

## **A.5: Conducted Spurious Emissions**

### **Conducted Spurious Emissions Test Requirement**

#### **15.407(b)**

*Undesirable emission limits.* Except as shown in paragraph (b)(7) of this section, the maximum emissions outside of the frequency bands of operation shall be attenuated in accordance with the following limits:

- (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 e.i.r.p. of -27 dBm/MHz.
- (5) The emission measurements shall be performed using a minimum resolution bandwidth of 1 MHz. A lower resolution bandwidth may be employed near the band edge, when necessary, provided the measured energy is integrated to show the total power over 1 MHz.
- (6) Unwanted emissions below 1 GHz must comply with the general field strength limits set forth in §15.209.
- (7) The provisions of §15.205 apply to intentional radiators operating under this section.
- (8) When measuring the emission limits, the nominal carrier frequency shall be adjusted as close to the upper and lower frequency band edges as the design of the equipment permits.

Radiated emissions which fall in the restricted bands, as defined in Section 15.205(a), must also comply with the radiated emission limits specified in Section 15.209(a) (see Section 15.205(c)).

Use formula below to substitute conducted measurements in place of radiated measurements

$$E[\text{dB}\mu\text{V}/\text{m}] = \text{EIRP}[\text{dBm}] - 20 \log(d[\text{meters}]) + 104.77, \text{ where } E = \text{field strength and } d = 3 \text{ meter}$$

- 1) Average Plot, Limit= -41.25 dBm eirp
- 2) Peak plot, Limit = -21.25 dBm eirp

#### **KDB 789033 D02 General UNII Test Procedures New Rules v02r01**

##### **2. Unwanted Emissions that fall Outside of the Restricted Bands**

- a) For all measurements, follow the requirements in II.G.3. "*General Requirements for Unwanted Emissions Measurements.*"
- b) At frequencies below 1000 MHz, use the procedure described in II.G.4. "*Procedure for Unwanted Emissions Measurements Below 1000 MHz.*"
- c) At frequencies above 1000 MHz, use the procedure for maximum emissions described in II.G.5., "*Procedure for Unwanted Emissions Measurements Above 1000 MHz.*"
- (i) Sections 15.407(b)(1-3) specifies the unwanted emissions limit for the U-NII-1 and U-NII-2 bands. As specified, emissions above 1000 MHz that are outside of the restricted bands are subject to a peak emission limit of -27 dBm/MHz.

**Conducted Spurious Emissions Test Procedure****Ref. ANSI C63.10: 2013****KDB 789033 D02 General UNII Test Procedures New Rules v02r01**

<b>Conducted Spurious Emissions</b> Test Procedure
<ol style="list-style-type: none"> <li>1. Connect the antenna port(s) to the spectrum analyzer input.</li> <li>2. Place the radio in continuous transmit mode</li> <li>3. Configure Spectrum analyzer as per test parameters below (be sure to enter all losses between the transmitter output and the spectrum analyzer).</li> <li>4. Use the peak marker function to determine the maximum spurs amplitude level.</li> <li>5. The "measure-and-sum technique" is used for measuring in-band transmit power of a device. In the measure-and-sum approach, the conducted emission level is measured at each antenna port. The measured results at the various antenna ports are then summed mathematically to determine the total emission level from the device. Summing is performed in linear power units. The worst-case output is recorded. (See ANSI C63.10:2013 section 14.3.2.2)</li> <li>6. Capture graphs and record pertinent measurement data.</li> </ol>

**Ref. ANSI C63.10: 2013 section 12.7.6 (Peak) and 12.7.7.2 (Average)****KDB 789033 D02 General UNII Test Procedures New Rules v02r01, Sec. 5 (Peak), Sec. 6 (Average Method AD)**

<b>Conducted Spurious Emissions</b> Test parameters	
<b>Peak</b> RBW = 1 MHz VBW ≥ 3 MHz Sweep = Auto Detector = Peak Trace = Max Hold.	<b>Average</b> RBW = 1 MHz VBW ≥ 3 MHz Sweep = Auto Detector = RMS Power Averaging

Add the max antenna gain + ground reflection factor (4.7 dB for frequencies between 30 MHz and 1000 MHz, and 0 dB for frequencies > 1000 MHz).

<b>Tested By:</b> Ronak Patel	<b>Date of testing:</b> 11/1/2022 - 2/10/2023
<b>Test Result:</b> PASS	

**Test Equipment**

See Appendix C for list of test equipment

Note: Although 100kHz RBW is required for emissions below 1GHz, 1MHz RBW was used in order to show compliance under worst-case setting

Note: emissions above 12GHz are only noise floor and that data can be additionally shown in radiated report

**Conducted Spurious emissions Average – Antenna gain 3dBi.****Frequency 5180 MHz**

<b>Mode</b>	<b>Tx Paths</b>	<b>Correlated Antenna Gain (dBi)</b>	<b>Tx 1 Spur Power (dBm)</b>	<b>Tx 2 Spur Power (dBm)</b>	<b>Duty Cycle (dB)</b>	<b>Total Conducted Spur (dBm)</b>	<b>Limit (dB)</b>	<b>Margin (dB)</b>
Non HT20, 6 to 54 Mbps	1	3	-57.3		0.41	-53.9	-41	12.64
Non HT20, 6 to 54 Mbps	2	3	-57.6	-60.6	0.41	-52.4	-41	11.18
<b>Non HT20 Beam Forming, 6 to 54 Mbps</b>	<b>2</b>	<b>6</b>	<b>-58.5</b>	<b>-61.1</b>	<b>0.41</b>	<b>-50.2</b>	<b>-41</b>	<b>8.94</b>
HT/VHT20, M0 to M7	1	3	-57.1		0.31	-53.8	-41	12.54
HT/VHT20, M0 to M7	2	3	-58.0	-62.0	0.31	-53.2	-41	11.99
HT/VHT20, M8 to M15	2	3	-58.0	-62.0	0.31	-53.2	-41	11.99
<b>HT/VHT20 Beam Forming, M0 to M7</b>	<b>2</b>	<b>6</b>	<b>-57.7</b>	<b>-61.4</b>	<b>0.31</b>	<b>-49.9</b>	<b>-41</b>	<b>8.6</b>
HT/VHT20 Beam Forming, M8 to M15	2	3	-58.0	-62.0	0.31	-53.2	-41	11.99
HT/VHT20 STBC, M8 to M15	2	3	-58.0	-62.0	0.31	-53.2	-41	11.99
HE20, M0 to M11 1ss	1	3	-56.9		0.21	-53.7	-41	12.44
HE20, M0 to M11 1ss	2	3	-57.6	-61.6	0.21	-52.9	-41	11.69
HE20, M0 to M11 2ss	2	3	-57.6	-61.6	0.21	-52.9	-41	11.69
<b>HE20 Beam Forming, M0 to M11 1ss</b>	<b>2</b>	<b>6</b>	<b>-57.6</b>	<b>-61.6</b>	<b>0.21</b>	<b>-49.9</b>	<b>-41</b>	<b>8.69</b>
HE20 Beam Forming, M0 to M11 2ss	2	3	-57.6	-61.6	0.21	-52.9	-41	11.69
HE20 STBC, M0 to M11 2ss	2	3	-57.6	-61.6	0.21	-52.9	-41	11.69

**Frequency 5190 MHz**

<b>Mode</b>	<b>Tx Paths</b>	<b>Correlated Antenna Gain (dBi)</b>	<b>Tx 1 Spur Power (dBm)</b>	<b>Tx 2 Spur Power (dBm)</b>	<b>Duty Cycle (dB)</b>	<b>Total Conducted Spur (dBm)</b>	<b>Limit (dB)</b>	<b>Margin (dB)</b>
Non HT40, 6 to 54 Mbps	1	3	-57.4		0.46	-53.9	-41	12.69
Non HT40, 6 to 54 Mbps	2	3	-58.3	-61.0	0.46	-53.0	-41	11.73
HT/VHT40, M0 to M7	1	3	-57.2		0.55	-53.7	-41	12.4
HT/VHT40, M0 to M7	2	3	-59.0	-61.5	0.55	-53.5	-41	12.26
HT/VHT40, M8 to M15	2	3	-59.0	-61.5	0.55	-53.5	-41	12.26
HT/VHT40 Beam Forming, M0 to M7	2	6	-58.5	-61.6	0.55	-50.2	-41	8.97
HT/VHT40 Beam Forming, M8 to M15	2	3	-59.0	-61.5	0.55	-53.5	-41	12.26
HT/VHT40 STBC, M8 to M15	2	3	-59.0	-61.5	0.55	-53.5	-41	12.26
HE40, M0 to M11 1ss	1	3	-57.6		0.26	-54.3	-41	13.09
HE40, M0 to M11 1ss	2	3	-58.9	-59.4	0.26	-52.9	-41	11.62
HE40, M0 to M11 2ss	2	3	-58.9	-59.4	0.26	-52.9	-41	11.62
HE40 Beam Forming, M0 to M11 1ss	2	6	-58.4	-62.5	0.26	-50.7	-41	9.47
HE40 Beam Forming, M0 to M11 2ss	2	3	-58.9	-59.4	0.26	-52.9	-41	11.62
HE40 STBC, M0 to M11 2ss	2	3	-58.9	-59.4	0.26	-52.9	-41	11.62

