



Appendix D

RF Test Data for 5.2G WIFI (Conducted Measurement)

Product Name: Smart Phone

Test Model: K1

Environmental Conditions

Temperature:	23.8° C
Relative Humidity:	52.2%
ATM Pressure:	100.0 kPa
Test Engineer:	Ling Zhu
Supervised by:	Li Huan





D.1 Emission Bandwidth

Test Result

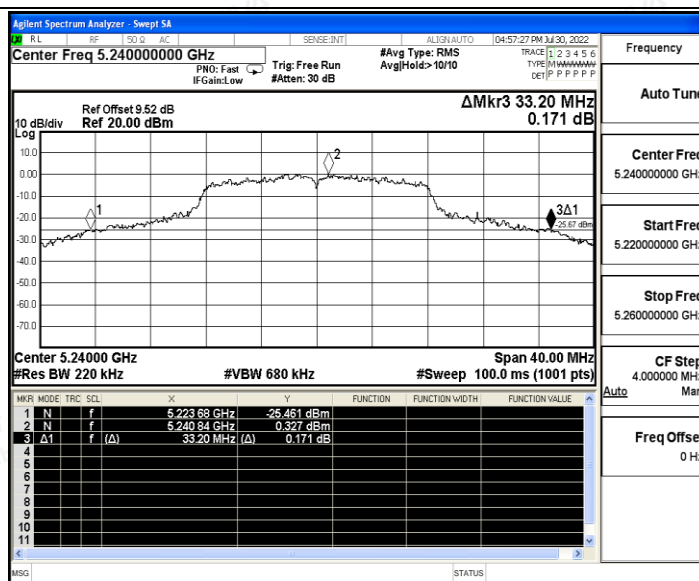
TestMode	Antenna	Channel	26db EBW [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
11A	Ant	5180	20.400	5169.600	5190.000	---	---
		5220	33.560	5203.400	5236.960	---	---
		5240	33.200	5223.680	5256.880	---	---
11N20SISO	Ant	5180	20.120	5169.920	5190.040	---	---
		5220	20.120	5209.960	5230.080	---	---
		5240	33.360	5223.560	5256.920	---	---
11N40SISO	Ant	5190	72.800	5154.160	5226.960	---	---
		5230	41.920	5209.200	5251.120	---	---
11AC20SISO	Ant	5180	20.120	5169.960	5190.080	---	---
		5220	20.120	5209.960	5230.080	---	---
		5240	20.320	5229.800	5250.120	---	---
11AC40SISO	Ant	5190	40.240	5169.920	5210.160	---	---
		5230	40.960	5209.680	5250.640	---	---
11AC80SISO	Ant	5210	96.160	5160.880	5257.040	---	---



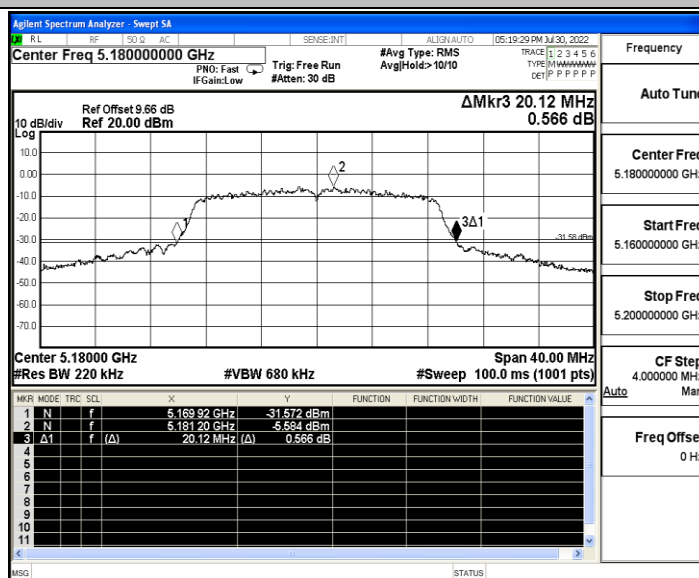


Test Graphs



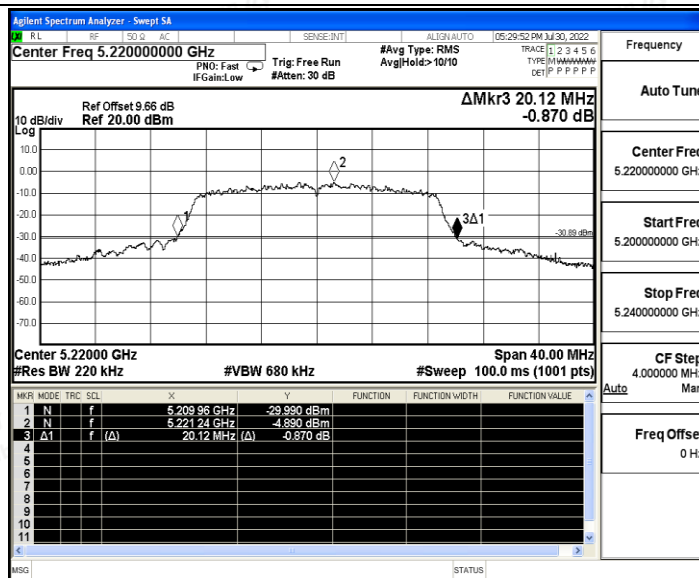


11N20SISO Ant 5180

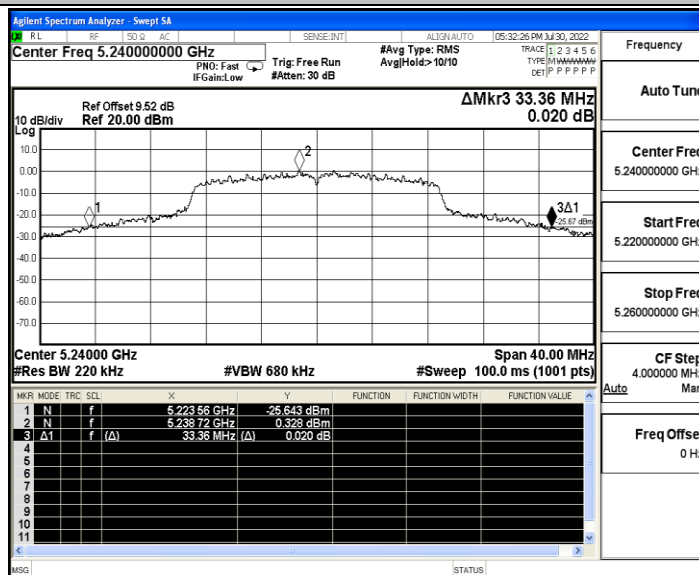


11N20SISO Ant 5220





11N20SISO_Ant_5240



11N40SISO_Ant_5190

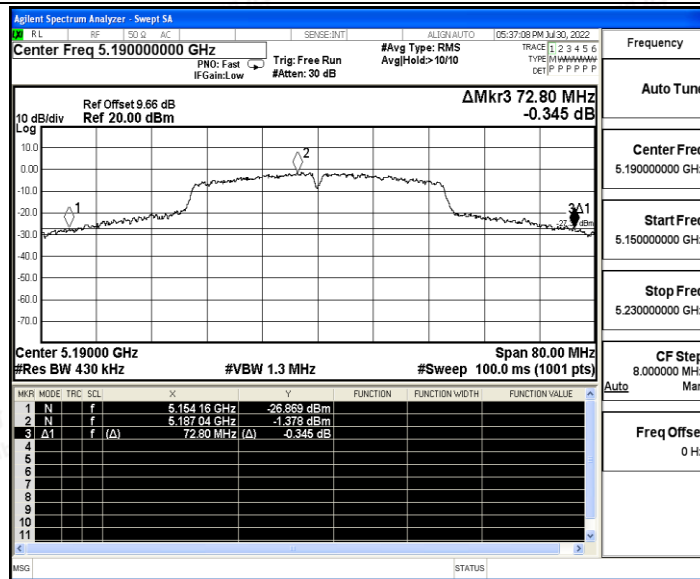


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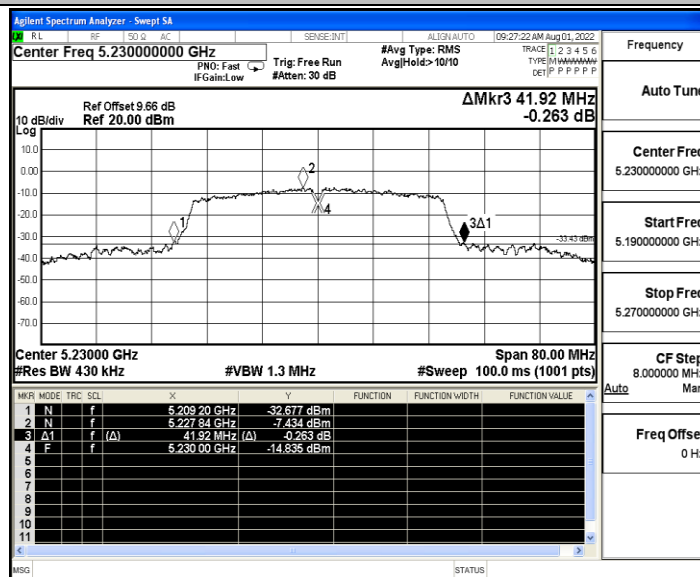
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11N40SISO_Ant_5230



11AC20SISO_Ant_5180

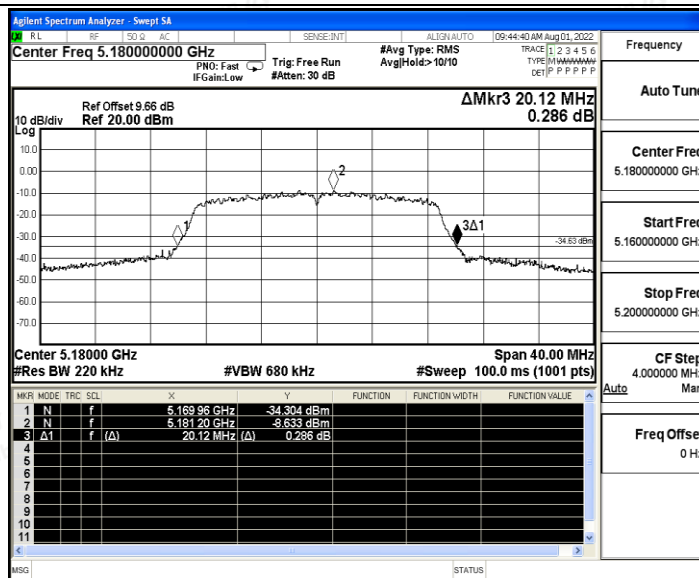


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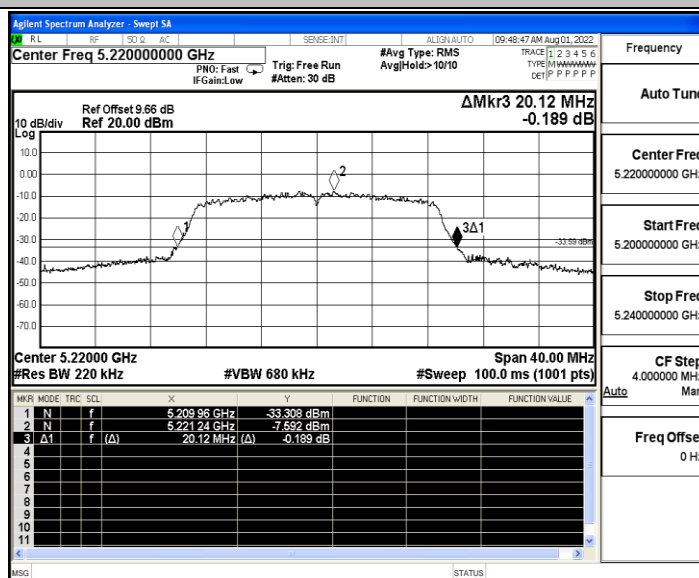
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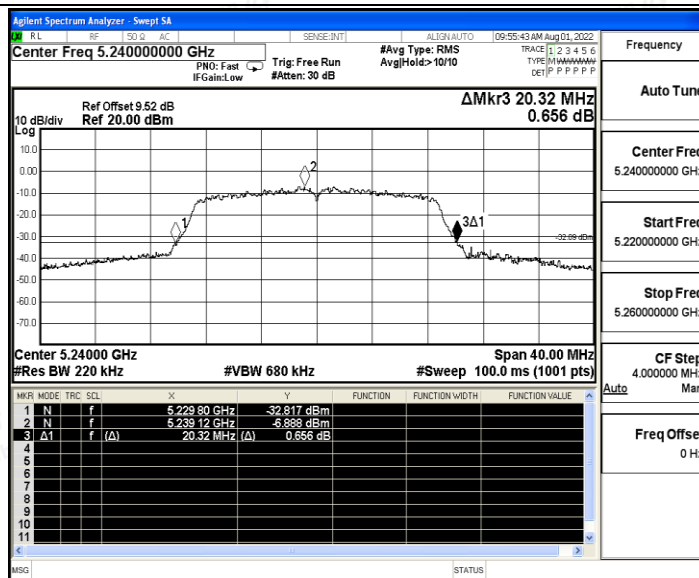


