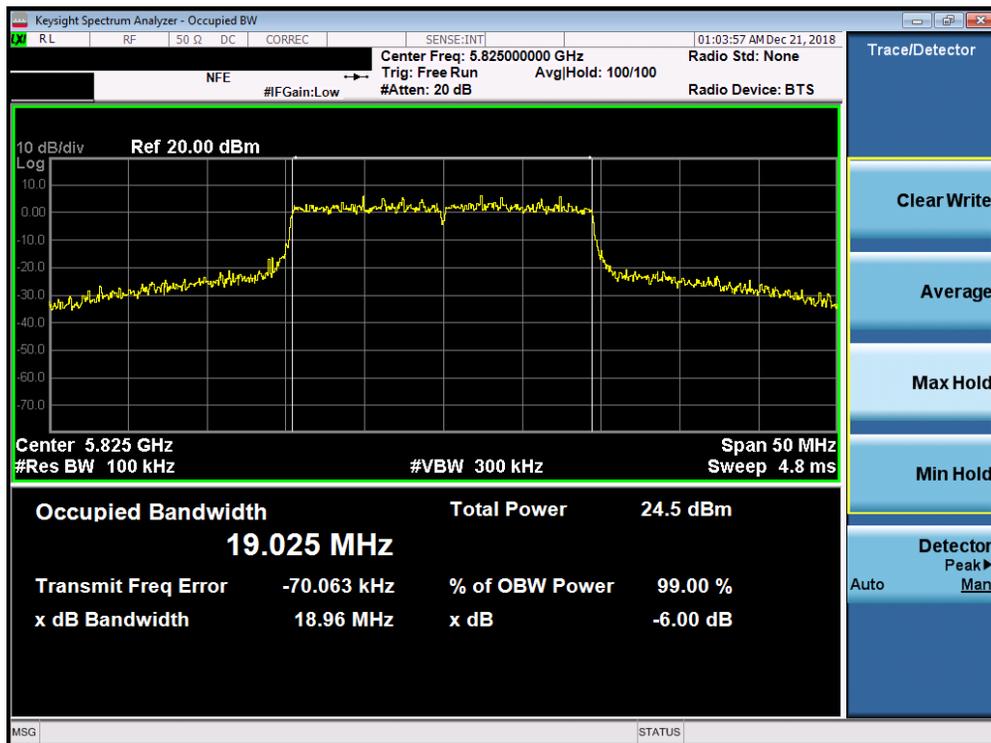


Plot 7-91. 6dB Bandwidth Plot SISO ANT1 (20MHz BW 802.11ax – 242 Tones (UNII Band 3) – Ch. 149)

| | | | | |
|---|--------------------------------------|---|--|---------------------------------|
| FCC ID: A3LSMG970U | | MEASUREMENT REPORT (CERTIFICATION) | | Approved by: Quality Manager |
| Test Report S/N: 1M1810250193-18.A3L | Test Dates: 11/9/2018 - 1/18/2019 | EUT Type: Portable Handset | | Page 71 of 519 |



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



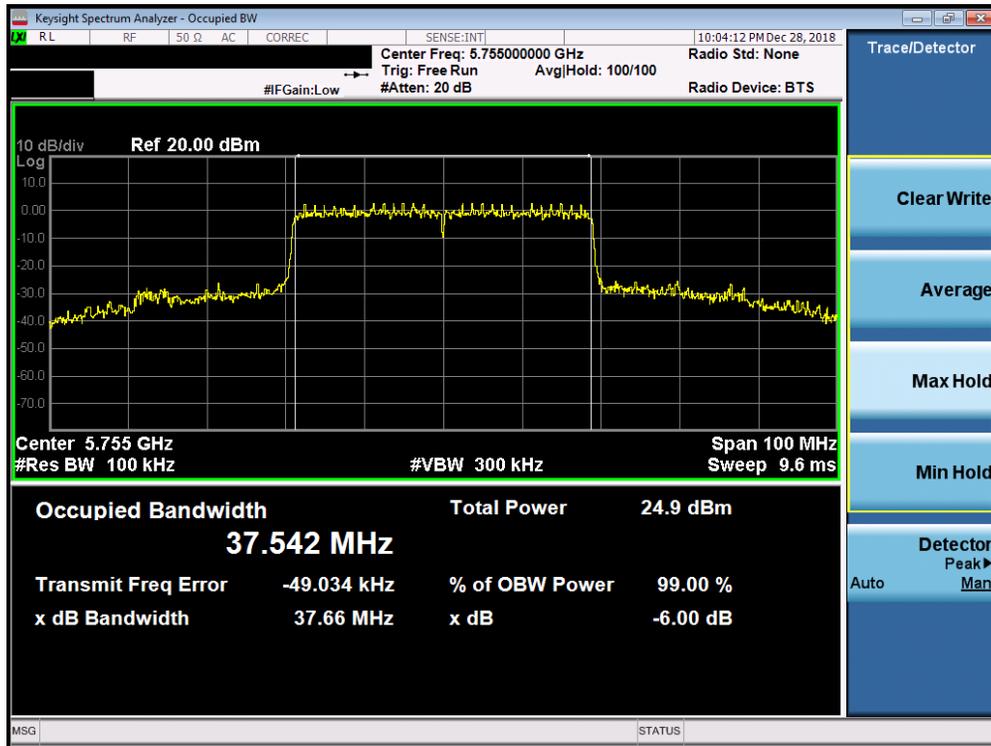
Plot 7-93. 6dB Bandwidth Plot SISO ANT1 (20MHz BW 802.11ax – 242 Tones (UNII Band 3) – Ch. 165)

| | | | | |
|---|--------------------------------------|---------------------------------------|--|---------------------------------|
| FCC ID: A3LSMG970U | | MEASUREMENT REPORT (CERTIFICATION) | | Approved by: Quality Manager |
| Test Report S/N: 1M1810250193-18.A3L | Test Dates: 11/9/2018 - 1/18/2019 | EUT Type: Portable Handset | | Page 72 of 519 |

SISO Antenna-1 6 dB Bandwidth Measurements (484 Tones)

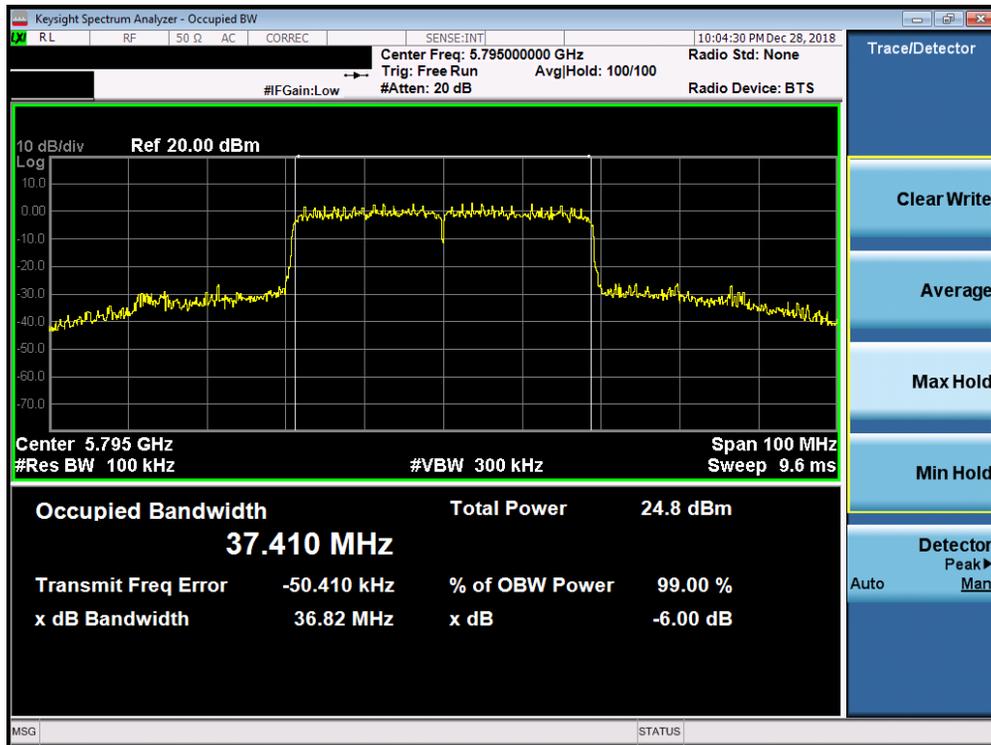
| | Frequency [MHz] | Channel No. | 802.11 Mode | Tones | Data Rate [Mbps] | Measured 6dB Bandwidth [MHz] |
|---------------|-----------------|-------------|-------------|-------|------------------|------------------------------|
| Band 3 | 5755 | 151 | ax (40MHz) | 484T | MCS0 | 37.66 |
| | 5795 | 159 | ax (40MHz) | 484T | MCS0 | 36.82 |

Table 7-12. Conducted Bandwidth Measurements SISO ANT1 (484 Tones)



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

| | | | | |
|---|---|------------------------------------|---|---------------------------------|
| FCC ID: A3LSMG970U |  | MEASUREMENT REPORT (CERTIFICATION) |  | Approved by: Quality Manager |
| Test Report S/N: 1M1810250193-18.A3L | Test Dates: 11/9/2018 - 1/18/2019 | EUT Type: Portable Handset | | Page 73 of 519 |



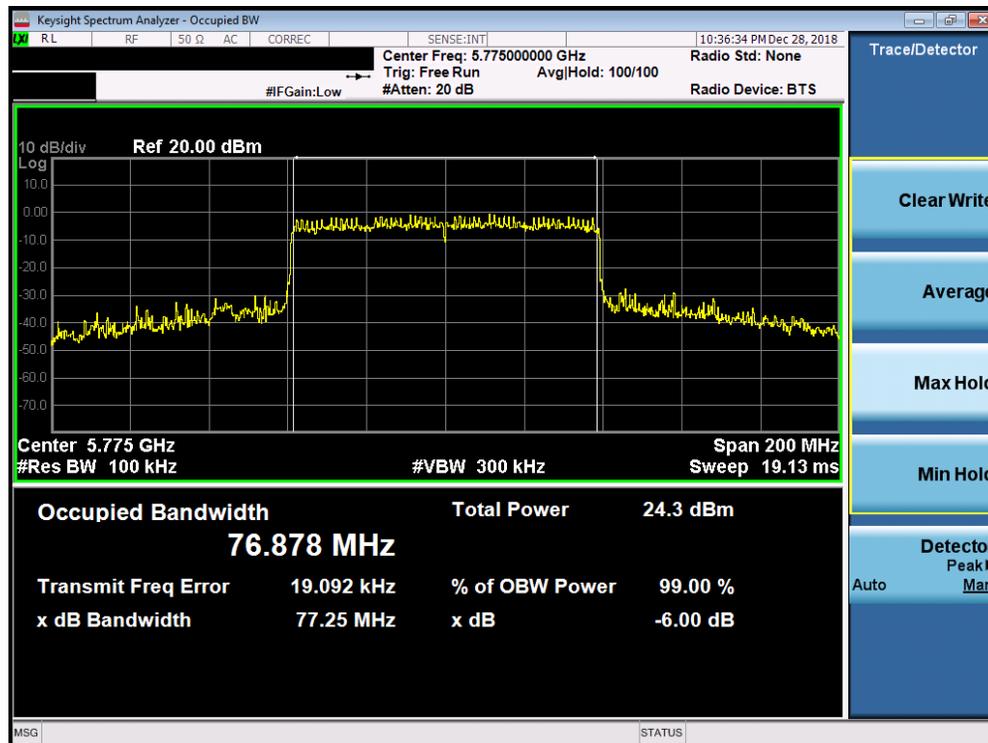
Plot 7-95. 6dB Bandwidth Plot SISO ANT1 (40MHz BW 802.11ax – 484 Tones (UNII Band 3) – Ch. 159)

| | | | | |
|---|---|---------------------------------------|---|---------------------------------|
| FCC ID: A3LSMG970U |  | MEASUREMENT REPORT (CERTIFICATION) |  | Approved by: Quality Manager |
| Test Report S/N: 1M1810250193-18.A3L | Test Dates: 11/9/2018 - 1/18/2019 | EUT Type: Portable Handset | | Page 74 of 519 |

SISO Antenna-1 6 dB Bandwidth Measurements (996 Tones)

| | Frequency [MHz] | Channel No. | 802.11 Mode | Tones | Data Rate [Mbps] | Measured 6dB Bandwidth [MHz] |
|---------------|-----------------|-------------|-------------|-------|------------------|------------------------------|
| Band 3 | 5775 | 155 | ax (80MHz) | 996T | MCS0 | 77.25 |

Table 7-13. Conducted Bandwidth Measurements SISO ANT1 (996 Tones)



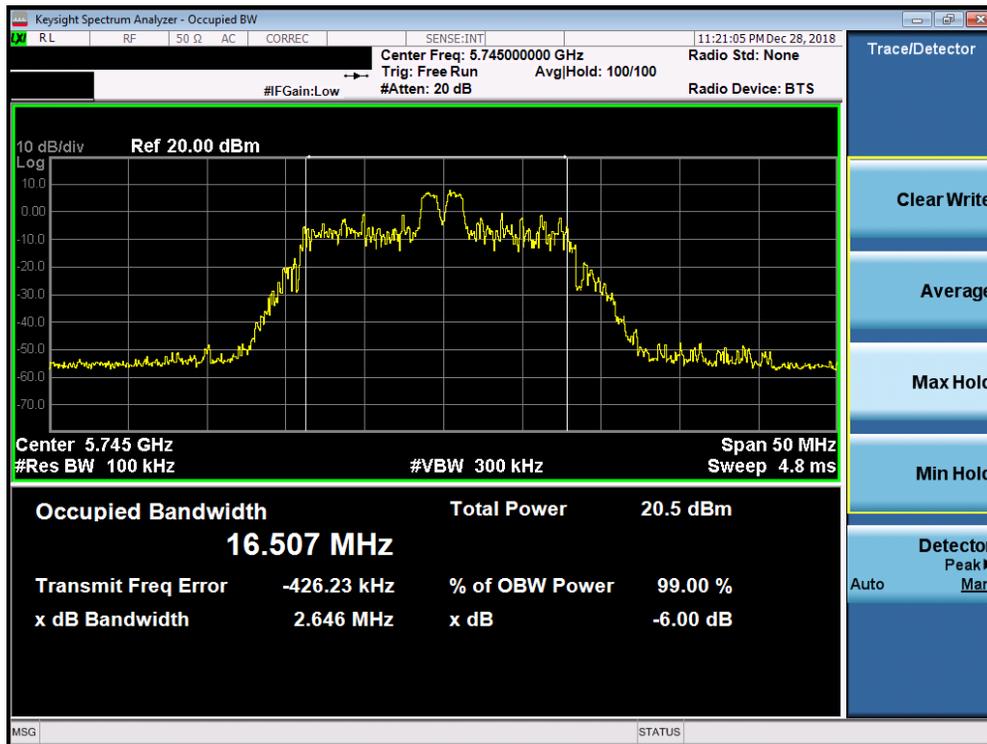
Plot 7-96. 6dB Bandwidth Plot SISO ANT1 (80MHz BW 802.11ax – 996 Tones (UNII Band 3) – Ch. 155)

| | | | | |
|---|--------------------------------------|---|--|---------------------------------|
| FCC ID: A3LSMG970U | | MEASUREMENT REPORT (CERTIFICATION) | | Approved by: Quality Manager |
| Test Report S/N: 1M1810250193-18.A3L | Test Dates: 11/9/2018 - 1/18/2019 | EUT Type: Portable Handset | | Page 75 of 519 |

SISO Antenna-2 6 dB Bandwidth Measurements (26 Tones)

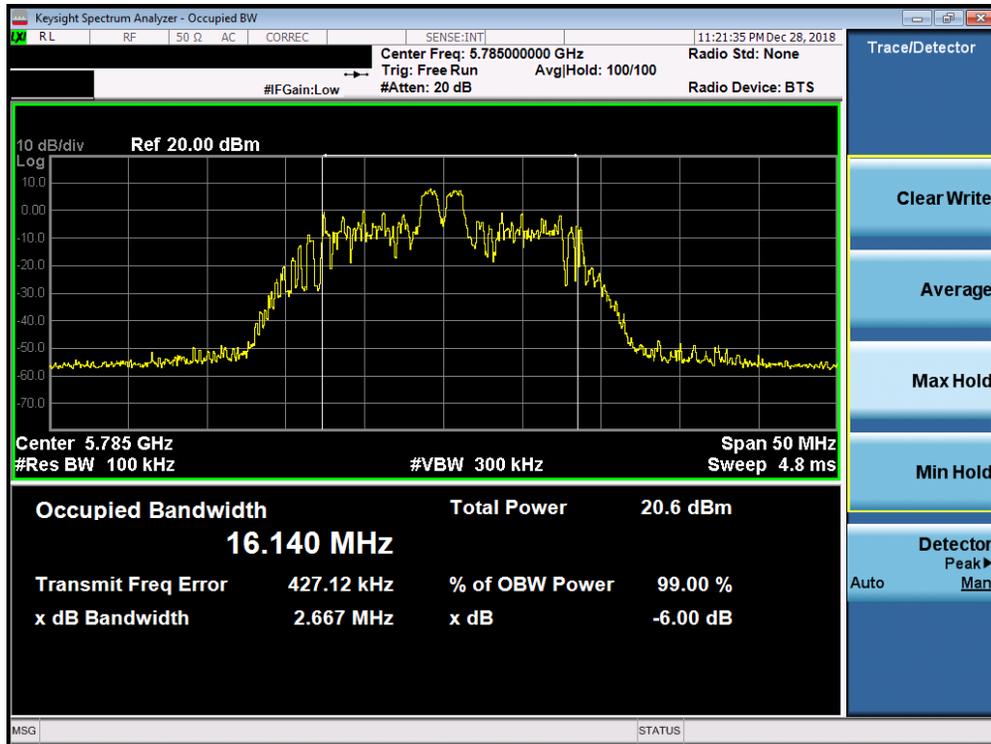
| | Frequency [MHz] | Channel No. | 802.11 Mode | Tones | Data Rate [Mbps] | Measured 6dB Bandwidth [MHz] |
|---------------|-----------------|-------------|-------------|-------|------------------|------------------------------|
| Band 3 | 5745 | 149 | ax (20MHz) | 26T | MCS0 | 2.65 |
| | 5785 | 157 | ax (20MHz) | 26T | MCS0 | 2.67 |
| | 5825 | 165 | ax (20MHz) | 26T | MCS0 | 2.70 |
| | 5755 | 151 | ax (40MHz) | 26T | MCS0 | 2.18 |
| | 5795 | 159 | ax (40MHz) | 26T | MCS0 | 2.16 |
| | 5775 | 155 | ax (80MHz) | 26T | MCS0 | 2.17 |

Table 7-14. Conducted Bandwidth Measurements SISO ANT2 (26 Tones)

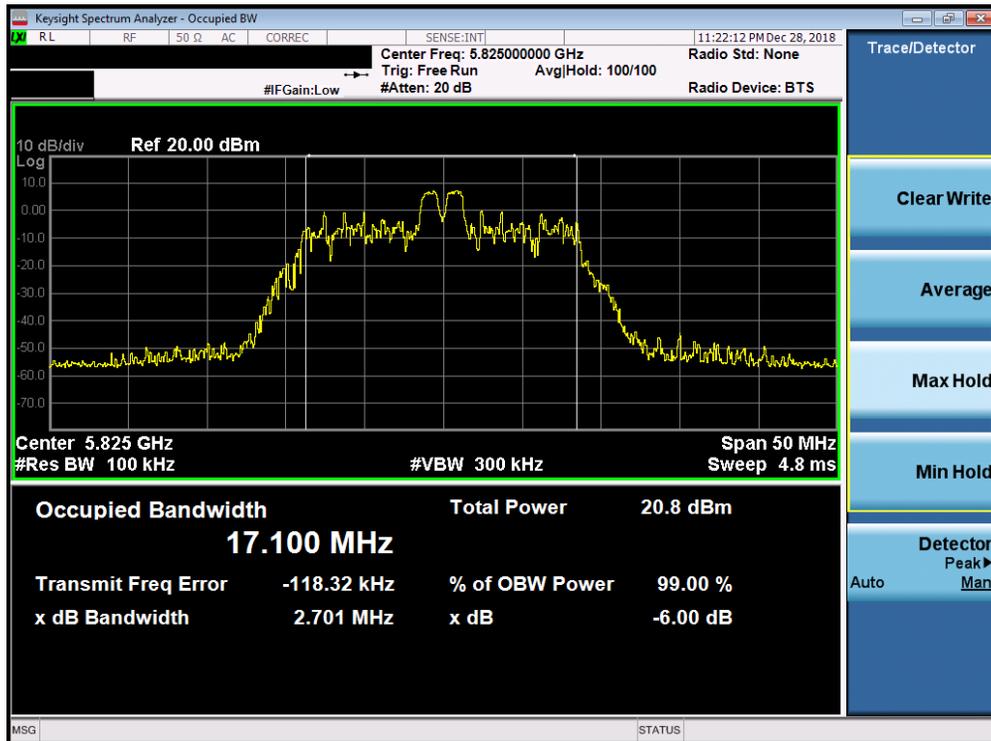


Plot 7-97. 6dB Bandwidth Plot SISO ANT2 (20MHz BW 802.11ax – 26 Tones (UNII Band 3) – Ch. 149)

| | | | | |
|---|--------------------------------------|---|--|---------------------------------|
| FCC ID: A3LSMG970U | | MEASUREMENT REPORT (CERTIFICATION) | | Approved by: Quality Manager |
| Test Report S/N: 1M1810250193-18.A3L | Test Dates: 11/9/2018 - 1/18/2019 | EUT Type: Portable Handset | | Page 76 of 519 |