**Frequency 5210 MHz**

Mode	Tx Paths	Correlated Antenna Gain (dBi)	Tx 1 Spur Power (dBm)	Tx 2 Spur Power (dBm)	Duty Cycle (dB)	Total Conducted Spur (dBm)	Limit (dB)	Margin (dB)
Non HT80, 6 to 54 Mbps	1	3	-58.6		0.23	-55.4	-41	14.12
Non HT80, 6 to 54 Mbps	2	3	-59.0	-60.5	0.23	-53.4	-41	12.2
VHT80, M0 to M11 1ss	1	3	-58.6		0.55	-55.1	-41	13.8
VHT80, M0 to M11 1ss	2	3	-59.3	-61.4	0.55	-53.7	-41	12.42
VHT80, M0 to M11 2ss	2	3	-59.3	-61.4	0.55	-53.7	-41	12.42
VHT80 Beam Forming, M0 to M11 1ss	2	6	-59.5	-62.5	0.55	-51.2	-41	9.94
VHT80 Beam Forming, M0 to M11 2ss	2	3	-59.3	-61.4	0.55	-53.7	-41	12.42
VHT80 STBC, M0 to M11 2ss	2	3	-59.3	-61.4	0.55	-53.7	-41	12.42
HE80, M0 to M11 1ss	1	3	-58.4		0.23	-55.2	-41	13.92
HE80, M0 to M11 1ss	2	3	-59.9	-61.6	0.23	-54.4	-41	13.18
HE80, M0 to M11 2ss	2	3	-59.9	-61.6	0.23	-54.4	-41	13.18
HE80 Beam Forming, M0 to M11 1ss	2	6	-60.2	-63.1	0.23	-52.2	-41	10.92
HE80 Beam Forming, M0 to M11 2ss	2	3	-59.9	-61.6	0.23	-54.4	-41	13.18
HE80 STBC, M0 to M11 2ss	2	3	-59.9	-61.6	0.23	-54.4	-41	13.18

**Frequency 5220 MHz**

Mode	Tx Paths	Correlated Antenna Gain (dBi)	Tx 1 Spur Power (dBm)	Tx 2 Spur Power (dBm)	Duty Cycle (dB)	Total Conducted Spur (dBm)	Limit (dB)	Margin (dB)
Non HT20, 6 to 54 Mbps	1	3	-58.6		0.41	-55.2	-41	13.94
Non HT20, 6 to 54 Mbps	2	3	-61.0	-62.6	0.41	-55.3	-41	14.06
Non HT20 Beam Forming, 6 to 54 Mbps	2	6	-61.9	-64.1	0.41	-53.4	-41	12.19
HT/VHT20, M0 to M7	1	3	-58.5		0.31	-55.2	-41	13.94
HT/VHT20, M0 to M7	2	3	-61.6	-62.4	0.31	-55.7	-41	14.42
HT/VHT20, M8 to M15	2	3	-61.6	-62.4	0.31	-55.7	-41	14.42
HT/VHT20 Beam Forming, M0 to M7	2	6	-61.4	-64.3	0.31	-53.3	-41	12.05
HT/VHT20 Beam Forming, M8 to M15	2	3	-61.6	-62.4	0.31	-55.7	-41	14.42
HT/VHT20 STBC, M8 to M15	2	3	-61.6	-62.4	0.31	-55.7	-41	14.42
HE20, M0 to M11 1ss	1	3	-58.5		0.21	-55.3	-41	14.04
HE20, M0 to M11 1ss	2	3	-61.2	-62.5	0.21	-55.6	-41	14.34
HE20, M0 to M11 2ss	2	3	-61.2	-62.5	0.21	-55.6	-41	14.34
HE20 Beam Forming, M0 to M11 1ss	2	6	-61.4	-63.6	0.21	-53.1	-41	11.9
HE20 Beam Forming, M0 to M11 2ss	2	3	-61.2	-62.5	0.21	-55.6	-41	14.34
HE20 STBC, M0 to M11 2ss	2	3	-61.2	-62.5	0.21	-55.6	-41	14.34

**Frequency 5230 MHz**

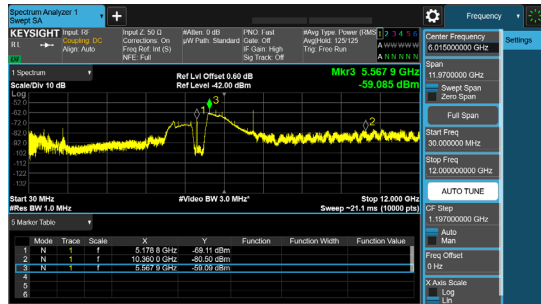
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Non HT40, 6 to 54 Mbps	1	3	-58.6		0.46	-55.1	-41	13.89
Non HT40, 6 to 54 Mbps	2	3	-61.2	-62.7	0.46	-55.4	-41	14.17
HT/VHT40, M0 to M7	1	3	-58.6		0.55	-55.1	-41	13.8
HT/VHT40, M0 to M7	2	3	-60.8	-62.8	0.55	-55.1	-41	13.88
HT/VHT40, M8 to M15	2	3	-60.8	-62.8	0.55	-55.1	-41	13.88
HT/VHT40 Beam Forming, M0 to M7	2	6	-61.1	-64.6	0.55	-52.9	-41	11.7
HT/VHT40 Beam Forming, M8 to M15	2	3	-60.8	-62.8	0.55	-55.1	-41	13.88
HT/VHT40 STBC, M8 to M15	2	3	-60.8	-62.8	0.55	-55.1	-41	13.88
HE40, M0 to M11 1ss	1	3	-58.5		0.26	-55.2	-41	13.99
HE40, M0 to M11 1ss	2	3	-60.4	-62.8	0.26	-55.2	-41	13.92
HE40, M0 to M11 2ss	2	3	-60.4	-62.8	0.26	-55.2	-41	13.92
HE40 Beam Forming, M0 to M11 1ss	2	6	-60.8	-64.5	0.26	-53.0	-41	11.75
HE40 Beam Forming, M0 to M11 2ss	2	3	-60.4	-62.8	0.26	-55.2	-41	13.92
HE40 STBC, M0 to M11 2ss	2	3	-60.4	-62.8	0.26	-55.2	-41	13.92

**Frequency 5240 MHz**

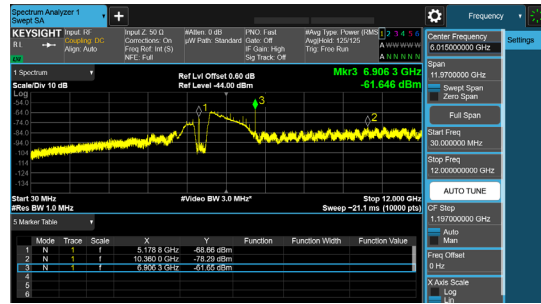
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Non HT20, 6 to 54 Mbps	1	3	-58.5		0.41	-55.1	-41	13.84
Non HT20, 6 to 54 Mbps	2	3	-60.5	-63.0	0.41	-55.2	-41	13.91
Non HT20 Beam Forming, 6 to 54 Mbps	2	6	-60.4	-64.4	0.41	-52.5	-41	11.29
HT/VHT20, M0 to M7	1	3	-58.8		0.31	-55.5	-41	14.24
HT/VHT20, M0 to M7	2	3	-60.6	-63.1	0.31	-55.4	-41	14.11
HT/VHT20, M8 to M15	2	3	-60.6	-63.1	0.31	-55.4	-41	14.11
HT/VHT20 Beam Forming, M0 to M7	2	6	-60.4	-64.6	0.31	-52.7	-41	11.45
HT/VHT20 Beam Forming, M8 to M15	2	3	-60.6	-63.1	0.31	-55.4	-41	14.11
HT/VHT20 STBC, M8 to M15	2	3	-60.6	-63.1	0.31	-55.4	-41	14.11
HE20, M0 to M11 1ss	1	3	-58.3		0.21	-55.1	-41	13.84
HE20, M0 to M11 1ss	2	3	-60.2	-63.1	0.21	-55.2	-41	13.95
HE20, M0 to M11 2ss	2	3	-60.2	-63.1	0.21	-55.2	-41	13.95
HE20 Beam Forming, M0 to M11 1ss	2	6	-60.6	-64.5	0.21	-52.9	-41	11.66
HE20 Beam Forming, M0 to M11 2ss	2	3	-60.2	-63.1	0.21	-55.2	-41	13.95
HE20 STBC, M0 to M11 2ss	2	3	-60.2	-63.1	0.21	-55.2	-41	13.95

