

Appendix A: Test Results of Bluetooth Low Energy

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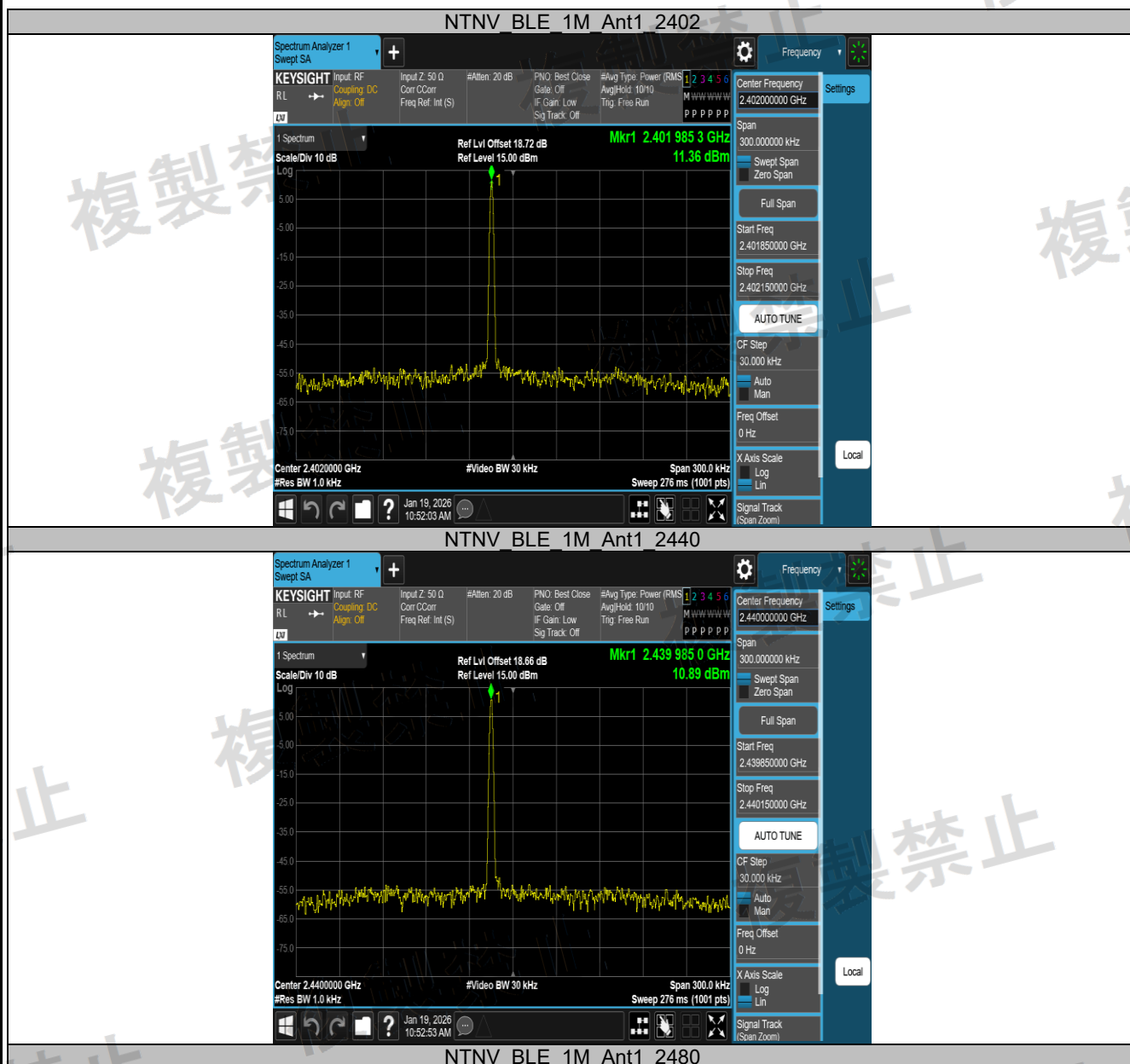
Appendix A.1: Test Results of Frequency Tolerance

Test Result

TestCondition	TestMode	Antenna	Freq(MHz)	Result[ppm]	Limit[ppm]	Verdict
NTNV	BLE_1M	Ant1	2402	-6.11990	±50	PASS
			2440	-6.14754	±50	PASS
			2480	-6.04839	±50	PASS
NTLV	BLE_1M	Ant1	2402	-6.11990	±50	PASS
			2440	-6.14754	±50	PASS
			2480	-6.16936	±50	PASS
NTHV	BLE_1M	Ant1	2402	-6.11990	±50	PASS
			2440	-6.14754	±50	PASS
			2480	-6.04839	±50	PASS

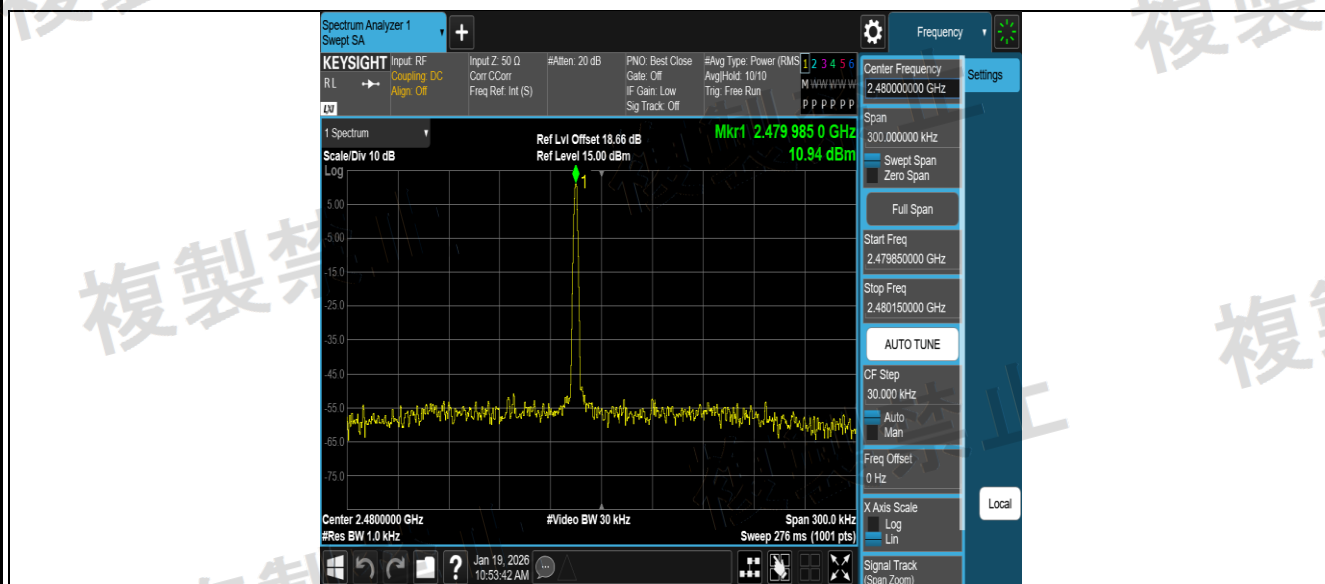


Test Graphs









Appendix A.2: Test Results of Antenna Power

Test Result

Antenna Power							
TestCondition	TestMode	Antenna	Freq(MHz)	Result(dBm)	Result(mW)	Limit(mW)	Verdict
NTNV	BLE_1M	Ant1	2402	7.64	5.8076	≤10	PASS
			2440	7.48	5.5976	≤10	PASS
			2480	7.23	5.2845	≤10	PASS
NTLV	BLE_1M	Ant1	2402	7.64	5.8076	≤10	PASS
			2440	7.48	5.5976	≤10	PASS
			2480	7.23	5.2845	≤10	PASS
NTHV	BLE_1M	Ant1	2402	7.63	5.7943	≤10	PASS
			2440	7.48	5.5976	≤10	PASS
			2480	7.23	5.2845	≤10	PASS

Tolerance								
Test Condition	Test Mode	Antenna	Freq(MHz)	Power (mW)	RatedPower (mW)	Result (%)	Limit (%)	Verdict
NTNV	BLE_1M	Ant1	2402	5.8076	10	-41.92	-80 to +20	PASS
			2440	5.5976	10	-44.02	-80 to +20	PASS
			2480	5.2845	10	-47.16	-80 to +20	PASS
NTLV	BLE_1M	Ant1	2402	5.8076	10	-41.92	-80 to +20	PASS
			2440	5.5976	10	-44.02	-80 to +20	PASS
			2480	5.2845	10	-47.16	-80 to +20	PASS
NTHV	BLE_1M	Ant1	2402	5.7943	10	-42.06	-80 to +20	PASS
			2440	5.5976	10	-44.02	-80 to +20	PASS
			2480	5.2845	10	-47.16	-80 to +20	PASS

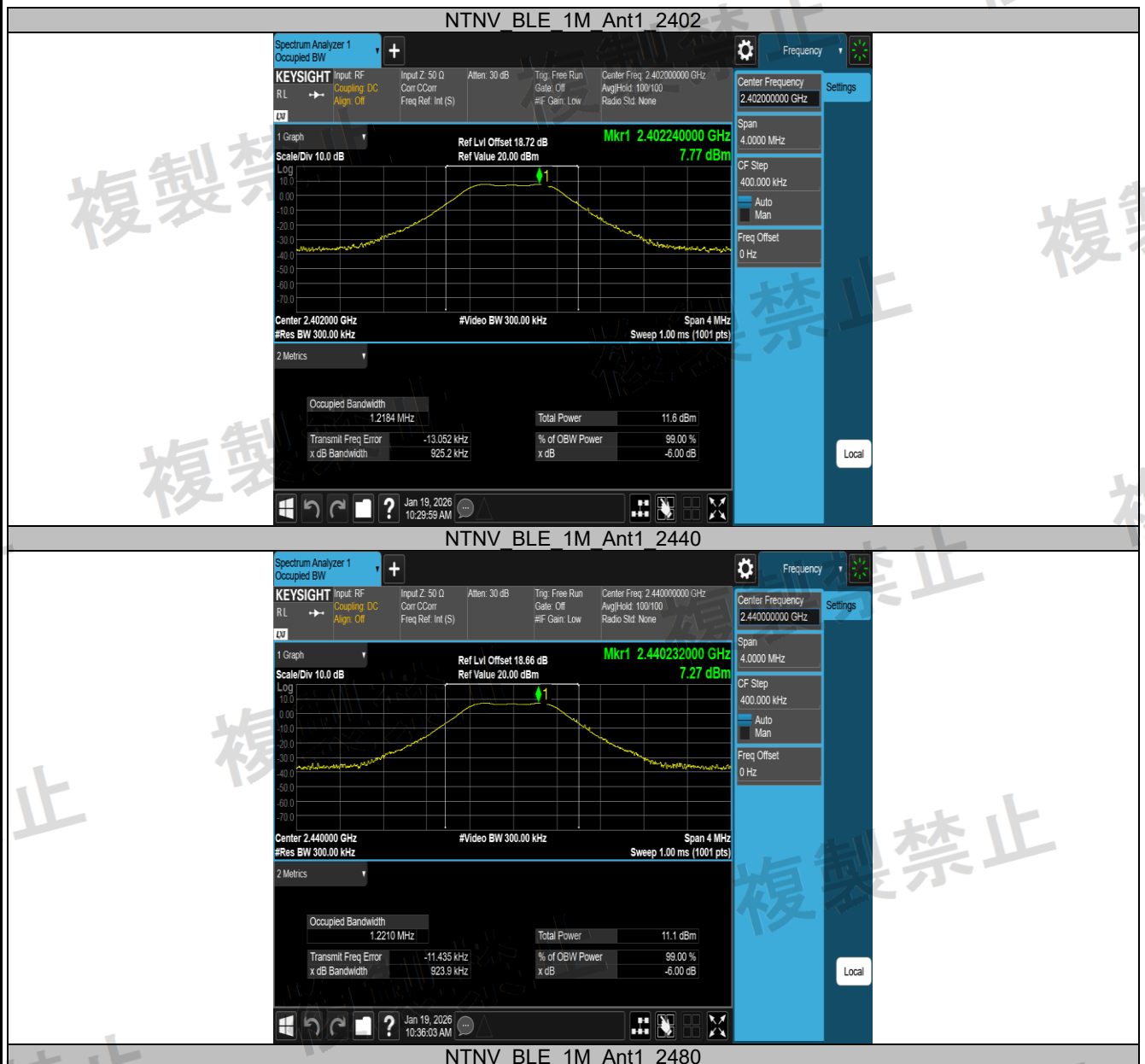
EIRP							
TestCondition	TestMode	Antenna	Freq(MHz)	Power (dBm)	EIRP(dBm)	Limit(dBm)	Verdict
NTNV	BLE_1M	Ant1	2402	7.64	9.64	≤12.14	PASS
			2440	7.48	9.48	≤12.14	PASS
			2480	7.23	9.23	≤12.14	PASS
NTLV	BLE_1M	Ant1	2402	7.64	9.64	≤12.14	PASS
			2440	7.48	9.48	≤12.14	PASS
			2480	7.23	9.23	≤12.14	PASS
NTHV	BLE_1M	Ant1	2402	7.63	9.63	≤12.14	PASS
			2440	7.48	9.48	≤12.14	PASS
			2480	7.23	9.23	≤12.14	PASS

