

RF Test Data for RLAN(5.2G) (Conducted Measurement)

Product Name: Wanbo Projector

Trade Mark: wanbo

Test Model: WPF14

FCC ID: 2A7PI-WPF14

Environmental Conditions

Temperature:	23.5℃
Relative Humidity:	58%
ATM Pressure:	100.0 kPa
Test Engineer:	Allen Lai
Supervised by:	Max Zhang
NOTE	N/A

Appendix A1: Emission Bandwidth

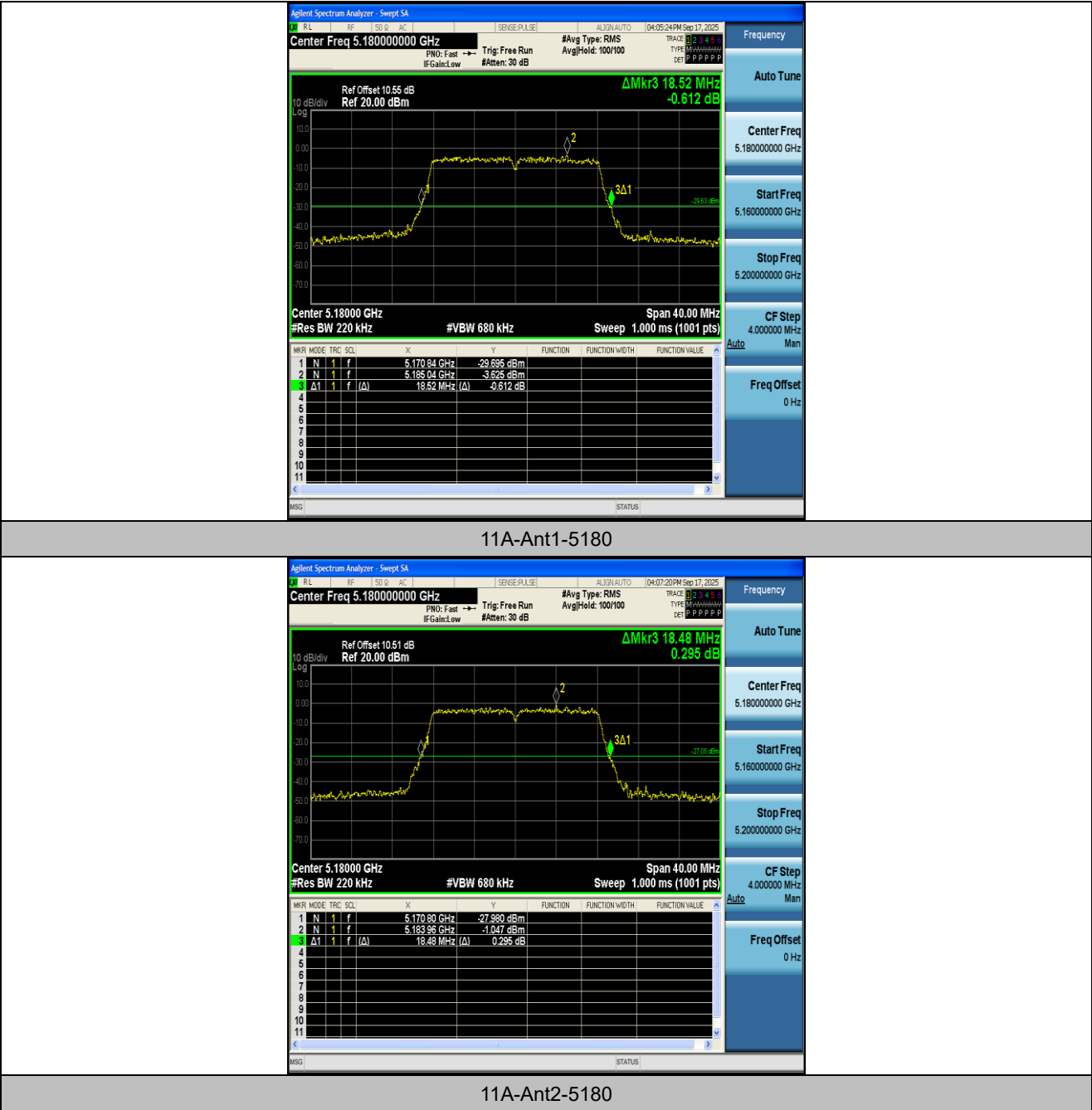
Test Result

Test Mode	Antenna	Frequency [MHz]	26db EBW [MHz]	FL [MHz]	FH [MHz]	Limit [MHz]	Verdict
11A	Ant1	5180	18.520	5170.840	5189.360	---	---
11A	Ant2	5180	18.480	5170.800	5189.280	---	---
11A	Ant1	5200	18.400	5190.760	5209.160	---	---
11A	Ant2	5200	18.520	5190.720	5209.240	---	---
11A	Ant1	5240	18.520	5230.800	5249.320	---	---
11A	Ant2	5240	18.280	5230.880	5249.160	---	---
11N20MIMO	Ant1	5180	19.440	5170.360	5189.800	---	---
11N20MIMO	Ant2	5180	19.280	5170.320	5189.600	---	---
11N20MIMO	Ant2	5200	19.280	5190.400	5209.680	---	---
11N20MIMO	Ant1	5200	19.320	5190.400	5209.720	---	---
11N20MIMO	Ant1	5240	19.120	5230.480	5249.600	---	---
11N20MIMO	Ant2	5240	19.280	5230.360	5249.640	---	---
11N40MIMO	Ant1	5190	40.080	5170.080	5210.160	---	---
11N40MIMO	Ant2	5190	39.760	5170.480	5210.240	---	---
11N40MIMO	Ant1	5230	40.560	5209.680	5250.240	---	---
11N40MIMO	Ant2	5230	41.200	5209.040	5250.240	---	---
11AC20MIMO	Ant1	5180	19.360	5170.280	5189.640	---	---
11AC20MIMO	Ant2	5180	19.320	5170.280	5189.600	---	---
11AC20MIMO	Ant1	5200	19.160	5190.400	5209.560	---	---
11AC20MIMO	Ant2	5200	19.200	5190.440	5209.640	---	---
11AC20MIMO	Ant1	5240	19.280	5230.280	5249.560	---	---
11AC20MIMO	Ant2	5240	19.240	5230.320	5249.560	---	---

11AC40MIMO	Ant1	5190	40.480	5169.520	5210.000	---	---
11AC40MIMO	Ant2	5190	39.920	5170.240	5210.160	---	---
11AC40MIMO	Ant1	5230	40.400	5209.840	5250.240	---	---
11AC40MIMO	Ant2	5230	40.320	5210.000	5250.320	---	---
11AC80MIMO	Ant1	5210	81.600	5169.200	5250.800	---	---
11AC80MIMO	Ant2	5210	81.280	5170.000	5251.280	---	---

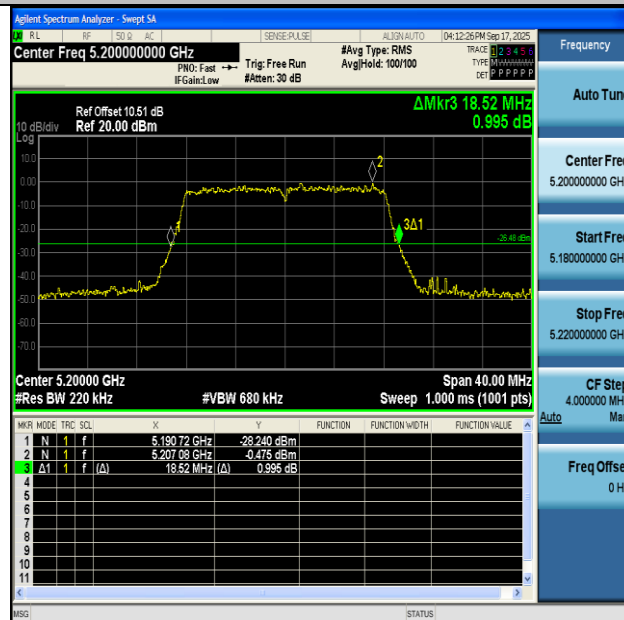
Note: offset(dB) = cable loss(dB) + attenuator factor(dB)

