

Appendix B

RF Test Data for 2.4GWIFI (Conducted Measurement)

Product Name: Nucleus Auto Focus Adapter Base Kit (E to PL)

Test Model: WLC-T07

Environmental Conditions

Temperature:	23.7°C
Relative Humidity:	54.4%
ATM Pressure:	100.0 kPa
Test Engineer:	Zhang hai
Supervised by:	Fengliu Tang

B.1 DTS Bandwidth

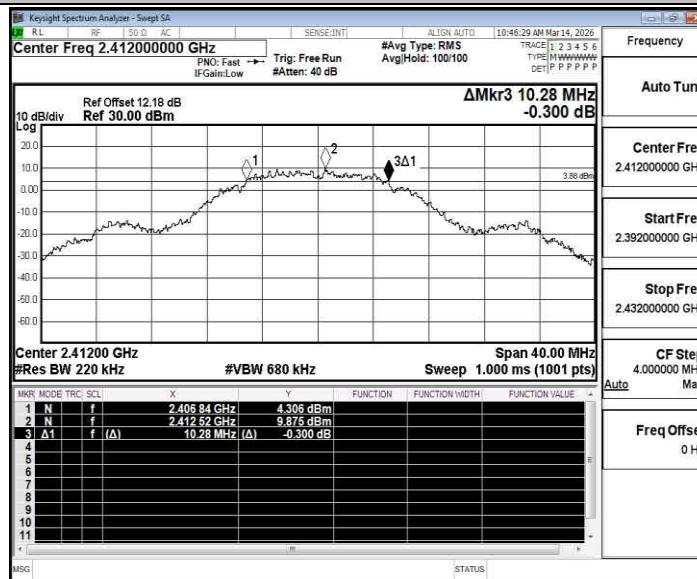
Test Result

TestMode	Antenna	Frequency[MHz]	DTS BW [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
11B	Ant1	2412	10.280	2406.840	2417.120	0.5	PASS
		2437	10.160	2431.920	2442.080	0.5	PASS
		2462	10.120	2456.920	2467.040	0.5	PASS
11G	Ant1	2412	16.480	2403.760	2420.240	0.5	PASS
		2437	16.480	2428.760	2445.240	0.5	PASS
		2462	16.520	2453.720	2470.240	0.5	PASS
11N20SISO	Ant1	2412	17.240	2403.400	2420.640	0.5	PASS
		2437	17.240	2428.400	2445.640	0.5	PASS
		2462	17.160	2453.400	2470.560	0.5	PASS
11N40SISO	Ant1	2422	34.720	2404.480	2439.200	0.5	PASS
		2437	35.040	2419.560	2454.600	0.5	PASS
		2452	35.040	2434.480	2469.520	0.5	PASS

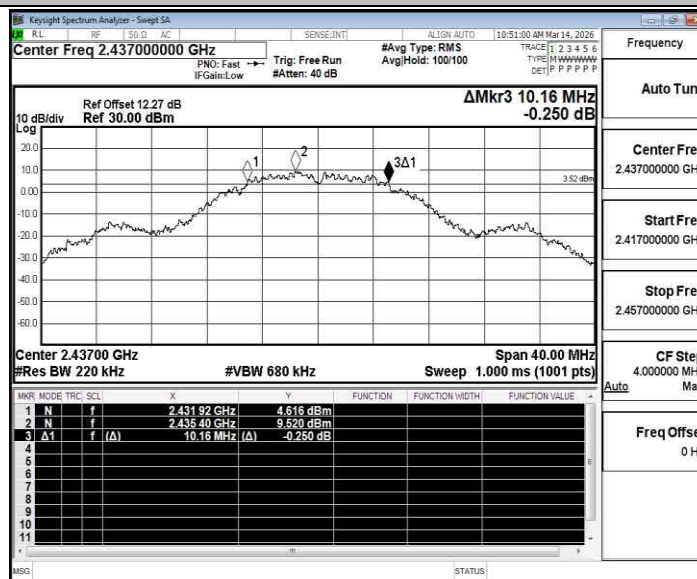
Note :offset=System attenuation +cable loss

Test Graphs

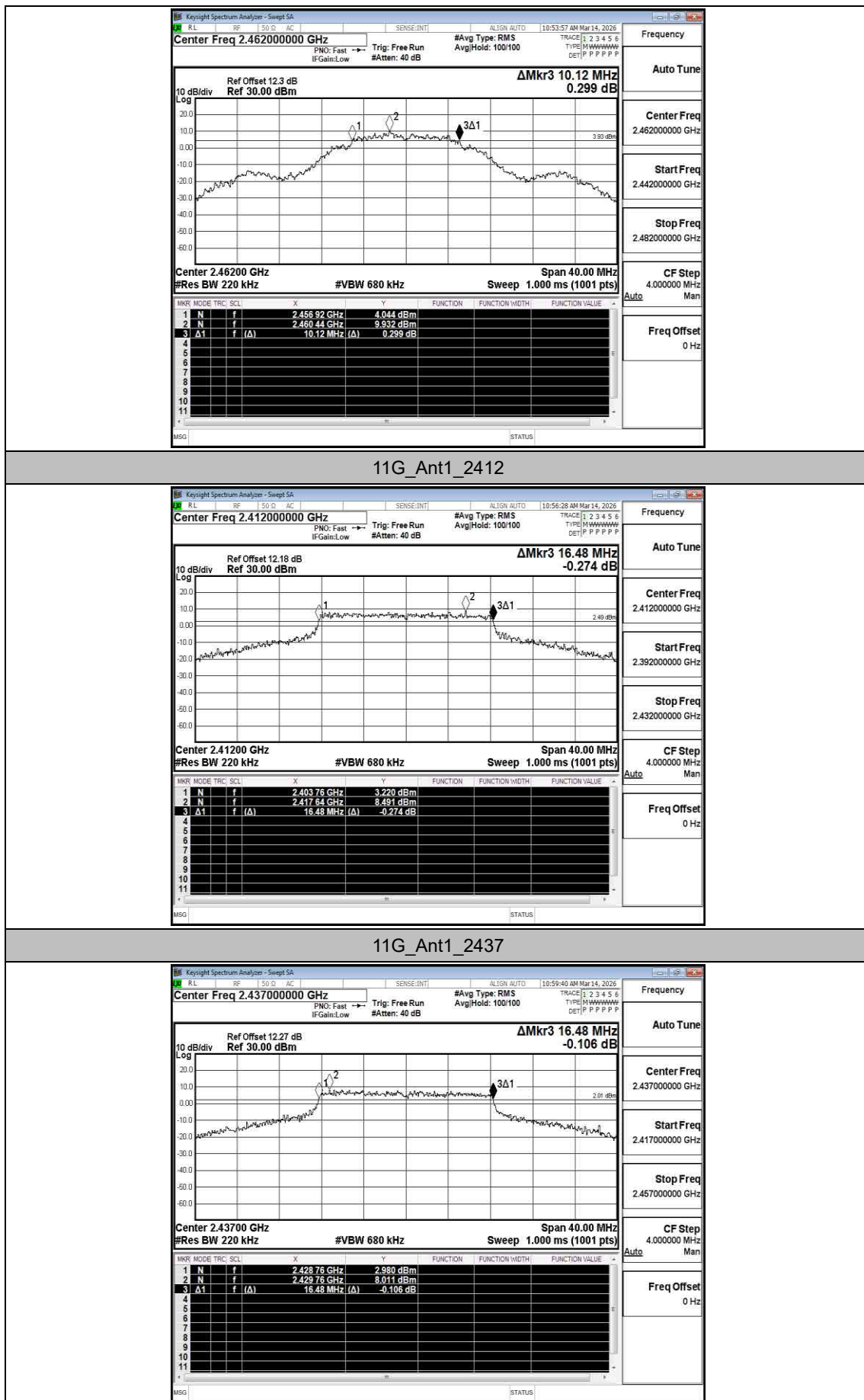
11B_Ant1_2412



11B_Ant1_2437



11B_Ant1_2462

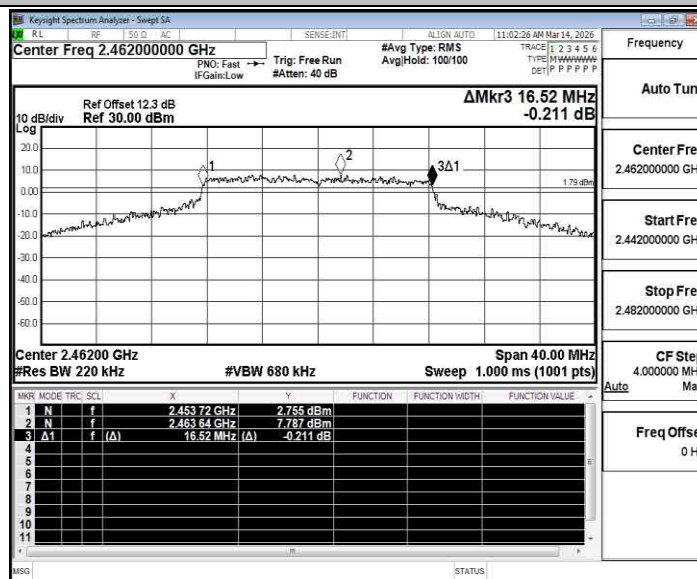


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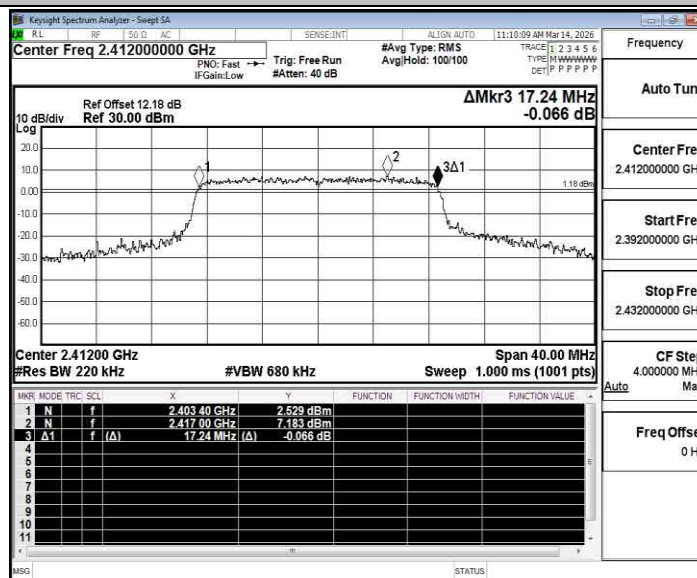
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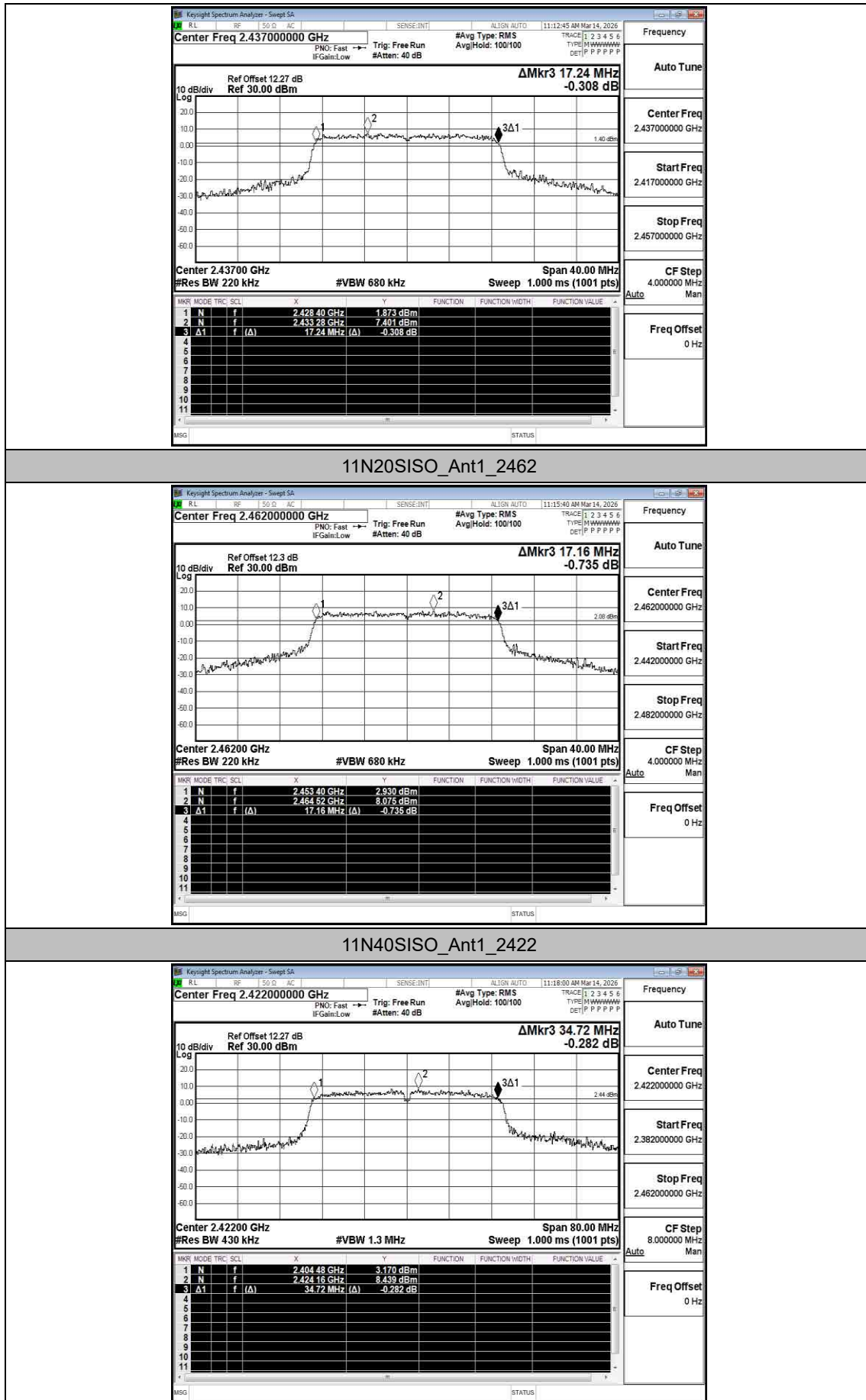
11G_Ant1_2462



11N20SISO_Ant1_2412



11N20SISO_Ant1_2437

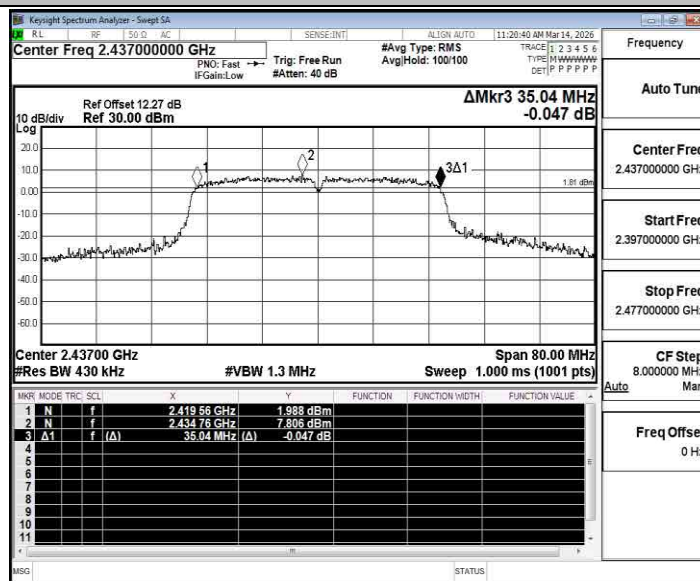


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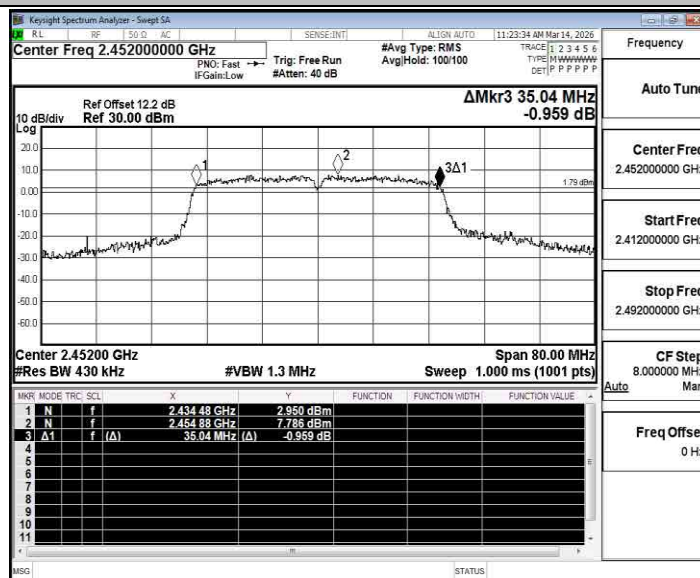
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11N40SISO_Ant1_2437



11N40SISO_Ant1_2452



B.2 Maximum Average conducted output power

Test Result Average

TestMode	Antenna	Frequency [MHz]	Measured Power	DC Factor [dB]	AV Power [dBm]	Conducted Limit[dBm]	Verdict
11B	Ant1	2412	17.19	0.00	17.19	≤30.00	PASS
		2437	15.12	0.00	15.12	≤30.00	PASS
		2462	16.47	0.00	16.47	≤30.00	PASS
11G	Ant1	2412	17.33	0.03	17.36	≤30.00	PASS
		2437	17.56	0.02	17.58	≤30.00	PASS
		2462	16.86	0.03	16.89	≤30.00	PASS
11N20SISO	Ant1	2412	16.90	0.03	16.93	≤30.00	PASS
		2437	17.50	0.03	17.53	≤30.00	PASS
		2462	17.68	0.04	17.72	≤30.00	PASS
11N40SISO	Ant1	2422	17.73	0.05	17.78	≤30.00	PASS
		2437	17.49	0.05	17.54	≤30.00	PASS
		2452	17.82	0.05	17.87	≤30.00	PASS

