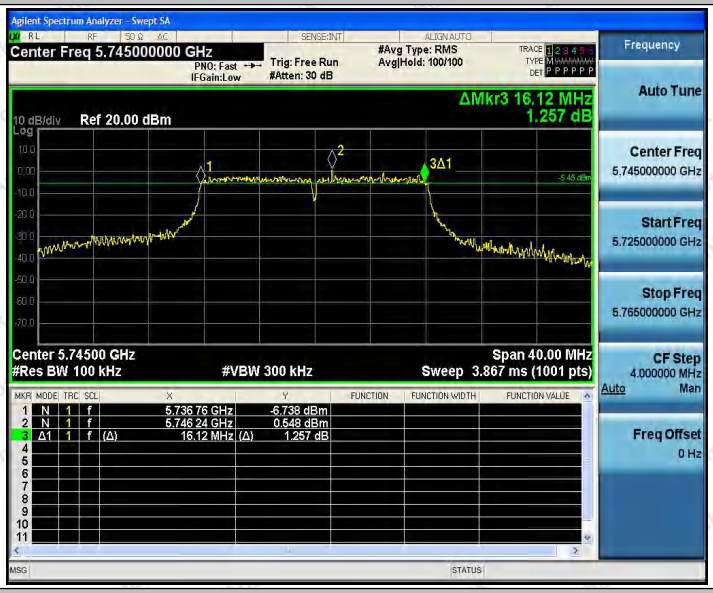
Appendix A3: Min emission bandwidth

Test Result

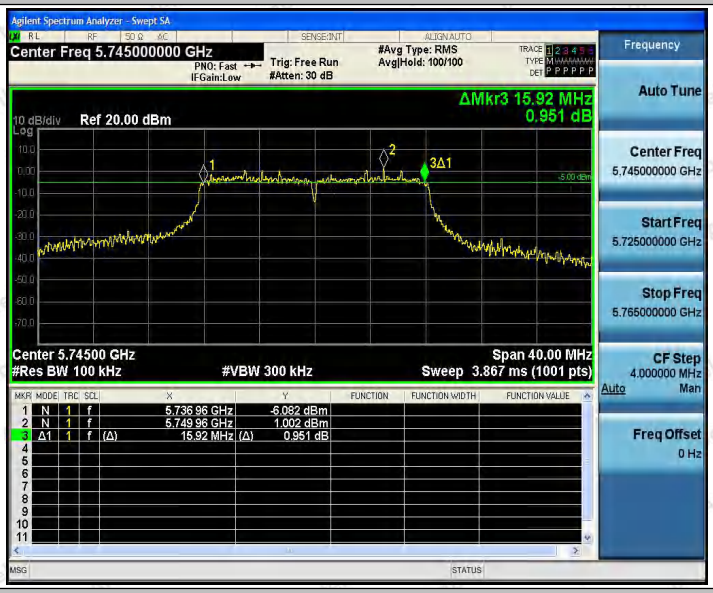
Test Mode	Antenna	Channel	6db EBW [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
11A	Ant1	5745	16.120	5736.760	5752.880	0.5	PASS
	Ant2	5745	15.920	5736.960	5752.880	0.5	PASS
	Ant1	5785	15.720	5777.000	5792.720	0.5	PASS
	Ant2	5785	16.400	5776.760	5793.160	0.5	PASS
	Ant1	5825	16.120	5817.040	5833.160	0.5	PASS
	Ant2	5825	16.360	5816.800	5833.160	0.5	PASS
11N20SISO	Ant1	5745	16.160	5736.760	5752.920	0.5	PASS
	Ant2	5745	16.440	5736.680	5753.120	0.5	PASS
	Ant1	5785	16.320	5776.800	5793.120	0.5	PASS
	Ant2	5785	16.360	5776.800	5793.160	0.5	PASS
	Ant1	5825	16.720	5816.760	5833.480	0.5	PASS
	Ant2	5825	16.560	5816.920	5833.480	0.5	PASS
11N40SISO	Ant1	5755	35.600	5737.320	5772.920	0.5	PASS
	Ant2	5755	35.520	5737.320	5772.840	0.5	PASS
	Ant1	5795	35.280	5777.320	5812.600	0.5	PASS
	Ant2	5795	35.280	5777.320	5812.600	0.5	PASS
11AC20SISO	Ant1	5745	16.240	5736.760	5753.000	0.5	PASS
	Ant2	5745	16.000	5736.760	5752.760	0.5	PASS
	Ant1	5785	16.360	5776.800	5793.160	0.5	PASS
	Ant2	5785	15.800	5777.000	5792.800	0.5	PASS
	Ant1	5825	15.560	5817.320	5832.880	0.5	PASS
	Ant2	5825	15.800	5817.080	5832.880	0.5	PASS
11AC40SISO	Ant1	5755	35.520	5737.320	5772.840	0.5	PASS
	Ant2	5755	35.280	5737.320	5772.600	0.5	PASS
	Ant1	5795	35.440	5777.160	5812.600	0.5	PASS
	Ant2	5795	34.240	5777.320	5811.560	0.5	PASS
11AC80SISO	Ant1	5775	71.680	5738.520	5810.200	0.5	PASS
	Ant2	5775	74.080	5738.520	5812.600	0.5	PASS