11AC20SISO_Ant_5220

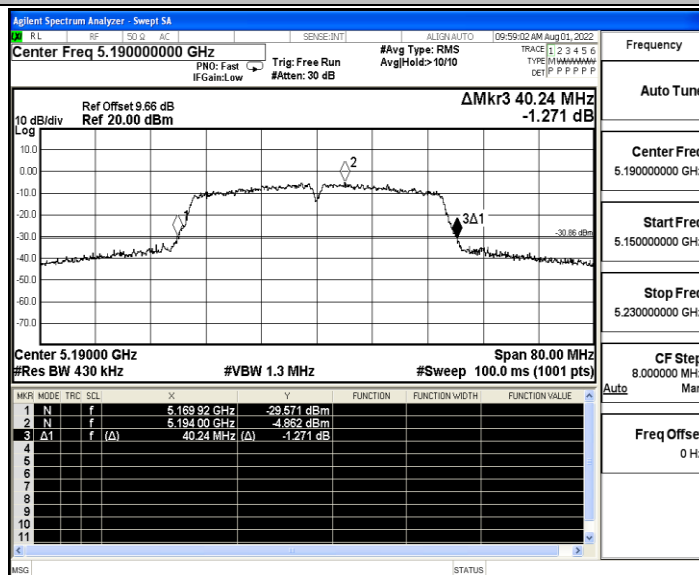


11AC20SISO_Ant_5240



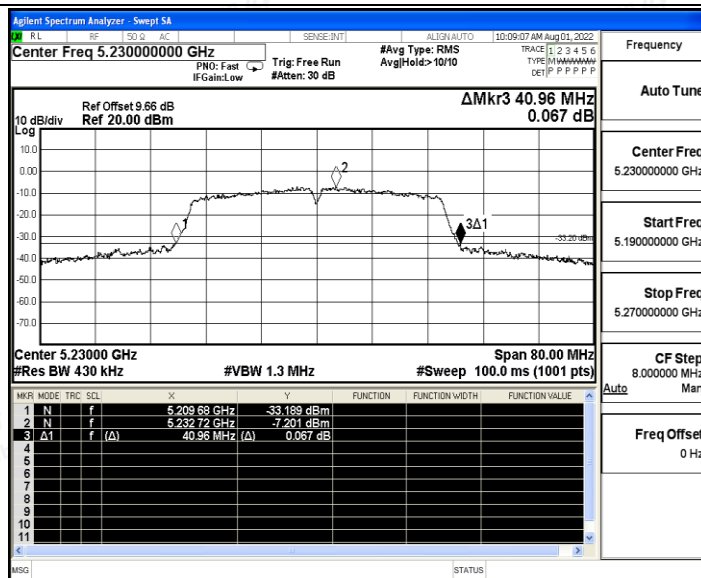


11AC40SISO_Ant_5190

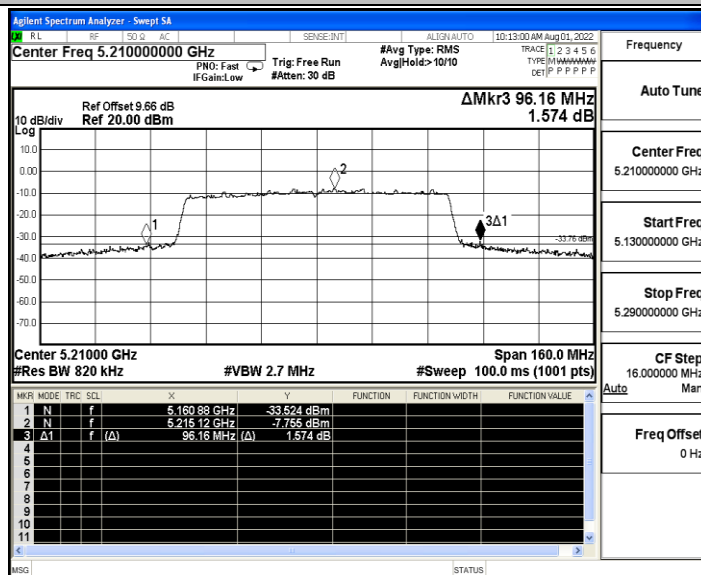


11AC40SISO_Ant_5230





11AC80SISO_Ant_5210





D.2 Maximum conducted output power

Test Result

TestMode	Antenna	Channel	Result[dBm]	Limit[dBm]	Verdict
11A	Ant	5180	7.88	≤ 23.98	PASS
		5220	8.25	≤ 23.98	PASS
		5240	8.53	≤ 23.98	PASS
11N20SISO	Ant	5180	8.96	≤ 23.98	PASS
		5220	9.47	≤ 23.98	PASS
		5240	10.28	≤ 23.98	PASS
11N40SISO	Ant	5190	8.79	≤ 23.98	PASS
		5230	9.88	≤ 23.98	PASS
11AC20SISO	Ant	5180	8.32	≤ 23.98	PASS
		5220	9.25	≤ 23.98	PASS
		5240	9.78	≤ 23.98	PASS
11AC40SISO	Ant	5190	8.62	≤ 23.98	PASS
		5230	9.70	≤ 23.98	PASS
11AC80SISO	Ant	5210	9.44	≤ 23.98	PASS

Note: The Duty Cycle Factor is compensated in the graph.





D.3 Maximum power spectral density

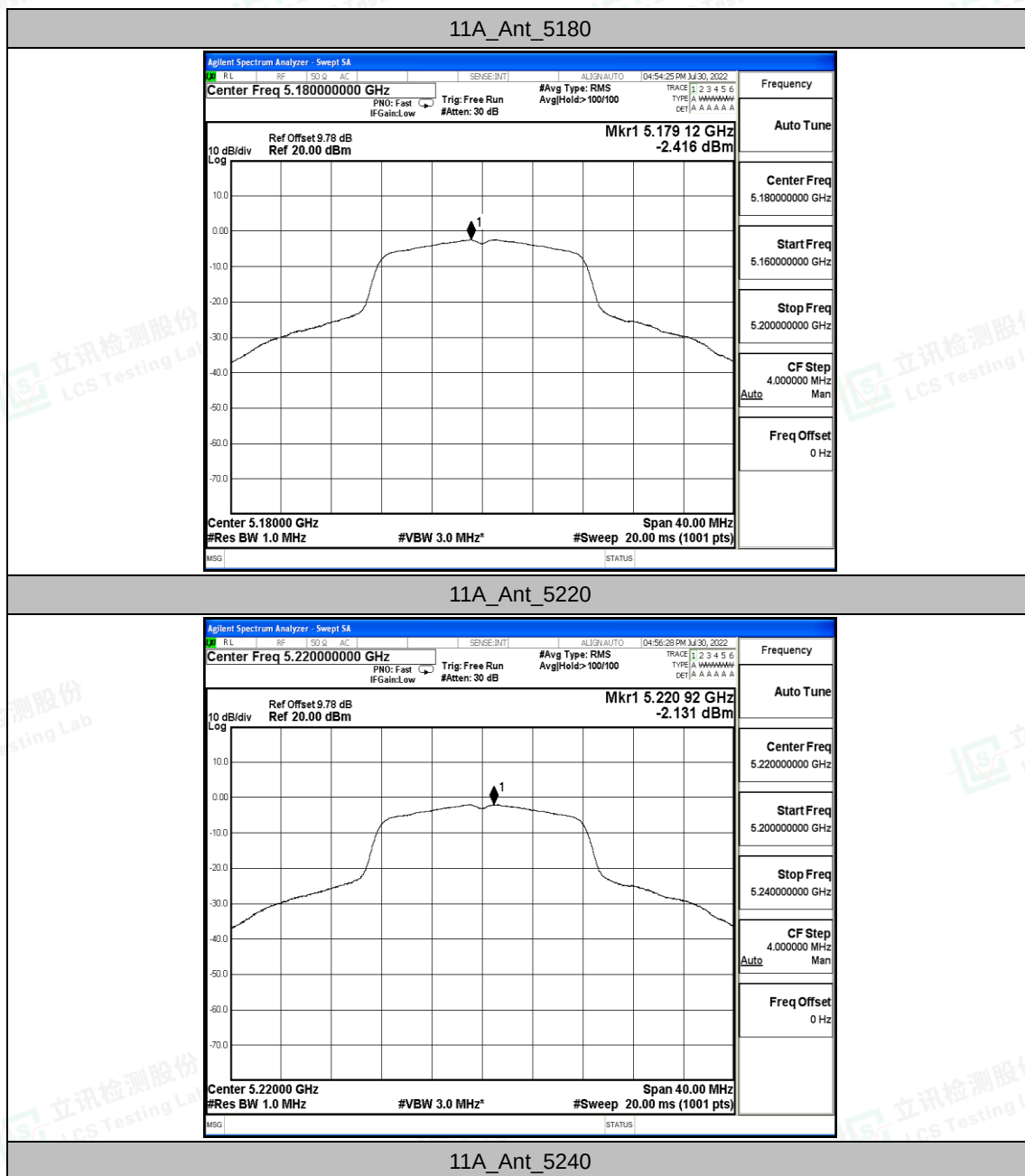
Test Result

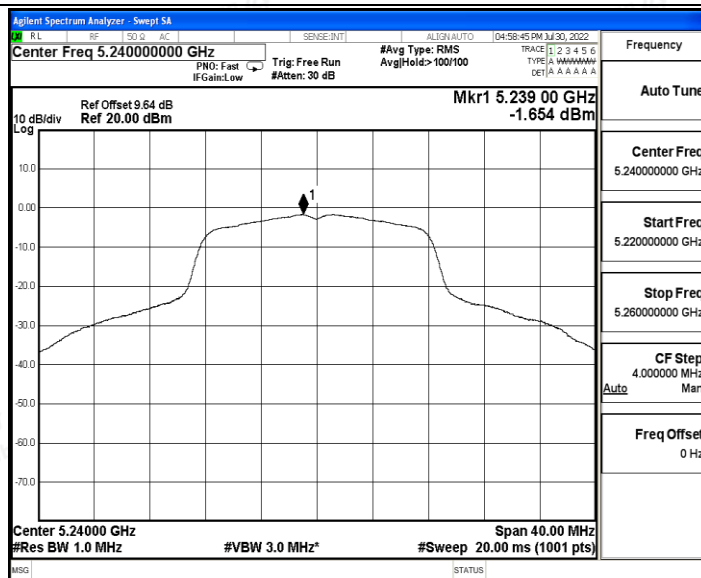
TestMode	Antenna	Channel	Result [dBm/MHz]	Duty cycle factor [dBm]	Total Result [dBm/MHz]	Limit[dBm/MHz]	Verdict
11A	Ant	5180	-2.416	0.124	-2.292	≤11.00	PASS
		5220	-2.131	0.123	-2.008	≤11.00	PASS
		5240	-1.654	0.123	-1.531	≤11.00	PASS
11N20SISO	Ant	5180	-1.754	0.099	-1.655	≤11.00	PASS
		5220	-1.059	0.132	-0.927	≤11.00	PASS
		5240	-0.319	0.133	-0.186	≤11.00	PASS
11N40SISO	Ant	5190	-4.886	0.259	-4.627	≤11.00	PASS
		5230	-3.635	0.263	-3.372	≤11.00	PASS
11AC20SISO	Ant	5180	-2.281	0.130	-2.151	≤11.00	PASS
		5220	-1.305	0.130	-1.175	≤11.00	PASS
		5240	-0.824	0.098	-0.726	≤11.00	PASS
11AC40SISO	Ant	5190	-4.782	0.259	-4.523	≤11.00	PASS
		5230	-3.770	0.196	-3.574	≤11.00	PASS
11AC80SISO	Ant	5210	-7.947	0.511	-7.436	≤11.00	PASS



