



Appendix D

RF Test Data for 5.2GWIFI (Conducted Measurement)

Product Name: HYbook

Test Model: HT14CCIC46EG

Environmental Conditions

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





D.1 Emission Bandwidth

Test Result

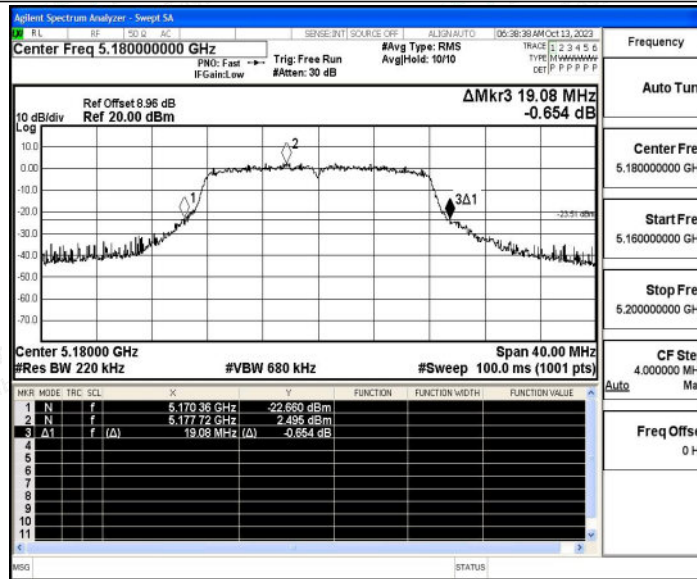
TestMode	Antenna	Frequency[MHz]	26db EBW [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
11A	Ant1	5180	19.080	5170.360	5189.440	---	---
		5220	19.600	5209.840	5229.440	---	---
		5240	19.640	5229.800	5249.440	---	---
11N20SISO	Ant1	5180	20.080	5169.720	5189.800	---	---
		5220	20.080	5209.760	5229.840	---	---
		5240	20.560	5229.640	5250.200	---	---
11N40SISO	Ant1	5190	40.320	5169.680	5210.000	---	---
		5230	40.480	5209.760	5250.240	---	---
11AC20SISO	Ant1	5180	20.080	5169.800	5189.880	---	---
		5220	20.240	5209.840	5230.080	---	---
		5240	20.080	5229.720	5249.800	---	---
11AC40SISO	Ant1	5190	42.320	5169.680	5212.000	---	---
		5230	40.640	5209.680	5250.320	---	---
11AC80SISO	Ant1	5210	81.920	5168.720	5250.640	---	---



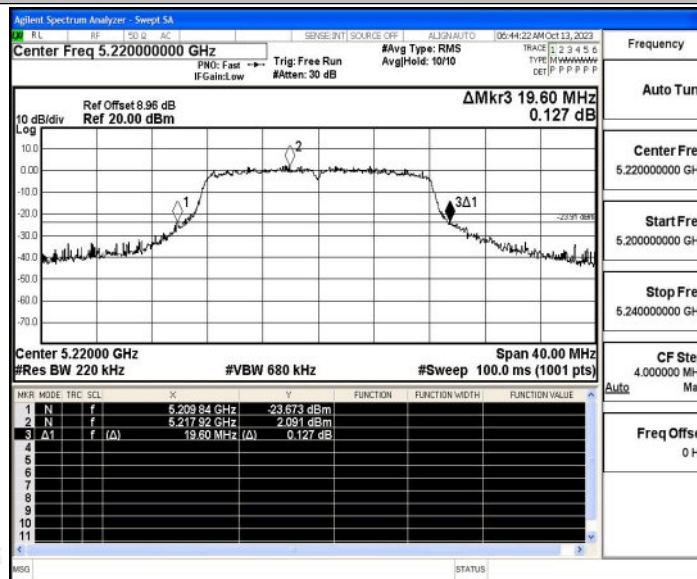


Test Graphs

11A_Ant1_5180

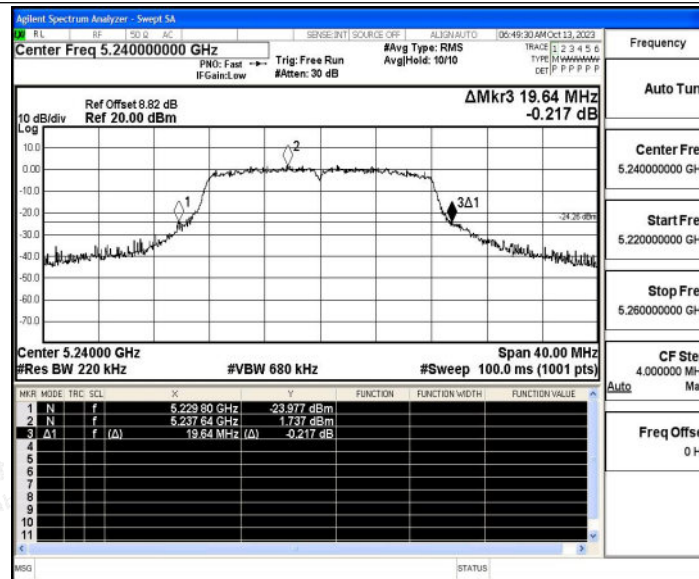


11A_Ant1_5220

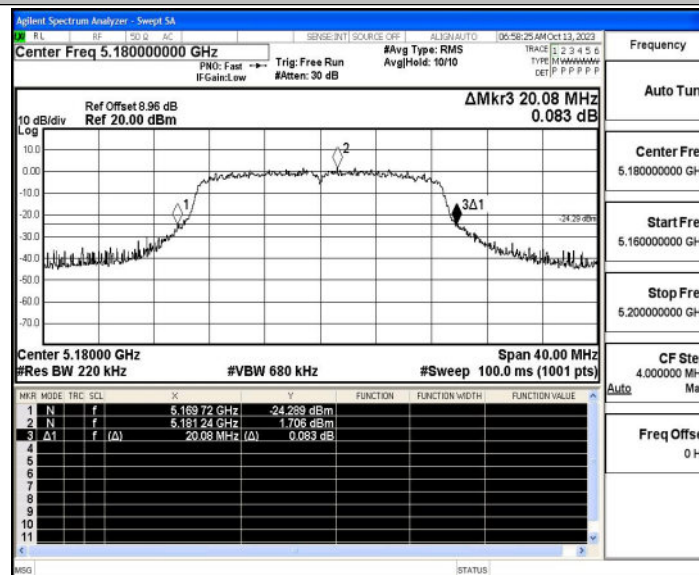


11A_Ant1_5240

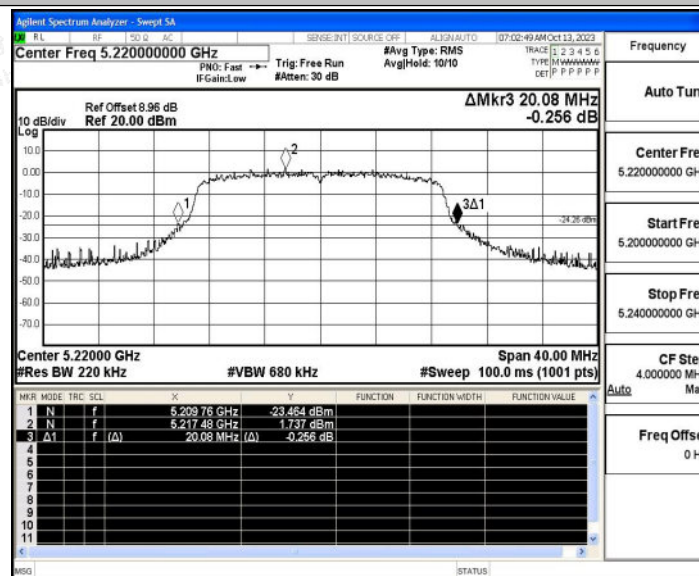




11N20SISO_Ant1_5180

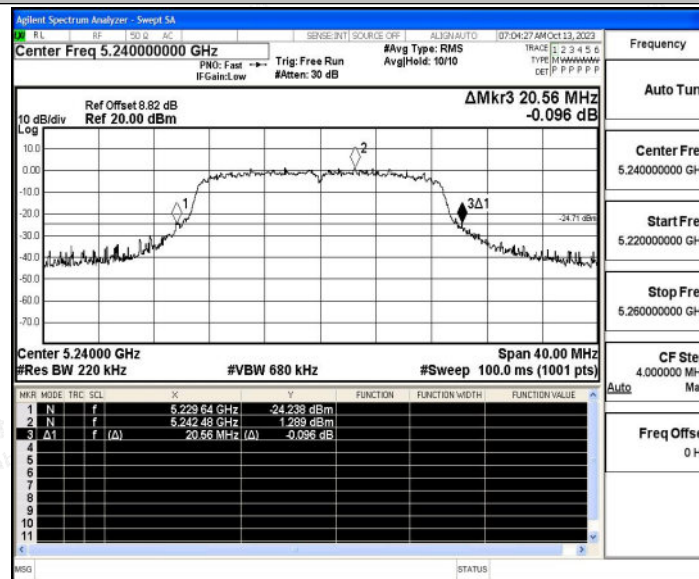


11N20SISO_Ant1_5220

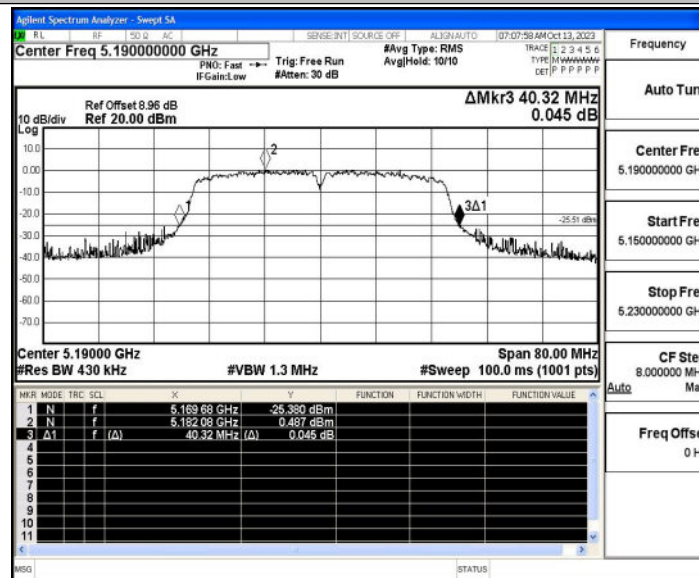




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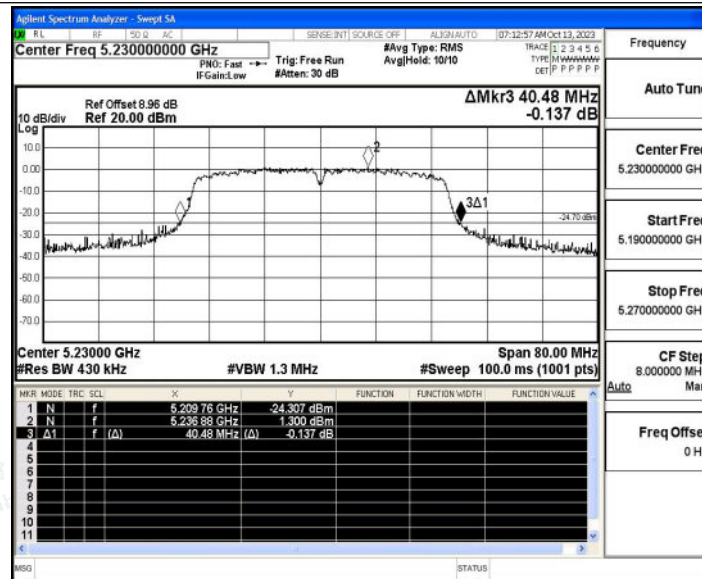