Note :offset=System attenuation +cable loss

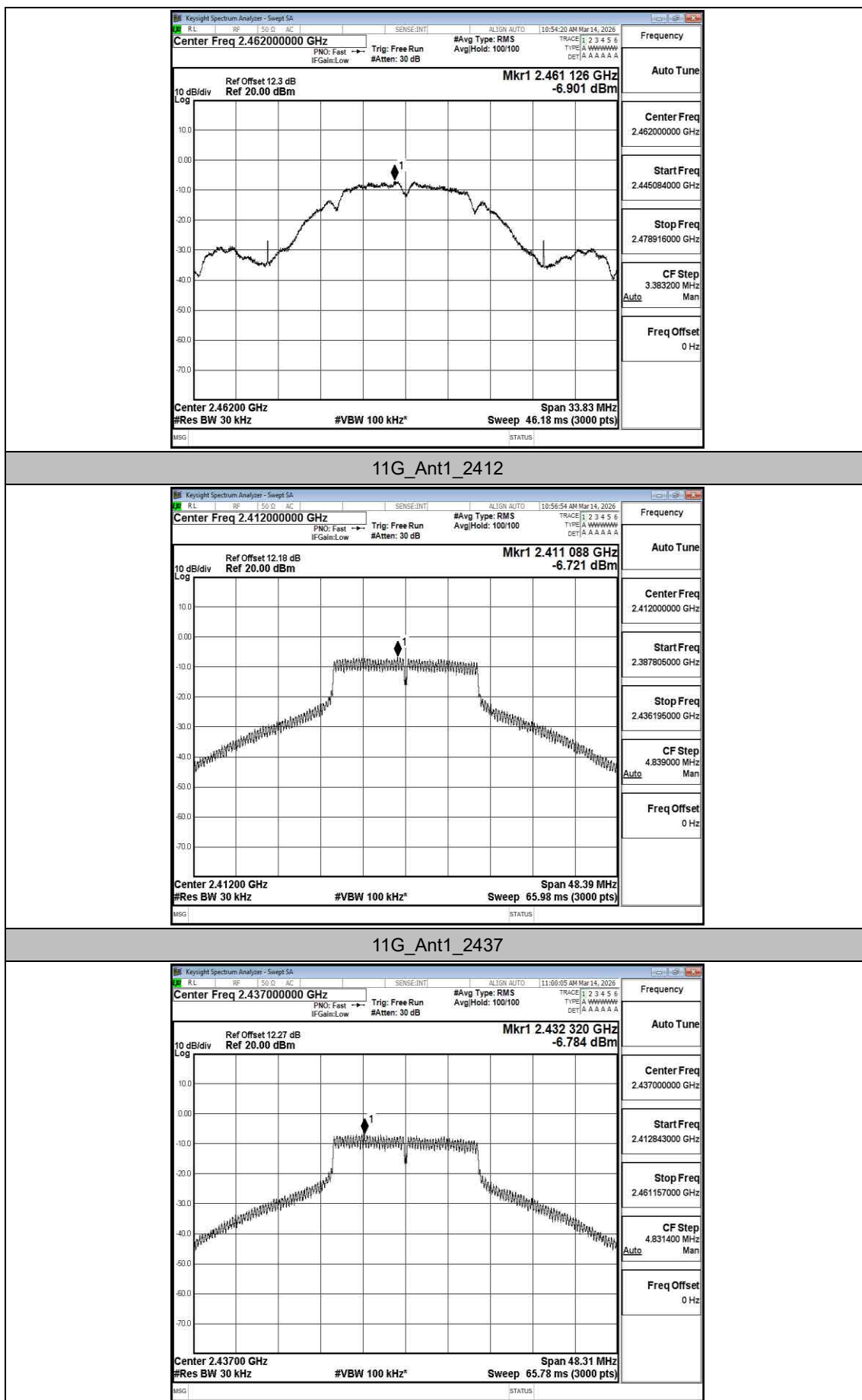
B.3 Maximum power spectral density

Test Result

TestMode	Antenna	Frequency[MHz]	Measured PSD [dBm/30kHz]	DC Factor [dB]	Result [dBm/30kHz]	Result [dBm/3kHz]	Limit [dBm/3kHz]	Verdict
11B	Ant1	2412	-6.32	0.00	-6.32	-16.32	≤8.00	PASS
		2437	-6.77	0.00	-6.77	-16.77	≤8.00	PASS
		2462	-6.9	0.00	-6.90	-16.90	≤8.00	PASS
11G	Ant1	2412	-6.72	0.02	-6.70	-16.70	≤8.00	PASS
		2437	-6.78	0.02	-6.76	-16.76	≤8.00	PASS
		2462	-6.99	0.03	-6.96	-16.96	≤8.00	PASS
11N20SISO	Ant1	2412	-6.05	0.03	-6.02	-16.02	≤8.00	PASS
		2437	-6.71	0.03	-6.68	-16.68	≤8.00	PASS
		2462	-6.3	0.04	-6.26	-16.26	≤8.00	PASS
11N40SISO	Ant1	2422	-9.05	0.05	-9.00	-19.00	≤8.00	PASS
		2437	-9.4	0.05	-9.35	-19.35	≤8.00	PASS
		2452	-8.9	0.05	-8.85	-18.85	≤8.00	PASS

Note :offset=System attenuation +cabal loss

Result[dBm/3kHz]=Result[dBm/30kHz]+10*Log(3/30)

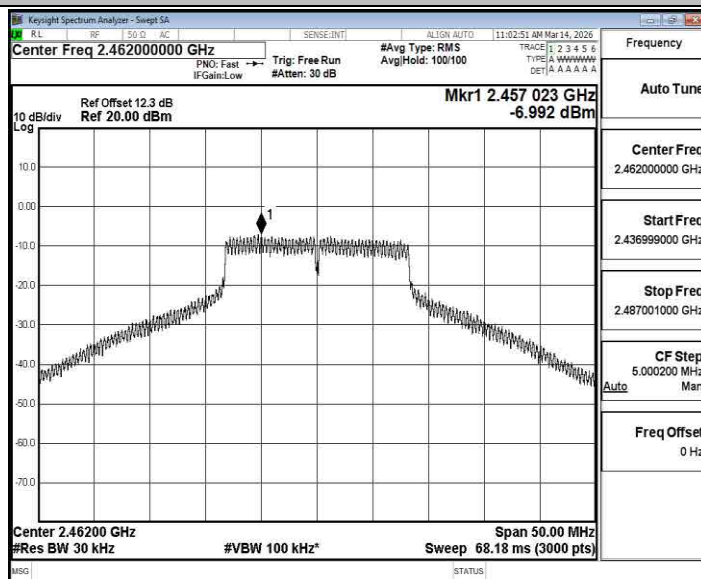


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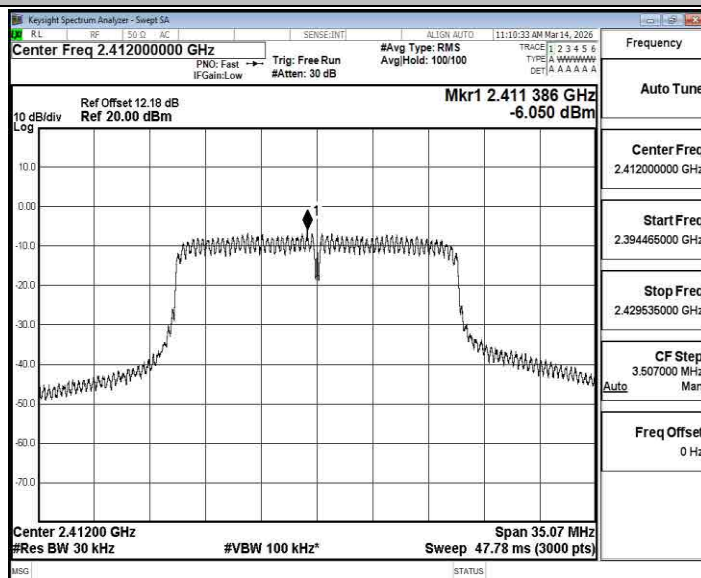
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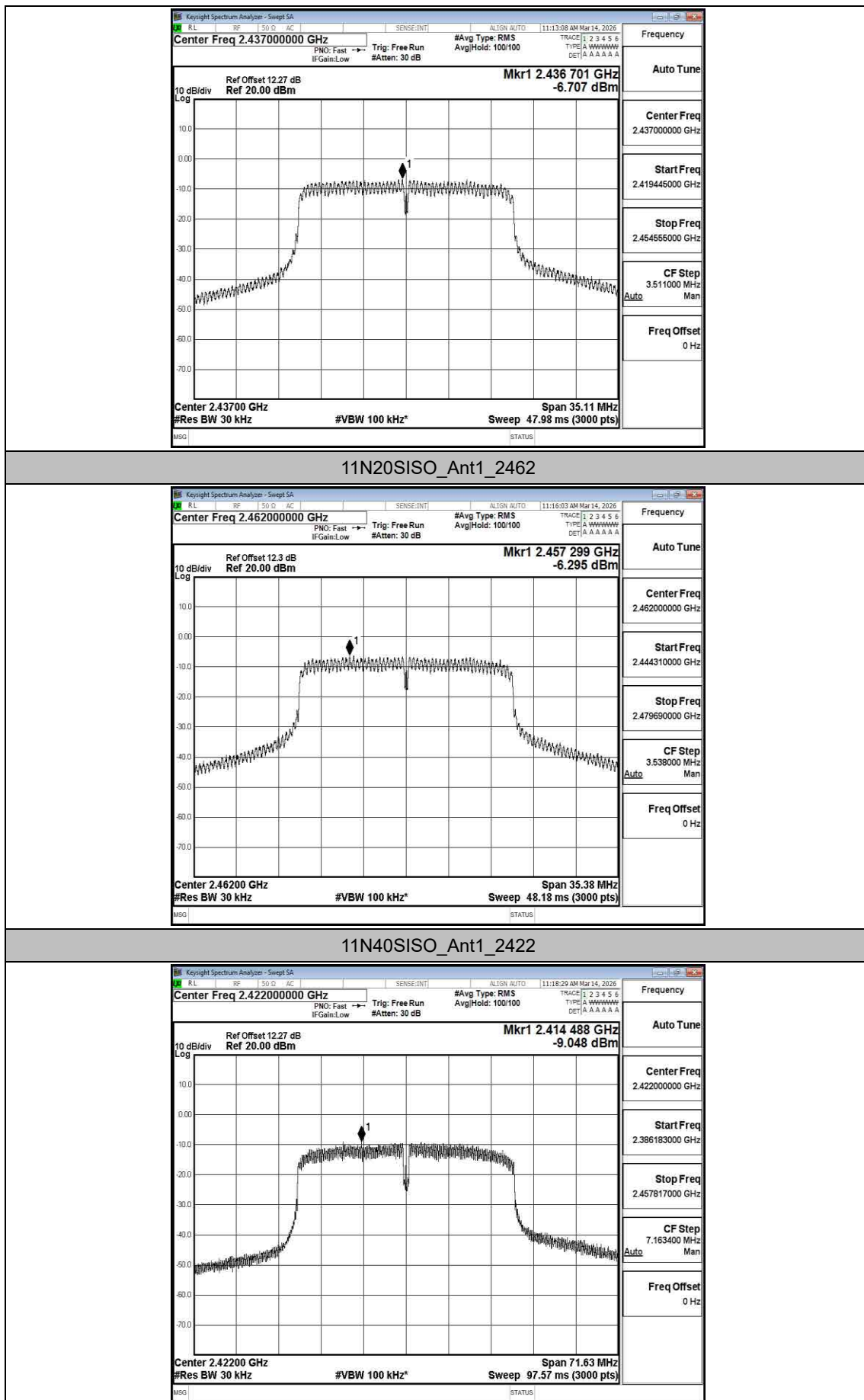
11G_Ant1_2462



11N20SISO_Ant1_2412



11N20SISO_Ant1_2437

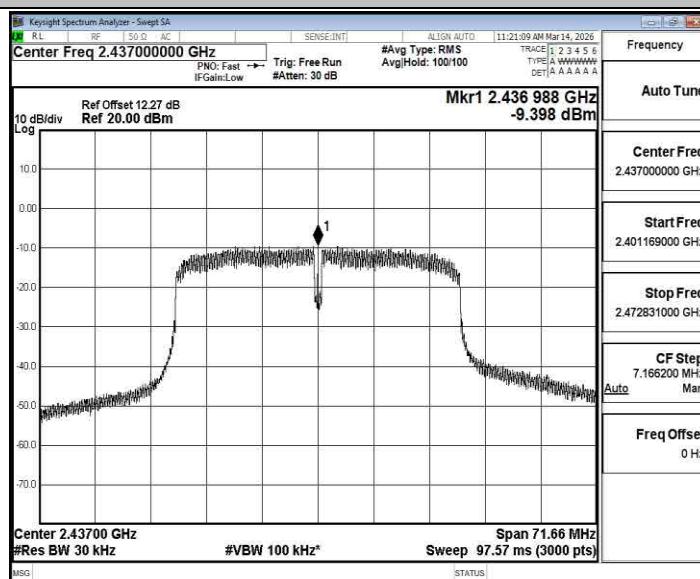


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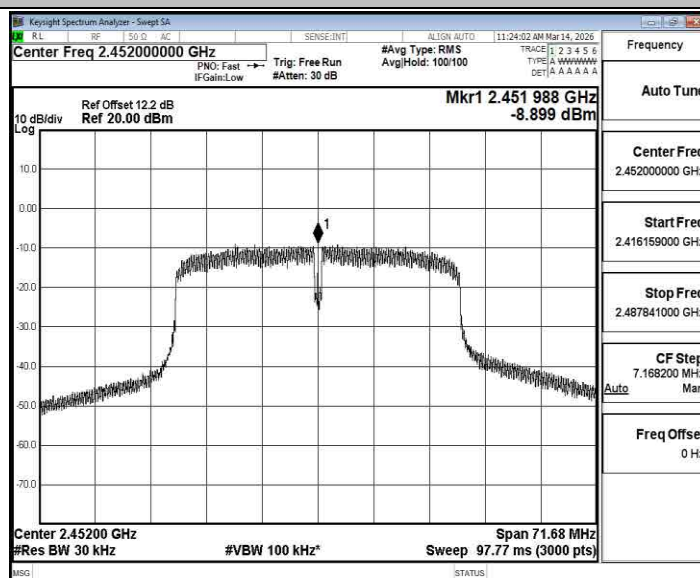
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11N40SISO_Ant1_2437



11N40SISO_Ant1_2452



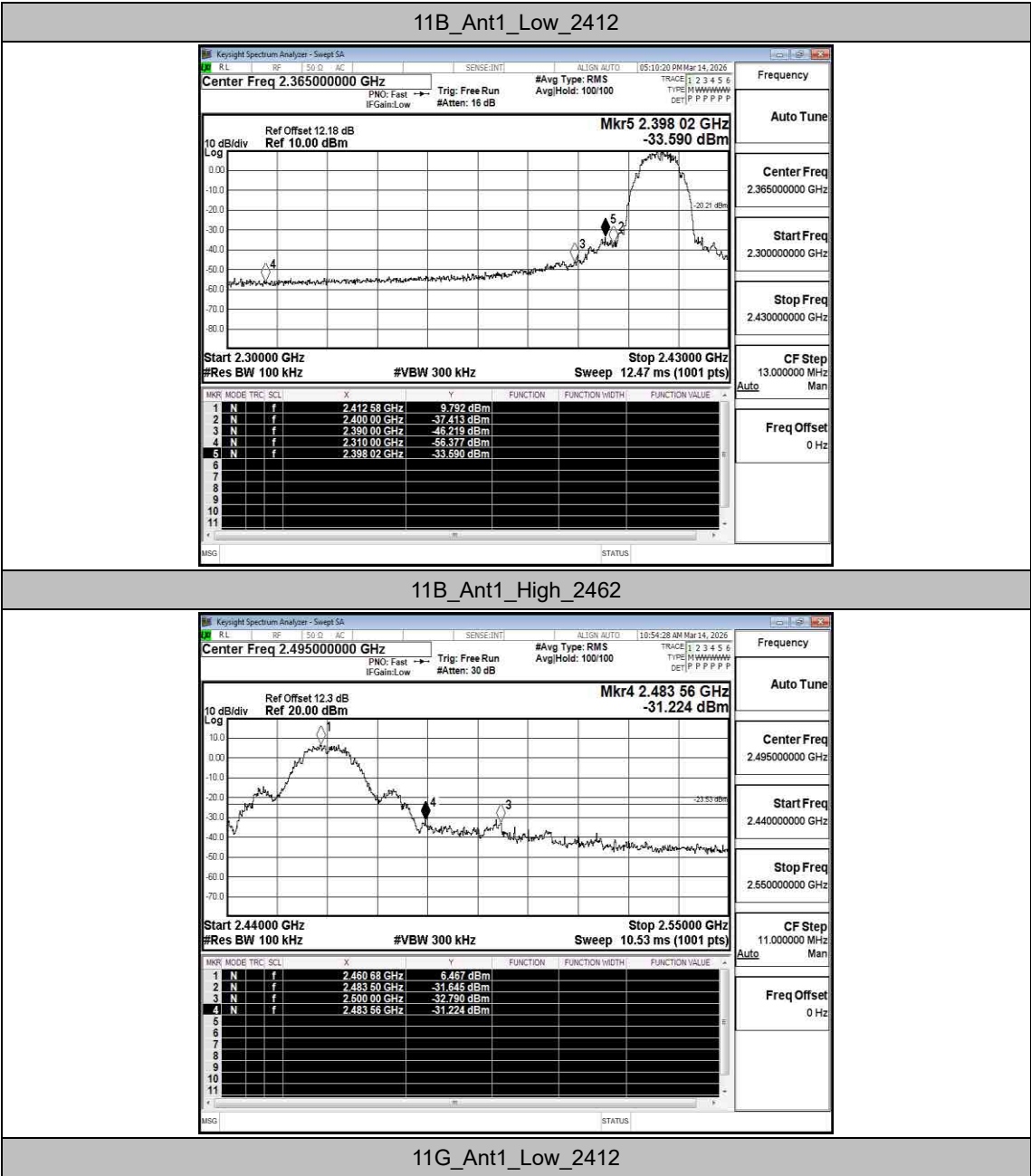
B.4 Band edge measurements

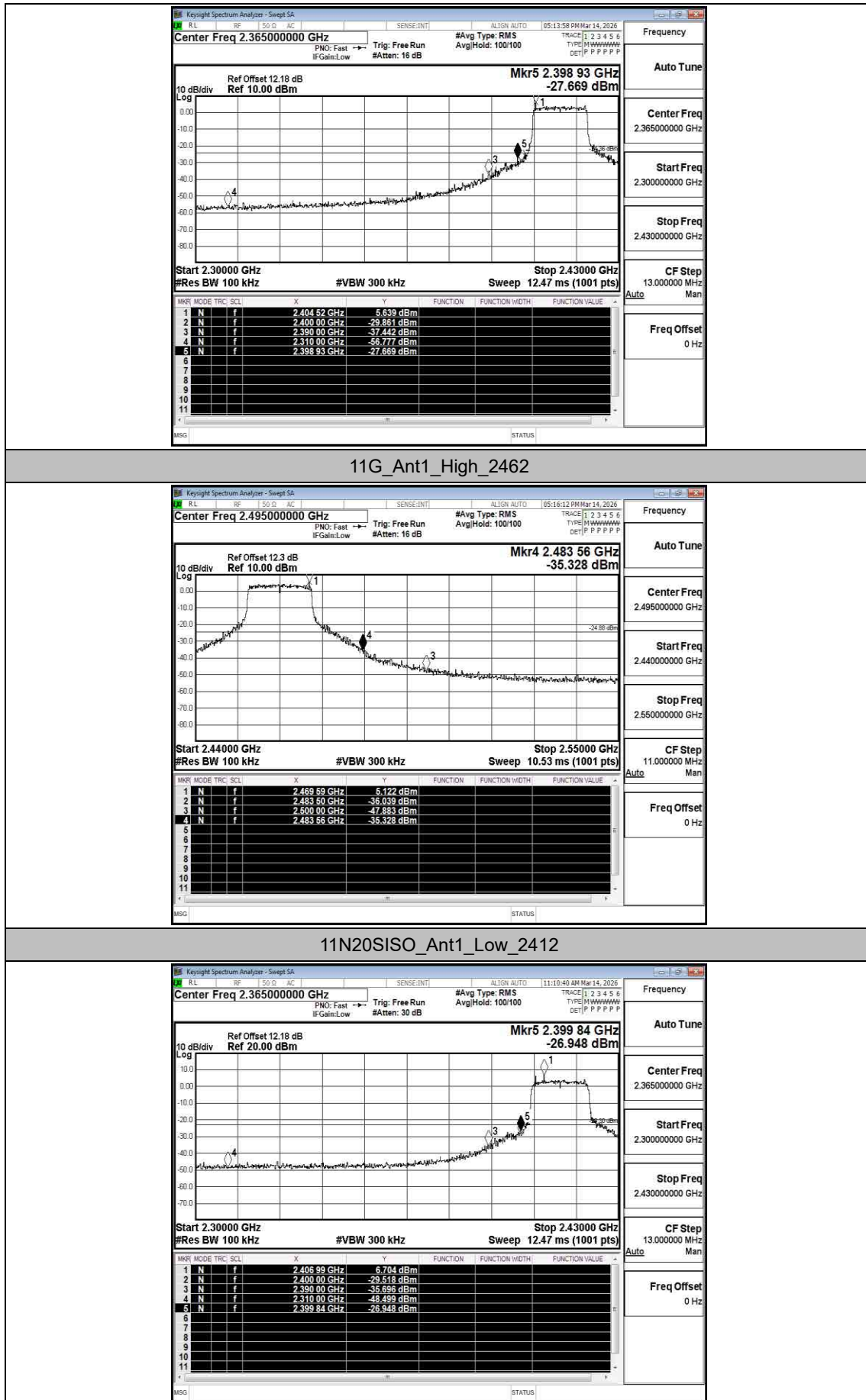
Test Result

TestMode	Antenna	ChName	Frequency[MHz]	RefLevel[dBm]	Result[dBm]	Limit[dBm]	Verdict
11B	Ant1	Low	2412	9.79	-33.59	≤-20.21	PASS
		High	2462	6.47	-31.22	≤-23.53	PASS
11G	Ant1	Low	2412	5.64	-27.67	≤-24.36	PASS
		High	2462	5.12	-35.33	≤-24.88	PASS
11N20SISO	Ant1	Low	2412	6.70	-26.95	≤-23.3	PASS
		High	2462	7.82	-33.52	≤-22.18	PASS
11N40SISO	Ant1	Low	2422	4.40	-29.42	≤-25.6	PASS
		High	2452	4.19	-28.25	≤-25.81	PASS

