

Appendix C

RF Test Data for 5.8GWIFI (Conducted Measurement)

Product Name: SkyPortal WiFi Module

Test Model: 93973

Environmental Conditions

Temperature:	23.4°C
Relative Humidity:	54.6%
ATM Pressure:	100.0 kPa
Test Engineer:	Suichao Lai
Supervised by:	Yan Chen

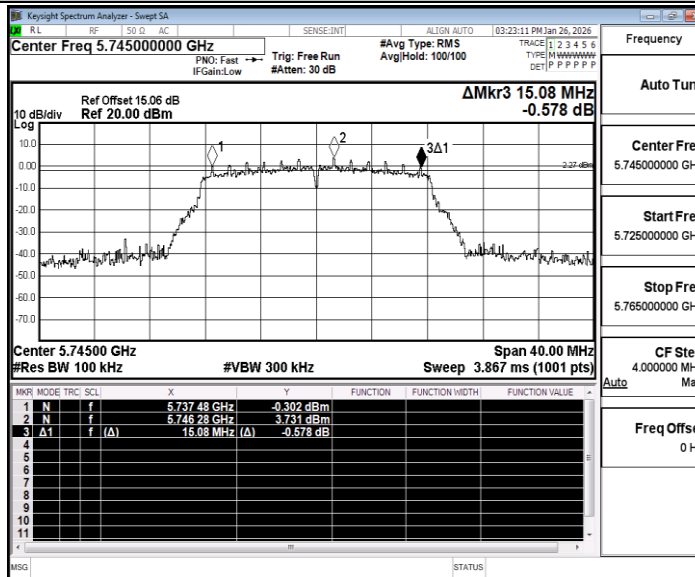
C.1 Min emission bandwidth

Test Result B4

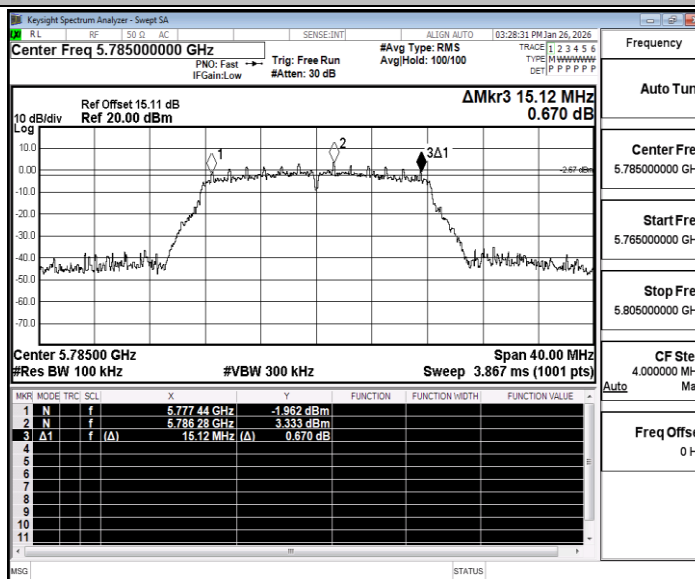
TestMode	Antenna	Freq(MHz)	6db EBW [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
11A	Ant1	5745	15.080	5737.480	5752.560	0.5	PASS
		5785	15.120	5777.440	5792.560	0.5	PASS
		5825	15.120	5817.440	5832.560	0.5	PASS
11N20SISO	Ant1	5745	15.120	5737.440	5752.560	0.5	PASS
		5785	15.080	5777.480	5792.560	0.5	PASS
		5825	15.120	5817.440	5832.560	0.5	PASS
11N40SISO	Ant1	5755	35.040	5737.480	5772.520	0.5	PASS
		5795	35.040	5777.480	5812.520	0.5	PASS

