



Appendix D

RF Test Data for 5.2G WIFI (Conducted Measurement)

Product Name: HYBOOK_PLUS

Test Model: 14CB8S01

Environmental Conditions

Temperature:	22.6° C
Relative Humidity:	53.2%
ATM Pressure:	100.0 kPa
Test Engineer:	Ling Zhu
Supervised by:	Li Huan



D.1 26dB Emission Bandwidth

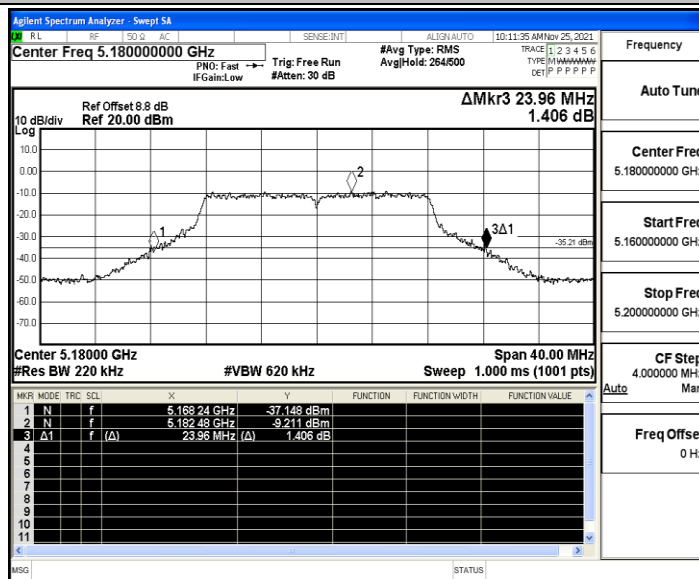
Test Result

TestMode	Antenna	Channel	26db EBW [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
11A	Ant1	5180	23.960	5168.240	5192.200	---	PASS
		5200	23.520	5188.640	5212.160	---	PASS
		5240	23.760	5228.200	5251.960	---	PASS
11N20SISO	Ant1	5180	23.160	5168.400	5191.560	---	PASS
		5200	23.440	5188.760	5212.200	---	PASS
		5240	23.720	5228.000	5251.720	---	PASS
11N40SISO	Ant1	5190	44.240	5167.760	5212.000	---	PASS
		5230	44.000	5207.920	5251.920	---	PASS
11AC20SISO	Ant1	5180	24.120	5168.240	5192.360	---	PASS
		5200	23.720	5188.040	5211.760	---	PASS
		5240	23.240	5228.520	5251.760	---	PASS
11AC40SISO	Ant1	5190	44.800	5167.680	5212.480	---	PASS
		5230	44.720	5207.680	5252.400	---	PASS
11AC80SISO	Ant1	5210	84.960	5166.960	5251.920	---	PASS

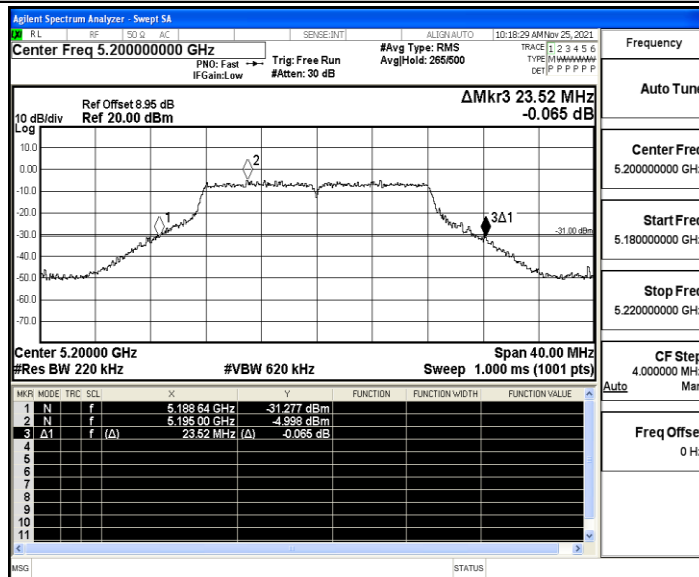


Test Graphs

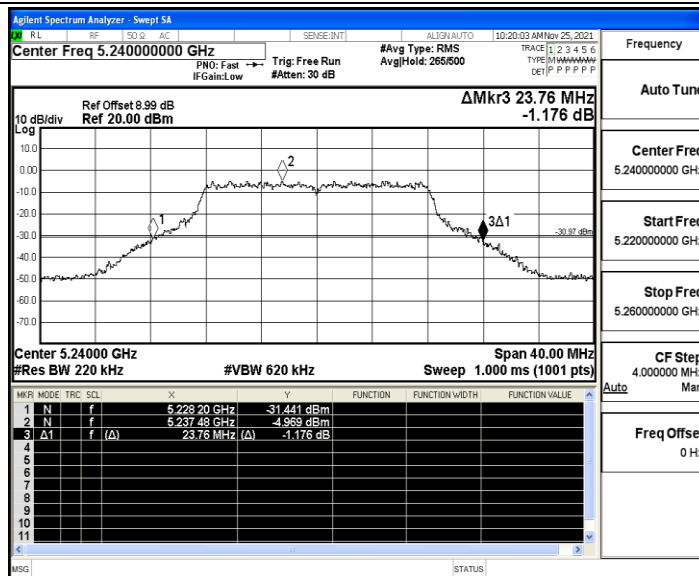
11A_Ant1_5180



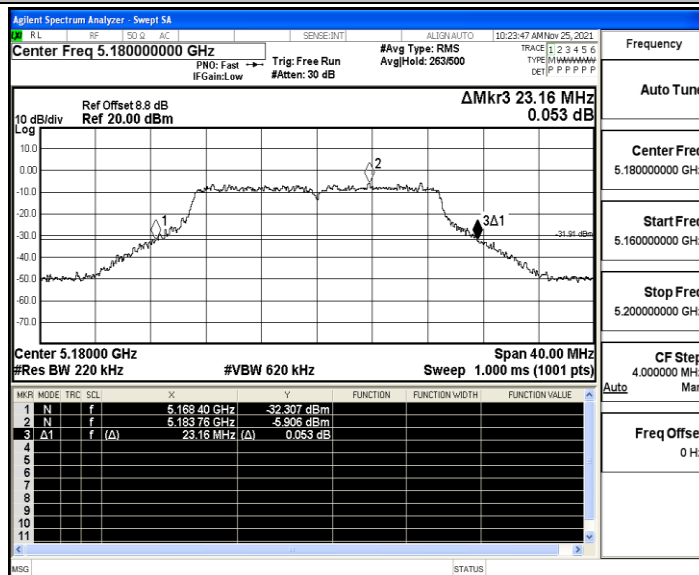
11A_Ant1_5200



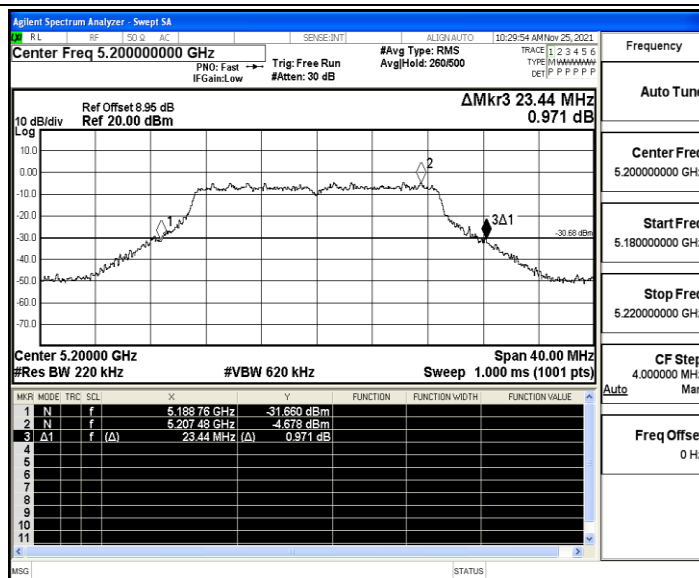
11A_Ant1_5240



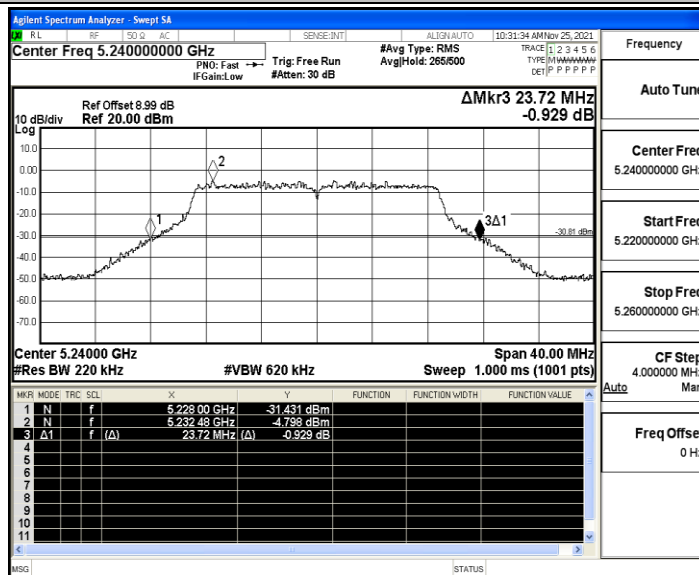
11N20SISO_Ant1_5180



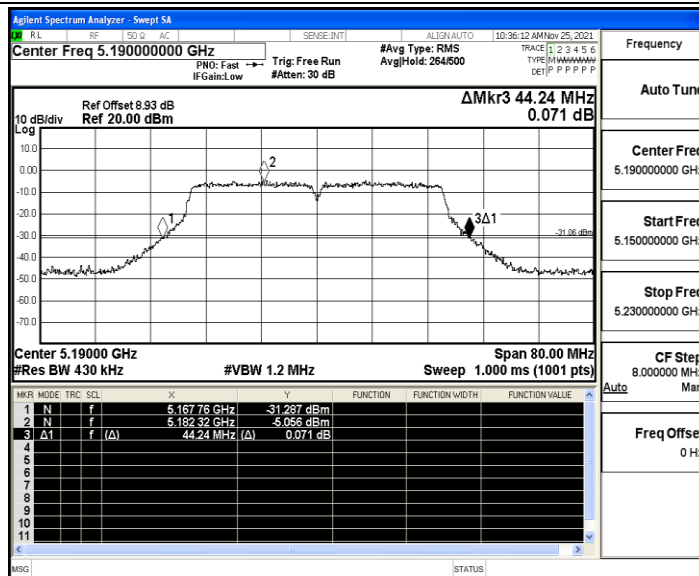
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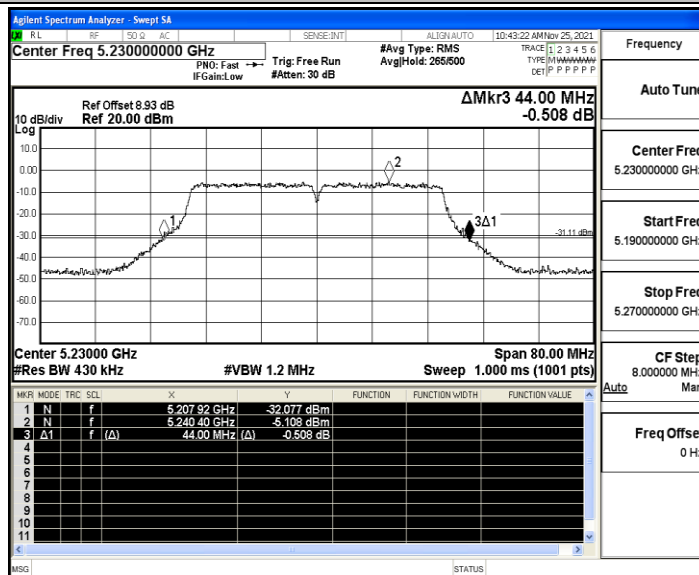
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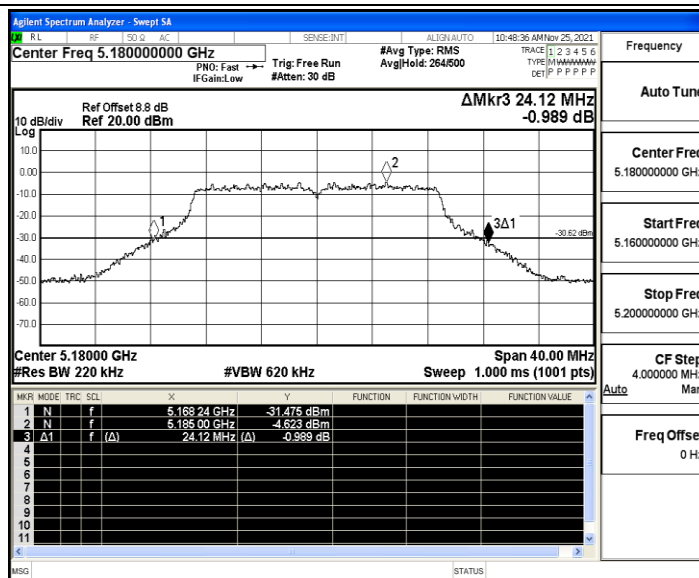
11N40SISO_Ant1_5190



