

TEST REPORT



CTK Co., Ltd.

(Ho-dong), 113, Yejik-ro, Cheoin-gu,
Yongin-si, Gyeonggi-do, Korea
Tel: +82-31-339-9970
Fax: +82-31-624-9501

Report No.:
CTK-2019-02013
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1. Client

- Name : KAONMEDIA Co., Ltd.
- Address : KAONMEDIA Building, 884-3 Seongnam-daero, Bundang-gu, Seongnam-si, Gyeonggi-do, Korea
- Date of Receipt : 2019-05-07

2. Manufacturer

- Name : KAONMEDIA Co., Ltd.
- Address : KAONMEDIA Building, 884-3 Seongnam-daero, Bundang-gu, Seongnam-si, Gyeonggi-do, Korea

3. Use of Report : For FCC Certification

4. Test Sample / Model: WiFi Mesh Repeater / AR3030W

5. Date of Test : 2019-05-13 to 2019-06-25

6. Test Standard(method) used : FCC 47 CFR part 15 subpart E 15.407

7. Testing Environment: Temp.: (24 ± 5) °C, Humidity: (50 ± 3) % R.H.

8. Test Results : Compliance

The results shown in this test report refer only to the sample(s) tested unless otherwise stated. This Test Report cannot be reproduced, except in full.

| | | |
|-------------|--|--|
| Affirmation | Tested by Ji-Hye Kim: (Signature) | Technical Manager Won-Jae, Hwang: (Signature) |
|-------------|--|--|

2019-06-25

Republic of KOREA **CTK Co., Ltd.**



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REPORT REVISION HISTORY

| Date | Revision | Page No |
|------------|-------------------------|---------|
| 2019-06-25 | Issued (CTK-2019-02013) | all |
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1. General Product Description

1.1 Client Information

| | |
|-----------------------|---|
| Company | KAONMEDIA Co., Ltd. |
| Contact Point | KAONMEDIA Building, 884-3 Seongnam-daero, Bundang-gu, Seongnam-si, Gyeonggi-do, Korea |
| Contact Person | Name : Kim Tae-Yong E-mail : tykim@kaonmedia.com Tel : +82-31-724-8904 |

1.2 Product Information

| | |
|------------------------------|--|
| FCC ID | WQT-AR3030W |
| Product Description | WiFi Mesh Repeater |
| Model name | AR3030W |
| Variant Model name | AR3030IL and AR3030 |
| Operating Frequency | UNII 1 : 5 180 MHz – 5 240 MHz (20 MHz_BW) 5 190 MHz – 5 230 MHz (40 MHz_BW) 5 210 MHz (80 MHz_BW) UNII 3 : 5 745 MHz – 5 825 MHz (20 MHz_BW) 5 755 MHz – 5 795 MHz (40 MHz_BW) 5 775 MHz (80 MHz) |
| RF Output Power | CDD Mode_802.11a : 28.37 dBm (687.07 mW) CDD Mode_802.11n_HT20 : 28.40 dBm (691.83 mW) CDD Mode_802.11n_HT40 : 28.64 dBm (731.14 mW) CDD Mode_802.11ac_VHT20 : 28.53 dBm (712.85 mW) CDD Mode_802.11ac_VHT40 : 28.74 dBm (748.17 mW) CDD Mode_802.11ac_VHT80 : 28.17 dBm (656.15 mW) SDM Mode_802.11n_HT20 : 28.10 dBm (645.65 mW) SDM Mode_802.11n_HT40 : 28.28 dBm (672.98 mW) SDM Mode_802.11ac_VHT20 : 28.15 dBm (653.13 mW) SDM Mode_802.11ac_VHT40 : 28.27 dBm (671.43 mW) SDM Mode_802.11ac_VHT80 : 27.14 dBm (517.61 mW) |
| Antenna Specification | ANT1, ANT2, ANT3 type : PCB Antenna ANT1, ANT2, ANT3 Peak Gain : 2 dBi |
| Type of Modulation | OFDM |
| Data Rate | 802.11a : 54 / 48 / 36 / 24 / 18 / 12 / 9 / 6 Mbps 802.11n : up to 450 Mbps 802.11ac : up to 1.3 Gbps |
| Power Source | DC 12 V (Adapter) |
| Hardware Rev | Rev 1.0 |
| Software Rev | v.2.00.80 |

| | | | |
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1.3 Peripheral Devices

| Device | Manufacturer | Model No. | Serial No. |
|---------------|---------------------------------------|-------------------|------------|
| Note Computer | HP | 15-bs563TU | CND7253R6N |
| AC/DC Adapter | HP | HSTNN-CA40 | - |
| AD/DC Adapter | SHENZHEN FRECOM ELECTRONICS CO., LTD. | F18L16-120150SPAU | - |



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2. Facility and Accreditations

2.1 Test Facility

The measurement facility is located at (Ho-dong), 113, Yejik-ro, Cheoin-gu, Yongin-si, Gyeonggi-do, Korea.

2.2 Laboratory Accreditations and Listings

| Country | Agency | Registration Number |
|---------|--------|---------------------|
| USA | FCC | 805871 |
| CANADA | ISED | 8737A-2 |
| KOREA | NRRA | KR0025 |

2.3 Calibration Details of Equipment Used for Measurement

Test equipment and test accessories are calibrated on regular basis. The maximum time between calibrations is one year or what is recommended by the manufacturer, whichever is less. All test equipment calibrations are traceable to the Korea Research Institute of Standards and Science (KRISS), therefore, all test data recorded in this report is traceable to KRISS.

| | | | |
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3. Test Specifications

3.1 Standards

| FCC Part Section(s) | Requirement(s) | Status (Note 1) | Test Condition |
|--|-----------------------------------|-----------------|----------------|
| 15.407(e) | 6 dB Bandwidth | C | Conducted |
| 15.407(a) | 26 dB Bandwidth and 99% Bandwidth | C | |
| 15.407(a)(1) | Conducted Output Power | C | |
| 15.407(a)(1) | Power Spectral Density | C | |
| 15.407(g) | Frequency Stability | C | |
| 15.407 (b) | Undesirable emission | C | Radiated |
| 15.205, 15.407 (b)(5),(6) | Radiated Spurious Emission | C | |
| 15.207 | AC Conducted Emissions | C | Line Conducted |
| <i>Note 1:</i> C=Complies NC=Not Complies NT=Not Tested NA=Not Applicable | | | |
| <i>Note 2:</i> The data in this test report are traceable to the national or international standards. | | | |
| <i>Note 3:</i> The sample was tested according to the following specification: FCC Part 15.247, ANSI C63.10-2013 | | | |
| <i>Note 4:</i> The tests were performed according to the method of measurements prescribed in KDB No.789033. | | | |

| | |
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3.2 Mode of operation during the test

The EUT is operated in a manner representative of the typical of the equipments.
 During at testing, system components were manipulated within the confines of typical usage to maximize each emission.
 For WLAN function, the engineering test program was provided and enabled to make EUT continuous transmit.
 All modulation modes were tests. The results are only attached worst cases.

Test Frequency

- 802.11a, 802.11n_HT20, 802.11ac_VHT20

| | Lowest channel | Middle channel | Highest channel |
|---------------|----------------|----------------|-----------------|
| UNII 1 | 5 180 MHz | 5 200 MHz | 5 240 MHz |
| UNII 3 | 5 745 MHz | 5 785 MHz | 5 825 MHz |

- 802.11n_HT40, 802.11ac_VHT40

| | Lowest channel | Middle channel | Highest channel |
|---------------|----------------|----------------|-----------------|
| UNII 1 | 5 190 MHz | - | 5 230 MHz |
| UNII 3 | 5 755 MHz | - | 5 795 MHz |

- 802.11ac_VHT80

| | Lowest channel | Middle channel | Highest channel |
|---------------|----------------|----------------|-----------------|
| UNII 1 | 5 210 MHz | - | - |
| UNII 3 | 5 775 MHz | - | - |

Test mode

- CDD mode

| Test mode | Modulation | Data rate | Duty Cycle | Duty Cycle Factor |
|----------------|------------|-----------|------------|-------------------|
| 802.11a | DSSS | 6 Mbps | 97.4% | 0.12 dB |
| 802.11n_HT20 | OFDM | MCS 0 | 96.7% | 0.15 dB |
| 802.11n_HT40 | OFDM | MCS 0 | 93.7% | 0.28 dB |
| 802.11ac_VHT20 | OFDM | MNSS 0 | 96.1% | 0.17 dB |
| 802.11ac_VHT40 | OFDM | MNSS 0 | 92.6% | 0.33 dB |
| 802.11ac_VHT80 | OFDM | MNSS 0 | 89.1% | 0.50 dB |

- SDM mode

| Test mode | Modulation | Data rate | Duty Cycle | Duty Cycle Factor |
|----------------|------------|-----------|------------|-------------------|
| 802.11n_HT20 | OFDM | MCS 16 | 93.5% | 0.29 dB |
| 802.11n_HT40 | OFDM | MCS 16 | 86.1% | 0.65 dB |
| 802.11ac_VHT20 | OFDM | MNSS 0 | 90.9% | 0.41 dB |
| 802.11ac_VHT40 | OFDM | MNSS 0 | 87.2% | 0.60 dB |
| 802.11ac_VHT80 | OFDM | MNSS 0 | 79.2% | 1.02 dB |

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3.3 Model Differences

AR3030W, AR3030IL and AR3030 are no technical difference from each model only except for Color(AR3030) and WPS Key delete(AR3030IL) because of marketing purposes.

3.4 Maximum Measurement Uncertainty

The value of the measurement uncertainty for the measurement of each parameter.
Coverage factor $k = 2$, Confidence levels of 95 %

| Description | Uncertainty |
|--------------------------------------|-------------|
| Conducted RF Output Power | ± 1.5 dB |
| Power Spectral Density | ± 1.5 dB |
| Occupied Bandwidth | ± 0.1 MHz |
| Unwanted Emission(conducted) | ± 3.0 dB |
| Radiated Emissions ($f \leq 1$ GHz) | ± 4.0 dB |
| Radiated Emissions ($f > 1$ GHz) | ± 5.0 dB |

3.5 Test Software

| | |
|---------------------|--|
| Conducted Test | Ics Pro Ver. 6.0.3 |
| Radiated Test | TOYO EMI software EP5RE Ver. 5.1.0 |
| Line Conducted Test | ESCI7, ESCI3 : EMC32 Ver. 8.50.0 ESR7 : EMC32 Ver. 8.53.0 |



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4. Technical Characteristic Test

4.1 6dB Bandwidth

Test Procedures

KDB 789033 – Section C.2
ANSI C63.10-2013 - Section 6.9.2

Measure the maximum width of the emission that is constrained by the frequencies associated with the two outermost amplitude points (upper and lower frequencies) that are attenuated by 6 dB relative to the maximum level measured in the fundamental emission.

Test Settings :

Center frequency = the highest, middle and the lowest channels

- a) RBW = 100 kHz
- b) VBW $\geq 3 \times$ RBW
- c) Detector = peak
- d) Trace mode = Max hold
- e) Sweep = auto couple
- f) Allow trace to fully stabilize
- g) Measure the maximum width of the emission that is constrained by the frequencies associated with the two outermost amplitude points (upper and lower frequencies) that are attenuated by 6 dB relative to the maximum level measured in the fundamental emission.

Minimum Standard:

6 dB Bandwidth > 500 kHz



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Test Data:

ANT1

| | 6 dB Bandwidth (MHz) | | |
|-------------------------|----------------------|--------------|----------------|
| Mode | 802.11a | 802.11n_HT20 | 802.11ac_VHT20 |
| Frequency | | | |
| 5 745 MHz | 15.13 | 14.79 | 15.13 |
| 5 785 MHz | 15.92 | 15.09 | 15.65 |
| 5 825 MHz | 15.95 | 15.69 | 15.68 |
| Measurement uncertainty | ± 0.1 MHz | | |

| | 6 dB Bandwidth (MHz) | |
|-------------------------|----------------------|----------------|
| Mode | 802.11n_HT40 | 802.11ac_VHT40 |
| Frequency | | |
| 5 755 MHz | 35.07 | 35.06 |
| 5 795 MHz | 35.06 | 35.07 |
| Measurement uncertainty | ± 0.1 MHz | |

| | 6 dB Bandwidth (MHz) | |
|-------------------------|----------------------|--|
| Mode | 802.11ac_VHT80 | |
| Frequency | | |
| 5 775 MHz | 75.09 | |
| Measurement uncertainty | ± 0.1 MHz | |

ANT2

| | 6 dB Bandwidth (MHz) | | |
|-------------------------|----------------------|--------------|----------------|
| Mode | 802.11a | 802.11n_HT20 | 802.11ac_VHT20 |
| Frequency | | | |
| 5 745 MHz | 15.66 | 16.54 | 16.33 |
| 5 785 MHz | 15.61 | 16.32 | 15.75 |
| 5 825 MHz | 15.46 | 15.72 | 16.31 |
| Measurement uncertainty | ± 0.1 MHz | | |



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| | 6 dB Bandwidth (MHz) | |
|-------------------------|----------------------|----------------|
| Mode | 802.11n_HT40 | 802.11ac_VHT40 |
| Frequency | | |
| 5 755 MHz | 35.05 | 35.12 |
| 5 795 MHz | 35.04 | 35.07 |
| Measurement uncertainty | ± 0.1 MHz | |

| | 6 dB Bandwidth (MHz) | |
|-------------------------|----------------------|--|
| Mode | 802.11ac_VHT80 | |
| Frequency | | |
| 5 775 MHz | 75.13 | |
| Measurement uncertainty | ± 0.1 MHz | |

ANT3

| | 6 dB Bandwidth (MHz) | | |
|-------------------------|----------------------|--------------|----------------|
| Mode | 802.11a | 802.11n_HT20 | 802.11ac_VHT20 |
| Frequency | | | |
| 5 745 MHz | 15.15 | 16.27 | 16.52 |
| 5 785 MHz | 15.50 | 16.27 | 15.20 |
| 5 825 MHz | 15.53 | 14.79 | 15.33 |
| Measurement uncertainty | ± 0.1 MHz | | |

| | 6 dB Bandwidth (MHz) | |
|-------------------------|----------------------|----------------|
| Mode | 802.11n_HT40 | 802.11ac_VHT40 |
| Frequency | | |
| 5 755 MHz | 35.08 | 35.11 |
| 5 795 MHz | 35.09 | 35.10 |
| Measurement uncertainty | ± 0.1 MHz | |

| | 6 dB Bandwidth (MHz) | |
|-------------------------|----------------------|--|
| Mode | 802.11ac_VHT80 | |
| Frequency | | |
| 5 775 MHz | 75.18 | |
| Measurement uncertainty | ± 0.1 MHz | |

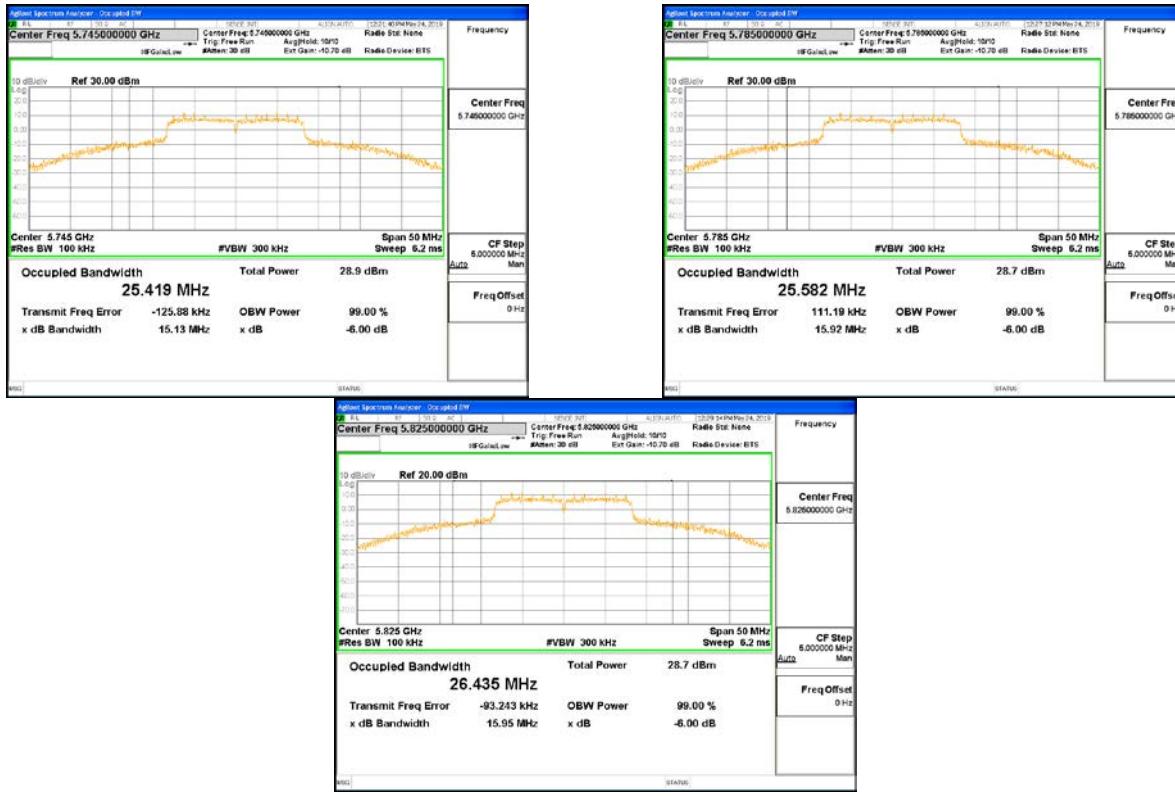
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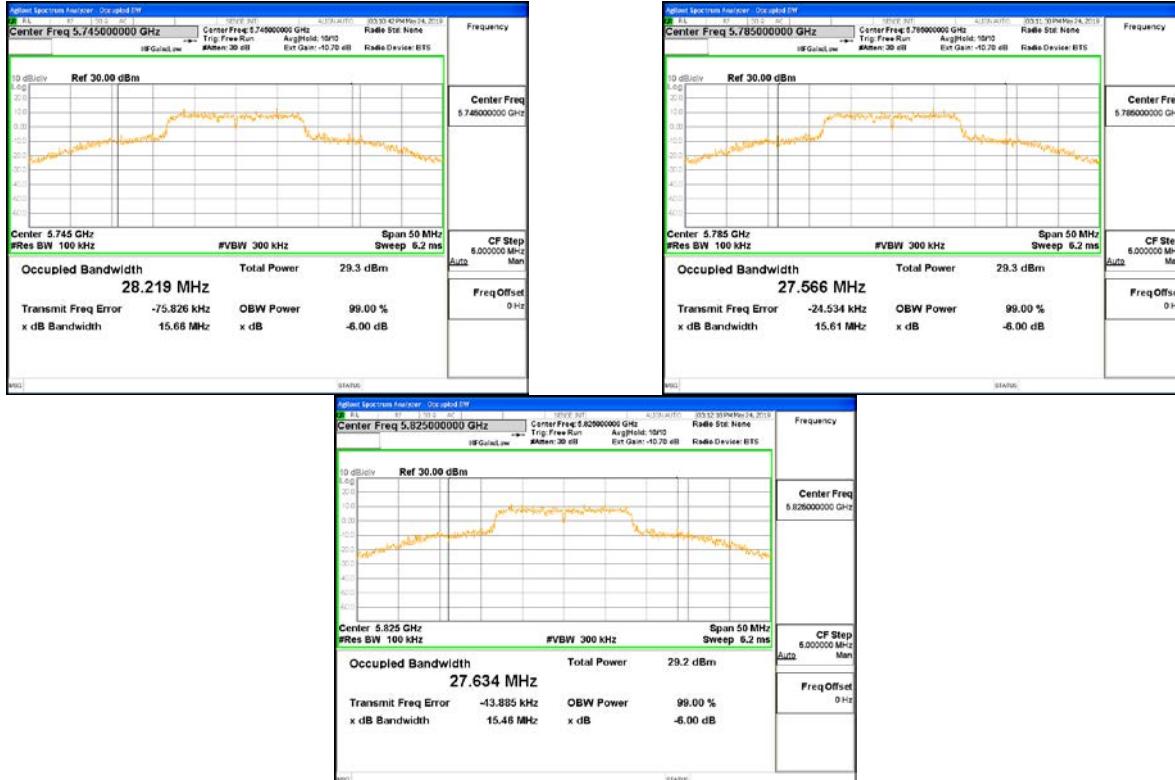
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ANT1_802.11a