Test Graphs

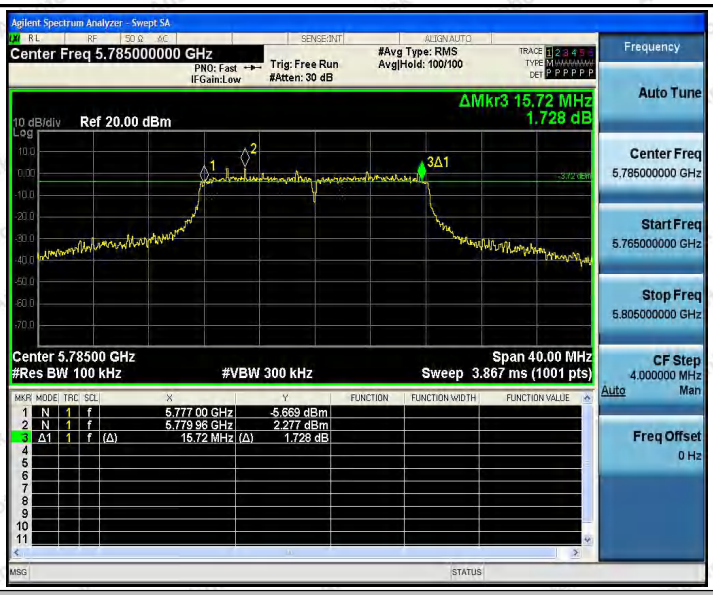
11A_Ant1_5745



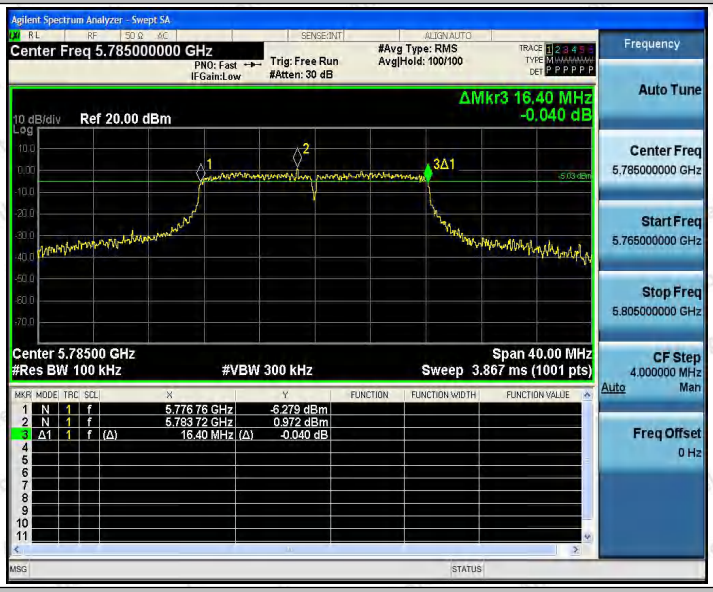
11A_Ant2_5745



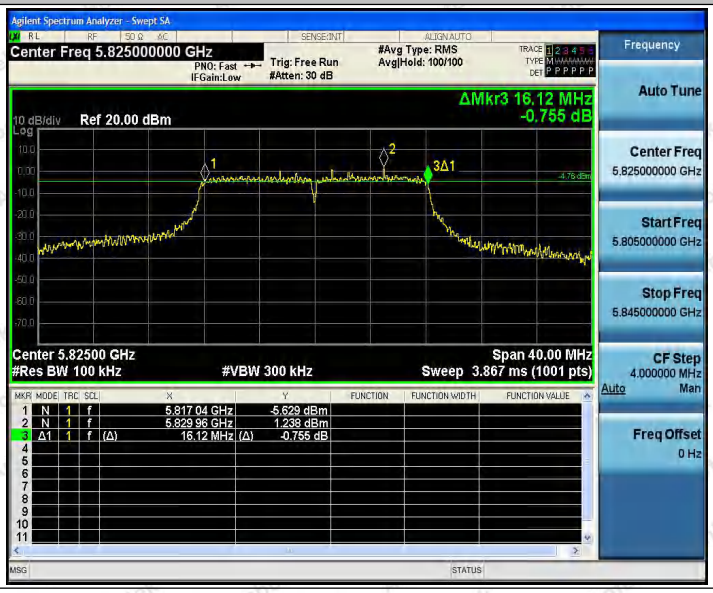
11A_Ant1_5785



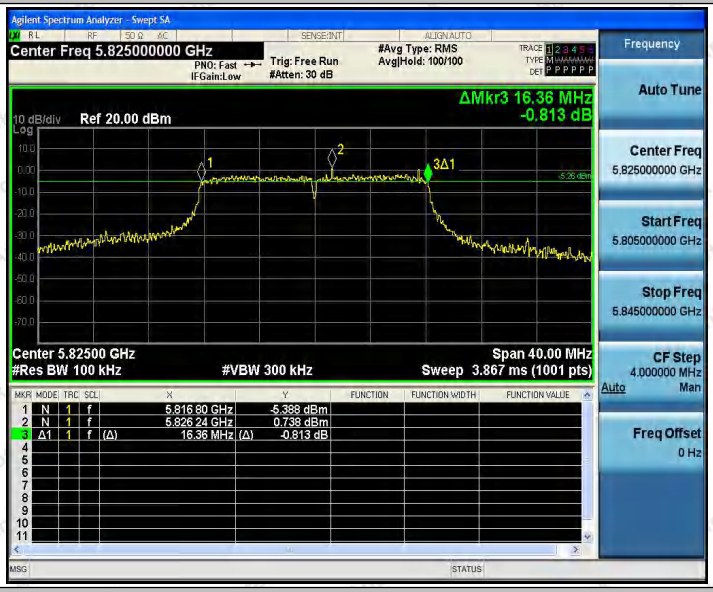
11A_Ant2_5785



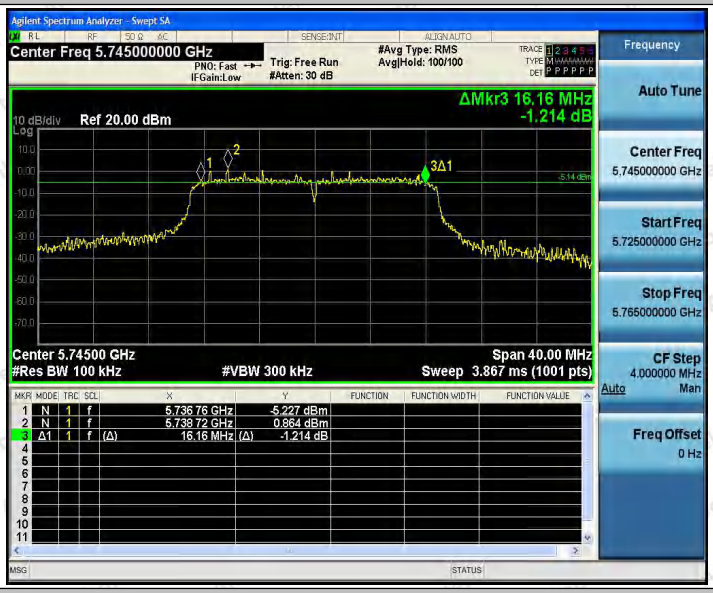
11A_Ant1_5825



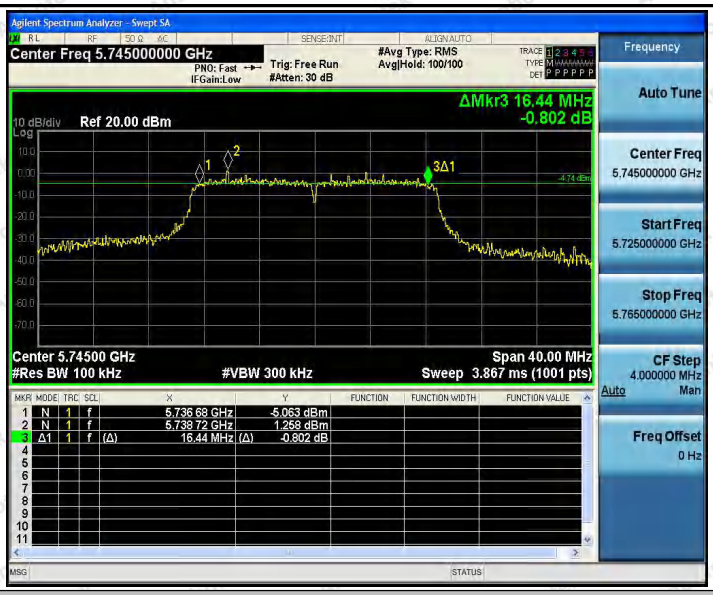
11A_Ant2_5825



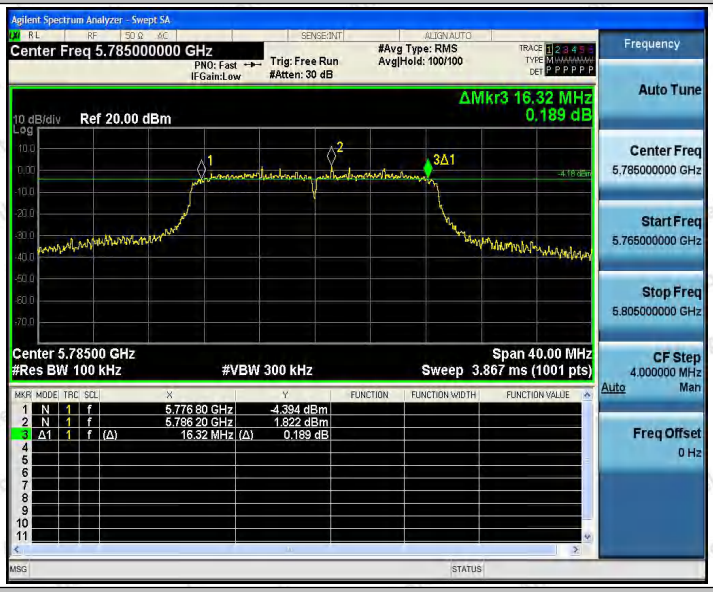
11N20SISO_Ant1_5745



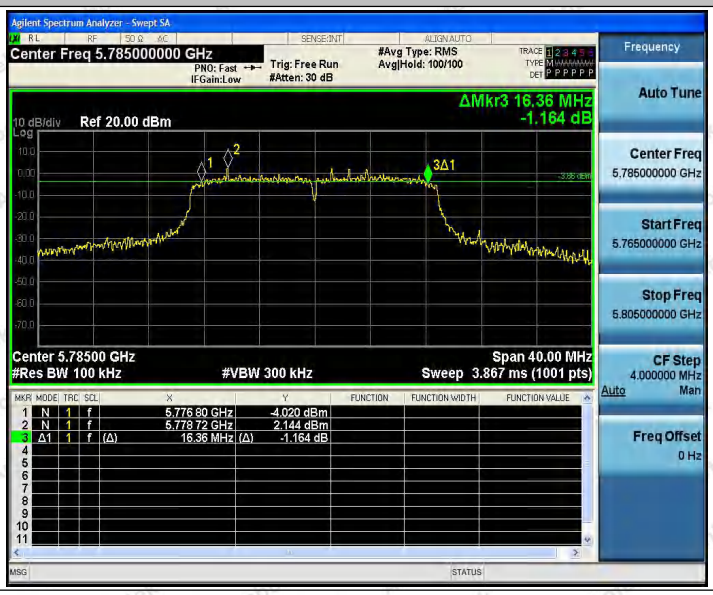
11N20SISO_Ant2_5745



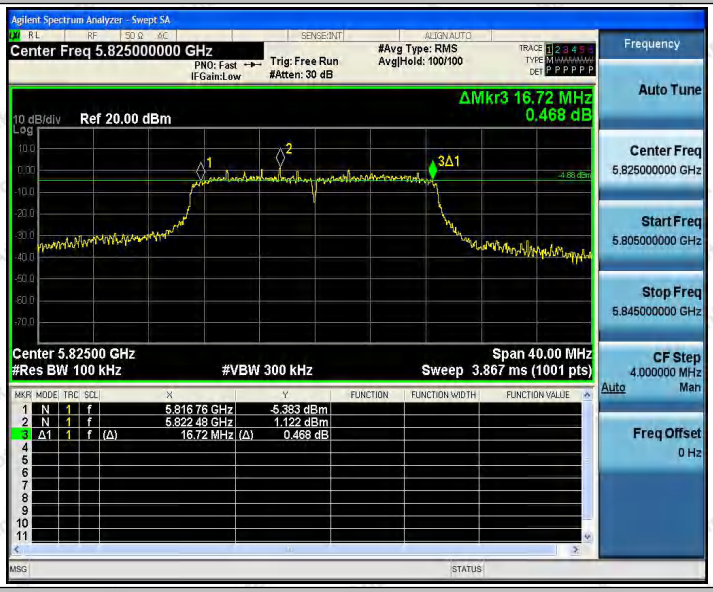
11N20SISO_Ant1_5785



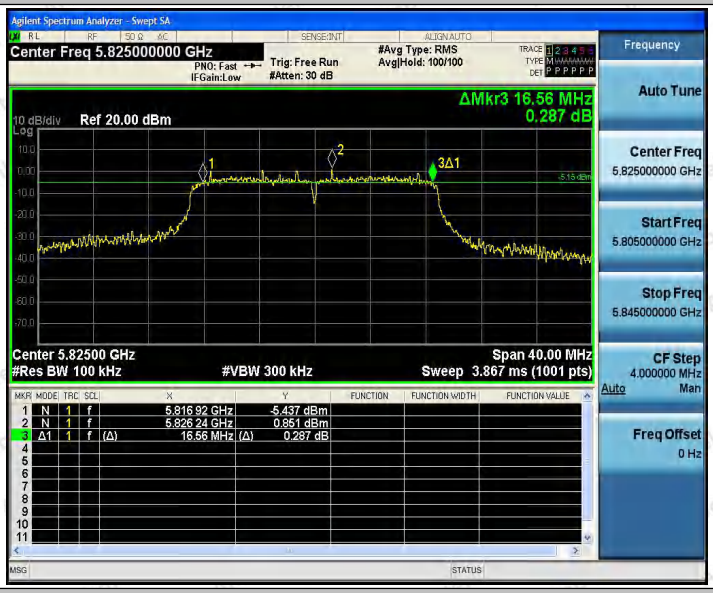
11N20SISO_Ant2_5785



11N20SISO_Ant1_5825

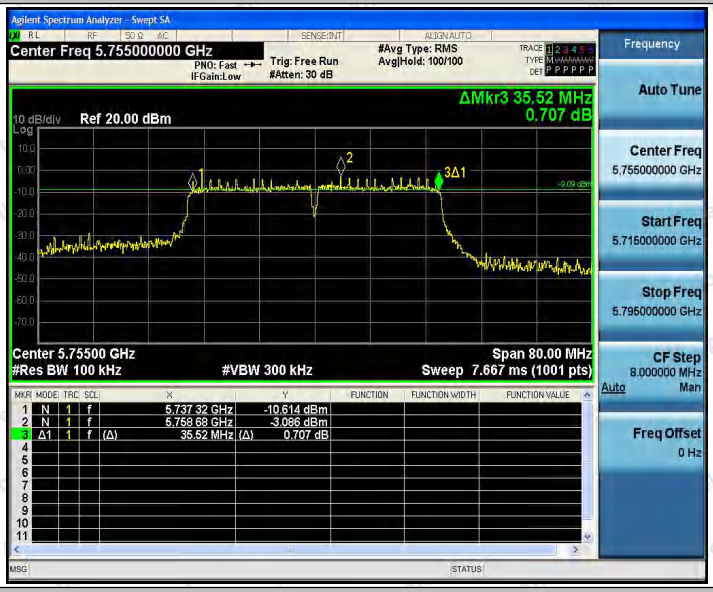


11N20SISO_Ant2_5825

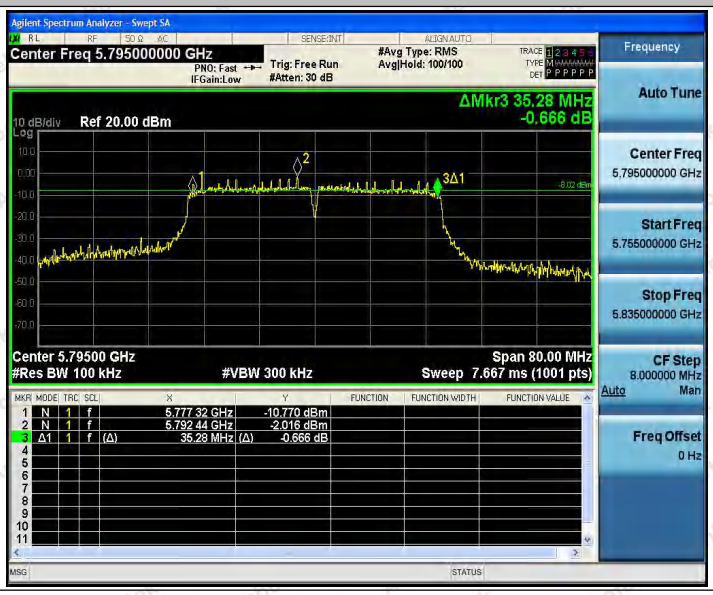


11N40SISO_Ant1_5755

11N40SISO_Ant2_5755

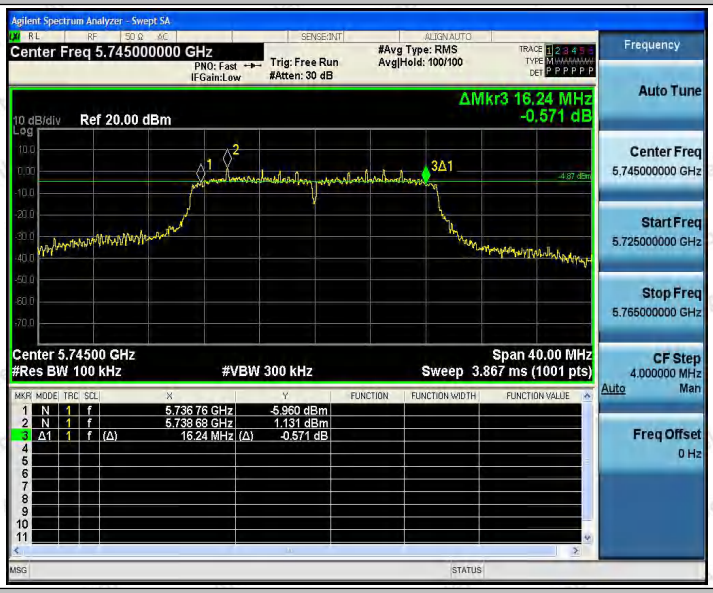


11N40SISO_Ant1_5795

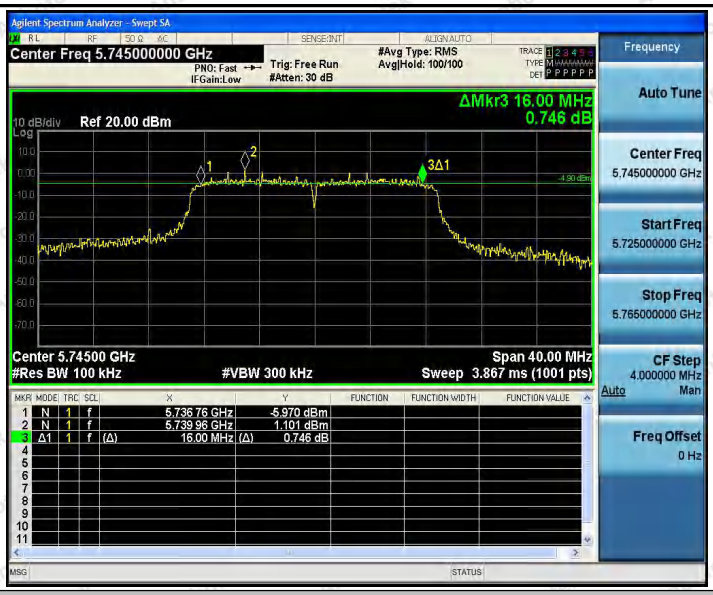


11N40SISO_Ant2_5795

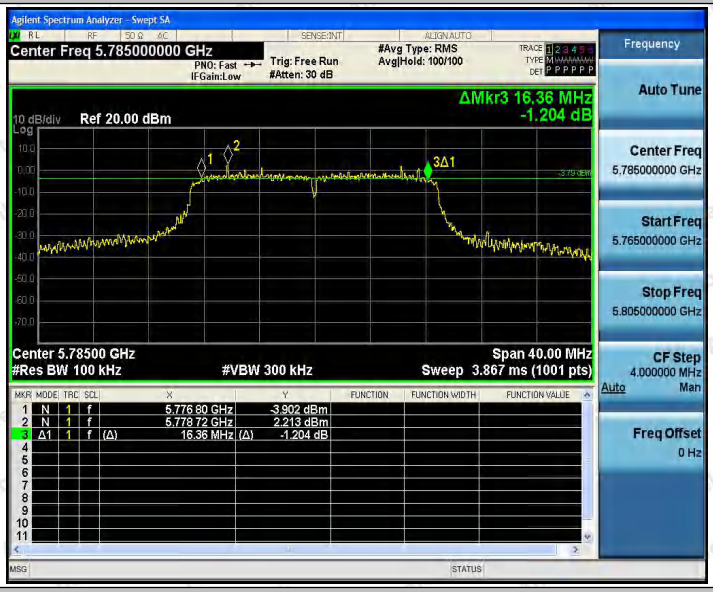
11AC20SISO_Ant1_5745



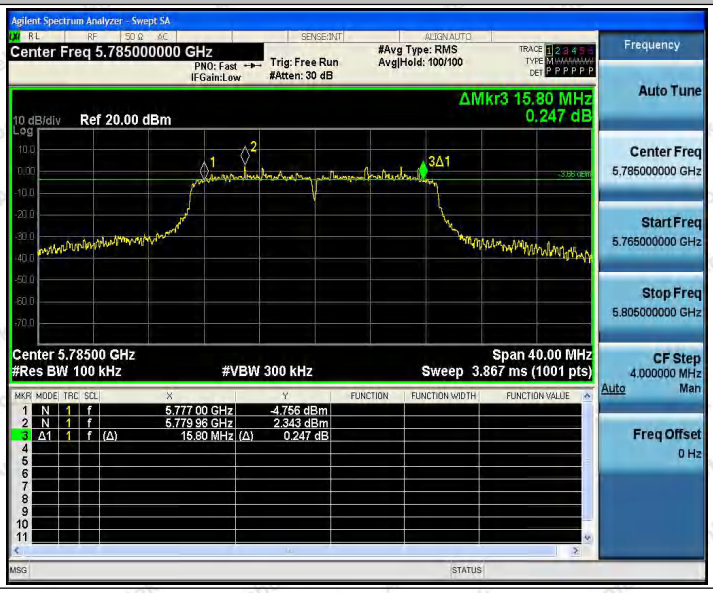
11AC20SISO_Ant2_5745



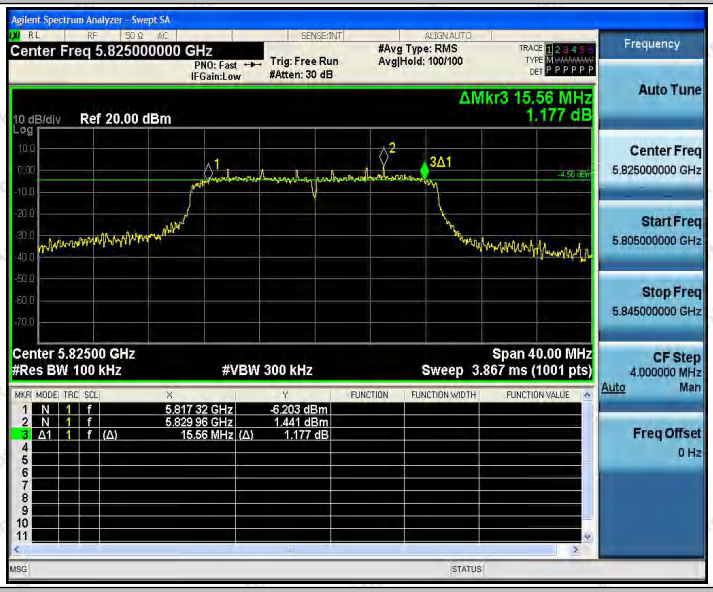
