



Appendix A for BT Test Data

Product Name: Portable Label Printer

Test Model: GG-D210

Environmental Conditions

Temperature:	23.5°C
Relative Humidity:	52.3%
ATM Pressure:	100.0 kPa
Test Engineer:	Jerry Chu
Supervised by:	Nick Peng



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A.1 Frequency_Error

Test Result

TestCondition	TestMode	Antenna	Frequency [MHz]	Result[ppm]	Limit[ppm]	Verdict
NTNV	Frequency_Error	Ant1	2402	0.00000	±50	PASS
			2441	0.00000	±50	PASS
			2480	0.00000	±50	PASS

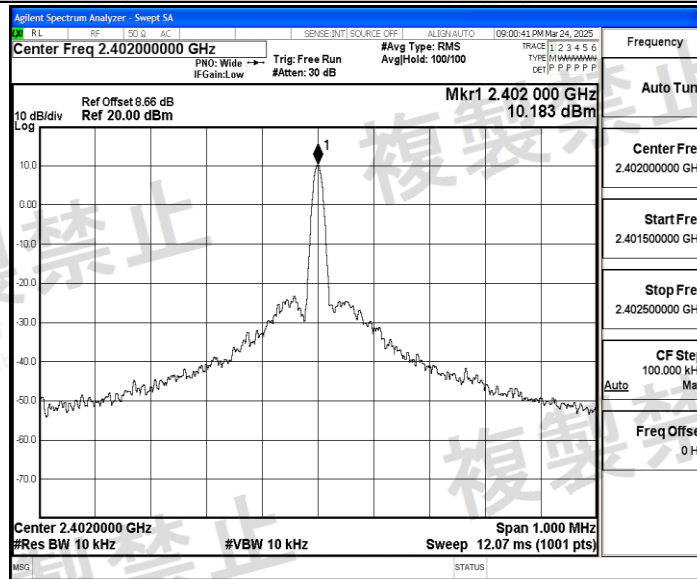


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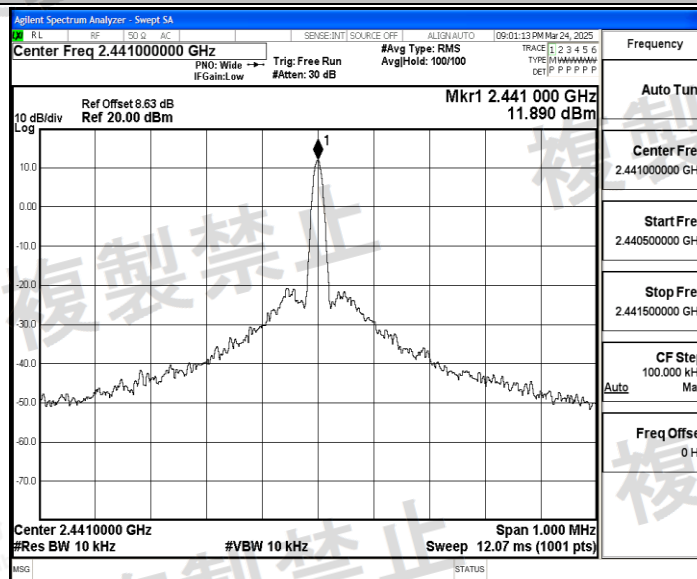


Test Graphs

NTNV_Ant1_2402

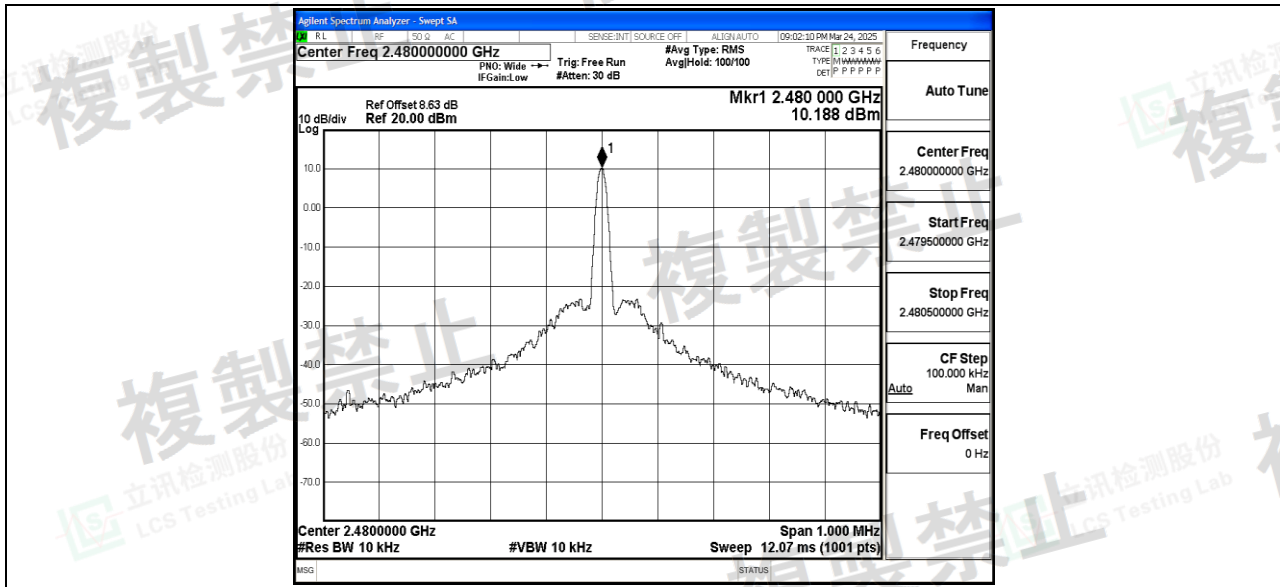


NTNV_Ant1_2441



NTNV_Ant1_2480







A.2 Antenna Power

Test Result

Test Voltage				Normal Voltage			
Mode	Declared power	Average Result	Average Result	Result	Limit	Tolerance	Limit
	(mW/MHz)	(dBm)	(mW)	(mW/MHz)	(mW/MHz)	/	/
Hopping-Tx (1Mbps)	0.03	0.98	1.253	0.024	3	-20.00%	+20%
Hopping-Tx (2Mbps)	0.03	1.04	1.271	0.024	3	-20.00%	+20%
Hopping-Tx (3Mbps)	0.03	0.96	1.247	0.023	3	-23.33%	+20%
Conclusion: PASS							

Result power= Average value / (Duty Cycle * Spreading bandwidth)

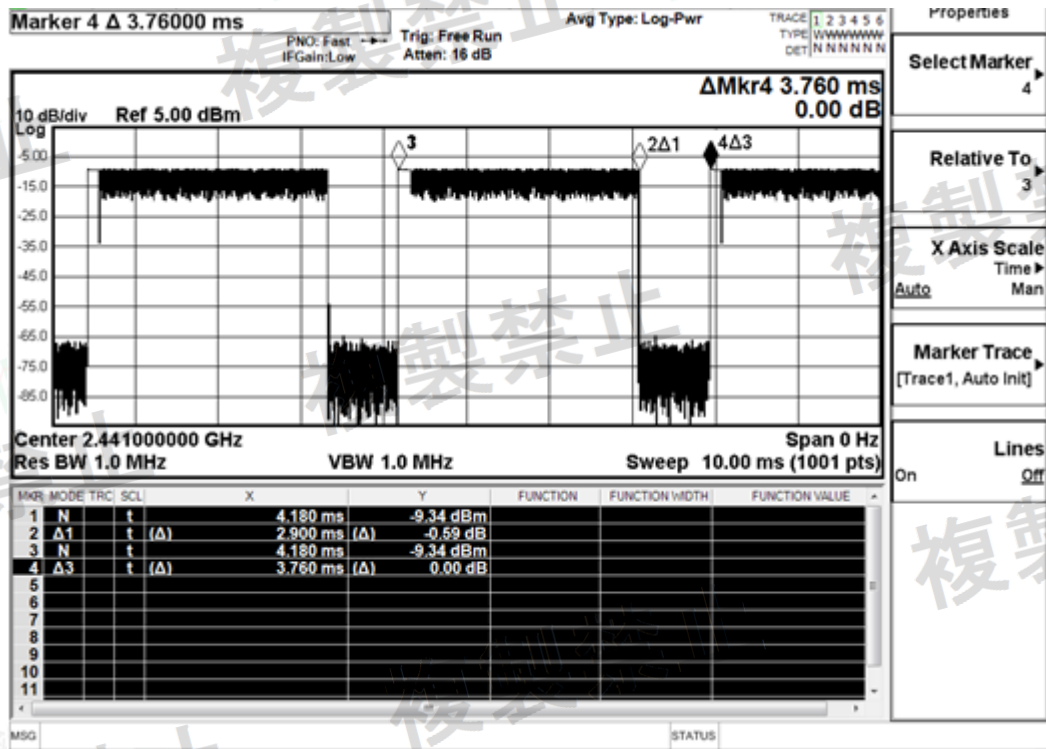
Antenna power Result = Measured Power / Spreading bandwidth

Spread Bandwidth (DH5) = 68.892MHz, Spread Bandwidth (2DH5) = 68.664MHz,

Spread Bandwidth (3DH5) = 68.897MHz

Duty cycle=77.1%

Duty cycle= [Ton/ (Ton+Toff)]*100%=2.900/3.760*100%=77.1%



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A.3 Occupied Bandwidth

Test Result

TestCondition	TestMode	Antenna	Frequency [MHz]	Result [MHz]	Limit [MHz]	Verdict
NTNV	DH5	Ant1	2402	0.865	≤83.5	PASS
			2441	0.861	≤83.5	PASS
			2480	0.862	≤83.5	PASS
	2DH5	Ant1	2402	1.185	≤83.5	PASS
			2441	1.184	≤83.5	PASS
			2480	1.182	≤83.5	PASS
	3DH5	Ant1	2402	1.183	≤83.5	PASS
			2441	1.184	≤83.5	PASS
			2480	1.185	≤83.5	PASS

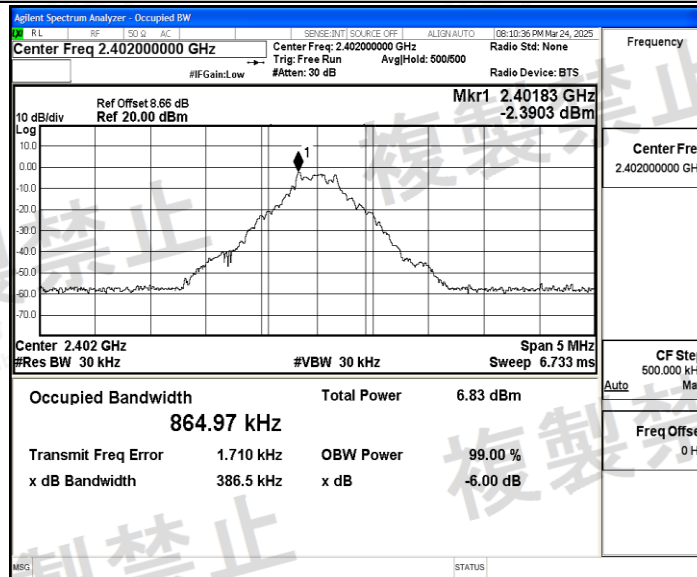
TestCondition	TestMode	Antenna	Frequency [MHz]	Result [MHz]	Limit [MHz]	Verdict
NTNV	DH5	Ant1	Hop	78.398	≤83.5	PASS
	2DH5	Ant1	Hop	78.430	≤83.5	PASS
	3DH5	Ant1	Hop	78.465	≤83.5	PASS



