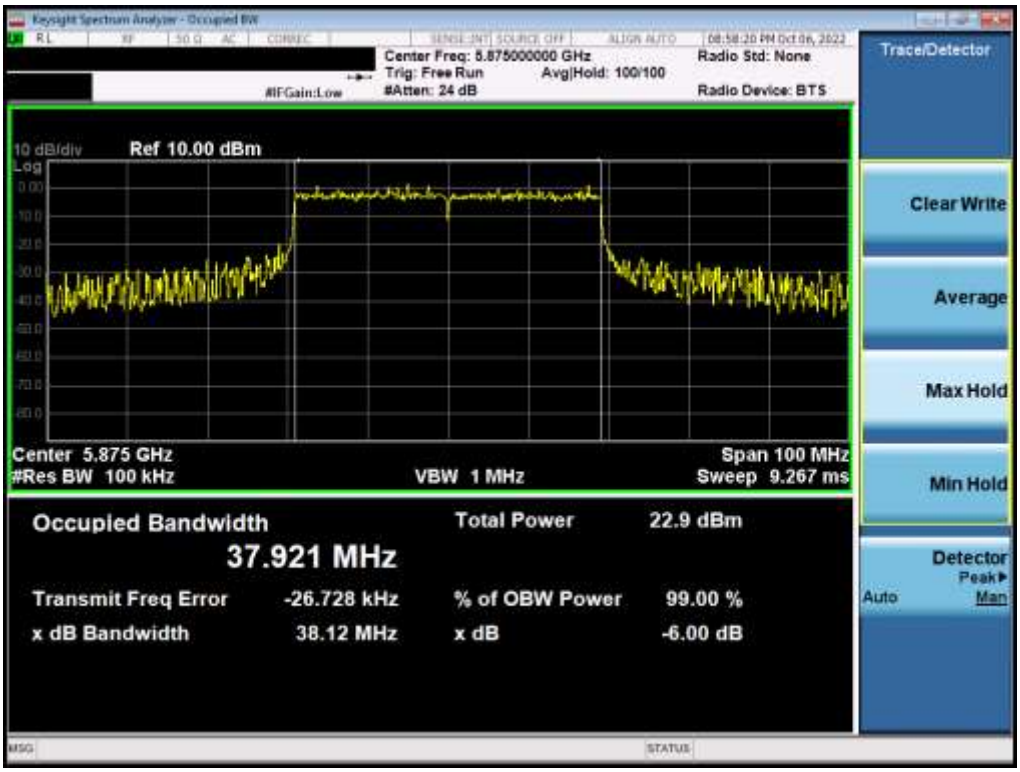
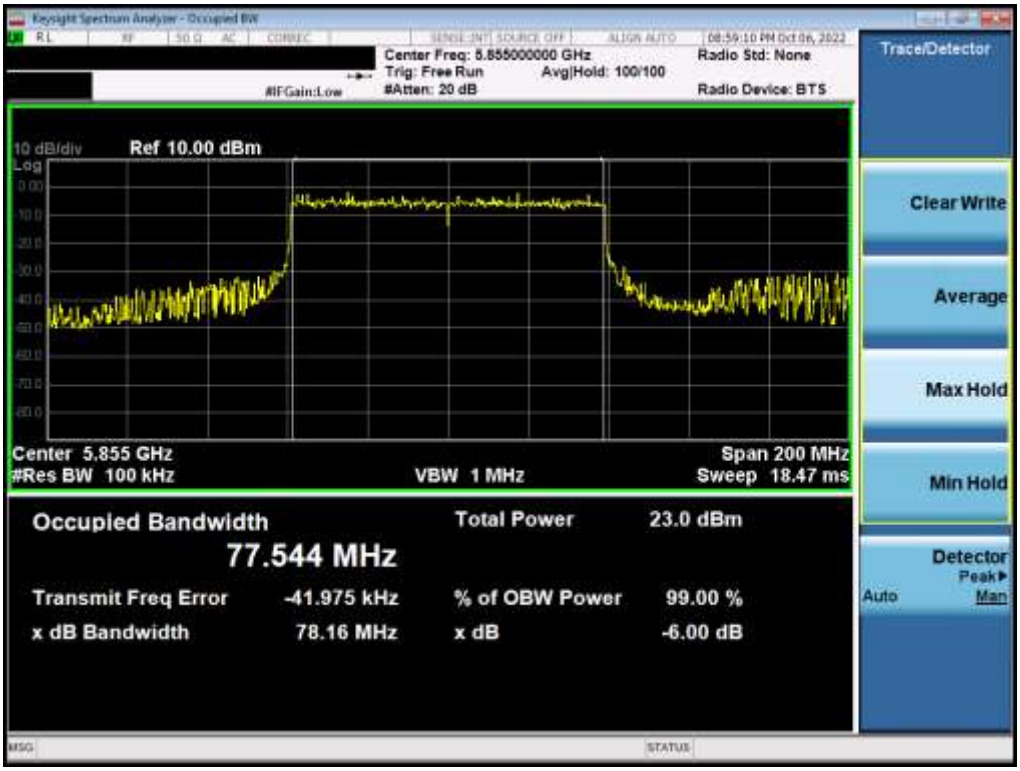
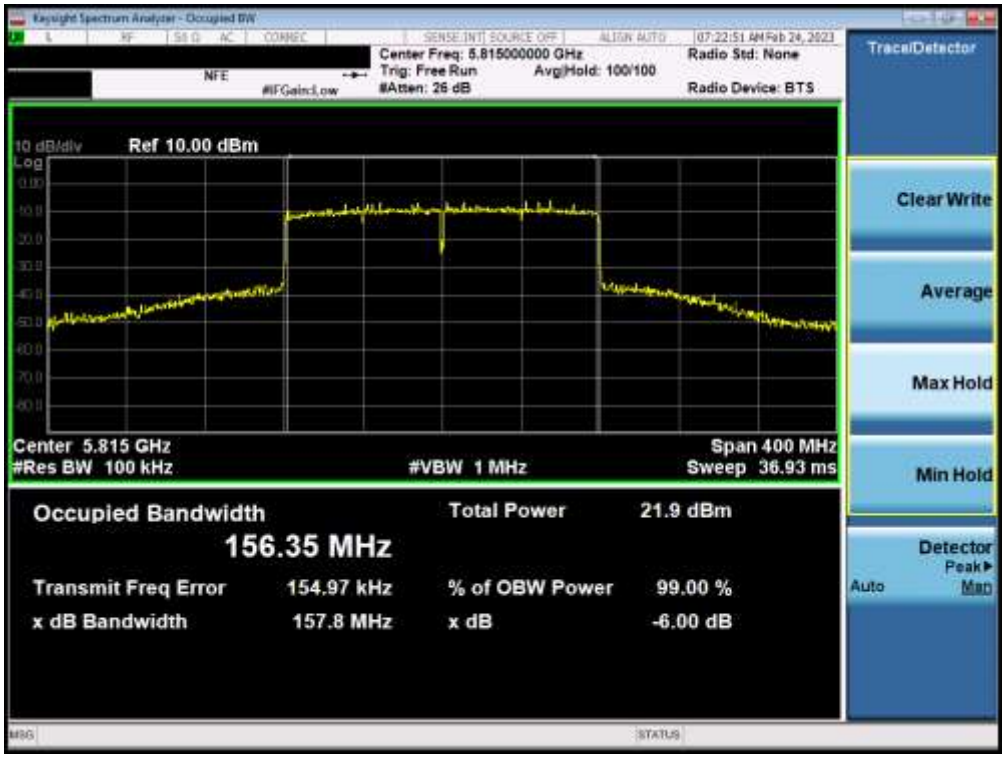


Plot 7-148. 6dB Bandwidth Plot MIMO ANT2 (40MHz BW 802.11ax – 484 Tones (UNII Band 3) – Ch. 175)



Plot 7-149. 6dB Bandwidth Plot MIMO ANT2 (80MHz BW 802.11ax – 996 Tones (UNII Band 3/4) – Ch. 171)



Plot 7-150. 6dB Bandwidth Plot MIMO ANT2 (160MHz BW 802.11ax – 996*2 Tones (UNII Band 3/4) – Ch. 163)

7.4 UNII Output Power Measurement – 802.11ax OFDMA

§15.407(a.1.iv) §15.407(a.2) §15.407(a.3); RSS-247 [6.2]

Test Overview and Limits

A transmitter antenna terminal of the EUT is connected to the input of an RF pulse power sensor. Measurement is made using a broadband average power meter while the EUT is operating at its maximum duty cycle, at its maximum power control level, as defined in ANSI C63.10-2013 and KDB 789033 D02 v02r01, and at the appropriate frequencies.

In the 5.15 – 5.25GHz band, the maximum permissible conducted output power is 250mW (23.98dBm). The maximum e.i.r.p. shall not exceed the lesser of 200 mW or 10 + 10 log10B, dBm.

In the 5.25 – 5.35GHz band, the maximum permissible conducted output power is the lesser of 250mW (23.98dBm) or 11 dBm + 10log$_{10}$(26dB BW) = 11 dBm + 10log$_{10}$ (19.26) = 23.85dBm. The maximum e.i.r.p. shall not exceed the lesser of 1.0 W or 17 + 10 log10B, dBm.

In the 5.47 – 5.725GHz band, the maximum permissible conducted output power is the lesser of 250mW (23.98dBm) or 11 dBm + 10log$_{10}$(26dB BW) = 11 dBm + 10log$_{10}$(19.83) = 23.97dBm. The maximum e.i.r.p. shall not exceed the lesser of 1.0 W or 17 + 10 log10B, dBm.

In the 5.725 – 5.850GHz band, the maximum permissible conducted output power is 1W (30dBm). The maximum e.i.r.p. is 36 dBm.

In the 5.850 – 5.895 GHz band, the maximum permissible e.i.r.p is 30dBm.

Test Procedure Used

ANSI C63.10-2013 – Section 12.3.3.2 Method PM-G
KDB 789033 D02 v02r01 – Section E)3)b) Method PM-G
ANSI C63.10-2013 – Section 14.2 Measure-and-Sum Technique
KDB 662911 v02r01 – Section E)1) Measure-and-Sum Technique

Test Settings

Average power measurements were performed only when the EUT was transmitting at its maximum power control level using a broadband power meter with a pulse sensor. The power meter implemented triggering and gating capabilities which were set up such that power measurements were recorded only during the ON time of the transmitter. The trace was averaged over 100 traces to obtain the final measured average power.

Test Setup

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

Figure 7-3. Test Instrument & Measurement Setup

MIMO Conducted Output Power Measurements (26 Tones)

5GHz (20MHz Bandwidth)	Freq [MHz]	Channel	Detector	Tones	RU Index									Conducted Power Limit [dBm]	Conducted Power Margin [dB]	Directional Ant. Gain [dBi]	Max e.i.r.p. [dBm]	Max e.i.r.p. Limit [dBm]	e.i.r.p. Margin [dB]
					0			4			8								
					ANT1	ANT2	MIMO	ANT1	ANT2	MIMO	ANT1	ANT2	MIMO						
	5180	36	AVG	26T	8.68	8.75	11.73	8.45	8.65	11.56	8.59	8.86	11.74	23.98	-12.24	-0.99	10.75	30.00	-19.25
	5200	40	AVG	26T	8.59	8.73	11.67	8.45	8.67	11.57	8.57	8.82	11.71	23.98	-12.27	-0.99	10.72	30.00	-19.28
	5240	48	AVG	26T	8.79	8.64	11.73	8.46	8.39	11.44	8.72	8.75	11.75	23.98	-12.23	-0.99	10.76	30.00	-19.24
	5260	52	AVG	26T	8.97	8.84	11.92	8.72	8.49	11.62	8.86	8.91	11.90	23.85	-11.93	0.40	12.32	29.85	-17.53
	5280	56	AVG	26T	8.91	8.82	11.88	8.49	8.52	11.52	8.82	8.92	11.88	23.85	-11.97	0.40	12.28	29.85	-17.57
	5320	64	AVG	26T	8.64	8.43	11.55	8.53	8.34	11.45	8.99	8.93	11.97	23.85	-11.88	0.40	12.37	29.85	-17.48
	5500	100	AVG	26T	8.49	8.34	11.43	8.84	8.86	11.86	8.51	8.53	11.53	23.97	-12.11	-0.81	11.05	29.97	-18.92
	5600	120	AVG	26T	8.86	8.39	11.64	8.81	8.52	11.68	8.90	8.61	11.77	23.97	-12.20	-0.81	10.96	29.97	-19.01
	5720	144	AVG	26T	8.99	8.45	11.74	8.98	8.37	11.70	8.99	8.55	11.79	23.97	-12.18	-0.81	10.98	29.97	-18.99
	5745	149	AVG	26T	8.95	8.39	11.69	8.84	8.36	11.62	8.95	8.52	11.75	30.00	-18.25	-0.58	11.17	36.00	-24.83
	5785	157	AVG	26T	8.82	8.43	11.64	8.73	8.37	11.56	8.85	8.51	11.69	30.00	-18.31	-0.58	11.11	36.00	-24.89
	5825	165	AVG	26T	8.88	8.12	11.53	8.78	8.15	11.49	8.72	8.15	11.45	30.00	-18.47	-0.58	10.95	36.00	-25.05
	5845	169	AVG	26T	8.75	8.59	11.68	8.40	8.19	11.31	8.87	8.65	11.77	-	-	-0.81	10.96	30.00	-19.04
	5865	173	AVG	26T	8.64	8.74	11.70	8.30	8.18	11.25	8.84	8.65	11.75	-	-	-0.81	10.94	30.00	-19.06
	5885	177	AVG	26T	8.73	8.60	11.68	8.37	8.04	11.22	8.81	8.42	11.63	-	-	-0.81	10.87	30.00	-19.13

Table 7-14. MIMO 20MHz BW (UNII) Maximum Conducted Output Power (26 Tones)

5GHz (40MHz Bandwidth)	Freq [MHz]	Channel	Detector	Tones	RU Index									Conducted Power Limit [dBm]	Conducted Power Margin [dB]	Directional Ant. Gain [dBi]	Max e.i.r.p. [dBm]	Max e.i.r.p. Limit [dBm]	e.i.r.p. Margin [dB]
					0			8			17								
					ANT1	ANT2	MIMO	ANT1	ANT2	MIMO	ANT1	ANT2	MIMO						
	5190	38	AVG	26T	8.93	8.84	11.90	8.68	8.78	11.74	8.42	8.76	11.60	23.98	-12.08	-0.99	10.91	30.00	-19.09
	5230	46	AVG	26T	8.83	8.42	11.64	8.65	8.49	11.58	8.61	8.64	11.64	23.98	-12.34	-0.99	10.65	30.00	-19.35
	5270	54	AVG	26T	8.86	8.51	11.70	8.63	8.47	11.56	8.65	8.80	11.74	23.85	-12.11	0.40	12.14	29.85	-17.71
	5310	62	AVG	26T	8.99	8.59	11.80	8.72	8.46	11.60	8.86	8.79	11.84	23.85	-12.01	0.40	12.24	29.85	-17.61
	5510	102	AVG	26T	8.87	8.51	11.70	8.94	8.91	11.94	8.85	8.88	11.88	23.97	-12.03	-0.81	11.13	29.97	-18.84
	5590	118	AVG	26T	8.89	8.59	11.75	8.99	8.54	11.78	8.82	8.57	11.71	23.97	-12.19	-0.81	10.97	29.97	-19.00
	5710	142	AVG	26T	8.99	8.49	11.76	8.99	8.39	11.71	8.99	8.47	11.75	23.97	-12.21	-0.81	10.95	29.97	-19.02
	5755	151	AVG	26T	8.78	8.90	11.85	8.71	8.78	11.76	8.44	8.75	11.61	30.00	-18.15	-0.58	11.27	36.00	-24.73
	5795	159	AVG	26T	8.70	8.94	11.83	8.47	8.85	11.67	8.39	8.73	11.57	30.00	-18.17	-0.58	11.25	36.00	-24.75
	5835	167	AVG	26T	8.62	8.36	11.50	8.42	8.24	11.34	8.73	8.55	11.65	-	-	-0.81	10.84	30.00	-19.16
	5875	175	AVG	26T	8.51	8.59	11.56	8.34	8.40	11.38	8.69	8.62	11.67	-	-	-0.81	10.86	30.00	-19.14

Table 7-15. MIMO 40MHz BW (UNII) Maximum Conducted Output Power (26 Tones)

5GHz (80MHz Bandwidth)	Freq [MHz]	Channel	Detector	Tones	RU Index									Conducted Power Limit [dBm]	Conducted Power Margin [dB]	Directional Ant. Gain [dBi]	Max e.i.r.p. [dBm]	Max e.i.r.p. Limit [dBm]	e.i.r.p. Margin [dB]
					0			18			36								
					ANT1	ANT2	MIMO	ANT1	ANT2	MIMO	ANT1	ANT2	MIMO						
	5210	42	AVG	26T	8.82	8.05	11.46	8.72	8.28	11.52	8.74	8.75	11.76	23.98	-12.22	-0.99	10.77	30.00	-19.23
	5290	58	AVG	26T	8.86	8.24	11.57	8.69	8.42	11.57	8.71	8.87	11.80	23.85	-12.05	0.40	12.20	29.85	-17.65
	5530	106	AVG	26T	8.99	8.35	11.69	8.82	8.45	11.65	8.59	8.56	11.59	23.97	-12.28	-0.81	10.88	29.97	-19.09
	5610	122	AVG	26T	8.91	8.19	11.58	8.99	8.57	11.80	8.99	8.64	11.83	23.97	-12.14	-0.81	11.02	29.97	-18.95
	5690	138	AVG	26T	8.89	7.77	11.38	8.97	8.07	11.55	8.82	8.09	11.48	23.97	-12.42	-0.81	10.74	29.97	-19.23
	5775	155	AVG	26T	8.99	8.17	11.61	8.99	8.48	11.75	8.97	8.36	11.69	30.00	-18.25	-0.58	11.17	36.00	-24.83
	5855	171	AVG	26T	8.50	8.44	11.48	8.50	8.32	11.42	8.97	8.57	11.79	-	-	-0.81	10.98	28.80	-17.82

Table 7-16. MIMO 80MHz BW (UNII) Maximum Conducted Output Power (26 Tones)

5GHz (160MHz BW Lower)	Freq [MHz]	Channel	Detector	Tones	RU Index									Conducted Power Limit [dBm]	Conducted Power Margin [dB]	Directional Ant Gain [dBi]	Max e.i.r.p. [dBm]	Max e.i.r.p. Limit [dBm]	e.i.r.p. Margin [dB]
					0			18			36								
					ANT1	ANT2	MIMO	ANT1	ANT2	MIMO	ANT1	ANT2	MIMO						
	5250	50	AVG	26T	8.95	8.21	11.61	8.98	8.22	11.63	8.74	8.24	11.51	23.47	-11.84	0.40	12.03	22.39	-10.36
	5570	114	AVG	26T	8.98	7.79	11.44	8.97	8.05	11.54	8.98	8.20	11.62	22.80	-11.18	-0.81	10.81	28.80	-17.99
	5815	163	AVG	26T	8.48	8.46	11.48	8.69	8.80	11.75	8.84	8.95	11.91	-	-	-0.58	11.33	30.00	-18.67

Table 7-17. MIMO 160MHz BW (L) (UNII) Maximum Conducted Output Power (26 Tones)

5GHz (160MHz BW Upper)	Freq [MHz]	Channel	Detector	Tones	RU Index									Conducted Power Limit [dBm]	Conducted Power Margin [dB]	Directional Ant Gain [dBi]	Max e.i.r.p. [dBm]	Max e.i.r.p. Limit [dBm]	e.i.r.p. Margin [dB]
					0			18			36								
					ANT1	ANT2	MIMO	ANT1	ANT2	MIMO	ANT1	ANT2	MIMO						
	5250	50	AVG	26T	8.82	8.23	11.55	8.71	8.60	11.67	8.63	8.97	11.81	23.47	-11.66	0.40	12.21	22.39	-10.18
	5570	114	AVG	26T	8.99	8.58	11.80	9.11	8.66	11.90	8.81	8.56	11.70	22.80	-10.90	-0.81	11.09	28.80	-17.71
	5815	163	AVG	26T	8.99	8.89	11.95	8.89	8.90	11.91	8.56	8.49	11.53	-	-	-0.58	11.37	30.00	-18.63

Table 7-18. MIMO 160MHz BW (U) (UNII) Maximum Conducted Output Power (26 Tones)

MIMO Conducted Output Power Measurements (52 Tones)

5GHz (20MHz Bandwidth)	Freq [MHz]	Channel	Detector	Tones	RU Index									Conducted Power Limit [dBm]	Conducted Power Margin [dB]	Directional Ant. Gain [dBi]	Max e.i.r.p. [dBm]	Max e.i.r.p. Limit [dBm]	e.i.r.p. Margin [dB]
					37			39			40								
					ANT1	ANT2	MIMO	ANT1	ANT2	MIMO	ANT1	ANT2	MIMO						
	5180	36	AVG	52T	10.71	10.99	13.86	10.45	10.88	13.68	10.67	10.99	13.84	23.98	-10.12	-0.99	12.87	30.00	-17.13
	5200	40	AVG	52T	10.70	10.99	13.86	10.42	10.81	13.63	10.60	10.98	13.80	23.98	-10.12	-0.99	12.87	30.00	-17.13
	5240	48	AVG	52T	10.71	10.95	13.84	10.41	10.86	13.65	10.63	10.97	13.81	23.98	-10.14	-0.99	12.85	30.00	-17.15
	5260	52	AVG	52T	10.58	10.68	13.64	10.55	10.62	13.60	10.47	10.71	13.60	23.85	-10.21	0.40	14.04	29.85	-15.81
	5280	56	AVG	52T	10.51	10.67	13.60	10.23	10.58	13.42	10.39	10.73	13.57	23.85	-10.25	0.40	14.00	29.85	-15.85
	5320	64	AVG	52T	10.81	10.77	13.80	10.44	10.50	13.48	10.68	10.74	13.72	23.85	-10.05	0.40	14.20	29.85	-15.65
	5500	100	AVG	52T	10.68	10.65	13.68	10.77	10.87	13.83	10.67	10.69	13.69	23.97	-10.14	-0.81	13.02	29.97	-16.95
	5600	120	AVG	52T	10.51	10.24	13.39	10.98	10.47	13.74	10.57	10.40	13.50	23.97	-10.23	-0.81	12.93	29.97	-17.04
	5720	144	AVG	52T	10.79	10.19	13.51	10.99	10.11	13.58	10.79	10.25	13.54	23.97	-10.39	-0.81	12.77	29.97	-17.20
	5745	149	AVG	52T	10.99	10.58	13.80	10.84	10.46	13.66	10.99	10.67	13.84	30.00	-16.16	-0.58	13.26	36.00	-22.74
	5785	157	AVG	52T	10.89	10.49	13.70	10.93	10.46	13.71	10.78	10.23	13.52	30.00	-16.29	-0.58	13.13	36.00	-22.87
	5825	165	AVG	52T	10.98	10.13	13.59	10.97	10.16	13.59	10.98	10.05	13.55	30.00	-16.41	-0.58	13.01	36.00	-22.99
	5845	169	AVG	52T	10.99	10.37	13.70	10.85	10.16	13.53	10.43	10.99	13.73	-	-	-0.81	12.92	30.00	-17.08
	5865	173	AVG	52T	10.98	10.39	13.71	10.81	10.17	13.51	10.37	10.99	13.70	-	-	-0.81	12.90	30.00	-17.10
	5885	177	AVG	52T	10.89	10.28	13.60	10.70	10.07	13.41	10.94	10.27	13.63	-	-	-0.81	12.82	30.00	-17.18

Table 7-19. MIMO 20MHz BW (UNII) Maximum Conducted Output Power (52 Tones)

5GHz (40MHz Bandwidth)	Freq [MHz]	Channel	Detector	Tones	RU Index									Conducted Power Limit [dBm]	Conducted Power Margin [dB]	Directional Ant. Gain [dBi]	Max e.i.r.p. [dBm]	Max e.i.r.p. Limit [dBm]	e.i.r.p. Margin [dB]
					37			40			44								
					ANT1	ANT2	MIMO	ANT1	ANT2	MIMO	ANT1	ANT2	MIMO						
	5190	38	AVG	52T	10.98	10.96	13.98	10.55	10.81	13.69	10.73	10.96	13.86	23.98	-10.00	-0.99	12.99	30.00	-17.01
	5230	46	AVG	52T	10.82	10.33	13.59	10.65	10.38	13.53	10.58	10.47	13.54	23.98	-10.39	-0.99	12.60	30.00	-17.40
	5270	54	AVG	52T	10.88	10.63	13.77	10.49	10.42	13.47	10.61	10.74	13.69	23.85	-10.08	0.40	14.17	29.85	-15.68
	5310	62	AVG	52T	10.99	10.63	13.82	10.73	10.46	13.61	10.81	10.74	13.79	23.85	-10.03	0.40	14.22	29.85	-15.63
	5510	102	AVG	52T	10.92	10.57	13.76	10.99	10.79	13.90	10.94	10.76	13.86	23.97	-10.07	-0.81	13.09	29.97	-16.88
	5590	118	AVG	52T	10.85	10.14	13.52	10.64	10.10	13.39	10.69	10.38	13.55	23.97	-10.42	-0.81	12.74	29.97	-17.23
	5710	142	AVG	52T	10.92	10.16	13.57	10.83	10.05	13.47	10.98	10.23	13.63	23.97	-10.34	-0.81	12.82	29.97	-17.15
	5755	151	AVG	52T	10.98	10.58	13.79	10.98	10.38	13.70	10.95	10.57	13.77	30.00	-16.21	-0.58	13.21	36.00	-22.79
	5795	159	AVG	52T	10.95	10.60	13.79	10.99	10.38	13.71	10.56	10.11	13.35	30.00	-16.21	-0.58	13.21	36.00	-22.79
	5835	167	AVG	52T	10.99	10.40	13.72	10.99	10.24	13.64	10.33	10.15	13.25	-	-	-0.81	12.91	30.00	-17.09
	5875	175	AVG	52T	10.97	10.53	13.76	10.82	10.36	13.61	10.13	10.11	13.13	-	-	-0.81	12.95	30.00	-17.05

Table 7-20. MIMO 40MHz BW (UNII) Maximum Conducted Output Power (52 Tones)

5GHz (80MHz Bandwidth)	Freq [MHz]	Channel	Detector	Tones	RU Index									Conducted Power Limit [dBm]	Conducted Power Margin [dB]	Directional Ant. Gain [dBi]	Max e.i.r.p. [dBm]	Max e.i.r.p. Limit [dBm]	e.i.r.p. Margin [dB]
					37			44			52								
					ANT1	ANT2	MIMO	ANT1	ANT2	MIMO	ANT1	ANT2	MIMO						
	5210	42	AVG	52T	10.98	10.26	13.65	10.75	10.32	13.55	10.46	10.62	13.55	23.98	-10.33	-0.99	12.66	30.00	-17.34
	5290	58	AVG	52T	10.97	10.51	13.76	10.72	10.48	13.61	10.37	10.84	13.62	23.85	-10.09	0.40	14.16	29.85	-15.69
	5530	106	AVG	52T	10.99	10.72	13.87	10.93	10.75	13.85	10.92	10.85	13.90	23.97	-10.07	-0.81	13.09	29.97	-16.88
	5610	122	AVG	52T	10.95	10.05	13.53	10.85	10.15	13.52	10.71	10.63	13.68	23.97	-10.29	-0.81	12.87	29.97	-17.10
	5690	138	AVG	52T	10.97	9.96	13.50	10.97	9.99	13.52	11.25	10.43	13.87	23.97	-10.10	-0.81	13.06	29.97	-16.91
	5775	155	AVG	52T	10.74	10.06	13.42	10.96	10.39	13.69	10.79	10.13	13.48	30.00	-16.31	-0.58	13.11	36.00	-22.89
	5855	171	AVG	52T	10.91	10.35	13.65	10.91	10.25	13.60	10.37	10.03	13.21	-	-	-0.81	12.84	28.80	-15.96

Table 7-21. MIMO 80MHz BW (UNII) Maximum Conducted Output Power (52 Tones)

5GHz (160MHz BW Lower)	Freq [MHz]	Channel	Detector	Tones	RU Index									Conducted Power Limit [dBm]	Conducted Power Margin [dB]	Directional Ant Gain [dBi]	Max e.i.r.p. [dBm]	Max e.i.r.p. Limit [dBm]	e.i.r.p. Margin [dB]
					37			44			52								
					ANT1	ANT2	MIMO	ANT1	ANT2	MIMO	ANT1	ANT2	MIMO						
	5250	50	AVG	52T	10.98	10.05	13.55	10.98	10.14	13.59	10.75	10.43	13.60	23.47	-9.87	0.40	14.00	22.68	-8.68
	5570	114	AVG	52T	10.89	9.68	13.34	10.92	9.98	13.49	10.82	10.05	13.46	22.80	-9.31	-0.81	12.68	29.97	-17.29
	5815	163	AVG	52T	10.33	10.47	13.41	10.46	10.77	13.63	10.60	10.94	13.78	-	-	-0.58	13.20	30.00	-16.80

Table 7-22. MIMO 160MHz BW (L) (UNII) Maximum Conducted Output Power (52 Tones)

5GHz (160MHz BW Upper)	Freq [MHz]	Channel	Detector	Tones	RU Index									Conducted Power Limit [dBm]	Conducted Power Margin [dB]	Directional Ant Gain [dBi]	Max e.i.r.p. [dBm]	Max e.i.r.p. Limit [dBm]	e.i.r.p. Margin [dB]
					37			44			52								
					ANT1	ANT2	MIMO	ANT1	ANT2	MIMO	ANT1	ANT2	MIMO						
	5250	50	AVG	52T	10.56	10.43	13.51	10.62	10.71	13.68	10.67	10.05	13.38	23.47	-9.79	0.40	14.08	22.68	-8.60
	5570	114	AVG	52T	10.96	10.38	13.69	10.85	10.56	13.72	10.99	10.95	13.98	22.80	-8.82	-0.81	13.17	29.97	-16.80
	5815	163	AVG	52T	10.60	10.97	13.80	10.47	10.74	13.61	10.87	10.97	13.93	-	-	-0.58	13.35	30.00	-16.65

Table 7-23. MIMO 160MHz BW (U) (UNII) Maximum Conducted Output Power (52 Tones)

MIMO Conducted Output Power Measurements (106 Tones)

5GHz (20MHz Bandwidth)	Freq [MHz]	Channel	Detector	Tones	RU Index						Conducted Power Limit [dBm]	Conducted Power Margin [dB]	Directional Ant. Gain [dBi]	Max e.i.r.p. [dBm]	Max e.i.r.p. Limit [dBm]	e.i.r.p. Margin [dB]
					53			54								
					ANT1	ANT2	MIMO	ANT1	ANT2	MIMO						
	5180	36	AVG	106T	13.29	13.59	16.45	13.15	13.68	16.43	23.98	-7.53	-0.99	15.46	30.00	-14.54
	5200	40	AVG	106T	13.75	13.93	16.85	13.69	13.98	16.85	23.98	-7.13	-0.99	15.86	30.00	-14.14
	5240	48	AVG	106T	13.65	13.51	16.59	13.56	13.59	16.59	23.98	-7.39	-0.99	15.60	30.00	-14.40
	5260	52	AVG	106T	13.59	13.71	16.66	13.51	13.85	16.69	23.85	-7.16	0.40	17.09	29.85	-12.76
	5280	56	AVG	106T	13.57	13.71	16.65	13.48	13.78	16.64	23.85	-7.20	0.40	17.05	29.85	-12.80
	5320	64	AVG	106T	13.97	13.86	16.93	13.92	13.89	16.92	23.85	-6.92	0.40	17.33	29.85	-12.52
	5500	100	AVG	106T	13.52	13.84	16.69	13.53	13.97	16.77	23.97	-7.20	-0.81	15.96	29.97	-14.01
	5600	120	AVG	106T	13.98	13.48	16.75	13.98	13.65	16.83	23.97	-7.14	-0.81	16.02	29.97	-13.95
	5720	144	AVG	106T	13.88	13.25	16.59	13.88	13.34	16.63	23.97	-7.34	-0.81	15.82	29.97	-14.15
	5745	149	AVG	106T	13.99	13.50	16.76	13.90	13.56	16.74	30.00	-13.24	-0.58	16.18	36.00	-19.82
	5785	157	AVG	106T	13.95	13.66	16.82	13.95	13.68	16.83	30.00	-13.17	-0.58	16.25	36.00	-19.75
	5825	165	AVG	106T	13.98	13.05	16.55	13.95	13.10	16.56	30.00	-13.44	-0.58	15.98	36.00	-20.02
	5845	169	AVG	106T	13.99	13.43	16.73	13.60	12.83	16.24	-	-	-0.81	15.92	30.00	-14.08
	5865	173	AVG	106T	13.97	13.43	16.72	13.50	13.00	16.27	-	-	-0.81	15.91	30.00	-14.09
	5885	177	AVG	106T	13.78	13.45	16.63	13.99	13.39	16.71	-	-	-0.81	15.90	30.00	-14.10

Table 7-24. MIMO 20MHz BW (UNII) Maximum Conducted Output Power (106 Tones)

5GHz (40MHz Bandwidth)	Freq [MHz]	Channel	Detector	Tones	RU Index									Conducted Power Limit [dBm]	Conducted Power Margin [dB]	Directional Ant. Gain [dBi]	Max e.i.r.p. [dBm]	Max e.i.r.p. Limit [dBm]	e.i.r.p. Margin [dB]
					53			54			56								
					ANT1	ANT2	MIMO	ANT1	ANT2	MIMO	ANT1	ANT2	MIMO						
	5190	38	AVG	106T	13.41	13.52	16.48	13.72	13.97	16.86	13.29	13.67	16.49	23.98	-7.12	-0.99	15.87	30.00	-14.13
	5230	46	AVG	106T	13.87	13.43	16.67	13.75	13.49	16.63	13.65	13.60	16.64	23.98	-7.31	-0.99	15.68	30.00	-14.32
	5270	54	AVG	106T	13.73	13.64	16.70	13.43	13.51	16.48	13.45	13.76	16.62	23.85	-7.15	0.40	17.10	29.85	-12.75
	5310	62	AVG	106T	13.99	13.75	16.88	13.91	13.65	16.79	13.86	13.84	16.86	23.85	-6.97	0.40	17.28	29.85	-12.57
	5510	102	AVG	106T	13.48	13.73	16.62	13.32	13.67	16.51	13.48	13.98	16.75	23.97	-7.22	-0.81	15.94	29.97	-14.03
	5590	118	AVG	106T	13.92	13.02	16.50	13.98	13.05	16.55	13.97	13.15	16.59	23.97	-7.38	-0.81	15.78	29.97	-14.19
	5710	142	AVG	106T	13.99	13.18	16.61	13.99	13.08	16.57	13.95	13.37	16.68	23.97	-7.29	-0.81	15.87	29.97	-14.10
	5755	151	AVG	106T	13.78	13.22	16.52	13.99	13.34	16.69	13.78	13.26	16.54	30.00	-13.31	-0.58	16.11	36.00	-19.89
	5795	159	AVG	106T	13.75	13.35	16.56	13.95	13.45	16.72	13.72	13.20	16.48	30.00	-13.28	-0.58	16.14	36.00	-19.86
	5835	167	AVG	106T	13.99	13.51	16.77	13.96	13.37	16.69	13.44	13.01	16.24	-	-	-0.81	15.96	30.00	-14.04
	5875	175	AVG	106T	13.97	13.59	16.79	13.84	13.43	16.65	13.99	13.58	16.80	-	-	-0.81	15.99	30.00	-14.01

Table 7-25. MIMO 40MHz BW (UNII) Maximum Conducted Output Power (106 Tones)

5GHz (80MHz Bandwidth)	Freq [MHz]	Channel	Detector	Tones	RU Index									Conducted Power Limit [dBm]	Conducted Power Margin [dB]	Directional Ant. Gain [dBi]	Max e.i.r.p. [dBm]	Max e.i.r.p. Limit [dBm]	e.i.r.p. Margin [dB]
					53			56			60								
					ANT1	ANT2	MIMO	ANT1	ANT2	MIMO	ANT1	ANT2	MIMO						
	5210	42	AVG	106T	13.99	13.34	16.69	13.78	13.39	16.60	13.58	13.65	16.63	23.98	-7.29	-0.99	15.70	30.00	-14.30
	5290	58	AVG	106T	13.98	13.56	16.79	13.59	13.51	16.56	13.42	13.85	16.65	23.85	-7.06	0.40	17.19	29.85	-12.66
	5530	106	AVG	106T	13.67	13.51	16.60	13.50	13.56	16.54	13.74	13.98	16.87	23.97	-7.10	-0.81	16.06	29.97	-13.91
	5610	122	AVG	106T	13.89	12.89	16.43	13.99	12.99	16.53	13.98	13.25	16.64	23.97	-7.33	-0.81	15.83	29.97	-14.14
	5690	138	AVG	106T	13.98	12.92	16.49	13.95	12.97	16.50	13.95	13.48	16.73	23.97	-7.24	-0.81	15.92	29.97	-14.05
	5775	155	AVG	106T	13.92	13.22	16.59	13.91	13.38	16.66	13.25	13.59	16.43	30.00	-13.34	-0.58	16.08	36.00	-19.92
	5855	171	AVG	106T	13.95	13.32	16.66	13.97	13.24	16.63	13.77	13.00	16.41	-	-	-0.81	15.85	28.80	-12.95

Table 7-26. MIMO 80MHz BW (UNII) Maximum Conducted Output Power (106 Tones)

5GHz (160MHz BW Lower)	Freq [MHz]	Channel	Detector	Tones	RU Index									Conducted Power Limit [dBm]	Conducted Power Margin [dB]	Directional Ant Gain [dBi]	Max e.i.r.p. [dBm]	Max e.i.r.p. Limit [dBm]	e.i.r.p. Margin [dB]
					53			56			60								
					ANT1	ANT2	MIMO	ANT1	ANT2	MIMO	ANT1	ANT2	MIMO						
	5250	50	AVG	106T	13.98	12.68	16.39	13.78	12.75	16.31	13.76	13.26	16.53	23.47	-6.94	0.40	16.93	22.68	-5.75
	5570	114	AVG	106T	13.92	12.78	16.40	13.99	13.02	16.54	13.95	13.05	16.53	22.80	-6.26	-0.81	15.73	29.97	-14.24
	5815	163	AVG	106T	13.69	13.81	16.76	13.80	13.99	16.91	13.35	13.79	16.59	-	-	-0.58	16.33	30.00	-13.67

Table 7-27. MIMO 160MHz BW (L) (UNII) Maximum Conducted Output Power (106 Tones)

5GHz (160MHz BW Upper)	Freq [MHz]	Channel	Detector	Tones	RU Index									Conducted Power Limit [dBm]	Conducted Power Margin [dB]	Directional Ant Gain [dBi]	Max e.i.r.p. [dBm]	Max e.i.r.p. Limit [dBm]	e.i.r.p. Margin [dB]
					53			56			60								
					ANT1	ANT2	MIMO	ANT1	ANT2	MIMO	ANT1	ANT2	MIMO						
	5250	50	AVG	106T	13.99	13.72	16.87	13.97	13.95	16.97	13.45	13.75	16.61	23.47	-6.50	0.40	17.37	22.68	-5.31
	5570	114	AVG	106T	13.95	13.52	16.75	13.94	13.42	16.70	13.61	13.52	16.58	22.80	-6.05	-0.81	15.94	29.97	-14.03
	5815	163	AVG	106T	13.43	13.89	16.68	13.74	13.99	16.88	13.78	13.88	16.84	-	-	-0.58	16.30	30.00	-13.70

Table 7-28. MIMO 160MHz BW (U) (UNII) Maximum Conducted Output Power (106 Tones)

MIMO Conducted Output Power Measurements (242 Tones)

	Freq [MHz]	Channel	Detector	Tones	RU Index 61 ANT1	RU Index 61 ANT2	RU Index 61 MIMO	Conducted Power Limit [dBm]	Conducted Power Margin [dB]	Directional Ant. Gain [dBi]	Max e.i.r.p. [dBm]	Max e.i.r.p. Limit [dBm]	e.i.r.p. Margin [dB]
5GHz (20MHz Bandwidth)	5180	36	AVG	242T	14.04	14.90	17.50	23.98	-6.48	-0.99	16.51	30.00	-13.49
	5200	40	AVG	242T	14.43	14.80	17.63	23.98	-6.35	-0.99	16.64	30.00	-13.36
	5240	48	AVG	242T	14.51	14.49	17.51	23.98	-6.47	-0.99	16.52	30.00	-13.48
	5260	52	AVG	242T	17.62	17.51	20.58	23.85	-3.27	0.40	20.98	29.85	-8.87
	5280	56	AVG	242T	17.61	17.47	20.55	23.85	-3.30	0.40	20.95	29.85	-8.90
	5320	64	AVG	242T	14.91	14.70	17.82	23.85	-6.03	0.40	18.22	29.85	-11.63
	5500	100	AVG	242T	15.23	14.37	17.83	23.97	-6.14	-0.81	17.02	29.97	-12.95
	5600	120	AVG	242T	17.86	17.87	20.88	23.97	-3.09	-0.81	20.07	29.97	-9.90
	5720	144	AVG	242T	17.95	17.47	20.73	23.97	-3.24	-0.81	19.92	29.97	-10.05
	5745	149	AVG	242T	17.90	17.44	20.69	30.00	-9.31	-0.58	20.11	36.00	-15.89
	5785	157	AVG	242T	17.55	17.68	20.63	30.00	-9.37	-0.58	20.05	36.00	-15.95
	5825	165	AVG	242T	17.65	17.63	20.65	30.00	-9.35	-0.58	20.07	36.00	-15.93
	5845	169	AVG	242T	17.86	17.67	20.77	-	-	-0.81	19.96	30.00	-10.04
	5865	173	AVG	242T	17.81	17.67	20.75	-	-	-0.81	19.94	30.00	-10.06
	5885	177	AVG	242T	17.69	17.85	20.78	-	-	-0.81	19.97	30.00	-10.03

Table 7-29. MIMO 20MHz BW (UNII) Maximum Conducted Output Power (242 Tones)

	Freq [MHz]	Channel	Detector	Tones	RU Index 61 ANT1	RU Index 61 ANT2	RU Index 61 MIMO	RU Index 62 ANT1	RU Index 62 ANT2	RU Index 62 MIMO	Conducted Power Limit [dBm]	Conducted Power Margin [dB]	Directional Ant. Gain [dBi]	Max e.i.r.p. [dBm]	Max e.i.r.p. Limit [dBm]	e.i.r.p. Margin [dB]
5GHz (40MHz Bandwidth)	5190	38	AVG	242T	14.07	14.81	17.47	13.85	14.98	17.46	23.98	-6.51	-0.99	16.48	30.00	-13.52
	5230	46	AVG	242T	17.93	17.99	20.97	17.76	17.99	20.89	23.98	-3.01	-0.99	19.98	30.00	-10.02
	5270	54	AVG	242T	17.34	17.82	20.60	17.18	17.91	20.57	23.85	-3.25	0.40	21.00	29.85	-8.85
	5310	62	AVG	242T	14.76	14.62	17.70	14.86	14.54	17.71	23.85	-6.14	0.40	18.11	29.85	-11.74
	5510	102	AVG	242T	15.09	14.37	17.76	15.19	14.31	17.78	23.97	-6.19	-0.81	16.97	29.97	-13.00
	5590	118	AVG	242T	17.47	17.96	20.73	17.55	17.99	20.79	23.97	-3.18	-0.81	19.98	29.97	-9.99
	5710	142	AVG	242T	17.85	17.99	20.93	17.33	17.68	20.52	23.97	-3.04	-0.81	20.12	29.97	-9.85
	5755	151	AVG	242T	17.64	17.76	20.71	17.66	17.86	20.77	30.00	-9.23	-0.58	20.19	36.00	-15.81
	5795	159	AVG	242T	13.14	14.99	17.17	13.31	15.12	17.32	30.00	-12.68	-0.58	16.74	36.00	-19.26
	5835	167	AVG	242T	17.68	17.64	20.67	17.76	17.71	20.75	-	-	-0.81	19.94	30.00	-10.06
	5875	175	AVG	242T	17.55	17.68	20.63	17.67	17.68	20.68	-	-	-0.81	19.87	30.00	-10.13

Table 7-30. MIMO 40MHz BW (UNII) Maximum Conducted Output Power (242 Tones)

	Freq [MHz]	Channel	Detector	Tones	RU Index 61 ANT1	RU Index 61 ANT2	RU Index 61 MIMO	RU Index 62 ANT1	RU Index 62 ANT2	RU Index 62 MIMO	RU Index 64 ANT1	RU Index 64 ANT2	RU Index 64 MIMO	Conducted Power Limit [dBm]	Conducted Power Margin [dB]	Directional Ant. Gain [dBi]	Max e.i.r.p. [dBm]	Max e.i.r.p. Limit [dBm]	e.i.r.p. Margin [dB]
5GHz (80MHz Bandwidth)	5210	42	AVG	242T	14.01	14.43	17.24	14.06	14.18	17.13	14.44	14.02	17.25	23.98	-6.73	-0.99	16.26	30.00	-13.74
	5290	58	AVG	242T	14.55	14.37	17.47	14.51	14.11	17.32	14.86	14.01	17.47	23.85	-6.38	0.40	17.87	29.85	-11.98
	5530	106	AVG	242T	14.93	14.38	17.67	14.89	14.21	17.57	15.29	14.23	17.80	23.97	-6.17	-0.81	16.99	29.97	-12.98
	5610	122	AVG	242T	17.98	17.54	20.78	17.99	17.59	20.80	17.84	17.44	20.65	23.97	-3.17	-0.81	19.99	29.97	-9.98
	5690	138	AVG	242T	17.99	16.98	20.52	17.92	17.05	20.52	17.99	17.42	20.72	23.97	-3.25	-0.81	19.91	29.97	-10.06
	5775	155	AVG	242T	13.49	13.28	16.40	13.55	13.46	16.52	13.21	13.46	16.35	30.00	-13.48	-0.58	15.94	36.00	-20.06
	5855	171	AVG	242T	17.82	17.65	20.75	17.89	17.72	20.81	17.71	17.20	20.47	-	-	-0.81	20.00	28.80	-8.80

Table 7-31. MIMO 80MHz BW (UNII) Maximum Conducted Output Power (242 Tones)

	Freq [MHz]	Channel	Detector	Tones	RU Index 61 ANT1	RU Index 61 ANT2	RU Index 61 MIMO	RU Index 62 ANT1	RU Index 62 ANT2	RU Index 62 MIMO	RU Index 64 ANT1	RU Index 64 ANT2	RU Index 64 MIMO	Conducted Power Limit [dBm]	Conducted Power Margin [dB]	Directional Ant Gain [dBi]	Max e.i.r.p. [dBm]	Max e.i.r.p. Limit [dBm]	e.i.r.p. Margin [dB]
5GHz (160MHz BW Lower)	5250	50	AVG	242T	14.58	14.13	17.37	14.48	13.98	17.25	14.42	14.01	17.23	23.47	-6.10	0.40	17.77	22.68	-4.91
	5570	114	AVG	242T	14.67	14.13	17.42	14.93	14.36	17.66	14.86	14.41	17.65	22.80	-5.14	-0.81	16.85	29.97	-13.12
	5815	163	AVG	242T	17.71	17.82	20.78	17.76	17.99	20.89	17.38	17.63	20.52	-	-	-0.58	20.31	30.00	-9.69

Table 7-32. MIMO 160MHz BW (L) (UNII) Maximum Conducted Output Power (242 Tones)

	Freq [MHz]	Channel	Detector	Tones	RU Index 61 ANT1	RU Index 61 ANT2	RU Index 61 MIMO	RU Index 62 ANT1	RU Index 62 ANT2	RU Index 62 MIMO	RU Index 64 ANT1	RU Index 64 ANT2	RU Index 64 MIMO	Conducted Power Limit [dBm]	Conducted Power Margin [dB]	Directional Ant Gain [dBi]	Max e.i.r.p. [dBm]	Max e.i.r.p. Limit [dBm]	e.i.r.p. Margin [dB]
5GHz (160MHz BW Upper)	5250	50	AVG	242T	14.44	13.98	17.23	14.35	14.02	17.20	14.28	14.11	17.21	23.47	-6.24	0.40	17.63	22.68	-5.05
	5570	114	AVG	242T	14.69	14.32	17.52	14.98	14.66	17.83	14.99	14.82	17.92	22.80	-4.88	-0.81	17.11	29.97	-12.86
	5815	163	AVG	242T	17.47	17.75	20.63	17.64	17.90	20.78	17.63	17.69	20.67	-	-	-0.58	20.20	30.00	-9.80

Table 7-33. MIMO 160MHz BW (U) (UNII) Maximum Conducted Output Power (242 Tones)

MIMO Conducted Output Power Measurements (484 Tones)

5GHz (40MHz Bandwidth)	Freq [MHz]	Channel	Detector	Tones	RU Index 65 ANT1	RU Index 65 ANT2	RU Index 65 MIMO	Conducted Power Limit [dBm]	Conducted Power Margin [dB]	Directional Ant. Gain [dBi]	Max e.i.r.p. [dBm]	Max e.i.r.p. Limit [dBm]	e.i.r.p. Margin [dB]
	5190	38	AVG	484T	12.13	13.59	15.93	23.98	-8.05	-0.99	14.94	30.00	-15.06
	5230	46	AVG	484T	16.58	16.72	19.66	23.98	-4.32	-0.99	18.67	30.00	-11.33
	5270	54	AVG	484T	16.75	16.99	19.88	23.85	-3.97	0.40	20.28	29.85	-9.57
	5310	62	AVG	484T	13.79	13.41	16.61	23.85	-7.24	0.40	17.01	29.85	-12.84
	5510	102	AVG	484T	15.63	14.85	18.27	23.97	-5.70	-0.81	17.46	29.97	-12.51
	5590	118	AVG	484T	16.83	16.90	19.88	23.97	-4.09	-0.81	19.07	29.97	-10.90
	5710	142	AVG	484T	16.55	16.41	19.49	23.97	-4.48	-0.81	18.68	29.97	-11.29
	5755	151	AVG	484T	16.74	16.92	19.84	30.00	-10.16	-0.58	19.26	36.00	-16.74
	5795	159	AVG	484T	14.29	16.04	18.26	30.00	-11.74	-0.58	17.68	36.00	-18.32
	5835	167	AVG	484T	16.85	16.82	19.85	-	-	-0.81	19.04	30.00	-10.96
	5875	175	AVG	484T	16.80	16.85	19.83	-	-	-0.81	19.02	30.00	-10.98

Table 7-34. MIMO 40MHz BW (UNII) Maximum Conducted Output Power (484 Tones)