Test Graphs B4

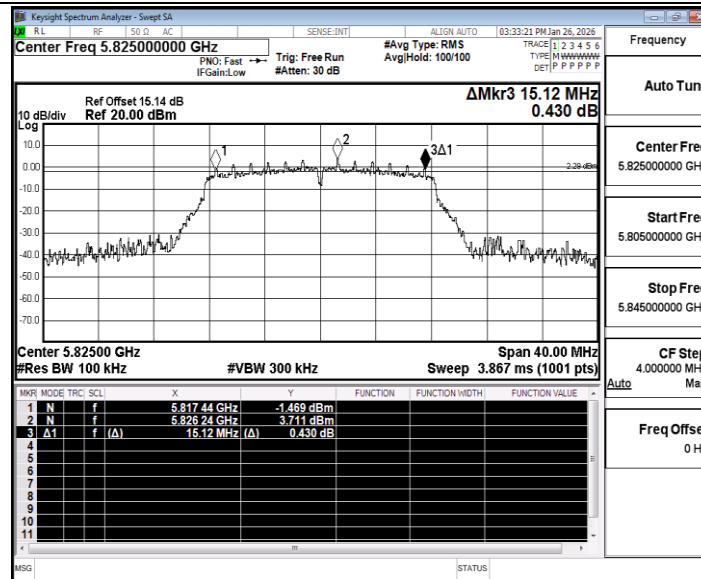
11A_Ant1_5745



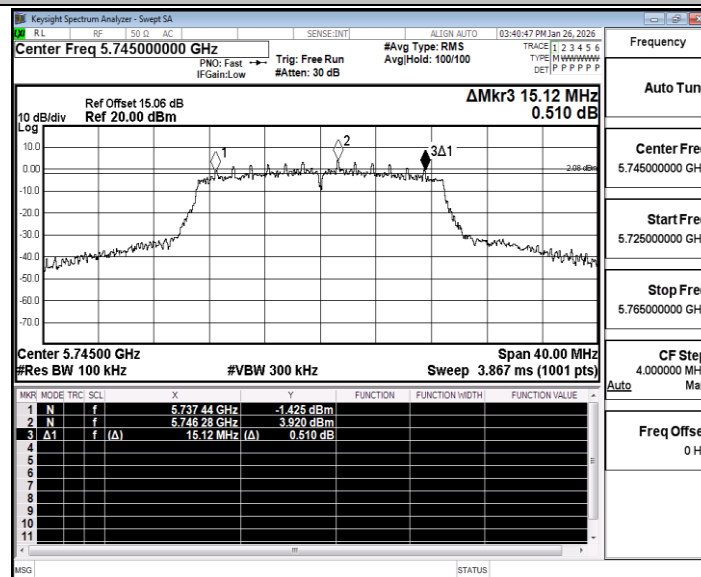
11A_Ant1_5785



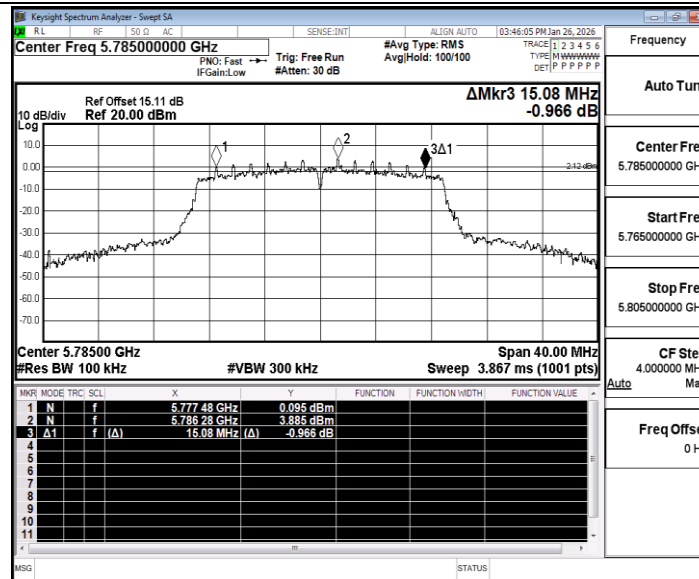
11A_Ant1_5825



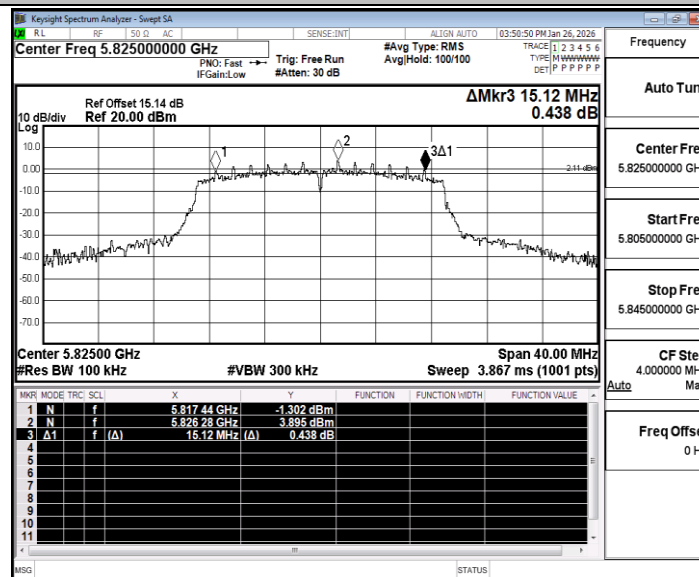
11N20SISO_Ant1_5745



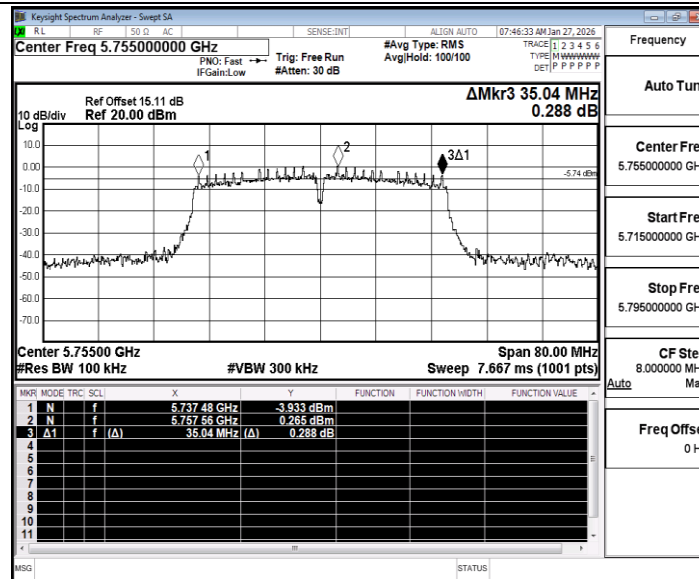
11N20SISO_Ant1_5785



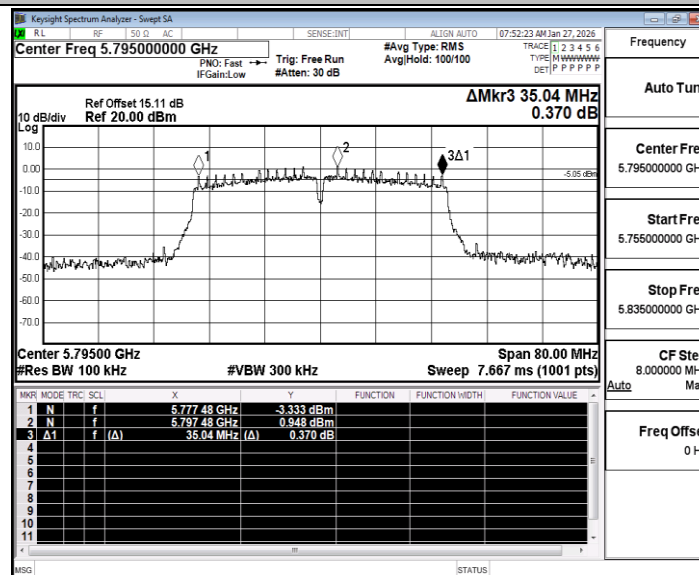
11N20SISO_Ant1_5825



11N40SISO_Ant1_5755



11N40SISO_Ant1_5795



C.2 Maximum conducted output power

Test Result Channel Power

Test Mode	Antenna	Freq(MHz)	Measured Power [dBm]	DC Factor [dB]	Result [dBm]	Limit [dBm]	Verdict
11A	Ant1	5745	15	1.35	16.35	≤30.00	PASS
		5785	14.48	1.35	15.83	≤30.00	PASS
		5825	15.17	1.63	16.8	≤30.00	PASS
11N20SISO	Ant1	5745	15.32	1.51	16.83	≤30.00	PASS
		5785	15.16	1.51	16.67	≤30.00	PASS
		5825	15.15	1.51	16.66	≤30.00	PASS
11N40SISO	Ant1	5755	15.26	2.34	17.6	≤30.00	PASS
		5795	15.24	2.34	17.58	≤30.00	PASS

