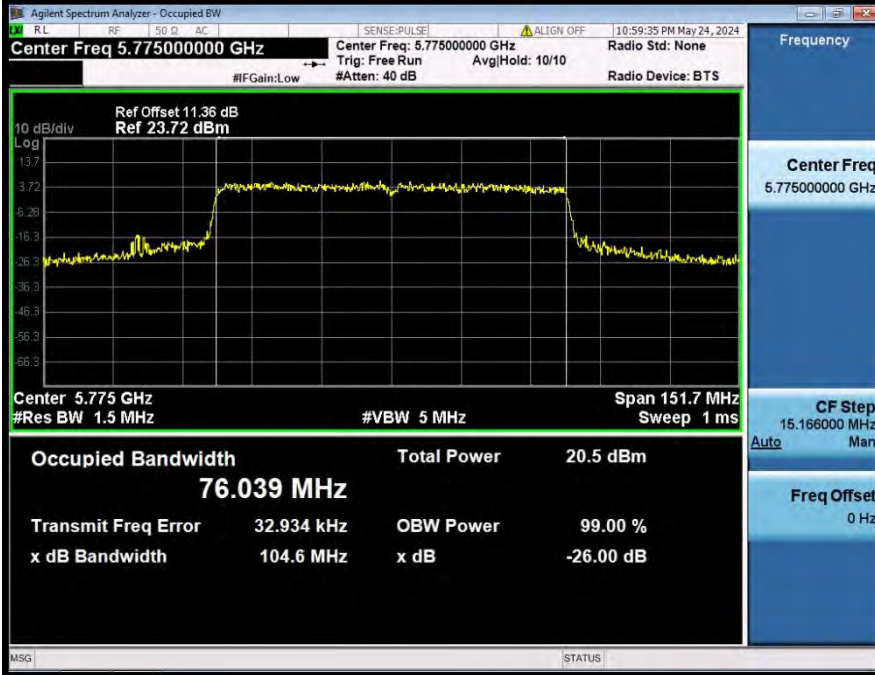
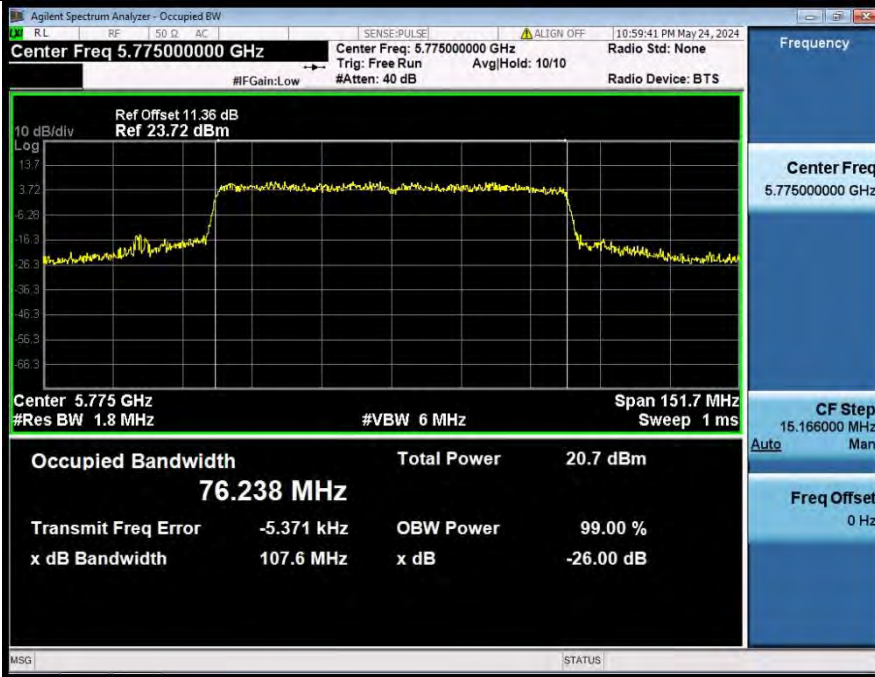


99%_OCB_NVNT_ANT1_802_11ac(VHT80)_5775



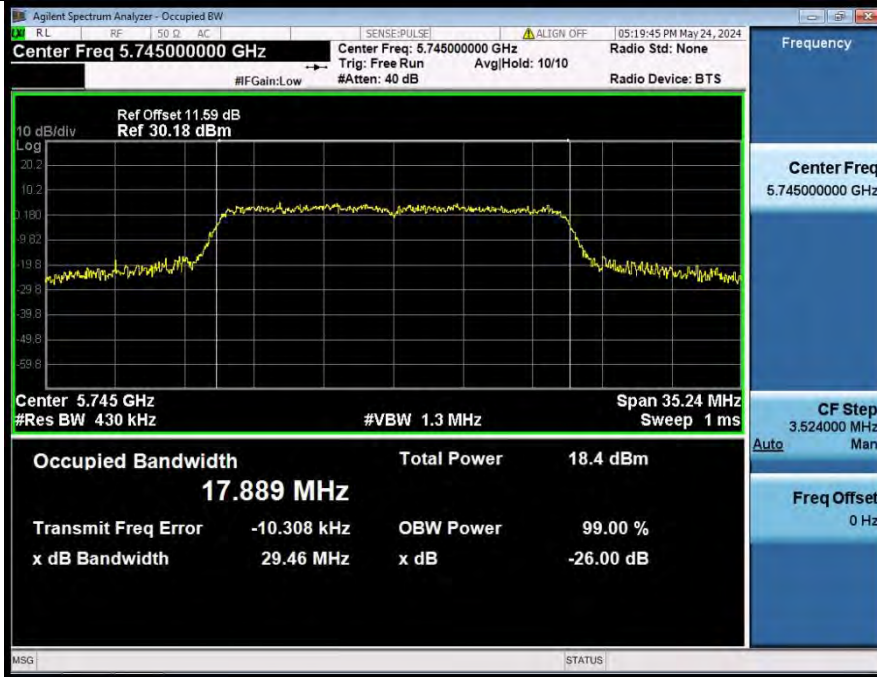
-26BW_NVNT_ANT1_802_11ac(VHT80)_5775



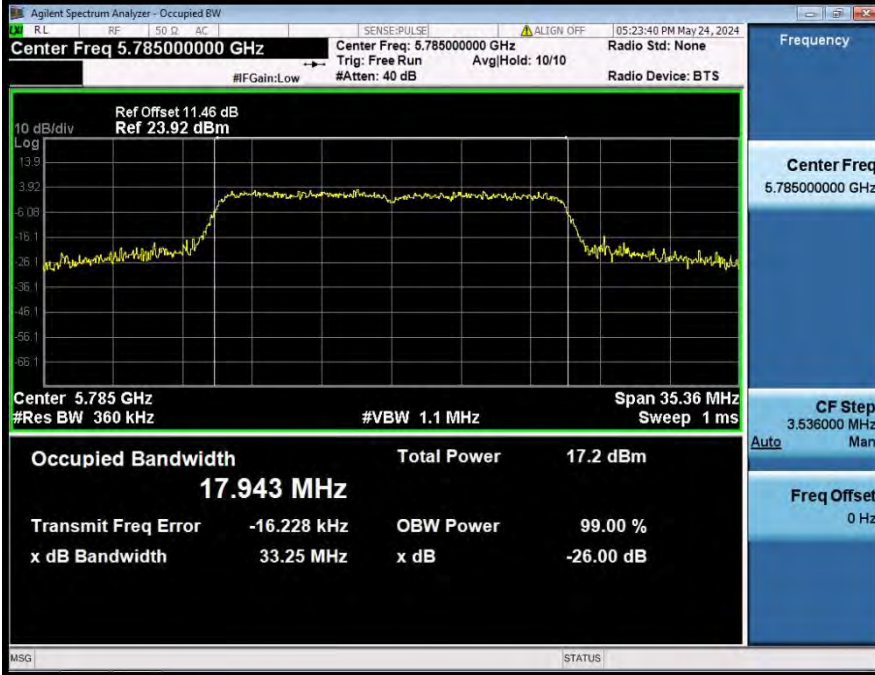
99% OCB NVNT ANT1_802_11ax(HE20)_5745



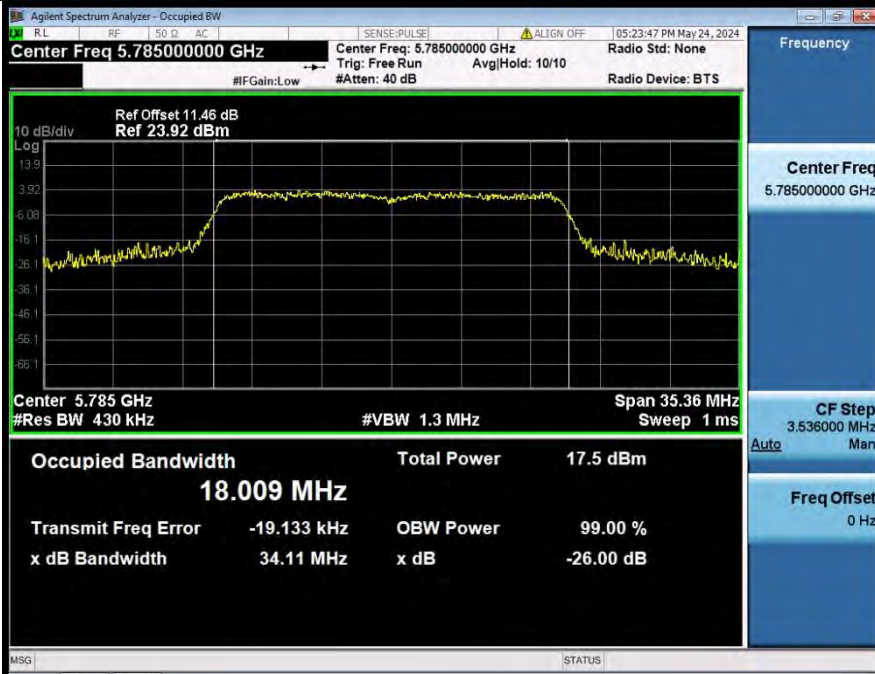
-26BW_NVNT ANT1_802_11ax(HE20)_5745



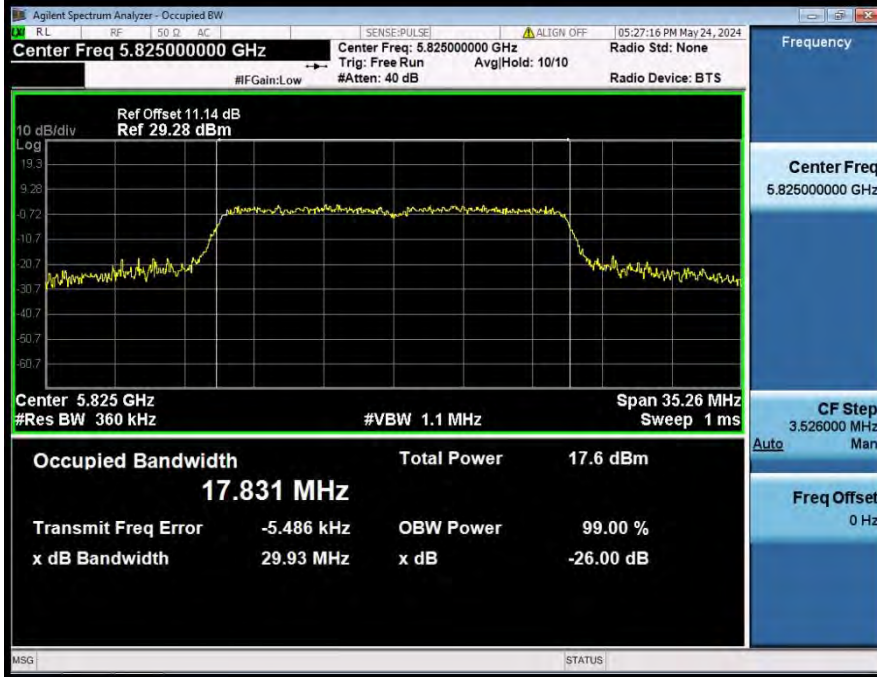
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-26BW_NVNT ANT1_802_11ax(HE20)_5785



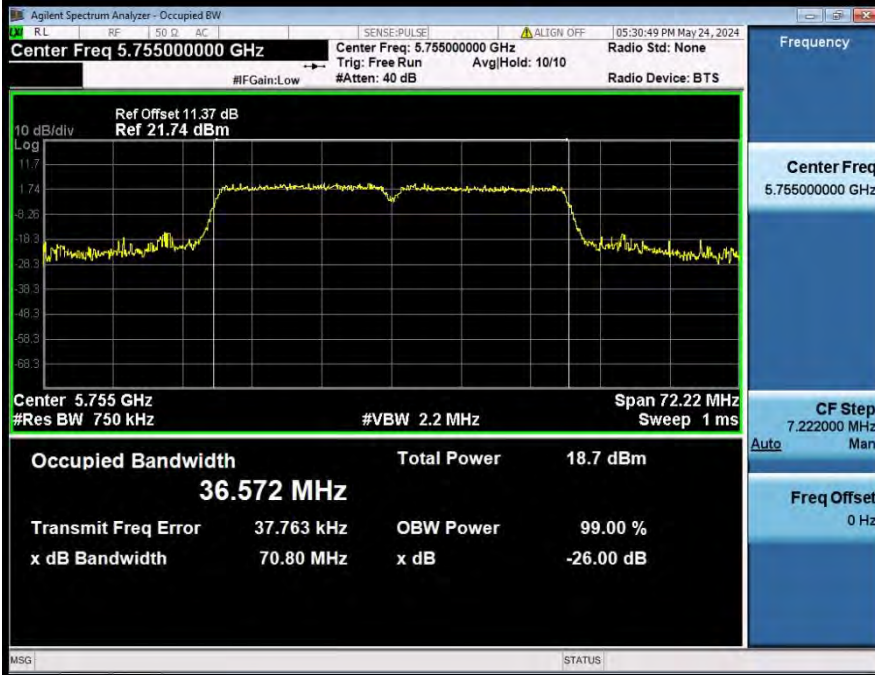
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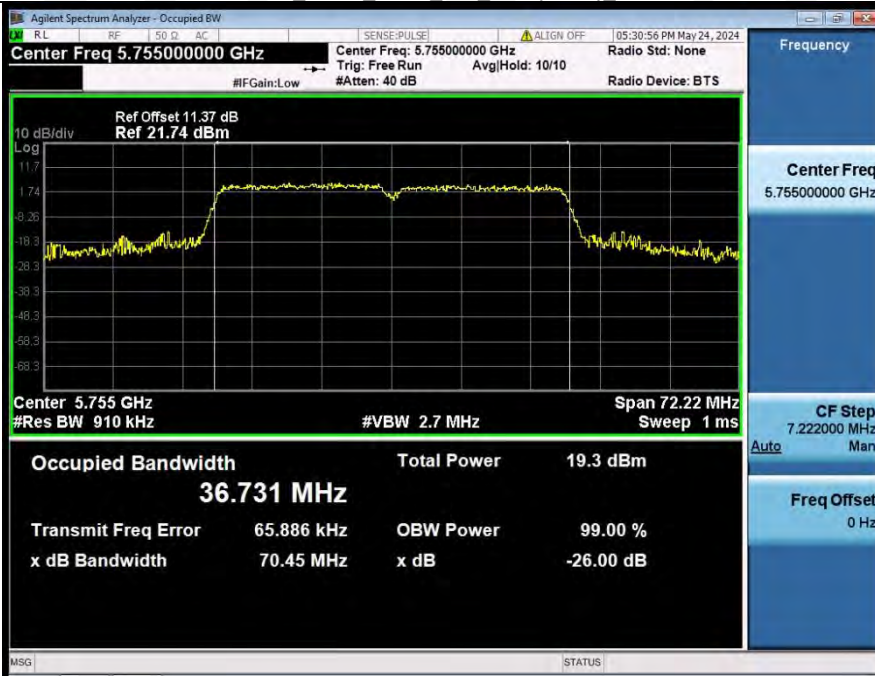
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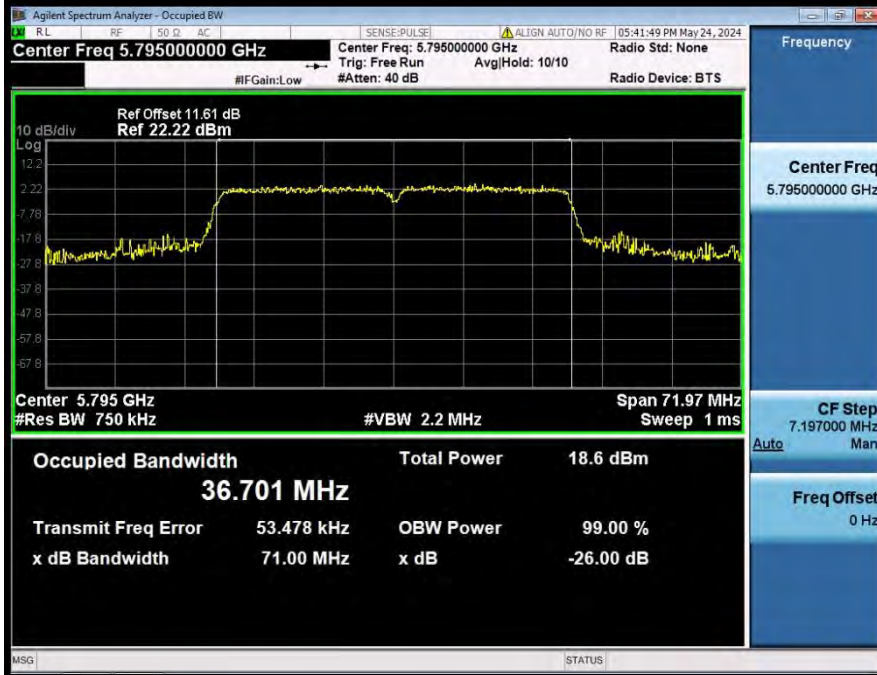
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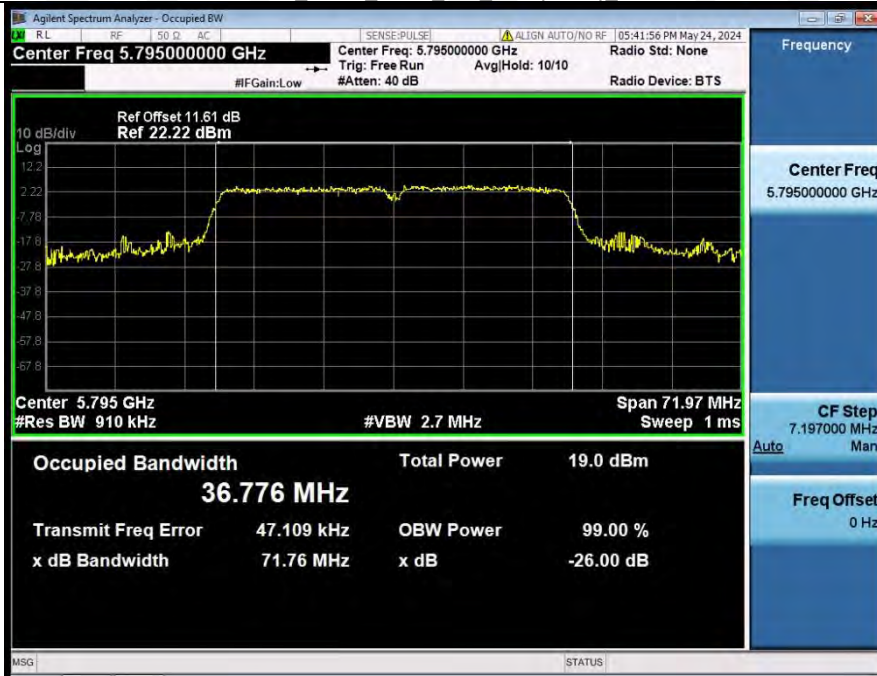
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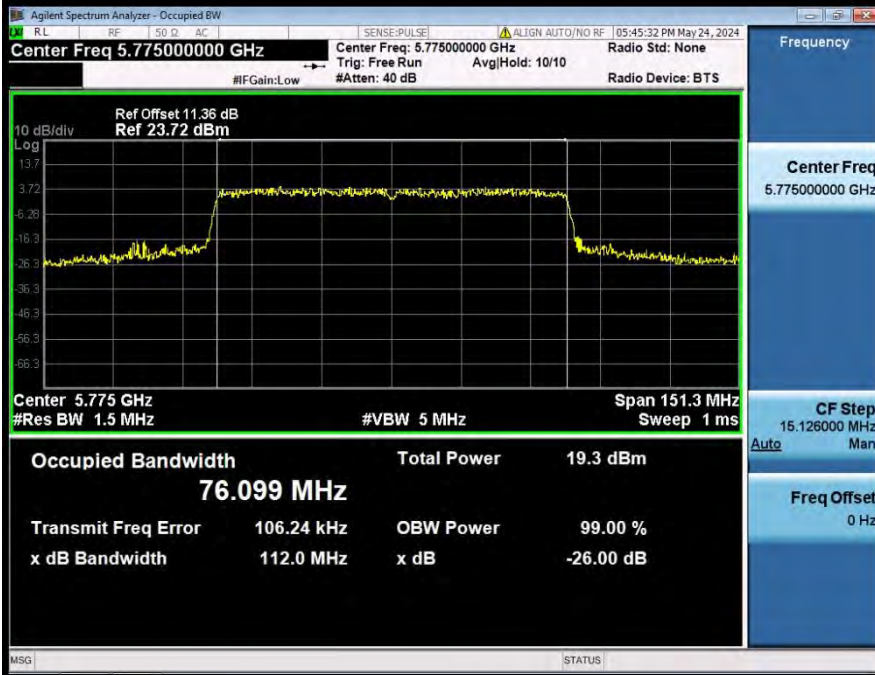
99% OCB NVNT ANT1_802_11ax(HE40)_5795



