



Appendix C

RF Test Data for 2.4G WIFI (Conducted Measurement)

Product Name: Personal Mobile Alarm System

Test Model: PAL 4

Environmental Conditions

Temperature:	23.9° C
Relative Humidity:	52.2%
ATM Pressure:	100.0 kPa
Test Engineer:	Ling Zhu
Supervised by:	Li huan





C.1 6dB Bandwidth

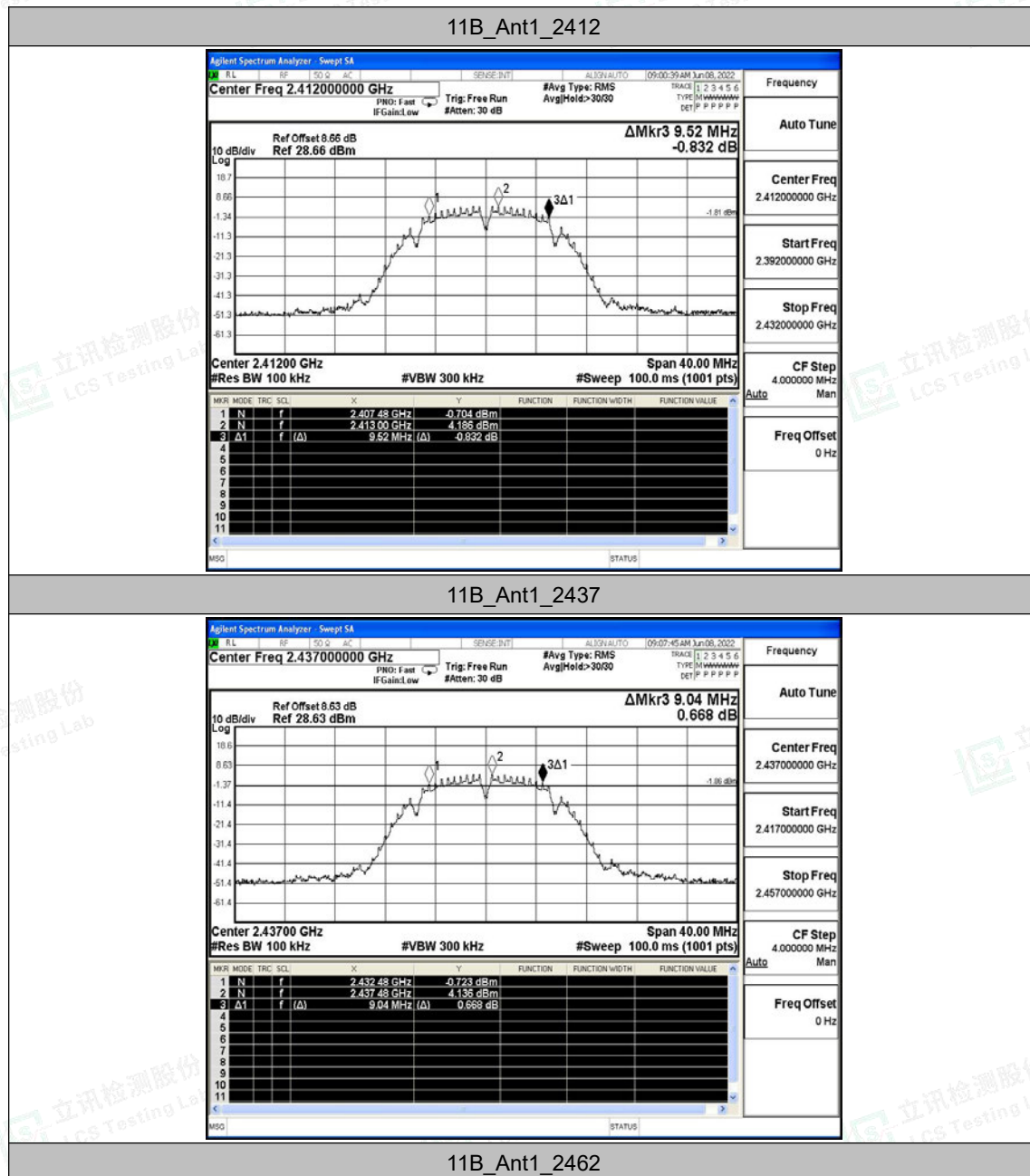
Test Result

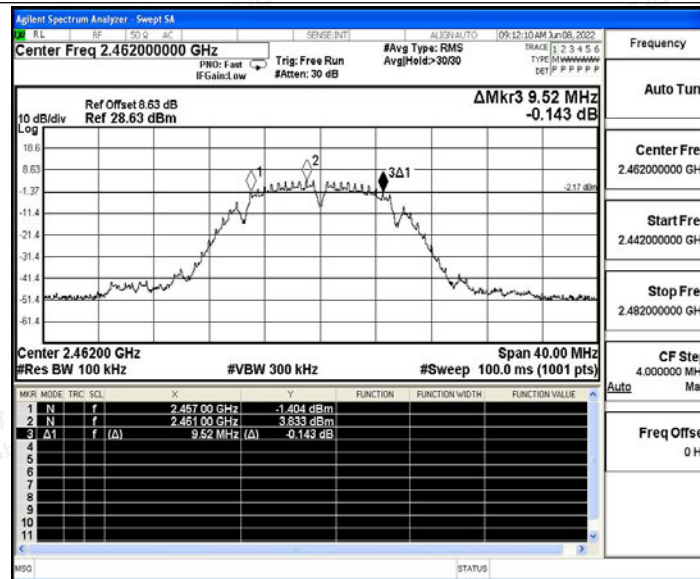
TestMode	Antenna	Channel	DTS BW [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
11B	Ant1	2412	9.520	2407.480	2417.000	0.5	PASS
		2437	9.040	2432.480	2441.520	0.5	PASS
		2462	9.520	2457.000	2466.520	0.5	PASS
11G	Ant1	2412	16.360	2403.840	2420.200	0.5	PASS
		2437	16.320	2428.840	2445.160	0.5	PASS
		2462	16.120	2453.760	2469.880	0.5	PASS
11N20SISO	Ant1	2412	17.600	2403.200	2420.800	0.5	PASS
		2437	17.560	2428.240	2445.800	0.5	PASS
		2462	17.280	2453.200	2470.480	0.5	PASS



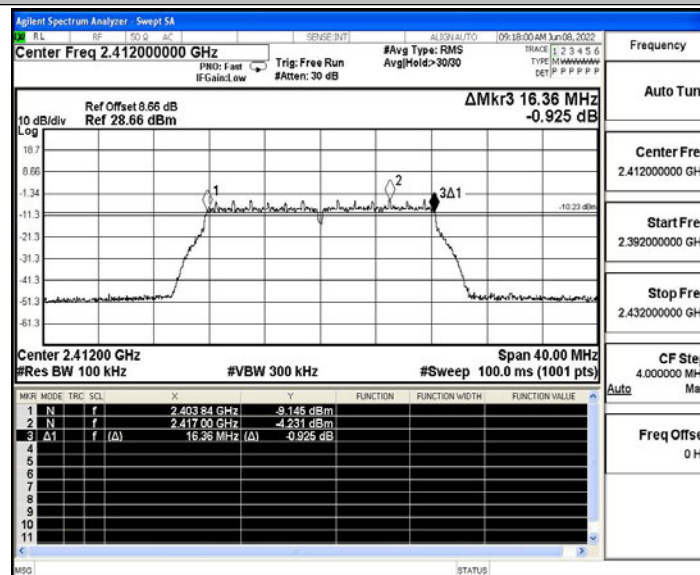


Test Graphs





11G_Ant1_2412



11G_Ant1_2437

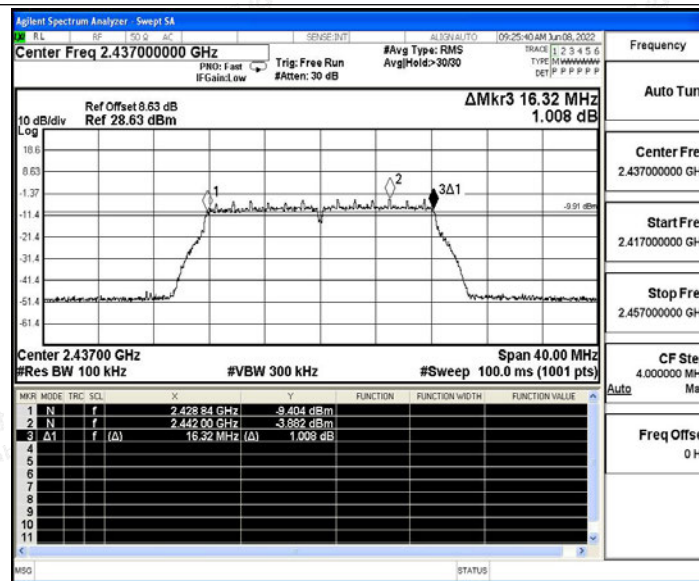


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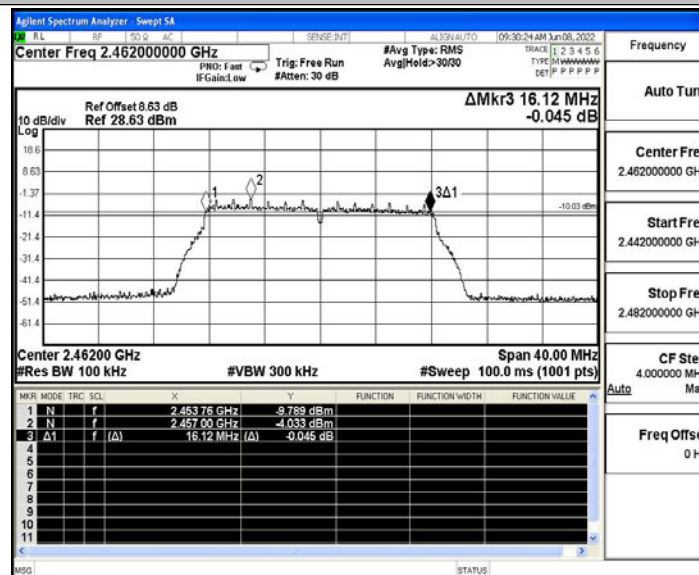
Add: 101, 201 Bldg A & 301 Bldg C, Juji Industrial Park Yabianxueziwei, Shajing Street, Baoan District, Shenzhen, 518000, China

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11G_Ant1_2462



11N20SISO_Ant1_2412

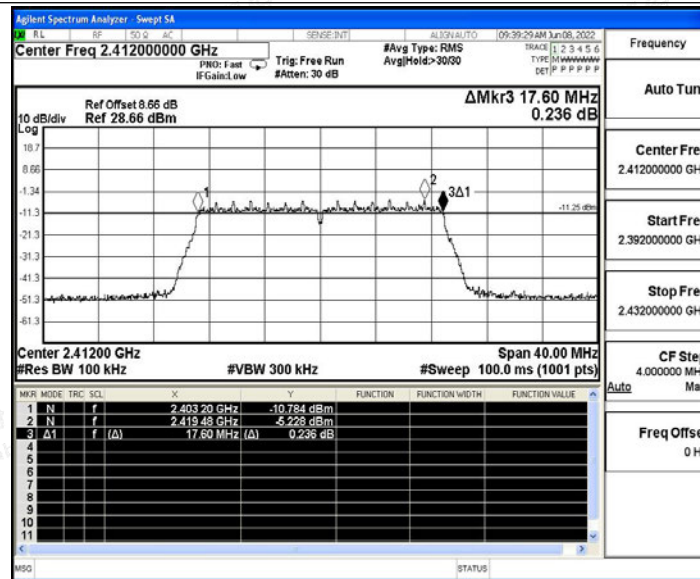


Shenzhen LCS Compliance Testing Laboratory Ltd.

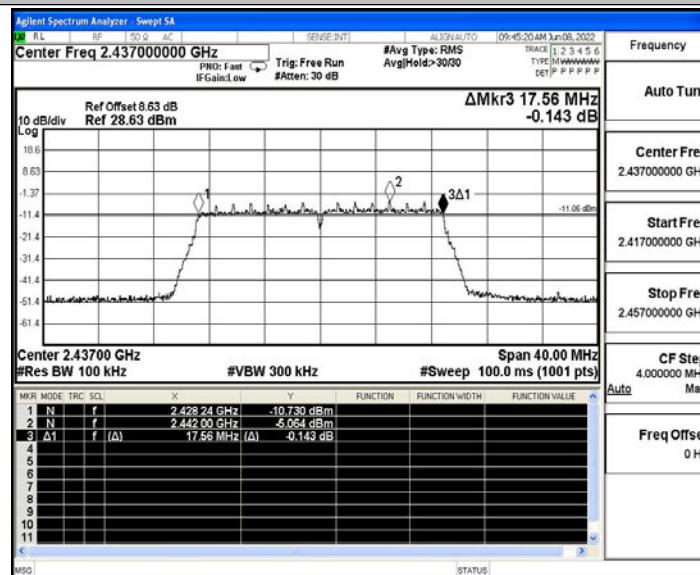
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11N20SISO_Ant1_2437