C.3 Maximum power spectral density

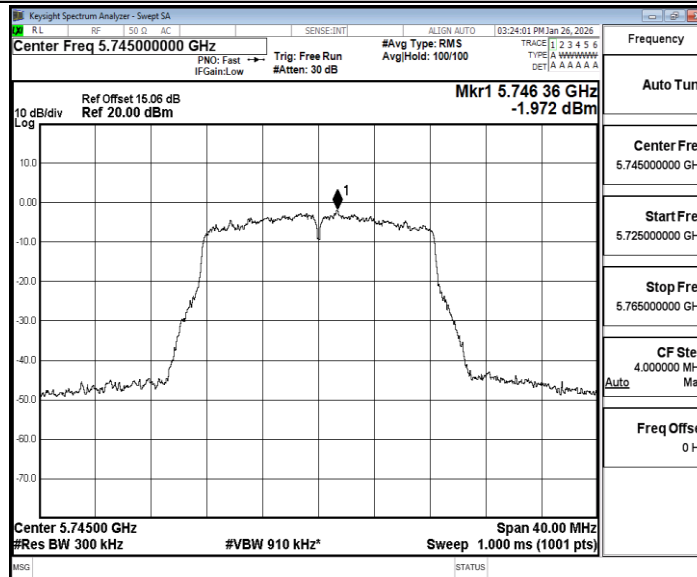
Test Result

TestMode	Antenna	Freq (MHz)	Raw Data [dBm/500KHz]	DC Factor	RBW Factor	Result [dBm/500KHz]	Limit [dBm/500KHz]	Verdict
11A	Ant1	5745	-1.97	1.35	2.22	1.6	≤30.00	PASS
		5785	-2.9	1.35	2.22	0.67	≤30.00	PASS
		5825	-2.49	1.63	2.22	1.36	≤30.00	PASS
11N20SI SO	Ant1	5745	-1.86	1.51	2.22	1.87	≤30.00	PASS
		5785	-3.08	1.51	2.22	0.65	≤30.00	PASS
		5825	-2.3	1.51	2.22	1.43	≤30.00	PASS
11N40SI SO	Ant1	5755	-5.44	2.34	2.22	-0.88	≤30.00	PASS
		5795	-4.85	2.34	2.22	-0.29	≤30.00	PASS

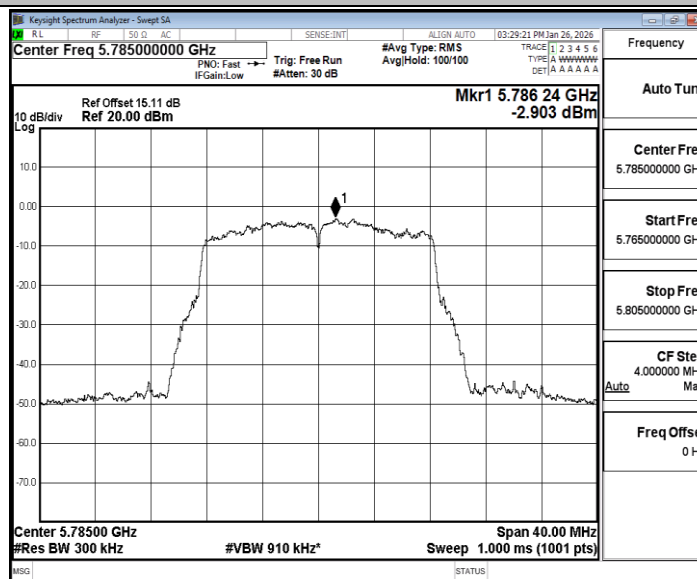
Note: 1.The Result and Limit Unit is dBm/500 kHz in the band 5.725–5.85 GHz.