5GHz (80MHz Bandwidth)	Freq [MHz]	Channel	Detector	Tones	RU Index 65 ANT1	RU Index 65 ANT2	RU Index 65 MIMO	RU Index 66 ANT1	RU Index 66 ANT2	RU Index 66 MIMO	Conducted Power Limit [dBm]	Conducted Power Margin [dB]	Directional Ant. Gain [dBi]	Max e.i.r.p. [dBm]	Max e.i.r.p. Limit [dBm]	e.i.r.p. Margin [dB]
	5210	42	AVG	484T	11.83	11.73	14.79	11.33	12.10	14.74	23.98	-9.19	-0.99	13.80	30.00	-16.20
	5290	58	AVG	484T	13.48	13.13	16.32	13.65	12.83	16.27	23.85	-7.53	0.40	16.72	29.85	-13.13
	5530	106	AVG	484T	16.43	16.12	19.29	16.39	16.02	19.22	23.97	-4.68	-0.81	18.48	29.97	-11.49
	5610	122	AVG	484T	16.75	15.85	19.33	16.69	15.98	19.36	23.97	-4.61	-0.81	18.55	29.97	-11.42
	5690	138	AVG	484T	16.68	15.69	19.22	16.82	15.65	19.28	23.97	-4.69	-0.81	18.47	29.97	-11.50
	5775	155	AVG	484T	14.55	16.00	18.35	14.44	16.07	18.34	30.00	-11.65	-0.58	17.77	36.00	-18.23
	5855	171	AVG	484T	16.67	16.42	19.56	16.78	16.35	19.58	-	-	-0.81	18.77	28.80	-10.03

Table 7-35. MIMO 80MHz BW (UNII) Maximum Conducted Output Power (484 Tones)

5GHz (160MHz BW Lower)	Freq [MHz]	Channel	Detector	Tones	RU Index 65 ANT1	RU Index 65 ANT2	RU Index 65 MIMO	RU Index 66 ANT1	RU Index 66 ANT2	RU Index 66 MIMO	Conducted Power Limit [dBm]	Conducted Power Margin [dB]	Directional Ant Gain [dBi]	Max e.i.r.p. [dBm]	Max e.i.r.p. Limit [dBm]	e.i.r.p. Margin [dB]
	5250	50	AVG	484T	11.05	11.12	14.10	11.52	11.42	14.48	23.47	-8.99	0.40	14.88	22.68	-7.80
	5570	114	AVG	484T	15.45	15.05	18.26	15.43	15.11	18.28	22.80	-4.52	-0.81	17.47	29.97	-12.50
	5815	163	AVG	484T	15.78	15.90	18.85	15.93	15.99	18.97	-	-	-0.58	18.39	30.00	-11.61

Table 7-36. MIMO 160MHz BW (L) (UNII) Maximum Conducted Output Power (484 Tones)

5GHz (160MHz BW Upper)	Freq [MHz]	Channel	Detector	Tones	RU Index 65 ANT1	RU Index 65 ANT2	RU Index 65 MIMO	RU Index 66 ANT1	RU Index 66 ANT2	RU Index 66 MIMO	Conducted Power Limit [dBm]	Conducted Power Margin [dB]	Directional Ant Gain [dBi]	Max e.i.r.p. [dBm]	Max e.i.r.p. Limit [dBm]	e.i.r.p. Margin [dB]
	5250	50	AVG	484T	11.72	11.50	14.62	11.55	11.28	14.43	23.47	-8.85	0.40	15.02	22.68	-7.66
	5570	114	AVG	484T	15.49	14.82	18.18	15.62	15.28	18.46	22.80	-4.34	-0.81	17.65	29.97	-12.32
	5815	163	AVG	484T	16.12	16.35	19.25	16.05	16.11	19.09	-	-	-0.58	18.67	30.00	-11.33

Table 7-37. MIMO 160MHz BW (U) (UNII) Maximum Conducted Output Power (484 Tones)

MIMO Conducted Output Power Measurements (996 Tones)

5GHz (80MHz Bandwidth)	Freq [MHz]	Channel	Detector	Tones	RU Index			Conducted Power Limit [dBm]	Conducted Power Margin [dB]	Directional Ant. Gain [dBi]	Max e.i.r.p. [dBm]	Max e.i.r.p. Limit [dBm]	e.i.r.p. Margin [dB]
					67								
					ANT1	ANT2	MIMO						
	5210	42	AVG	996T	13.02	13.31	16.18	23.98	-7.80	-0.99	15.19	30.00	-14.81
	5290	58	AVG	996T	13.42	12.91	16.18	23.85	-7.67	0.40	16.58	29.85	-13.27
	5530	106	AVG	996T	11.38	10.89	14.15	23.97	-9.82	-0.81	13.34	29.97	-16.63
	5610	122	AVG	996T	15.86	15.05	18.48	23.97	-5.49	-0.81	17.67	29.97	-12.30
	5690	138	AVG	996T	15.99	14.74	18.42	23.97	-5.55	-0.81	17.61	29.97	-12.36
	5775	155	AVG	996T	13.24	14.85	17.13	30.00	-12.87	-0.58	16.55	36.00	-19.45
	5855	171	AVG	996T	15.98	15.51	18.76	-	-	-0.81	17.95	28.80	-10.85

Table 7-38. MIMO 80MHz BW (UNII) Maximum Conducted Output Power (996 Tones)

5GHz (160MHz BW Lower)	Freq [MHz]	Channel	Detector	Tones	RU Index			Conducted Power Limit [dBm]	Conducted Power Margin [dB]	Directional Ant Gain [dBi]	Max e.i.r.p. [dBm]	Max e.i.r.p. Limit [dBm]	e.i.r.p. Margin [dB]
					67								
					ANT1	ANT2	MIMO						
	5250	50	AVG	996T	12.15	12.02	15.10	23.47	-8.37	0.40	15.50	22.68	-7.18
	5570	114	AVG	996T	11.48	11.03	14.27	22.80	-8.53	-0.81	13.46	29.97	-16.51
	5815	163	AVG	996T	15.68	15.80	18.75	-	-	-0.58	18.17	30.00	-11.83

Table 7-39. MIMO 160MHz BW (L) (UNII) Maximum Conducted Output Power (996 Tones)

5GHz (160MHz BW Upper)	Freq [MHz]	Channel	Detector	Tones	RU Index			Conducted Power Limit [dBm]	Conducted Power Margin [dB]	Directional Ant Gain [dBi]	Max e.i.r.p. [dBm]	Max e.i.r.p. Limit [dBm]	e.i.r.p. Margin [dB]
					67								
					ANT1	ANT2	MIMO						
	5250	50	AVG	996T	12.33	12.51	15.43	23.47	-8.04	0.40	15.83	22.68	-6.85
	5570	114	AVG	996T	11.08	11.42	14.26	22.80	-8.54	-0.81	13.45	29.97	-16.52
	5815	163	AVG	996T	15.72	15.85	18.79	-	-	-0.58	18.21	30.00	-11.79

Table 7-40. MIMO 160MHz BW (U) (UNII) Maximum Conducted Output Power (996 Tones)

MIMO Conducted Output Power Measurements (996*2 Tones)

5GHz (160MHz Bandwidth)	Freq [MHz]	Channel	Detector	Tones	RU Index			Conducted Power Limit [dBm]	Conducted Power Margin [dB]	Directional Ant Gain [dBi]	Max e.i.r.p. [dBm]	Max e.i.r.p. Limit [dBm]	e.i.r.p. Margin [dB]
					68								
					ANT1	ANT2	MIMO						
	5250	50	AVG	996T*2	12.68	13.25	15.98	23.85	-7.87	0.40	16.38	22.68	-6.30
	5570	114	AVG	996T*2	14.34	15.82	18.15	23.97	-5.82	-0.81	17.34	29.97	-12.63
	5815	163	AVG	996T*2	15.69	15.04	18.39	-	-	-0.58	17.81	30.00	-12.19

Table 7-41. MIMO 160MHz BW (UNII) Maximum Conducted Output Power (996*2 Tones)

Note:

Per ANSI C63.10-2013 and KDB 662911 v02r01 Section E)1), the conducted powers at Antenna 1 and Antenna 2 were first measured separately during MIMO transmission as shown in the section above. The measured values were then summed in linear power units then converted back to dBm.

Per ANSI C63.10-2013 Section 14.4.3, the directional gain is calculated using the following formula, where G_N is the gain of the nth antenna and N_{ANT}, the total number of antennas used.

$$\text{Directional gain} = 10 \log[(10^{G_1/20} + 10^{G_2/20} + \ldots + 10^{G_N/20})^2 / N_{ANT}] \text{ dBi}$$

Sample MIMO Calculation:

At 5180MHz in 802.11n (20MHz BW) mode, the average conducted output power was measured to be 17.71 dBm for Antenna 1 and 16.95 dBm for Antenna 2.

Antenna 1 + Antenna 2 = MIMO

(17.71 dBm + 16.95 dBm) = (59.02 mW + 49.55 mW) = 108.57 mW = 20.36 dBm

Sample e.i.r.p. Calculation:

At 5180MHz in 802.11n (20MHz BW) mode, the average MIMO conducted power was calculated to be 20.36 dBm with directional gain of -0.99dBi.

e.i.r.p. (dBm) = Conducted Power (dBm) + Ant gain (dBi)

20.36 dBm + -0.99 dBi = 19.37 dBm

7.5 Maximum Power Spectral Density – 802.11ax OFDMA

§15.407(a.1.iv) §15.407(a.2) §15.407(a.3); RSS-247 [6.2]

Test Overview and Limit

The spectrum analyzer was connected to the antenna terminal while the EUT was operating at its maximum duty cycle, at its maximum power control level, as defined in ANSI C63.10-2013 and KDB 789033 D02 v02r01, and at the appropriate frequencies. Method SA-1, as defined in ANSI C63.10-2013 and KDB 789033 D02 v02r01, was used to measure the power spectral density.

In the 5.15 – 5.25GHz band, the maximum permissible power spectral density is 11dBm/MHz. For ISED operation, the maximum e.i.r.p. spectral density is 10dBm/MHz.

In the 5.25 – 5.35GHz and 5.47 – 5.725GHz bands, the maximum permissible power spectral density is 11dBm/MHz.

In the 5.725 – 5.850GHz band, the maximum permissible power spectral density is 30dBm/500kHz.

In the 5.850 – 5.855GHz band, the maximum permissible power spectral density is 14dBm/MHz e.i.r.p.

Test Procedure Used

ANSI C63.10-2013 – Section 12.3.2.2
KDB 789033 D02 v02r01 – Section F
ANSI C63.10-2013 – Section 14.3.2.2 Measure-and-Sum Technique
KDB 662911 v02r01 – Section E)2) Measure-and-Sum Technique

Test Settings

1. Analyzer was set to the center frequency of the UNII channel under investigation
2. Span was set to encompass the entire emission bandwidth of the signal
3. RBW = 1MHz
4. VBW = 3MHz
5. Number of sweep points $\geq$ 2 x (span/RBW)
6. Sweep time = auto
7. Detector = power averaging (RMS)
8. Trigger was set to free run for all modes
9. Trace was averaged over 100 sweeps
10. The peak search function of the spectrum analyzer was used to find the peak of the spectrum.

Test Setup

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

Figure 7-4. Test Instrument & Measurement Setup

Test Notes

The power spectral density for each channel was measured with the RU index showing the highest conducted power

Summed MIMO Power Spectral Density Measurements (26 Tones)

	Frequency [MHz]	Channel No.	802.11 Mode	Tones	Data Rate [Mbps]	Antenna-1 Power Density [dBm]	Antenna-2 Power Density [dBm]	Summed MIMO Power Density [dBm]	Max Power Density [dBm/MHz]	Margin [dB]
Band 1	5180	36	ax (20MHz)	26T	MCS0	5.72	5.24	8.49	11.00	-2.51
	5200	40	ax (20MHz)	26T	MCS0	5.99	4.97	8.52	11.00	-2.48
	5240	48	ax (20MHz)	26T	MCS0	5.75	4.39	8.13	11.00	-2.87
	5190	38	ax (40MHz)	26T	MCS0	6.47	4.82	8.73	11.00	-2.27
	5230	46	ax (40MHz)	26T	MCS0	6.72	4.30	8.68	11.00	-2.32
	5210	42	ax (80MHz)	26T	MCS0	6.61	4.32	8.62	11.00	-2.38
Band 1/2A	5250	50	ax (160MHz) L	26T	MCS0	5.70	5.04	8.39	11.00	-2.61
	5250	50	ax (160MHz) U	26T	MCS0	4.83	5.13	8.00	11.00	-3.00
Band 2A	5260	52	ax (20MHz)	26T	MCS0	6.84	5.31	9.15	11.00	-1.85
	5280	56	ax (20MHz)	26T	MCS0	6.57	5.20	8.95	11.00	-2.05
	5320	64	ax (20MHz)	26T	MCS0	6.66	5.14	8.98	11.00	-2.02
	5270	54	ax (40MHz)	26T	MCS0	6.59	4.61	8.72	11.00	-2.28
	5310	62	ax (40MHz)	26T	MCS0	6.62	4.09	8.55	11.00	-2.45
	5290	58	ax (80MHz)	26T	MCS0	6.83	4.00	8.65	11.00	-2.35
Band 2C	5500	100	ax (20MHz)	26T	MCS0	5.58	4.14	7.93	11.00	-3.07
	5600	120	ax (20MHz)	26T	MCS0	6.36	5.22	8.84	11.00	-2.16
	5720	144	ax (20MHz)	26T	MCS0	6.68	5.57	9.17	11.00	-1.83
	5510	102	ax (40MHz)	26T	MCS0	6.43	4.31	8.51	11.00	-2.49
	5590	118	ax (40MHz)	26T	MCS0	6.65	4.57	8.74	11.00	-2.26
	5710	142	ax (40MHz)	26T	MCS0	6.82	5.01	9.02	11.00	-1.98
	5530	106	ax (80MHz)	26T	MCS0	6.65	3.98	8.52	11.00	-2.48
	5610	122	ax (80MHz)	26T	MCS0	6.69	3.99	8.56	11.00	-2.44
	5690	138	ax (80MHz)	26T	MCS0	6.35	3.97	8.33	11.00	-2.67
	5570	114	ax (160MHz) L	26T	MCS0	4.00	3.85	6.93	11.00	-4.07
	5570	114	ax (160MHz) U	26T	MCS0	5.03	5.13	8.09	11.00	-2.91

Table 7-42. Bands 1, 2A, 2C MIMO Conducted Power Spectral Density Measurements MIMO (26 Tones)

	Frequency [MHz]	Channel No.	802.11 Mode	Tones	Data Rate [Mbps]	Antenna-1 Power Density [dBm]	Antenna-2 Power Density [dBm]	Summed MIMO Power Density [dBm]	Max Permissible Power Density	Margin [dB]
Band 3	5745	149	ax (20MHz)	26T	MCS0	3.88	2.26	6.16	30.00	-23.84
	5785	157	ax (20MHz)	26T	MCS0	3.30	2.13	5.76	30.00	-24.24
	5825	165	ax (20MHz)	26T	MCS0	3.94	2.37	6.24	30.00	-23.76
	5755	151	ax (40MHz)	26T	MCS0	3.65	1.92	5.88	30.00	-24.12
	5795	159	ax (40MHz)	26T	MCS0	3.55	2.17	5.92	30.00	-24.08
	5775	155	ax (80MHz)	26T	MCS0	3.69	2.27	6.05	30.00	-23.95

Table 7-43. Band 3 MIMO Conducted Power Spectral Density Measurements MIMO (26 Tones)

	Frequency [MHz]	Channel No.	802.11 Mode	Tones	Data Rate [Mbps]	Antenna-1 Power Density [dBm/MHz]	Antenna-2 Power Density [dBm/MHz]	MIMO Summed Power Density [dBm/MHz]	Max Permissible Power Density [dBm/500kHz]	Margin [dB]	Directional Antenna Gain [dBi]	EIRP Power Density [dBm/MHz]	Max EIRP Power Density [dBm/MHz]	Margin [dB]
Band 3/4	5845	169	ax (20MHz)	26T	MCS0	6.45	5.18	8.87	30.00	-21.13	-0.58	8.29	14.00	-5.71
Band 4	5865	173	ax (20MHz)	26T	MCS0	6.43	5.10	8.82			-0.81	8.01	14.00	-5.99
	5885	177	ax (20MHz)	26T	MCS0	6.32	5.41	8.90			-0.81	8.09	14.00	-5.91
Band 3/4	5835	167	ax (40MHz)	26T	MCS0	6.34	4.91	8.69	30.00	-21.31	-0.58	8.11	14.00	-5.89
Band 4	5875	175	ax (40MHz)	26T	MCS0	5.88	5.21	8.57			-0.81	7.76	14.00	-6.24
Band 3/4	5855	171	ax (80MHz)	26T	MCS0	5.29	4.15	7.77	30.00	-22.23	-0.58	7.19	14.00	-6.81
	5815	163	ax (160MHz L)	26T	MCS0	5.42	5.42	8.43	30.00	-21.57	-0.58	7.85	14.00	-6.15
	5815	163	ax (160MHz U)	26T	MCS0	5.47	5.80	8.65	30.00	-21.35	-0.58	8.07	14.00	-5.93

Table 7-44. Band 3/4 MIMO Conducted Power Spectral Density Measurements MIMO (26 Tones)

	Frequency [MHz]	Channel No.	802.11 Mode	Tones	Data Rate [Mbps]	Antenna-1 Power Density [dBm]	Antenna-2 Power Density [dBm]	Summed MIMO Power Density [dBm]	Max Power Density [dBm/MHz]	Margin [dB]
Band 1	5180	36	ax (20MHz)	242T	MCS0	5.72	4.67	8.24	11.00	-2.76
	5200	40	ax (20MHz)	242T	MCS0	5.72	4.51	8.17	11.00	-2.83
	5240	48	ax (20MHz)	242T	MCS0	6.16	4.42	8.39	11.00	-2.61
	5190	38	ax (40MHz)	484T	MCS0	1.74	0.43	4.14	11.00	-6.86
	5230	46	ax (40MHz)	484T	MCS0	1.52	0.05	3.86	11.00	-7.14
	5210	42	ax (80MHz)	996T	MCS0	-1.32	-3.12	0.88	11.00	-10.12
Band 1/2A	5250	50	ax (160MHz)	996T*2	MCS0	-5.18	-4.77	-1.96	11.00	-12.96
Band 2A	5260	52	ax (20MHz)	242T	MCS0	6.38	4.33	8.49	11.00	-2.51
	5280	56	ax (20MHz)	242T	MCS0	6.44	4.68	8.66	11.00	-2.34
	5320	64	ax (20MHz)	242T	MCS0	6.64	4.51	8.71	11.00	-2.29
	5270	54	ax (40MHz)	484T	MCS0	2.27	0.59	4.52	11.00	-6.48
	5310	62	ax (40MHz)	484T	MCS0	2.03	0.16	4.21	11.00	-6.79
	5290	58	ax (80MHz)	996T	MCS0	-1.77	-2.98	0.68	11.00	-10.32
Band 2C	5500	100	ax (20MHz)	242T	MCS0	6.55	4.39	8.61	11.00	-2.39
	5600	120	ax (20MHz)	242T	MCS0	6.07	4.70	8.45	11.00	-2.55
	5720	144	ax (20MHz)	242T	MCS0	6.40	5.06	8.79	11.00	-2.21
	5510	102	ax (40MHz)	484T	MCS0	1.88	0.28	4.16	11.00	-6.84
	5590	118	ax (40MHz)	484T	MCS0	2.06	0.28	4.27	11.00	-6.73
	5710	142	ax (40MHz)	484T	MCS0	1.93	0.77	4.40	11.00	-6.60
	5530	106	ax (80MHz)	996T	MCS0	-1.98	-3.38	0.39	11.00	-10.61
	5610	122	ax (80MHz)	996T	MCS0	-1.49	-3.87	0.49	11.00	-10.51
	5690	138	ax (80MHz)	996T	MCS0	-1.45	-3.44	0.68	11.00	-10.32
	5570	114	ax (160MHz)	996T*2	MCS0	-5.35	-5.77	-2.54	11.00	-13.54

Table 7-45. Bands 1, 2A, 2C MIMO Conducted Power Spectral Density Measurements MIMO (Full Tones)

	Frequency [MHz]	Channel No.	802.11 Mode	Tones	Data Rate [Mbps]	Antenna-1 Power Density [dBm]	Antenna-2 Power Density [dBm]	Summed MIMO Power Density [dBm]	Max Permissible Power Density	Margin [dB]
Band 3	5745	149	ax (20MHz)	242T	MCS0	3.77	2.04	6.00	30.00	-24.00
	5785	157	ax (20MHz)	242T	MCS0	3.83	2.54	6.24	30.00	-23.76
	5825	165	ax (20MHz)	242T	MCS0	4.13	2.50	6.40	30.00	-23.60
	5755	151	ax (40MHz)	484T	MCS0	-0.44	-2.16	1.79	30.00	-28.21
	5795	159	ax (40MHz)	484T	MCS0	-0.94	-1.81	1.66	30.00	-28.34
	5775	155	ax (80MHz)	996T	MCS0	-4.11	-5.39	-1.69	30.00	-31.69

Table 7-46. Band 3 MIMO Conducted Power Spectral Density Measurements MIMO (Full Tones)

	Frequency [MHz]	Channel No.	802.11 Mode	Tones	Data Rate [Mbps]	Antenna-1 Power Density [dBm/MHz]	Antenna-2 Power Density [dBm/MHz]	MIMO Summed Power Density [dBm/MHz]	Max Permissible Power Density [dBm/500kHz]	Margin [dB]	Directional Antenna Gain [dBi]	EIRP Power Density [dBm/MHz]	Max EIRP Power Density [dBm/MHz]	Margin [dB]
Band 3/4	5845	169	ax (20MHz)	242T	MCS0	6.70	5.09	8.98	30.00	-21.02	-0.58	8.40	14.00	-5.60
Band 4	5865	173	ax (20MHz)	242T	MCS0	6.72	5.67	9.24			-0.81	8.43	14.00	-5.57
	5885	177	ax (20MHz)	242T	MCS0	6.15	5.57	8.88			-0.81	8.07	14.00	-5.93
Band 3/4	5835	167	ax (40MHz)	484T	MCS0	2.35	1.41	4.91	30.00	-25.09	-0.58	4.33	14.00	-9.67
Band 4	5875	175	ax (40MHz)	484T	MCS0	1.82	0.92	4.40			-0.81	3.59	14.00	-10.41
Band 3/4	5855	171	ax (80MHz)	996T	MCS0	-2.06	-2.44	0.76	30.00	-29.24	-0.58	0.18	14.00	-13.82
	5815	163	ax (160MH)	996*2T	MCS0	-4.13	-3.92	-1.01	30.00	-31.01	-0.58	-1.59	14.00	-15.59

Table 7-47. Band 3/4 MIMO Conducted Power Spectral Density Measurements MIMO (Full Tones)

Note:

Per ANSI C63.10-2013 Section 14.3.2.2 and KDB 662911 v02r01 Section E)2), the power spectral density at Antenna-1 and Antenna-2 were first measured separately with reduced Antenna-1 and Antenna-2 powers per manufacture's tune-up document. The measured values were then summed in linear power units then converted back to dBm.

Sample Directional Gain Calculation:

Assuming the antenna gain is -8.61 dBi for Antenna-1 and -7.68 dBi for Antenna-2.

$$\text{Directional gain} = 10 \log[(10^{G_1/20} + 10^{G_2/20} + \ldots + 10^{G_N/20})^2 / N_{ANT}] \text{ dBi}$$
$$= 10 \log[(10^{-8.61/20} + 10^{-7.68/20} / 2] \text{ dBi}$$
$$= (-5.12) \text{ dBi}$$

Sample MIMO Calculation:

Assuming the average conducted power spectral density was measured to be 5.88 dBm for Antenna-1 and 6.27 dBm for Antenna-2.

Antenna-1 + Antenna-2 = MIMO

(5.88 dBm + 6.27 dBm) = (3.87 mW + 4.24 mW) = 8.11mW = 9.09 dBm

Sample e.i.r.p Power Spectral Density Calculation:

Assuming the average MIMO power density was calculated to be 9.09 dBm with directional gain of -5.12 dBi.

e.i.r.p. Power Spectral Density(dBm) = Power Spectral Density (dBm) + directional gain (dBi)

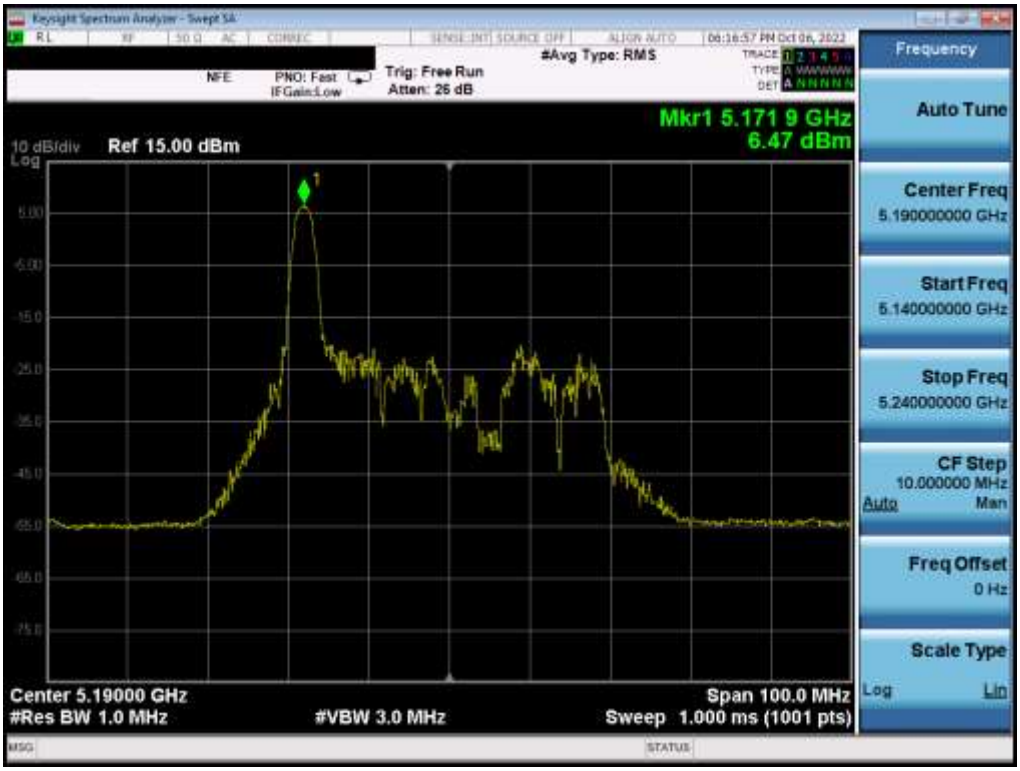
9.09 dBm + (-5.12) dBi = 3.97 dBm

MIMO Antenna-1 Power Spectral Density Measurements (26 Tones)

Plot 7-151. Power Spectral Density Plot MIMO ANT1 (20MHz BW 802.11ax – 26 Tones (UNII Band 1) – Ch. 36)

Plot 7-152. Power Spectral Density Plot MIMO ANT1 (20MHz BW 802.11ax – 26 Tones (UNII Band 1) – Ch. 40)

Plot 7-153. Power Spectral Density Plot MIMO ANT1 (20MHz BW 802.11ax – 26 Tones (UNII Band 1) – Ch. 48)

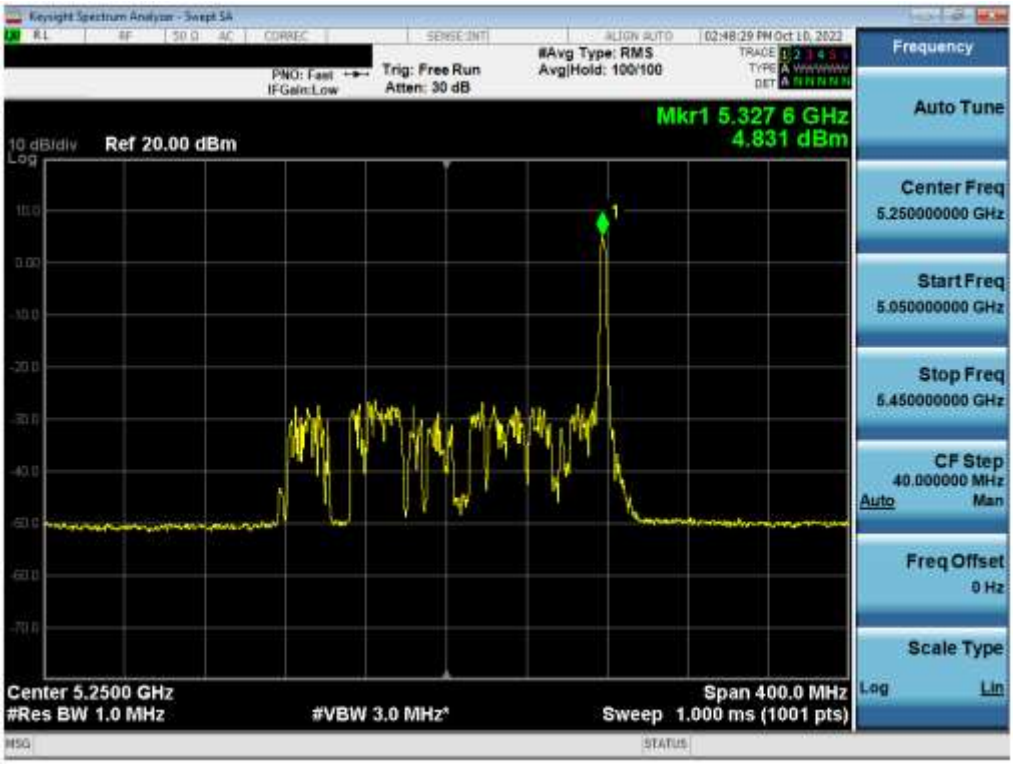


Plot 7-154. Power Spectral Density Plot MIMO ANT1 (40MHz BW 802.11ax – 26 Tones (UNII Band 1) – Ch. 38)

Plot 7-155. Power Spectral Density Plot MIMO ANT1 (40MHz BW 802.11ax – 26 Tones (UNII Band 1) – Ch. 46)

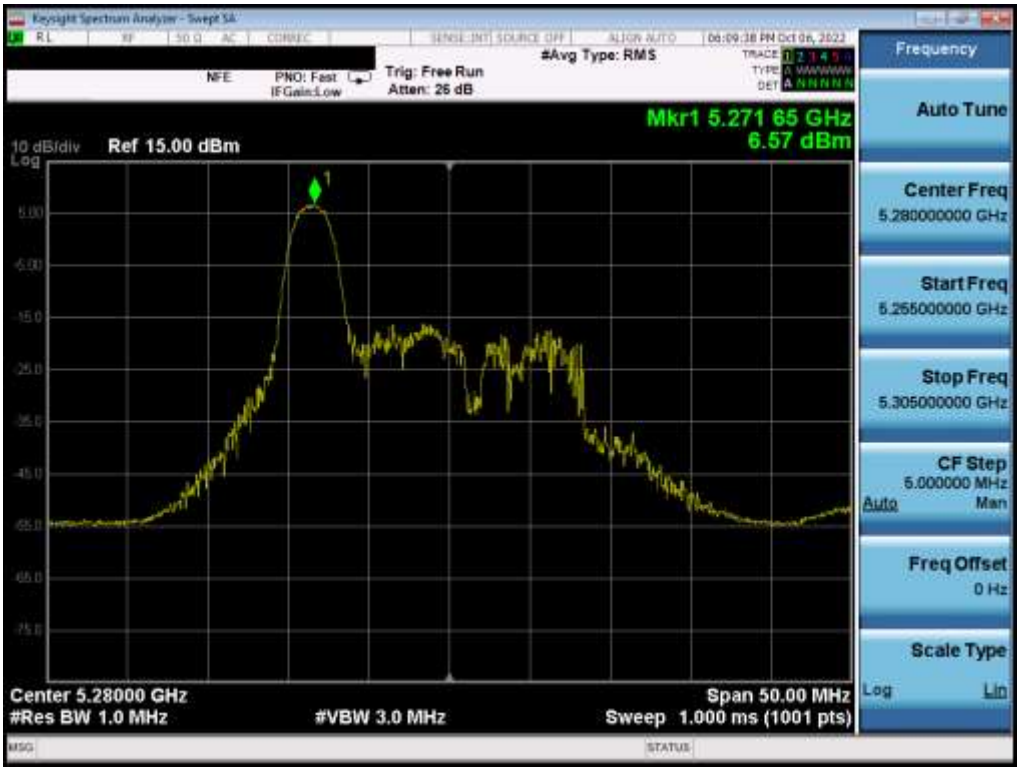
Plot 7-156. Power Spectral Density Plot MIMO ANT1 (80MHz BW 802.11ax – 26 Tones (UNII Band 1) – Ch. 42)

Plot 7-157. Power Spectral Density Plot MIMO ANT1 (160MHz(L) BW 802.11ax – 26 Tones (UNII Band 1/2A) – Ch. 50)



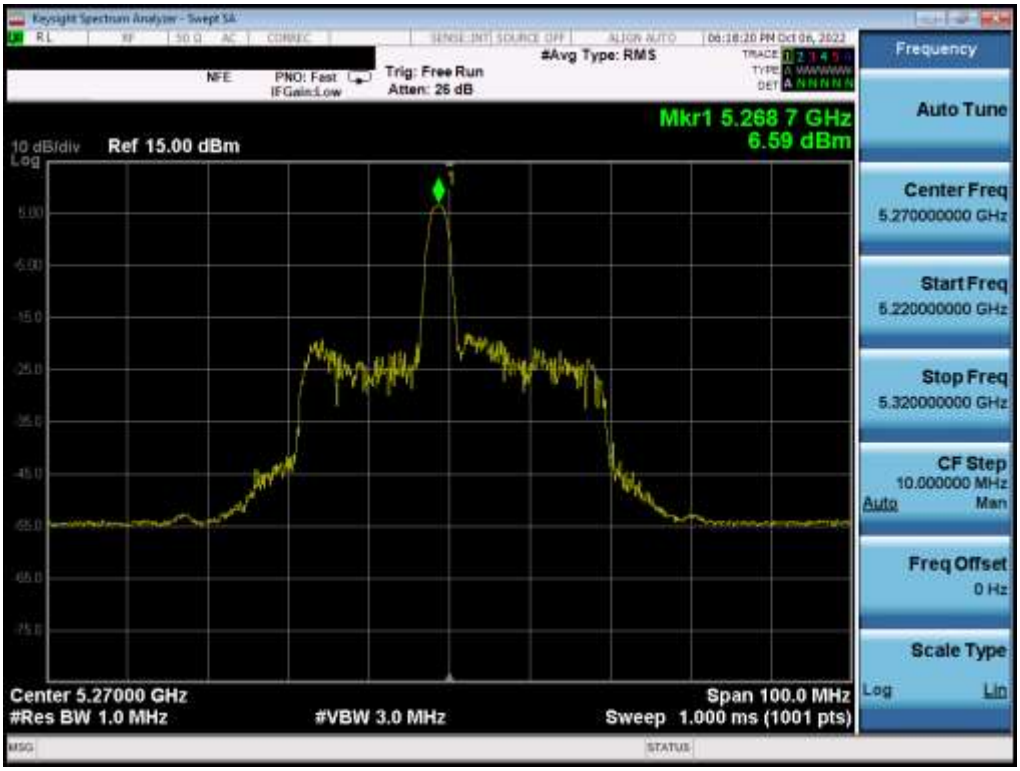
Plot 7-158. Power Spectral Density Plot MIMO ANT1 (160MHz(U) BW 802.11ax – 26 Tones (UNII Band 1/2A) – Ch. 50)

Plot 7-159. Power Spectral Density Plot MIMO ANT1 (20MHz BW 802.11ax – 26 Tones (UNII Band 2A) – Ch. 52)

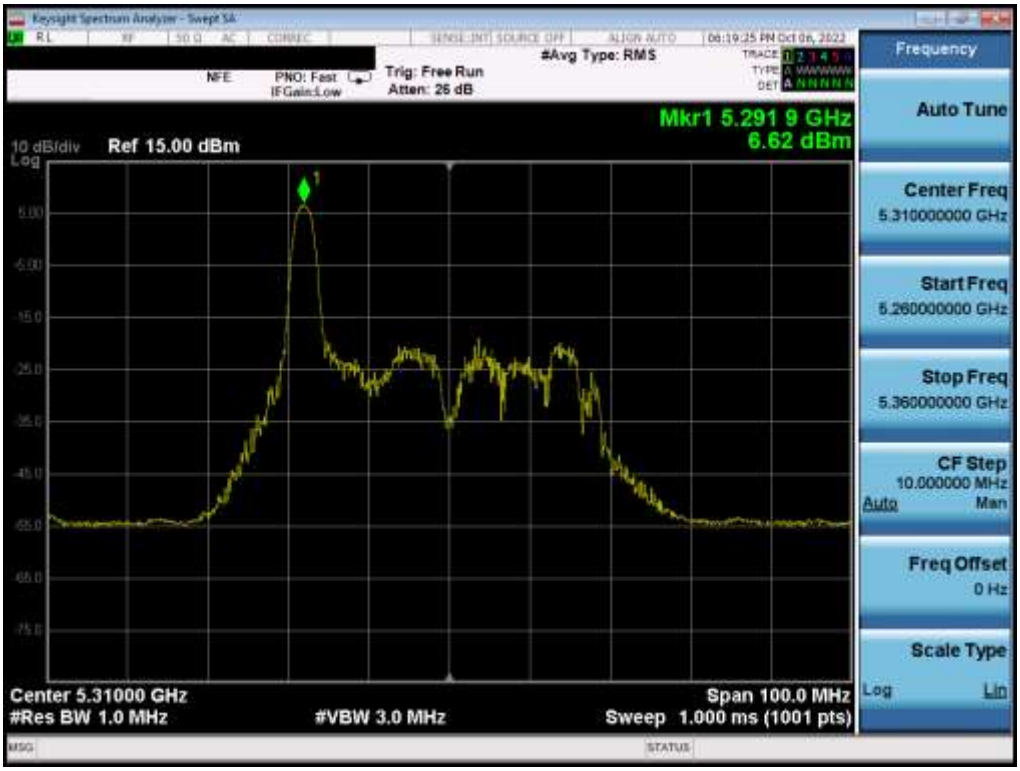


Plot 7-160. Power Spectral Density Plot MIMO ANT1 (20MHz BW 802.11ax – 26 Tones (UNII Band 2A) – Ch. 56)

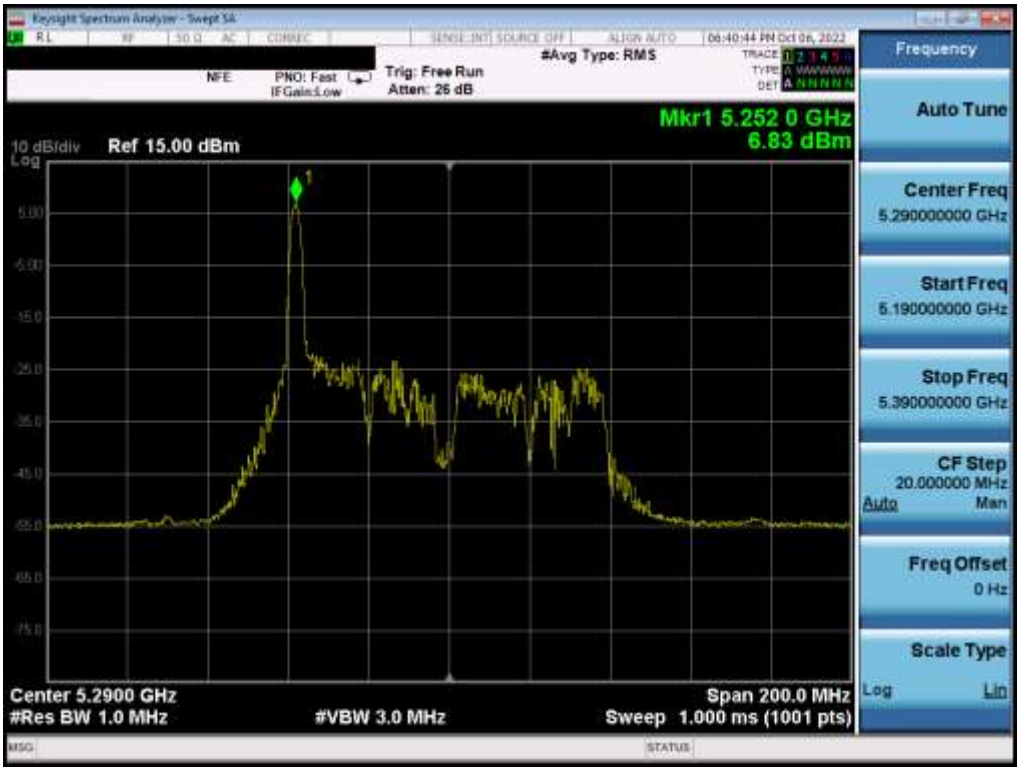
Plot 7-161. Power Spectral Density Plot MIMO ANT1 (20MHz BW 802.11ax – 26 Tones (UNII Band 2A) – Ch. 64)



Plot 7-162. Power Spectral Density Plot MIMO ANT1 (40MHz BW 802.11ax – 26 Tones (UNII Band 2A) – Ch. 54)

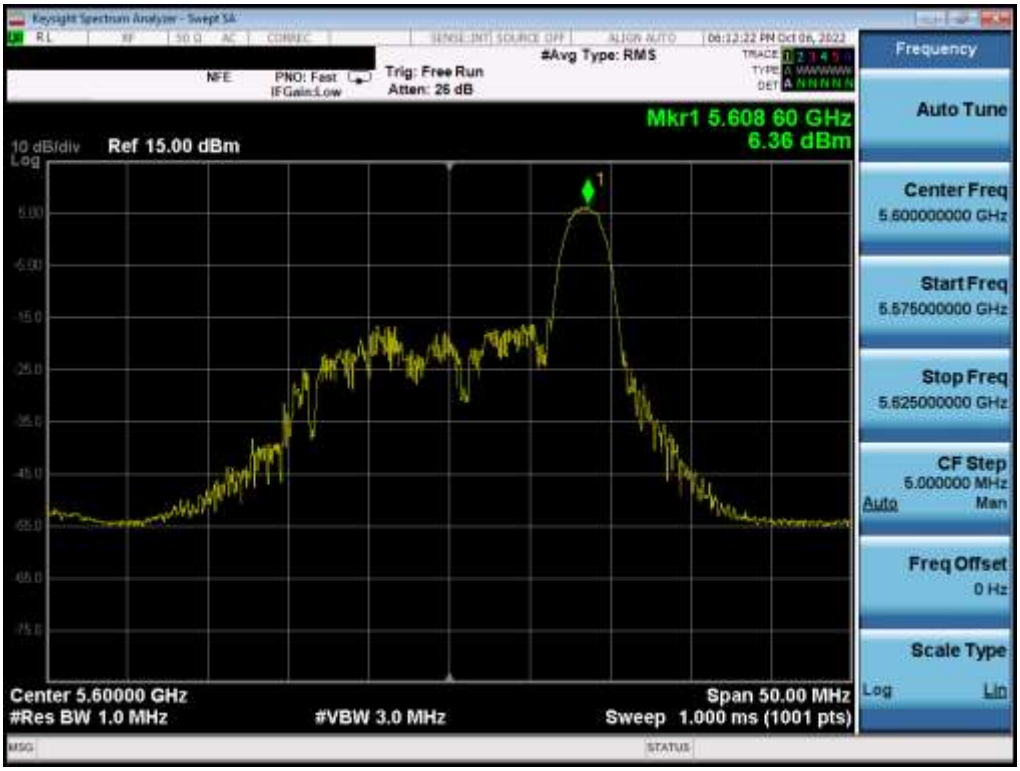


Plot 7-163. Power Spectral Density Plot MIMO ANT1 (40MHz BW 802.11ax – 26 Tones (UNII Band 2A) – Ch. 62)



Plot 7-164. Power Spectral Density Plot MIMO ANT1 (80MHz BW 802.11ax – 26 Tones (UNII Band 2A) – Ch. 58)

Plot 7-165. Power Spectral Density Plot MIMO ANT1 (20MHz BW 802.11ax – 26 Tones (UNII Band 2C) – Ch. 100)

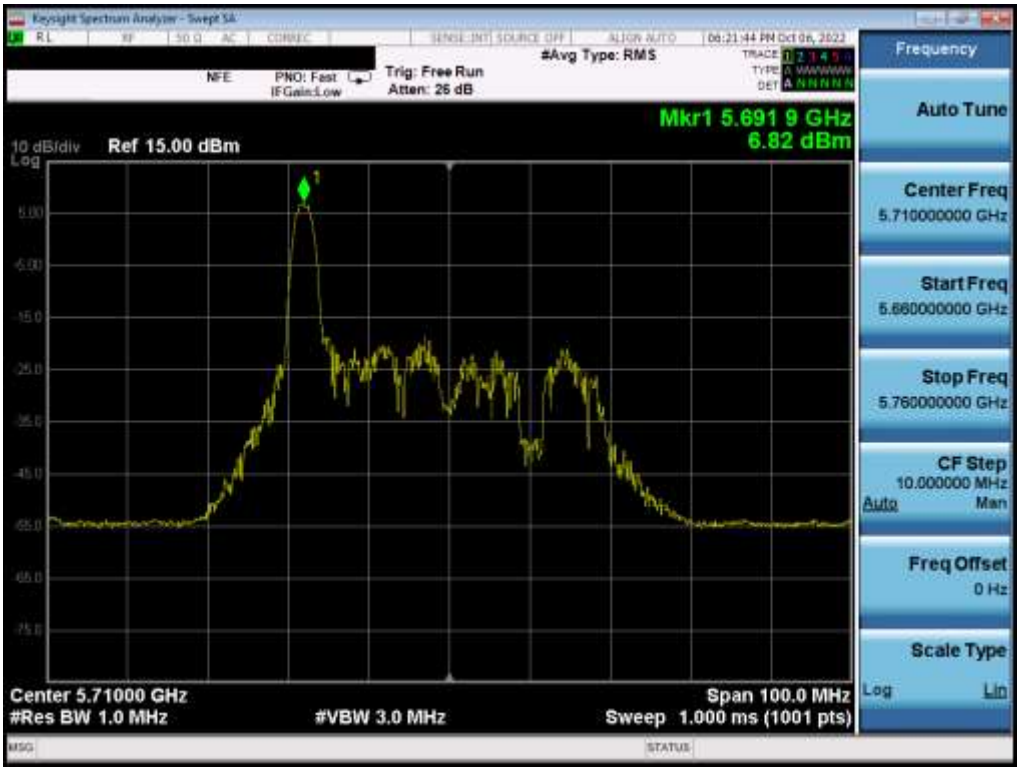


Plot 7-166. Power Spectral Density Plot MIMO ANT1 (20MHz BW 802.11ax – 26 Tones (UNII Band 2C) – Ch. 120)

Plot 7-167. Power Spectral Density Plot MIMO ANT1 (20MHz BW 802.11ax – 26 Tones (UNII Band 2C) – Ch. 144)

Plot 7-168. Power Spectral Density Plot MIMO ANT1 (40MHz BW 802.11ax – 26 Tones (UNII Band 2C) – Ch. 102)

Plot 7-169. Power Spectral Density Plot MIMO ANT1 (40MHz BW 802.11ax – 26 Tones (UNII Band 2C) – Ch. 118)

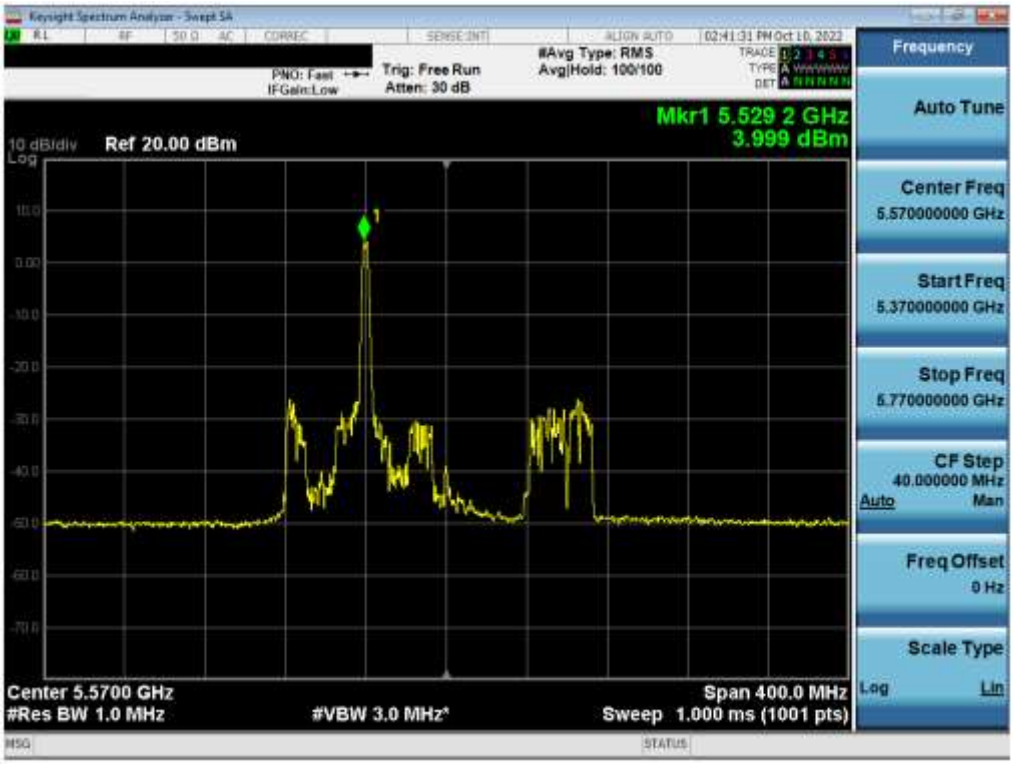


Plot 7-170. Power Spectral Density Plot MIMO ANT1 (40MHz BW 802.11ax – 26 Tones (UNII Band 2C) – Ch. 142)