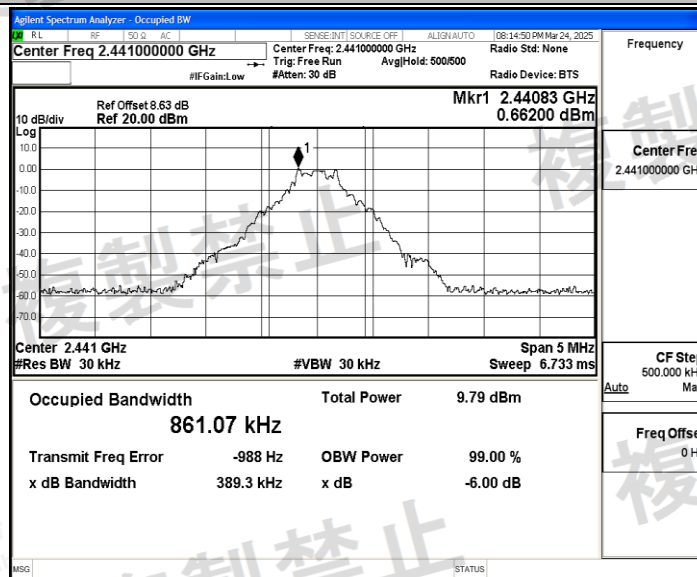


Test Graphs

NTNV_DH5_Ant1_2402

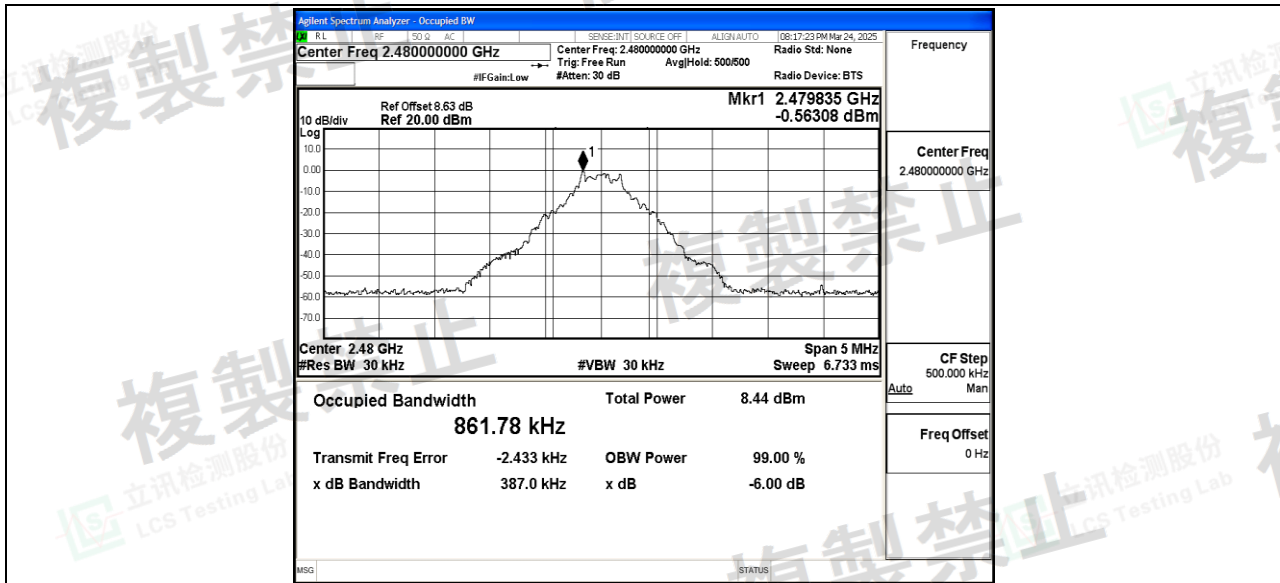


NTNV_DH5_Ant1_2441

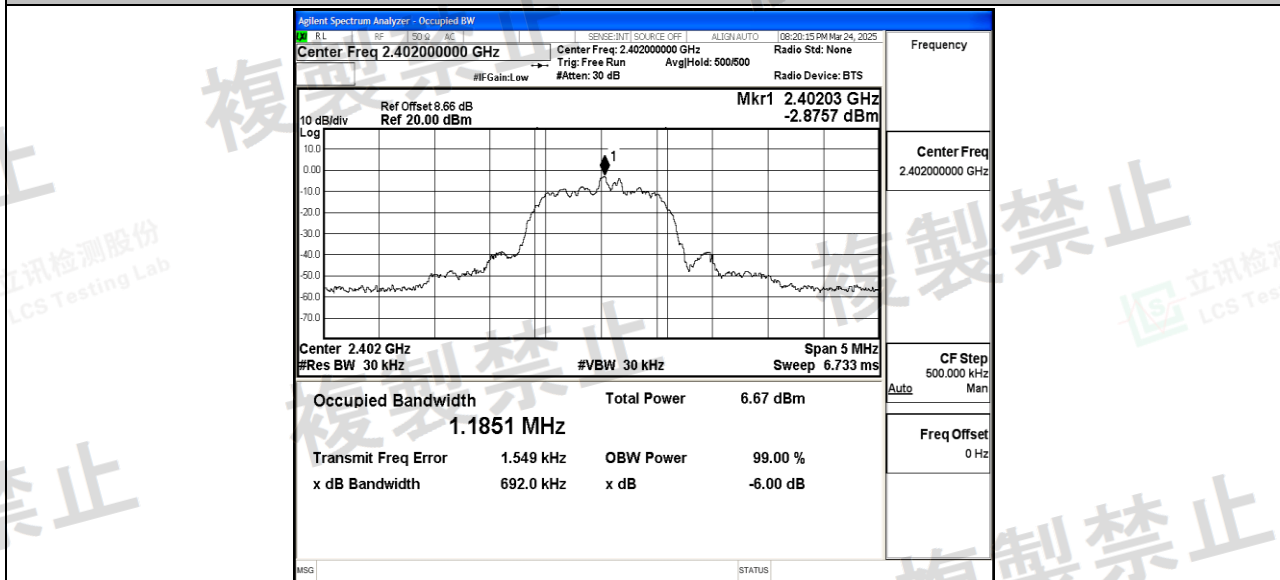


NTNV_DH5_Ant1_2480



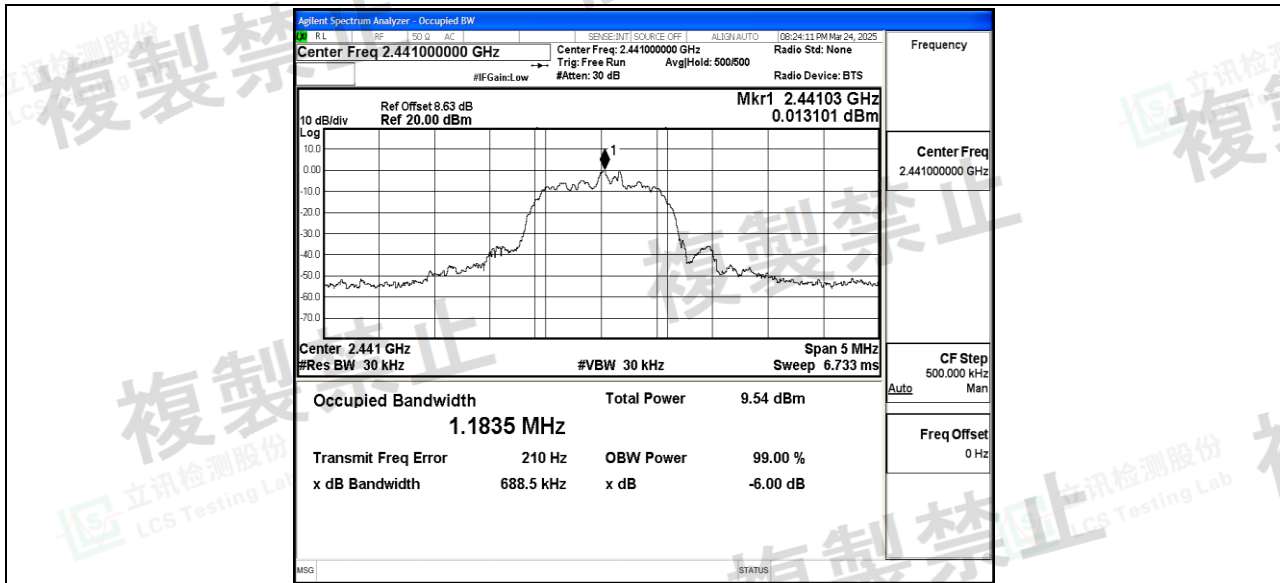


NTNV_2DH5_Ant1_2402

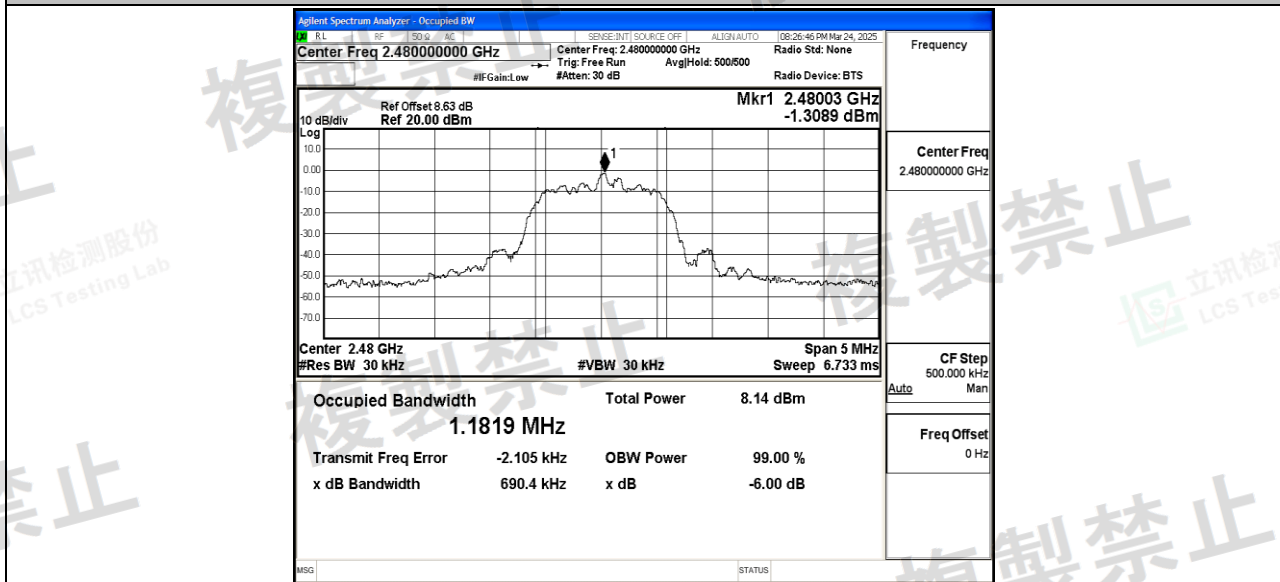


NTNV_2DH5_Ant1_2441



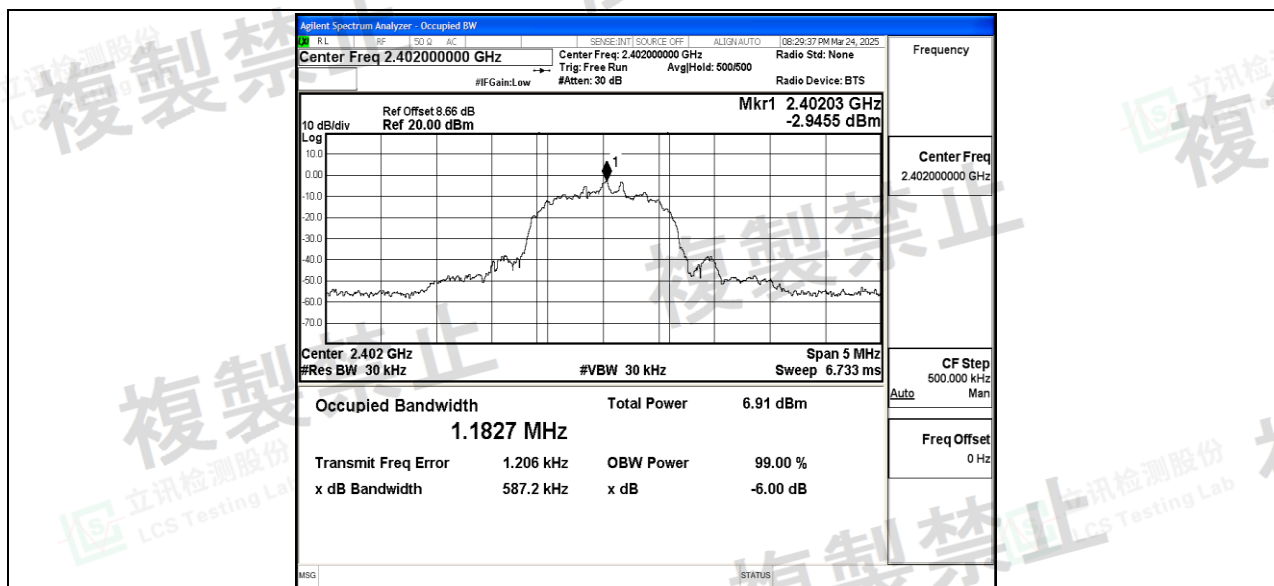


NTNV_2DH5_Ant1_2480

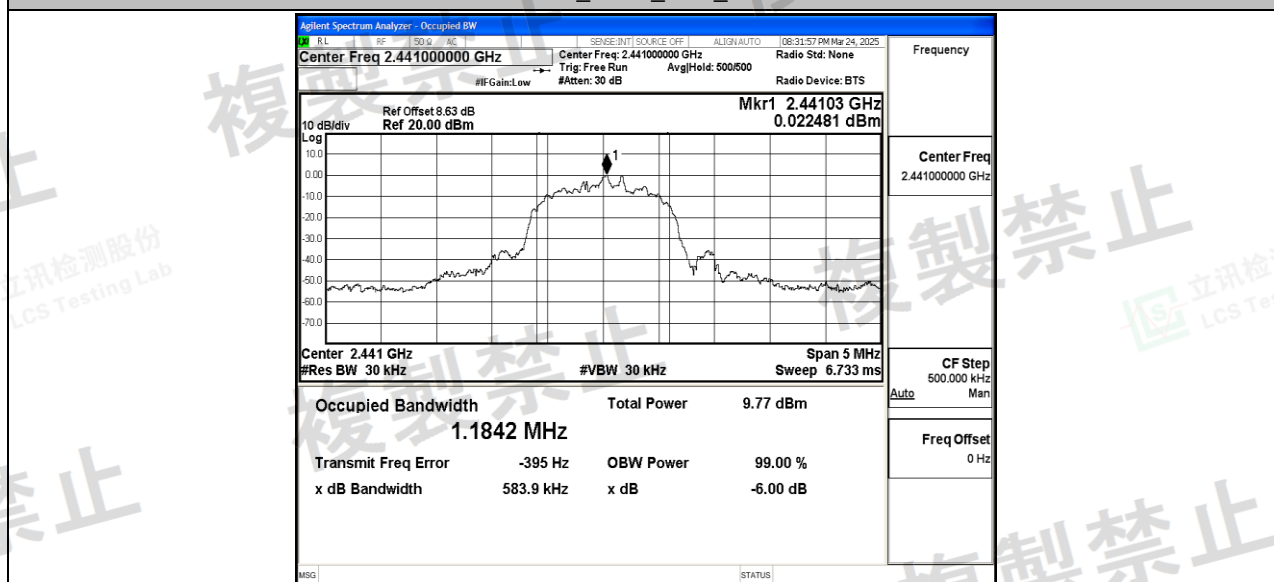


NTNV_3DH5_Ant1_2402



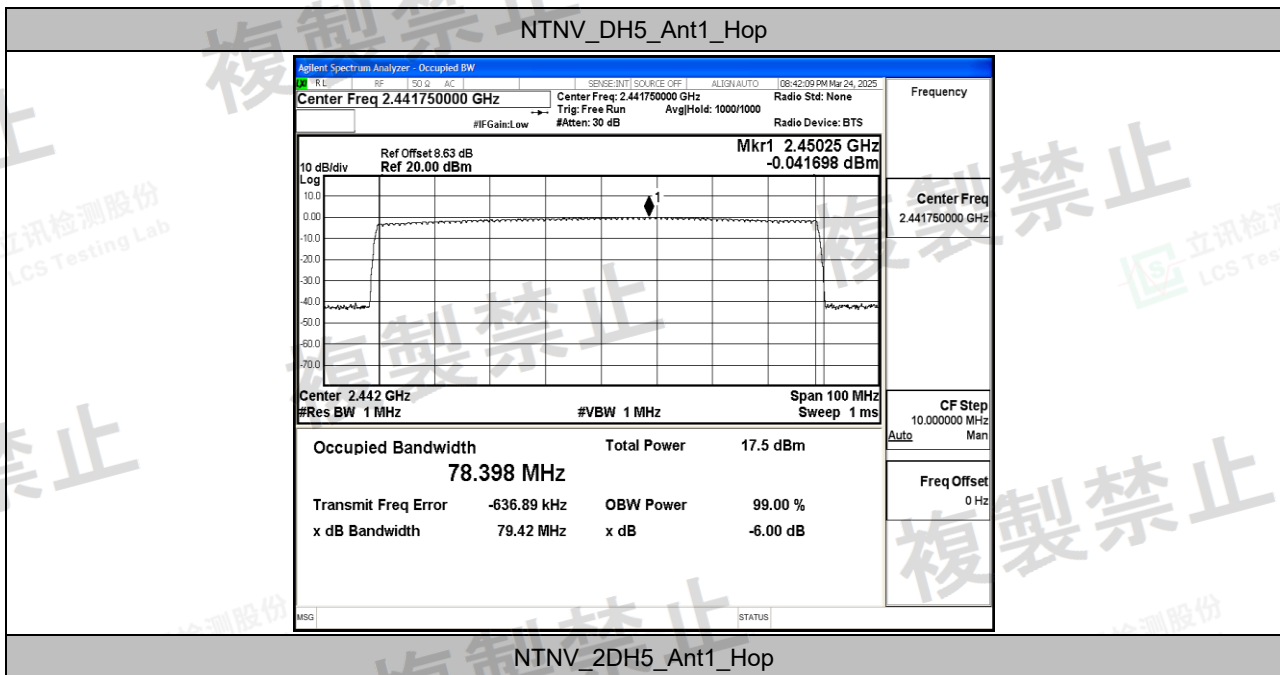
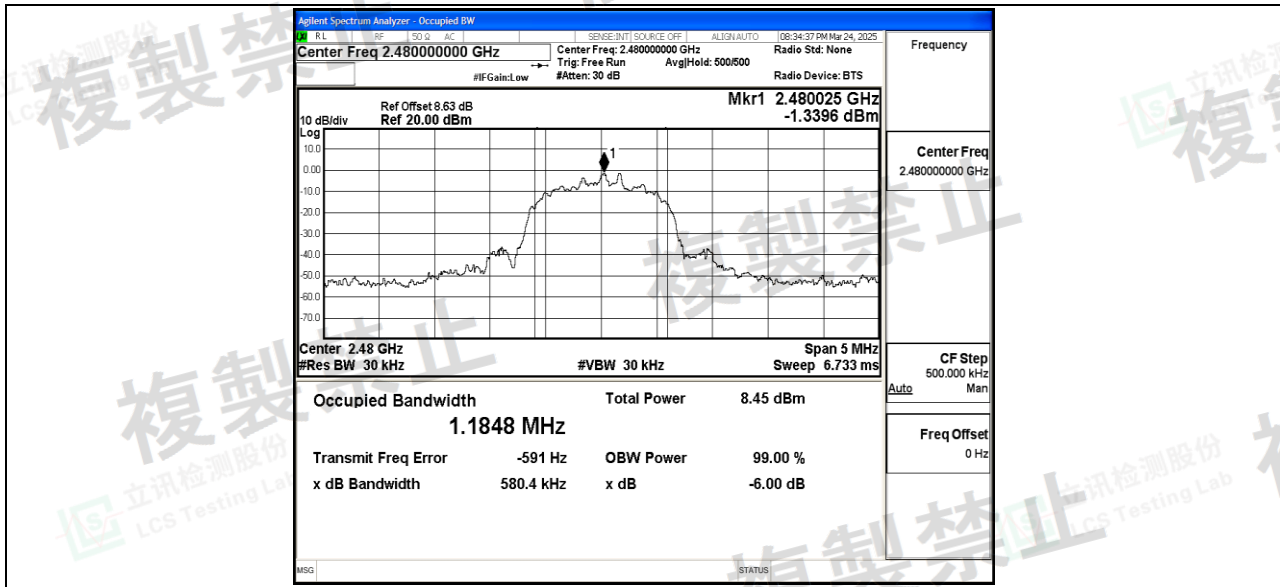


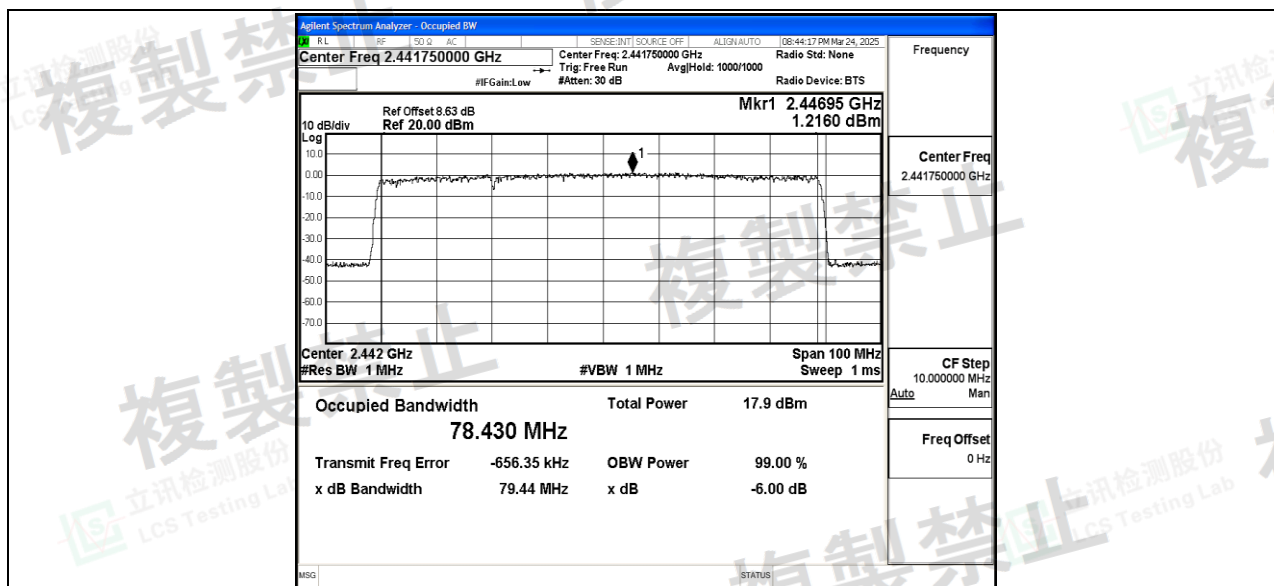
NTNV_3DH5_Ant1_2441



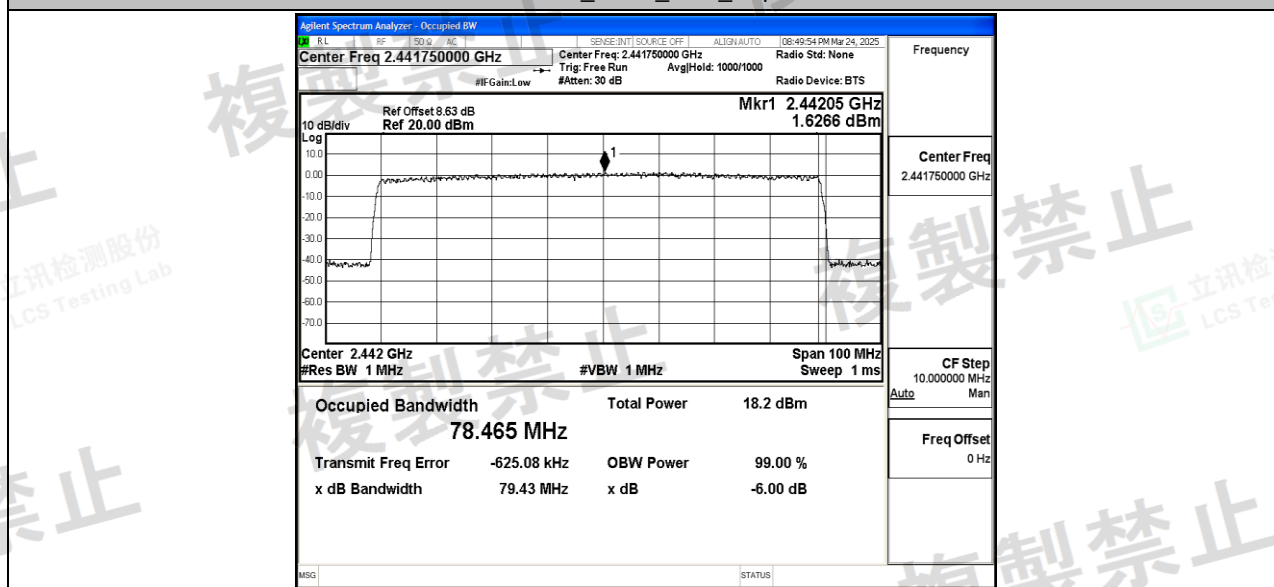
NTNV_3DH5_Ant1_2480







NTNV_3DH5_Ant1_Hop





A.4 Spread Bandwidth

Test Result

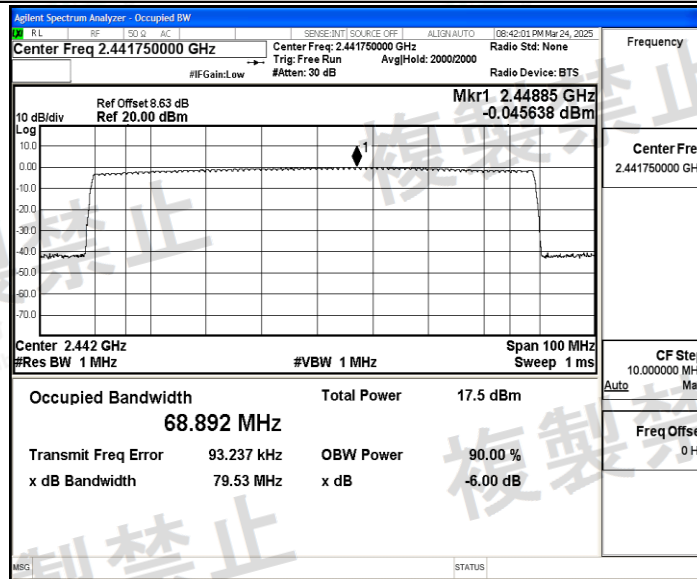
TestCondition	TestMode	Antenna	Frequency [MHz]	Result [MHz]	Limit [MHz]	Verdict
NTNV	DH5	Ant1	Hop	68.892	---	PASS
	2DH5	Ant1	Hop	68.664	---	PASS
	3DH5	Ant1	Hop	68.897	---	PASS



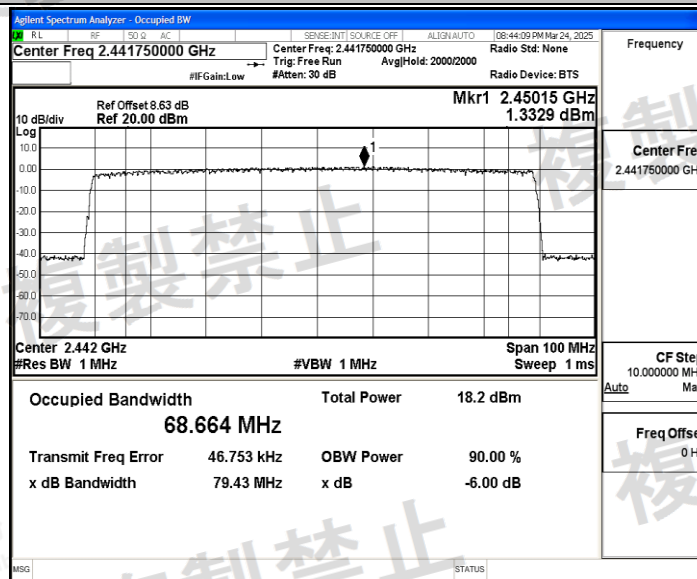


Test Graphs

NTNV_DH5_Ant1_Hop



NTNV_2DH5_Ant1_Hop



NTNV_3DH5_Ant1_Hop

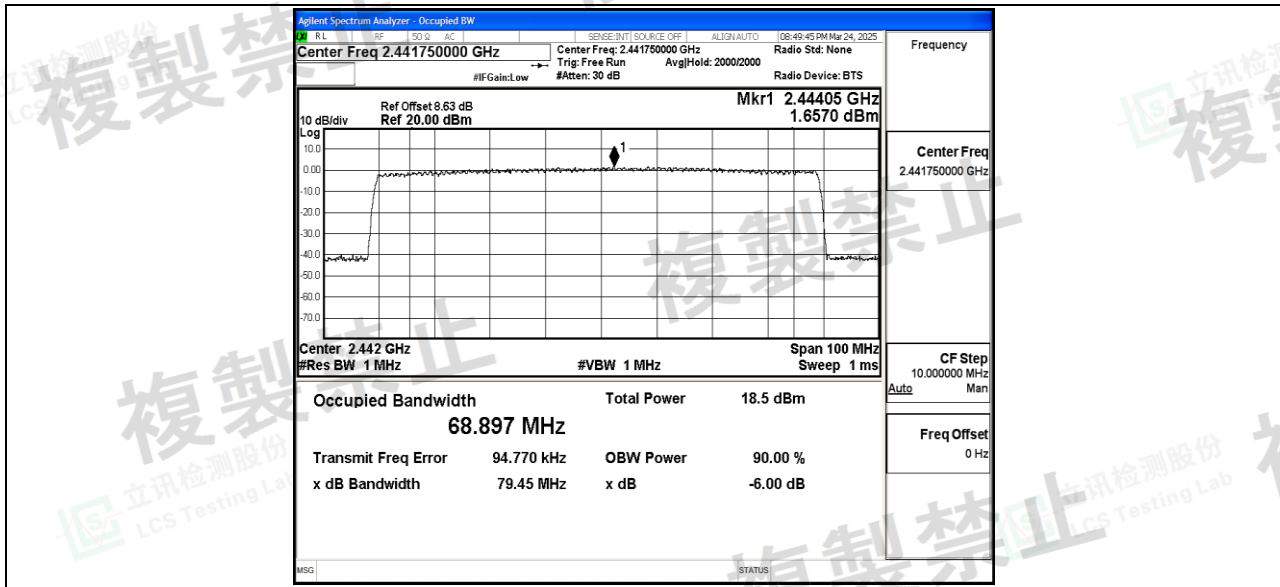


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A.5 Spurious Emission of TX

Test Result

TestCondition	TestMode	Antenna	Frequency [MHz]	Freq.Range [MHz]	Result [dBm]	Limit [dBm]	Result [μW]	Limit [μW]	Verdict
NTNV	DH5	Ant1	2402	30~1000	-59.67	≤-26	0.00108	≤2.5	PASS
				1000~2387	-58.56	≤-26	0.00139	≤2.5	PASS
				2387~2400	-45.98	≤-16	0.02523	≤25	PASS
				2483.5~2496.5	-48.82	≤-16	0.01312	≤25	PASS
				2496.5~13000	-51.42	≤-26	0.00721	≤2.5	PASS
		Ant1	2441	30~1000	-56.23	≤-26	0.00238	≤2.5	PASS
				1000~2387	-58.24	≤-26	0.00150	≤2.5	PASS
				2387~2400	-49.10	≤-16	0.01230	≤25	PASS
				2483.5~2496.5	-49.11	≤-16	0.01227	≤25	PASS
				2496.5~13000	-51.42	≤-26	0.00721	≤2.5	PASS
		Ant1	2480	30~1000	-59.63	≤-26	0.00109	≤2.5	PASS
				1000~2387	-53.90	≤-26	0.00407	≤2.5	PASS
				2387~2400	-48.76	≤-16	0.01330	≤25	PASS
				2483.5~2496.5	-48.69	≤-16	0.01352	≤25	PASS
				2496.5~13000	-50.64	≤-26	0.00863	≤2.5	PASS
	2DH5	Ant1	2402	30~1000	-57.83	≤-26	0.00165	≤2.5	PASS
				1000~2387	-58.42	≤-26	0.00144	≤2.5	PASS
				2387~2400	-38.24	≤-16	0.14997	≤25	PASS
				2483.5~2496.5	-48.81	≤-16	0.01315	≤25	PASS
				2496.5~13000	-51.34	≤-26	0.00735	≤2.5	PASS
		Ant1	2441	30~1000	-59.60	≤-26	0.00110	≤2.5	PASS
				1000~2387	-52.96	≤-26	0.00506	≤2.5	PASS
				2387~2400	-49.14	≤-16	0.01219	≤25	PASS
				2483.5~2496.5	-49.05	≤-16	0.01245	≤25	PASS
				2496.5~13000	-51.13	≤-26	0.00771	≤2.5	PASS
		Ant1	2480	30~1000	-59.61	≤-26	0.00109	≤2.5	PASS
				1000~2387	-47.15	≤-26	0.01928	≤2.5	PASS
				2387~2400	-49.17	≤-16	0.01211	≤25	PASS
				2483.5~2496.5	-48.81	≤-16	0.01315	≤25	PASS
				2496.5~13000	-51.41	≤-26	0.00723	≤2.5	PASS
	3DH5	Ant1	2402	30~1000	-59.49	≤-26	0.00112	≤2.5	PASS
				1000~2387	-57.00	≤-26	0.00200	≤2.5	PASS
				2387~2400	-38.11	≤-16	0.15453	≤25	PASS
				2483.5~2496.5	-48.96	≤-16	0.01271	≤25	PASS
				2496.5~13000	-50.61	≤-26	0.00869	≤2.5	PASS
			2441	30~1000	-59.50	≤-26	0.00112	≤2.5	PASS



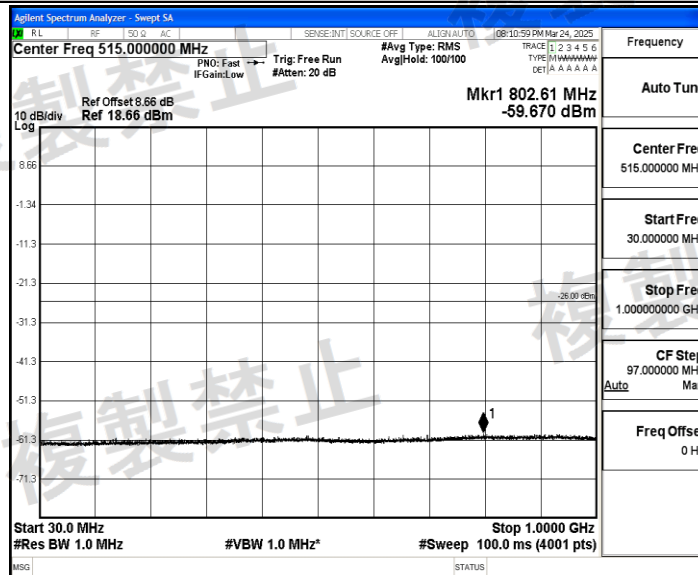
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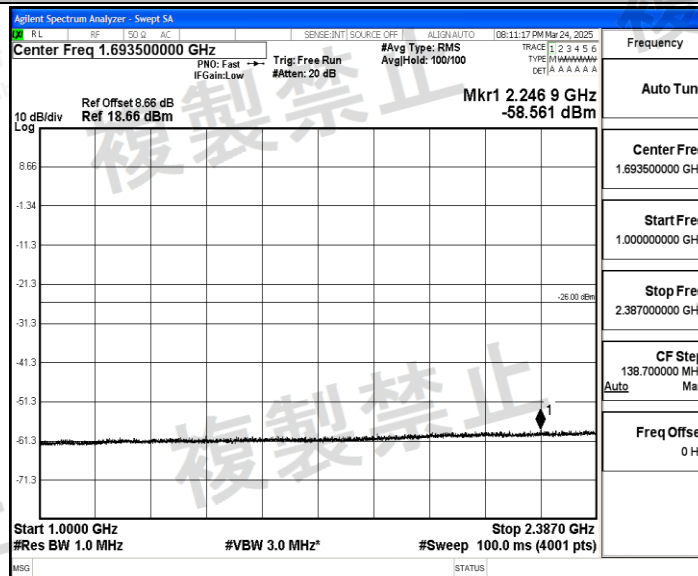
	2480	1000~2387	-49.61	≤-26	0.01094	≤2.5	PASS
		2387~2400	-49.07	≤-16	0.01239	≤25	PASS
		2483.5~2496.5	-49.16	≤-16	0.01213	≤25	PASS
		2496.5~13000	-51.44	≤-26	0.00718	≤2.5	PASS
		30~1000	-59.76	≤-26	0.00106	≤2.5	PASS
		1000~2387	-54.32	≤-26	0.00370	≤2.5	PASS
		2387~2400	-48.94	≤-16	0.01276	≤25	PASS
		2483.5~2496.5	-48.89	≤-16	0.01291	≤25	PASS
		2496.5~13000	-51.51	≤-26	0.00706	≤2.5	PASS