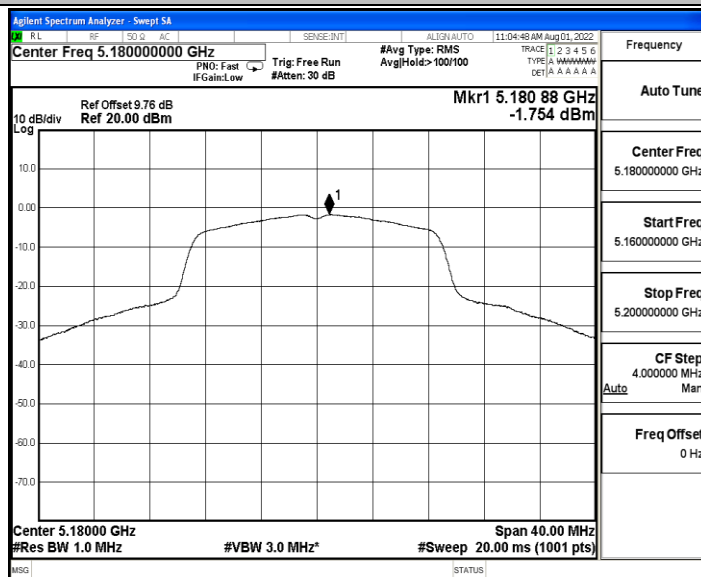


Test Graphs



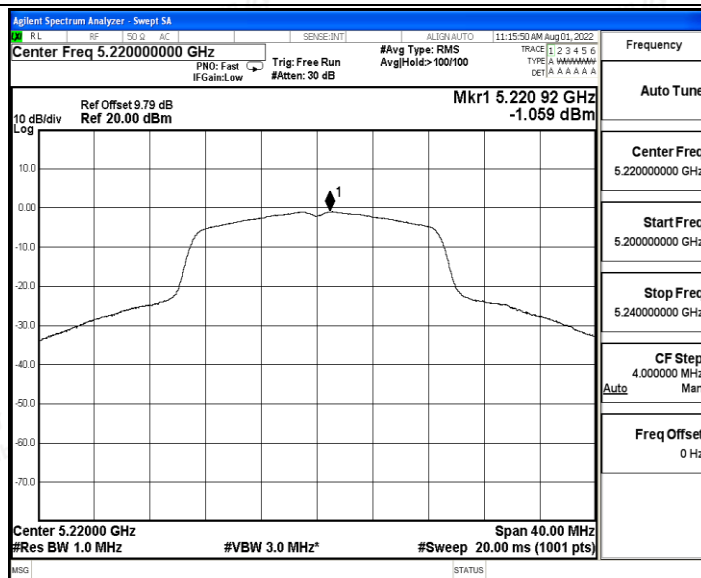


11N20SISO_Ant_5180

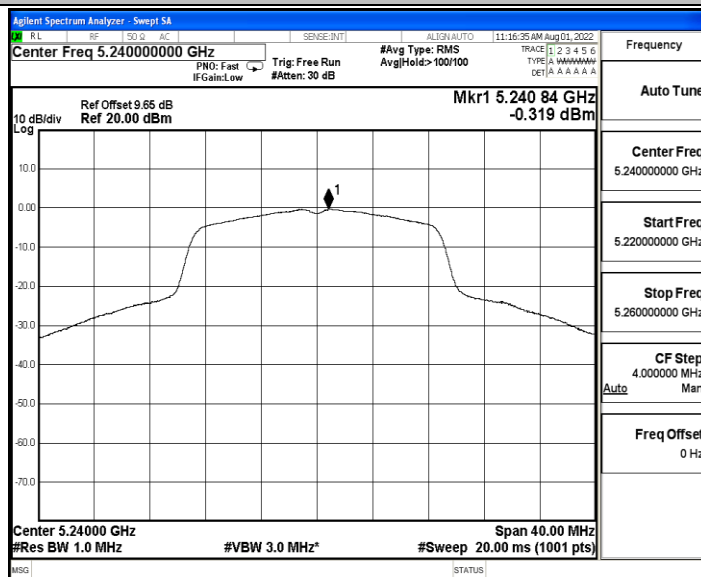


11N20SISO_Ant_5220



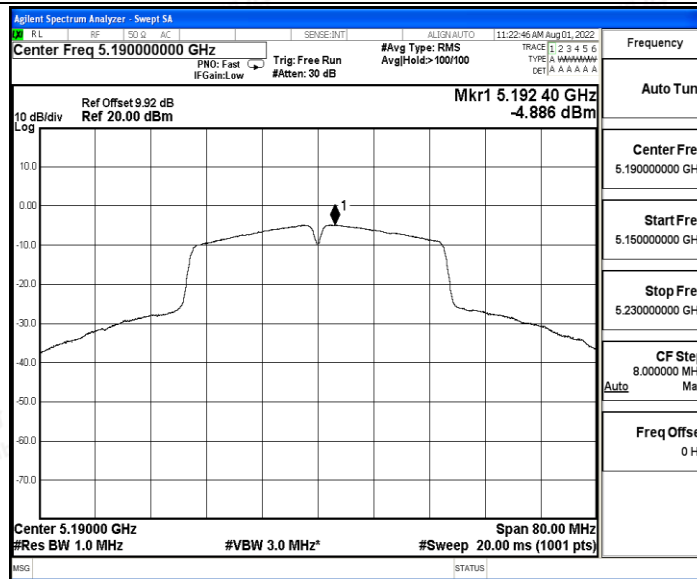


11N20SISO_Ant_5240

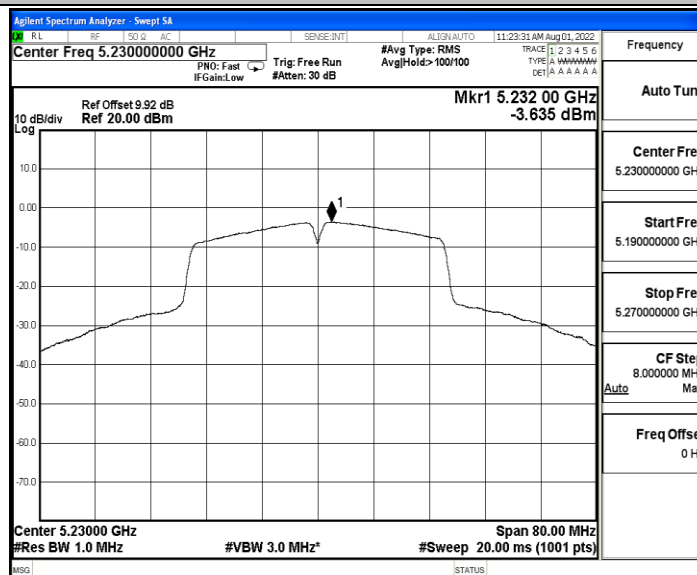


11N40SISO_Ant_5190



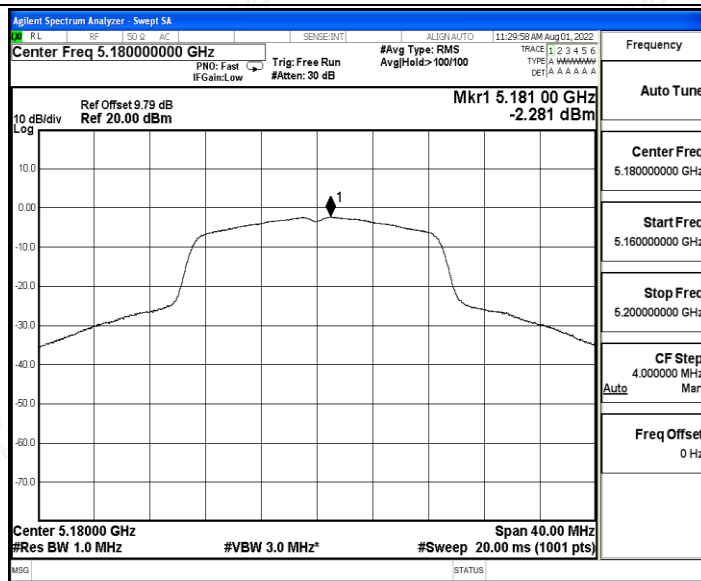


11N40SISO_Ant_5230

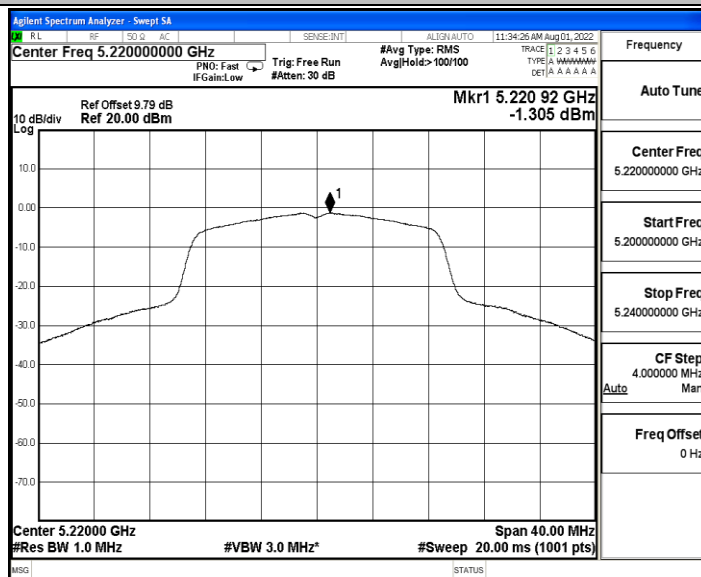


11AC20SISO_Ant_5180



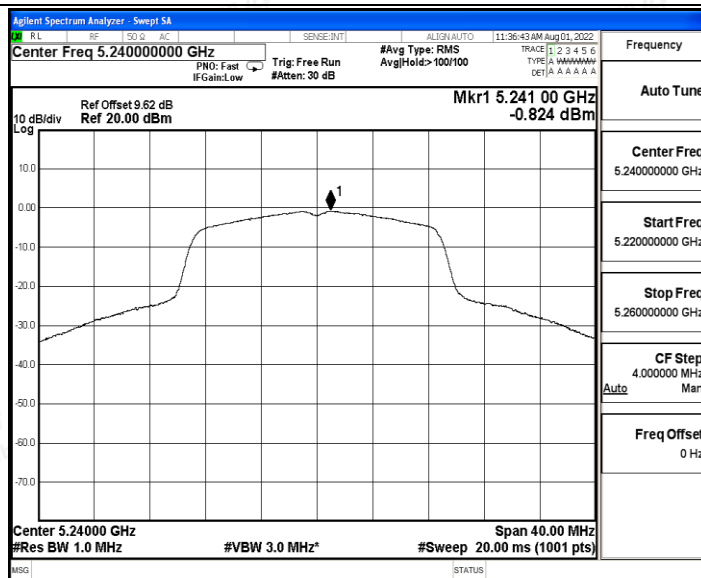


11AC20SISO_Ant_5220

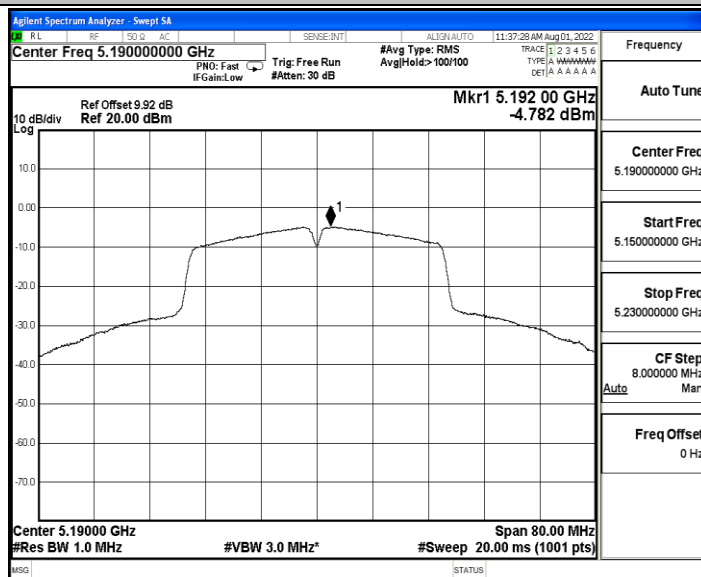


11AC20SISO_Ant_5240



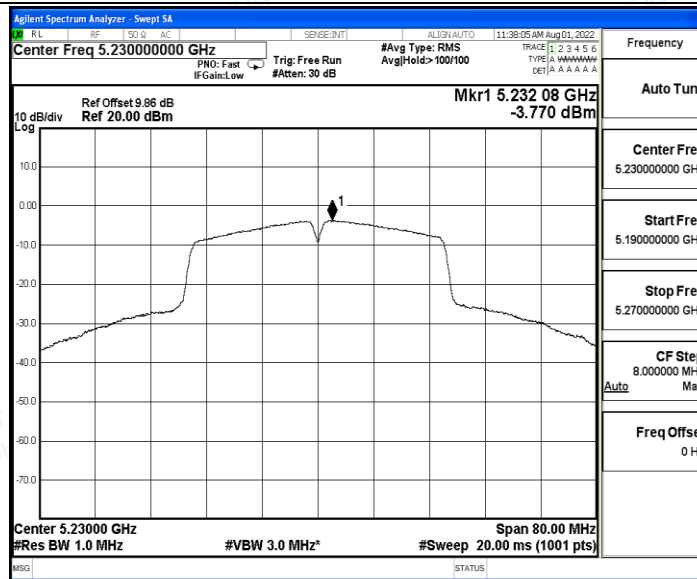


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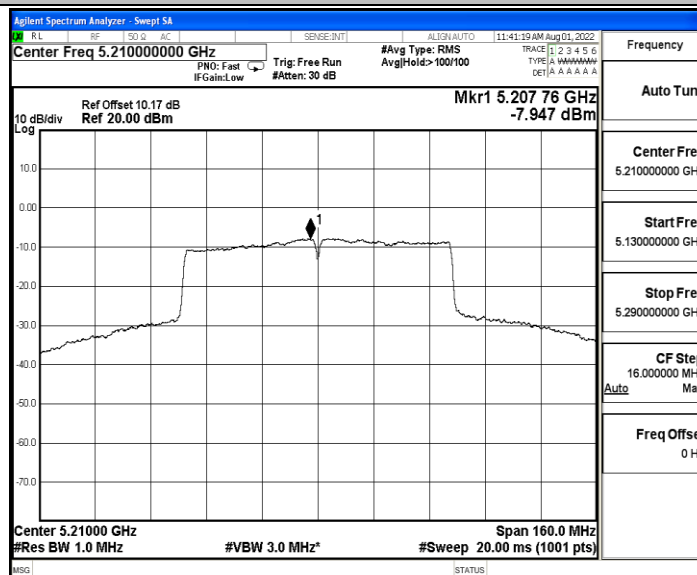


