

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

Product Name: Outdoor LoRa Gateway

Trade Mark: Dusun

Test Model: DSGW-014

FCC ID: 2AUXBDSGW-014

Environmental Conditions

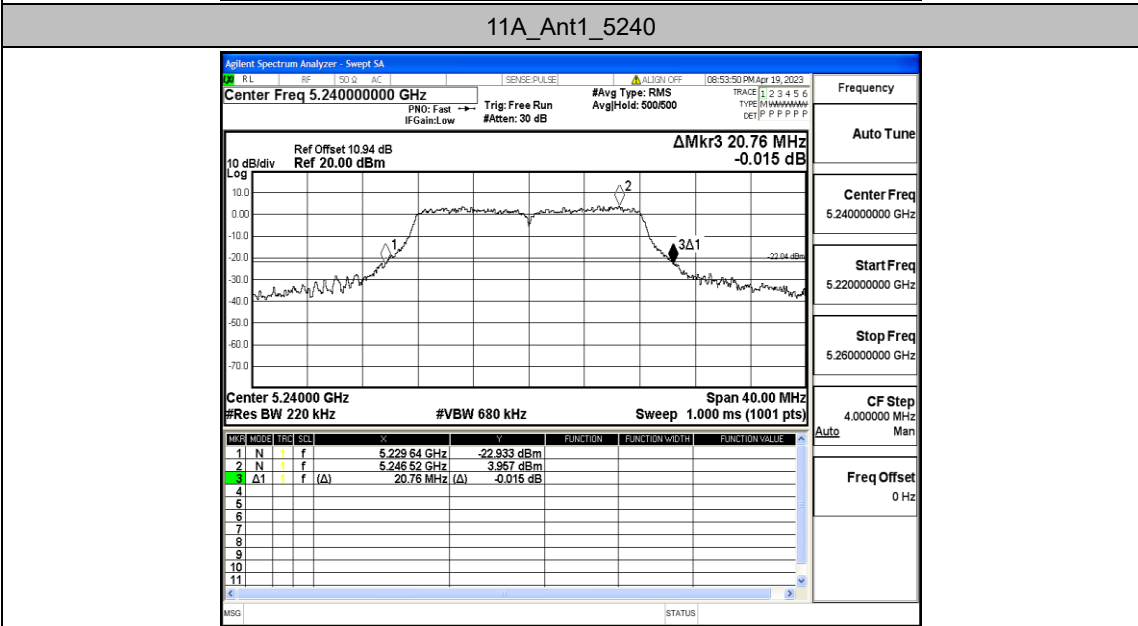
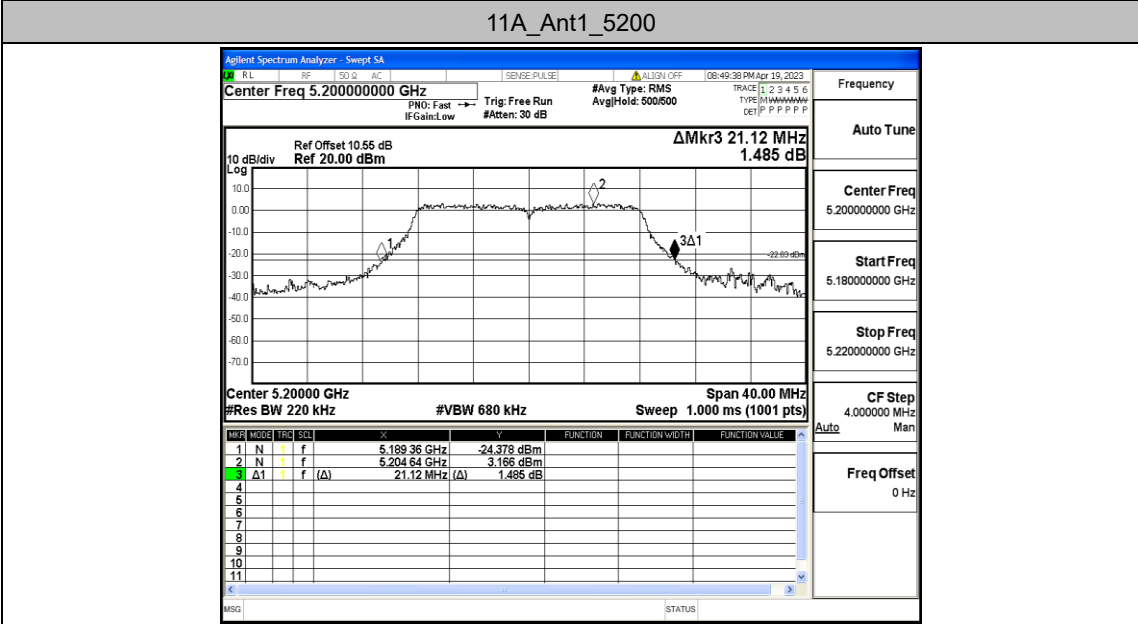
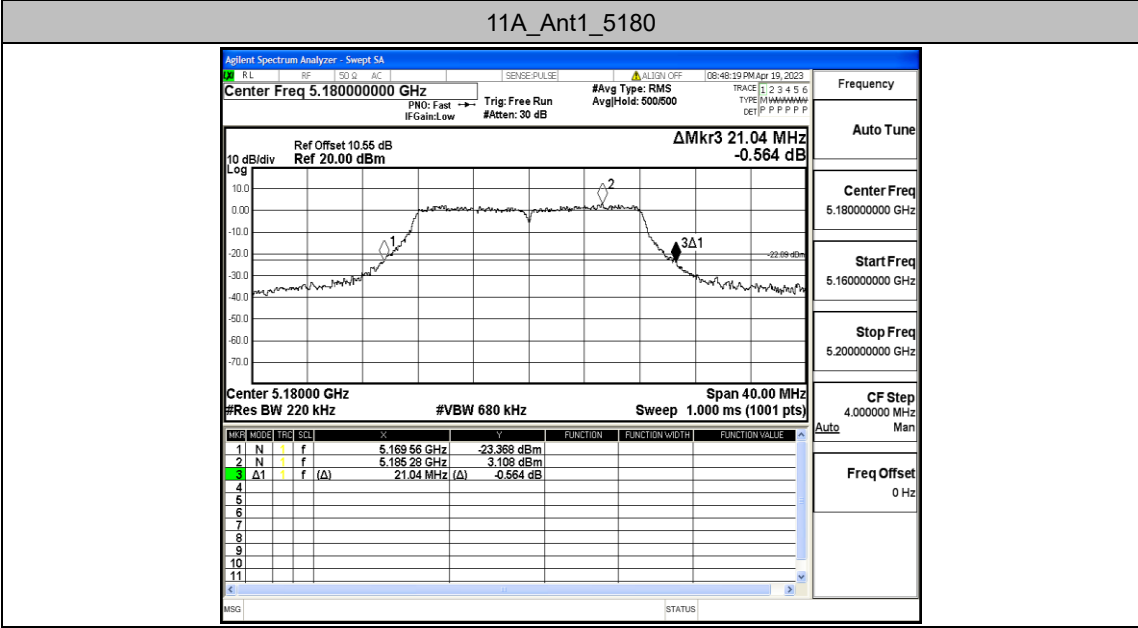
Temperature:	22.7℃
Relative Humidity:	56%
ATM Pressure:	100.0 kPa
Test Engineer:	Anna Hu
Supervised by:	Hugo Chen
NOTE	N/A

Appendix A1: Emission Bandwidth

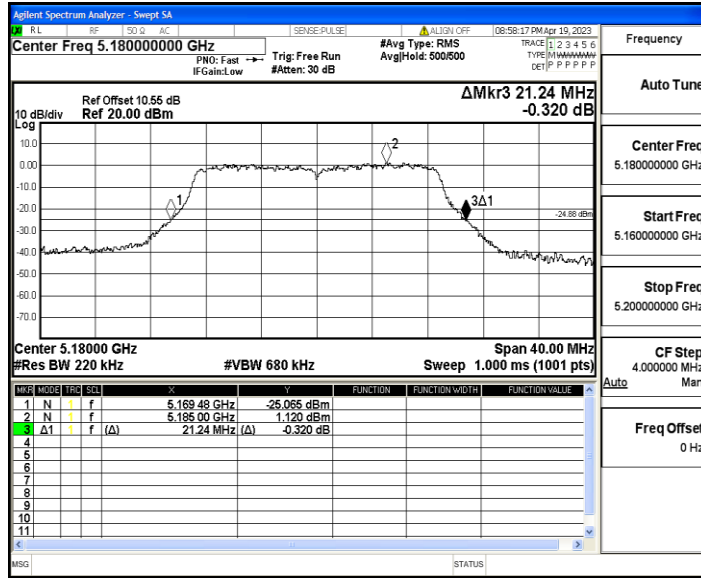
Test Result

TestMode	Antenna	Channel	26db EBW [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
11A	Ant1	5180	21.040	5169.560	5190.600	---	---
		5200	21.120	5189.360	5210.480	---	---
		5240	20.760	5229.640	5250.400	---	---
11N20SISO	Ant1	5180	21.240	5169.480	5190.720	---	---
		5200	21.200	5189.360	5210.560	---	---
		5240	21.320	5229.360	5250.680	---	---
11N40SISO	Ant1	5190	41.280	5169.680	5210.960	---	---
		5230	42.000	5209.280	5251.280	---	---
11AC20SISO	Ant1	5180	21.720	5169.240	5190.960	---	---
		5200	21.240	5189.440	5210.680	---	---
		5240	21.560	5229.320	5250.880	---	---
11AC40SISO	Ant1	5190	41.200	5169.520	5210.720	---	---
		5230	41.760	5209.200	5250.960	---	---
11AC80SISO	Ant1	5210	81.920	5169.200	5251.120	---	---

