

Appendix A: Test Results of Bluetooth BR & EDR

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Appendix A.1: Test Results of Frequency Tolerance

Test Result

Test Condition	Test Mode	Antenna	Freq(MHz)	Result[ppm]	Limit[ppm]	Verdict
NTNV	DH5	Ant1	2402	9.99167	±50	PASS
			2441	9.83204	±50	PASS
			2480	9.67742	±50	PASS
	3DH5	Ant1	2402	9.99167	±50	PASS
			2441	9.83204	±50	PASS
			2480	9.67742	±50	PASS
NTLV	DH5	Ant1	2402	9.99167	±50	PASS
			2441	9.83204	±50	PASS
			2480	9.67742	±50	PASS
	3DH5	Ant1	2402	9.99167	±50	PASS
			2441	9.83204	±50	PASS
			2480	9.67742	±50	PASS
NTHV	DH5	Ant1	2402	9.99167	±50	PASS
			2441	9.83204	±50	PASS
			2480	9.67742	±50	PASS
	3DH5	Ant1	2402	9.99167	±50	PASS
			2441	9.83204	±50	PASS
			2480	9.67742	±50	PASS



Test Graphs

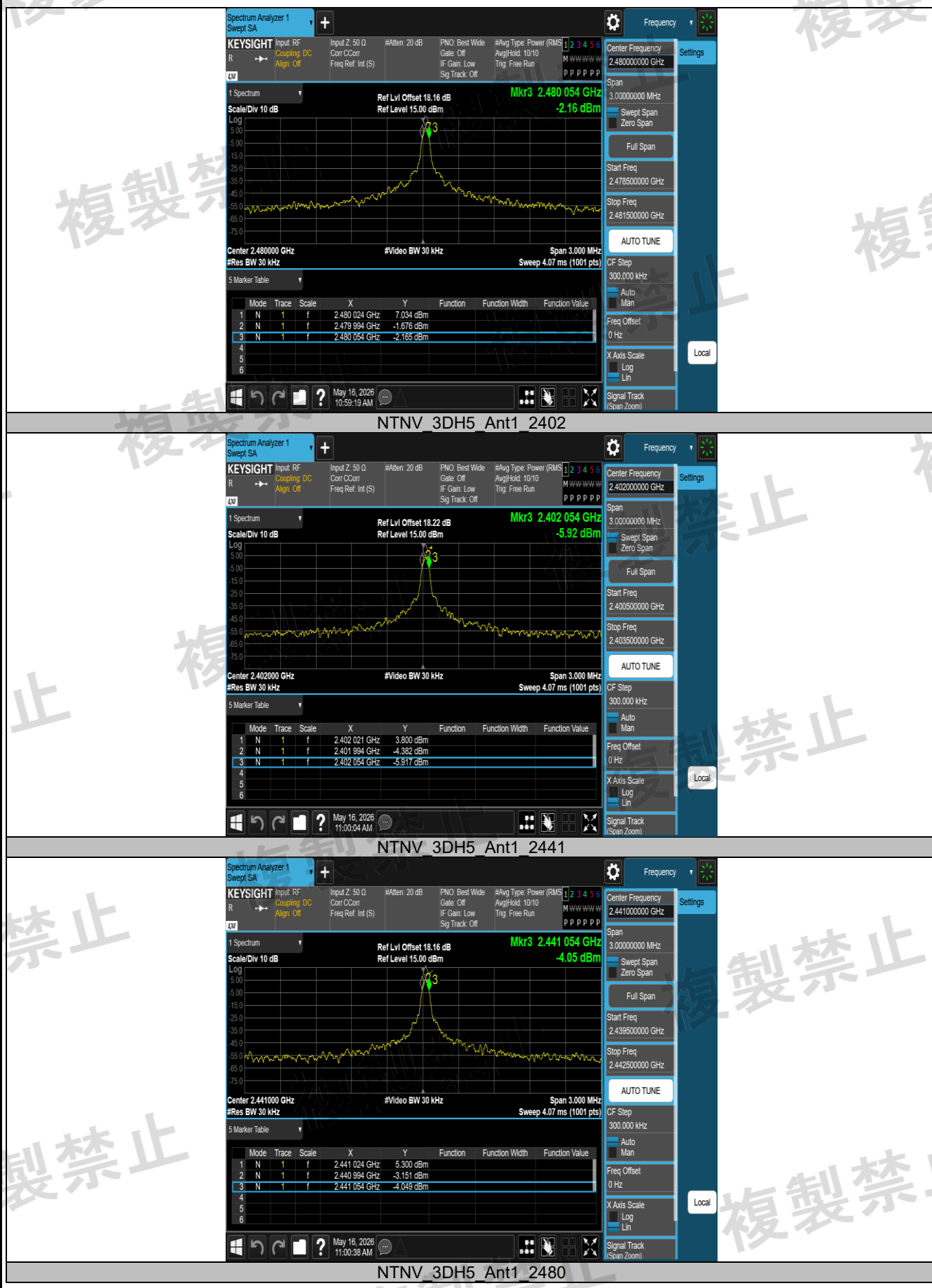
NTNV DH5 Ant1 2402

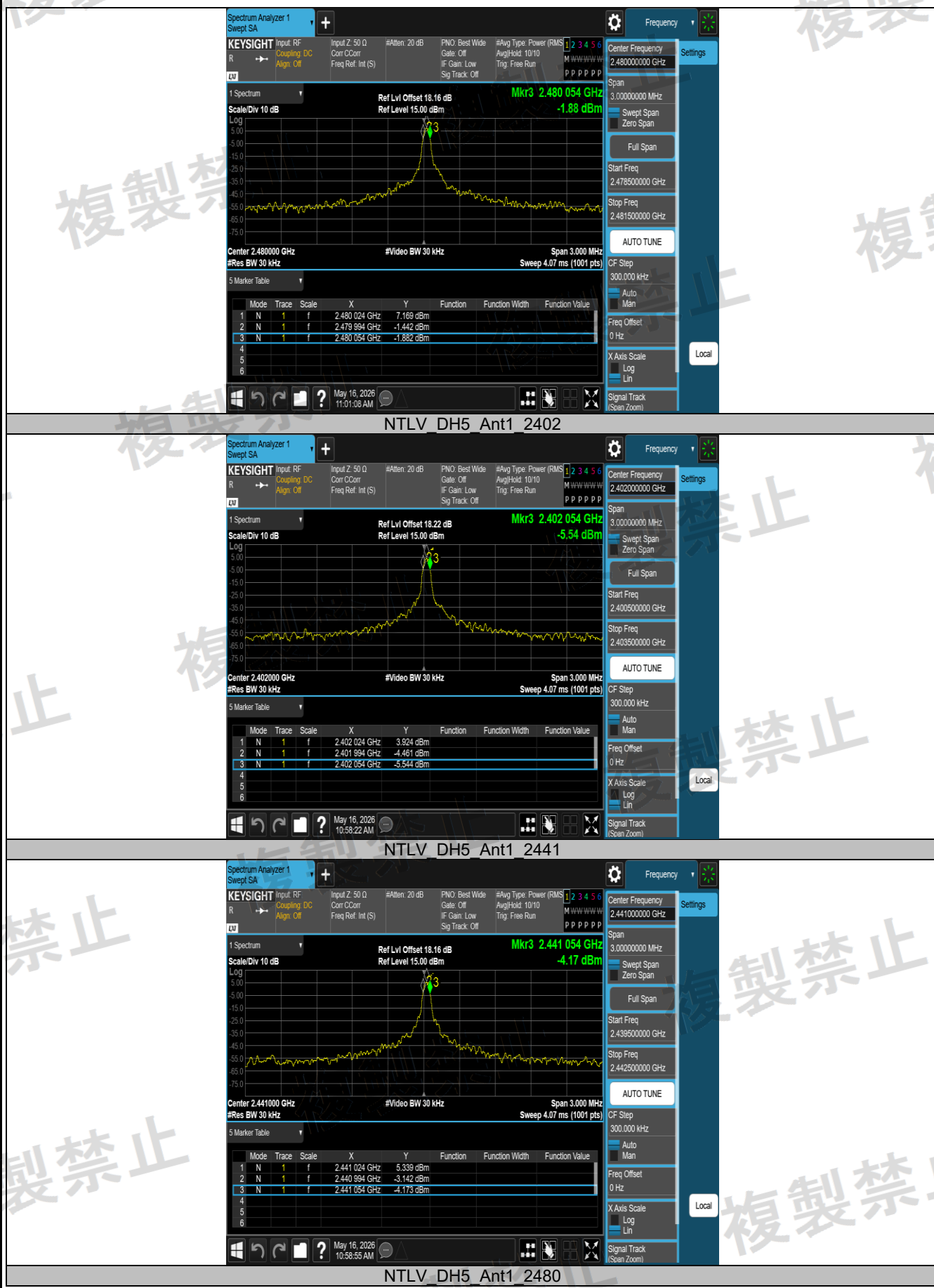


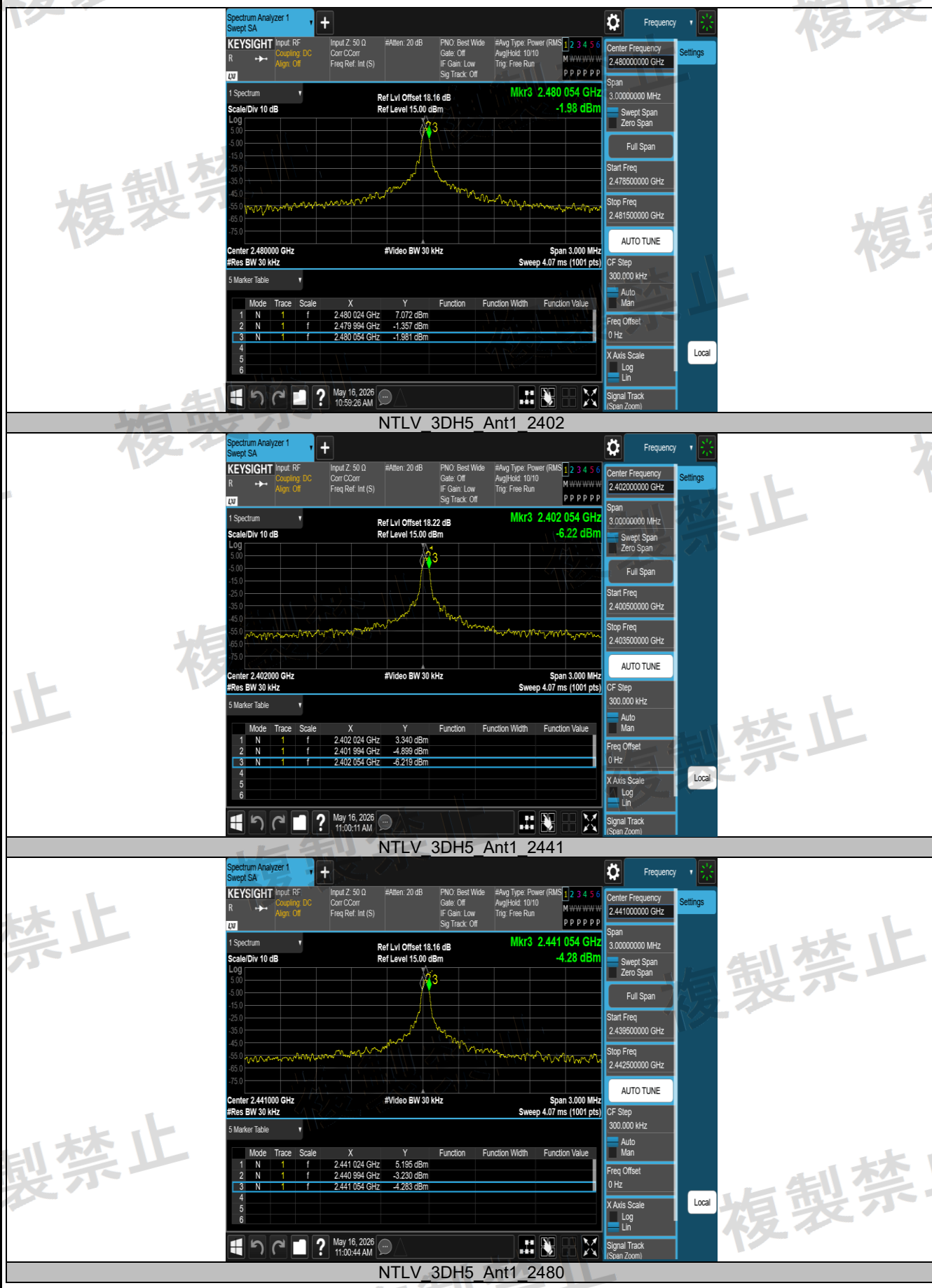
NTNV DH5 Ant1 2441

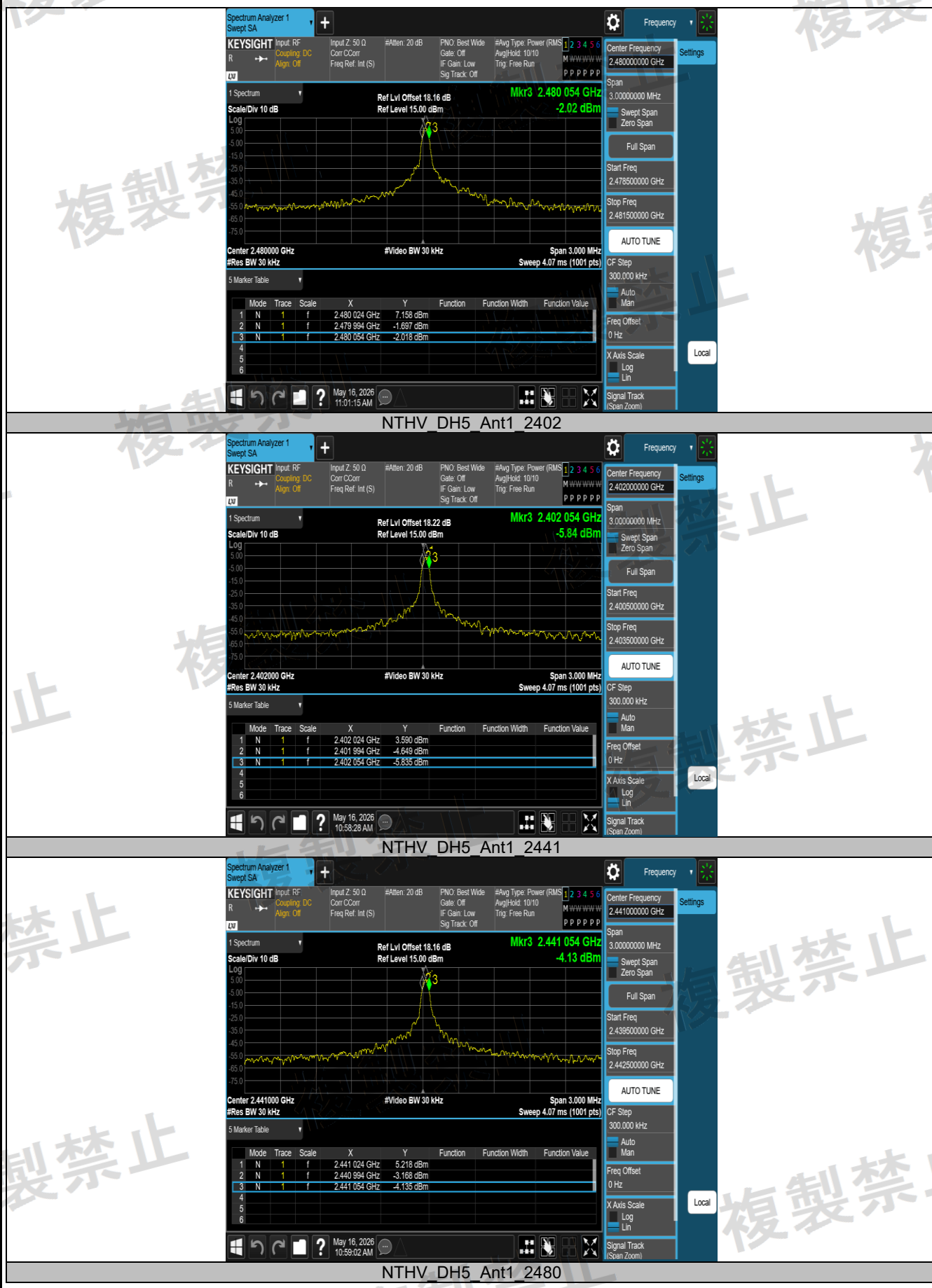


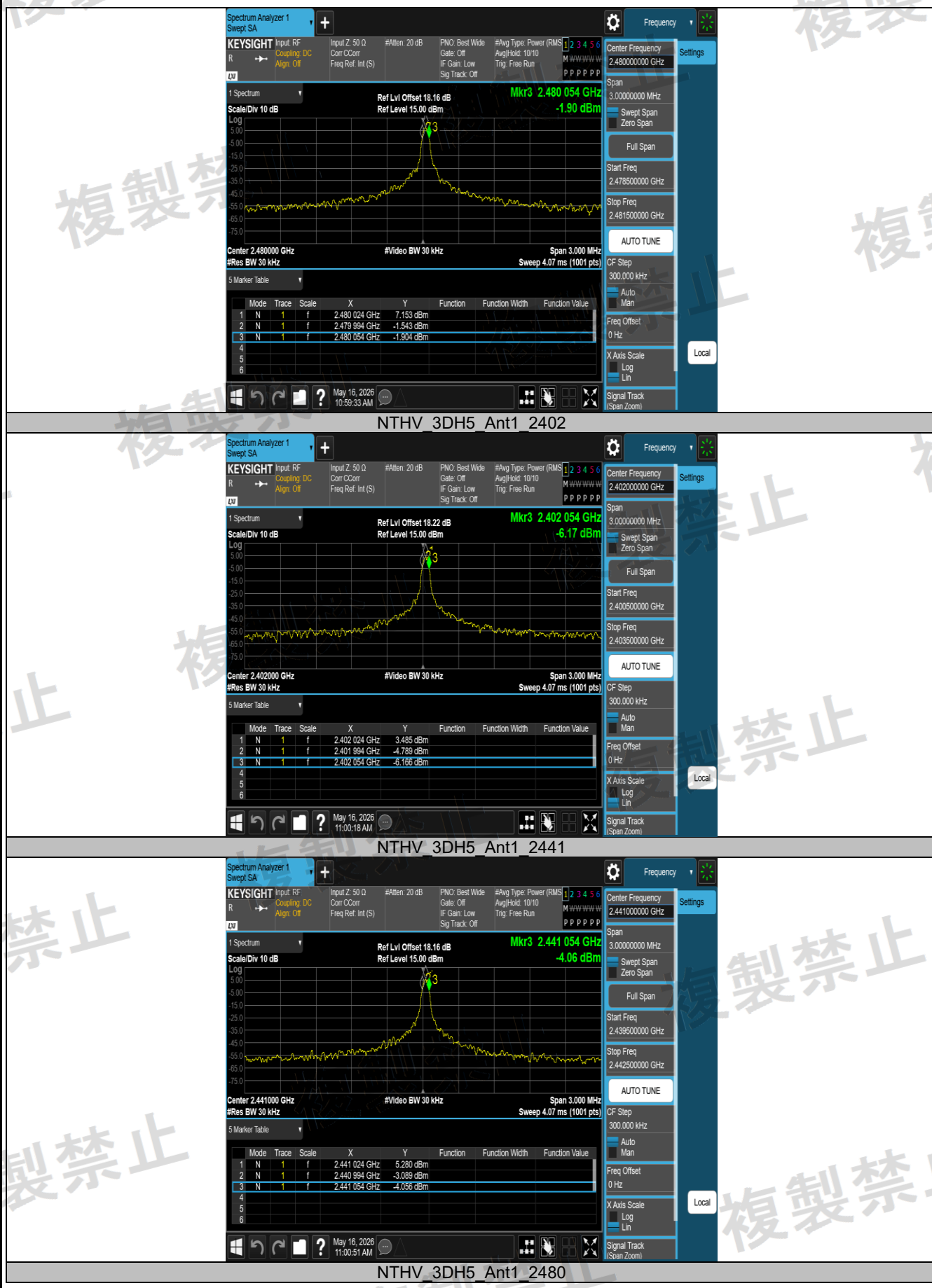
NTNV DH5 Ant1 2480

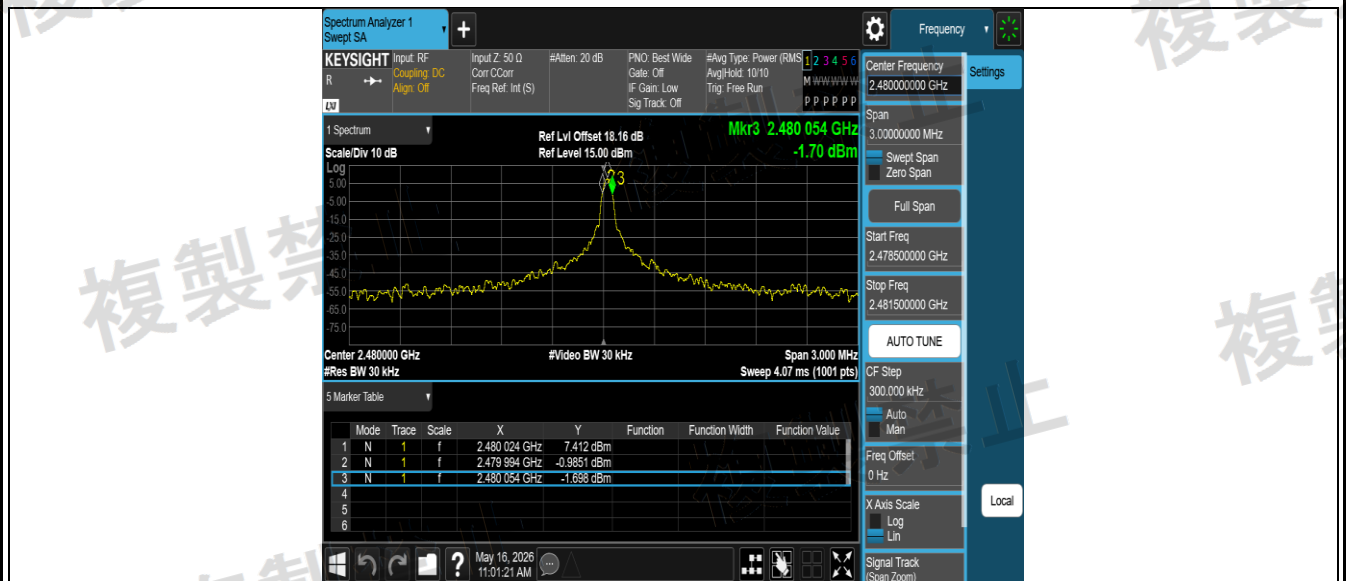












Appendix A.2: Test Results of Antenna Power

Test Result

Antenna Power									
Test Condition	TestMode	Antenna	Freq (MHz)	Result (dBm)	Result (mW)	90% BW (MHz)	Result (mW /MHz)	Limit (mW /MHz)	Verdict
NTNV	DH5	Ant1	Hop	6.19	4.1591	71.080	0.0585	≤3	PASS
	3DH5	Ant1	Hop	-0.33	0.9268	71.030	0.0130	≤3	PASS
	AFH_DH5	Ant1	Hop	6.18	4.1495	18.037	0.2301	≤3	PASS
	AFH_3DH5	Ant1	Hop	-0.42	0.9078	17.790	0.0510	≤3	PASS
NTLV	DH5	Ant1	Hop	6.04	4.0179	71.092	0.0565	≤3	PASS
	3DH5	Ant1	Hop	-0.35	0.9226	70.713	0.0130	≤3	PASS
	AFH_DH5	Ant1	Hop	6.07	4.0458	18.046	0.2242	≤3	PASS