11AC40SISO_Ant_5230





11AC80SISO_Ant_5210





D.4 Emissions in Restricted Bands

Test Result

TestMode	Antenna	ChName	Channel	Detector	Freq. [MHz]	Result [dBm]	Limit [dBm]	Result [dBuV/m]	Limit [dBuV/m]	Verdict
11A	Ant	Low	5180	AV	4500.000	-48.78	≤-41.20	46.42	≤54	PASS
				AV	4805.900	-46.56	≤-41.20	48.64	≤54	PASS
				AV	5150.000	-46.98	≤-41.20	48.22	≤54	PASS
				Peak	4500.000	-40.29	≤-21.20	54.91	≤74	PASS
				Peak	5137.000	-36.29	≤-21.20	58.91	≤74	PASS
				Peak	5150.000	-38.03	≤-21.20	57.17	≤74	PASS
		High	5240	AV	5350.000	-47.57	≤-41.20	47.63	≤54	PASS
				AV	5399.280	-47.32	≤-41.20	47.88	≤54	PASS
				AV	5460.000	-47.42	≤-41.20	47.78	≤54	PASS
				Peak	5350.000	-39.43	≤-21.20	55.77	≤74	PASS
				Peak	5361.360	-36.52	≤-21.20	58.68	≤74	PASS
				Peak	5460.000	-39.2	≤-21.20	56.00	≤74	PASS
11N20SIS O	Ant	Low	5180	AV	4500.000	-48.87	≤-41.20	46.33	≤54	PASS
				AV	4819.900	-46.49	≤-41.20	48.71	≤54	PASS
				AV	5150.000	-46.93	≤-41.20	48.27	≤54	PASS
				Peak	4500.000	-40.19	≤-21.20	55.01	≤74	PASS
				Peak	4904.600	-36.17	≤-21.20	59.03	≤74	PASS
				Peak	5150.000	-38.95	≤-21.20	56.25	≤74	PASS
		High	5240	AV	5350.000	-47.59	≤-41.20	47.61	≤54	PASS
				AV	5405.760	-47.3	≤-41.20	47.90	≤54	PASS
				AV	5460.000	-47.48	≤-41.20	47.72	≤54	PASS
				Peak	5350.000	-39.49	≤-21.20	55.71	≤74	PASS
				Peak	5411.040	-36.67	≤-21.20	58.53	≤74	PASS
				Peak	5460.000	-38.6	≤-21.20	56.60	≤74	PASS
11N40SIS O	Ant	Low	5190	AV	4500.000	-48.58	≤-41.20	46.62	≤54	PASS
				AV	5149.600	-42.47	≤-41.20	52.73	≤54	PASS
				AV	5150.000	-42.44	≤-41.20	52.76	≤54	PASS
				Peak	4500.000	-40.47	≤-21.20	54.73	≤74	PASS
				Peak	5149.600	-33.48	≤-21.20	61.72	≤74	PASS
				Peak	5150.000	-33.03	≤-21.20	62.17	≤74	PASS
		High	5230	AV	5350.000	-46.73	≤-41.20	48.47	≤54	PASS
				AV	5355.480	-46.6	≤-41.20	48.60	≤54	PASS
				AV	5460.000	-47.1	≤-41.20	48.10	≤54	PASS
				Peak	5350.000	-38.25	≤-21.20	56.95	≤74	PASS



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11AC20SI SO	Ant	Low	5180	Peak	5385.380	-36.51	≤-21.20	58.69	≤74	PASS
				Peak	5460.000	-39.5	≤-21.20	55.70	≤74	PASS
				AV	4500.000	-48.51	≤-41.20	46.69	≤54	PASS
				AV	4875.900	-46.36	≤-41.20	48.84	≤54	PASS
				AV	5150.000	-47.05	≤-41.20	48.15	≤54	PASS
				Peak	4500.000	-39.58	≤-21.20	55.62	≤74	PASS
		High	5240	Peak	4937.500	-35.77	≤-21.20	59.43	≤74	PASS
				Peak	5150.000	-39.06	≤-21.20	56.14	≤74	PASS
				AV	5350.000	-47.27	≤-41.20	47.93	≤54	PASS
				AV	5373.600	-46.91	≤-41.20	48.29	≤54	PASS
				AV	5460.000	-47.4	≤-41.20	47.80	≤54	PASS
				Peak	5350.000	-39.23	≤-21.20	55.97	≤74	PASS
11AC40SI SO	Ant	Low	5190	Peak	5458.560	-36.69	≤-21.20	58.51	≤74	PASS
				Peak	5460.000	-39.57	≤-21.20	55.63	≤74	PASS
				AV	4500.000	-48.52	≤-41.20	46.68	≤54	PASS
				AV	5149.600	-45.37	≤-41.20	49.83	≤54	PASS
				AV	5150.000	-45.15	≤-41.20	50.05	≤54	PASS
				Peak	4500.000	-39.84	≤-21.20	55.36	≤74	PASS
		High	5230	Peak	4867.500	-36.32	≤-21.20	58.88	≤74	PASS
				Peak	5150.000	-36.06	≤-21.20	59.14	≤74	PASS
				AV	5350.000	-47.02	≤-41.20	48.18	≤54	PASS
				AV	5432.960	-46.59	≤-41.20	48.61	≤54	PASS
				AV	5460.000	-47.07	≤-41.20	48.13	≤54	PASS
				Peak	5350.000	-38.43	≤-21.20	56.77	≤74	PASS
11AC80SI SO	Ant	Low	5210	Peak	5451.160	-36.01	≤-21.20	59.19	≤74	PASS
				Peak	5460.000	-39.24	≤-21.20	55.96	≤74	PASS
				AV	4500.000	-48.13	≤-41.20	47.07	≤54	PASS
				AV	5149.500	-42.2	≤-41.20	53.00	≤54	PASS
				AV	5150.000	-42.3	≤-41.20	52.90	≤54	PASS
				Peak	4500.000	-39.97	≤-21.20	55.23	≤74	PASS
		High	5210	Peak	5149.500	-33	≤-21.20	62.20	≤74	PASS
				Peak	5150.000	-34.02	≤-21.20	61.18	≤74	PASS
				AV	5350.000	-46.57	≤-41.20	48.63	≤54	PASS
				AV	5456.080	-46.04	≤-41.20	49.16	≤54	PASS
				AV	5460.000	-46.5	≤-41.20	48.70	≤54	PASS
				Peak	5350.000	-38.65	≤-21.20	56.55	≤74	PASS
				Peak	5381.040	-36.73	≤-21.20	58.47	≤74	PASS
				Peak	5460.000	-39.04	≤-21.20	56.16	≤74	PASS





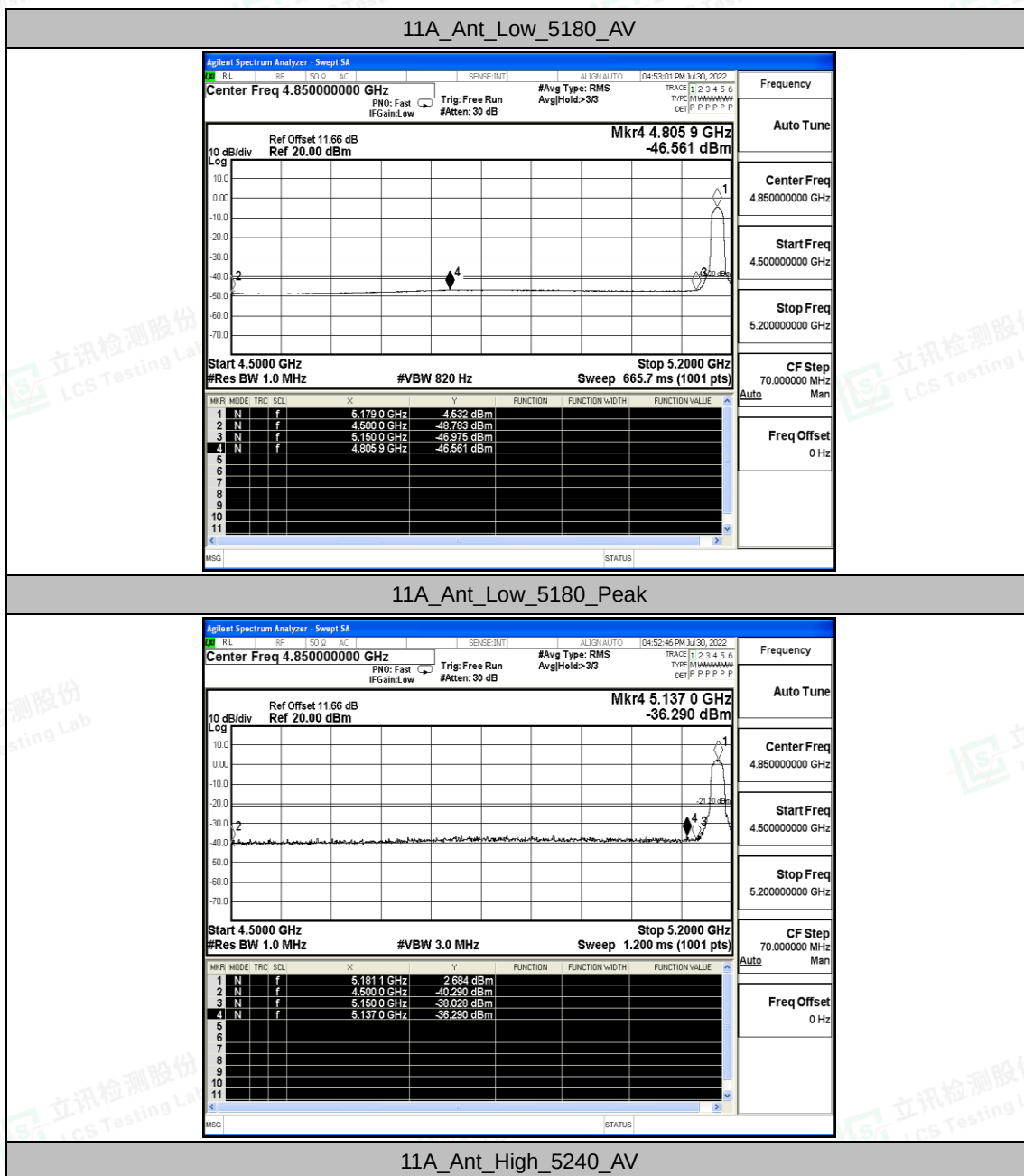
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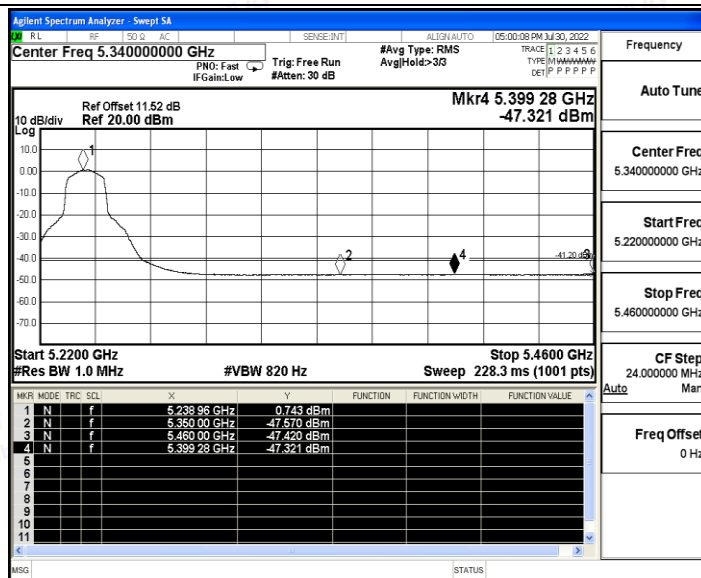
1. The Antenna Gain is compensated in the graph.
2. For transmitters operating in 5150-5250 GHz band: The limit in dBm for average detector is conversion from 54dBuV/m, according to 15.209(a). The limit in dBm for peak detector is 20dB above the limit of average detector in dBm.