## Data Screenshots – Antenna gain 3dBi average.

5180 MHz: HT/VHT20 Beam Forming, M0 to M7

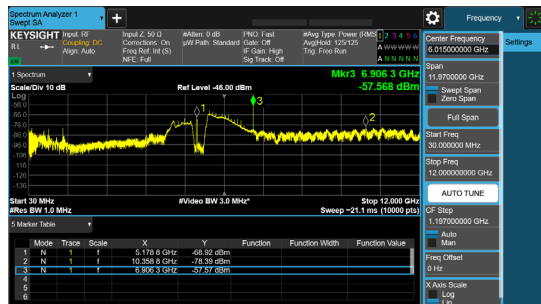


Antenna A

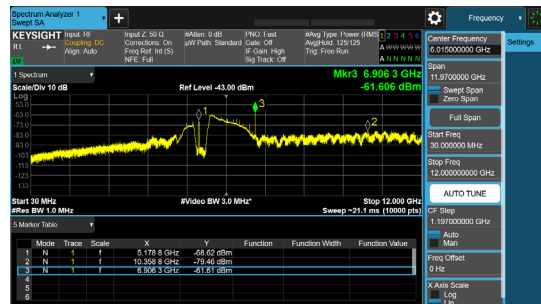


Antenna B

5180 MHz: HE20 Beam Forming, M0 to M11 1ss

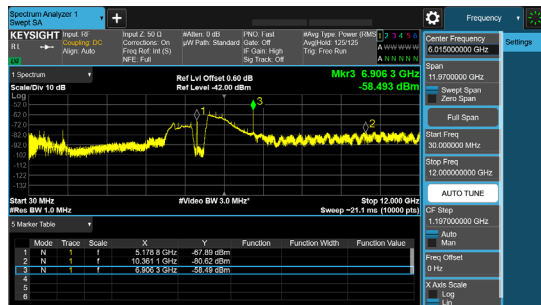


Antenna A

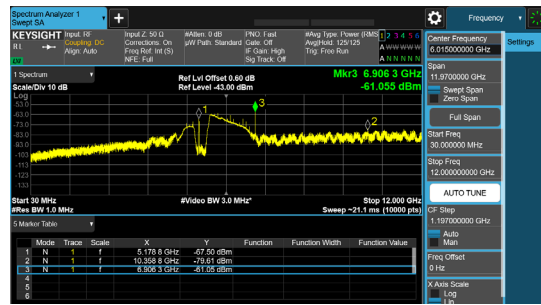


Antenna B

5180 MHz: Non HT20 Beam Forming, 6 to 54 Mbps



Antenna A



Antenna B

**Conducted Spurious emission Peak – Antenna gain 3dBi.****Frequency 5180 MHz**

Mode	Tx Paths	Correlated Antenna Gain (dBi)	Tx 1 Spur Power (dBm)	Tx 2 Spur Power (dBm)	Duty Cycle (dB)	Total Conducted Spur (dBm)	Limit (dB)	Margin (dB)
Non HT20, 6 to 54 Mbps	1	3	-57.1		0.41	-53.7	-27	26.69
Non HT20, 6 to 54 Mbps	2	3	-60.4	-59.5	0.41	-53.5	-27	26.51
<b>Non HT20 Beam Forming, 6 to 54 Mbps</b>	<b>2</b>	<b>6</b>	<b>-60.9</b>	<b>-61.6</b>	<b>0.41</b>	<b>-51.8</b>	<b>-27</b>	<b>24.82</b>
HT/VHT20, M0 to M7	1	3	-56.7		0.31	-53.4	-27	26.39
HT/VHT20, M0 to M7	2	3	-60.6	-58.8	0.31	-53.3	-27	26.29
HT/VHT20, M8 to M15	2	3	-60.6	-58.8	0.31	-53.3	-27	26.29
HT/VHT20 Beam Forming, M0 to M7	2	6	-61.7	-61.8	0.31	-52.4	-27	25.43
HT/VHT20 Beam Forming, M8 to M15	2	3	-60.6	-58.8	0.31	-53.3	-27	26.29
HT/VHT20 STBC, M8 to M15	2	3	-60.6	-58.8	0.31	-53.3	-27	26.29
HE20, M0 to M11 1ss	1	3	-57.7		0.21	-54.5	-27	27.49
HE20, M0 to M11 1ss	2	3	-60.4	-60.2	0.21	-54.1	-27	27.08
HE20, M0 to M11 2ss	2	3	-60.4	-60.2	0.21	-54.1	-27	27.08
<b>HE20 Beam Forming, M0 to M11 1ss</b>	<b>2</b>	<b>6</b>	<b>-62.0</b>	<b>-60.4</b>	<b>0.21</b>	<b>-51.9</b>	<b>-27</b>	<b>24.91</b>
HE20 Beam Forming, M0 to M11 2ss	2	3	-60.4	-60.2	0.21	-54.1	-27	27.08
HE20 STBC, M0 to M11 2ss	2	3	-60.4	-60.2	0.21	-54.1	-27	27.08

**Frequency 5190 MHz**

Mode	Tx Paths	Correlated Antenna Gain (dBi)	Tx 1 Spur Power (dBm)	Tx 2 Spur Power (dBm)	Duty Cycle (dB)	Total Conducted Spur (dBm)	Limit (dB)	Margin (dB)
Non HT40, 6 to 54 Mbps	1	3	-58.7		0.46	-55.2	-27	28.24
Non HT40, 6 to 54 Mbps	2	3	-62.3	-59.8	0.46	-54.4	-27	27.41
HT/VHT40, M0 to M7	1	3	-57.8		0.55	-54.3	-27	27.25
HT/VHT40, M0 to M7	2	3	-60.6	-59.8	0.55	-53.6	-27	26.62
HT/VHT40, M8 to M15	2	3	-60.6	-59.8	0.55	-53.6	-27	26.62
HT/VHT40 Beam Forming, M0 to M7	2	6	-62.0	-61.6	0.55	-52.2	-27	25.24
HT/VHT40 Beam Forming, M8 to M15	2	3	-60.6	-59.8	0.55	-53.6	-27	26.62
HT/VHT40 STBC, M8 to M15	2	3	-60.6	-59.8	0.55	-53.6	-27	26.62
HE40, M0 to M11 1ss	1	3	-57.3		0.26	-54.0	-27	27.04
HE40, M0 to M11 1ss	2	3	-61.9	-57.9	0.26	-53.2	-27	26.19
HE40, M0 to M11 2ss	2	3	-61.9	-57.9	0.26	-53.2	-27	26.19
<b>HE40 Beam Forming, M0 to M11 1ss</b>	<b>2</b>	<b>6</b>	<b>-62.0</b>	<b>-61.0</b>	<b>0.26</b>	<b>-52.2</b>	<b>-27</b>	<b>25.2</b>
HE40 Beam Forming, M0 to M11 2ss	2	3	-61.9	-57.9	0.26	-53.2	-27	26.19
HE40 STBC, M0 to M11 2ss	2	3	-61.9	-57.9	0.26	-53.2	-27	26.19

**Frequency 5210 MHz**

<b>Mode</b>	<b>Tx Paths</b>	<b>Correlated Antenna Gain (dBi)</b>	<b>Tx 1 Spur Power (dBm)</b>	<b>Tx 2 Spur Power (dBm)</b>	<b>Duty Cycle (dB)</b>	<b>Total Conducted Spur (dBm)</b>	<b>Limit (dB)</b>	<b>Margin (dB)</b>
Non HT80, 6 to 54 Mbps	1	3	-57.4		0.23	-54.2	-27	27.17
Non HT80, 6 to 54 Mbps	2	3	-61.7	-60.9	0.23	-55.0	-27	28.04
VHT80, M0 to M11 1ss	1	3	-57.8		0.55	-54.3	-27	27.25
VHT80, M0 to M11 1ss	2	3	-61.0	-60.9	0.55	-54.4	-27	27.39
VHT80, M0 to M11 2ss	2	3	-61.0	-60.9	0.55	-54.4	-27	27.39
VHT80 Beam Forming, M0 to M11 1ss	2	6	-61.2	-62.6	0.55	-52.3	-27	25.29
VHT80 Beam Forming, M0 to M11 2ss	2	3	-61.0	-60.9	0.55	-54.4	-27	27.39
VHT80 STBC, M0 to M11 2ss	2	3	-61.0	-60.9	0.55	-54.4	-27	27.39
HE80, M0 to M11 1ss	1	3	-58.1		0.23	-54.9	-27	27.87
HE80, M0 to M11 1ss	2	3	-62.4	-61.0	0.23	-55.4	-27	28.4
HE80, M0 to M11 2ss	2	3	-62.4	-61.0	0.23	-55.4	-27	28.4
HE80 Beam Forming, M0 to M11 1ss	2	6	-61.8	-61.5	0.23	-52.4	-27	25.41
HE80 Beam Forming, M0 to M11 2ss	2	3	-62.4	-61.0	0.23	-55.4	-27	28.4
HE80 STBC, M0 to M11 2ss	2	3	-62.4	-61.0	0.23	-55.4	-27	28.4

**Frequency 5220 MHz**

<b>Mode</b>	<b>Tx Paths</b>	<b>Correlated Antenna Gain (dBi)</b>	<b>Tx 1 Spur Power (dBm)</b>	<b>Tx 2 Spur Power (dBm)</b>	<b>Duty Cycle (dB)</b>	<b>Total Conducted Spur (dBm)</b>	<b>Limit (dB)</b>	<b>Margin (dB)</b>
Non HT20, 6 to 54 Mbps	1	3	-58.8		0.41	-55.4	-27	28.39
Non HT20, 6 to 54 Mbps	2	3	-60.4	-61.1	0.41	-54.3	-27	27.32
Non HT20 Beam Forming, 6 to 54 Mbps	2	6	-63.1	-63.5	0.41	-53.9	-27	26.88
HT/VHT20, M0 to M7	1	3	-59.3		0.31	-56.0	-27	28.99
HT/VHT20, M0 to M7	2	3	-61.7	-61.3	0.31	-55.2	-27	28.18
HT/VHT20, M8 to M15	2	3	-61.7	-61.3	0.31	-55.2	-27	28.18
HT/VHT20 Beam Forming, M0 to M7	2	6	-63.0	-63.2	0.31	-53.8	-27	26.78
HT/VHT20 Beam Forming, M8 to M15	2	3	-61.7	-61.3	0.31	-55.2	-27	28.18
HT/VHT20 STBC, M8 to M15	2	3	-61.7	-61.3	0.31	-55.2	-27	28.18
HE20, M0 to M11 1ss	1	3	-58.6		0.21	-55.4	-27	28.39
HE20, M0 to M11 1ss	2	3	-61.1	-60.5	0.21	-54.6	-27	27.57
HE20, M0 to M11 2ss	2	3	-61.1	-60.5	0.21	-54.6	-27	27.57
HE20 Beam Forming, M0 to M11 1ss	2	6	-63.0	-62.8	0.21	-53.7	-27	26.68
HE20 Beam Forming, M0 to M11 2ss	2	3	-61.1	-60.5	0.21	-54.6	-27	27.57
HE20 STBC, M0 to M11 2ss	2	3	-61.1	-60.5	0.21	-54.6	-27	27.57