Test Graphs





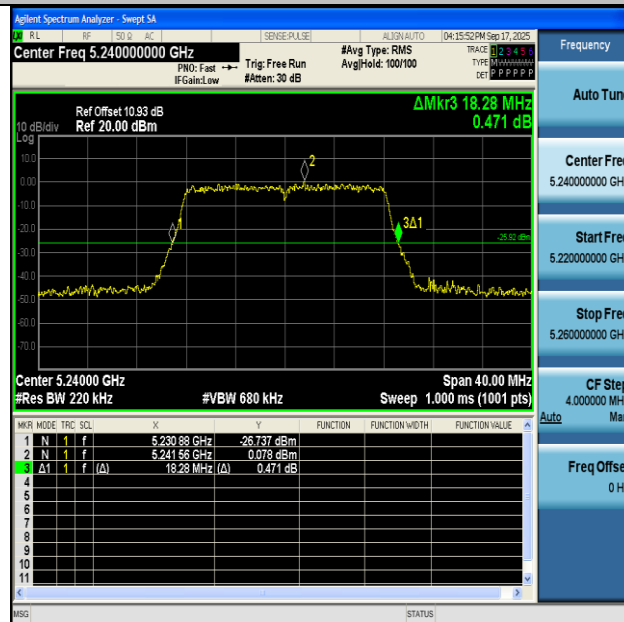
11A-Ant1-5200



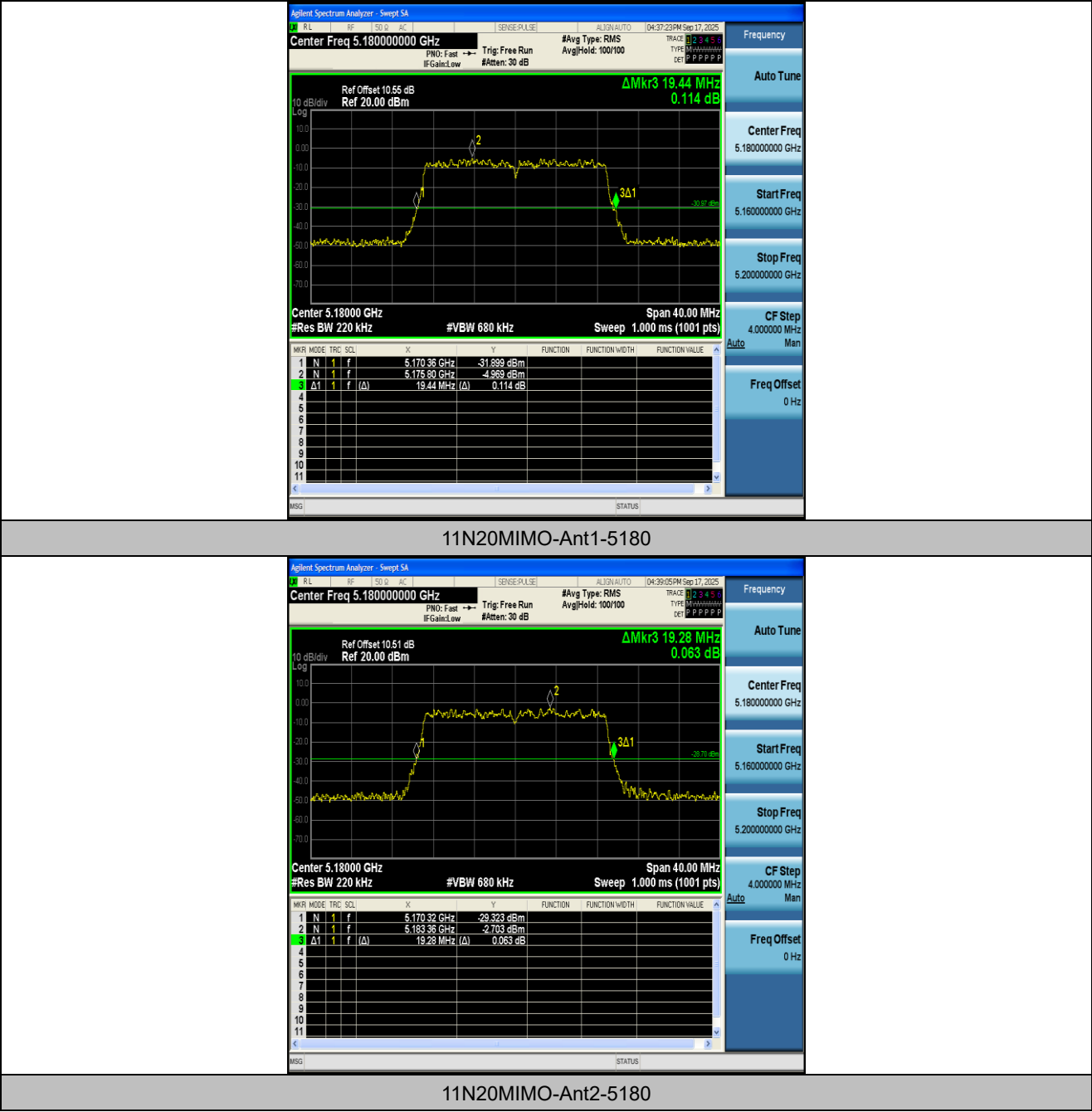
11A-Ant2-5200



11A-Ant1-5240

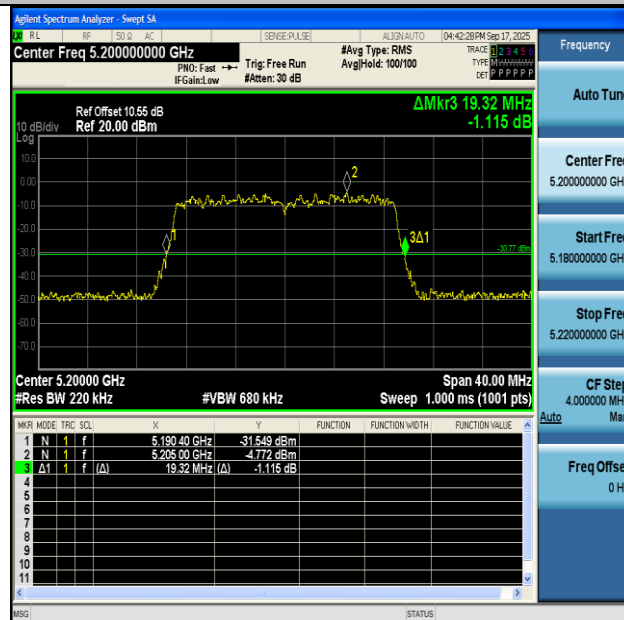


11A-Ant2-5240

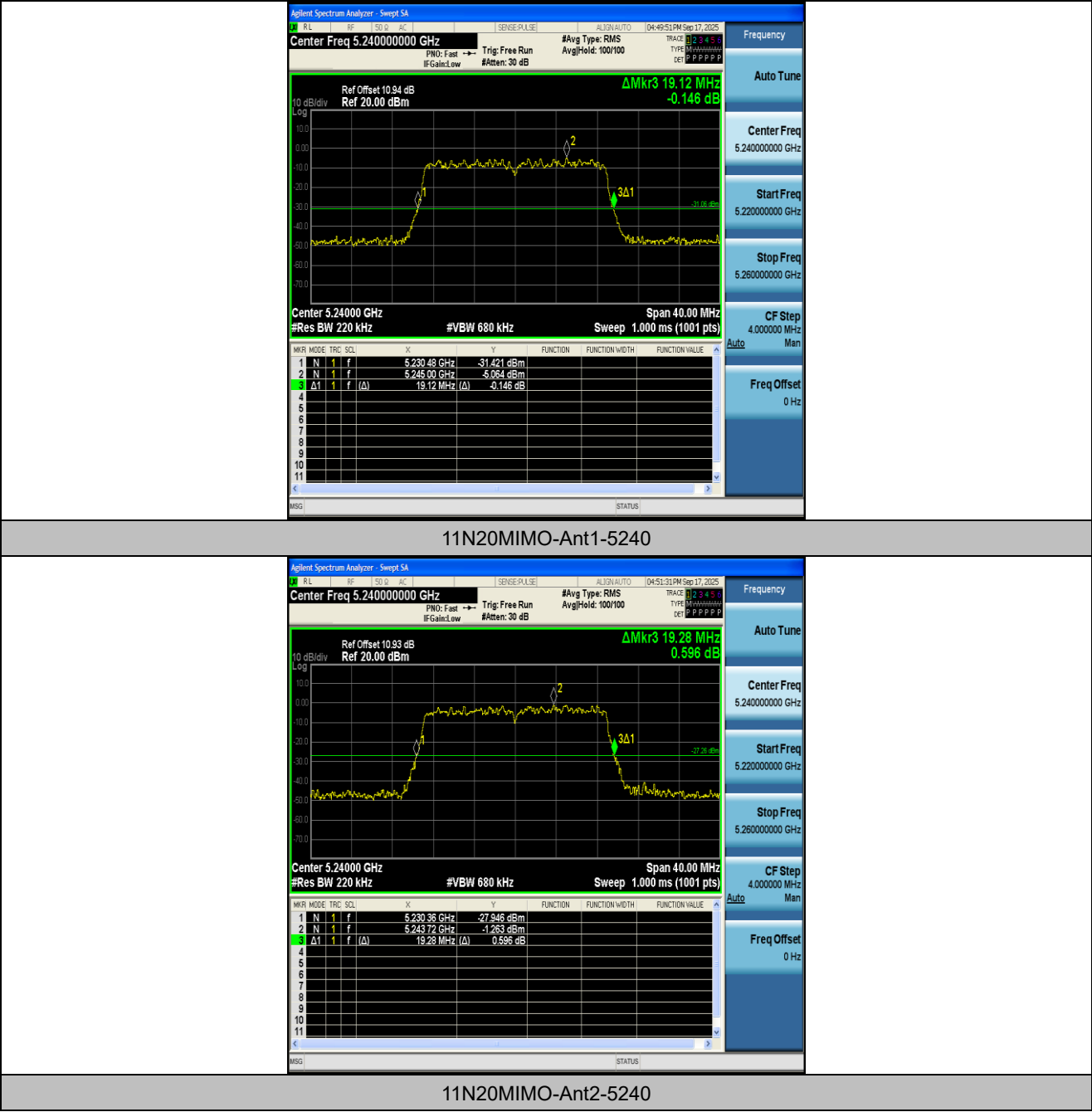


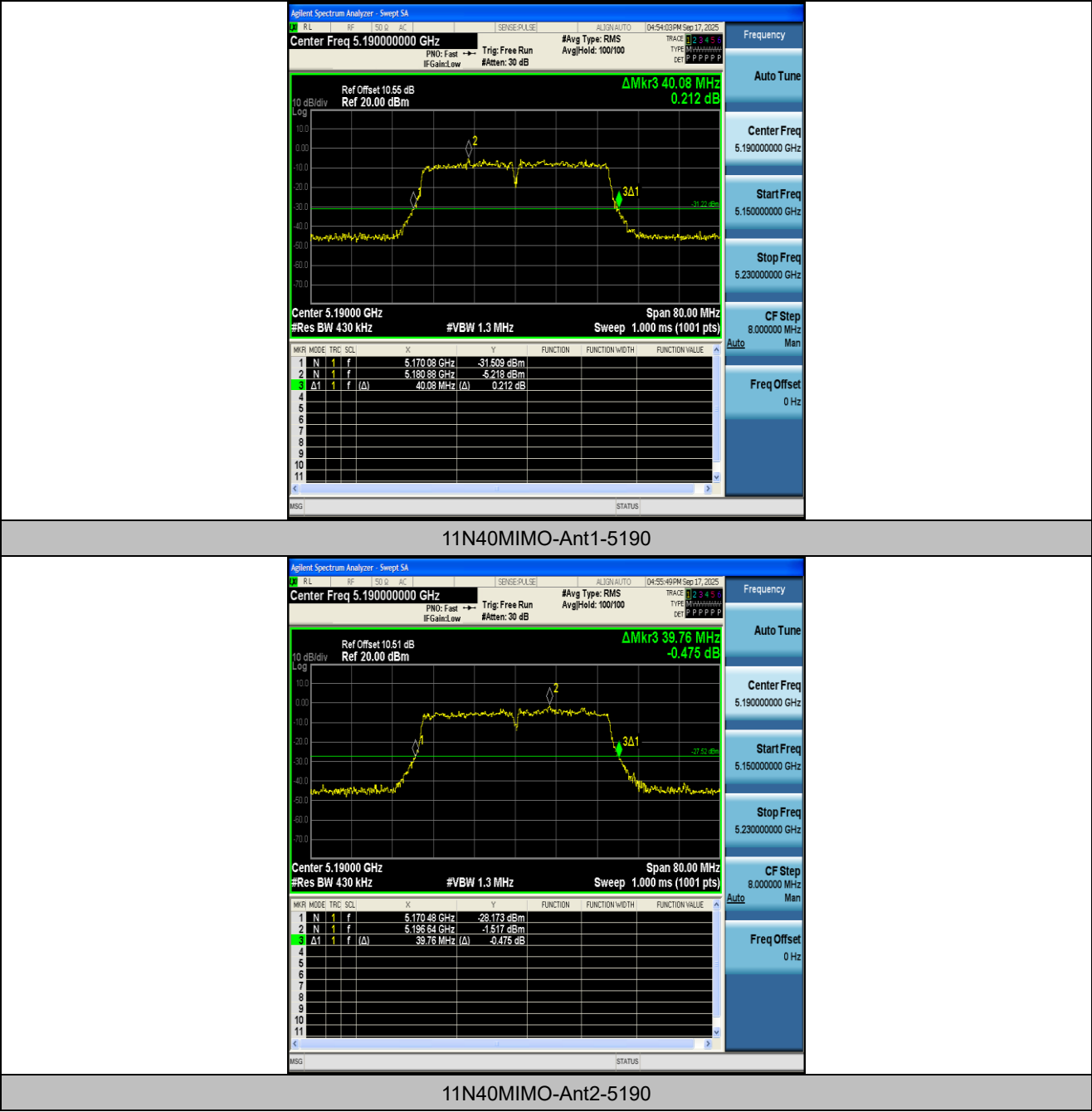


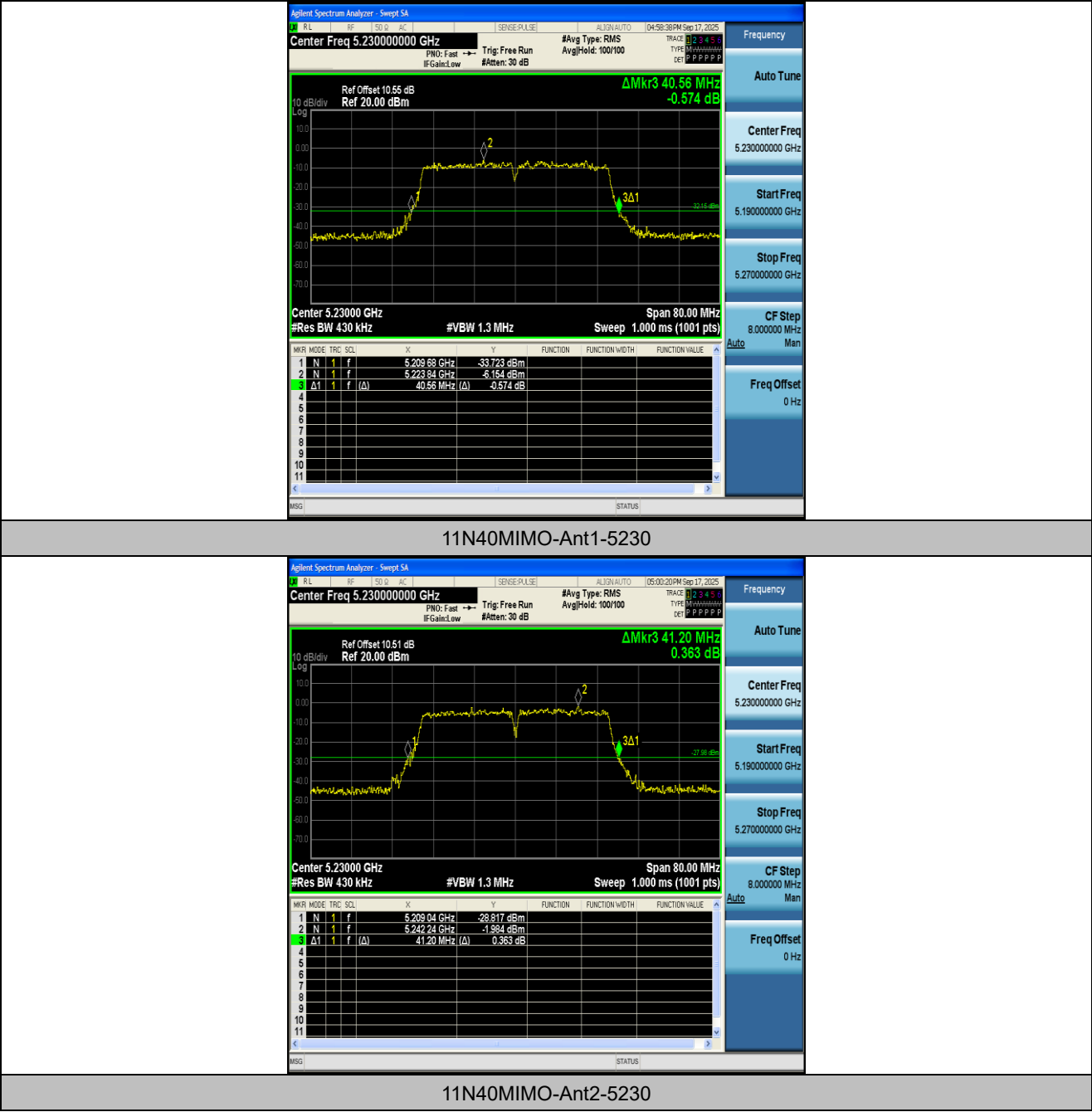
11N20MIMO-Ant2-5200

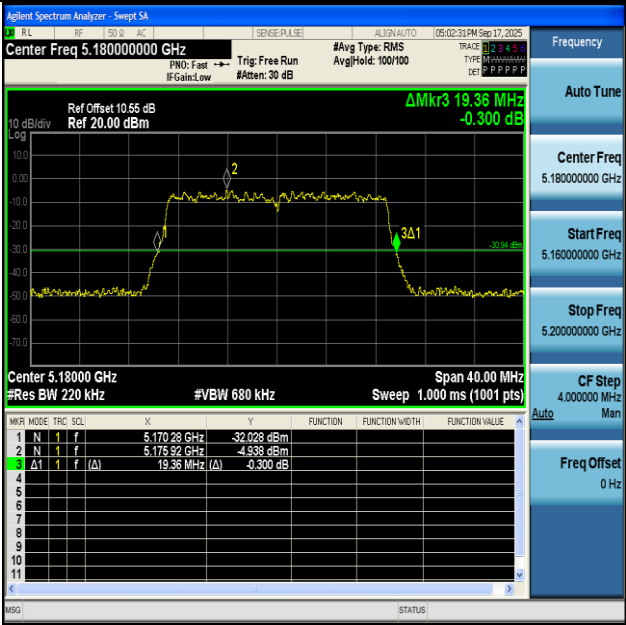


11N20MIMO-Ant1-5200









11AC20MIMO-Ant1-5180



11AC20MIMO-Ant2-5180



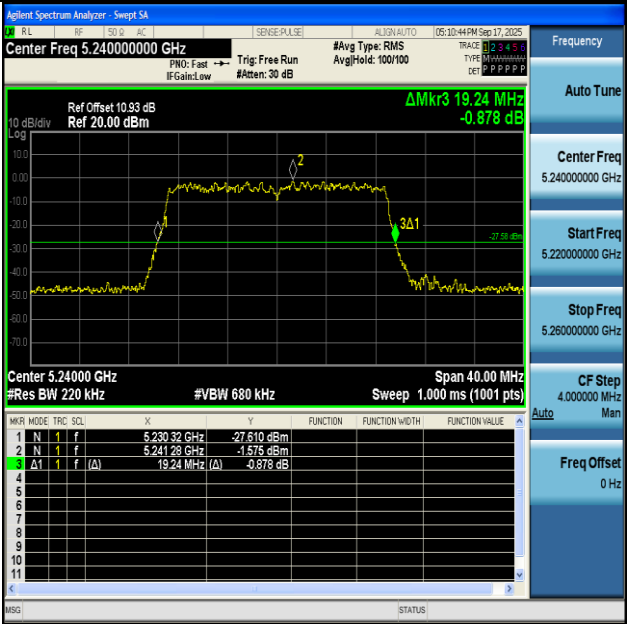
11AC20MIMO-Ant1-5200



11AC20MIMO-Ant2-5200



11AC20MIMO-Ant1-5240



11AC20MIMO-Ant2-5240



11AC40MIMO-Ant1-5190



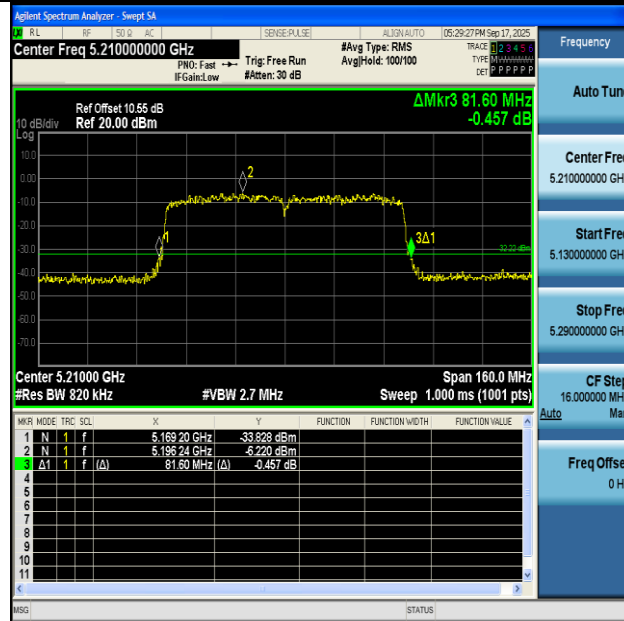
11AC40MIMO-Ant2-5190



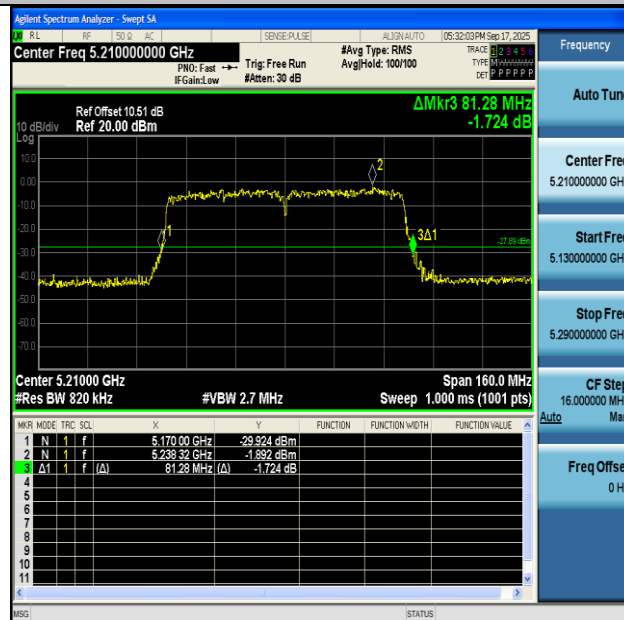
11AC40MIMO-Ant1-5230



11AC40MIMO-Ant2-5230



11AC80MIMO-Ant1-5210



11AC80MIMO-Ant2-5210

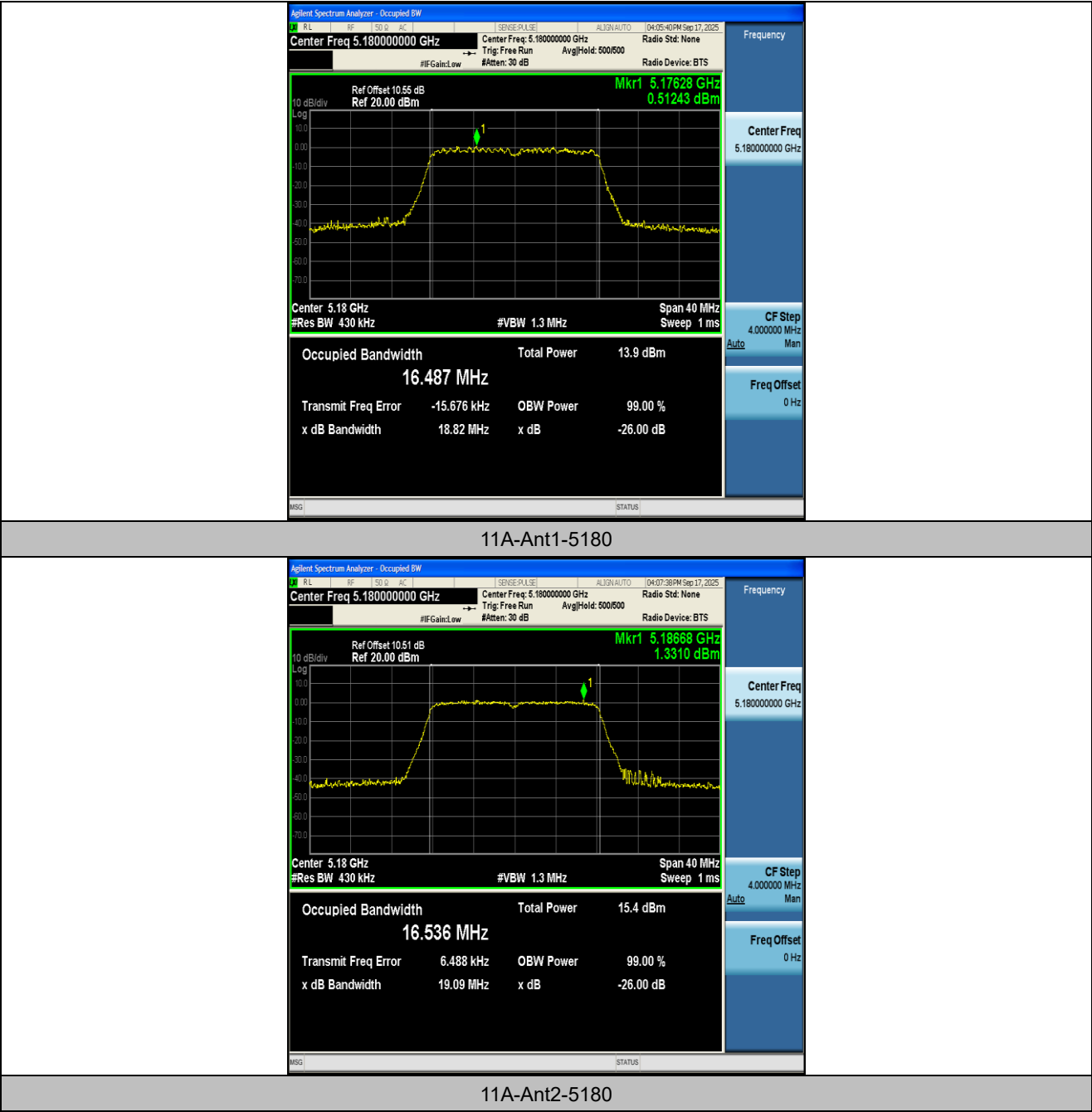
Appendix A2: Occupied channel bandwidth

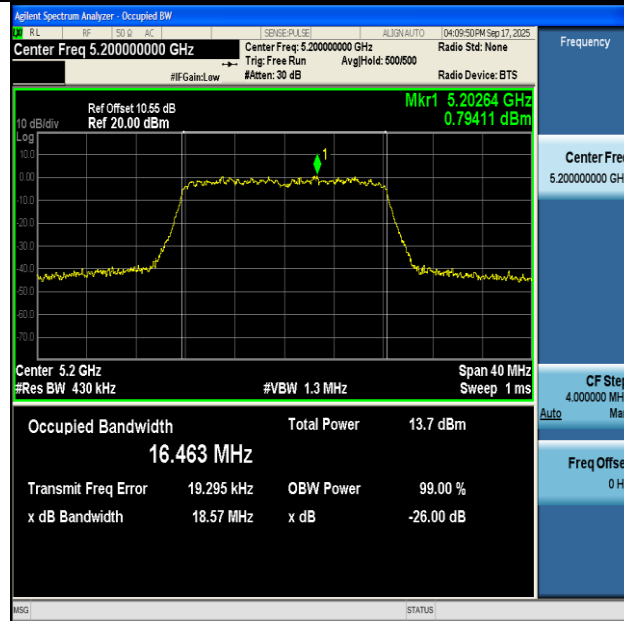
Test Result

Test Mode	Antenna	Frequency [MHz]	OCB [MHz]	FL [MHz]	FH [MHz]	Limit [MHz]	Verdict
11A	Ant1	5180	16.487	5171.7408	5188.2278	---	---
11A	Ant2	5180	16.536	5171.7385	5188.2745	---	---
11A	Ant1	5200	16.463	5191.7878	5208.2508	---	---
11A	Ant2	5200	16.469	5191.7969	5208.2659	---	---
11A	Ant1	5240	16.460	5231.7890	5248.2490	---	---
11A	Ant2	5240	16.478	5231.8023	5248.2803	---	---