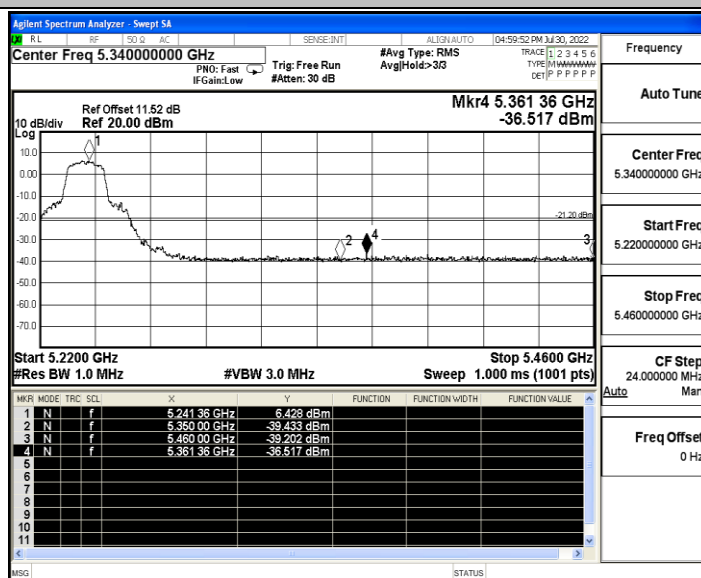


Test Graphs



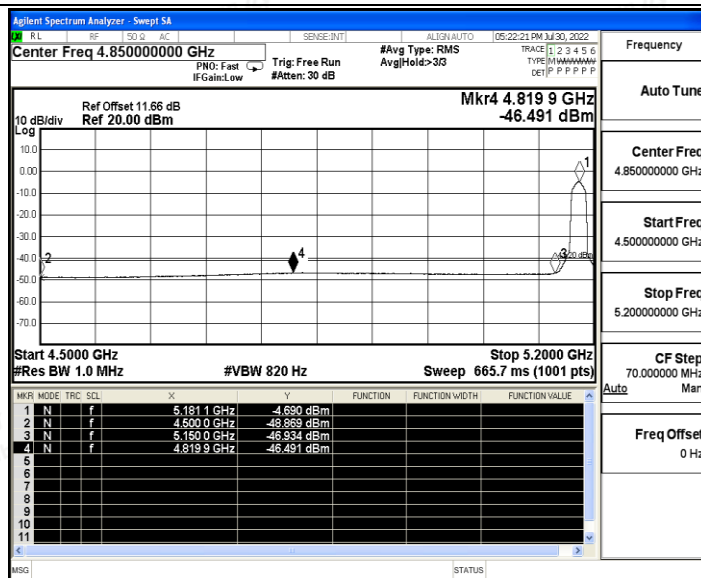


11A_Ant_High_5240_Peak

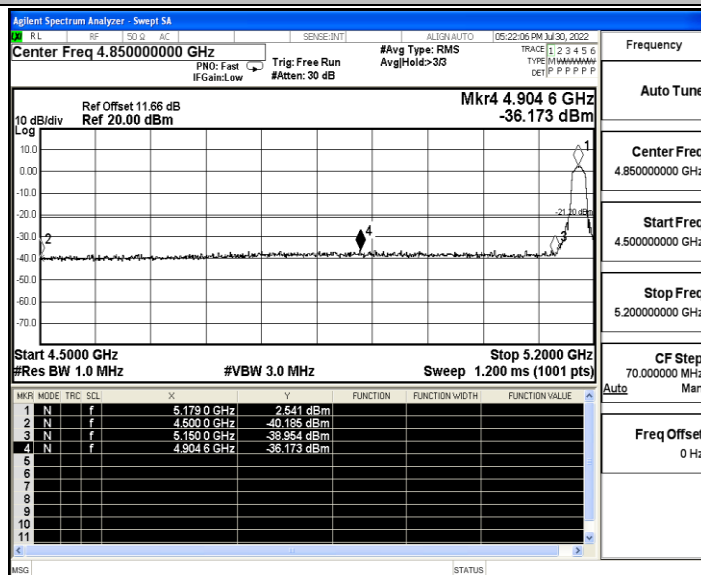


11N20SISO_Ant_Low_5180_AV





11N20SISO_Ant_Low_5180_Peak



11N20SISO_Ant_High_5240_AV

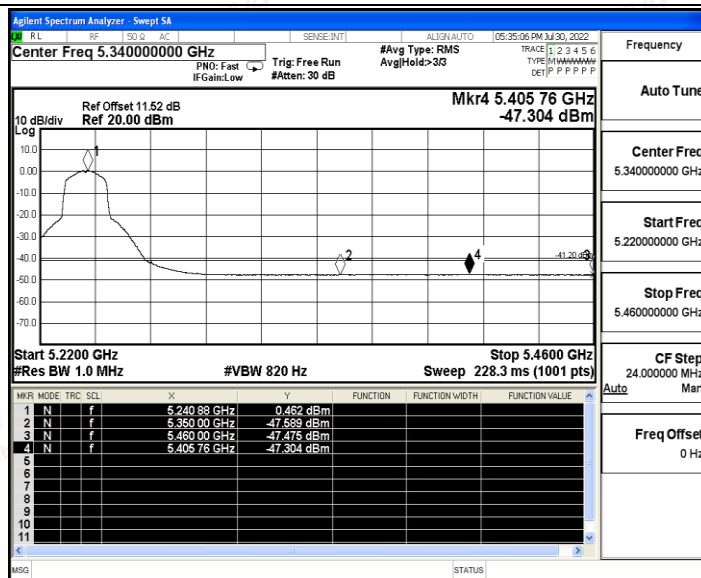


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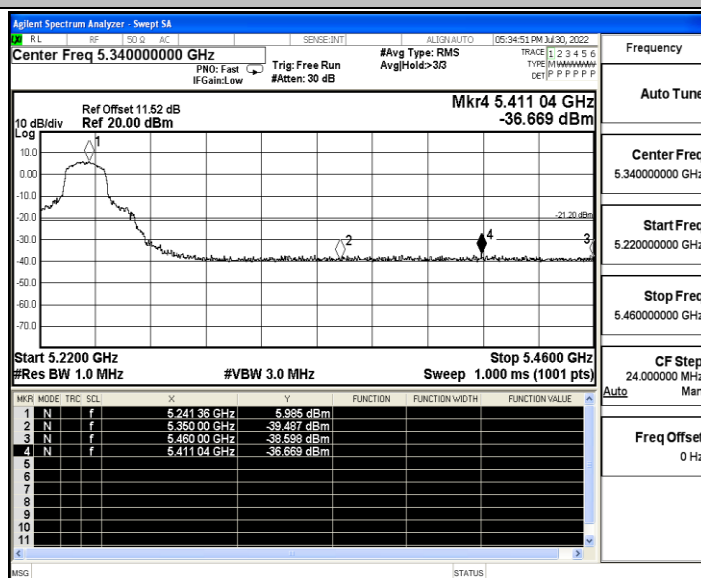
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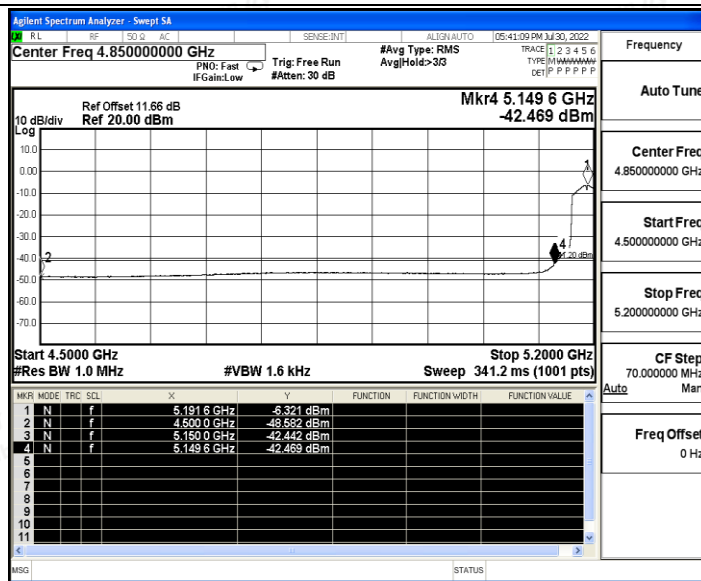