Test Graphs

NTNV_DH5_Ant1_2402_30~1000



NTNV_DH5_Ant1_2402_1000~2387



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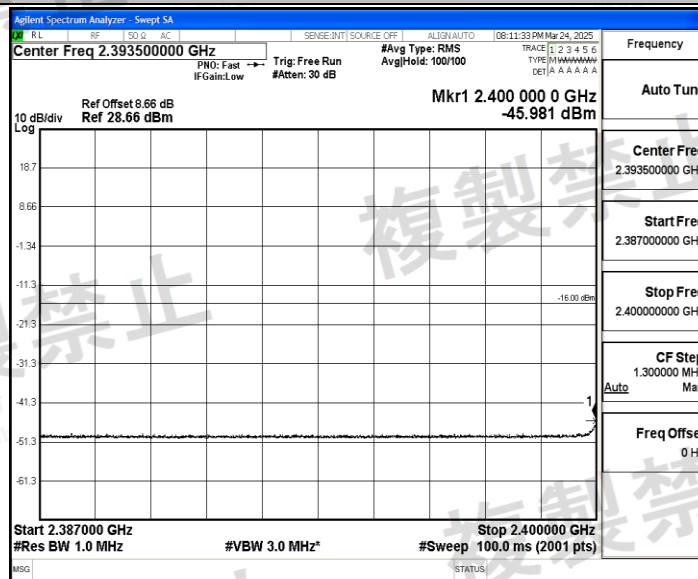
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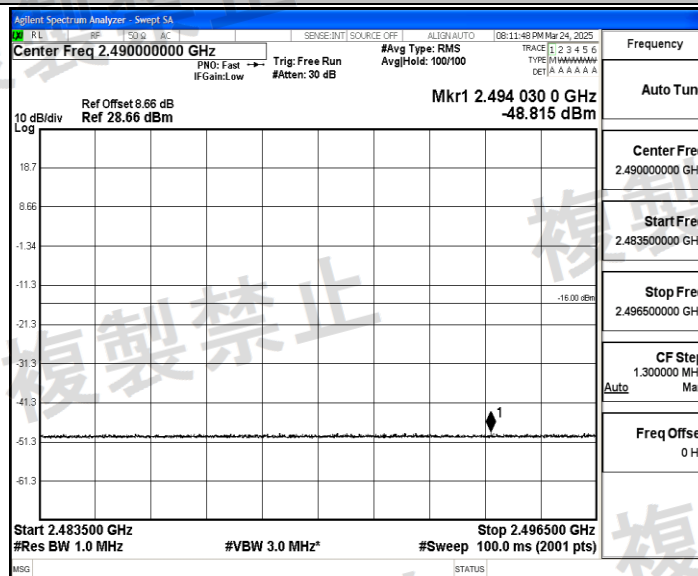
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NTNV_DH5_Ant1_2402_2387~2400

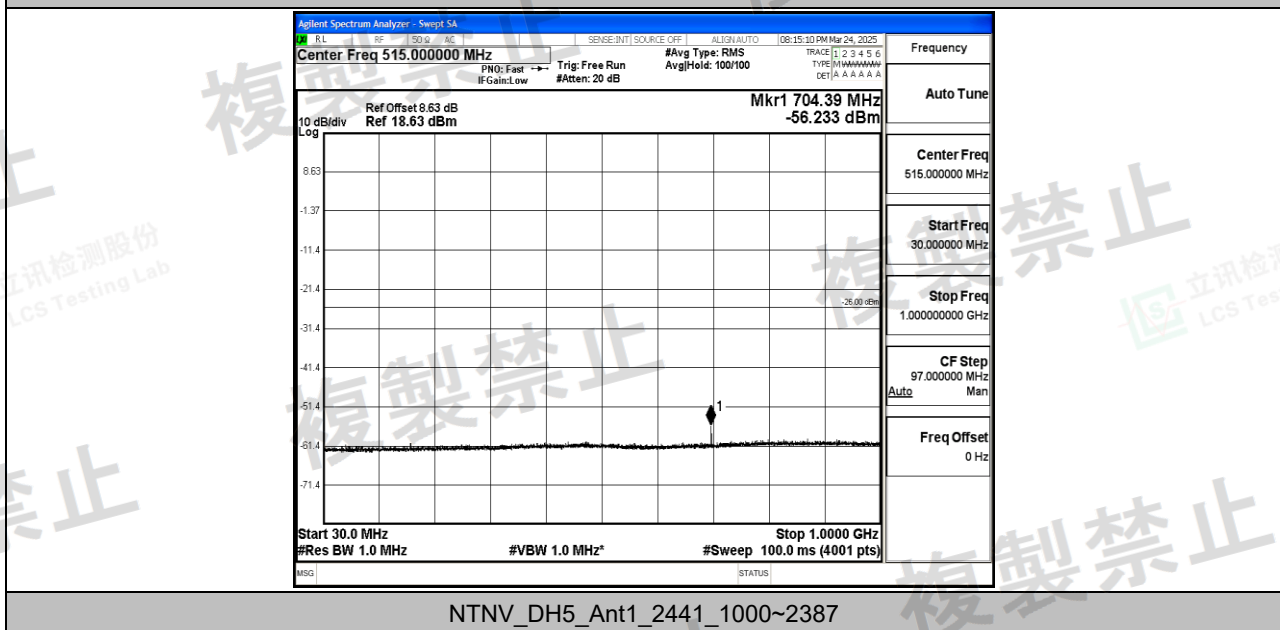
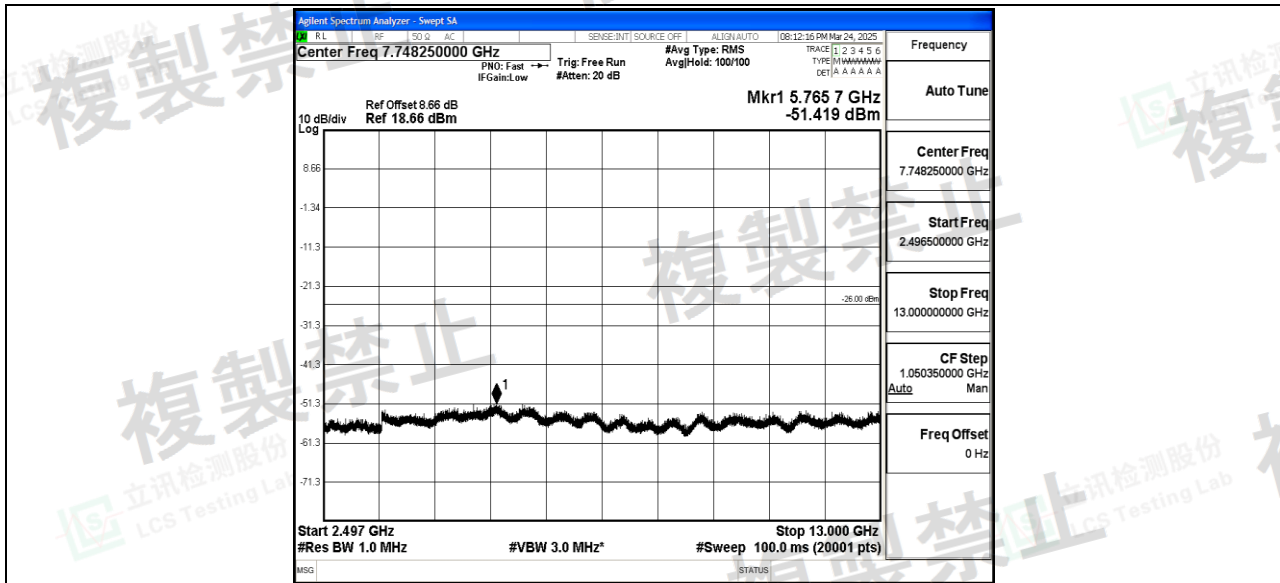


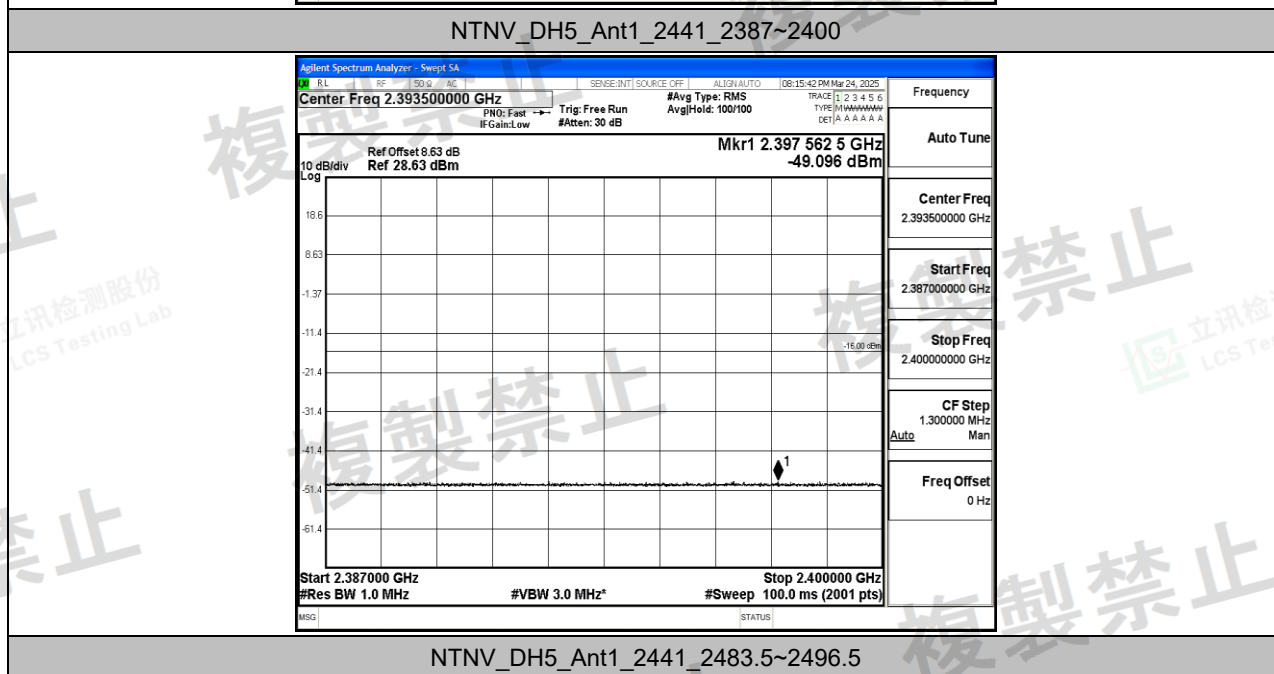
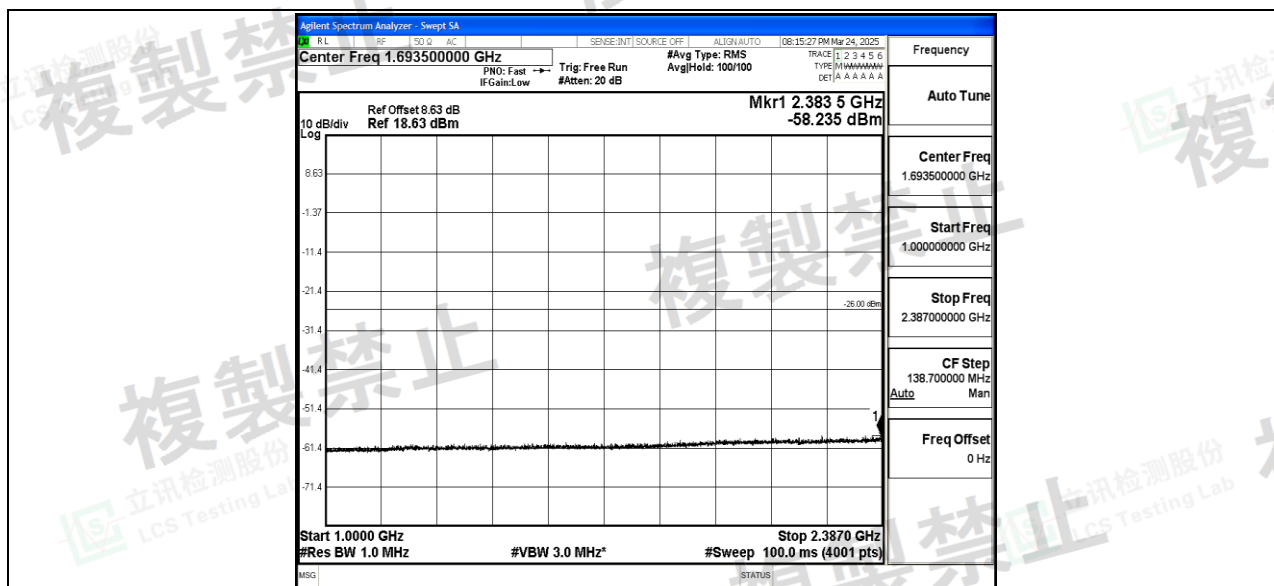
NTNV_DH5_Ant1_2402_2483.5~2496.5

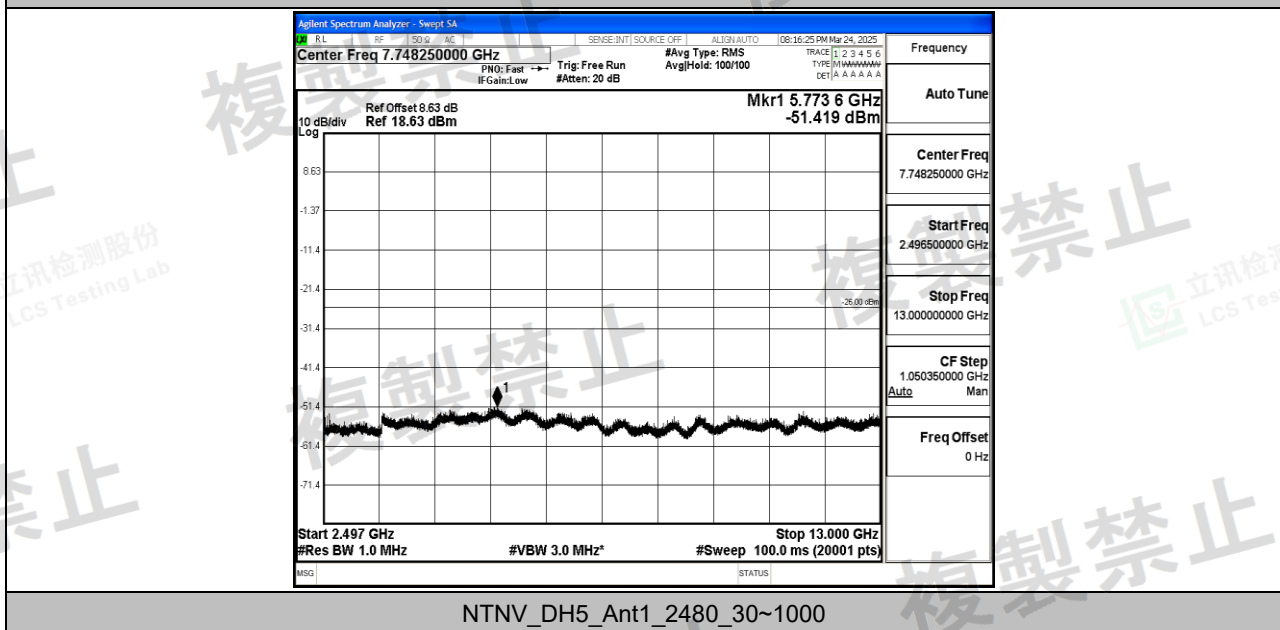
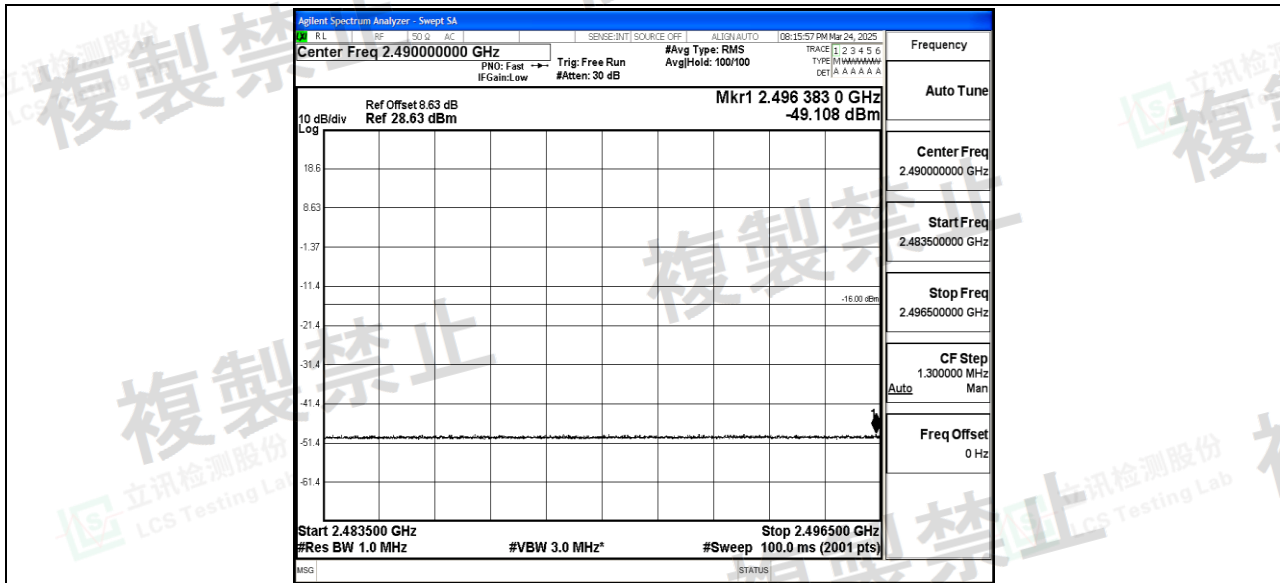


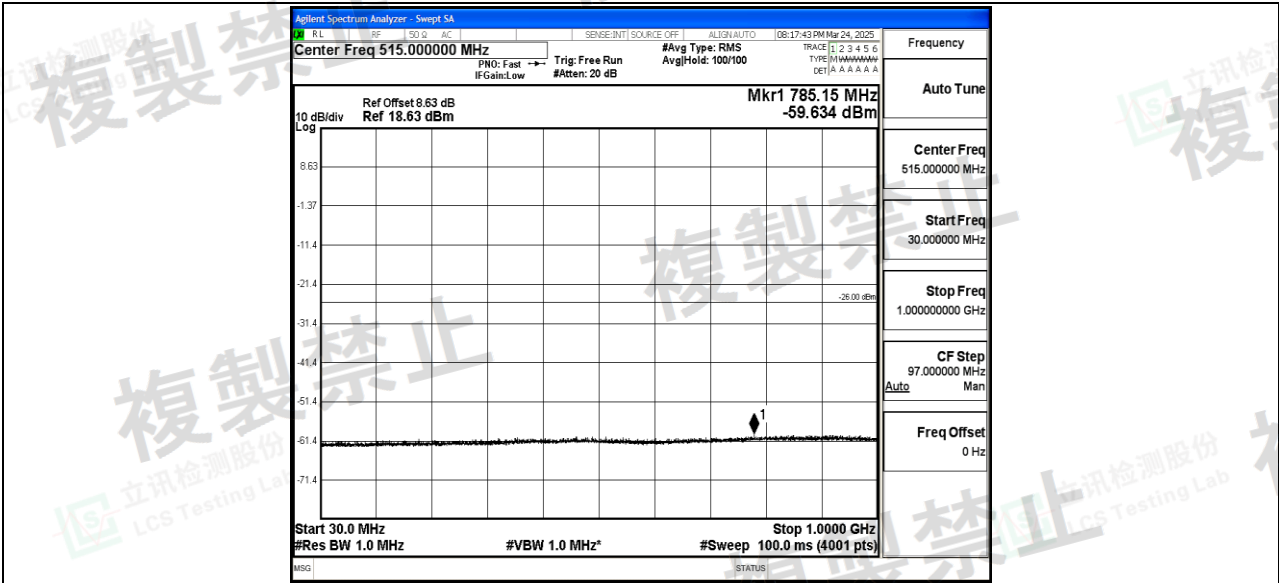
NTNV_DH5_Ant1_2402_2496.5~13000



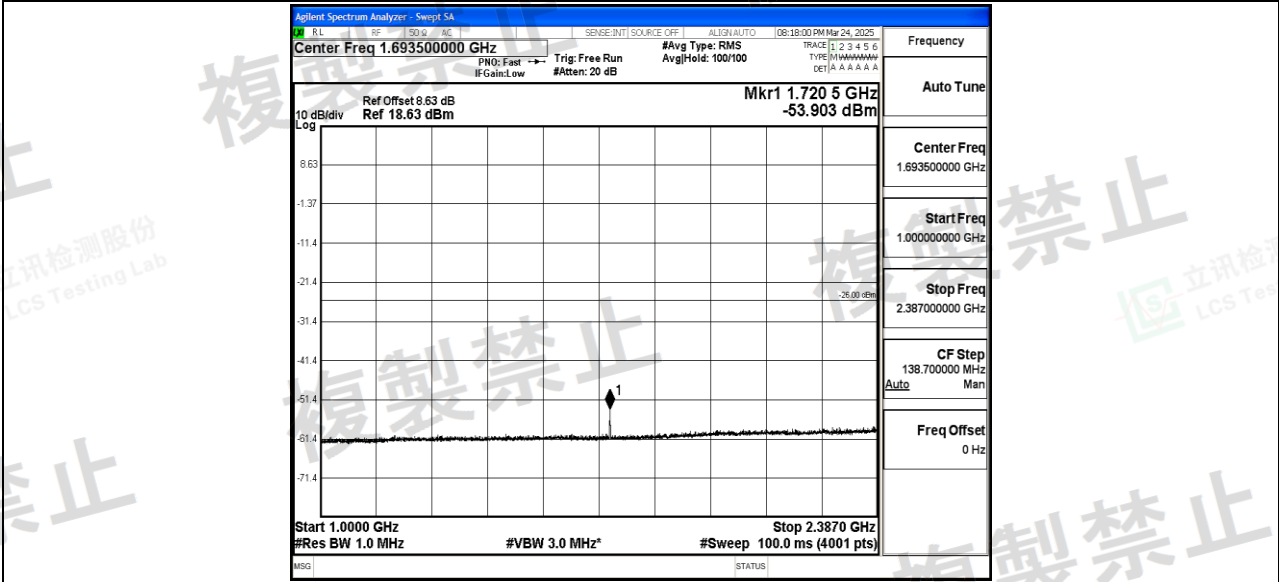






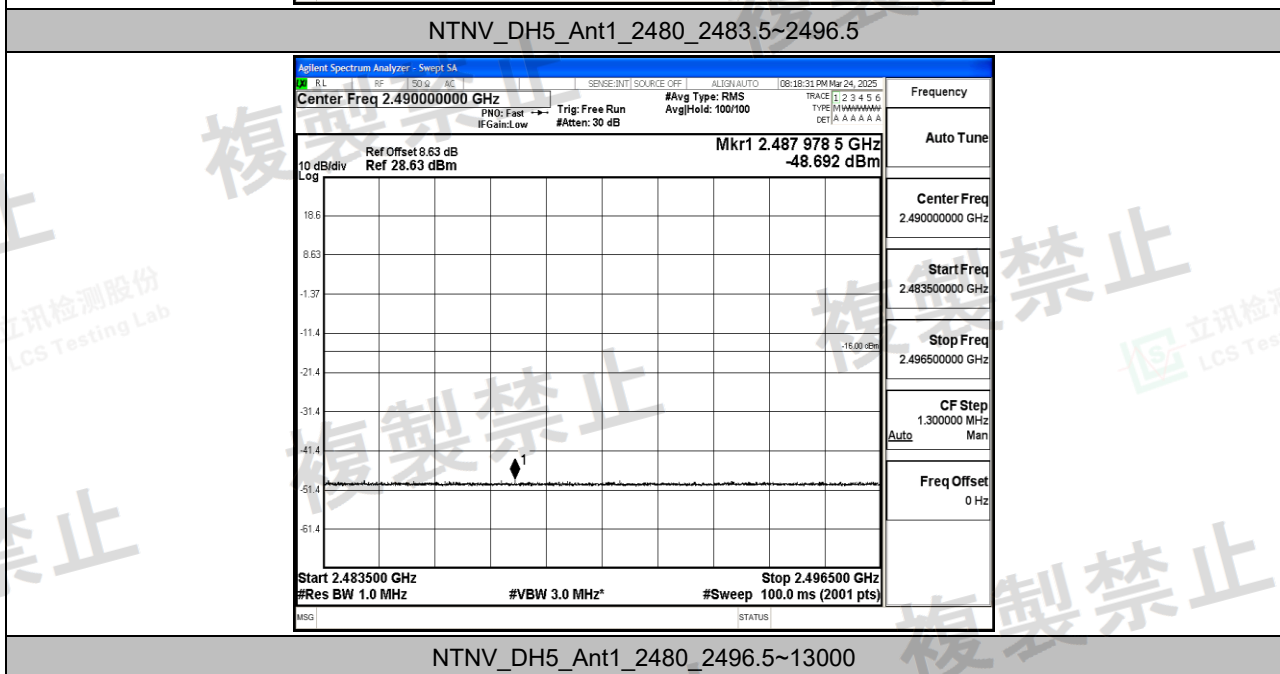
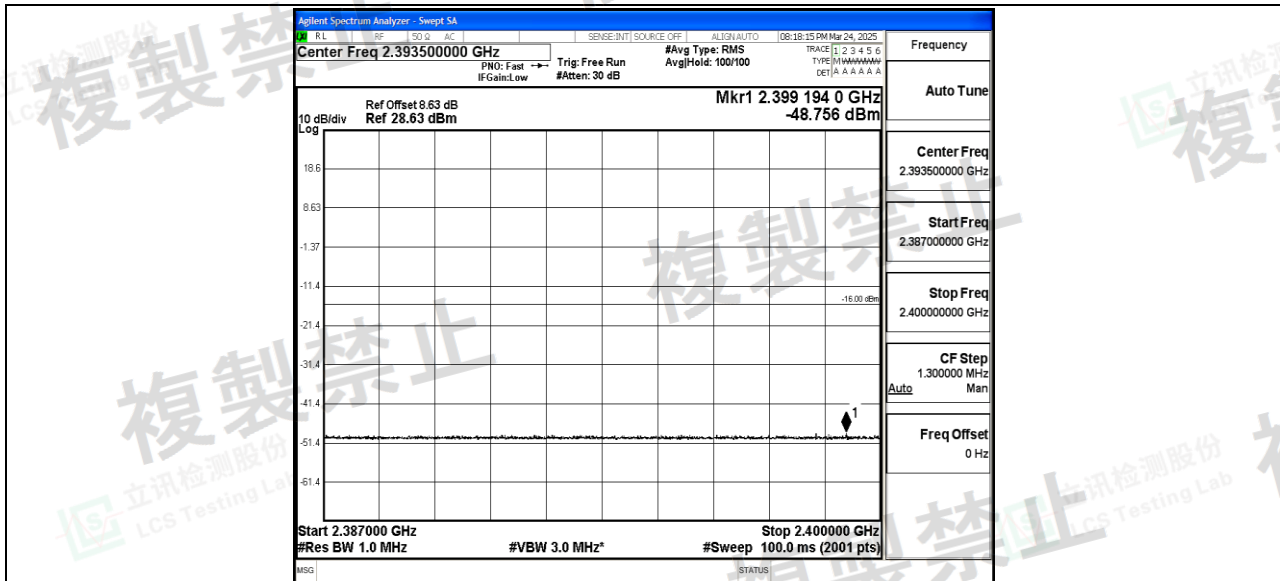