11N20MIMO	Ant1	5180	17.757	5171.1132	5188.8702	---	---
11N20MIMO	Ant2	5180	17.763	5171.0936	5188.8566	---	---
11N20MIMO	Ant1	5200	17.775	5191.1444	5208.9194	---	---
11N20MIMO	Ant2	5200	17.696	5191.1546	5208.8506	---	---
11N20MIMO	Ant1	5240	17.681	5231.1452	5248.8262	---	---
11N20MIMO	Ant2	5240	17.815	5231.1515	5248.9665	---	---
11N40MIMO	Ant1	5190	36.310	5171.9365	5208.2465	---	---
11N40MIMO	Ant2	5190	36.374	5171.9357	5208.3097	---	---
11N40MIMO	Ant1	5230	36.525	5211.8115	5248.3365	---	---
11N40MIMO	Ant2	5230	36.729	5211.6145	5248.3435	---	---
11AC20MIMO	Ant1	5180	17.773	5171.1375	5188.9105	---	---
11AC20MIMO	Ant2	5180	17.777	5171.1455	5188.9225	---	---
11AC20MIMO	Ant1	5200	17.741	5191.1486	5208.8896	---	---
11AC20MIMO	Ant2	5200	17.732	5191.1656	5208.8976	---	---
11AC20MIMO	Ant1	5240	17.715	5231.1512	5248.8662	---	---
11AC20MIMO	Ant2	5240	17.708	5231.1626	5248.8706	---	---
11AC40MIMO	Ant1	5190	36.407	5171.8234	5208.2304	---	---
11AC40MIMO	Ant2	5190	36.410	5171.8571	5208.2671	---	---
11AC40MIMO	Ant1	5230	36.302	5211.8427	5248.1447	---	---
11AC40MIMO	Ant2	5230	36.260	5211.9016	5248.1616	---	---
11AC80MIMO	Ant1	5210	75.908	5172.0640	5247.9720	---	---
11AC80MIMO	Ant2	5210	75.888	5172.2743	5248.1623	---	---

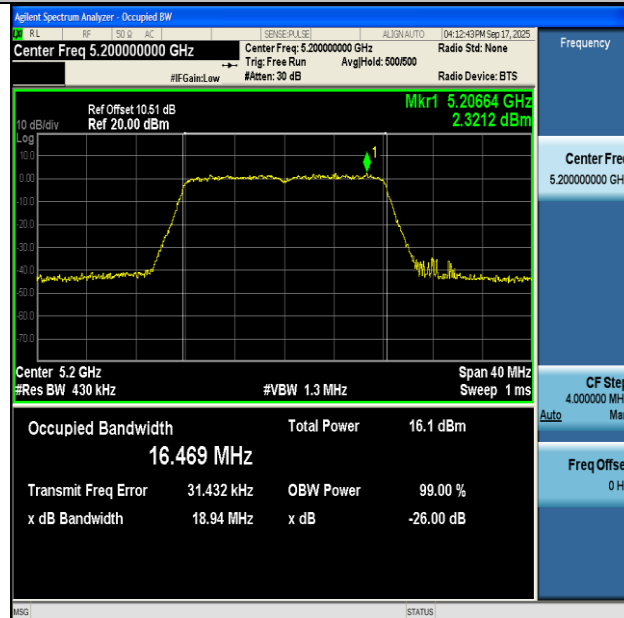
Note: offset(dB) = cable loss(dB) + attenuator factor(dB)

