

# FCC Test Report

Report No.: AGC00688211103FE06

**FCC ID** : 2AKC6XHT-6B17  
**APPLICATION PURPOSE** : Original Equipment  
**PRODUCT DESIGNATION** : Wireless USB Adapter  
**BRAND NAME** : N/A  
**MODEL NAME** : 6B17, 6B29  
**APPLICANT** : SHEN ZHEN XIN HUA TIAN TECHNOLOGY CO., LTD  
**DATE OF ISSUE** : Nov. 29, 2021  
**STANDARD(S)** : FCC Part 15.407  
**TEST PROCEDURE(S)** : KDB 789033 D02 v02r01  
**REPORT VERSION** : V1.0

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## REPORT REVISE RECORD

| Report Version | Revise Time | Issued Date   | Valid Version | Notes           |
|----------------|-------------|---------------|---------------|-----------------|
| V1.0           | /           | Nov. 29, 2021 | Valid         | Initial Release |

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## 1. VERIFICATION OF CONFORMITY

|                                  |   |
|----------------------------------|---|
| <b>Applicant</b>                 | SHEN ZHEN XIN HUA TIAN TECHNOLOGY CO., LTD  |
| <b>Address</b>                   | 3Floor, B Buliding, DaHong Industrial Park, GuangMin District, Shenzhen City, China |
| <b>Manufacturer</b>              | SHEN ZHEN XIN HUA TIAN TECHNOLOGY CO., LTD  |
| <b>Address</b>                   | 3Floor, B Buliding, DaHong Industrial Park, GuangMin District, Shenzhen City, China |
| <b>Factory</b>                   | SHEN ZHEN XIN HUA TIAN TECHNOLOGY CO., LTD  |
| <b>Address</b>                   | 3Floor, B Buliding, DaHong Industrial Park, GuangMin District, Shenzhen City, China |
| <b>Product Designation</b>       | Wireless USB Adapter  |
| <b>Brand Name</b>                | N/A   |
| <b>Test Model</b>                | 6B17  |
| <b>Series Model</b>              | 6B29  |
| <b>Declaration of Difference</b> | All the series models are the same as the test model except for the model names.    |
| <b>Date of test</b>              | Nov. 18, 2021 to Nov. 29, 2021  |
| <b>Deviation</b>                 | No any deviation from the test method   |
| <b>Condition of Test Sample</b>  | Normal  |
| <b>Test Result</b>               | Pass  |
| <b>Report Template</b>           | AGCRT-US-BGN/RF   |

We hereby certify that:

The above equipment was tested by Attestation of Global Compliance (Shenzhen) Co., Ltd. The test data, data evaluation, test procedures, and equipment configurations shown in this report were made in accordance with the procedures given in ANSI C63.10 (2013) and the energy emitted by the sample EUT tested as described in this report is in compliance with requirement of FCC Part 15 Rules requirement.

Prepared By



John Zeng  
(Project Engineer)

Nov. 29, 2021

Reviewed By



Calvin Liu  
(Reviewer)

Nov. 29, 2021

Approved By



Max Zhang  
(Authorized Officer)

Nov. 29, 2021

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## 2. GENERAL INFORMATION

### 2.1. PRODUCT DESCRIPTION

The EUT is designed as “Wireless USB Adapter”. It is designed by way of utilizing the OFDM technology to achieve the system operation.

A major technical description of EUT is described as following

|                                 |   |  |
|---------------------------------|---|--|
| <b>Equipment Type</b>           | <input type="checkbox"/> Outdoor access points<br><input type="checkbox"/> Fixed P2P access points  | <input type="checkbox"/> Indoor access points<br><input checked="" type="checkbox"/> Client devices                |
| <b>Operation Frequency</b>      | <input checked="" type="checkbox"/> U-NII 1:5150MHz~5250MHz<br><input type="checkbox"/> U-NII 2C:5470MHz~5725MHz  | <input type="checkbox"/> U-NII 2A: 5250MHz~5350MHz<br><input checked="" type="checkbox"/> U-NII 3: 5725MHz~5850MHz |
| <b>TPC Function</b>             | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No   |  |
| <b>Test Frequency Range:</b>    | For 802.11a/n-HT20/ac-VHT20: 5180~5240MHz, 5745~5825MHz<br>For 802.11n-HT40/ac-VHT40: 5190~5230MHz, 5755~5795MHz<br>For 802.11ac-VHT80: 5210MHz, 5775MHz                |  |
| <b>Output Power</b>             | IEEE 802.11a:4.98dBm; IEEE 802.11n-HT20:4.75dBm;<br>IEEE 802.11n-HT40:4.91dBm; IEEE 802.11ac-VHT20:4.70dBm;<br>IEEE 802.11ac-VHT40:4.83dBm; IEEE 802.11ac-VHT80:4.82dBm |  |
| <b>Output Power_MIMO</b>        | IEEE 802.11n-HT20:7.58dBm;IEEE 802.11n-HT40:7.81dBm;<br>IEEE 802.11ac-VHT20:7.54dBm;IEEE 802.11ac-VHT40:7.60dBm;<br>IEEE 802.11ac-VHT80:7.67dBm                         |  |
| <b>Modulation</b>               | 802.11a/n:(64-QAM, 16-QAM, QPSK, BPSK) OFDM<br>802.11ac :(256-QAM, 64-QAM, 16-QAM, QPSK, BPSK) OFDM   |  |
| <b>Data Rate</b>                | 802.11a: 6/9/12/18/24/36/48/54Mbps<br>802.11n: up to 300Mbps<br>802.11ac: up to 866.6Mbps   |  |
| <b>Number of channels</b>       | 7 channels of U-NII-1 Band<br>8 channels of U-NII-3 Band  |  |
| <b>Hardware Version</b>         | V2.1  |  |
| <b>Software Version</b>         | V1.2  |  |
| <b>Antenna Designation</b>      | External Antenna (Comply with requirements of the FCC part 15.203)  |  |
| <b>Number of transmit chain</b> | 2(802.a/11n/ac all used two antennas, but 802.11a support SISO and 802.11n/ac support MIMO)   |  |
| <b>Antenna Gain</b>             | Refer to Chapter 2.8 of the report.   |  |
| <b>Power Supply</b>             | DC 5V by USB  |  |

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## 2.2. TABLE OF CARRIER FREQUENCIES

For 5180~5240MHz:

4 channels are provided for 802.11a, 802.11n (HT20), 802.11ac (VHT20):

| Channel | Frequency | Channel | Frequency |
|---------|-----------|---------|-----------|
| 36      | 5180 MHz  | 44      | 5220 MHz  |
| 40      | 5200 MHz  | 48      | 5240 MHz  |

2 channels are provided for 802.11n (HT40), 802.11ac (VHT40):

| Channel | Frequency | Channel | Frequency |
|---------|-----------|---------|-----------|
| 38      | 5190 MHz  | 46      | 5230 MHz  |

1 channel is provided for 802.11ac (VHT80):

| Channel | Frequency | Channel | Frequency |
|---------|-----------|---------|-----------|
| 42      | 5210 MHz  | --      | --        |

For 5745~5825MHz:

5 channels are provided for 802.11a, 802.11n (HT20), 802.11ac (VHT20):

| Channel | Frequency | Channel | Frequency |
|---------|-----------|---------|-----------|
| 149     | 5745 MHz  | 161     | 5805 MHz  |
| 153     | 5765 MHz  | 165     | 5825 MHz  |
| 157     | 5785 MHz  | --      | --        |

2 channels are provided for 802.11n (HT40), 802.11ac (VHT40):

| Channel | Frequency | Channel | Frequency |
|---------|-----------|---------|-----------|
| 151     | 5755 MHz  | 159     | 5795 MHz  |

1 channel is provided for 802.11ac (VHT80):

| Channel | Frequency | Channel | Frequency |
|---------|-----------|---------|-----------|
| 155     | 5775 MHz  | --      | --        |

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### 2.3. RELATED SUBMITTAL(S) / GRANT (S)

This submittal(s) (test report) is intended for **FCC ID: 2AKC6XHT-6B17** filing to comply with the FCC Part 15 requirements.

### 2.4. TEST METHODOLOGY

Both conducted and radiated testing was performed according to the procedures in ANSI C63.10 (2013).

Radiated testing was performed at an antenna to EUT distance 3 meters.

Others testing (listed at item 5.3) was performed according to the procedures in FCC Part 15.407 rules KDB 789033 D02

### 2.5. SPECIAL ACCESSORIES

Refer to section 5.2.

### 2.6. EQUIPMENT MODIFICATIONS

Not available for this EUT intended for grant.

### 2.7. ANTENNA REQUIREMENT

This intentional radiator is designed with a permanently attached antenna of an antenna to ensure that no antenna other than that furnished by the responsible party shall be used with the device.

For more information of the antenna, please refer to the APPENDIX B: PHOTOGRAPHS OF EUT.

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## 2.8. DESCRIPTION OF AVAILABLE ANTENNAS

| Antenna Type                                  | Frequency Band (MHz) | TX Paths | Bandwidth (MHz) | Max Peak Gain (dBi) |       | Max Directional Gain (dBi) |
|---|----------------------|----------|-----------------|---------------------|-------|----------------------------|
|   |                      |          |                 | Ant 1               | Ant 2 |                            |
| 5G WIFI External Antenna List (5GHz 2*2 MIMO) |                      |          |                 |                     |       |                            |
| External Antenna                              | 5150 ~ 5250          | 2        | 10,20           | 5                   | 5     | 8.01                       |
|   | 5725 ~ 5850          | 2        | 10,20           | 5                   | 5     | 8.01                       |

Note 1: The EUT supports Cyclic Delay Diversity (CDD) technology for 802.11n/ac mode.

Note 2: The EUT supports Cyclic Delay Diversity (CDD) mode, and CDD signals are correlated.

If all antennas have the same gain,  $G_{ANT}$ , Directional gain =  $G_{ANT}$  + Array Gain, where Array Gain is as follows.

- For power spectral density (PSD) measurements on devices:

$$\text{Array Gain} = 10 \log (N_{ANT} / N_{SS}) \text{ dB} = 3.01;$$

- For power measurements on IEEE 802.11 devices:

$$\text{Array Gain} = 0 \text{ dB for } N_{ANT} \leq 4;$$

$$\text{Array Gain} = 0 \text{ dB (i.e., no array gain) for channel widths } \geq 40 \text{ MHz for any } N_{ANT};$$

$$\text{Array Gain} = 5 \log (N_{ANT} / N_{SS}) \text{ dB or } 3 \text{ dB, whichever is less, for } 20 \text{ MHz channel widths with } N_{ANT} \geq 5.$$

If antenna gains are not equal, Directional gain may be calculated by using the formulas applicable to equal gain antennas with  $G_{ANT}$  set equal to the gain of the antenna having the highest gain.

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### 3. MEASUREMENT UNCERTAINTY

The reported uncertainty of measurement  $y \pm U$ , where expanded uncertainty  $U$  is based on a standard uncertainty multiplied by a coverage factor of  $k=2$ , providing a level of confidence of approximately 95%.

| Item  | Measurement Uncertainty    |
|---|----------------------------|
| Uncertainty of Conducted Emission for AC Port | $U_c = \pm 3.1 \text{ dB}$ |
| Uncertainty of Radiated Emission below 1GHz   | $U_c = \pm 4.0 \text{ dB}$ |
| Uncertainty of Radiated Emission above 1GHz   | $U_c = \pm 4.8 \text{ dB}$ |
| Uncertainty of total RF power, conducted      | $U_c = \pm 0.8 \text{ dB}$ |
| Uncertainty of RF power density, conducted    | $U_c = \pm 2.6 \text{ dB}$ |
| Uncertainty of spurious emissions, conducted  | $U_c = \pm 2 \%$           |
| Uncertainty of Occupied Channel Bandwidth     | $U_c = \pm 2 \%$           |

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#### 4. DESCRIPTION OF TEST MODES

| Mode           | Available channel                   | Tested channel           | Modulation | Date rate (Mbps) |
|----------------|-------------------------------------|--------------------------|------------|------------------|
| 802.11a/n/ac20 | 36,40,44,48,<br>149,153,157,161,165 | 36,40,48,<br>149,157,165 | OFDM       | 6Mbps/MCS0       |
| 802.11n/ac40   | 38,46,151,159                       | 38,46, 151,159           | OFDM       | MCS0             |
| 802.11ac80     | 42, 155                             | 42, 155                  | OFDM       | MCS0             |

##### Note:

1. The EUT has been set to operate continuously on tested channel individually, and the EUT is operating at its maximum duty cycle>or equal 98%.
2. All modes under which configure applicable have been tested and the worst mode test data recording in the test report, if no other mode data.
3. The test software is REALTEK 11ac 8822BU USB WLAN NIC Massproduction Kit which can sent the EUT into individual test modes.

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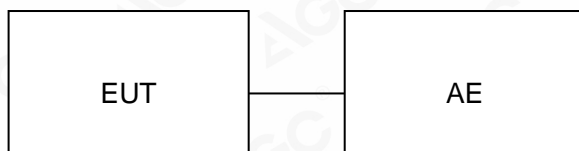
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## 5. SYSTEM TEST CONFIGURATION

### 5.1. CONFIGURATION OF EUT SYSTEM

Configure 1:



### 5.2. EQUIPMENT USED IN EUT SYSTEM

| Item | Equipment            | Model No.    | ID or Specification | Remark |
|------|----------------------|--------------|---------------------|--------|
| 1    | Wireless USB Adapter | 6B17         | 2AKC6XHT-6B17       | EUT    |
| 2    | PC                   | Nbl-WAQ9R    | N/A                 | AE     |
| 3    | PC                   | DELL         | N/A                 | AE     |
| 4    | PC adapter           | HW-200200CP1 | N/A                 | AE     |

### 5.3. SUMMARY OF TEST RESULTS

| FCC RULES | DESCRIPTION OF TEST                    | RESULT    |
|-----------|--|-----------|
| §15.407   | 6dB Bandwidth                          | Compliant |
| §15.407   | Emission Bandwidth                     | Compliant |
| §15.407   | Maximum conducted output power         | Compliant |
| §15.407   | Conducted Spurious Emission            | Compliant |
| §15.407   | Maximum Conducted Output Power Density | Compliant |
| §15.209   | Radiated Emission                      | Compliant |
| §15.407   | Band Edges                             | Compliant |
| §15.207   | Line Conduction Emission               | Compliant |

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## 6. TEST FACILITY

|  |  |
|--|--|
| <b>Test Site</b>                         | Attestation of Global Compliance (Shenzhen) Co., Ltd   |
| <b>Location</b>                          | 1-2/F, Building 19, Junfeng Industrial Park, Chongqing Road, Heping Community, Fuhai Street, Bao'an District, Shenzhen, Guangdong, China |
| <b>Designation Number</b>                | CN1259   |
| <b>FCC Test Firm Registration Number</b> | 975832   |
| <b>A2LA Cert. No.</b>                    | 5054.02  |
| <b>Description</b>                       | Attestation of Global Compliance(Shenzhen) Co., Ltd is accredited by A2LA  |

### TEST EQUIPMENT OF CONDUCTED EMISSION TEST

| Equipment     | Manufacturer | Model                | S/N    | Cal. Date     | Cal. Due      |
|---------------|--------------|----------------------|--------|---------------|---------------|
| TEST RECEIVER | R&S          | ESPI                 | 101206 | May 15, 2021  | May 14, 2022  |
| LISN          | R&S          | ESH2-Z5              | 100086 | Jun. 09, 2021 | Jun. 08, 2022 |
| Test software | R&S          | ES-K1<br>(Ver V1.71) | N/A    | N/A           | N/A           |

### TEST EQUIPMENT OF RADIATED EMISSION TEST

| Equipment                         | Manufacturer   | Model                  | S/N        | Cal. Date     | Cal. Due      |
|-----------------------------------|----------------|------------------------|------------|---------------|---------------|
| TEST RECEIVER                     | R&S            | ESCI                   | 10096      | May 15, 2021  | May 14, 2022  |
| EXA Signal Analyzer               | Aglient        | N9010A                 | MY53470504 | Nov. 17, 2021 | Nov. 16, 2022 |
| Power sensor                      | Aglient        | U2021XA                | MY54110007 | Mar. 23, 2020 | Mar. 22, 2022 |
| 5GHz Fliter                       | EM Electronics | 5150-5880MHz           | N/A        | Mar. 23, 2020 | Mar. 22, 2022 |
| Attenuator                        | ZHINAN         | E-002                  | N/A        | Sep. 03, 2020 | Sep. 02, 2022 |
| Horn antenna                      | SCHWARZBECK    | BBHA 9170              | #768       | May 22, 2020  | May 21, 2022  |
| Active loop antenna<br>(9K-30MHz) | ZHINAN         | ZN30900C               | 18051      | May 22, 2020  | May 21, 2022  |
| Double-Ridged Waveguide Horn      | ETS LINDGREN   | 3117                   | 00034609   | Sep. 03, 2020 | Sep. 02, 2022 |
| Broadband Preamplifier            | ETS LINDGREN   | 3117PA                 | 00225134   | Sep. 03, 2020 | Sep. 02, 2022 |
| ANTENNA                           | SCHWARZBECK    | VULB9168               | 494        | Jan. 08, 2020 | Jan. 07, 2023 |
| Test software                     | FARA           | EZ EMC<br>(Ver.RA-03A) | N/A        | N/A           | N/A           |

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## 7. MAXIMUM CONDUCTED OUTPUT POWER

### 7.1. MEASUREMENT PROCEDURE

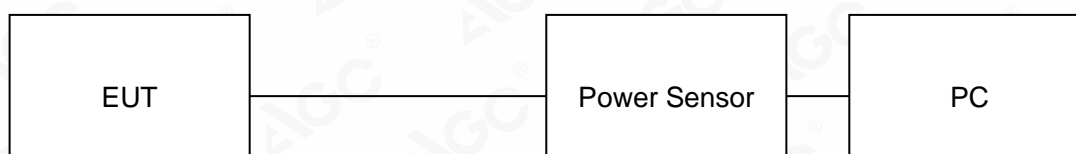
For average power test:

1. Connect EUT RF output port to power sensor through an RF attenuator.
2. Connect the power sensor to the PC.
3. Set the EUT Work on the top, the middle and the bottom operation frequency individually.
4. Record the maximum power from the software.