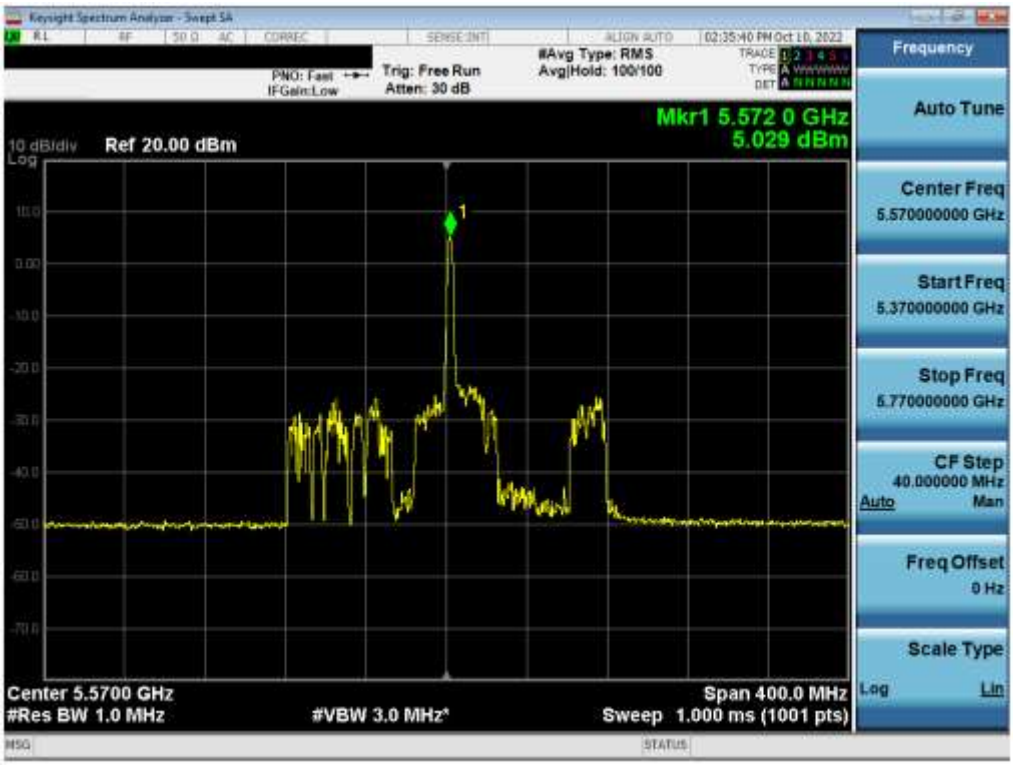
Plot 7-171. Power Spectral Density Plot MIMO ANT1 (80MHz BW 802.11ax – 26 Tones (UNII Band 2C) – Ch. 106)

Plot 7-172. Power Spectral Density Plot MIMO ANT1 (80MHz BW 802.11ax – 26 Tones (UNII Band 2C) – Ch. 122)

Plot 7-173. Power Spectral Density Plot MIMO ANT1 (80MHz BW 802.11ax – 26 Tones (UNII Band 2C) – Ch. 138)



Plot 7-174. Power Spectral Density Plot MIMO ANT1 (160MHz(L) BW 802.11ax – 26 Tones (UNII Band 2C) – Ch. 114)



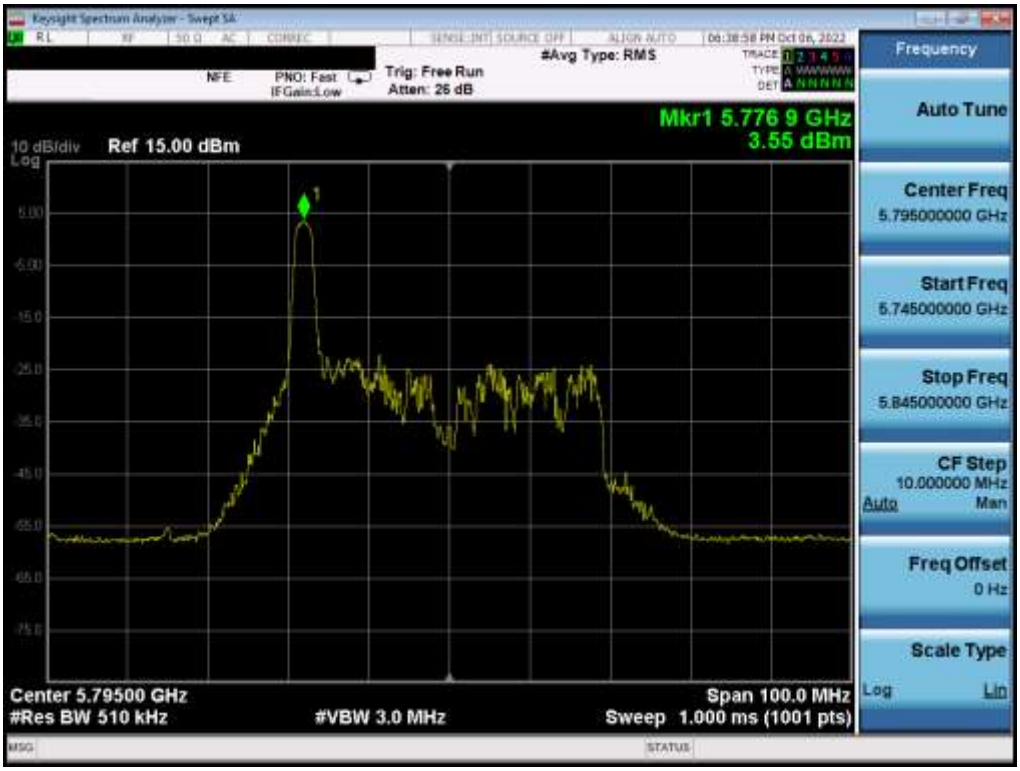
Plot 7-175. Power Spectral Density Plot MIMO ANT1 (160MHz(U) BW 802.11ax – 26 Tones (UNII Band 2C) – Ch. 114)

Plot 7-176. Power Spectral Density Plot MIMO ANT1 (20MHz BW 802.11ax – 26 Tones (UNII Band 3) – Ch. 149)

Plot 7-177. Power Spectral Density Plot MIMO ANT1 (20MHz BW 802.11ax – 26 Tones (UNII Band 3) – Ch. 157)

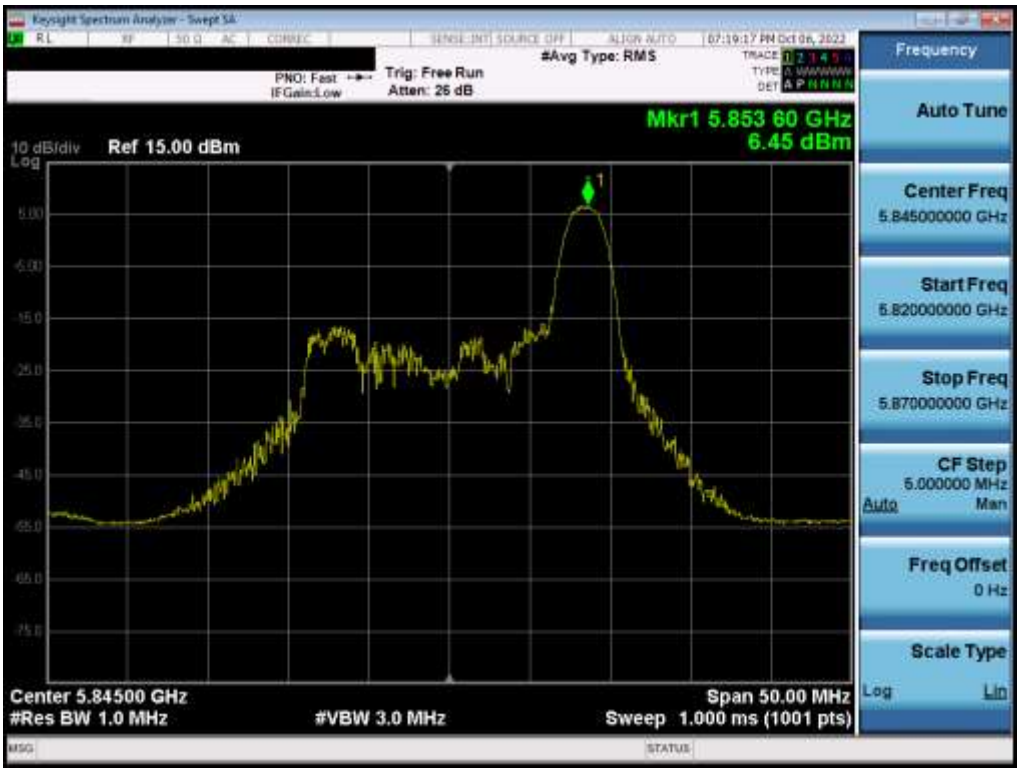
Plot 7-178. Power Spectral Density Plot MIMO ANT1 (20MHz BW 802.11ax – 26 Tones (UNII Band 3) – Ch. 165)

Plot 7-179. Power Spectral Density Plot MIMO ANT1 (40MHz BW 802.11ax – 26 Tones (UNII Band 3) – Ch. 151)



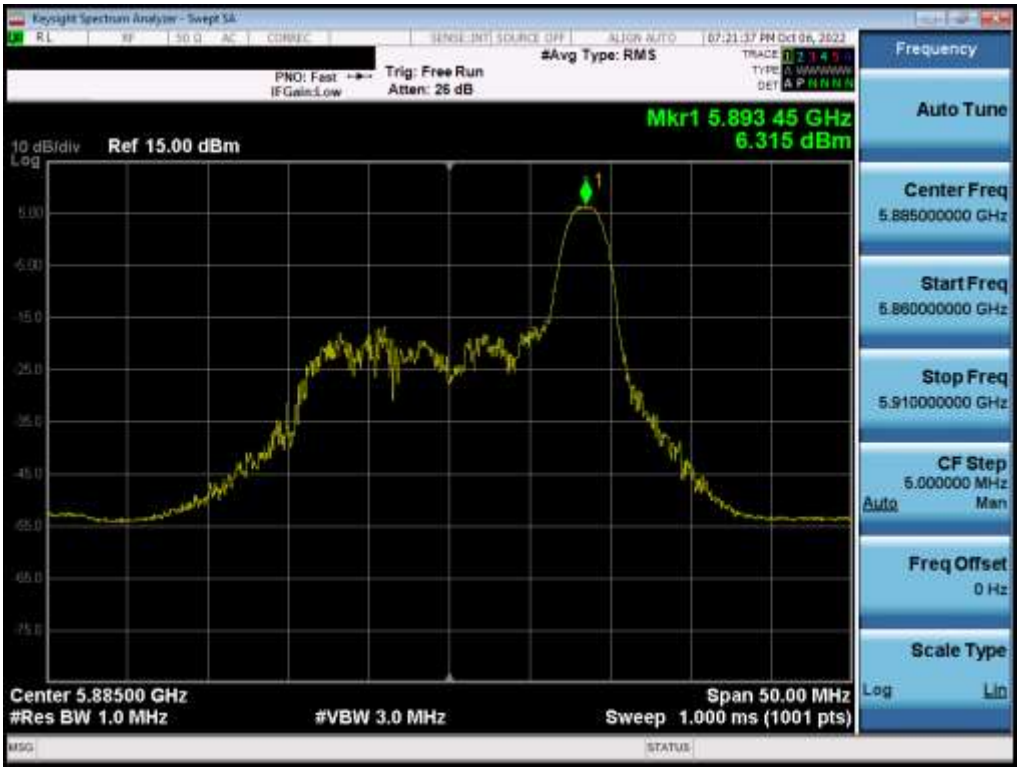
Plot 7-180. Power Spectral Density Plot MIMO ANT1 (40MHz BW 802.11ax – 26 Tones (UNII Band 3) – Ch. 159)

Plot 7-181. Power Spectral Density Plot MIMO ANT1 (80MHz BW 802.11ax – 26 Tones (UNII Band 3) – Ch. 155)

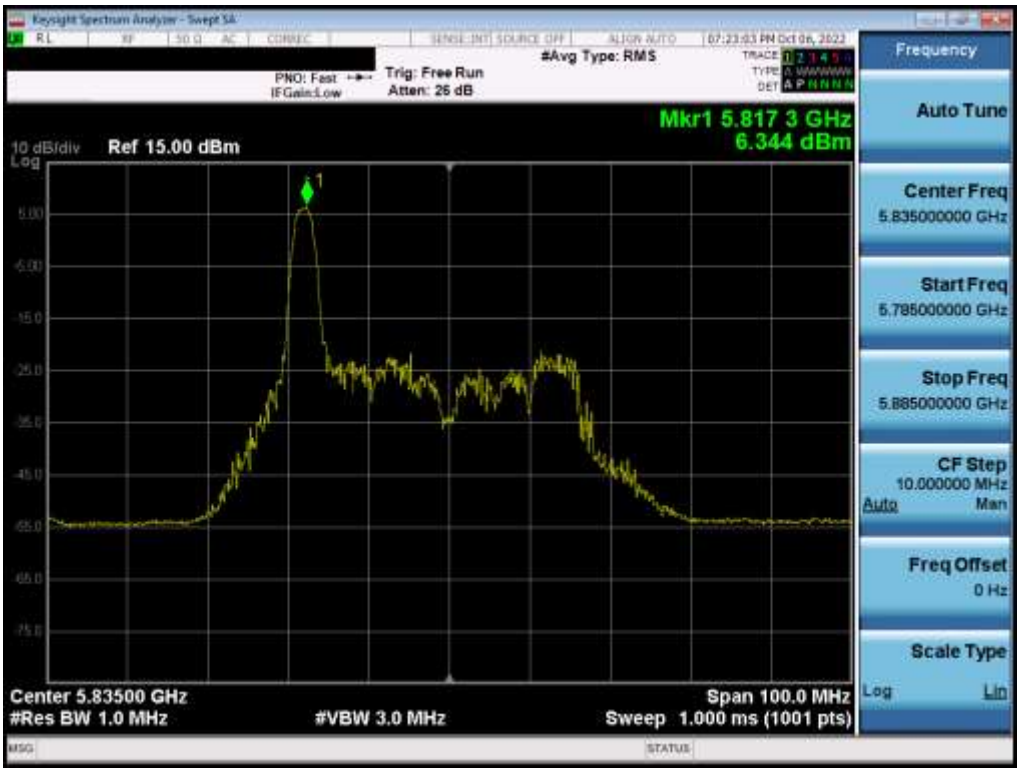


Plot 7-182. Power Spectral Density Plot MIMO ANT1 (20MHz BW 802.11ax – 26 Tones (UNII Band 3/4) – Ch. 169)

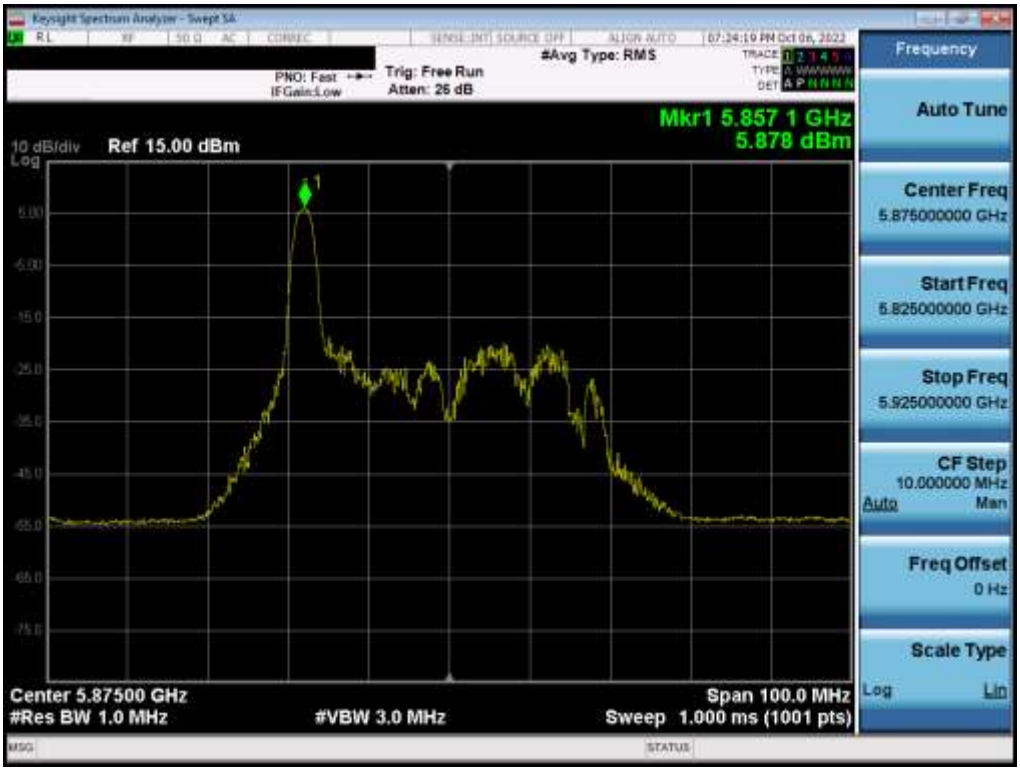
Plot 7-183. Power Spectral Density Plot MIMO ANT1 (20MHz BW 802.11ax – 26 Tones (UNII Band 3) – Ch. 173)



Plot 7-184. Power Spectral Density Plot MIMO ANT1 (20MHz BW 802.11ax – 26 Tones (UNII Band 3) – Ch. 177)

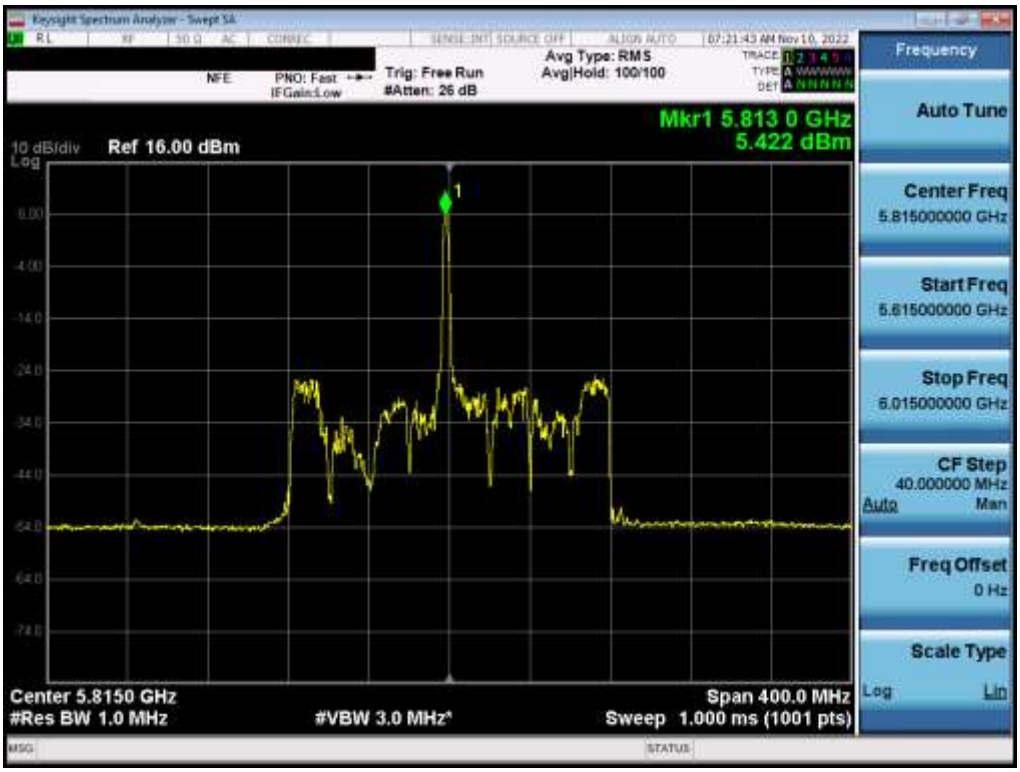


Plot 7-185. Power Spectral Density Plot MIMO ANT1 (40MHz BW 802.11ax – 26 Tones (UNII Band 3/4) – Ch. 167)

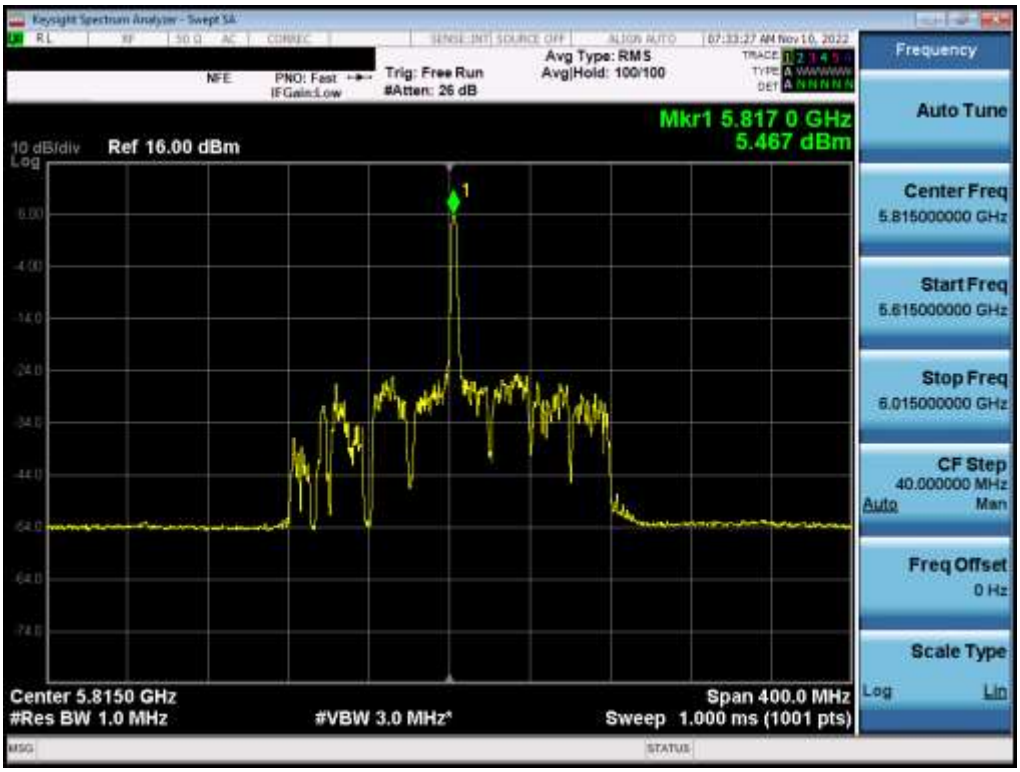


Plot 7-186. Power Spectral Density Plot MIMO ANT1 (40MHz BW 802.11ax – 26 Tones (UNII Band 3) – Ch. 175)

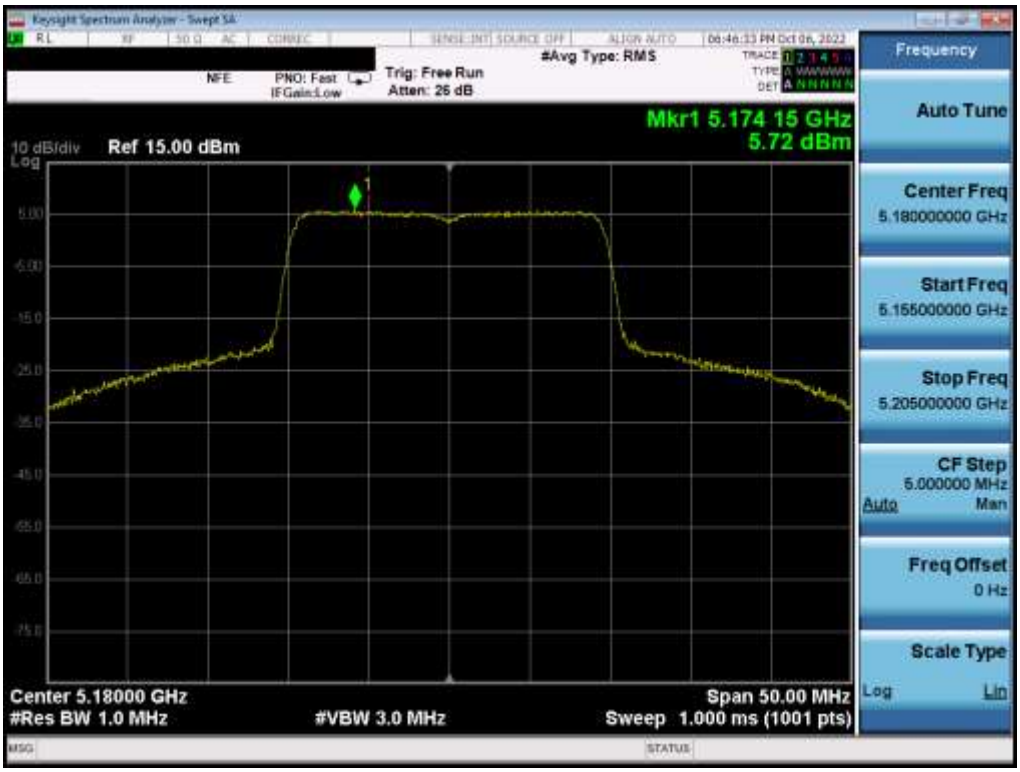
Plot 7-187. Power Spectral Density Plot MIMO ANT1 (80MHz BW 802.11ax – 26 Tones (UNII Band 3/4) – Ch. 171)



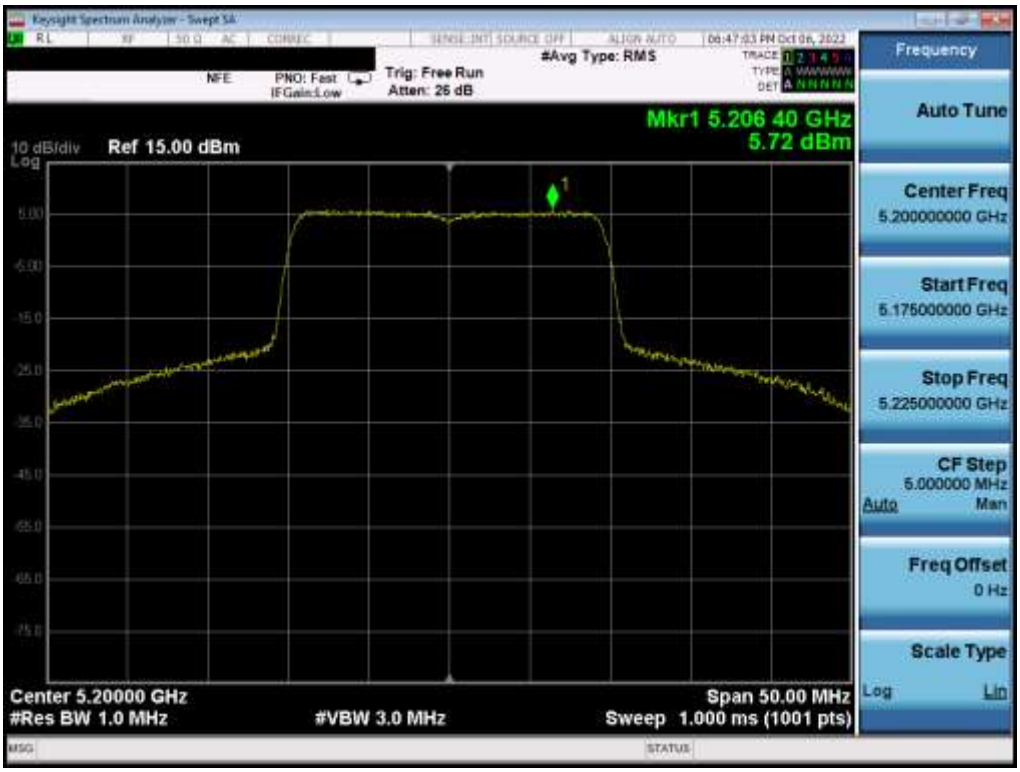
Plot 7-188. Power Spectral Density Plot MIMO ANT1 (160MHz(L) BW 802.11ax – 26 Tones (UNII Band 3/4) – Ch. 163)



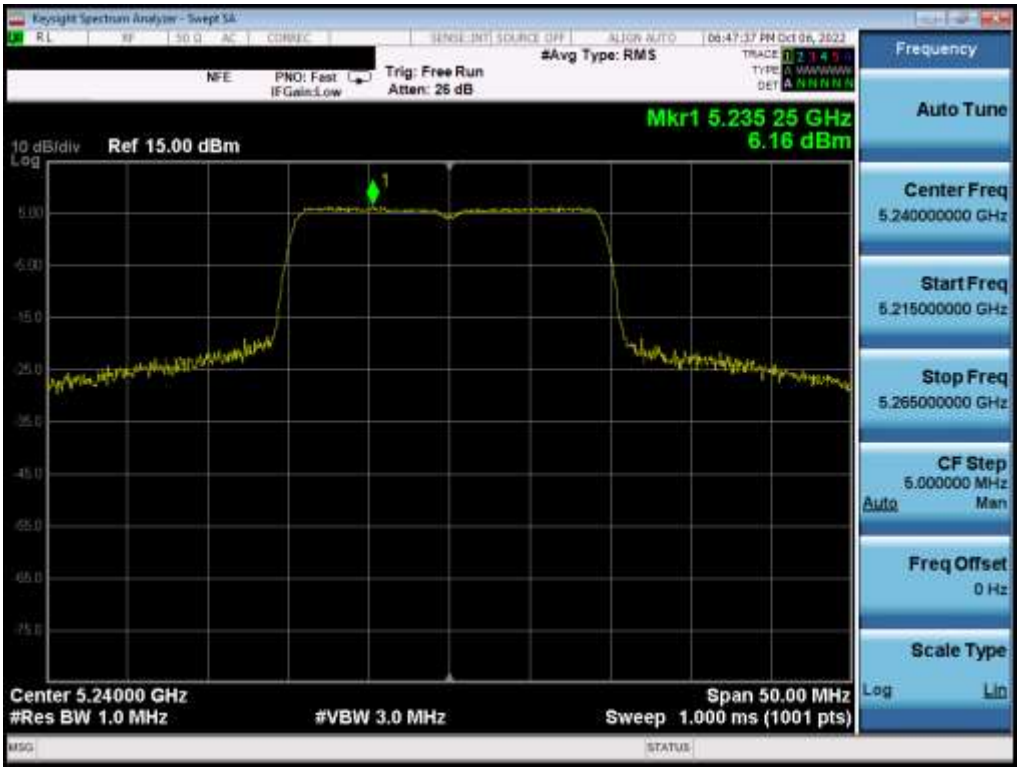
Plot 7-189. Power Spectral Density Plot MIMO ANT1 (160MHz(U) BW 802.11ax – 26 Tones (UNII Band 3/4) – Ch. 163)



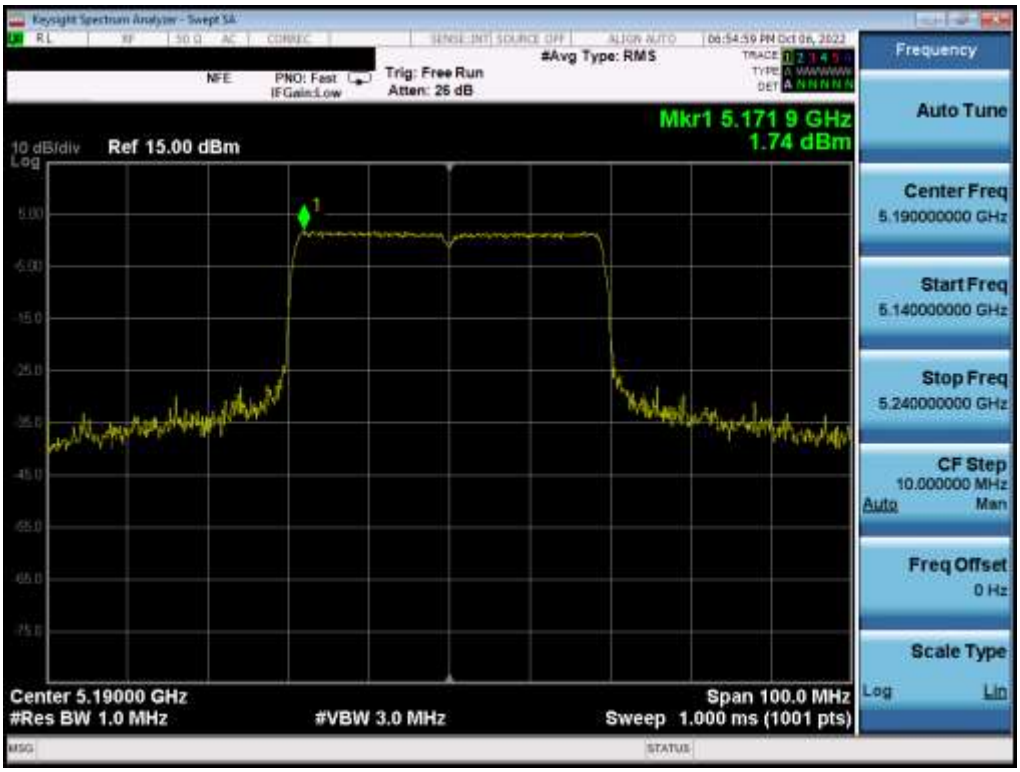
Plot 7-190. Power Spectral Density Plot MIMO ANT1 (20MHz BW 802.11ax – Full Tones (UNII Band 1) – Ch. 36)



Plot 7-191. Power Spectral Density Plot MIMO ANT1 (20MHz BW 802.11ax – Full Tones (UNII Band 1) – Ch. 40)

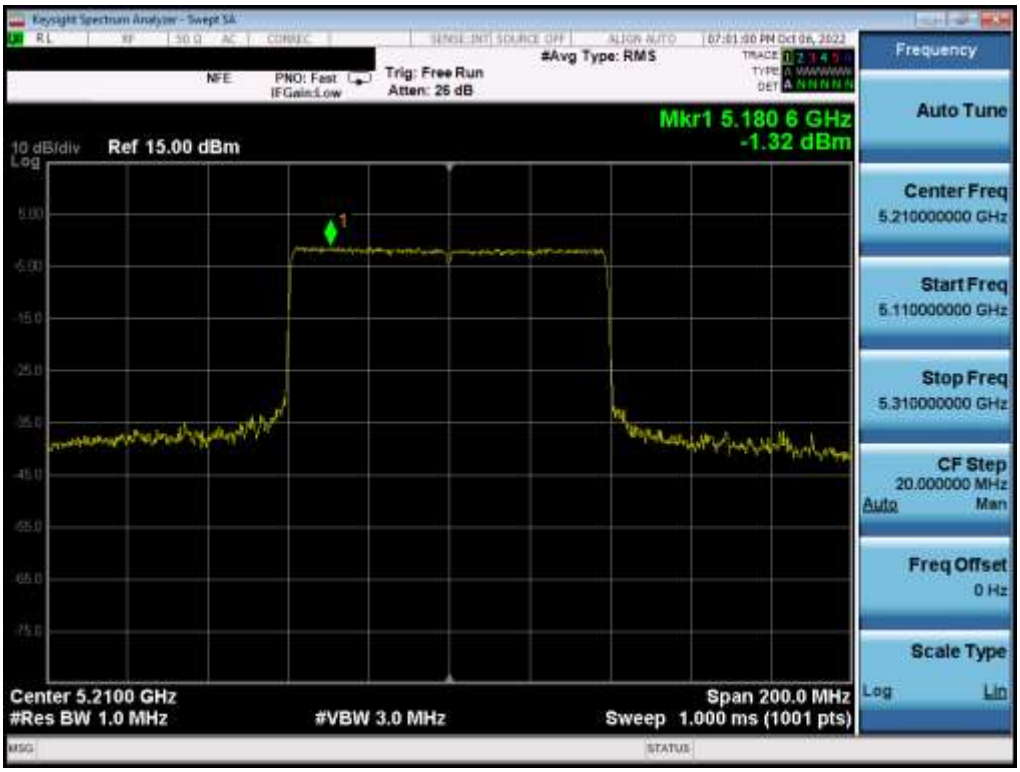


Plot 7-192. Power Spectral Density Plot MIMO ANT1 (20MHz BW 802.11ax – Full Tones (UNII Band 1) – Ch. 48)

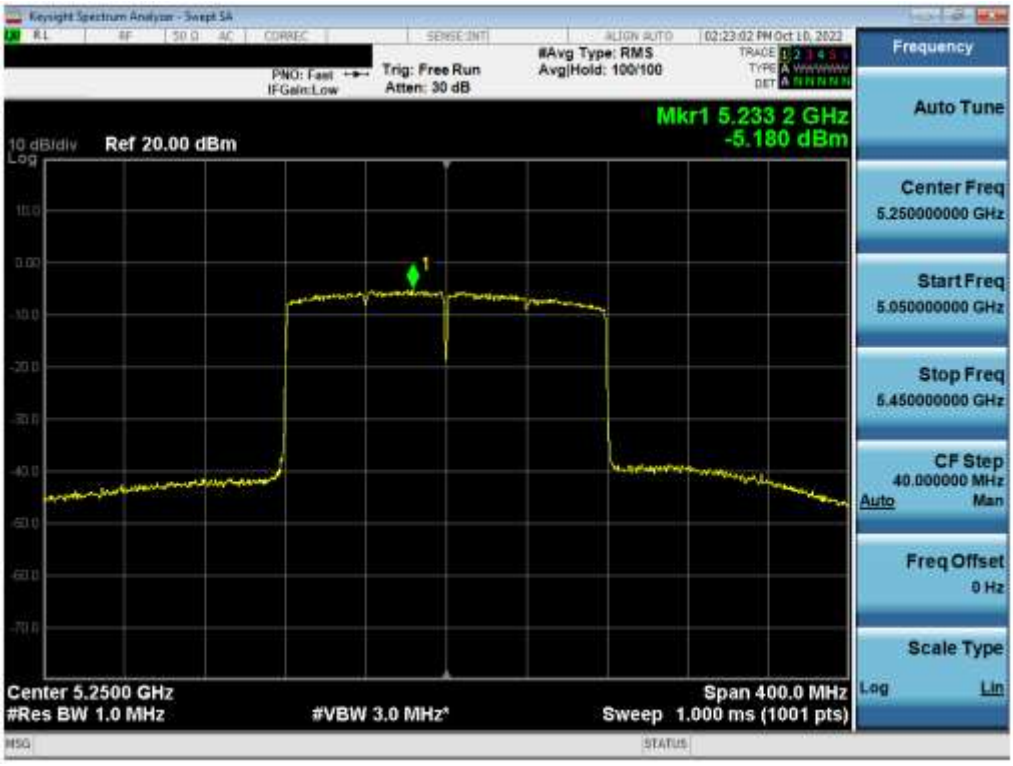


Plot 7-193. Power Spectral Density Plot MIMO ANT1 (40MHz BW 802.11ax – Full Tones (UNII Band 1) – Ch. 38)

Plot 7-194. Power Spectral Density Plot MIMO ANT1 (40MHz BW 802.11ax – Full Tones (UNII Band 1) – Ch. 46)

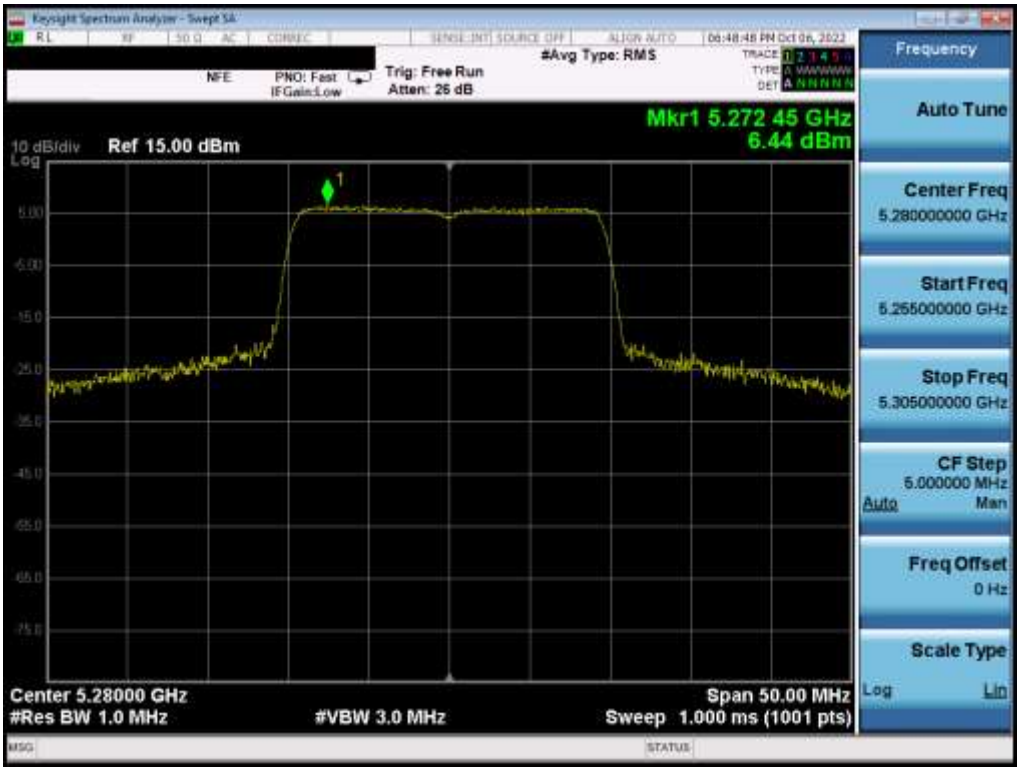


Plot 7-195. Power Spectral Density Plot MIMO ANT1 (80MHz BW 802.11ax – Full Tones (UNII Band 1) – Ch. 42)



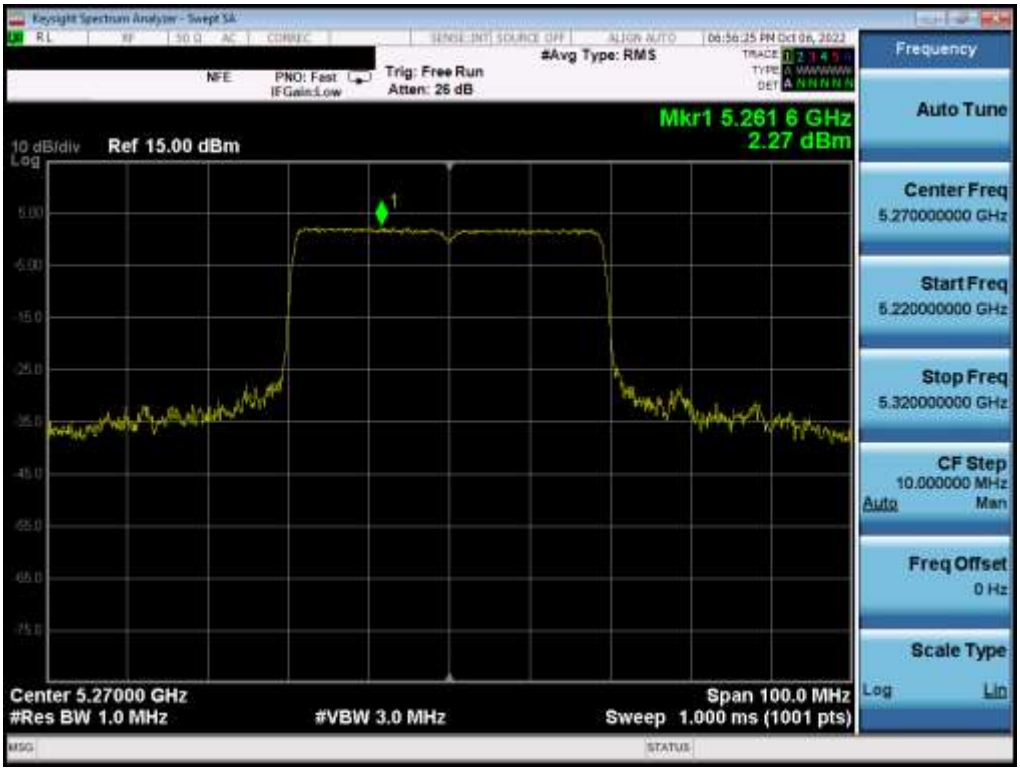
Plot 7-196. Power Spectral Density Plot MIMO ANT1 (160MHz BW 802.11ax – Full Tones (UNII Band 1/2A) – Ch. 50)

Plot 7-197. Power Spectral Density Plot MIMO ANT1 (20MHz BW 802.11ax – Full Tones (UNII Band 2A) – Ch. 52)



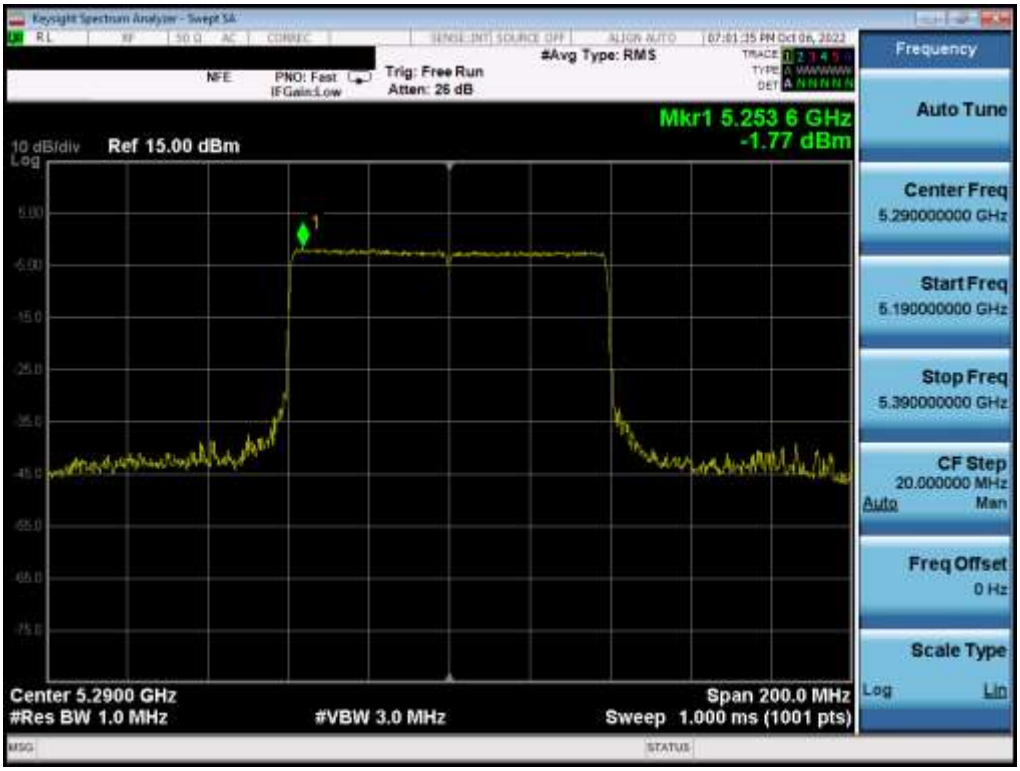
Plot 7-198. Power Spectral Density Plot MIMO ANT1 (20MHz BW 802.11ax – Full Tones (UNII Band 2A) – Ch. 56)

Plot 7-199. Power Spectral Density Plot MIMO ANT1 (20MHz BW 802.11ax – Full Tones (UNII Band 2A) – Ch. 64)



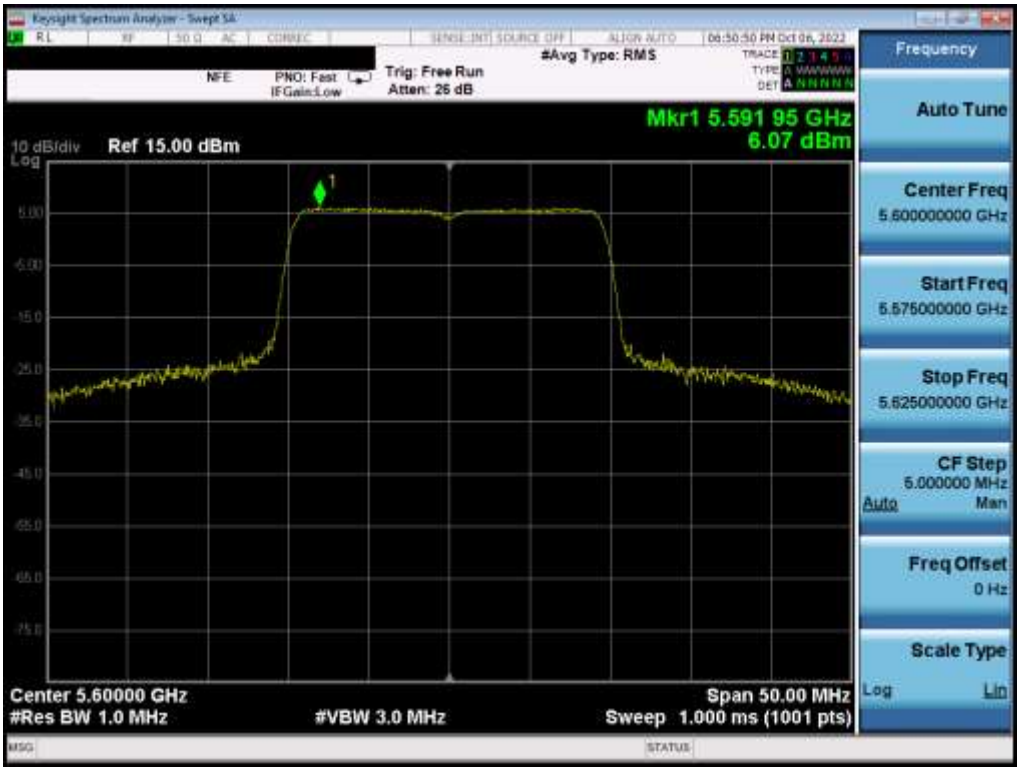
Plot 7-200. Power Spectral Density Plot MIMO ANT1 (40MHz BW 802.11ax – Full Tones (UNII Band 2A) – Ch. 54)

Plot 7-201. Power Spectral Density Plot MIMO ANT1 (40MHz BW 802.11ax – Full Tones (UNII Band 2A) – Ch. 62)

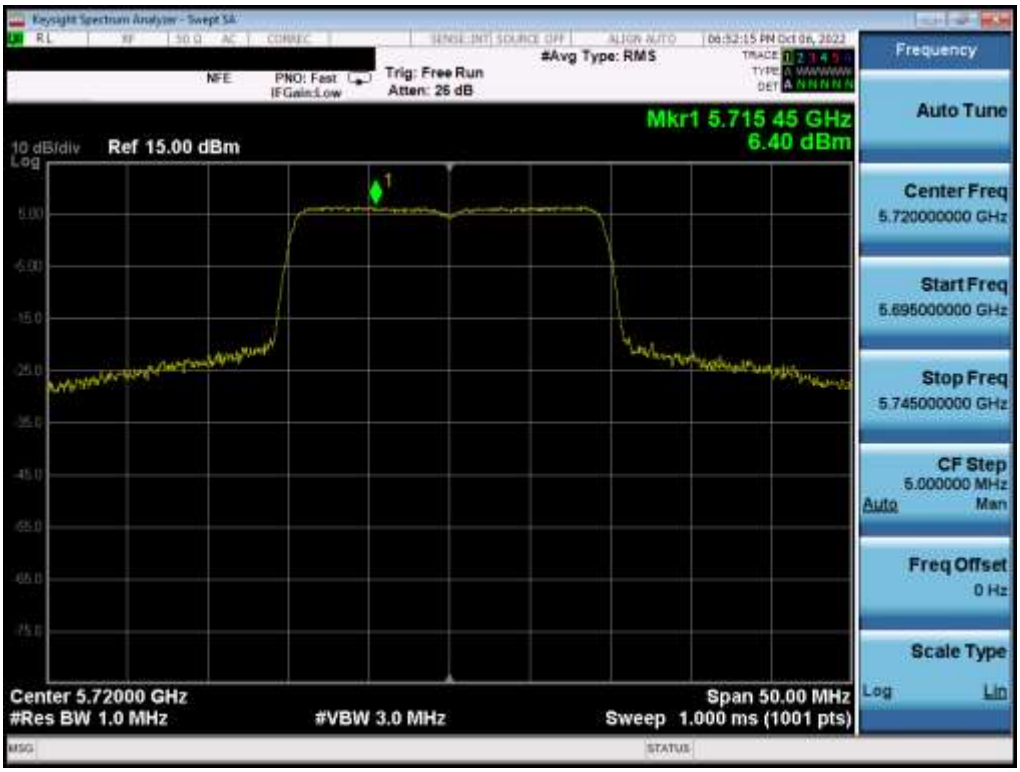


Plot 7-202. Power Spectral Density Plot MIMO ANT1 (80MHz BW 802.11ax – Full Tones (UNII Band 2A) – Ch. 58)

