Appendix E

RF Test Data for 5.8GWIFI (Conducted Measurement)

Product Name: LED PROJECTOR

Test Model: L005A

Environmental Conditions

Temperature:	23.8° C
Relative Humidity:	52.1%
ATM Pressure:	100.0 kPa
Test Engineer:	Nick Peng
Supervised by:	Li Huan

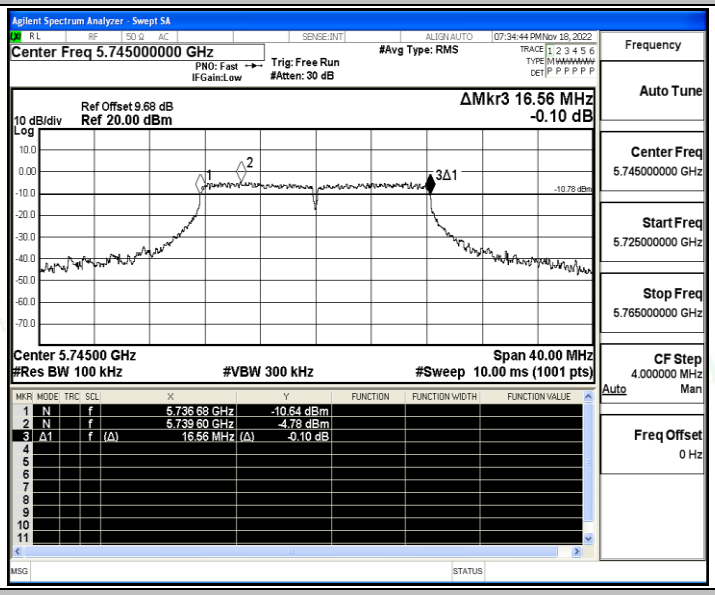
E.1 Min emission bandwidth

Test Result

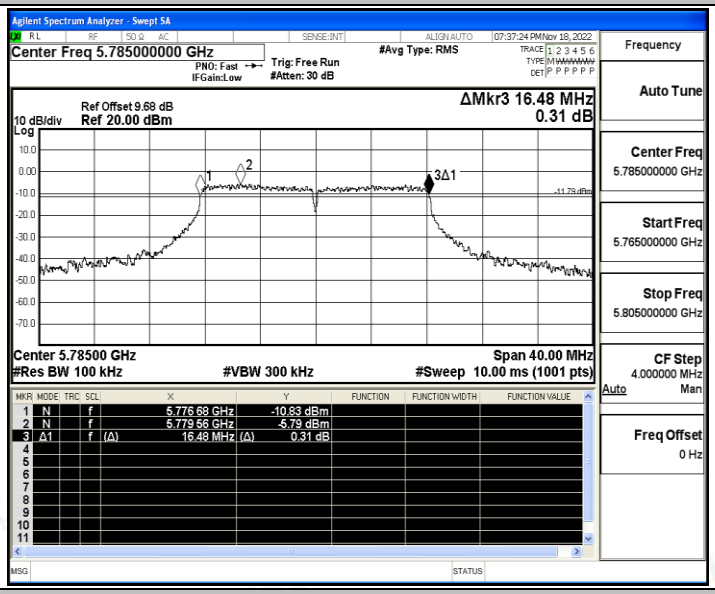
TestMode	Antenna	Frequency[MHz]	6db EBW [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
11A	Ant1	5745	16.560	5736.680	5753.240	0.5	PASS
		5785	16.480	5776.680	5793.160	0.5	PASS
		5825	16.480	5816.680	5833.160	0.5	PASS
11N20SISO	Ant1	5745	17.680	5736.080	5753.760	0.5	PASS
		5785	17.600	5776.160	5793.760	0.5	PASS
		5825	17.640	5816.120	5833.760	0.5	PASS
11N40SISO	Ant1	5755	36.400	5736.760	5773.160	0.5	PASS
		5795	36.400	5776.760	5813.160	0.5	PASS
11AC20SISO	Ant1	5745	17.600	5736.160	5753.760	0.5	PASS
		5785	17.600	5776.160	5793.760	0.5	PASS
		5825	17.640	5816.120	5833.760	0.5	PASS
11AC40SISO	Ant1	5755	36.480	5736.680	5773.160	0.5	PASS
		5795	36.400	5776.760	5813.160	0.5	PASS
11AC80SISO	Ant1	5775	76.160	5736.760	5812.920	0.5	PASS