**Note :** The EUT was tested according to KDB 789033 for compliance to FCC 47CFR 15.407 requirements.

### 7.2. TEST SET-UP

#### AVERAGE POWER SETUP



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### 7.3. LIMITS AND MEASUREMENT RESULT

| Test Data of Conducted Output Power for band 5.15-5.25 GHz-Antenna 1 |                    |                     |              |              |
|--|--------------------|---------------------|--------------|--------------|
| Test Mode  | Test Channel (MHz) | Average Power (dBm) | Limits (dBm) | Pass or Fail |
| 802.11a  | 5180               | 4.34                | 23.98        | Pass         |
|  | 5200               | 4.38                | 23.98        | Pass         |
|  | 5240               | 4.75                | 23.98        | Pass         |
| 802.11n20  | 5180               | 4.32                | 23.98        | Pass         |
|  | 5200               | 4.39                | 23.98        | Pass         |
|  | 5240               | 4.75                | 23.98        | Pass         |
| 802.11n40  | 5190               | 4.65                | 23.98        | Pass         |
|  | 5230               | 4.91                | 23.98        | Pass         |
| 802.11ac20   | 5180               | 4.16                | 23.98        | Pass         |
|  | 5200               | 4.35                | 23.98        | Pass         |
|  | 5240               | 4.70                | 23.98        | Pass         |
| 802.11ac40   | 5190               | 4.50                | 23.98        | Pass         |
|  | 5230               | 4.83                | 23.98        | Pass         |
| 802.11ac80   | 5210               | 4.31                | 23.98        | Pass         |

| Test Data of Conducted Output Power for band 5.15-5.25 GHz-Antenna 2 |                    |                     |              |              |
|--|--------------------|---------------------|--------------|--------------|
| Test Mode  | Test Channel (MHz) | Average Power (dBm) | Limits (dBm) | Pass or Fail |
| 802.11a  | 5180               | 4.74                | 23.98        | Pass         |
|  | 5200               | 4.50                | 23.98        | Pass         |
|  | 5240               | 4.33                | 23.98        | Pass         |
| 802.11n20  | 5180               | 4.72                | 23.98        | Pass         |
|  | 5200               | 4.51                | 23.98        | Pass         |
|  | 5240               | 4.39                | 23.98        | Pass         |
| 802.11n40  | 5190               | 4.76                | 23.98        | Pass         |
|  | 5230               | 4.68                | 23.98        | Pass         |
| 802.11ac20   | 5180               | 4.49                | 23.98        | Pass         |
|  | 5200               | 4.35                | 23.98        | Pass         |
|  | 5240               | 4.10                | 23.98        | Pass         |
| 802.11ac40   | 5190               | 3.99                | 23.98        | Pass         |
|  | 5230               | 3.80                | 23.98        | Pass         |
| 802.11ac80   | 5210               | 4.09                | 23.98        | Pass         |

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| Test Data of Conducted Output Power for band 5.15-5.25 GHz-Antenna 1+2 |                    |                     |              |              |
|--|--------------------|---------------------|--------------|--------------|
| Test Mode  | Test Channel (MHz) | Average Power (dBm) | Limits (dBm) | Pass or Fail |
| 802.11n20  | 5180               | 7.53                | 23.98        | Pass         |
|  | 5200               | 7.46                | 23.98        | Pass         |
|  | 5240               | 7.58                | 23.98        | Pass         |
| 802.11n40  | 5190               | 7.72                | 23.98        | Pass         |
|  | 5230               | 7.81                | 23.98        | Pass         |
| 802.11ac20   | 5180               | 7.34                | 23.98        | Pass         |
|  | 5200               | 7.36                | 23.98        | Pass         |
|  | 5240               | 7.42                | 23.98        | Pass         |
| 802.11ac40   | 5190               | 7.26                | 23.98        | Pass         |
|  | 5230               | 7.36                | 23.98        | Pass         |
| 802.11ac80   | 5210               | 7.21                | 23.98        | Pass         |

| Test Data of Conducted Output Power for band 5.725-5.85 GHz-Antenna 1 |                    |                     |              |              |
|---|--------------------|---------------------|--------------|--------------|
| Test Mode   | Test Channel (MHz) | Average Power (dBm) | Limits (dBm) | Pass or Fail |
| 802.11a   | 5745               | 4.53                | 30           | Pass         |
|   | 5785               | 4.87                | 30           | Pass         |
|   | 5825               | 4.98                | 30           | Pass         |
| 802.11n20   | 5745               | 4.07                | 30           | Pass         |
|   | 5785               | 4.56                | 30           | Pass         |
|   | 5825               | 4.70                | 30           | Pass         |
| 802.11n40   | 5755               | 4.79                | 30           | Pass         |
|   | 5795               | 4.50                | 30           | Pass         |
| 802.11ac20  | 5745               | 4.39                | 30           | Pass         |
|   | 5785               | 4.40                | 30           | Pass         |
|   | 5825               | 4.52                | 30           | Pass         |
| 802.11ac40  | 5755               | 4.21                | 30           | Pass         |
|   | 5795               | 4.50                | 30           | Pass         |
| 802.11ac80  | 5775               | 4.50                | 30           | Pass         |

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| Test Data of Conducted Output Power for band 5.725-5.85 GHz-Antenna 2 |                    |                     |              |              |
|---|--------------------|---------------------|--------------|--------------|
| Test Mode   | Test Channel (MHz) | Average Power (dBm) | Limits (dBm) | Pass or Fail |
| 802.11a   | 5745               | 4.26                | 30           | Pass         |
|   | 5785               | 4.09                | 30           | Pass         |
|   | 5825               | 4.14                | 30           | Pass         |
| 802.11n20   | 5745               | 4.17                | 30           | Pass         |
|   | 5785               | 4.19                | 30           | Pass         |
|   | 5825               | 4.19                | 30           | Pass         |
| 802.11n40   | 5755               | 4.76                | 30           | Pass         |
|   | 5795               | 4.61                | 30           | Pass         |
| 802.11ac20  | 5745               | 4.56                | 30           | Pass         |
|   | 5785               | 4.56                | 30           | Pass         |
|   | 5825               | 4.53                | 30           | Pass         |
| 802.11ac40  | 5755               | 4.75                | 30           | Pass         |
|   | 5795               | 4.67                | 30           | Pass         |
| 802.11ac80  | 5775               | 4.82                | 30           | Pass         |

| Test Data of Conducted Output Power for band 5.725-5.85 GHz-Antenna 1+2 |                    |                     |              |              |
|---|--------------------|---------------------|--------------|--------------|
| Test Mode   | Test Channel (MHz) | Average Power (dBm) | Limits (dBm) | Pass or Fail |
| 802.11n20   | 5745               | 7.13                | 30           | Pass         |
|   | 5785               | 7.39                | 30           | Pass         |
|   | 5825               | 7.46                | 30           | Pass         |
| 802.11n40   | 5755               | 7.79                | 30           | Pass         |
|   | 5795               | 7.57                | 30           | Pass         |
| 802.11ac20  | 5745               | 7.49                | 30           | Pass         |
|   | 5785               | 7.49                | 30           | Pass         |
|   | 5825               | 7.54                | 30           | Pass         |
| 802.11ac40  | 5755               | 7.50                | 30           | Pass         |
|   | 5795               | 7.60                | 30           | Pass         |
| 802.11ac80  | 5775               | 7.67                | 30           | Pass         |

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## 8. BANDWIDTH

### 8.1. MEASUREMENT PROCEDURE

-6dB bandwidth (DTS bandwidth):

1. Connect EUT RF output port to the Spectrum Analyzer through an RF attenuator
2. Set the EUT Work on operation frequency individually.
3. Set RBW = 100kHz.
4. Set the VBW  $\geq 3 \times$  RBW. Detector = Peak. Trace mode = max hold.
5. Measure the maximum width of the emission that is 6 dB down from the peak of the emission.

99% occupied bandwidth:

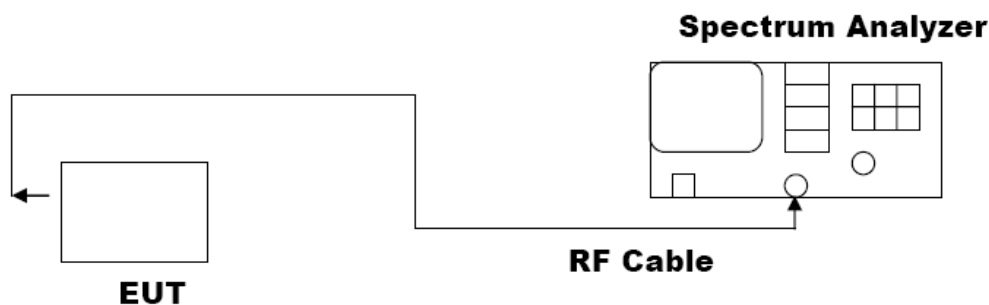
1. Connect EUT RF output port to the Spectrum Analyzer through an RF attenuator
2. Set the EUT Work on the top, the middle and the bottom operation frequency individually.
3. Set Span = approximately 1.5 to 5 times the OBW, centered on a nominal channel  
The nominal IF filter bandwidth (3 dB RBW) shall be in the range of 1% to 5% of the OBW and video bandwidth (VBW) shall be approximately three times RBW; Sweep = auto; Detector function = peak
4. Set SPA Trace 1 Max hold, then View.

-26dB Bandwidth:

1. Set RBW = approximately 1% of the emission bandwidth.
2. Set the VBW > RBW.
3. Detector = Peak.
4. Trace mode = max hold.
5. Measure the maximum width of the emission that is 26 dB down from the maximum of the emission.  
Compare this with the RBW setting of the analyzer. Readjust RBW and repeat measurement as needed until the RBW/EBW ratio is approximately 1%.

**Note:** The EUT was tested according to KDB 789033 for compliance to FCC 47CFR 15.407 requirements.

### 8.2. TEST SET-UP (BLOCK DIAGRAM OF CONFIGURATION)



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### 8.3. LIMITS AND MEASUREMENT RESULTS

| Test Data of Occupied Bandwidth and -26dB Bandwidth for band 5.15-5.25 GHz-Antenna 1 |                    |                              |                       |              |              |
|--|--------------------|------------------------------|-----------------------|--------------|--------------|
| Test Mode  | Test Channel (MHz) | 99% Occupied Bandwidth (MHz) | -26dB Bandwidth (MHz) | Limits (MHz) | Pass or Fail |
| 802.11a  | 5180               | 16.551                       | 21.20                 | N/A          | Pass         |
|  | 5200               | 16.586                       | 21.26                 | N/A          | Pass         |
|  | 5240               | 16.564                       | 21.52                 | N/A          | Pass         |
| 802.11n20  | 5180               | 17.646                       | 21.04                 | N/A          | Pass         |
|  | 5200               | 17.638                       | 20.92                 | N/A          | Pass         |
|  | 5240               | 17.654                       | 21.39                 | N/A          | Pass         |
| 802.11n40  | 5190               | 36.426                       | 44.12                 | N/A          | Pass         |
|  | 5230               | 36.421                       | 44.04                 | N/A          | Pass         |
| 802.11ac20   | 5180               | 17.673                       | 21.33                 | N/A          | Pass         |
|  | 5200               | 17.679                       | 21.16                 | N/A          | Pass         |
|  | 5240               | 17.664                       | 21.08                 | N/A          | Pass         |
| 802.11ac40   | 5190               | 36.399                       | 43.60                 | N/A          | Pass         |
|  | 5230               | 36.443                       | 43.63                 | N/A          | Pass         |
| 802.11ac80   | 5210               | 75.864                       | 84.18                 | N/A          | Pass         |

| Test Data of Occupied Bandwidth and -26dB Bandwidth for band 5.15-5.25 GHz-Antenna 2 |                    |                              |                       |              |              |
|--|--------------------|------------------------------|-----------------------|--------------|--------------|
| Test Mode  | Test Channel (MHz) | 99% Occupied Bandwidth (MHz) | -26dB Bandwidth (MHz) | Limits (MHz) | Pass or Fail |
| 802.11a  | 5180               | 16.557                       | 20.70                 | N/A          | Pass         |
|  | 5200               | 16.557                       | 20.80                 | N/A          | Pass         |
|  | 5240               | 16.543                       | 20.77                 | N/A          | Pass         |
| 802.11n20  | 5180               | 17.629                       | 20.80                 | N/A          | Pass         |
|  | 5200               | 17.629                       | 20.93                 | N/A          | Pass         |
|  | 5240               | 17.631                       | 20.78                 | N/A          | Pass         |
| 802.11n40  | 5190               | 36.414                       | 43.54                 | N/A          | Pass         |
|  | 5230               | 36.402                       | 43.48                 | N/A          | Pass         |
| 802.11ac20   | 5180               | 17.652                       | 21.16                 | N/A          | Pass         |
|  | 5200               | 17.650                       | 20.99                 | N/A          | Pass         |
|  | 5240               | 17.678                       | 21.07                 | N/A          | Pass         |
| 802.11ac40   | 5190               | 36.413                       | 42.96                 | N/A          | Pass         |
|  | 5230               | 36.381                       | 42.99                 | N/A          | Pass         |
| 802.11ac80   | 5210               | 75.837                       | 83.59                 | N/A          | Pass         |

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| Test Data of Occupied Bandwidth and DTS Bandwidth for band 5.725-5.85 GHz-Antenna 1 |                    |                              |                     |              |              |
|---|--------------------|------------------------------|---------------------|--------------|--------------|
| Test Mode   | Test Channel (MHz) | 99% Occupied Bandwidth (MHz) | DTS Bandwidth (MHz) | Limits (MHz) | Pass or Fail |
| 802.11a   | 5745               | 16.540                       | 16.34               | ≥0.5         | Pass         |
|   | 5785               | 16.525                       | 16.34               | ≥0.5         | Pass         |
|   | 5825               | 16.561                       | 16.33               | ≥0.5         | Pass         |
| 802.11n20   | 5745               | 17.614                       | 17.29               | ≥0.5         | Pass         |
|   | 5785               | 17.616                       | 17.29               | ≥0.5         | Pass         |
|   | 5825               | 17.637                       | 17.54               | ≥0.5         | Pass         |
| 802.11n40   | 5755               | 36.390                       | 36.07               | ≥0.5         | Pass         |
|   | 5795               | 36.424                       | 36.32               | ≥0.5         | Pass         |
| 802.11ac20  | 5745               | 17.649                       | 17.52               | ≥0.5         | Pass         |
|   | 5785               | 17.646                       | 17.51               | ≥0.5         | Pass         |
|   | 5825               | 17.627                       | 17.29               | ≥0.5         | Pass         |
| 802.11ac40  | 5755               | 36.363                       | 36.33               | ≥0.5         | Pass         |
|   | 5795               | 36.398                       | 36.33               | ≥0.5         | Pass         |
| 802.11ac80  | 5775               | 75.784                       | 75.81               | ≥0.5         | Pass         |