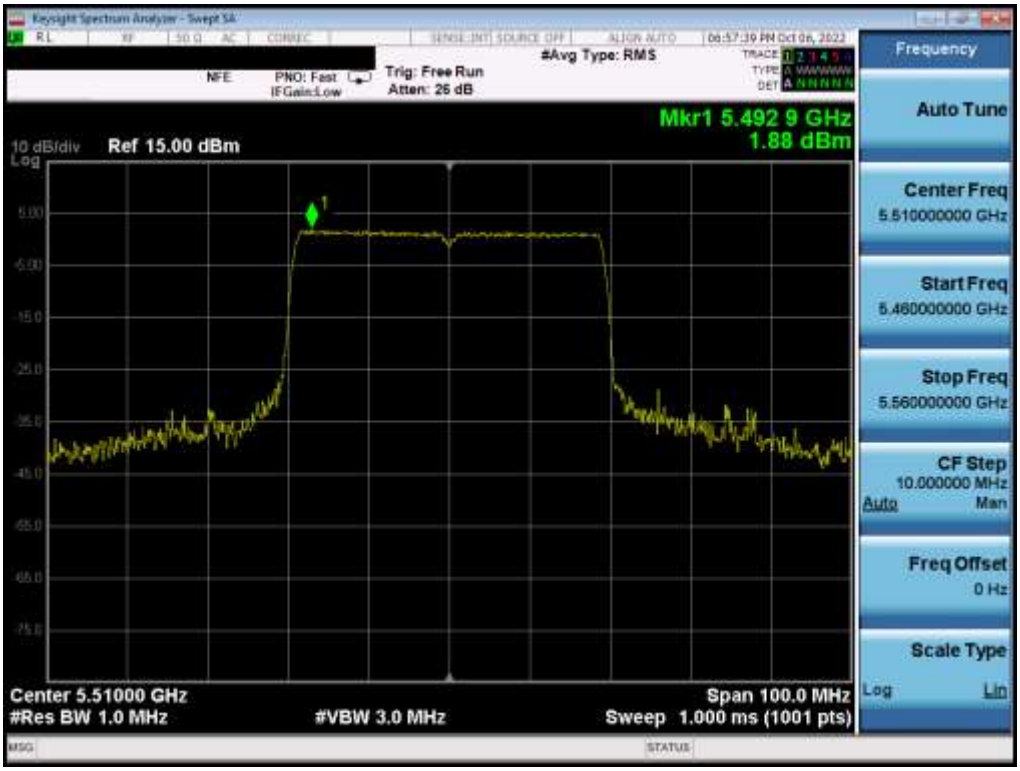
Plot 7-203. Power Spectral Density Plot MIMO ANT1 (20MHz BW 802.11ax – Full Tones (UNII Band 2C) – Ch. 100)



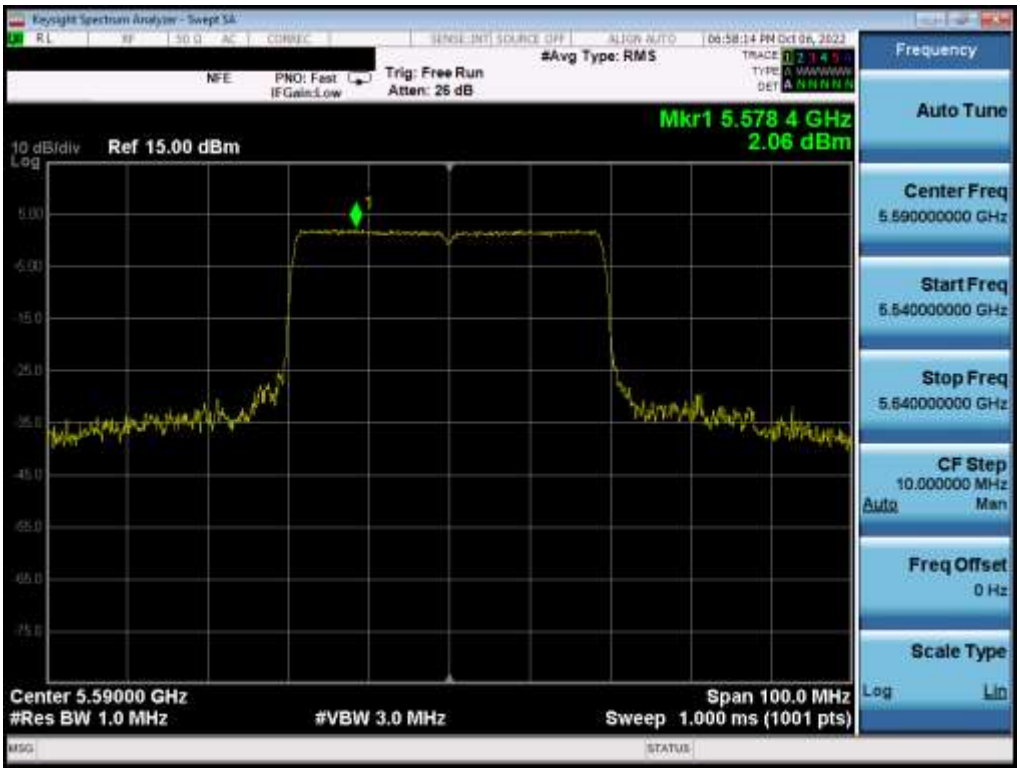
Plot 7-204. Power Spectral Density Plot MIMO ANT1 (20MHz BW 802.11ax – Full Tones (UNII Band 2C) – Ch. 120)



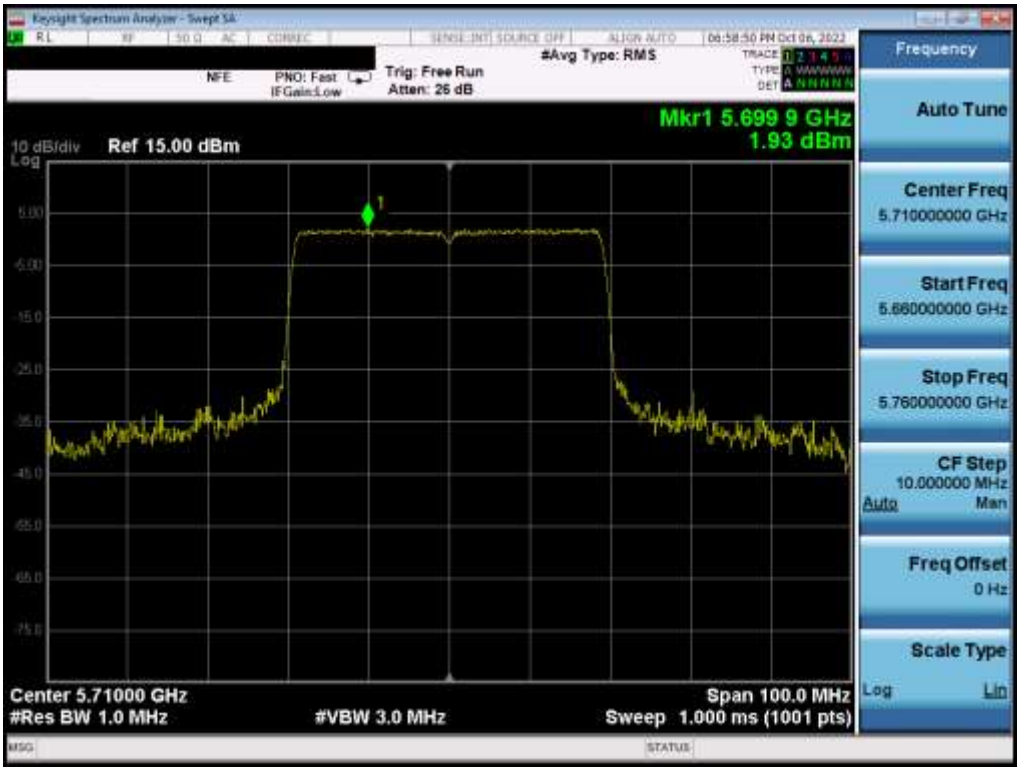
Plot 7-205. Power Spectral Density Plot MIMO ANT1 (20MHz BW 802.11ax – Full Tones (UNII Band 2C) – Ch. 144)



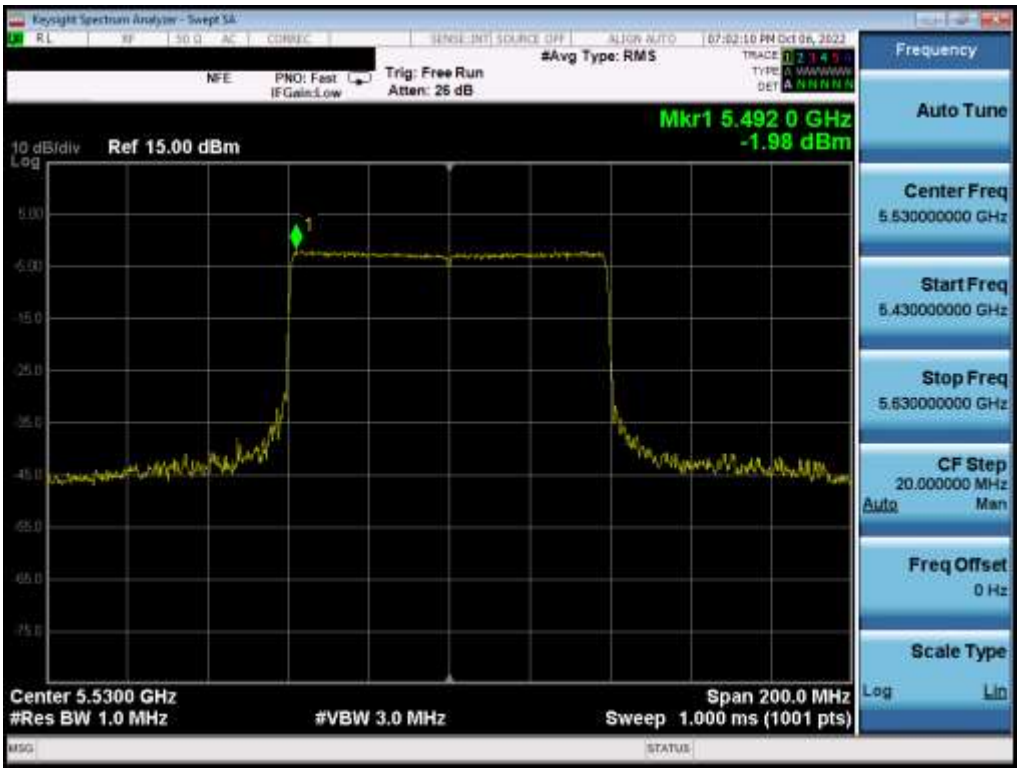
Plot 7-206. Power Spectral Density Plot MIMO ANT1 (40MHz BW 802.11ax – Full Tones (UNII Band 2C) – Ch. 102)



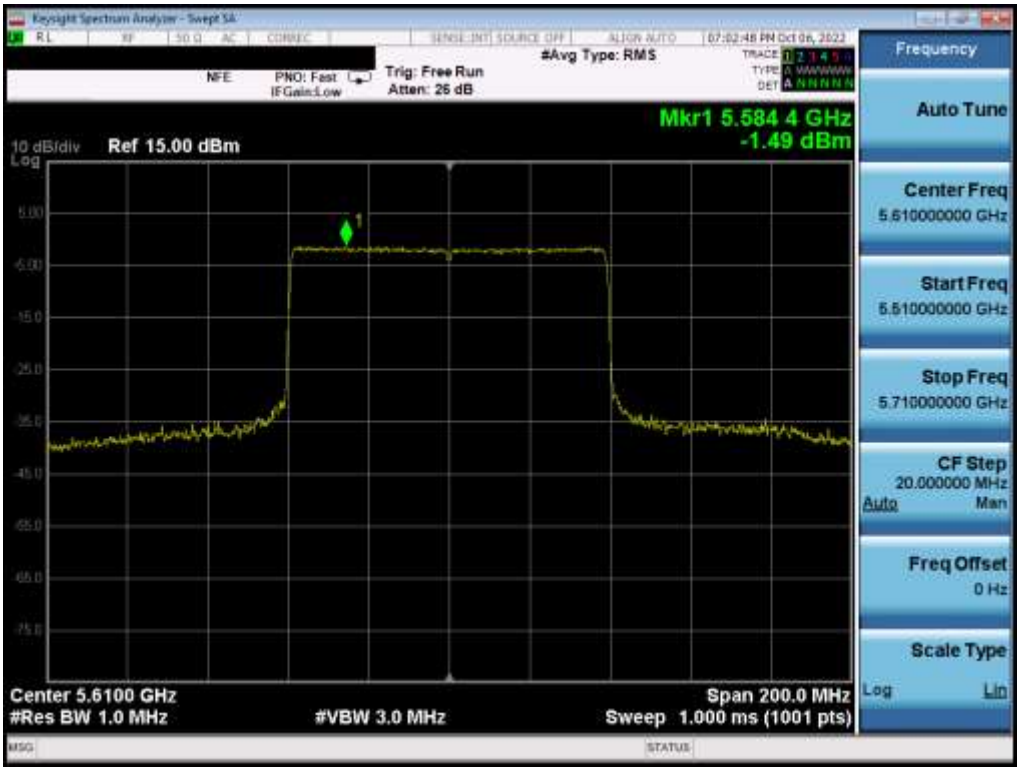
Plot 7-207. Power Spectral Density Plot MIMO ANT1 (40MHz BW 802.11ax – Full Tones (UNII Band 2C) – Ch. 118)



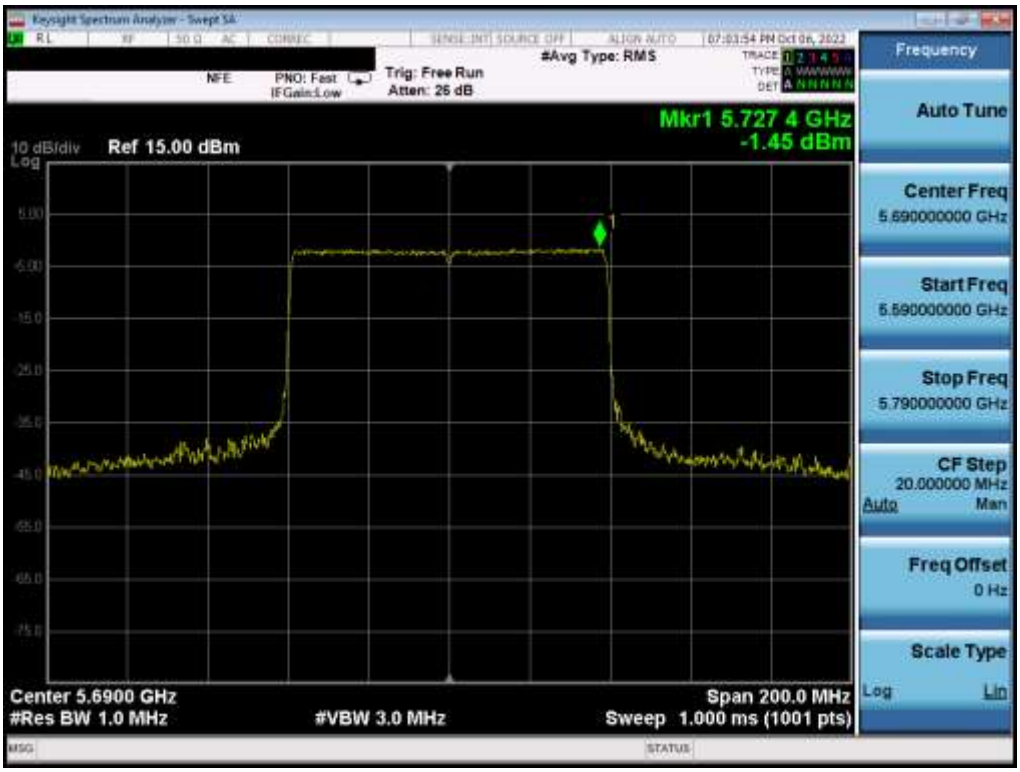
Plot 7-208. Power Spectral Density Plot MIMO ANT1 (40MHz BW 802.11ax – Full Tones (UNII Band 2C) – Ch. 142)



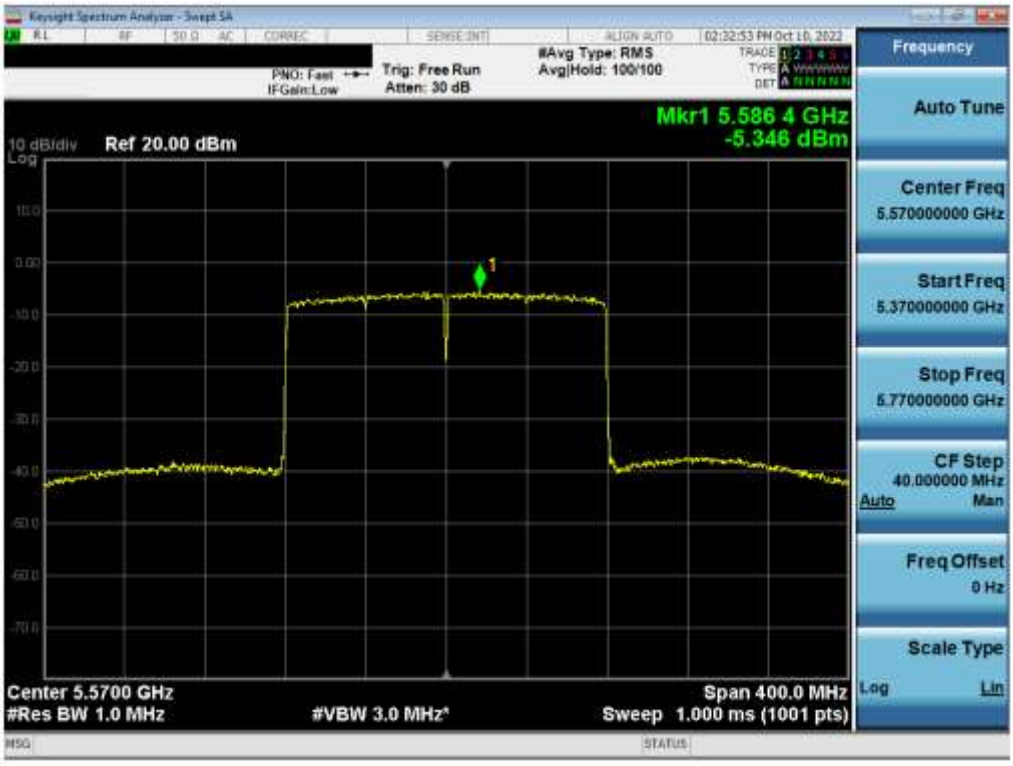
Plot 7-209. Power Spectral Density Plot MIMO ANT1 (80MHz BW 802.11ax – Full Tones (UNII Band 2C) – Ch. 106)



Plot 7-210. Power Spectral Density Plot MIMO ANT1 (80MHz BW 802.11ax – Full Tones (UNII Band 2C) – Ch. 122)



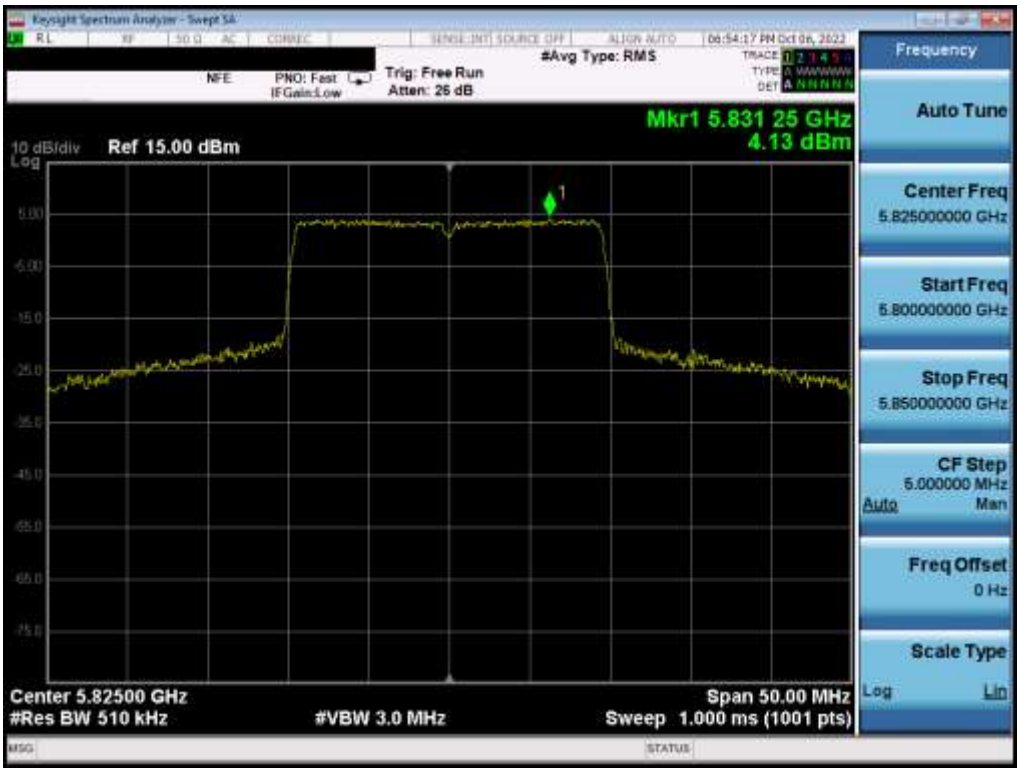
Plot 7-211. Power Spectral Density Plot MIMO ANT1 (80MHz BW 802.11ax – Full Tones (UNII Band 2C) – Ch. 138)



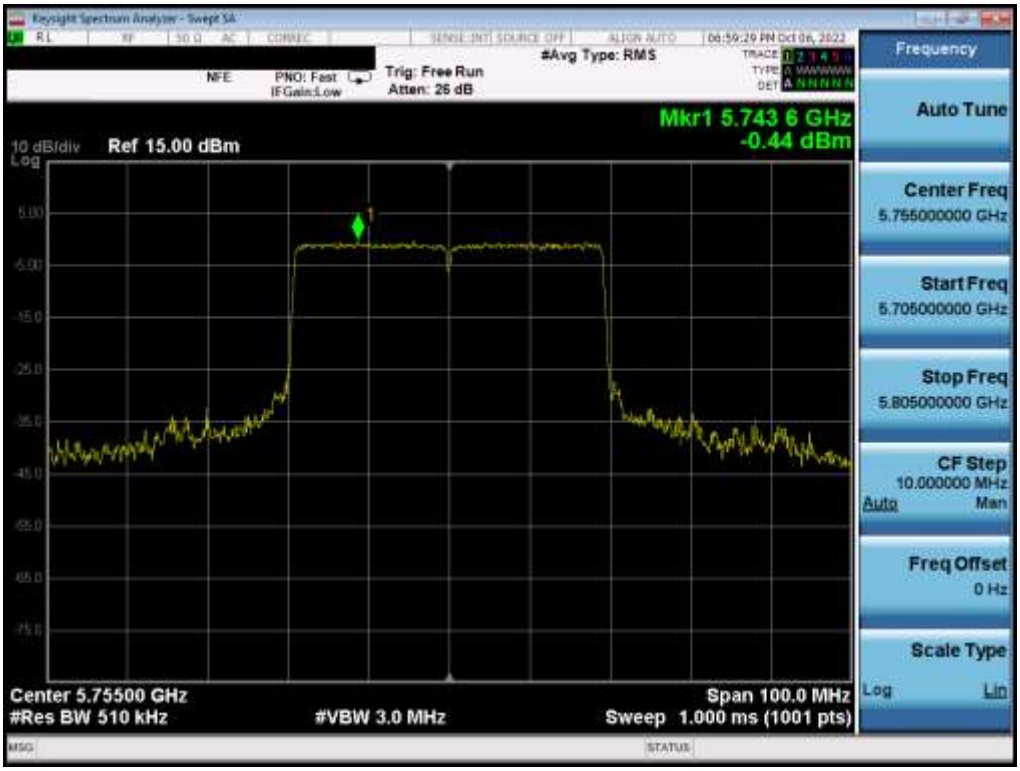
Plot 7-212. Power Spectral Density Plot MIMO ANT1 (160MHz BW 802.11ax – Full Tones (UNII Band 2C) – Ch. 114)

Plot 7-213. Power Spectral Density Plot MIMO ANT1 (20MHz BW 802.11ax – Full Tones (UNII Band 3) – Ch. 149)

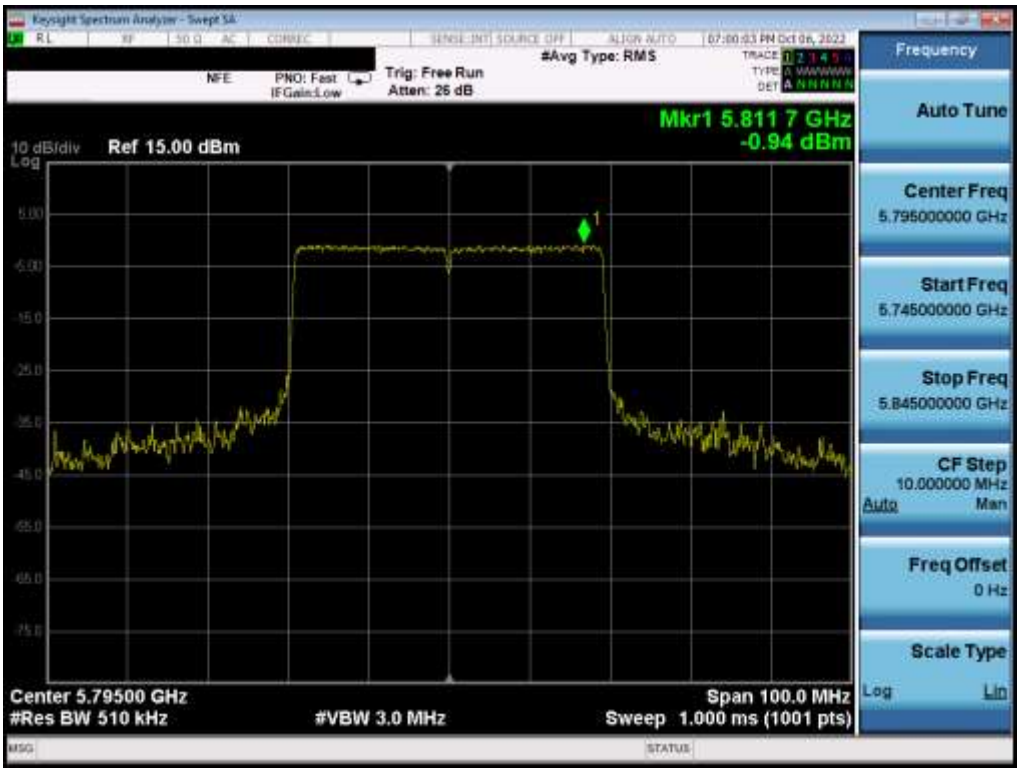
Plot 7-214. Power Spectral Density Plot MIMO ANT1 (20MHz BW 802.11ax – Full Tones (UNII Band 3) – Ch. 157)



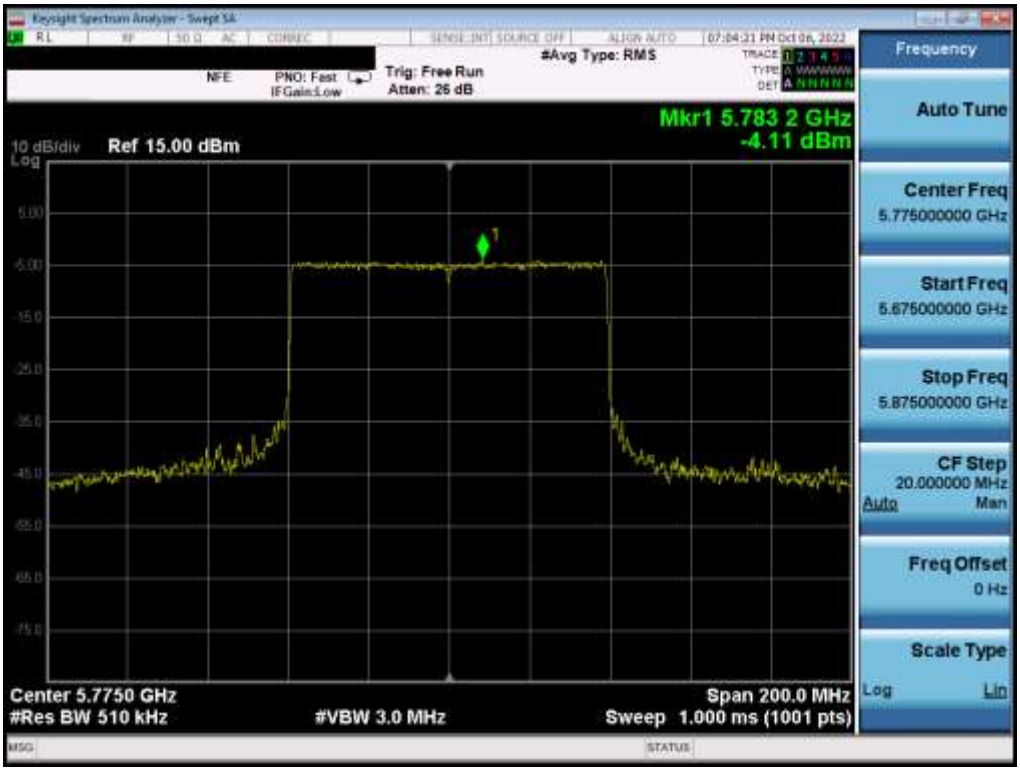
Plot 7-215. Power Spectral Density Plot MIMO ANT1 (20MHz BW 802.11ax – Full Tones (UNII Band 3) – Ch. 165)



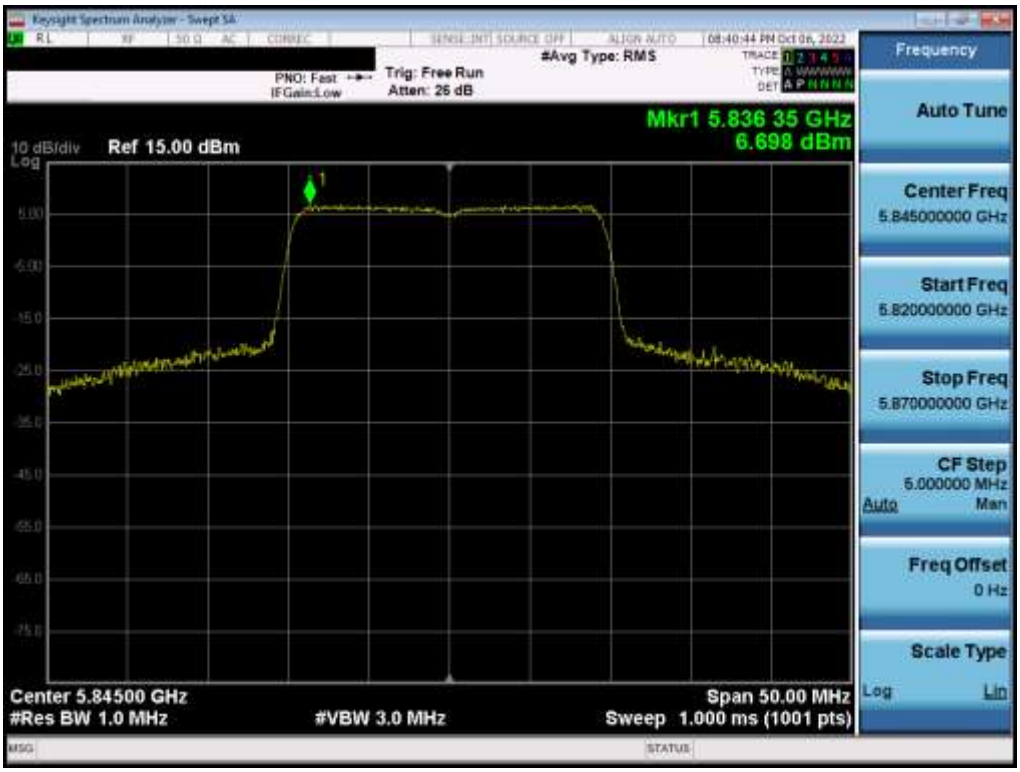
Plot 7-216. Power Spectral Density Plot MIMO ANT1 (40MHz BW 802.11ax – Full Tones (UNII Band 3) – Ch. 151)



Plot 7-217. Power Spectral Density Plot MIMO ANT1 (40MHz BW 802.11ax – Full Tones (UNII Band 3) – Ch. 159)

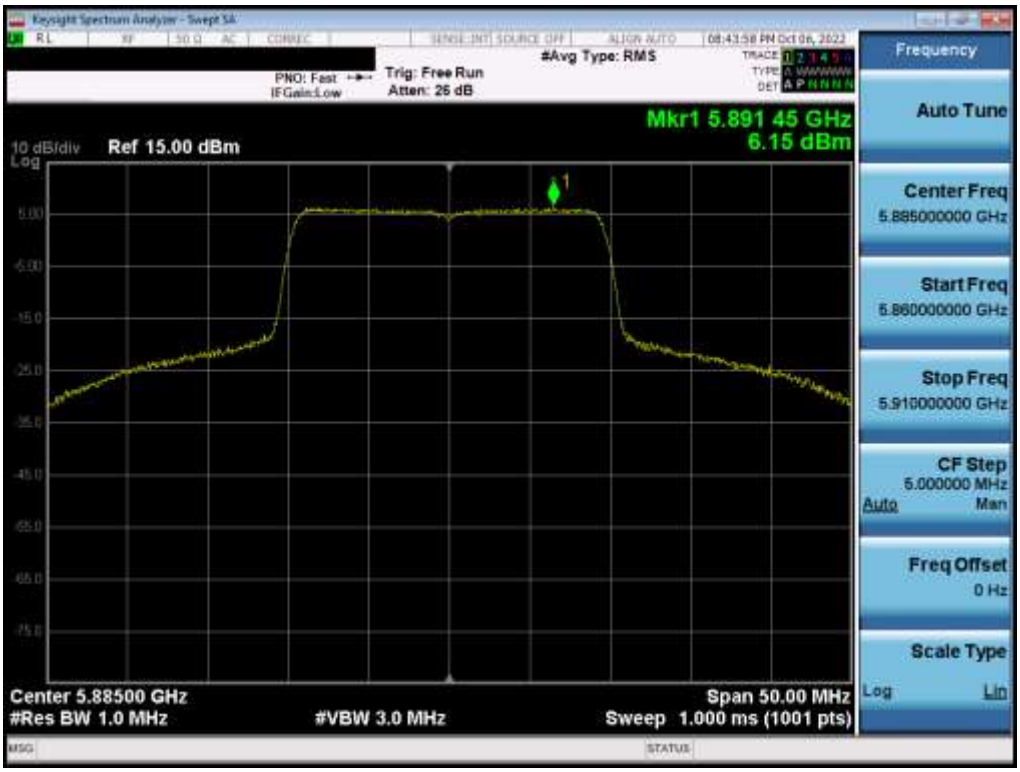


Plot 7-218. Power Spectral Density Plot MIMO ANT1 (80MHz BW 802.11ax – Full Tones (UNII Band 3) – Ch. 155)

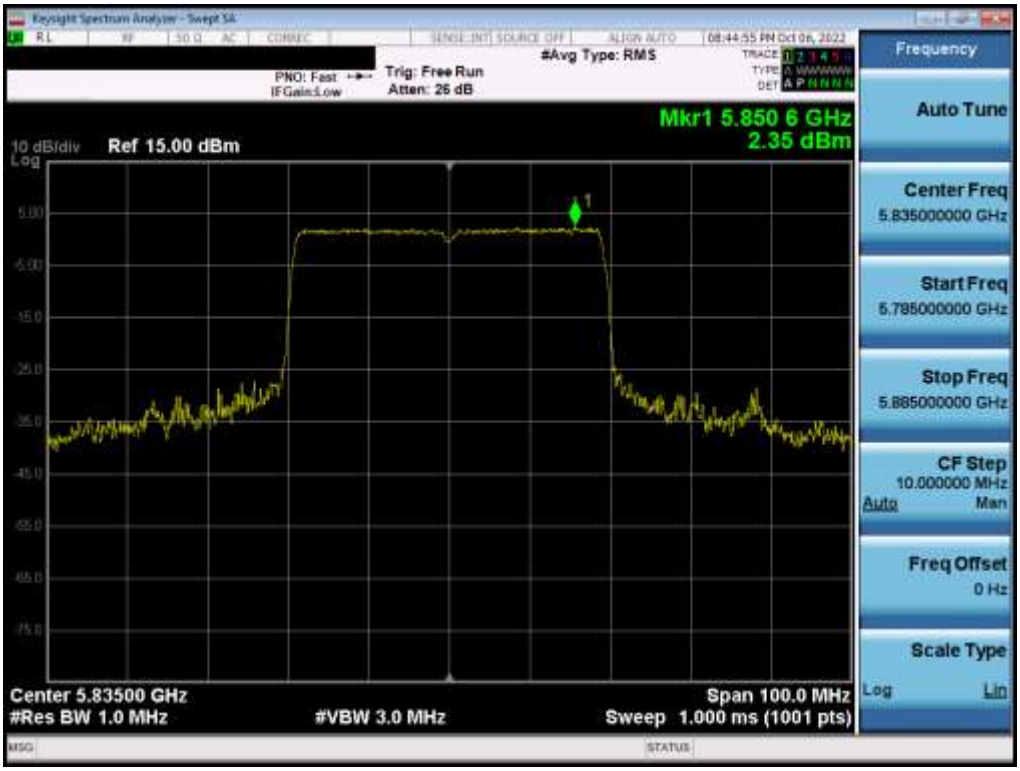


Plot 7-219. Power Spectral Density Plot MIMO ANT1 (20MHz BW 802.11ax – Full Tones (UNII Band 3/4) – Ch. 169)

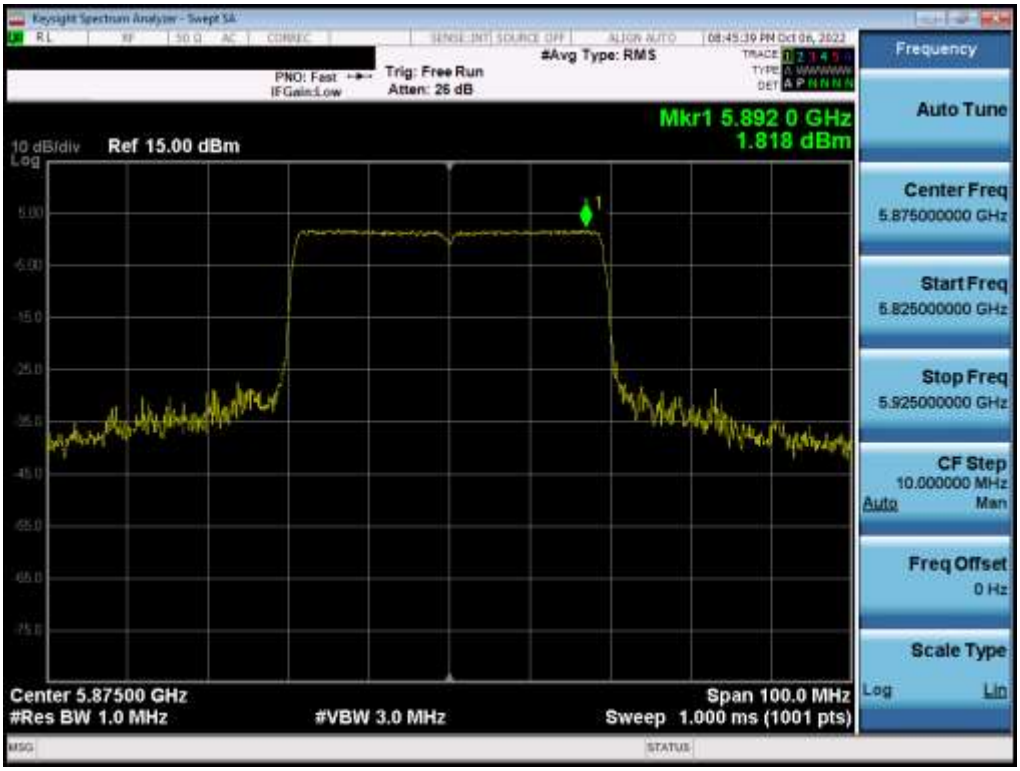
Plot 7-220. Power Spectral Density Plot MIMO ANT1 (20MHz BW 802.11ax – Full Tones (UNII Band 3) – Ch. 173)



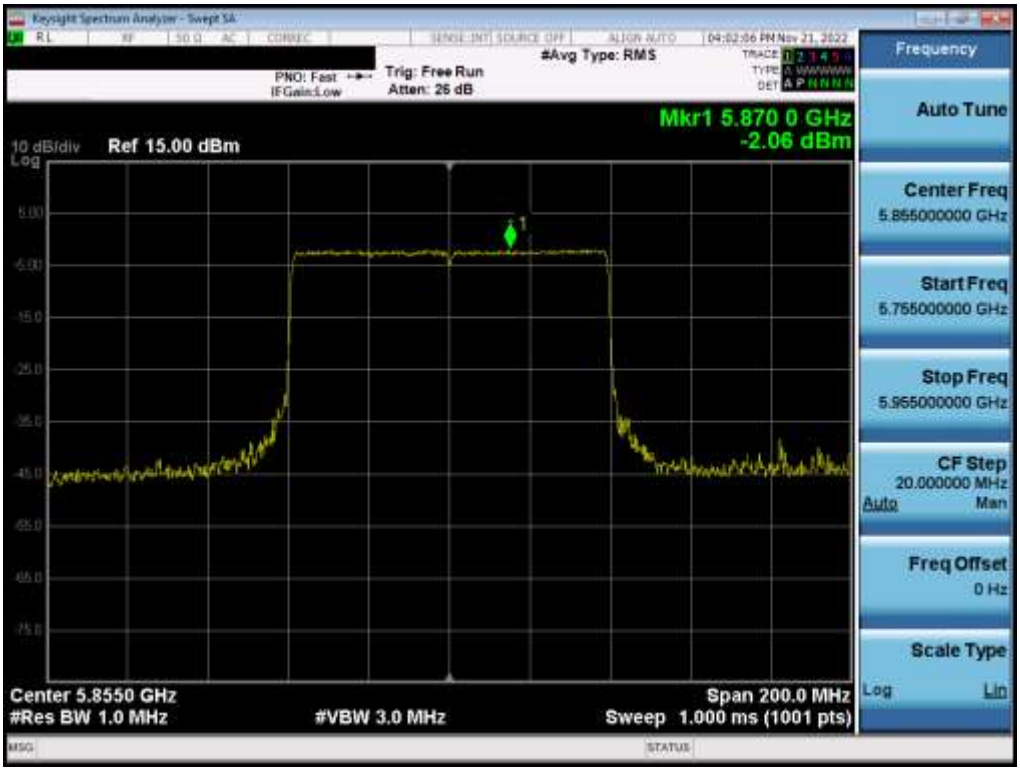
Plot 7-221. Power Spectral Density Plot MIMO ANT1 (20MHz BW 802.11ax – Full Tones (UNII Band 3) – Ch. 177)



Plot 7-222. Power Spectral Density Plot MIMO ANT1 (40MHz BW 802.11ax – Full Tones (UNII Band 3/4) – Ch. 167)



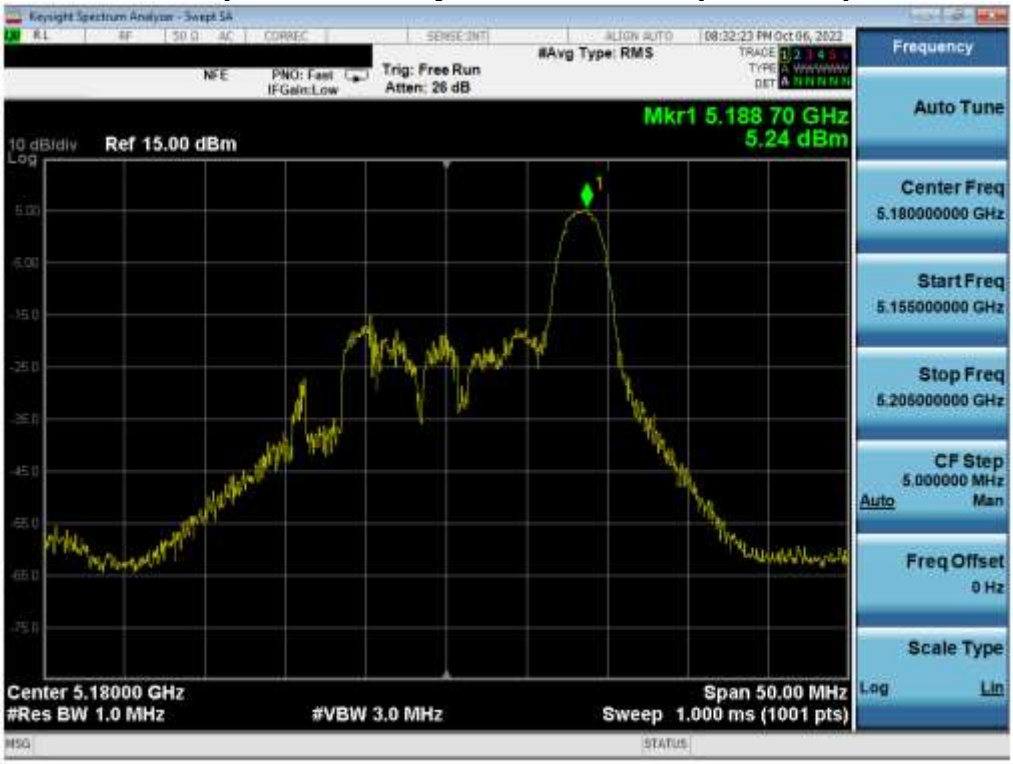
Plot 7-223. Power Spectral Density Plot MIMO ANT1 (40MHz BW 802.11ax – Full Tones (UNII Band 3) – Ch. 175)



Plot 7-224. Power Spectral Density Plot MIMO ANT1 (80MHz BW 802.11ax – Full Tones (UNII Band 3/4) – Ch. 171)

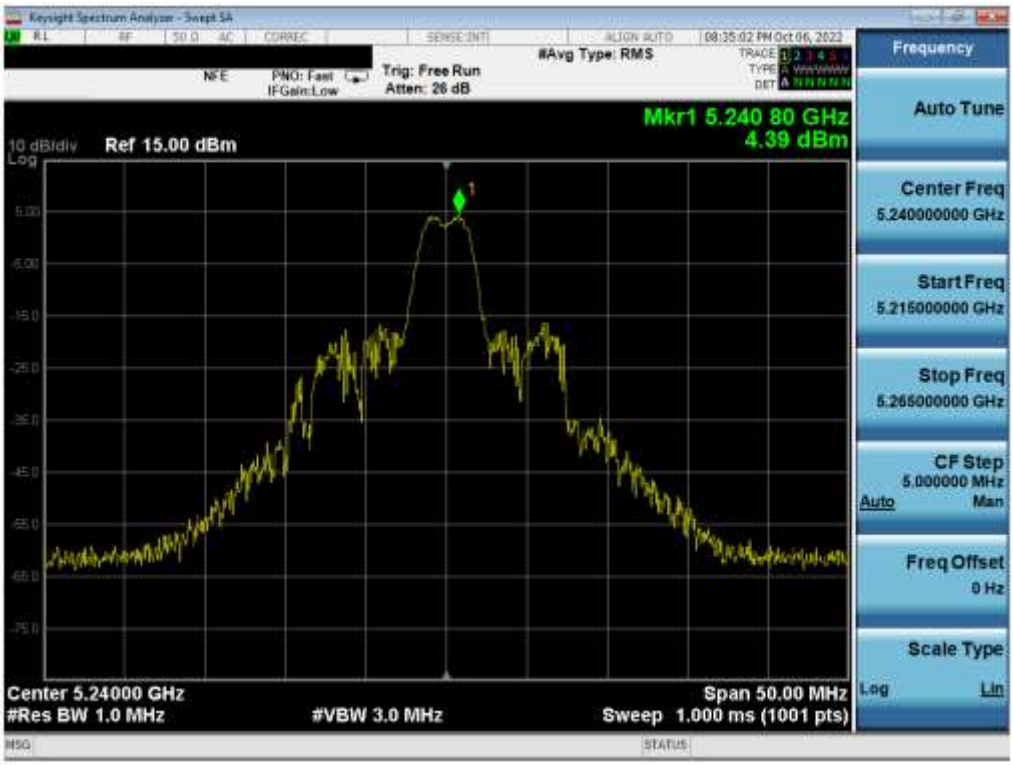
Plot 7-225. Power Spectral Density Plot MIMO ANT1 (160MHz BW 802.11ax – Full Tones (UNII Band 3/4) – Ch. 163)

MIMO Antenna-2 Power Spectral Density Measurements (26 Tones)



