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

Product Name: NucBox

Trade Mark: GMKtec

Test Model: K1

FCC ID: 2AXUD-K1

Environmental Conditions

Temperature:	25.5°C
Relative Humidity:	55%
ATM Pressure:	100.0 kPa
Test Engineer:	Anna Hu
Supervised by:	Hugo Chen
NOTE	N/A

Appendix A1: Emission Bandwidth

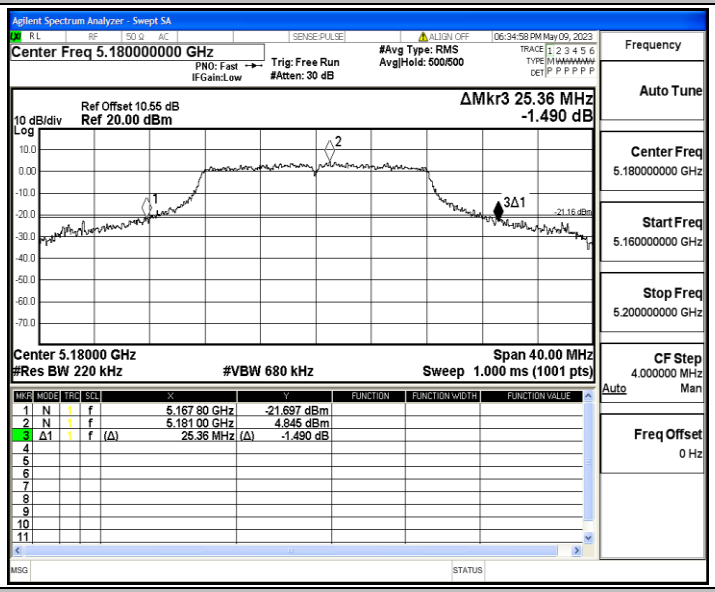
Test Result

TestMode	Antenna	Channel	26db EBW [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
11A	Ant1	5180	25.360	5167.800	5193.160	---	---
	Ant2	5180	25.320	5167.600	5192.920	---	---
	Ant1	5200	25.800	5187.040	5212.840	---	---
	Ant2	5200	25.240	5187.880	5213.120	---	---
	Ant1	5240	20.000	5229.960	5249.960	---	---
	Ant2	5240	19.640	5230.160	5249.800	---	---
11N20MIMO	Ant1	5180	25.960	5167.160	5193.120	---	---
	Ant2	5180	28.920	5166.360	5195.280	---	---
	Ant1	5200	26.000	5186.920	5212.920	---	---
	Ant2	5200	26.400	5186.080	5212.480	---	---
	Ant1	5240	20.160	5229.880	5250.040	---	---
	Ant2	5240	20.040	5229.880	5249.920	---	---
11N40MIMO	Ant1	5190	39.680	5170.160	5209.840	---	---
	Ant2	5190	39.520	5170.320	5209.840	---	---
	Ant1	5230	40.080	5210.160	5250.240	---	---
	Ant2	5230	39.760	5210.160	5249.920	---	---
11AC20MIMO	Ant1	5180	27.720	5167.040	5194.760	---	---
	Ant2	5180	25.920	5166.080	5192.000	---	---
	Ant1	5200	24.840	5187.640	5212.480	---	---
	Ant2	5200	24.600	5187.080	5211.680	---	---
	Ant1	5240	20.200	5229.840	5250.040	---	---
	Ant2	5240	20.240	5229.800	5250.040	---	---
11AC40MIMO	Ant1	5190	40.000	5169.920	5209.920	---	---
	Ant2	5190	39.520	5170.160	5209.680	---	---
	Ant1	5230	40.480	5209.840	5250.320	---	---

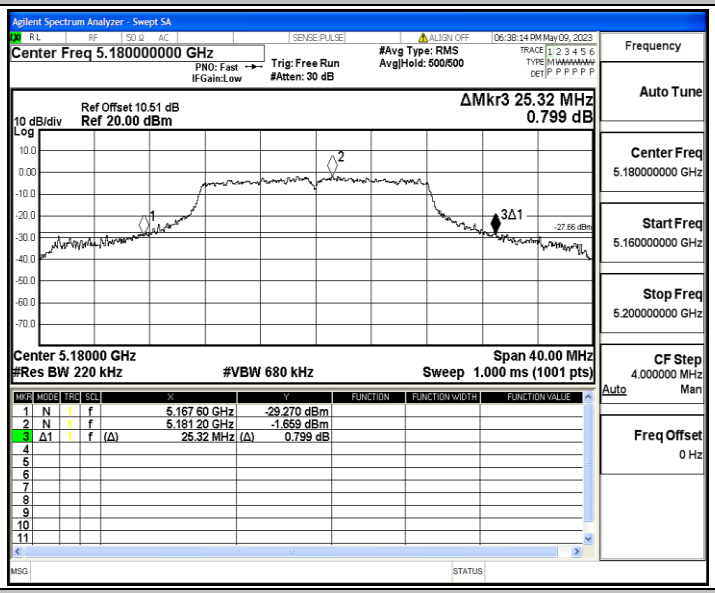
	Ant2	5230	39.600	5210.160	5249.760	---	---
11AC80MIMO	Ant1	5210	79.680	5170.320	5250.000	---	---
	Ant2	5210	79.520	5170.320	5249.840	---	---