11N20SISO_Ant1_2462

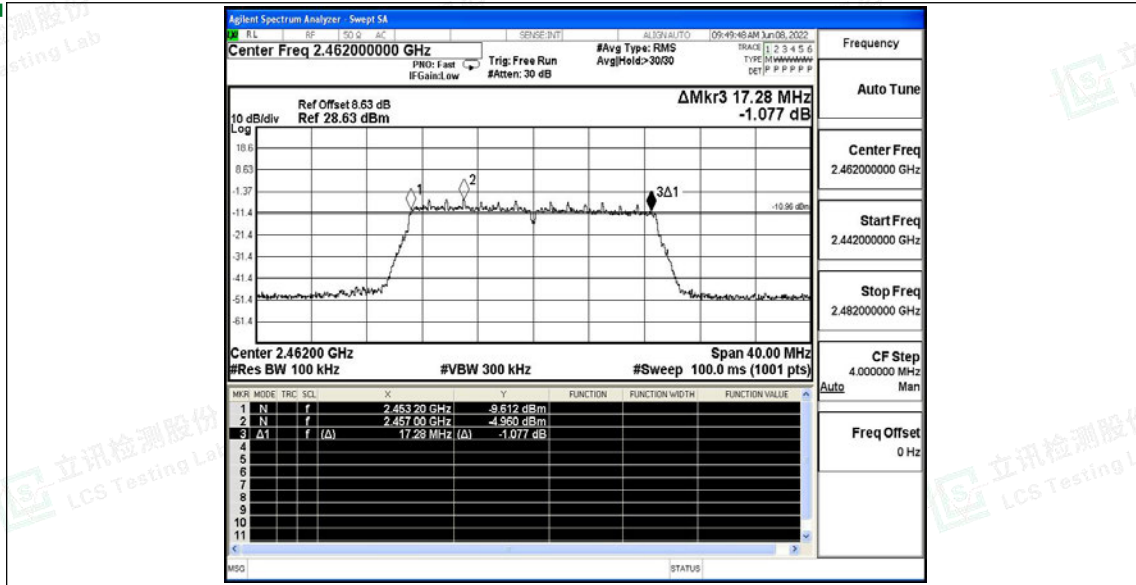


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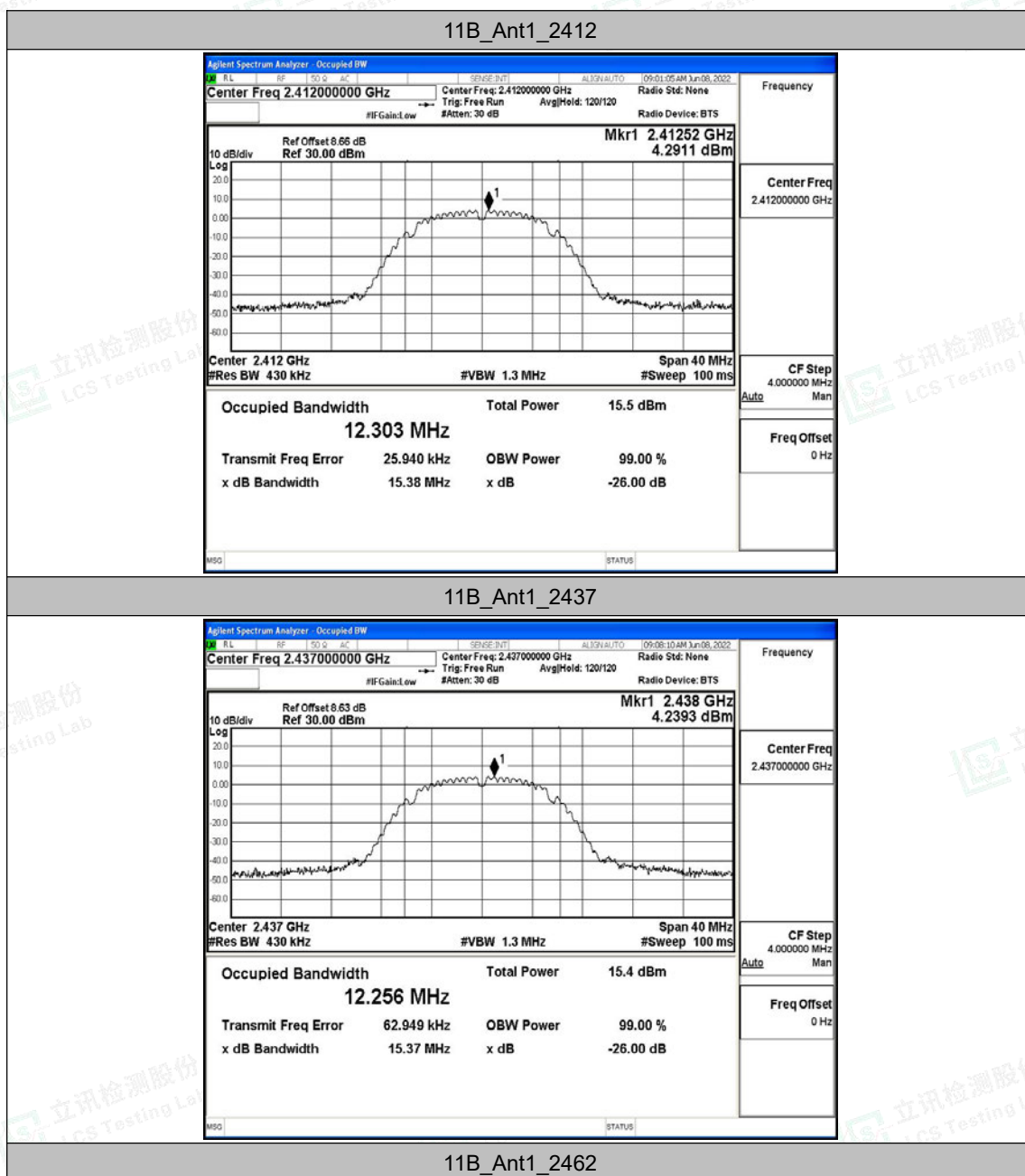
C.2 Occupied Channel Bandwidth

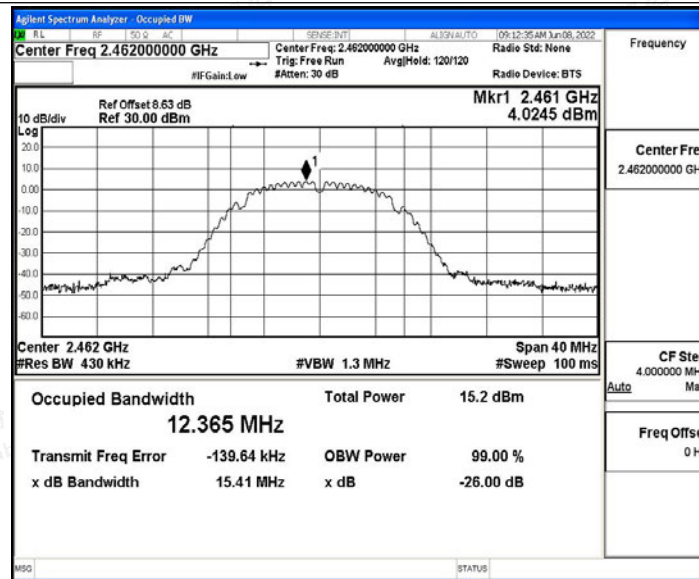
Test Result

TestMode	Antenna	Channel	OCB [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
11B	Ant1	2412	12.303	2405.874	2418.177	---	---
		2437	12.256	2430.935	2443.191	---	---
		2462	12.365	2455.678	2468.043	---	---
11G	Ant1	2412	17.125	2403.500	2420.625	---	---
		2437	16.859	2428.621	2445.480	---	---
		2462	17.007	2453.366	2470.373	---	---
11N20SISO	Ant1	2412	17.989	2403.015	2421.004	---	---
		2437	17.901	2428.092	2445.993	---	---
		2462	17.946	2452.939	2470.885	---	---

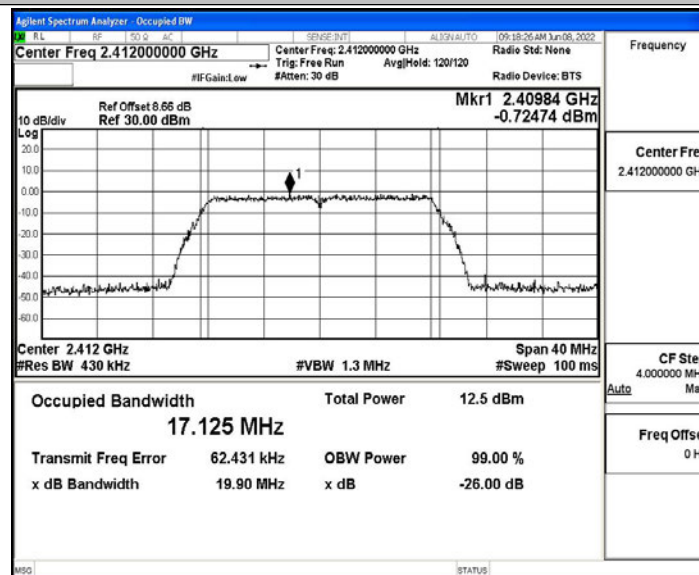


Test Graphs



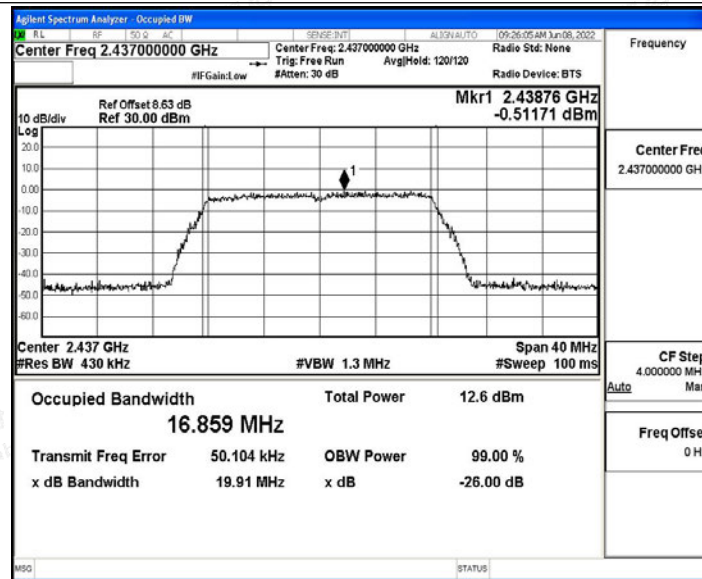


11G_Ant1_2412

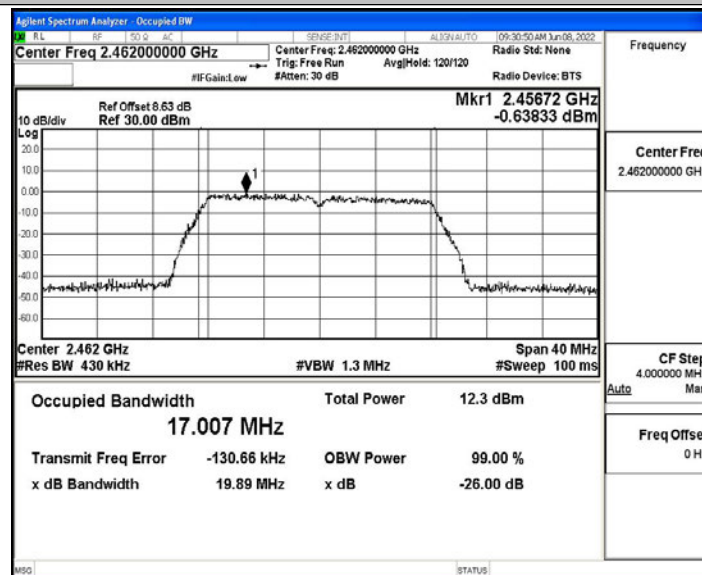


11G_Ant1_2437





11G_Ant1_2462



11N20SISO_Ant1_2412

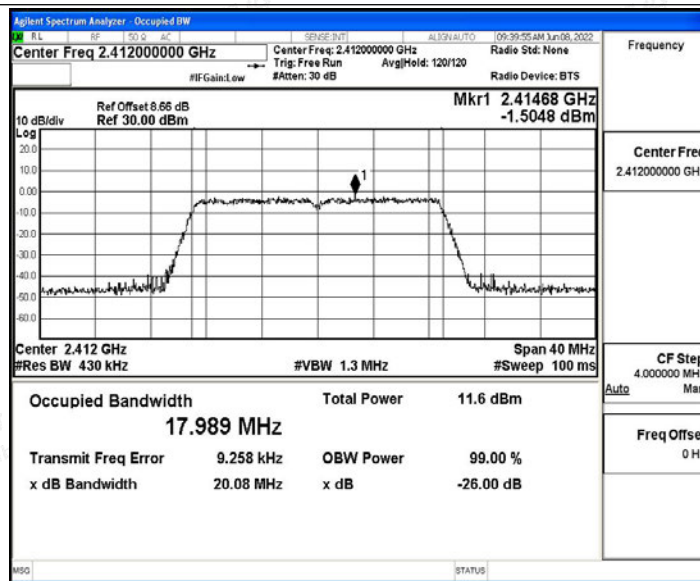


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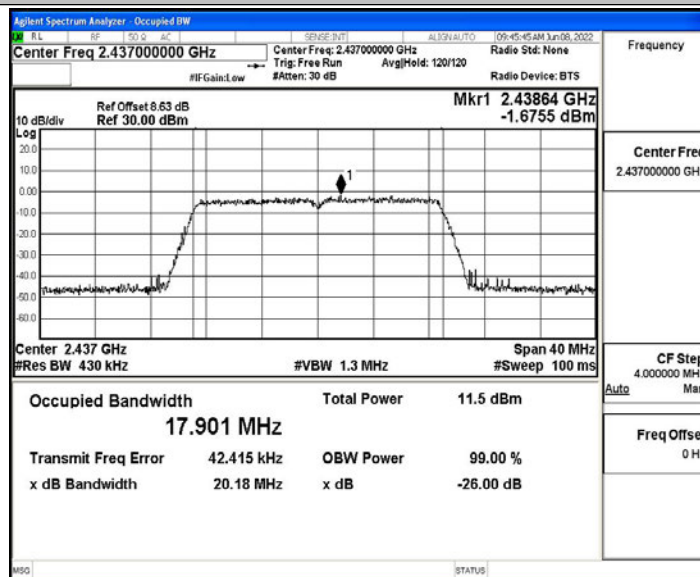
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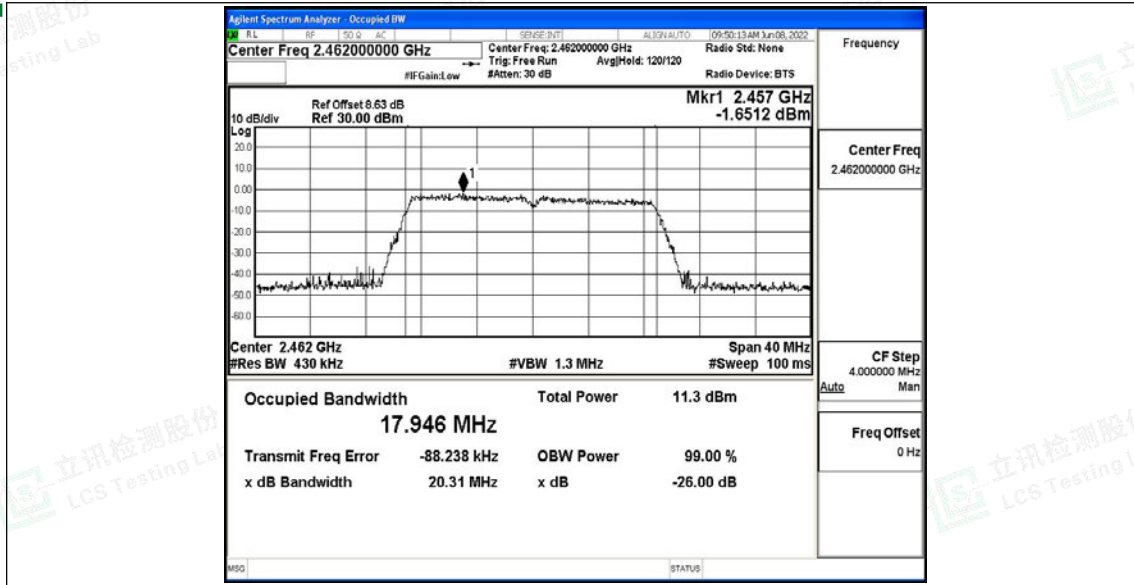


11N20SISO_Ant1_2437



11N20SISO_Ant1_2462





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C.3 Maximum conducted output power

Test Result

TestMode	Antenna	Channel	Result[dBm]	Limit[dBm]	Verdict
11B	Ant1	2412	15.75	≤30.00	PASS
		2437	15.65	≤30.00	PASS
		2462	15.43	≤30.00	PASS
11G	Ant1	2412	15.04	≤30.00	PASS
		2437	15.16	≤30.00	PASS
		2462	14.79	≤30.00	PASS
11N20SISO	Ant1	2412	14.06	≤30.00	PASS
		2437	14.02	≤30.00	PASS
		2462	13.80	≤30.00	PASS