11AC20SISO_Ant1_5785



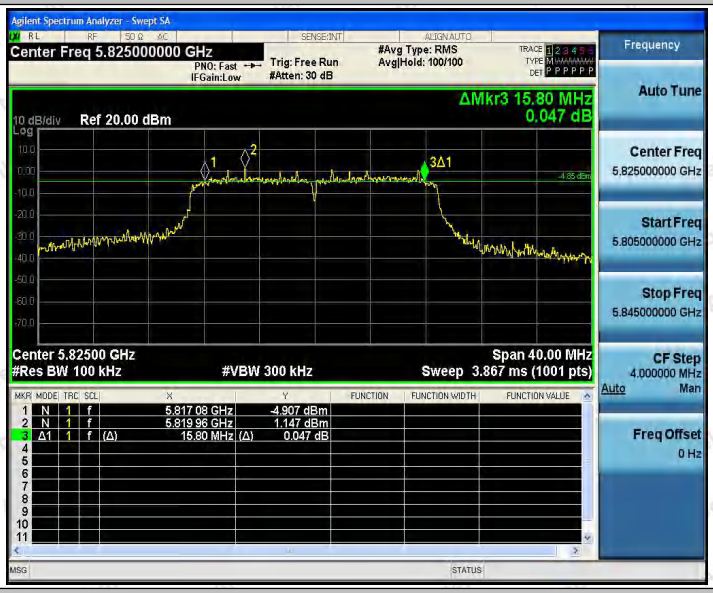
11AC20SISO_Ant2_5785



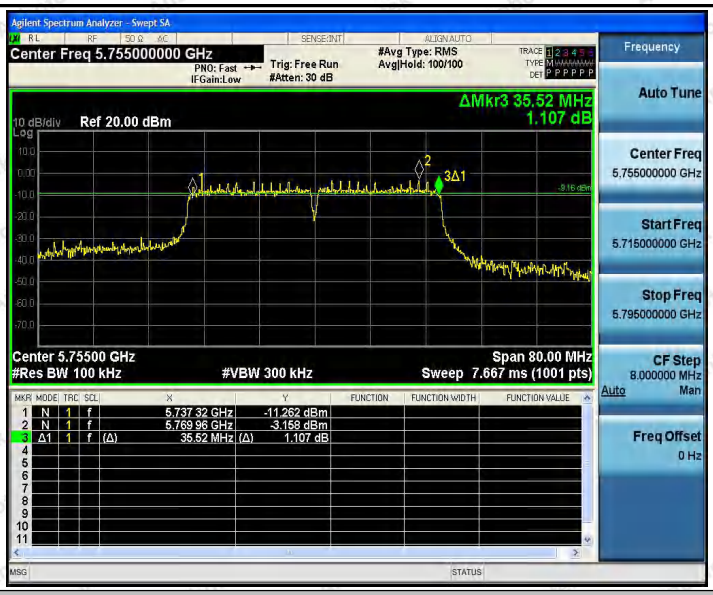
11AC20SISO_Ant1_5825



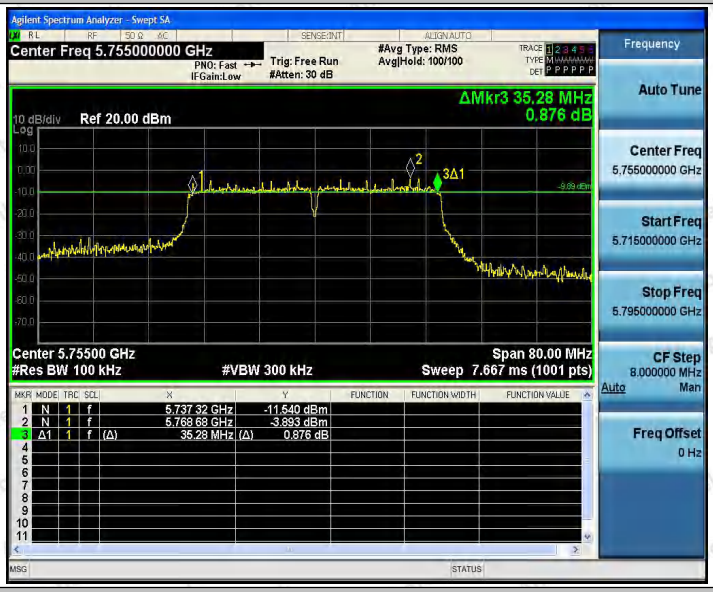
11AC20SISO_Ant2_5825



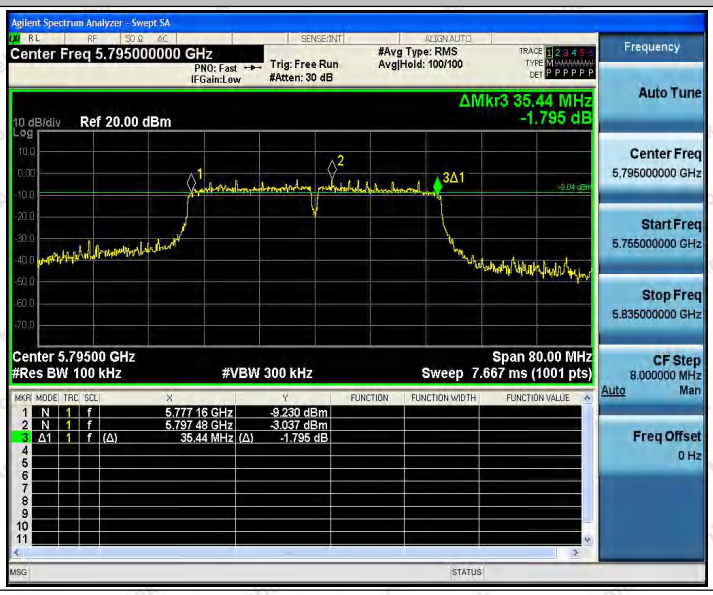
11AC40SISO_Ant1_5755



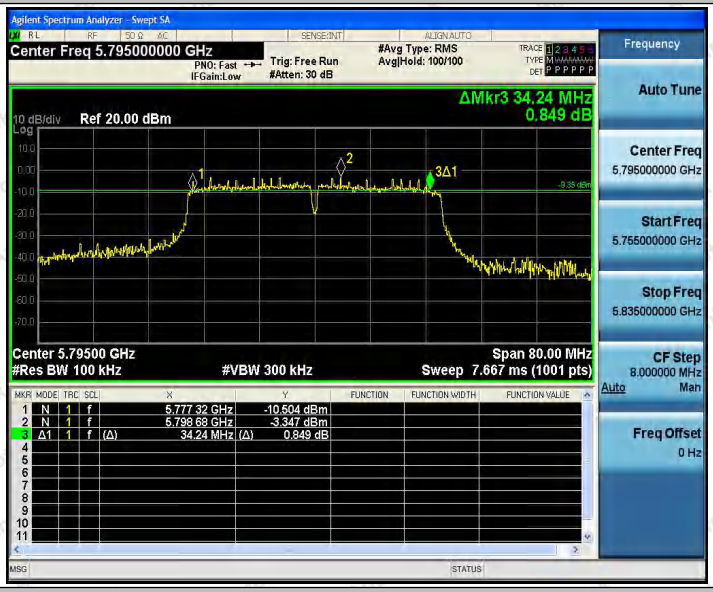
11AC40SISO_Ant2_5755



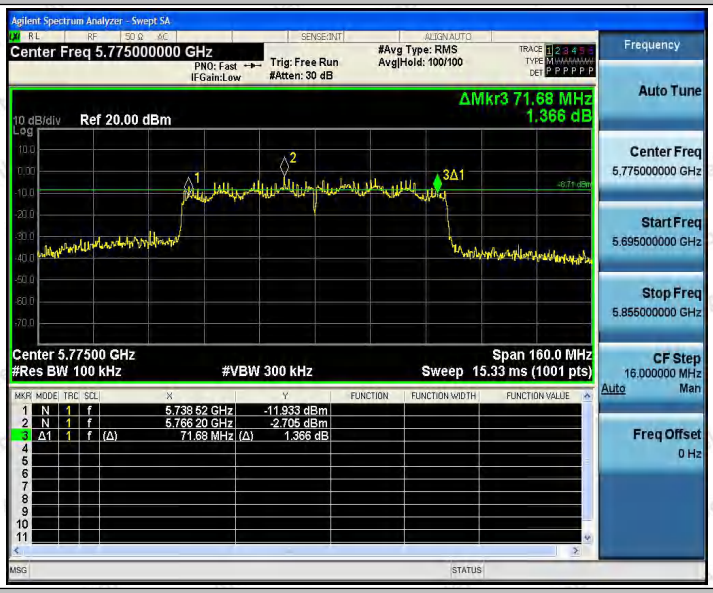
11AC40SISO_Ant1_5795



11AC40SISO_Ant2_5795



11AC80SISO_Ant1_5775



11AC80SISO_Ant2_5775

Agilent Spectrum Analyzer - Swept SA
Center Freq 5.775000000 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 30 dB
#Avg Type: RMS
Avg|Hold: 100/100
ΔMkr3 74.08 MHz
1.366 dB
10 dB/div
Ref 20.00 dBm
Center 5.77500 GHz
#Res BW 100 kHz
#VBW 300 kHz
Span 160.0 MHz
Sweep 15.33 ms (1001 pts)
1 N 1 f 5.738 52 GHz -11.757 dBm
2 N 1 f 5.792 44 GHz -2.453 dBm
3 Δ1 1 f (Δ) 74.08 MHz (Δ) 1.366 dB
Frequency
Auto Tune
Center Freq
5.775000000 GHz
Start Freq
5.695000000 GHz
Stop Freq
5.855000000 GHz
CF Step
16.000000 MHz
Auto Man
Freq Offset
0 Hz

Appendix B: Maximum conducted output power

Test Result(5.2G WIFI):