Test Graphs

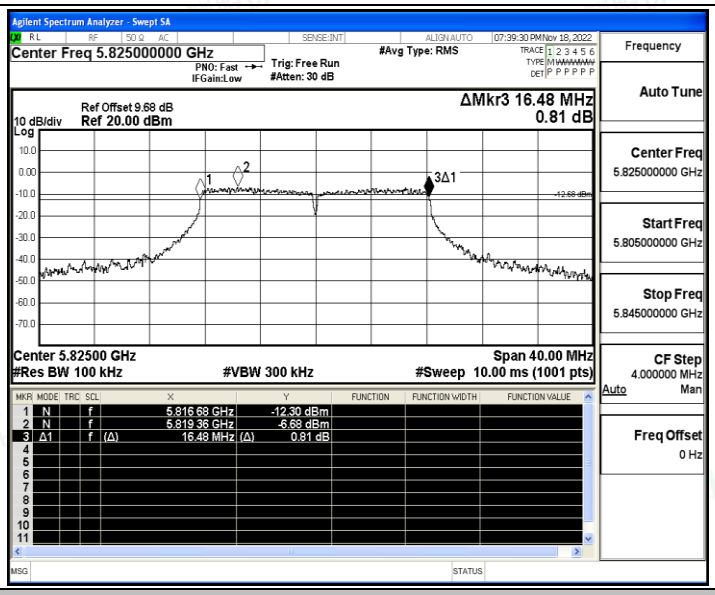
11A_Ant1_5745



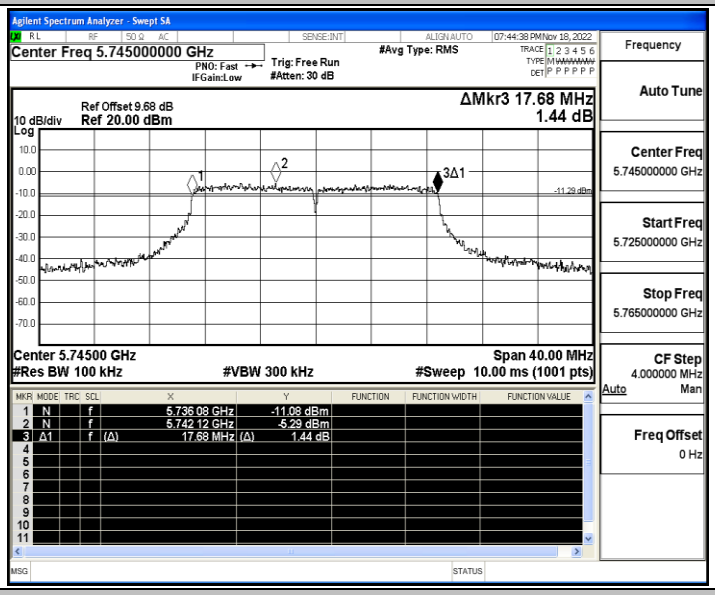
11A_Ant1_5785



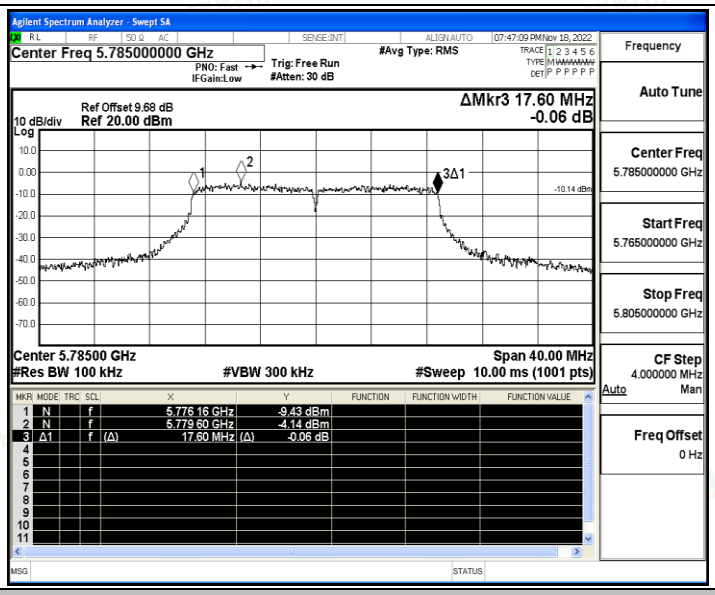
11A_Ant1_5825



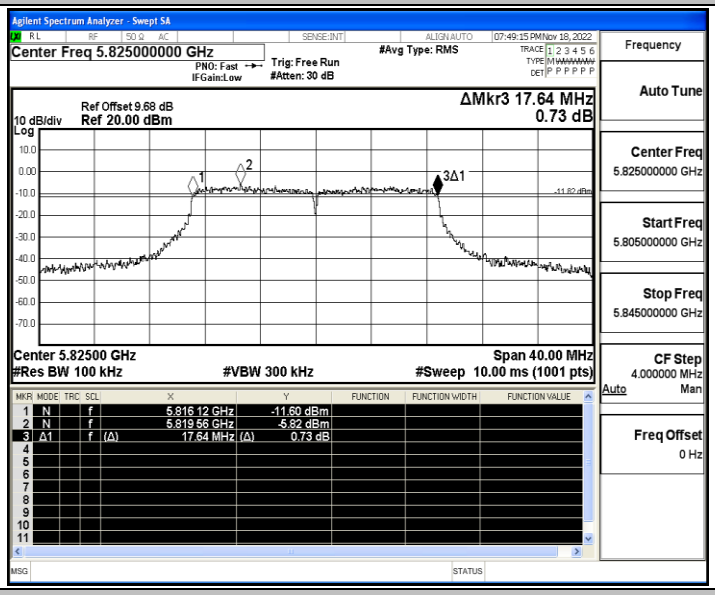
11N20SISO_Ant1_5745



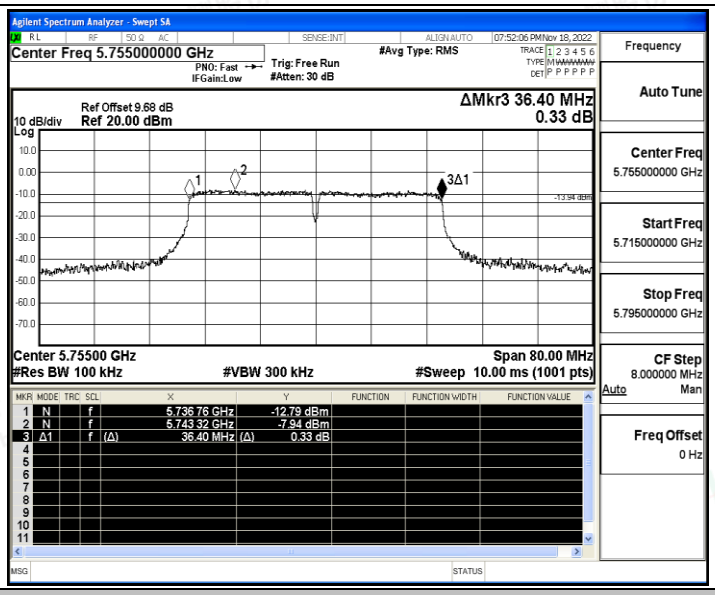
11N20SISO_Ant1_5785



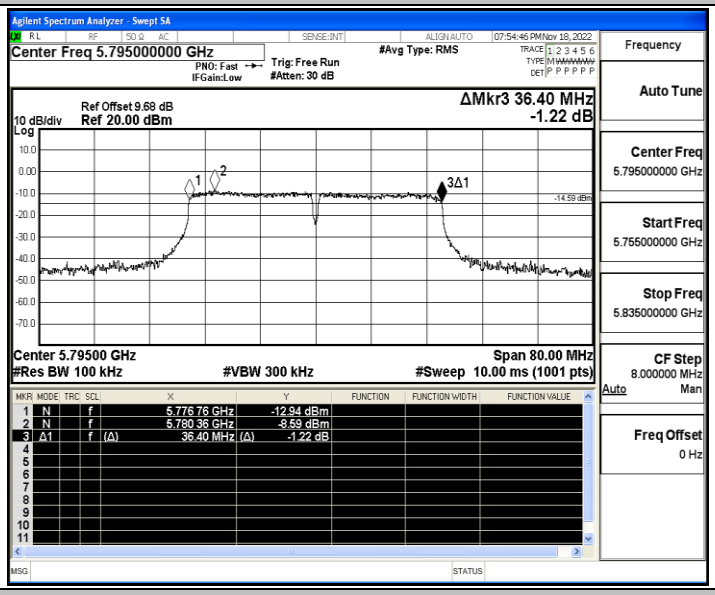
11N20SISO_Ant1_5825



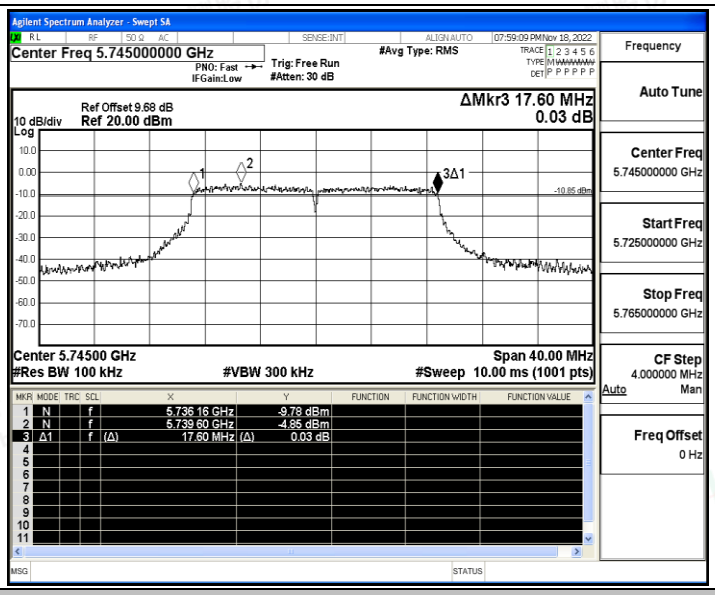
11N40SISO_Ant1_5755



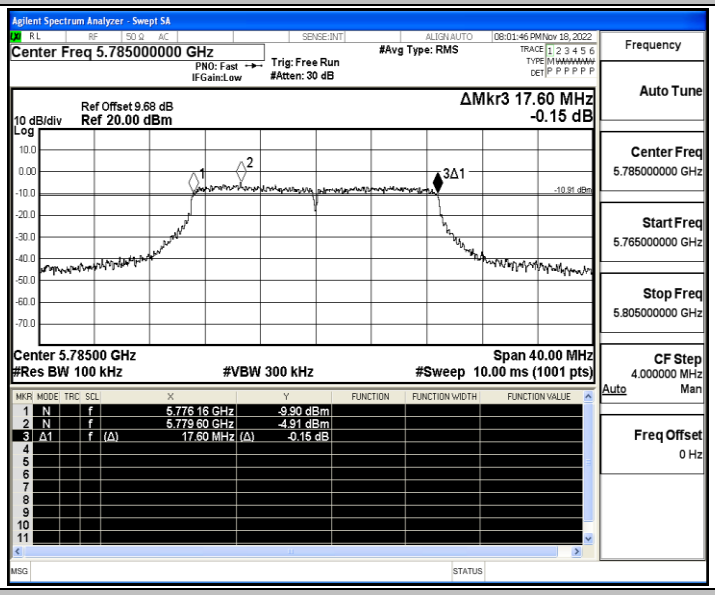
11N40SISO_Ant1_5795



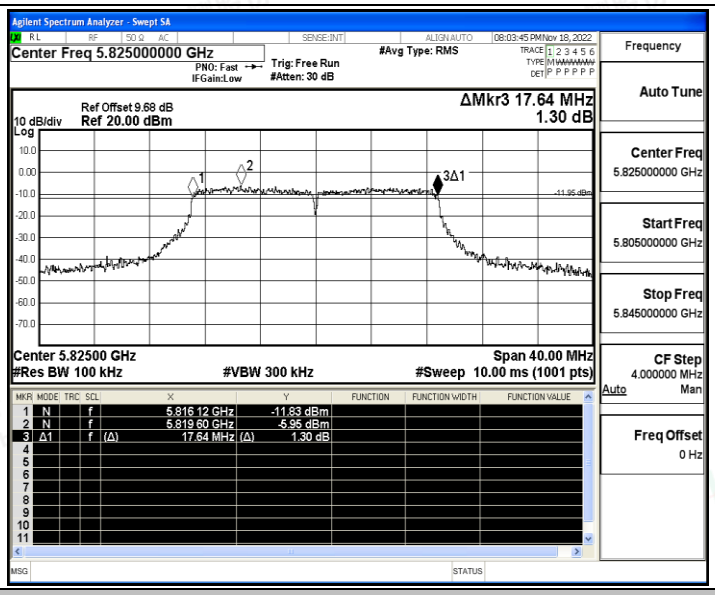
11AC20SISO_Ant1_5745



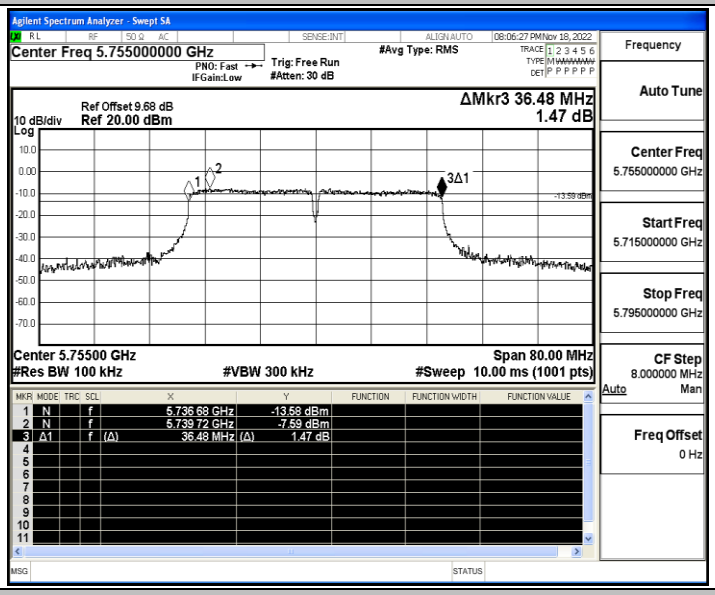
11AC20SISO_Ant1_5785



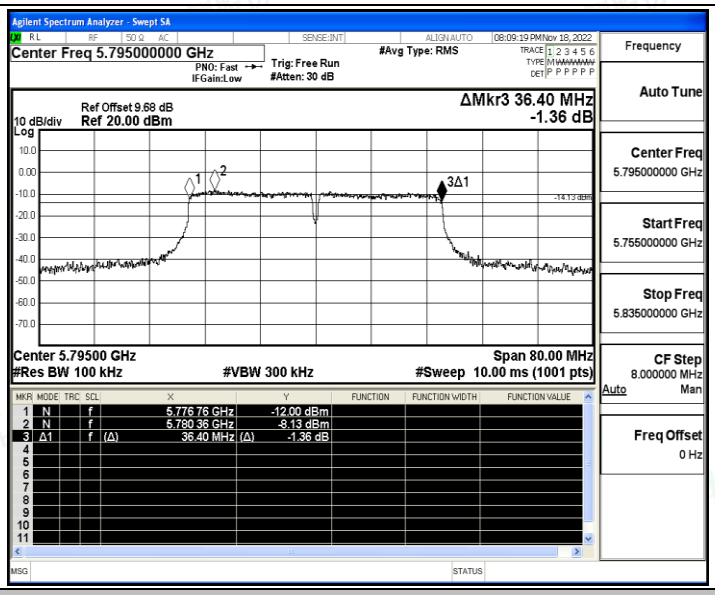
11AC20SISO_Ant1_5825



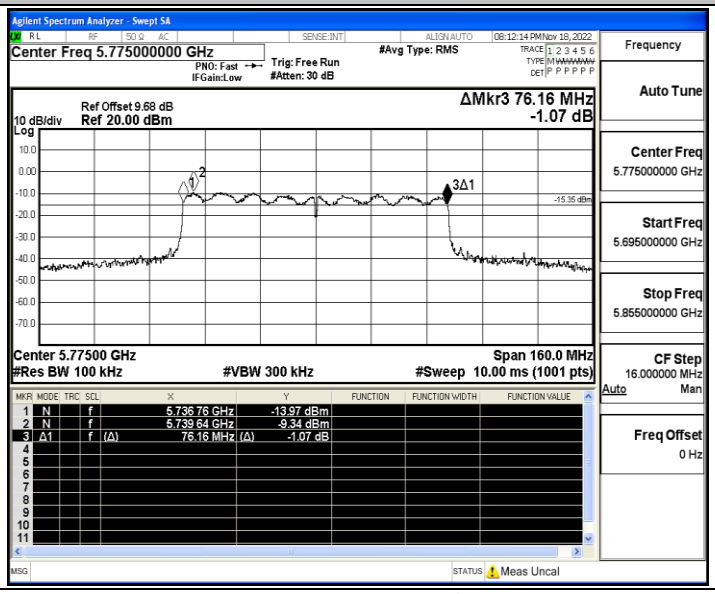
11AC40SISO_Ant1_5755



11AC40SISO_Ant1_5795



11AC80SISO_Ant1_5775



E.2 Maximum conducted output power

Test Result

Test Mode	Antenna	Frequency[MHz]	Result [dBm]	Limit [dBm]	Verdict
11A	Ant1	5745	9.65	≤30.00	PASS
		5785	9.89	≤30.00	PASS
		5825	9.47	≤30.00	PASS
11N20SISO	Ant1	5745	9.10	≤30.00	PASS
		5785	9.21	≤30.00	PASS
		5825	9.11	≤30.00	PASS
11N40SISO	Ant1	5755	9.66	≤30.00	PASS
		5795	8.82	≤30.00	PASS
11AC20SISO	Ant1	5745	9.08	≤30.00	PASS
		5785	10.21	≤30.00	PASS
		5825	8.94	≤30.00	PASS
11AC40SISO	Ant1	5755	10.13	≤30.00	PASS
		5795	9.19	≤30.00	PASS
11AC80SISO	Ant1	5775	9.45	≤30.00	PASS

