



Appendix E

RF Test Data for 5.8G WIFI (Conducted Measurement)

Product Name: RK3399 R Pro Player

Trade Mark: SCALA

Test Model: SMPRP

Environmental Conditions

Temperature:	21.5℃
Relative Humidity:	52.7%
ATM Pressure:	100.0 kPa
Test Engineer:	Jay Li
Supervised by:	Li Huan



Appendix E.1: Min emission bandwidth

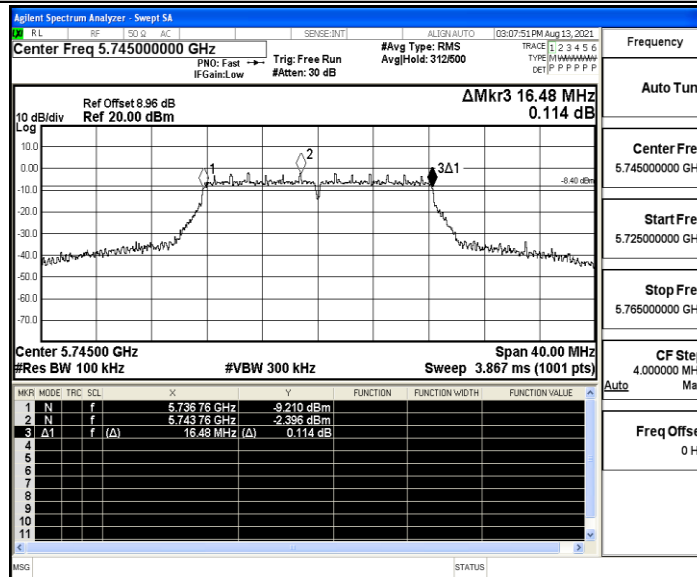
Test Result

TestMode	Antenna	Channel	6db EBW [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
11A	Ant1	5745	16.480	5736.760	5753.240	0.5	PASS
		5785	16.120	5777.040	5793.160	0.5	PASS
		5825	15.120	5817.480	5832.600	0.5	PASS
11N20SISO	Ant1	5745	15.480	5737.400	5752.880	0.5	PASS
		5785	15.200	5777.400	5792.600	0.5	PASS
		5825	15.120	5817.440	5832.560	0.5	PASS
11N40SISO	Ant1	5755	35.280	5737.320	5772.600	0.5	PASS
		5795	35.280	5777.320	5812.600	0.5	PASS
11AC20SISO	Ant1	5745	15.200	5737.400	5752.600	0.5	PASS
		5785	15.160	5777.440	5792.600	0.5	PASS
		5825	17.120	5816.440	5833.560	0.5	PASS
11AC40SISO	Ant1	5755	35.520	5737.320	5772.840	0.5	PASS
		5795	35.360	5777.320	5812.680	0.5	PASS
11AC80SISO	Ant1	5775	75.520	5737.240	5812.760	0.5	PASS

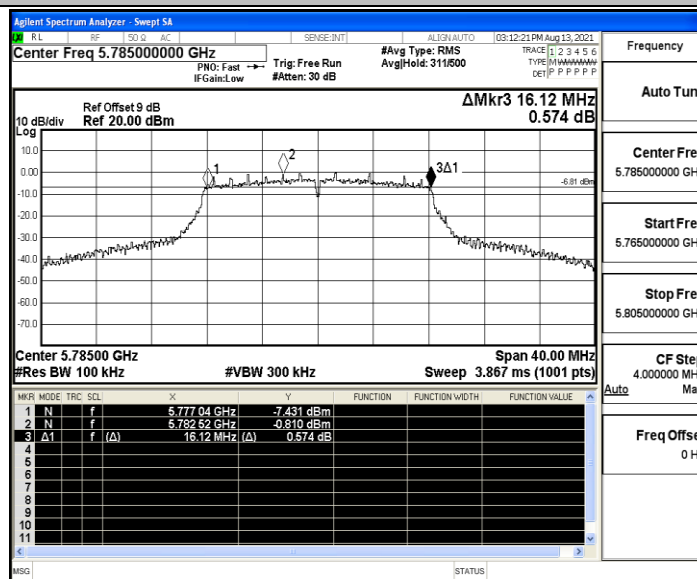


Test Graphs

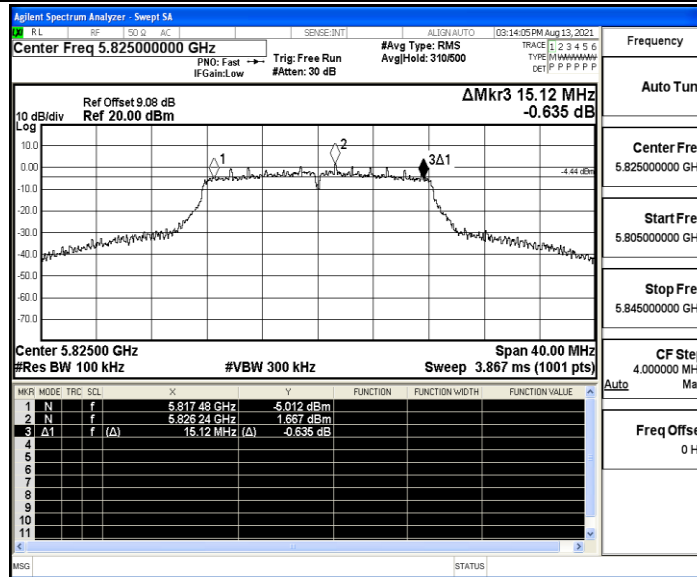
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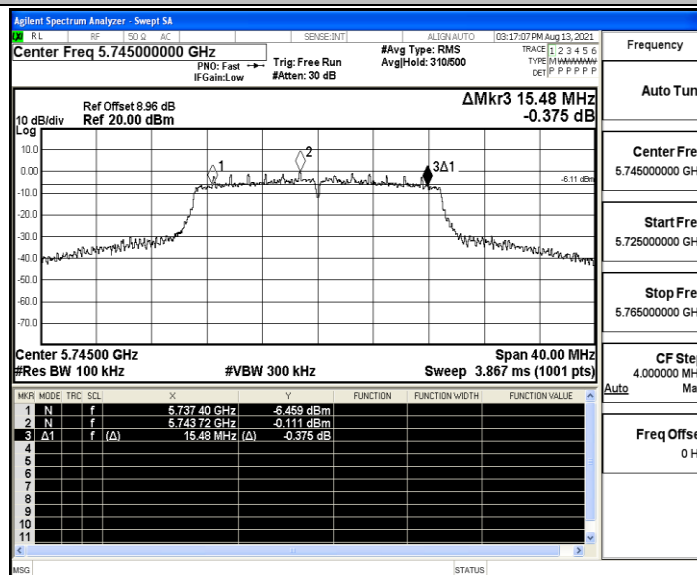
11A_Ant1_5785



