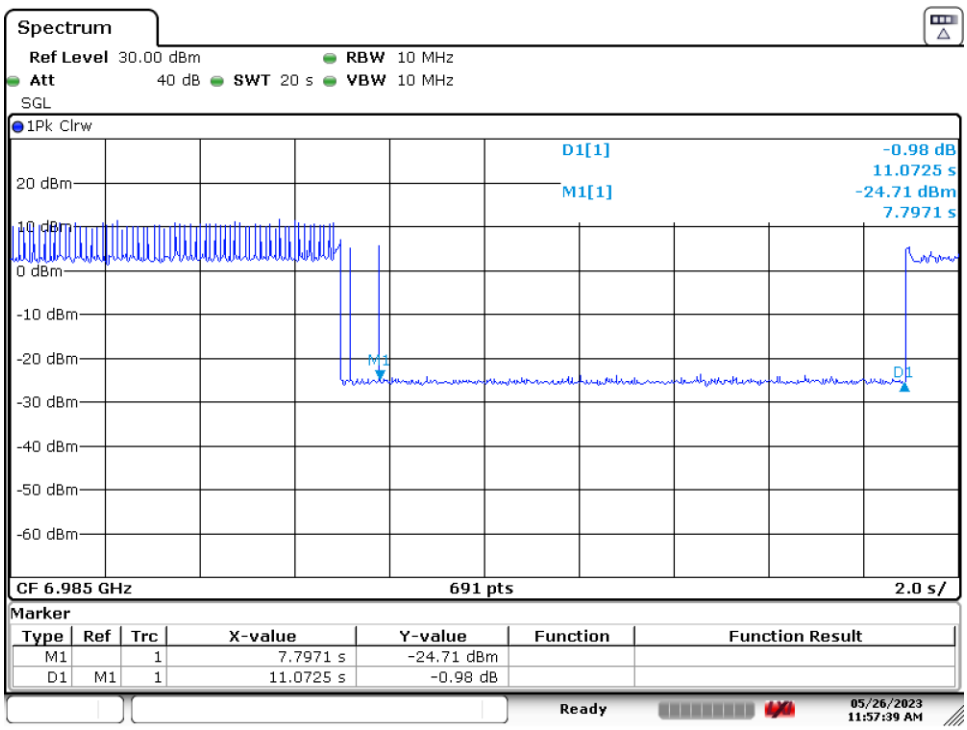
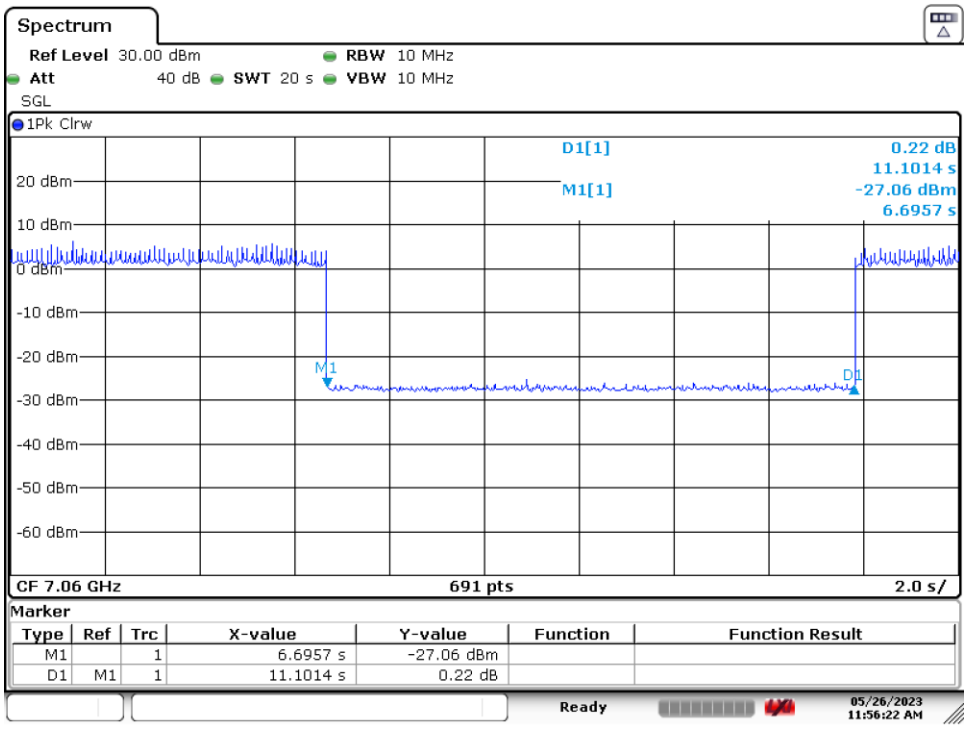


Date: 26.MAY.2023 11:57:39

Plot 7-208. Contention Based Protocol Timing Plot (160MHz (UNII Band 8) – Ch. 207 Mid)



Date: 26.MAY.2023 11:56:22

Plot 7-209. Contention Based Protocol Timing Plot (160MHz (UNII Band 8) – Ch. 207 High)

7.7 Radiated Emission Measurements

Test Overview and Limit

All out of band radiated spurious emissions are measured with a spectrum analyzer connected to a receive antenna while the EUT is operating at its maximum duty cycle, at its maximum power control level, as defined in ANSI C63.10-2013, and at the appropriate frequencies. All channels, modes (e.g. 802.11ax (20/40/80/160MHz)), and modulations/data rates were investigated among all UNII bands. Only the radiated emissions of the configuration that produced the worst case emissions are reported in this section.

For transmitters operating within the 5.925-7.125 GHz band: Any emissions outside of the 5.925-7.125 GHz band must not exceed an e.i.r.p. of −27 dBm/MHz

Emissions found in a restricted band are subject to the limits of 15.209 as shown in the table below.

Frequency	Field Strength [µV/m]	Measured Distance [Meters]
0.009 – 0.490 MHz	2400/F (kHz)	300
0.490 – 1.705 MHz	24000/F (kHz)	30
1.705 – 30.00 MHz	30	30
30.00 – 88.00 MHz	100	3
88.00 – 216.0 MHz	150	3
216.0 – 960.0 MHz	200	3
Above 960.0 MHz	500	3

Table 7-32. Radiated Limits

Test Procedures Used

ANSI C63.10-2013 – Sections 12.7.7.2, 12.7.6, 12.7.5

Test Settings – Above 1GHz

Average Field Strength Measurements (Method AD – Average Detection)

1. Analyzer center frequency was set to the frequency of the radiated spurious emission of interest.
2. RBW = 1MHz
3. VBW = 3MHz
4. Detector = power average (RMS)
5. Number of measurement points = 1001 (Number of points must be ≥ 2 x span\\RBW)
6. Sweep time = auto
7. Trace (RMS) averaging was performed over at least 100 traces.

Peak Field Strength Measurements

1. Analyzer center frequency was set to the frequency of the radiated spurious emission of interest.
2. RBW = 1MHz
3. VBW = 3MHz
4. Detector = peak
5. Sweep time = auto couple
6. Trace mode = max hold
7. Trace was allowed to stabilize.

Test Settings – Below 1GHz

Quasi-Peak Field Strength Measurements

1. Analyzer center frequency was set to the frequency of the radiated spurious emission of interest.
2. RBW = 120kHz (for emissions from 30MHz – 1GHz)
3. Detector = quasi-peak
4. Sweep time = auto couple
5. Trace mode = max hold
6. Trace was allowed to stabilize.

Test Setup

The EUT and measurement equipment were set up as shown in the diagram below.