	AFH_3DH5	Ant1	Hop	-0.68	0.8551	18.538	0.0461	≤3	PASS
NTHV	DH5	Ant1	Hop	6.02	3.9994	70.941	0.0564	≤3	PASS
	3DH5	Ant1	Hop	-0.49	0.8933	71.911	0.0124	≤3	PASS
	AFH_DH5	Ant1	Hop	6.21	4.1783	18.034	0.2317	≤3	PASS
	AFH_3DH5	Ant1	Hop	-0.44	0.9036	18.272	0.0495	≤3	PASS

Tolerance								
Test Condition	Test Mode	Antenna	Freq (MHz)	Power (mW /MHz)	RatedPower (mW /MHz)	Result (%)	Limit (%)	Verdict
NTNV	DH5	Ant1	Hop	0.0585	0.2	-70.74	-80 to +20	PASS
	3DH5	Ant1	Hop	0.0130	0.05	-73.90	-80 to +20	PASS
	AFH_DH5	Ant1	Hop	0.2301	1	-76.99	-80 to +20	PASS
	AFH_3DH5	Ant1	Hop	0.0510	0.2	-74.49	-80 to +20	PASS
NTLV	DH5	Ant1	Hop	0.0565	0.2	-71.74	-80 to +20	PASS
	3DH5	Ant1	Hop	0.0130	0.05	-73.91	-80 to +20	PASS
	AFH_DH5	Ant1	Hop	0.2242	1	-77.58	-80 to +20	PASS
	AFH_3DH5	Ant1	Hop	0.0461	0.2	-76.94	-80 to +20	PASS
NTHV	DH5	Ant1	Hop	0.0564	0.2	-71.81	-80 to +20	PASS
	3DH5	Ant1	Hop	0.0124	0.05	-75.16	-80 to +20	PASS
	AFH_DH5	Ant1	Hop	0.2317	1	-76.83	-80 to +20	PASS
	AFH_3DH5	Ant1	Hop	0.0495	0.2	-75.27	-80 to +20	PASS

EIRP							
Test Condition	TestMode	Antenna	Freq (MHz)	Power (dBm)	EIRP(dBm)	Limit(dBm)	Verdict
NTNV	DH5	Ant1	Hop	-12.33	-9.45	≤6.91	PASS
	3DH5	Ant1	Hop	-18.84	-15.96	≤6.91	PASS
	AFH_DH5	Ant1	Hop	-6.38	-3.50	≤6.91	PASS
	AFH_3DH5	Ant1	Hop	-12.92	-10.04	≤6.91	PASS
NTLV	DH5	Ant1	Hop	-12.48	-9.60	≤6.91	PASS
	3DH5	Ant1	Hop	-18.84	-15.96	≤6.91	PASS
	AFH_DH5	Ant1	Hop	-6.49	-3.61	≤6.91	PASS
	AFH_3DH5	Ant1	Hop	-13.36	-10.48	≤6.91	PASS
NTHV	DH5	Ant1	Hop	-12.49	-9.61	≤6.91	PASS
	3DH5	Ant1	Hop	-19.06	-16.18	≤6.91	PASS
	AFH_DH5	Ant1	Hop	-6.35	-3.47	≤6.91	PASS
	AFH_3DH5	Ant1	Hop	-13.06	-10.18	≤6.91	PASS