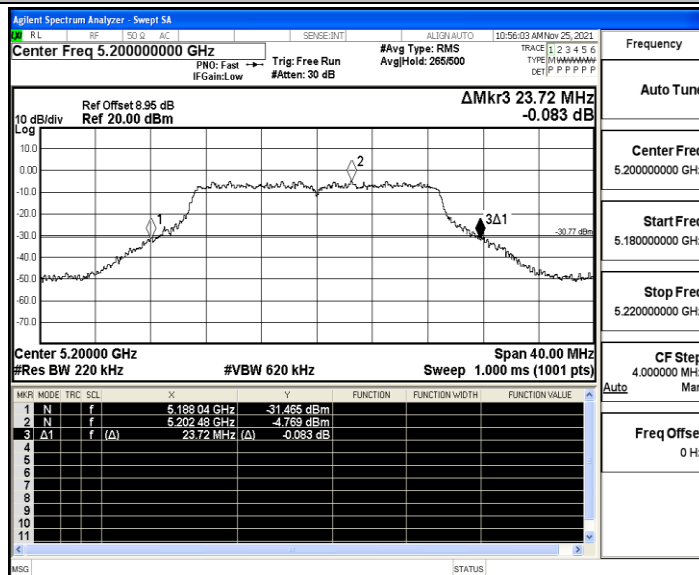
11N40SISO_Ant1_5230



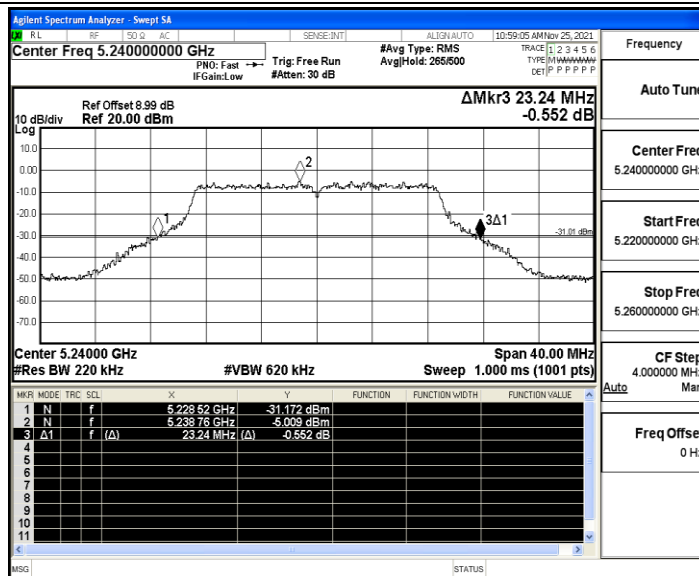
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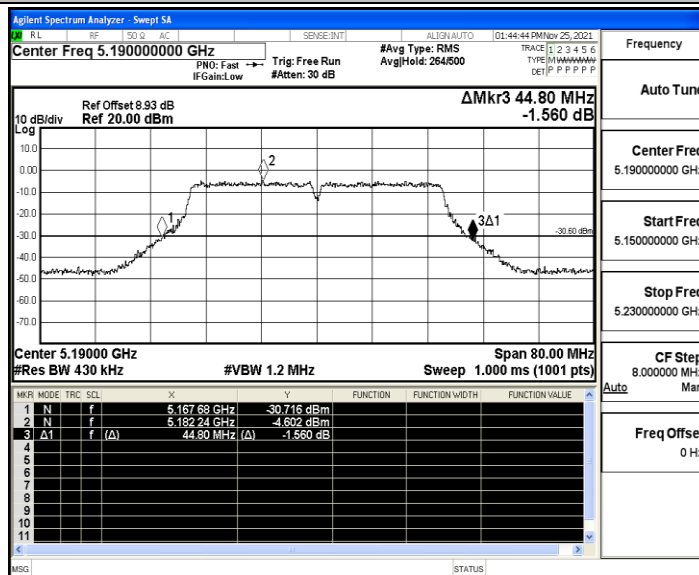
11AC20SISO_Ant1_5200



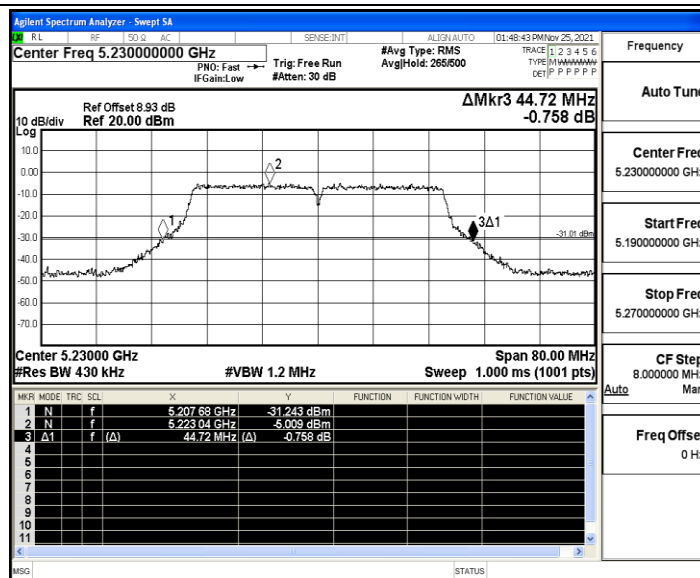
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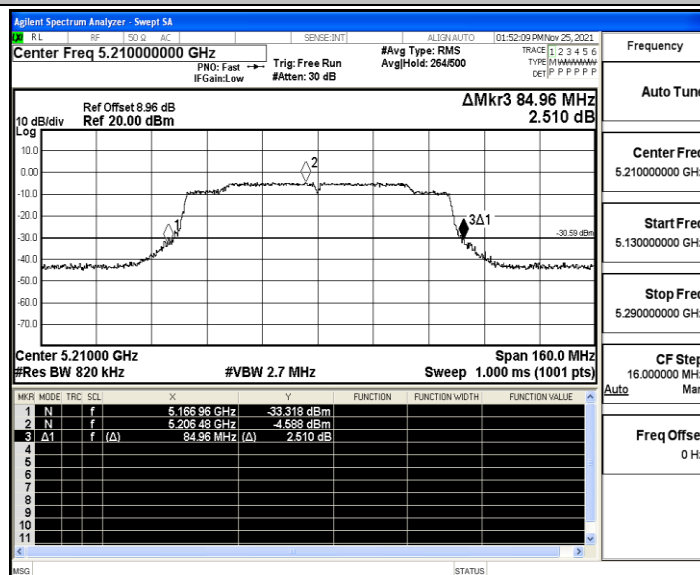
11AC40SISO_Ant1_5190



11AC40SISO_Ant1_5230



11AC80SISO_Ant1_5210





D.2 Maximum conducted output power

Test Result

TestMode	Antenna	Channel	Result[dBm]	Limit[dBm]	Verdict
11A	Ant1	5180	5.29	≤23.98	PASS
		5200	4.98	≤23.98	PASS
		5240	4.97	≤23.98	PASS
11N20SISO	Ant1	5180	5.24	≤23.98	PASS
		5200	5.06	≤23.98	PASS
		5240	4.86	≤23.98	PASS
11N40SISO	Ant1	5190	5.73	≤23.98	PASS
		5230	5.50	≤23.98	PASS
11AC20SISO	Ant1	5180	5.18	≤23.98	PASS
		5200	5.03	≤23.98	PASS
		5240	4.76	≤23.98	PASS
11AC40SISO	Ant1	5190	5.77	≤23.98	PASS
		5230	5.55	≤23.98	PASS
11AC80SISO	Ant1	5210	5.71	≤23.98	PASS

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



D.3 Maximum power spectral density

Test Result

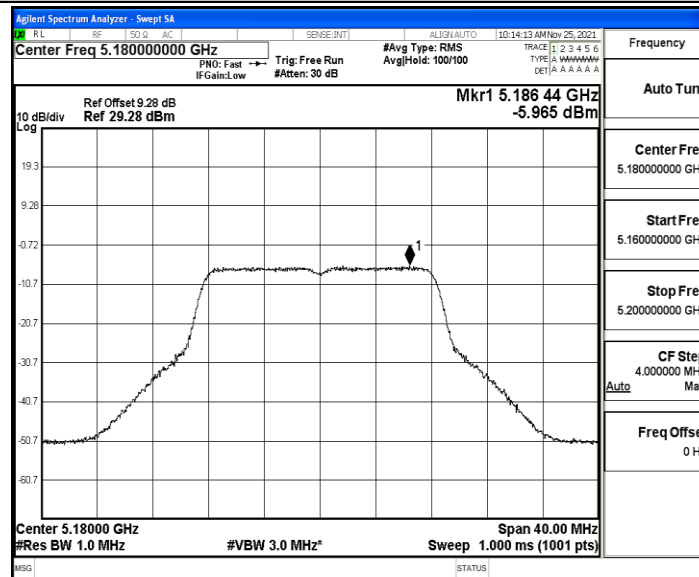
TestMode	Antenna	Channel	Result [dBm/MHz]	Limit[dBm/MHz]	Verdict
11A	Ant1	5180	-5.97	≤11	PASS
		5200	-6.09	≤11	PASS
		5240	-6.29	≤11	PASS
11N20SISO	Ant1	5180	-6.27	≤11	PASS
		5200	-6.4	≤11	PASS
		5240	-6.7	≤11	PASS
11N40SISO	Ant1	5190	-8.64	≤11	PASS
		5230	-9.1	≤11	PASS
11AC20SISO	Ant1	5180	-6.45	≤11	PASS
		5200	-6.43	≤11	PASS
		5240	-6.78	≤11	PASS
11AC40SISO	Ant1	5190	-8.59	≤11	PASS
		5230	-8.93	≤11	PASS
11AC80SISO	Ant1	5210	-11.54	≤11	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.