Note :offset=System attenuation +cabal loss

Test Graphs



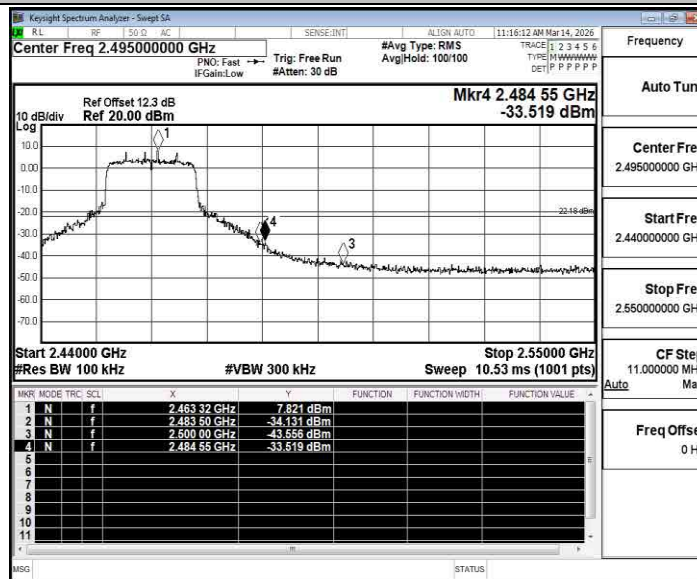


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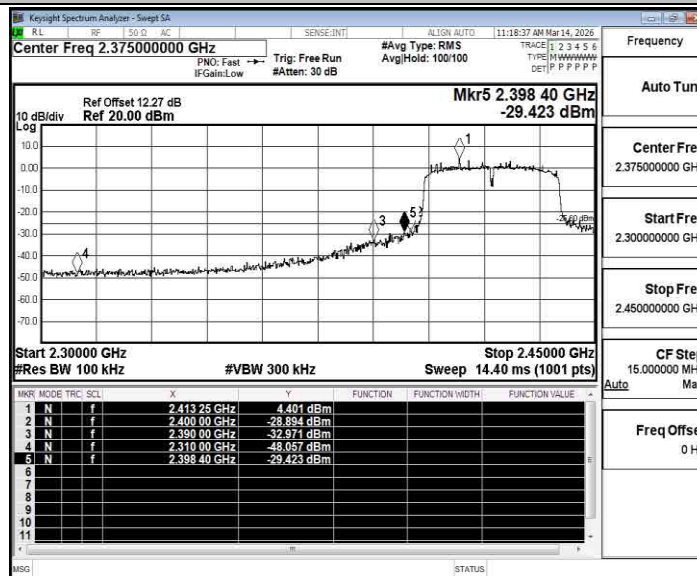
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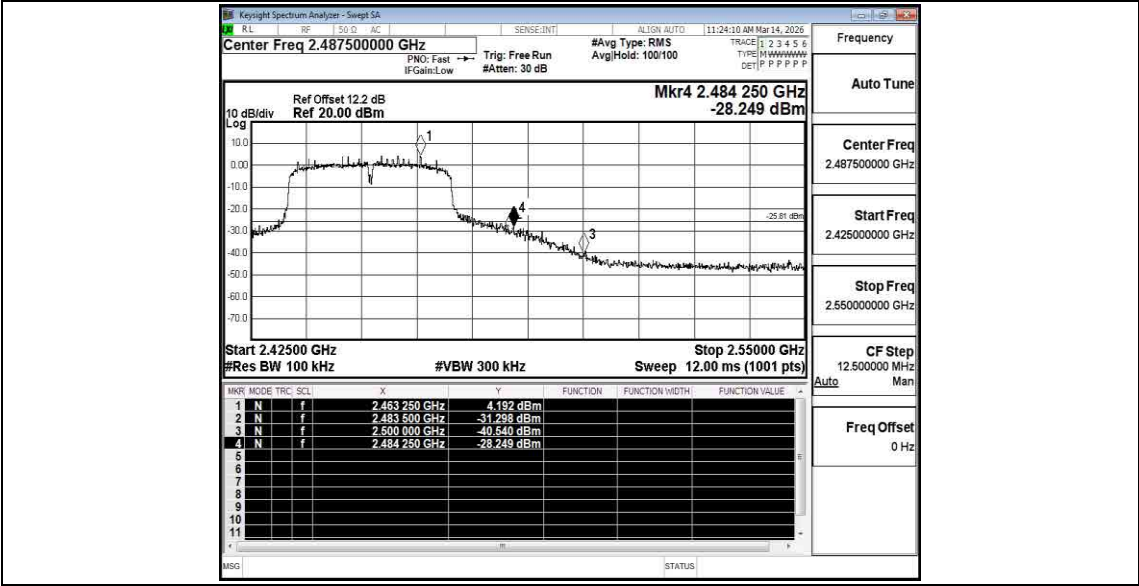
11N20SISO_Ant1_High_2462



11N40SISO_Ant1_Low_2422



11N40SISO_Ant1_High_2452



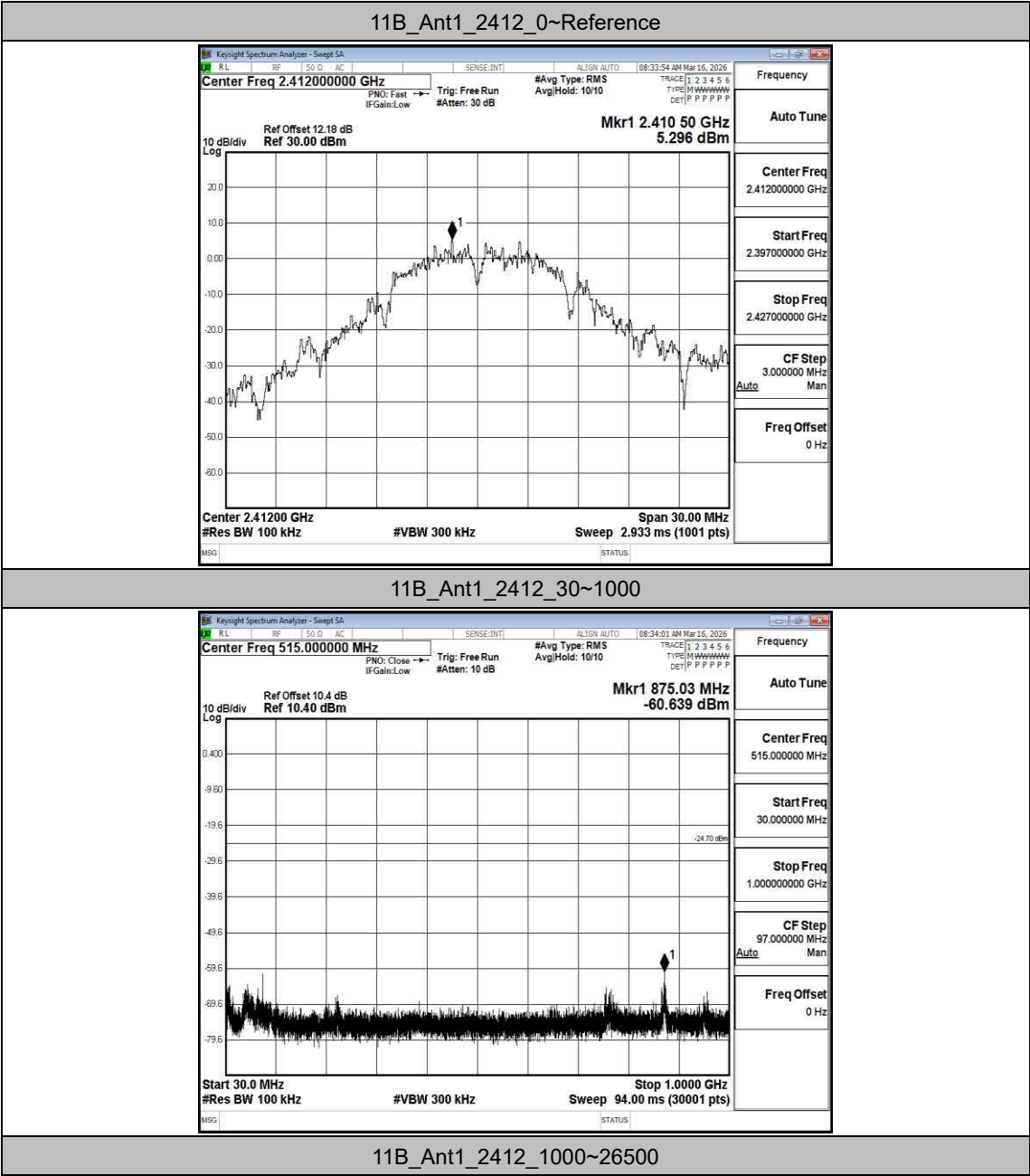
B.5 Conducted Spurious Emission

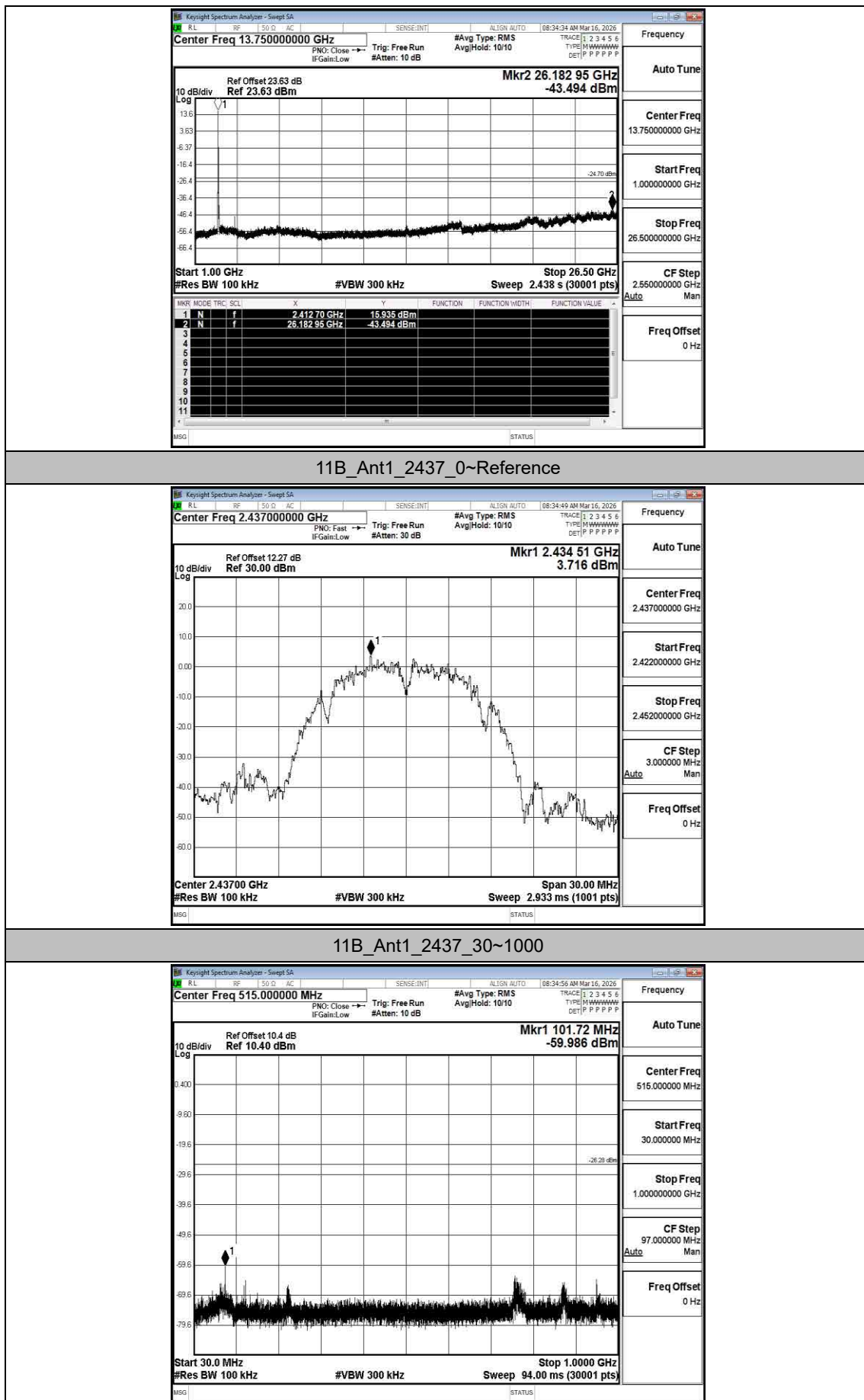
Test Result

TestMode	Antenna	Frequency[MHz]	FreqRange [Mhz]	RefLevel [dBm]	Result [dBm]	Limit [dBm]	Verdict
11B	Ant1	2412	Reference	5.30	5.30	---	PASS
			30~1000	5.30	-60.64	≤-24.7	PASS
			1000~26500	5.30	-43.49	≤-24.7	PASS
		2437	Reference	3.72	3.72	---	PASS
			30~1000	3.72	-59.99	≤-26.28	PASS
			1000~26500	3.72	-43.97	≤-26.28	PASS
		2462	Reference	3.82	3.82	---	PASS
			30~1000	3.82	-61.06	≤-26.18	PASS
			1000~26500	3.82	-42.71	≤-26.18	PASS
11G	Ant1	2412	Reference	3.92	3.92	---	PASS
			30~1000	3.92	-60.4	≤-26.08	PASS
			1000~26500	3.92	-43.28	≤-26.08	PASS
		2437	Reference	0.35	0.35	---	PASS
			30~1000	0.35	-62.33	≤-29.65	PASS
			1000~26500	0.35	-44.4	≤-29.65	PASS
		2462	Reference	2.92	2.92	---	PASS
			30~1000	2.92	-62.6	≤-27.08	PASS
			1000~26500	2.92	-44.26	≤-27.08	PASS
11N20SISO	Ant1	2412	Reference	3.30	3.30	---	PASS
			30~1000	3.30	-63.07	≤-26.7	PASS
			1000~26500	3.30	-43.83	≤-26.7	PASS
		2437	Reference	0.99	0.99	---	PASS
			30~1000	0.99	-62.53	≤-29.01	PASS
			1000~26500	0.99	-44.47	≤-29.01	PASS
		2462	Reference	2.11	2.11	---	PASS
			30~1000	2.11	-62.06	≤-27.89	PASS
			1000~26500	2.11	-43.8	≤-27.89	PASS
11N40SISO	Ant1	2422	Reference	2.06	2.06	---	PASS
			30~1000	2.06	-61.03	≤-27.94	PASS
			1000~26500	2.06	-43.34	≤-27.94	PASS
		2437	Reference	0.99	0.99	---	PASS
			30~1000	0.99	-60.2	≤-29.01	PASS
			1000~26500	0.99	-44.18	≤-29.01	PASS
		2452	Reference	-0.74	-0.74	---	PASS
			30~1000	-0.74	-61.82	≤-30.74	PASS
			1000~26500	-0.74	-44.38	≤-30.74	PASS

Note :Regarding the spurious emissions from 30MHz to 26.5GHz, the cable lose have been set in the CORREC' of the Spectrum Analyzer during the test.