**Frequency 5230 MHz**

<b>Mode</b>	<b>Tx Paths</b>	<b>Correlated Antenna Gain (dBi)</b>	<b>Tx 1 Spur Power (dBm)</b>	<b>Tx 2 Spur Power (dBm)</b>	<b>Duty Cycle (dB)</b>	<b>Total Conducted Spur (dBm)</b>	<b>Limit (dB)</b>	<b>Margin (dB)</b>
Non HT40, 6 to 54 Mbps	1	3	-59.1		0.46	-55.6	-27	28.64
Non HT40, 6 to 54 Mbps	2	3	-61.3	-61.3	0.46	-54.8	-27	27.83
HT/VHT40, M0 to M7	1	3	-58.2		0.55	-54.7	-27	27.65
HT/VHT40, M0 to M7	2	3	-61.5	-61.9	0.55	-55.1	-27	28.14
HT/VHT40, M8 to M15	2	3	-61.5	-61.9	0.55	-55.1	-27	28.14
HT/VHT40 Beam Forming, M0 to M7	2	6	-63.1	-63.1	0.55	-53.5	-27	26.54
HT/VHT40 Beam Forming, M8 to M15	2	3	-61.5	-61.9	0.55	-55.1	-27	28.14
HT/VHT40 STBC, M8 to M15	2	3	-61.5	-61.9	0.55	-55.1	-27	28.14
HE40, M0 to M11 1ss	1	3	-57.8		0.26	-54.5	-27	27.54
HE40, M0 to M11 1ss	2	3	-60.5	-61.2	0.26	-54.6	-27	27.57
HE40, M0 to M11 2ss	2	3	-60.5	-61.2	0.26	-54.6	-27	27.57
HE40 Beam Forming, M0 to M11 1ss	2	6	-62.8	-62.6	0.26	-53.4	-27	26.43
HE40 Beam Forming, M0 to M11 2ss	2	3	-60.5	-61.2	0.26	-54.6	-27	27.57
HE40 STBC, M0 to M11 2ss	2	3	-60.5	-61.2	0.26	-54.6	-27	27.57

**Frequency 5240 MHz**

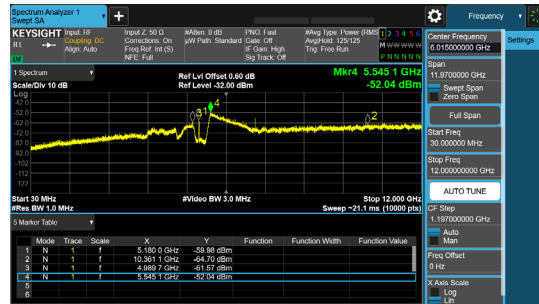
<b>Mode</b>	<b>Tx Paths</b>	<b>Correlated Antenna Gain (dBi)</b>	<b>Tx 1 Spur Power (dBm)</b>	<b>Tx 2 Spur Power (dBm)</b>	<b>Duty Cycle (dB)</b>	<b>Total Conducted Spur (dBm)</b>	<b>Limit (dB)</b>	<b>Margin (dB)</b>
Non HT20, 6 to 54 Mbps	1	3	-58.0		0.41	-54.6	-27	27.59
Non HT20, 6 to 54 Mbps	2	3	-60.6	-60.9	0.41	-54.3	-27	27.33
Non HT20 Beam Forming, 6 to 54 Mbps	2	6	-62.3	-61.7	0.41	-52.6	-27	25.57
HT/VHT20, M0 to M7	1	3	-58.4		0.31	-55.1	-27	28.09
HT/VHT20, M0 to M7	2	3	-60.9	-61.8	0.31	-55.0	-27	28.01
HT/VHT20, M8 to M15	2	3	-60.9	-61.8	0.31	-55.0	-27	28.01
HT/VHT20 Beam Forming, M0 to M7	2	6	-63.1	-62.0	0.31	-53.2	-27	26.2
HT/VHT20 Beam Forming, M8 to M15	2	3	-60.9	-61.8	0.31	-55.0	-27	28.01
HT/VHT20 STBC, M8 to M15	2	3	-60.9	-61.8	0.31	-55.0	-27	28.01
HE20, M0 to M11 1ss	1	3	-58.9		0.21	-55.7	-27	28.69
HE20, M0 to M11 1ss	2	3	-61.4	-61.9	0.21	-55.4	-27	28.43
HE20, M0 to M11 2ss	2	3	-61.4	-61.9	0.21	-55.4	-27	28.43
HE20 Beam Forming, M0 to M11 1ss	2	6	-62.2	-63.2	0.21	-53.5	-27	26.46
HE20 Beam Forming, M0 to M11 2ss	2	3	-61.4	-61.9	0.21	-55.4	-27	28.43
HE20 STBC, M0 to M11 2ss	2	3	-61.4	-61.9	0.21	-55.4	-27	28.43

## Data Screenshots – Antenna gain 3dBi peak.

5180 MHz: Non HT20 Beam Forming, 6 to 54 Mbps

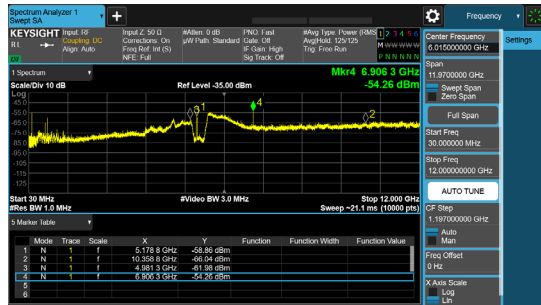


Antenna A

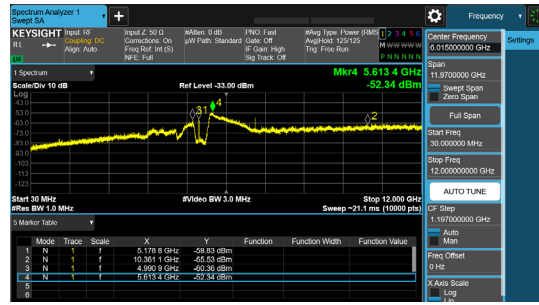


Antenna B

5180 MHz: HE20 Beam Forming, M0 to M11 1ss

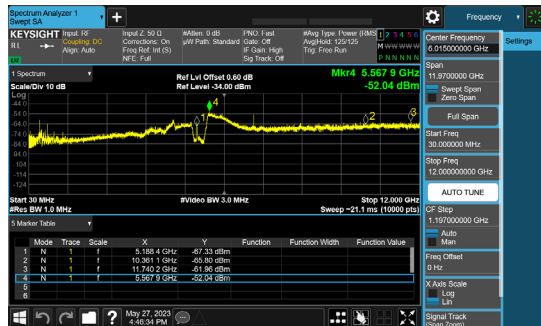


Antenna A



Antenna B

5190 MHz: HE40 Beam Forming, M0 to M11 1ss



Antenna A



Antenna B

**Conducted Spurious emissions Average – Antenna gain 8dBi.****Frequency 5180 MHz**

<b>Mode</b>	<b>Tx Paths</b>	<b>Correlated Antenna Gain (dBi)</b>	<b>Tx 1 Spur Power (dBm)</b>	<b>Tx 2 Spur Power (dBm)</b>	<b>Duty Cycle (dB)</b>	<b>Total Conducted Spur (dBm)</b>	<b>Limit (dB)</b>	<b>Margin (dB)</b>
Non HT20, 6 to 54 Mbps	1	8	-57.6		0.41	-49.2	-41	7.94
Non HT20, 6 to 54 Mbps	2	8	-58.5	-61.1	0.41	-48.2	-41	6.94
<b>Non HT20 Beam Forming, 6 to 54 Mbps</b>	<b>2</b>	<b>11</b>	<b>-57.4</b>	<b>-60.9</b>	<b>0.41</b>	<b>-44.4</b>	<b>-41</b>	<b>3.14</b>
HT/VHT20, M0 to M7	1	8	-58.0		0.31	-49.7	-41	8.44
HT/VHT20, M0 to M7	2	8	-57.7	-61.4	0.31	-47.9	-41	6.6
HT/VHT20, M8 to M15	2	8	-57.7	-61.4	0.31	-47.9	-41	6.6
<b>HT/VHT20 Beam Forming, M0 to M7</b>	<b>2</b>	<b>11</b>	<b>-57.6</b>	<b>-61.2</b>	<b>0.31</b>	<b>-44.7</b>	<b>-41</b>	<b>3.47</b>
HT/VHT20 Beam Forming, M8 to M15	2	8	-57.7	-61.4	0.31	-47.9	-41	6.6
HT/VHT20 STBC, M8 to M15	2	8	-57.7	-61.4	0.31	-47.9	-41	6.6
HE20, M0 to M11 1ss	1	8	-57.6		0.21	-49.4	-41	8.14
HE20, M0 to M11 1ss	2	8	-57.6	-61.6	0.21	-47.9	-41	6.69
HE20, M0 to M11 2ss	2	8	-57.6	-61.6	0.21	-47.9	-41	6.69
HE20 Beam Forming, M0 to M11 1ss	2	11	-57.8	-61.3	0.21	-45.0	-41	3.74
HE20 Beam Forming, M0 to M11 2ss	2	8	-57.6	-61.6	0.21	-47.9	-41	6.69
HE20 STBC, M0 to M11 2ss	2	8	-57.6	-61.6	0.21	-47.9	-41	6.69