Test Graphs

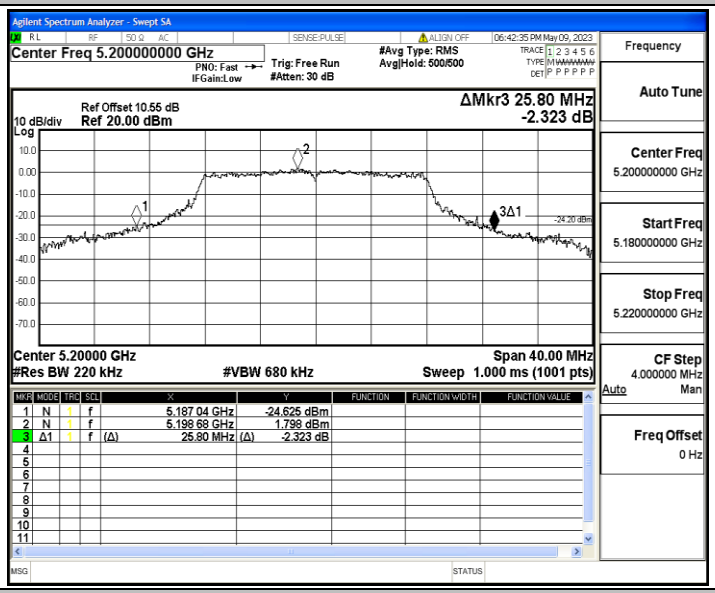
11A_Ant1_5180



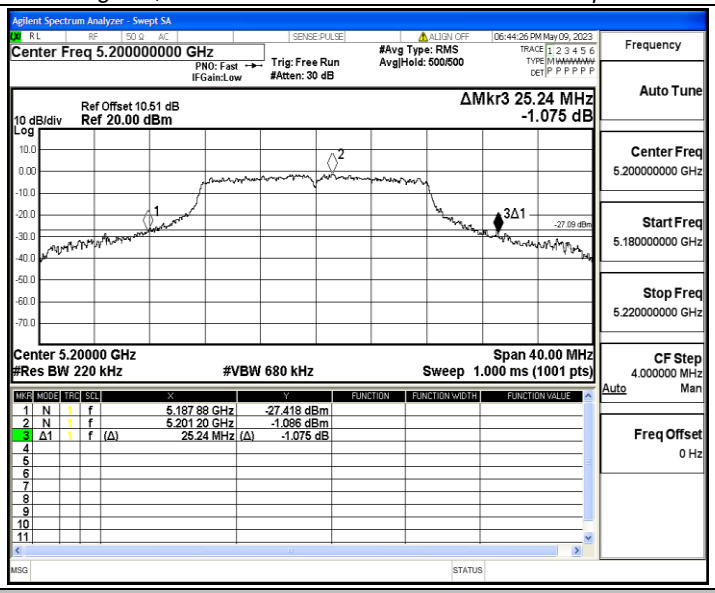
11A_Ant2_5180



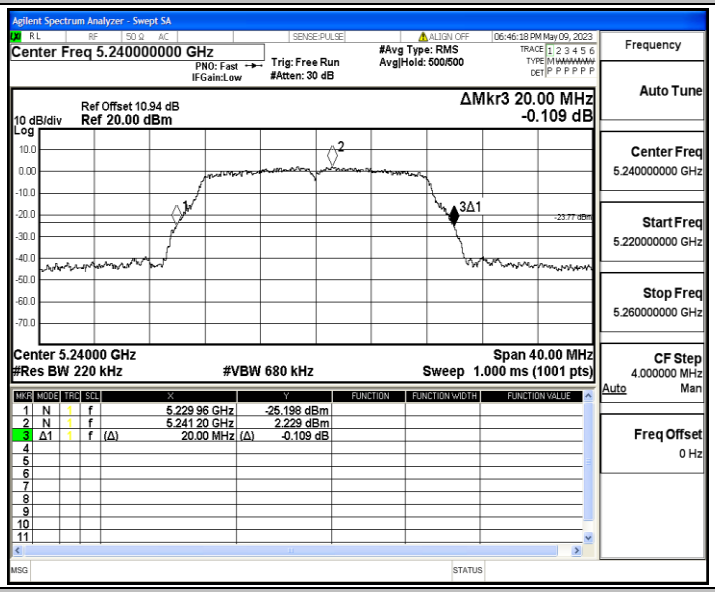
11A_Ant1_5200



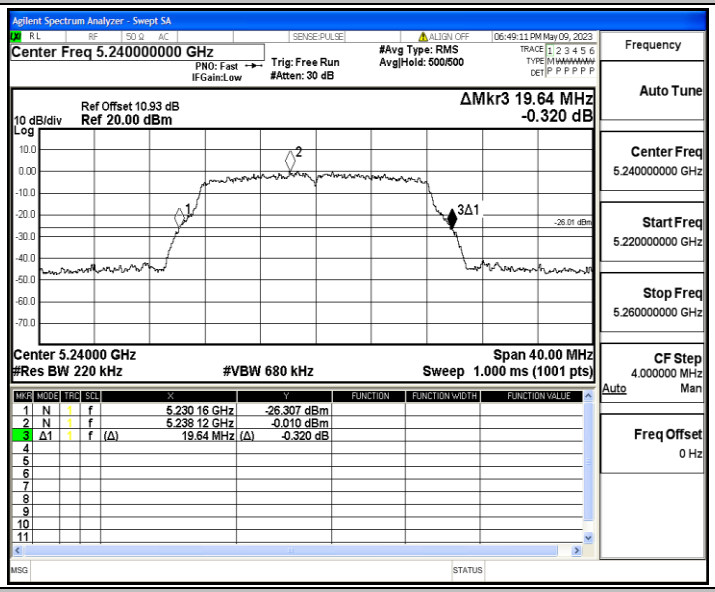
11A_Ant2_5200



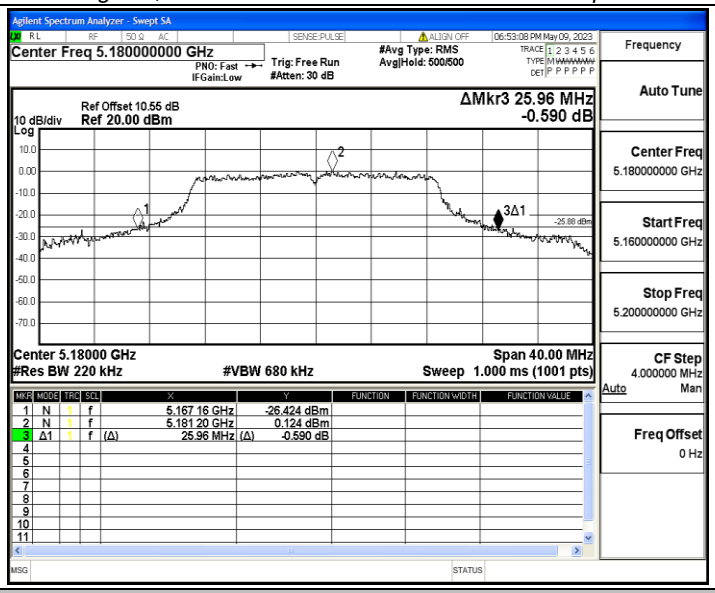
11A_Ant1_5240



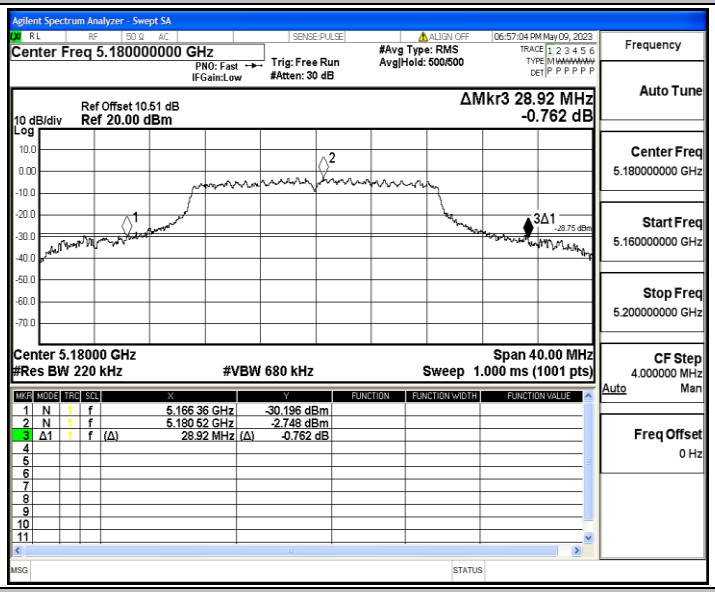
11A_Ant2_5240



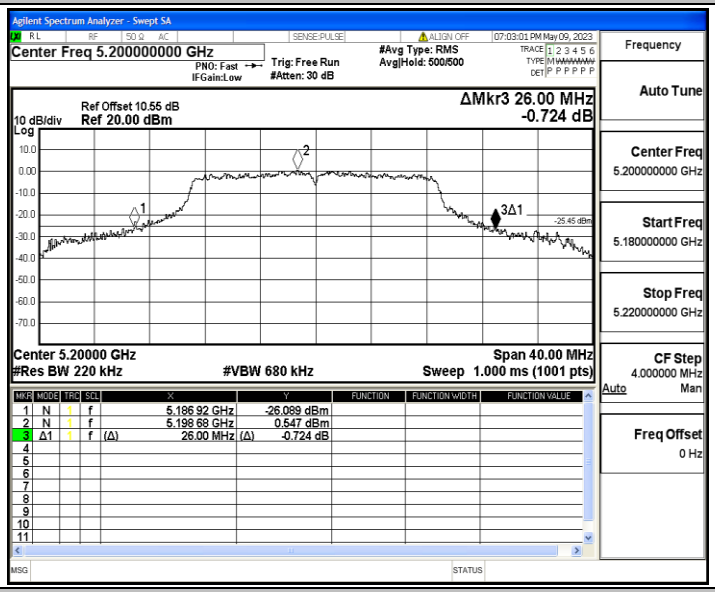
11N20MIMO_Ant1_5180



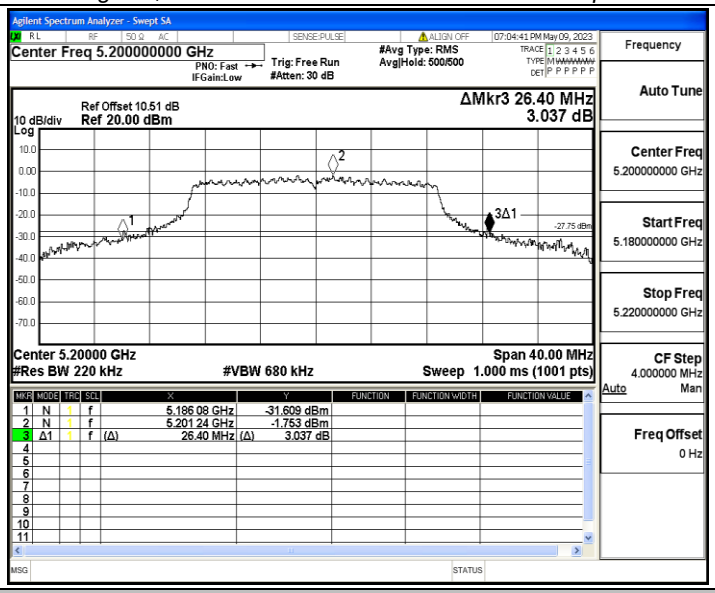
11N20MIMO_Ant2_5180



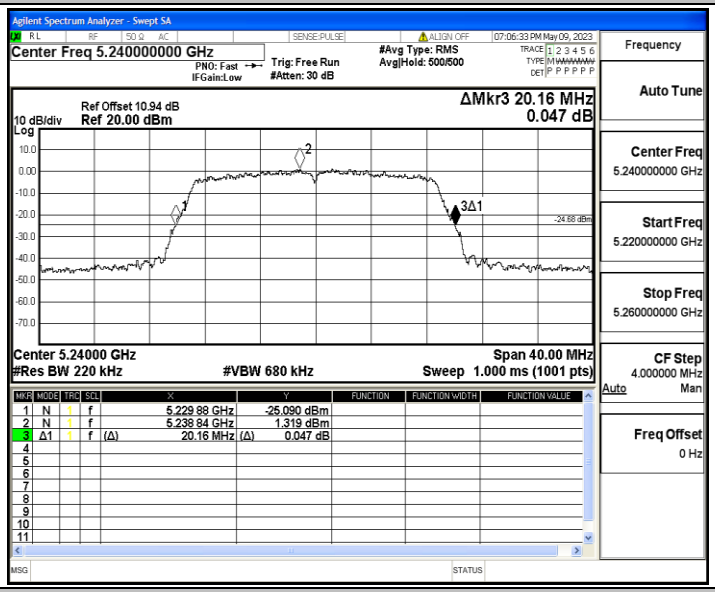
11N20MIMO_Ant1_5200



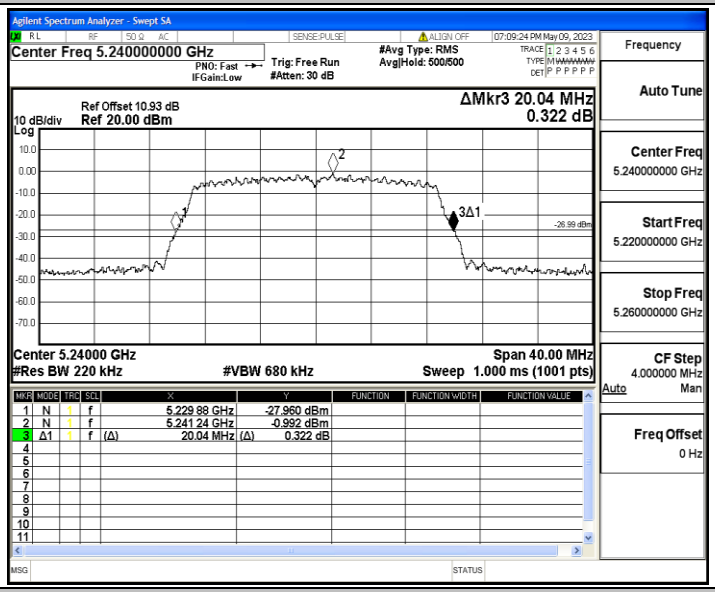
11N20MIMO_Ant2_5200



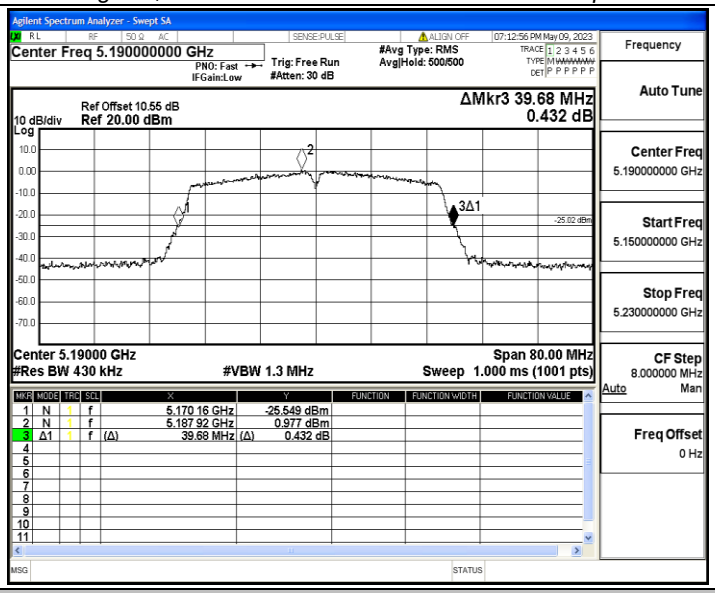
11N20MIMO_Ant1_5240



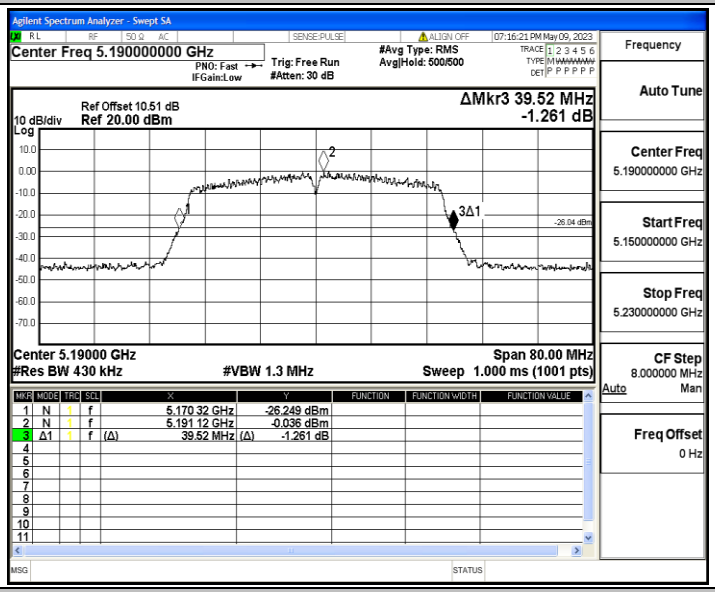
11N20MIMO_Ant2_5240



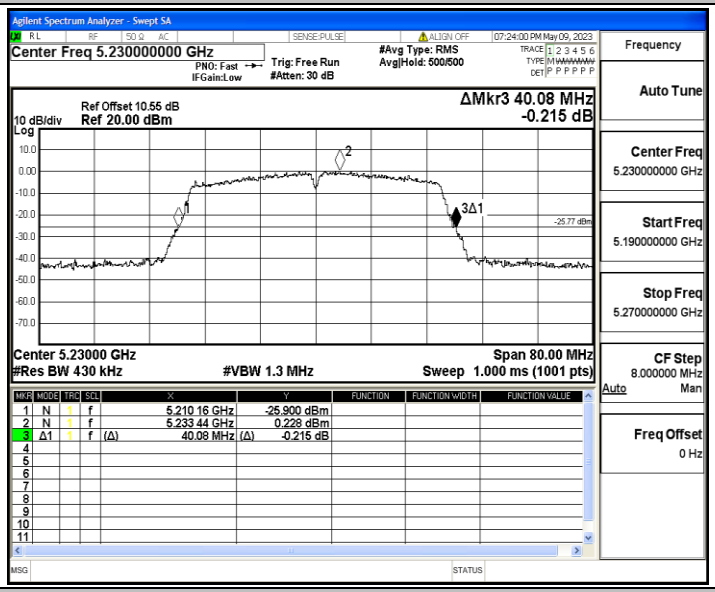
11N40MIMO_Ant1_5190



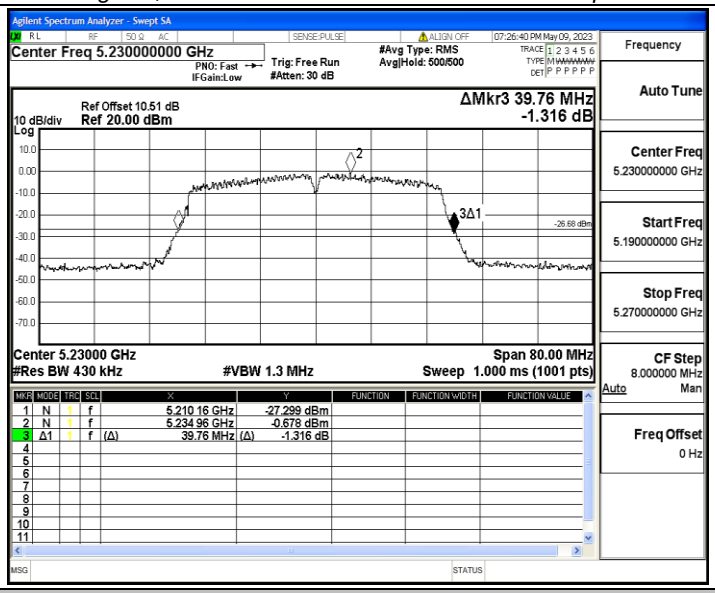
11N40MIMO_Ant2_5190



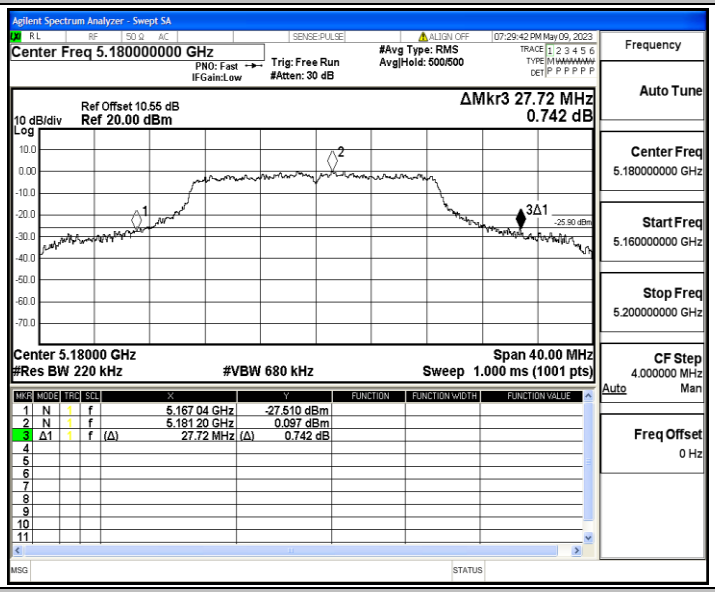
11N40MIMO_Ant1_5230



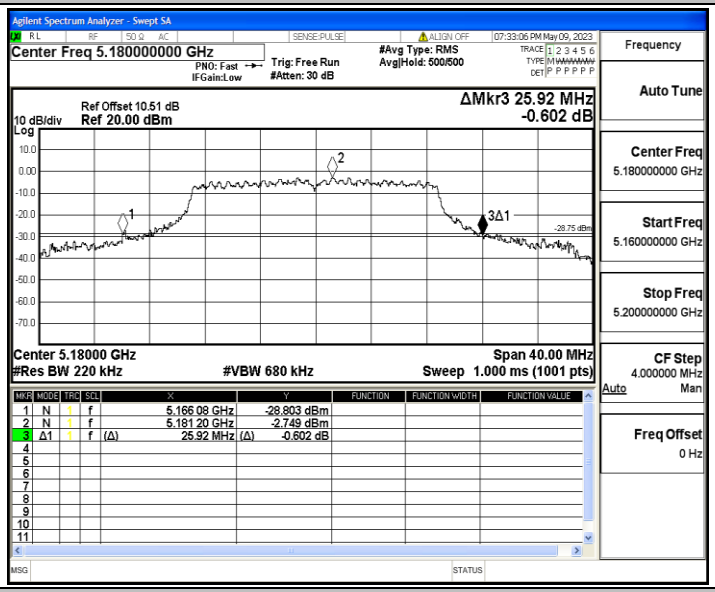
11N40MIMO_Ant2_5230



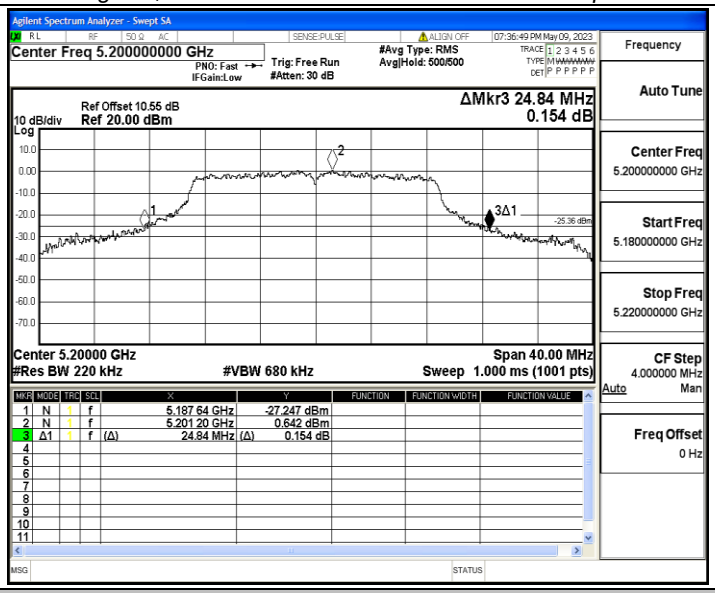
11AC20MIMO_Ant1_5180



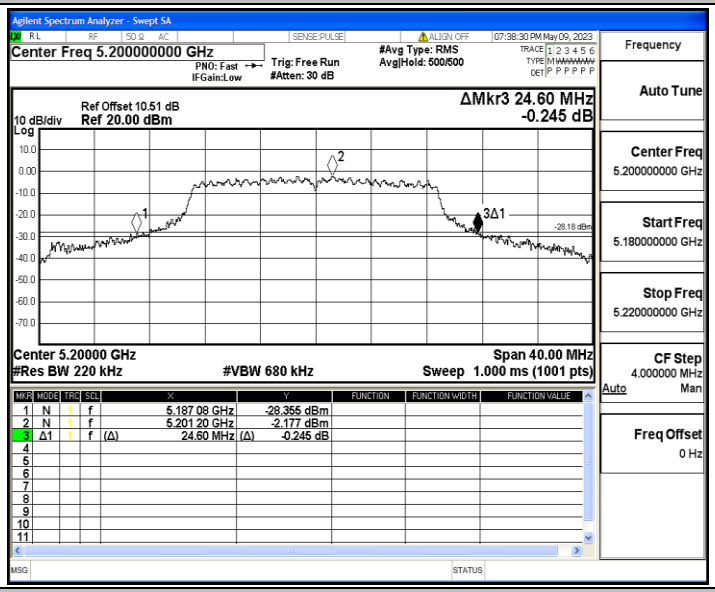
11AC20MIMO_Ant2_5180



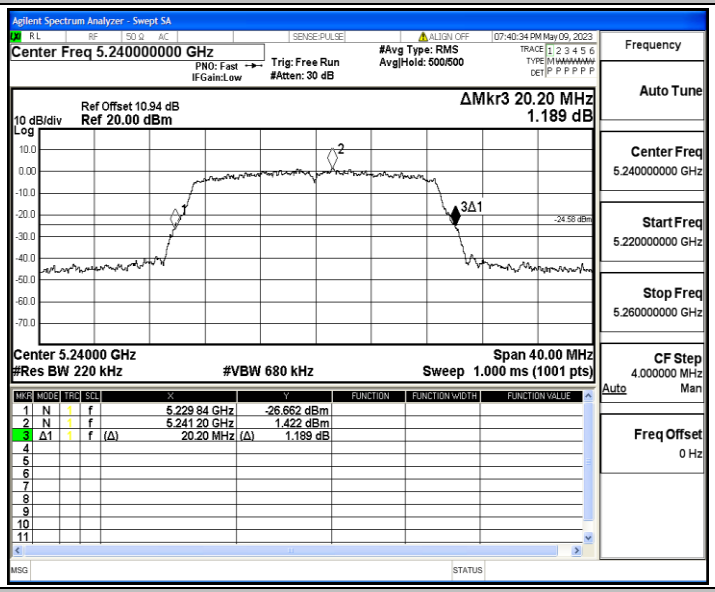
11AC20MIMO_Ant1_5200



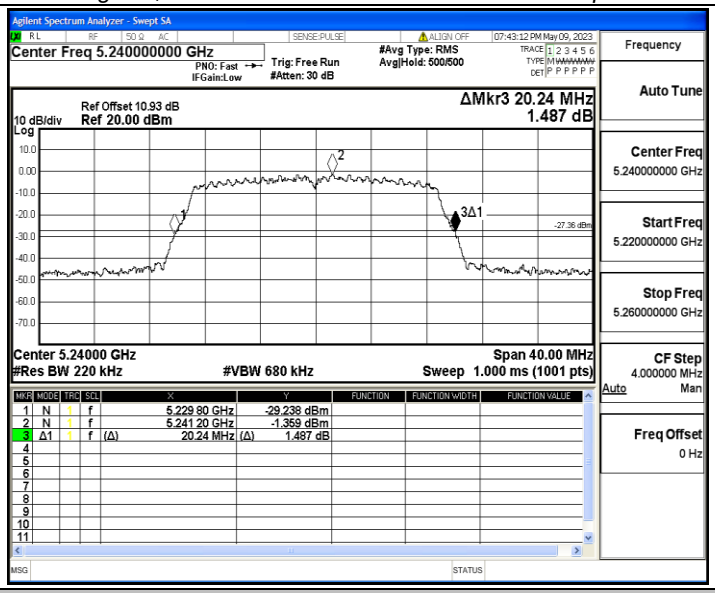
11AC20MIMO_Ant2_5200



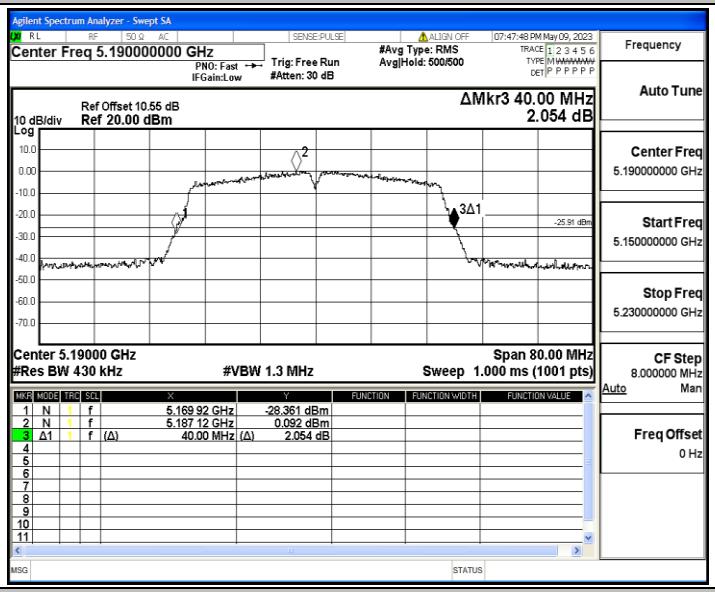
11AC20MIMO_Ant1_5240



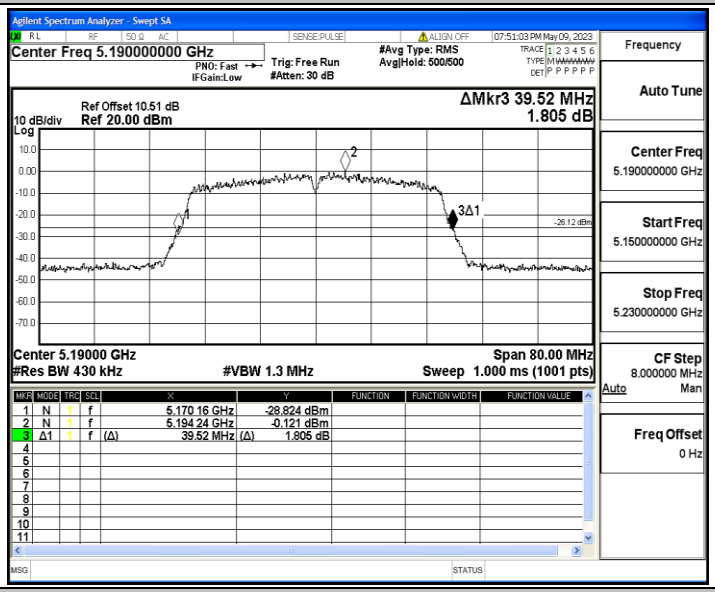
11AC20MIMO_Ant2_5240



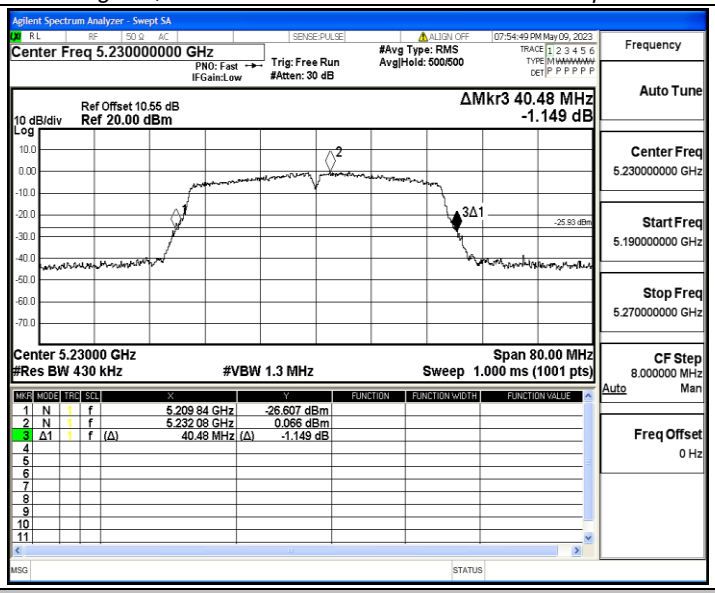
11AC40MIMO_Ant1_5190



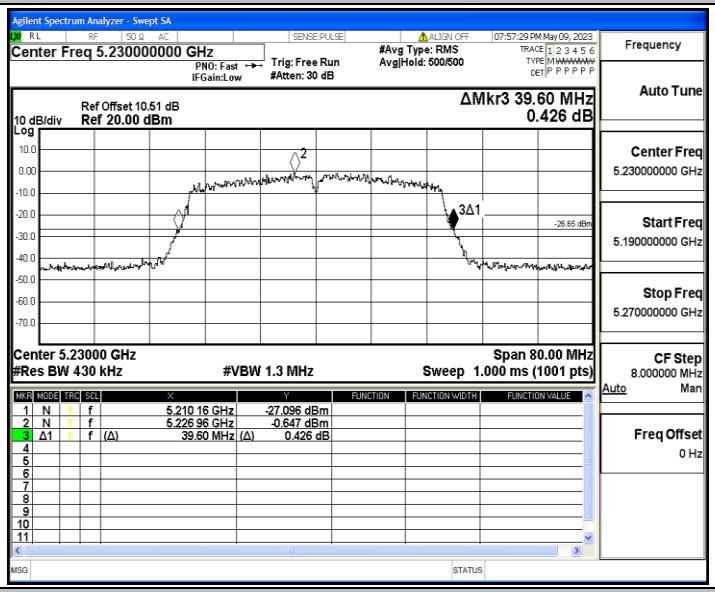
11AC40MIMO_Ant2_5190



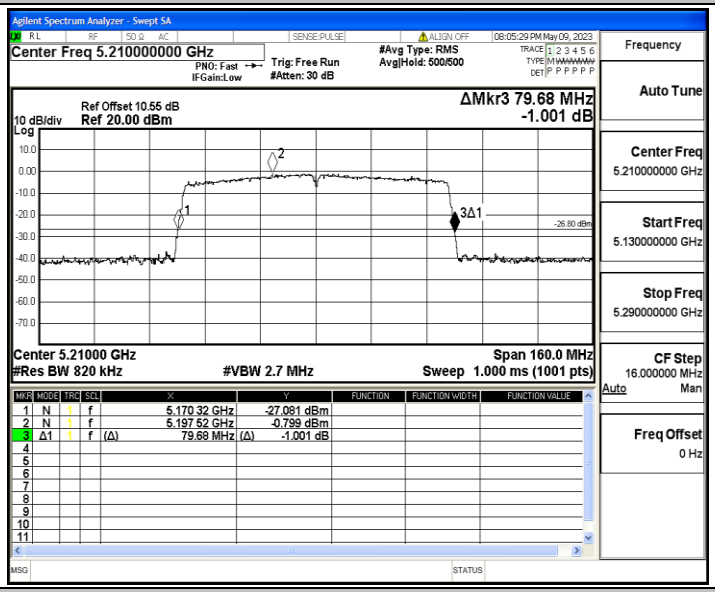
11AC40MIMO_Ant1_5230



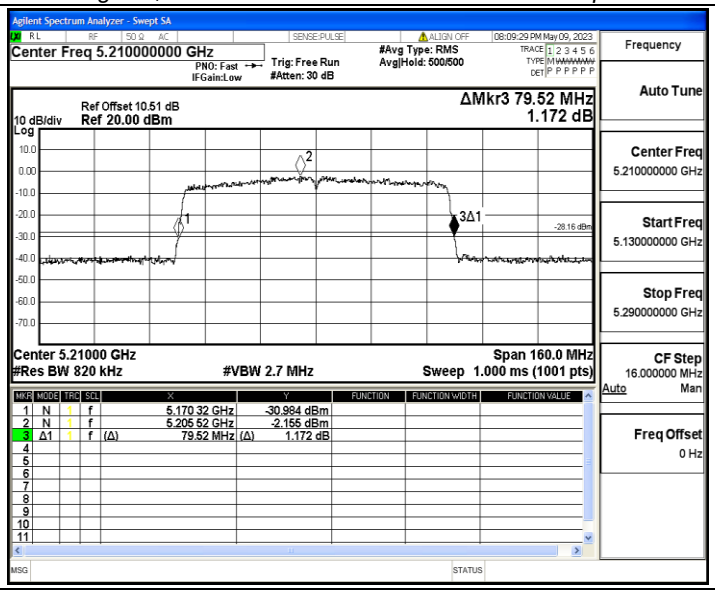
11AC40MIMO_Ant2_5230



11AC80MIMO_Ant1_5210



11AC80MIMO_Ant2_5210


Agilent Spectrum Analyzer - Swept SA
Center Freq 5.210000000 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 30 dB
#Avg Type: RMS
Avg|Hold: 500/500
08:09:29 PM May 09, 2023
Ref Offset 10.51 dB
10 dB/div
Log
Ref 20.00 dBm