Test Mode	Antenna	Channel	Result[dBm]	Limit[dBm]	Verdict
11A	Ant1	5180	7.11	≤23.98	PASS
	Ant2	5180	7.17	≤23.98	PASS
	Ant1	5200	7.53	≤23.98	PASS
	Ant2	5200	7.07	≤23.98	PASS
	Ant1	5240	6.77	≤23.98	PASS
	Ant2	5240	6.29	≤23.98	PASS
11N20SISO	Ant1	5180	7.66	≤23.98	PASS
	Ant2	5180	7.79	≤23.98	PASS
	Ant1	5200	7.68	≤23.98	PASS
	Ant2	5200	7.71	≤23.98	PASS
	Ant1	5240	6.69	≤23.98	PASS
	Ant2	5240	7.65	≤23.98	PASS
11N40SISO	Ant1	5190	7.12	≤23.98	PASS
	Ant2	5190	6.85	≤23.98	PASS
	Ant1	5230	6.80	≤23.98	PASS
	Ant2	5230	6.26	≤23.98	PASS
11AC20SISO	Ant1	5180	7.82	≤23.98	PASS
	Ant2	5180	7.80	≤23.98	PASS
	Ant1	5200	7.82	≤23.98	PASS
	Ant2	5200	7.62	≤23.98	PASS
	Ant1	5240	6.77	≤23.98	PASS
	Ant2	5240	7.55	≤23.98	PASS
11AC40SISO	Ant1	5190	7.26	≤23.98	PASS
	Ant2	5190	7.63	≤23.98	PASS
	Ant1	5230	6.59	≤23.98	PASS
	Ant2	5230	6.45	≤23.98	PASS
11AC80SISO	Ant1	5210	7.07	≤23.98	PASS
	Ant2	5210	6.92	≤23.98	PASS

Test Result(5.8G WIFI):

Test Mode	Antenna	Channel	Result[dBm]	Limit[dBm]	Verdict
11A	Ant1	5745	7.80	≤30	PASS
	Ant2	5745	7.13	≤30	PASS
	Ant1	5785	7.32	≤30	PASS
	Ant2	5785	7.19	≤30	PASS
	Ant1	5825	7.83	≤30	PASS

	Ant2	5825	7.69	≤30	PASS
11N20SISO	Ant1	5745	7.68	≤30	PASS
	Ant2	5745	7.70	≤30	PASS
	Ant1	5785	6.87	≤30	PASS
	Ant2	5785	7.85	≤30	PASS
	Ant1	5825	7.58	≤30	PASS
	Ant2	5825	7.81	≤30	PASS
11N40SISO	Ant1	5755	6.75	≤30	PASS
	Ant2	5755	7.03	≤30	PASS
	Ant1	5795	7.21	≤30	PASS
	Ant2	5795	6.92	≤30	PASS
11AC20SISO	Ant1	5745	7.60	≤30	PASS
	Ant2	5745	7.63	≤30	PASS
	Ant1	5785	7.31	≤30	PASS
	Ant2	5785	7.14	≤30	PASS
	Ant1	5825	7.49	≤30	PASS
	Ant2	5825	7.70	≤30	PASS
11AC40SISO	Ant1	5755	7.78	≤30	PASS
	Ant2	5755	7.59	≤30	PASS
	Ant1	5795	6.96	≤30	PASS
	Ant2	5795	6.54	≤30	PASS
11AC80SISO	Ant1	5775	7.37	≤30	PASS
	Ant2	5775	7.19	≤30	PASS

Test Result(MIMO 5.2G WIFI):

Test Mode	Channel	Result[dBm]	Limit[dBm]	Verdict
11N20SISO	5180	10.74	≤18.97	PASS
	5200	10.71	≤18.97	PASS
	5240	10.21	≤18.97	PASS
11N40SISO	5190	10.00	≤18.97	PASS
	5230	9.55	≤18.97	PASS
11AC20SISO	5180	10.82	≤18.97	PASS
	5200	10.73	≤18.97	PASS
	5240	10.19	≤18.97	PASS
11AC40SISO	5190	10.46	≤18.97	PASS
	5230	9.53	≤18.97	PASS
11AC80SISO	5210	10.01	≤18.97	PASS

Test Result(MIMO 5.8G WIFI):

Test Mode	Channel	Result[dBm]	Limit[dBm]	Verdict
11N20SISO	5745	10.70	≤23.23	PASS
	5785	10.40	≤23.23	PASS
	5825	10.71	≤23.23	PASS
11N40SISO	5755	9.90	≤23.23	PASS
	5795	10.08	≤23.23	PASS
11AC20SISO	5745	10.63	≤23.23	PASS
	5785	10.24	≤23.23	PASS
	5825	10.61	≤23.23	PASS
11AC40SISO	5755	10.70	≤23.23	PASS
	5795	9.77	≤23.23	PASS
11AC80SISO	5775	10.29	≤23.23	PASS

Note:

1. As Directional gain = 10 log[($10^{G1/20}$ + $10^{G2/20}$) 2 /N_{ANT}] dBi=11.01>6dBi,

So 5.2G limit=23.98-(11.01-6.00)=18.97dBm.

So 5.8G limit=30-(11.01-6.00)=23.23dBm.

Appendix C: Maximum power spectral density

Test Result(5.2G WIFI)

Test Mode	Antenna	Channel	Result [dBm/MHz]	Limit[dBm/MHz]	Verdict
11A	Ant1	5180	-1.82	≤11	PASS
	Ant2	5180	-1.37	≤11	PASS
	Ant1	5200	-1.18	≤11	PASS
	Ant2	5200	-1.05	≤11	PASS
	Ant1	5240	-1.77	≤11	PASS
	Ant2	5240	-1.97	≤11	PASS
11N20SISO	Ant1	5180	-1.55	≤11	PASS
	Ant2	5180	-1.43	≤11	PASS
	Ant1	5200	-1.68	≤11	PASS
	Ant2	5200	-1.17	≤11	PASS
	Ant1	5240	-2.15	≤11	PASS
	Ant2	5240	-2.37	≤11	PASS
11N40SISO	Ant1	5190	-4	≤11	PASS
	Ant2	5190	-4.77	≤11	PASS
	Ant1	5230	-5.93	≤11	PASS
	Ant2	5230	-4.54	≤11	PASS
11AC20SISO	Ant1	5180	-1.48	≤11	PASS
	Ant2	5180	-0.87	≤11	PASS
	Ant1	5200	-1.78	≤11	PASS
	Ant2	5200	-0.51	≤11	PASS
	Ant1	5240	-1.95	≤11	PASS
	Ant2	5240	-1.5	≤11	PASS
11AC40SISO	Ant1	5190	-4.3	≤11	PASS
	Ant2	5190	-4.92	≤11	PASS
	Ant1	5230	-5.57	≤11	PASS
	Ant2	5230	-5.16	≤11	PASS
11AC80SISO	Ant1	5210	-7.57	≤11	PASS
	Ant2	5210	-8.11	≤11	PASS

Test Result(5.8G WIFI)

Test Mode	Antenna	Channel	Result [dBm/500KHz]	Limit[dBm/500KHz	Verdict
11A	Ant1	5745	-3.59	≤30	PASS
	Ant2	5745	-4.2	≤30	PASS
	Ant1	5785	-4.7	≤30	PASS

	Ant2	5785	-4.5	≤30	PASS
	Ant1	5825	-3.06	≤30	PASS
	Ant2	5825	-2.92	≤30	PASS
11N20SISO	Ant1	5745	-3.29	≤30	PASS
	Ant2	5745	-3.97	≤30	PASS
	Ant1	5785	-4.39	≤30	PASS
	Ant2	5785	-4.26	≤30	PASS
	Ant1	5825	-3.54	≤30	PASS
	Ant2	5825	-3.13	≤30	PASS
11N40SISO	Ant1	5755	-8.21	≤30	PASS
	Ant2	5755	-8.34	≤30	PASS
	Ant1	5795	-8.35	≤30	PASS
	Ant2	5795	-8.42	≤30	PASS
11AC20SISO	Ant1	5745	-4	≤30	PASS
	Ant2	5745	-5.06	≤30	PASS
	Ant1	5785	-4.5	≤30	PASS
	Ant2	5785	-3.99	≤30	PASS
	Ant1	5825	-3.76	≤30	PASS
	Ant2	5825	-3	≤30	PASS
11AC40SISO	Ant1	5755	-7.62	≤30	PASS
	Ant2	5755	-8.4	≤30	PASS
	Ant1	5795	-8.39	≤30	PASS
	Ant2	5795	-8.6	≤30	PASS
11AC80SISO	Ant1	5775	-11.62	≤30	PASS
	Ant2	5775	-10.77	≤30	PASS

Test Result(MIMO 5.2G WIFI)

Test Mode	Channel	Result[dBm]	Limit[dBm]	Verdict
11N20SISO	5180	1.52	≤5.99	PASS
	5200	1.59	≤5.99	PASS
	5240	0.75	≤5.99	PASS
11N40SISO	5190	-1.36	≤5.99	PASS
	5230	-2.17	≤5.99	PASS
11AC20SISO	5180	1.85	≤5.99	PASS
	5200	1.91	≤5.99	PASS
	5240	1.29	≤5.99	PASS
11AC40SISO	5190	-1.59	≤5.99	PASS
	5230	-2.35	≤5.99	PASS
11AC80SISO	5210	-4.82	≤5.99	PASS

Test Result(MIMO 5.8G WIFI)

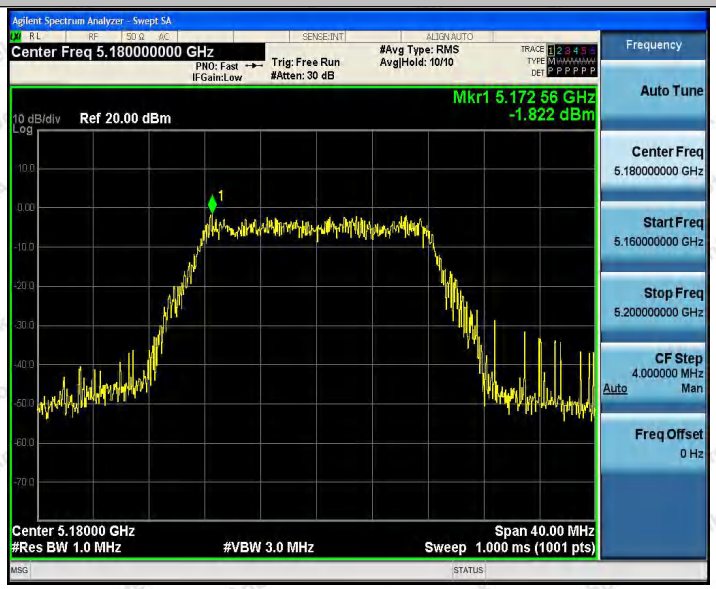
Test Mode	Channel	Result[dBm/500KH]	Limit[dBm]	Verdict
11N20SISO	5745	-0.61	≤24.99	PASS
	5785	-1.31	≤24.99	PASS
	5825	-0.32	≤24.99	PASS
11N40SISO	5755	-5.26	≤24.99	PASS
	5795	-5.37	≤24.99	PASS
11AC20SISO	5745	-1.49	≤24.99	PASS
	5785	-1.23	≤24.99	PASS
	5825	-0.35	≤24.99	PASS
11AC40SISO	5755	-4.98	≤24.99	PASS
	5795	-5.48	≤24.99	PASS
11AC80SISO	5775	-8.16	≤24.99	PASS

Note:

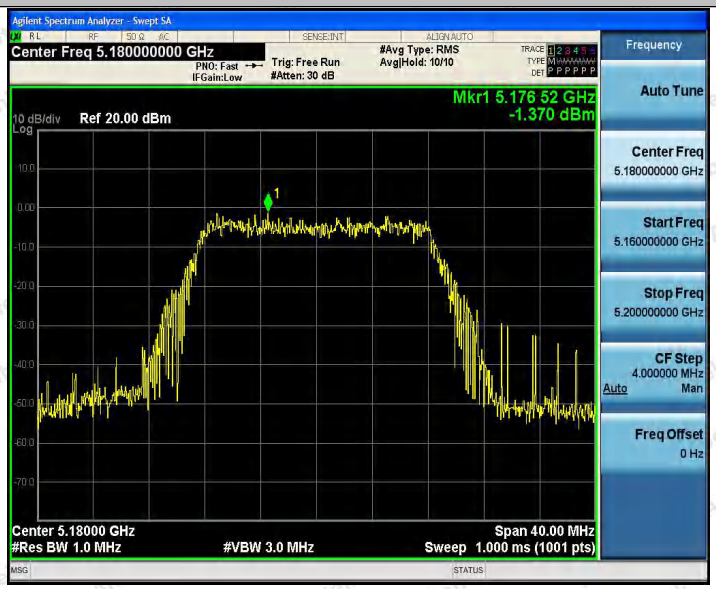
1. As Directional gain = 10 log[($10^{G1/20}$ + $10^{G2/20}$) 2 /N_{ANT}] dBi=11.01>6dBi,
   So 5.2G limit=11-(11.01-6.00)=5.99dBm.
   So 5.8G limit=30-(11.01-6.00)=24.99dBm.