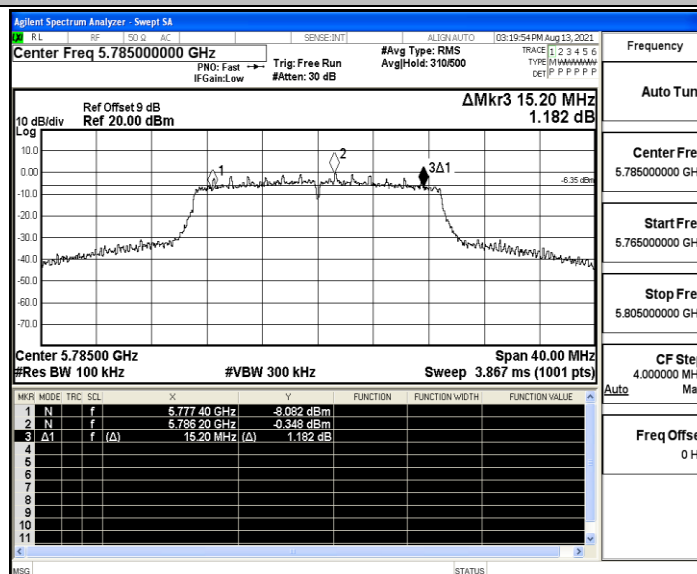
11A_Ant1_5825



11N20SISO_Ant1_5745

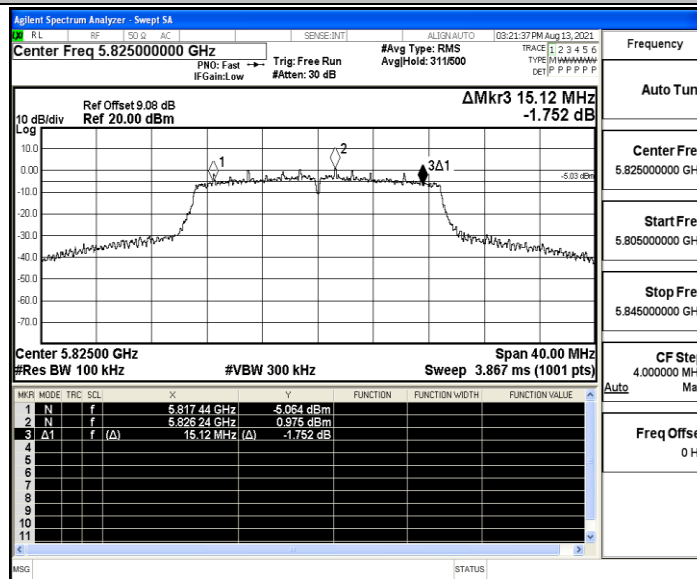


11N20SISO_Ant1_5785

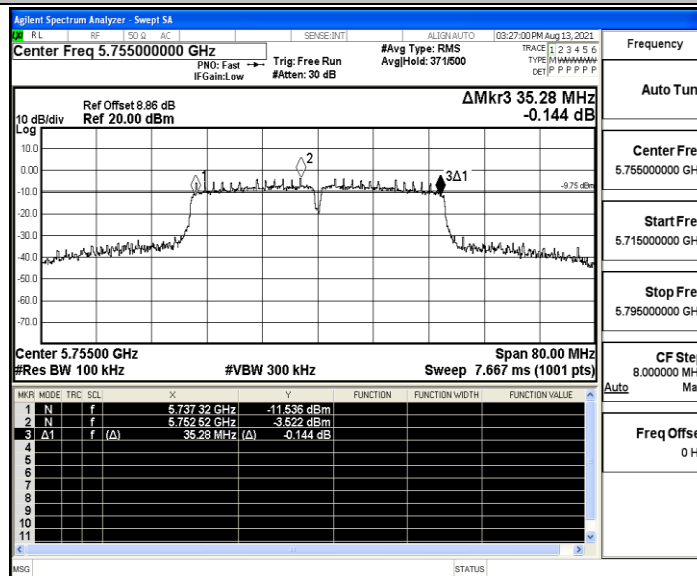




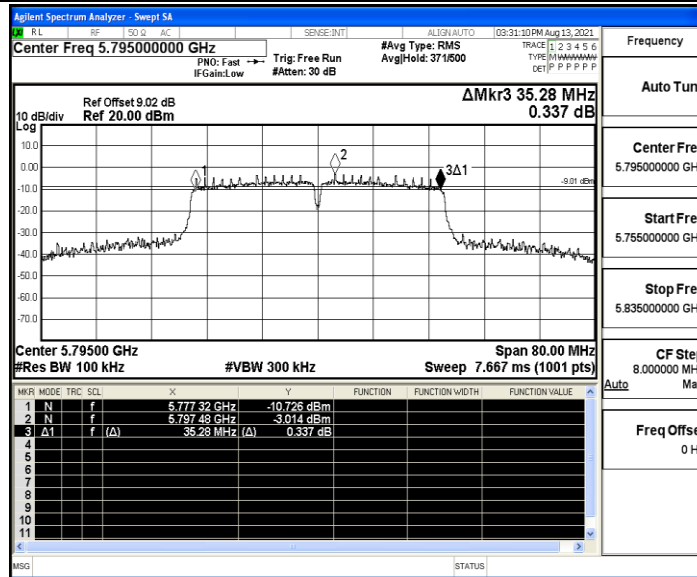
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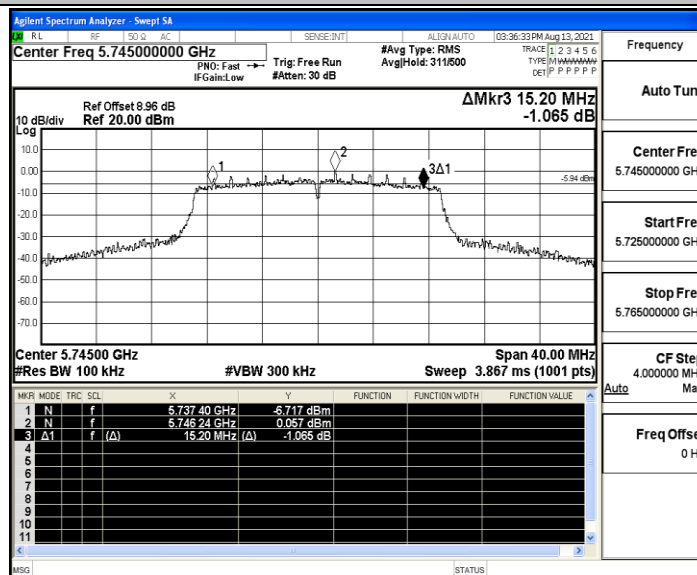
11N40SISO_Ant1_5755



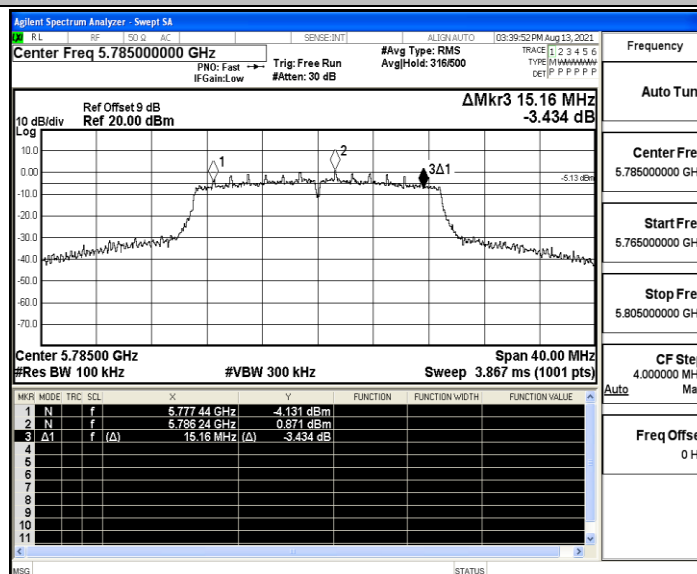
11N40SISO_Ant1_5795



11AC20SISO_Ant1_5745

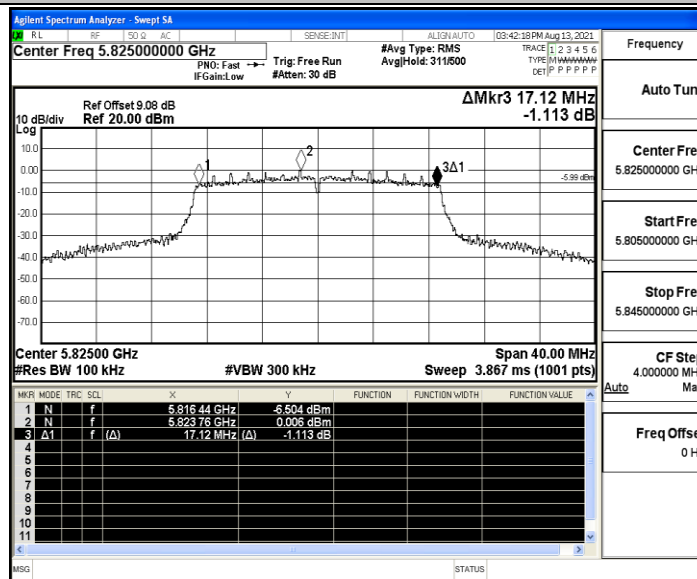


11AC20SISO_Ant1_5785

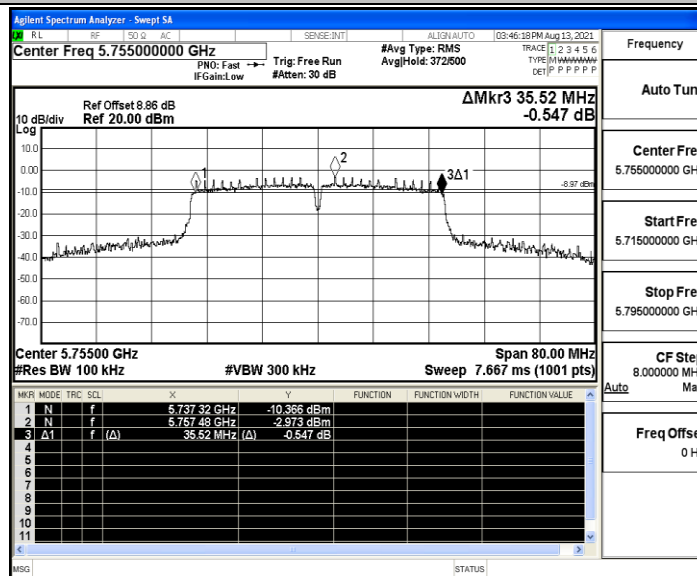




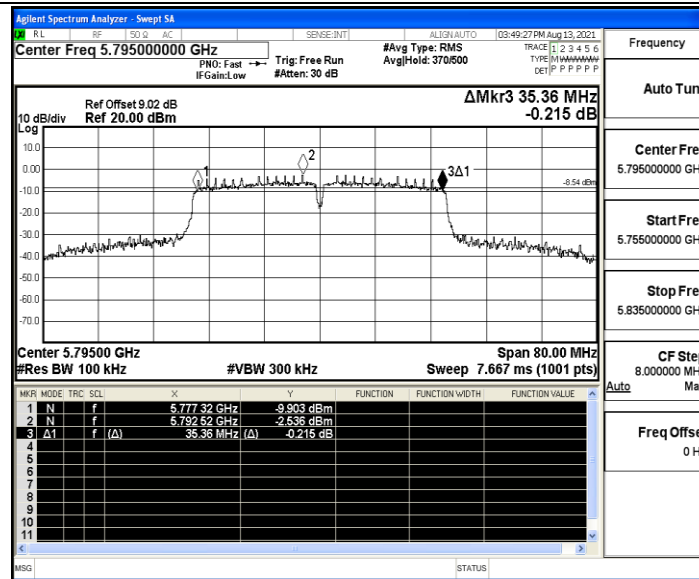
11AC20SISO_Ant1_5825



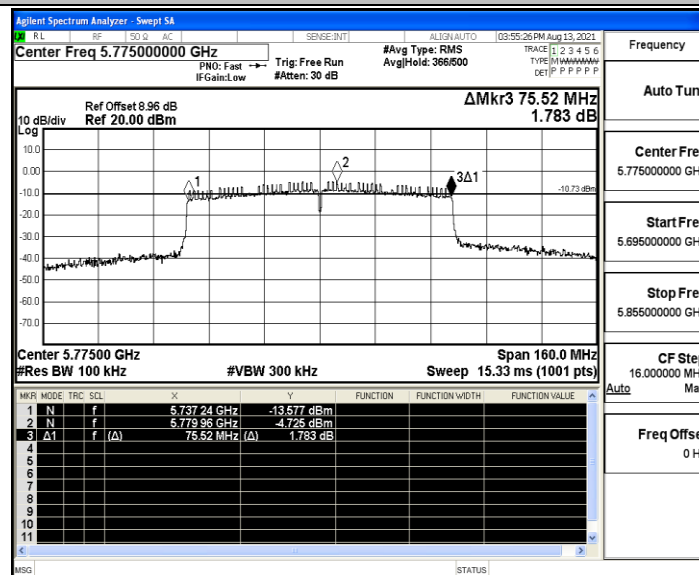
11AC40SISO_Ant1_5755



11AC40SISO_Ant1_5795



11AC80SISO_Ant1_5775





Appendix E.2: Maximum conducted output power

Test Result

TestMode	Antenna	Channel	Result[dBm]	Limit[dBm]	Verdict
11A	Ant1	5745	10.83	≤ 30	PASS
		5785	10.87	≤ 30	PASS
		5825	11.79	≤ 30	PASS
11N20SISO	Ant1	5745	10.30	≤ 30	PASS
		5785	10.17	≤ 30	PASS
		5825	11.27	≤ 30	PASS
11N40SISO	Ant1	5755	10.24	≤ 30	PASS
		5795	10.75	≤ 30	PASS
11AC20SISO	Ant1	5745	10.91	≤ 30	PASS
		5785	10.79	≤ 30	PASS
		5825	11.00	≤ 30	PASS
11AC40SISO	Ant1	5755	10.75	≤ 30	PASS
		5795	11.33	≤ 30	PASS
11AC80SISO	Ant1	5775	11.47	≤ 30	PASS

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



Appendix E.3: Maximum power spectral density

Test Result

TestMode	Antenna	Channel	Result [dBm/MHz]	Limit[dBm/MHz]	Verdict
11A	Ant1	5745	-2.1	≤ 30	PASS
		5785	-2.03	≤ 30	PASS
		5825	-1.08	≤ 30	PASS
11N20SISO	Ant1	5745	-3.01	≤ 30	PASS
		5785	-2.72	≤ 30	PASS
		5825	-1.73	≤ 30	PASS
11N40SISO	Ant1	5755	-6.5	≤ 30	PASS
		5795	-6.05	≤ 30	PASS
11AC20SISO	Ant1	5745	-2.36	≤ 30	PASS
		5785	-2.2	≤ 30	PASS
		5825	-2.05	≤ 30	PASS
11AC40SISO	Ant1	5755	-5.93	≤ 30	PASS
		5795	-5.32	≤ 30	PASS
11AC80SISO	Ant1	5775	-7.71	≤ 30	PASS

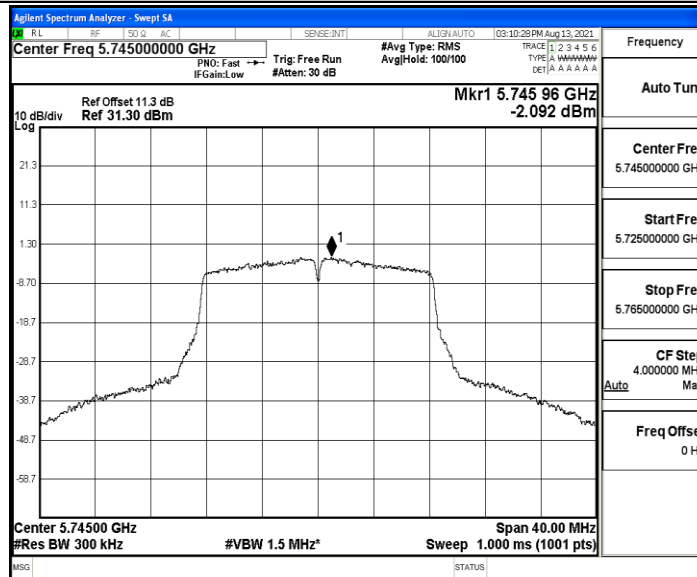
Note: 1.The Result and Limit Unit is dBm/500 kHz in the band 5.725–5.85 GHz.