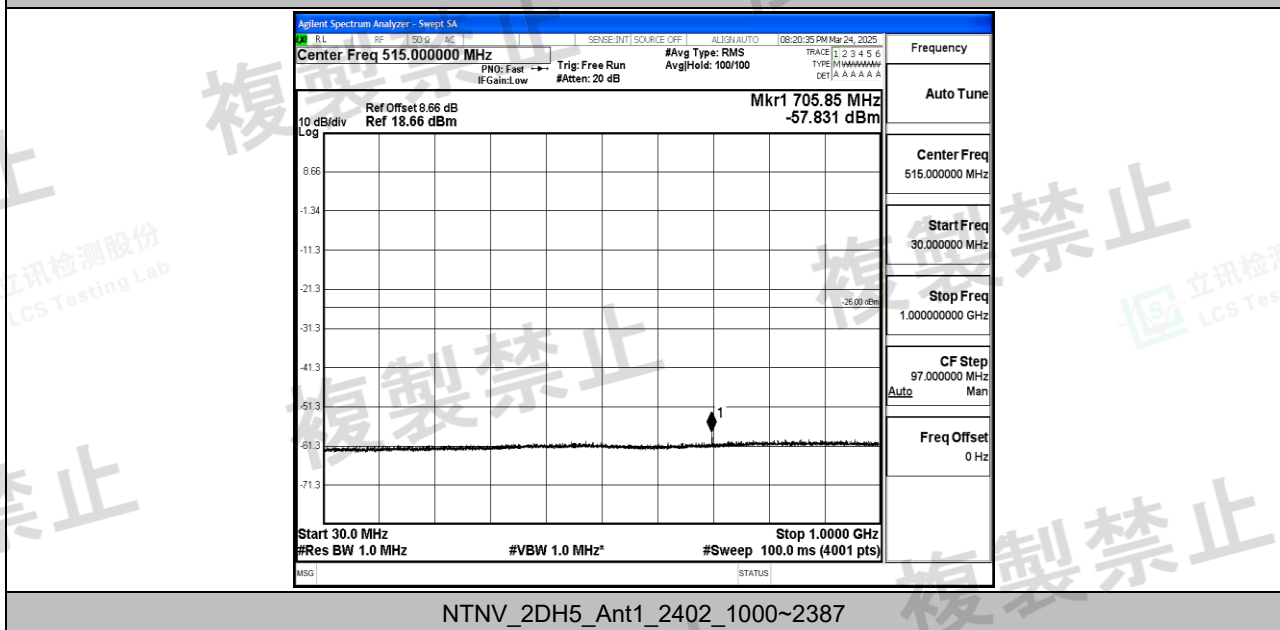
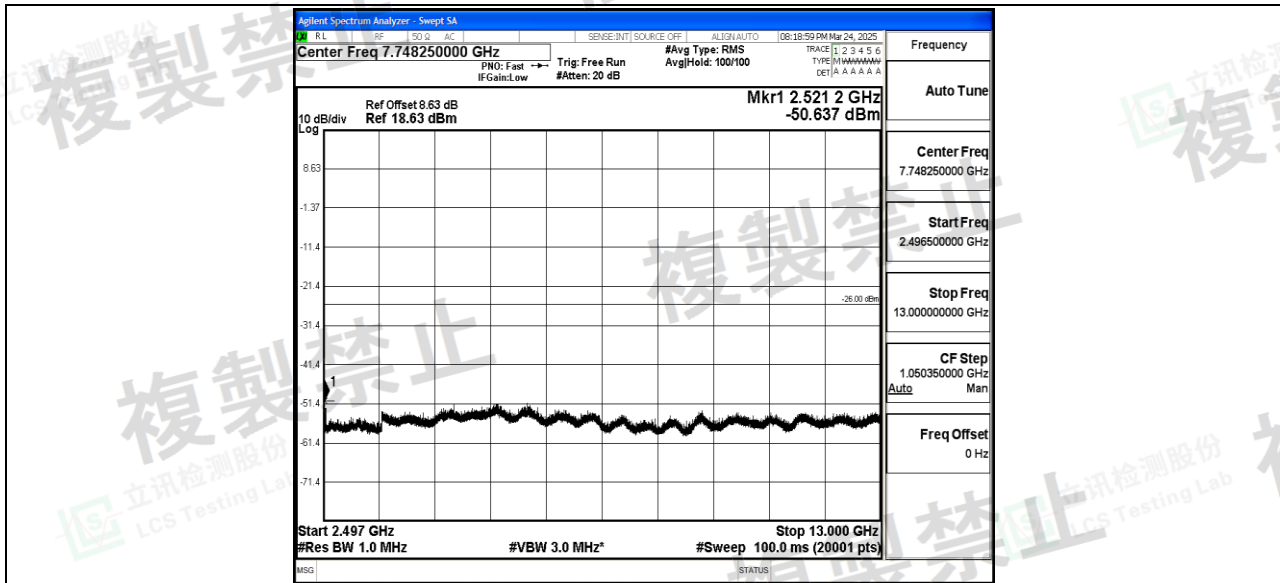
NTNV_DH5_Ant1_2480_1000~2387

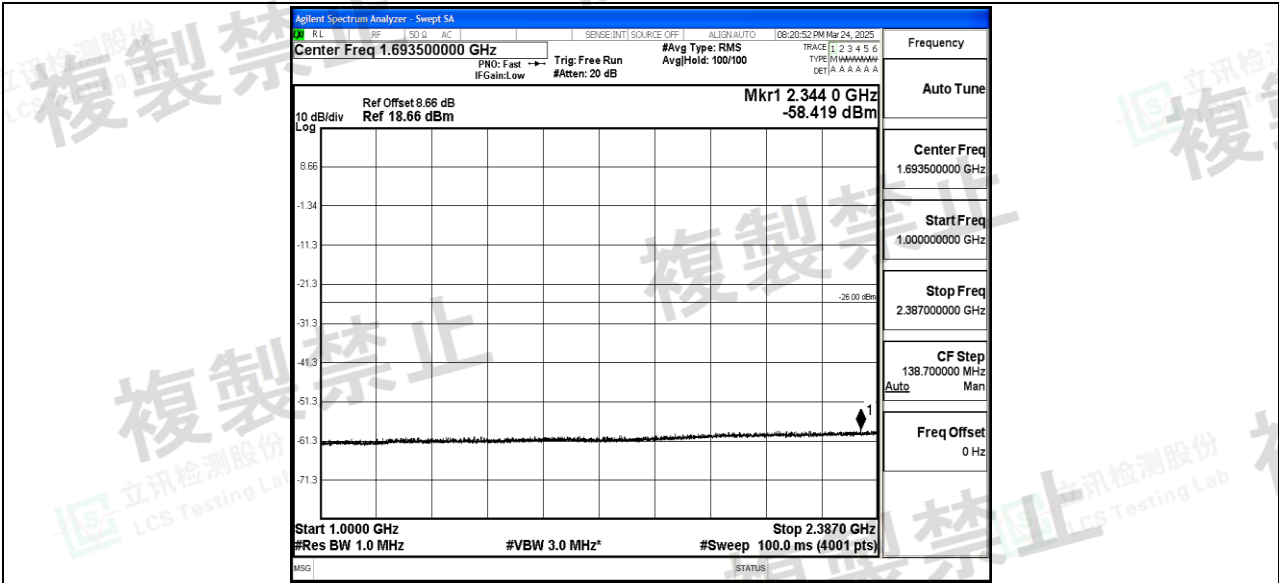


NTNV_DH5_Ant1_2480_2387~2400

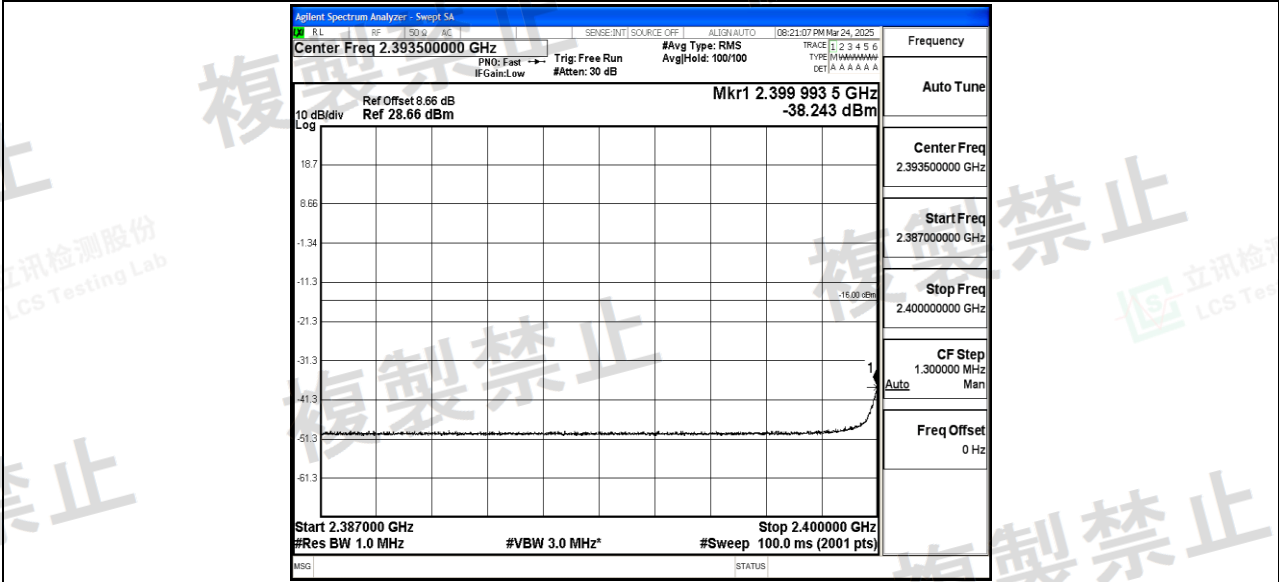






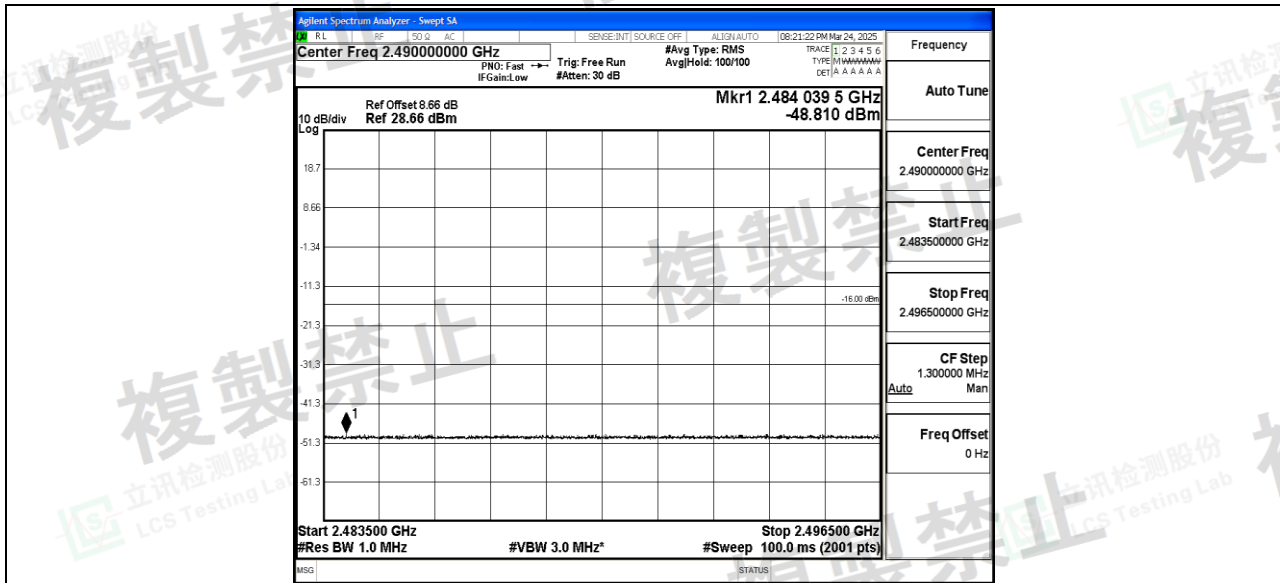


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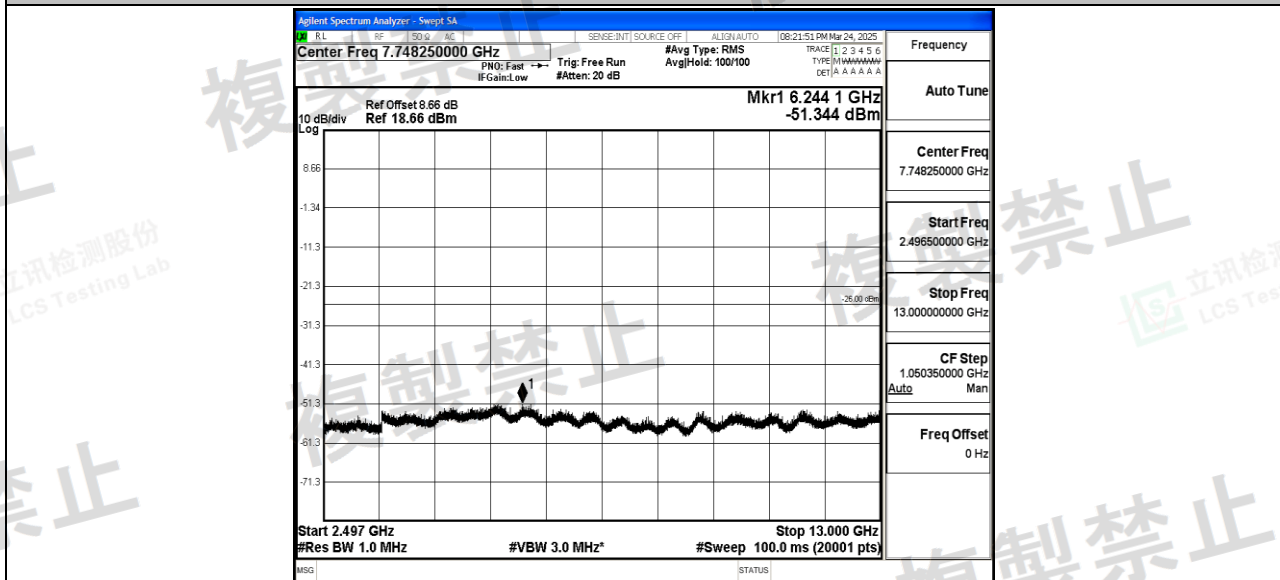