11N40SISO_Ant1_5190

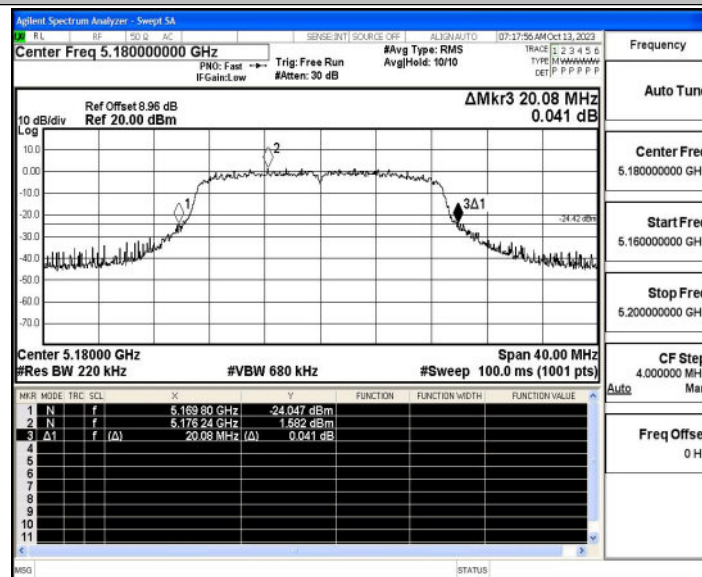


11N40SISO_Ant1_5230

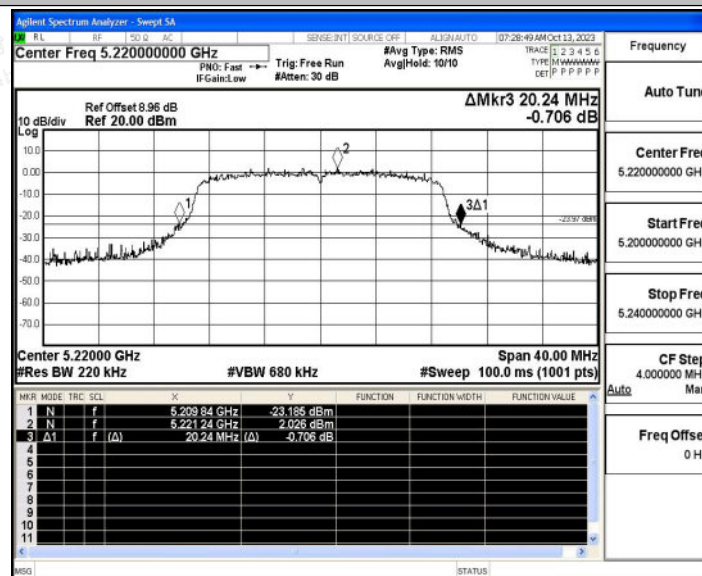




11AC20SISO_Ant1_5180

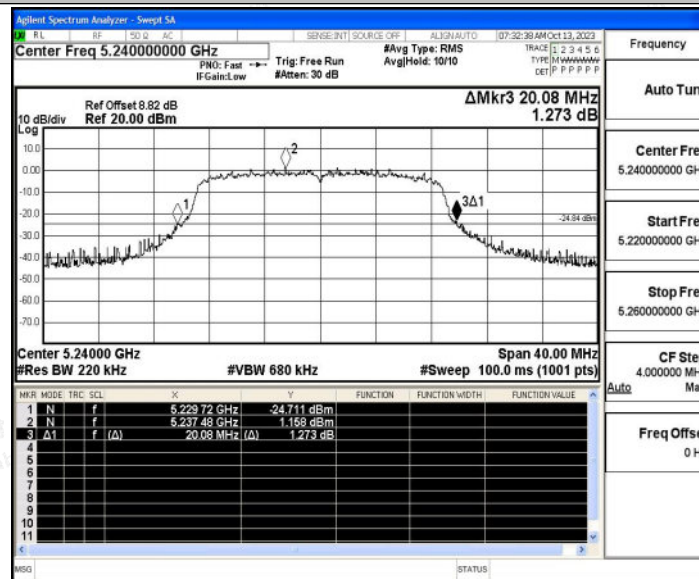


11AC20SISO_Ant1_5220

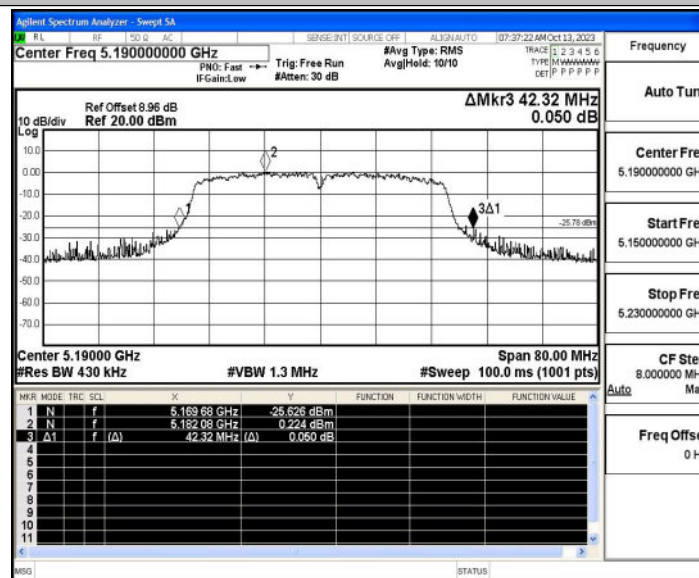




11AC20SISO_Ant1_5240

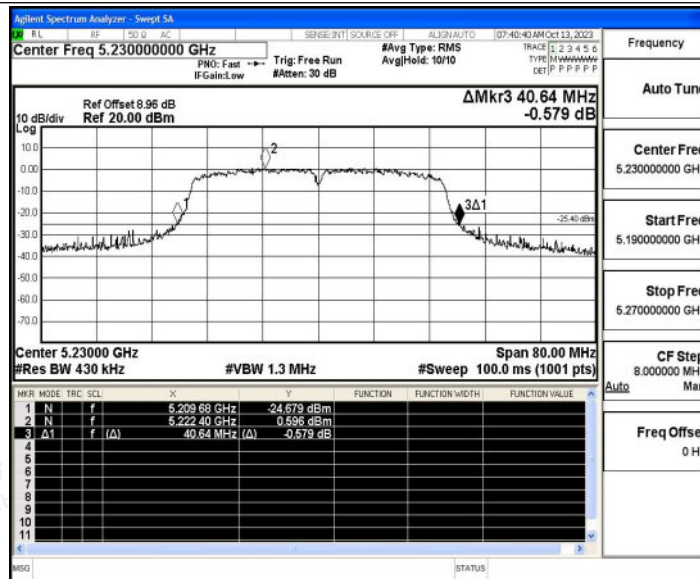


11AC40SISO_Ant1_5190

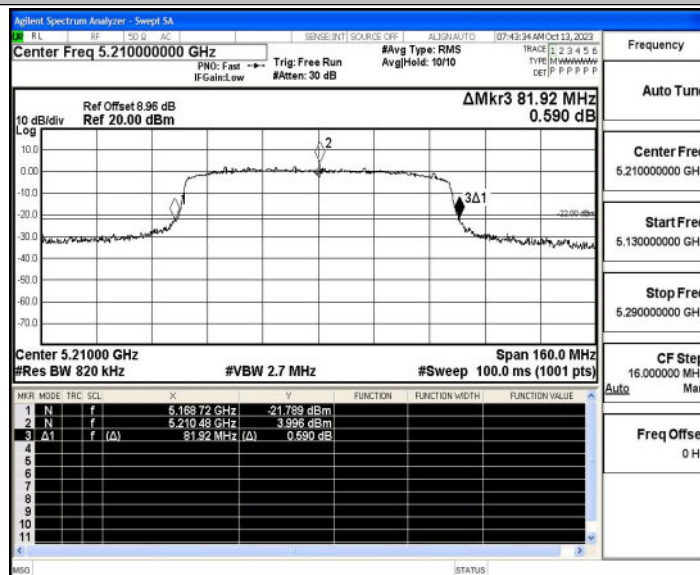


11AC40SISO_Ant1_5230





11AC80SISO_Ant1_5210





D.2 Maximum conducted output power

Test Result Channel Power

Test Mode	Antenna	Frequency[MHz]	Channel Power[dBm]	Duty Cycle[%]	DC Factor[dBm]	Result[dBm]	Limit[dBm]	Verdict
11A	Ant1	5180	11.18	94.95	0.23	11.41	≤23.98	PASS
		5220	11.12	94.95	0.23	11.35	≤23.98	PASS
		5240	10.66	94.93	0.23	10.89	≤23.98	PASS
11N20SISO	Ant1	5180	10.26	94.12	0.26	10.52	≤23.98	PASS
		5220	10.48	94.12	0.26	10.74	≤23.98	PASS
		5240	10.11	94.15	0.26	10.37	≤23.98	PASS
11N40SISO	Ant1	5190	9.76	89.62	0.48	10.24	≤23.98	PASS
		5230	10.54	89.62	0.48	11.02	≤23.98	PASS
11AC20SISO	Ant1	5180	10.22	94.61	0.24	10.46	≤23.98	PASS
		5220	11.40	94.61	0.24	11.64	≤23.98	PASS
		5240	10.56	94.58	0.24	10.80	≤23.98	PASS
11AC40SISO	Ant1	5190	9.90	89.62	0.48	10.38	≤23.98	PASS
		5230	10.88	89.62	0.48	11.36	≤23.98	PASS
11AC80SISO	Ant1	5210	10.62	80.70	0.93	11.55	≤23.98	PASS





D.3 Maximum power spectral density

Test Result

TestMode	Antenna	Frequency[MHz]	Result [dBm/MHz]	Limit[dBm/MHz]	Verdict
11A	Ant1	5180	0.38	≤11.00	PASS
		5220	0.29	≤11.00	PASS
		5240	-0.12	≤11.00	PASS
11N20SISO	Ant1	5180	-0.6	≤11.00	PASS
		5220	-0.47	≤11.00	PASS
		5240	-0.83	≤11.00	PASS
11N40SISO	Ant1	5190	-3.93	≤11.00	PASS
		5230	-3.21	≤11.00	PASS
11AC20SISO	Ant1	5180	-0.72	≤11.00	PASS
		5220	0.38	≤11.00	PASS
		5240	-0.37	≤11.00	PASS
11AC40SISO	Ant1	5190	-3.65	≤11.00	PASS
		5230	-3.05	≤11.00	PASS
11AC80SISO	Ant1	5210	-5.72	≤11.00	PASS

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

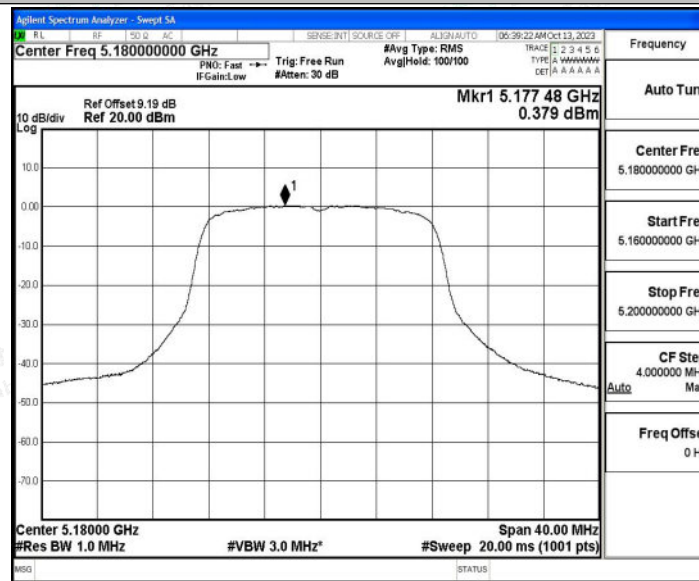
2.The Duty Cycle Factor and RBW Factor is compensated in the graph.