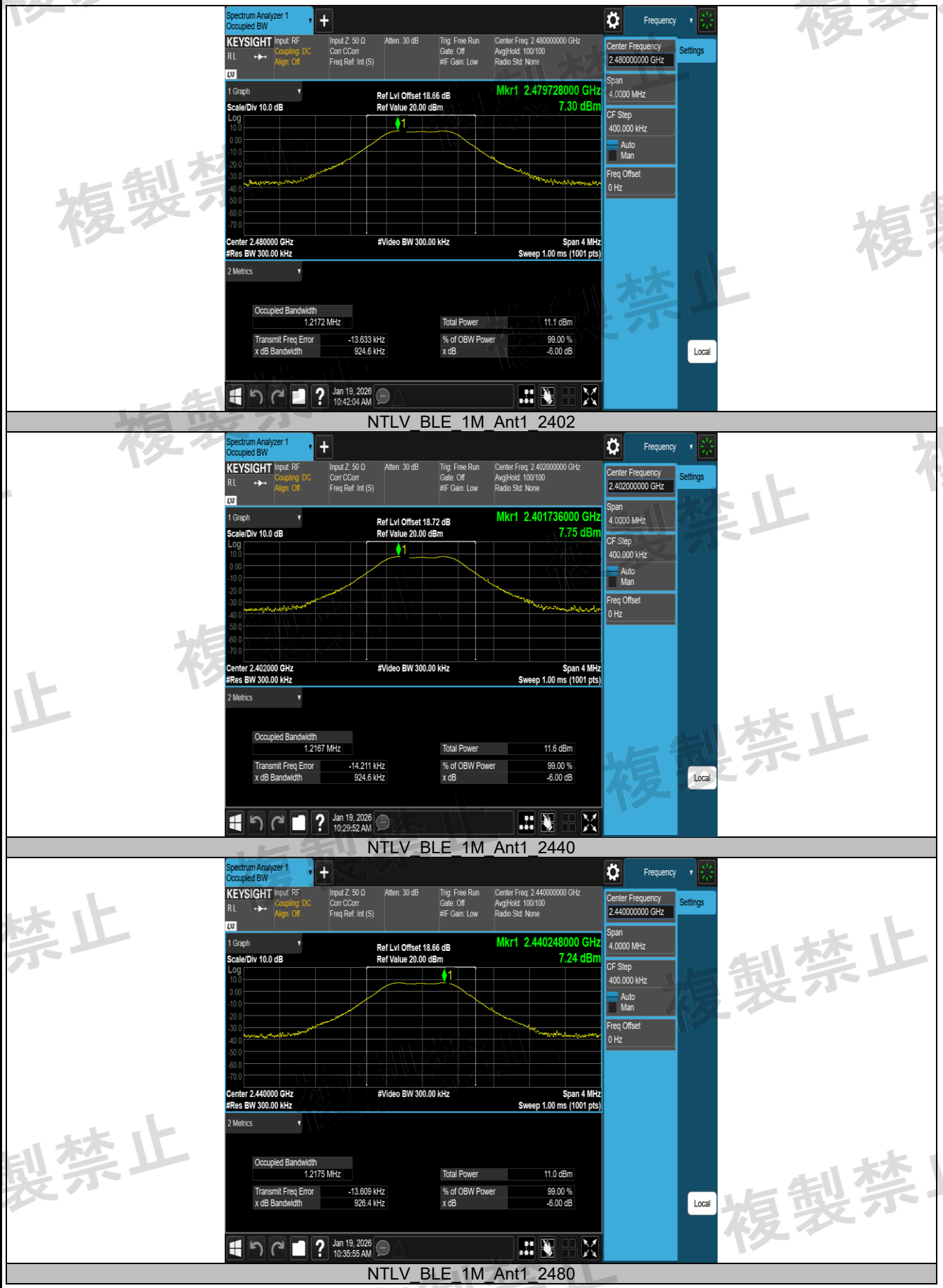
Appendix A.3: Test Results of Occupied Channel Bandwidth (99%)

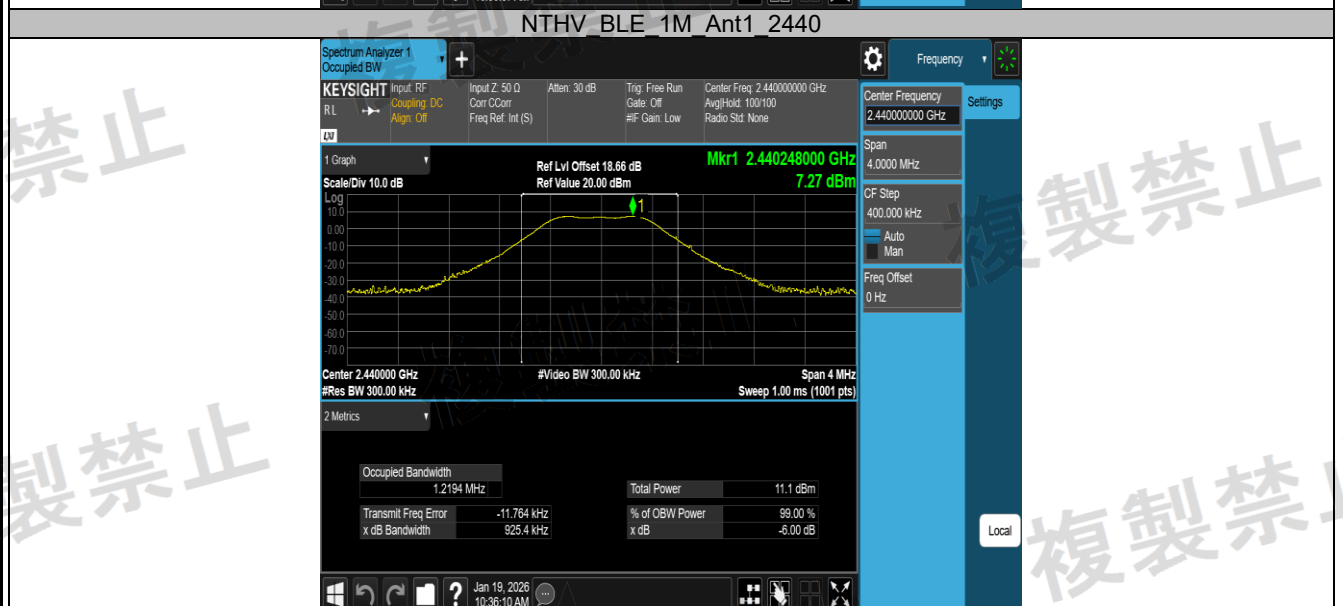
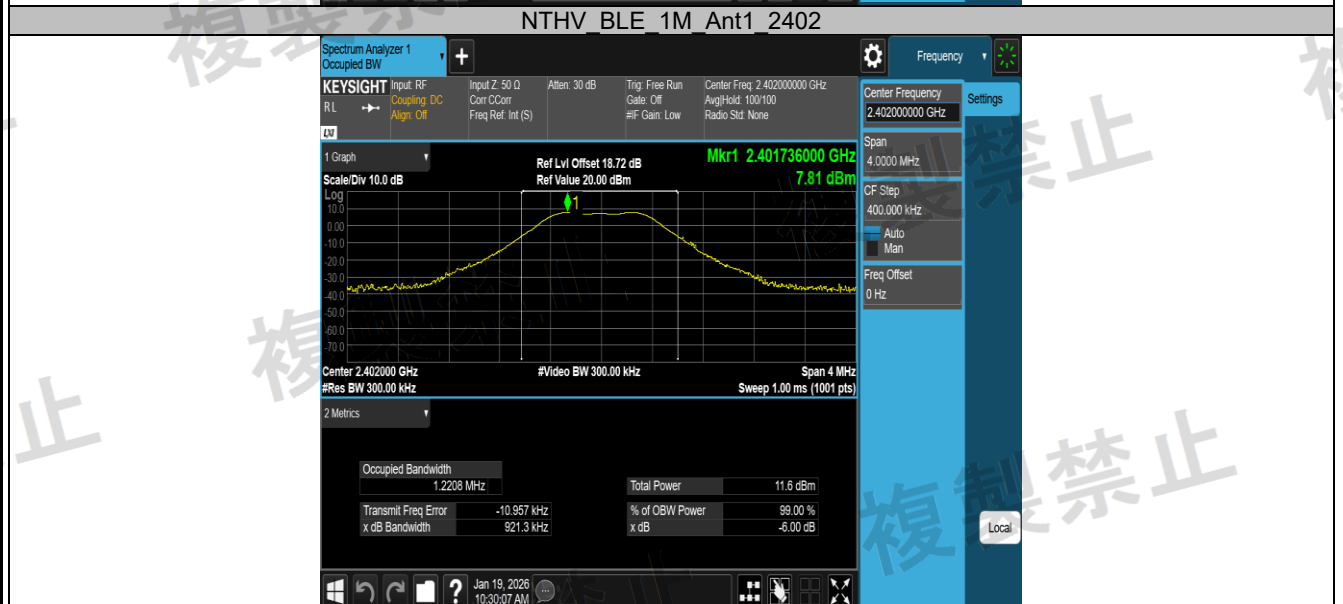
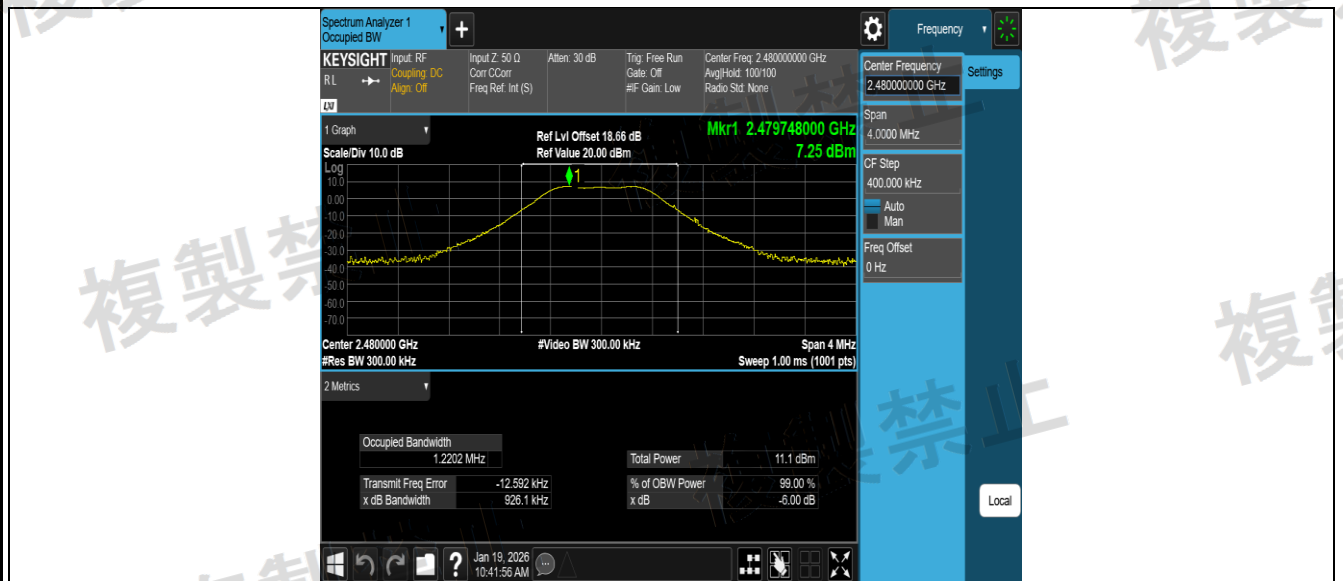
Test Result

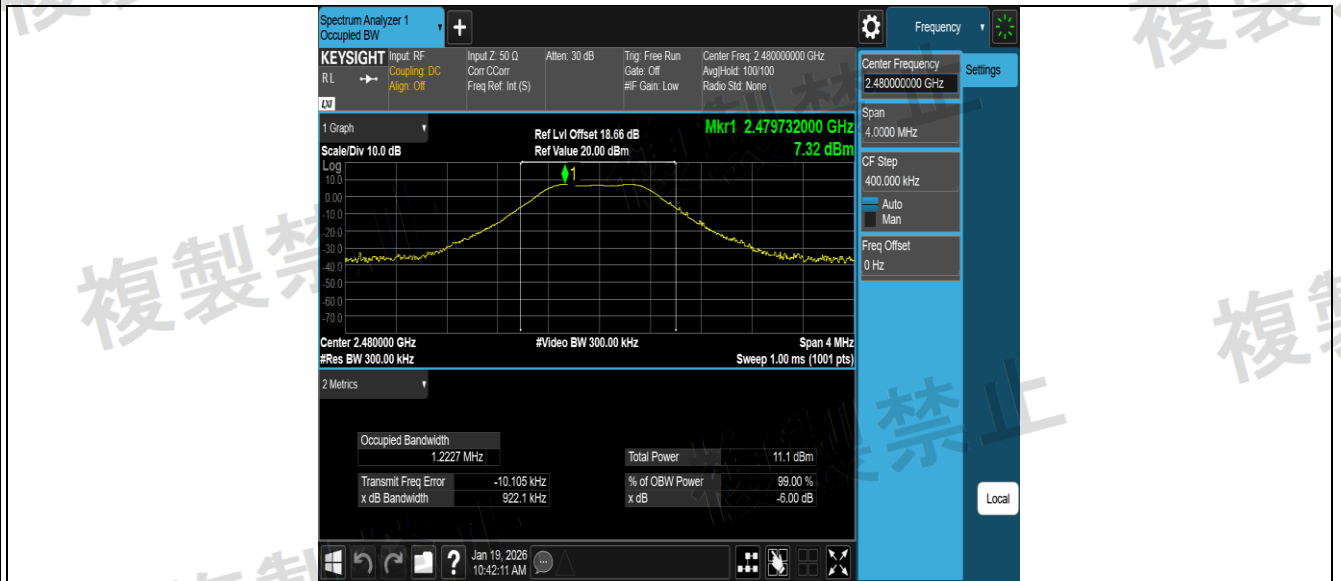
TestCondition	TestMode	Antenna	Freq(MHz)	Result [MHz]	Limit [MHz]	Verdict
NTNV	BLE_1M	Ant1	2402	1.218	≤26	PASS
			2440	1.221	≤26	PASS
			2480	1.217	≤26	PASS
NTLV	BLE_1M	Ant1	2402	1.217	≤26	PASS
			2440	1.218	≤26	PASS
			2480	1.220	≤26	PASS
NTHV	BLE_1M	Ant1	2402	1.221	≤26	PASS
			2440	1.219	≤26	PASS
			2480	1.223	≤26	PASS