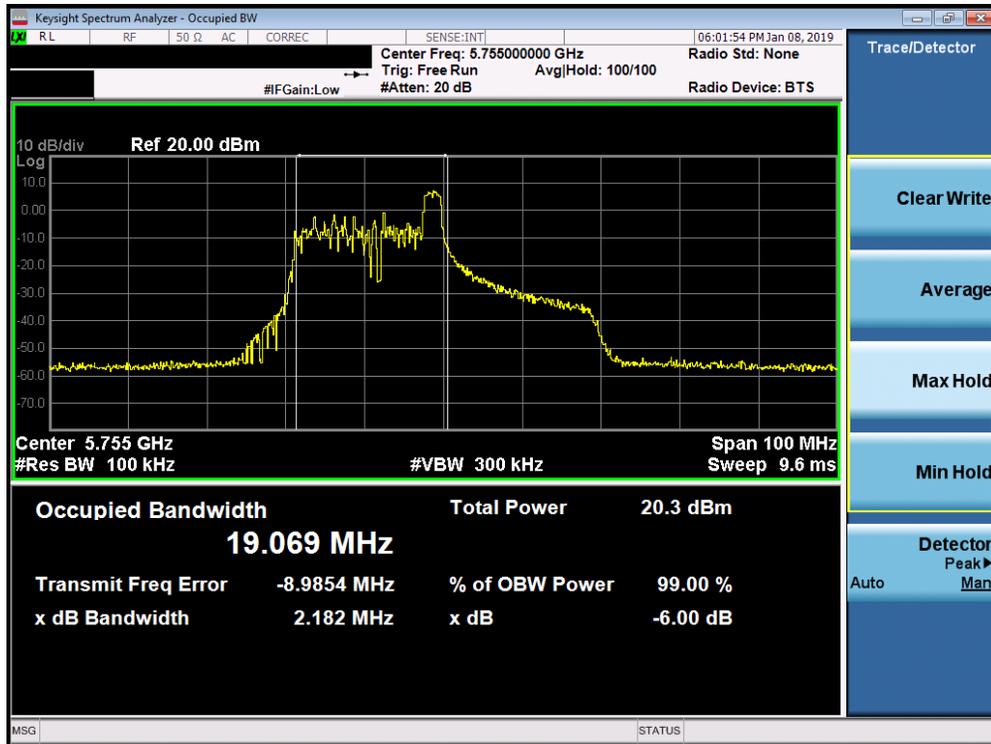


Plot 7-98. 6dB Bandwidth Plot SISO ANT2 (20MHz BW 802.11ax – 26 Tones (UNII Band 3) – Ch. 157)

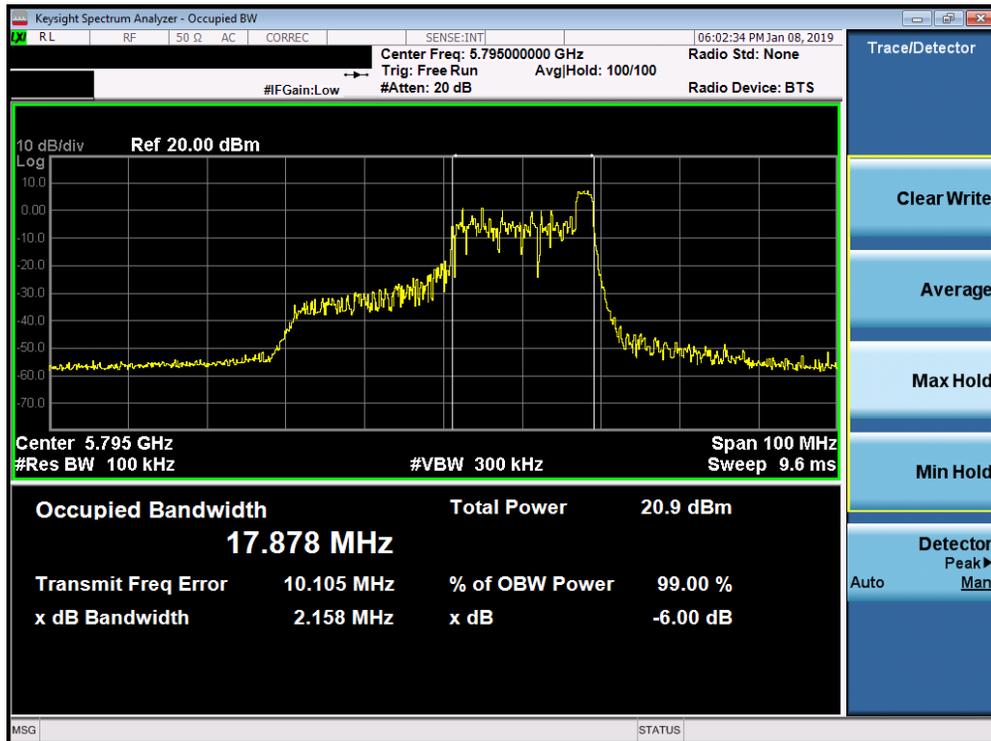


Plot 7-99. 6dB Bandwidth Plot SISO ANT2 (20MHz BW 802.11ax – 26 Tones (UNII Band 3) – Ch. 165)

| | | | |
|---|---|-------------------------------|---------------------------------|
| FCC ID: A3LSMG970U | MEASUREMENT REPORT (CERTIFICATION) | | Approved by: Quality Manager |
| Test Report S/N: 1M1810250193-18.A3L | Test Dates: 11/9/2018 - 1/18/2019 | EUT Type: Portable Handset | Page 77 of 519 |

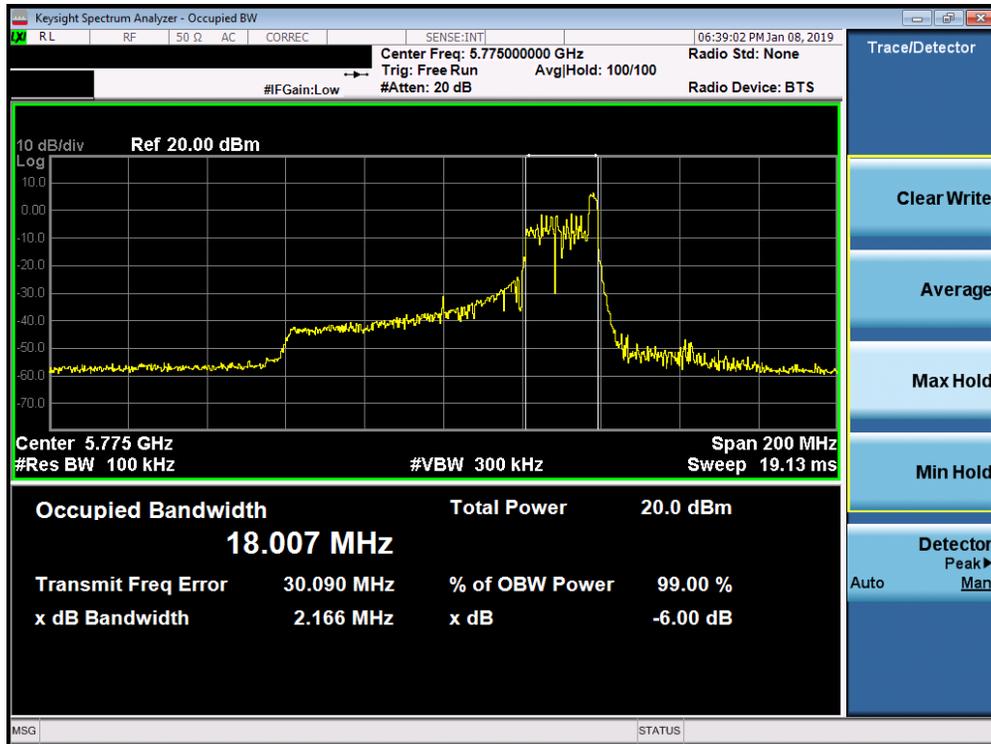


Plot 7-100. 6dB Bandwidth Plot SISO ANT2 (40MHz BW 802.11ax – 26 Tones (UNII Band 3) – Ch. 151)



Plot 7-101. 6dB Bandwidth Plot SISO ANT2 (40MHz BW 802.11ax – 26 Tones (UNII Band 3) – Ch. 159)

| | | | | |
|---|--------------------------------------|---------------------------------------|--|---------------------------------|
| FCC ID: A3LSMG970U | | MEASUREMENT REPORT (CERTIFICATION) | | Approved by: Quality Manager |
| Test Report S/N: 1M1810250193-18.A3L | Test Dates: 11/9/2018 - 1/18/2019 | EUT Type: Portable Handset | | Page 78 of 519 |



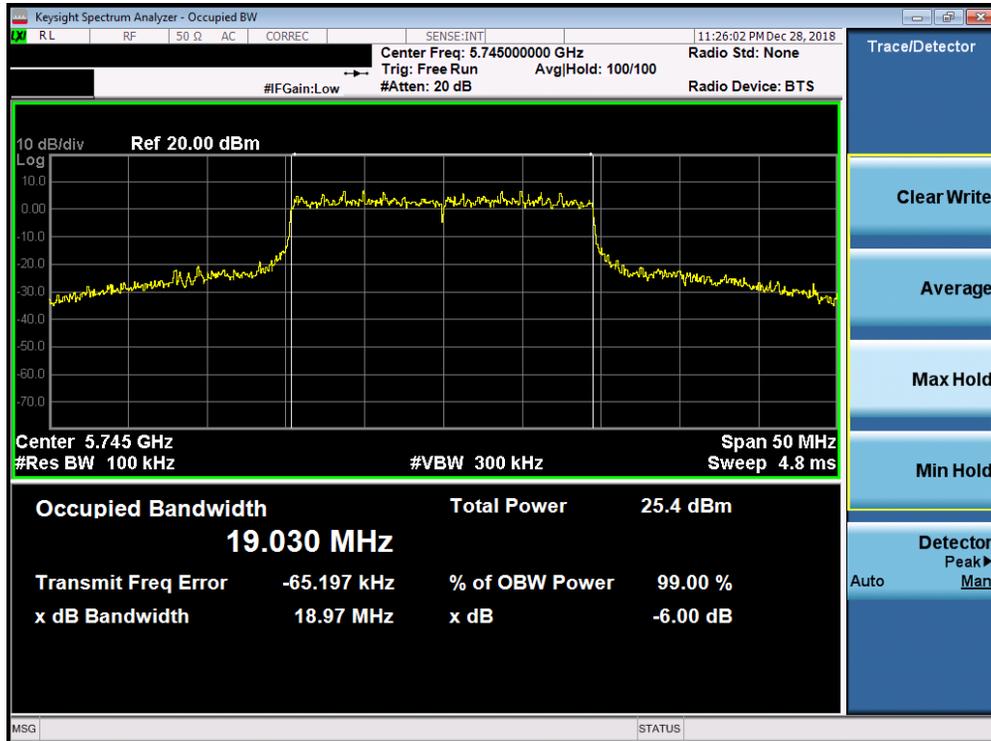
Plot 7-102. 6dB Bandwidth Plot SISO ANT2 (80MHz BW 802.11ax – 26 Tones (UNII Band 3) – Ch. 155)

| | | | | |
|---|--------------------------------------|---|--|---------------------------------|
| FCC ID: A3LSMG970U | | MEASUREMENT REPORT (CERTIFICATION) | | Approved by: Quality Manager |
| Test Report S/N: 1M1810250193-18.A3L | Test Dates: 11/9/2018 - 1/18/2019 | EUT Type: Portable Handset | | Page 79 of 519 |

SISO Antenna-2 6 dB Bandwidth Measurements (242 Tones)

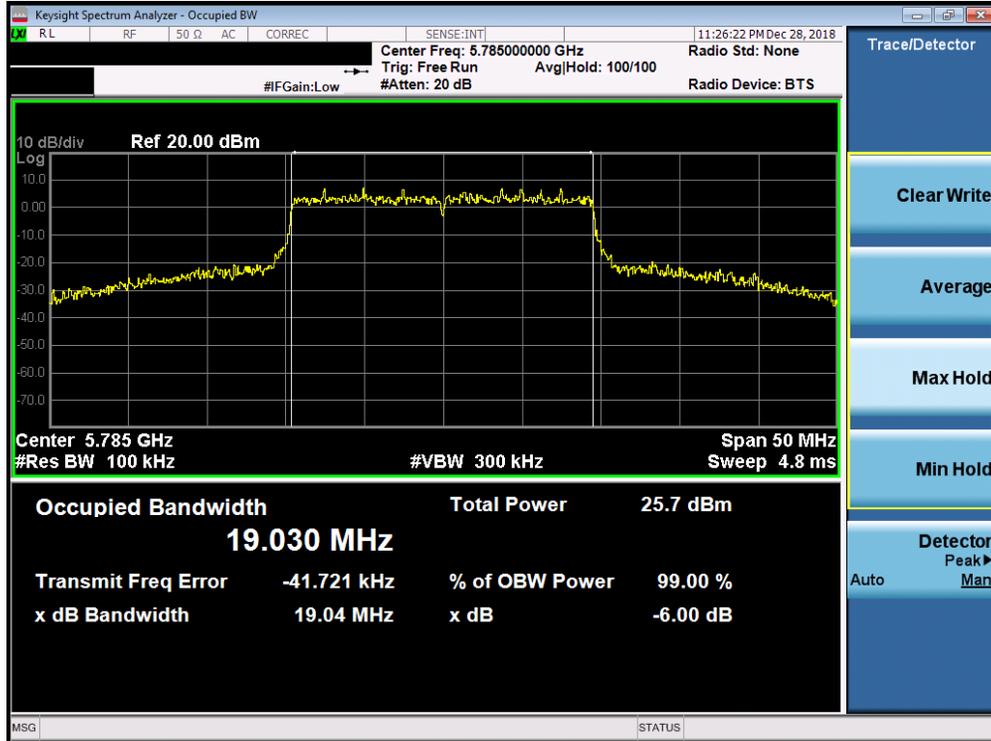
| | Frequency [MHz] | Channel No. | 802.11 Mode | Tones | Data Rate [Mbps] | Measured 6dB Bandwidth [MHz] |
|---------------|-----------------|-------------|-------------|-------|------------------|------------------------------|
| Band 3 | 5745 | 149 | ax (20MHz) | 242T | MCS0 | 18.97 |
| | 5785 | 157 | ax (20MHz) | 242T | MCS0 | 19.04 |
| | 5825 | 165 | ax (20MHz) | 242T | MCS0 | 19.01 |

Table 7-15. Conducted Bandwidth Measurements SISO ANT2 (242 Tones)

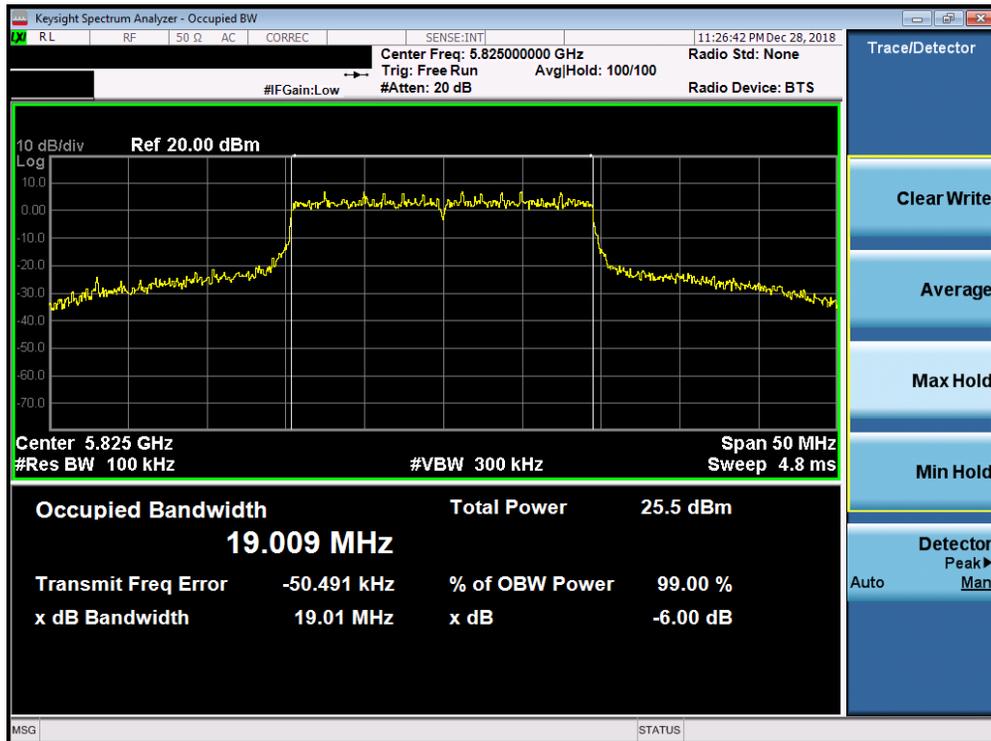


Plot 7-103. 6dB Bandwidth Plot SISO ANT2 (20MHz BW 802.11ax – 242 Tones (UNII Band 3) – Ch. 149)

| | | | | |
|---|--------------------------------------|---------------------------------------|--|---------------------------------|
| FCC ID: A3LSMG970U | | MEASUREMENT REPORT (CERTIFICATION) | | Approved by: Quality Manager |
| Test Report S/N: 1M1810250193-18.A3L | Test Dates: 11/9/2018 - 1/18/2019 | EUT Type: Portable Handset | | Page 80 of 519 |



Plot 7-104. 6dB Bandwidth Plot SISO ANT2 (20MHz BW 802.11ax – 242 Tones (UNII Band 3) – Ch. 157)



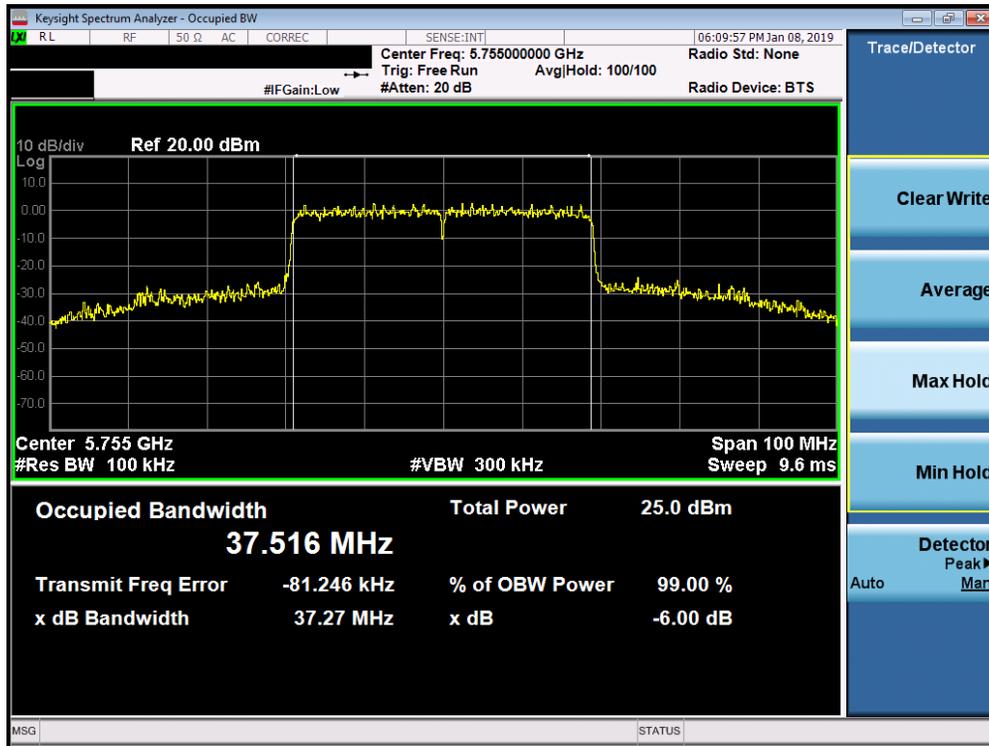
Plot 7-105. 6dB Bandwidth Plot SISO ANT2 (20MHz BW 802.11ax – 242 Tones (UNII Band 3) – Ch. 165)

| | | | | |
|---|--------------------------------------|---------------------------------------|--|---------------------------------|
| FCC ID: A3LSMG970U | | MEASUREMENT REPORT (CERTIFICATION) | | Approved by: Quality Manager |
| Test Report S/N: 1M1810250193-18.A3L | Test Dates: 11/9/2018 - 1/18/2019 | EUT Type: Portable Handset | | Page 81 of 519 |

SISO Antenna-2 6 dB Bandwidth Measurements (484 Tones)