C.4 Maximum power spectral density

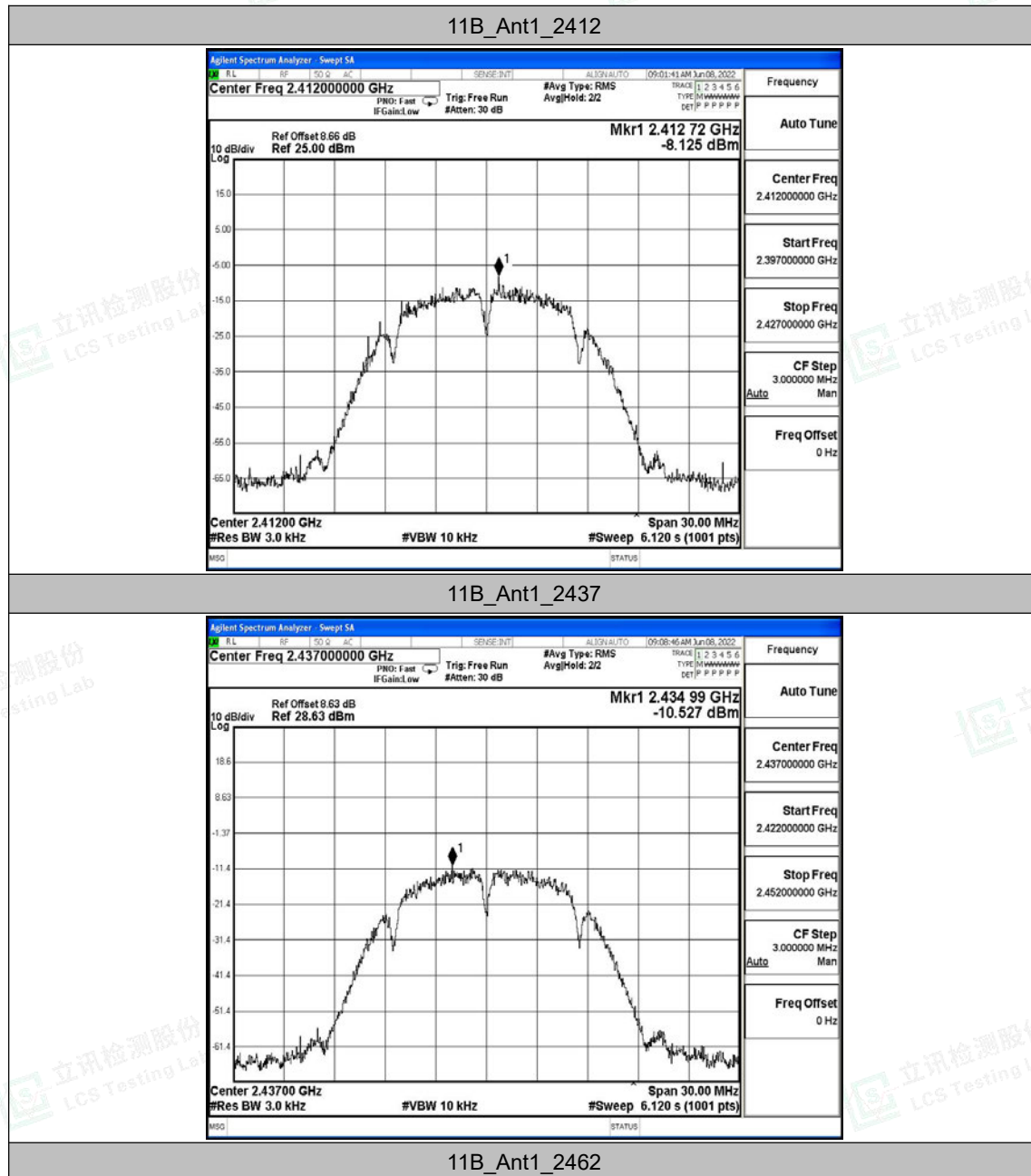
Test Result

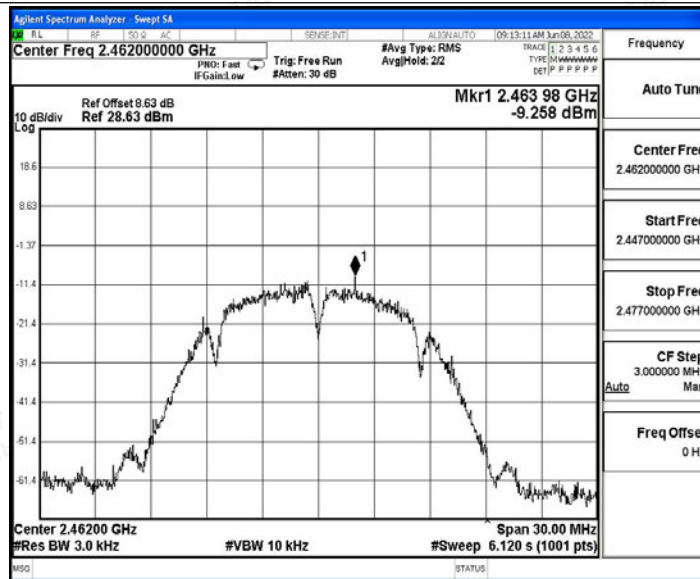
TestMode	Antenna	Channel	Result[dBm/3-100kHz]	Limit[dBm/3kHz]	Verdict
11B	Ant1	2412	-8.13	≤8.00	PASS
		2437	-10.53	≤8.00	PASS
		2462	-9.26	≤8.00	PASS
11G	Ant1	2412	-18.83	≤8.00	PASS
		2437	-18.08	≤8.00	PASS
		2462	-17.9	≤8.00	PASS
11N20SISO	Ant1	2412	-19.46	≤8.00	PASS
		2437	-19.6	≤8.00	PASS
		2462	-18.81	≤8.00	PASS



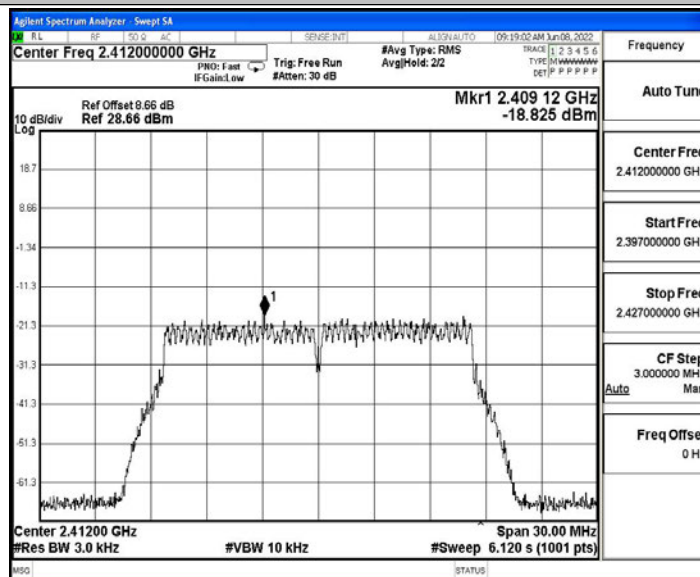


Test Graphs



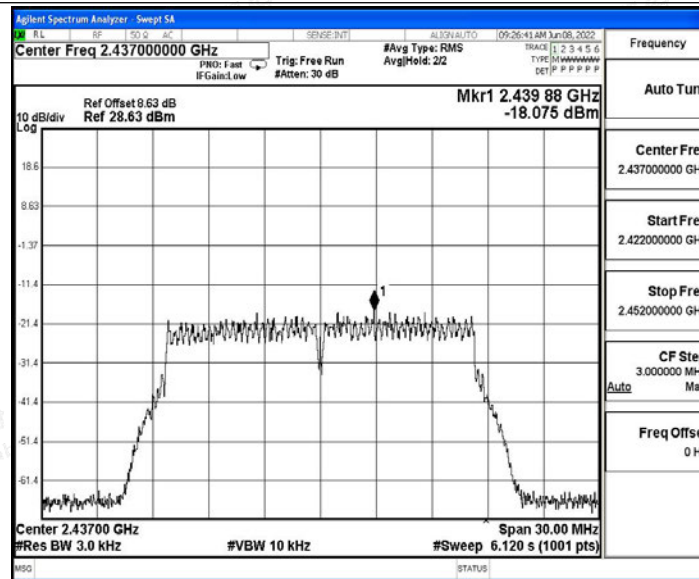


11G_Ant1_2412

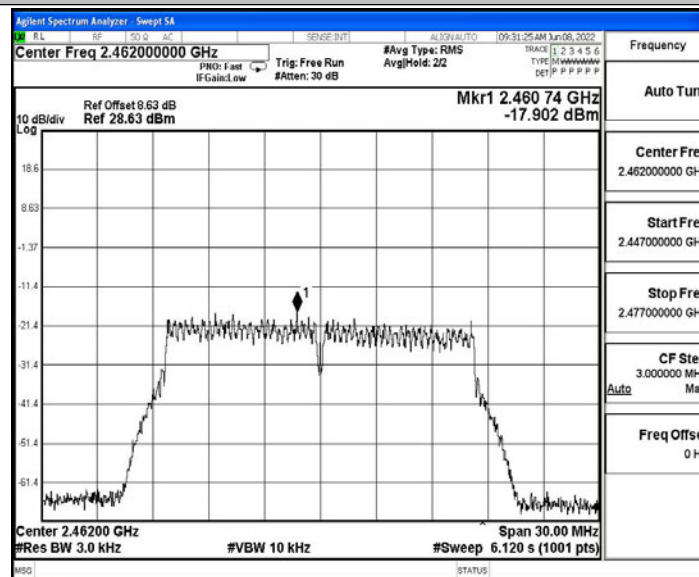


11G_Ant1_2437



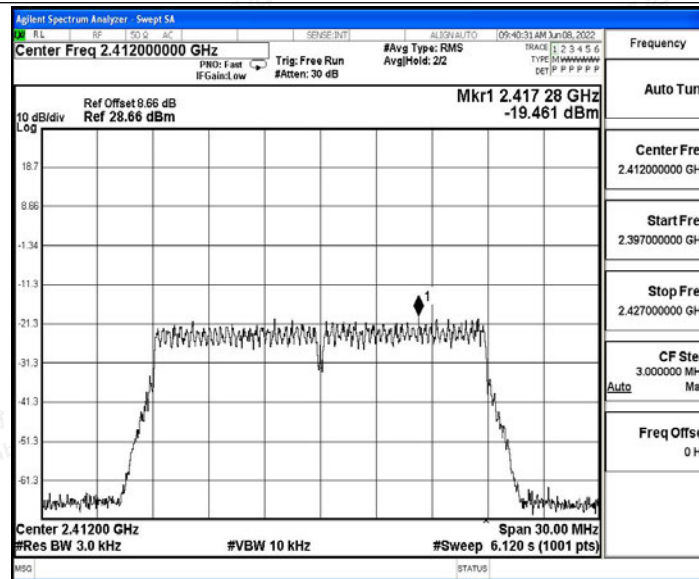


11G_Ant1_2462

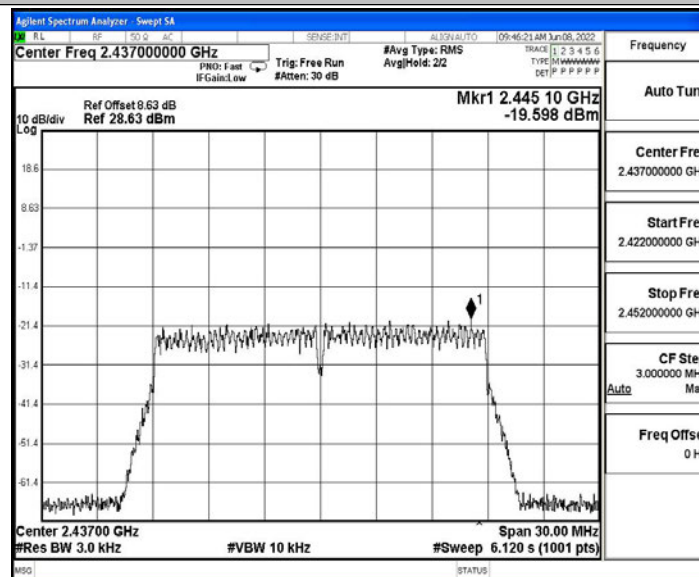


11N20SISO_Ant1_2412



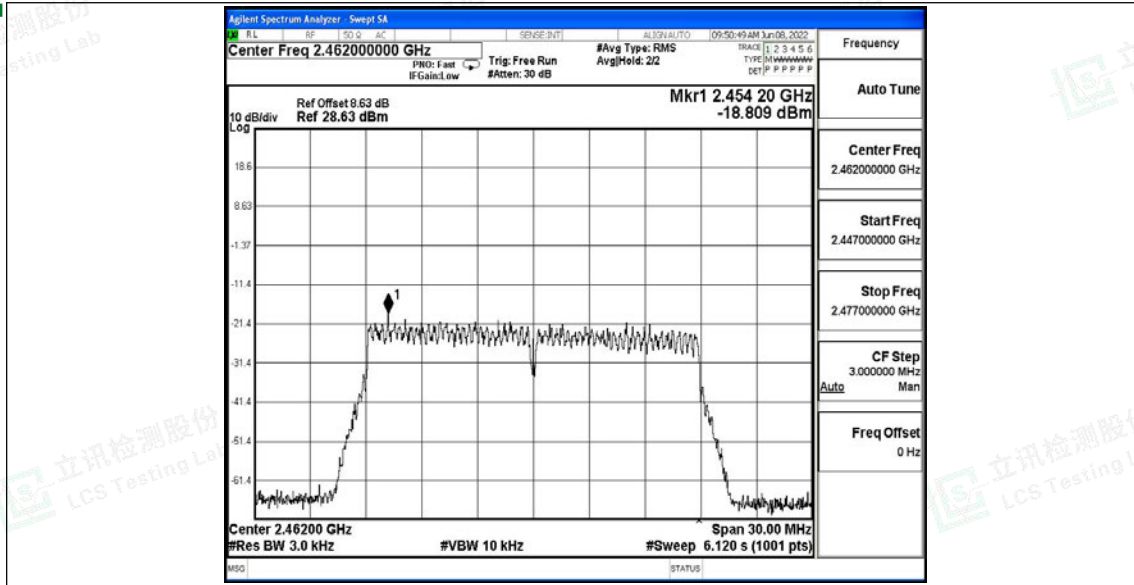


11N20SISO_Ant1_2437



11N20SISO_Ant1_2462







C.5 Band edge measurements

Test Result

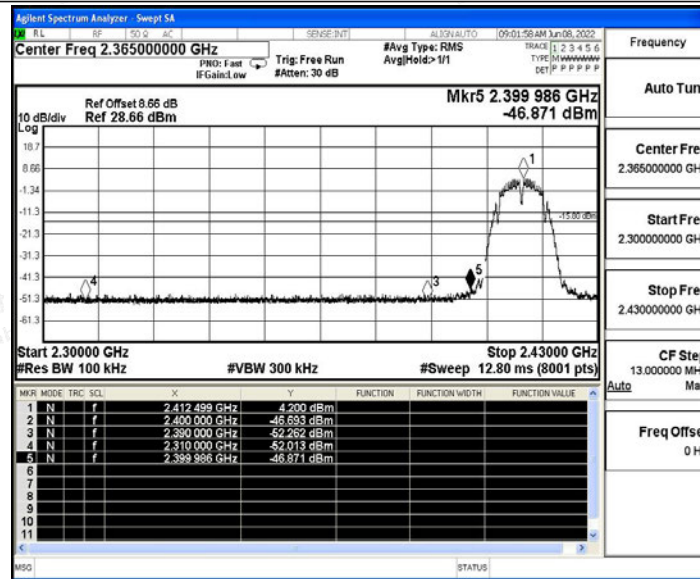
TestMode	Antenna	ChName	Channel	RefLevel[dBm]	Result[dBm]	Limit[dBm]	Verdict
11B	Ant1	Low	2412	4.20	-46.87	≤-15.8	PASS
		High	2462	3.43	-47.53	≤-16.58	PASS
11G	Ant1	Low	2412	-4.12	-48.66	≤-24.12	PASS
		High	2462	-3.92	-46.07	≤-23.92	PASS
11N20SISO	Ant1	Low	2412	-5.01	-46.01	≤-25.01	PASS
		High	2462	-4.95	-46.12	≤-24.95	PASS