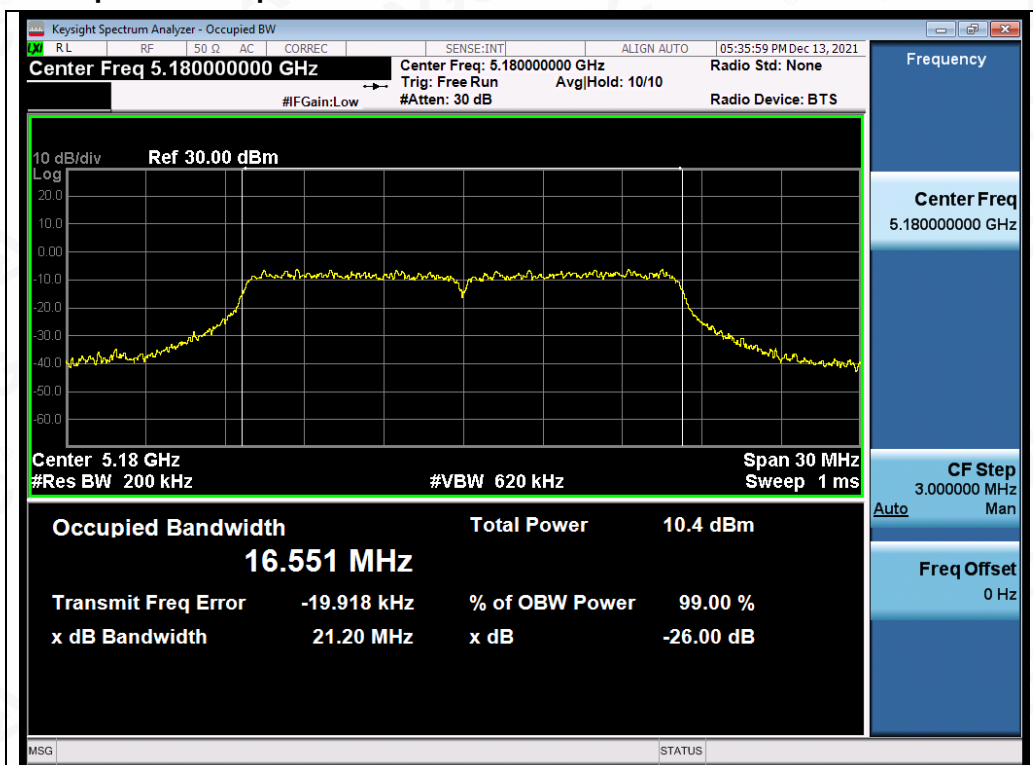
| Test Data of Occupied Bandwidth and DTS Bandwidth for band 5.725-5.85 GHz-Antenna 2 |                    |                              |                     |              |              |
|---|--------------------|------------------------------|---------------------|--------------|--------------|
| Test Mode   | Test Channel (MHz) | 99% Occupied Bandwidth (MHz) | DTS Bandwidth (MHz) | Limits (MHz) | Pass or Fail |
| 802.11a   | 5745               | 16.522                       | 16.36               | ≥0.5         | Pass         |
|   | 5785               | 16.539                       | 16.34               | ≥0.5         | Pass         |
|   | 5825               | 16.536                       | 16.35               | ≥0.5         | Pass         |
| 802.11n20   | 5745               | 17.627                       | 17.53               | ≥0.5         | Pass         |
|   | 5785               | 17.621                       | 17.29               | ≥0.5         | Pass         |
|   | 5825               | 17.619                       | 17.53               | ≥0.5         | Pass         |
| 802.11n40   | 5755               | 36.410                       | 36.32               | ≥0.5         | Pass         |
|   | 5795               | 36.422                       | 36.35               | ≥0.5         | Pass         |
| 802.11ac20  | 5745               | 17.650                       | 17.51               | ≥0.5         | Pass         |
|   | 5785               | 17.642                       | 17.55               | ≥0.5         | Pass         |
|   | 5825               | 17.660                       | 17.51               | ≥0.5         | Pass         |
| 802.11ac40  | 5755               | 36.392                       | 36.33               | ≥0.5         | Pass         |
|   | 5795               | 36.402                       | 36.34               | ≥0.5         | Pass         |
| 802.11ac80  | 5775               | 75.792                       | 75.33               | ≥0.5         | Pass         |

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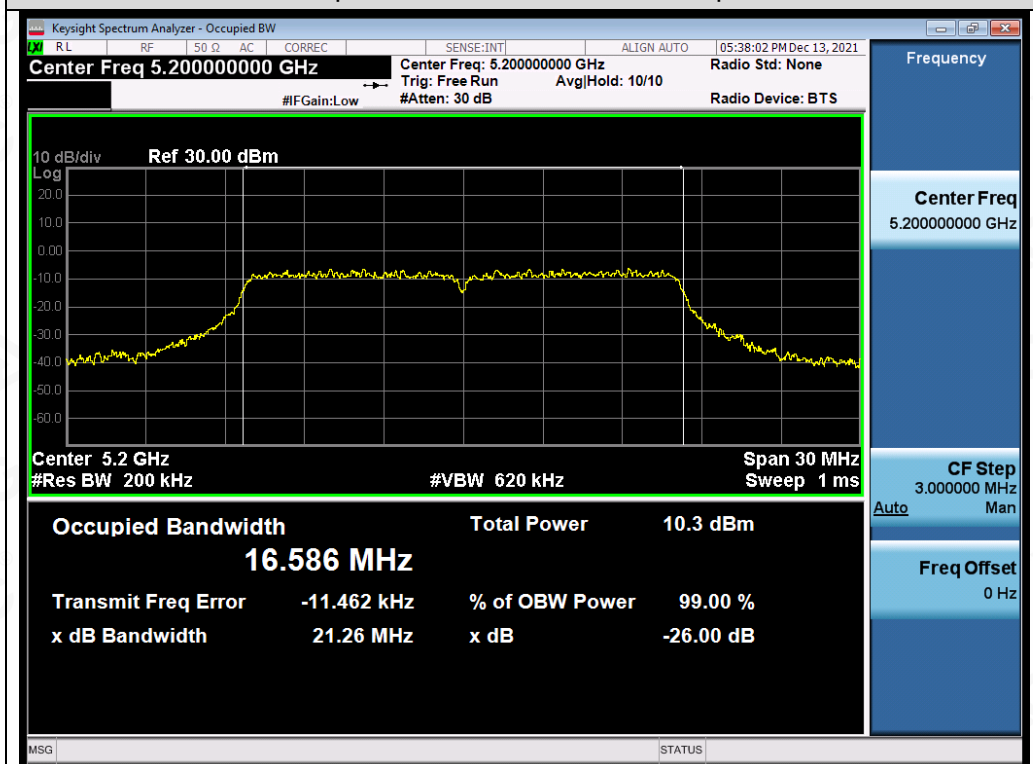




### Test Graphs of Occupied Bandwidth and -26dB Bandwidth for band 5.15-5.25 GHz



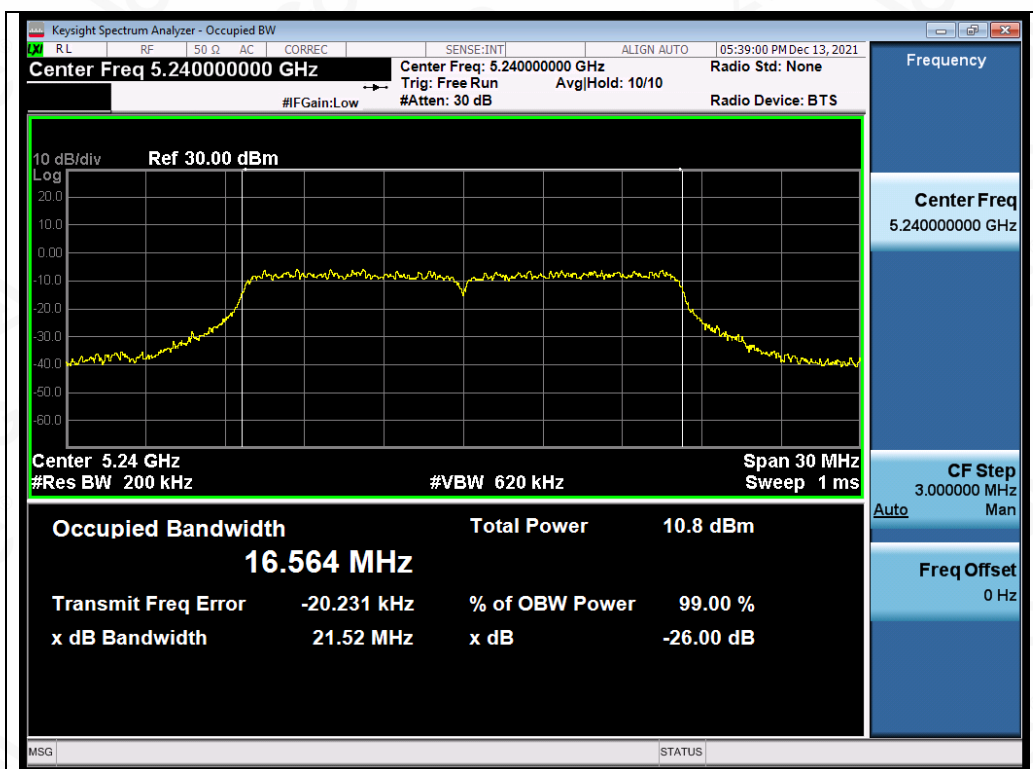
Test\_Graph\_802.11a\_ANT1\_5180\_6Mbps\_OBW



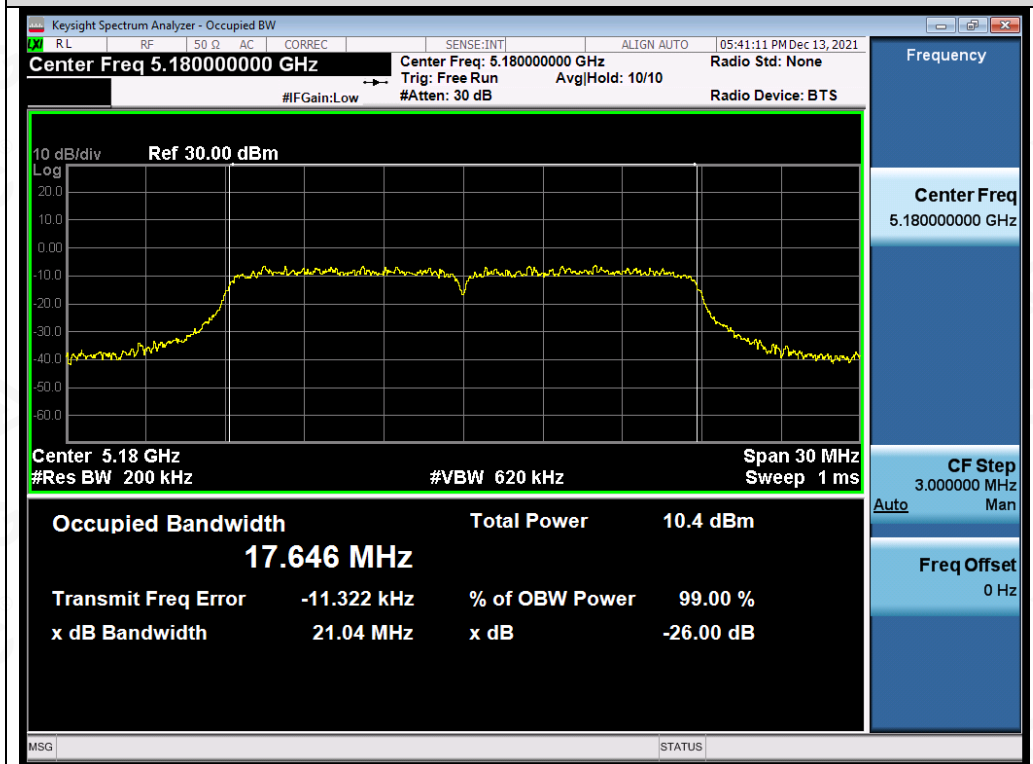
Test\_Graph\_802.11a\_ANT1\_5200\_6Mbps\_OBW

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Test\_Graph\_802.11a\_ANT1\_5240\_6Mbps\_OBW

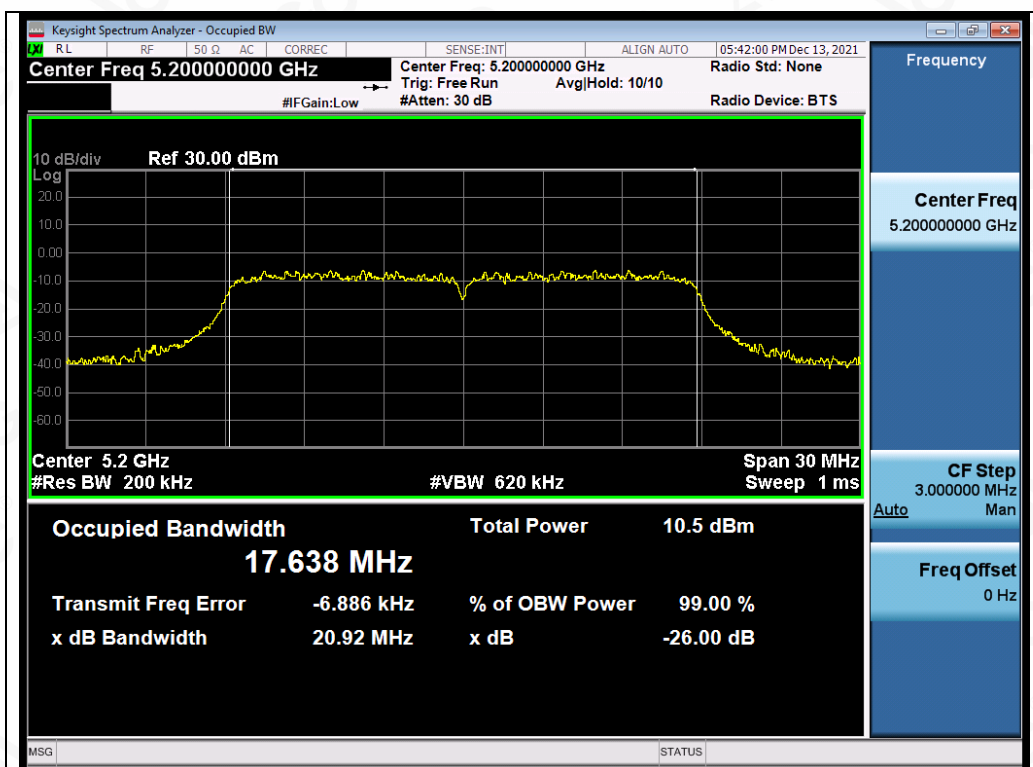


Test\_Graph\_802.11n20\_ANT1\_5180\_MCS0\_OBW

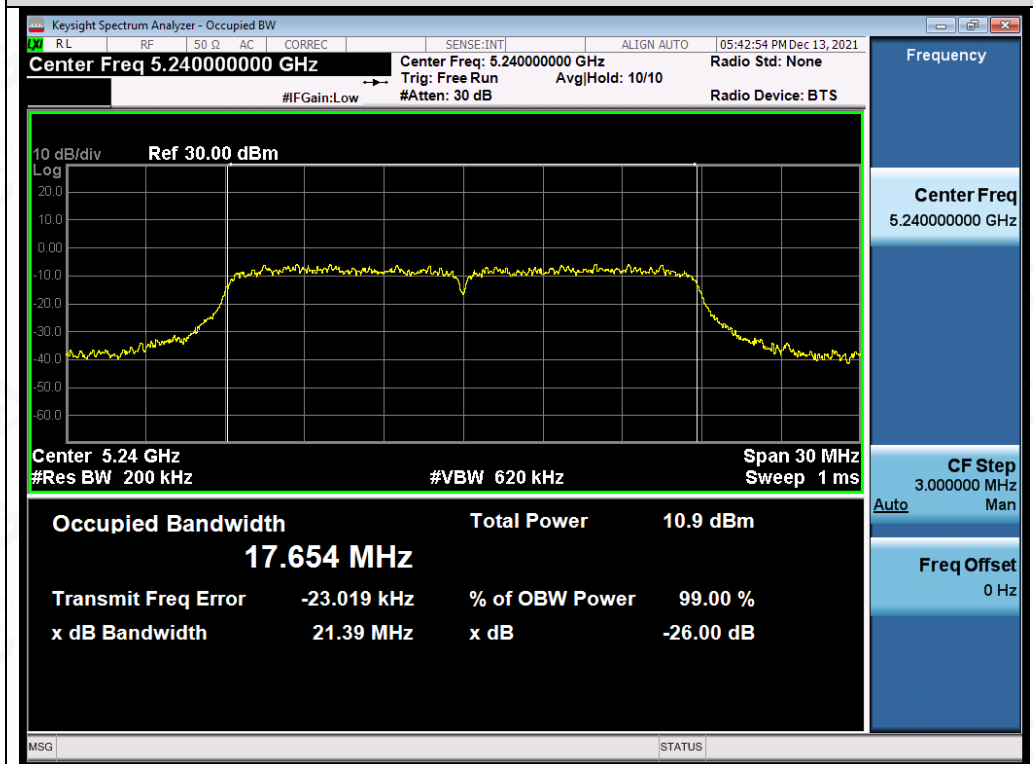
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Test\_Graph\_802.11n20\_ANT1\_5200\_MCS0\_OBW