Test Graphs







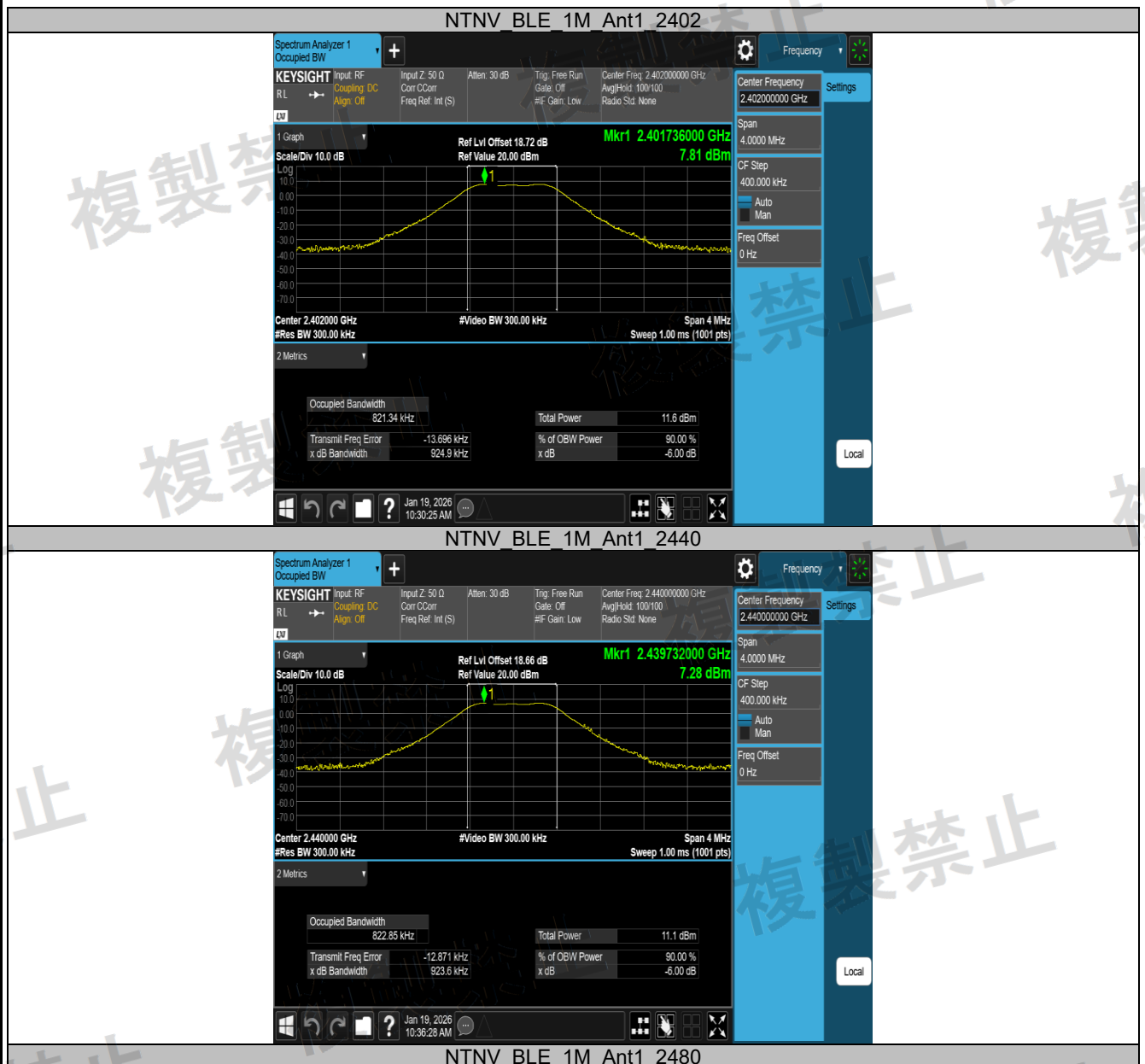


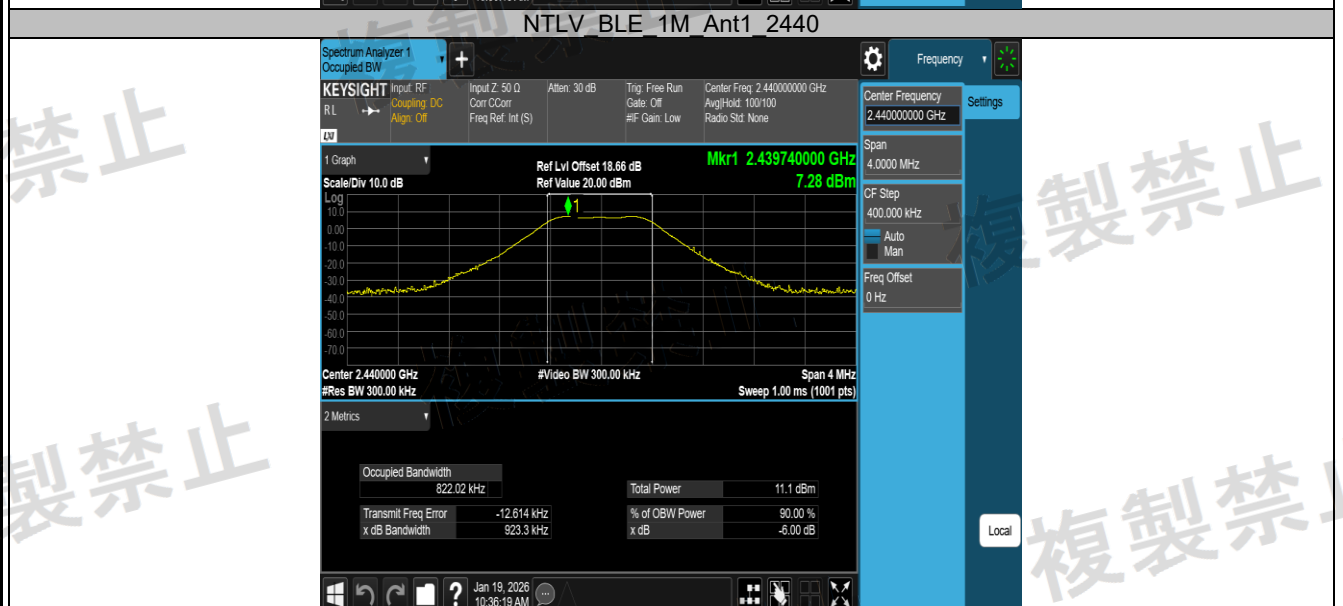
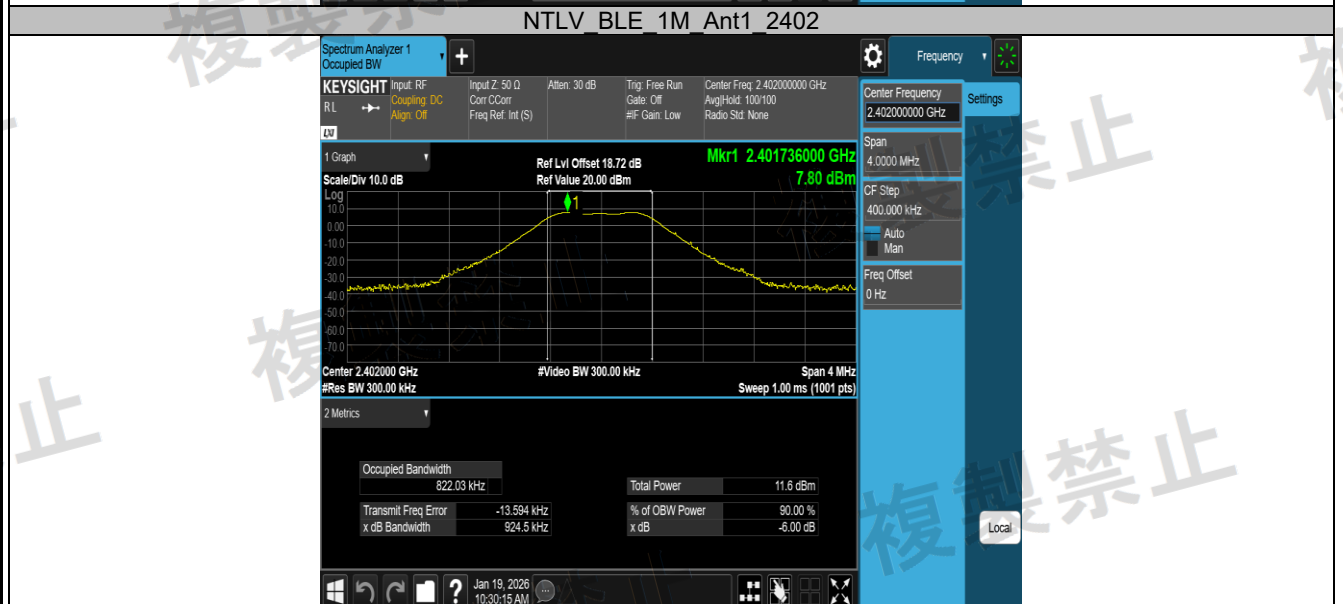
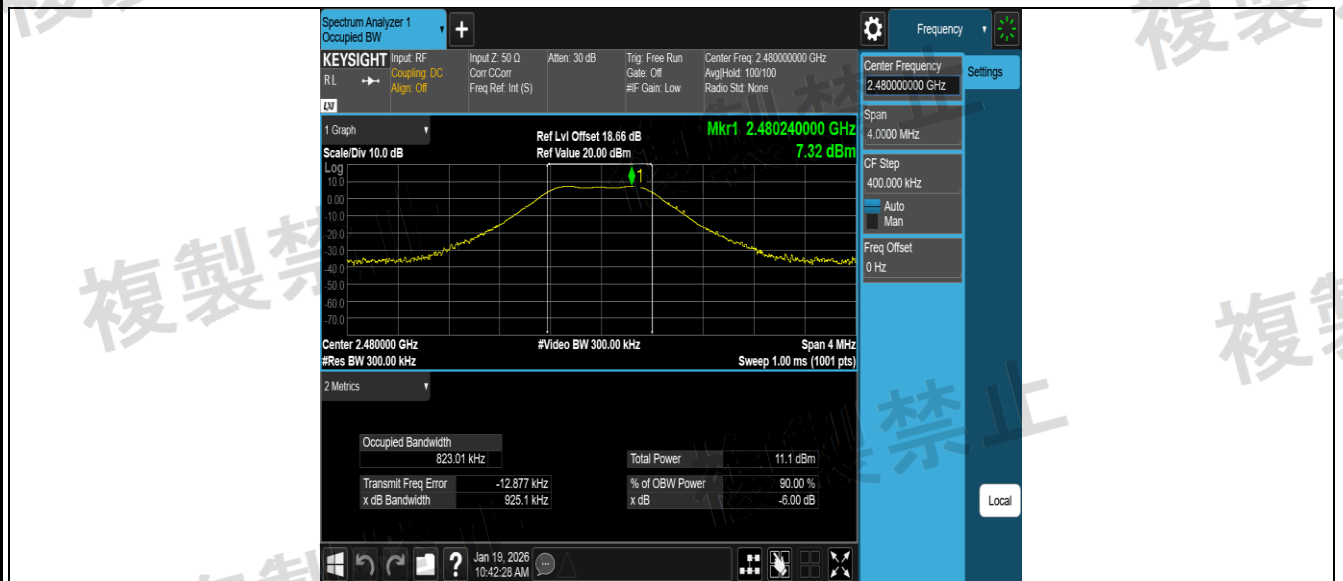
**Appendix A.4: Test Results of Spread Bandwidth (90%)***Test Result*