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

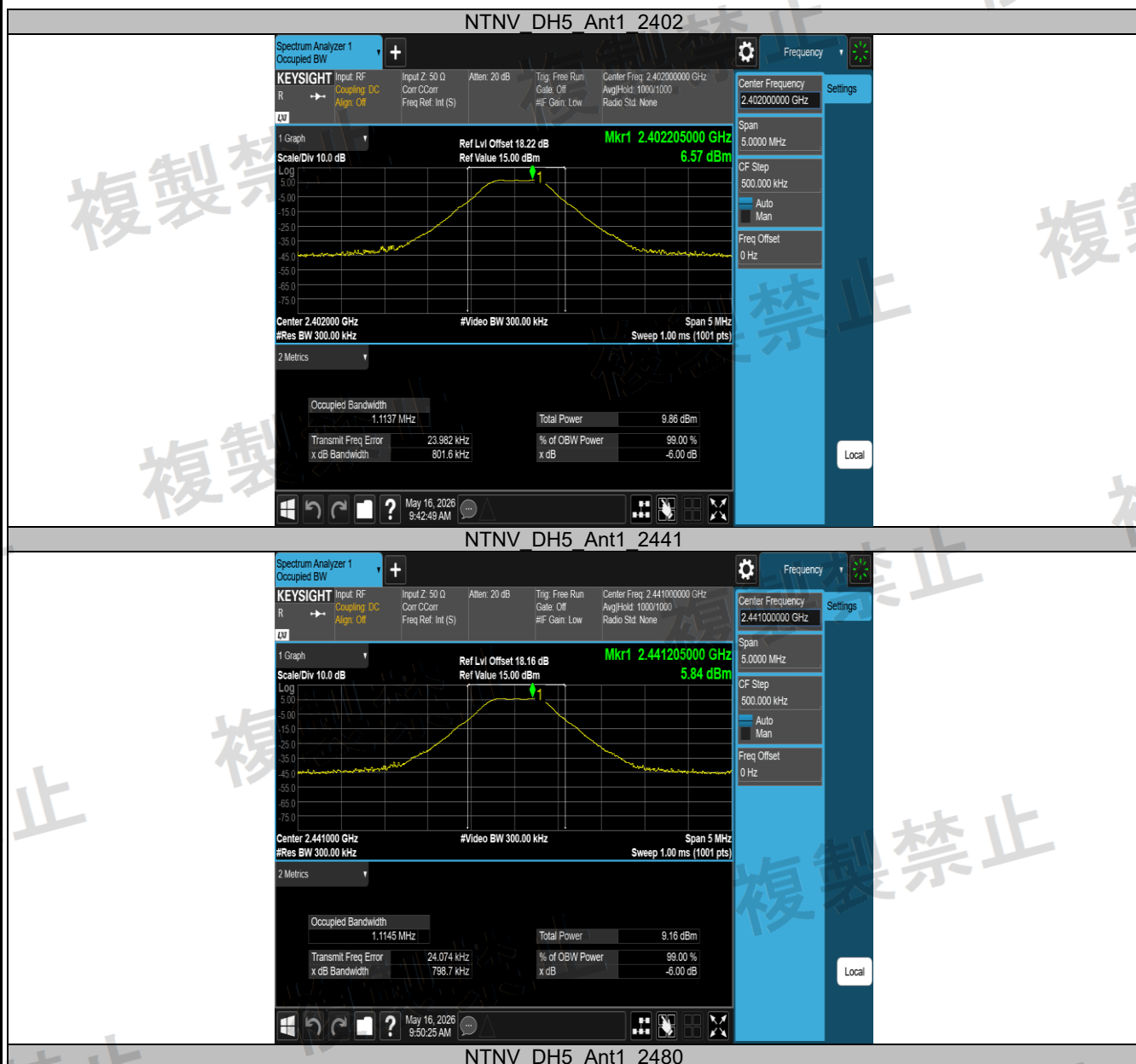
Test Result

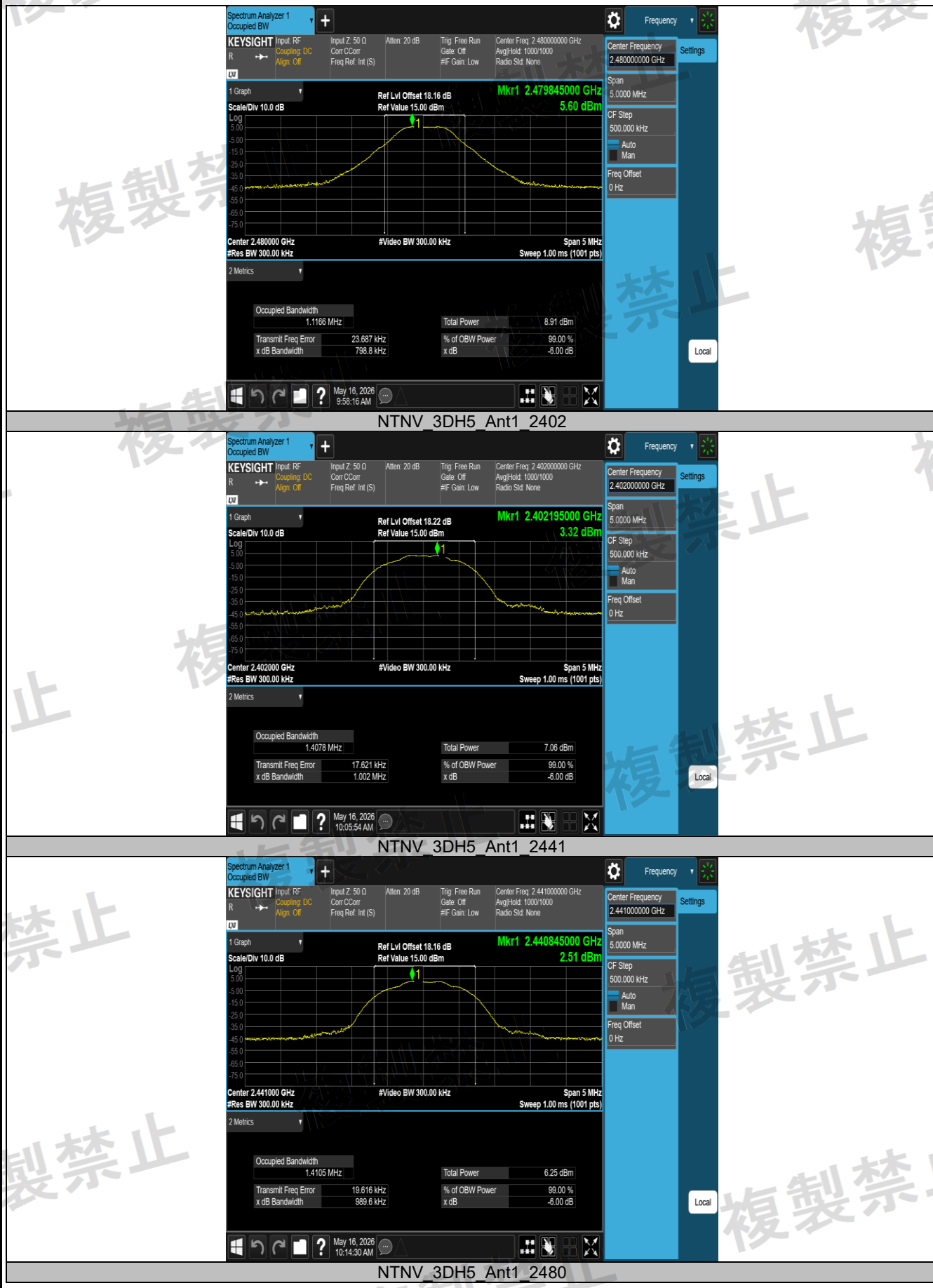
Test Condition	Test Mode	Antenna	Freq(MHz)	Result [MHz]	Limit [MHz]	Verdict
NTNV	DH5	Ant1	2402	1.114	≤83.5	PASS
			2441	1.115	≤83.5	PASS
			2480	1.117	≤83.5	PASS
	3DH5	Ant1	2402	1.408	≤83.5	PASS
			2441	1.411	≤83.5	PASS
			2480	1.410	≤83.5	PASS
NTLV	DH5	Ant1	2402	1.113	≤83.5	PASS
			2441	1.115	≤83.5	PASS
			2480	1.116	≤83.5	PASS
	3DH5	Ant1	2402	1.407	≤83.5	PASS
			2441	1.409	≤83.5	PASS
			2480	1.409	≤83.5	PASS
NTHV	DH5	Ant1	2402	1.112	≤83.5	PASS
			2441	1.115	≤83.5	PASS
			2480	1.116	≤83.5	PASS
	3DH5	Ant1	2402	1.406	≤83.5	PASS
			2441	1.408	≤83.5	PASS
			2480	1.411	≤83.5	PASS

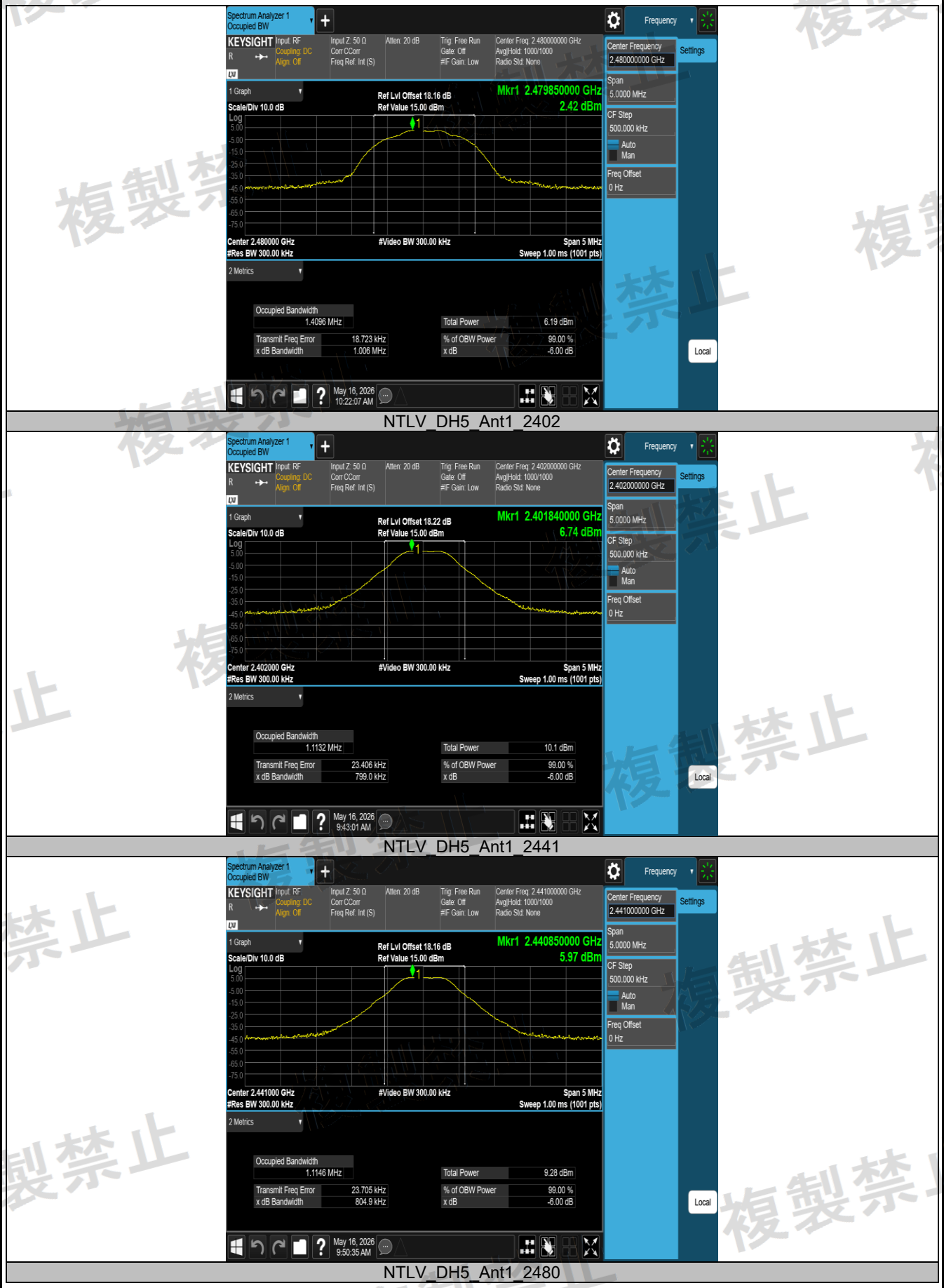
Test Condition	Test Mode	Antenna	Freq(MHz)	Result [MHz]	Limit [MHz]	Verdict
NTNV	DH5	Ant1	Hop	78.208	≤83.5	PASS
	3DH5	Ant1	Hop	78.386	≤83.5	PASS
	AFH_DH5	Ant1	Hop	19.597	≤83.5	PASS
	AFH_3DH5	Ant1	Hop	19.897	≤83.5	PASS
NTLV	DH5	Ant1	Hop	78.215	≤83.5	PASS
	3DH5	Ant1	Hop	78.271	≤83.5	PASS
	AFH_DH5	Ant1	Hop	19.601	≤83.5	PASS
	AFH_3DH5	Ant1	Hop	19.888	≤83.5	PASS
NTHV	DH5	Ant1	Hop	78.287	≤83.5	PASS
	3DH5	Ant1	Hop	78.377	≤83.5	PASS
	AFH_DH5	Ant1	Hop	19.588	≤83.5	PASS
	AFH_3DH5	Ant1	Hop	19.898	≤83.5	PASS

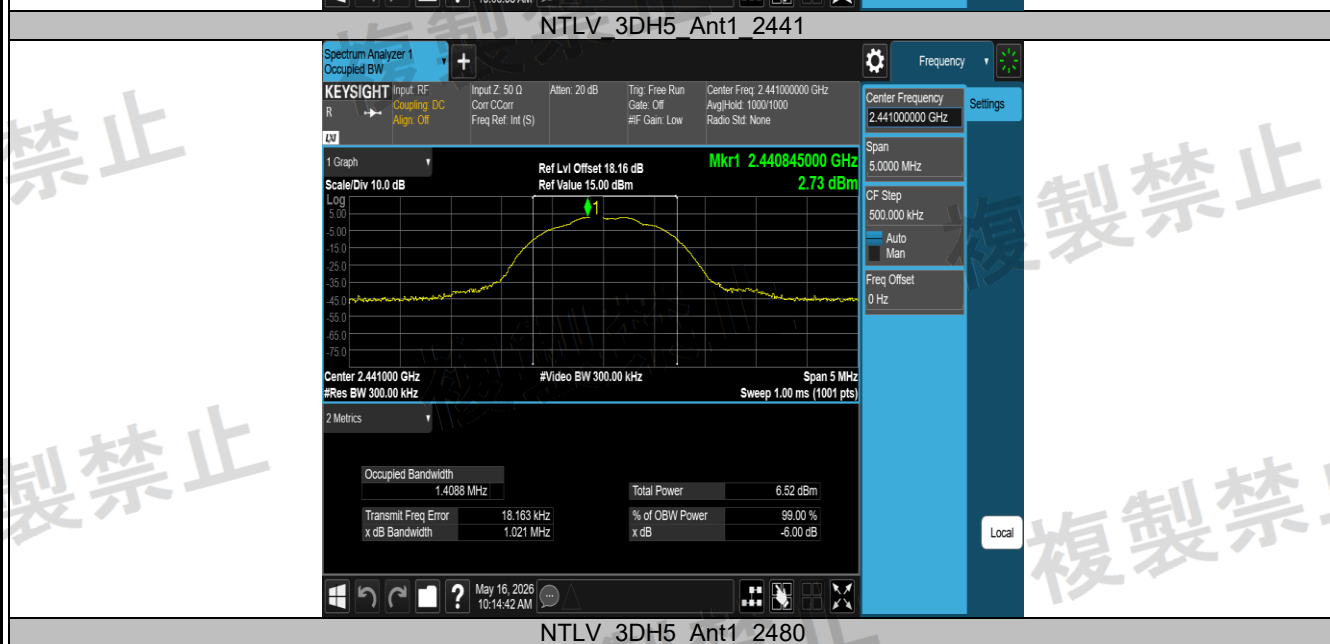
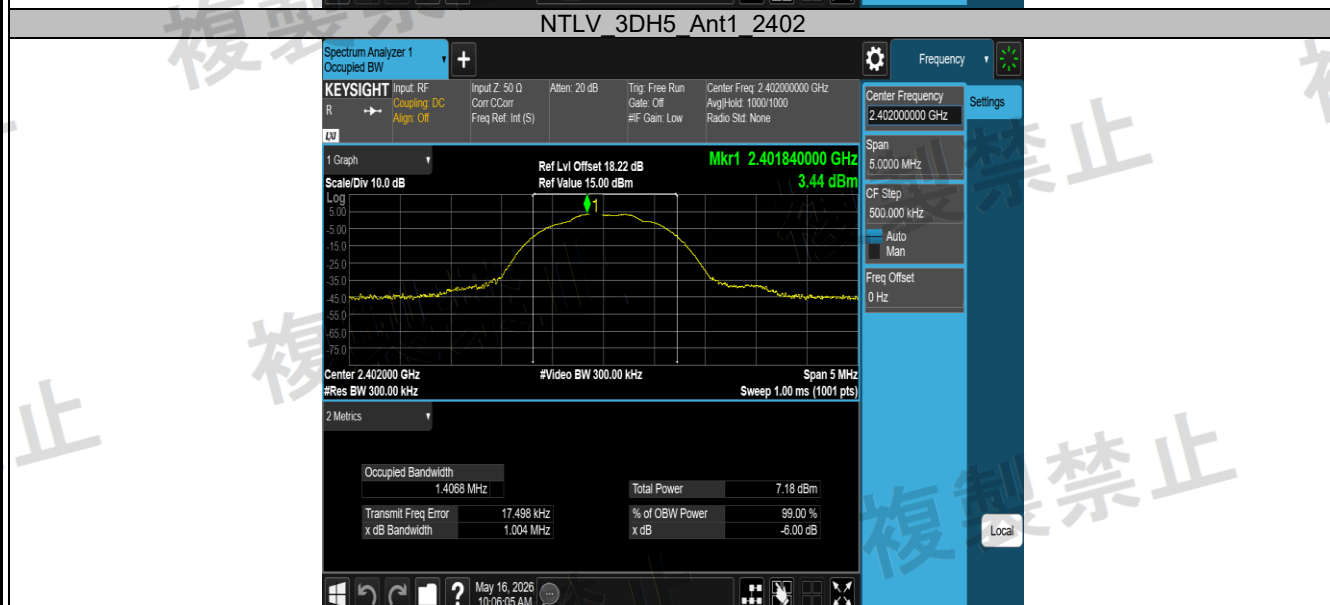
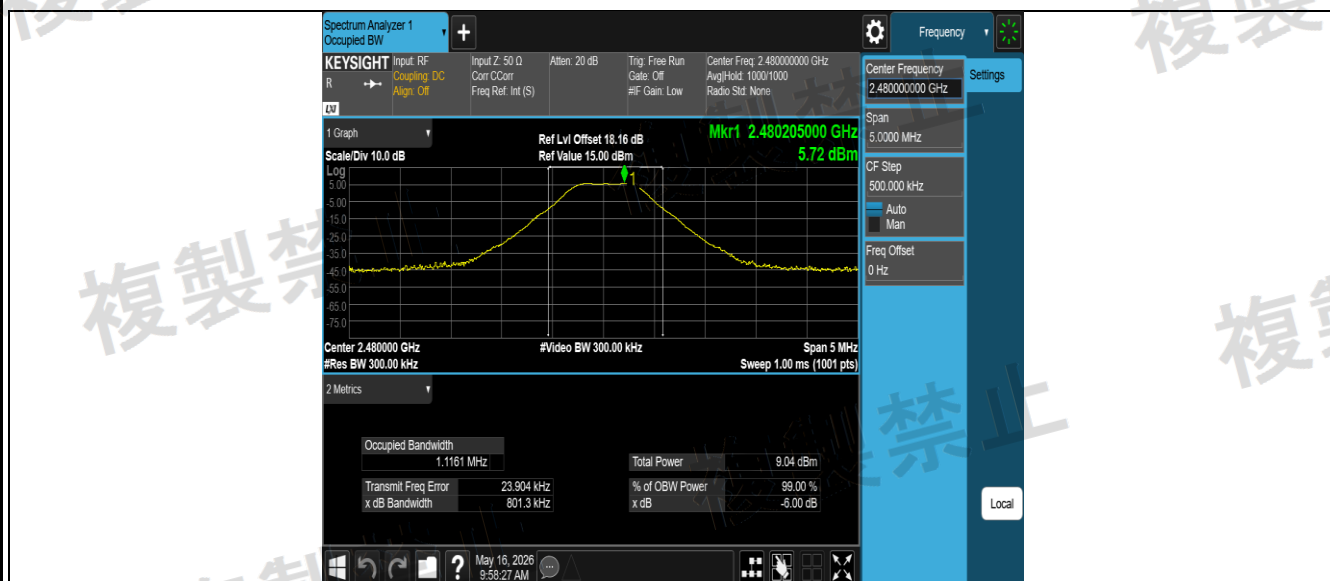