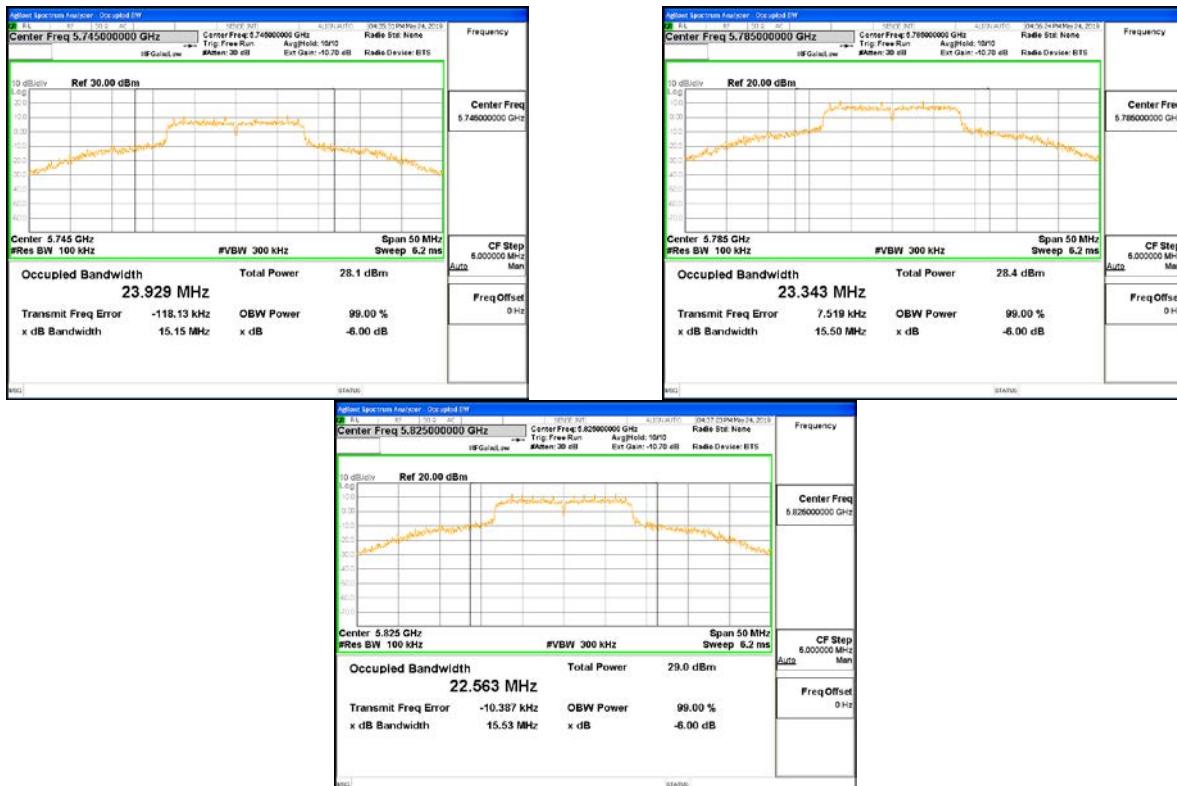
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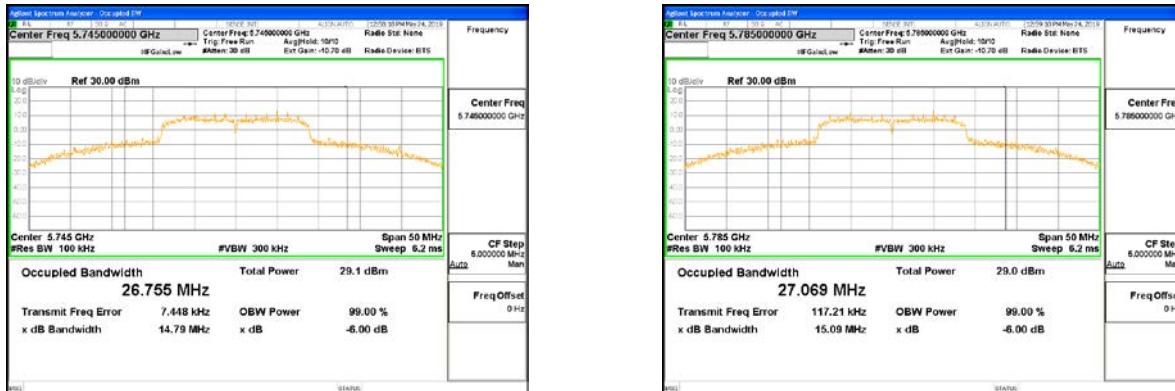
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ANT1_802.11n_HT20



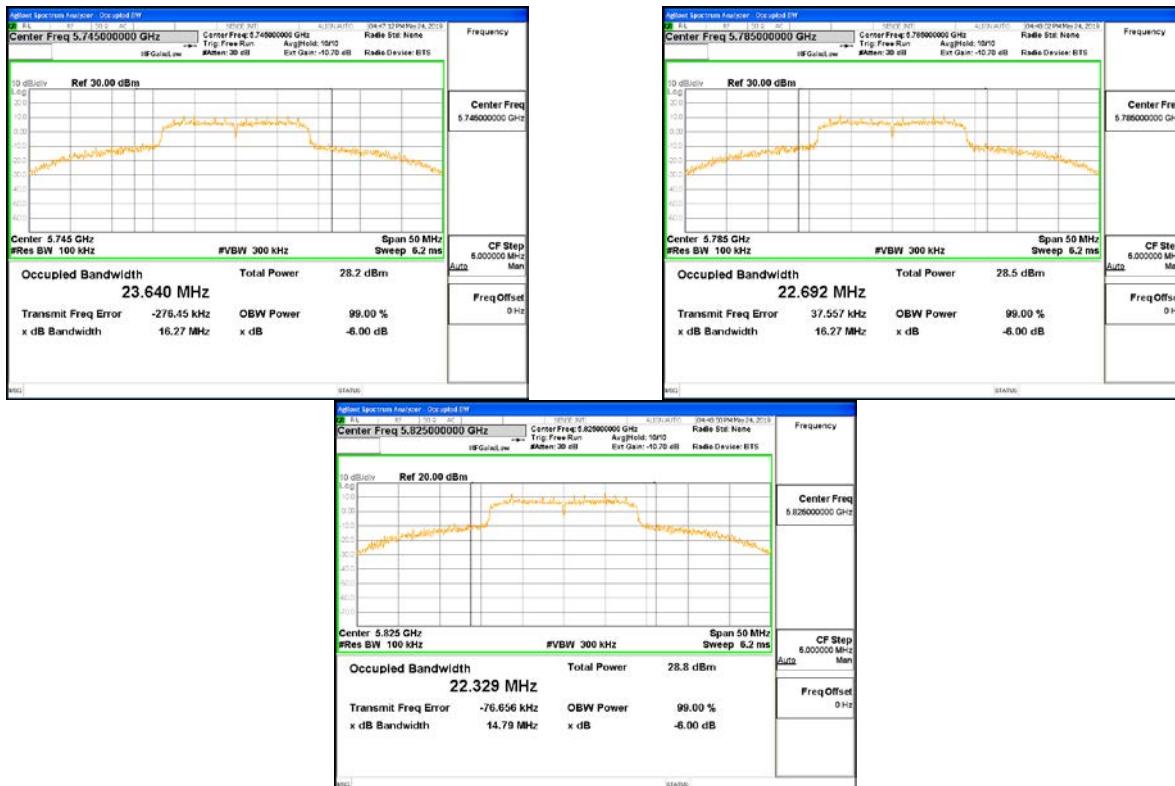
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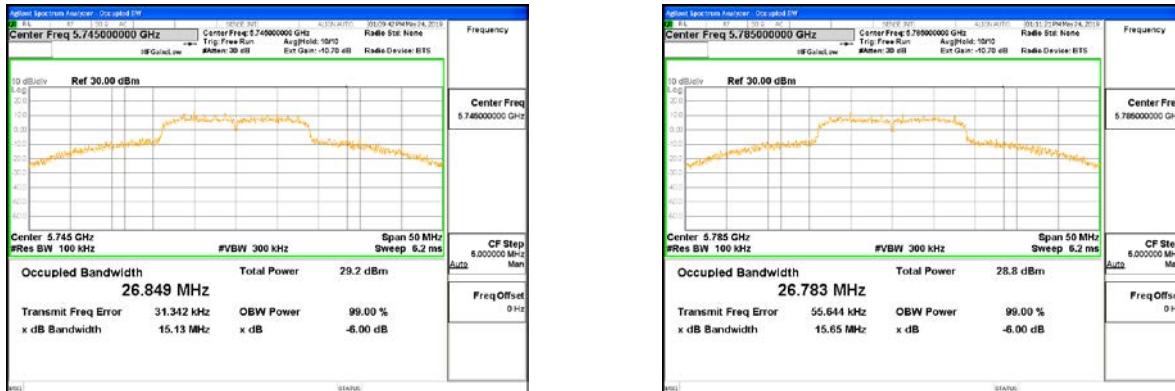
ANT3_802.11n_HT20



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ANT1_802.11ac_VHT20



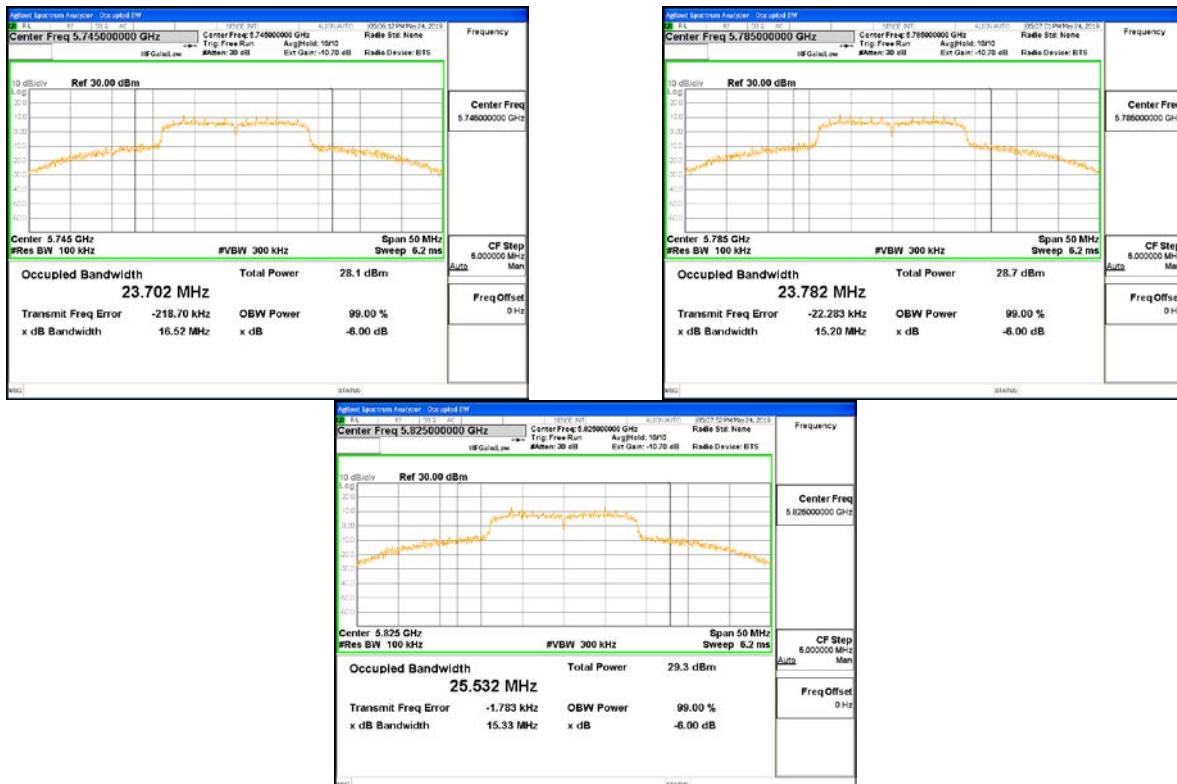
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ANT3_802.11ac_VHT20

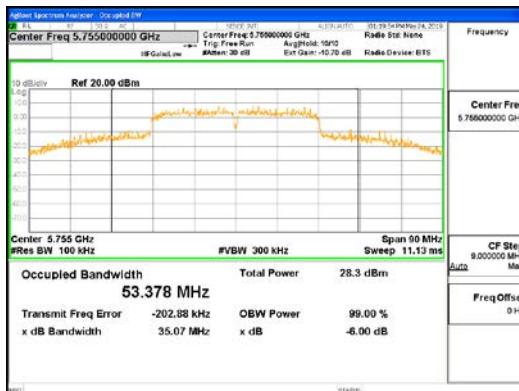


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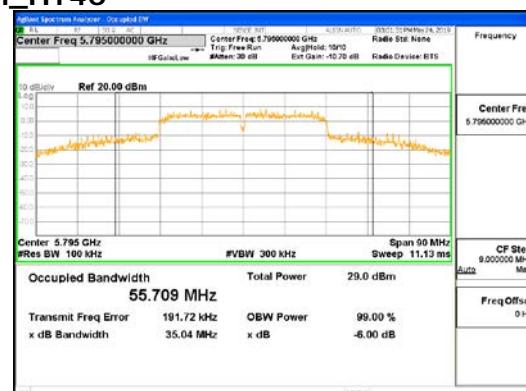
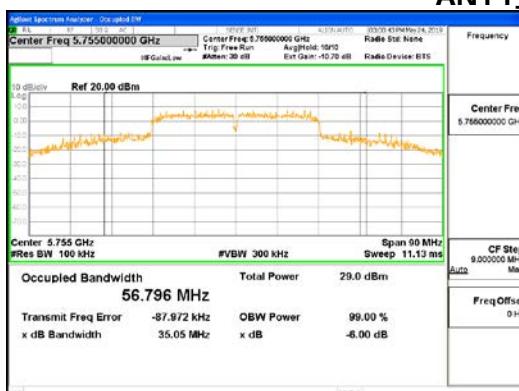
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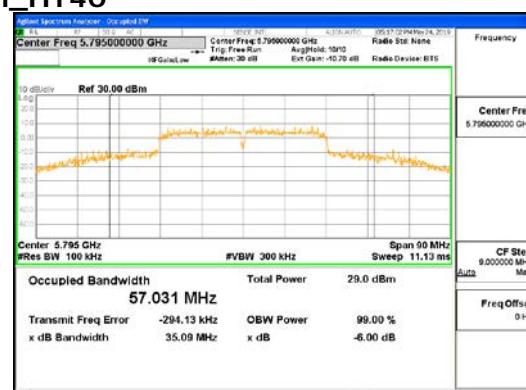
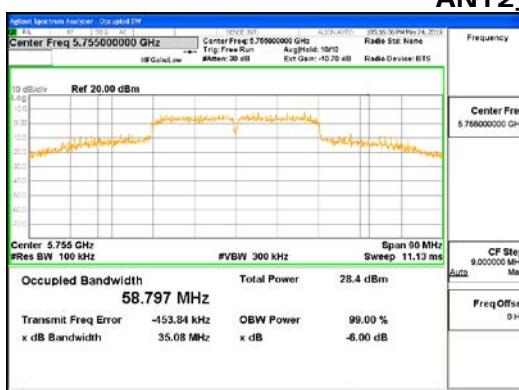
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ANT1_802.11n_HT40



ANT2_802.11n_HT40



ANT3_802.11n_HT40

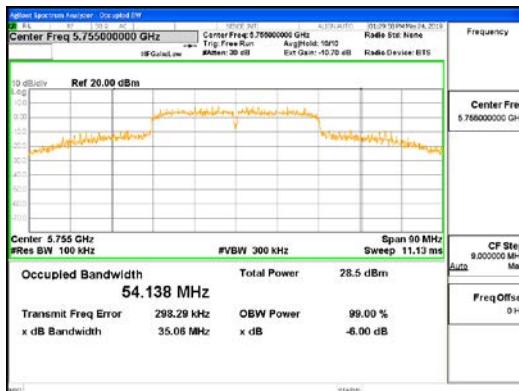


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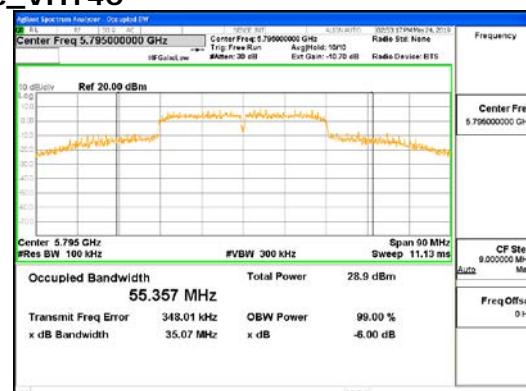
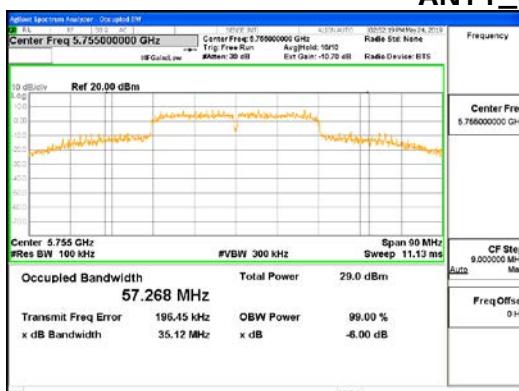
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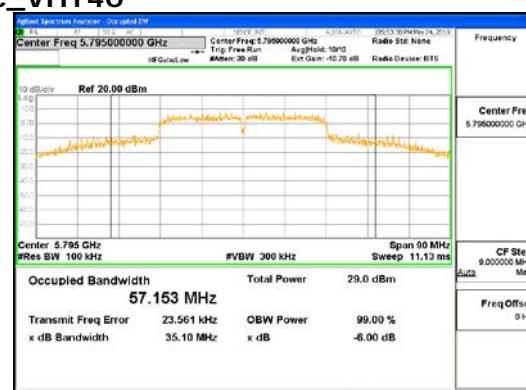
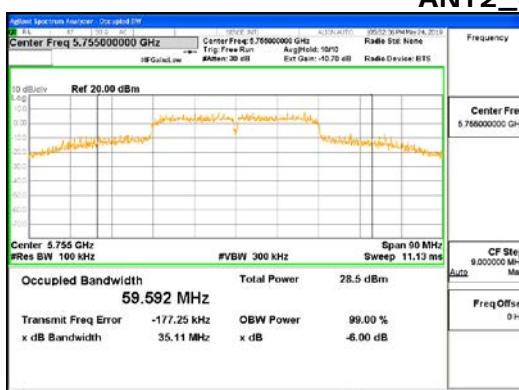
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ANT2_802.11ac_VHT40



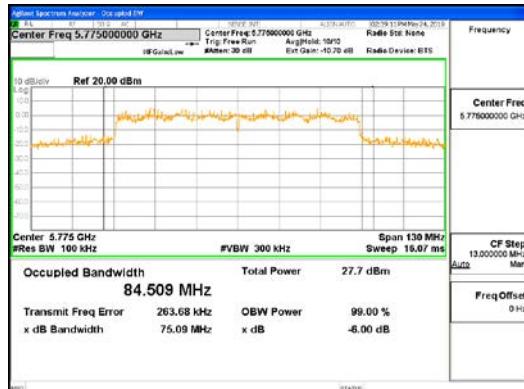
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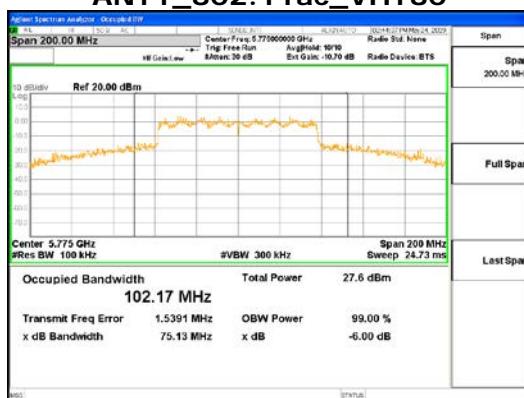
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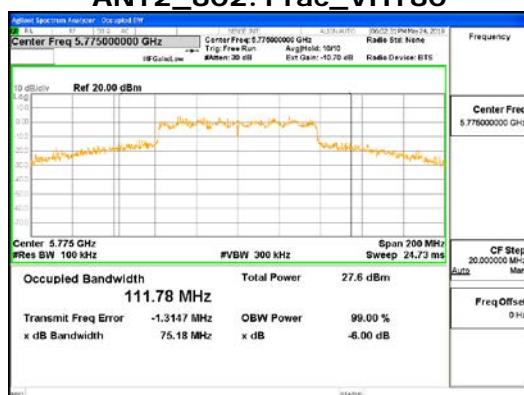
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ANT1_802.11ac_VHT80



ANT1_802.11ac_VHT80



ANT2_802.11ac_VHT80



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4.2 26 dB Bandwidth and 99% Bandwidth

Test Procedures

KDB 789033 – Section C.1
ANSI C63.10-2013 - Section 6.9.2

Measure the maximum width of the emission that is constrained by the frequencies associated with the two outermost amplitude points (upper and lower frequencies) that are attenuated by 26 dB relative to the maximum level measured in the fundamental emission.

Test Procedures

KDB 789033 – Section C.1
ANSI C63.10-2013 - Section 6.9.3

The occupied bandwidth is the frequency bandwidth such that, below its lower and above its upper frequency limits, the mean powers are each equal to 0.5% of the total mean power of the given emission.

Use the 99% power bandwidth function of the instrument and report the measured bandwidth.

Test Settings :

Center frequency = the highest, middle and the lowest channels

- a) RBW = approximately 1 % of the emission bandwidth
- b) VBW \geq RBW
- c) Detector = peak
- d) Trace mode = Max hold
- e) 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%.