**Frequency 5190 MHz**

<b>Mode</b>	<b>Tx Paths</b>	<b>Correlated Antenna Gain (dBi)</b>	<b>Tx 1 Spur Power (dBm)</b>	<b>Tx 2 Spur Power (dBm)</b>	<b>Duty Cycle (dB)</b>	<b>Total Conducted Spur (dBm)</b>	<b>Limit (dB)</b>	<b>Margin (dB)</b>
Non HT40, 6 to 54 Mbps	1	8	-58.3		0.46	-49.8	-41	8.59
Non HT40, 6 to 54 Mbps	2	8	-58.3	-61.2	0.46	-48.0	-41	6.8
HT/VHT40, M0 to M7	1	8	-59.0		0.55	-50.5	-41	9.2
HT/VHT40, M0 to M7	2	8	-58.5	-61.6	0.55	-48.2	-41	6.97
HT/VHT40, M8 to M15	2	8	-58.5	-61.6	0.55	-48.2	-41	6.97
<b>HT/VHT40 Beam Forming, M0 to M7</b>	<b>2</b>	<b>11</b>	<b>-57.5</b>	<b>-61.6</b>	<b>0.55</b>	<b>-44.5</b>	<b>-41</b>	<b>3.28</b>
HT/VHT40 Beam Forming, M8 to M15	2	8	-58.5	-61.6	0.55	-48.2	-41	6.97
HT/VHT40 STBC, M8 to M15	2	8	-58.5	-61.6	0.55	-48.2	-41	6.97
HE40, M0 to M11 1ss	1	8	-58.9		0.26	-50.6	-41	9.39
HE40, M0 to M11 1ss	2	8	-58.4	-62.5	0.26	-48.7	-41	7.47
HE40, M0 to M11 2ss	2	8	-58.4	-62.5	0.26	-48.7	-41	7.47
HE40 Beam Forming, M0 to M11 1ss	2	11	-57.7	-62.4	0.26	-45.2	-41	3.93
HE40 Beam Forming, M0 to M11 2ss	2	8	-58.4	-62.5	0.26	-48.7	-41	7.47
HE40 STBC, M0 to M11 2ss	2	8	-58.4	-62.5	0.26	-48.7	-41	7.47

## Frequency 5210 MHz

Mode	Tx Paths	Correlated Antenna Gain (dBi)	Tx 1 Spur Power (dBm)	Tx 2 Spur Power (dBm)	Duty Cycle (dB)	Total Conducted Spur (dBm)	Limit (dB)	Margin (dB)
Non HT80, 6 to 54 Mbps	1	8	-59.0		0.23	-50.8	-41	9.52
Non HT80, 6 to 54 Mbps	2	8	-59.3	-62.0	0.23	-49.2	-41	7.95
VHT80, M0 to M11 1ss	1	8	-59.3		0.55	-50.8	-41	9.5
VHT80, M0 to M11 1ss	2	8	-59.5	-62.5	0.55	-49.2	-41	7.94
VHT80, M0 to M11 2ss	2	8	-59.5	-62.5	0.55	-49.2	-41	7.94
VHT80 Beam Forming, M0 to M11 1ss	2	11	-59.2	-62.9	0.55	-46.1	-41	4.86
VHT80 Beam Forming, M0 to M11 2ss	2	8	-59.5	-62.5	0.55	-49.2	-41	7.94
VHT80 STBC, M0 to M11 2ss	2	8	-59.5	-62.5	0.55	-49.2	-41	7.94
HE80, M0 to M11 1ss	1	8	-58.9		0.23	-50.7	-41	9.42
HE80, M0 to M11 1ss	2	8	-60.2	-63.1	0.23	-50.2	-41	8.92
HE80, M0 to M11 2ss	2	8	-60.2	-63.1	0.23	-50.2	-41	8.92
HE80 Beam Forming, M0 to M11 1ss	2	11	-59.3	-62.3	0.23	-46.3	-41	5.06
HE80 Beam Forming, M0 to M11 2ss	2	8	-60.2	-63.1	0.23	-50.2	-41	8.92
HE80 STBC, M0 to M11 2ss	2	8	-60.2	-63.1	0.23	-50.2	-41	8.92

## Frequency 5220 MHz

Mode	Tx Paths	Correlated Antenna Gain (dBi)	Tx 1 Spur Power (dBm)	Tx 2 Spur Power (dBm)	Duty Cycle (dB)	Total Conducted Spur (dBm)	Limit (dB)	Margin (dB)
Non HT20, 6 to 54 Mbps	1	8	-61.3		0.41	-52.9	-41	11.64
Non HT20, 6 to 54 Mbps	2	8	-61.9	-64.1	0.41	-51.4	-41	10.19
Non HT20 Beam Forming, 6 to 54 Mbps	2	11	-61.5	-65.1	0.41	-48.5	-41	7.27
HT/VHT20, M0 to M7	1	8	-61.6		0.31	-53.3	-41	12.04
HT/VHT20, M0 to M7	2	8	-61.4	-64.3	0.31	-51.3	-41	10.05
HT/VHT20, M8 to M15	2	8	-61.4	-64.3	0.31	-51.3	-41	10.05
HT/VHT20 Beam Forming, M0 to M7	2	11	-61.6	-65.0	0.31	-48.7	-41	7.41
HT/VHT20 Beam Forming, M8 to M15	2	8	-61.4	-64.3	0.31	-51.3	-41	10.05
HT/VHT20 STBC, M8 to M15	2	8	-61.4	-64.3	0.31	-51.3	-41	10.05
HE20, M0 to M11 1ss	1	8	-61.2		0.21	-53.0	-41	11.74
HE20, M0 to M11 1ss	2	8	-61.4	-63.6	0.21	-51.1	-41	9.9
HE20, M0 to M11 2ss	2	8	-61.4	-63.6	0.21	-51.1	-41	9.9
HE20 Beam Forming, M0 to M11 1ss	2	11	-61.4	-64.9	0.21	-48.6	-41	7.34
HE20 Beam Forming, M0 to M11 2ss	2	8	-61.4	-63.6	0.21	-51.1	-41	9.9
HE20 STBC, M0 to M11 2ss	2	8	-61.4	-63.6	0.21	-51.1	-41	9.9

## Frequency 5230 MHz

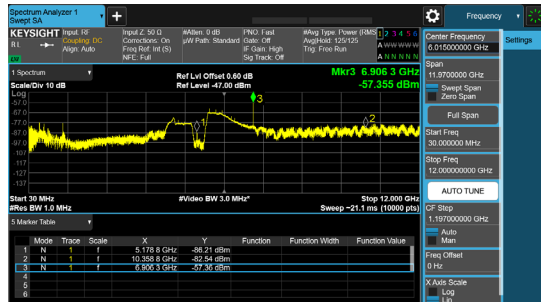
Mode	Tx Paths	Correlated Antenna Gain (dBi)	Tx 1 Spur Power (dBm)	Tx 2 Spur Power (dBm)	Duty Cycle (dB)	Total Conducted Spur (dBm)	Limit (dB)	Margin (dB)
Non HT40, 6 to 54 Mbps	1	8	-61.2		0.46	-52.7	-41	11.49
Non HT40, 6 to 54 Mbps	2	8	-61.0	-64.0	0.46	-50.8	-41	9.53
HT/VHT40, M0 to M7	1	8	-60.8		0.55	-52.3	-41	11.0
HT/VHT40, M0 to M7	2	8	-61.1	-64.6	0.55	-50.9	-41	9.7
HT/VHT40, M8 to M15	2	8	-61.1	-64.6	0.55	-50.9	-41	9.7
HT/VHT40 Beam Forming, M0 to M7	2	11	-61.1	-65.1	0.55	-48.1	-41	6.85
HT/VHT40 Beam Forming, M8 to M15	2	8	-61.1	-64.6	0.55	-50.9	-41	9.7
HT/VHT40 STBC, M8 to M15	2	8	-61.1	-64.6	0.55	-50.9	-41	9.7
HE40, M0 to M11 1ss	1	8	-60.4		0.26	-52.1	-41	10.89
HE40, M0 to M11 1ss	2	8	-60.8	-64.5	0.26	-51.0	-41	9.75
HE40, M0 to M11 2ss	2	8	-60.8	-64.5	0.26	-51.0	-41	9.75
HE40 Beam Forming, M0 to M11 1ss	2	11	-60.6	-64.9	0.26	-48.0	-41	6.72
HE40 Beam Forming, M0 to M11 2ss	2	8	-60.8	-64.5	0.26	-51.0	-41	9.75
HE40 STBC, M0 to M11 2ss	2	8	-60.8	-64.5	0.26	-51.0	-41	9.75

## Frequency 5240 MHz

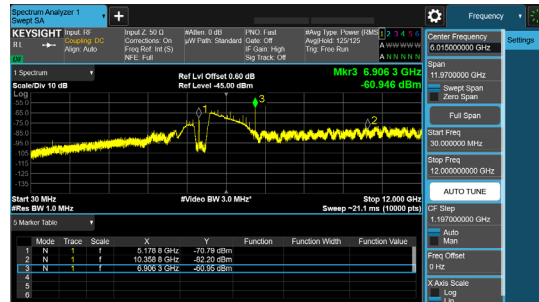
Mode	Tx Paths	Correlated Antenna Gain (dBi)	Tx 1 Spur Power (dBm)	Tx 2 Spur Power (dBm)	Duty Cycle (dB)	Total Conducted Spur (dBm)	Limit (dB)	Margin (dB)
Non HT20, 6 to 54 Mbps	1	8	-60.5		0.41	-52.1	-41	10.84
Non HT20, 6 to 54 Mbps	2	8	-60.4	-64.4	0.41	-50.5	-41	9.29
Non HT20 Beam Forming, 6 to 54 Mbps	2	11	-60.2	-64.4	0.41	-47.4	-41	6.14
HT/VHT20, M0 to M7	1	8	-60.6		0.31	-52.3	-41	11.04
HT/VHT20, M0 to M7	2	8	-60.4	-64.6	0.31	-50.7	-41	9.45
HT/VHT20, M8 to M15	2	8	-60.4	-64.6	0.31	-50.7	-41	9.45
HT/VHT20 Beam Forming, M0 to M7	2	11	-60.3	-64.4	0.31	-47.6	-41	6.32
HT/VHT20 Beam Forming, M8 to M15	2	8	-60.4	-64.6	0.31	-50.7	-41	9.45
HT/VHT20 STBC, M8 to M15	2	8	-60.4	-64.6	0.31	-50.7	-41	9.45
HE20, M0 to M11 1ss	1	8	-60.2		0.21	-52.0	-41	10.74
HE20, M0 to M11 1ss	2	8	-60.6	-64.5	0.21	-50.9	-41	9.66
HE20, M0 to M11 2ss	2	8	-60.6	-64.5	0.21	-50.9	-41	9.66
HE20 Beam Forming, M0 to M11 1ss	2	11	-60.0	-64.8	0.21	-47.6	-41	6.3
HE20 Beam Forming, M0 to M11 2ss	2	8	-60.6	-64.5	0.21	-50.9	-41	9.66
HE20 STBC, M0 to M11 2ss	2	8	-60.6	-64.5	0.21	-50.9	-41	9.66