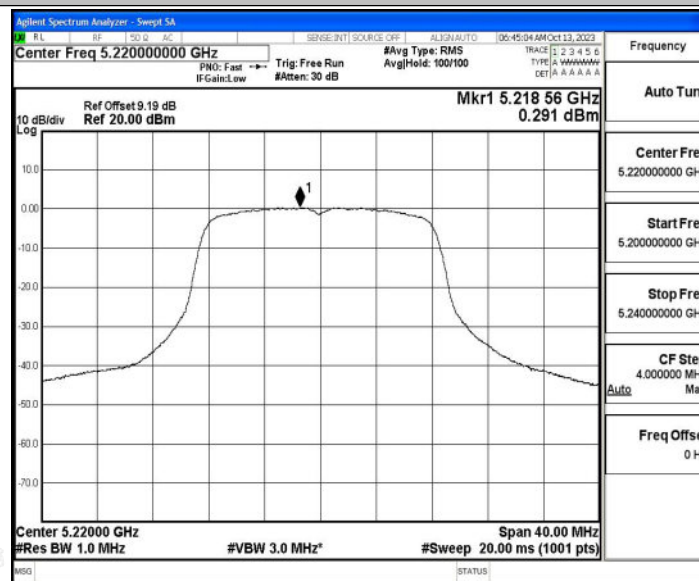


Test Graphs

11A_Ant1_5180

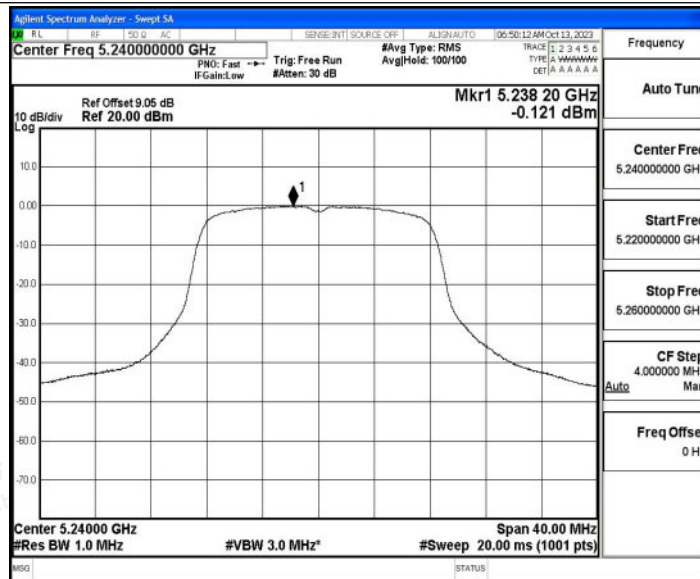


11A_Ant1_5220

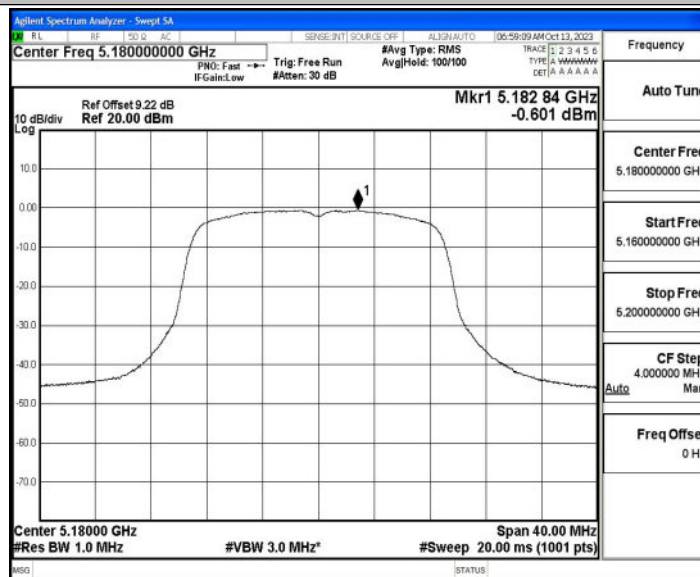


11A_Ant1_5240

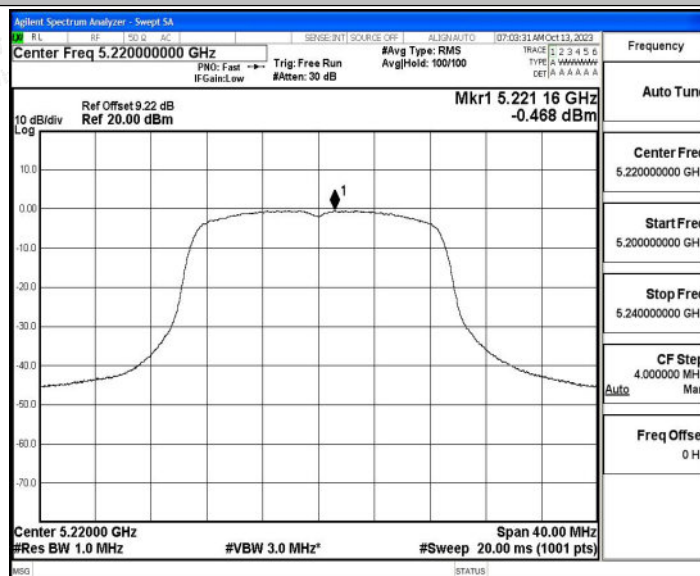




11N20SISO_Ant1_5180

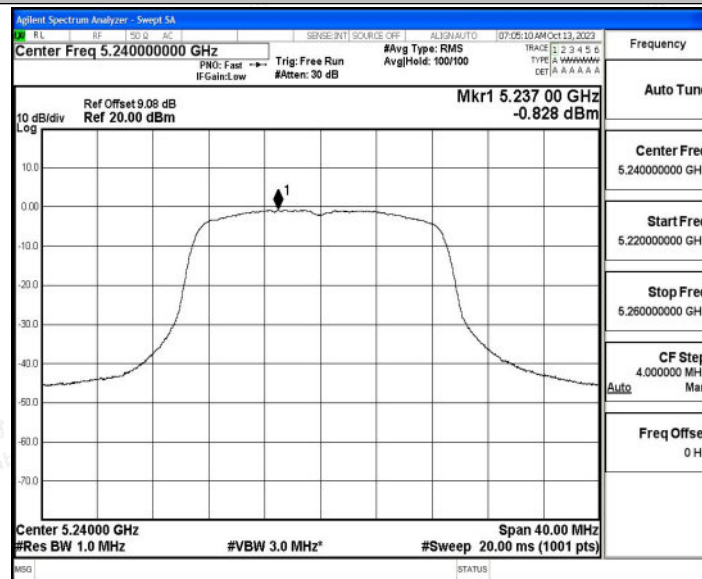


11N20SISO_Ant1_5220

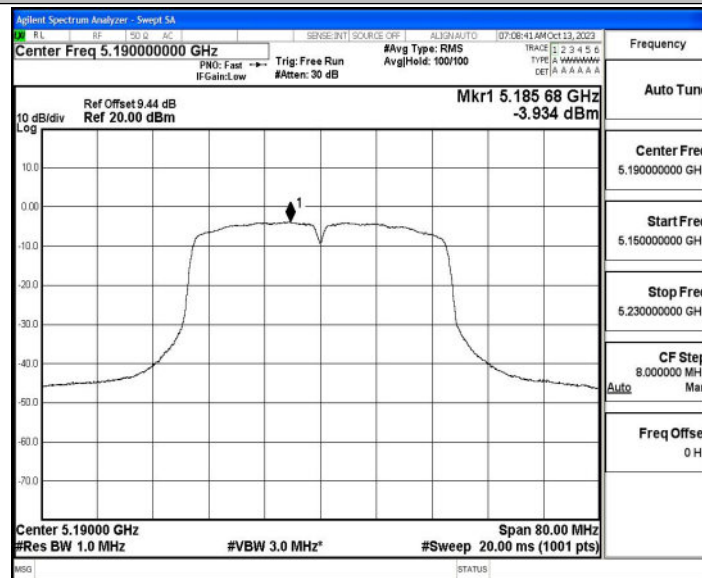




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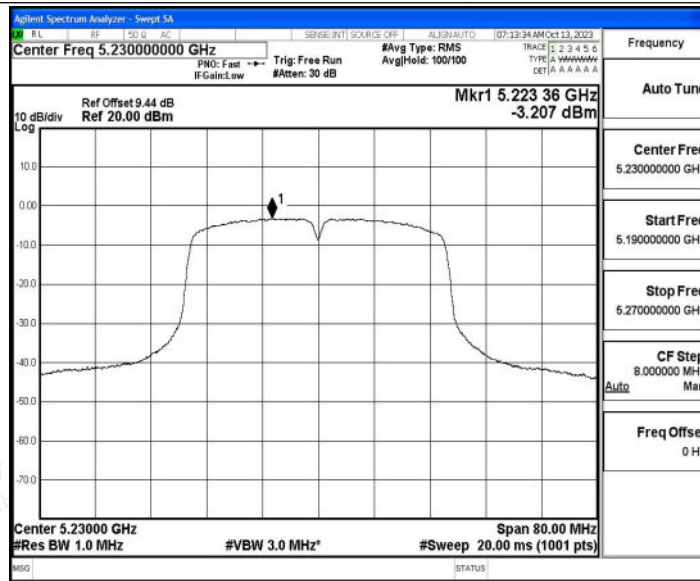