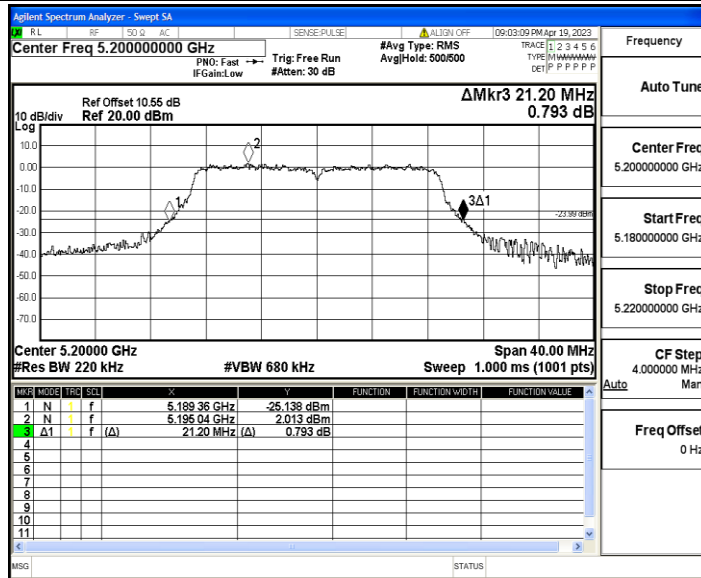
Test Graphs



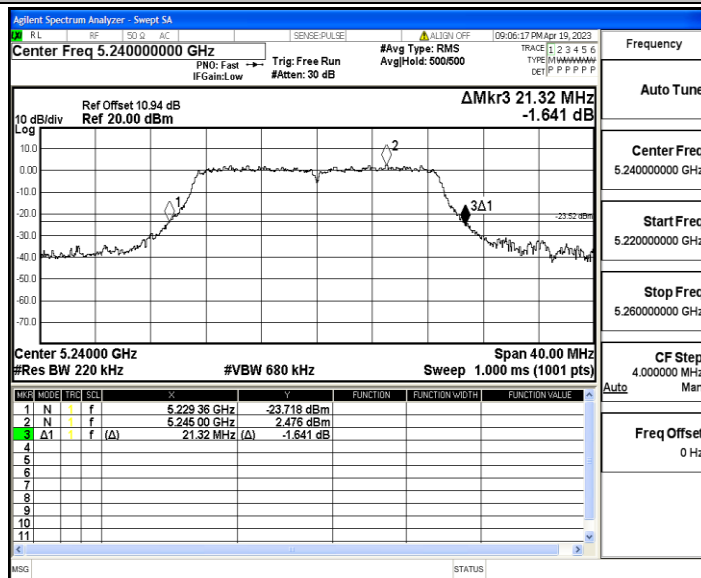
11N20SISO_Ant1_5180



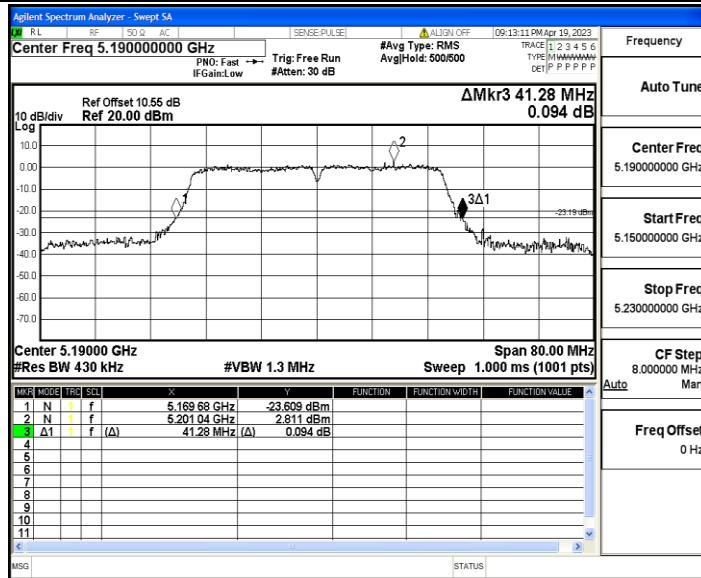
11N20SISO_Ant1_5200



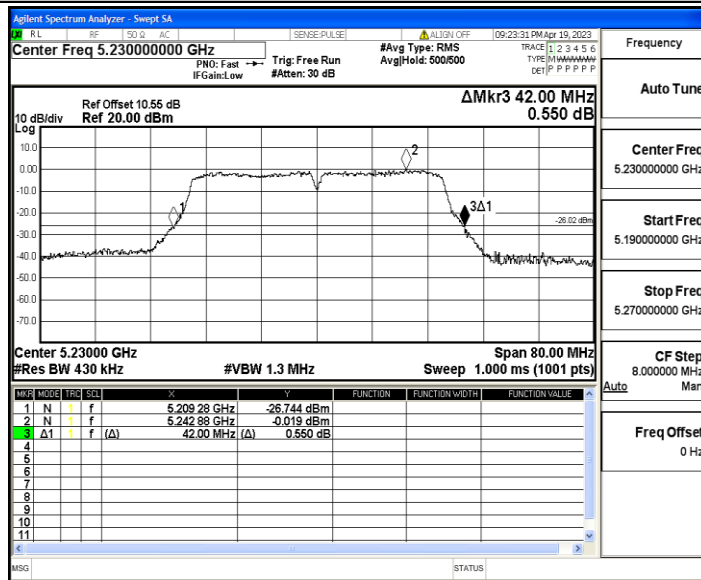
11N20SISO_Ant1_5240



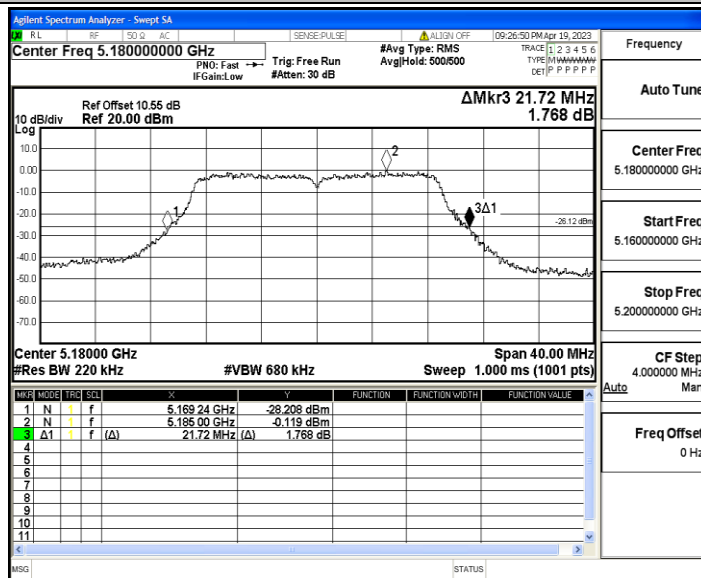
11N40SISO_Ant1_5190



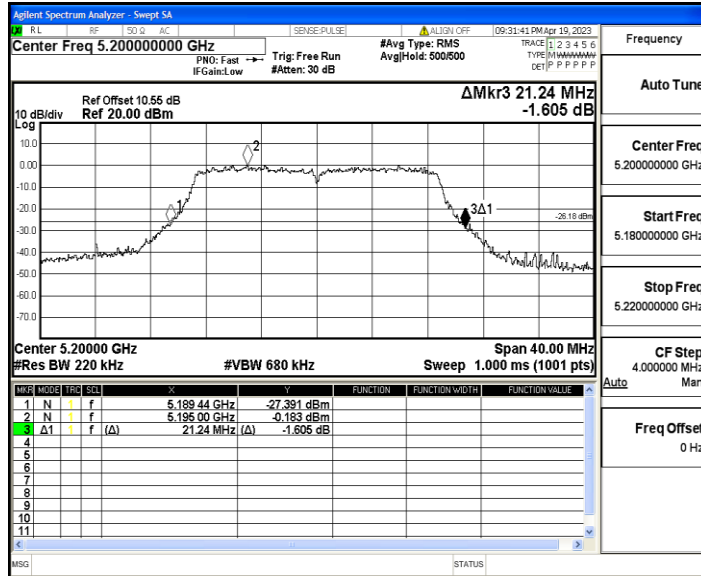
11N40SISO_Ant1_5230



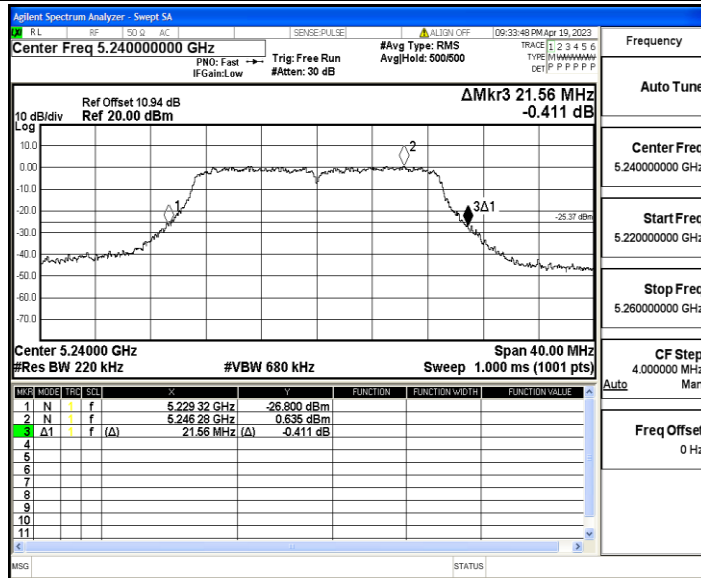
11AC20SISO_Ant1_5180



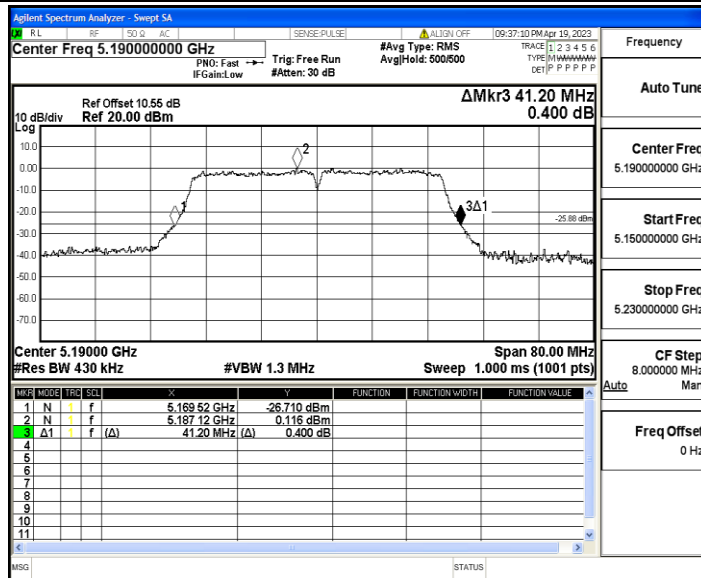
11AC20SISO_Ant1_5200



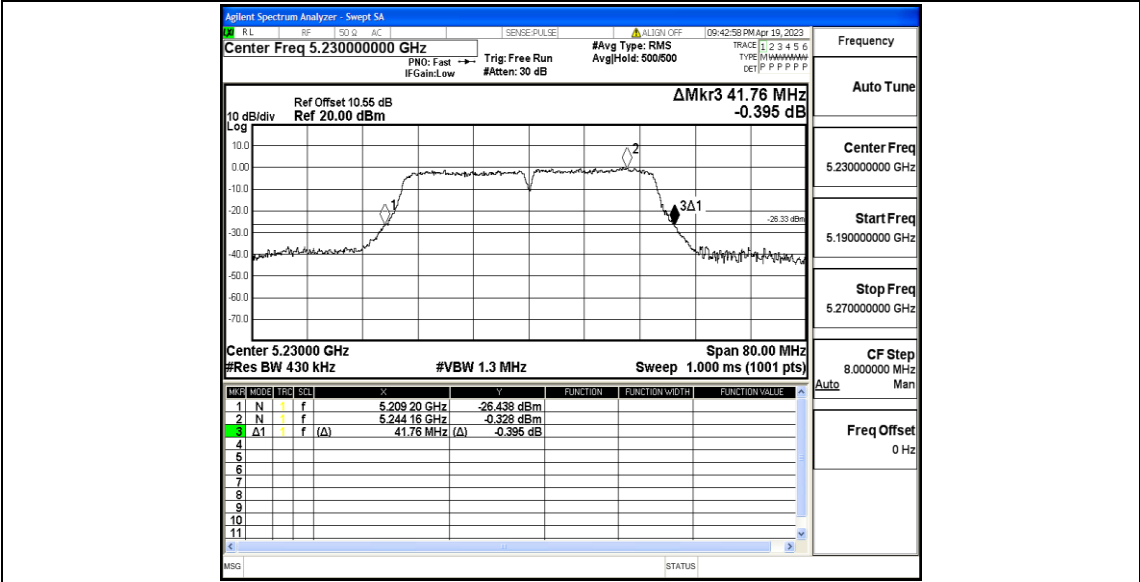
11AC20SISO_Ant1_5240



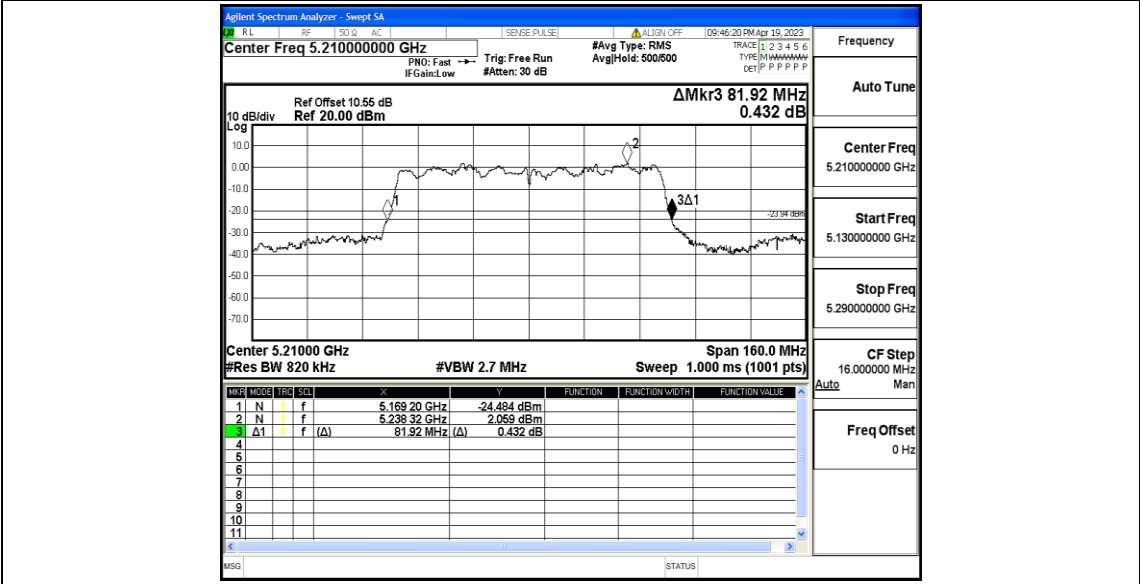
11AC40SISO_Ant1_5190



11AC40SISO_Ant1_5230



11AC80SISO_Ant1_5210

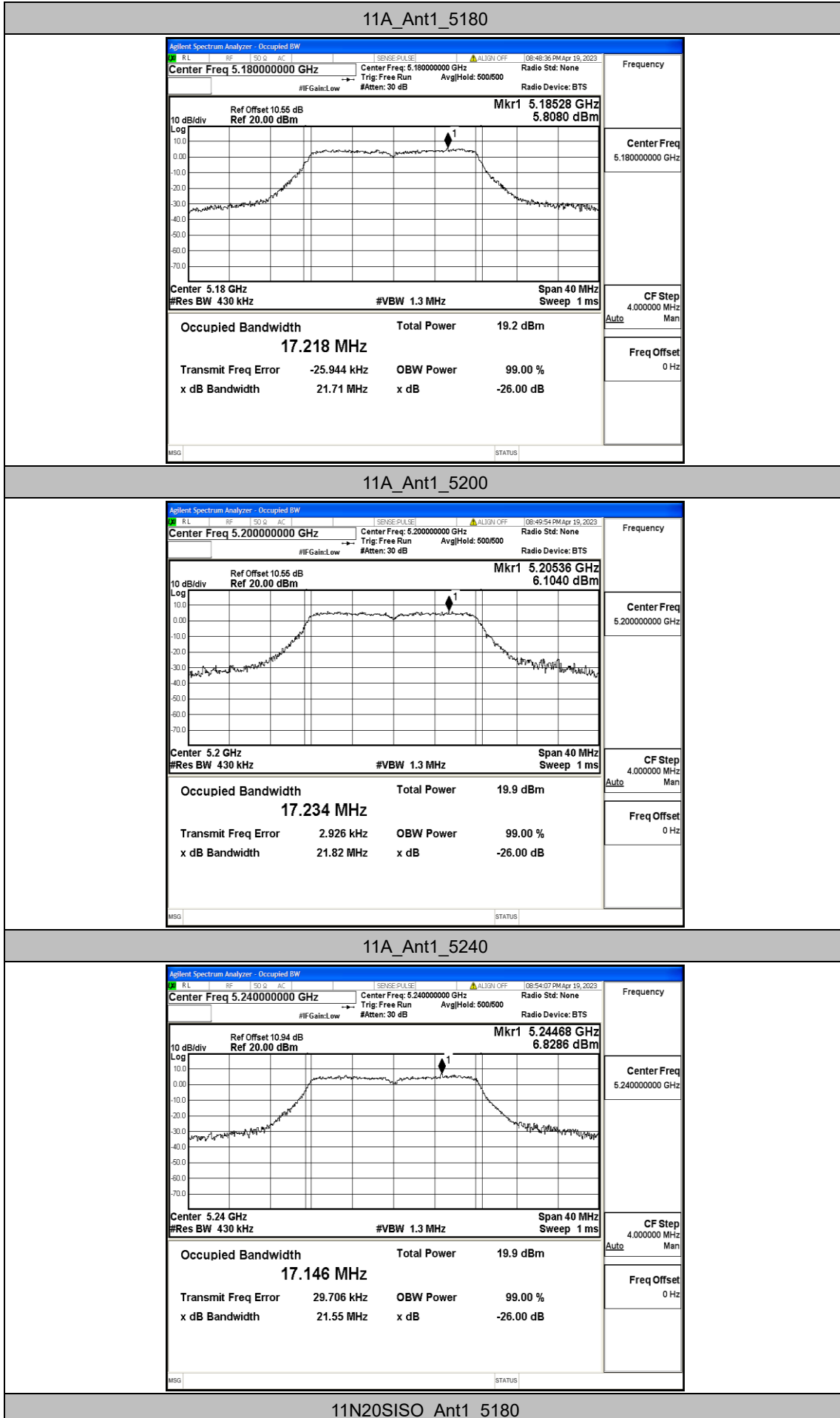


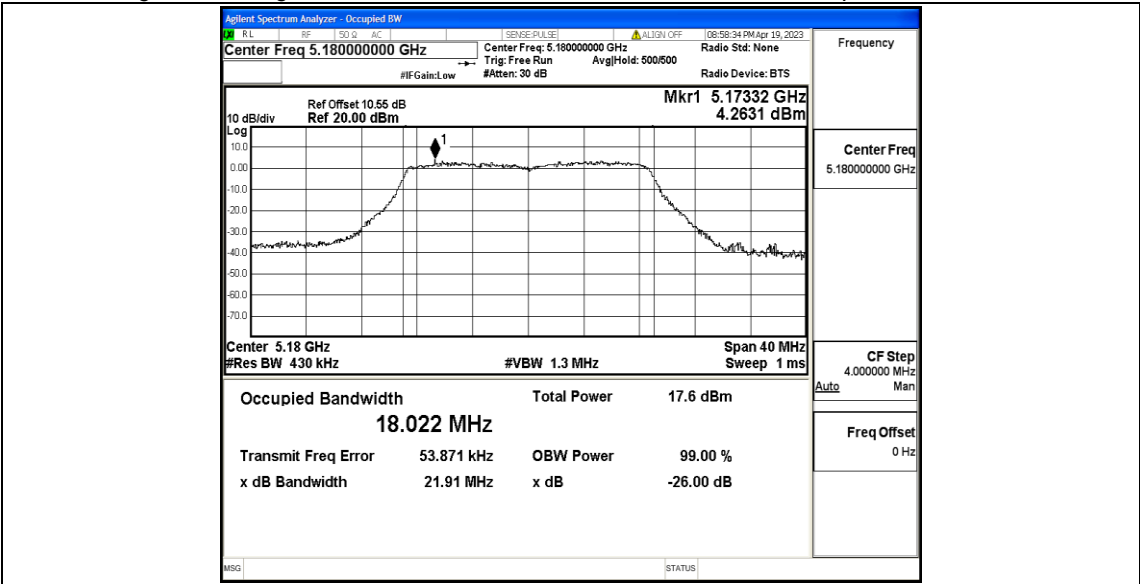
Appendix A2: Occupied channel bandwidth

Test Result

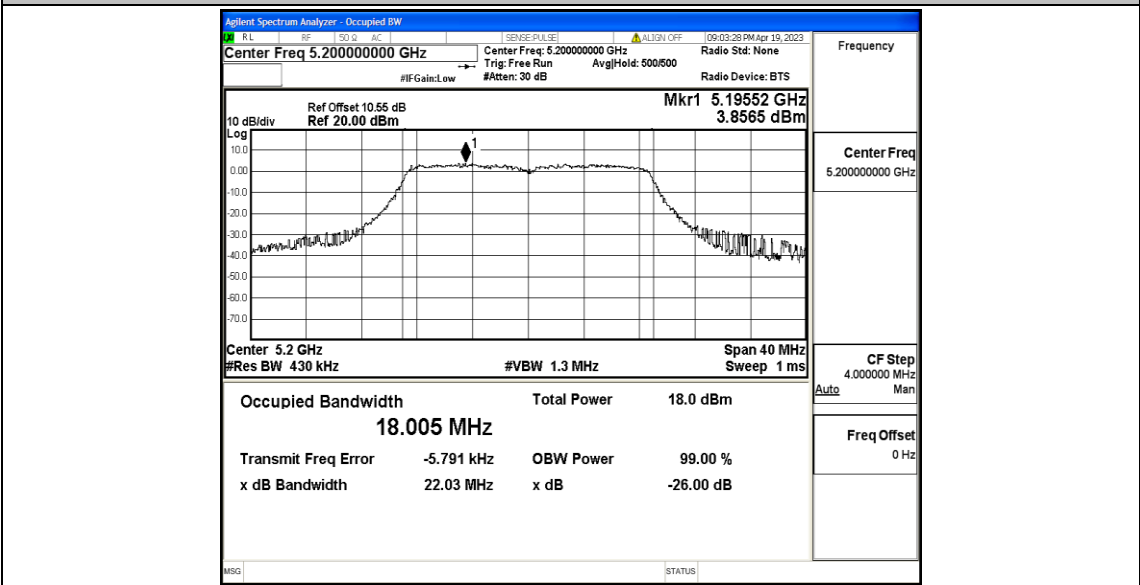
TestMode	Antenna	Channel	OCB [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
11A	Ant1	5180	17.218	5171.3651	5188.5831	---	---
		5200	17.234	5191.3859	5208.6199	---	---
		5240	17.146	5231.4567	5248.6027	---	---
11N20SISO	Ant1	5180	18.022	5171.0429	5189.0649	---	---
		5200	18.005	5190.9917	5208.9967	---	---
		5240	18.070	5231.0056	5249.0756	---	---
11N40SISO	Ant1	5190	36.515	5171.8556	5208.3706	---	---
		5230	36.570	5211.8559	5248.4259	---	---
11AC20SISO	Ant1	5180	18.169	5170.9694	5189.1384	---	---
		5200	17.931	5191.0281	5208.9591	---	---
		5240	17.995	5231.0429	5249.0379	---	---
11AC40SISO	Ant1	5190	36.355	5171.9262	5208.2812	---	---
		5230	36.446	5211.8882	5248.3342	---	---
11AC80SISO	Ant1	5210	76.293	5172.1366	5248.4296	---	---