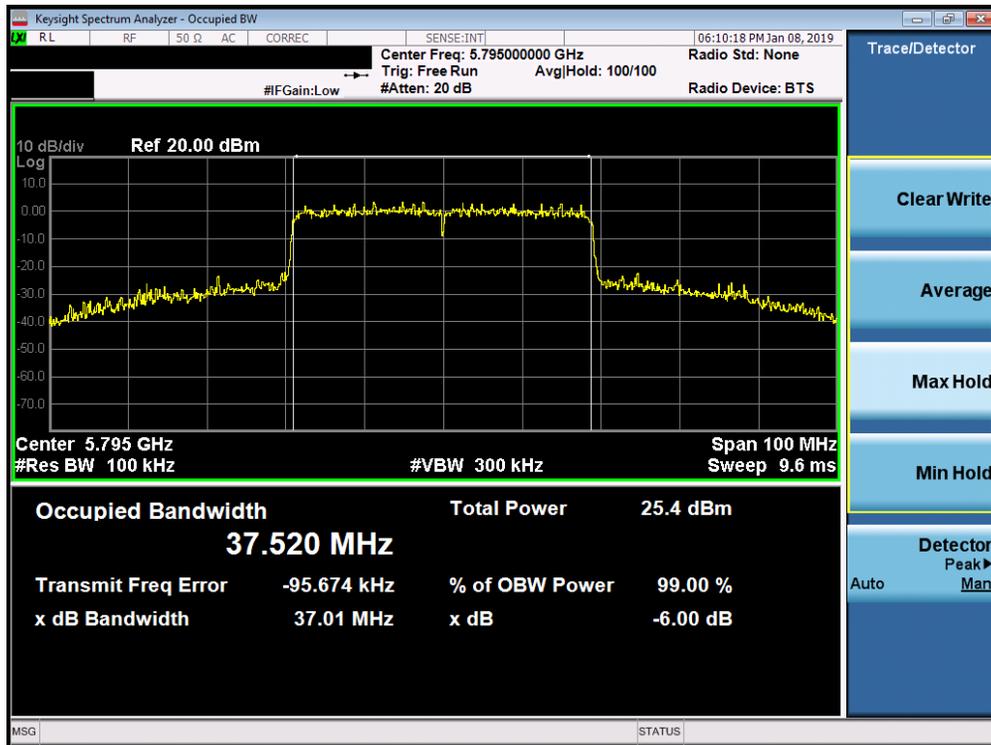
| | Frequency [MHz] | Channel No. | 802.11 Mode | Tones | Data Rate [Mbps] | Measured 6dB Bandwidth [MHz] |
|---------------|-----------------|-------------|-------------|-------|------------------|------------------------------|
| Band 3 | 5755 | 151 | ax (40MHz) | 484T | MCS0 | 37.27 |
| | 5795 | 159 | ax (40MHz) | 484T | MCS0 | 37.01 |

Table 7-16. Conducted Bandwidth Measurements SISO ANT2 (484 Tones)



Plot 7-106. 6dB Bandwidth Plot SISO ANT2 (40MHz BW 802.11ax – 484 Tones (UNII Band 3) – Ch. 151)

| | | | | |
|---|--------------------------------------|---|--|---------------------------------|
| FCC ID: A3LSMG970U | | MEASUREMENT REPORT (CERTIFICATION) | | Approved by: Quality Manager |
| Test Report S/N: 1M1810250193-18.A3L | Test Dates: 11/9/2018 - 1/18/2019 | EUT Type: Portable Handset | | Page 82 of 519 |



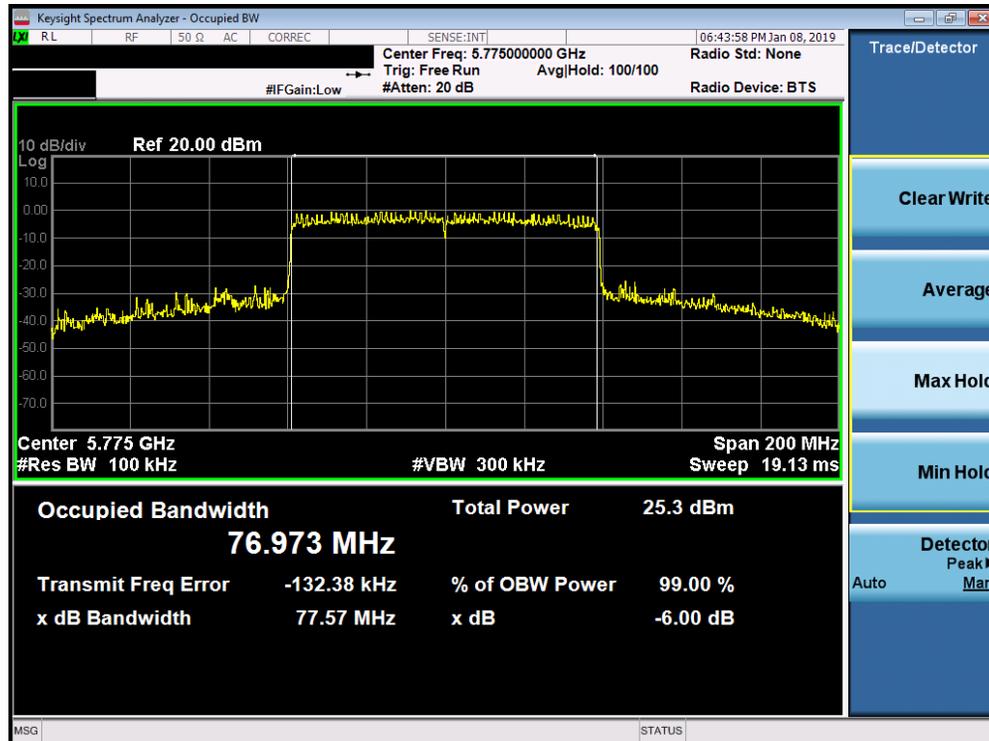
Plot 7-107. 6dB Bandwidth Plot SISO ANT2 (40MHz BW 802.11ax – 484 Tones (UNII Band 3) – Ch. 159)

| | | | | |
|---|---|-------------------------------|---|---------------------------------|
| FCC ID: A3LSMG970U |  MEASUREMENT REPORT (CERTIFICATION) | |  | Approved by: Quality Manager |
| Test Report S/N: 1M1810250193-18.A3L | Test Dates: 11/9/2018 - 1/18/2019 | EUT Type: Portable Handset | | Page 83 of 519 |

SISO Antenna-2 6 dB Bandwidth Measurements (996 Tones)

| | Frequency [MHz] | Channel No. | 802.11 Mode | Tones | Data Rate [Mbps] | Measured 6dB Bandwidth [MHz] |
|---------------|-----------------|-------------|-------------|-------|------------------|------------------------------|
| Band 3 | 5775 | 155 | ax (80MHz) | 996T | MCS0 | 77.57 |

Table 7-17. Conducted Bandwidth Measurements SISO ANT2 (996 Tones)



Plot 7-108. 6dB Bandwidth Plot SISO ANT2 (80MHz BW 802.11ax – 996 Tones (UNII Band 3) – Ch. 155)

| | | | | |
|---|--------------------------------------|---|--|---------------------------------|
| FCC ID: A3LSMG970U | | MEASUREMENT REPORT (CERTIFICATION) | | Approved by: Quality Manager |
| Test Report S/N: 1M1810250193-18.A3L | Test Dates: 11/9/2018 - 1/18/2019 | EUT Type: Portable Handset | | Page 84 of 519 |

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). For ISED operation, the maximum e.i.r.p. shall not exceed the lesser of 200 mW(23.01dBm) or $10 + 10 \log_{10}(17.33) = 22.39\text{dBm}$.

In the 5.25 – 5.35GHz band, the maximum permissible conducted output power is the lesser of 250mW (23.98dBm) and $11 \text{ dBm} + 10\log_{10}(26\text{dB BW}) = 11 \text{ dBm} + 10\log_{10}(17.68) = 23.47\text{dBm}$. For ISED operation, the maximum e.i.r.p. shall not exceed the lesser of 1.0 W(30dBm) or $17 + 10 \log_{10}(17.68) = 29.47\text{dBm}$.

In the 5.47 – 5.725GHz band, the maximum permissible conducted output power is the lesser of 250mW (23.98dBm) and $11 \text{ dBm} + 10\log_{10}(26\text{dB BW}) = 11 \text{ dBm} + 10\log_{10}(15.12) = 22.80\text{dBm}$. For ISED operation, the maximum e.i.r.p. shall not exceed the lesser of 1.0 W(30dBm) or $17 + 10 \log_{10}(15.12) = 28.80\text{dBm}$.

In the 5.725 – 5.850GHz band, the maximum permissible conducted output power is 1W (30dBm). For ISED operation, 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

| | | | | |
|---|---|---------------------------------------|---|---------------------------------|
| FCC ID: A3LSMG970U |  | MEASUREMENT REPORT (CERTIFICATION) |  | Approved by: Quality Manager |
| Test Report S/N: 1M1810250193-18.A3L | Test Dates: 11/9/2018 - 1/18/2019 | EUT Type: Portable Handset | Page 85 of 519 | |

SISO Antenna-1 Conducted Output Power Measurements (26 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] |
|------------------------|------------|---------|----------|-------|----------|-------|-------|-----------------------------|-----------------------------|-----------------|--------------------|--------------------------|----------------------|
| | | | | | 0 | 4 | 8 | | | | | | |
| | | | | | 5180 | 36 | AVG | | | | | | |
| 5200 | 40 | AVG | 26T | 10.58 | 10.89 | 10.74 | 23.98 | -13.09 | -8.61 | 2.28 | 22.39 | -20.11 | |
| 5240 | 48 | AVG | 26T | 10.51 | 10.99 | 10.81 | 23.98 | -12.99 | -7.66 | 3.33 | 22.39 | -19.06 | |
| 5260 | 52 | AVG | 26T | 10.53 | 10.98 | 10.72 | 23.47 | -12.49 | -7.28 | 3.70 | 29.47 | -25.77 | |
| 5280 | 56 | AVG | 26T | 10.58 | 10.88 | 10.76 | 23.47 | -12.59 | -7.28 | 3.60 | 29.47 | -25.87 | |
| 5320 | 64 | AVG | 26T | 10.84 | 10.70 | 10.98 | 23.47 | -12.49 | -7.54 | 3.44 | 29.47 | -26.03 | |
| 5500 | 100 | AVG | 26T | 10.87 | 10.63 | 10.49 | 22.80 | -11.93 | -7.38 | 3.49 | 28.80 | -25.31 | |
| 5600 | 120 | AVG | 26T | 10.69 | 10.86 | 10.59 | 22.80 | -11.94 | -7.38 | 3.48 | 28.80 | -25.32 | |
| 5720 | 144 | AVG | 26T | 10.72 | 10.86 | 10.62 | 22.80 | -11.94 | -7.38 | 3.48 | 28.80 | -25.32 | |
| 5745 | 149 | AVG | 26T | 10.44 | 10.57 | 10.56 | 30.00 | -19.43 | -8.25 | 2.32 | - | - | |
| 5785 | 157 | AVG | 26T | 10.81 | 10.70 | 10.43 | 30.00 | -19.19 | -8.25 | 2.56 | - | - | |
| 5825 | 165 | AVG | 26T | 10.66 | 10.45 | 10.15 | 30.00 | -19.34 | -7.47 | 3.19 | - | - | |

Table 7-18. SISO ANT1 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] | 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 | | | | | | |
| | | | | | 5190 | 38 | AVG | | | | | | |
| 5230 | 46 | AVG | 26T | 10.53 | 10.75 | 10.53 | 23.98 | -13.23 | -7.66 | 3.09 | 22.39 | -19.30 | |
| 5270 | 54 | AVG | 26T | 10.99 | 10.55 | 10.61 | 23.47 | -12.48 | -7.28 | 3.71 | 29.47 | -25.76 | |
| 5310 | 62 | AVG | 26T | 10.57 | 10.80 | 10.72 | 23.47 | -12.67 | -7.54 | 3.26 | 29.47 | -26.21 | |
| 5510 | 102 | AVG | 26T | 10.97 | 10.66 | 10.72 | 22.80 | -11.83 | -7.38 | 3.59 | 28.80 | -25.21 | |
| 5590 | 118 | AVG | 26T | 10.59 | 10.71 | 10.71 | 22.80 | -12.09 | -7.38 | 3.33 | 28.80 | -25.47 | |
| 5710 | 142 | AVG | 26T | 10.81 | 10.89 | 10.83 | 22.80 | -11.91 | -8.25 | 2.64 | 28.80 | -26.16 | |
| 5755 | 151 | AVG | 26T | 10.98 | 10.57 | 10.74 | 30.00 | -19.02 | -8.25 | 2.73 | - | - | |
| 5795 | 159 | AVG | 26T | 10.52 | 10.57 | 10.52 | 30.00 | -19.43 | -12.88 | -2.31 | - | - | |

Table 7-19. SISO ANT1 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] | 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 | | | | | | |
| | | | | | 5210 | 42 | AVG | | | | | | |
| 5290 | 58 | AVG | 26T | 10.88 | 10.60 | 10.62 | 23.47 | -12.59 | -7.54 | 3.34 | 29.47 | -26.13 | |
| 5530 | 106 | AVG | 26T | 10.54 | 10.80 | 10.62 | 22.80 | -12.00 | -7.38 | 3.42 | 28.80 | -25.38 | |
| 5610 | 122 | AVG | 26T | 10.57 | 10.63 | 10.57 | 22.80 | -12.17 | -7.38 | 3.25 | 28.80 | -25.55 | |
| 5690 | 138 | AVG | 26T | 10.69 | 10.75 | 10.65 | 22.80 | -12.05 | -7.38 | 3.37 | 28.80 | -25.43 | |
| 5775 | 155 | AVG | 26T | 10.45 | 10.52 | 10.55 | 30.00 | -19.45 | -8.25 | 2.30 | - | - | |

Table 7-20. SISO ANT1 80MHz BW (UNII) Maximum Conducted Output Power (26 Tones)

| | | | | |
|---|--------------------------------------|------------------------------------|--|---------------------------------|
| FCC ID: A3LSMG970U | | MEASUREMENT REPORT (CERTIFICATION) | | Approved by: Quality Manager |
| Test Report S/N: 1M1810250193-18.A3L | Test Dates: 11/9/2018 - 1/18/2019 | EUT Type: Portable Handset | | Page 86 of 519 |

SISO Antenna-1 Conducted Output Power Measurements (52 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] |
|------------------------|------------|---------|----------|-------|----------|-------|-------|-----------------------------|-----------------------------|-----------------|--------------------|--------------------------|----------------------|
| | | | | | 37 | 39 | 40 | | | | | | |
| | | | | | 5180 | 36 | AVG | | | | | | |
| 5200 | 40 | AVG | 52T | 12.85 | 12.54 | 12.39 | 23.98 | -11.13 | -8.61 | 4.24 | 22.39 | -18.15 | |
| 5240 | 48 | AVG | 52T | 12.90 | 12.68 | 12.56 | 23.98 | -11.08 | -7.66 | 5.24 | 22.39 | -17.15 | |
| 5260 | 52 | AVG | 52T | 12.74 | 12.56 | 12.33 | 23.47 | -10.73 | -7.28 | 5.46 | 29.47 | -24.01 | |
| 5280 | 56 | AVG | 52T | 12.83 | 12.61 | 12.46 | 23.47 | -10.64 | -7.28 | 5.55 | 29.47 | -23.92 | |
| 5320 | 64 | AVG | 52T | 12.52 | 12.68 | 12.60 | 23.47 | -10.79 | -7.54 | 5.14 | 29.47 | -24.33 | |
| 5500 | 100 | AVG | 52T | 12.53 | 12.77 | 12.65 | 22.80 | -10.03 | -7.38 | 5.39 | 28.80 | -23.41 | |
| 5600 | 120 | AVG | 52T | 12.85 | 12.98 | 12.84 | 22.80 | -9.82 | -7.38 | 5.60 | 28.80 | -23.20 | |
| 5720 | 144 | AVG | 52T | 12.88 | 12.51 | 12.37 | 22.80 | -9.92 | -7.38 | 5.50 | 28.80 | -23.30 | |
| 5745 | 149 | AVG | 52T | 12.40 | 12.47 | 12.42 | 30.00 | -17.53 | -8.25 | 4.22 | - | - | |
| 5785 | 157 | AVG | 52T | 12.34 | 12.71 | 12.46 | 30.00 | -17.29 | -8.25 | 4.46 | - | - | |
| 5825 | 165 | AVG | 52T | 12.81 | 12.46 | 12.34 | 30.00 | -17.19 | -7.47 | 5.34 | - | - | |

Table 7-21. SISO ANT1 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] | 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 | | | | | | |
| | | | | | 5190 | 38 | AVG | | | | | | |
| 5230 | 46 | AVG | 52T | 12.56 | 12.64 | 12.65 | 23.98 | -11.33 | -7.66 | 4.99 | 22.39 | -17.40 | |
| 5270 | 54 | AVG | 52T | 12.82 | 12.61 | 12.83 | 23.47 | -10.64 | -7.28 | 5.55 | 29.47 | -23.92 | |
| 5310 | 62 | AVG | 52T | 12.87 | 12.82 | 12.97 | 23.47 | -10.50 | -7.54 | 5.43 | 29.47 | -24.04 | |
| 5510 | 102 | AVG | 52T | 12.51 | 12.57 | 12.85 | 22.80 | -9.95 | -7.38 | 5.47 | 28.80 | -23.33 | |
| 5590 | 118 | AVG | 52T | 12.66 | 12.67 | 12.75 | 22.80 | -10.05 | -7.38 | 5.37 | 28.80 | -23.43 | |
| 5710 | 142 | AVG | 52T | 12.92 | 12.80 | 12.88 | 22.80 | -9.88 | -8.25 | 4.67 | 28.80 | -24.13 | |
| 5755 | 151 | AVG | 52T | 12.89 | 12.78 | 12.96 | 30.00 | -17.04 | -8.25 | 4.71 | - | - | |
| 5795 | 159 | AVG | 52T | 12.46 | 12.84 | 12.64 | 30.00 | -17.16 | -12.88 | -0.04 | - | - | |

Table 7-22. SISO ANT1 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] | 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 | | | | | | |
| | | | | | 5210 | 42 | AVG | | | | | | |
| 5290 | 58 | AVG | 52T | 12.59 | 12.91 | 12.75 | 23.47 | -10.56 | -7.54 | 5.37 | 29.47 | -24.10 | |
| 5530 | 106 | AVG | 52T | 12.50 | 12.84 | 12.56 | 22.80 | -9.96 | -7.38 | 5.46 | 28.80 | -23.34 | |
| 5610 | 122 | AVG | 52T | 12.55 | 12.97 | 12.60 | 22.80 | -9.83 | -7.38 | 5.59 | 28.80 | -23.21 | |
| 5690 | 138 | AVG | 52T | 12.74 | 12.96 | 12.69 | 22.80 | -9.84 | -7.38 | 5.58 | 28.80 | -23.22 | |
| 5775 | 155 | AVG | 52T | 12.70 | 12.72 | 12.88 | 30.00 | -17.12 | -8.25 | 4.63 | - | - | |

Table 7-23. SISO ANT1 80MHz BW (UNII) Maximum Conducted Output Power (52 Tones)

| | | | | |
|---|---|---------------------------------------|---|---------------------------------|
| FCC ID: A3LSMG970U |  | MEASUREMENT REPORT (CERTIFICATION) |  | Approved by: Quality Manager |
| Test Report S/N: 1M1810250193-18.A3L | Test Dates: 11/9/2018 - 1/18/2019 | EUT Type: Portable Handset | | Page 87 of 519 |

SISO Antenna-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 | | | | | | |
| 5200 | 40 | AVG | 106T | 14.73 | 14.89 | 23.98 | -9.09 | -8.61 | 6.28 | 22.39 | -16.11 | |
| 5240 | 48 | AVG | 106T | 14.50 | 14.57 | 23.98 | -9.41 | -7.66 | 6.91 | 22.39 | -15.48 | |
| 5260 | 52 | AVG | 106T | 14.78 | 14.90 | 23.47 | -8.57 | -7.28 | 7.62 | 29.47 | -21.85 | |
| 5280 | 56 | AVG | 106T | 14.85 | 14.96 | 23.47 | -8.51 | -7.28 | 7.68 | 29.47 | -21.79 | |
| 5320 | 64 | AVG | 106T | 14.69 | 14.63 | 23.47 | -8.78 | -7.54 | 7.15 | 29.47 | -22.32 | |
| 5500 | 100 | AVG | 106T | 14.72 | 14.82 | 22.80 | -7.98 | -7.38 | 7.44 | 28.80 | -21.36 | |
| 5600 | 120 | AVG | 106T | 14.90 | 14.98 | 22.80 | -7.82 | -7.38 | 7.60 | 28.80 | -21.20 | |
| 5720 | 144 | AVG | 106T | 14.95 | 14.95 | 22.80 | -7.85 | -7.38 | 7.57 | 28.80 | -21.23 | |
| 5745 | 149 | AVG | 106T | 14.43 | 14.33 | 30.00 | -15.57 | -8.25 | 6.18 | - | - | |
| 5785 | 157 | AVG | 106T | 14.52 | 14.51 | 30.00 | -15.48 | -8.25 | 6.27 | - | - | |
| 5825 | 165 | AVG | 106T | 14.28 | 14.29 | 30.00 | -15.71 | -7.47 | 6.82 | - | - | |