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

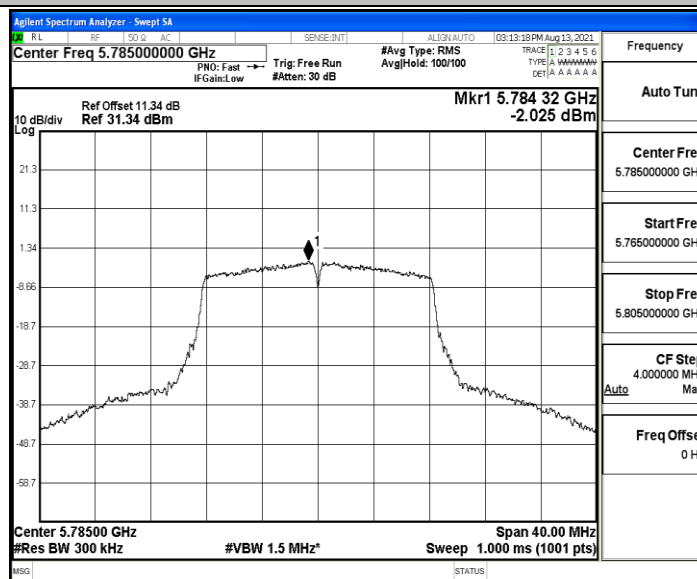


Test Graphs

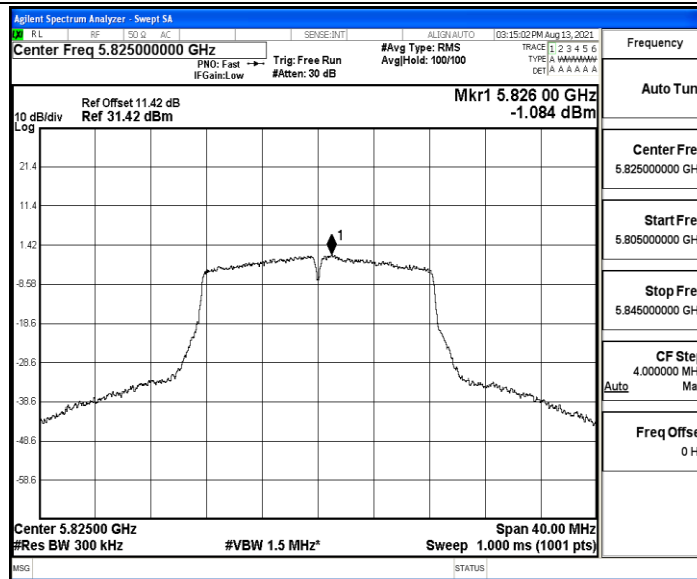
11A_Ant1_5745



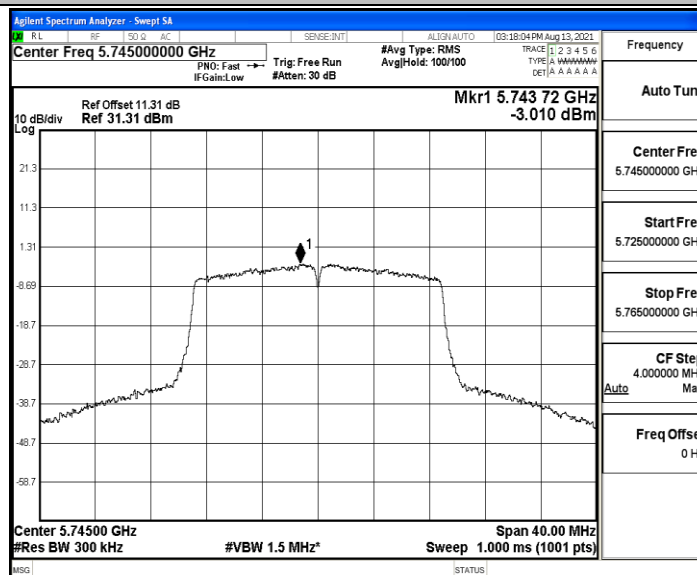
11A_Ant1_5785



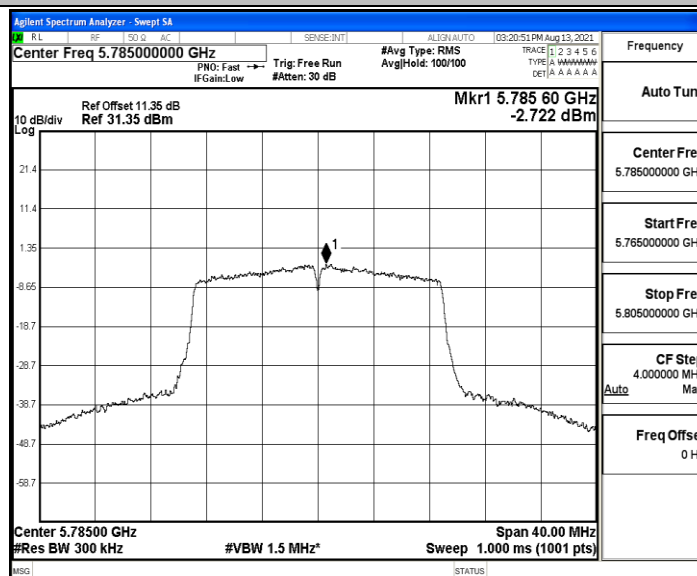
11A_Ant1_5825



11N20SISO_Ant1_5745

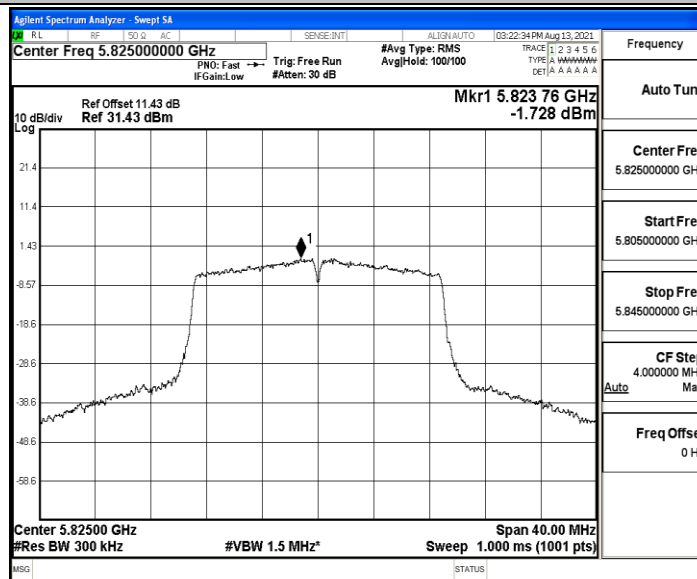


11N20SISO_Ant1_5785

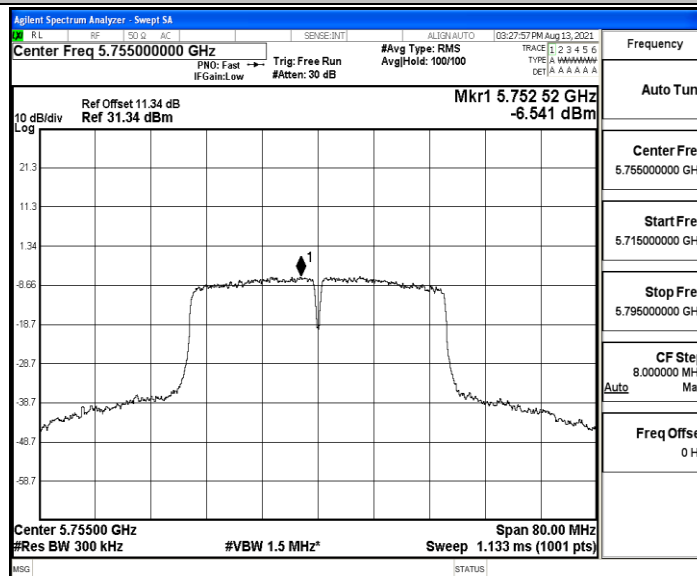




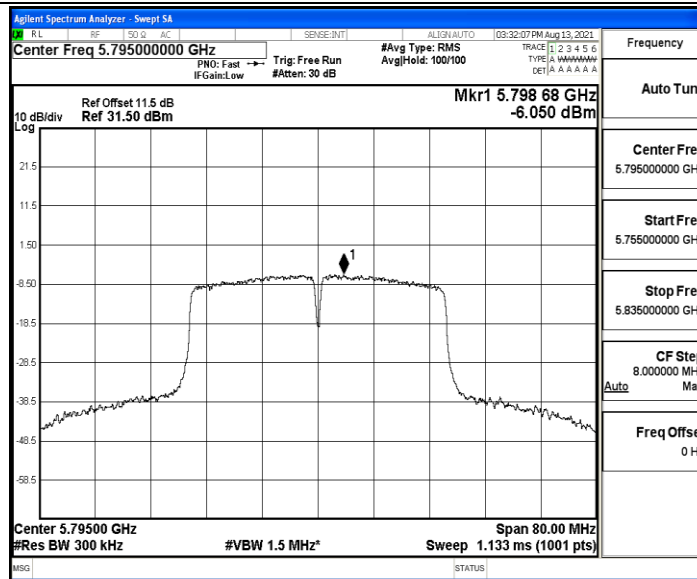
11N20SISO_Ant1_5825



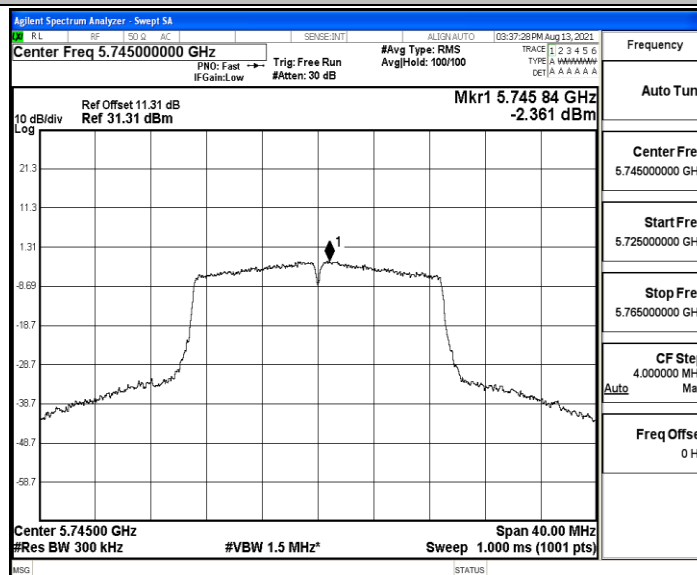
11N40SISO_Ant1_5755



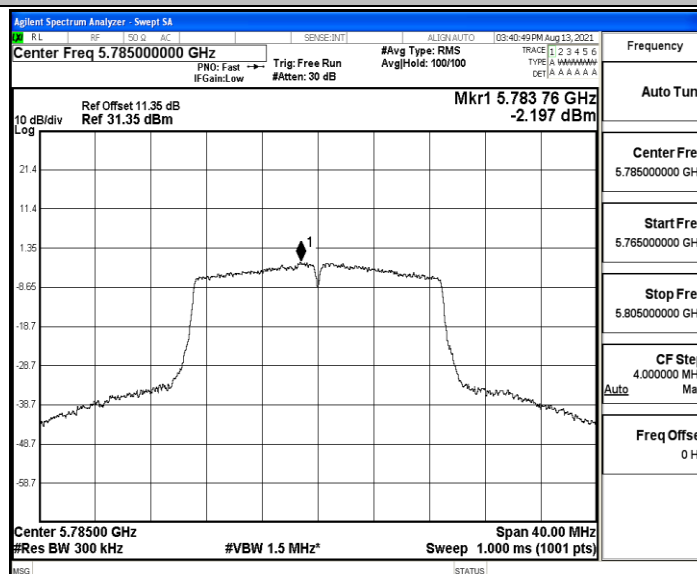
11N40SISO_Ant1_5795



11AC20SISO_Ant1_5745

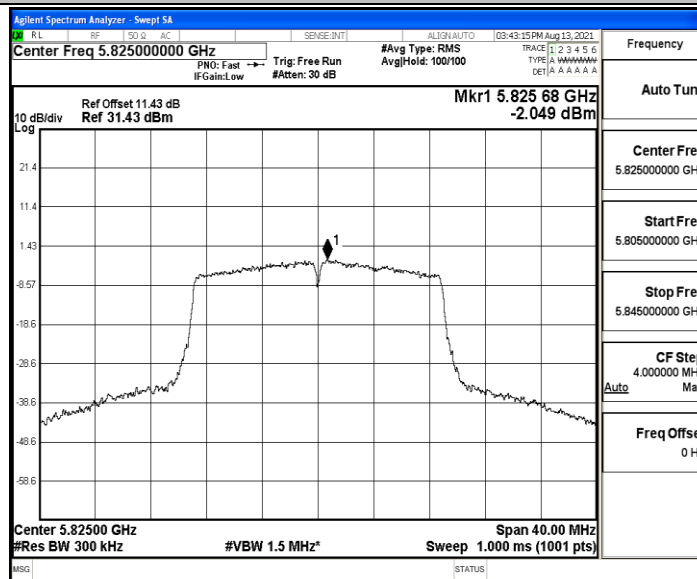


11AC20SISO_Ant1_5785

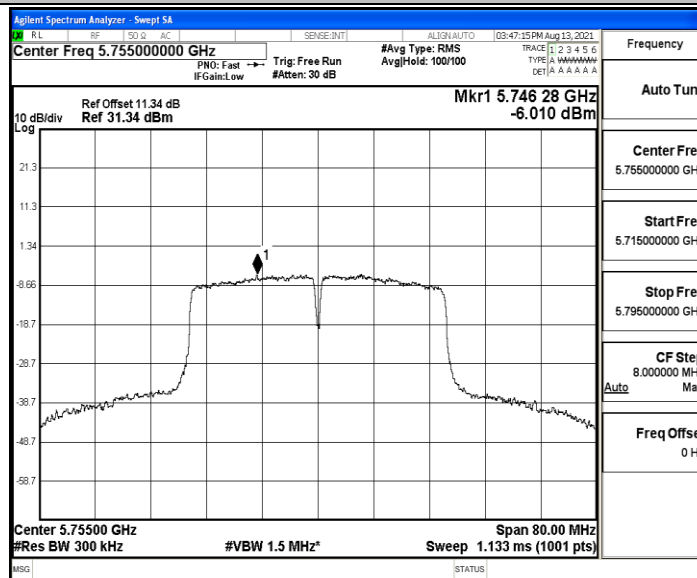




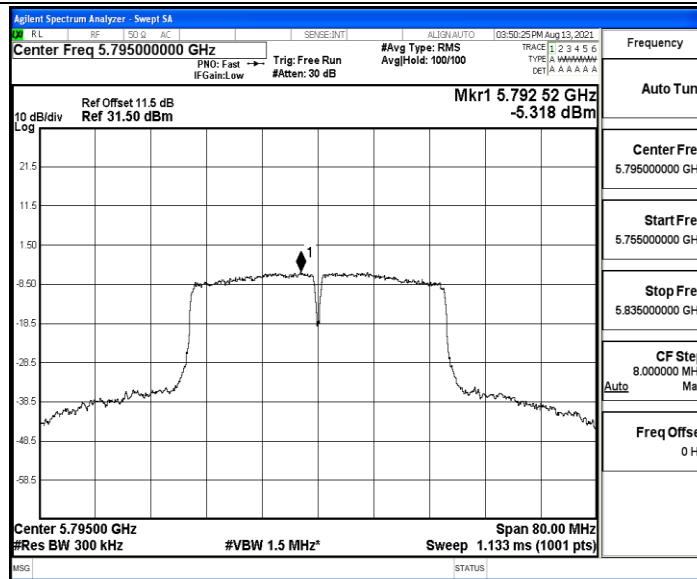
11AC20SISO_Ant1_5825



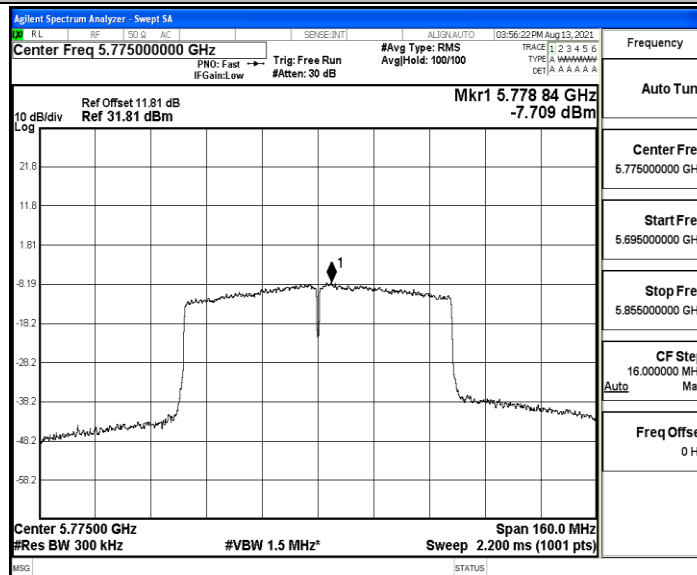
11AC40SISO_Ant1_5755



11AC40SISO_Ant1_5795



11AC80SISO_Ant1_5775





Appendix E.4: Emissions in Restricted Bands

Test Result

TestMode	Antenna	Channel Name	Channel	Detector	Freq. [MHz]	Result [dBm]	Limit [dBm]	Result [dBuV/m]	Limit [dBuV/m]	Verdict
11A	Ant1	Low	5745	Peak	5650.000	-40.081	≤-27.00	---	---	PASS
				Peak	5700.000	-40.17	≤10.00	---	---	PASS
				Peak	5720.000	-37.57	≤15.60	---	---	PASS
				Peak	5725.000	-28.85	≤27.00	---	---	PASS
		High	5825	Peak	5850.000	-35.853	≤15.60	---	---	PASS
				Peak	5855.000	-38.67	≤27.00	---	---	PASS
				Peak	5875.000	-40.3	≤15.60	---	---	PASS
				Peak	5925.000	-40.68	≤10.00	---	---	PASS
11N20S ISO	Ant1	Low	5745	Peak	5650.000	-39.678	≤-27.00	---	---	PASS
				Peak	5700.000	-39.55	≤10.00	---	---	PASS
				Peak	5720.000	-37.97	≤15.60	---	---	PASS
				Peak	5725.000	-29.69	≤27.00	---	---	PASS
		High	5825	Peak	5850.000	-36.115	≤15.60	---	---	PASS
				Peak	5855.000	-38.46	≤27.00	---	---	PASS
				Peak	5875.000	-40.14	≤15.60	---	---	PASS