Test Graphs

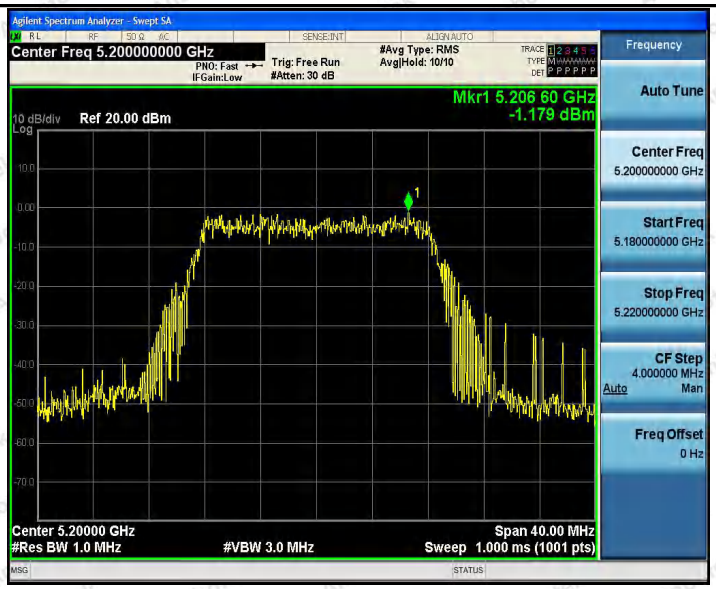
11A_Ant1_5180



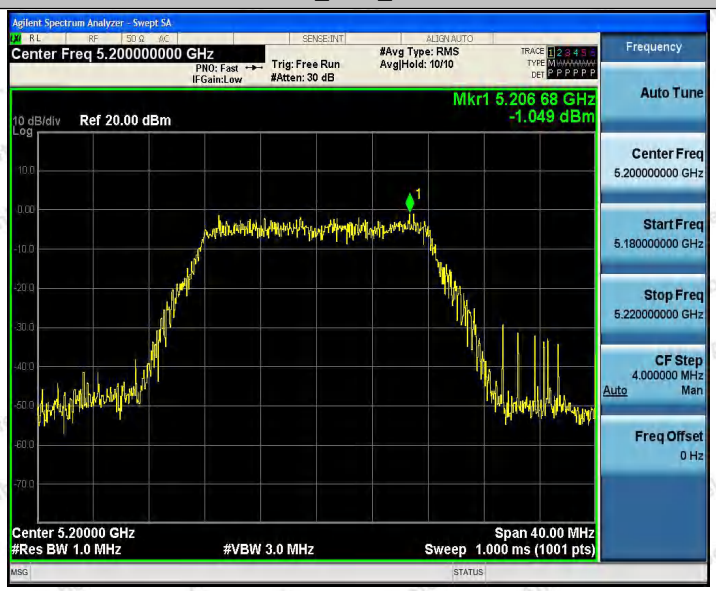
11A_Ant2_5180



11A_Ant1_5200

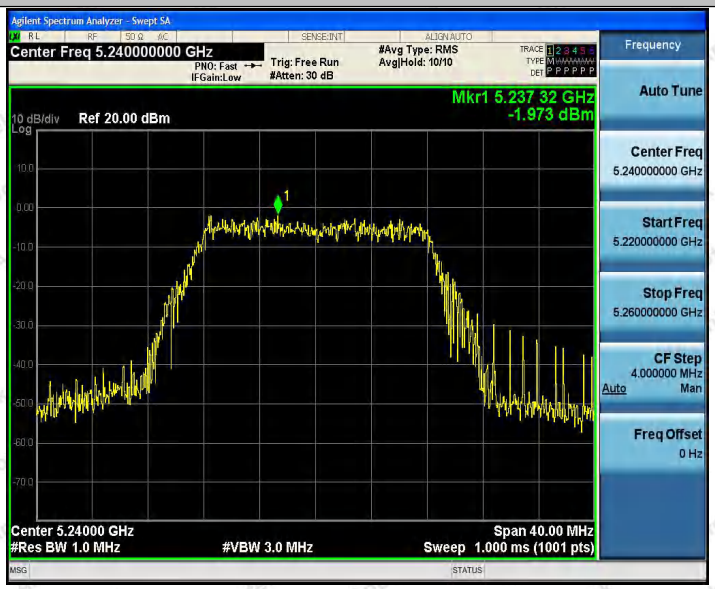


11A_Ant2_5200

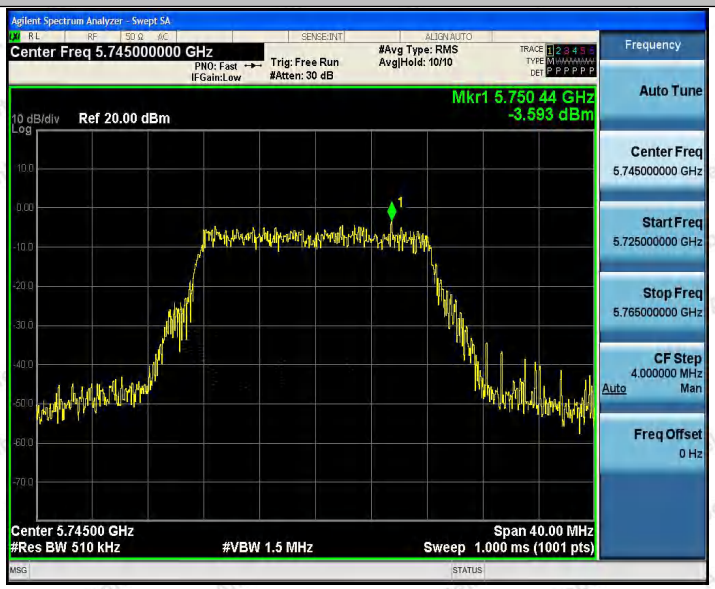


11A_Ant1_5240

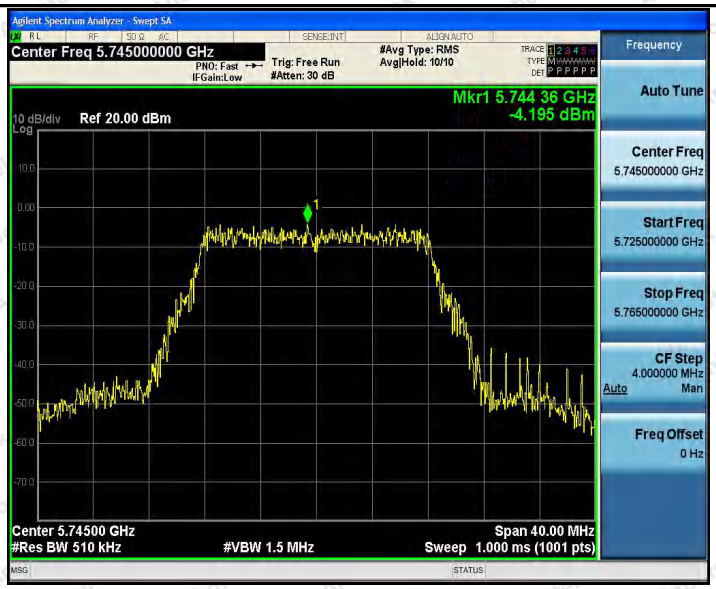
11A_Ant2_5240



11A_Ant1_5745

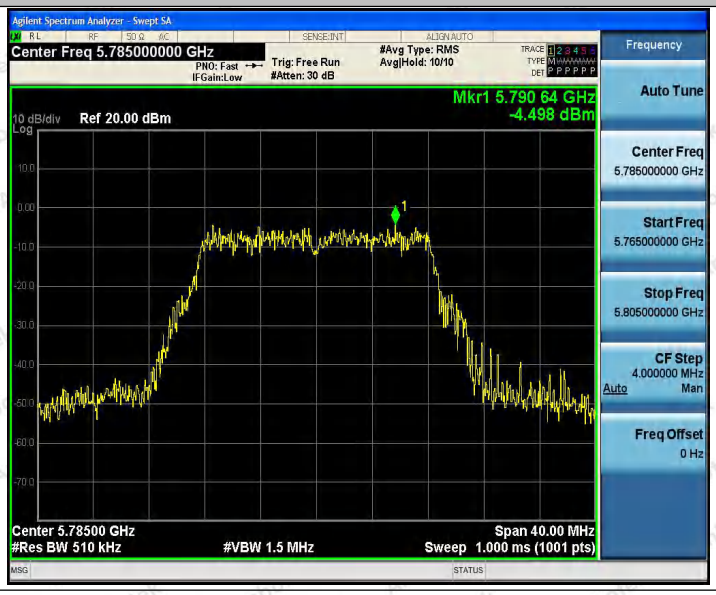


11A_Ant2_5745

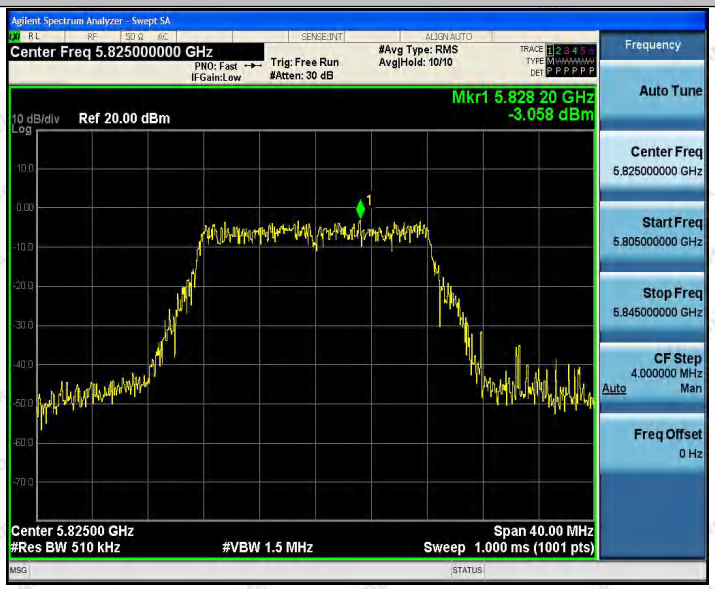


11A_Ant1_5785

11A_Ant2_5785

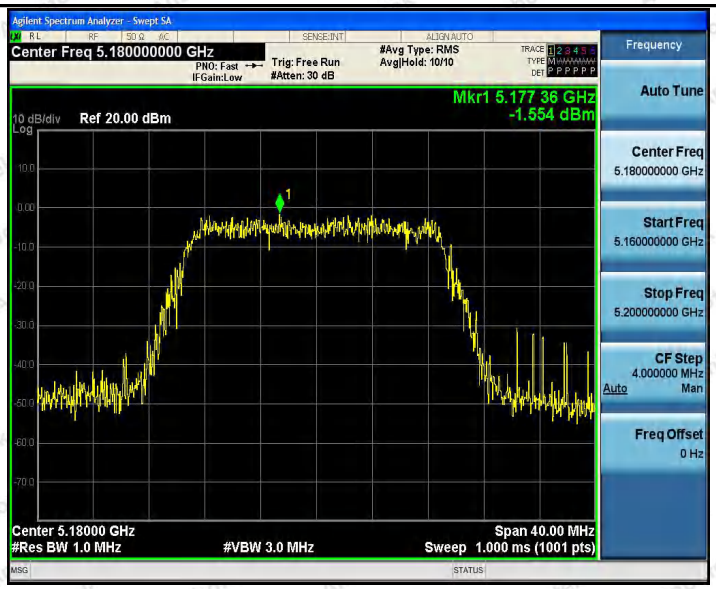


11A_Ant1_5825

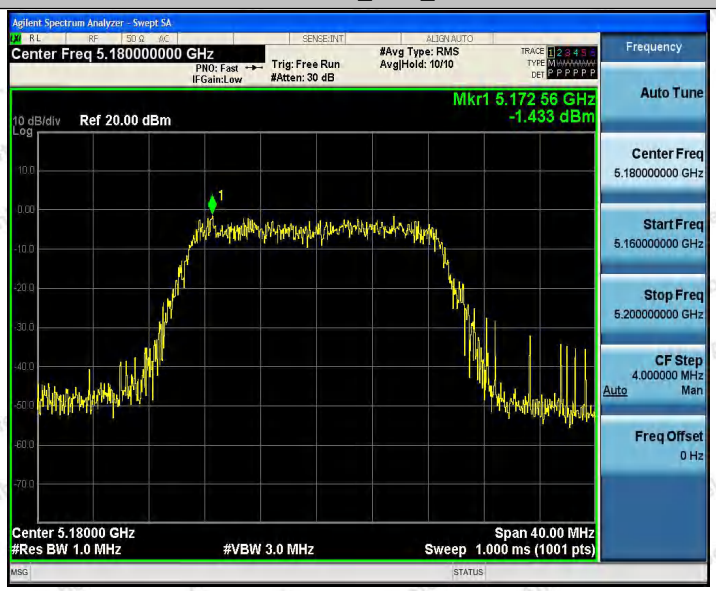


11A_Ant2_5825

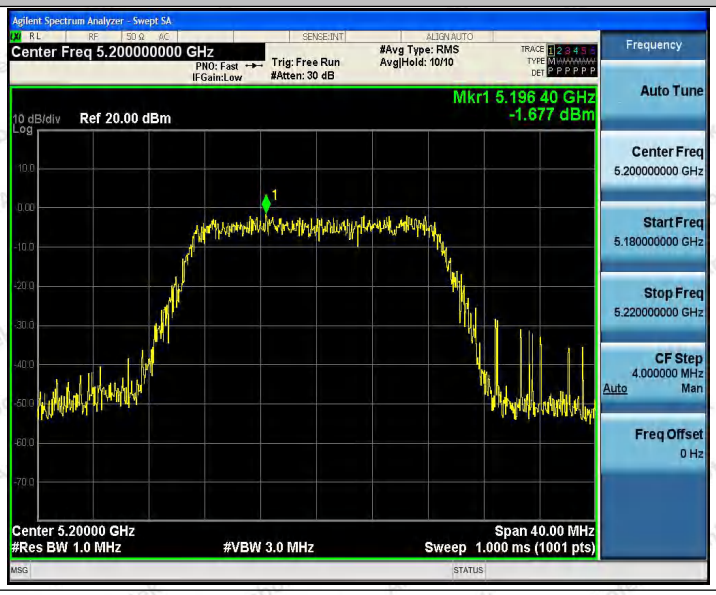
11N20SISO_Ant1_5180



11N20SISO_Ant2_5180

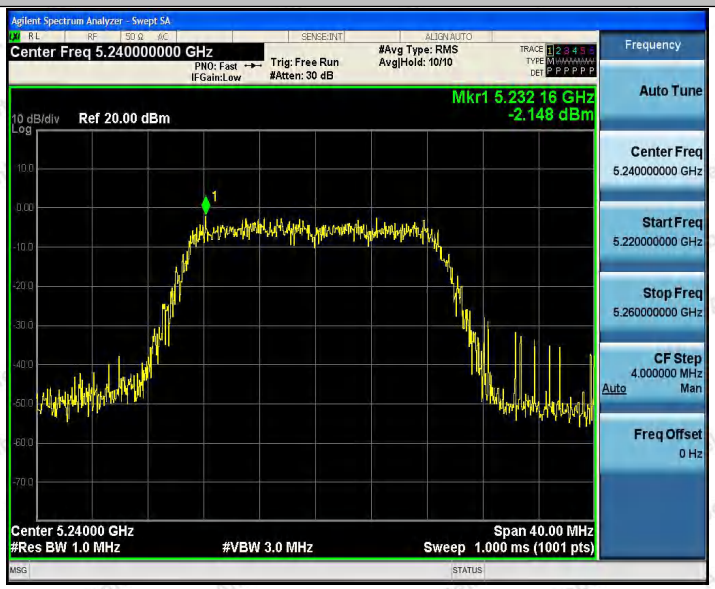


11N20SISO_Ant1_5200

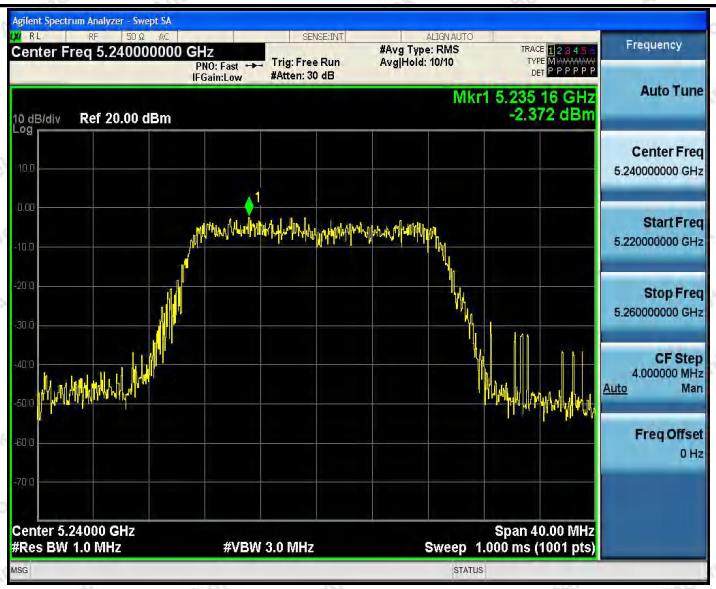


11N20SISO_Ant2_5200

11N20SISO_Ant1_5240

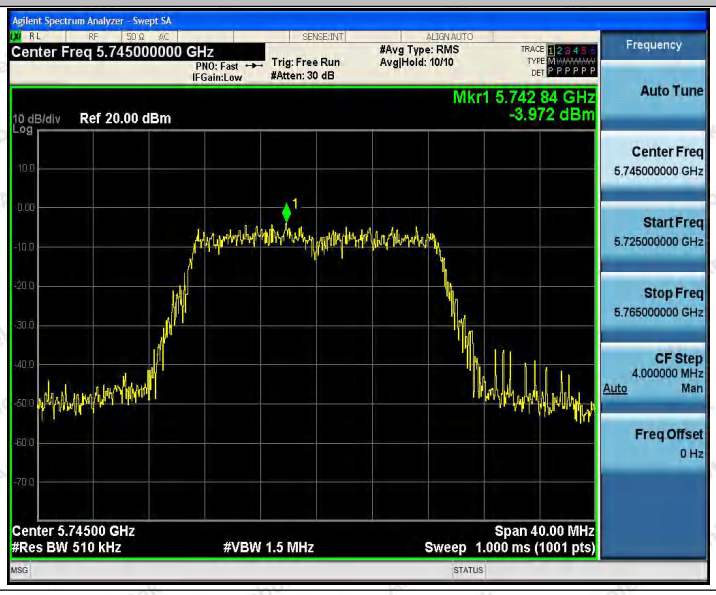


11N20SISO_Ant2_5240



11N20SISO_Ant1_5745

11N20SISO_Ant2_5745

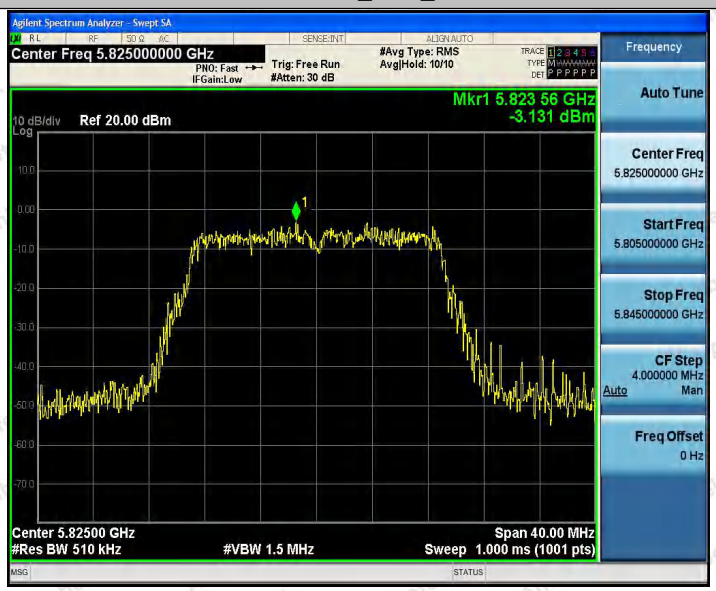


11N20SISO_Ant1_5785

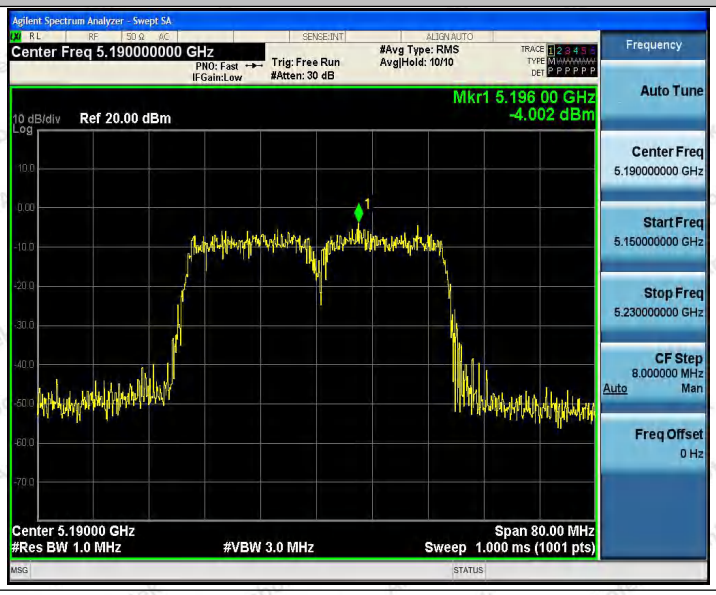
11N20SISO_Ant2_5785

11N20SISO_Ant1_5825

11N20SISO_Ant2_5825

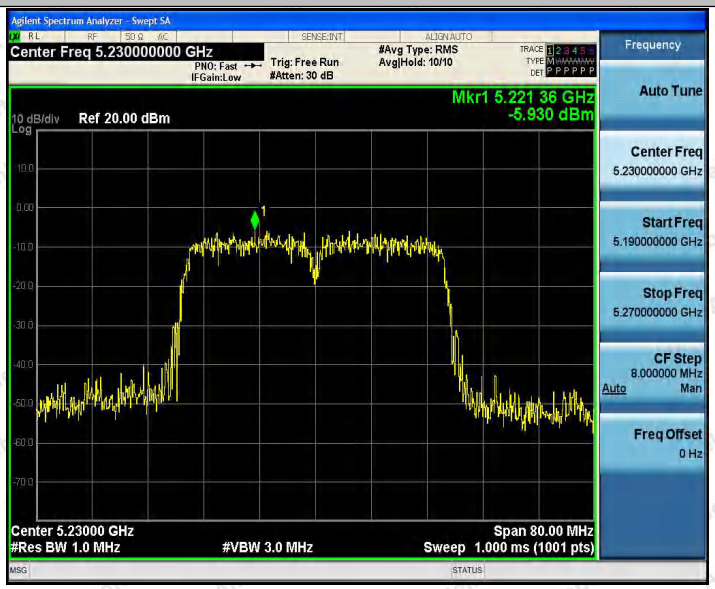


11N40SISO_Ant1_5190

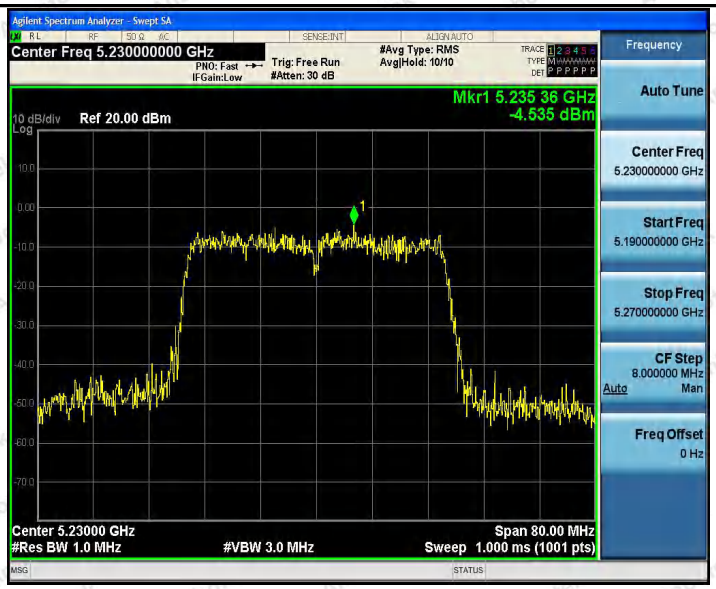


11N40SISO_Ant2_5190

11N40SISO_Ant1_5230



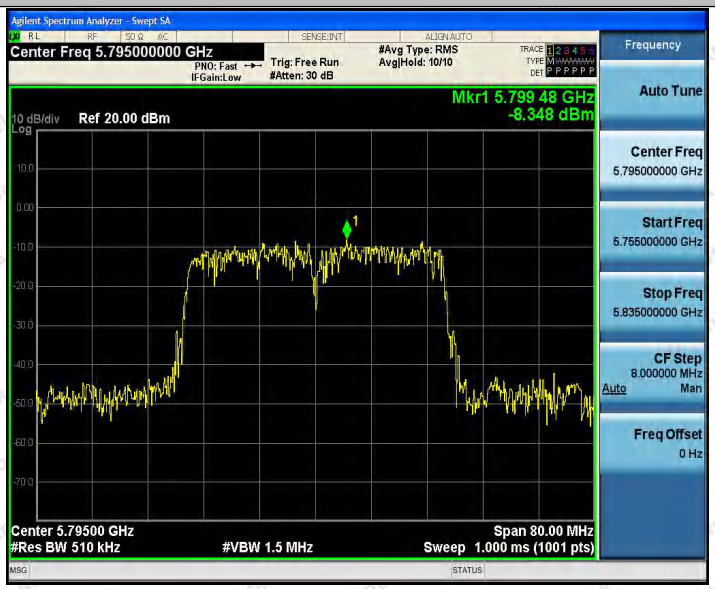
11N40SISO_Ant2_5230



11N40SISO_Ant1_5755

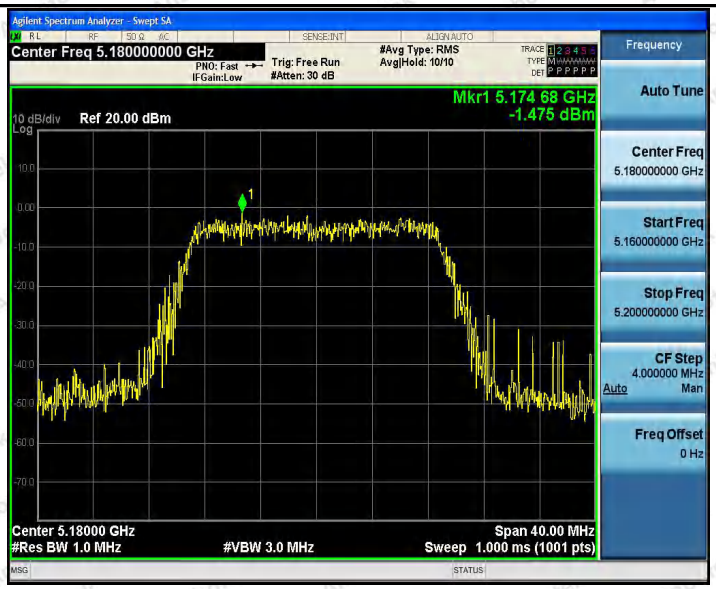
11N40SISO_Ant2_5755

11N40SISO_Ant1_5795



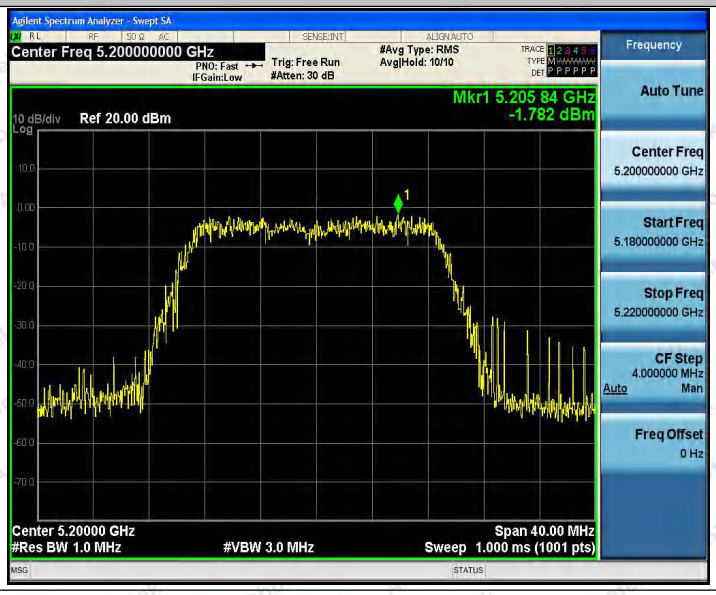
11N40SISO_Ant2_5795

11AC20SISO_Ant1_5180

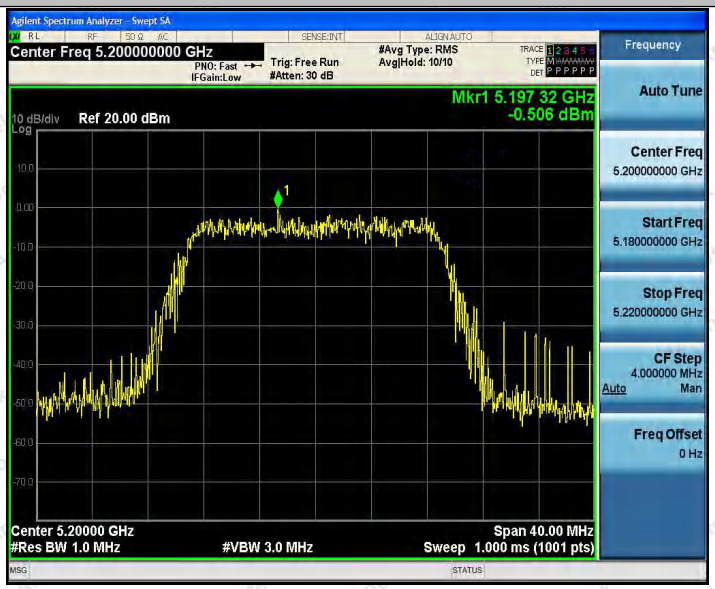


11AC20SISO_Ant2_5180

11AC20SISO_Ant1_5200



11AC20SISO_Ant2_5200

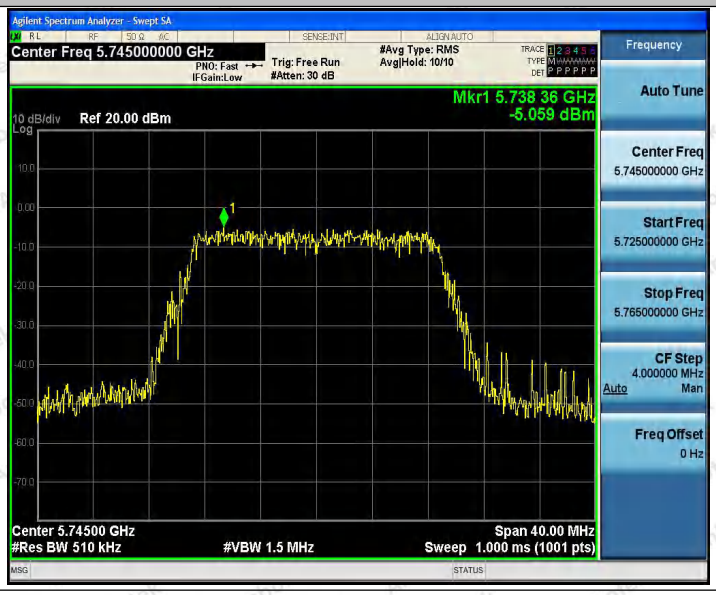


11AC20SISO_Ant1_5240

11AC20SISO_Ant2_5240

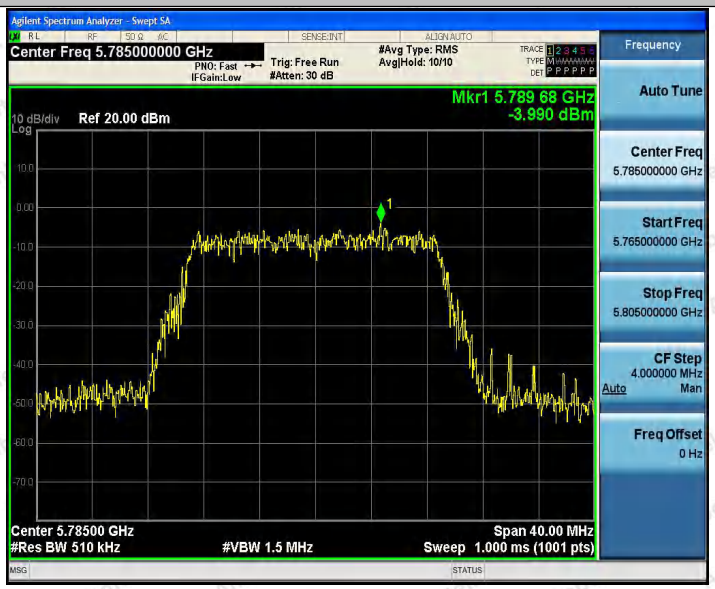
11AC20SISO_Ant1_5745

11AC20SISO_Ant2_5745