Test Graphs

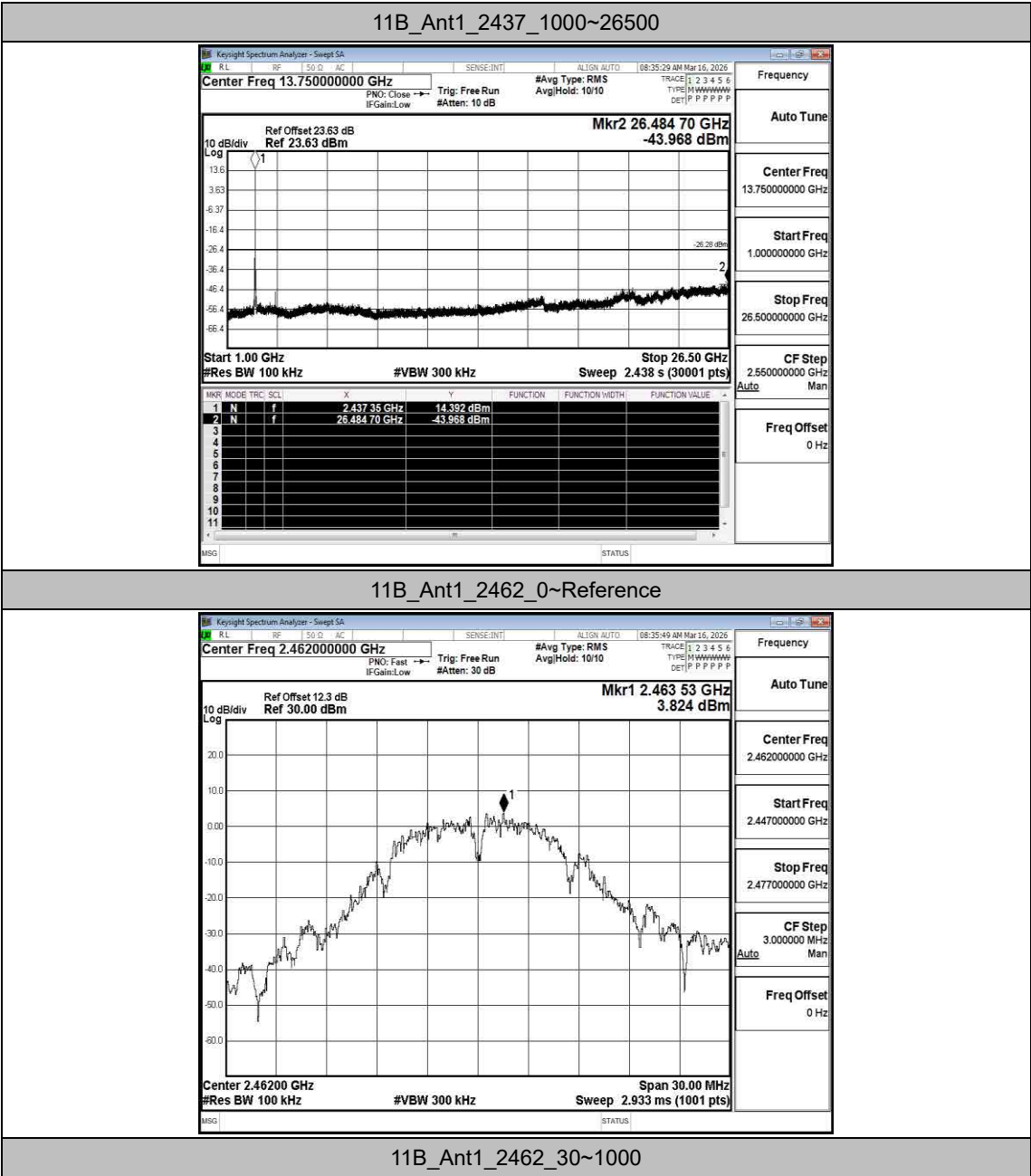


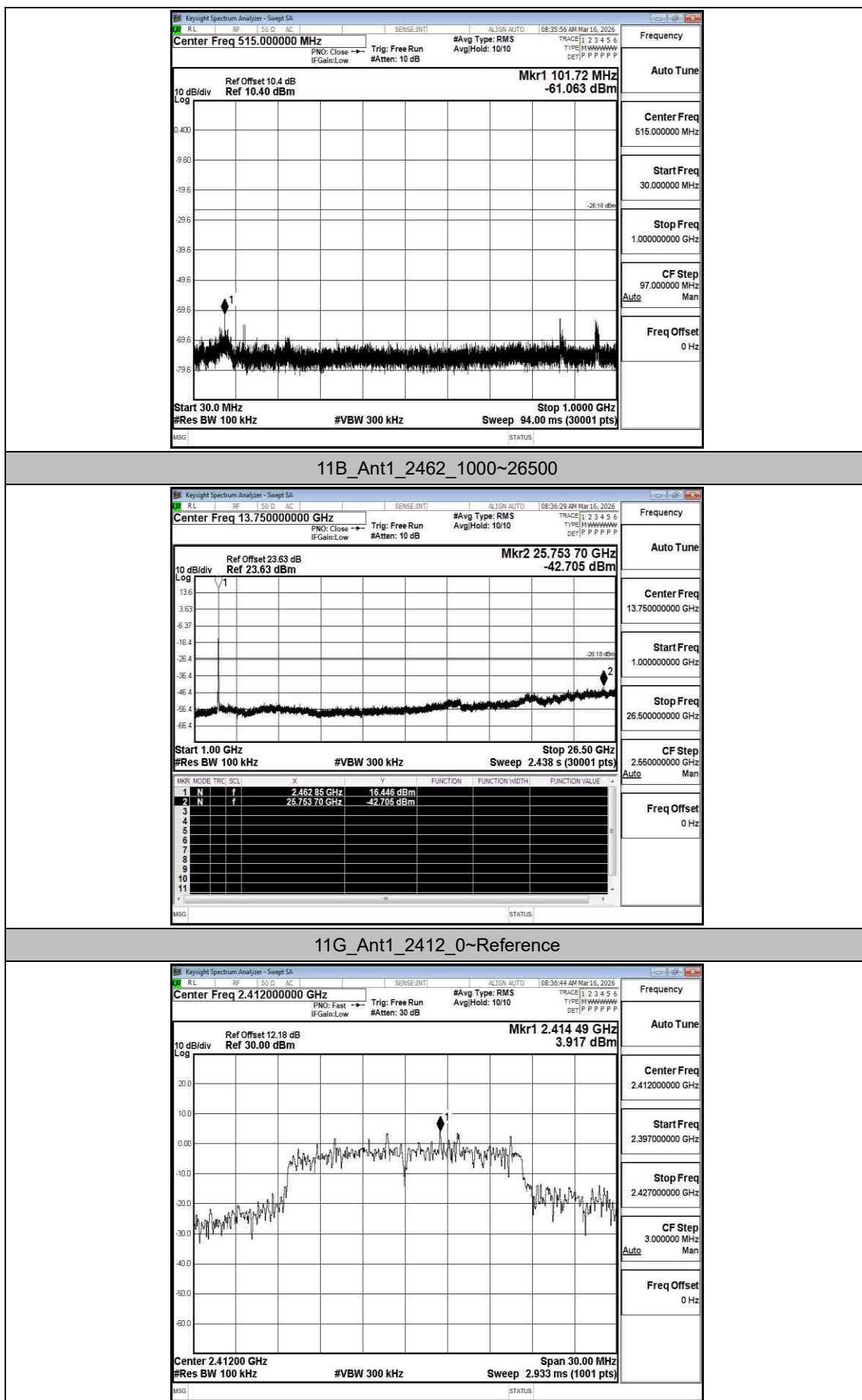


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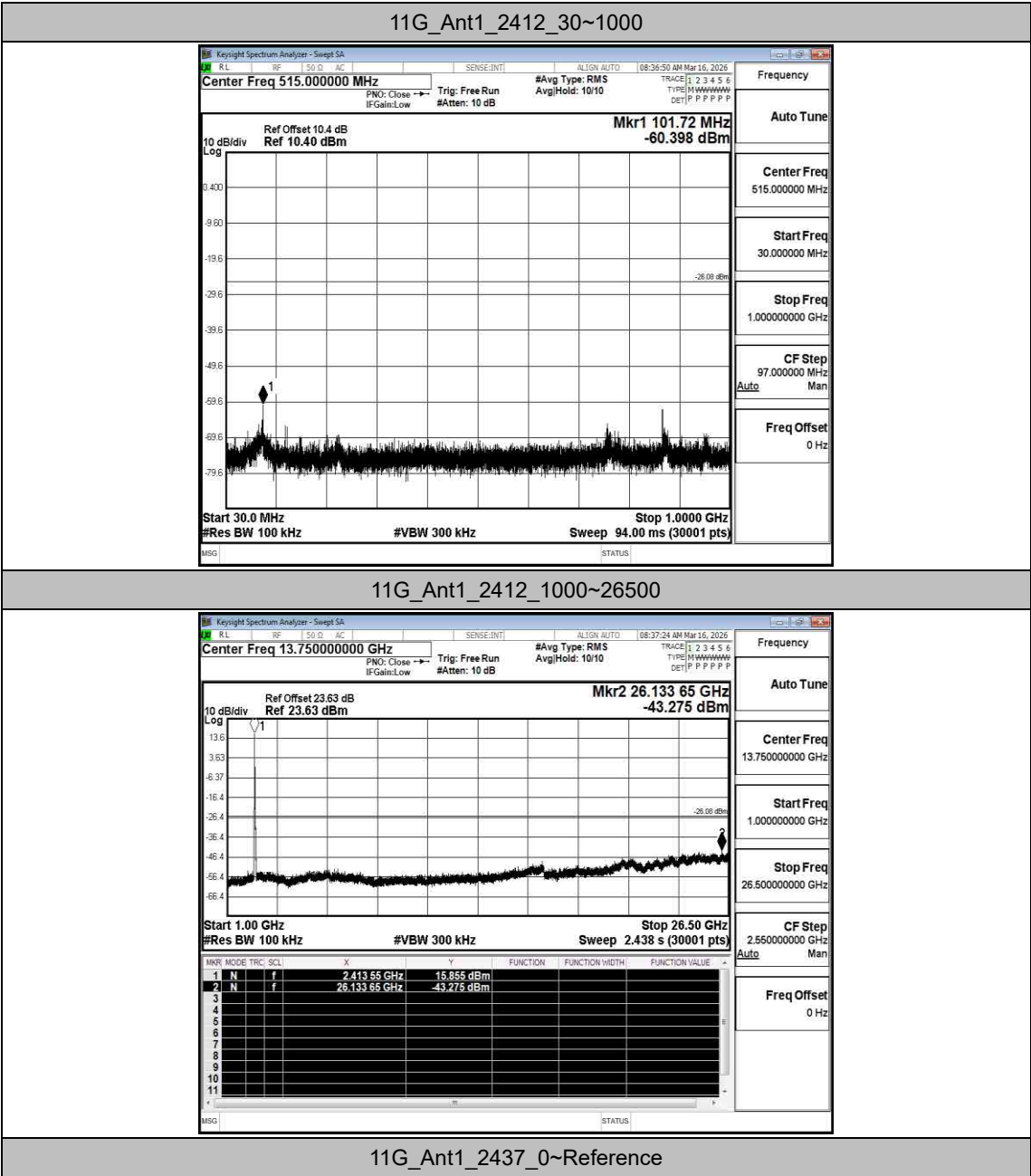


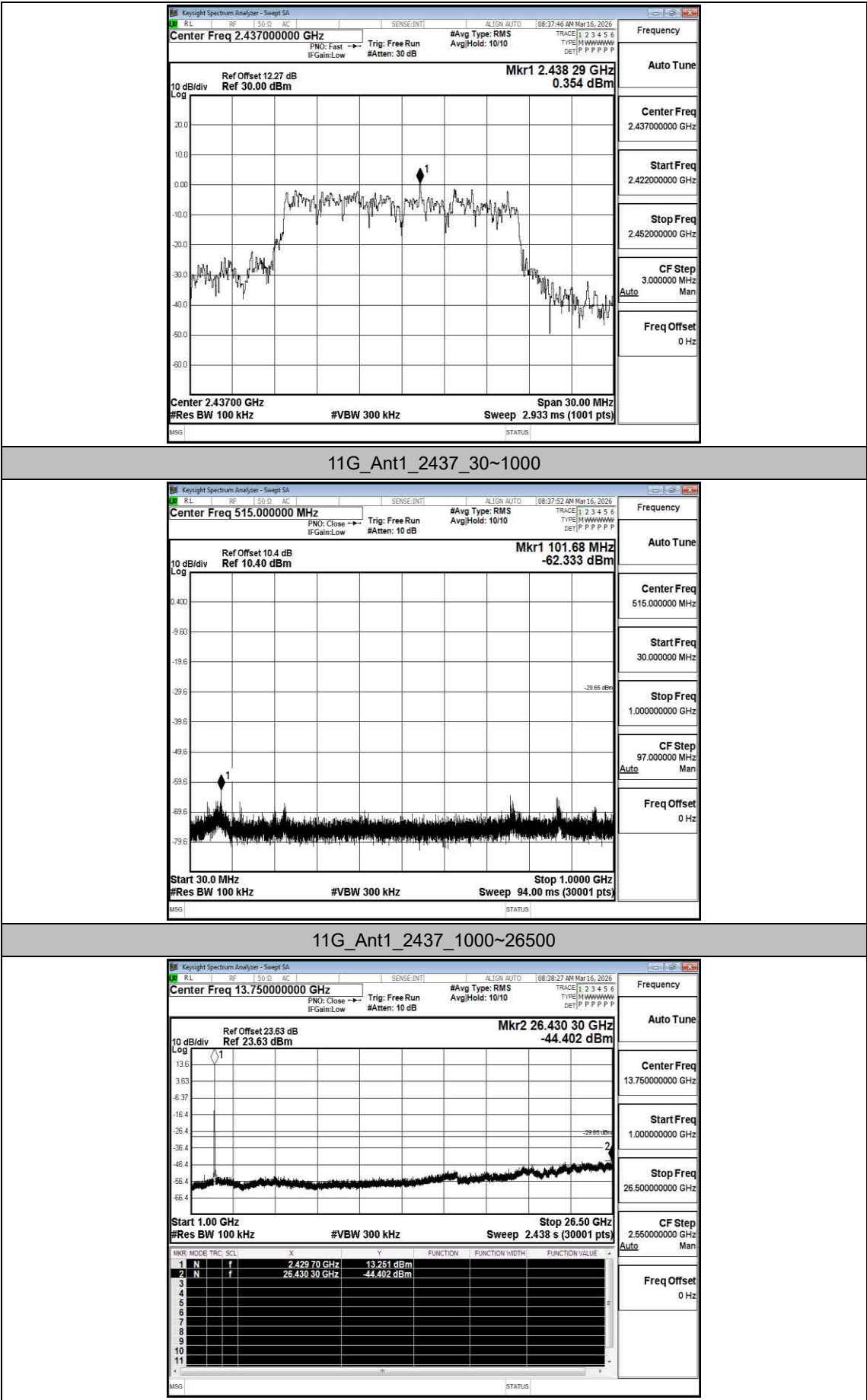


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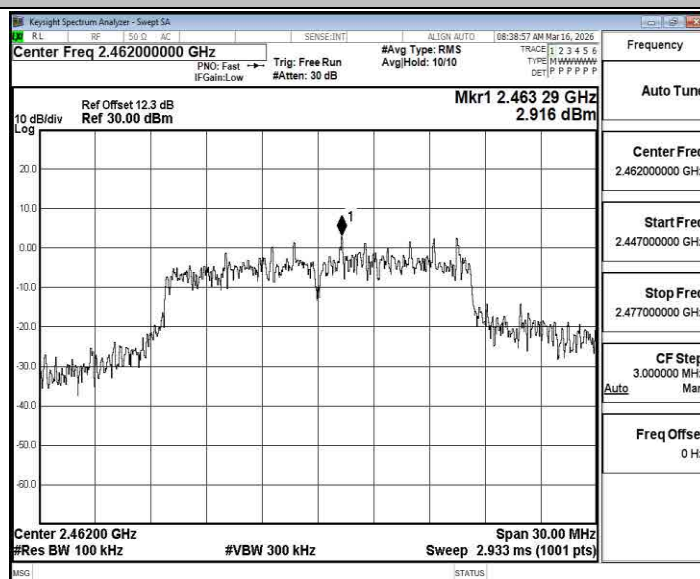
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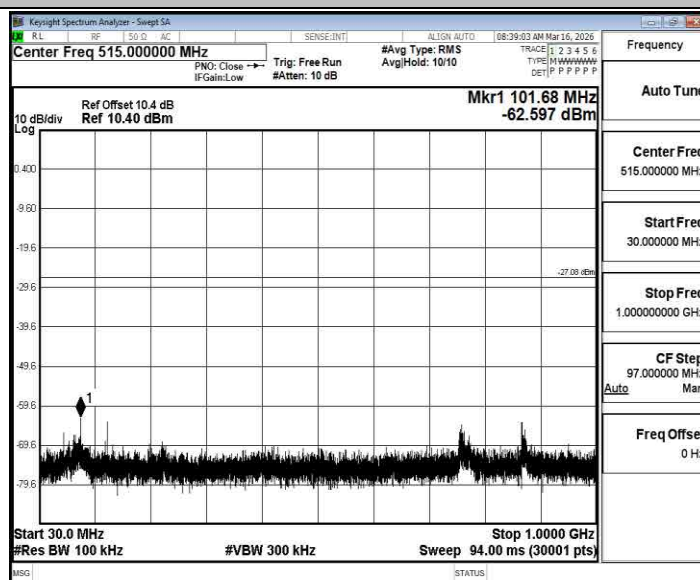




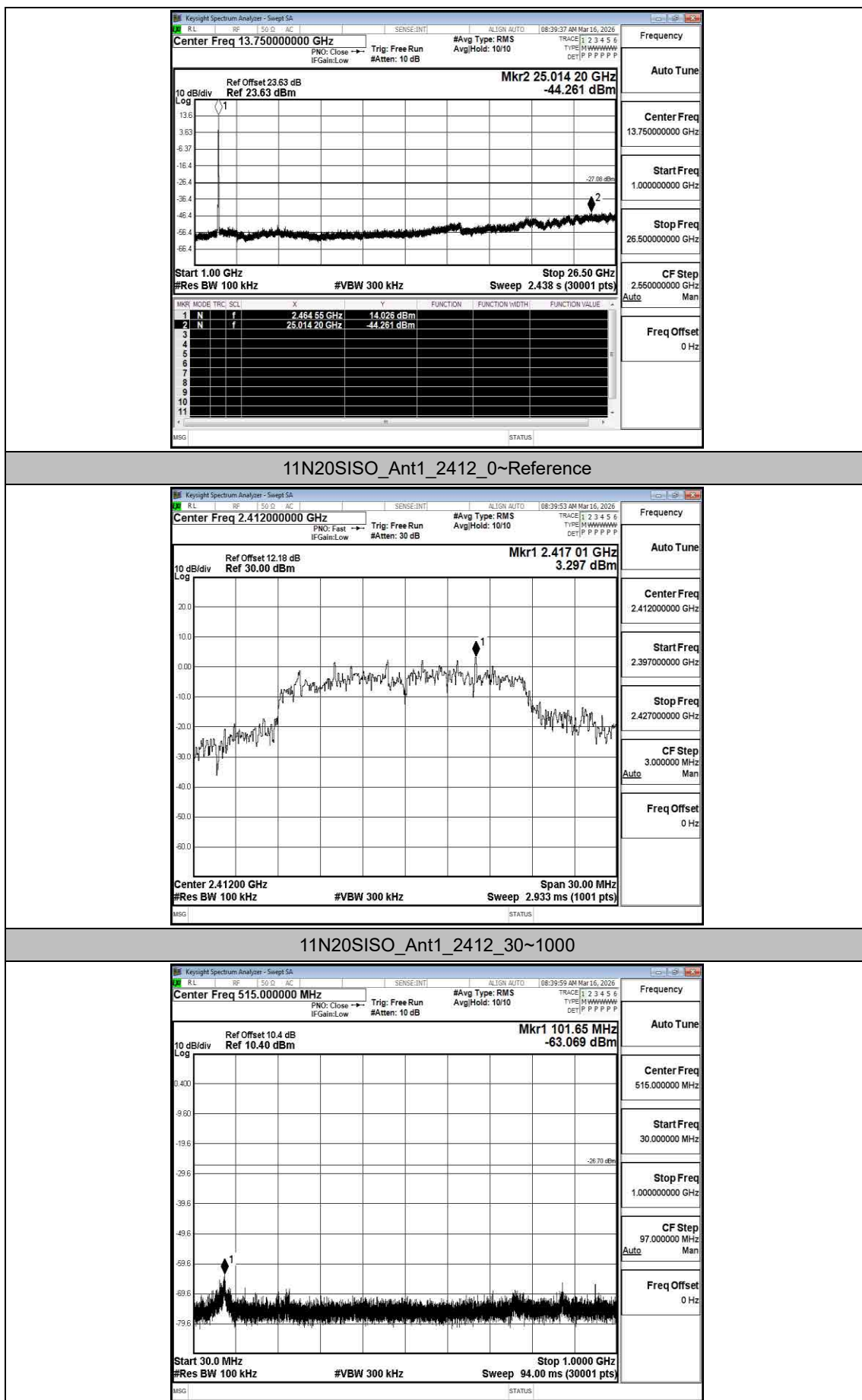
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11G_Ant1_2462_30~1000