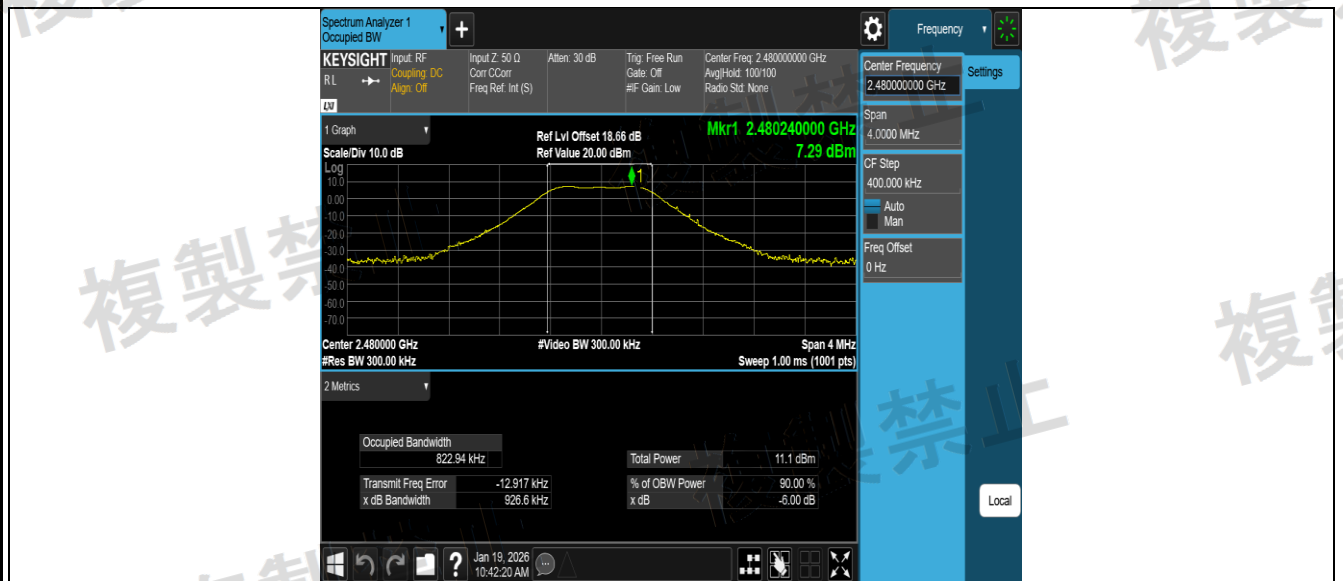
TestCondition	TestMode	Antenna	Freq(MHz)	Result [MHz]	Limit [MHz]	Verdict
NTNV	BLE_1M	Ant1	2402	0.821	≥0.5	PASS
			2440	0.823	≥0.5	PASS
			2480	0.823	≥0.5	PASS
NTLV	BLE_1M	Ant1	2402	0.822	≥0.5	PASS
			2440	0.822	≥0.5	PASS
			2480	0.823	≥0.5	PASS
NTHV	BLE_1M	Ant1	2402	0.822	≥0.5	PASS
			2440	0.823	≥0.5	PASS
			2480	0.823	≥0.5	PASS