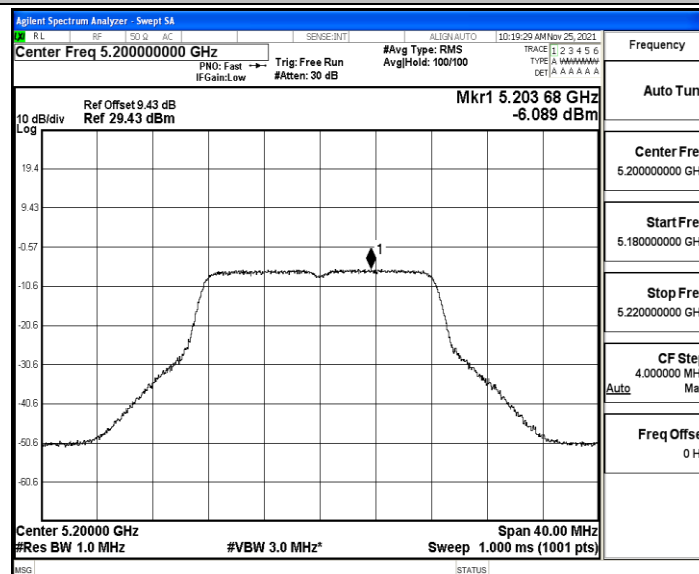


Test Graphs

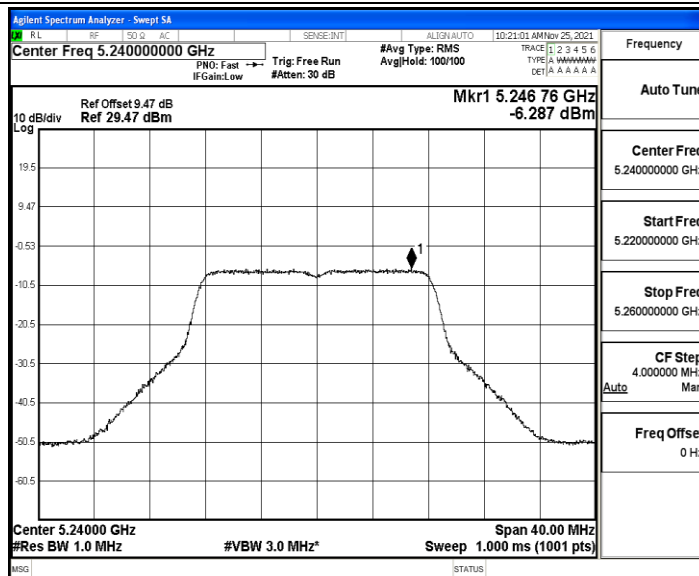
11A_Ant1_5180



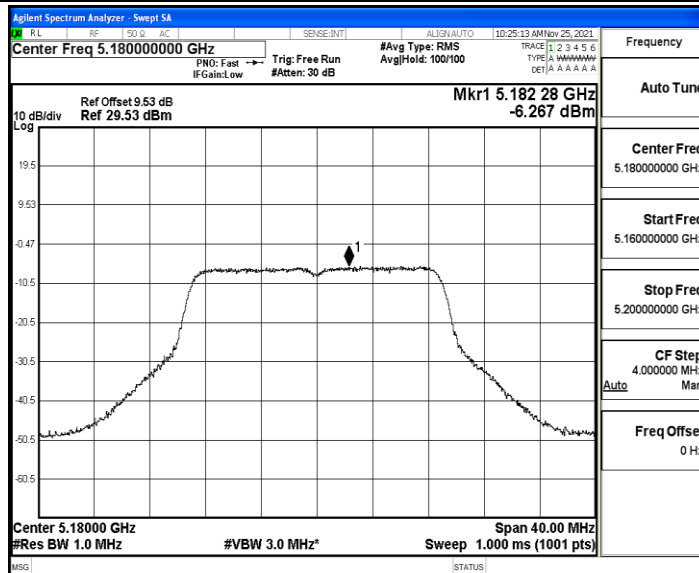
11A_Ant1_5200



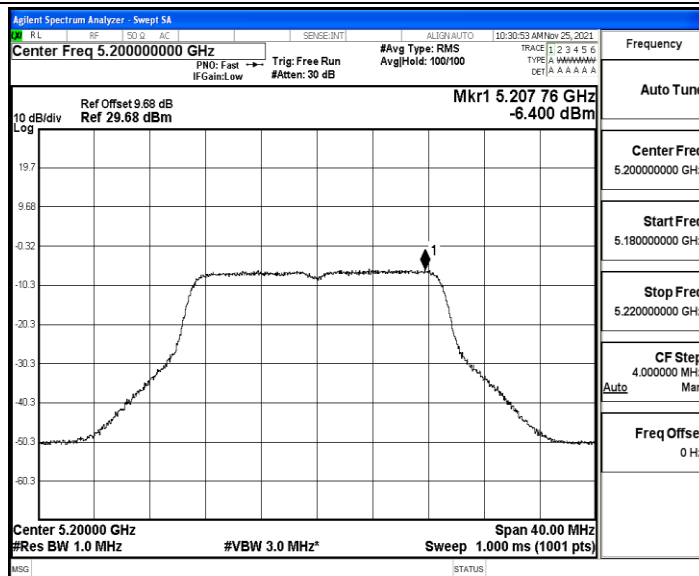
11A_Ant1_5240



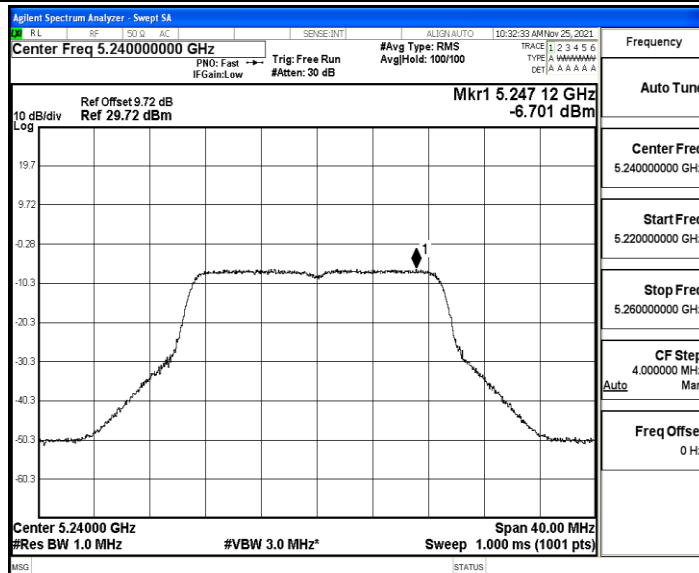
11N20SISO_Ant1_5180



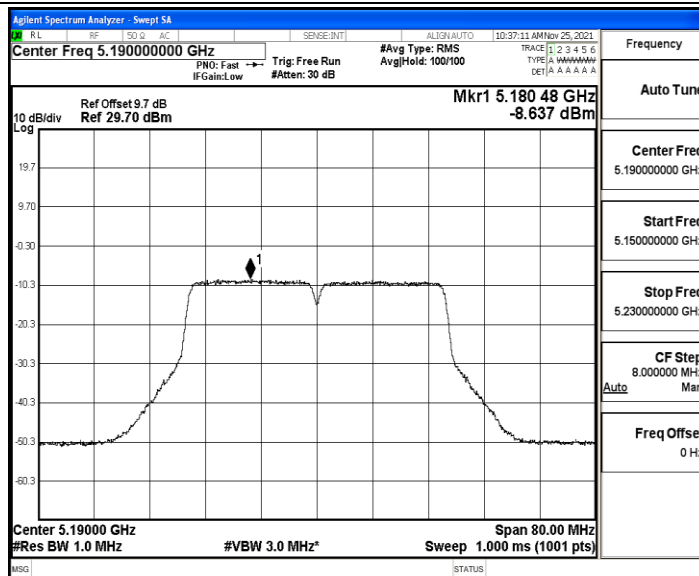
11N20SISO_Ant1_5200



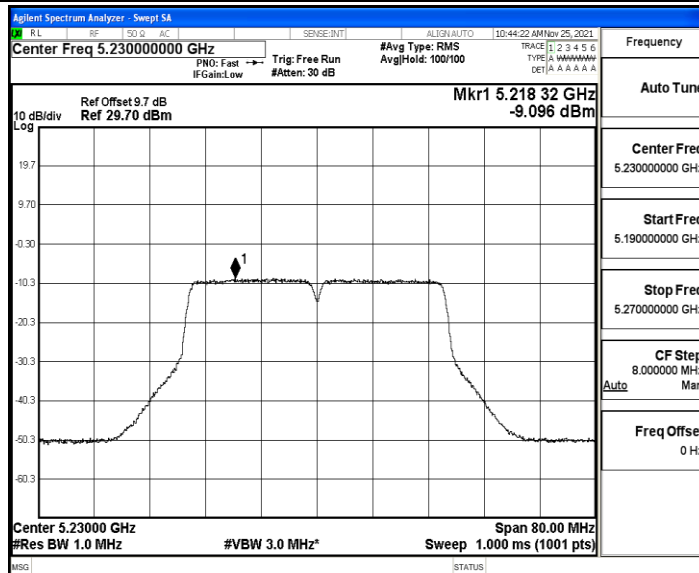
11N20SISO_Ant1_5240



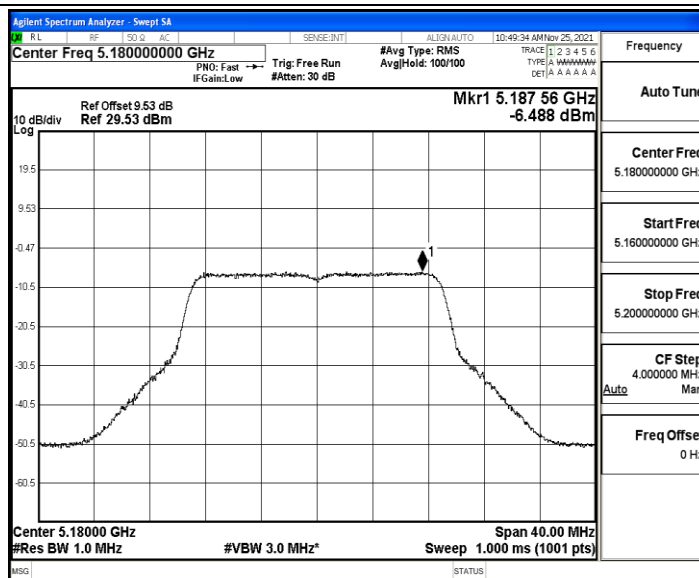
11N40SISO_Ant1_5190



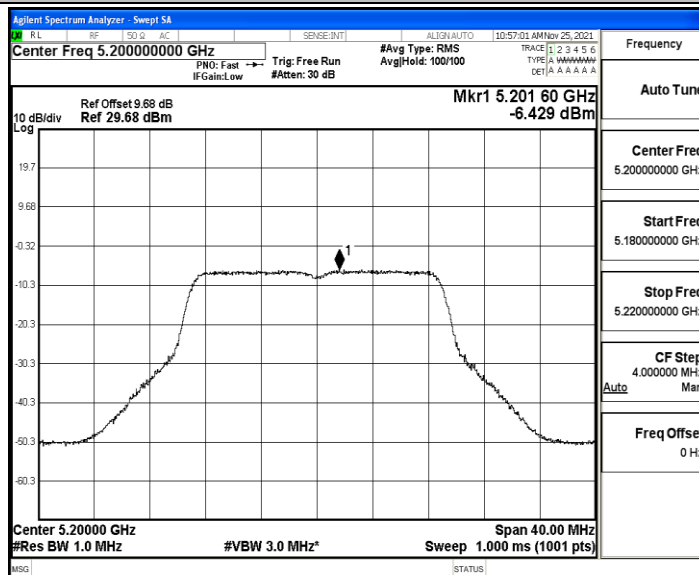
11N40SISO_Ant1_5230



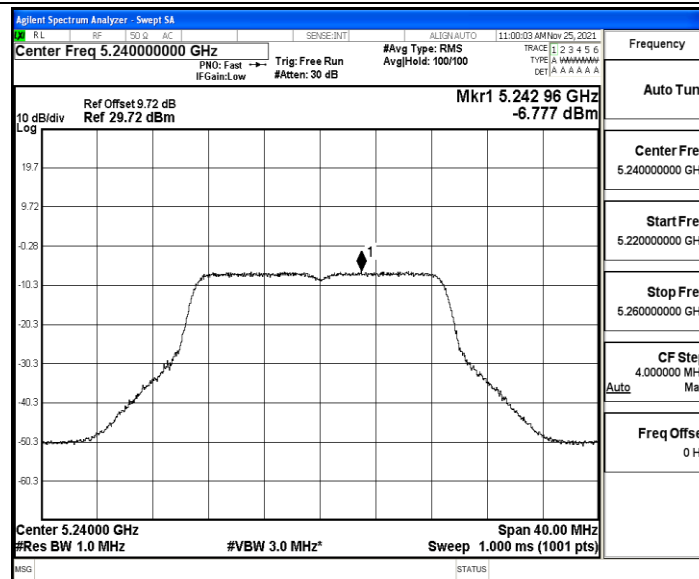
11AC20SISO_Ant1_5180



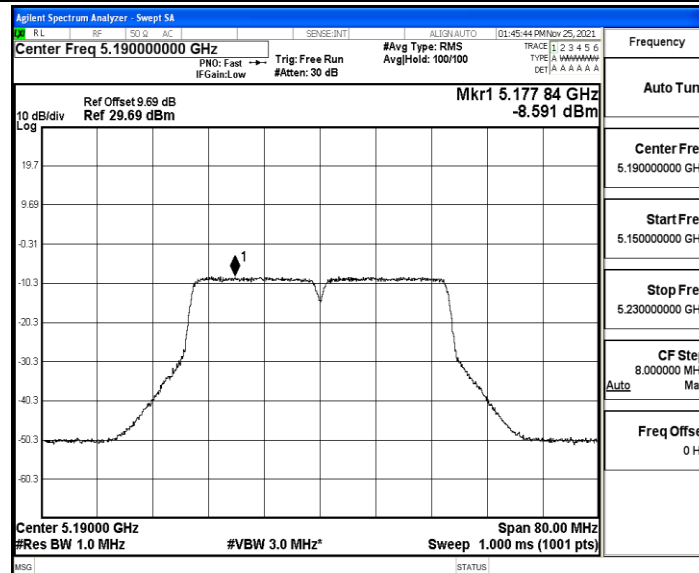
11AC20SISO_Ant1_5200



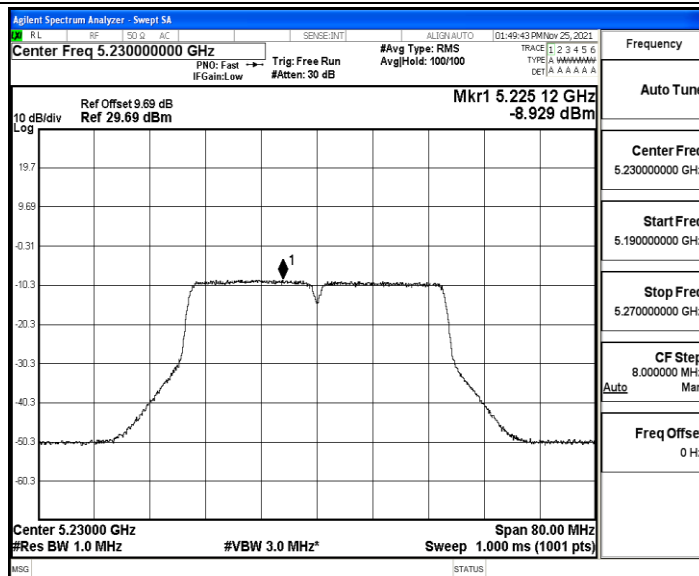
11AC20SISO_Ant1_5240



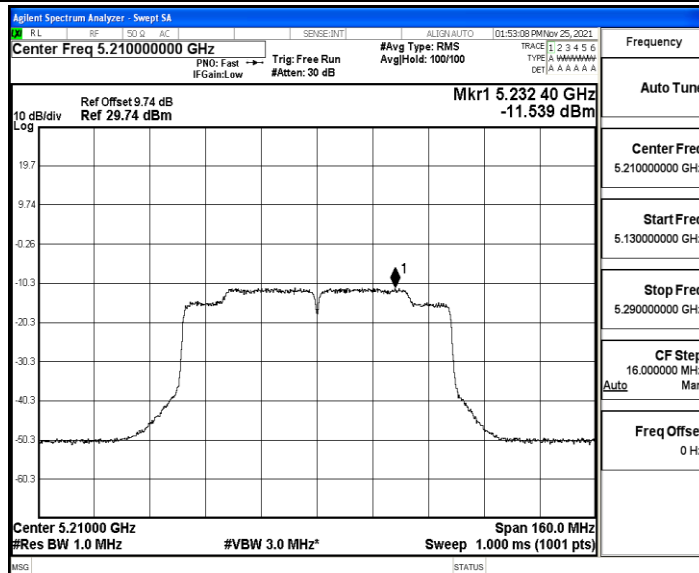
11AC40SISO_Ant1_5190



11AC40SISO_Ant1_5230



11AC80SISO_Ant1_5210





D.4 Emissions in Restricted Bands

Test Result

TestMode	Channel	Detector	Freq. [MHz]	Result [dBm]	Limit [dBm]	Result [dBuV/m]	Limit [dBuV/m]	Verdict
11A	5180	AV	4500.000	-49.46	≤-41.20	45.74	≤54	PASS
		AV	4848.600	-47.42	≤-41.20	47.78	≤54	PASS
		AV	5150.000	-48.03	≤-41.20	47.17	≤54	PASS
		Peak	4500.000	-42.62	≤-21.20	52.58	≤74	PASS
		Peak	4873.100	-38.31	≤-21.20	56.89	≤74	PASS
		Peak	5150.000	-40.83	≤-21.20	54.37	≤74	PASS
	5240	AV	5350.000	-48.06	≤-41.20	47.14	≤54	PASS
		AV	5402.160	-47.9	≤-41.20	47.30	≤54	PASS
		AV	5460.000	-48.14	≤-41.20	47.06	≤54	PASS
		Peak	5350.000	-40.31	≤-21.20	54.89	≤74	PASS
		Peak	5372.640	-38.13	≤-21.20	57.07	≤74	PASS
		Peak	5460.000	-41.38	≤-21.20	53.82	≤74	PASS
11N20 SISO	5180	AV	4500.000	-49.42	≤-41.20	45.78	≤54	PASS
		AV	4841.600	-47.41	≤-41.20	47.79	≤54	PASS
		AV	5150.000	-47.32	≤-41.20	47.88	≤54	PASS
		Peak	4500.000	-41.78	≤-21.20	53.42	≤74	PASS
		Peak	4644.200	-38.22	≤-21.20	56.98	≤74	PASS
		Peak	5150.000	-41.13	≤-21.20	54.07	≤74	PASS
	5240	AV	5350.000	-48.12	≤-41.20	47.08	≤54	PASS
		AV	5360.400	-47.9	≤-41.20	47.30	≤54	PASS
		AV	5460.000	-48.17	≤-41.20	47.03	≤54	PASS
		Peak	5350.000	-40.58	≤-21.20	54.62	≤74	PASS
		Peak	5404.320	-38.51	≤-21.20	56.69	≤74	PASS