Table 7-24. SISO ANT1 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 | | | | | | |
| 5230 | 46 | AVG | 106T | 14.78 | 14.47 | 14.82 | 23.98 | -9.16 | -7.66 | 7.16 | 22.39 | -15.23 | |
| 5270 | 54 | AVG | 106T | 14.48 | 14.60 | 14.60 | 23.47 | -8.87 | -7.28 | 7.32 | 29.47 | -22.15 | |
| 5310 | 62 | AVG | 106T | 14.59 | 14.75 | 14.68 | 23.47 | -8.72 | -7.54 | 7.21 | 29.47 | -22.26 | |
| 5510 | 102 | AVG | 106T | 14.74 | 14.94 | 14.54 | 22.80 | -7.86 | -7.38 | 7.56 | 28.80 | -21.24 | |
| 5590 | 118 | AVG | 106T | 14.80 | 14.91 | 14.47 | 22.80 | -7.89 | -7.38 | 7.53 | 28.80 | -21.27 | |
| 5710 | 142 | AVG | 106T | 14.95 | 14.58 | 14.62 | 22.80 | -7.85 | -8.25 | 6.70 | 28.80 | -22.10 | |
| 5755 | 151 | AVG | 106T | 14.51 | 14.72 | 14.54 | 30.00 | -15.28 | -8.25 | 6.47 | - | - | |
| 5795 | 159 | AVG | 106T | 14.59 | 14.71 | 14.68 | 30.00 | -15.29 | -12.88 | 1.83 | - | - | |

Table 7-25. SISO ANT1 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 | | | | | | |
| 5290 | 58 | AVG | 106T | 14.55 | 14.99 | 14.38 | 23.47 | -8.48 | -7.54 | 7.45 | 29.47 | -22.02 | |
| 5530 | 106 | AVG | 106T | 14.49 | 14.86 | 14.60 | 22.80 | -7.94 | -7.38 | 7.48 | 28.80 | -21.32 | |
| 5610 | 122 | AVG | 106T | 14.60 | 14.83 | 14.62 | 22.80 | -7.97 | -7.38 | 7.45 | 28.80 | -21.35 | |
| 5690 | 138 | AVG | 106T | 14.65 | 14.99 | 14.70 | 22.80 | -7.81 | -7.38 | 7.61 | 28.80 | -21.19 | |
| 5775 | 155 | AVG | 106T | 14.71 | 14.65 | 14.78 | 30.00 | -15.22 | -8.25 | 6.53 | - | - | |

Table 7-26. SISO ANT1 80MHz BW (UNII) Maximum Conducted Output Power (106 Tones)

| | | | | | |
|---|--------------------------------------|------------------------------------|--|--|---------------------------------|
| FCC ID: A3LSMG970U | | MEASUREMENT REPORT (CERTIFICATION) | | | Approved by: Quality Manager |
| Test Report S/N: 1M1810250193-18.A3L | Test Dates: 11/9/2018 - 1/18/2019 | EUT Type: Portable Handset | | | Page 88 of 519 |

SISO Antenna-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 | 14.68 | 23.98 | -9.30 | -8.61 | 6.07 | 22.39 | -16.32 |
| | 5200 | 40 | AVG | 242T | 17.46 | 23.98 | -6.52 | -8.61 | 8.85 | 22.39 | -13.54 |
| | 5240 | 48 | AVG | 242T | 17.52 | 23.98 | -6.46 | -7.66 | 9.86 | 22.39 | -12.53 |
| | 5260 | 52 | AVG | 242T | 17.64 | 23.47 | -5.83 | -7.28 | 10.36 | 29.47 | -19.11 |
| | 5280 | 56 | AVG | 242T | 17.65 | 23.47 | -5.82 | -7.28 | 10.37 | 29.47 | -19.10 |
| | 5320 | 64 | AVG | 242T | 15.51 | 23.47 | -7.96 | -7.54 | 7.97 | 29.47 | -21.50 |
| | 5500 | 100 | AVG | 242T | 17.68 | 22.80 | -5.12 | -7.38 | 10.30 | 28.80 | -18.50 |
| | 5600 | 120 | AVG | 242T | 17.85 | 22.80 | -4.95 | -7.38 | 10.47 | 28.80 | -18.33 |
| | 5720 | 144 | AVG | 242T | 17.86 | 22.80 | -4.94 | -7.38 | 10.48 | 28.80 | -18.32 |
| | 5745 | 149 | AVG | 242T | 17.60 | 30.00 | -12.40 | -8.25 | 9.35 | - | - |
| | 5785 | 157 | AVG | 242T | 17.67 | 30.00 | -12.33 | -8.25 | 9.42 | - | - |
| | 5825 | 165 | AVG | 242T | 17.47 | 30.00 | -12.53 | -7.47 | 10.00 | - | - |

Table 7-27. SISO ANT1 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 | 12.87 | 12.71 | 23.98 | -11.11 | -8.61 | 4.26 | 22.39 | -18.13 |
| | 5230 | 46 | AVG | 242T | 16.49 | 16.48 | 23.98 | -7.49 | -7.66 | 8.83 | 22.39 | -13.56 |
| | 5270 | 54 | AVG | 242T | 16.67 | 16.59 | 23.47 | -6.80 | -7.28 | 9.39 | 29.47 | -20.08 |
| | 5310 | 62 | AVG | 242T | 13.66 | 13.56 | 23.47 | -9.81 | -7.54 | 6.12 | 29.47 | -23.35 |
| | 5510 | 102 | AVG | 242T | 14.58 | 14.74 | 22.80 | -8.06 | -7.38 | 7.36 | 28.80 | -21.44 |
| | 5590 | 118 | AVG | 242T | 16.84 | 16.85 | 22.80 | -5.95 | -7.38 | 9.47 | 28.80 | -19.33 |
| | 5710 | 142 | AVG | 242T | 16.97 | 16.98 | 22.80 | -5.82 | -8.25 | 8.73 | 28.80 | -20.07 |
| | 5755 | 151 | AVG | 242T | 16.68 | 16.84 | 30.00 | -13.16 | -8.25 | 8.59 | - | - |
| | 5795 | 159 | AVG | 242T | 16.55 | 16.58 | 30.00 | -13.42 | -12.88 | 3.70 | - | - |

Table 7-28. SISO ANT1 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 | 11.89 | 11.60 | 11.98 | 23.98 | -12.00 | -7.66 | 4.32 | 22.39 | -18.07 |
| | 5290 | 58 | AVG | 242T | 12.10 | 12.30 | 12.07 | 23.47 | -11.17 | -7.54 | 4.76 | 29.47 | -24.71 |
| | 5530 | 106 | AVG | 242T | 12.06 | 12.38 | 12.12 | 22.80 | -10.42 | -7.38 | 5.00 | 28.80 | -23.80 |
| | 5610 | 122 | AVG | 242T | 15.85 | 15.99 | 15.94 | 22.80 | -6.81 | -7.38 | 8.61 | 28.80 | -20.19 |
| | 5690 | 138 | AVG | 242T | 15.36 | 15.68 | 15.42 | 22.80 | -7.12 | -7.38 | 8.30 | 28.80 | -20.50 |
| | 5775 | 155 | AVG | 242T | 15.51 | 15.79 | 15.56 | 30.00 | -14.21 | -8.25 | 7.54 | - | - |

Table 7-29. SISO ANT1 80MHz BW (UNII) Maximum Conducted Output Power (242 Tones)

| | | | | | |
|---|---|---------------------------------------|--|---|---------------------------------|
| FCC ID: A3LSMG970U |  | MEASUREMENT REPORT (CERTIFICATION) | |  | Approved by: Quality Manager |
| Test Report S/N: 1M1810250193-18.A3L | Test Dates: 11/9/2018 - 1/18/2019 | EUT Type: Portable Handset | | Page 89 of 519 | |

SISO Antenna-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 | 12.61 | 23.98 | -11.37 | -8.61 | 4.00 | 22.39 | -18.39 | |
| | 5230 | 46 | AVG | 484T | 16.75 | 23.98 | -7.23 | -7.66 | 9.09 | 22.39 | -13.30 | |
| | 5270 | 54 | AVG | 484T | 16.47 | 23.47 | -7.00 | -7.28 | 9.19 | 29.47 | -20.28 | |
| | 5310 | 62 | AVG | 484T | 13.69 | 23.47 | -9.78 | -7.54 | 6.15 | 29.47 | -23.32 | |
| | 5510 | 102 | AVG | 484T | 14.80 | 22.80 | -8.00 | -7.38 | 7.42 | 28.80 | -21.38 | |
| | 5590 | 118 | AVG | 484T | 16.76 | 22.80 | -6.04 | -7.38 | 9.38 | 28.80 | -19.42 | |
| | 5710 | 142 | AVG | 484T | 16.92 | 22.80 | -5.88 | -8.25 | 8.67 | 28.80 | -20.13 | |
| | 5755 | 151 | AVG | 484T | 16.96 | 30.00 | -13.04 | -8.25 | 8.71 | - | - | |
| 5795 | 159 | AVG | 484T | 16.88 | 30.00 | -13.12 | -12.88 | 4.00 | - | - | | |

Table 7-30. SISO ANT1 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 | 11.62 | 11.76 | 23.98 | -12.22 | -7.66 | 4.10 | 22.39 | -18.29 |
| 5290 | 58 | AVG | 484T | 12.26 | 12.38 | 23.47 | -11.09 | -7.54 | 4.84 | 29.47 | -24.63 | |
| 5530 | 106 | AVG | 484T | 11.96 | 12.01 | 22.80 | -10.79 | -7.38 | 4.63 | 28.80 | -24.17 | |
| 5610 | 122 | AVG | 484T | 15.63 | 15.71 | 22.80 | -7.09 | -7.38 | 8.33 | 28.80 | -20.47 | |
| 5690 | 138 | AVG | 484T | 15.72 | 15.85 | 22.80 | -6.95 | -7.38 | 8.47 | 28.80 | -20.33 | |
| 5775 | 155 | AVG | 484T | 15.65 | 15.86 | 30.00 | -14.14 | -8.25 | 7.61 | - | - | |

Table 7-31. SISO ANT1 80MHz BW (UNII) Maximum Conducted Output Power (484 Tones)

| | | | | | |
|---|---|-------------------------------|---------------------------------------|---|---------------------------------|
| FCC ID: A3LSMG970U |  | | MEASUREMENT REPORT (CERTIFICATION) |  | Approved by: Quality Manager |
| Test Report S/N: 1M1810250193-18.A3L | Test Dates: 11/9/2018 - 1/18/2019 | EUT Type: Portable Handset | | | Page 90 of 519 |

SISO Antenna-1 Conducted Output Power Measurements (996 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] |
|------------------------|------------|---------|----------|-------|----------|-----------------------------|-----------------------------|-----------------|--------------------|--------------------------|----------------------|
| | | | | | | 67 | | | | | |
| | 5210 | 42 | AVG | 996T | 11.63 | 23.98 | -12.35 | -7.66 | 3.97 | 22.39 | -18.42 |
| | 5290 | 58 | AVG | 996T | 12.32 | 23.47 | -11.15 | -7.54 | 4.78 | 29.47 | -24.69 |
| | 5530 | 106 | AVG | 996T | 11.91 | 22.80 | -10.89 | -7.38 | 4.53 | 28.80 | -24.27 |
| | 5610 | 122 | AVG | 996T | 15.50 | 22.80 | -7.30 | -7.38 | 8.12 | 28.80 | -20.68 |
| | 5690 | 138 | AVG | 996T | 15.61 | 22.80 | -7.19 | -7.38 | 8.23 | 28.80 | -20.57 |
| | 5775 | 155 | AVG | 996T | 15.73 | 30.00 | -14.27 | -8.25 | 7.48 | - | - |

Table 7-32. SISO ANT1 80MHz BW (UNII) Maximum Conducted Output Power (996 Tones)

| | | | | | |
|---|---|---------------------------------------|--|---|---------------------------------|
| FCC ID: A3LSMG970U |  | MEASUREMENT REPORT (CERTIFICATION) | |  | Approved by: Quality Manager |
| Test Report S/N: 1M1810250193-18.A3L | Test Dates: 11/9/2018 - 1/18/2019 | EUT Type: Portable Handset | | Page 91 of 519 | |

SISO Antenna-2 Conducted Output Power Measurements (26 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] |
|------------------------|------------|---------|----------|-------|----------|-------|-------|-----------------------------|-----------------------------|-----------------|--------------------|--------------------------|----------------------|
| | | | | | 0 | 4 | 8 | | | | | | |
| | | | | | 5180 | 36 | AVG | | | | | | |
| 5200 | 40 | AVG | 26T | 10.90 | 10.80 | 10.52 | 23.98 | -13.08 | -7.68 | 3.22 | 22.39 | -19.17 | |
| 5240 | 48 | AVG | 26T | 10.70 | 10.90 | 10.82 | 23.98 | -13.08 | -7.38 | 3.52 | 22.39 | -18.87 | |
| 5260 | 52 | AVG | 26T | 10.99 | 10.76 | 10.46 | 23.47 | -12.48 | -7.13 | 3.86 | 29.47 | -25.61 | |
| 5280 | 56 | AVG | 26T | 10.50 | 10.90 | 10.67 | 23.47 | -12.57 | -7.13 | 3.77 | 29.47 | -25.70 | |
| 5320 | 64 | AVG | 26T | 10.74 | 10.95 | 10.74 | 23.47 | -12.52 | -8.10 | 2.85 | 29.47 | -26.62 | |
| 5500 | 100 | AVG | 26T | 10.80 | 10.97 | 10.71 | 22.80 | -11.83 | -7.54 | 3.43 | 28.80 | -25.37 | |
| 5600 | 120 | AVG | 26T | 10.63 | 10.87 | 10.36 | 22.80 | -11.93 | -7.54 | 3.33 | 28.80 | -25.47 | |
| 5720 | 144 | AVG | 26T | 10.83 | 10.95 | 10.65 | 22.80 | -11.85 | -7.32 | 3.63 | 28.80 | -25.17 | |
| 5745 | 149 | AVG | 26T | 10.65 | 10.92 | 10.51 | 30.00 | -19.08 | -7.32 | 3.60 | - | - | |
| 5785 | 157 | AVG | 26T | 10.92 | 10.96 | 10.77 | 30.00 | -19.04 | -7.32 | 3.64 | - | - | |
| 5825 | 165 | AVG | 26T | 10.78 | 10.90 | 10.73 | 30.00 | -19.10 | -8.67 | 2.23 | - | - | |

Table 7-33. SISO ANT2 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] | 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 | | | | | | |
| | | | | | 5190 | 38 | AVG | | | | | | |
| 5230 | 46 | AVG | 26T | 10.92 | 10.65 | 10.64 | 23.98 | -13.06 | -7.38 | 3.54 | 22.39 | -18.85 | |
| 5270 | 54 | AVG | 26T | 10.83 | 10.92 | 10.78 | 23.47 | -12.55 | -7.13 | 3.79 | 29.47 | -25.68 | |
| 5310 | 62 | AVG | 26T | 10.94 | 10.95 | 10.95 | 23.47 | -12.52 | -8.10 | 2.85 | 29.47 | -26.62 | |
| 5510 | 102 | AVG | 26T | 10.83 | 10.65 | 10.86 | 22.80 | -11.94 | -7.54 | 3.32 | 28.80 | -25.48 | |
| 5590 | 118 | AVG | 26T | 10.68 | 10.79 | 10.86 | 22.80 | -11.94 | -7.54 | 3.32 | 28.80 | -25.48 | |
| 5710 | 142 | AVG | 26T | 10.61 | 10.98 | 10.54 | 22.80 | -11.82 | -7.32 | 3.66 | 28.80 | -25.14 | |
| 5755 | 151 | AVG | 26T | 10.60 | 10.67 | 10.65 | 30.00 | -19.33 | -7.32 | 3.35 | - | - | |
| 5795 | 159 | AVG | 26T | 10.76 | 10.84 | 10.86 | 30.00 | -19.14 | -8.67 | 2.19 | - | - | |

Table 7-34. SISO ANT2 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] | 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 | | | | | | |
| | | | | | 5210 | 42 | AVG | | | | | | |
| 5290 | 58 | AVG | 26T | 10.80 | 10.61 | 10.95 | 23.47 | -12.52 | -7.13 | 3.82 | 29.47 | -25.65 | |
| 5530 | 106 | AVG | 26T | 10.97 | 10.93 | 10.78 | 22.80 | -11.83 | -7.54 | 3.43 | 28.80 | -25.37 | |
| 5610 | 122 | AVG | 26T | 10.98 | 10.86 | 10.94 | 22.80 | -11.82 | -7.54 | 3.44 | 28.80 | -25.36 | |
| 5690 | 138 | AVG | 26T | 10.61 | 10.97 | 10.49 | 22.80 | -11.83 | -7.54 | 3.43 | 28.80 | -25.37 | |
| 5775 | 155 | AVG | 26T | 10.71 | 10.93 | 10.96 | 30.00 | -19.04 | -7.32 | 3.64 | - | - | |

Table 7-35. SISO ANT2 80MHz BW (UNII) Maximum Conducted Output Power (26 Tones)

| | | | | |
|---|--------------------------------------|------------------------------------|--|---------------------------------|
| FCC ID: A3LSMG970U | | MEASUREMENT REPORT (CERTIFICATION) | | Approved by: Quality Manager |
| Test Report S/N: 1M1810250193-18.A3L | Test Dates: 11/9/2018 - 1/18/2019 | EUT Type: Portable Handset | | Page 92 of 519 |

SISO Antenna-2 Conducted Output Power Measurements (52 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] |
|------------------------|------------|---------|----------|-------|----------|-------|-------|-----------------------------|-----------------------------|-----------------|--------------------|--------------------------|----------------------|
| | | | | | 37 | 39 | 40 | | | | | | |
| | | | | | 5180 | 36 | AVG | | | | | | |
| 5200 | 40 | AVG | 52T | 12.67 | 12.84 | 12.83 | 23.98 | -11.14 | -7.68 | 5.16 | 22.39 | -17.23 | |
| 5240 | 48 | AVG | 52T | 12.88 | 12.59 | 12.55 | 23.98 | -11.10 | -7.38 | 5.50 | 22.39 | -16.89 | |
| 5260 | 52 | AVG | 52T | 12.78 | 12.85 | 12.73 | 23.47 | -10.62 | -7.13 | 5.72 | 29.47 | -23.75 | |
| 5280 | 56 | AVG | 52T | 12.83 | 12.53 | 12.47 | 23.47 | -10.64 | -7.13 | 5.70 | 29.47 | -23.77 | |
| 5320 | 64 | AVG | 52T | 12.96 | 12.71 | 12.61 | 23.47 | -10.51 | -8.10 | 4.86 | 29.47 | -24.61 | |
| 5500 | 100 | AVG | 52T | 12.93 | 12.93 | 12.84 | 22.80 | -9.87 | -7.54 | 5.39 | 28.80 | -23.41 | |
| 5600 | 120 | AVG | 52T | 12.82 | 12.82 | 12.64 | 22.80 | -9.98 | -7.54 | 5.28 | 28.80 | -23.52 | |
| 5720 | 144 | AVG | 52T | 12.90 | 12.93 | 12.78 | 22.80 | -9.87 | -7.32 | 5.61 | 28.80 | -23.19 | |
| 5745 | 149 | AVG | 52T | 12.69 | 12.76 | 12.60 | 30.00 | -17.24 | -7.32 | 5.44 | - | - | |
| 5785 | 157 | AVG | 52T | 12.74 | 12.99 | 12.81 | 30.00 | -17.01 | -7.32 | 5.67 | - | - | |
| 5825 | 165 | AVG | 52T | 12.72 | 12.85 | 12.71 | 30.00 | -17.15 | -8.67 | 4.18 | - | - | |

Table 7-36. SISO ANT2 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] | 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 | | | | | | |
| | | | | | 5190 | 38 | AVG | | | | | | |
| 5230 | 46 | AVG | 52T | 12.87 | 12.78 | 12.99 | 23.98 | -10.99 | -7.38 | 5.61 | 22.39 | -16.78 | |
| 5270 | 54 | AVG | 52T | 12.76 | 12.70 | 12.68 | 23.47 | -10.71 | -7.13 | 5.63 | 29.47 | -23.84 | |
| 5310 | 62 | AVG | 52T | 12.51 | 12.71 | 12.77 | 23.47 | -10.70 | -8.10 | 4.67 | 29.47 | -24.80 | |
| 5510 | 102 | AVG | 52T | 12.72 | 12.88 | 12.95 | 22.80 | -9.85 | -7.54 | 5.41 | 28.80 | -23.39 | |
| 5590 | 118 | AVG | 52T | 12.89 | 12.82 | 12.78 | 22.80 | -9.91 | -7.54 | 5.35 | 28.80 | -23.45 | |
| 5710 | 142 | AVG | 52T | 12.68 | 12.58 | 12.69 | 22.80 | -10.11 | -7.32 | 5.37 | 28.80 | -23.43 | |
| 5755 | 151 | AVG | 52T | 12.91 | 12.89 | 12.89 | 30.00 | -17.09 | -7.32 | 5.59 | - | - | |
| 5795 | 159 | AVG | 52T | 12.85 | 12.79 | 12.89 | 30.00 | -17.11 | -8.67 | 4.22 | - | - | |