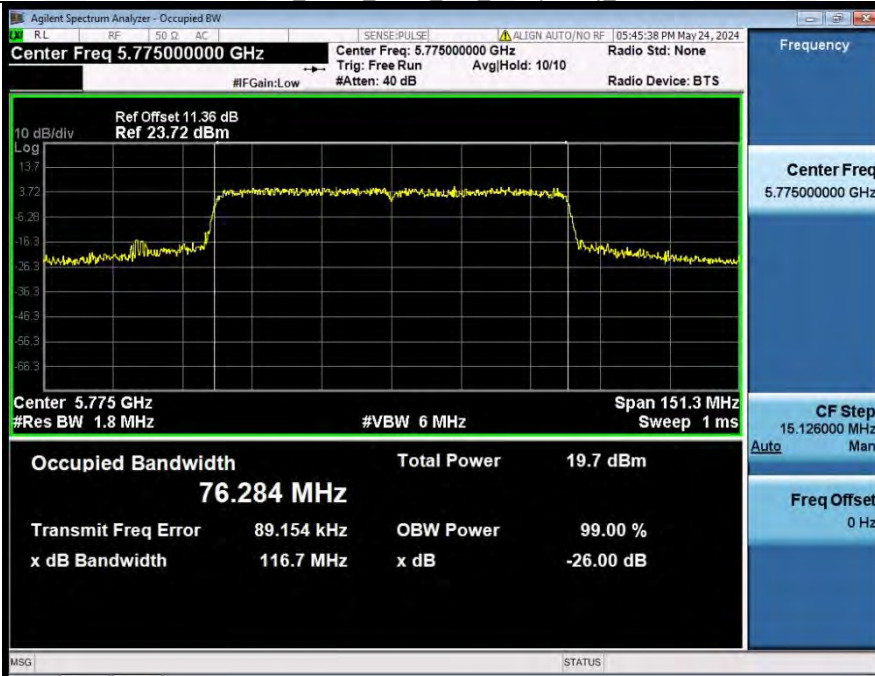
-26BW_NVNT ANT1_802_11ax(HE40)_5795



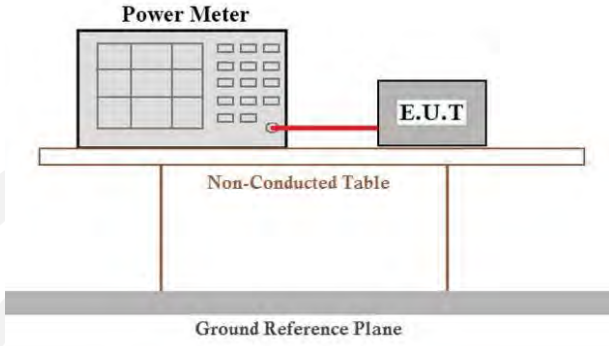
99% OCB NVNT ANT1_802_11ax(HE80)_5775



-26BW NVNT ANT1_802_11ax(HE80)_5775



4.4 Peak Transmit Power

| | |
|-------------------|---|
| Test Requirement: | FCC Part15 E Section 15.407 |
| Test Method: | KDB 789033 D02 General UNII Test Procedures New Rules v02r01 |
| Limit: | For the band 5.15-5.25GHz, 5.25-5.35GHz, 5.47-5.725GHz, the maximum conducted output power over the frequency bands of operation shall not exceed 250mW. For the band 5.725-5.85GHz, the maximum conducted output power over the frequency bands of operation shall not exceed 1W. |
| Test setup: |  <p>The diagram illustrates the test setup. A Power Meter is connected to an E.U.T. (Equipment Under Test) via a red cable. Both are placed on a Non-Conducted Table, which is supported by a Ground Reference Plane.</p> |
| Test procedure: | <p>Measurement using an RF average power meter</p> <ul style="list-style-type: none"> (i) Measurements may be performed using a wideband RF power meter with a thermocouple detector or equivalent if all of the conditions listed below are satisfied <ul style="list-style-type: none"> a) The EUT is configured to transmit continuously or to transmit with a constant duty cycle. b) At all times when the EUT is transmitting, it must be transmitting at its maximum power control level. c) The integration period of the power meter exceeds the repetition period of the transmitted signal by at least a factor of five. (ii) If the transmitter does not transmit continuously, measure the duty cycle, x, of the transmitter output signal as described in section B). (iii) Measure the average power of the transmitter. This measurement is an average over both the on and off periods of the transmitter. (iv) Adjust the measurement in dBm by adding $10 \log(1/x)$ where x is the duty cycle (e.g., $10 \log(1/0.25)$ if the duty cycle is 25 percent). |
| Test Instruments: | Refer to section 3.0 for details |
| Test mode: | Refer to section 2.2 for details |
| Test results: | Pass |

Measurement Data

Band 1 (5150-5250 MHz)

| Condition | Antenna | Modulation | Frequency (MHz) | Conducted Power(dBm) | Duty factor(dB) | Total Power(dBm) | limit(dBm) | Result |
|-----------|---------|-----------------|-----------------|----------------------|-----------------|------------------|------------|--------|
| NVNT | ANT1 | 802.11a | 5180.00 | 12.70 | 0.41 | 13.11 | 24 | Pass |
| NVNT | ANT1 | 802.11a | 5200.00 | 13.28 | 0.41 | 13.69 | 24 | Pass |
| NVNT | ANT1 | 802.11a | 5240.00 | 13.02 | 0.48 | 13.50 | 24 | Pass |
| NVNT | ANT1 | 802.11n(HT20) | 5180.00 | 12.61 | 0.56 | 13.17 | 24 | Pass |
| NVNT | ANT1 | 802.11n(HT20) | 5200.00 | 13.03 | 0.55 | 13.58 | 24 | Pass |
| NVNT | ANT1 | 802.11n(HT20) | 5240.00 | 12.94 | 0.55 | 13.49 | 24 | Pass |
| NVNT | ANT1 | 802.11ac(VHT20) | 5180.00 | 12.71 | 0.55 | 13.26 | 24 | Pass |
| NVNT | ANT1 | 802.11ac(VHT20) | 5200.00 | 9.04 | 0.55 | 9.59 | 24 | Pass |
| NVNT | ANT1 | 802.11ac(VHT20) | 5240.00 | 9.65 | 0.55 | 10.20 | 24 | Pass |
| NVNT | ANT1 | 802.11n(HT40) | 5190.00 | 8.69 | 1.06 | 9.75 | 24 | Pass |
| NVNT | ANT1 | 802.11n(HT40) | 5230.00 | 9.91 | 0.94 | 10.85 | 24 | Pass |
| NVNT | ANT1 | 802.11ac(VHT40) | 5190.00 | 9.05 | 0.91 | 9.96 | 24 | Pass |
| NVNT | ANT1 | 802.11ac(VHT40) | 5230.00 | 10.24 | 0.29 | 10.53 | 24 | Pass |
| NVNT | ANT1 | 802.11ac(VHT80) | 5210.00 | 11.60 | 1.66 | 13.26 | 24 | Pass |
| NVNT | ANT1 | 802.11ax(HE20) | 5180.00 | 11.56 | 0.13 | 11.69 | 24 | Pass |
| NVNT | ANT1 | 802.11ax(HE20) | 5200.00 | 12.08 | 0.13 | 12.21 | 24 | Pass |
| NVNT | ANT1 | 802.11ax(HE20) | 5240.00 | 11.97 | 0.13 | 12.10 | 24 | Pass |
| NVNT | ANT1 | 802.11ax(HE40) | 5190.00 | 12.02 | 0.26 | 12.28 | 24 | Pass |
| NVNT | ANT1 | 802.11ax(HE40) | 5230.00 | 12.04 | 0.26 | 12.30 | 24 | Pass |
| NVNT | ANT1 | 802.11ax(HE80) | 5210.00 | 11.31 | 0.51 | 11.82 | 24 | Pass |

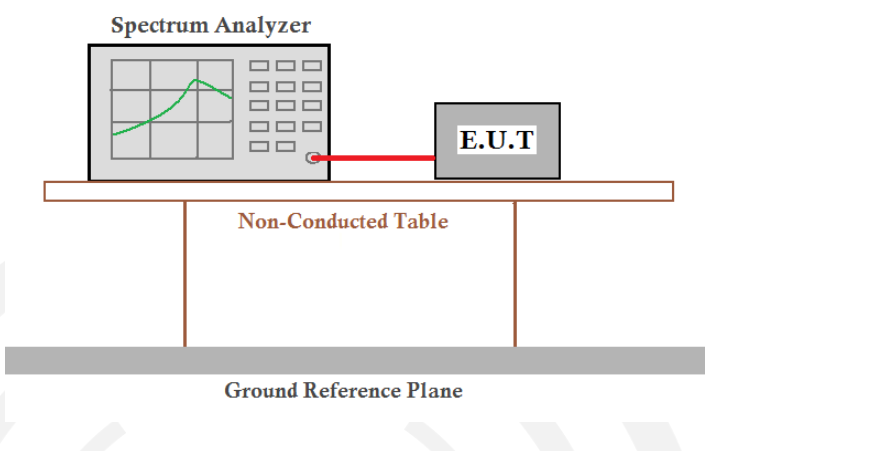
| Condition | Antenna | Modulation | Frequency (MHz) | Duty cycle(%) | Duty_factor |
|-----------|---------|-----------------|-----------------|---------------|-------------|
| NVNT | ANT1 | 802.11a | 5180.00 | 90.91 | 0.41 |
| NVNT | ANT1 | 802.11a | 5200.00 | 90.91 | 0.41 |
| NVNT | ANT1 | 802.11a | 5240.00 | 89.61 | 0.48 |
| NVNT | ANT1 | 802.11n(HT20) | 5180.00 | 87.88 | 0.56 |
| NVNT | ANT1 | 802.11n(HT20) | 5200.00 | 88.06 | 0.55 |
| NVNT | ANT1 | 802.11n(HT20) | 5240.00 | 88.06 | 0.55 |
| NVNT | ANT1 | 802.11ac(VHT20) | 5180.00 | 88.06 | 0.55 |
| NVNT | ANT1 | 802.11ac(VHT20) | 5200.00 | 88.06 | 0.55 |
| NVNT | ANT1 | 802.11ac(VHT20) | 5240.00 | 88.06 | 0.55 |
| NVNT | ANT1 | 802.11n(HT40) | 5190.00 | 78.38 | 1.06 |
| NVNT | ANT1 | 802.11n(HT40) | 5230.00 | 80.56 | 0.94 |
| NVNT | ANT1 | 802.11ac(VHT40) | 5190.00 | 81.08 | 0.91 |
| NVNT | ANT1 | 802.11ac(VHT40) | 5230.00 | 93.55 | 0.29 |
| NVNT | ANT1 | 802.11ac(VHT80) | 5210.00 | 68.18 | 1.66 |
| NVNT | ANT1 | 802.11ax(HE20) | 5180.00 | 97.01 | 0.13 |
| NVNT | ANT1 | 802.11ax(HE20) | 5200.00 | 97.01 | 0.13 |
| NVNT | ANT1 | 802.11ax(HE20) | 5240.00 | 97.01 | 0.13 |
| NVNT | ANT1 | 802.11ax(HE40) | 5190.00 | 94.12 | 0.26 |
| NVNT | ANT1 | 802.11ax(HE40) | 5230.00 | 94.12 | 0.26 |
| NVNT | ANT1 | 802.11ax(HE80) | 5210.00 | 88.89 | 0.51 |