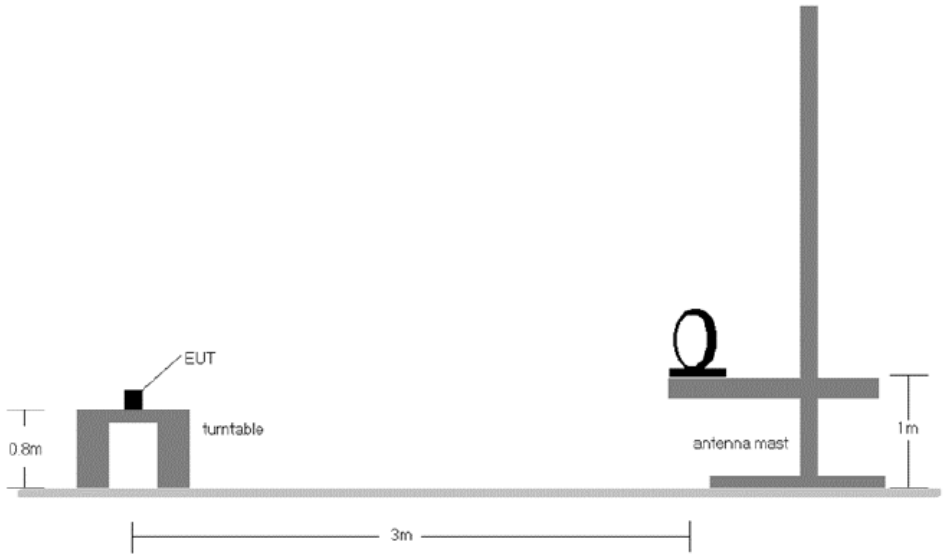


Figure 7-6. Radiated Test Setup < 30Mhz

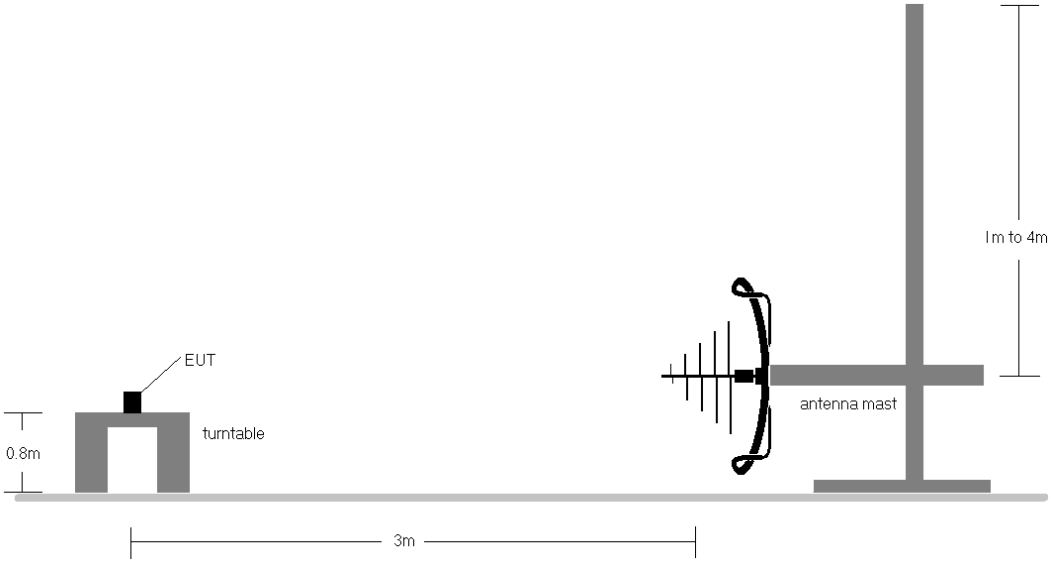


Figure 7-7. Radiated Test Setup < 1GHz

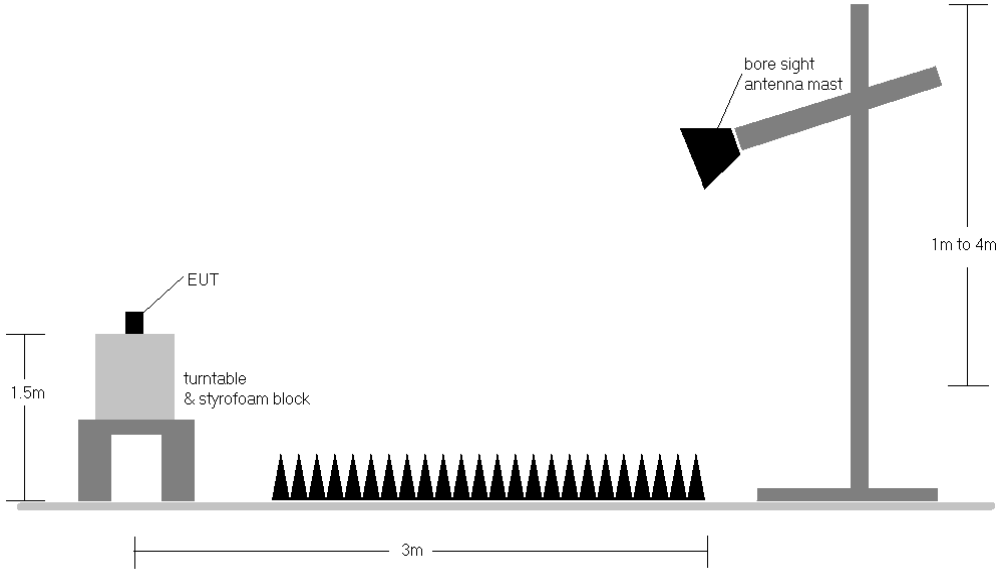


Figure 7-8. Radiated Test Setup > 1GHz

Test Notes

1. All spurious emissions lying in restricted bands specified in §15.205 are below the limit shown in §15.209. All spurious emissions that do not lie in a restricted band are subject to an average limit of -27dBm/MHz. At 3 meters, the field strength limit in dBμV/m can be determined by adding a "conversion" factor of 95.2dB to the EIRP limit of -27dBm/MHz to obtain the limit for out of band spurious emissions of 68.2dBμV/m.
2. All spurious emissions that do not lie in a restricted band are subject to a peak limit not to exceed 20dB of the average limit [68.2dBμV/m]. If a peak measurement passes the average limit, it was determined no further investigation is necessary.
3. The antenna is manipulated through typical positions, polarity, and length during the tests. The EUT is manipulated through three orthogonal planes.
4. This unit was tested with its standard battery.
5. The spectrum is measured from 9kHz to the 10th harmonic of the fundamental frequency of the transmitter using CISPR quasi peak detector below 1GHz. Above 1 GHz, average and peak measurements were taken using linearly polarized horn antennas. The worst-case emissions are reported, however emissions whose levels were not within 20dB of the respective limits were not reported.
6. Emissions below 18GHz were measured at a 3-meter test distance while emissions above 18GHz were measured at a 1-meter test distance with the application of a distance correction factor.
7. The wide spectrum spurious emissions plots shown on the following pages are used only for the purpose of emission identification. Any emissions found to be within 20dB of the limit are fully investigated and the results are shown in this section.
8. The "-" shown in the following RSE tables are used to denote a noise floor measurement.
9. For radiated measurements, emissions were investigated for the fully-loaded RU configuration and for all of the partially-loaded RU configurations. Among all of the available partially-loaded RU configurations, only the configuration with the worst case emissions is reported.

Sample Calculations

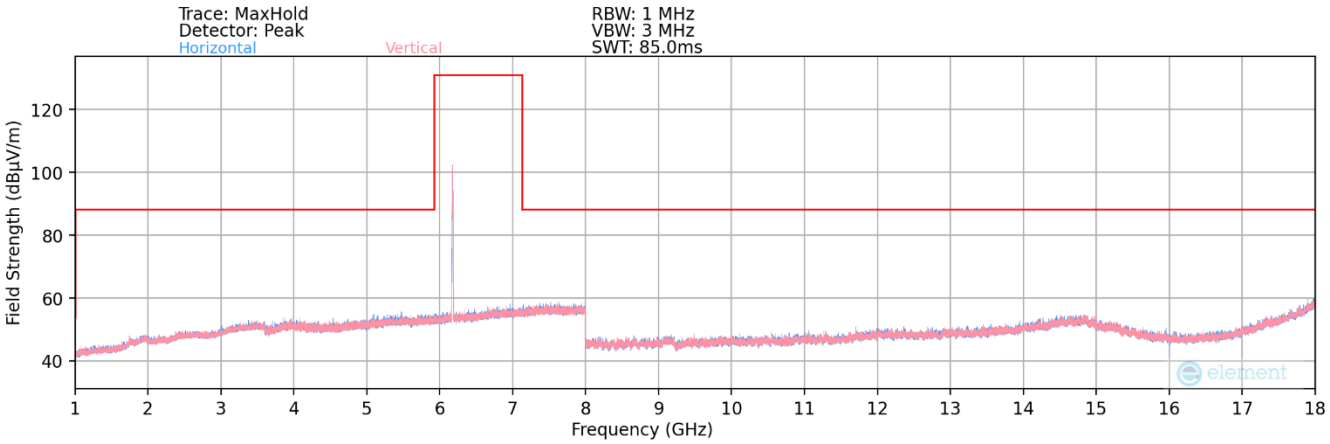
Determining Spurious Emissions Levels

- Field Strength Level $_{[dB\mu V/m]}$ = Analyzer Level $_{[dBm]}$ + 107 + AFCL $_{[dB/m]}$
- AFCL $_{[dB/m]}$ = Antenna Factor $_{[dB/m]}$ + Cable Loss $_{[dB]}$
- Margin $_{[dB]}$ = Field Strength Level $_{[dB\mu V/m]}$ – Limit $_{[dB\mu V/m]}$

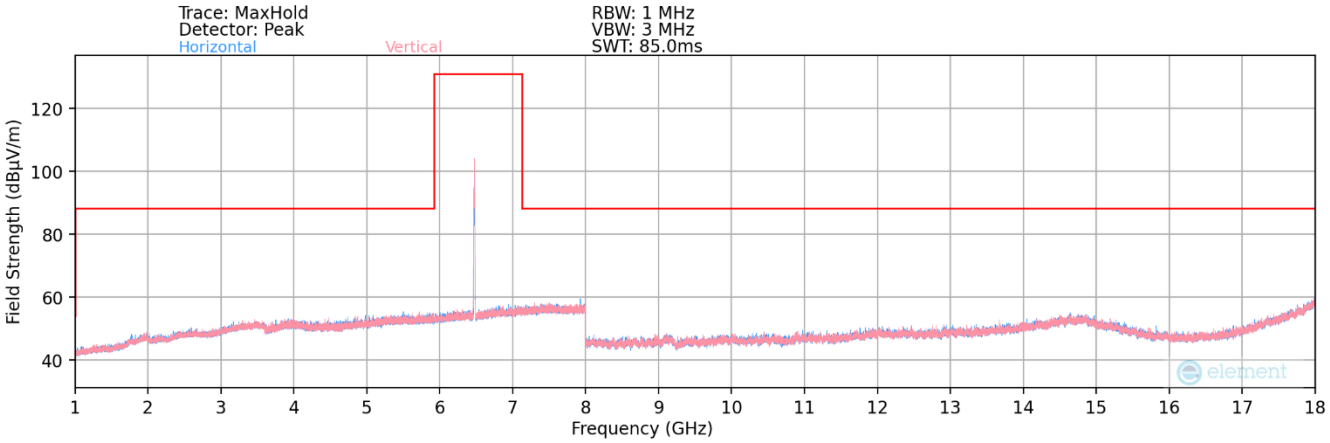
Radiated Band Edge Measurement Offset

- The amplitude offset shown in the radiated restricted band edge plots was calculated using the formula: Offset (dB) = (Antenna Factor + Cable Loss + Attenuator) – Preamplifier Gain

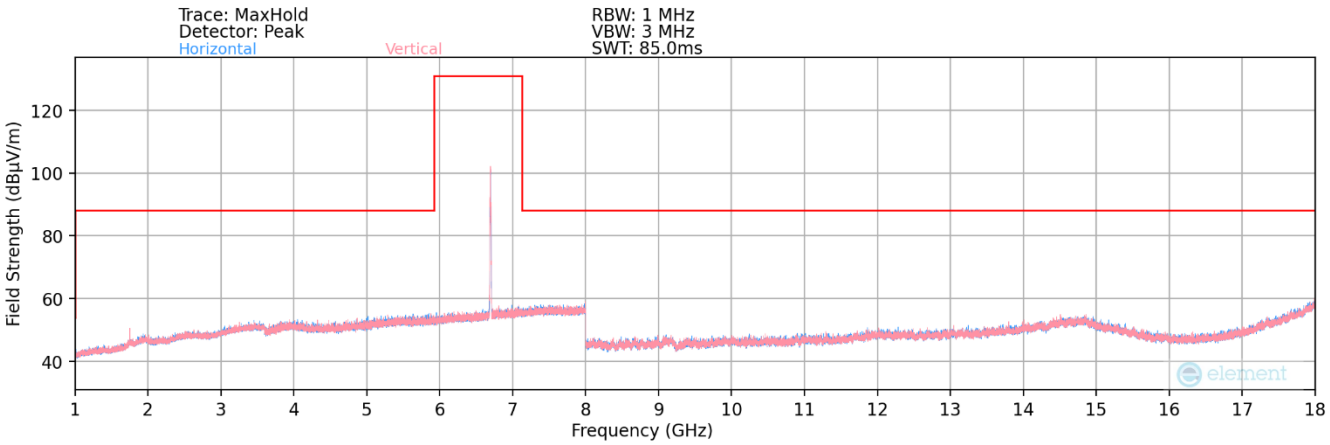
7.7.1 MIMO Radiated Spurious Emission Measurements (26 Tones)



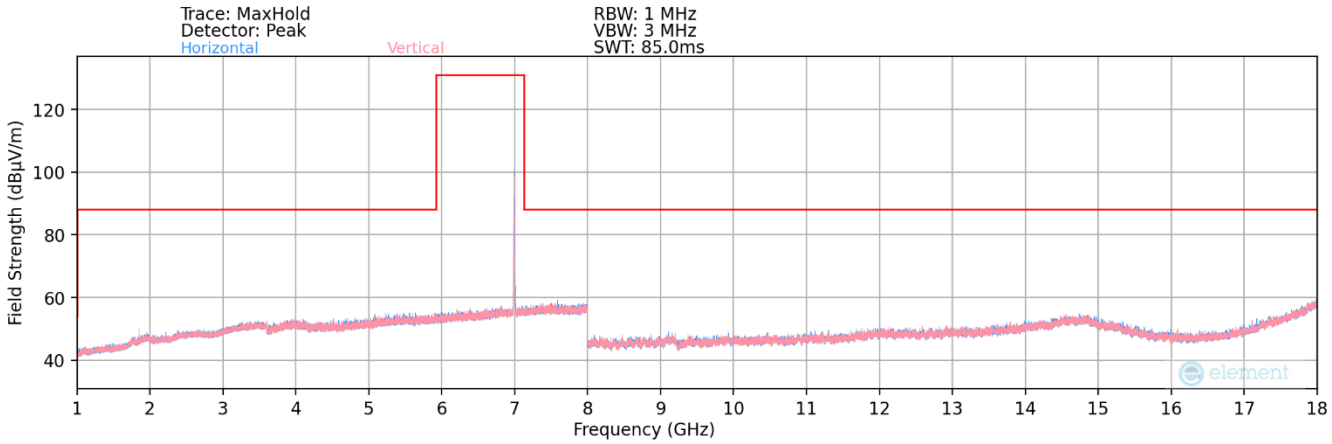
Plot 7-210. Radiated Spurious Plot 1GHz – 18GHz MIMO (802.11ax – UNII Band 5 Ch. 45 – Half



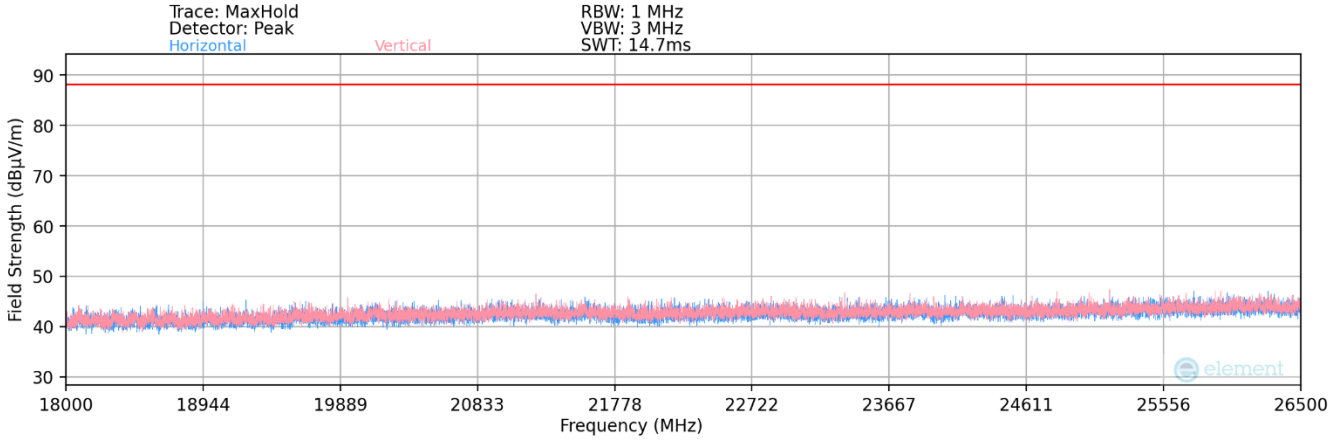
Plot 7-211. Radiated Spurious Plot 1GHz – 18GHz MIMO (802.11ax – UNII Band 6 Ch. 105) – Half