Test Graphs

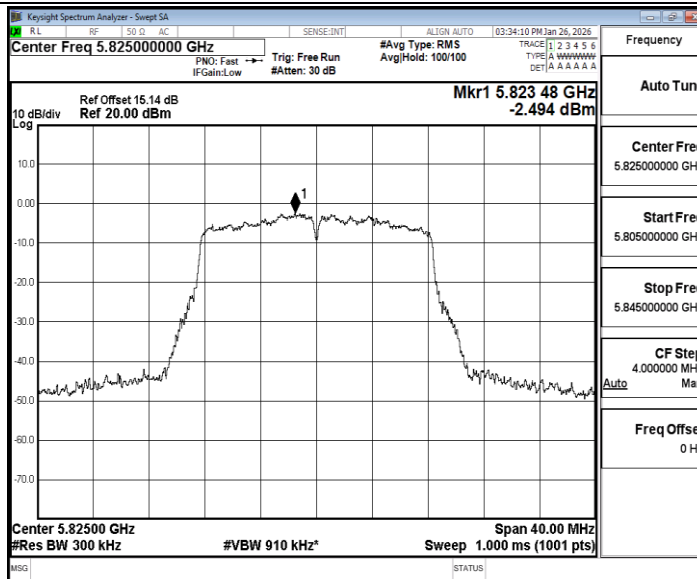
11A_Ant1_5745



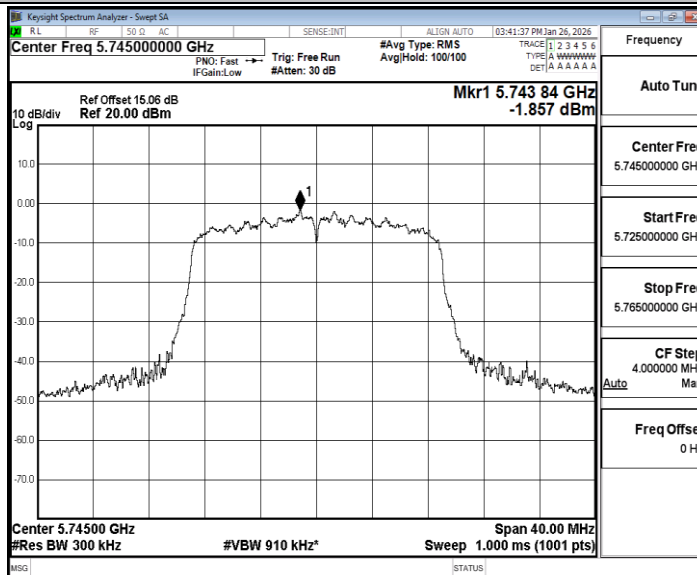
11A_Ant1_5785



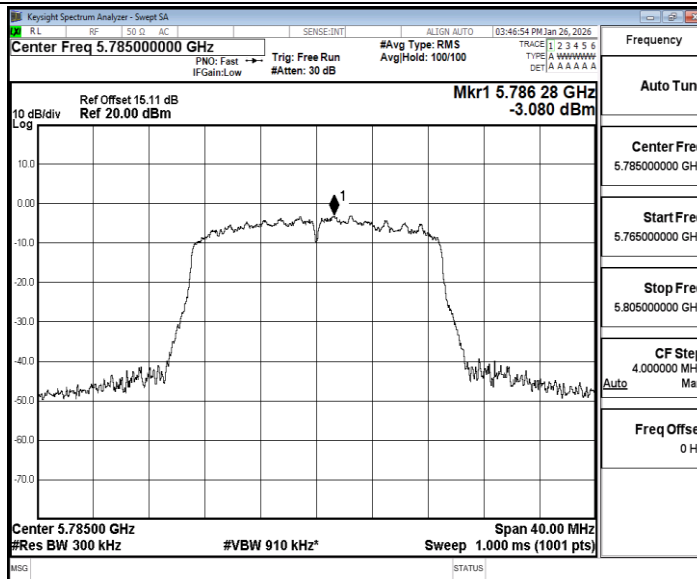
11A_Ant1_5825



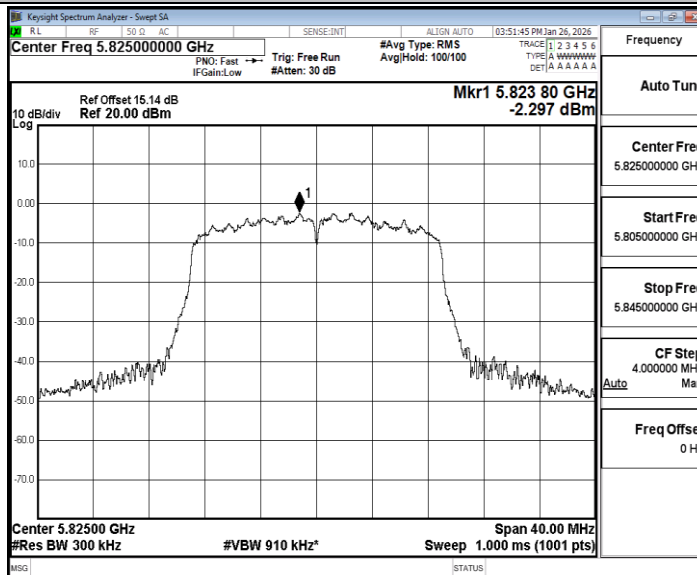
11N20SISO_Ant1_5745



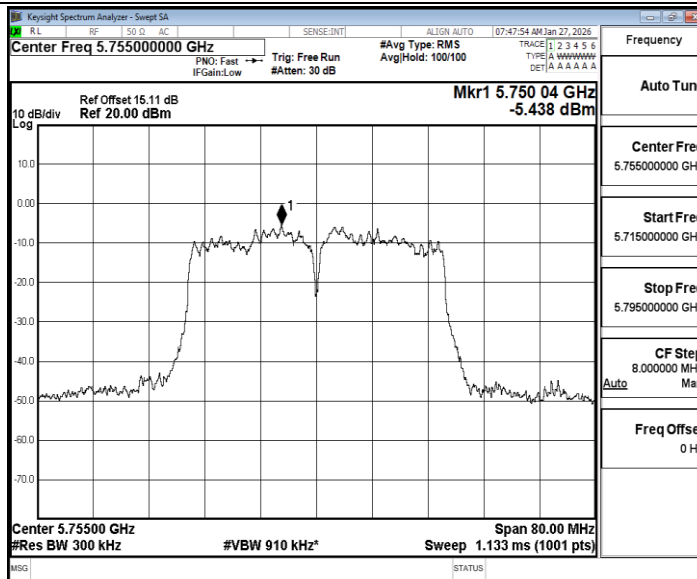
11N20SISO_Ant1_5785



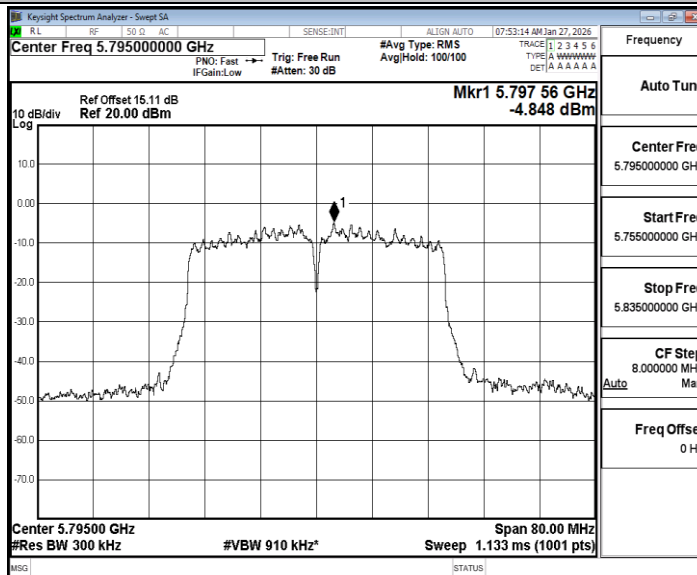
11N20SISO_Ant1_5825



11N40SISO_Ant1_5755



11N40SISO_Ant1_5795



C.4 Emissions in Restricted Bands

Test Result

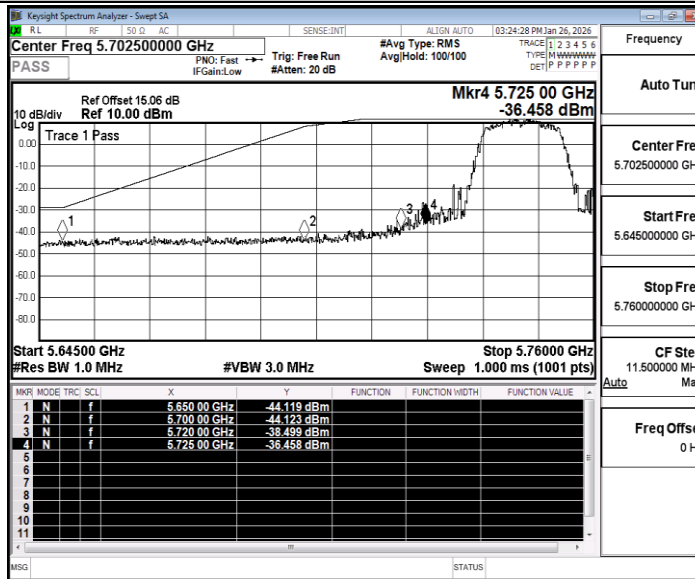
Test Mode	Antenna	Channel Name	Freq (MHz)	Detector	Freq [MHz]	Result [dBm]	Limit [dBm]	Gain [dBi]	DC Factor [dB]	Result [dBuV /m]	Limit [dBuV /m]	Verdict
11A	Ant1	Low	5745	Peak	5650.000	-44.119	≤-31.50	4.50	0.00	---	---	PASS
				Peak	5700.000	-44.12	≤5.50	4.50	0.00	---	---	PASS
				Peak	5720.000	-38.5	≤11.10	4.50	0.00	---	---	PASS
				Peak	5725.000	-36.46	≤22.50	4.50	0.00	---	---	PASS
		High	5825	Peak	5850.000	-27.185	≤22.50	4.50	0.00	---	---	PASS
				Peak	5855.000	-38.94	≤11.10	4.50	0.00	---	---	PASS
				Peak	5875.000	-44.81	≤5.50	4.50	0.00	---	---	PASS
				Peak	5925.000	-46.49	≤-31.50	4.50	0.00	---	---	PASS
11N 20SI SO	Ant1	Low	5745	Peak	5650.000	-45.297	≤-31.50	4.50	0.00	---	---	PASS