Test Graphs

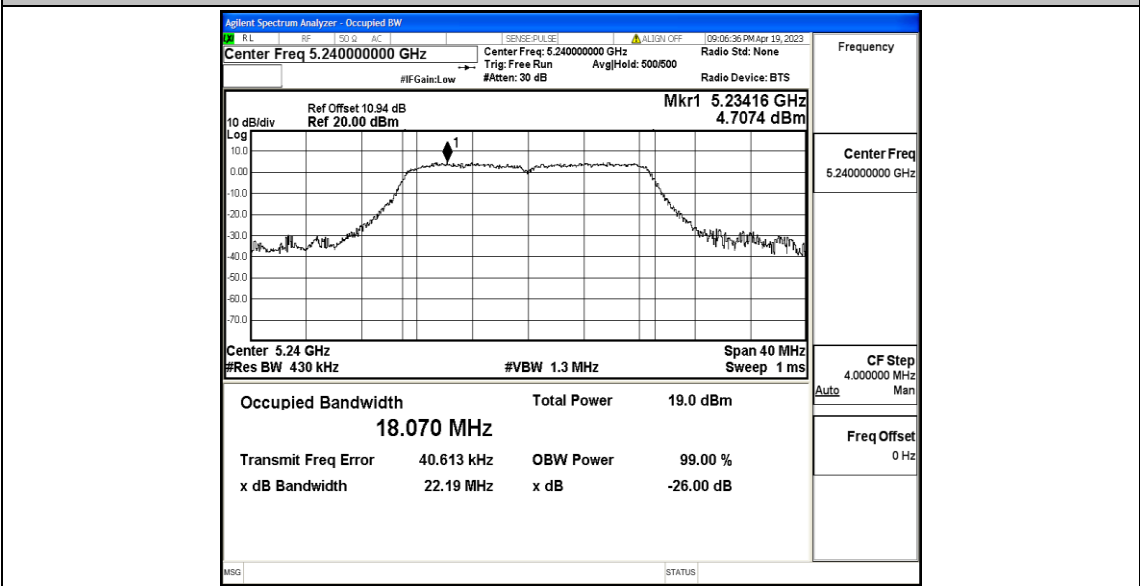




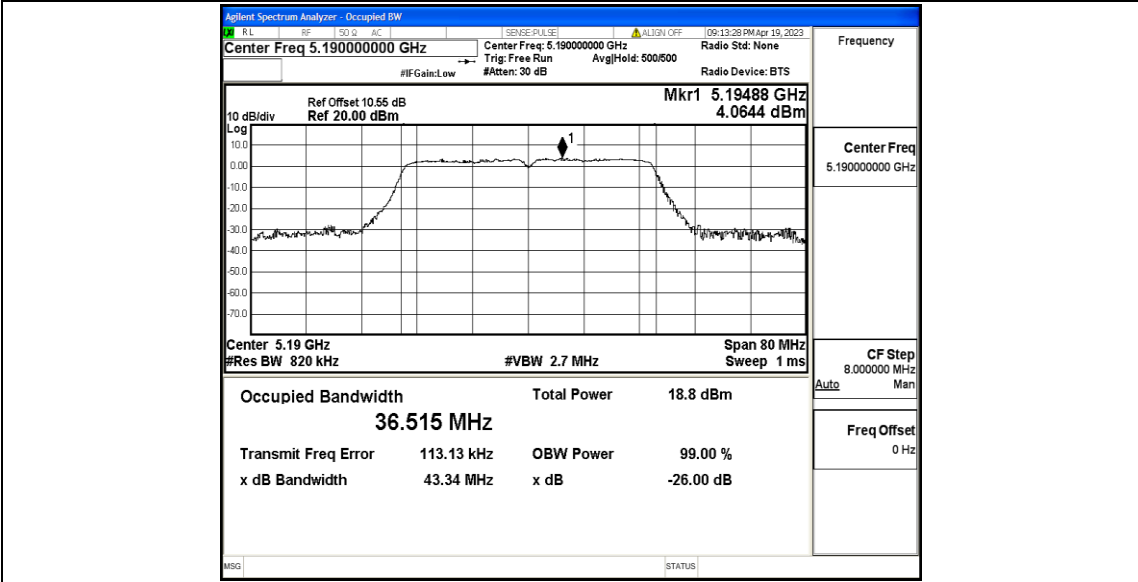
11N20SISO_Ant1_5200



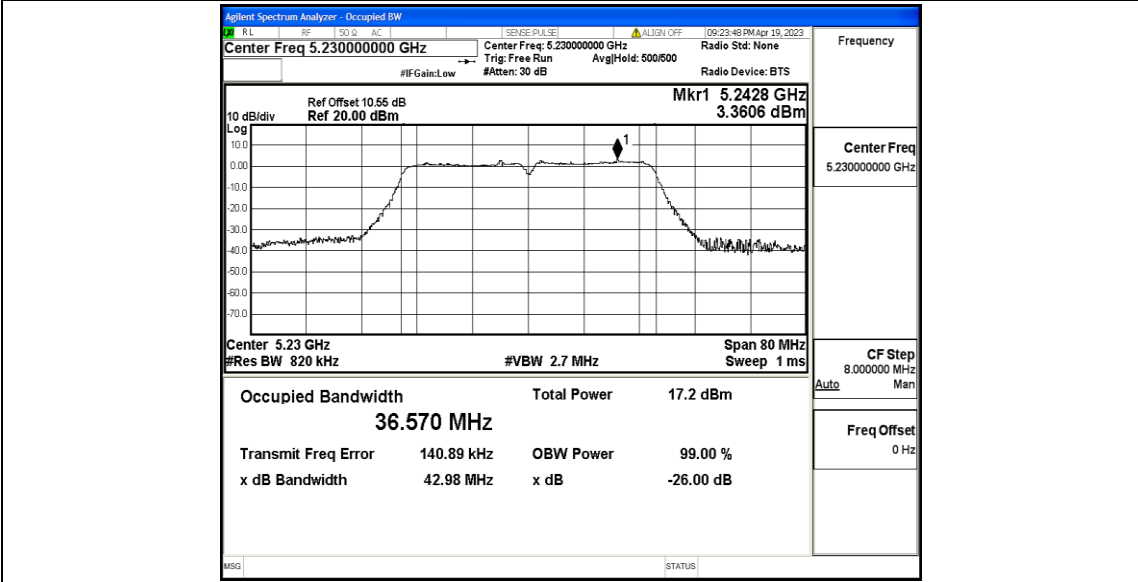
11N20SISO_Ant1_5240



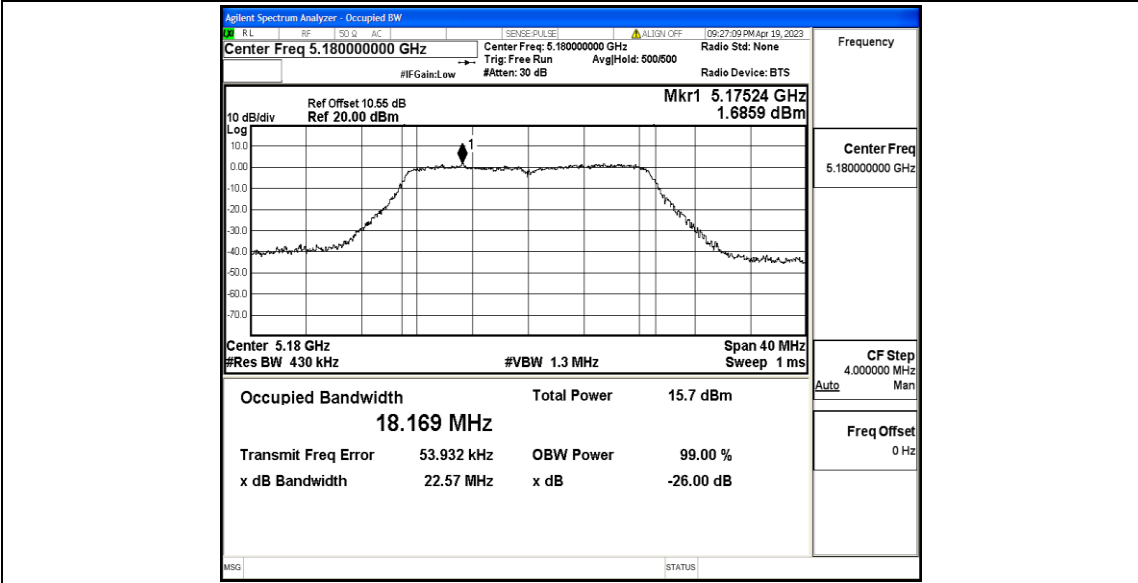
11N40SISO_Ant1_5190



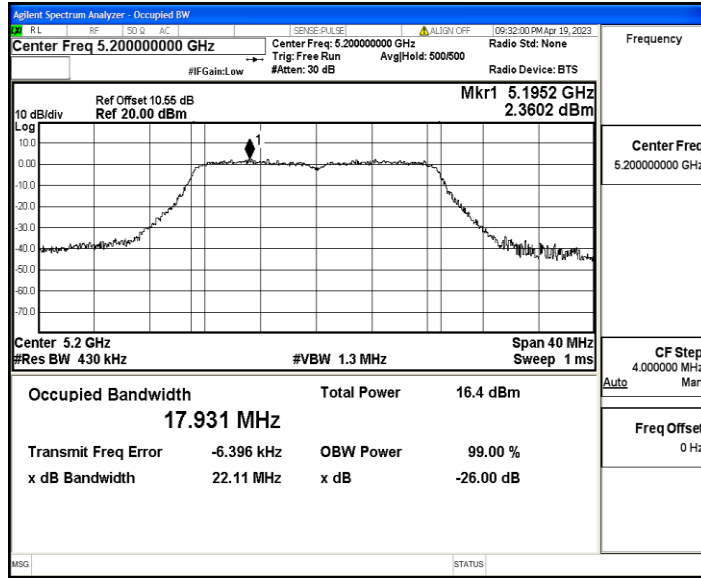
11N40SISO_Ant1_5230



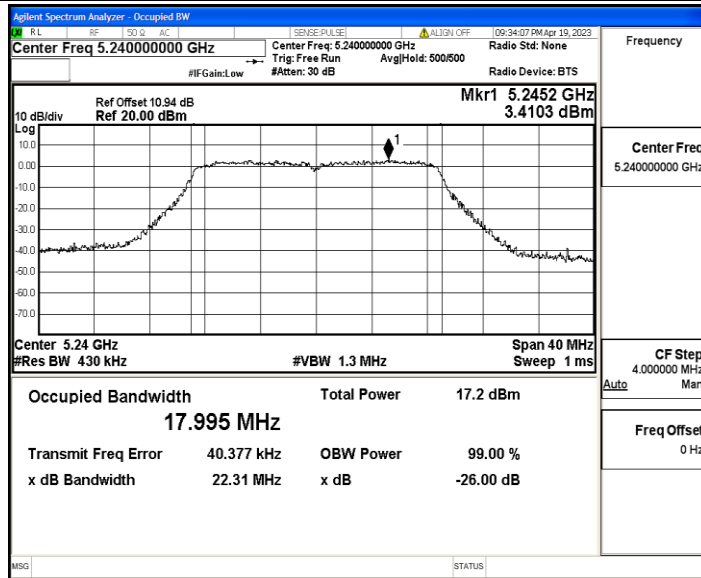
11A20SISO_Ant1_5180



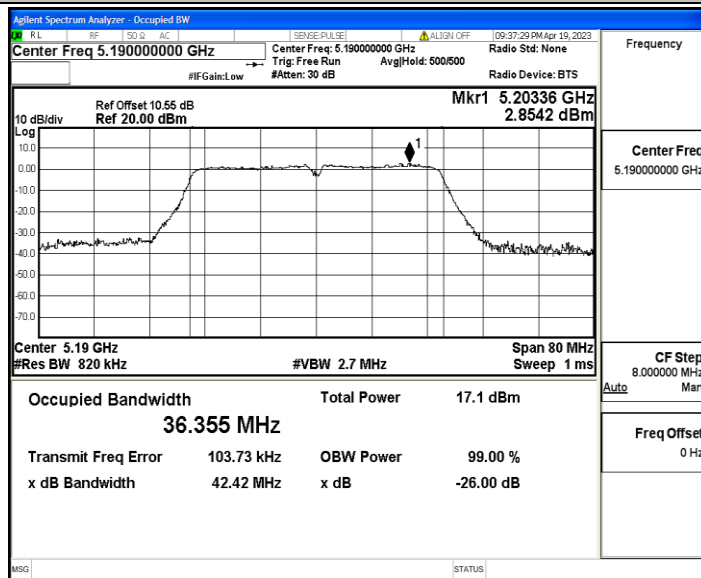
11A20SISO_Ant1_5200



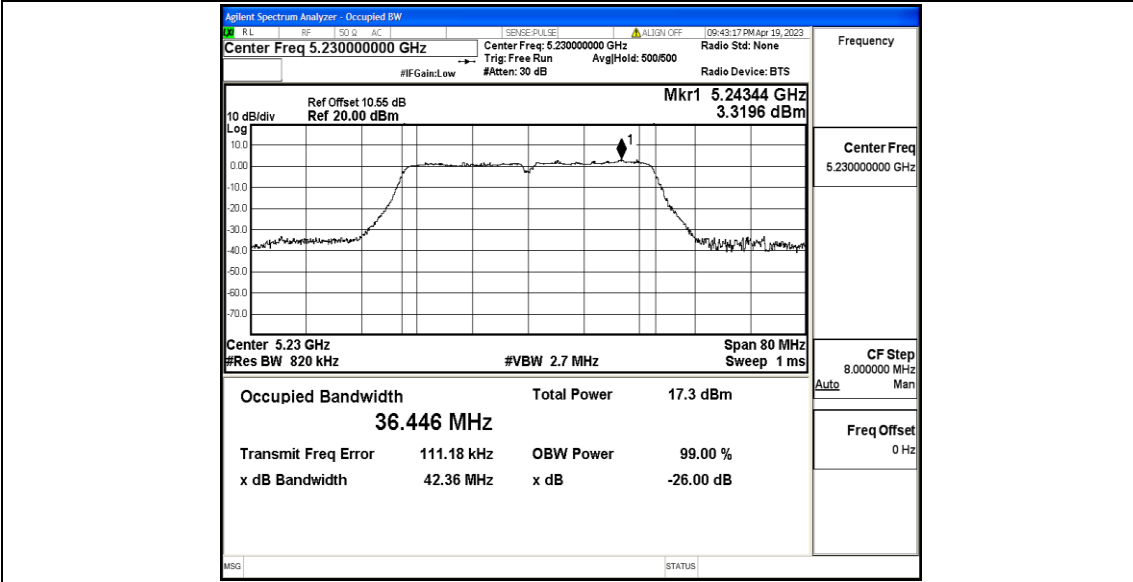
11AC20SISO_Ant1_5240



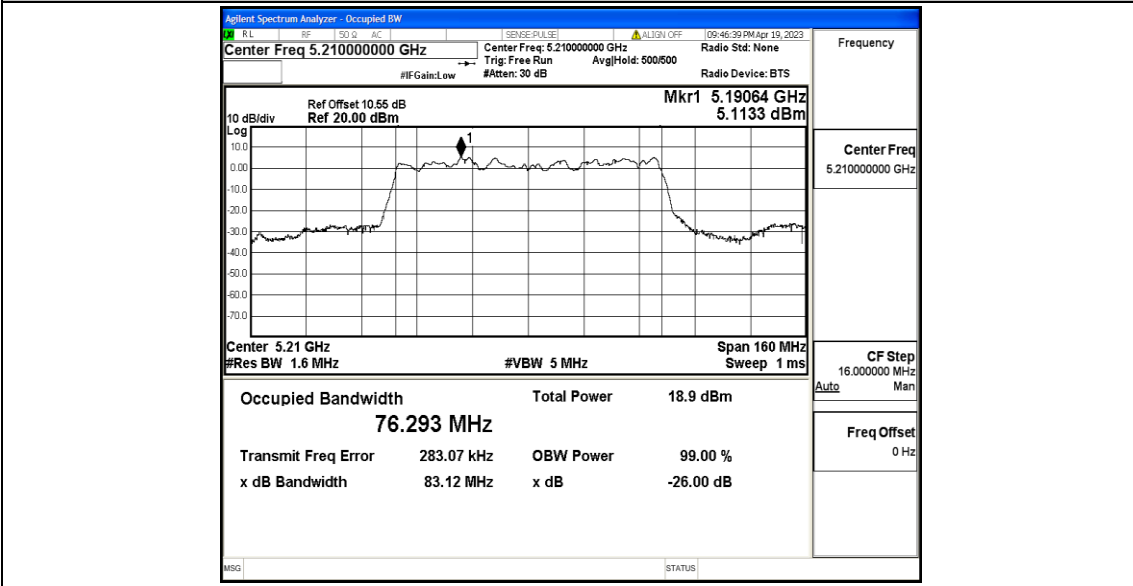
11AC40SISO_Ant1_5190



11AC40SISO_Ant1_5230



11AC80SISO_Ant1_5210



Appendix B: Maximum conducted output power

Test Result

TestMode	Antenna	Channel	Result[dBm]	Limit[dBm]	Verdict
11A	Ant1	5180	12.62	≤23.98	PASS
		5200	12.74	≤23.98	PASS
		5240	12.45	≤23.98	PASS
11N20SISO	Ant1	5180	10.81	≤23.98	PASS
		5200	11.38	≤23.98	PASS
		5240	12.37	≤23.98	PASS
11N40SISO	Ant1	5190	9.93	≤23.98	PASS
		5230	10.01	≤23.98	PASS
11AC20SISO	Ant1	5180	9.10	≤23.98	PASS