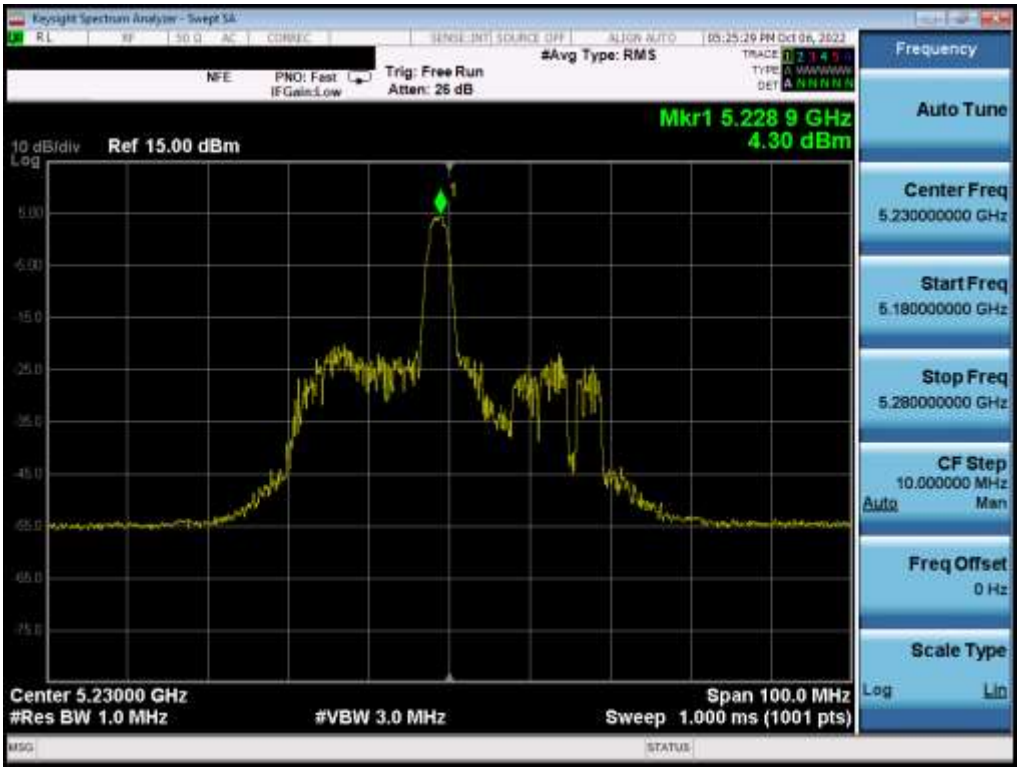
Plot 7-226. Power Spectral Density Plot MIMO ANT2 (20MHz BW 802.11ax – 26 Tones (UNII Band 1) – Ch. 36)

Plot 7-227. Power Spectral Density Plot MIMO ANT2 (20MHz BW 802.11ax – 26 Tones (UNII Band 1) – Ch. 40)

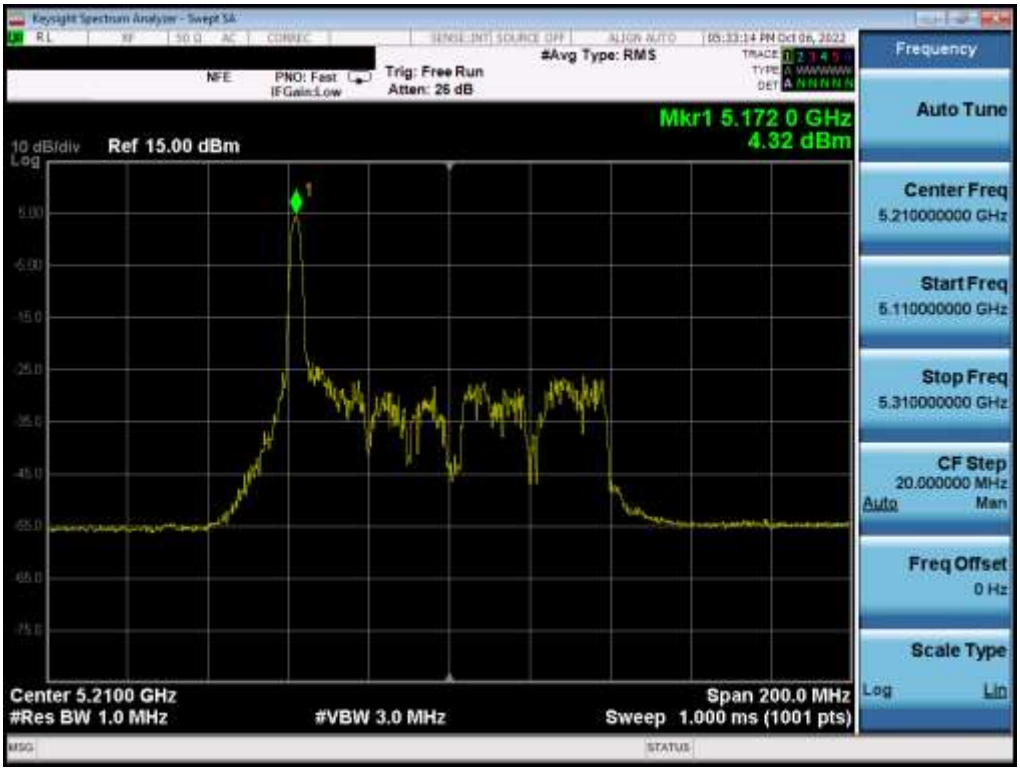


Plot 7-228. Power Spectral Density Plot MIMO ANT2 (20MHz BW 802.11ax – 26 Tones (UNII Band 1) – Ch. 48)

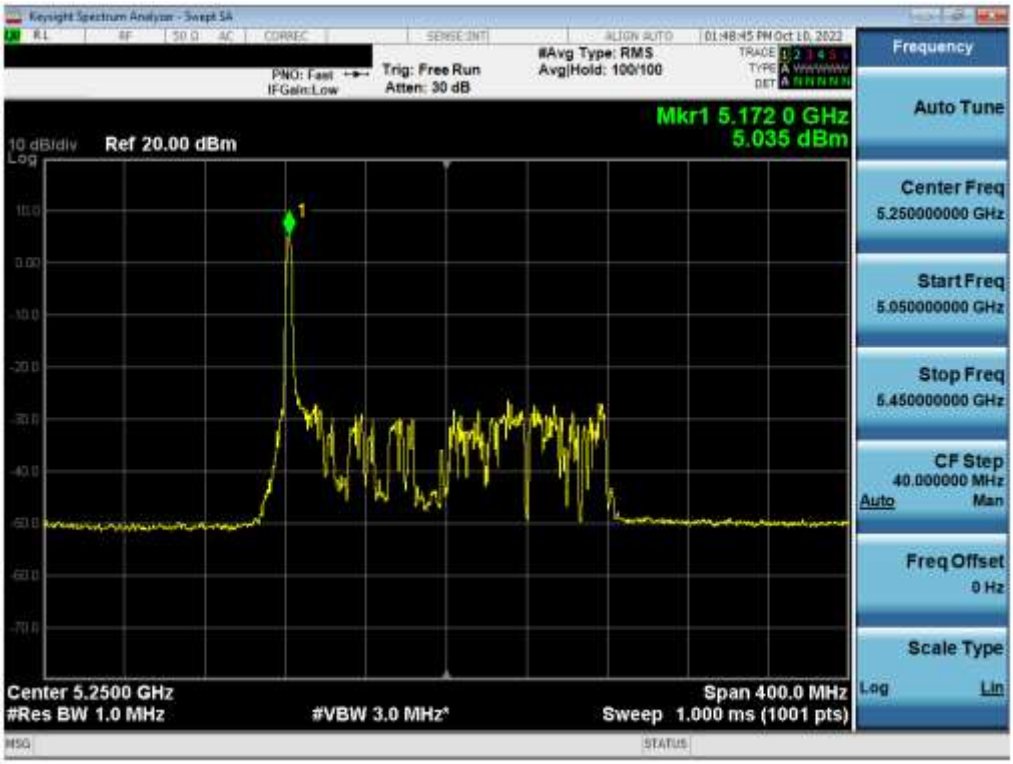
Plot 7-229. Power Spectral Density Plot MIMO ANT2 (40MHz BW 802.11ax – 26 Tones (UNII Band 1) – Ch. 38)



Plot 7-230. Power Spectral Density Plot MIMO ANT2 (40MHz BW 802.11ax – 26 Tones (UNII Band 1) – Ch. 46)



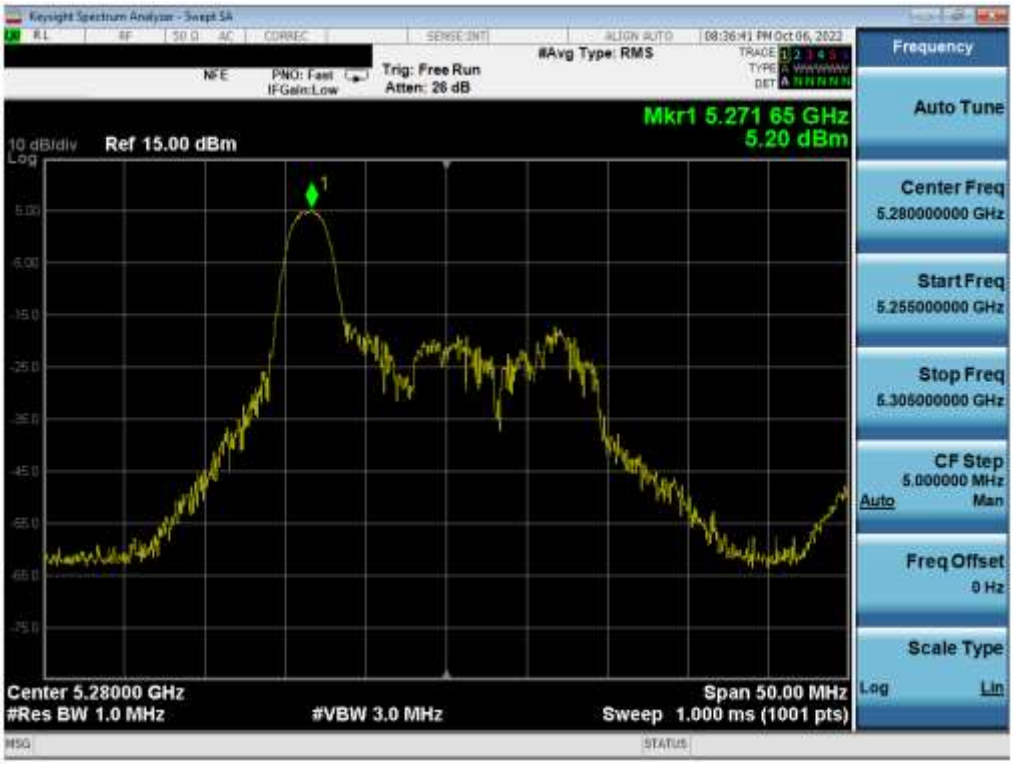
Plot 7-231. Power Spectral Density Plot MIMO ANT2 (80MHz BW 802.11ax – 26 Tones (UNII Band 1) – Ch. 42)



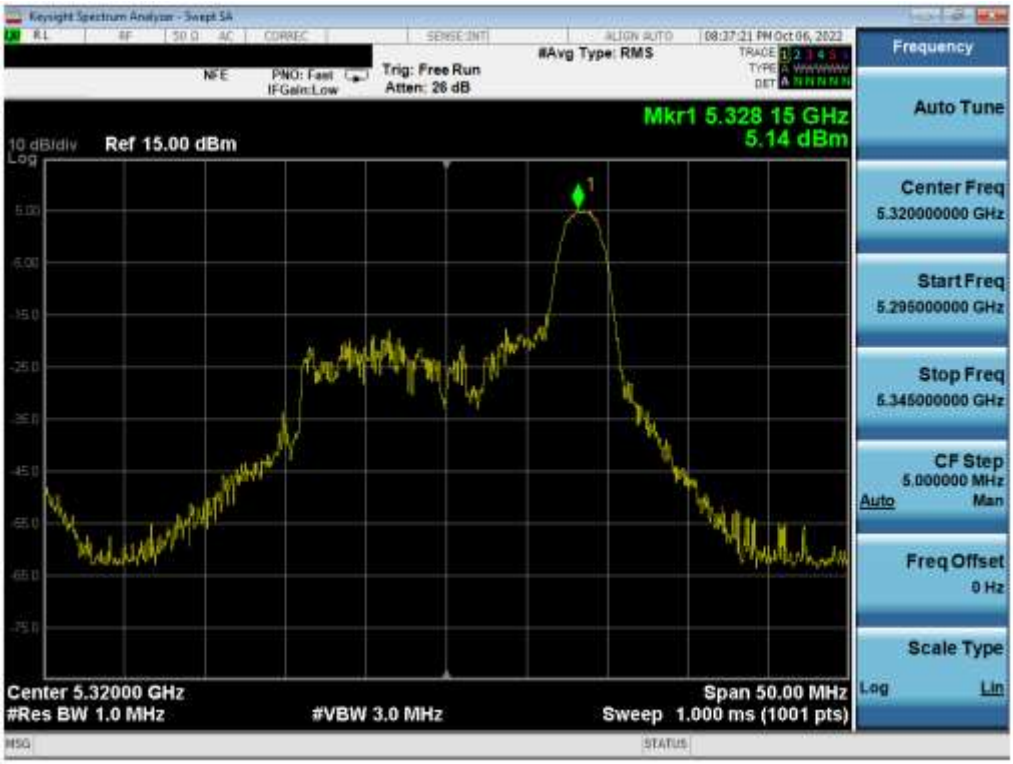
Plot 7-232. Power Spectral Density Plot MIMO ANT2 (160MHz(L) BW 802.11ax – 26 Tones (UNII Band 1/2A) – Ch. 50)

Plot 7-233. Power Spectral Density Plot MIMO ANT2 (160MHz(U) BW 802.11ax – 26 Tones (UNII Band 1/2A) – Ch. 50)

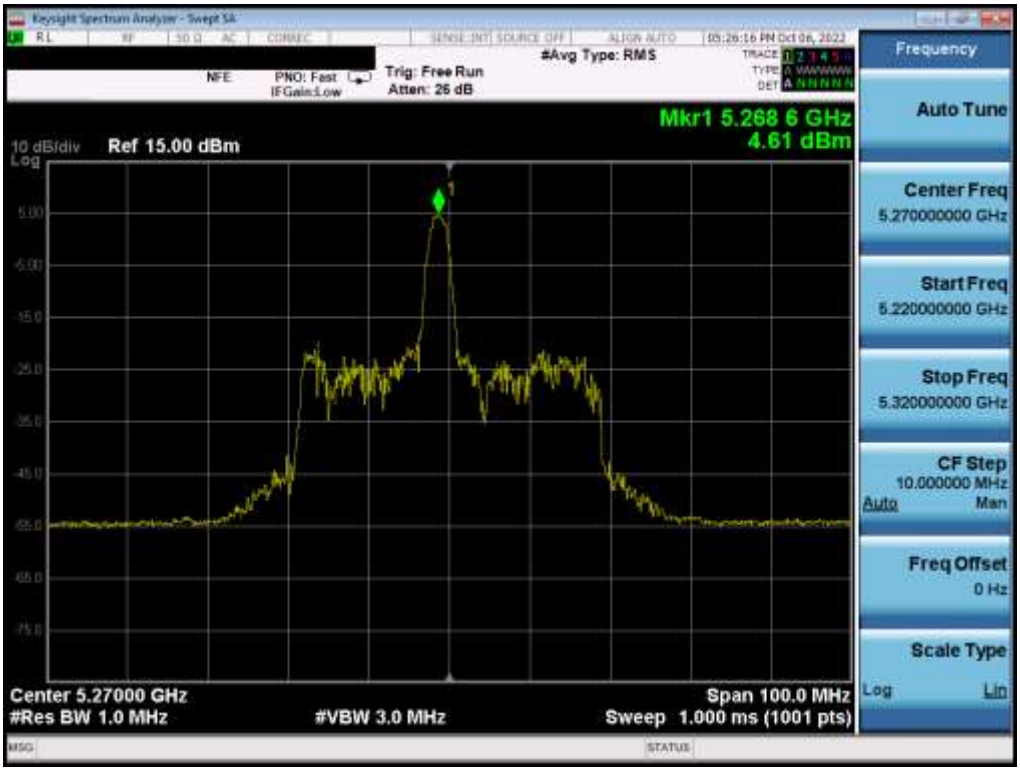
Plot 7-234. Power Spectral Density Plot MIMO ANT2 (20MHz BW 802.11ax – 26 Tones (UNII Band 2A) – Ch. 52)



Plot 7-235. Power Spectral Density Plot MIMO ANT2 (20MHz BW 802.11ax – 26 Tones (UNII Band 2A) – Ch. 56)

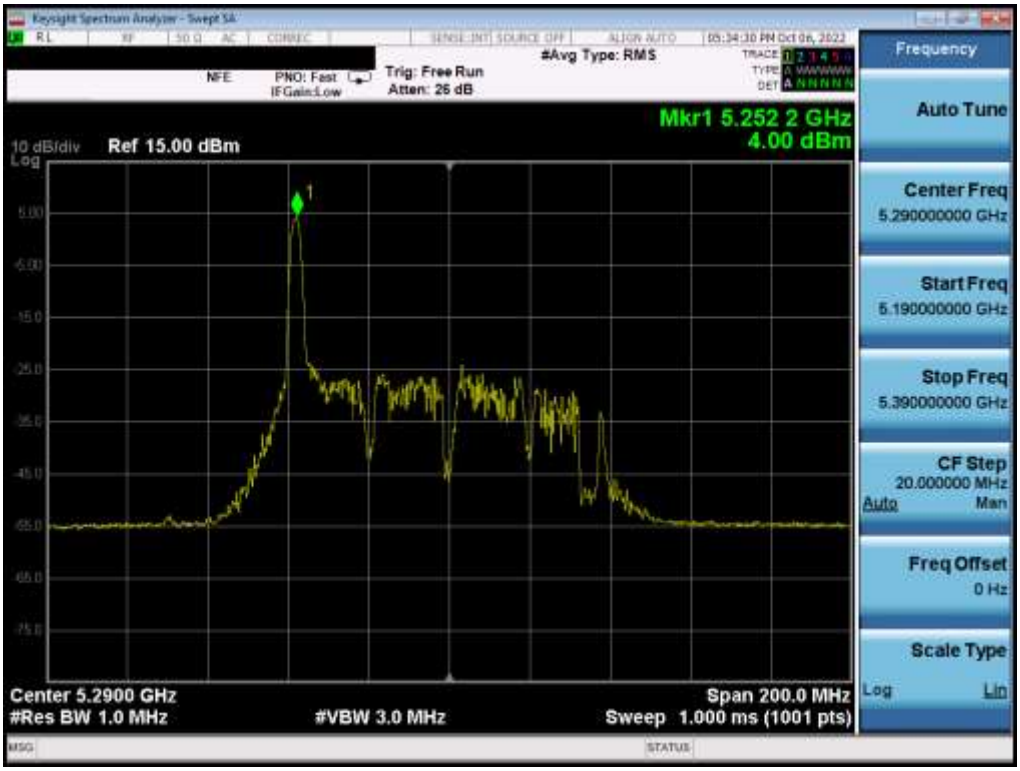


Plot 7-236. Power Spectral Density Plot MIMO ANT2 (20MHz BW 802.11ax – 26 Tones (UNII Band 2A) – Ch. 64)

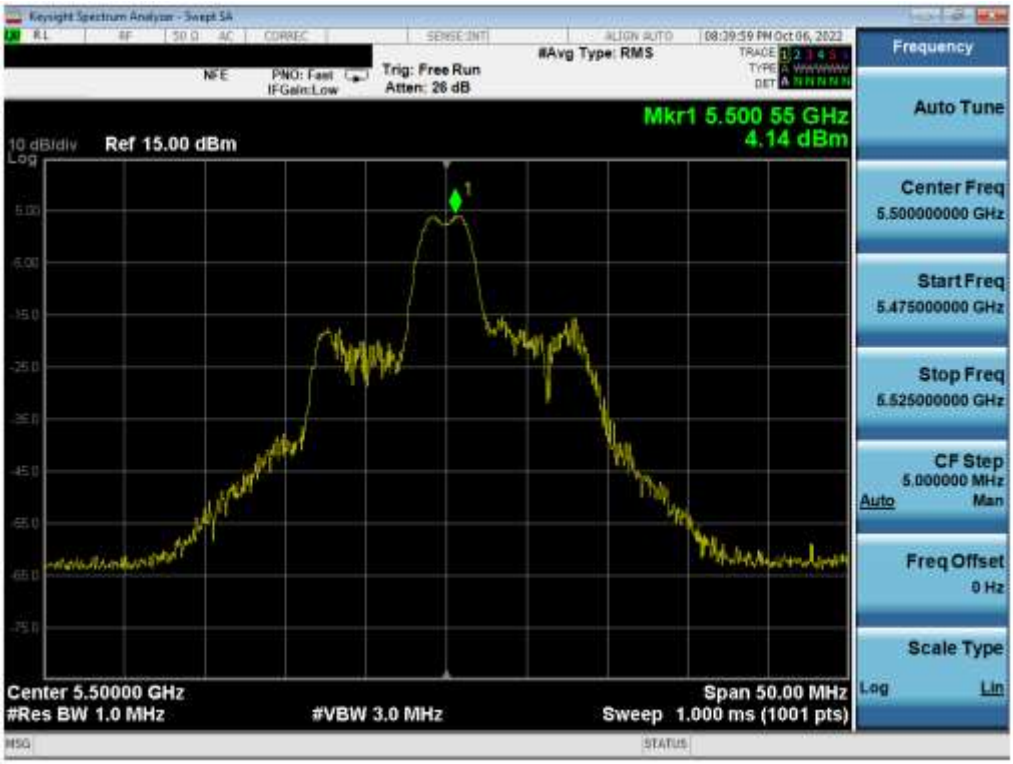


Plot 7-237. Power Spectral Density Plot MIMO ANT2 (40MHz BW 802.11ax – 26 Tones (UNII Band 2A) – Ch. 54)

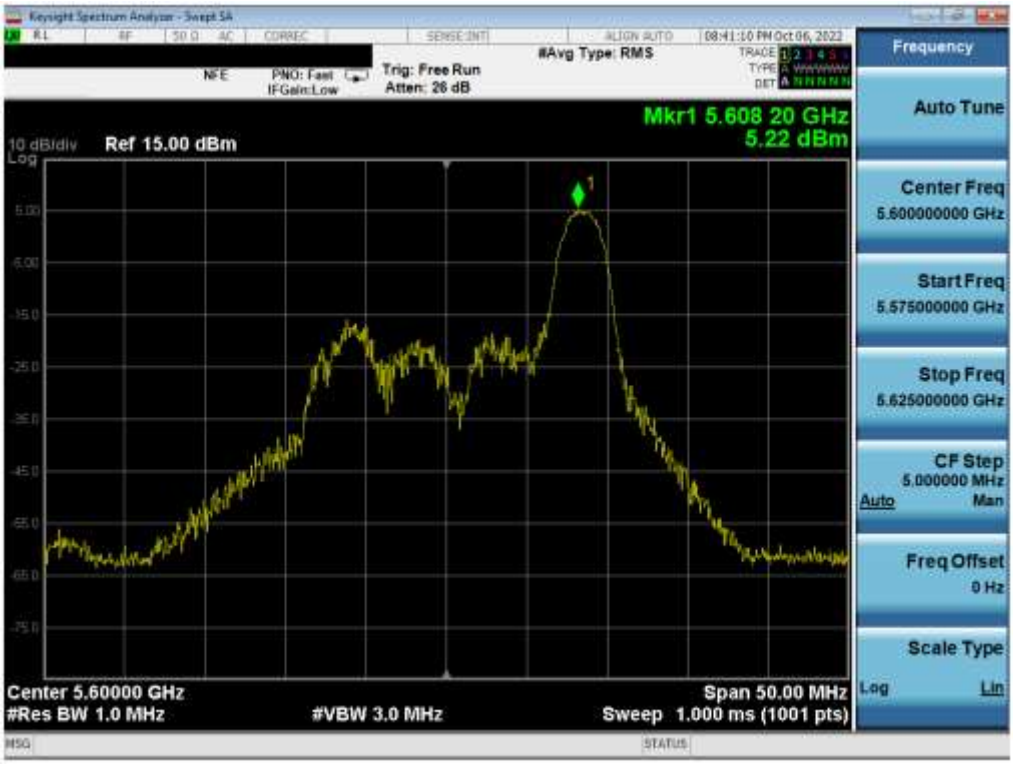
Plot 7-238. Power Spectral Density Plot MIMO ANT2 (40MHz BW 802.11ax – 26 Tones (UNII Band 2A) – Ch. 62)



Plot 7-239. Power Spectral Density Plot MIMO ANT2 (80MHz BW 802.11ax – 26 Tones (UNII Band 2A) – Ch. 58)



Plot 7-240. Power Spectral Density Plot MIMO ANT2 (20MHz BW 802.11ax – 26 Tones (UNII Band 2C) – Ch. 100)

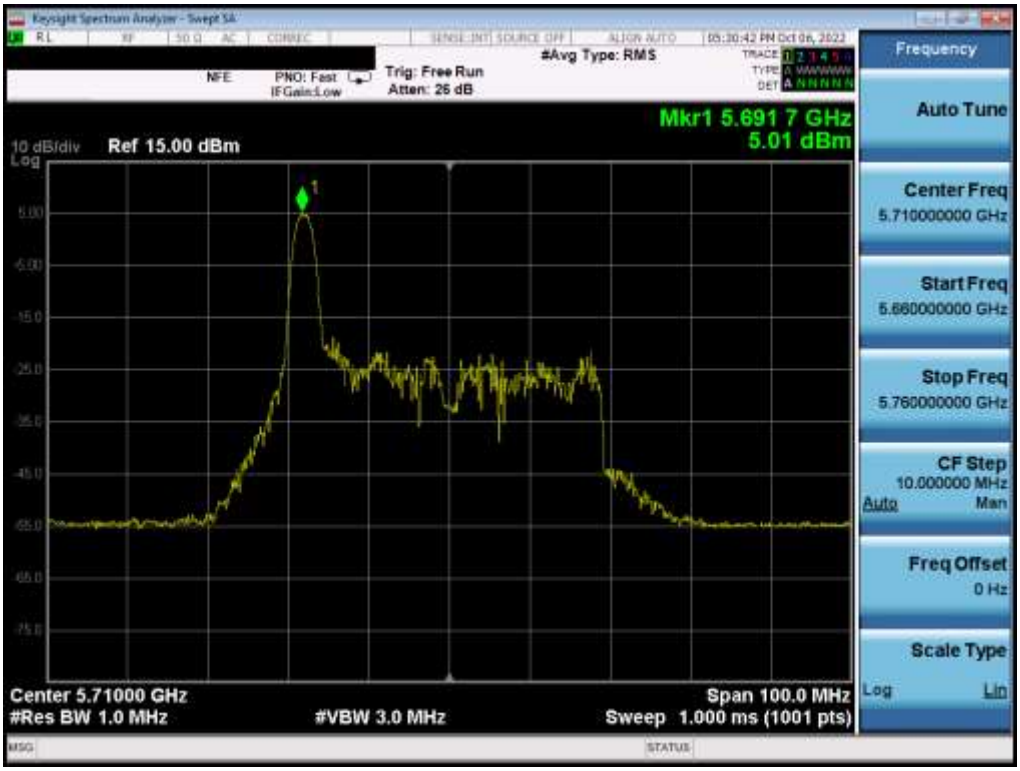


Plot 7-241. Power Spectral Density Plot MIMO ANT2 (20MHz BW 802.11ax – 26 Tones (UNII Band 2C) – Ch. 120)

Plot 7-242. Power Spectral Density Plot MIMO ANT2 (20MHz BW 802.11ax – 26 Tones (UNII Band 2C) – Ch. 144)

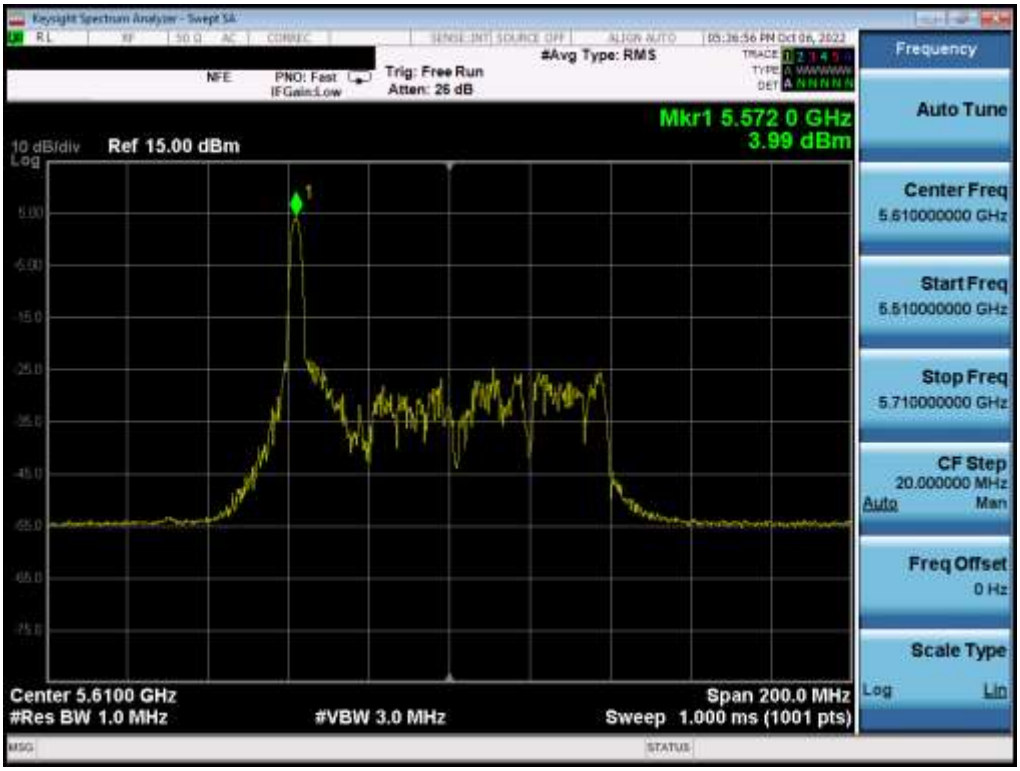
Plot 7-243. Power Spectral Density Plot MIMO ANT2 (40MHz BW 802.11ax – 26 Tones (UNII Band 2C) – Ch. 102)

Plot 7-244. Power Spectral Density Plot MIMO ANT2 (40MHz BW 802.11ax – 26 Tones (UNII Band 2C) – Ch. 118)

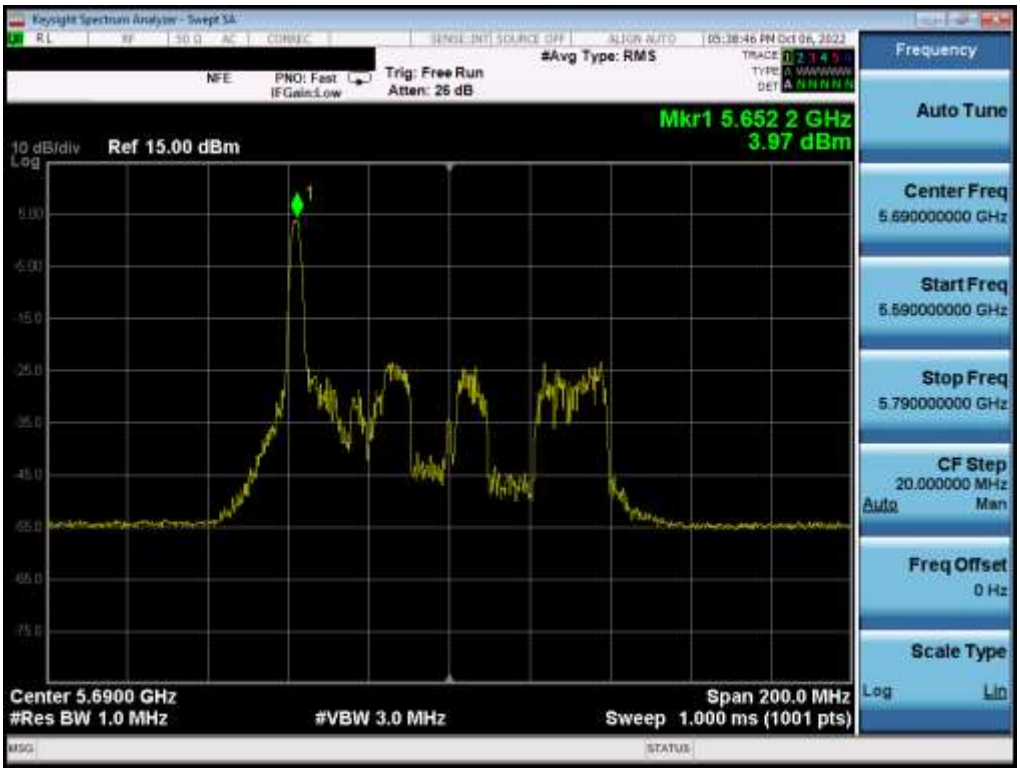


Plot 7-245. Power Spectral Density Plot MIMO ANT2 (40MHz BW 802.11ax – 26 Tones (UNII Band 2C) – Ch. 142)

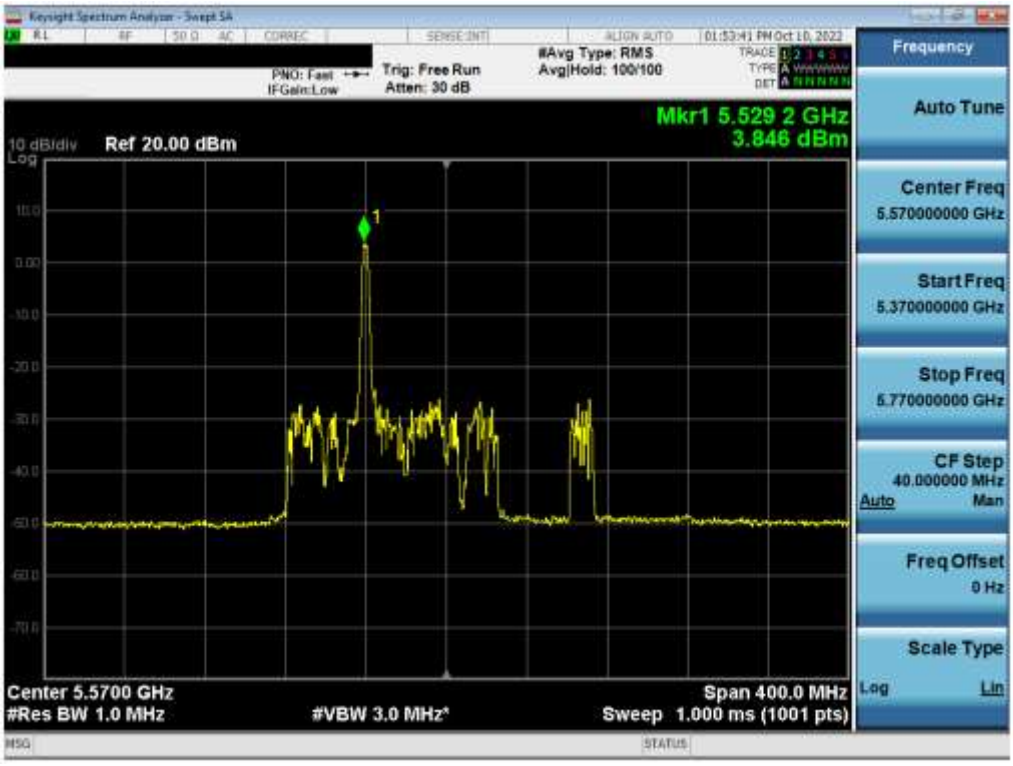
Plot 7-246. Power Spectral Density Plot MIMO ANT2 (80MHz BW 802.11ax – 26 Tones (UNII Band 2C) – Ch. 106)



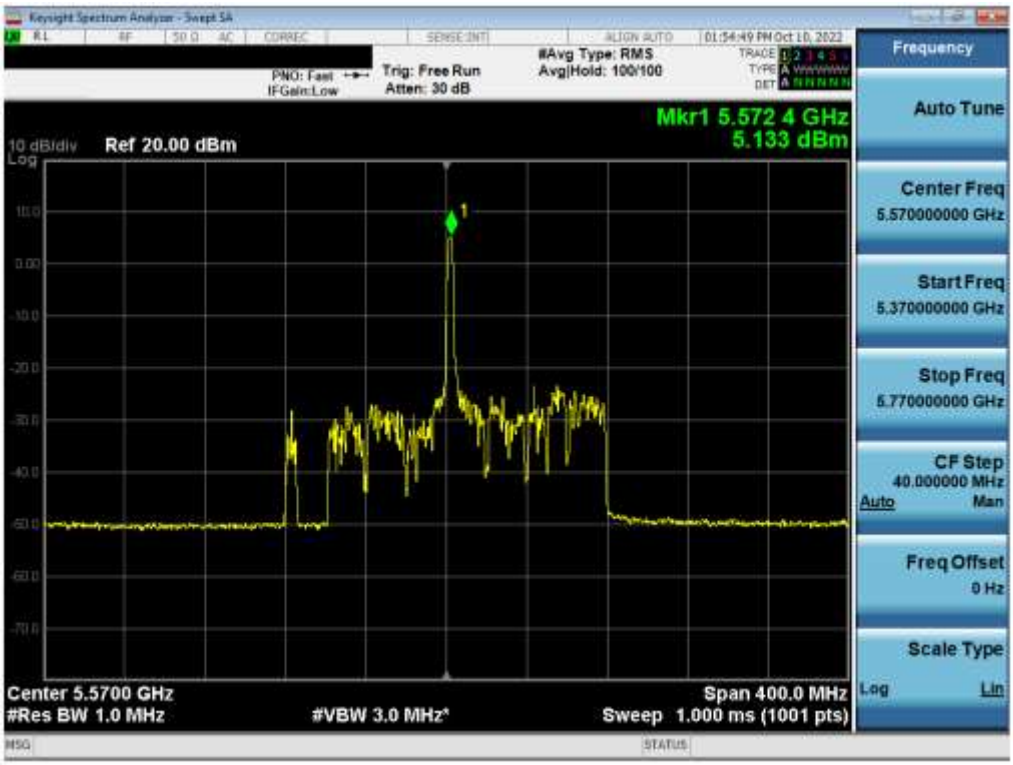
Plot 7-247. Power Spectral Density Plot MIMO ANT2 (80MHz BW 802.11ax – 26 Tones (UNII Band 2C) – Ch. 122)



Plot 7-248. Power Spectral Density Plot MIMO ANT2 (80MHz BW 802.11ax – 26 Tones (UNII Band 2C) – Ch. 138)



Plot 7-249. Power Spectral Density Plot MIMO ANT2 (160MHz(L) BW 802.11ax – 26 Tones (UNII Band 2C) – Ch. 114)

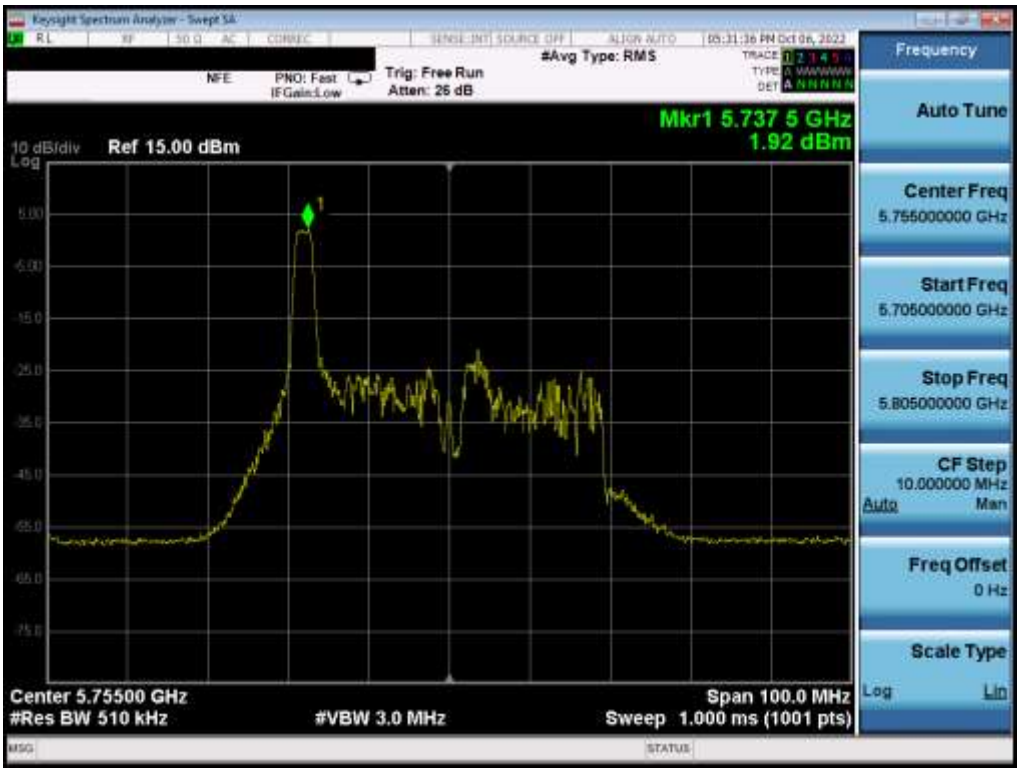


Plot 7-250. Power Spectral Density Plot MIMO ANT2 (160MHz(U) BW 802.11ax – 26 Tones (UNII Band 2C) – Ch. 114)

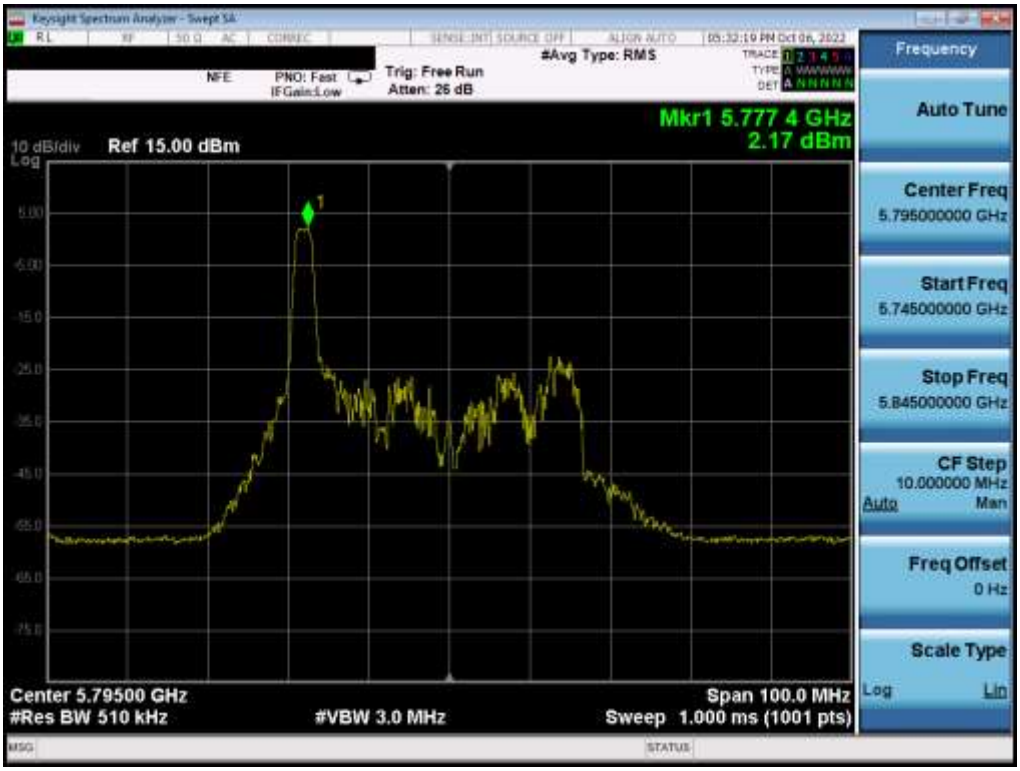
Plot 7-251. Power Spectral Density Plot MIMO ANT2 (20MHz BW 802.11ax – 26 Tones (UNII Band 3) – Ch. 149)

Plot 7-252. Power Spectral Density Plot MIMO ANT2 (20MHz BW 802.11ax – 26 Tones (UNII Band 3) – Ch. 157)

Plot 7-253. Power Spectral Density Plot MIMO ANT2 (20MHz BW 802.11ax – 26 Tones (UNII Band 3) – Ch. 165)

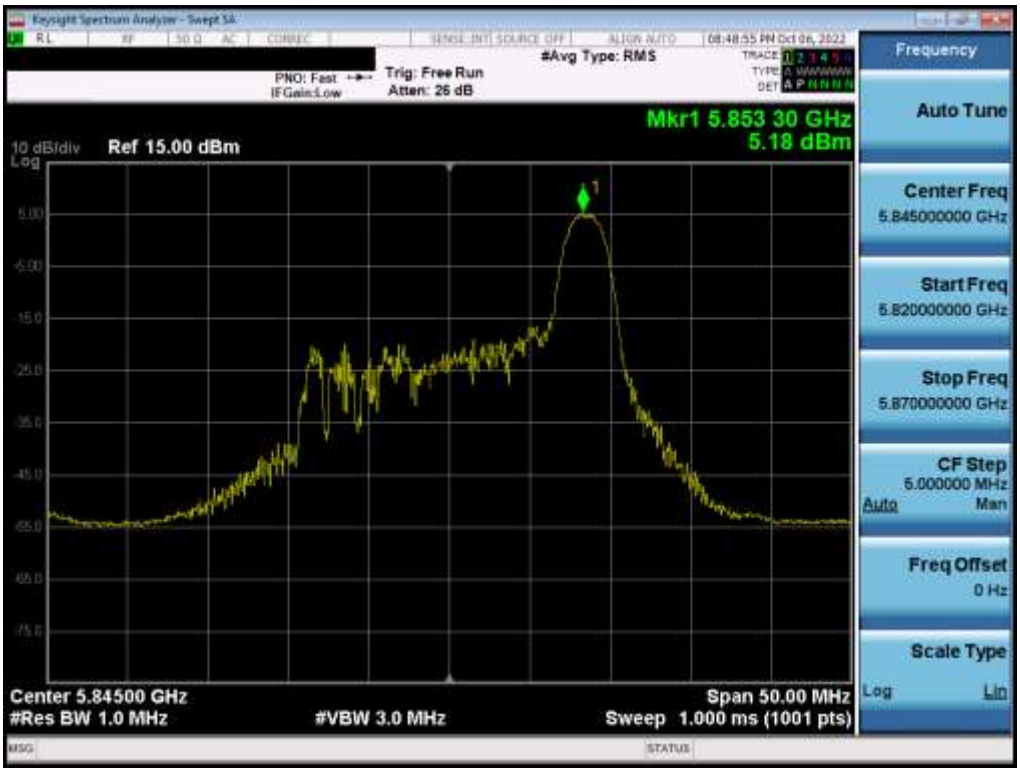


Plot 7-254. Power Spectral Density Plot MIMO ANT2 (40MHz BW 802.11ax – 26 Tones (UNII Band 3) – Ch. 151)



Plot 7-255. Power Spectral Density Plot MIMO ANT2 (40MHz BW 802.11ax – 26 Tones (UNII Band 3) – Ch. 159)

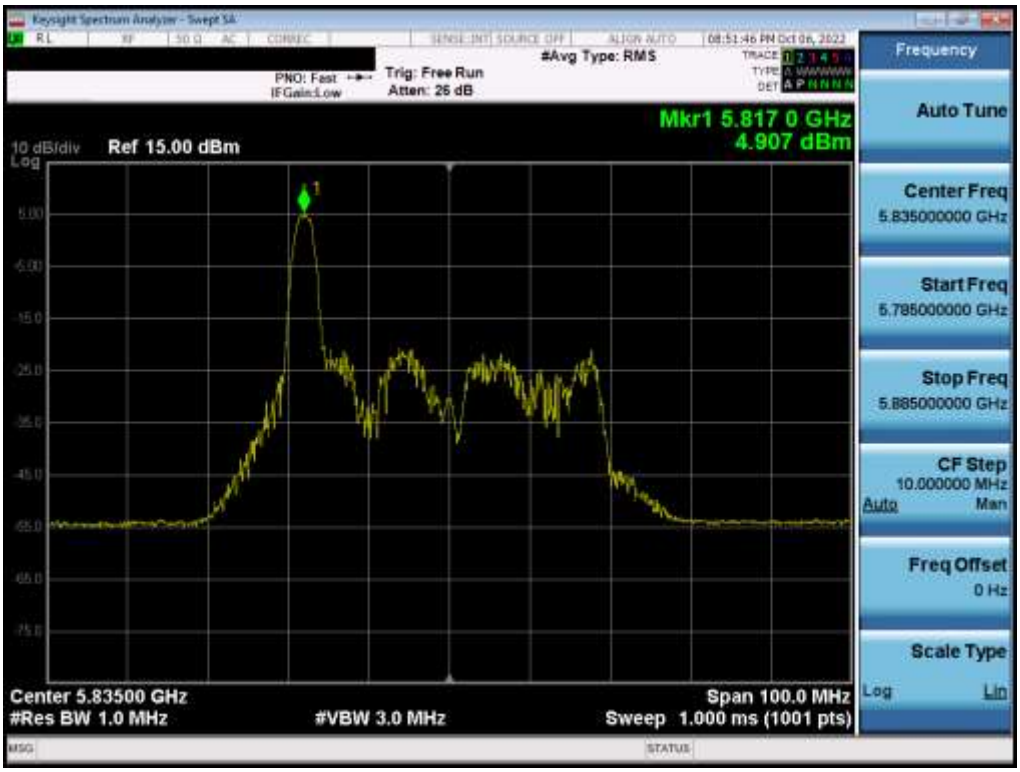
Plot 7-256. Power Spectral Density Plot MIMO ANT2 (80MHz BW 802.11ax – 26 Tones (UNII Band 3) – Ch. 155)



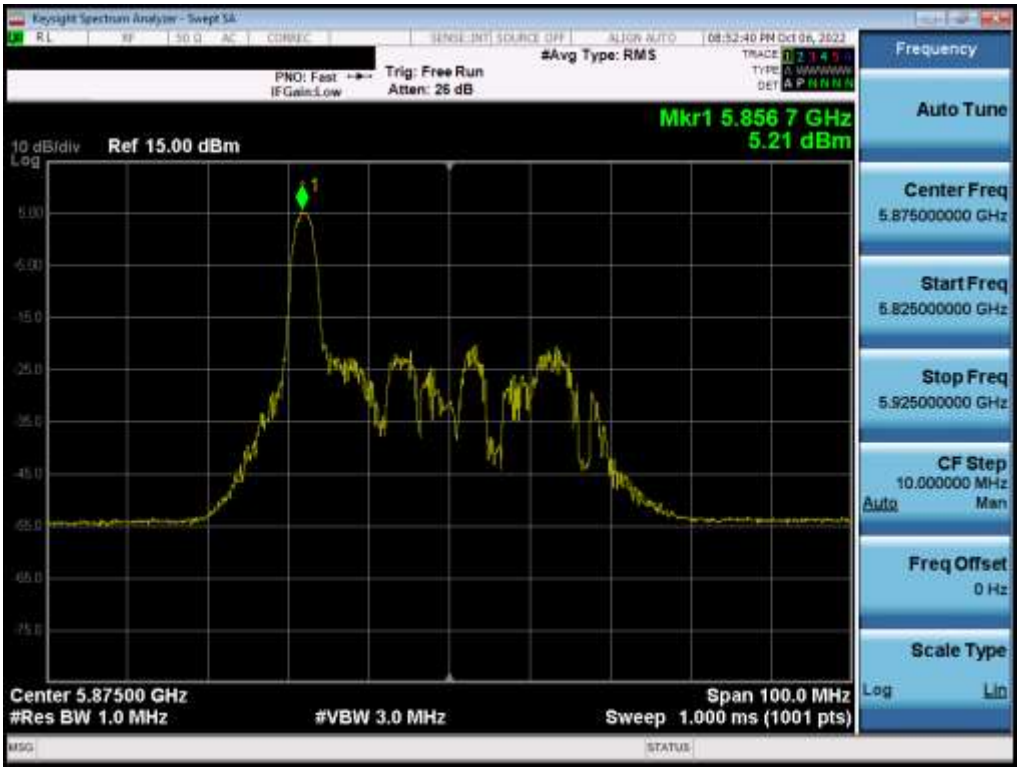
Plot 7-257. Power Spectral Density Plot MIMO ANT2 (20MHz BW 802.11ax – 26 Tones (UNII Band 3/4) – Ch. 169)