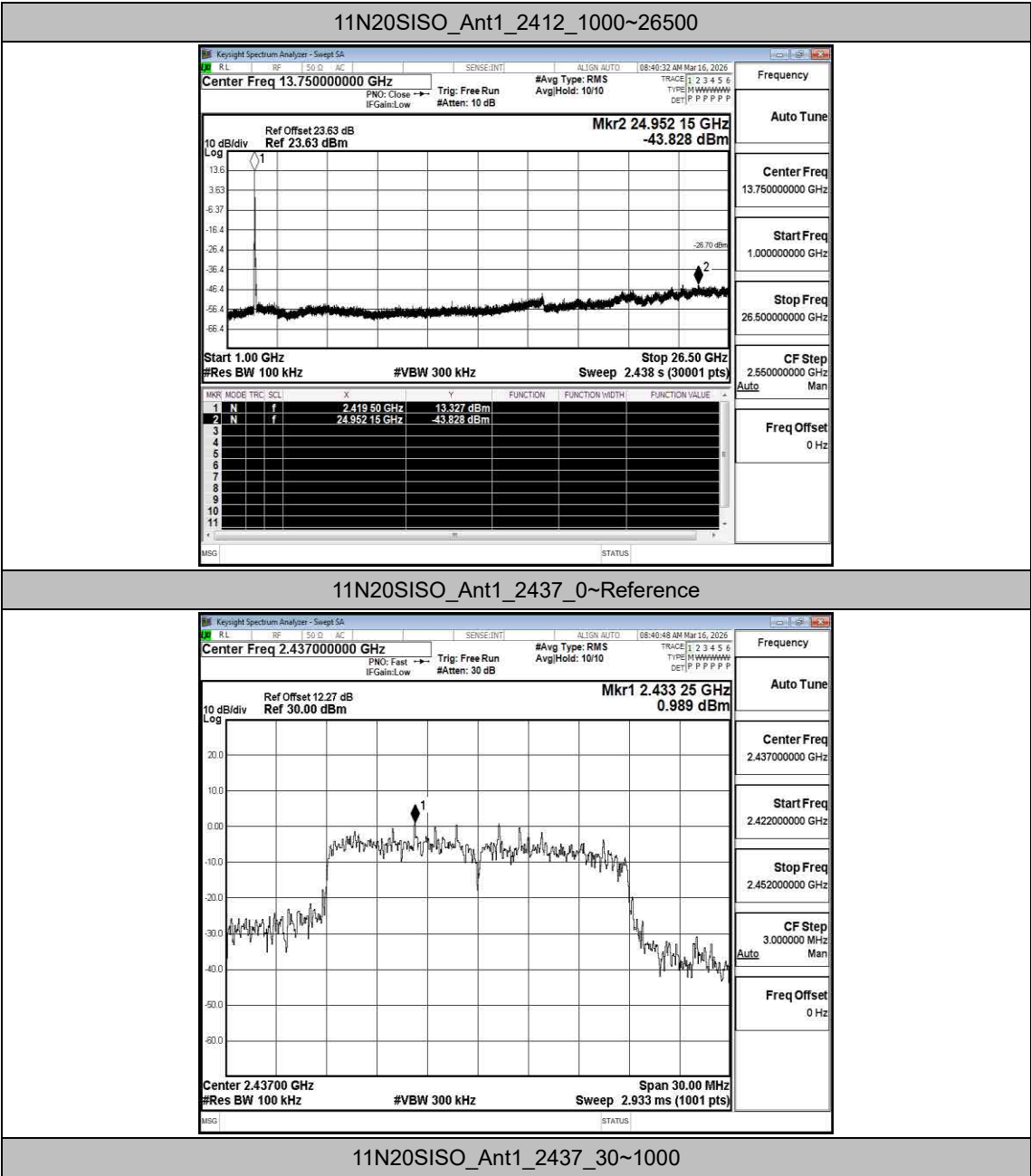
11G_Ant1_2462_1000~26500

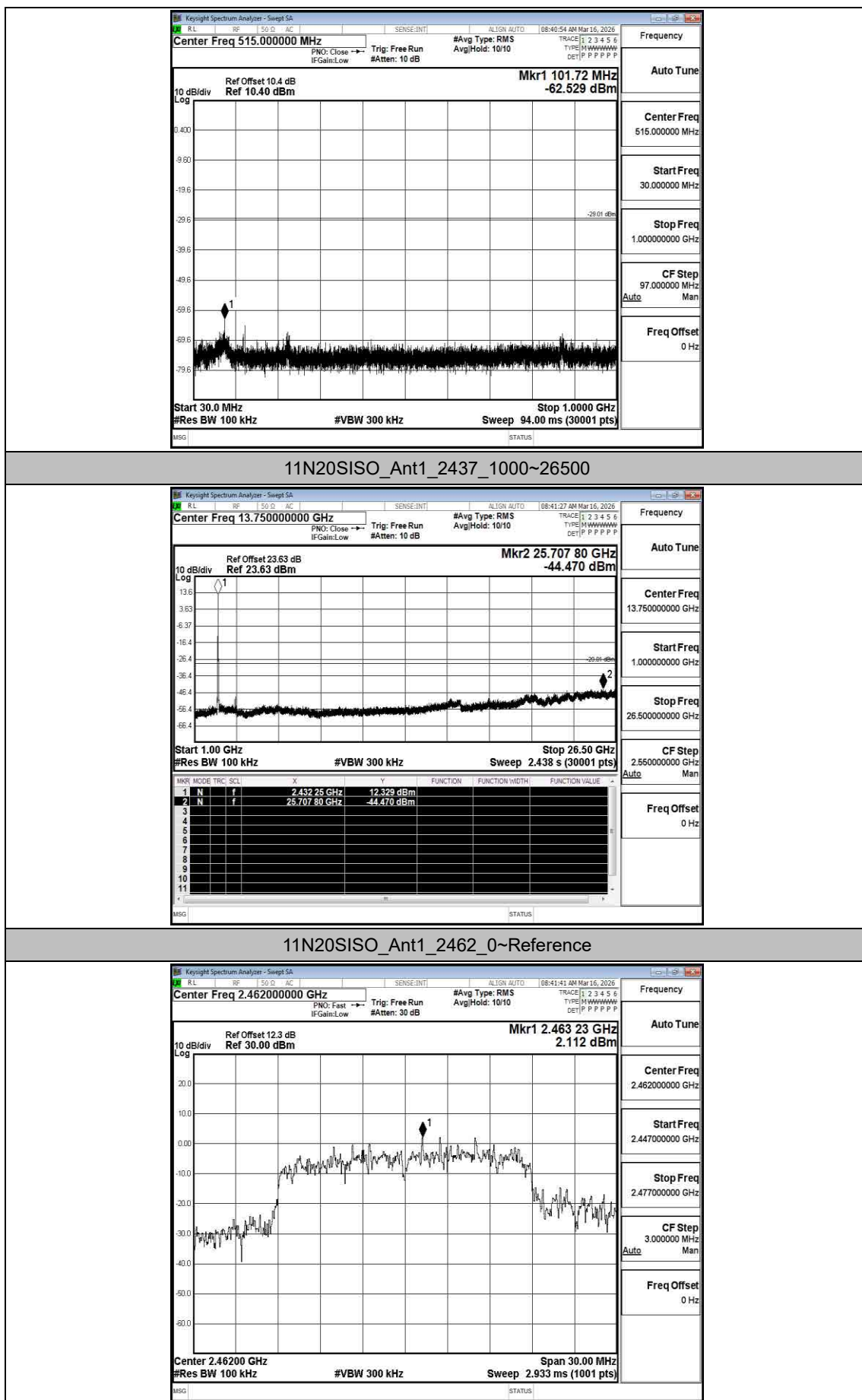


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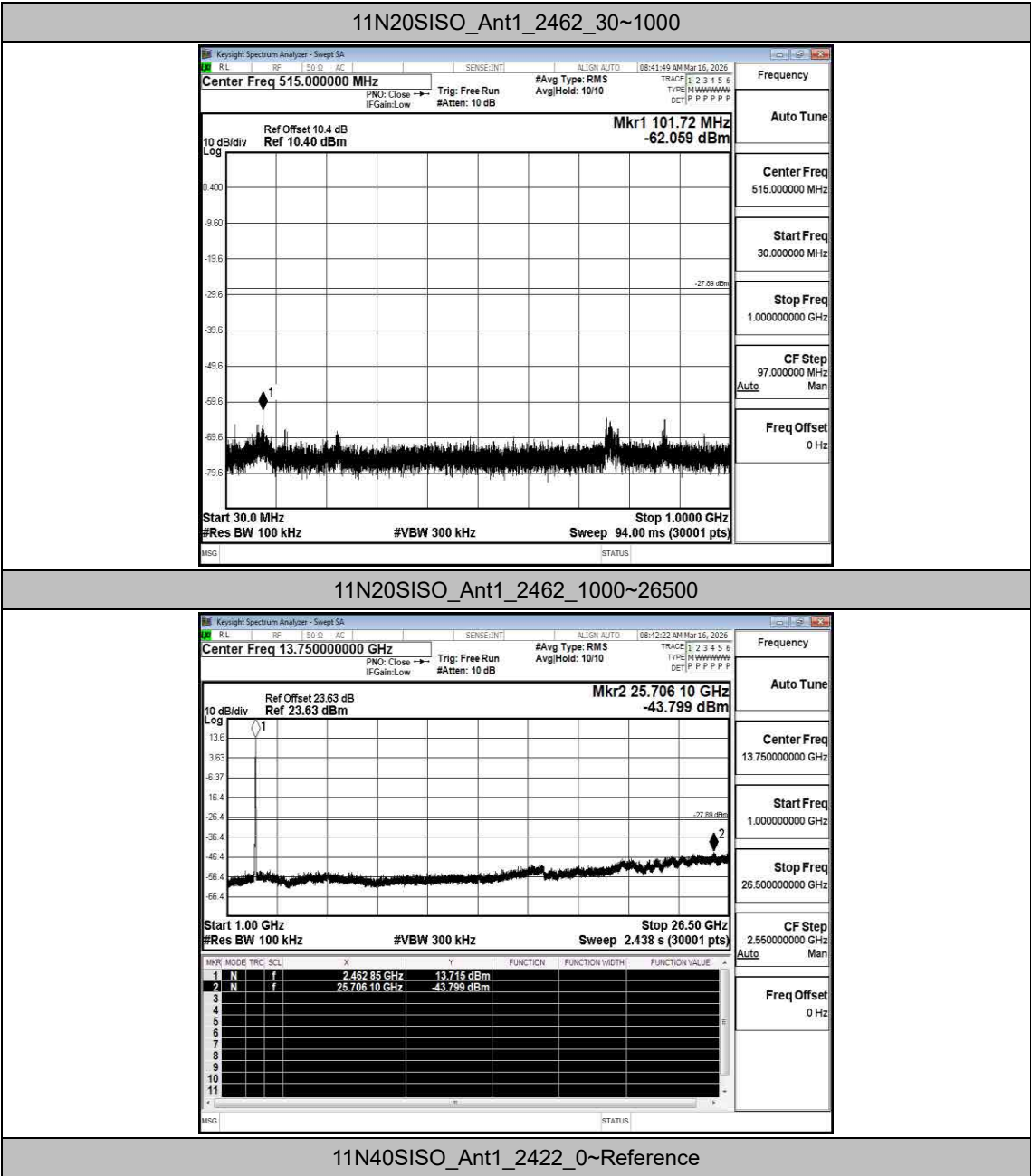


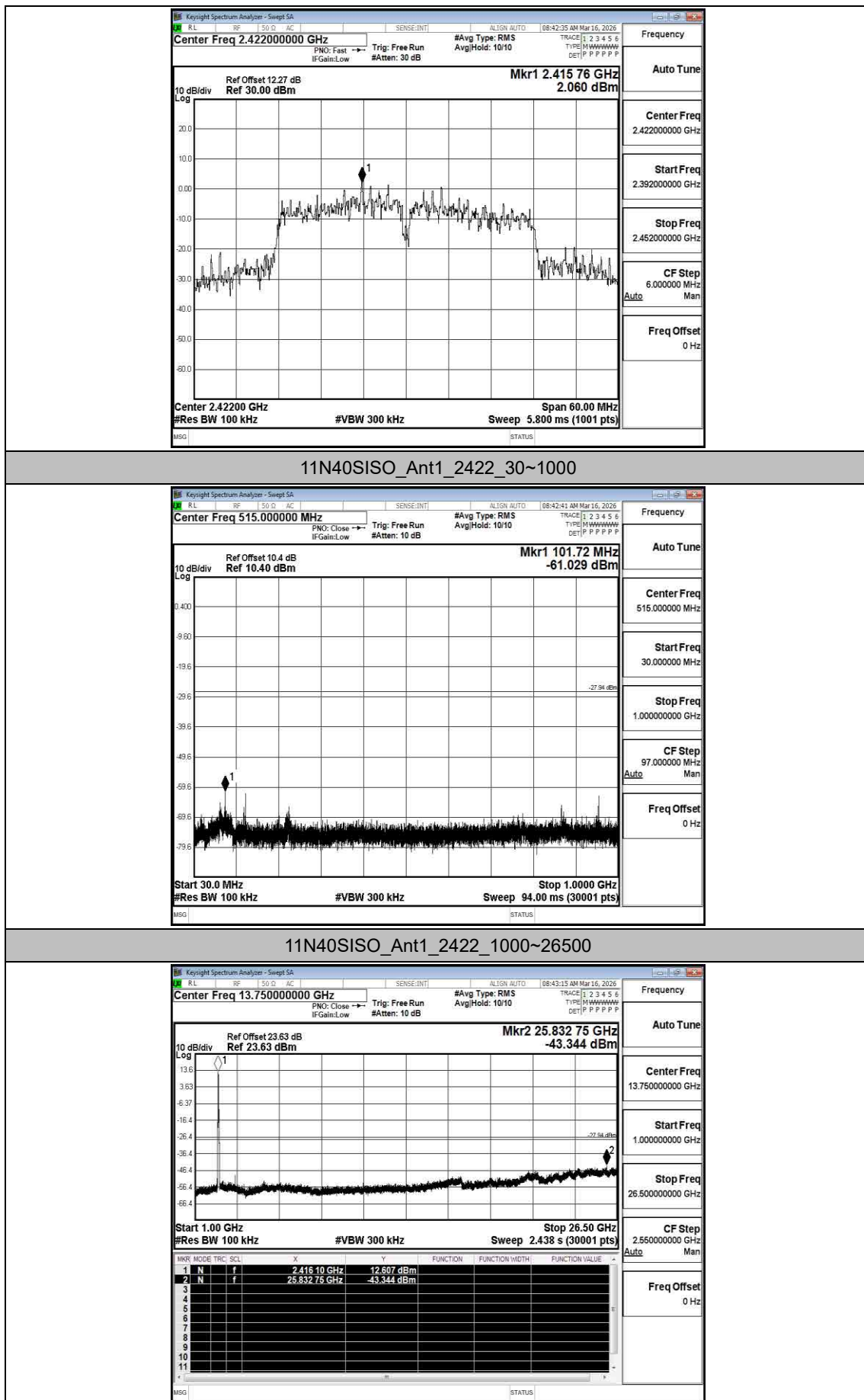


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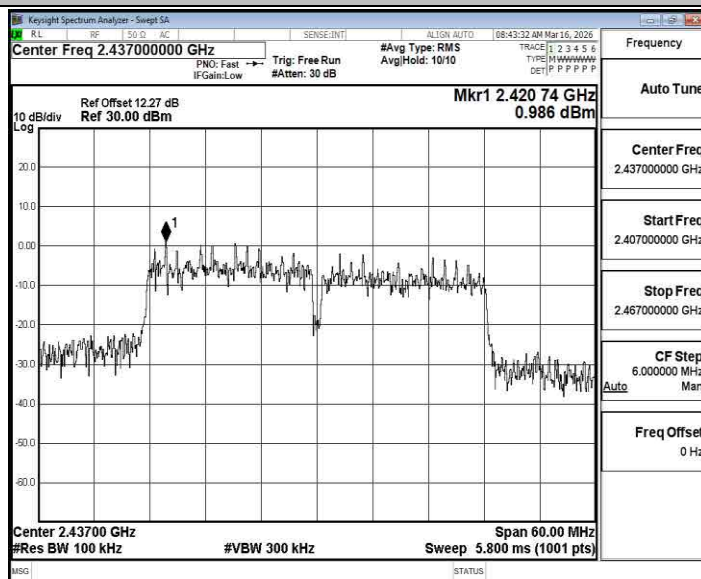