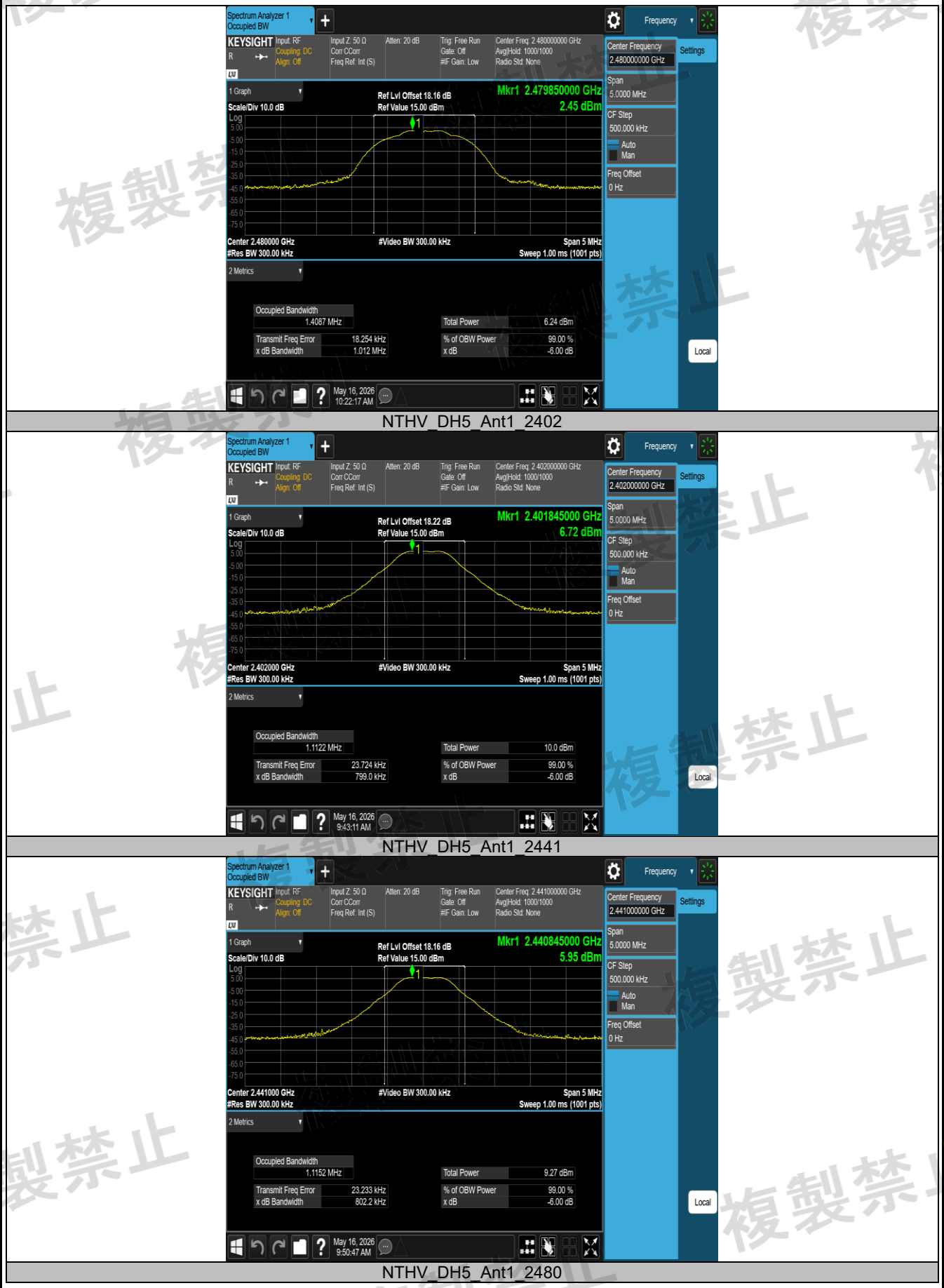
Test Graphs

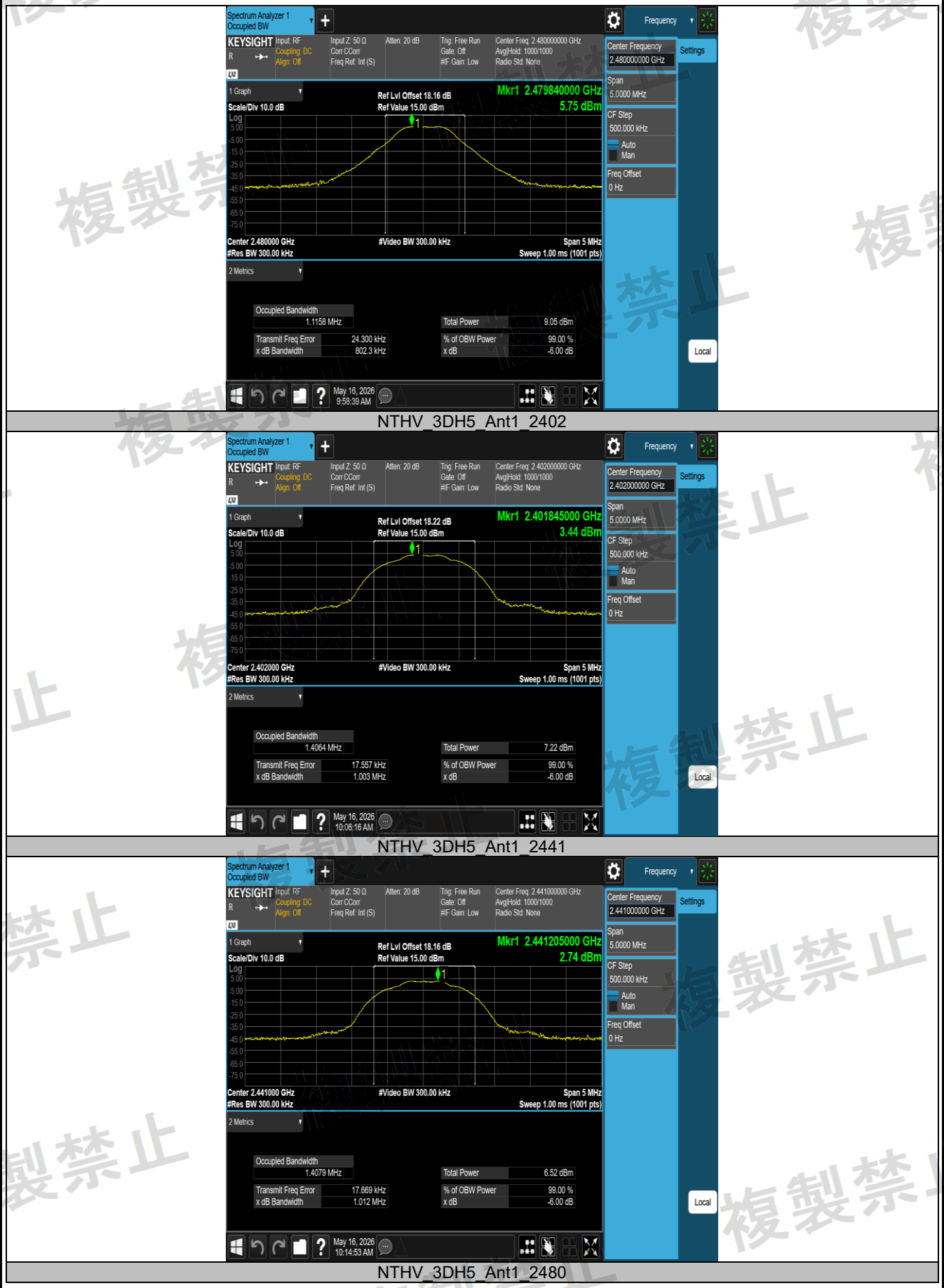


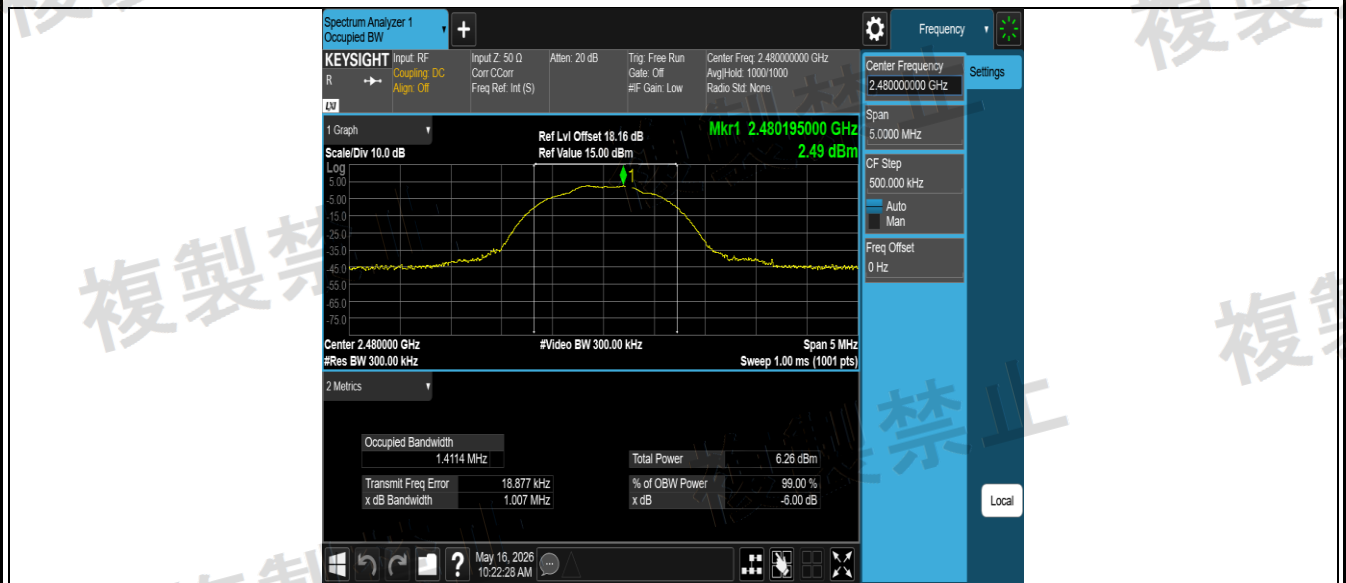




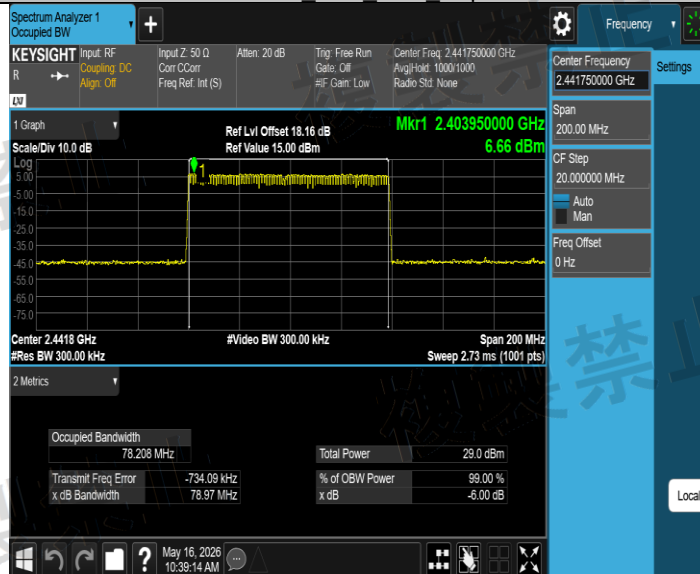




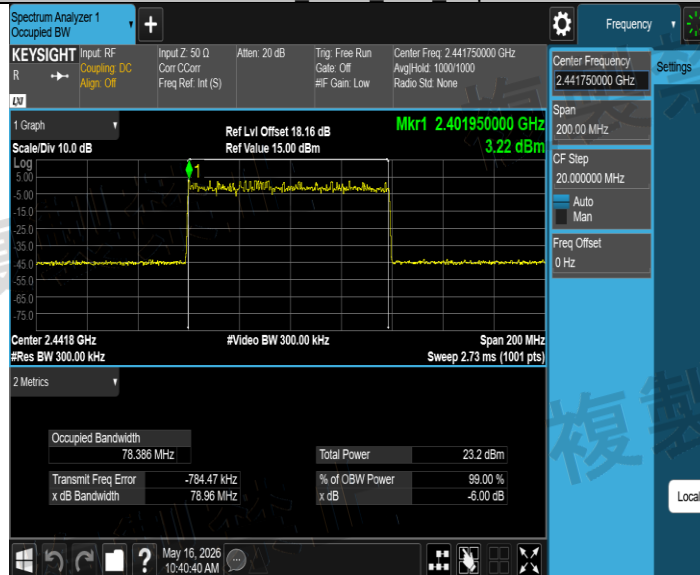




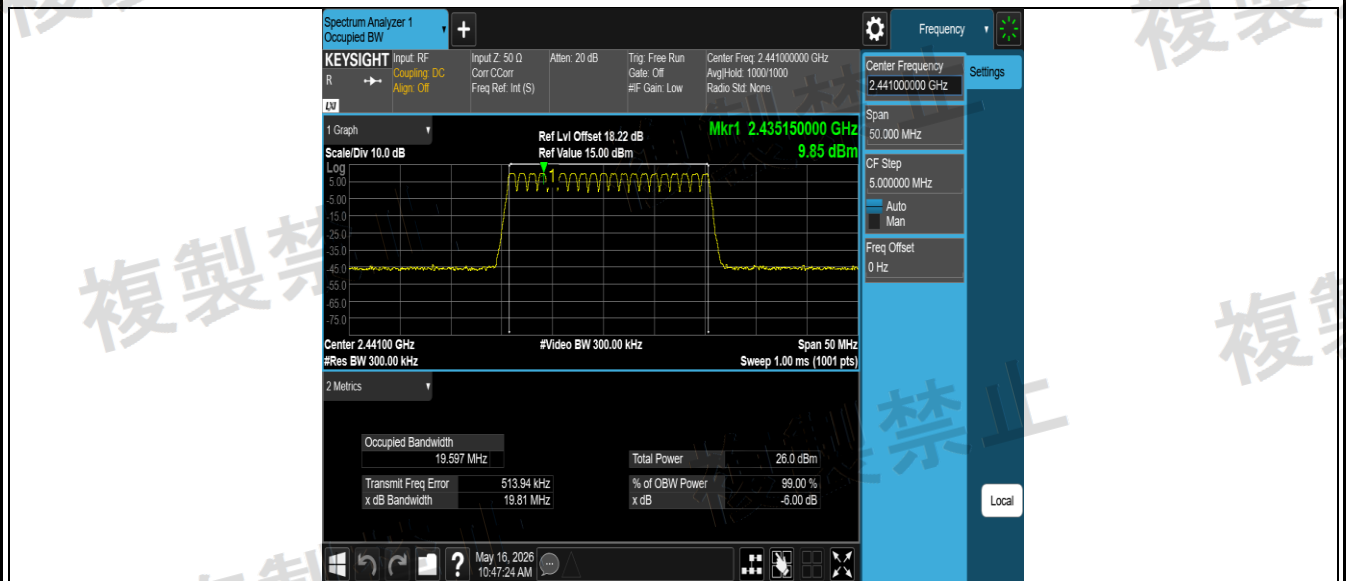
NTNV_DH5_Ant1_Hop



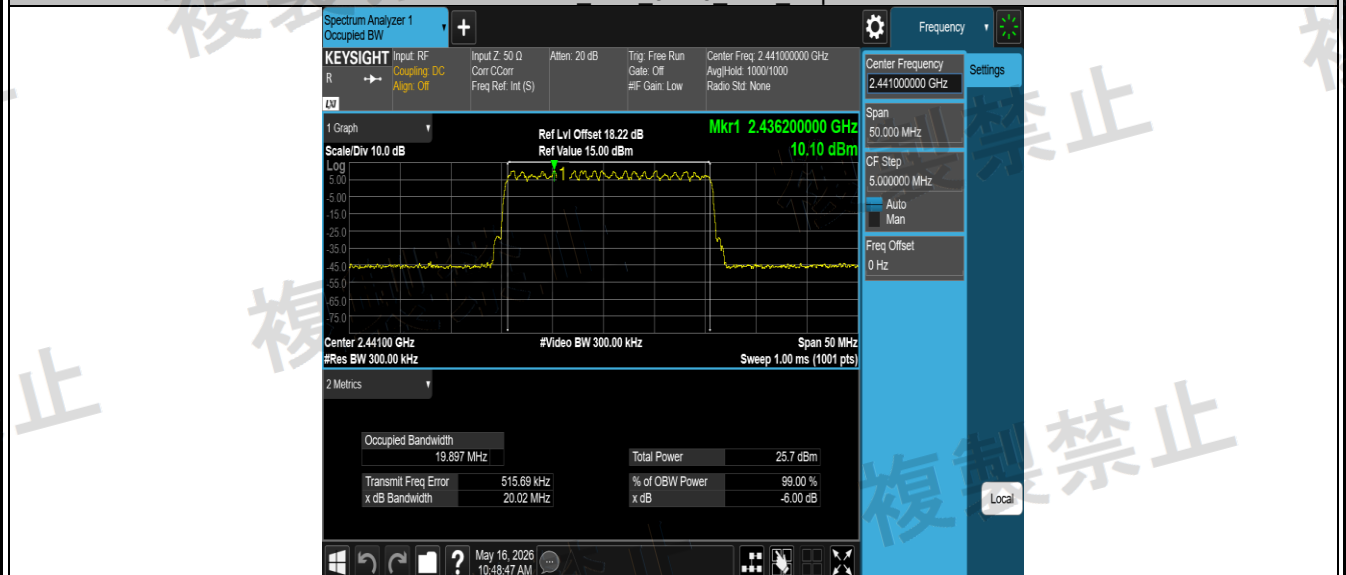
NTNV_3DH5_Ant1_Hop



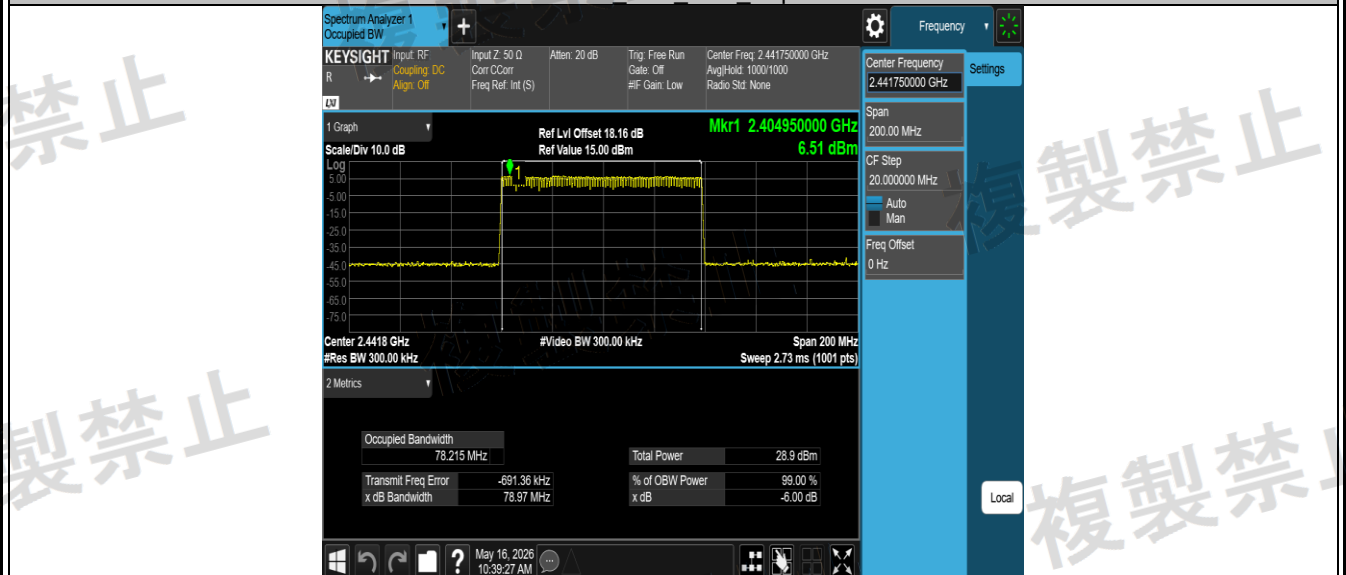