Plot 7-258. Power Spectral Density Plot MIMO ANT2 (20MHz BW 802.11ax – 26 Tones (UNII Band 3) – Ch. 173)

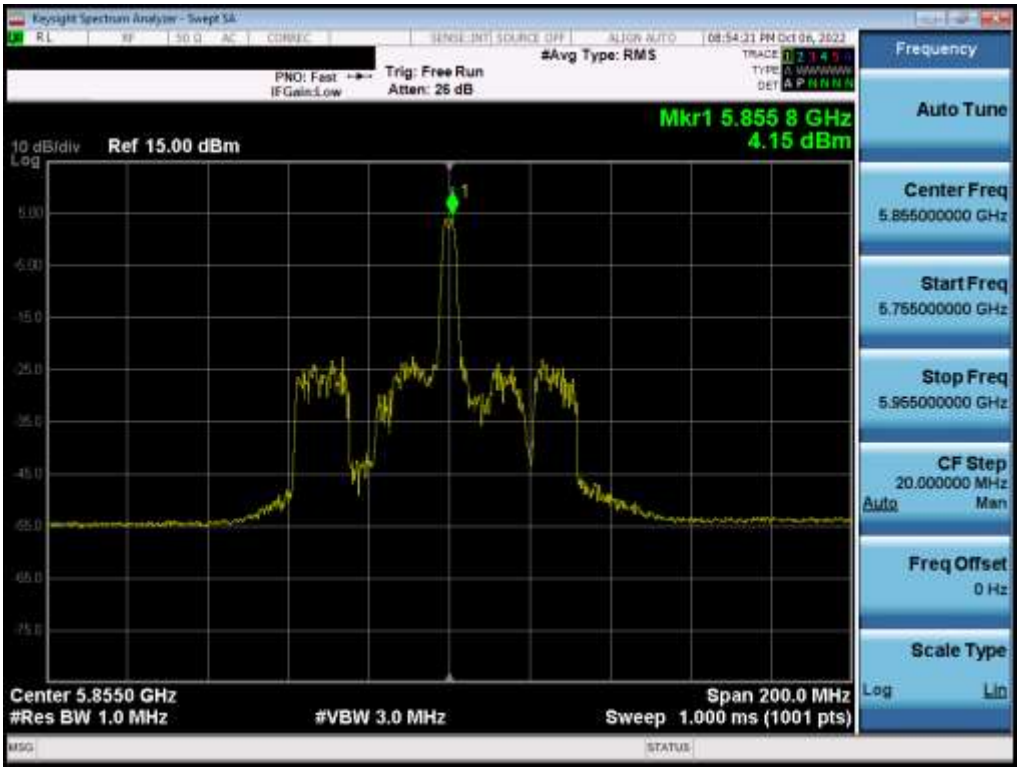
Plot 7-259. Power Spectral Density Plot MIMO ANT2 (20MHz BW 802.11ax – 26 Tones (UNII Band 3) – Ch. 177)



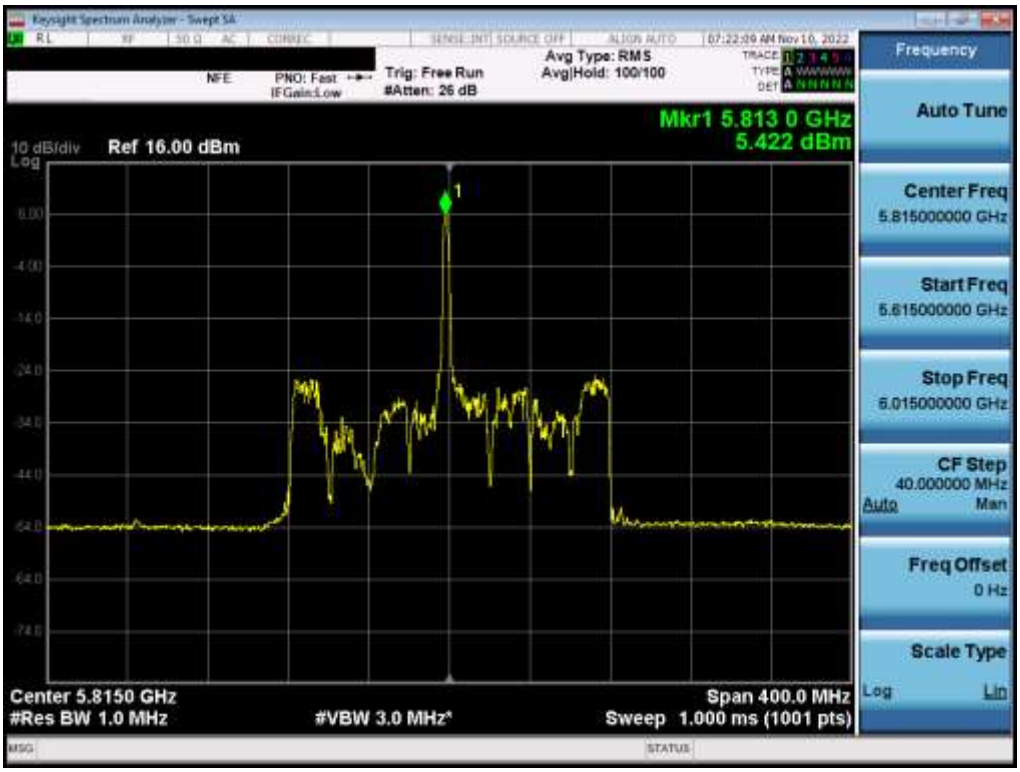
Plot 7-260. Power Spectral Density Plot MIMO ANT2 (40MHz BW 802.11ax – 26 Tones (UNII Band 3/4) – Ch. 167)



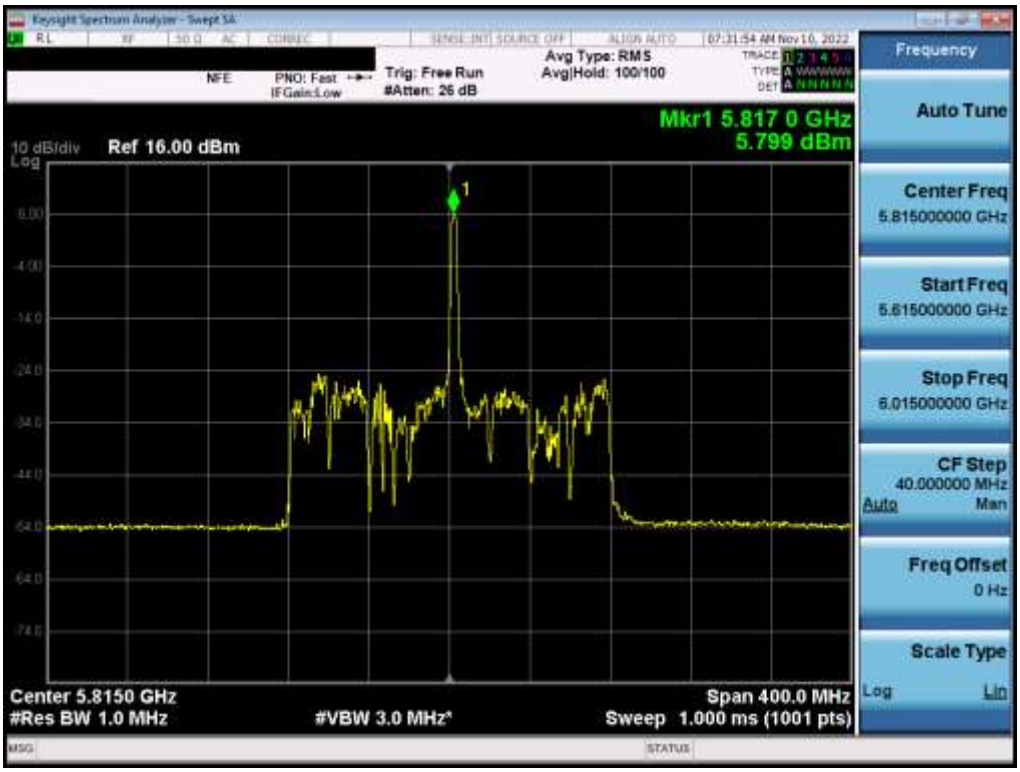
Plot 7-261. Power Spectral Density Plot MIMO ANT2 (40MHz BW 802.11ax – 26 Tones (UNII Band 3) – Ch. 175)



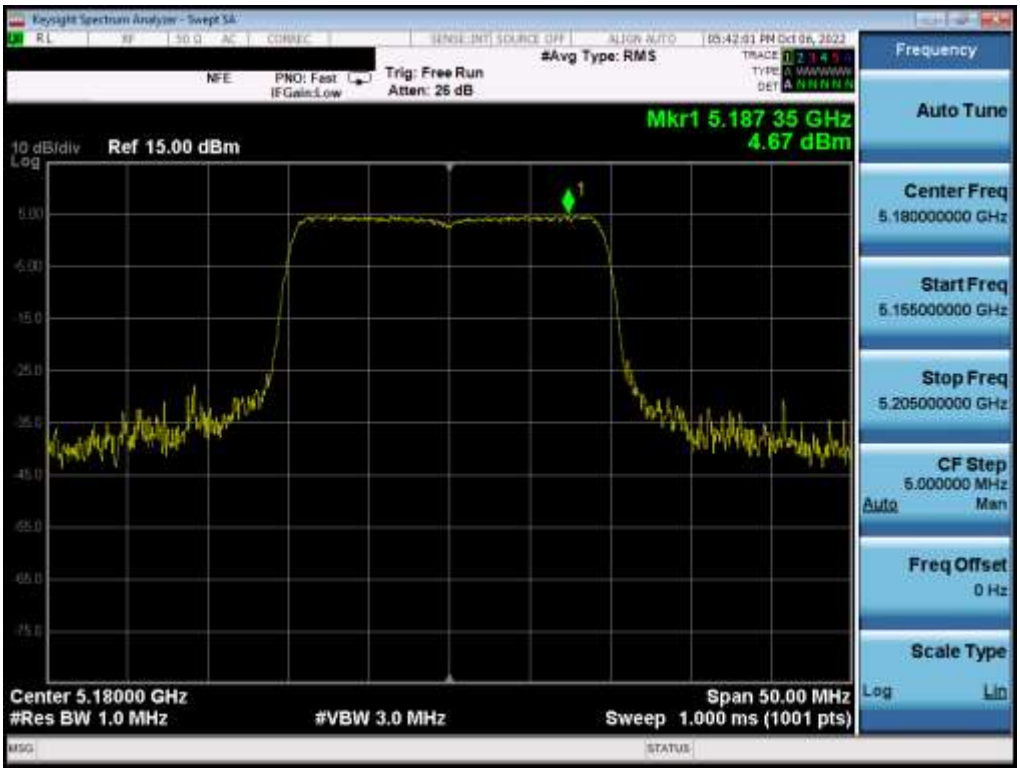
Plot 7-262. Power Spectral Density Plot MIMO ANT2 (80MHz BW 802.11ax – 26 Tones (UNII Band 3/4) – Ch. 171)



Plot 7-263. Power Spectral Density Plot MIMO ANT2 (160MHz(L) BW 802.11ax – 26 Tones (UNII Band 3/4) – Ch. 163)

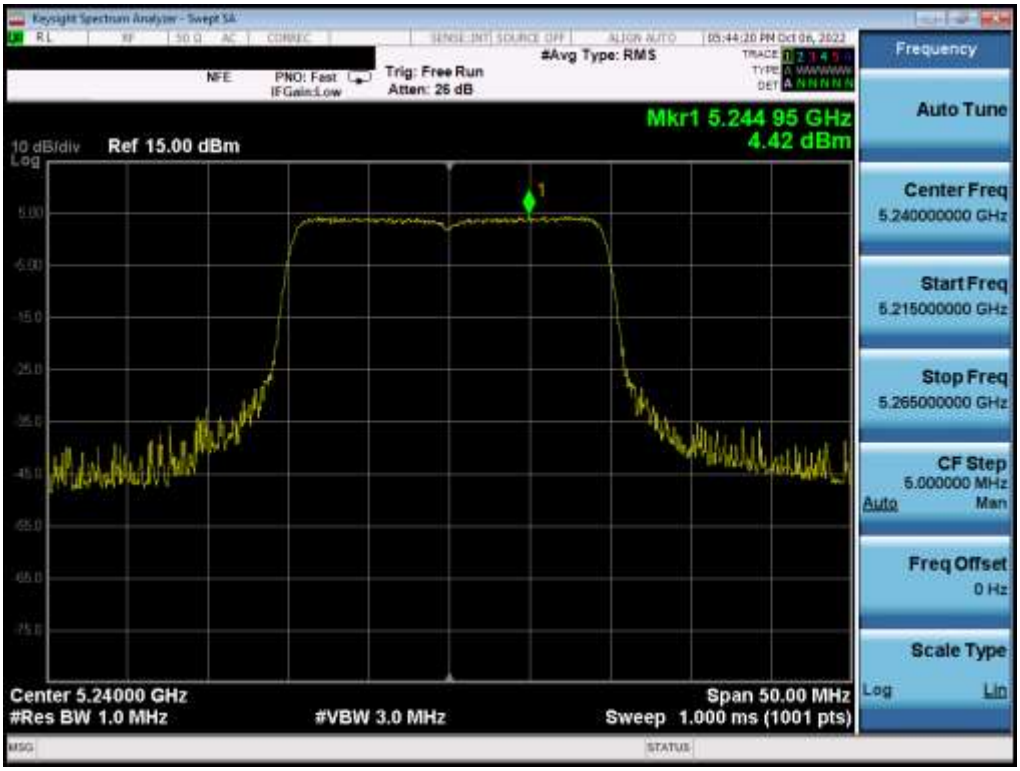


Plot 7-264. Power Spectral Density Plot MIMO ANT2 (160MHz(U) BW 802.11ax – 26 Tones (UNII Band 3/4) – Ch. 163)



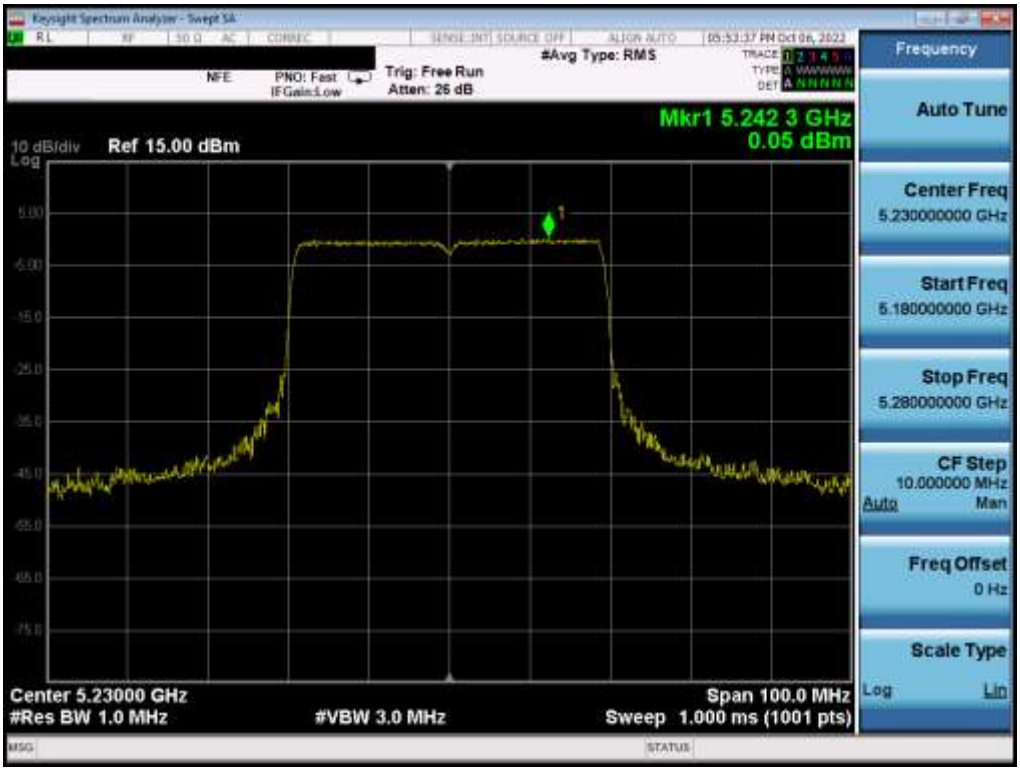
Plot 7-265. Power Spectral Density Plot MIMO ANT2 (20MHz BW 802.11ax – Full Tones (UNII Band 1) – Ch. 36)

Plot 7-266. Power Spectral Density Plot MIMO ANT2 (20MHz BW 802.11ax – Full Tones (UNII Band 1) – Ch. 40)

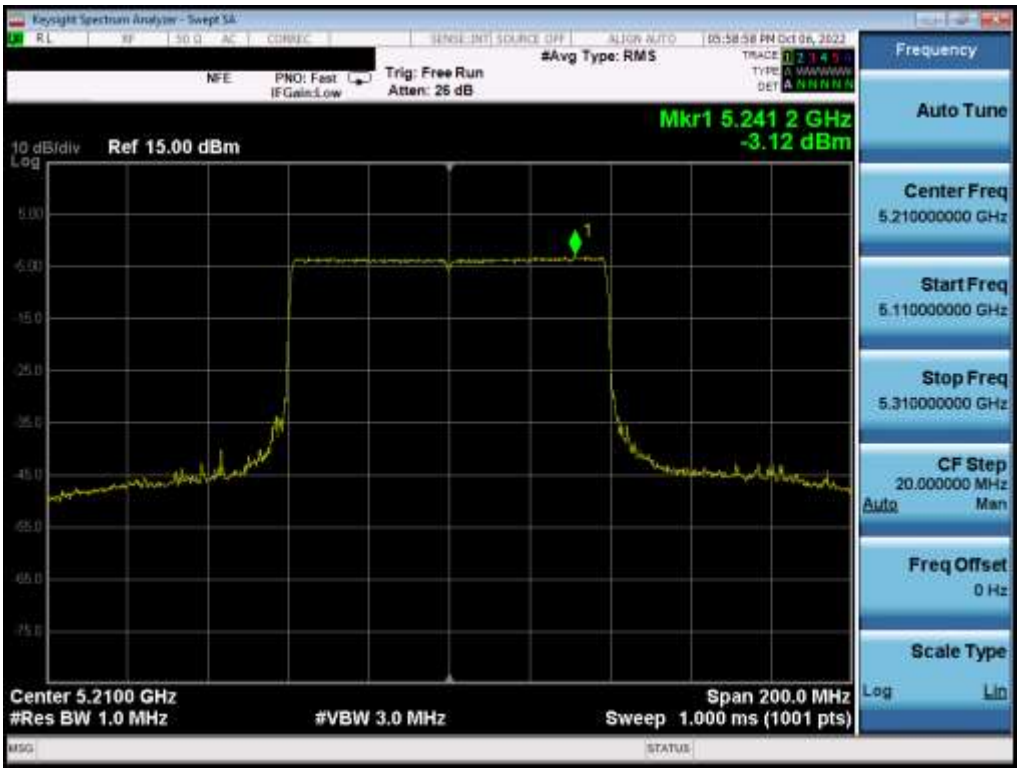


Plot 7-267. Power Spectral Density Plot MIMO ANT2 (20MHz BW 802.11ax – Full Tones (UNII Band 1) – Ch. 48)

Plot 7-268. Power Spectral Density Plot MIMO ANT2 (40MHz BW 802.11ax – Full Tones (UNII Band 1) – Ch. 38)

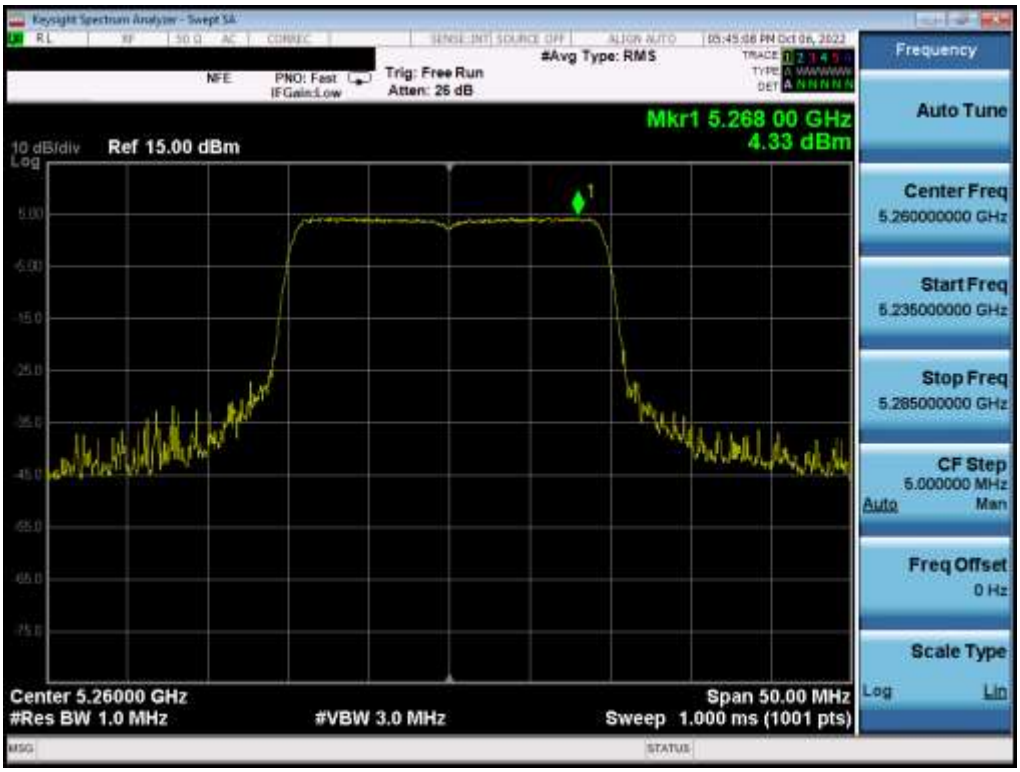


Plot 7-269. Power Spectral Density Plot MIMO ANT2 (40MHz BW 802.11ax – Full Tones (UNII Band 1) – Ch. 46)

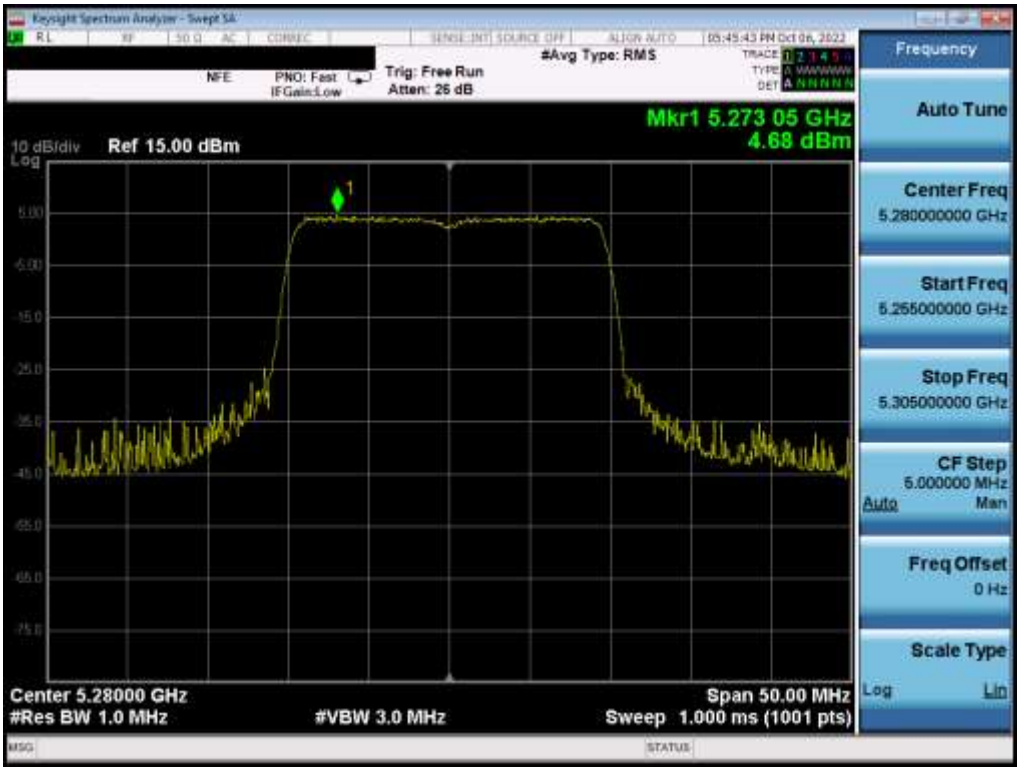


Plot 7-270. Power Spectral Density Plot MIMO ANT2 (80MHz BW 802.11ax – Full Tones (UNII Band 1) – Ch. 42)

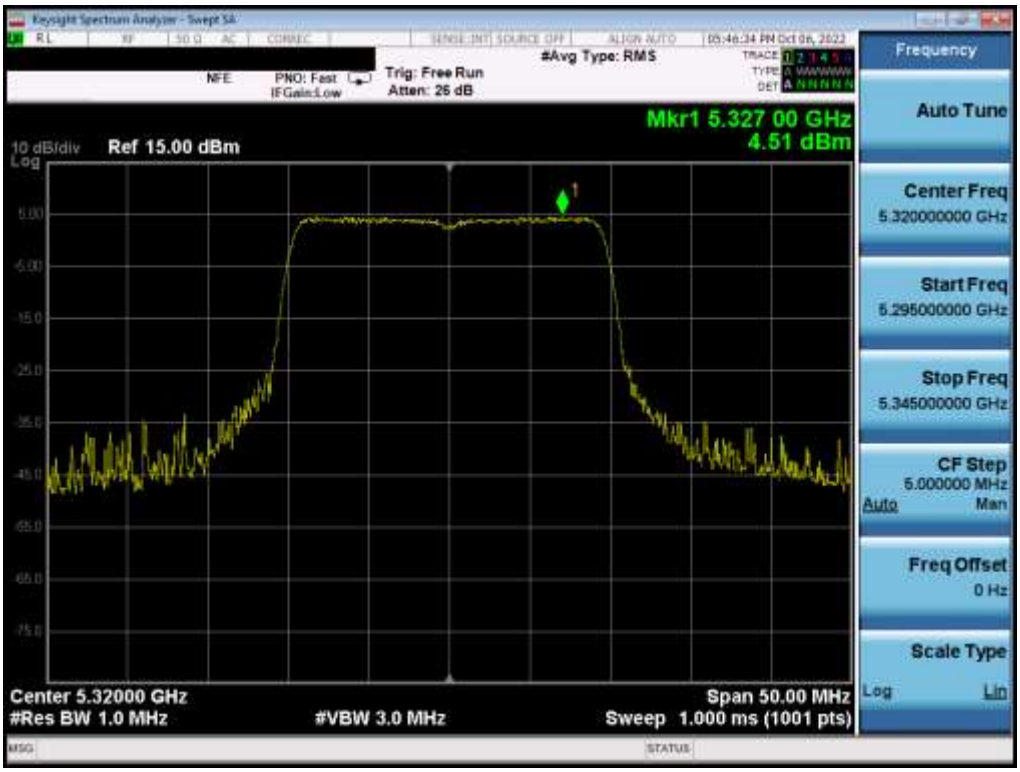
Plot 7-271. Power Spectral Density Plot MIMO ANT2 (160MHz BW 802.11ax – Full Tones (UNII Band 1/2A) – Ch. 50)



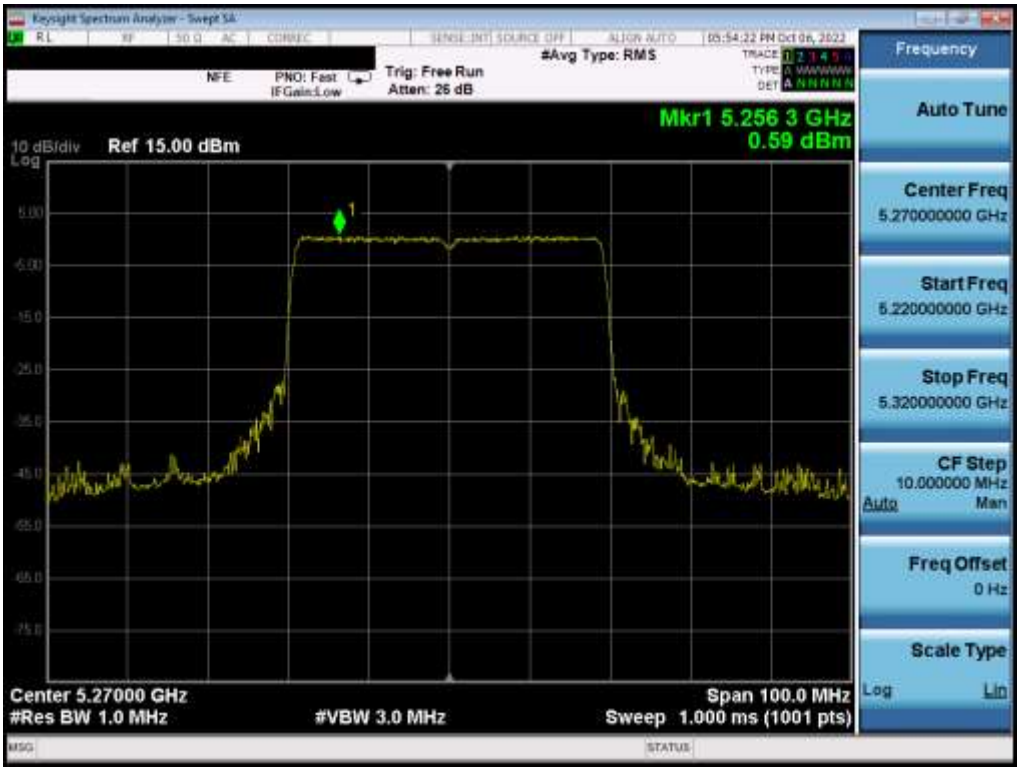
Plot 7-272. Power Spectral Density Plot MIMO ANT2 (20MHz BW 802.11ax – Full Tones (UNII Band 2A) – Ch. 52)



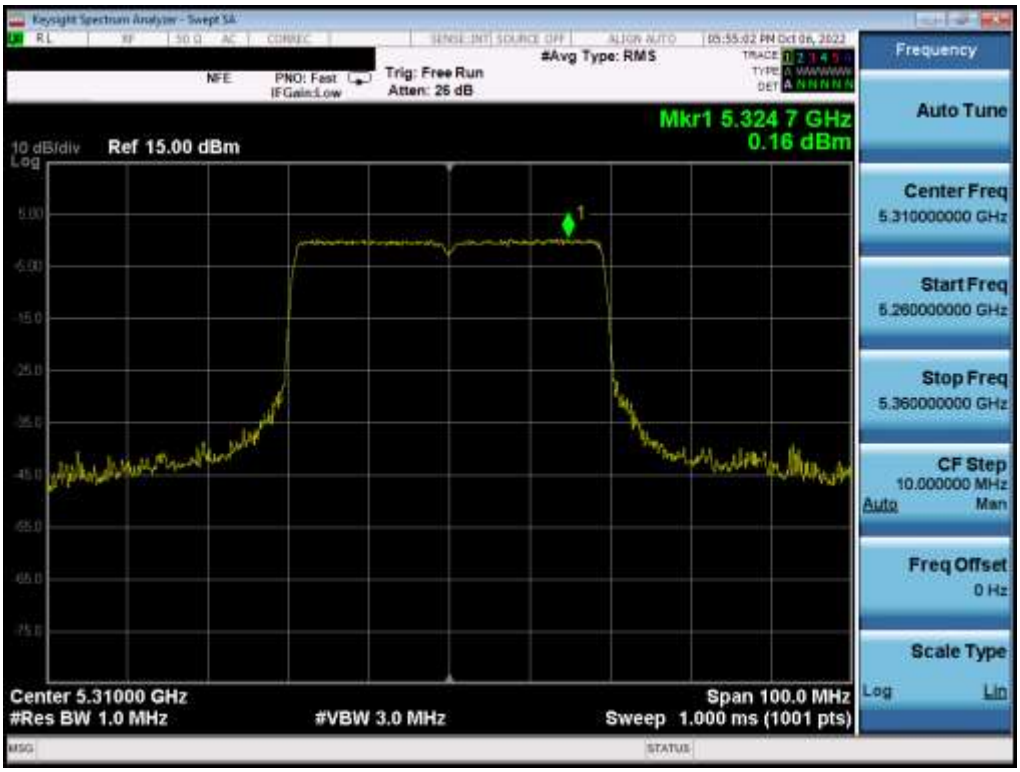
Plot 7-273. Power Spectral Density Plot MIMO ANT2 (20MHz BW 802.11ax – Full Tones (UNII Band 2A) – Ch. 56)



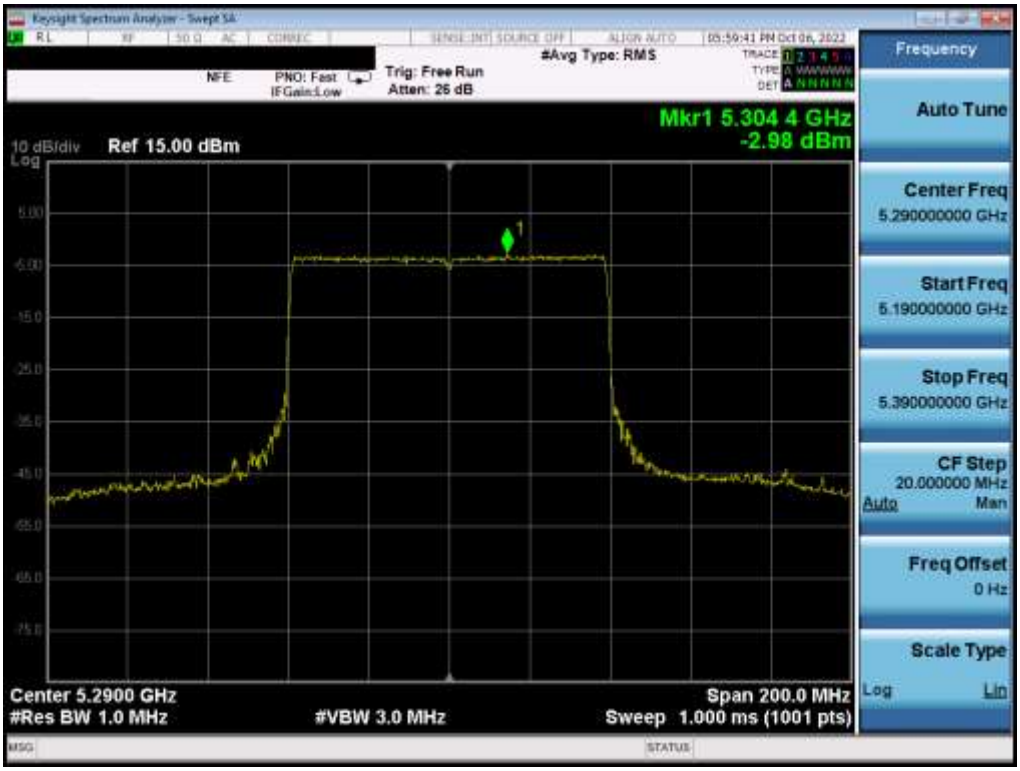
Plot 7-274. Power Spectral Density Plot MIMO ANT2 (20MHz BW 802.11ax – Full Tones (UNII Band 2A) – Ch. 64)



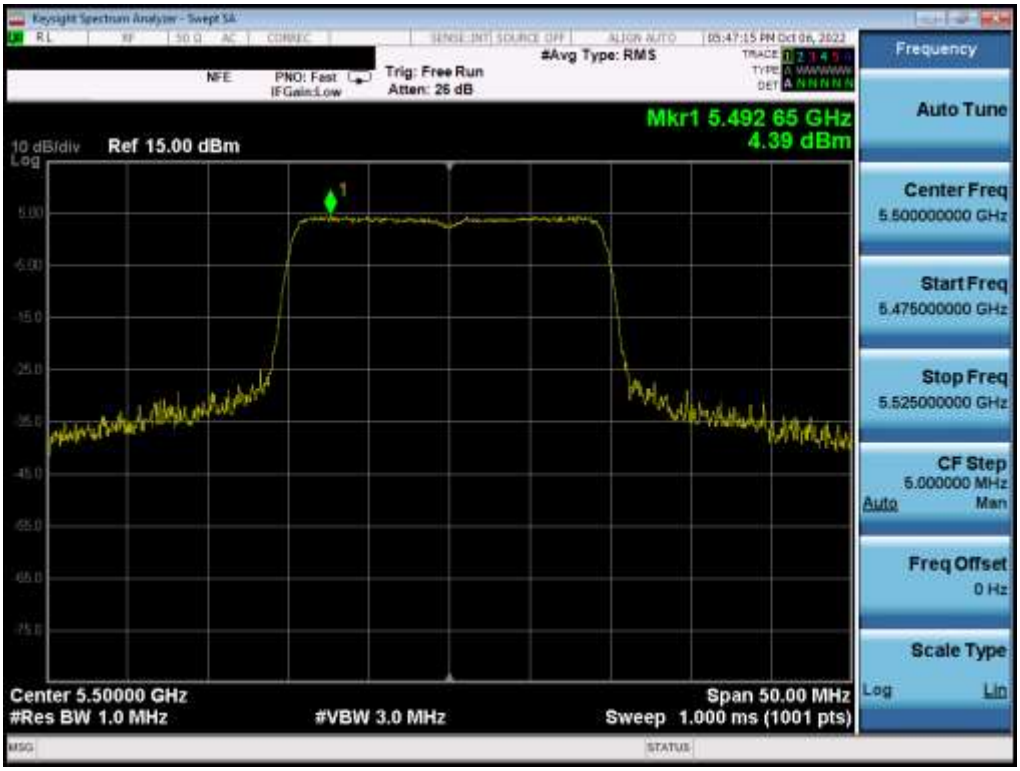
Plot 7-275. Power Spectral Density Plot MIMO ANT2 (40MHz BW 802.11ax – Full Tones (UNII Band 2A) – Ch. 54)



Plot 7-276. Power Spectral Density Plot MIMO ANT2 (40MHz BW 802.11ax – Full Tones (UNII Band 2A) – Ch. 62)

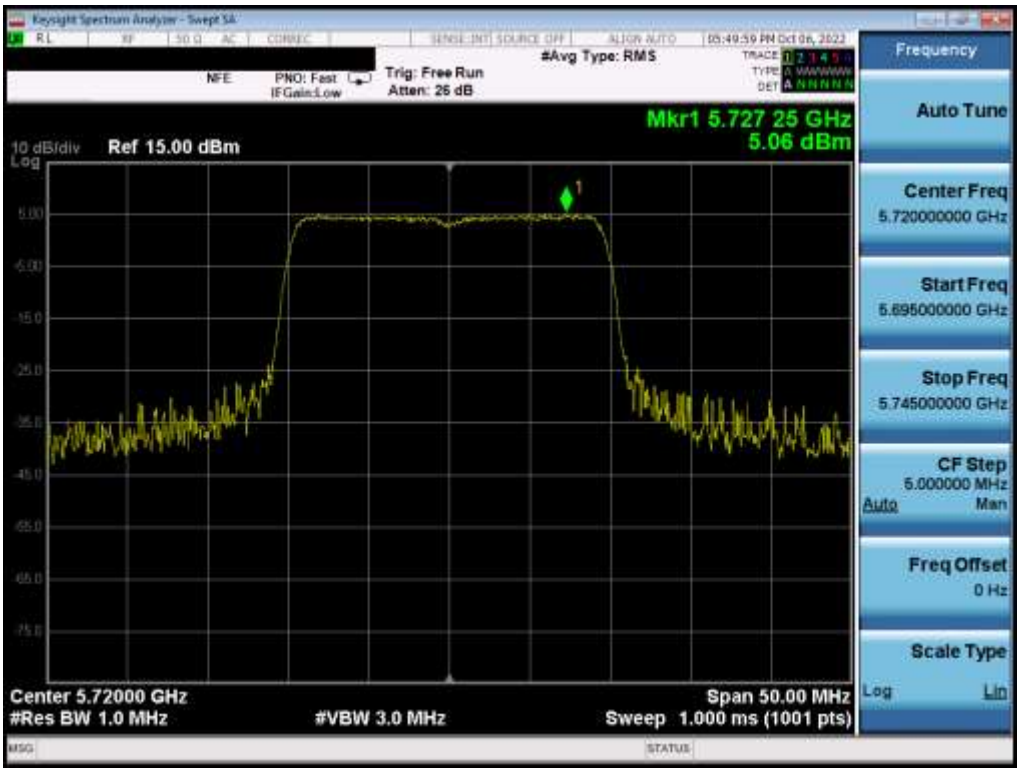


Plot 7-277. Power Spectral Density Plot MIMO ANT2 (80MHz BW 802.11ax – Full Tones (UNII Band 2A) – Ch. 58)

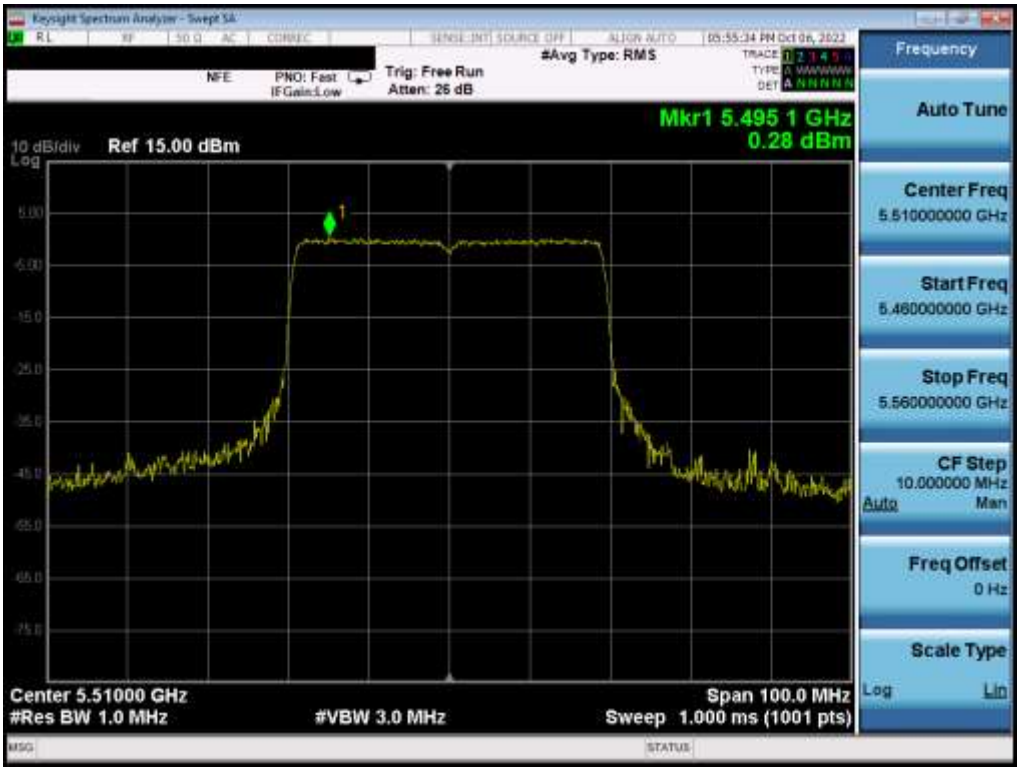


Plot 7-278. Power Spectral Density Plot MIMO ANT2 (20MHz BW 802.11ax – Full Tones (UNII Band 2C) – Ch. 100)

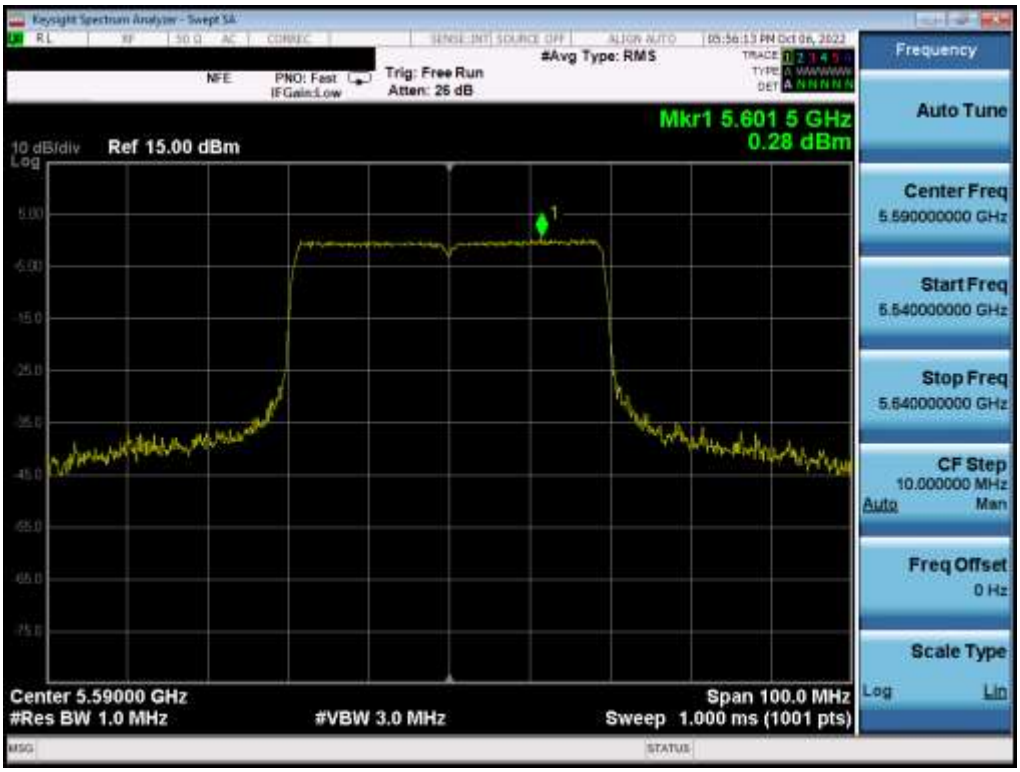
Plot 7-279. Power Spectral Density Plot MIMO ANT2 (20MHz BW 802.11ax – Full Tones (UNII Band 2C) – Ch. 120)



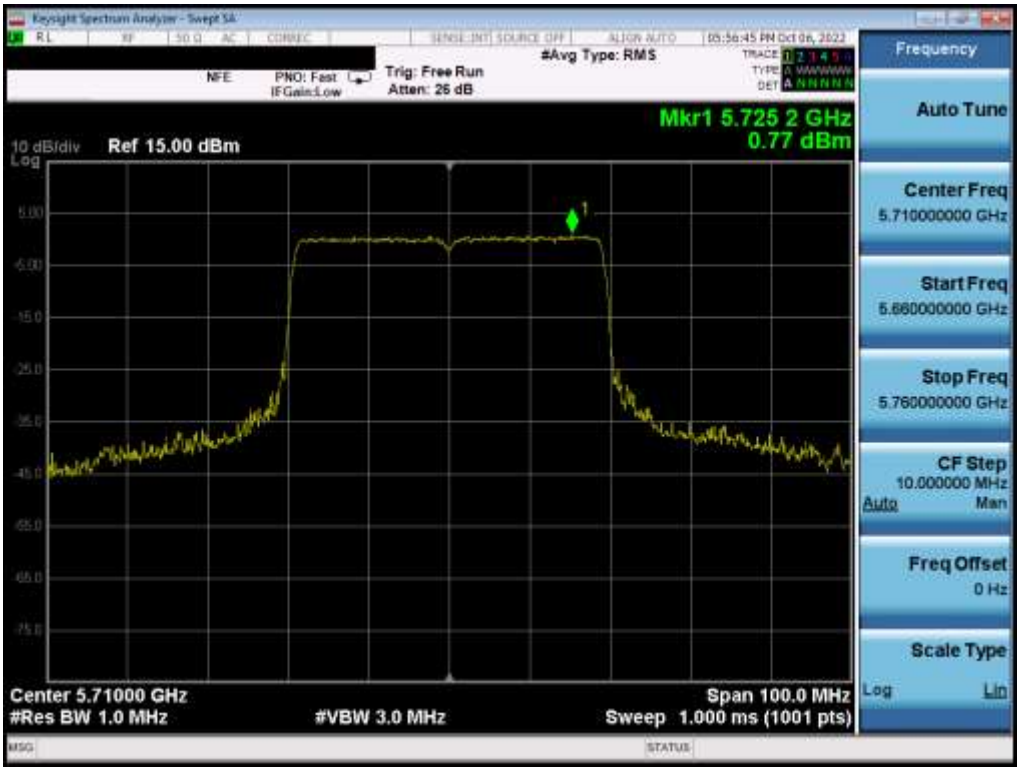
Plot 7-280. Power Spectral Density Plot MIMO ANT2 (20MHz BW 802.11ax – Full Tones (UNII Band 2C) – Ch. 144)



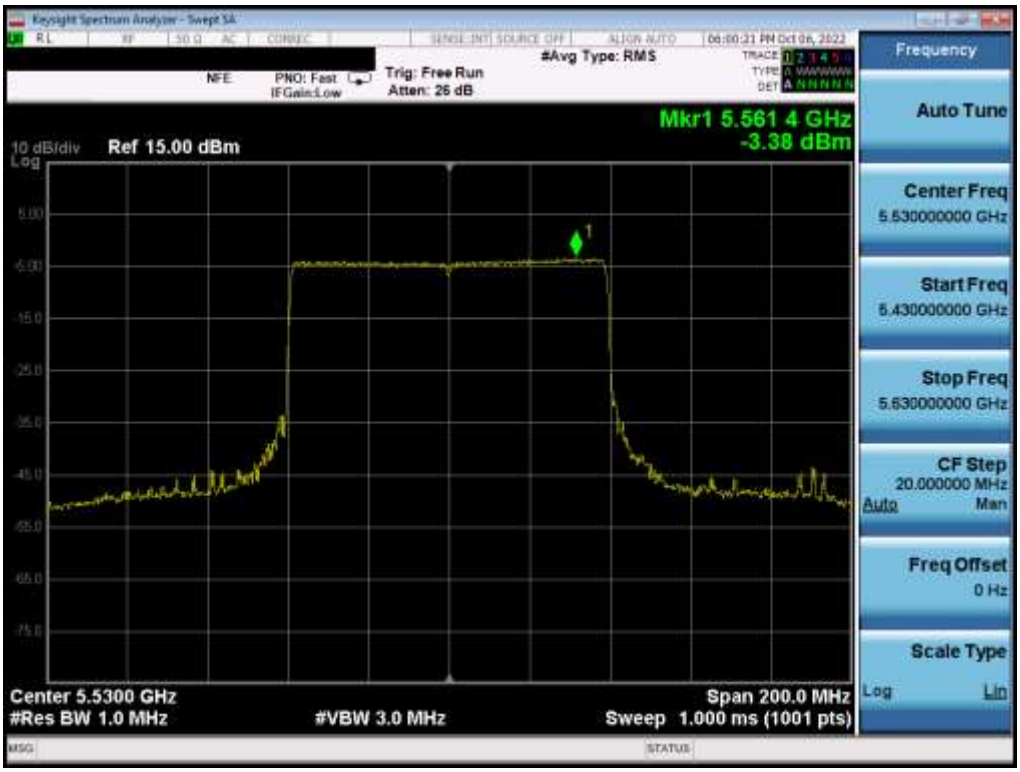
Plot 7-281. Power Spectral Density Plot MIMO ANT2 (40MHz BW 802.11ax – Full Tones (UNII Band 2C) – Ch. 102)