Band 4 (5725 – 5850 MHz)

| Condition | Antenna | Modulation | Frequency (MHz) | Conducted Power(dBm) | Duty factor(dB) | Total Power(dBm) | limit(dBm) | Result |
|-----------|---------|-----------------|-----------------|----------------------|-----------------|------------------|------------|--------|
| NVNT | ANT1 | 802.11a | 5745.00 | 11.85 | 0.48 | 12.33 | 30 | Pass |
| NVNT | ANT1 | 802.11a | 5785.00 | 10.93 | 0.41 | 11.34 | 30 | Pass |
| NVNT | ANT1 | 802.11a | 5825.00 | 11.05 | 0.47 | 11.52 | 30 | Pass |
| NVNT | ANT1 | 802.11n(HT20) | 5745.00 | 11.10 | 0.56 | 11.66 | 30 | Pass |
| NVNT | ANT1 | 802.11n(HT20) | 5785.00 | 10.87 | 0.49 | 11.36 | 30 | Pass |
| NVNT | ANT1 | 802.11n(HT20) | 5825.00 | 11.13 | 0.55 | 11.68 | 30 | Pass |
| NVNT | ANT1 | 802.11ac(VHT20) | 5745.00 | 12.19 | 0.49 | 12.68 | 30 | Pass |
| NVNT | ANT1 | 802.11ac(VHT20) | 5785.00 | 11.33 | 0.55 | 11.88 | 30 | Pass |
| NVNT | ANT1 | 802.11ac(VHT20) | 5825.00 | 11.08 | 0.48 | 11.56 | 30 | Pass |
| NVNT | ANT1 | 802.11n(HT40) | 5755.00 | 11.73 | 0.91 | 12.64 | 30 | Pass |
| NVNT | ANT1 | 802.11n(HT40) | 5795.00 | 12.06 | 0.29 | 12.35 | 30 | Pass |
| NVNT | ANT1 | 802.11ac(VHT40) | 5755.00 | 11.66 | 0.91 | 12.57 | 30 | Pass |
| NVNT | ANT1 | 802.11ac(VHT40) | 5795.00 | 11.42 | 1.03 | 12.45 | 30 | Pass |
| NVNT | ANT1 | 802.11ac(VHT80) | 5775.00 | 10.30 | 1.66 | 11.96 | 30 | Pass |
| NVNT | ANT1 | 802.11ax(HE20) | 5745.00 | 10.99 | 0.62 | 11.61 | 30 | Pass |
| NVNT | ANT1 | 802.11ax(HE20) | 5785.00 | 10.30 | 0.55 | 10.85 | 30 | Pass |
| NVNT | ANT1 | 802.11ax(HE20) | 5825.00 | 10.61 | 0.49 | 11.10 | 30 | Pass |
| NVNT | ANT1 | 802.11ax(HE40) | 5755.00 | 10.43 | 1.03 | 11.46 | 30 | Pass |
| NVNT | ANT1 | 802.11ax(HE40) | 5795.00 | 10.48 | 1.06 | 11.54 | 30 | Pass |
| NVNT | ANT1 | 802.11ax(HE80) | 5775.00 | 9.45 | 1.66 | 11.11 | 30 | Pass |

| Condition | Antenna | Modulation | Frequency (MHz) | Duty cycle(%) | Duty_factor |
|-----------|---------|-----------------|-----------------|---------------|-------------|
| NVNT | ANT1 | 802.11a | 5745.00 | 89.61 | 0.48 |
| NVNT | ANT1 | 802.11a | 5785.00 | 90.91 | 0.41 |
| NVNT | ANT1 | 802.11a | 5825.00 | 89.74 | 0.47 |
| NVNT | ANT1 | 802.11n(HT20) | 5745.00 | 87.88 | 0.56 |
| NVNT | ANT1 | 802.11n(HT20) | 5785.00 | 89.39 | 0.49 |
| NVNT | ANT1 | 802.11n(HT20) | 5825.00 | 88.06 | 0.55 |
| NVNT | ANT1 | 802.11ac(VHT20) | 5745.00 | 89.39 | 0.49 |
| NVNT | ANT1 | 802.11ac(VHT20) | 5785.00 | 88.06 | 0.55 |
| NVNT | ANT1 | 802.11ac(VHT20) | 5825.00 | 89.55 | 0.48 |
| NVNT | ANT1 | 802.11n(HT40) | 5755.00 | 81.08 | 0.91 |
| NVNT | ANT1 | 802.11n(HT40) | 5795.00 | 93.55 | 0.29 |
| NVNT | ANT1 | 802.11ac(VHT40) | 5755.00 | 81.08 | 0.91 |
| NVNT | ANT1 | 802.11ac(VHT40) | 5795.00 | 78.95 | 1.03 |
| NVNT | ANT1 | 802.11ac(VHT80) | 5775.00 | 68.18 | 1.66 |
| NVNT | ANT1 | 802.11ax(HE20) | 5745.00 | 86.76 | 0.62 |
| NVNT | ANT1 | 802.11ax(HE20) | 5785.00 | 88.06 | 0.55 |
| NVNT | ANT1 | 802.11ax(HE20) | 5825.00 | 89.39 | 0.49 |
| NVNT | ANT1 | 802.11ax(HE40) | 5755.00 | 78.95 | 1.03 |
| NVNT | ANT1 | 802.11ax(HE40) | 5795.00 | 78.38 | 1.06 |
| NVNT | ANT1 | 802.11ax(HE80) | 5775.00 | 68.18 | 1.66 |

4.5 Power Spectral Density

| | |
|-------------------|--|
| Test Requirement: | FCC Part15 E Section 15.407 |
| Test Method: | KDB 789033 D02 General UNII Test Procedures New Rules v02r01 |
| Limit: | $\leq 11.00\text{dBm/MHz}$ for 5150MHz-5250MHz, 5250-5350MHz and 5470-5725 MHz $\leq 30.00\text{dBm/500KHz}$ for 5725MHz-5850MHz |
| Test setup: |  <p>The diagram illustrates the test setup. A Spectrum Analyzer is connected to an E.U.T. (Equipment Under Test) via a red cable. Both are placed on a Non-Conducted Table, which is supported by a Ground Reference Plane.</p> |
| Test procedure: | <ol style="list-style-type: none"> 1) Create an average power spectrum for the EUT operating mode being tested by following the instructions in section E2) for measuring maximum conducted output power using a spectrum analyzer or EMI receiver: select the appropriate test method (SA-1, SA-2, SA-3, or alternatives to each) and apply it up to, but not including, the step labeled, "Compute power...". 2) Use the peak search function on the instrument to find the peak of the spectrum. 3) Make the following adjustments to the peak value of the spectrum, if applicable: <ol style="list-style-type: none"> a) If Method SA-2 or SA-2 Alternative was used, add $10 \log(1/x)$, where x is the duty cycle, to the peak of the spectrum. b) If Method SA-3 Alternative was used and the linear mode was used in step E2)g)(viii), add 1 dB to the final result to compensate for the difference between linear averaging and power averaging. 4) The result is the PSD. |
| Test Instruments: | Refer to section 3.0 for details |
| Test mode: | Refer to section 2.2 for details |
| Test results: | Pass |

Measurement Data**Band 1 (5150-5250 MHz)**

| Condition | Antenna | Modulation | Frequency (MHz) | PSD(dBm/MHz) | Duty factor(dB) | Total PSD(dBm/MHz) | limit(dBm) | Result |
|-----------|---------|-----------------|-----------------|--------------|-----------------|--------------------|------------|--------|
| NVNT | ANT1 | 802.11a | 5180.00 | 1.48 | 0.41 | 1.89 | 11 | Pass |
| NVNT | ANT1 | 802.11a | 5200.00 | 1.79 | 0.41 | 2.20 | 11 | Pass |
| NVNT | ANT1 | 802.11a | 5240.00 | 1.76 | 0.48 | 2.24 | 11 | Pass |
| NVNT | ANT1 | 802.11n(HT20) | 5180.00 | 1.23 | 0.56 | 1.79 | 11 | Pass |
| NVNT | ANT1 | 802.11n(HT20) | 5200.00 | 1.64 | 0.55 | 2.19 | 11 | Pass |
| NVNT | ANT1 | 802.11n(HT20) | 5240.00 | 1.48 | 0.55 | 2.03 | 11 | Pass |
| NVNT | ANT1 | 802.11ac(VHT20) | 5180.00 | 1.36 | 0.55 | 1.91 | 11 | Pass |
| NVNT | ANT1 | 802.11ac(VHT20) | 5200.00 | -2.36 | 0.55 | -1.81 | 11 | Pass |
| NVNT | ANT1 | 802.11ac(VHT20) | 5240.00 | -1.78 | 0.55 | -1.23 | 11 | Pass |
| NVNT | ANT1 | 802.11n(HT40) | 5190.00 | -5.12 | 1.06 | -4.06 | 11 | Pass |
| NVNT | ANT1 | 802.11n(HT40) | 5230.00 | -4.61 | 0.94 | -3.67 | 11 | Pass |
| NVNT | ANT1 | 802.11ac(VHT40) | 5190.00 | -4.91 | 0.91 | -4.00 | 11 | Pass |
| NVNT | ANT1 | 802.11ac(VHT40) | 5230.00 | -4.31 | 0.29 | -4.02 | 11 | Pass |
| NVNT | ANT1 | 802.11ac(VHT80) | 5210.00 | -5.98 | 1.66 | -4.32 | 11 | Pass |
| NVNT | ANT1 | 802.11ax(HE20) | 5180.00 | 1.30 | 0.13 | 1.43 | 11 | Pass |
| NVNT | ANT1 | 802.11ax(HE20) | 5200.00 | 1.62 | 0.13 | 1.75 | 11 | Pass |
| NVNT | ANT1 | 802.11ax(HE20) | 5240.00 | 1.45 | 0.13 | 1.58 | 11 | Pass |
| NVNT | ANT1 | 802.11ax(HE40) | 5190.00 | -1.23 | 0.26 | -0.97 | 11 | Pass |
| NVNT | ANT1 | 802.11ax(HE40) | 5230.00 | -0.60 | 0.26 | -0.34 | 11 | Pass |
| NVNT | ANT1 | 802.11ax(HE80) | 5210.00 | -4.66 | 0.51 | -4.15 | 11 | Pass |











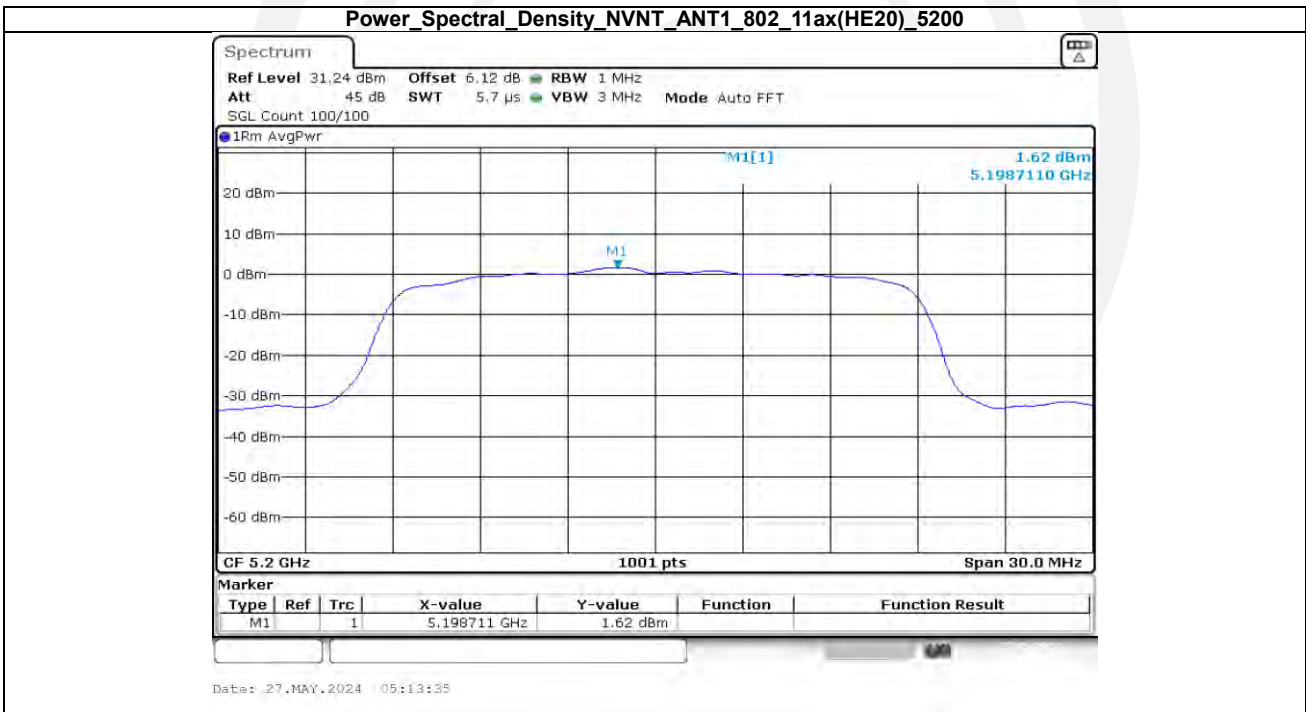
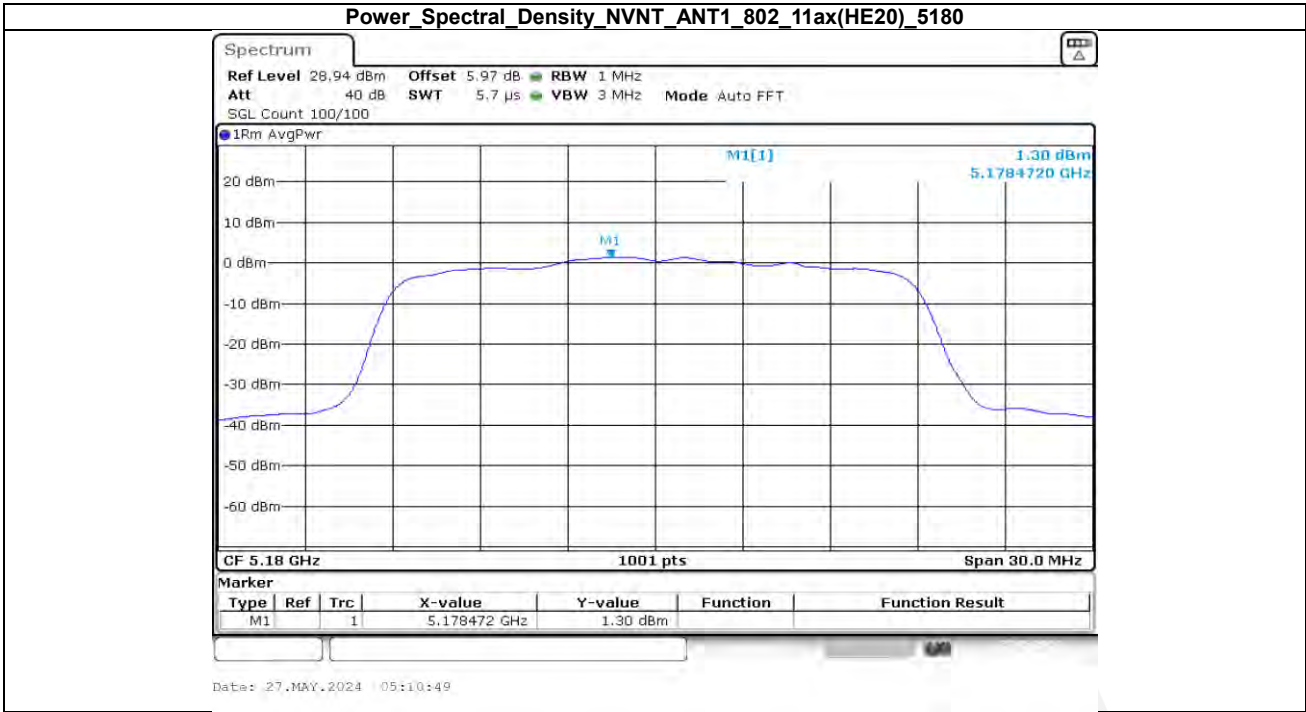
Power Spectral Density NVNT_ANT1_802_11n(HT40)_5230

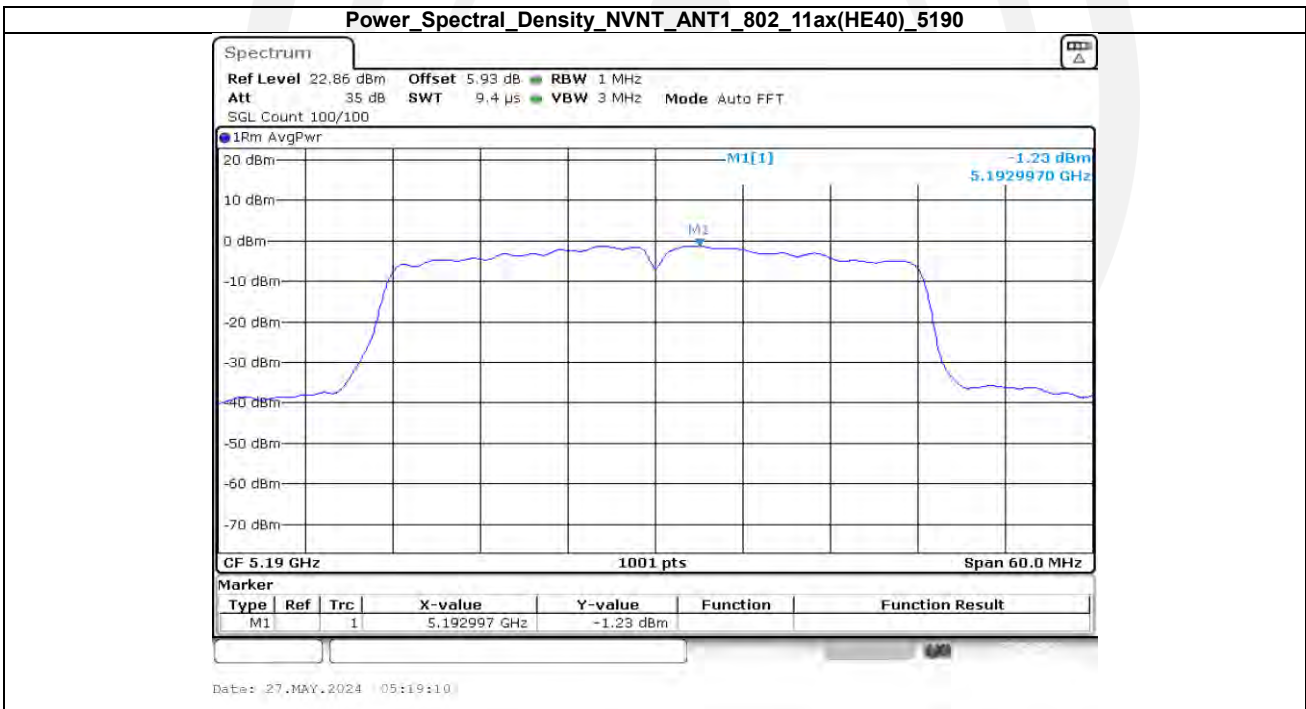
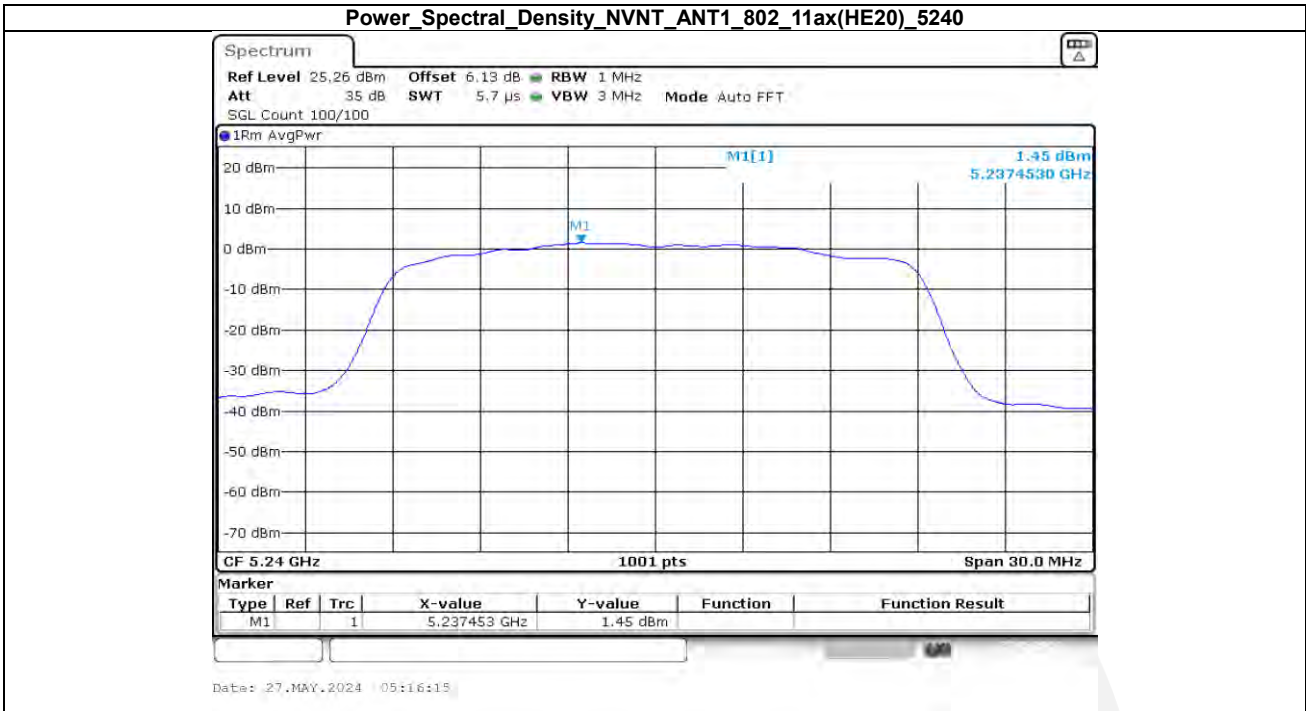