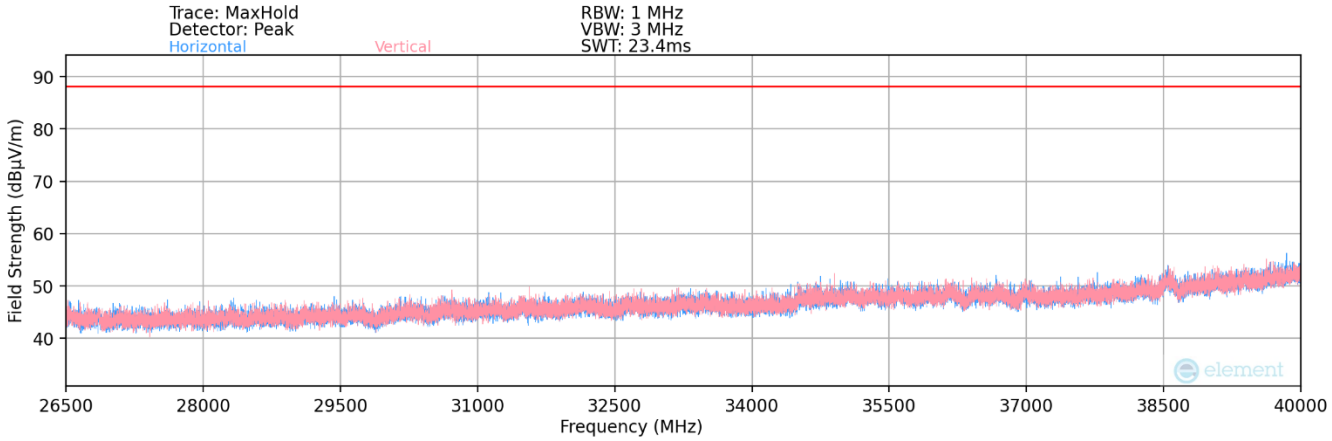
Plot 7-212. Radiated Spurious Plot 1GHz – 18GHz MIMO (802.11ax – UNII Band 7 Ch. 149) – Half



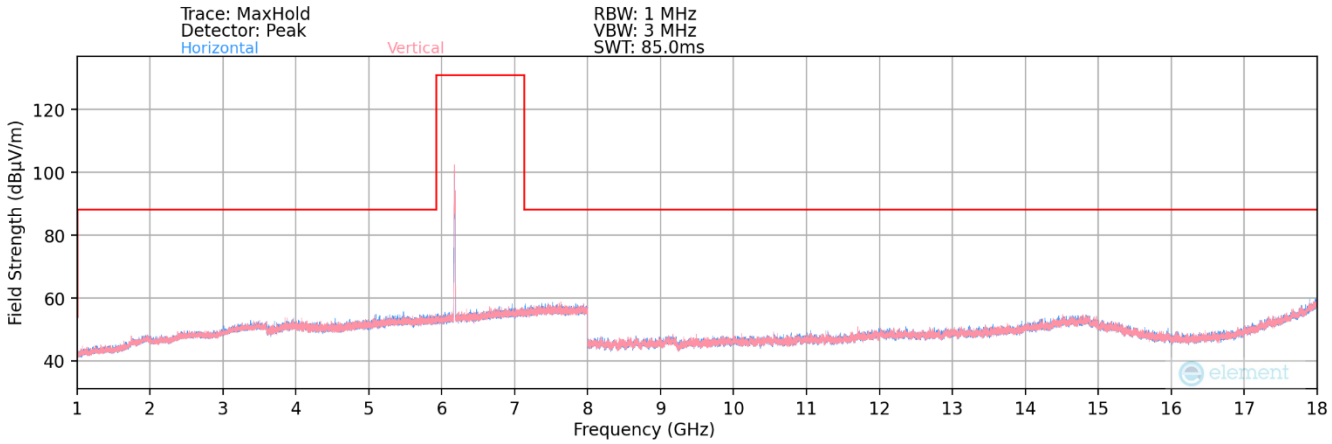
Plot 7-213. Radiated Spurious Plot 1GHz – 18GHz MIMO (802.11ax – U Band 8 Ch. 209) – Half



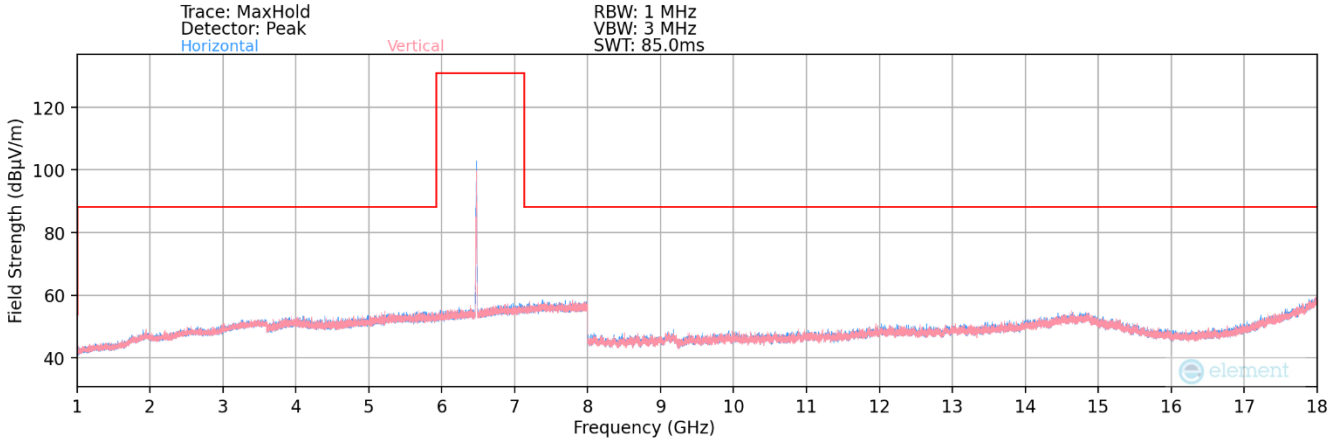
Plot 7-214. Radiated Spurious Plot 18GHz - 26.5GHz (802.11ax) – Half



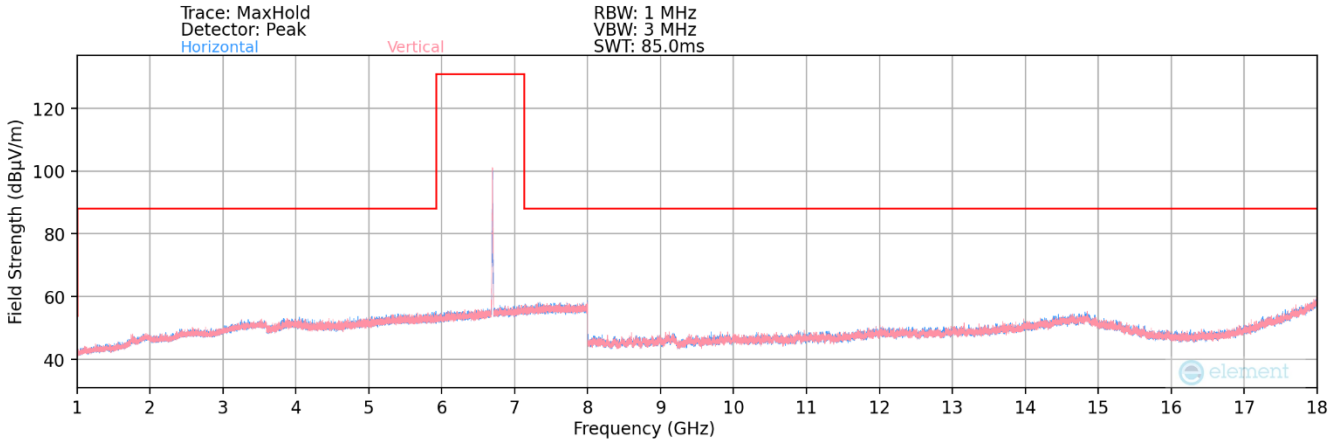
Plot 7-215. Radiated Spurious Plot 26.5GHz - 40GHz (802.11ax) – Half



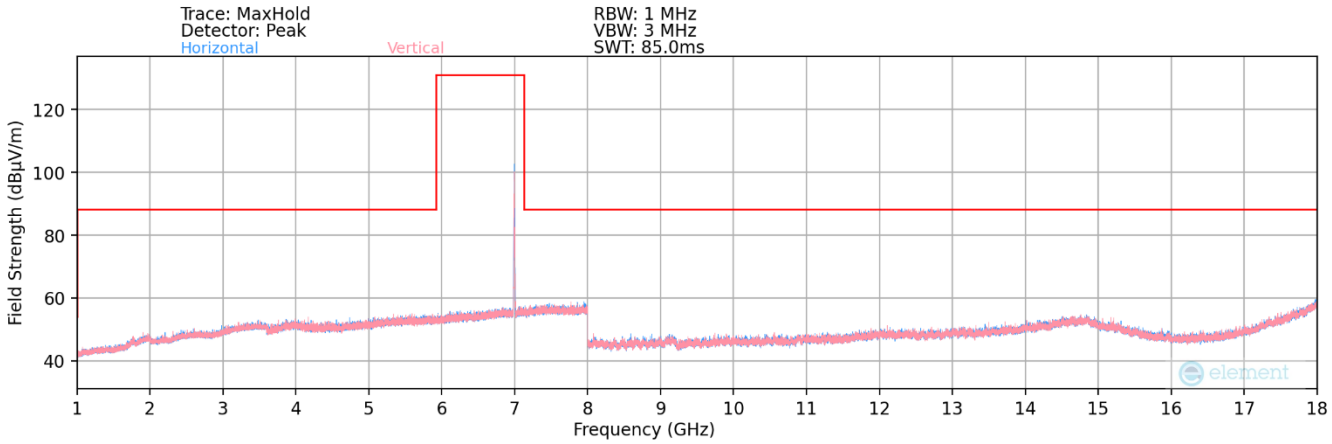
Plot 7-216. Radiated Spurious Plot 1GHz – 18GHz MIMO (802.11ax – UNII Band 5 Ch. 45) – Closed



Plot 7-217. Radiated Spurious Plot 1GHz – 18GHz MIMO (802.11ax – UNII Band 6 Ch. 105) – Closed



Plot 7-218. Radiated Spurious Plot 1GHz – 18GHz MIMO (802.11ax – UNII Band 7 Ch. 149) – Closed



Plot 7-219. Radiated Spurious Plot 1GHz – 18GHz MIMO (802.11ax – U Band 8 Ch. 209) – Closed

7.7.1.1 MIMO Radiated Spurious Emission Measurements (26 Tones) – UNII Band 5

Worst Case Mode:	802.11ax
Worst Case Transfer Rate:	MCS0
RU Index:	4
Distance of Measurements:	1 & 3 Meters
Operating Frequency:	5935MHz
Channel:	2

	Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBµV/m]	Limit [dBµV/m]	Margin [dB]
*	11870.00	Average	H	-	-	-78.98	9.32	0.00	37.34	53.98	-16.64
*	11870.00	Peak	H	-	-	-66.72	9.32	0.00	49.60	73.98	-24.38
*	17805.00	Average	H	-	-	-77.50	15.72	0.00	45.22	53.98	-8.76
*	17805.00	Peak	H	-	-	-65.66	15.72	0.00	57.06	73.98	-16.92
*	23740.00	Average	H	-	-	-67.35	3.96	-9.54	34.06	53.98	-19.92
*	23740.00	Peak	H	-	-	-57.40	3.96	-9.54	44.02	73.98	-29.96
	29675.00	Peak	H	-	-	-58.79	5.90	-9.54	44.58	68.20	-23.62