ΔMkr3 79.52 MHz
1.172 dB
-28.16 dBm
Center 5.21000 GHz
#Res BW 820 kHz
#VBW 2.7 MHz
Span 160.0 MHz
Sweep 1.000 ms (1001 pts)
1 N 1 f 5.170 32 GHz -30.984 dBm
2 N 1 f 5.205 52 GHz -2.155 dBm
3 Δ1 1 f (Δ) 79.52 MHz (Δ) 1.172 dB
Frequency
Auto Tune
Center Freq
5.210000000 GHz
Start Freq
5.130000000 GHz
Stop Freq
5.290000000 GHz
CF Step
16.000000 MHz
Auto
Man
Freq Offset
0 Hz

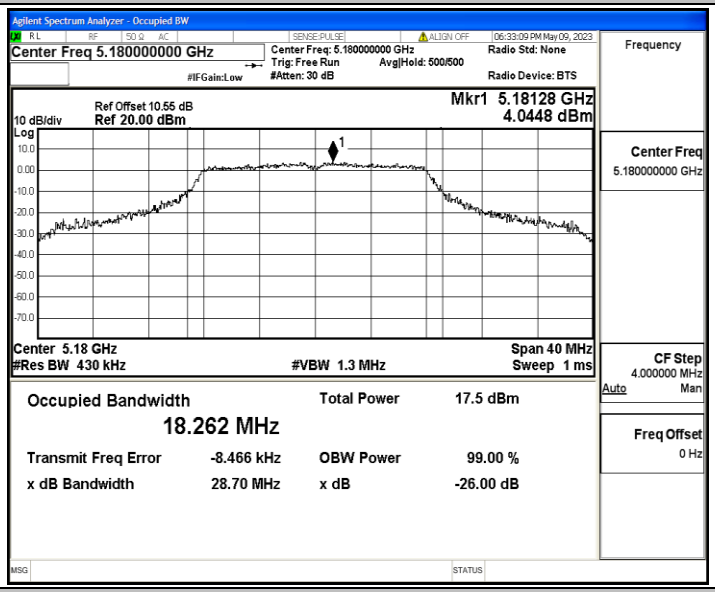
Appendix A2: Occupied channel bandwidth

Test Result

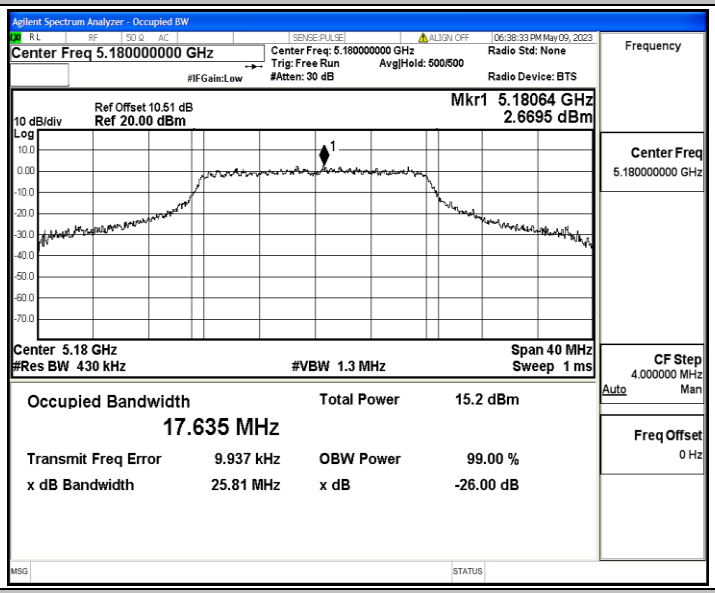
TestMode	Antenna	Channel	OCB [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
11A	Ant1	5180	18.262	5170.8605	5189.1225	---	---
	Ant2	5180	17.635	5171.1924	5188.8274	---	---
	Ant1	5200	17.982	5190.8629	5208.8449	---	---
	Ant2	5200	17.374	5191.2309	5208.6049	---	---
	Ant1	5240	16.840	5231.5395	5248.3795	---	---
	Ant2	5240	16.617	5231.6399	5248.2569	---	---
11N20MIMO	Ant1	5180	19.313	5170.4143	5189.7273	---	---
	Ant2	5180	18.492	5170.7365	5189.2285	---	---
	Ant1	5200	18.831	5190.4821	5209.3131	---	---
	Ant2	5200	18.313	5190.7596	5209.0726	---	---
	Ant1	5240	17.825	5231.0211	5248.8461	---	---
	Ant2	5240	17.677	5231.1052	5248.7822	---	---
11N40MIMO	Ant1	5190	35.930	5172.0533	5207.9833	---	---
	Ant2	5190	35.816	5172.1023	5207.9183	---	---
	Ant1	5230	35.963	5212.0792	5248.0422	---	---
	Ant2	5230	35.908	5212.0772	5247.9852	---	---
11AC20MIMO	Ant1	5180	19.155	5170.4802	5189.6352	---	---
	Ant2	5180	18.499	5170.7498	5189.2488	---	---
	Ant1	5200	18.863	5190.4589	5209.3219	---	---
	Ant2	5200	18.298	5190.7330	5209.0310	---	---
	Ant1	5240	17.815	5231.0498	5248.8648	---	---
	Ant2	5240	17.683	5231.0931	5248.7761	---	---
11AC40MIMO	Ant1	5190	35.827	5172.0961	5207.9231	---	---
	Ant2	5190	35.813	5172.0726	5207.8856	---	---
	Ant1	5230	36.039	5212.0445	5248.0835	---	---
	Ant2	5230	35.865	5212.1036	5247.9686	---	---
11AC80MIMO	Ant1	5210	75.042	5172.6989	5247.7409	---	---
	Ant2	5210	75.182	5172.6023	5247.7843	---	---