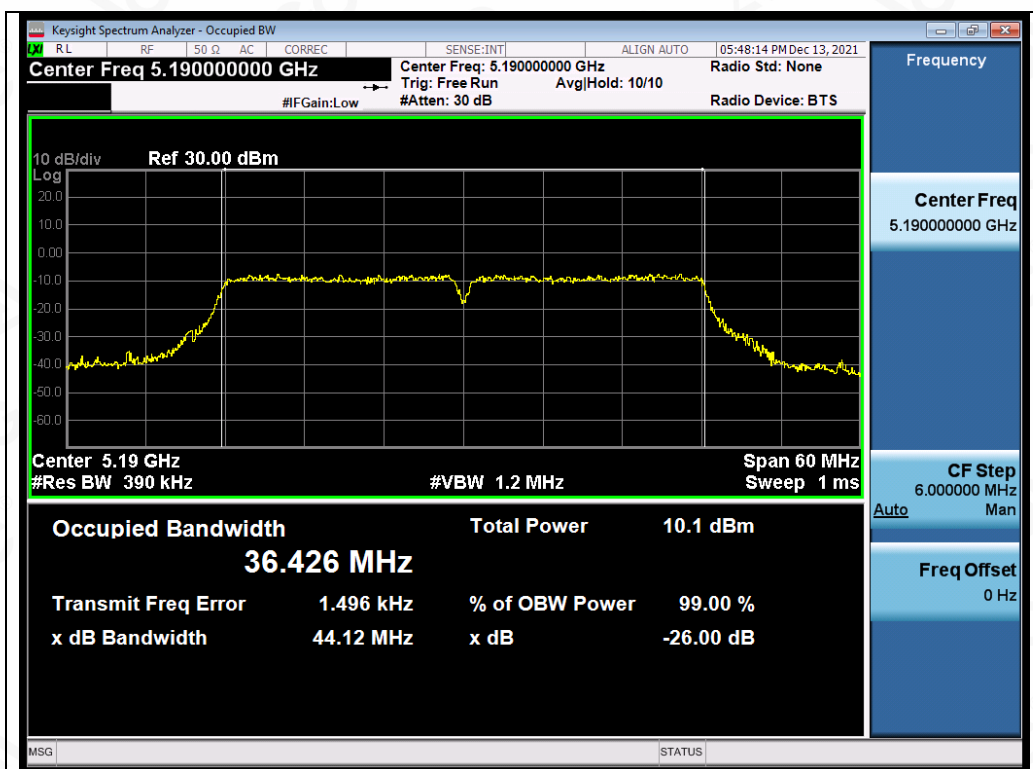


Test\_Graph\_802.11n20\_ANT1\_5240\_MCS0\_OBW

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Test\_Graph\_802.11n40\_ANT1\_5190\_MCS0\_OBW



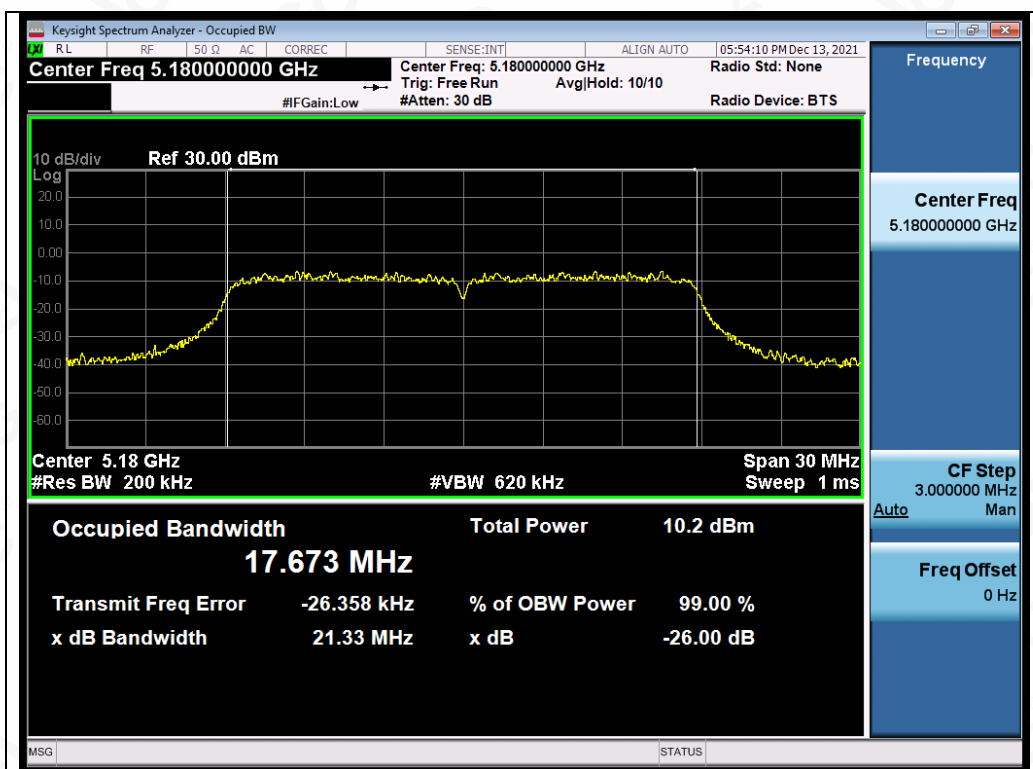
Test\_Graph\_802.11n40\_ANT1\_5230\_MCS0\_OBW

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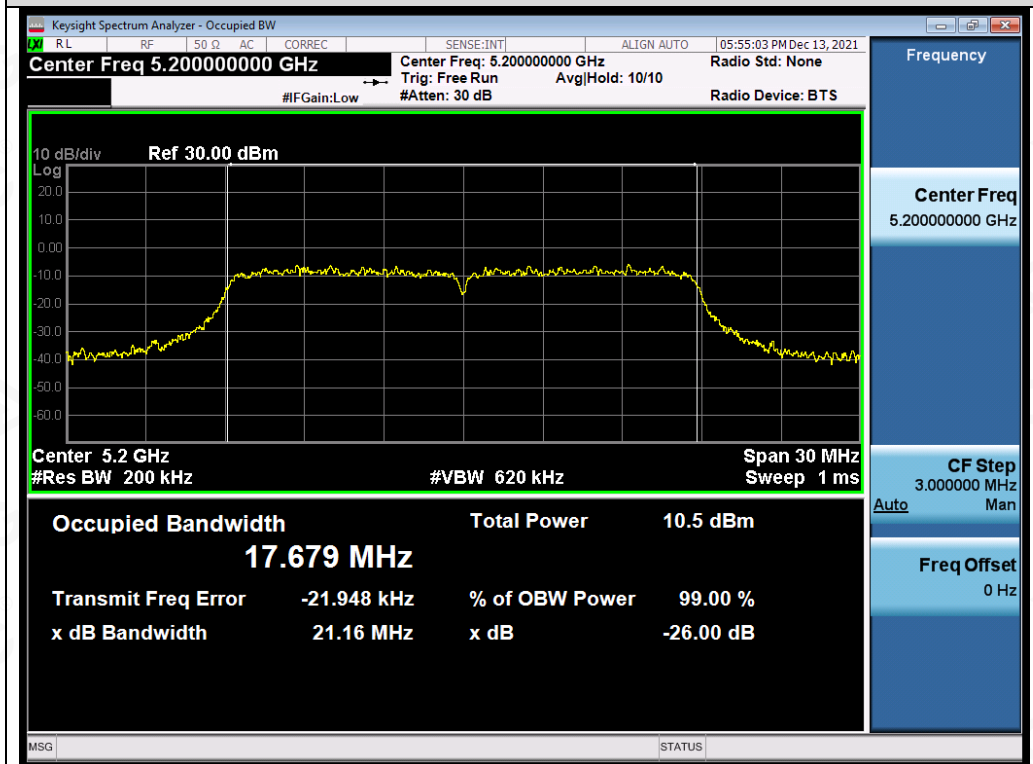
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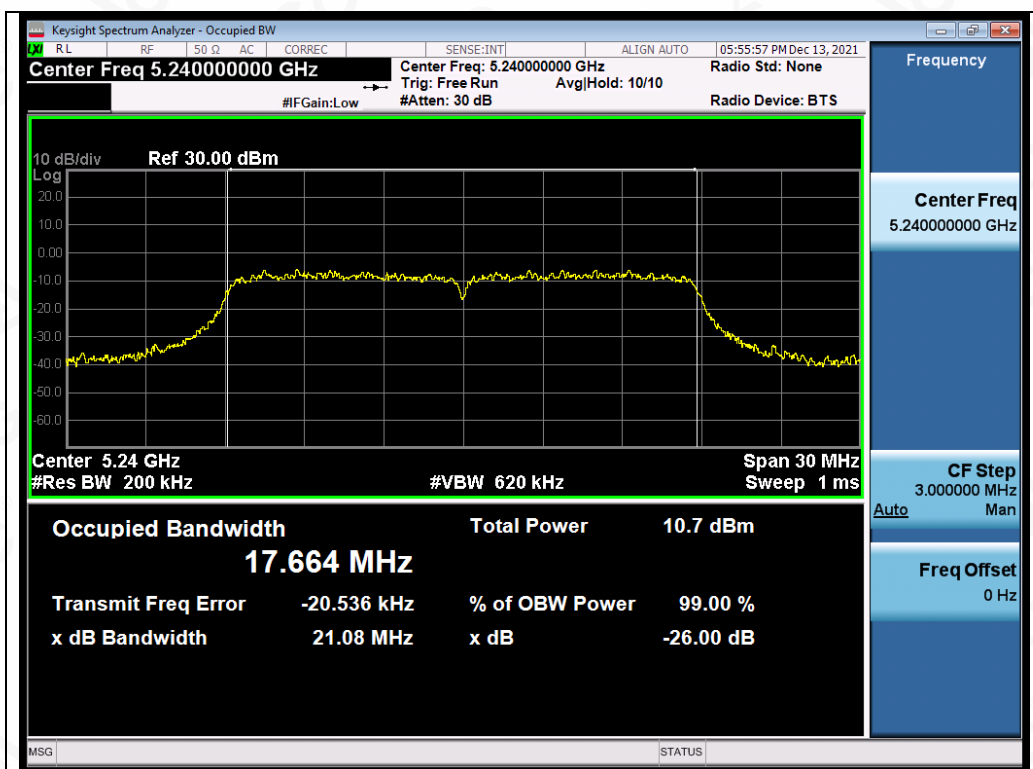


Test\_Graph\_802.11ac20\_ANT1\_5200\_MCS0\_OBW

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Test\_Graph\_802.11ac20\_ANT1\_5240\_MCS9\_OBW

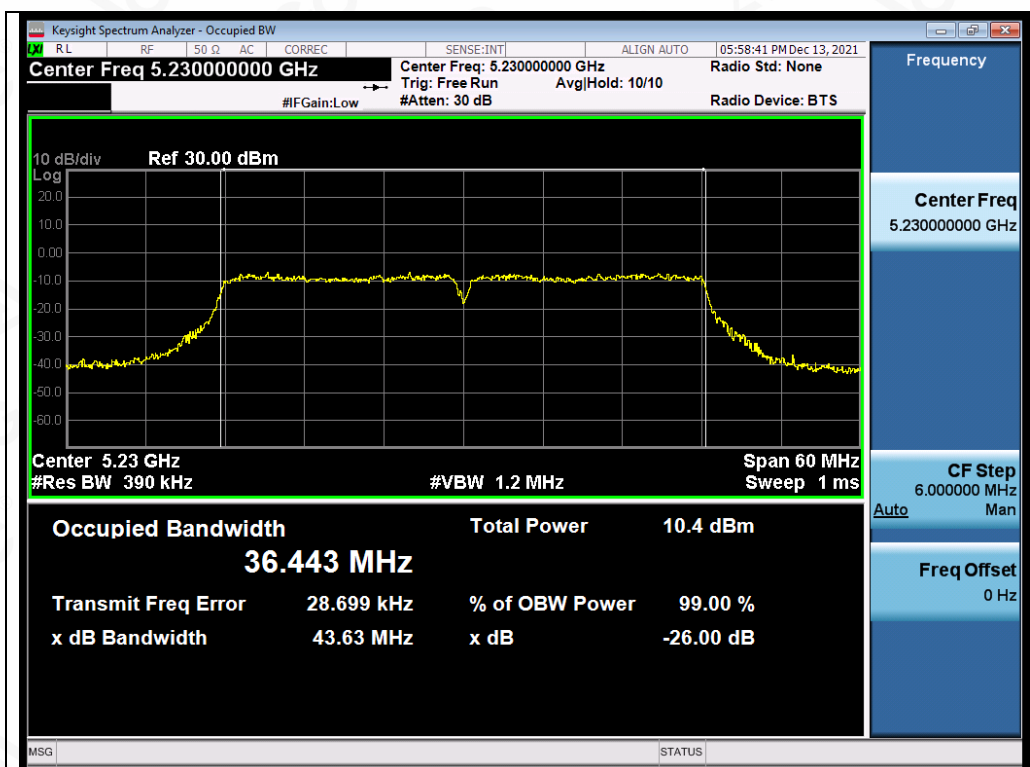


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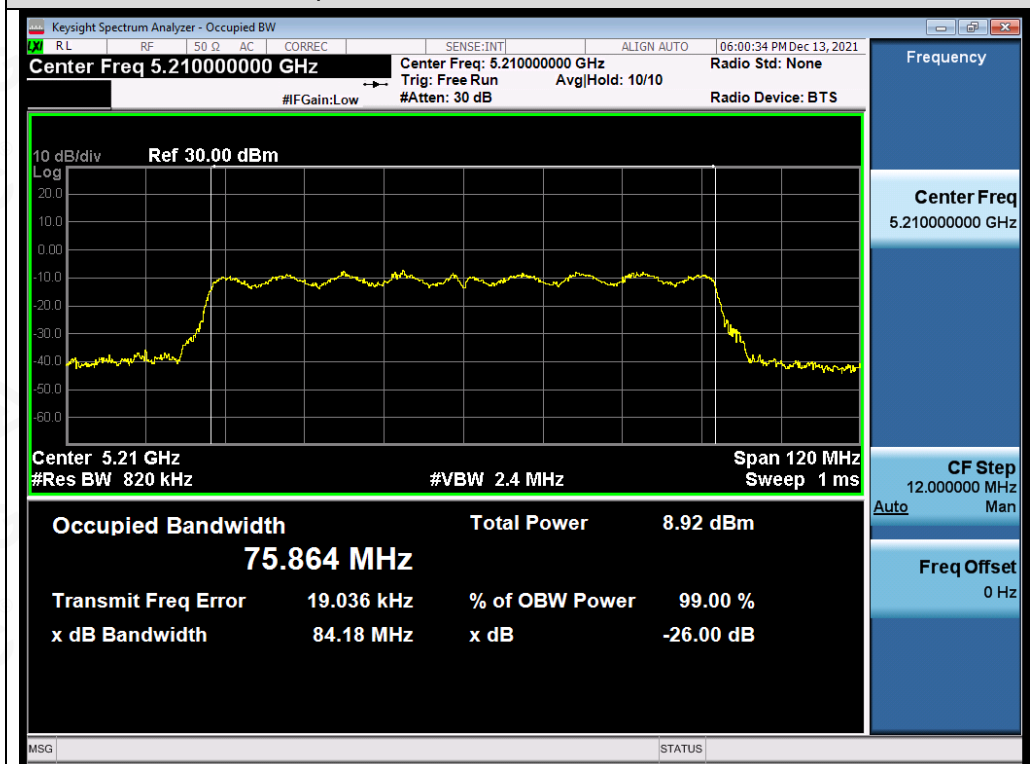
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Test\_Graph\_802.11ac40\_ANT1\_5230\_MCS9\_OBW