NTNV_AFH_DH5_Ant1_Hop



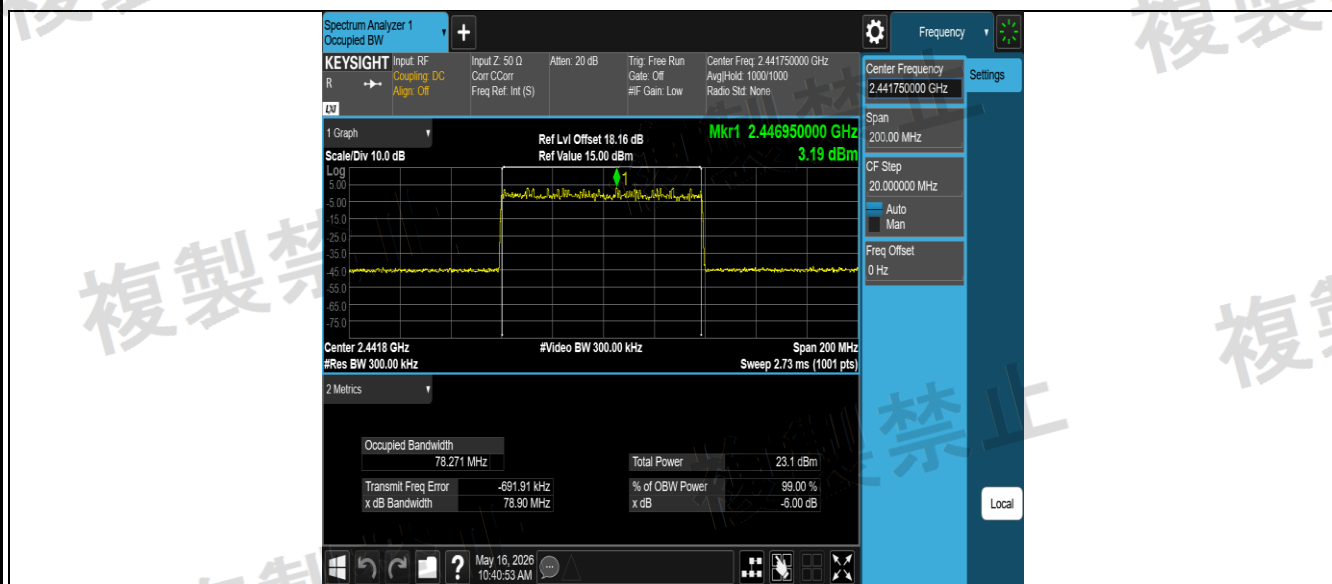
NTNV AFH 3DH5 Ant1 Hop



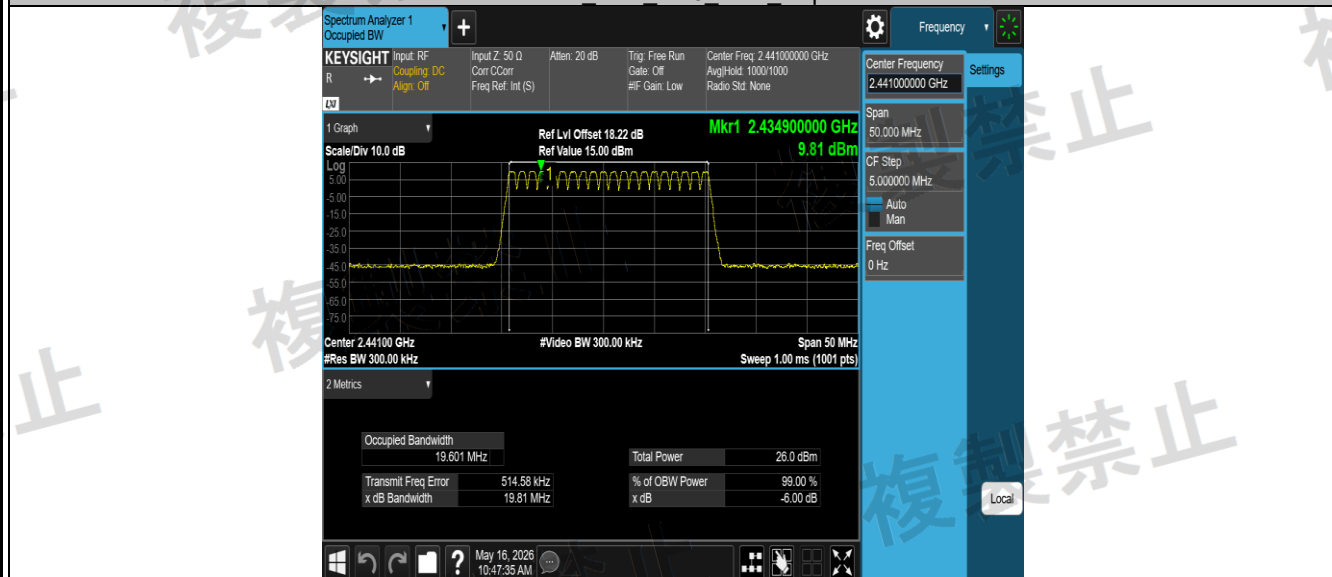
NTLV DH5 Ant1 Hop



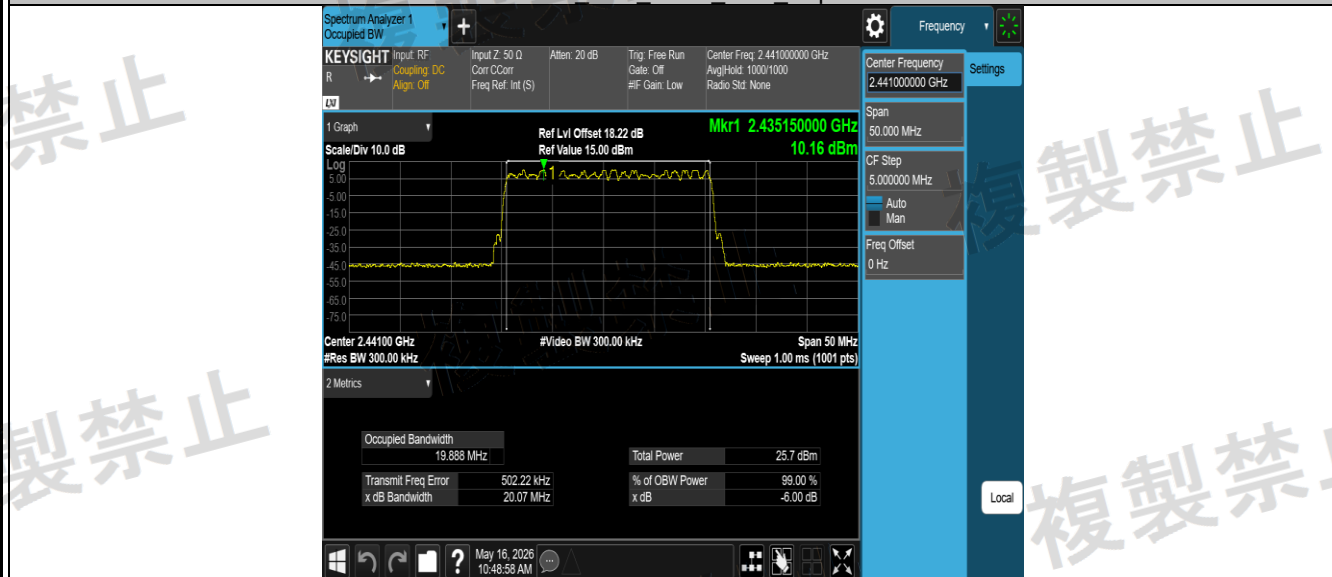
NTLV 3DH5 Ant1 Hop



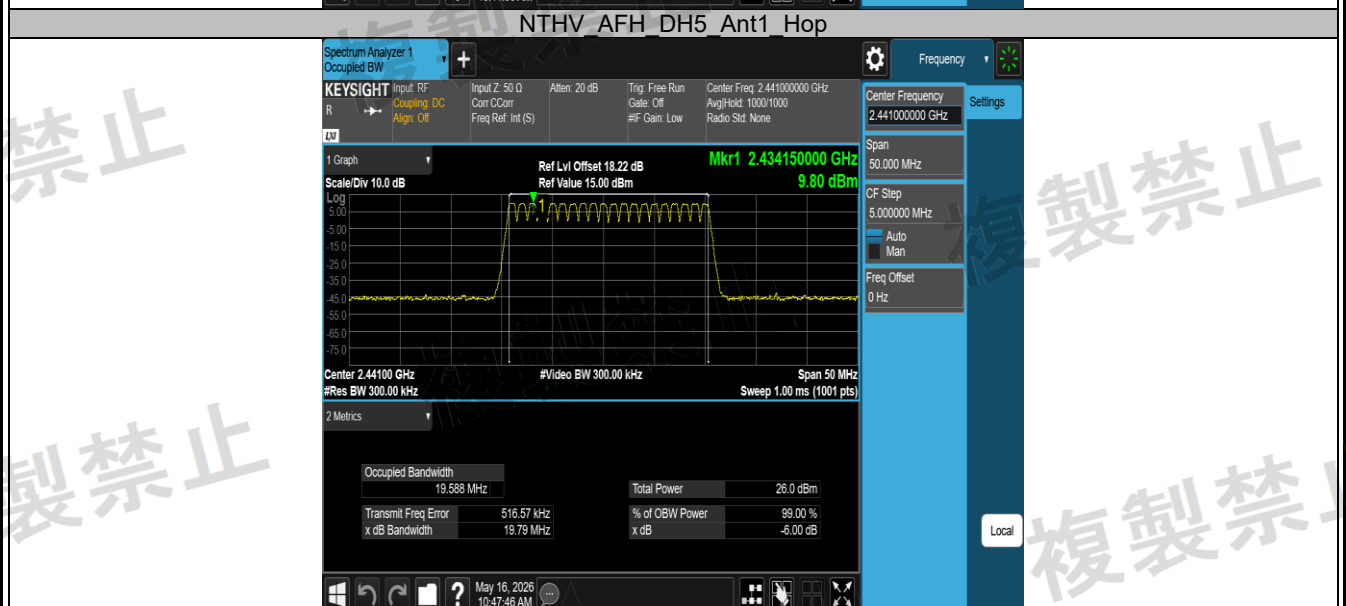
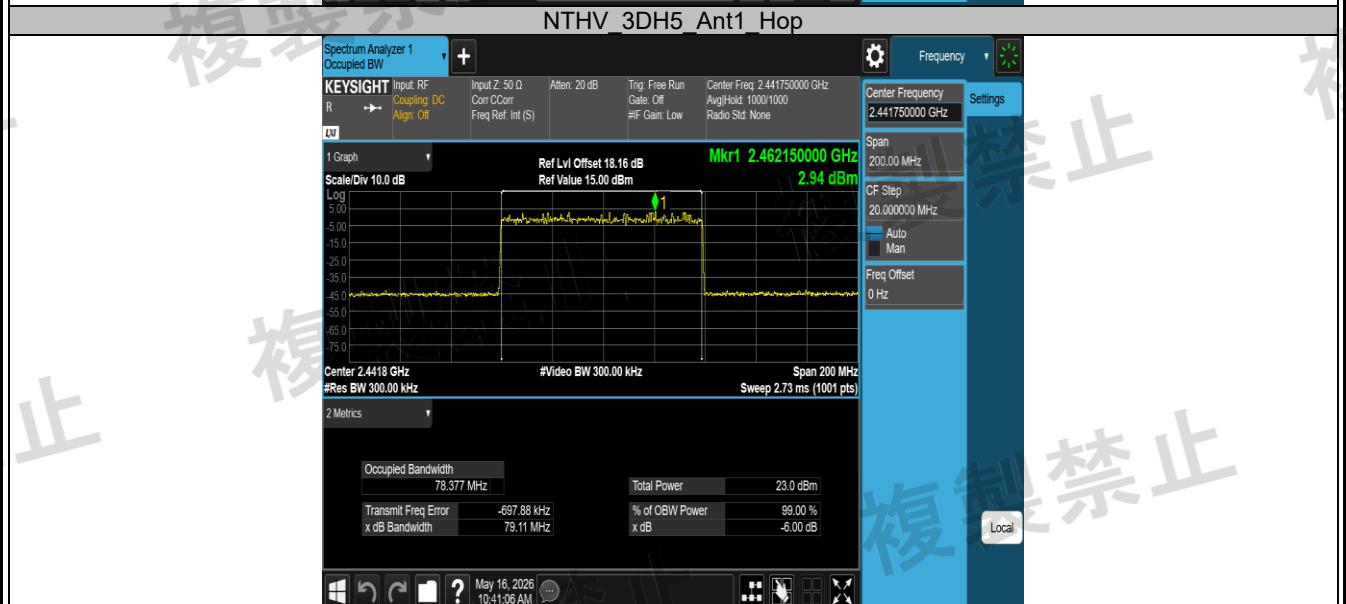
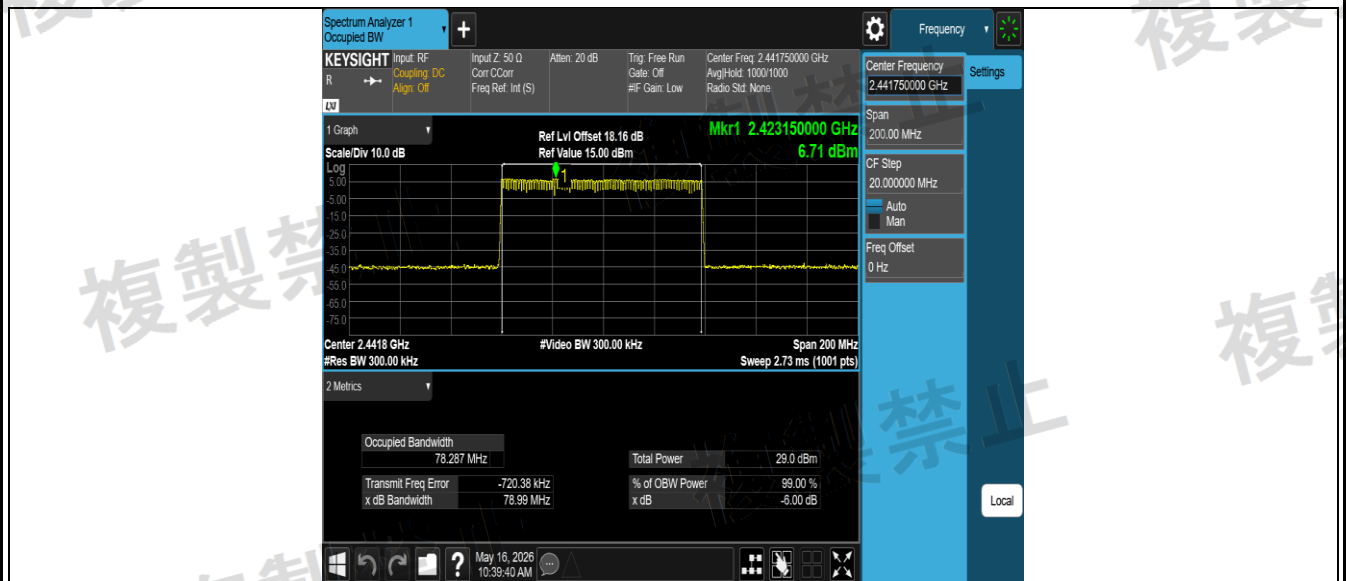
NTLV AFH DH5 Ant1 Hop