Minimum Standard:

NA

Test Data:

| | | |
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ANT1

| | 26 dB Bandwidth and 99% Bandwidth (MHz) | | | | | |
|-------------------------|---|-------|--------------|-------|----------------|-------|
| Mode | 802.11a | | 802.11n_HT20 | | 802.11ac_VHT20 | |
| Frequency | 26 dB | 99% | 26 dB | 99% | 26 dB | 99% |
| 5 180 MHz | 23.34 | 16.48 | 24.10 | 17.56 | 21.20 | 17.50 |
| 5 200 MHz | 23.27 | 16.47 | 21.53 | 17.52 | 20.38 | 17.48 |
| 5 240 MHz | 23.19 | 16.45 | 21.61 | 17.50 | 21.25 | 17.50 |
| 5 745 MHz | 42.76 | 28.28 | 44.93 | 30.37 | 45.07 | 31.20 |
| 5 785 MHz | 42.06 | 28.21 | 44.92 | 30.88 | 44.91 | 30.66 |
| 5 825 MHz | 43.52 | 28.81 | 45.37 | 30.51 | 44.98 | 31.02 |
| Measurement uncertainty | ± 0.1 MHz | | | | | |

| | 26 dB Bandwidth and 99% Bandwidth (MHz) | | | |
|-------------------------|---|-------|----------------|-------|
| Mode | 802.11n_HT40 | | 802.11ac_VHT40 | |
| Frequency | 26 dB | 99 % | 26 dB | 99 % |
| 5 190 MHz | 58.79 | 35.93 | 55.67 | 35.90 |
| 5 230 MHz | 58.75 | 35.90 | 56.18 | 35.87 |
| 5 755 MHz | 87.00 | 56.43 | 88.80 | 56.54 |
| 5 795 MHz | 86.18 | 55.96 | 88.59 | 55.44 |
| Measurement uncertainty | ± 0.1 MHz | | | |

| | 26 dB Bandwidth and 99% Bandwidth (MHz) | | |
|-------------------------|---|--------|--|
| Mode | 802.11ac_VHT80 | | |
| Frequency | 26 dB | 99 % | |
| 5 210 MHz | 80.83 | 75.25 | |
| 5 775 MHz | 187.20 | 116.42 | |
| Measurement uncertainty | ± 0.1 MHz | | |

| | | |
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|--|---|--|

ANT2

| | 26 dB Bandwidth and 99% Bandwidth (MHz) | | | | | |
|-------------------------|---|-------|--------------|-------|----------------|-------|
| Mode | 802.11a | | 802.11n_HT20 | | 802.11ac_VHT20 | |
| Frequency | 26 dB | 99% | 26 dB | 99% | 26 dB | 99% |
| 5 180 MHz | 35.07 | 16.86 | 33.30 | 17.79 | 31.88 | 17.69 |
| 5 200 MHz | 29.29 | 16.68 | 29.60 | 17.61 | 29.52 | 17.59 |
| 5 240 MHz | 25.70 | 16.58 | 26.19 | 17.54 | 22.14 | 17.56 |
| 5 745 MHz | 43.32 | 31.25 | 46.29 | 31.62 | 46.37 | 31.31 |
| 5 785 MHz | 43.27 | 30.64 | 46.16 | 30.71 | 46.12 | 30.83 |
| 5 825 MHz | 43.34 | 30.57 | 46.43 | 30.32 | 45.98 | 30.76 |
| Measurement uncertainty | ± 0.1 MHz | | | | | |

| | 26 dB Bandwidth and 99% Bandwidth (MHz) | | | |
|-------------------------|---|-------|----------------|-------|
| Mode | 802.11n_HT40 | | 802.11ac_VHT40 | |
| Frequency | 26 dB | 99 % | 26 dB | 99 % |
| 5 190 MHz | 57.97 | 35.99 | 54.79 | 35.97 |
| 5 230 MHz | 54.30 | 35.96 | 53.03 | 35.90 |
| 5 755 MHz | 87.65 | 59.43 | 89.04 | 59.02 |
| 5 795 MHz | 87.34 | 57.90 | 88.96 | 57.90 |
| Measurement uncertainty | ± 0.1 MHz | | | |

| | 26 dB Bandwidth and 99% Bandwidth (MHz) | | |
|-------------------------|---|--------|--|
| Mode | 802.11ac_VHT80 | | |
| Frequency | 26 dB | 99 % | |
| 5 210 MHz | 81.15 | 75.33 | |
| 5 775 MHz | 188.70 | 115.00 | |
| Measurement uncertainty | ± 0.1 MHz | | |

| | | |
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|---|---|--|

ANT3

| | 26 dB Bandwidth and 99% Bandwidth (MHz) | | | | | |
|-------------------------|---|-------|--------------|-------|----------------|-------|
| Mode | 802.11a | | 802.11n_HT20 | | 802.11ac_VHT20 | |
| Frequency | 26 dB | 99% | 26 dB | 99% | 26 dB | 99% |
| 5 180 MHz | 26.30 | 16.61 | 21.43 | 17.50 | 20.83 | 17.52 |
| 5 200 MHz | 24.54 | 16.50 | 20.79 | 17.47 | 20.23 | 17.49 |
| 5 240 MHz | 23.29 | 16.46 | 20.14 | 17.44 | 20.19 | 17.46 |
| 5 745 MHz | 40.64 | 27.73 | 44.89 | 28.87 | 44.70 | 28.61 |
| 5 785 MHz | 40.44 | 26.73 | 44.31 | 27.83 | 43.99 | 28.11 |
| 5 825 MHz | 40.71 | 26.04 | 44.18 | 27.39 | 44.76 | 29.92 |
| Measurement uncertainty | ± 0.1 MHz | | | | | |

| | 26 dB Bandwidth and 99% Bandwidth (MHz) | | | |
|-------------------------|---|-------|----------------|-------|
| Mode | 802.11n_HT40 | | 802.11ac_VHT40 | |
| Frequency | 26 dB | 99 % | 26 dB | 99 % |
| 5 190 MHz | 64.19 | 36.17 | 68.99 | 36.42 |
| 5 230 MHz | 56.49 | 36.02 | 63.18 | 36.11 |
| 5 755 MHz | 89.60 | 61.19 | 89.48 | 61.29 |
| 5 795 MHz | 87.92 | 59.20 | 88.93 | 59.24 |
| Measurement uncertainty | ± 0.1 MHz | | | |

| | 26 dB Bandwidth and 99% Bandwidth (MHz) | | |
|-------------------------|---|--------|--|
| Mode | 802.11ac_VHT80 | | |
| Frequency | 26 dB | 99 % | |
| 5 210 MHz | 81.34 | 75.39 | |
| 5 775 MHz | 190.80 | 123.87 | |
| Measurement uncertainty | ± 0.1 MHz | | |

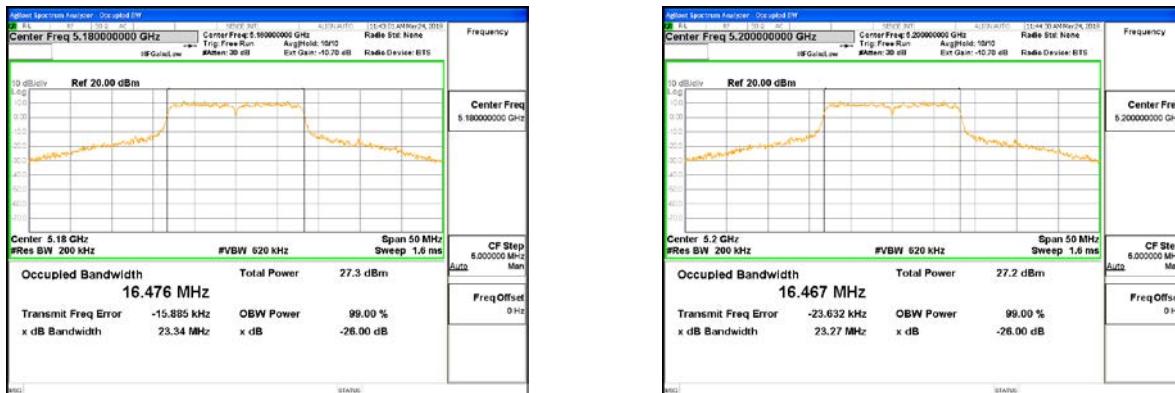
See next pages for actual measured spectrum plots.



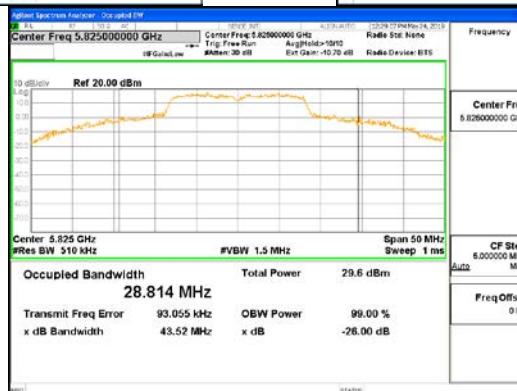
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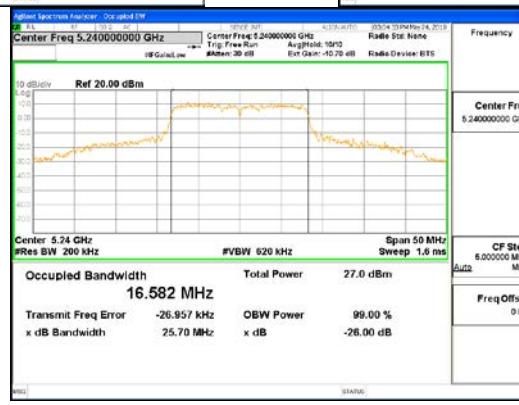
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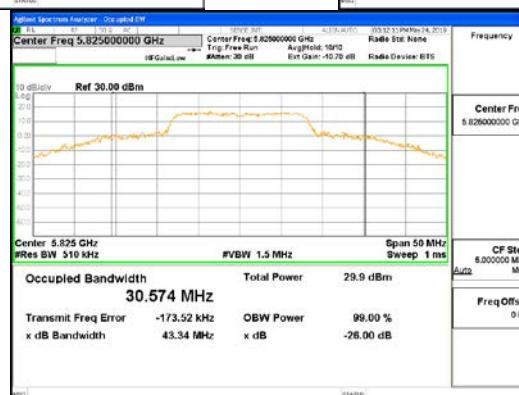
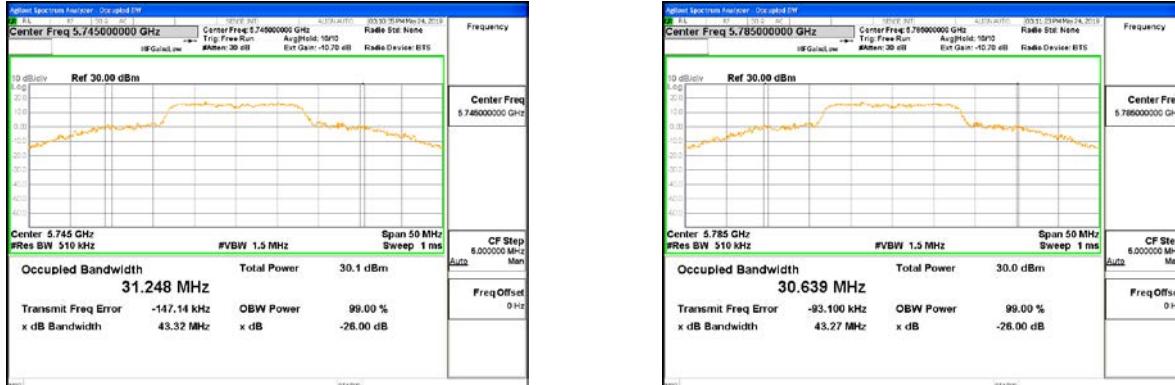
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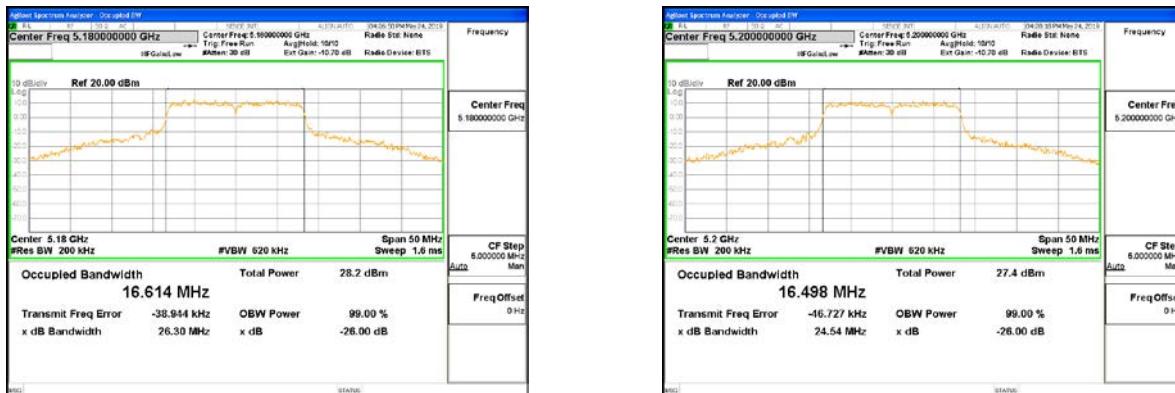
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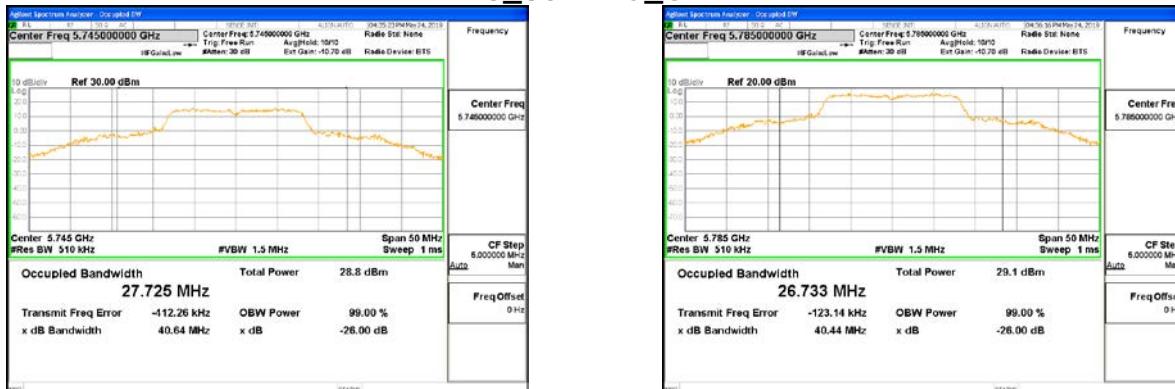
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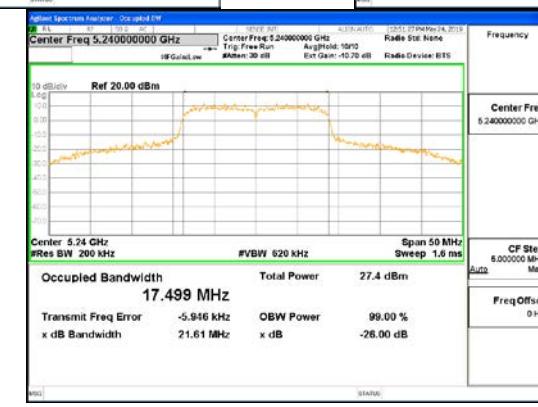
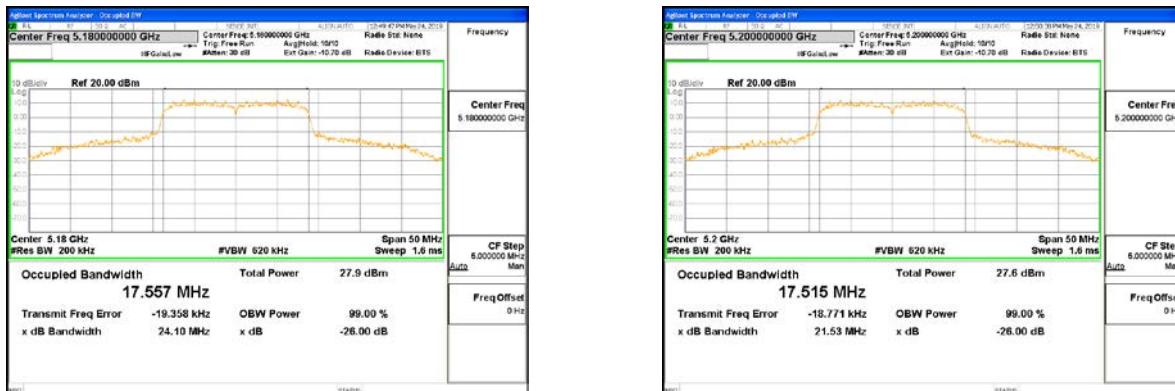
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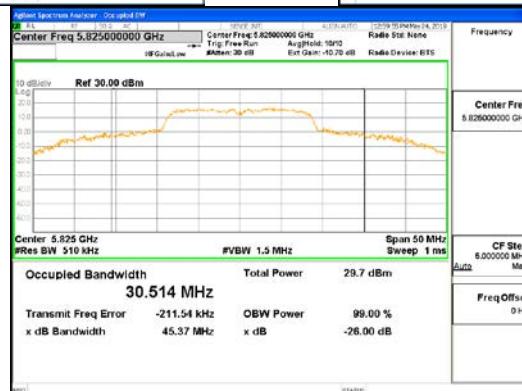
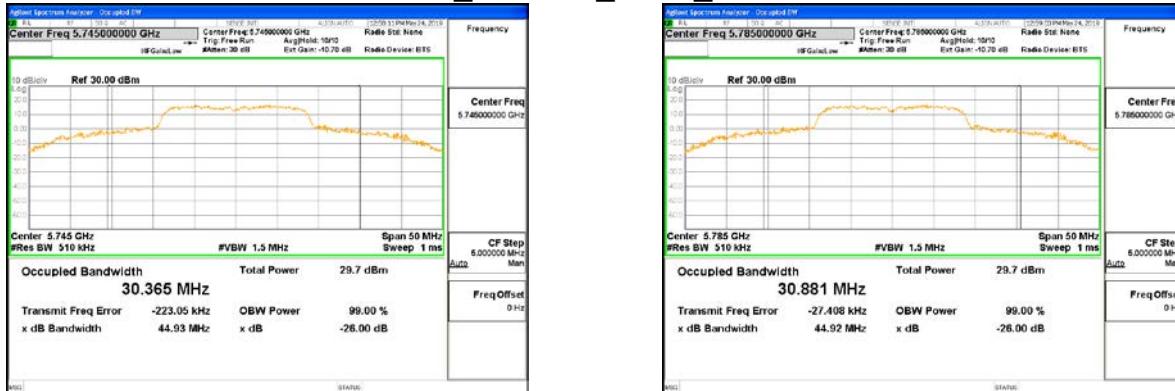
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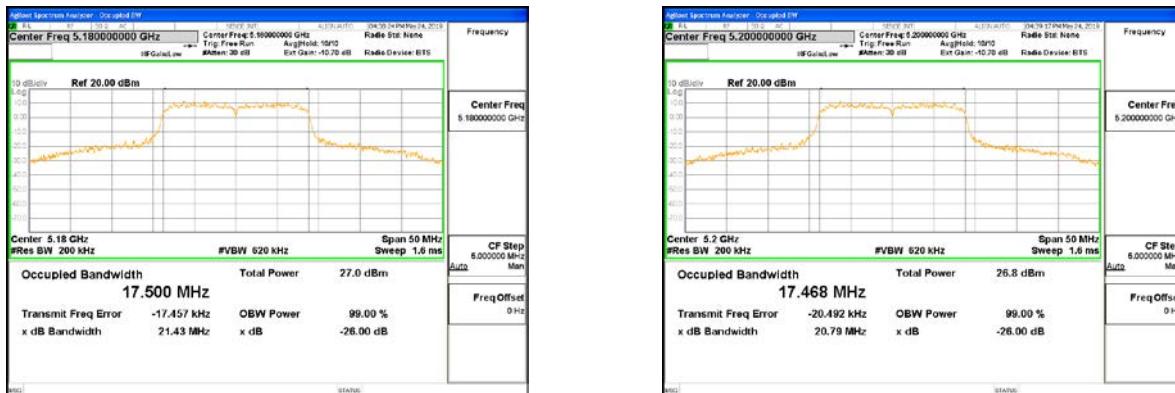
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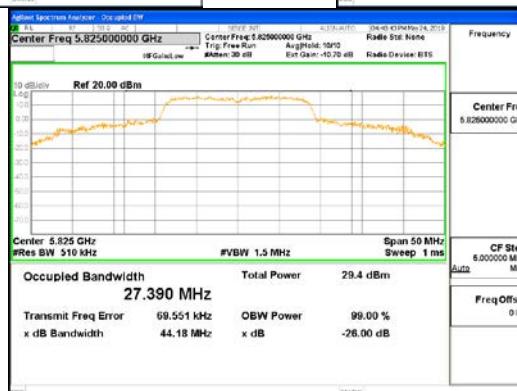
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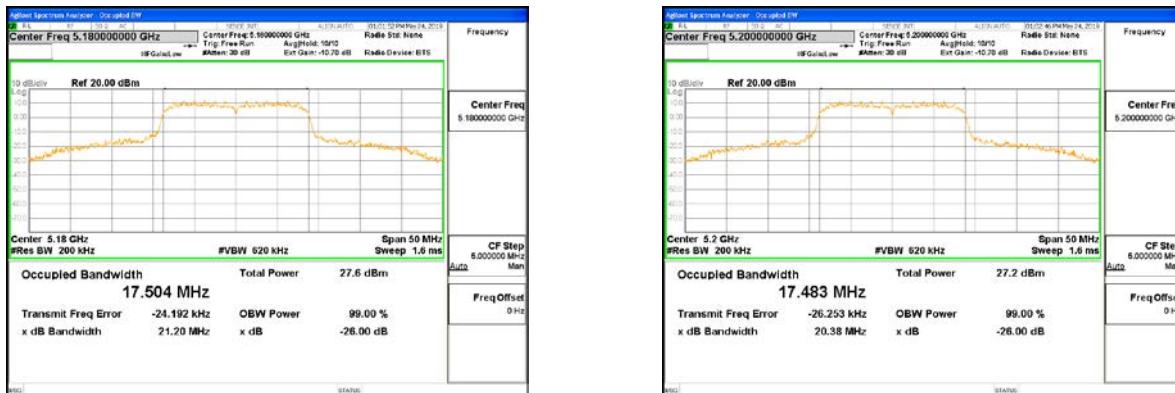
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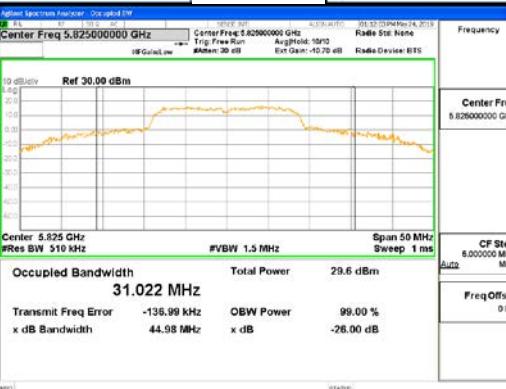
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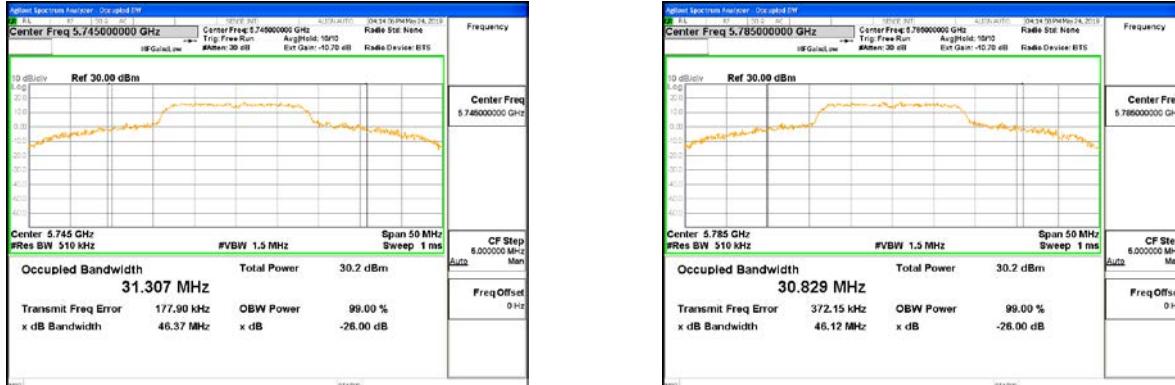
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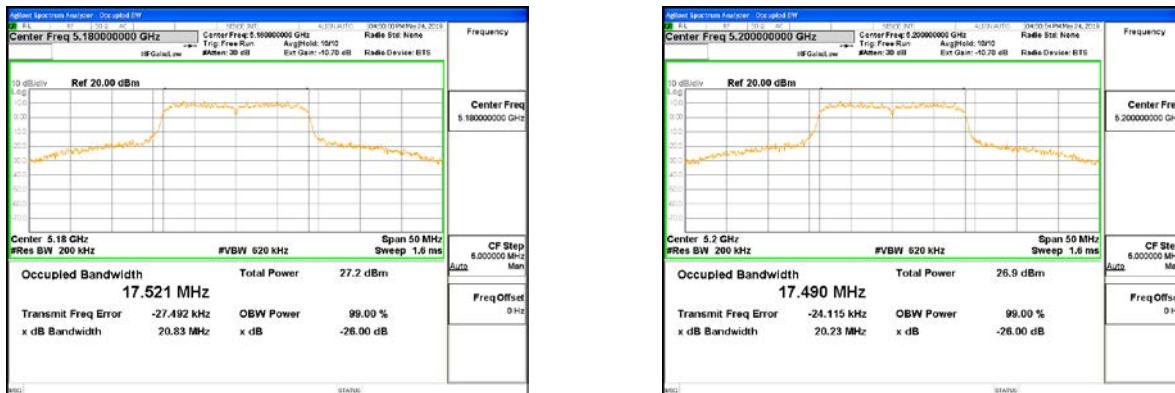
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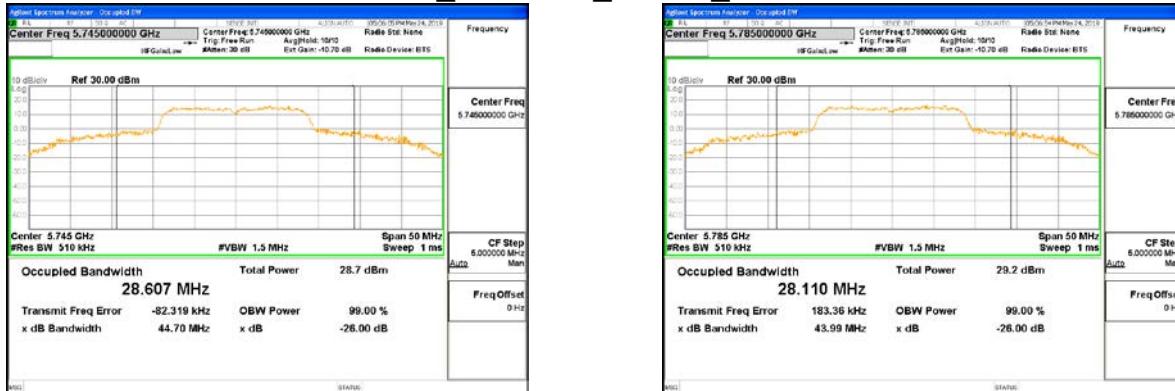
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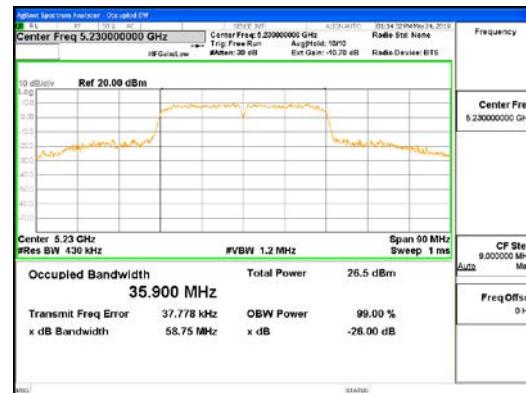
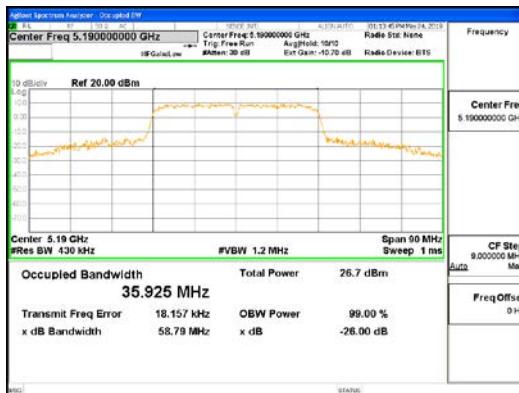