		5200	9.64	≤23.98	PASS
		5240	10.54	≤23.98	PASS
11AC40SISO	Ant1	5190	9.98	≤23.98	PASS
		5230	10.22	≤23.98	PASS
11AC80SISO	Ant1	5210	11.48	≤23.98	PASS

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

Appendix C: Maximum power spectral density

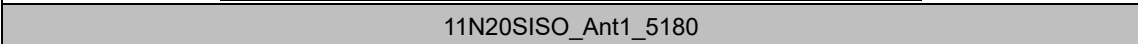
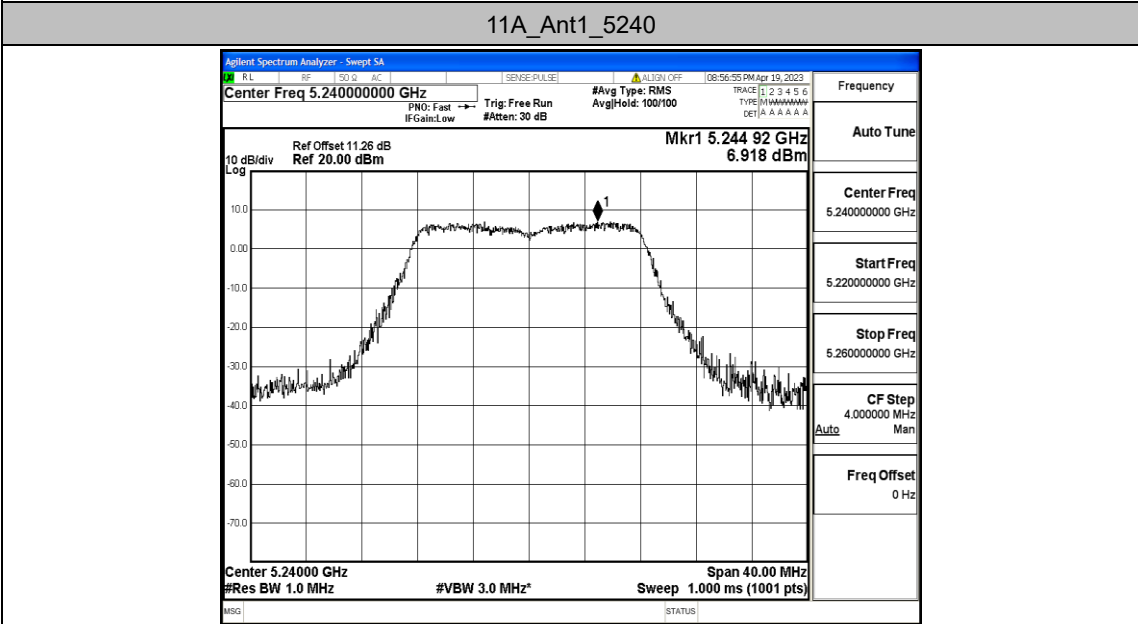
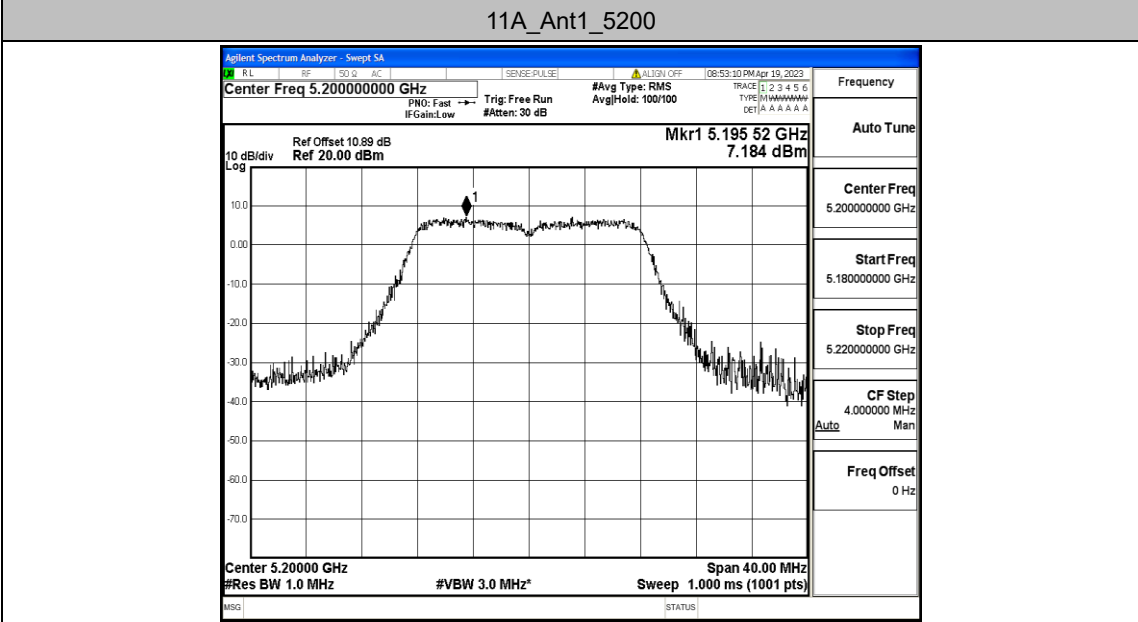
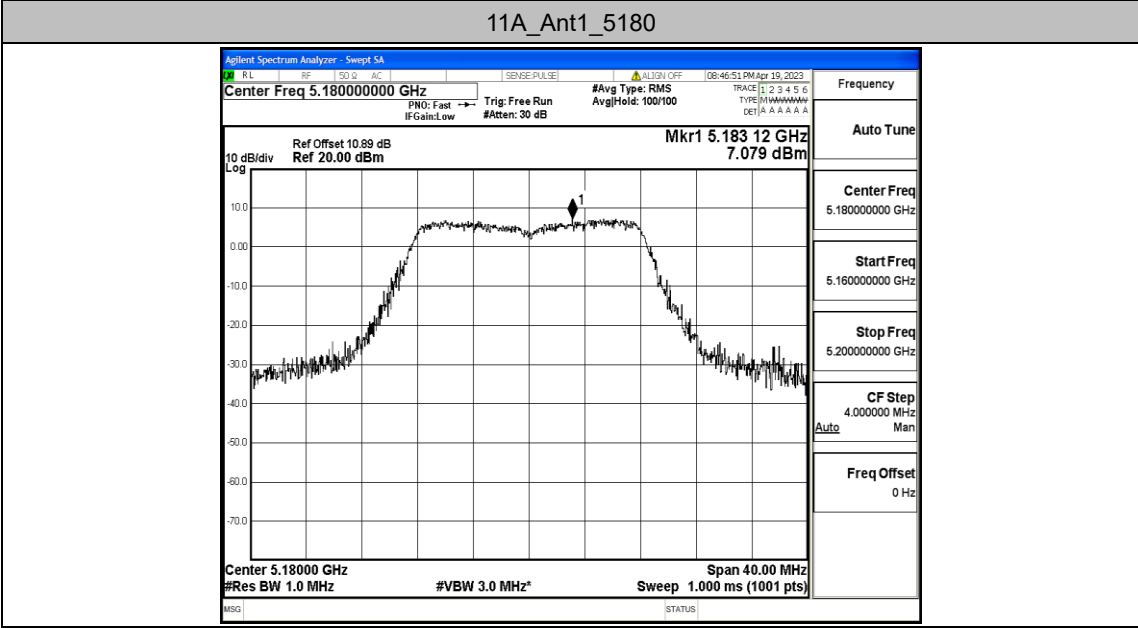
Test Result

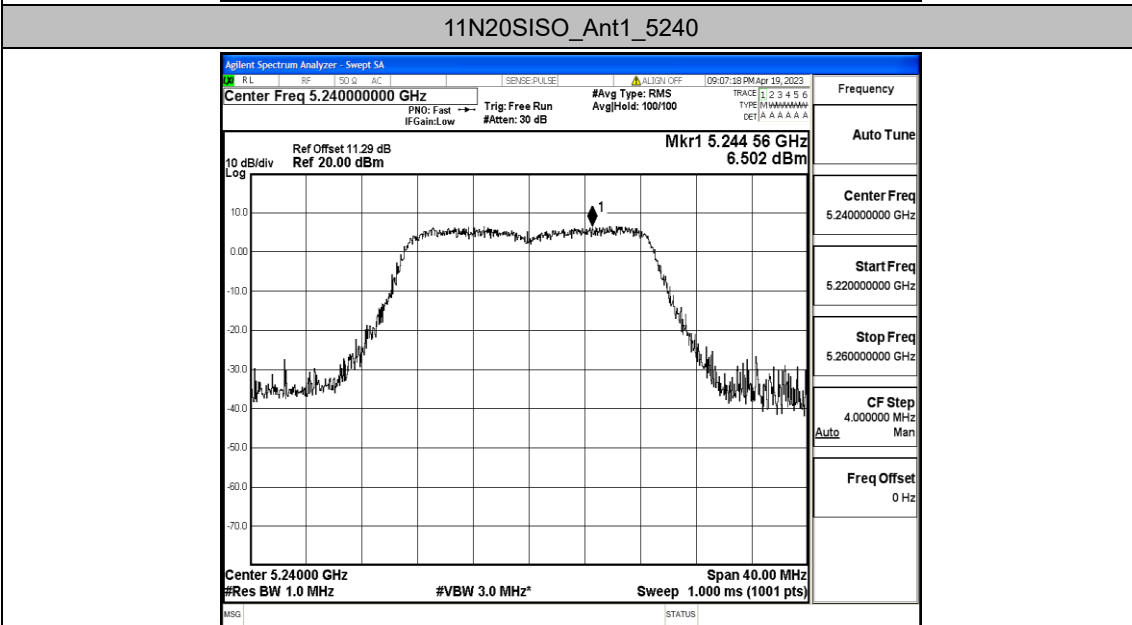
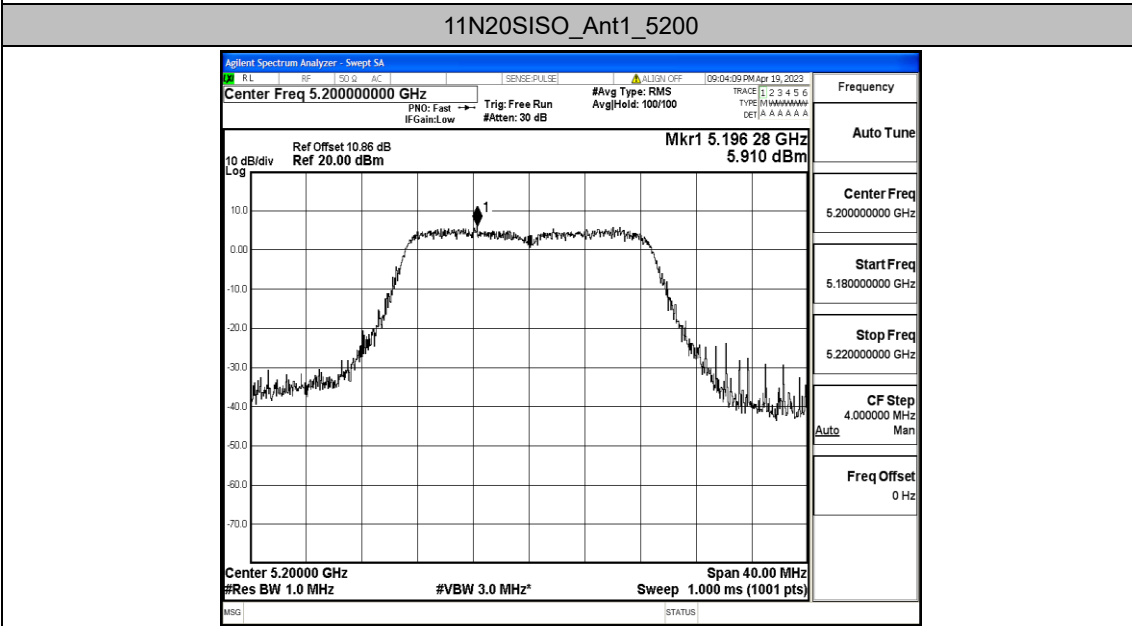
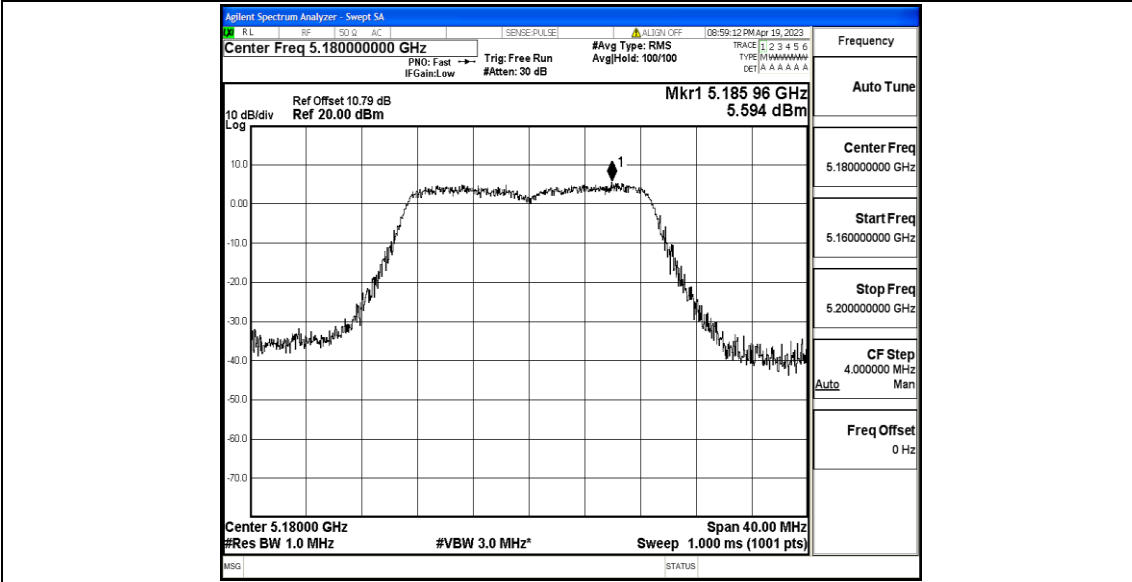
TestMode	Antenna	Channel	Result [dBm/MHz]	Limit[dBm/MHz]	Verdict
11A	Ant1	5180	7.08	≤11.00	PASS
		5200	7.18	≤11.00	PASS
		5240	6.92	≤11.00	PASS
11N20SISO	Ant1	5180	5.59	≤11.00	PASS
		5200	5.91	≤11.00	PASS
		5240	6.5	≤11.00	PASS
11N40SISO	Ant1	5190	1.32	≤11.00	PASS
		5230	1.5	≤11.00	PASS
11AC20SISO	Ant1	5180	3.23	≤11.00	PASS
		5200	4.57	≤11.00	PASS
		5240	4.84	≤11.00	PASS
11AC40SISO	Ant1	5190	2.09	≤11.00	PASS
		5230	2.56	≤11.00	PASS
11AC80SISO	Ant1	5210	2.11	≤11.00	PASS