Test Graphs

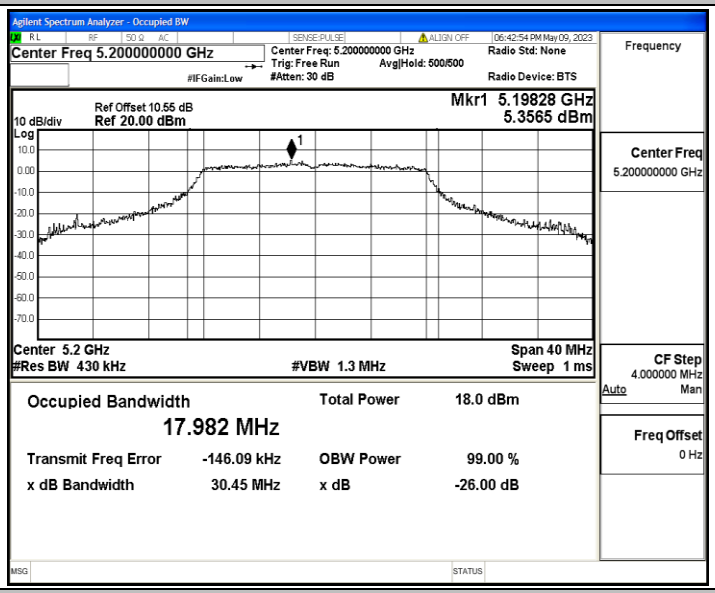
11A_Ant1_5180



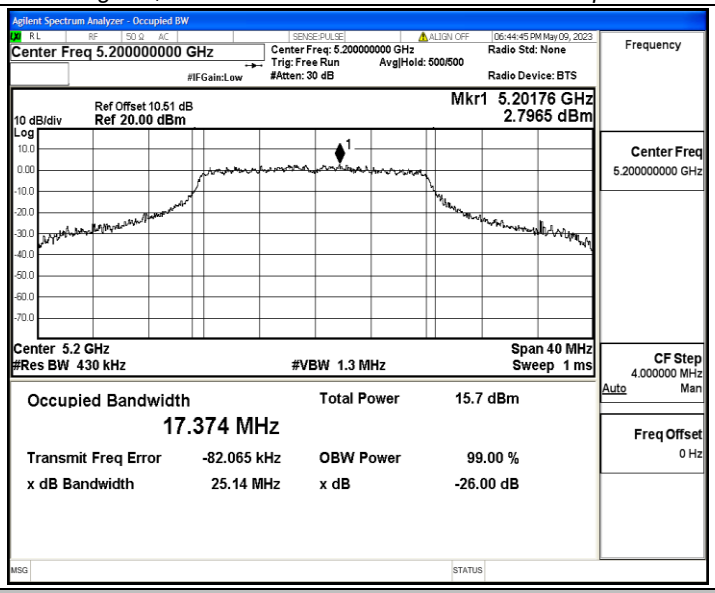
11A_Ant2_5180



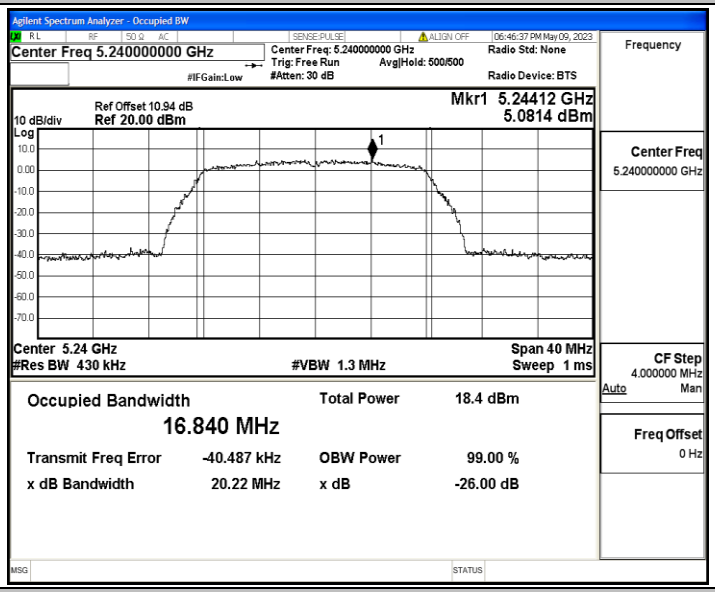
11A_Ant1_5200



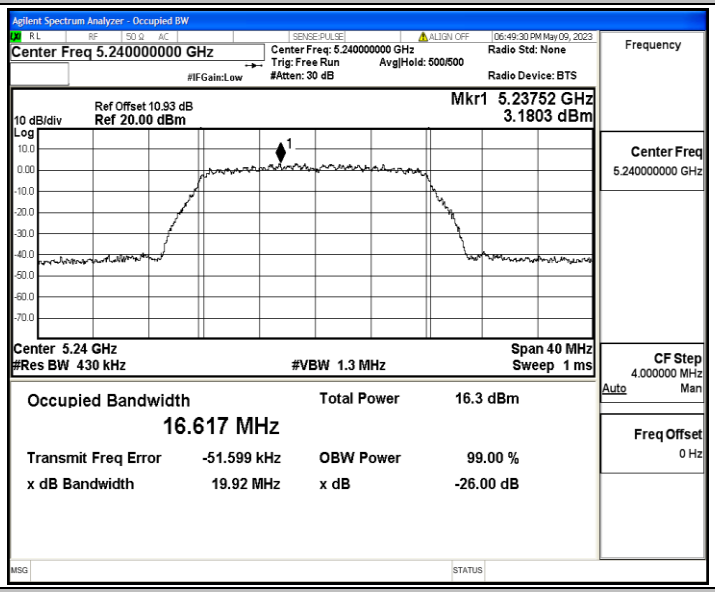
11A_Ant2_5200



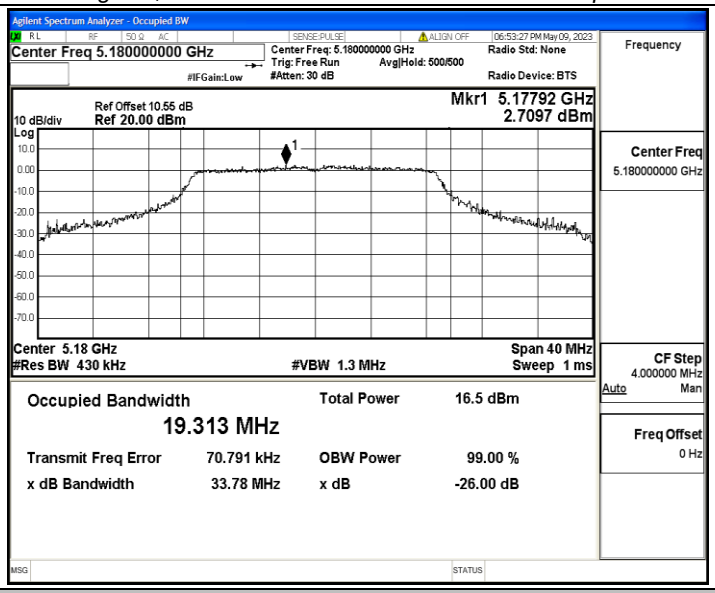
11A_Ant1_5240



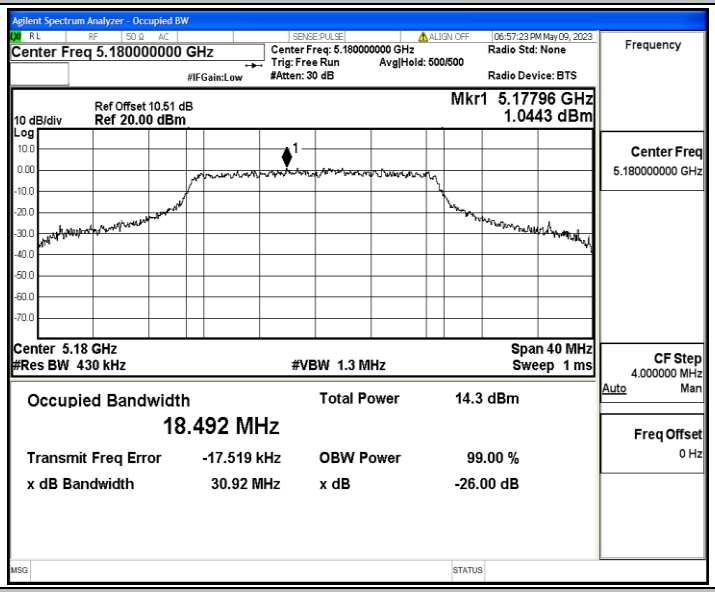
11A_Ant2_5240



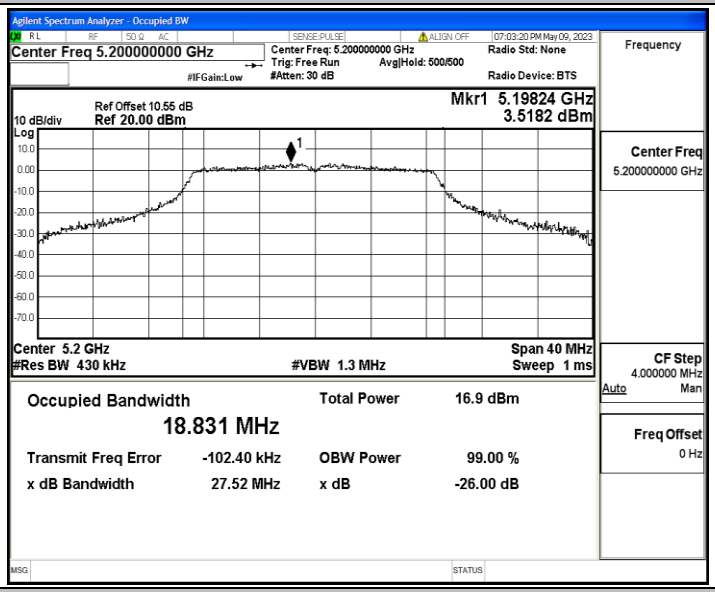
11N20MIMO_Ant1_5180



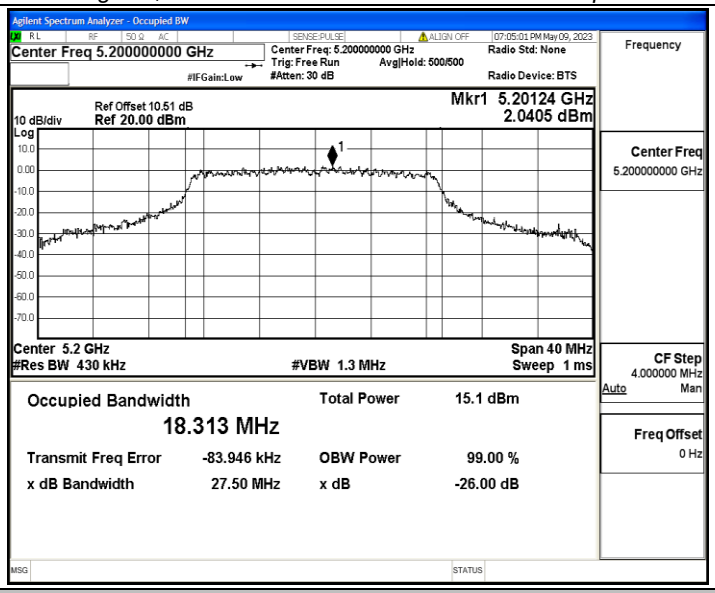
11N20MIMO_Ant2_5180



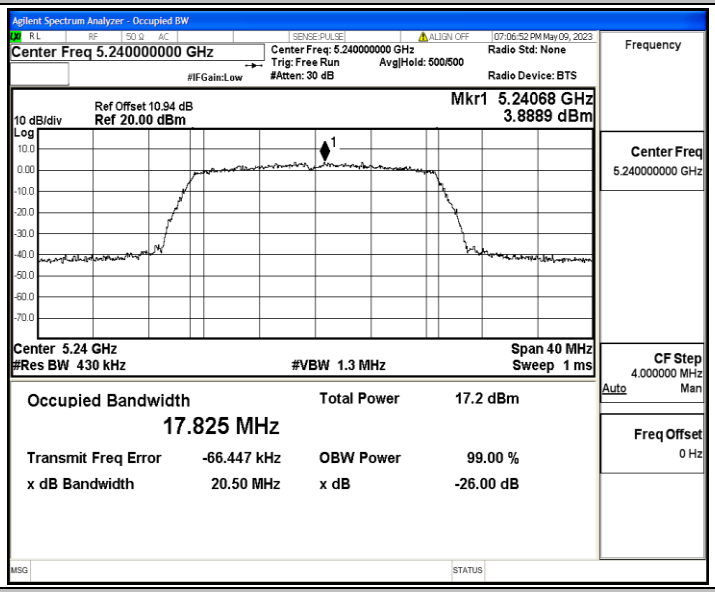
11N20MIMO_Ant1_5200



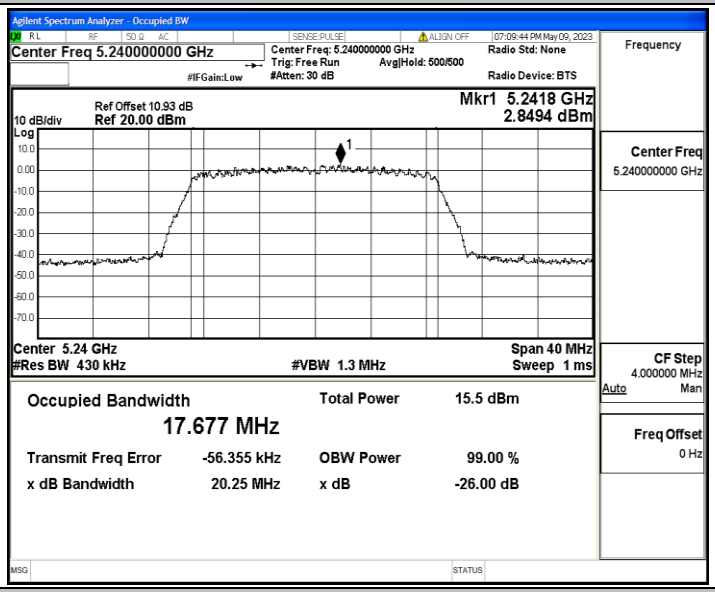
11N20MIMO_Ant2_5200



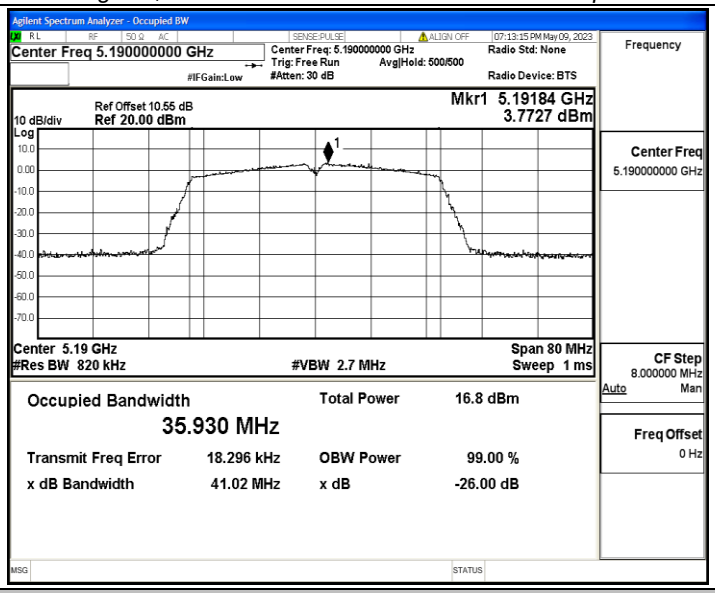
11N20MIMO_Ant1_5240



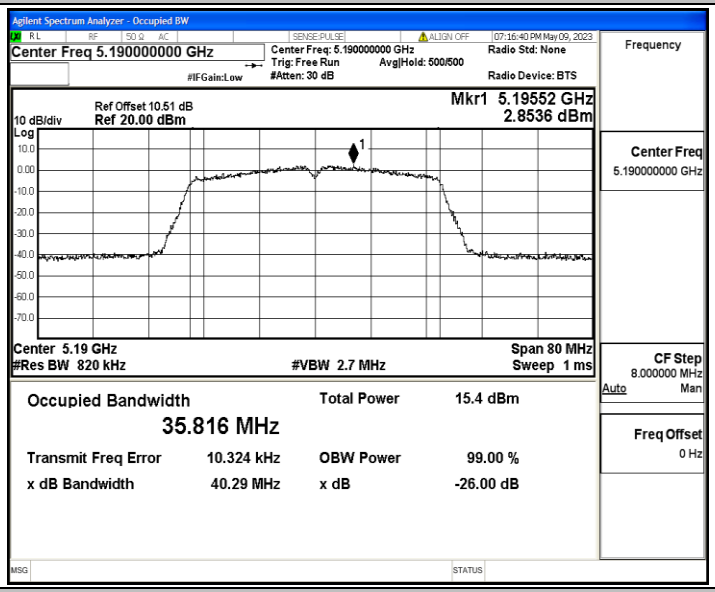
11N20MIMO_Ant2_5240



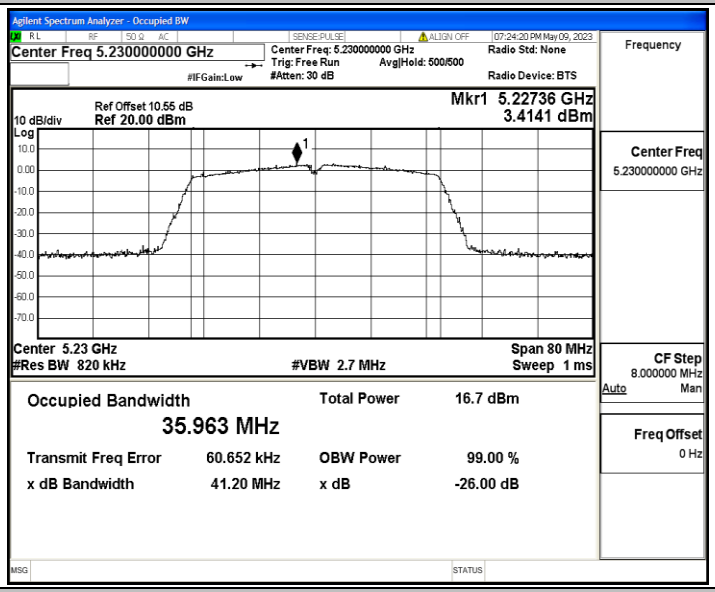
11N40MIMO_Ant1_5190



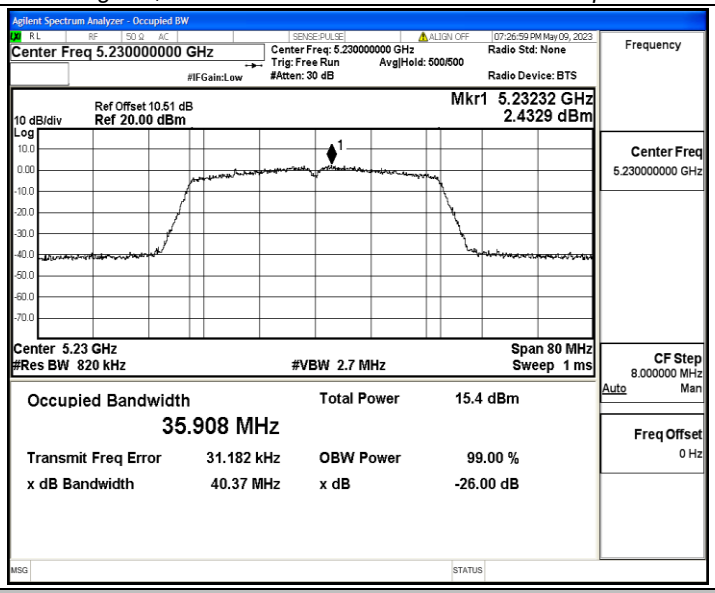
11N40MIMO_Ant2_5190



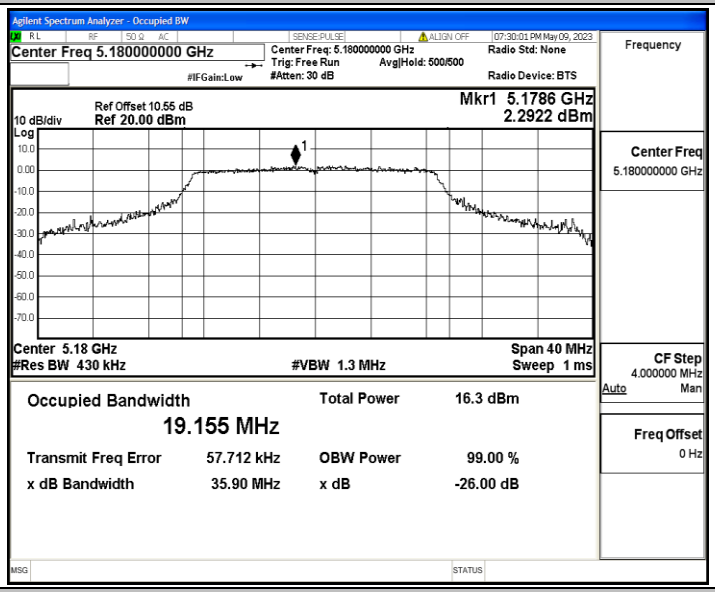
11N40MIMO_Ant1_5230



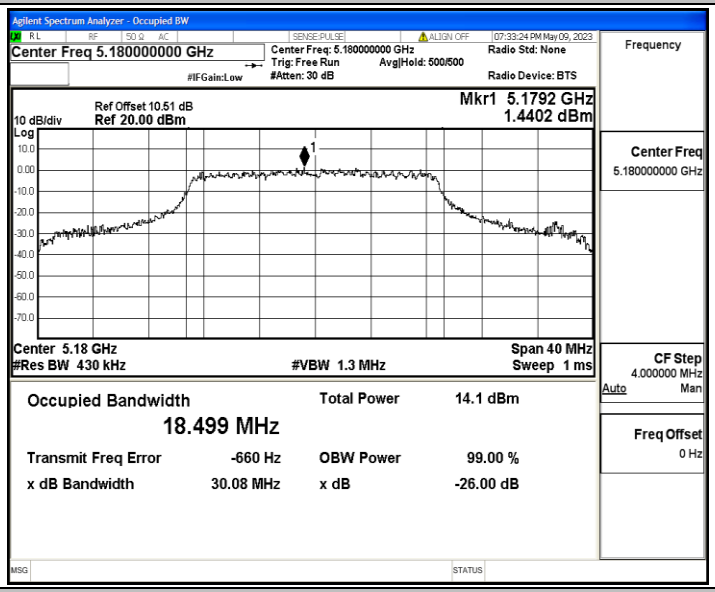
11N40MIMO_Ant2_5230



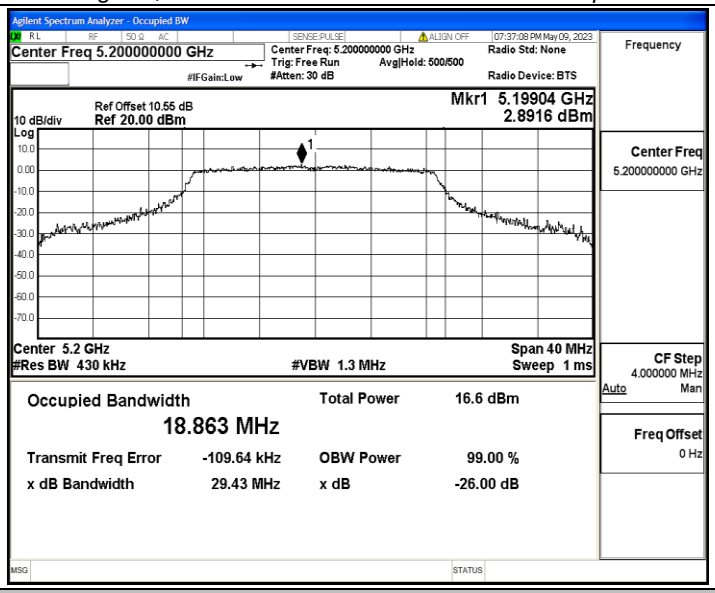
11AC20MIMO_Ant1_5180



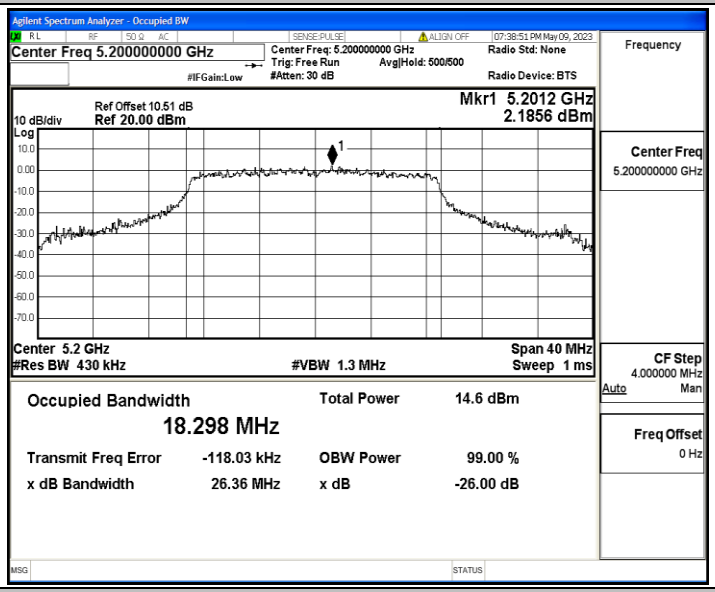
11AC20MIMO_Ant2_5180



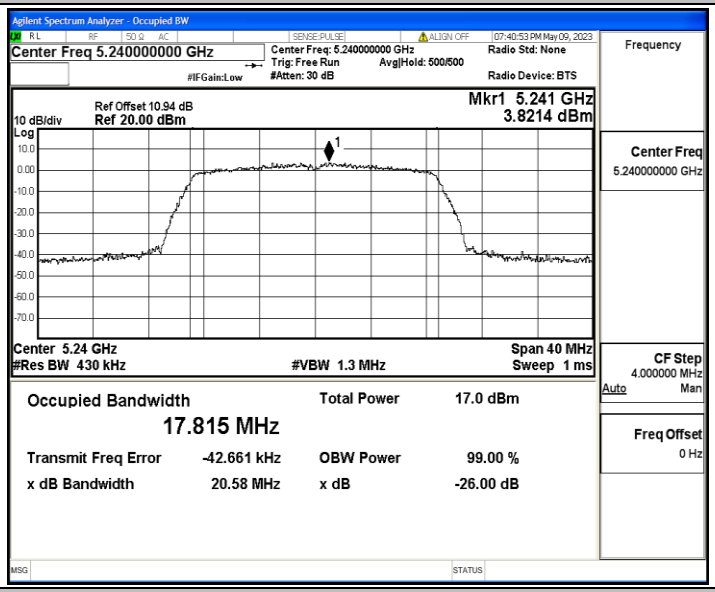
11AC20MIMO_Ant1_5200



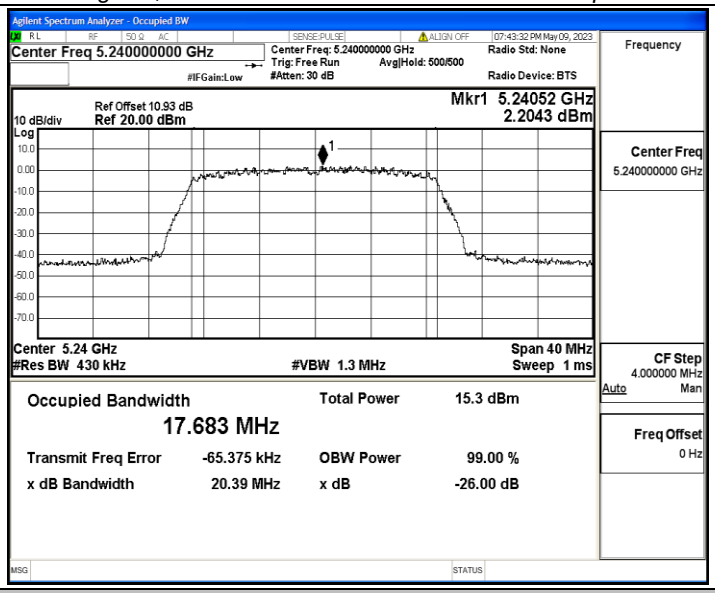
11AC20MIMO_Ant2_5200



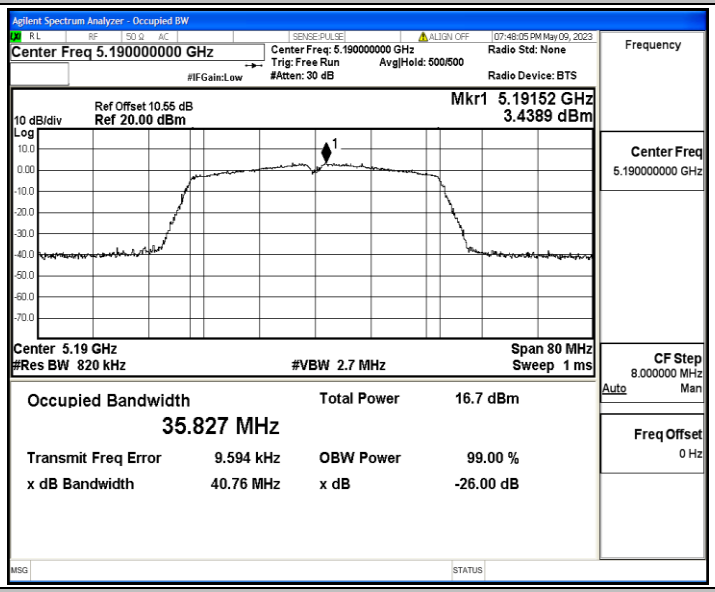
11AC20MIMO_Ant1_5240



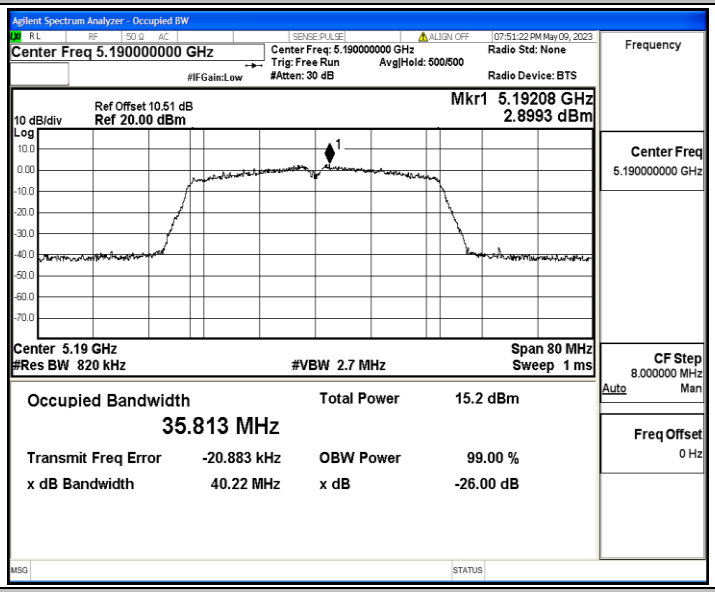
11AC20MIMO_Ant2_5240



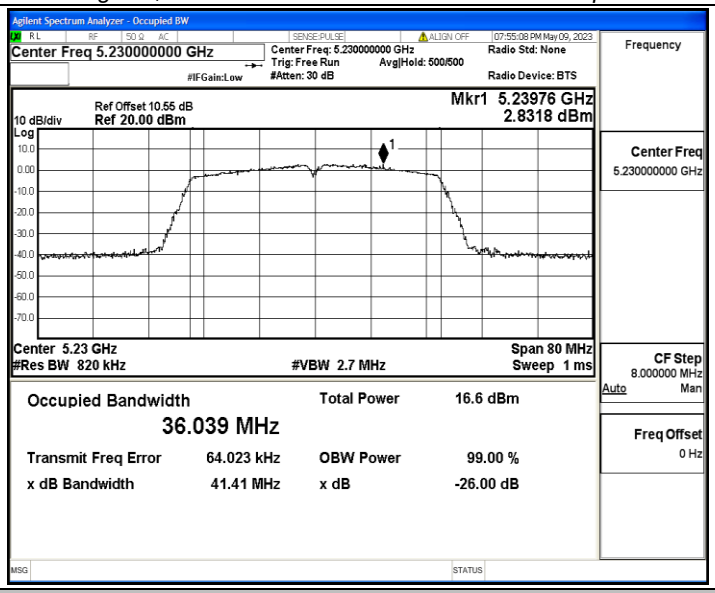
11AC40MIMO_Ant1_5190



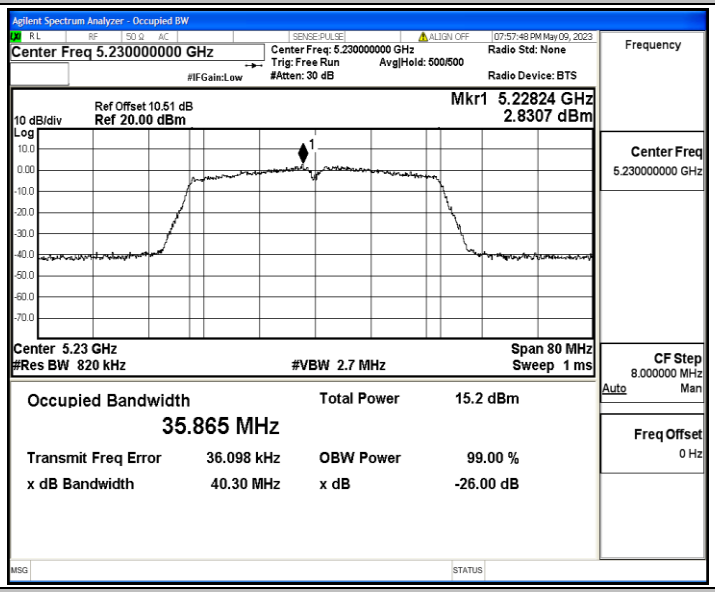
11AC40MIMO_Ant2_5190



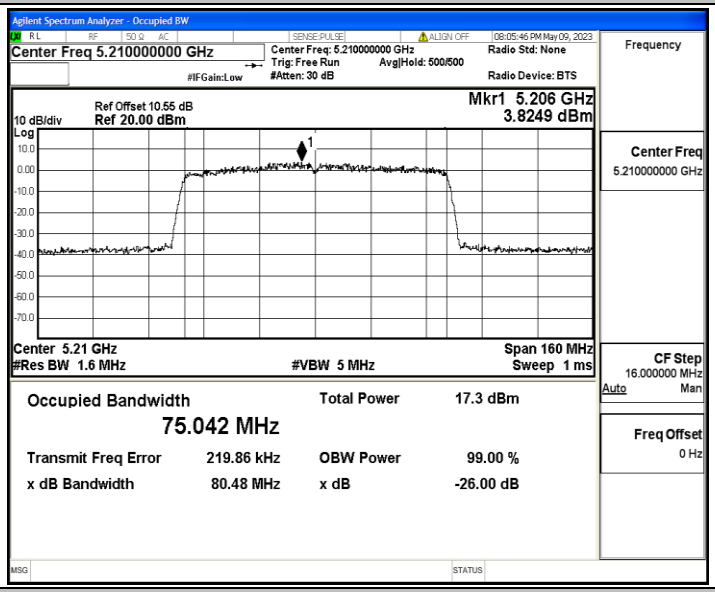
11AC40MIMO_Ant1_5230



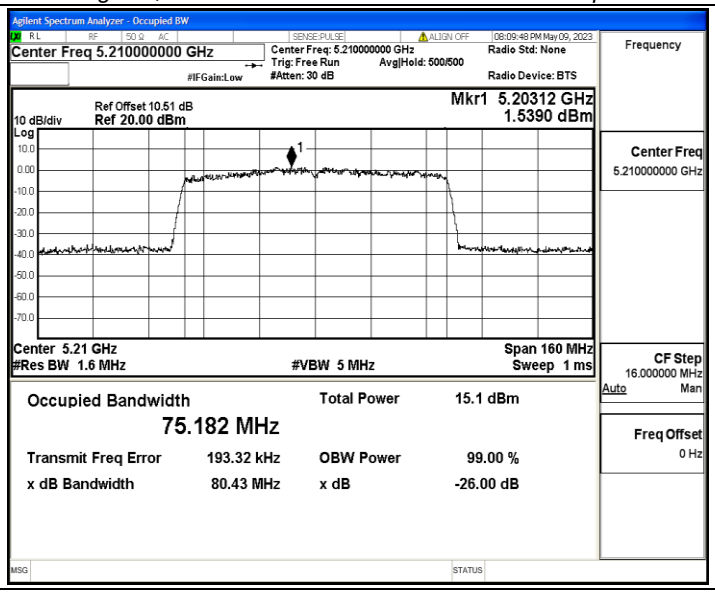
11AC40MIMO_Ant2_5230



11AC80MIMO_Ant1_5210



11AC80MIMO_Ant2_5210


Agilent Spectrum Analyzer - Occupied BW
Center Freq 5.210000000 GHz
Center Freq: 5.210000000 GHz
Trig: Free Run
Avg|Hold: 500/500
#Atten: 30 dB
#IFGain:Low
Radio Std: None
Radio Device: BTS
08:09:48 PM May 09, 2023
Frequency
Ref Offset 10.51 dB
10 dB/div
Ref 20.00 dBm
Log
Mkr1 5.20312 GHz
1.5390 dBm
Center Freq
5.210000000 GHz
Center 5.21 GHz
#Res BW 1.6 MHz
#VBW 5 MHz
Span 160 MHz
Sweep 1 ms
CF Step
16.000000 MHz
Auto
Man
Occupied Bandwidth
75.182 MHz
Total Power 15.1 dBm
Transmit Freq Error 193.32 kHz
OBW Power 99.00 %
x dB Bandwidth 80.43 MHz
x dB -26.00 dB
Freq Offset
0 Hz
MSG
STATUS

Appendix B: Maximum conducted output power

Test Result

TestMode	Antenna	Channel	Result[dBm]	Limit[dBm]	Verdict
11A	Ant1	5180	10.79	≤23.98	PASS
	Ant2	5180	7.98	≤23.98	PASS
	Ant1	5200	11.14	≤23.98	PASS
	Ant2	5200	8.49	≤23.98	PASS
	Ant1	5240	11.67	≤23.98	PASS
	Ant2	5240	9.14	≤23.98	PASS