Test\_Graph\_802.11ac80\_ANT1\_5210\_MCS9\_OBW

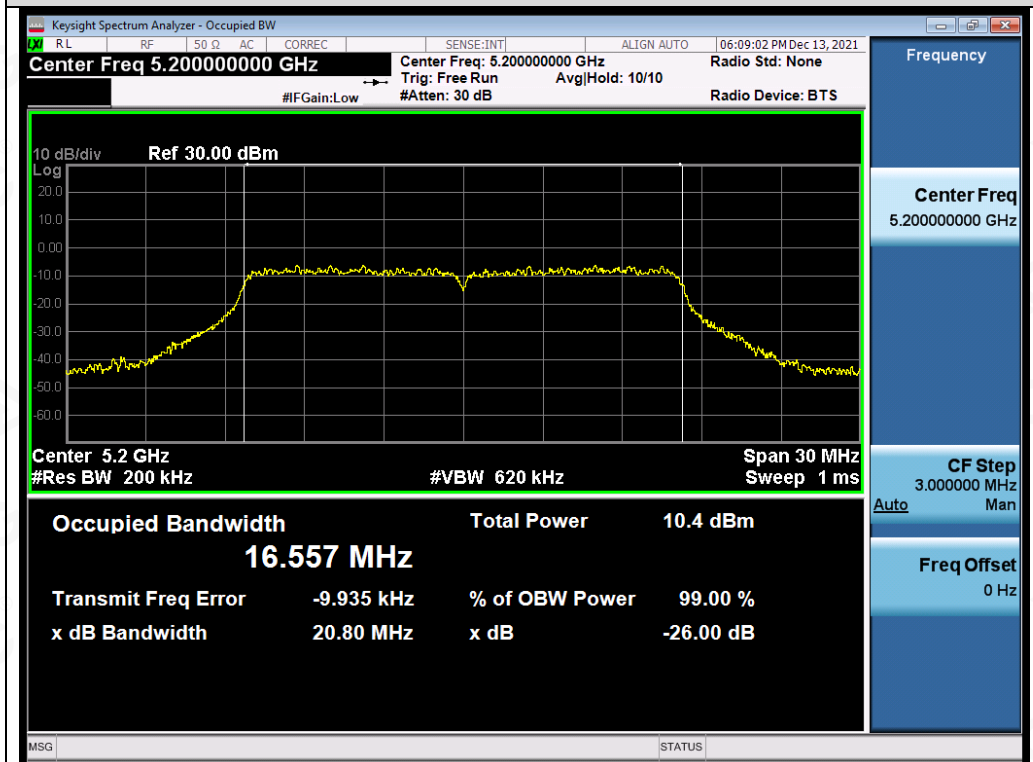
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Test\_Graph\_802.11a\_ANT2\_5180\_6Mbps\_OBW



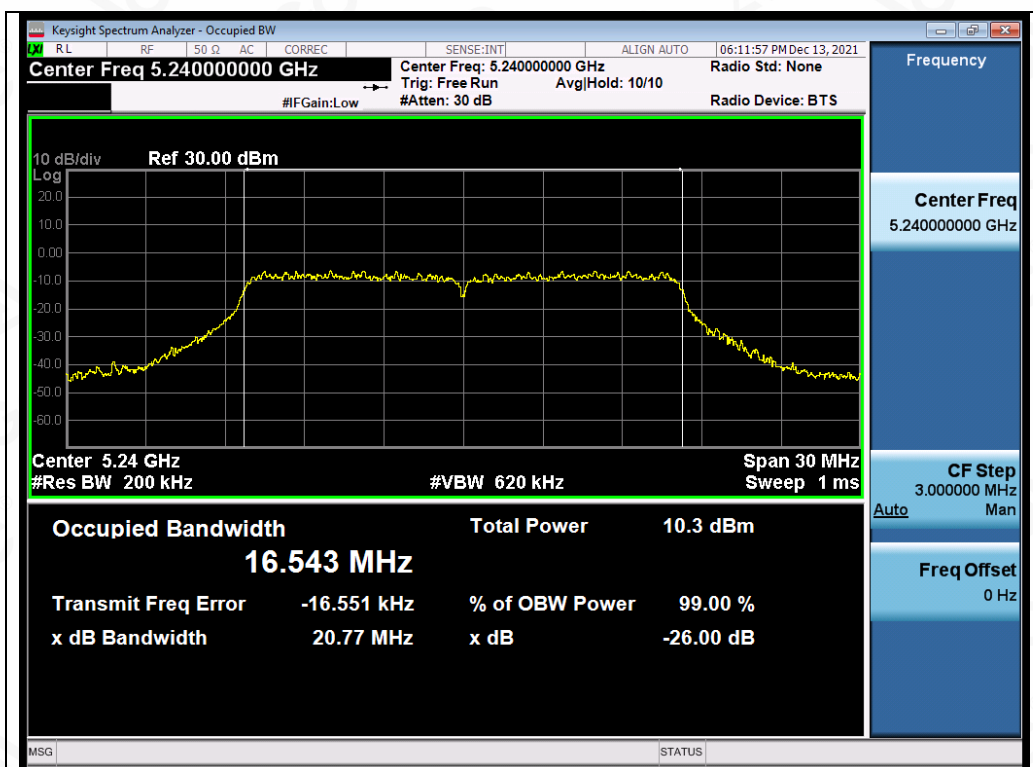
Test\_Graph\_802.11a\_ANT2\_5200\_6Mbps\_OBW

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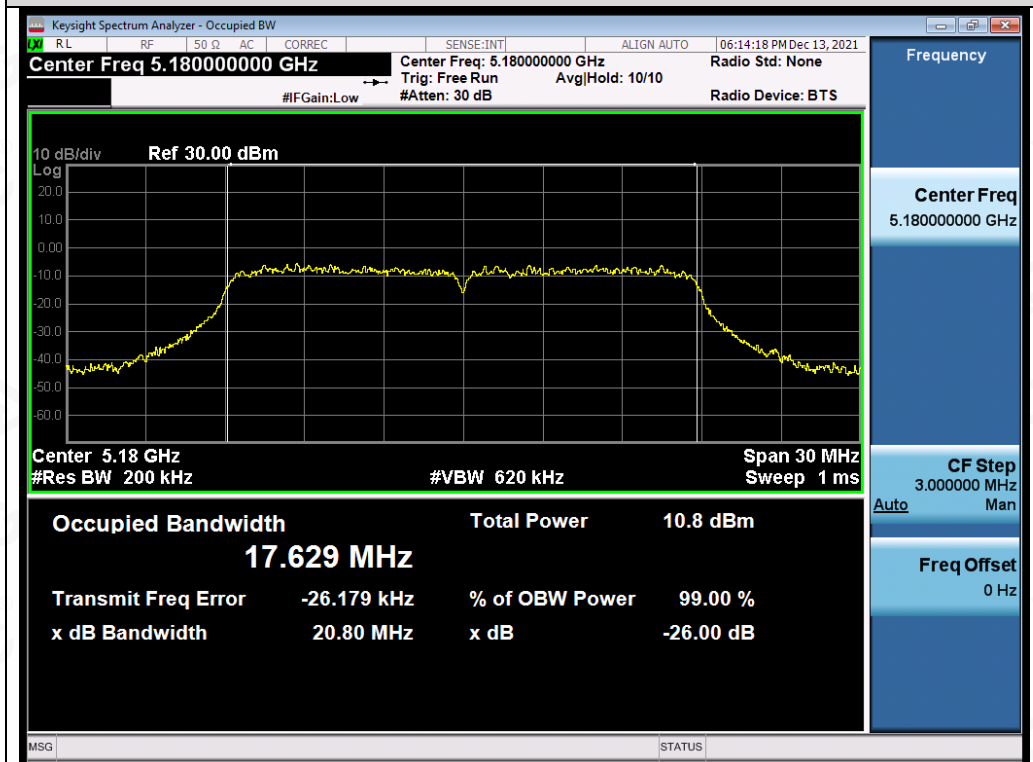
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Test\_Graph\_802.11a\_ANT2\_5240\_6Mbps\_OBW

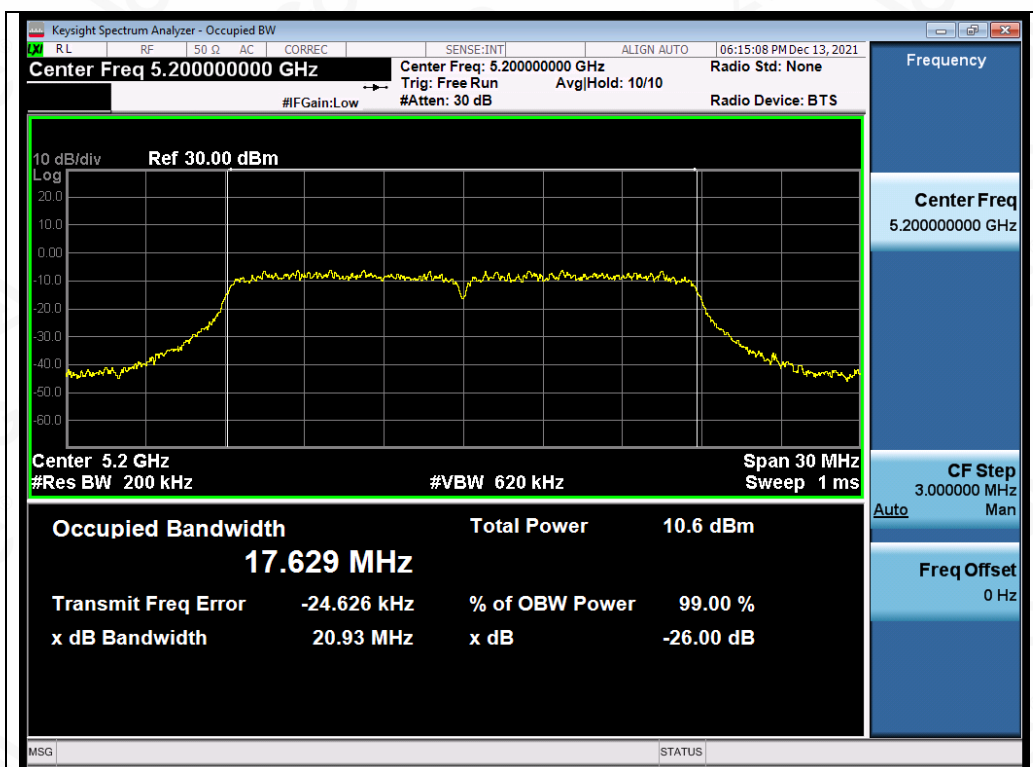


Test\_Graph\_802.11n20\_ANT2\_5180\_MCS0\_OBW

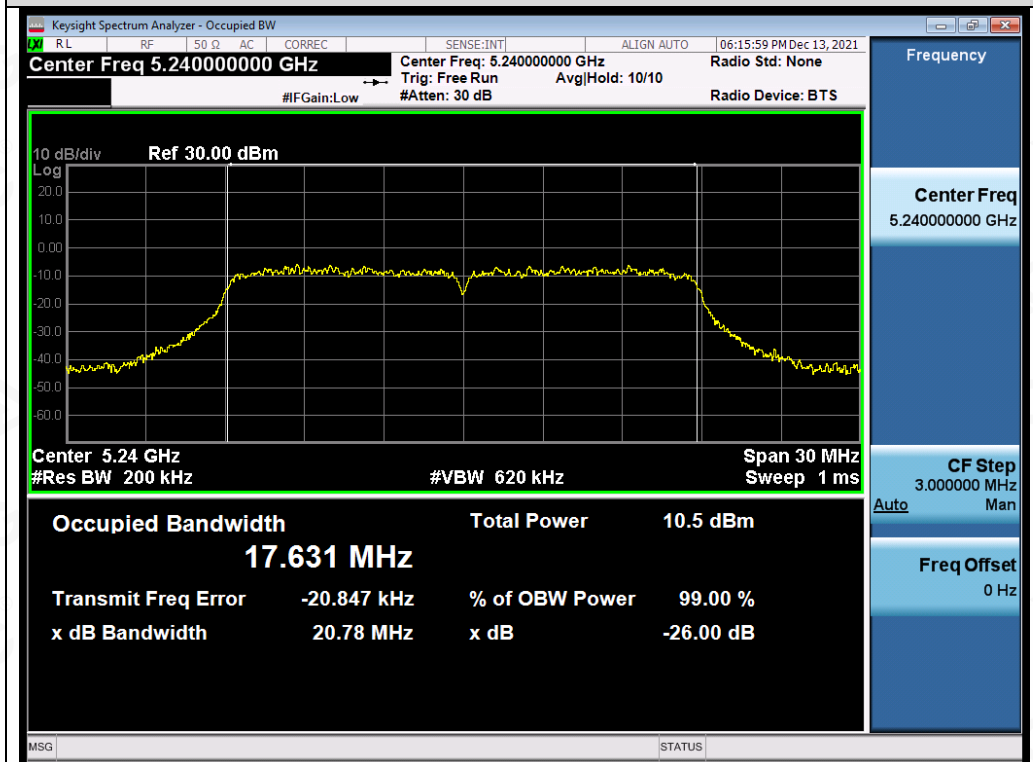
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Test\_Graph\_802.11n20\_ANT2\_5200\_MCS0\_OBW

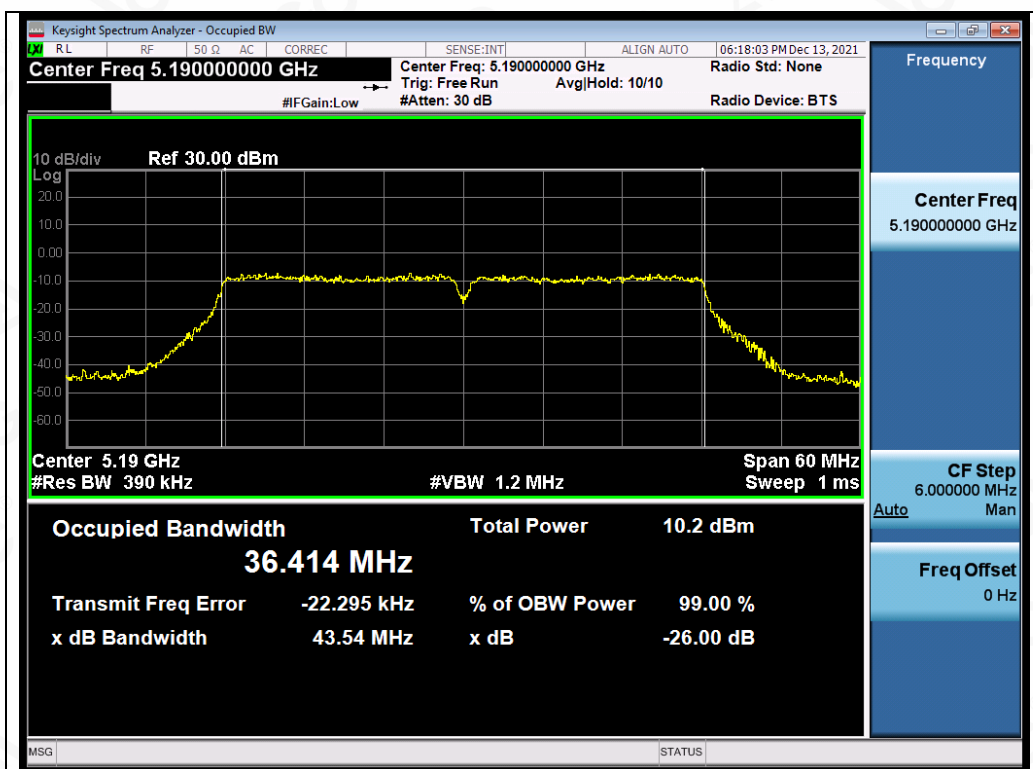


Test\_Graph\_802.11n20\_ANT2\_5240\_MCS0\_OBW

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Test\_Graph\_802.11n40\_ANT2\_5190\_MCS0\_OBW