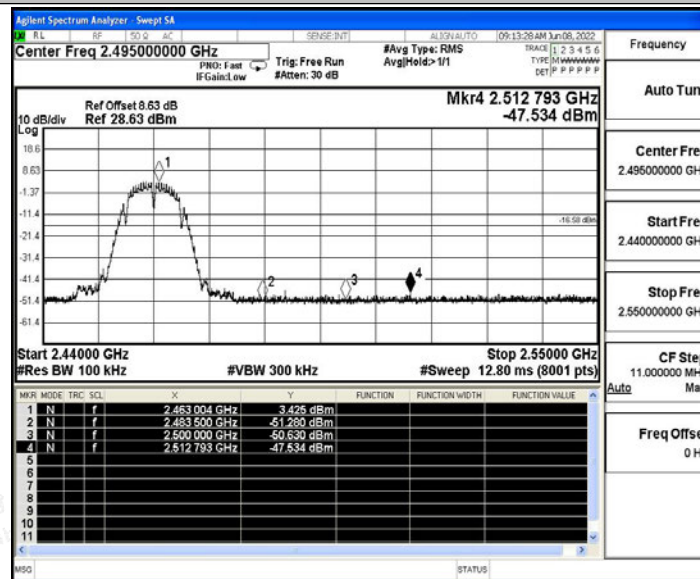


Test Graphs

11B_Ant1_Low_2412



11B_Ant1_High_2462



11G_Ant1_Low_2412

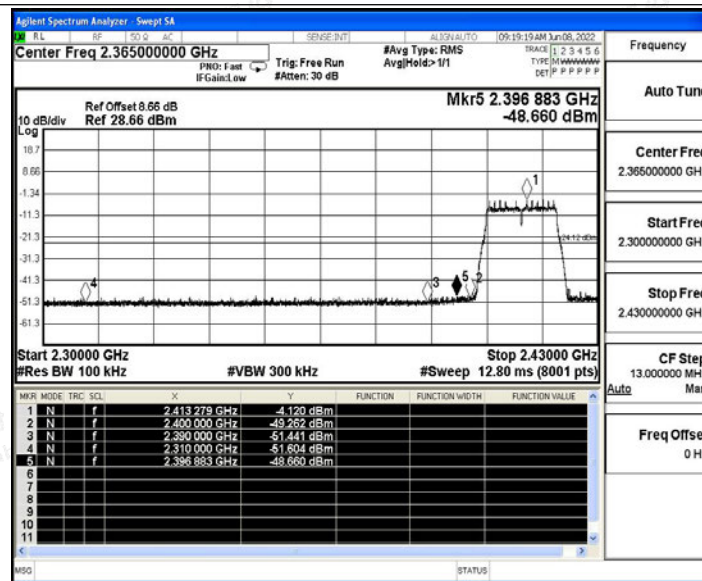


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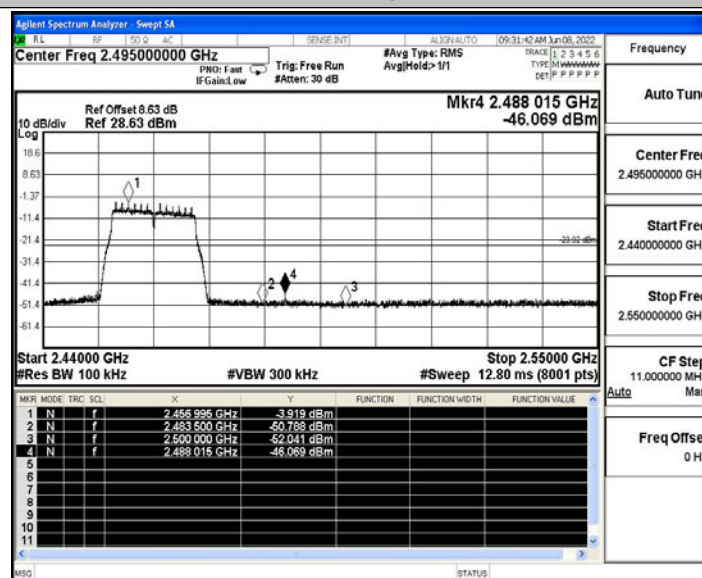
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11G_Ant1_High_2462



11N20SISO_Ant1_Low_2412

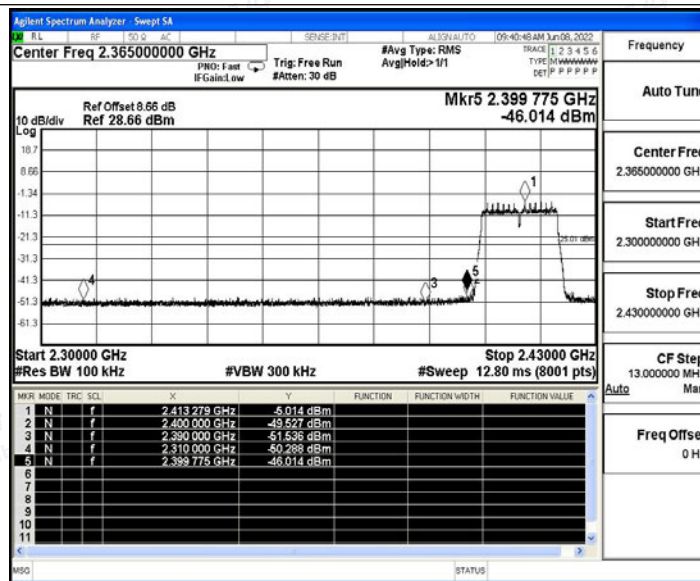


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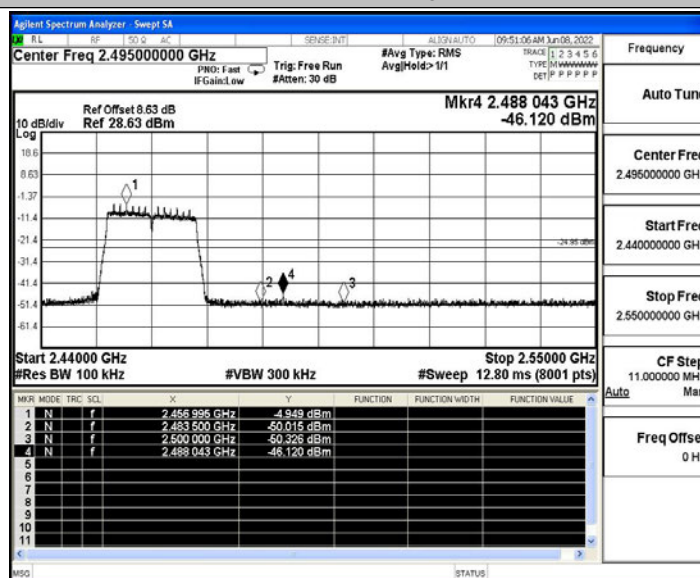
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11N20SISO_Ant1_High_2462





C.6 Conducted Spurious Emission

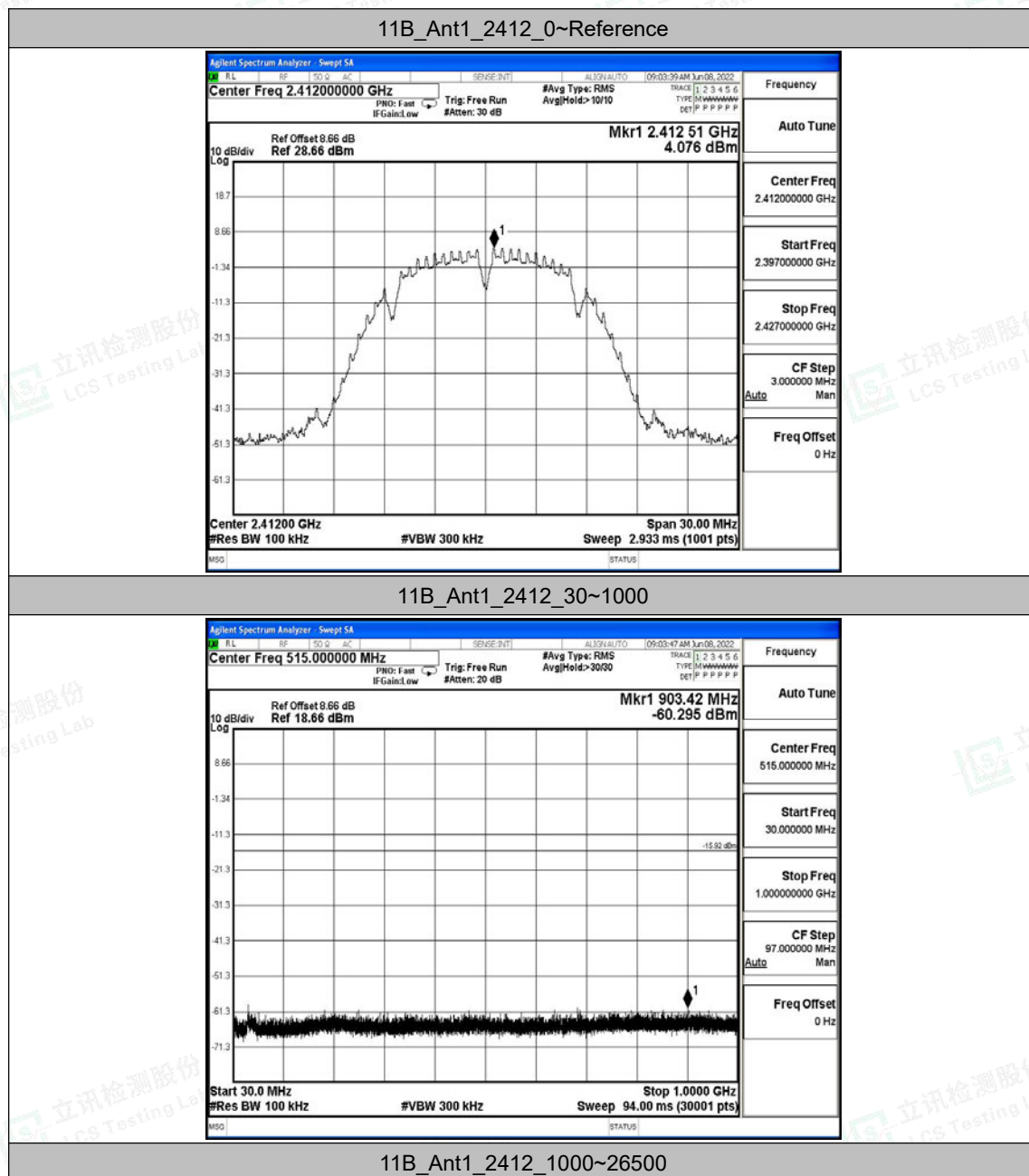
Test Result

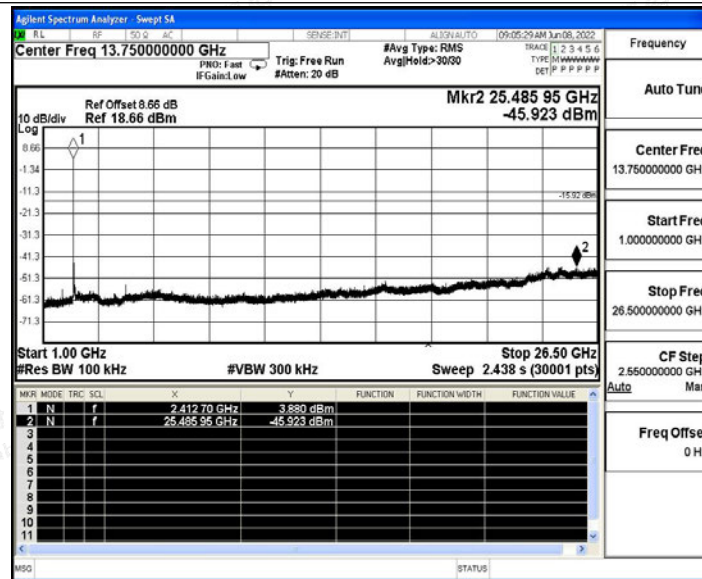
TestMode	Antenna	Channel	FreqRange [Mhz]	RefLevel [dBm]	Result [dBm]	Limit [dBm]	Verdict
11B	Ant1	2412	Reference	4.08	4.08	---	PASS
			30~1000	4.08	-60.3	≤-15.92	PASS
			1000~26500	4.08	-45.92	≤-15.92	PASS
		2437	Reference	4.16	4.16	---	PASS
			30~1000	4.16	-60.43	≤-15.84	PASS
			1000~26500	4.16	-46.33	≤-15.84	PASS
		2462	Reference	3.68	3.68	---	PASS
			30~1000	3.68	-60.61	≤-16.32	PASS
			1000~26500	3.68	-45.62	≤-16.32	PASS
11G	Ant1	2412	Reference	-4.01	-4.01	---	PASS
			30~1000	-4.01	-60.17	≤-24.01	PASS
			1000~26500	-4.01	-45.97	≤-24.01	PASS
		2437	Reference	-3.72	-3.72	---	PASS
			30~1000	-3.72	-60.15	≤-23.72	PASS
			1000~26500	-3.72	-45.2	≤-23.72	PASS
		2462	Reference	-3.73	-3.73	---	PASS
			30~1000	-3.73	-60.58	≤-23.73	PASS
			1000~26500	-3.73	-45.92	≤-23.73	PASS
11N20SISO	Ant1	2412	Reference	-5.16	-5.16	---	PASS
			30~1000	-5.16	-59.66	≤-25.16	PASS
			1000~26500	-5.16	-46.13	≤-25.16	PASS
		2437	Reference	-4.93	-4.93	---	PASS
			30~1000	-4.93	-61.06	≤-24.93	PASS
			1000~26500	-4.93	-46.16	≤-24.93	PASS
		2462	Reference	-4.88	-4.88	---	PASS
			30~1000	-4.88	-59.91	≤-24.88	PASS
			1000~26500	-4.88	-46.32	≤-24.88	PASS