Test Graphs

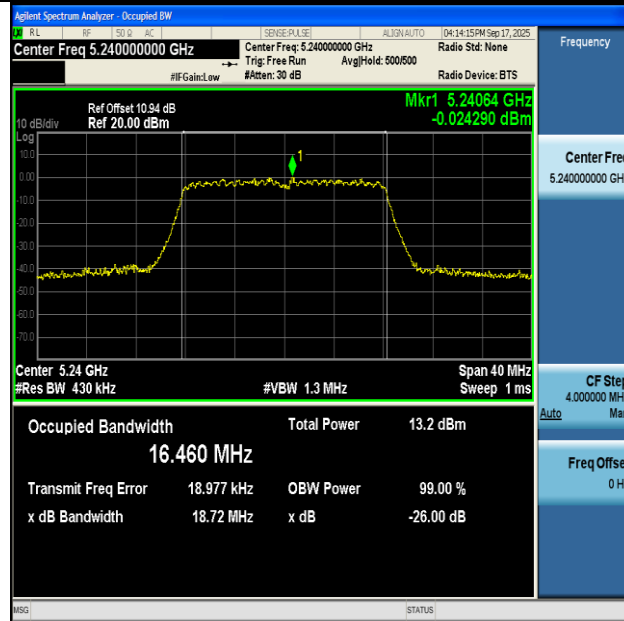




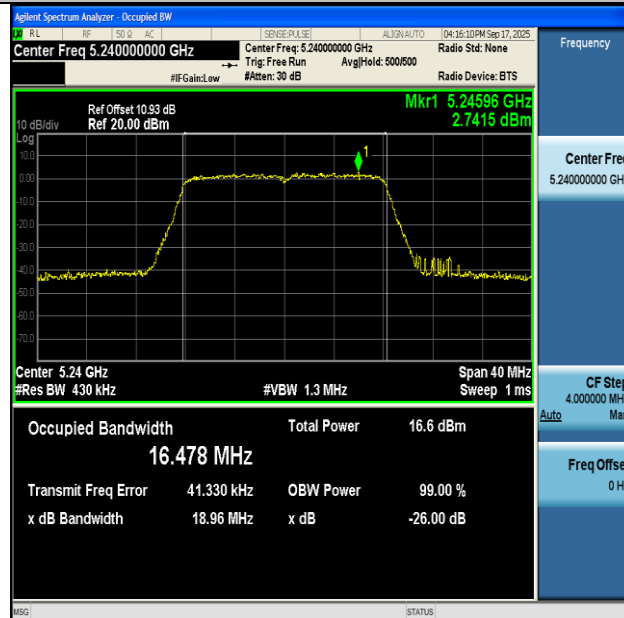
11A-Ant1-5200



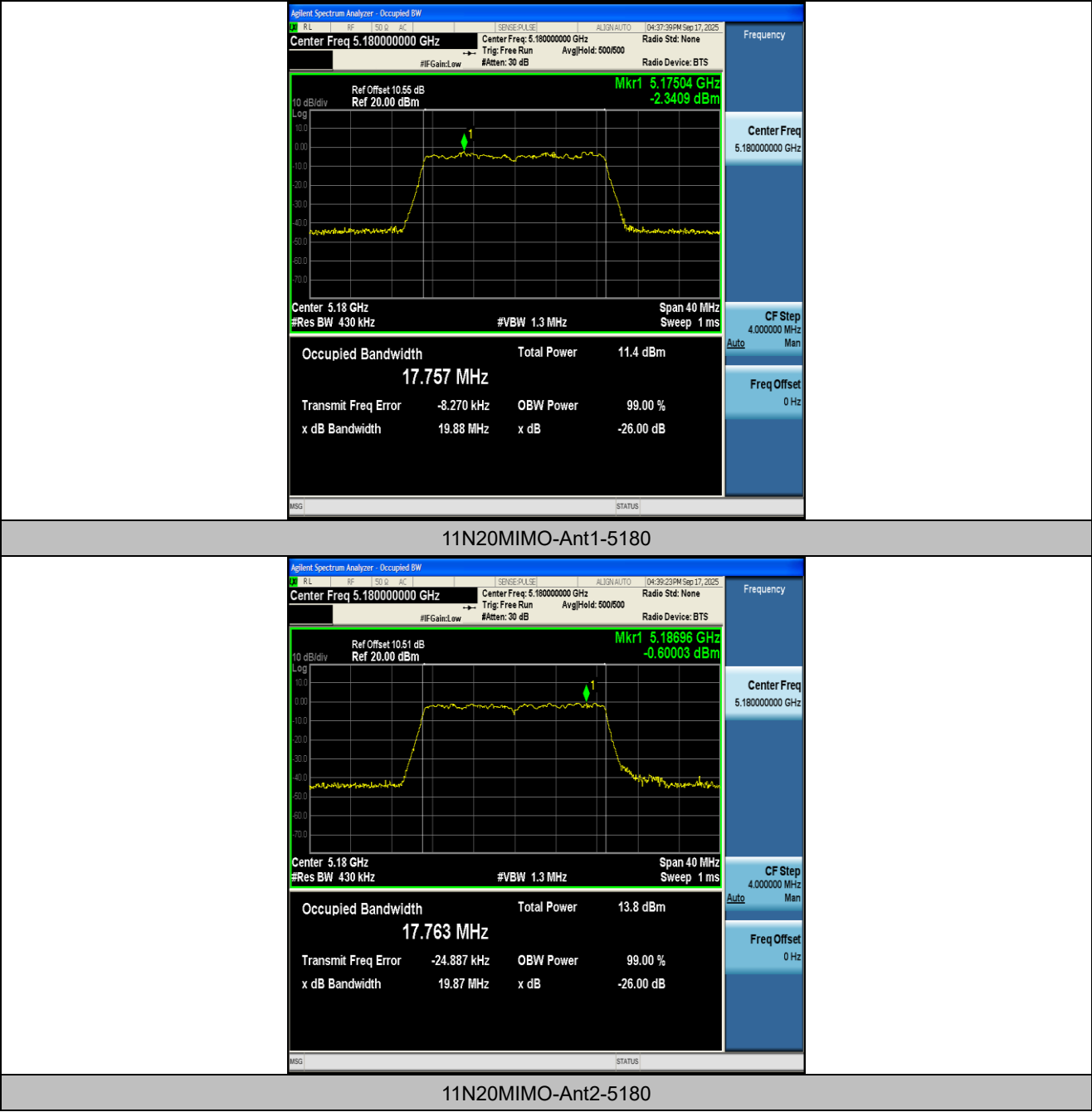
11A-Ant2-5200

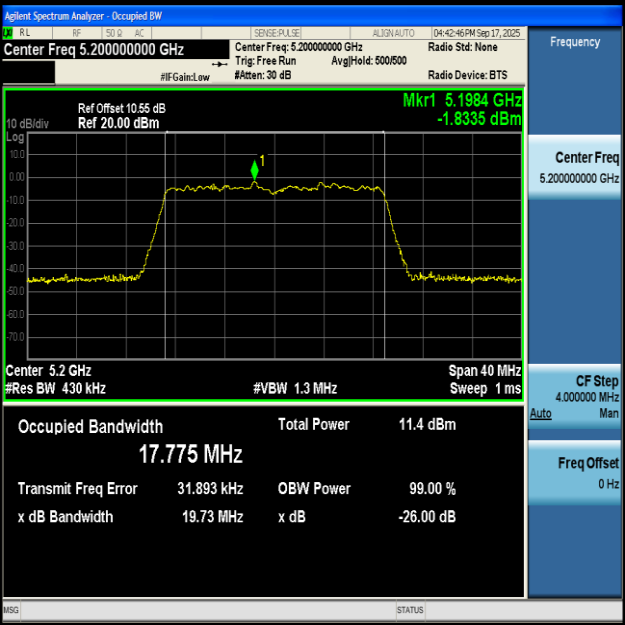


11A-Ant1-5240

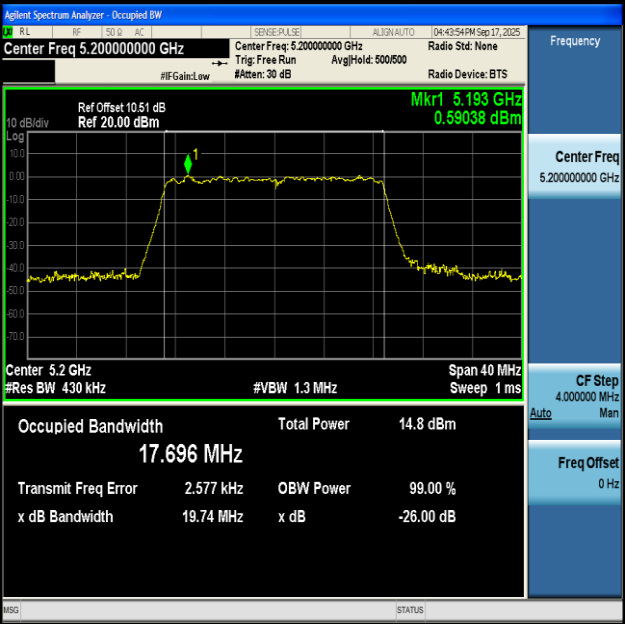


11A-Ant2-5240

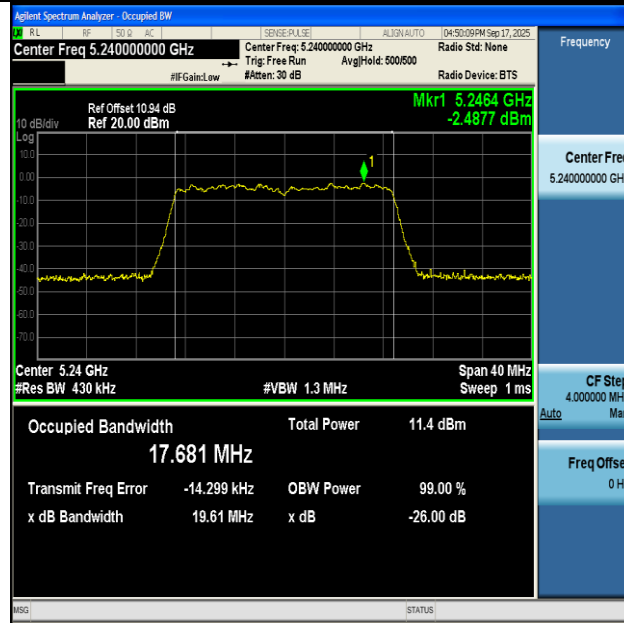




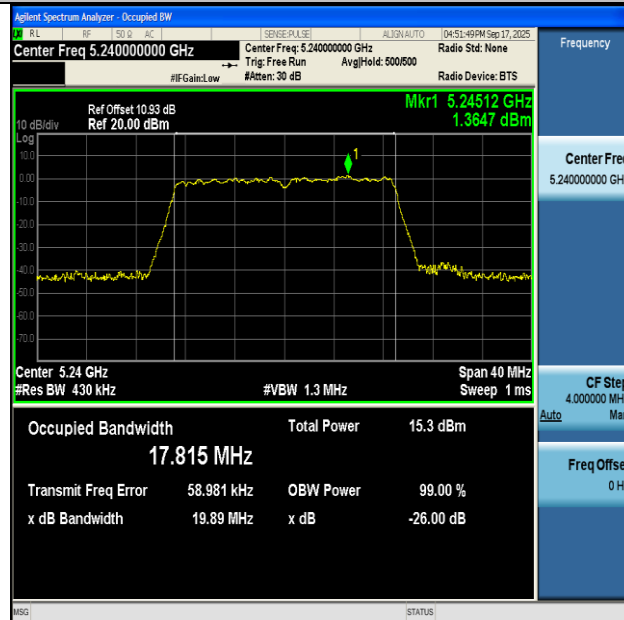
11N20MIMO-Ant1-5200



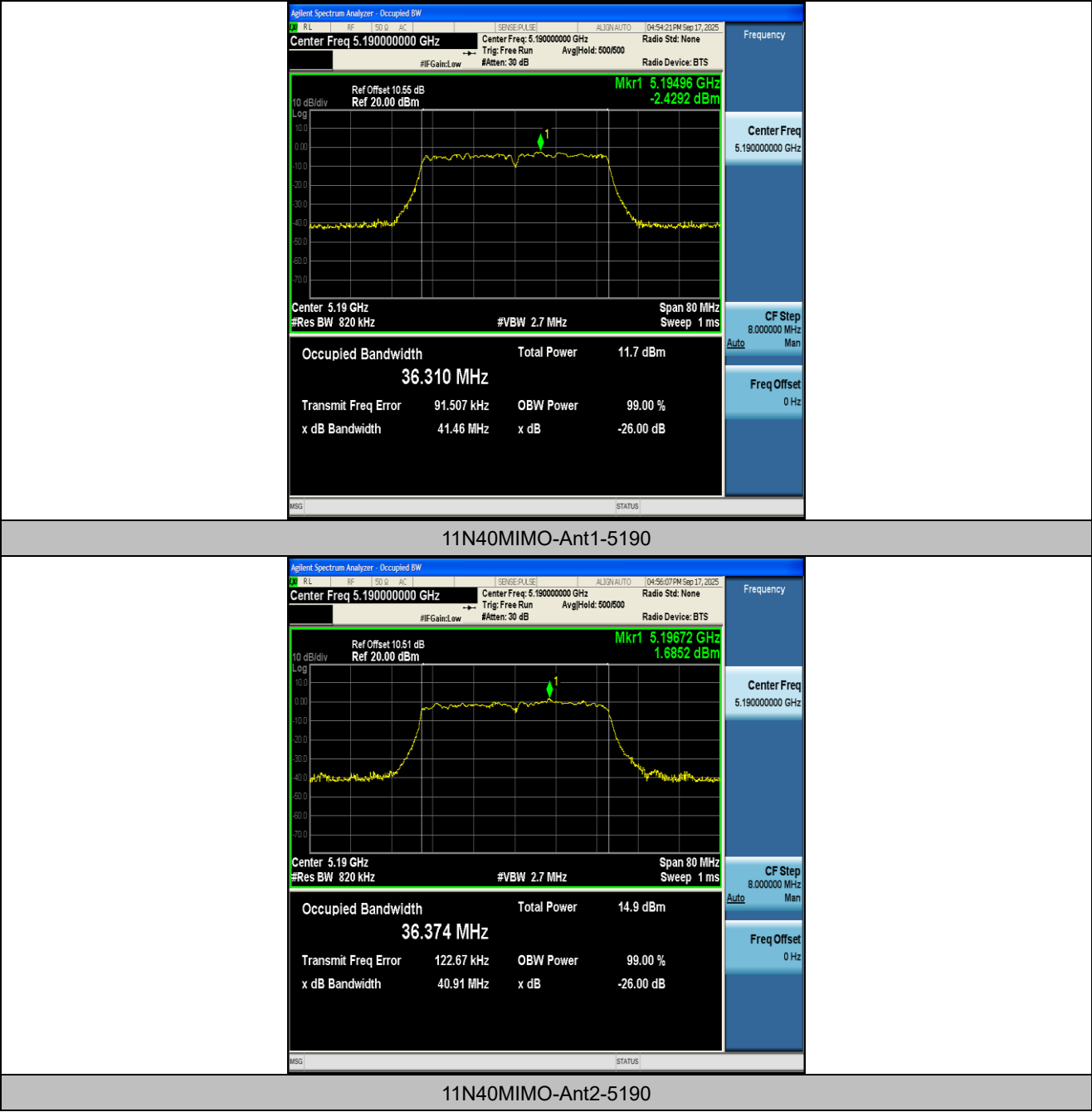
11N20MIMO-Ant2-5200

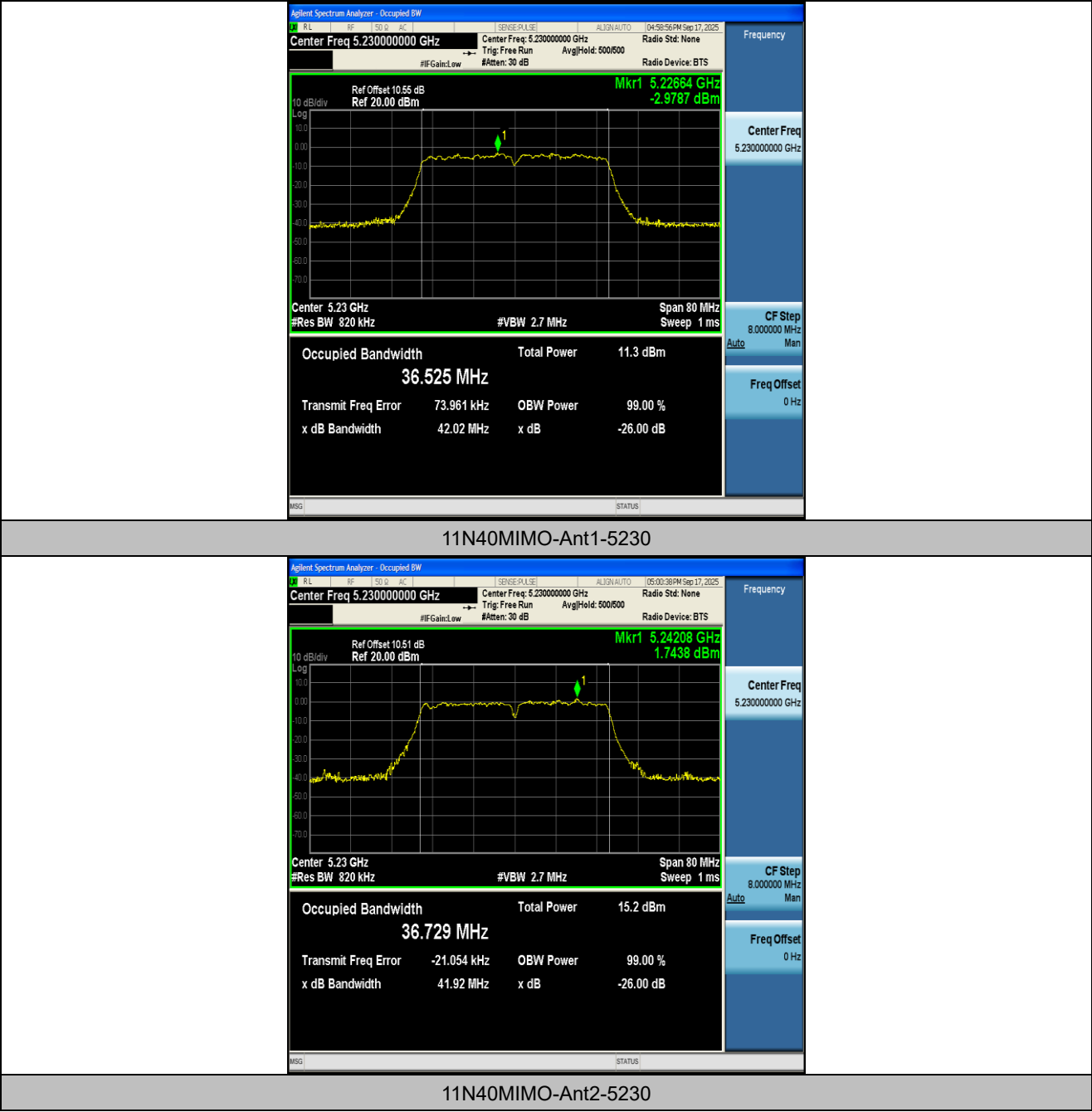


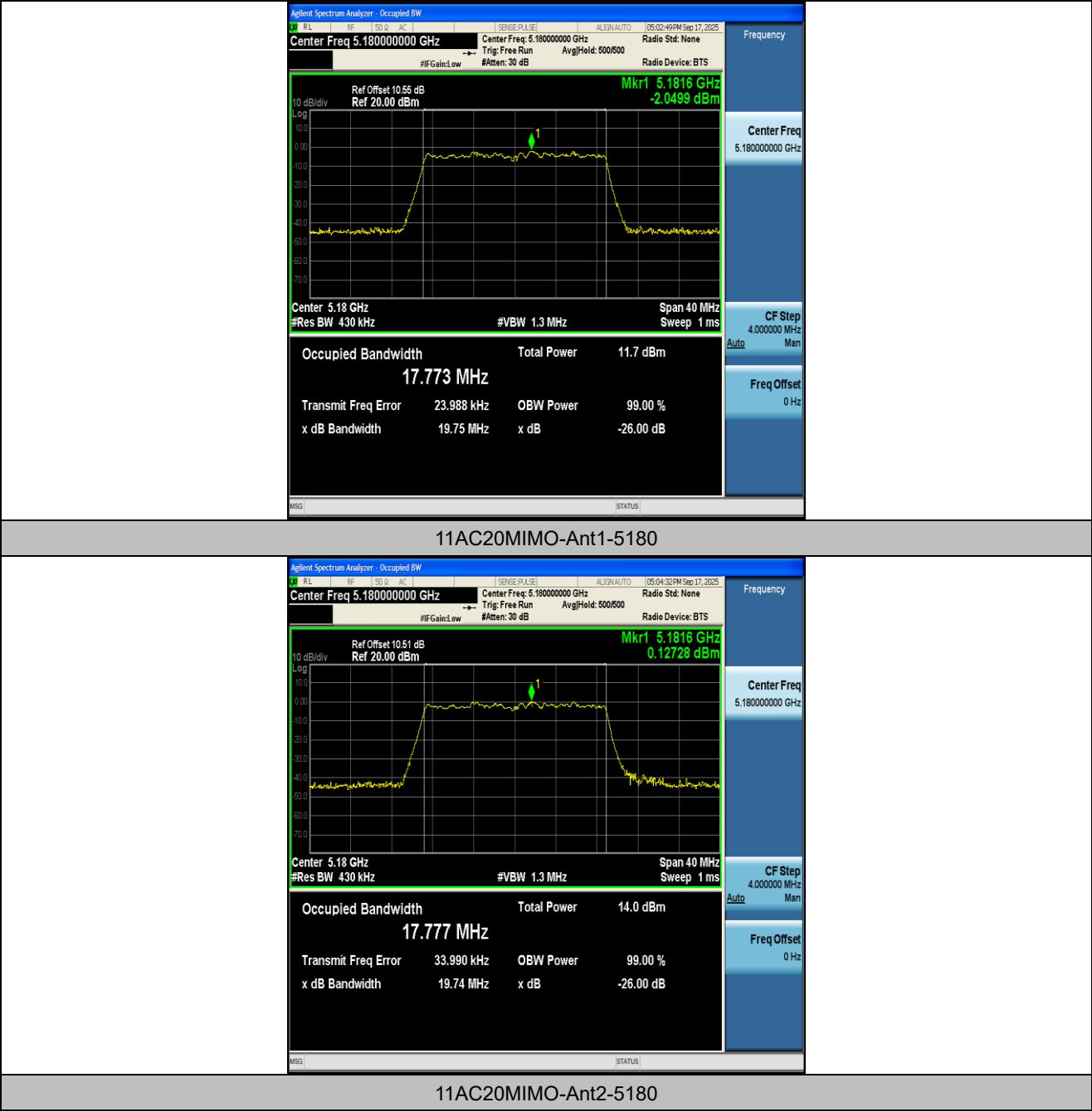
11N20MIMO-Ant1-5240

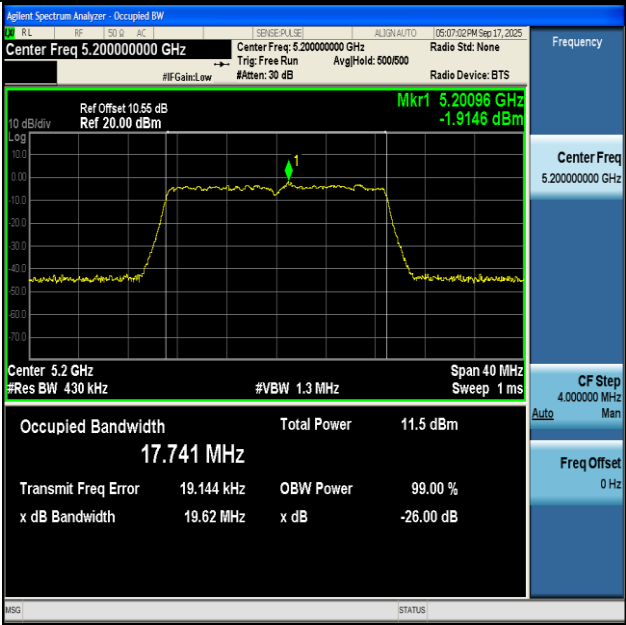


11N20MIMO-Ant2-5240

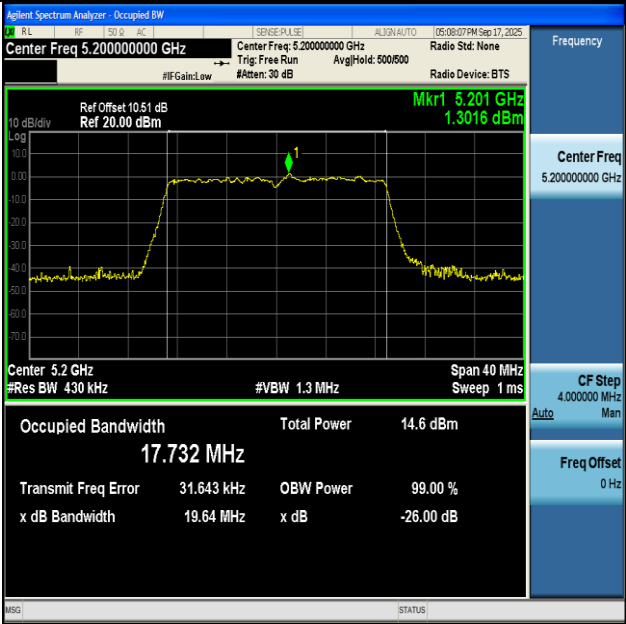




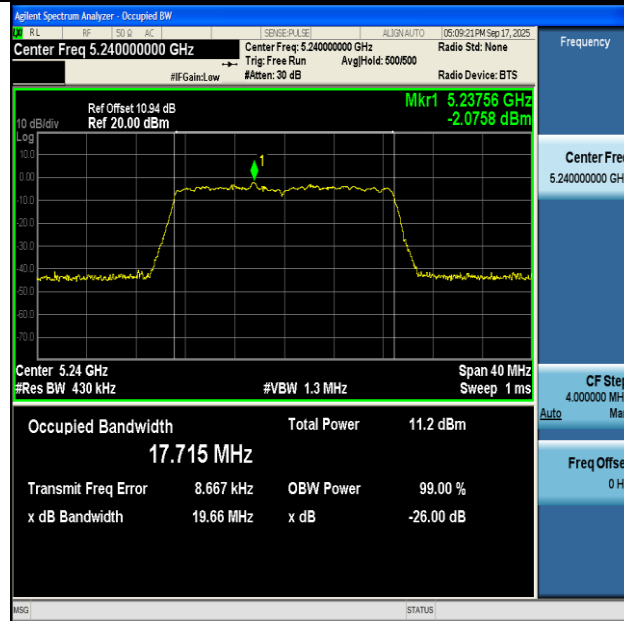




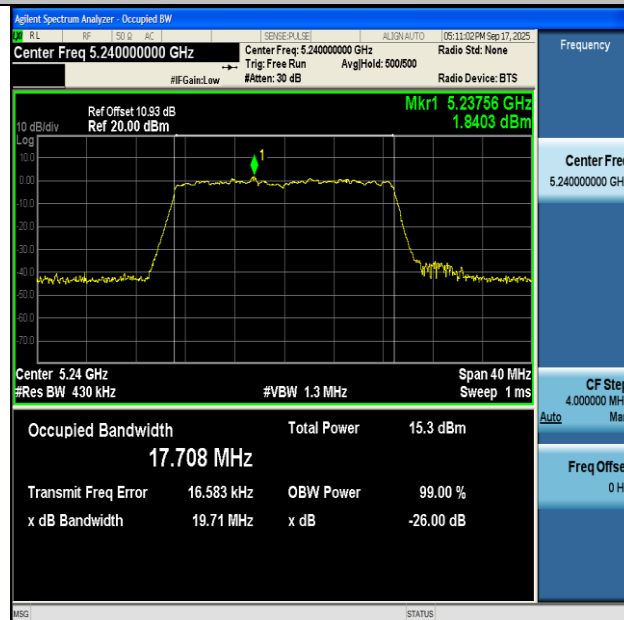
11AC20MIMO-Ant1-5200



11AC20MIMO-Ant2-5200



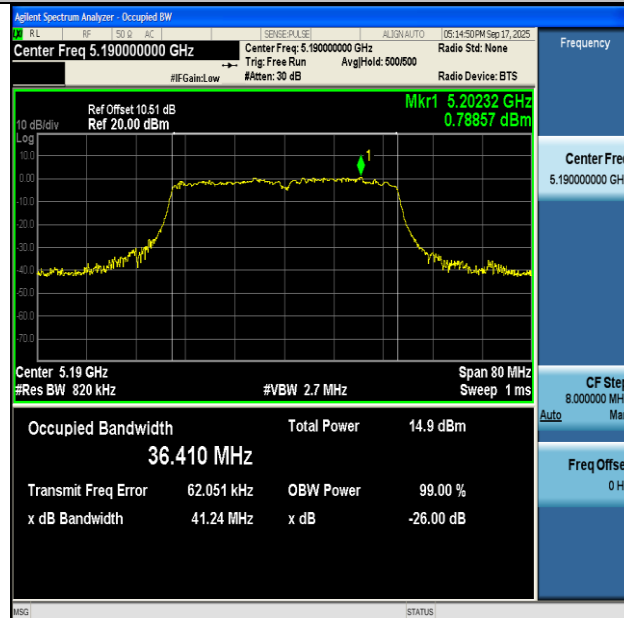
11AC20MIMO-Ant1-5240



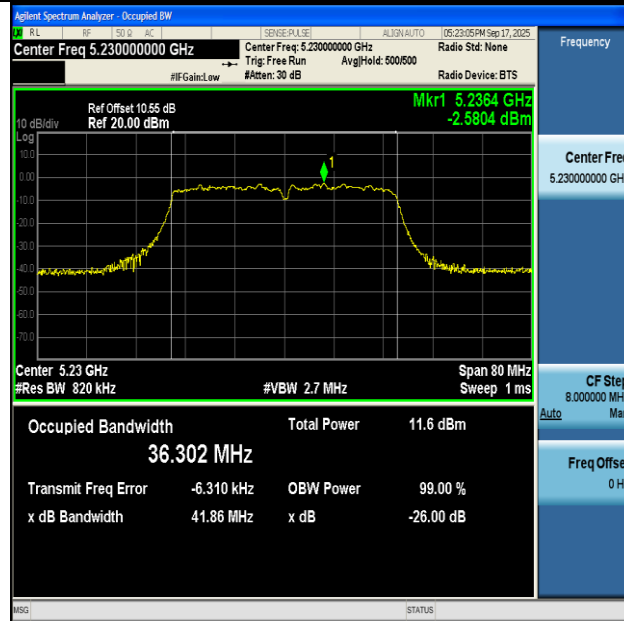
11AC20MIMO-Ant2-5240



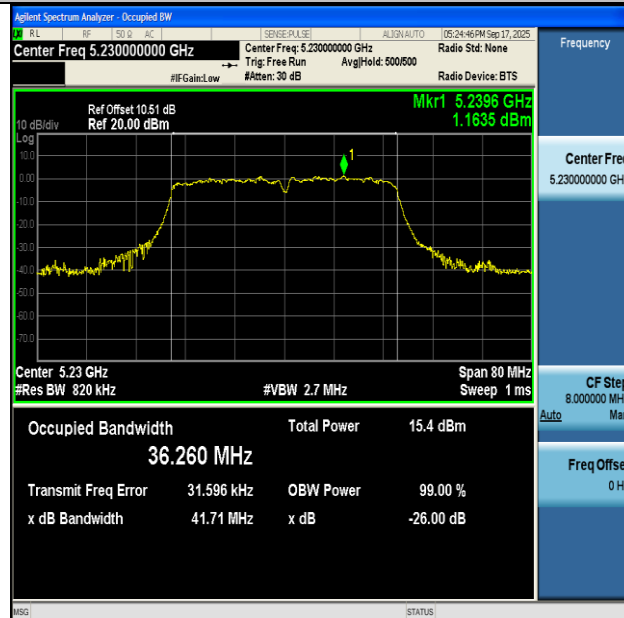
11AC40MIMO-Ant1-5190



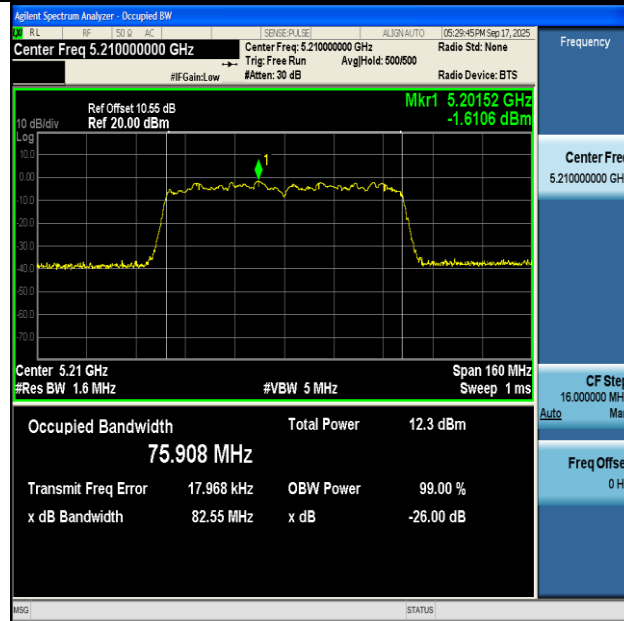
11AC40MIMO-Ant2-5190



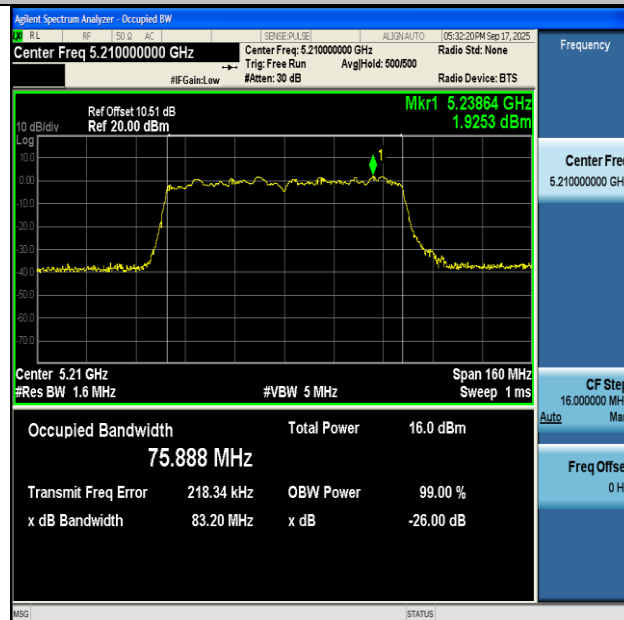
11AC40MIMO-Ant1-5230



11AC40MIMO-Ant2-5230



11AC80MIMO-Ant1-5210



11AC80MIMO-Ant2-5210

Appendix B: Maximum conducted output power

Test Result

Test Mode	Antenna	Frequency [MHz]	Conducted Power [dBm]	Conducted Limit [dBm]	Verdict
11A	Ant1	5180	6.58	≤23.98	PASS
11A	Ant2	5180	8.66	≤23.98	PASS
11A	Ant1	5200	6.47	≤23.98	PASS
11A	Ant2	5200	9.52	≤23.98	PASS
11A	Ant1	5240	6.12	≤23.98	PASS
11A	Ant2	5240	10.13	≤23.98	PASS
11N20MIMO	Ant1	5180	5.75	≤23.98	PASS