## Data Screenshots – Antenna gain 8dBi average.

5180 MHz: Non HT20 Beam Forming, 6 to 54 Mbps

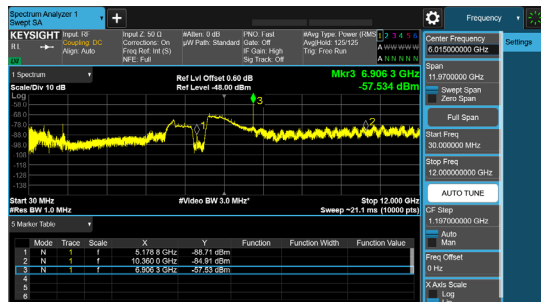


Antenna A

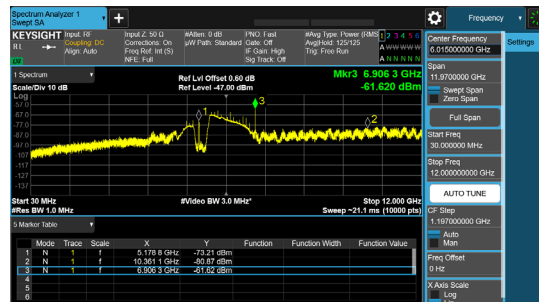


Antenna B

5190 MHz: HT/VHT40 Beam Forming, M0 to M7

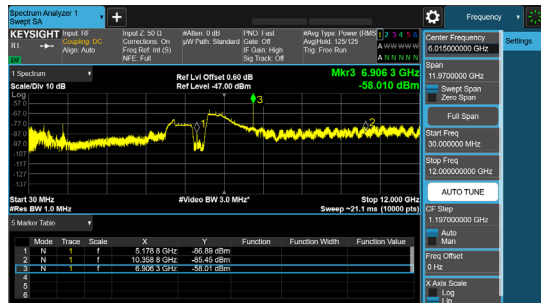


Antenna A

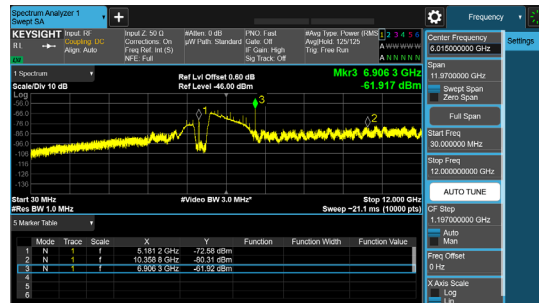


Antenna B

5180 MHz: HT/VHT20 Beam Forming, M0 to M7



Antenna A



Antenna B

**Conducted Spurious emissions Peak – Antenna gain 8dBi.****Frequency 5180 MHz**

<b>Mode</b>	<b>Tx Paths</b>	<b>Correlated Antenna Gain (dBi)</b>	<b>Tx 1 Spur Power (dBm)</b>	<b>Tx 2 Spur Power (dBm)</b>	<b>Duty Cycle (dB)</b>	<b>Total Conducted Spur (dBm)</b>	<b>Limit (dB)</b>	<b>Margin (dB)</b>
Non HT20, 6 to 54 Mbps	1	8	-60.4		0.41	-52.0	-27	24.99
Non HT20, 6 to 54 Mbps	2	8	-60.9	-61.6	0.41	-49.8	-27	22.82
Non HT20 Beam Forming, 6 to 54 Mbps	2	11	-62.1	-62.4	0.41	-47.8	-27	20.83
HT/VHT20, M0 to M7	1	8	-60.6		0.31	-52.3	-27	25.29
HT/VHT20, M0 to M7	2	8	-61.7	-61.8	0.31	-50.4	-27	23.43
HT/VHT20, M8 to M15	2	8	-61.7	-61.8	0.31	-50.4	-27	23.43
HT/VHT20 Beam Forming, M0 to M7	2	11	-63.1	-62.5	0.31	-48.5	-27	21.47
HT/VHT20 Beam Forming, M8 to M15	2	8	-61.7	-61.8	0.31	-50.4	-27	23.43
HT/VHT20 STBC, M8 to M15	2	8	-61.7	-61.8	0.31	-50.4	-27	23.43
HE20, M0 to M11 1ss	1	8	-60.4		0.21	-52.2	-27	25.19
HE20, M0 to M11 1ss	2	8	-62.0	-60.4	0.21	-49.9	-27	22.91
HE20, M0 to M11 2ss	2	8	-62.0	-60.4	0.21	-49.9	-27	22.91
HE20 Beam Forming, M0 to M11 1ss	2	11	-63.2	-62.4	0.21	-48.6	-27	21.57
HE20 Beam Forming, M0 to M11 2ss	2	8	-62.0	-60.4	0.21	-49.9	-27	22.91
HE20 STBC, M0 to M11 2ss	2	8	-62.0	-60.4	0.21	-49.9	-27	22.91

**Frequency 5190 MHz**

<b>Mode</b>	<b>Tx Paths</b>	<b>Correlated Antenna Gain (dBi)</b>	<b>Tx 1 Spur Power (dBm)</b>	<b>Tx 2 Spur Power (dBm)</b>	<b>Duty Cycle (dB)</b>	<b>Total Conducted Spur (dBm)</b>	<b>Limit (dB)</b>	<b>Margin (dB)</b>
Non HT40, 6 to 54 Mbps	1	8	-62.3		0.46	-53.8	-27	26.84
Non HT40, 6 to 54 Mbps	2	8	-61.2	-60.1	0.46	-49.1	-27	22.15
HT/VHT40, M0 to M7	1	8	-60.6		0.55	-52.1	-27	25.05
HT/VHT40, M0 to M7	2	8	-62.0	-61.6	0.55	-50.2	-27	23.24
HT/VHT40, M8 to M15	2	8	-62.0	-61.6	0.55	-50.2	-27	23.24
<b>HT/VHT40 Beam Forming, M0 to M7</b>	<b>2</b>	<b>11</b>	<b>-62.5</b>	<b>-61.3</b>	<b>0.55</b>	<b>-47.3</b>	<b>-27</b>	<b>20.3</b>
HT/VHT40 Beam Forming, M8 to M15	2	8	-62.0	-61.6	0.55	-50.2	-27	23.24
HT/VHT40 STBC, M8 to M15	2	8	-62.0	-61.6	0.55	-50.2	-27	23.24
HE40, M0 to M11 1ss	1	8	-61.9		0.26	-53.6	-27	26.64
HE40, M0 to M11 1ss	2	8	-62.0	-61.0	0.26	-50.2	-27	23.2
HE40, M0 to M11 2ss	2	8	-62.0	-61.0	0.26	-50.2	-27	23.2
<b>HE40 Beam Forming, M0 to M11 1ss</b>	<b>2</b>	<b>11</b>	<b>-61.6</b>	<b>-62.0</b>	<b>0.26</b>	<b>-47.5</b>	<b>-27</b>	<b>20.53</b>
HE40 Beam Forming, M0 to M11 2ss	2	8	-62.0	-61.0	0.26	-50.2	-27	23.2
HE40 STBC, M0 to M11 2ss	2	8	-62.0	-61.0	0.26	-50.2	-27	23.2

**Frequency 5210 MHz**

<b>Mode</b>	<b>Tx Paths</b>	<b>Correlated Antenna Gain (dBi)</b>	<b>Tx 1 Spur Power (dBm)</b>	<b>Tx 2 Spur Power (dBm)</b>	<b>Duty Cycle (dB)</b>	<b>Total Conducted Spur (dBm)</b>	<b>Limit (dB)</b>	<b>Margin (dB)</b>
Non HT80, 6 to 54 Mbps	1	8	-61.7		0.23	-53.5	-27	26.47
Non HT80, 6 to 54 Mbps	2	8	-62.7	-62.3	0.23	-51.3	-27	24.26
VHT80, M0 to M11 1ss	1	8	-61.0		0.55	-52.5	-27	25.45
VHT80, M0 to M11 1ss	2	8	-61.2	-62.6	0.55	-50.3	-27	23.29
VHT80, M0 to M11 2ss	2	8	-61.2	-62.6	0.55	-50.3	-27	23.29
VHT80 Beam Forming, M0 to M11 1ss	2	11	-62.0	-62.3	0.55	-47.6	-27	20.59
VHT80 Beam Forming, M0 to M11 2ss	2	8	-61.2	-62.6	0.55	-50.3	-27	23.29
VHT80 STBC, M0 to M11 2ss	2	8	-61.2	-62.6	0.55	-50.3	-27	23.29
HE80, M0 to M11 1ss	1	8	-60.8		0.23	-52.6	-27	25.57
HE80, M0 to M11 1ss	2	8	-61.8	-61.5	0.23	-50.4	-27	23.41
HE80, M0 to M11 2ss	2	8	-61.8	-61.5	0.23	-50.4	-27	23.41
<b>HE80 Beam Forming, M0 to M11 1ss</b>	<b>2</b>	<b>11</b>	<b>-61.9</b>	<b>-61.3</b>	<b>0.23</b>	<b>-47.3</b>	<b>-27</b>	<b>20.35</b>
HE80 Beam Forming, M0 to M11 2ss	2	8	-61.8	-61.5	0.23	-50.4	-27	23.41
HE80 STBC, M0 to M11 2ss	2	8	-61.8	-61.5	0.23	-50.4	-27	23.41