				Peak	5700.000	-44.82	≤5.50	4.50	0.00	---	---	PASS
				Peak	5720.000	-37.95	≤11.10	4.50	0.00	---	---	PASS
				Peak	5725.000	-33.85	≤22.50	4.50	0.00	---	---	PASS
		High	5825	Peak	5850.000	-30.286	≤22.50	4.50	0.00	---	---	PASS
				Peak	5855.000	-36.24	≤11.10	4.50	0.00	---	---	PASS
				Peak	5875.000	-44.81	≤5.50	4.50	0.00	---	---	PASS
				Peak	5925.000	-47.05	≤-31.50	4.50	0.00	---	---	PASS
11N 40SI SO	Ant1	Low	5755	Peak	5650.000	-46.754	≤-31.50	4.50	0.00	---	---	PASS
				Peak	5700.000	-35.82	≤5.50	4.50	0.00	---	---	PASS
				Peak	5720.000	-29.46	≤11.10	4.50	0.00	---	---	PASS
				Peak	5725.000	-27.39	≤22.50	4.50	0.00	---	---	PASS
		High	5795	Peak	5850.000	-35.409	≤22.50	4.50	0.00	---	---	PASS
				Peak	5855.000	-37.58	≤11.10	4.50	0.00	---	---	PASS
				Peak	5875.000	-42.68	≤5.50	4.50	0.00	---	---	PASS
				Peak	5925.000	-45.84	≤-31.50	4.50	0.00	---	---	PASS

Note:

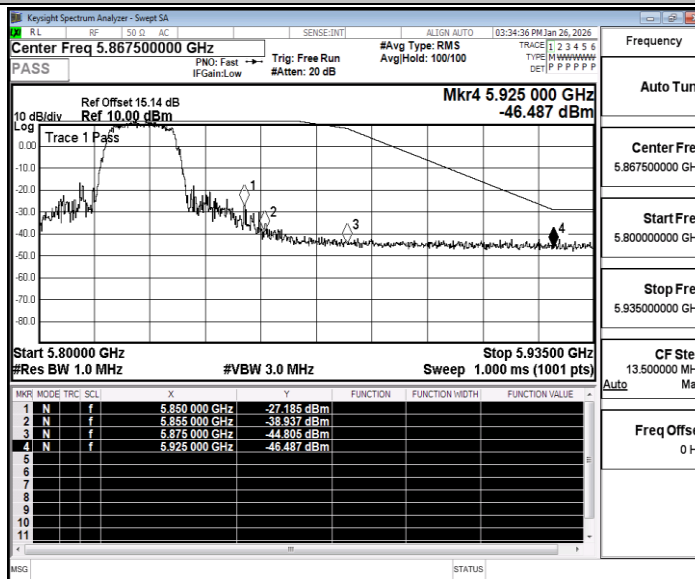
1. The Antenna Gain is compensated in the graph.
2. For transmitters operating in 5150-5350 GHz band and 5470-5725 GHz band: The limit in dBm for average detector is conversion from 54dBuV/m, according to 15.209(a). The limit in dBm for peak detector is 20dB above the limit of average detector in dBm.