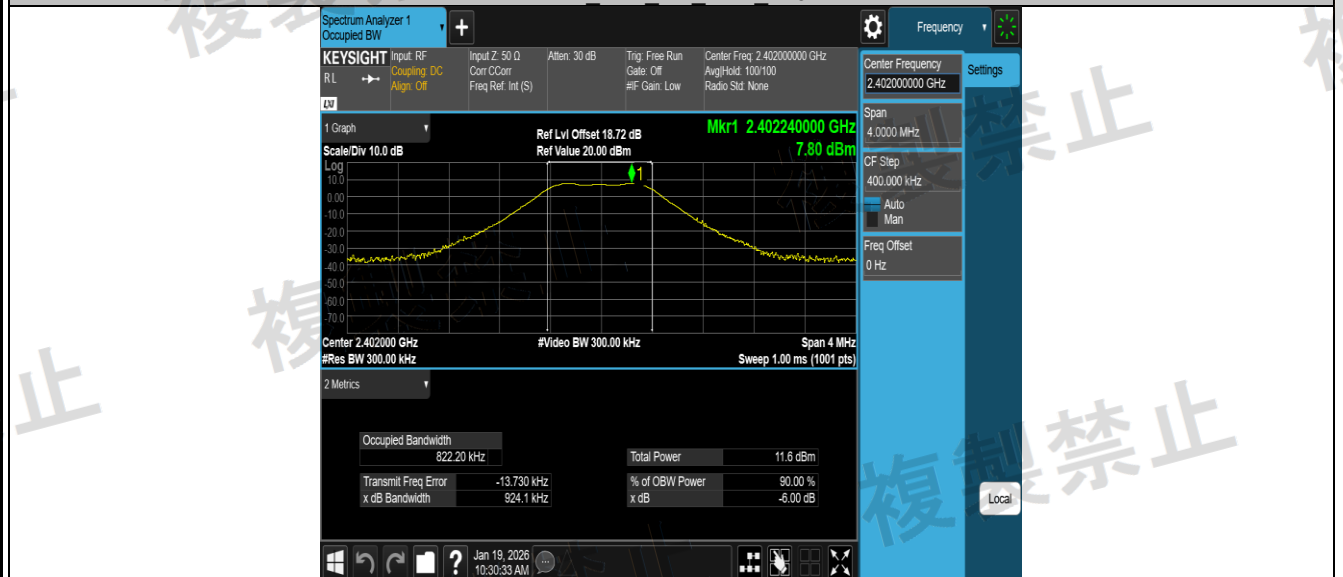
Test Graphs



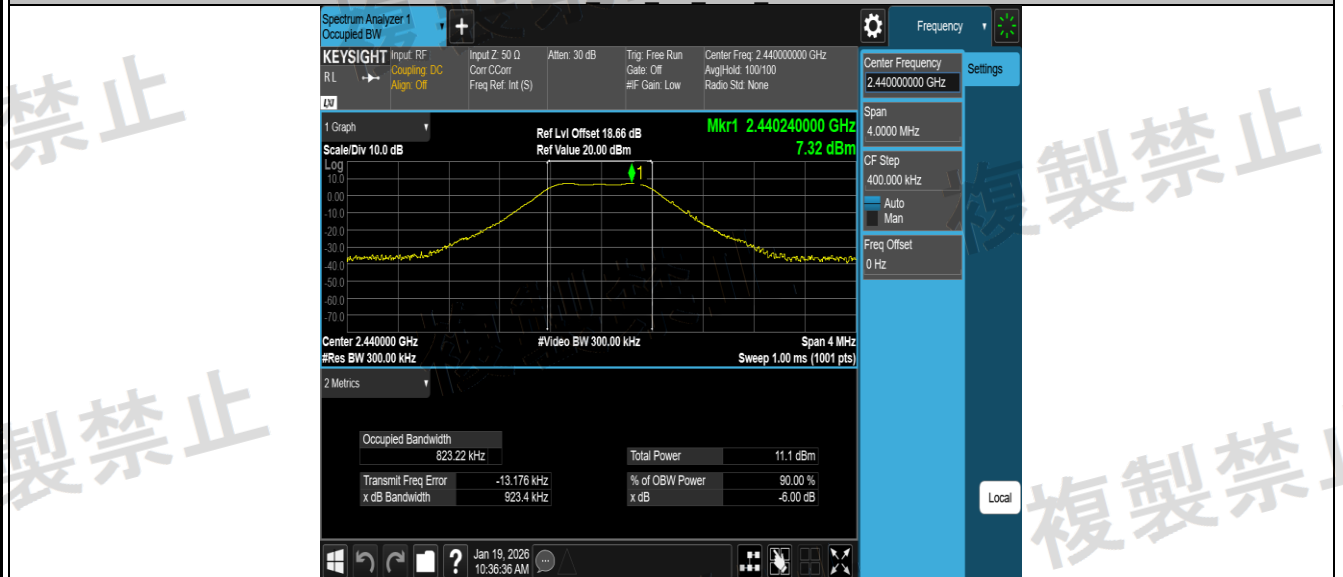




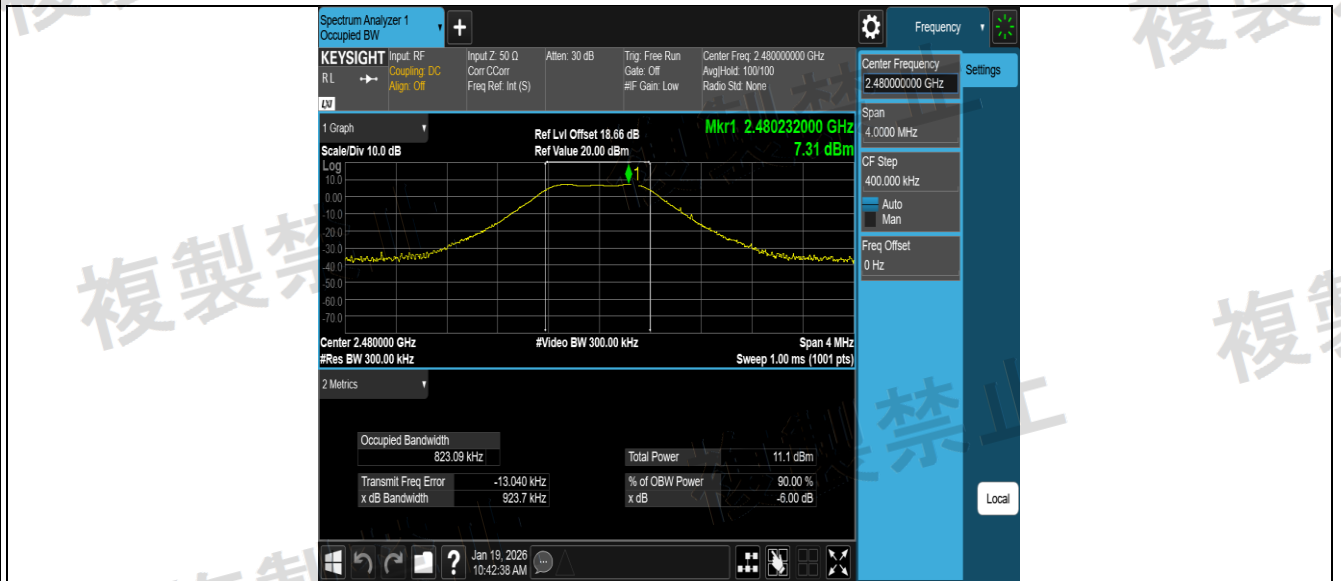
NTHV_BLE_1M_Ant1_2402



NTHV_BLE_1M_Ant1_2440



NTHV_BLE_1M_Ant1_2480



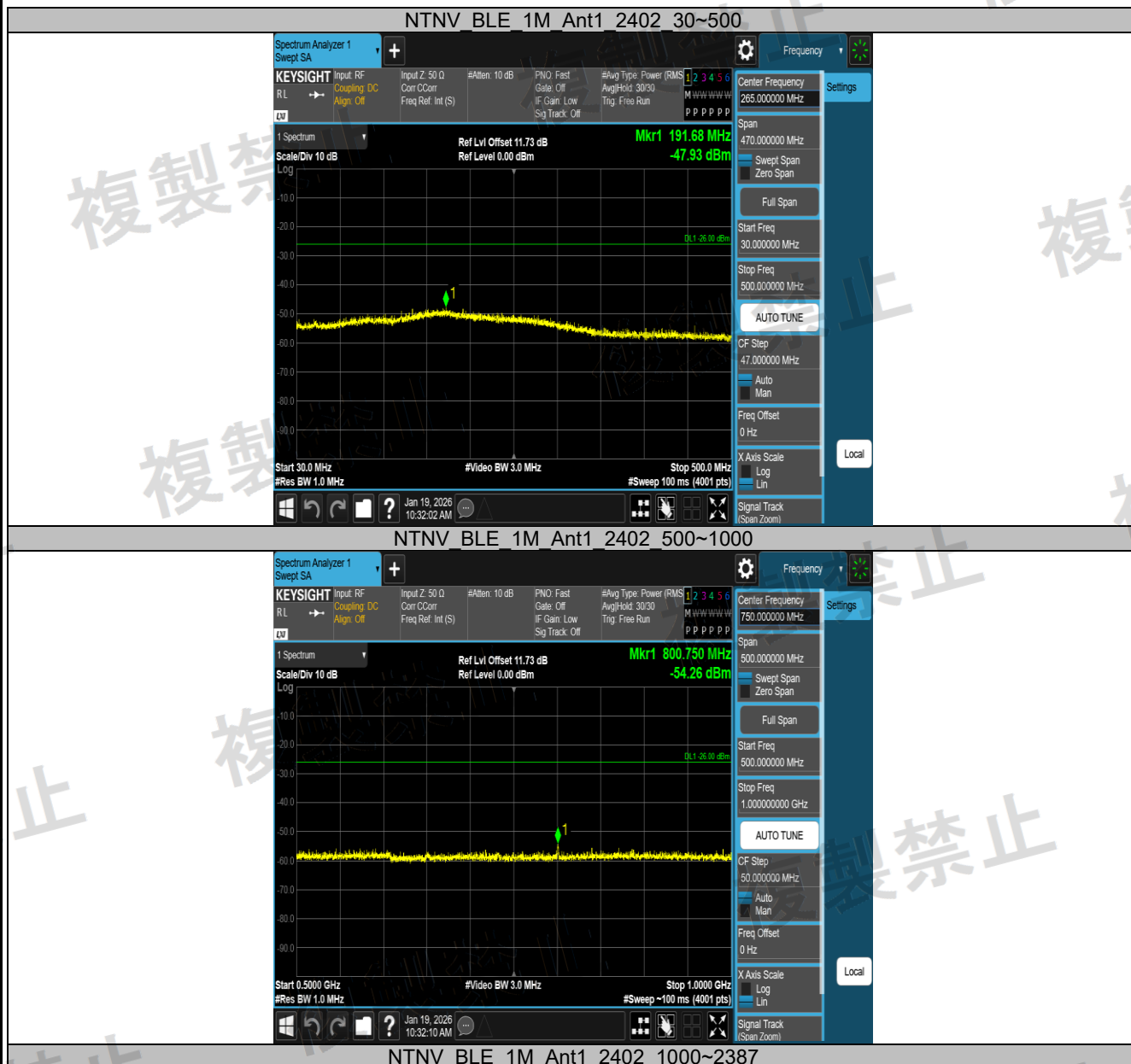


Appendix A.5: Test Results of Spurious Emissions for Transmitter

Test Result

Test Condition	TestMode	Antenna	Freq (MHz)	Freq.Range [MHz]	Freq. [MHz]	Result [dBm]	Limit [dBm]	Result [μW]	Limit [μW]	Verdict
NTNV	BLE_1M	Ant1	2402	30~500	191.68	-47.93	≤-26	0.01611	≤2.5	PASS
				500~1000	800.75	-54.26	≤-26	0.00375	≤2.5	PASS
				1000~2387	1601.61	-40.76	≤-26	0.08395	≤2.5	PASS
				2387~2400	2400.00	-26.93	≤-16	2.02768	≤25	PASS
				2483.5~2496.5	2485.22	-43.56	≤-16	0.04406	≤25	PASS
				2496.5~13000	3202.86	-37.94	≤-26	0.16069	≤2.5	PASS
			2440	30~500	190.39	-47.85	≤-26	0.01641	≤2.5	PASS
				500~1000	813.13	-54.35	≤-26	0.00367	≤2.5	PASS
				1000~2387	1626.58	-40.55	≤-26	0.08810	≤2.5	PASS
				2387~2400	2390.99	-43.68	≤-16	0.04285	≤25	PASS
				2483.5~2496.5	2485.36	-43.30	≤-16	0.04677	≤25	PASS
				2496.5~13000	3253.28	-38.48	≤-26	0.14191	≤2.5	PASS
			2480	30~500	185.10	-47.33	≤-26	0.01849	≤2.5	PASS
				500~1000	826.38	-54.38	≤-26	0.00365	≤2.5	PASS
				1000~2387	1653.28	-40.24	≤-26	0.09462	≤2.5	PASS
				2387~2400	2393.29	-43.58	≤-16	0.04385	≤25	PASS
				2483.5~2496.5	2483.63	-42.03	≤-16	0.06266	≤25	PASS
				2496.5~13000	3306.85	-40.07	≤-26	0.09840	≤2.5	PASS
NTLV	BLE_1M	Ant1	2402	30~500	182.99	-47.44	≤-26	0.01803	≤2.5	PASS
				500~1000	800.88	-54.80	≤-26	0.00331	≤2.5	PASS
				1000~2387	1601.26	-40.78	≤-26	0.08356	≤2.5	PASS
				2387~2400	2400.00	-26.85	≤-16	2.06538	≤25	PASS
				2483.5~2496.5	2488.19	-43.60	≤-16	0.04365	≤25	PASS
				2496.5~13000	3202.86	-37.92	≤-26	0.16144	≤2.5	PASS
			2440	30~500	195.68	-47.20	≤-26	0.01905	≤2.5	PASS
				500~1000	813.13	-54.62	≤-26	0.00345	≤2.5	PASS
				1000~2387	1626.92	-40.12	≤-26	0.09727	≤2.5	PASS
				2387~2400	2395.78	-42.85	≤-16	0.05188	≤25	PASS
				2483.5~2496.5	2495.31	-43.25	≤-16	0.04732	≤25	PASS
				2496.5~13000	3253.28	-38.64	≤-26	0.13677	≤2.5	PASS
			2480	30~500	182.40	-47.45	≤-26	0.01799	≤2.5	PASS
				500~1000	826.50	-53.96	≤-26	0.00402	≤2.5	PASS
				1000~2387	1653.28	-40.38	≤-26	0.09162	≤2.5	PASS
				2387~2400	2396.74	-43.12	≤-16	0.04875	≤25	PASS
				2483.5~2496.5	2483.66	-41.49	≤-16	0.07096	≤25	PASS
				2496.5~13000	3306.85	-39.83	≤-26	0.10399	≤2.5	PASS
NTHV	BLE_1M	Ant1	2402	30~500	184.98	-47.45	≤-26	0.01799	≤2.5	PASS
				500~1000	800.25	-54.52	≤-26	0.00353	≤2.5	PASS
				1000~2387	1601.26	-40.69	≤-26	0.08531	≤2.5	PASS
				2387~2400	2400.00	-27.53	≤-16	1.76604	≤25	PASS
				2483.5~2496.5	2486.68	-42.89	≤-16	0.05140	≤25	PASS
				2496.5~13000	3202.86	-37.85	≤-26	0.16406	≤2.5	PASS
			2440	30~500	172.88	-48.33	≤-26	0.01469	≤2.5	PASS
				500~1000	723.75	-51.14	≤-26	0.00769	≤2.5	PASS
				1000~2387	1626.58	-40.47	≤-26	0.08974	≤2.5	PASS
				2387~2400	2391.65	-43.40	≤-16	0.04571	≤25	PASS
				2483.5~2496.5	2486.94	-43.42	≤-16	0.04550	≤25	PASS
				2496.5~13000	3253.80	-38.46	≤-26	0.14256	≤2.5	PASS
			2480	30~500	170.41	-48.02	≤-26	0.01578	≤2.5	PASS
				500~1000	826.75	-54.14	≤-26	0.00385	≤2.5	PASS
				1000~2387	1653.28	-40.08	≤-26	0.09817	≤2.5	PASS
				2387~2400	2398.23	-43.23	≤-16	0.04753	≤25	PASS
				2483.5~2496.5	2483.51	-41.04	≤-16	0.07870	≤25	PASS
				2496.5~13000	3306.32	-39.90	≤-26	0.10233	≤2.5	PASS