Table 7-33. Radiated Measurements MIMO (26 Tones) – Half

Worst Case Mode:	802.11ax
Worst Case Transfer Rate:	MCS0
RU Index:	4
Distance of Measurements:	1 & 3 Meters
Operating Frequency:	6175MHz
Channel:	45

	Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBµV/m]	Limit [dBµV/m]	Margin [dB]
*	12350.00	Average	H	-	-	-81.28	9.61	0.00	35.33	53.98	-18.65
*	12350.00	Peak	H	-	-	-68.62	9.67	0.00	48.05	73.98	-25.93
*	18525.00	Average	H	-	-	-66.39	1.55	-9.54	32.62	53.98	-21.36
*	18525.00	Peak	H	-	-	-56.06	1.55	-9.54	42.94	73.98	-31.04
	24700.00	Peak	H	-	-	-56.70	4.20	-9.54	44.96	68.20	-23.24
	30875.00	Peak	H	-	-	-57.90	6.77	-9.54	46.33	68.20	-21.87

Table 7-34. Radiated Measurements MIMO (26 Tones) – Half

Worst Case Mode:	802.11ax
Worst Case Transfer Rate:	MCS0
RU Index:	4
Distance of Measurements:	1 & 3 Meters
Operating Frequency:	6415MHz
Channel:	93

	Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBµV/m]	Limit [dBµV/m]	Margin [dB]
	12830.00	Peak	H	-	-	-66.48	9.64	0.00	50.16	68.20	-18.04
*	19245.00	Average	H	-	-	-67.05	2.35	-9.54	32.77	53.98	-21.21
*	19245.00	Peak	H	-	-	-57.30	2.35	-9.54	42.51	73.98	-31.47
	25660.00	Peak	H	-	-	-56.90	4.41	-9.54	44.96	68.20	-23.24
	32075.00	Peak	H	-	-	-57.37	7.43	-9.54	47.52	68.20	-20.68

Table 7-35. Radiated Measurements MIMO (26 Tones) – Half

7.7.1.2 MIMO Radiated Spurious Emission Measurements (26 Tones) – UNII Band 6

Worst Case Mode:	802.11ax
Worst Case Transfer Rate:	MCS0
RU Index:	4
Distance of Measurements:	1 & 3 Meters
Operating Frequency:	6435MHz
Channel:	97

	Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBµV/m]	Limit [dBµV/m]	Margin [dB]
	12870.00	Peak	H	-	-	-66.12	10.05	0.00	50.93	68.20	-17.27
*	19305.00	Average	H	-	-	-66.73	2.13	-9.54	32.87	53.98	-21.11
*	19305.00	Peak	H	-	-	-56.57	2.13	-9.54	43.02	73.98	-30.96
	25740.00	Peak	H	-	-	-58.07	4.51	-9.54	43.90	68.20	-24.30
	32175.00	Peak	H	-	-	-56.22	7.53	-9.54	48.77	68.20	-19.43

Table 7-36. Radiated Measurements MIMO (26 Tones) – Half

Worst Case Mode:	802.11ax
Worst Case Transfer Rate:	MCS0
RU Index:	4
Distance of Measurements:	1 & 3 Meters
Operating Frequency:	6475MHz
Channel:	105

	Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBµV/m]	Limit [dBµV/m]	Margin [dB]
	12950.00	Peak	H	-	-	-67.60	10.13	0.00	49.53	68.20	-18.67
*	19425.00	Average	H	-	-	-67.09	2.22	-9.54	32.60	53.98	-21.38
*	19425.00	Peak	H	-	-	-56.55	2.22	-9.54	43.14	73.98	-30.84
	25900.00	Peak	H	-	-	-56.87	4.57	-9.54	45.17	68.20	-23.03
	32375.00	Peak	H	-	-	-58.51	7.29	-9.54	46.24	68.20	-21.96

Table 7-37. Radiated Measurements MIMO (26 Tones) – Half

Worst Case Mode:	802.11ax
Worst Case Transfer Rate:	MCS0
RU Index:	4
Distance of Measurements:	1 & 3 Meters
Operating Frequency:	6515MHz
Channel:	113

	Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBµV/m]	Limit [dBµV/m]	Margin [dB]
	13030.00	Peak	H	-	-	-67.94	10.12	0.00	49.18	68.20	-19.02
*	19545.00	Average	H	-	-	-66.15	2.37	-9.54	33.68	53.98	-20.30
*	19545.00	Peak	H	-	-	-56.86	2.37	-9.54	42.98	73.98	-31.00
	26060.00	Peak	H	-	-	-57.51	4.80	-9.54	44.75	68.20	-23.45
	32575.00	Peak	H	-	-	-57.47	6.85	-9.54	46.85	68.20	-21.35

Table 7-38. Radiated Measurements MIMO (26 Tones) – Half

7.7.1.3 MIMO Radiated Spurious Emission Measurements (26 Tones) – UNII Band 7

Worst Case Mode:	802.11ax
Worst Case Transfer Rate:	MCS0
RU Index:	4
Distance of Measurements:	1 & 3 Meters
Operating Frequency:	6535MHz
Channel:	117

	Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBµV/m]	Limit [dBµV/m]	Margin [dB]
	13070.00	Peak	H	-	-	-68.63	10.15	0.00	48.52	68.20	-19.68
*	19605.00	Average	H	-	-	-66.64	2.64	-9.54	33.46	53.98	-20.52
*	19605.00	Peak	H	-	-	-56.51	2.64	-9.54	43.59	73.98	-30.39
	26140.00	Peak	H	-	-	-57.64	4.56	-9.54	44.37	68.20	-23.83
	32675.00	Peak	H	-	-	-57.56	7.03	-9.54	46.94	68.20	-21.26

Table 7-39. Radiated Measurements MIMO (26 Tones) – Half

Worst Case Mode:	802.11ax
Worst Case Transfer Rate:	MCS0
RU Index:	4
Distance of Measurements:	1 & 3 Meters
Operating Frequency:	6695MHz
Channel:	149

	Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBµV/m]	Limit [dBµV/m]	Margin [dB]
*	13390.00	Average	H	-	-	-81.09	10.35	0.00	36.26	53.98	-17.72
*	13390.00	Peak	H	-	-	-68.79	10.35	0.00	48.56	73.98	-25.42
*	20085.00	Average	H	-	-	-66.82	3.01	-9.54	33.65	53.98	-20.33
*	20085.00	Peak	H	-	-	-56.45	3.01	-9.54	44.02	73.98	-29.96
	26780.00	Peak	H	-	-	-57.20	4.57	-9.54	44.83	68.20	-23.37
	33475.00	Peak	H	-	-	-57.62	7.57	-9.54	47.41	68.20	-20.79

Table 7-40. Radiated Measurements MIMO (26 Tones) – Half

Worst Case Mode:	802.11ax
Worst Case Transfer Rate:	MCS0
RU Index:	4
Distance of Measurements:	1 & 3 Meters
Operating Frequency:	6875MHz
Channel:	185

	Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBµV/m]	Limit [dBµV/m]	Margin [dB]
	13750.00	Peak	H	-	-	-65.33	11.07	0.00	52.74	68.20	-15.46
*	20625.00	Average	H	-	-	-67.61	3.42	-9.54	33.28	53.98	-20.70
*	20625.00	Peak	H	-	-	-57.61	3.42	-9.54	43.28	73.98	-30.70
	27500.00	Average	H	-	-	-55.97	4.54	-9.54	46.03	68.20	-22.17
	34375.00	Peak	H	-	-	-58.14	8.08	-9.54	47.40	68.20	-20.80

Table 7-41. Radiated Measurements MIMO (26 Tones) – Half

7.7.1.4 MIMO Radiated Spurious Emission Measurements (26 Tones) – UNII Band 8

Worst Case Mode:	802.11ax
Worst Case Transfer Rate:	MCS0
RU Index:	4
Distance of Measurements:	1 & 3 Meters
Operating Frequency:	6895MHz
Channel:	189

	Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBµV/m]	Limit [dBµV/m]	Margin [dB]
	13790.00	Peak	H	-	-	-66.15	11.00	0.00	51.85	68.20	-16.35
*	20685.00	Average	H	-	-	-67.32	3.67	-9.54	33.81	53.98	-20.17
*	20685.00	Peak	H	-	-	-57.03	3.67	-9.54	44.10	73.98	-29.88
	27580.00	Peak	H	-	-	-55.94	4.68	-9.54	46.21	68.20	-21.99
	34475.00	Peak	H	-	-	-57.14	7.83	-9.54	48.15	68.20	-20.05

Table 7-42. Radiated Measurements MIMO (26 Tones) – Half

Worst Case Mode:	802.11ax
Worst Case Transfer Rate:	MCS0
RU Index:	4
Distance of Measurements:	1 & 3 Meters
Operating Frequency:	6995MHz
Channel:	209

	Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBµV/m]	Limit [dBµV/m]	Margin [dB]
	13990.00	Peak	H	-	-	-68.05	11.26	0.00	50.21	68.20	-17.99
*	20985.00	Average	H	-	-	-67.65	3.59	-9.54	33.41	53.98	-20.57
*	20985.00	Peak	H	-	-	-57.76	3.59	-9.54	43.29	73.98	-30.69
	27980.00	Peak	H	-	-	-57.82	5.05	-9.54	44.69	68.20	-23.51
	34975.00	Peak	H	-	-	-56.95	8.24	-9.54	48.75	68.20	-19.45

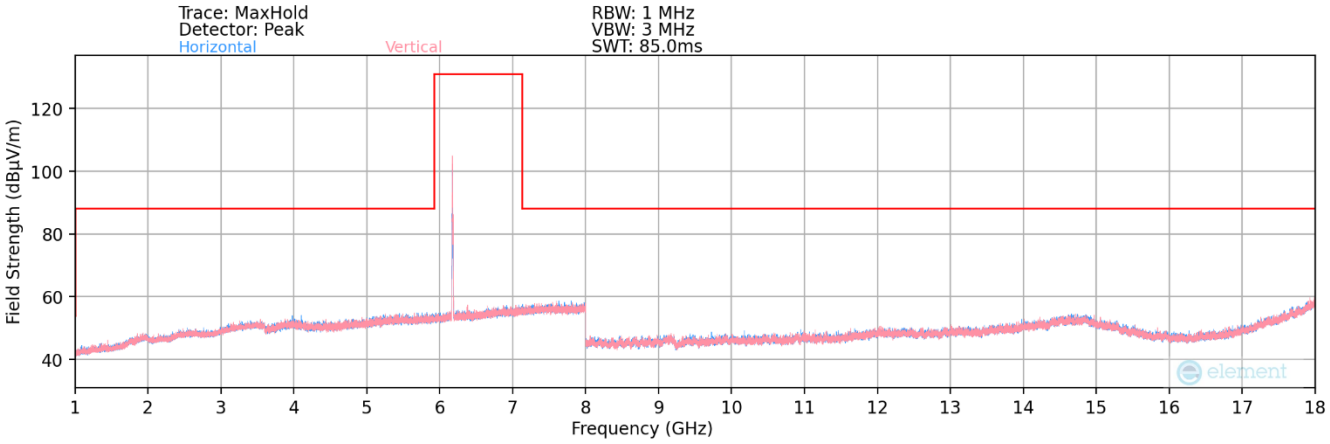
Table 7-43. Radiated Measurements MIMO (26 Tones) – Half

Worst Case Mode:	802.11ax
Worst Case Transfer Rate:	MCS0
RU Index:	4
Distance of Measurements:	1 & 3 Meters
Operating Frequency:	7115MHz
Channel:	233