11N40SISO_Ant1_5190

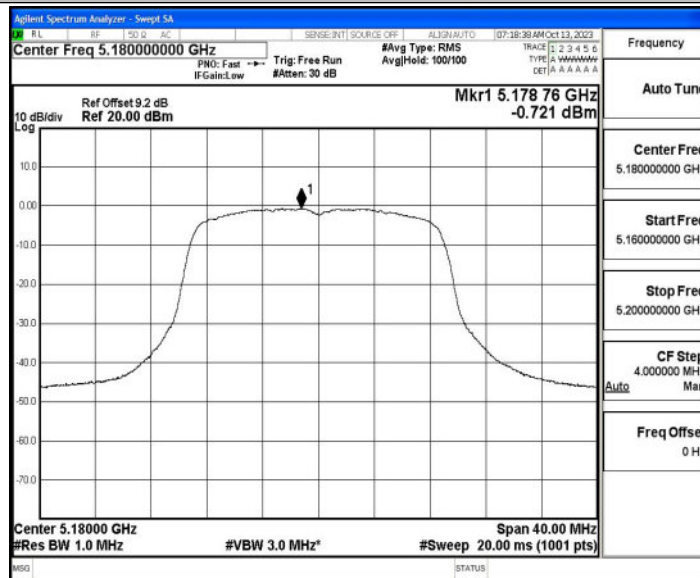


11N40SISO_Ant1_5230

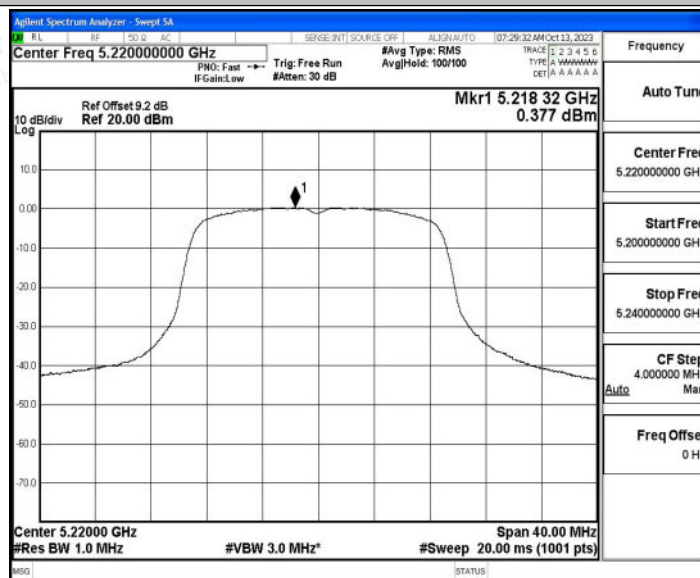




11AC20SISO_Ant1_5180

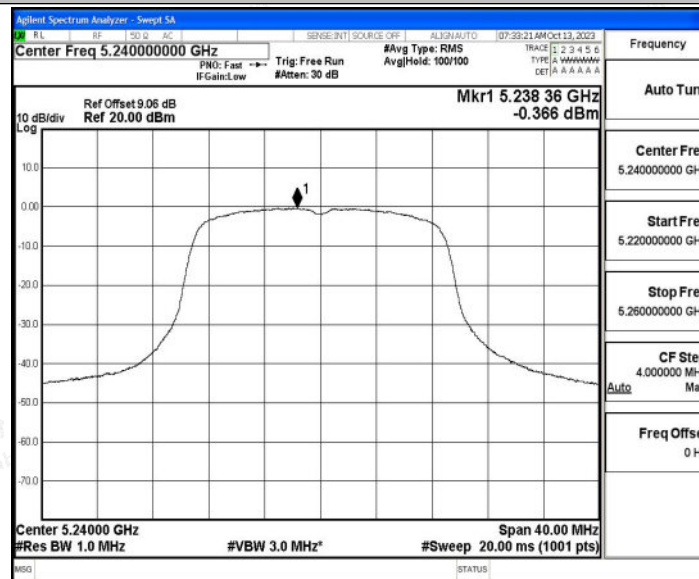


11AC20SISO_Ant1_5220

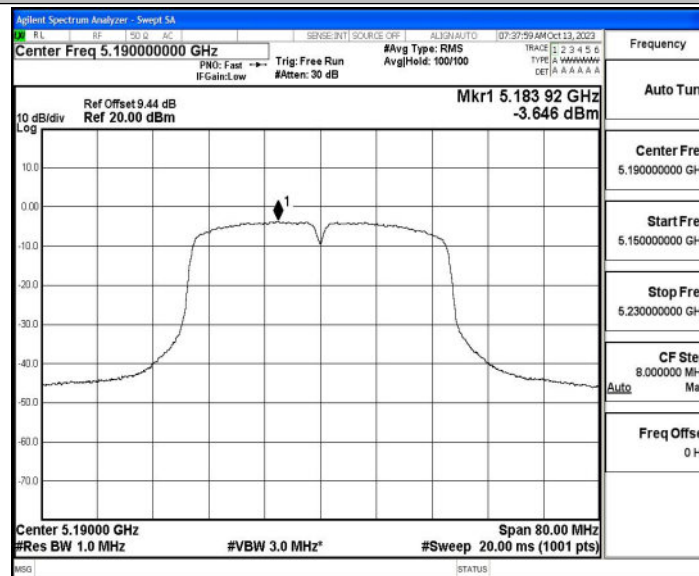




11AC20SISO_Ant1_5240

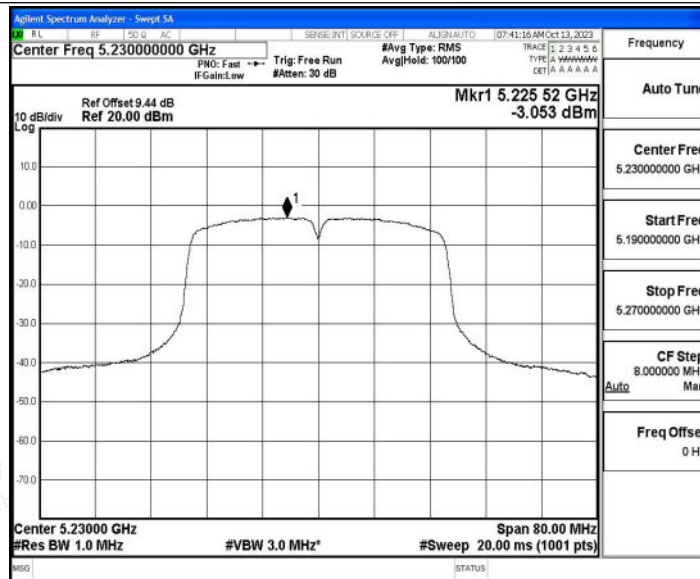


11AC40SISO_Ant1_5190

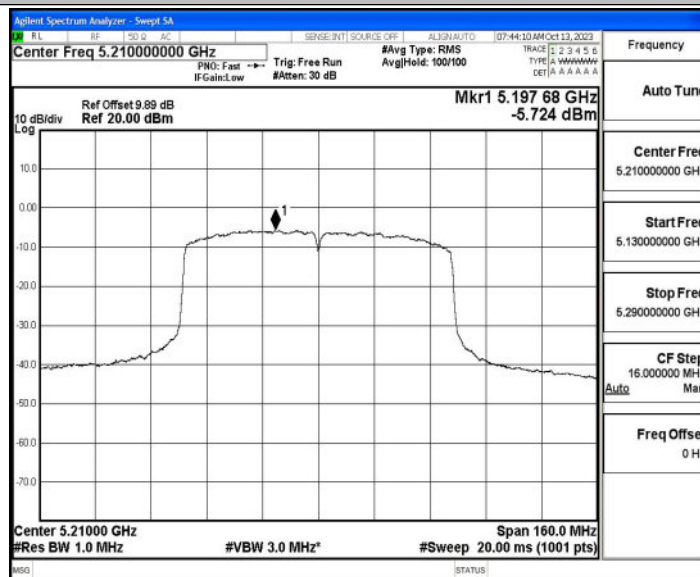


11AC40SISO_Ant1_5230





11AC80SISO_Ant1_5210





D.4 Emissions in Restricted Bands

Test Result

TestMod e	Antenn a	ChNam e	Frequen cy[MHz]	Detector	Freq [MHz]	Result [dBm]	Limit [dBm]	Result [dBuV/ m]	Limit [dBuV/m]	Verdict
11A	Ant1	Low	5180	AV	4500.000	-57.61	≤-41.20	37.59	≤54	PASS
				AV	5149.600	-46.94	≤-41.20	48.26	≤54	PASS
				AV	5150.000	-46.74	≤-41.20	48.46	≤54	PASS
				Peak	4500.000	-53.01	≤-21.20	42.19	≤74	PASS
				Peak	5137.000	-39.34	≤-21.20	55.86	≤74	PASS
				Peak	5150.000	-40.45	≤-21.20	54.75	≤74	PASS
		High	5240	AV	5350.000	-56.09	≤-41.20	39.11	≤54	PASS
				AV	5356.080	-55.91	≤-41.20	39.29	≤54	PASS
				AV	5460.000	-56.46	≤-41.20	38.74	≤54	PASS
				Peak	5350.000	-50.7	≤-21.20	44.50	≤74	PASS
				Peak	5434.560	-47.32	≤-21.20	47.88	≤74	PASS
				Peak	5460.000	-51.79	≤-21.20	43.41	≤74	PASS
11N20SI SO	Ant1	Low	5180	AV	4500.000	-57.65	≤-41.20	37.55	≤54	PASS
				AV	5149.600	-46.88	≤-41.20	48.32	≤54	PASS
				AV	5150.000	-46.68	≤-41.20	48.52	≤54	PASS
				Peak	4500.000	-50.56	≤-21.20	44.64	≤74	PASS
				Peak	5148.200	-39.2	≤-21.20	56.00	≤74	PASS
				Peak	5150.000	-40.41	≤-21.20	54.79	≤74	PASS
		High	5240	AV	5350.000	-56.13	≤-41.20	39.07	≤54	PASS
				AV	5363.520	-56.01	≤-41.20	39.19	≤54	PASS
				AV	5460.000	-56.62	≤-41.20	38.58	≤54	PASS
				Peak	5350.000	-49.94	≤-21.20	45.26	≤74	PASS
				Peak	5423.520	-47.5	≤-21.20	47.70	≤74	PASS
				Peak	5460.000	-48.74	≤-21.20	46.46	≤74	PASS
11N40SI SO	Ant1	Low	5190	AV	4500.000	-57.25	≤-41.20	37.95	≤54	PASS
				AV	5148.900	-43.86	≤-41.20	51.34	≤54	PASS
				AV	5150.000	-43.86	≤-41.20	51.34	≤54	PASS
				Peak	4500.000	-52.85	≤-21.20	42.35	≤74	PASS
				Peak	5129.300	-32.68	≤-21.20	62.52	≤74	PASS
				Peak	5150.000	-37.87	≤-21.20	57.33	≤74	PASS
		High	5230	AV	5350.000	-55.51	≤-41.20	39.69	≤54	PASS
				AV	5352.880	-55.08	≤-41.20	40.12	≤54	PASS
				AV	5460.000	-56.17	≤-41.20	39.03	≤54	PASS
				Peak	5350.000	-48.71	≤-21.20	46.49	≤74	PASS
				Peak	5399.940	-43.32	≤-21.20	51.88	≤74	PASS
				Peak	5460.000	-50.33	≤-21.20	44.87	≤74	PASS





11AC20 SISO	Ant1	Low	5180	AV	4500.000	-57.58	≤ -41.20	37.62	≤ 54	PASS
				AV	5148.900	-47.21	≤ -41.20	47.99	≤ 54	PASS
				AV	5150.000	-47.07	≤ -41.20	48.13	≤ 54	PASS
				Peak	4500.000	-51.07	≤ -21.20	44.13	≤ 74	PASS
				Peak	5125.800	-38.37	≤ -21.20	56.83	≤ 74	PASS
				Peak	5150.000	-40	≤ -21.20	55.20	≤ 74	PASS
		High	5240	AV	5350.000	-56.08	≤ -41.20	39.12	≤ 54	PASS
				AV	5354.880	-55.97	≤ -41.20	39.23	≤ 54	PASS
				AV	5460.000	-56.55	≤ -41.20	38.65	≤ 54	PASS
				Peak	5350.000	-48.4	≤ -21.20	46.80	≤ 74	PASS
				Peak	5395.440	-46.19	≤ -21.20	49.01	≤ 74	PASS
				Peak	5460.000	-48.37	≤ -21.20	46.83	≤ 74	PASS
11AC40 SISO	Ant1	Low	5190	AV	4500.000	-57.34	≤ -41.20	37.86	≤ 54	PASS
				AV	5149.600	-42.69	≤ -41.20	52.51	≤ 54	PASS
				AV	5150.000	-43.34	≤ -41.20	51.86	≤ 54	PASS
				Peak	4500.000	-50.89	≤ -21.20	44.31	≤ 74	PASS
				Peak	5143.300	-34.78	≤ -21.20	60.42	≤ 74	PASS
				Peak	5150.000	-37.65	≤ -21.20	57.55	≤ 74	PASS
		High	5230	AV	5350.000	-55.66	≤ -41.20	39.54	≤ 54	PASS
				AV	5350.800	-55.02	≤ -41.20	40.18	≤ 54	PASS
				AV	5460.000	-56.12	≤ -41.20	39.08	≤ 54	PASS
				Peak	5350.000	-48.67	≤ -21.20	46.53	≤ 74	PASS
				Peak	5378.360	-42.73	≤ -21.20	52.47	≤ 74	PASS
				Peak	5460.000	-50.23	≤ -21.20	44.97	≤ 74	PASS
11AC80 SISO	Ant1	Low	5210	AV	4500.000	-56.99	≤ -41.20	38.21	≤ 54	PASS
				AV	5145.750	-42.8	≤ -41.20	52.40	≤ 54	PASS
				AV	5150.000	-43.23	≤ -41.20	51.97	≤ 54	PASS
				Peak	4500.000	-52.32	≤ -21.20	42.88	≤ 74	PASS
				Peak	5145.750	-31.72	≤ -21.20	63.48	≤ 74	PASS
				Peak	5150.000	-36.17	≤ -21.20	59.03	≤ 74	PASS
		High	5210	AV	5350.000	-53.92	≤ -41.20	41.28	≤ 54	PASS
				AV	5351.360	-53.82	≤ -41.20	41.38	≤ 54	PASS
				AV	5460.000	-55.63	≤ -41.20	39.57	≤ 54	PASS
				Peak	5350.000	-49.9	≤ -21.20	45.30	≤ 74	PASS
				Peak	5438.160	-44.31	≤ -21.20	50.89	≤ 74	PASS
				Peak	5460.000	-49.99	≤ -21.20	45.21	≤ 74	PASS

Note:

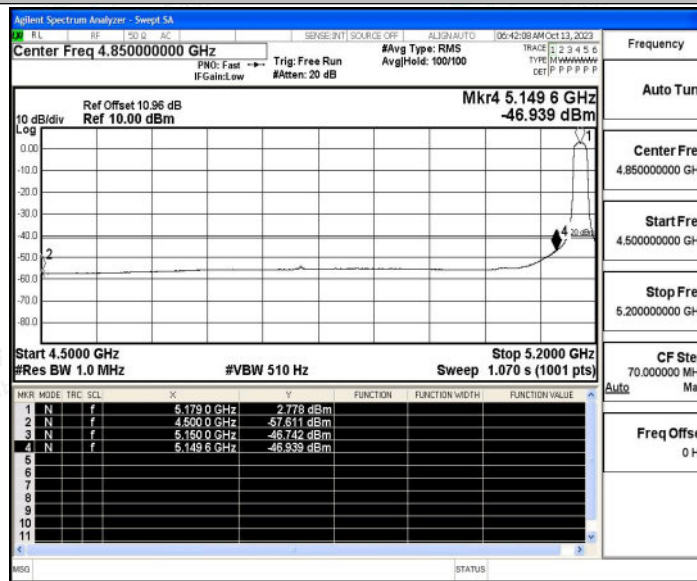
1. The Antenna Gain is compensated in the graph.
2. For transmitters operating in 5150-5350 GHz band and 5470-5725 GHz band: The limit in dBm for average detector is conversion from 54dBuV/m, according to 15.209(a). The limit in dBm for peak detector is 20dB above the limit of average detector in dBm.