NTNV_2DH5_Ant1_2402_2483.5~2496.5



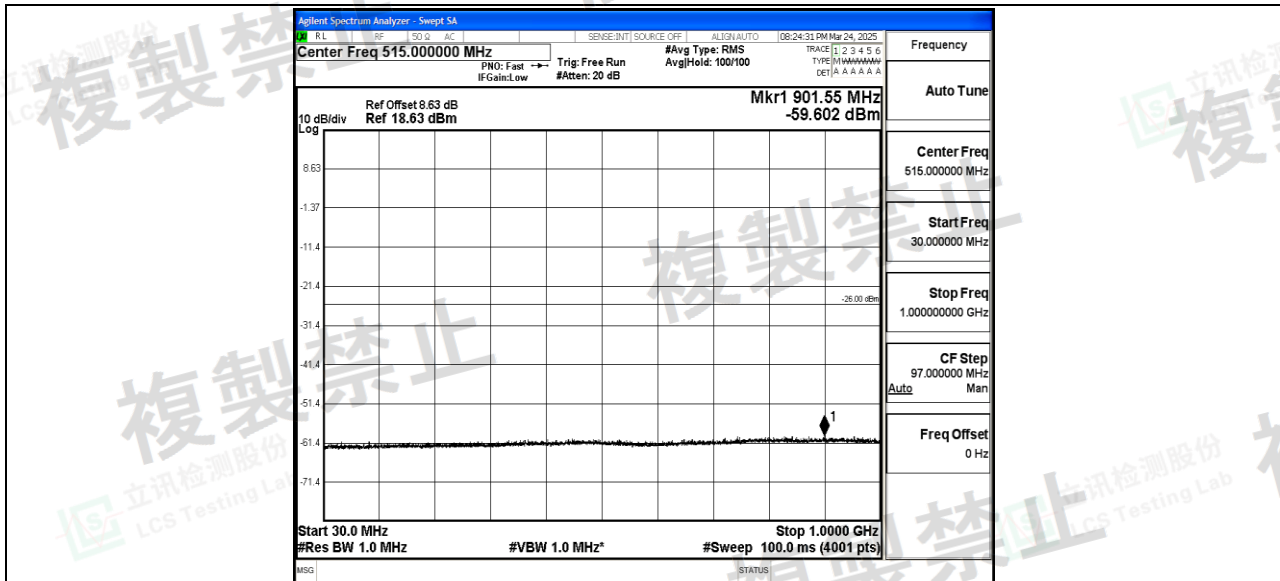


NTNV_2DH5_Ant1_2402_2496.5~13000

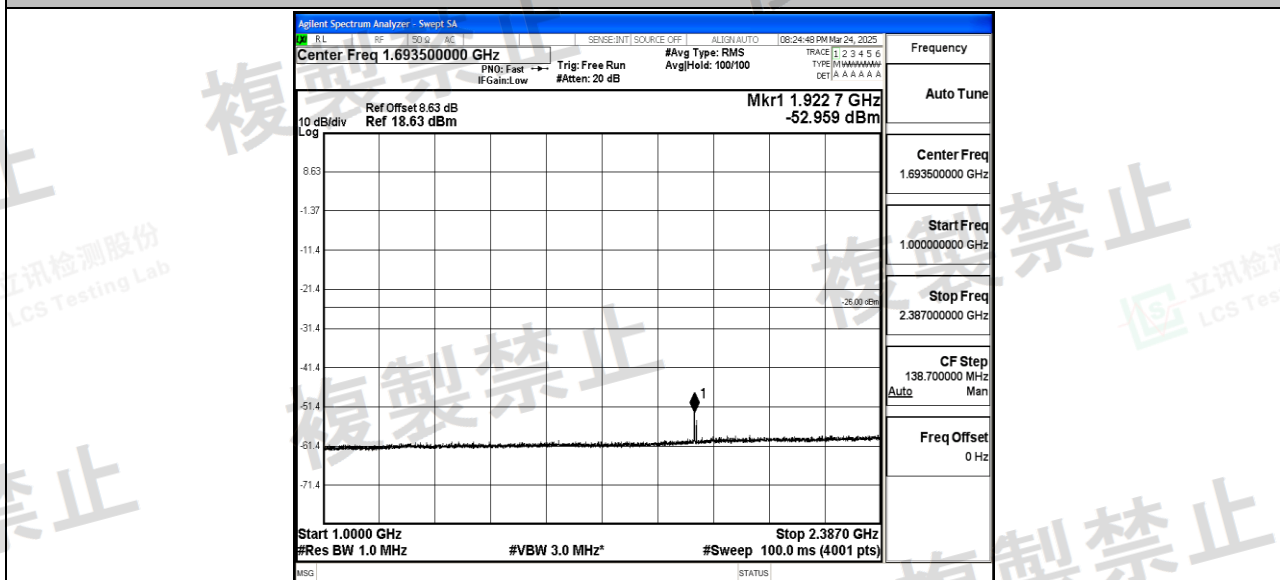


NTNV_2DH5_Ant1_2441_30~1000



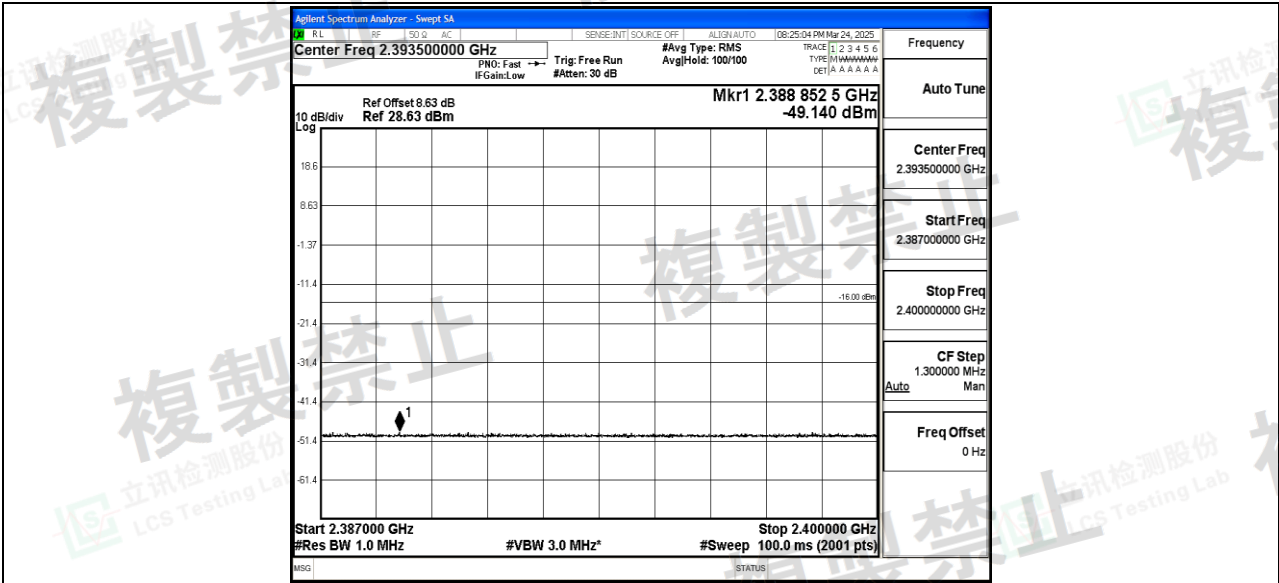


NTNV_2DH5_Ant1_2441_1000~2387

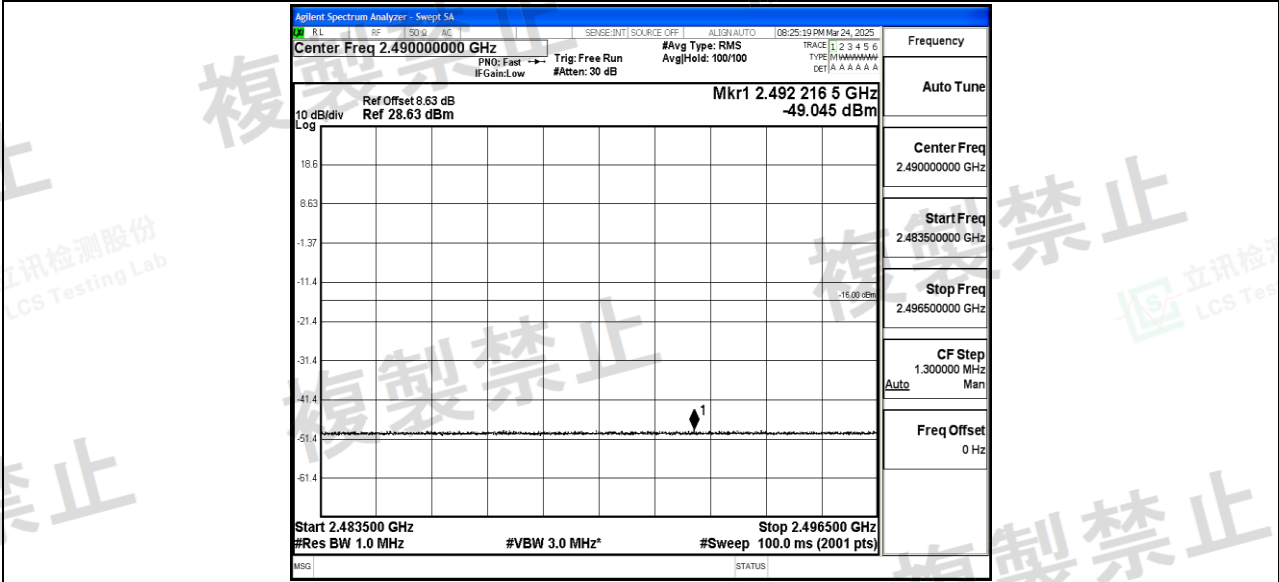


NTNV_2DH5_Ant1_2441_2387~2400



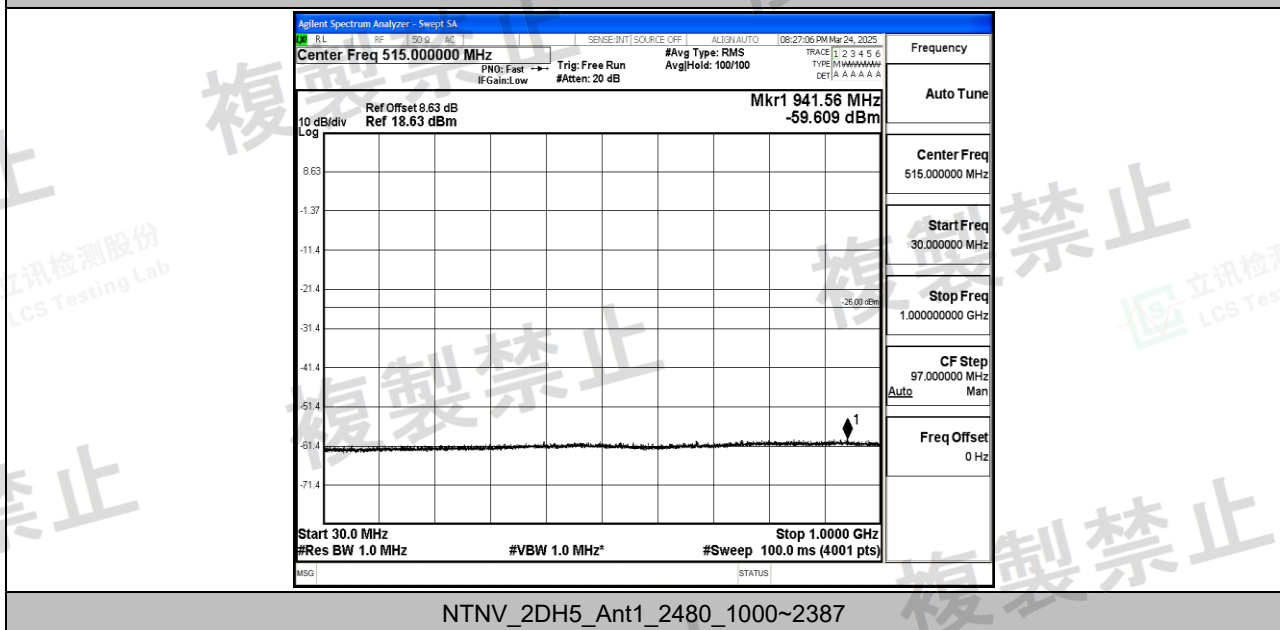
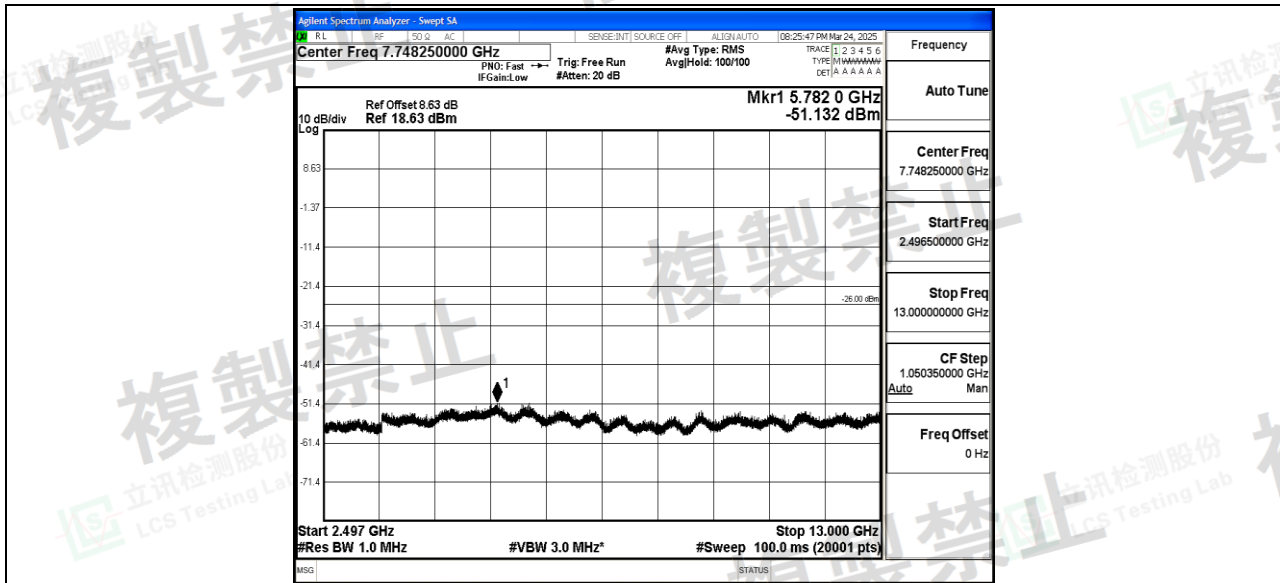


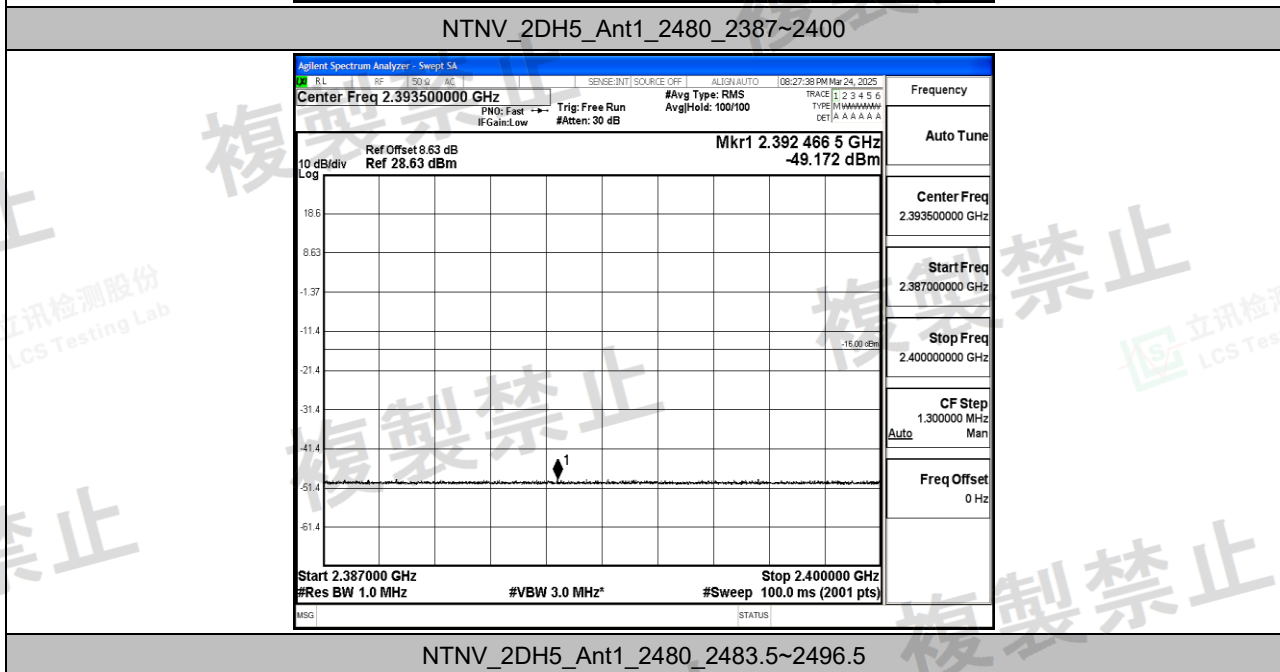
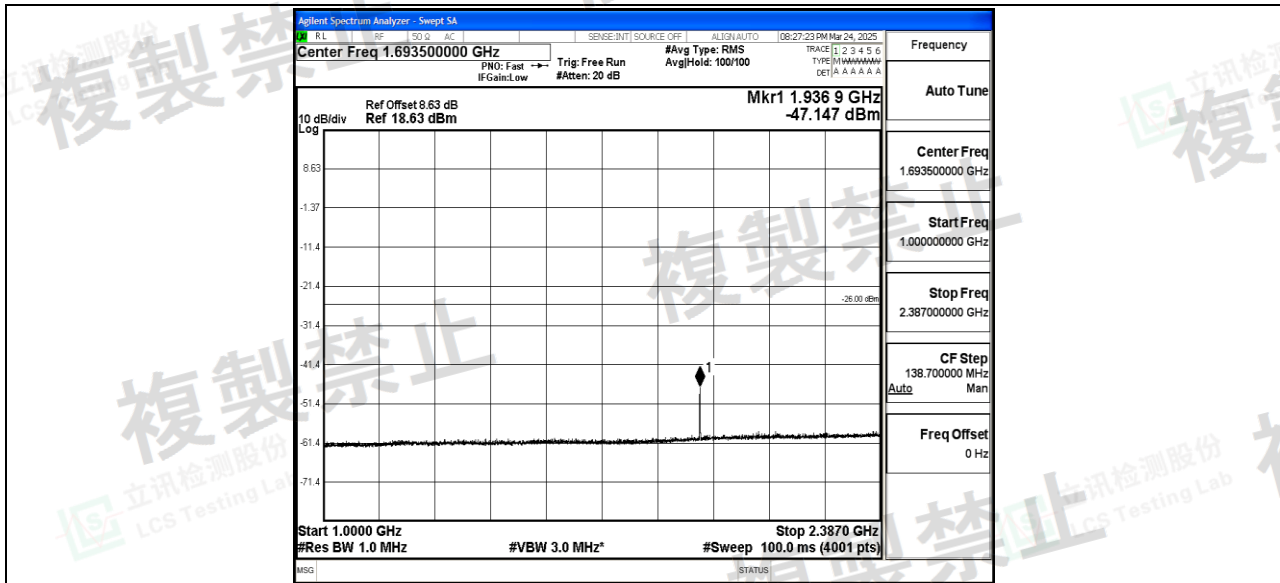
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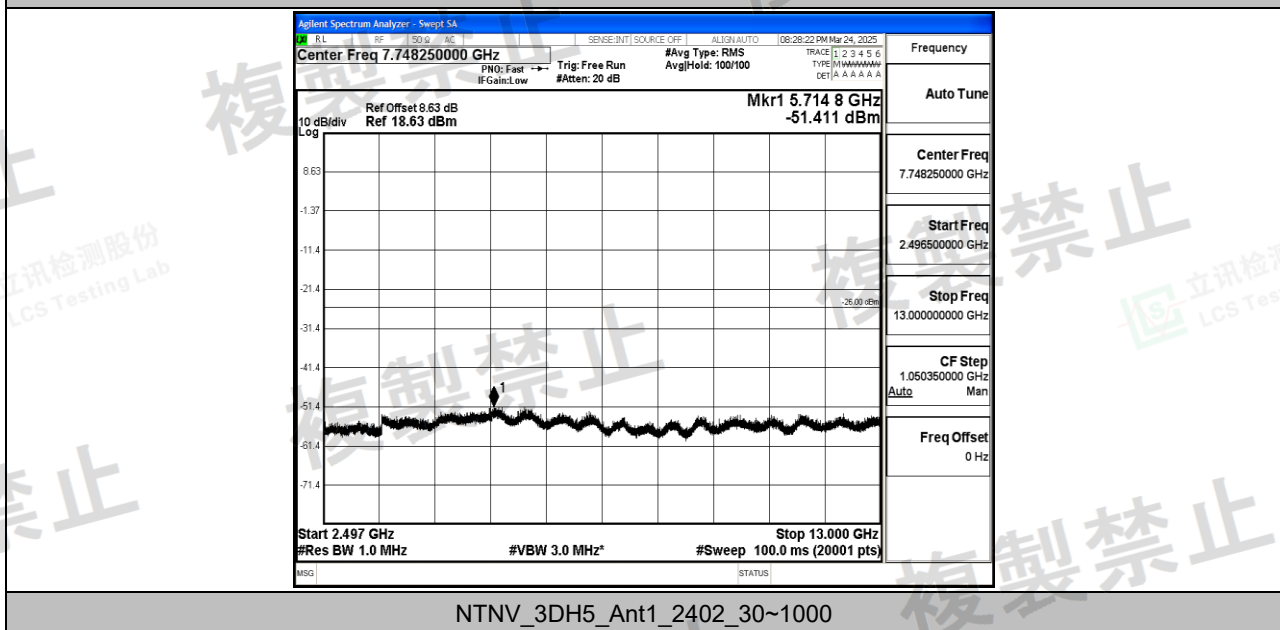
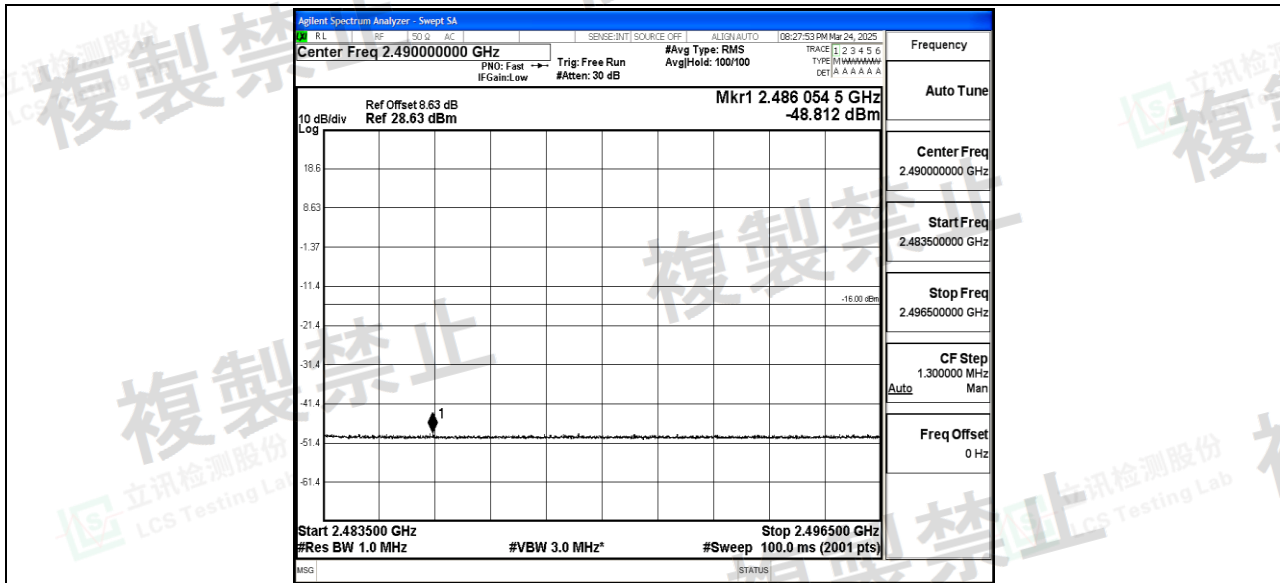