		Peak	5460.000	-39.62	≤-21.20	55.58	≤74	PASS
11N40 SISO	5190	AV	4500.000	-49.09	≤-41.20	46.11	≤54	PASS
		AV	4830.400	-46.95	≤-41.20	48.25	≤54	PASS
		AV	5150.000	-47.39	≤-41.20	47.81	≤54	PASS
		Peak	4500.000	-41.62	≤-21.20	53.58	≤74	PASS
		Peak	4843.000	-37.69	≤-21.20	57.51	≤74	PASS
		Peak	5150.000	-40.67	≤-21.20	54.53	≤74	PASS
	5230	AV	5350.000	-47.83	≤-41.20	47.37	≤54	PASS
		AV	5389.280	-47.56	≤-41.20	47.64	≤54	PASS
		AV	5460.000	-48.01	≤-41.20	47.19	≤54	PASS
		Peak	5350.000	-41.17	≤-21.20	54.03	≤74	PASS
		Peak	5366.140	-38.3	≤-21.20	56.90	≤74	PASS
		Peak	5460.000	-41.82	≤-21.20	53.38	≤74	PASS



11AC20 SISO	5180	AV	4500.000	-49.41	≤-41.20	45.79	≤54	PASS
		AV	4880.100	-47.34	≤-41.20	47.86	≤54	PASS
		AV	5150.000	-47.94	≤-41.20	47.26	≤54	PASS
		Peak	4500.000	-41.99	≤-21.20	53.21	≤74	PASS
		Peak	4868.200	-37.73	≤-21.20	57.47	≤74	PASS
		Peak	5150.000	-40.28	≤-21.20	54.92	≤74	PASS
	5240	AV	5350.000	-48.09	≤-41.20	47.11	≤54	PASS
		AV	5380.560	-47.79	≤-41.20	47.41	≤54	PASS
		AV	5460.000	-48.17	≤-41.20	47.03	≤54	PASS
		Peak	5350.000	-41.62	≤-21.20	53.58	≤74	PASS
		Peak	5370.240	-37.88	≤-21.20	57.32	≤74	PASS
		Peak	5460.000	-41.29	≤-21.20	53.91	≤74	PASS
11AC40 SISO	5190	AV	4500.000	-49.13	≤-41.20	46.07	≤54	PASS
		AV	4831.100	-46.99	≤-41.20	48.21	≤54	PASS
		AV	5150.000	-47.23	≤-41.20	47.97	≤54	PASS
		Peak	4500.000	-41.35	≤-21.20	53.85	≤74	PASS
		Peak	4804.500	-37.29	≤-21.20	57.91	≤74	PASS
		Peak	5150.000	-41.66	≤-21.20	53.54	≤74	PASS
	5230	AV	5350.000	-47.97	≤-41.20	47.23	≤54	PASS
		AV	5447.520	-47.64	≤-41.20	47.56	≤54	PASS
		AV	5460.000	-47.77	≤-41.20	47.43	≤54	PASS
		Peak	5350.000	-40.27	≤-21.20	54.93	≤74	PASS
		Peak	5415.280	-38.35	≤-21.20	56.85	≤74	PASS
		Peak	5460.000	-42.44	≤-21.20	52.76	≤74	PASS
11AC80 SISO	5210	AV	4500.000	-48.85	≤-41.20	46.35	≤54	PASS
		AV	4893.000	-46.5	≤-41.20	48.70	≤54	PASS
		AV	5150.000	-46.7	≤-41.20	48.50	≤54	PASS
		Peak	4500.000	-41.49	≤-21.20	53.71	≤74	PASS
		Peak	4803.750	-37.49	≤-21.20	57.71	≤74	PASS
		Peak	5150.000	-40.98	≤-21.20	54.22	≤74	PASS

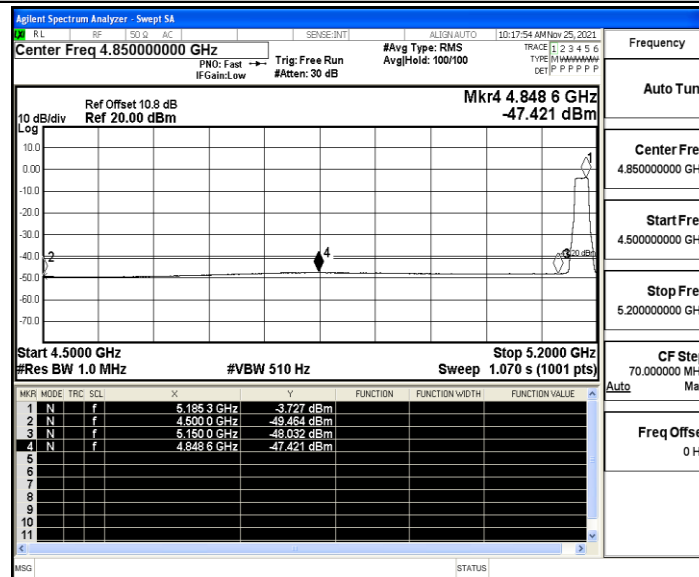
Note:

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.