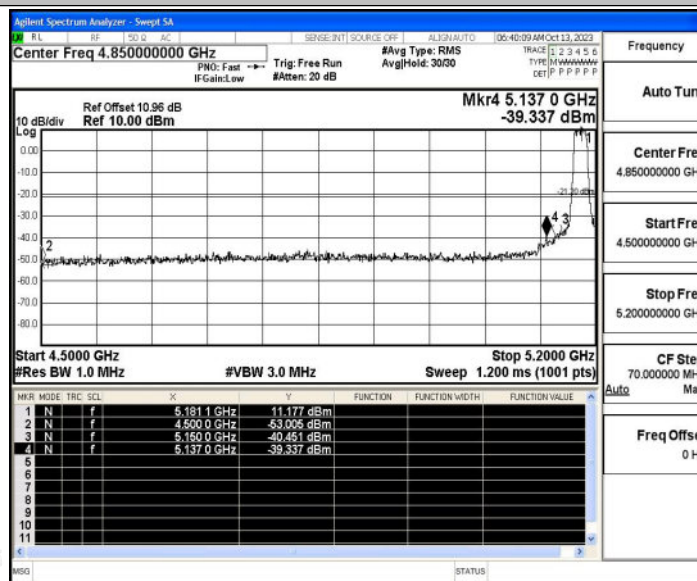


Test Graphs

11A_Ant1_Low_5180_AV

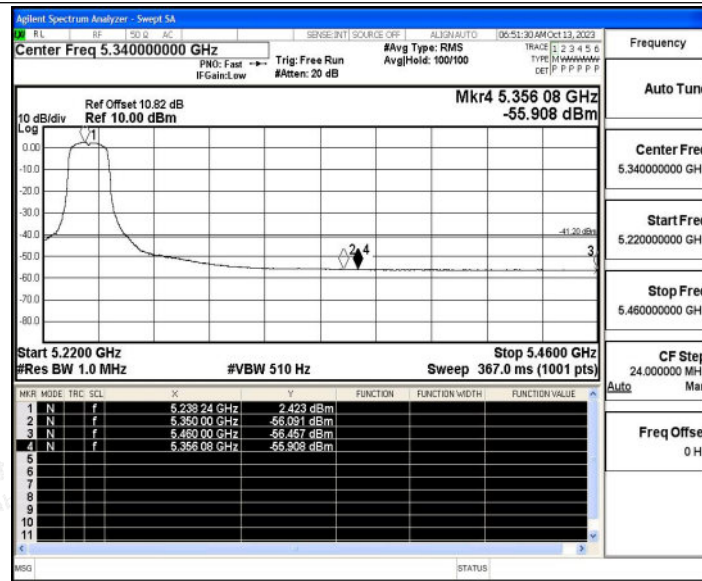


11A_Ant1_Low_5180_Peak

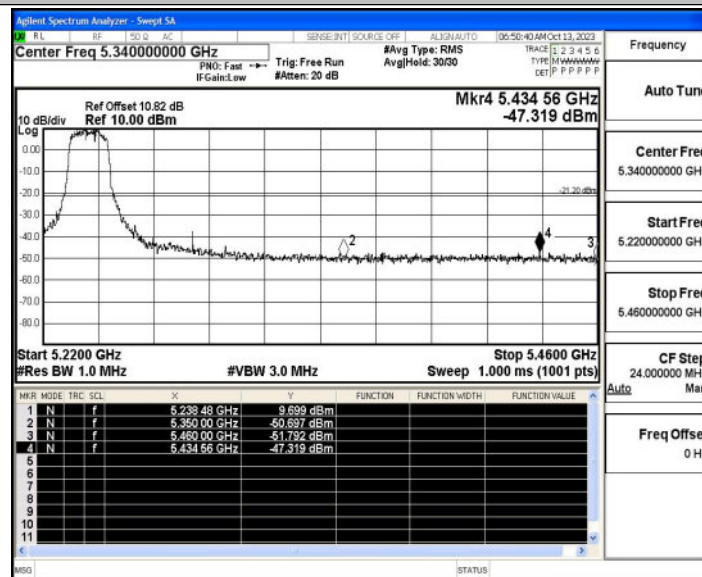


11A_Ant1_High_5240_AV

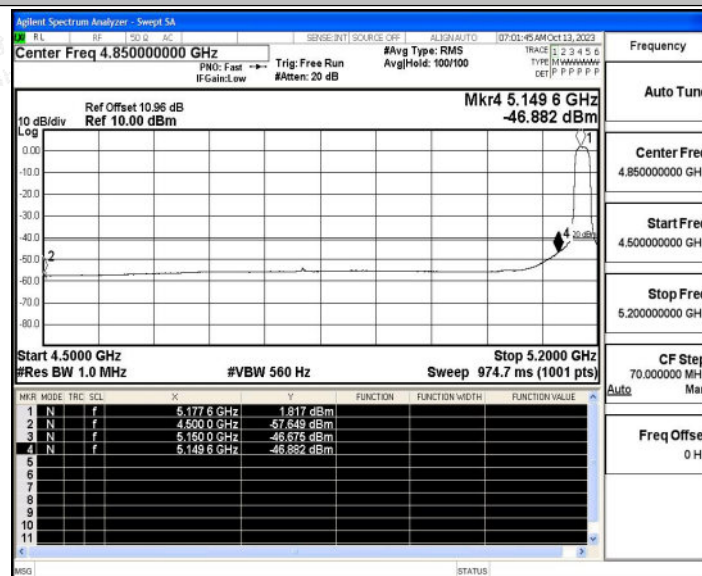




11A_Ant1_High_5240_Peak

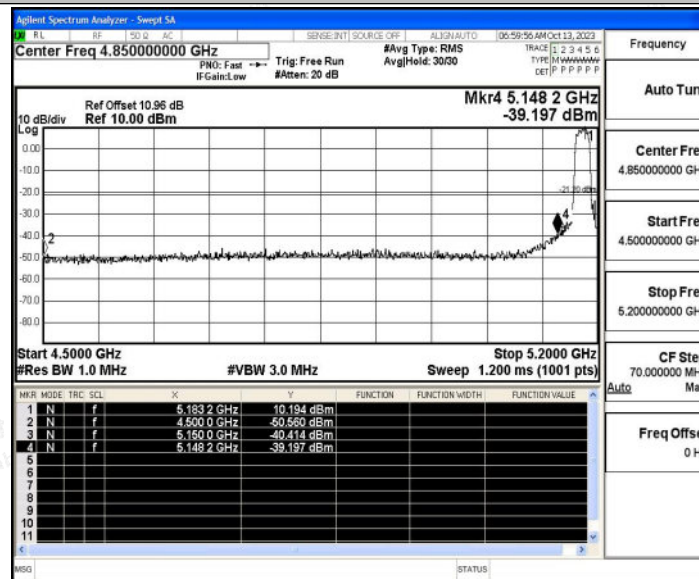


11N20SISO_Ant1_Low_5180_AV

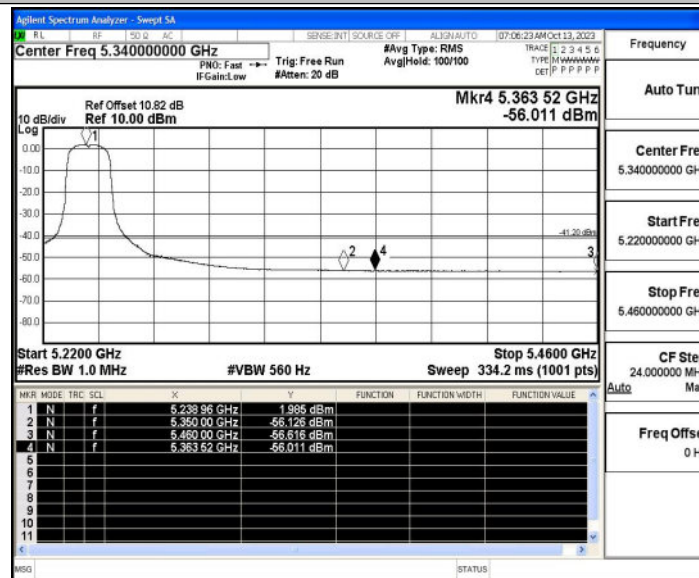




11N20SISO_Ant1_Low_5180_Peak

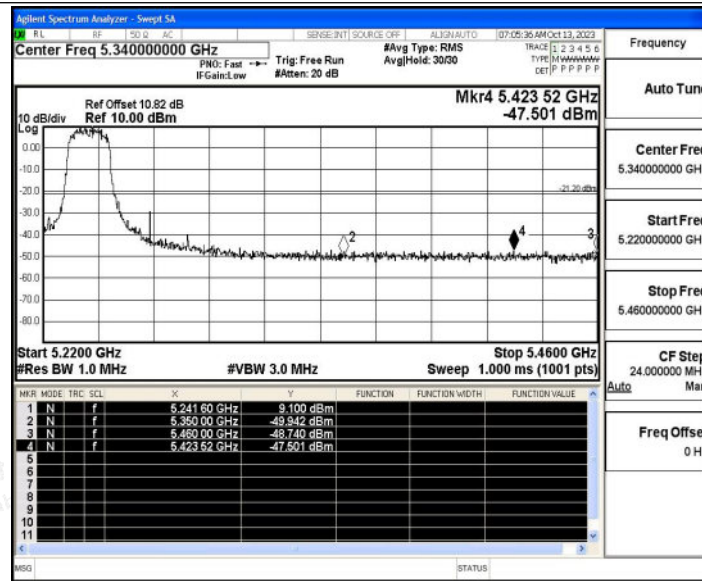


11N20SISO_Ant1_High_5240_AV

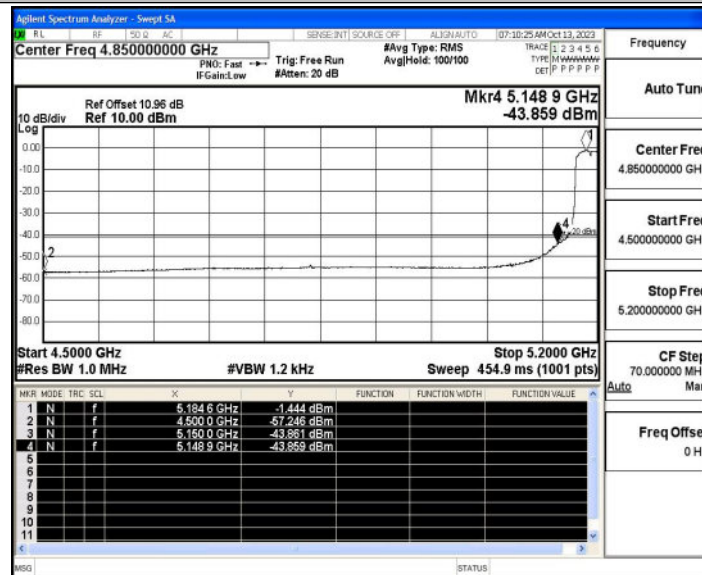


11N20SISO_Ant1_High_5240_Peak

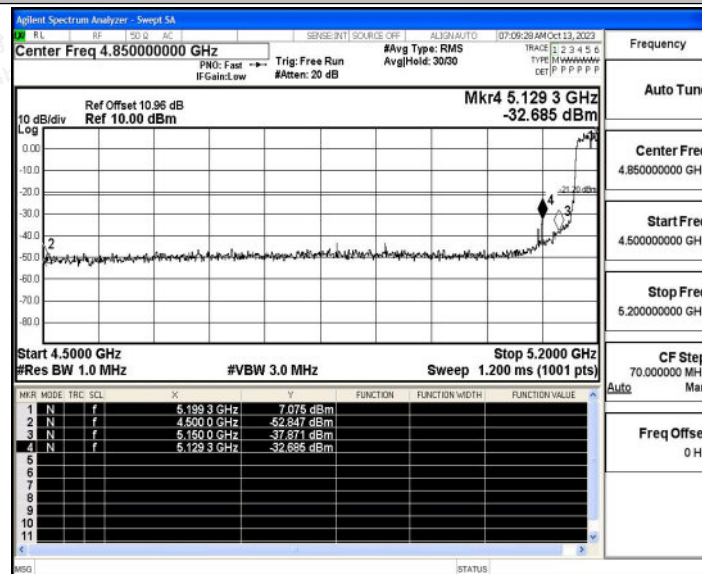




11N40SISO_Ant1_Low_5190_AV

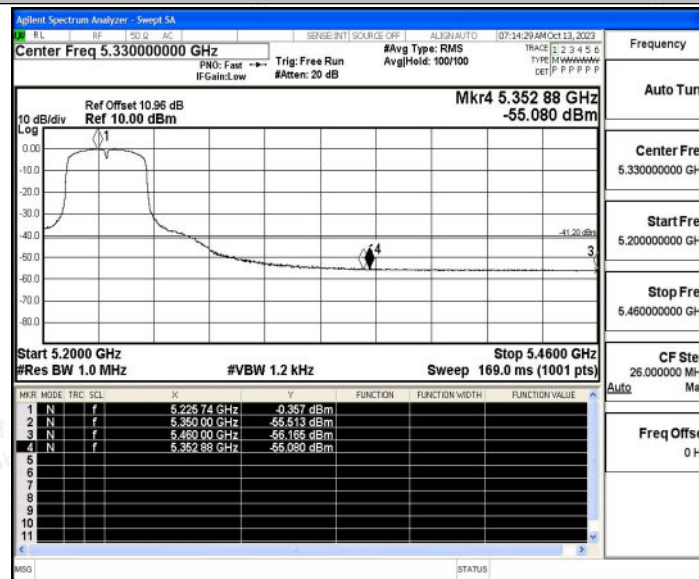