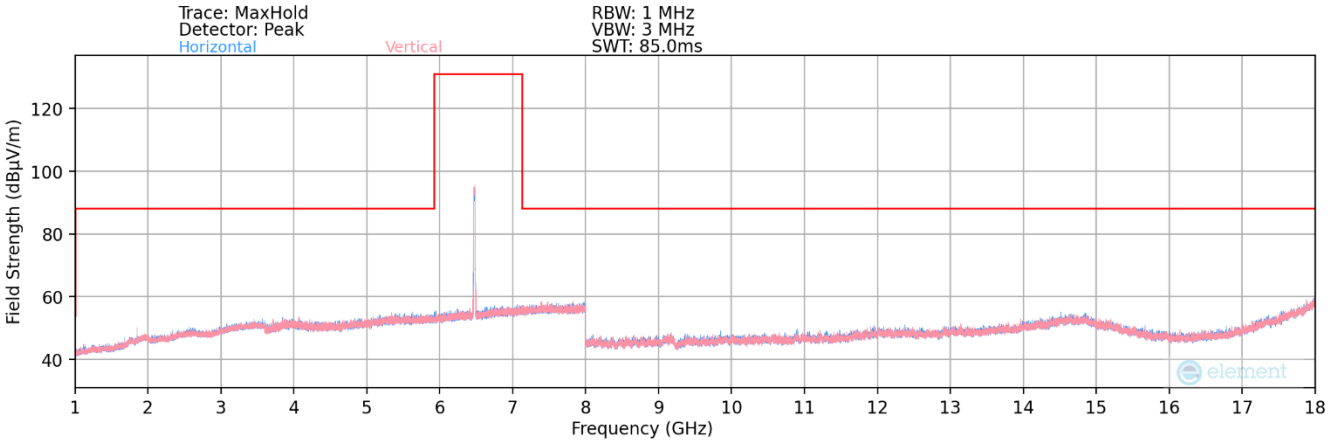
	Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBµV/m]	Limit [dBµV/m]	Margin [dB]
	14230.00	Peak	H	-	-	-68.84	12.13	0.00	50.29	68.20	-17.91
*	21345.00	Average	H	-	-	-67.44	4.08	-9.54	34.10	53.98	-19.88
*	21345.00	Peak	H	-	-	-56.16	4.08	-9.54	45.37	73.98	-28.61
	28460.00	Peak	H	-	-	-57.46	5.14	-9.54	45.14	68.20	-23.06
	35575.00	Peak	H	-	-	-57.15	8.16	-9.54	48.48	68.20	-19.72

Table 7-44. Radiated Measurements MIMO (26 Tones) – Half

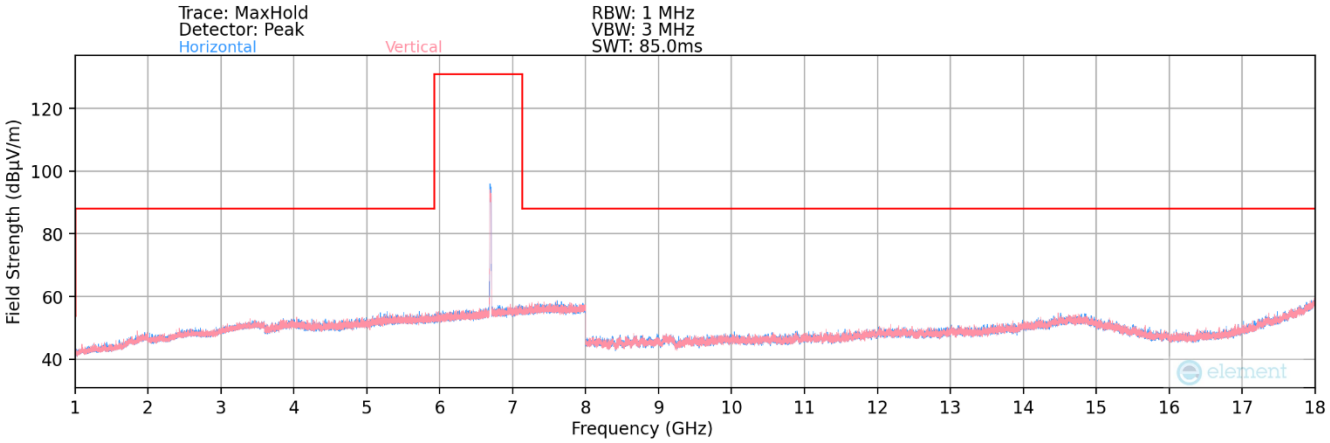
7.7.2 MIMO Radiated Spurious Emission Measurements (242 Tones)



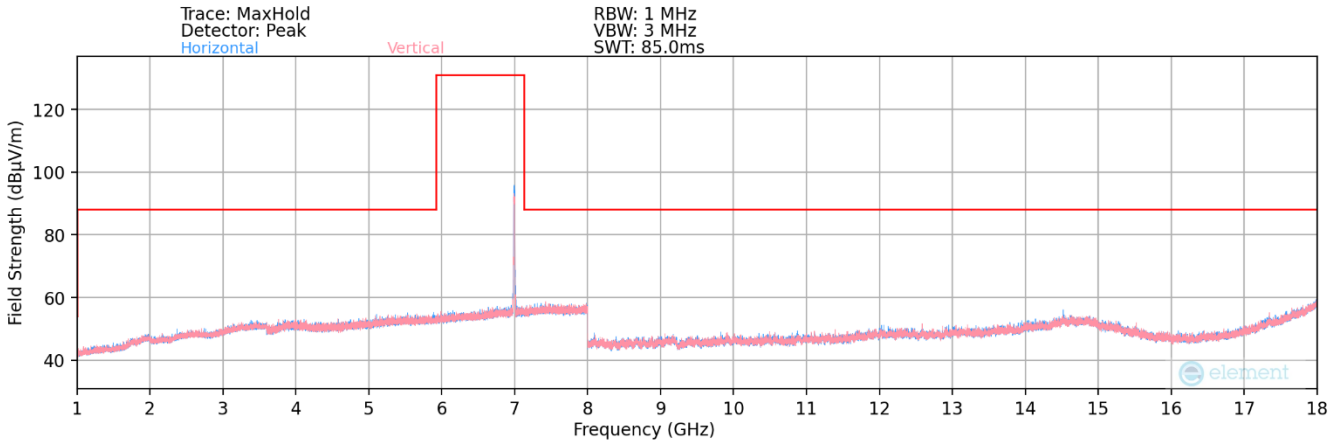
Plot 7-220. Radiated Spurious Plot 1GHz – 18GHz MIMO (802.11ax – UNII Band 5 Ch. 45) – Half



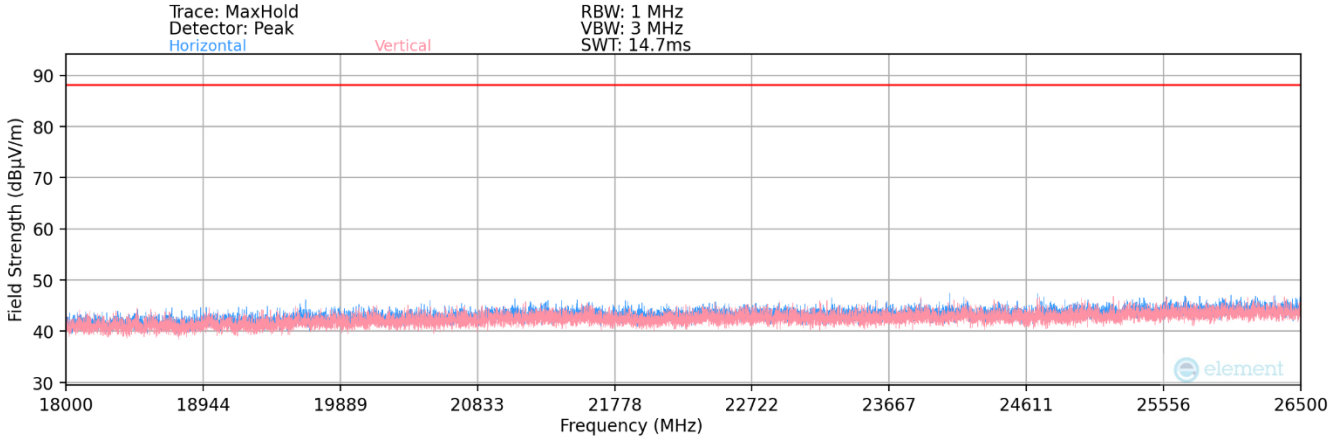
Plot 7-221. Radiated Spurious Plot 1GHz – 18GHz MIMO (802.11ax – UNII Band 6 Ch. 105) – Half



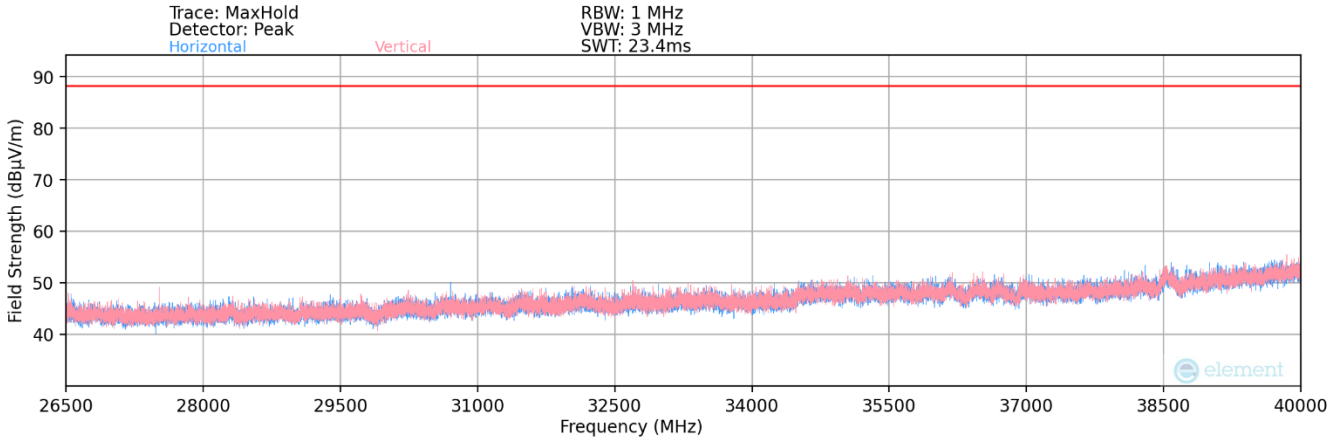
Plot 7-222. Radiated Spurious Plot 1GHz – 18GHz MIMO (802.11ax – UNII Band 7 Ch. 149) – Half



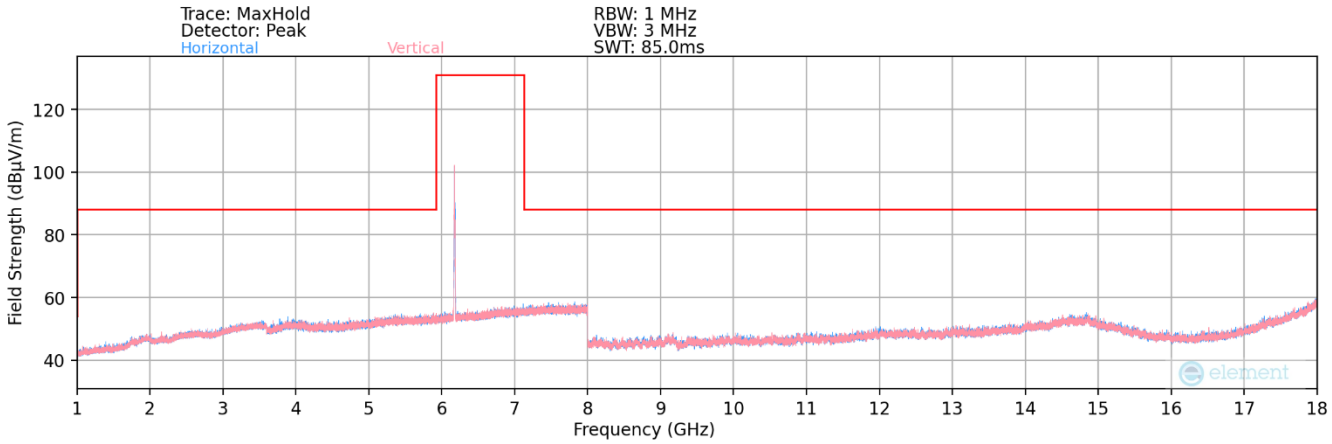
Plot 7-223. Radiated Spurious Plot 1GHz – 18GHz MIMO (802.11ax – U Band 8 Ch. 209) – Half