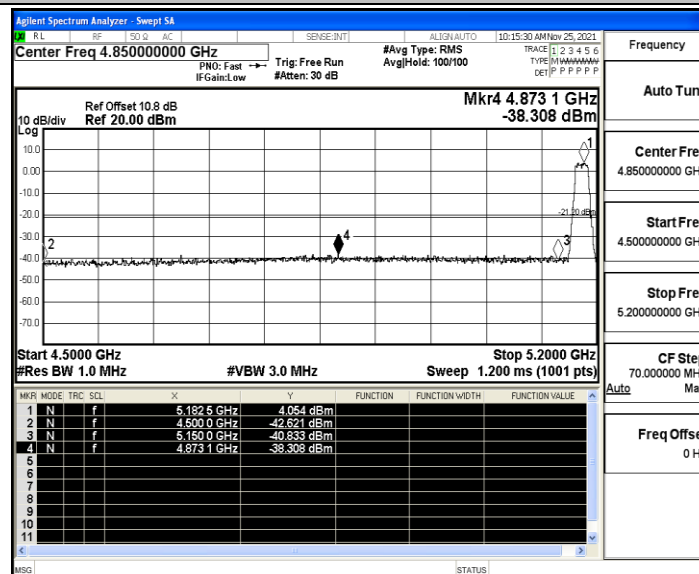


Test Graphs

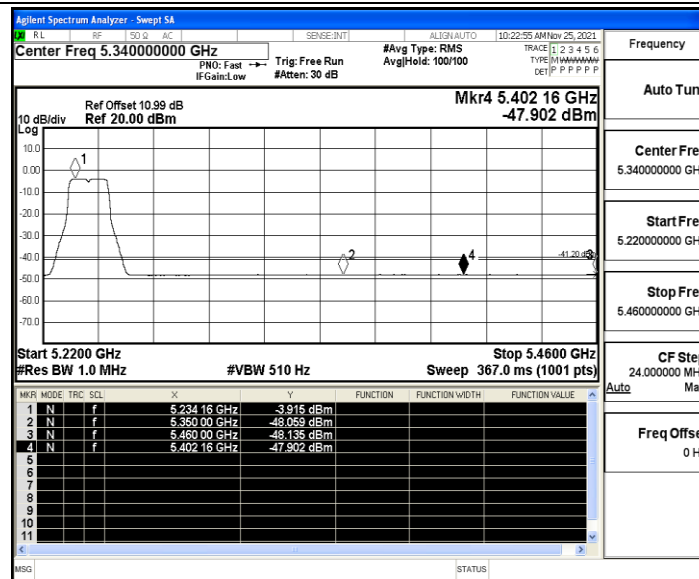
11A_Ant1_Low_5180_AV



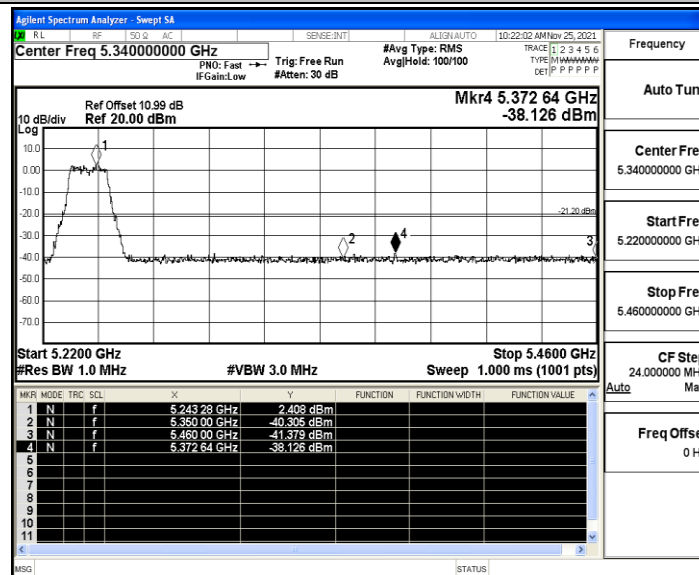
11A_Ant1_Low_5180_Peak



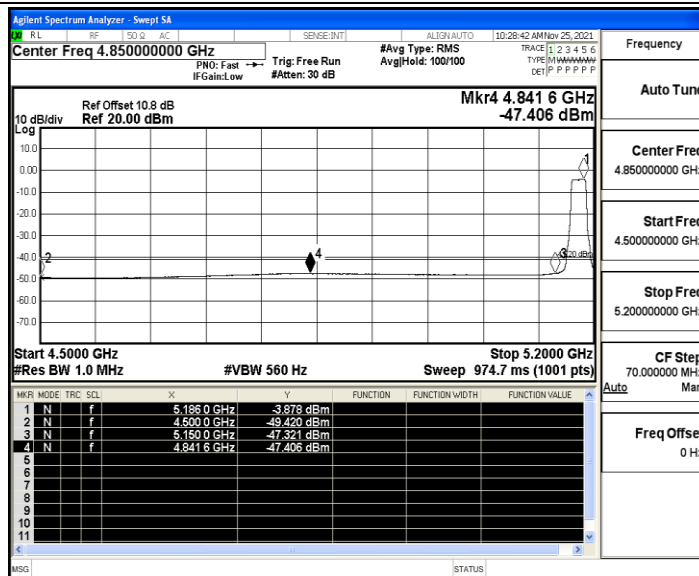
11A_Ant1_High_5240_AV



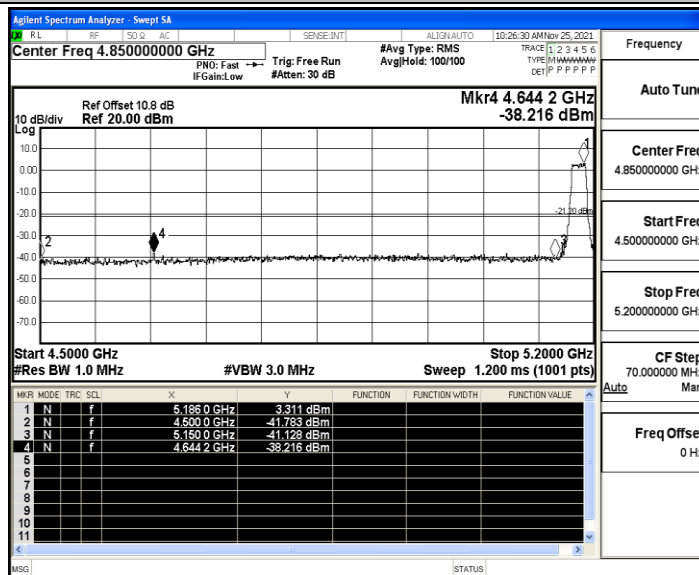
11A_Ant1_High_5240_Peak



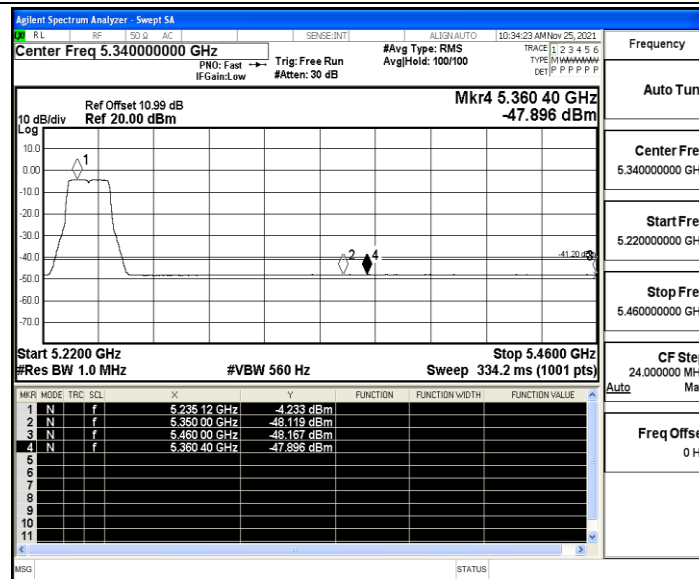
11N20SISO_Ant1_Low_5180_AV



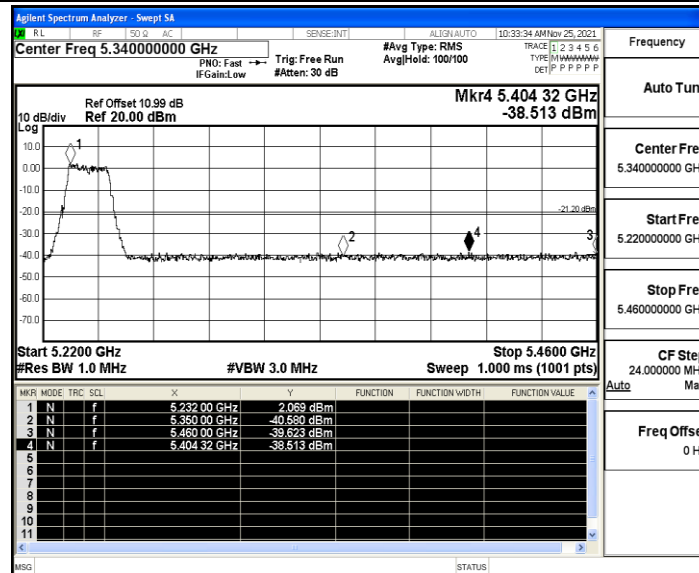
11N20SISO_Ant1_Low_5180_Peak



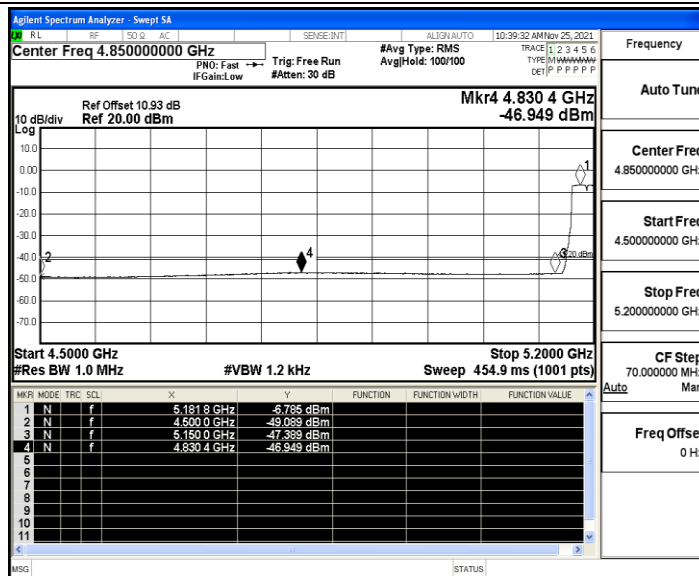
11N20SISO_Ant1_High_5240_AV



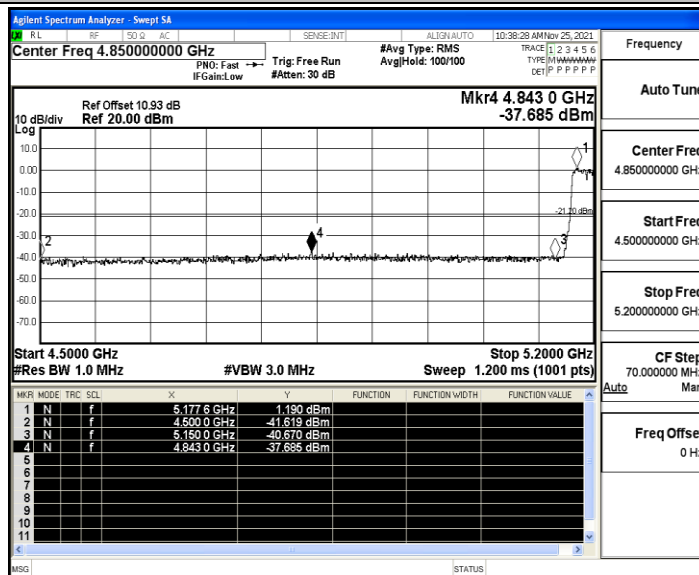
11N20SISO_Ant1_High_5240_Peak