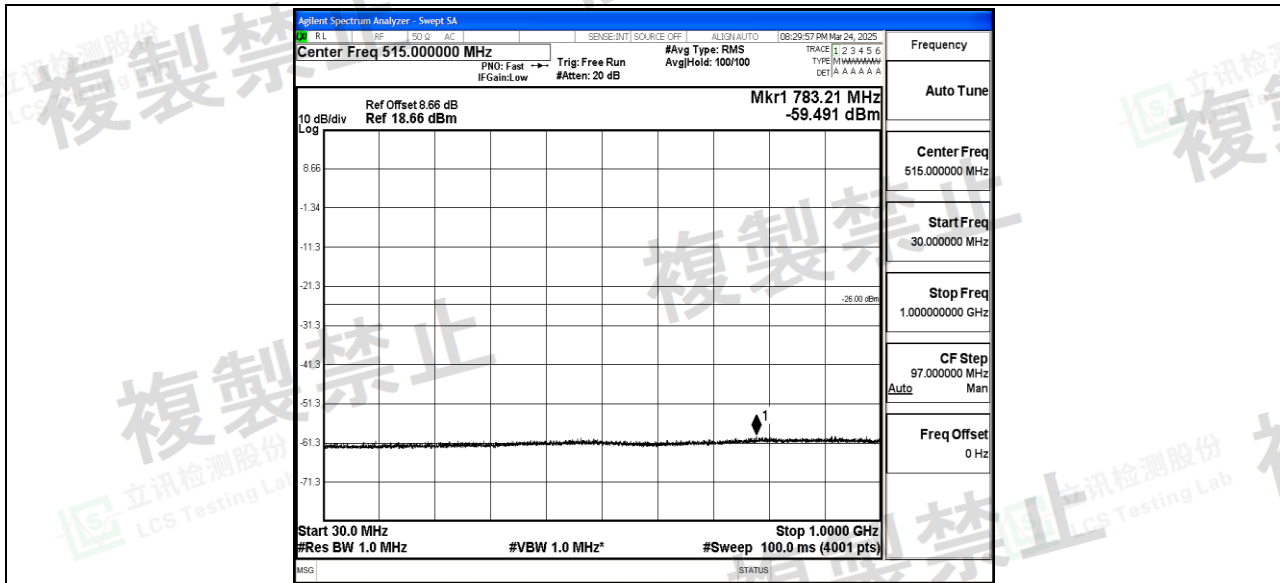
NTNV_2DH5_Ant1_2441_2496.5~13000



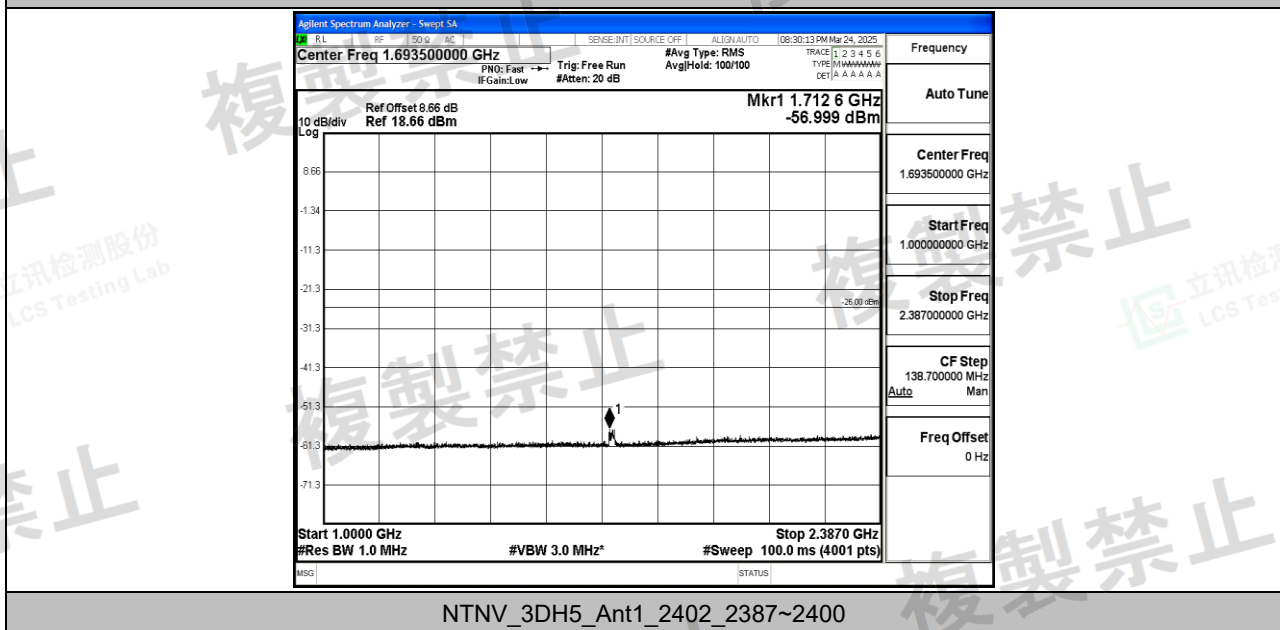






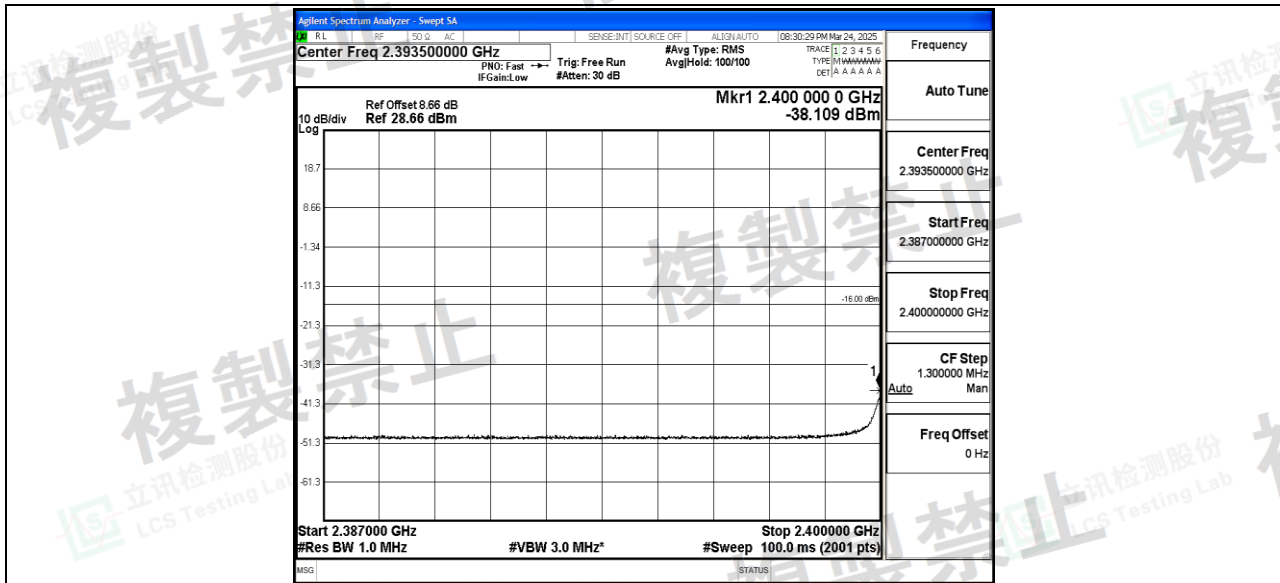


NTNV_3DH5_Ant1_2402_1000~2387

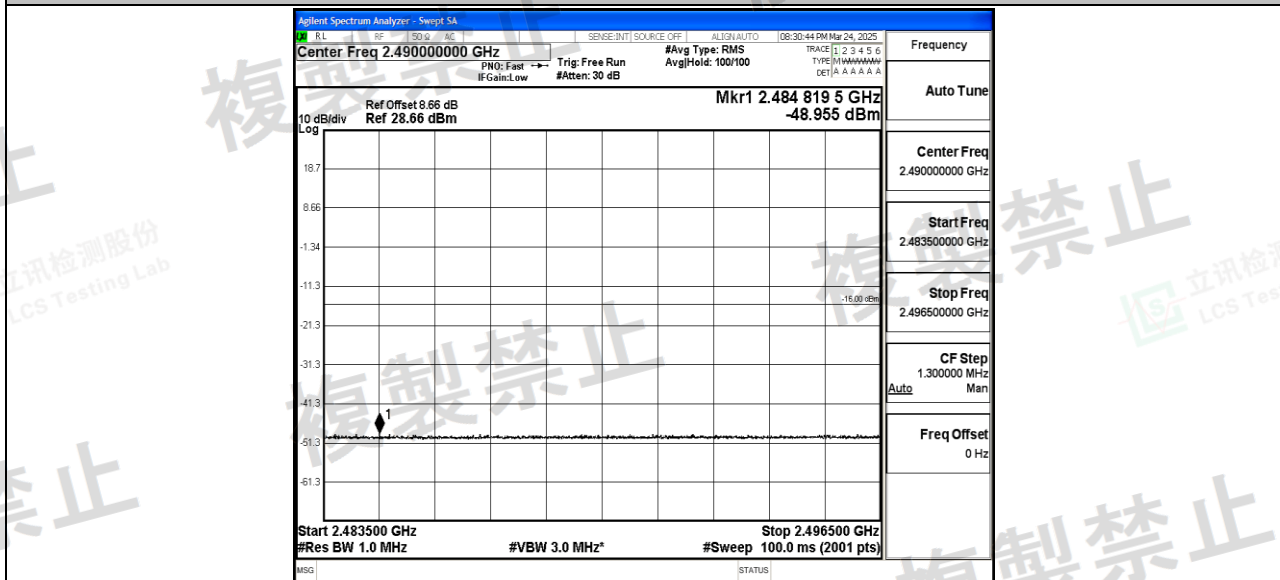


NTNV_3DH5_Ant1_2402_2387~2400



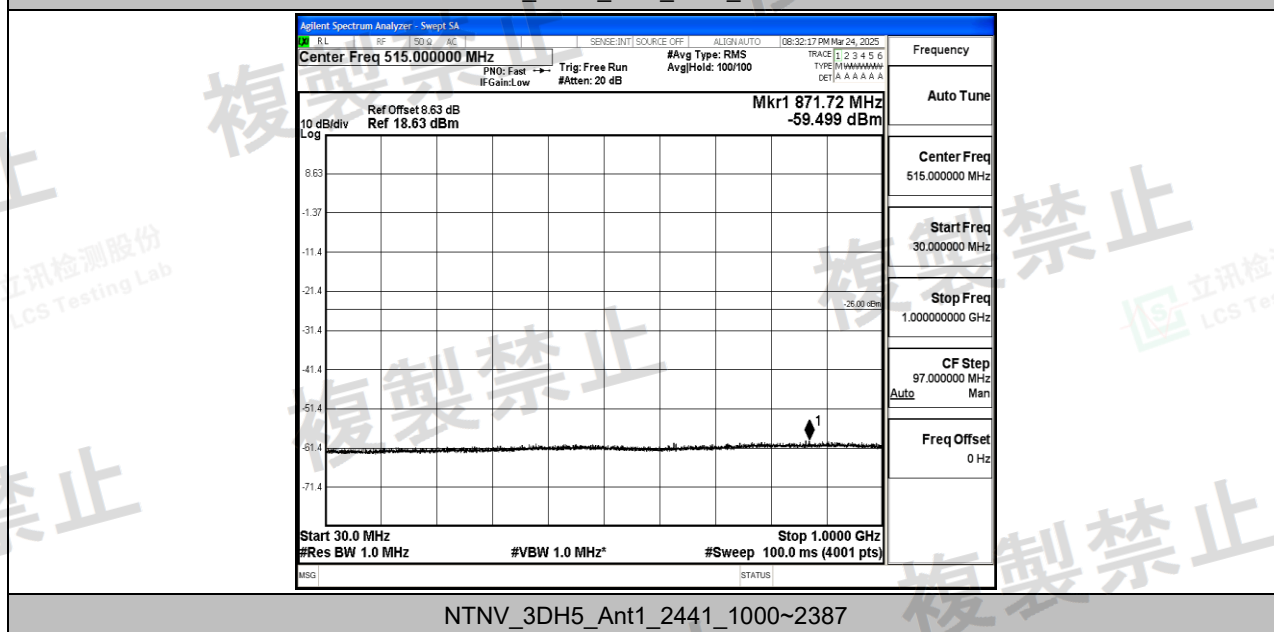
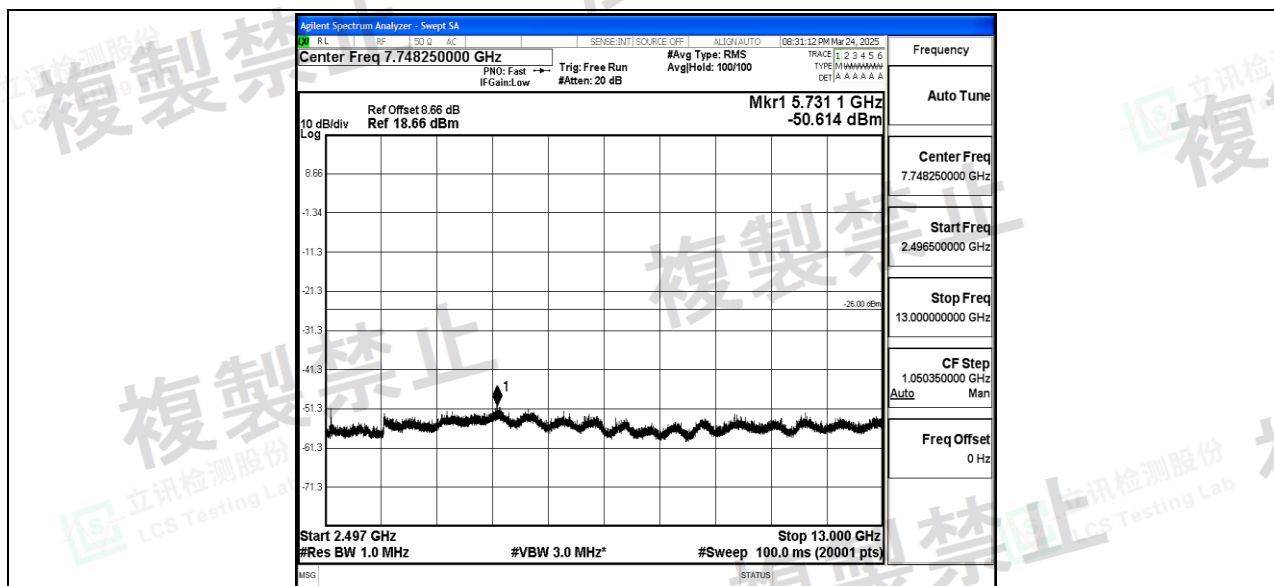


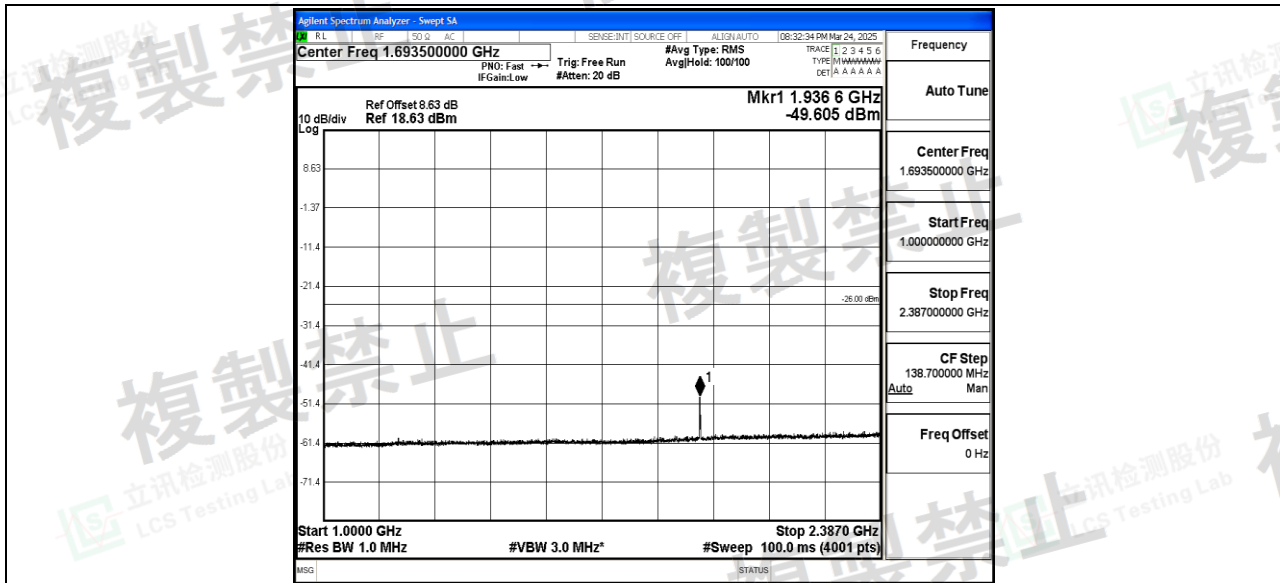
NTNV_3DH5_Ant1_2402_2483.5~2496.5



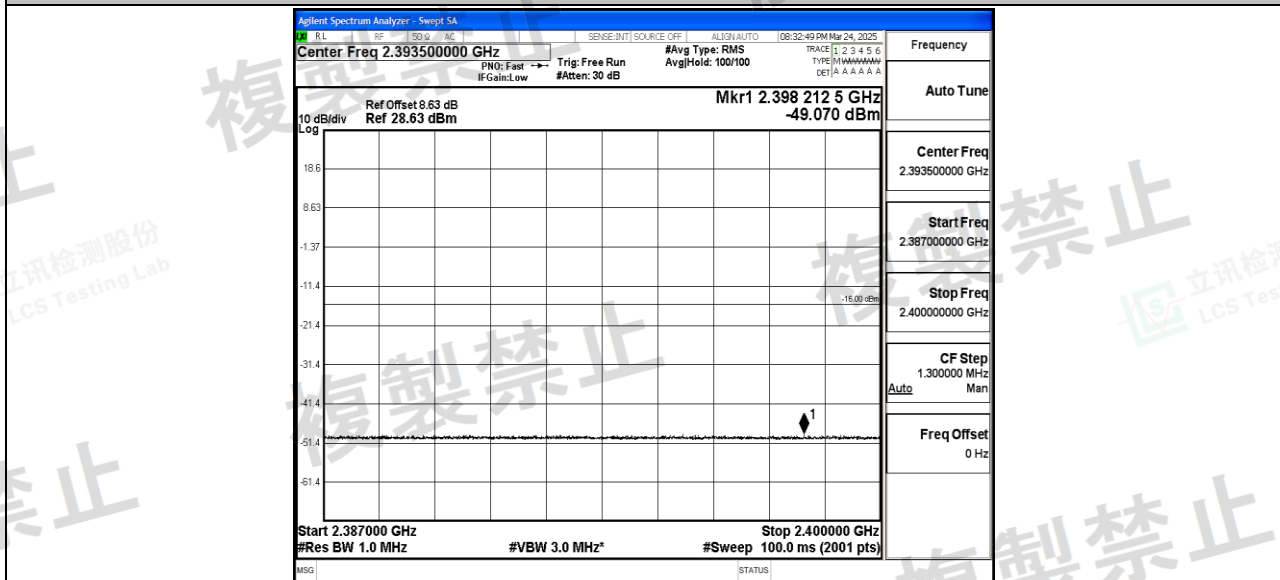
NTNV_3DH5_Ant1_2402_2496.5~13000







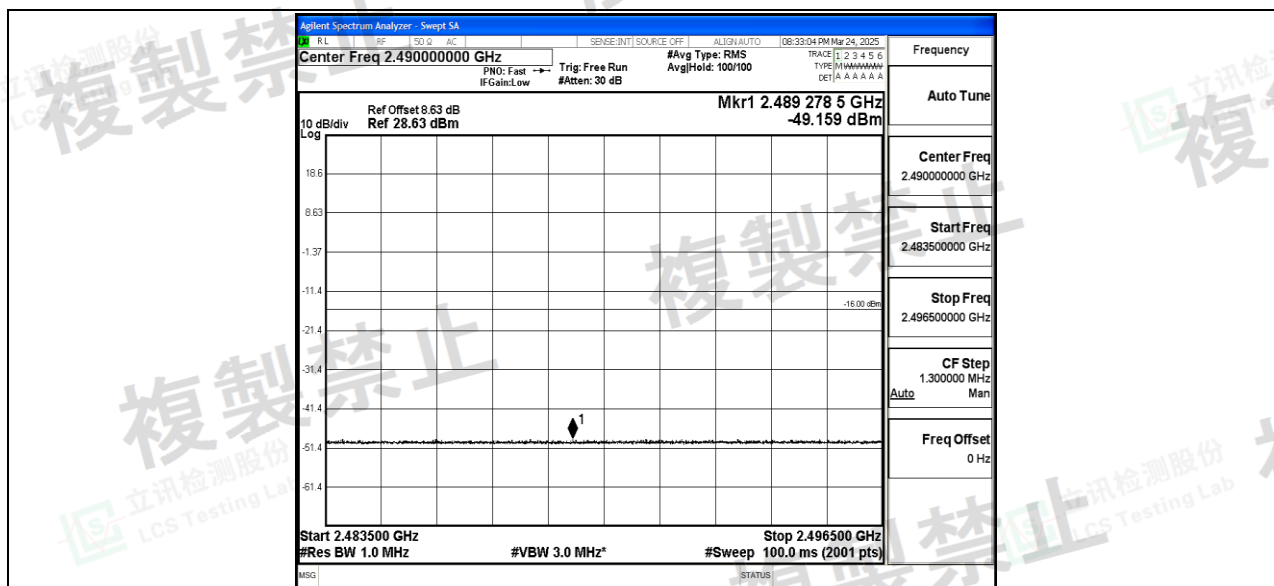
NTNV_3DH5_Ant1_2441_2387~2400



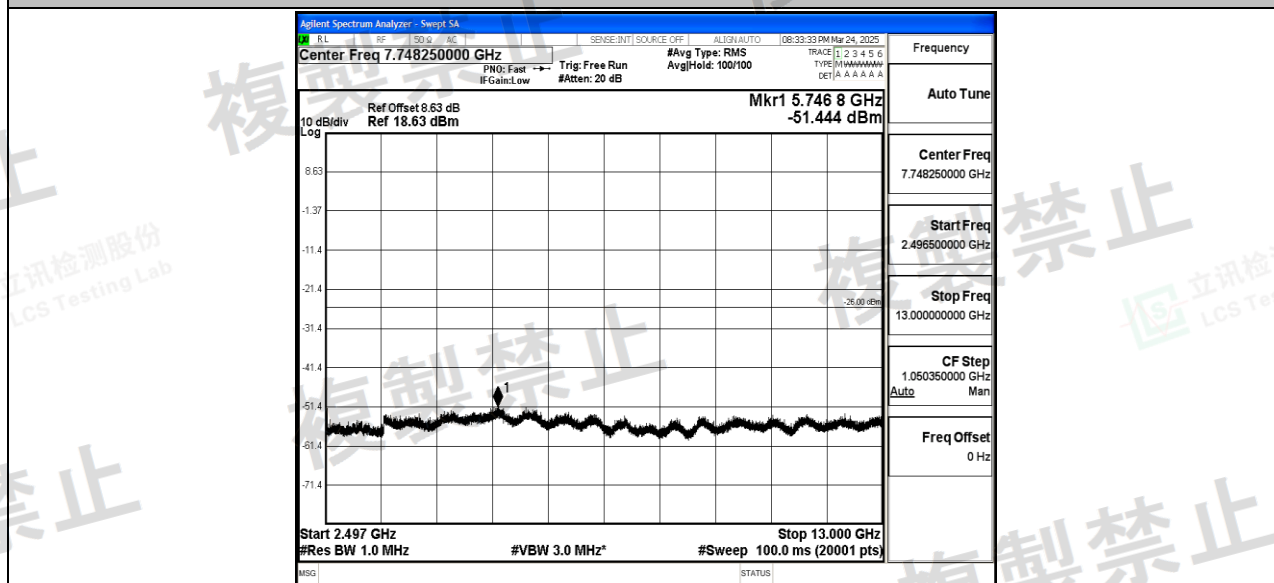
NTNV_3DH5_Ant1_2441_2483.5~2496.5



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NTNV_3DH5_Ant1_2441_2496.5~13000



NTNV_3DH5_Ant1_2480_30~1000

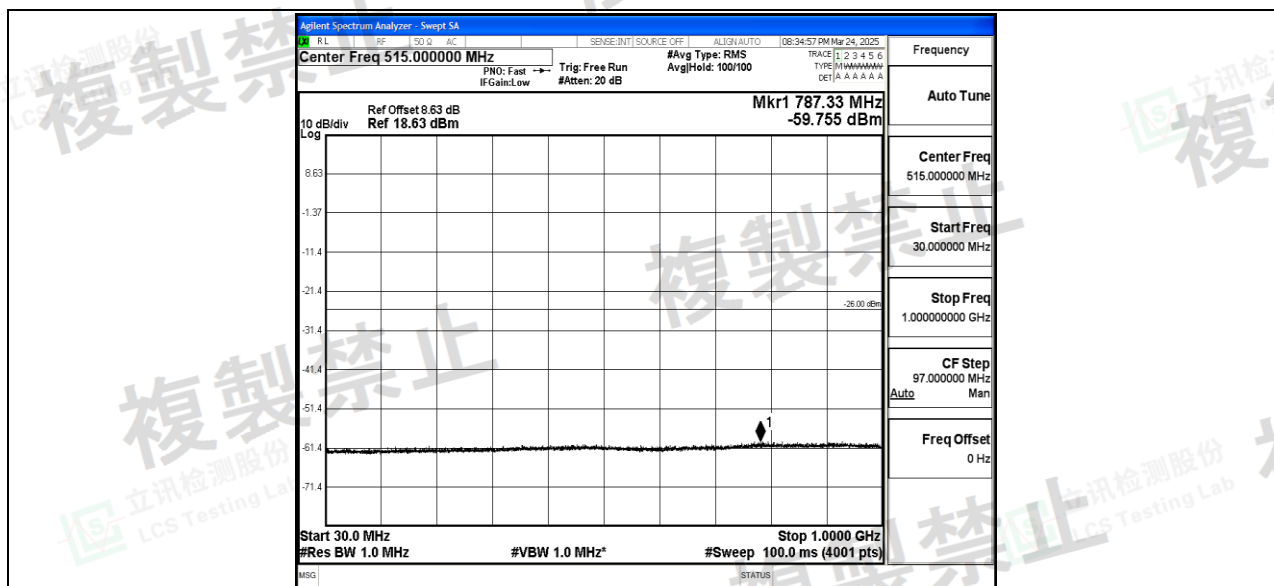


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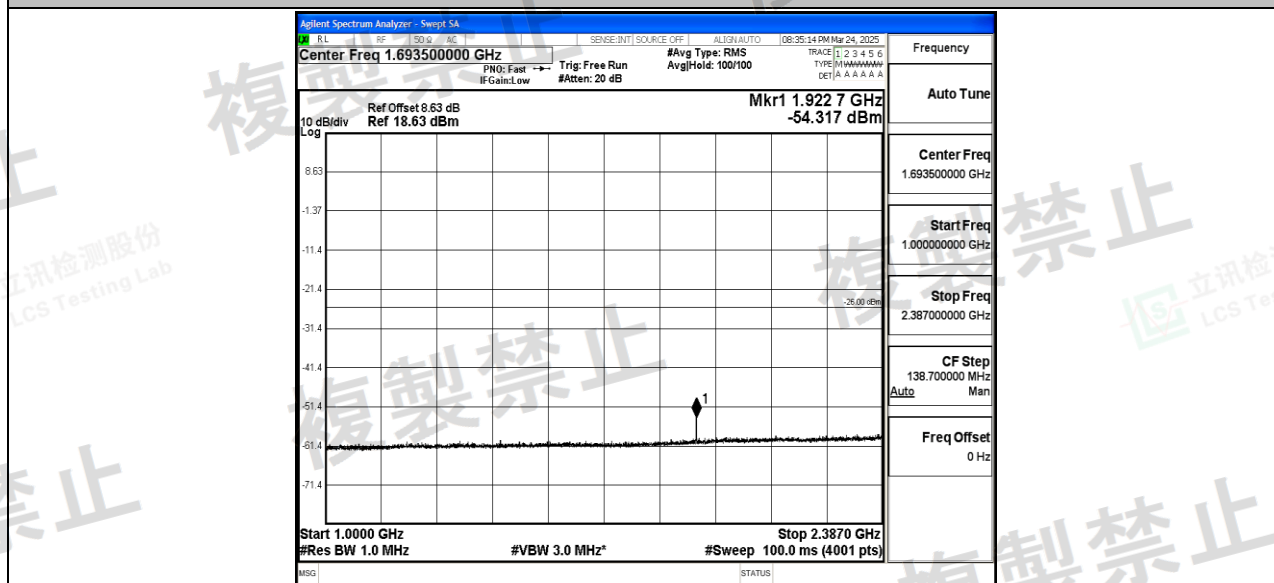
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NTNV_3DH5_Ant1_2480_1000~2387



NTNV_3DH5_Ant1_2480_2387~2400

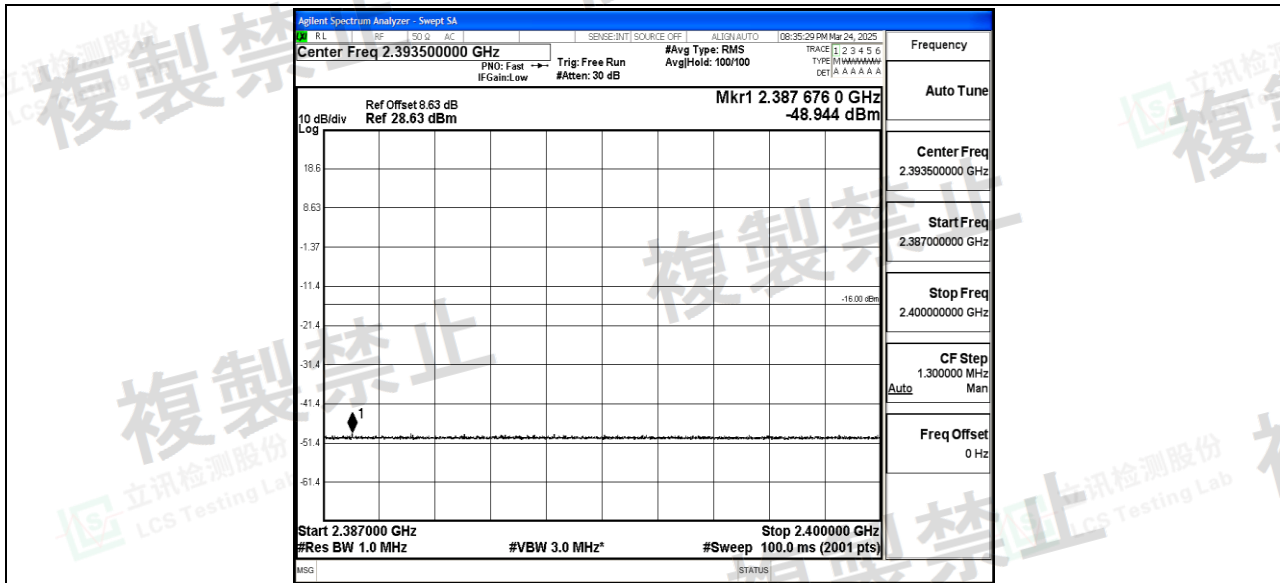


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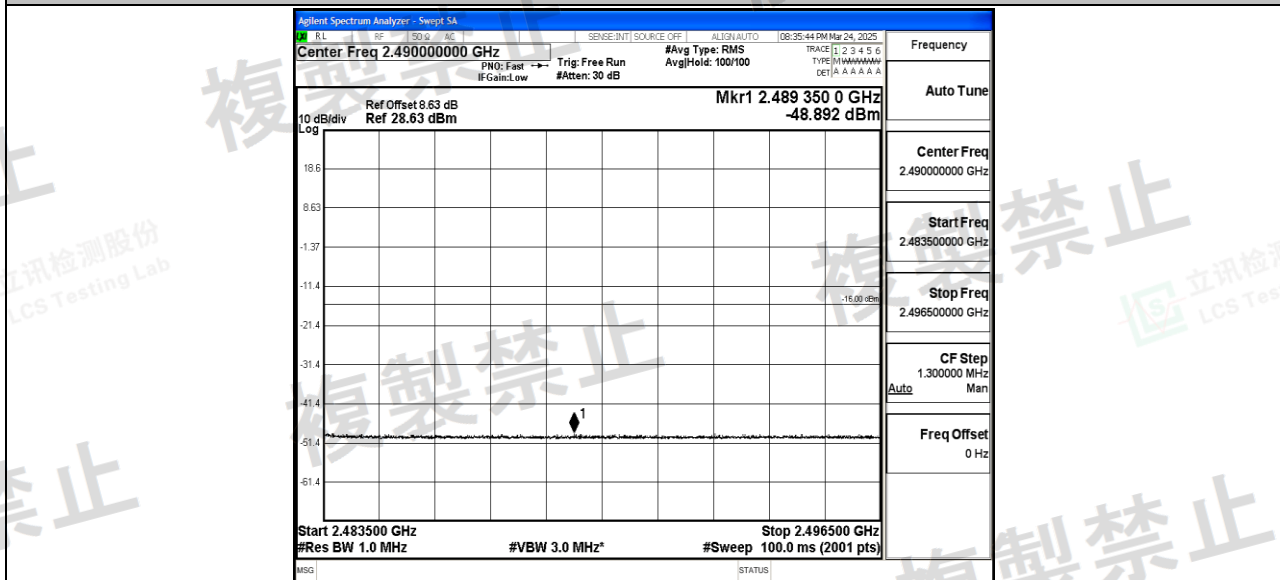
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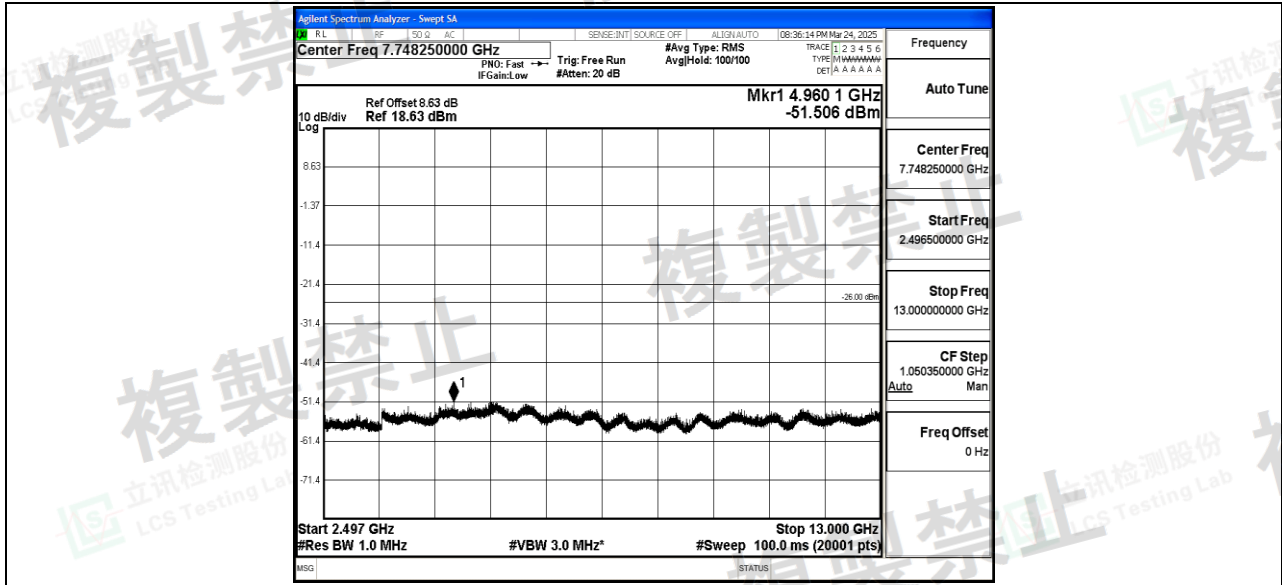
NTNV_3DH5_Ant1_2480_2483.5~2496.5