11N20MIMO	Ant1	5180	9.71	≤23.98	PASS
	Ant2	5180	6.78	≤23.98	PASS
	total	5180	11.50	≤23.98	PASS
	Ant1	5200	9.91	≤23.98	PASS
	Ant2	5200	7.71	≤23.98	PASS
	total	5200	11.96	≤23.98	PASS
	Ant1	5240	10.64	≤23.98	PASS
	Ant2	5240	7.98	≤23.98	PASS
	total	5240	12.52	≤23.98	PASS
11N40MIMO	Ant1	5190	9.68	≤23.98	PASS
	Ant2	5190	7.51	≤23.98	PASS
	total	5190	11.74	≤23.98	PASS
	Ant1	5230	9.52	≤23.98	PASS
	Ant2	5230	7.43	≤23.98	PASS
	total	5230	11.61	≤23.98	PASS
11AC20MIMO	Ant1	5180	9.80	≤23.98	PASS
	Ant2	5180	6.86	≤23.98	PASS
	total	5180	11.58	≤23.98	PASS
	Ant1	5200	10.12	≤23.98	PASS
	Ant2	5200	7.42	≤23.98	PASS
	total	5200	11.99	≤23.98	PASS
	Ant1	5240	10.06	≤23.98	PASS
	Ant2	5240	7.26	≤23.98	PASS
	total	5240	11.89	≤23.98	PASS
11AC40MIMO	Ant1	5190	9.84	≤23.98	PASS
	Ant2	5190	6.91	≤23.98	PASS
	total	5190	11.63	≤23.98	PASS
	Ant1	5230	9.62	≤23.98	PASS
	Ant2	5230	6.86	≤23.98	PASS
	total	5230	11.47	≤23.98	PASS
11AC80MIMO	Ant1	5210	8.26	≤23.98	PASS
	Ant2	5210	6.01	≤23.98	PASS
	total	5210	10.29	≤23.98	PASS

Note：The Duty Cycle Factor is compensated in the test result.

Appendix C: Maximum power spectral density

Test Result

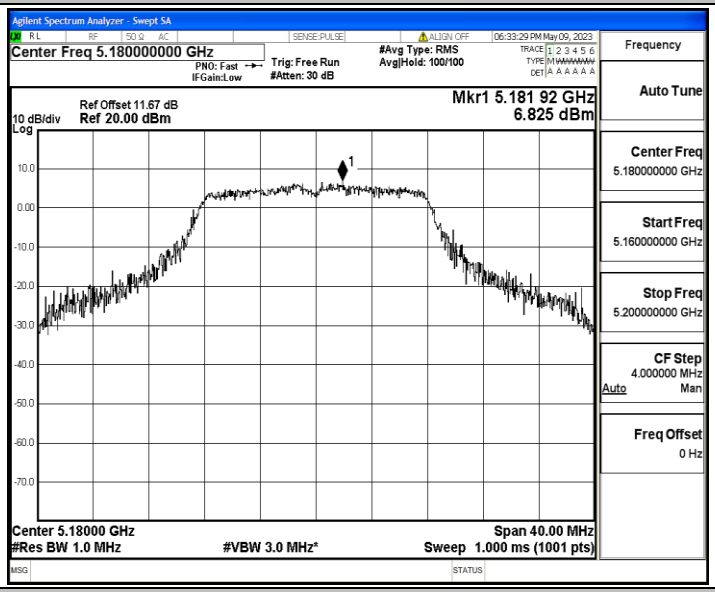
TestMode	Antenna	Channel	Result [dBm/MHz]	Limit[dBm/MHz]	Verdict
11A	Ant1	5180	6.83	≤11.00	PASS
	Ant2	5180	4.43	≤11.00	PASS
	Ant1	5200	7.15	≤11.00	PASS
	Ant2	5200	4.91	≤11.00	PASS
	Ant1	5240	7.38	≤11.00	PASS
	Ant2	5240	5.57	≤11.00	PASS
11N20MIMO	Ant1	5180	5.28	≤11.00	PASS
	Ant2	5180	3.53	≤11.00	PASS
	total	5180	7.50	≤11.00	PASS
	Ant1	5200	5.96	≤11.00	PASS
	Ant2	5200	4.73	≤11.00	PASS
	total	5200	8.40	≤11.00	PASS
	Ant1	5240	7	≤11.00	PASS
	Ant2	5240	4.78	≤11.00	PASS
	total	5240	9.04	≤11.00	FAIL
11N40MIMO	Ant1	5190	4.51	≤11.00	PASS
	Ant2	5190	2.99	≤11.00	PASS
	total	5190	6.83	≤11.00	PASS
	Ant1	5230	3.48	≤11.00	PASS
	Ant2	5230	3.15	≤11.00	PASS
	total	5230	6.33	≤11.00	PASS
11AC20MIMO	Ant1	5180	6.03	≤11.00	PASS
	Ant2	5180	4.25	≤11.00	PASS
	total	5180	8.24	≤11.00	PASS
	Ant1	5200	6.93	≤11.00	PASS
	Ant2	5200	4.82	≤11.00	PASS
	total	5200	9.01	≤11.00	FAIL
	Ant1	5240	6.48	≤11.00	PASS
	Ant2	5240	5.22	≤11.00	PASS
	total	5240	8.91	≤11.00	FAIL
11AC40MIMO	Ant1	5190	5.53	≤11.00	PASS
	Ant2	5190	3.91	≤11.00	PASS
	total	5190	7.81	≤11.00	PASS
	Ant1	5230	5.09	≤11.00	PASS
	Ant2	5230	4.19	≤11.00	PASS
	total	5230	7.67	≤11.00	PASS
11AC80MIMO	Ant1	5210	1.19	≤11.00	PASS
	Ant2	5210	-0.49	≤11.00	PASS
	total	5210	3.44	≤11.00	PASS

Note：1.The Result and Limit Unit is dBm/500 kHz in the band 5.725–5.85 GHz.

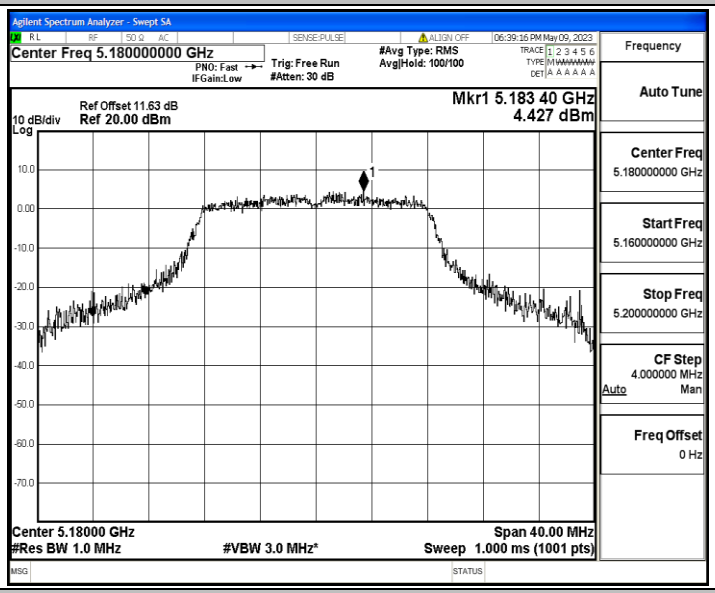
2.The Duty Cycle Factor and RBW Factor is compensated in the graph.