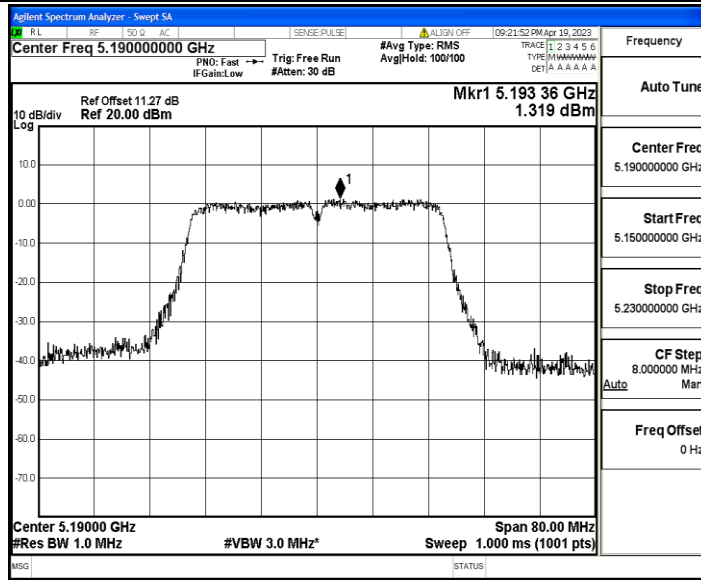
Note: 1.The Result and Limit Unit is dBm/500 kHz in the band 5.725–5.85 GHz.

