# FCC Test Report

| | |
|---|---|
| Product Name | Portable Computer |
| Model No | P109F |
| FCC ID | E2K-P109F |

| | |
|---|---|
| Applicant | Dell Inc. |
| Address | One Dell Way, Round Rock, Texas 78682, USA |

| | |
|---|---|
| Date of Receipt | Dec. 22, 2020 |
| Issued Date | Feb. 20, 2021 |
| Report No. | 20C0808R-E3032110126 |
| Report Version | V1.0 |

Testing Laboratory
3023

# Test Report

Issued Date: Feb. 20, 2021
Report No.: 20C0808R-E3032110126

| | |
|---|---|
| Product Name | Portable Computer |
| Applicant | Dell Inc. |
| Address | One Dell Way, Round Rock, Texas 78682, USA |
| Manufacturer | Dell Inc. |
| Model No. | P109F |
| FCC ID. | E2K-P109F |
| EUT Rated Voltage | AC 100-240V, 50-60Hz |
| EUT Test Voltage | AC 120V/60Hz |
| Trade Name | ALIENWARE |
| Applicable Standard | FCC CFR Title 47 Part 15 Subpart E<br>ANSI C63.4: 2014, ANSI C63.10: 2013<br>KDB Publication 789033 |
| Test Result | Complied |

Documented By : Joanne Lin

( Senior Adm. Specialist / Joanne Lin )

Tested By : Bill Lin

( Senior Engineer / Bill Lin )

Approved By :

( Director / Vincent Lin )

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Attachment 1: EUT Test Photographs
Attachment 2: EUT Detailed Photographs

# Revision History

| Report No. | Version | Description | Issued Date |
|---|---|---|---|
| 20C0808R-E3032110126 | V1.0 | Initial issue of report. | Feb. 20, 2021 |

# 1. GENERAL INFORMATION

## 1.1. EUT Description

| | |
|---|---|
| Product Name | Portable Computer |
| Trade Name | ALIENWARE |
| FCC ID. | E2K-P109F |
| Model No. | P109F |
| Frequency Range | 802.11a/n/ax-20MHz: 5180-5320MHz, 5500-5700MHz, 5720 MHz, 5745-5825MHz<br>802.11n/ax-40MHz: 5190-5310MHz, 5510-5670MHz, 5710 MHz, 5755-5795MHz<br>802.11ac/ax-80MHz: 5210-5290MHz, 5530-5690MHz, 5775MHz<br>802.11ac/ax-160MHz: 5250MHz, 5570MHz |
| Number of Channels | 802.11a/n/ax-20MHz: 25<br>802.11n/ax-40MHz: 12<br>802.11ac/ax-80MHz: 6<br>802.11ac/ax-160MHz: 2 |
| Data Rate | 802.11a: 6 - 54Mbps<br>802.11n: up to 300Mbps<br>802.11ac: up to 1733.3Mbps<br>802.11ax: up to 2402Mbps |
| Type of Modulation | 802.11a/n/ac/ax: OFDM, BPSK, QPSK, 16QAM, 64QAM, 256QAM, 1024QAM |
| Antenna Type | PIFA Antenna |
| Channel Control | Auto |
| Antenna Gain | Refer to the table “Antenna List” |
| Power Cable | Shielded, 1.8m |
| Power Adapter | MFR: DELL, M/N: HA240PM190<br>Input: AC 100-240V~5A, 50-60Hz<br>Output: 19.5V⎓12.31A, 240.0W<br>Cable Out: Shielded, 1.8m, with two ferrite cores bonded. |

**Antenna List**

| No. | Manufacturer | Part No. | Antenna type | Peak Gain |
|---|---|---|---|---|
| 1 | Hong-BO Co., Ltd. | 260-24363 (DC33002IL0L) (Main)<br>260-24362 (DC33002IL1L) (Aux) | PIFA Antenna | -1.96dBi for 5.15~5.25GHz<br>-1.05dBi for 5.25~5.35GHz<br>-0.48dBi for 5.47~5.725GHz<br>-0.29dBi for 5.725~5.85GHz |
| 2 | Wistron Neweb Corporation | DC33002IK0L (81EABG15.G09) (Main)<br>DC33002IK1L (81EABG15.G10) (Aux) | PIFA Antenna | 0.15dBi for 5.15~5.25GHz<br>0.95dBi for 5.25~5.35GHz<br>1.28dBi for 5.47~5.725GHz<br>1.28dBi for 5.725~5.85GHz |

Note:

(1) The antenna of EUT is conforming to FCC 15.203.
(2) Only the higher gain antenna was tested and recorded in this report.

802.11a/n/ax-20MHz Center Working Frequency of Each Channel:

| Channel | Frequency | Channel | Frequency | Channel | Frequency | Channel | Frequency |
|---|---|---|---|---|---|---|---|
| Channel 036: | 5180 MHz | Channel 040: | 5200 MHz | Channel 044: | 5220 MHz | Channel 048: | 5240 MHz |
| Channel 052: | 5260 MHz | Channel 056: | 5280 MHz | Channel 060: | 5300 MHz | Channel 064: | 5320 MHz |
| Channel 100: | 5500 MHz | Channel 104: | 5520 MHz | Channel 108: | 5540 MHz | Channel 112: | 5560 MHz |
| Channel 116: | 5580 MHz | Channel 120: | 5600 MHz | Channel 124: | 5620 MHz | Channel 128: | 5640 MHz |
| Channel 132: | 5660 MHz | Channel 136: | 5680 MHz | Channel 140: | 5700 MHz | Channel 144: | 5720 MHz |
| Channel 149: | 5745 MHz | Channel 153: | 5765 MHz | Channel 157: | 5785 MHz | Channel 161: | 5805 MHz |
| Channel 165: | 5825 MHz | | | | | | |

802.11n/ax-40MHz Center Working Frequency of Each Channel:

| Channel | Frequency | Channel | Frequency | Channel | Frequency | Channel | Frequency |
|---|---|---|---|---|---|---|---|
| Channel 038: | 5190 MHz | Channel 046: | 5230 MHz | Channel 054: | 5270 MHz | Channel 062: | 5310 MHz |
| Channel 102: | 5510 MHz | Channel 110: | 5550 MHz | Channel 118: | 5590 MHz | Channel 126: | 5630 MHz |
| Channel 134: | 5670 MHz | Channel 142: | 5710 MHz | Channel 151: | 5755 MHz | Channel 159: | 5795 MHz |

802.11ac/ax-80MHz Center Working Frequency of Each Channel:

| Channel | Frequency | Channel | Frequency | Channel | Frequency | Channel | Frequency |
|---|---|---|---|---|---|---|---|
| Channel 042: | 5210 MHz | Channel 058: | 5290 MHz | Channel 106: | 5530 MHz | Channel 122: | 5610 MHz |
| Channel 138: | 5690 MHz | Channel 155: | 5775 MHz | | | | |

802.11ac/ax-160MHz Center Working Frequency of Each Channel:

| Channel | Frequency | Channel | Frequency |
|---|---|---|---|
| Channel 50: | 5250 MHz | Channel 114: | 5570 MHz |

Note:

1. This device is an Portable Computer with a built-in WLAN (802.11a/b/g/n/ac/ax) with Bluetooth (5.0 and V3.0+HS, V2.1+EDR) transceiver, this report for 5GHz WLAN.
2. This report is based on the comprehensive requirements of KDB 996369 D02. The end product only evaluates RF power and spurious emissions. The original RF module test report is 181210-03.TR01, 181210-03.TR02, 181210-03.TR03.
3. Regarding to the operation frequency, the lowest, middle and highest frequency are selected to perform the test.
4. Lowest and highest data rates are tested in each mode. Only worst case is shown in the report.
5. These tests were conducted on a sample of the equipment for the purpose of demonstrating compliance of transmitter with Part 15 Subpart E for Unlicensed National Information Infrastructure devices.

| | |
|---|---|
| Test Mode | Mode 1 SISO A: Transmit (802.11a_6Mbps)<br>Mode 2 SISO A: Transmit (802.11n-20BW_7.2Mbps)<br>Mode 3 SISO A: Transmit (802.11n-40BW_15Mbps)<br>Mode 4 SISO A: Transmit (802.11ac-80BW_32.5Mbps)<br>Mode 5 SISO A: Transmit (802.11ac-160BW_65Mbps)<br>Mode 6 SISO A: Transmit (802.11ax-20BW_8.6Mbps)<br>Mode 7 SISO A: Transmit (802.11ax-40BW_17.2Mbps)<br>Mode 8 SISO A: Transmit (802.11ax-80BW_36Mbps)<br>Mode 9 SISO A: Transmit (802.11ax-160BW_72.1Mbps)<br>Mode 10 SISO B: Transmit (802.11a_6Mbps)<br>Mode 11 SISO B: Transmit (802.11n-20BW_7.2Mbps)<br>Mode 12 SISO B: Transmit (802.11n-40BW_15Mbps)<br>Mode 13 SISO B: Transmit (802.11ac-80BW_32.5Mbps)<br>Mode 14 SISO B: Transmit (802.11ac-160BW_65Mbps)<br>Mode 15 SISO B Transmit (802.11ax-20BW_8.6Mbps)<br>Mode 16 SISO B: Transmit (802.11ax-40BW_17.2Mbps)<br>Mode 17 SISO B: Transmit (802.11ax-80BW_36Mbps)<br>Mode 18 SISO B: Transmit (802.11ax-160BW_72.1Mbps)<br>Mode 19 MIMO: Transmit (802.11n-20BW_14.4Mbps)<br>Mode 20 MIMO: Transmit (802.11n-40BW_30Mbps)<br>Mode 21 MIMO: Transmit (802.11ac-80BW_65Mbps)<br>Mode 22 MIMO: Transmit (802.11ac-160BW_130Mbps)<br>Mode 23 MIMO: Transmit (802.11ax-20BW_17.2Mbps)<br>Mode 24 MIMO: Transmit (802.11ax-40BW_34.4Mbps)<br>Mode 25 MIMO: Transmit (802.11ax-80BW_72.1Mbps)<br>Mode 26 MIMO: Transmit (802.11ax-160BW_144.1Mbps)<br>Mode 27 SISO A: Transmit (802.11ax-20BW_8.6Mbps) (Partial RU)<br>Mode 28 SISO A: Transmit (802.11ax-40BW_17.2Mbps) (Partial RU)<br>Mode 29 SISO A: Transmit (802.11ax-80BW_36Mbps) (Partial RU)<br>Mode 30 SISO A: Transmit (802.11ax-160BW_72.1Mbps) (Partial RU)<br>Mode 31 SISO B Transmit (802.11ax-20BW_8.6Mbps) (Partial RU)<br>Mode 32 SISO B: Transmit (802.11ax-40BW_17.2Mbps) (Partial RU)<br>Mode 33 SISO B: Transmit (802.11ax-80BW_36Mbps) (Partial RU)<br>Mode 34 SISO B: Transmit (802.11ax-160BW_72.1Mbps) (Partial RU)<br>Mode 35 MIMO: Transmit (802.11ax-20BW_17.2Mbps) (Partial RU)<br>Mode 36 MIMO: Transmit (802.11ax-40BW_34.4Mbps) (Partial RU)<br>Mode 37 MIMO: Transmit (802.11ax-80BW_72.1Mbps) (Partial RU)<br>Mode 38 MIMO: Transmit (802.11ax-160BW_144.1Mbps) (Partial RU)<br>Mode 39: Transmit-SISO A<br>Mode 40: Transmit-SISO B<br>Mode 41: Transmit-MIMO |

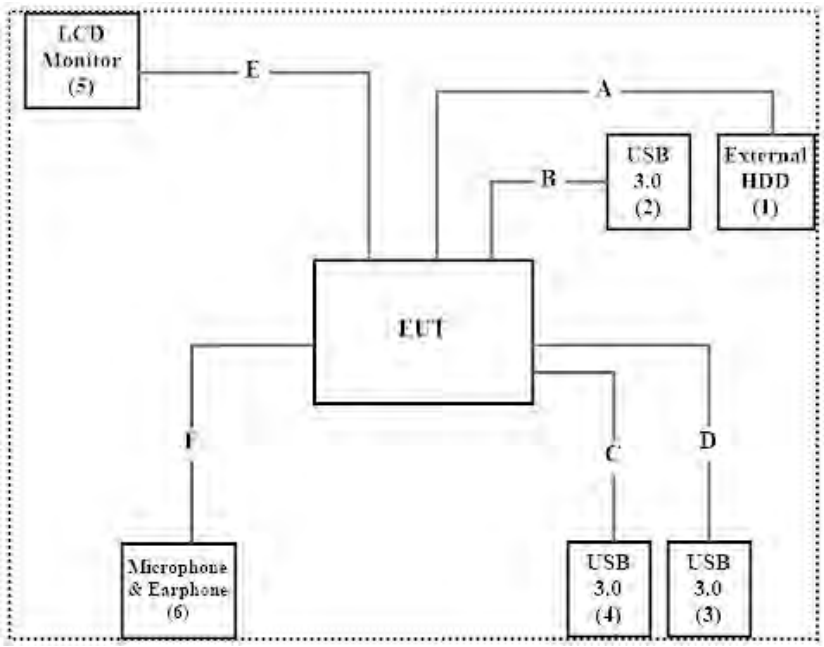
## 1.2. Tested System Datails

The types for all equipment, plus descriptions of all cables used in the tested system (including inserted cards) are:

| Product | | Manufacturer | Model No. | Serial No. | Power Cord |
|---|---|---|---|---|---|
| 1 | External HDD | SanDisk | SanDisk Extreme 900 | N/A | N/A |
| 2 | USB 3.0 | Transcend | TS1TSJ25M3 | D468623806 | N/A |
| 3 | USB 3.0 | Transcend | TS1TSJ25M3 | D468623815 | N/A |
| 4 | USB 3.0 | Transcend | TS1TSJ25M3 | D468623807 | N/A |
| 5 | LCD Monitor | Lenovo | T24d | V5CZ4279 | N/A |
| 6 | Microphone & Earphone | Verbatim | C09024VB | N/A | N/A |

| Signal Cable Type | | Signal cable Description |
|---|---|---|
| A | USB Cable | Shielded, 0.5m |
| B | USB Cable | Shielded, 0.4m |
| C | USB Cable | Shielded, 0.4m |
| D | USB Cable | Shielded, 0.4m |
| E | HDMI Cable | Shielded, 1.8m |
| F | Microphone & Earphone Cable | Non-shielded, 2.0m |

## 1.3. Configuration of tested System




## 1.4. EUT Exercise Software

(1) Setup the EUT as shown in Section 1.3.

(2) Execute software “DRTU Ver. 22.3500.0.0-01462” on the EUT.

(3) Configure the test mode, the test channel, and the data rate.

(4) Press “OK” to start the continuous Transmit.

(5) Verify that the EUT works properly.

## 1.5. Test Facility

Ambient conditions in the laboratory:

| Performed Item | Items | Required | Actual |
|---|---|---|---|
| Conducted Emission | Temperature (°C) | 10~40 °C | 22°C |
| | Humidity (%RH) | 10~90 % | 44.3% |
| Radiated Emission | Temperature (°C) | 10~40 °C | 16.8°C |
| | Humidity (%RH) | 10~90 % | 60.9% |
| Conductive | Temperature (°C) | 10~40 °C | 20.4°C |
| | Humidity (%RH) | 10~90 % | 51.2% |

**USA : FCC Registration Number: TW0023**

**Canada : IC Registration Number: 25880**

Site Description : Accredited by TAF
Accredited Number: 3023

Test Laboratory : DEKRA Testing and Certification Co., Ltd
Address : No.159, Sec. 2, Wenhua 1st Rd., Linkou Dist.,
New Taipei City 24457, Taiwan, R.O.C.
Phone number : 886-2-2602-7968
Fax number : 866-2-2602-3286
Email address : info.tw@dekra.com
Website : http://www.dekra.com.tw

## 1.6. List of Test Item and Equipment

**For Conduction measurements /ASR1**

| | Equipment | Manufacturer | Model No. | Serial No. | Cali. Data | Due. Data |
|---|---|---|---|---|---|---|
| X | EMI Test Receiver | R&S | ESR7 | 101601 | 2020.05.28 | 2021.05.27 |
| X | Two-Line V-Network | R&S | ENV216 | 101306 | 2020.03.25 | 2021.03.24 |
| X | Two-Line V-Network | R&S | ENV216 | 101307 | 2020.04.17 | 2021.04.16 |
| X | Coaxial Cable | DEKRA | RG400_BNC | RF001 | 2020.05.24 | 2021.05.23 |

Note:
1. All equipments are calibrated every one year.
2. The test instruments marked with “X” are used to measure the final test results.
3. Test Software version : DEKRA Testing System V2.0

**For Conducted measurements /ASR2**

| | Equipment | Manufacturer | Model No. | Serial No. | Cali. Data | Due. Data |
|---|---|---|---|---|---|---|
| X | Spectrum Analyzer | R&S | FSV30 | 103466 | 2020.12.28 | 2021.12.27 |
| X | Peak Power Analyzer | KEYSIGHT | 8900B | MY51000539 | 2020.05.13 | 2021.05.12 |
| X | Power Sensor | KEYSIGHT | N1923A | MY59240002 | 2020.05.22 | 2021.05.21 |
| X | Power Sensor | KEYSIGHT | N1923A | MY59240003 | 2020.05.22 | 2021.05.21 |

Note:

1. All equipments are calibrated every one year.
2. The test instruments marked with “X” are used to measure the final test results.
3. Test Software version : DEKRA Conduction Test System V9.0.5

**For Radiated measurements /ACB1**

| | Equipment | Manufacturer | Model No. | Serial No. | Cali. Data | Due. Data |
|---|---|---|---|---|---|---|
| X | Loop Antenna | AMETEK | HLA6121 | 49611 | 2020.03.16 | 2021.03.15 |
| X | Bi-Log Antenna | SCHWARZBECK | VULB9168 | 9168-674 | 2020.05.20 | 2021.05.19 |
| X | Horn Antenna | ETS-Lindgren | 3117 | 00201259 | 2020.10.23 | 2021.10.22 |
| X | Horn Antenna | Com-Power | AH-840 | 101087 | 2020.06.08 | 2021.06.07 |
| X | Pre-Amplifier | EMCI | EMC001330 | 980316 | 2020.06.23 | 2021.06.22 |
| X | Pre-Amplifier | EMCI | EMC051835SE | 980313 | 2020.11.25 | 2021.11.24 |
| X | Pre-Amplifier | EMCI | EMC05820SE | 980310 | 2020.06.24 | 2021.06.23 |
| X | Pre-Amplifier | EMCI | EMC184045SE | 980314 | 2020.06.10 | 2021.06.09 |
| | Filter | MICRO TRONICS | BRM50702 | G251 | 2020.09.17 | 2021.09.16 |
| X | Filter | MICRO TRONICS | BRM50716 | G188 | 2020.09.17 | 2021.09.16 |
| X | EMI Test Receiver | R&S | ESR7 | 101601 | 2020.05.28 | 2021.05.27 |
| X | Spectrum Analyzer | R&S | FSV40 | 101148 | 2020.03.16 | 2021.03.15 |
| X | Coaxial Cable | SUHNER | SUCOFLEX 106 | RF002 | 2020.07.03 | 2021.07.02 |
| X | Mircoflex Cable | HUBER SUHNER | SUCOFLEX 102 | MY3381/2 | 2020.06.10 | 2021.06.09 |

Note:

1. All equipments are calibrated every one year.
2. The test instruments marked with “X” are used to measure the final test results.
3. Test Software version : DEKRA Testing System V2.0

## 1.7. Uncertainty

Uncertainties have been calculated according to the DEKRA internal document, and is described in each test chapter of this report.

The reported expanded uncertainties are based on a standard uncertainty multiplied by a coverage factor of k=2, providing a level of confidence of approximately 95%.

Measurement uncertainties evaluated for each testing system and associated connections are given here to provide the system information for reference. Compliance determinations do not take into account measurement uncertainties for each testing system, but are based on the results of the compliance measurement.

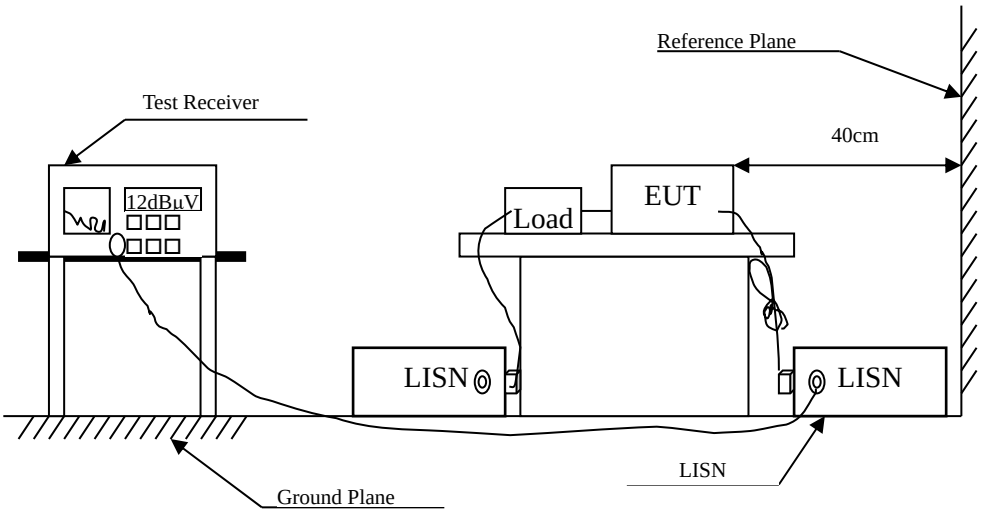
| **Test item** | **Uncertainty** | |
|---|---|---|
| Conducted Emission | ±3.42 dB | |
| Maximun conducted output power | Power Meter<br>±0.91 dB | Spectrum Analyzer<br>±2.53 dB |
| Radiated Emission | Under 1GHz<br>±4.06 dB | Above 1GHz<br>±3.73 dB |
| Duty Cycle | ±2.31msec | |

## 1.8. Summary of Test Results

| Description | Result |
|---|---|
| Conducted Emission | Pass |
| Maximun conducted output power | Pass |
| Peak Power Spectral Density | Refer to Note 1 |
| Radiated Emission | Pass |
| Band Edge | Refer to Note 1 |
| Occupied Bandwidth | Refer to Note 1 |
| Duty Cycle | -- |
| Note 1 :<br>This report is a partial report. The test items above were based on the comprehensive requirements of KDB 996369 D02 in which only RF power, Transmitter unwanted emissions and Receiver spurious emissions were performed. For other test data please refer to original modular report.<br>(Original report no.: 181210-03.TR01, 181210-03.TR02, 181210-03.TR03, Brand: Intel® Wi-Fi 6 AX200, Model: AX200NGW) | |

## 2. Conducted Emission

### 2.1. Test Setup




### 2.2. Limits

| FCC Part 15 Subpart C Paragraph 15.207 (dBµV) Limit | | |
|---|---|---|
| Frequency MHz | Limits | |
| | QP | AV |
| 0.15 - 0.50 | 66-56 | 56-46 |
| 0.50-5.0 | 56 | 46 |
| 5.0 - 30 | 60 | 50 |

Remarks : In the above table, the tighter limit applies at the band edges.

## 2.3. Test Procedure

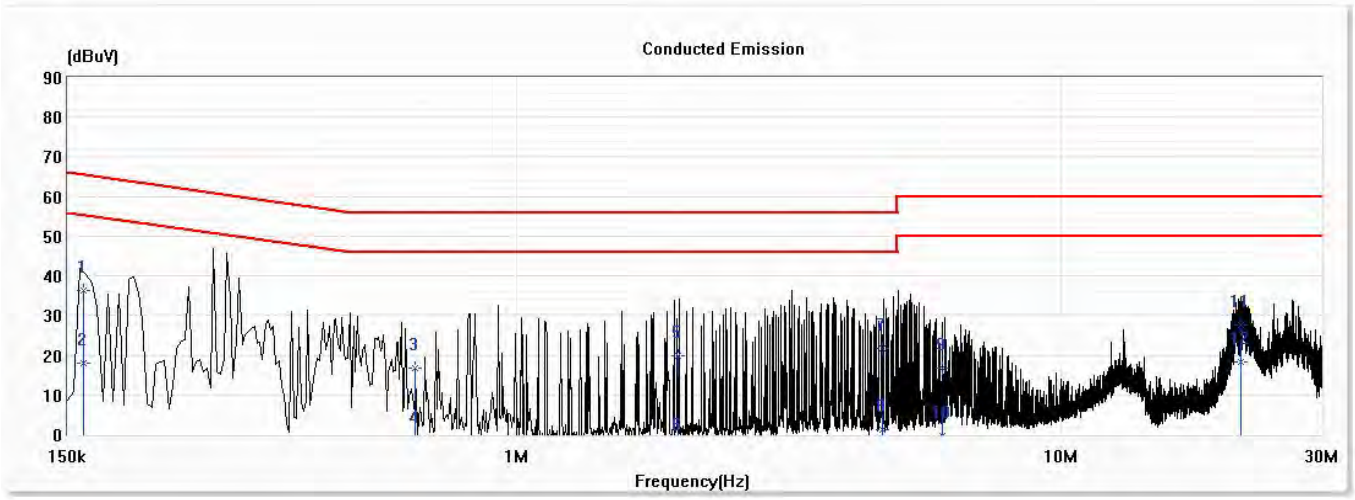
The EUT and simulators are connected to the main power through a line impedance stabilization network (L.I.S.N.). This provides a 50 ohm /50uH coupling impedance for the measuring equipment. The peripheral devices are also connected to the main power through a LISN that provides a 50ohm /50uH coupling impedance with 50ohm termination. (Please refers to the block diagram of the test setup and photographs.)

Both sides of A.C. line are checked for maximum conducted interference. In order to find the maximum emission, the relative positions of equipment and all of the interface cables must be changed according to ANSI C63.4:2014 on conducted measurement.

Conducted emissions were invested over the frequency range from 0.15MHz to 30MHz using a receiver bandwidth of 9kHz.

## 2.4. Test Result of Conducted Emission

Product : Portable Computer
Test Item : Conducted Emission Test
Power Line : L 1
Test Mode : Mode 26 MIMO: Transmit (802.11ax-160BW_144.1Mbps) (5250MHz)
Test Date : 2021/02/20

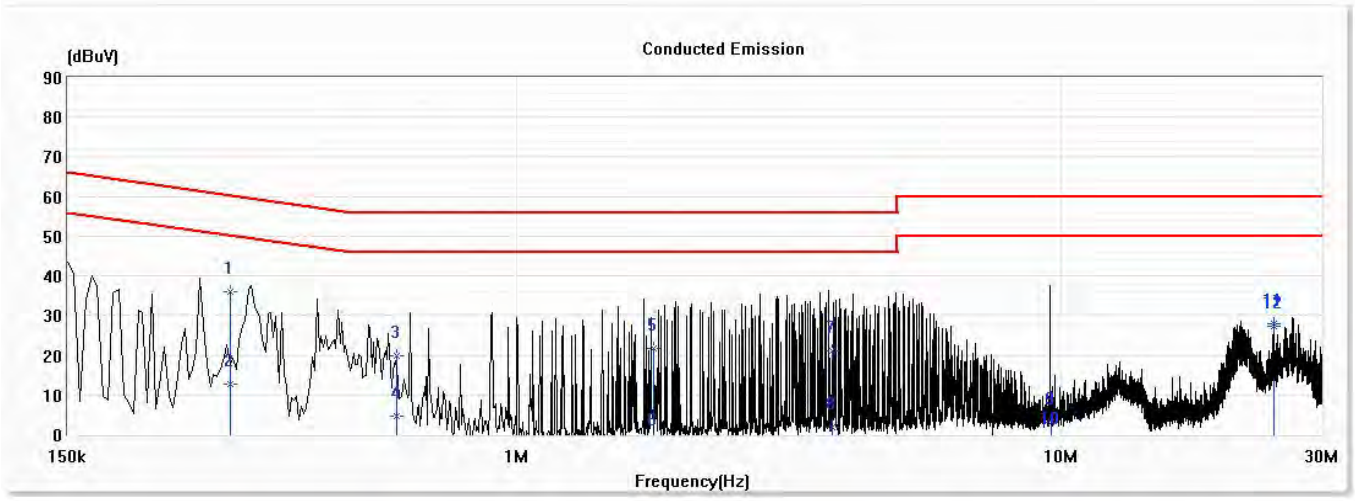



| No | Frequency (MHz) | Emission Level (dBµV) | Limit (dBµV) | Margin (dB) | Reading Level (dBµV) | Correct Factor (dB) | Detector Type |
|---|---|---|---|---|---|---|---|
| *1 | 0.160 | 36.34 | 65.46 | -29.12 | 26.68 | 9.66 | QP |
| 2 | 0.160 | 18.08 | 55.46 | -37.37 | 8.43 | 9.66 | AV |
| 3 | 0.652 | 16.91 | 56.00 | -39.09 | 7.24 | 9.67 | QP |
| 4 | 0.652 | -1.70 | 46.00 | -47.70 | -11.37 | 9.67 | AV |
| 5 | 1.975 | 19.97 | 56.00 | -36.03 | 10.25 | 9.72 | QP |
| 6 | 1.975 | -3.38 | 46.00 | -49.38 | -13.10 | 9.72 | AV |
| 7 | 4.690 | 21.82 | 56.00 | -34.18 | 12.03 | 9.79 | QP |
| 8 | 4.690 | 1.31 | 46.00 | -44.69 | -8.48 | 9.79 | AV |
| 9 | 6.036 | 16.74 | 60.00 | -43.26 | 6.93 | 9.82 | QP |
| 10 | 6.036 | -0.16 | 50.00 | -50.16 | -9.97 | 9.82 | AV |
| 11 | 21.374 | 27.56 | 60.00 | -32.44 | 17.59 | 9.97 | QP |
| 12 | 21.374 | 18.44 | 50.00 | -31.56 | 8.48 | 9.97 | AV |

Note:

1. All Reading Levels are Quasi-Peak and average value.
2. " * " means the worst emission level.
3. Measurement Level = Reading Level + Correct Factor

Product : Portable Computer
Test Item : Conducted Emission Test
Power Line : N
Test Mode : Mode 26 MIMO: Transmit (802.11ax-160BW_144.1Mbps) (5250MHz)
Test Date : 2021/02/20

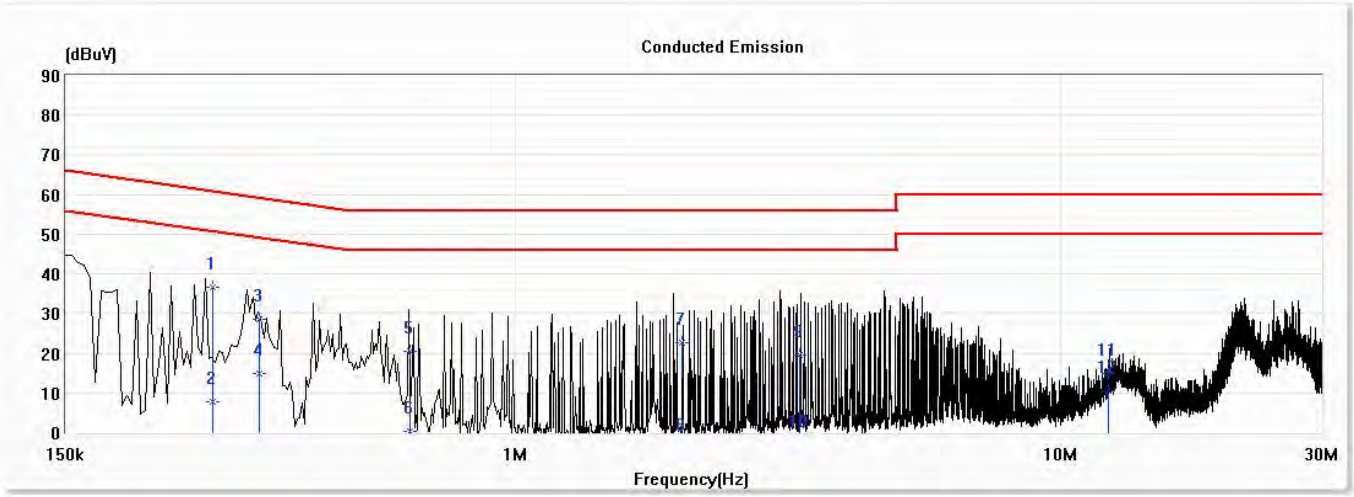



| No | Frequency (MHz) | Emission Level (dBµV) | Limit (dBµV) | Margin (dB) | Reading Level (dBµV) | Correct Factor (dB) | Detector Type |
|---|---|---|---|---|---|---|---|
| 1 | 0.298 | 36.00 | 60.29 | -24.29 | 26.33 | 9.67 | QP |
| 2 | 0.298 | 12.83 | 50.29 | -37.46 | 3.16 | 9.67 | AV |
| 3 | 0.601 | 19.92 | 56.00 | -36.08 | 10.25 | 9.67 | QP |
| 4 | 0.601 | 4.59 | 46.00 | -41.41 | -5.08 | 9.67 | AV |
| 5 | 1.780 | 21.65 | 56.00 | -34.35 | 11.93 | 9.72 | QP |
| 6 | 1.780 | -2.05 | 46.00 | -48.05 | -11.77 | 9.72 | AV |
| 7 | 3.796 | 21.10 | 56.00 | -34.90 | 11.33 | 9.78 | QP |
| 8 | 3.796 | 1.90 | 46.00 | -44.10 | -7.88 | 9.78 | AV |
| 9 | 9.572 | 3.19 | 60.00 | -56.81 | -6.71 | 9.91 | QP |
| 10 | 9.572 | -1.86 | 50.00 | -51.86 | -11.76 | 9.91 | AV |
| 11 | 24.577 | 28.03 | 60.00 | -31.97 | 17.96 | 10.08 | QP |
| *12 | 24.577 | 27.43 | 50.00 | -22.57 | 17.35 | 10.08 | AV |

Note:

1. All Reading Levels are Quasi-Peak and average value.
2. “ * “ means the worst emission level.
3. Measurement Level = Reading Level + Correct Factor

Product : Portable Computer
Test Item : Conducted Emission Test
Power Line : L 1
Test Mode : Mode 26 MIMO: Transmit (802.11ax-160BW_144.1Mbps) (5570MHz)
Test Date : 2021/02/20

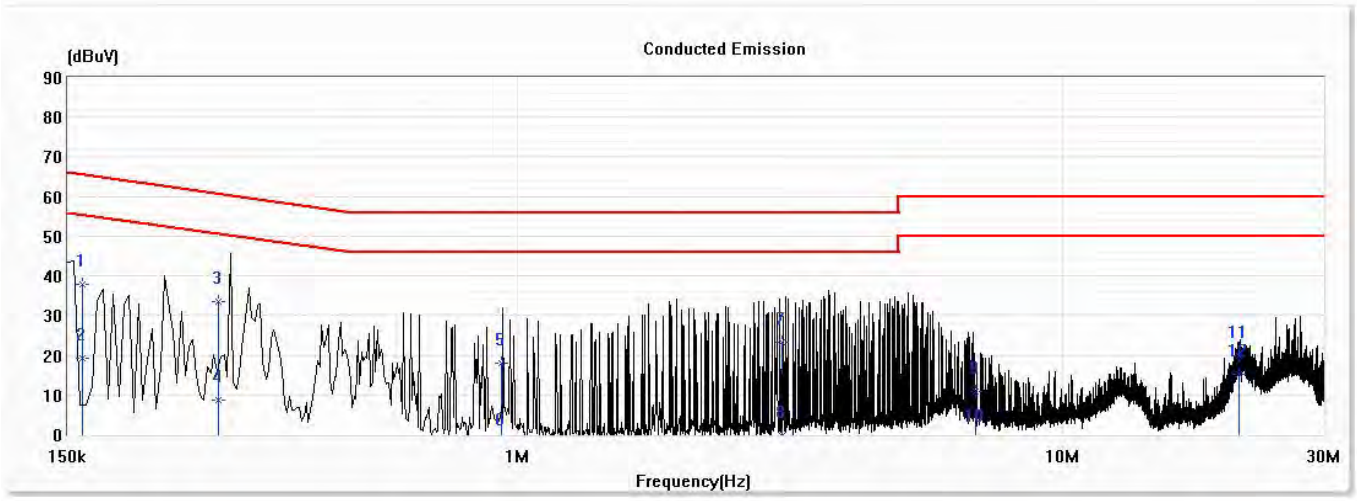



| No | Frequency (MHz) | Emission Level (dBµV) | Limit (dBµV) | Margin (dB) | Reading Level (dBµV) | Correct Factor (dB) | Detector Type |
|---|---|---|---|---|---|---|---|
| *1 | 0.279 | 36.60 | 60.85 | -24.25 | 26.94 | 9.65 | QP |
| 2 | 0.279 | 7.88 | 50.85 | -42.97 | -1.77 | 9.65 | AV |
| 3 | 0.340 | 28.49 | 59.21 | -30.72 | 18.83 | 9.66 | QP |
| 4 | 0.340 | 15.01 | 49.21 | -34.20 | 5.36 | 9.66 | AV |
| 5 | 0.640 | 20.45 | 56.00 | -35.55 | 10.78 | 9.67 | QP |
| 6 | 0.640 | 0.38 | 46.00 | -45.62 | -9.29 | 9.67 | AV |
| 7 | 2.019 | 22.71 | 56.00 | -33.29 | 12.99 | 9.72 | QP |
| 8 | 2.019 | -4.04 | 46.00 | -50.04 | -13.76 | 9.72 | AV |
| 9 | 3.309 | 19.66 | 56.00 | -36.34 | 9.91 | 9.76 | QP |
| 10 | 3.309 | -2.97 | 46.00 | -48.97 | -12.72 | 9.76 | AV |
| 11 | 12.197 | 14.96 | 60.00 | -45.04 | 5.05 | 9.92 | QP |
| 12 | 12.197 | 10.63 | 50.00 | -39.37 | 0.72 | 9.92 | AV |

Note:

1. All Reading Levels are Quasi-Peak and average value.
2. “ * “ means the worst emission level.
3. Measurement Level = Reading Level + Correct Factor

Product : Portable Computer
Test Item : Conducted Emission Test
Power Line : N
Test Mode : Mode 26 MIMO: Transmit (802.11ax-160BW_144.1Mbps) (5570MHz)
Test Date : 2021/02/20




| No | Frequency (MHz) | Emission Level (dBµV) | Limit (dBµV) | Margin (dB) | Reading Level (dBµV) | Correct Factor (dB) | Detector Type |
|---|---|---|---|---|---|---|---|
| 1 | 0.159 | 37.86 | 65.50 | -27.64 | 28.19 | 9.67 | QP |
| 2 | 0.159 | 19.35 | 55.50 | -36.15 | 9.68 | 9.67 | AV |
| *3 | 0.284 | 33.41 | 60.70 | -27.29 | 23.74 | 9.67 | QP |
| 4 | 0.284 | 8.57 | 50.70 | -42.14 | -1.10 | 9.67 | AV |
| 5 | 0.934 | 18.04 | 56.00 | -37.96 | 8.35 | 9.69 | QP |
| 6 | 0.934 | -2.19 | 46.00 | -48.19 | -11.88 | 9.69 | AV |
| 7 | 3.058 | 23.27 | 56.00 | -32.73 | 13.51 | 9.76 | QP |
| 8 | 3.058 | -0.37 | 46.00 | -46.37 | -10.13 | 9.76 | AV |
| 9 | 6.911 | 10.71 | 60.00 | -49.29 | 0.86 | 9.85 | QP |
| 10 | 6.911 | -1.10 | 50.00 | -51.10 | -10.95 | 9.85 | AV |
| 11 | 21.052 | 19.97 | 60.00 | -40.03 | 9.92 | 10.06 | QP |
| 12 | 21.052 | 15.23 | 50.00 | -34.77 | 5.17 | 10.06 | AV |

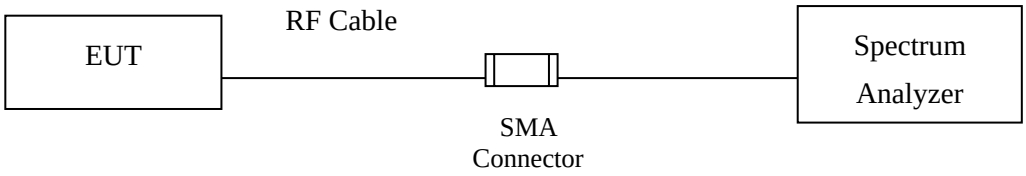
Note:

1. All Reading Levels are Quasi-Peak and average value.
2. “ * “ means the worst emission level.
3. Measurement Level = Reading Level + Correct Factor

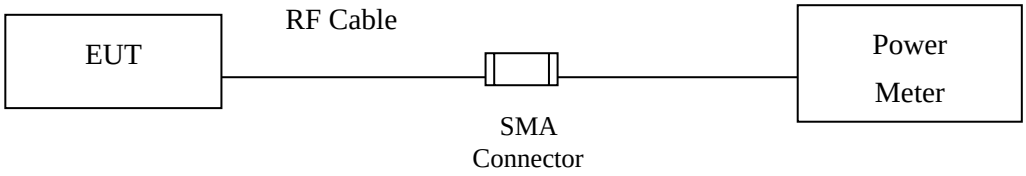
# 3. Maximun conducted output power

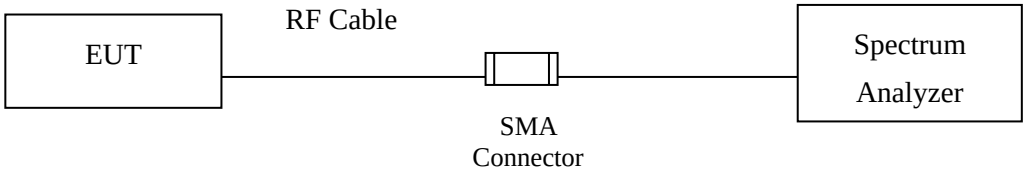
## 3.1. Test Setup

**Occupied Bandwidth**




**Conduction Power Measurement**



## 3.2. Limits

For the band 5.15-5.25 GHz,

**(i)** For an outdoor access point operating in the band 5.15-5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W. provided the maximum antenna gain does not exceed 6 dBi. If transmitting antennas of directional gain greater than 6 dBi are used, the maximum conducted output power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi. The maximum e.i.r.p. at any elevation angle above 30 degrees as measured from the horizon must not exceed 125 mW (21 dBm).

**(ii)** For an indoor access point operating in the band 5.15-5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W provided the maximum antenna gain does not exceed 6 dBi. In addition. If transmitting antennas of directional gain greater than 6 dBi are used, the maximum conducted output power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

**(iii)** For fixed point-to-point access points operating in the band 5.15-5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W. Fixed point-topoint U-NII devices may employ antennas with directional gain up to 23 dBi without any corresponding reduction in the maximum conducted output power. For fixed point-to-point transmitters that employ a directional antenna gain greater than 23 dBi, a 1 dB reduction in maximum conducted output power is required for each 1 dB of antenna gain in excess of 23 dBi. Fixed, point-to-point operations exclude the use of point-to-multipoint systems, omnidirectional applications, and multiple collocated transmitters transmitting the same information. The operator of the U-NII device, or if the equipment is professionally installed, the installer, is responsible for ensuring that systems employing high gain directional antennas are used exclusively for fixed, point-to-point operations.

**(iv)** For mobile and portable client devices in the 5.15-5.25 GHz band, the maximum conducted output power over the frequency band of operation shall not exceed 250 mW provided the maximum antenna gain does not exceed 6 dBi. In addition. If transmitting antennas of directional gain greater than 6 dBi are used, the maximum conducted output power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

For the 5.25-5.35 GHz and 5.47-5.725 GHz bands, the maximum conducted output power over the frequency bands of operation shall not exceed the lesser of 250 mW or 11 dBm 10 log B, where B is the 26dB emission bandwidth in megahertz. If transmitting antennas of directional gain greater than 6 dBi are used, the maximum conducted output power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

For the band 5.725-5.85 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W. In addition. If transmitting antennas of directional gain greater than 6 dBi are used, the maximum conducted output power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi. However, fixed point-to-point UNII devices operating in this band may employ transmitting antennas with directional gain greater than 6 dBi without any corresponding reduction in transmitter conducted power. Fixed, point-to-point operations exclude the use of point-to-multipoint systems, omnidirectional applications, and multiple collocated transmitters transmitting the same information. The operator of the U-NII device, or if the equipment is professionally installed, the installer, is responsible for ensuring that systems employing high gain directional antennas are used exclusively for fixed, point-to-point operations.

## 3.3. Test Procedure

As an alternative to FCC KDB-789033, the EUT maximum conducted output power was measured with an average power meter employing a video bandwidth greater the 6dB BW of the emission under test. Maximum conducted output power was read directly from the meter across all data rates, and across three channels within each sub-band. Special care was used to make sure that the EUT was transmitting in continuous mode. This method exceeds the limitations of FCC KDB-789033, and provides more accurate measurements.

802.11an (BW≦40MHz) Maximum conducted output power using KDB 789033 section E)3)b) Method PM-G (Measurement using a gated RF average power meter)
Note: the power meter have a video bandwidth that is greater than or equal to the measurement bandwidth.

802.11ac (BW=80MHz) Maximum conducted output power using KDB 789033 section E)2)b) Method SA-1 (trace averaging with the EUT transmitting at full power throughout each sweep).

When transmitted signals consist of two or more non-contiguous spectrum segments (e.g., 80+80 MHz mode) or when a single spectrum segment of a transmission crosses the boundary between two adjacent U-NII bands, KDB 644545 D03 section D) procedure is used for measurements.