				Peak	5925.000	-40.62	≤10.00	---	---	PASS
11N40S ISO	Ant1	Low	5755	Peak	5650.000	-41.554	≤-27.00	---	---	PASS
				Peak	5700.000	-37.93	≤10.00	---	---	PASS
				Peak	5720.000	-25.77	≤15.60	---	---	PASS
				Peak	5725.000	-25.55	≤27.00	---	---	PASS
		High	5795	Peak	5850.000	-38.176	≤15.60	---	---	PASS
				Peak	5855.000	-40.54	≤27.00	---	---	PASS
				Peak	5875.000	-39.93	≤15.60	---	---	PASS
				Peak	5925.000	-39.94	≤10.00	---	---	PASS
11AC20 SISO	Ant1	Low	5745	Peak	5650.000	-41.666	≤-27.00	---	---	PASS
				Peak	5700.000	-39.42	≤10.00	---	---	PASS
				Peak	5720.000	-36.35	≤15.60	---	---	PASS
				Peak	5725.000	-26.18	≤27.00	---	---	PASS
		High	5825	Peak	5850.000	-36.287	≤15.60	---	---	PASS
				Peak	5855.000	-38.03	≤27.00	---	---	PASS
				Peak	5875.000	-39.28	≤15.60	---	---	PASS
				Peak	5925.000	-39.71	≤10.00	---	---	PASS
11AC40 SISO	Ant1	Low	5755	Peak	5650.000	-39.631	≤-27.00	---	---	PASS
				Peak	5700.000	-38.93	≤10.00	---	---	PASS
				Peak	5720.000	-26.61	≤15.60	---	---	PASS
				Peak	5725.000	-22.57	≤27.00	---	---	PASS



11AC80 SISO	Ant1	High	5795	Peak	5850.000	-38.582	≤ 15.60	---	---	PASS
				Peak	5855.000	-38.51	≤ 27.00	---	---	PASS
				Peak	5875.000	-39.73	≤ 15.60	---	---	PASS
				Peak	5925.000	-40.35	≤ 10.00	---	---	PASS
		Low	5775	Peak	5650.000	-38.814	≤ 27.00	---	---	PASS
				Peak	5700.000	-32.32	≤ 10.00	---	---	PASS
				Peak	5720.000	-26.95	≤ 15.60	---	---	PASS
				Peak	5725.000	-28.17	≤ 27.00	---	---	PASS
		High	5775	Peak	5850.000	-24.734	≤ 15.60	---	---	PASS
				Peak	5855.000	-27.39	≤ 27.00	---	---	PASS
				Peak	5875.000	-30.49	≤ 15.60	---	---	PASS
				Peak	5925.000	-38.75	≤ 10.00	---	---	PASS

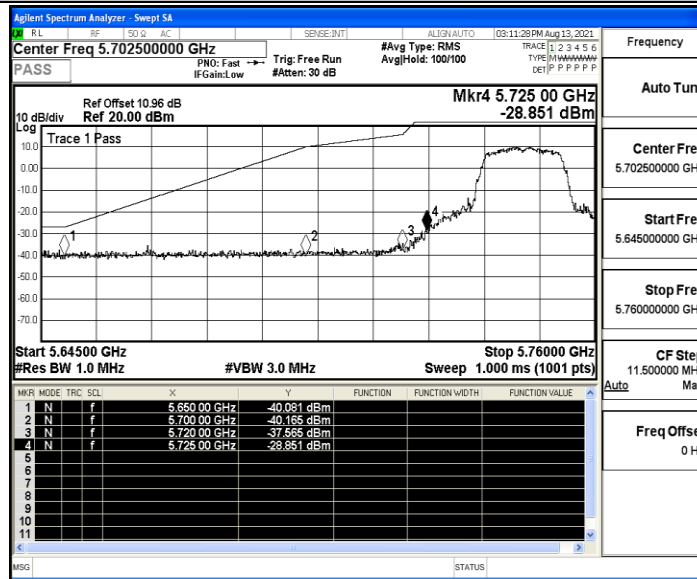
Note:

1. The Antenna Gain is compensated in the graph.
2. For transmitters operating in 5150-5350 GHz band and 5470-5725 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.