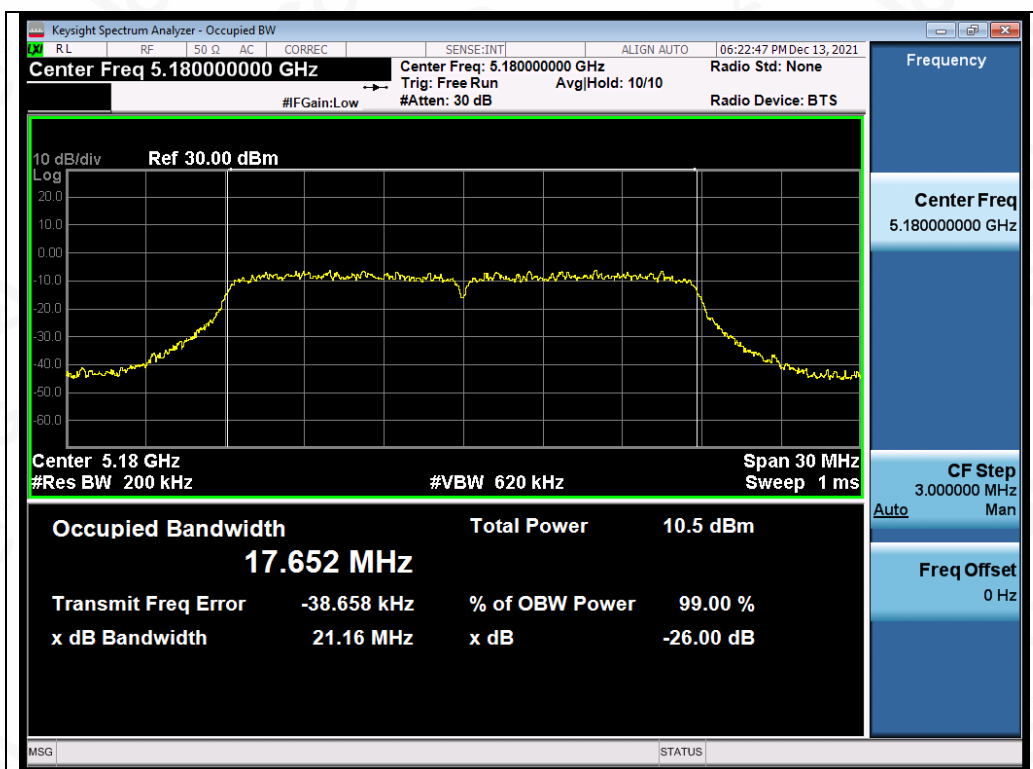


Test\_Graph\_802.11n40\_ANT2\_5230\_MCS0\_OBW

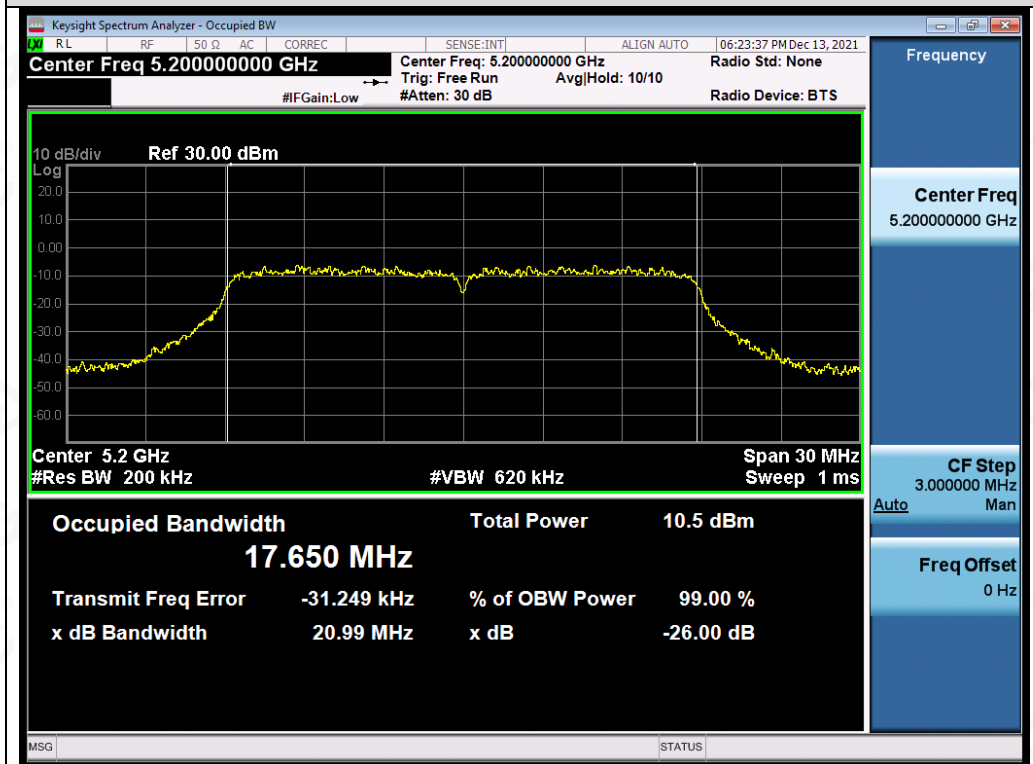
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Test\_Graph\_802.11ac20\_ANT2\_5180\_MCS0\_OBW



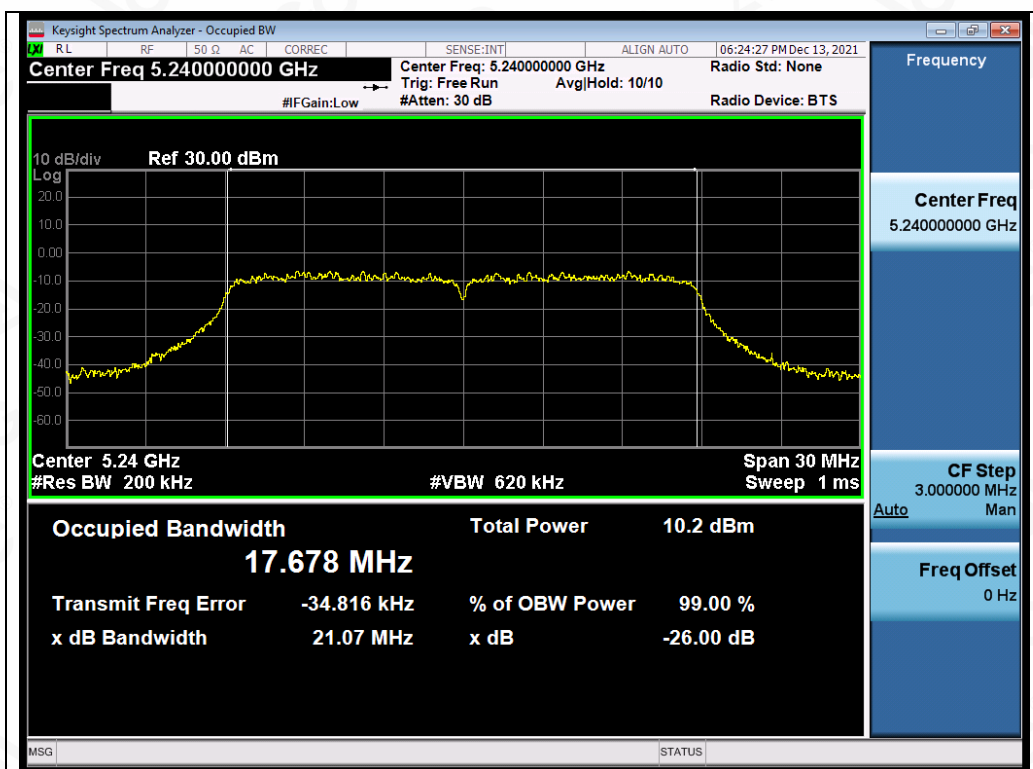
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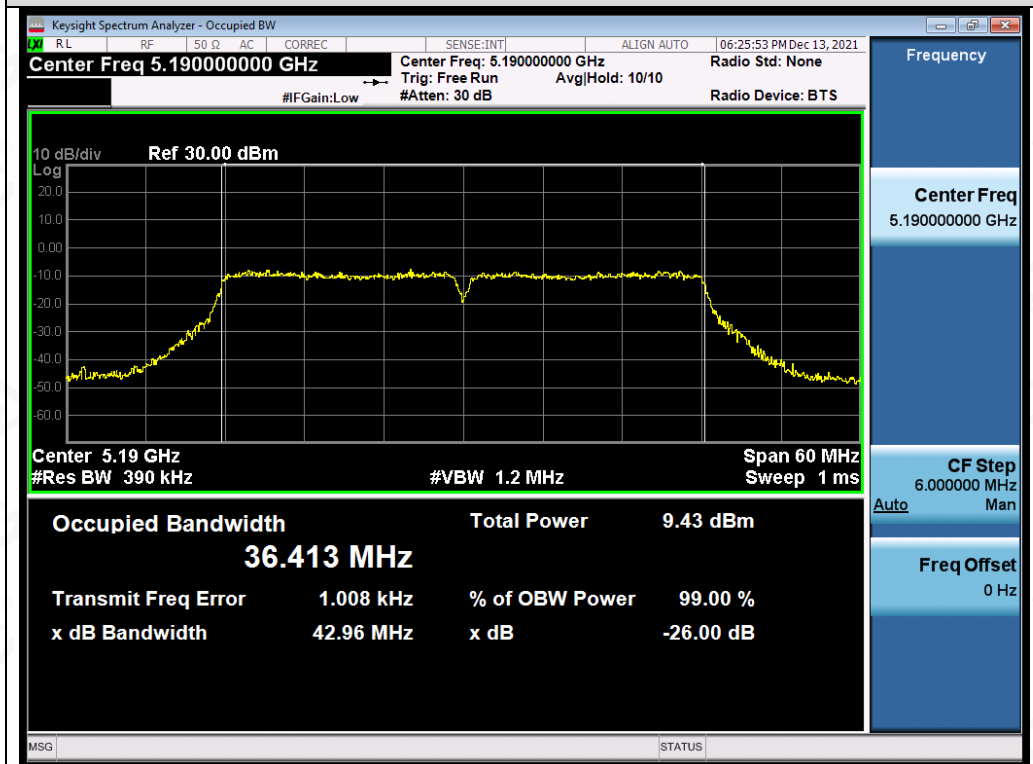
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Test\_Graph\_802.11ac20\_ANT2\_5240\_MCS9\_OBW

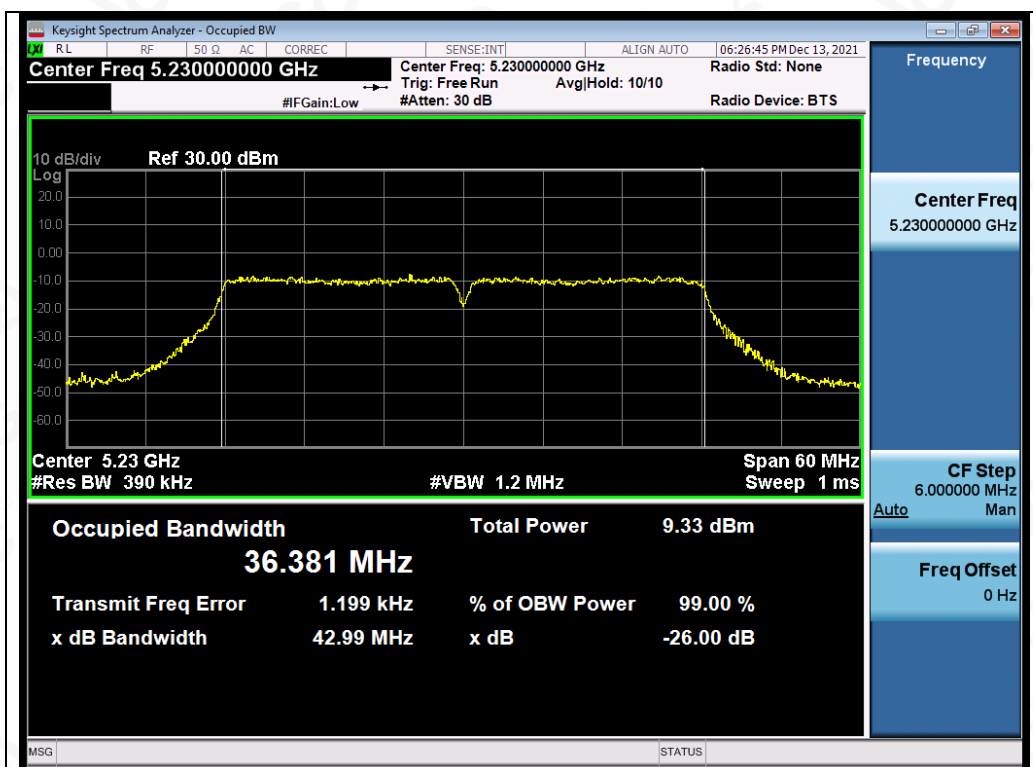


Test\_Graph\_802.11ac40\_ANT2\_5190\_MCS9\_OBW

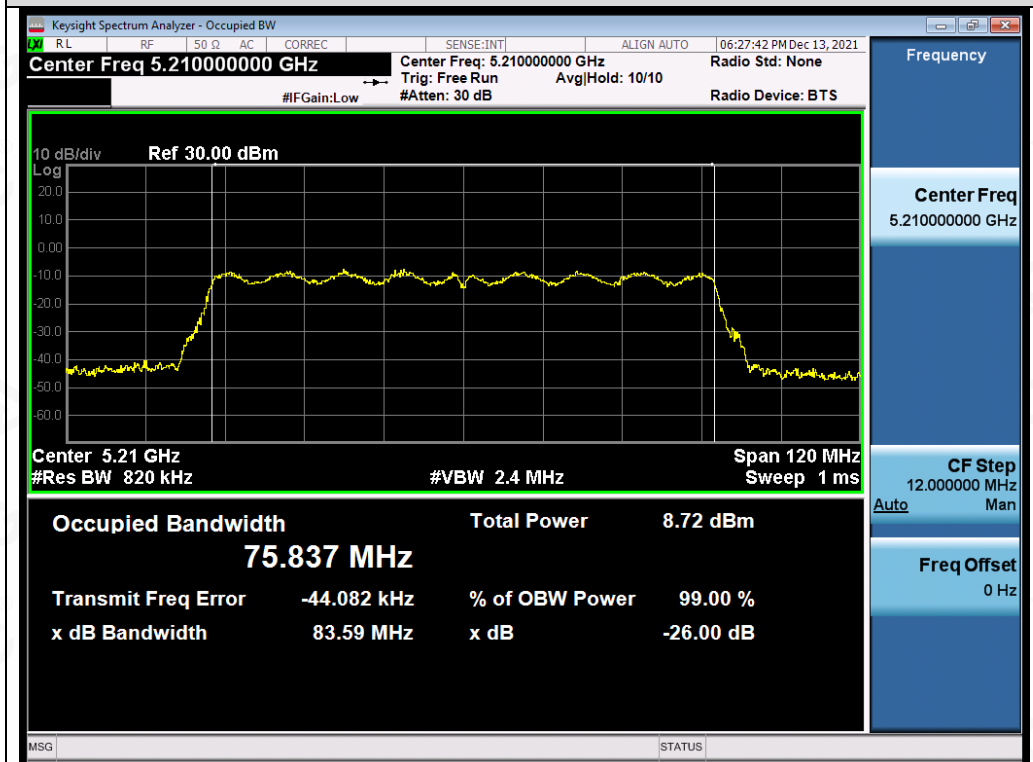
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Test\_Graph\_802.11ac40\_ANT2\_5230\_MCS9\_OBW