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

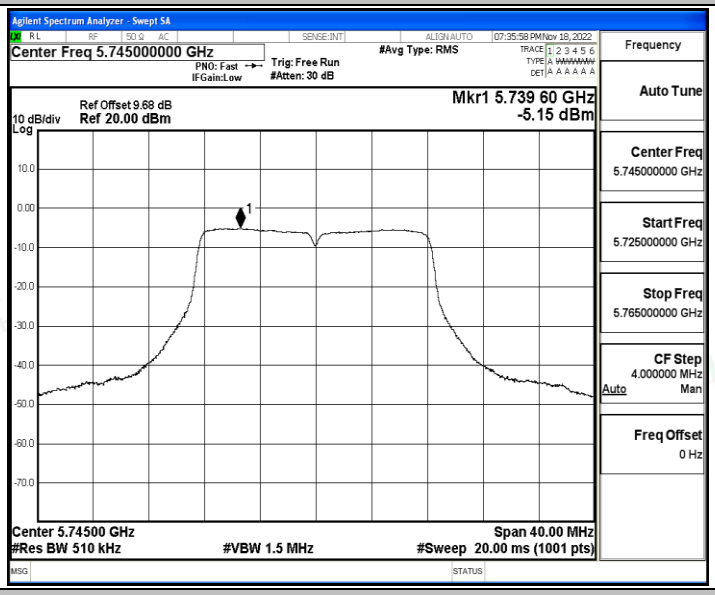
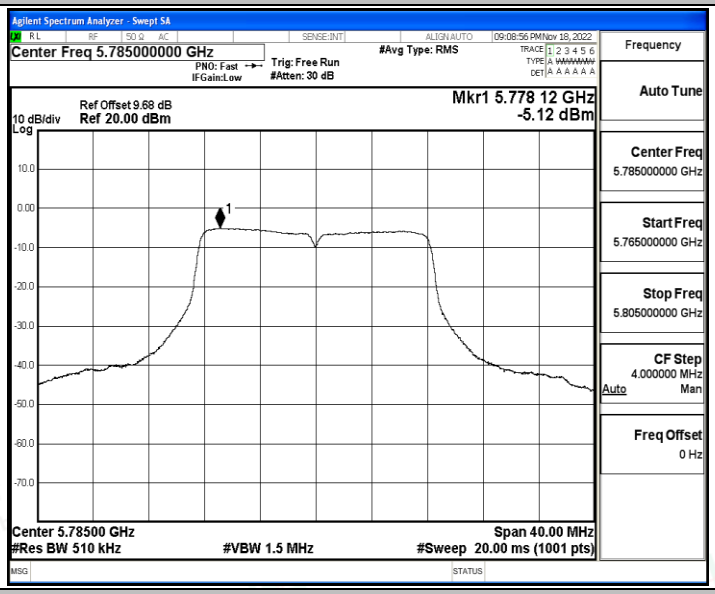
E.3 Maximum power spectral density

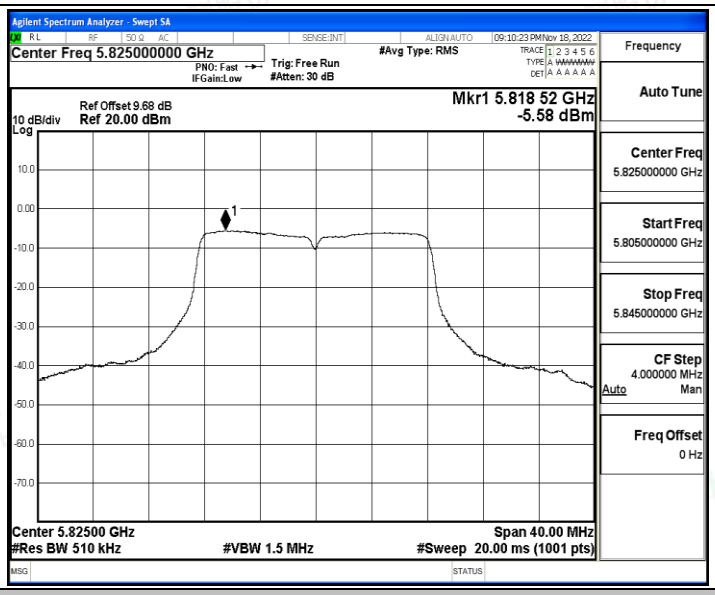
Test Result

TestMode	Antenna	Frequency[MHz]	Result [dBm/MHz]	Limit[dBm/MHz]	Verdict
11A	Ant1	5745	-5.15	≤30.00	PASS
		5785	-5.12	≤30.00	PASS
		5825	-5.58	≤30.00	PASS
11N20SISO	Ant1	5745	-5.88	≤30.00	PASS
		5785	-5.77	≤30.00	PASS
		5825	-6.21	≤30.00	PASS
11N40SISO	Ant1	5755	-8.2	≤30.00	PASS
		5795	-8.97	≤30.00	PASS
11AC20SISO	Ant1	5745	-5.88	≤30.00	PASS
		5785	-4.83	≤30.00	PASS
		5825	-6.4	≤30.00	PASS
11AC40SISO	Ant1	5755	-7.72	≤30.00	PASS
		5795	-8.66	≤30.00	PASS
11AC80SISO	Ant1	5775	-9.79	≤30.00	PASS

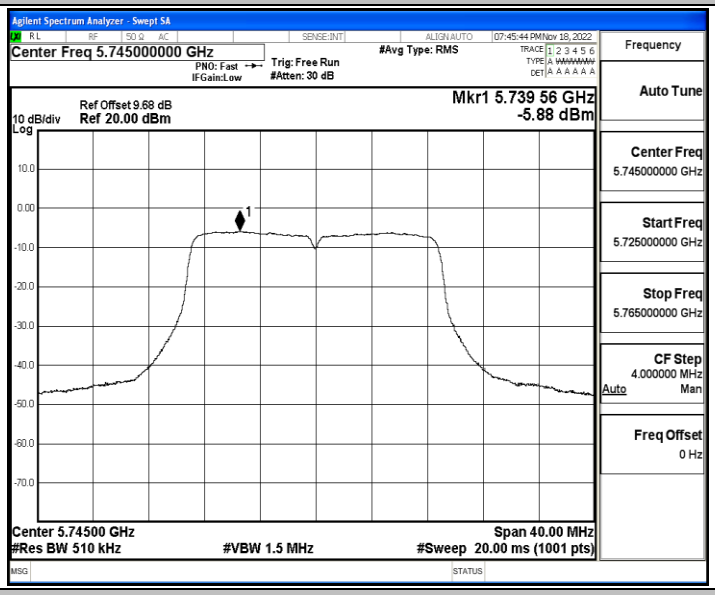
Note：1.The Result and Limit Unit is dBm/500 kHz in the band 5.725–5.85 GHz.
2.The Duty Cycle Factor and RBW Factor is compensated in the graph.