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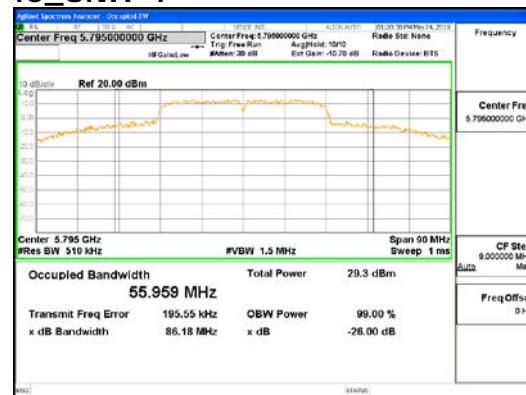
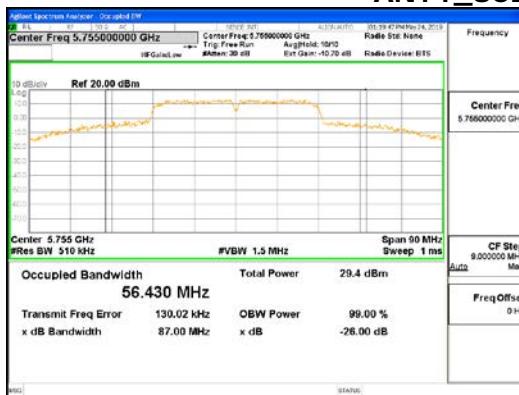
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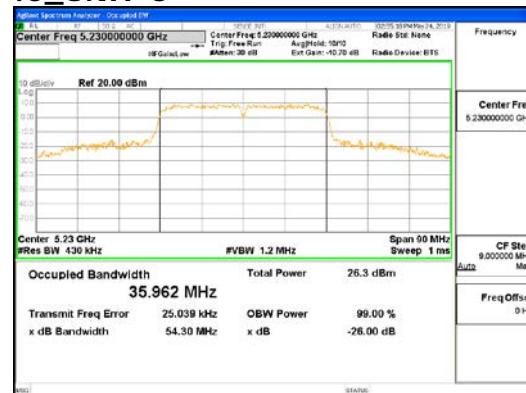
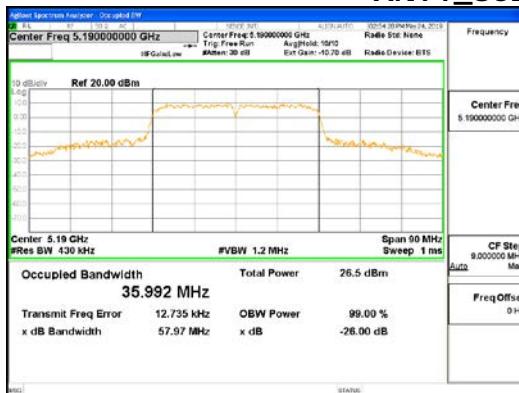
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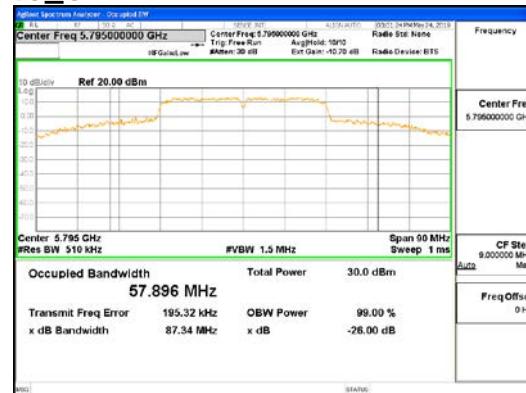
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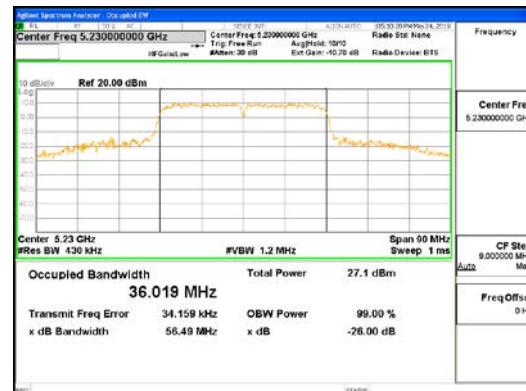
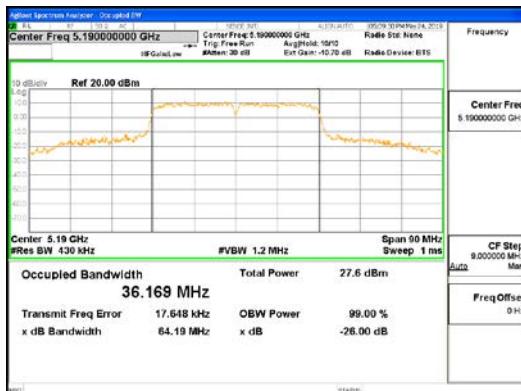


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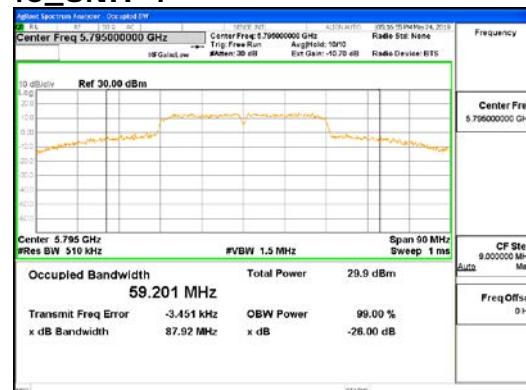
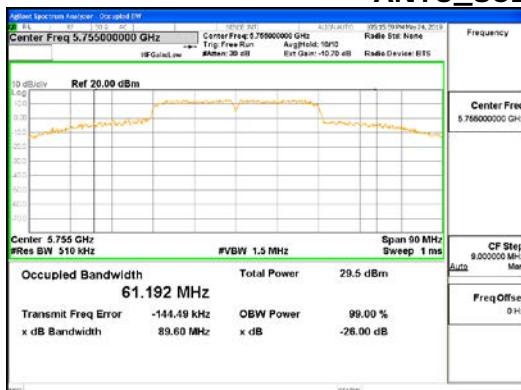
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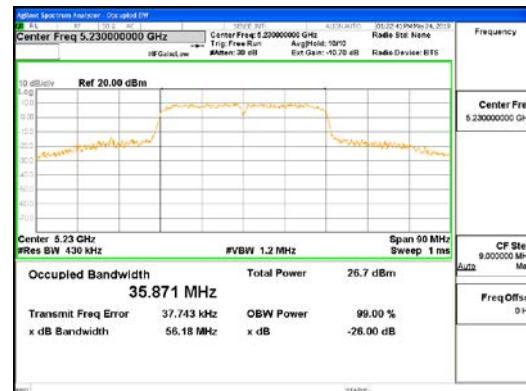
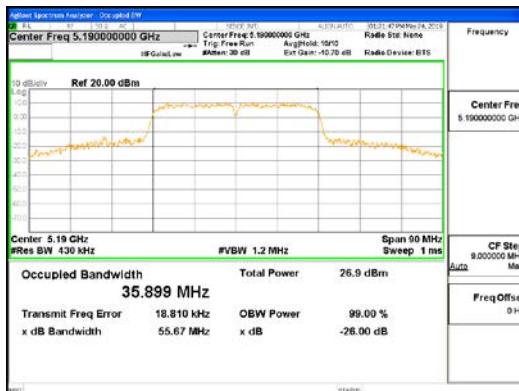


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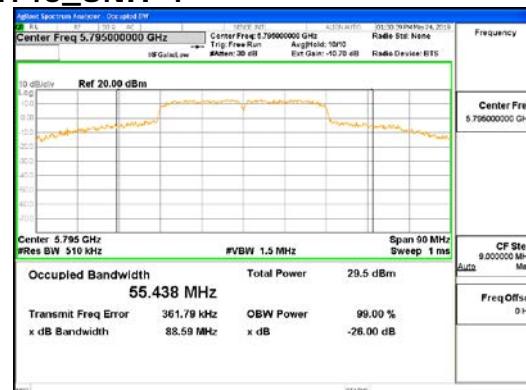
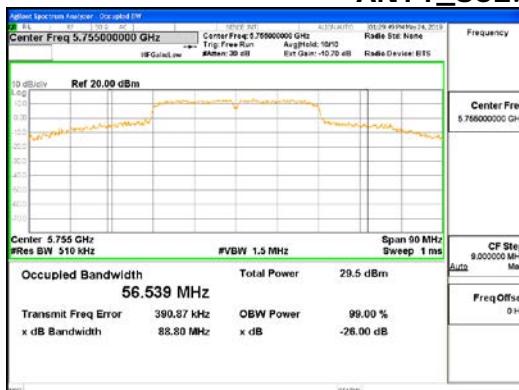
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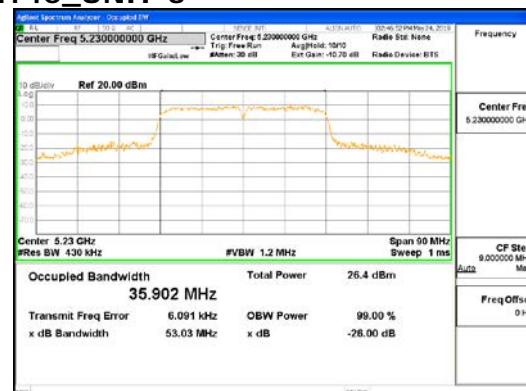
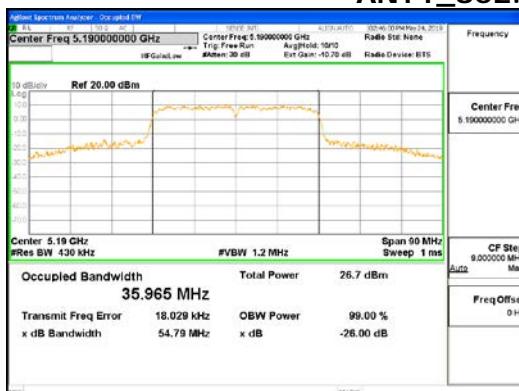
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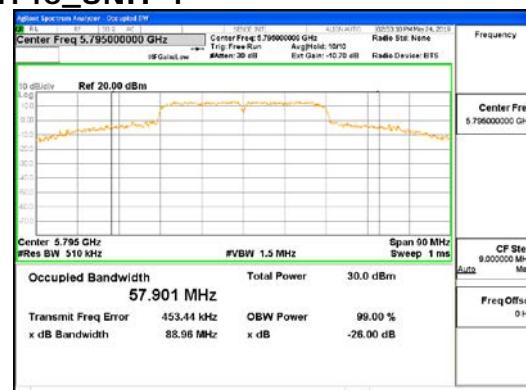
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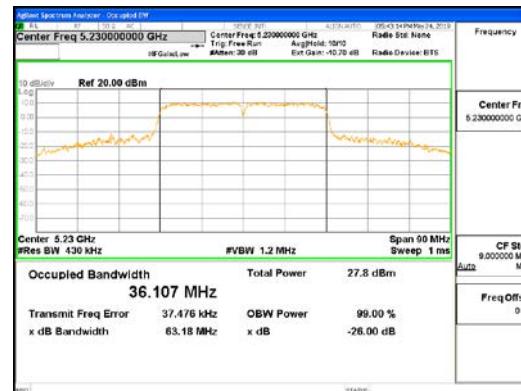
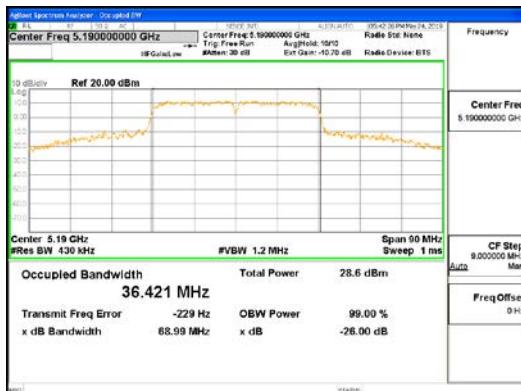


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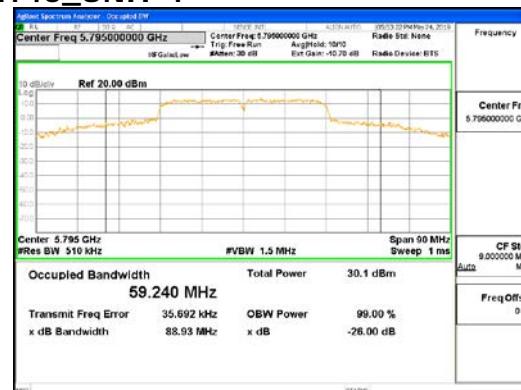
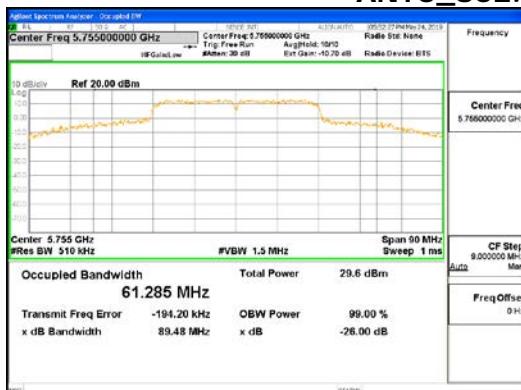
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ANT3_802.11ac_VHT40_UNII-1



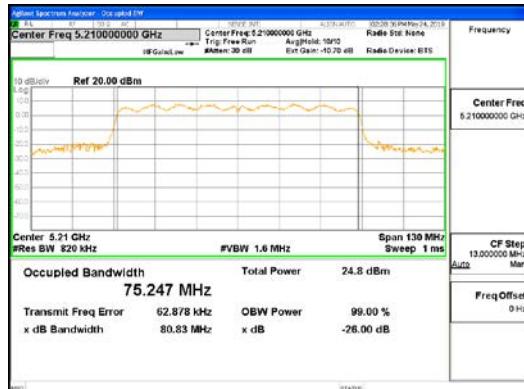
ANT3_802.11ac_VHT40_UNII-3



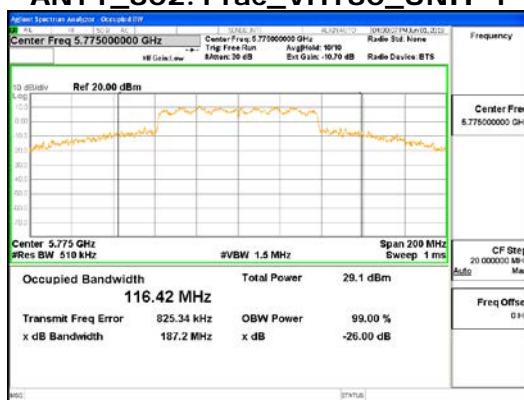
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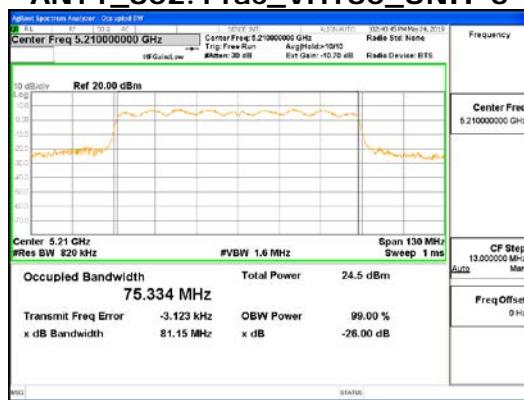
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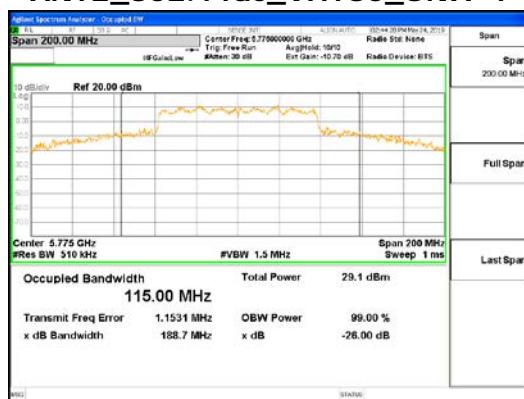
ANT1_802.11ac_VHT80_UNII-1