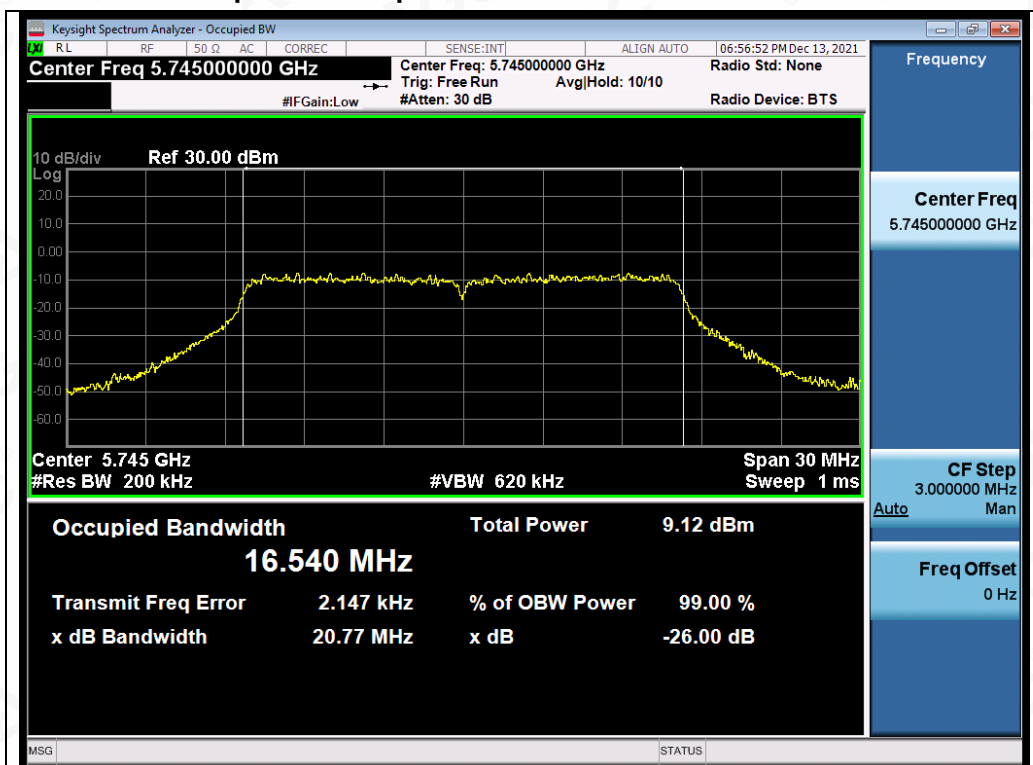
Test\_Graph\_802.11ac80\_ANT2\_5210\_MCS9\_OBW

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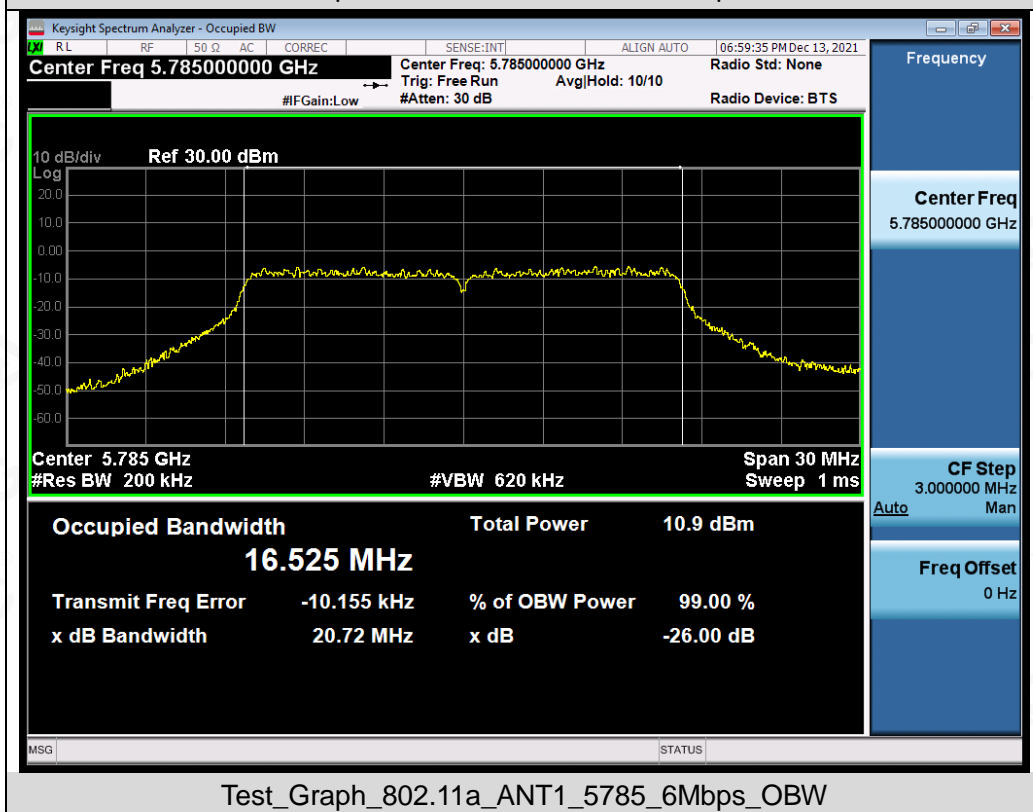
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### Test Graphs of Occupied Bandwidth for band 5.725-5.85 GHz



Test\_Graph\_802.11a\_ANT1\_5745\_6Mbps\_OBW

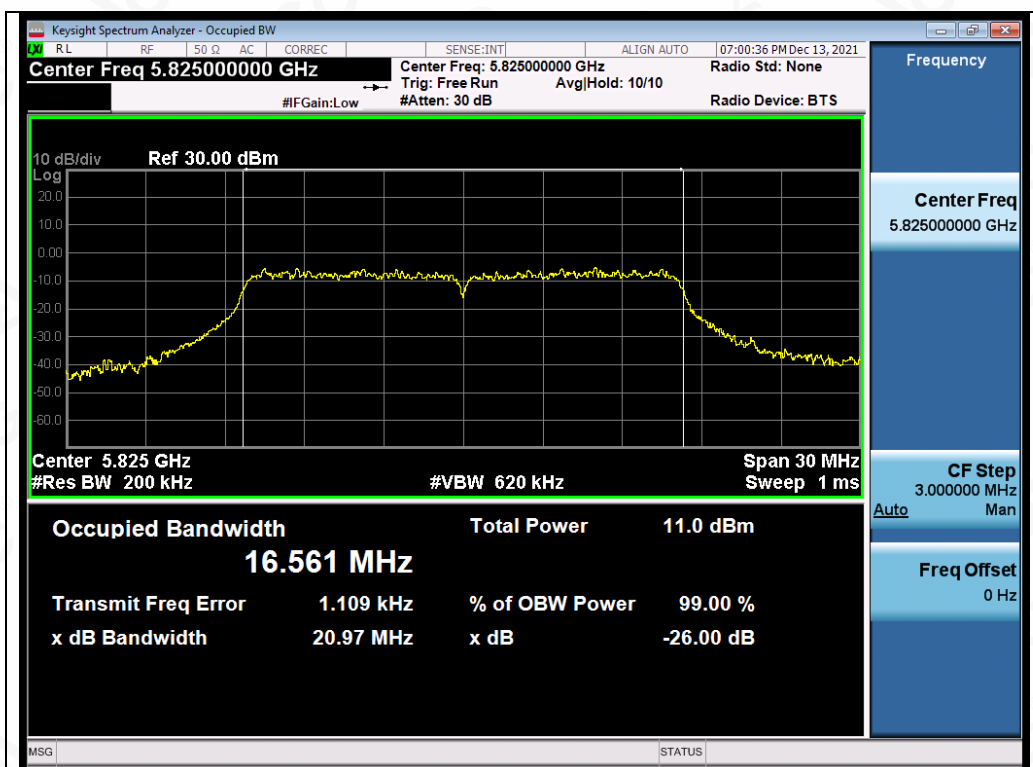


Test\_Graph\_802.11a\_ANT1\_5785\_6Mbps\_OBW

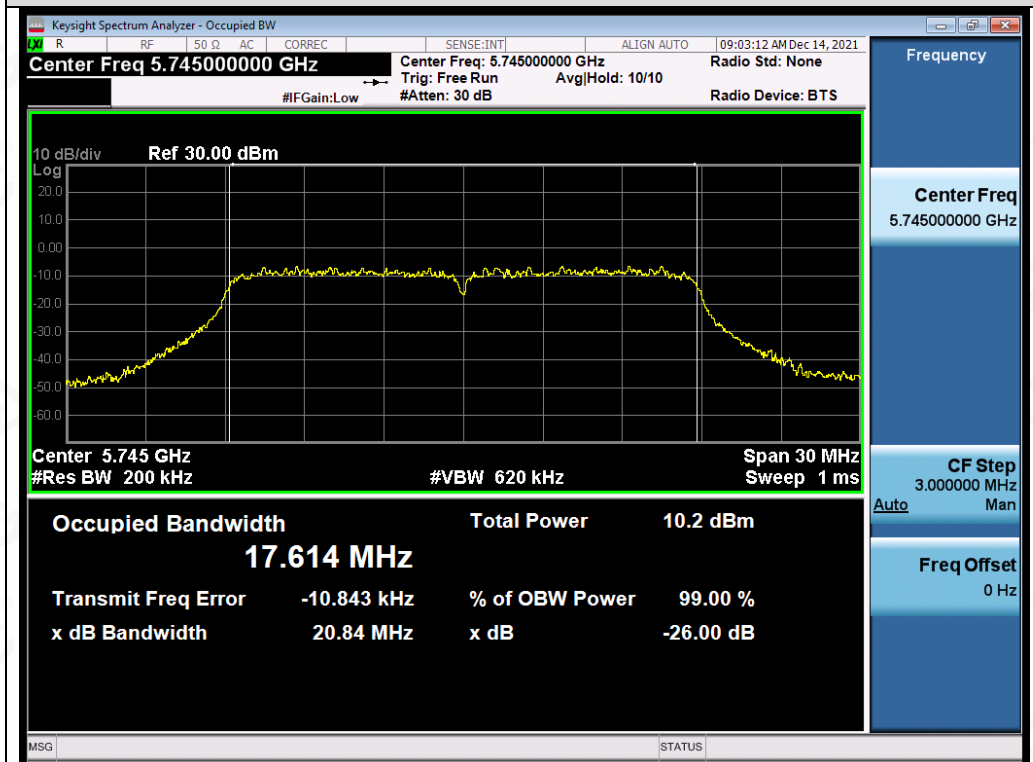
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Test\_Graph\_802.11a\_ANT1\_5825\_6Mbps\_OBW



Test\_Graph\_802.11n20\_ANT1\_5745\_MCS0\_OBW

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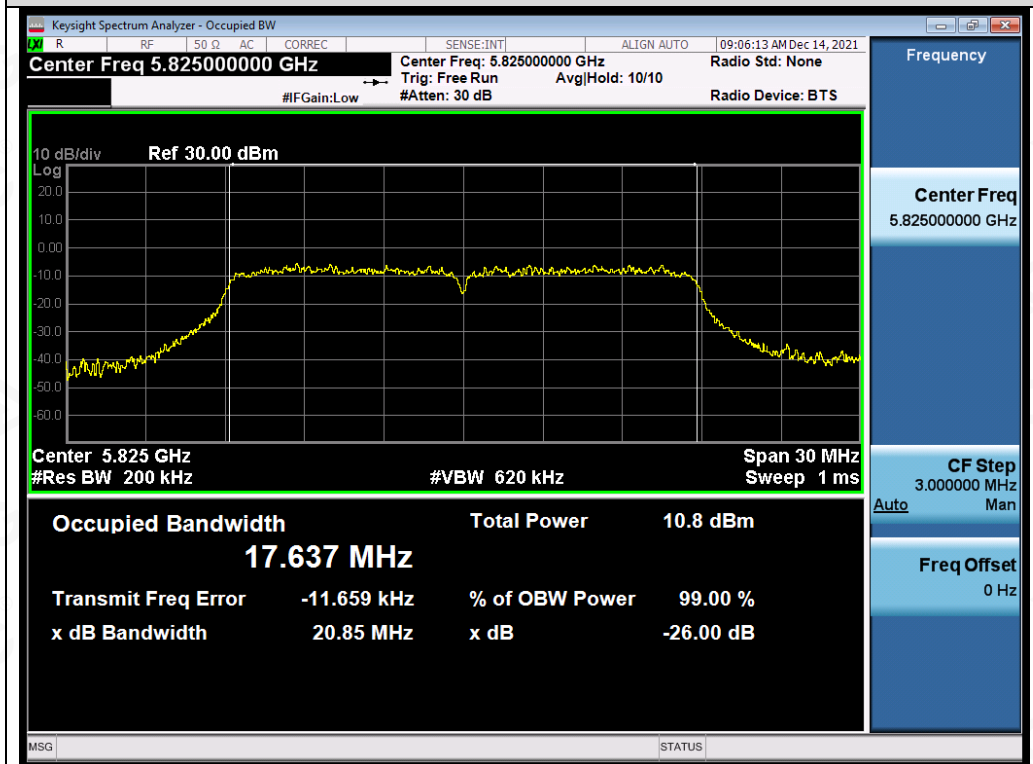
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Test\_Graph\_802.11n20\_ANT1\_5785\_MCS0\_OBW

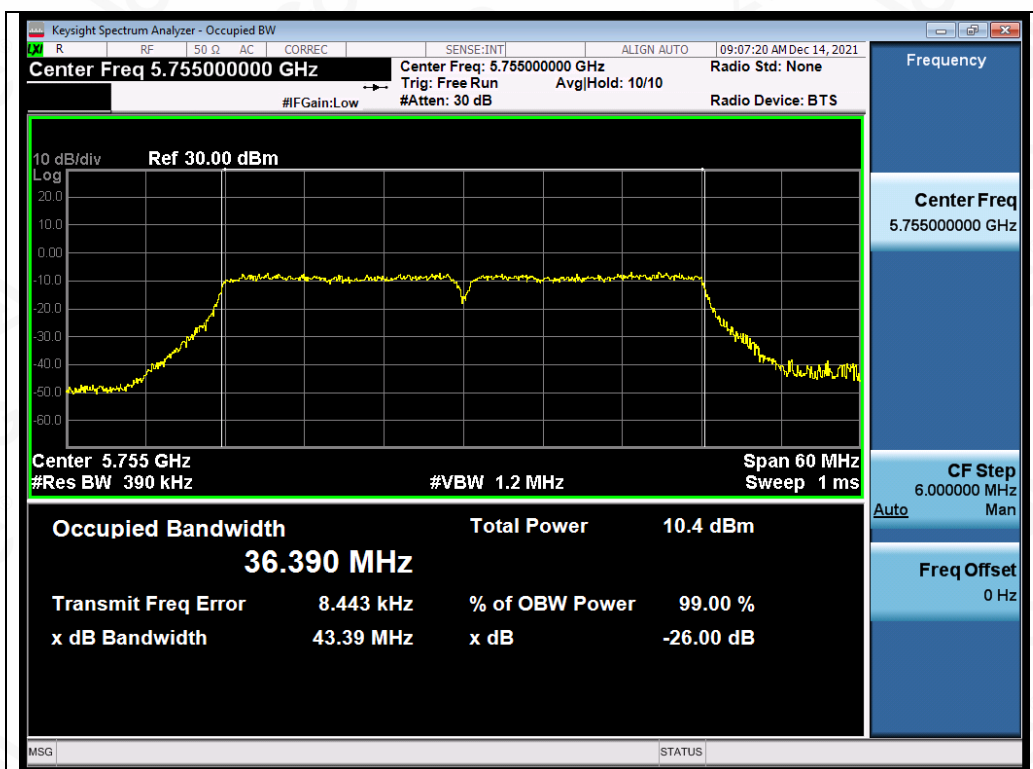


Test\_Graph\_802.11n20\_ANT1\_5825\_MCS0\_OBW

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Test\_Graph\_802.11n40\_ANT1\_5755\_MCS0\_OBW



Test\_Graph\_802.11n40\_ANT1\_5795\_MCS0\_OBW

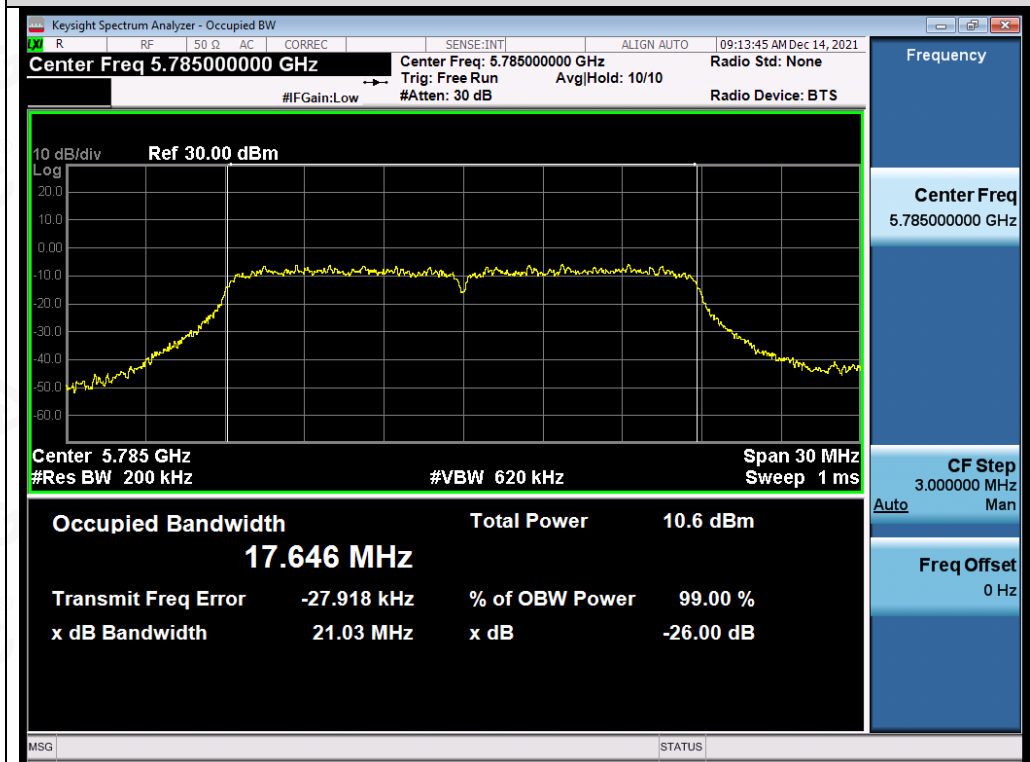
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Test\_Graph\_802.11ac20\_ANT1\_5745\_MCS0\_OBW