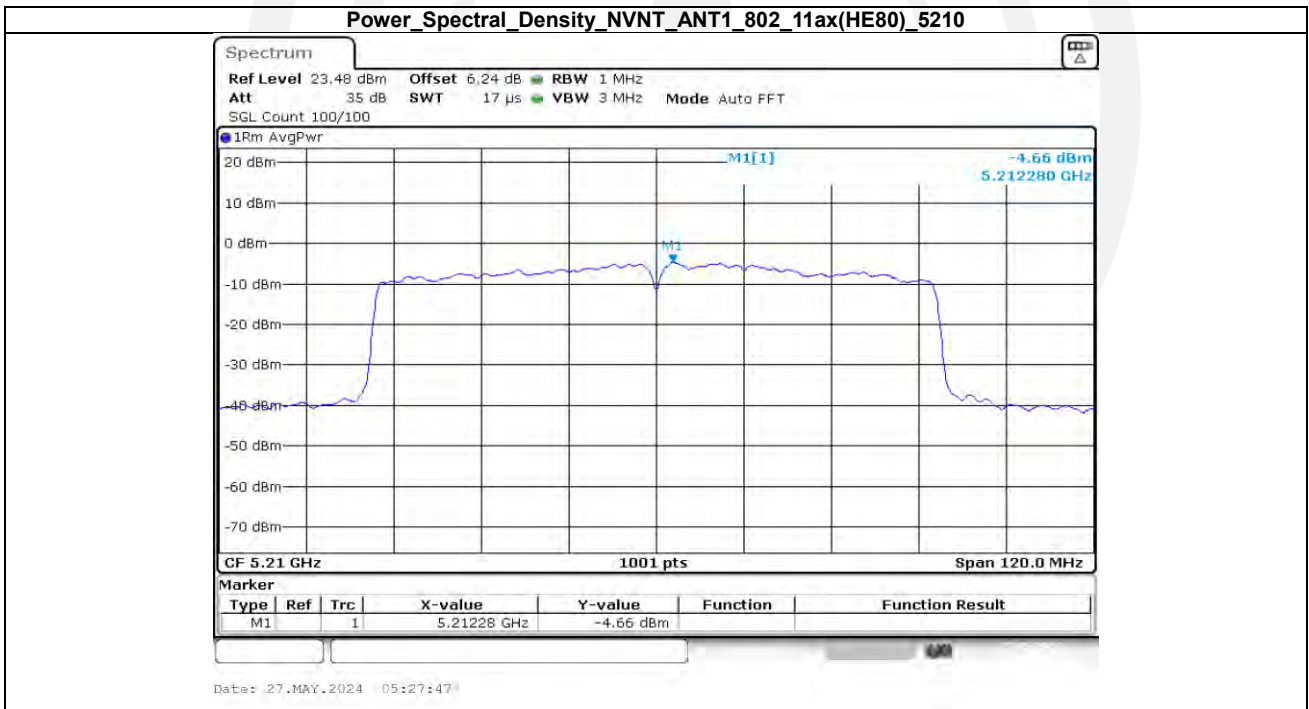
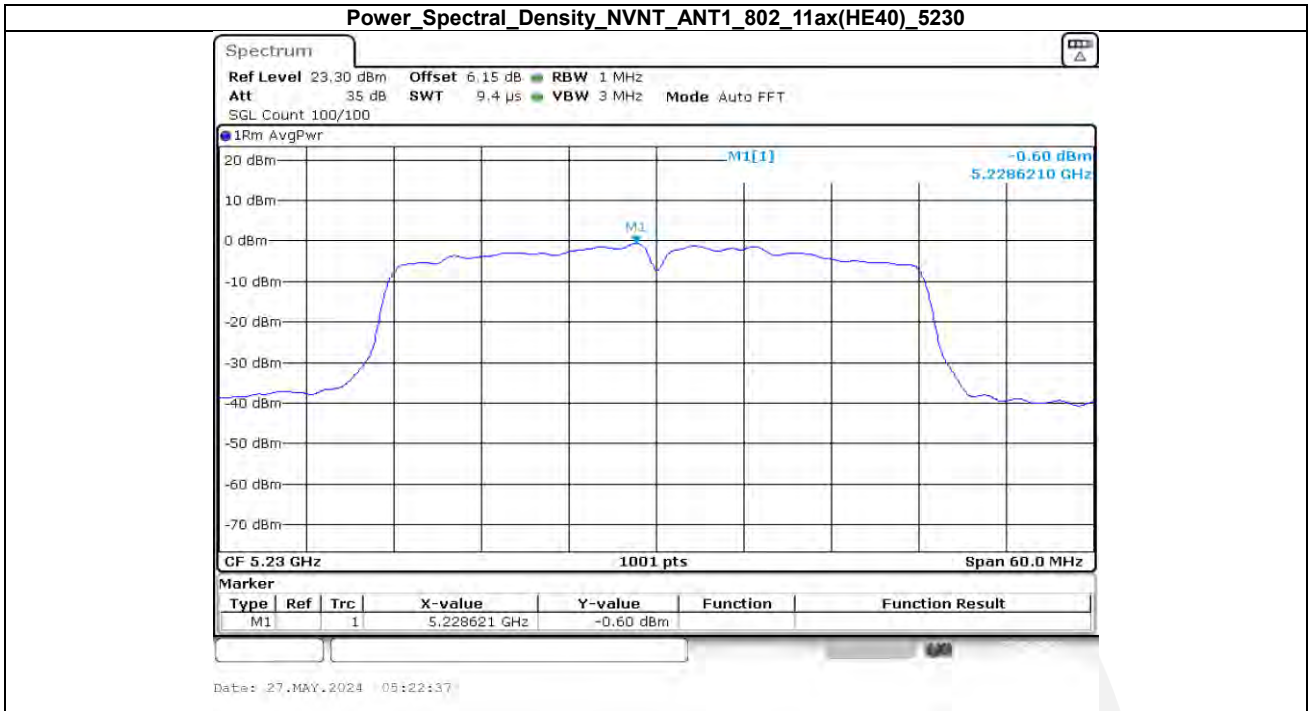
Power Spectral Density_NVNT_ANT1_802_11ac(VHT40)_5190











Band 4 (5725 – 5850 MHz)

| Modulation | Frequency (MHz) | PSD_SA(dBm/RBW) | Duty factor(dB) | RB factor(dB) | PSD(dBm/500kHz) | limit(dBm/500kHz) | Result |
|-----------------|-----------------|-----------------|-----------------|---------------|-----------------|-------------------|--------|
| 802.11a | 5745.00 | -2.14 | 0.48 | -0 | -1.75 | 30 | Pass |
| 802.11a | 5785.00 | -2.43 | 0.41 | -0 | -2.11 | 30 | Pass |
| 802.11a | 5825.00 | -2.91 | 0.47 | -0 | -2.53 | 30 | Pass |
| 802.11n(HT20) | 5745.00 | -2.82 | 0.56 | -0 | -2.35 | 30 | Pass |
| 802.11n(HT20) | 5785.00 | -2.82 | 0.49 | -0 | -2.42 | 30 | Pass |
| 802.11n(HT20) | 5825.00 | -2.91 | 0.55 | -0 | -2.44 | 30 | Pass |
| 802.11ac(VHT20) | 5745.00 | -1.66 | 0.49 | -0 | -1.26 | 30 | Pass |
| 802.11ac(VHT20) | 5785.00 | -2.55 | 0.55 | -0 | -2.08 | 30 | Pass |
| 802.11ac(VHT20) | 5825.00 | -2.88 | 0.48 | -0 | -2.49 | 30 | Pass |
| 802.11n(HT40) | 5755.00 | -5.37 | 0.91 | -0 | -4.54 | 30 | Pass |
| 802.11n(HT40) | 5795.00 | -5.09 | 0.29 | -0 | -4.89 | 30 | Pass |
| 802.11ac(VHT40) | 5755.00 | -5.14 | 0.91 | -0 | -4.32 | 30 | Pass |
| 802.11ac(VHT40) | 5795.00 | -5.65 | 1.03 | -0 | -4.71 | 30 | Pass |
| 802.11ac(VHT80) | 5775.00 | -9.96 | 1.66 | -0 | -8.39 | 30 | Pass |
| 802.11ax(HE20) | 5745.00 | -3.05 | 0.62 | -0 | -2.52 | 30 | Pass |
| 802.11ax(HE20) | 5785.00 | -3.64 | 0.55 | -0 | -3.18 | 30 | Pass |
| 802.11ax(HE20) | 5825.00 | -3.60 | 0.49 | -0 | -3.20 | 30 | Pass |
| 802.11ax(HE40) | 5755.00 | -6.65 | 1.03 | -0 | -5.71 | 30 | Pass |
| 802.11ax(HE40) | 5795.00 | -6.77 | 1.06 | -0 | -5.80 | 30 | Pass |
| 802.11ax(HE80) | 5775.00 | -10.37 | 1.66 | -0 | -8.79 | 30 | Pass |





Power Spectral Density NVNT_ANT1_802_11n(HT20)_5785



Power Spectral Density NVNT_ANT1_802_11n(HT20)_5825







Power Spectral Density NVNT_ANT1_802_11n(HT40)_5795



Power Spectral Density NVNT_ANT1_802_11ac(VHT40)_5755





Power Spectral Density NVNT_ANT1_802_11ax(HE20)_5745



Power Spectral Density NVNT_ANT1_802_11ax(HE20)_5785



Power Spectral Density NVNT_ANT1_802_11ax(HE20)_5825



Power Spectral Density NVNT_ANT1_802_11ax(HE40)_5755



Power Spectral Density NVNT_ANT1_802_11ax(HE40)_5795

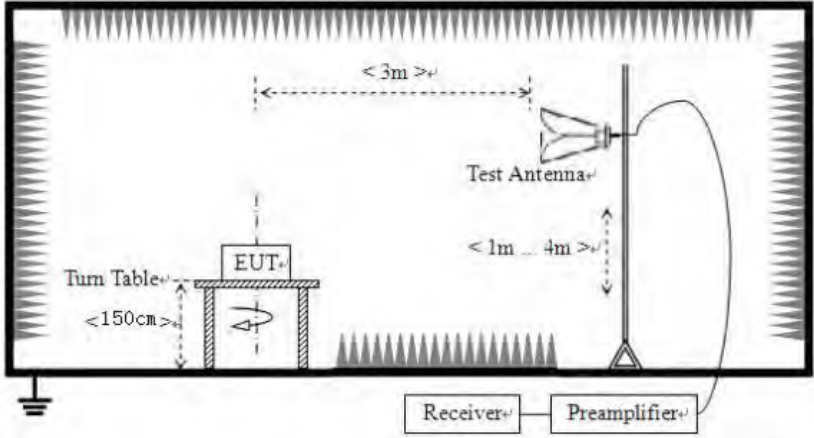


Power Spectral Density NVNT_ANT1_802_11ax(HE80)_5775



4.6 Band Edge

| | | | | |
|---|---|--------------------|------------------|--------|
| Test Requirement: | FCC Part15 E Section 15.407 and 15.205 | | | |
| Test Method: | ANSI C63.10:2013 | | | |
| Test site: | Measurement Distance: 3m (Semi-Anechoic Chamber) | | | |
| Receiver setup: | Frequency | Detector | RBW | VBW |
| | 30MHz-1GHz | Quasi-peak | 100KHz | 300KHz |
| | Above 1GHz | Peak | 1MHz | 3MHz |
| | | AV | 1MHz | 3MHz |
| Remark | Quasi-peak Value | | | |
| | Average Value | | | |
| Limit: | Frequency | Limit (dBuV/m @3m) | Remark | |
| | 30MHz-88MHz | 40.0 | Quasi-peak Value | |
| | 88MHz-216MHz | 43.5 | Quasi-peak Value | |
| | 216MHz-960MHz | 46.0 | Quasi-peak Value | |
| | 960MHz-1GHz | 54.0 | Quasi-peak Value | |
| | Above 1GHz | 54.0 | Average Value | |
| | | 68.2 | Peak Value | |
| <p>Undesirable emission limits:</p> <p>(1) For transmitters operating in the 5.15-5.25 GHz band: all emissions outside of the 5.15-5.35 GHz band shall not exceed an EIRP of -27 dBm/MHz.</p> <p>(2) For transmitters operating in the 5.25-5.35 GHz band: all emissions outside of the 5.15-5.35 GHz band shall not exceed an EIRP of -27 dBm/MHz. Devices operating in the 5.25-5.35 GHz band that generate emissions in the 5.15-5.25 GHz band must meet all applicable technical requirements for operation in the 5.15-5.25 GHz band (including indoor use) or alternatively meet an out-of-band emission EIRP limit of -27 dBm/MHz in the 5.15-5.25 GHz band.</p> <p>(3) For transmitters operating in the 5.47-5.725 GHz band: all emissions outside of the 5.47-5.725 GHz band shall not exceed an EIRP of -27 dBm/MHz.</p> | | | | |
| Test Procedure: | <p>a. The EUT was placed on the top of a rotating table 1.5 m above the ground at a 3 meter chamber. The table was rotated 360 degrees to determine the position of the highest radiation.</p> <p>b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.</p> <p>c. The antenna height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.</p> <p>d. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.</p> <p>e. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.</p> <p>f. If the emission level of the EUT in peak mode was 10dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10dB margin would be re-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet.</p> | | | |
| Test setup: | Above 1GHz | | | |

| | |
|-------------------|--|
| |  |
| Test Instruments: | Refer to section 3.0 for details |
| Test mode: | Refer to section 2.2 for details |
| Test results: | Pass |

Remark:

According to KDB 789033 D02 v02r01 section G) 1) (d), for For measurements above 1000 MHz @ 3m distance, the limit of field strength is computed as follows:

$$E[\text{dBuV/m}] = \text{EIRP}[\text{dBm}] + 95.2,$$

For example, if EIRP = -27dBm

$$E[\text{dBuV/m}] = -27 + 95.2 = 68.2\text{dBuV/m}.$$

Measurement Data:**Band1**

| Mode: | | 802.11a | | Frequency: | | 5180MHz | |
|--------------|-----------------|----------------------|---------------|------------------------|----------------|----------------|----------|
| Antenna Pol. | Frequency (MHz) | Reading Level (dBuV) | Factor (dB/m) | Measure Level (dBuV/m) | Limit (dBuV/m) | Over limit(dB) | Detector |
| H | 5150.00 | 36.26 | 17.18 | 53.44 | 68.20 | -14.76 | PK |
| V | 5150.00 | 35.66 | 17.18 | 52.84 | 68.20 | -15.36 | PK |
| | | | | | | | |
| Mode: | | 802.11a | | Frequency: | | 5180MHz | |
| Antenna Pol. | Frequency (MHz) | Reading Level (dBuV) | Factor (dB/m) | Measure Level (dBuV/m) | Limit (dBuV/m) | Over limit(dB) | Detector |
| H | 5150.00 | 27.73 | 17.18 | 44.91 | 54.00 | -9.09 | AV |
| V | 5150.00 | 25.74 | 17.18 | 42.92 | 54.00 | -11.08 | AV |
| | | | | | | | |
| Mode: | | 802.11a | | Frequency: | | 5240MHz | |
| Antenna Pol. | Frequency (MHz) | Reading Level (dBuV) | Factor (dB/m) | Measure Level (dBuV/m) | Limit (dBuV/m) | Over limit(dB) | Detector |
| H | 5350.00 | 35.12 | 17.18 | 52.30 | 68.20 | -15.90 | PK |
| V | 5350.00 | 36.27 | 17.18 | 53.45 | 68.20 | -14.75 | PK |
| | | | | | | | |
| Mode: | | 802.11a | | Frequency: | | 5240MHz | |
| Antenna Pol. | Frequency (MHz) | Reading Level (dBuV) | Factor (dB/m) | Measure Level (dBuV/m) | Limit (dBuV/m) | Over limit(dB) | Detector |
| H | 5350.00 | 28.16 | 17.18 | 45.34 | 54.00 | -8.66 | AV |
| V | 5350.00 | 25.12 | 17.18 | 42.30 | 54.00 | -11.70 | AV |

| Mode: | | 802.11n(HT20) | | Frequency: | | 5180MHz | |
|--------------|-----------------|----------------------|---------------|------------------------|----------------|----------------|----------|
| Antenna Pol. | Frequency (MHz) | Reading Level (dBuV) | Factor (dB/m) | Measure Level (dBuV/m) | Limit (dBuV/m) | Over limit(dB) | Detector |
| H | 5150.00 | 36.95 | 17.18 | 54.13 | 68.20 | -14.07 | PK |
| V | 5150.00 | 36.45 | 17.18 | 53.63 | 68.20 | -14.57 | PK |
| Mode: | | 802.11n(HT20) | | Frequency: | | 5180MHz | |
| Antenna Pol. | Frequency (MHz) | Reading Level (dBuV) | Factor (dB/m) | Measure Level (dBuV/m) | Limit (dBuV/m) | Over limit(dB) | Detector |
| H | 5150.00 | 27.66 | 17.18 | 44.84 | 54.00 | -9.16 | AV |
| V | 5150.00 | 27.21 | 17.18 | 44.39 | 54.00 | -9.61 | AV |
| Mode: | | 802.11n(HT20) | | Frequency: | | 5240MHz | |
| Antenna Pol. | Frequency (MHz) | Reading Level (dBuV) | Factor (dB/m) | Measure Level (dBuV/m) | Limit (dBuV/m) | Over limit(dB) | Detector |
| H | 5350.00 | 34.25 | 17.18 | 51.43 | 68.20 | -16.77 | PK |
| V | 5350.00 | 35.32 | 17.18 | 52.50 | 68.20 | -15.70 | PK |
| Mode: | | 802.11n(HT20) | | Frequency: | | 5240MHz | |
| Antenna Pol. | Frequency (MHz) | Reading Level (dBuV) | Factor (dB/m) | Measure Level (dBuV/m) | Limit (dBuV/m) | Over limit(dB) | Detector |
| H | 5350.00 | 27.23 | 17.18 | 44.41 | 54.00 | -9.59 | AV |
| V | 5350.00 | 24.46 | 17.18 | 41.64 | 54.00 | -12.36 | AV |

| Mode: | | 802.11ac(HT20) | | Frequency: | | 5180MHz | |
|--------------|-----------------|----------------------|---------------|------------------------|----------------|----------------|----------|
| Antenna Pol. | Frequency (MHz) | Reading Level (dBuV) | Factor (dB/m) | Measure Level (dBuV/m) | Limit (dBuV/m) | Over limit(dB) | Detector |
| H | 5150.00 | 35.39 | 17.18 | 52.57 | 68.20 | -15.63 | PK |
| V | 5150.00 | 32.75 | 17.18 | 49.93 | 68.20 | -18.27 | PK |
| Mode: | | 802.11ac(HT20) | | Frequency: | | 5180MHz | |
| Antenna Pol. | Frequency (MHz) | Reading Level (dBuV) | Factor (dB/m) | Measure Level (dBuV/m) | Limit (dBuV/m) | Over limit(dB) | Detector |
| H | 5150.00 | 25.98 | 17.18 | 43.16 | 54.00 | -10.84 | AV |
| V | 5150.00 | 24.03 | 17.18 | 41.21 | 54.00 | -12.79 | AV |
| Mode: | | 802.11ac(HT20) | | Frequency: | | 5240MHz | |
| Antenna Pol. | Frequency (MHz) | Reading Level (dBuV) | Factor (dB/m) | Measure Level (dBuV/m) | Limit (dBuV/m) | Over limit(dB) | Detector |
| H | 5350.00 | 36.11 | 17.18 | 53.29 | 68.20 | -14.91 | PK |
| V | 5350.00 | 33.93 | 17.18 | 51.11 | 68.20 | -17.09 | PK |
| Mode: | | 802.11ac(HT20) | | Frequency: | | 5240MHz | |
| Antenna Pol. | Frequency (MHz) | Reading Level (dBuV) | Factor (dB/m) | Measure Level (dBuV/m) | Limit (dBuV/m) | Over limit(dB) | Detector |
| H | 5350.00 | 26.38 | 17.18 | 43.56 | 54.00 | -10.44 | AV |
| V | 5350.00 | 24.75 | 17.18 | 41.93 | 54.00 | -12.07 | AV |

| Mode: | | 802.11ax(HT20) | | Frequency: | | 5180MHz | |
|--------------|-----------------|----------------------|---------------|------------------------|----------------|----------------|----------|
| Antenna Pol. | Frequency (MHz) | Reading Level (dBuV) | Factor (dB/m) | Measure Level (dBuV/m) | Limit (dBuV/m) | Over limit(dB) | Detector |
| H | 5150.00 | 37.40 | 17.18 | 54.58 | 68.20 | -13.62 | PK |
| V | 5150.00 | 33.96 | 17.18 | 51.14 | 68.20 | -17.06 | PK |
| Mode: | | 802.11ax(HT20) | | Frequency: | | 5180MHz | |
| Antenna Pol. | Frequency (MHz) | Reading Level (dBuV) | Factor (dB/m) | Measure Level (dBuV/m) | Limit (dBuV/m) | Over limit(dB) | Detector |
| H | 5150.00 | 25.09 | 17.18 | 42.27 | 54.00 | -11.73 | AV |
| V | 5150.00 | 27.05 | 17.18 | 44.23 | 54.00 | -9.77 | AV |
| Mode: | | 802.11ax(HT20) | | Frequency: | | 5240MHz | |
| Antenna Pol. | Frequency (MHz) | Reading Level (dBuV) | Factor (dB/m) | Measure Level (dBuV/m) | Limit (dBuV/m) | Over limit(dB) | Detector |
| H | 5350.00 | 37.37 | 17.18 | 54.55 | 68.20 | -13.65 | PK |
| V | 5350.00 | 35.59 | 17.18 | 52.77 | 68.20 | -15.43 | PK |
| Mode: | | 802.11ax(HT20) | | Frequency: | | 5240MHz | |
| Antenna Pol. | Frequency (MHz) | Reading Level (dBuV) | Factor (dB/m) | Measure Level (dBuV/m) | Limit (dBuV/m) | Over limit(dB) | Detector |
| H | 5350.00 | 27.93 | 17.18 | 45.11 | 54.00 | -8.89 | AV |
| V | 5350.00 | 27.29 | 17.18 | 44.47 | 54.00 | -9.53 | AV |

| Mode: | | 802.11n(HT40) | | Frequency: | | 5190MHz | |
|--------------|-----------------|----------------------|---------------|------------------------|----------------|----------------|----------|
| Antenna Pol. | Frequency (MHz) | Reading Level (dBuV) | Factor (dB/m) | Measure Level (dBuV/m) | Limit (dBuV/m) | Over limit(dB) | Detector |
| H | 5150.00 | 33.94 | 17.18 | 51.12 | 68.20 | -17.08 | PK |
| V | 5150.00 | 33.02 | 17.18 | 50.20 | 68.20 | -18.00 | PK |
| Mode: | | 802.11n(HT40) | | Frequency: | | 5190MHz | |
| Antenna Pol. | Frequency (MHz) | Reading Level (dBuV) | Factor (dB/m) | Measure Level (dBuV/m) | Limit (dBuV/m) | Over limit(dB) | Detector |
| H | 5150.00 | 27.47 | 17.18 | 44.65 | 54.00 | -9.35 | AV |
| V | 5150.00 | 25.45 | 17.18 | 42.63 | 54.00 | -11.37 | AV |
| Mode: | | 802.11n(HT40) | | Frequency: | | 5230MHz | |
| Antenna Pol. | Frequency (MHz) | Reading Level (dBuV) | Factor (dB/m) | Measure Level (dBuV/m) | Limit (dBuV/m) | Over limit(dB) | Detector |
| H | 5350.00 | 34.61 | 17.18 | 51.79 | 68.20 | -16.41 | PK |
| V | 5350.00 | 34.79 | 17.18 | 51.97 | 68.20 | -16.23 | PK |
| Mode: | | 802.11n(HT40) | | Frequency: | | 5230MHz | |
| Antenna Pol. | Frequency (MHz) | Reading Level (dBuV) | Factor (dB/m) | Measure Level (dBuV/m) | Limit (dBuV/m) | Over limit(dB) | Detector |
| H | 5350.00 | 27.81 | 17.18 | 44.99 | 54.00 | -9.01 | AV |
| V | 5350.00 | 24.98 | 17.18 | 42.16 | 54.00 | -11.84 | AV |

| Mode: | | 802.11ac(HT40) | | Frequency: | | 5190MHz | |
|--------------|-----------------|----------------------|---------------|------------------------|----------------|----------------|----------|
| Antenna Pol. | Frequency (MHz) | Reading Level (dBuV) | Factor (dB/m) | Measure Level (dBuV/m) | Limit (dBuV/m) | Over limit(dB) | Detector |
| H | 5150.00 | 33.68 | 17.18 | 50.86 | 68.20 | -17.34 | PK |
| V | 5150.00 | 36.17 | 17.18 | 53.35 | 68.20 | -14.85 | PK |
| Mode: | | 802.11ac(HT40) | | Frequency: | | 5190MHz | |
| Antenna Pol. | Frequency (MHz) | Reading Level (dBuV) | Factor (dB/m) | Measure Level (dBuV/m) | Limit (dBuV/m) | Over limit(dB) | Detector |
| H | 5150.00 | 26.91 | 17.18 | 44.09 | 54.00 | -9.91 | AV |
| V | 5150.00 | 25.93 | 17.18 | 43.11 | 54.00 | -10.89 | AV |
| Mode: | | 802.11ac(HT40) | | Frequency: | | 5230MHz | |
| Antenna Pol. | Frequency (MHz) | Reading Level (dBuV) | Factor (dB/m) | Measure Level (dBuV/m) | Limit (dBuV/m) | Over limit(dB) | Detector |
| H | 5350.00 | 36.71 | 17.18 | 53.89 | 68.20 | -14.31 | PK |
| V | 5350.00 | 34.72 | 17.18 | 51.90 | 68.20 | -16.30 | PK |
| Mode: | | 802.11ac(HT40) | | Frequency: | | 5230MHz | |
| Antenna Pol. | Frequency (MHz) | Reading Level (dBuV) | Factor (dB/m) | Measure Level (dBuV/m) | Limit (dBuV/m) | Over limit(dB) | Detector |
| H | 5350.00 | 24.84 | 17.18 | 42.02 | 54.00 | -11.98 | AV |
| V | 5350.00 | 26.08 | 17.18 | 43.26 | 54.00 | -10.74 | AV |

| Mode: | | 802.11ax(HT40) | | Frequency: | | 5190MHz | |
|--------------|-----------------|----------------------|---------------|------------------------|----------------|----------------|----------|
| Antenna Pol. | Frequency (MHz) | Reading Level (dBuV) | Factor (dB/m) | Measure Level (dBuV/m) | Limit (dBuV/m) | Over limit(dB) | Detector |
| H | 5150.00 | 36.05 | 17.18 | 53.23 | 68.20 | -14.97 | PK |
| V | 5150.00 | 35.61 | 17.18 | 52.79 | 68.20 | -15.41 | PK |
| Mode: | | 802.11ax(HT40) | | Frequency: | | 5190MHz | |
| Antenna Pol. | Frequency (MHz) | Reading Level (dBuV) | Factor (dB/m) | Measure Level (dBuV/m) | Limit (dBuV/m) | Over limit(dB) | Detector |
| H | 5150.00 | 26.02 | 17.18 | 43.20 | 54.00 | -10.80 | AV |
| V | 5150.00 | 26.97 | 17.18 | 44.15 | 54.00 | -9.85 | AV |
| Mode: | | 802.11ax(HT40) | | Frequency: | | 5230MHz | |
| Antenna Pol. | Frequency (MHz) | Reading Level (dBuV) | Factor (dB/m) | Measure Level (dBuV/m) | Limit (dBuV/m) | Over limit(dB) | Detector |
| H | 5350.00 | 37.51 | 17.18 | 54.69 | 68.20 | -13.51 | PK |
| V | 5350.00 | 35.67 | 17.18 | 52.85 | 68.20 | -15.35 | PK |
| Mode: | | 802.11ax(HT40) | | Frequency: | | 5230MHz | |
| Antenna Pol. | Frequency (MHz) | Reading Level (dBuV) | Factor (dB/m) | Measure Level (dBuV/m) | Limit (dBuV/m) | Over limit(dB) | Detector |
| H | 5350.00 | 27.46 | 17.18 | 44.64 | 54.00 | -9.36 | AV |
| V | 5350.00 | 24.01 | 17.18 | 41.19 | 54.00 | -12.81 | AV |

| Mode: | | 802.11ac(HT80) | | Frequency: | | 5210MHz | |
|--------------|-----------------|----------------------|---------------|------------------------|----------------|----------------|----------|
| Antenna Pol. | Frequency (MHz) | Reading Level (dBuV) | Factor (dB/m) | Measure Level (dBuV/m) | Limit (dBuV/m) | Over limit(dB) | Detector |
| H | 5150.00 | 34.05 | 17.18 | 51.23 | 68.20 | -16.97 | PK |
| V | 5150.00 | 35.44 | 17.18 | 52.62 | 68.20 | -15.58 | PK |
| Mode: | | 802.11ac(HT80) | | Frequency: | | 5210MHz | |
| Antenna Pol. | Frequency (MHz) | Reading Level (dBuV) | Factor (dB/m) | Measure Level (dBuV/m) | Limit (dBuV/m) | Over limit(dB) | Detector |
| H | 5150.00 | 25.71 | 17.18 | 42.89 | 54.00 | -11.11 | AV |
| V | 5150.00 | 23.56 | 17.18 | 40.74 | 54.00 | -13.26 | AV |
| Mode: | | 802.11ac(HT80) | | Frequency: | | 5210MHz | |
| Antenna Pol. | Frequency (MHz) | Reading Level (dBuV) | Factor (dB/m) | Measure Level (dBuV/m) | Limit (dBuV/m) | Over limit(dB) | Detector |
| H | 5350.00 | 35.20 | 17.18 | 52.38 | 68.20 | -15.82 | PK |
| V | 5350.00 | 34.25 | 17.18 | 51.43 | 68.20 | -16.77 | PK |
| Mode: | | 802.11ac(HT80) | | Frequency: | | 5210MHz | |
| Antenna Pol. | Frequency (MHz) | Reading Level (dBuV) | Factor (dB/m) | Measure Level (dBuV/m) | Limit (dBuV/m) | Over limit(dB) | Detector |
| H | 5350.00 | 25.08 | 17.18 | 42.26 | 54.00 | -11.74 | AV |
| V | 5350.00 | 27.02 | 17.18 | 44.20 | 54.00 | -9.80 | AV |

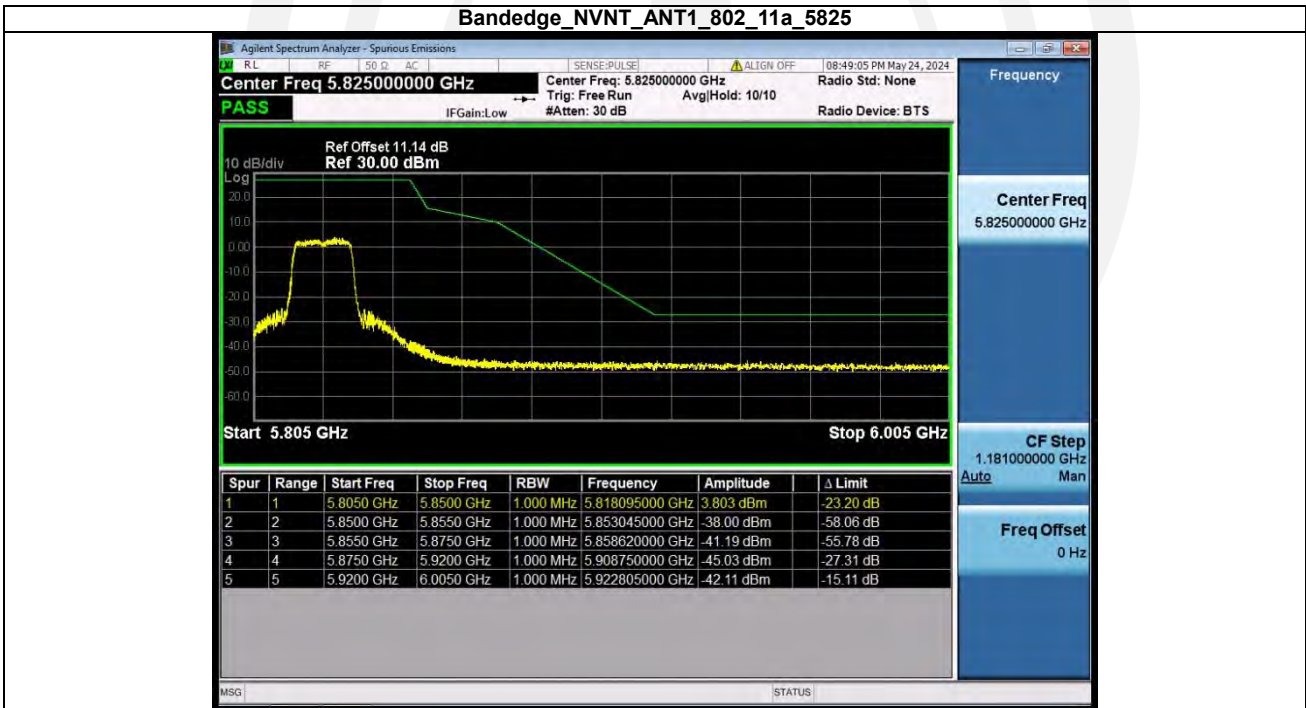
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|--------------|-----------------|----------------------|---------------|------------------------|----------------|----------------|----------|
| Antenna Pol. | Frequency (MHz) | Reading Level (dBuV) | Factor (dB/m) | Measure Level (dBuV/m) | Limit (dBuV/m) | Over limit(dB) | Detector |
| H | 5150.00 | 37.29 | 17.18 | 54.47 | 68.20 | -13.73 | PK |
| V | 5150.00 | 36.28 | 17.18 | 53.46 | 68.20 | -14.74 | PK |
| Mode: | | 802.11ax(HT80) | | Frequency: | | 5210MHz | |
| Antenna Pol. | Frequency (MHz) | Reading Level (dBuV) | Factor (dB/m) | Measure Level (dBuV/m) | Limit (dBuV/m) | Over limit(dB) | Detector |
| H | 5150.00 | 25.40 | 17.18 | 42.58 | 54.00 | -11.42 | AV |
| V | 5150.00 | 26.00 | 17.18 | 43.18 | 54.00 | -10.82 | AV |
| Mode: | | 802.11ax(HT80) | | Frequency: | | 5210MHz | |
| Antenna Pol. | Frequency (MHz) | Reading Level (dBuV) | Factor (dB/m) | Measure Level (dBuV/m) | Limit (dBuV/m) | Over limit(dB) | Detector |
| H | 5350.00 | 37.29 | 17.18 | 54.47 | 68.20 | -13.73 | PK |
| V | 5350.00 | 37.52 | 17.18 | 54.70 | 68.20 | -13.50 | PK |
| Mode: | | 802.11ax(HT80) | | Frequency: | | 5210MHz | |
| Antenna Pol. | Frequency (MHz) | Reading Level (dBuV) | Factor (dB/m) | Measure Level (dBuV/m) | Limit (dBuV/m) | Over limit(dB) | Detector |
| H | 5350.00 | 24.55 | 17.18 | 41.73 | 54.00 | -12.27 | AV |
| V | 5350.00 | 26.84 | 17.18 | 44.02 | 54.00 | -9.98 | AV |