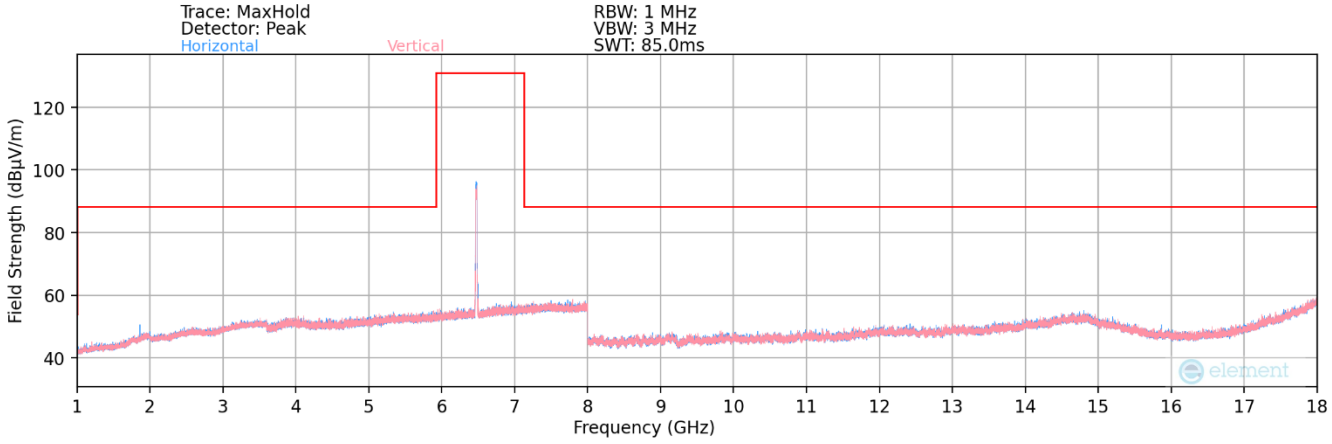
Plot 7-224. Radiated Spurious Plot 18GHz - 26.5GHz (802.11ax) – Half



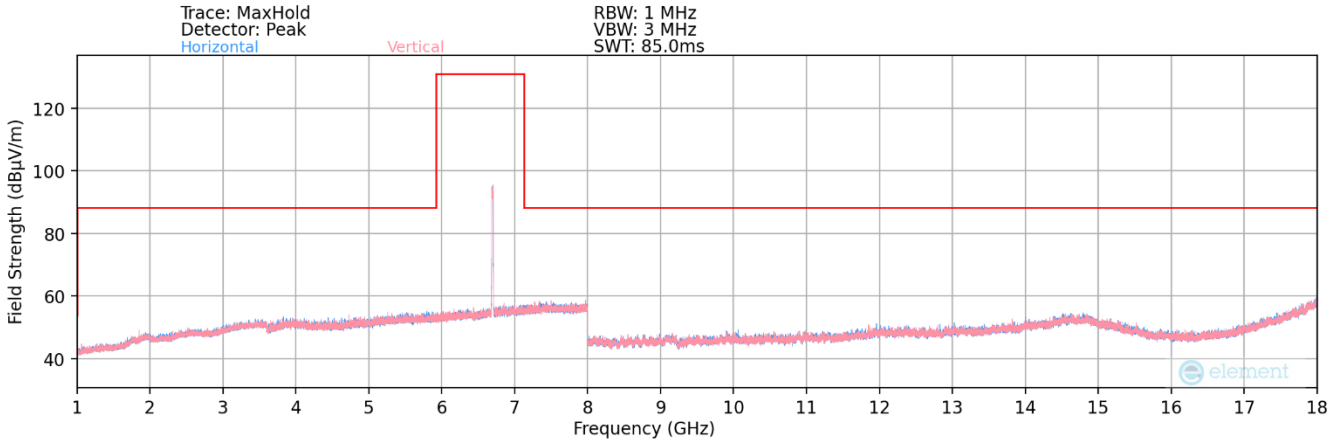
Plot 7-225. Radiated Spurious Plot 26.5GHz - 40GHz (802.11ax) – Half



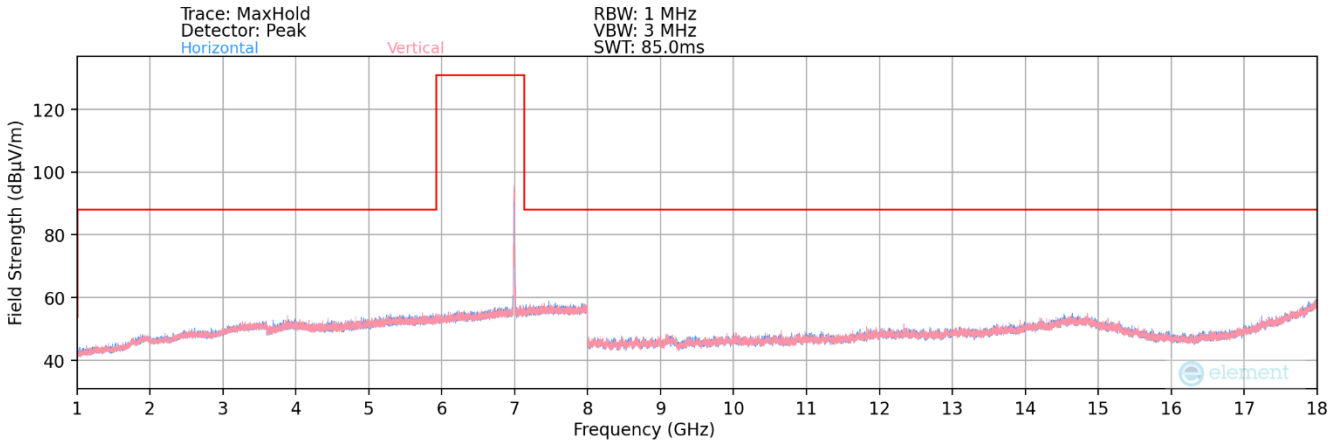
Plot 7-226. Radiated Spurious Plot 1GHz – 18GHz MIMO (802.11ax – UNII Band 5 Ch. 45) – Open



Plot 7-227. Radiated Spurious Plot 1GHz – 18GHz MIMO (802.11ax – UNII Band 6 Ch. 105) – Open



Plot 7-228. Radiated Spurious Plot 1GHz – 18GHz MIMO (802.11ax – UNII Band 7 Ch. 149) – Open



Plot 7-229. Radiated Spurious Plot 1GHz – 18GHz MIMO (802.11ax – U Band 8 Ch. 209) – Open

7.7.2.1 MIMO Radiated Spurious Emission Measurements (242 Tones) – UNII Band 5

Worst Case Mode:	802.11ax
Worst Case Transfer Rate:	MCS0
RU Index:	61
Distance of Measurements:	1 & 3 Meters
Operating Frequency:	5935MHz
Channel:	2

	Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBµV/m]	Limit [dBµV/m]	Margin [dB]
*	11870.00	Average	H	-	-	-78.96	9.32	0.00	37.36	53.98	-16.62
*	11870.00	Peak	H	-	-	-66.01	9.32	0.00	50.31	73.98	-23.67
*	17805.00	Average	H	-	-	-77.45	15.72	0.00	45.27	53.98	-8.71
*	17805.00	Peak	H	-	-	-65.45	15.72	0.00	57.27	73.98	-16.71
*	23740.00	Average	H	-	-	-67.56	3.96	-9.54	33.86	53.98	-20.12
*	23740.00	Peak	H	-	-	-57.29	3.96	-9.54	44.12	73.98	-29.86
	29675.00	Peak	H	-	-	-58.43	5.90	-9.54	44.94	68.20	-23.26

Table 7-45. Radiated Measurements MIMO (242 Tones) – Half

Worst Case Mode:	802.11ax
Worst Case Transfer Rate:	MCS0
RU Index:	61
Distance of Measurements:	1 & 3 Meters
Operating Frequency:	6175MHz
Channel:	45

	Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBµV/m]	Limit [dBµV/m]	Margin [dB]
*	12350.00	Average	H	-	-	-81.25	9.61	0.00	35.36	53.98	-18.62
*	12350.00	Peak	H	-	-	-69.27	9.67	0.00	47.40	73.98	-26.58
*	18525.00	Average	H	-	-	-66.50	1.55	-9.54	32.51	53.98	-21.47
*	18525.00	Peak	H	-	-	-56.62	1.55	-9.54	42.38	73.98	-31.60
	24700.00	Peak	H	-	-	-56.83	4.20	-9.54	44.83	68.20	-23.37
	30875.00	Peak	H	-	-	-56.91	6.77	-9.54	47.32	68.20	-20.88

Table 7-46. Radiated Measurements MIMO (242 Tones) – Half

Worst Case Mode:	802.11ax
Worst Case Transfer Rate:	MCS0
RU Index:	61
Distance of Measurements:	1 & 3 Meters
Operating Frequency:	6415MHz
Channel:	93

	Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBµV/m]	Limit [dBµV/m]	Margin [dB]
	12830.00	Peak	H	-	-	-65.86	9.64	0.00	50.78	68.20	-17.42
*	19245.00	Average	H	-	-	-66.80	2.35	-9.54	33.02	53.98	-20.96
*	19245.00	Peak	H	-	-	-56.13	2.35	-9.54	43.68	73.98	-30.30
	25660.00	Peak	H	-	-	-57.39	4.41	-9.54	44.47	68.20	-23.73
	32075.00	Peak	H	-	-	-57.54	7.43	-9.54	47.36	68.20	-20.84

Table 7-47. Radiated Measurements MIMO (242 Tones) – Half

7.7.2.2 MIMO Radiated Spurious Emission Measurements (242 Tones) – UNII Band 6

Worst Case Mode:	802.11ax
Worst Case Transfer Rate:	MCS0
RU Index:	61
Distance of Measurements:	1 & 3 Meters
Operating Frequency:	6435MHz
Channel:	97

	Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBµV/m]	Limit [dBµV/m]	Margin [dB]
	12870.00	Peak	H	-	-	-66.89	10.05	0.00	50.16	68.20	-18.04
*	19305.00	Average	H	-	-	-56.14	2.13	-9.54	43.45	53.98	-10.53
*	19305.00	Peak	H	-	-	-66.84	2.13	-9.54	32.75	73.98	-41.23
	25740.00	Peak	H	-	-	-57.18	4.51	-9.54	44.80	68.20	-23.40
	32175.00	Peak	H	-	-	-57.17	7.53	-9.54	47.82	68.20	-20.38

Table 7-48. Radiated Measurements MIMO (242 Tones) – Half

Worst Case Mode:	802.11ax
Worst Case Transfer Rate:	MCS0
RU Index:	61
Distance of Measurements:	1 & 3 Meters
Operating Frequency:	6475MHz
Channel:	105

	Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBµV/m]	Limit [dBµV/m]	Margin [dB]
	12950.00	Peak	H	-	-	-66.34	10.13	0.00	50.79	68.20	-17.41
*	19425.00	Average	H	-	-	-67.07	2.22	-9.54	32.61	53.98	-21.37
*	19425.00	Peak	H	-	-	-56.17	2.22	-9.54	43.51	73.98	-30.47
	25900.00	Peak	H	-	-	-57.34	4.57	-9.54	44.69	68.20	-23.51
	32375.00	Peak	H	-	-	-58.00	7.29	-9.54	46.75	68.20	-21.45

Table 7-49. Radiated Measurements MIMO (242 Tones) – Half

Worst Case Mode:	802.11ax
Worst Case Transfer Rate:	MCS0
RU Index:	61
Distance of Measurements:	1 & 3 Meters
Operating Frequency:	6515MHz
Channel:	113

	Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBµV/m]	Limit [dBµV/m]	Margin [dB]
	13030.00	Peak	H	-	-	-68.54	10.12	0.00	48.58	68.20	-19.62
*	19545.00	Average	H	-	-	-66.82	2.37	-9.54	33.01	53.98	-20.97
*	19545.00	Peak	H	-	-	-56.51	2.37	-9.54	43.32	73.98	-30.66
	26060.00	Peak	H	-	-	-57.57	4.80	-9.54	44.69	68.20	-23.51
	32575.00	Peak	H	-	-	-56.28	6.85	-9.54	48.03	68.20	-20.17

Table 7-50. Radiated Measurements MIMO (242 Tones) – Half

7.7.2.3 MIMO Radiated Spurious Emission Measurements (242 Tones) – UNII Band 7

Worst Case Mode:	802.11ax
Worst Case Transfer Rate:	MCS0
RU Index:	61
Distance of Measurements:	1 & 3 Meters
Operating Frequency:	6535MHz
Channel:	117

	Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBµV/m]	Limit [dBµV/m]	Margin [dB]
	13070.00	Peak	H	-	-	-68.31	10.15	0.00	48.84	68.20	-19.36
*	19605.00	Average	H	-	-	-66.54	2.64	-9.54	33.56	53.98	-20.42
*	19605.00	Peak	H	-	-	-56.28	2.64	-9.54	43.83	73.98	-30.15
	26140.00	Peak	H	-	-	-57.13	4.56	-9.54	44.88	68.20	-23.32
	32675.00	Peak	H	-	-	-57.89	7.03	-9.54	46.61	68.20	-21.59

Table 7-51. Radiated Measurements MIMO (242 Tones) – Half

Worst Case Mode:	802.11ax
Worst Case Transfer Rate:	MCS0
RU Index:	61
Distance of Measurements:	1 & 3 Meters
Operating Frequency:	6695MHz
Channel:	149

	Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBµV/m]	Limit [dBµV/m]	Margin [dB]
*	13390.00	Average	H	-	-	-81.04	10.35	0.00	36.31	53.98	-17.67
*	13390.00	Peak	H	-	-	-68.55	10.35	0.00	48.80	73.98	-25.18
*	20085.00	Average	H	-	-	-66.70	3.01	-9.54	33.77	53.98	-20.21
*	20085.00	Peak	H	-	-	-56.46	3.01	-9.54	44.01	73.98	-29.97
	26780.00	Peak	H	-	-	-57.14	4.57	-9.54	44.90	68.20	-23.30
	33475.00	Peak	H	-	-	-58.14	7.57	-9.54	46.89	68.20	-21.31

Table 7-52. Radiated Measurements MIMO (242 Tones) – Half

Worst Case Mode:	802.11ax
Worst Case Transfer Rate:	MCS0
RU Index:	61
Distance of Measurements:	1 & 3 Meters
Operating Frequency:	6875MHz
Channel:	185

	Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBµV/m]	Limit [dBµV/m]	Margin [dB]
	13750.00	Peak	H	-	-	-65.41	11.07	0.00	52.66	68.20	-15.54
*	20625.00	Average	H	-	-	-67.37	3.42	-9.54	33.51	53.98	-20.47
*	20625.00	Peak	H	-	-	-57.67	3.42	-9.54	43.21	73.98	-30.77
	27500.00	Peak	H	-	-	-57.10	4.54	-9.54	44.90	68.20	-23.30
	34375.00	Peak	H	-	-	-56.31	8.08	-9.54	49.23	68.20	-18.97

Table 7-53. Radiated Measurements MIMO (242 Tones) – Half

7.7.2.4 MIMO Radiated Spurious Emission Measurements (242 Tones) – UNII Band 8

Worst Case Mode:	802.11ax
Worst Case Transfer Rate:	MCS0
RU Index:	61
Distance of Measurements:	1 & 3 Meters
Operating Frequency:	6895MHz
Channel:	189

	Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBµV/m]	Limit [dBµV/m]	Margin [dB]
	13790.00	Peak	H	-	-	-65.95	11.00	0.00	52.05	68.20	-16.15
*	20685.00	Average	H	-	-	-67.53	3.67	-9.54	33.60	53.98	-20.38
*	20685.00	Peak	H	-	-	-56.64	3.67	-9.54	44.49	73.98	-29.49
	27580.00	Peak	H	-	-	-56.49	4.68	-9.54	45.65	68.20	-22.55
	34475.00	Peak	H	-	-	-57.28	7.83	-9.54	48.01	68.20	-20.19

Table 7-54. Radiated Measurements MIMO (242 Tones) – Half

Worst Case Mode:	802.11ax
Worst Case Transfer Rate:	MCS0
Distance of Measurements:	1 & 3 Meters
Operating Frequency:	6995MHz
Channel:	209

	Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBµV/m]	Limit [dBµV/m]	Margin [dB]
	13990.00	Peak	H	-	-	-67.22	11.26	0.00	51.04	68.20	-17.16
*	20985.00	Average	H	-	-	-67.64	3.59	-9.54	33.41	53.98	-20.57
*	20985.00	Peak	H	-	-	-57.12	3.59	-9.54	43.93	73.98	-30.05
	27980.00	Peak	H	-	-	-57.10	5.05	-9.54	45.40	68.20	-22.80
	34975.00	Peak	H	-	-	-56.84	8.24	-9.54	48.86	68.20	-19.34

Table 7-55. Radiated Measurements MIMO (242 Tones) – Half

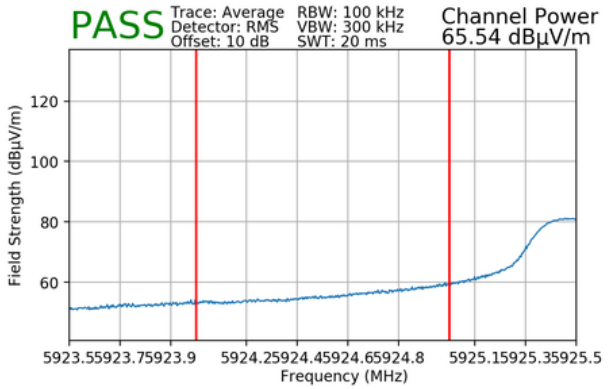
Worst Case Mode:	802.11ax
Worst Case Transfer Rate:	MCS0
RU Index:	61
Distance of Measurements:	1 & 3 Meters
Operating Frequency:	7115MHz
Channel:	233

	Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBµV/m]	Limit [dBµV/m]	Margin [dB]
	14230.00	Peak	H	-	-	-69.09	12.13	0.00	50.04	68.20	-18.16
*	21345.00	Average	H	-	-	-67.12	4.08	-9.54	34.42	53.98	-19.56
*	21345.00	Peak	H	-	-	-57.03	4.08	-9.54	44.50	73.98	-29.48
	28460.00	Peak	H	-	-	-57.46	5.14	-9.54	45.14	68.20	-23.06
	35575.00	Peak	H	-	-	-57.03	8.16	-9.54	48.59	68.20	-19.61

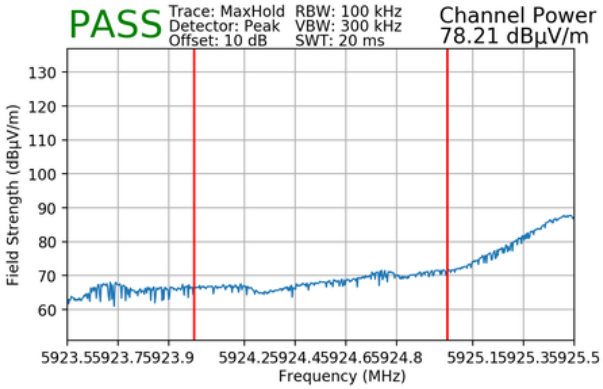
Table 7-56. Radiated Measurements MIMO (242 Tones) – Half

7.7.3 MIMO Radiated Band Edge Measurements (20MHz BW – Partial Tone – 106T)

Worst Case Mode:	802.11ax
Worst Case Transfer Rate:	MCS0
RU Index	53
Distance of Measurements:	3 Meters
Operating Frequency:	5935MHz
Channel:	2

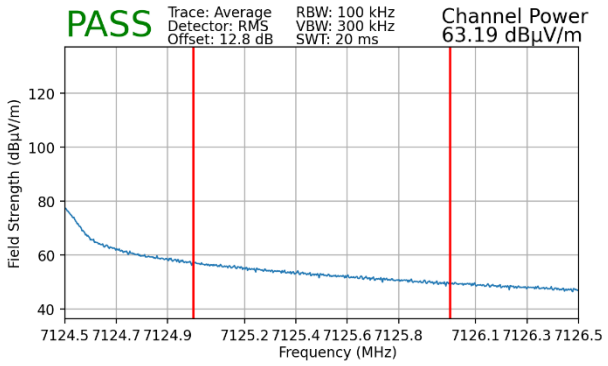


Plot 7-230. Radiated Lower Band Edge Plot MIMO (Average – UNII Band 5 – 106T)

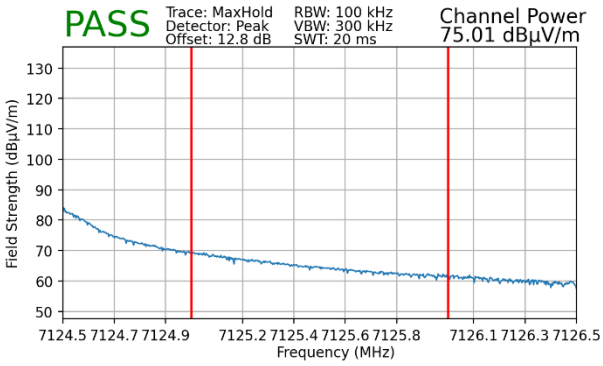


Plot 7-231. Radiated Lower Band Edge Plot MIMO (Peak – UNII Band 5 – 106T)

Worst Case Mode:	802.11ax
Worst Case Transfer Rate:	MCS0
RU Index	54
Distance of Measurements:	3 Meters
Operating Frequency:	7115MHz
Channel:	233



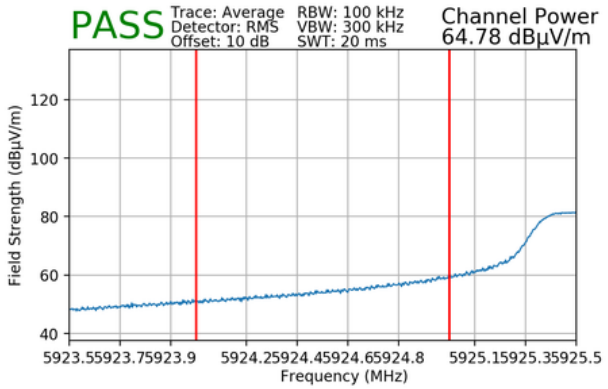
Plot 7-232. Radiated Upper Band Edge Plot MIMO (Average – UNII Band 8 – 106T)



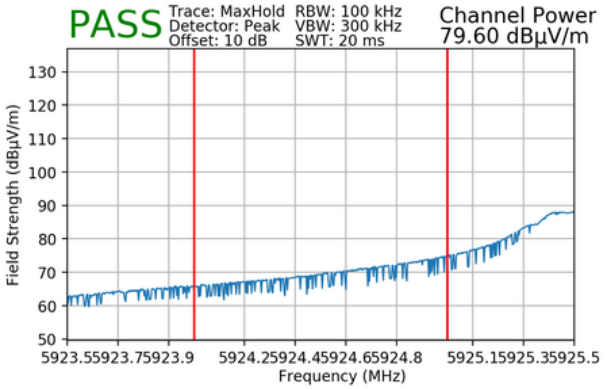
Plot 7-233. Radiated Upper Band Edge Plot MIMO (Peak – UNII Band 8 – 106T)

7.7.4 MIMO Radiated Band Edge Measurements (20MHz BW – Full Tone – 242T)

Worst Case Mode:	802.11ax
Worst Case Transfer Rate:	MCS0
RU Index	61
Distance of Measurements:	3 Meters
Operating Frequency:	5935MHz
Channel:	2

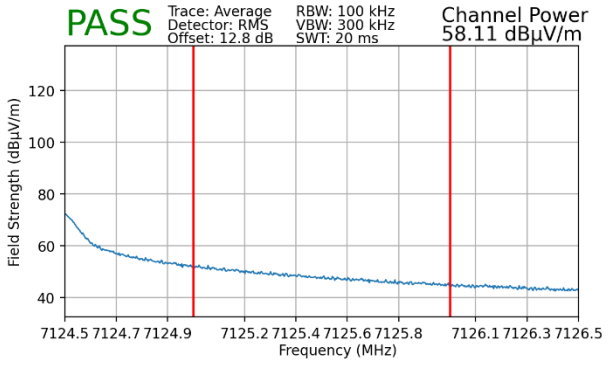


Plot 7-234. Radiated Lower Band Edge Plot MIMO (Average – UNII Band 5 – 242T)

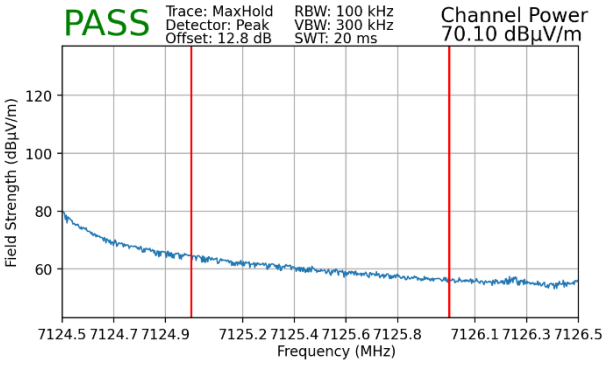


Plot 7-235. Radiated Lower Band Edge Plot MIMO (Peak – UNII Band 5 – 242T)