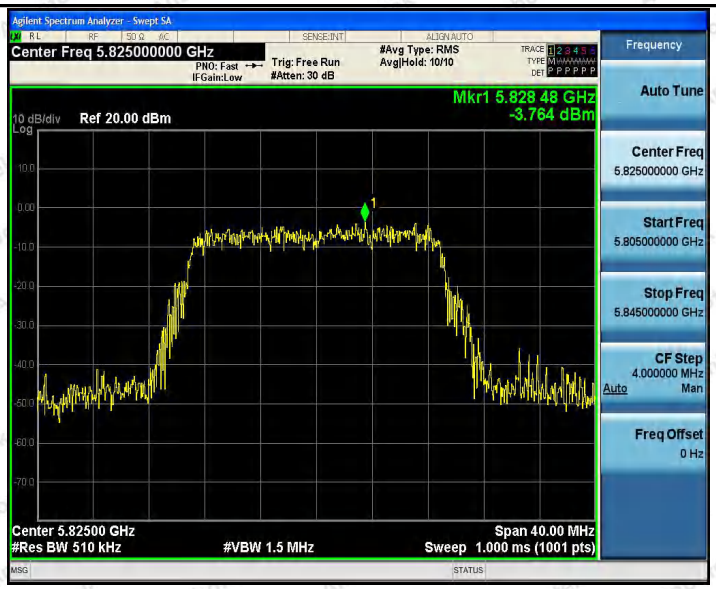


11AC20SISO_Ant1_5785

11AC20SISO_Ant2_5785

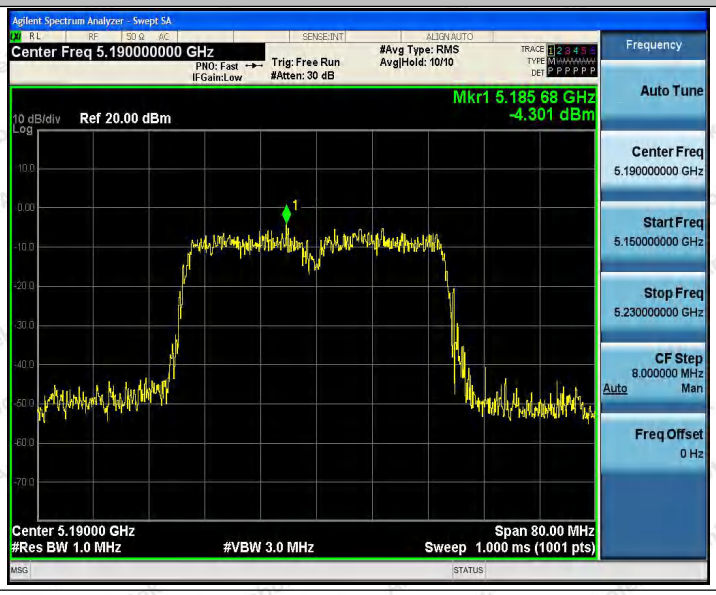


11AC20SISO_Ant1_5825



11AC20SISO_Ant2_5825

11AC40SISO_Ant1_5190



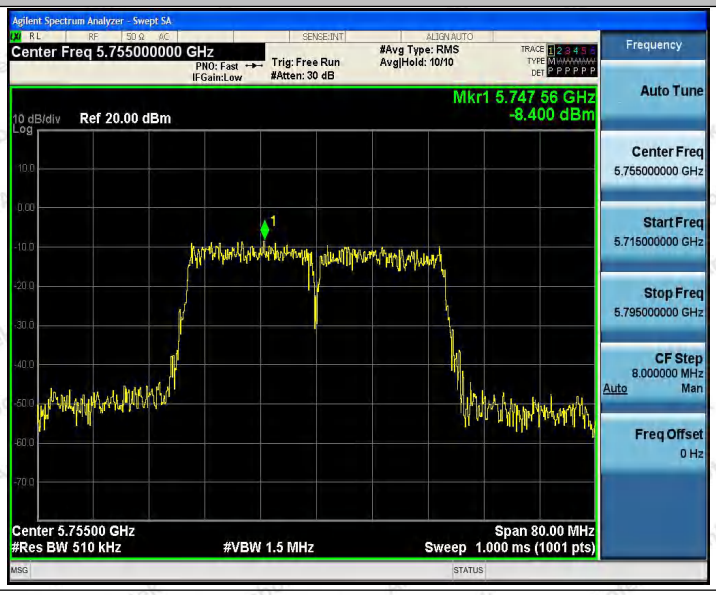
11AC40SISO_Ant2_5190

11AC40SISO_Ant1_5230

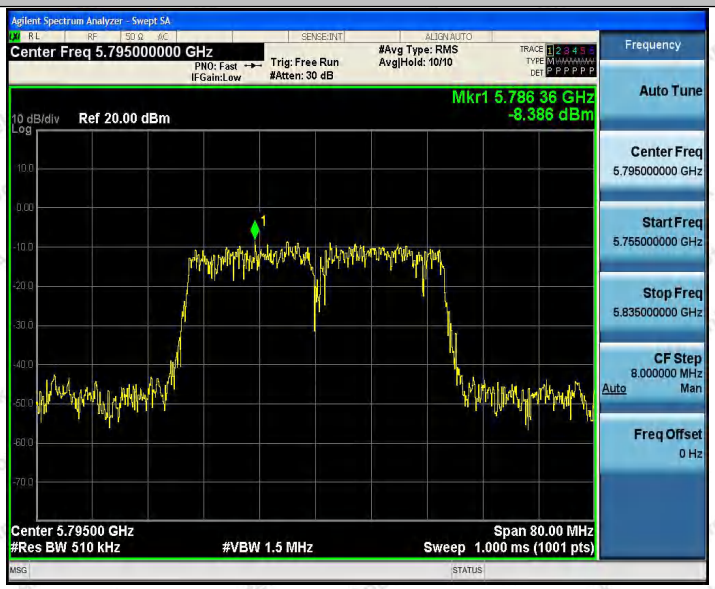
11AC40SISO_Ant2_5230

11AC40SISO_Ant1_5755

11AC40SISO_Ant2_5755



11AC40SISO_Ant1_5795

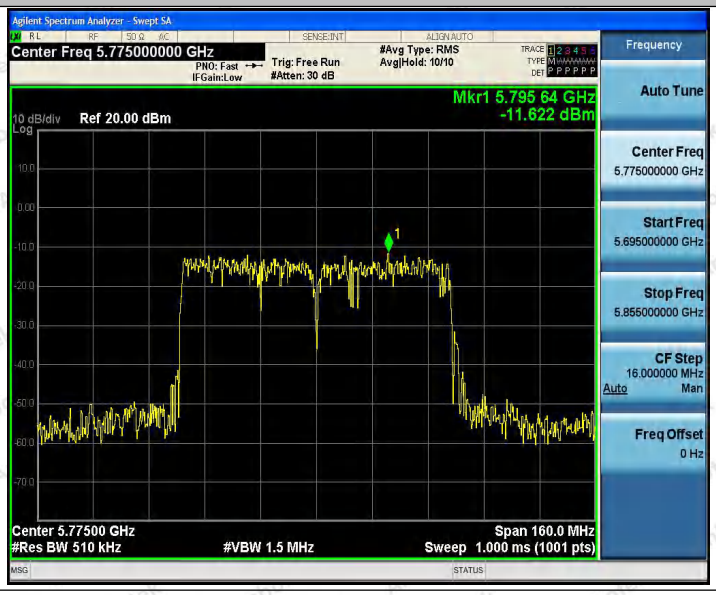


11AC40SISO_Ant2_5795

11AC80SISO_Ant1_5210

11AC80SISO_Ant2_5210

11AC80SISO_Ant1_5775



11AC80SISO_Ant2_5775

Appendix D: Band edge measurements

Test Result

Test Mode	Antenna	ChName	Channel	Result[dBm]	Limit[dBm]	Verdict
11A	Ant1	Low	5180	-36.18	≤-27	PASS
	Ant2	Low	5180	-37.76	≤-27	PASS
	Ant1	High	5240	-44.82	≤-27	PASS
	Ant2	High	5240	-43.62	≤-27	PASS
11N20SISO	Ant1	Low	5180	-36.49	≤-27	PASS
	Ant2	Low	5180	-37.03	≤-27	PASS
	Ant1	High	5240	-44.82	≤-27	PASS
	Ant2	High	5240	-44.72	≤-27	PASS
11N40SISO	Ant1	Low	5190	-34.84	≤-27	PASS
	Ant2	Low	5190	-33.49	≤-27	PASS
	Ant1	High	5230	-44.57	≤-27	PASS
	Ant2	High	5230	-45.23	≤-27	PASS
11AC20SISO	Ant1	Low	5180	-36.97	≤-27	PASS
	Ant2	Low	5180	-36.04	≤-27	PASS
	Ant1	High	5240	-45.15	≤-27	PASS
	Ant2	High	5240	-44.71	≤-27	PASS
11AC40SISO	Ant1	Low	5190	-28.43	≤-27	PASS
	Ant2	Low	5190	-33.4	≤-27	PASS
	Ant1	High	5230	-44.71	≤-27	PASS
	Ant2	High	5230	-44.49	≤-27	PASS
11AC80SISO	Ant1	Low	5210	-28.77	≤-27	PASS
	Ant2	Low	5210	-28.55	≤-27	PASS
	Ant1	High	5210	-42.33	≤-27	PASS
	Ant2	High	5210	-43.92	≤-27	PASS

TestMode	Antenna	ChName	Channel	FreqRange [MHz]	Result [dBm]	Limit [dBm]	Verdict
11A	Ant1	Low	5745	5650~5700	-42.91	≤-16.97	PASS
				5700~5720	-27.38	≤15.16	PASS
				5720~5725	-22.56	≤26.13	PASS
				5755~5650	-43.13	≤-27	PASS
	Ant2	Low	5745	5650~5700	-41.37	≤9.87	PASS
				5700~5720	-28.81	≤15.59	PASS