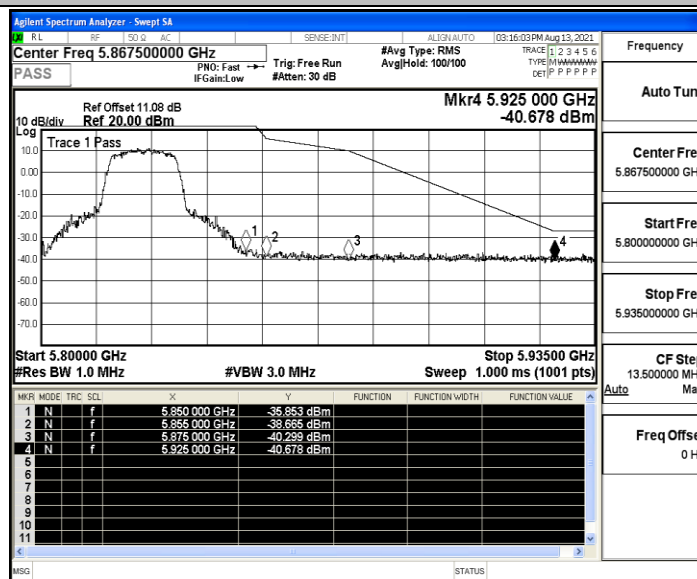


Test Graphs

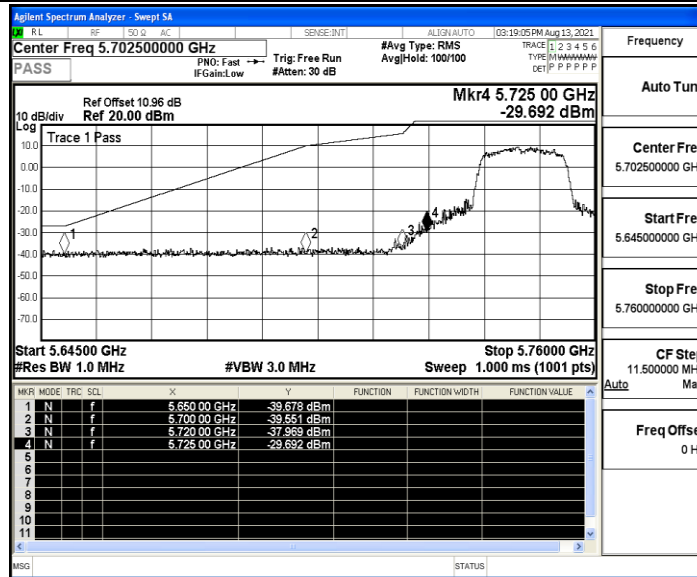
11A_Ant1_Low_5745_Peak



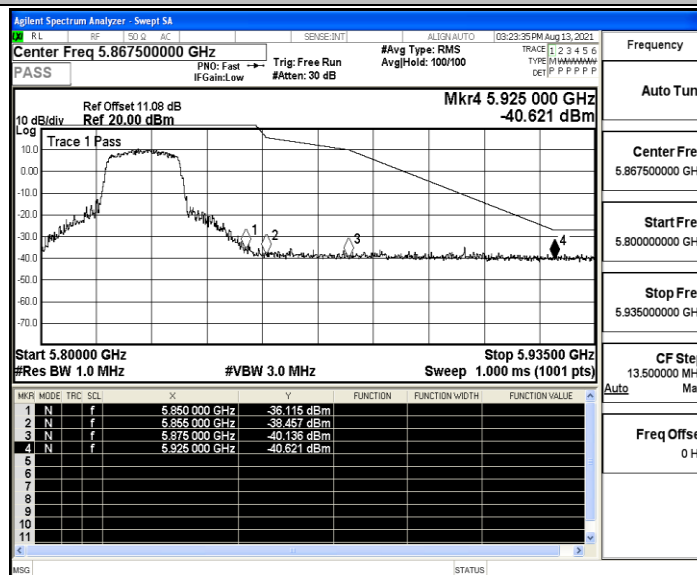
11A_Ant1_High_5825_Peak



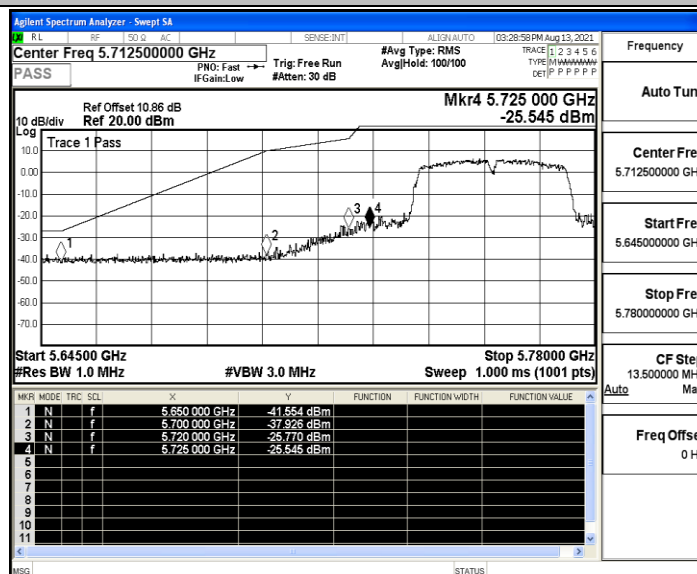
11N20SISO_Ant1_Low_5745_Peak



11N20SISO_Ant1_High_5825_Peak

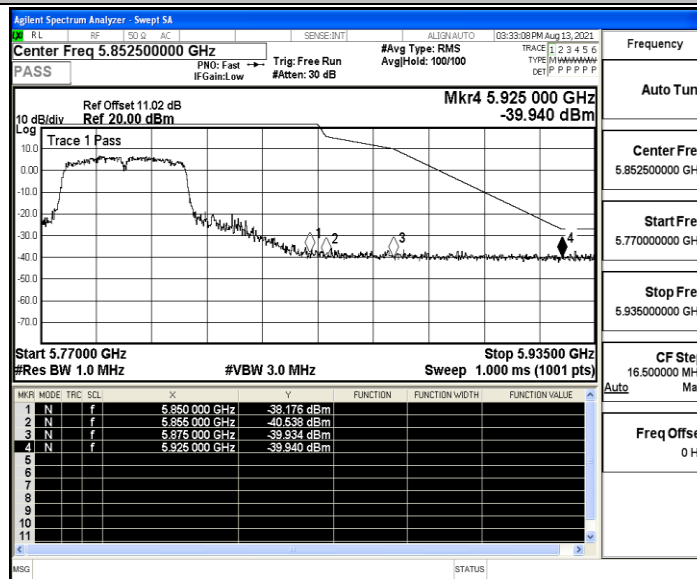


11N40SISO_Ant1_Low_5755_Peak

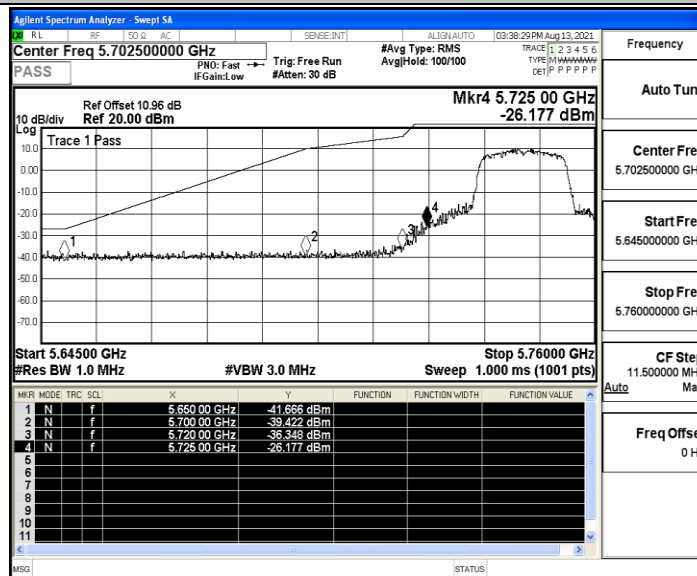




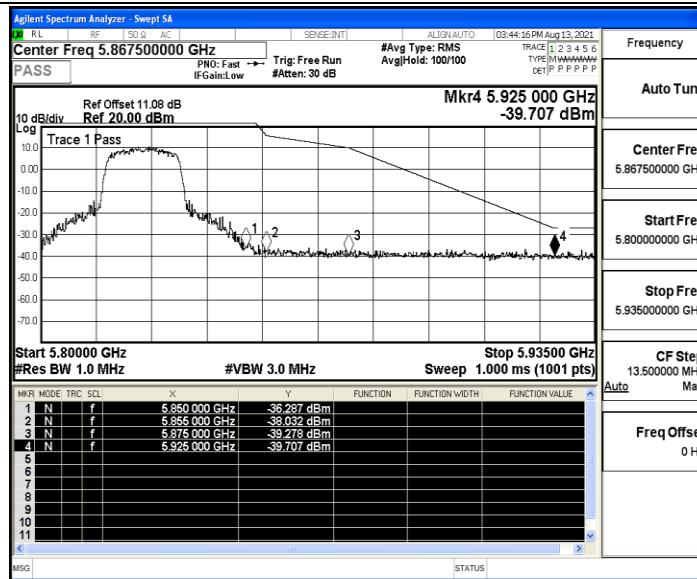
11N40SISO_Ant1_High_5795_Peak



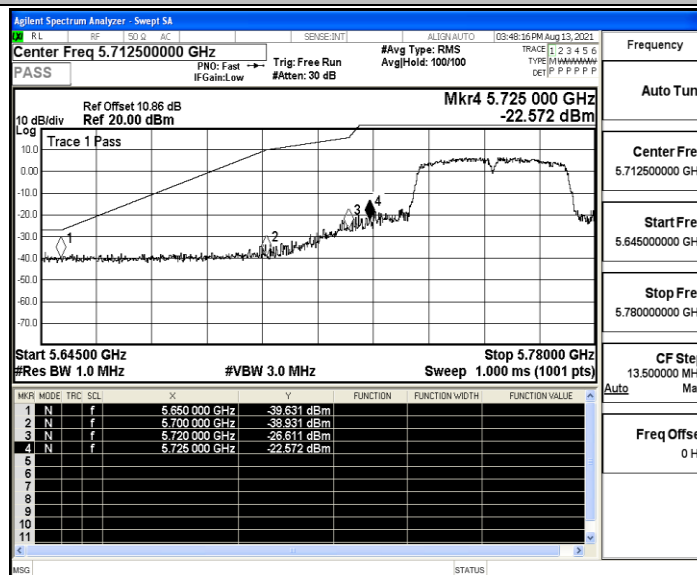
11AC20SISO_Ant1_Low_5745_Peak



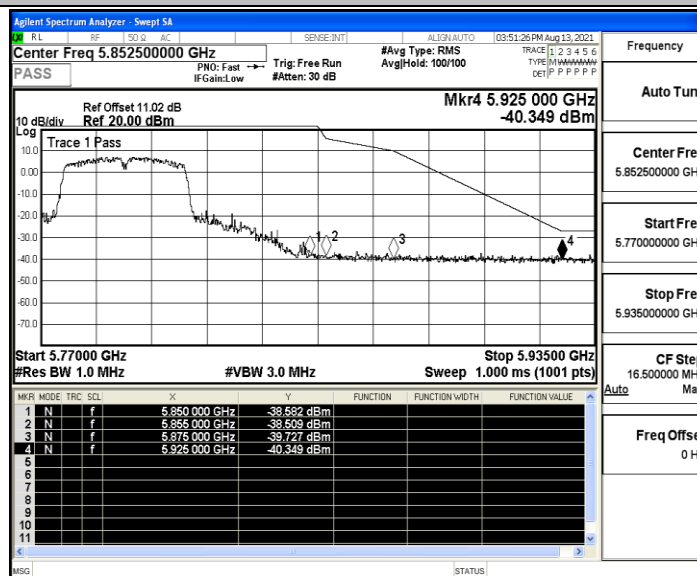
11AC20SISO_Ant1_High_5825_Peak



11AC40SISO_Ant1_Low_5755_Peak

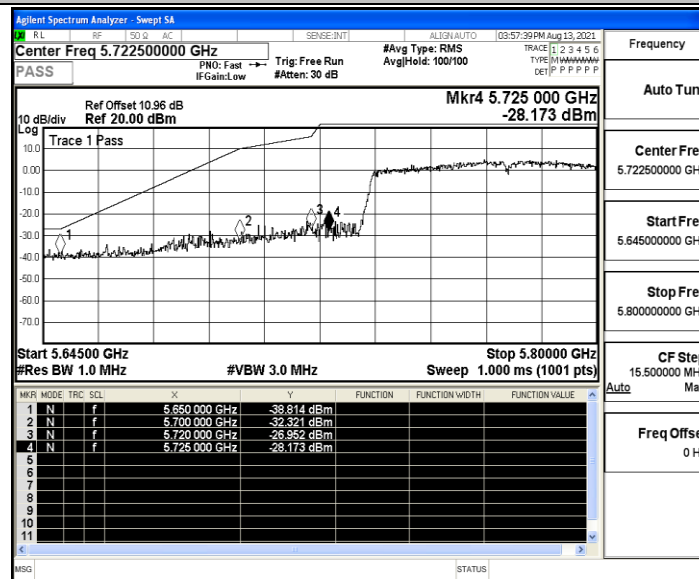


11AC40SISO_Ant1_High_5795_Peak

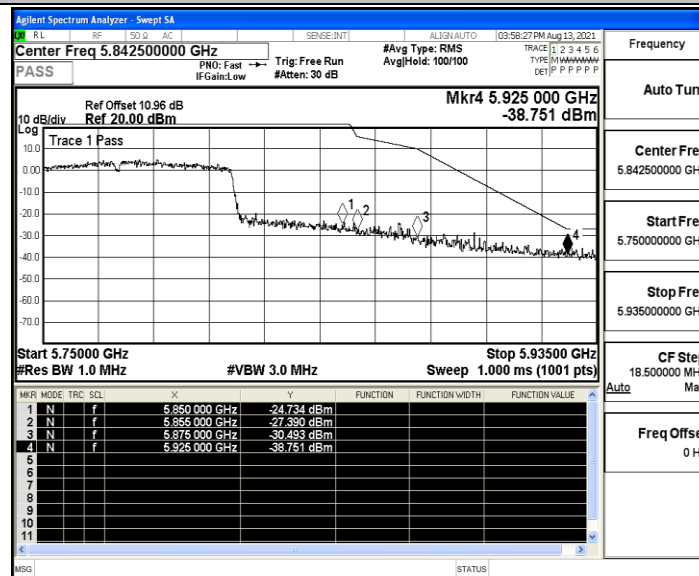




11AC80SISO_Ant1_Low_5775_Peak



11AC80SISO_Ant1_High_5775_Peak





Appendix E.5: Frequency Stability

Test Result

Voltage								
TestMode	Antenna	Channel	Voltage [Vdc]	Temperature (°C)	Deviation (Hz)	Deviation (ppm)	Limit (ppm)	Verdict
11A	Ant1	5745	NV	NT	-11000	-1.914708	20	PASS
			LV	NT	-11000	-1.914708	20	PASS
			HV	NT	-12000	-2.088773	20	PASS
		5785	NV	NT	-16000	-2.765774	20	PASS
			LV	NT	-16000	-2.765774	20	PASS
			HV	NT	-16000	-2.765774	20	PASS
		5825	NV	NT	-17000	-2.918455	20	PASS
			LV	NT	-17000	-2.918455	20	PASS
			HV	NT	-17000	-2.918455	20	PASS
11N20SISO	Ant1	5745	NV	NT	-15000	-2.610966	20	PASS
			LV	NT	-16000	-2.78503	20	PASS
			HV	NT	-16000	-2.78503	20	PASS
		5785	NV	NT	-18000	-3.111495	20	PASS
			LV	NT	-18000	-3.111495	20	PASS
			HV	NT	-18000	-3.111495	20	PASS
		5825	NV	NT	-18000	-3.090129	20	PASS
			LV	NT	-18000	-3.090129	20	PASS
			HV	NT	-18000	-3.090129	20	PASS
11N40SISO	Ant1	5755	NV	NT	-17000	-2.953953	20	PASS
			LV	NT	-18000	-3.127715	20	PASS
			HV	NT	-18000	-3.127715	20	PASS
		5795	NV	NT	-18000	-3.106126	20	PASS
			LV	NT	-18000	-3.106126	20	PASS
			HV	NT	-18000	-3.106126	20	PASS
11AC20SISO	Ant1	5745	NV	NT	-17000	-2.959095	20	PASS
			LV	NT	-18000	-3.133159	20	PASS
			HV	NT	-18000	-3.133159	20	PASS
		5785	NV	NT	-18000	-3.111495	20	PASS
			LV	NT	-19000	-3.284356	20	PASS
			HV	NT	-19000	-3.284356	20	PASS
		5825	NV	NT	-18000	-3.090129	20	PASS
			LV	NT	-18000	-3.090129	20	PASS
			HV	NT	-18000	-3.090129	20	PASS
11AC40SISO	Ant1	5755	NV	NT	-18000	-3.127715	20	PASS
			LV	NT	-18000	-3.127715	20	PASS
			HV	NT	-18000	-3.127715	20	PASS



		5795	NV	NT	-19000	-3.278689	20	PASS
			LV	NT	-19000	-3.278689	20	PASS
			HV	NT	-19000	-3.278689	20	PASS
11AC80SIS O	Ant1	5775	NV	NT	-18000	-3.116883	20	PASS
			LV	NT	-18000	-3.116883	20	PASS
			HV	NT	-18000	-3.116883	20	PASS

Temperature								
TestMode	Antenna	Channel	Voltage [Vdc]	Temperature (°C)	Deviation (Hz)	Deviation (ppm)	Limit (ppm)	Verdict