ANT1_802.11ac_VHT80_UNII-3



ANT2_802.11ac_VHT80_UNII-1



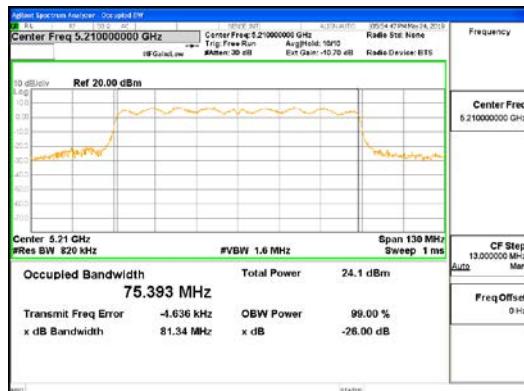
ANT2_802.11ac_VHT80_UNII-3



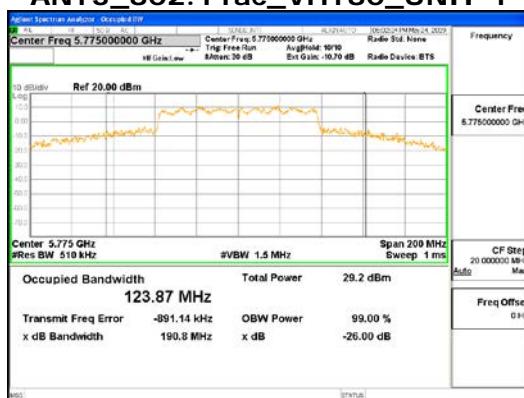
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ANT3_802.11ac_VHT80_UNII-1



ANT3_802.11ac_VHT80_UNII-3



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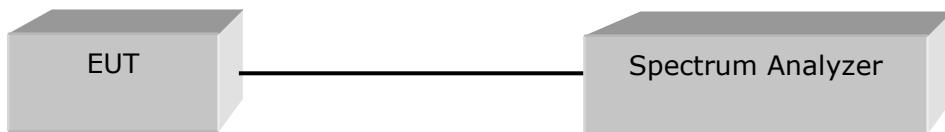
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4.3 OUTPUT POWER

Test Procedures

KDB 789033 – Section E.2.d (Method SA-2, Maximum Conducted Output Power)
KDB 662911 D01, D02 (Multiple Transmitter Output)

The transmitter output is connected to a spectrum analyzer and the analyzer's internal channel power integration function is used to integrate the power over a bandwidth greater than or equal to the 99% bandwidth.



Test Settings :

Center frequency = the highest, middle and the lowest channels

- a) RBW = 1 MHz
- b) VBW \geq 3 x RBW
- c) Sweep time = auto
- d) Detector = power averaging (rms)
- e) Trace mode = Average at least 100
- f) Duty cycle factor = $10\log(1/x)$

| Test mode | | Duty Cycle Factor (dB) |
|-----------|----------------|------------------------|
| CDD Mode | 802.11a | 0.12 |
| | 802.11n_HT20 | 0.15 |
| | 802.11n_HT40 | 0.28 |
| | 802.11ac_VHT20 | 0.17 |
| | 802.11ac_VHT40 | 0.33 |
| | 802.11ac_VHT80 | 0.50 |
| SDM Mode | 802.11n_HT20 | 0.29 |
| | 802.11n_HT40 | 0.65 |
| | 802.11ac_VHT20 | 0.41 |
| | 802.11ac_VHT40 | 0.60 |
| | 802.11ac_VHT80 | 1.02 |



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Limit

| Operating Mode | Band | Mode | ANT Configuration | ANT Gain (dBi) | Limit (dBm) |
|----------------|--------|--------------|--------------------|----------------|-------------|
| SISO | UNII 1 | 802.11a/n/ac | ANT1, ANT2, ANT3 | 2.00 | 30.00 |
| | UNII 3 | | | | |
| MIMO (2Tx) | UNII 1 | 802.11a/n/ac | ANT1 + ANT2 | 5.01 | 30.00 |
| | UNII 3 | | | | |
| MIMO (3Tx) | UNII 1 | 802.11a/n/ac | ANT1 + ANT2 + ANT3 | 6.77 | 29.23 |
| | UNII 3 | | | | |

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Test Data

CDD Mode_ANT1

| Test Mode | Frequency (MHz) | Measured Output Power (dBm) | Duty cycle Factor (dB) | Result Output Power (dBm) | Limit (dBm) | Margin (dB) |
|-------------------------|-----------------|-----------------------------|------------------------|---------------------------|-------------|-------------|
| 802.11a | 5 180 | 21.13 | 0.12 | 21.25 | 30.00 | 8.75 |
| | 5 200 | 21.06 | 0.12 | 21.18 | 30.00 | 8.82 |
| | 5 240 | 20.94 | 0.12 | 21.06 | 30.00 | 8.94 |
| | 5 745 | 23.45 | 0.12 | 23.57 | 30.00 | 6.43 |
| | 5 785 | 23.40 | 0.12 | 23.52 | 30.00 | 6.48 |
| | 5 825 | 23.38 | 0.12 | 23.50 | 30.00 | 6.50 |
| 802.11n _HT20 | 5 180 | 21.69 | 0.15 | 21.84 | 30.00 | 8.16 |
| | 5 200 | 21.38 | 0.15 | 21.53 | 30.00 | 8.47 |
| | 5 240 | 21.24 | 0.15 | 21.39 | 30.00 | 8.61 |
| | 5 745 | 23.58 | 0.15 | 23.73 | 30.00 | 6.27 |
| | 5 785 | 23.55 | 0.15 | 23.70 | 30.00 | 6.30 |
| | 5 825 | 23.58 | 0.15 | 23.73 | 30.00 | 6.27 |
| 802.11ac _VHT20 | 5 180 | 21.35 | 0.17 | 21.52 | 30.00 | 8.48 |
| | 5 200 | 20.98 | 0.17 | 21.15 | 30.00 | 8.85 |
| | 5 240 | 20.95 | 0.17 | 21.12 | 30.00 | 8.88 |
| | 5 745 | 23.67 | 0.17 | 23.84 | 30.00 | 6.16 |
| | 5 785 | 23.53 | 0.17 | 23.70 | 30.00 | 6.30 |
| | 5 825 | 23.56 | 0.17 | 23.73 | 30.00 | 6.27 |
| 802.11n _HT40 | 5 190 | 20.56 | 0.28 | 20.84 | 30.00 | 9.16 |
| | 5 230 | 20.59 | 0.28 | 20.87 | 30.00 | 9.13 |
| | 5 755 | 23.13 | 0.28 | 23.41 | 30.00 | 6.59 |
| | 5 795 | 23.21 | 0.28 | 23.49 | 30.00 | 6.51 |
| 802.11ac _VHT40 | 5 190 | 20.57 | 0.33 | 20.90 | 30.00 | 9.10 |
| | 5 230 | 20.45 | 0.33 | 20.78 | 30.00 | 9.22 |
| | 5 755 | 23.26 | 0.33 | 23.59 | 30.00 | 6.41 |
| | 5 795 | 23.30 | 0.33 | 23.63 | 30.00 | 6.37 |
| 802.11ac _VHT80 | 5 210 | 18.63 | 0.50 | 19.13 | 30.00 | 10.87 |
| | 5 775 | 22.61 | 0.50 | 23.11 | 30.00 | 6.89 |
| Measurement uncertainty | | ± 1.5 dB | | | | |

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|--|---|--|--|

CDD Mode_ANT2

| Test Mode | Frequency (MHz) | Measured Output Power (dBm) | Duty cycle Factor (dB) | Result Output Power (dBm) | Limit (dBm) | Margin (dB) |
|-------------------------|-----------------|-----------------------------|------------------------|---------------------------|-------------|-------------|
| 802.11a | 5 180 | 20.74 | 0.12 | 20.86 | 30.00 | 9.14 |
| | 5 200 | 20.70 | 0.12 | 20.82 | 30.00 | 9.18 |
| | 5 240 | 20.53 | 0.12 | 20.65 | 30.00 | 9.35 |
| | 5 745 | 23.51 | 0.12 | 23.63 | 30.00 | 6.37 |
| | 5 785 | 23.50 | 0.12 | 23.62 | 30.00 | 6.38 |
| | 5 825 | 23.47 | 0.12 | 23.59 | 30.00 | 6.41 |
| 802.11n _HT20 | 5 180 | 20.93 | 0.15 | 21.08 | 30.00 | 8.92 |
| | 5 200 | 20.53 | 0.15 | 20.68 | 30.00 | 9.32 |
| | 5 240 | 20.39 | 0.15 | 20.54 | 30.00 | 9.46 |
| | 5 745 | 23.46 | 0.15 | 23.61 | 30.00 | 6.39 |
| | 5 785 | 23.37 | 0.15 | 23.52 | 30.00 | 6.48 |
| | 5 825 | 23.37 | 0.15 | 23.52 | 30.00 | 6.48 |
| 802.11ac _VHT20 | 5 180 | 20.62 | 0.17 | 20.79 | 30.00 | 9.21 |
| | 5 200 | 20.29 | 0.17 | 20.46 | 30.00 | 9.54 |
| | 5 240 | 20.20 | 0.17 | 20.37 | 30.00 | 9.63 |
| | 5 745 | 23.39 | 0.17 | 23.56 | 30.00 | 6.44 |
| | 5 785 | 23.37 | 0.17 | 23.54 | 30.00 | 6.46 |
| | 5 825 | 23.30 | 0.17 | 23.47 | 30.00 | 6.53 |
| 802.11n _HT40 | 5 190 | 20.41 | 0.28 | 20.69 | 30.00 | 9.31 |
| | 5 230 | 20.07 | 0.28 | 20.35 | 30.00 | 9.65 |
| | 5 755 | 23.80 | 0.28 | 24.08 | 30.00 | 5.92 |
| | 5 795 | 23.79 | 0.28 | 24.07 | 30.00 | 5.93 |
| 802.11ac _VHT40 | 5 190 | 20.59 | 0.33 | 20.92 | 30.00 | 9.08 |
| | 5 230 | 20.34 | 0.33 | 20.67 | 30.00 | 9.33 |
| | 5 755 | 23.75 | 0.33 | 24.08 | 30.00 | 5.92 |
| | 5 795 | 23.80 | 0.33 | 24.13 | 30.00 | 5.87 |
| 802.11ac _VHT80 | 5 210 | 18.47 | 0.50 | 18.97 | 30.00 | 11.03 |
| | 5 775 | 23.00 | 0.50 | 23.50 | 30.00 | 6.50 |
| Measurement uncertainty | | ± 1.5 dB | | | | |

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|---|--|

CDD Mode_ANT3

| Test Mode | Frequency (MHz) | Measured Output Power (dBm) | Duty cycle Factor (dB) | Result Output Power (dBm) | Limit (dBm) | Margin (dB) |
|-------------------------|-----------------|-----------------------------|------------------------|---------------------------|-------------|-------------|
| 802.11a | 5 180 | 21.83 | 0.12 | 21.95 | 30.00 | 8.05 |
| | 5 200 | 21.06 | 0.12 | 21.18 | 30.00 | 8.82 |
| | 5 240 | 20.85 | 0.12 | 20.97 | 30.00 | 9.03 |
| | 5 745 | 22.88 | 0.12 | 23.00 | 30.00 | 7.00 |
| | 5 785 | 23.21 | 0.12 | 23.33 | 30.00 | 6.67 |
| | 5 825 | 23.59 | 0.12 | 23.71 | 30.00 | 6.29 |
| 802.11n _HT20 | 5 180 | 20.92 | 0.15 | 21.07 | 30.00 | 8.93 |
| | 5 200 | 20.62 | 0.15 | 20.77 | 30.00 | 9.23 |
| | 5 240 | 20.41 | 0.15 | 20.56 | 30.00 | 9.44 |
| | 5 745 | 22.67 | 0.15 | 22.82 | 30.00 | 7.18 |
| | 5 785 | 23.06 | 0.15 | 23.21 | 30.00 | 6.79 |
| | 5 825 | 23.48 | 0.15 | 23.63 | 30.00 | 6.37 |
| 802.11ac _VHT20 | 5 180 | 20.91 | 0.17 | 21.08 | 30.00 | 8.92 |
| | 5 200 | 20.62 | 0.17 | 20.79 | 30.00 | 9.21 |
| | 5 240 | 20.46 | 0.17 | 20.63 | 30.00 | 9.37 |
| | 5 745 | 22.69 | 0.17 | 22.86 | 30.00 | 7.14 |
| | 5 785 | 23.30 | 0.17 | 23.47 | 30.00 | 6.53 |
| | 5 825 | 23.89 | 0.17 | 24.06 | 30.00 | 5.94 |
| 802.11n _HT40 | 5 190 | 21.36 | 0.28 | 21.64 | 30.00 | 8.36 |
| | 5 230 | 20.92 | 0.28 | 21.20 | 30.00 | 8.80 |
| | 5 755 | 23.25 | 0.28 | 23.53 | 30.00 | 6.47 |
| | 5 795 | 23.73 | 0.28 | 24.01 | 30.00 | 5.99 |
| 802.11ac _VHT40 | 5 190 | 22.13 | 0.33 | 22.46 | 30.00 | 7.54 |
| | 5 230 | 21.53 | 0.33 | 21.86 | 30.00 | 8.14 |
| | 5 755 | 23.27 | 0.33 | 23.60 | 30.00 | 6.40 |
| | 5 795 | 23.79 | 0.33 | 24.12 | 30.00 | 5.88 |
| 802.11ac _VHT80 | 5 210 | 18.43 | 0.50 | 18.93 | 30.00 | 11.07 |
| | 5 775 | 23.08 | 0.50 | 23.58 | 30.00 | 6.42 |
| Measurement uncertainty | | ± 1.5 dB | | | | |

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CDD Mode_ANT1 + ANT2

| Test Mode | Frequency (MHz) | Measured Output Power (dBm) | Duty cycle Factor (dB) | Result Output Power (dBm) | Limit (dBm) | Margin (dB) |
|-------------------------|-----------------|-----------------------------|------------------------|---------------------------|-------------|-------------|
| 802.11a | 5 180 | 23.95 | 0.12 | 24.07 | 30.00 | 5.93 |
| | 5 200 | 23.89 | 0.12 | 24.01 | 30.00 | 5.99 |
| | 5 240 | 23.75 | 0.12 | 23.87 | 30.00 | 6.13 |
| | 5 745 | 26.49 | 0.12 | 26.61 | 30.00 | 3.39 |
| | 5 785 | 26.46 | 0.12 | 26.58 | 30.00 | 3.42 |
| | 5 825 | 26.44 | 0.12 | 26.56 | 30.00 | 3.44 |
| 802.11n _HT20 | 5 180 | 24.34 | 0.15 | 24.49 | 30.00 | 5.51 |
| | 5 200 | 23.99 | 0.15 | 24.14 | 30.00 | 5.86 |
| | 5 240 | 23.85 | 0.15 | 24.00 | 30.00 | 6.00 |
| | 5 745 | 26.53 | 0.15 | 26.68 | 30.00 | 3.32 |
| | 5 785 | 26.47 | 0.15 | 26.62 | 30.00 | 3.38 |
| | 5 825 | 26.49 | 0.15 | 26.64 | 30.00 | 3.36 |
| 802.11ac _VHT20 | 5 180 | 24.01 | 0.17 | 24.18 | 30.00 | 5.82 |
| | 5 200 | 23.66 | 0.17 | 23.83 | 30.00 | 6.17 |
| | 5 240 | 23.60 | 0.17 | 23.77 | 30.00 | 6.23 |
| | 5 745 | 26.54 | 0.17 | 26.71 | 30.00 | 3.29 |
| | 5 785 | 26.46 | 0.17 | 26.63 | 30.00 | 3.37 |
| | 5 825 | 26.44 | 0.17 | 26.61 | 30.00 | 3.39 |
| 802.11n _HT40 | 5 190 | 23.50 | 0.28 | 23.78 | 30.00 | 6.22 |
| | 5 230 | 23.35 | 0.28 | 23.63 | 30.00 | 6.37 |
| | 5 755 | 26.49 | 0.28 | 26.77 | 30.00 | 3.23 |
| | 5 795 | 26.52 | 0.28 | 26.80 | 30.00 | 3.20 |
| 802.11ac _VHT40 | 5 190 | 23.59 | 0.33 | 23.92 | 30.00 | 6.08 |
| | 5 230 | 23.41 | 0.33 | 23.74 | 30.00 | 6.26 |
| | 5 755 | 26.52 | 0.33 | 26.85 | 30.00 | 3.15 |
| | 5 795 | 26.57 | 0.33 | 26.90 | 30.00 | 3.10 |
| 802.11ac _VHT80 | 5 210 | 21.56 | 0.50 | 22.06 | 30.00 | 7.94 |
| | 5 775 | 25.82 | 0.50 | 26.32 | 30.00 | 3.68 |
| Measurement uncertainty | | ± 1.5 dB | | | | |

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CDD Mode_ANT1 + ANT2 + ANT3

| Test Mode | Frequency (MHz) | Measured Output Power (dBm) | Duty cycle Factor (dB) | Result Output Power (dBm) | Limit (dBm) | Margin (dB) |
|-------------------------|-----------------|-----------------------------|------------------------|---------------------------|-------------|-------------|
| 802.11a | 5 180 | 26.03 | 0.12 | 26.15 | 29.23 | 3.08 |
| | 5 200 | 25.71 | 0.12 | 25.83 | 29.23 | 3.40 |
| | 5 240 | 25.55 | 0.12 | 25.67 | 29.23 | 3.56 |
| | 5 745 | 28.06 | 0.12 | 28.18 | 29.23 | 1.05 |
| | 5 785 | 28.14 | 0.12 | 28.26 | 29.23 | 0.97 |
| | 5 825 | 28.25 | 0.12 | 28.37 | 29.23 | 0.86 |
| 802.11n _HT20 | 5 180 | 25.97 | 0.15 | 26.12 | 29.23 | 3.11 |
| | 5 200 | 25.63 | 0.15 | 25.78 | 29.23 | 3.45 |
| | 5 240 | 25.47 | 0.15 | 25.62 | 29.23 | 3.61 |
| | 5 745 | 28.03 | 0.15 | 28.18 | 29.23 | 1.05 |
| | 5 785 | 28.10 | 0.15 | 28.25 | 29.23 | 0.98 |
| | 5 825 | 28.25 | 0.15 | 28.40 | 29.23 | 0.83 |
| 802.11ac _VHT20 | 5 180 | 25.74 | 0.17 | 25.91 | 29.23 | 3.32 |
| | 5 200 | 25.41 | 0.17 | 25.58 | 29.23 | 3.65 |
| | 5 240 | 25.32 | 0.17 | 25.49 | 29.23 | 3.74 |
| | 5 745 | 28.04 | 0.17 | 28.21 | 29.23 | 1.02 |
| | 5 785 | 28.17 | 0.17 | 28.34 | 29.23 | 0.89 |
| | 5 825 | 28.36 | 0.17 | 28.53 | 29.23 | 0.70 |
| 802.11n _HT40 | 5 190 | 25.57 | 0.28 | 25.85 | 29.23 | 3.38 |
| | 5 230 | 25.31 | 0.28 | 25.59 | 29.23 | 3.64 |
| | 5 755 | 28.17 | 0.28 | 28.45 | 29.23 | 0.78 |
| | 5 795 | 28.36 | 0.28 | 28.64 | 29.23 | 0.59 |
| 802.11ac _VHT40 | 5 190 | 25.93 | 0.33 | 26.26 | 29.23 | 2.97 |
| | 5 230 | 25.58 | 0.33 | 25.91 | 29.23 | 3.32 |
| | 5 755 | 28.20 | 0.33 | 28.53 | 29.23 | 0.70 |
| | 5 795 | 28.41 | 0.33 | 28.74 | 29.23 | 0.49 |
| 802.11ac _VHT80 | 5 210 | 23.28 | 0.50 | 23.78 | 29.23 | 5.45 |
| | 5 775 | 27.67 | 0.50 | 28.17 | 29.23 | 1.06 |
| Measurement uncertainty | | ± 1.5 dB | | | | |