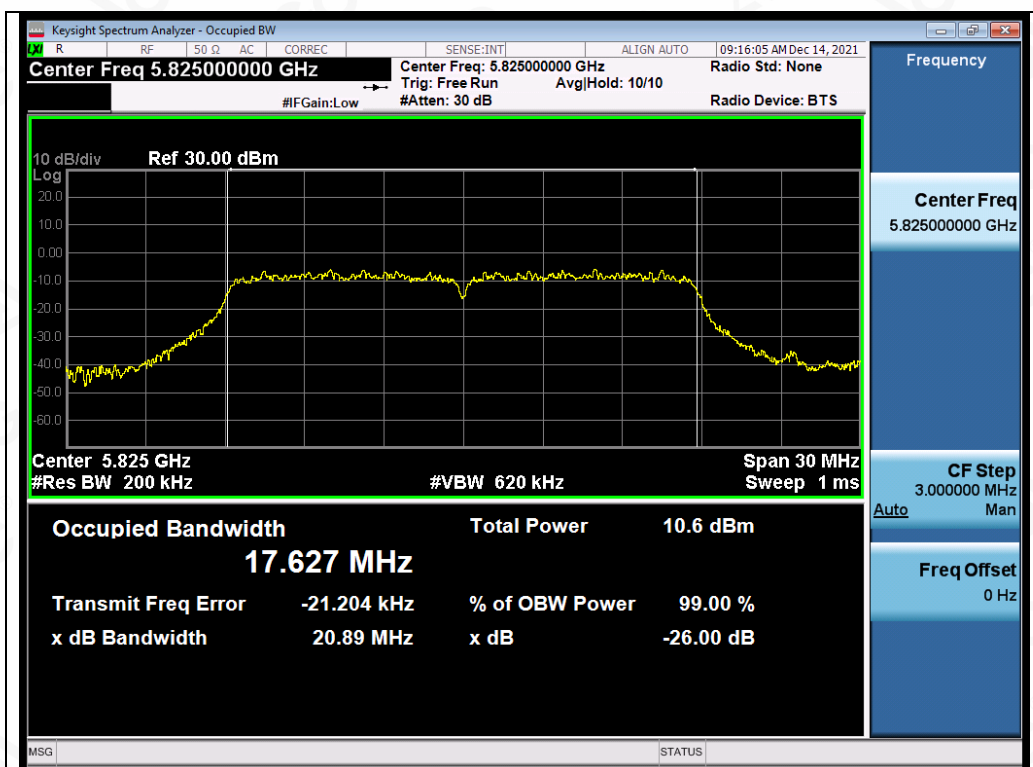


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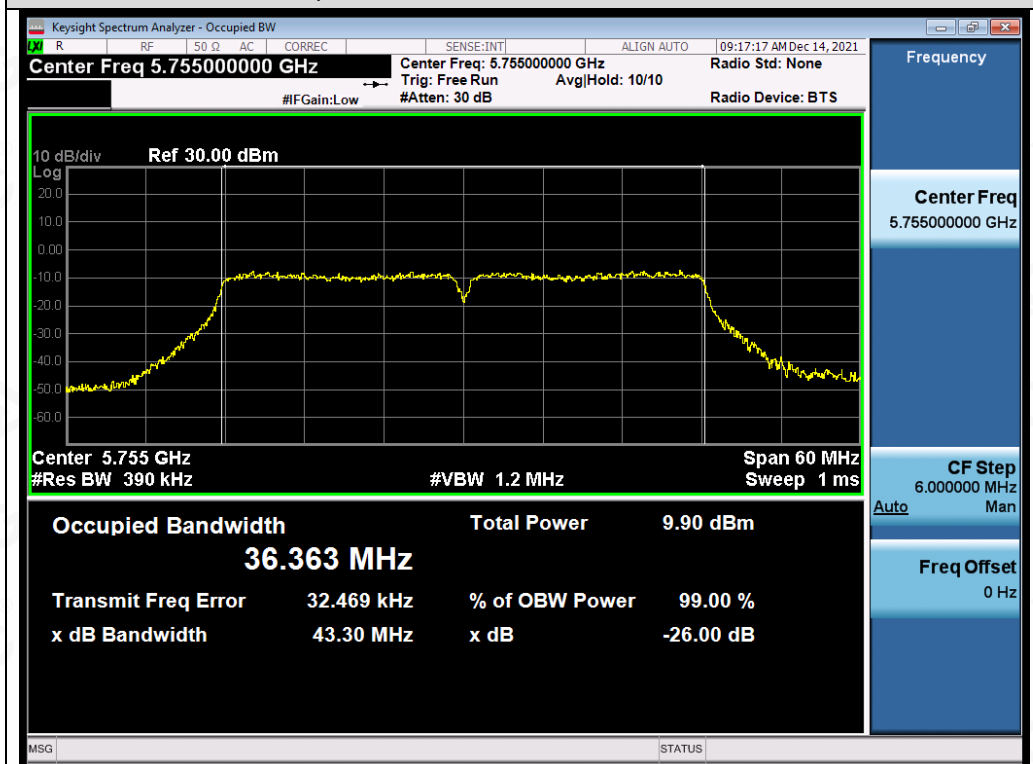
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Test\_Graph\_802.11ac20\_ANT1\_5825\_MCS9\_OBW



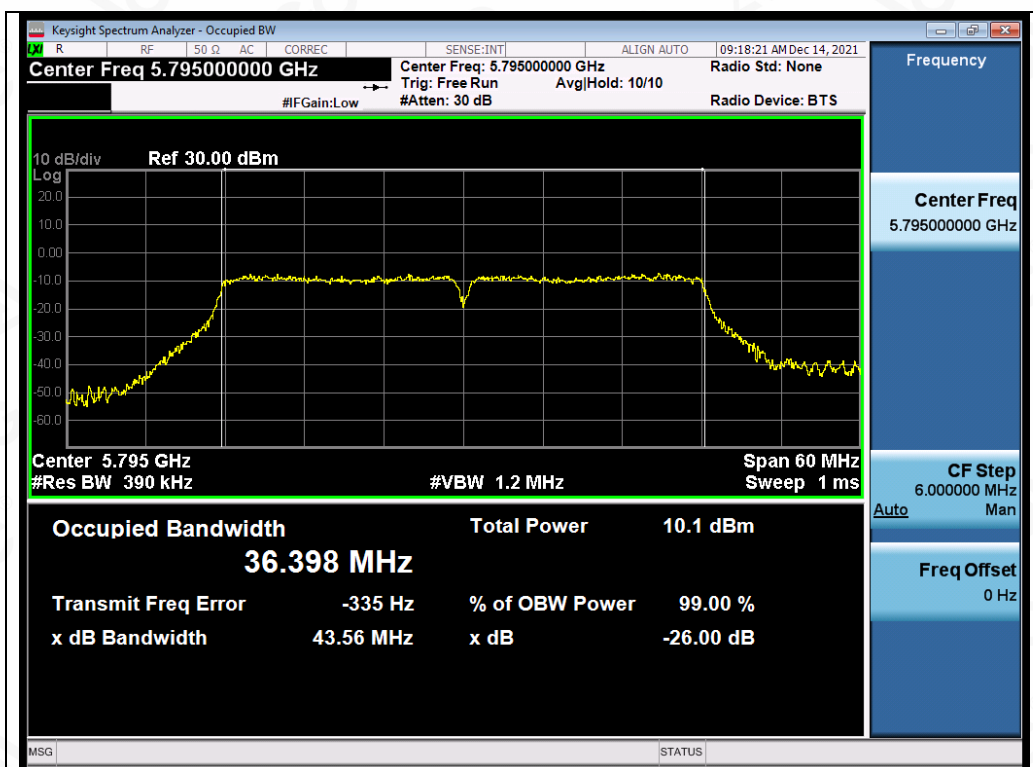
Test\_Graph\_802.11ac40\_ANT1\_5755\_MCS9\_OBW

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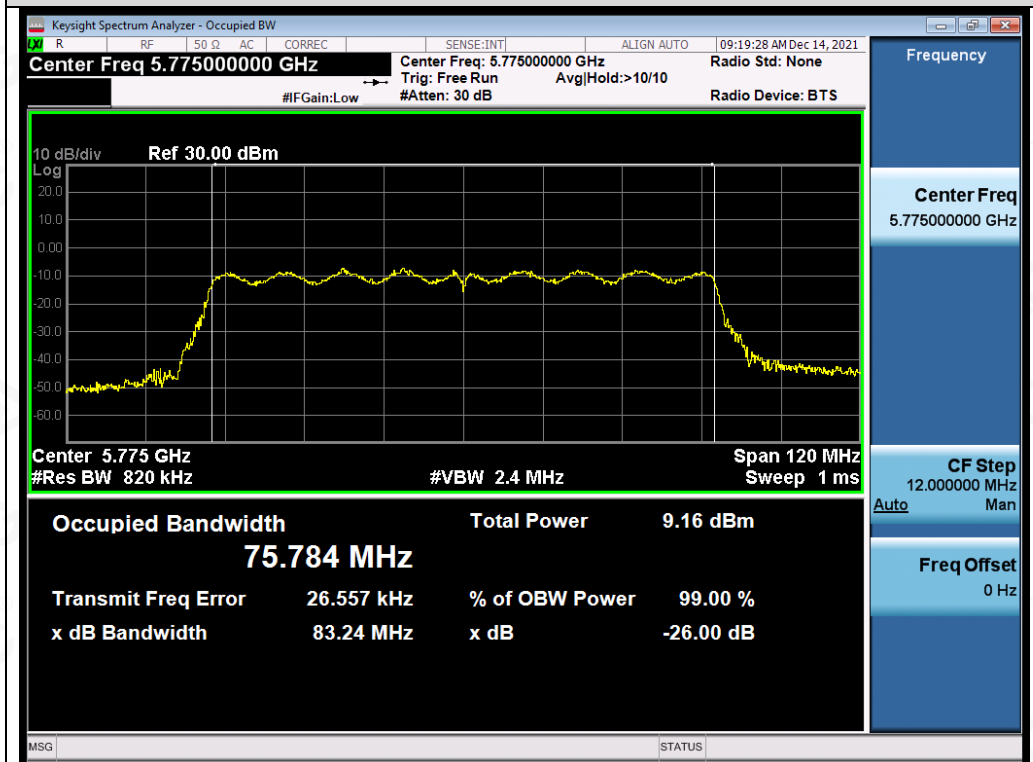
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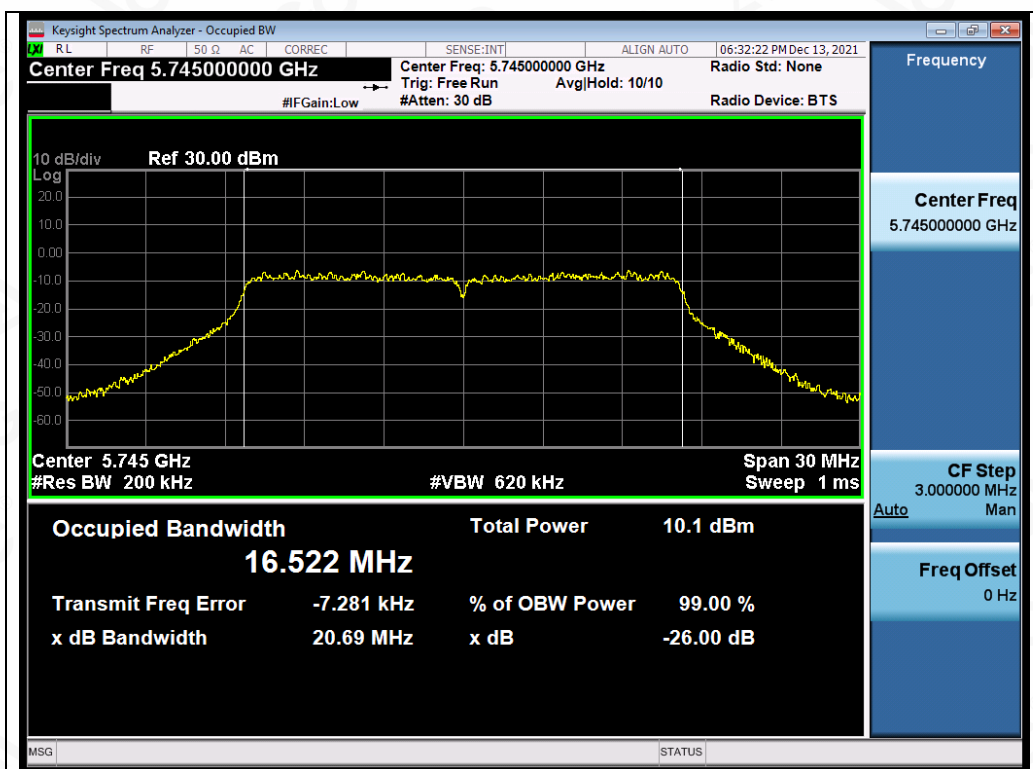


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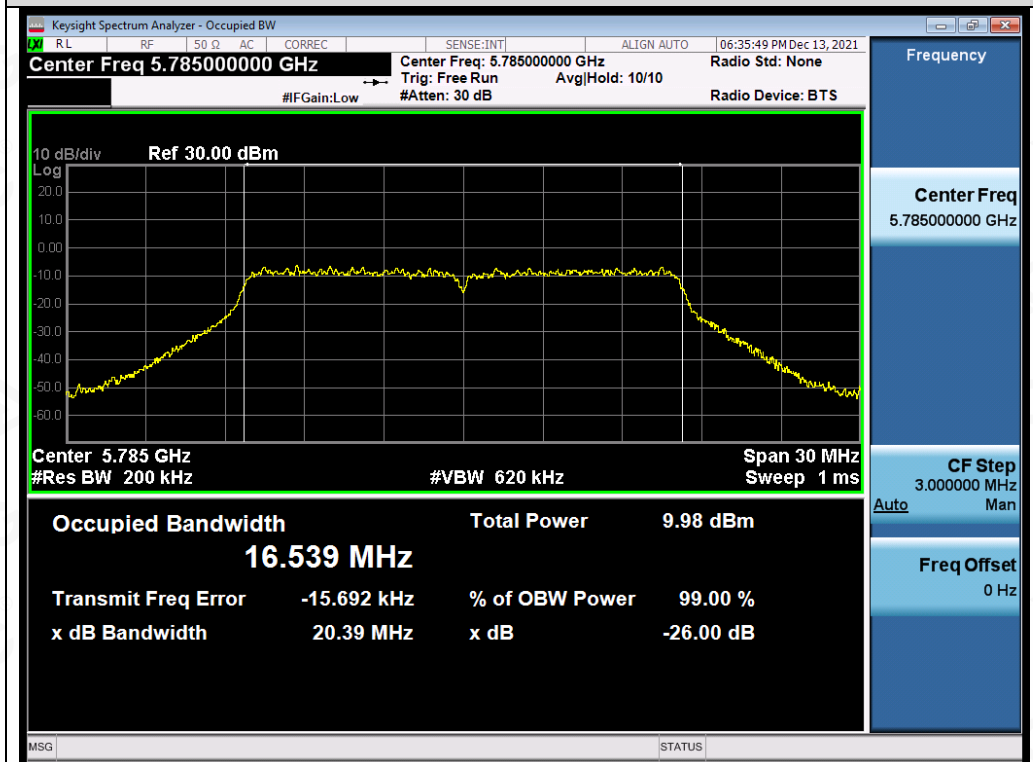
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Test\_Graph\_802.11a\_ANT2\_5745\_6Mbps\_OBW



Test\_Graph\_802.11a\_ANT2\_5785\_6Mbps\_OBW

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