11N20SISO_Ant_High_5240_Peak

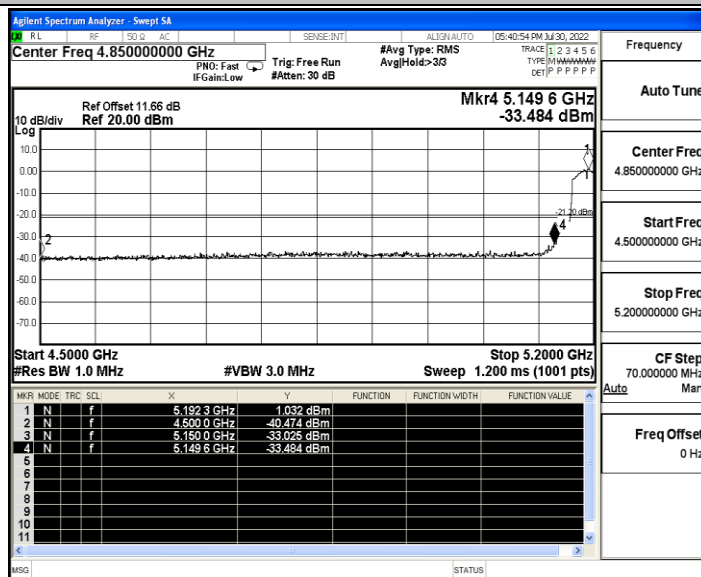


11N40SISO_Ant_Low_5190_AV



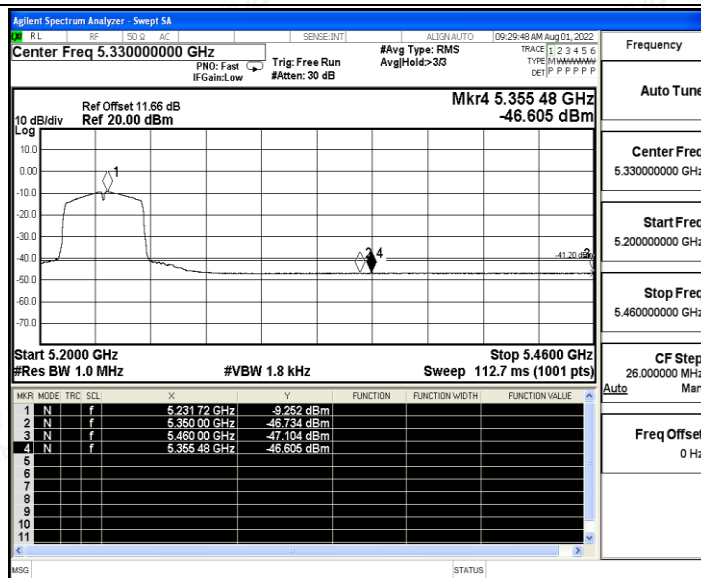


11N40SISO_Ant_Low_5190_Peak

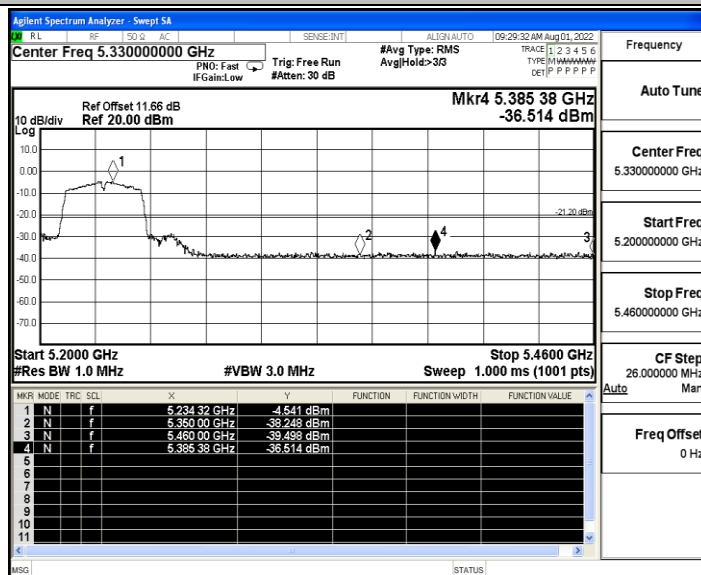


11N40SISO_Ant_High_5230_AV



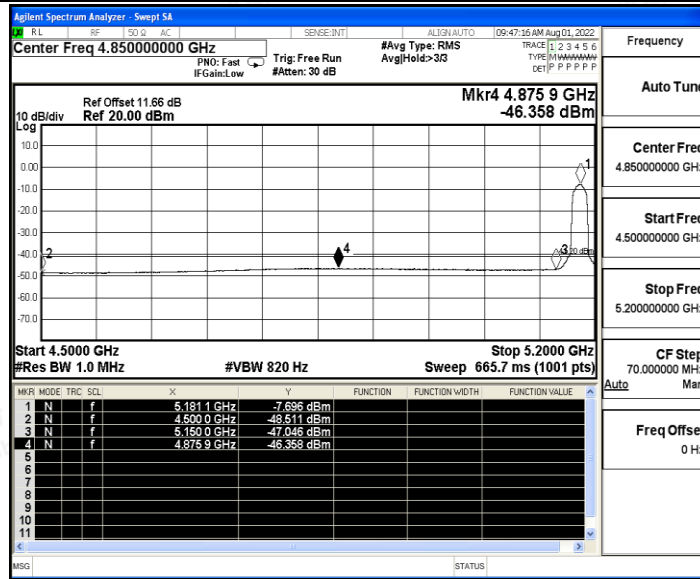


11N40SISO_Ant_High_5230_Peak

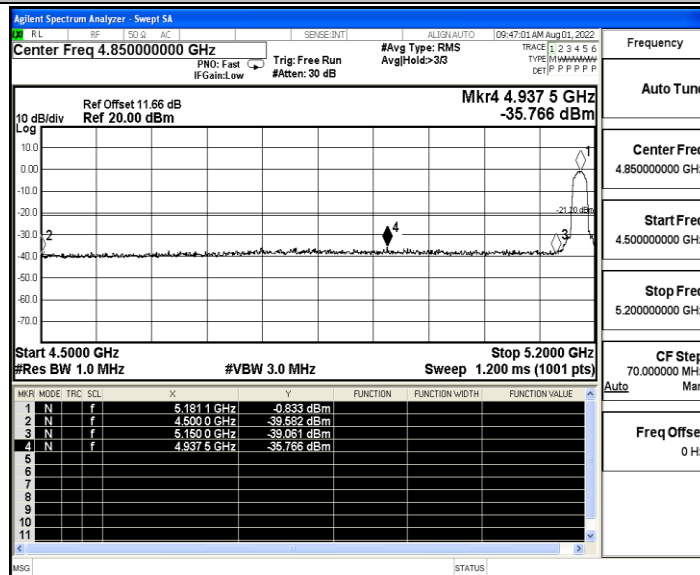


11AC20SISO_Ant_Low_5180_AV



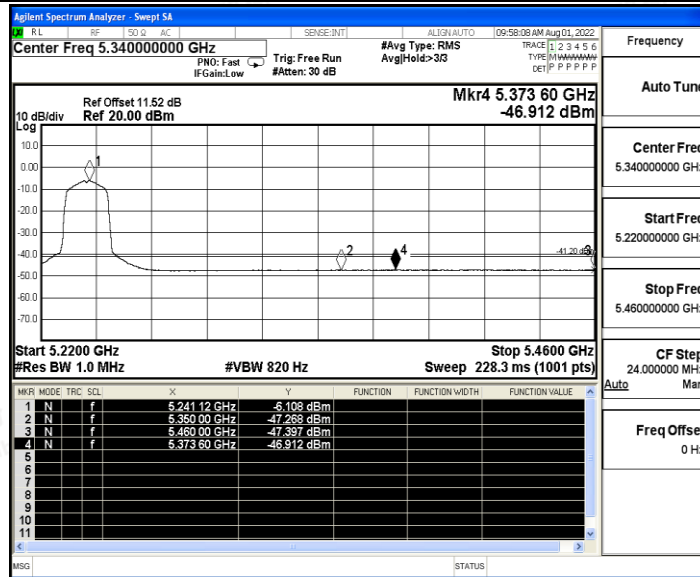


11AC20SISO_Ant_Low_5180_Peak

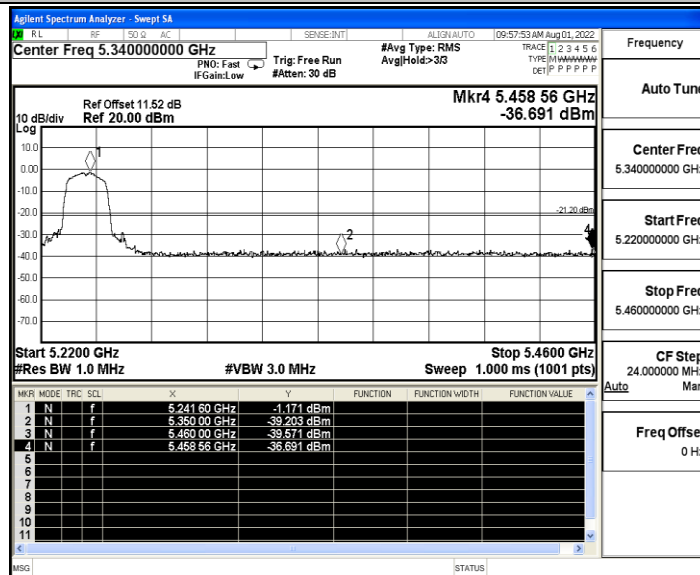


11AC20SISO_Ant_High_5240_AV



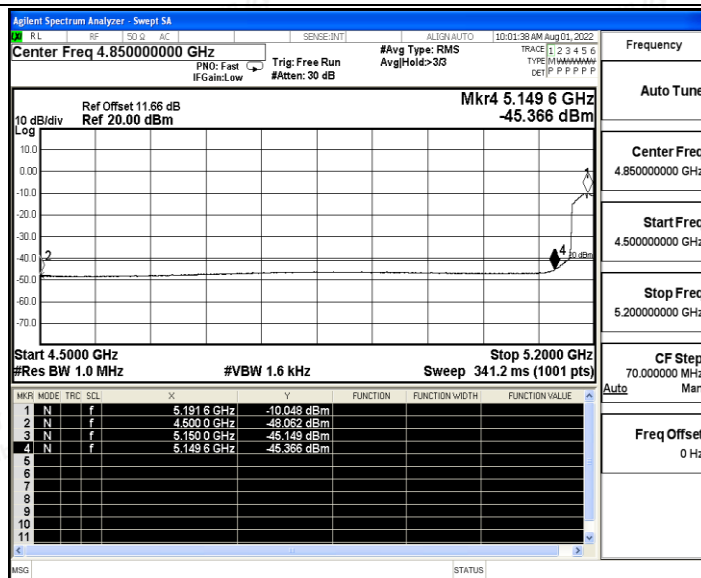


11AC20SISO_Ant_High_5240_Peak

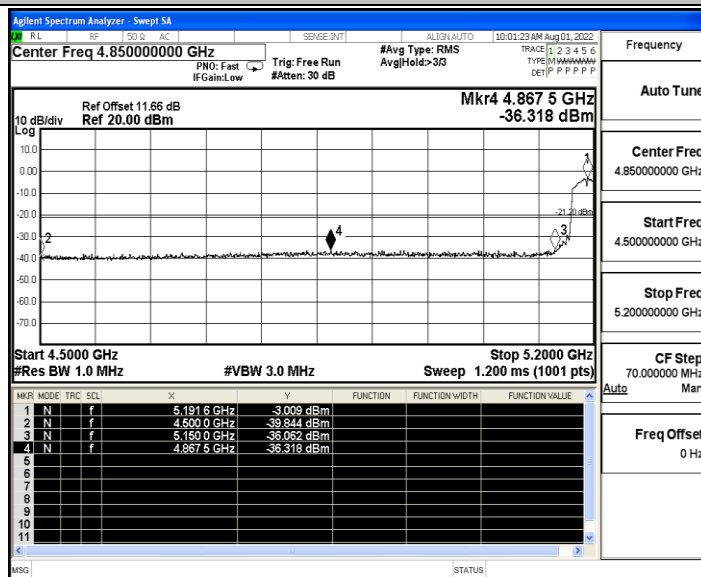


11AC40SISO_Ant_Low_5190_AV





11AC40SISO_Ant_Low_5190_Peak



11AC40SISO_Ant_High_5230_AV

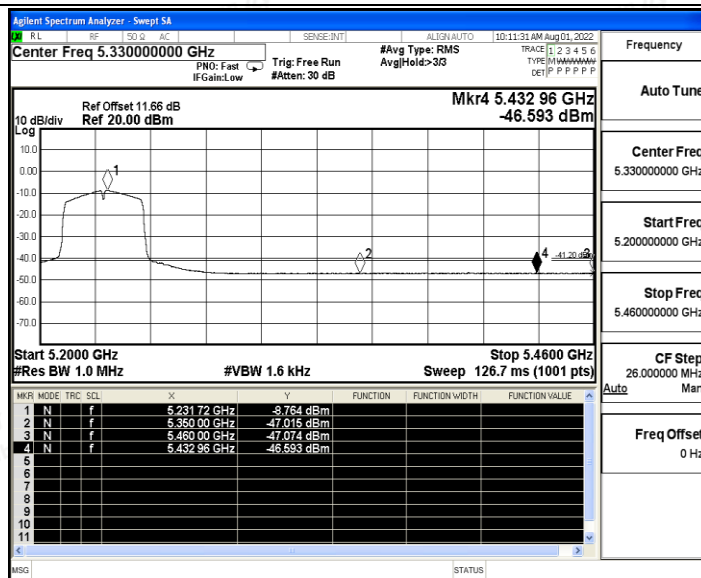


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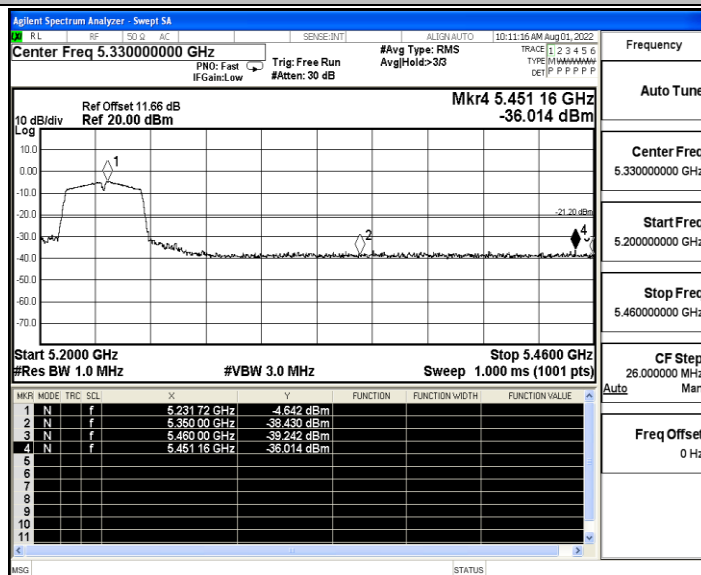
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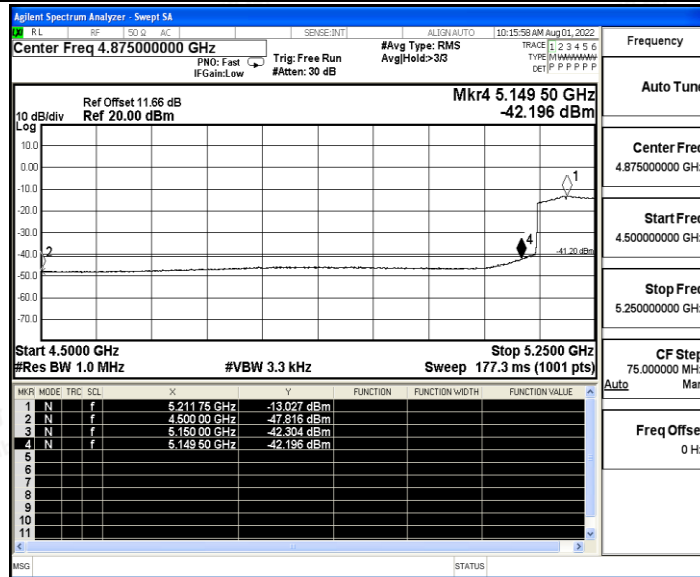