Table 7-37. SISO ANT2 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] | 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 | | | | | | |
| | | | | | 5210 | 42 | AVG | | | | | | |
| 5290 | 58 | AVG | 52T | 12.42 | 12.65 | 12.66 | 23.47 | -10.81 | -7.13 | 5.53 | 29.47 | -23.94 | |
| 5530 | 106 | AVG | 52T | 12.75 | 12.98 | 12.68 | 22.80 | -9.82 | -7.54 | 5.44 | 28.80 | -23.36 | |
| 5610 | 122 | AVG | 52T | 12.52 | 12.74 | 12.42 | 22.80 | -10.06 | -7.54 | 5.20 | 28.80 | -23.60 | |
| 5690 | 138 | AVG | 52T | 12.58 | 12.74 | 12.52 | 22.80 | -10.06 | -7.54 | 5.20 | 28.80 | -23.60 | |
| 5775 | 155 | AVG | 52T | 12.68 | 12.61 | 12.72 | 30.00 | -17.28 | -7.32 | 5.40 | - | - | |

Table 7-38. SISO ANT2 80MHz BW (UNII) Maximum Conducted Output Power (52 Tones)

| | | | | | |
|---|--------------------------------------|------------------------------------|--|--|---------------------------------|
| FCC ID: A3LSMG970U | | MEASUREMENT REPORT (CERTIFICATION) | | | Approved by: Quality Manager |
| Test Report S/N: 1M1810250193-18.A3L | Test Dates: 11/9/2018 - 1/18/2019 | EUT Type: Portable Handset | | | Page 93 of 519 |

SISO Antenna-2 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 | | | | | | |
| 5200 | 40 | AVG | 106T | 14.62 | 14.71 | 23.98 | -9.27 | -7.68 | 7.03 | 22.39 | -15.36 | |
| 5240 | 48 | AVG | 106T | 14.76 | 14.87 | 23.98 | -9.11 | -7.38 | 7.49 | 22.39 | -14.90 | |
| 5260 | 52 | AVG | 106T | 14.82 | 14.76 | 23.47 | -8.65 | -7.13 | 7.69 | 29.47 | -21.78 | |
| 5280 | 56 | AVG | 106T | 14.83 | 14.96 | 23.47 | -8.51 | -7.13 | 7.83 | 29.47 | -21.64 | |
| 5320 | 64 | AVG | 106T | 14.99 | 14.67 | 23.47 | -8.48 | -8.10 | 6.89 | 29.47 | -22.58 | |
| 5500 | 100 | AVG | 106T | 14.93 | 14.85 | 22.80 | -7.87 | -7.54 | 7.39 | 28.80 | -21.41 | |
| 5600 | 120 | AVG | 106T | 14.68 | 14.51 | 22.80 | -8.12 | -7.54 | 7.14 | 28.80 | -21.66 | |
| 5720 | 144 | AVG | 106T | 14.69 | 14.72 | 22.80 | -8.08 | -7.32 | 7.40 | 28.80 | -21.40 | |
| 5745 | 149 | AVG | 106T | 14.74 | 14.53 | 30.00 | -15.26 | -7.32 | 7.42 | - | - | |
| 5785 | 157 | AVG | 106T | 14.83 | 14.68 | 30.00 | -15.17 | -7.32 | 7.51 | - | - | |
| 5825 | 165 | AVG | 106T | 14.65 | 14.61 | 30.00 | -15.35 | -8.67 | 5.98 | - | - | |

Table 7-39. SISO ANT2 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 | | | | | | |
| 5230 | 46 | AVG | 106T | 14.53 | 14.75 | 14.60 | 23.98 | -9.23 | -7.38 | 7.37 | 22.39 | -15.02 | |
| 5270 | 54 | AVG | 106T | 14.52 | 14.73 | 14.52 | 23.47 | -8.74 | -7.13 | 7.60 | 29.47 | -21.87 | |
| 5310 | 62 | AVG | 106T | 14.54 | 14.73 | 14.51 | 23.47 | -8.74 | -8.10 | 6.63 | 29.47 | -22.84 | |
| 5510 | 102 | AVG | 106T | 14.50 | 14.66 | 14.68 | 22.80 | -8.12 | -7.54 | 7.14 | 28.80 | -21.66 | |
| 5590 | 118 | AVG | 106T | 14.53 | 14.59 | 14.38 | 22.80 | -8.21 | -7.54 | 7.05 | 28.80 | -21.75 | |
| 5710 | 142 | AVG | 106T | 14.89 | 14.90 | 14.72 | 22.80 | -7.90 | -7.32 | 7.58 | 28.80 | -21.22 | |
| 5755 | 151 | AVG | 106T | 14.83 | 14.66 | 14.86 | 30.00 | -15.14 | -7.32 | 7.54 | - | - | |
| 5795 | 159 | AVG | 106T | 14.54 | 14.62 | 14.44 | 30.00 | -15.38 | -8.67 | 5.95 | - | - | |

Table 7-40. SISO ANT2 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 | | | | | | |
| 5290 | 58 | AVG | 106T | 14.58 | 14.64 | 14.81 | 23.47 | -8.66 | -7.13 | 7.68 | 29.47 | -21.79 | |
| 5530 | 106 | AVG | 106T | 14.81 | 14.64 | 14.79 | 22.80 | -7.99 | -7.54 | 7.27 | 28.80 | -21.53 | |
| 5610 | 122 | AVG | 106T | 14.77 | 14.86 | 14.55 | 22.80 | -7.94 | -7.54 | 7.32 | 28.80 | -21.48 | |
| 5690 | 138 | AVG | 106T | 14.72 | 14.95 | 14.59 | 22.80 | -7.85 | -7.54 | 7.41 | 28.80 | -21.39 | |
| 5775 | 155 | AVG | 106T | 14.79 | 14.61 | 14.76 | 30.00 | -15.21 | -7.32 | 7.47 | - | - | |

Table 7-41. SISO ANT2 80MHz BW (UNII) Maximum Conducted Output Power (106 Tones)

| | | | | |
|---|---|---------------------------------------|---|---------------------------------|
| FCC ID: A3LSMG970U |  | MEASUREMENT REPORT (CERTIFICATION) |  | Approved by: Quality Manager |
| Test Report S/N: 1M1810250193-18.A3L | Test Dates: 11/9/2018 - 1/18/2019 | EUT Type: Portable Handset | | Page 94 of 519 |

SISO Antenna-2 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 | 14.74 | 23.98 | -9.24 | -7.68 | 7.06 | 22.39 | -15.33 |
| | 5200 | 40 | AVG | 242T | 17.71 | 23.98 | -6.27 | -7.68 | 10.03 | 22.39 | -12.36 |
| | 5240 | 48 | AVG | 242T | 17.89 | 23.98 | -6.09 | -7.38 | 10.51 | 22.39 | -11.88 |
| | 5260 | 52 | AVG | 242T | 17.50 | 23.47 | -5.97 | -7.13 | 10.37 | 29.47 | -19.10 |
| | 5280 | 56 | AVG | 242T | 17.58 | 23.47 | -5.89 | -7.13 | 10.45 | 29.47 | -19.02 |
| | 5320 | 64 | AVG | 242T | 15.89 | 23.47 | -7.58 | -8.10 | 7.79 | 29.47 | -21.68 |
| | 5500 | 100 | AVG | 242T | 17.59 | 22.80 | -5.21 | -7.54 | 10.05 | 28.80 | -18.75 |
| | 5600 | 120 | AVG | 242T | 17.68 | 22.80 | -5.12 | -7.54 | 10.14 | 28.80 | -18.66 |
| | 5720 | 144 | AVG | 242T | 17.71 | 22.80 | -5.09 | -7.32 | 10.39 | 28.80 | -18.41 |
| | 5745 | 149 | AVG | 242T | 17.70 | 30.00 | -12.30 | -7.32 | 10.38 | - | - |
| | 5785 | 157 | AVG | 242T | 17.83 | 30.00 | -12.17 | -7.32 | 10.51 | - | - |
| | 5825 | 165 | AVG | 242T | 17.69 | 30.00 | -12.31 | -8.67 | 9.02 | - | - |

Table 7-42. SISO ANT2 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 | 12.73 | 12.67 | 23.98 | -11.25 | -7.68 | 5.05 | 22.39 | -17.34 |
| | 5230 | 46 | AVG | 242T | 16.73 | 16.72 | 23.98 | -7.25 | -7.38 | 9.35 | 22.39 | -13.04 |
| | 5270 | 54 | AVG | 242T | 16.48 | 16.64 | 23.47 | -6.83 | -7.13 | 9.51 | 29.47 | -19.96 |
| | 5310 | 62 | AVG | 242T | 13.91 | 13.81 | 23.47 | -9.56 | -8.10 | 5.81 | 29.47 | -23.66 |
| | 5510 | 102 | AVG | 242T | 14.72 | 14.99 | 22.80 | -7.81 | -7.54 | 7.45 | 28.80 | -21.35 |
| | 5590 | 118 | AVG | 242T | 16.65 | 16.78 | 22.80 | -6.02 | -7.54 | 9.24 | 28.80 | -19.56 |
| | 5710 | 142 | AVG | 242T | 16.86 | 16.81 | 22.80 | -5.94 | -7.32 | 9.54 | 28.80 | -19.26 |
| | 5755 | 151 | AVG | 242T | 16.97 | 16.99 | 30.00 | -13.01 | -7.32 | 9.67 | - | - |
| | 5795 | 159 | AVG | 242T | 16.65 | 16.81 | 30.00 | -13.19 | -8.67 | 8.14 | - | - |

Table 7-43. SISO ANT2 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 | 11.77 | 11.50 | 11.79 | 23.98 | -12.19 | -7.68 | 4.11 | 22.39 | -18.28 |
| | 5290 | 58 | AVG | 242T | 12.13 | 12.20 | 12.17 | 23.47 | -11.27 | -7.13 | 5.07 | 29.47 | -24.40 |
| | 5530 | 106 | AVG | 242T | 12.23 | 12.48 | 12.45 | 22.80 | -10.32 | -7.54 | 4.94 | 28.80 | -23.86 |
| | 5610 | 122 | AVG | 242T | 15.99 | 15.57 | 15.48 | 22.80 | -6.81 | -7.54 | 8.45 | 28.80 | -20.35 |
| | 5690 | 138 | AVG | 242T | 15.88 | 15.74 | 15.84 | 22.80 | -6.92 | -7.54 | 8.34 | 28.80 | -20.46 |
| | 5775 | 155 | AVG | 242T | 15.89 | 15.71 | 15.49 | 30.00 | -14.11 | -7.32 | 8.57 | - | - |

Table 7-44. SISO ANT2 80MHz BW (UNII) Maximum Conducted Output Power (242 Tones)

| | | | | | |
|---|--------------------------------------|------------------------------------|--|----------------|---------------------------------|
| FCC ID: A3LSMG970U | | MEASUREMENT REPORT (CERTIFICATION) | | | Approved by: Quality Manager |
| Test Report S/N: 1M1810250193-18.A3L | Test Dates: 11/9/2018 - 1/18/2019 | EUT Type: Portable Handset | | Page 95 of 519 | |

SISO Antenna-2 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 | 12.47 | 23.98 | -11.51 | -7.68 | 4.79 | 22.39 | -17.60 | |
| | 5230 | 46 | AVG | 484T | 16.43 | 23.98 | -7.55 | -7.38 | 9.05 | 22.39 | -13.34 | |
| | 5270 | 54 | AVG | 484T | 16.81 | 23.47 | -6.66 | -7.13 | 9.68 | 29.47 | -19.79 | |
| | 5310 | 62 | AVG | 484T | 13.43 | 23.47 | -10.04 | -8.10 | 5.33 | 29.47 | -24.14 | |
| | 5510 | 102 | AVG | 484T | 14.50 | 22.80 | -8.30 | -7.54 | 6.96 | 28.80 | -21.84 | |
| | 5590 | 118 | AVG | 484T | 16.43 | 22.80 | -6.37 | -7.54 | 8.89 | 28.80 | -19.91 | |
| | 5710 | 142 | AVG | 484T | 16.56 | 22.80 | -6.24 | -7.32 | 9.24 | 28.80 | -19.56 | |
| | 5755 | 151 | AVG | 484T | 16.59 | 30.00 | -13.41 | -7.32 | 9.27 | - | - | |
| 5795 | 159 | AVG | 484T | 16.94 | 30.00 | -13.06 | -8.67 | 8.27 | - | - | | |

Table 7-45. SISO ANT2 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 | 11.85 | 11.95 | 23.98 | -12.03 | -7.68 | 4.27 | 22.39 | -18.12 |
| | 5290 | 58 | AVG | 484T | 12.15 | 12.29 | 23.47 | -11.18 | -7.13 | 5.16 | 29.47 | -24.31 |
| | 5530 | 106 | AVG | 484T | 11.96 | 12.07 | 22.80 | -10.73 | -7.54 | 4.53 | 28.80 | -24.27 |
| | 5610 | 122 | AVG | 484T | 15.78 | 15.96 | 22.80 | -6.84 | -7.54 | 8.42 | 28.80 | -20.38 |
| | 5690 | 138 | AVG | 484T | 15.94 | 15.96 | 22.80 | -6.84 | -7.54 | 8.42 | 28.80 | -20.38 |
| | 5775 | 155 | AVG | 484T | 15.65 | 15.66 | 30.00 | -14.34 | -7.32 | 8.34 | - | - |

Table 7-46. SISO ANT2 80MHz BW (UNII) Maximum Conducted Output Power (484 Tones)

| | | | | | |
|---|---|------------------------------------|--|---|---------------------------------|
| FCC ID: A3LSMG970U |  | MEASUREMENT REPORT (CERTIFICATION) | |  | Approved by: Quality Manager |
| Test Report S/N: 1M1810250193-18.A3L | Test Dates: 11/9/2018 - 1/18/2019 | EUT Type: Portable Handset | | Page 96 of 519 | |

SISO Antenna-2 Conducted Output Power Measurements (996 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] |
|------------------------|------------|---------|----------|-------|----------|-----------------------------|-----------------------------|-----------------|--------------------|--------------------------|----------------------|
| | | | | | | 67 | | | | | |
| | 5210 | 42 | AVG | 996T | 11.85 | 23.98 | -12.13 | -7.68 | 4.17 | 22.39 | -18.22 |
| | 5290 | 58 | AVG | 996T | 12.23 | 23.47 | -11.24 | -7.13 | 5.10 | 29.47 | -24.37 |
| | 5530 | 106 | AVG | 996T | 12.14 | 22.80 | -10.66 | -7.54 | 4.60 | 28.80 | -24.20 |
| | 5610 | 122 | AVG | 996T | 15.63 | 22.80 | -7.17 | -7.54 | 8.09 | 28.80 | -20.71 |
| | 5690 | 138 | AVG | 996T | 15.59 | 22.80 | -7.21 | -7.54 | 8.05 | 28.80 | -20.75 |
| | 5775 | 155 | AVG | 996T | 15.92 | 30.00 | -14.08 | -7.32 | 8.60 | - | - |

Table 7-47. SISO ANT2 80MHz BW (UNII) Maximum Conducted Output Power (996 Tones)

| | | | | |
|---|---|---------------------------------------|---|---------------------------------|
| FCC ID: A3LSMG970U |  | MEASUREMENT REPORT (CERTIFICATION) |  | Approved by: Quality Manager |
| Test Report S/N: 1M1810250193-18.A3L | Test Dates: 11/9/2018 - 1/18/2019 | EUT Type: Portable Handset | Page 97 of 519 | |

MIMO 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 | 8.13 | 7.48 | 10.83 | 7.87 | 7.47 | 10.68 | 7.75 | 7.47 | 10.62 | 23.98 | -13.15 | -5.12 | 5.71 | 22.39 | -16.68 | |
| 5200 | 40 | AVG | 26T | 7.87 | 7.88 | 10.89 | 7.96 | 7.63 | 10.81 | 7.68 | 7.33 | 10.52 | 23.98 | -13.09 | -5.12 | 5.76 | 22.39 | -16.63 | |
| 5240 | 48 | AVG | 26T | 7.75 | 7.55 | 10.66 | 7.96 | 7.80 | 10.89 | 7.88 | 7.55 | 10.73 | 23.98 | -13.09 | -4.51 | 6.38 | 22.39 | -16.01 | |
| 5260 | 52 | AVG | 26T | 7.87 | 7.66 | 10.78 | 7.89 | 7.57 | 10.74 | 7.89 | 7.30 | 10.62 | 23.47 | -12.69 | -4.19 | 6.58 | 29.47 | -22.89 | |
| 5280 | 56 | AVG | 26T | 7.97 | 7.89 | 10.94 | 7.95 | 7.53 | 10.76 | 7.85 | 7.46 | 10.67 | 23.47 | -12.53 | -4.19 | 6.75 | 29.47 | -22.72 | |
| 5320 | 64 | AVG | 26T | 7.86 | 7.58 | 10.73 | 7.82 | 7.40 | 10.63 | 7.59 | 7.08 | 10.35 | 23.47 | -12.74 | -4.81 | 5.93 | 29.47 | -23.54 | |
| 5500 | 100 | AVG | 26T | 7.33 | 7.58 | 10.47 | 7.45 | 7.88 | 10.68 | 7.18 | 7.54 | 10.37 | 22.80 | -12.12 | -4.45 | 6.23 | 28.80 | -22.57 | |
| 5600 | 120 | AVG | 26T | 7.49 | 7.86 | 10.69 | 7.62 | 7.91 | 10.78 | 7.58 | 7.65 | 10.63 | 22.80 | -12.02 | -4.45 | 6.33 | 28.80 | -22.47 | |
| 5720 | 144 | AVG | 26T | 7.64 | 7.91 | 10.79 | 7.26 | 7.92 | 10.61 | 7.65 | 7.96 | 10.82 | 22.80 | -11.98 | -4.34 | 6.48 | 28.80 | -22.32 | |
| 5745 | 149 | AVG | 26T | 7.55 | 7.89 | 10.73 | 7.16 | 7.82 | 10.51 | 7.38 | 7.76 | 10.58 | 30.00 | -19.27 | -4.76 | 5.97 | - | - | |
| 5785 | 157 | AVG | 26T | 7.45 | 7.90 | 10.69 | 7.15 | 7.90 | 10.55 | 7.41 | 7.65 | 10.54 | 30.00 | -19.31 | -4.76 | 5.93 | - | - | |
| 5825 | 165 | AVG | 26T | 7.21 | 7.65 | 10.45 | 7.11 | 7.89 | 10.53 | 7.25 | 7.15 | 10.21 | 30.00 | -19.47 | -5.04 | 5.49 | - | - | |

Table 7-48. 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 | 7.49 | 7.38 | 10.45 | 7.88 | 7.43 | 10.67 | 7.67 | 7.65 | 10.67 | 23.98 | -13.31 | -5.12 | 5.55 | 22.39 | -16.84 | |
| 5230 | 46 | AVG | 26T | 7.64 | 7.24 | 10.45 | 7.99 | 7.41 | 10.72 | 7.83 | 7.58 | 10.72 | 23.98 | -13.26 | -4.51 | 6.21 | 22.39 | -16.18 | |
| 5270 | 54 | AVG | 26T | 7.67 | 7.24 | 10.47 | 7.81 | 7.29 | 10.57 | 7.71 | 7.25 | 10.50 | 23.47 | -12.90 | -4.19 | 6.38 | 29.47 | -23.09 | |
| 5310 | 62 | AVG | 26T | 7.77 | 7.48 | 10.64 | 7.92 | 7.62 | 10.78 | 7.79 | 7.41 | 10.61 | 23.47 | -12.69 | -4.81 | 5.97 | 29.47 | -23.50 | |
| 5510 | 102 | AVG | 26T | 7.72 | 7.95 | 10.85 | 7.72 | 7.97 | 10.86 | 7.97 | 7.99 | 10.99 | 22.80 | -11.81 | -4.45 | 6.54 | 28.80 | -22.26 | |
| 5590 | 118 | AVG | 26T | 7.88 | 7.95 | 10.93 | 7.59 | 7.90 | 10.76 | 7.22 | 7.77 | 10.51 | 22.80 | -11.87 | -4.45 | 6.48 | 28.80 | -22.32 | |
| 5710 | 142 | AVG | 26T | 7.48 | 7.81 | 10.66 | 7.53 | 7.56 | 10.56 | 7.54 | 7.86 | 10.71 | 22.80 | -12.09 | -4.76 | 5.95 | 28.80 | -22.85 | |
| 5755 | 151 | AVG | 26T | 7.43 | 7.99 | 10.73 | 7.38 | 7.97 | 10.70 | 7.46 | 7.98 | 10.74 | 30.00 | -19.26 | -4.76 | 5.98 | - | - | |
| 5795 | 159 | AVG | 26T | 7.41 | 7.84 | 10.64 | 7.56 | 7.98 | 10.79 | 7.47 | 7.86 | 10.68 | 30.00 | -19.21 | -5.21 | 5.58 | - | - | |