11N20MIMO	Ant2	5180	8.28	≤23.98	PASS
11N20MIMO	total	5180	10.21	≤23.98	PASS
11N20MIMO	Ant1	5200	6.15	≤23.98	PASS
11N20MIMO	Ant2	5200	8.90	≤23.98	PASS
11N20MIMO	total	5200	10.75	≤23.98	PASS
11N20MIMO	Ant1	5240	5.74	≤23.98	PASS
11N20MIMO	Ant2	5240	9.07	≤23.98	PASS
11N20MIMO	total	5240	10.73	≤23.98	PASS
11N40MIMO	Ant1	5190	5.95	≤23.98	PASS
11N40MIMO	Ant2	5190	9.05	≤23.98	PASS
11N40MIMO	total	5190	10.78	≤23.98	PASS
11N40MIMO	Ant1	5230	4.80	≤23.98	PASS
11N40MIMO	Ant2	5230	9.47	≤23.98	PASS
11N40MIMO	total	5230	10.74	≤23.98	PASS
11AC20MIMO	Ant1	5180	5.14	≤23.98	PASS
11AC20MIMO	Ant2	5180	7.57	≤23.98	PASS
11AC20MIMO	total	5180	9.53	≤23.98	PASS
11AC20MIMO	Ant1	5200	5.40	≤23.98	PASS
11AC20MIMO	Ant2	5200	8.72	≤23.98	PASS
11AC20MIMO	total	5200	10.38	≤23.98	PASS
11AC20MIMO	Ant1	5240	5.53	≤23.98	PASS
11AC20MIMO	Ant2	5240	9.35	≤23.98	PASS
11AC20MIMO	total	5240	10.86	≤23.98	PASS
11AC40MIMO	Ant1	5190	5.52	≤23.98	PASS
11AC40MIMO	Ant2	5190	8.76	≤23.98	PASS
11AC40MIMO	total	5190	10.45	≤23.98	PASS
11AC40MIMO	Ant1	5230	5.29	≤23.98	PASS
11AC40MIMO	Ant2	5230	9.22	≤23.98	PASS
11AC40MIMO	total	5230	10.70	≤23.98	PASS
11AC80MIMO	Ant1	5210	5.76	≤23.98	PASS

11AC80MIMO	Ant2	5210	9.00	≤23.98	PASS
11AC80MIMO	total	5210	10.69	≤23.98	PASS

Note: offset(dB) = cable loss(dB) + attenuator factor(dB) + Duty Cycle Factor(dB)

Appendix C: Maximum power spectral density

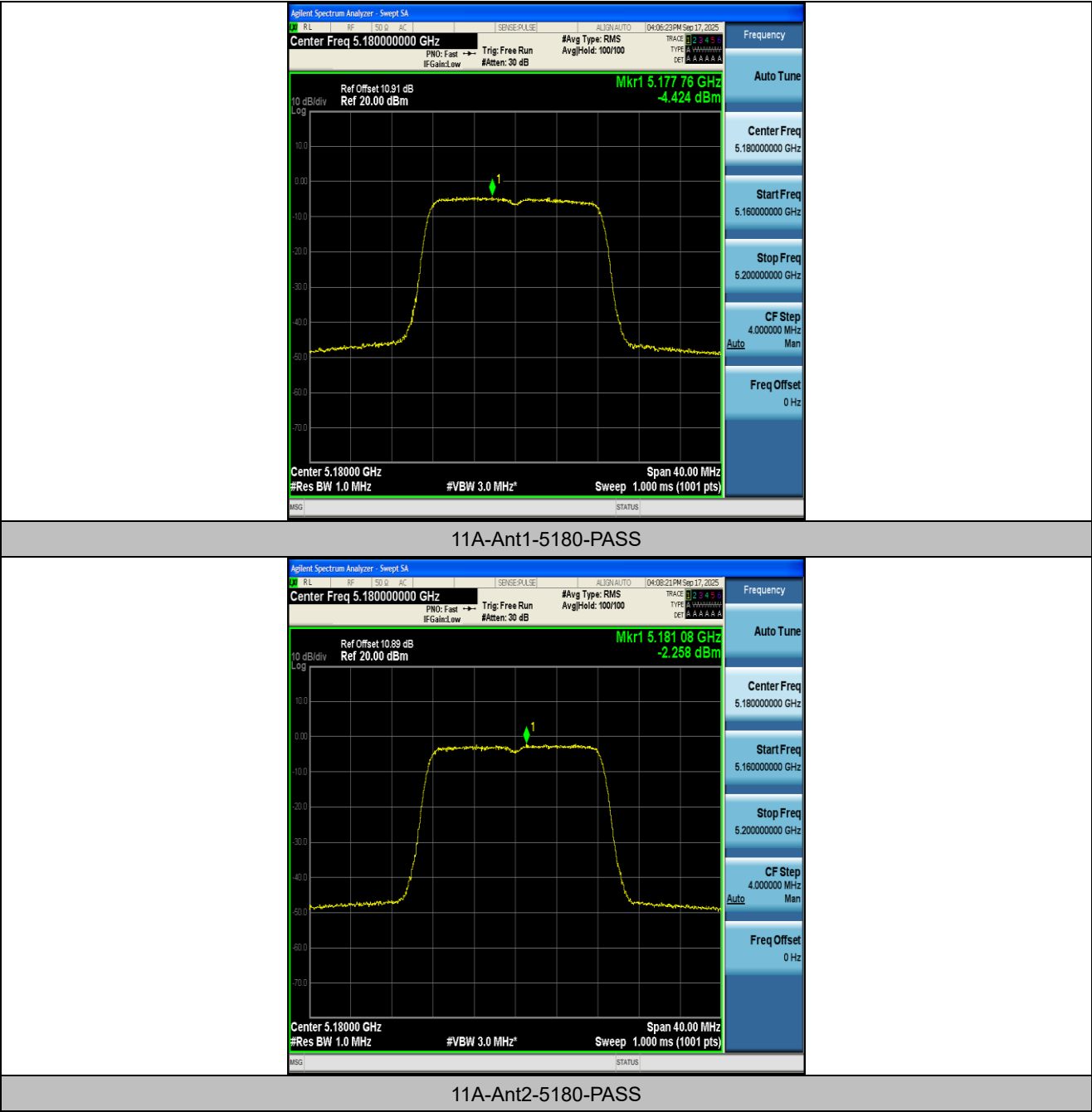
Test Result

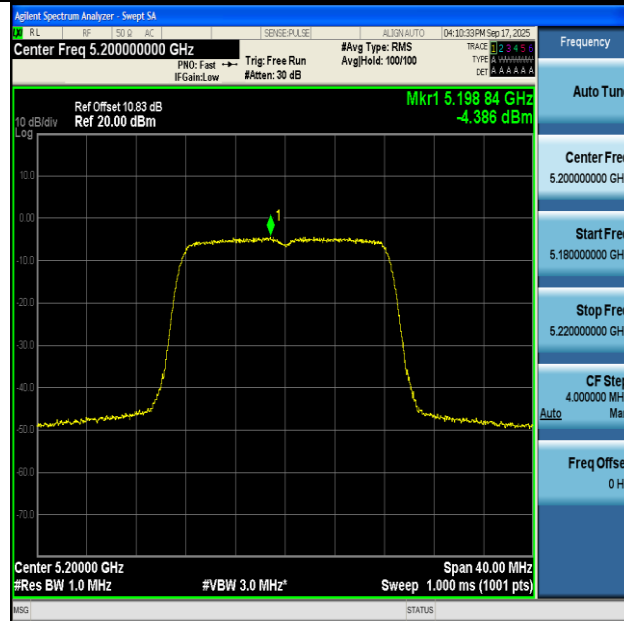
Test Mode	Antenna	Frequency [MHz]	Result [dBm/MHz]	Limit [dBm/MHz]	Verdict
11A	Ant1	5180	-4.42	≤11.00	PASS