Test Graphs

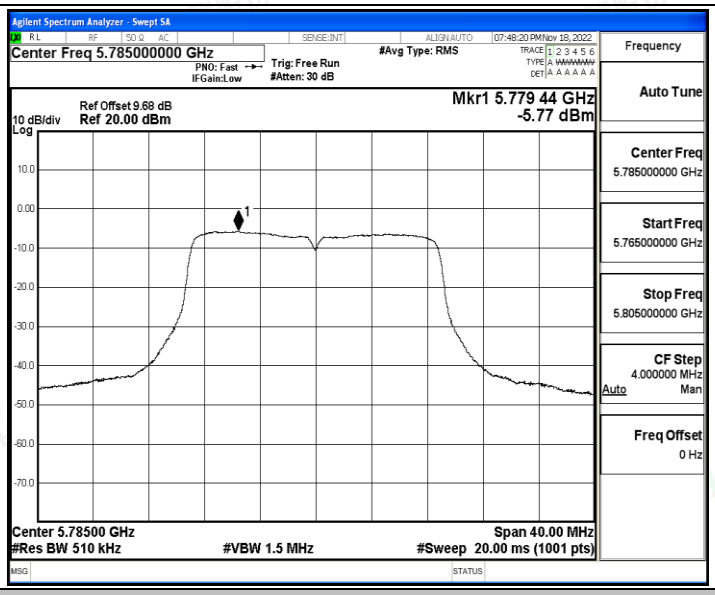
11A_Ant1_5745

11A_Ant1_5785

11A_Ant1_5825



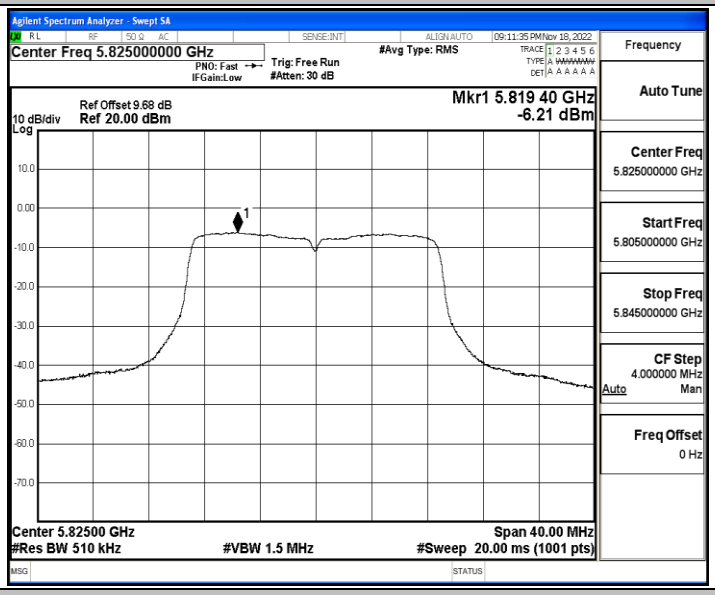
11N20SISO_Ant1_5745



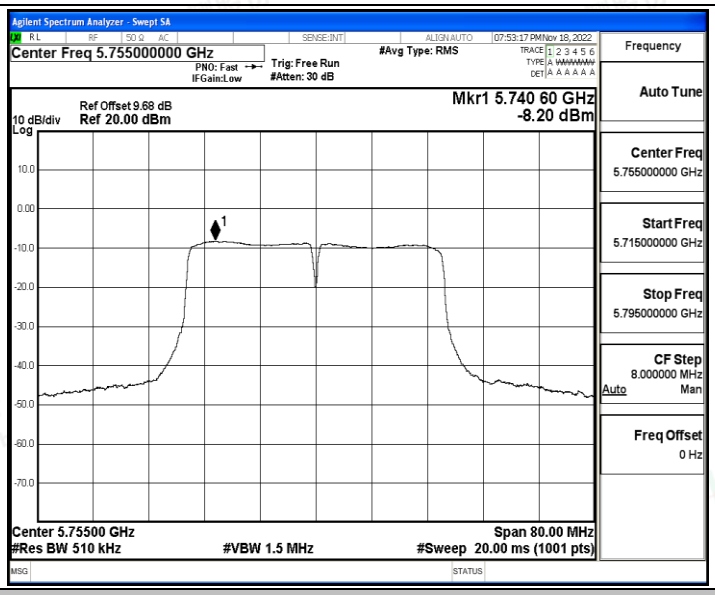
11N20SISO_Ant1_5785



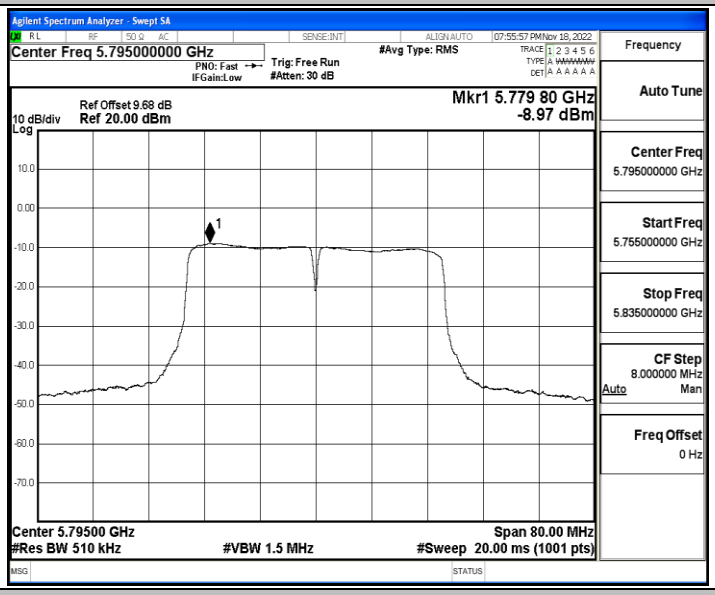
11N20SISO_Ant1_5825



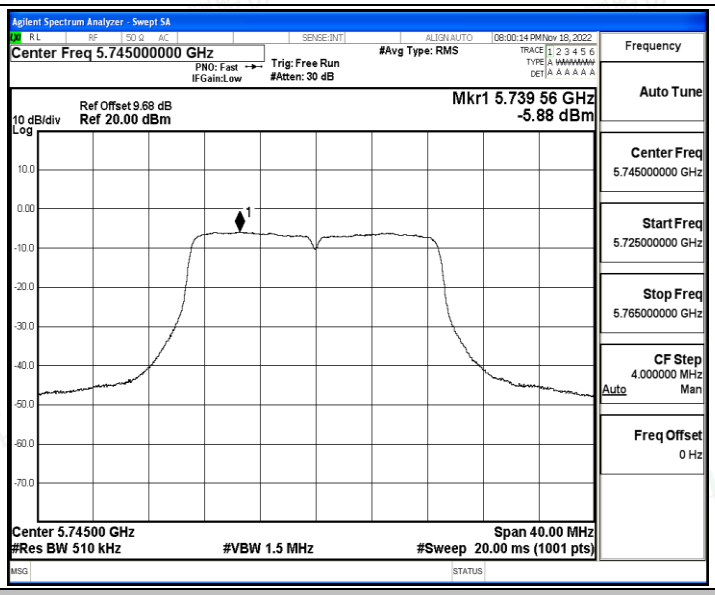
11N40SISO_Ant1_5755



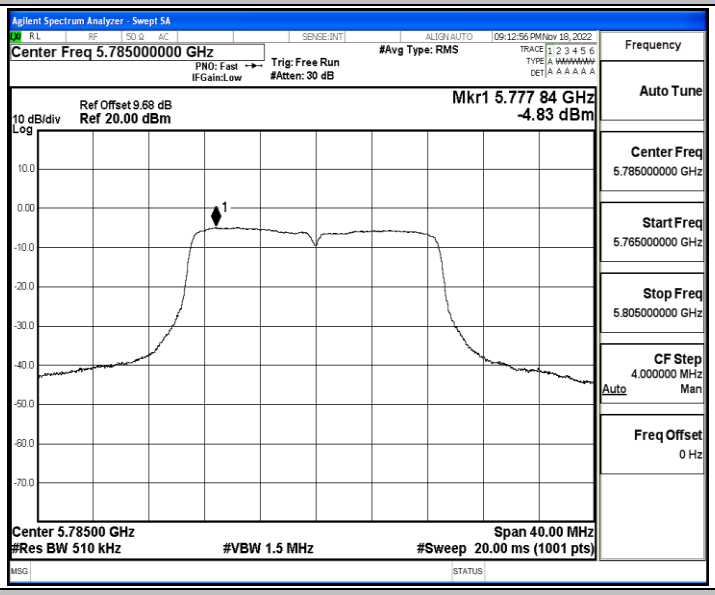
11N40SISO_Ant1_5795



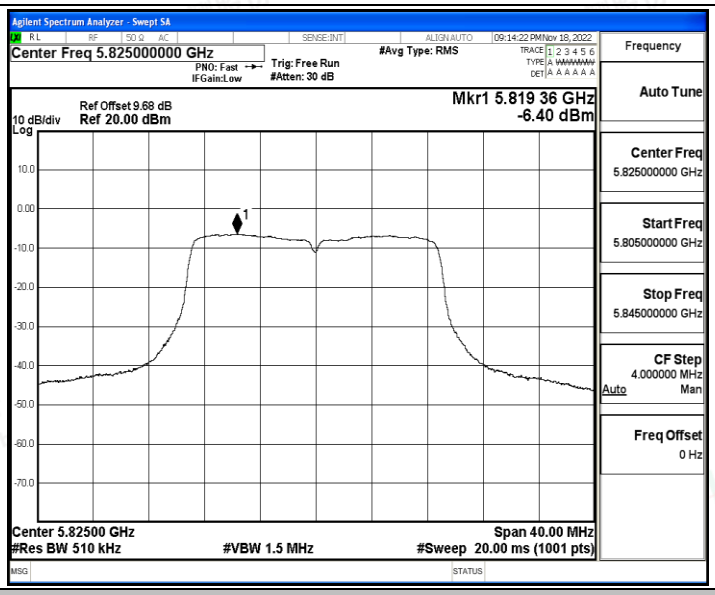
11AC20SISO_Ant1_5745



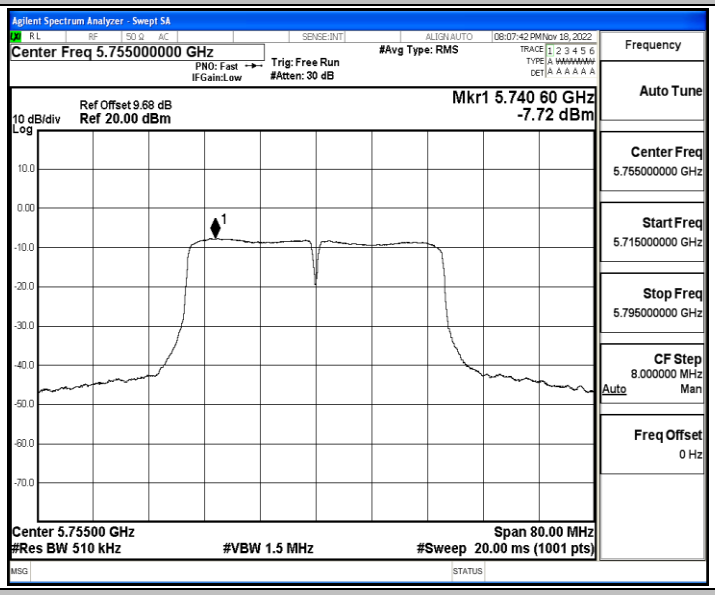
11AC20SISO_Ant1_5785



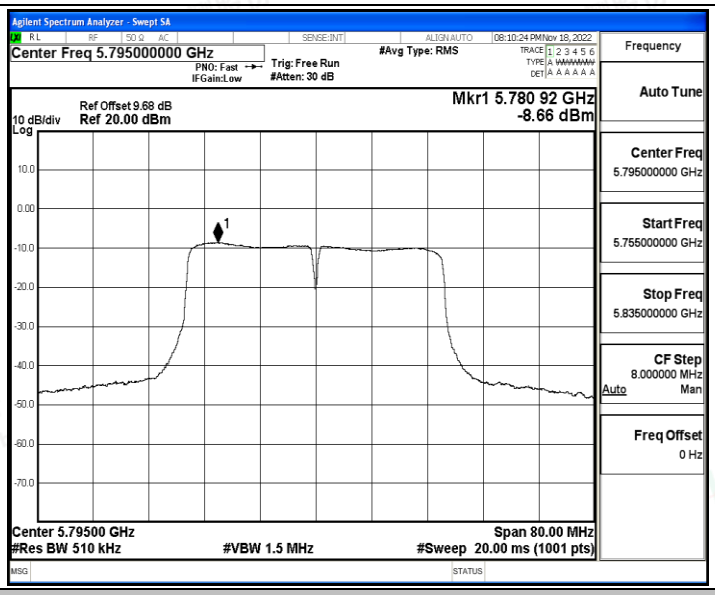
11AC20SISO_Ant1_5825



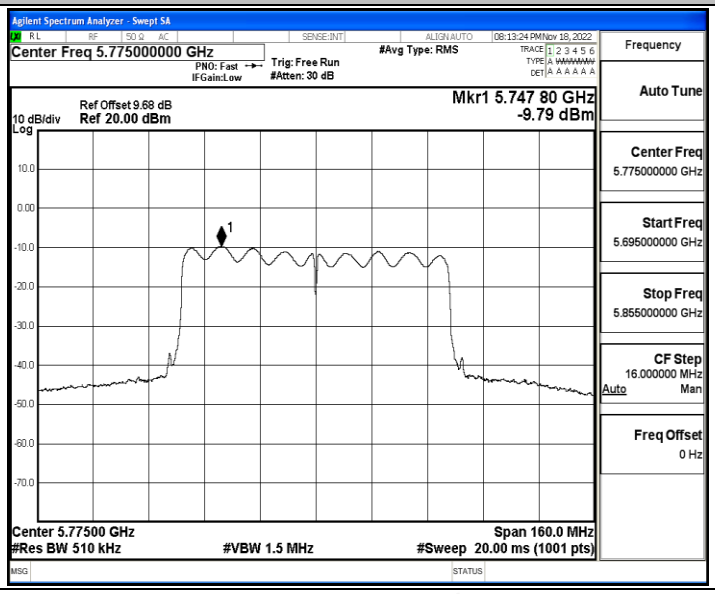
11AC40SISO_Ant1_5755



11AC40SISO_Ant1_5795



11AC80SISO_Ant1_5775



E.4 Emissions in Restricted Bands

Test Result

TestMode	Antenna	ChName	Frequency[MHz]	Detector	Freq [MHz]	Result [dBm]	Limit [dBm]	Result [dBuV/m]	Limit [dBuV/m]	Verdict
11A	Ant1	Low	5745	Peak	5650.000	-42.726	≤-27.00	---	---	PASS
				Peak	5700.000	-40.56	≤10.00	---	---	PASS
				Peak	5720.000	-40.91	≤15.60	---	---	PASS
				Peak	5725.000	-44.25	≤27.00	- --	- --	PASS
		High	5825	Peak	5850.000	-43.251	≤15.60	---	---	PASS
				Peak	5855.000	-43.31	≤27.00	---	---	PASS
				Peak	5875.000	-44.27	≤15.60	---	---	PASS
				Peak	5925.000	-43.59	≤10.00	- --	- --	PASS
11N20SISO	Ant1	Low	5745	Peak	5650.000	-41.656	≤-27.00	---	---	PASS
				Peak	5700.000	-41.47	≤10.00	---	---	PASS
				Peak	5720.000	-37.48	≤15.60	---	---	PASS
				Peak	5725.000	-40.28	≤27.00	- --	- --	PASS
		High	5825	Peak	5850.000	-42.516	≤15.60	---	---	PASS
				Peak	5855.000	-42.88	≤27.00	---	---	PASS
				Peak	5875.000	-43.59	≤15.60	---	---	PASS
				Peak	5925.000	-44.89	≤10.00	- --	- --	PASS
11N40SISO	Ant1	Low	5755	Peak	5650.000	-46.01	≤-27.00	---	---	PASS