## 3.4. Test Result of Maximum conducted output power

Product : Portable Computer
Test Item : Maximum conducted output power
Test Date : 2021/02/05
Test Mode : Mode 1 SISO A: Transmit (802.11a_6Mbps)

| Cable loss=1.0dB | | Maximum conducted output power | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Channel No. | Frequency (MHz) | Data Rate (Mbps) | | | | | | | |
| | | 6 | 9 | 12 | 18 | 24 | 36 | 48 | 54 |
| | | Measurement Level (dBm) | | | | | | | |
| 36 | 5180 | 18.85 | -- | -- | -- | -- | -- | -- | -- |
| 40 | 5200 | 20.77 | 20.7 | 20.66 | 20.58 | 20.51 | 20.45 | 20.42 | 20.35 |
| 48 | 5240 | 20.95 | -- | -- | -- | -- | -- | -- | -- |
| 52 | 5260 | 20.9 | -- | -- | -- | -- | -- | -- | -- |
| 56 | 5280 | 21.09 | 20.99 | 20.89 | 20.86 | 20.81 | 20.71 | 20.68 | 20.61 |
| 64 | 5320 | 18.25 | -- | -- | -- | -- | -- | -- | -- |
| 100 | 5500 | 18.89 | -- | -- | -- | -- | -- | -- | -- |
| 120 | 5600 | 20.94 | 20.85 | 20.82 | 20.77 | 20.72 | 20.65 | 20.58 | 20.51 |
| 140 | 5700 | 18.8 | -- | -- | -- | -- | -- | -- | -- |
| 149 | 5745 | 20.98 | -- | -- | -- | -- | -- | -- | -- |
| 157 | 5785 | 20.92 | 20.84 | 20.74 | 20.68 | 20.62 | 20.52 | 20.44 | 20.41 |
| 165 | 5825 | 20.63 | -- | -- | -- | -- | -- | -- | -- |

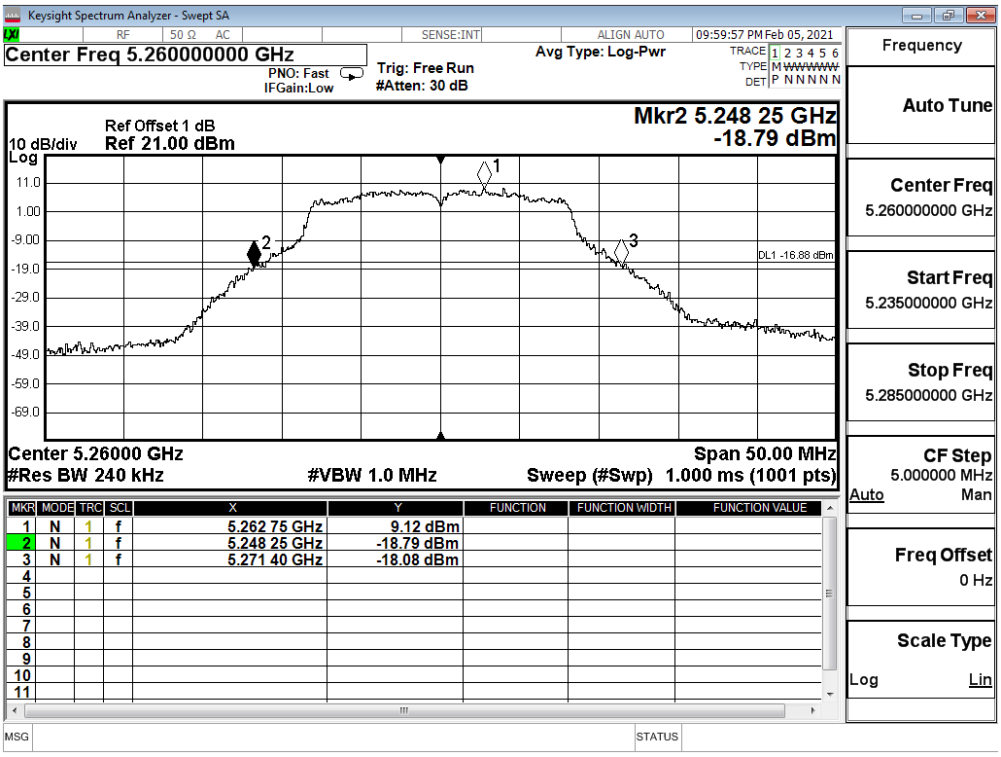
Note: Maximum conducted output power Value =Reading value on average power meter + cable loss

**Maximum conducted output power Measurement:**

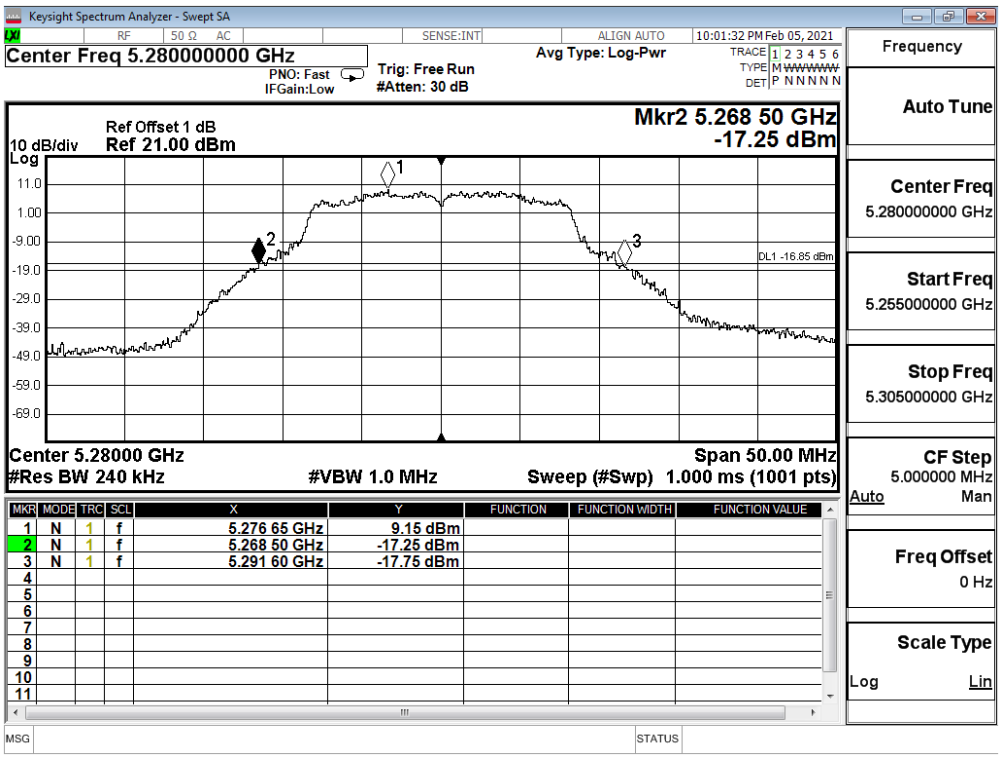
| Channel No | Frequency Range (MHz) | 26dB Bandwidth (MHz) | Output Power (dBm) | Output Power Limit | | Result |
|---|---|---|---|---|---|---|
| | | | | (dBm) | dBm+10log(BW) | |
| 36 | 5180 | -- | 18.85 | 24 | -- | Pass |
| 40 | 5200 | -- | 20.77 | 24 | -- | Pass |
| 48 | 5240 | -- | 20.95 | 24 | -- | Pass |
| 52 | 5260 | 23.15 | 20.90 | 24 | 24.65 | Pass |
| 56 | 5280 | 23.10 | 21.09 | 24 | 24.64 | Pass |
| 64 | 5320 | 23.55 | 18.25 | 24 | 24.72 | Pass |
| 100 | 5500 | 26.85 | 18.89 | 24 | 25.29 | Pass |
| 120 | 5600 | 22.95 | 20.94 | 24 | 24.61 | Pass |
| 140 | 5700 | 27.20 | 18.80 | 24 | 25.35 | Pass |
| 149 | 5745 | -- | 20.98 | 30 | -- | Pass |
| 157 | 5785 | -- | 20.92 | 30 | -- | Pass |
| 165 | 5825 | -- | 20.63 | 30 | -- | Pass |

## 26dB Occupied Bandwidth:

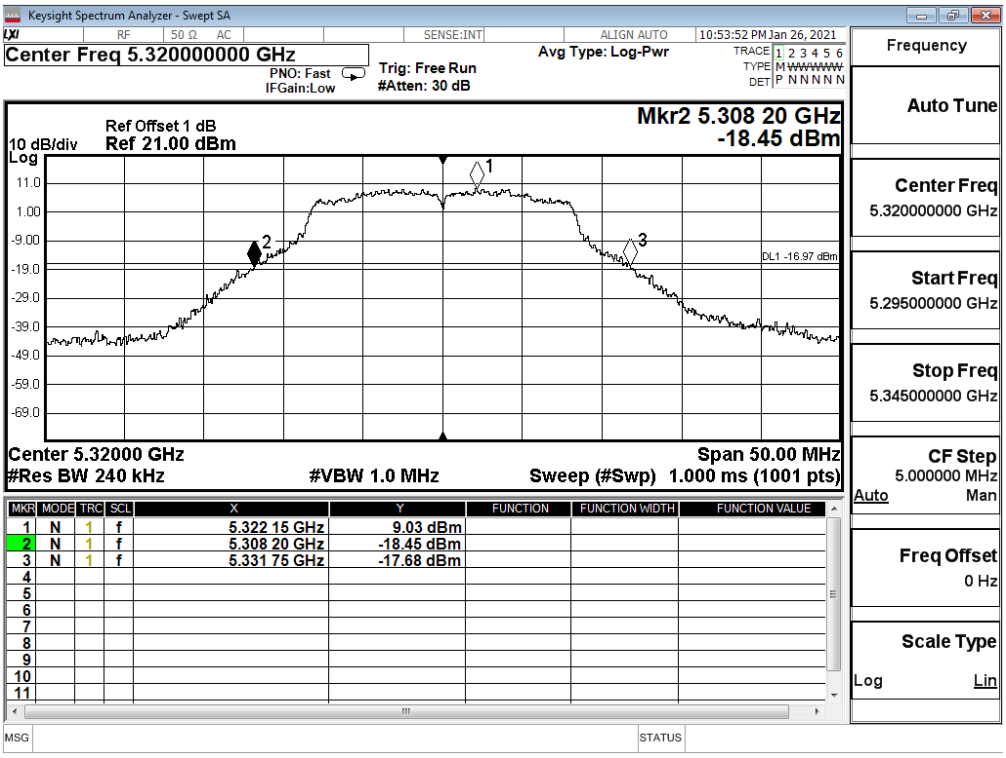
### Channel 52



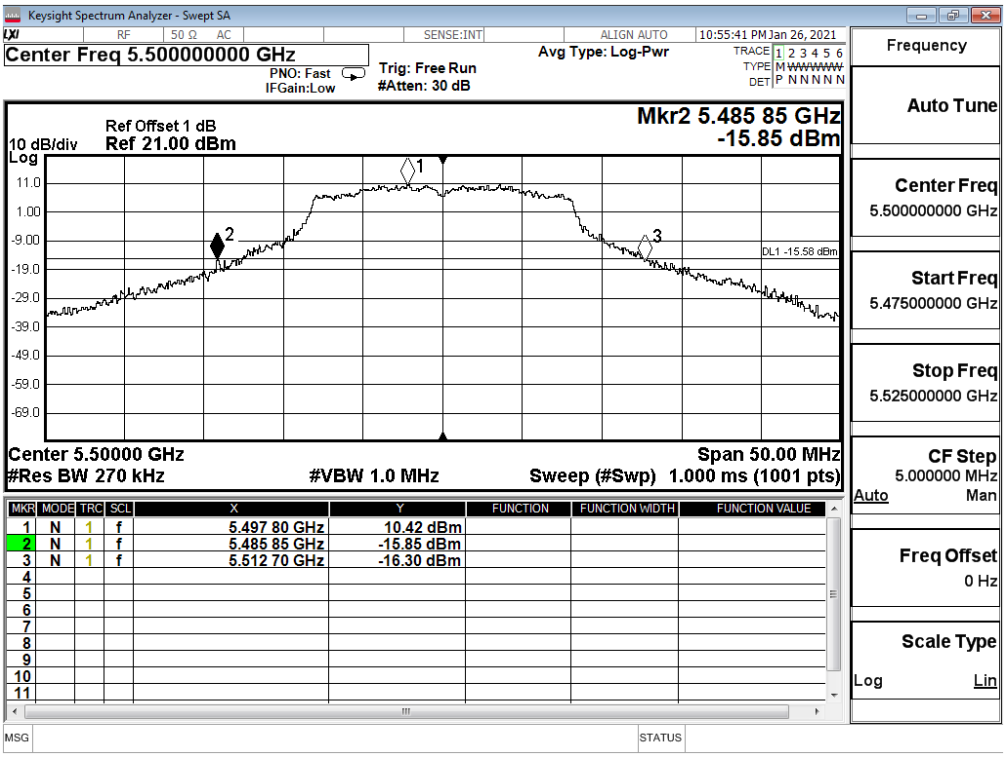

### Channel 56



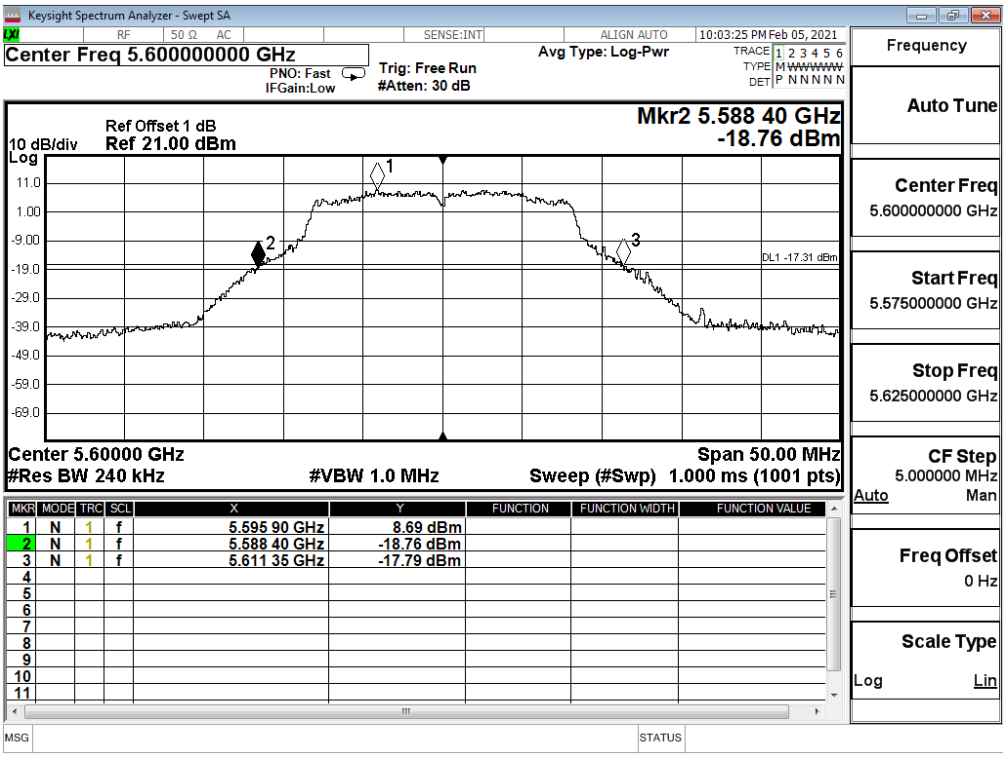
## Channel 64



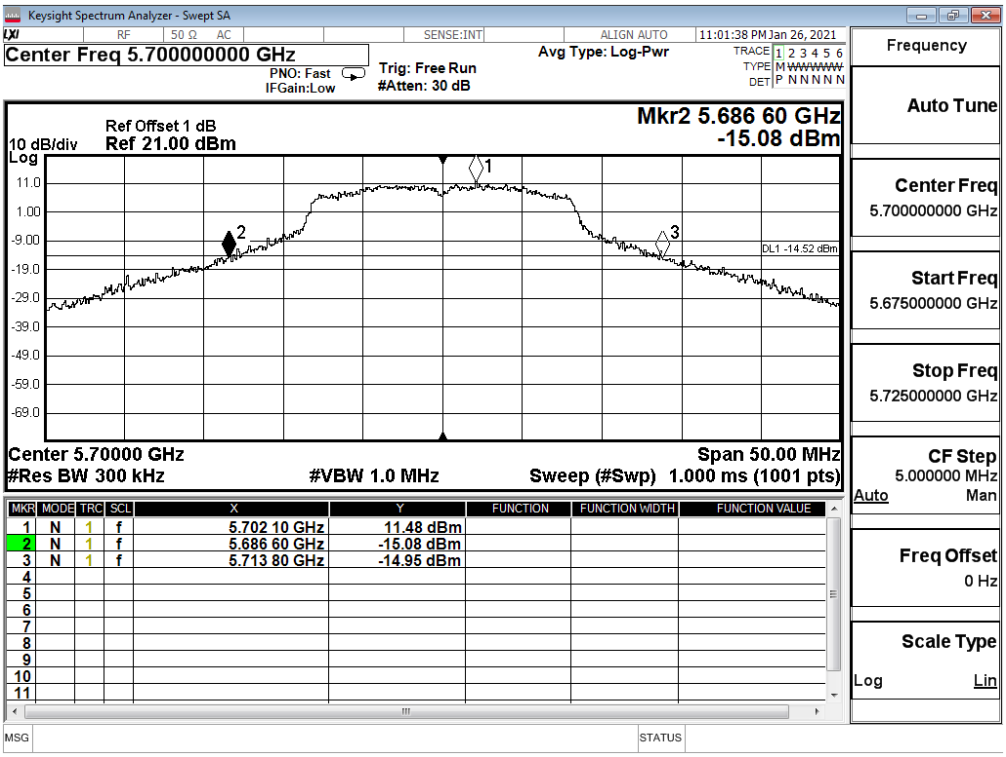

## Channel 100



## Channel 120




## Channel 140



Product : Portable Computer
Test Item : Maximum conducted output power
Test Date : 2021/02/05
Test Mode : Mode 2 SISO A: Transmit (802.11n-20BW_7.2Mbps)

| Cable loss=1.0dB | | Maximum conducted output power | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Channel No. | Frequency (MHz) | Data Rate (Mbps) | | | | | | | |
| | | 7.2 | 14.4 | 21.7 | 28.9 | 43.3 | 57.8 | 65 | 72.2 |
| | | Measurement Level (dBm) | | | | | | | |
| 36 | 5180 | 18.81 | -- | -- | -- | -- | -- | -- | -- |
| 40 | 5200 | 20.73 | 20.64 | 20.61 | 20.51 | 20.42 | 20.34 | 20.24 | 20.17 |
| 48 | 5240 | 20.75 | -- | -- | -- | -- | -- | -- | -- |
| 52 | 5260 | 20.96 | -- | -- | -- | -- | -- | -- | -- |
| 56 | 5280 | 20.86 | 20.82 | 20.78 | 20.74 | 20.65 | 20.61 | 20.52 | 20.47 |
| 64 | 5320 | 18.15 | -- | -- | -- | -- | -- | -- | -- |
| 100 | 5500 | 18.78 | -- | -- | -- | -- | -- | -- | -- |
| 120 | 5600 | 20.74 | 20.65 | 20.55 | 20.46 | 20.37 | 20.31 | 20.21 | 20.13 |
| 140 | 5700 | 18.78 | -- | -- | -- | -- | -- | -- | -- |
| 144(U-NII-2C) | 5720 | 20.1 | 20.06 | 20 | 19.93 | 19.89 | 19.79 | 19.76 | 19.68 |
| 144(U-NII-3) | 5720 | 12.91 | 12.82 | 12.79 | 12.7 | 12.61 | 12.55 | 12.52 | 12.49 |
| 149 | 5745 | 20.95 | -- | -- | -- | -- | -- | -- | -- |
| 157 | 5785 | 21.02 | 20.96 | 20.93 | 20.86 | 20.80 | 20.77 | 20.73 | 20.70 |
| 165 | 5825 | 20.84 | -- | -- | -- | -- | -- | -- | -- |

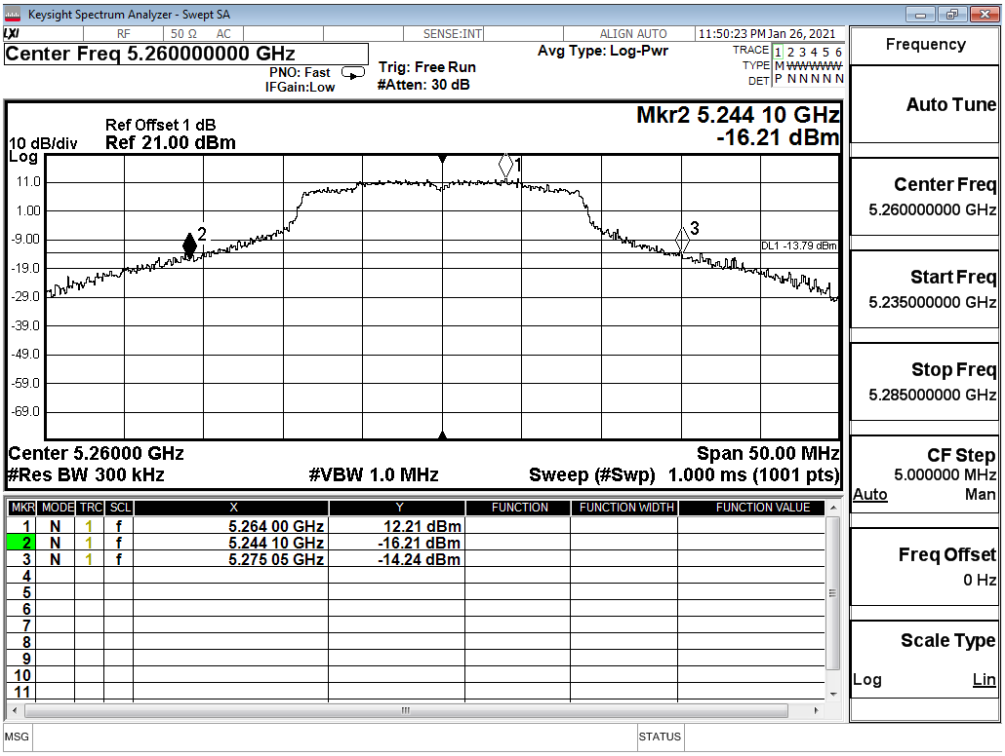
Note: Maximum conducted output power Value =Reading value on average power meter + cable loss

**Maximum conducted output power Measurement:**

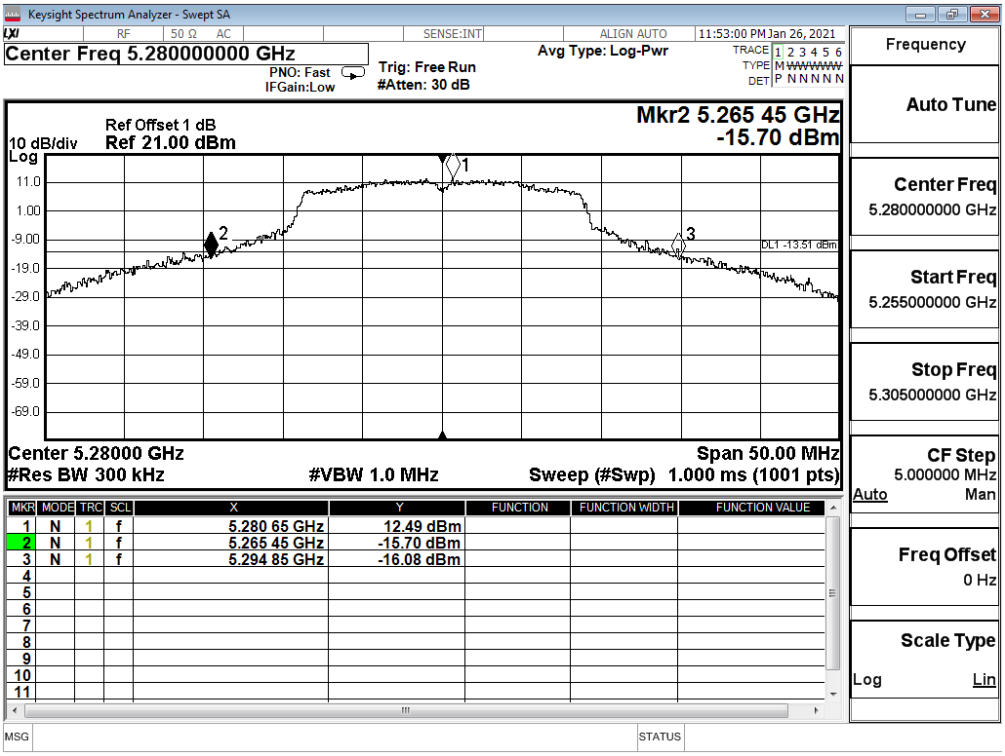
| Channel No | Frequency Range (MHz) | 26dB Bandwidth (MHz) | Output Power (dBm) | Output Power Limit | | Result |
|---|---|---|---|---|---|---|
| | | | | (dBm) | dBm+10log(BW) | |
| 36 | 5180 | -- | 18.81 | 24 | -- | Pass |
| 40 | 5200 | -- | 20.73 | 24 | -- | Pass |
| 48 | 5240 | -- | 20.75 | 24 | -- | Pass |
| 52 | 5260 | 30.95 | 20.96 | 24 | 25.91 | Pass |
| 56 | 5280 | 29.40 | 20.86 | 24 | 25.68 | Pass |
| 64 | 5320 | 23.50 | 18.15 | 24 | 24.71 | Pass |
| 100 | 5500 | 23.85 | 18.78 | 24 | 24.77 | Pass |
| 120 | 5600 | 30.90 | 20.74 | 24 | 25.90 | Pass |
| 140 | 5700 | 24.35 | 18.78 | 24 | 24.86 | Pass |
| 144(U-NII-2C) | 5720 | 16.80 | 20.10 | 24 | 23.25 | Pass |
| 144(U-NII-3) | 5720 | -- | 12.91 | 30 | -- | Pass |
| 149 | 5745 | -- | 20.95 | 30 | -- | Pass |
| 157 | 5785 | -- | 21.02 | 30 | -- | Pass |
| 165 | 5825 | -- | 20.84 | 30 | -- | Pass |

## 26dB Occupied Bandwidth:

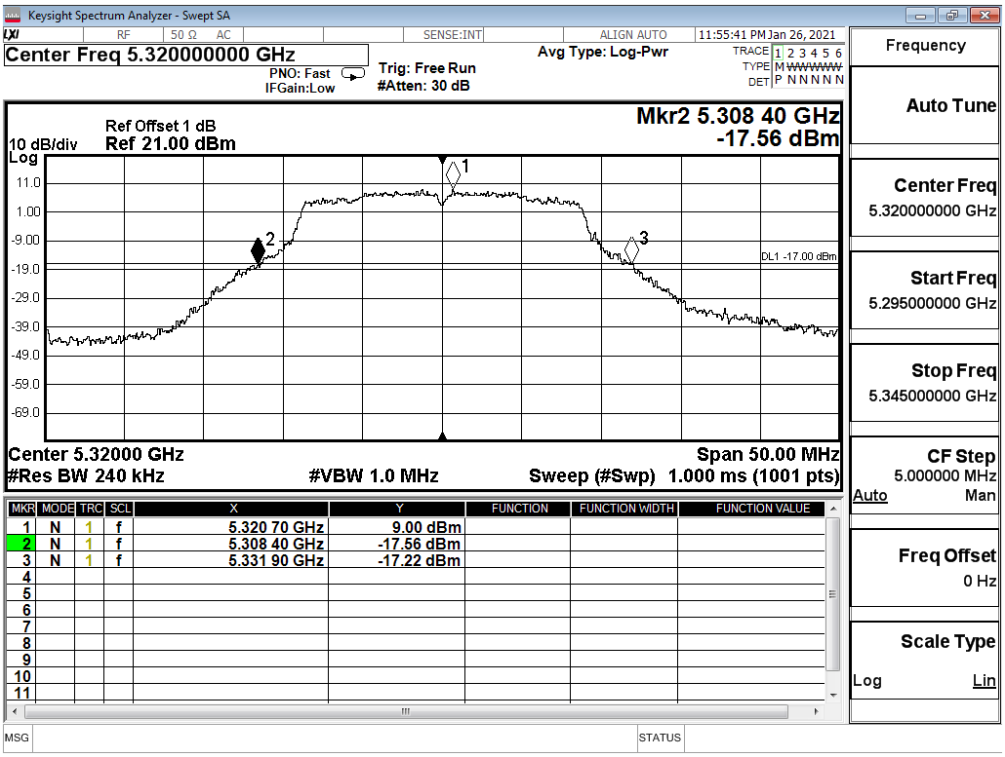
### Channel 52



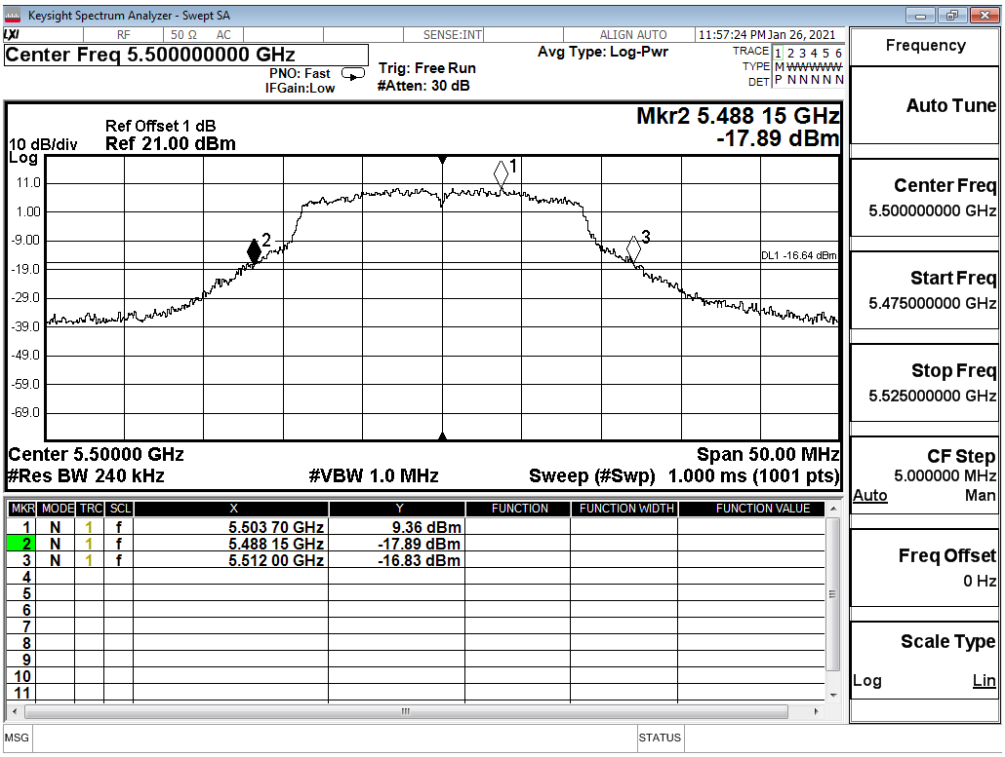

### Channel 56



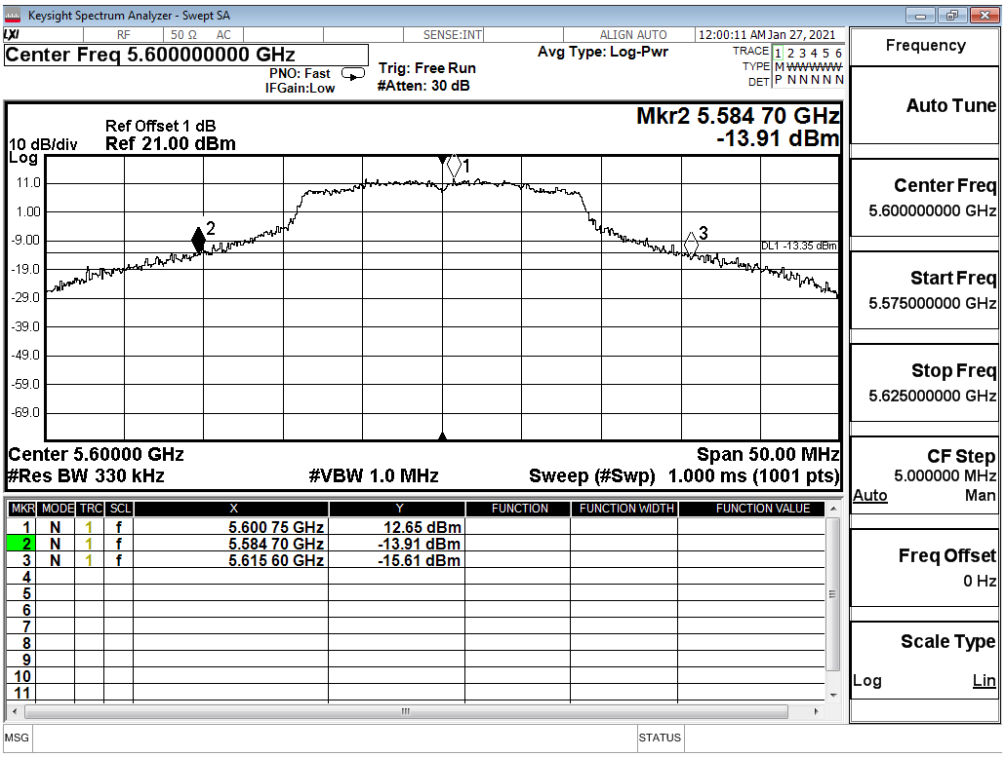
## Channel 64



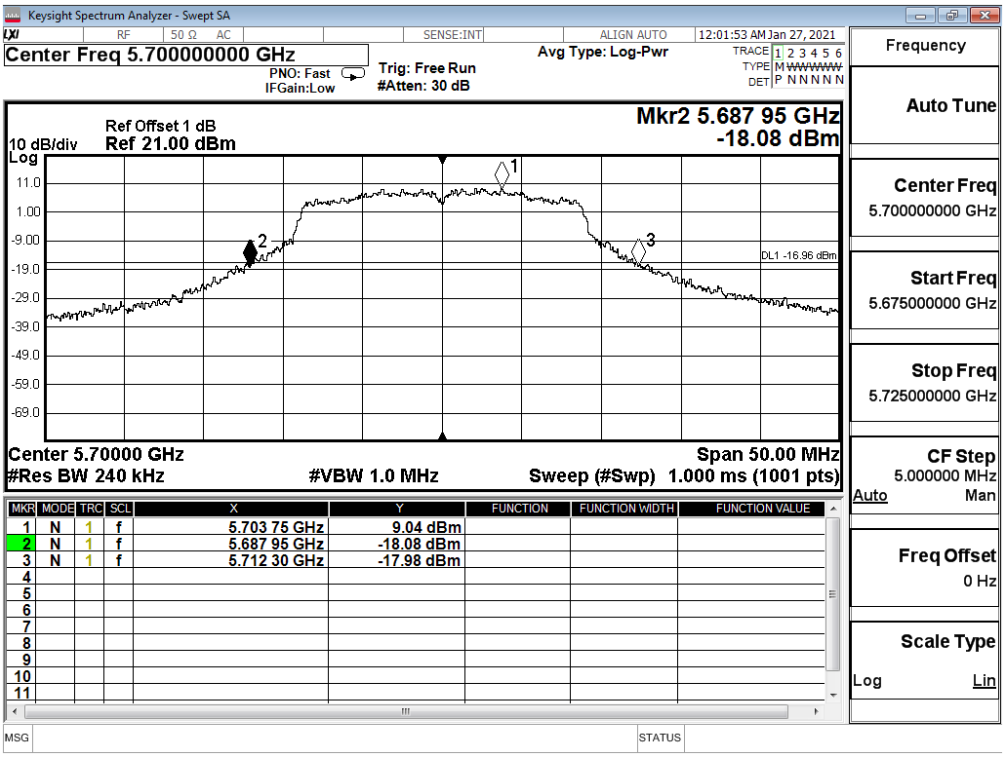

## Channel 100



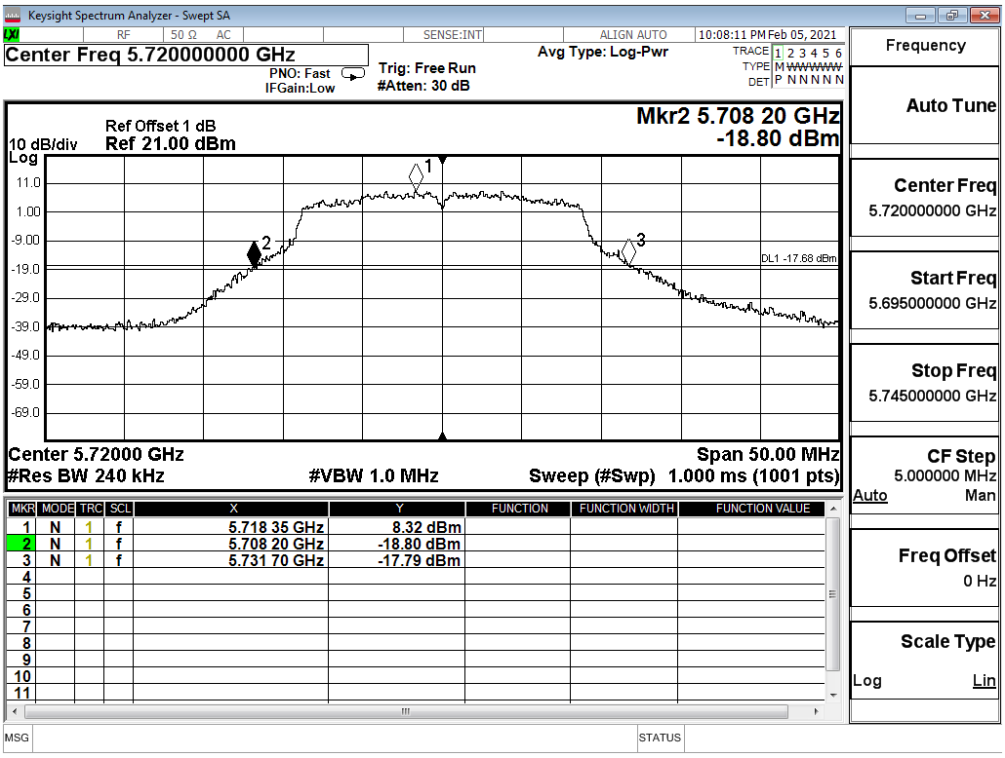
## Channel 120




## Channel 140

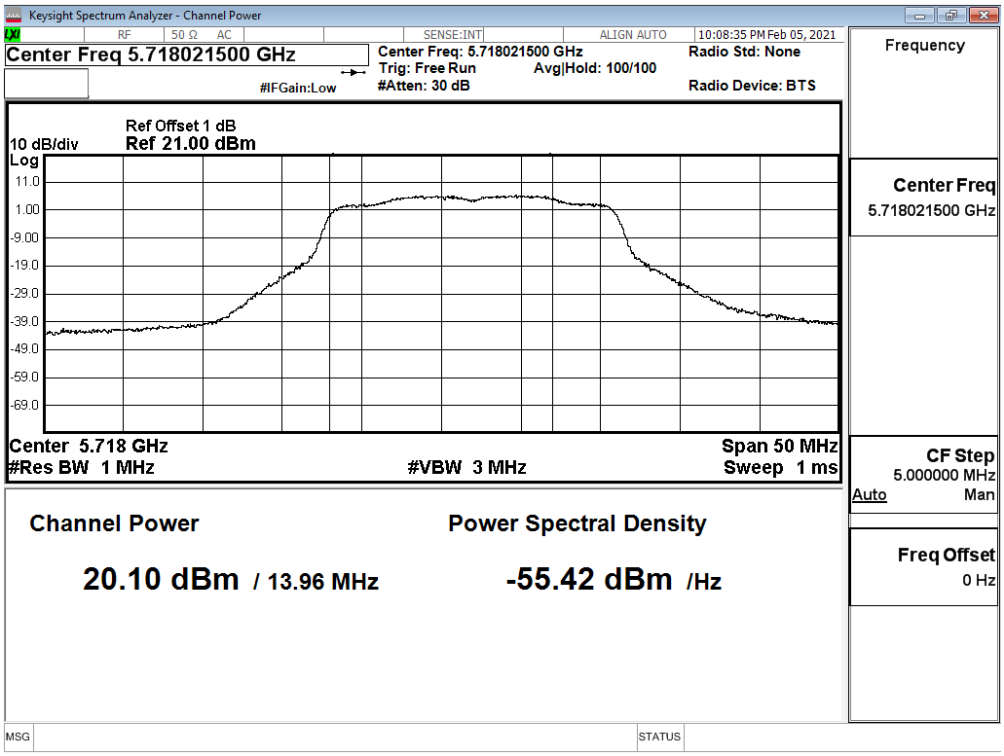


## Channel 144


Keysight Spectrum Analyzer - Swept SA
RF
50 Ω AC
SENSE:INT
ALIGN AUTO
10:08:11 PM Feb 05, 2021
Center Freq 5.720000000 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 30 dB
Avg Type: Log-Pwr
TRACE 1 2 3 4 5 6
TYPE M WWWWW
DET P N N N N N
Ref Offset 1 dB
10 dB/div
Ref 21.00 dBm
Log
Mkr2 5.708 20 GHz
-18.80 dBm
11.0
1.00
-9.00
-19.0
-29.0
-39.0
-49.0
-59.0
-69.0
DL1 -17.68 dBm
Center 5.72000 GHz
#Res BW 240 kHz
#VBW 1.0 MHz
Span 50.00 MHz
Sweep (#Swp) 1.000 ms (1001 pts)
MKR MODE TRC SCL X Y FUNCTION FUNCTION WIDTH FUNCTION VALUE
1 N 1 f 5.718 35 GHz 8.32 dBm
2 N 1 f 5.708 20 GHz -18.80 dBm
3 N 1 f 5.731 70 GHz -17.79 dBm
4
5
6
7
8
9
10
11
MSG
STATUS
Frequency
Auto Tune
Center Freq
5.720000000 GHz
Start Freq
5.695000000 GHz
Stop Freq
5.745000000 GHz
CF Step
5.000000 MHz
Auto
Man
Freq Offset
0 Hz
Scale Type
Log
Lin

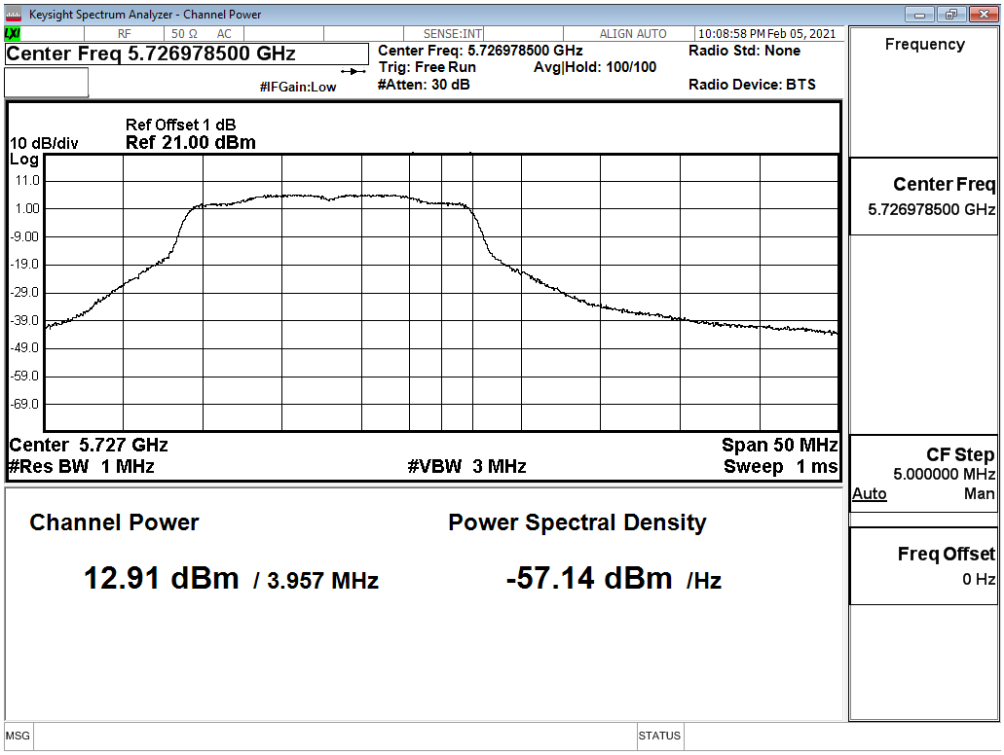
**Maximum conducted output power:**

**Channel 144 (U-NII-2C)**




**Maximum conducted output power:**

**Channel 144 (U-NII-3)**



Product : Portable Computer
Test Item : Maximum conducted output power
Test Date : 2021/02/05
Test Mode : Mode 3 SISO A: Transmit (802.11n-40BW_15Mbps)

| Cable loss=1.0dB | | Maximum conducted output power | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Channel No. | Frequency (MHz) | Data Rate (Mbps) | | | | | | | |
| | | 15 | 30 | 45 | 60 | 90 | 120 | 135 | 150 |
| | | Measurement Level (dBm) | | | | | | | |
| 38 | 5190 | 18.31 | -- | -- | -- | -- | -- | -- | -- |
| 46 | 5230 | 20.35 | 20.26 | 20.21 | 20.16 | 20.06 | 20.02 | 19.92 | 19.83 |
| 54 | 5270 | 20.18 | -- | -- | -- | -- | -- | -- | -- |
| 62 | 5310 | 17 | 16.96 | 16.9 | 16.85 | 16.81 | 16.71 | 16.65 | 16.59 |
| 102 | 5510 | 18.27 | -- | -- | -- | -- | -- | -- | -- |
| 118 | 5590 | 20.88 | 20.79 | 20.73 | 20.68 | 20.65 | 20.55 | 20.50 | 20.44 |
| 134 | 5670 | 19.02 | -- | -- | -- | -- | -- | -- | -- |
| 142(U-NII-2C) | 5710 | 20.44 | 20.38 | 20.33 | 20.24 | 20.15 | 20.1 | 20.04 | 19.99 |
| 142(U-NII-3) | 5710 | 7.82 | 7.72 | 7.62 | 7.58 | 7.53 | 7.44 | 7.35 | 7.31 |
| 151 | 5755 | 20.82 | -- | -- | -- | -- | -- | -- | -- |
| 159 | 5795 | 20.76 | 20.68 | 20.6 | 20.55 | 20.51 | 20.48 | 20.42 | 20.38 |

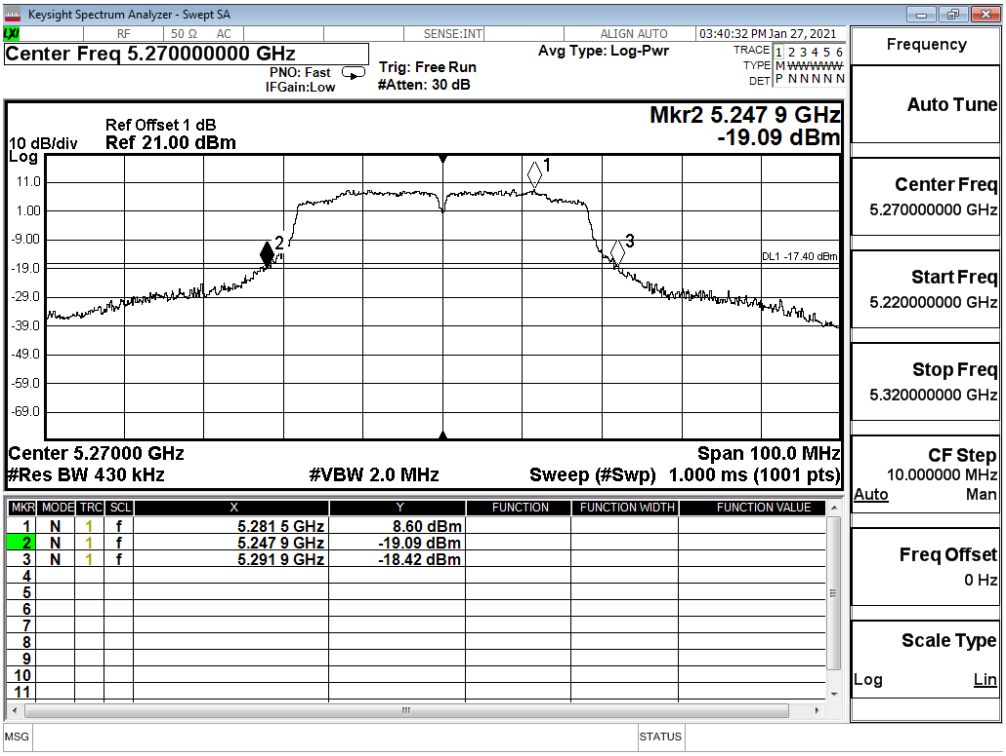
Note: Maximum conducted output power Value =Reading value on average power meter + cable loss