Band4

Bandedge_NVNT_ANT1_802_11a_5745



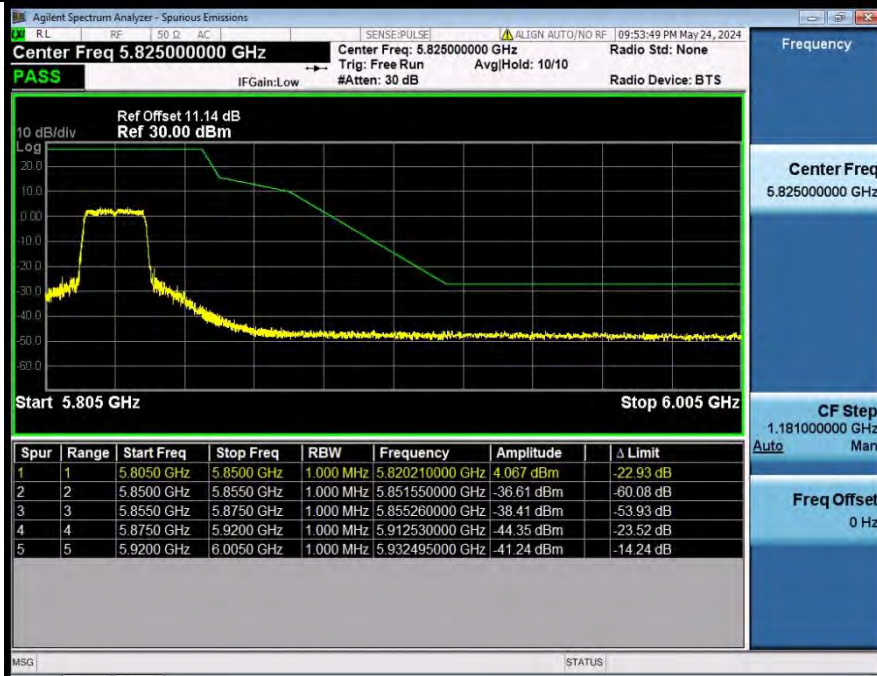
Bandedge_NVNT_ANT1_802_11a_5825



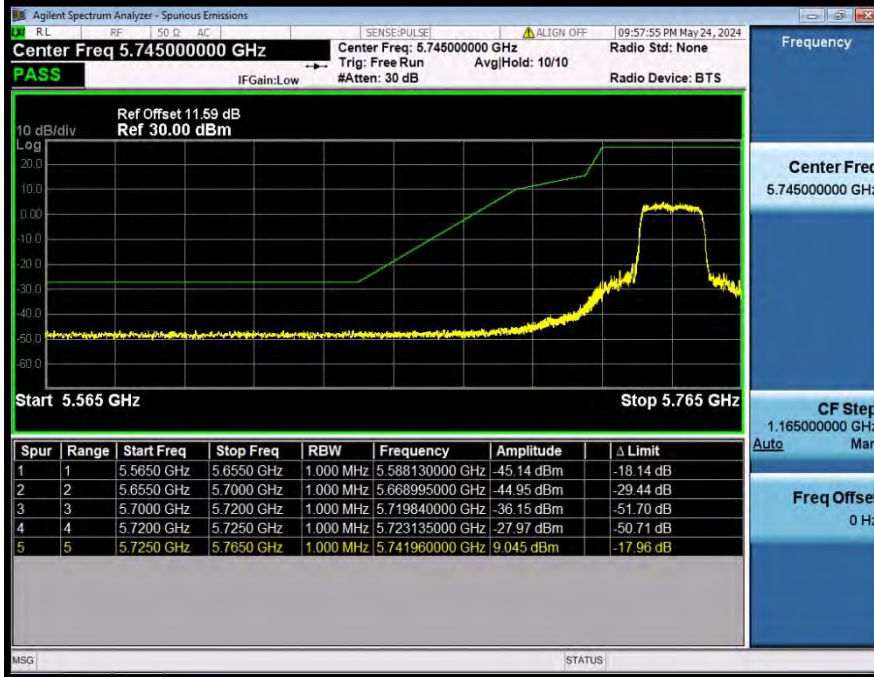
Bandedge_NVNT_ANT1_802_11n(HT20)_5745



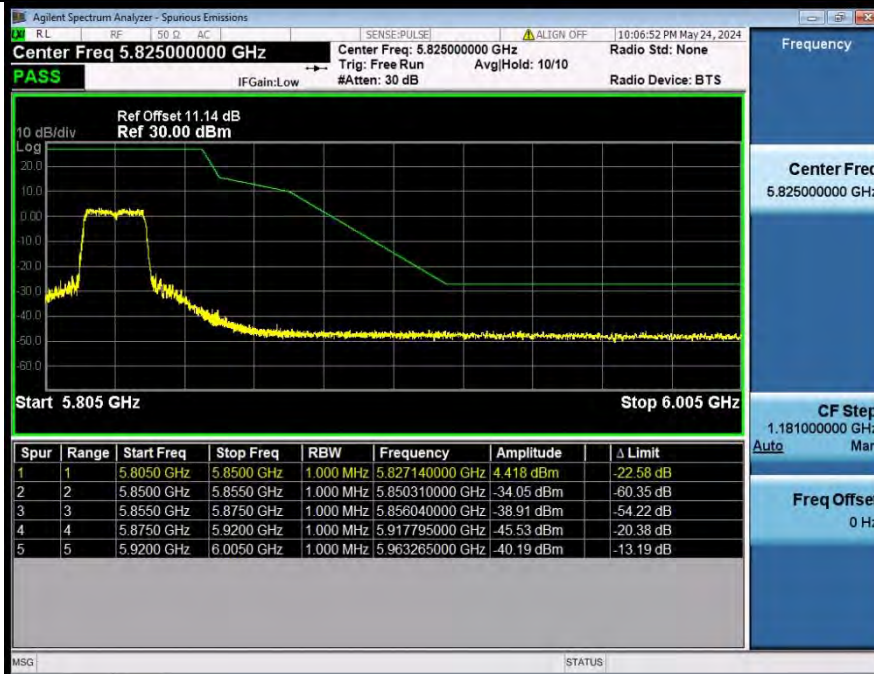
Bandedge_NVNT_ANT1_802_11n(HT20)_5825

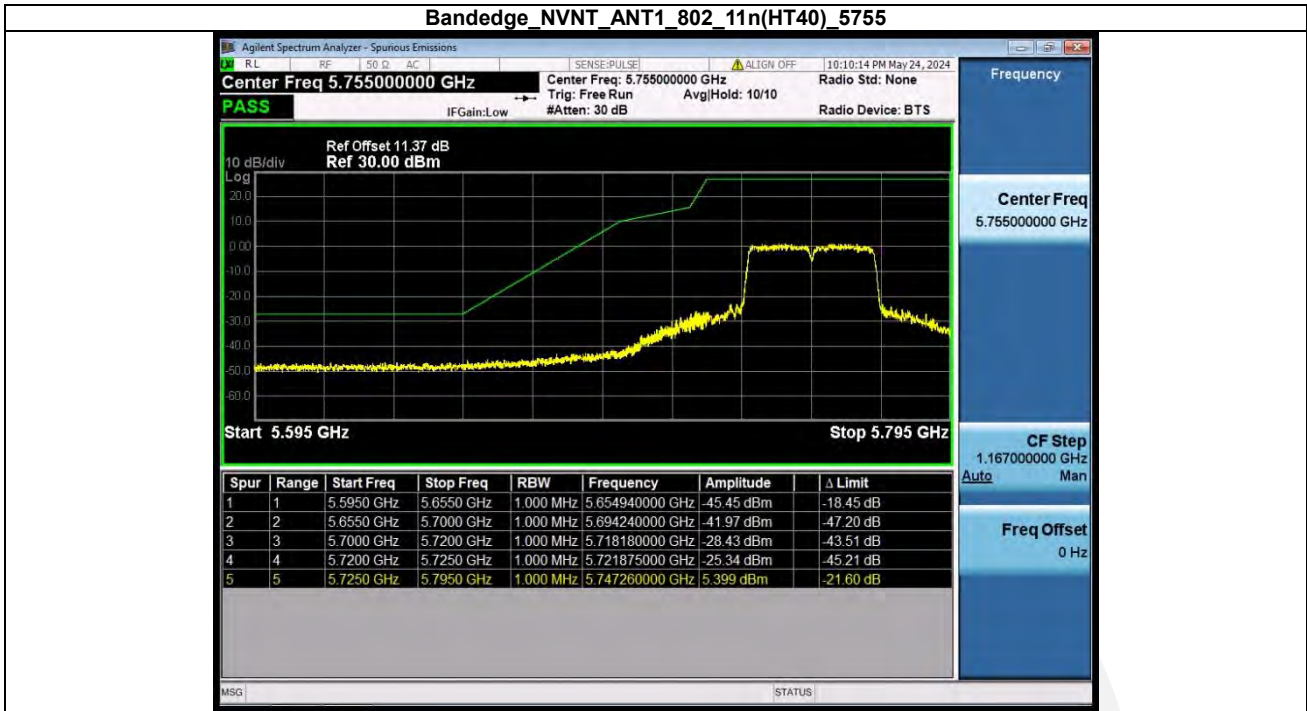


Bandedge_NVNT_ANT1_802_11ac(VHT20)_5745

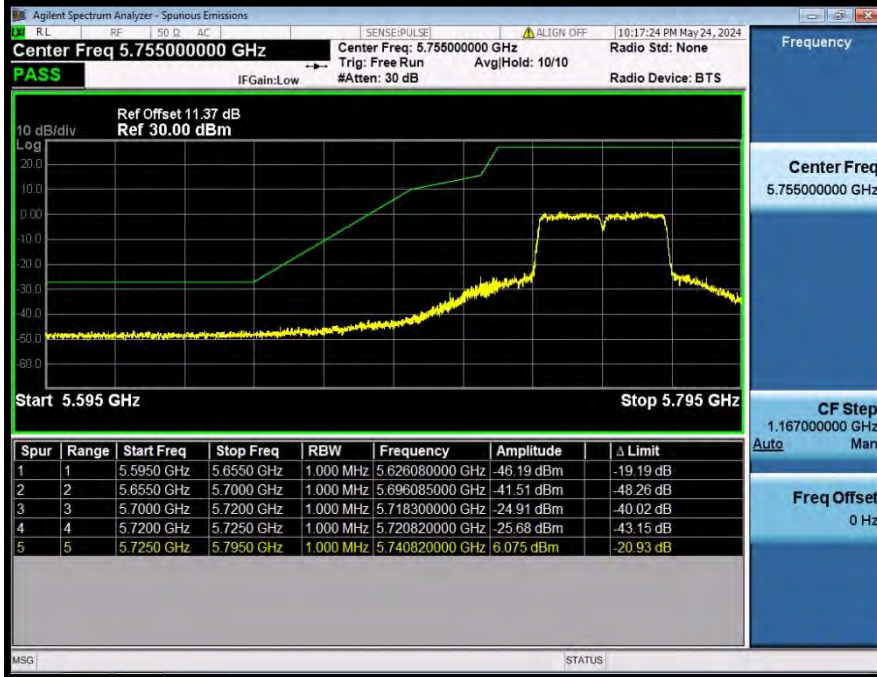


Bandedge_NVNT_ANT1_802_11ac(VHT20)_5825

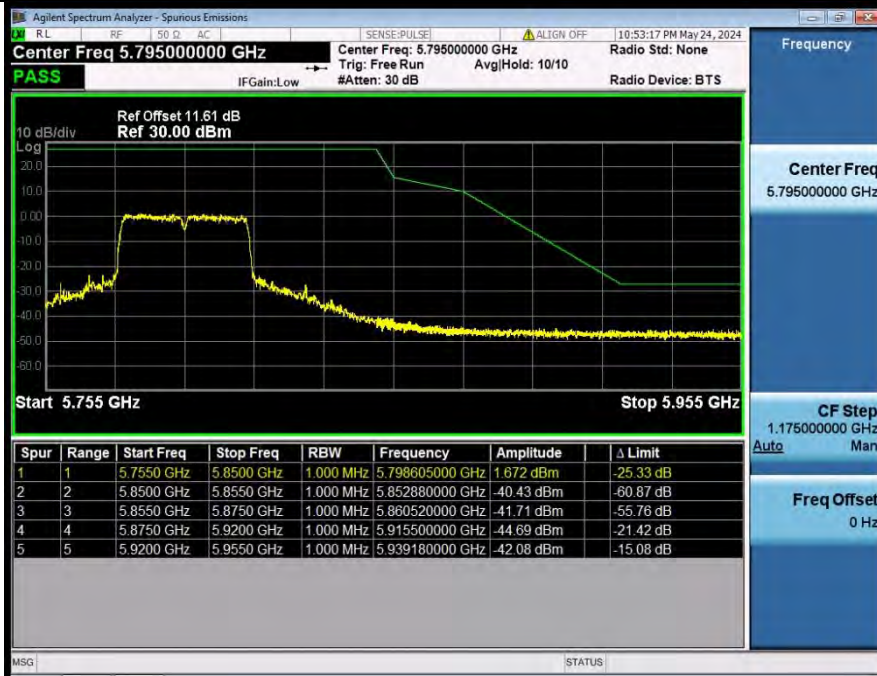




Bandedge_NVNT_ANT1_802_11ac(VHT40)_5755



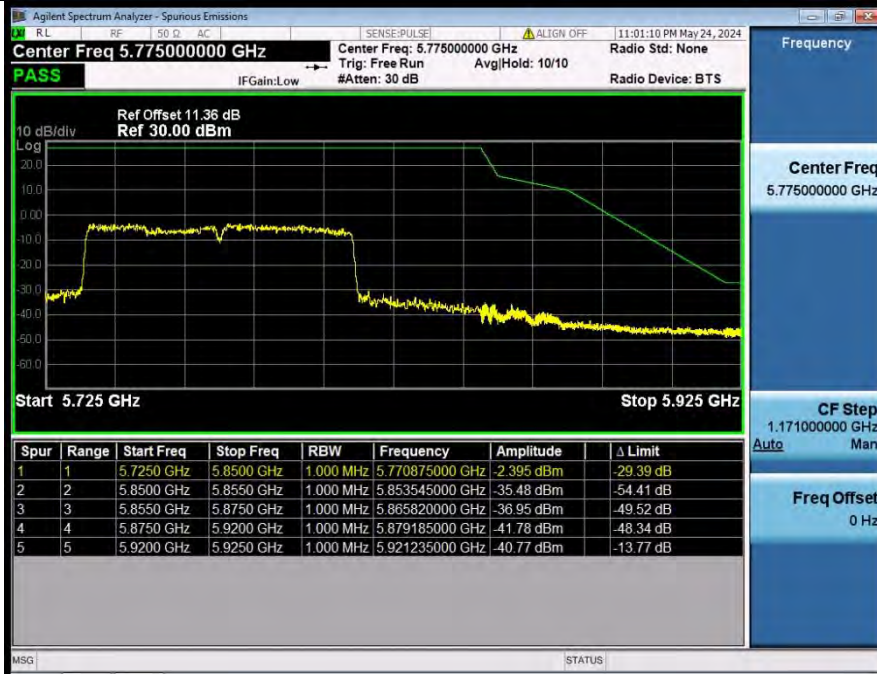
Bandedge_NVNT_ANT1_802_11ac(VHT40)_5795



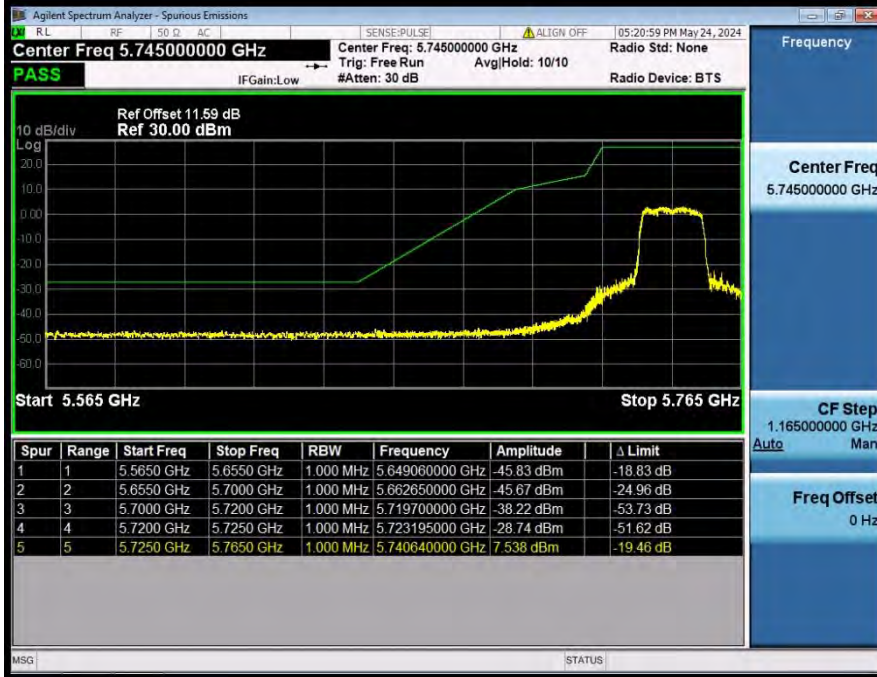
Bandedge_NVNT_ANT1_802_11ac(VHT80)_5775_low