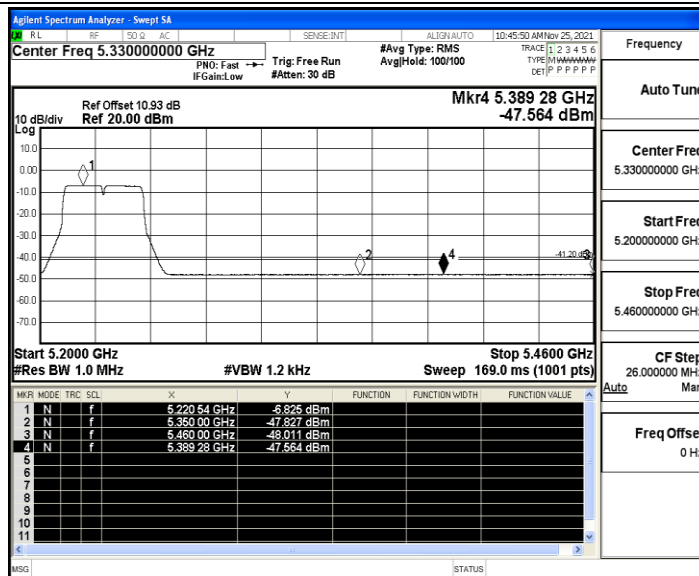
11N40SISO_Ant1_Low_5190_AV



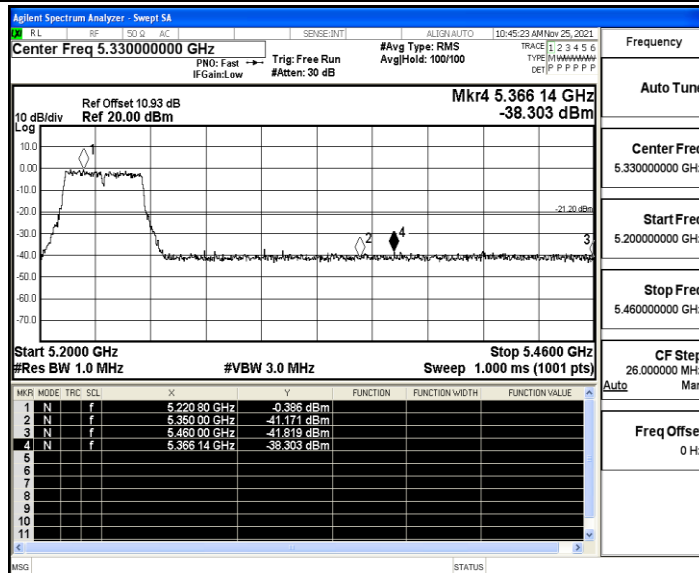
11N40SISO_Ant1_Low_5190_Peak



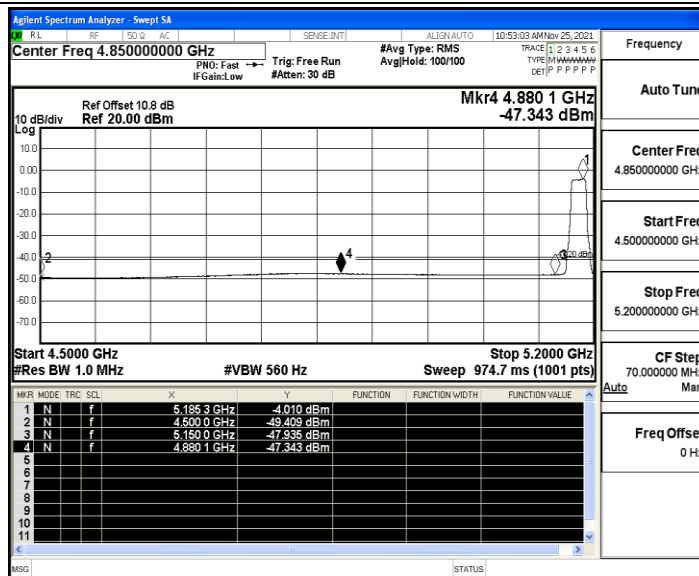
11N40SISO_Ant1_High_5230_AV



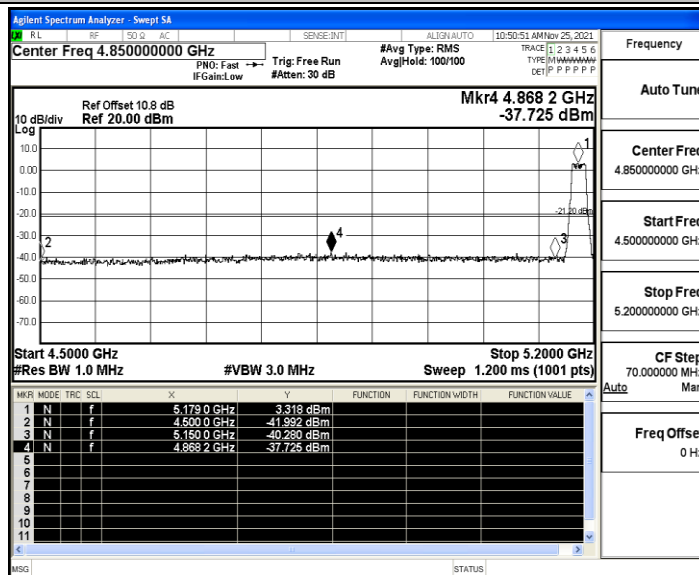
11N40SISO_Ant1_High_5230_Peak



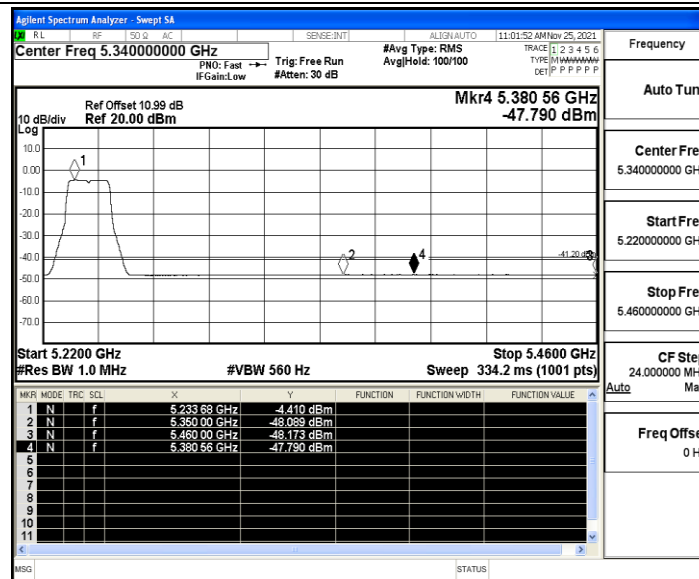
11AC20SISO_Ant1_Low_5180_AV



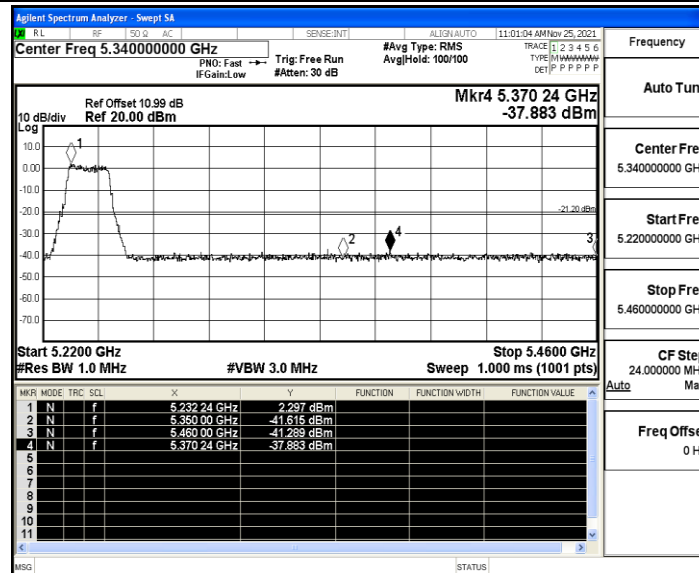
11AC20SISO_Ant1_Low_5180_Peak



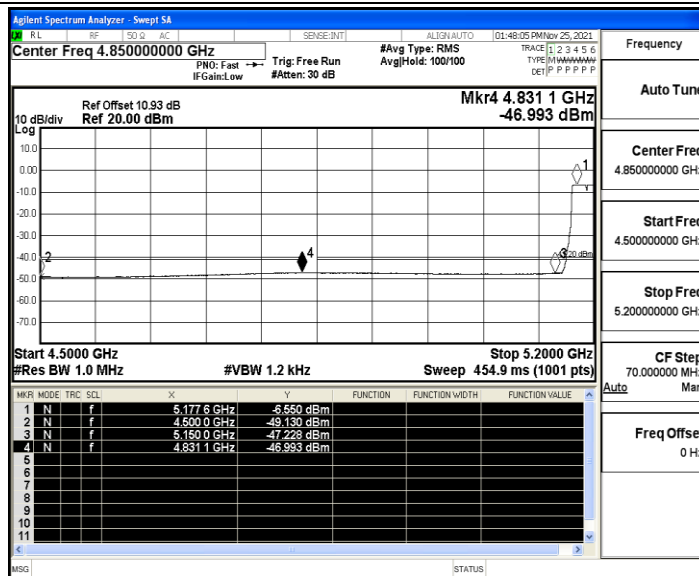
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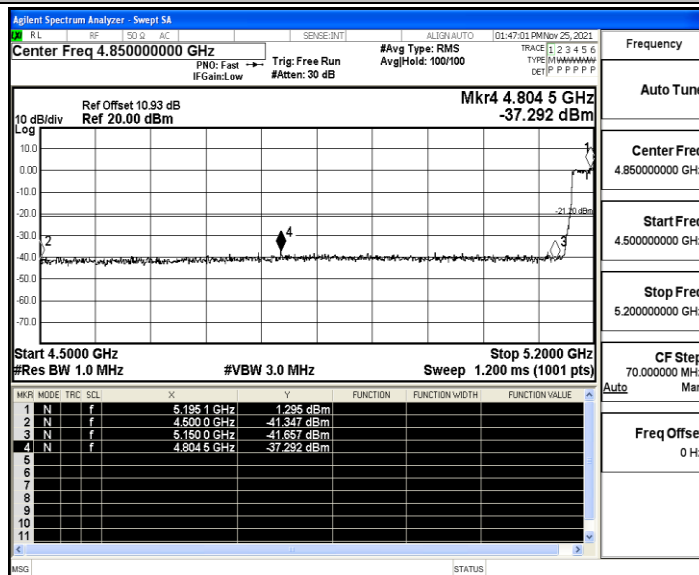
11AC20SISO_Ant1_High_5240_Peak