NTNV_3DH5_Ant1_2480_2496.5~13000



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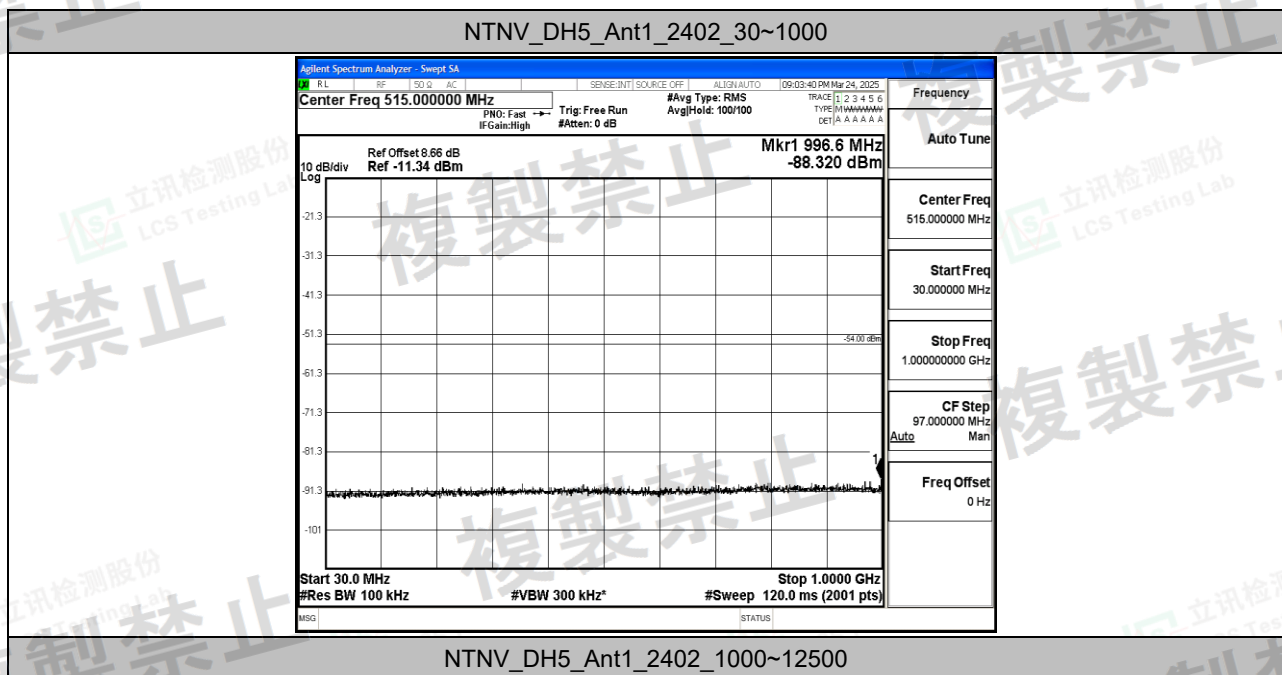


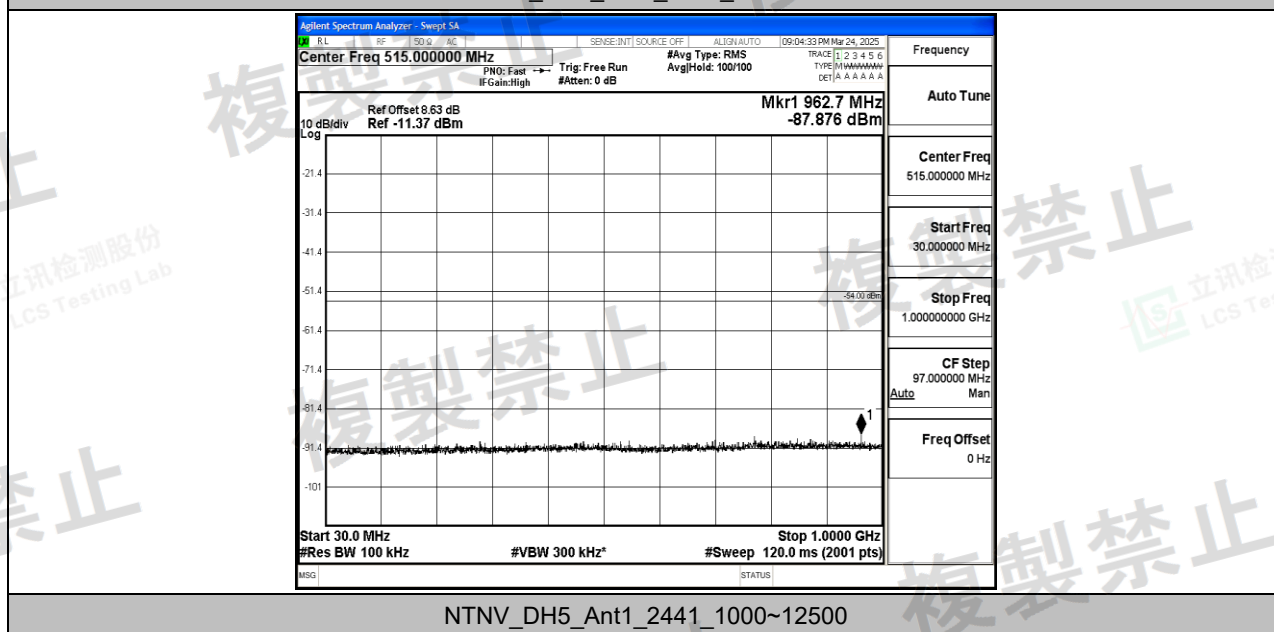
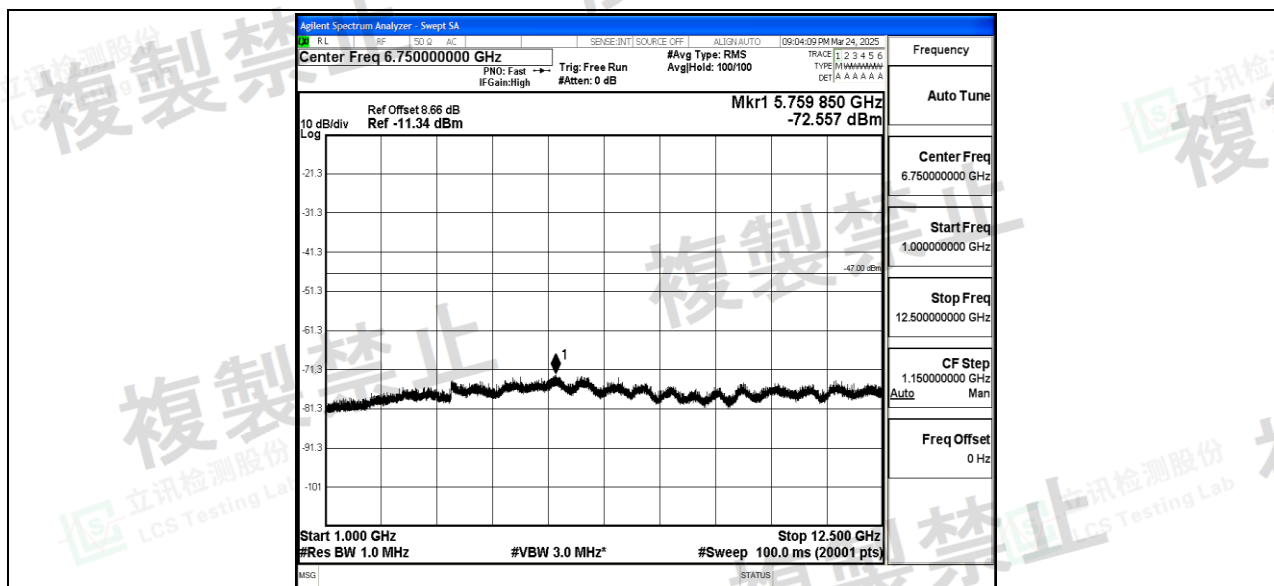
A.6 Spurious Emission of RX

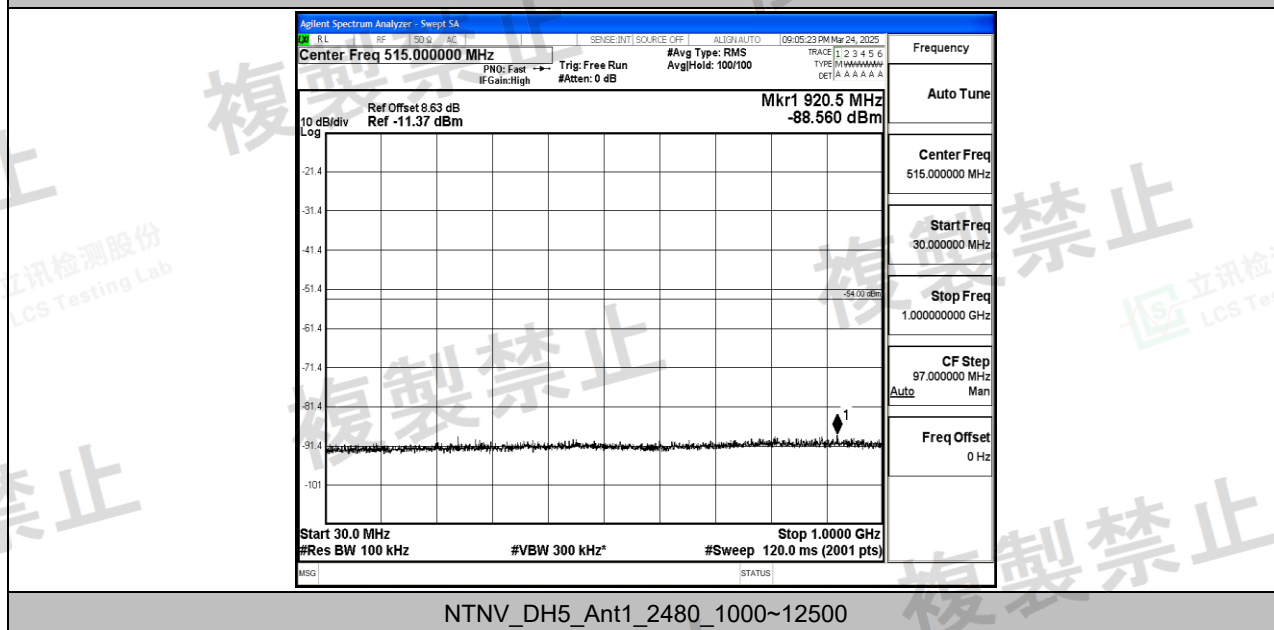
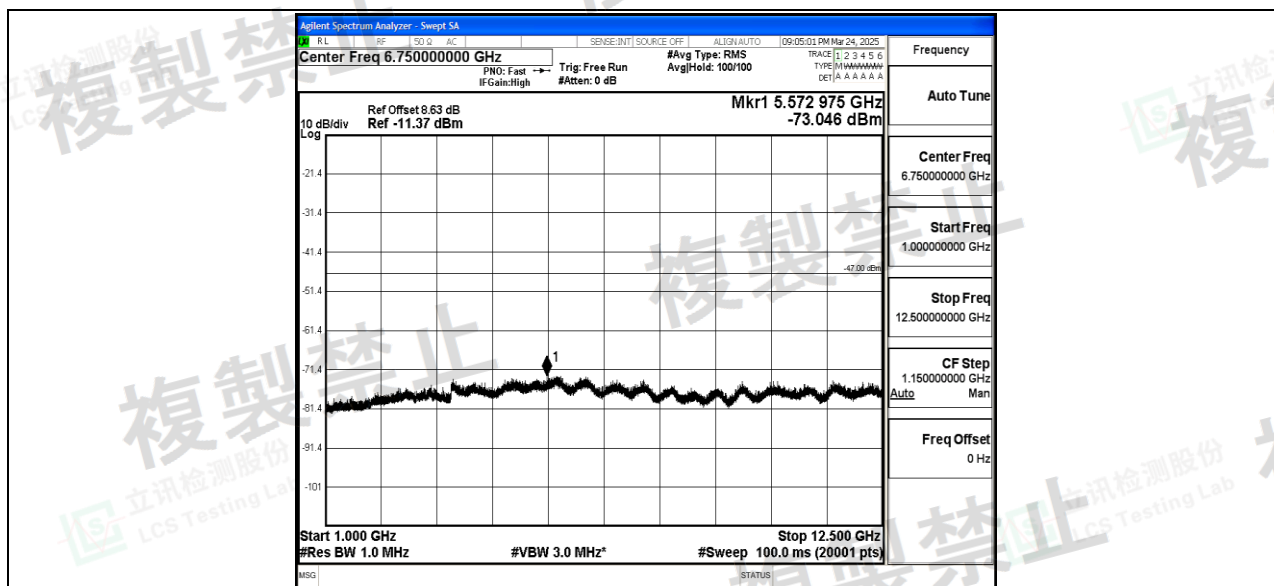
Test Result

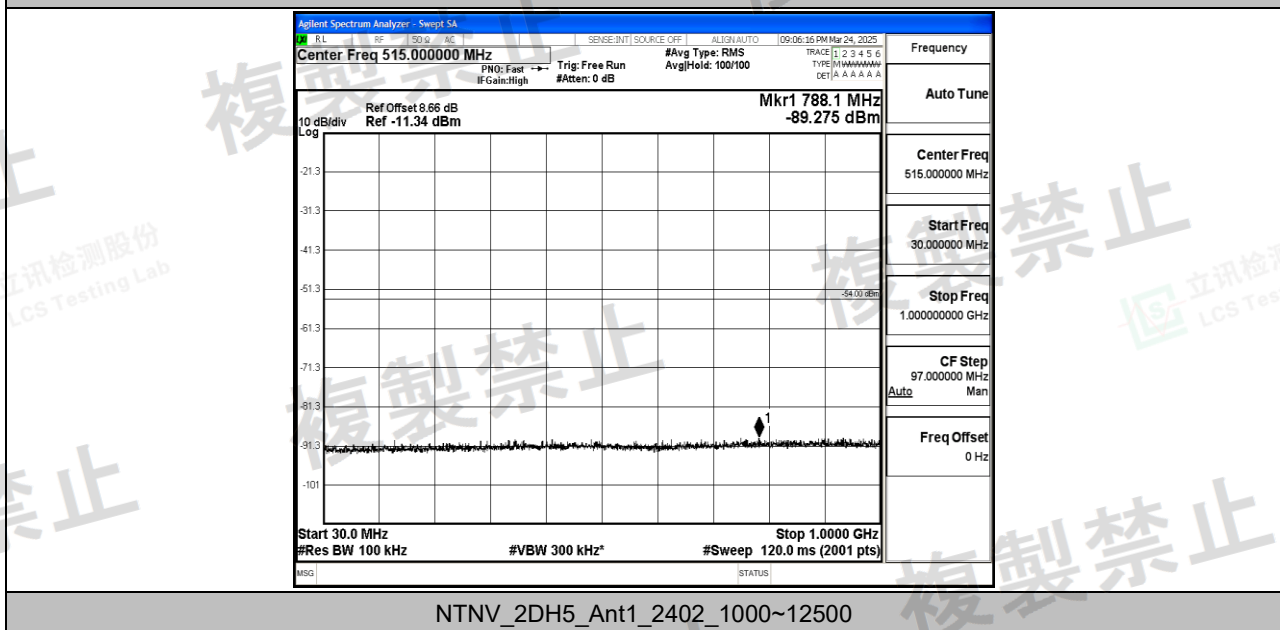
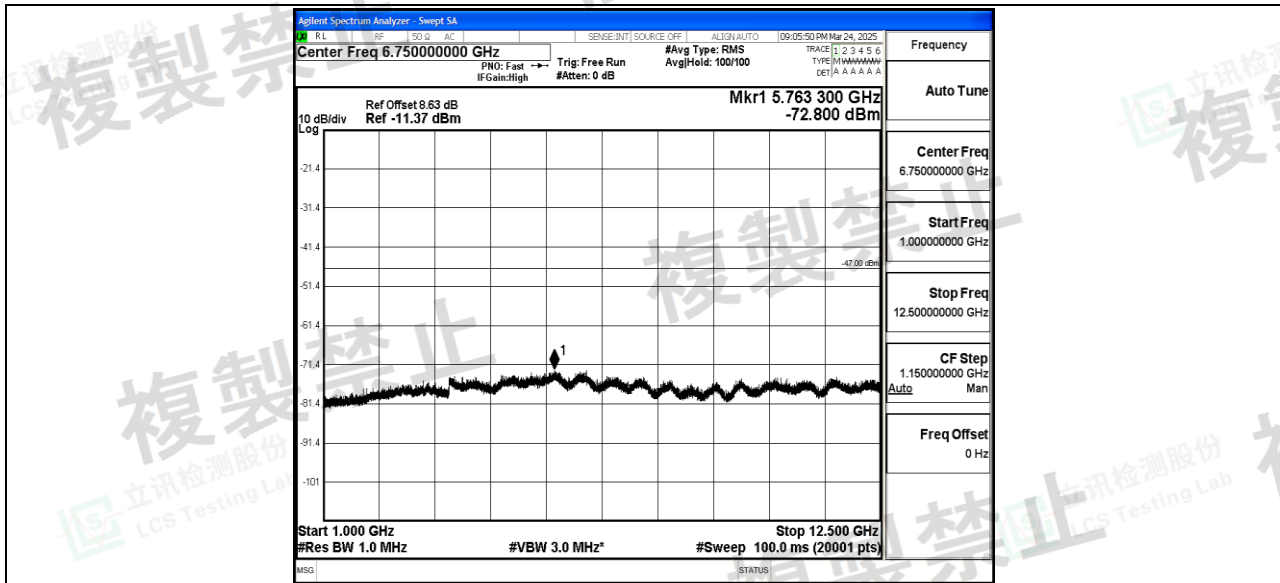
TestCondition	TestMode	Antenna	Frequency [MHz]	Freq.Range [MHz]	Result [dBm]	Limit [dBm]	Result [nW]	Limit [nW]	Verdict
NTNV	DH5	Ant1	2402	30~1000	-88.32	≤-54	0.00147	≤4	PASS
				1000~12500	-72.56	≤-47	0.05546	≤20	PASS
			2441	30~1000	-87.88	≤-54	0.00163	≤4	PASS
				1000~12500	-73.05	≤-47	0.04955	≤20	PASS
			2480	30~1000	-88.56	≤-54	0.00139	≤4	PASS
				1000~12500	-72.8	≤-47	0.05248	≤20	PASS
	2DH5	Ant1	2402	30~1000	-89.28	≤-54	0.00118	≤4	PASS
				1000~12500	-72.65	≤-47	0.05433	≤20	PASS
			2441	30~1000	-88.96	≤-54	0.00127	≤4	PASS
				1000~12500	-72.57	≤-47	0.05534	≤20	PASS
			2480	30~1000	-89.24	≤-54	0.00119	≤4	PASS
				1000~12500	-72.95	≤-47	0.05070	≤20	PASS
	3DH5	Ant1	2402	30~1000	-89	≤-54	0.00126	≤4	PASS
				1000~12500	-73.01	≤-47	0.05000	≤20	PASS
			2441	30~1000	-88.69	≤-54	0.00135	≤4	PASS
				1000~12500	-72.39	≤-47	0.05768	≤20	PASS
			2480	30~1000	-88.46	≤-54	0.00143	≤4	PASS
				1000~12500	-72.41	≤-47	0.05741	≤20	PASS