				Peak	5700.000	-39.18	≤10.00	---	---	PASS
				Peak	5720.000	-36.83	≤15.60	---	---	PASS
				Peak	5725.000	-40.84	≤27.00	- --	- --	PASS
		High	5795	Peak	5850.000	-41.046	≤15.60	---	---	PASS
				Peak	5855.000	-40.55	≤27.00	---	---	PASS
				Peak	5875.000	-43.83	≤15.60	---	---	PASS
				Peak	5925.000	-45.25	≤10.00	- --	- --	PASS
11AC20SISO	Ant1	Low	5745	Peak	5650.000	-45.474	≤-27.00	---	---	PASS
				Peak	5700.000	-44.2	≤10.00	---	---	PASS
				Peak	5720.000	-40.86	≤15.60	---	---	PASS
				Peak	5725.000	-38.7	≤27.00	- --	- --	PASS
		High	5825	Peak	5850.000	-45.721	≤15.60	---	---	PASS
				Peak	5855.000	-40.64	≤27.00	---	---	PASS
				Peak	5875.000	-44.24	≤15.60	---	---	PASS
				Peak	5925.000	-42.79	≤10.00	- --	- --	PASS
11AC40SISO	Ant1	Low	5755	Peak	5650.000	-40.931	≤-27.00	---	---	PASS
				Peak	5700.000	-41.39	≤10.00	---	---	PASS
				Peak	5720.000	-40.61	≤15.60	---	---	PASS
				Peak	5725.000	-37.55	≤27.00	- --	- --	PASS
		High	5795	Peak	5850.000	-43.685	≤15.60	---	---	PASS

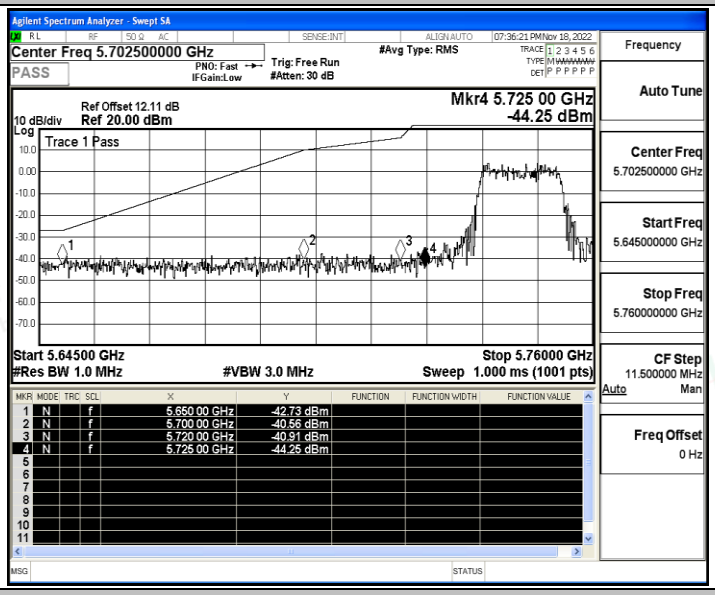
				Peak	5855.000	-44.61	≤27.00	---	---	PASS
				Peak	5875.000	-43.5	≤15.60	---	---	PASS
				Peak	5925.000	-42.67	≤10.00	- --	- --	PASS
11AC80SISO	Ant1	Low	5775	Peak	5650.000	-42.755	≤-27.00	---	---	PASS
				Peak	5700.000	-40.63	≤10.00	---	---	PASS
				Peak	5720.000	-41.27	≤15.60	---	---	PASS
				Peak	5725.000	-37.92	≤27.00	- --	- --	PASS
		High	5775	Peak	5850.000	-41.767	≤15.60	---	---	PASS
				Peak	5855.000	-41.79	≤27.00	---	---	PASS
				Peak	5875.000	-42.92	≤15.60	---	---	PASS
				Peak	5925.000	-41.57	≤10.00	- --	- --	PASS

Note：

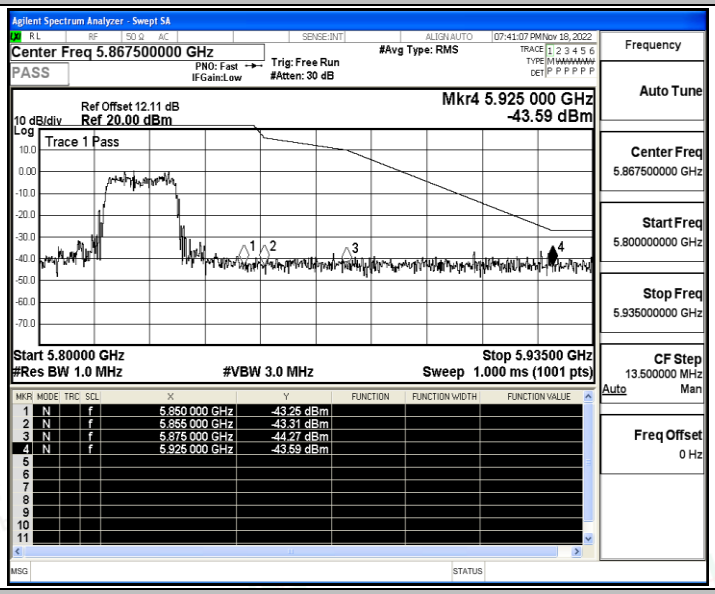
1. The Antenna Gain is compensated in the graph.
2. For transmitters operating in 5150-5350 GHz band and 5470-5725 GHz band: The limit in dBm for average detector is conversion from 54dBuV/m, according to 15.209(a). The limit in dBm for peak detector is 20dB above the limit of average detector in dBm.