Table 7-49. 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 | 7.99 | 7.78 | 10.90 | 7.70 | 7.55 | 10.64 | 7.80 | 7.50 | 10.66 | 23.98 | -13.08 | -4.66 | 6.24 | 22.39 | -16.15 | |
| 5290 | 58 | AVG | 26T | 7.96 | 7.58 | 10.78 | 7.68 | 7.37 | 10.54 | 7.80 | 7.48 | 10.65 | 23.47 | -12.69 | -4.32 | 6.46 | 29.47 | -23.01 | |
| 5530 | 106 | AVG | 26T | 7.58 | 7.84 | 10.72 | 7.50 | 7.97 | 10.75 | 7.53 | 7.99 | 10.78 | 22.80 | -12.02 | -4.45 | 6.33 | 28.80 | -22.47 | |
| 5610 | 122 | AVG | 26T | 7.75 | 7.66 | 10.72 | 7.59 | 7.65 | 10.63 | 7.73 | 7.90 | 10.83 | 22.80 | -11.97 | -4.45 | 6.38 | 28.80 | -22.42 | |
| 5690 | 138 | AVG | 26T | 7.16 | 7.75 | 10.48 | 7.65 | 7.89 | 10.78 | 7.64 | 7.90 | 10.78 | 22.80 | -12.02 | -4.45 | 6.33 | 28.80 | -22.47 | |
| 5775 | 155 | AVG | 26T | 7.22 | 7.78 | 10.52 | 7.70 | 7.97 | 10.85 | 7.39 | 7.96 | 10.69 | 30.00 | -19.15 | -4.76 | 6.09 | - | - | |

Table 7-50. MIMO 80MHz BW (UNII) Maximum Conducted Output Power (26 Tones)

| | | | | |
|---|--------------------------------------|------------------------------------|--|---------------------------------|
| FCC ID: A3LSMG970U | | MEASUREMENT REPORT (CERTIFICATION) | | Approved by: Quality Manager |
| Test Report S/N: 1M1810250193-18.A3L | Test Dates: 11/9/2018 - 1/18/2019 | EUT Type: Portable Handset | | Page 98 of 519 |

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 | 9.65 | 9.31 | 12.49 | 9.89 | 9.51 | 12.71 | 9.94 | 9.37 | 12.67 | 23.98 | -11.26 | -5.12 | 7.59 | 22.39 | -14.80 | |
| 5200 | 40 | AVG | 52T | 9.76 | 9.54 | 12.67 | 9.94 | 9.61 | 12.79 | 9.88 | 9.54 | 12.72 | 23.98 | -11.19 | -5.12 | 7.67 | 22.39 | -14.72 | |
| 5240 | 48 | AVG | 52T | 9.83 | 9.48 | 12.67 | 9.87 | 9.68 | 12.79 | 9.99 | 9.62 | 12.82 | 23.98 | -11.16 | -4.51 | 8.31 | 22.39 | -14.08 | |
| 5260 | 52 | AVG | 52T | 9.73 | 9.53 | 12.64 | 9.98 | 9.58 | 12.79 | 9.96 | 9.52 | 12.76 | 23.47 | -10.68 | -4.19 | 8.60 | 29.47 | -20.87 | |
| 5280 | 56 | AVG | 52T | 9.79 | 9.38 | 12.60 | 9.99 | 9.67 | 12.84 | 9.89 | 9.55 | 12.73 | 23.47 | -10.63 | -4.19 | 8.65 | 29.47 | -20.82 | |
| 5320 | 64 | AVG | 52T | 9.93 | 9.77 | 12.86 | 9.74 | 9.32 | 12.55 | 9.73 | 9.25 | 12.51 | 23.47 | -10.61 | -4.81 | 8.06 | 29.47 | -21.41 | |
| 5500 | 100 | AVG | 52T | 9.30 | 9.68 | 12.50 | 9.53 | 9.74 | 12.65 | 9.40 | 9.65 | 12.54 | 22.80 | -10.15 | -4.45 | 8.20 | 28.80 | -20.60 | |
| 5600 | 120 | AVG | 52T | 9.70 | 9.97 | 12.85 | 9.80 | 9.92 | 12.87 | 9.70 | 9.95 | 12.84 | 22.80 | -9.93 | -4.45 | 8.42 | 28.80 | -20.38 | |
| 5720 | 144 | AVG | 52T | 9.20 | 9.76 | 12.50 | 9.36 | 9.73 | 12.96 | 9.24 | 9.59 | 12.43 | 22.80 | -10.24 | -4.34 | 8.22 | 28.80 | -20.58 | |
| 5745 | 149 | AVG | 52T | 9.15 | 9.73 | 12.46 | 9.09 | 9.64 | 12.38 | 9.30 | 9.87 | 12.00 | 30.00 | -17.40 | -4.76 | 7.84 | - | - | |
| 5785 | 157 | AVG | 52T | 9.44 | 9.99 | 12.73 | 9.56 | 9.90 | 12.69 | 9.41 | 9.85 | 12.65 | 30.00 | -17.27 | -4.76 | 7.97 | - | - | |
| 5825 | 165 | AVG | 52T | 9.21 | 9.90 | 12.58 | 9.49 | 9.93 | 12.73 | 9.22 | 9.99 | 12.63 | 30.00 | -17.27 | -5.04 | 7.89 | - | - | |

Table 7-51. 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 | 9.95 | 9.87 | 12.92 | 9.81 | 9.30 | 12.57 | 9.61 | 9.67 | 12.65 | 23.98 | -11.06 | -5.12 | 7.80 | 22.39 | -14.59 | |
| 5230 | 46 | AVG | 52T | 9.38 | 9.20 | 12.30 | 9.84 | 9.82 | 12.84 | 9.46 | 9.81 | 12.65 | 23.98 | -11.14 | -4.51 | 8.33 | 22.39 | -14.06 | |
| 5270 | 54 | AVG | 52T | 9.50 | 9.94 | 12.74 | 9.39 | 9.85 | 12.64 | 9.52 | 9.92 | 12.73 | 23.47 | -10.73 | -4.19 | 8.55 | 29.47 | -20.92 | |
| 5310 | 62 | AVG | 52T | 9.43 | 9.61 | 12.53 | 9.21 | 9.97 | 12.62 | 9.43 | 9.81 | 12.63 | 23.47 | -10.84 | -4.81 | 7.82 | 29.47 | -21.65 | |
| 5510 | 102 | AVG | 52T | 8.86 | 8.78 | 11.83 | 8.46 | 8.56 | 11.52 | 8.70 | 8.80 | 11.76 | 22.80 | -10.97 | -4.45 | 7.38 | 28.80 | -21.42 | |
| 5590 | 118 | AVG | 52T | 9.42 | 9.74 | 12.59 | 9.55 | 9.98 | 12.78 | 9.49 | 9.76 | 12.64 | 22.80 | -10.02 | -4.45 | 8.33 | 28.80 | -20.47 | |
| 5710 | 142 | AVG | 52T | 9.60 | 9.98 | 12.80 | 9.59 | 9.88 | 12.75 | 9.76 | 9.92 | 12.85 | 22.80 | -9.95 | -4.76 | 8.09 | 28.80 | -20.71 | |
| 5755 | 151 | AVG | 52T | 9.15 | 9.82 | 12.51 | 9.20 | 9.67 | 12.45 | 9.18 | 9.99 | 12.61 | 30.00 | -17.39 | -4.76 | 7.65 | - | - | |
| 5795 | 159 | AVG | 52T | 9.17 | 9.97 | 12.60 | 9.17 | 9.85 | 12.53 | 9.29 | 9.76 | 12.54 | 30.00 | -17.40 | -5.21 | 7.39 | - | - | |

Table 7-52. 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 | 9.53 | 9.80 | 12.68 | 9.47 | 9.89 | 12.70 | 9.61 | 9.89 | 12.76 | 23.98 | -11.22 | -4.66 | 8.10 | 22.39 | -14.29 | |
| 5290 | 58 | AVG | 52T | 9.23 | 9.54 | 12.40 | 9.32 | 9.75 | 12.55 | 9.44 | 9.94 | 12.71 | 23.47 | -10.76 | -4.32 | 8.39 | 29.47 | -21.08 | |
| 5530 | 106 | AVG | 52T | 9.84 | 9.68 | 12.77 | 9.84 | 9.76 | 12.81 | 9.41 | 9.57 | 12.50 | 22.80 | -9.99 | -4.45 | 8.36 | 28.80 | -20.44 | |
| 5610 | 122 | AVG | 52T | 9.37 | 9.49 | 12.44 | 9.86 | 9.74 | 12.81 | 9.40 | 9.42 | 12.42 | 22.80 | -9.99 | -4.45 | 8.36 | 28.80 | -20.44 | |
| 5690 | 138 | AVG | 52T | 9.45 | 9.48 | 12.48 | 9.89 | 9.67 | 12.79 | 9.46 | 9.41 | 12.45 | 22.80 | -10.01 | -4.45 | 8.34 | 28.80 | -20.46 | |
| 5775 | 155 | AVG | 52T | 9.42 | 9.87 | 12.66 | 9.42 | 9.50 | 12.47 | 9.12 | 9.47 | 12.31 | 30.00 | -17.34 | -4.76 | 7.90 | - | - | |

Table 7-53. MIMO 80MHz BW (UNII) Maximum Conducted Output Power (52 Tones)

| | | | | |
|---|--------------------------------------|------------------------------------|--|---------------------------------|
| FCC ID: A3LSMG970U | | MEASUREMENT REPORT (CERTIFICATION) | | Approved by: Quality Manager |
| Test Report S/N: 1M1810250193-18.A3L | Test Dates: 11/9/2018 - 1/18/2019 | EUT Type: Portable Handset | | Page 99 of 519 |

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 | 11.85 | 11.32 | 14.60 | 11.98 | 11.44 | 14.73 | 23.98 | -9.25 | -5.12 | 9.61 | 22.39 | -12.78 | |
| 5200 | 40 | AVG | 106T | 11.85 | 11.42 | 14.65 | 11.99 | 11.55 | 14.79 | 23.98 | -9.19 | -5.12 | 9.66 | 22.39 | -12.73 | |
| 5240 | 48 | AVG | 106T | 11.91 | 11.48 | 14.71 | 11.89 | 11.52 | 14.72 | 23.98 | -9.26 | -4.51 | 10.21 | 22.39 | -12.18 | |
| 5260 | 52 | AVG | 106T | 11.86 | 11.34 | 14.62 | 11.93 | 11.30 | 14.64 | 23.47 | -8.83 | -4.19 | 10.44 | 29.47 | -19.03 | |
| 5280 | 56 | AVG | 106T | 11.91 | 11.31 | 14.63 | 11.98 | 11.44 | 14.73 | 23.47 | -8.74 | -4.19 | 10.53 | 29.47 | -18.94 | |
| 5320 | 64 | AVG | 106T | 11.64 | 11.27 | 14.47 | 11.75 | 11.34 | 14.56 | 23.47 | -8.91 | -4.81 | 9.75 | 29.47 | -19.72 | |
| 5500 | 100 | AVG | 106T | 11.46 | 11.79 | 14.64 | 11.37 | 11.70 | 14.55 | 22.80 | -8.16 | -4.45 | 10.19 | 28.80 | -18.61 | |
| 5600 | 120 | AVG | 106T | 11.60 | 11.96 | 14.79 | 11.61 | 11.81 | 14.72 | 22.80 | -8.01 | -4.45 | 10.34 | 28.80 | -18.46 | |
| 5720 | 144 | AVG | 106T | 11.68 | 11.99 | 14.85 | 11.71 | 11.83 | 14.78 | 22.80 | -7.95 | -4.34 | 10.51 | 28.80 | -18.29 | |
| 5745 | 149 | AVG | 106T | 11.39 | 11.91 | 14.67 | 11.35 | 11.73 | 14.55 | 30.00 | -15.33 | -4.76 | 9.91 | - | - | |
| 5785 | 157 | AVG | 106T | 11.45 | 11.80 | 14.64 | 11.49 | 11.69 | 14.60 | 30.00 | -15.36 | -4.76 | 9.88 | - | - | |
| 5825 | 165 | AVG | 106T | 11.20 | 11.78 | 14.51 | 11.30 | 11.81 | 14.57 | 30.00 | -15.43 | -5.04 | 9.53 | - | - | |

Table 7-54. 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 | 11.63 | 11.61 | 14.63 | 11.21 | 11.34 | 14.29 | 11.23 | 11.24 | 14.25 | 23.98 | -9.35 | -5.12 | 9.51 | 22.39 | -12.88 | |
| 5230 | 46 | AVG | 106T | 11.58 | 11.74 | 14.67 | 11.53 | 11.87 | 14.71 | 11.21 | 11.60 | 14.42 | 23.98 | -9.27 | -4.51 | 10.29 | 22.39 | -12.19 | |
| 5270 | 54 | AVG | 106T | 11.13 | 11.61 | 14.39 | 11.19 | 11.98 | 14.61 | 11.28 | 11.75 | 14.53 | 23.47 | -8.86 | -4.19 | 10.42 | 29.47 | -19.05 | |
| 5310 | 62 | AVG | 106T | 11.17 | 11.82 | 14.52 | 11.15 | 11.89 | 14.55 | 11.15 | 11.85 | 14.52 | 23.47 | -8.92 | -4.81 | 9.74 | 29.47 | -19.73 | |
| 5510 | 102 | AVG | 106T | 11.61 | 11.87 | 14.75 | 11.51 | 11.72 | 14.63 | 11.78 | 11.99 | 14.90 | 22.80 | -7.90 | -4.45 | 10.45 | 28.80 | -18.35 | |
| 5590 | 118 | AVG | 106T | 11.51 | 11.87 | 14.70 | 11.17 | 11.63 | 14.42 | 11.62 | 11.97 | 14.81 | 22.80 | -7.99 | -4.45 | 10.36 | 28.80 | -18.44 | |
| 5710 | 142 | AVG | 106T | 11.77 | 11.94 | 14.87 | 11.45 | 11.84 | 14.66 | 11.48 | 11.81 | 14.66 | 22.80 | -7.93 | -4.76 | 10.11 | 28.80 | -18.69 | |
| 5755 | 151 | AVG | 106T | 11.19 | 11.89 | 14.56 | 10.95 | 11.76 | 14.38 | 10.87 | 11.99 | 14.48 | 30.00 | -15.44 | -4.76 | 9.80 | - | - | |
| 5795 | 159 | AVG | 106T | 10.82 | 11.97 | 14.44 | 11.09 | 11.99 | 14.57 | 11.02 | 11.87 | 14.48 | 30.00 | -15.43 | -5.21 | 9.36 | - | - | |

Table 7-55. 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 | 11.33 | 11.45 | 14.40 | 11.23 | 11.44 | 14.35 | 11.52 | 11.65 | 14.60 | 23.98 | -9.38 | -4.66 | 9.94 | 22.39 | -12.45 | |
| 5290 | 58 | AVG | 106T | 11.51 | 11.88 | 14.71 | 11.32 | 11.71 | 14.53 | 11.65 | 11.96 | 14.82 | 23.47 | -8.65 | -4.32 | 10.50 | 29.47 | -18.97 | |
| 5330 | 106 | AVG | 106T | 11.44 | 11.38 | 14.42 | 11.79 | 11.87 | 14.84 | 11.51 | 11.64 | 14.59 | 22.80 | -7.96 | -4.45 | 10.39 | 28.80 | -18.41 | |
| 5610 | 122 | AVG | 106T | 11.51 | 11.52 | 14.53 | 11.88 | 10.95 | 14.45 | 11.52 | 11.58 | 14.56 | 22.80 | -8.24 | -4.45 | 10.11 | 28.80 | -18.69 | |
| 5690 | 138 | AVG | 106T | 11.60 | 11.48 | 14.55 | 11.83 | 11.75 | 14.80 | 11.49 | 11.47 | 14.49 | 22.80 | -8.00 | -4.45 | 10.35 | 28.80 | -18.45 | |
| 5775 | 155 | AVG | 106T | 10.92 | 11.72 | 14.35 | 11.34 | 11.99 | 14.69 | 11.22 | 11.97 | 14.62 | 30.00 | -15.31 | -4.76 | 9.93 | - | - | |

Table 7-56. MIMO 80MHz BW (UNII) Maximum Conducted Output Power (106 Tones)

| | | | | |
|---|--------------------------------------|---------------------------------------|--|---------------------------------|
| FCC ID: A3LSMG970U | | MEASUREMENT REPORT (CERTIFICATION) | | Approved by: Quality Manager |
| Test Report S/N: 1M1810250193-18.A3L | Test Dates: 11/9/2018 - 1/18/2019 | EUT Type: Portable Handset | | Page 100 of 519 |

MIMO Conducted Output Power Measurements (242 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] |
|------------------------|------------|---------|----------|-------|----------|-------|-------|-----------------------------|-----------------------------|-----------------------------|--------------------|--------------------------|----------------------|
| | | | | | 61 | | | | | | | | |
| | | | | | ANT1 | ANT2 | MIMO | | | | | | |
| 5180 | 36 | AVG | 242T | 11.79 | 11.73 | 14.77 | 23.98 | -9.21 | -5.12 | 9.65 | 22.39 | -12.74 | |
| 5200 | 40 | AVG | 242T | 14.47 | 14.34 | 17.42 | 23.98 | -6.56 | -5.12 | 12.29 | 22.39 | -10.10 | |
| 5240 | 48 | AVG | 242T | 14.64 | 14.30 | 17.48 | 23.98 | -6.50 | -4.51 | 12.98 | 22.39 | -9.41 | |
| 5260 | 52 | AVG | 242T | 14.20 | 14.23 | 17.23 | 23.47 | -6.24 | -4.19 | 13.03 | 29.47 | -16.44 | |
| 5280 | 56 | AVG | 242T | 14.28 | 14.26 | 17.28 | 23.47 | -6.19 | -4.19 | 13.09 | 29.47 | -16.38 | |
| 5320 | 64 | AVG | 242T | 12.69 | 12.24 | 15.48 | 23.47 | -7.99 | -4.81 | 10.68 | 29.47 | -18.79 | |
| 5500 | 100 | AVG | 242T | 14.57 | 14.14 | 17.37 | 22.80 | -5.43 | -4.45 | 12.92 | 28.80 | -15.88 | |
| 5600 | 120 | AVG | 242T | 14.70 | 14.50 | 17.61 | 22.80 | -5.19 | -4.45 | 13.16 | 28.80 | -15.64 | |
| 5720 | 144 | AVG | 242T | 14.85 | 14.56 | 17.72 | 22.80 | -5.08 | -4.34 | 13.38 | 28.80 | -15.42 | |
| 5745 | 149 | AVG | 242T | 14.23 | 14.57 | 17.41 | 30.00 | -12.59 | -4.76 | 12.65 | - | - | |
| 5785 | 157 | AVG | 242T | 14.35 | 14.64 | 17.51 | 30.00 | -12.49 | -4.76 | 12.75 | - | - | |
| 5825 | 165 | AVG | 242T | 14.13 | 14.72 | 17.45 | 30.00 | -12.55 | -5.04 | 12.41 | - | - | |

Table 7-57. MIMO 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] | Directional Ant. Gain [dBi] | Max e.i.r.p. [dBm] | Max e.i.r.p. Limit [dBm] | e.i.r.p. Margin [dB] |
|------------------------|------------|---------|----------|-------|----------|-------|-------|-------|-------|-------|-----------------------------|-----------------------------|-----------------------------|--------------------|--------------------------|----------------------|
| | | | | | 61 | | | 62 | | | | | | | | |
| | | | | | ANT1 | ANT2 | MIMO | ANT1 | ANT2 | MIMO | | | | | | |
| 5190 | 38 | AVG | 242T | 9.90 | 9.78 | 12.85 | 9.89 | 9.85 | 12.88 | 23.98 | -11.10 | -5.12 | 7.76 | 22.39 | -14.63 | |
| 5230 | 46 | AVG | 242T | 13.28 | 13.46 | 16.38 | 13.25 | 13.77 | 16.53 | 23.98 | -7.45 | -4.51 | 12.02 | 22.39 | -10.37 | |
| 5270 | 54 | AVG | 242T | 13.42 | 13.93 | 16.69 | 13.34 | 13.99 | 16.69 | 23.47 | -6.78 | -4.19 | 12.50 | 29.47 | -16.97 | |
| 5310 | 62 | AVG | 242T | 11.04 | 10.66 | 13.86 | 11.05 | 10.69 | 13.88 | 23.47 | -9.59 | -4.81 | 9.07 | 29.47 | -20.40 | |
| 5510 | 102 | AVG | 242T | 11.72 | 11.94 | 14.84 | 11.66 | 11.77 | 14.73 | 22.80 | -7.96 | -4.45 | 10.39 | 28.80 | -18.41 | |
| 5590 | 118 | AVG | 242T | 13.41 | 13.82 | 16.63 | 13.42 | 13.95 | 16.70 | 22.80 | -6.10 | -4.45 | 12.25 | 28.80 | -16.55 | |
| 5710 | 142 | AVG | 242T | 13.51 | 13.72 | 16.63 | 13.40 | 13.94 | 16.69 | 22.80 | -6.11 | -4.76 | 11.93 | 28.80 | -16.87 | |
| 5755 | 151 | AVG | 242T | 13.34 | 13.90 | 16.64 | 13.42 | 13.92 | 16.69 | 30.00 | -13.31 | -4.76 | 11.93 | - | - | |
| 5795 | 159 | AVG | 242T | 13.17 | 13.72 | 16.46 | 13.28 | 13.87 | 16.60 | 30.00 | -13.40 | -5.21 | 11.39 | - | - | |