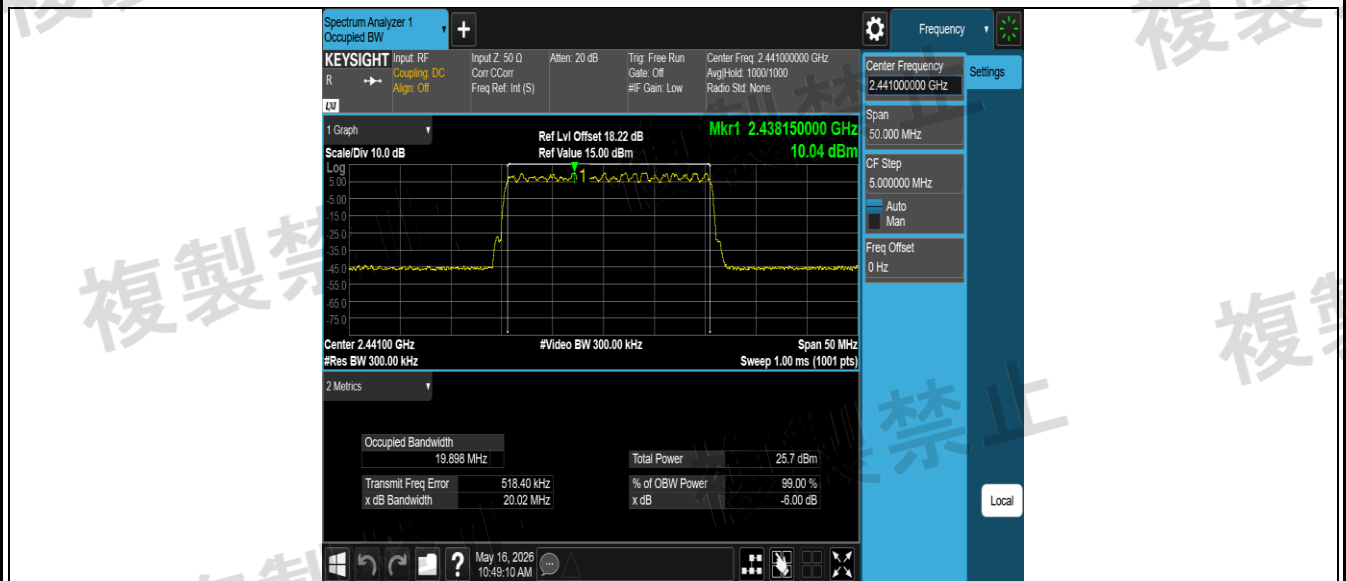


NTLV AFH 3DH5 Ant1 Hop



NTHV DH5 Ant1 Hop



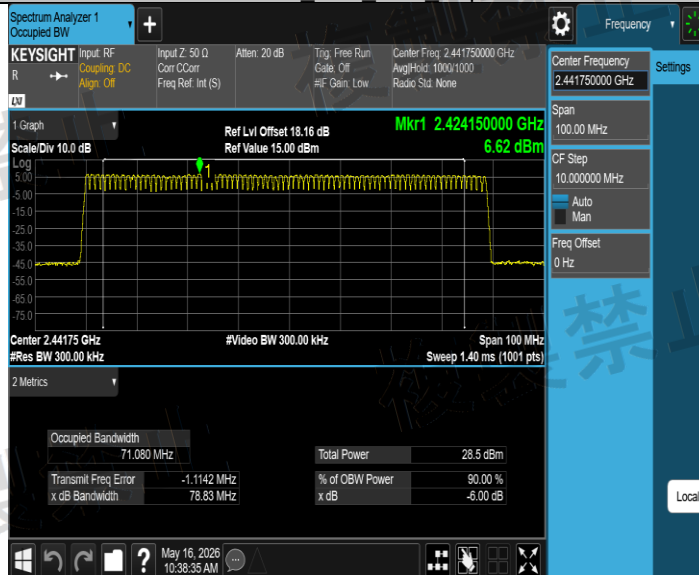


Appendix A.4: Test Results of Spread Bandwidth (90%)*Test Result*

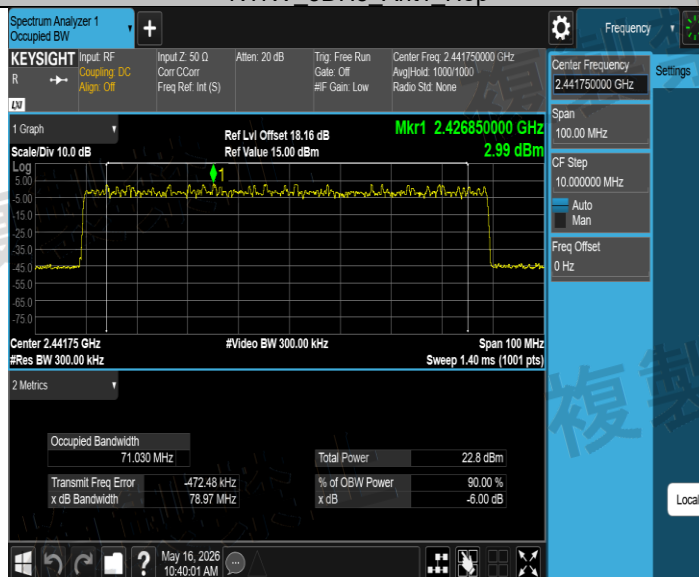
Test Condition	Test Mode	Antenna	Freq(MHz)	Result [MHz]	Limit [MHz]	SpreadFactor	Limit	Verdict
NTNV	DH5	Ant1	Hop	71.080	≥0.5	71.080	>5	PASS
	3DH5	Ant1	Hop	71.030	≥0.5	71.030	>5	PASS
	AFH_DH5	Ant1	Hop	18.037	≥0.5	18.037	>5	PASS
	AFH_3DH5	Ant1	Hop	17.790	≥0.5	17.790	>5	PASS
NTLV	DH5	Ant1	Hop	71.092	≥0.5	71.092	>5	PASS
	3DH5	Ant1	Hop	70.713	≥0.5	70.713	>5	PASS
	AFH_DH5	Ant1	Hop	18.046	≥0.5	18.046	>5	PASS
	AFH_3DH5	Ant1	Hop	18.538	≥0.5	18.538	>5	PASS
NTHV	DH5	Ant1	Hop	70.941	≥0.5	70.941	>5	PASS
	3DH5	Ant1	Hop	71.911	≥0.5	71.911	>5	PASS
	AFH_DH5	Ant1	Hop	18.034	≥0.5	18.034	>5	PASS
	AFH_3DH5	Ant1	Hop	18.272	≥0.5	18.272	>5	PASS