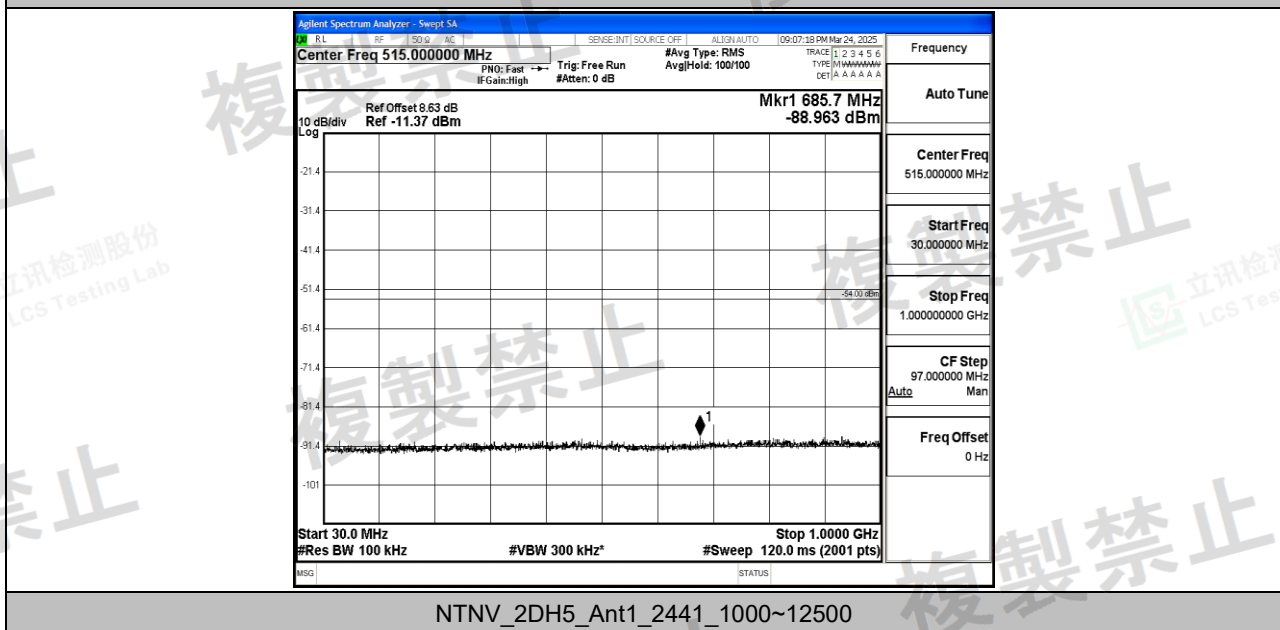
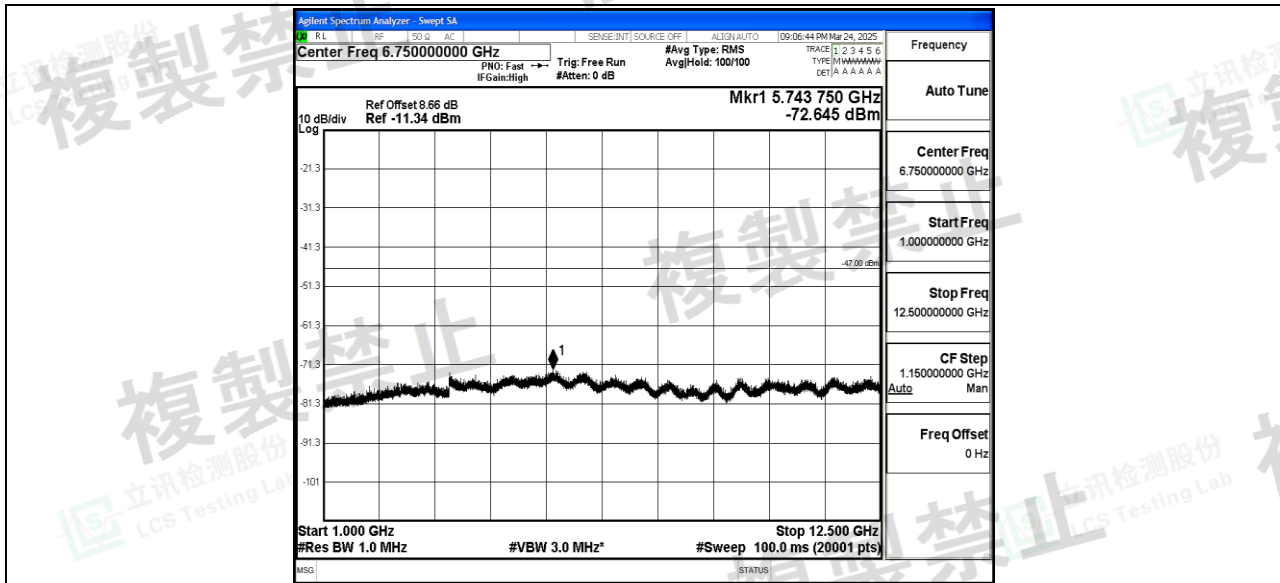
Test Graphs

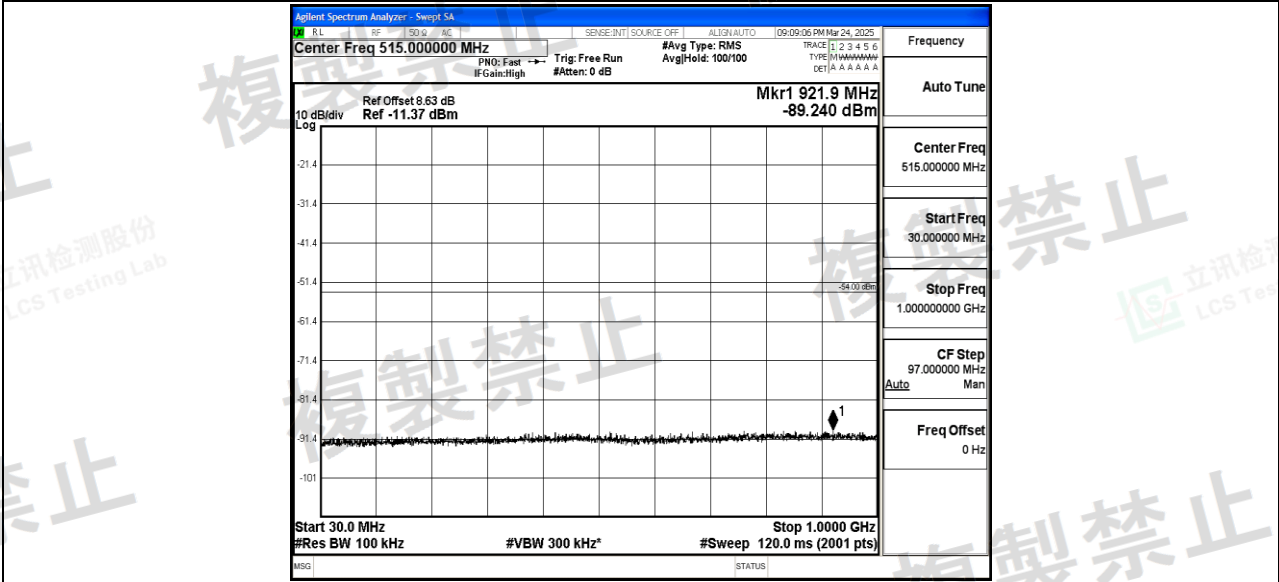
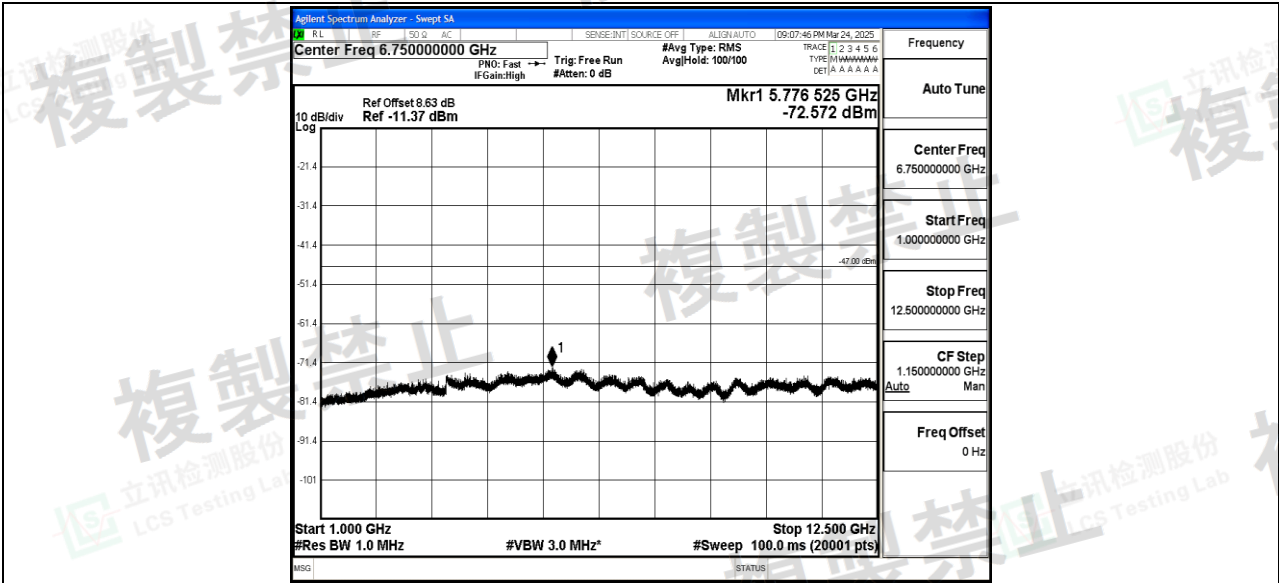


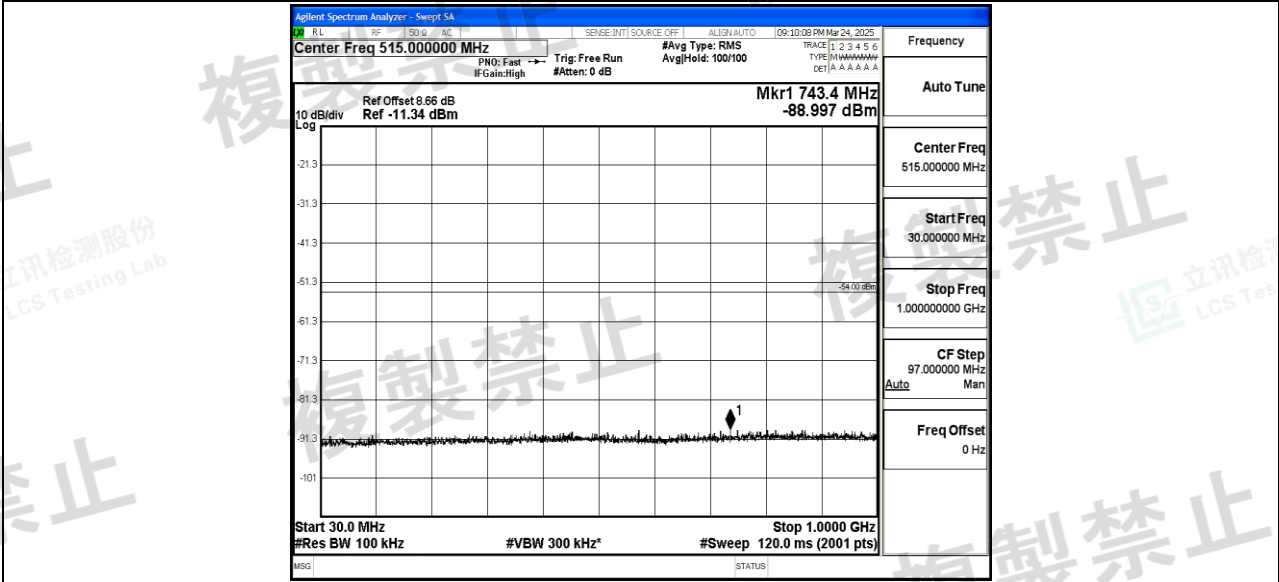
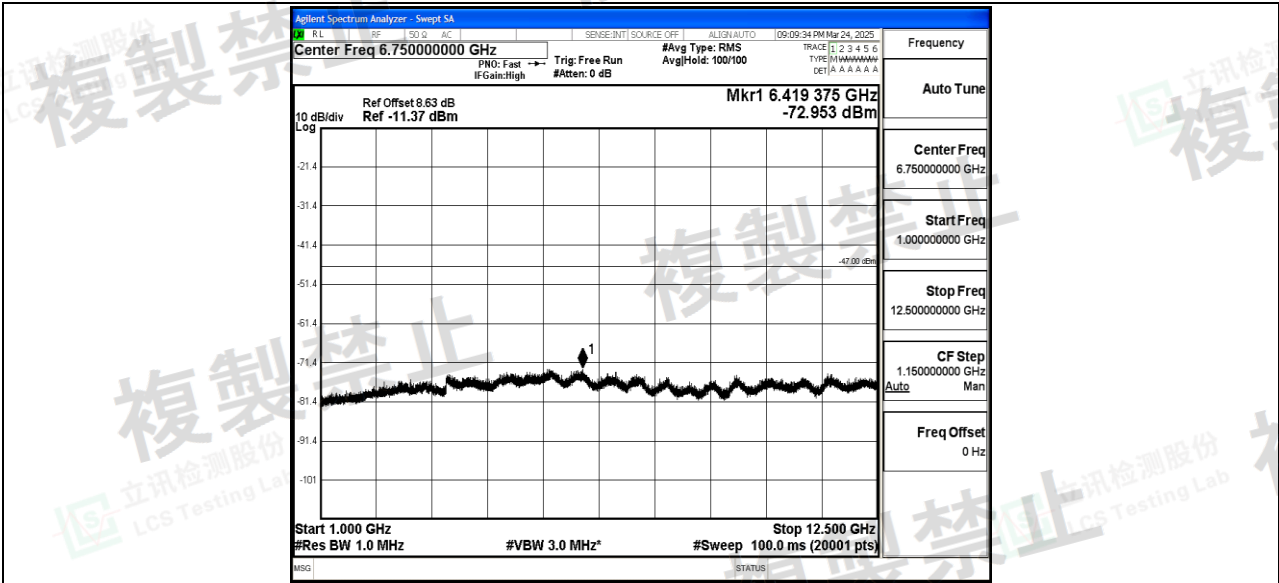


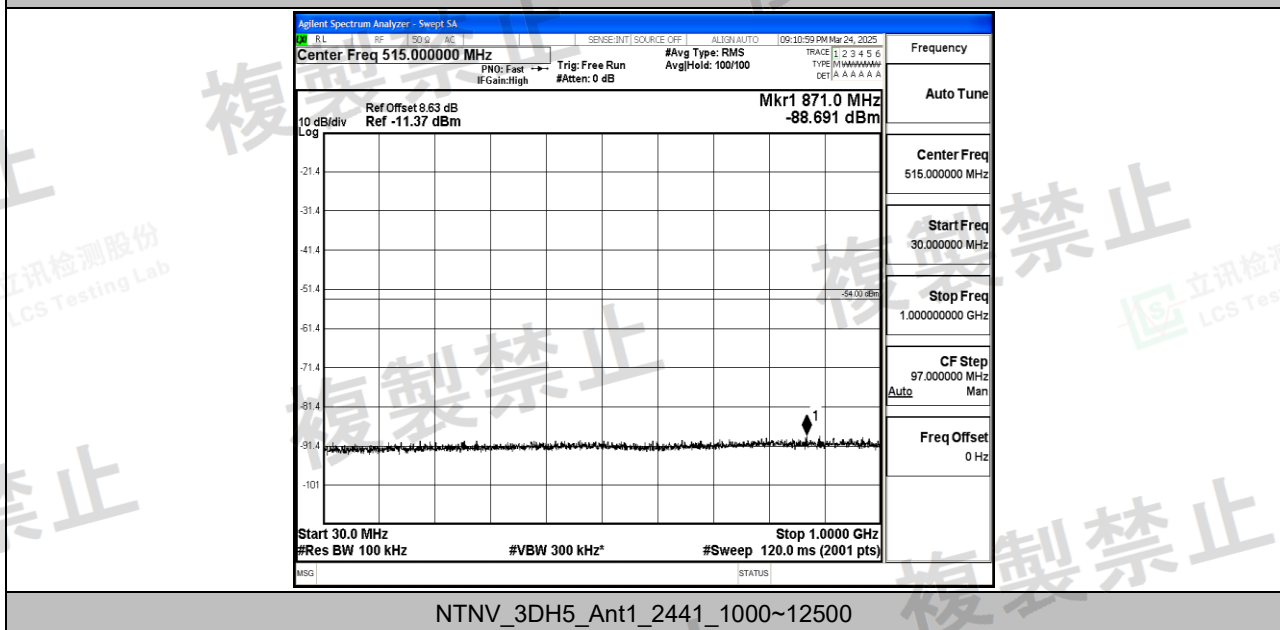
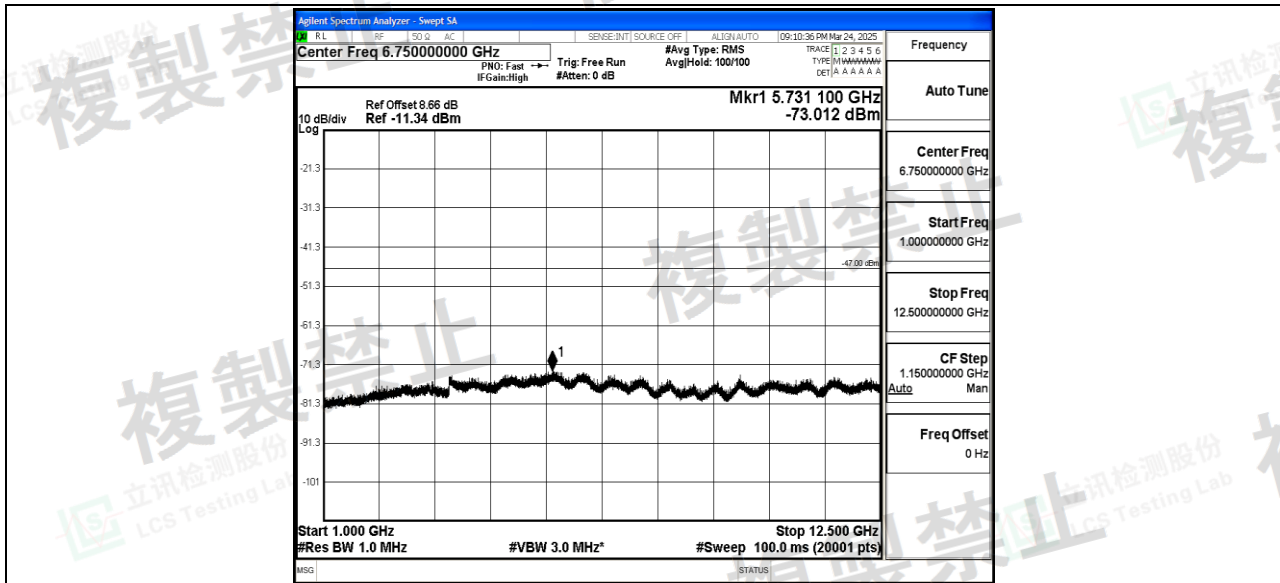


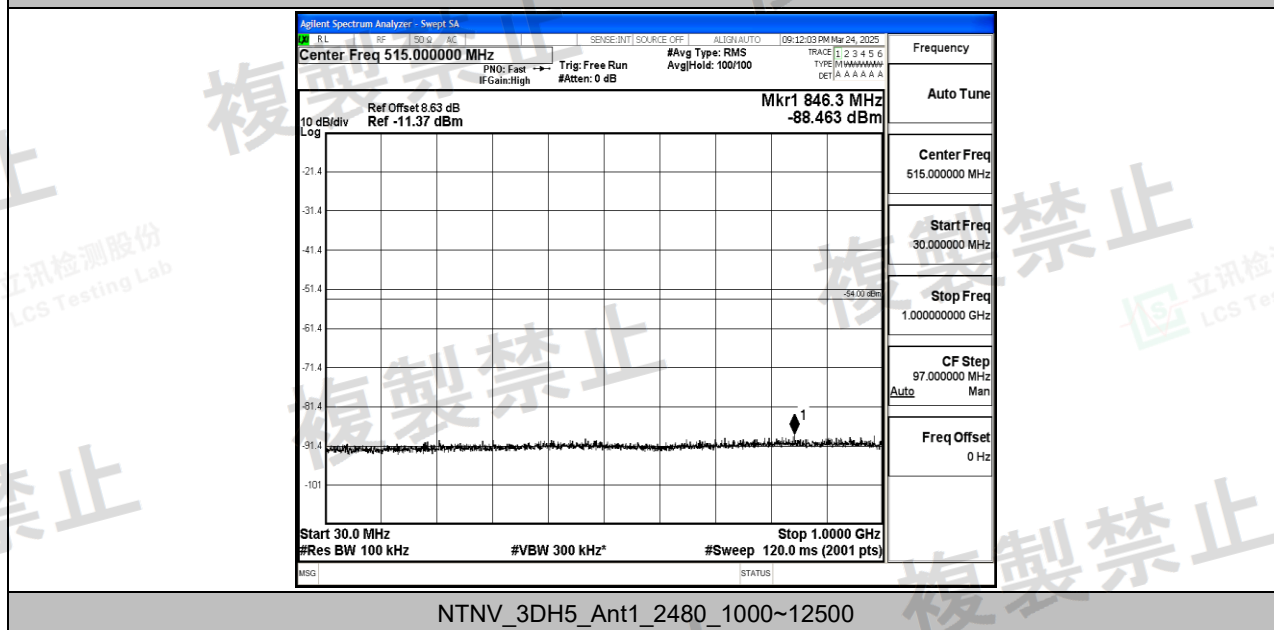
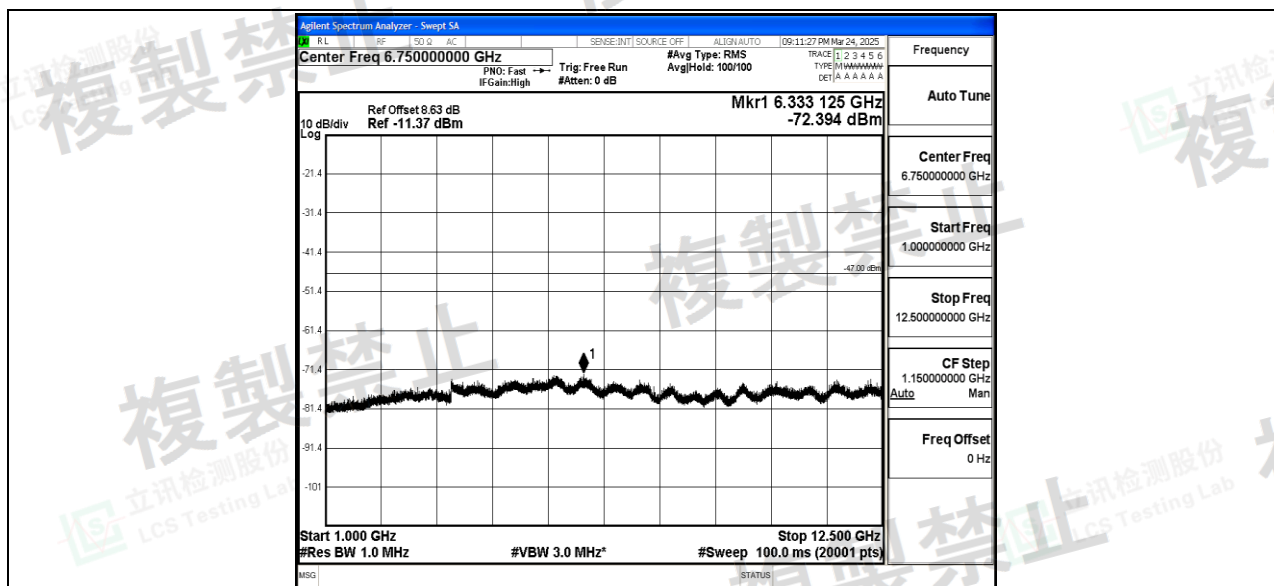


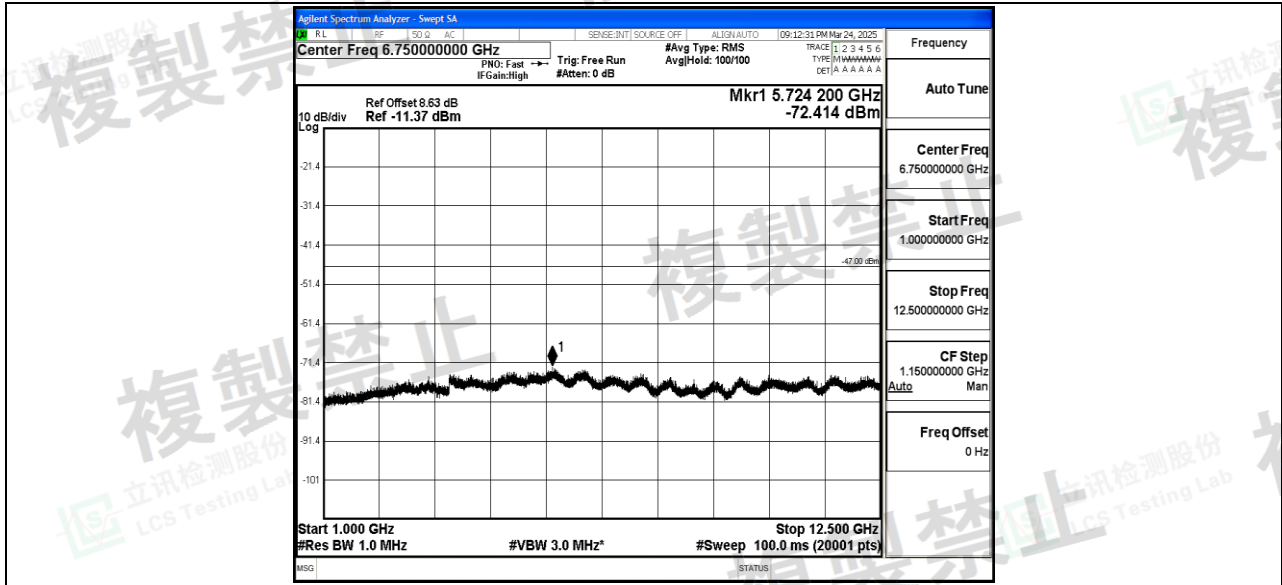












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A.7 Dwell Time

Test Result

TestCondition	TestMode	Antenna	Frequency [MHz]	BurstWidth [ms]	TotalHops [Num]	Result[s]	Limit [s]	Verdict
NTNV	DH5	Ant1	Hop	2.91	90	0.262	≤0.4	PASS
	2DH5	Ant1	Hop	1.54	100	0.154	≤0.4	PASS
	3DH5	Ant1	Hop	2.90	120	0.348	≤0.4	PASS



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Test Graphs