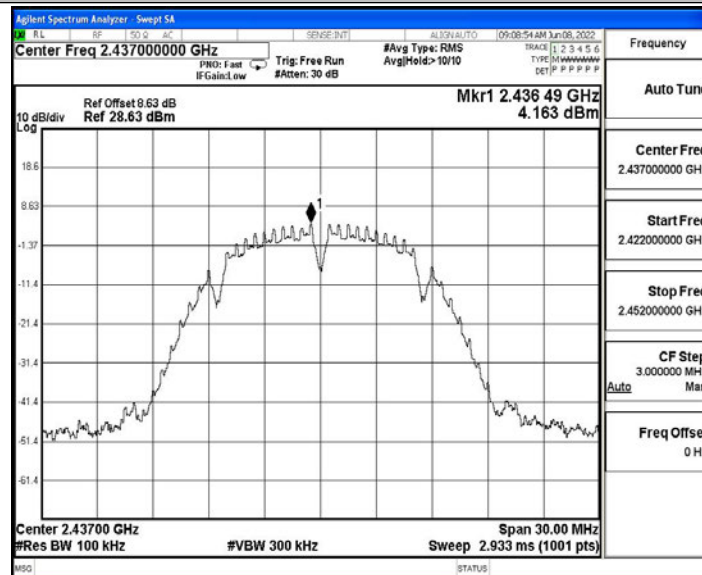


Test Graphs



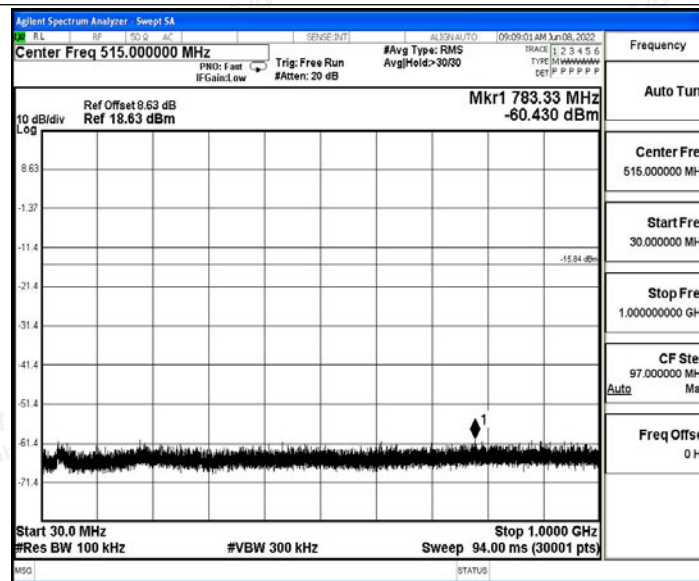


11B_Ant1_2437_0~Reference

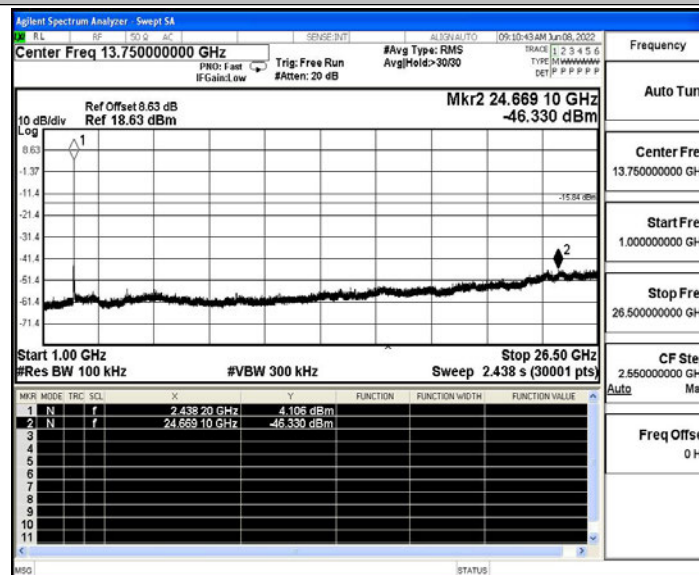


11B_Ant1_2437_30~1000



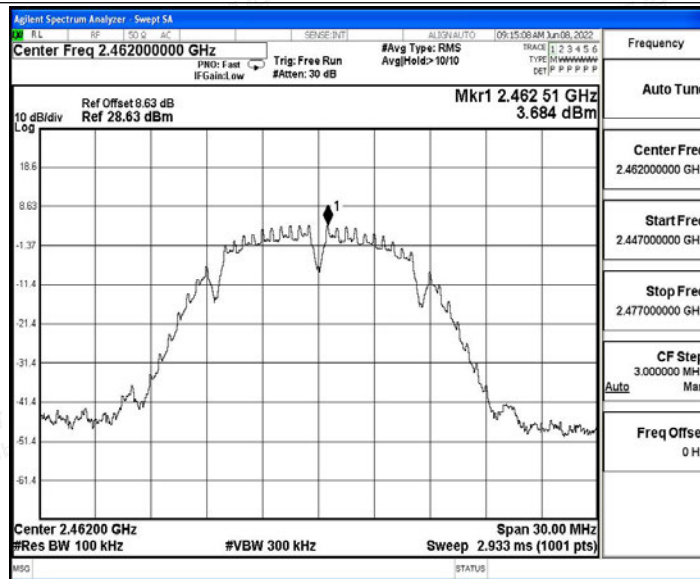


11B_Ant1_2437_1000~26500

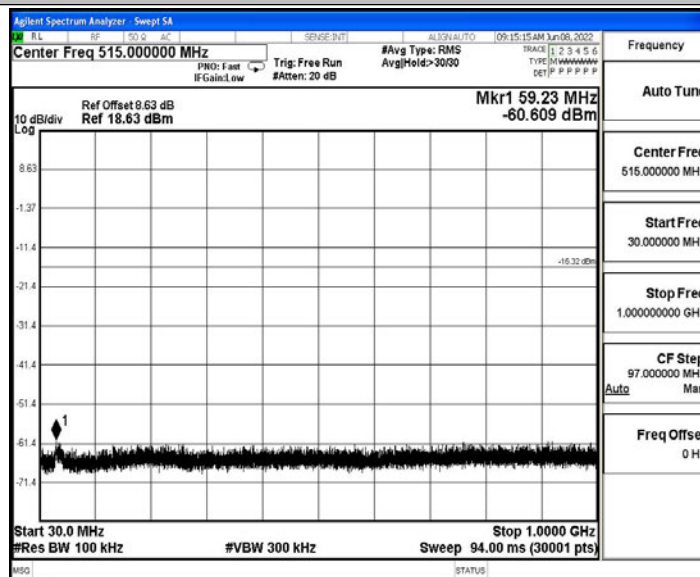


11B_Ant1_2462_0~Reference



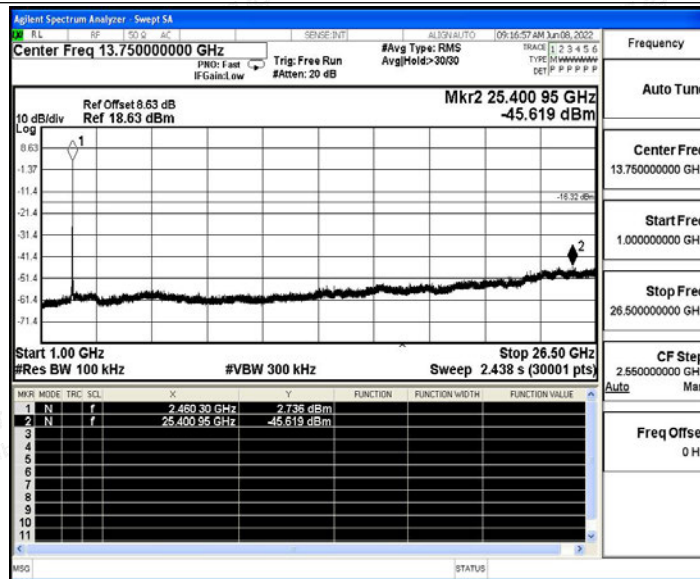


11B_Ant1_2462_30~1000

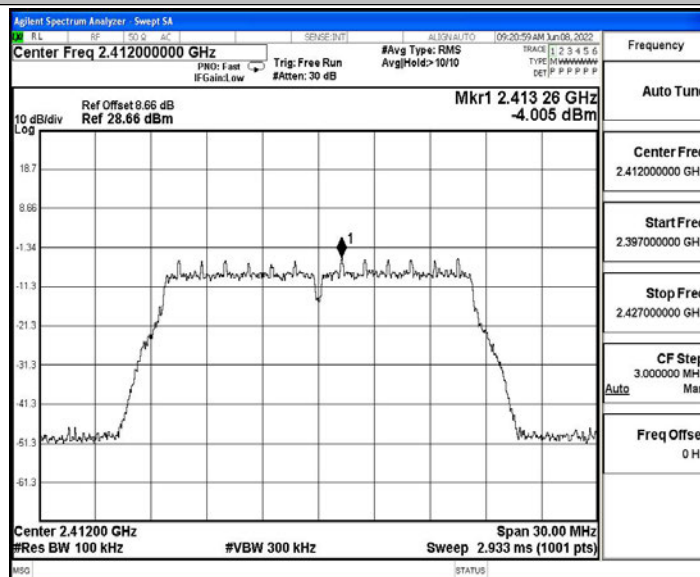


11B_Ant1_2462_1000~26500



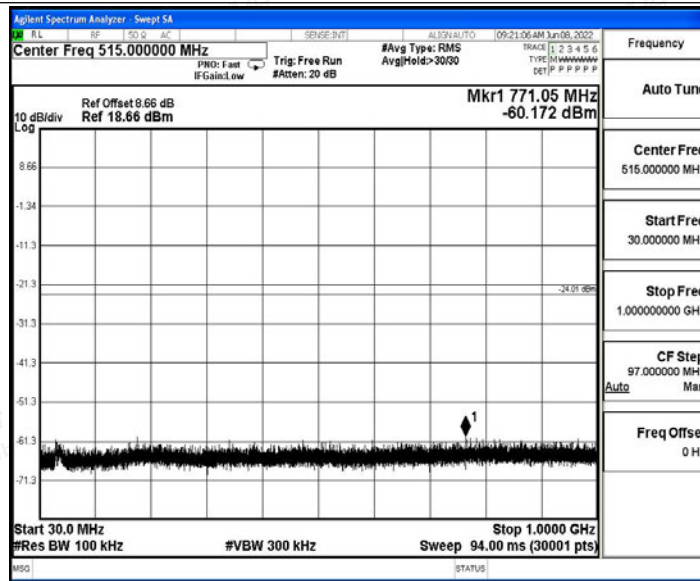


11G_Ant1_2412_0~Reference

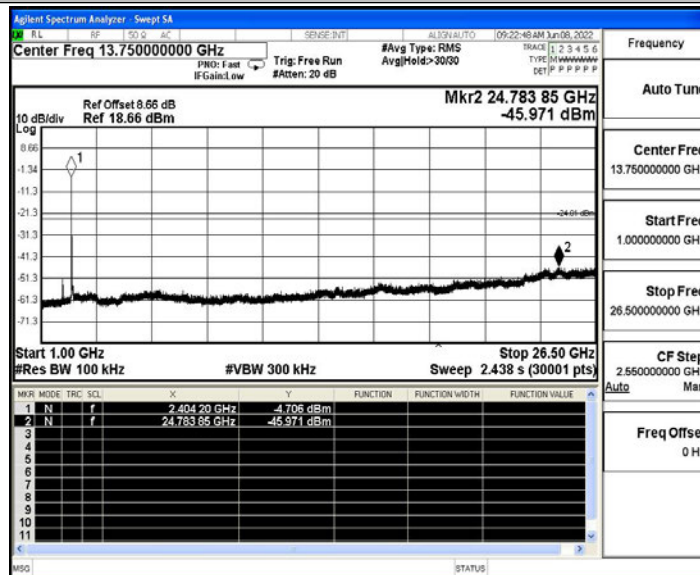


11G_Ant1_2412_30~1000



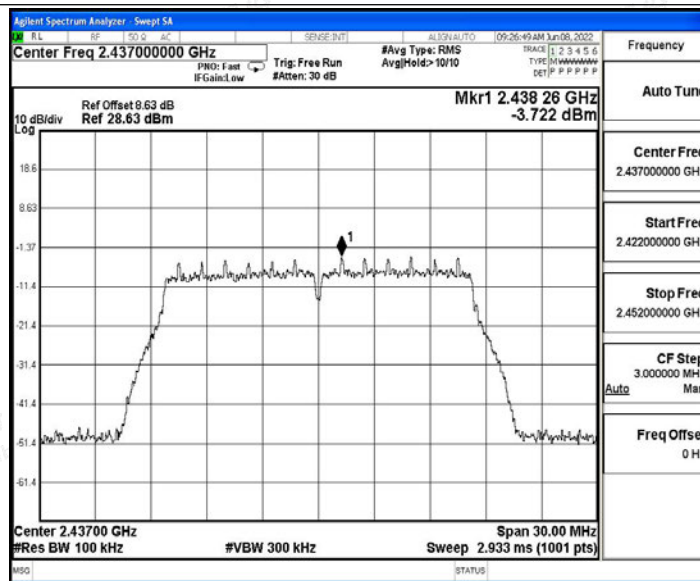


11G_Ant1_2412_1000~26500

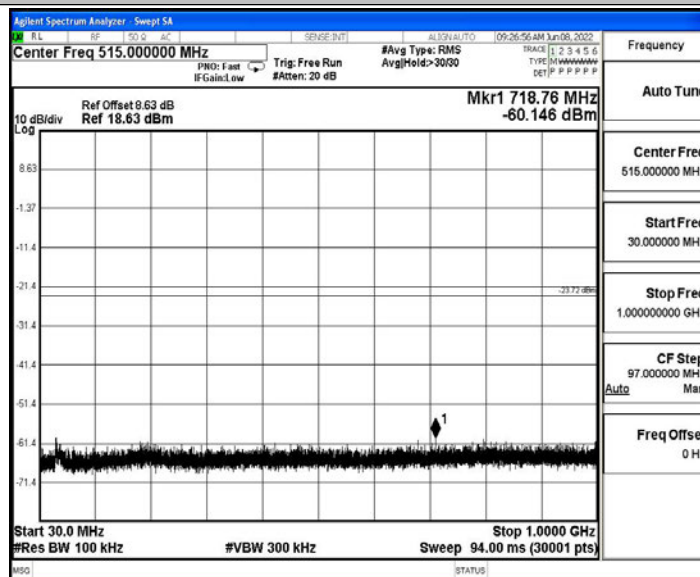


11G_Ant1_2437_0~Reference



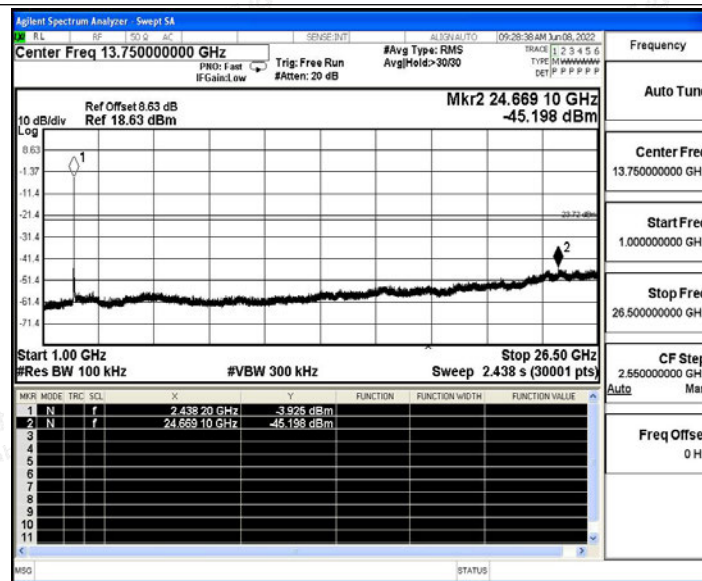


11G_Ant1_2437_30~1000

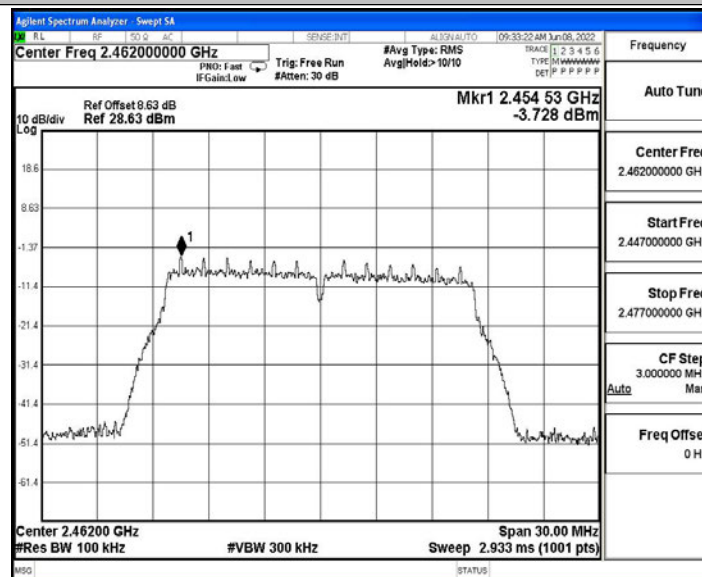


11G_Ant1_2437_1000~26500



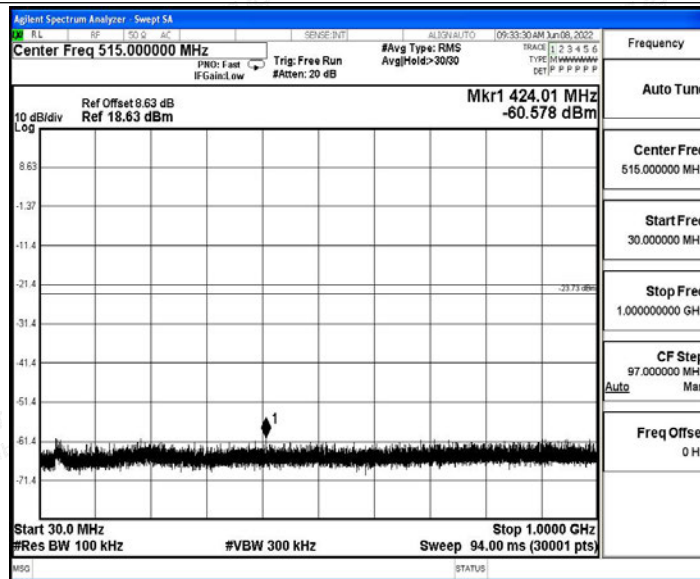


11G_Ant1_2462_0~Reference

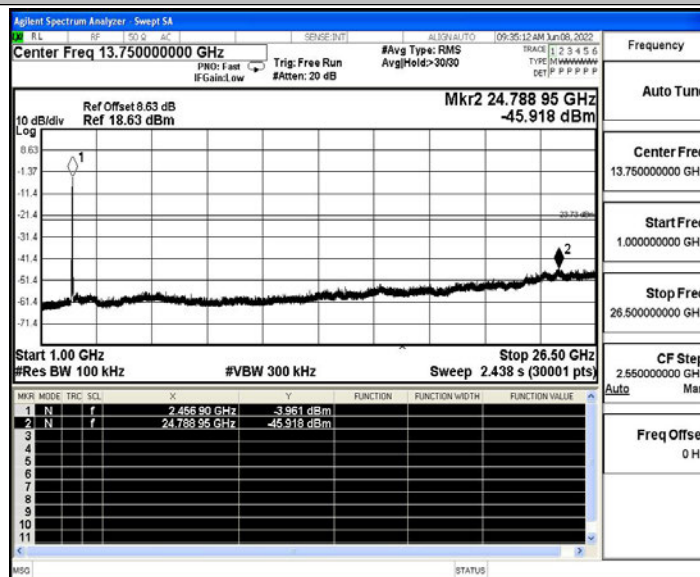


11G_Ant1_2462_30~1000



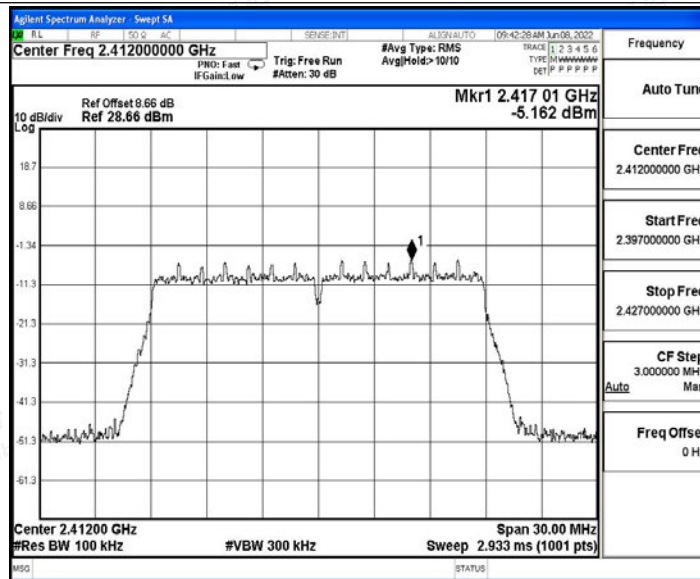


11G_Ant1_2462_1000~26500