Test Graphs

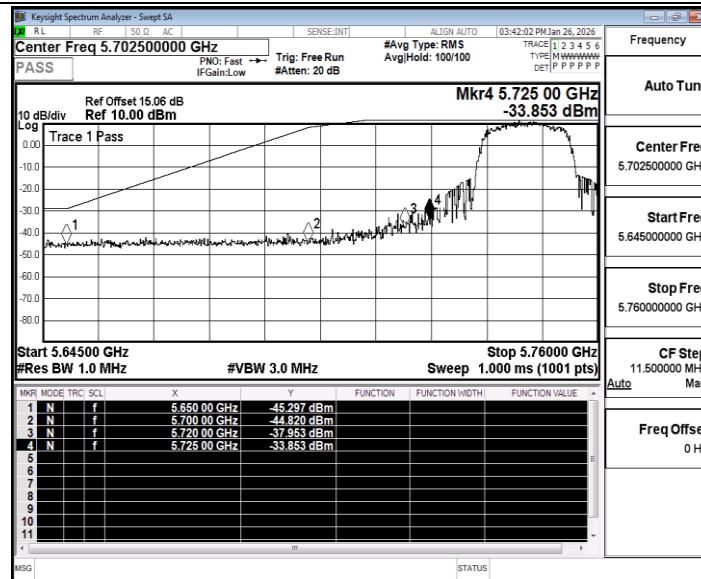
11A_Ant1_Low_5745_Peak



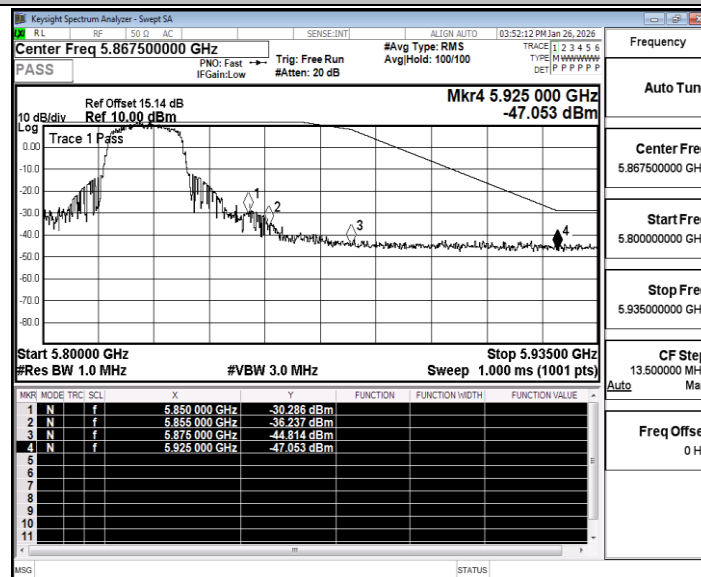
11A_Ant1_High_5825_Peak



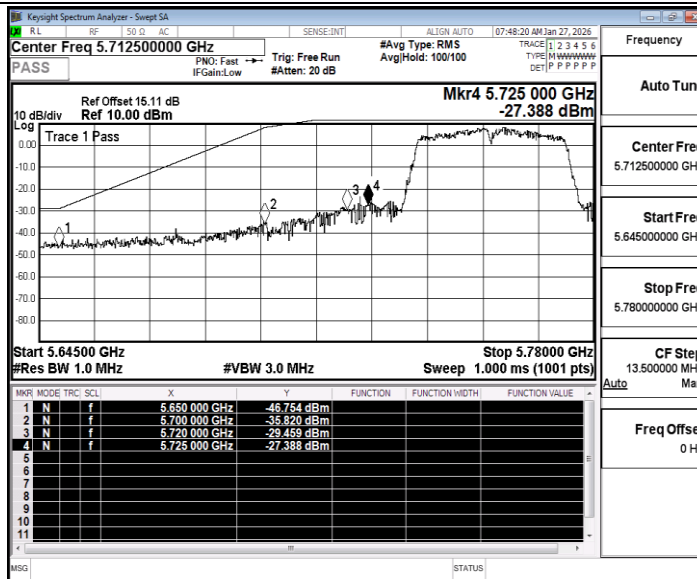
11N20SISO_Ant1_Low_5745_Peak



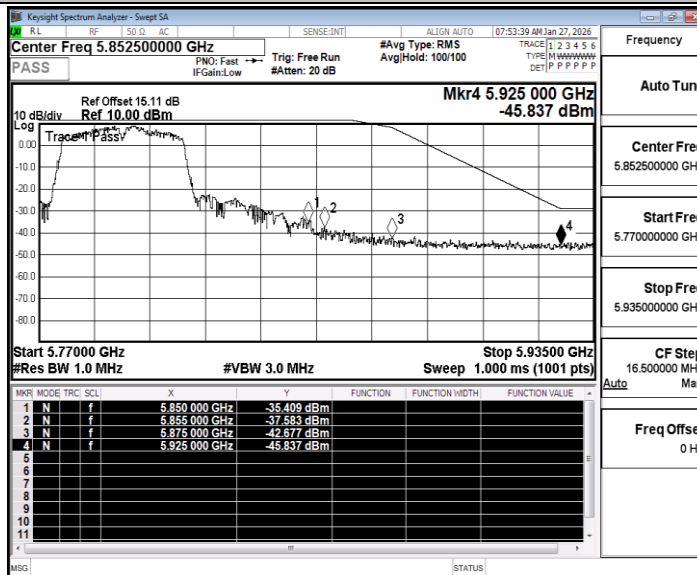
11N20SISO_Ant1_High_5825_Peak



11N40SISO_Ant1_Low_5755_Peak



11N40SISO_Ant1_High_5795_Peak



C.5 Frequency Stability

Test Result

Voltage								
TestMode	Antenna	Freq(MHz)	Voltage [Vdc]	Temperature (°C)	Deviation (Hz)	Deviation (ppm)	Limit (ppm)	Verdict
11A	Ant1	5745	NV	NT	0.00	0.000000	20	PASS
			LV	NT	0.00	0.000000	20	PASS
			HV	NT	20000.00	3.481288	20	PASS
		5785	NV	NT	-20000.00	-3.457217	20	PASS
			LV	NT	-20000.00	-3.457217	20	PASS
			HV	NT	0.00	0.000000	20	PASS
		5825	NV	NT	-20000.00	-3.433476	20	PASS
			LV	NT	-20000.00	-3.433476	20	PASS
			HV	NT	0.00	0.000000	20	PASS
11N20SISO	Ant1	5745	NV	NT	20000.00	3.481288	20	PASS
			LV	NT	0.00	0.000000	20	PASS
			HV	NT	-40000.00	-6.962576	20	PASS
		5785	NV	NT	0.00	0.000000	20	PASS
			LV	NT	-40000.00	-6.914434	20	PASS
			HV	NT	20000.00	3.457217	20	PASS
		5825	NV	NT	-20000.00	-3.433476	20	PASS
			LV	NT	0.00	0.000000	20	PASS
			HV	NT	-20000.00	-3.433476	20	PASS
11N40SISO	Ant1	5755	NV	NT	0.00	0.000000	20	PASS
			LV	NT	-40000.00	-6.950478	20	PASS
			HV	NT	-40000.00	-6.950478	20	PASS
		5795	NV	NT	40000.00	6.902502	20	PASS
			LV	NT	0.00	0.000000	20	PASS
			HV	NT	0.00	0.000000	20	PASS

Temperature								
TestMode	Antenna	Freq(MHz)	Voltage [Vdc]	Temperature (°C)	Deviation (Hz)	Deviation (ppm)	Limit (ppm)	Verdict
11A	Ant1	5745	NV	-30	-20000.00	-3.481288	20	PASS
			NV	-20	0.00	0.000000	20	PASS
			NV	-10	20000.00	3.481288	20	PASS
			NV	0	0.00	0.000000	20	PASS
			NV	10	0.00	0.000000	20	PASS
			NV	20	0.00	0.000000	20	PASS
			NV	30	20000.00	3.481288	20	PASS