Test Graphs

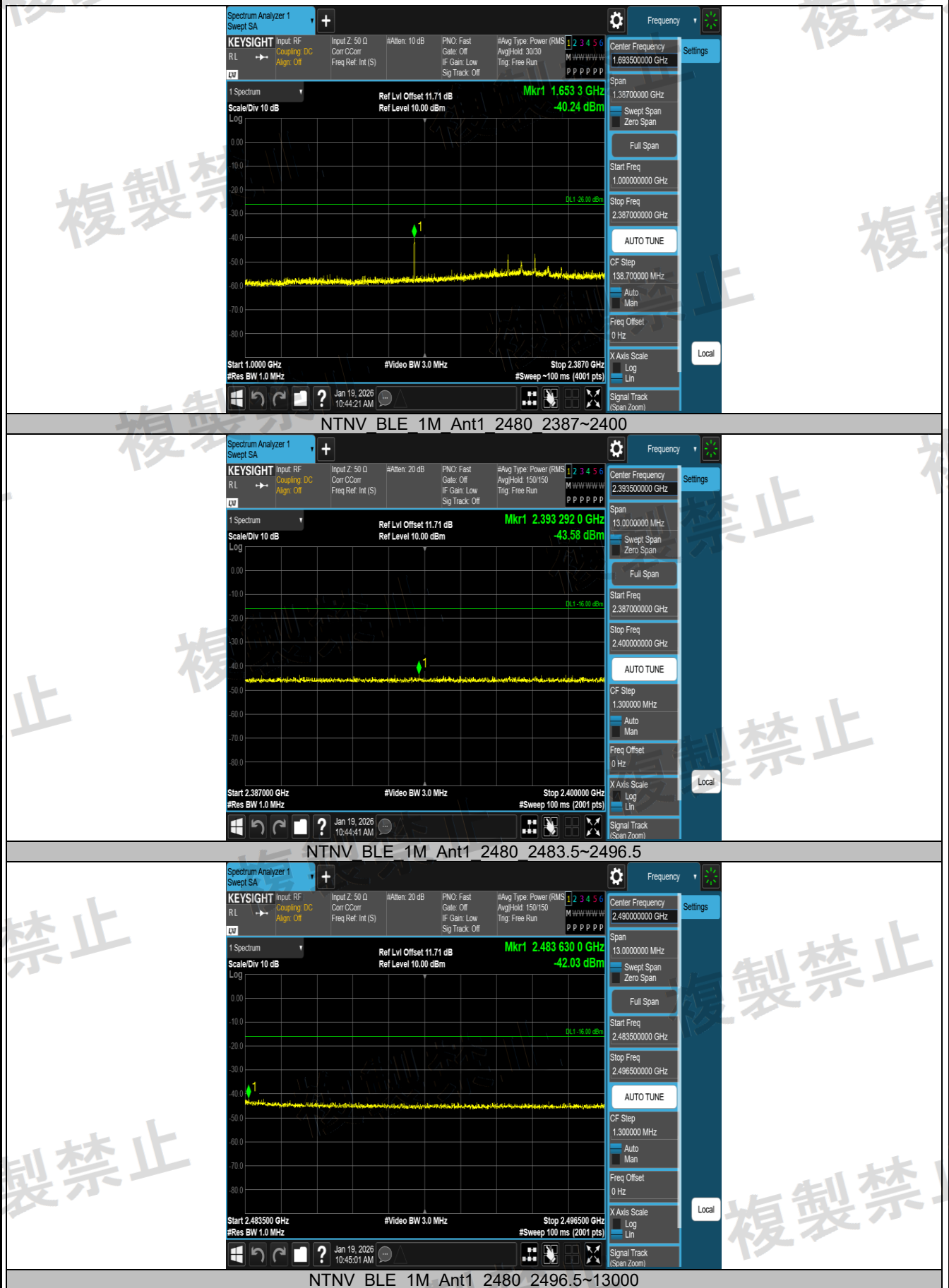








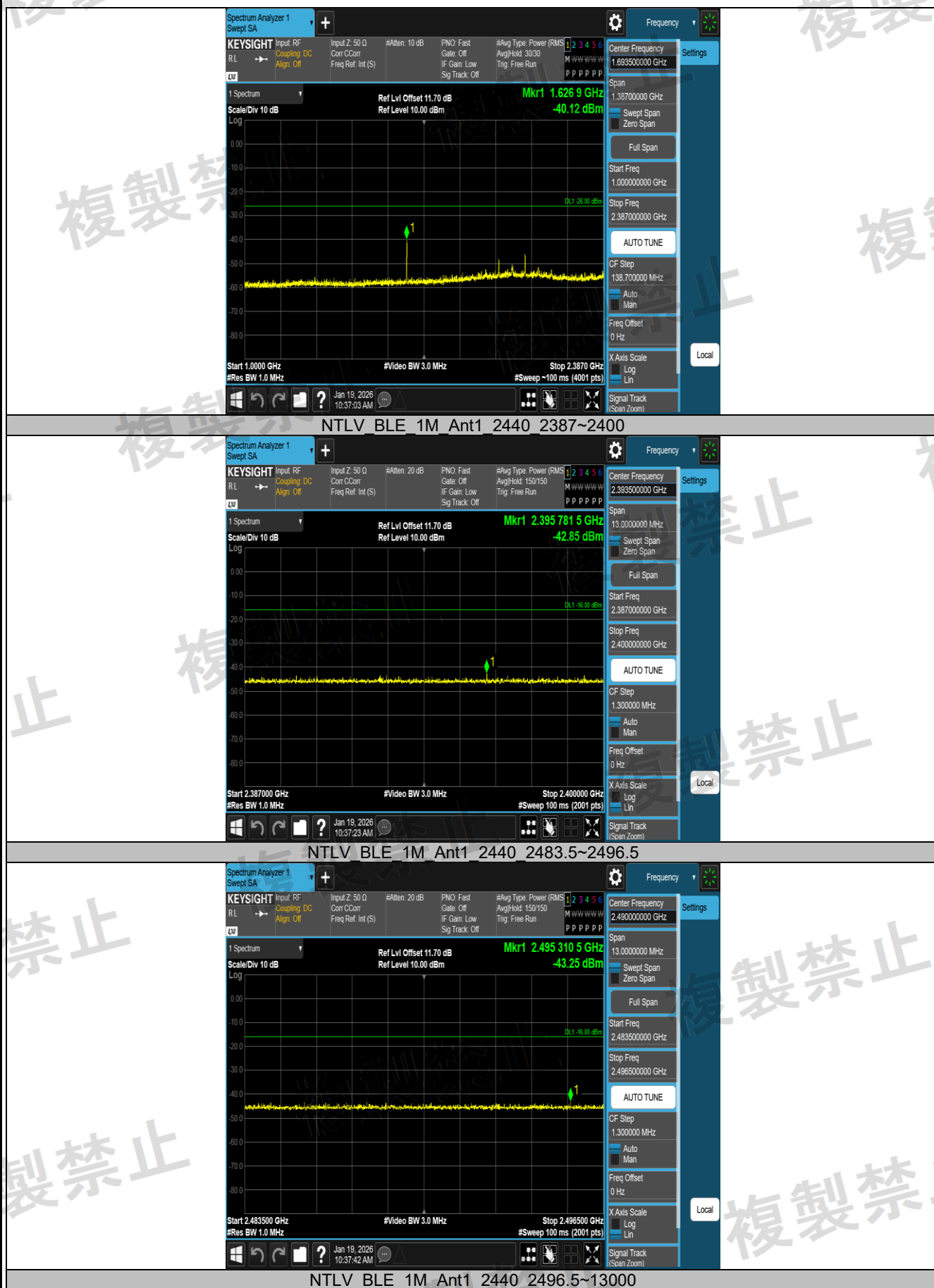




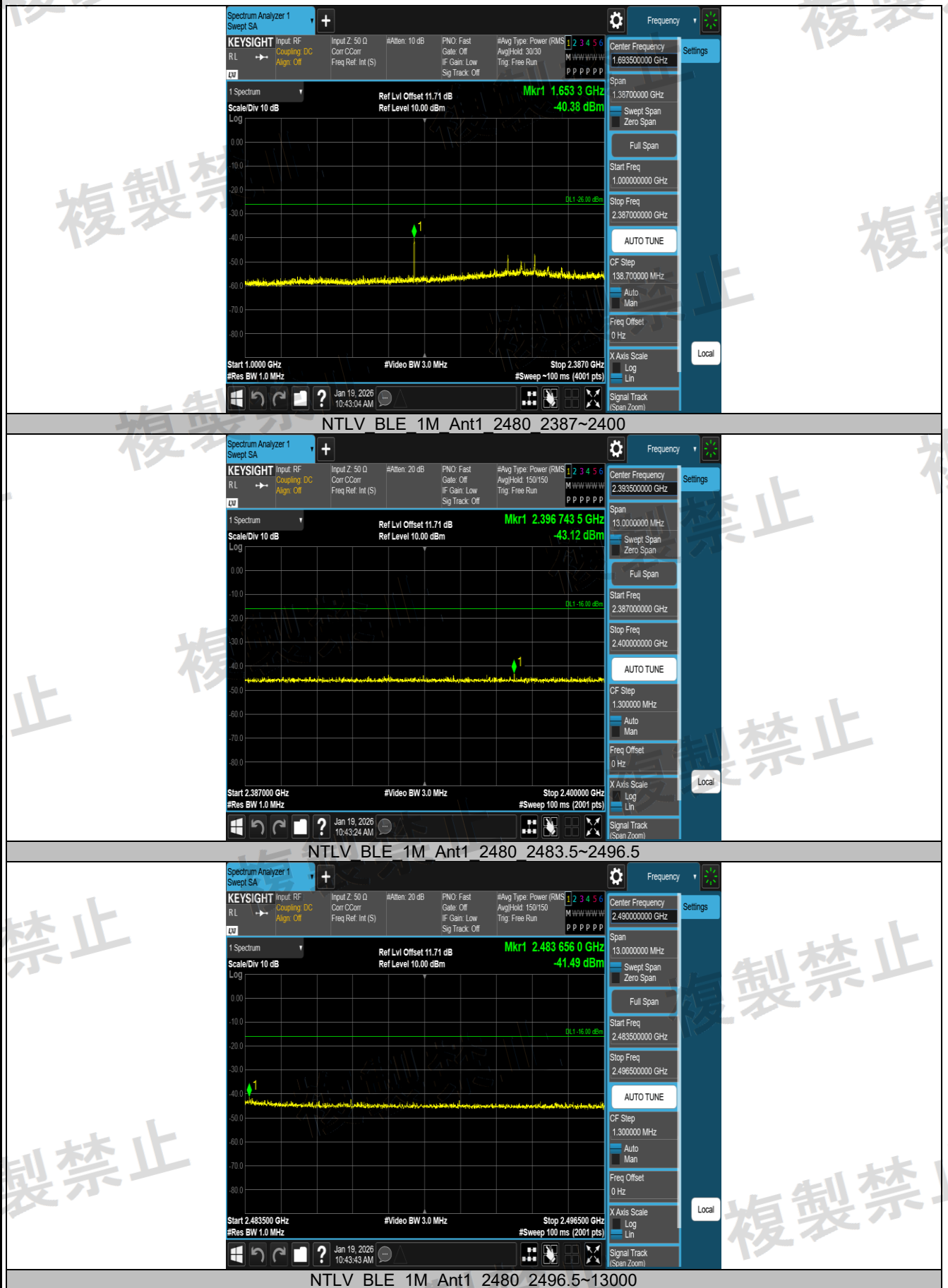


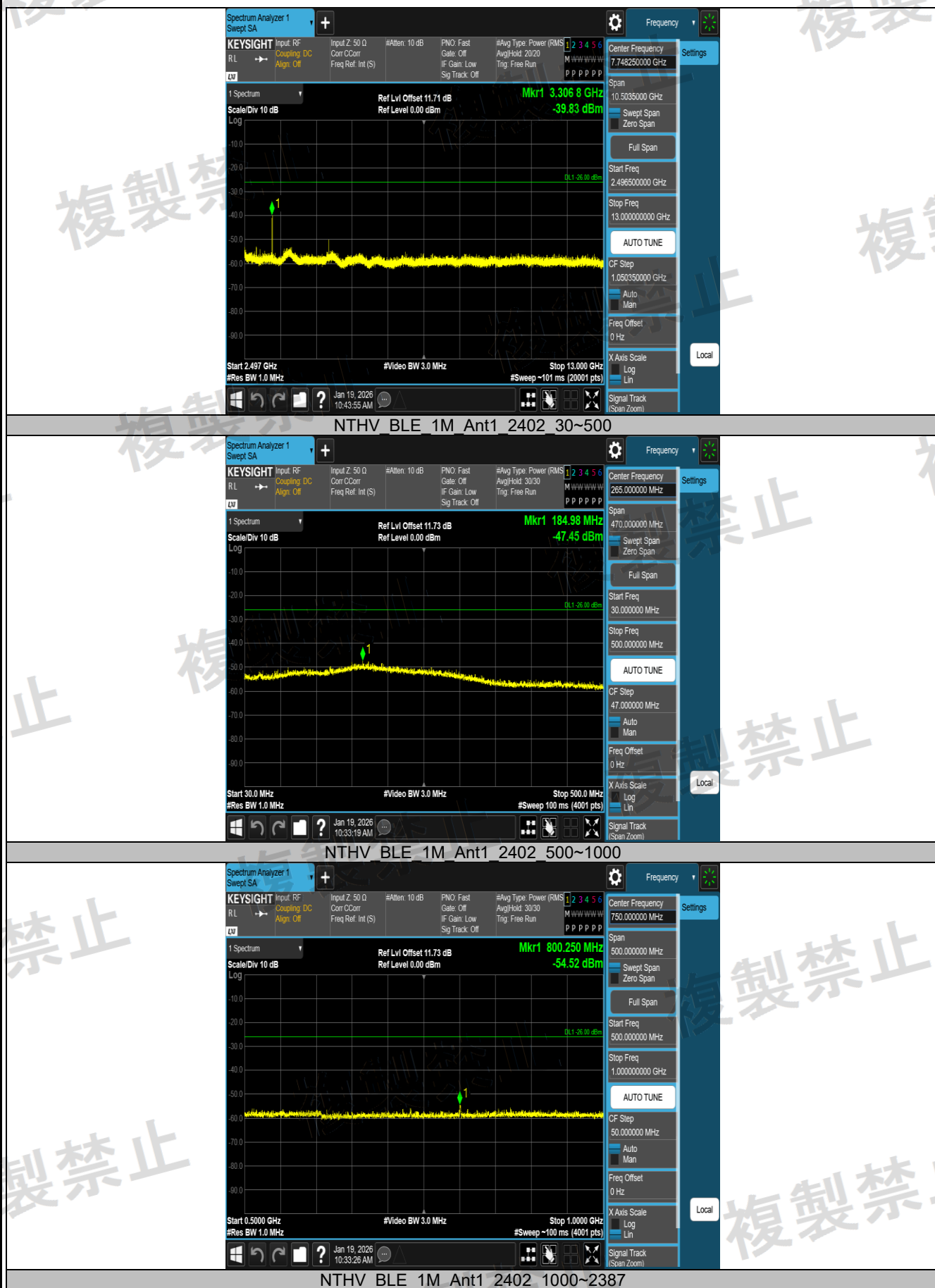


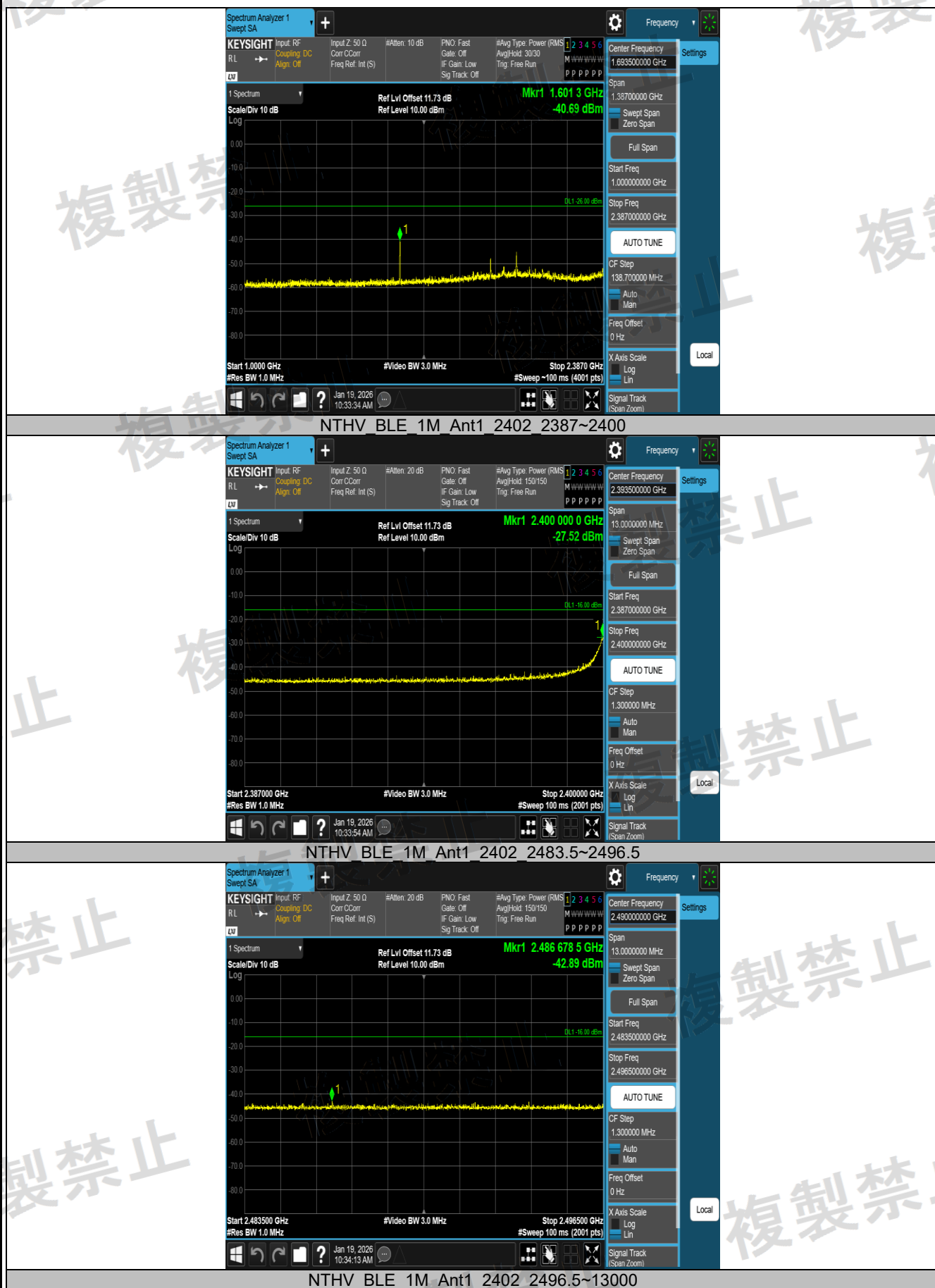


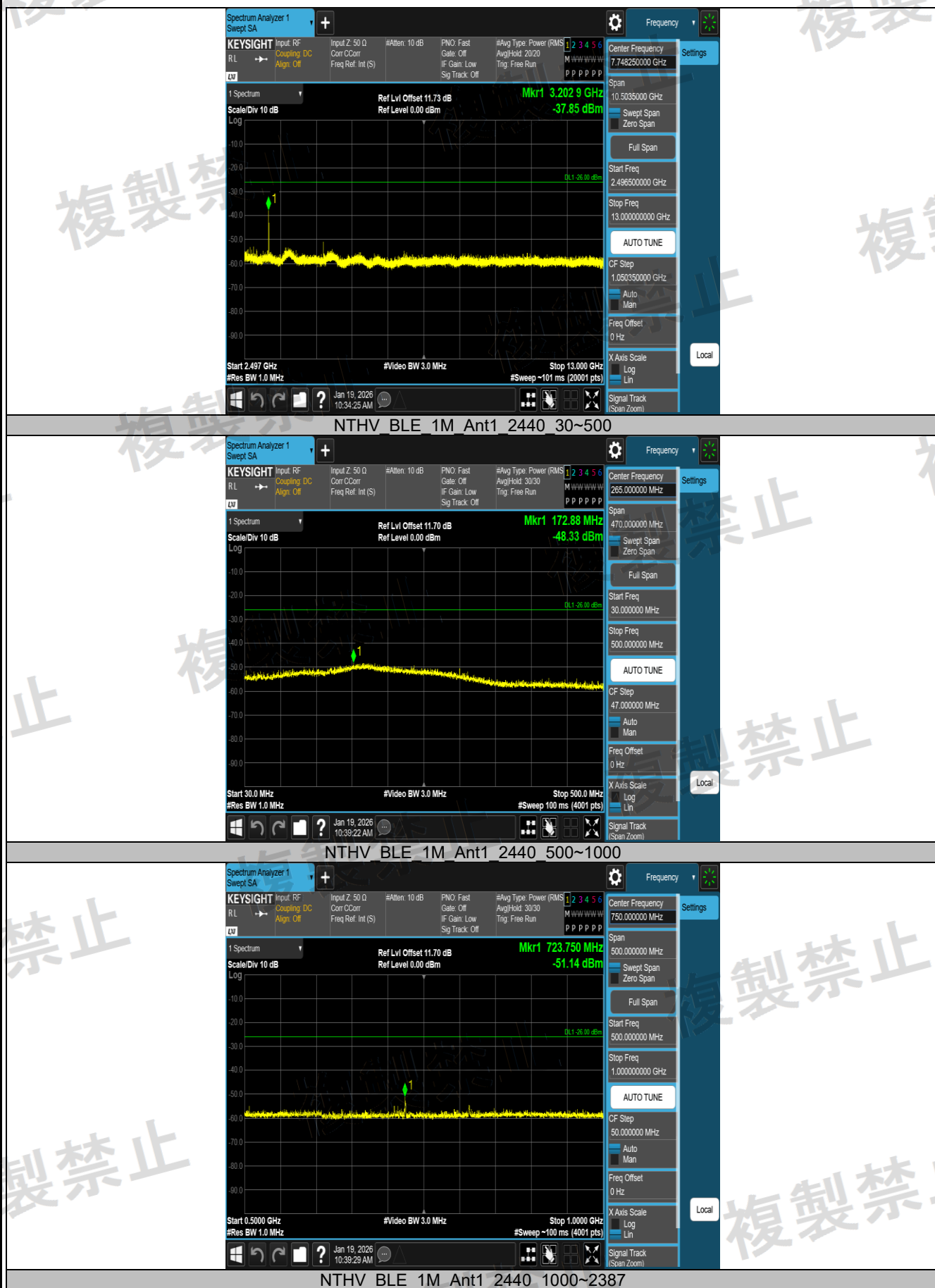


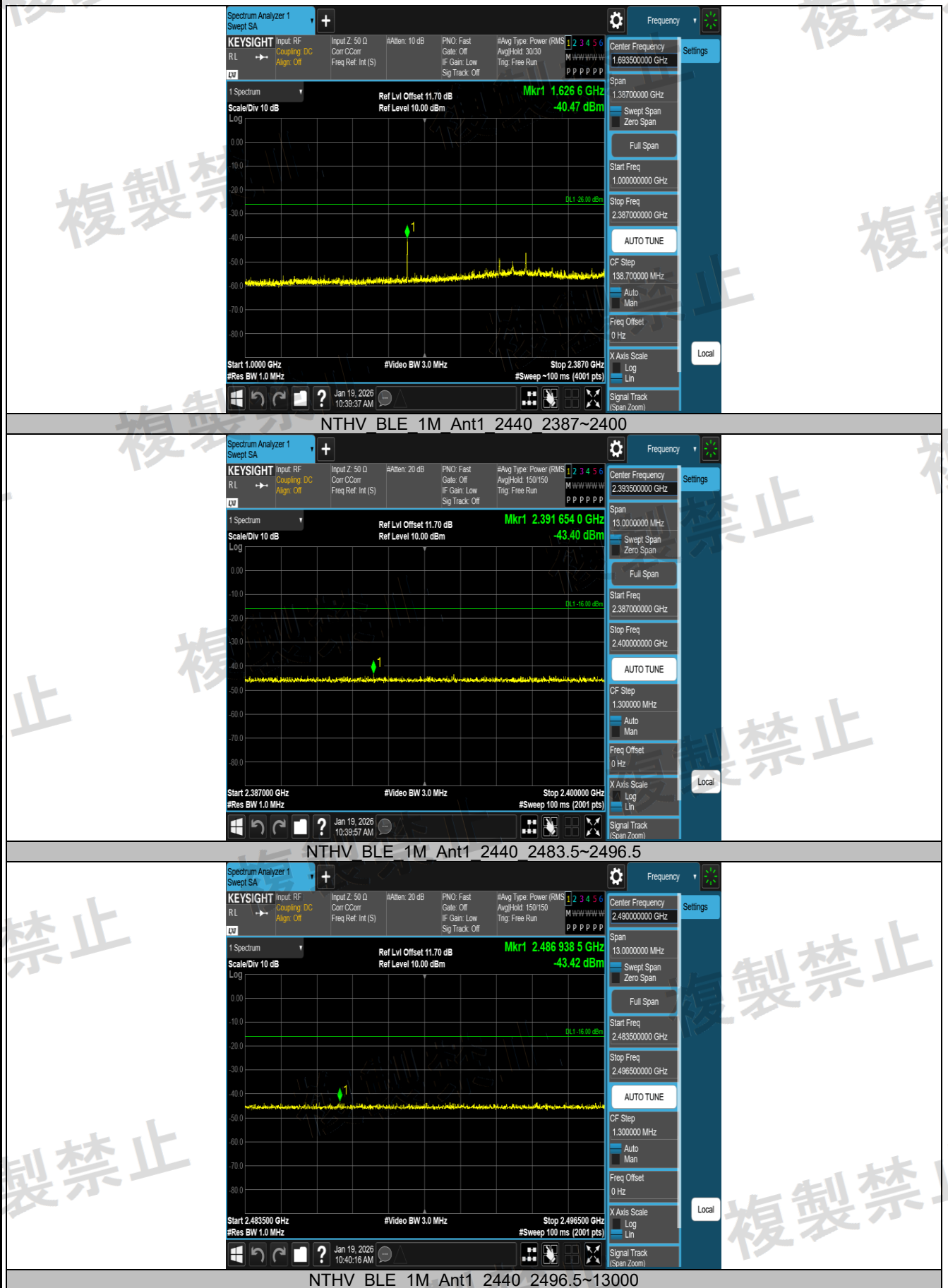




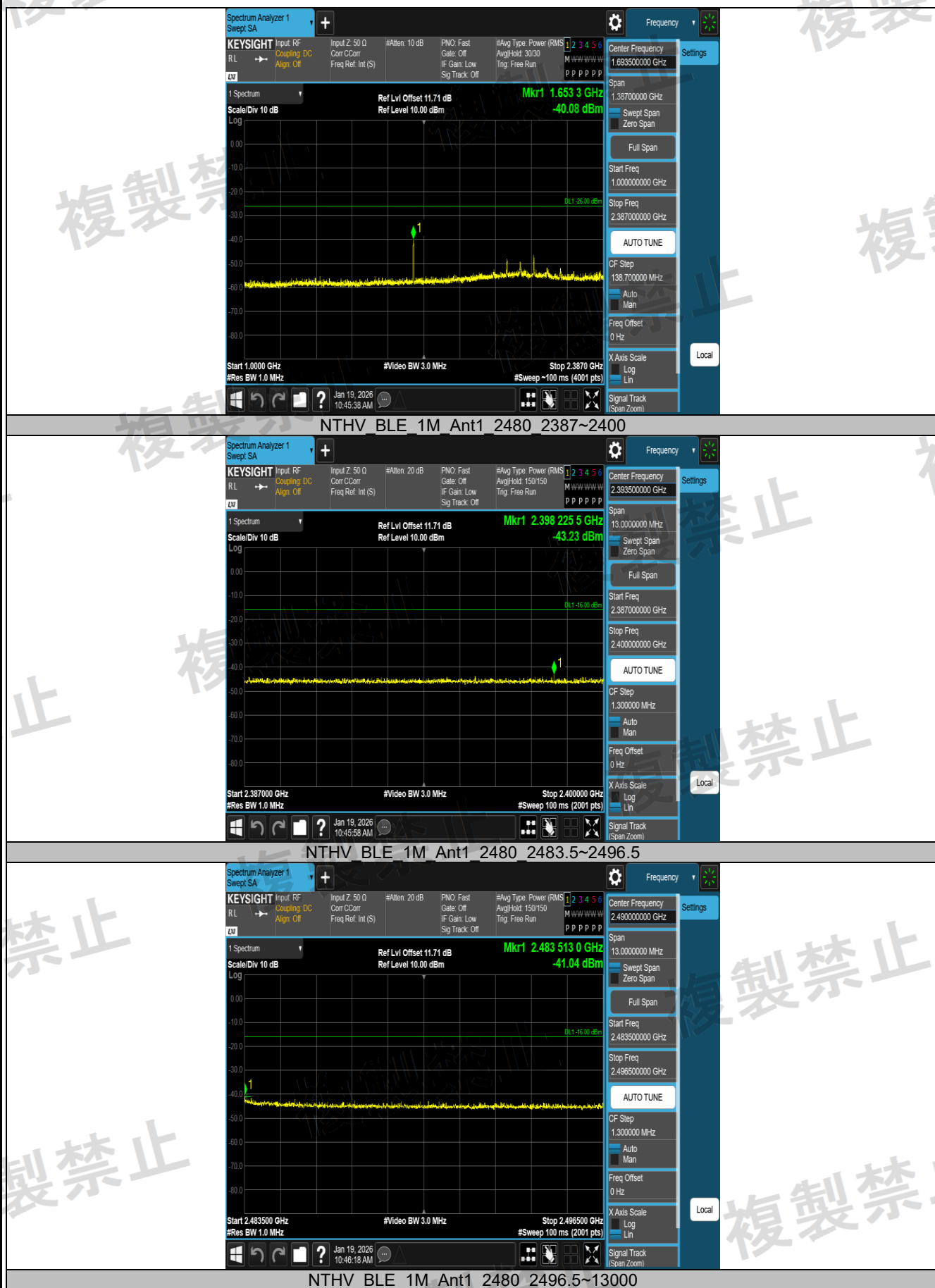


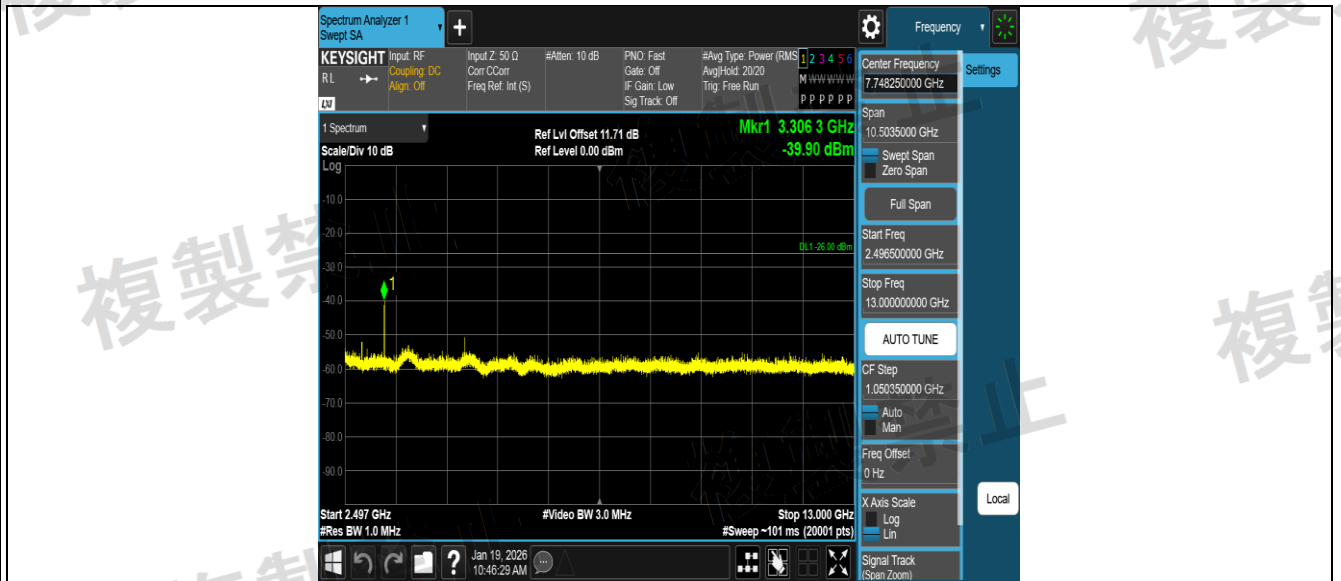










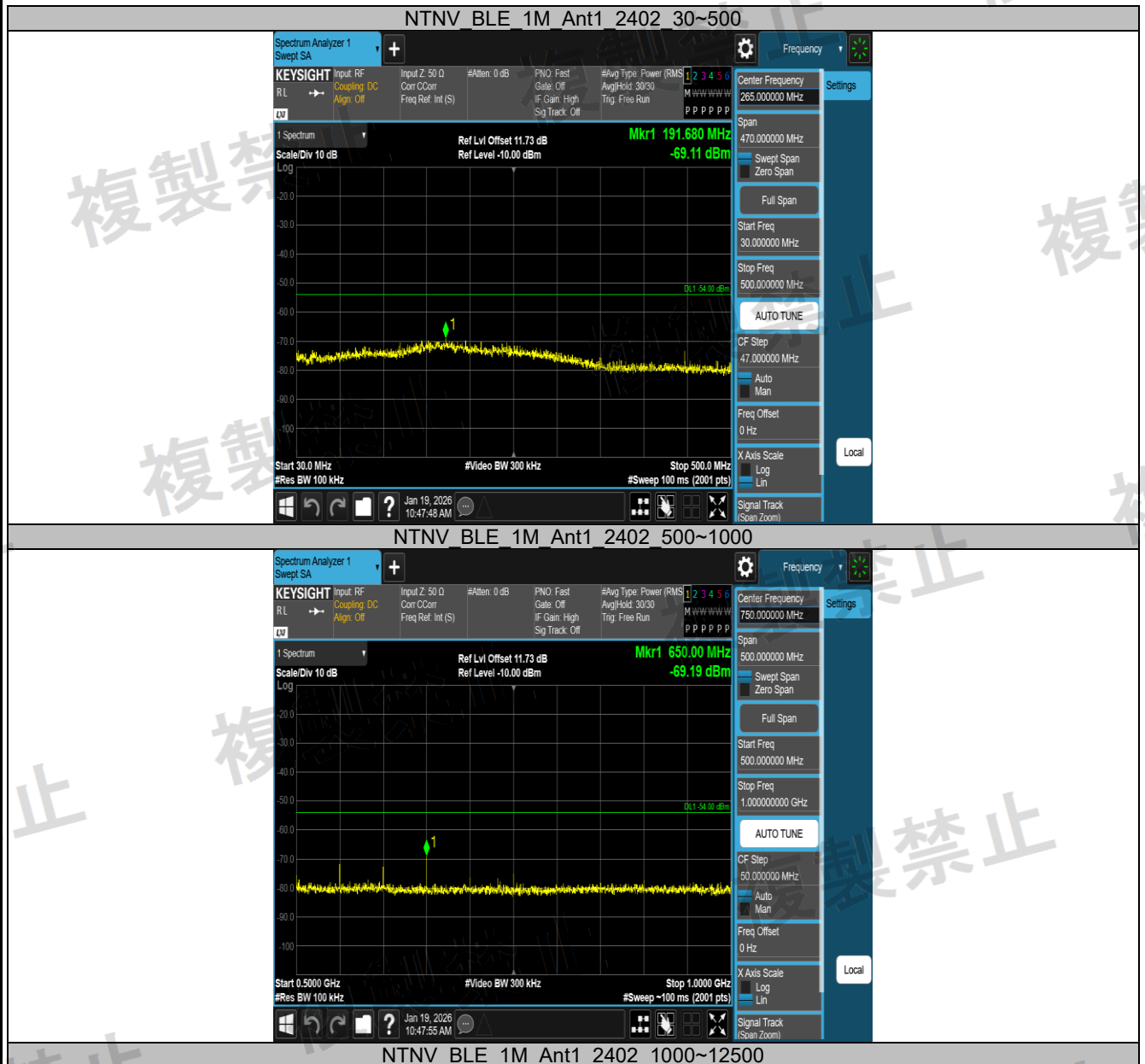


Appendix A.6: Test Results of Spurious Emissions for Receiver

Test Result

Test Condition	Test Mode	Antenna	Freq (MHz)	Freq.Range [MHz]	Freq. [MHz]	Result [dBm]	Limit [dBm]	Result [nW]	Limit [nW]	Verdict
NTNV	BLE_1M	Ant1	2402	30~500	191.68	-69.11	≤-54	0.12274	≤4	PASS
				500~1000	650.00	-69.19	≤-54	0.12050	≤4	PASS
				1000~12500	3974.48	-59.72	≤-47	1.06660	≤20	PASS