11A	Ant2	5180	-2.26	≤11.00	PASS
11A	Ant1	5200	-4.39	≤11.00	PASS
11A	Ant2	5200	-1.28	≤11.00	PASS
11A	Ant1	5240	-4.81	≤11.00	PASS
11A	Ant2	5240	-1.03	≤11.00	PASS
11N20MIMO	Ant1	5180	-4.78	≤11.00	PASS
11N20MIMO	Ant2	5180	-2.19	≤11.00	PASS
11N20MIMO	total	5180	-0.28	≤9.67	PASS
11N20MIMO	Ant1	5200	-4.40	≤11.00	PASS
11N20MIMO	Ant2	5200	-1.45	≤11.00	PASS
11N20MIMO	total	5200	0.33	≤9.67	PASS
11N20MIMO	Ant1	5240	-5.12	≤11.00	PASS
11N20MIMO	Ant2	5240	-1.14	≤11.00	PASS
11N20MIMO	total	5240	0.32	≤9.67	PASS
11N40MIMO	Ant1	5190	-7.22	≤11.00	PASS
11N40MIMO	Ant2	5190	-3.82	≤11.00	PASS
11N40MIMO	total	5190	-2.19	≤9.67	PASS
11N40MIMO	Ant1	5230	-8.68	≤11.00	PASS
11N40MIMO	Ant2	5230	-3.58	≤11.00	PASS
11N40MIMO	total	5230	-2.41	≤9.67	PASS
11AC20MIMO	Ant1	5180	-5.89	≤11.00	PASS
11AC20MIMO	Ant2	5180	-2.95	≤11.00	PASS
11AC20MIMO	total	5180	-1.17	≤9.67	PASS
11AC20MIMO	Ant1	5200	-4.97	≤11.00	PASS
11AC20MIMO	Ant2	5200	-1.90	≤11.00	PASS
11AC20MIMO	total	5200	-0.16	≤9.67	PASS
11AC20MIMO	Ant1	5240	-5.17	≤11.00	PASS
11AC20MIMO	Ant2	5240	-1.21	≤11.00	PASS
11AC20MIMO	total	5240	0.26	≤9.67	PASS
11AC40MIMO	Ant1	5190	-7.69	≤11.00	PASS
11AC40MIMO	Ant2	5190	-4.07	≤11.00	PASS
11AC40MIMO	total	5190	-2.50	≤9.67	PASS
11AC40MIMO	Ant1	5230	-7.95	≤11.00	PASS
11AC40MIMO	Ant2	5230	-3.92	≤11.00	PASS
11AC40MIMO	total	5230	-2.47	≤9.67	PASS
11AC80MIMO	Ant1	5210	-10.78	≤11.00	PASS

11AC80MIMO	Ant2	5210	-6.48	≤11.00	PASS
11AC80MIMO	total	5210	-5.11	≤9.67	PASS

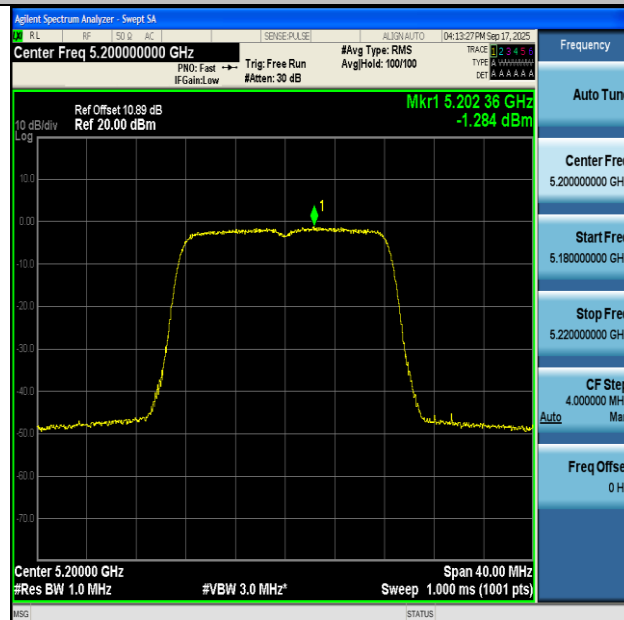
Note: offset(dB) = cable loss(dB) + attenuator factor(dB) + Duty Cycle Factor(dB)