Test Graphs

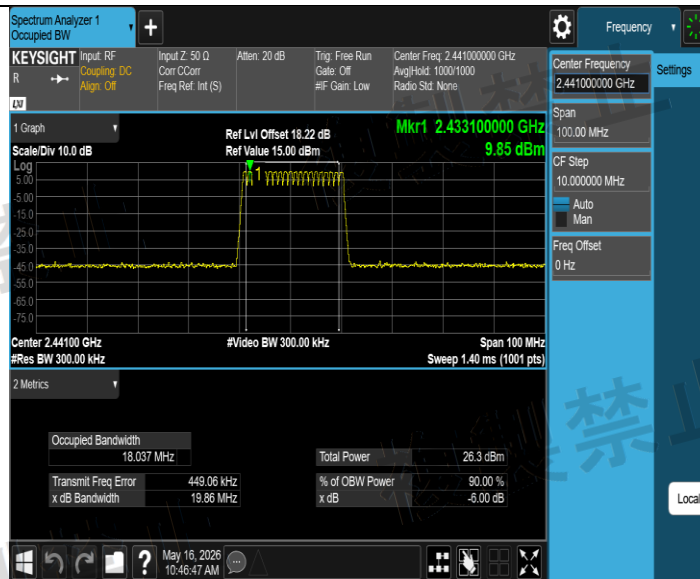
NTNV_DH5_Ant1_Hop



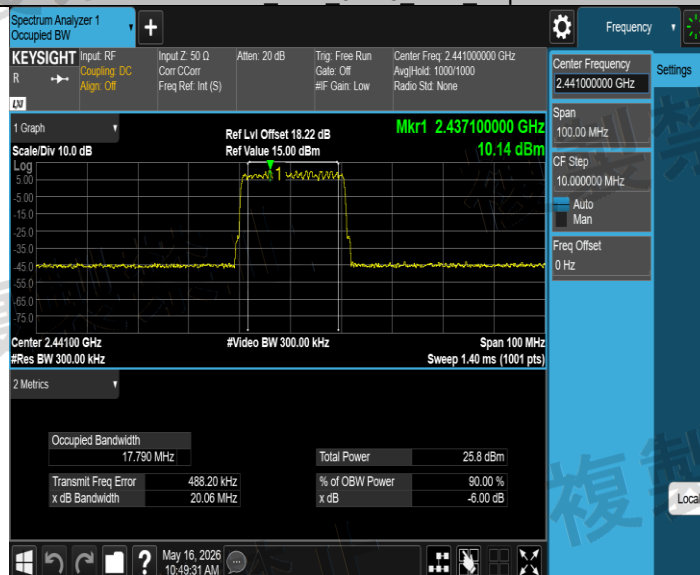
NTNV_3DH5_Ant1_Hop



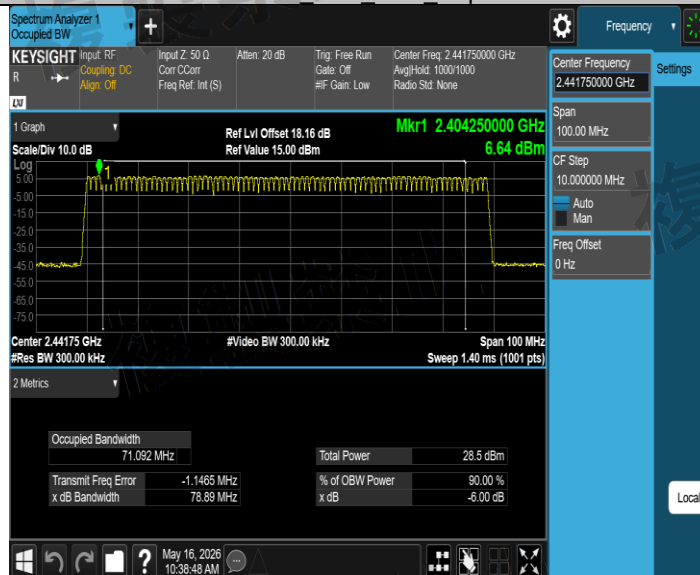
NTNV_AFH_DH5_Ant1_Hop



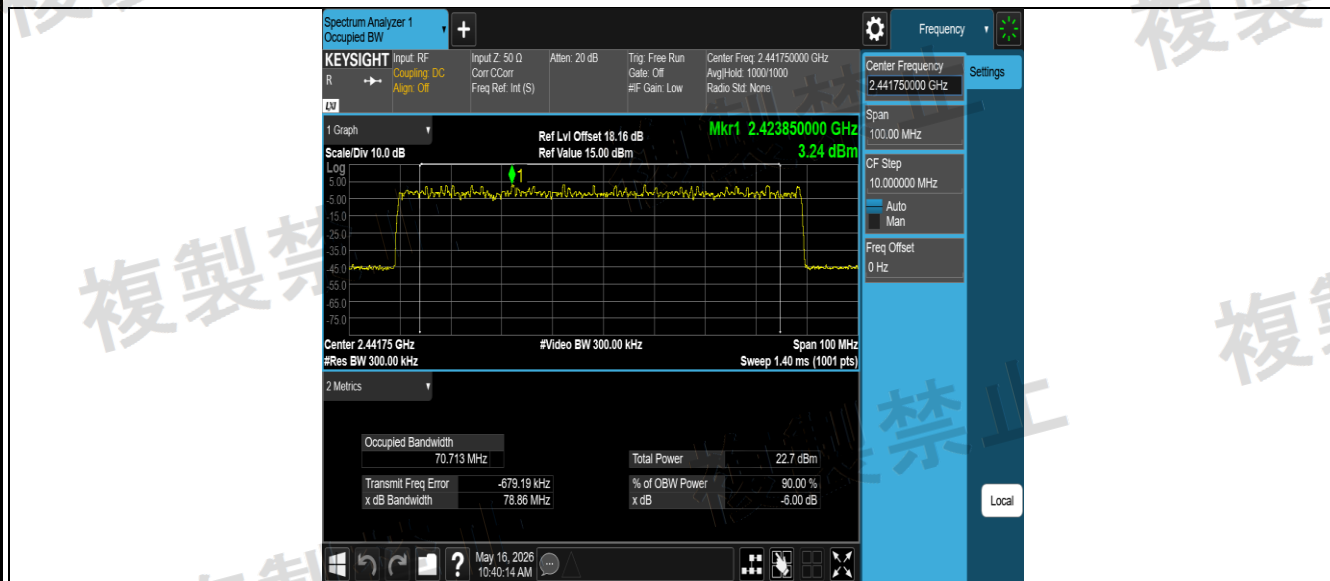
NTNV AFH 3DH5 Ant1 Hop



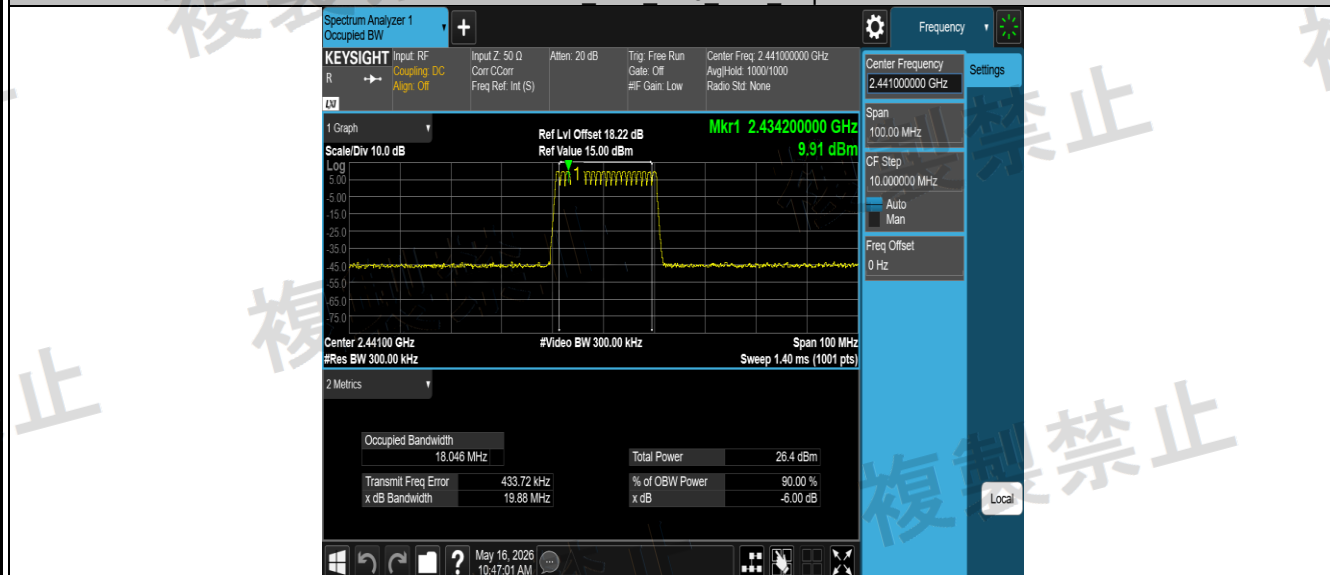
NTLV DH5 Ant1 Hop



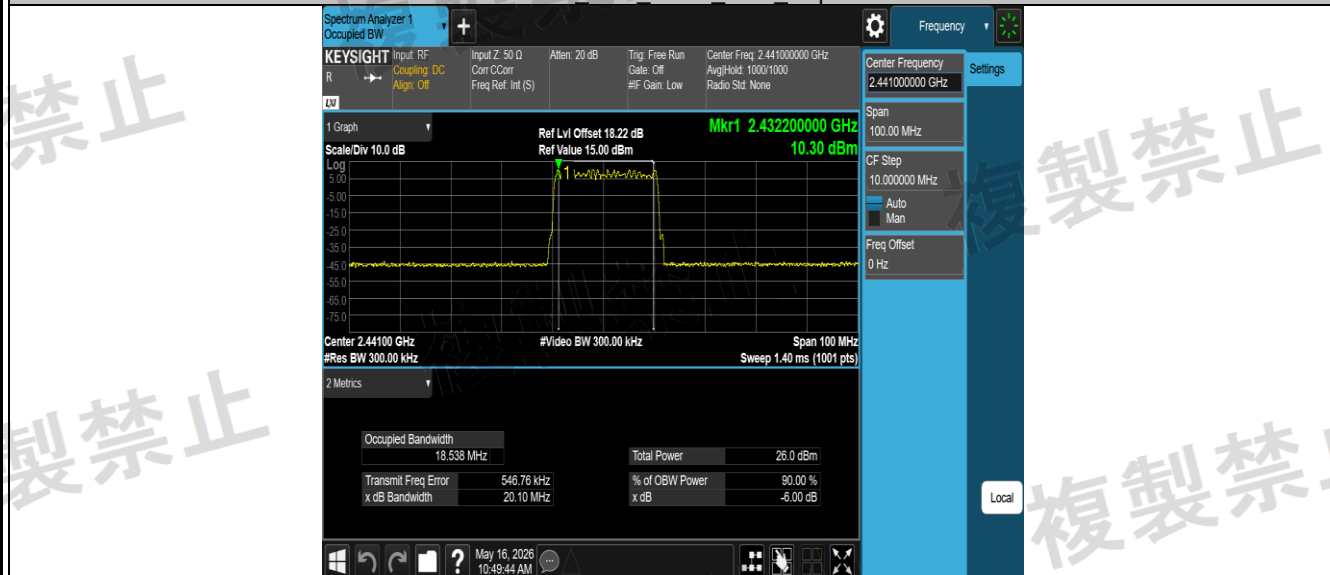
NTLV 3DH5 Ant1 Hop



NTLV AFH DH5 Ant1 Hop

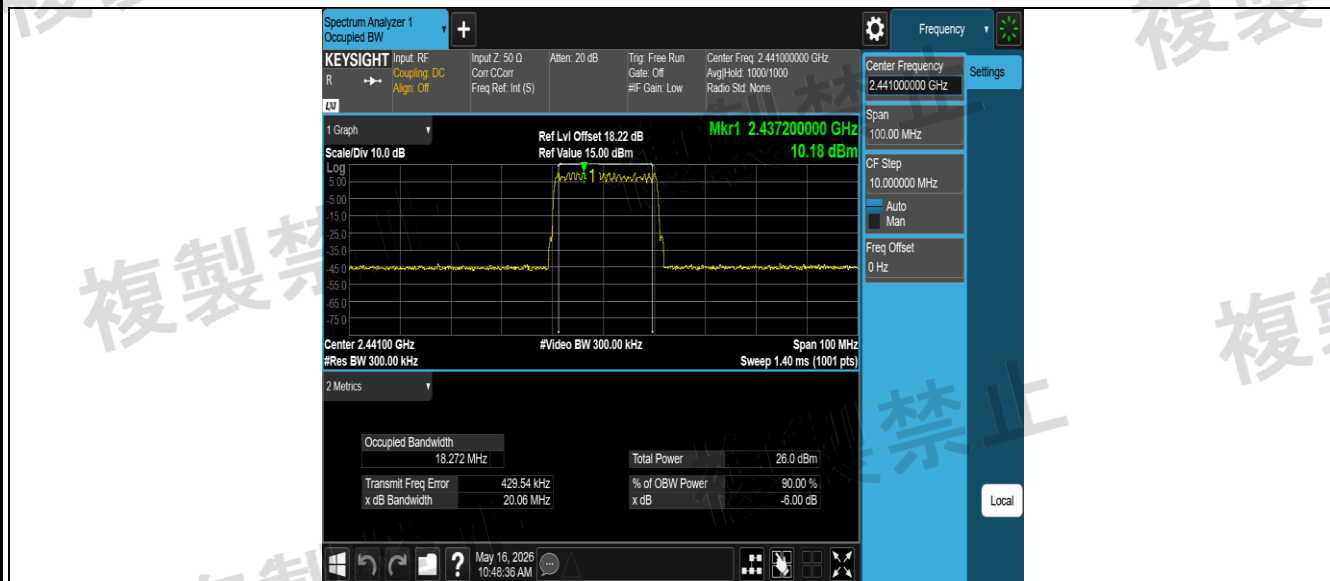


NTLV AFH 3DH5 Ant1 Hop



NTHV DH5 Ant1 Hop





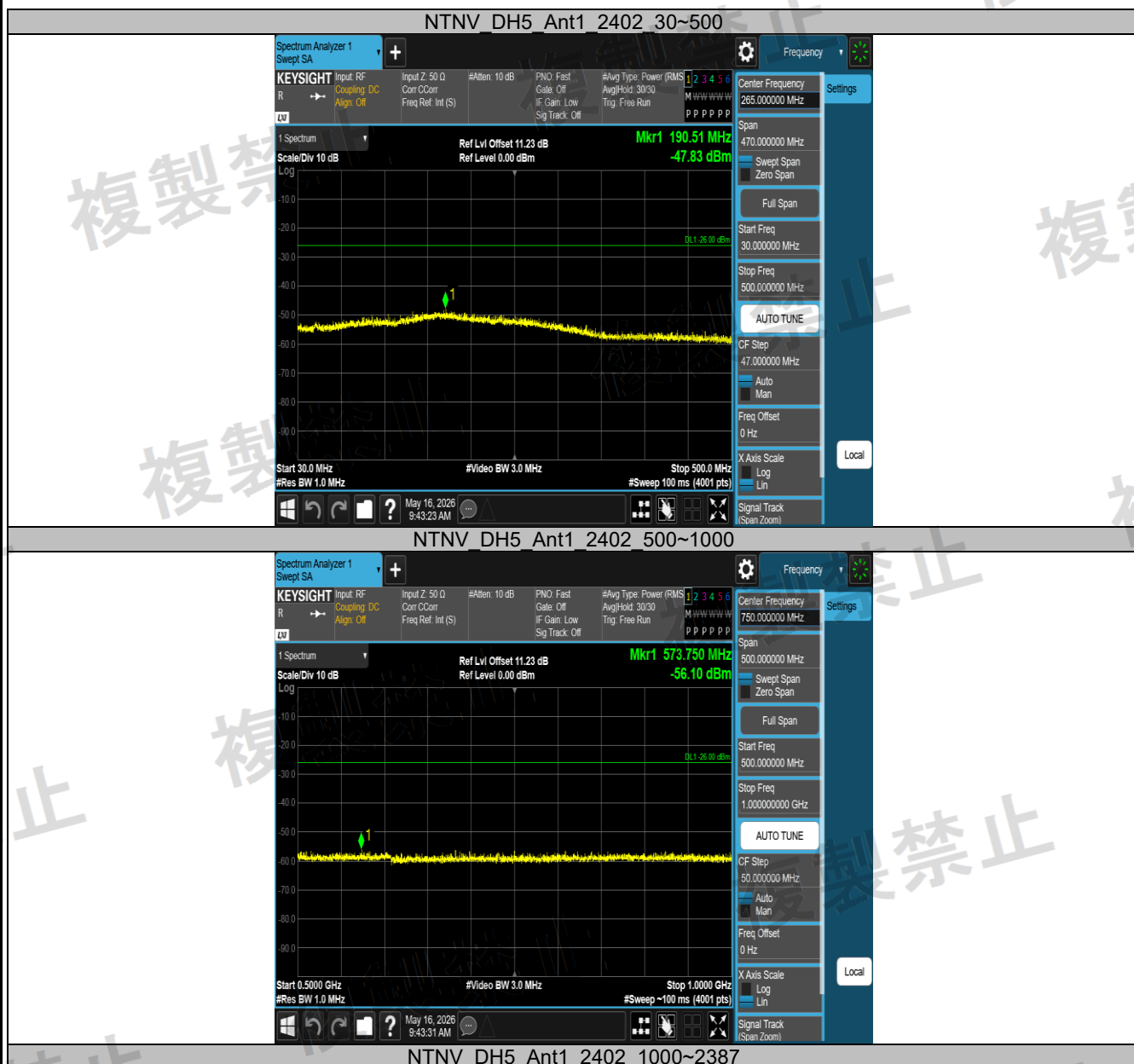
Appendix A.5: Test Results of Spurious Emissions for Transmitter