11N40SISO_Ant1_Low_5190_Peak

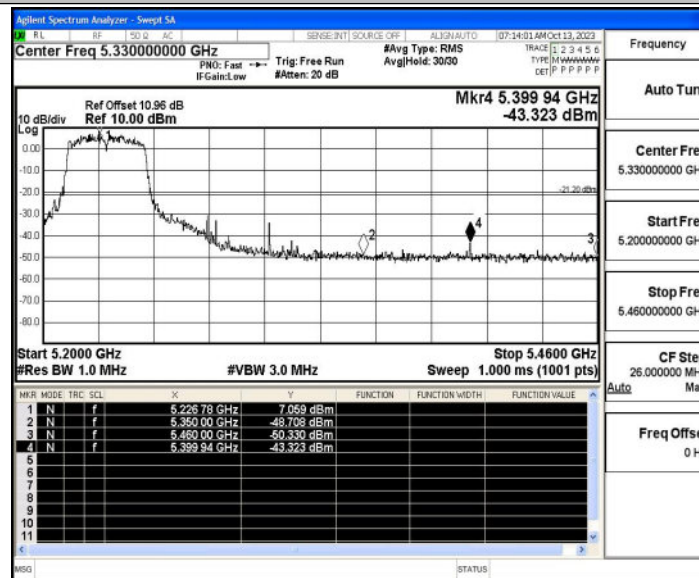




11N40SISO_Ant1_High_5230_AV

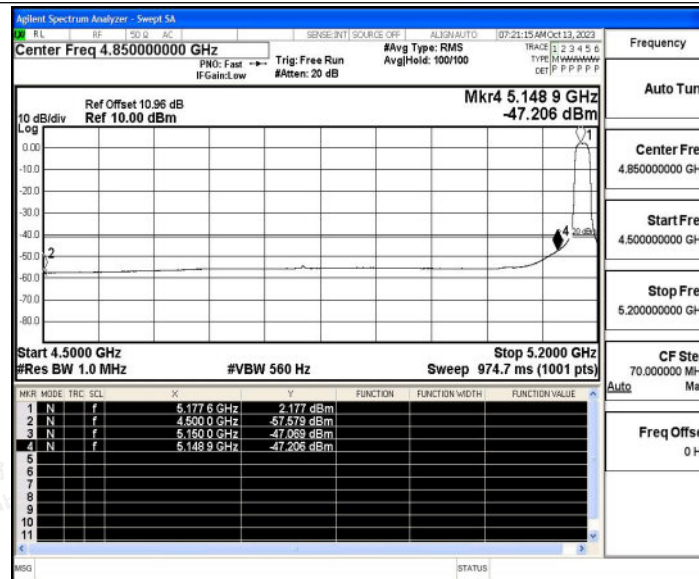


11N40SISO_Ant1_High_5230_Peak

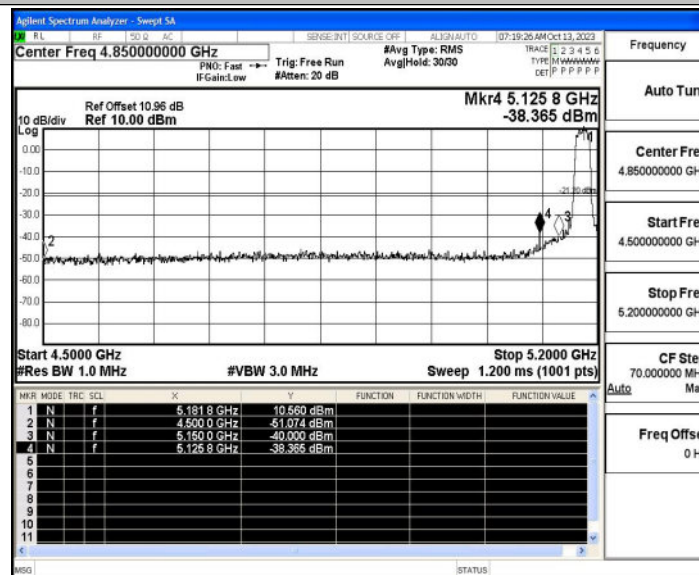


11AC20SISO_Ant1_Low_5180_AV

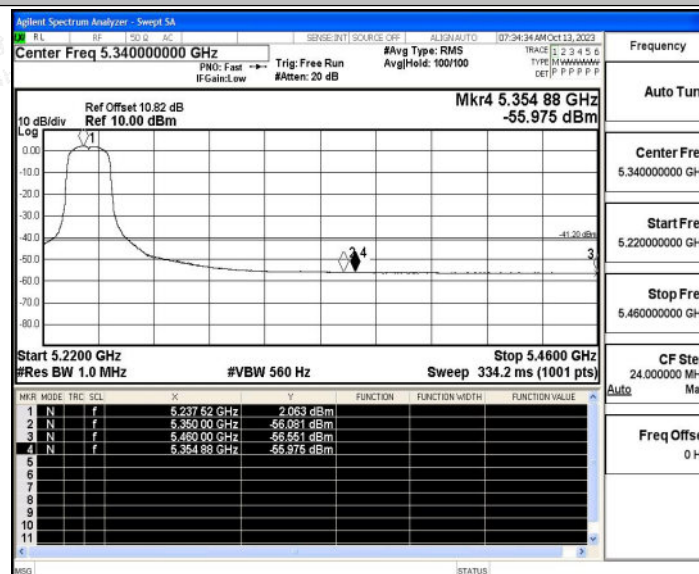




11AC20SISO_Ant1_Low_5180_Peak



11AC20SISO_Ant1_High_5240_AV



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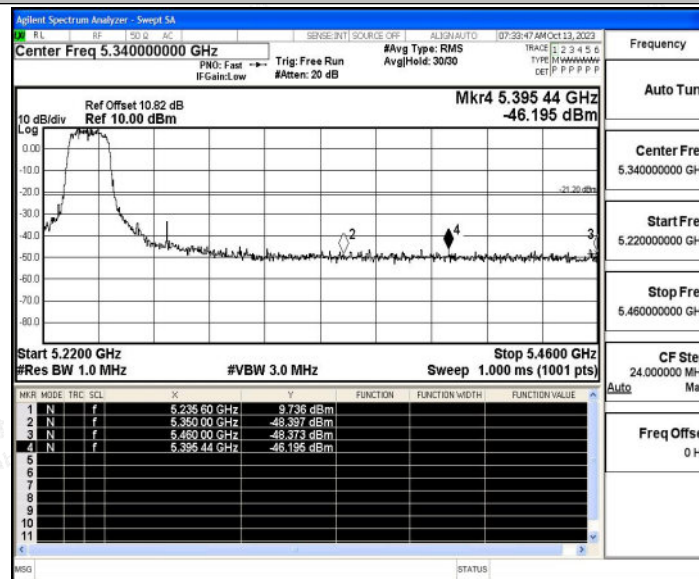
Add: 101, 201 Bldg A & 301 Bldg C, Juji Industrial Park Yabianxueziwei, Shajing Street, Baoan District, Shenzhen, 518000, China

Tel: +(86) 0755-82591330 | E-mail: webmaster@lcs-cert.com | Web: www.lcs-cert.com