Test Graphs

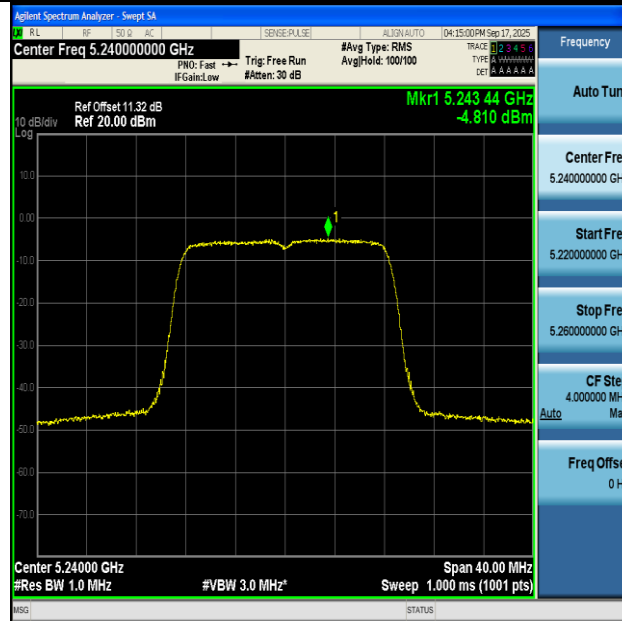




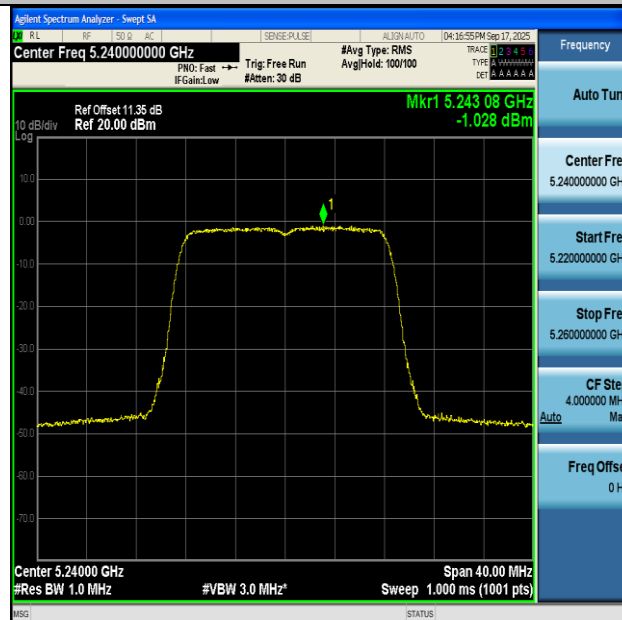
11A-Ant1-5200-PASS



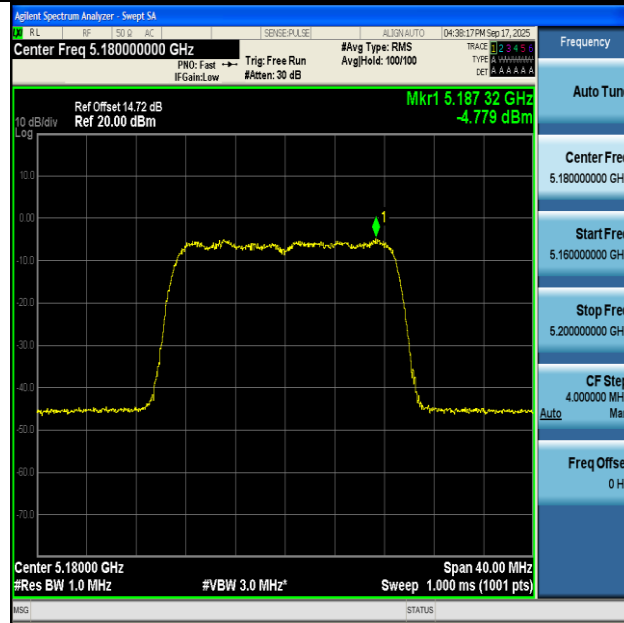
11A-Ant2-5200-PASS



11A-Ant1-5240-PASS



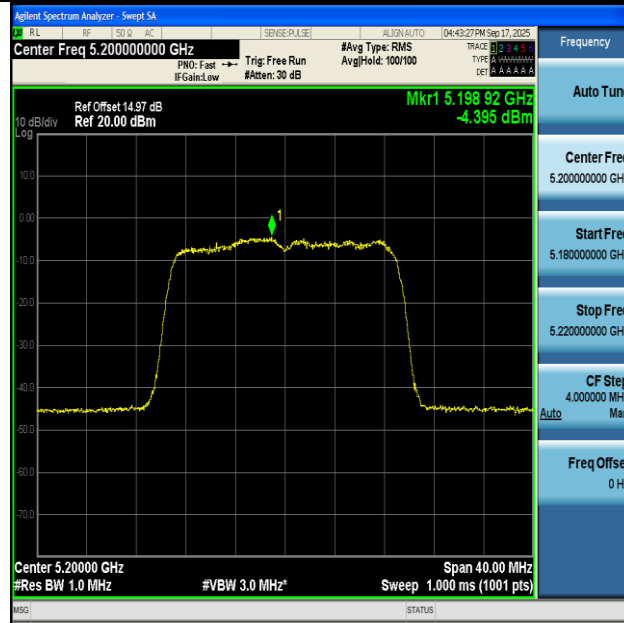
11A-Ant2-5240-PASS



11N20MIMO-Ant1-5180-PASS



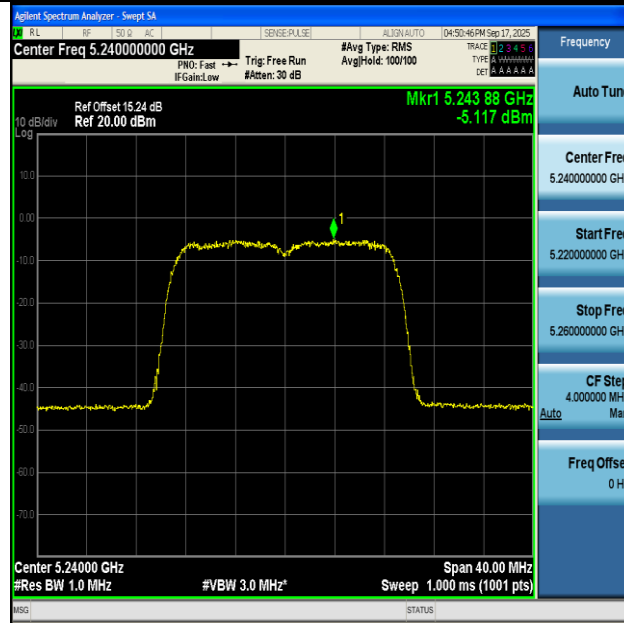
11N20MIMO-Ant2-5180-PASS



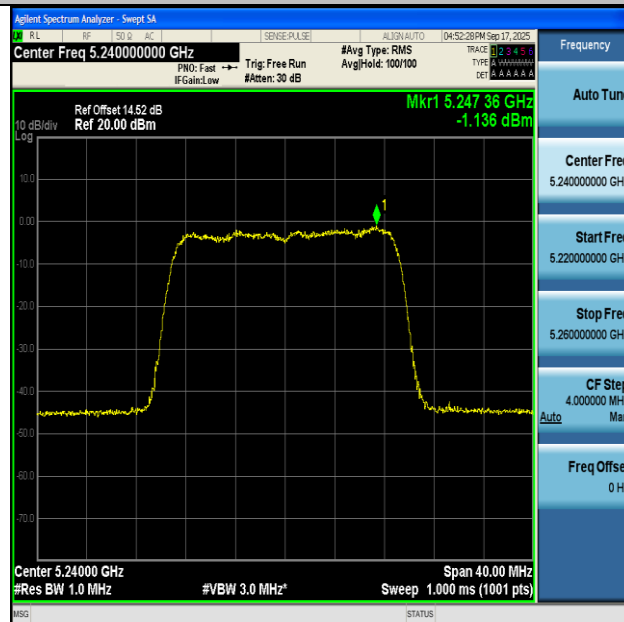
11N20MIMO-Ant1-5200-PASS



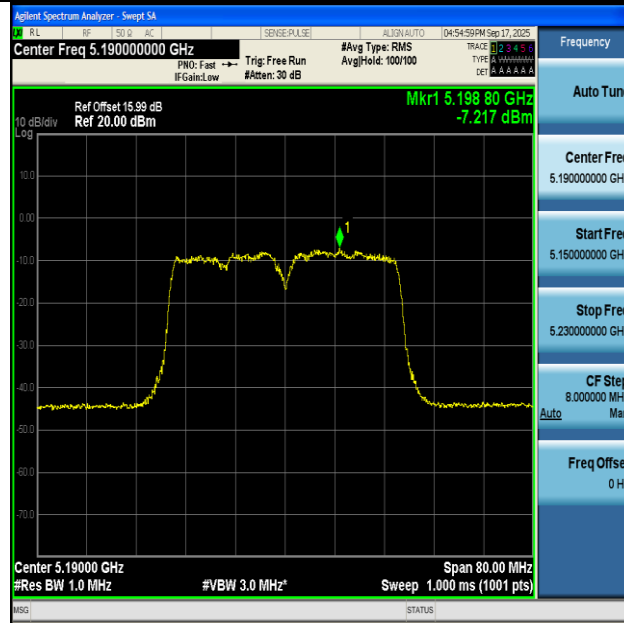
11N20MIMO-Ant2-5200-PASS



11N20MIMO-Ant1-5240-PASS



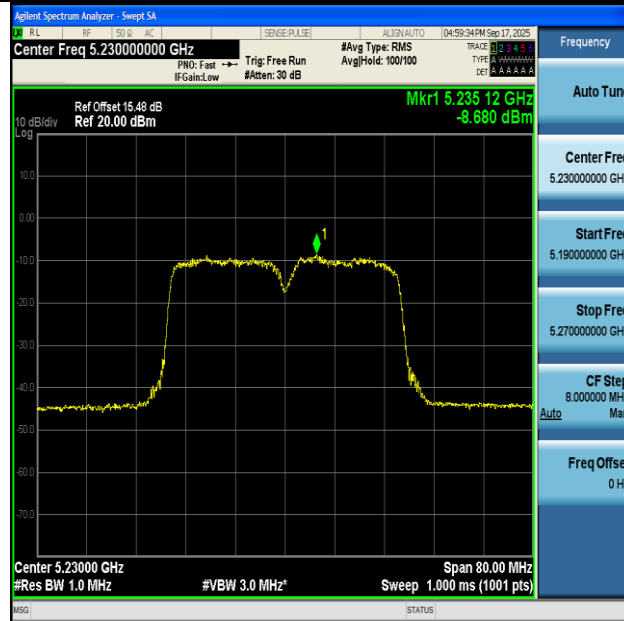
11N20MIMO-Ant2-5240-PASS



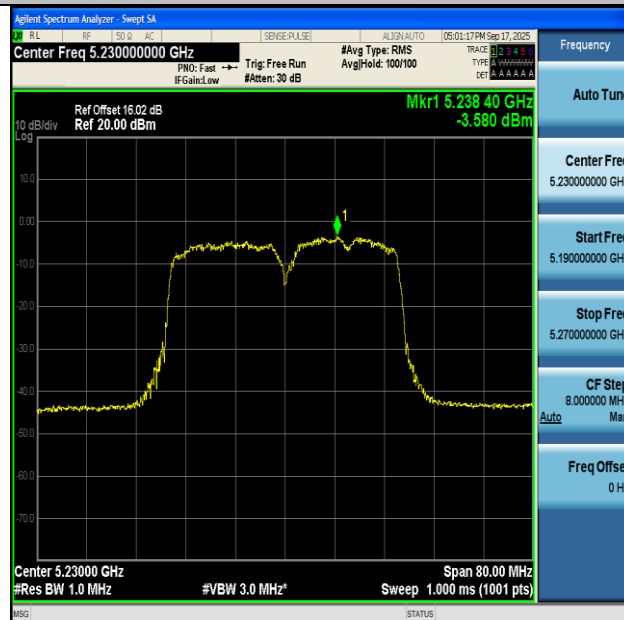
11N40MIMO-Ant1-5190-PASS



11N40MIMO-Ant2-5190-PASS



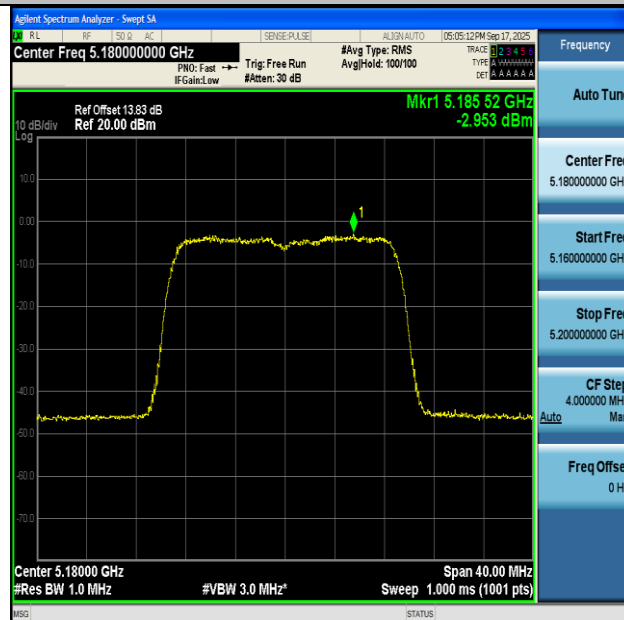
11N40MIMO-Ant1-5230-PASS



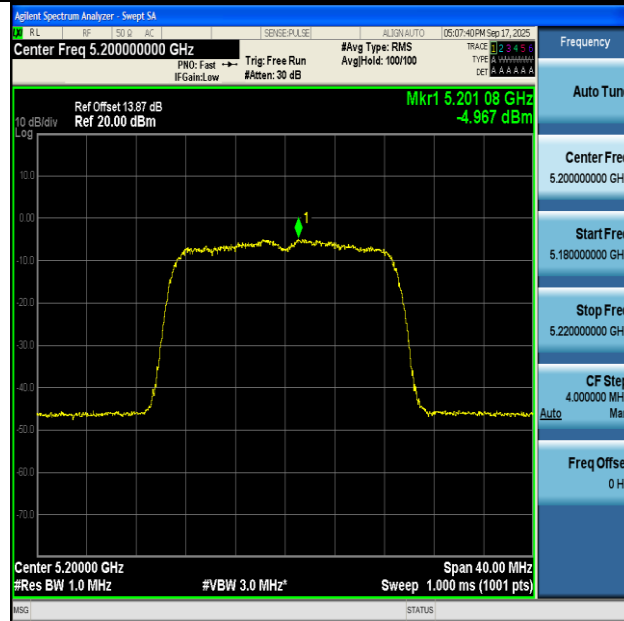
11N40MIMO-Ant2-5230-PASS



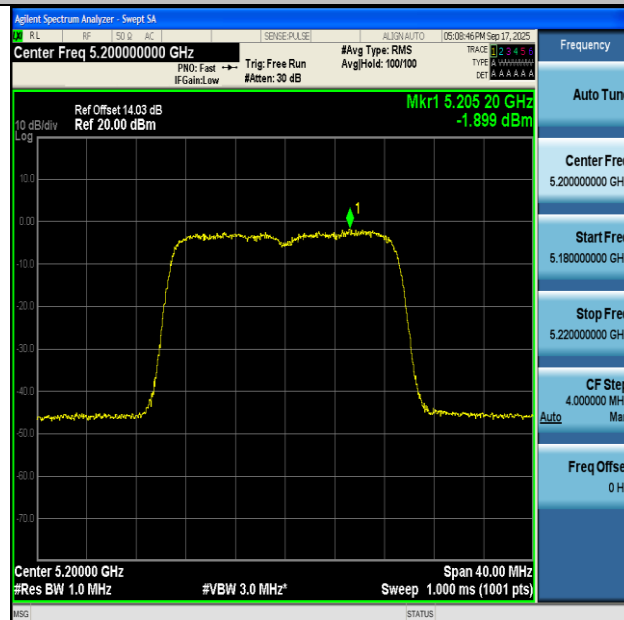
11AC20MIMO-Ant1-5180-PASS



11AC20MIMO-Ant2-5180-PASS



11AC20MIMO-Ant1-5200-PASS



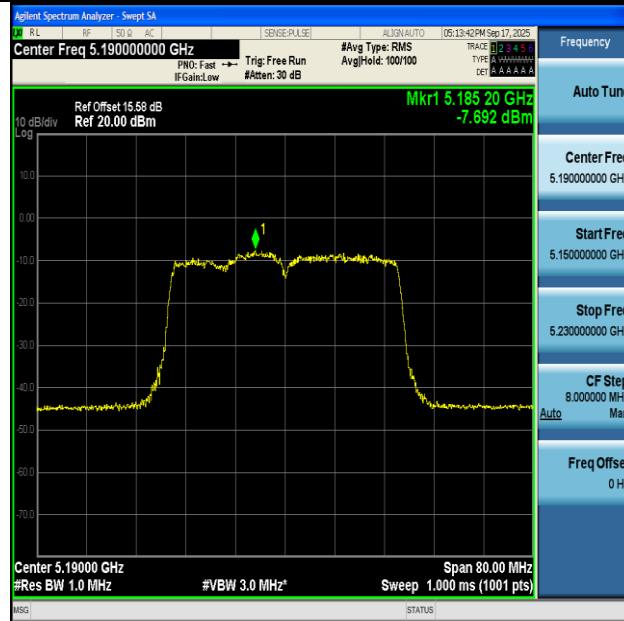
11AC20MIMO-Ant2-5200-PASS



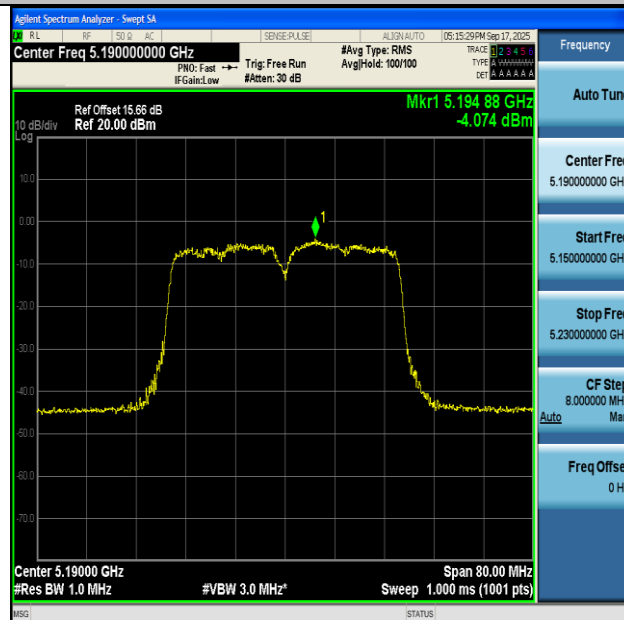
11AC20MIMO-Ant1-5240-PASS



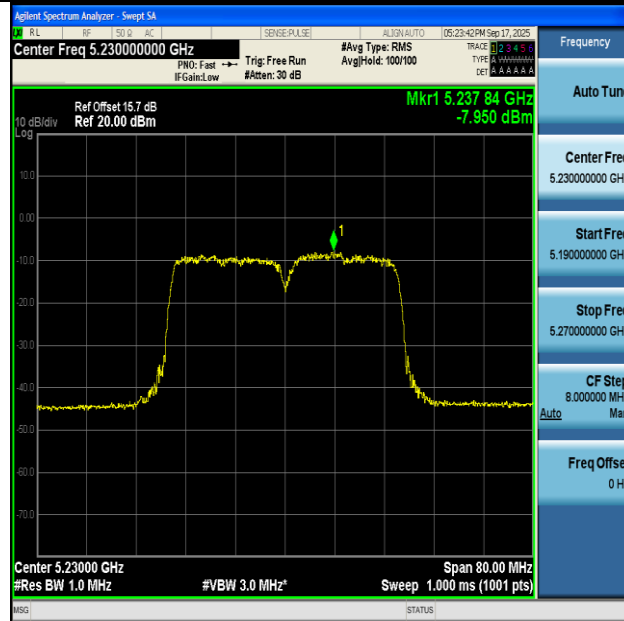
11AC20MIMO-Ant2-5240-PASS



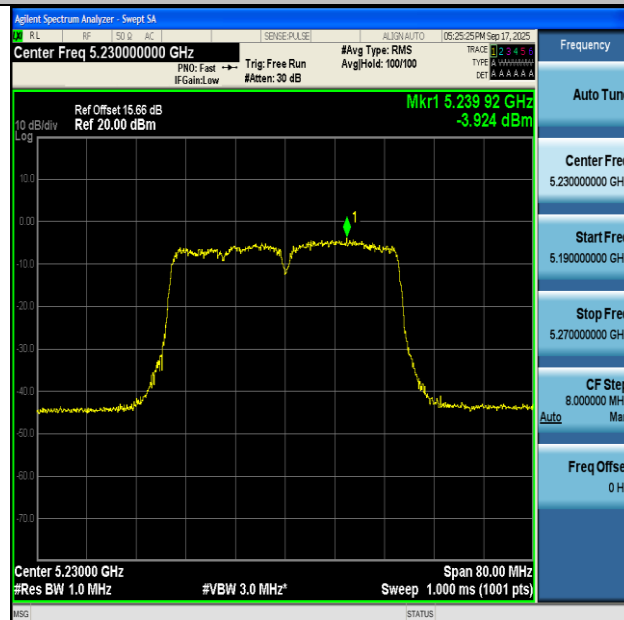
11AC40MIMO-Ant1-5190-PASS



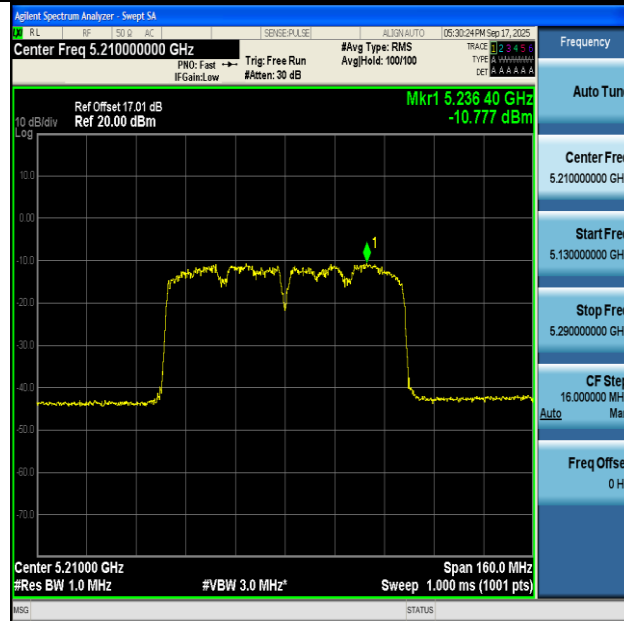
11AC40MIMO-Ant2-5190-PASS



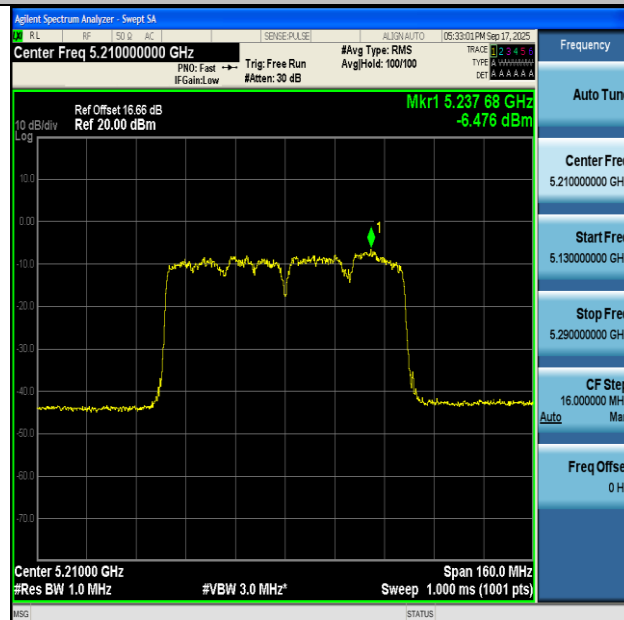
11AC40MIMO-Ant1-5230-PASS



11AC40MIMO-Ant2-5230-PASS