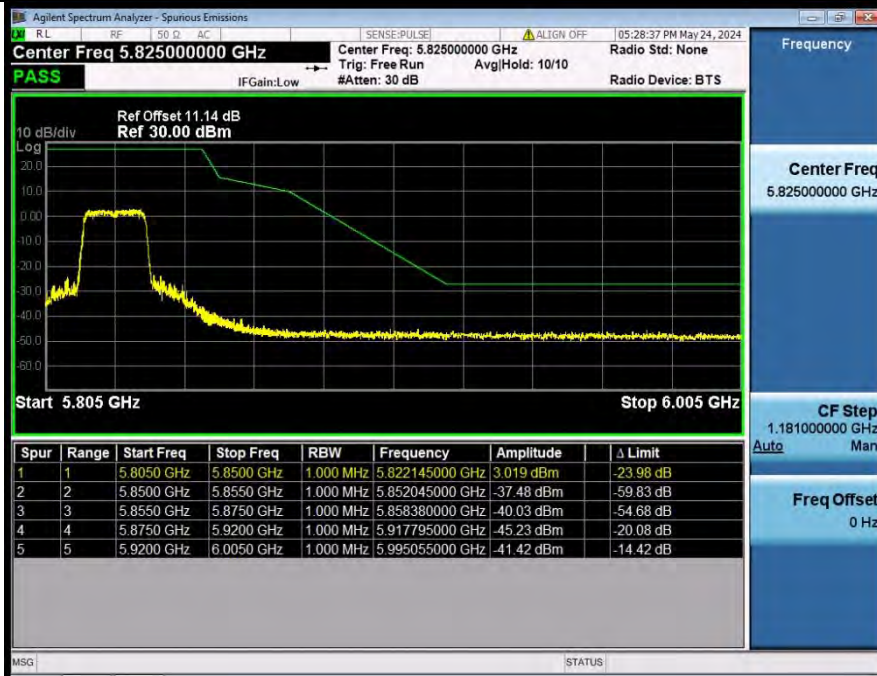
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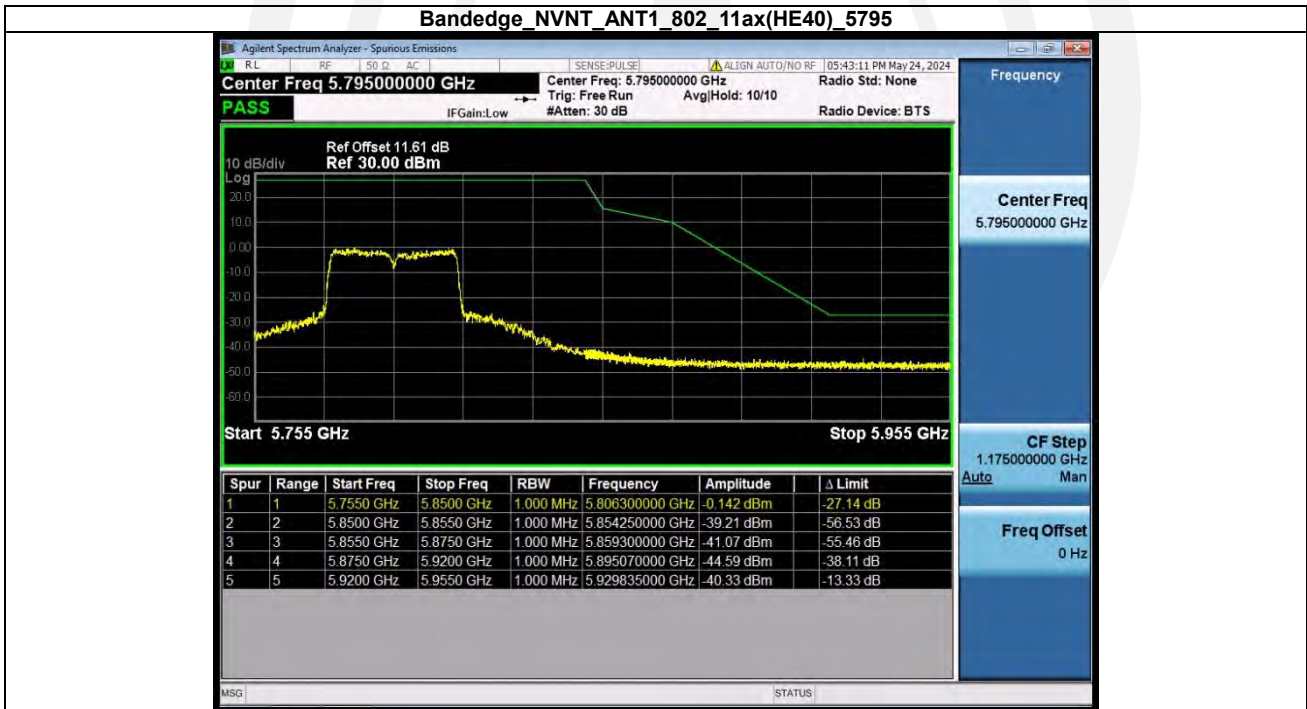
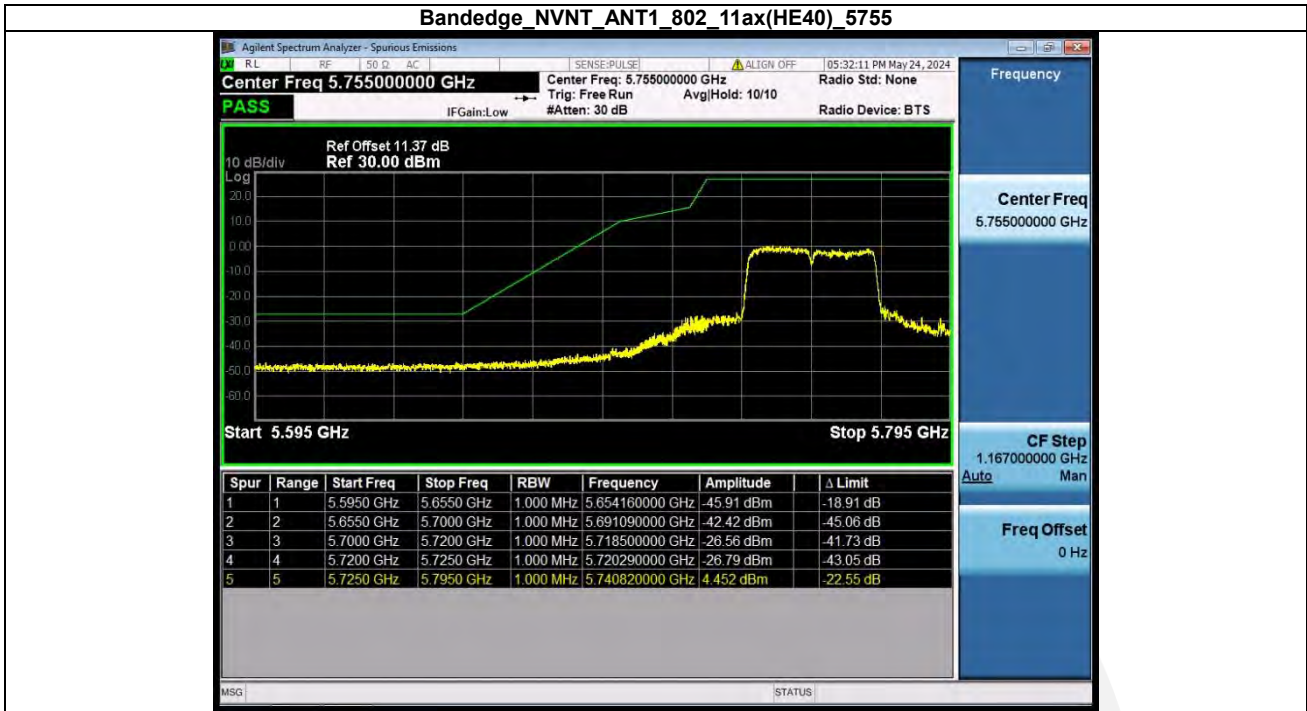


Bandedge NVNT_ANT1_802_11ax(HE20)_5745

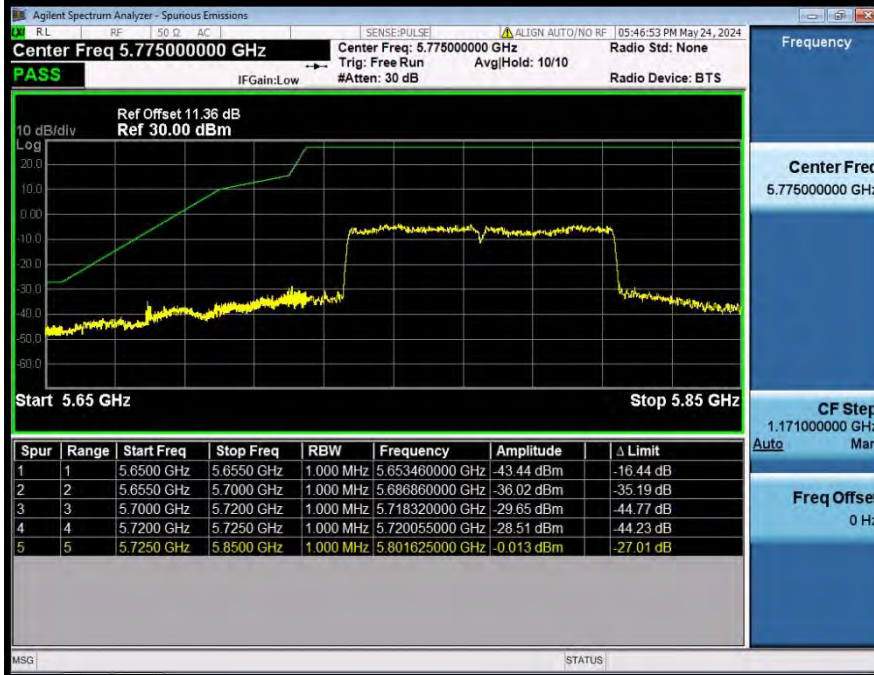


Bandedge NVNT_ANT1_802_11ax(HE20)_5825

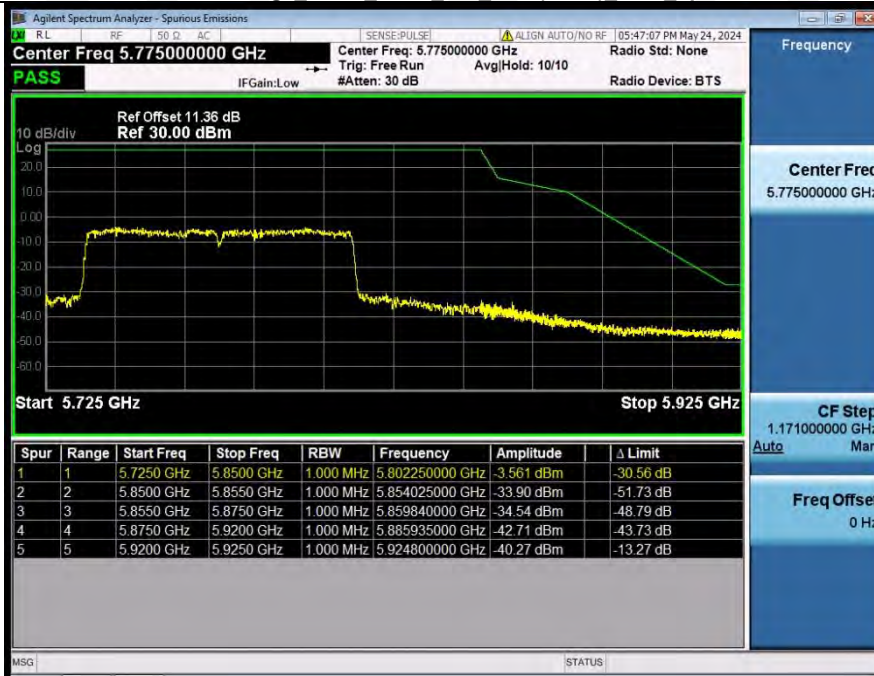




Bandedge_NVNT_ANT1_802_11ax(HE80)_5775_low

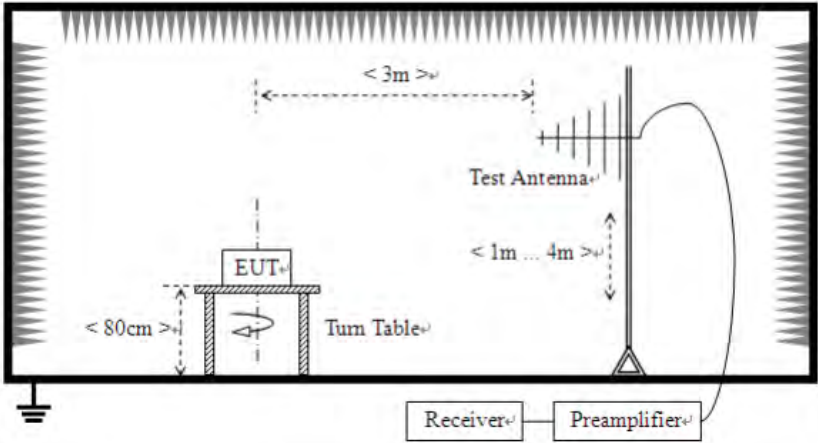


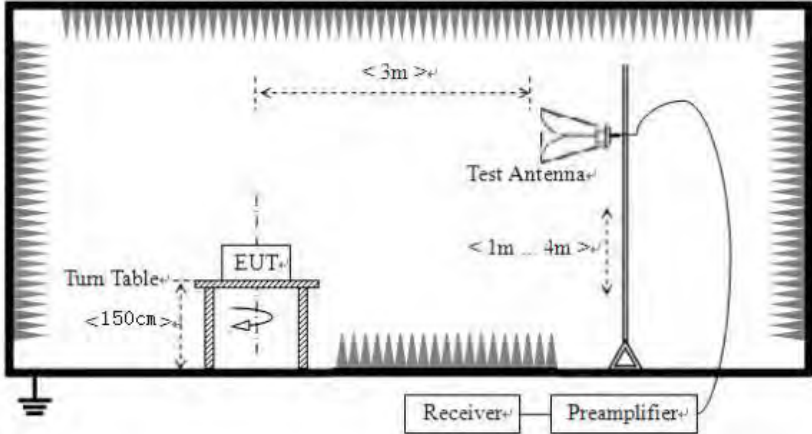
Bandedge_NVNT_ANT1_802_11ax(HE80)_5775_up