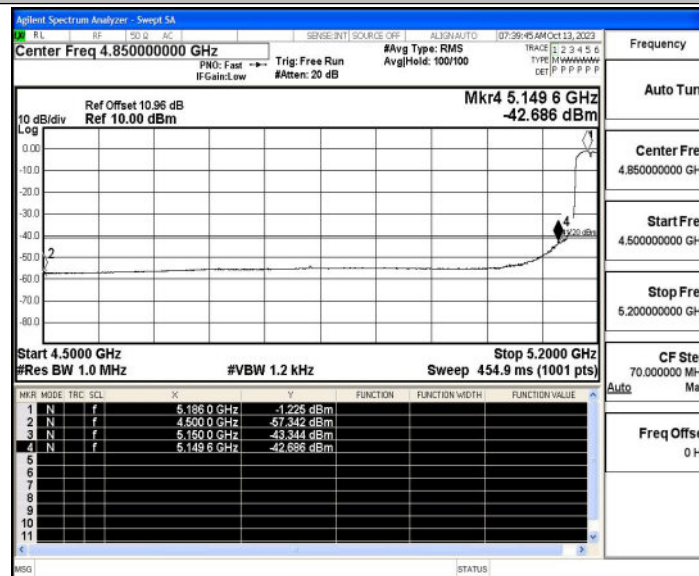
Scan code to check authenticity



11AC20SISO_Ant1_High_5240_Peak

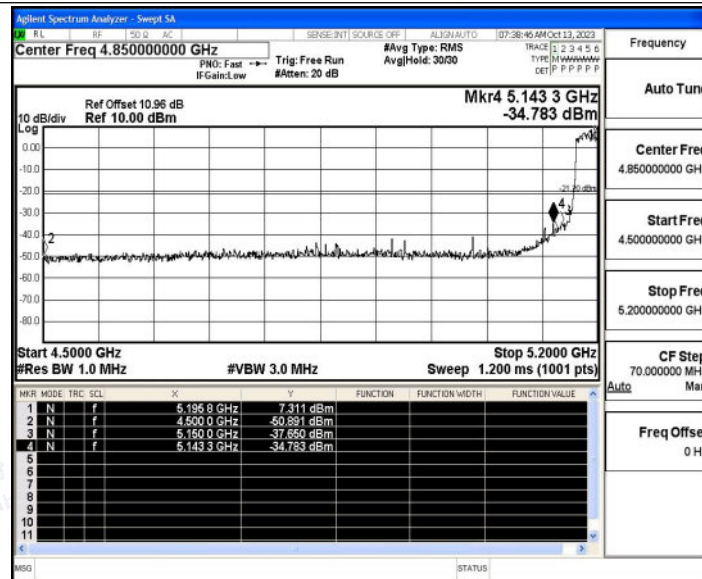


11AC40SISO_Ant1_Low_5190_AV

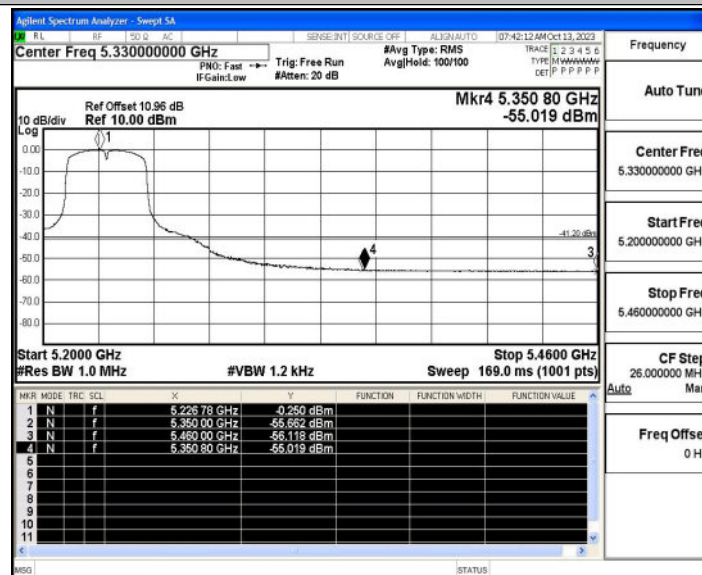


11AC40SISO_Ant1_Low_5190_Peak

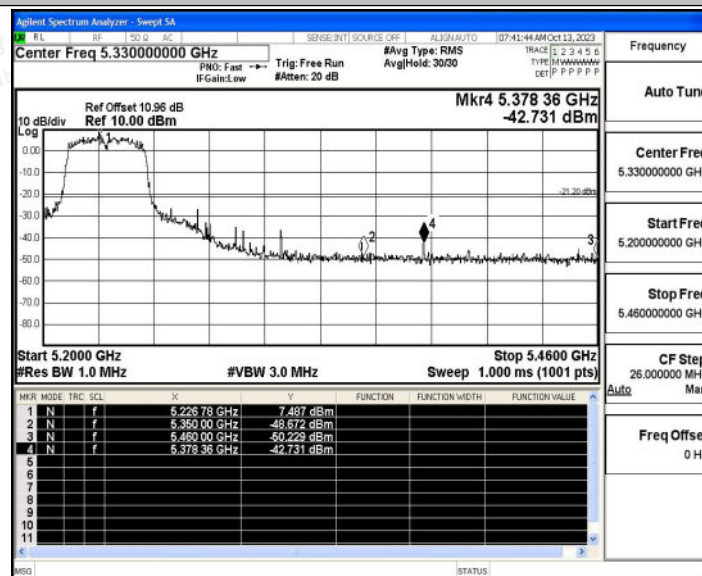




11AC40SISO_Ant1_High_5230_AV

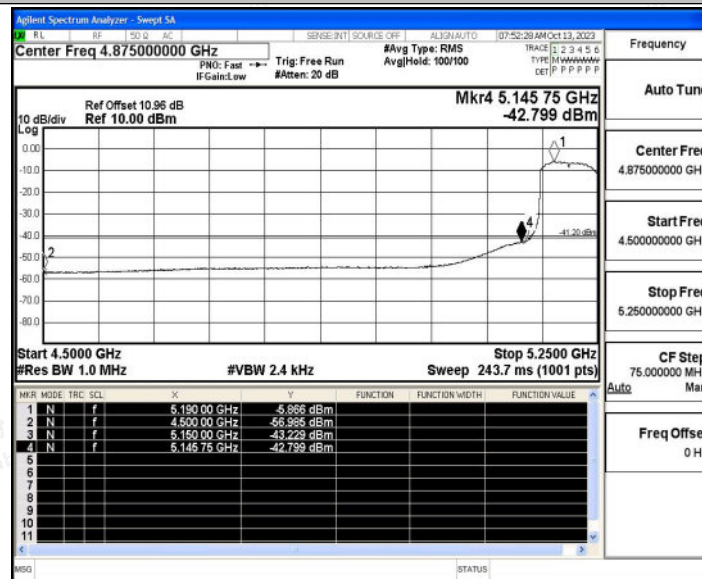


11AC40SISO_Ant1_High_5230_Peak

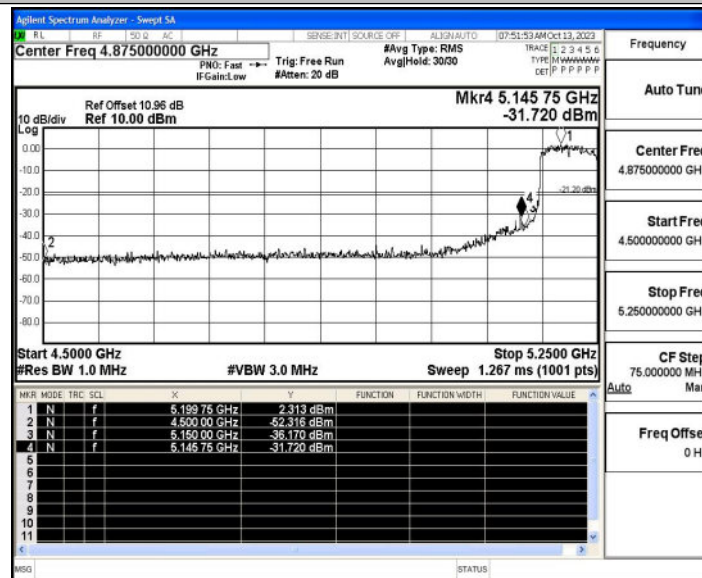




11AC80SISO_Ant1_Low_5210_AV



11AC80SISO_Ant1_Low_5210_Peak



11AC80SISO_Ant1_High_5210_AV

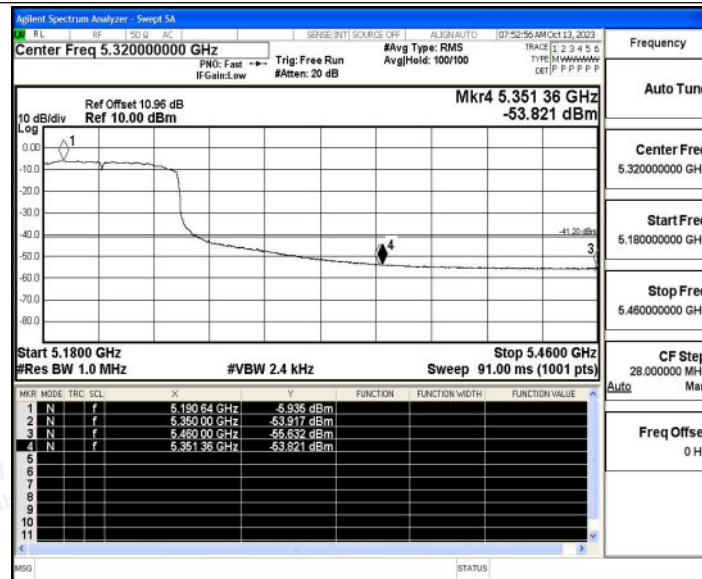


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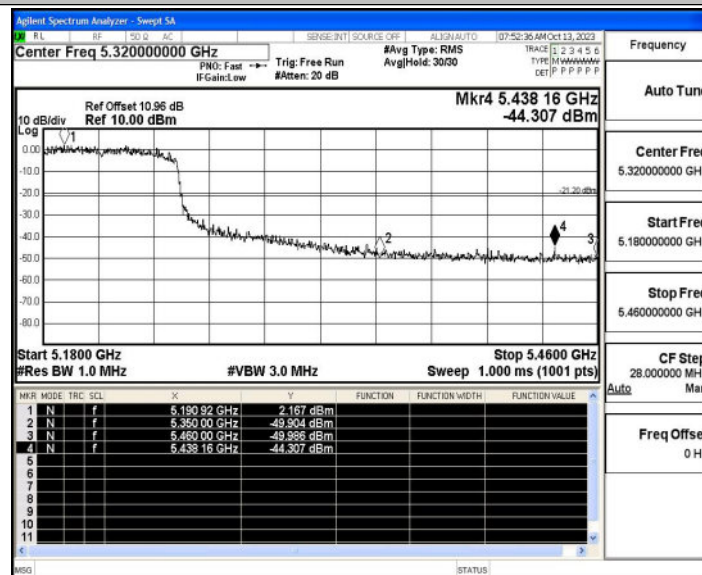
Add: 101, 201 Bldg A & 301 Bldg C, Juji Industrial Park Yabianxueziwei, Shajing Street, Baoan District, Shenzhen, 518000, China

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11AC80SISO_Ant1_High_5210_Peak





D.5 Frequency Stability

Test Result

Voltage								
TestMode	Antenna	Frequency [MHz]	Voltage [Vdc]	Temperature (°C)	Deviation (Hz)	Deviation (ppm)	Limit (ppm)	Verdict
11A	Ant1	5180	NV	NT	-20000.00	-3.861004	20	PASS
			LV	NT	-20000.00	-3.861004	20	PASS
			HV	NT	-20000.00	-3.861004	20	PASS
		5220	NV	NT	-40000.00	-7.662835	20	PASS
			LV	NT	-20000.00	-3.831418	20	PASS
			HV	NT	-20000.00	-3.831418	20	PASS
		5240	NV	NT	-20000.00	-3.816794	20	PASS
			LV	NT	-20000.00	-3.816794	20	PASS
			HV	NT	-20000.00	-3.816794	20	PASS
11N40SISO	Ant1	5190	NV	NT	-40000.00	-7.707129	20	PASS
			LV	NT	-40000.00	-7.707129	20	PASS
			HV	NT	0.00	0.000000	20	PASS
		5230	NV	NT	-40000.00	-7.648184	20	PASS
			LV	NT	-40000.00	-7.648184	20	PASS
			HV	NT	-40000.00	-7.648184	20	PASS
11AC80SISO	Ant1	5210	NV	NT	80000.00	15.355086	20	PASS
			LV	NT	-80000.00	-15.355086	20	PASS
			HV	NT	-80000.00	-15.355086	20	PASS

Temperature								
TestMode	Antenna	Frequency [MHz]	Voltage [Vdc]	Temperature (°C)	Deviation (Hz)	Deviation (ppm)	Limit (ppm)	Verdict
11A	Ant1	5180	NV	-30	-20000.00	-3.861004	20	PASS
			NV	-20	-20000.00	-3.861004	20	PASS
			NV	-10	-20000.00	-3.861004	20	PASS
			NV	0	-20000.00	-3.861004	20	PASS
			NV	10	-20000.00	-3.861004	20	PASS
			NV	20	-20000.00	-3.861004	20	PASS
			NV	30	-20000.00	-3.861004	20	PASS
			NV	40	-20000.00	-3.861004	20	PASS
			NV	50	-20000.00	-3.861004	20	PASS
		5220	NV	-30	-20000.00	-3.831418	20	PASS
			NV	-20	-20000.00	-3.831418	20	PASS
			NV	-10	-20000.00	-3.831418	20	PASS
			NV	0	-20000.00	-3.831418	20	PASS
			NV	10	-20000.00	-3.831418	20	PASS
			NV					



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			NV	20	-20000.00	-3.831418	20	PASS
			NV	30	-20000.00	-3.831418	20	PASS
			NV	40	-20000.00	-3.831418	20	PASS
			NV	50	-20000.00	-3.831418	20	PASS
		5240	NV	-30	-20000.00	-3.816794	20	PASS
			NV	-20	-20000.00	-3.816794	20	PASS
			NV	-10	-20000.00	-3.816794	20	PASS
			NV	0	-20000.00	-3.816794	20	PASS
			NV	10	-20000.00	-3.816794	20	PASS
			NV	20	-20000.00	-3.816794	20	PASS
			NV	30	-40000.00	-7.633588	20	PASS
			NV	40	-20000.00	-3.816794	20	PASS
			NV	50	-20000.00	-3.816794	20	PASS
11N40SISO	Ant1	5190	NV	-30	0.00	0.000000	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	-7.707129	20	PASS
			NV	20	0.00	0.000000	20	PASS
			NV	30	-40000.00	-7.707129	20	PASS
			NV	40	-40000.00	-7.707129	20	PASS
			NV	50	-40000.00	-7.707129	20	PASS
		5230	NV	-30	-40000.00	-7.648184	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	-7.648184	20	PASS
			NV	20	-40000.00	-7.648184	20	PASS
			NV	30	40000.00	7.648184	20	PASS
			NV	40	-40000.00	-7.648184	20	PASS
			NV	50	0.00	0.000000	20	PASS
11AC80SIS O	Ant1	5210	NV	-30	0.00	0.000000	20	PASS
			NV	-20	0.00	0.000000	20	PASS
			NV	-10	-80000.00	-15.355086	20	PASS
			NV	0	0.00	0.000000	20	PASS
			NV	10	-80000.00	-15.355086	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





D.6 Duty Cycle

Test Result

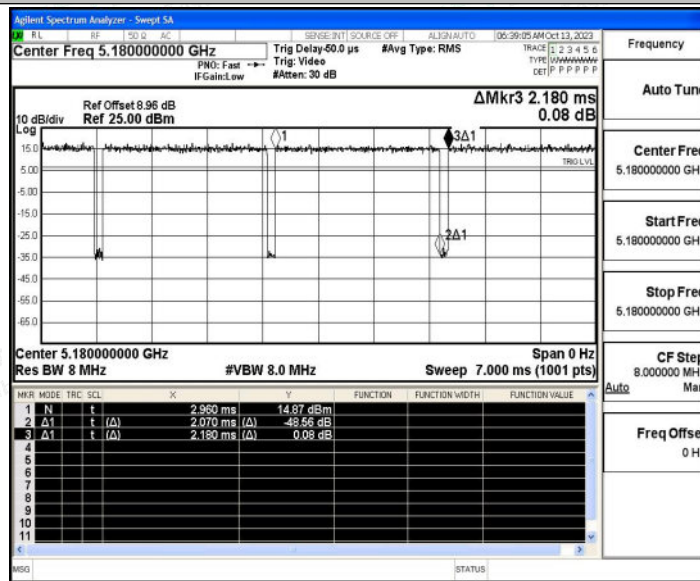
TestMode	Antenna	Frequency[MHz]	Transmission Duration [ms]	Transmission Period [ms]	Duty Cycle [%]
11A	Ant1	5180	2.07	2.18	94.95
		5220	2.07	2.18	94.95
		5240	2.06	2.17	94.93
11N20SISO	Ant1	5180	1.92	2.04	94.12
		5220	1.92	2.04	94.12
		5240	1.93	2.05	94.15
11N40SISO	Ant1	5190	0.95	1.06	89.62
		5230	0.95	1.06	89.62
11AC20SISO	Ant1	5180	1.93	2.04	94.61
		5220	1.93	2.04	94.61
		5240	1.92	2.03	94.58
11AC40SISO	Ant1	5190	0.95	1.06	89.62
		5230	0.95	1.06	89.62
11AC80SISO	Ant1	5210	0.46	0.57	80.70