**Maximum conducted output power Measurement:**

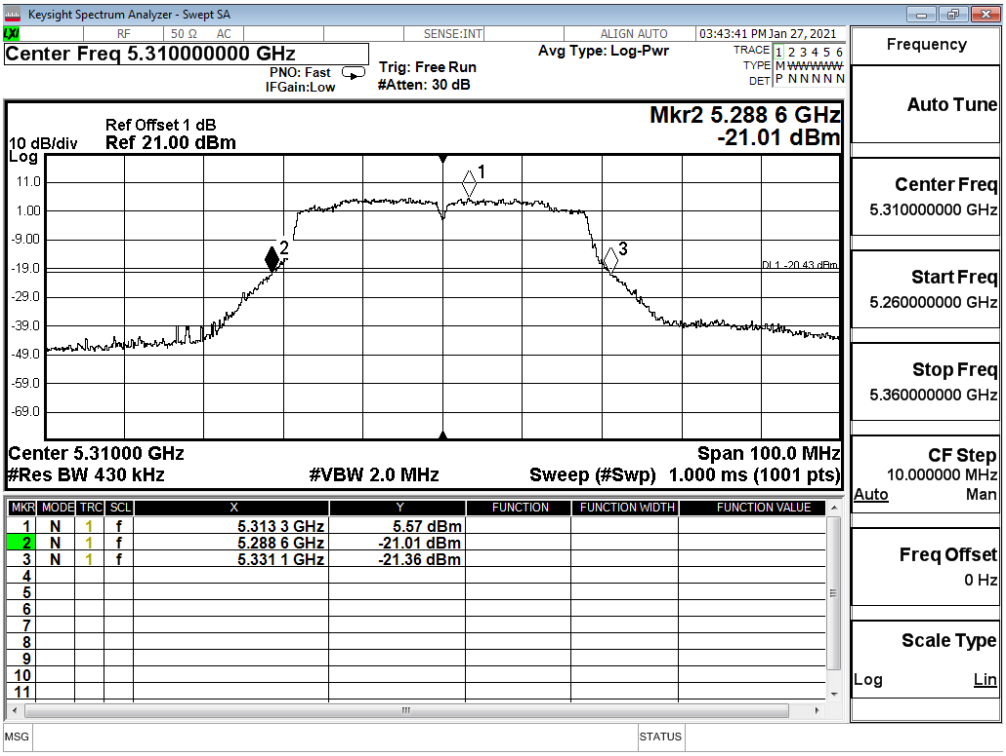
| Channel No | Frequency Range (MHz) | 26dB Bandwidth (MHz) | Output Power (dBm) | Output Power Limit | | Result |
|---|---|---|---|---|---|---|
| | | | | (dBm) | dBm+10log(BW) | |
| 38 | 5190 | -- | 18.31 | 24 | -- | Pass |
| 46 | 5230 | -- | 20.35 | 24 | -- | Pass |
| 54 | 5270 | 44.00 | 20.18 | 24 | 27.43 | Pass |
| 62 | 5310 | 42.50 | 17.00 | 24 | 27.28 | Pass |
| 102 | 5510 | 42.90 | 18.27 | 24 | 27.32 | Pass |
| 118 | 5590 | 49.50 | 20.88 | 24 | 27.95 | Pass |
| 134 | 5670 | 44.20 | 19.02 | 24 | 27.45 | Pass |
| 142(U-NII-2C) | 5710 | 36.60 | 20.44 | 24 | 26.63 | Pass |
| 142(U-NII-3) | 5710 | -- | 7.82 | 30 | -- | Pass |
| 151 | 5755 | -- | 20.82 | 30 | -- | Pass |
| 159 | 5795 | -- | 20.76 | 30 | -- | Pass |

## 26dB Occupied Bandwidth:

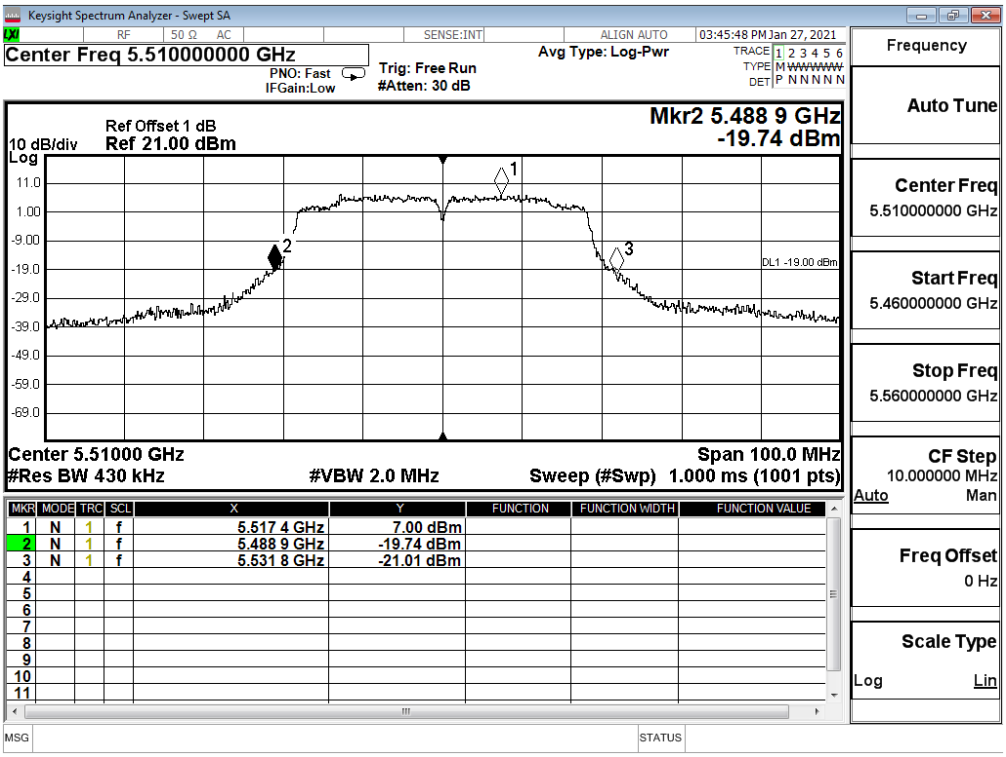
### Channel 54



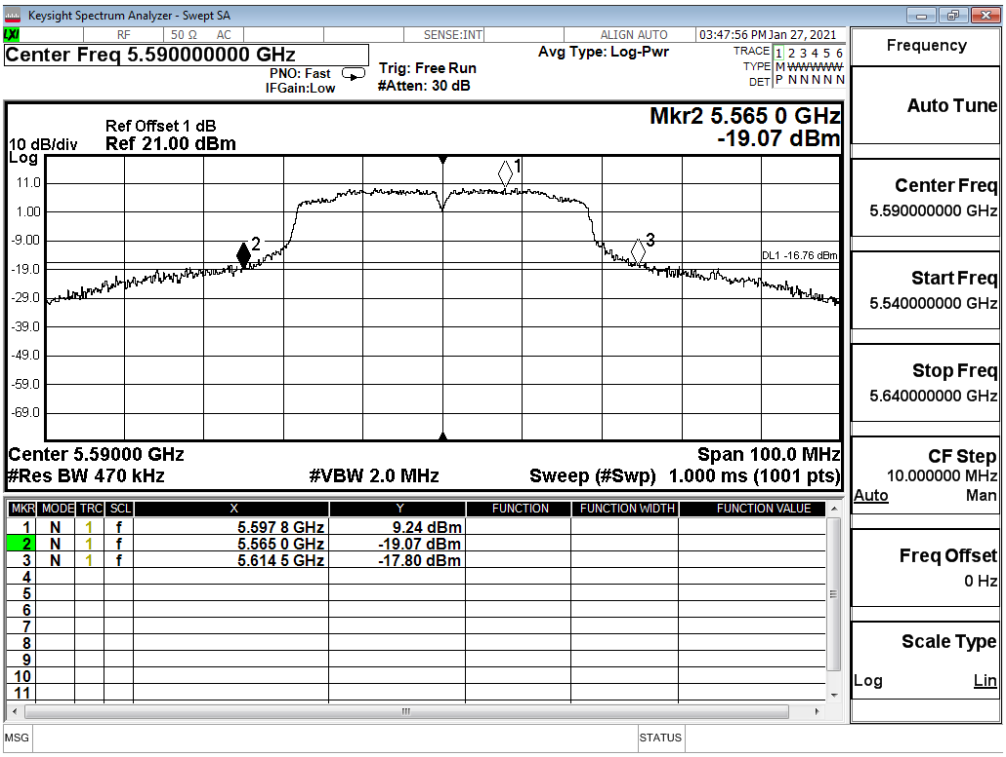

### Channel 62



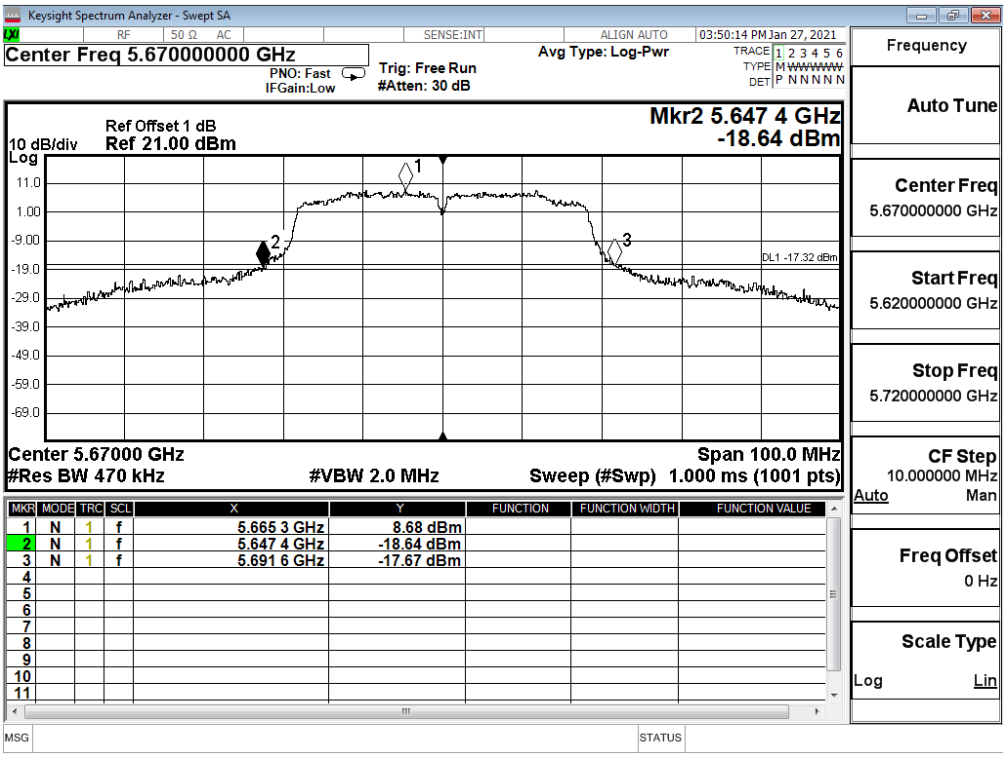
## Channel 102



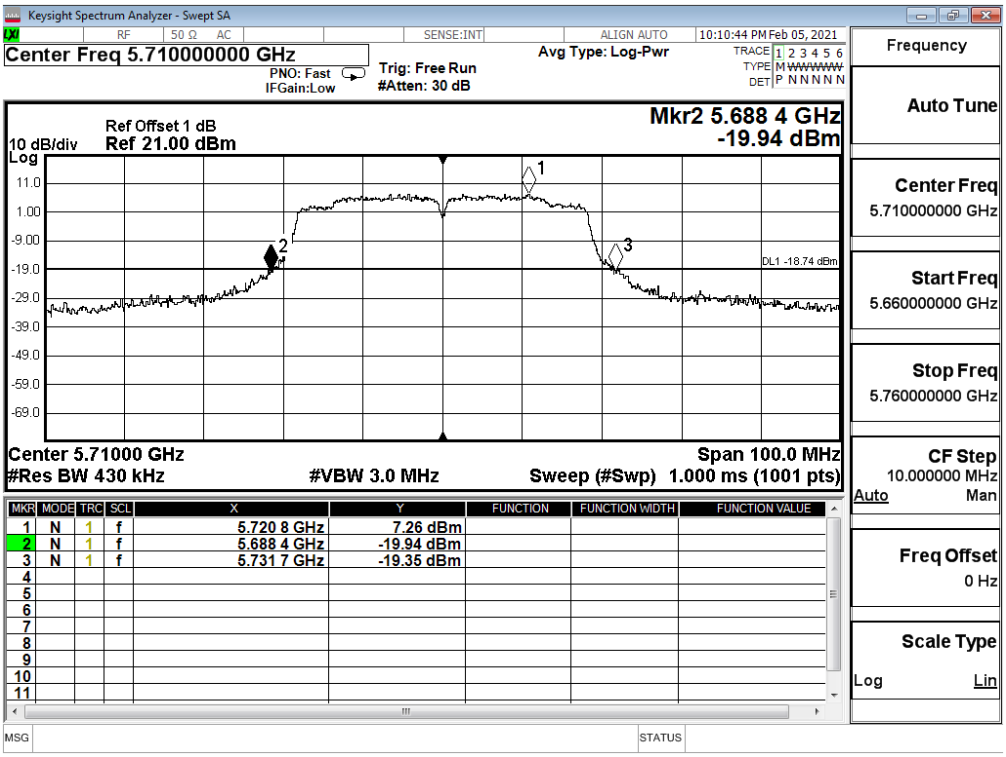

## Channel 118



## Channel 134

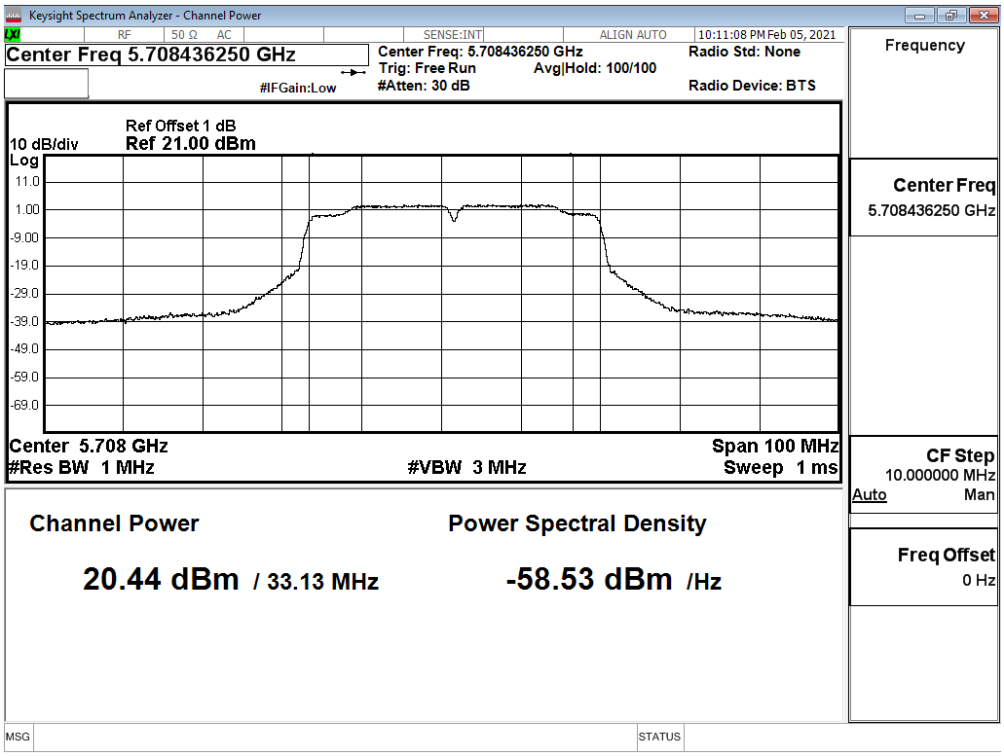



## Channel 142



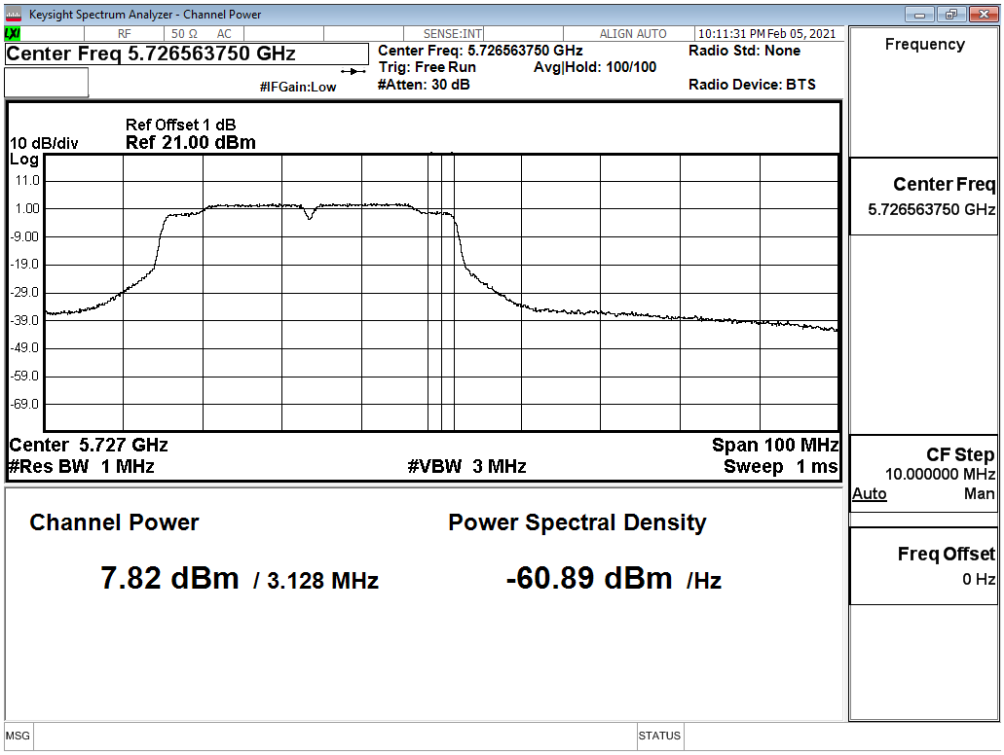
**Maximum conducted output power:**

**Channel 142 (U-NII-2C)**




**Maximum conducted output power:**

**Channel 142 (U-NII-3)**



Product : Portable Computer
Test Item : Maximum conducted output power
Test Date : 2021/02/05
Test Mode : Mode 4 SISO A: Transmit (802.11ac-80BW_32.5Mbps)

| Cable loss=1.0dB | | Maximum conducted output power | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Channel No | Frequency (MHz) | Data Rate (Mbps) | | | | | | | | | |
| | | 32.5 | 65 | 97.5 | 130 | 195 | 260 | 292.5 | 325 | 390 | 433.3 |
| 42 | 5210 | 18.51 | 18.46 | 18.38 | 18.29 | 18.19 | 18.13 | 18.05 | 18.02 | 17.93 | 17.88 |
| 58 | 5290 | 18.28 | 18.19 | 18.13 | 18.05 | 18.02 | 17.93 | 17.90 | 17.86 | 17.77 | 17.68 |
| 106 | 5530 | 18.32 | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 122 | 5610 | 19.1 | 19.01 | 18.94 | 18.91 | 18.87 | 18.77 | 18.71 | 18.67 | 18.58 | 18.54 |
| 138 (U-NII-2C) | 5690 | 20.66 | 20.58 | 20.52 | 20.49 | 20.42 | 20.36 | 20.26 | 20.18 | 20.14 | 20.1 |
| 138 (U-NII-3) | 5690 | 3.58 | 3.48 | 3.42 | 3.39 | 3.32 | 3.23 | 3.2 | 3.17 | 3.12 | 3.03 |
| 155 | 5775 | 18.82 | 18.72 | 18.68 | 18.65 | 18.62 | 18.55 | 18.52 | 18.46 | 18.43 | 18.33 |

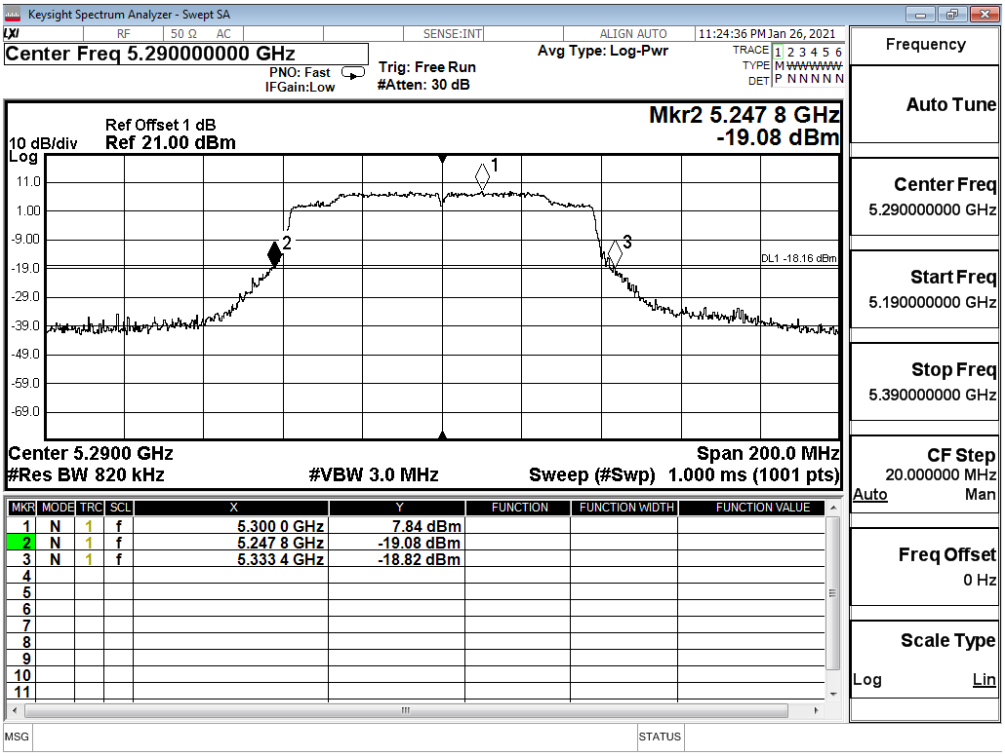
Note: Maximum conducted output power Value =Reading value on Spectrum Analyzer + cable loss

**Maximum conducted output power Measurement:**

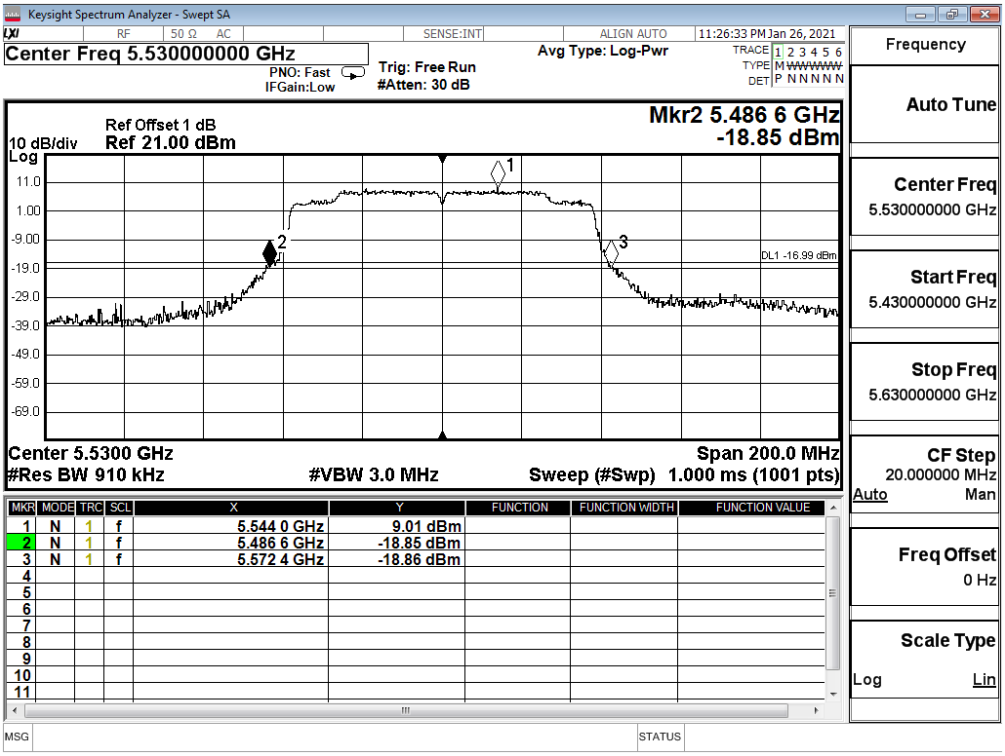
| Channel No | Frequency Range (MHz) | 26dB Bandwidth (MHz) | Output Power (dBm) | Output Power Limit | | Result |
|---|---|---|---|---|---|---|
| | | | | (dBm) | dBm+10log(BW) | |
| 42 | 5210 | -- | 18.51 | 24 | -- | Pass |
| 58 | 5290 | 85.60 | 18.28 | 24 | 30.32 | Pass |
| 106 | 5530 | 85.80 | 18.32 | 24 | 30.33 | Pass |
| 122 | 5610 | 87.00 | 19.10 | 24 | 30.40 | Pass |
| 138 (U-NII-2C) | 5690 | 79.20 | 20.66 | 24 | 29.99 | Pass |
| 138 (U-NII-3) | 5690 | -- | 3.58 | 30 | -- | Pass |
| 155 | 5775 | -- | 18.82 | 30 | -- | Pass |

## 26dB Occupied Bandwidth:

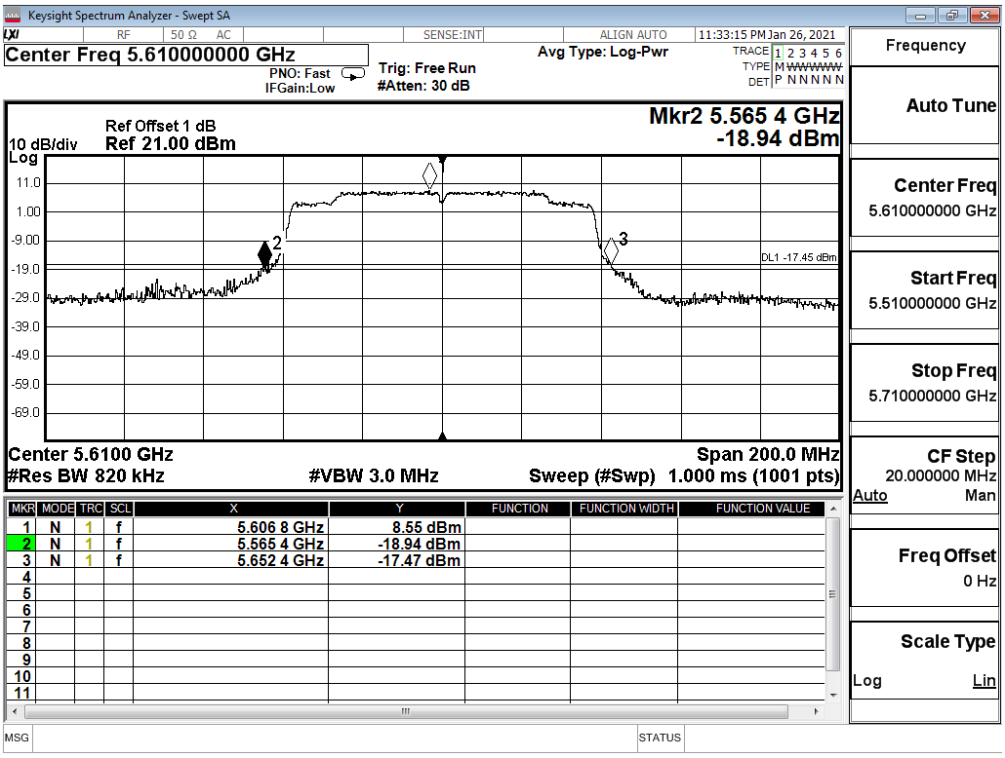
### Channel 58



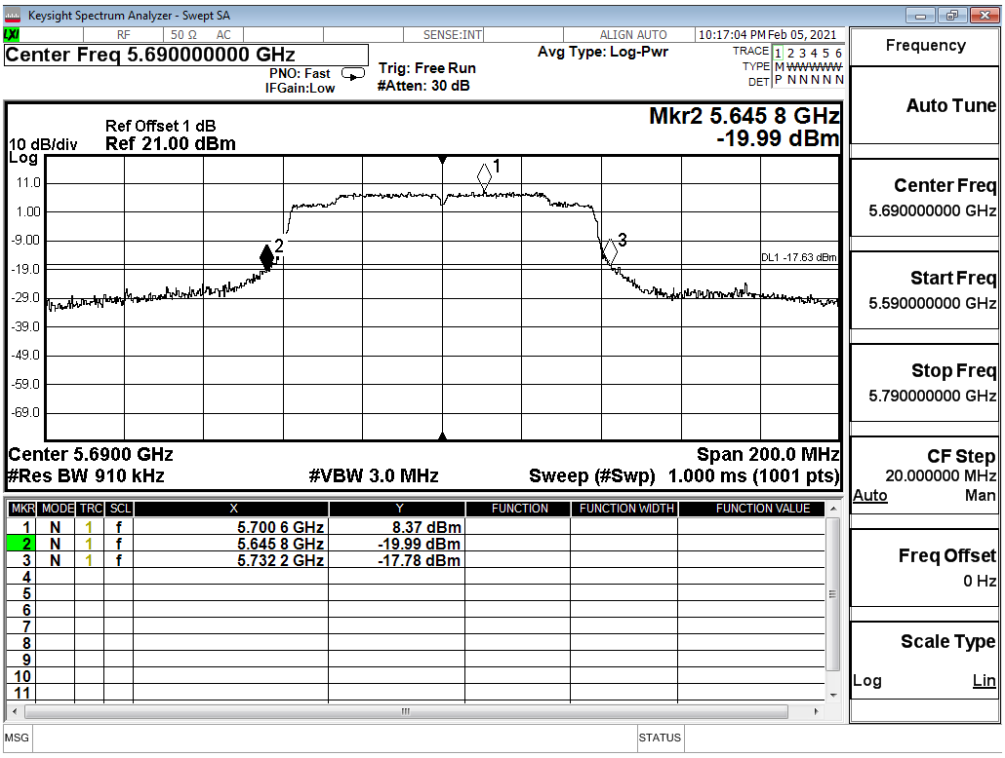

### Channel 106



## Channel 122

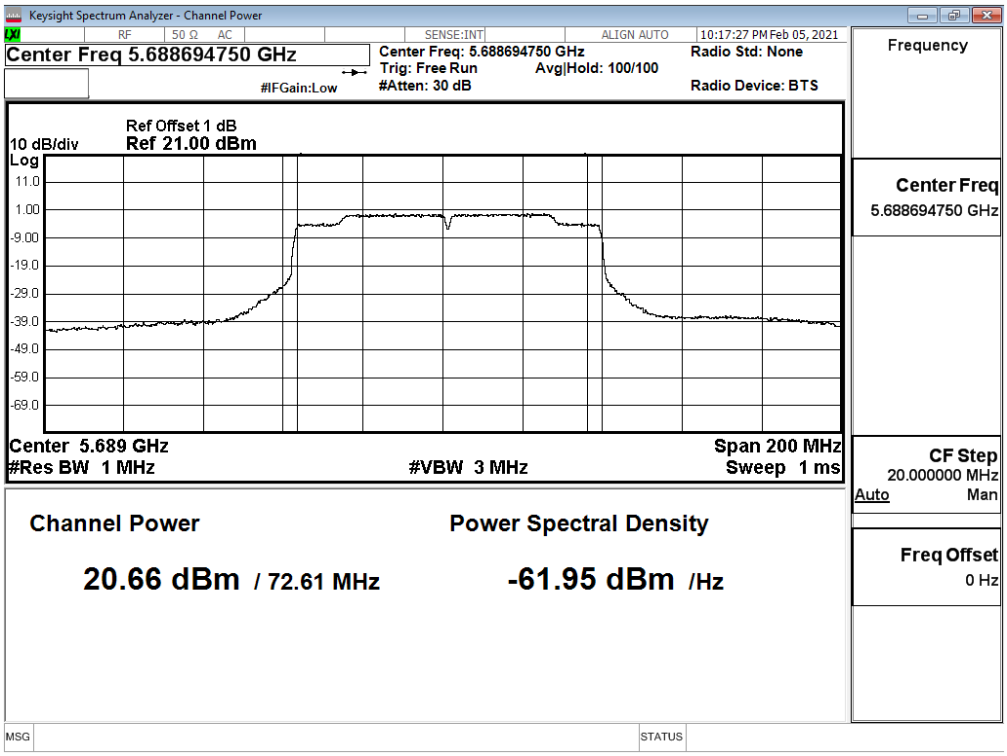



## Channel 138



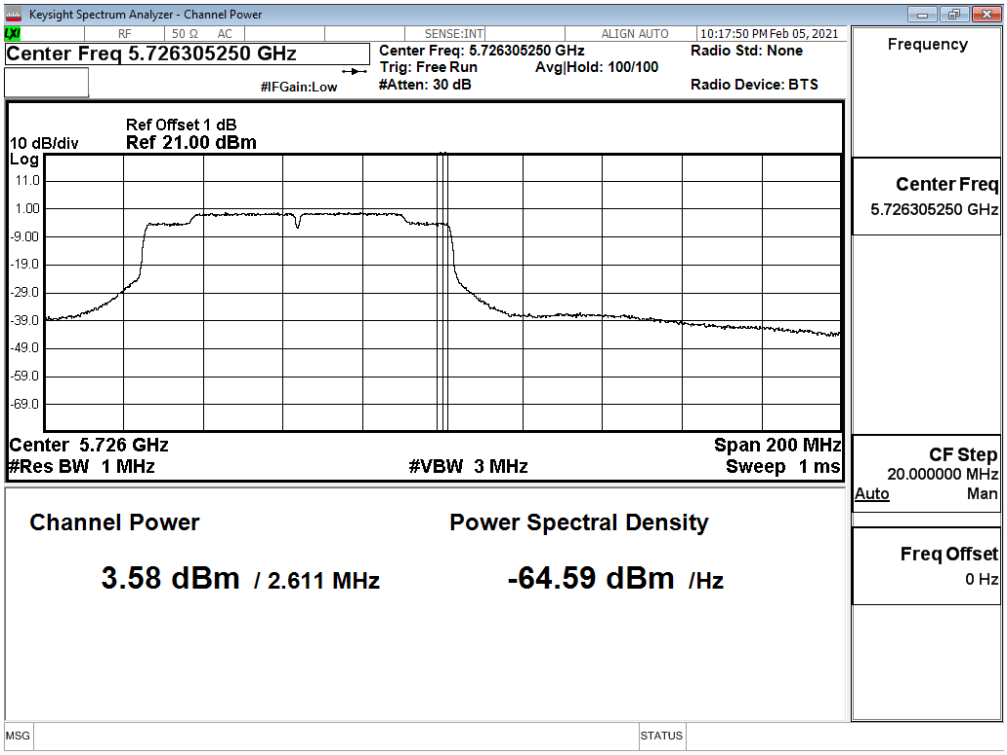
**Maximum conducted output power:**

**Channel 138 (U-NII-2C)**




**Maximum conducted output power:**

**Channel 138 (U-NII-3)**



Product : Portable Computer
Test Item : Maximum conducted output power
Test Date : 2021/02/03
Test Mode : Mode 5 SISO A: Transmit (802.11ac-160BW_65Mbps)

| Cable loss=1.0dB | | Maximum conducted output power | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Channel No | Frequency (MHz) | Data Rate (Mbps) | | | | | | | | | |
| | | 65 | 130 | 195 | 260 | 390 | 520 | 585 | 650 | 780 | 866.7 |
| 50 (U-NII-1) | 5250 | 11.39 | 11.32 | 11.24 | 11.15 | 11.12 | 11.07 | 10.97 | 10.94 | 10.87 | 10.82 |
| 50 (U-NII-2A) | 5250 | 11.57 | 11.47 | 11.43 | 11.34 | 11.31 | 11.23 | 11.18 | 11.13 | 11.04 | 11.01 |
| 114 | 5570 | 14.86 | 14.83 | 14.73 | 14.63 | 14.58 | 14.51 | 14.48 | 14.39 | 14.33 | 14.27 |

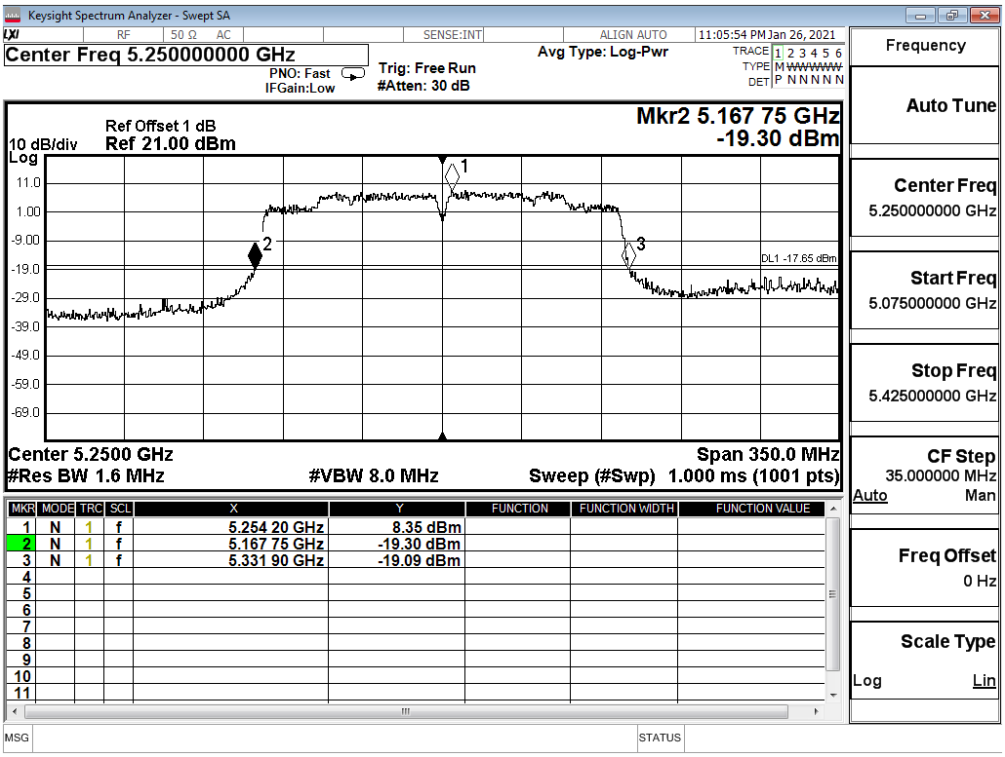
Note: Maximum conducted output power Value =Reading value on Spectrum Analyzer + cable loss

**Maximum conducted output power Measurement:**

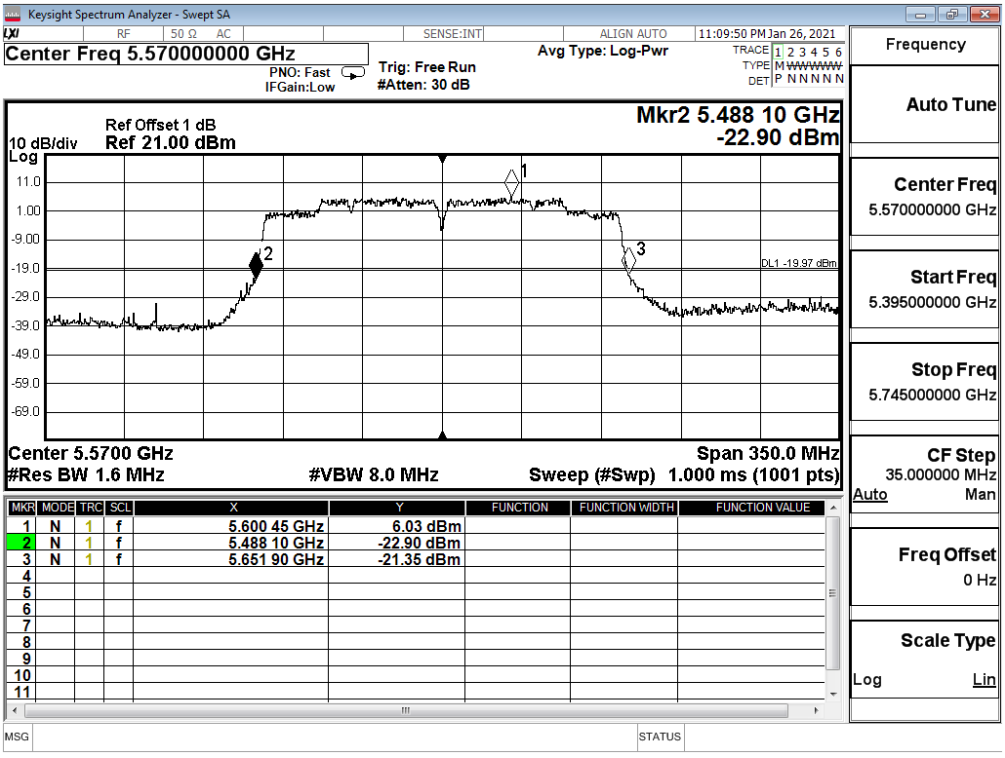
| Channel No | Frequency Range (MHz) | 26dB Bandwidth (MHz) | Output Power (dBm) | Output Power Limit | | Result |
|---|---|---|---|---|---|---|
| | | | | (dBm) | dBm+10log(BW) | |
| 50 (U-NII-1) | 5250 | -- | 11.39 | 24 | -- | Pass |
| 50 (U-NII-2A) | 5250 | 81.90 | 11.57 | 24 | 30.13 | Pass |
| 114 | 5570 | 163.80 | 14.86 | 24 | 33.14 | Pass |

## 26dB Occupied Bandwidth:

### Channel 50

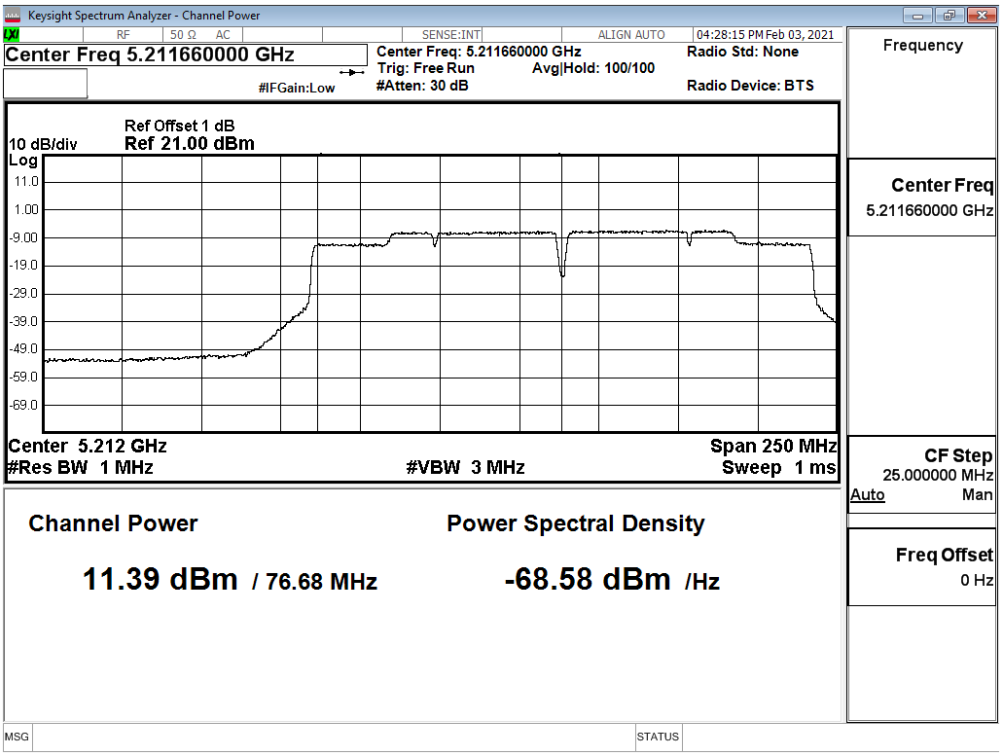



### Channel 114



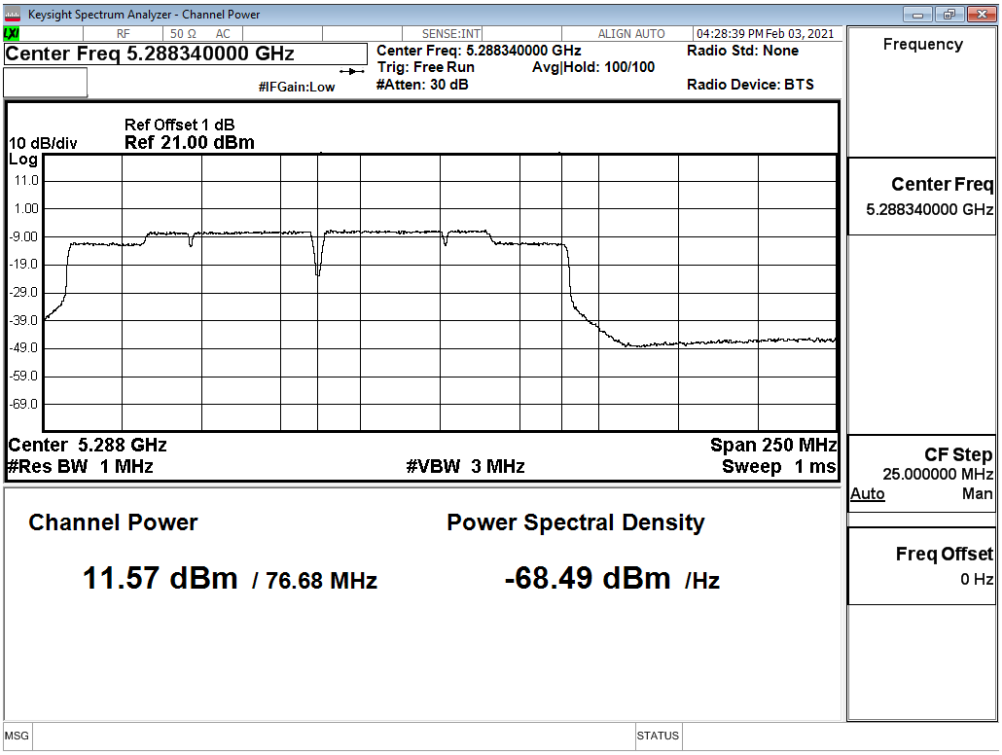
**Maximum conducted output power:**

**Channel 50 (U-NII-1)**




**Maximum conducted output power:**

**Channel 50 (U-NII-2A)**



Product : Portable Computer
Test Item : Maximum conducted output power
Test Date : 2021/01/27
Test Mode : Mode 10 SISO B: Transmit (802.11a_6Mbps)

| Cable loss=1.0dB | | Maximum conducted output power | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Channel No. | Frequency (MHz) | Data Rate (Mbps) | | | | | | | |
| | | 6 | 9 | 12 | 18 | 24 | 36 | 48 | 54 |
| | | Measurement Level (dBm) | | | | | | | |
| 36 | 5180 | 18.84 | -- | -- | -- | -- | -- | -- | -- |
| 40 | 5200 | 20.99 | 20.9 | 20.81 | 20.74 | 20.66 | 20.60 | 20.53 | 20.49 |
| 48 | 5240 | 20.96 | -- | -- | -- | -- | -- | -- | -- |
| 52 | 5260 | 20.85 | -- | -- | -- | -- | -- | -- | -- |
| 56 | 5280 | 20.78 | 20.69 | 20.61 | 20.54 | 20.45 | 20.38 | 20.31 | 20.21 |
| 64 | 5320 | 18.41 | -- | -- | -- | -- | -- | -- | -- |
| 100 | 5500 | 19.05 | -- | -- | -- | -- | -- | -- | -- |
| 120 | 5600 | 21.01 | 20.94 | 20.85 | 20.75 | 20.69 | 20.64 | 20.59 | 20.56 |
| 140 | 5700 | 19.28 | -- | -- | -- | -- | -- | -- | -- |
| 149 | 5745 | 21 | -- | -- | -- | -- | -- | -- | -- |
| 157 | 5785 | 20.97 | 20.93 | 20.86 | 20.81 | 20.71 | 20.65 | 20.56 | 20.50 |
| 165 | 5825 | 20.89 | -- | -- | -- | -- | -- | -- | -- |