4.7 Radiated Emission

| | | | | | |
|-----------------------|---|------------|--------------------|---------------|------------------|
| Test Requirement: | FCC Part15 C Section 15.209 and 15.205 | | | | |
| Test Method: | ANSI C63.10:2013 | | | | |
| Test Frequency Range: | 30MHz to 40GHz | | | | |
| Test site: | Measurement Distance: 3m (Semi-Anechoic Chamber) | | | | |
| Receiver setup: | Frequency | Detector | RBW | VBW | Value |
| | 30MHz-1GHz | Quasi-peak | 100KHz | 300KHz | Quasi-peak Value |
| | Above 1GHz | Peak | 1MHz | 3MHz | Peak Value |
| AV | | 1MHz | 3MHz | Average Value | |
| Limit: | Frequency | | Limit (dBuV/m @3m) | | Remark |
| | 30MHz-88MHz | | 40.0 | | Quasi-peak Value |
| | 88MHz-216MHz | | 43.5 | | Quasi-peak Value |
| | 216MHz-960MHz | | 46.0 | | Quasi-peak Value |
| | 960MHz-1GHz | | 54.0 | | Quasi-peak Value |
| | Above 1GHz | | 74.0 | | Peak Value |
| 54.0 | | | Average Value | | |
| Test Procedure: | <p>Substitution method was performed to determine the actual ERP emission levels of the EUT. The following test procedure as below:</p> <p>1>.Below 1GHz test procedure:</p> <ol style="list-style-type: none"> 1. The EUT was placed on the top of a rotating table (0.8m for below 1GHz and 1.5 meters for above 1GHz) above the ground at a 3 meter camber. The table was rotated 360 degrees to determine the position of the highest radiation. 2. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower. 3. The antenna height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement. 4. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading. 5. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode. 6. If the emission level of the EUT in peak mode was 10dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10dB margin would be re-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet. <p>2>.Above 1GHz test procedure:</p> <ol style="list-style-type: none"> 1. On the test site as test setup graph above,the EUT shall be placed at the 1.5m support on the turntable and in the position closest to normal use as declared by the provider. 2. The test antenna shall be oriented initially for vertical polarization and shall be chosen to correspond to the frequency of the transmitter.The output of the test antenna shall be connected to the measuring receiver. 3. The transmitter shall be switched on, if possible, without modulation and the measuring receiver shall be tuned to the frequency of the | | | | |

| | |
|-------------|---|
| | <p>transmitter under test.</p> <ol style="list-style-type: none"> 4. The test antenna shall be raised and lowered from 1m to 4m until a maximum signal level is detected by the measuring receiver. Then the turntable should be rotated through 360° in the horizontal plane, until the maximum signal level is detected by the measuring receiver. 5. Repeat step 4 for test frequency with the test antenna polarized horizontally. 6. Remove the transmitter and replace it with a substitution antenna 7. Feed the substitution antenna at the transmitter end with a signal generator connected to the antenna by means of a nonradiating cable. With the antennas at both ends vertically polarized, and with the signal generator tuned to a particular test frequency, raise and lower the test antenna to obtain a maximum reading at the spectrum analyzer. Adjust the level of the signal generator output until the previously recorded maximum reading for this set of conditions is obtained. This should be done carefully repeating the adjustment of the test antenna and generator output. 8. Repeat step 7 with both antennas horizontally polarized for each test frequency. 9. Calculate power in dBm into a reference ideal half-wave dipole antenna by reducing the readings obtained in steps 7 and 8 by the power loss in the cable between the generator and the antenna, and further corrected for the gain of the substitution antenna used relative to an ideal half-wave dipole antenna by the following formula: $\text{EIRP(dBm)} = \text{Pg(dBm)} - \text{cable loss (dB)} + \text{antenna gain (dBi)}$ where: Pg is the generator output power into the substitution antenna. |
| Test setup: | <p>Below 1GHz</p>  <p>Above 1GHz</p> |

| | |
|-------------------|--|
| |  |
| Test Instruments: | Refer to section 3.0 for details |
| Test mode: | Refer to section 2.2 for details |
| Test results: | Pass |

Measurement Data:**Below 1GHz**

| Frequency (MHz) | Read Level (dBuV) | Antenna Factor (dB/m) | Cable Loss (dB) | Preamp Factor (dB) | Level (dBuV/m) | Limit Line (dBuV/m) | Over Limit (dB) | polarization |
|-----------------|-------------------|-----------------------|-----------------|--------------------|----------------|---------------------|-----------------|--------------|
| 33.74 | 48.16 | 11.60 | 0.94 | 30.43 | 30.27 | 40 | -9.73 | Vertical |
| 54.92 | 41.21 | 11.99 | 0.87 | 30.02 | 24.05 | 40 | -15.95 | Vertical |
| 121.07 | 46.86 | 9.54 | 1.50 | 29.71 | 28.18 | 43.5 | -15.32 | Vertical |
| 172.26 | 42.96 | 8.99 | 2.19 | 29.80 | 24.35 | 43.5 | -19.15 | Vertical |
| 441.10 | 37.48 | 16.41 | 3.17 | 29.53 | 27.54 | 46 | -18.46 | Vertical |
| 860.68 | 33.06 | 22.10 | 4.96 | 29.41 | 30.71 | 46 | -15.29 | Vertical |
| 64.59 | 35.81 | 8.84 | 1.01 | 30.00 | 15.67 | 40 | -24.33 | Horizontal |
| 100.42 | 33.58 | 12.19 | 1.65 | 30.16 | 17.26 | 43.5 | -26.24 | Horizontal |
| 270.11 | 46.01 | 12.86 | 2.55 | 30.12 | 31.30 | 46 | -14.70 | Horizontal |
| 350.82 | 37.11 | 14.53 | 2.65 | 29.76 | 24.52 | 46 | -21.48 | Horizontal |
| 628.24 | 36.28 | 19.86 | 4.26 | 29.70 | 30.70 | 46 | -15.30 | Horizontal |
| 955.70 | 40.67 | 22.87 | 5.39 | 29.43 | 39.50 | 46 | -6.50 | Horizontal |

Above 1GHz:**802.11a 5180MHz**

| Frequency (MHz) | Read Level (dBuV) | Antenna Factor (dB/m) | Cable Loss (dB) | Preamp Factor (dB) | Level (dBuV/m) | Limit Line (dBuV/m) | Over Limit (dB) | polarization |
|-----------------|-------------------|-----------------------|-----------------|--------------------|----------------|---------------------|-----------------|--------------|
| 10360.71 | 50.34 | 11.28 | 14.99 | 32.75 | 43.86 | 74 | -30.14 | Vertical |
| 15540.12 | 51.97 | 11.96 | 17.78 | 34.59 | 47.11 | 74 | -26.89 | Vertical |
| 10360.25 | 52.69 | 9.55 | 14.86 | 33.12 | 43.99 | 74 | -30.01 | Horizontal |
| 15540.88 | 53.44 | 8.84 | 17.80 | 34.50 | 45.58 | 74 | -28.42 | Horizontal |

802.11a 5200MHz

| Frequency (MHz) | Read Level (dBuV) | Antenna Factor (dB/m) | Cable Loss (dB) | Preamp Factor (dB) | Level (dBuV/m) | Limit Line (dBuV/m) | Over Limit (dB) | polarization |
|-----------------|-------------------|-----------------------|-----------------|--------------------|----------------|---------------------|-----------------|--------------|
| 10360.05 | 50.47 | 11.35 | 15.02 | 33.07 | 43.77 | 74 | -30.23 | Vertical |
| 15540.57 | 51.23 | 11.96 | 17.84 | 34.72 | 46.30 | 74 | -27.70 | Vertical |
| 10360.94 | 52.13 | 9.66 | 14.63 | 32.85 | 43.57 | 74 | -30.43 | Horizontal |
| 15540.45 | 53.95 | 8.97 | 17.91 | 34.52 | 46.30 | 74 | -27.70 | Horizontal |

802.11a 5240MHz

| Frequency (MHz) | Read Level (dBuV) | Antenna Factor (dB/m) | Cable Loss (dB) | Preamp Factor (dB) | Level (dBuV/m) | Limit Line (dBuV/m) | Over Limit (dB) | polarization |
|-----------------|-------------------|-----------------------|-----------------|--------------------|----------------|---------------------|-----------------|--------------|
| 10360.68 | 50.62 | 11.55 | 14.88 | 32.83 | 44.21 | 74 | -29.79 | Vertical |
| 15540.06 | 51.45 | 12.10 | 17.87 | 34.82 | 46.61 | 74 | -27.39 | Vertical |
| 10361.00 | 52.08 | 9.55 | 14.69 | 32.91 | 43.41 | 74 | -30.59 | Horizontal |
| 15540.63 | 53.81 | 8.55 | 17.78 | 34.48 | 45.66 | 74 | -28.34 | Horizontal |

802.11n(HT20) 5180MHz

| Frequency (MHz) | Read Level (dBuV) | Antenna Factor (dB/m) | Cable Loss (dB) | Preamp Factor (dB) | Level (dBuV/m) | Limit Line (dBuV/m) | Over Limit (dB) | polarization |
|-----------------|-------------------|-----------------------|-----------------|--------------------|----------------|---------------------|-----------------|--------------|
| 10360.01 | 50.91 | 11.34 | 15.03 | 32.98 | 44.30 | 74 | -29.70 | Vertical |
| 15540.51 | 51.56 | 12.20 | 17.74 | 34.55 | 46.96 | 74 | -27.04 | Vertical |
| 10360.36 | 52.95 | 9.85 | 14.65 | 32.70 | 44.75 | 74 | -29.25 | Horizontal |
| 15540.36 | 53.25 | 8.67 | 18.13 | 34.79 | 45.26 | 74 | -28.74 | Horizontal |

802.11n(HT20) 5200MHz

| Frequency (MHz) | Read Level (dBuV) | Antenna Factor (dB/m) | Cable Loss (dB) | Preamp Factor (dB) | Level (dBuV/m) | Limit Line (dBuV/m) | Over Limit (dB) | polarization |
|-----------------|-------------------|-----------------------|-----------------|--------------------|----------------|---------------------|-----------------|--------------|
| 10360.20 | 50.32 | 11.52 | 14.98 | 32.91 | 43.91 | 74 | -30.09 | Vertical |
| 15540.57 | 51.06 | 12.40 | 17.67 | 34.64 | 46.50 | 74 | -27.50 | Vertical |
| 10360.57 | 52.05 | 9.52 | 15.01 | 32.96 | 43.62 | 74 | -30.38 | Horizontal |
| 15540.19 | 53.87 | 8.99 | 17.87 | 34.78 | 45.95 | 74 | -28.05 | Horizontal |

802.11n(HT20) 5240MHz

| Frequency (MHz) | Read Level (dBuV) | Antenna Factor (dB/m) | Cable Loss (dB) | Preamp Factor (dB) | Level (dBuV/m) | Limit Line (dBuV/m) | Over Limit (dB) | polarization |
|-----------------|-------------------|-----------------------|-----------------|--------------------|----------------|---------------------|-----------------|--------------|
| 10360.45 | 50.82 | 11.48 | 14.64 | 33.05 | 43.88 | 74 | -30.12 | Vertical |
| 15540.54 | 51.60 | 12.41 | 17.94 | 34.46 | 47.48 | 74 | -26.52 | Vertical |
| 10360.27 | 52.09 | 9.59 | 15.02 | 32.73 | 43.98 | 74 | -30.02 | Horizontal |
| 15540.92 | 53.45 | 8.68 | 17.89 | 34.53 | 45.48 | 74 | -28.52 | Horizontal |

802.11ac(HT20) 5180MHz

| Frequency (MHz) | Read Level (dBuV) | Antenna Factor (dB/m) | Cable Loss (dB) | Preamp Factor (dB) | Level (dBuV/m) | Limit Line (dBuV/m) | Over Limit (dB) | polarization |
|-----------------|-------------------|-----------------------|-----------------|--------------------|----------------|---------------------|-----------------|--------------|
| 10360.91 | 50.82 | 11.41 | 14.88 | 33.02 | 44.09 | 74 | -29.91 | Vertical |
| 15540.60 | 51.59 | 12.25 | 18.00 | 34.59 | 47.25 | 74 | -26.75 | Vertical |
| 10360.10 | 52.88 | 9.51 | 14.81 | 32.69 | 44.51 | 74 | -29.49 | Horizontal |
| 15540.68 | 53.90 | 8.69 | 17.95 | 34.72 | 45.81 | 74 | -28.19 | Horizontal |

802.11ac(HT20) 5200MHz

| Frequency (MHz) | Read Level (dBuV) | Antenna Factor (dB/m) | Cable Loss (dB) | Preamp Factor (dB) | Level (dBuV/m) | Limit Line (dBuV/m) | Over Limit (dB) | polarization |
|-----------------|-------------------|-----------------------|-----------------|--------------------|----------------|---------------------|-----------------|--------------|
| 10360.96 | 50.94 | 11.49 | 14.74 | 33.12 | 44.04 | 74 | -29.96 | Vertical |
| 15540.93 | 51.21 | 11.99 | 17.74 | 34.62 | 46.32 | 74 | -27.68 | Vertical |
| 10360.68 | 52.24 | 9.66 | 14.96 | 32.72 | 44.14 | 74 | -29.86 | Horizontal |
| 15540.32 | 53.64 | 8.71 | 18.16 | 34.92 | 45.59 | 74 | -28.41 | Horizontal |

802.11ac(HT20) 5240MHz

| Frequency (MHz) | Read Level (dBuV) | Antenna Factor (dB/m) | Cable Loss (dB) | Preamp Factor (dB) | Level (dBuV/m) | Limit Line (dBuV/m) | Over Limit (dB) | polarization |
|-----------------|-------------------|-----------------------|-----------------|--------------------|----------------|---------------------|-----------------|--------------|
| 10360.97 | 50.82 | 11.23 | 14.92 | 32.84 | 44.14 | 74 | -29.86 | Vertical |
| 15540.86 | 51.12 | 12.05 | 18.00 | 34.82 | 46.34 | 74 | -27.66 | Vertical |
| 10360.05 | 52.07 | 9.67 | 14.92 | 33.11 | 43.55 | 74 | -30.45 | Horizontal |
| 15540.27 | 53.14 | 8.85 | 18.09 | 34.88 | 45.19 | 74 | -28.81 | Horizontal |

802.11n(HT40) 5190MHz

| Frequency (MHz) | Read Level (dBuV) | Antenna Factor (dB/m) | Cable Loss (dB) | Preamp Factor (dB) | Level (dBuV/m) | Limit Line (dBuV/m) | Over Limit (dB) | polarization |
|-----------------|-------------------|-----------------------|-----------------|--------------------|----------------|---------------------|-----------------|--------------|
| 10360.83 | 50.80 | 11.56 | 14.83 | 32.70 | 44.49 | 74 | -29.51 | Vertical |
| 15540.68 | 51.24 | 11.97 | 17.89 | 34.81 | 46.29 | 74 | -27.71 | Vertical |
| 10360.56 | 52.21 | 9.65 | 14.67 | 32.88 | 43.66 | 74 | -30.34 | Horizontal |
| 15540.12 | 53.22 | 8.65 | 17.96 | 34.80 | 45.03 | 74 | -28.97 | Horizontal |

802.11n(HT40) 5230MHz

| Frequency (MHz) | Read Level (dBuV) | Antenna Factor (dB/m) | Cable Loss (dB) | Preamp Factor (dB) | Level (dBuV/m) | Limit Line (dBuV/m) | Over Limit (dB) | polarization |
|-----------------|-------------------|-----------------------|-----------------|--------------------|----------------|---------------------|-----------------|--------------|
| 10360.38 | 50.23 | 11.57 | 14.73 | 32.87 | 43.67 | 74 | -30.33 | Vertical |
| 15540.31 | 51.54 | 11.97 | 17.69 | 34.57 | 46.62 | 74 | -27.38 | Vertical |
| 10360.27 | 52.67 | 9.42 | 14.68 | 32.72 | 44.06 | 74 | -29.94 | Horizontal |
| 15540.75 | 53.79 | 8.75 | 17.90 | 34.54 | 45.89 | 74 | -28.11 | Horizontal |

802.11ac(HT40) 5190MHz

| Frequency (MHz) | Read Level (dBuV) | Antenna Factor (dB/m) | Cable Loss (dB) | Preamp Factor (dB) | Level (dBuV/m) | Limit Line (dBuV/m) | Over Limit (dB) | polarization |
|-----------------|-------------------|-----------------------|-----------------|--------------------|----------------|---------------------|-----------------|--------------|
| 10360.99 | 50.55 | 11.60 | 14.68 | 32.76 | 44.07 | 74 | -29.93 | Vertical |
| 15540.57 | 51.40 | 12.01 | 17.82 | 34.79 | 46.43 | 74 | -27.57 | Vertical |
| 10360.57 | 52.33 | 9.43 | 14.64 | 32.77 | 43.63 | 74 | -30.37 | Horizontal |
| 15540.63 | 53.34 | 8.58 | 17.88 | 34.47 | 45.32 | 74 | -28.68 | Horizontal |

802.11ac(HT40) 5230MHz

| Frequency (MHz) | Read Level (dBuV) | Antenna Factor (dB/m) | Cable Loss (dB) | Preamp Factor (dB) | Level (dBuV/m) | Limit Line (dBuV/m) | Over Limit (dB) | polarization |
|-----------------|-------------------|-----------------------|-----------------|--------------------|----------------|---------------------|-----------------|--------------|
| 10360.77 | 50.02 | 11.66 | 14.71 | 32.75 | 43.64 | 74 | -30.36 | Vertical |
| 15540.77 | 51.92 | 11.95 | 17.90 | 34.76 | 47.01 | 74 | -26.99 | Vertical |
| 10360.02 | 52.00 | 9.47 | 14.74 | 32.86 | 43.35 | 74 | -30.65 | Horizontal |
| 15540.09 | 53.13 | 8.61 | 17.78 | 34.49 | 45.03 | 74 | -28.97 | Horizontal |

802.11ax20 5180MHz

| Frequency (MHz) | Read Level (dBuV) | Antenna Factor (dB/m) | Cable Loss (dB) | Preamp Factor (dB) | Level (dBuV/m) | Limit Line (dBuV/m) | Over Limit (dB) | polarization |
|-----------------|-------------------|-----------------------|-----------------|--------------------|----------------|---------------------|-----------------|--------------|
| 10360.85 | 50.69 | 11.50 | 14.82 | 32.70 | 44.32 | 74 | -29.68 | Vertical |
| 15540.54 | 51.80 | 12.02 | 18.13 | 34.47 | 47.48 | 74 | -26.52 | Vertical |
| 10360.67 | 52.22 | 9.77 | 14.76 | 32.85 | 43.91 | 74 | -30.09 | Horizontal |
| 15540.57 | 53.84 | 8.59 | 17.78 | 34.69 | 45.51 | 74 | -28.49 | Horizontal |

802.11ax20 5200MHz

| Frequency (MHz) | Read Level (dBuV) | Antenna Factor (dB/m) | Cable Loss (dB) | Preamp Factor (dB) | Level (dBuV/m) | Limit Line (dBuV/m) | Over Limit (dB) | polarization |
|-----------------|-------------------|-----------------------|-----------------|--------------------|----------------|---------------------|-----------------|--------------|
| 10360.34 | 50.17 | 11.41 | 15.04 | 32.85 | 43.78 | 74 | -30.22 | Vertical |
| 15540.79 | 51.33 | 12.12 | 18.03 | 34.72 | 46.76 | 74 | -27.24 | Vertical |
| 10360.94 | 52.81 | 9.57 | 14.89 | 32.89 | 44.37 | 74 | -29.63 | Horizontal |
| 15540.33 | 53.96 | 8.71 | 17.78 | 34.58 | 45.88 | 74 | -28.12 | Horizontal |