			NV	40	-20000.00	-3.481288	20	PASS
			NV	50	0.00	0.000000	20	PASS
		5785	NV	-30	0.00	0.000000	20	PASS
			NV	-20	0.00	0.000000	20	PASS
			NV	-10	-20000.00	-3.457217	20	PASS
			NV	0	-20000.00	-3.457217	20	PASS
			NV	10	0.00	0.000000	20	PASS
			NV	20	0.00	0.000000	20	PASS
			NV	30	0.00	0.000000	20	PASS
			NV	40	0.00	0.000000	20	PASS
			NV	50	0.00	0.000000	20	PASS
		5825	NV	-30	0.00	0.000000	20	PASS
			NV	-20	0.00	0.000000	20	PASS
			NV	-10	20000.00	3.433476	20	PASS
			NV	0	0.00	0.000000	20	PASS
			NV	10	20000.00	3.433476	20	PASS
			NV	20	0.00	0.000000	20	PASS
			NV	30	0.00	0.000000	20	PASS
			NV	40	0.00	0.000000	20	PASS
			NV	50	0.00	0.000000	20	PASS
11N20SIS O	Ant1	5745	NV	-30	-20000.00	-3.481288	20	PASS
			NV	-20	0.00	0.000000	20	PASS
			NV	-10	-40000.00	-6.962576	20	PASS
			NV	0	0.00	0.000000	20	PASS
			NV	10	-20000.00	-3.481288	20	PASS
			NV	20	0.00	0.000000	20	PASS
			NV	30	20000.00	3.481288	20	PASS
			NV	40	20000.00	3.481288	20	PASS
			NV	50	-20000.00	-3.481288	20	PASS
		5785	NV	-30	0.00	0.000000	20	PASS
			NV	-20	40000.00	6.914434	20	PASS
			NV	-10	-20000.00	-3.457217	20	PASS
			NV	0	40000.00	6.914434	20	PASS
			NV	10	20000.00	3.457217	20	PASS
			NV	20	0.00	0.000000	20	PASS
			NV	30	0.00	0.000000	20	PASS
			NV	40	-20000.00	-3.457217	20	PASS
			NV	50	0.00	0.000000	20	PASS
		5825	NV	-30	20000.00	3.433476	20	PASS
			NV	-20	-20000.00	-3.433476	20	PASS
			NV	-10	0.00	0.000000	20	PASS
			NV	0	0.00	0.000000	20	PASS

11N40SIS O	Ant1		NV	10	-20000.00	-3.433476	20	PASS
			NV	20	0.00	0.000000	20	PASS
			NV	30	0.00	0.000000	20	PASS
			NV	40	-20000.00	-3.433476	20	PASS
			NV	50	0.00	0.000000	20	PASS
		5755	NV	-30	40000.00	6.950478	20	PASS
			NV	-20	0.00	0.000000	20	PASS
			NV	-10	0.00	0.000000	20	PASS
			NV	0	0.00	0.000000	20	PASS
			NV	10	-40000.00	-6.950478	20	PASS
			NV	20	0.00	0.000000	20	PASS
			NV	30	0.00	0.000000	20	PASS
			NV	40	40000.00	6.950478	20	PASS
			NV	50	0.00	0.000000	20	PASS
		5795	NV	-30	-40000.00	-6.902502	20	PASS
			NV	-20	0.00	0.000000	20	PASS
			NV	-10	0.00	0.000000	20	PASS
			NV	0	0.00	0.000000	20	PASS
			NV	10	0.00	0.000000	20	PASS
			NV	20	0.00	0.000000	20	PASS
			NV	30	40000.00	6.902502	20	PASS
			NV	40	40000.00	6.902502	20	PASS
			NV	50	0.00	0.000000	20	PASS

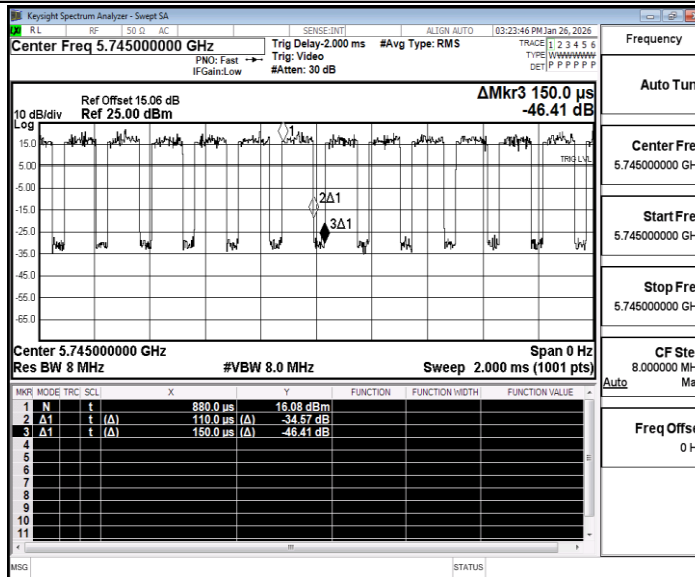
C.6 Duty Cycle

Test Result

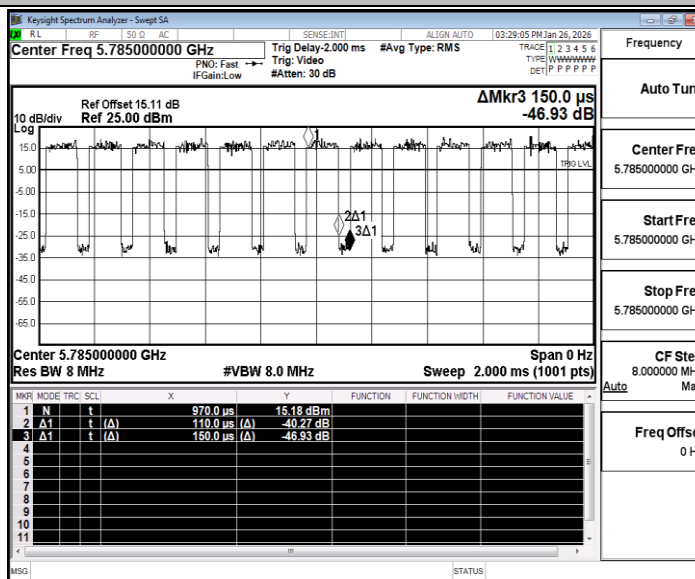
TestMode	Antenna	Freq(MHz)	Transmission Duration [ms]	Transmission Period [ms]	Duty Cycle [%]	DC Factor	Limit	Verdict
11A	Ant1	5745	0.11	0.15	73.33	1.35	---	---
		5785	0.11	0.15	73.33	1.35	---	---
		5825	0.11	0.16	68.75	1.63	---	---
11N20SISO	Ant1	5745	0.12	0.17	70.59	1.51	---	---
		5785	0.12	0.17	70.59	1.51	---	---
		5825	0.12	0.17	70.59	1.51	---	---
11N40SISO	Ant1	5755	0.07	0.12	58.33	2.34	---	---
		5795	0.07	0.12	58.33	2.34	---	---