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SDM Mode_ANT1

| Test Mode | Frequency (MHz) | Measured Output Power (dBm) | Duty cycle Factor (dB) | Result Output Power (dBm) | Limit (dBm) | Margin (dB) |
|-------------------------|-----------------|-----------------------------|------------------------|---------------------------|-------------|-------------|
| 802.11n _HT20 | 5 180 | 21.38 | 0.29 | 21.67 | 30.00 | 8.33 |
| | 5 200 | 20.86 | 0.29 | 21.15 | 30.00 | 8.85 |
| | 5 240 | 20.63 | 0.29 | 20.92 | 30.00 | 9.08 |
| | 5 745 | 22.55 | 0.29 | 22.84 | 30.00 | 7.16 |
| | 5 785 | 22.47 | 0.29 | 22.76 | 30.00 | 7.24 |
| | 5 825 | 22.44 | 0.29 | 22.73 | 30.00 | 7.27 |
| 802.11ac _VHT20 | 5 180 | 20.54 | 0.41 | 20.95 | 30.00 | 9.05 |
| | 5 200 | 20.11 | 0.41 | 20.52 | 30.00 | 9.48 |
| | 5 240 | 20.02 | 0.41 | 20.43 | 30.00 | 9.57 |
| | 5 745 | 22.50 | 0.41 | 22.91 | 30.00 | 7.09 |
| | 5 785 | 22.44 | 0.41 | 22.85 | 30.00 | 7.15 |
| | 5 825 | 22.40 | 0.41 | 22.81 | 30.00 | 7.19 |
| 802.11n _HT40 | 5 190 | 20.01 | 0.65 | 20.66 | 30.00 | 9.34 |
| | 5 230 | 19.53 | 0.65 | 20.18 | 30.00 | 9.82 |
| | 5 755 | 21.89 | 0.65 | 22.54 | 30.00 | 7.46 |
| | 5 795 | 21.89 | 0.65 | 22.54 | 30.00 | 7.46 |
| 802.11ac _VHT40 | 5 190 | 18.17 | 0.60 | 18.77 | 30.00 | 11.23 |
| | 5 230 | 17.98 | 0.60 | 18.58 | 30.00 | 11.42 |
| | 5 755 | 21.86 | 0.60 | 22.46 | 30.00 | 7.54 |
| | 5 795 | 21.90 | 0.60 | 22.5 | 30.00 | 7.50 |
| 802.11ac _VHT80 | 5 210 | 14.74 | 1.02 | 15.76 | 30.00 | 14.24 |
| | 5 775 | 20.69 | 1.02 | 21.71 | 30.00 | 8.29 |
| Measurement uncertainty | | ± 1.5 dB | | | | |

| | | | |
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|--|---|--|--|

SDM Mode_ANT2

| Test Mode | Frequency (MHz) | Measured Output Power (dBm) | Duty cycle Factor (dB) | Result Output Power (dBm) | Limit (dBm) | Margin (dB) |
|-------------------------|-----------------|-----------------------------|------------------------|---------------------------|-------------|-------------|
| 802.11n _HT20 | 5 180 | 21.61 | 0.29 | 21.90 | 30.00 | 8.10 |
| | 5 200 | 21.02 | 0.29 | 21.31 | 30.00 | 8.69 |
| | 5 240 | 20.63 | 0.29 | 20.92 | 30.00 | 9.08 |
| | 5 745 | 22.86 | 0.29 | 23.15 | 30.00 | 6.85 |
| | 5 785 | 22.86 | 0.29 | 23.15 | 30.00 | 6.85 |
| | 5 825 | 22.81 | 0.29 | 23.10 | 30.00 | 6.90 |
| 802.11ac _VHT20 | 5 180 | 19.08 | 0.41 | 19.49 | 30.00 | 10.51 |
| | 5 200 | 18.76 | 0.41 | 19.17 | 30.00 | 10.83 |
| | 5 240 | 18.57 | 0.41 | 18.98 | 30.00 | 11.02 |
| | 5 745 | 22.76 | 0.41 | 23.17 | 30.00 | 6.83 |
| | 5 785 | 22.61 | 0.41 | 23.02 | 30.00 | 6.98 |
| | 5 825 | 22.66 | 0.41 | 23.07 | 30.00 | 6.93 |
| 802.11n _HT40 | 5 190 | 17.95 | 0.65 | 18.60 | 30.00 | 11.40 |
| | 5 230 | 17.51 | 0.65 | 18.16 | 30.00 | 11.84 |
| | 5 755 | 23.21 | 0.65 | 23.86 | 30.00 | 6.14 |
| | 5 795 | 23.17 | 0.65 | 23.82 | 30.00 | 6.18 |
| 802.11ac _VHT40 | 5 190 | 17.50 | 0.60 | 18.10 | 30.00 | 11.90 |
| | 5 230 | 17.26 | 0.60 | 17.86 | 30.00 | 12.14 |
| | 5 755 | 23.34 | 0.60 | 23.94 | 30.00 | 6.06 |
| | 5 795 | 23.33 | 0.60 | 23.93 | 30.00 | 6.07 |
| 802.11ac _VHT80 | 5 210 | 16.22 | 1.02 | 17.24 | 30.00 | 12.76 |
| | 5 775 | 21.82 | 1.02 | 22.84 | 30.00 | 7.16 |
| Measurement uncertainty | | ± 1.5 dB | | | | |

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|--|---|--|--|

SDM Mode_ANT3

| Test Mode | Frequency (MHz) | Measured Output Power (dBm) | Duty cycle Factor (dB) | Result Output Power (dBm) | Limit (dBm) | Margin (dB) |
|-------------------------|-----------------|-----------------------------|------------------------|---------------------------|-------------|-------------|
| 802.11n _HT20 | 5 180 | 21.14 | 0.29 | 21.43 | 30.00 | 8.57 |
| | 5 200 | 20.44 | 0.29 | 20.73 | 30.00 | 9.27 |
| | 5 240 | 20.72 | 0.29 | 21.01 | 30.00 | 8.99 |
| | 5 745 | 23.08 | 0.29 | 23.37 | 30.00 | 6.63 |
| | 5 785 | 23.44 | 0.29 | 23.73 | 30.00 | 6.27 |
| | 5 825 | 23.76 | 0.29 | 24.05 | 30.00 | 5.95 |
| 802.11ac _VHT20 | 5 180 | 19.77 | 0.41 | 20.18 | 30.00 | 9.82 |
| | 5 200 | 19.23 | 0.41 | 19.64 | 30.00 | 10.36 |
| | 5 240 | 19.05 | 0.41 | 19.46 | 30.00 | 10.54 |
| | 5 745 | 23.07 | 0.41 | 23.48 | 30.00 | 6.52 |
| | 5 785 | 23.40 | 0.41 | 23.81 | 30.00 | 6.19 |
| | 5 825 | 23.72 | 0.41 | 24.13 | 30.00 | 5.87 |
| 802.11n _HT40 | 5 190 | 19.58 | 0.65 | 20.23 | 30.00 | 9.77 |
| | 5 230 | 18.97 | 0.65 | 19.62 | 30.00 | 10.38 |
| | 5 755 | 22.82 | 0.65 | 23.47 | 30.00 | 6.53 |
| | 5 795 | 23.38 | 0.65 | 24.03 | 30.00 | 5.97 |
| 802.11ac _VHT40 | 5 190 | 18.51 | 0.60 | 19.11 | 30.00 | 10.89 |
| | 5 230 | 17.88 | 0.60 | 18.48 | 30.00 | 11.52 |
| | 5 755 | 22.84 | 0.60 | 23.44 | 30.00 | 6.56 |
| | 5 795 | 23.32 | 0.60 | 23.92 | 30.00 | 6.08 |
| 802.11ac _VHT80 | 5 210 | 16.44 | 1.02 | 17.46 | 30.00 | 12.54 |
| | 5 775 | 21.47 | 1.02 | 22.49 | 30.00 | 7.51 |
| Measurement uncertainty | | ± 1.5 dB | | | | |

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|--|---|--|--|

SDM Mode_ANT1 + ANT2

| Test Mode | Frequency (MHz) | Measured Output Power (dBm) | Duty cycle Factor (dB) | Result Output Power (dBm) | Limit (dBm) | Margin (dB) |
|-------------------------|-----------------|-----------------------------|------------------------|---------------------------|-------------|-------------|
| 802.11n _HT20 | 5 180 | 24.51 | 0.29 | 24.80 | 30.00 | 5.20 |
| | 5 200 | 23.95 | 0.29 | 24.24 | 30.00 | 5.76 |
| | 5 240 | 23.64 | 0.29 | 23.93 | 30.00 | 6.07 |
| | 5 745 | 25.72 | 0.29 | 26.01 | 30.00 | 3.99 |
| | 5 785 | 25.68 | 0.29 | 25.97 | 30.00 | 4.03 |
| | 5 825 | 25.64 | 0.29 | 25.93 | 30.00 | 4.07 |
| 802.11ac _VHT20 | 5 180 | 22.88 | 0.41 | 23.29 | 30.00 | 6.71 |
| | 5 200 | 22.50 | 0.41 | 22.91 | 30.00 | 7.09 |
| | 5 240 | 22.37 | 0.41 | 22.78 | 30.00 | 7.22 |
| | 5 745 | 25.64 | 0.41 | 26.05 | 30.00 | 3.95 |
| | 5 785 | 25.54 | 0.41 | 25.95 | 30.00 | 4.05 |
| | 5 825 | 25.54 | 0.41 | 25.95 | 30.00 | 4.05 |
| 802.11n _HT40 | 5 190 | 22.11 | 0.65 | 22.76 | 30.00 | 7.24 |
| | 5 230 | 21.65 | 0.65 | 22.30 | 30.00 | 7.70 |
| | 5 755 | 25.61 | 0.65 | 26.26 | 30.00 | 3.74 |
| | 5 795 | 25.59 | 0.65 | 26.24 | 30.00 | 3.76 |
| 802.11ac _VHT40 | 5 190 | 20.86 | 0.60 | 21.46 | 30.00 | 8.54 |
| | 5 230 | 20.65 | 0.60 | 21.25 | 30.00 | 8.75 |
| | 5 755 | 25.67 | 0.60 | 26.27 | 30.00 | 3.73 |
| | 5 795 | 25.68 | 0.60 | 26.28 | 30.00 | 3.72 |
| 802.11ac _VHT80 | 5 210 | 18.55 | 1.02 | 19.57 | 30.00 | 10.43 |
| | 5 775 | 24.30 | 1.02 | 25.32 | 30.00 | 4.68 |
| Measurement uncertainty | | ± 1.5 dB | | | | |

| | | | |
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|--|---|--|--|

SDM Mode_ANT1 + ANT2 + ANT3

| Test Mode | Frequency (MHz) | Measured Output Power (dBm) | Duty cycle Factor (dB) | Result Output Power (dBm) | Limit (dBm) | Margin (dB) |
|-------------------------|-----------------|-----------------------------|------------------------|---------------------------|-------------|-------------|
| 802.11n _HT20 | 5 180 | 26.15 | 0.29 | 26.44 | 29.23 | 2.79 |
| | 5 200 | 25.55 | 0.29 | 25.84 | 29.23 | 3.39 |
| | 5 240 | 25.43 | 0.29 | 25.72 | 29.23 | 3.51 |
| | 5 745 | 27.61 | 0.29 | 27.90 | 29.23 | 1.33 |
| | 5 785 | 27.71 | 0.29 | 28.00 | 29.23 | 1.23 |
| | 5 825 | 27.81 | 0.29 | 28.10 | 29.23 | 1.13 |
| 802.11ac _VHT20 | 5 180 | 24.61 | 0.41 | 25.02 | 29.23 | 4.21 |
| | 5 200 | 24.17 | 0.41 | 24.58 | 29.23 | 4.65 |
| | 5 240 | 24.03 | 0.41 | 24.44 | 29.23 | 4.79 |
| | 5 745 | 27.55 | 0.41 | 27.96 | 29.23 | 1.27 |
| | 5 785 | 27.61 | 0.41 | 28.02 | 29.23 | 1.21 |
| | 5 825 | 27.74 | 0.41 | 28.15 | 29.23 | 1.08 |
| 802.11n _HT40 | 5 190 | 24.04 | 0.65 | 24.69 | 29.23 | 4.54 |
| | 5 230 | 23.52 | 0.65 | 24.17 | 29.23 | 5.06 |
| | 5 755 | 27.45 | 0.65 | 28.10 | 29.23 | 1.13 |
| | 5 795 | 27.63 | 0.65 | 28.28 | 29.23 | 0.95 |
| 802.11ac _VHT40 | 5 190 | 22.85 | 0.60 | 23.45 | 29.23 | 5.78 |
| | 5 230 | 22.49 | 0.60 | 23.09 | 29.23 | 6.14 |
| | 5 755 | 27.49 | 0.60 | 28.09 | 29.23 | 1.14 |
| | 5 795 | 27.67 | 0.60 | 28.27 | 29.23 | 0.96 |
| 802.11ac _VHT80 | 5 210 | 20.63 | 1.02 | 21.65 | 29.23 | 7.58 |
| | 5 775 | 26.12 | 1.02 | 27.14 | 29.23 | 2.09 |
| Measurement uncertainty | | ± 1.5 dB | | | | |

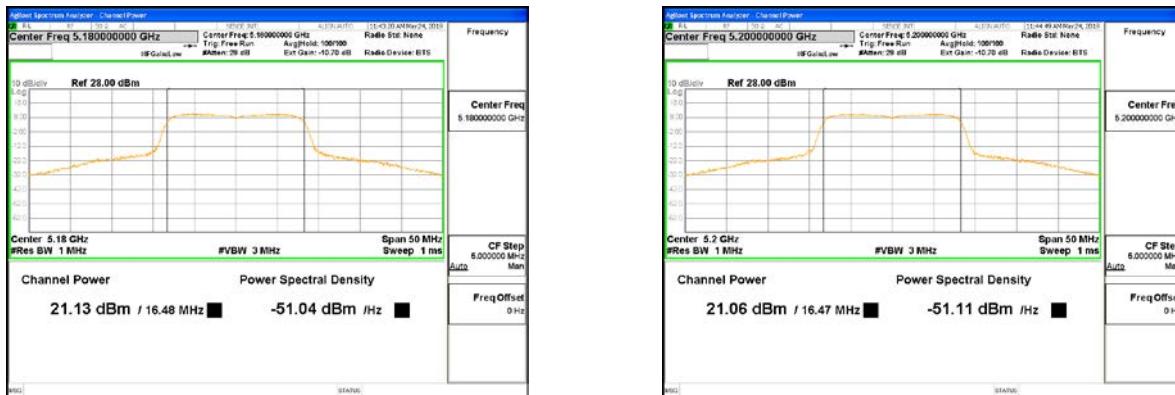
See next pages for actual measured spectrum plots.