**Frequency 5220 MHz**

<b>Mode</b>	<b>Tx Paths</b>	<b>Correlated Antenna Gain (dBi)</b>	<b>Tx 1 Spur Power (dBm)</b>	<b>Tx 2 Spur Power (dBm)</b>	<b>Duty Cycle (dB)</b>	<b>Total Conducted Spur (dBm)</b>	<b>Limit (dB)</b>	<b>Margin (dB)</b>
Non HT20, 6 to 54 Mbps	1	8	-61.6		0.41	-53.2	-27	26.19
Non HT20, 6 to 54 Mbps	2	8	-63.1	-63.5	0.41	-51.9	-27	24.88
Non HT20 Beam Forming, 6 to 54 Mbps	2	11	-63.1	-62.2	0.41	-48.2	-27	21.21
HT/VHT20, M0 to M7	1	8	-61.7		0.31	-53.4	-27	26.39
HT/VHT20, M0 to M7	2	8	-63.0	-63.2	0.31	-51.8	-27	24.78
HT/VHT20, M8 to M15	2	8	-63.0	-63.2	0.31	-51.8	-27	24.78
HT/VHT20 Beam Forming, M0 to M7	2	11	-63.0	-61.8	0.31	-48.0	-27	21.04
HT/VHT20 Beam Forming, M8 to M15	2	8	-63.0	-63.2	0.31	-51.8	-27	24.78
HT/VHT20 STBC, M8 to M15	2	8	-63.0	-63.2	0.31	-51.8	-27	24.78
HE20, M0 to M11 1ss	1	8	-61.1		0.21	-52.9	-27	25.89
HE20, M0 to M11 1ss	2	8	-63.0	-62.8	0.21	-51.7	-27	24.68
HE20, M0 to M11 2ss	2	8	-63.0	-62.8	0.21	-51.7	-27	24.68
HE20 Beam Forming, M0 to M11 1ss	2	11	-62.9	-63.8	0.21	-49.1	-27	22.11
HE20 Beam Forming, M0 to M11 2ss	2	8	-63.0	-62.8	0.21	-51.7	-27	24.68
HE20 STBC, M0 to M11 2ss	2	8	-63.0	-62.8	0.21	-51.7	-27	24.68



**Frequency 5230 MHz**

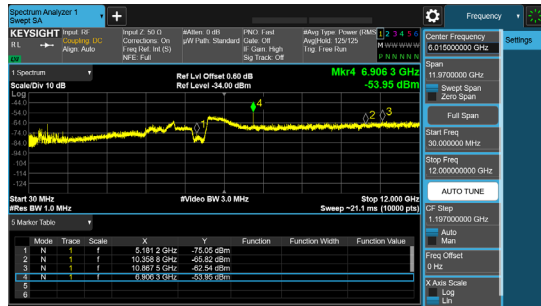
<b>Mode</b>	<b>Tx Paths</b>	<b>Correlated Antenna Gain (dBi)</b>	<b>Tx 1 Spur Power (dBm)</b>	<b>Tx 2 Spur Power (dBm)</b>	<b>Duty Cycle (dB)</b>	<b>Total Conducted Spur (dBm)</b>	<b>Limit (dB)</b>	<b>Margin (dB)</b>
Non HT40, 6 to 54 Mbps	1	8	-61.3		0.46	-52.8	-27	25.84
Non HT40, 6 to 54 Mbps	2	8	-62.9	-62.5	0.46	-51.2	-27	24.23
HT/VHT40, M0 to M7	1	8	-61.5		0.55	-53.0	-27	25.95
HT/VHT40, M0 to M7	2	8	-63.1	-63.1	0.55	-51.5	-27	24.54
HT/VHT40, M8 to M15	2	8	-63.1	-63.1	0.55	-51.5	-27	24.54
HT/VHT40 Beam Forming, M0 to M7	2	11	-62.8	-62.9	0.55	-48.3	-27	21.29
HT/VHT40 Beam Forming, M8 to M15	2	8	-63.1	-63.1	0.55	-51.5	-27	24.54
HT/VHT40 STBC, M8 to M15	2	8	-63.1	-63.1	0.55	-51.5	-27	24.54
HE40, M0 to M11 1ss	1	8	-60.5		0.26	-52.2	-27	25.24
HE40, M0 to M11 1ss	2	8	-62.8	-62.6	0.26	-51.4	-27	24.43
HE40, M0 to M11 2ss	2	8	-62.8	-62.6	0.26	-51.4	-27	24.43
HE40 Beam Forming, M0 to M11 1ss	2	11	-63.8	-63.2	0.26	-49.2	-27	22.22
HE40 Beam Forming, M0 to M11 2ss	2	8	-62.8	-62.6	0.26	-51.4	-27	24.43
HE40 STBC, M0 to M11 2ss	2	8	-62.8	-62.6	0.26	-51.4	-27	24.43

**Frequency 5240 MHz**

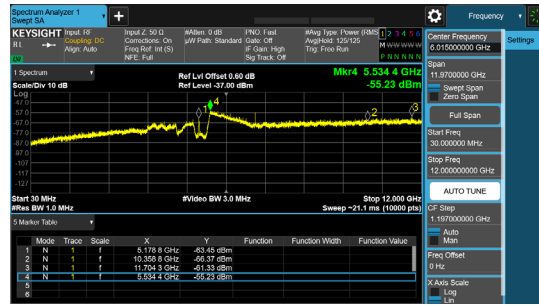
<b>Mode</b>	<b>Tx Paths</b>	<b>Correlated Antenna Gain (dBi)</b>	<b>Tx 1 Spur Power (dBm)</b>	<b>Tx 2 Spur Power (dBm)</b>	<b>Duty Cycle (dB)</b>	<b>Total Conducted Spur (dBm)</b>	<b>Limit (dB)</b>	<b>Margin (dB)</b>
Non HT20, 6 to 54 Mbps	1	8	-60.6		0.41	-52.2	-27	25.19
Non HT20, 6 to 54 Mbps	2	8	-62.3	-61.7	0.41	-50.6	-27	23.57
Non HT20 Beam Forming, 6 to 54 Mbps	2	11	-63.7	-63.2	0.41	-49.0	-27	22.03
HT/VHT20, M0 to M7	1	8	-60.9		0.31	-52.6	-27	25.59
HT/VHT20, M0 to M7	2	8	-63.1	-62.0	0.31	-51.2	-27	24.2
HT/VHT20, M8 to M15	2	8	-63.1	-62.0	0.31	-51.2	-27	24.2
HT/VHT20 Beam Forming, M0 to M7	2	11	-63.3	-62.9	0.31	-48.8	-27	21.78
HT/VHT20 Beam Forming, M8 to M15	2	8	-63.1	-62.0	0.31	-51.2	-27	24.2
HT/VHT20 STBC, M8 to M15	2	8	-63.1	-62.0	0.31	-51.2	-27	24.2
HE20, M0 to M11 1ss	1	8	-61.4		0.21	-53.2	-27	26.19
HE20, M0 to M11 1ss	2	8	-62.2	-63.2	0.21	-51.5	-27	24.46
HE20, M0 to M11 2ss	2	8	-62.2	-63.2	0.21	-51.5	-27	24.46
HE20 Beam Forming, M0 to M11 1ss	2	11	-63.3	-61.9	0.21	-48.3	-27	21.33
HE20 Beam Forming, M0 to M11 2ss	2	8	-62.2	-63.2	0.21	-51.5	-27	24.46
HE20 STBC, M0 to M11 2ss	2	8	-62.2	-63.2	0.21	-51.5	-27	24.46