11AC40SISO_Ant_High_5230_Peak

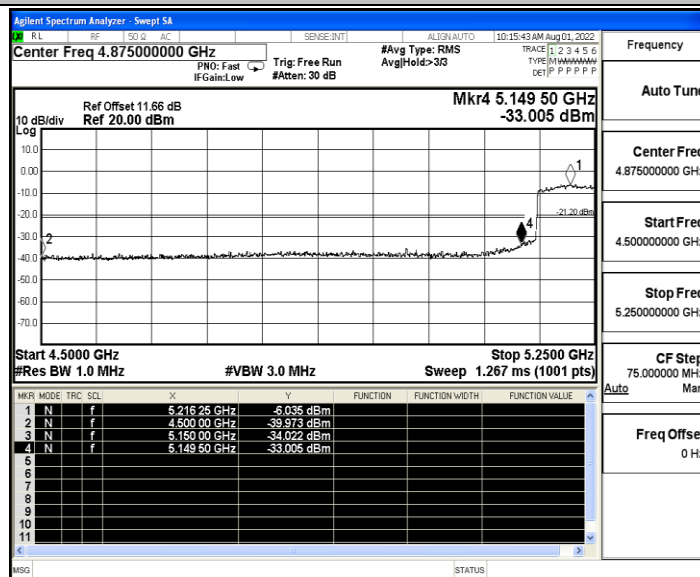


11AC80SISO_Ant_Low_5210_AV





11AC80SISO_Ant_Low_5210_Peak



11AC80SISO_Ant_High_5210_AV

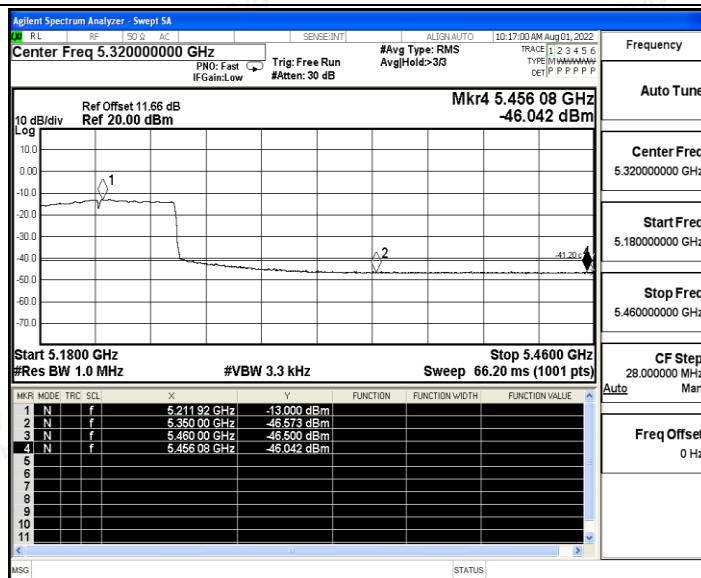


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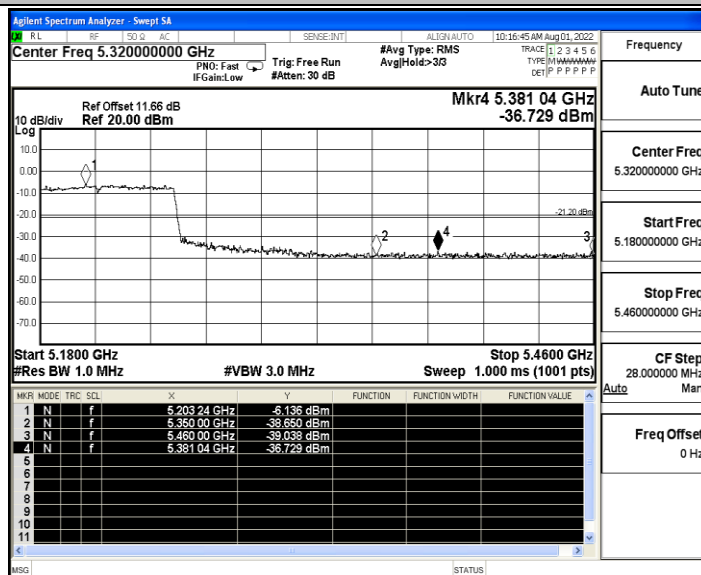
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11AC80SISO_Ant_High_5210_Peak





D.5 Frequency Stability

Test Result

Voltage								
TestMode	Antenna	Channel	Voltage [Vdc]	Temperature (°C)	Deviation (Hz)	Deviation (ppm)	Limit (ppm)	Verdict
11AC20S ISO	Ant	5180	NV	NT	-20000	-3.861004	20	PASS
			LV	NT	-20000	-3.861004	20	PASS
			HV	NT	-20000	-3.861004	20	PASS
		5220	NV	NT	0	0	20	PASS
			LV	NT	0	0	20	PASS
			HV	NT	-20000	-3.831418	20	PASS
		5240	NV	NT	-20000	-3.816794	20	PASS
			LV	NT	-20000	-3.816794	20	PASS
			HV	NT	-20000	-3.816794	20	PASS
11AC40S ISO	Ant	5190	NV	NT	0	0	20	PASS
			LV	NT	0	0	20	PASS
			HV	NT	0	0	20	PASS
		5230	NV	NT	0	0	20	PASS
			LV	NT	0	0	20	PASS
			HV	NT	0	0	20	PASS
11AC80S ISO	Ant	5210	NV	NT	0	0	20	PASS
			LV	NT	0	0	20	PASS
			HV	NT	0	0	20	PASS

Temperature								
TestMode	Antenna	Channel	Voltage [Vdc]	Temperature (°C)	Deviation (Hz)	Deviation (ppm)	Limit (ppm)	Verdict
11AC20S ISO	Ant	5180	NV	-30	-20000	-3.861004	20	PASS
			NV	-20	-20000	-3.861004	20	PASS
			NV	-10	-20000	-3.861004	20	PASS
			NV	0	-20000	-3.861004	20	PASS
			NV	10	-20000	-3.861004	20	PASS
			NV	20	-20000	-3.861004	20	PASS
			NV	30	-20000	-3.861004	20	PASS
			NV	40	-20000	-3.861004	20	PASS
			NV	50	-20000	-3.861004	20	PASS
		5220	NV	-30	-20000	-3.831418	20	PASS
			NV	-20	-20000	-3.831418	20	PASS





			NV	-10	-20000	-3.831418	20	PASS
			NV	0	-20000	-3.831418	20	PASS
			NV	10	-20000	-3.831418	20	PASS
			NV	20	-20000	-3.831418	20	PASS
			NV	30	-20000	-3.831418	20	PASS
			NV	40	-20000	-3.831418	20	PASS
			NV	50	-20000	-3.831418	20	PASS
		5240	NV	-30	-20000	-3.816794	20	PASS
			NV	-20	-20000	-3.816794	20	PASS
			NV	-10	-20000	-3.816794	20	PASS
			NV	0	-20000	-3.816794	20	PASS
			NV	10	-20000	-3.816794	20	PASS
			NV	20	-20000	-3.816794	20	PASS
			NV	30	-20000	-3.816794	20	PASS
			NV	40	-20000	-3.816794	20	PASS
			NV	50	-20000	-3.816794	20	PASS
11AC40S ISO	Ant	5190	NV	-30	0	0	20	PASS
			NV	-20	0	0	20	PASS
			NV	-10	0	0	20	PASS
			NV	0	0	0	20	PASS
			NV	10	0	0	20	PASS
			NV	20	0	0	20	PASS
			NV	30	0	0	20	PASS
		5230	NV	40	0	0	20	PASS
			NV	50	0	0	20	PASS
			NV	-30	0	0	20	PASS
			NV	-20	0	0	20	PASS
			NV	-10	0	0	20	PASS
			NV	0	0	0	20	PASS
			NV	10	0	0	20	PASS
			NV	20	0	0	20	PASS
			NV	30	0	0	20	PASS
			NV	40	0	0	20	PASS
			NV	50	0	0	20	PASS
11AC80S ISO	Ant	5210	NV	-30	0	0	20	PASS
			NV	-20	0	0	20	PASS
			NV	-10	0	0	20	PASS
			NV	0	0	0	20	PASS
			NV	10	0	0	20	PASS
			NV	20	0	0	20	PASS



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		NV	30	0	0	20	PASS
		NV	40	0	0	20	PASS
		NV	50	0	0	20	PASS





D.6 Duty Cycle

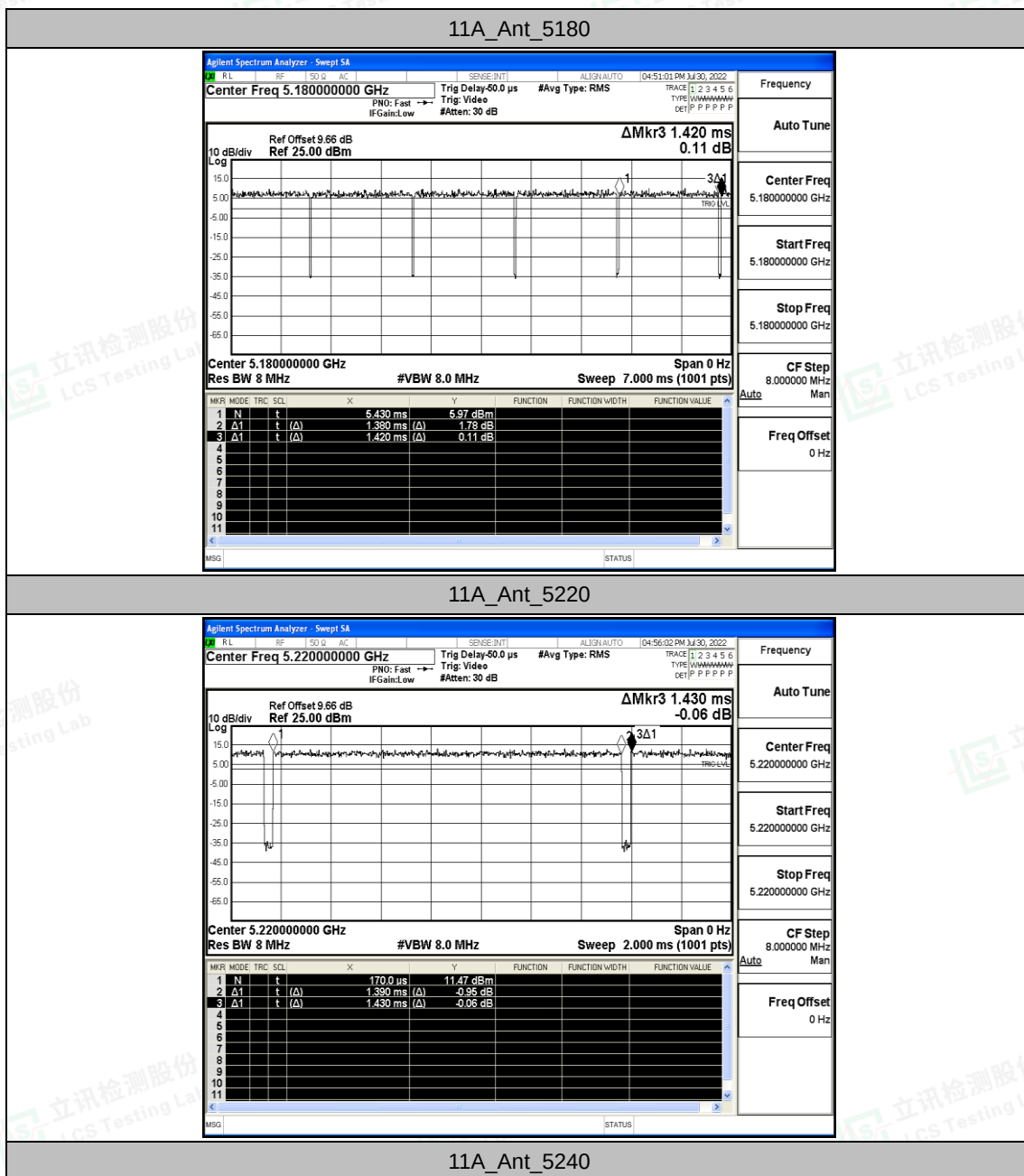
Test Result

TestMode	Antenna	Channel	Transmission Duration [ms]	Transmission Period [ms]	Duty Cycle [%]	Limit	Verdict
11A	Ant	5180	1.38	1.42	97.18	---	---
		5220	1.39	1.43	97.20	---	---
		5240	1.39	1.43	97.20	---	---
11N20SISO	Ant	5180	1.30	1.33	97.74	---	---
		5220	1.30	1.34	97.01	---	---
		5240	1.29	1.33	96.99	---	---
11N40SISO	Ant	5190	0.65	0.69	94.20	---	---
		5230	0.64	0.68	94.12	---	---
11AC20SISO	Ant	5180	1.31	1.35	97.04	---	---
		5220	1.31	1.35	97.04	---	---
		5240	1.31	1.34	97.76	---	---
11AC40SISO	Ant	5190	0.65	0.69	94.20	---	---
		5230	0.65	0.68	95.59	---	---
11AC80SISO	Ant	5210	0.32	0.36	88.89	---	---