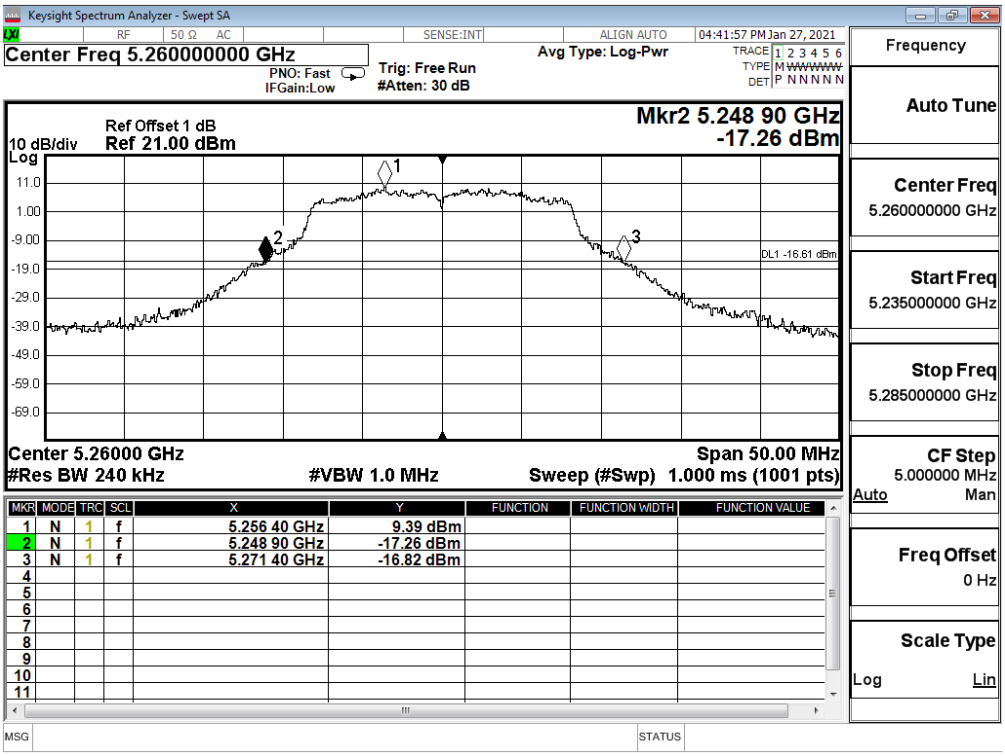
Note: Maximum conducted output power Value =Reading value on average power meter + cable loss

**Maximum conducted output power Measurement:**

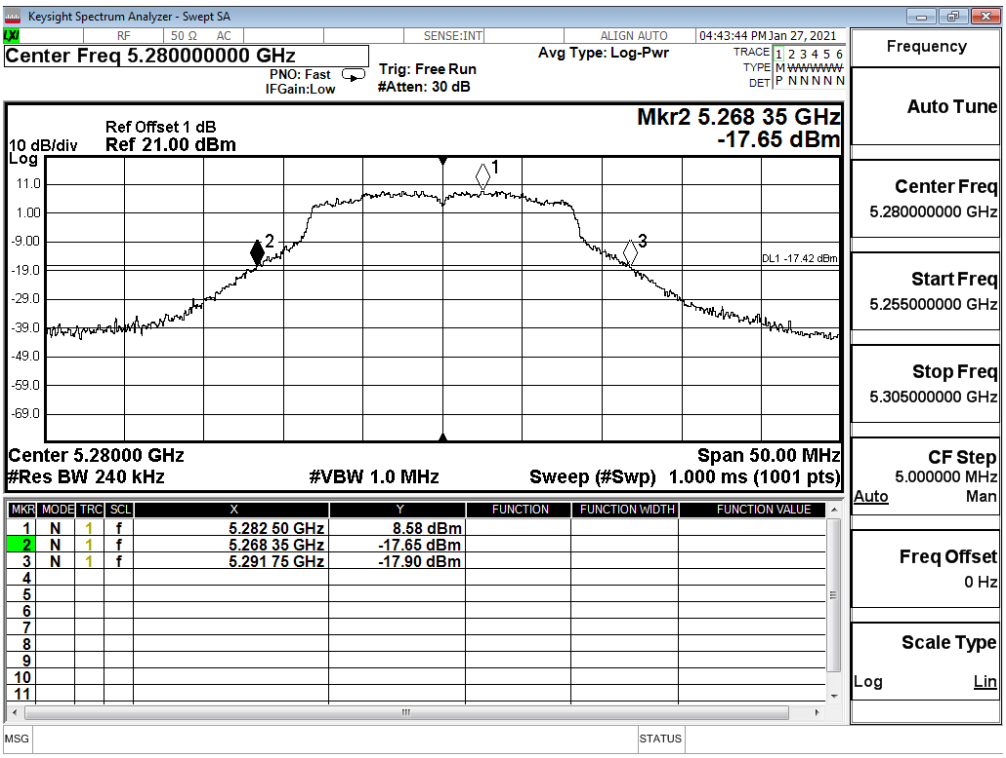
| Channel No | Frequency Range (MHz) | 26dB Bandwidth (MHz) | Output Power (dBm) | Output Power Limit | | Result |
|---|---|---|---|---|---|---|
| | | | | (dBm) | dBm+10log(BW) | |
| 36 | 5180 | -- | 18.84 | 24 | -- | Pass |
| 40 | 5200 | -- | 20.99 | 24 | -- | Pass |
| 48 | 5240 | -- | 20.96 | 24 | -- | Pass |
| 52 | 5260 | 28.85 | 20.85 | 24 | 25.60 | Pass |
| 56 | 5280 | 31.85 | 20.78 | 24 | 26.03 | Pass |
| 64 | 5320 | 23.55 | 18.41 | 24 | 24.72 | Pass |
| 100 | 5500 | 26.85 | 19.05 | 24 | 25.29 | Pass |
| 120 | 5600 | 41.50 | 21.01 | 24 | 27.18 | Pass |
| 140 | 5700 | 27.20 | 19.28 | 24 | 25.35 | Pass |
| 149 | 5745 | -- | 21.00 | 30 | -- | Pass |
| 157 | 5785 | -- | 20.97 | 30 | -- | Pass |
| 165 | 5825 | -- | 20.89 | 30 | -- | Pass |

## 26dB Occupied Bandwidth:

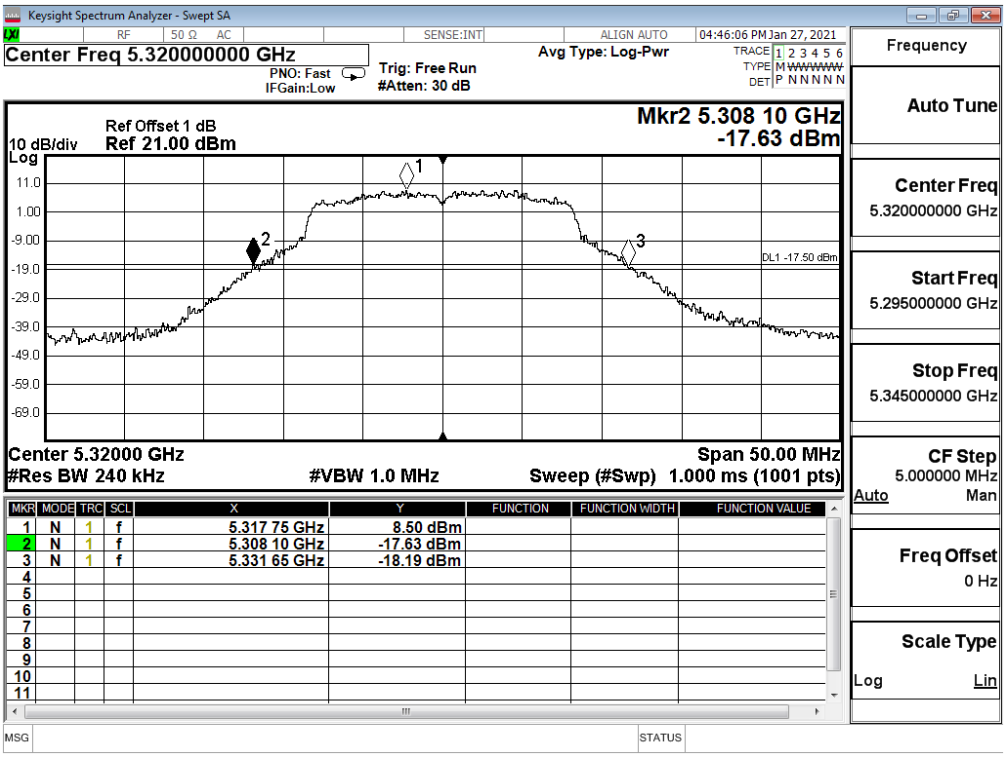
### Channel 52



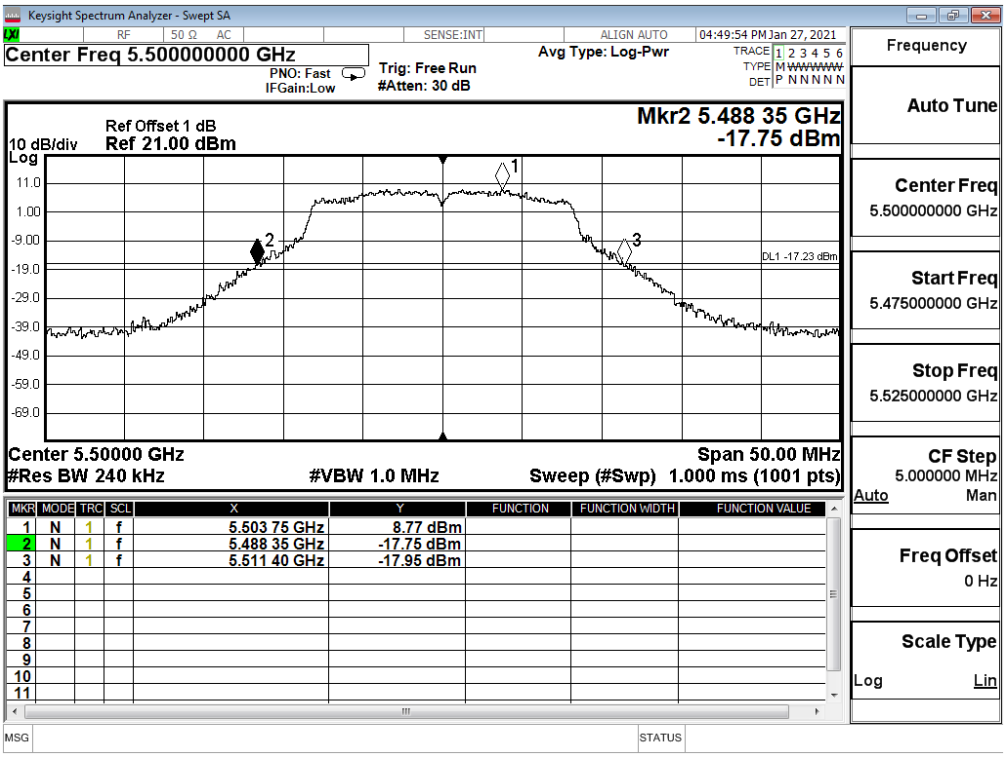

### Channel 56



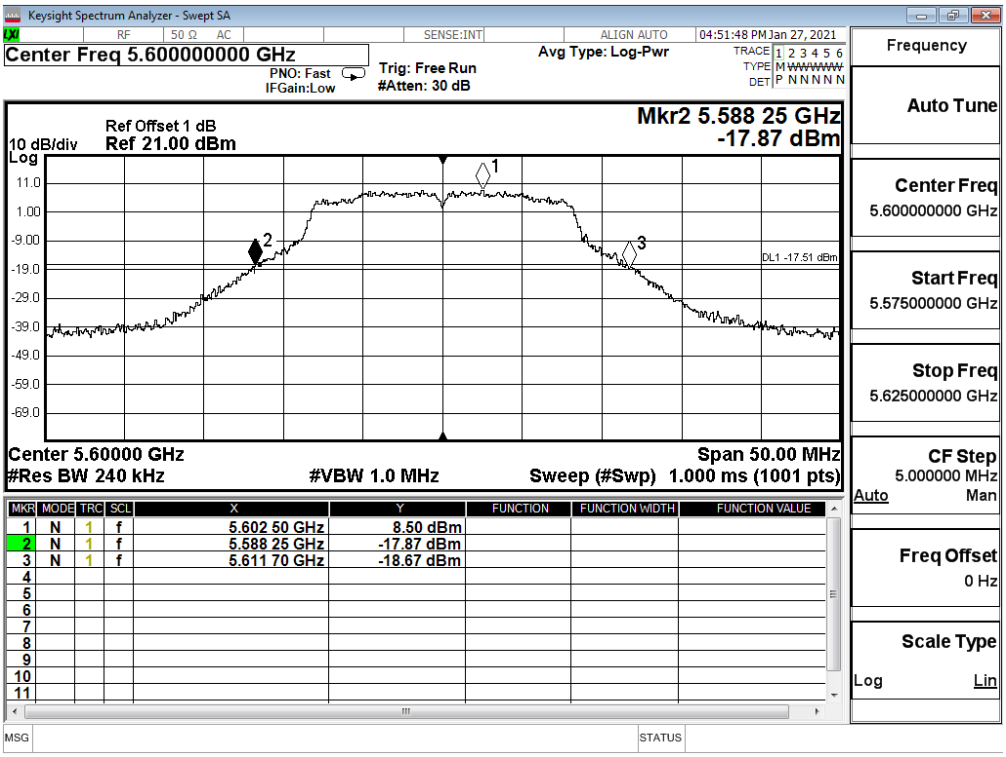
## Channel 64



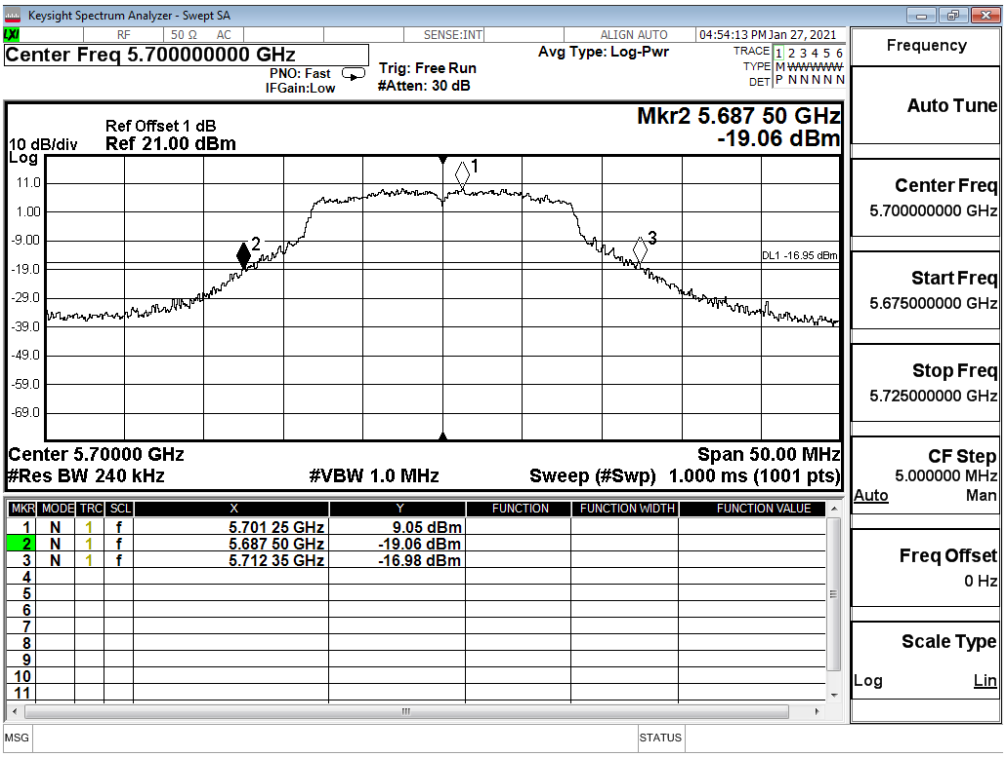

## Channel 100



## Channel 120




## Channel 140



Product : Portable Computer
Test Item : Maximum conducted output power
Test Date : 2021/01/27
Test Mode : Mode 11 SISO B: Transmit (802.11n-20BW_7.2Mbps)

| Cable loss=1.0dB | | Maximum conducted output power | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Channel No. | Frequency (MHz) | Data Rate (Mbps) | | | | | | | |
| | | 7.2 | 14.4 | 21.7 | 28.9 | 43.3 | 57.8 | 65 | 72.2 |
| | | Measurement Level (dBm) | | | | | | | |
| 36 | 5180 | 18.87 | -- | -- | -- | -- | -- | -- | -- |
| 40 | 5200 | 20.94 | 20.9 | 20.81 | 20.71 | 20.64 | 20.58 | 20.51 | 20.44 |
| 48 | 5240 | 20.91 | -- | -- | -- | -- | -- | -- | -- |
| 52 | 5260 | 20.78 | -- | -- | -- | -- | -- | -- | -- |
| 56 | 5280 | 20.7 | 20.65 | 20.62 | 20.52 | 20.49 | 20.45 | 20.37 | 20.34 |
| 64 | 5320 | 17.56 | -- | -- | -- | -- | -- | -- | -- |
| 100 | 5500 | 18.84 | -- | -- | -- | -- | -- | -- | -- |
| 120 | 5600 | 20.79 | 20.74 | 20.7 | 20.64 | 20.54 | 20.50 | 20.45 | 20.40 |
| 140 | 5700 | 19.15 | -- | -- | -- | -- | -- | -- | -- |
| 144(U-NII-2C) | 5720 | 20.27 | 20.23 | 20.18 | 20.13 | 20.09 | 20 | 19.93 | 19.86 |
| 144(U-NII-3) | 5720 | 12.74 | 12.66 | 12.62 | 12.58 | 12.48 | 12.41 | 12.35 | 12.28 |
| 149 | 5745 | 20.85 | -- | -- | -- | -- | -- | -- | -- |
| 157 | 5785 | 20.98 | 20.9 | 20.81 | 20.75 | 20.66 | 20.60 | 20.57 | 20.47 |
| 165 | 5825 | 20.98 | -- | -- | -- | -- | -- | -- | -- |

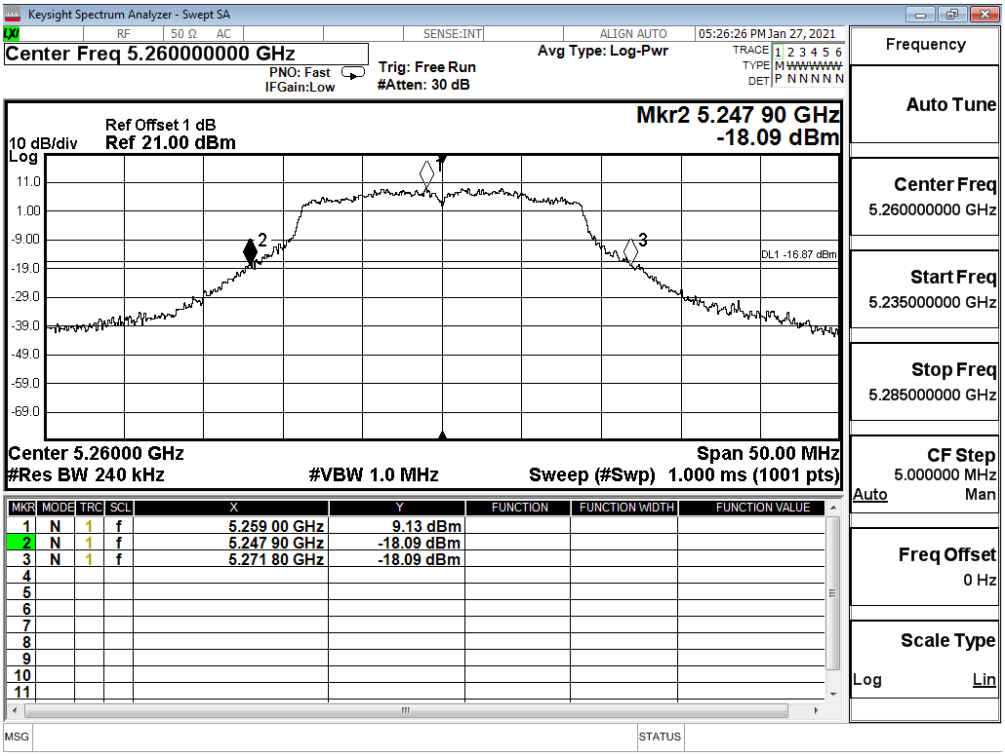
Note: Maximum conducted output power Value =Reading value on average power meter + cable loss

**Maximum conducted output power Measurement:**

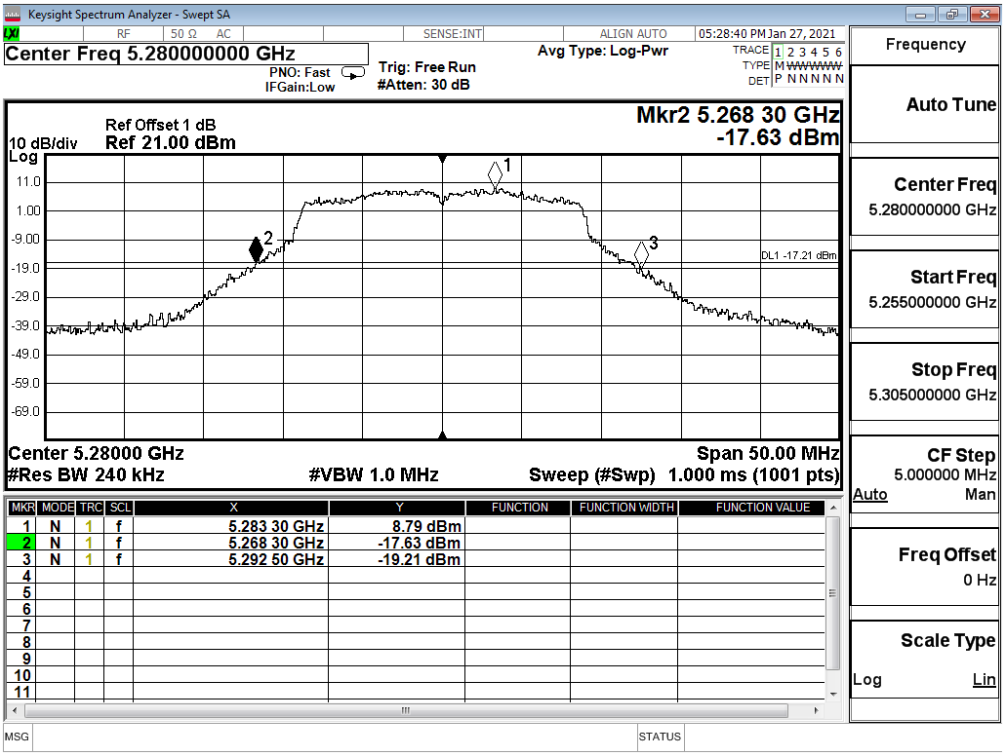
| Channel No | Frequency Range (MHz) | 26dB Bandwidth (MHz) | Output Power (dBm) | Output Power Limit | | Result |
|---|---|---|---|---|---|---|
| | | | | (dBm) | dBm+10log(BW) | |
| 36 | 5180 | -- | 18.87 | 24 | -- | Pass |
| 40 | 5200 | -- | 20.94 | 24 | -- | Pass |
| 48 | 5240 | -- | 20.91 | 24 | -- | Pass |
| 52 | 5260 | 30.95 | 20.78 | 24 | 25.91 | Pass |
| 56 | 5280 | 29.40 | 20.70 | 24 | 25.68 | Pass |
| 64 | 5320 | 23.50 | 17.56 | 24 | 24.71 | Pass |
| 100 | 5500 | 23.85 | 18.84 | 24 | 24.77 | Pass |
| 120 | 5600 | 30.90 | 20.79 | 24 | 25.90 | Pass |
| 140 | 5700 | 24.35 | 19.15 | 24 | 24.86 | Pass |
| 144(U-NII-2C) | 5720 | 26.00 | 20.27 | 24 | 25.15 | Pass |
| 144(U-NII-3) | 5720 | -- | 12.74 | 30 | -- | Pass |
| 149 | 5745 | -- | 20.85 | 30 | -- | Pass |
| 157 | 5785 | -- | 20.98 | 30 | -- | Pass |
| 165 | 5825 | -- | 20.98 | 30 | -- | Pass |

## 26dB Occupied Bandwidth:

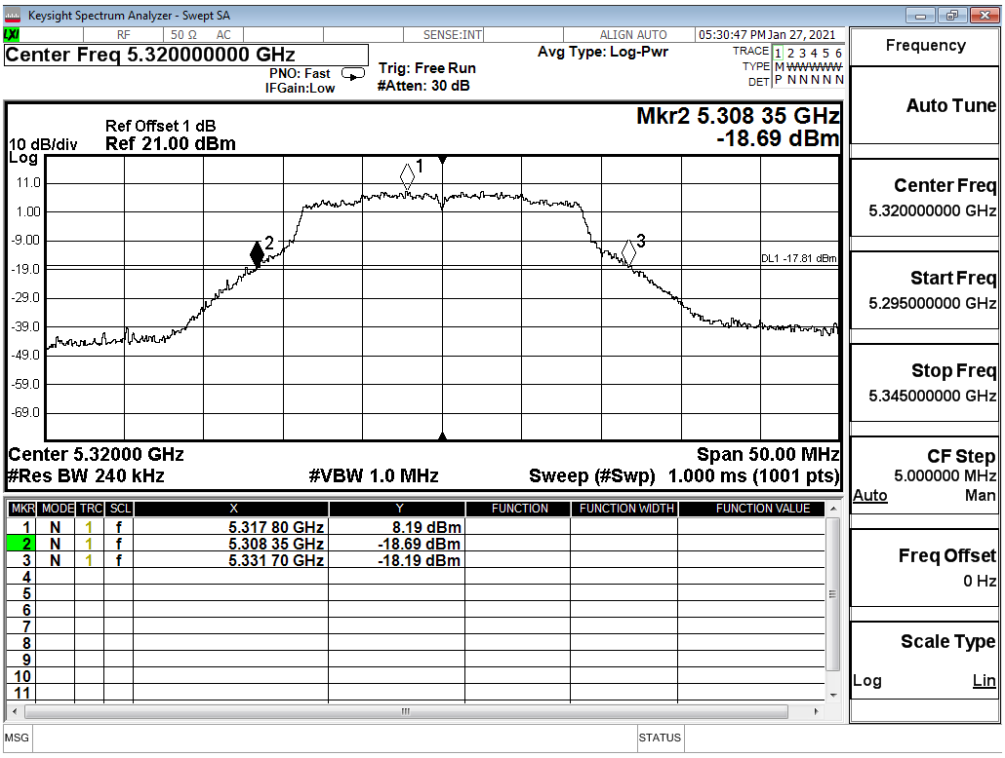
### Channel 52



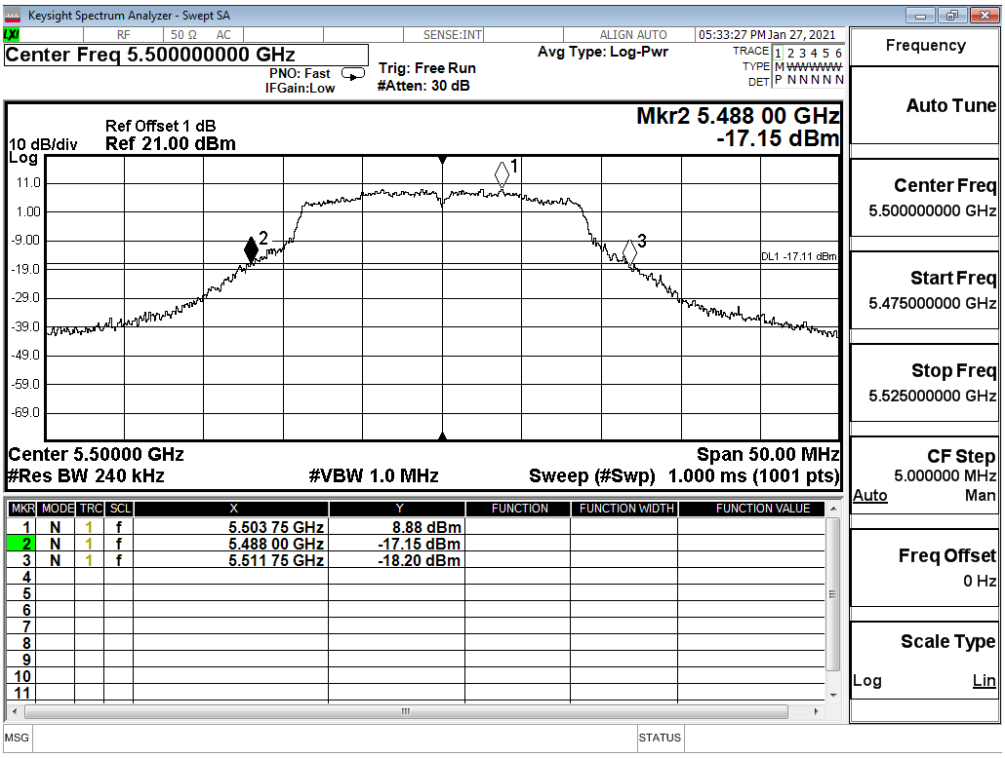

### Channel 56



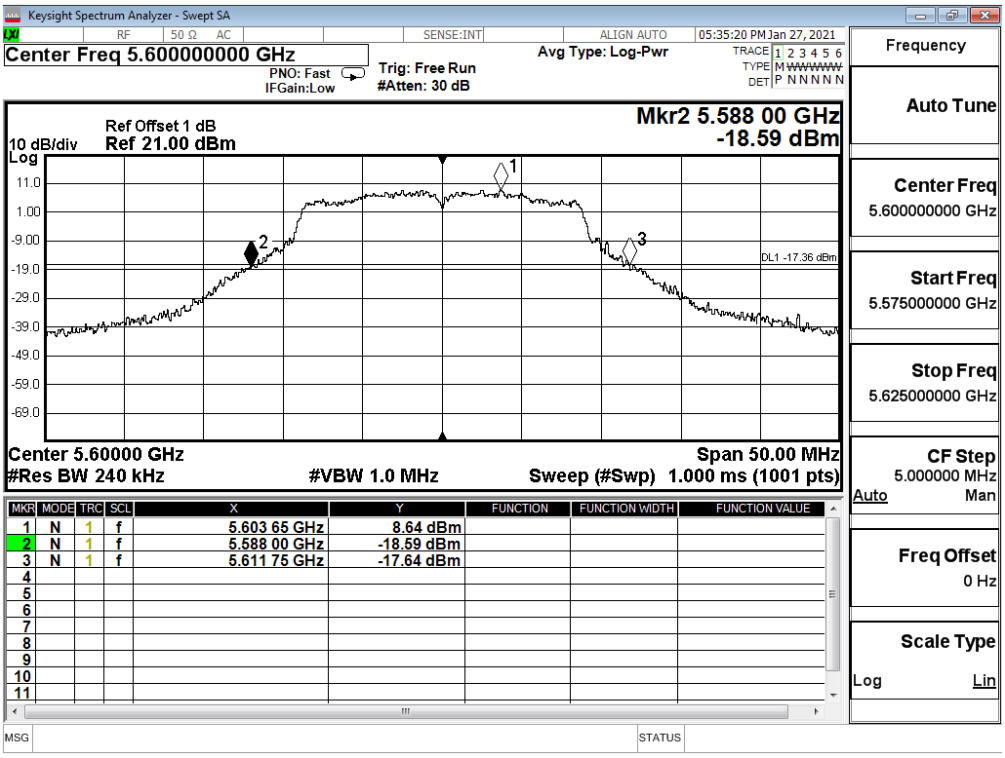
## Channel 64



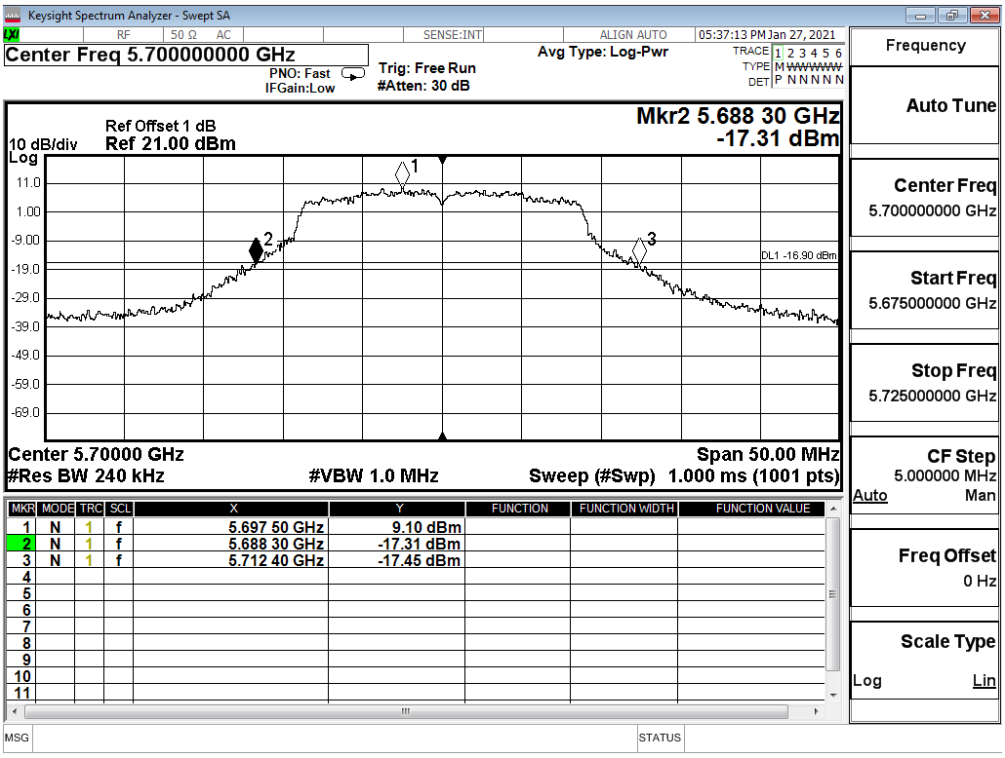

## Channel 100



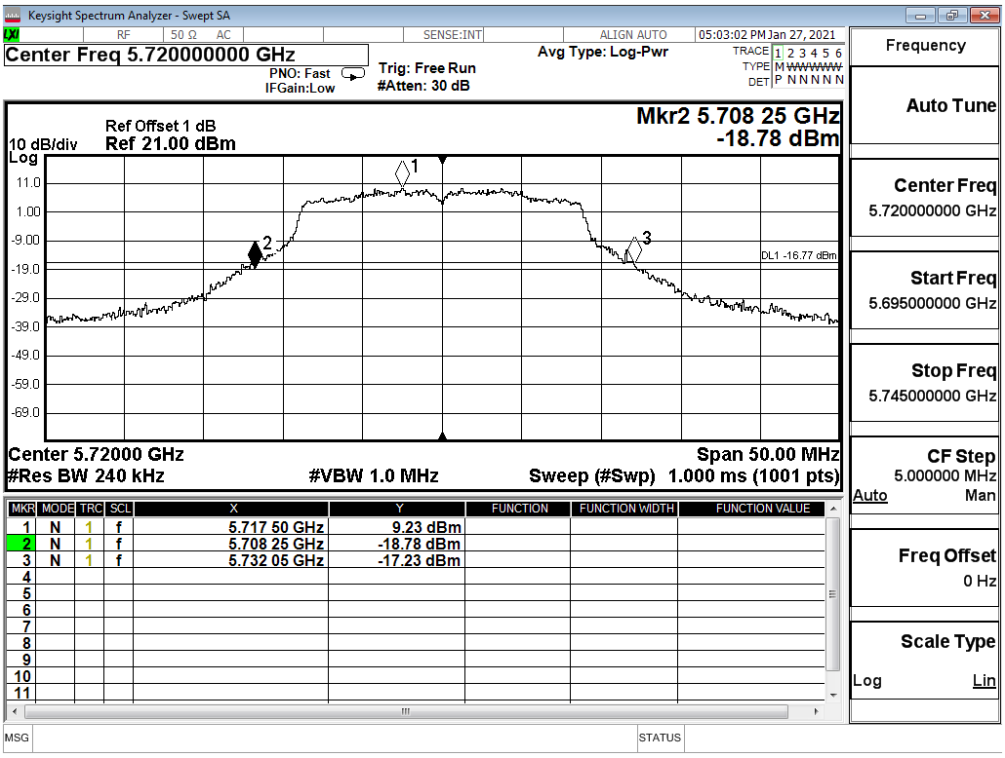
## Channel 120




## Channel 140

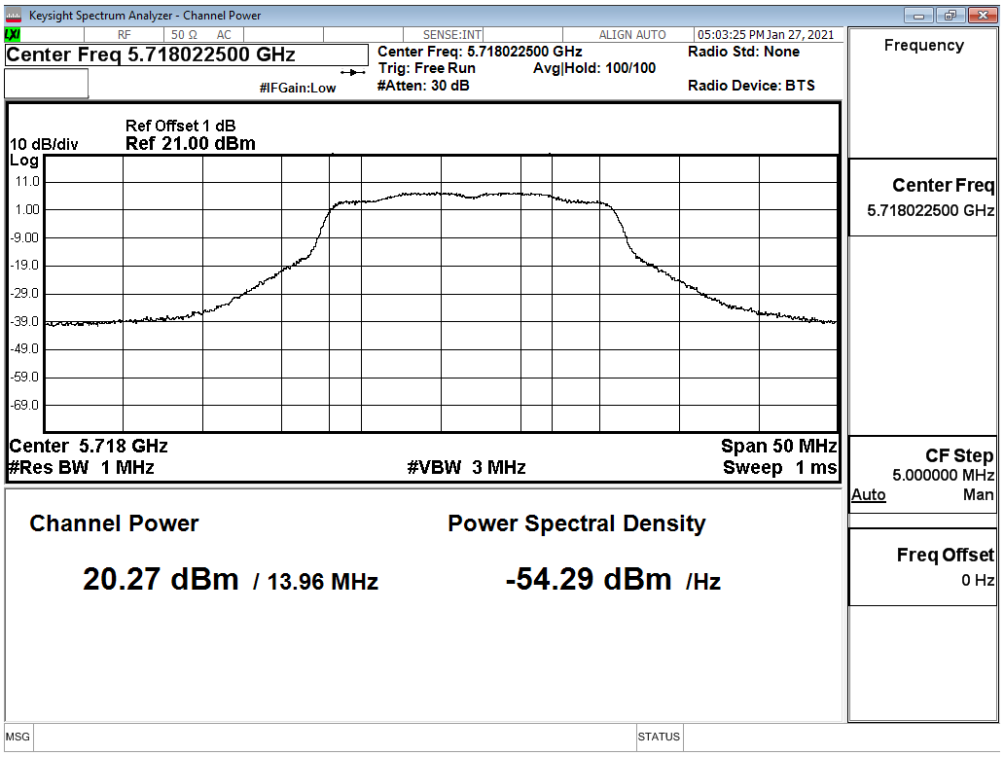


## Channel 144


Keysight Spectrum Analyzer - Swept SA
RF
50 Ω AC
SENSE:INT
ALIGN AUTO
05:03:02 PM Jan 27, 2021
Center Freq 5.720000000 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 30 dB
Avg Type: Log-Pwr
TRACE 1 2 3 4 5 6
TYPE M WWWWW
DET P N N N N N
Ref Offset 1 dB
10 dB/div
Log
Ref 21.00 dBm
Mkr2 5.708 25 GHz
-18.78 dBm
11.0
1.00
-9.00
-19.0
-29.0
-39.0
-49.0
-59.0
-69.0
DL1 -16.77 dBm
Center 5.72000 GHz
#Res BW 240 kHz
#VBW 1.0 MHz
Span 50.00 MHz
Sweep (#Swp) 1.000 ms (1001 pts)
MKR MODE TRC SCL X Y FUNCTION FUNCTION WIDTH FUNCTION VALUE
1 N 1 f 5.717 50 GHz 9.23 dBm
2 N 1 f 5.708 25 GHz -18.78 dBm
3 N 1 f 5.732 05 GHz -17.23 dBm
4
5
6
7
8
9
10
11
MSG
STATUS
Frequency
Auto Tune
Center Freq
5.720000000 GHz
Start Freq
5.695000000 GHz
Stop Freq
5.745000000 GHz
CF Step
5.000000 MHz
Auto
Man
Freq Offset
0 Hz
Scale Type
Log
Lin

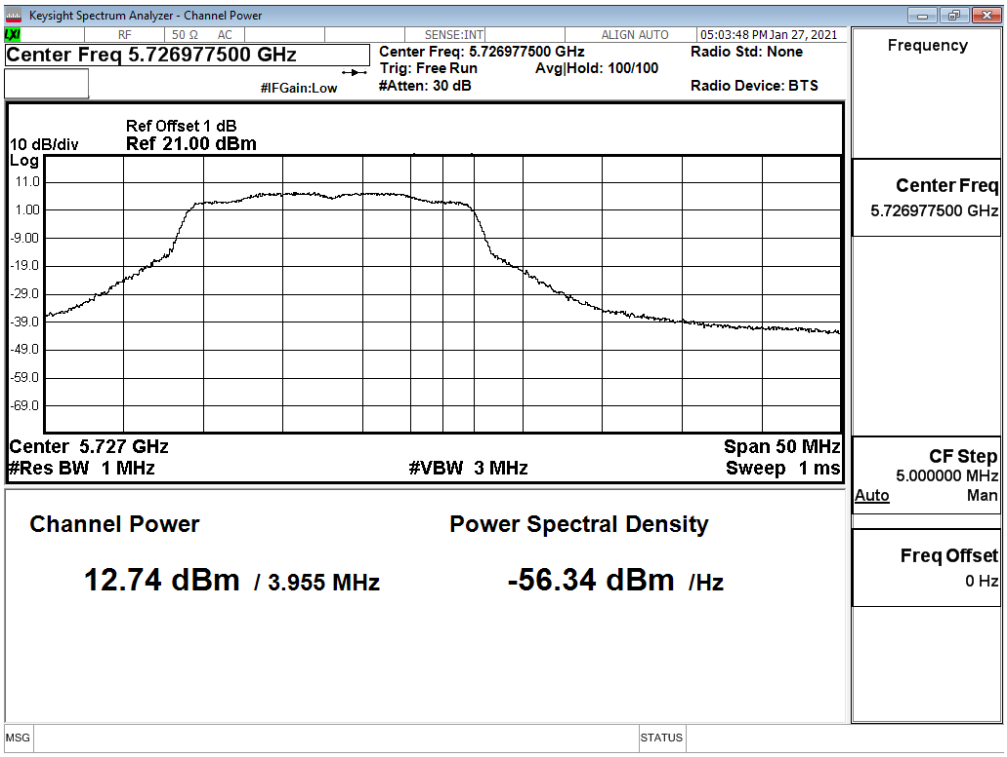
**Maximum conducted output power:**

**Channel 144 (U-NII-2C)**




**Maximum conducted output power:**

**Channel 144 (U-NII-3)**



Product : Portable Computer
Test Item : Maximum conducted output power
Test Date : 2021/02/05
Test Mode : Mode 12 SISO B: Transmit (802.11n-40BW_15Mbps)

| Cable loss=1.0dB | | Maximum conducted output power | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Channel No. | Frequency (MHz) | Data Rate (Mbps) | | | | | | | |
| | | 15 | 30 | 45 | 60 | 90 | 120 | 135 | 150 |
| | | Measurement Level (dBm) | | | | | | | |
| 38 | 5190 | 18.31 | -- | -- | -- | -- | -- | -- | -- |
| 46 | 5230 | 20.48 | 20.42 | 20.32 | 20.29 | 20.22 | 20.19 | 20.14 | 20.05 |
| 54 | 5270 | 20.42 | -- | -- | -- | -- | -- | -- | -- |
| 62 | 5310 | 16.98 | 16.94 | 16.9 | 16.82 | 16.75 | 16.71 | 16.68 | 16.58 |
| 102 | 5510 | 18.53 | -- | -- | -- | -- | -- | -- | -- |
| 118 | 5590 | 20.78 | 20.75 | 20.72 | 20.64 | 20.55 | 20.45 | 20.35 | 20.32 |
| 134 | 5670 | 19.43 | -- | -- | -- | -- | -- | -- | -- |
| 142(U-NII-2C) | 5710 | 20.72 | 20.69 | 20.62 | 20.52 | 20.44 | 20.39 | 20.3 | 20.27 |
| 142(U-NII-3) | 5710 | 7.87 | 7.8 | 7.72 | 7.64 | 7.6 | 7.52 | 7.42 | 7.33 |
| 151 | 5755 | 20.85 | -- | -- | -- | -- | -- | -- | -- |
| 159 | 5795 | 20.76 | 20.67 | 20.57 | 20.53 | 20.49 | 20.43 | 20.33 | 20.25 |

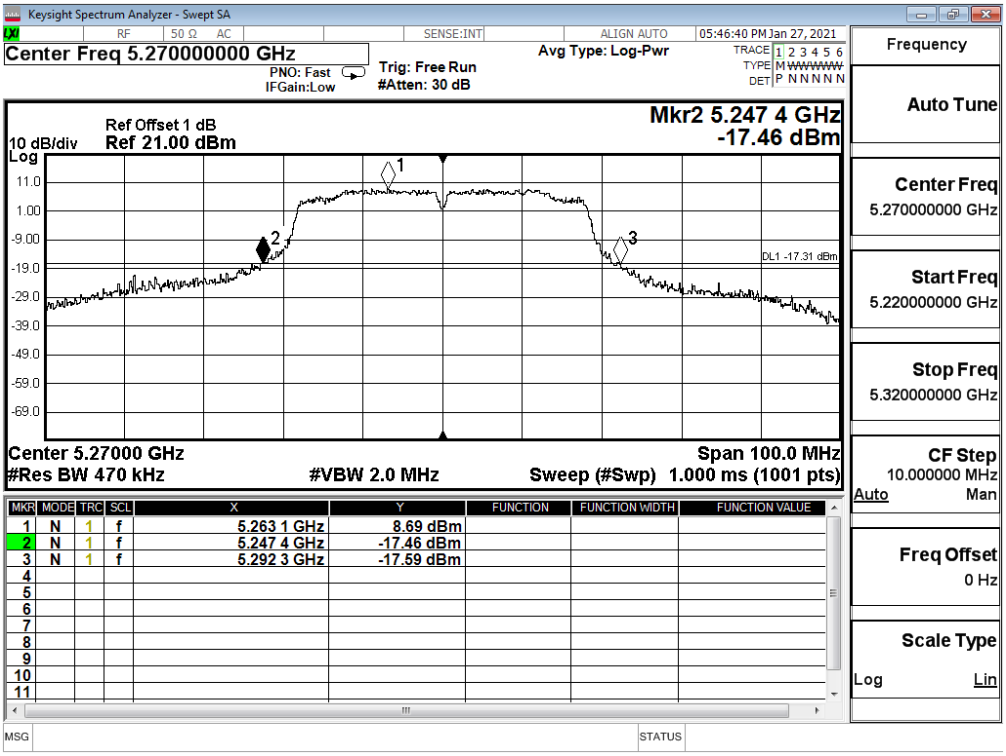
Note: Maximum conducted output power Value =Reading value on average power meter + cable loss