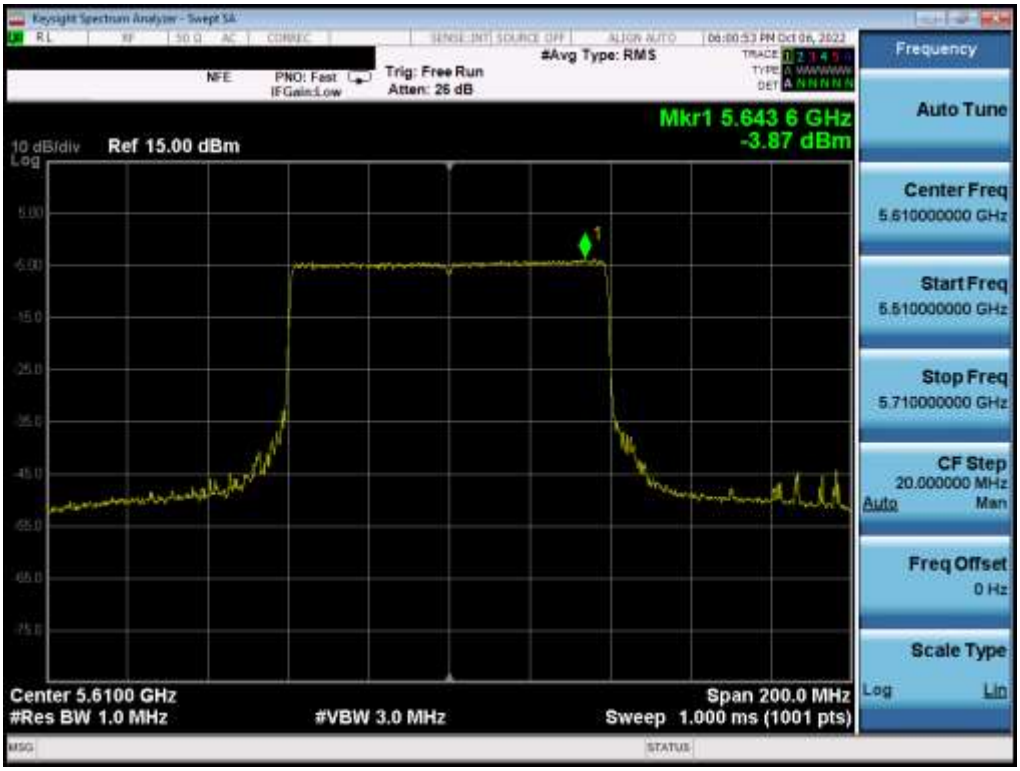
Plot 7-282. Power Spectral Density Plot MIMO ANT2 (40MHz BW 802.11ax – Full Tones (UNII Band 2C) – Ch. 118)



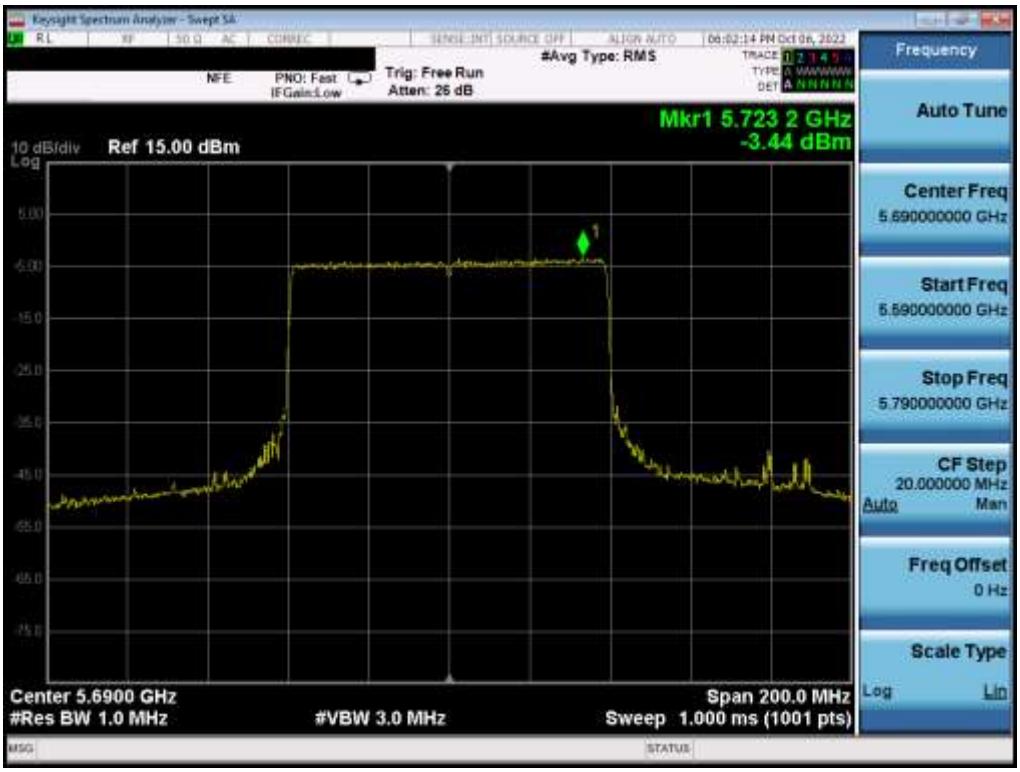
Plot 7-283. Power Spectral Density Plot MIMO ANT2 (40MHz BW 802.11ax – Full Tones (UNII Band 2C) – Ch. 142)



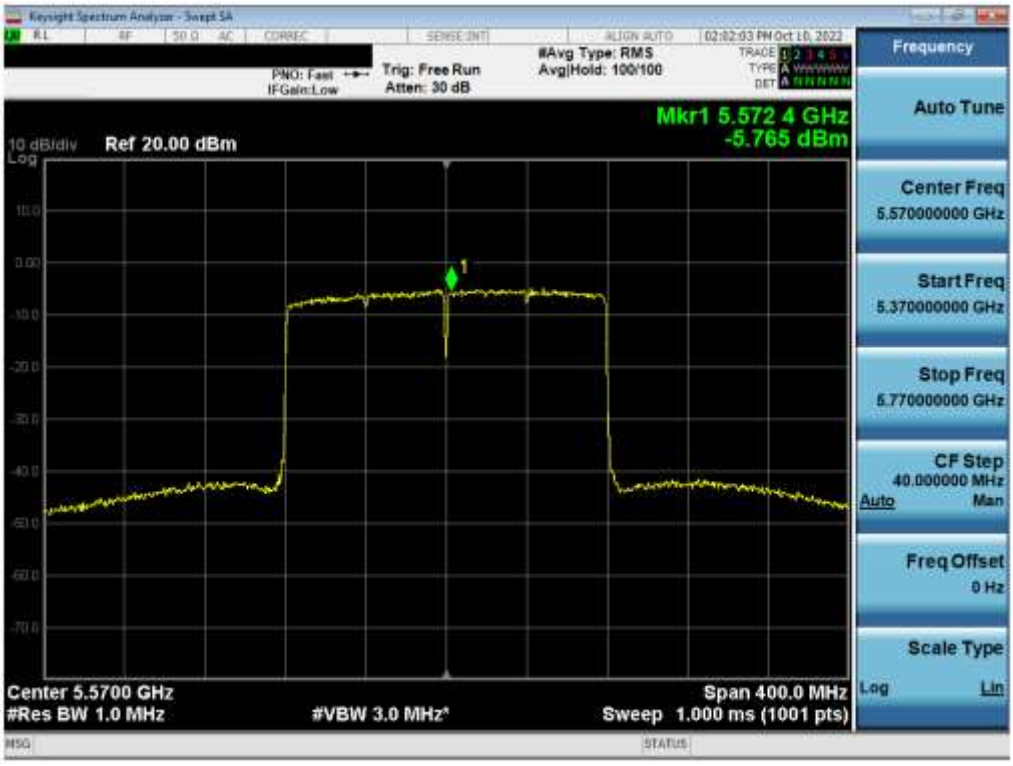
Plot 7-284. Power Spectral Density Plot MIMO ANT2 (80MHz BW 802.11ax – Full Tones (UNII Band 2C) – Ch. 106)



Plot 7-285. Power Spectral Density Plot MIMO ANT2 (80MHz BW 802.11ax – Full Tones (UNII Band 2C) – Ch. 122)



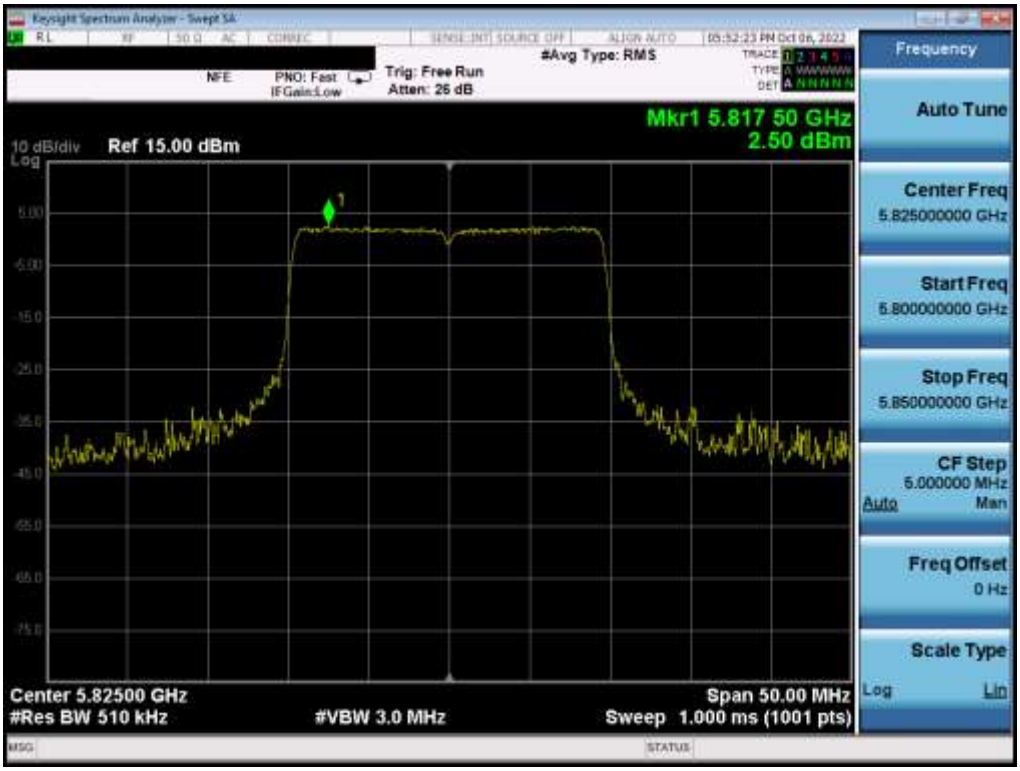
Plot 7-286. Power Spectral Density Plot MIMO ANT2 (80MHz BW 802.11ax – Full Tones (UNII Band 2C) – Ch. 138)



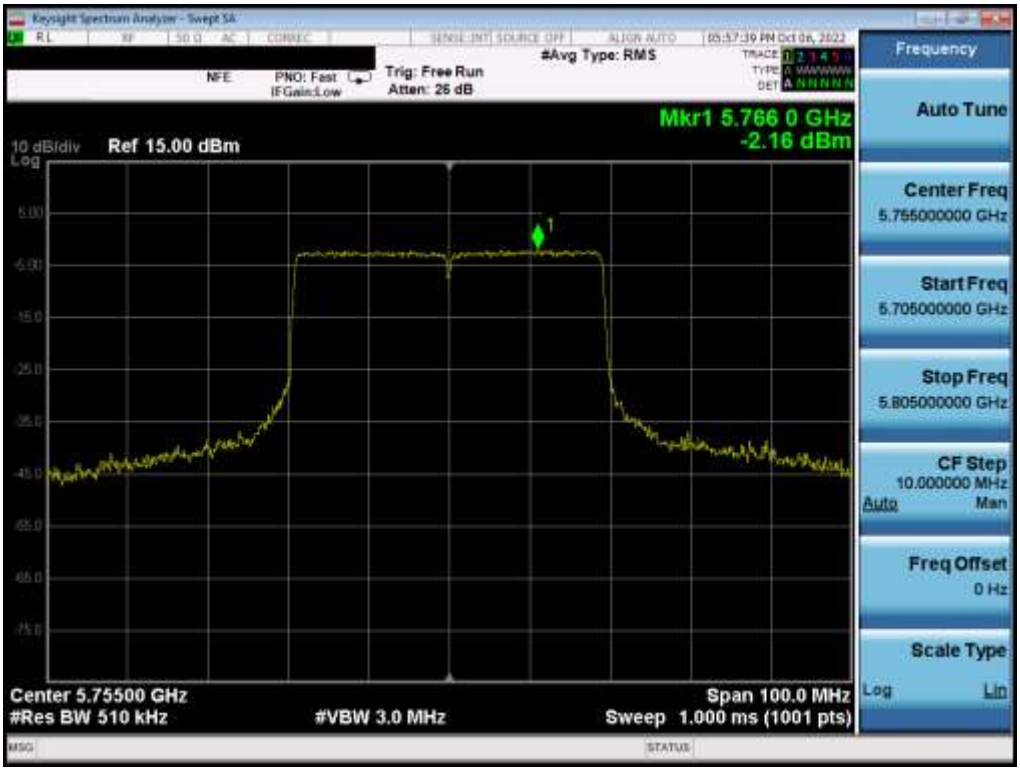
Plot 7-287. Power Spectral Density Plot MIMO ANT2 (160MHz BW 802.11ax – Full Tones (UNII Band 2C) – Ch. 114)

Plot 7-288. Power Spectral Density Plot MIMO ANT2 (20MHz BW 802.11ax – Full Tones (UNII Band 3) – Ch. 149)

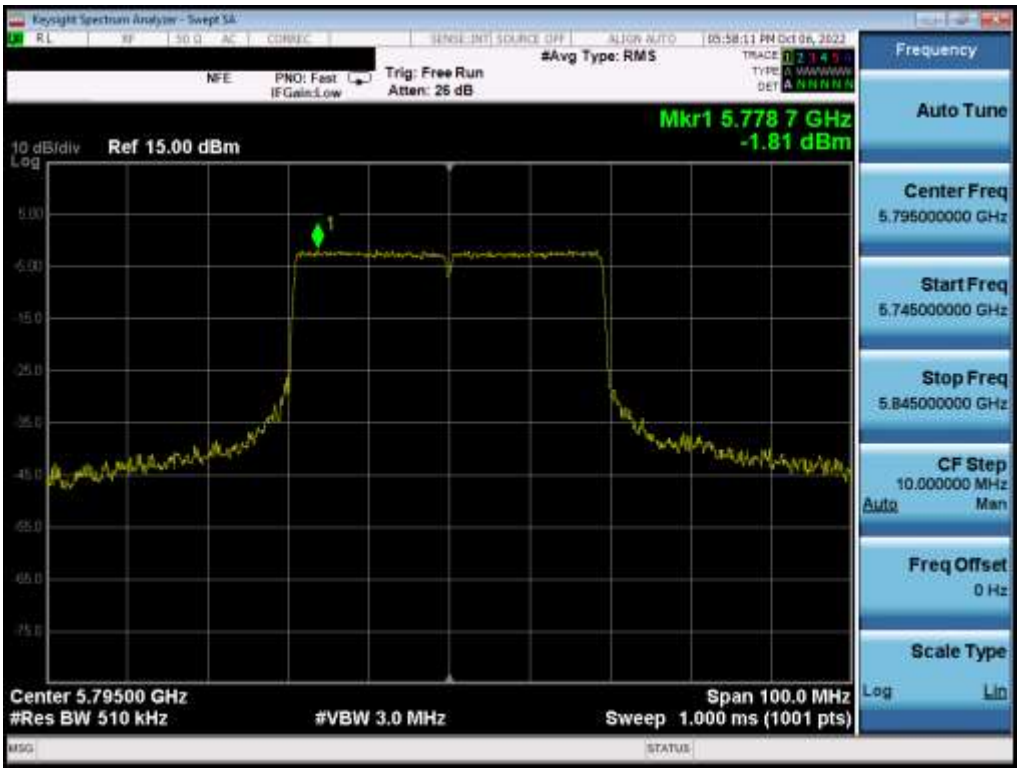
Plot 7-289. Power Spectral Density Plot MIMO ANT2 (20MHz BW 802.11ax – Full Tones (UNII Band 3) – Ch. 157)



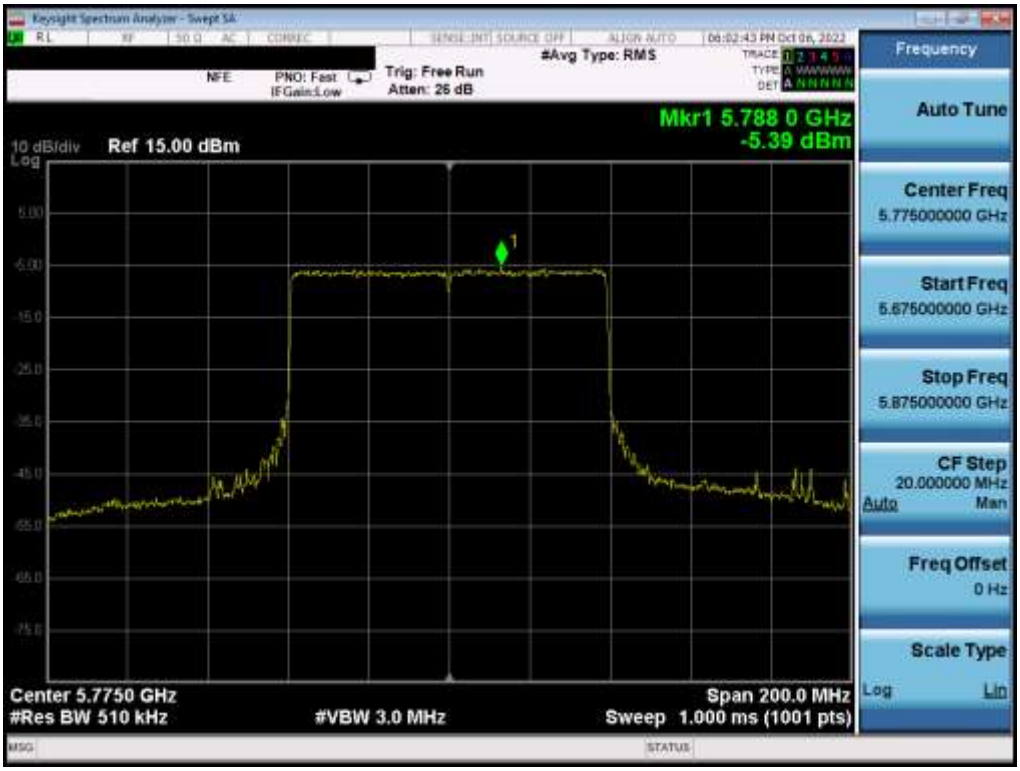
Plot 7-290. Power Spectral Density Plot MIMO ANT2 (20MHz BW 802.11ax – Full Tones (UNII Band 3) – Ch. 165)



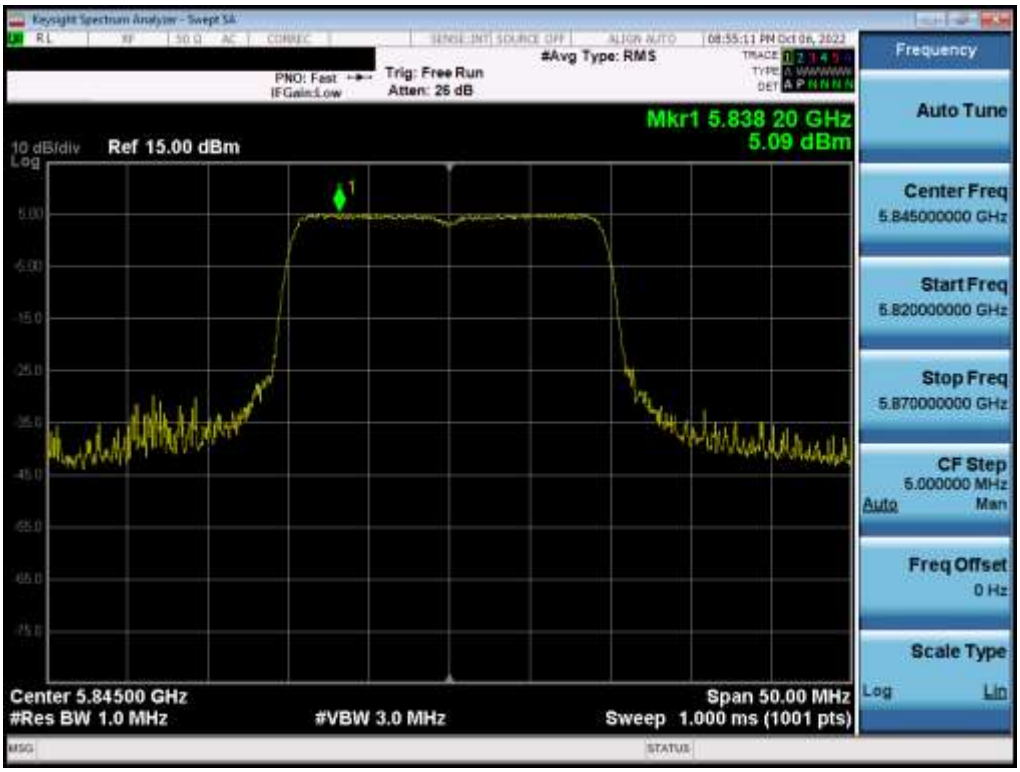
Plot 7-291. Power Spectral Density Plot MIMO ANT2 (40MHz BW 802.11ax – Full Tones (UNII Band 3) – Ch. 151)



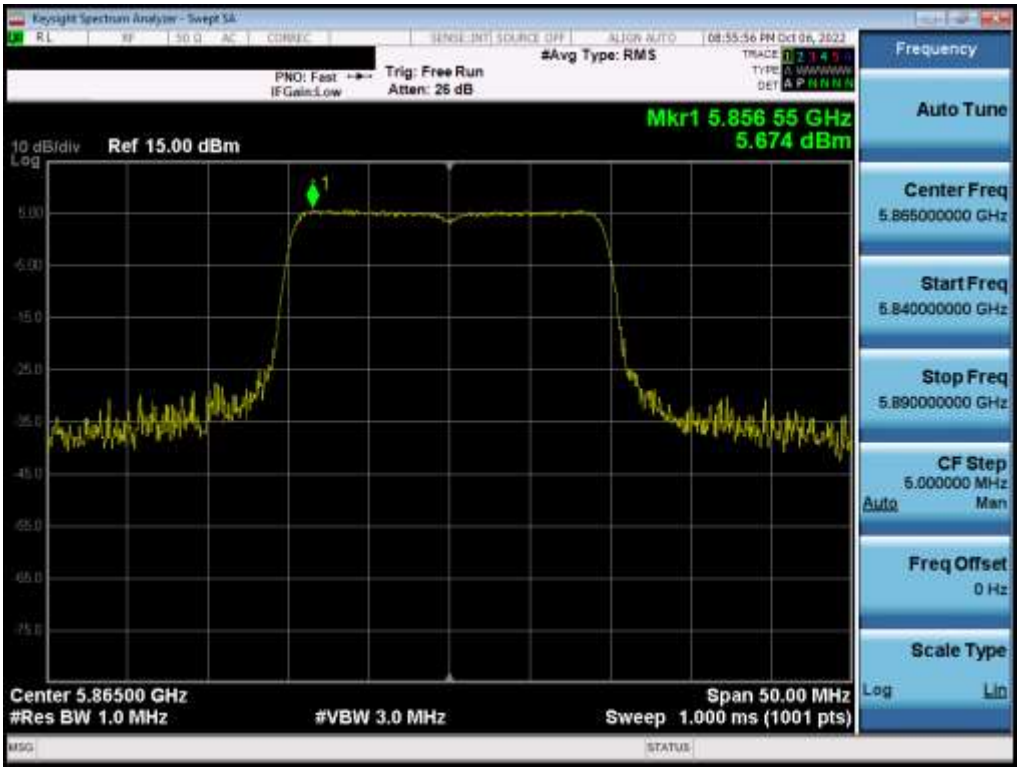
Plot 7-292. Power Spectral Density Plot MIMO ANT2 (40MHz BW 802.11ax – Full Tones (UNII Band 3) – Ch. 159)



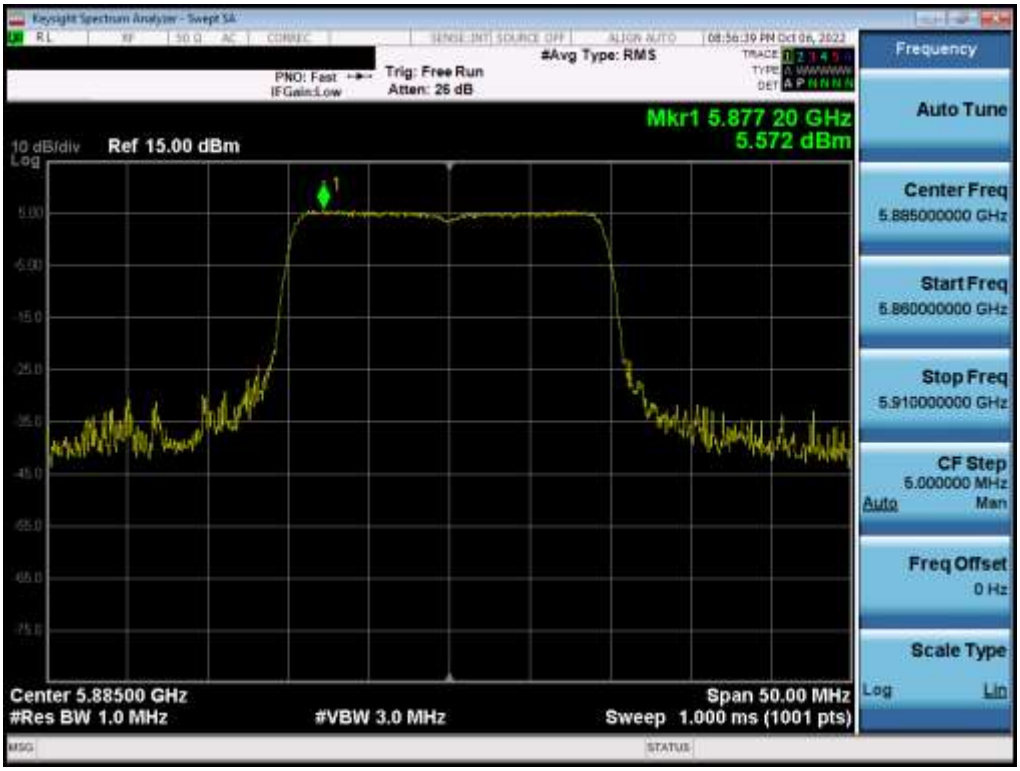
Plot 7-293. Power Spectral Density Plot MIMO ANT2 (80MHz BW 802.11ax – Full Tones (UNII Band 3) – Ch. 155)



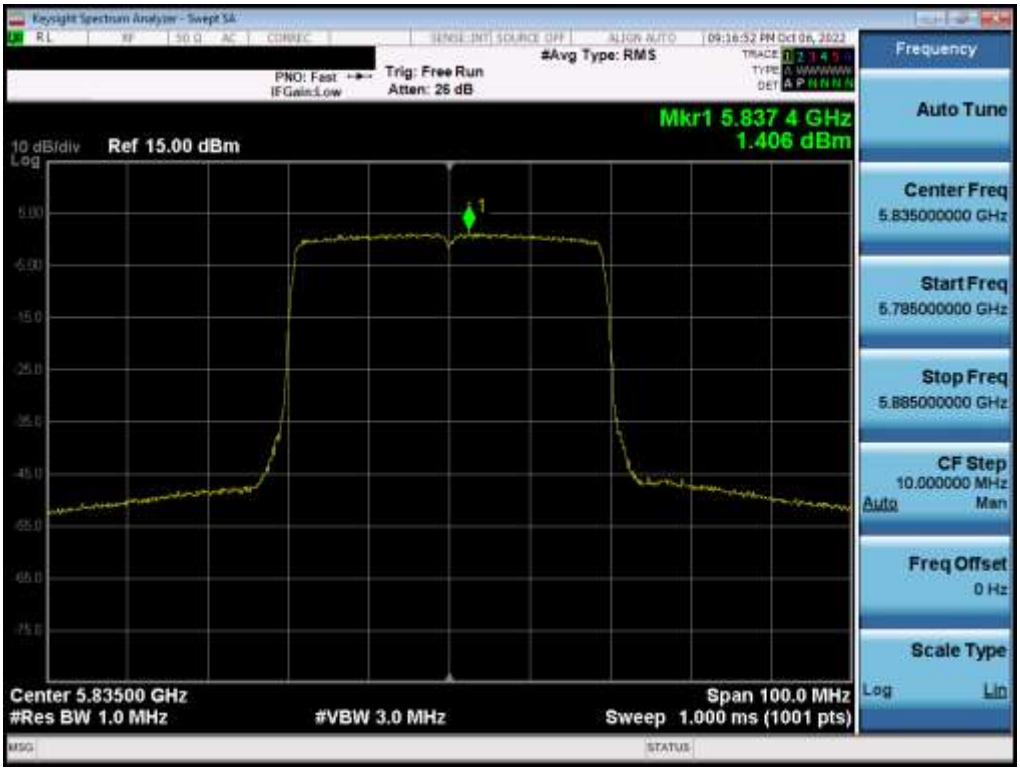
Plot 7-294. Power Spectral Density Plot MIMO ANT2 (20MHz BW 802.11ax – Full Tones (UNII Band 3/4) – Ch. 169)



Plot 7-295. Power Spectral Density Plot MIMO ANT2 (20MHz BW 802.11ax – Full Tones (UNII Band 3) – Ch. 173)

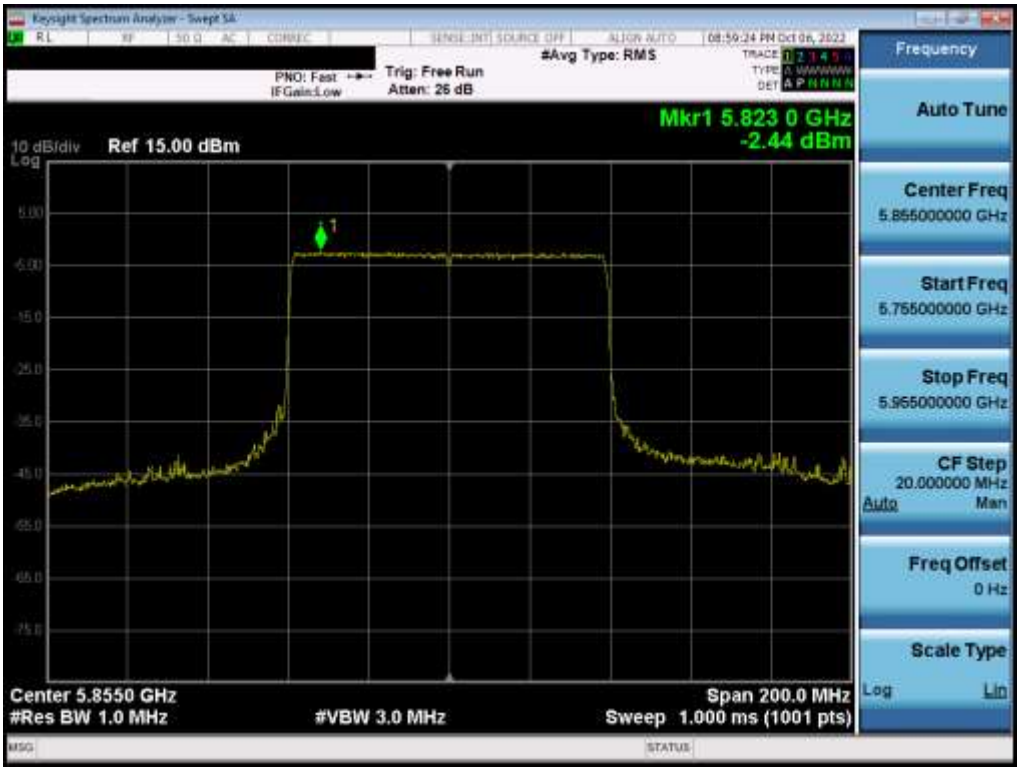


Plot 7-296. Power Spectral Density Plot MIMO ANT2 (20MHz BW 802.11ax – Full Tones (UNII Band 3) – Ch. 177)



Plot 7-297. Power Spectral Density Plot MIMO ANT2 (40MHz BW 802.11ax – Full Tones (UNII Band 3/4) – Ch. 167)

Plot 7-298. Power Spectral Density Plot MIMO ANT2 (40MHz BW 802.11ax – Full Tones (UNII Band 3) – Ch. 175)



Plot 7-299. Power Spectral Density Plot MIMO ANT2 (80MHz BW 802.11ax – Full Tones (UNII Band 3/4) – Ch. 171)

Plot 7-300. Power Spectral Density Plot MIMO ANT2 (160MHz(L) BW 802.11ax – Full Tones (UNII Band 3/4) – Ch. 163)

7.6 Radiated Spurious Emission Measurements – Above 1GHz

§15.407(b) §15.205 §15.209; RSS-Gen [8.9]

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 KDB 789033 D02 v02r01, and at the appropriate frequencies. All channels, modes (e.g. 26 Tones, 52 Tones, 106 Tones, 242 Tones, 484 Tones and 996 Tones), 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 in the 5.15-5.25 GHz and 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.

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.

For transmitters operating in the 5.725-5.85 GHz band: All emissions shall be limited to a level of −27 dBm/MHz at 75 MHz or more above or below the band edge increasing linearly to 10 dBm/MHz at 25 MHz above or below the band edge, and from 25 MHz above or below the band edge increasing linearly to a level of 15.6 dBm/MHz at 5 MHz above or below the band edge, and from 5 MHz above or below the band edge increasing linearly to a level of 27 dBm/MHz at the band edge.

For transmitters operating in the 5.850 – 5.895 GHz band: all emissions at or above 5.895GHz shall not exceed an e.i.r.p. of -5dBm/MHz and shall decrease linearly up to an e.i.r.p. of -27dBm/MHz at or above 5.925GHz, and all emissions below 5.725 GHz shall not exceed an e.i.r.p. of -27dBm/MHz at 5.65 GHz increasing linearly to 10dBm/MHz at 5.7GHz and from 5.7GHz increasing linearly to a level of 15.6dMb/MHz at 5.72GHz, and from 5.72GHz increasing linearly to a level of 27dBm/MHz at 5.725GHz.

All out of band emissions appearing in a restricted band as specified in Section 15.205 of the Title 47 CFR and Table 6 of RSS-Gen (8.10) must not exceed the limits shown in Table 7-22 per Section 15.209 and RSS-Gen (8.9).

Frequency	Field Strength [μV/m]	Measured Distance [Meters]
Above 960.0 MHz	500	3

Table 7-48. Radiated Limits

Test Procedures Used

ANSI C63.10-2013 – Sections 12.7.7.2, 12.7.6, 12.7.5
KDB 789033 D02 v02r01 – Section G

Test Settings

Average Measurements above 1GHz (Method AD)

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. Averaging type = power (RMS)
7. Sweep time = auto couple
8. Trace was averaged over 100 sweeps

Peak Measurements above 1GHz

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

Peak Measurements below 1GHz

Analyzer center frequency was set to the frequency of the radiated spurious emission of interest

Span was set greater than 1MHz

RBW = 120kHz

Detector = CISPR quasi-peak

Sweep time = auto couple

Trace was allowed to stabilize

Test Setup

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

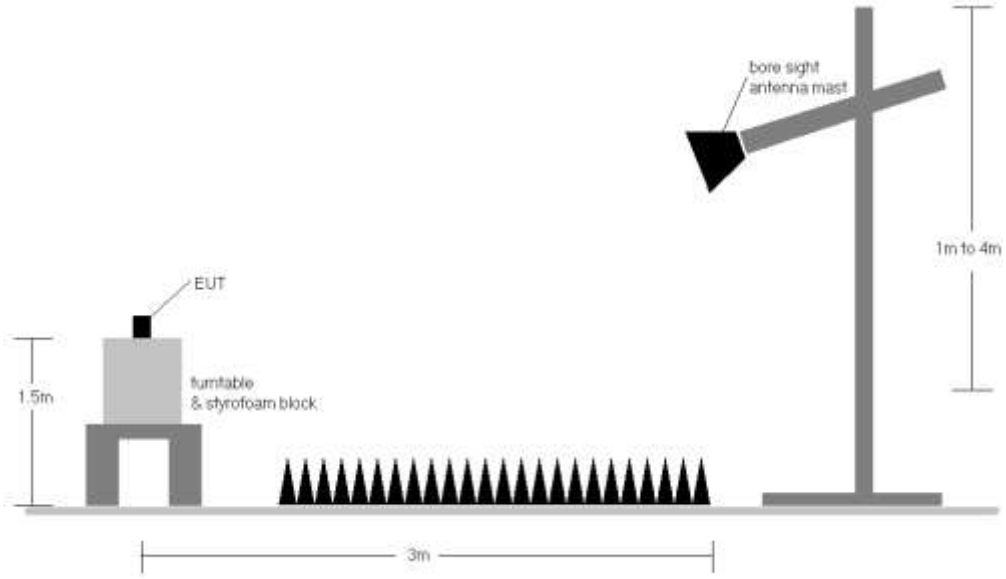


Figure 7-5. Test Instrument & Measurement Setup

Test Notes

1. All emissions that lie in the restricted bands (denoted by a * next to the frequency) specified in §15.205 and Section 8.10 of RSS-Gen are below the limit shown in Table 7-48.
2. All spurious emissions lying in restricted bands specified in §15.205 and Section 8.10 of RSS-Gen are below the limit shown in Table 7-48. All spurious emissions that do not lie in a restricted band are subject to a peak limit of -27dBm/MHz. At a distance of 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.
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

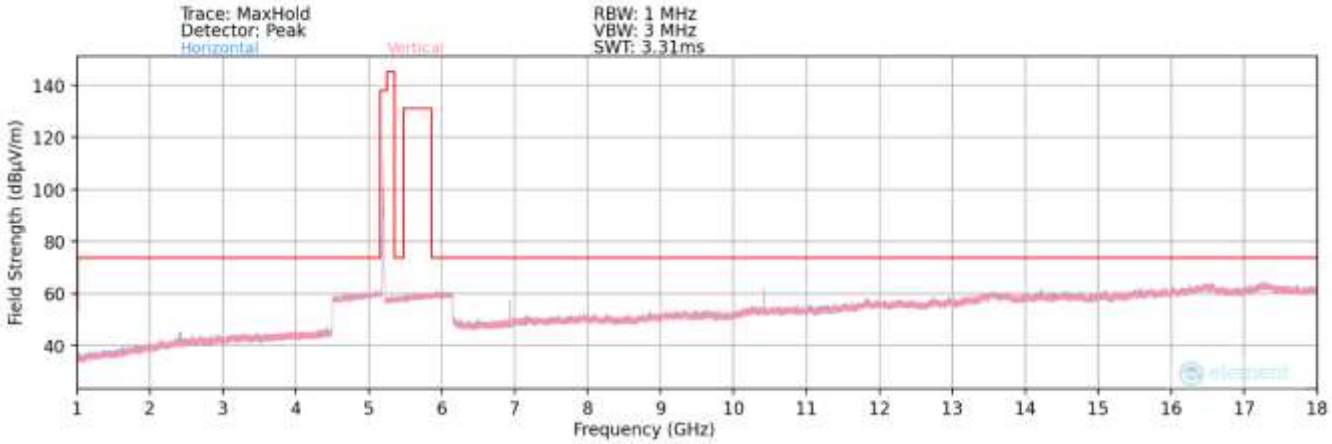
- Field Strength Level $_{[dB\mu V/m]}$ = Analyzer Level $_{[dBm]}$ + 107 + AFCL $_{[dB/m]}$
- AFCL $_{[dB/m]}$ = Antenna Factor $_{[dB/m]}$ + Cable Loss $_{[dB]}$
- Margin $_{[dB]}$ = Field Strength Level $_{[dB\mu V/m]}$ – Limit $_{[dB\mu V/m]}$

Radiated Band Edge Measurement Offset

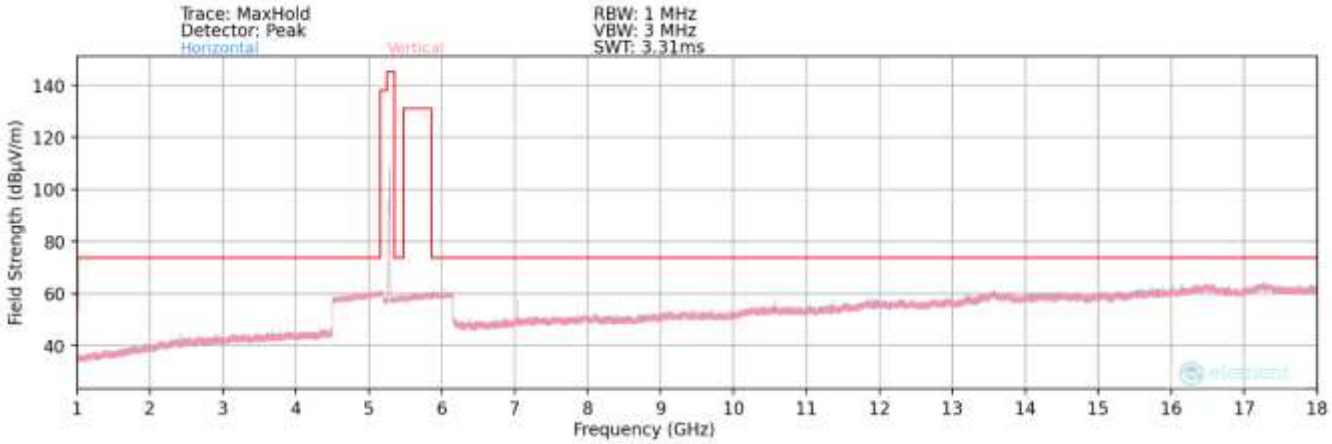
- The amplitude offset shown in the radiated restricted band edge plots in Section Radiated Spurious Emission Measurements – Above 1GHz was calculated using the formula:
  Offset (dB) = (Antenna Factor + Cable Loss + Attenuator) – Preamplifier Gain

7.6.1 MIMO Radiated Spurious Emission Measurements

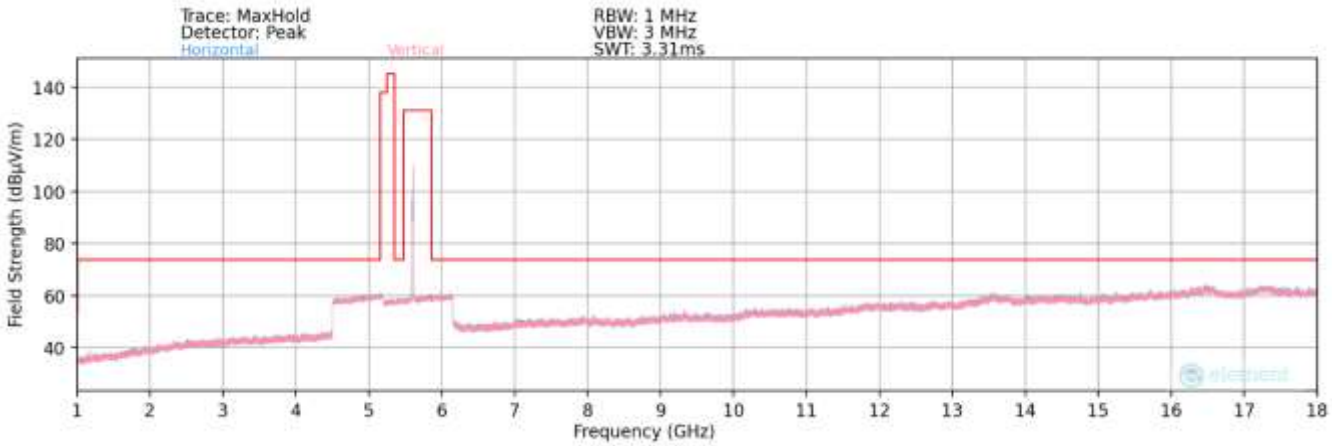
26 Tones



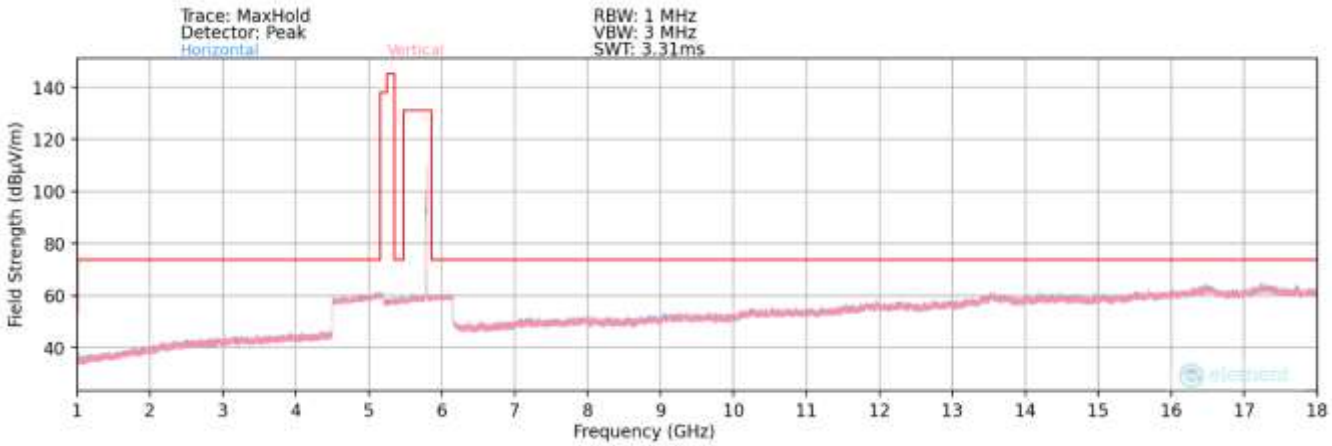
Plot 7-301. Radiated Spurious Plot above 1GHz MIMO (802.11ax – U1 Ch. 40 – 26 Tones)



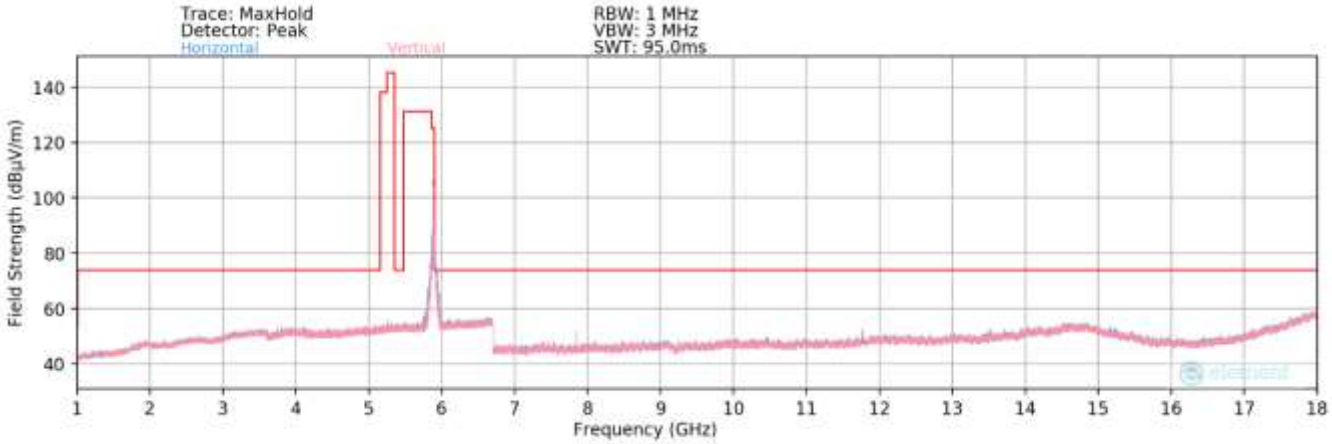
Plot 7-302. Radiated Spurious Plot above 1GHz MIMO (802.11ax – U2A Ch. 56 – 26 Tones)



Plot 7-303. Radiated Spurious Plot above 1GHz MIMO (802.11ax – U2C Ch. 120 – 26 Tones)

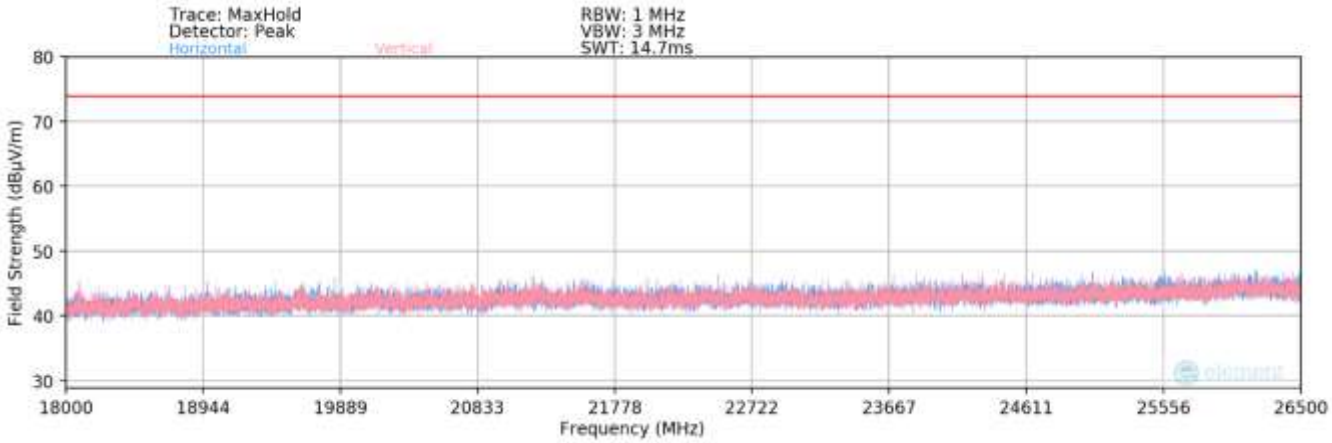


Plot 7-304. Radiated Spurious Plot above 1GHz MIMO (802.11ax – U3 Ch. 157 – 26 Tones)