Test Graphs

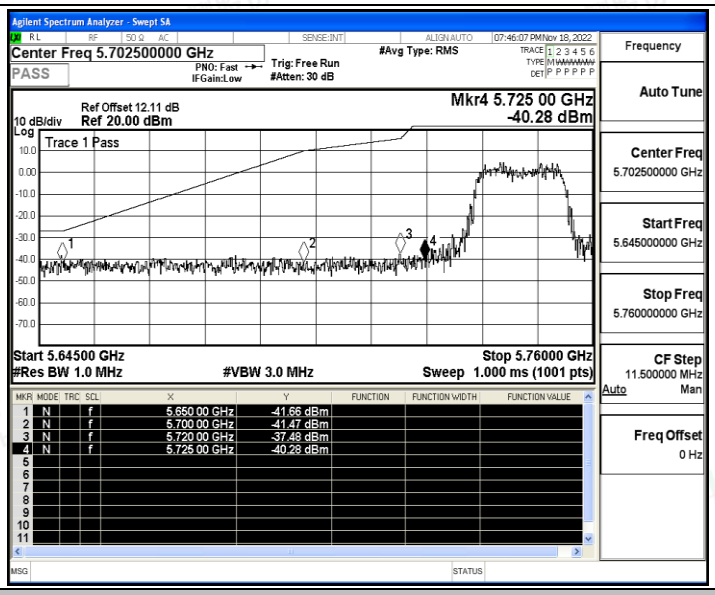
11A_Ant1_Low_5745_Peak



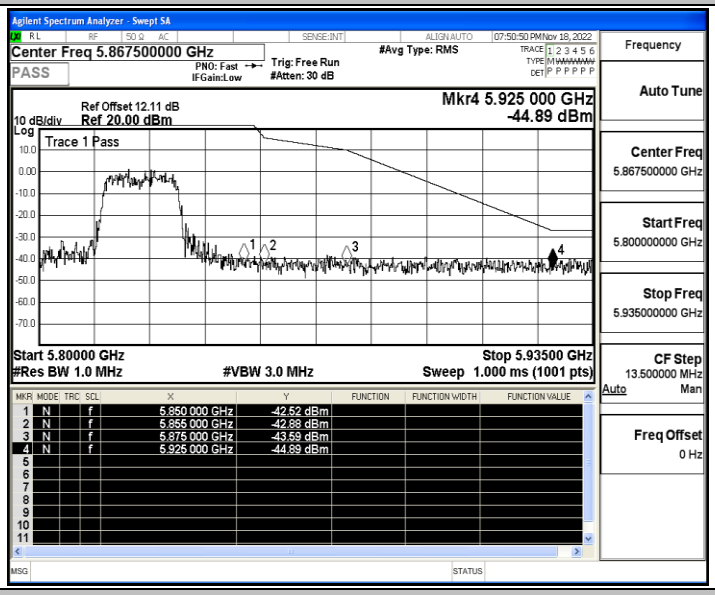
11A_Ant1_High_5825_Peak



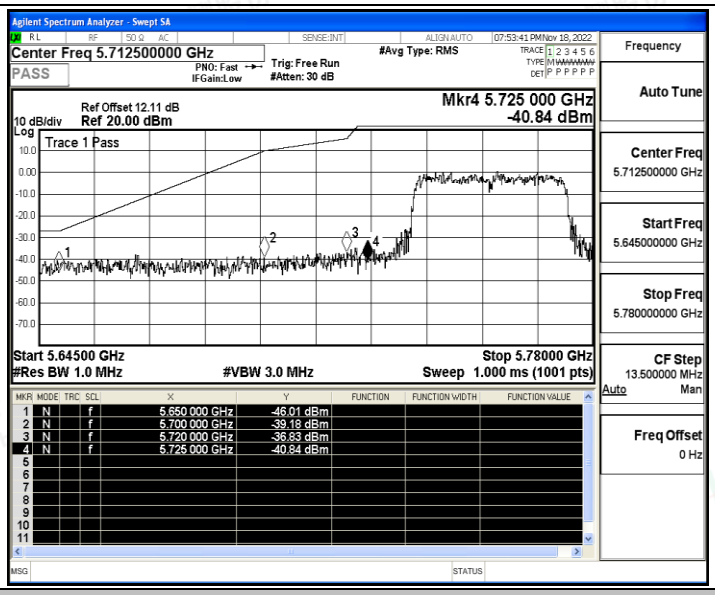
11N20SISO_Ant1_Low_5745_Peak



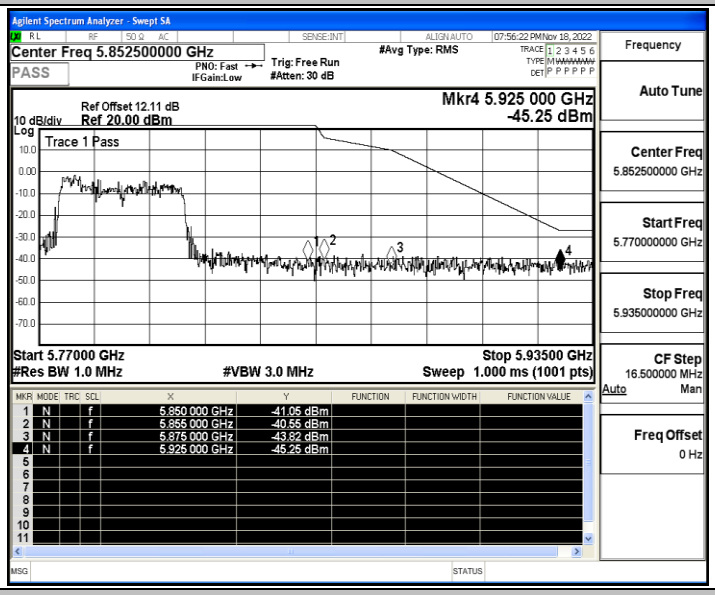
11N20SISO_Ant1_High_5825_Peak



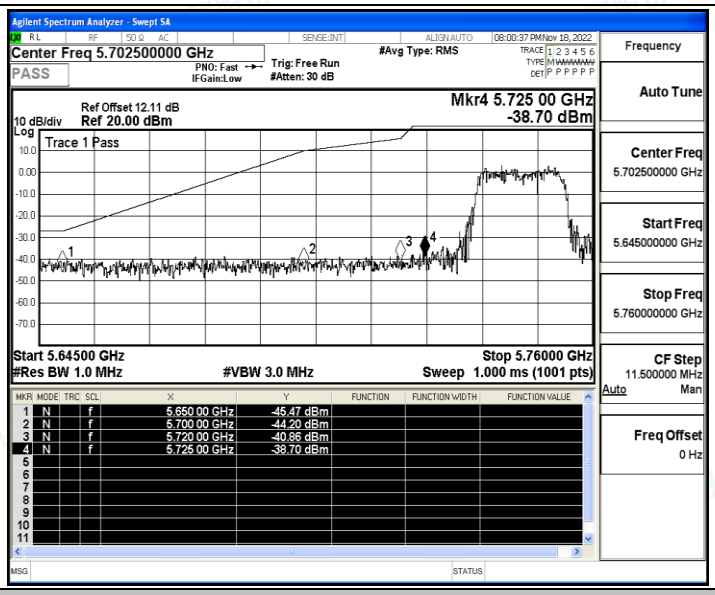
11N40SISO_Ant1_Low_5755_Peak



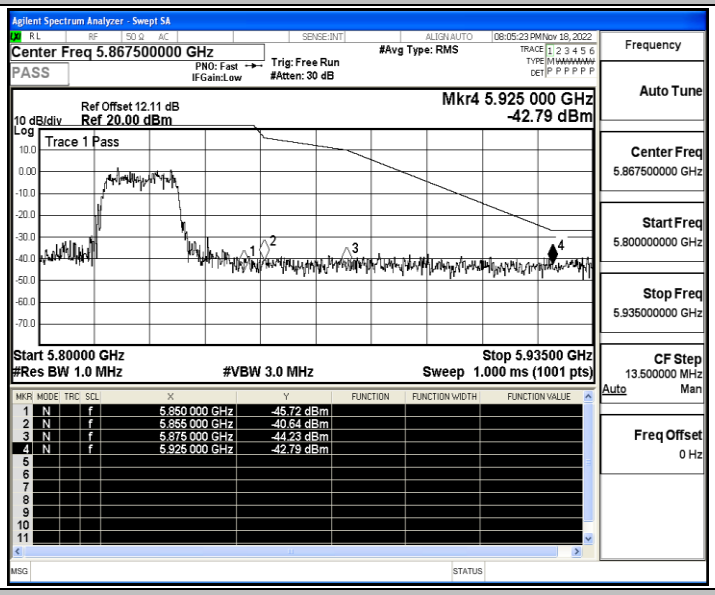
11N40SISO_Ant1_High_5795_Peak



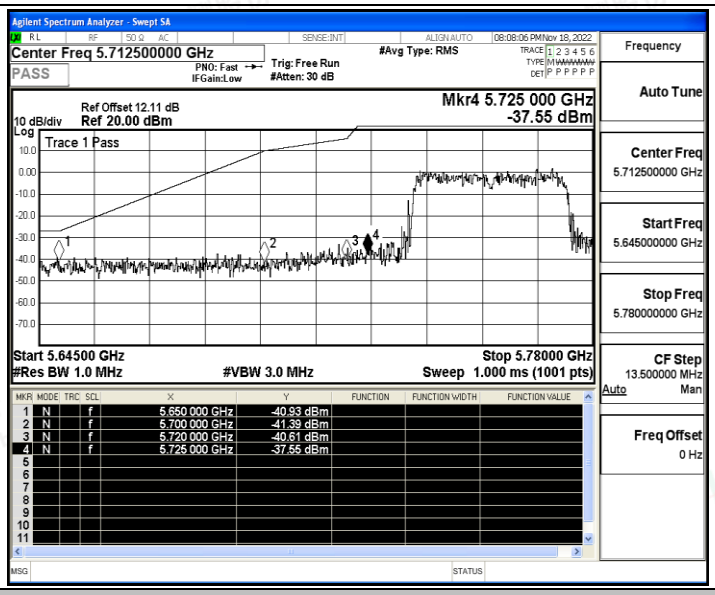
11AC20SISO_Ant1_Low_5745_Peak



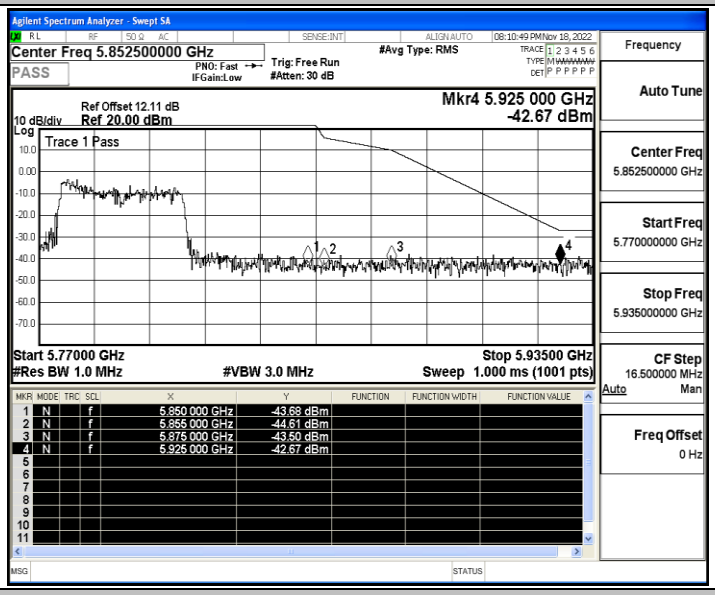
11AC20SISO_Ant1_High_5825_Peak



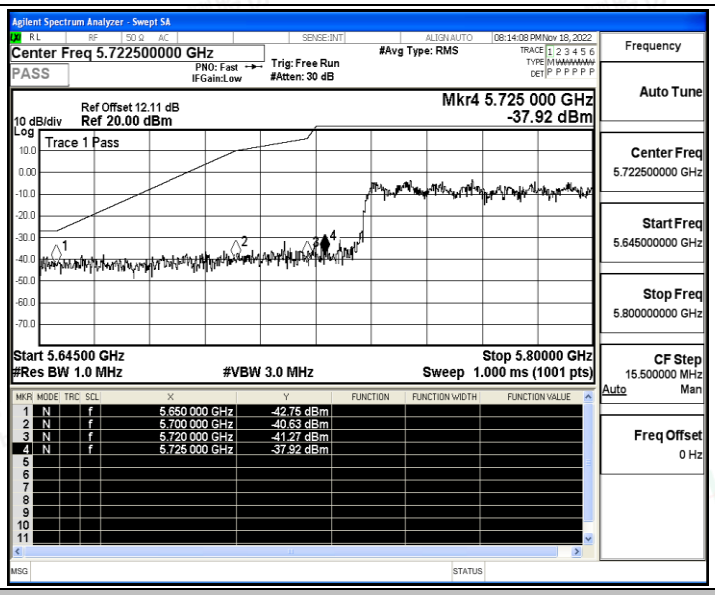
11AC40SISO_Ant1_Low_5755_Peak



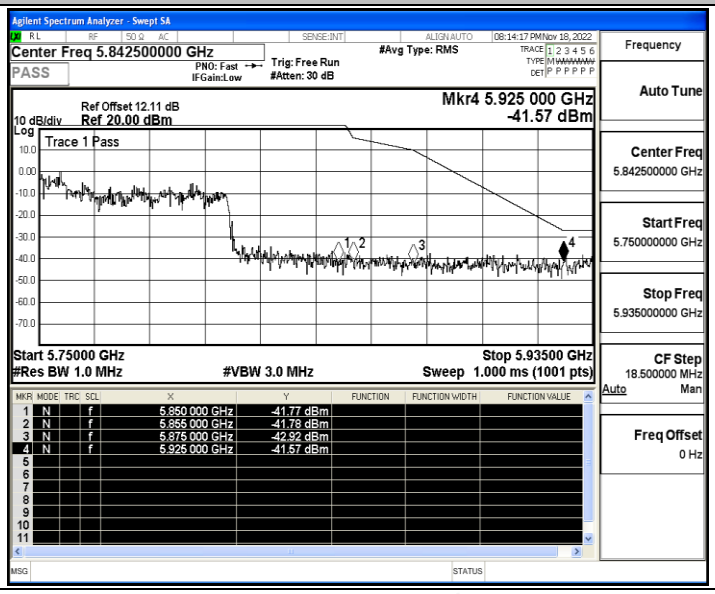
11AC40SISO_Ant1_High_5795_Peak



11AC80SISO_Ant1_Low_5775_Peak



11AC80SISO_Ant1_High_5775_Peak



E.5 Frequency Stability

Test Result

Voltage								
TestMode	Antenna	Frequency[MHz]	Voltage [Vdc]	Temperature (℃)	Deviation (Hz)	Deviation (ppm)	Limit (ppm)	Verdict
11AC20SISO	Ant1	5745	NV	NT	-31000.00	-5.395997	20	PASS
			LV	NT	-31000.00	-5.395997	20	PASS
			HV	NT	-31000.00	-5.395997	20	PASS
		5785	NV	NT	-26000.00	-4.494382	20	PASS
			LV	NT	-26000.00	-4.494382	20	PASS
			HV	NT	-26000.00	-4.494382	20	PASS
		5825	NV	NT	-26000.00	-4.463519	20	PASS
			LV	NT	-27000.00	-4.635193	20	PASS
			HV	NT	-27000.00	-4.635193	20	PASS
11AC40SISO	Ant1	5755	NV	NT	-25000.00	-4.344049	20	PASS
			LV	NT	-26000.00	-4.517811	20	PASS
			HV	NT	-26000.00	-4.517811	20	PASS
		5795	NV	NT	-26000.00	-4.486626	20	PASS
			LV	NT	-26000.00	-4.486626	20	PASS
			HV	NT	-27000.00	-4.659189	20	PASS
11AC80SISO	Ant1	5775	NV	NT	-24000.00	-4.155844	20	PASS
			LV	NT	-25000.00	-4.329004	20	PASS
			HV	NT	-25000.00	-4.329004	20	PASS

Temperature								
TestMode	Antenna	Frequency[MHz]	Voltage [Vdc]	Temperature (℃)	Deviation (Hz)	Deviation (ppm)	Limit (ppm)	Verdict
11AC20SISO	Ant1	5745	NV	-30	-31000.00	-5.395997	20	PASS
			NV	-20	-31000.00	-5.395997	20	PASS
			NV	-10	-30000.00	-5.221932	20	PASS
			NV	0	-30000.00	-5.221932	20	PASS
			NV	10	-30000.00	-5.221932	20	PASS
			NV	20	-30000.00	-5.221932	20	PASS
			NV	30	-30000.00	-5.221932	20	PASS
			NV	40	-30000.00	-5.221932	20	PASS
			NV	50	-29000.00	-5.047868	20	PASS
		5785	NV	-30	-27000.00	-4.667243	20	PASS
			NV	-20	-27000.00	-4.667243	20	PASS