Test Graphs

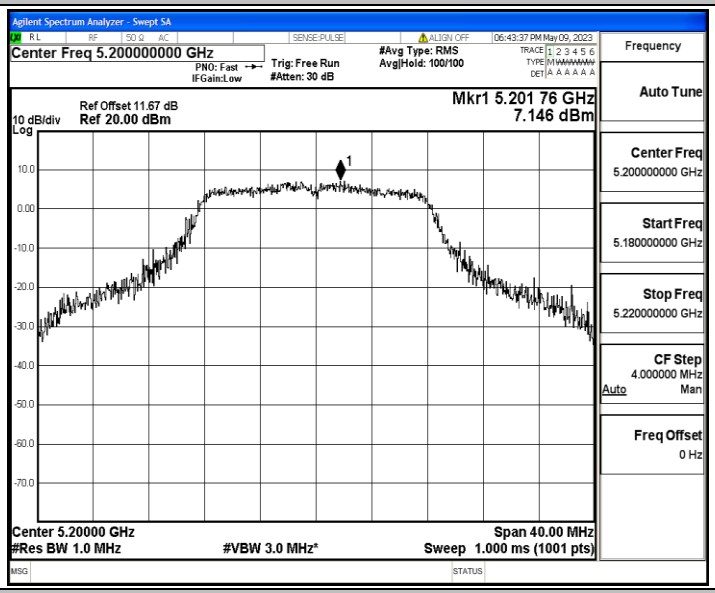
11A_Ant1_5180



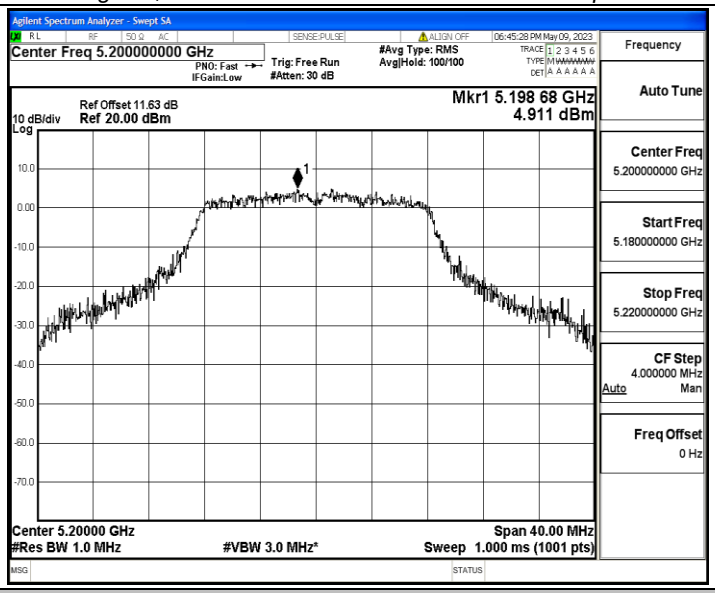
11A_Ant2_5180



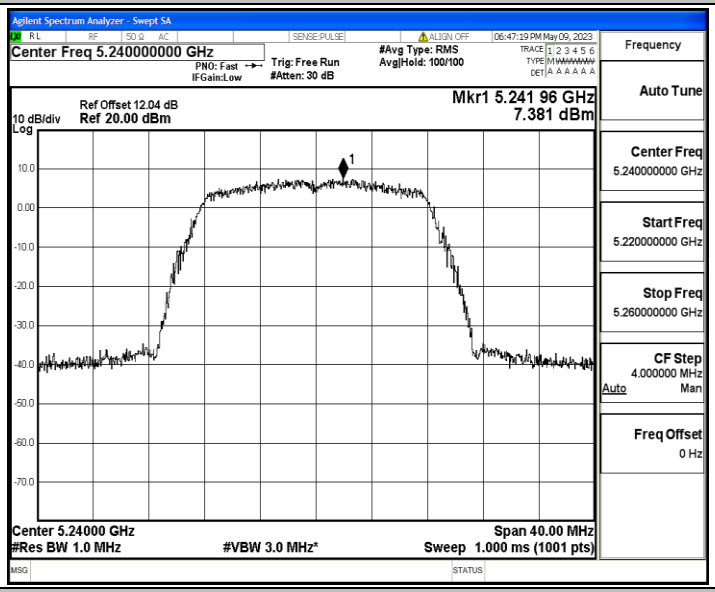
11A_Ant1_5200



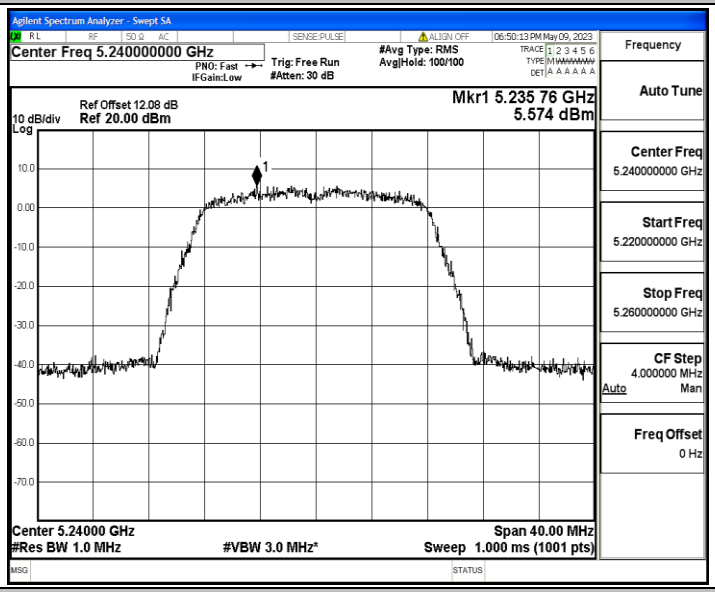
11A_Ant2_5200



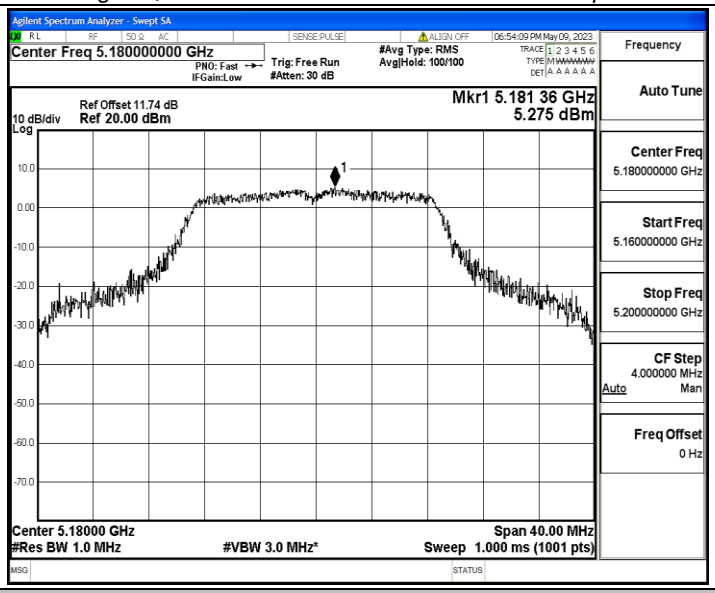
11A_Ant1_5240



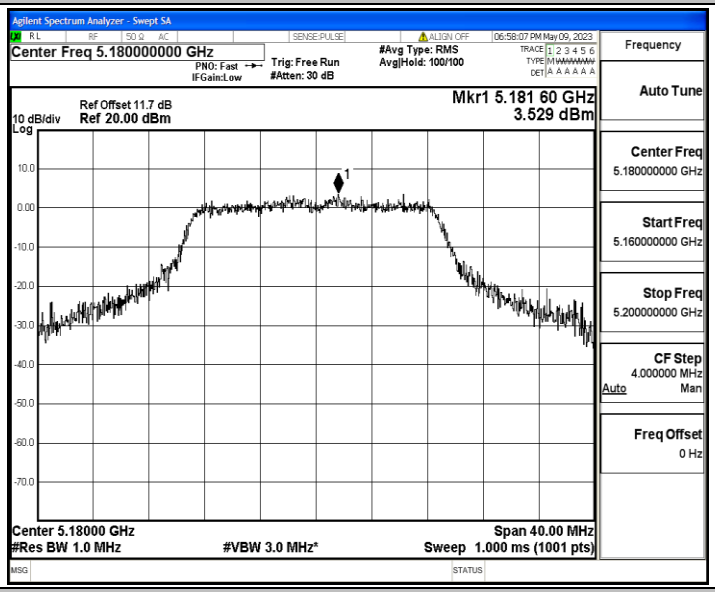
11A_Ant2_5240



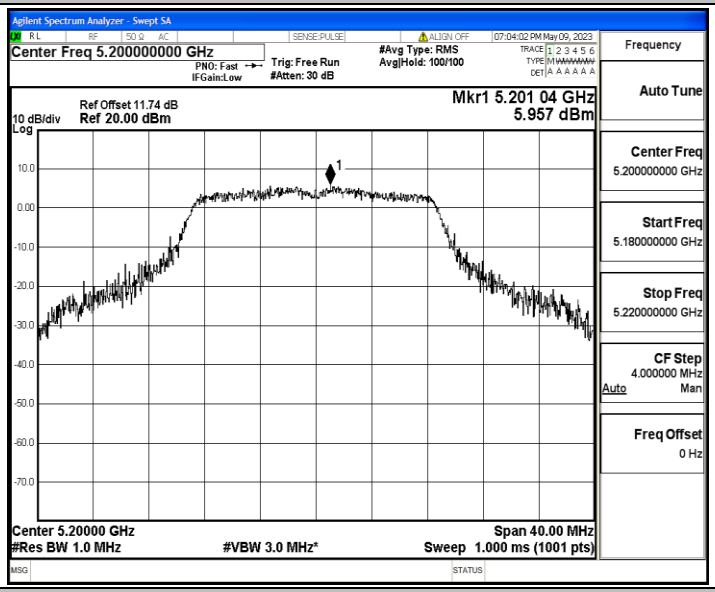
11N20MIMO_Ant1_5180



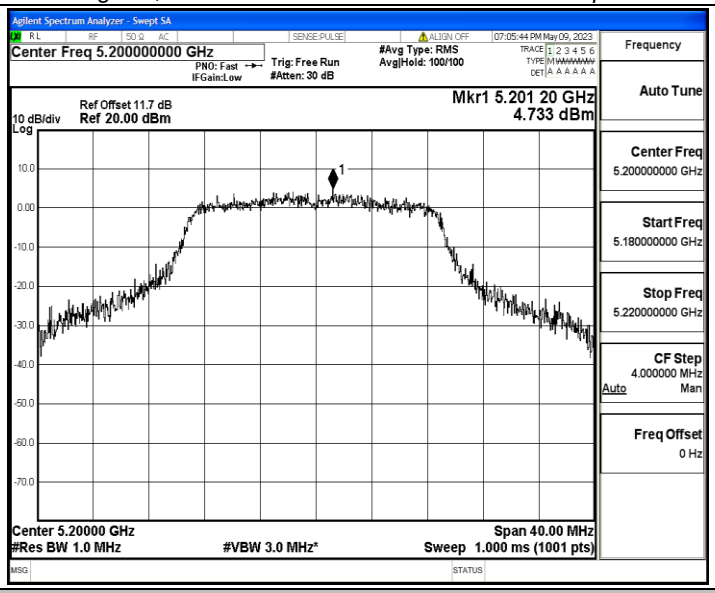
11N20MIMO_Ant2_5180



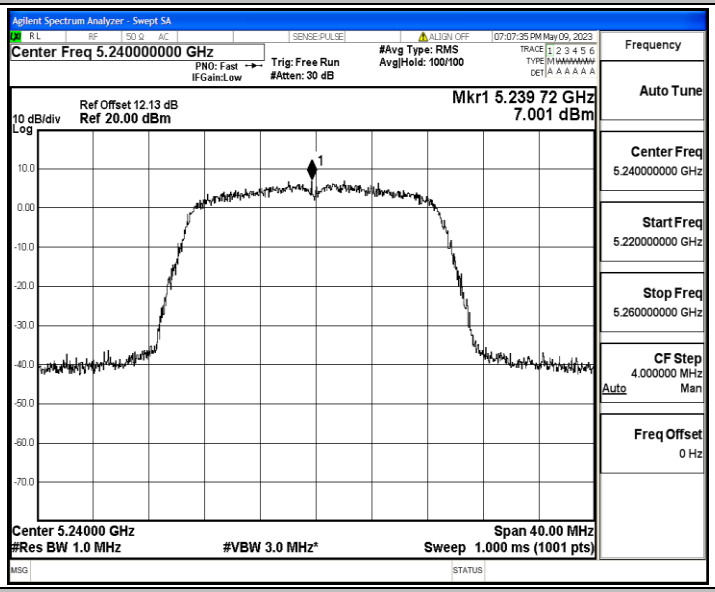
11N20MIMO_Ant1_5200



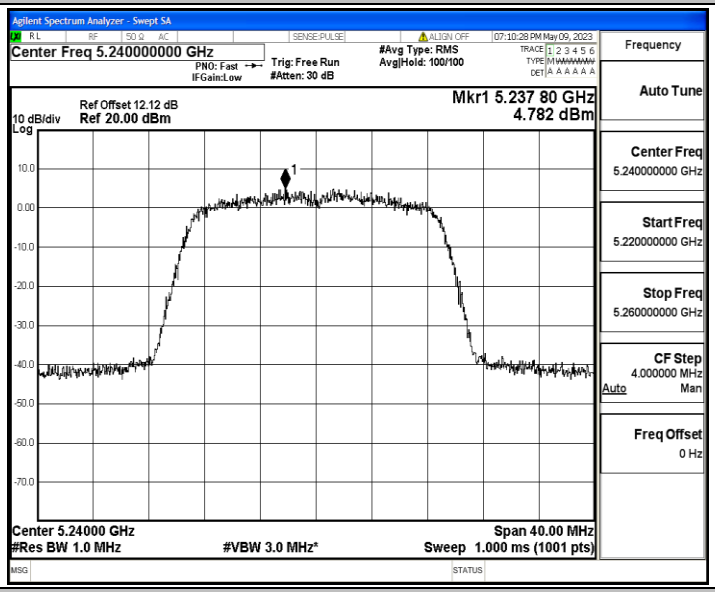
11N20MIMO_Ant2_5200



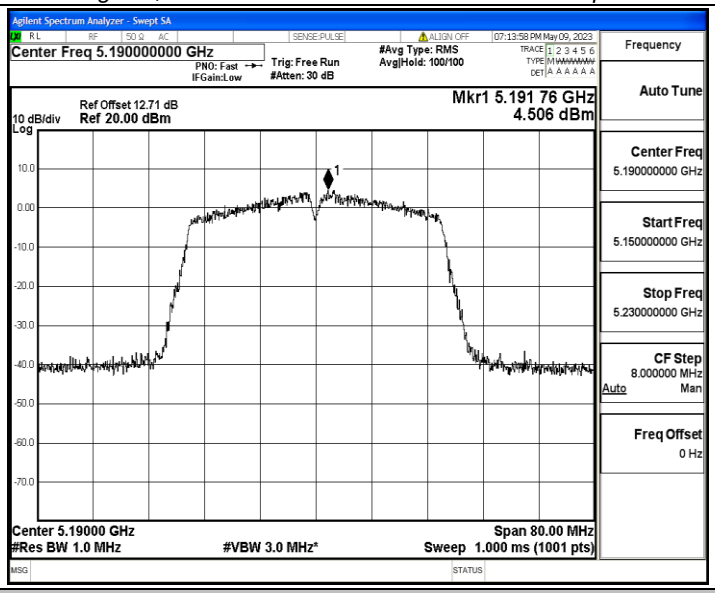
11N20MIMO_Ant1_5240



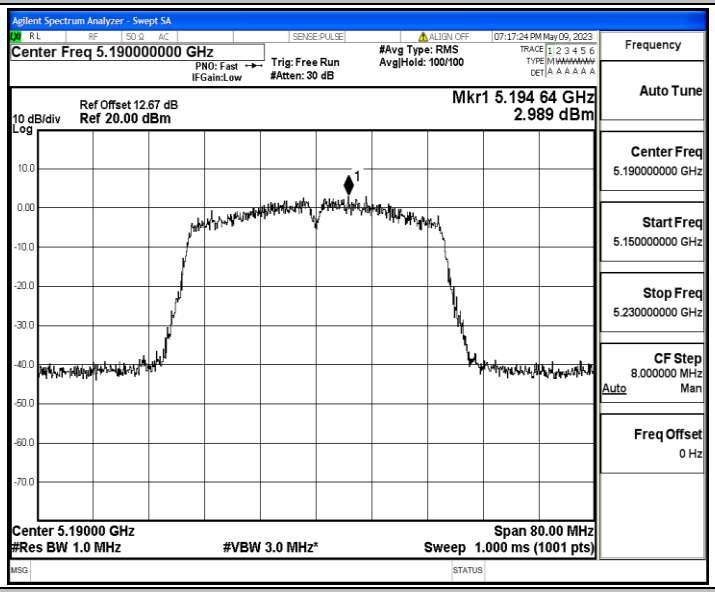
11N20MIMO_Ant2_5240



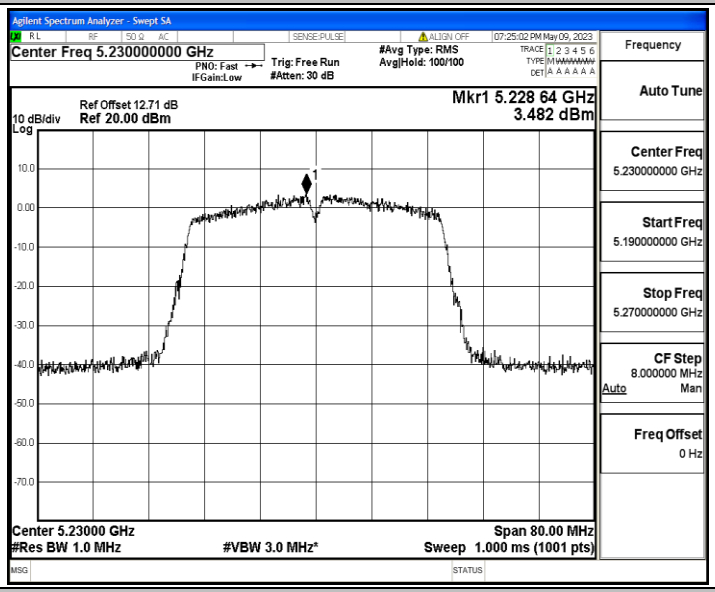
11N40MIMO_Ant1_5190



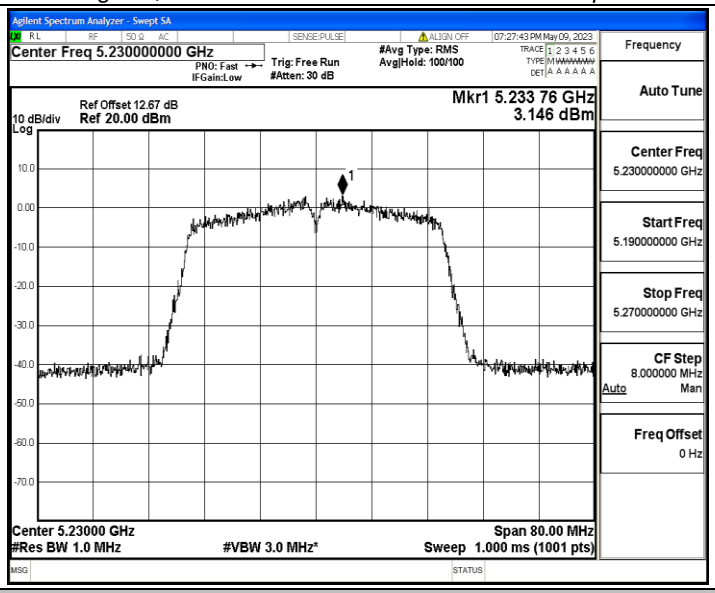
11N40MIMO_Ant2_5190



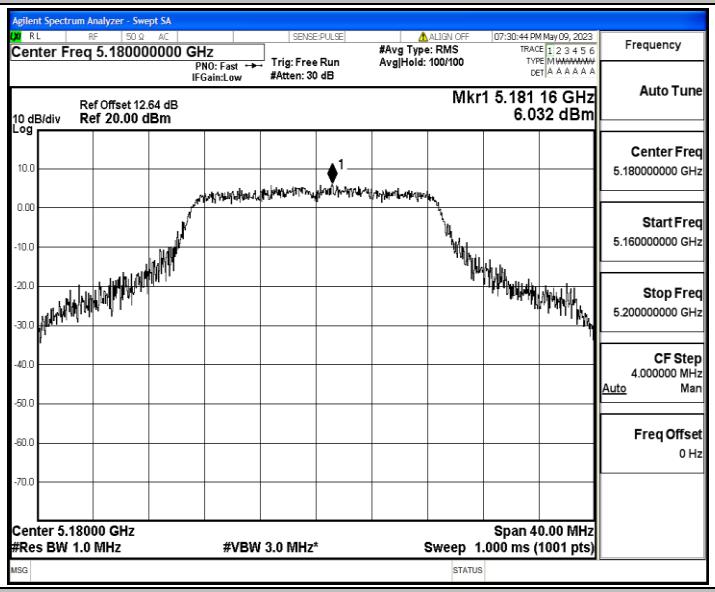
11N40MIMO_Ant1_5230



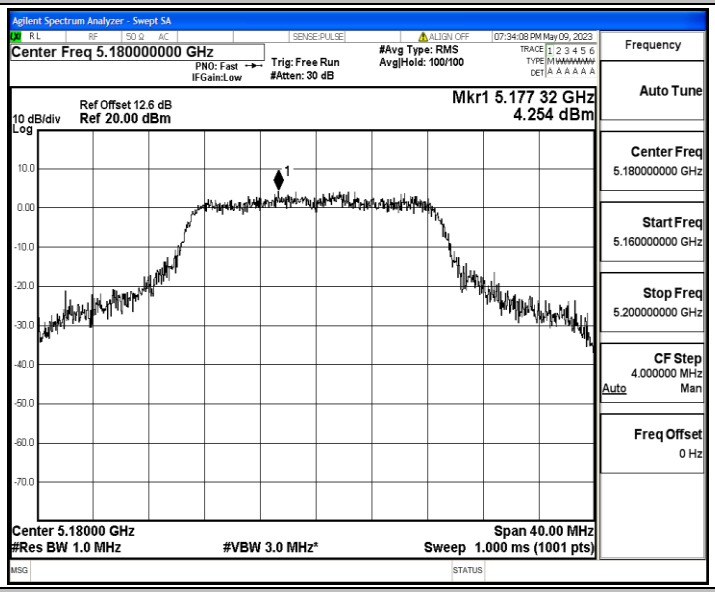
11N40MIMO_Ant2_5230



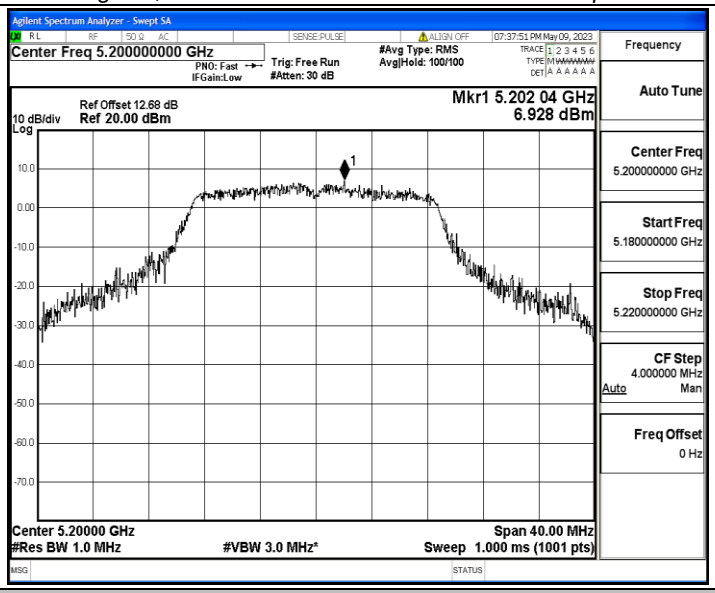
11AC20MIMO_Ant1_5180



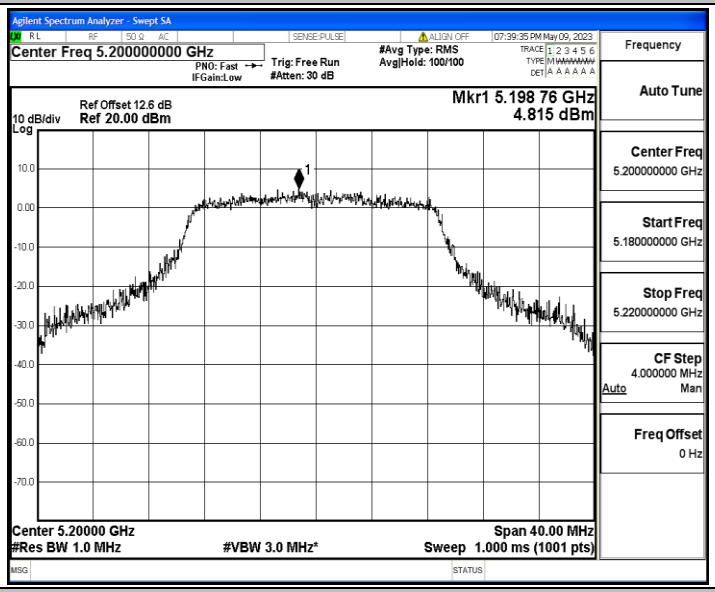
11AC20MIMO_Ant2_5180



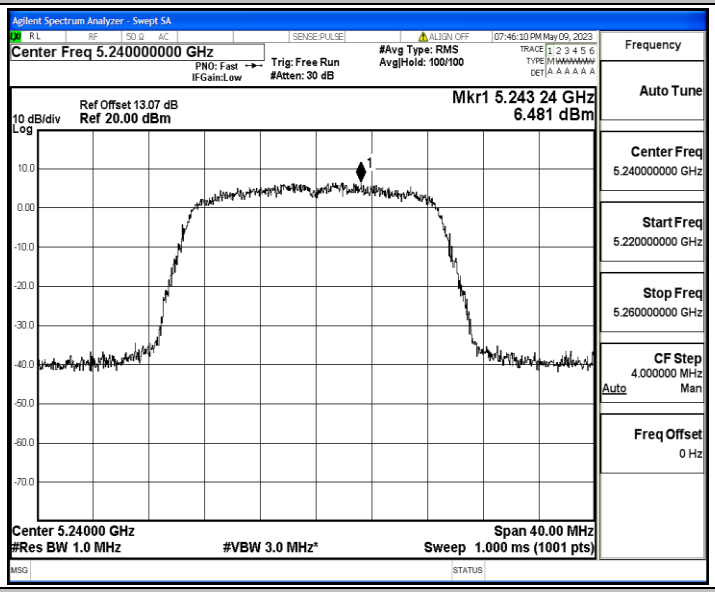
11AC20MIMO_Ant1_5200



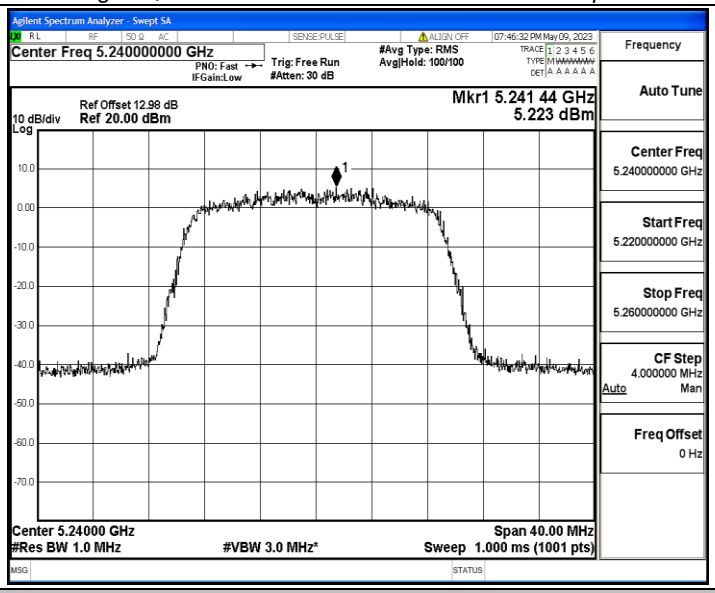
11AC20MIMO_Ant2_5200



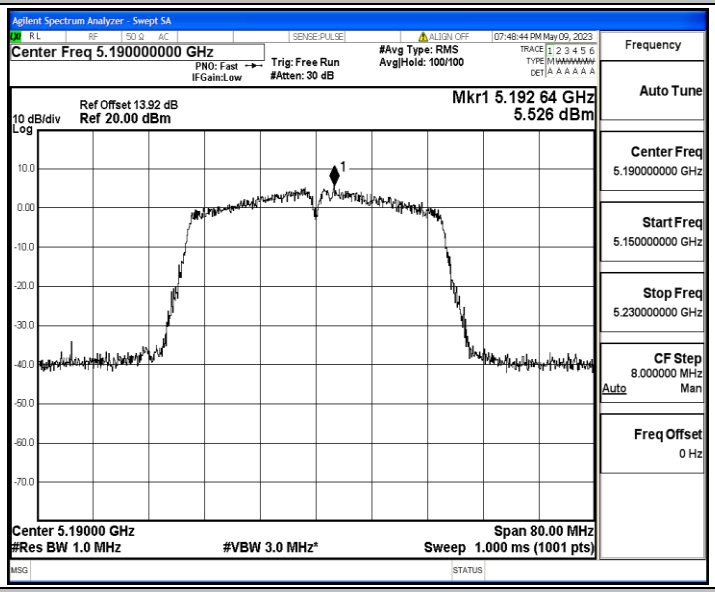
11AC20MIMO_Ant1_5240



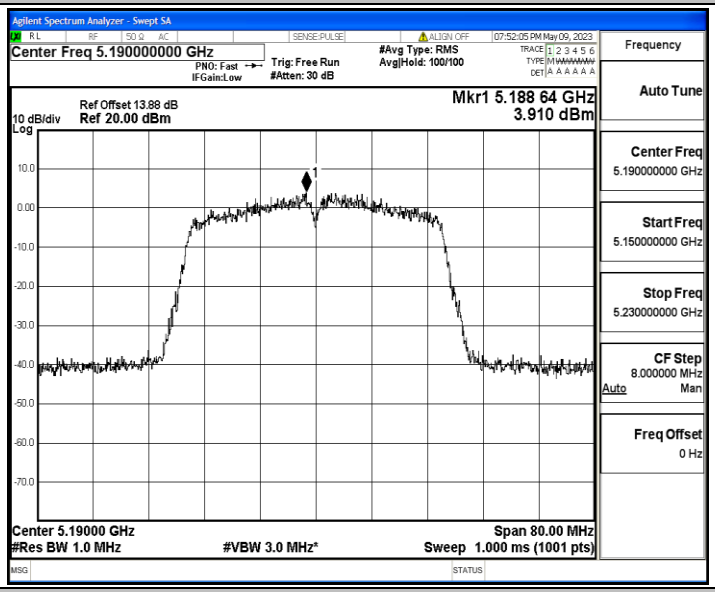
11AC20MIMO_Ant2_5240



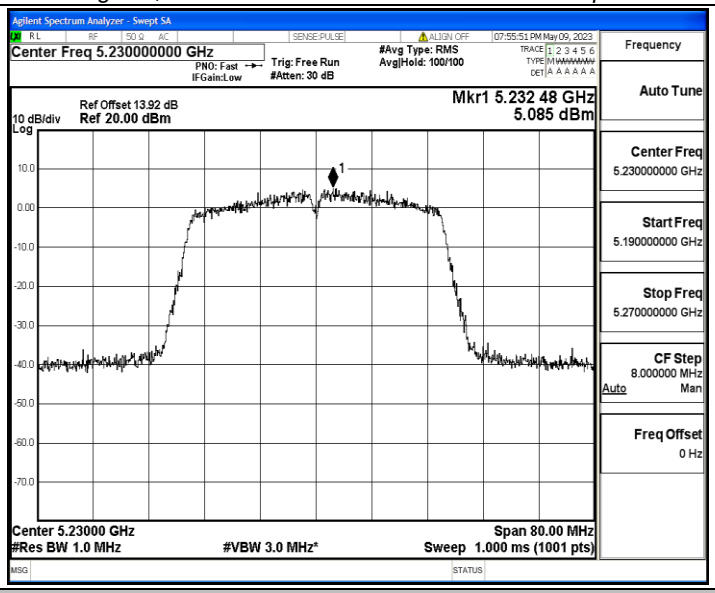
11AC40MIMO_Ant1_5190



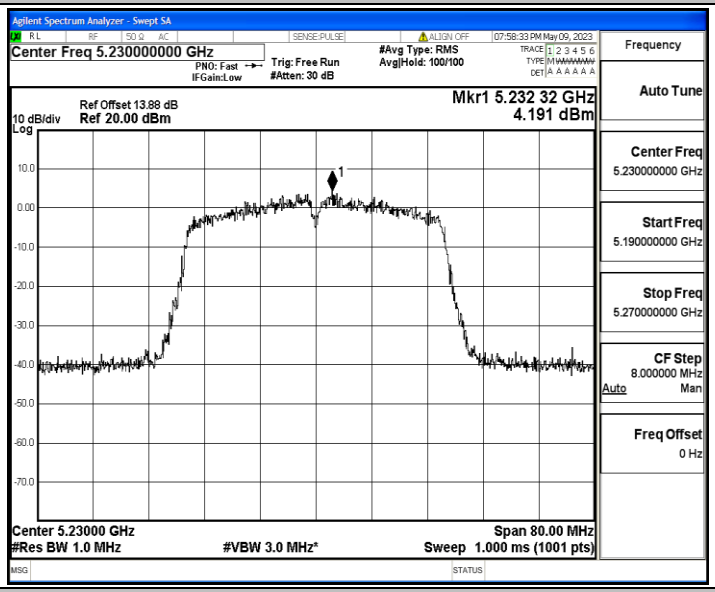
11AC40MIMO_Ant2_5190



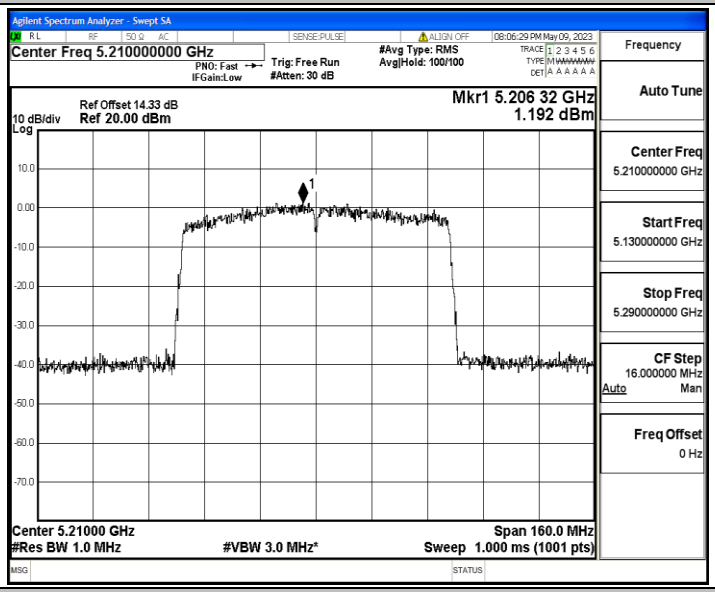
11AC40MIMO_Ant1_5230



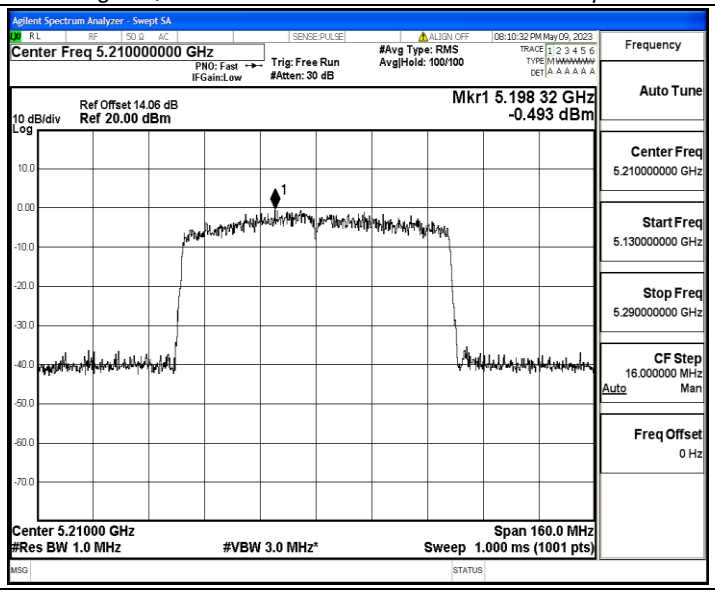