Test Graphs

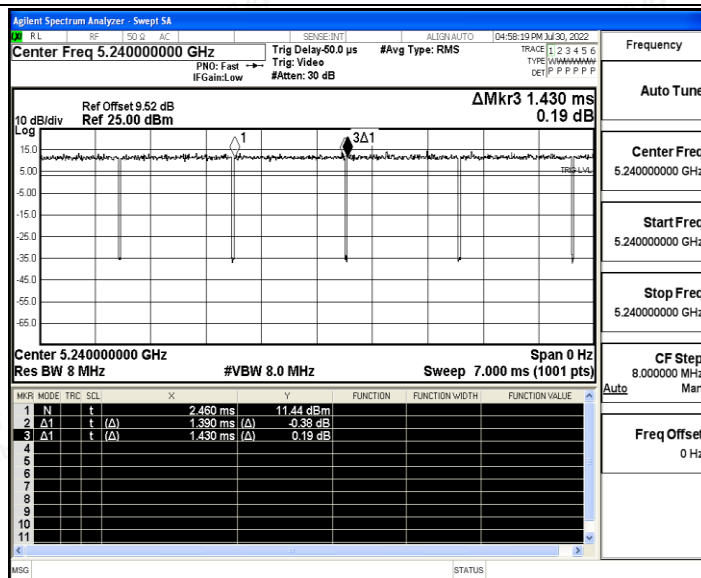


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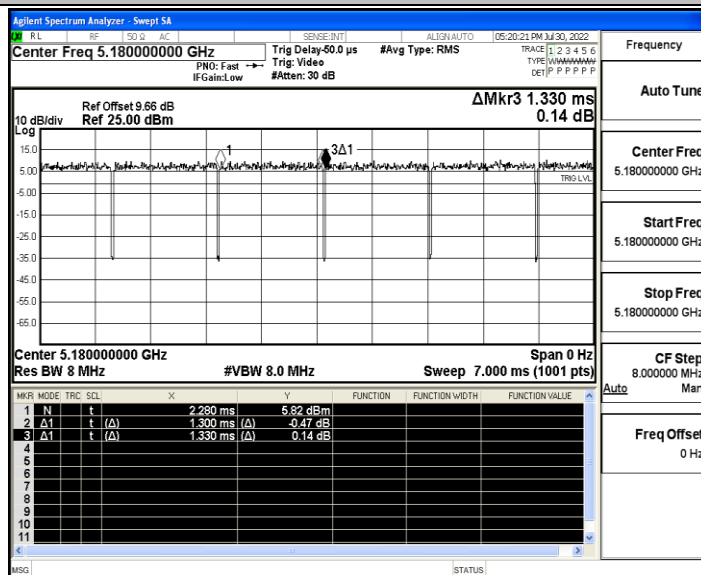
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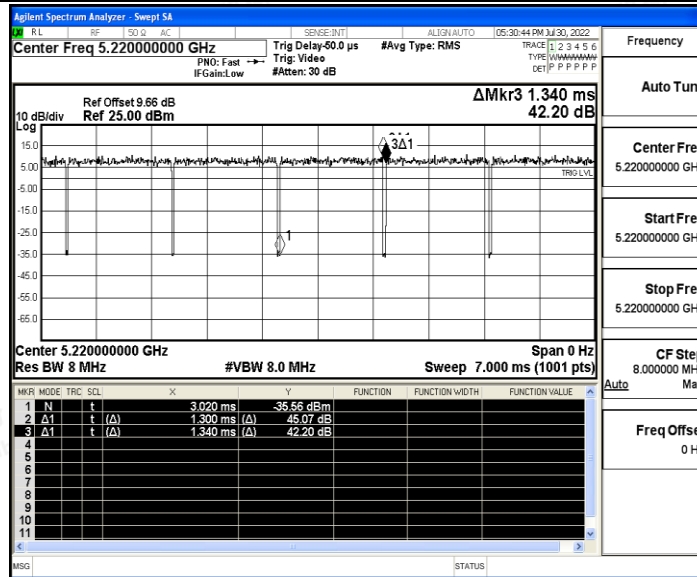


11N20SISO_Ant_5180

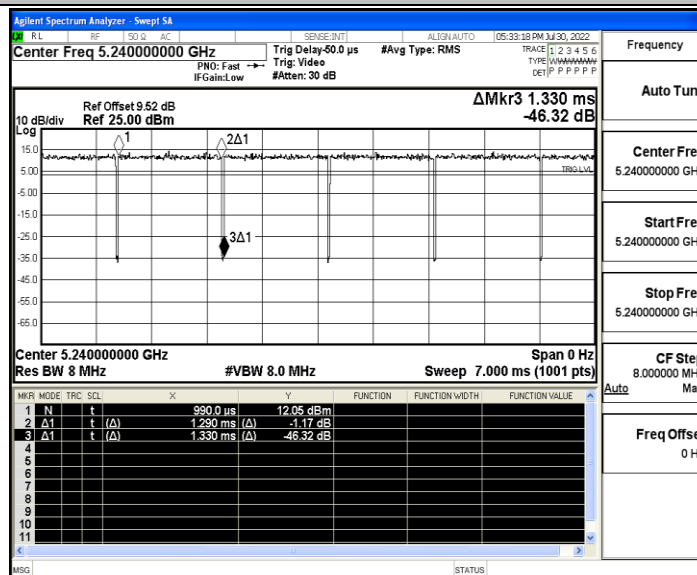


11N20SISO_Ant_5220



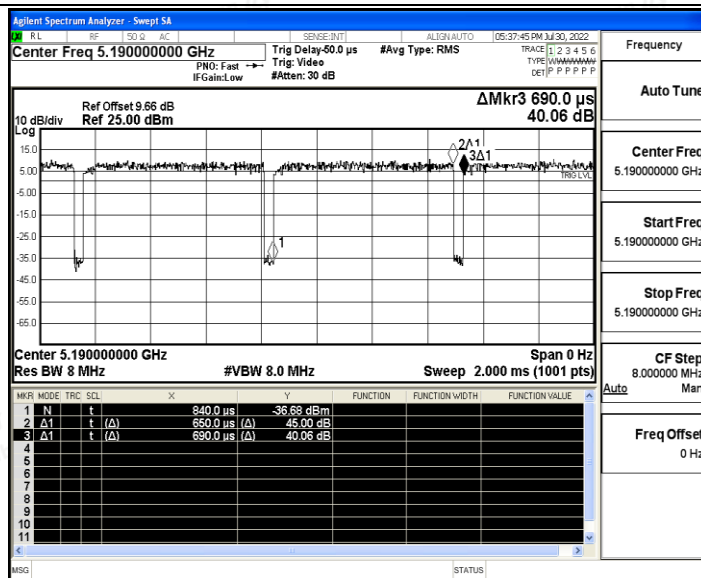


11N20SISO_Ant_5240

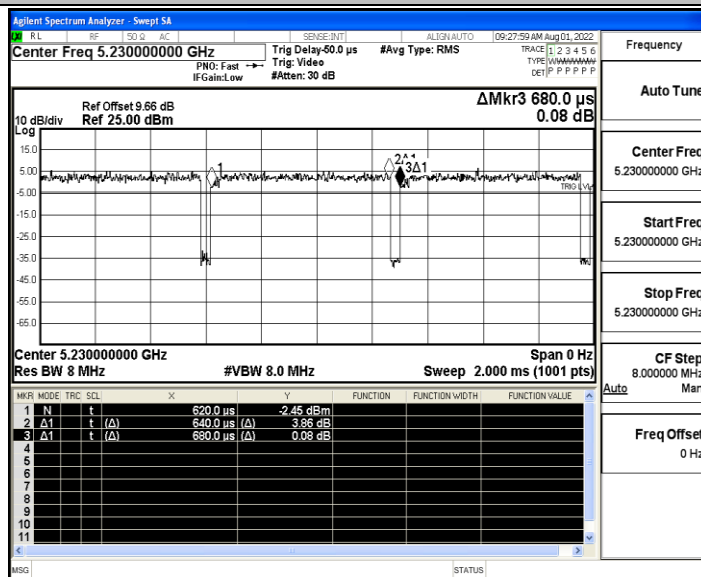


11N40SISO_Ant_5190



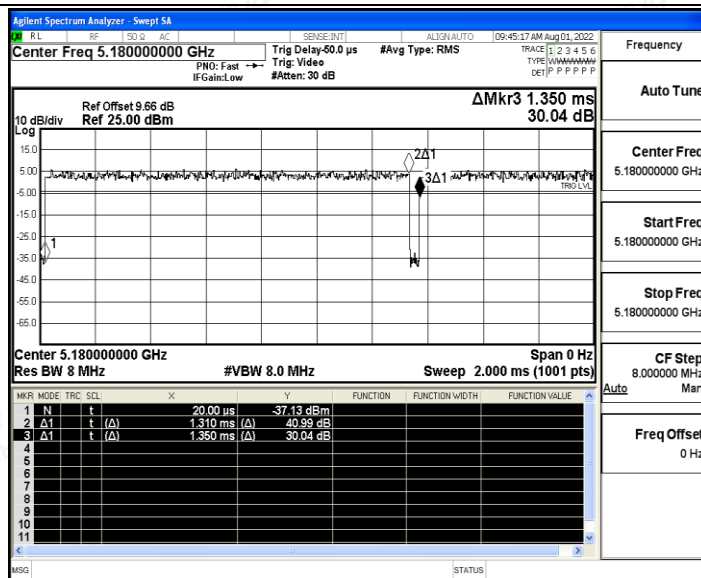


11N40SISO_Ant_5230

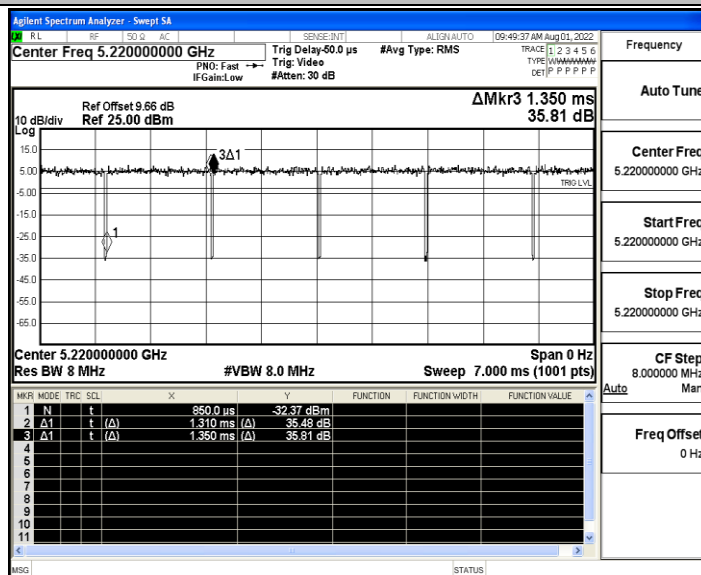


11AC20SISO_Ant_5180



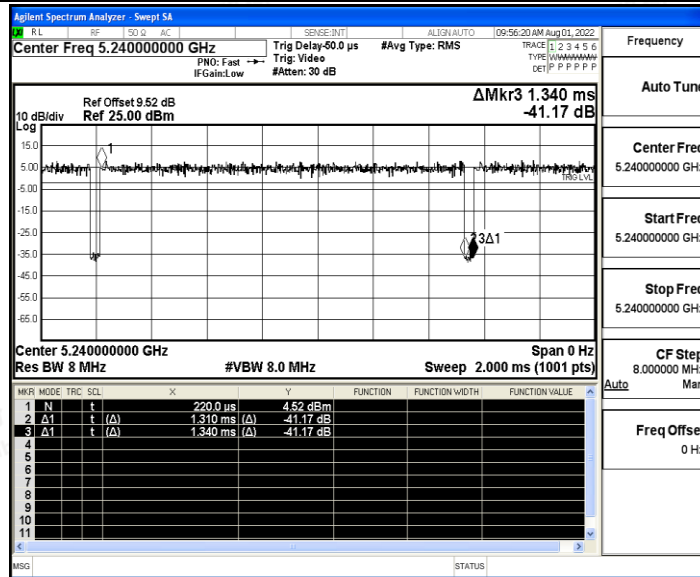


11AC20SISO_Ant_5220

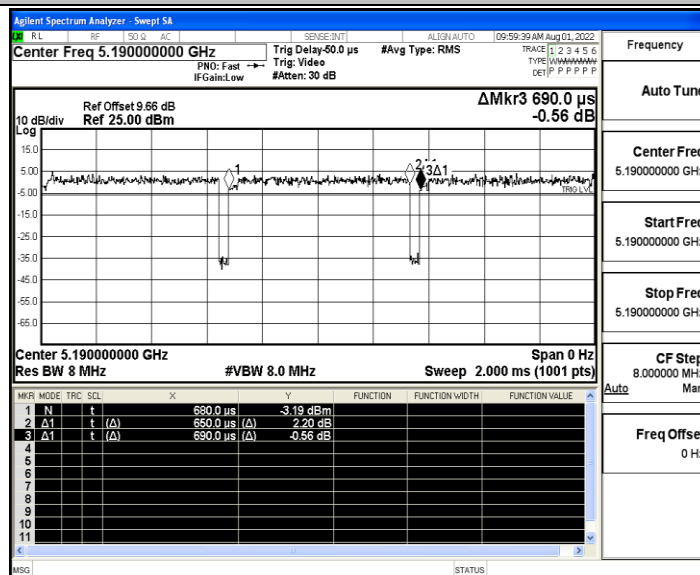


11AC20SISO_Ant_5240



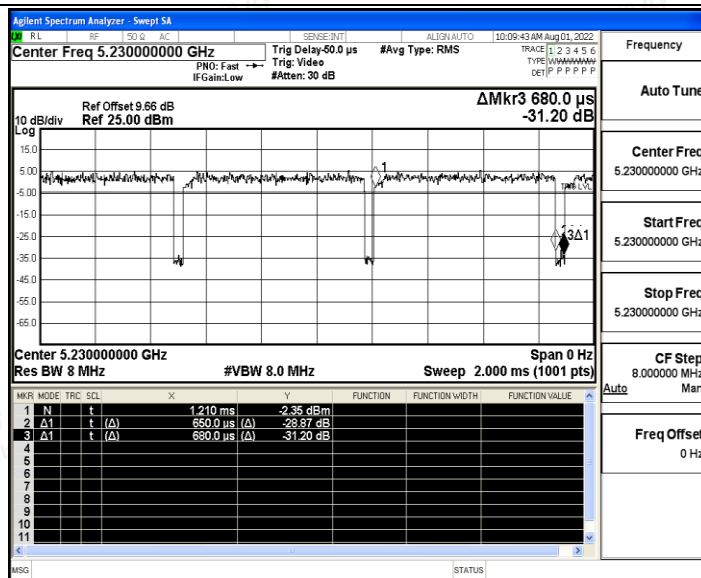


11AC40SISO_Ant_5190



11AC40SISO_Ant_5230





11AC80SISO_Ant_5210