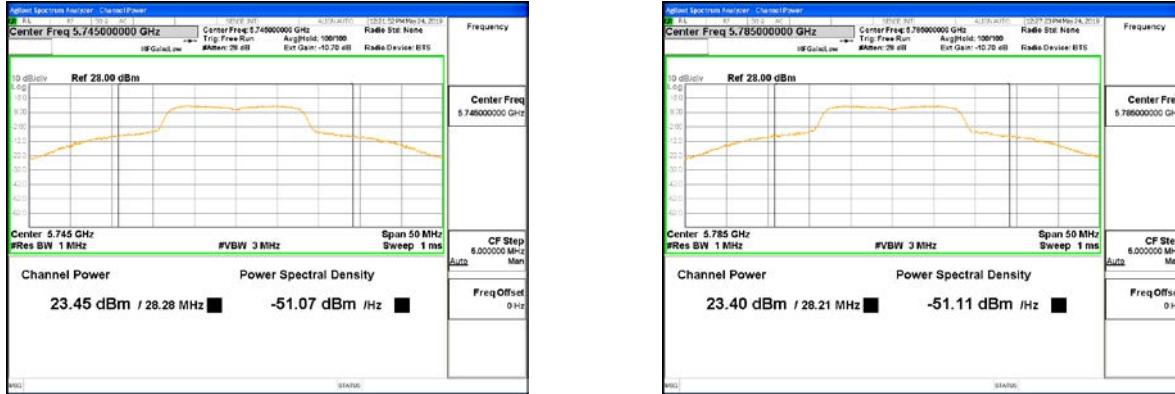
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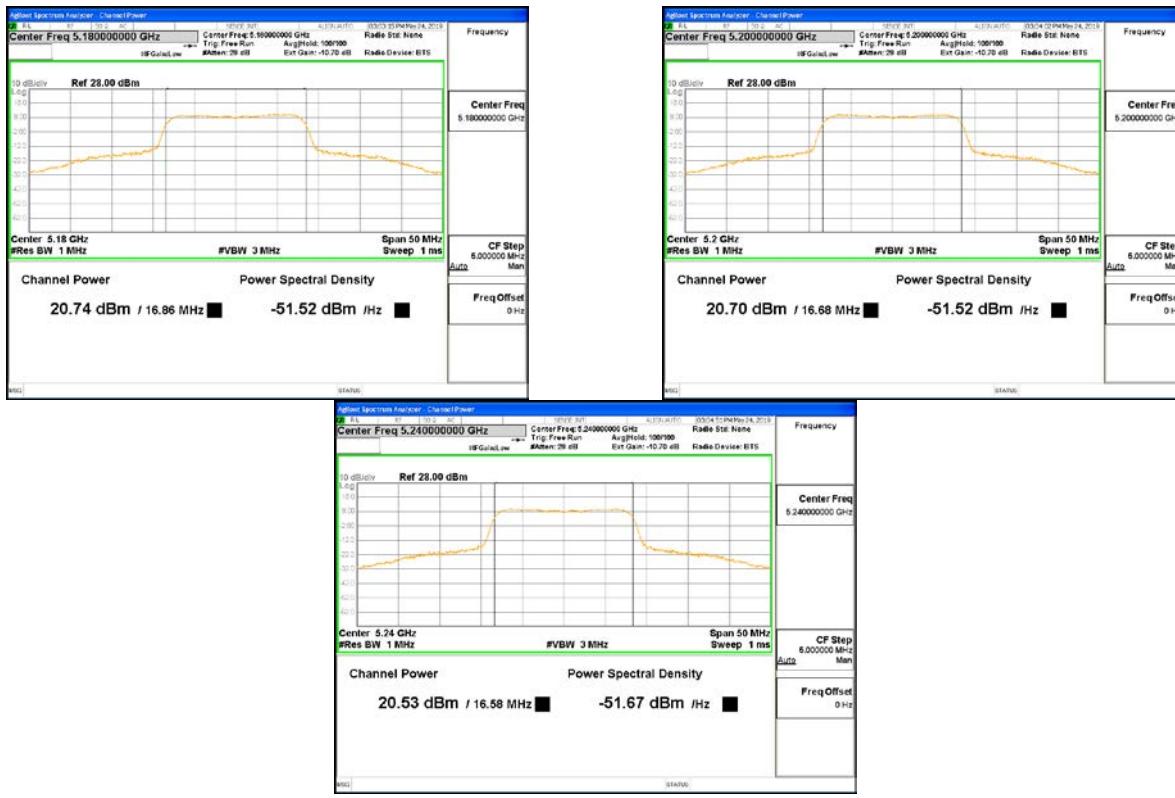
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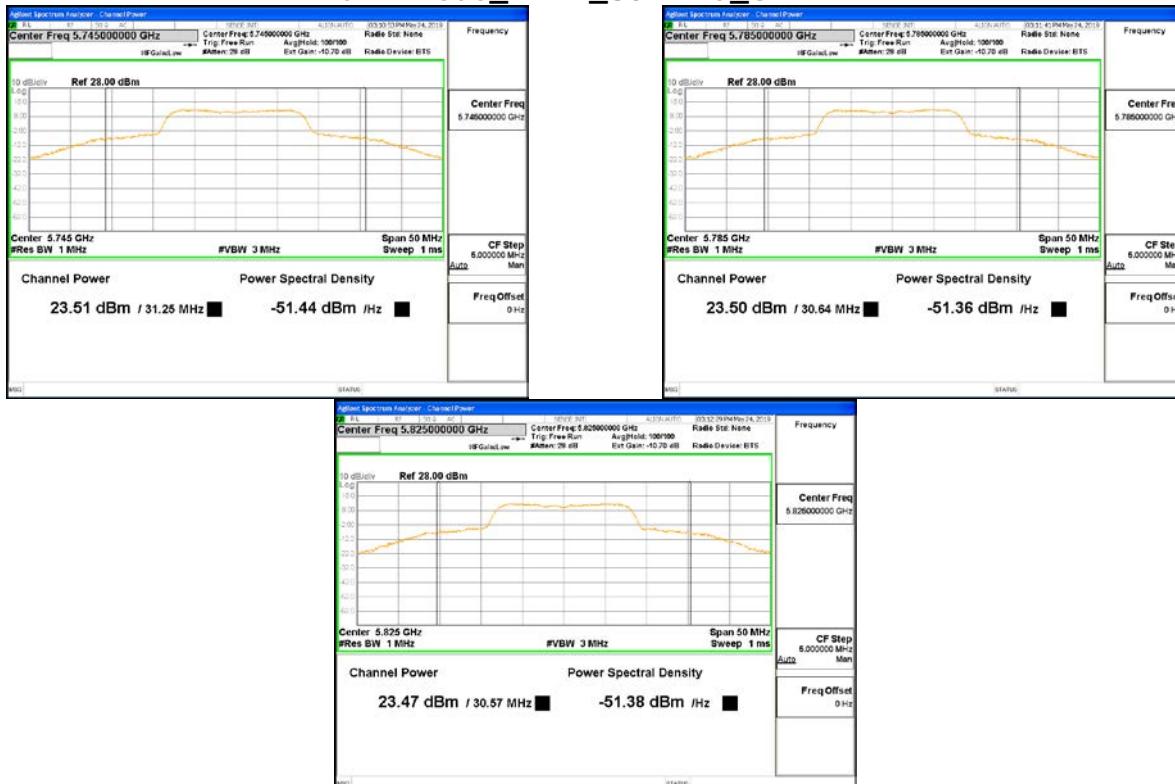
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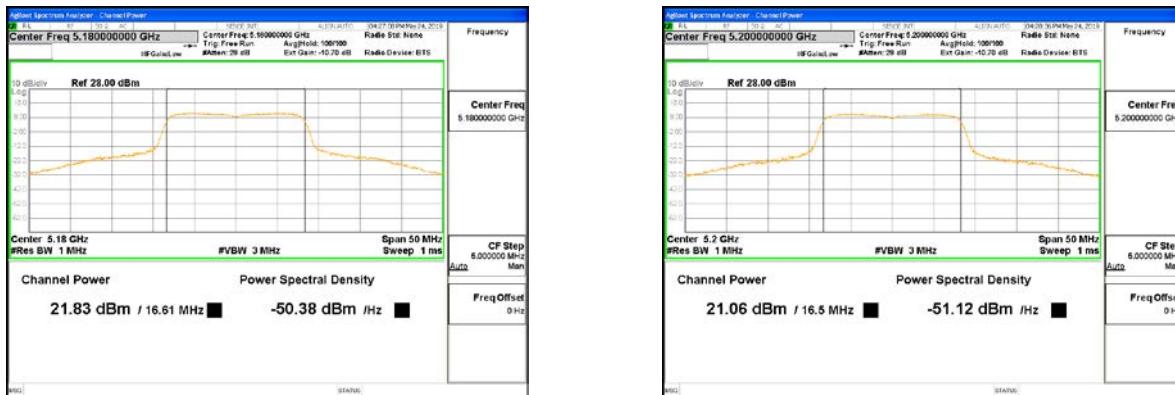
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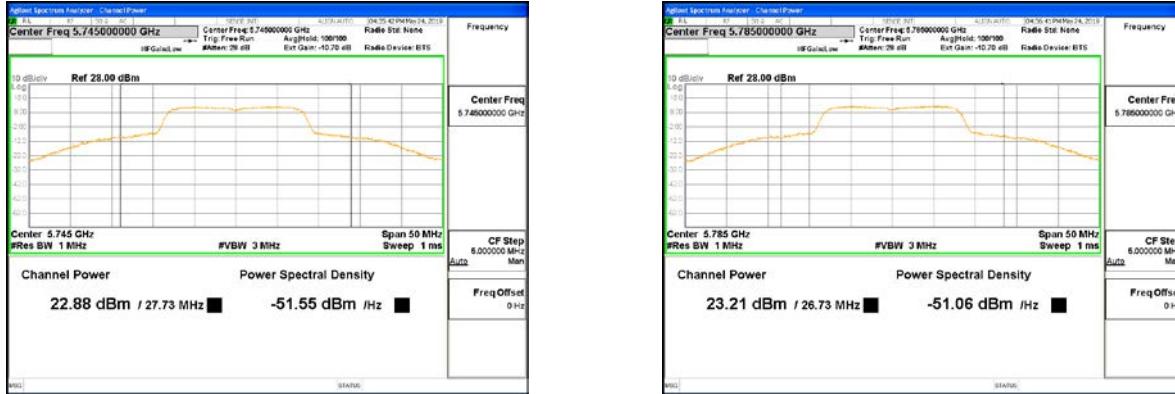
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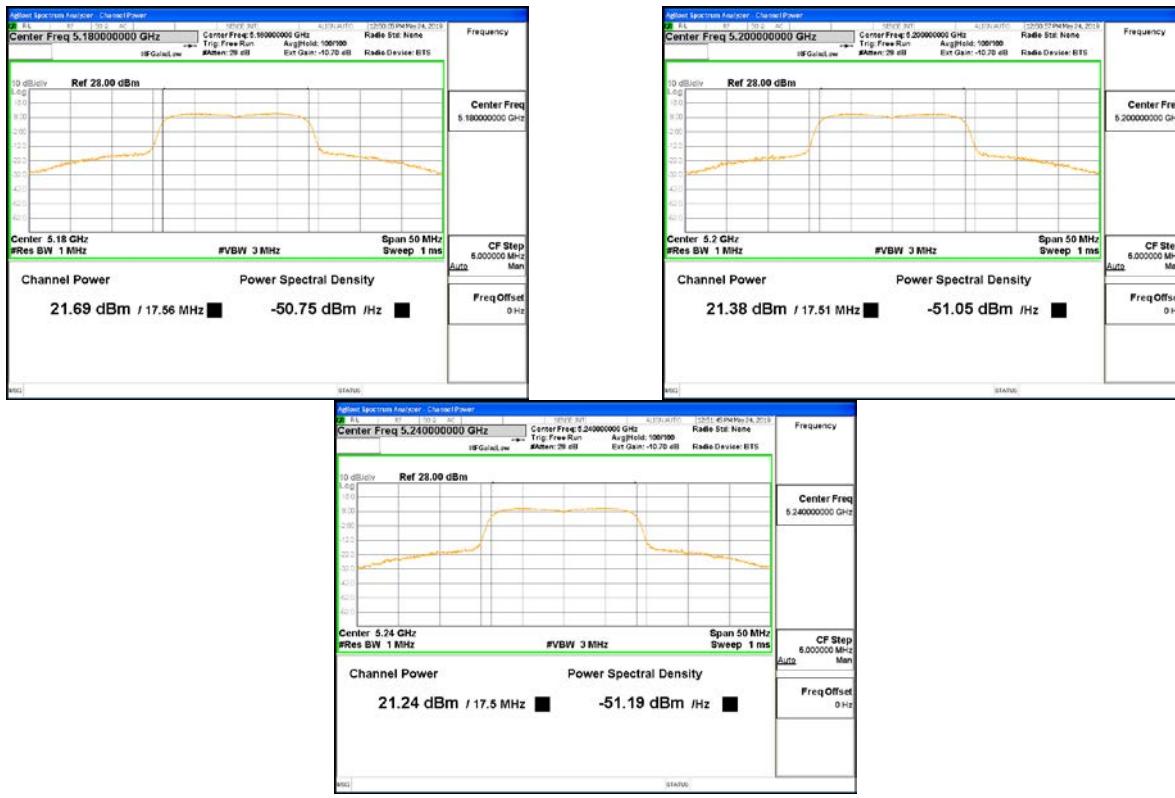
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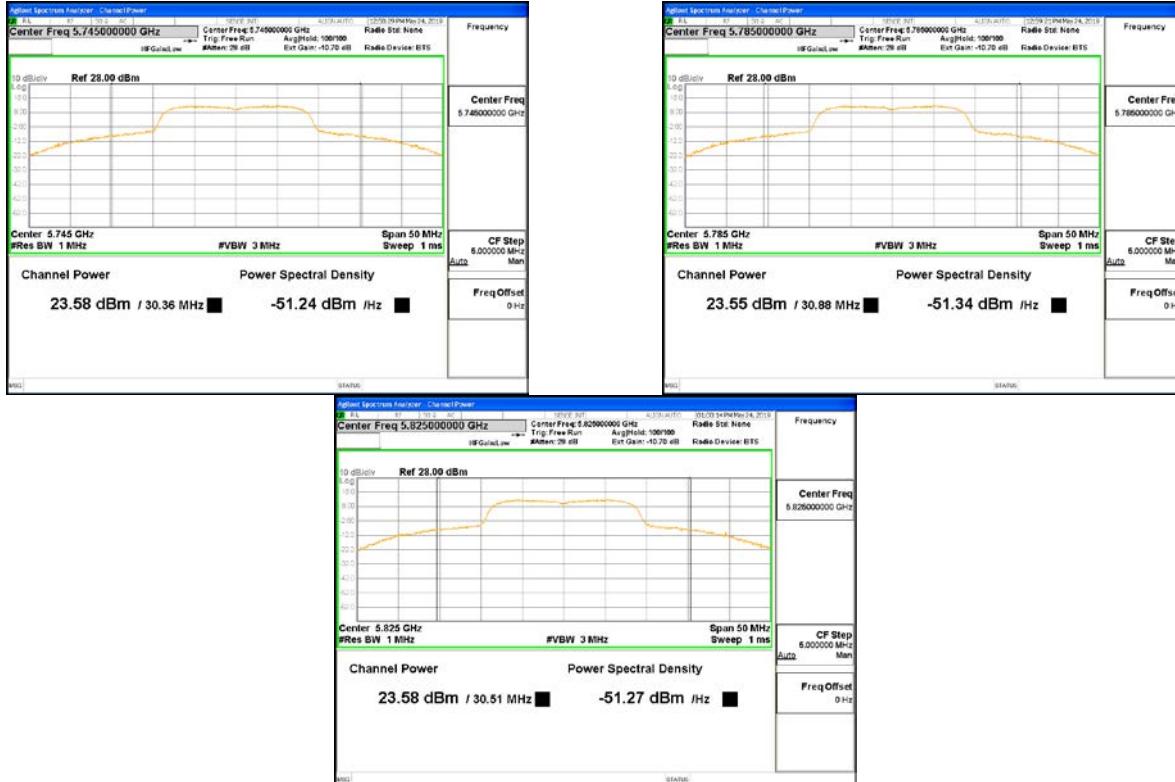
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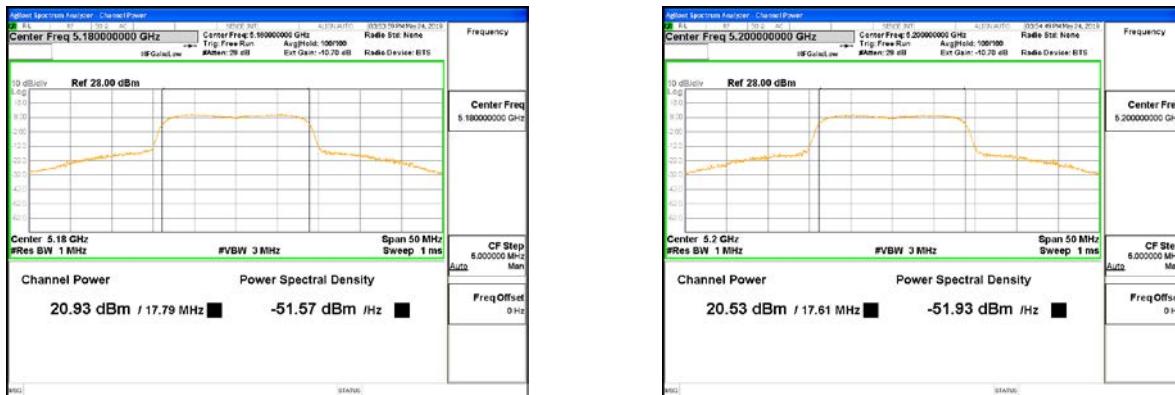
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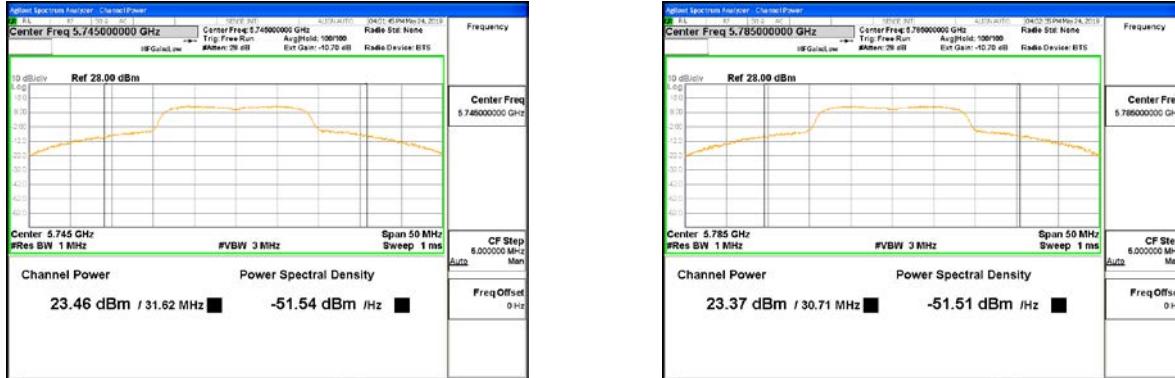
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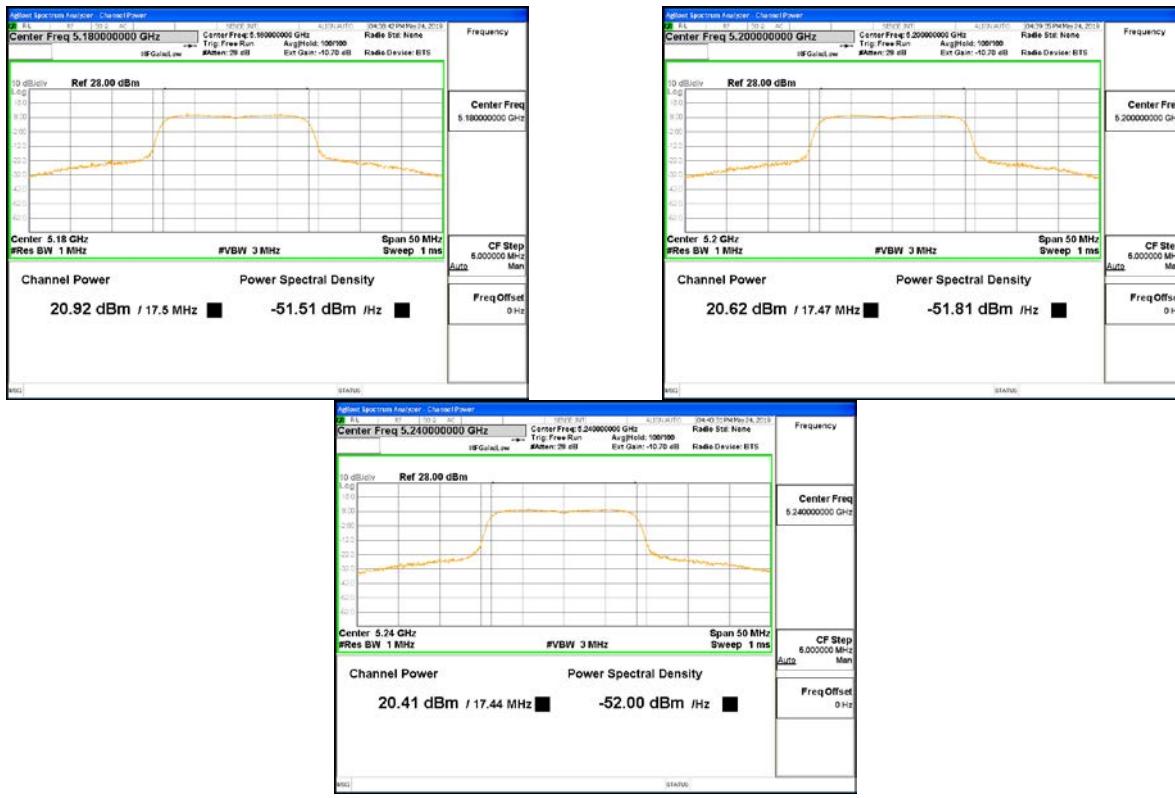
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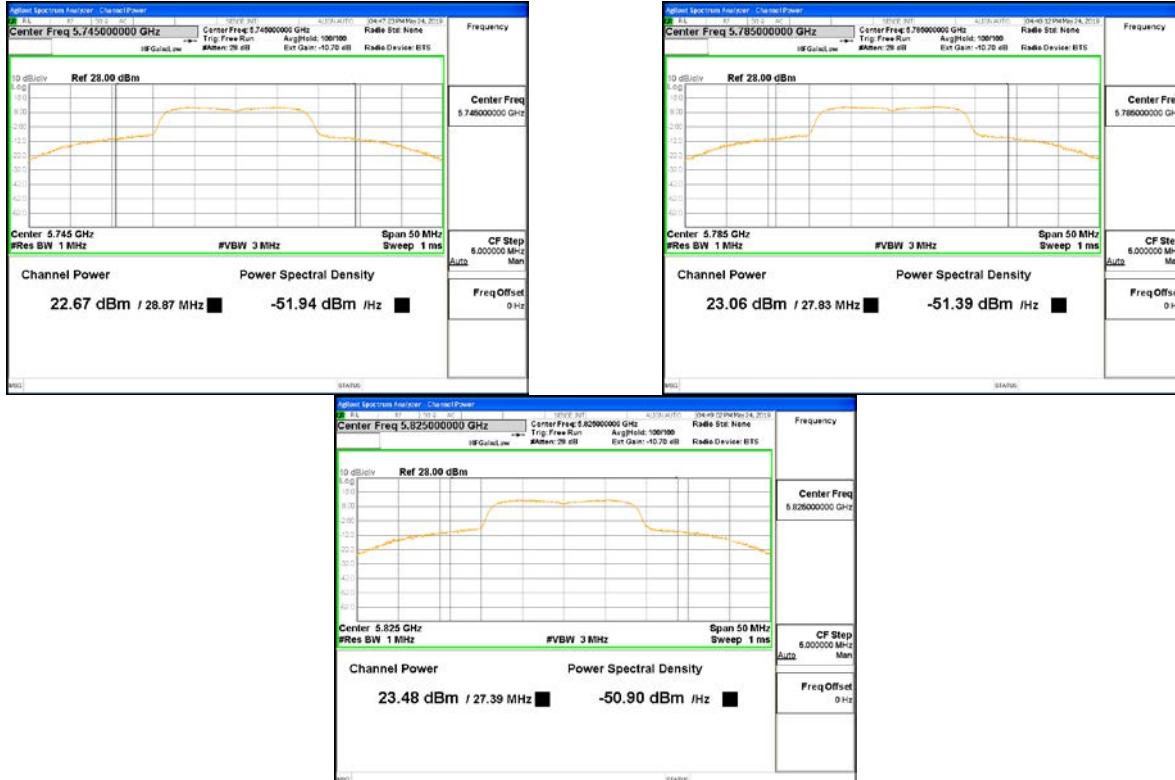
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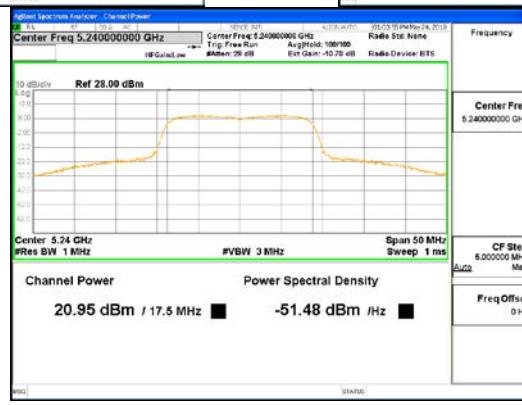
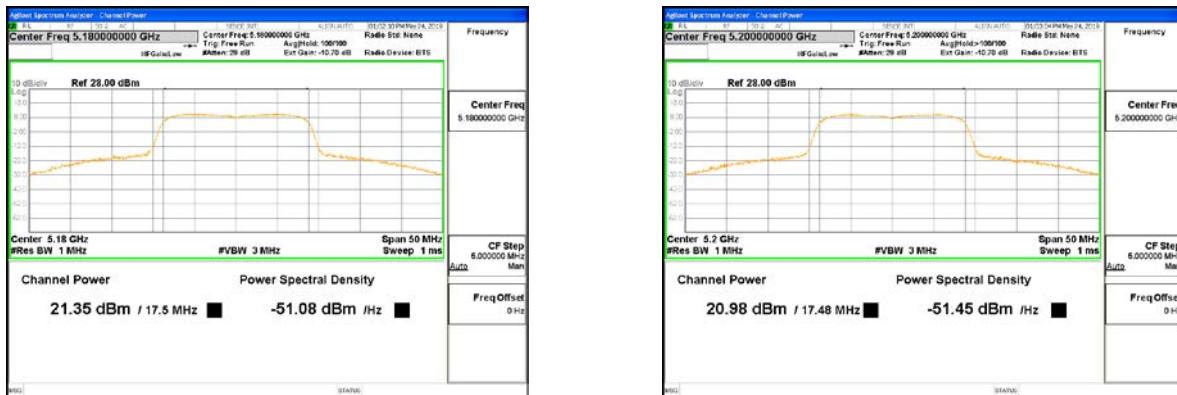
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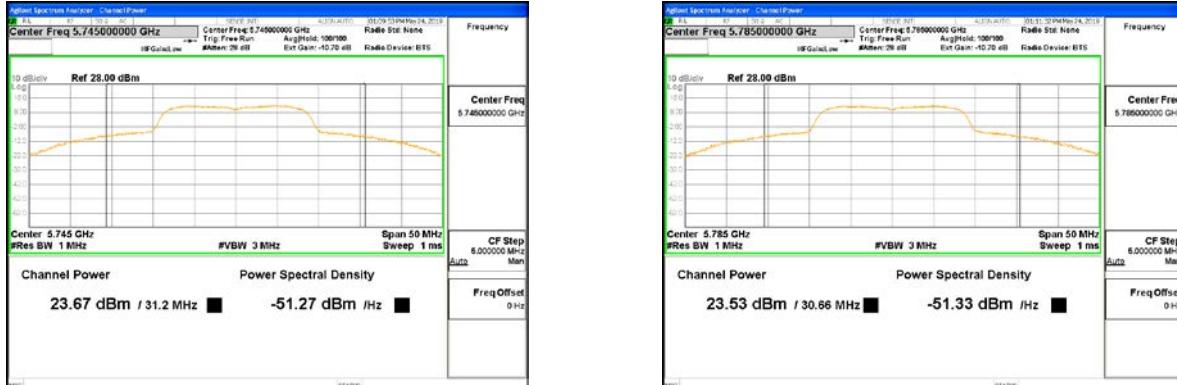
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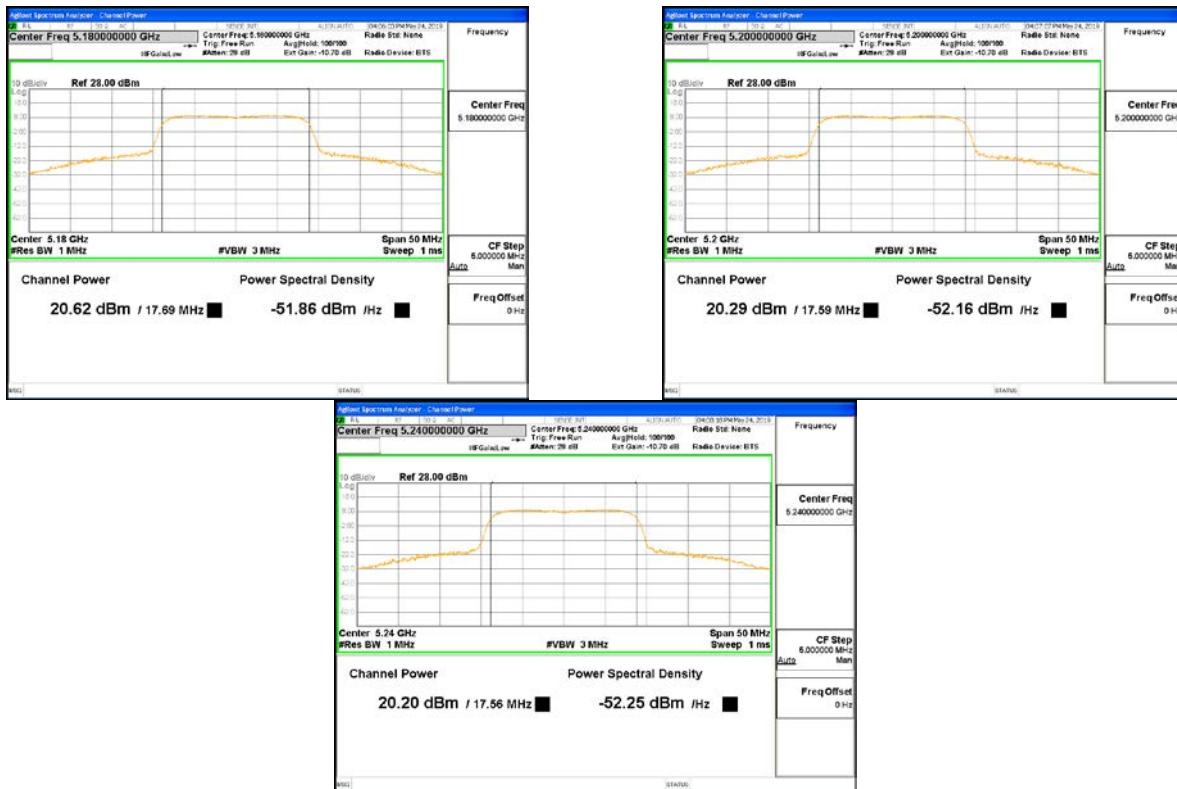
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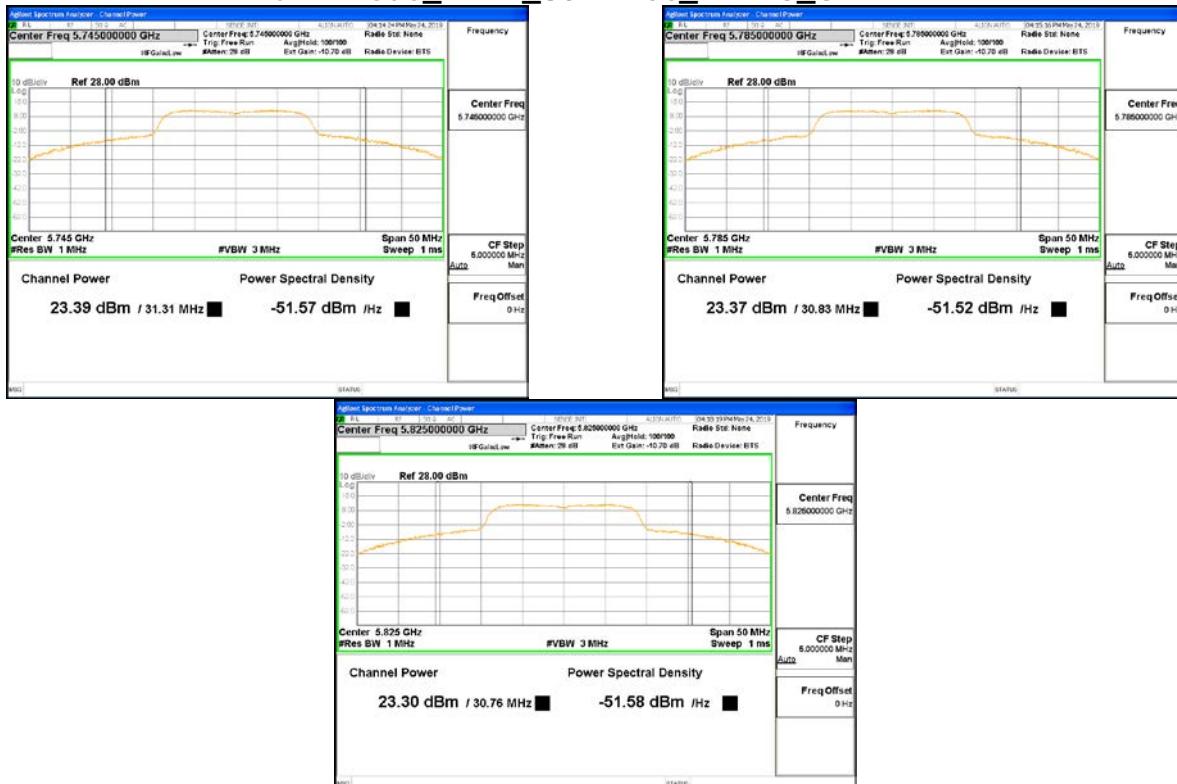
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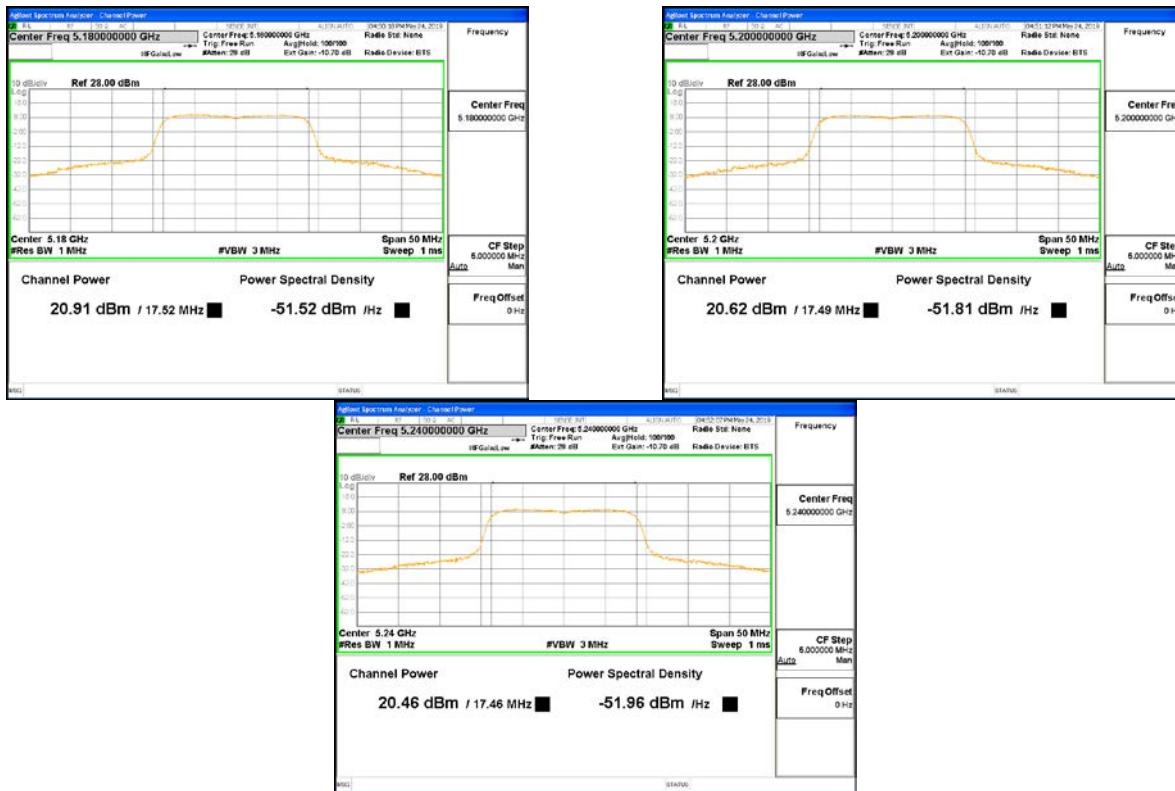
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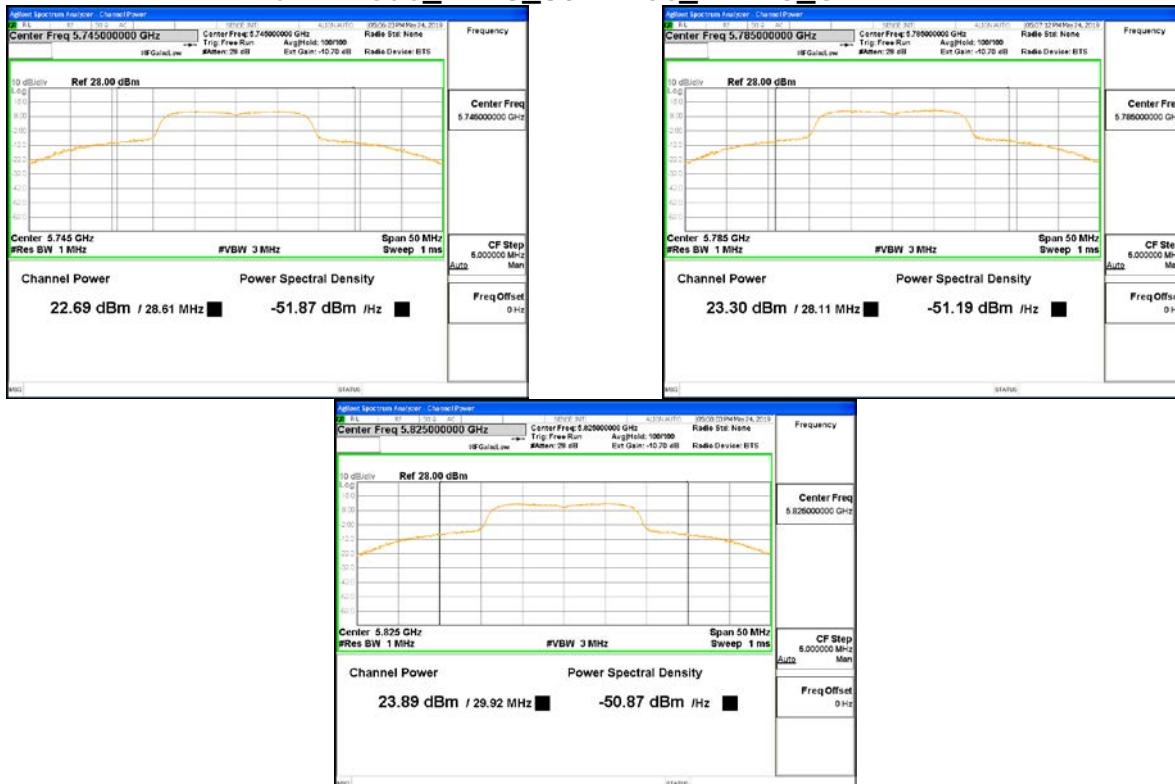
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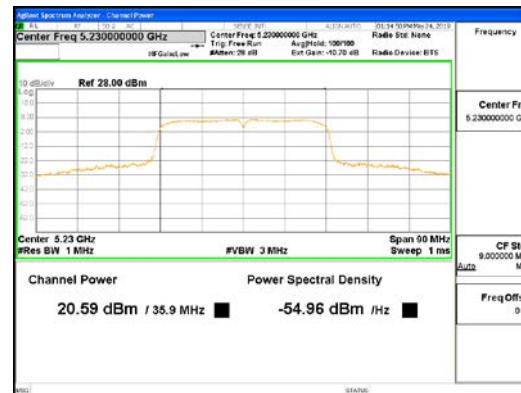