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

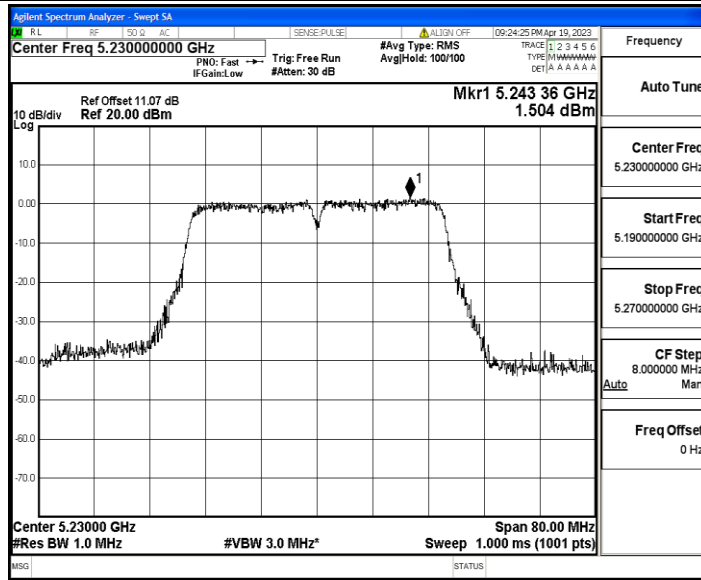
Test Graphs



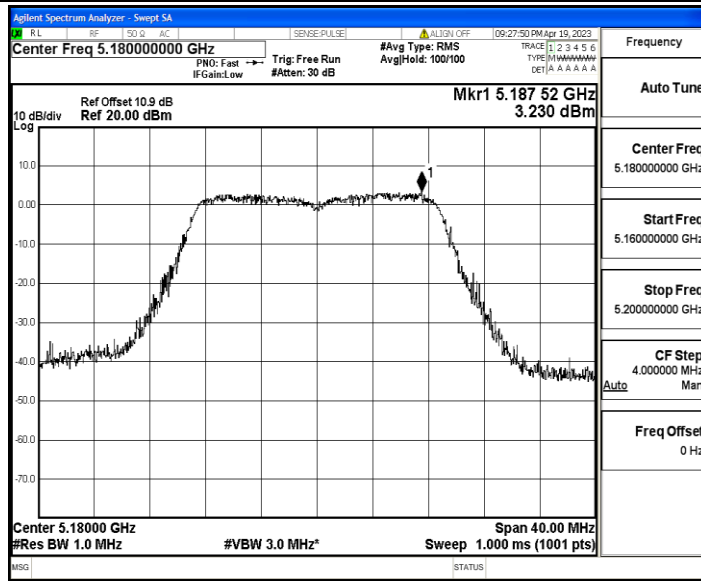




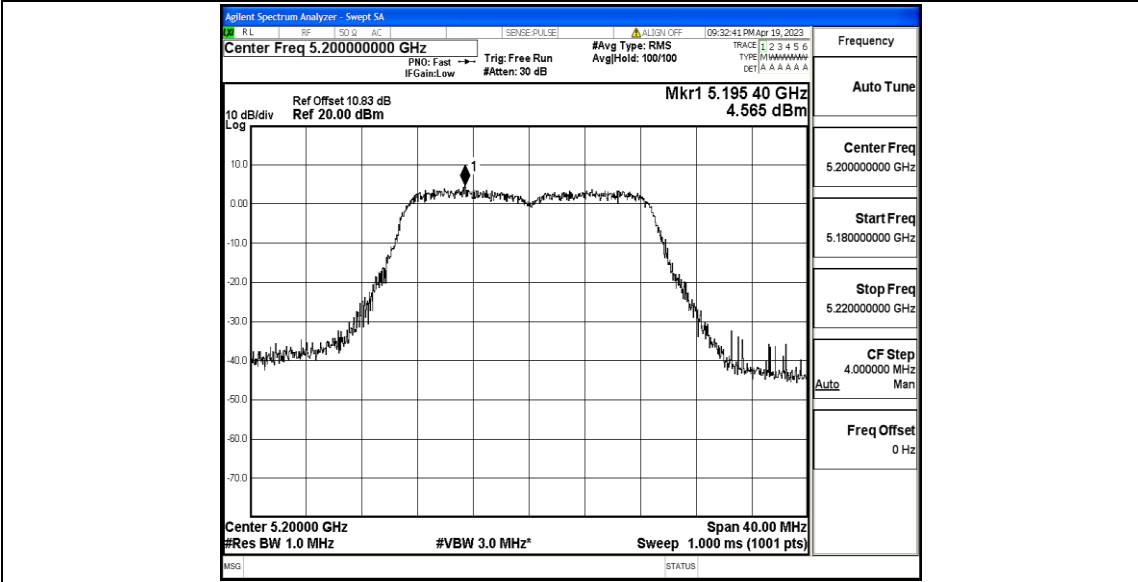
11N40SISO_Ant1_5230



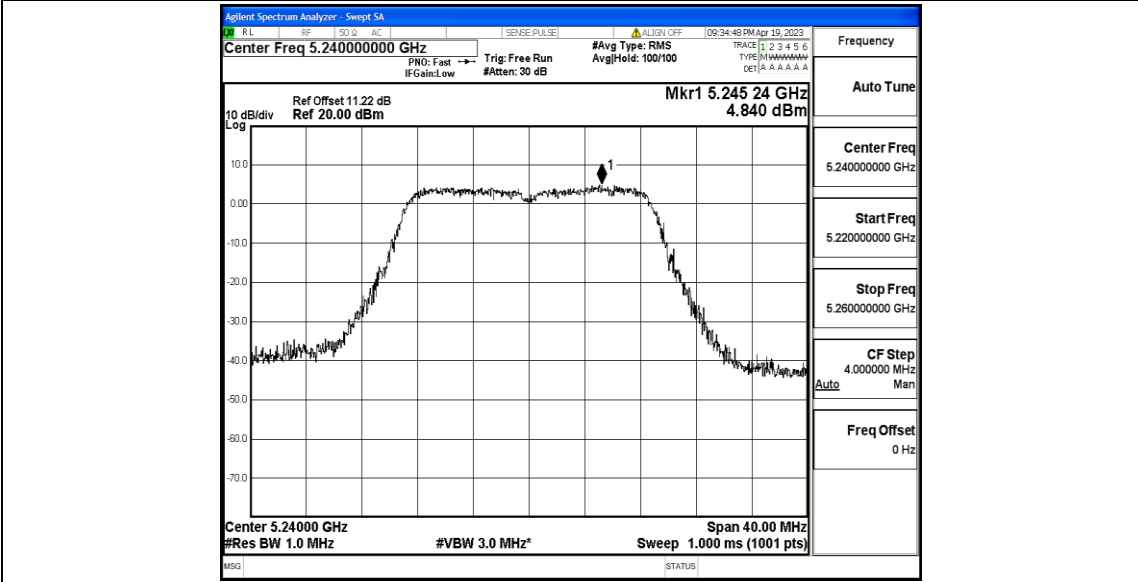
11AC20SISO_Ant1_5180



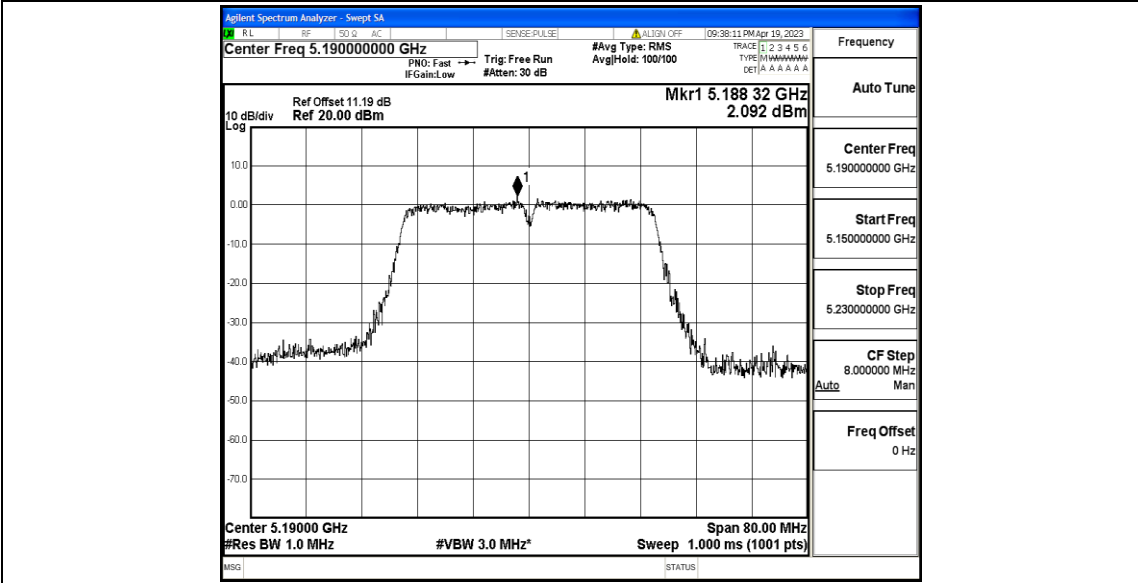
11AC20SISO_Ant1_5200



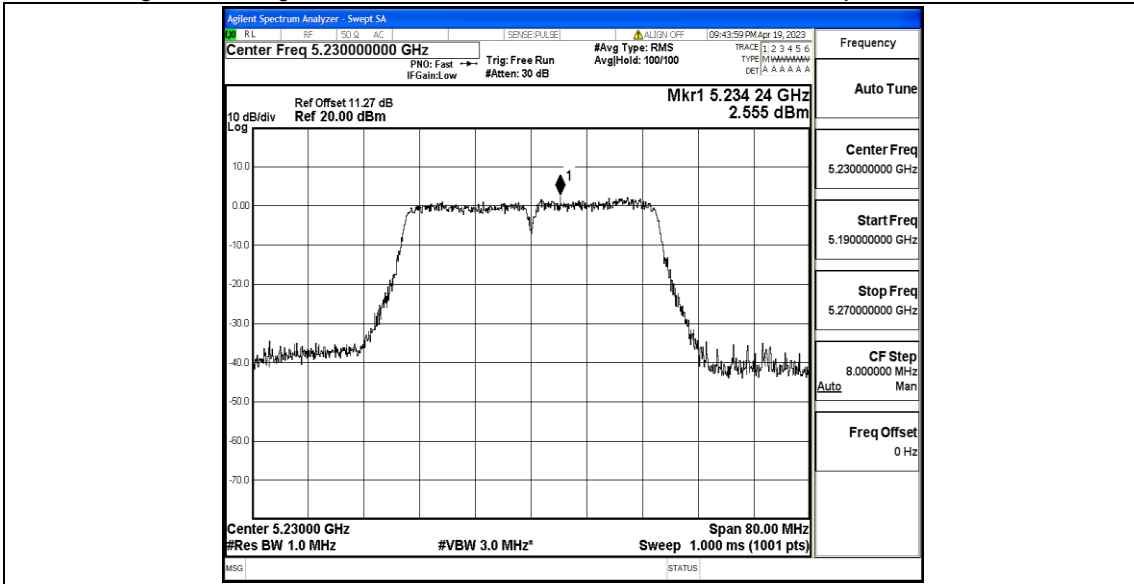
11AC20SISO_Ant1_5240



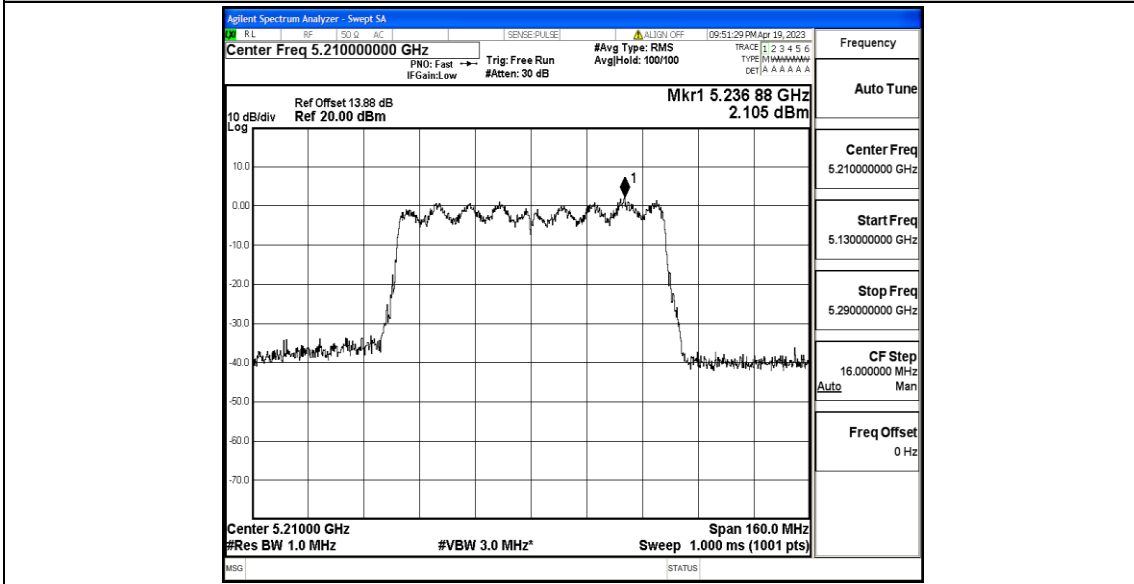
11AC40SISO_Ant1_5190



11AC40SISO_Ant1_5230



11AC80SISO_Ant1_5210

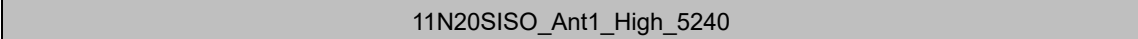
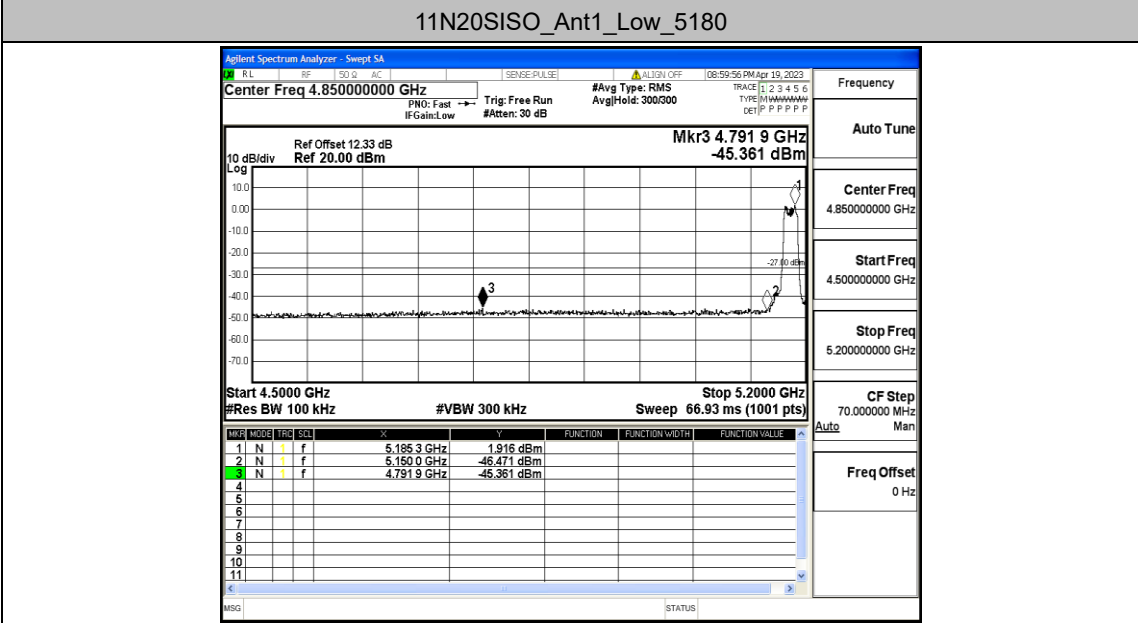
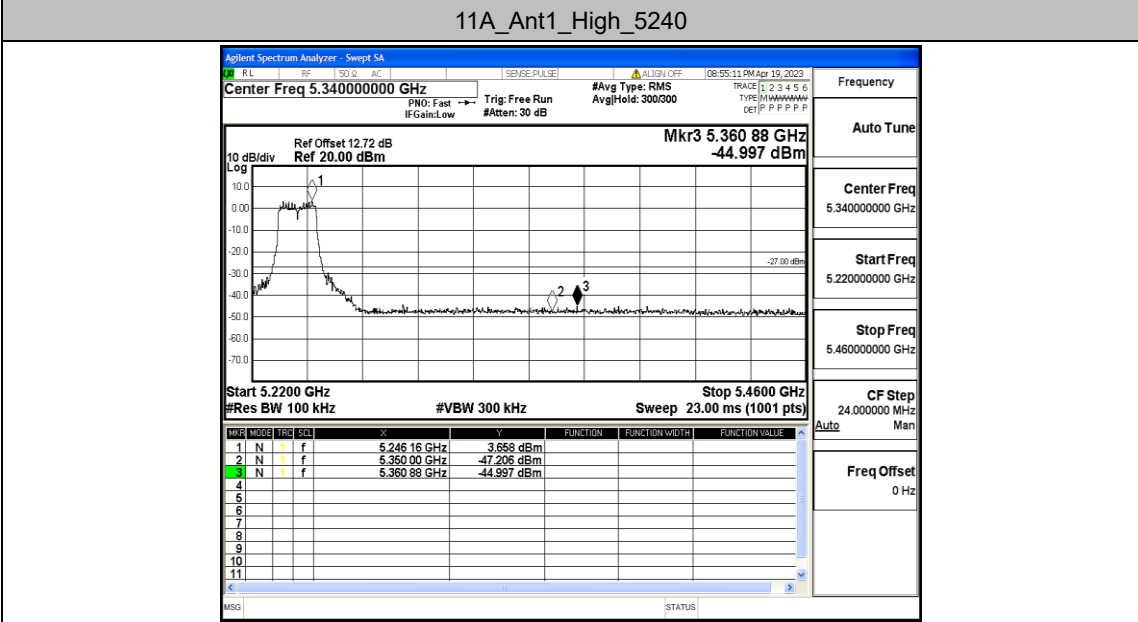
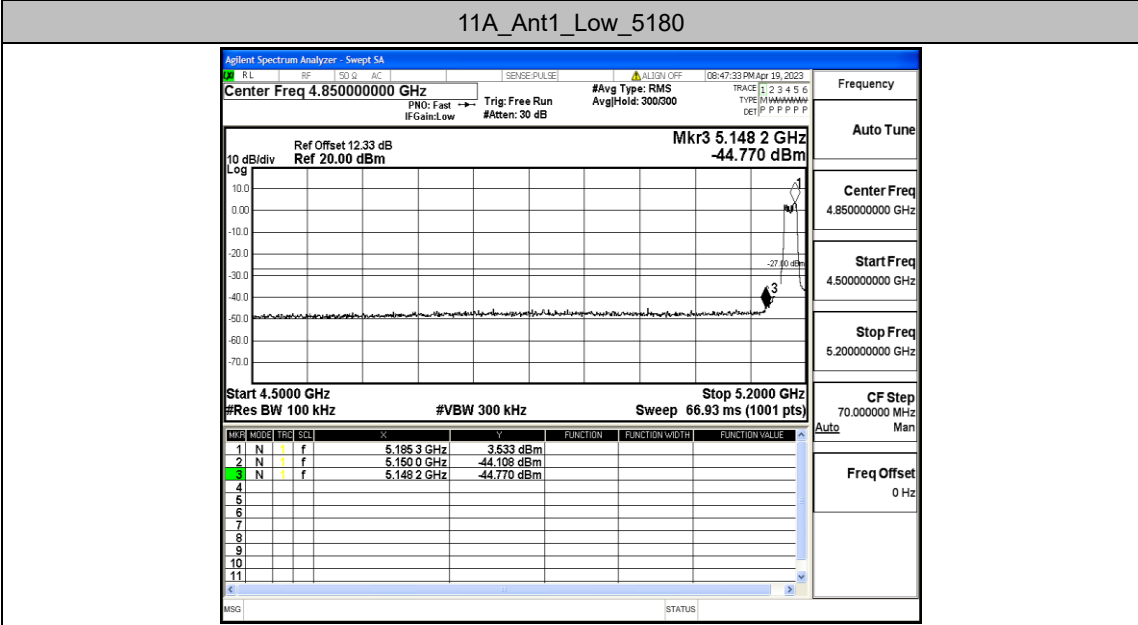


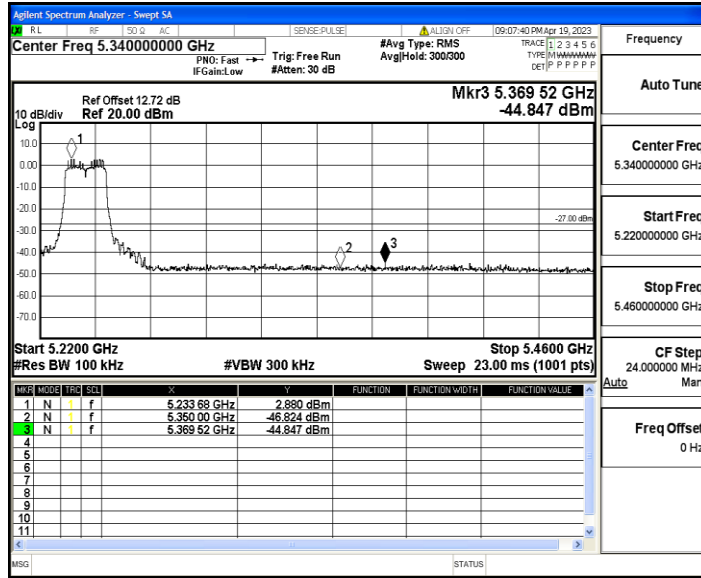
Appendix D: Band edge measurements

Test Result

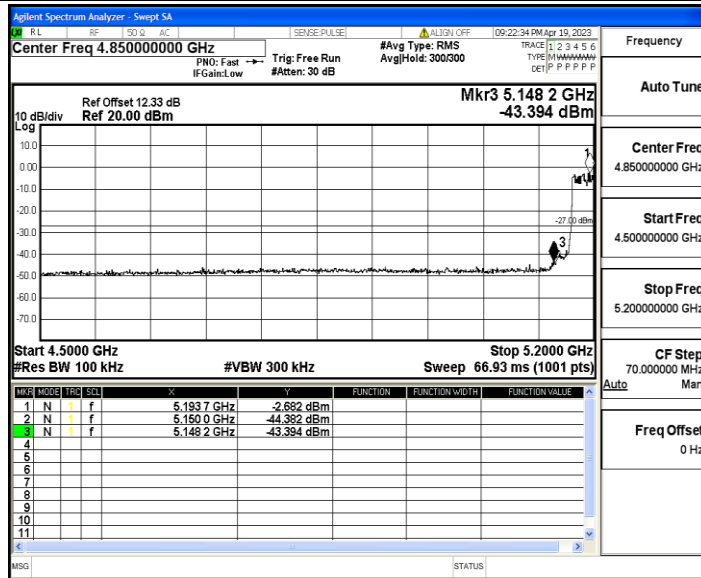
TestMode	Antenna	ChName	Channel	Result[dBm]	Limit[dBm]	Verdict
11A	Ant1	Low	5180	-44.77	≤-27	PASS
		High	5240	-45	≤-27	PASS
11N20SISO	Ant1	Low	5180	-45.36	≤-27	PASS
		High	5240	-44.85	≤-27	PASS
11N40SISO	Ant1	Low	5190	-43.39	≤-27	PASS
		High	5230	-45.84	≤-27	PASS
11AC20SISO	Ant1	Low	5180	-45.19	≤-27	PASS
		High	5240	-44.81	≤-27	PASS
11AC40SISO	Ant1	Low	5190	-42.91	≤-27	PASS
		High	5230	-45.72	≤-27	PASS
11AC80SISO	Ant1	Low	5210	-39.41	≤-27	PASS
		High	5210	-45.35	≤-27	PASS