Worst Case Mode:	802.11ax
Worst Case Transfer Rate:	MCS0
RU Index	61
Distance of Measurements:	3 Meters
Operating Frequency:	7115MHz
Channel:	233



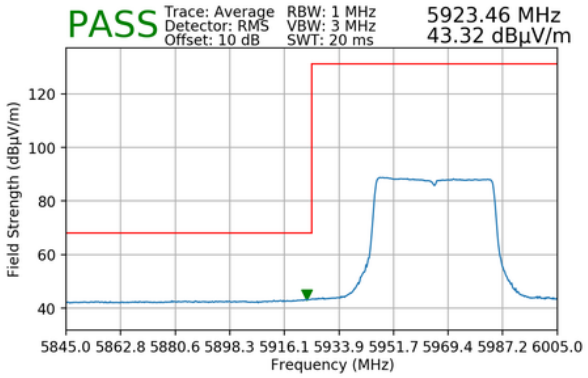
Plot 7-236. Radiated Upper Band Edge Plot MIMO (Average – UNII Band 8 – 242T)



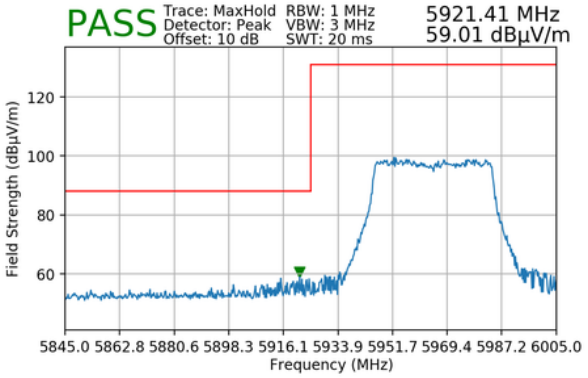
Plot 7-237. Radiated Upper Band Edge Plot MIMO (Peak – UNII Band 8 – 242T)

7.7.5 MIMO Radiated Band Edge Measurements (40MHz BW – Full Tone – 484T)

Worst Case Mode:	802.11ax
Worst Case Transfer Rate:	MCS0
RU Index	65
Distance of Measurements:	3 Meters
Operating Frequency:	5965MHz
Channel:	3

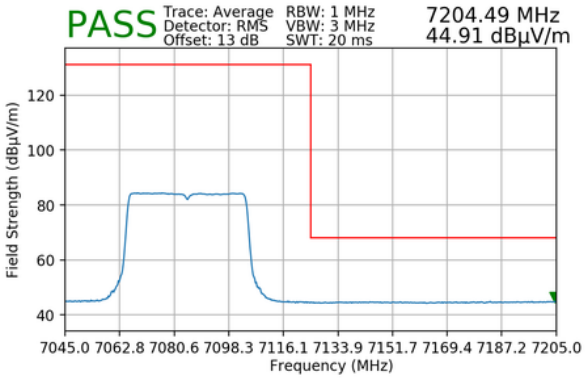


Plot 7-238. Radiated Lower Band Edge Plot MIMO (Average – UNII Band 5 – 484T)

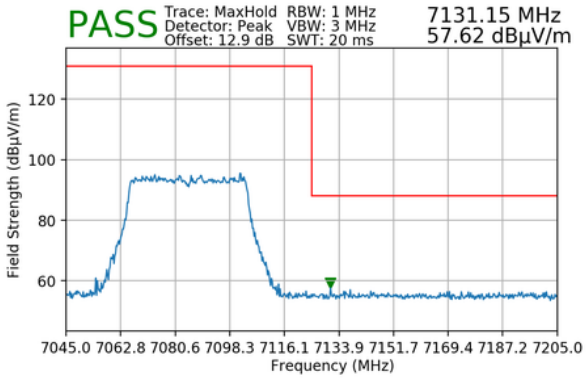


Plot 7-239. Radiated Lower Band Edge Plot MIMO (Peak – UNII Band 5 – 484T)

Worst Case Mode:	802.11ax
Worst Case Transfer Rate:	MCS0
RU Index	65
Distance of Measurements:	3 Meters
Operating Frequency:	7085MHz
Channel:	227



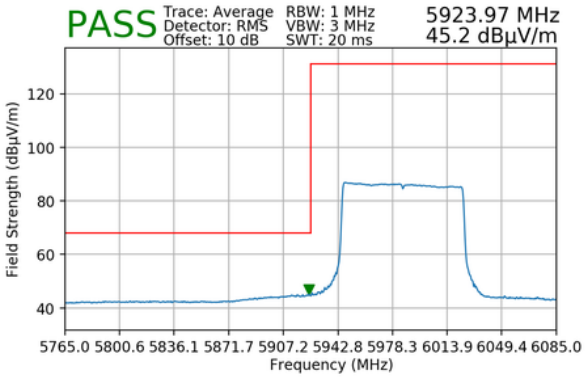
Plot 7-240. Radiated Upper Band Edge Plot MIMO (Average – UNII Band 8 – 484T)



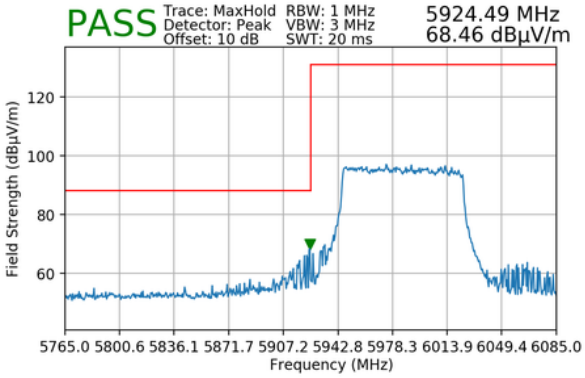
Plot 7-241. Radiated Upper Band Edge Plot MIMO (Peak – UNII Band 8 – 484T)

7.7.6 MIMO Radiated Band Edge Measurements (80MHz BW – Full Tone – 996T)

Worst Case Mode:	802.11ax
Worst Case Transfer Rate:	MCS0
RU Index	67
Distance of Measurements:	3 Meters
Operating Frequency:	5985MHz
Channel:	7

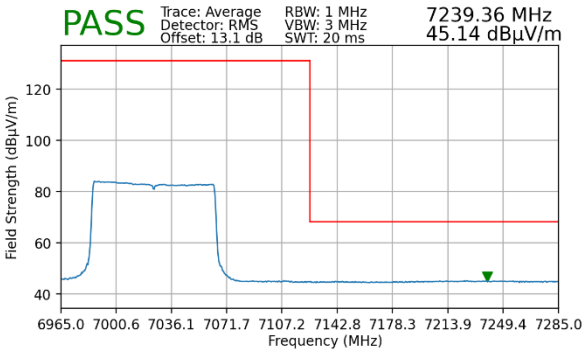


Plot 7-242. Radiated Lower Band Edge Plot MIMO (Average – UNII Band 5 – 996T)

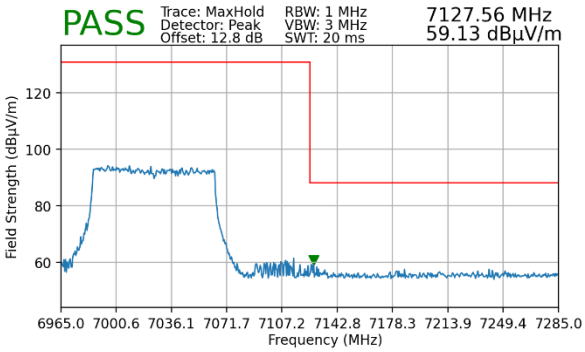


Plot 7-243. Radiated Lower Band Edge Plot MIMO (Peak – UNII Band 5 – 996T)

Worst Case Mode:	802.11ax
Worst Case Transfer Rate:	MCS0
RU Index	67
Distance of Measurements:	3 Meters
Operating Frequency:	7025MHz
Channel:	215



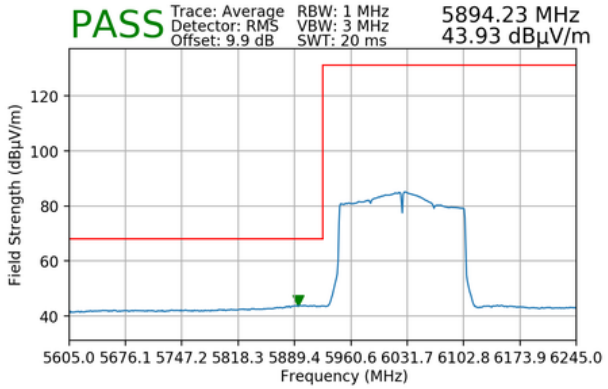
Plot 7-244. Radiated Upper Band Edge Plot MIMO (Average – UNII Band 8 – 996T)



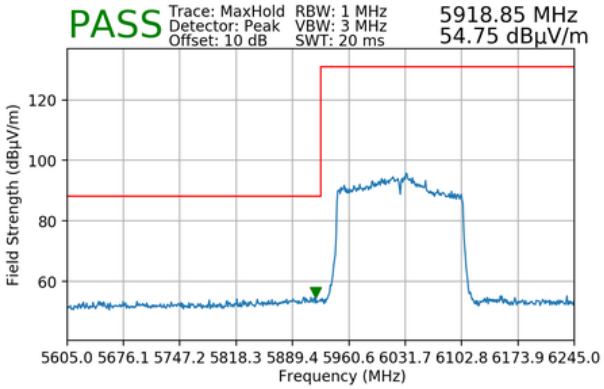
Plot 7-245. Radiated Upper Band Edge Plot MIMO (Peak – UNII Band 8 – 996T)

7.7.7 MIMO Radiated Band Edge Measurements (160MHz BW – Full Tone – 2x996T)

Worst Case Mode:	802.11ax
Worst Case Transfer Rate:	MCS0
RU Index	67
Distance of Measurements:	3 Meters
Operating Frequency:	6025MHz
Channel:	15

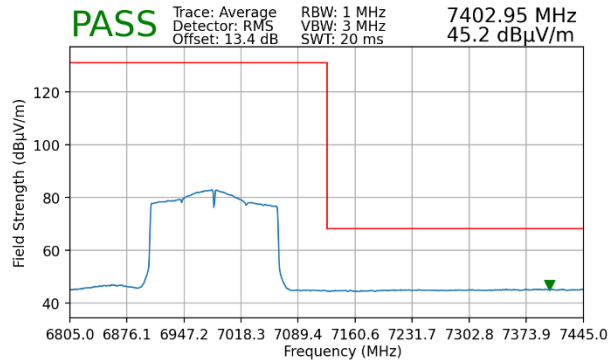


Plot 7-246. Radiated Lower Band Edge Plot MIMO (Average – UNII Band 5 – 2x996T)

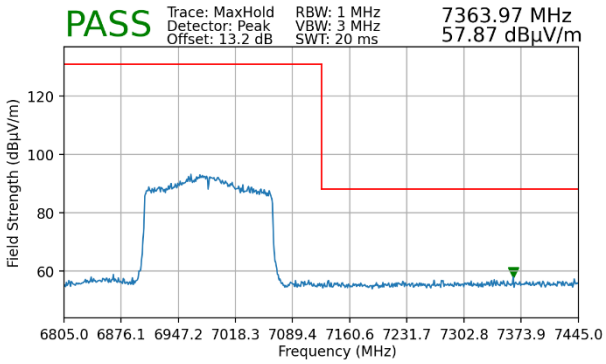


Plot 7-247. Radiated Lower Band Edge Plot MIMO (Peak – UNII Band 5 – 2x996T)

Worst Case Mode:	802.11ax
Worst Case Transfer Rate:	MCS0
RU Index	67
Distance of Measurements:	3 Meters
Operating Frequency:	6985MHz
Channel:	207



Plot 7-248. Radiated Upper Band Edge Plot MIMO (Average – UNII Band 8 – 2x996T)



Plot 7-249. Radiated Upper Band Edge Plot MIMO (Peak – UNII Band 8 – 2x996T)

8 CONCLUSION

The data collected relate only the item(s) tested and show that the **Samsung Portable Handset FCC ID: A3LSMF731JPN** is in compliance with FCC Part Subpart E (15.407) of the FCC rules for operation as a client device.