## Data Screenshots – Antenna gain 8dBi peak.

5190 MHz: HT/VHT40 Beam Forming, M0 to M7

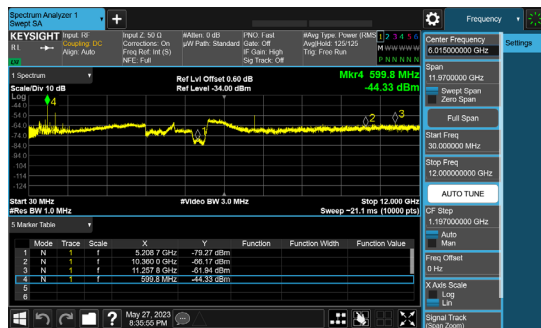


Antenna A

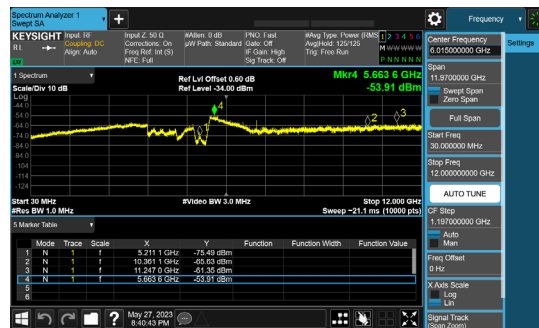


Antenna B

5210 MHz: HE80 Beam Forming, M0 to M11 1ss.

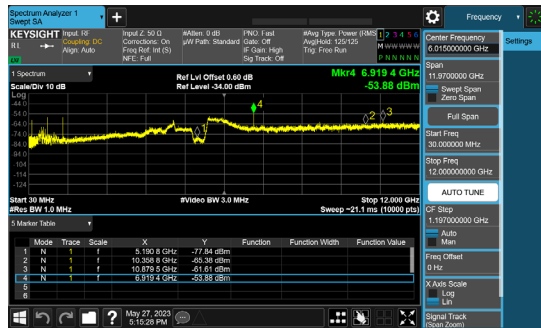


Antenna A



Antenna B

5190 MHz: HE40 Beam Forming, M0 to M11 1ss



Antenna A



Antenna B

**Conducted Spurious emissions Peak – Antenna gain 15dBi.****Frequency 5180 MHz**

<b>Mode</b>	<b>Tx Paths</b>	<b>Correlated Antenna Gain (dBi)</b>	<b>Tx 1 Spur Power (dBm)</b>	<b>Tx 2 Spur Power (dBm)</b>	<b>Duty Cycle (dB)</b>	<b>Total Conducted Spur (dBm)</b>	<b>Limit (dB)</b>	<b>Margin (dB)</b>
Non HT20, 6 to 54 Mbps	1	15	-60.4		0.41	-45.0	-27	17.99
<b>Non HT20, 6 to 54 Mbps</b>	<b>2</b>	<b>15</b>	<b>-60.9</b>	<b>-61.6</b>	<b>0.41</b>	<b>-42.8</b>	<b>-27</b>	<b>15.82</b>
<b>Non HT20 Beam Forming, 6 to 54 Mbps</b>	<b>2</b>	<b>15</b>	<b>-60.9</b>	<b>-61.6</b>	<b>0.41</b>	<b>-42.8</b>	<b>-27</b>	<b>15.82</b>
HT/VHT20, M0 to M7	1	15	-61.4		0.31	-46.1	-27	19.09
HT/VHT20, M0 to M7	2	15	-61.7	-61.8	0.31	-43.4	-27	16.43
HT/VHT20, M8 to M15	2	15	-61.7	-61.8	0.31	-43.4	-27	16.43
HT/VHT20 Beam Forming, M0 to M7	2	15	-61.7	-61.8	0.31	-43.4	-27	16.43
HT/VHT20 Beam Forming, M8 to M15	2	15	-61.7	-61.8	0.31	-43.4	-27	16.43
HT/VHT20 STBC, M8 to M15	2	15	-61.7	-61.8	0.31	-43.4	-27	16.43
HE20, M0 to M11 1ss	1	15	-60.4		0.21	-45.2	-27	18.19
HE20, M0 to M11 1ss	2	15	-62.8	-61.1	0.21	-43.7	-27	16.65
HE20, M0 to M11 2ss	2	15	-62.8	-61.1	0.21	-43.7	-27	16.65
HE20 Beam Forming, M0 to M11 1ss	2	15	-62.8	-61.1	0.21	-43.7	-27	16.65
HE20 Beam Forming, M0 to M11 2ss	2	15	-62.8	-61.1	0.21	-43.7	-27	16.65
HE20 STBC, M0 to M11 2ss	2	15	-62.8	-61.1	0.21	-43.7	-27	16.65

**Frequency 5190 MHz**

<b>Mode</b>	<b>Tx Paths</b>	<b>Correlated Antenna Gain (dBi)</b>	<b>Tx 1 Spur Power (dBm)</b>	<b>Tx 2 Spur Power (dBm)</b>	<b>Duty Cycle (dB)</b>	<b>Total Conducted Spur (dBm)</b>	<b>Limit (dB)</b>	<b>Margin (dB)</b>
Non HT40, 6 to 54 Mbps	1	15	-62.3		0.46	-46.8	-27	19.84
<b>Non HT40, 6 to 54 Mbps</b>	<b>2</b>	<b>15</b>	<b>-61.2</b>	<b>-60.1</b>	<b>0.46</b>	<b>-42.1</b>	<b>-27</b>	<b>15.15</b>
HT/VHT40, M0 to M7	1	15	-60.6		0.55	-45.1	-27	18.05
HT/VHT40, M0 to M7	2	15	-62.5	-61.8	0.55	-43.6	-27	16.58
HT/VHT40, M8 to M15	2	15	-62.5	-61.8	0.55	-43.6	-27	16.58
HT/VHT40 Beam Forming, M0 to M7	2	15	-62.5	-61.8	0.55	-43.6	-27	16.58
HT/VHT40 Beam Forming, M8 to M15	2	15	-62.5	-61.8	0.55	-43.6	-27	16.58
HT/VHT40 STBC, M8 to M15	2	15	-62.5	-61.8	0.55	-43.6	-27	16.58
HE40, M0 to M11 1ss	1	15	-61.9		0.26	-46.6	-27	19.64
HE40, M0 to M11 1ss	2	15	-61.4	-61.5	0.26	-43.2	-27	16.18
HE40, M0 to M11 2ss	2	15	-61.4	-61.5	0.26	-43.2	-27	16.18
HE40 Beam Forming, M0 to M11 1ss	2	15	-61.4	-61.5	0.26	-43.2	-27	16.18
HE40 Beam Forming, M0 to M11 2ss	2	15	-61.4	-61.5	0.26	-43.2	-27	16.18
HE40 STBC, M0 to M11 2ss	2	15	-61.4	-61.5	0.26	-43.2	-27	16.18

**Frequency 5210 MHz**

<b>Mode</b>	<b>Tx Paths</b>	<b>Correlated Antenna Gain (dBi)</b>	<b>Tx 1 Spur Power (dBm)</b>	<b>Tx 2 Spur Power (dBm)</b>	<b>Duty Cycle (dB)</b>	<b>Total Conducted Spur (dBm)</b>	<b>Limit (dB)</b>	<b>Margin (dB)</b>
Non HT80, 6 to 54 Mbps	1	15	-61.7		0.23	-46.5	-27	19.47
Non HT80, 6 to 54 Mbps	2	15	-61.8	-62.5	0.23	-43.9	-27	16.9
VHT80, M0 to M11 1ss	1	15	-61.0		0.55	-45.5	-27	18.45
VHT80, M0 to M11 1ss	2	15	-61.2	-62.6	0.55	-43.3	-27	16.29
VHT80, M0 to M11 2ss	2	15	-61.2	-62.6	0.55	-43.3	-27	16.29
VHT80 Beam Forming, M0 to M11 1ss	2	15	-61.2	-62.6	0.55	-43.3	-27	16.29
VHT80 Beam Forming, M0 to M11 2ss	2	15	-61.2	-62.6	0.55	-43.3	-27	16.29
VHT80 STBC, M0 to M11 2ss	2	15	-61.2	-62.6	0.55	-43.3	-27	16.29
HE80, M0 to M11 1ss	1	15	-60.8		0.23	-45.6	-27	18.57
HE80, M0 to M11 1ss	2	15	-61.9	-61.6	0.23	-43.5	-27	16.51
HE80, M0 to M11 2ss	2	15	-61.9	-61.6	0.23	-43.5	-27	16.51
HE80 Beam Forming, M0 to M11 1ss	2	15	-61.9	-61.6	0.23	-43.5	-27	16.51
HE80 Beam Forming, M0 to M11 2ss	2	15	-61.9	-61.6	0.23	-43.5	-27	16.51
HE80 STBC, M0 to M11 2ss	2	15	-61.9	-61.6	0.23	-43.5	-27	16.51

**Frequency 5220 MHz**

<b>Mode</b>	<b>Tx Paths</b>	<b>Correlated Antenna Gain (dBi)</b>	<b>Tx 1 Spur Power (dBm)</b>	<b>Tx 2 Spur Power (dBm)</b>	<b>Duty Cycle (dB)</b>	<b>Total Conducted Spur (dBm)</b>	<b>Limit (dB)</b>	<b>Margin (dB)</b>
Non HT20, 6 to 54 Mbps	1	15	-61.6		0.41	-46.2	-27	19.19
Non HT20, 6 to 54 Mbps	2	15	-63.1	-63.5	0.41	-44.9	-27	17.88
Non HT20 Beam Forming, 6 to 54 Mbps	2	15	-63.1	-63.5	0.41	-44.9	-27	17.88
HT/VHT20, M0 to M7	1	15	-61.7		0.31	-46.4	-27	19.39
HT/VHT20, M0 to M7	2	15	-63.0	-63.2	0.31	-44.8	-27	17.78
HT/VHT20, M8 to M15	2	15	-63.0	-63.2	0.31	-44.8	-27	17.78
HT/VHT20 Beam Forming, M0 to M7	2	15	-63.0	-63.2	0.31	-44.8	-27	17.78
HT/VHT20 Beam Forming, M8 to M15	2	15	-63.0	-63.2	0.31	-44.8	-27	17.78
HT/VHT20 STBC, M8 to M15	2	15	-63.0	-63.2	0.31	-44.8	-27	17.78
HE20, M0 to M11 1ss	1	15	-61.1		0.21	-45.9	-27	18.89
HE20, M0 to M11 1ss	2	15	-63.0	-62.8	0.21	-44.7	-27	17.68
HE20, M0 to M11 2ss	2	15	-63.0	-62.8	0.21	-44.7	-27	17.68
HE20 Beam Forming, M0 to M11 1ss	2	15	-63.0	-62.8	0.21	-44.7	-27	17.68
HE20 Beam Forming, M0 to M11 2ss	2	15	-63.0	-62.8	0.21	-44.7	-27	17.68
HE20 STBC, M0 to M11 2ss	2	15	-63.0	-62.8	0.21	-44.7	-27	17.68