**Maximum conducted output power Measurement:**

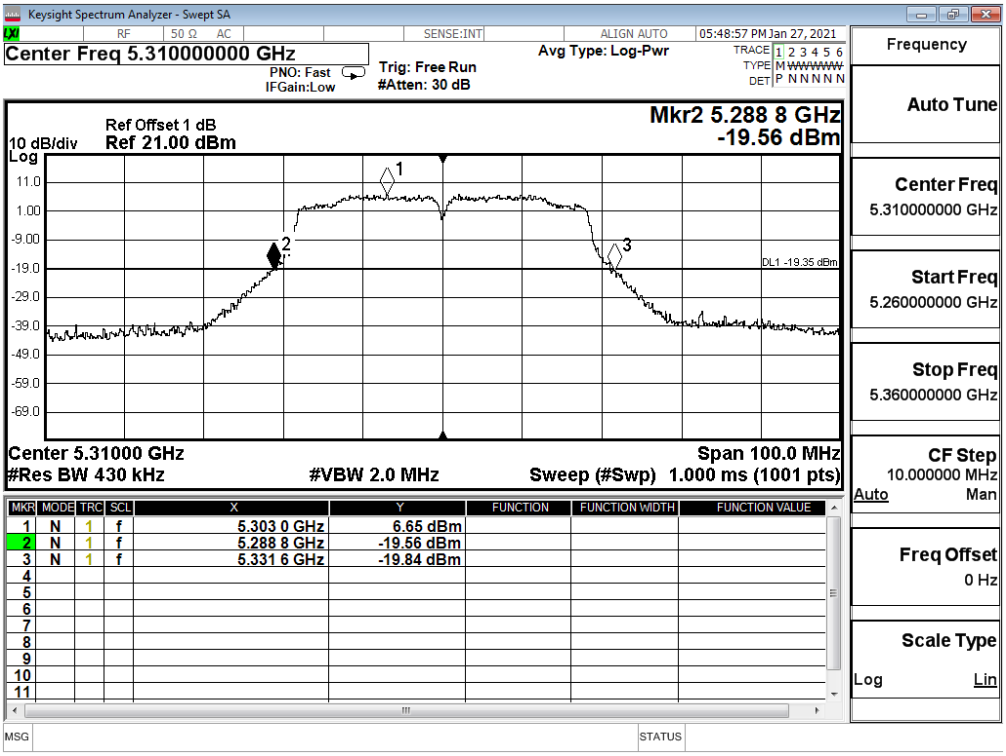
| Channel No | Frequency Range (MHz) | 26dB Bandwidth (MHz) | Output Power (dBm) | Output Power Limit | | Result |
|---|---|---|---|---|---|---|
| | | | | (dBm) | dBm+10log(BW) | |
| 38 | 5190 | -- | 18.31 | 24 | -- | Pass |
| 46 | 5230 | -- | 20.48 | 24 | -- | Pass |
| 54 | 5270 | 44.00 | 20.42 | 24 | 27.43 | Pass |
| 62 | 5310 | 42.50 | 16.98 | 24 | 27.28 | Pass |
| 102 | 5510 | 42.90 | 18.53 | 24 | 27.32 | Pass |
| 118 | 5590 | 49.50 | 20.78 | 24 | 27.95 | Pass |
| 134 | 5670 | 42.50 | 19.43 | 24 | 27.28 | Pass |
| 142(U-NII-2C) | 5710 | 36.20 | 20.72 | 24 | 26.59 | Pass |
| 142(U-NII-3) | 5710 | -- | 7.87 | 30 | -- | Pass |
| 151 | 5755 | -- | 20.85 | 30 | -- | Pass |
| 159 | 5795 | -- | 20.76 | 30 | -- | Pass |

## 26dB Occupied Bandwidth:

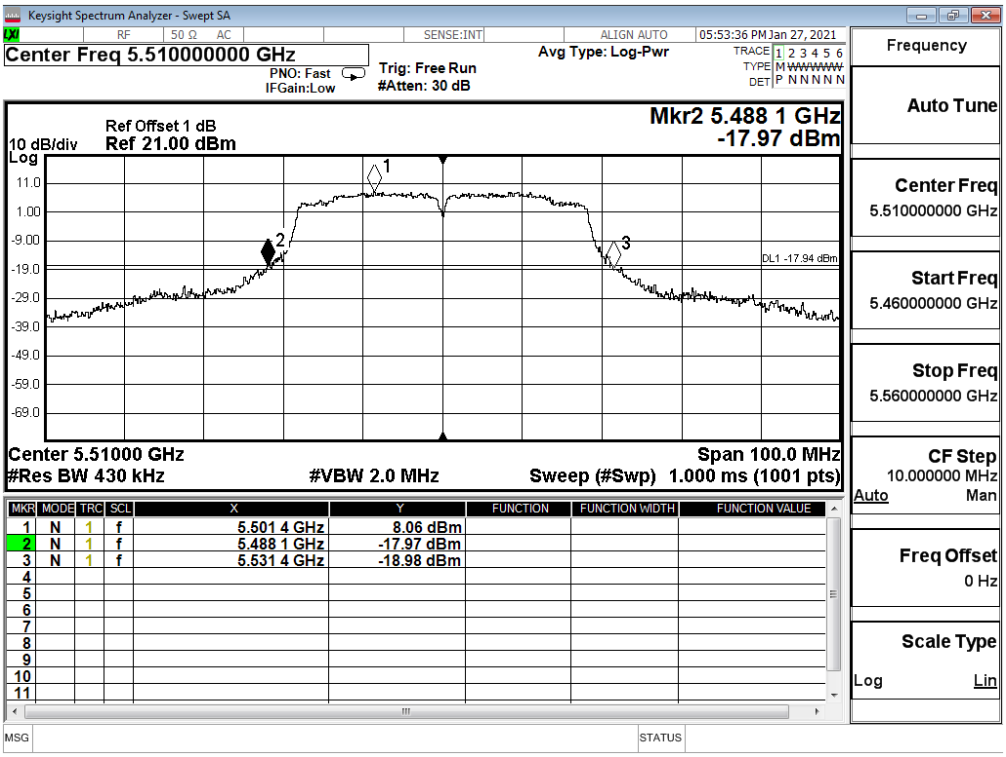
### Channel 54



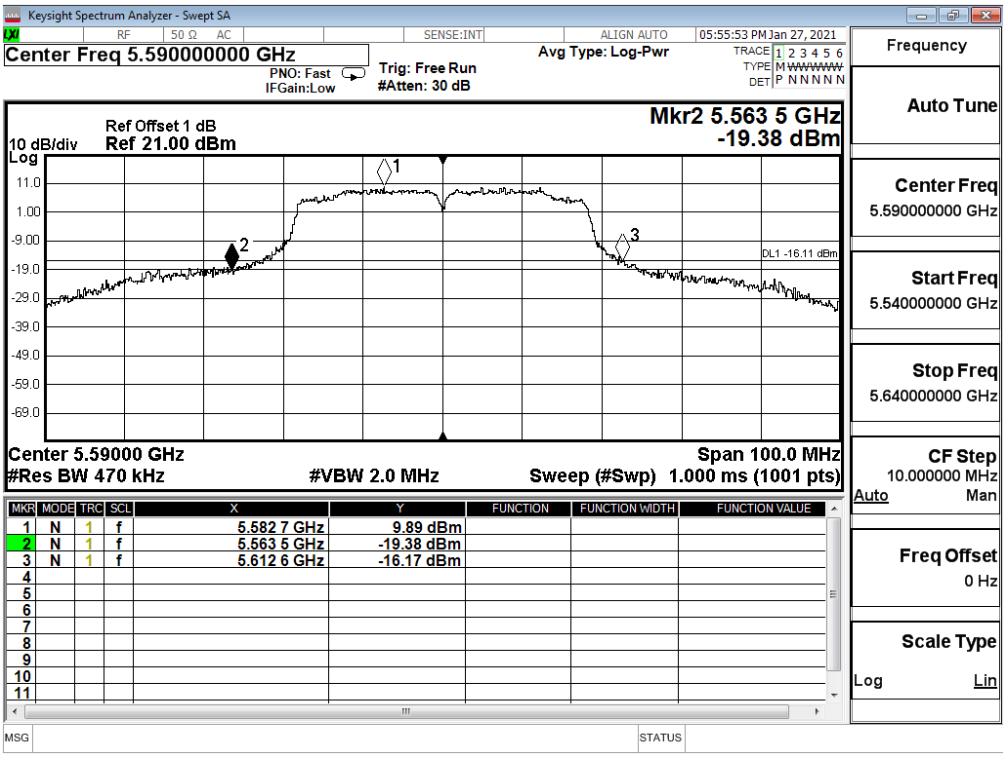

### Channel 62



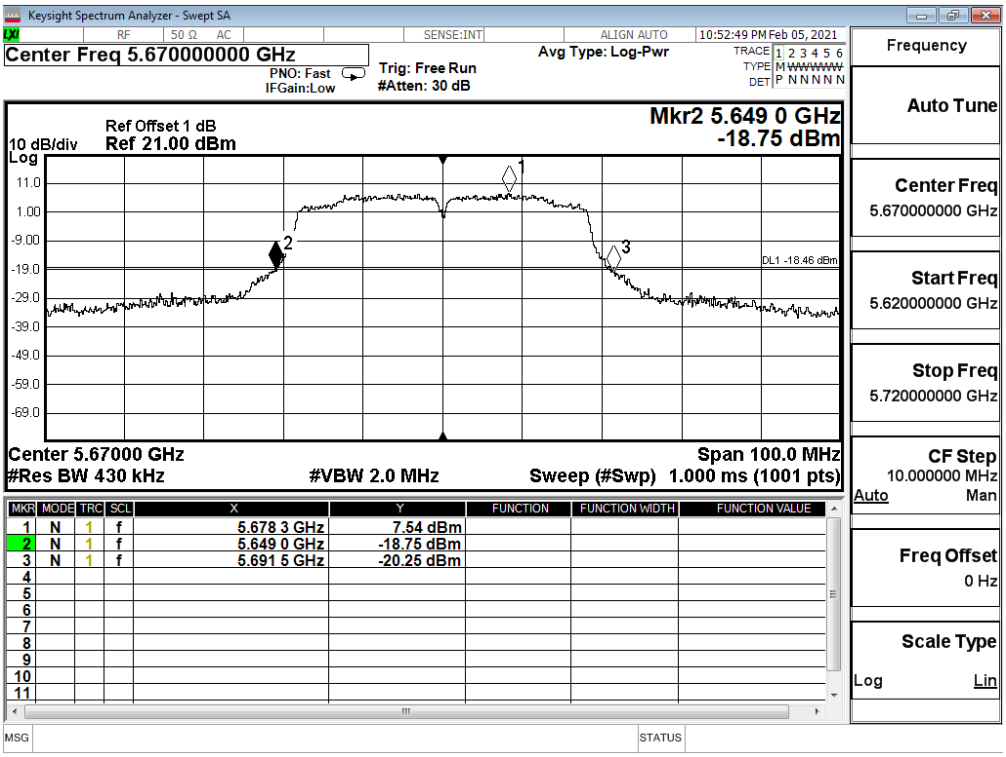
## Channel 102



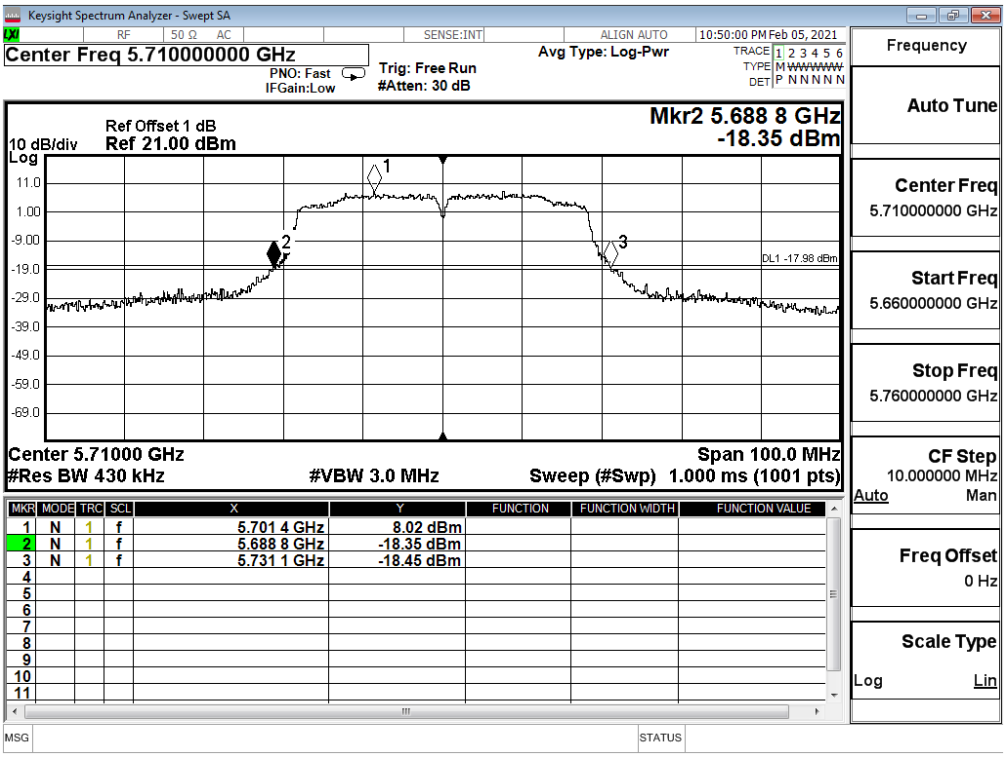

## Channel 118



## Channel 134

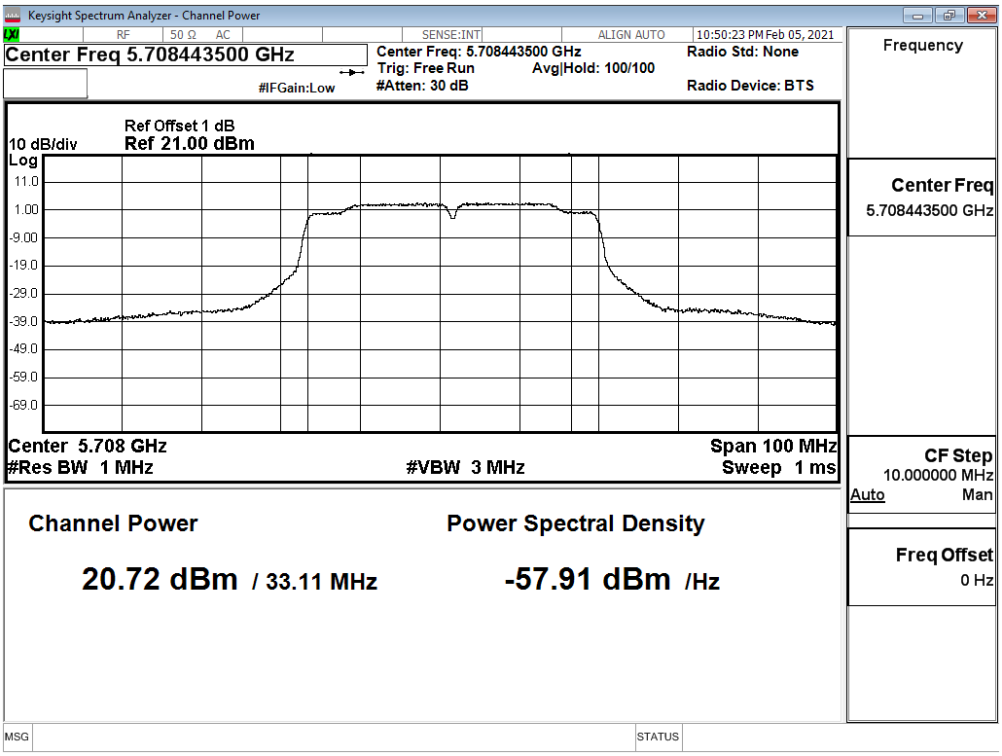



## Channel 142



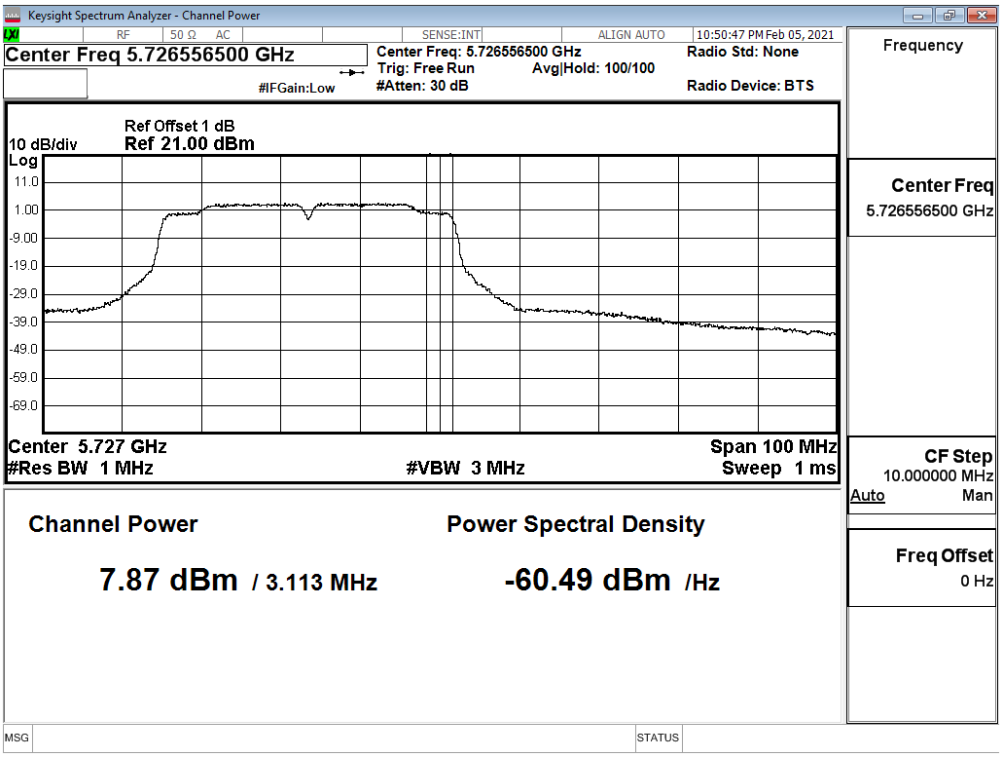
**Maximum conducted output power:**

**Channel 142 (U-NII-2C)**




**Maximum conducted output power:**

**Channel 142 (U-NII-3)**



Product : Portable Computer
Test Item : Maximum conducted output power
Test Date : 2021/01/27
Test Mode : Mode 13 SISO B: Transmit (802.11ac-80BW_32.5Mbps)

| Cable loss=1.0dB | | Maximum conducted output power | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Channel No | Frequency (MHz) | Data Rate (Mbps) | | | | | | | | | |
| | | 32.5 | 65 | 97.5 | 130 | 195 | 260 | 292.5 | 325 | 390 | 433.3 |
| 42 | 5210 | 18.68 | 18.65 | 18.55 | 18.51 | 18.41 | 18.33 | 18.25 | 18.15 | 18.08 | 17.99 |
| 58 | 5290 | 18.28 | 18.25 | 18.22 | 18.18 | 18.10 | 18.06 | 17.97 | 17.90 | 17.84 | 17.77 |
| 106 | 5530 | 18.65 | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 122 | 5610 | 19.7 | 19.66 | 19.6 | 19.55 | 19.49 | 19.45 | 19.36 | 19.33 | 19.27 | 19.22 |
| 138 (U-NII-2C) | 5690 | 20.78 | 20.7 | 20.6 | 20.56 | 20.46 | 20.41 | 20.36 | 20.33 | 20.25 | 20.21 |
| 138 (U-NII-3) | 5690 | 4.31 | 4.23 | 4.14 | 4.1 | 4.01 | 3.96 | 3.89 | 3.79 | 3.74 | 3.66 |
| 155 | 5775 | 18.67 | 18.62 | 18.54 | 18.49 | 18.45 | 18.35 | 18.31 | 18.23 | 18.14 | 18.11 |

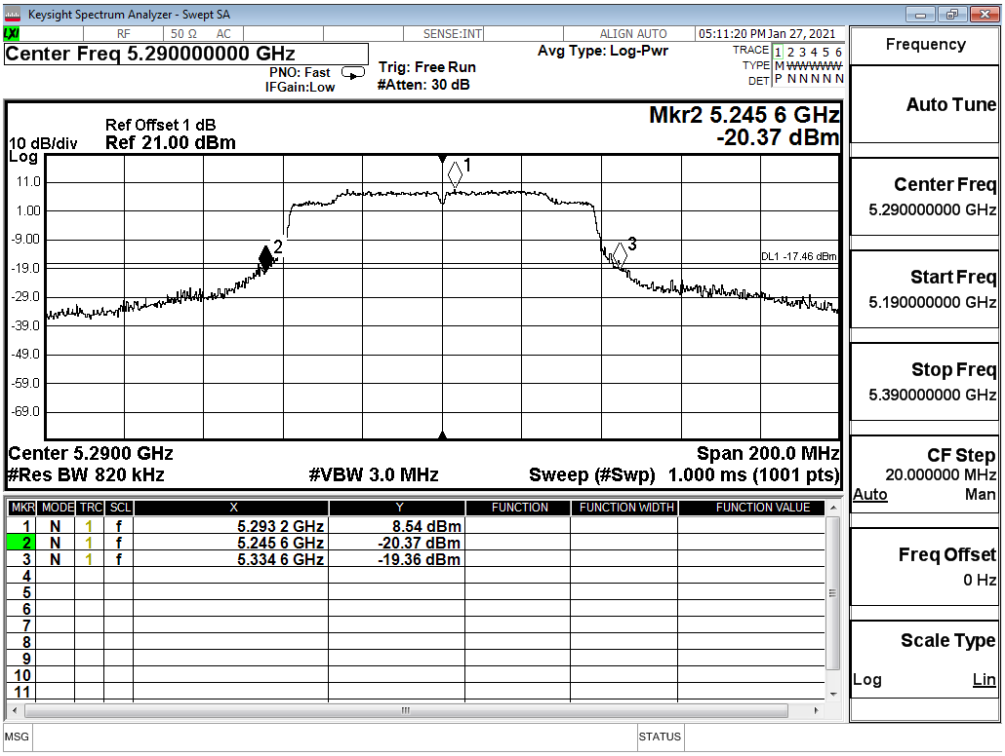
Note: Maximum conducted output power Value =Reading value on Spectrum Analyzer + cable loss

**Maximum conducted output power Measurement:**

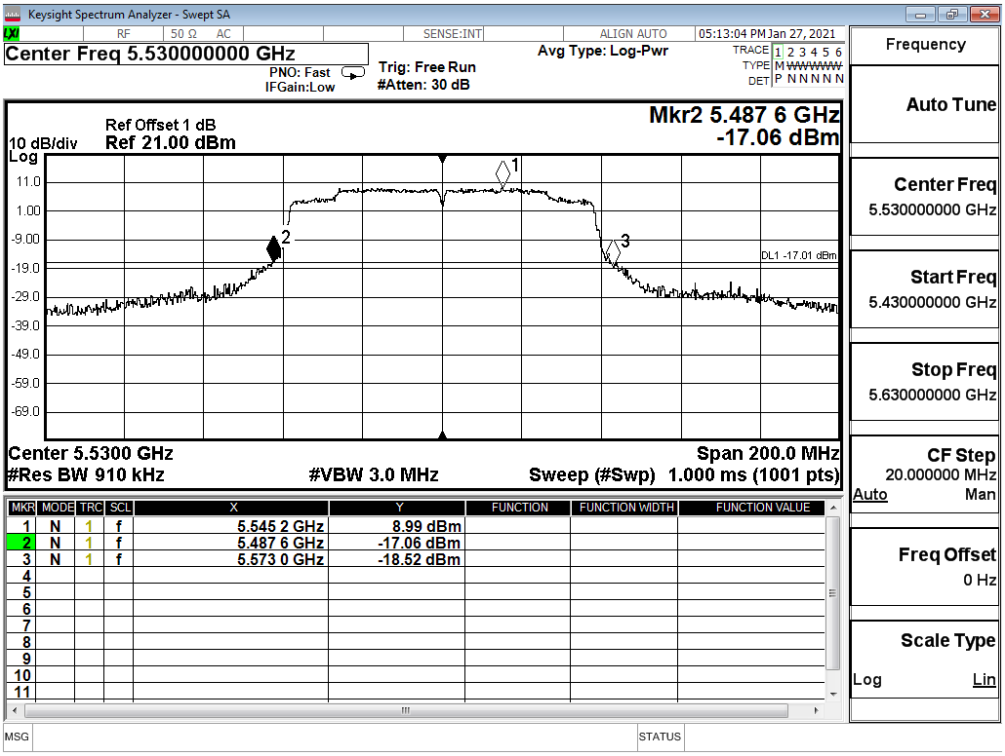
| Channel No | Frequency Range (MHz) | 26dB Bandwidth (MHz) | Output Power (dBm) | Output Power Limit | | Result |
|---|---|---|---|---|---|---|
| | | | | (dBm) | dBm+10log(BW) | |
| 42 | 5210 | -- | 18.68 | 24 | -- | Pass |
| 58 | 5290 | 89.00 | 18.28 | 24 | 30.49 | Pass |
| 106 | 5530 | 85.40 | 18.65 | 24 | 30.31 | Pass |
| 122 | 5610 | 114.40 | 19.70 | 24 | 31.58 | Pass |
| 138 (U-NII-2C) | 5690 | 106.60 | 20.78 | 24 | 31.28 | Pass |
| 138 (U-NII-3) | 5690 | -- | 4.31 | 30 | -- | Pass |
| 155 | 5775 | -- | 18.67 | 30 | -- | Pass |

## 26dB Occupied Bandwidth:

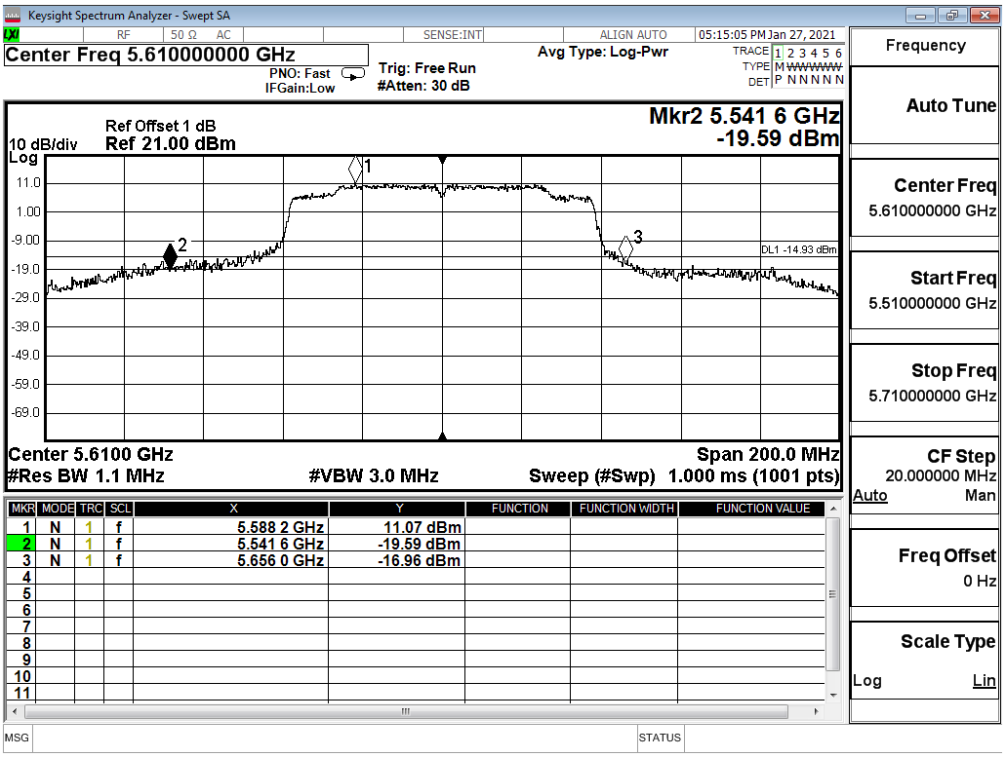
### Channel 58



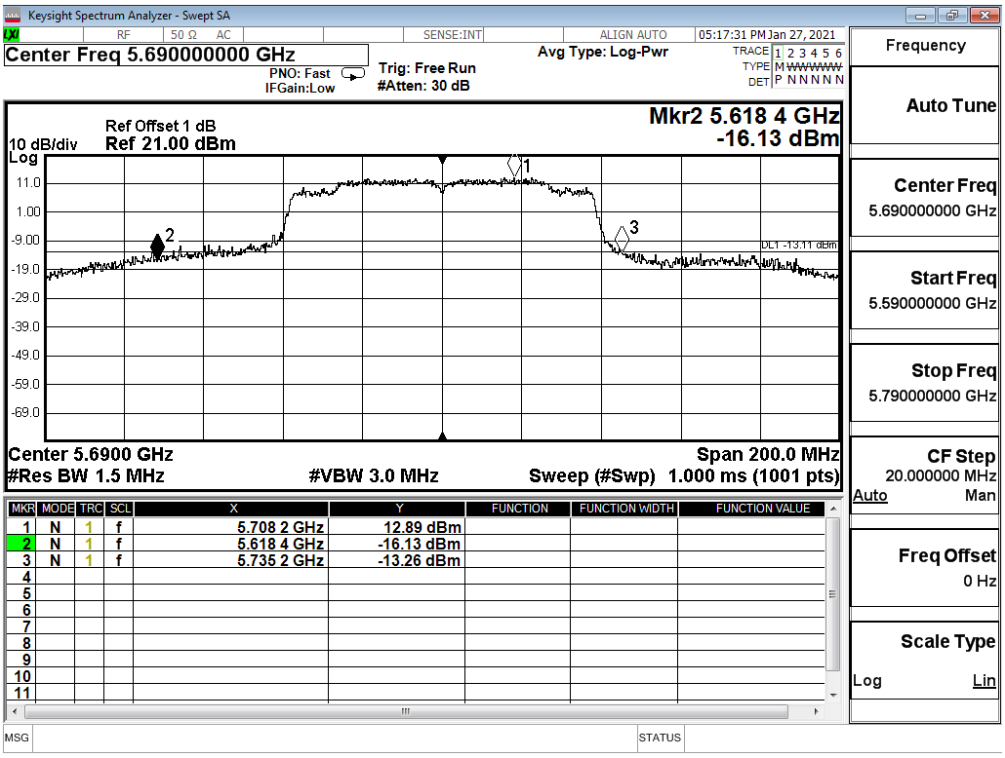

### Channel 106



## Channel 122

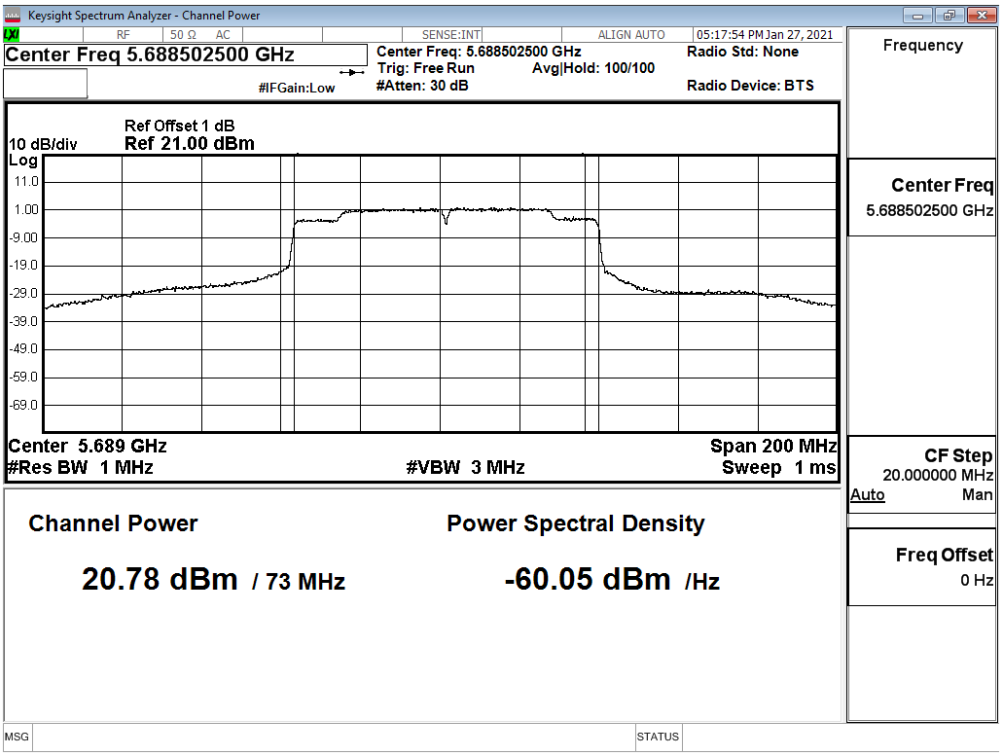



## Channel 138



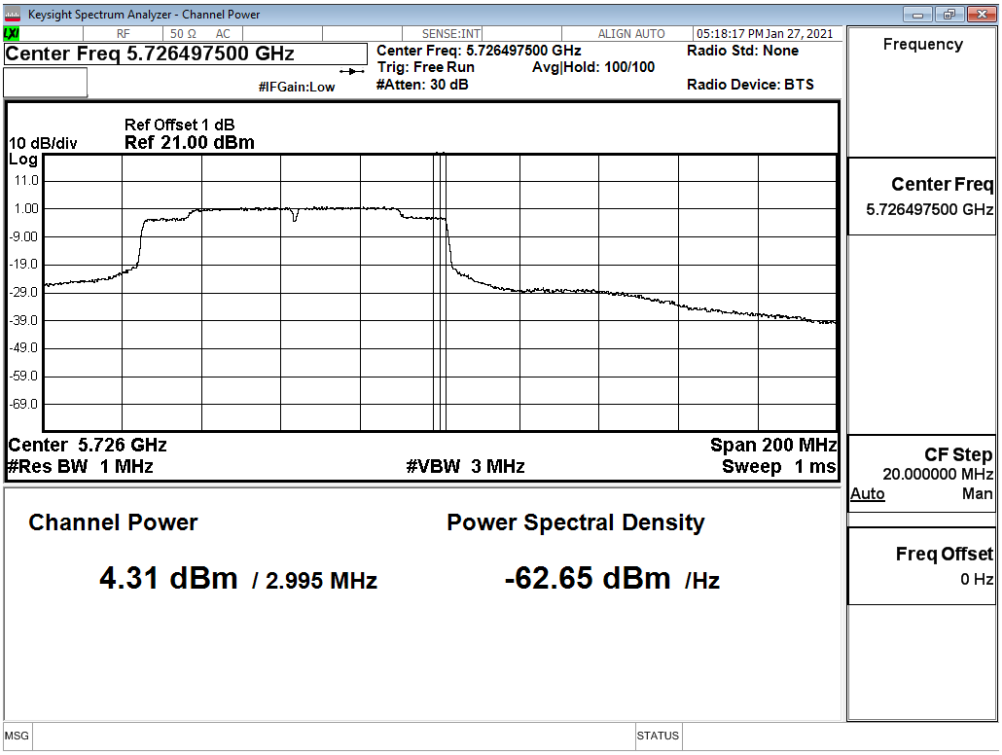
**Maximum conducted output power:**

**Channel 138 (U-NII-2C)**




**Maximum conducted output power:**

**Channel 138 (U-NII-3)**



Product : Portable Computer
Test Item : Maximum conducted output power
Test Date : 2021/02/03
Test Mode : Mode 14 SISO B: Transmit (802.11ac-160BW_65Mbps)

| Cable loss=1.0dB | | Maximum conducted output power | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Channel No | Frequency (MHz) | Data Rate (Mbps) | | | | | | | | | |
| | | 65 | 130 | 195 | 260 | 390 | 520 | 585 | 650 | 780 | 866.7 |
| 50 (U-NII-1) | 5250 | 11.71 | 11.65 | 11.56 | 11.52 | 11.49 | 11.46 | 11.43 | 11.34 | 11.26 | 11.16 |
| 50 (U-NII-2A) | 5250 | 11.56 | 11.49 | 11.41 | 11.36 | 11.29 | 11.19 | 11.09 | 11.01 | 10.97 | 10.89 |
| 114 | 5570 | 15.18 | 15.09 | 15.04 | 14.99 | 14.9 | 14.85 | 14.81 | 14.77 | 14.67 | 14.57 |

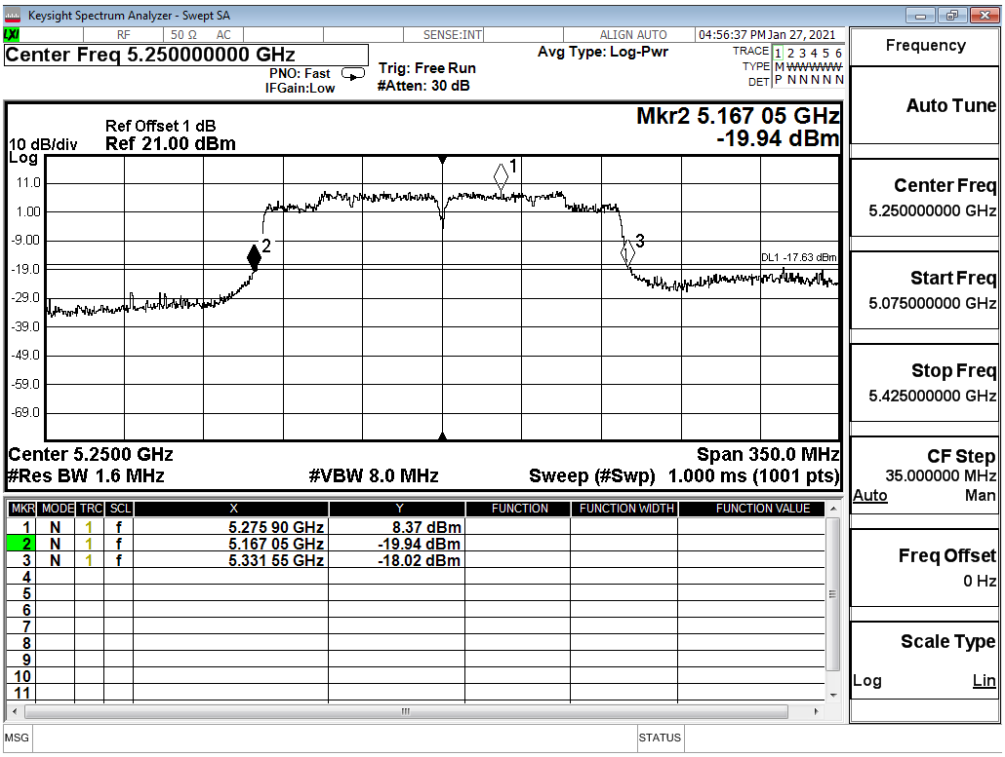
Note: Maximum conducted output power Value =Reading value on Spectrum Analyzer + cable loss

**Maximum conducted output power Measurement:**

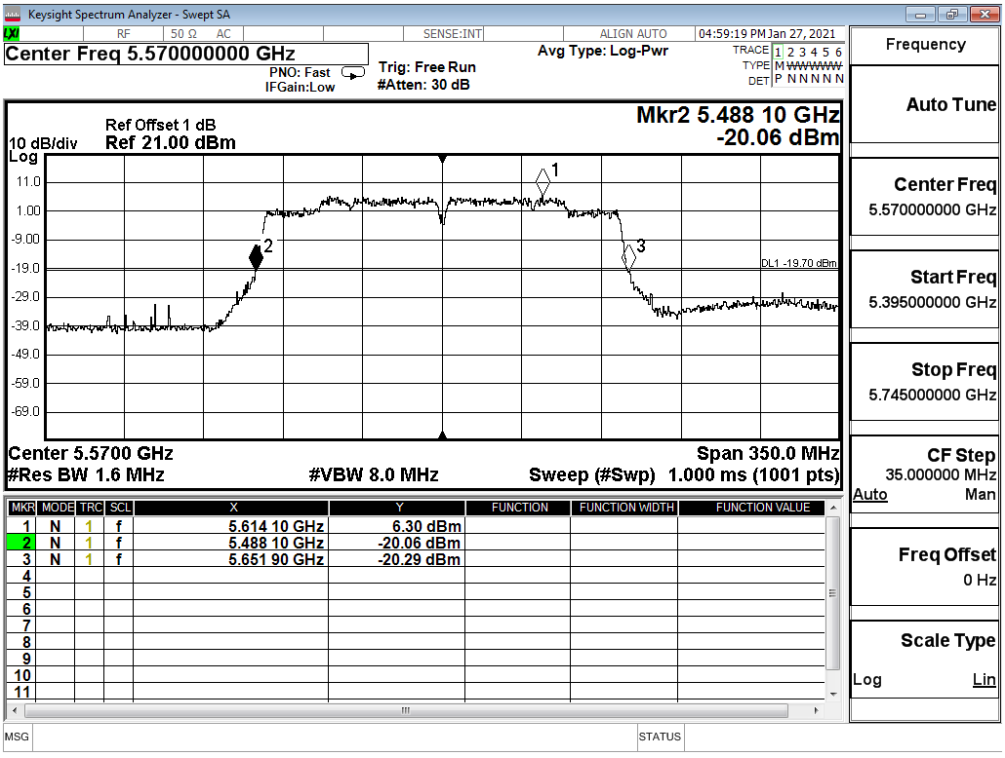
| Channel No | Frequency Range (MHz) | 26dB Bandwidth (MHz) | Output Power (dBm) | Output Power Limit | | Result |
|---|---|---|---|---|---|---|
| | | | | (dBm) | dBm+10log(BW) | |
| 50 (U-NII-1) | 5250 | -- | 11.71 | 24 | -- | Pass |
| 50 (U-NII-2A) | 5250 | 81.55 | 11.56 | 24 | 30.11 | Pass |
| 114 | 5570 | 163.80 | 15.18 | 24 | 33.14 | Pass |

## 26dB Occupied Bandwidth:

### Channel 50

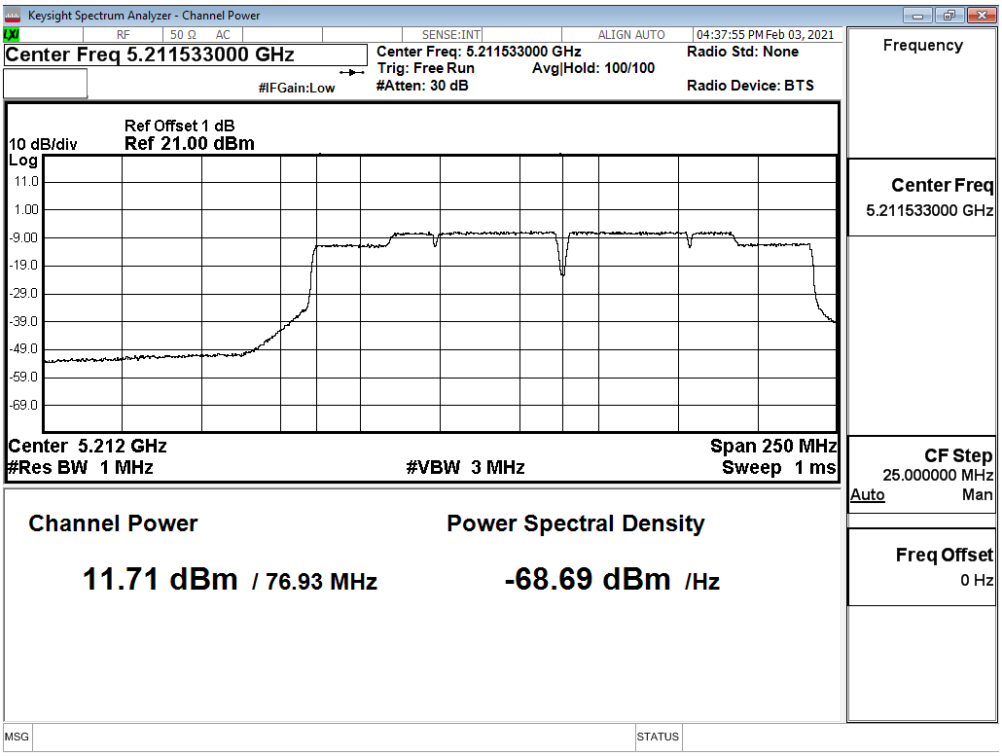



### Channel 114



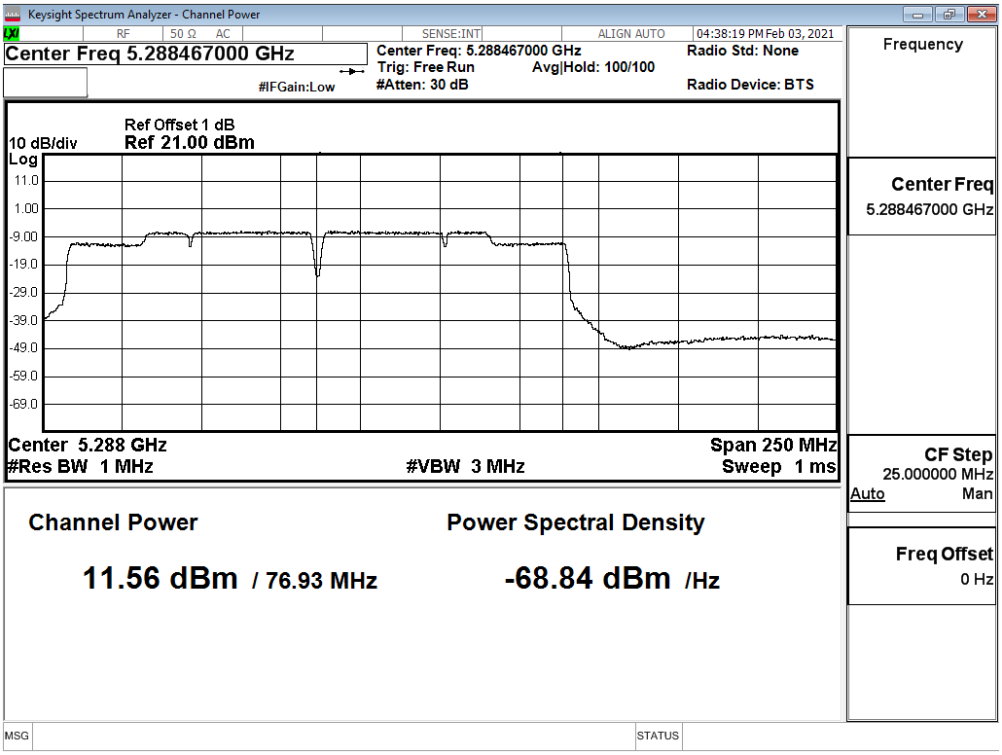
**Maximum conducted output power:**

**Channel 50 (U-NII-1)**




**Maximum conducted output power:**

**Channel 50 (U-NII-2A)**



Product : Portable Computer
Test Item : Maximum conducted output power
Test Date : 2021/02/05
Test Mode : Mode 19 MIMO: Transmit (802.11n-20BW_14.4Mbps)