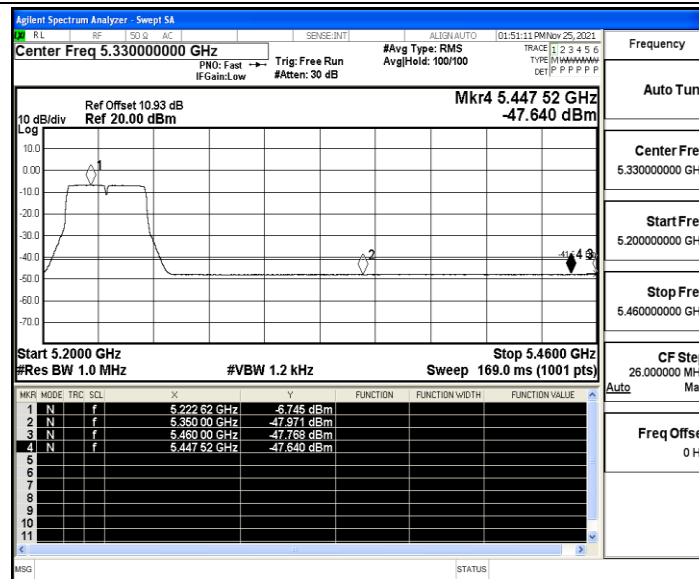
11AC40SISO_Ant1_Low_5190_AV



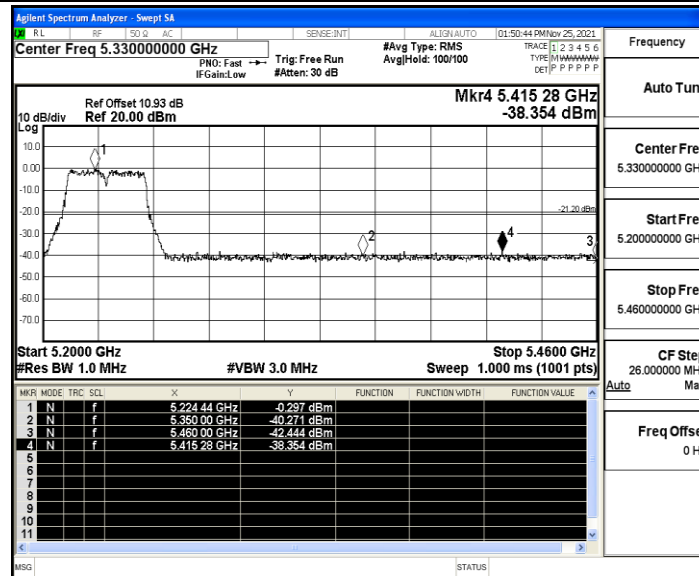
11AC40SISO_Ant1_Low_5190_Peak



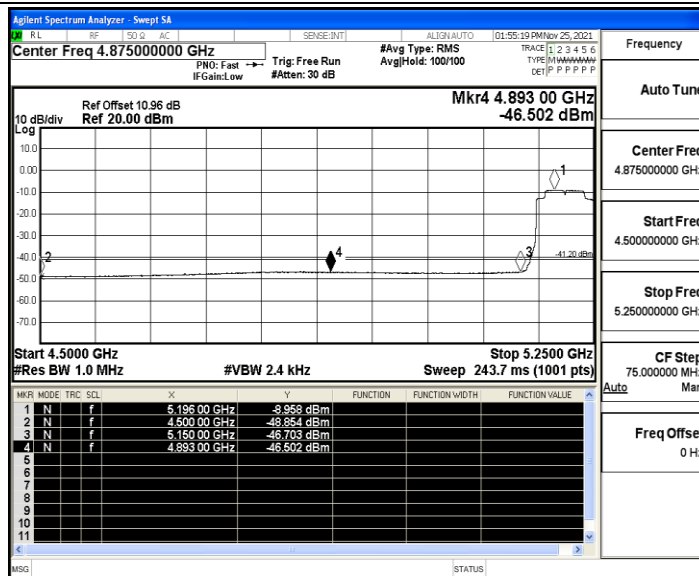
11AC40SISO_Ant1_High_5230_AV



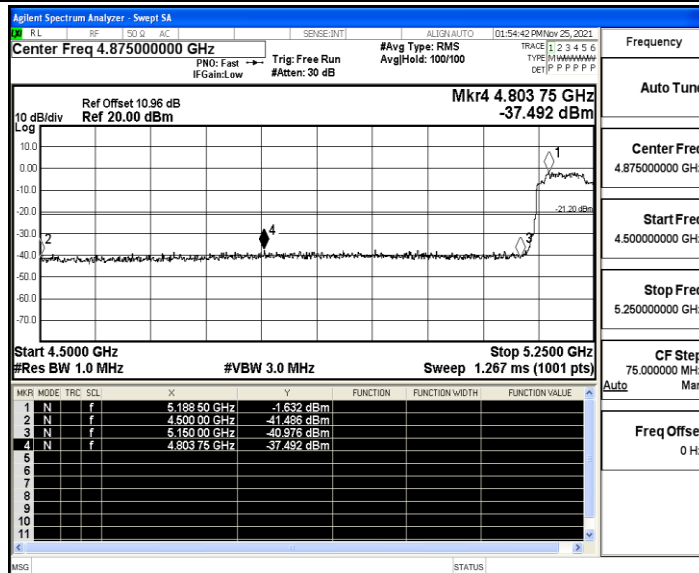
11AC40SISO_Ant1_High_5230_Peak



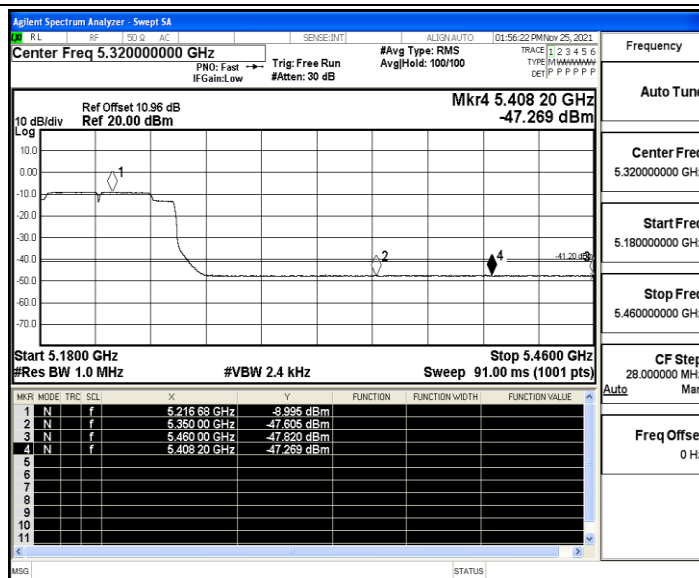
11AC80SISO_Ant1_Low_5210_AV



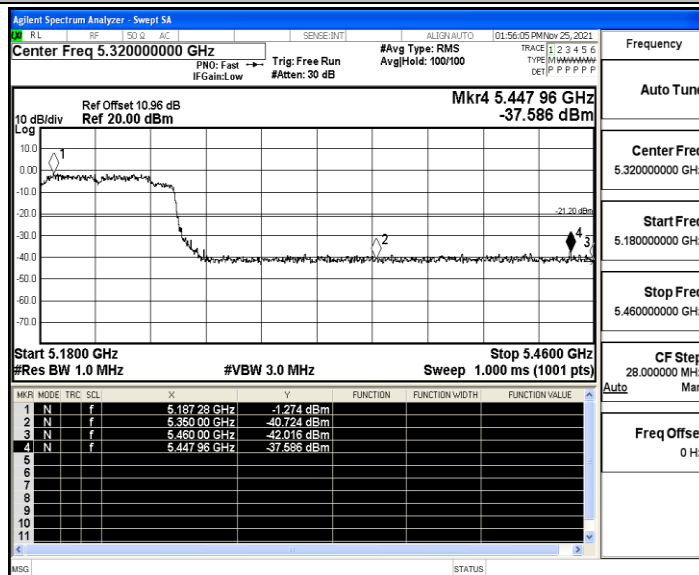
11AC80SISO_Ant1_Low_5210_Peak



11AC80SISO_Ant1_High_5210_AV



11AC80SISO_Ant1_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	Ant1	5180	NV	NT	-18000	-3.474903	20	PASS
			LV	NT	-19000	-3.667954	20	PASS
			HV	NT	-19000	-3.667954	20	PASS
		5200	NV	NT	-20000	-3.846154	20	PASS
			LV	NT	-19000	-3.653846	20	PASS
			HV	NT	-19000	-3.653846	20	PASS
		5240	NV	NT	-19000	-3.625954	20	PASS
			LV	NT	-19000	-3.625954	20	PASS
			HV	NT	-19000	-3.625954	20	PASS
11AC40S ISO	Ant1	5190	NV	NT	-19000	-3.660886	20	PASS
			LV	NT	-19000	-3.660886	20	PASS
			HV	NT	-19000	-3.660886	20	PASS
		5230	NV	NT	-19000	-3.632887	20	PASS
			LV	NT	-19000	-3.632887	20	PASS
			HV	NT	-19000	-3.632887	20	PASS
11AC80S ISO	Ant1	5210	NV	NT	-19000	-3.646833	20	PASS
			LV	NT	-19000	-3.646833	20	PASS
			HV	NT	-19000	-3.646833	20	PASS

Temperature								
TestMode	Antenna	Channel	Voltage [Vdc]	Temperature (°C)	Deviation (Hz)	Deviation (ppm)	Limit (ppm)	Verdict
11AC20S ISO	Ant1	5180	NV	-30	-19000	-3.667954	20	PASS
			NV	-20	-19000	-3.667954	20	PASS
			NV	-10	-20000	-3.861004	20	PASS
			NV	0	-18000	-3.474903	20	PASS
			NV	10	-18000	-3.474903	20	PASS
			NV	20	-18000	-3.474903	20	PASS
			NV	30	-18000	-3.474903	20	PASS
			NV	40	-19000	-3.667954	20	PASS
			NV	50	-18000	-3.474903	20	PASS
		5200	NV	-30	-19000	-3.653846	20	PASS
			NV	-20	-19000	-3.653846	20	PASS
			NV	-10	-19000	-3.653846	20	PASS
			NV	0	-19000	-3.653846	20	PASS
			NV	10	-19000	-3.653846	20	PASS
			NV	20	-19000	-3.653846	20	PASS



			NV	20	-19000	-3.653846	20	PASS
			NV	30	-19000	-3.653846	20	PASS
			NV	40	-19000	-3.653846	20	PASS
			NV	50	-19000	-3.653846	20	PASS
		5240	NV	-30	-19000	-3.625954	20	PASS
			NV	-20	-18000	-3.435115	20	PASS
			NV	-10	-19000	-3.625954	20	PASS
			NV	0	-18000	-3.435115	20	PASS
			NV	10	-18000	-3.435115	20	PASS
			NV	20	-19000	-3.625954	20	PASS
			NV	30	-18000	-3.435115	20	PASS
			NV	40	-18000	-3.435115	20	PASS
			NV	50	-18000	-3.435115	20	PASS
11AC40S ISO	Ant1	5190	NV	-30	-19000	-3.660886	20	PASS
			NV	-20	-19000	-3.660886	20	PASS
			NV	-10	-19000	-3.660886	20	PASS
			NV	0	-19000	-3.660886	20	PASS
			NV	10	-19000	-3.660886	20	PASS
			NV	20	-19000	-3.660886	20	PASS
			NV	30	-19000	-3.660886	20	PASS
			NV	40	-19000	-3.660886	20	PASS
			NV	50	-19000	-3.660886	20	PASS
		5230	NV	-30	-19000	-3.632887	20	PASS
			NV	-20	-19000	-3.632887	20	PASS
			NV	-10	-19000	-3.632887	20	PASS
			NV	0	-19000	-3.632887	20	PASS
			NV	10	-19000	-3.632887	20	PASS
			NV	20	-19000	-3.632887	20	PASS
			NV	30	-19000	-3.632887	20	PASS
			NV	40	-19000	-3.632887	20	PASS
			NV	50	-19000	-3.632887	20	PASS
11AC80S ISO	Ant1	5210	NV	-30	-19000	-3.646833	20	PASS
			NV	-20	-19000	-3.646833	20	PASS
			NV	-10	-19000	-3.646833	20	PASS
			NV	0	-19000	-3.646833	20	PASS
			NV	10	-19000	-3.646833	20	PASS
			NV	20	-19000	-3.646833	20	PASS
			NV	30	-19000	-3.646833	20	PASS
			NV	40	-19000	-3.646833	20	PASS
			NV	50	-19000	-3.646833	20	PASS



D.6 Duty Cycle

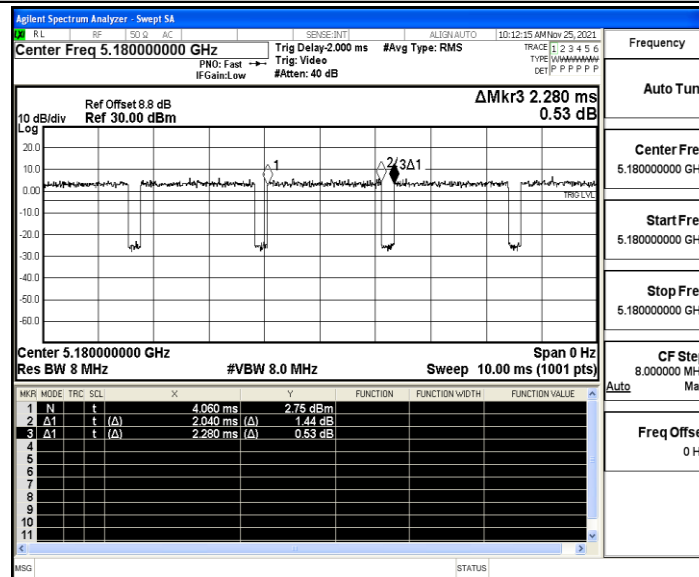
Test Result

TestMode	Antenna	Channel	Transmission Duration [ms]	Transmission Period [ms]	Duty Cycle [%]	Limit	Verdict
11A	Ant1	5180	2.04	2.28	89.47	---	PASS
		5200	2.04	2.28	89.47	---	PASS
		5240	2.04	2.28	89.47	---	PASS
11N20SISO	Ant1	5180	1.90	2.25	84.44	---	PASS
		5200	1.91	2.26	84.51	---	PASS
		5240	1.90	2.25	84.44	---	PASS
11N40SISO	Ant1	5190	0.93	1.11	83.78	---	PASS
		5230	0.93	1.11	83.78	---	PASS
11AC20SISO	Ant1	5180	1.91	2.26	84.51	---	PASS
		5200	1.92	2.27	84.58	---	PASS
		5240	1.91	2.26	84.51	---	PASS
11AC40SISO	Ant1	5190	0.94	1.12	83.93	---	PASS
		5230	0.94	1.12	83.93	---	PASS
11AC80SISO	Ant1	5210	0.46	0.55	83.64	---	PASS