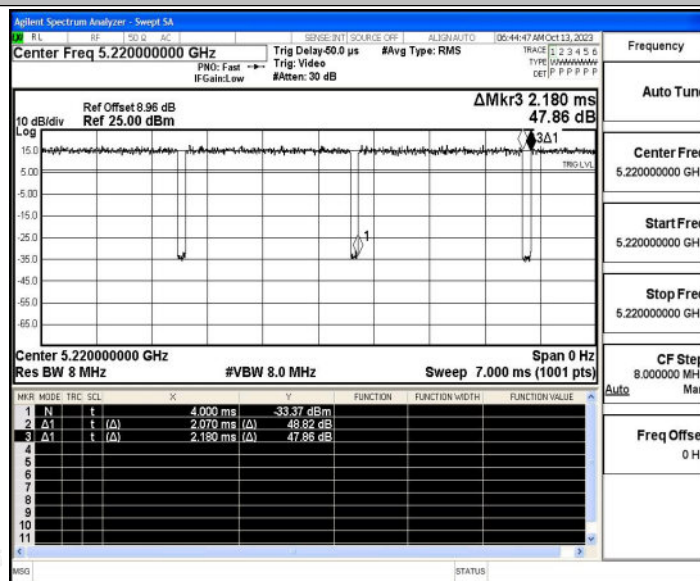


Test Graphs

11A_Ant1_5180

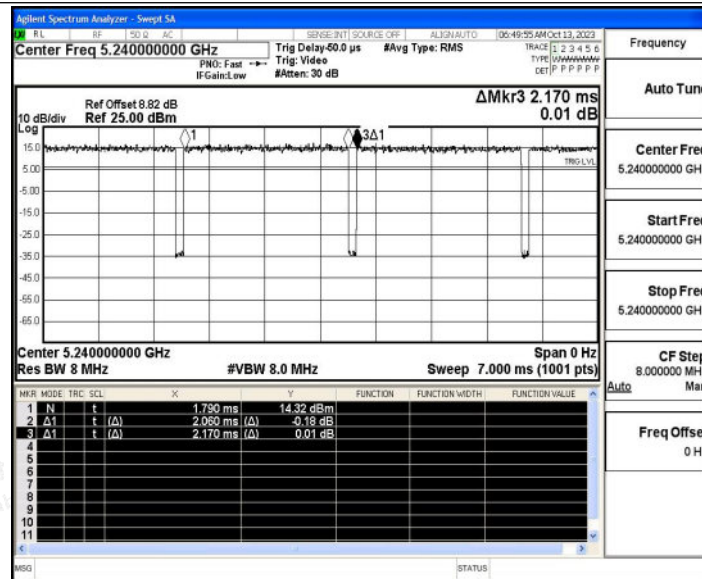


11A_Ant1_5220

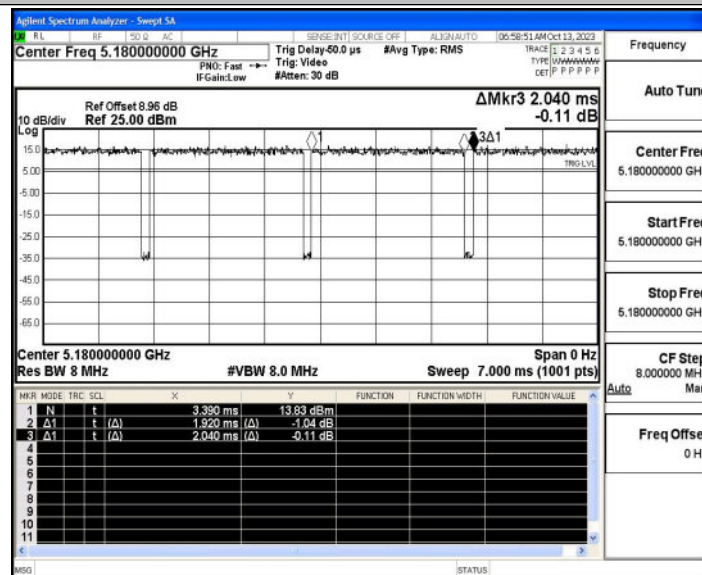


11A_Ant1_5240

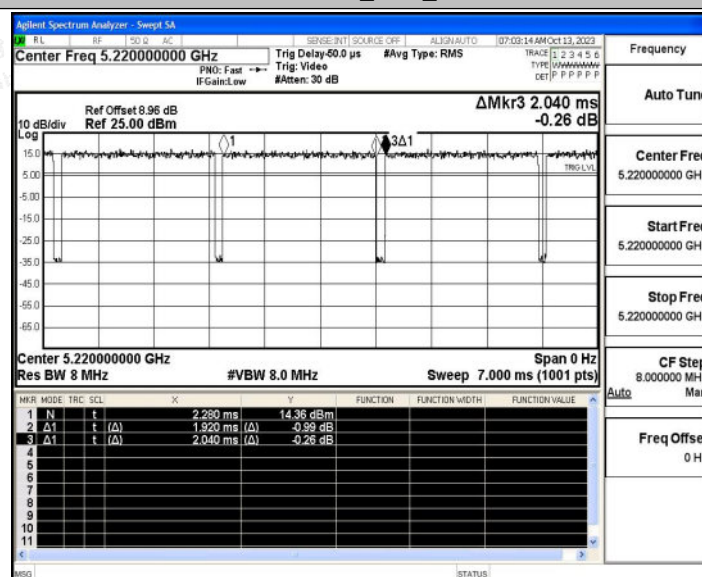




11N20SISO_Ant1_5180

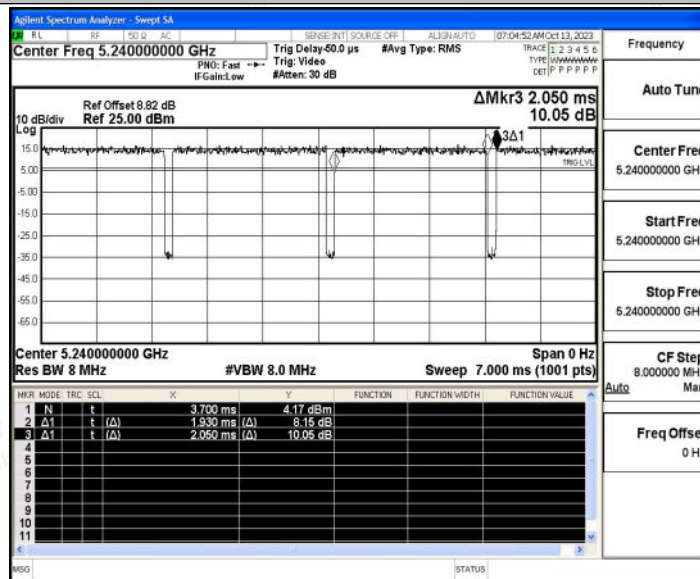


11N20SISO_Ant1_5220

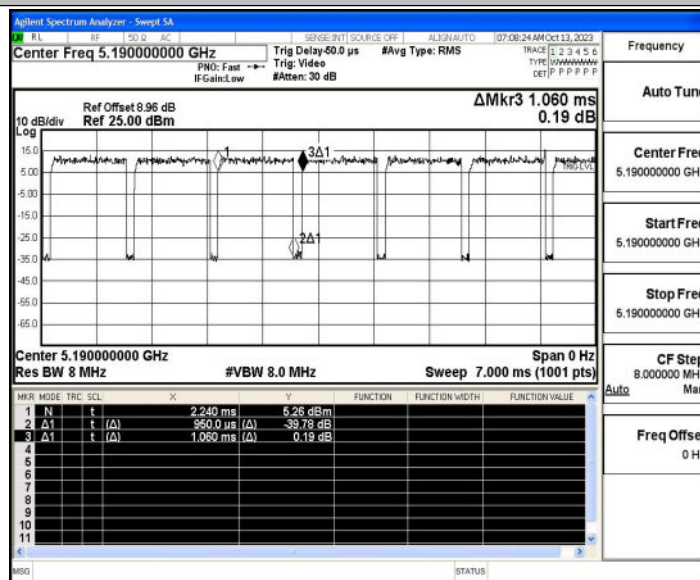




11N20SISO_Ant1_5240

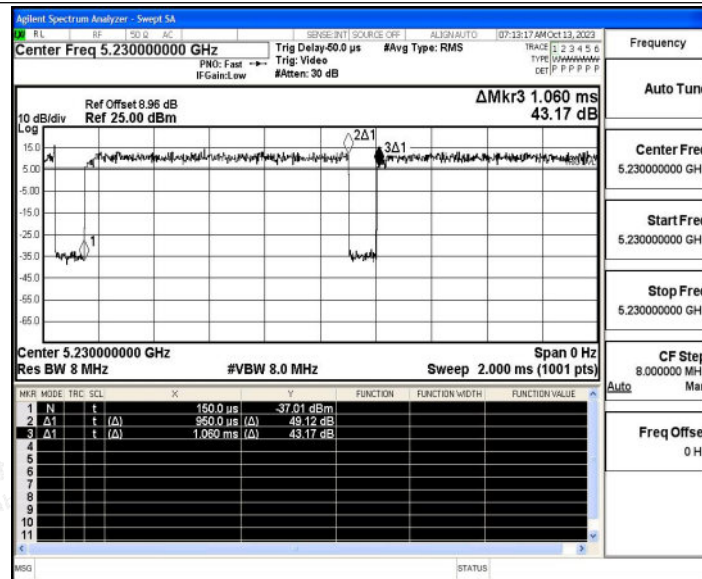


11N40SISO_Ant1_5190

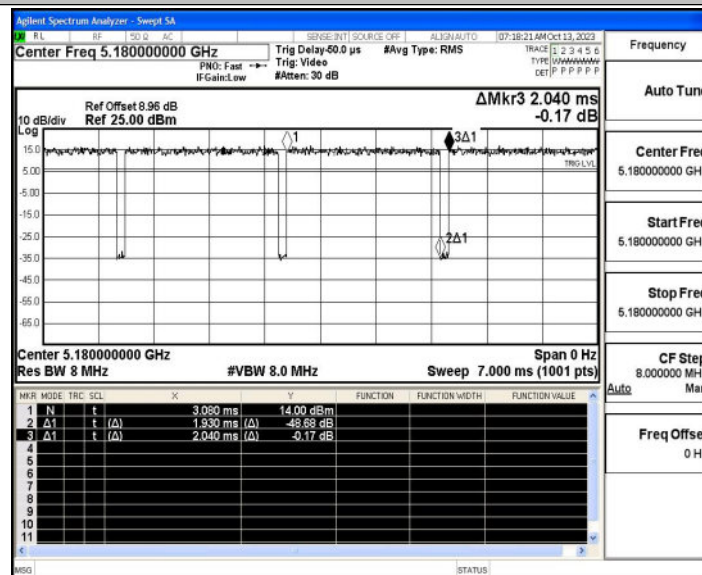


11N40SISO_Ant1_5230

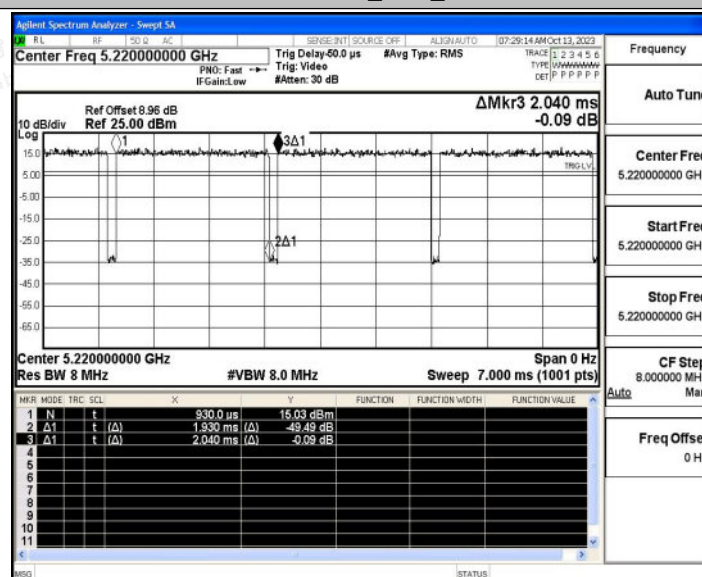




11AC20SISO_Ant1_5180

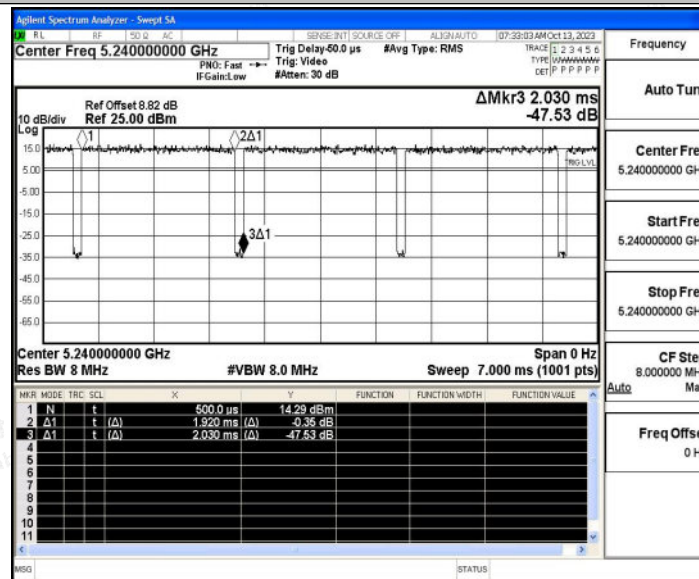


11AC20SISO_Ant1_5220

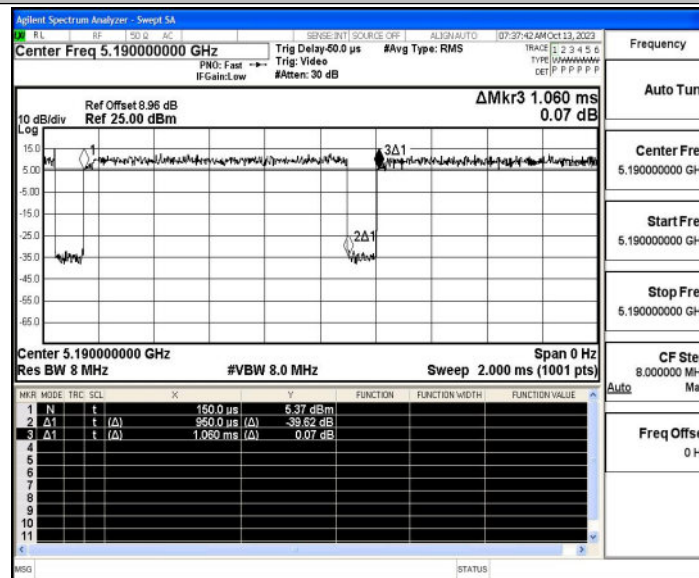




11AC20SISO_Ant1_5240

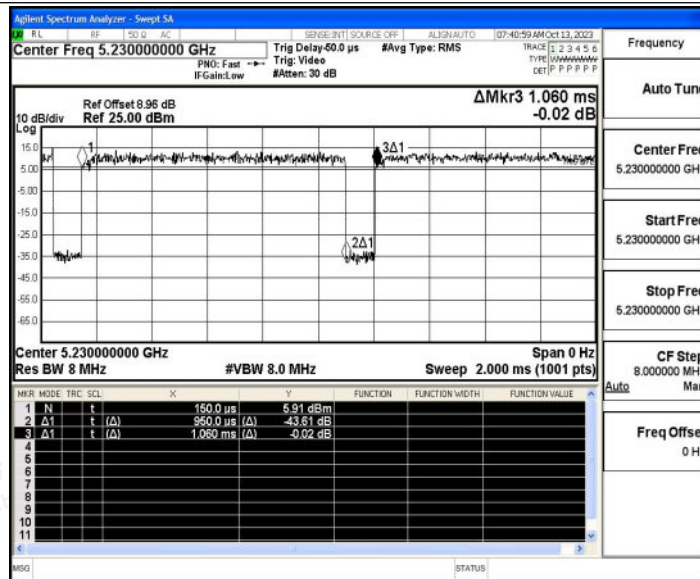


11AC40SISO_Ant1_5190



11AC40SISO_Ant1_5230





11AC80SISO_Ant1_5210