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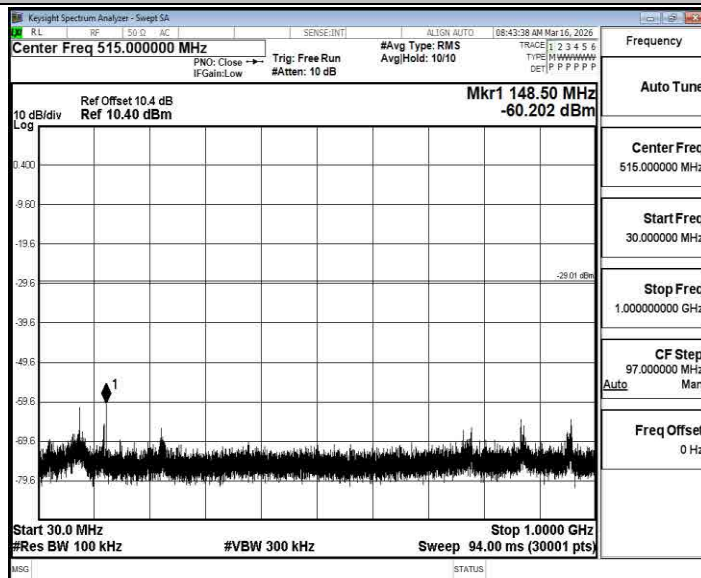
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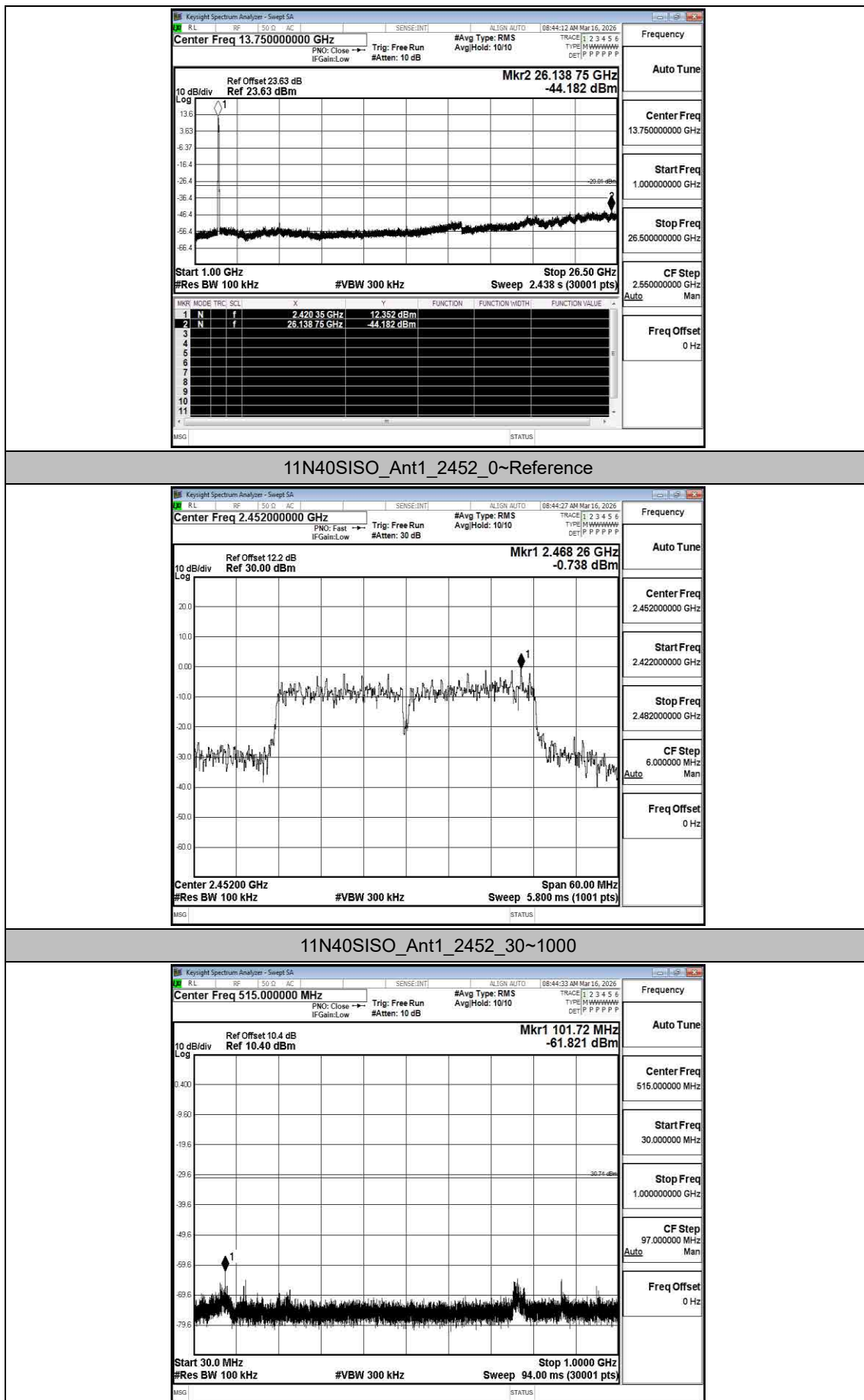
11N40SISO_Ant1_2437_0~Reference



11N40SISO_Ant1_2437_30~1000



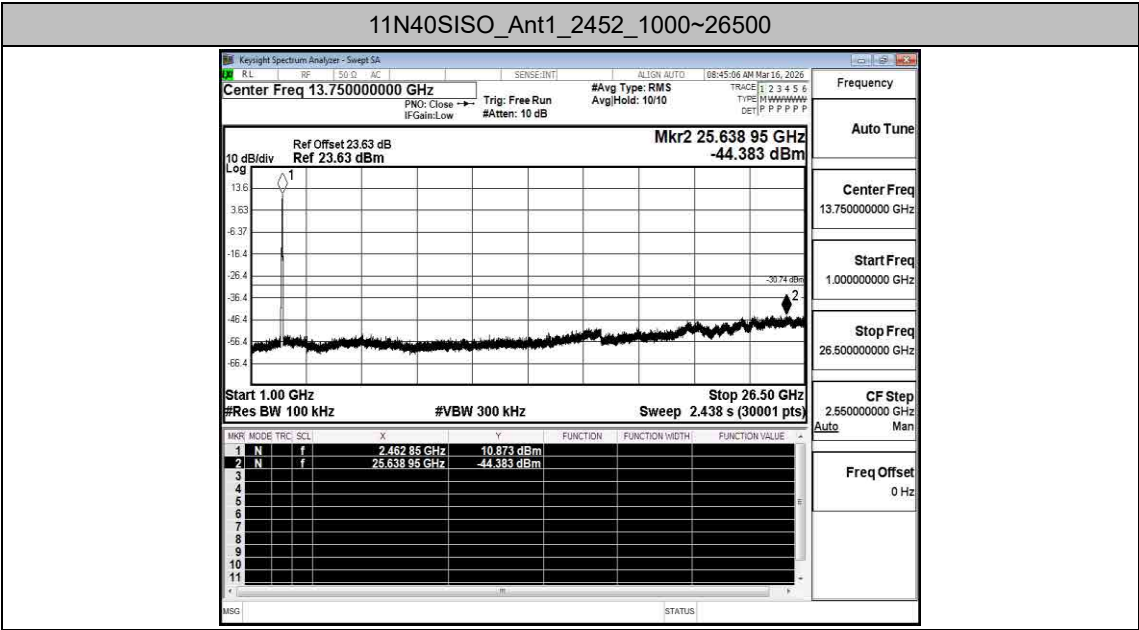
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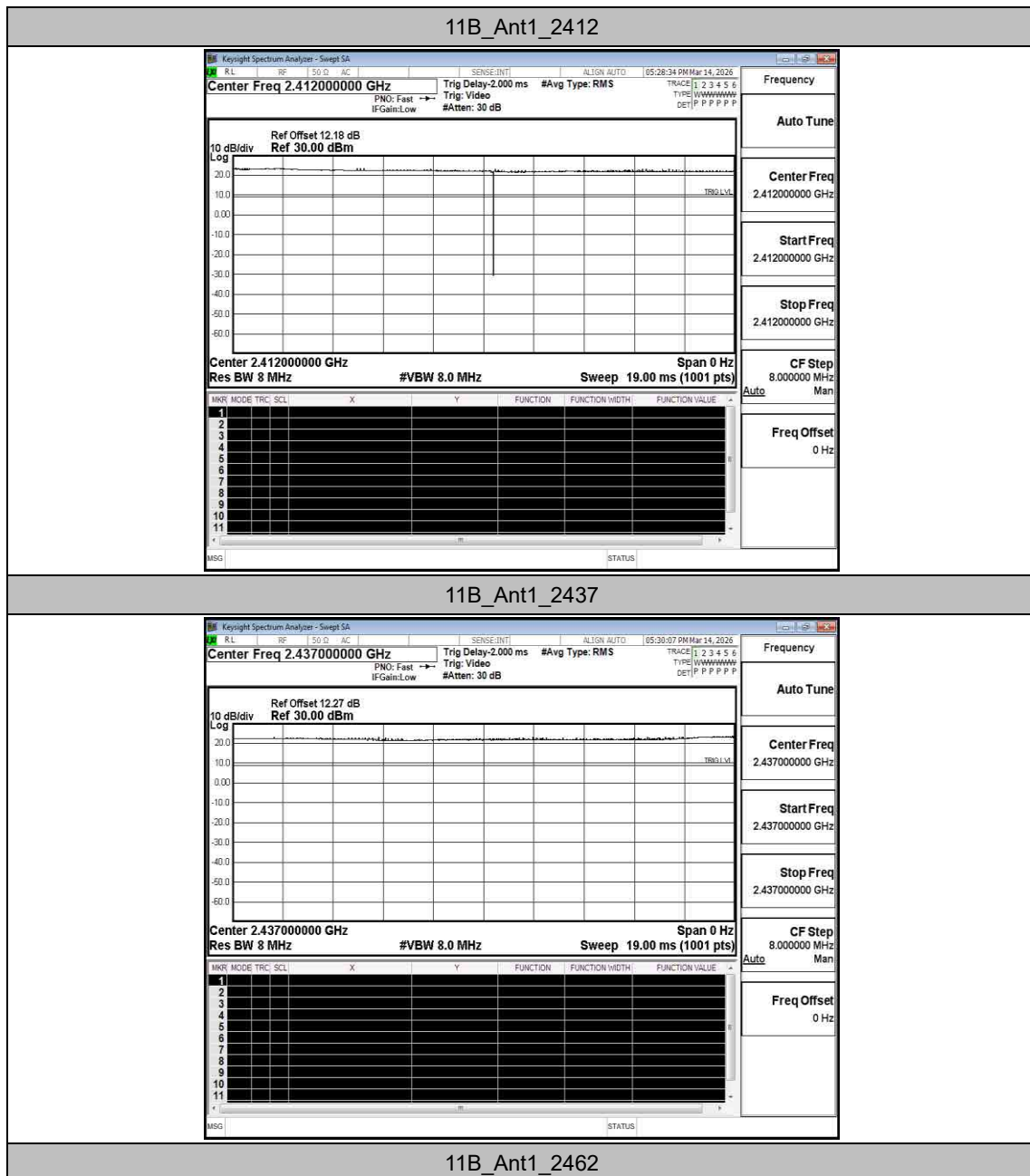
B.6 Duty Cycle

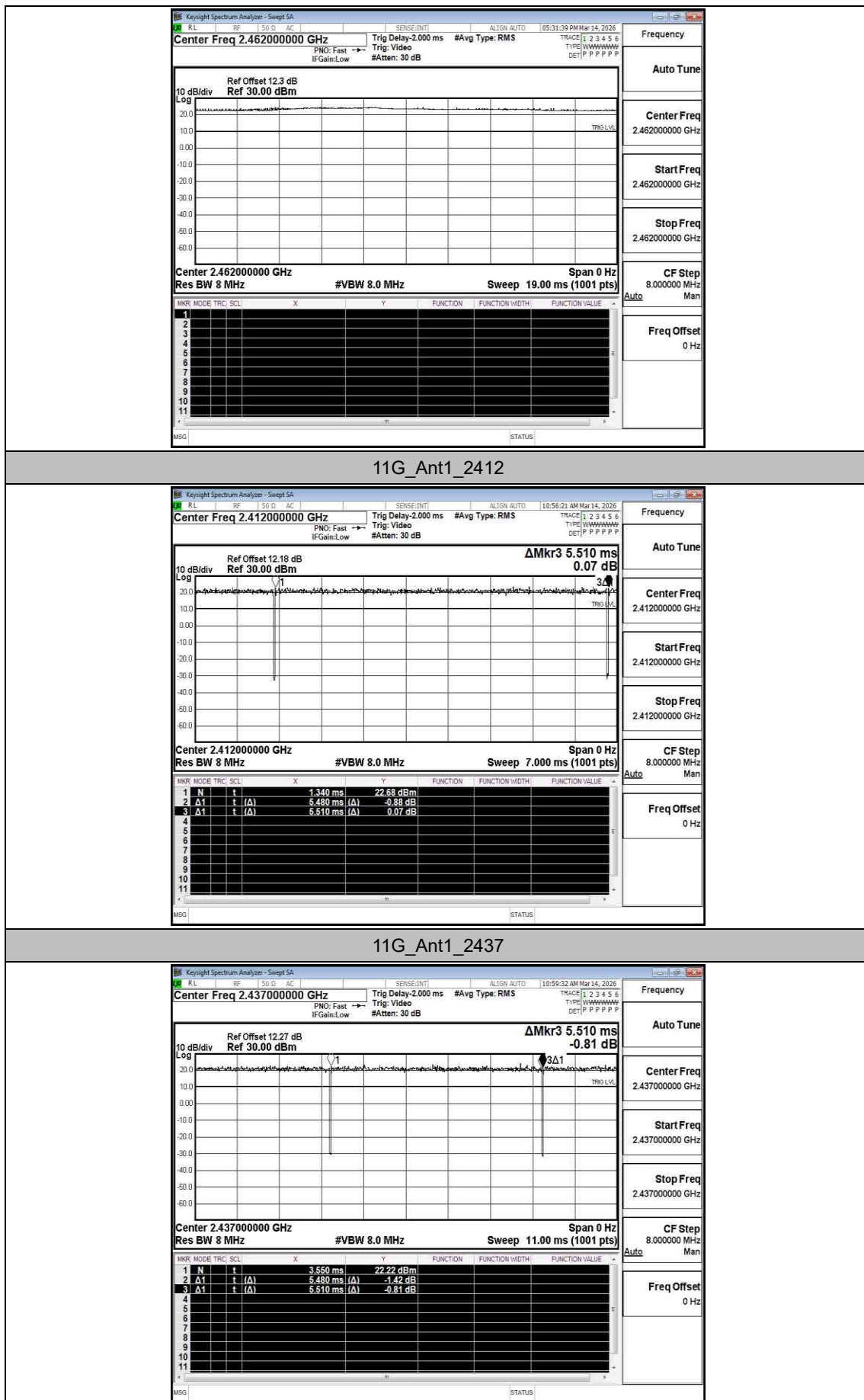
Test Result

TestMode	Antenna	Frequency[MHz]	Transmission Duration [ms]	Transmission Period [ms]	Duty Cycle [%]	xFactor
11B	Ant1	2412	15.00	15.00	100.00	0.00
		2437	19.00	19.00	100.00	0.00
		2462	19.00	19.00	100.00	0.00
11G	Ant1	2412	5.48	5.51	99.46	0.02
		2437	5.48	5.51	99.46	0.02
		2462	5.48	5.52	99.28	0.03
11N20SISO	Ant1	2412	5.07	5.11	99.22	0.03
		2437	5.08	5.11	99.41	0.03
		2462	5.07	5.12	99.02	0.04
11N40SISO	Ant1	2422	2.47	2.50	98.80	0.05
		2437	2.47	2.50	98.80	0.05
		2452	2.47	2.50	98.80	0.05

Note :offset=System attenuation +cabel loss

Test Graphs



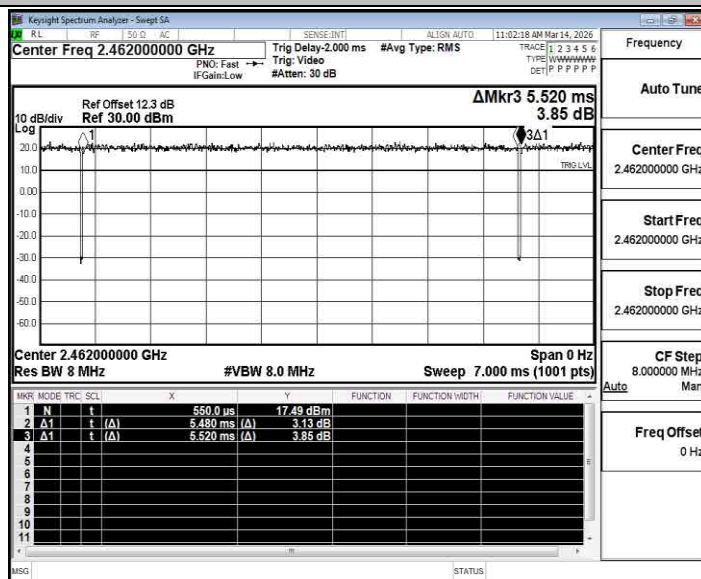


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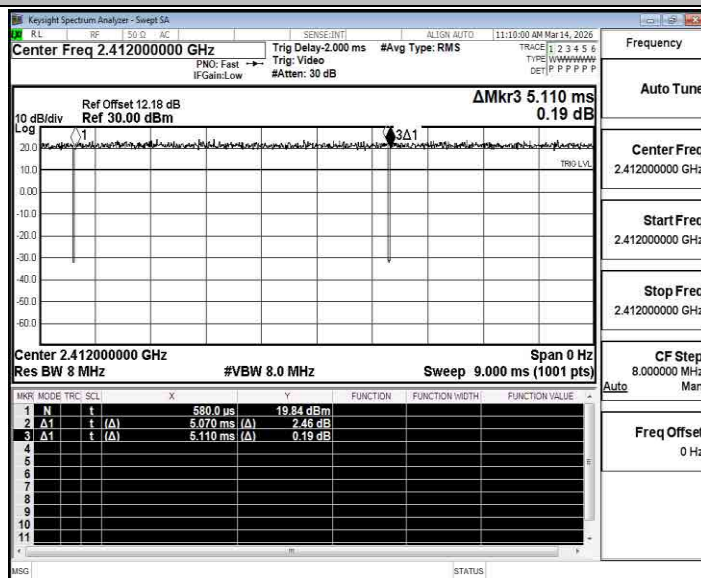
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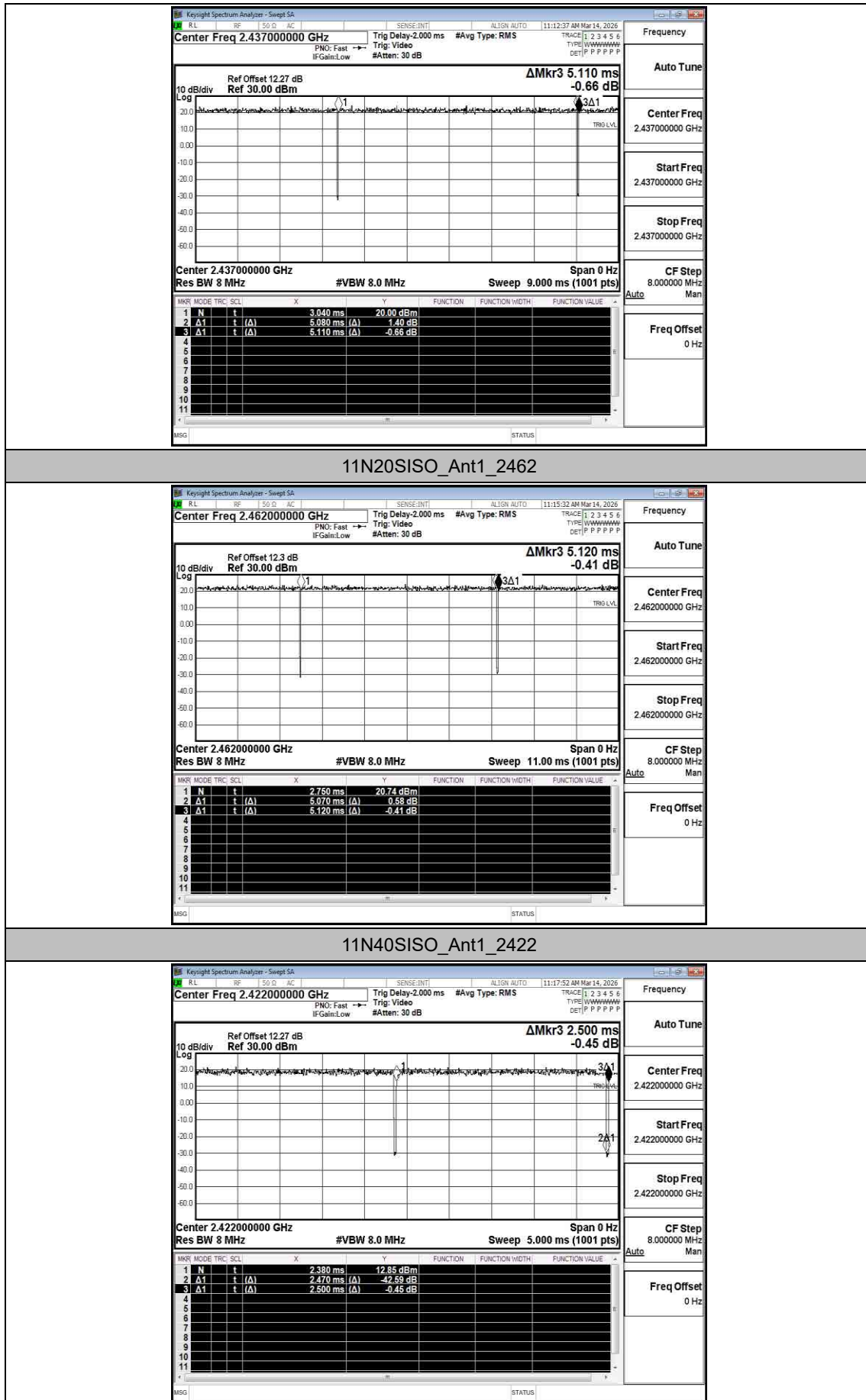
11G_Ant1_2462