**Chain A**

| Cable loss=1.0dB | | Maximum conducted output power | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Channel No. | Frequency (MHz) | Data Rate (Mbps) | | | | | | | |
| | | 14.4 | 28.9 | 43.3 | 57.8 | 86.7 | 115.6 | 130 | 144.4 |
| 36 | 5180 | 18.03 | -- | -- | -- | -- | -- | -- | -- |
| 40 | 5200 | 19.45 | 19.41 | 19.34 | 19.26 | 19.22 | 19.19 | 19.15 | 19.06 |
| 48 | 5240 | 19.59 | -- | -- | -- | -- | -- | -- | -- |
| 52 | 5260 | 18.85 | -- | -- | -- | -- | -- | -- | -- |
| 56 | 5280 | 19.45 | 19.4 | 19.34 | 19.27 | 19.22 | 19.19 | 19.11 | 19.05 |
| 64 | 5320 | 16.52 | -- | -- | -- | -- | -- | -- | -- |
| 100 | 5500 | 18.1 | -- | -- | -- | -- | -- | -- | -- |
| 120 | 5600 | 19.61 | 19.52 | 19.44 | 19.37 | 19.32 | 19.23 | 19.13 | 19.03 |
| 140 | 5700 | 16.82 | -- | -- | -- | -- | -- | -- | -- |
| 144(U-NII-2C) | 5720 | 18.8 | 18.74 | 18.68 | 18.58 | 18.52 | 18.43 | 18.35 | 18.29 |
| 144(U-NII-3) | 5720 | 11.46 | 11.41 | 11.35 | 11.29 | 11.22 | 11.19 | 11.12 | 11.08 |
| 149 | 5745 | 19.81 | -- | -- | -- | -- | -- | -- | -- |
| 157 | 5785 | 19.79 | 19.74 | 19.66 | 19.59 | 19.55 | 19.45 | 19.41 | 19.35 |
| 165 | 5825 | 19.65 | -- | -- | -- | -- | -- | -- | -- |

Note: Maximum conducted output power Value =Reading value on average power meter + cable loss

**Chain B**

| Cable loss=1.0dB | | Maximum conducted output power | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Channel No. | Frequency (MHz) | Data Rate (Mbps) | | | | | | | |
| | | 14.4 | 28.9 | 43.3 | 57.8 | 86.7 | 115.6 | 130 | 144.4 |
| 36 | 5180 | 17.96 | -- | -- | -- | -- | -- | -- | -- |
| 40 | 5200 | 19.28 | 19.22 | 19.12 | 19.05 | 19 | 18.93 | 18.83 | 18.75 |
| 48 | 5240 | 19.41 | -- | -- | -- | -- | -- | -- | -- |
| 52 | 5260 | 18.85 | -- | -- | -- | -- | -- | -- | -- |
| 56 | 5280 | 19.31 | 19.24 | 19.17 | 19.11 | 19.04 | 18.94 | 18.89 | 18.79 |
| 64 | 5320 | 16.57 | -- | -- | -- | -- | -- | -- | -- |
| 100 | 5500 | 18.12 | -- | -- | -- | -- | -- | -- | -- |
| 120 | 5600 | 19.69 | 19.66 | 19.57 | 19.47 | 19.42 | 19.34 | 19.3 | 19.2 |
| 140 | 5700 | 18.63 | -- | -- | -- | -- | -- | -- | -- |
| 144(U-NII-2C) | 5720 | 19.32 | 19.25 | 19.16 | 19.13 | 19.09 | 19.05 | 18.95 | 18.89 |
| 144(U-NII-3) | 5720 | 11.89 | 11.86 | 11.8 | 11.77 | 11.73 | 11.68 | 11.58 | 11.54 |
| 149 | 5745 | 19.73 | -- | -- | -- | -- | -- | -- | -- |
| 157 | 5785 | 19.92 | 19.88 | 19.85 | 19.8 | 19.73 | 19.7 | 19.62 | 19.58 |
| 165 | 5825 | 19.87 | -- | -- | -- | -- | -- | -- | -- |

Note: Maximum conducted output power Value =Reading value on average power meter + cable loss

**Maximum conducted output power Measurement:**

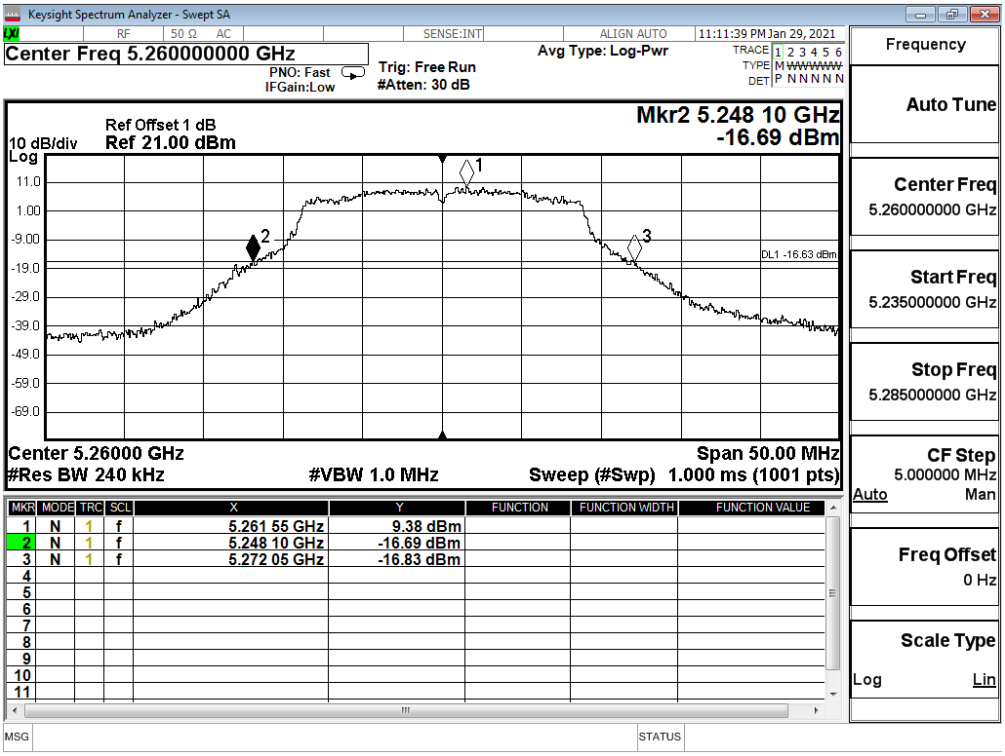
| Channel No | Frequency Range (MHz) | 26dB Bandwidth (MHz) | Chain A Power (dBm) | Chain B Power (dBm) | Output Power (dBm) | Output Power Limit | | Result |
|---|---|---|---|---|---|---|---|---|
| | | | | | | (dBm) | dBm+10log(BW) | |
| 36 | 5180 | -- | 18.03 | 17.96 | 21.01 | 24 | -- | Pass |
| 40 | 5200 | -- | 19.45 | 19.28 | 22.38 | 24 | -- | Pass |
| 48 | 5240 | -- | 19.59 | 19.41 | 22.51 | 24 | -- | Pass |
| 52 | 5260 | 23.95 | 18.85 | 18.85 | 21.86 | 24 | 24.79 | Pass |
| 56 | 5280 | 25.45 | 19.45 | 19.31 | 22.39 | 24 | 25.06 | Pass |
| 64 | 5320 | 22.80 | 16.52 | 16.57 | 19.56 | 24 | 24.58 | Pass |
| 100 | 5500 | 24.00 | 18.10 | 18.12 | 21.12 | 24 | 24.80 | Pass |
| 120 | 5600 | 25.85 | 19.61 | 19.69 | 22.66 | 24 | 25.12 | Pass |
| 140 | 5700 | 23.30 | 16.82 | 18.63 | 20.83 | 24 | 24.67 | Pass |
| 144(U-NII-2C) | 5720 | 17.45 | 18.80 | 19.32 | 22.08 | 24 | 23.42 | Pass |
| 144(U-NII-3) | 5720 | -- | 11.46 | 11.89 | 14.69 | 30 | -- | Pass |
| 149 | 5745 | -- | 19.81 | 19.73 | 22.78 | 30 | -- | Pass |
| 157 | 5785 | -- | 19.79 | 19.92 | 22.87 | 30 | -- | Pass |
| 165 | 5825 | -- | 19.65 | 19.87 | 22.77 | 30 | -- | Pass |

Note:

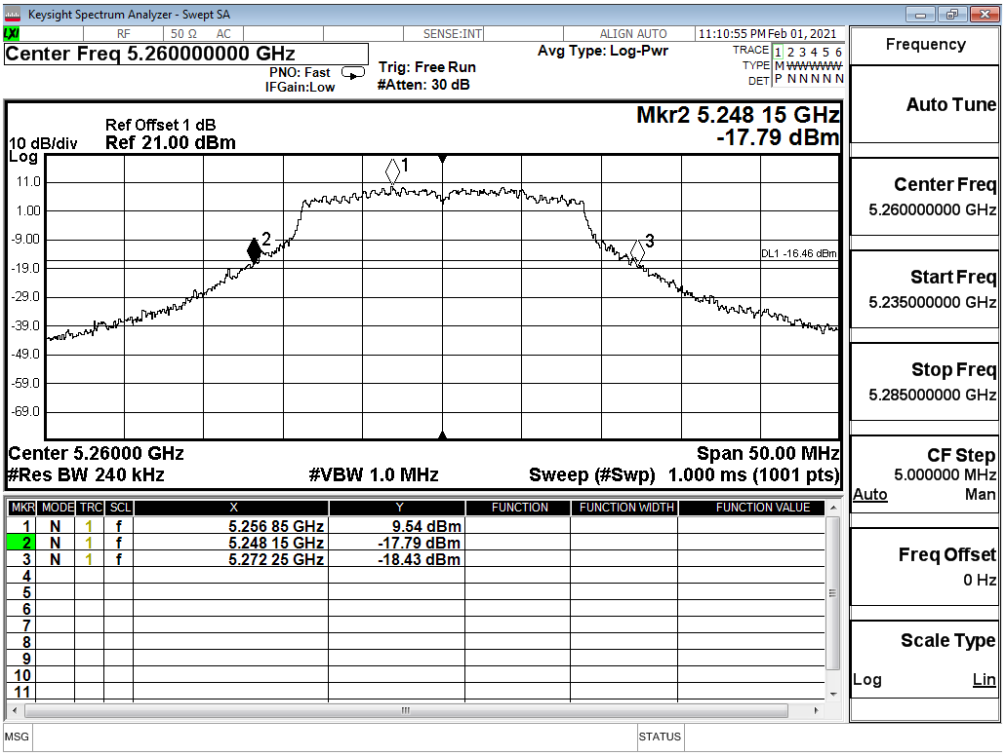
1. Output Power (dBm) = 10LOG (Chain A Power (mW)+ Chain B Power (mW))
2. 26dB Bandwidth is the bandwidth of chain A or chain Bwhichever is less bandwidth, output power limitation is more stringent.

## 26dB Occupied Bandwidth:

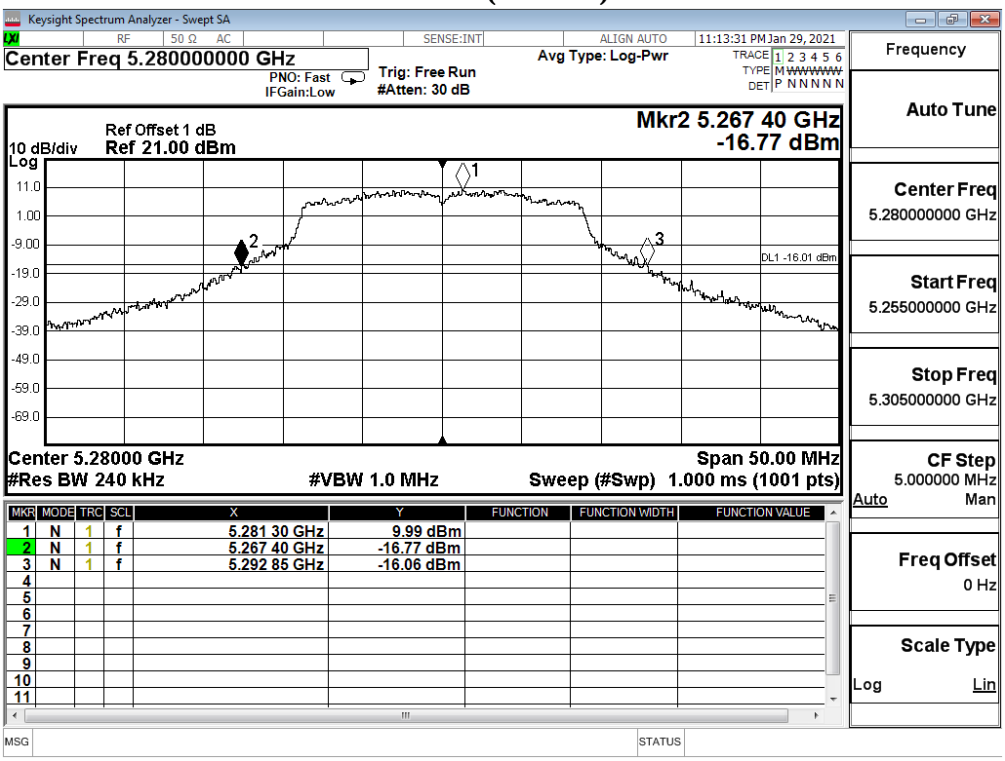
### Channel 52 (Chain A)



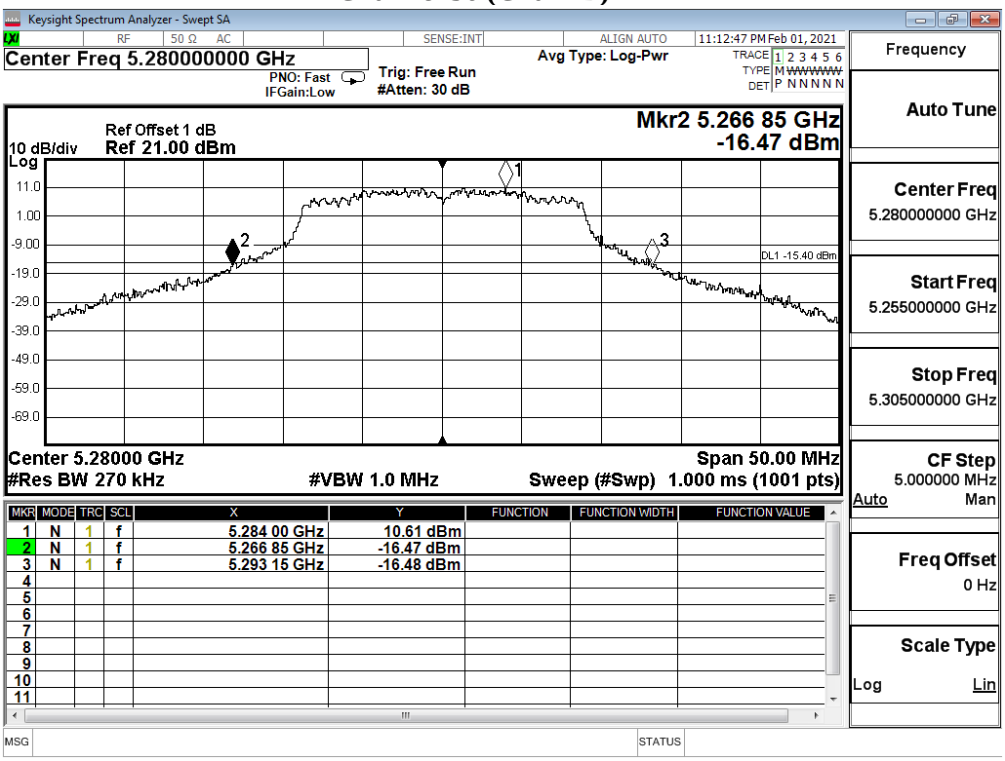

### Channel 52 (Chain B)



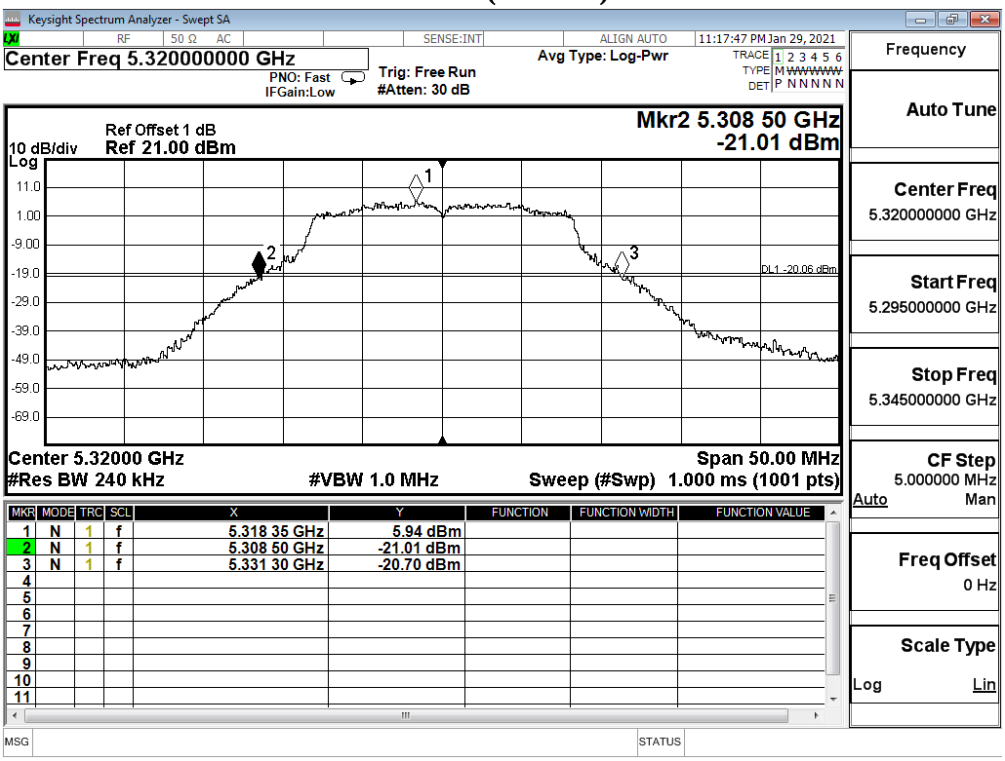
## Channel 56 (Chain A)



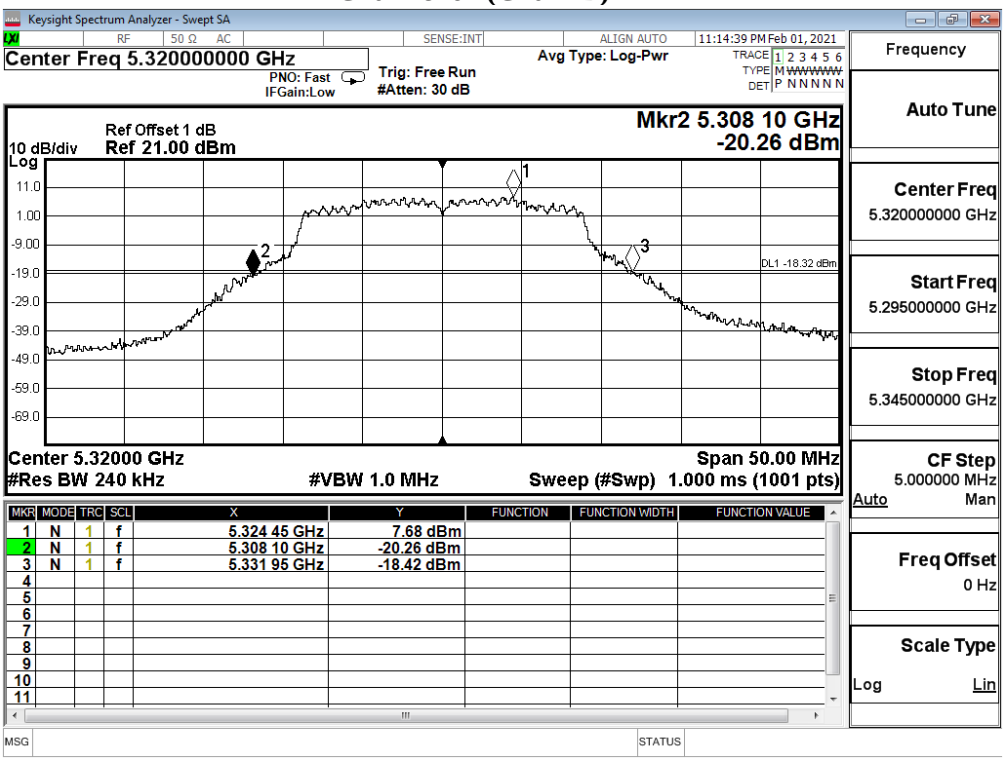

## Channel 56 (Chain B)



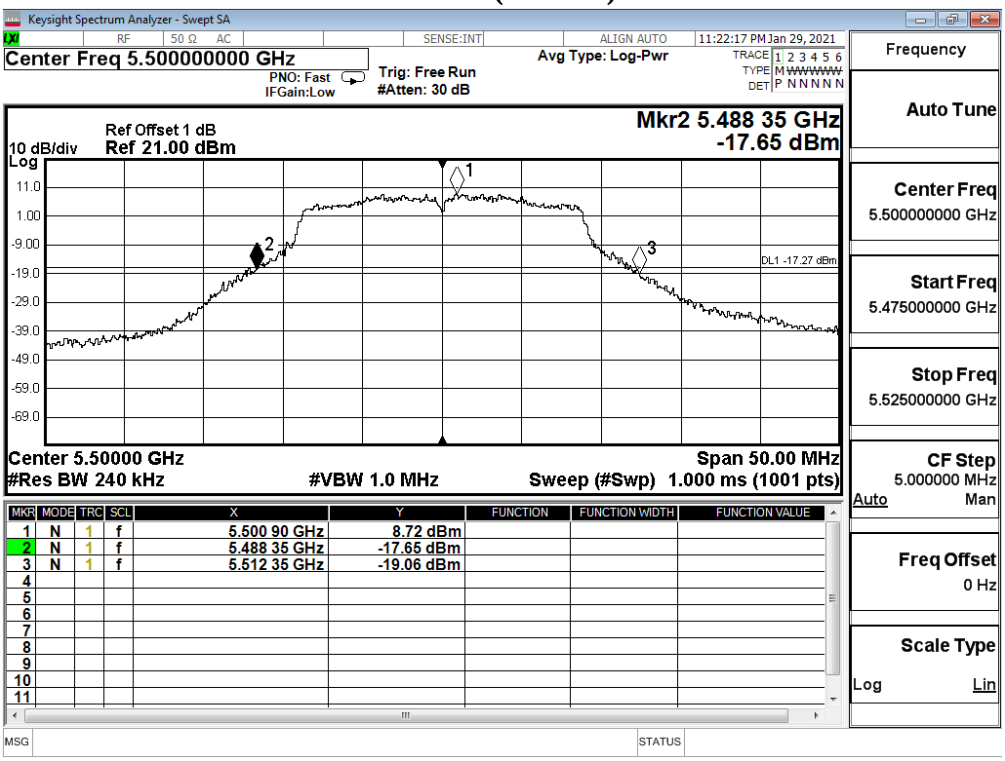
## Channel 64 (Chain A)



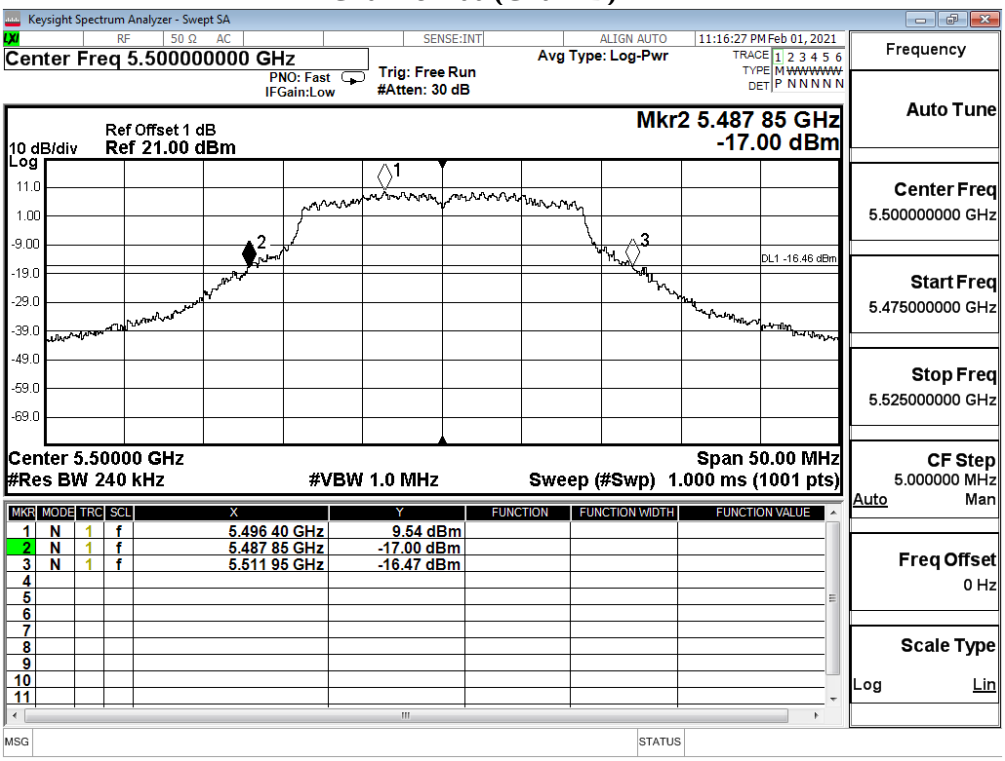

## Channel 64 (Chain B)



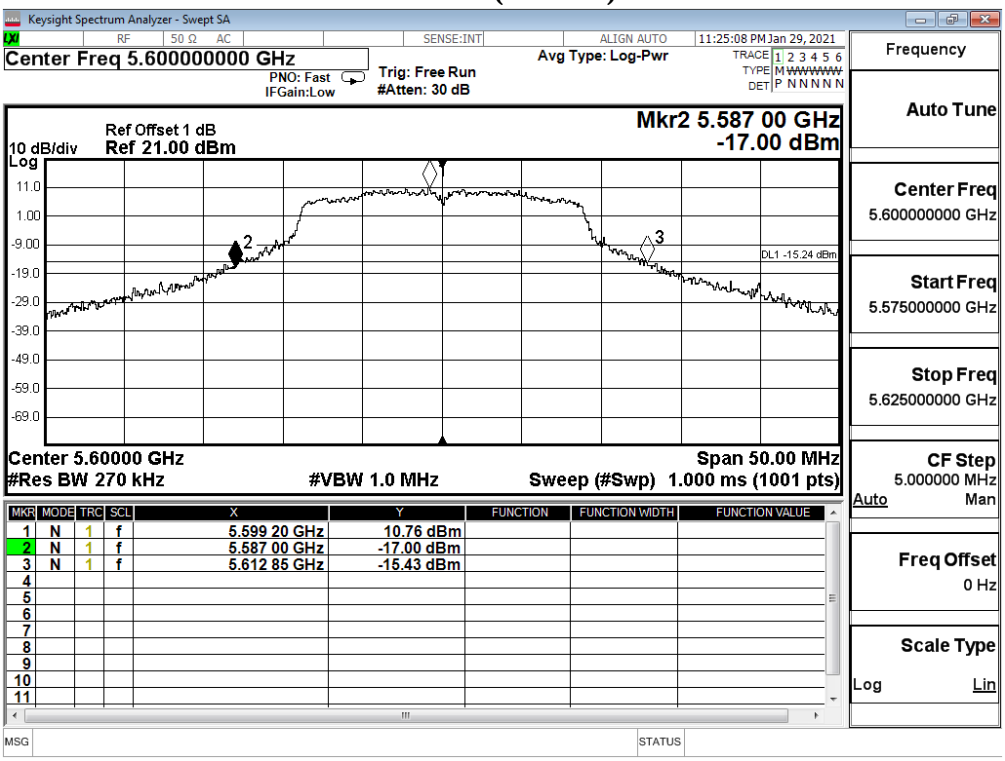
## Channel 100 (Chain A)



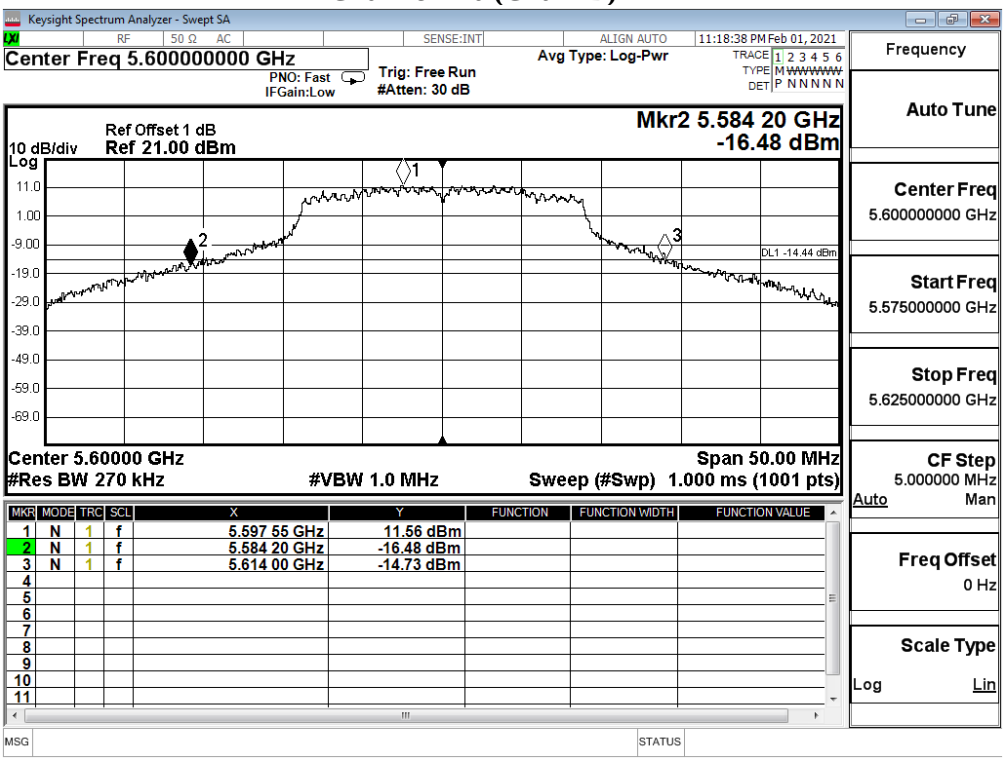

## Channel 100 (Chain B)



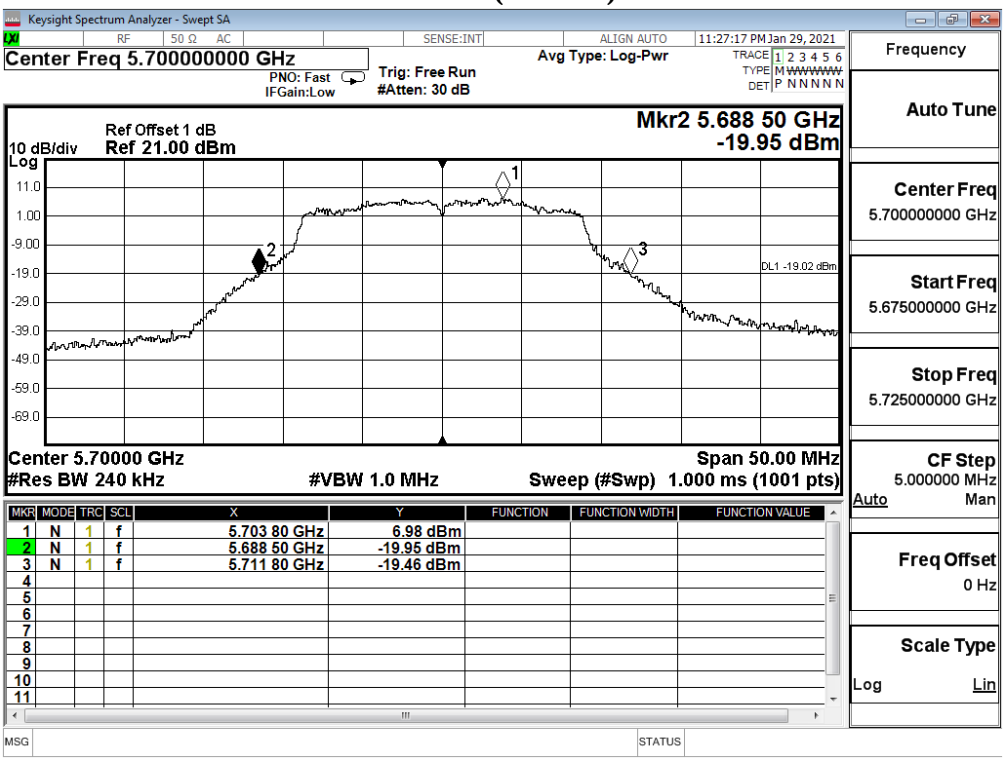
## Channel 120 (Chain A)



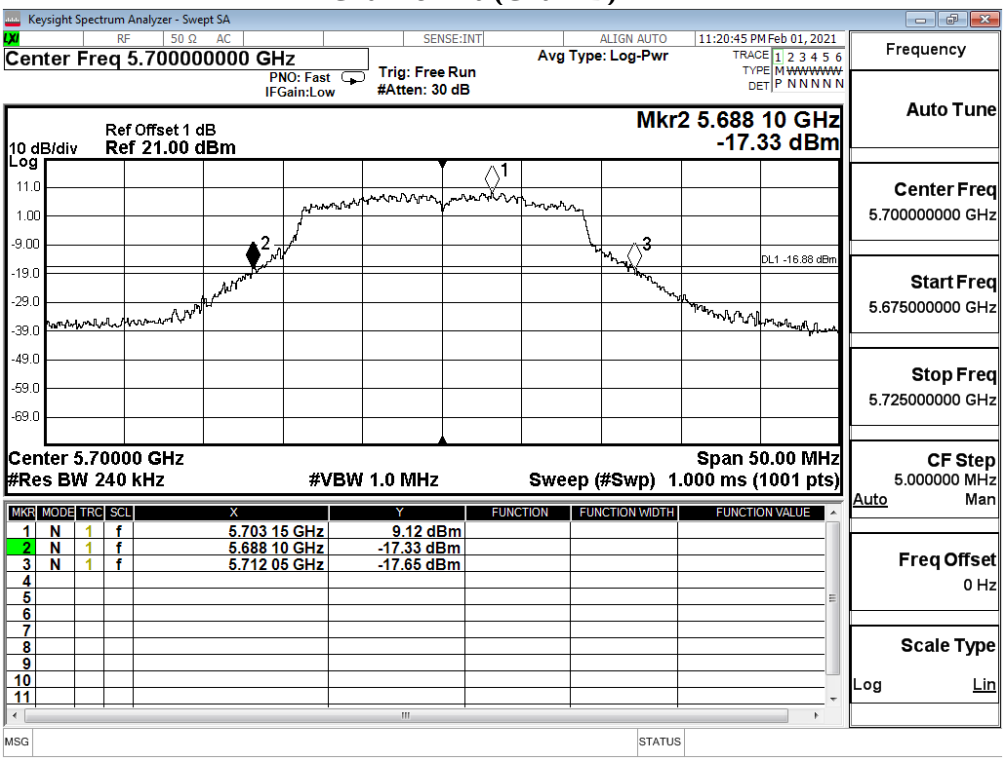

## Channel 120 (Chain B)



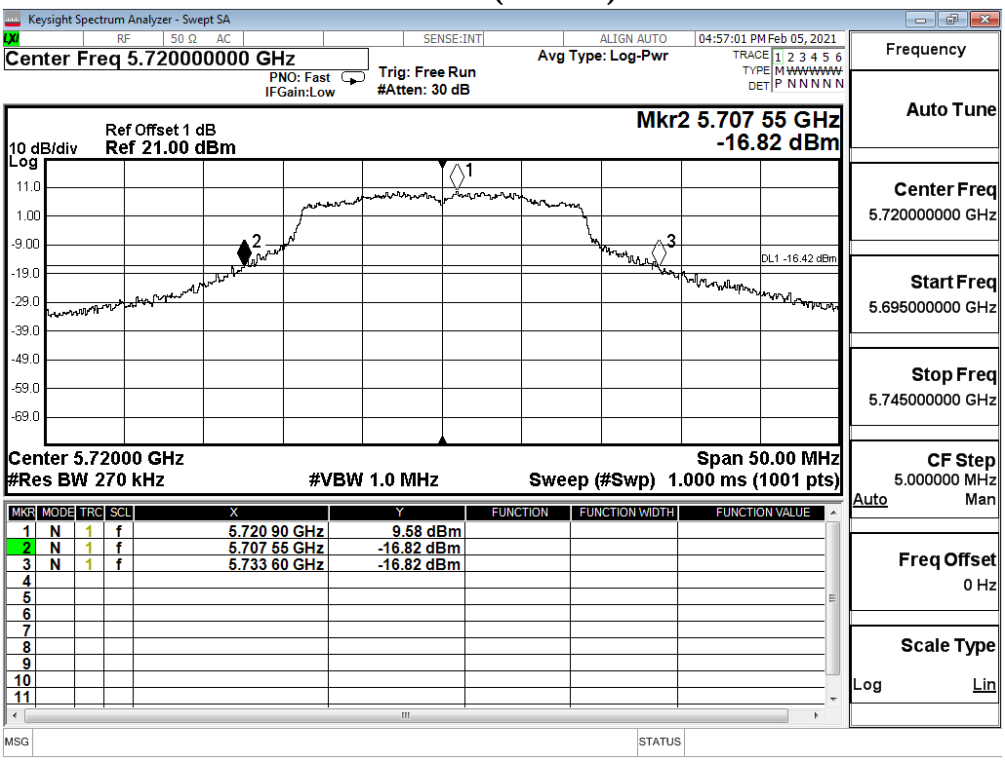
## Channel 140 (Chain A)



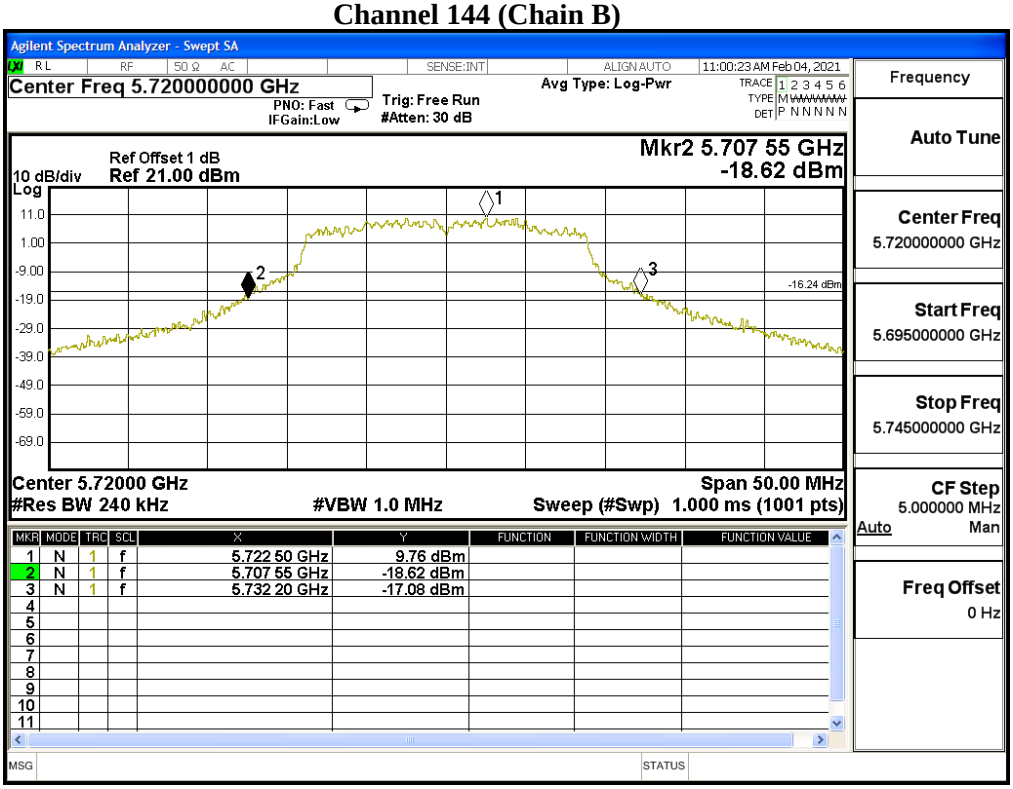

## Channel 140 (Chain B)



## Channel 144 (Chain A)

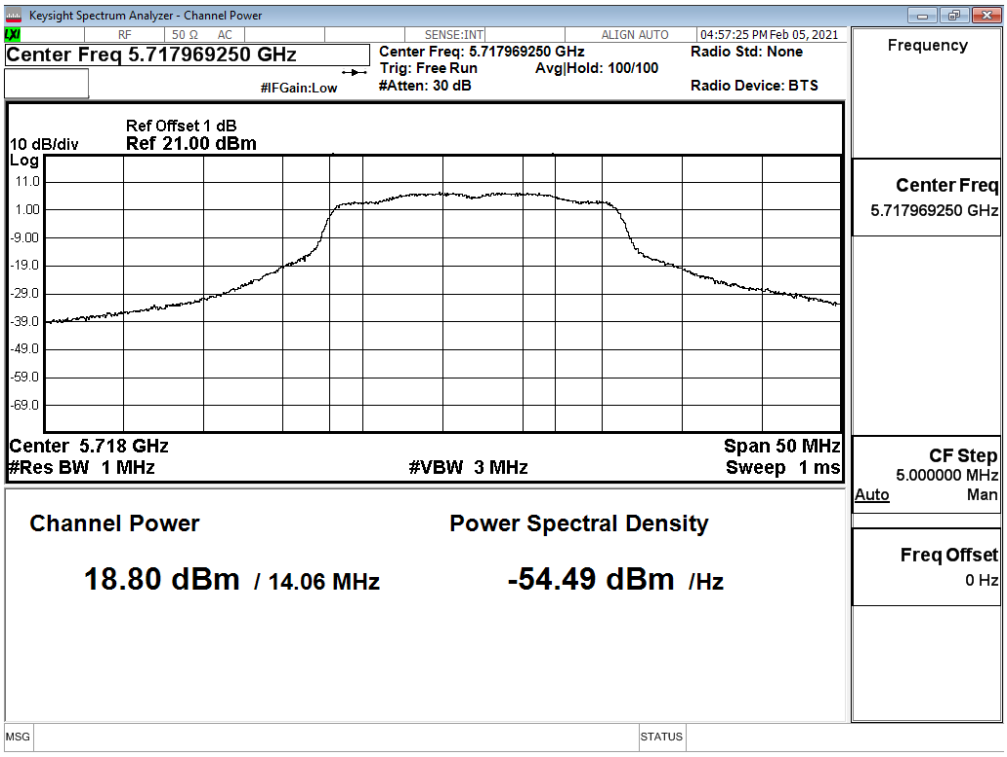



## Channel 144 (Chain B)



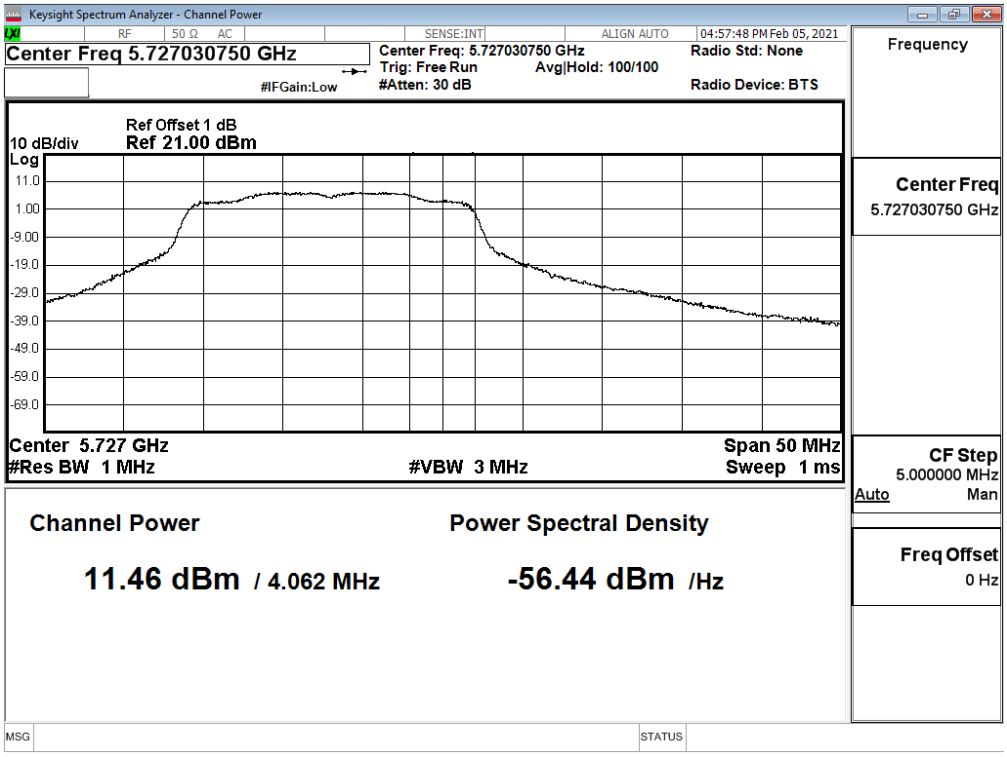
**Maximum conducted output power:**

**Channel 144 (U-NII-2C) (Chain A)**



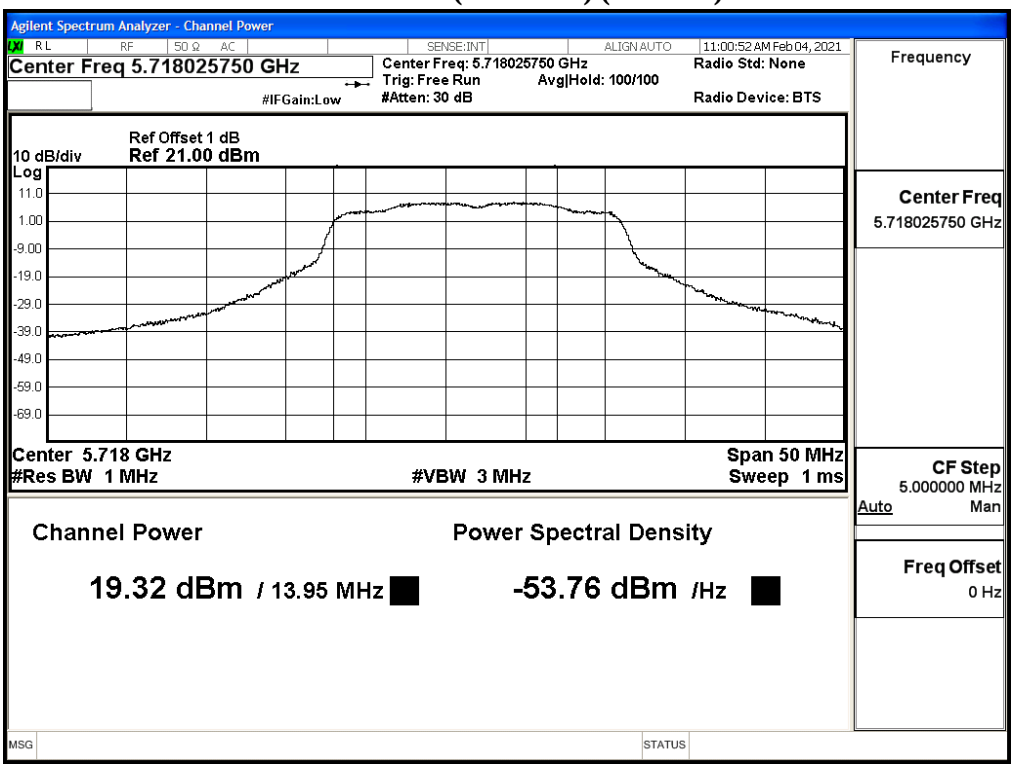

**Maximum conducted output power:**

**Channel 144 (U-NII-3) (Chain A)**



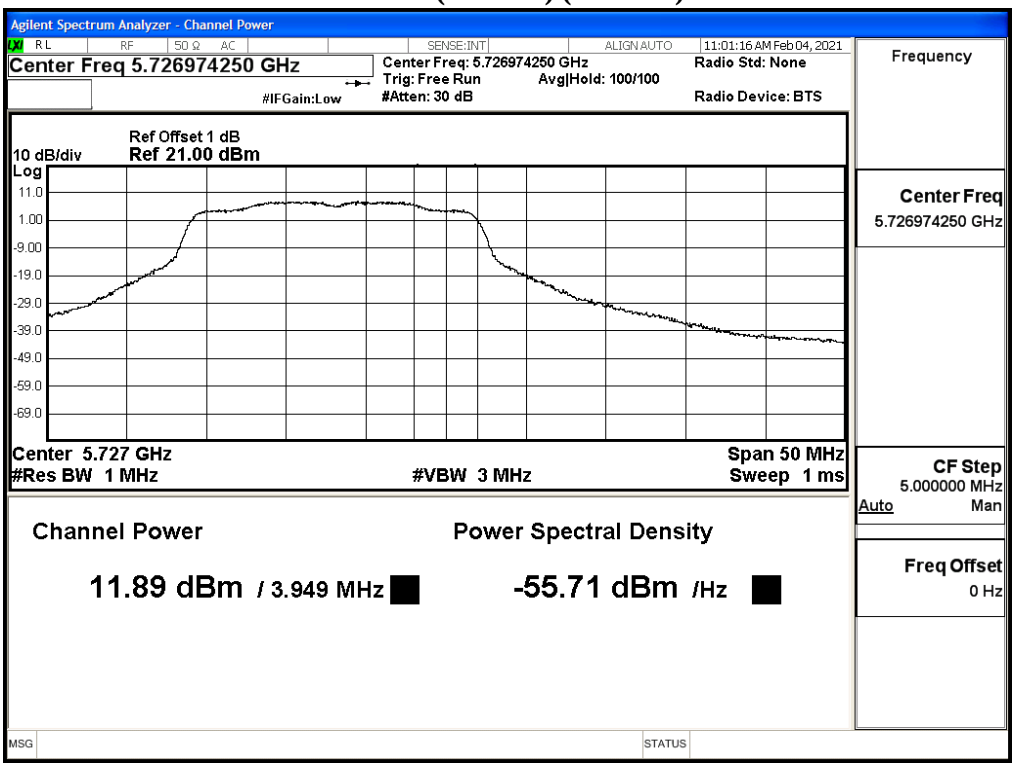
**Maximum conducted output power:**

**Channel 144 (U-NII-2C) (Chain B)**




**Maximum conducted output power:**

**Channel 144 (U-NII-3) (Chain B)**



Product : Portable Computer
Test Item : Maximum conducted output power
Test Date : 2021/02/05
Test Mode : Mode 20 MIMO: Transmit (802.11n-40BW_30Mbps)