			NV	-10	-27000.00	-4.667243	20	PASS
			NV	0	-27000.00	-4.667243	20	PASS
			NV	10	-27000.00	-4.667243	20	PASS
			NV	20	-27000.00	-4.667243	20	PASS
			NV	30	-27000.00	-4.667243	20	PASS
			NV	40	-27000.00	-4.667243	20	PASS
			NV	50	-27000.00	-4.667243	20	PASS
		5825	NV	-30	-27000.00	-4.635193	20	PASS
			NV	-20	-27000.00	-4.635193	20	PASS
			NV	-10	-27000.00	-4.635193	20	PASS
			NV	0	-27000.00	-4.635193	20	PASS
			NV	10	-28000.00	-4.806867	20	PASS
			NV	20	-28000.00	-4.806867	20	PASS
			NV	30	-28000.00	-4.806867	20	PASS
			NV	40	-27000.00	-4.635193	20	PASS
			NV	50	-27000.00	-4.635193	20	PASS
11AC40S ISO	Ant1	5755	NV	-30	-26000.00	-4.517811	20	PASS
			NV	-20	-26000.00	-4.517811	20	PASS
			NV	-10	-27000.00	-4.691573	20	PASS
			NV	0	-27000.00	-4.691573	20	PASS
			NV	10	-27000.00	-4.691573	20	PASS
			NV	20	-27000.00	-4.691573	20	PASS
			NV	30	-27000.00	-4.691573	20	PASS
			NV	40	-27000.00	-4.691573	20	PASS
			NV	50	-27000.00	-4.691573	20	PASS
		5795	NV	-30	-27000.00	-4.659189	20	PASS
			NV	-20	-27000.00	-4.659189	20	PASS
			NV	-10	-27000.00	-4.659189	20	PASS
			NV	0	-27000.00	-4.659189	20	PASS
			NV	10	-27000.00	-4.659189	20	PASS
			NV	20	-27000.00	-4.659189	20	PASS
			NV	30	-27000.00	-4.659189	20	PASS
			NV	40	-27000.00	-4.659189	20	PASS
			NV	50	-27000.00	-4.659189	20	PASS
11AC80S ISO	Ant1	5775	NV	-30	-26000.00	-4.502165	20	PASS
			NV	-20	-26000.00	-4.502165	20	PASS
			NV	-10	-26000.00	-4.502165	20	PASS
			NV	0	-26000.00	-4.502165	20	PASS
			NV	10	-26000.00	-4.502165	20	PASS
			NV	20	-27000.00	-4.675325	20	PASS

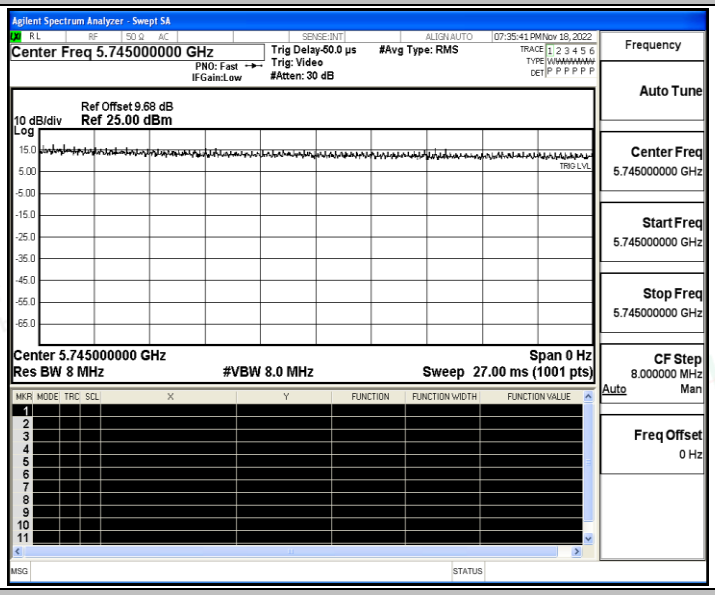
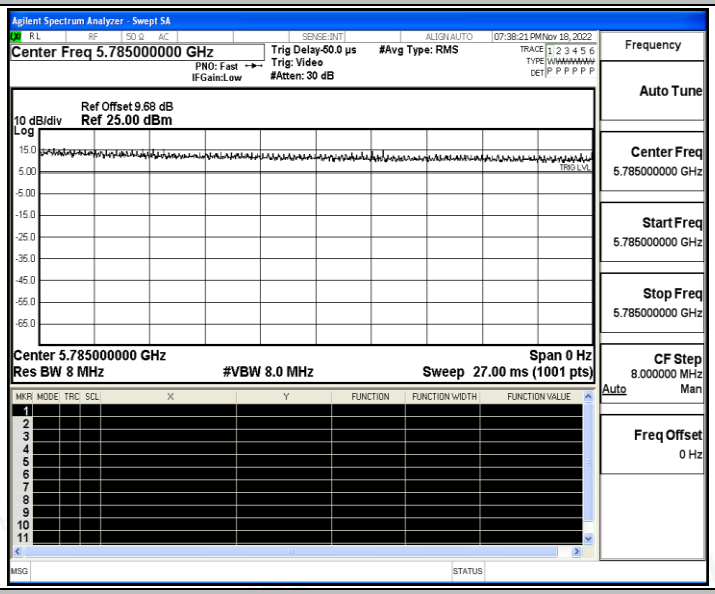
			NV	30	-26000.00	-4.502165	20	PASS
			NV	40	-26000.00	-4.502165	20	PASS
			NV	50	-26000.00	-4.502165	20	PASS

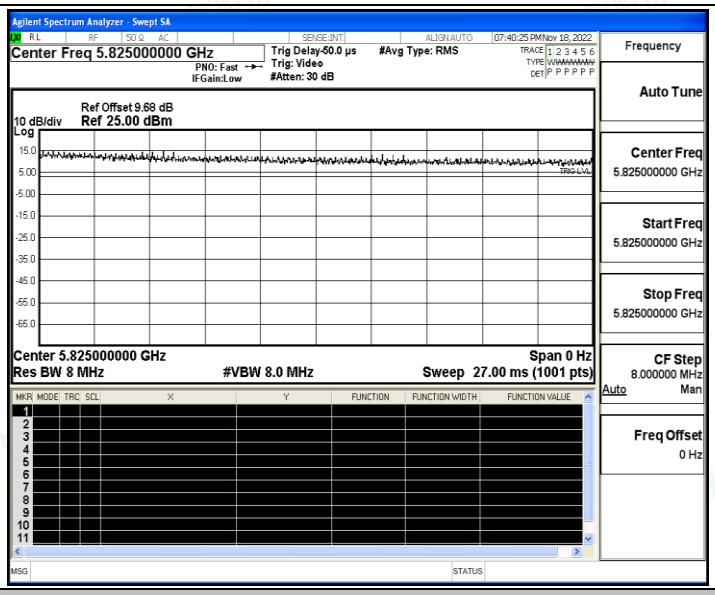
E.6 Duty Cycle

Test Result

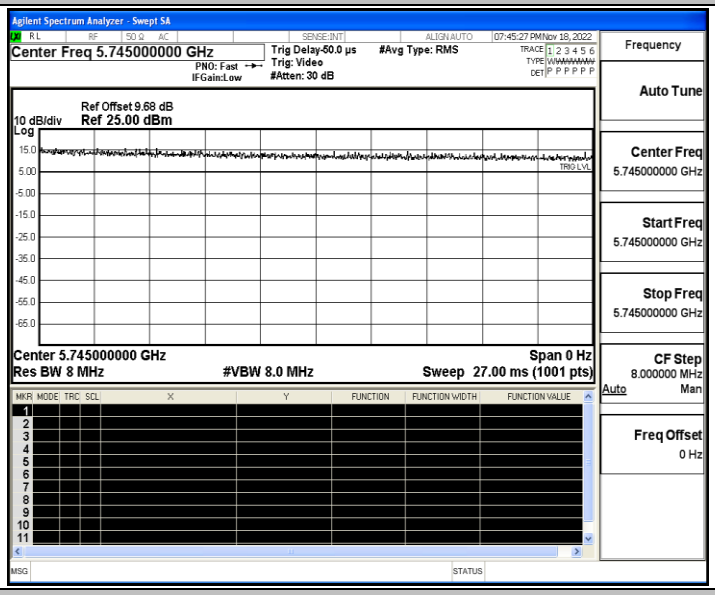
TestMode	Antenna	Frequency[MHz]	Transmission Duration [ms]	Transmission Period [ms]	Duty Cycle [%]	1/T(kHz)
11A	Ant1	5745	27.00	27.00	100.00	0.01
		5785	27.00	27.00	100.00	0.01
		5825	27.00	27.00	100.00	0.01
11N20SISO	Ant1	5745	27.00	27.00	100.00	0.01
		5785	27.00	27.00	100.00	0.01
		5825	27.00	27.00	100.00	0.01
11N40SISO	Ant1	5755	27.00	27.00	100.00	0.01
		5795	27.00	27.00	100.00	0.01
11AC20SISO	Ant1	5745	27.00	27.00	100.00	0.01
		5785	27.00	27.00	100.00	0.01
		5825	27.00	27.00	100.00	0.01
11AC40SISO	Ant1	5755	27.00	27.00	100.00	0.01
		5795	27.00	27.00	100.00	0.01
11AC80SISO	Ant1	5775	27.00	27.00	100.00	0.01