11AC40MIMO_Ant2_5230



11AC80MIMO_Ant1_5210



11AC80MIMO_Ant2_5210


Agilent Spectrum Analyzer - Swept SA
Center Freq 5.210000000 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 30 dB
#Avg Type: RMS
Avg|Hold: 100/100
08:10:32 PM May 09, 2023
Frequency
Auto Tune
Ref Offset 14.06 dB
10 dB/div Ref 20.00 dBm
Log
Mkr1 5.198 32 GHz
-0.493 dBm
Center Freq
5.210000000 GHz
Start Freq
5.130000000 GHz
Stop Freq
5.290000000 GHz
CF Step
16.000000 MHz
Auto Man
Freq Offset
0 Hz
Center 5.21000 GHz
#Res BW 1.0 MHz
#VBW 3.0 MHz*
Span 160.0 MHz
Sweep 1.000 ms (1001 pts)

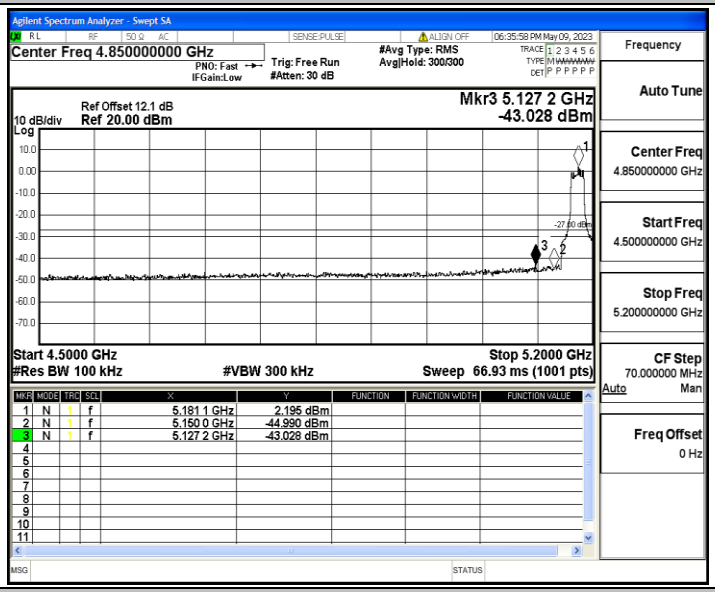
Appendix D: Band edge measurements

Test Result

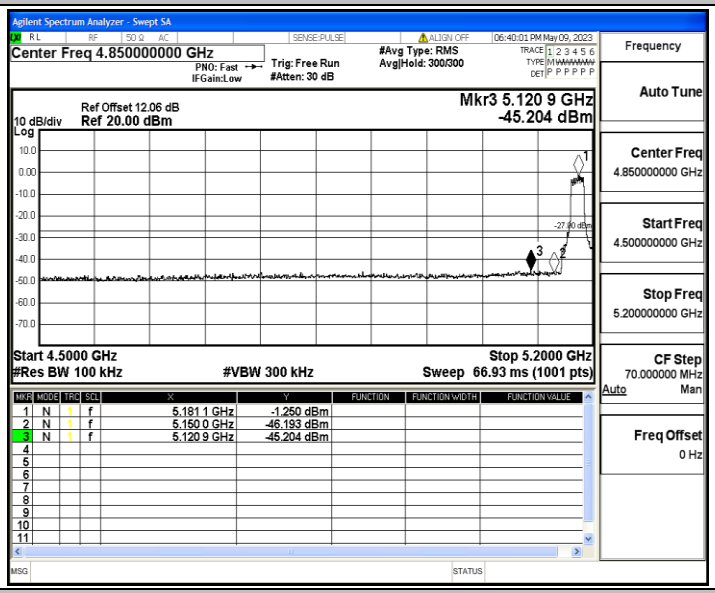
TestMode	Antenna	ChName	Channel	Result[dBm]	Limit[dBm]	Verdict
11A	Ant1	Low	5180	-43.03	≤-27	PASS
	Ant2	Low	5180	-45.2	≤-27	PASS
	Ant1	High	5240	-44.78	≤-27	PASS
	Ant2	High	5240	-45.78	≤-27	PASS
11N20MIMO	Ant1	Low	5180	-43.96	≤-27	PASS
	Ant2	Low	5180	-45.06	≤-27	PASS
	Ant1	High	5240	-44.7	≤-27	PASS
	Ant2	High	5240	-45.01	≤-27	PASS
11N40MIMO	Ant1	Low	5190	-44.46	≤-27	PASS
	Ant2	Low	5190	-45.83	≤-27	PASS
	Ant1	High	5230	-45.75	≤-27	PASS
	Ant2	High	5230	-45.63	≤-27	PASS
11AC20MIMO	Ant1	Low	5180	-44.72	≤-27	PASS
	Ant2	Low	5180	-44.65	≤-27	PASS
	Ant1	High	5240	-45.3	≤-27	PASS
	Ant2	High	5240	-45.36	≤-27	PASS
11AC40MIMO	Ant1	Low	5190	-45.39	≤-27	PASS
	Ant2	Low	5190	-45.51	≤-27	PASS
	Ant1	High	5230	-45.09	≤-27	PASS
	Ant2	High	5230	-45.95	≤-27	PASS
11AC80MIMO	Ant1	Low	5210	-45.24	≤-27	PASS
	Ant2	Low	5210	-43.49	≤-27	PASS
	Ant1	High	5210	-45.82	≤-27	PASS
	Ant2	High	5210	-46.32	≤-27	PASS