11A	Ant1	5745	NV	-30	-13000	-2.262837	20	PASS
			NV	-20	-14000	-2.436902	20	PASS
			NV	-10	-14000	-2.436902	20	PASS
			NV	0	-15000	-2.610966	20	PASS
			NV	10	-15000	-2.610966	20	PASS
			NV	20	-15000	-2.610966	20	PASS
			NV	30	-16000	-2.78503	20	PASS
			NV	40	-16000	-2.78503	20	PASS
			NV	50	-16000	-2.78503	20	PASS
		5785	NV	-30	-16000	-2.765774	20	PASS
			NV	-20	-16000	-2.765774	20	PASS
			NV	-10	-16000	-2.765774	20	PASS
			NV	0	-16000	-2.765774	20	PASS
			NV	10	-17000	-2.938634	20	PASS
			NV	20	-17000	-2.938634	20	PASS
			NV	30	-17000	-2.938634	20	PASS
			NV	40	-17000	-2.938634	20	PASS
			NV	50	-17000	-2.938634	20	PASS
		5825	NV	-30	-17000	-2.918455	20	PASS
			NV	-20	-17000	-2.918455	20	PASS
			NV	-10	-17000	-2.918455	20	PASS
			NV	0	-17000	-2.918455	20	PASS
			NV	10	-17000	-2.918455	20	PASS
			NV	20	-17000	-2.918455	20	PASS
			NV	30	-17000	-2.918455	20	PASS
			NV	40	-17000	-2.918455	20	PASS
			NV	50	-17000	-2.918455	20	PASS
11N20SISO	Ant1	5745	NV	-30	-17000	-2.959095	20	PASS
			NV	-20	-17000	-2.959095	20	PASS
			NV	-10	-17000	-2.959095	20	PASS
			NV	0	-17000	-2.959095	20	PASS
			NV	10	-17000	-2.959095	20	PASS
			NV	20	-17000	-2.959095	20	PASS



			NV	30	-18000	-3.133159	20	PASS
			NV	40	-17000	-2.959095	20	PASS
			NV	50	-18000	-3.133159	20	PASS
		5785	NV	-30	-18000	-3.111495	20	PASS
			NV	-20	-18000	-3.111495	20	PASS
			NV	-10	-18000	-3.111495	20	PASS
			NV	0	-18000	-3.111495	20	PASS
			NV	10	-18000	-3.111495	20	PASS
			NV	20	-18000	-3.111495	20	PASS
			NV	30	-18000	-3.111495	20	PASS
			NV	40	-18000	-3.111495	20	PASS
			NV	50	-18000	-3.111495	20	PASS
			NV	-30	-18000	-3.090129	20	PASS
		5825	NV	-20	-18000	-3.090129	20	PASS
			NV	-10	-18000	-3.090129	20	PASS
			NV	0	-18000	-3.090129	20	PASS
			NV	10	-18000	-3.090129	20	PASS
			NV	20	-18000	-3.090129	20	PASS
			NV	30	-18000	-3.090129	20	PASS
			NV	40	-18000	-3.090129	20	PASS
			NV	50	-18000	-3.090129	20	PASS
11N40SISO	Ant1	5755	NV	-30	-18000	-3.127715	20	PASS
			NV	-20	-18000	-3.127715	20	PASS
			NV	-10	-18000	-3.127715	20	PASS
			NV	0	-18000	-3.127715	20	PASS
			NV	10	-18000	-3.127715	20	PASS
			NV	20	-18000	-3.127715	20	PASS
			NV	30	-18000	-3.127715	20	PASS
			NV	40	-18000	-3.127715	20	PASS
			NV	50	-18000	-3.127715	20	PASS
		5795	NV	-30	-18000	-3.106126	20	PASS
			NV	-20	-18000	-3.106126	20	PASS
			NV	-10	-18000	-3.106126	20	PASS
			NV	0	-18000	-3.106126	20	PASS
			NV	10	-18000	-3.106126	20	PASS
			NV	20	-18000	-3.106126	20	PASS
			NV	30	-18000	-3.106126	20	PASS
			NV	40	-18000	-3.106126	20	PASS
			NV	50	-19000	-3.278689	20	PASS
11AC20SISO	Ant1	5745	NV	-30	-18000	-3.133159	20	PASS
			NV	-20	-18000	-3.133159	20	PASS
			NV	-10	-18000	-3.133159	20	PASS
			NV	0	-18000	-3.133159	20	PASS