Table 7-58. MIMO 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] | Directional 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 | | | | | | | | |
| | | | | | ANT1 | ANT2 | MIMO | ANT1 | ANT2 | MIMO | ANT1 | ANT2 | MIMO | | | | | | |
| 5210 | 42 | AVG | 242T | 8.72 | 8.63 | 11.69 | 8.81 | 8.99 | 11.91 | 8.63 | 8.98 | 11.82 | 23.98 | -12.07 | -4.66 | 7.25 | 22.39 | -15.14 | |
| 5290 | 58 | AVG | 242T | 8.70 | 9.14 | 11.94 | 9.56 | 9.09 | 12.34 | 8.84 | 9.31 | 12.09 | 23.47 | -11.13 | -4.32 | 8.02 | 29.47 | -21.45 | |
| 5530 | 106 | AVG | 242T | 9.23 | 9.48 | 12.37 | 9.07 | 9.06 | 12.08 | 8.96 | 8.99 | 11.99 | 22.80 | -10.43 | -4.45 | 7.92 | 28.80 | -20.88 | |
| 5610 | 122 | AVG | 242T | 12.78 | 12.68 | 15.74 | 12.68 | 12.59 | 15.65 | 12.82 | 12.99 | 15.92 | 22.80 | -6.88 | -4.45 | 11.47 | 28.80 | -17.33 | |
| 5690 | 138 | AVG | 242T | 12.68 | 12.62 | 15.66 | 12.67 | 12.40 | 15.55 | 12.68 | 12.71 | 15.71 | 22.80 | -7.09 | -4.45 | 11.26 | 28.80 | -17.54 | |
| 5775 | 155 | AVG | 242T | 12.13 | 12.80 | 15.49 | 11.99 | 12.96 | 15.51 | 12.30 | 12.98 | 15.66 | 30.00 | -14.34 | -4.76 | 10.90 | - | - | |

Table 7-59. MIMO 80MHz BW (UNII) Maximum Conducted Output Power (242 Tones)

| | | | | | |
|---|--------------------------------------|------------------------------------|--|--|---------------------------------|
| FCC ID: A3LSMG970U | | MEASUREMENT REPORT (CERTIFICATION) | | | Approved by: Quality Manager |
| Test Report S/N: 1M1810250193-18.A3L | Test Dates: 11/9/2018 - 1/18/2019 | EUT Type: Portable Handset | | | Page 101 of 519 |

MIMO Conducted Output Power Measurements (484 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] |
|------------------------|------------|---------|----------|-------|----------|-------|-------|-----------------------------|-----------------------------|-----------------------------|--------------------|--------------------------|----------------------|
| | | | | | 65 | | | | | | | | |
| | | | | | ANT1 | ANT2 | MIMO | | | | | | |
| | 5190 | 38 | AVG | 484T | 9.58 | 9.53 | 12.57 | 23.98 | -11.41 | -5.12 | 7.45 | 22.39 | -14.94 |
| | 5230 | 46 | AVG | 484T | 13.07 | 13.20 | 16.15 | 23.98 | -7.83 | -4.51 | 11.64 | 22.39 | -10.75 |
| | 5270 | 54 | AVG | 484T | 13.14 | 13.65 | 16.41 | 23.47 | -7.06 | -4.19 | 12.22 | 29.47 | -17.25 |
| | 5310 | 62 | AVG | 484T | 10.68 | 10.31 | 13.51 | 23.47 | -9.96 | -4.81 | 8.70 | 29.47 | -20.77 |
| | 5510 | 102 | AVG | 484T | 11.76 | 11.89 | 14.84 | 22.80 | -7.96 | -4.45 | 10.39 | 28.80 | -18.41 |
| | 5590 | 118 | AVG | 484T | 13.08 | 13.73 | 16.43 | 22.80 | -6.37 | -4.45 | 11.98 | 28.80 | -16.82 |
| | 5710 | 142 | AVG | 484T | 13.60 | 13.83 | 16.73 | 22.80 | -6.07 | -4.76 | 11.97 | 28.80 | -16.83 |
| | 5755 | 151 | AVG | 484T | 13.17 | 13.82 | 16.52 | 30.00 | -13.48 | -4.76 | 11.76 | - | - |
| | 5795 | 159 | AVG | 484T | 13.00 | 13.76 | 16.41 | 30.00 | -13.59 | -5.21 | 11.20 | - | - |

Table 7-60. MIMO 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] | Directional Ant. Gain [dBi] | Max e.i.r.p. [dBm] | Max e.i.r.p. Limit [dBm] | e.i.r.p. Margin [dB] |
|------------------------|------------|---------|----------|-------|----------|-------|-------|-------|-------|-------|-----------------------------|-----------------------------|-----------------------------|--------------------|--------------------------|----------------------|
| | | | | | 65 | | | 66 | | | | | | | | |
| | | | | | ANT1 | ANT2 | MIMO | ANT1 | ANT2 | MIMO | | | | | | |
| | 5210 | 42 | AVG | 484T | 8.71 | 8.84 | 11.79 | 8.44 | 8.51 | 11.49 | 23.98 | -12.19 | -4.66 | 7.13 | 22.39 | -15.26 |
| | 5290 | 58 | AVG | 484T | 8.92 | 9.15 | 12.05 | 9.51 | 9.14 | 12.34 | 23.47 | -11.13 | -4.32 | 8.02 | 29.47 | -21.45 |
| | 5530 | 106 | AVG | 484T | 9.44 | 8.85 | 12.17 | 9.00 | 9.08 | 12.05 | 22.80 | -10.63 | -4.45 | 7.72 | 28.80 | -21.08 |
| | 5610 | 122 | AVG | 484T | 12.40 | 12.39 | 15.41 | 12.58 | 12.54 | 15.57 | 22.80 | -7.23 | -4.45 | 11.12 | 28.80 | -17.68 |
| | 5690 | 138 | AVG | 484T | 12.55 | 12.19 | 15.38 | 12.75 | 12.34 | 15.56 | 22.80 | -7.24 | -4.45 | 11.11 | 28.80 | -17.69 |
| | 5775 | 155 | AVG | 484T | 11.96 | 12.64 | 15.32 | 12.08 | 12.85 | 15.49 | 30.00 | -14.51 | -4.76 | 10.73 | - | - |

Table 7-61. MIMO 80MHz BW (UNII) Maximum Conducted Output Power (484 Tones)

| | | | | | |
|---|---|---------------------------------------|--|---|---------------------------------|
| FCC ID: A3LSMG970U |  | MEASUREMENT REPORT (CERTIFICATION) | |  | Approved by: Quality Manager |
| Test Report S/N: 1M1810250193-18.A3L | Test Dates: 11/9/2018 - 1/18/2019 | EUT Type: Portable Handset | | | Page 102 of 519 |

MIMO Conducted Output Power Measurements (996 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] |
|------------------------|------------|---------|----------|-------|----------|-------|-------|-----------------------------|-----------------------------|-----------------------------|--------------------|--------------------------|----------------------|
| | | | | | 67 | | | | | | | | |
| | | | | | ANT1 | ANT2 | MIMO | | | | | | |
| | | | | | 5210 | 42 | AVG | | | | | | |
| 5290 | 58 | AVG | 996T | 8.78 | 8.97 | 11.89 | 23.47 | -11.58 | -4.32 | 7.57 | 29.47 | -21.90 | |
| 5530 | 106 | AVG | 996T | 9.10 | 8.90 | 12.01 | 22.80 | -10.79 | -4.45 | 7.56 | 28.80 | -21.24 | |
| 5610 | 122 | AVG | 996T | 12.45 | 12.99 | 15.74 | 22.80 | -7.06 | -4.45 | 11.29 | 28.80 | -17.51 | |
| 5690 | 138 | AVG | 996T | 12.46 | 12.78 | 15.63 | 22.80 | -7.17 | -4.45 | 11.18 | 28.80 | -17.62 | |
| 5775 | 155 | AVG | 996T | 11.98 | 12.97 | 15.51 | 30.00 | -14.49 | -4.76 | 10.75 | - | - | |

Table 7-62. MIMO 80MHz BW (UNII) Maximum Conducted Output Power (996 Tones)

| | | | | | |
|---|---|---------------------------------------|--|---|---------------------------------|
| FCC ID: A3LSMG970U |  | MEASUREMENT REPORT (CERTIFICATION) | |  | Approved by: Quality Manager |
| Test Report S/N: 1M1810250193-18.A3L | Test Dates: 11/9/2018 - 1/18/2019 | EUT Type: Portable Handset | | | Page 103 of 519 |

Note:

Per ANSI C63.10-2013 and KDB 662911 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.

$$\text{Directional gain} = 10 \log[(10^{G_1/20} + 10^{G_2/20} + \dots + 10^{G_N/20})^2 / N_{ANT}] \text{ dBi}$$

Sample Directional Gain Calculation:

Assuming the antenna gain is -8.61 dBi for Antenna-1 and -7.68 dBi for Antenna-2.

$$\begin{aligned} \text{Directional gain} &= 10 \log[(10^{G_1/20} + 10^{G_2/20} + \dots + 10^{G_N/20})^2 / N_{ANT}] \text{ dBi} \\ &= 10 \log[(10^{-8.61/20} + 10^{-7.68/20} / 2] \text{ dBi} \\ &= (-5.12) \text{ dBi} \end{aligned}$$

Sample MIMO Calculation:

Assuming the average conducted output power was measured to be 8.13 dBm for Antenna-1 and 7.48 dBm for Antenna-2.

Antenna 1 + Antenna 2 = MIMO

$$(8.13 \text{ dBm} + 7.48 \text{ dBm}) = (6.50 \text{ mW} + 5.60 \text{ mW}) = 12.10 \text{ mW} = 10.83 \text{ dBm}$$

Sample e.i.r.p. Calculation:

Assuming the average MIMO conducted power was calculated to be 10.83 dBm with directional gain of -5.12 dBi.

$$\text{e.i.r.p. (dBm)} = \text{Conducted Power (dBm)} + \text{Directional gain (dBi)}$$

$$10.83 \text{ dBm} + (-5.12) \text{ dBi} = 5.71 \text{ dBm}$$

| | | | |
|---|---|-------------------------------|---------------------------------|
| FCC ID: A3LSMG970U |  MEASUREMENT REPORT (CERTIFICATION)  | | Approved by: Quality Manager |
| Test Report S/N: 1M1810250193-18.A3L | Test Dates: 11/9/2018 - 1/18/2019 | EUT Type: Portable Handset | Page 104 of 519 |

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 $\geq 2 \times$ (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

| | | | | |
|---|---|---------------------------------------|---|---------------------------------|
| FCC ID: A3LSMG970U |  | MEASUREMENT REPORT (CERTIFICATION) |  | Approved by: Quality Manager |
| Test Report S/N: 1M1810250193-18.A3L | Test Dates: 11/9/2018 - 1/18/2019 | EUT Type: Portable Handset | Page 105 of 519 | |

SISO Antenna-1 Power Spectral Density Measurements (26 Tones)

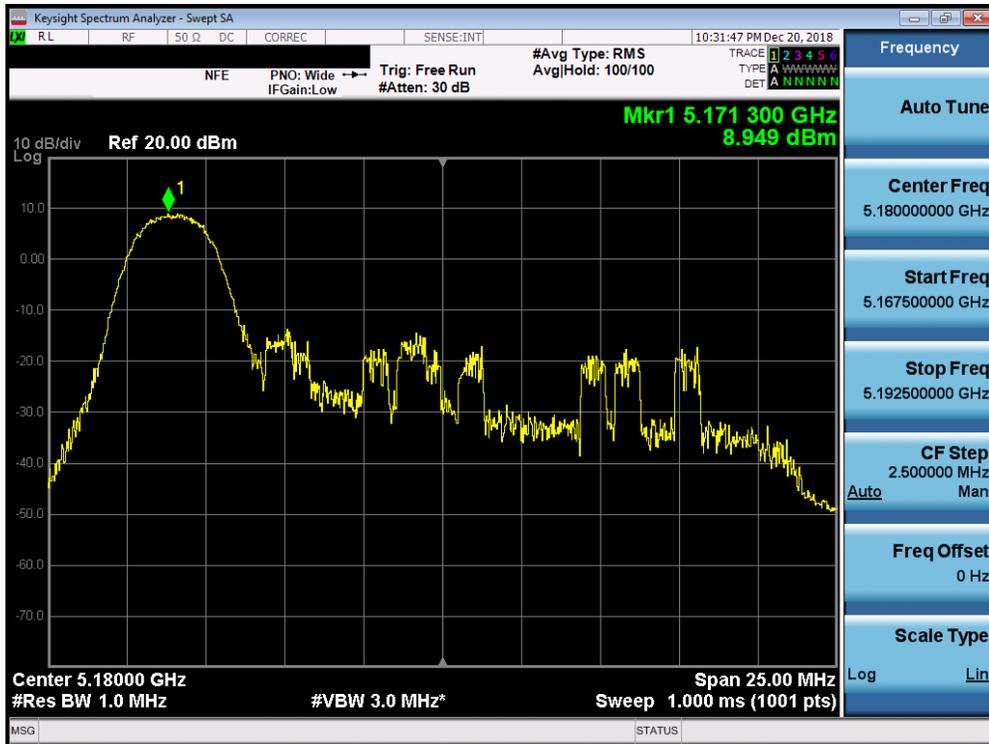
| | Frequency [MHz] | Channel No. | 802.11 Mode | Tones | Data Rate [Mbps] | Measured Power Density [dBm] | Max Power Density [dBm/MHz] | Margin [dB] |
|---------|-----------------|-------------|-------------|-------|------------------|------------------------------|-----------------------------|-------------|
| Band 1 | 5180 | 36 | ax (20MHz) | 26T | MCS0 | 8.95 | 11.00 | -2.05 |
| | 5200 | 40 | ax (20MHz) | 26T | MCS0 | 6.69 | 11.00 | -4.31 |
| | 5240 | 48 | ax (20MHz) | 26T | MCS0 | 7.64 | 11.00 | -3.36 |
| | 5190 | 38 | ax (40MHz) | 26T | MCS0 | 9.02 | 11.00 | -1.98 |
| | 5230 | 46 | ax (40MHz) | 26T | MCS0 | 8.51 | 11.00 | -2.49 |
| | 5210 | 42 | ax (80MHz) | 26T | MCS0 | 8.47 | 11.00 | -2.53 |
| Band 2A | 5260 | 52 | ax (20MHz) | 26T | MCS0 | 7.14 | 11.00 | -3.86 |
| | 5280 | 56 | ax (20MHz) | 26T | MCS0 | 7.60 | 11.00 | -3.40 |
| | 5320 | 64 | ax (20MHz) | 26T | MCS0 | 8.47 | 11.00 | -2.53 |
| | 5270 | 54 | ax (40MHz) | 26T | MCS0 | 8.77 | 11.00 | -2.23 |
| | 5310 | 62 | ax (40MHz) | 26T | MCS0 | 8.43 | 11.00 | -2.57 |
| | 5290 | 58 | ax (80MHz) | 26T | MCS0 | 8.55 | 11.00 | -2.45 |
| Band 2C | 5500 | 100 | ax (20MHz) | 26T | MCS0 | 9.36 | 11.00 | -1.64 |
| | 5600 | 120 | ax (20MHz) | 26T | MCS0 | 7.49 | 11.00 | -3.51 |
| | 5720 | 144 | ax (20MHz) | 26T | MCS0 | 7.60 | 11.00 | -3.40 |
| | 5510 | 102 | ax (40MHz) | 26T | MCS0 | 9.23 | 11.00 | -1.77 |
| | 5590 | 118 | ax (40MHz) | 26T | MCS0 | 9.50 | 11.00 | -1.50 |
| | 5710 | 142 | ax (40MHz) | 26T | MCS0 | 9.13 | 11.00 | -1.87 |
| | 5530 | 106 | ax (80MHz) | 26T | MCS0 | 7.33 | 11.00 | -3.67 |
| | 5610 | 122 | ax (80MHz) | 26T | MCS0 | 7.58 | 11.00 | -3.42 |
| | 5690 | 138 | ax (80MHz) | 26T | MCS0 | 6.29 | 11.00 | -4.71 |

Table 7-63. Bands 1, 2A, 2C Conducted Power Spectral Density Measurements SISO ANT1 (26 Tones)

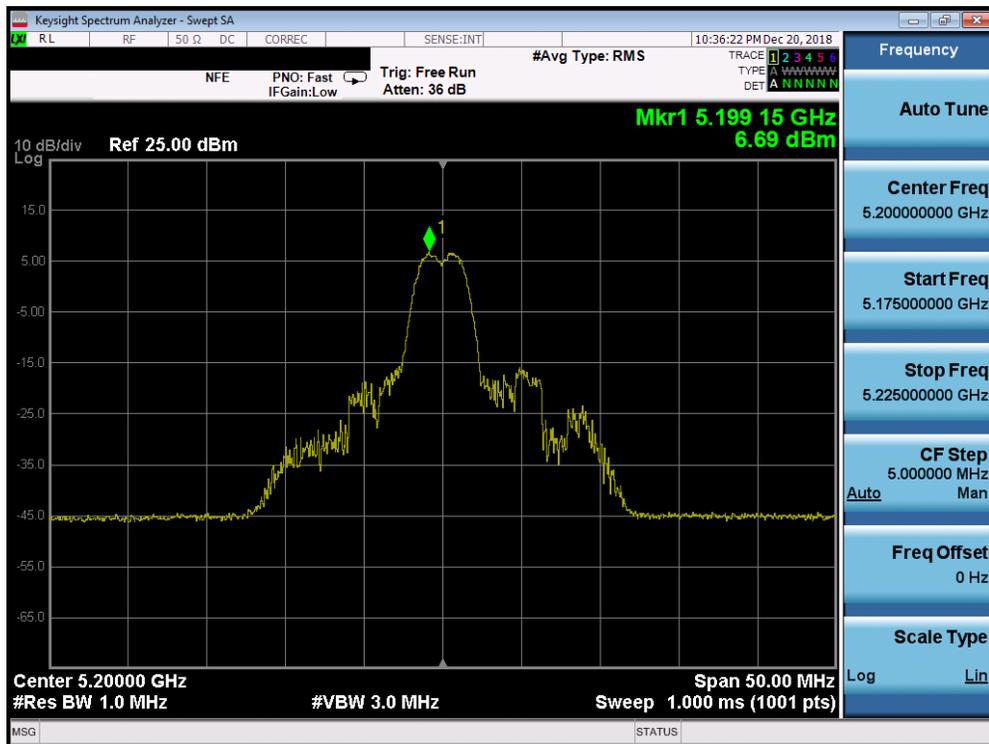
| | Frequency [MHz] | Channel No. | 802.11 Mode | Tones | Data Rate [Mbps] | Measured Power Density [dBm] | Antenna Gain [dBi] | e.i.r.p. Power Density [dBm/MHz] | ISED Max e.i.r.p. Power Density | Margin [dB] |
|--------|-----------------|-------------|-------------|-------|------------------|------------------------------|--------------------|----------------------------------|---------------------------------|-------------|
| Band 1 | 5180 | 36 | ax (20MHz) | 26T | MCS0 | 8.95 | -8.61 | 0.34 | 10.0 | -9.66 |
| | 5200 | 40 | ax (20MHz) | 26T | MCS0 | 6.69 | -8.61 | -1.92 | 10.0 | -11.92 |
| | 5240 | 48 | ax (20MHz) | 26T | MCS0 | 7.64 | -7.66 | -0.02 | 10.0 | -10.02 |
| | 5190 | 38 | ax (40MHz) | 26T | MCS0 | 9.02 | -8.61 | 0.41 | 10.0 | -9.59 |
| | 5230 | 46 | ax (40MHz) | 26T | MCS0 | 8.51 | -7.66 | 0.85 | 10.0 | -9.15 |
| | 5210 | 42 | ax (80MHz) | 26T | MCS0 | 8.47 | -7.66 | 0.81 | 10.0 | -9.19 |

Table 7-64. Bands 1 e.i.r.p Conducted Power Spectral Density Measurements (ISED 26 Tones)

| | | | | | |
|---|---|------------------------------------|--|---|---------------------------------|
| FCC ID: A3LSMG970U |  | MEASUREMENT REPORT (CERTIFICATION) | |  | Approved by: Quality Manager |
| Test Report S/N: 1M1810250193-18.A3L | Test Dates: 11/9/2018 - 1/18/2019 | EUT Type: Portable Handset | | Page 106 of 519 | |