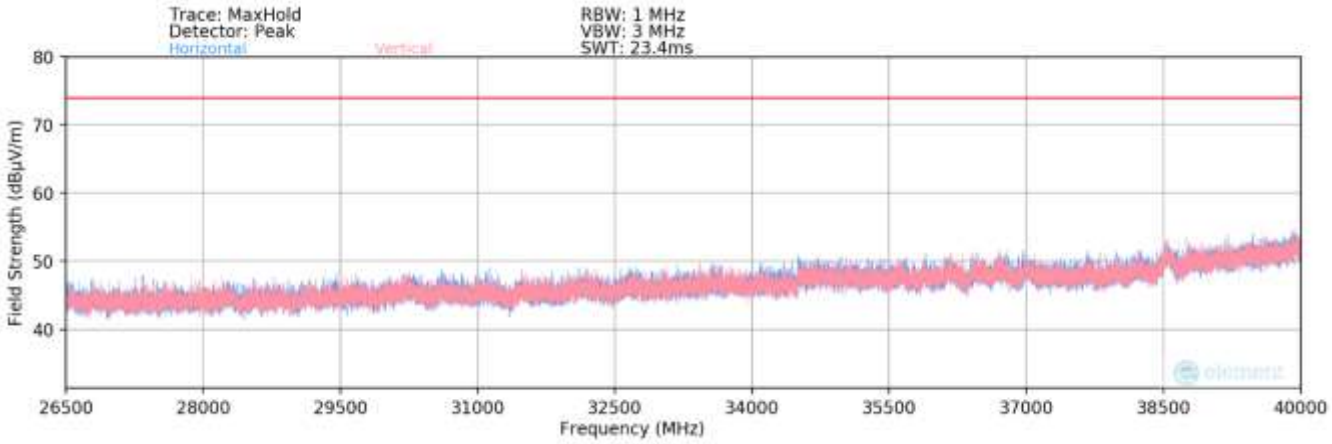


Plot 7-305. Radiated Spurious Plot above 1GHz MIMO (802.11ax – U4 Ch. 173 – 26 Tones)

MIMO Radiated Spurious Emissions Measurements (Above 18GHz)



Plot 7-306. Radiated Spurious Plot 18GHz - 26.5GHz MIMO (802.11ax – 26 Tones)



Plot 7-307. Radiated Spurious Plot 26.5GHz - 40GHz MIMO (802.11ax – 26 Tones)

MIMO Radiated Spurious Emission Measurements (26 Tones)

§15.407(b) §15.205 & §15.209; RSS-Gen [8.9]

Worst Case Mode:	802.11ax (20MHz BW)
Worst Case Transfer Rate:	MCS0
RU Index:	4
Distance of Measurements:	1 & 3 Meters
Operating Frequency:	5180MHz
Channel:	36

	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]
	10360.00	Peak	V	199	225	-53.88	10.60	0.00	63.72	68.20	-4.48
*	15540.00	Average	V	-	-	-80.33	16.03	0.00	42.70	53.98	-11.28
*	15540.00	Peak	V	-	-	-68.97	16.03	0.00	54.06	73.98	-19.92
*	20720.00	Average	V	150	334	-64.35	3.37	-9.54	36.48	53.98	-17.50
*	20720.00	Peak	V	150	334	-55.70	3.37	-9.54	45.13	73.98	-28.85
	25900.00	Peak	V	-	-	-55.82	4.84	-9.54	46.47	68.20	-21.73

Table 7-49. Radiated Measurements MIMO (26 Tones)

Worst Case Mode:	802.11ax (20MHz BW)
Worst Case Transfer Rate:	MCS0
RU Index:	4
Distance of Measurements:	1 & 3 Meters
Operating Frequency:	5200MHz
Channel:	40

	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]
	10400.00	Peak	V	197	226	-54.50	10.31	0.00	62.81	68.20	-5.39
*	15600.00	Average	V	-	-	-80.55	16.05	0.00	42.50	53.98	-11.48
*	15600.00	Peak	V	-	-	-69.34	16.05	0.00	53.71	73.98	-20.27
*	20800.00	Average	V	150	293	-63.04	3.43	-9.54	37.84	53.98	-16.14
*	20800.00	Peak	V	150	293	-54.85	3.43	-9.54	46.03	73.98	-27.95
	26000.00	Peak	V	-	-	-55.47	4.89	-9.54	46.88	68.20	-21.32

Table 7-50. Radiated Measurements MIMO (26 Tones)

Worst Case Mode:	802.11ax (20MHz BW)
Worst Case Transfer Rate:	MCS0
RU Index:	4
Distance of Measurements:	1 & 3 Meters
Operating Frequency:	5240MHz
Channel:	48

	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]
	10480.00	Peak	V	177	140	-61.48	10.54	0.00	56.06	68.20	-12.14
*	15720.00	Average	V	-	-	-81.00	17.36	0.00	43.36	53.98	-10.62
*	15720.00	Peak	V	-	-	-69.32	17.36	0.00	55.04	73.98	-18.94
*	20960.00	Average	V	150	325	-63.57	3.50	-9.54	37.39	53.98	-16.59
*	20960.00	Peak	V	150	325	-55.05	3.50	-9.54	45.91	73.98	-28.07
	26200.00	Peak	V	-	-	-55.00	4.72	-9.54	47.18	68.20	-21.02

Table 7-51. Radiated Measurements MIMO (26 Tones)

Worst Case Mode:	802.11ax (20MHz BW)
Worst Case Transfer Rate:	MCS0
RU Index:	4
Distance of Measurements:	1 & 3 Meters
Operating Frequency:	5260MHz
Channel:	52

	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]
	10520.00	Peak	V	154	54	-63.75	17.11	0.00	60.36	68.20	-7.84
*	15780.00	Average	V	-	-	-84.49	23.32	0.00	45.83	53.98	-8.15
*	15780.00	Peak	V	-	-	-73.05	23.32	0.00	57.27	73.98	-16.71
*	21040.00	Average	V	150	332	-63.94	3.56	-9.54	37.08	53.98	-16.90
*	21040.00	Peak	V	150	332	-54.96	3.56	-9.54	46.06	73.98	-27.92
	26300.00	Peak	V	-	-	-55.82	4.68	-9.54	46.32	68.20	-21.88

Table 7-52. Radiated Measurements MIMO (26 Tones)

Worst Case Mode:	802.11ax (20MHz BW)
Worst Case Transfer Rate:	MCS0
RU Index:	4
Distance of Measurements:	1 & 3 Meters
Operating Frequency:	5280MHz
Channel:	56

	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]
	10560.00	Peak	V	119	8	-70.47	17.79	0.00	54.32	68.20	-13.88
*	15840.00	Average	V	-	-	-84.62	22.94	0.00	45.32	53.98	-8.66
*	15840.00	Peak	V	-	-	-72.91	22.94	0.00	57.03	73.98	-16.95
*	21120.00	Average	V	150	330	-63.47	3.66	-9.54	37.65	53.98	-16.33
*	21120.00	Peak	V	150	330	-55.68	3.66	-9.54	45.44	73.98	-28.54
	26400.00	Peak	V	-	-	-54.33	4.56	-9.54	47.68	68.20	-20.52

Table 7-53. Radiated Measurements MIMO (26 Tones)

Worst Case Mode:	802.11ax (20MHz BW)
Worst Case Transfer Rate:	MCS0
RU Index:	4
Distance of Measurements:	1 & 3 Meters
Operating Frequency:	5320MHz
Channel:	64

	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]
*	10640.00	Average	V	149	338	-80.78	17.42	0.00	43.64	53.98	-10.34
*	10640.00	Peak	V	149	338	-66.31	17.42	0.00	58.11	73.98	-15.87
*	15960.00	Average	V	-	-	-84.78	23.51	0.00	45.73	53.98	-8.25
*	15960.00	Peak	V	-	-	-73.09	23.51	0.00	57.42	73.98	-16.56
*	21280.00	Average	V	-	-	-66.54	3.77	-9.54	34.69	53.98	-19.29
*	21280.00	Peak	V	-	-	-55.76	3.77	-9.54	45.47	73.98	-28.51
	26600.00	Peak	V	-	-	-55.77	4.58	-9.54	46.27	68.20	-21.93

Table 7-54. Radiated Measurements MIMO (26 Tones)

Worst Case Mode:	802.11ax (20MHz BW)
Worst Case Transfer Rate:	MCS0
RU Index:	4
Distance of Measurements:	1 & 3 Meters
Operating Frequency:	5500MHz
Channel:	100

	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]
*	11000.00	Average	V	-	-	-83.58	17.80	0.00	41.22	53.98	-12.76
*	11000.00	Peak	V	-	-	-72.60	17.80	0.00	52.20	73.98	-21.78
	16500.00	Peak	V	-	-	-72.81	24.65	0.00	58.84	68.20	-9.36
	22000.00	Peak	V	-	-	-55.73	3.80	-9.54	45.53	68.20	-22.67
	27500.00	Peak	V	-	-	-55.54	4.79	-9.54	46.70	68.20	-21.50

Table 7-55. Radiated Measurements MIMO (26 Tones)

Worst Case Mode:	802.11ax (20MHz BW)
Worst Case Transfer Rate:	MCS0
RU Index:	4
Distance of Measurements:	1 & 3 Meters
Operating Frequency:	5600MHz
Channel:	120

	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]
*	11200.00	Average	V	-	-	-83.21	17.11	0.00	40.90	53.98	-13.08
*	11200.00	Peak	V	-	-	-71.79	17.11	0.00	52.32	73.98	-21.66
	16800.00	Peak	V	-	-	-72.86	24.35	0.00	58.49	68.20	-9.71
*	22400.00	Average	V	-	-	-65.99	3.90	-9.54	35.37	53.98	-18.61
*	22400.00	Peak	V	-	-	-55.53	3.90	-9.54	45.83	73.98	-28.15
	28000.00	Peak	V	-	-	-55.33	5.18	-9.54	47.31	68.20	-20.89

Table 7-56. Radiated Measurements MIMO (26 Tones)

Worst Case Mode:	802.11ax (20MHz BW)
Worst Case Transfer Rate:	MCS0
RU Index:	4
Distance of Measurements:	1 & 3 Meters
Operating Frequency:	5720MHz
Channel:	144

	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]
*	11440.00	Average	V	-	-	-83.54	18.16	0.00	41.62	53.98	-12.36
*	11440.00	Peak	V	-	-	-72.25	18.16	0.00	52.91	73.98	-21.07
	17160.00	Peak	V	-	-	-72.93	24.49	0.00	58.56	68.20	-9.64
*	22880.00	Average	V	-	-	-66.20	3.82	-9.54	35.08	53.98	-18.90
*	22880.00	Peak	V	-	-	-55.48	3.82	-9.54	45.80	73.98	-28.18
	28600.00	Peak	V	-	-	-55.72	5.43	-9.54	47.17	68.20	-21.03

Table 7-57. Radiated Measurements MIMO (26 Tones)

Worst Case Mode:	802.11ax (20MHz BW)
Worst Case Transfer Rate:	MCS0
RU Index:	4
Distance of Measurements:	1 & 3 Meters
Operating Frequency:	5745MHz
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]
*	11490.00	Average	V	-	-	-83.64	18.22	0.00	41.58	53.98	-12.40
*	11490.00	Peak	V	-	-	-72.56	18.22	0.00	52.66	73.98	-21.32
	17235.00	Peak	V	-	-	-72.92	24.57	0.00	58.65	68.20	-9.55
*	22980.00	Average	V	-	-	-66.51	3.76	-9.54	34.71	53.98	-19.27
*	22980.00	Peak	V	-	-	-56.29	3.76	-9.54	44.93	73.98	-29.05
	28725.00	Peak	V	-	-	-56.09	5.46	-9.54	46.83	68.20	-21.37

Table 7-58. Radiated Measurements MIMO (26 Tones)

Worst Case Mode:	802.11ax (20MHz BW)
Worst Case Transfer Rate:	MCS0
RU Index:	4
Distance of Measurements:	1 & 3 Meters
Operating Frequency:	5785MHz
Channel:	157

	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]
*	11570.00	Average	V	-	-	-83.52	17.73	0.00	41.21	53.98	-12.77
*	11570.00	Peak	V	-	-	-72.37	17.73	0.00	52.36	73.98	-21.62
	17355.00	Peak	V	-	-	-72.90	25.89	0.00	59.99	68.20	-8.21
	23140.00	Peak	V	-	-	-56.02	3.80	-9.54	45.23	68.20	-22.97
	28925.00	Peak	V	-	-	-55.12	5.51	-9.54	47.85	68.20	-20.35

Table 7-59. Radiated Measurements MIMO (26 Tones)

Worst Case Mode:	802.11ax (20MHz BW)
Worst Case Transfer Rate:	MCS0
RU Index:	4
Distance of Measurements:	1 & 3 Meters
Operating Frequency:	5825MHz
Channel:	165

	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]
*	11650.00	Average	V	-	-	-83.44	17.69	0.00	41.25	53.98	-12.73
*	11650.00	Peak	V	-	-	-72.33	17.69	0.00	52.36	73.98	-21.62
	17475.00	Peak	V	-	-	-73.13	25.91	0.00	59.78	68.20	-8.42
	23300.00	Peak	V	-	-	-55.94	3.74	-9.54	45.25	68.20	-22.95
	29125.00	Peak	V	-	-	-55.69	5.67	-9.54	47.43	68.20	-20.77

Table 7-60. Radiated Measurements MIMO (26 Tones)

Worst Case Mode:	802.11ax (20MHz BW)
Worst Case Transfer Rate:	MCS0
RU Index:	4
Distance of Measurements:	1 & 3 Meters
Operating Frequency:	5845MHz
Channel:	169

	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]
*	11690.00	Average	H	184	355	-75.88	9.31	0.00	40.43	53.98	-13.55
*	11690.00	Peak	H	184	355	-61.79	9.31	0.00	54.52	73.98	-19.46
	17535.00	Peak	H	-	-	-63.39	14.18	0.00	57.79	68.20	-10.41
	23380.00	Peak	H	-	-	-55.62	3.76	-9.54	55.14	68.20	-13.06
	29225.00	Peak	H	-	-	-56.11	5.66	-9.54	56.55	68.20	-11.65
	35070.00	Peak	H	-	-	-54.83	7.69	-9.54	59.86	68.20	-8.34

Table 7-61. Radiated Measurements MIMO (26 Tones)

Worst Case Mode:	802.11ax (20MHz BW)
Worst Case Transfer Rate:	MCS0
RU Index:	4
Distance of Measurements:	1 & 3 Meters
Operating Frequency:	5865MHz
Channel:	173

	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]
*	11730.00	Average	H	161	349	-75.84	9.22	0.00	40.38	53.98	-13.60
*	11730.00	Peak	H	161	349	-62.21	9.22	0.00	54.01	73.98	-19.97
	17595.00	Peak	H	-	-	-63.32	14.38	0.00	58.06	68.20	-10.14
	23460.00	Peak	H	-	-	-55.20	3.76	-9.54	55.56	68.20	-12.64
	29325.00	Peak	H	-	-	-55.81	5.90	-9.54	57.09	68.20	-11.11
	35190.00	Peak	H	-	-	-54.96	7.78	-9.54	59.82	68.20	-8.38

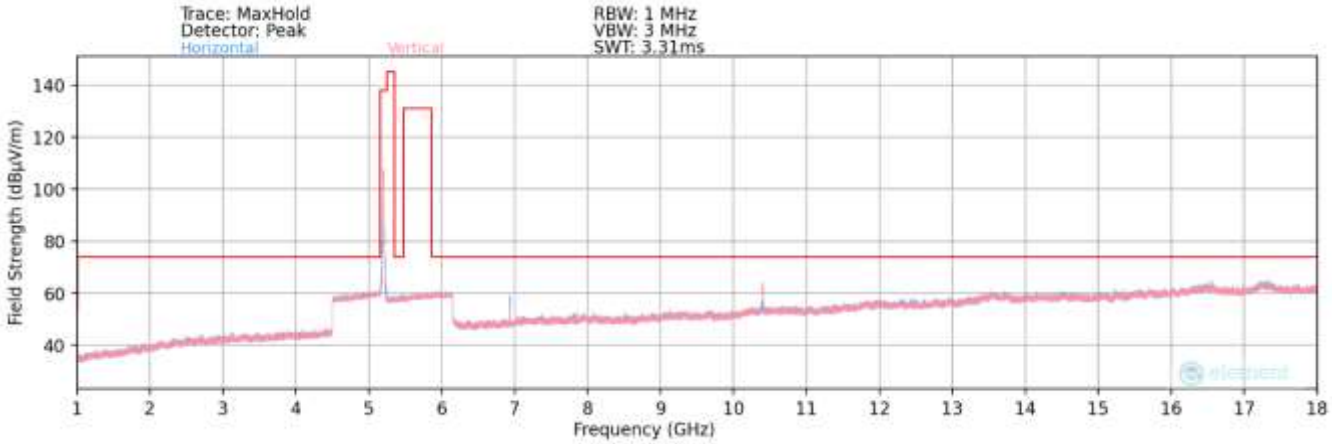
Table 7-62. Radiated Measurements MIMO (26 Tones)

Worst Case Mode:	802.11ax (20MHz BW)
Worst Case Transfer Rate:	MCS0
RU Index:	4
Distance of Measurements:	1 & 3 Meters
Operating Frequency:	5885MHz
Channel:	177

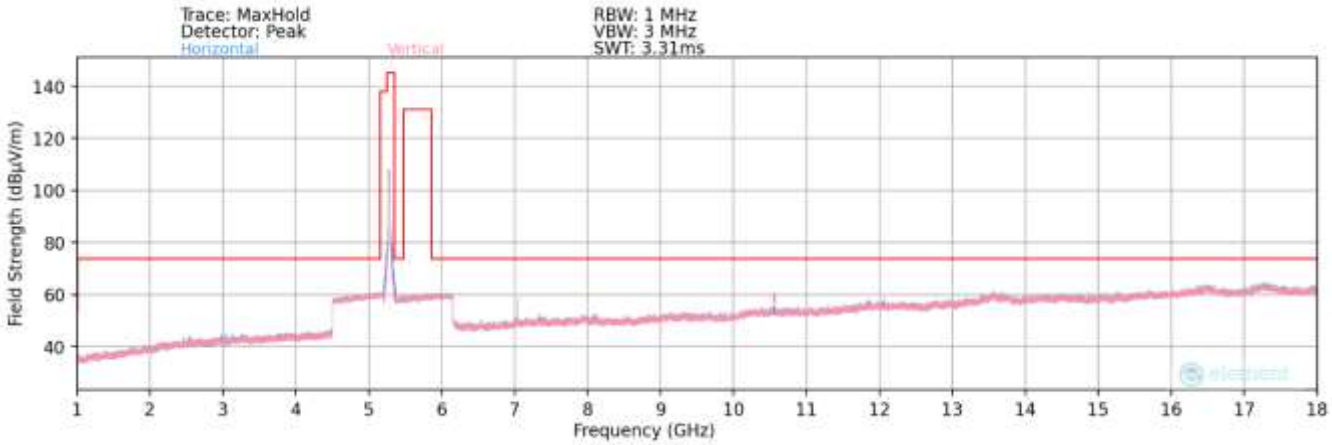
	Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBµV/m]	Limit [dBµV/m]	Margin [dB]
*	11770.00	Average	H	135	357	-75.94	10.00	0.00	41.06	53.98	-12.92
*	11770.00	Peak	H	135	357	-61.59	10.00	0.00	55.41	73.98	-18.57
	17655.00	Peak	H	-	-	-63.00	14.79	0.00	58.79	68.20	-9.41
	23540.00	Peak	H	-	-	-56.61	3.80	-9.54	54.19	68.20	-14.01
	29425.00	Peak	H	-	-	-56.12	5.83	-9.54	56.71	68.20	-11.49
	35310.00	Peak	H	-	-	-54.12	7.90	-9.54	60.78	68.20	-7.42

Table 7-63. Radiated Measurements MIMO (26 Tones)

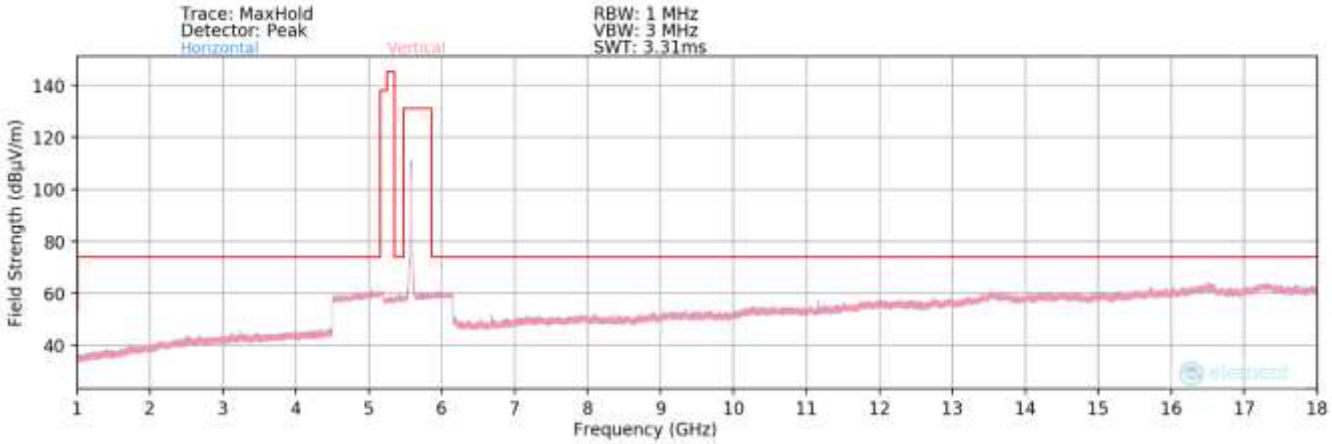
242 Tones



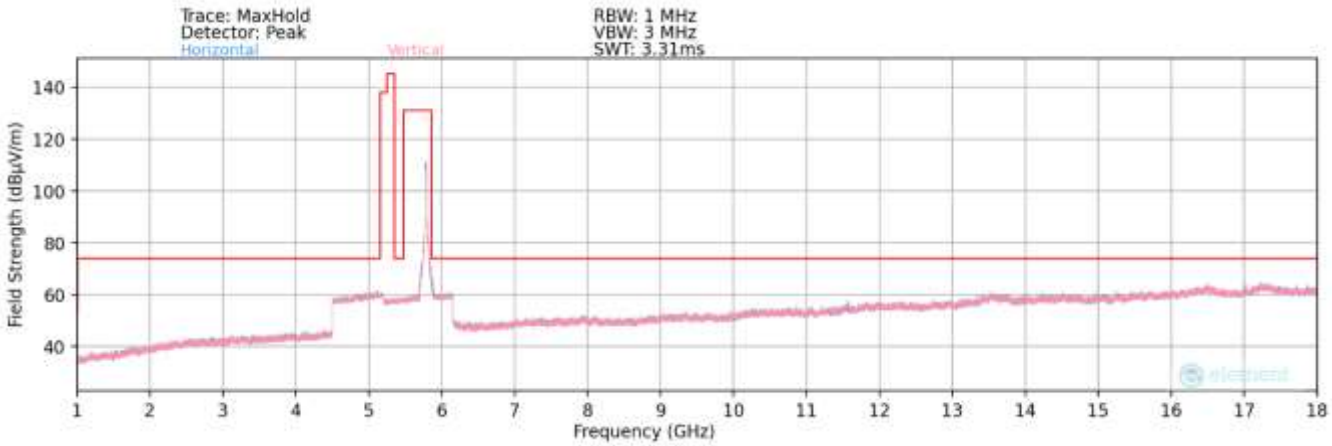
Plot 7-308. Radiated Spurious Plot above 1GHz MIMO (802.11ax – U1 Ch. 40 – 242 Tones)



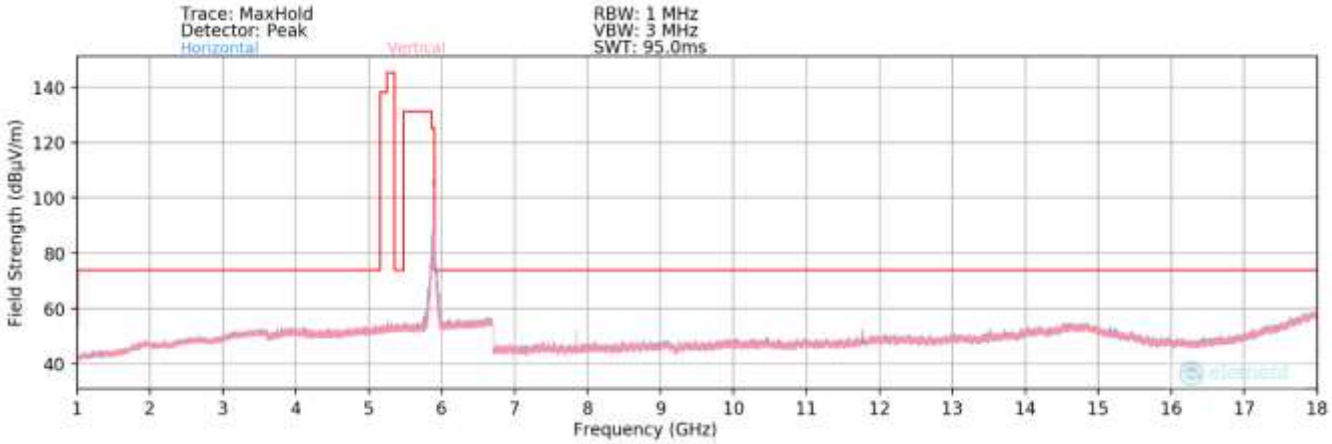
Plot 7-309. Radiated Spurious Plot above 1GHz MIMO (802.11ax – U2A Ch. 56 – 242 Tones)



Plot 7-310. Radiated Spurious Plot above 1GHz MIMO (802.11ax – U2C Ch. 120 – 242 Tones)

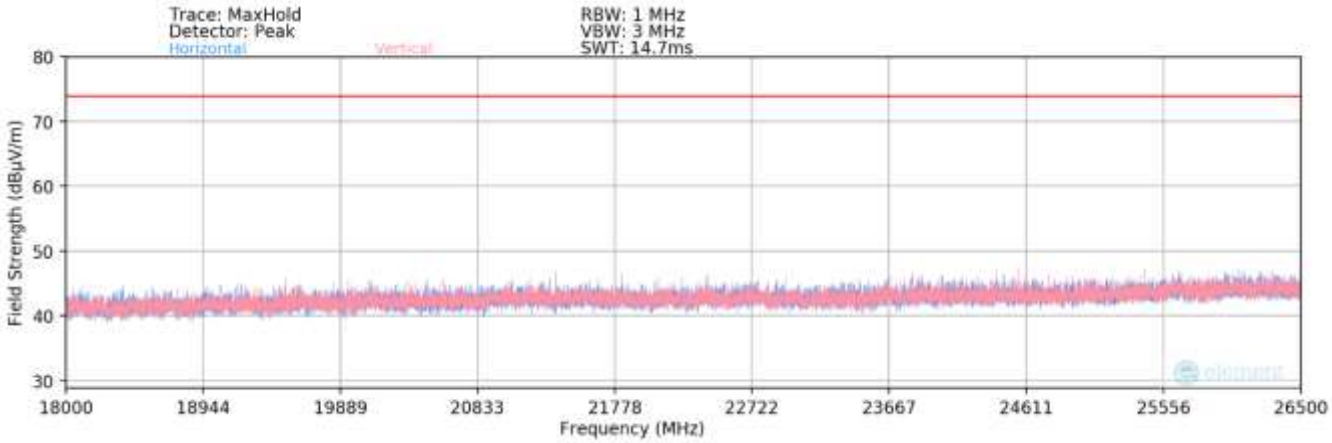


Plot 7-311. Radiated Spurious Plot above 1GHz MIMO (802.11ax – U3 Ch. 157 – 242 Tones)

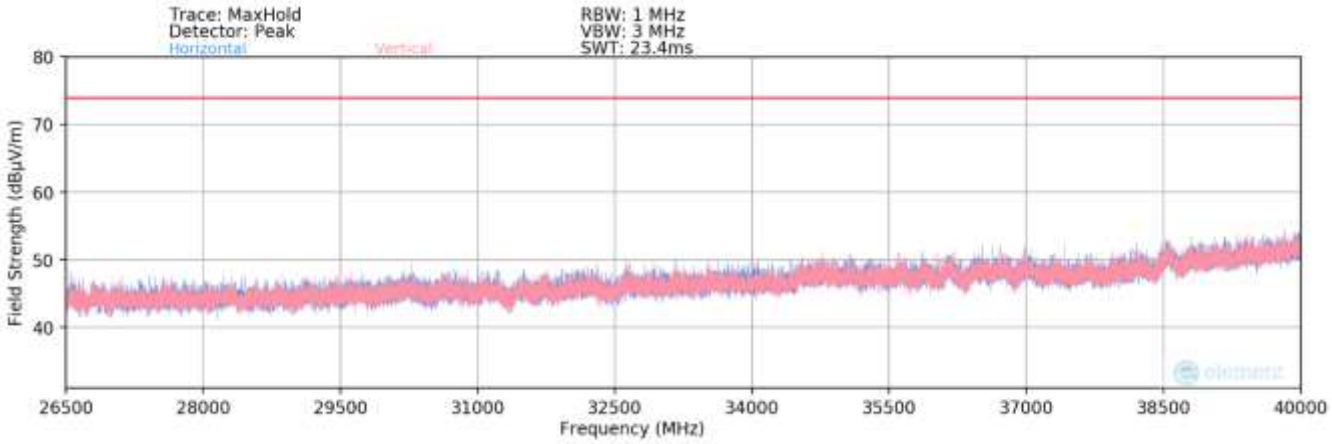


Plot 7-312. Radiated Spurious Plot above 1GHz MIMO (802.11ax – U3 Ch. 173 – 242 Tones)

MIMO Radiated Spurious Emissions Measurements (Above 18GHz)



Plot 7-313. Radiated Spurious Plot 18GHz - 26.5GHz MIMO (802.11ax – 242 Tones)



Plot 7-314. Radiated Spurious Plot 26.5GHz - 40GHz MIMO (802.11ax – 242 Tones)

MIMO Radiated Spurious Emission Measurements (242 Tones)

§15.407(b) §15.205 & §15.209; RSS-Gen [8.9]

Worst Case Mode:	802.11ax (20MHz BW)
Worst Case Transfer Rate:	MCS0
RU Index:	61
Distance of Measurements:	1 & 3 Meters
Operating Frequency:	5180MHz
Channel:	36

	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]
	10360.00	Peak	V	200	227	-52.71	10.60	0.00	64.89	68.20	-3.31
*	15540.00	Average	V	-	-	-80.36	16.03	0.00	42.67	53.98	-11.31
*	15540.00	Peak	V	-	-	-68.84	16.03	0.00	54.19	73.98	-19.79
*	20720.00	Average	V	-	-	-85.55	3.37	-9.54	15.28	53.98	-38.70
*	20720.00	Peak	V	-	-	-73.98	3.37	-9.54	26.85	73.98	-47.13
	25900.00	Peak	V	-	-	-73.12	4.84	-9.54	29.17	68.20	-39.03

Table 7-64. Radiated Measurements MIMO (242 Tones)

Worst Case Mode:	802.11ax (20MHz BW)
Worst Case Transfer Rate:	MCS0
RU Index:	61
Distance of Measurements:	1 & 3 Meters
Operating Frequency:	5200MHz
Channel:	40

	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]
	10400.00	Peak	V	195	228	-52.25	10.31	0.00	65.06	68.20	-3.14
*	15600.00	Average	V	-	-	-80.47	16.05	0.00	42.58	53.98	-11.40
*	15600.00	Peak	V	-	-	-68.94	16.05	0.00	54.11	73.98	-19.87
*	20800.00	Average	V	-	-	-85.45	3.43	-9.54	15.43	53.98	-38.55
*	20800.00	Peak	V	-	-	-74.41	3.43	-9.54	26.47	73.98	-47.51
	26000.00	Peak	V	-	-	-71.60	4.89	-9.54	30.75	68.20	-37.45

Table 7-65. Radiated Measurements MIMO (242 Tones)

Worst Case Mode: 802.11ax (20MHz BW)
Worst Case Transfer Rate: MCS0
RU Index: 61
Distance of Measurements: 1 & 3 Meters
Operating Frequency: 5240MHz
Channel: 48

	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]
	10480.00	Peak	V	190	223	-53.81	10.54	0.00	63.73	68.20	-4.47
*	15720.00	Average	V	-	-	-80.79	17.36	0.00	43.57	53.98	-10.41
*	15720.00	Peak	V	-	-	-69.52	17.36	0.00	54.84	73.98	-19.14
*	20960.00	Average	V	-	-	-85.12	3.50	-9.54	15.84	53.98	-38.14
*	20960.00	Peak	V	-	-	-73.48	3.50	-9.54	27.48	73.98	-46.50
	26200.00	Peak	V	-	-	-70.91	4.72	-9.54	31.27	68.20	-36.93

Table 7-66. Radiated Measurements MIMO (242 Tones)

Worst Case Mode: 802.11ax (20MHz BW)
Worst Case Transfer Rate: MCS0
RU Index: 61
Distance of Measurements: 1 & 3 Meters
Operating Frequency: 5260MHz
Channel: 52

	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]
	10520.00	Peak	V	128	142	-54.13	11.45	0.00	64.32	68.20	-3.88
*	15780.00	Average	V	-	-	-80.06	17.34	0.00	44.28	53.98	-9.70
*	15780.00	Peak	V	-	-	-66.93	17.34	0.00	57.41	73.98	-16.57
*	21040.00	Average	V	-	-	-85.30	3.56	-9.54	15.72	53.98	-38.26
*	21040.00	Peak	V	-	-	-74.30	3.56	-9.54	26.72	73.98	-47.26
	26300.00	Peak	V	-	-	-72.08	4.68	-9.54	30.06	68.20	-38.14

Table 7-67. Radiated Measurements MIMO (242 Tones)

Worst Case Mode:	802.11ax (20MHz BW)
Worst Case Transfer Rate:	MCS0
RU Index:	61
Distance of Measurements:	1 & 3 Meters
Operating Frequency:	5280MHz
Channel:	56

	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]
	10560.00	Peak	V	185	139	-55.01	11.74	0.00	63.73	68.20	-4.47
*	15840.00	Average	V	-	-	-80.64	16.87	0.00	43.23	53.98	-10.75
*	15840.00	Peak	V	-	-	-69.11	16.87	0.00	54.76	73.98	-19.22
*	21120.00	Average	V	-	-	-85.53	3.66	-9.54	15.59	53.98	-38.39
*	21120.00	Peak	V	-	-	-74.01	3.66	-9.54	27.11	73.98	-46.87
	26400.00	Peak	V	-	-	-73.13	4.56	-9.54	28.88	68.20	-39.32

Table 7-68. Radiated Measurements MIMO (242 Tones)

Worst Case Mode:	802.11ax (20MHz BW)
Worst Case Transfer Rate:	MCS0
RU Index:	61
Distance of Measurements:	1 & 3 Meters
Operating Frequency:	5320MHz
Channel:	64

	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]
*	10640.00	Average	V	192	140	-74.46	11.98	0.00	44.52	53.98	-9.46
*	10640.00	Peak	V	192	140	-60.98	11.98	0.00	58.00	73.98	-15.98
*	15960.00	Average	V	-	-	-80.81	16.80	0.00	42.99	53.98	-10.99
*	15960.00	Peak	V	-	-	-69.02	16.80	0.00	54.78	73.98	-19.20
*	21280.00	Average	V	-	-	-85.74	3.77	-9.54	15.49	53.98	-38.49
*	21280.00	Peak	V	-	-	-74.24	3.77	-9.54	26.99	73.98	-46.99
	26600.00	Peak	V	-	-	-71.77	4.58	-9.54	30.27	68.20	-37.93

Table 7-69. Radiated Measurements MIMO (242 Tones)

Worst Case Mode:	802.11ax (20MHz BW)
Worst Case Transfer Rate:	MCS0
RU Index:	61
Distance of Measurements:	1 & 3 Meters
Operating Frequency:	5500MHz
Channel:	100

	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]
*	11000.00	Average	V	193	143	-74.86	11.56	0.00	43.70	53.98	-10.28
*	11000.00	Peak	V	193	143	-62.33	11.56	0.00	56.23	73.98	-17.75
	16500.00	Peak	V	-	-	-68.71	17.43	0.00	55.72	68.20	-12.48
	22000.00	Peak	V	-	-	-72.97	3.80	-9.54	28.29	68.20	-39.91
	27500.00	Peak	V	-	-	-73.59	4.79	-9.54	28.65	68.20	-39.55

Table 7-70. Radiated Measurements MIMO (242 Tones)

Worst Case Mode:	802.11ax (20MHz BW)
Worst Case Transfer Rate:	MCS0
RU Index:	61
Distance of Measurements:	1 & 3 Meters
Operating Frequency:	5600MHz
Channel:	120

	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]
*	11200.00	Average	V	191	232	-77.91	11.90	0.00	40.99	53.98	-12.99
*	11200.00	Peak	V	191	232	-65.54	11.90	0.00	53.36	73.98	-20.62
	16800.00	Peak	V	-	-	-69.18	17.74	0.00	55.56	68.20	-12.64
*	22400.00	Average	V	-	-	-85.25	3.90	-9.54	16.11	53.98	-37.87
*	22400.00	Peak	V	-	-	-73.98	3.90	-9.54	27.38	73.98	-46.60
	28000.00	Peak	V	-	-	-73.64	5.18	-9.54	29.00	68.20	-39.20

Table 7-71. Radiated Measurements MIMO (242 Tones)

Worst Case Mode:	802.11ax (20MHz BW)
Worst Case Transfer Rate:	MCS0
RU Index:	61
Distance of Measurements:	1 & 3 Meters
Operating Frequency:	5720MHz
Channel:	144

	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]
*	11440.00	Average	V	191	217	-74.51	12.06	0.00	44.55	53.98	-9.43
*	11440.00	Peak	V	191	217	-62.34	12.06	0.00	56.72	73.98	-17.26
	17160.00	Peak	V	-	-	-68.26	17.03	0.00	55.77	68.20	-12.43
*	22880.00	Average	V	-	-	-85.80	3.82	-9.54	15.48	53.98	-38.50
*	22880.00	Peak	V	-	-	-73.73	3.82	-9.54	27.55	73.98	-46.43
	28600.00	Peak	V	-	-	-73.74	5.43	-9.54	29.15	68.20	-39.05

Table 7-72. Radiated Measurements MIMO (242 Tones)

Worst Case Mode:	802.11ax (20MHz BW)
Worst Case Transfer Rate:	MCS0
RU Index:	61
Distance of Measurements:	1 & 3 Meters
Operating Frequency:	5745MHz
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]
*	11490.00	Average	V	287	59	-74.52	12.33	0.00	44.81	53.98	-9.17
*	11490.00	Peak	V	287	59	-62.50	12.33	0.00	56.83	73.98	-17.15
	17235.00	Peak	V	-	-	-68.13	16.88	0.00	55.75	68.20	-12.45
*	22980.00	Average	V	-	-	-86.06	3.76	-9.54	15.16	53.98	-38.82
*	22980.00	Peak	V	-	-	-74.32	3.76	-9.54	26.90	73.98	-47.08
	28725.00	Peak	V	-	-	-73.07	5.46	-9.54	29.85	68.20	-38.35

Table 7-73. Radiated Measurements MIMO (242 Tones)

Worst Case Mode:	802.11ax (20MHz BW)
Worst Case Transfer Rate:	MCS0
RU Index:	61
Distance of Measurements:	1 & 3 Meters
Operating Frequency:	5785MHz
Channel:	157

	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]
*	11570.00	Average	V	278	59	-72.79	12.06	0.00	46.27	53.98	-7.71
*	11570.00	Peak	V	278	59	-61.02	12.06	0.00	58.04	73.98	-15.94
	17355.00	Peak	V	-	-	-68.87	17.62	0.00	55.75	68.20	-12.45
	23140.00	Peak	V	-	-	-75.02	3.80	-9.54	26.23	68.20	-41.97
	28925.00	Peak	V	-	-	-72.67	5.51	-9.54	30.30	68.20	-37.90

Table 7-74. Radiated Measurements MIMO (242 Tones)

Worst Case Mode:	802.11ax (20MHz BW)
Worst Case Transfer Rate:	MCS0
RU Index:	61
Distance of Measurements:	1 & 3 Meters
Operating Frequency:	5825MHz
Channel:	165

	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]
*	11650.00	Average	V	187	221	-73.54	12.37	0.00	45.83	53.98	-8.15
*	11650.00	Peak	V	187	221	-61.12	12.37	0.00	58.25	73.98	-15.73
	17475.00	Peak	V	-	-	-68.24	17.22	0.00	55.98	68.20	-12.22
	23300.00	Peak	V	-	-	-75.01	3.74	-9.54	26.18	68.20	-42.02
	29125.00	Peak	V	-	-	-73.47	5.67	-9.54	29.65	68.20	-38.55

Table 7-75. Radiated Measurements MIMO (242 Tones)

Worst Case Mode:	802.11ax (20MHz BW)
Worst Case Transfer Rate:	MCS0
RU Index:	61
Distance of Measurements:	1 & 3 Meters
Operating Frequency:	5845MHz
Channel:	169

	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]
*	11690.00	Average	V	116	231	-73.57	9.31	0.00	42.74	53.98	-11.24
*	11690.00	Peak	V	116	231	-59.60	9.31	0.00	56.71	73.98	-17.27
	17535.00	Peak	V	-	-	-64.29	14.18	0.00	56.89	68.20	-11.31
	23380.00	Peak	V	-	-	-55.26	3.76	-9.54	55.50	68.20	-12.70
	29225.00	Peak	V	-	-	-55.47	5.66	-9.54	57.19	68.20	-11.01
	35070.00	Peak	V	-	-	-54.08	7.69	-9.54	60.61	68.20	-7.59

Table 7-76. Radiated Measurements MIMO (242 Tones)

Worst Case Mode:	802.11ax (20MHz BW)
Worst Case Transfer Rate:	MCS0
RU Index:	61
Distance of Measurements:	1 & 3 Meters
Operating Frequency:	5865MHz
Channel:	173

	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]
*	11730.00	Average	V	120	237	-74.45	9.22	0.00	41.77	53.98	-12.21
*	11730.00	Peak	V	120	237	-60.53	9.22	0.00	55.69	73.98	-18.29
	17595.00	Peak	V	-	-	-63.83	14.38	0.00	57.55	68.20	-10.65
	23460.00	Peak	V	-	-	-56.06	3.76	-9.54	54.70	68.20	-13.50
	29325.00	Peak	V	-	-	-55.35	5.90	-9.54	57.55	68.20	-10.65
	35190.00	Peak	V	-	-	-55.08	7.78	-9.54	59.70	68.20	-8.50

Table 7-77. Radiated Measurements MIMO (242 Tones)

Worst Case Mode:	802.11ax (20MHz BW)
Worst Case Transfer Rate:	MCS0
RU Index:	61
Distance of Measurements:	1 & 3 Meters
Operating Frequency:	5885MHz
Channel:	177

	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]
*	11770.00	Average	V	112	238	-74.28	10.00	0.00	42.72	53.98	-11.26
*	11770.00	Peak	V	112	238	-60.67	10.00	0.00	56.33	73.98	-17.65
	17655.00	Peak	V	-	-	-63.90	14.79	0.00	57.89	68.20	-10.31
	23540.00	Peak	V	-	-	-56.07	3.80	-9.54	54.73	68.20	-13.47
	29425.00	Peak	V	-	-	-56.25	5.83	-9.54	56.58	68.20	-11.62
	35310.00	Peak	V	-	-	-53.63	7.90	-9.54	61.27	68.20	-6.93

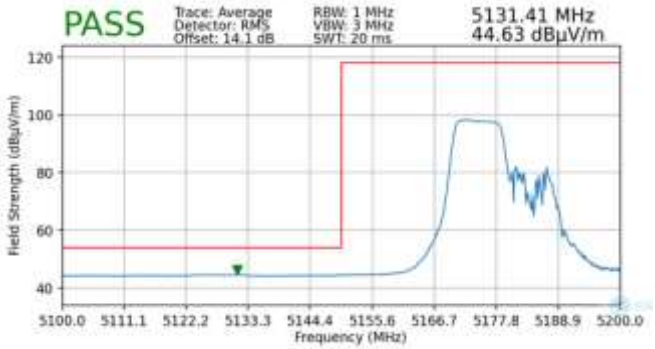
Table 7-78. Radiated Measurements MIMO (242 Tones)

7.6.2 MIMO Radiated Band Edge Measurements (20MHz BW)

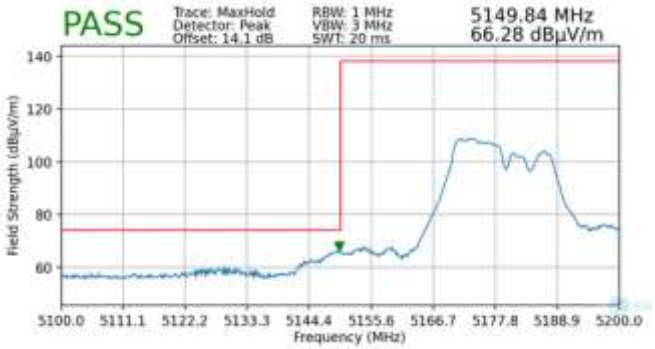
§15.407(b.1)(b.2) §15.205 §15.209; RSS-Gen [8.9]

106 Tones

Worst Case Mode:	802.11ax
Worst Case Transfer Rate:	MCS0
RU Index:	53
Distance of Measurements:	3 Meters
Operating Frequency:	5180MHz
Channel:	36

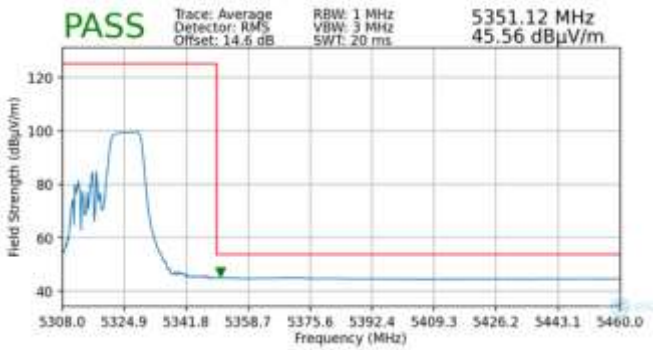


Plot 7-315. Radiated Lower Band Edge Plot MIMO (Average – UNII Band 1 – 106 Tones)



Plot 7-316. Radiated Lower Band Edge Plot MIMO (Peak – UNII Band 1 – 106 Tones)

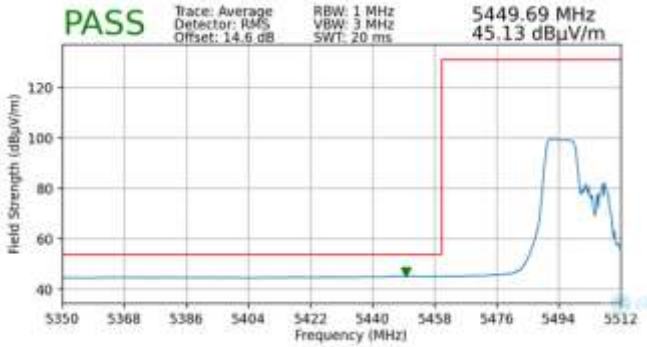
Worst Case Mode:	802.11ax
Worst Case Transfer Rate:	MCS0
RU Index:	54
Distance of Measurements:	3 Meters
Operating Frequency:	5320MHz
Channel:	64



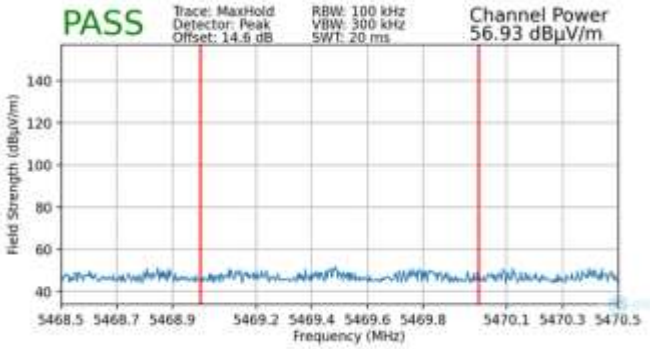
Plot 7-317. Radiated Upper Band Edge Plot MIMO (Average – UNII Band 2A – 106 Tones)

Plot 7-318. Radiated Upper Band Edge Plot MIMO (Peak – UNII Band 2A – 106 Tones)

Worst Case Mode:	802.11ax
Worst Case Transfer Rate:	MCS0
RU Index:	53
Distance of Measurements:	3 Meters
Operating Frequency:	5500MHz
Channel:	100

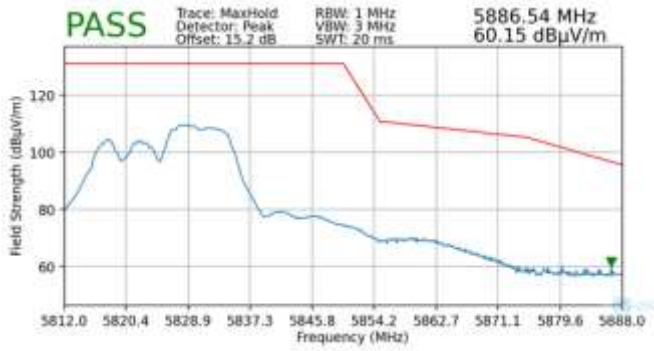


Plot 7-319. Radiated Lower Band Edge Plot MIMO (Average – UNII Band 2C – 106 Tones)



Plot 7-320. Radiated Lower Band Edge Plot MIMO (Peak – UNII Band 2C – 106 Tones)

Worst Case Mode:	802.11ax
Worst Case Transfer Rate:	MCS0
RU Index:	54
Distance of Measurements:	3 Meters
Operating Frequency:	5825MHz
Channel:	165



Plot 7-321. Radiated Upper Band Edge Plot MIMO (Peak – UNII Band 3 – 106 Tones)