Test Graphs

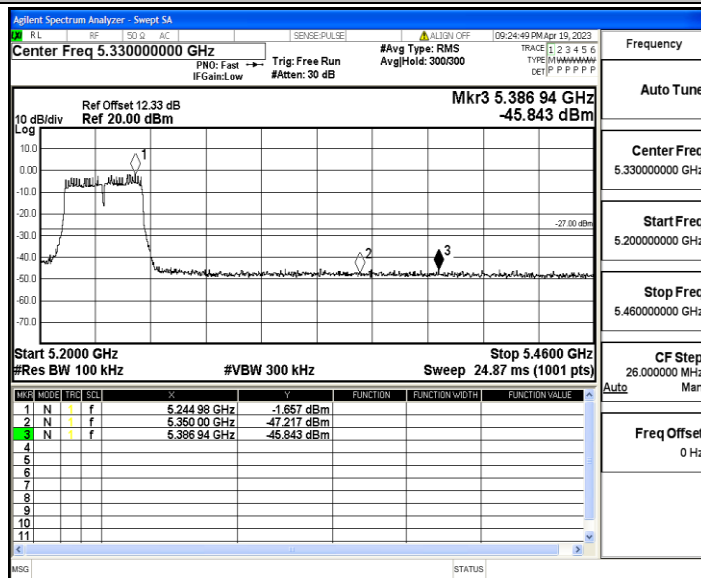




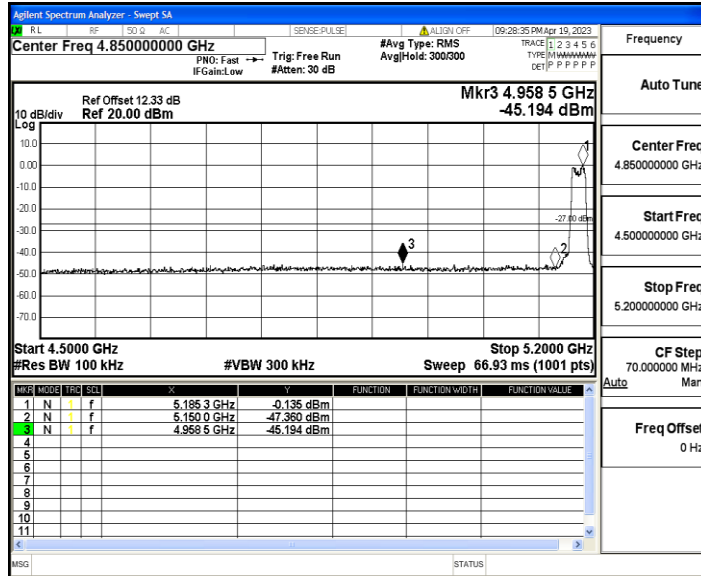
11N40SISO_Ant1_Low_5190



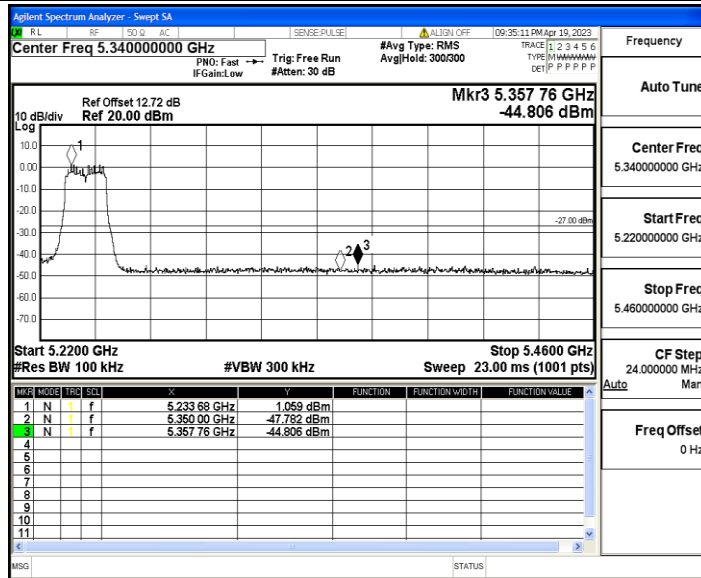
11N40SISO_Ant1_High_5230



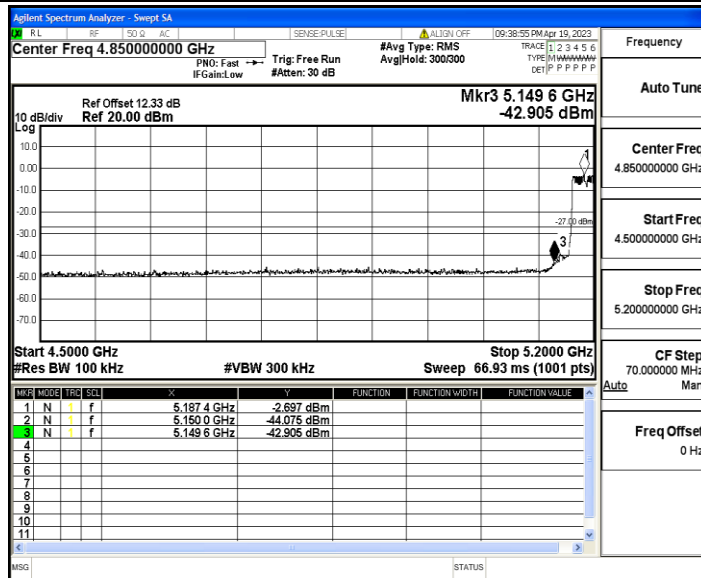
11A20SISO_Ant1_Low_5180



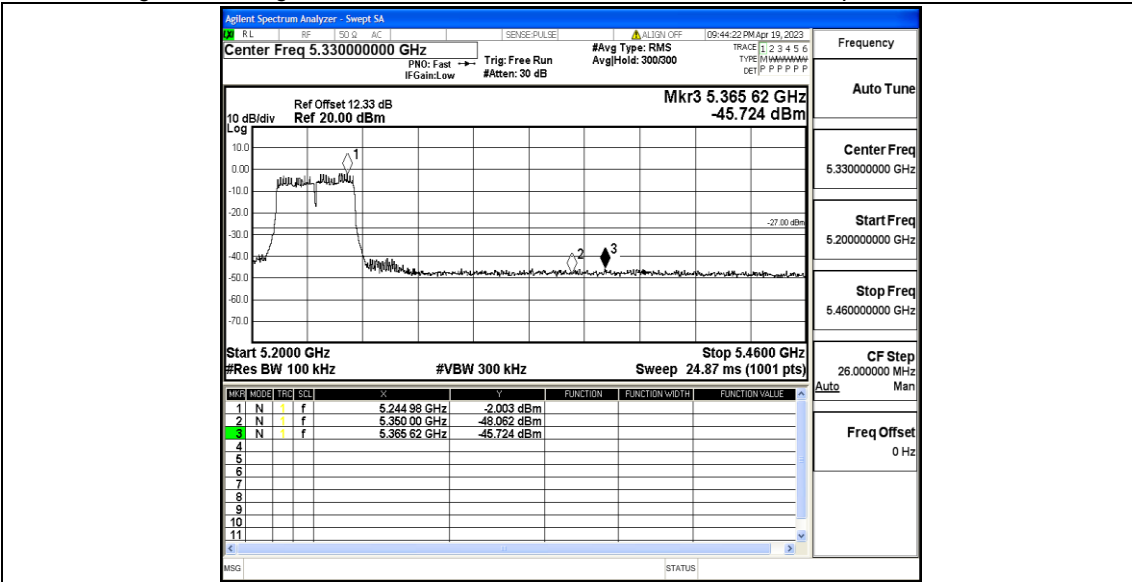
11AC20SISO_Ant1_High_5240



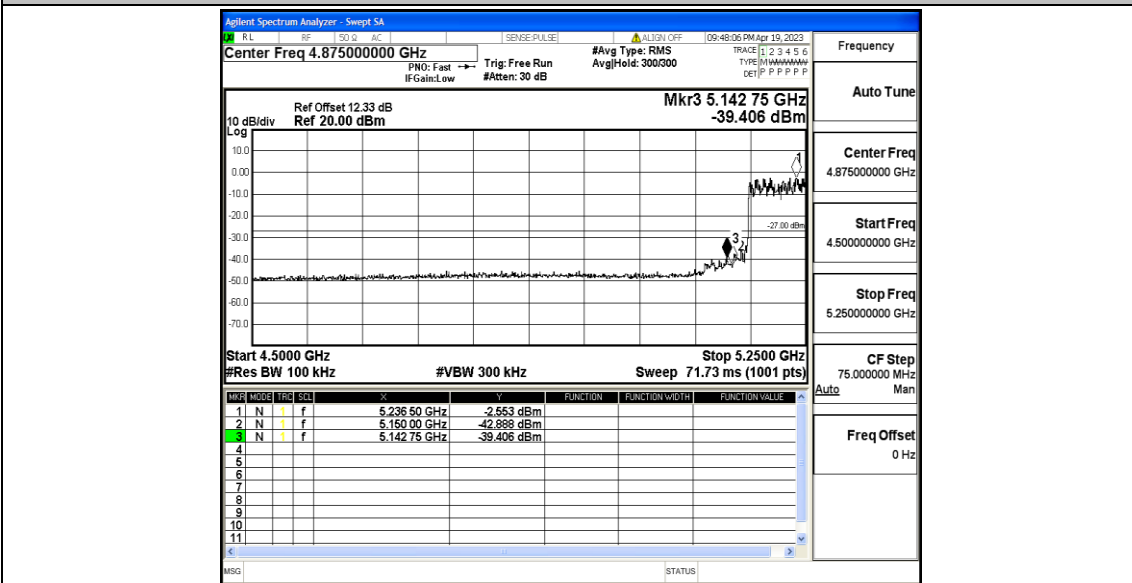
11AC40SISO_Ant1_Low_5190



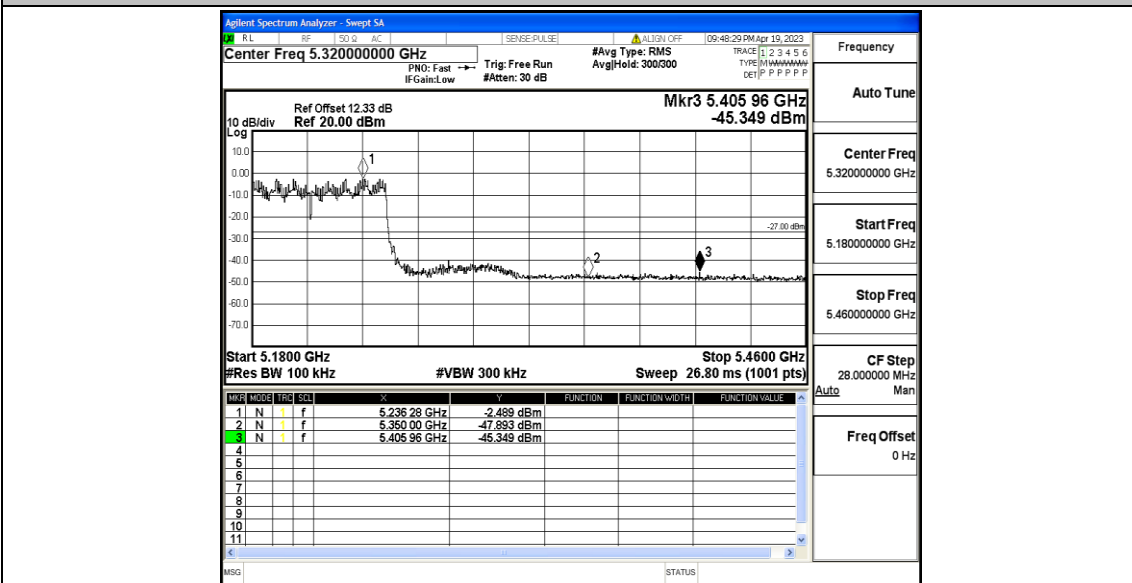
11AC40SISO_Ant1_High_5230



11AC80SISO_Ant1_Low_5210



11AC80SISO_Ant1_High_5210



Appendix E: Frequency Stability

Test Result

Frequency (MHz)	Environment Temperature (Degree)	Voltage (VAC)	Measured Frequency (MHz)	Limit Range (MHz)	Test Results
5180	20	132	5179.935577	5150 – 5250	PASS
5180	20	108	5180.093608	5150 – 5250	PASS
5180	50	120	5180.069530	5150 – 5250	PASS
5180	40	120	5180.011349	5150 – 5250	PASS
5180	30	120	5179.973785	5150 – 5250	PASS
5180	20	120	5179.929646	5150 – 5250	PASS
5180	10	120	5179.995304	5150 – 5250	PASS
5180	0	120	5180.025312	5150 – 5250	PASS
5180	-10	120	5179.923947	5150 – 5250	PASS
5180	-20	120	5179.967848	5150 – 5250	PASS
5180	-30	120	5179.917682	5150 – 5250	PASS

Frequency (MHz)	Environment Temperature (Degree)	Voltage (VAC)	Measured Frequency (MHz)	Limit Range (MHz)	Test Results
5200	20	132	5199.967246	5150 – 5250	PASS
5200	20	108	5200.075136	5150 – 5250	PASS
5200	50	120	5200.047877	5150 – 5250	PASS
5200	40	120	5200.060413	5150 – 5250	PASS
5200	30	120	5200.038344	5150 – 5250	PASS
5200	20	120	5199.959320	5150 – 5250	PASS
5200	10	120	5199.931373	5150 – 5250	PASS
5200	0	120	5199.924771	5150 – 5250	PASS
5200	-10	120	5199.961760	5150 – 5250	PASS
5200	-20	120	5200.087600	5150 – 5250	PASS
5200	-30	120	5199.953095	5150 – 5250	PASS

Frequency (MHz)	Environment Temperature (Degree)	Voltage (VAC)	Measured Frequency (MHz)	Limit Range (MHz)	Test Results
5240	20	132	5240.000849	5150 – 5250	PASS
5240	20	108	5240.043115	5150 – 5250	PASS
5240	50	120	5240.060590	5150 – 5250	PASS
5240	40	120	5240.025075	5150 – 5250	PASS
5240	30	120	5239.971487	5150 – 5250	PASS
5240	20	120	5240.042665	5150 – 5250	PASS
5240	10	120	5240.026394	5150 – 5250	PASS
5240	0	120	5239.909092	5150 – 5250	PASS
5240	-10	120	5239.978807	5150 – 5250	PASS
5240	-20	120	5239.912002	5150 – 5250	PASS
5240	-30	120	5240.015453	5150 – 5250	PASS

Frequency (MHz)	Environment Temperature (Degree)	Voltage (VAC)	Measured Frequency (MHz)	Limit Range (MHz)	Test Results
5190	20	132	5189.979538	5150 – 5250	PASS
5190	20	108	5189.970406	5150 – 5250	PASS
5190	50	120	5189.944913	5150 – 5250	PASS
5190	40	120	5189.982138	5150 – 5250	PASS
5190	30	120	5190.055928	5150 – 5250	PASS
5190	20	120	5190.086434	5150 – 5250	PASS
5190	10	120	5190.079823	5150 – 5250	PASS
5190	0	120	5189.967930	5150 – 5250	PASS
5190	-10	120	5190.082573	5150 – 5250	PASS
5190	-20	120	5190.041791	5150 – 5250	PASS
5190	-30	120	5189.989929	5150 – 5250	PASS

Frequency (MHz)	Environment Temperature (Degree)	Voltage (VAC)	Measured Frequency (MHz)	Limit Range (MHz)	Test Results
5230	20	132	5230.004541	5150 – 5250	PASS
5230	20	108	5230.061614	5150 – 5250	PASS
5230	50	120	5229.910150	5150 – 5250	PASS
5230	40	120	5229.914786	5150 – 5250	PASS
5230	30	120	5229.920866	5150 – 5250	PASS
5230	20	120	5230.026578	5150 – 5250	PASS
5230	10	120	5229.908730	5150 – 5250	PASS
5230	0	120	5229.938751	5150 – 5250	PASS
5230	-10	120	5230.078711	5150 – 5250	PASS
5230	-20	120	5229.965743	5150 – 5250	PASS
5230	-30	120	5230.051812	5150 – 5250	PASS

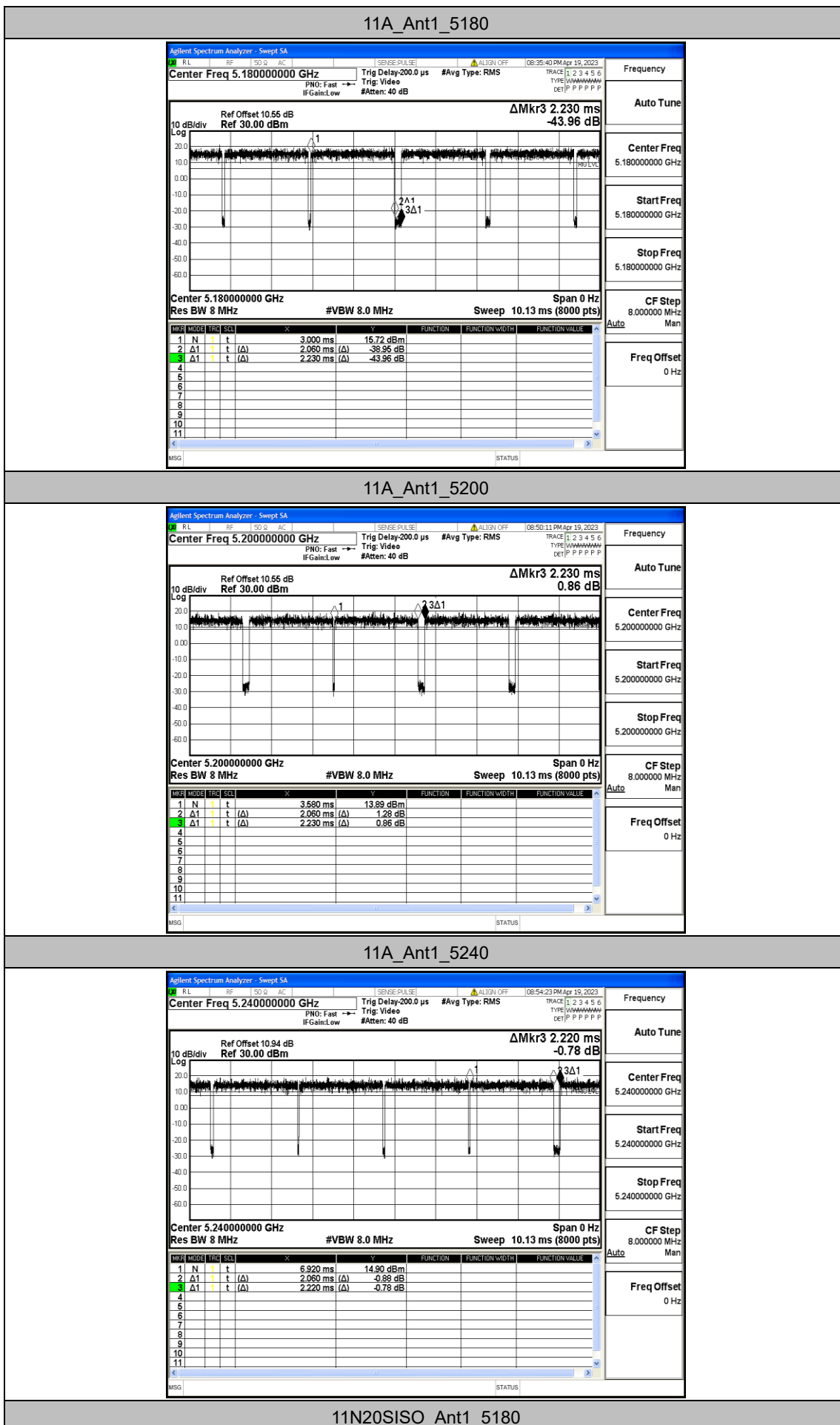
Frequency (MHz)	Environment Temperature (Degree)	Voltage (VAC)	Measured Frequency (MHz)	Limit Range (MHz)	Test Results
5210	20	132	5210.034395	5150 – 5250	PASS
5210	20	108	5210.009930	5150 – 5250	PASS
5210	50	120	5209.989222	5150 – 5250	PASS
5210	40	120	5210.098655	5150 – 5250	PASS
5210	30	120	5209.987718	5150 – 5250	PASS
5210	20	120	5209.904830	5150 – 5250	PASS
5210	10	120	5210.095556	5150 – 5250	PASS
5210	0	120	5210.063744	5150 – 5250	PASS
5210	-10	120	5210.095145	5150 – 5250	PASS
5210	-20	120	5209.928314	5150 – 5250	PASS
5210	-30	120	5209.903417	5150 – 5250	PASS