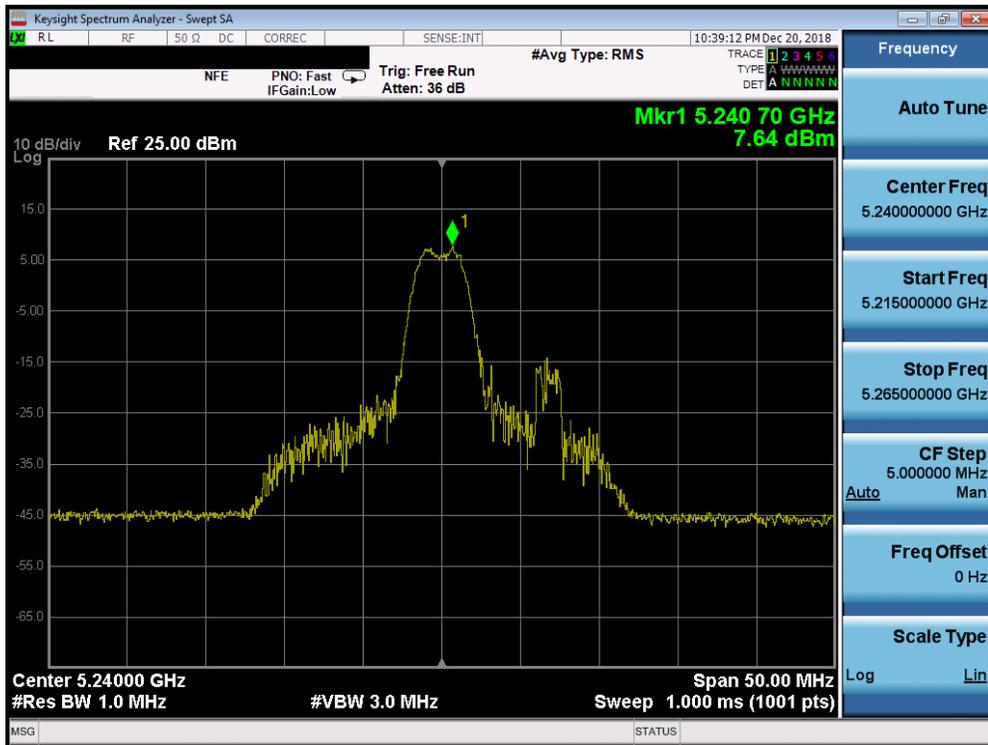


Plot 7-109. Power Spectral Density Plot SISO ANT1 (20MHz BW 802.11ax – 26 Tones (UNII Band 1) – Ch. 36)

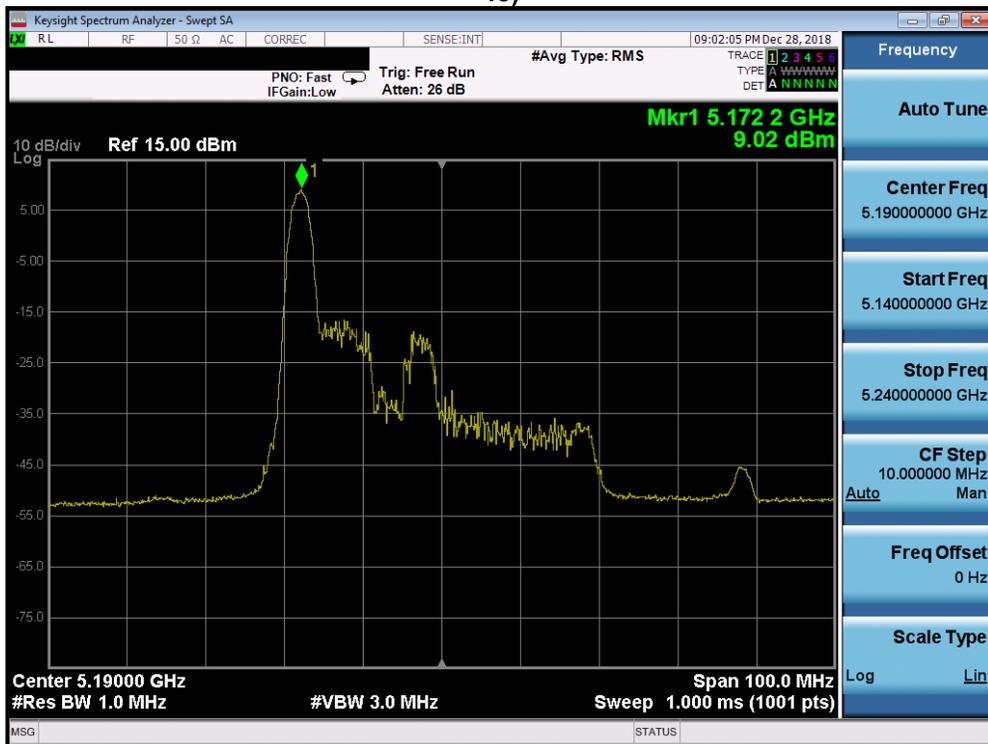


Plot 7-110. Power Spectral Density Plot SISO ANT1 (20MHz BW 802.11ax – 26 Tones (UNII Band 1) – Ch. 40)

| | | | | |
|---|--------------------------------------|---------------------------------------|--|---------------------------------|
| FCC ID: A3LSMG970U | | MEASUREMENT REPORT (CERTIFICATION) | | Approved by: Quality Manager |
| Test Report S/N: 1M1810250193-18.A3L | Test Dates: 11/9/2018 - 1/18/2019 | EUT Type: Portable Handset | | Page 107 of 519 |

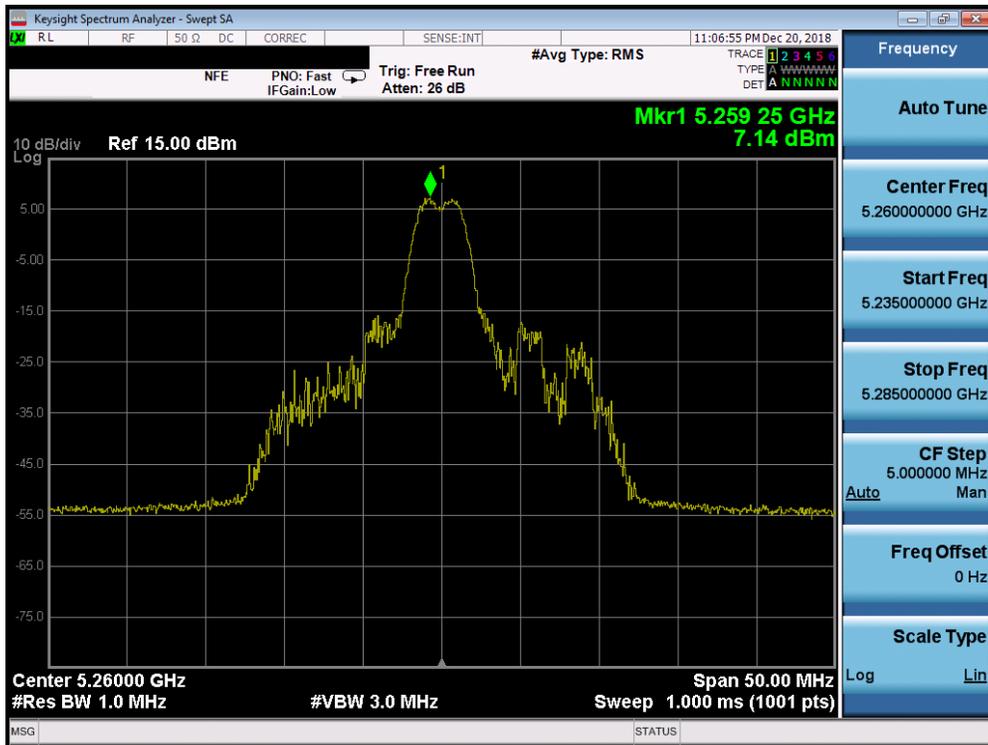


Plot 7-111. Power Spectral Density Plot SISO ANT1 (20MHz BW 802.11ax – 26 Tones (UNII Band 1) – Ch. 48)

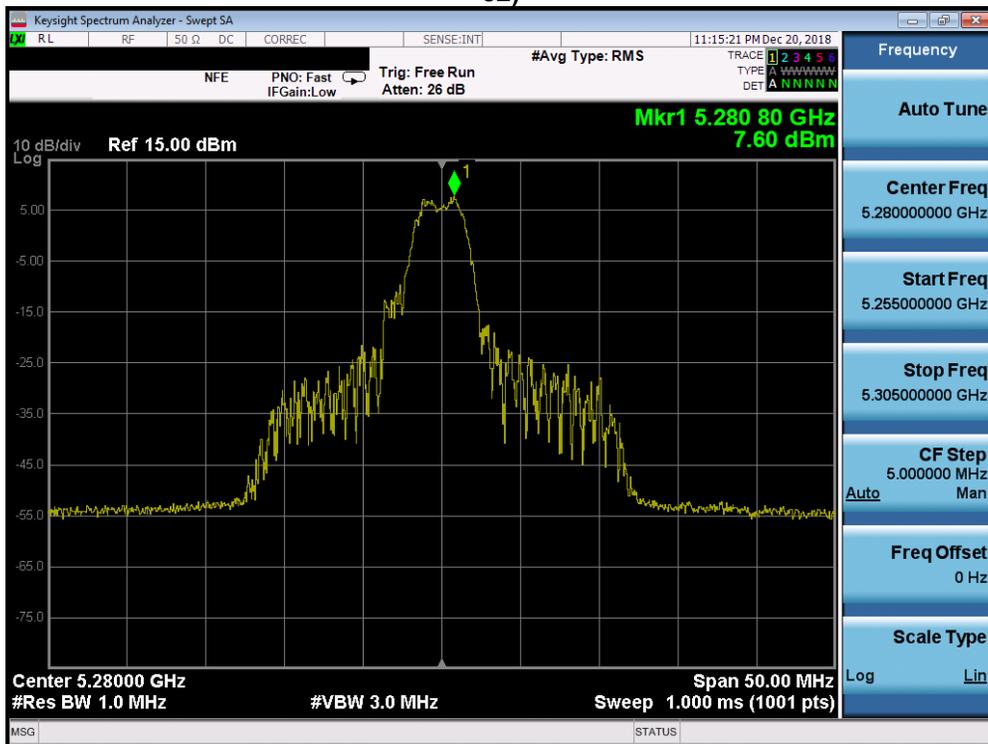


Plot 7-112. Power Spectral Density Plot SISO ANT1 (40MHz BW 802.11ax – 26 Tones (UNII Band 1) – Ch. 38)

| | | | | |
|---|--------------------------------------|---------------------------------------|--|---------------------------------|
| FCC ID: A3LSMG970U | | MEASUREMENT REPORT (CERTIFICATION) | | Approved by: Quality Manager |
| Test Report S/N: 1M1810250193-18.A3L | Test Dates: 11/9/2018 - 1/18/2019 | EUT Type: Portable Handset | | Page 108 of 519 |

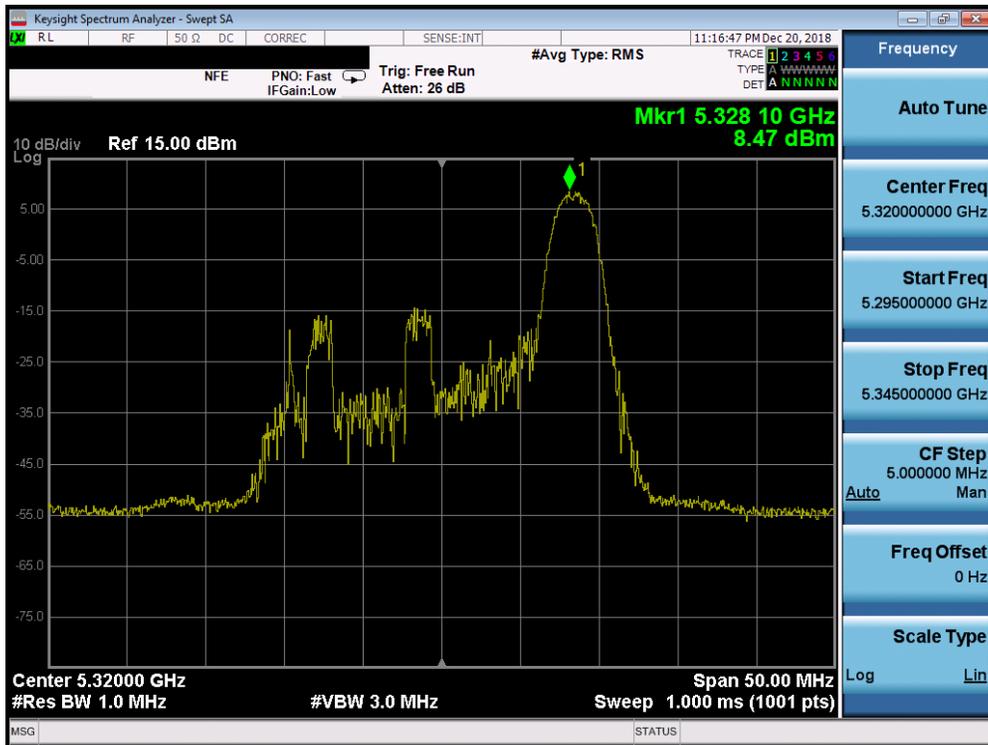


Plot 7-115. Power Spectral Density Plot SISO ANT1 (20MHz BW 802.11ax – 26 Tones (UNII Band 2A) – Ch. 52)

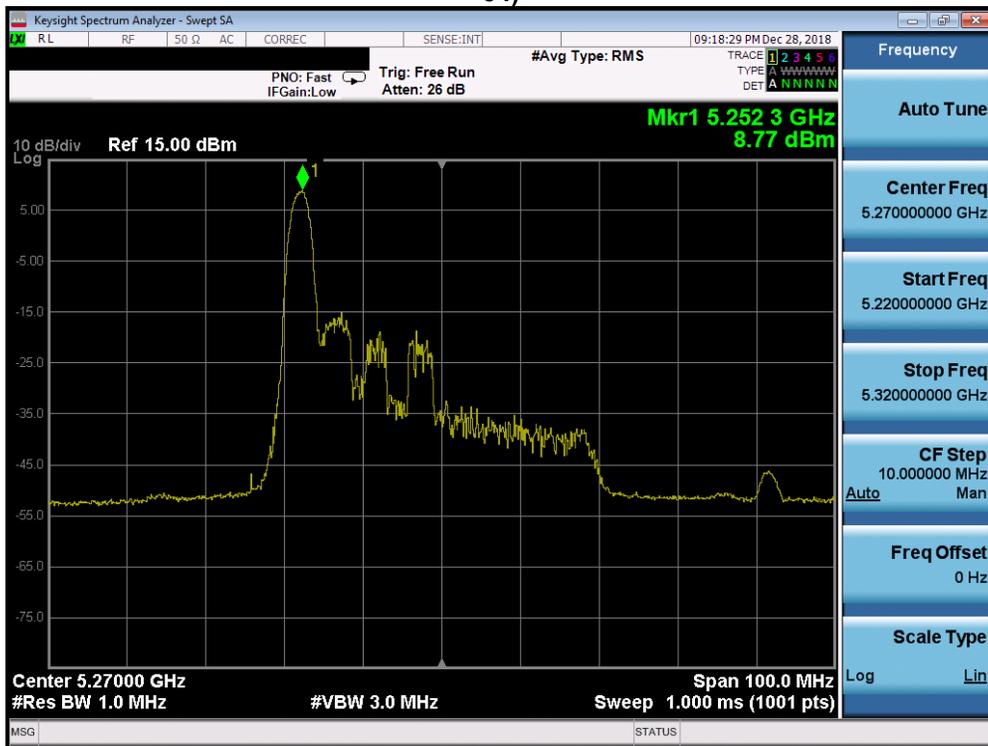


Plot 7-116. Power Spectral Density Plot SISO ANT1 (20MHz BW 802.11ax – 26 Tones (UNII Band 2A) – Ch. 56)

| | | | | |
|---|--------------------------------------|---------------------------------------|--|---------------------------------|
| FCC ID: A3LSMG970U | | MEASUREMENT REPORT (CERTIFICATION) | | Approved by: Quality Manager |
| Test Report S/N: 1M1810250193-18.A3L | Test Dates: 11/9/2018 - 1/18/2019 | EUT Type: Portable Handset | | Page 110 of 519 |

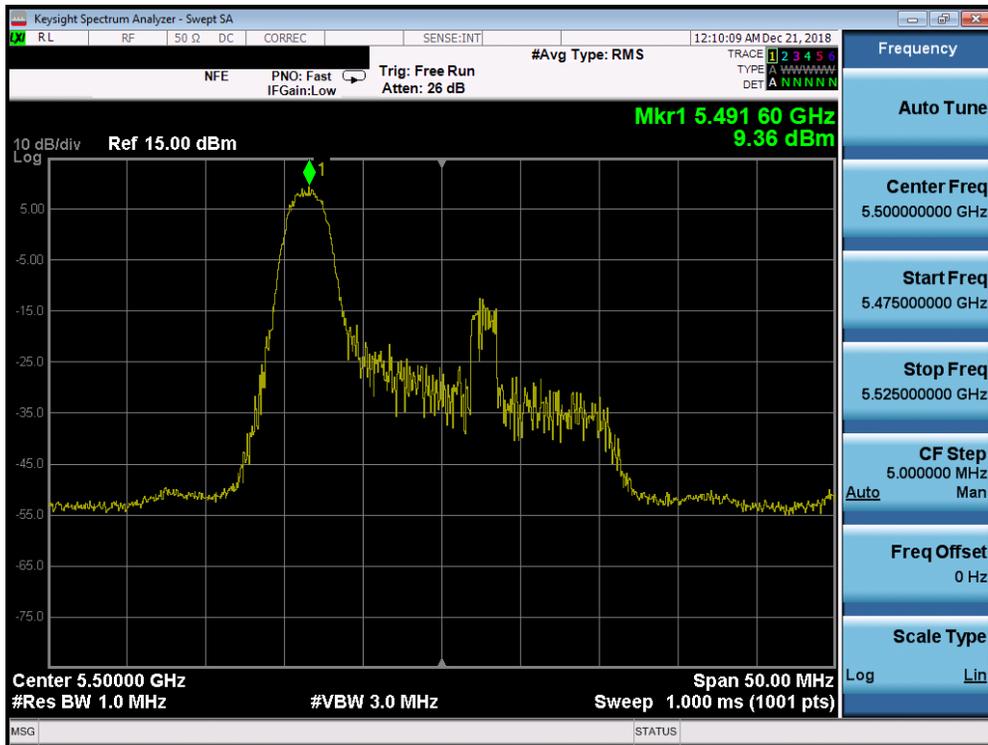


Plot 7-117. Power Spectral Density Plot SISO ANT1 (20MHz BW 802.11ax – 26 Tones (UNII Band 2A) – Ch. 64)

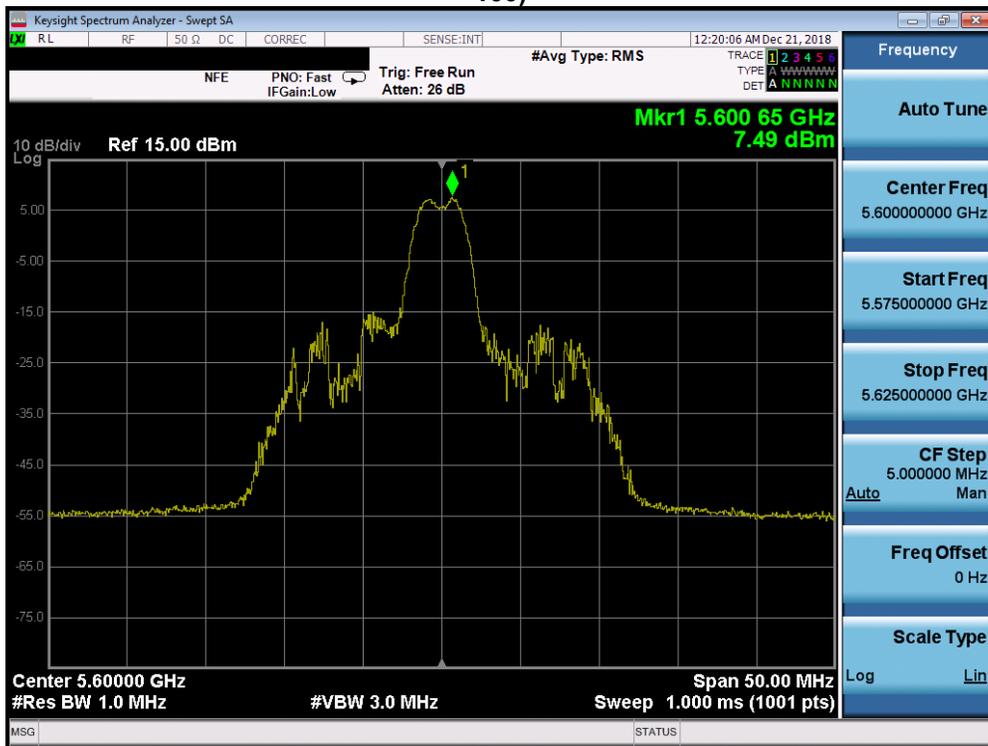


Plot 7-118. Power Spectral Density Plot SISO ANT1 (40MHz BW 802.11ax – 26 Tones (UNII Band 2A) – Ch. 54)

| | | | | |
|---|--------------------------------------|---------------------------------------|--|---------------------------------|
| FCC ID: A3LSMG970U | | MEASUREMENT REPORT (CERTIFICATION) | | Approved by: Quality Manager |
| Test Report S/N: 1M1810250193-18.A3L | Test Dates: 11/9/2018 - 1/18/2019 | EUT Type: Portable Handset | | Page 111 of 519 |



Plot 7-121. Power Spectral Density Plot SISO ANT1 (20MHz BW 802.11ax – 26 Tones (UNII Band 2C) – Ch. 100)



Plot 7-122. Power Spectral Density Plot SISO ANT1 (20MHz BW 802.11ax – 26 Tones (UNII Band 2C) – Ch. 120)

| | | | | |
|---|--------------------------------------|---------------------------------------|--|---------------------------------|
| FCC ID: A3LSMG970U | | MEASUREMENT REPORT (CERTIFICATION) | | Approved by: Quality Manager |
| Test Report S/N: 1M1810250193-18.A3L | Test Dates: 11/9/2018 - 1/18/2019 | EUT Type: Portable Handset | | Page 113 of 519 |