Test Graphs

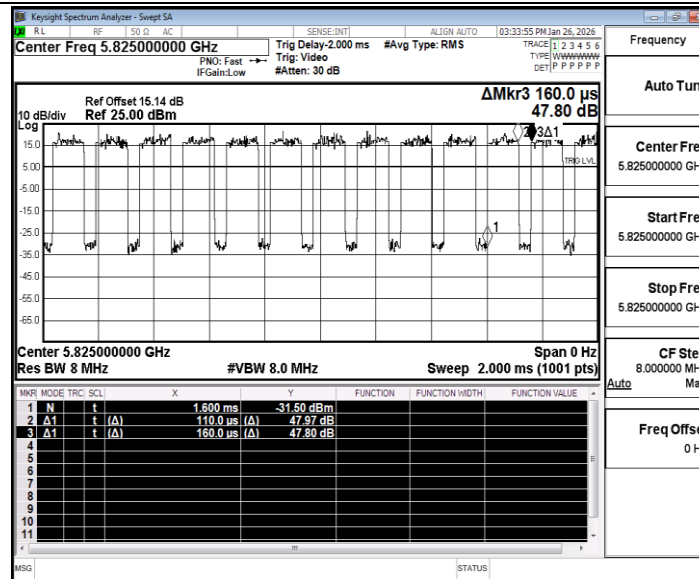
11A_Ant1_5745



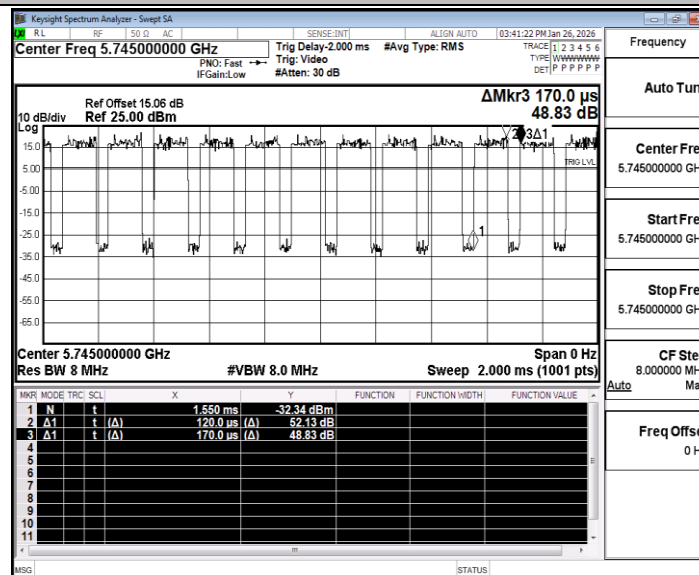
11A_Ant1_5785



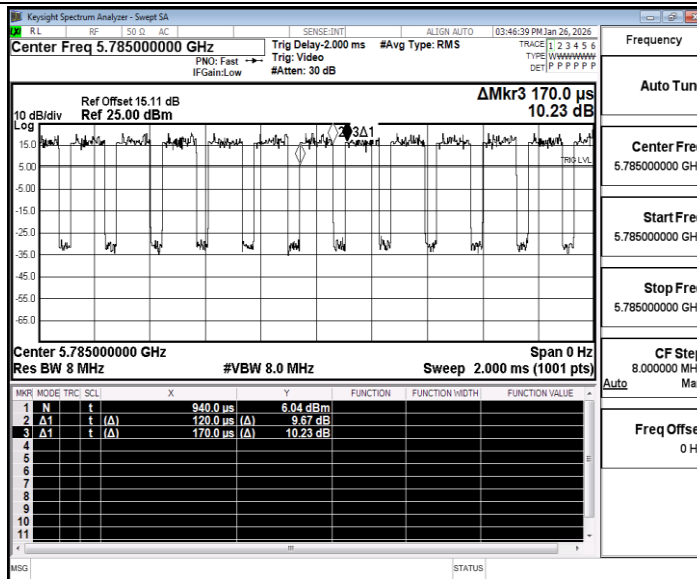
11A_Ant1_5825



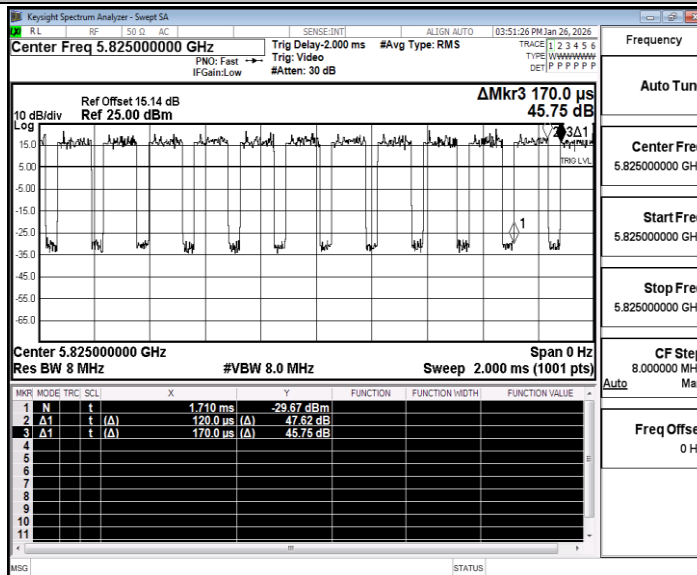
11N20SISO_Ant1_5745



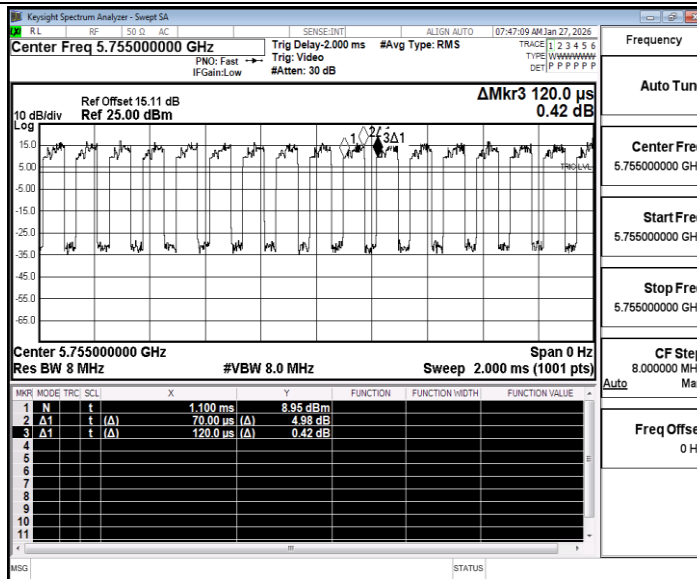
11N20SISO_Ant1_5785



11N20SISO_Ant1_5825



11N40SISO_Ant1_5755



11N40SISO_Ant1_5795