				5720~5725	-20.34	≤24.01	PASS
				5755~5650	-43.27	≤-27	PASS
	Ant1	High	5825	5850~5855	-32.99	≤18.56	PASS
				5855~5875	-35	≤10.27	PASS
				5875~5925	-43.12	≤-22.56	PASS
				5925~5950	-42.52	≤-27	PASS
	Ant2	High	5825	5850~5855	-31.55	≤21.30	PASS
				5855~5875	-33.31	≤10.73	PASS
				5875~5925	-43.37	≤-9.46	PASS
				5925~5950	-43.27	≤-27	PASS
11N20SISO	Ant1	Low	5745	5650~5700	-39.35	≤9.18	PASS
				5700~5720	-28.38	≤15.59	PASS
				5720~5725	-18.37	≤22.60	PASS
				5755~5650	-43.1	≤-27	PASS
	Ant2	Low	5745	5650~5700	-39.92	≤9.52	PASS
				5700~5720	-25.53	≤15.50	PASS
				5720~5725	-19.71	≤26.13	PASS
				5755~5650	-43.45	≤-27	PASS
	Ant1	High	5825	5850~5855	-30.96	≤20.27	PASS
				5855~5875	-34.84	≤10.48	PASS
				5875~5925	-43.23	≤6.41	PASS
				5925~5950	-43.22	≤-27	PASS
	Ant2	High	5825	5850~5855	-30.92	≤15.83	PASS
				5855~5875	-34.42	≤10.06	PASS
				5875~5925	-42.95	≤-26.00	PASS
				5925~5950	-43.72	≤-27	PASS
11N40SISO	Ant1	Low	5755	5650~5700	-34.09	≤8.05	PASS
				5700~5720	-22.67	≤14.17	PASS
				5720~5725	-21.95	≤17.33	PASS
				5745~5650	-43.53	≤-27	PASS
	Ant2	Low	5755	5650~5700	-33.44	≤9.82	PASS
				5700~5720	-22.63	≤15.51	PASS
				5720~5725	-21.75	≤18.70	PASS

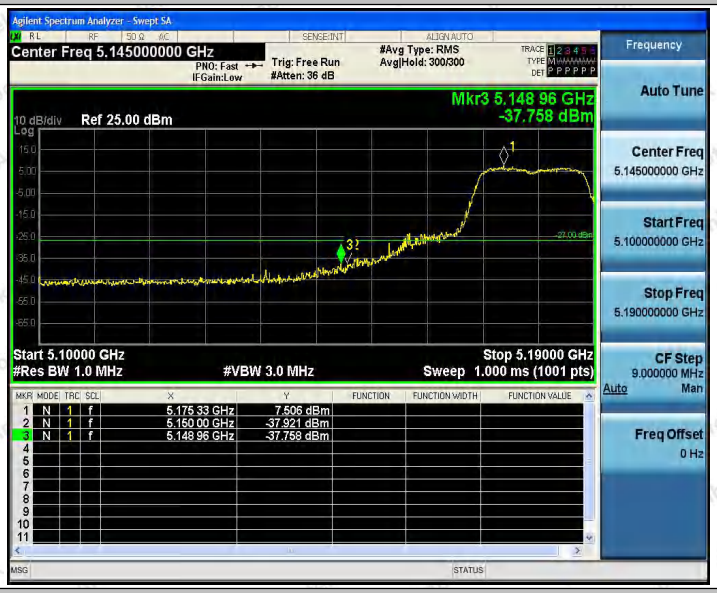
				5745~5650	-43.41	≤-27	PASS
	Ant1	High	5795	5850~5855	-42.23	≤19.45	PASS
				5855~5875	-41.97	≤11.10	PASS
				5875~5925	-43.78	≤3.93	PASS
				5925~5950	-43.91	≤-27	PASS
	Ant2	High	5795	5850~5855	-42.02	≤20.45	PASS
				5855~5875	-42.97	≤10.41	PASS
				5875~5925	-43.68	≤-15.06	PASS
				5925~5950	-43.26	≤-27	PASS
11AC20S ISO	Ant1	Low	5745	5650~5700	-42.59	≤9.41	PASS
				5700~5720	-27.51	≤15.46	PASS
				5720~5725	-21.36	≤26.13	PASS
				5755~5650	-42.86	≤-27	PASS
	Ant2	Low	5745	5650~5700	-41.86	≤9.64	PASS
				5700~5720	-27.83	≤15.59	PASS
				5720~5725	-19.32	≤26.84	PASS