Test Graphs

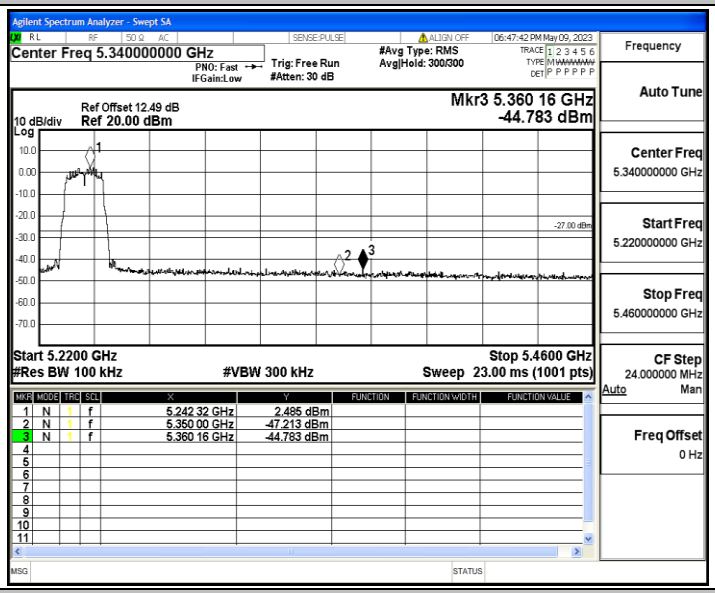
11A_Ant1_Low_5180



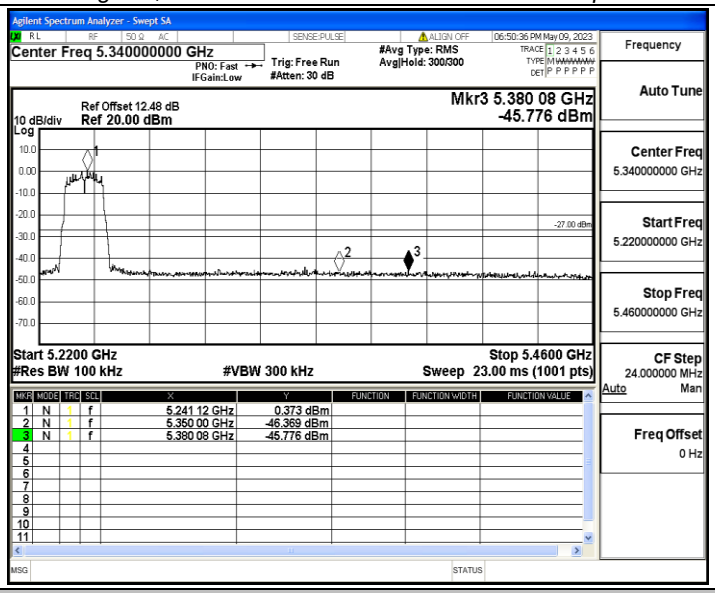
11A_Ant2_Low_5180



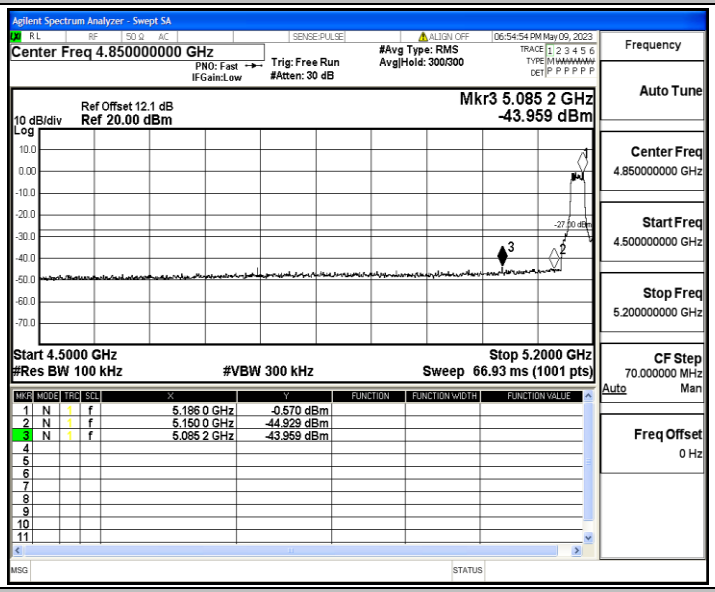
11A_Ant1_High_5240



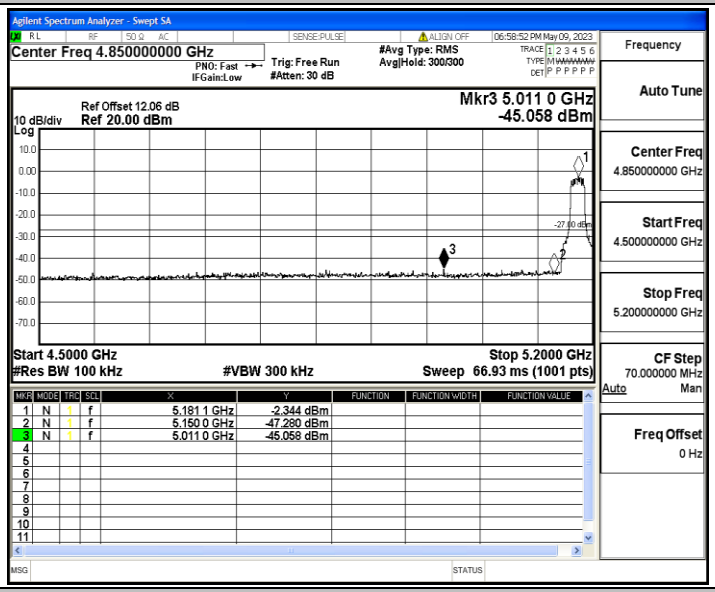
11A_Ant2_High_5240



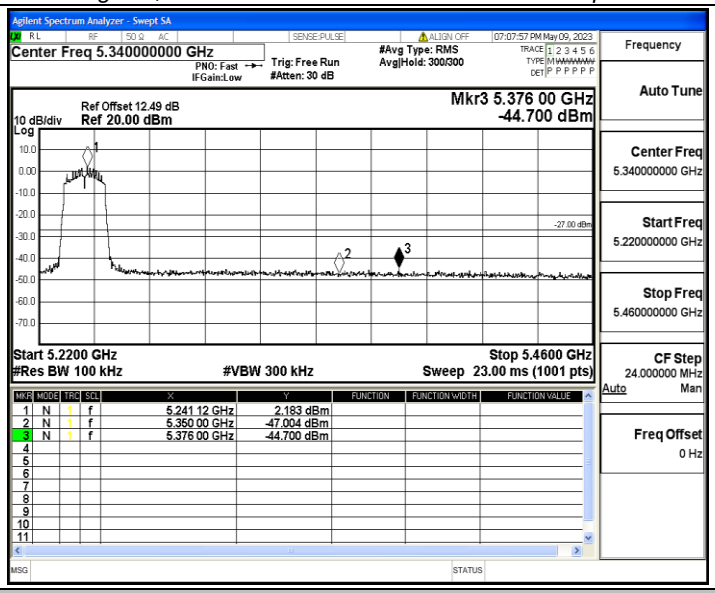
11N20MIMO_Ant1_Low_5180



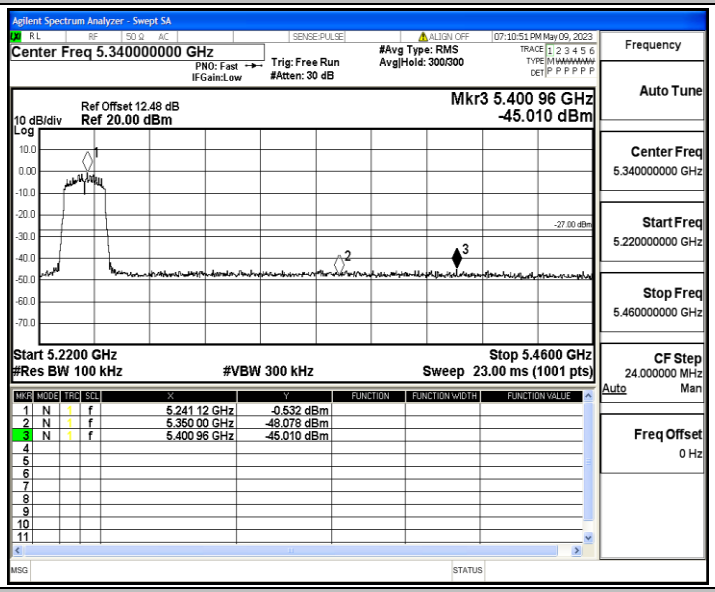
11N20MIMO_Ant2_Low_5180



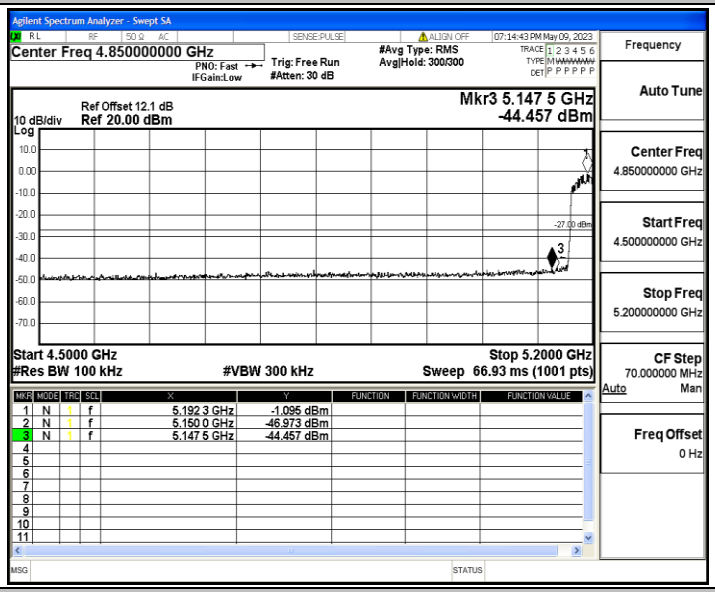
11N20MIMO_Ant1_High_5240



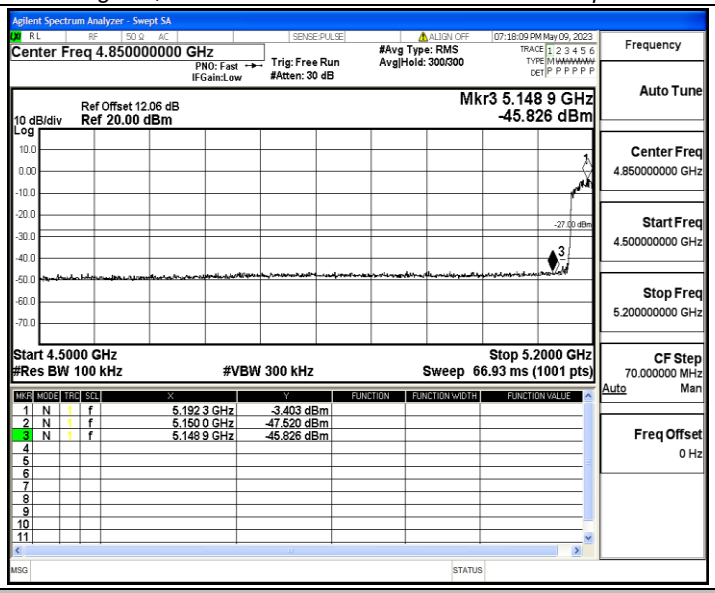
11N20MIMO_Ant2_High_5240



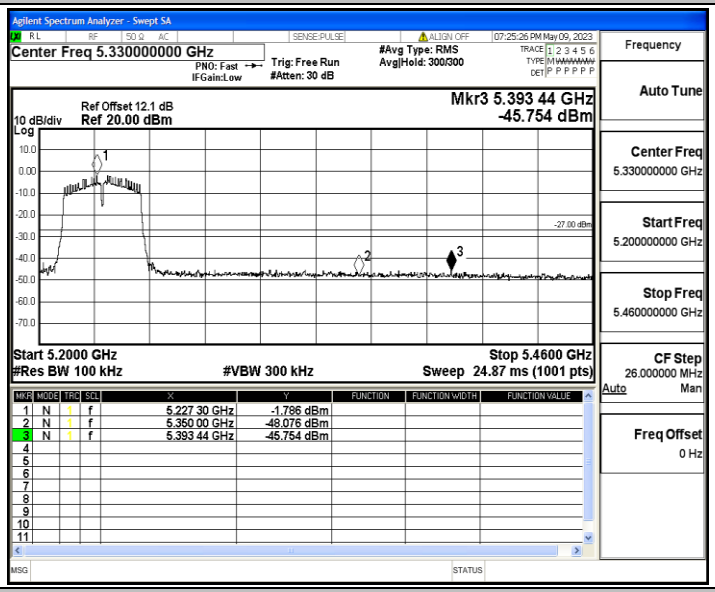
11N40MIMO_Ant1_Low_5190



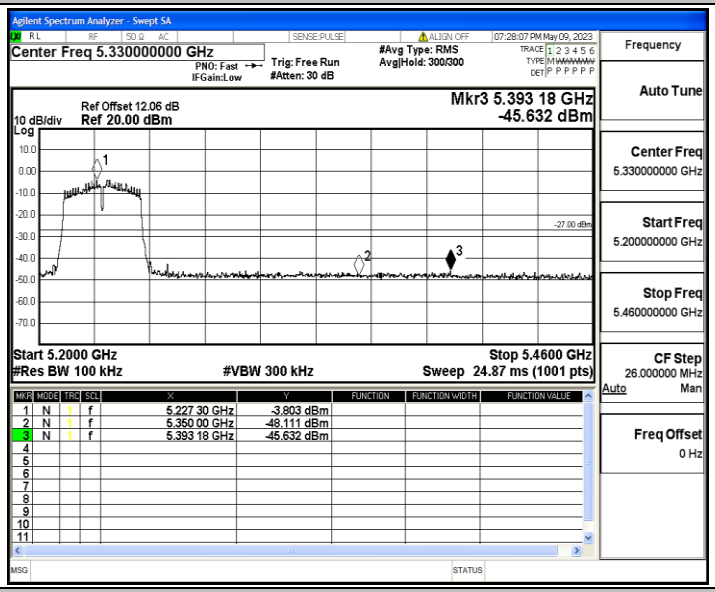
11N40MIMO_Ant2_Low_5190



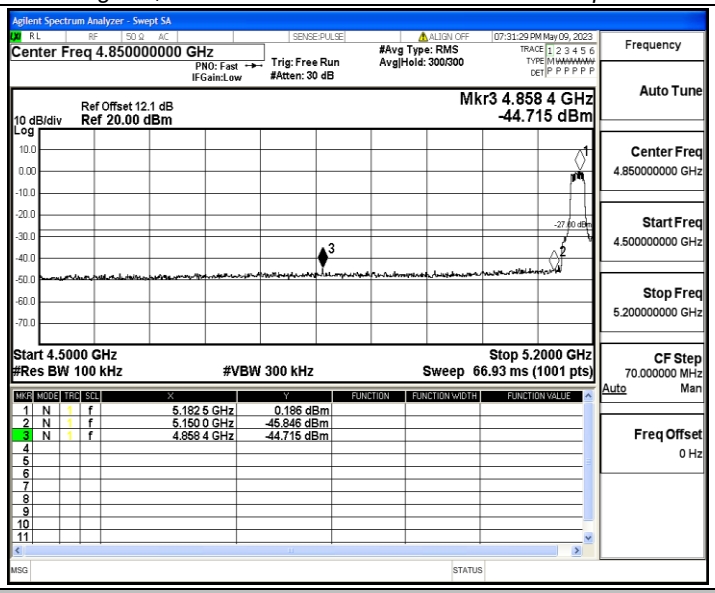
11N40MIMO_Ant1_High_5230



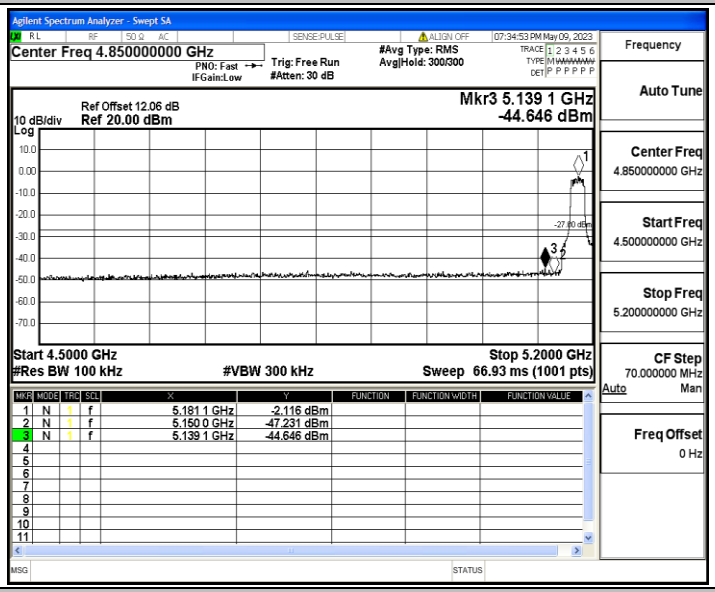
11N40MIMO_Ant2_High_5230



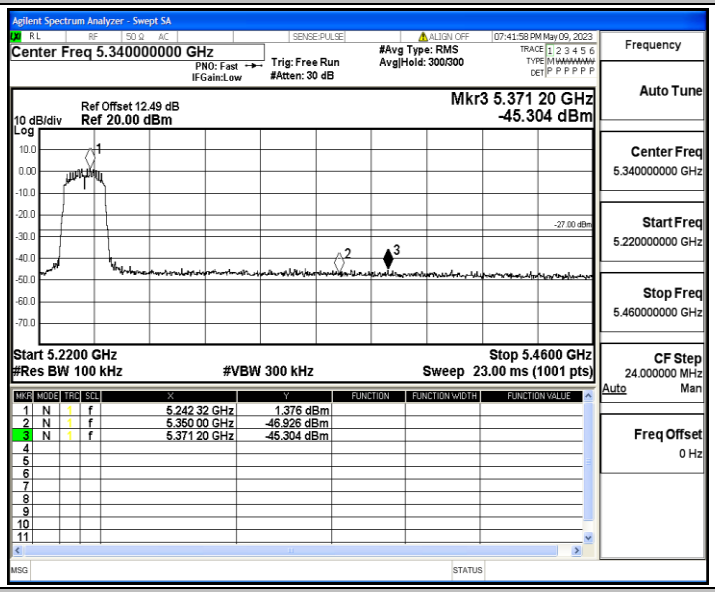
11AC20MIMO_Ant1_Low_5180



11AC20MIMO_Ant2_Low_5180



11AC20MIMO_Ant1_High_5240



11AC20MIMO_Ant2_High_5240