			2440	30~500	183.93	-69.21	≤-54	0.11995	≤4	PASS
				500~1000	650.00	-68.91	≤-54	0.12853	≤4	PASS
				1000~12500	3974.48	-60.32	≤-47	0.92897	≤20	PASS
			2480	30~500	194.27	-69.49	≤-54	0.11246	≤4	PASS
				500~1000	650.00	-68.76	≤-54	0.13305	≤4	PASS
				1000~12500	3973.90	-59.83	≤-47	1.03992	≤20	PASS
NTLV	BLE_1M	Ant1	2402	30~500	188.63	-70.09	≤-54	0.09795	≤4	PASS
				500~1000	650.00	-68.99	≤-54	0.12618	≤4	PASS
				1000~12500	3974.48	-59.66	≤-47	1.08143	≤20	PASS
			2440	30~500	176.41	-69.71	≤-54	0.10691	≤4	PASS
				500~1000	650.00	-68.61	≤-54	0.13772	≤4	PASS
				1000~12500	3974.48	-60.79	≤-47	0.83368	≤20	PASS
			2480	30~500	142.57	-69.26	≤-54	0.11858	≤4	PASS
				500~1000	650.00	-69.69	≤-54	0.10740	≤4	PASS
				1000~12500	3973.90	-60.50	≤-47	0.89125	≤20	PASS