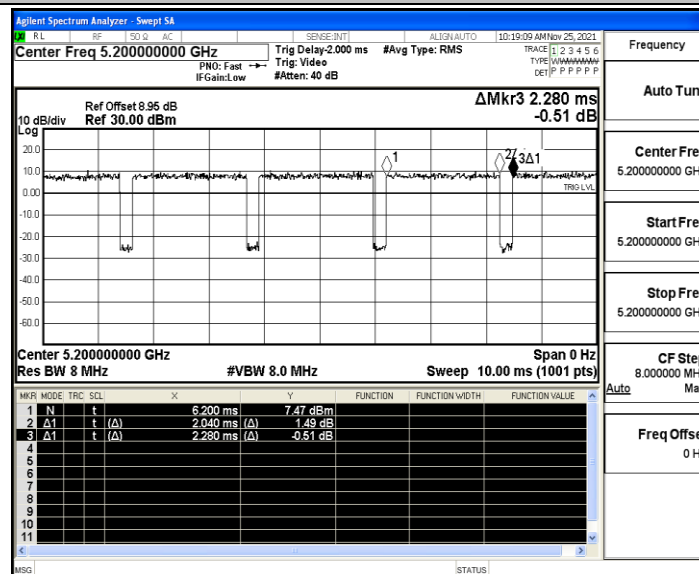


Test Graphs

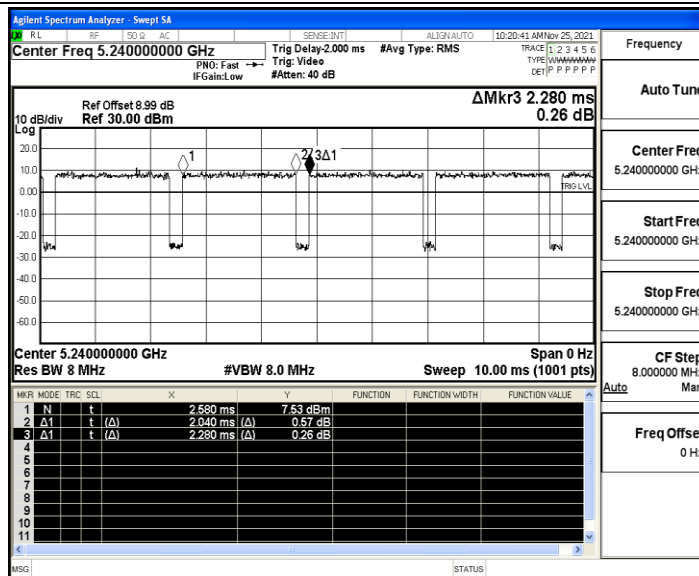
11A_Ant1_5180



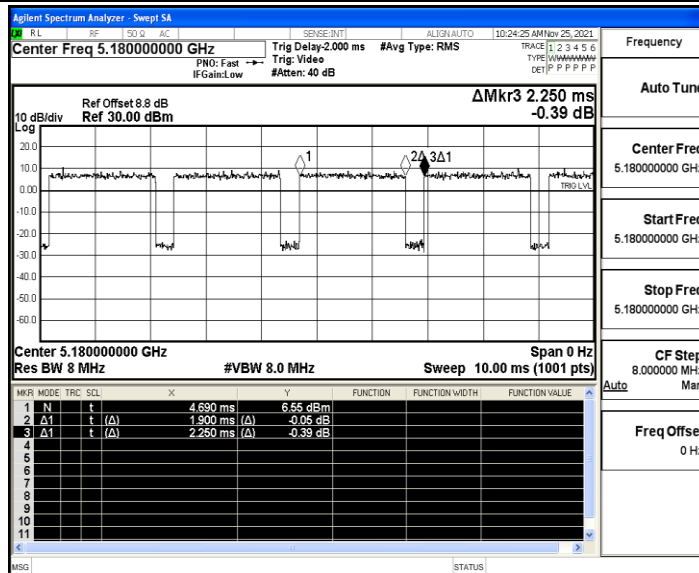
11A_Ant1_5200



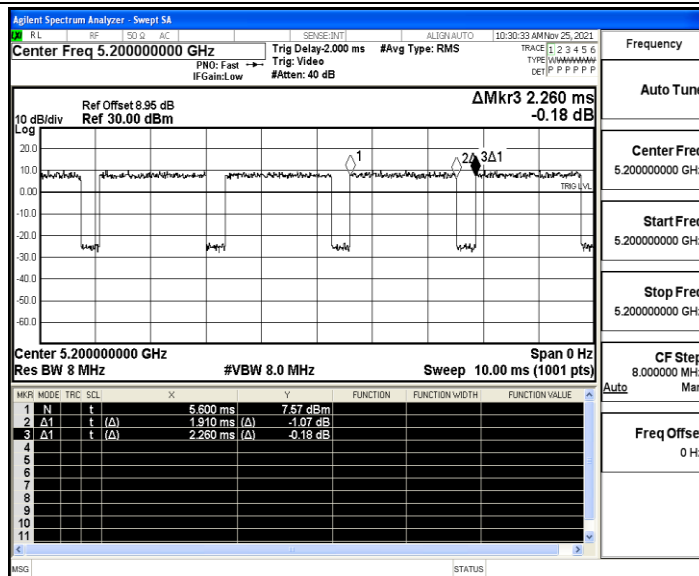
11A_Ant1_5240



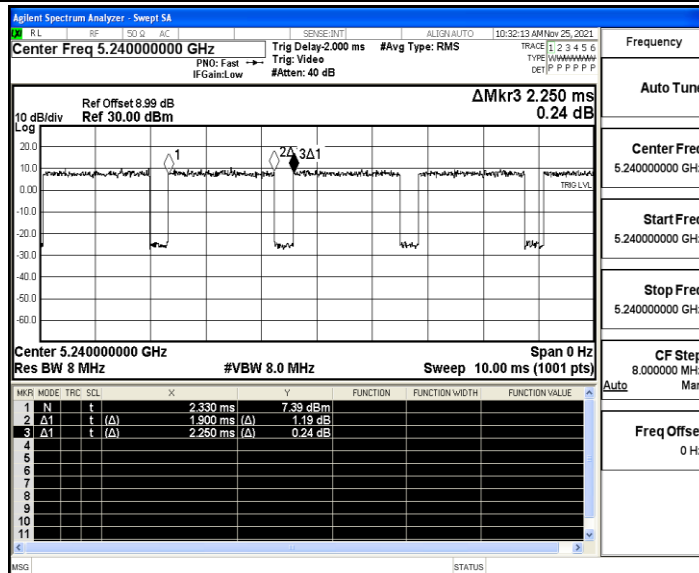
11N20SISO_Ant1_5180



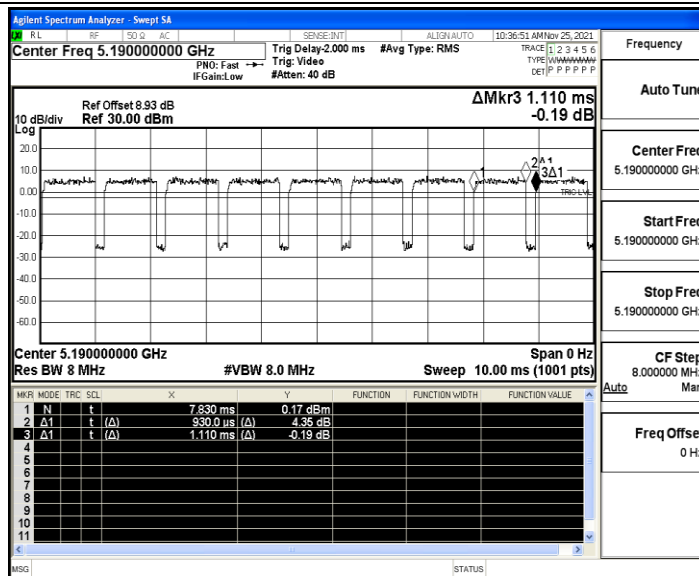
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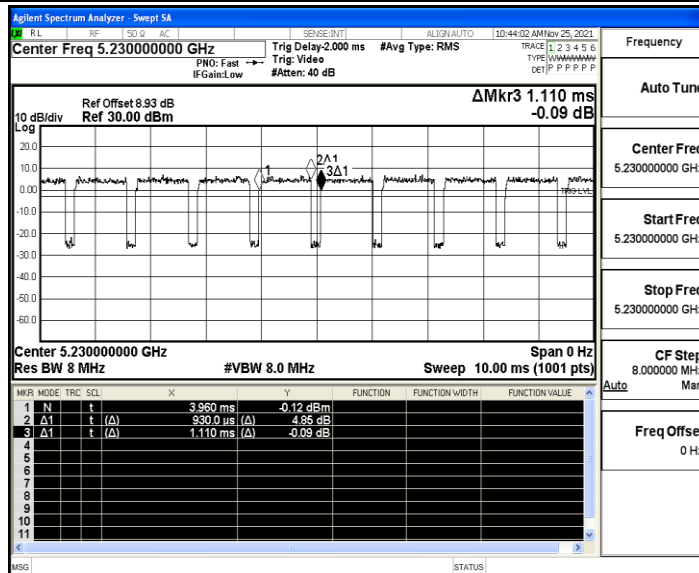
11N20SISO_Ant1_5240



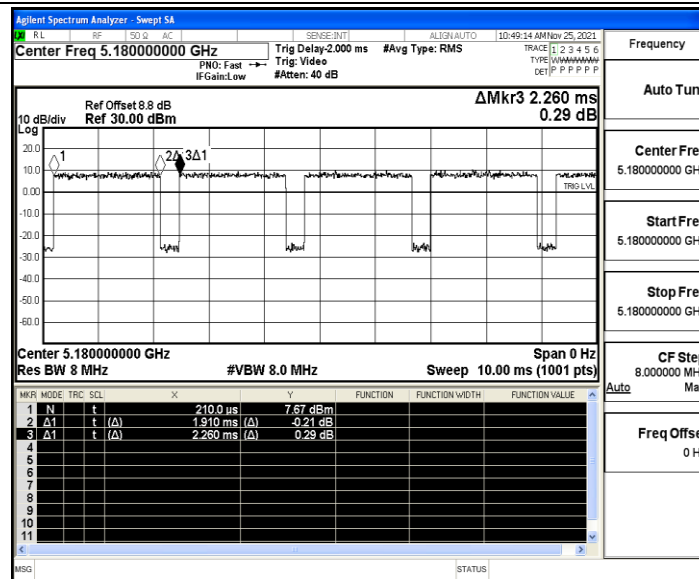
11N40SISO_Ant1_5190



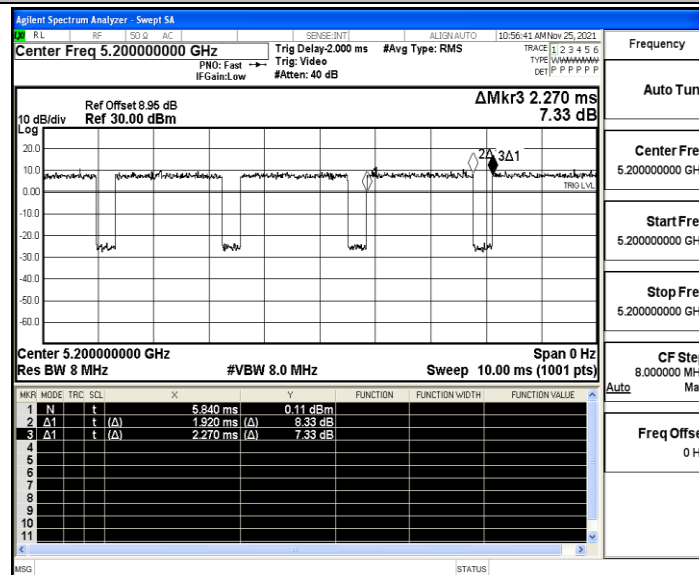
11N40SISO_Ant1_5230



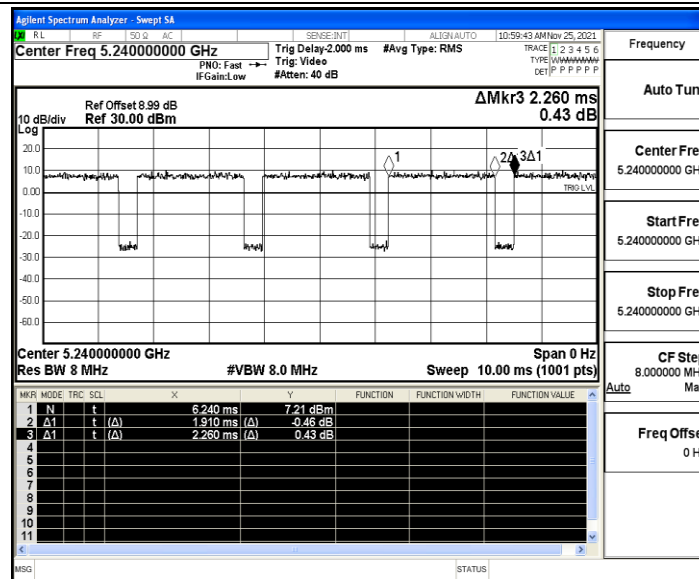
11AC20SISO_Ant1_5180



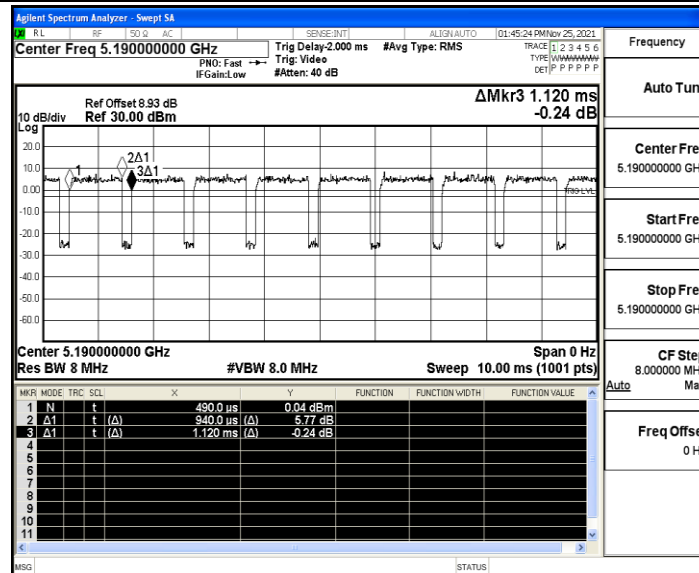
11AC20SISO_Ant1_5200



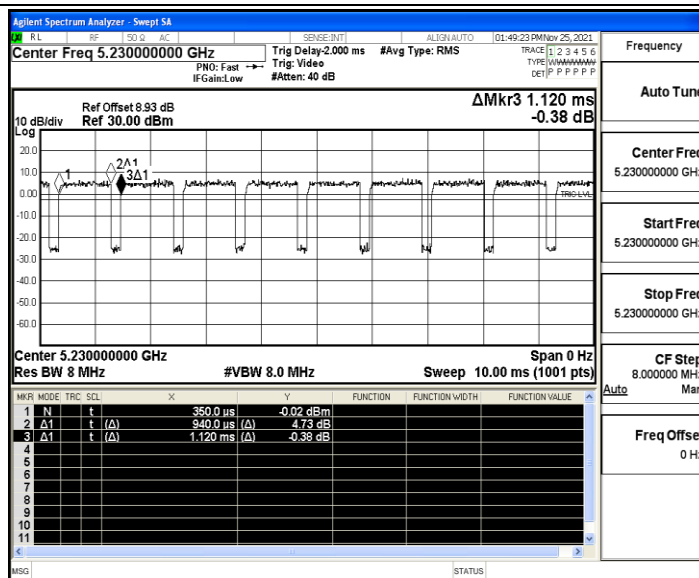
11AC20SISO_Ant1_5240



11AC40SISO_Ant1_5190



11AC40SISO_Ant1_5230



11AC80SISO_Ant1_5210