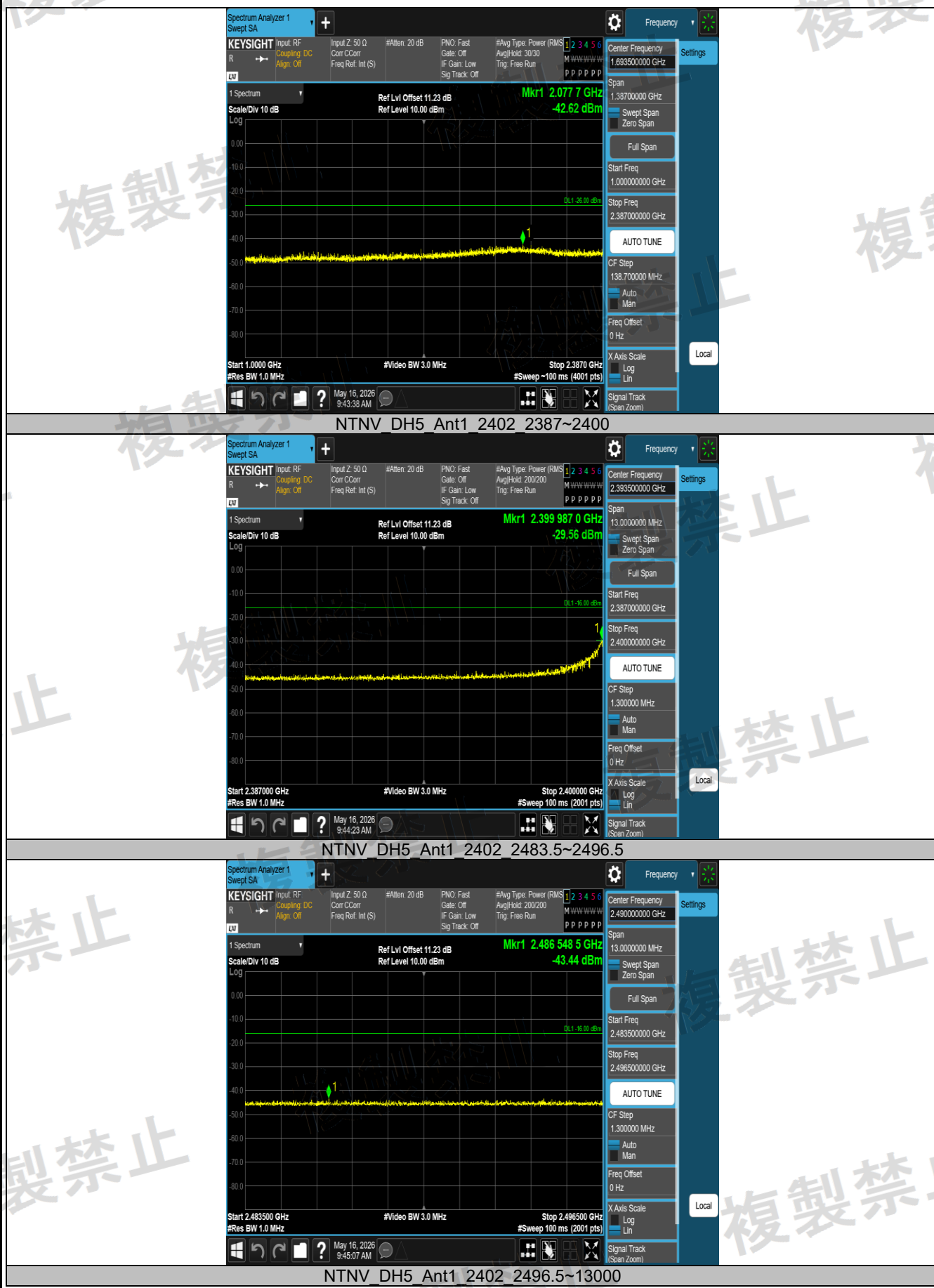
Test Result

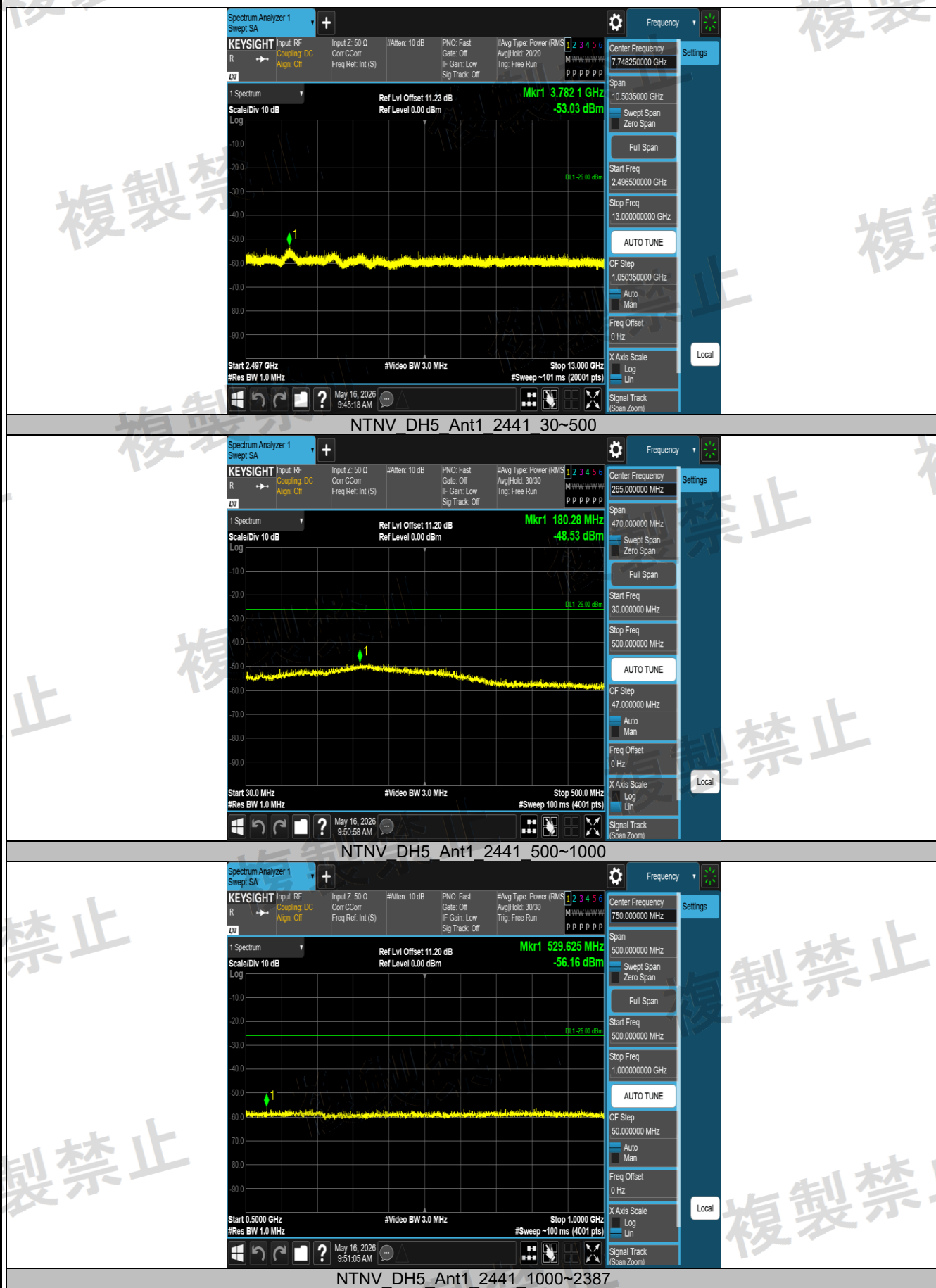
Test Condition	Test Mode	Antenna	Freq(MHz)	Freq.Range [MHz]	Freq. [MHz]	Result [dBm]	Limit [dBm]	Result [μW]	Limit [μW]	Verdict
NTNV	DH5	Ant1	2402	30~500	190.51	-47.84	≤-26	0.01644	≤2.5	PASS
				500~1000	573.75	-56.11	≤-26	0.00245	≤2.5	PASS
				1000~2387	2077.70	-42.62	≤-26	0.05470	≤2.5	PASS
				2387~2400	2399.99	-29.56	≤-16	1.10662	≤25	PASS
				2483.5~2496.5	2486.55	-43.44	≤-16	0.04529	≤25	PASS
				2496.5~13000	3782.13	-53.03	≤-26	0.00498	≤2.5	PASS
		Ant1	2441	30~500	180.28	-48.53	≤-26	0.01403	≤2.5	PASS
				500~1000	529.63	-56.16	≤-26	0.00242	≤2.5	PASS
				1000~2387	2001.76	-42.74	≤-26	0.05321	≤2.5	PASS
				2387~2400	2390.45	-42.98	≤-16	0.05035	≤25	PASS
				2483.5~2496.5	2493.45	-43.56	≤-16	0.04406	≤25	PASS
				2496.5~13000	4881.84	-52.56	≤-26	0.00555	≤2.5	PASS
		Ant1	2480	30~500	192.27	-47.97	≤-26	0.01596	≤2.5	PASS
				500~1000	895.25	-55.50	≤-26	0.00282	≤2.5	PASS
				1000~2387	2102.67	-42.93	≤-26	0.05093	≤2.5	PASS
				2387~2400	2399.40	-43.87	≤-16	0.04102	≤25	PASS
				2483.5~2496.5	2483.71	-41.72	≤-16	0.06730	≤25	PASS
				2496.5~13000	3748.52	-51.51	≤-26	0.00706	≤2.5	PASS
	3DH5	Ant1	2402	30~500	174.17	-48.16	≤-26	0.01528	≤2.5	PASS
				500~1000	739.00	-56.29	≤-26	0.00235	≤2.5	PASS
				1000~2387	2011.82	-41.89	≤-26	0.06471	≤2.5	PASS
				2387~2400	2400.00	-30.86	≤-16	0.82035	≤25	PASS
				2483.5~2496.5	2492.68	-43.43	≤-16	0.04539	≤25	PASS
				2496.5~13000	3808.91	-52.69	≤-26	0.00538	≤2.5	PASS
		Ant1	2441	30~500	188.39	-48.23	≤-26	0.01503	≤2.5	PASS
				500~1000	599.88	-55.80	≤-26	0.00263	≤2.5	PASS
				1000~2387	2025.69	-42.23	≤-26	0.05984	≤2.5	PASS
				2387~2400	2389.87	-43.25	≤-16	0.04732	≤25	PASS
				2483.5~2496.5	2493.82	-43.32	≤-16	0.04656	≤25	PASS
				2496.5~13000	3795.78	-53.48	≤-26	0.00449	≤2.5	PASS
		Ant1	2480	30~500	179.34	-48.36	≤-26	0.01459	≤2.5	PASS
				500~1000	892.00	-55.90	≤-26	0.00257	≤2.5	PASS
				1000~2387	2140.11	-42.65	≤-26	0.05433	≤2.5	PASS
				2387~2400	2390.34	-43.34	≤-16	0.04634	≤25	PASS
				2483.5~2496.5	2485.00	-42.80	≤-16	0.05248	≤25	PASS
				2496.5~13000	3495.91	-51.09	≤-26	0.00778	≤2.5	PASS
NTLV	DH5	Ant1	2402	30~500	201.90	-47.64	≤-26	0.01722	≤2.5	PASS
				500~1000	599.75	-56.02	≤-26	0.00250	≤2.5	PASS
				1000~2387	2043.37	-42.60	≤-26	0.05495	≤2.5	PASS
				2387~2400	2400.00	-29.34	≤-16	1.16413	≤25	PASS
				2483.5~2496.5	2489.45	-43.13	≤-16	0.04864	≤25	PASS
				2496.5~13000	3799.98	-52.60	≤-26	0.00550	≤2.5	PASS
		Ant1	2441	30~500	188.16	-48.18	≤-26	0.01521	≤2.5	PASS
				500~1000	882.00	-56.06	≤-26	0.00248	≤2.5	PASS
				1000~2387	2108.21	-42.61	≤-26	0.05483	≤2.5	PASS
				2387~2400	2387.36	-43.60	≤-16	0.04365	≤25	PASS
				2483.5~2496.5	2487.21	-43.47	≤-16	0.04498	≤25	PASS
				2496.5~13000	3808.91	-52.55	≤-26	0.00556	≤2.5	PASS
		Ant1	2480	30~500	189.68	-48.50	≤-26	0.01413	≤2.5	PASS
				500~1000	521.88	-55.98	≤-26	0.00252	≤2.5	PASS
				1000~2387	2056.20	-41.97	≤-26	0.06353	≤2.5	PASS
				2387~2400	2390.35	-43.44	≤-16	0.04529	≤25	PASS
				2483.5~2496.5	2484.09	-41.69	≤-16	0.06776	≤25	PASS
				2496.5~13000	4959.57	-51.69	≤-26	0.00678	≤2.5	PASS
	3DH5	Ant1	2402	30~500	175.35	-47.84	≤-26	0.01644	≤2.5	PASS
				500~1000	555.38	-56.35	≤-26	0.00232	≤2.5	PASS
				1000~2387	2037.82	-42.61	≤-26	0.05483	≤2.5	PASS

				2387~2400	2400.00	-30.98	≤-16	0.79799	≤25	PASS
				2483.5~2496.5	2493.02	-43.37	≤-16	0.04603	≤25	PASS
				2496.5~13000	3734.86	-53.22	≤-26	0.00476	≤2.5	PASS
			2441	30~500	189.21	-48.00	≤-26	0.01585	≤2.5	PASS
				500~1000	731.75	-56.37	≤-26	0.00231	≤2.5	PASS
				1000~2387	2080.82	-42.01	≤-26	0.06295	≤2.5	PASS
				2387~2400	2398.58	-43.34	≤-16	0.04634	≤25	PASS
				2483.5~2496.5	2495.63	-43.46	≤-16	0.04508	≤25	PASS
				2496.5~13000	3731.19	-53.27	≤-26	0.00471	≤2.5	PASS
			2480	30~500	189.68	-48.55	≤-26	0.01396	≤2.5	PASS
				500~1000	566.50	-56.27	≤-26	0.00236	≤2.5	PASS
				1000~2387	2066.26	-42.06	≤-26	0.06223	≤2.5	PASS
				2387~2400	2397.10	-43.62	≤-16	0.04345	≤25	PASS
				2483.5~2496.5	2483.86	-42.66	≤-16	0.05420	≤25	PASS
				2496.5~13000	3775.83	-53.49	≤-26	0.00448	≤2.5	PASS
NTHV	DH5	Ant1	2402	30~500	182.99	-48.10	≤-26	0.01549	≤2.5	PASS
				500~1000	731.38	-56.03	≤-26	0.00249	≤2.5	PASS
				1000~2387	1994.83	-42.79	≤-26	0.05260	≤2.5	PASS
				2387~2400	2399.99	-29.50	≤-16	1.12202	≤25	PASS
				2483.5~2496.5	2490.31	-43.48	≤-16	0.04487	≤25	PASS
				2496.5~13000	3770.05	-53.00	≤-26	0.00501	≤2.5	PASS
			2441	30~500	180.05	-48.54	≤-26	0.01400	≤2.5	PASS
				500~1000	534.88	-56.05	≤-26	0.00248	≤2.5	PASS
				1000~2387	2110.64	-42.45	≤-26	0.05689	≤2.5	PASS
				2387~2400	2393.53	-43.17	≤-16	0.04819	≤25	PASS
				2483.5~2496.5	2494.49	-43.32	≤-16	0.04656	≤25	PASS
				2496.5~13000	3794.21	-53.43	≤-26	0.00454	≤2.5	PASS
			2480	30~500	180.28	-47.62	≤-26	0.01730	≤2.5	PASS
				500~1000	936.25	-55.57	≤-26	0.00277	≤2.5	PASS
				1000~2387	2033.66	-42.92	≤-26	0.05105	≤2.5	PASS
				2387~2400	2398.76	-43.53	≤-16	0.04436	≤25	PASS
				2483.5~2496.5	2483.71	-42.10	≤-16	0.06166	≤25	PASS
				2496.5~13000	4960.10	-51.25	≤-26	0.00750	≤2.5	PASS
	3DH5	Ant1	2402	30~500	187.33	-47.74	≤-26	0.01683	≤2.5	PASS
				500~1000	923.25	-56.34	≤-26	0.00232	≤2.5	PASS
				1000~2387	1949.75	-42.81	≤-26	0.05236	≤2.5	PASS
				2387~2400	2400.00	-30.86	≤-16	0.82035	≤25	PASS
				2483.5~2496.5	2489.48	-43.28	≤-16	0.04699	≤25	PASS
				2496.5~13000	3811.01	-53.73	≤-26	0.00424	≤2.5	PASS
			2441	30~500	202.14	-48.17	≤-26	0.01524	≤2.5	PASS
				500~1000	893.75	-55.20	≤-26	0.00302	≤2.5	PASS
				1000~2387	2044.06	-42.63	≤-26	0.05458	≤2.5	PASS
				2387~2400	2391.78	-43.60	≤-16	0.04365	≤25	PASS
				2483.5~2496.5	2493.85	-43.13	≤-16	0.04864	≤25	PASS
				2496.5~13000	3811.54	-53.49	≤-26	0.00448	≤2.5	PASS
			2480	30~500	192.03	-48.19	≤-26	0.01517	≤2.5	PASS
				500~1000	597.38	-55.49	≤-26	0.00282	≤2.5	PASS
				1000~2387	2030.54	-42.55	≤-26	0.05559	≤2.5	PASS
				2387~2400	2394.38	-42.76	≤-16	0.05297	≤25	PASS
				2483.5~2496.5	2483.62	-42.87	≤-16	0.05164	≤25	PASS
				2496.5~13000	3815.74	-52.91	≤-26	0.00512	≤2.5	PASS

Test Graphs



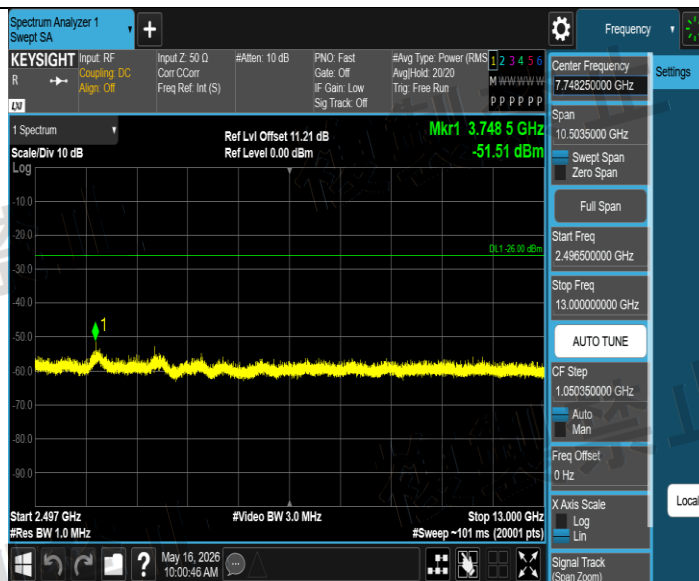




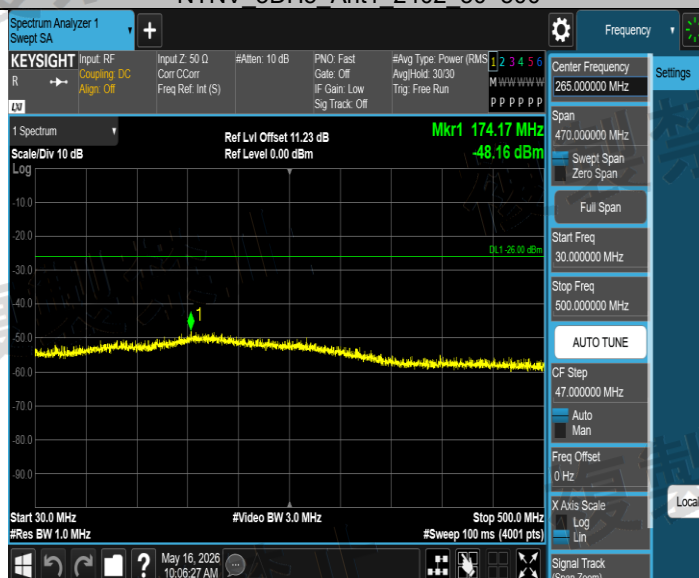




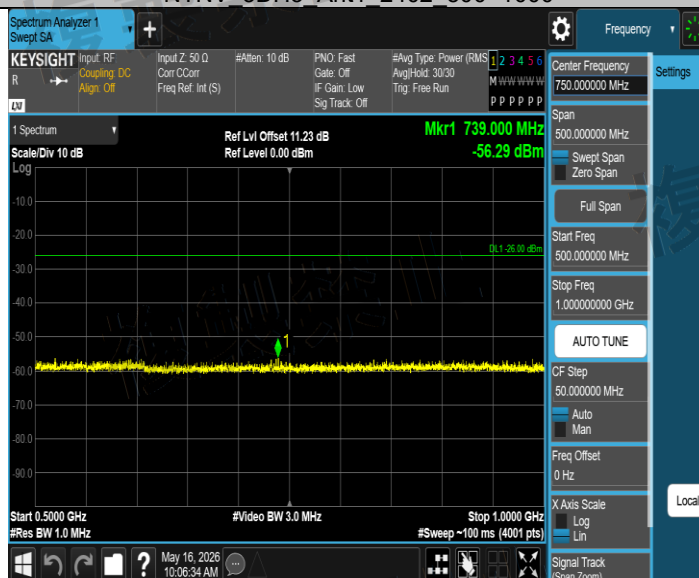




NTNV 3DH5 Ant1 2402 30~500



NTNV 3DH5 Ant1 2402 500~1000



NTNV 3DH5 Ant1 2402 1000~2387