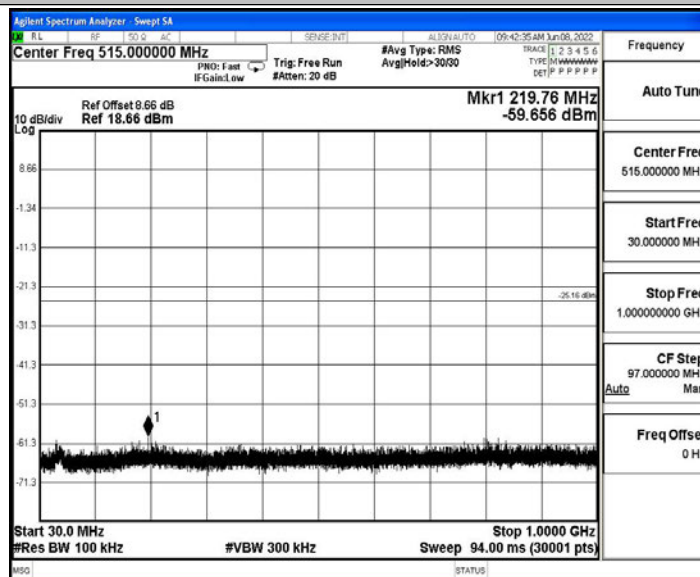


11N20SISO_Ant1_2412_0~Reference



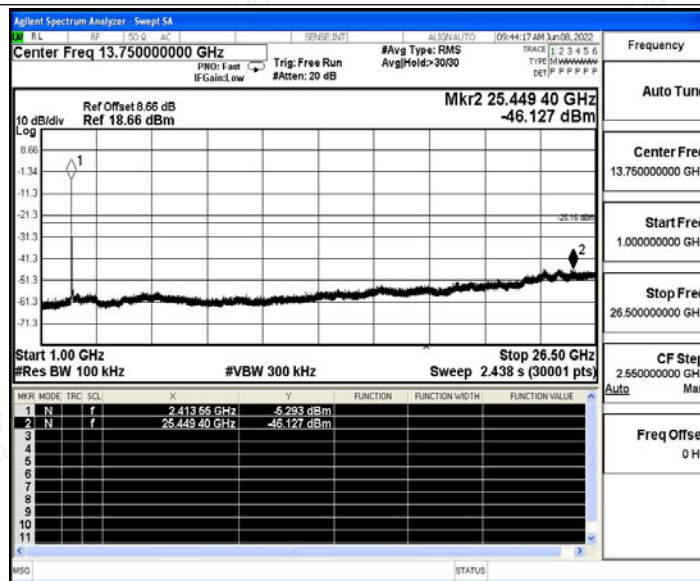


11N20SISO_Ant1_2412_30~1000

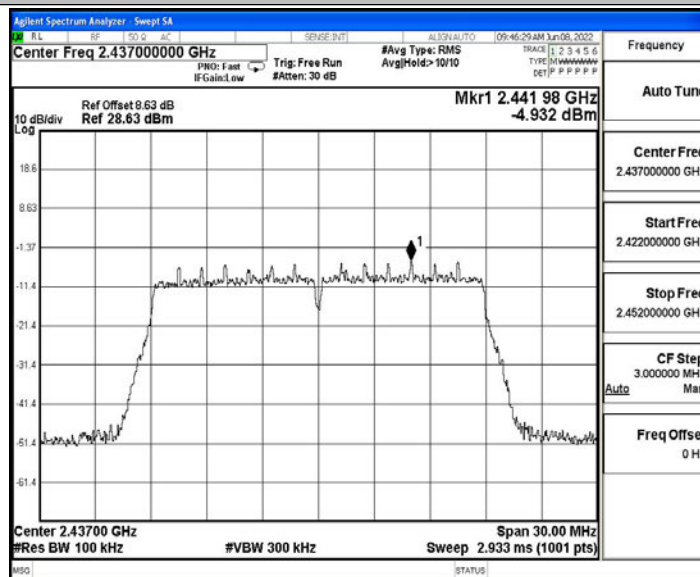


11N20SISO_Ant1_2412_1000~26500



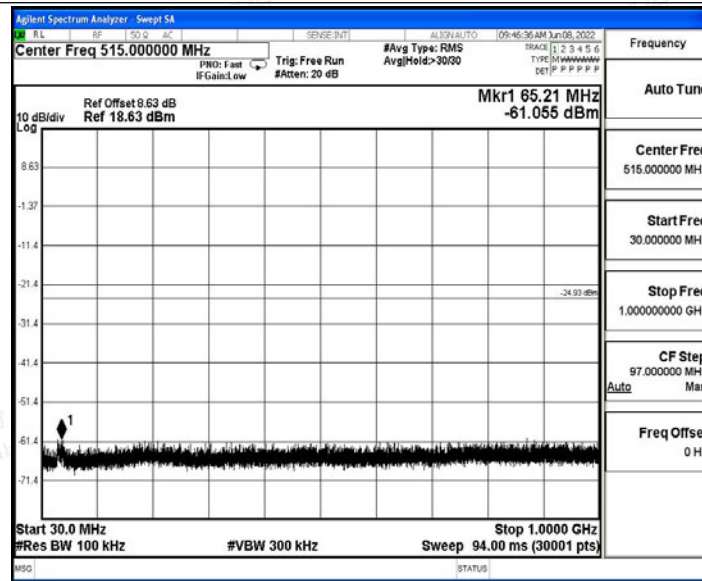


11N20SISO_Ant1_2437_0~Reference

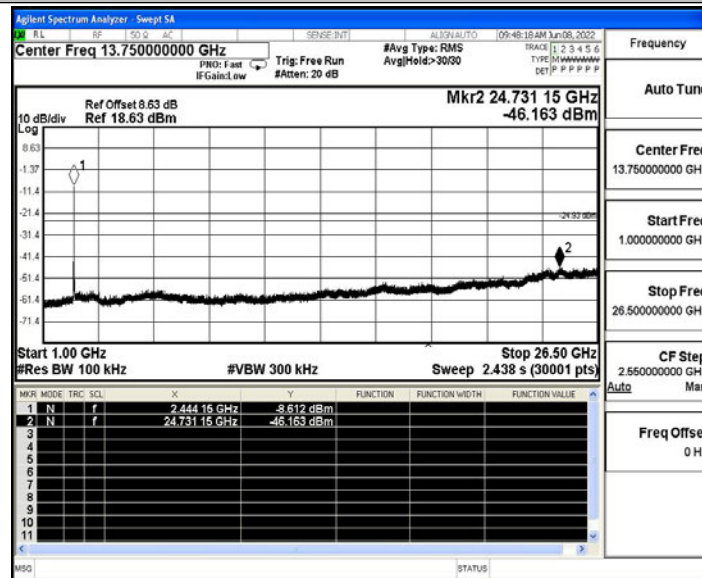


11N20SISO_Ant1_2437_30~1000



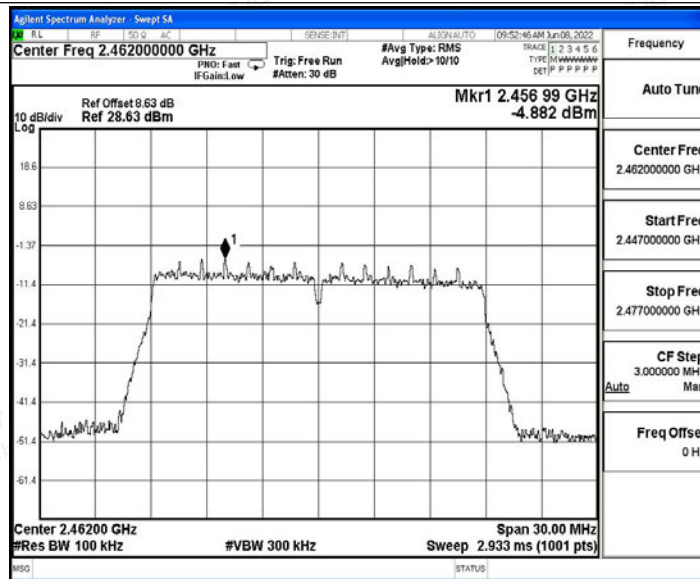


11N20SISO_Ant1_2437_1000~26500

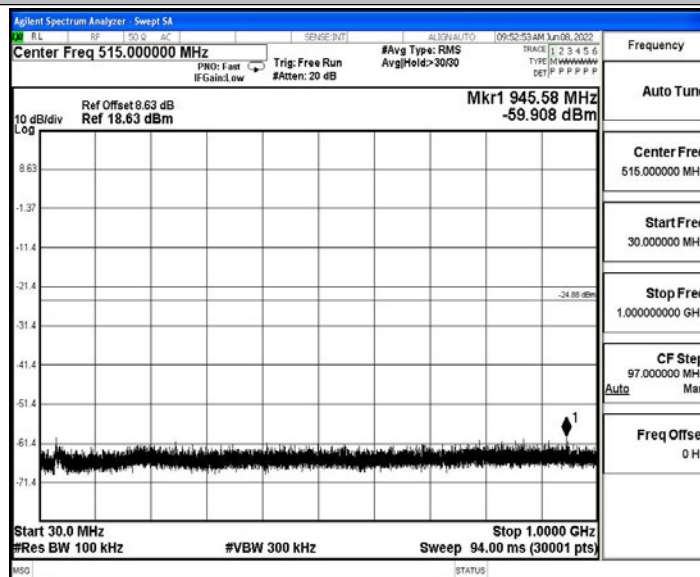


11N20SISO_Ant1_2462_0~Reference



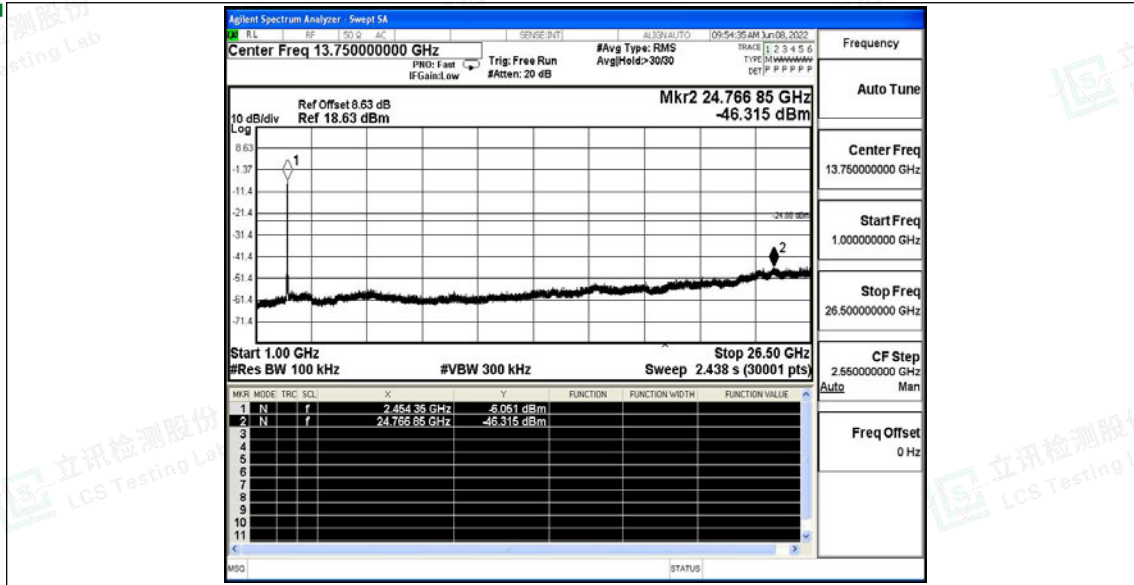


11N20SISO_Ant1_2462_30~1000



11N20SISO_Ant1_2462_1000~26500







C.7 Duty Cycle

Test Result

TestMode	Antenna	Channel	Transmission Duration [ms]	Transmission Period [ms]	Duty Cycle [%]	Limit	Verdict
11B	Ant1	2412	8.38	8.41	99.64	---	---
		2437	8.39	8.42	99.64	---	---
		2462	8.38	8.41	99.64	---	---
11G	Ant1	2412	1.39	1.43	97.20	---	---
		2437	1.39	1.43	97.20	---	---
		2462	1.39	1.43	97.20	---	---
11N20SISO	Ant1	2412	1.30	1.34	97.01	---	---
		2437	1.30	1.34	97.01	---	---
		2462	1.30	1.34	97.01	---	---