				5755~5650	-42.39	≤-27	PASS
	Ant1	High	5825	5850~5855	-29.93	≤17.20	PASS
				5855~5875	-34.03	≤10.18	PASS
				5875~5925	-43.25	≤-4.02	PASS
				5925~5950	-43.14	≤-27	PASS
	Ant2	High	5825	5850~5855	-30.41	≤16.17	PASS
				5855~5875	-35.59	≤10.01	PASS
				5875~5925	-43.38	≤-10.91	PASS
				5925~5950	-43.6	≤-27	PASS
11AC40S ISO	Ant1	Low	5755	5650~5700	-34.86	≤7.34	PASS
				5700~5720	-22.71	≤15.48	PASS
				5720~5725	-21.45	≤17.33	PASS
				5745~5650	-42.76	≤-27	PASS
	Ant2	Low	5755	5650~5700	-36.37	≤10.00	PASS
				5700~5720	-22.96	≤14.94	PASS
				5720~5725	-23.8	≤17.61	PASS
				5745~5650	-42.36	≤-27	PASS
	Ant1	High	5795	5850~5855	-41.01	≤15.82	PASS
				5855~5875	-41.1	≤10.09	PASS
				5875~5925	-43.49	≤-23.33	PASS
				5925~5950	-43.48	≤-27	PASS
	Ant2	High	5795	5850~5855	-41.76	≤16.15	PASS
				5855~5875	-41.92	≤13.66	PASS
				5875~5925	-43.33	≤-6.48	PASS
				5925~5950	-43.29	≤-27	PASS
11AC80S	Ant1	Low	5775	5650~5700	-24.74	≤8.77	PASS

ISO				5700~5720	-21.51	≤15.59	PASS
				5720~5725	-21.58	≤16.25	PASS
				5765~5650	-34.42	≤-27	PASS
		High	5775	5850~5855	-27.45	≤20.11	PASS
				5855~5875	-28	≤12.00	PASS
				5875~5925	-36.41	≤-26.87	PASS
				5925~5950	-42.45	≤-27	PASS
	Ant2	Low	5775	5650~5700	-24.66	≤8.28	PASS
				5700~5720	-21.66	≤15.59	PASS
				5720~5725	-21.51	≤23.40	PASS
				5765~5650	-34.51	≤-27	PASS
		High	5775	5850~5855	-27.46	≤25.07	PASS
				5855~5875	-26.69	≤10.66	PASS
				5875~5925	-38.73	≤-26.76	PASS
				5925~5950	-43.29	≤-27	PASS

Test Graphs

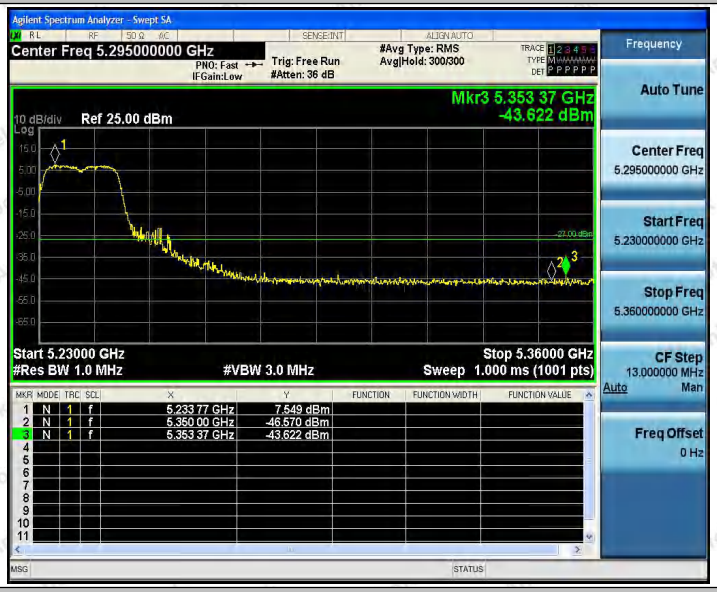
11A_Ant1_Low_5180

11A_Ant2_Low_5180



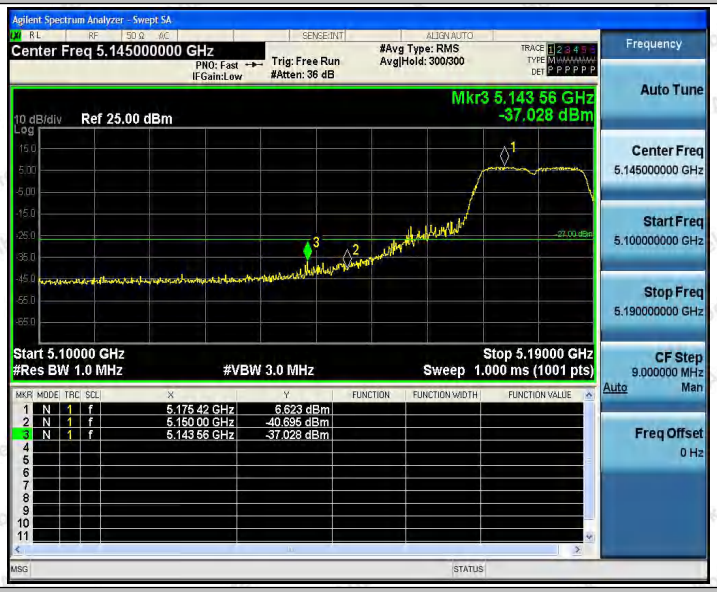
11A_Ant1_High_5240

11A_Ant2_High_5240



11N20SISO_Ant1_Low_5180

11N20SISO_Ant2_Low_5180



11N20SISO_Ant1_High_5240

11N20SISO_Ant2_High_5240

11N40SISO_Ant1_Low_5190

11N40SISO_Ant2_Low_5190