11N20SISO_Ant1_2412



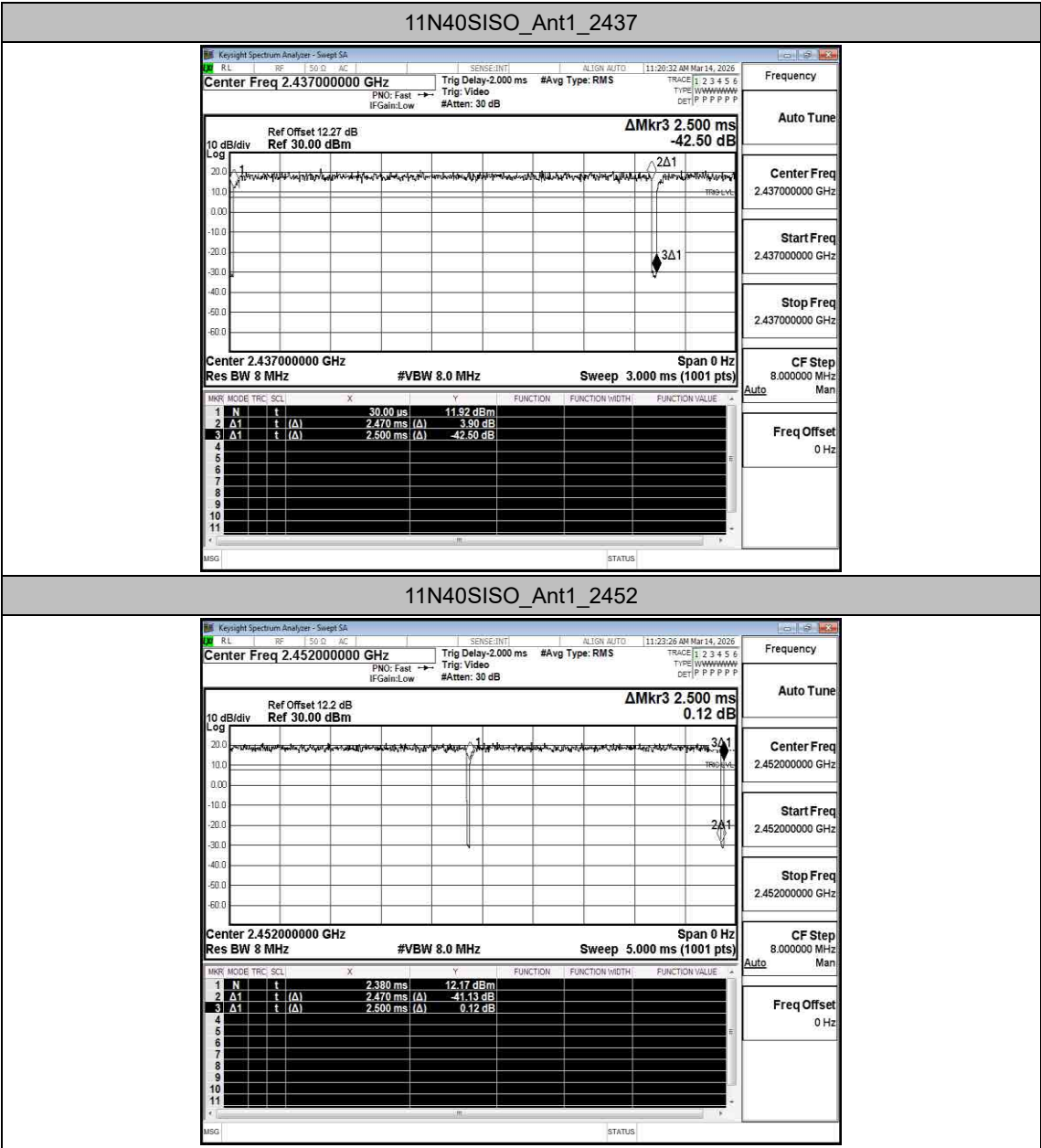
11N20SISO_Ant1_2437



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B.7 Emissions in Restricted Bands

Test Result

TestMode	Antenna	ChName	Frequency[MHz]	Detector	Freq [MHz]	Result [dBm]	Limit [dBm]	Gain [dBi]	DC Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Verdict
11B	Ant1	Low	2412	AV	2310.000	-53.08	≤-43.20	2.00	0.00	44.12	≤54	PASS
				AV	2385.670	-48.38	≤-43.20	2.00	0.00	48.82	≤54	PASS
				AV	2390.000	-51.53	≤-43.20	2.00	0.00	45.67	≤54	PASS
				Peak	2310.000	-48.49	≤-23.20	2.00	0.00	48.71	≤74	PASS
				Peak	2385.280	-41.04	≤-23.20	2.00	0.00	56.16	≤74	PASS
				Peak	2390.000	-45.93	≤-23.20	2.00	0.00	51.27	≤74	PASS
		High	2462	AV	2483.500	-51.57	≤-43.20	2.00	0.00	45.63	≤54	PASS
				AV	2494.670	-48.34	≤-43.20	2.00	0.00	48.86	≤54	PASS
				AV	2500.000	-50.86	≤-43.20	2.00	0.00	46.34	≤54	PASS
				Peak	2483.500	-42.87	≤-23.20	2.00	0.00	54.33	≤74	PASS
				Peak	2486.750	-40.11	≤-23.20	2.00	0.00	57.09	≤74	PASS
				Peak	2500.000	-44.63	≤-23.20	2.00	0.00	52.57	≤74	PASS
11G	Ant1	Low	2412	AV	2310.000	-56.3	≤-43.22	2.00	0.02	40.92	≤54	PASS
				AV	2388.010	-44.2	≤-43.22	2.00	0.02	53.02	≤54	PASS
				AV	2390.000	-46.55	≤-43.22	2.00	0.02	50.67	≤54	PASS
				Peak	2310.000	-48.64	≤-23.20	2.00	0.00	48.56	≤74	PASS
				Peak	2389.700	-31.25	≤-23.20	2.00	0.00	65.95	≤74	PASS
				Peak	2390.000	-38.82	≤-23.20	2.00	0.00	58.38	≤74	PASS
		High	2462	AV	2483.500	-48.44	≤-43.23	2.00	0.03	48.79	≤54	PASS
				AV	2483.560	-47.02	≤-43.23	2.00	0.03	50.21	≤54	PASS
				AV	2500.000	-54.82	≤-43.23	2.00	0.03	42.41	≤54	PASS
				Peak	2483.500	-45.7	≤-23.20	2.00	0.00	51.50	≤74	PASS
				Peak	2483.670	-36.13	≤-23.20	2.00	0.00	61.07	≤74	PASS
				Peak	2500.000	-48.3	≤-23.20	2.00	0.00	48.90	≤74	PASS
11N20SISO	Ant1	Low	2412	AV	2310.000	-55.62	≤-43.23	2.00	0.03	41.61	≤54	PASS
				AV	2386.970	-45.51	≤-43.23	2.00	0.03	51.72	≤54	PASS
				AV	2390.000	-47.65	≤-43.23	2.00	0.03	49.58	≤54	PASS
				Peak	2310.000	-47.27	≤-23.20	2.00	0.00	49.93	≤74	PASS
				Peak	2388.660	-39.24	≤-23.20	2.00	0.00	57.96	≤74	PASS
				Peak	2390.000	-41.02	≤-23.20	2.00	0.00	56.18	≤74	PASS
		High	2462	AV	2483.500	-48.86	≤-43.24	2.00	0.04	48.38	≤54	PASS
				AV	2483.670	-45.7	≤-43.24	2.00	0.04	51.54	≤54	PASS
				AV	2500.000	-50.89	≤-43.24	2.00	0.04	46.35	≤54	PASS
				Peak	2483.500	-40.4	≤-23.20	2.00	0.00	56.80	≤74	PASS
				Peak	2488.730	-36.81	≤-23.20	2.00	0.00	60.39	≤74	PASS
				Peak	2500.000	-44.14	≤-23.20	2.00	0.00	53.06	≤74	PASS

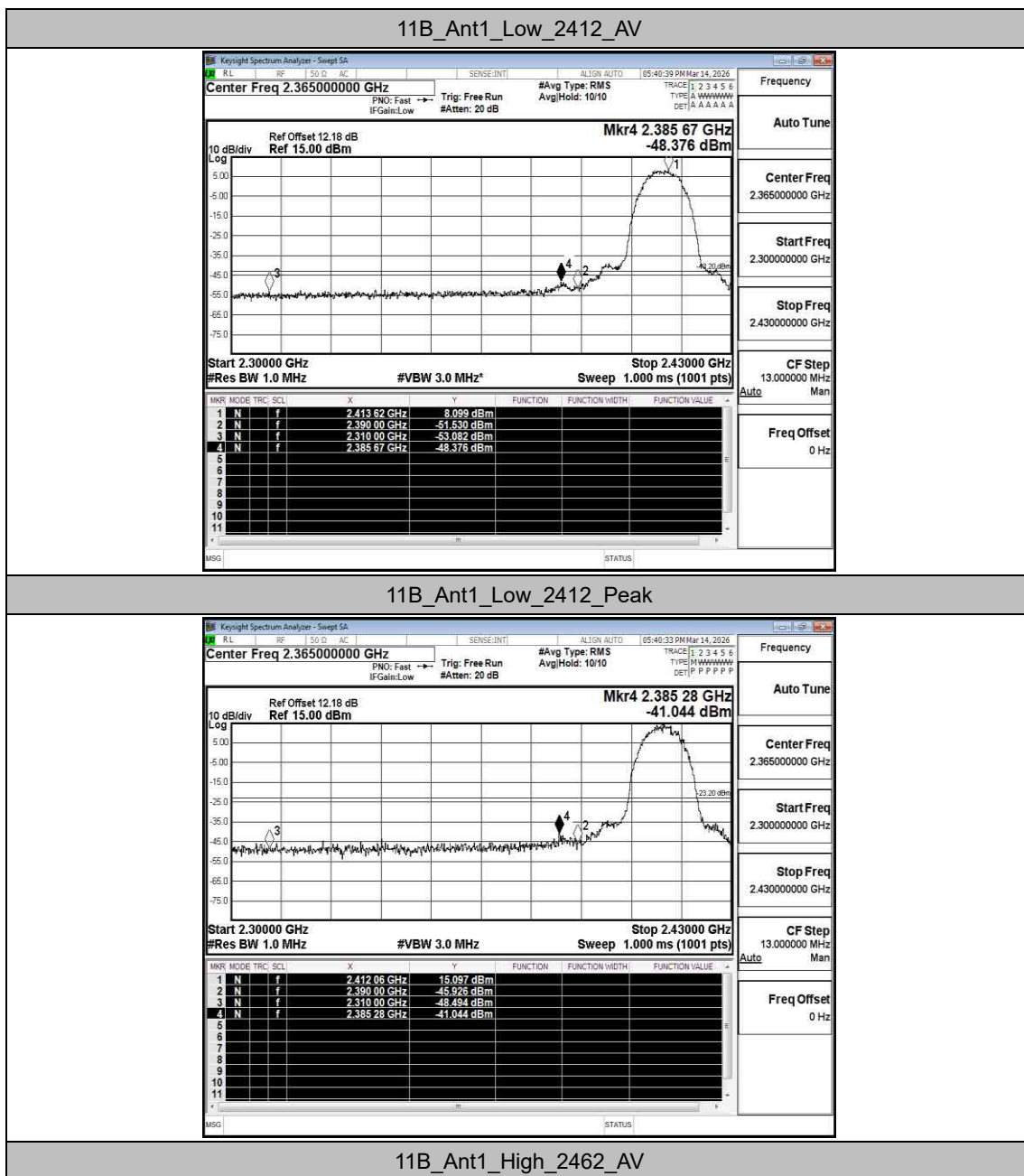
11N40SISO	Ant1	Low	2422	AV	2310.000	-56.4	≤-43.25	2.00	0.05	40.85	≤54	PASS
				AV	2388.200	-43.83	≤-43.25	2.00	0.05	53.42	≤54	PASS
				AV	2390.000	-45.71	≤-43.25	2.00	0.05	51.54	≤54	PASS
				Peak	2310.000	-50.54	≤-23.20	2.00	0.00	46.66	≤74	PASS
				Peak	2388.800	-34.93	≤-23.20	2.00	0.00	62.27	≤74	PASS
				Peak	2390.000	-40.71	≤-23.20	2.00	0.00	56.49	≤74	PASS
		High	2452	AV	2483.500	-47.52	≤-43.25	2.00	0.05	49.73	≤54	PASS
				AV	2484.250	-44.31	≤-43.25	2.00	0.05	52.94	≤54	PASS
				AV	2500.000	-51.33	≤-43.25	2.00	0.05	45.92	≤54	PASS
				Peak	2483.500	-41.39	≤-23.20	2.00	0.00	55.81	≤74	PASS
				Peak	2493.250	-34.26	≤-23.20	2.00	0.00	62.94	≤74	PASS
				Peak	2500.000	-46.73	≤-23.20	2.00	0.00	50.47	≤74	PASS

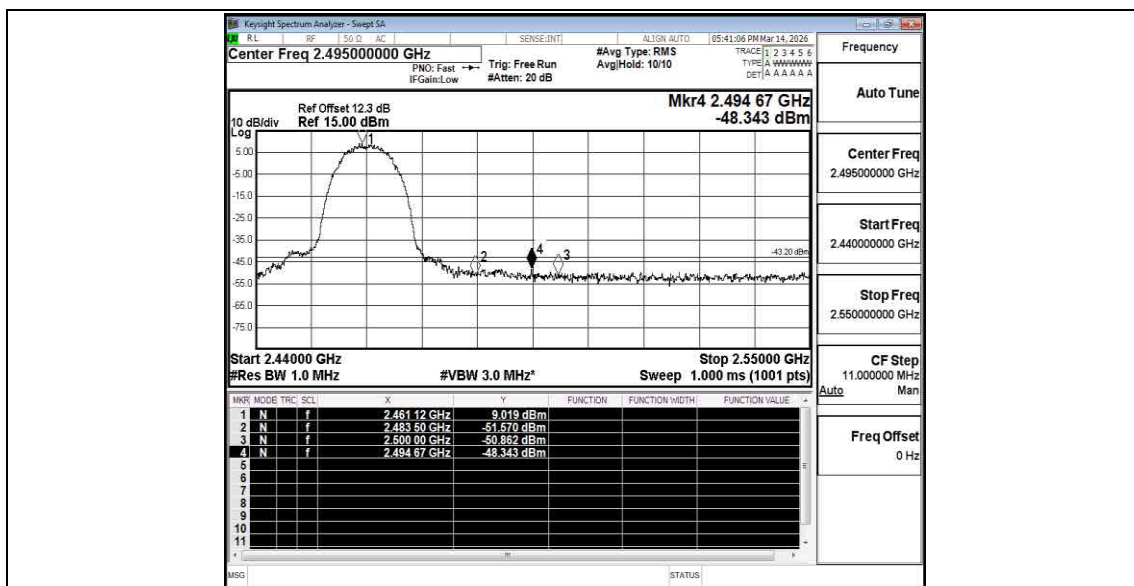
Note :offset=System attenuation +cabal loss

Note:

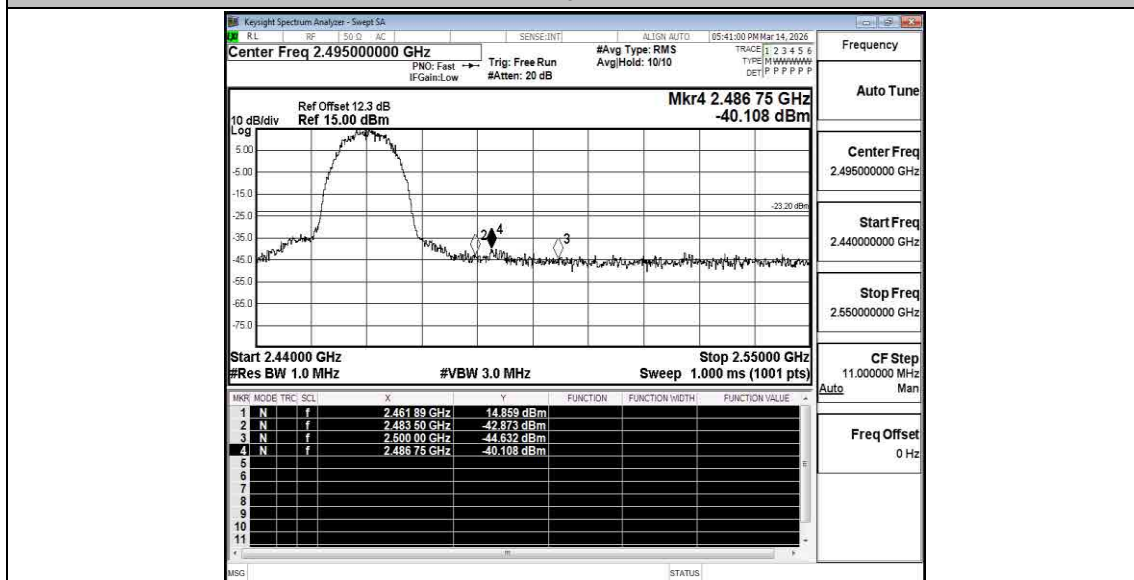
1. The Antenna Gain is compensated in the graph.
2. The limit in dBm for average detector is conversion from 54dBuV/m, according to 15.209(a). The limit in dBm for peak detector is 20dB above the limit of average detector in dBm.