Test Graphs

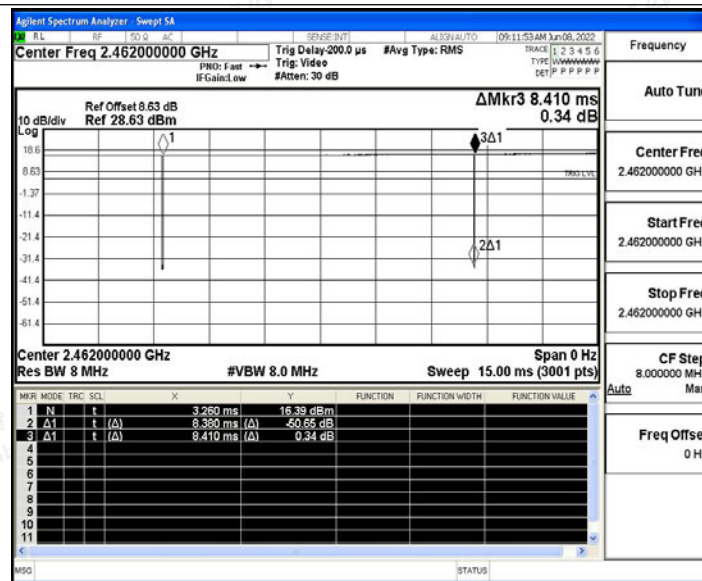


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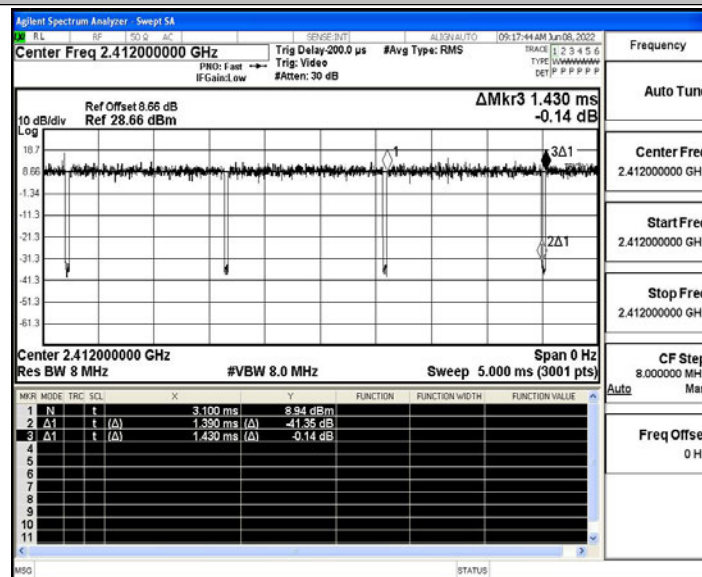
Add: 101, 201 Bldg A & 301 Bldg C, Juji Industrial Park Yabianxueziwei, Shajing Street, Baoan District, Shenzhen, 518000, China

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11G_Ant1_2412



11G_Ant1_2437

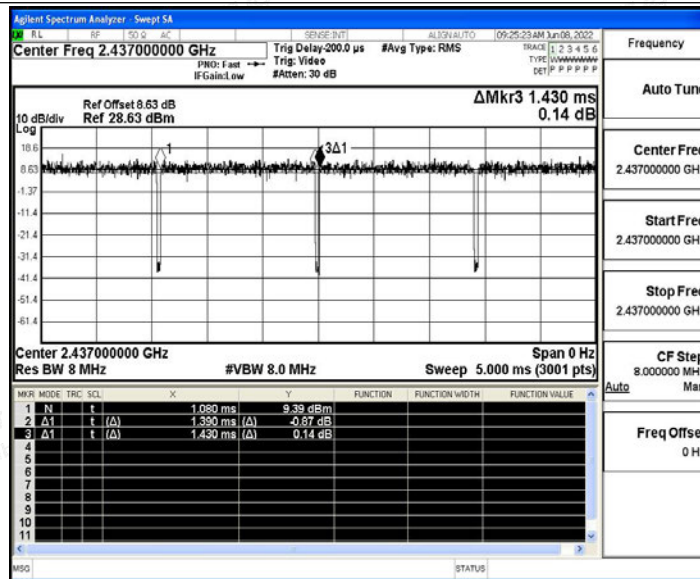


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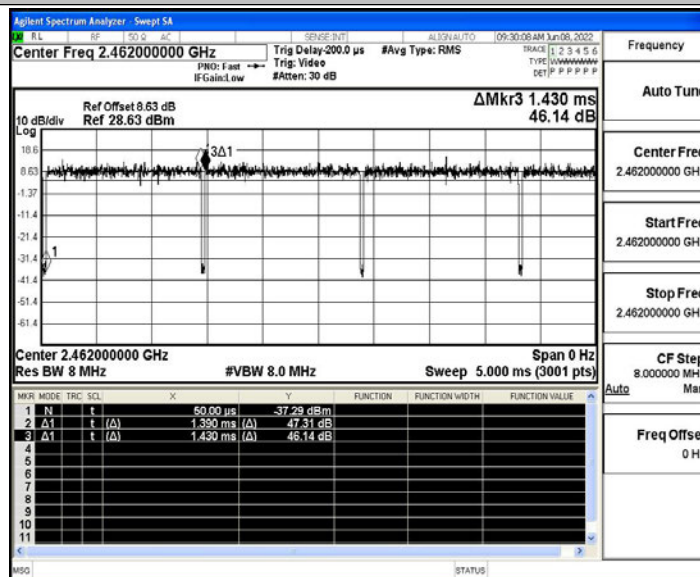
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11G_Ant1_2462



11N20SISO_Ant1_2412

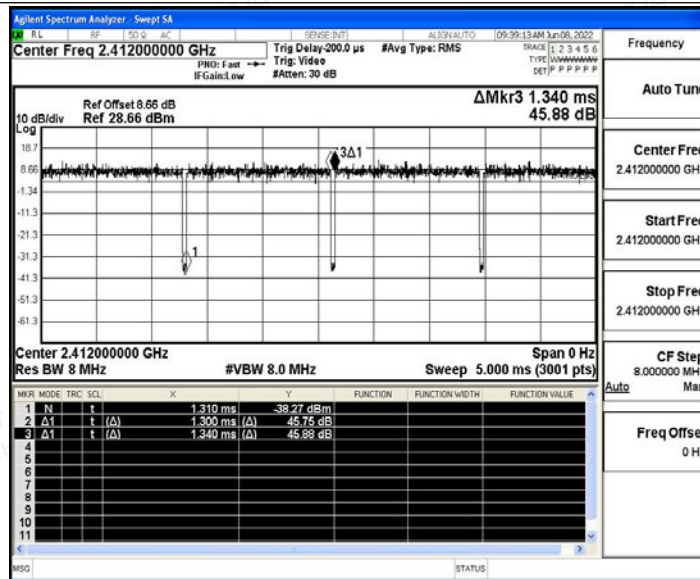


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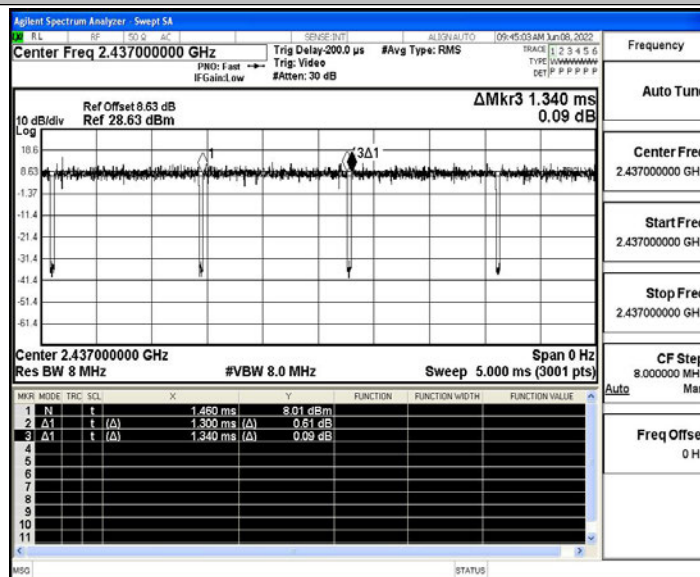
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11N20SISO_Ant1_2437



11N20SISO_Ant1_2462

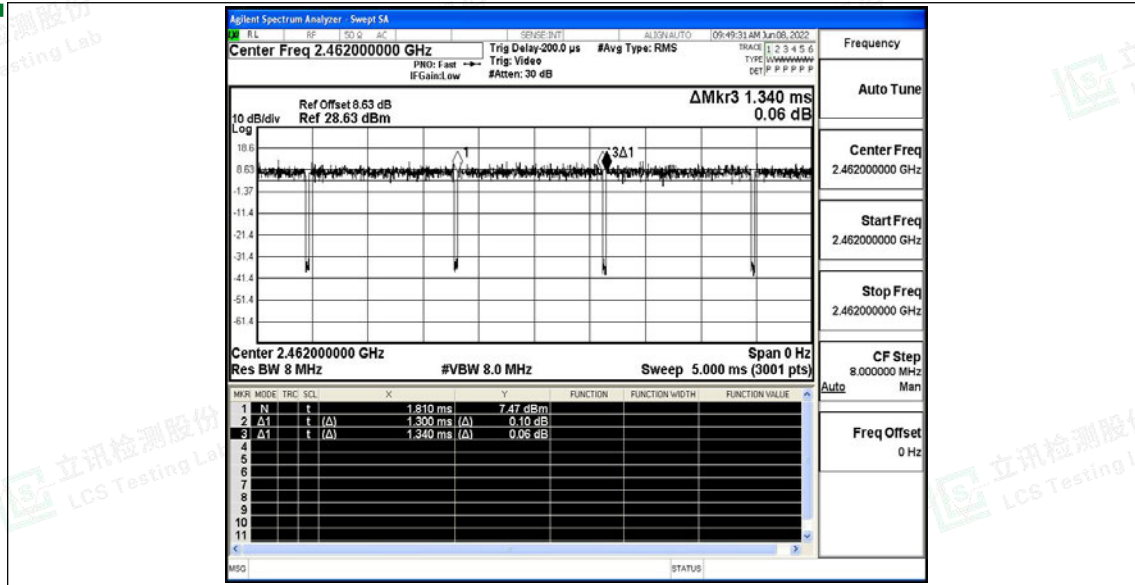


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C.8 Emissions in Restricted Bands

Test Result

TestMode	Antenna	ChName	Channel	Detector	Freq. [MHz]	Result [dBm]	Limit [dBm]	Result [dBuV/m]	Limit [dBuV/m]	Verdict
11B	Ant1	Low	2412	AV	2310.000	-58.59	≤-41.20	36.61	≤54	PASS
				AV	2389.960	-57.45	≤-41.20	37.75	≤54	PASS
				AV	2390.000	-57.45	≤-41.20	37.75	≤54	PASS
				Peak	2310.000	-47.69	≤-21.20	47.51	≤74	PASS
				Peak	2311.440	-46.07	≤-21.20	49.13	≤74	PASS
				Peak	2390.000	-47.28	≤-21.20	47.92	≤74	PASS
		High	2462	AV	2483.500	-55.47	≤-41.20	39.73	≤54	PASS
				AV	2487.850	-51.14	≤-41.20	44.06	≤54	PASS
				AV	2500.000	-57.49	≤-41.20	37.71	≤54	PASS
				Peak	2483.500	-45.12	≤-21.20	50.08	≤74	PASS
				Peak	2488.620	-42.39	≤-21.20	52.81	≤74	PASS
				Peak	2500.000	-46.92	≤-21.20	48.28	≤74	PASS
11G	Ant1	Low	2412	AV	2310.000	-58.12	≤-41.20	37.08	≤54	PASS
				AV	2389.700	-56.86	≤-41.20	38.34	≤54	PASS
				AV	2390.000	-56.95	≤-41.20	38.25	≤54	PASS
				Peak	2310.000	-47.45	≤-21.20	47.75	≤74	PASS
				Peak	2389.180	-45.7	≤-21.20	49.50	≤74	PASS
				Peak	2390.000	-45.71	≤-21.20	49.49	≤74	PASS
		High	2462	AV	2483.500	-53.57	≤-41.20	41.63	≤54	PASS
				AV	2488.070	-48.44	≤-41.20	46.76	≤54	PASS
				AV	2500.000	-57.08	≤-41.20	38.12	≤54	PASS
				Peak	2483.500	-43.92	≤-21.20	51.28	≤74	PASS
				Peak	2487.960	-40.22	≤-21.20	54.98	≤74	PASS
				Peak	2500.000	-47.22	≤-21.20	47.98	≤74	PASS
11N20SIS O	Ant1	Low	2412	AV	2310.000	-58.06	≤-41.20	37.14	≤54	PASS
				AV	2389.440	-57.17	≤-41.20	38.03	≤54	PASS
				AV	2390.000	-57.18	≤-41.20	38.02	≤54	PASS
				Peak	2310.000	-47.62	≤-21.20	47.58	≤74	PASS
				Peak	2387.620	-45.86	≤-21.20	49.34	≤74	PASS
				Peak	2390.000	-46.79	≤-21.20	48.41	≤74	PASS
		High	2462	AV	2483.500	-53.69	≤-41.20	41.51	≤54	PASS
				AV	2487.960	-48.56	≤-41.20	46.64	≤54	PASS
				AV	2500.000	-57.14	≤-41.20	38.06	≤54	PASS
				Peak	2483.500	-43.91	≤-21.20	51.29	≤74	PASS
				Peak	2487.960	-40.2	≤-21.20	55.00	≤74	PASS