			NV	10	-18000	-3.133159	20	PASS
			NV	20	-18000	-3.133159	20	PASS
			NV	30	-19000	-3.307224	20	PASS
			NV	40	-19000	-3.307224	20	PASS
			NV	50	-19000	-3.307224	20	PASS
		5785	NV	-30	-19000	-3.284356	20	PASS
			NV	-20	-19000	-3.284356	20	PASS
			NV	-10	-19000	-3.284356	20	PASS
			NV	0	-19000	-3.284356	20	PASS
			NV	10	-19000	-3.284356	20	PASS
			NV	20	-19000	-3.284356	20	PASS
			NV	30	-19000	-3.284356	20	PASS
			NV	40	-19000	-3.284356	20	PASS
			NV	50	-19000	-3.284356	20	PASS
		5825	NV	-30	-18000	-3.090129	20	PASS
			NV	-20	-19000	-3.261803	20	PASS
			NV	-10	-19000	-3.261803	20	PASS
			NV	0	-19000	-3.261803	20	PASS
			NV	10	-19000	-3.261803	20	PASS
			NV	20	-18000	-3.090129	20	PASS
			NV	30	-19000	-3.261803	20	PASS
			NV	40	-18000	-3.090129	20	PASS
			NV	50	-19000	-3.261803	20	PASS
11AC40SIS O	Ant1	5755	NV	-30	-18000	-3.127715	20	PASS
			NV	-20	-18000	-3.127715	20	PASS
			NV	-10	-18000	-3.127715	20	PASS
			NV	0	-18000	-3.127715	20	PASS
			NV	10	-18000	-3.127715	20	PASS
			NV	20	-18000	-3.127715	20	PASS
			NV	30	-18000	-3.127715	20	PASS
			NV	40	-18000	-3.127715	20	PASS
			NV	50	-18000	-3.127715	20	PASS
		5795	NV	-30	-19000	-3.278689	20	PASS
			NV	-20	-18000	-3.106126	20	PASS
			NV	-10	-18000	-3.106126	20	PASS
			NV	0	-19000	-3.278689	20	PASS
			NV	10	-19000	-3.278689	20	PASS
			NV	20	-19000	-3.278689	20	PASS
			NV	30	-19000	-3.278689	20	PASS
			NV	40	-19000	-3.278689	20	PASS
			NV	50	-19000	-3.278689	20	PASS
11AC80SIS O	Ant1	5775	NV	-30	-18000	-3.116883	20	PASS
			NV	-20	-18000	-3.116883	20	PASS



			NV	-10	-18000	-3.116883	20	PASS
			NV	0	-19000	-3.290043	20	PASS
			NV	10	-19000	-3.290043	20	PASS
			NV	20	-19000	-3.290043	20	PASS
			NV	30	-18000	-3.116883	20	PASS
			NV	40	-19000	-3.290043	20	PASS
			NV	50	-19000	-3.290043	20	PASS



Appendix E.6: Duty Cycle

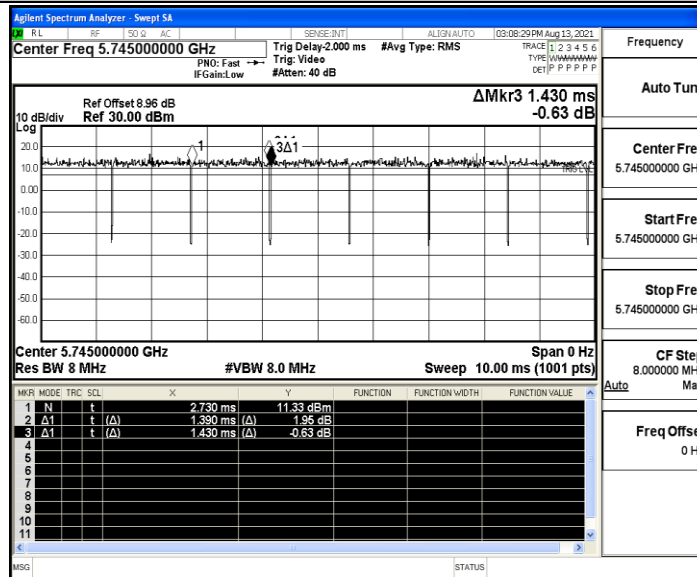
Test Result

TestMode	Antenna	Channel	Transmission Duration [ms]	Transmission Period [ms]	Duty Cycle [%]	Limit	Verdict
11A	Ant1	5745	1.39	1.43	97.20	---	PASS
		5785	1.39	1.43	97.20	---	PASS
		5825	1.39	1.43	97.20	---	PASS
11N20SISO	Ant1	5745	1.30	1.34	97.01	---	PASS
		5785	1.30	1.34	97.01	---	PASS
		5825	1.30	1.34	97.01	---	PASS
11N40SISO	Ant1	5755	0.64	0.68	94.12	---	PASS
		5795	0.64	0.68	94.12	---	PASS
11AC20SISO	Ant1	5745	1.30	1.34	97.01	---	PASS
		5785	1.30	1.34	97.01	---	PASS
		5825	1.30	1.34	97.01	---	PASS
11AC40SISO	Ant1	5755	0.64	0.68	94.12	---	PASS
		5795	0.64	0.68	94.12	---	PASS
11AC80SISO	Ant1	5775	0.32	0.37	86.49	---	PASS