**Chain A**

| Cable loss=1.0dB | | Maximum conducted output power | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Channel No. | Frequency (MHz) | Data Rate (Mbps) | | | | | | | |
| | | 30 | 60 | 90 | 120 | 180 | 240 | 270 | 300 |
| 38 | 5190 | 17.04 | -- | -- | -- | -- | -- | -- | -- |
| 46 | 5230 | 18.96 | 18.89 | 18.84 | 18.76 | 18.67 | 18.62 | 18.52 | 18.44 |
| 54 | 5270 | 18.82 | -- | -- | -- | -- | -- | -- | -- |
| 62 | 5310 | 14.06 | 13.99 | 13.89 | 13.84 | 13.81 | 13.75 | 13.67 | 13.59 |
| 102 | 5510 | 17.78 | -- | -- | -- | -- | -- | -- | -- |
| 118 | 5590 | 19.89 | 19.81 | 19.72 | 19.64 | 19.6 | 19.51 | 19.42 | 19.39 |
| 134 | 5670 | 18.52 | -- | -- | -- | -- | -- | -- | -- |
| 142(U-NII-2C) | 5710 | 19.73 | 19.63 | 19.56 | 19.53 | 19.5 | 19.44 | 19.35 | 19.28 |
| 142(U-NII-3) | 5710 | 7.29 | 7.2 | 7.15 | 7.11 | 7.08 | 7.02 | 6.96 | 6.9 |
| 151 | 5755 | 20 | -- | -- | -- | -- | -- | -- | -- |
| 159 | 5795 | 19.87 | 19.77 | 19.7 | 19.63 | 19.56 | 19.51 | 19.41 | 19.35 |

Note: Maximum conducted output power Value =Reading value on average power meter + cable loss

**Chain B**

| Cable loss=1.0dB | | Maximum conducted output power | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Channel No. | Frequency (MHz) | Data Rate (Mbps) | | | | | | | |
| | | 30 | 60 | 90 | 120 | 180 | 240 | 270 | 300 |
| 38 | 5190 | 17.22 | -- | -- | -- | -- | -- | -- | -- |
| 46 | 5230 | 19.05 | 18.95 | 18.9 | 18.87 | 18.77 | 18.73 | 18.67 | 18.59 |
| 54 | 5270 | 18.81 | -- | -- | -- | -- | -- | -- | -- |
| 62 | 5310 | 14.35 | 14.28 | 14.2 | 14.13 | 14.09 | 13.99 | 13.9 | 13.8 |
| 102 | 5510 | 17.81 | -- | -- | -- | -- | -- | -- | -- |
| 118 | 5590 | 19.99 | 19.94 | 19.85 | 19.78 | 19.71 | 19.63 | 19.58 | 19.53 |
| 134 | 5670 | 19.08 | -- | -- | -- | -- | -- | -- | -- |
| 142(U-NII-2C) | 5710 | 19.74 | 19.71 | 19.63 | 19.56 | 19.5 | 19.43 | 19.35 | 19.29 |
| 142(U-NII-3) | 5710 | 7.12 | 7.02 | 6.99 | 6.9 | 6.8 | 6.72 | 6.67 | 6.6 |
| 151 | 5755 | 19.66 | -- | -- | -- | -- | -- | -- | -- |
| 159 | 5795 | 19.61 | 19.55 | 19.51 | 19.45 | 19.4 | 19.37 | 19.29 | 19.2 |

Note: Maximum conducted output power Value =Reading value on average power meter + cable loss

**Maximum conducted output power Measurement:**

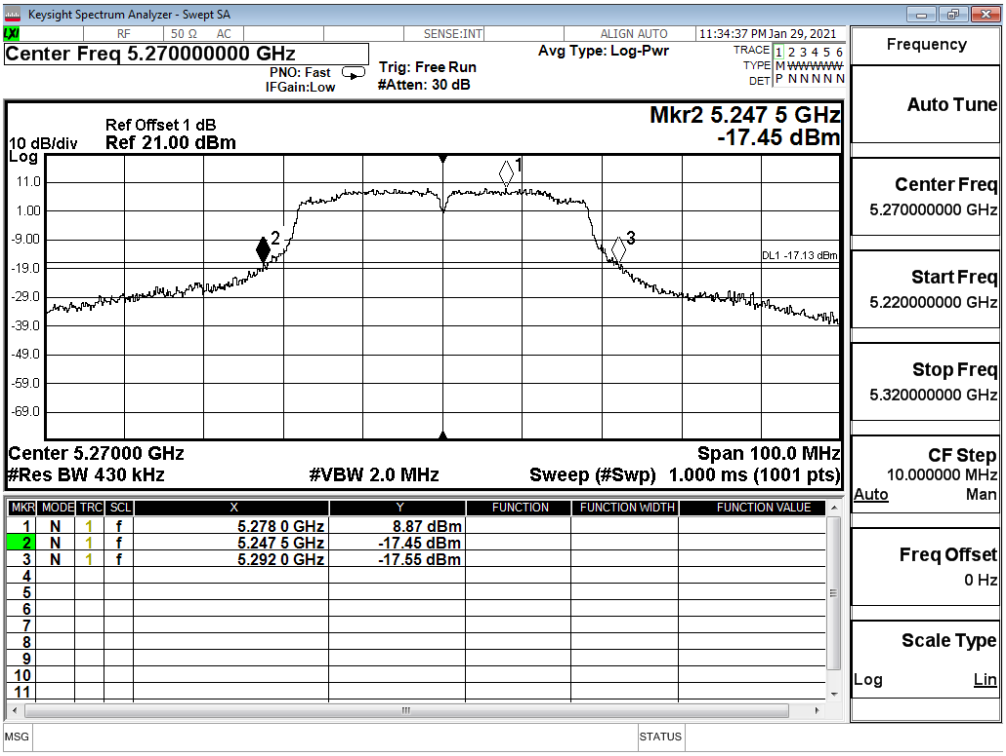
| Channel No | Frequency Range (MHz) | 26dB Bandwidth (MHz) | Chain A Power (dBm) | Chain B Power (dBm) | Output Power (dBm) | Output Power Limit | | Result |
|---|---|---|---|---|---|---|---|---|
| | | | | | | (dBm) | dBm+10log(BW) | |
| 38 | 5190 | -- | 17.04 | 17.22 | 20.14 | 24 | -- | Pass |
| 46 | 5230 | -- | 18.96 | 19.05 | 22.02 | 24 | -- | Pass |
| 54 | 5270 | 42.00 | 18.82 | 18.81 | 21.83 | 24 | 27.23 | Pass |
| 62 | 5310 | 41.80 | 14.06 | 14.35 | 17.22 | 24 | 27.21 | Pass |
| 102 | 5510 | 41.70 | 17.78 | 17.81 | 20.81 | 24 | 27.20 | Pass |
| 118 | 5590 | 43.30 | 19.89 | 19.99 | 22.95 | 24 | 27.36 | Pass |
| 134 | 5670 | 45.00 | 18.52 | 19.08 | 21.82 | 24 | 27.53 | Pass |
| 142(U-NII-2C) | 5710 | 36.10 | 19.73 | 19.74 | 22.75 | 30 | 26.58 | Pass |
| 142(U-NII-3) | 5710 | -- | 7.29 | 7.12 | 10.22 | 30 | -- | Pass |
| 151 | 5755 | -- | 20.00 | 19.66 | 22.84 | 30 | -- | Pass |
| 159 | 5795 | -- | 19.87 | 19.61 | 22.75 | 30 | -- | Pass |

Note:

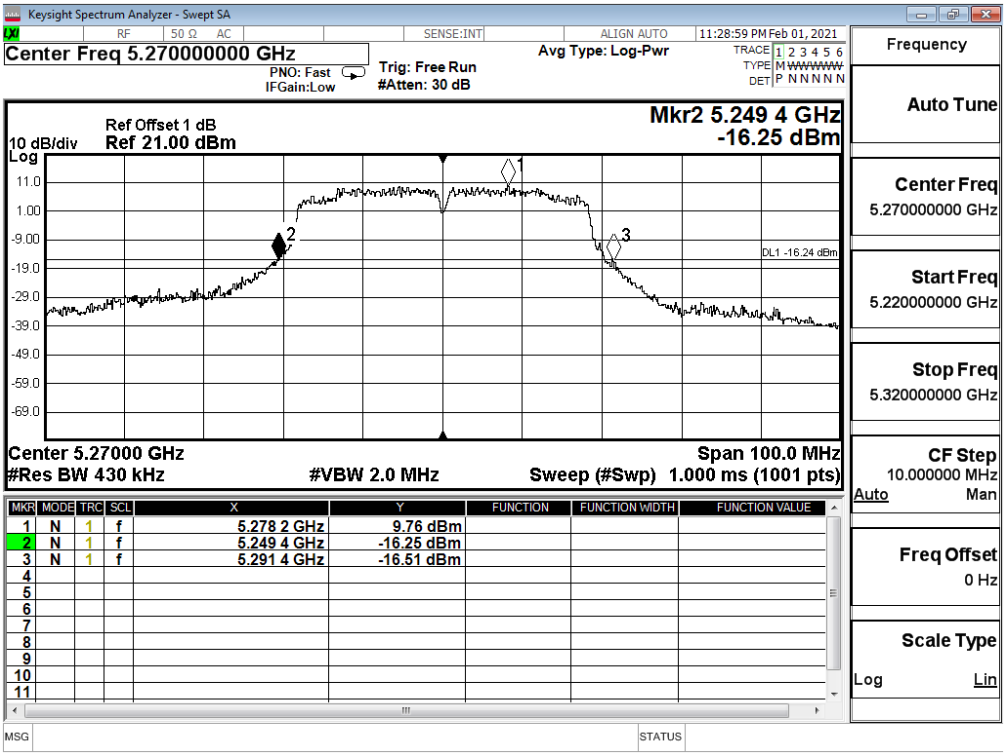
1. Output Power (dBm) = 10LOG (Chain A Power (mW)+ Chain B Power (mW))
2. 26dB Bandwidth is the bandwidth of chain A or chain Bwhichever is less bandwidth, output power limitation is more stringent.

## 26dB Occupied Bandwidth:

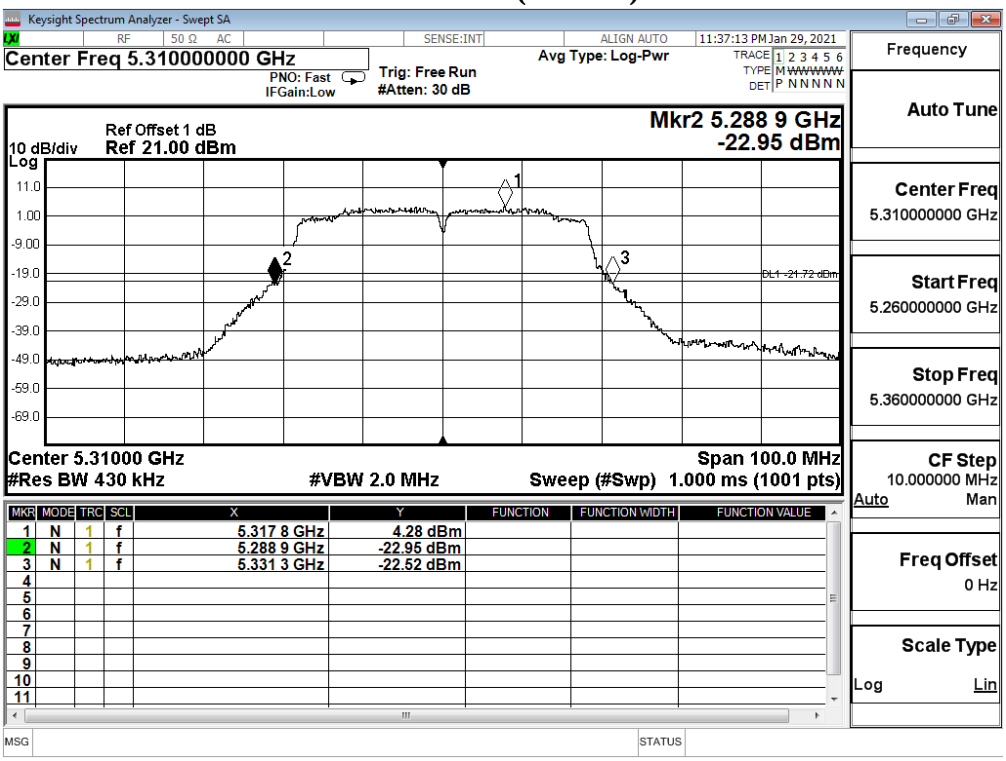
### Channel 54 (Chain A)



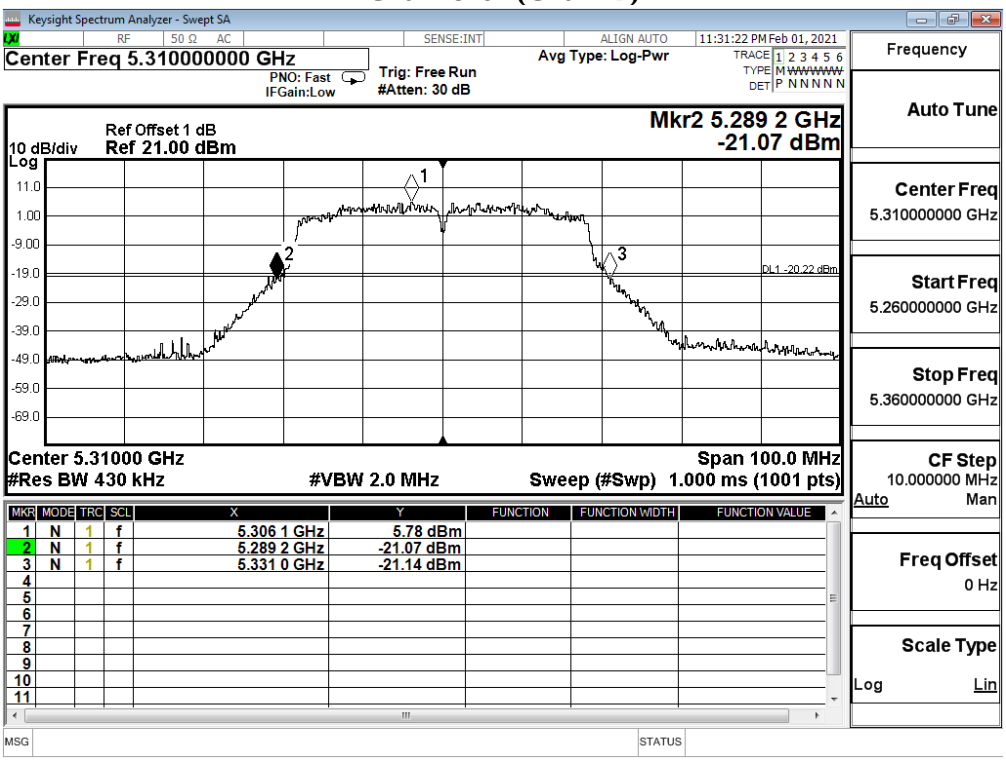

### Channel 54 (Chain B)



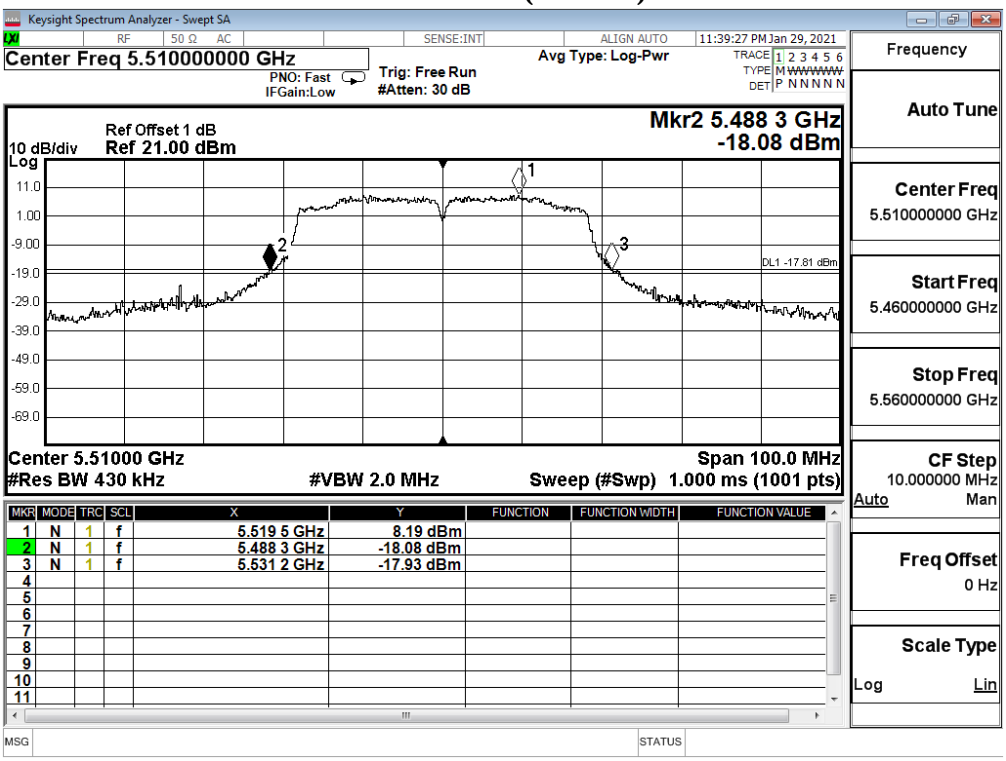
## Channel 62 (Chain A)



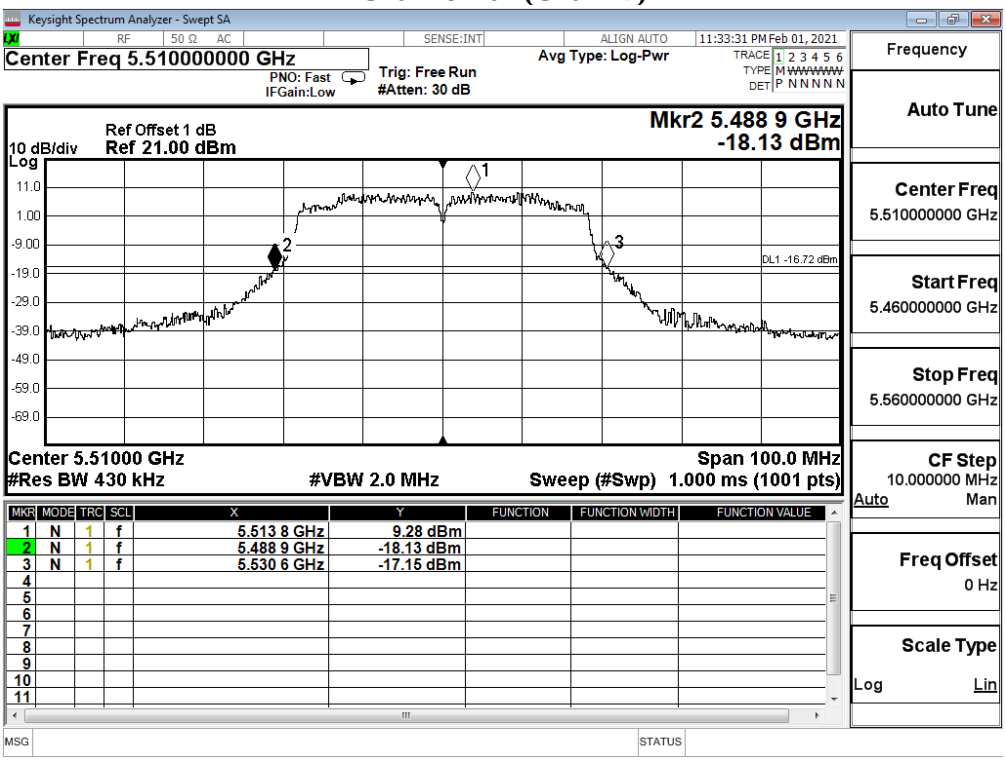

## Channel 62 (Chain B)



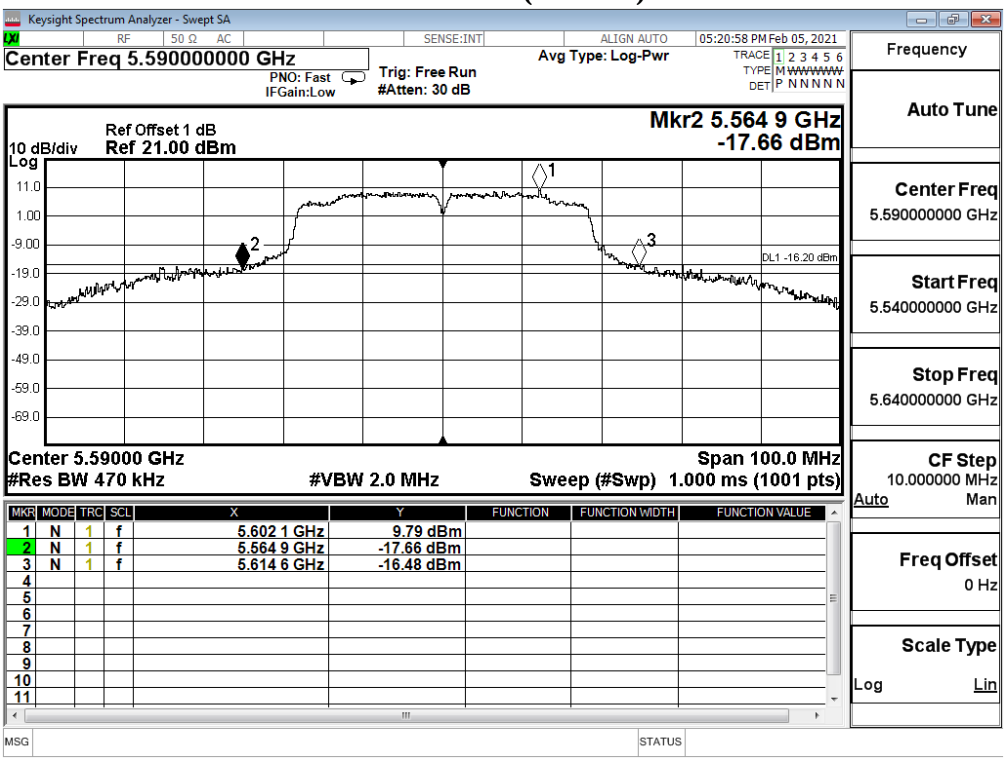
## Channel 102 (Chain A)



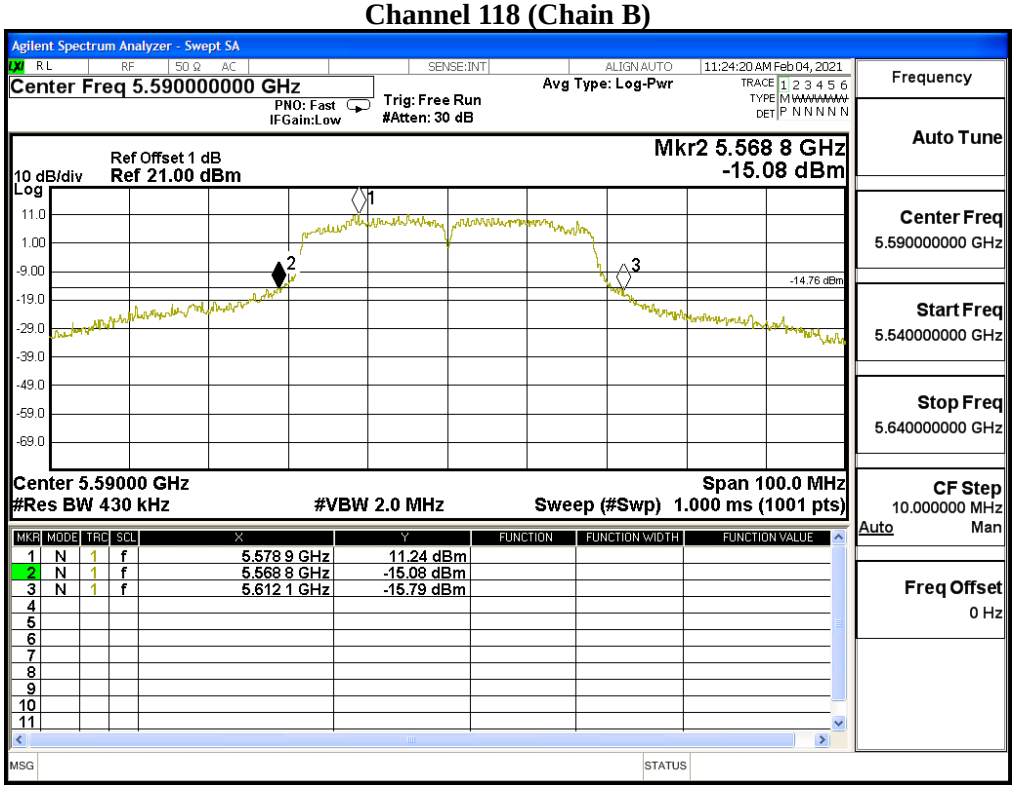

## Channel 102 (Chain B)



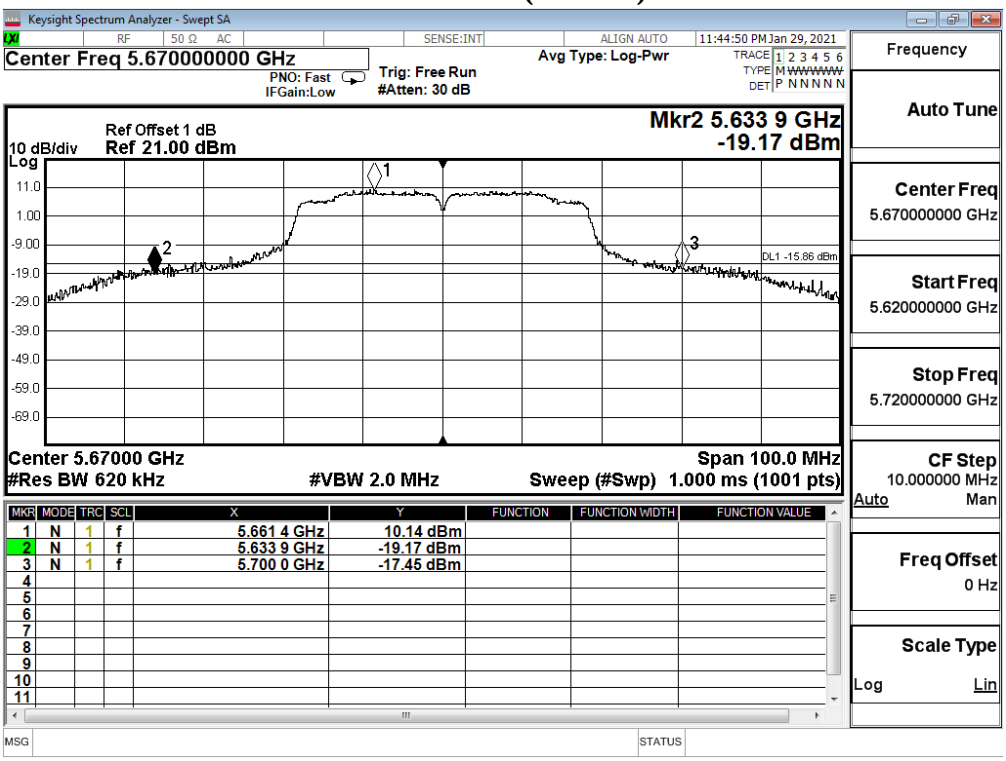
## Channel 118 (Chain A)



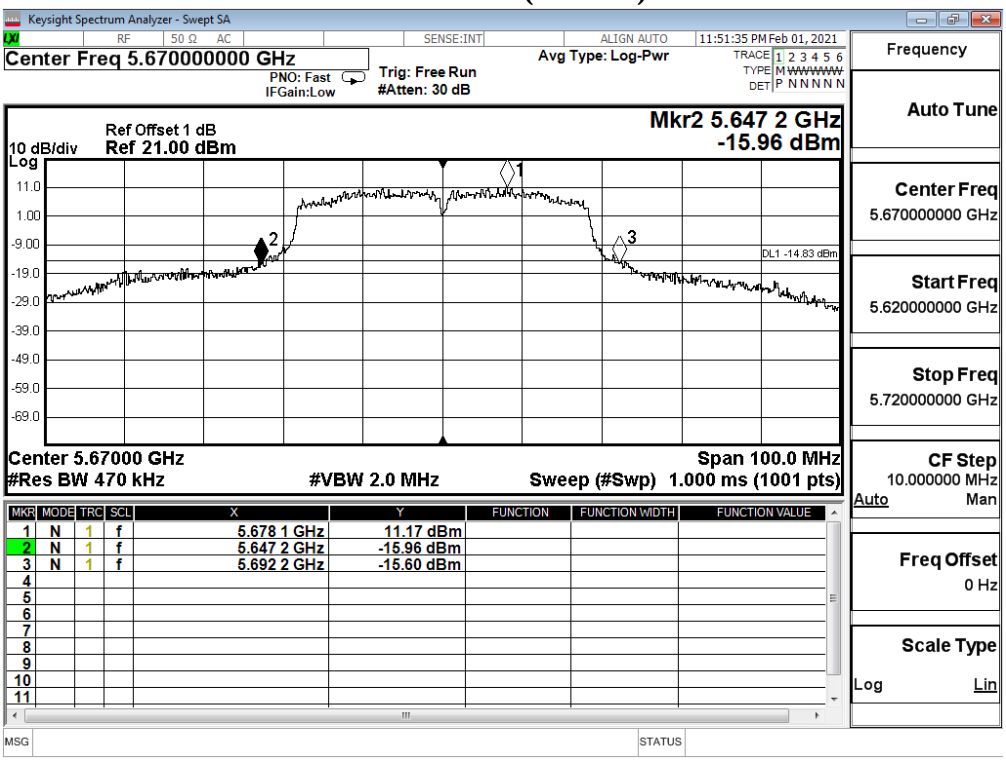

## Channel 118 (Chain B)



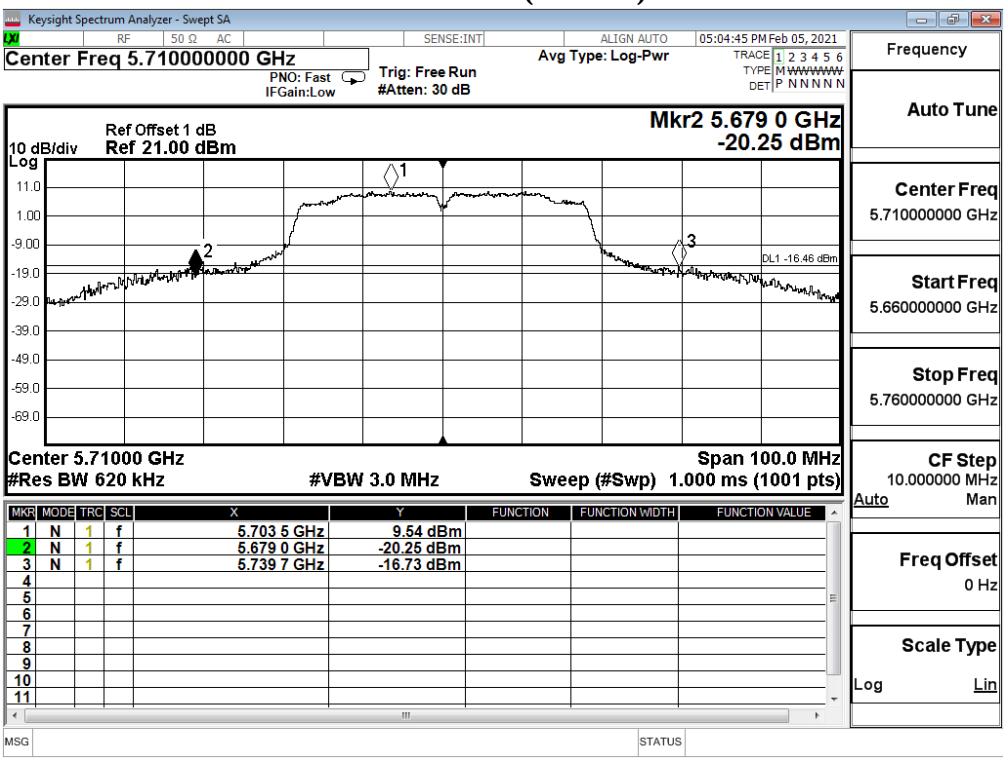
## Channel 134 (Chain A)



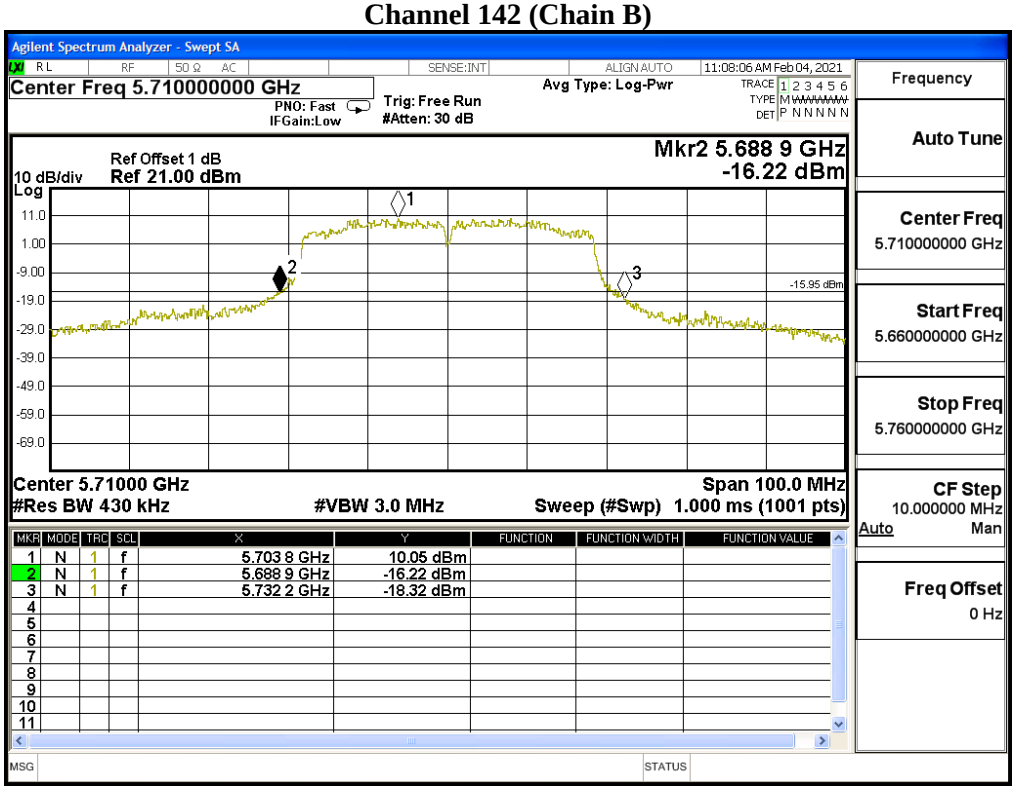

## Channel 134 (Chain B)



## Channel 142 (Chain A)

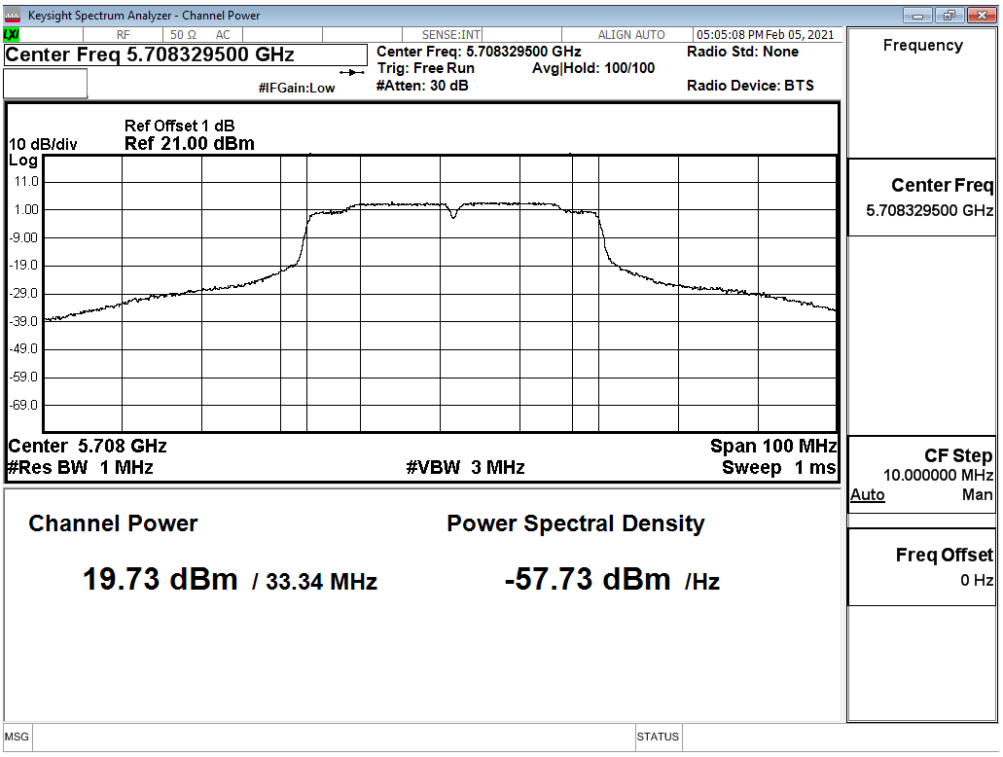



## Channel 142 (Chain B)



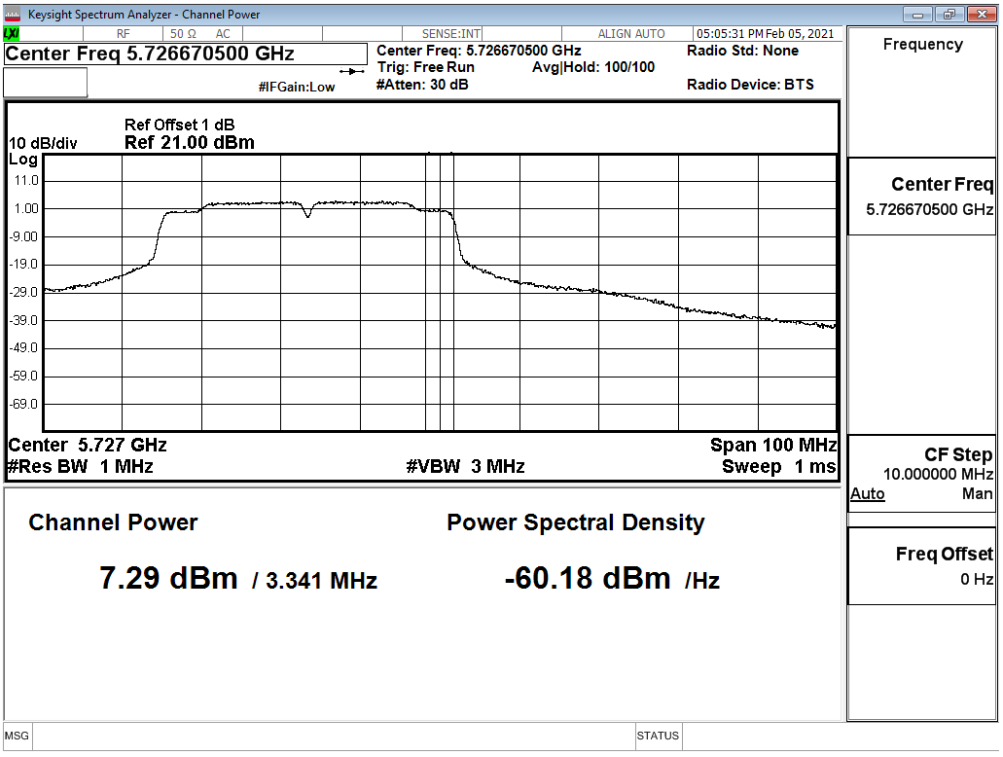
**Maximum conducted output power:**

**Channel 142 (U-NII-2C) (Chain A)**



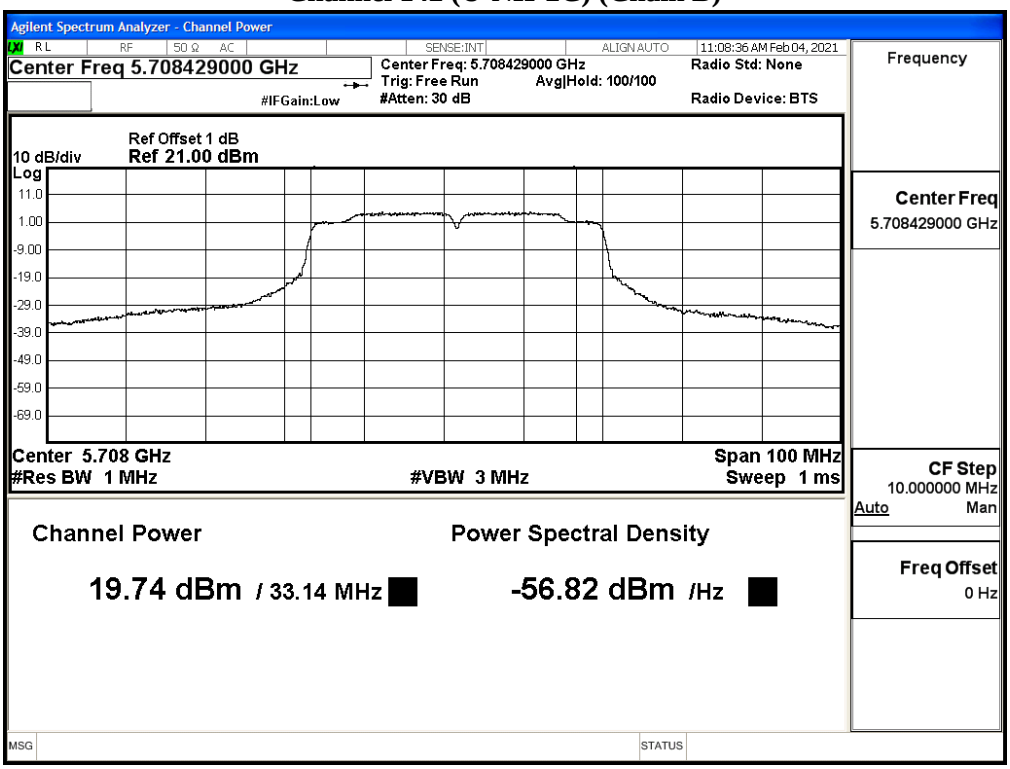

**Maximum conducted output power:**

**Channel 142 (U-NII-3) (Chain A)**



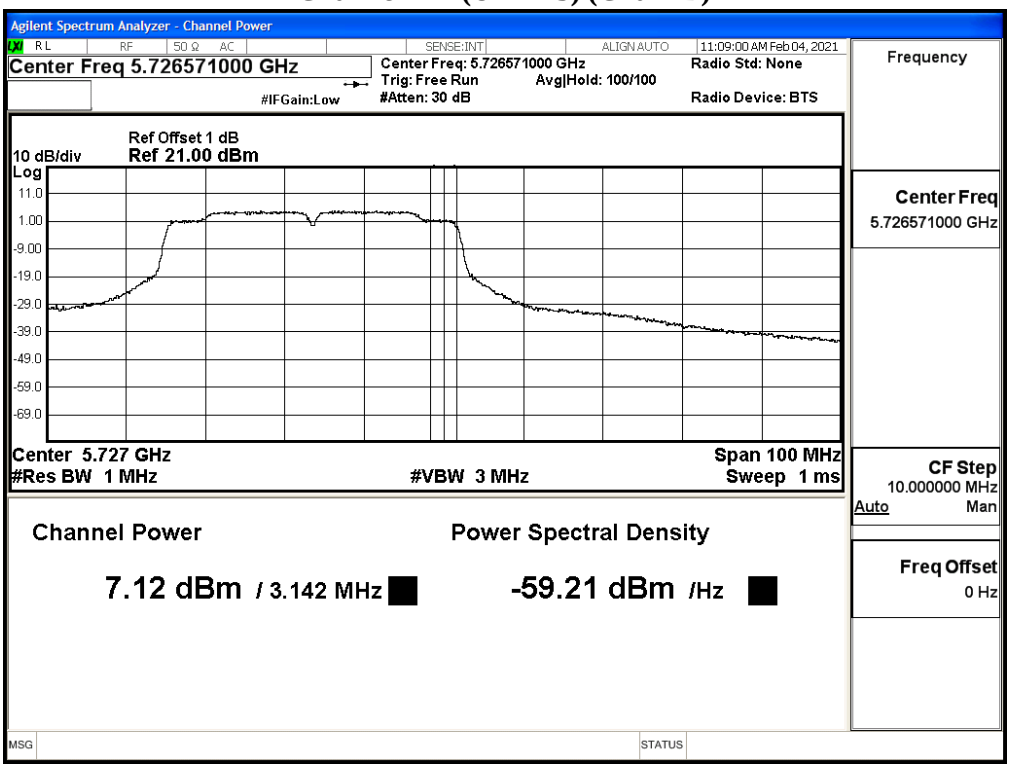
**Maximum conducted output power:**

**Channel 142 (U-NII-2C) (Chain B)**




**Maximum conducted output power:**

**Channel 142 (U-NII-3) (Chain B)**



Product : Portable Computer
Test Item : Maximum conducted output power
Test Date : 2021/02/05
Test Mode : Mode 21 MIMO: Transmit (802.11ac-80BW_65Mbps)