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			Peak	2500.000	-46.19	≤-21.20	49.01	≤74	PASS
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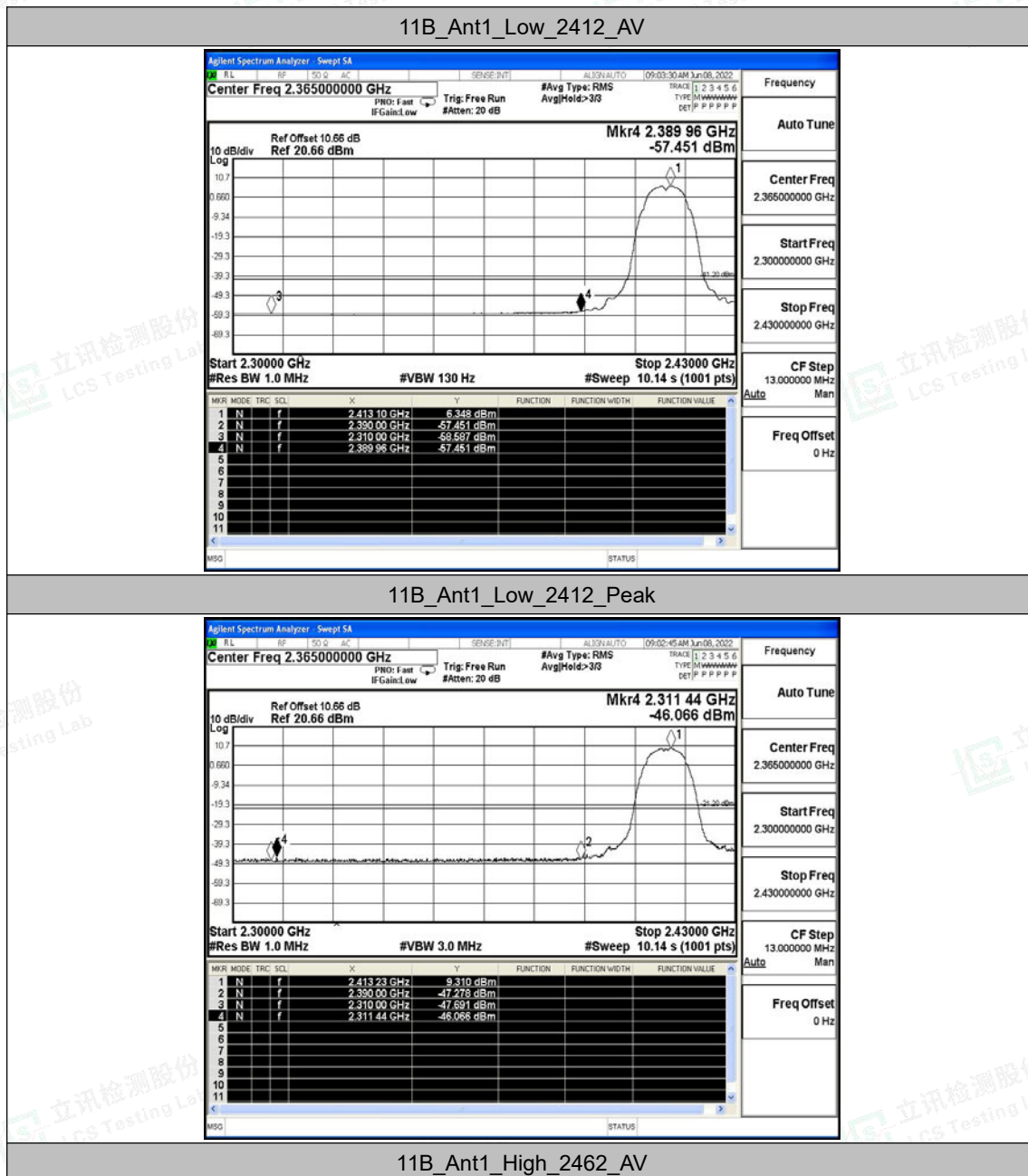
Note:

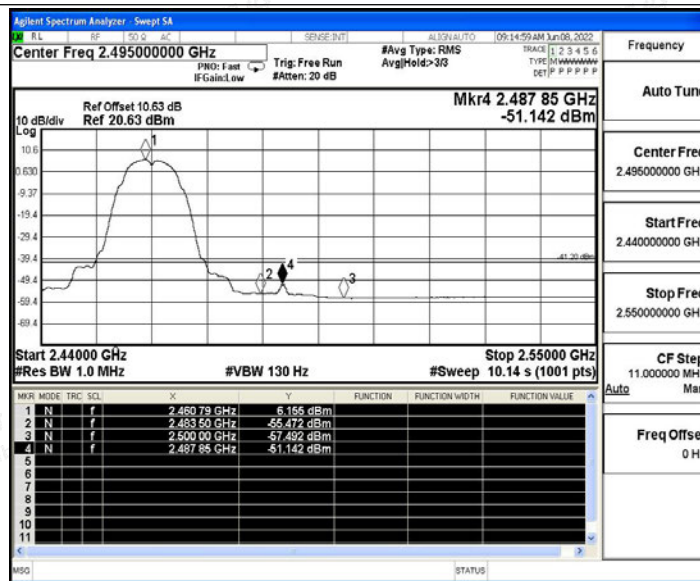
- 1. The Antenna Gain is compensated in the graph.
- 2. The limit in dBm for average detector is conversion from 54dBuV/m, according to 15.209(a). The limit in dBm for peak detector is 20dB above the limit of average detector in dBm.



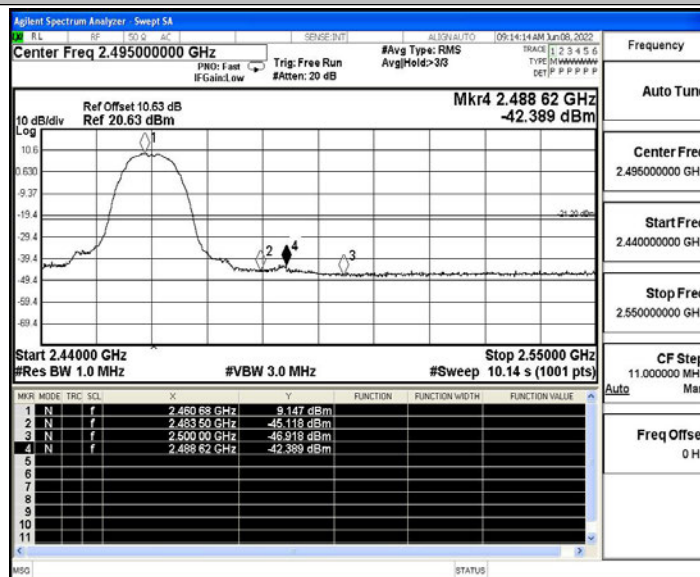


Test Graphs





11B_Ant1_High_2462_Peak



11G_Ant1_Low_2412_AV

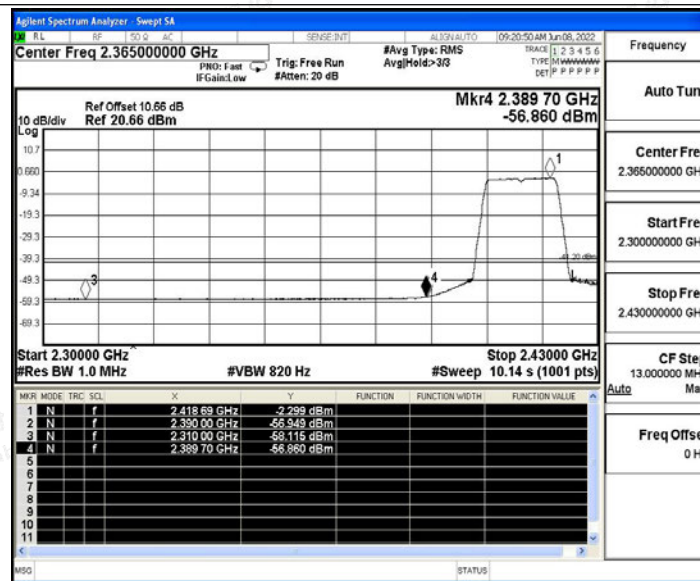


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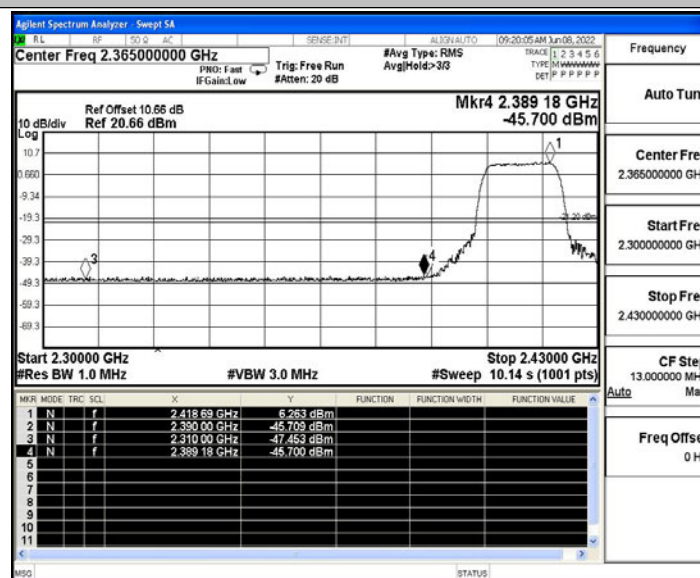
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11G_Ant1_Low_2412_Peak



11G_Ant1_High_2462_AV

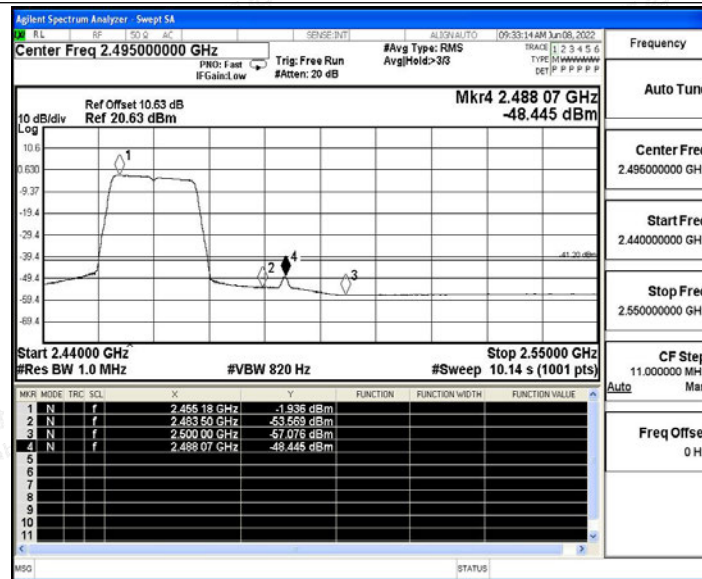


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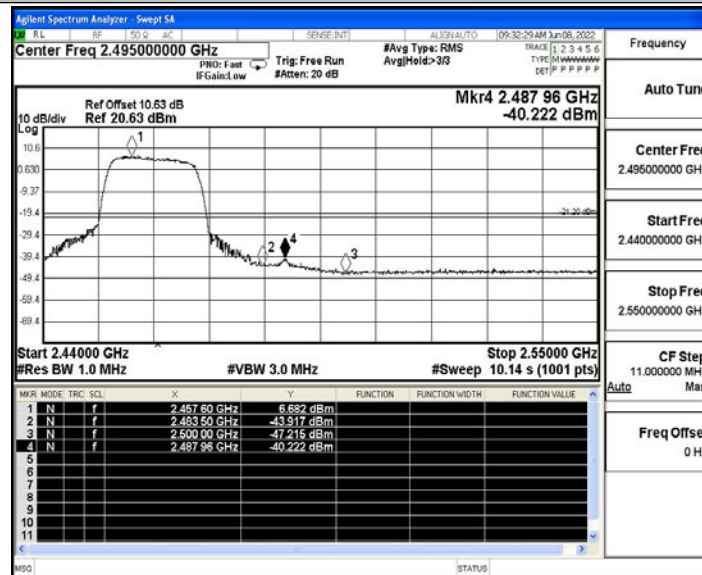
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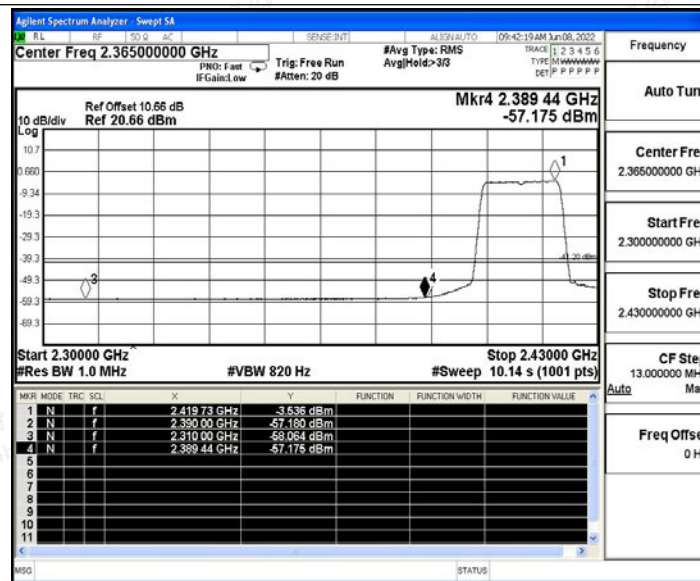


11G_Ant1_High_2462_Peak

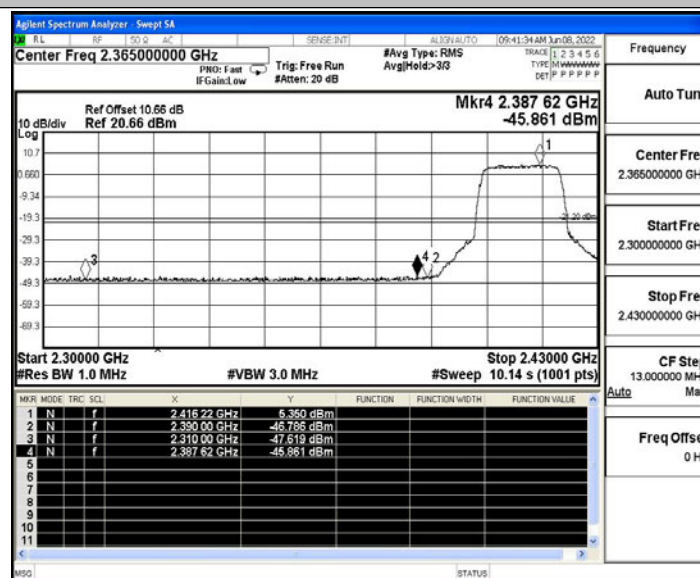


11N20SISO_Ant1_Low_2412_AV



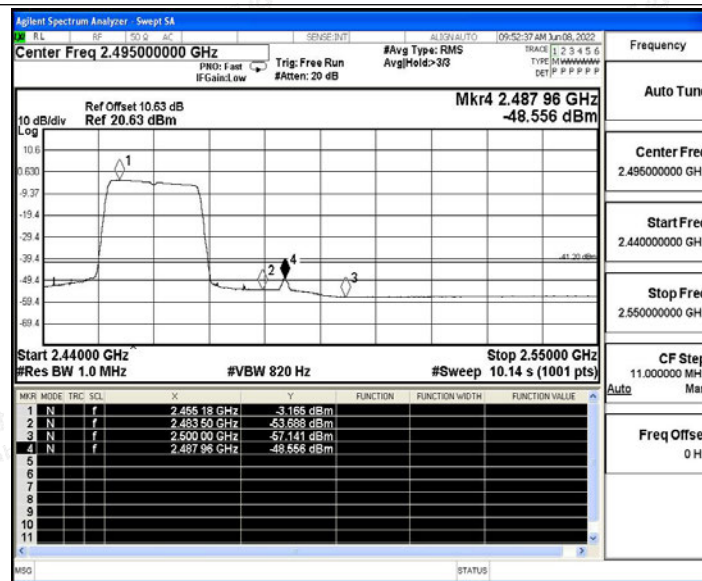


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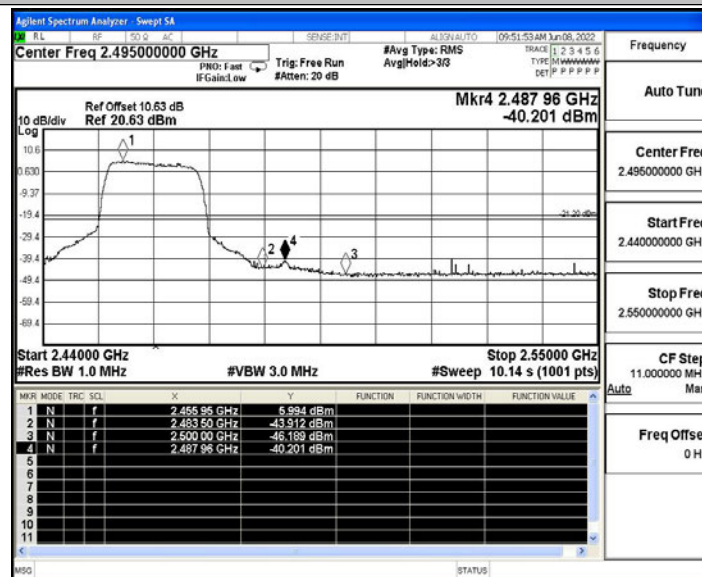


11N20SISO_Ant1_High_2462_AV





11N20SISO_Ant1_High_2462_Peak



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