Test Graphs

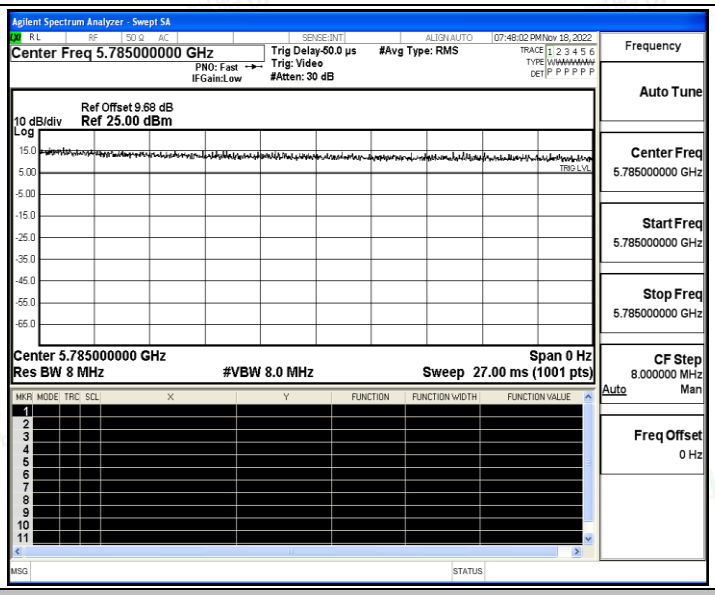
11A_Ant1_5745

11A_Ant1_5785

11A_Ant1_5825



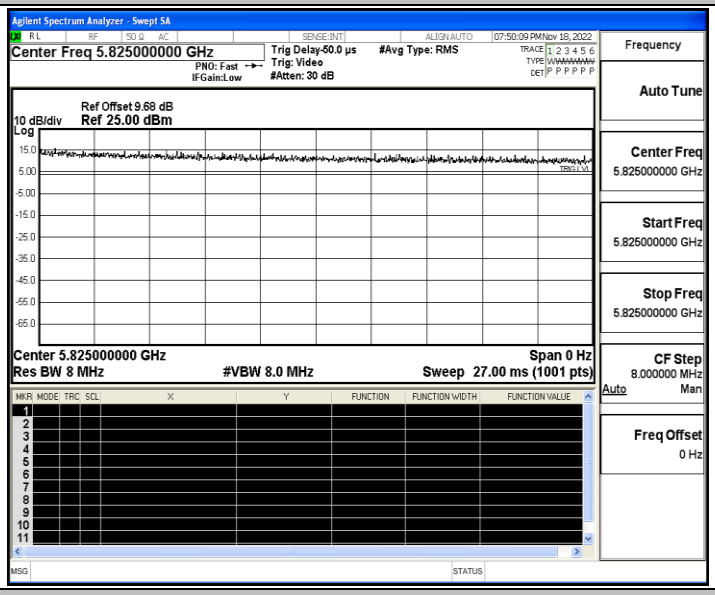
11N20SISO_Ant1_5745



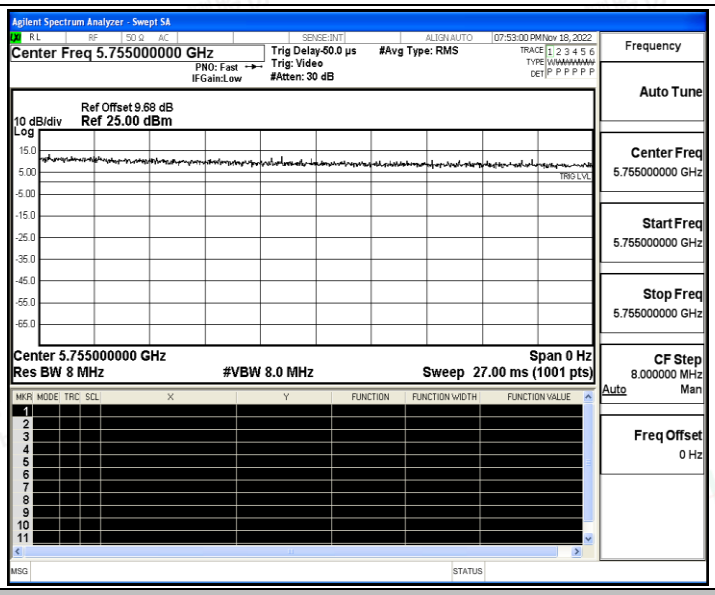
11N20SISO_Ant1_5785



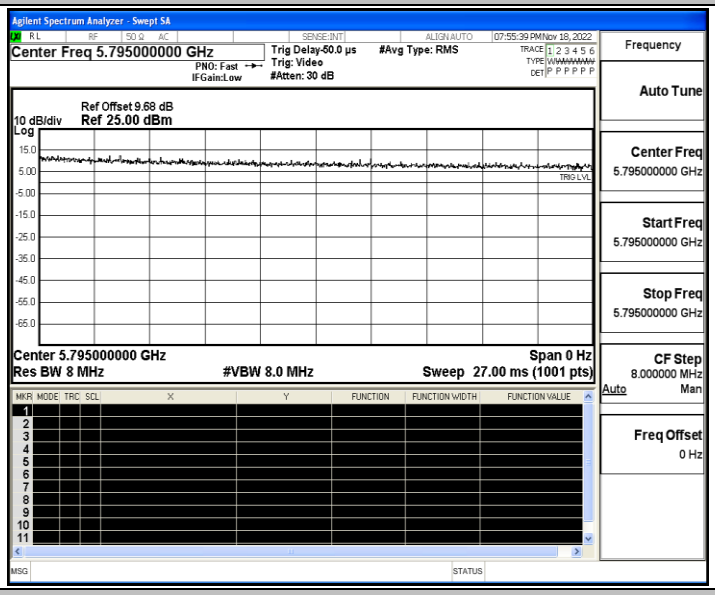
11N20SISO_Ant1_5825



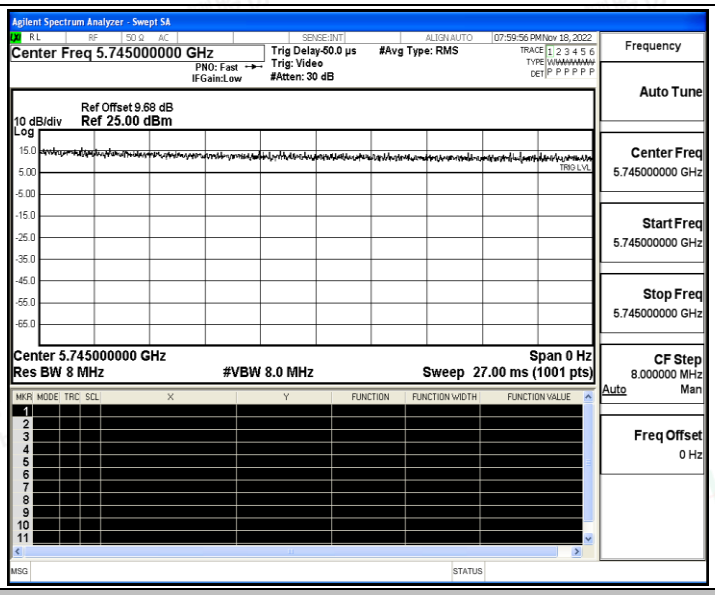
11N40SISO_Ant1_5755



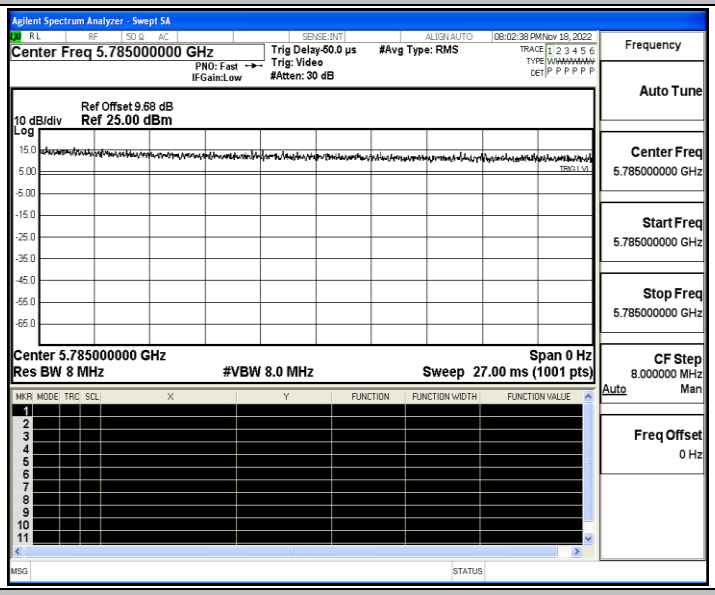
11N40SISO_Ant1_5795



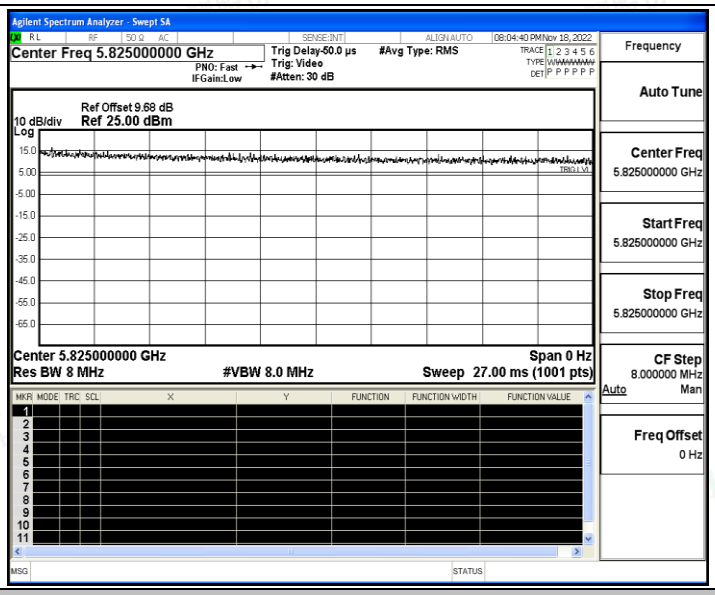
11AC20SISO_Ant1_5745



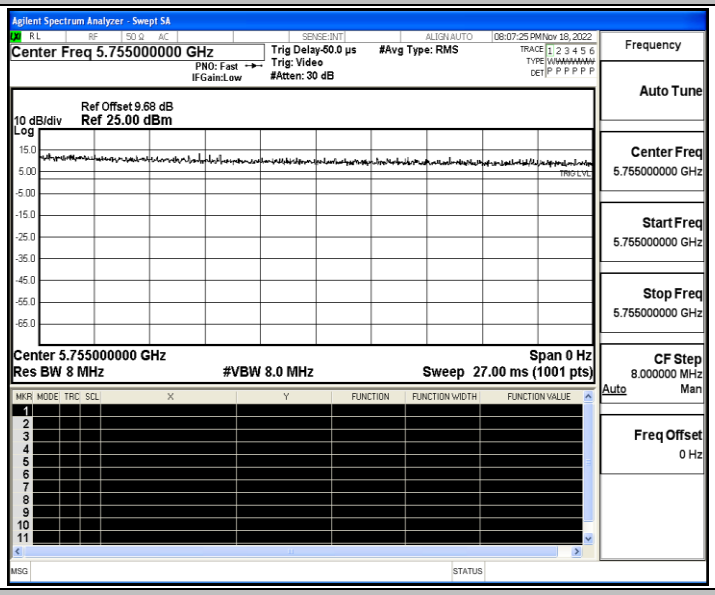
11AC20SISO_Ant1_5785



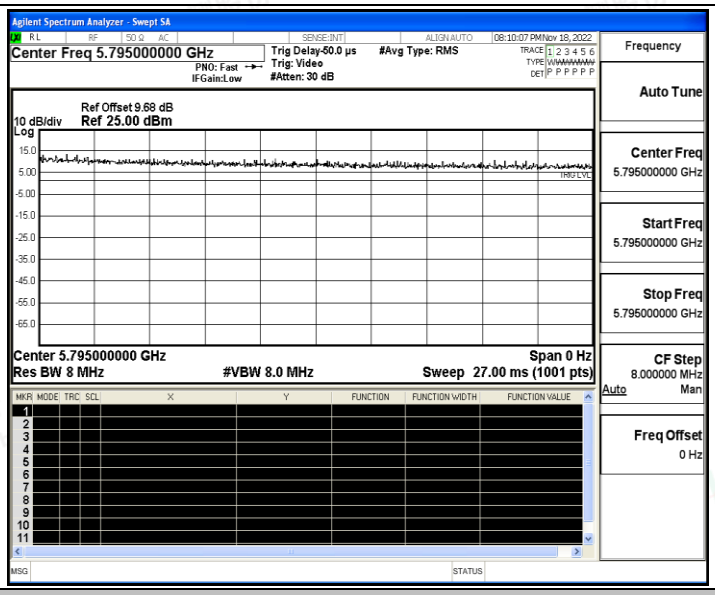
11AC20SISO_Ant1_5825



11AC40SISO_Ant1_5755



11AC40SISO_Ant1_5795



11AC80SISO_Ant1_5775