**Chain A**

| Cable loss=1.0dB | | Maximum conducted output power | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Channel No | Frequency (MHz) | Data Rate (Mbps) | | | | | | | | | |
| | | 65 | 130 | 1965 | 260 | 390 | 520 | 585 | 650 | 780 | 866.7 |
| 42 | 5210 | 17.05 | 16.98 | 16.91 | 16.84 | 16.75 | 16.71 | 16.68 | 16.6 | 16.50 | 16.47 |
| 58 | 5290 | 15.6 | 15.55 | 15.47 | 15.44 | 15.36 | 15.33 | 15.24 | 15.18 | 15.13 | 15.03 |
| 106 | 5530 | 17.53 | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 122 | 5610 | 18.65 | 18.61 | 18.55 | 18.50 | 18.47 | 18.38 | 18.30 | 18.26 | 18.18 | 18.09 |
| 138 (U-NII-2C) | 5690 | 19.71 | 19.62 | 19.55 | 19.5 | 19.45 | 19.35 | 19.31 | 19.28 | 19.19 | 19.14 |
| 138 (U-NII-3) | 5690 | 2.72 | 2.69 | 2.6 | 2.55 | 2.49 | 2.41 | 2.38 | 2.29 | 2.21 | 2.17 |
| 155 | 5775 | 17.81 | 17.77 | 17.7 | 17.64 | 17.56 | 17.48 | 17.45 | 17.42 | 17.33 | 17.30 |

Note: Maximum conducted output power Value =Reading value on Spectrum Analyzer + cable loss

**Chain B**

| Cable loss=1.0dB | | Maximum conducted output power | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Channel No | Frequency (MHz) | Data Rate (Mbps) | | | | | | | | | |
| | | 65 | 130 | 1965 | 260 | 390 | 520 | 585 | 650 | 780 | 866.7 |
| 42 | 5210 | 17.09 | 17 | 16.94 | 16.91 | 16.83 | 16.76 | 16.73 | 16.69 | 16.63 | 16.59 |
| 58 | 5290 | 15.67 | 15.57 | 15.5 | 15.46 | 15.36 | 15.32 | 15.22 | 15.18 | 15.08 | 15.05 |
| 106 | 5530 | 17.74 | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 122 | 5610 | 18.66 | 18.59 | 18.49 | 18.42 | 18.36 | 18.29 | 18.26 | 18.21 | 18.12 | 18.08 |
| 138 (U-NII-2C) | 5690 | 19.85 | 19.81 | 19.75 | 19.69 | 19.59 | 19.56 | 19.52 | 19.47 | 19.4 | 19.36 |
| 138 (U-NII-3) | 5690 | 2.18 | 2.1 | 2 | 1.93 | 1.89 | 1.8 | 1.71 | 1.65 | 1.57 | 1.53 |
| 155 | 5775 | 17.77 | 17.69 | 17.65 | 17.56 | 17.5 | 17.46 | 17.38 | 17.32 | 17.29 | 17.19 |

Note: Maximum conducted output power Value =Reading value on Spectrum Analyzer + cable loss

**Maximum conducted output power Measurement:**

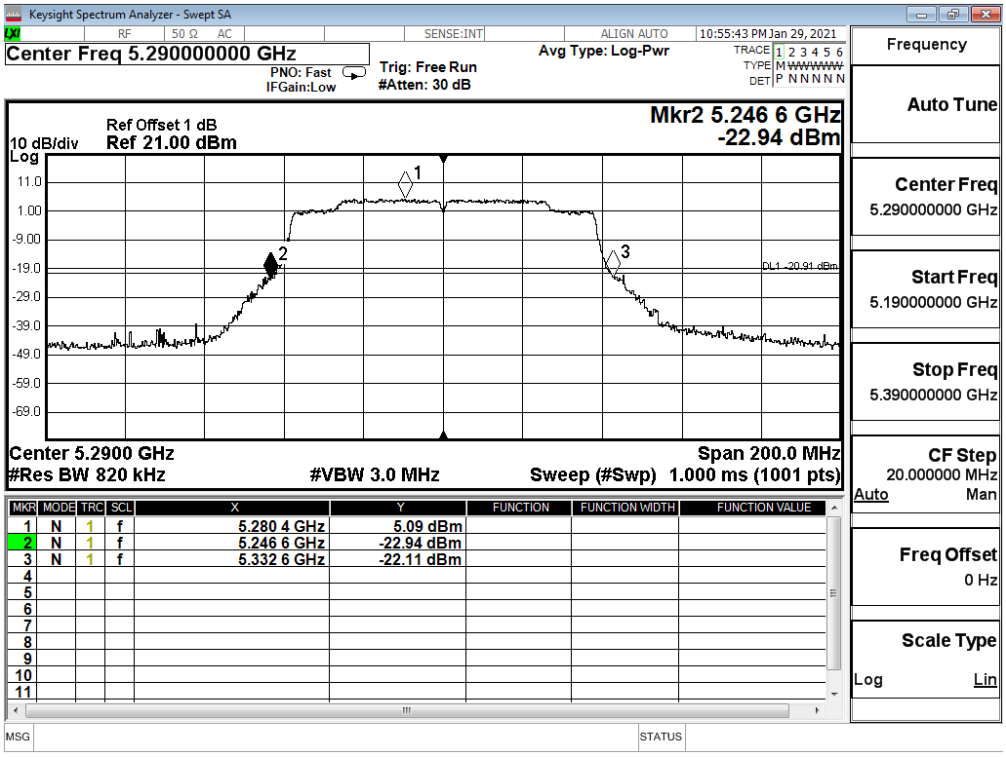
| Channel No | Frequency Range (MHz) | 26dB Bandwidth (MHz) | Chain A Power (dBm) | Chain B Power (dBm) | Output Power (dBm) | Output Power Limit | | Result |
|---|---|---|---|---|---|---|---|---|
| | | | | | | (dBm) | dBm+10log(BW) | |
| 42 | 5210 | -- | 17.05 | 17.09 | 20.08 | 24 | -- | Pass |
| 58 | 5290 | 84.40 | 15.60 | 15.67 | 18.65 | 24 | 30.26 | Pass |
| 106 | 5530 | 83.80 | 17.53 | 17.74 | 20.65 | 24 | 30.23 | Pass |
| 122 | 5610 | 83.80 | 18.65 | 18.66 | 21.67 | 24 | 30.23 | Pass |
| 138 (U-NII-2C) | 5690 | 77.80 | 19.71 | 19.85 | 22.79 | 24 | 29.91 | Pass |
| 138 (U-NII-3) | 5690 | 9.40 | 2.72 | 2.18 | 5.47 | 30 | 20.73 | Pass |
| 155 | 5775 | -- | 17.81 | 17.77 | 20.80 | 30 | -- | Pass |

Note:

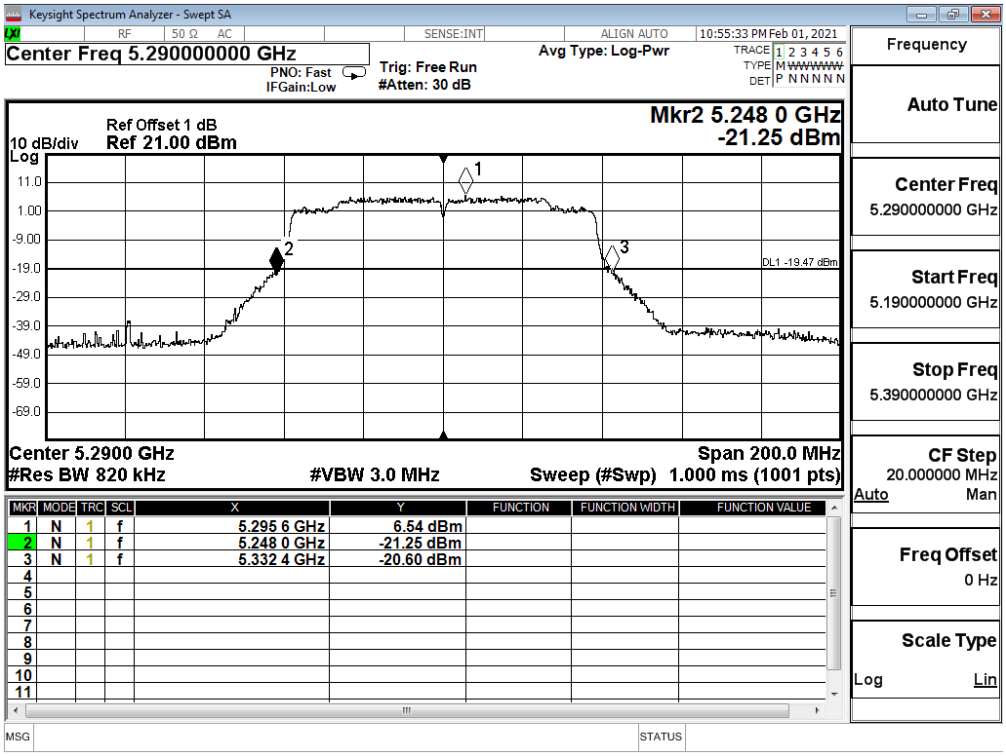
1. Output Power (dBm) = 10LOG (Chain A Power (mW)+ Chain B Power (mW))
2. 26dB Bandwidth is the bandwidth of chain A or chain Bwhichever is less bandwidth, output power limitation is more stringent.

## 26dB Occupied Bandwidth:

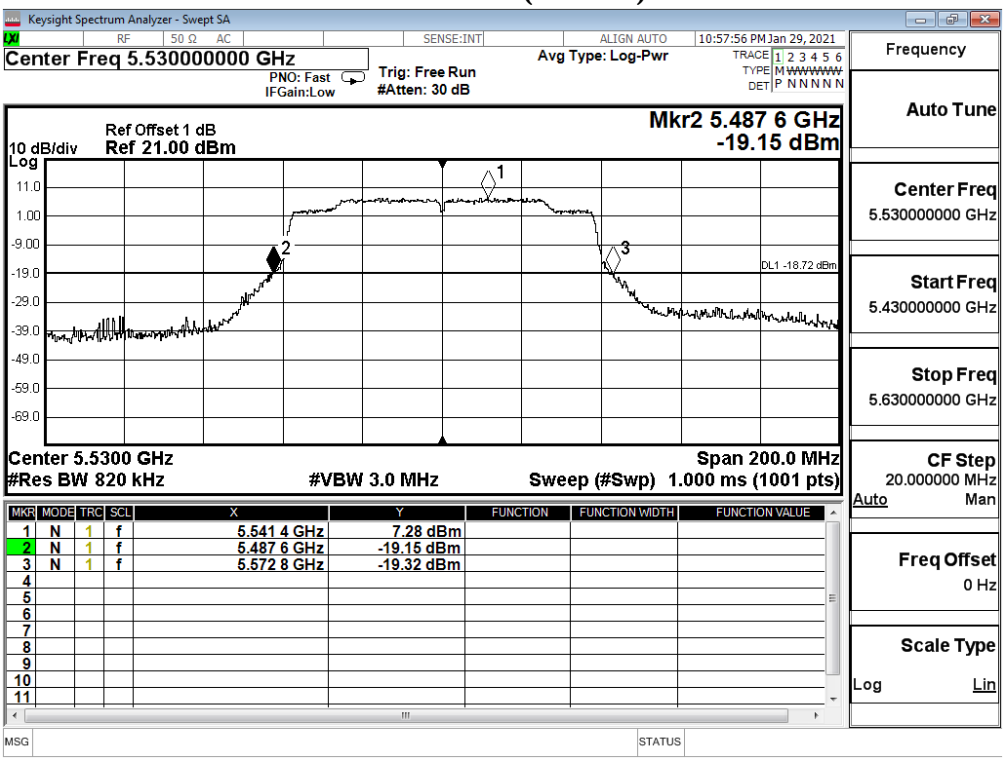
### Channel 58 (Chain A)



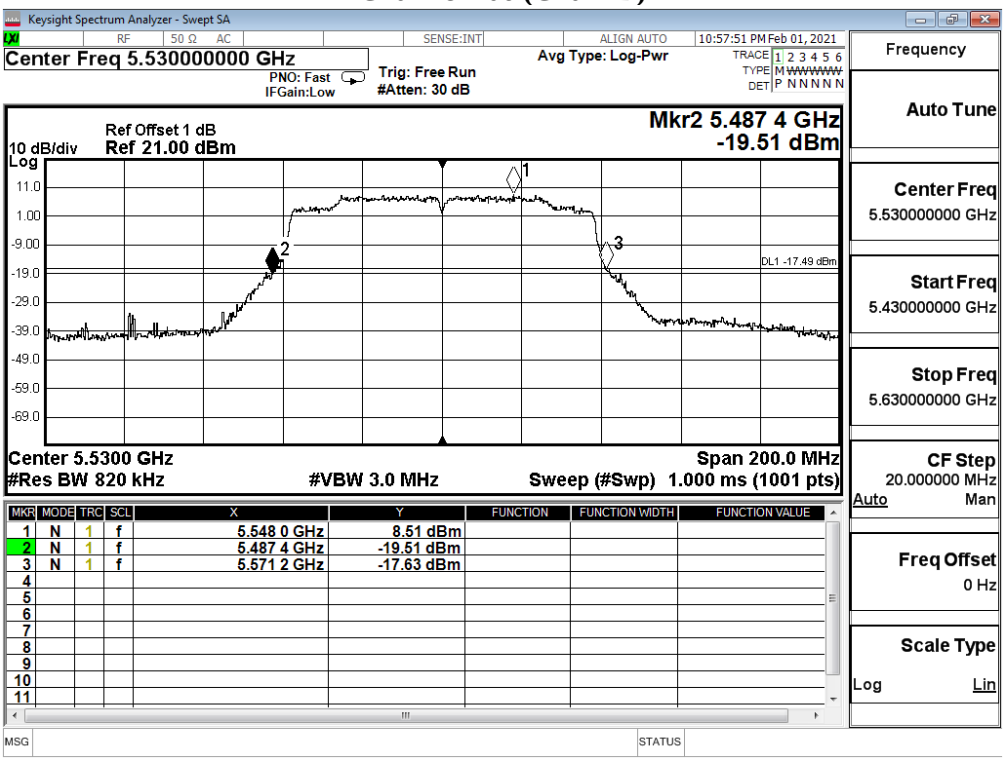

### Channel 58 (Chain B)



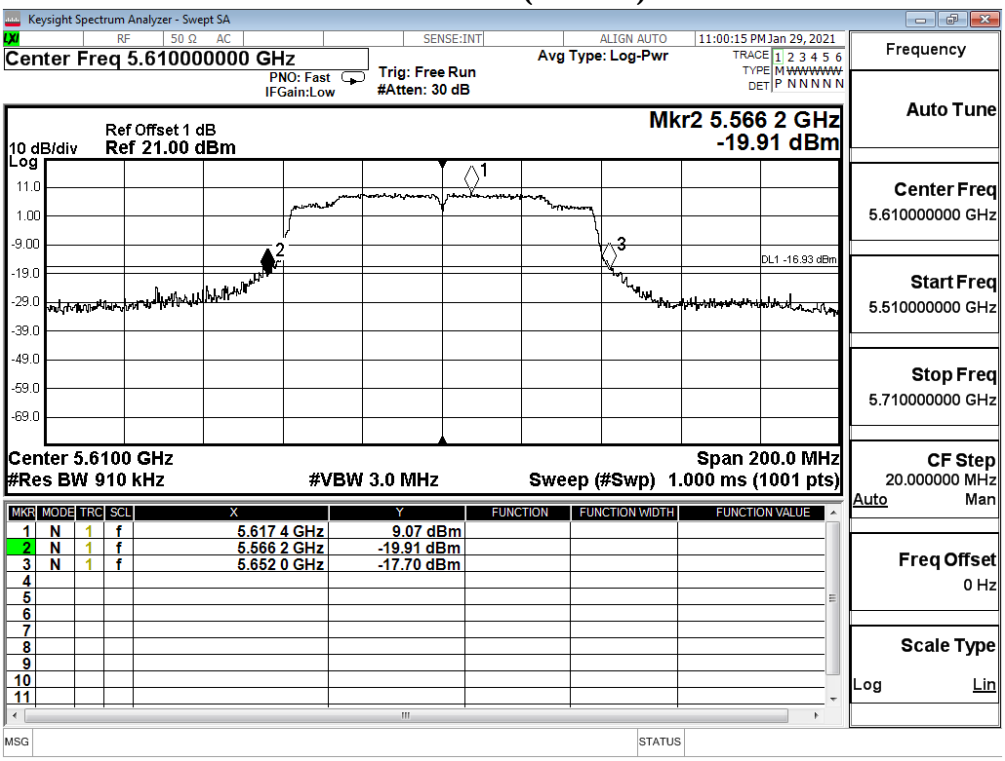
## Channel 106 (Chain A)



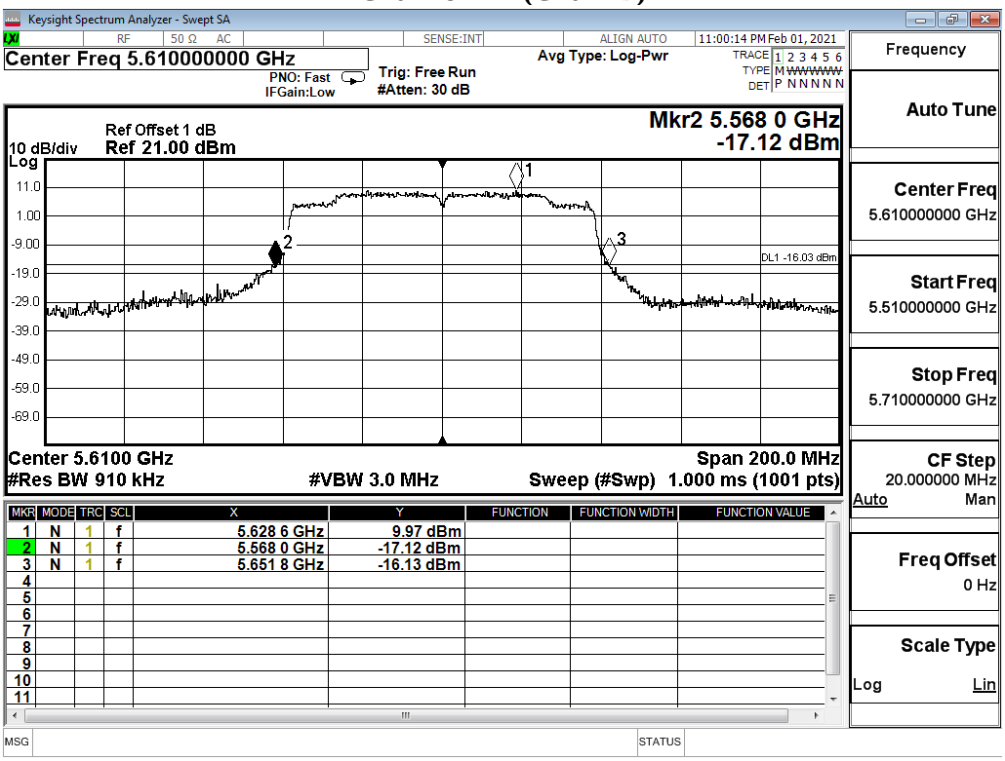

## Channel 106 (Chain B)



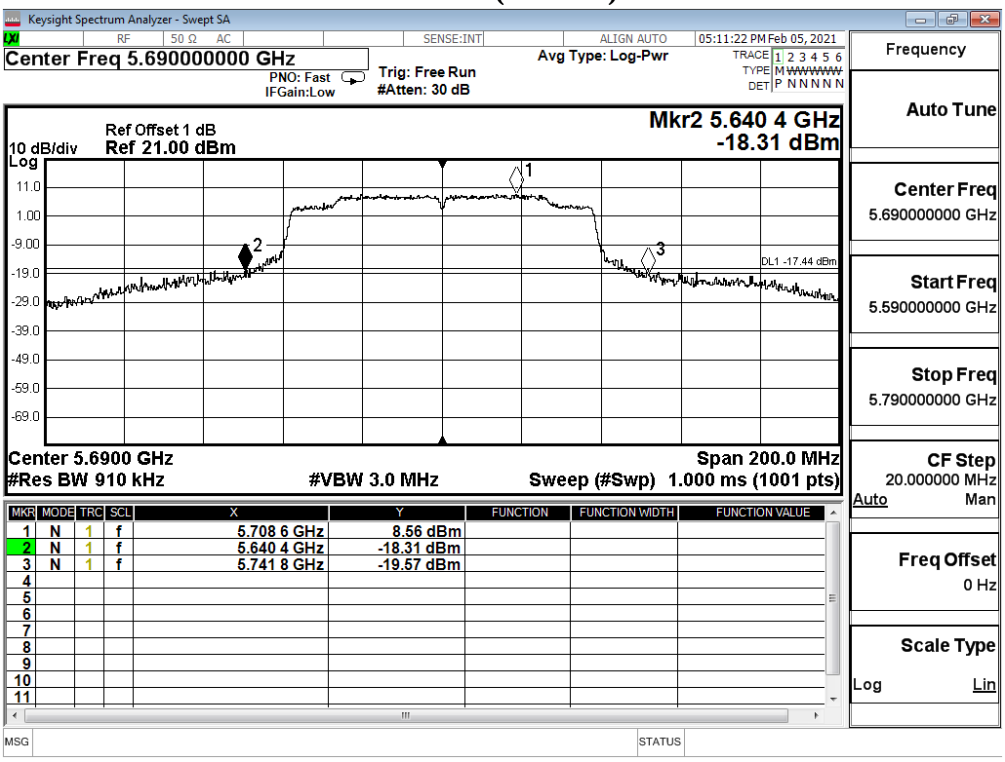
## Channel 122 (Chain A)



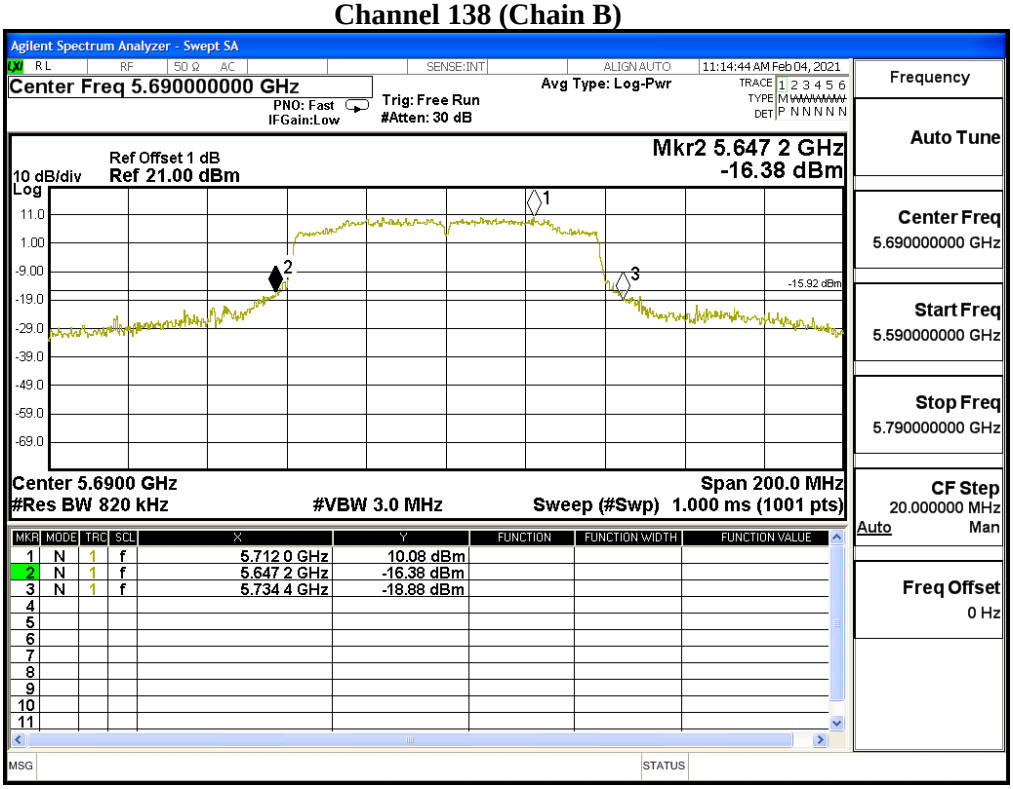

## Channel 122 (Chain B)



## Channel 138 (Chain A)

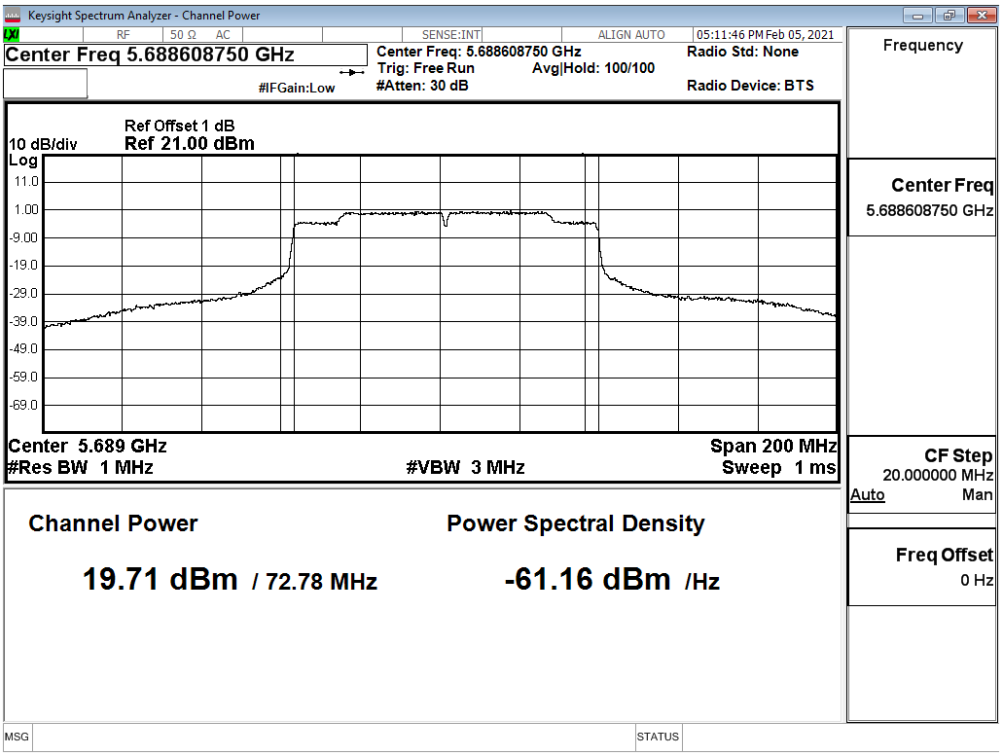



## Channel 138 (Chain B)



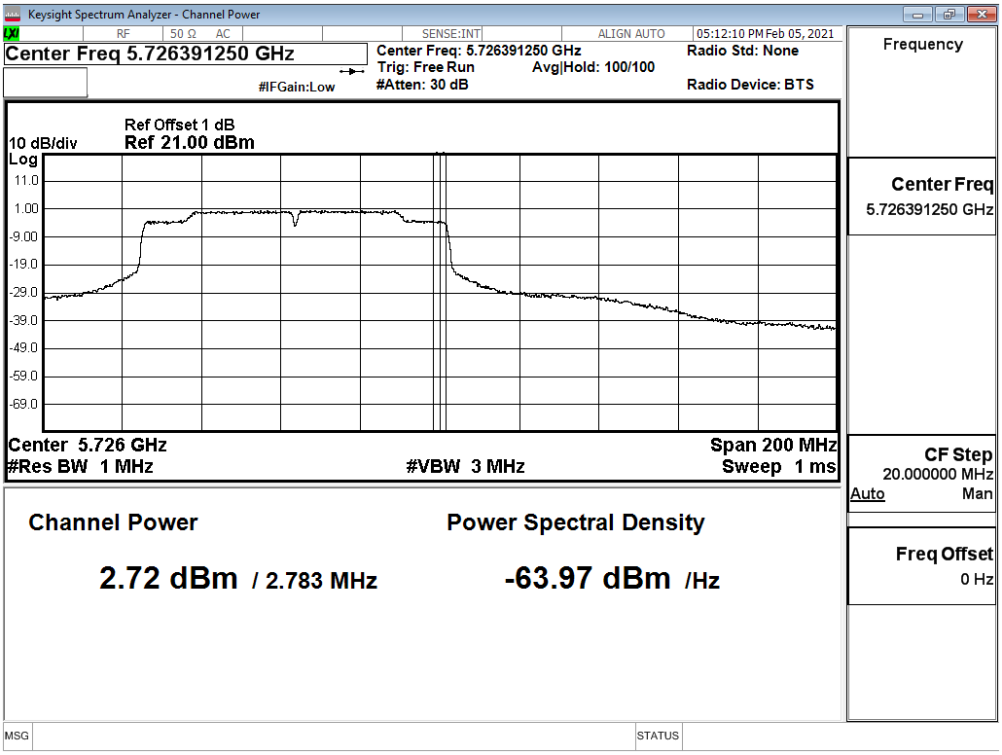
**Maximum conducted output power:**

**Channel 138 (U-NII-2C) (Chain A)**



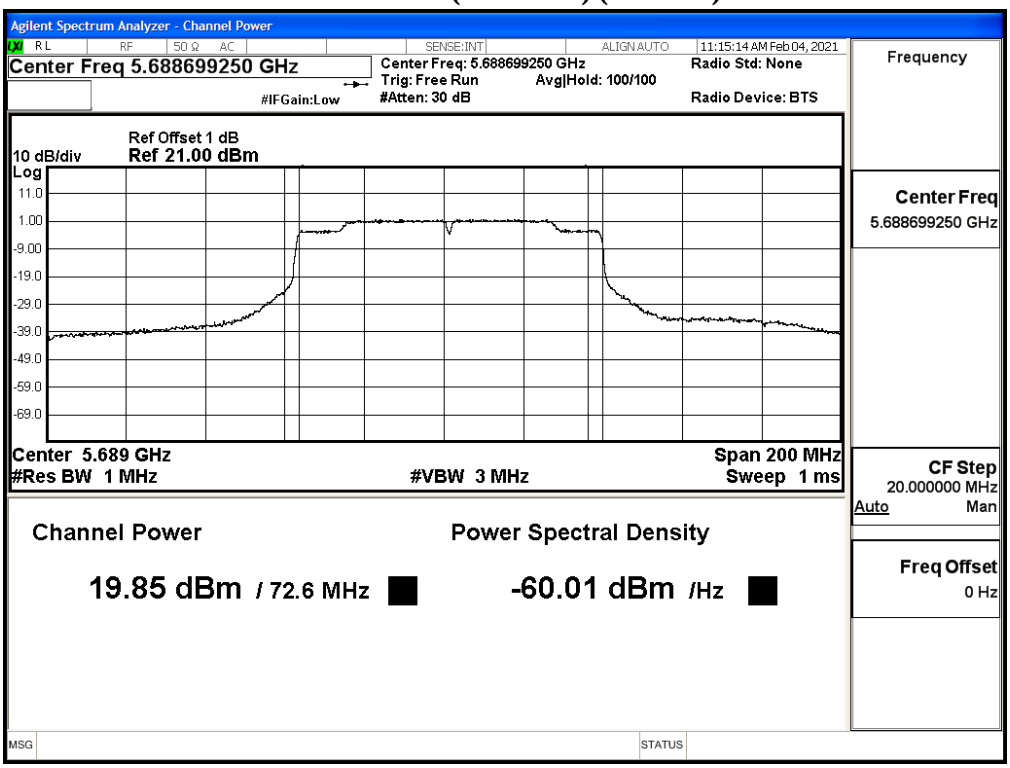

**Maximum conducted output power:**

**Channel 138 (U-NII-3) (Chain A)**



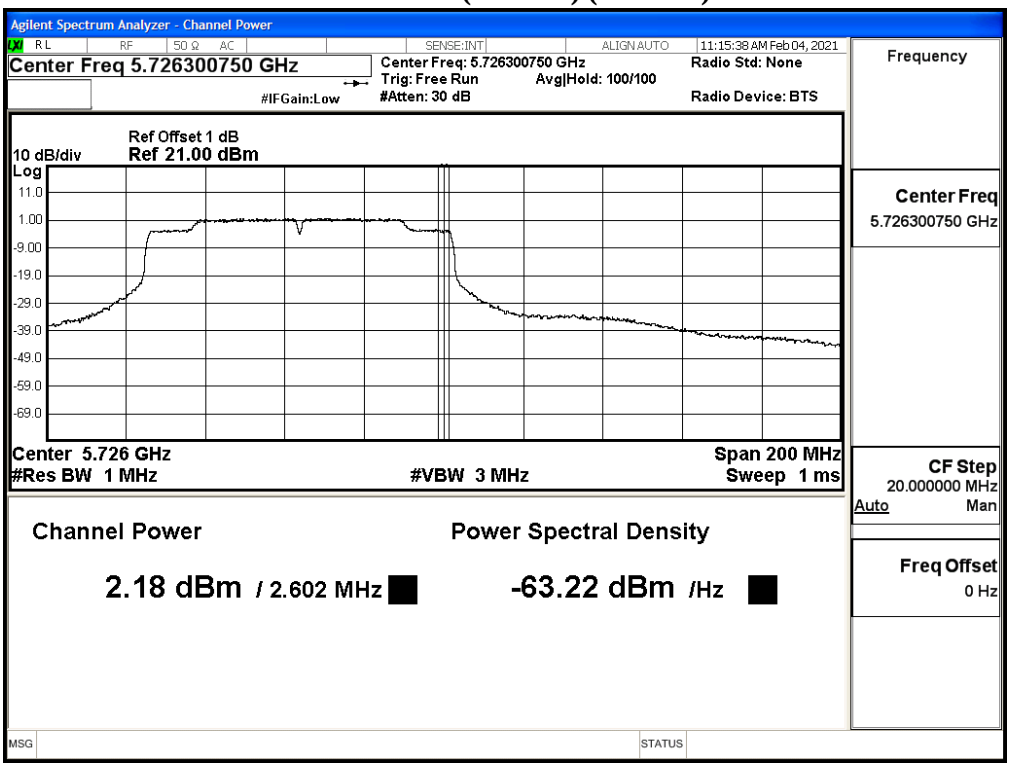
**Maximum conducted output power:**

**Channel 138 (U-NII-2C) (Chain B)**




**Maximum conducted output power:**

**Channel 138 (U-NII-3) (Chain B)**



Product : Portable Computer
Test Item : Maximum conducted output power
Test Date : 2021/02/03
Test Mode : Mode 22 MIMO: Transmit (802.11ac-160BW_130Mbps)

**Chain A**

| Cable loss=1.0dB | | Maximum conducted output power | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Channel No | Frequency (MHz) | Data Rate (Mbps) | | | | | | | | | |
| | | 130 | 260 | 390 | 520 | 780 | 1040 | 1170 | 1300 | 1560 | 1733.3 |
| 50 (U-NII-1) | 5250 | 10.02 | 9.92 | 9.85 | 9.77 | 9.74 | 9.66 | 9.62 | 9.57 | 9.54 | 9.45 |
| 50 (U-NII-2A) | 5250 | 10.03 | 9.99 | 9.93 | 9.87 | 9.82 | 9.72 | 9.64 | 9.55 | 9.52 | 9.43 |
| 114 | 5570 | 13.22 | 13.13 | 13.08 | 12.99 | 12.91 | 12.88 | 12.78 | 12.71 | 12.68 | 12.61 |

Note: Maximum conducted output power Value =Reading value on Spectrum Analyzer + cable loss

**Chain B**

| Cable loss=1.0dB | | Maximum conducted output power | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Channel No | Frequency (MHz) | Data Rate (Mbps) | | | | | | | | | |
| | | 130 | 260 | 390 | 520 | 780 | 1040 | 1170 | 1300 | 1560 | 1733.3 |
| 50 (U-NII-1) | 5250 | 10.29 | 10.24 | 10.18 | 10.09 | 10.04 | 9.98 | 9.94 | 9.89 | 9.79 | 9.71 |
| 50 (U-NII-2A) | 5250 | 10.01 | 9.94 | 9.86 | 9.78 | 9.74 | 9.68 | 9.62 | 9.53 | 9.47 | 9.42 |
| 114 | 5570 | 14.32 | 14.25 | 14.15 | 14.09 | 14.02 | 13.99 | 13.95 | 13.92 | 13.87 | 13.80 |

Note: Maximum conducted output power Value =Reading value on Spectrum Analyzer + cable loss

**Maximum conducted output power Measurement:**

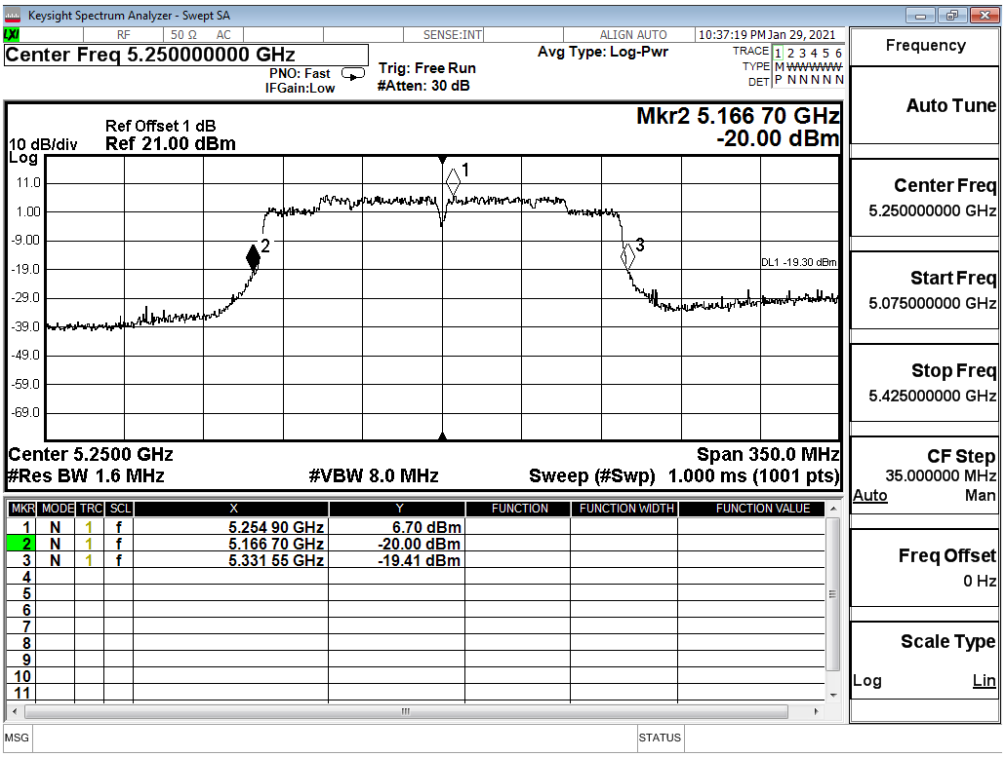
| Channel No | Frequency Range (MHz) | 26dB Bandwidth (MHz) | Chain A Power (dBm) | Chain B Power (dBm) | Output Power (dBm) | Output Power Limit | | Result |
|---|---|---|---|---|---|---|---|---|
| | | | | | | (dBm) | dBm+10log(BW) | |
| 50(U-NII-1) | 5250 | -- | 10.02 | 10.29 | 13.17 | 24 | -- | Pass |
| 50(U-NII-2A) | 5250 | 81.55 | 10.03 | 10.01 | 13.03 | 24 | 30.11 | Pass |
| 114 | 5570 | 163.10 | 13.22 | 14.32 | 16.82 | 24 | 33.12 | Pass |

Note:

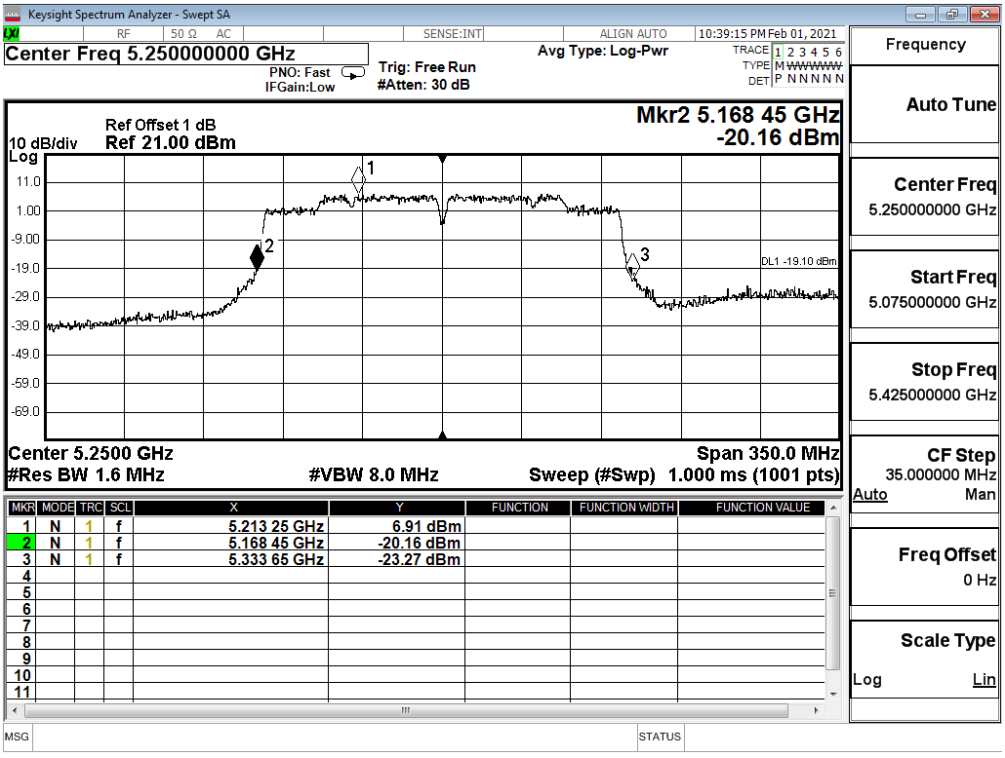
1. Output Power (dBm) = 10LOG (Chain A Power (mW)+ Chain B Power (mW))
2. 26dB Bandwidth is the bandwidth of chain A or chain Bwhichever is less bandwidth, output power limitation is more stringent.

## 26dB Occupied Bandwidth:

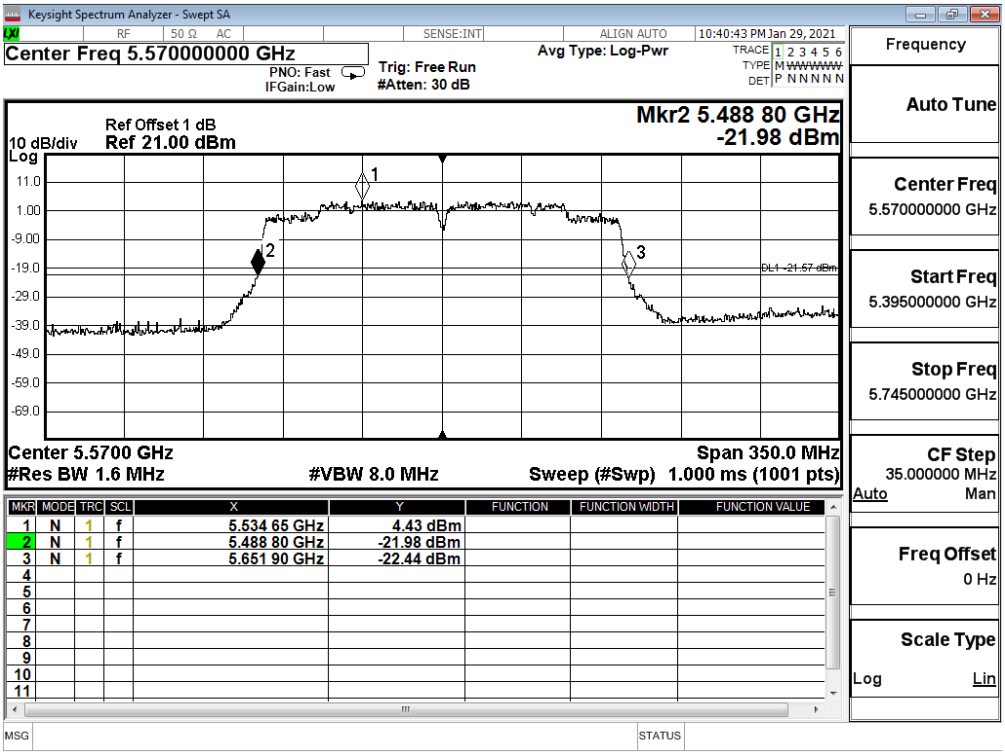
### Channel 50 (Chain A)




### Channel 50 (Chain B)



## Channel 114 (Chain A)




## Channel 114 (Chain B)