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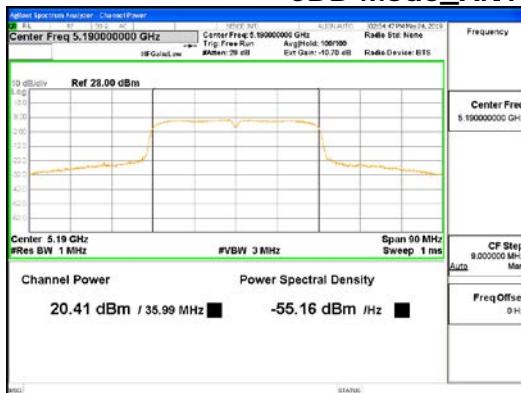
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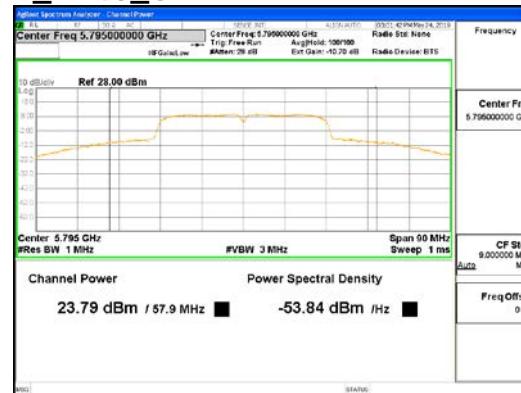
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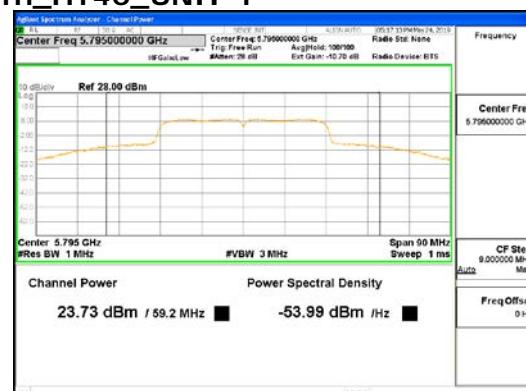
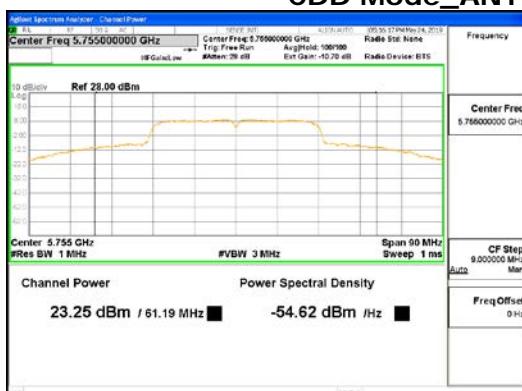
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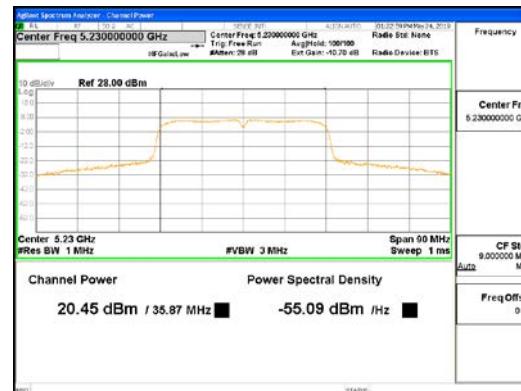
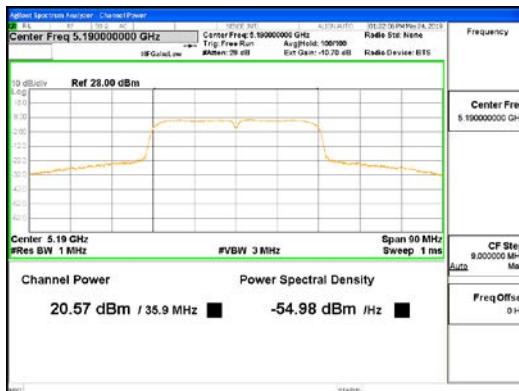


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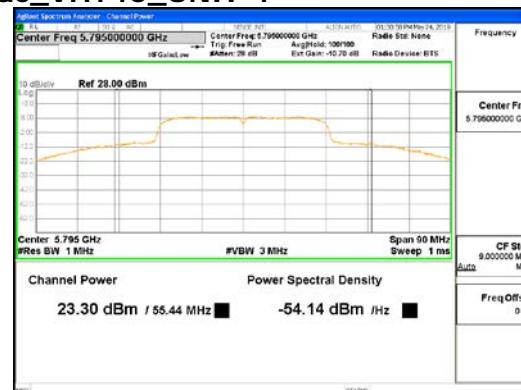
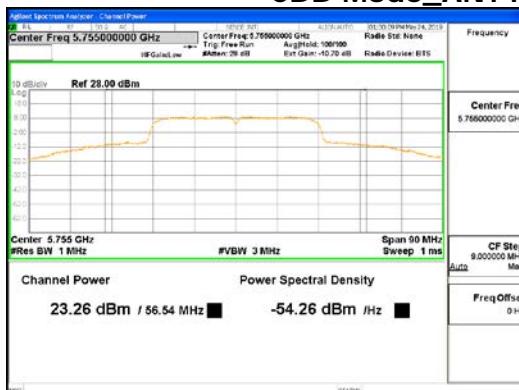
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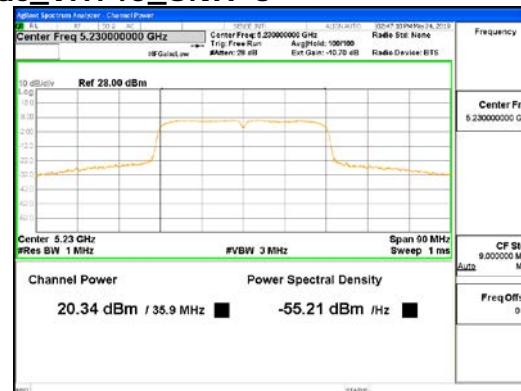
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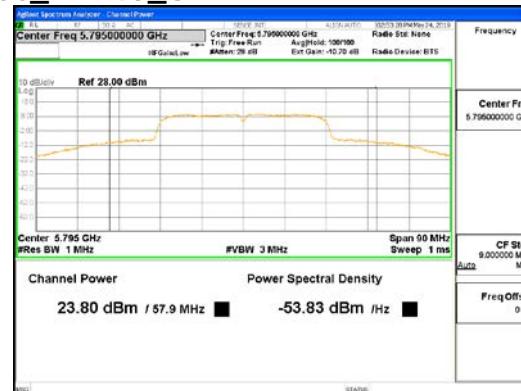
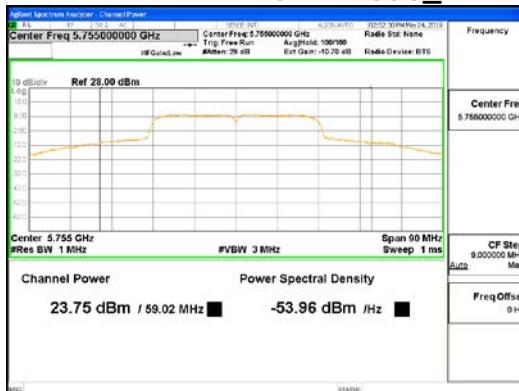
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CDD Mode_ANT2_802.11ac_VHT40_UNII-1



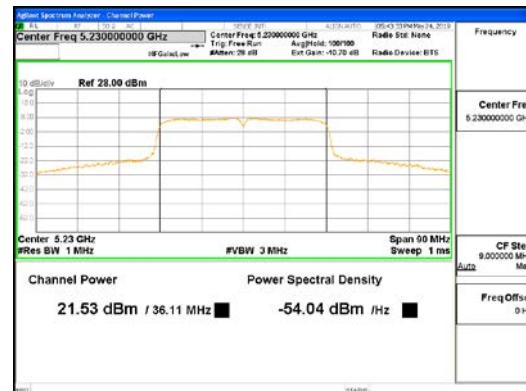
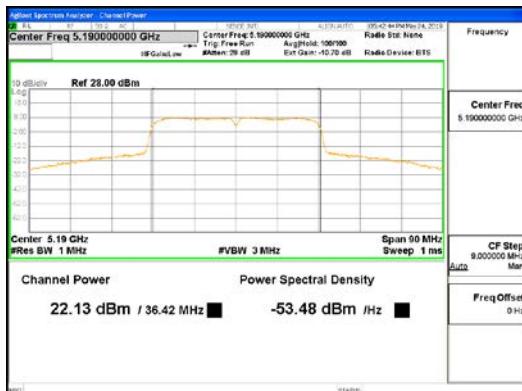
CDD Mode_ANT2_802.11ac_VHT40_UNII-3



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