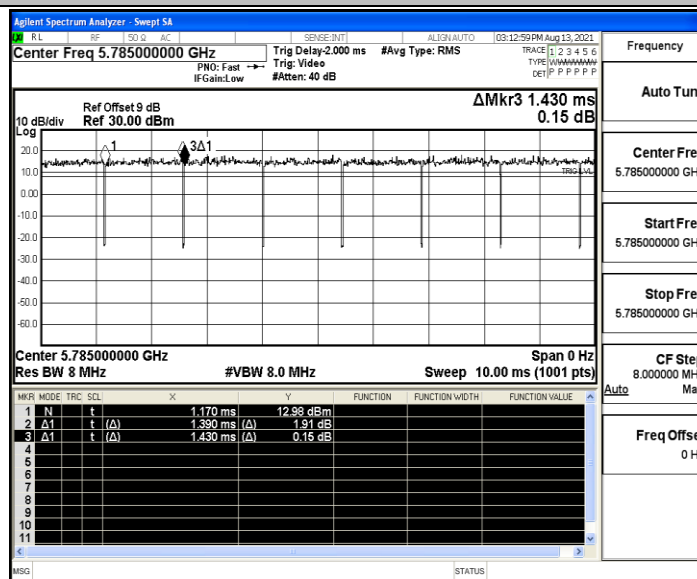


Test Graphs

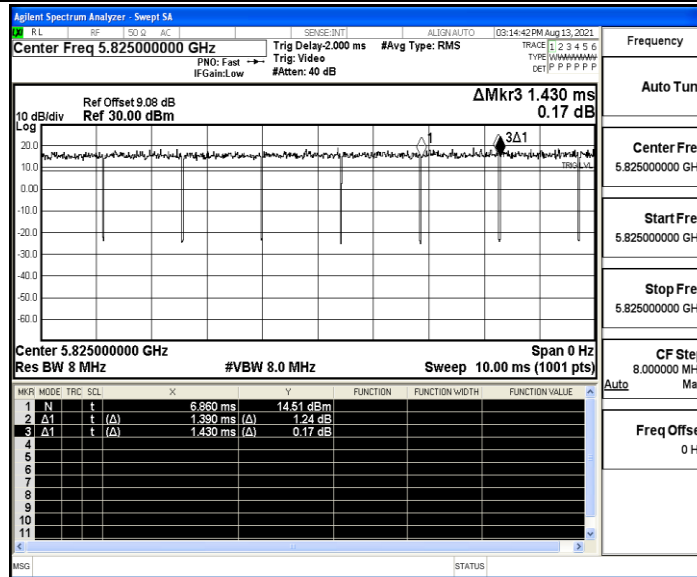
11A_Ant1_5745



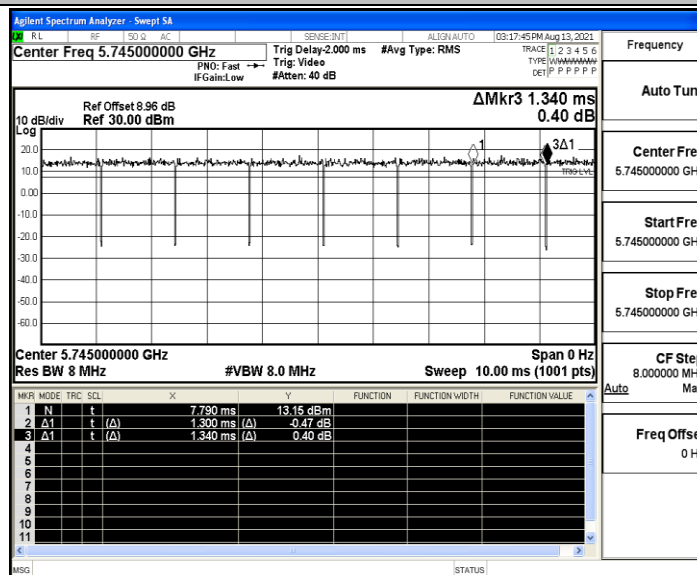
11A_Ant1_5785



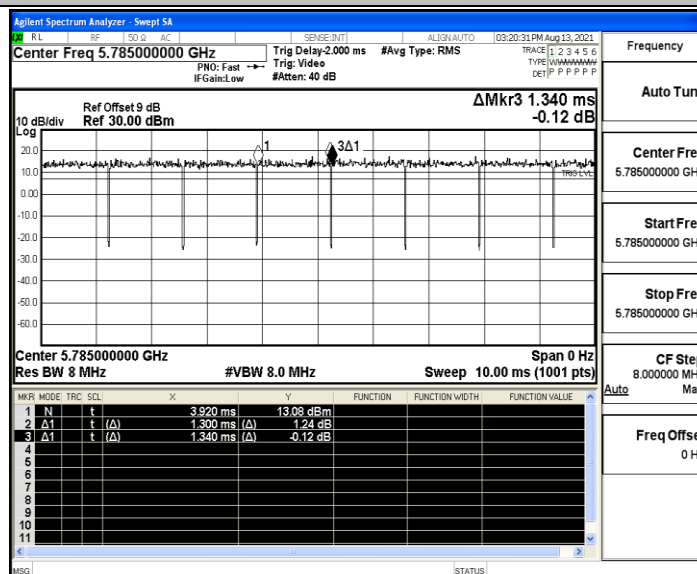
11A_Ant1_5825



11N20SISO_Ant1_5745

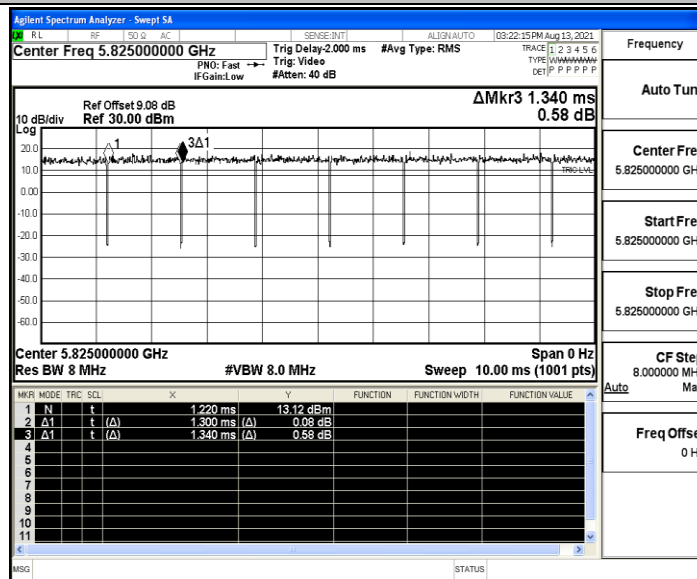


11N20SISO_Ant1_5785

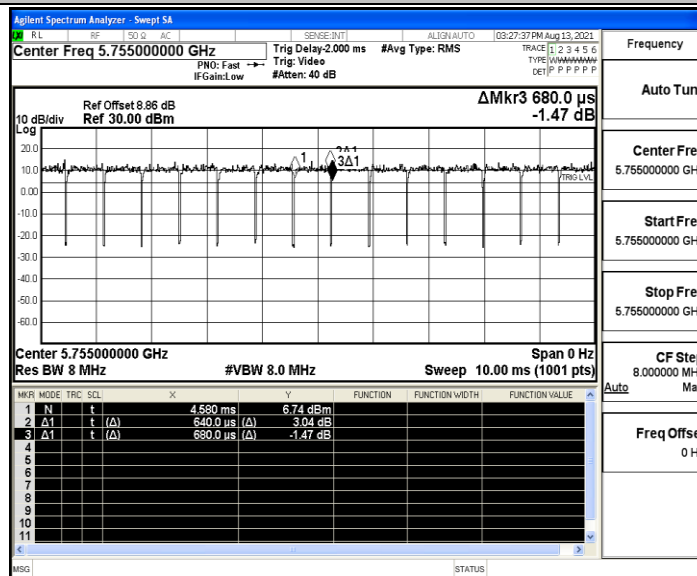




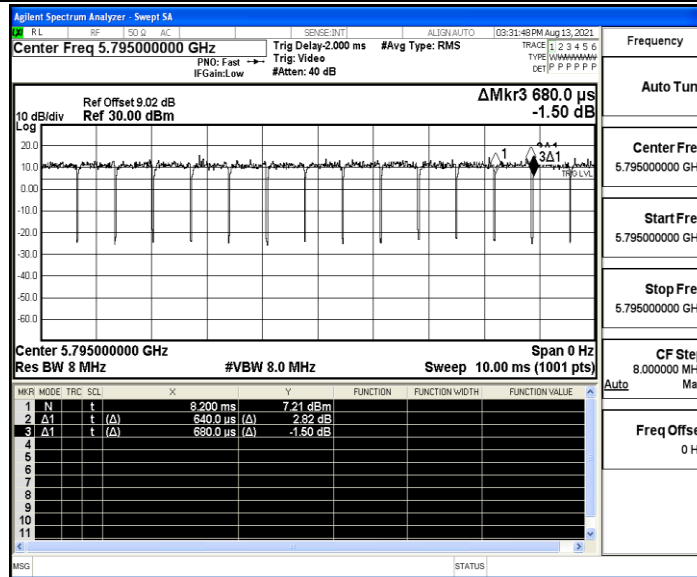
11N20SISO_Ant1_5825



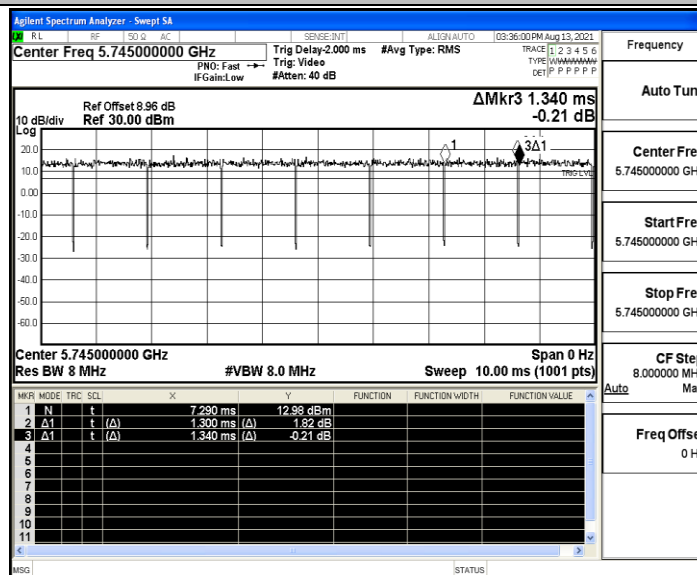
11N40SISO_Ant1_5755



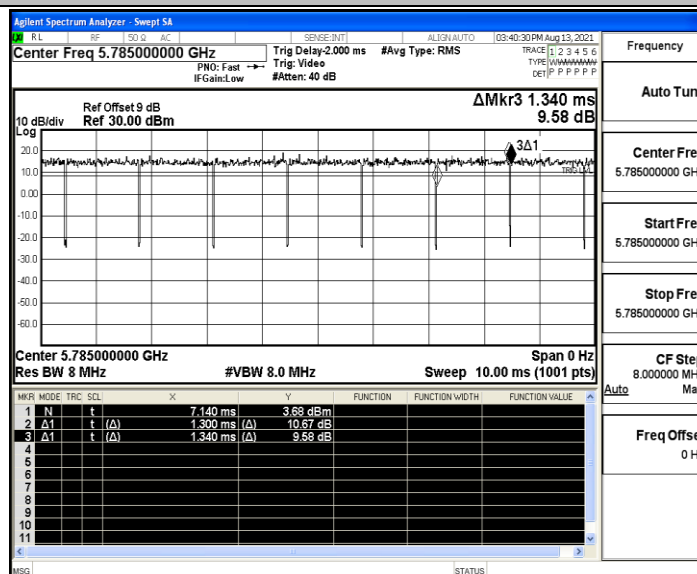
11N40SISO_Ant1_5795



11AC20SISO_Ant1_5745

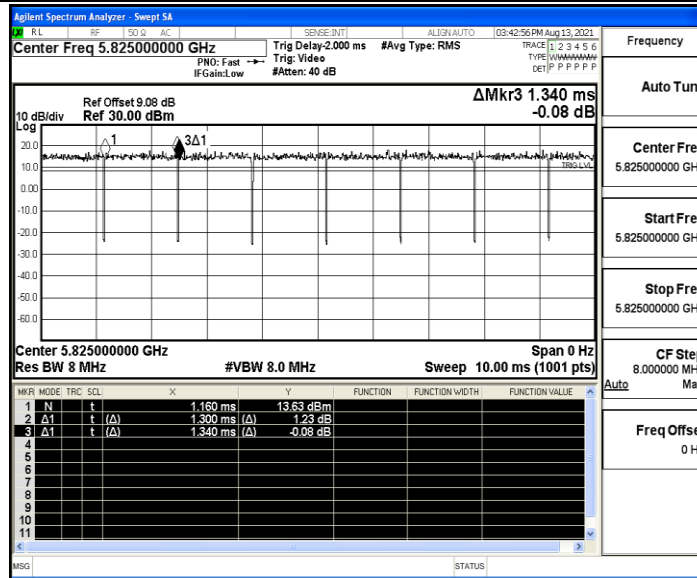


11AC20SISO_Ant1_5785

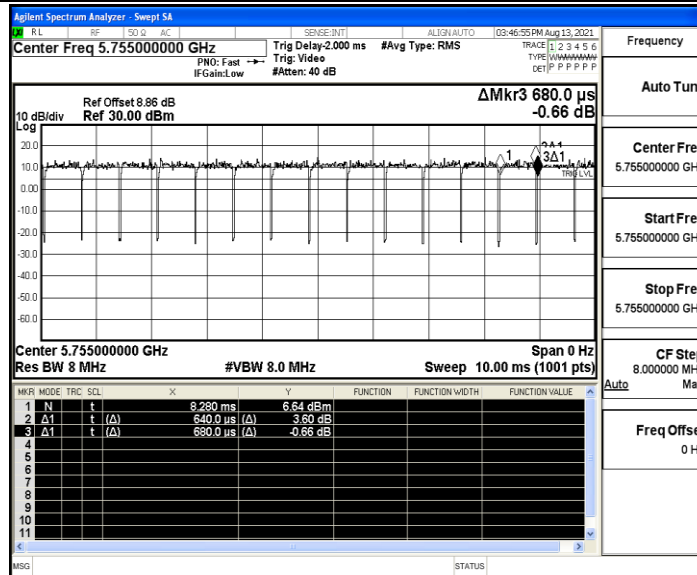




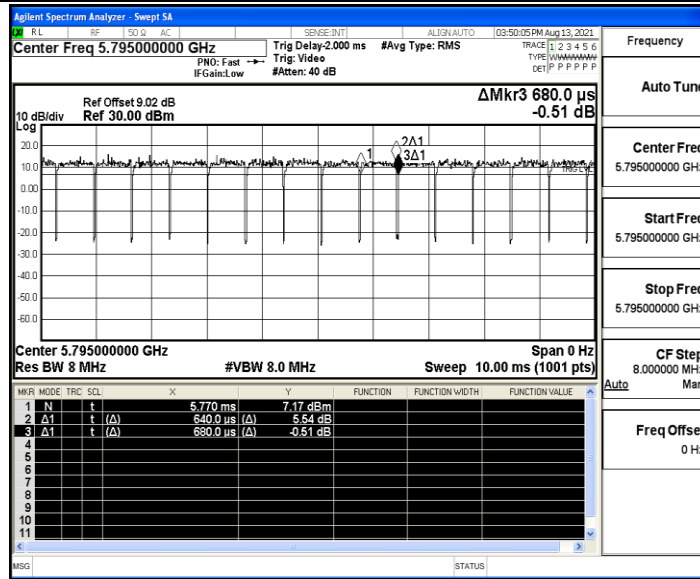
11AC20SISO_Ant1_5825



11AC40SISO_Ant1_5755



11AC40SISO_Ant1_5795



11AC80SISO_Ant1_5775