NTHV	BLE_1M	Ant1	2402	30~500	194.74	-69.54	≤-54	0.11117	≤4	PASS
				500~1000	650.00	-69.36	≤-54	0.11588	≤4	PASS
				1000~12500	3974.48	-60.66	≤-47	0.85901	≤20	PASS
			2440	30~500	173.82	-69.49	≤-54	0.11246	≤4	PASS
				500~1000	650.00	-68.73	≤-54	0.13397	≤4	PASS
				1000~12500	3974.48	-59.89	≤-47	1.02565	≤20	PASS
			2480	30~500	195.44	-69.69	≤-54	0.10740	≤4	PASS
				500~1000	650.00	-69.42	≤-54	0.11429	≤4	PASS
				1000~12500	3974.48	-60.70	≤-47	0.85114	≤20	PASS

Test Graphs









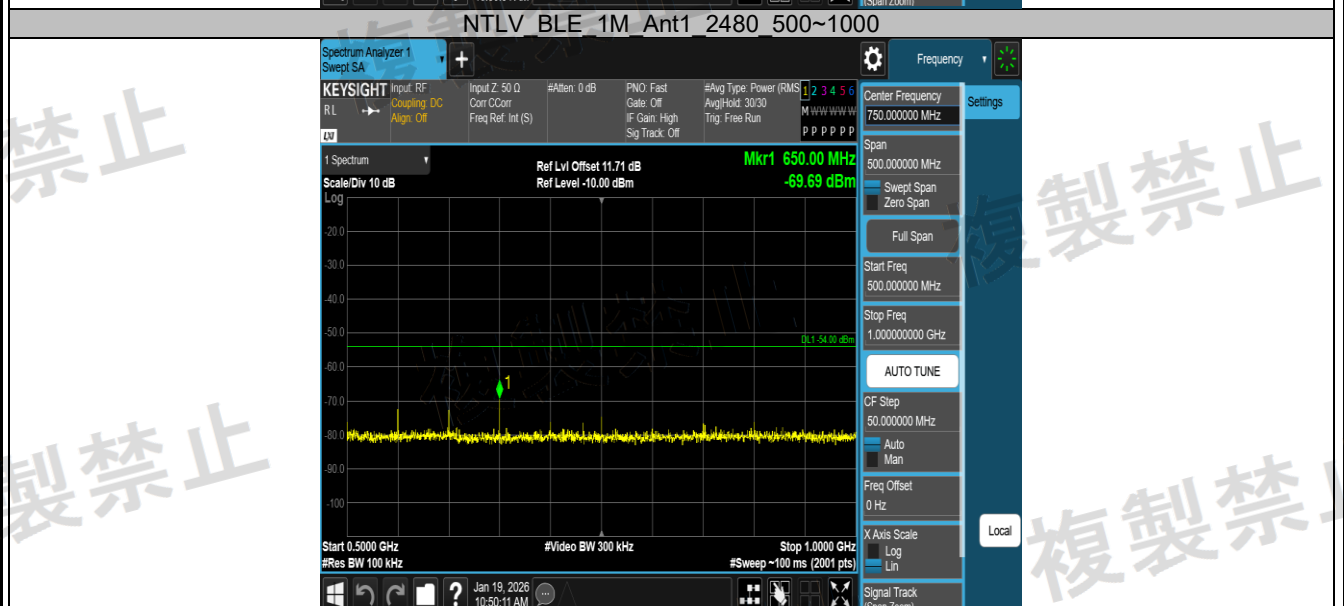
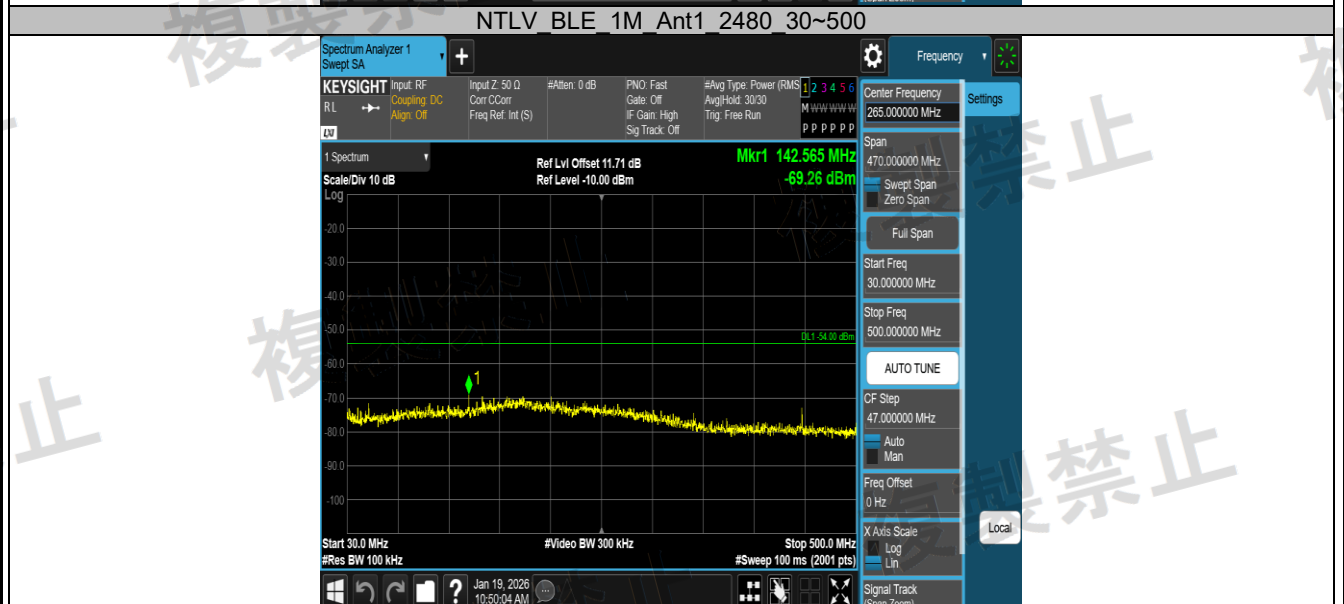
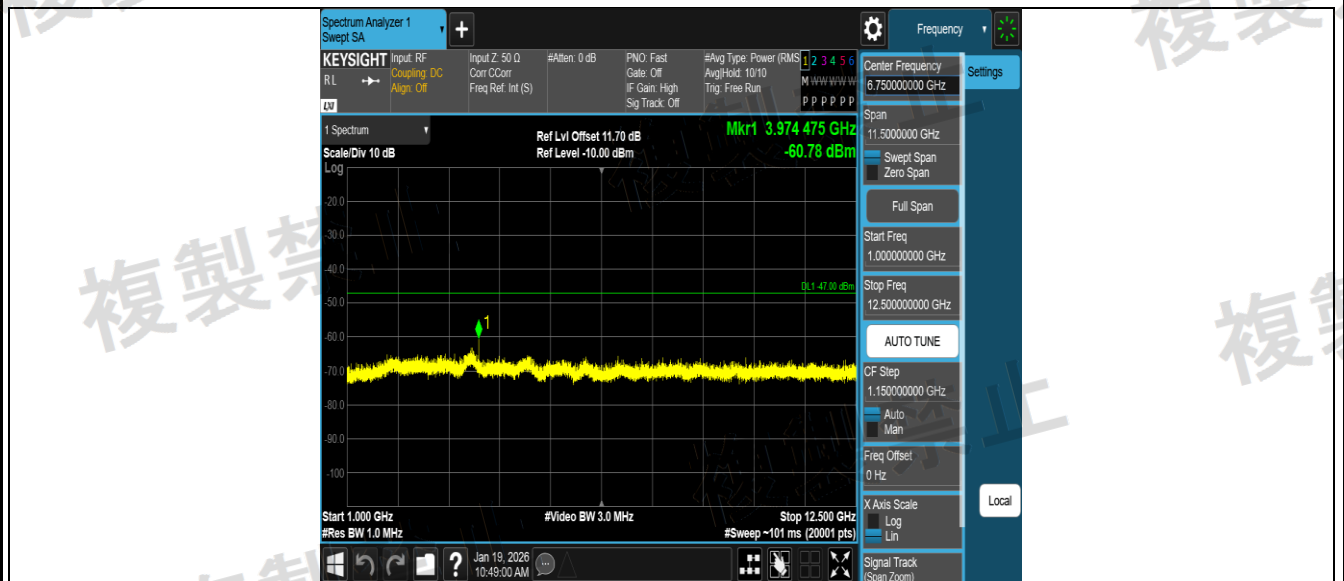


Appendix A CN26FF1U 001



Prüfbericht - Produkte
Test Report - Products

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NTLV BLE 1M Ant1 2480 30~500

NTLV BLE 1M Ant1 2480 500~1000

NTLV BLE 1M Ant1 2480 1000~12500