11AC80MIMO-Ant1-5210-PASS



11AC80MIMO-Ant2-5210-PASS

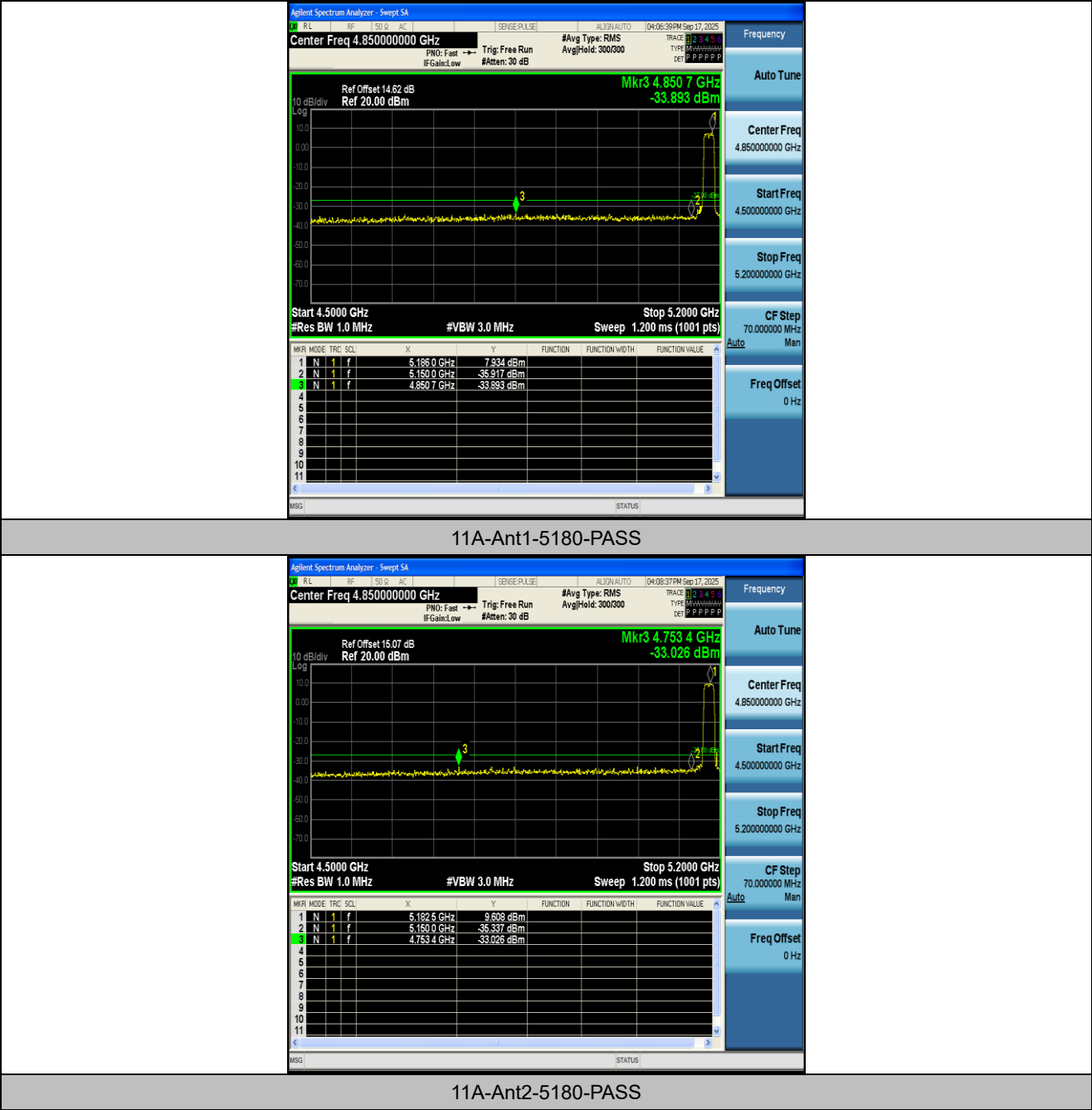
Appendix D: Band edge measurements

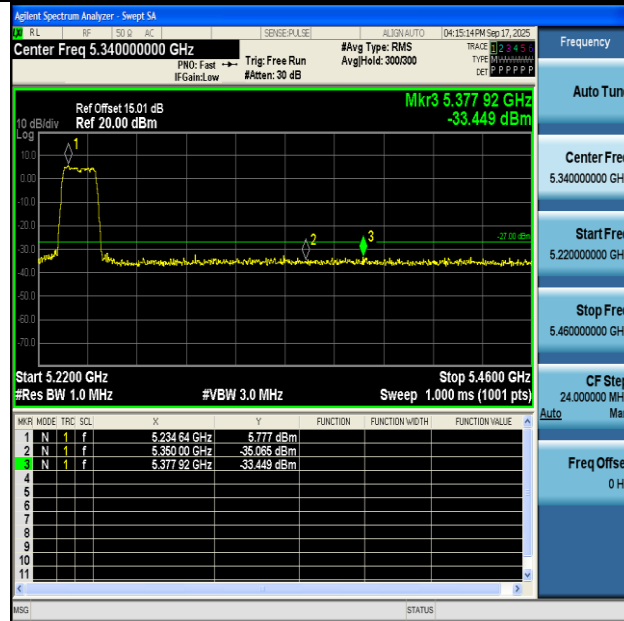
Test Result

Test Mode	Antenna	Ch. Name	Frequency [MHz]	Result [dBm]	Limit [dBm]	Verdict
11A	Ant1	Low	5180	-33.89	≤-27	PASS
11A	Ant2	Low	5180	-33.03	≤-27	PASS
11A	Ant1	High	5240	-33.45	≤-27	PASS
11A	Ant2	High	5240	-31.51	≤-27	PASS
11N20MIMO	Ant1	Low	5180	-33.39	≤-27	PASS
11N20MIMO	Ant2	Low	5180	-33.63	≤-27	PASS
11N20MIMO	Ant1	High	5240	-33.18	≤-27	PASS
11N20MIMO	Ant2	High	5240	-32.53	≤-27	PASS
11N40MIMO	Ant1	Low	5190	-33.96	≤-27	PASS
11N40MIMO	Ant2	Low	5190	-32.6	≤-27	PASS
11N40MIMO	Ant1	High	5230	-33.8	≤-27	PASS
11N40MIMO	Ant2	High	5230	-33.08	≤-27	PASS
11AC20MIMO	Ant1	Low	5180	-33.83	≤-27	PASS
11AC20MIMO	Ant2	Low	5180	-32.94	≤-27	PASS
11AC20MIMO	Ant1	High	5240	-33.32	≤-27	PASS
11AC20MIMO	Ant2	High	5240	-32.52	≤-27	PASS
11AC40MIMO	Ant1	Low	5190	-33.89	≤-27	PASS
11AC40MIMO	Ant2	Low	5190	-33.64	≤-27	PASS
11AC40MIMO	Ant1	High	5230	-33.7	≤-27	PASS
11AC40MIMO	Ant2	High	5230	-33.19	≤-27	PASS
11AC80MIMO	Ant1	Low	5210	-33.92	≤-27	PASS
11AC80MIMO	Ant1	High	5210	-33.72	≤-27	PASS
11AC80MIMO	Ant2	Low	5210	-33.27	≤-27	PASS
11AC80MIMO	Ant2	High	5210	-33.35	≤-27	PASS

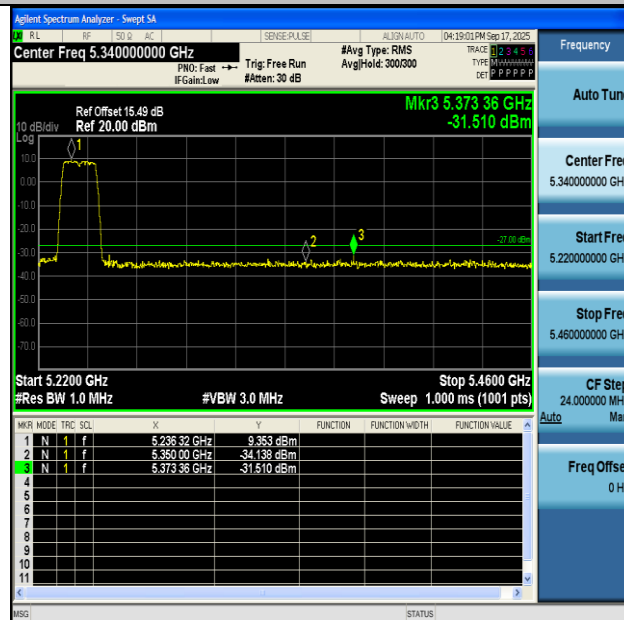
Note: offset(dB) = cable loss(dB) + attenuator factor(dB)

Test Graphs





11A-Ant1-5240-PASS



11A-Ant2-5240-PASS