Test Graphs

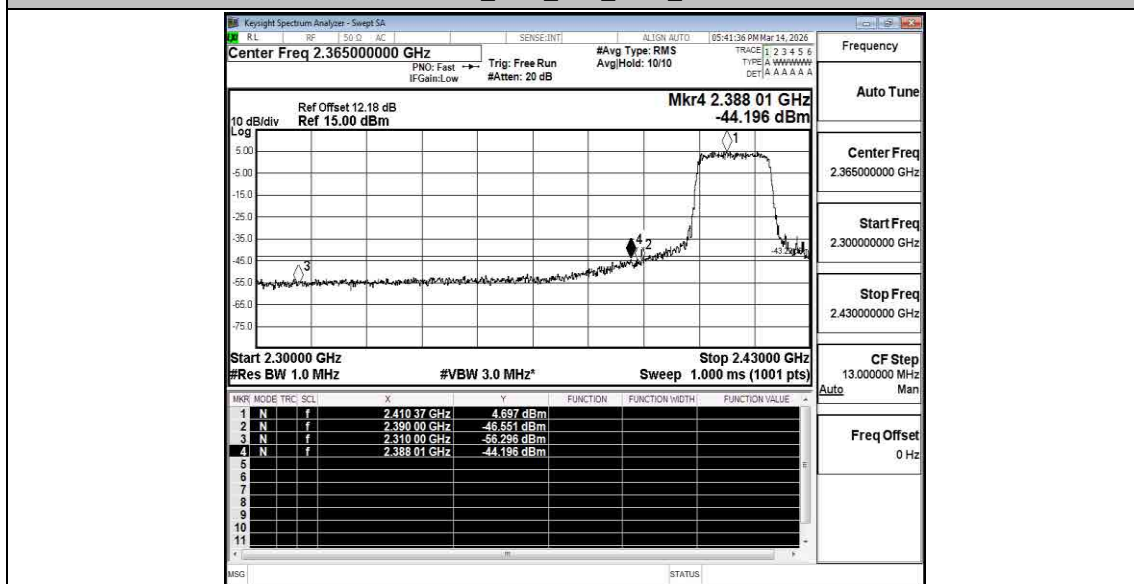




11B_Ant1_High_2462_Peak



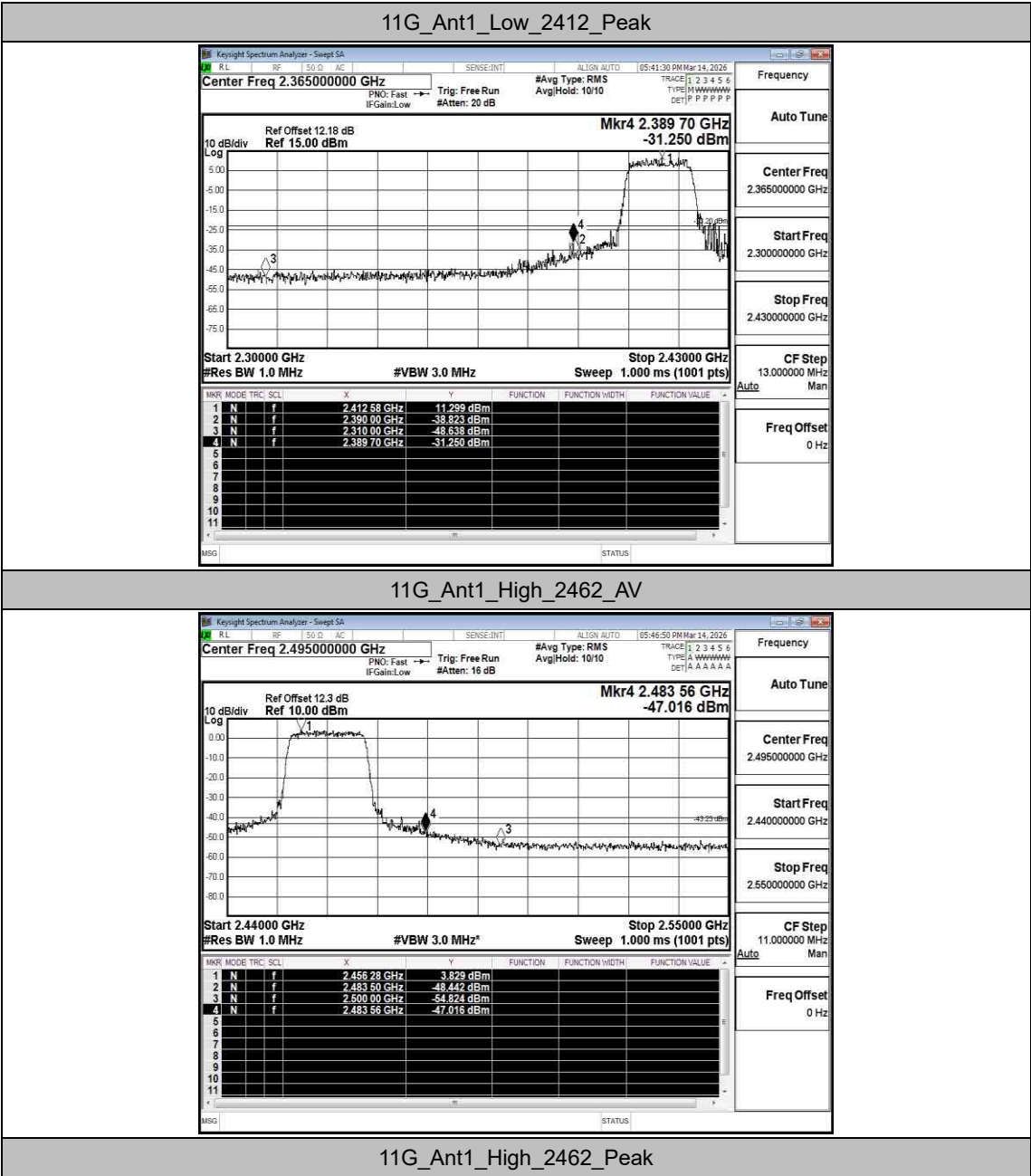
11G_Ant1_Low_2412_AV

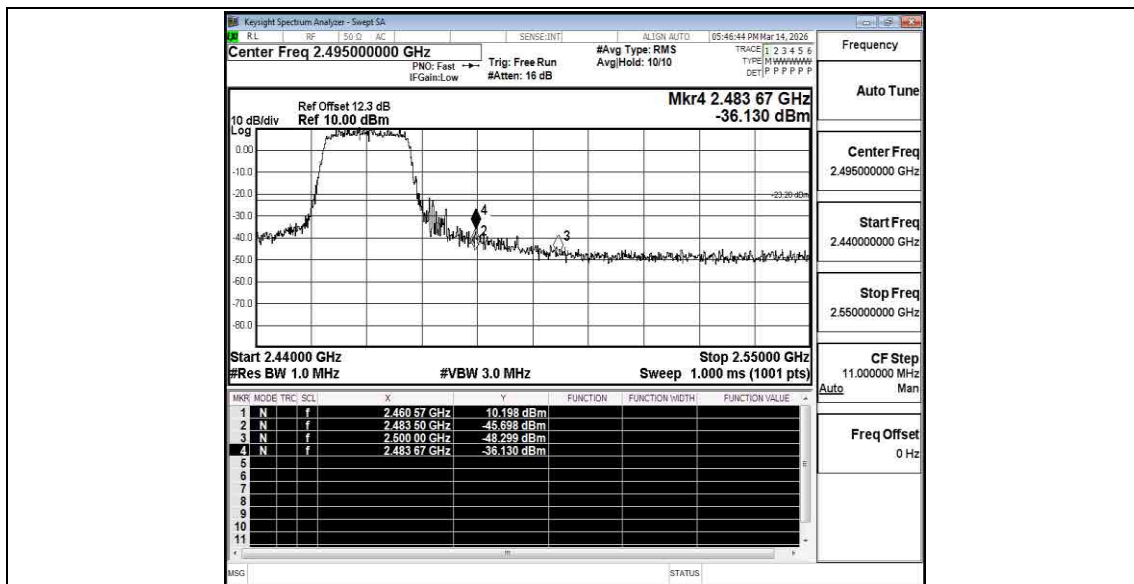


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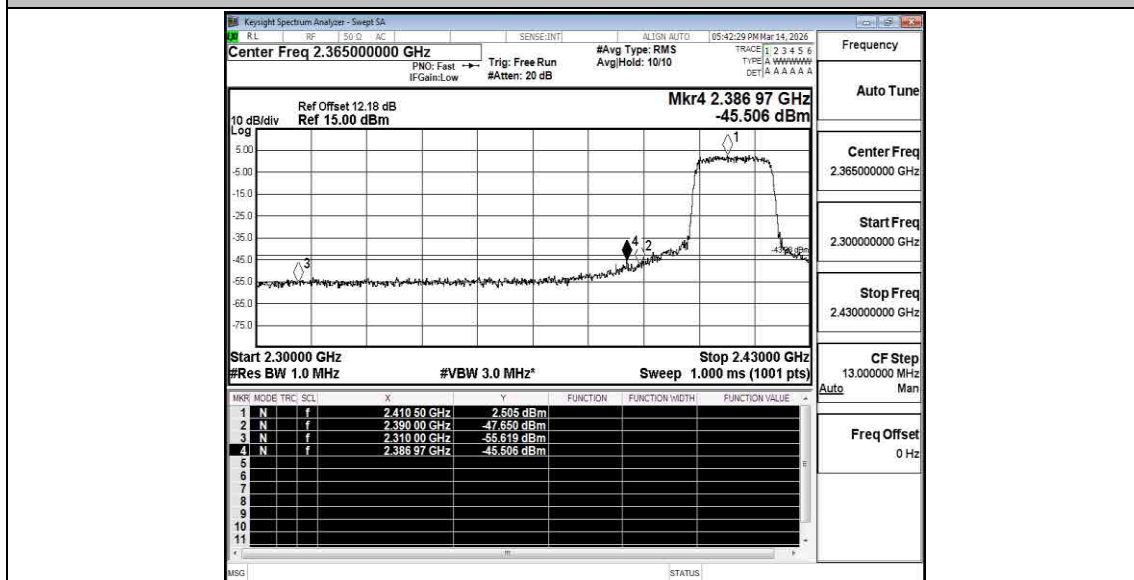
Add: No.44-1, Qianfeng North Road, Shiqi, Panyu District, Guangzhou, Guangdong, China

Tel: +(86) 020-39166689 | E-mail: webmaster@lcs-cert.com | Web: www.lcs-cert.com

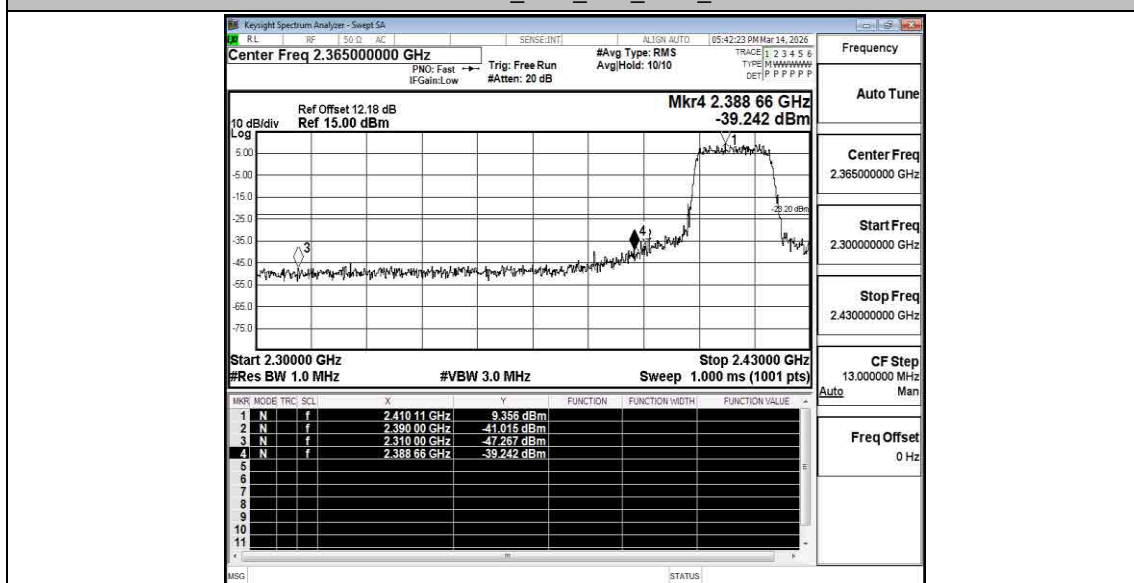




11N20SISO_Ant1_Low_2412_AV



11N20SISO_Ant1_Low_2412_Peak

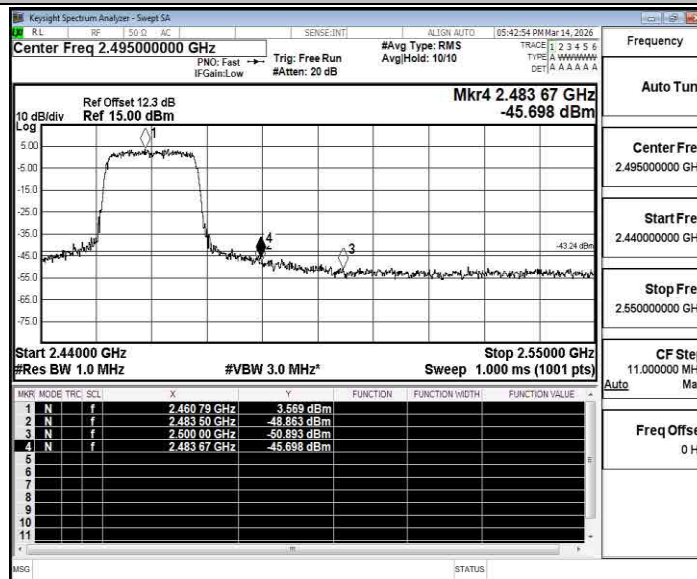


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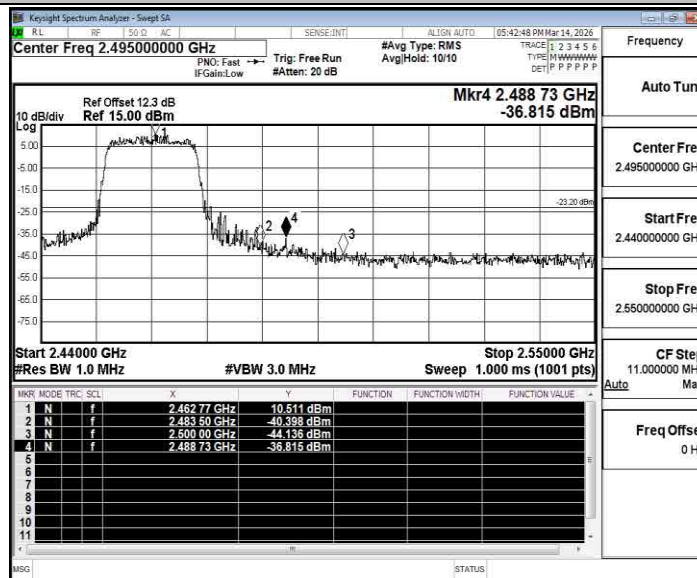
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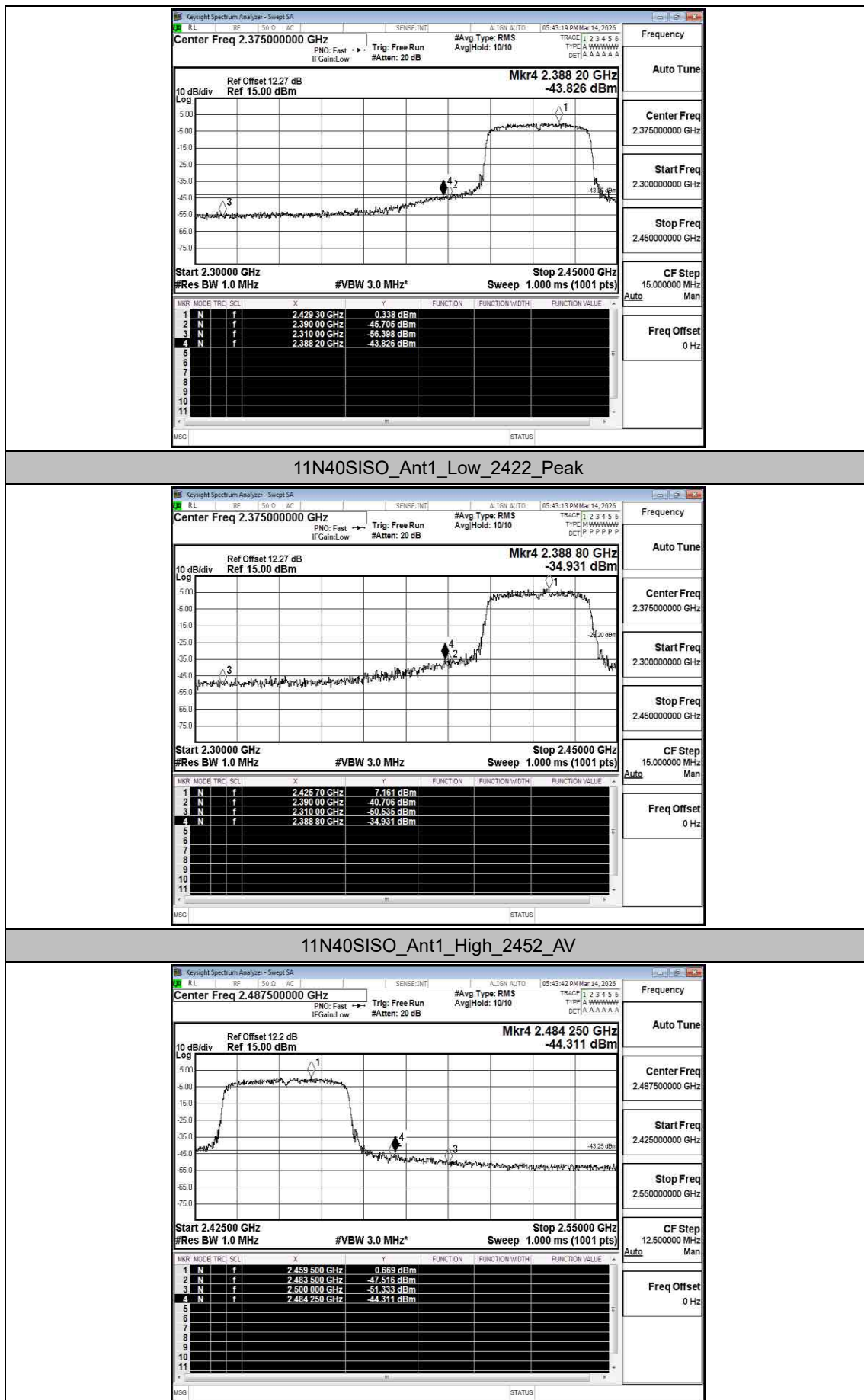
11N20SISO_Ant1_High_2462_AV



11N20SISO_Ant1_High_2462_Peak



11N40SISO_Ant1_Low_2422_AV



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