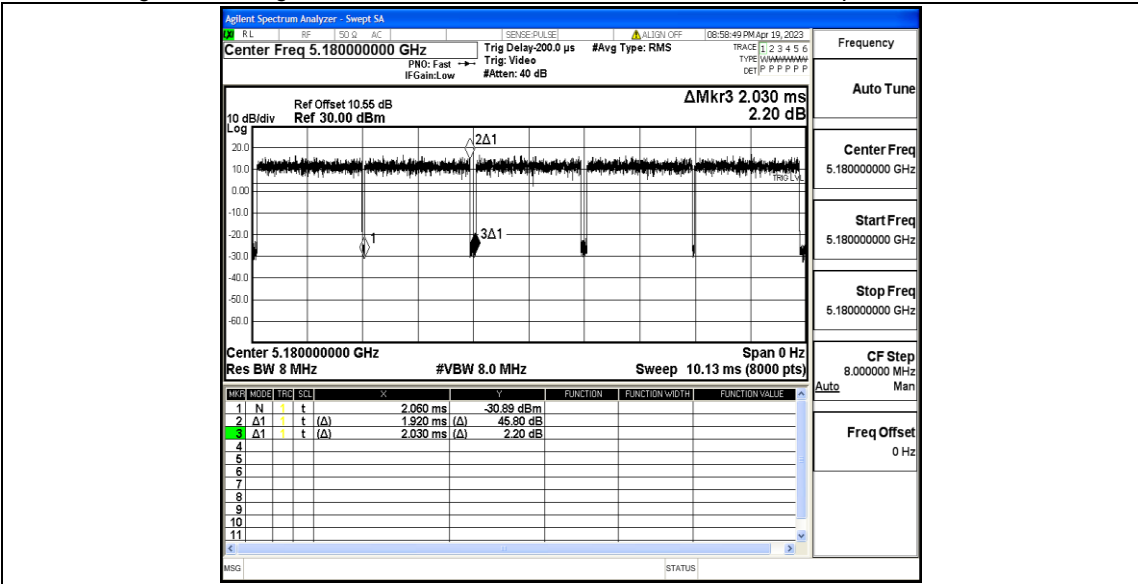
Appendix F: Duty Cycle

Test Result

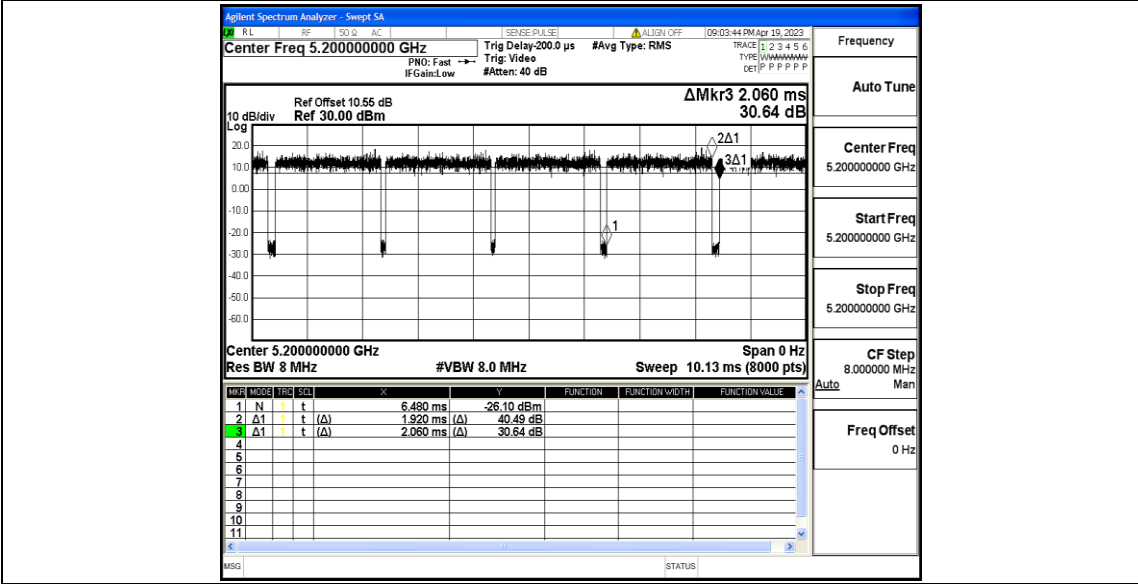
TestMode	Antenna	Channel	Transmission Duration [ms]	Transmission Period [ms]	Duty Cycle [%]	1/T [kHz]
11A	Ant1	5180	2.06	2.23	92.38	0.49
		5200	2.06	2.23	92.38	0.49
		5240	2.06	2.22	92.79	0.49
11N20SISO	Ant1	5180	1.92	2.03	94.58	0.52
		5200	1.92	2.06	93.20	0.52
		5240	1.92	2.08	92.31	0.52
11N40SISO	Ant1	5190	0.95	1.12	84.82	1.05
		5230	0.94	1.06	88.68	1.06
11AC20SISO	Ant1	5180	1.93	2.09	92.34	0.52
		5200	1.94	2.07	93.72	0.52
		5240	1.93	2.06	93.69	0.52
11AC40SISO	Ant1	5190	0.95	1.10	86.36	1.05
		5230	0.95	1.12	84.82	1.05
11AC80SISO	Ant1	5210	0.46	0.99	46.46	2.17

Test Graphs

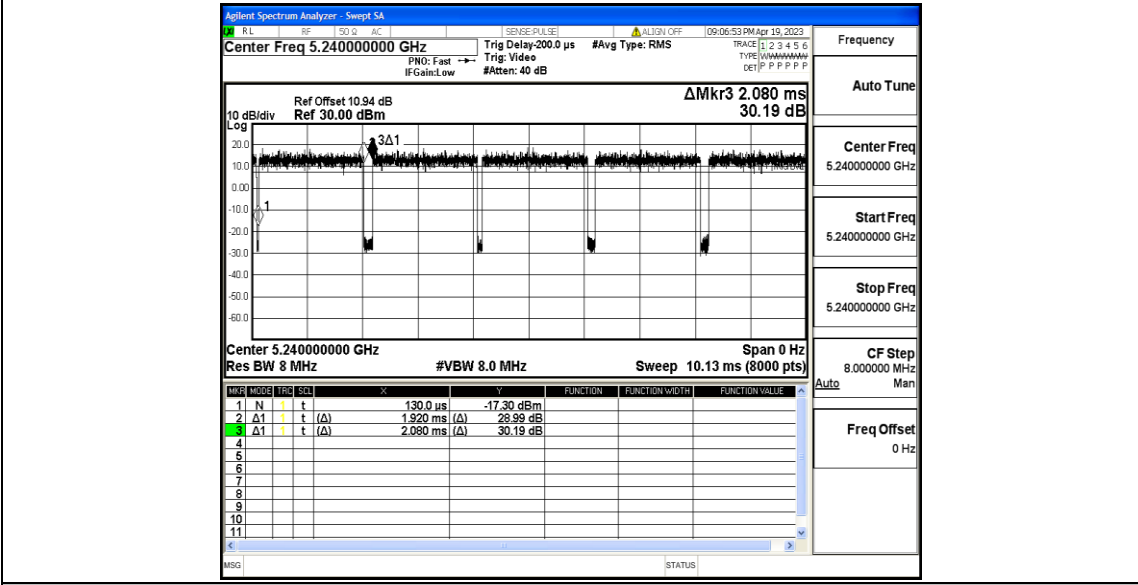




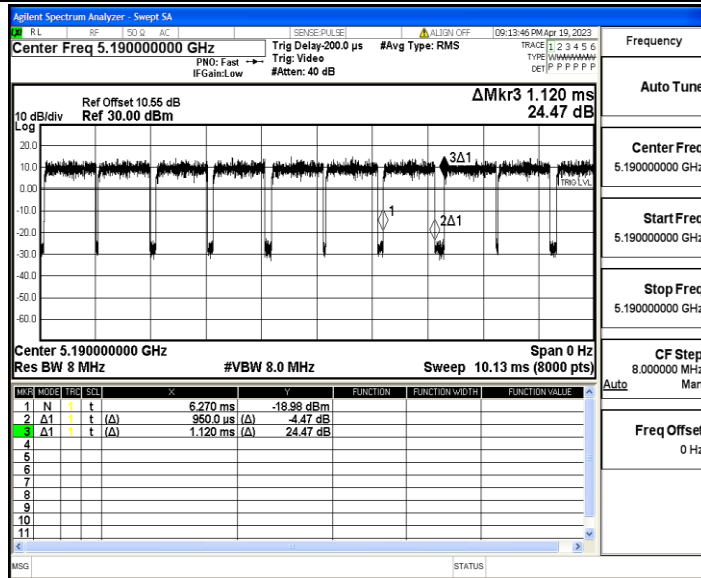
11N20SISO_Ant1_5200



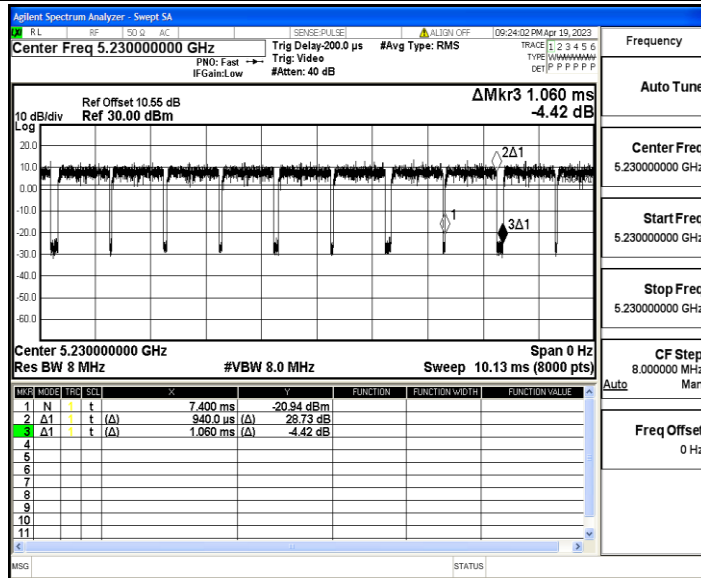
11N20SISO_Ant1_5240



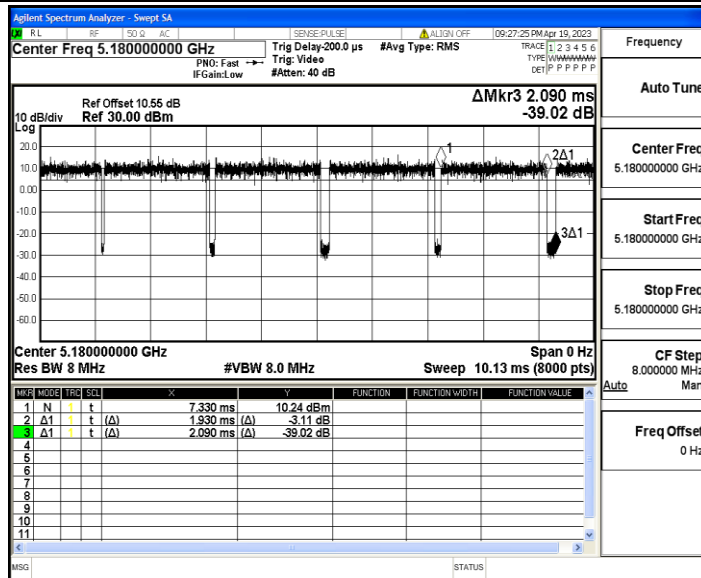
11N40SISO_Ant1_5190



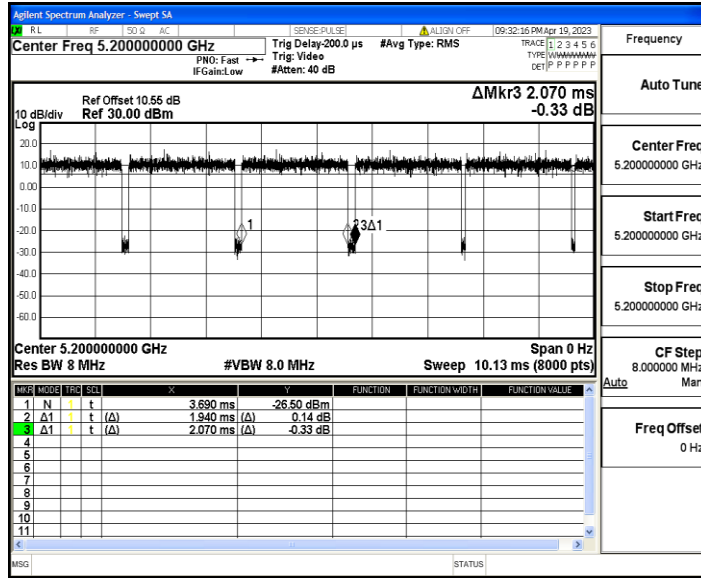
11N40SISO_Ant1_5230



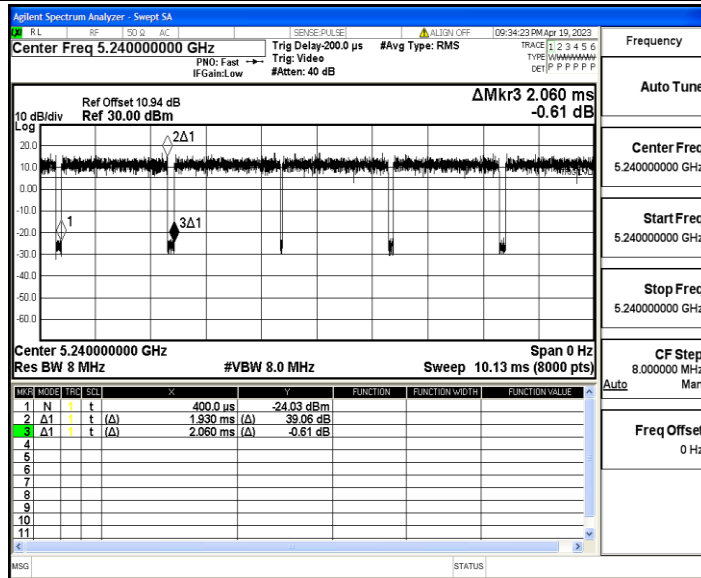
11AC20SISO_Ant1_5180



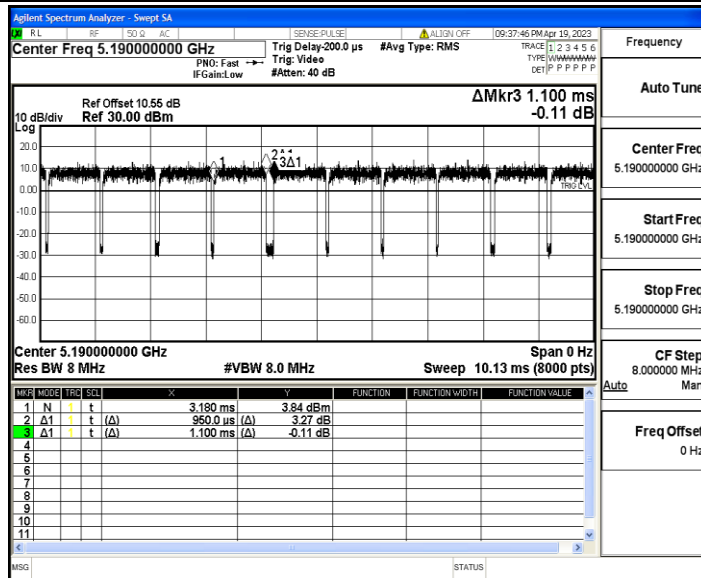
11AC20SISO_Ant1_5200



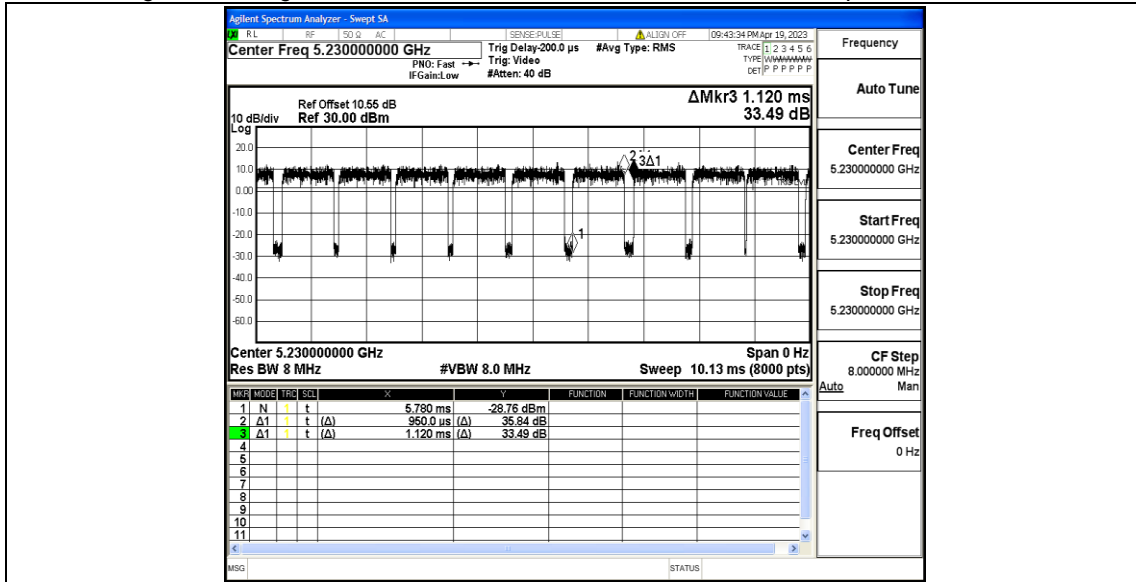
11AC20SISO_Ant1_5240



11AC40SISO_Ant1_5190



11AC40SISO_Ant1_5230



11AC80SISO_Ant1_5210

