

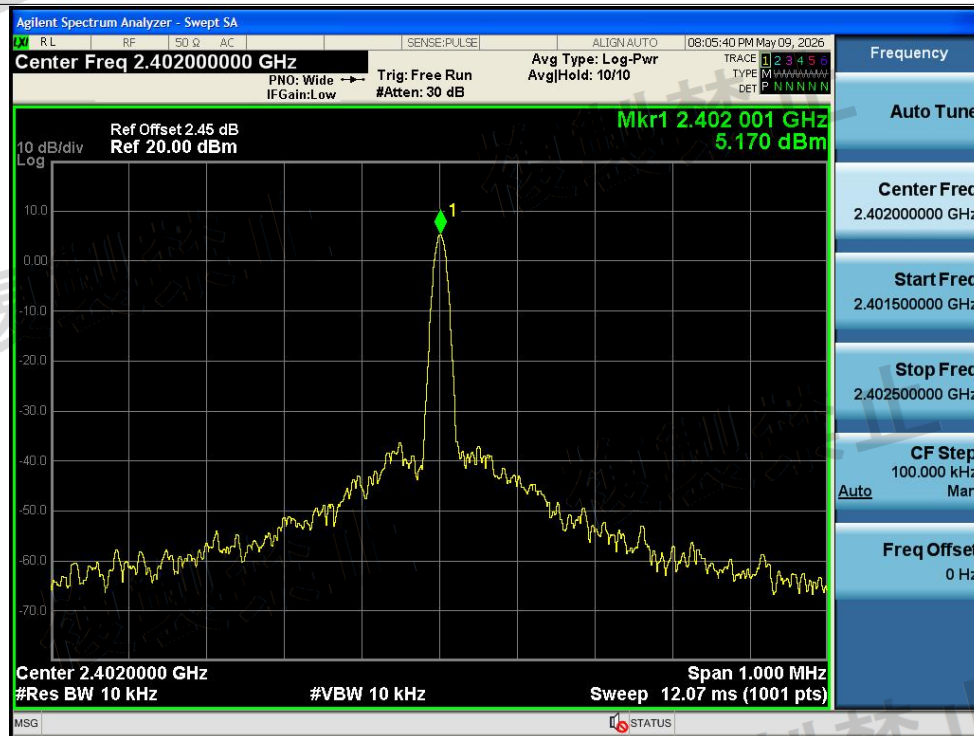
Appendix D BLE

Frequency Error

Condition	Mode	Frequency (MHz)	Antenna	Measured Frequency (MHz)	Frequency Error (Hz)	Deviation (ppm)	Limit (ppm)	Verdict
NVNT	BLE 1M	2402	Ant1	2402.001	1000	0.42	50	Pass
NVNT	BLE 1M	2440	Ant1	2440.001	1000	0.41	50	Pass
NVNT	BLE 1M	2480	Ant1	2480.001	1000	0.4	50	Pass
NVLT	BLE 1M	2402	Ant1	2402.001	1000	0.42	50	Pass
NVLT	BLE 1M	2440	Ant1	2440.001	1000	0.41	50	Pass
NVLT	BLE 1M	2480	Ant1	2480.001	1000	0.4	50	Pass
NVHT	BLE 1M	2402	Ant1	2402.001	1000	0.42	50	Pass
NVHT	BLE 1M	2440	Ant1	2440.001	1000	0.41	50	Pass
NVHT	BLE 1M	2480	Ant1	2480.001	1000	0.4	50	Pass

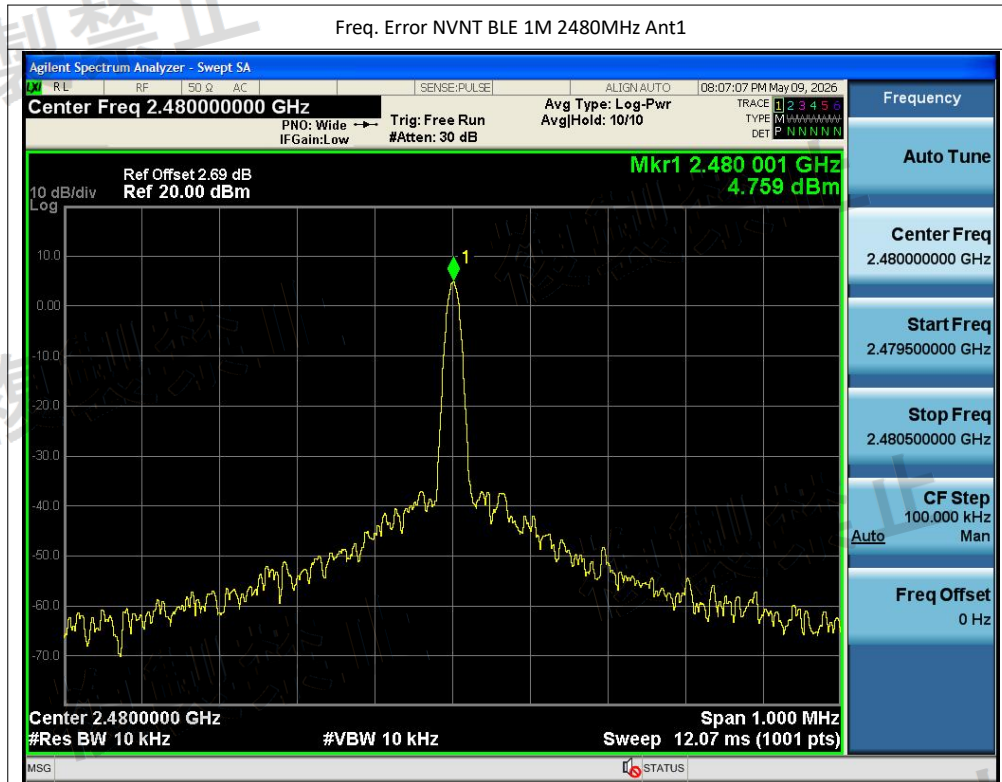
Test Graphs

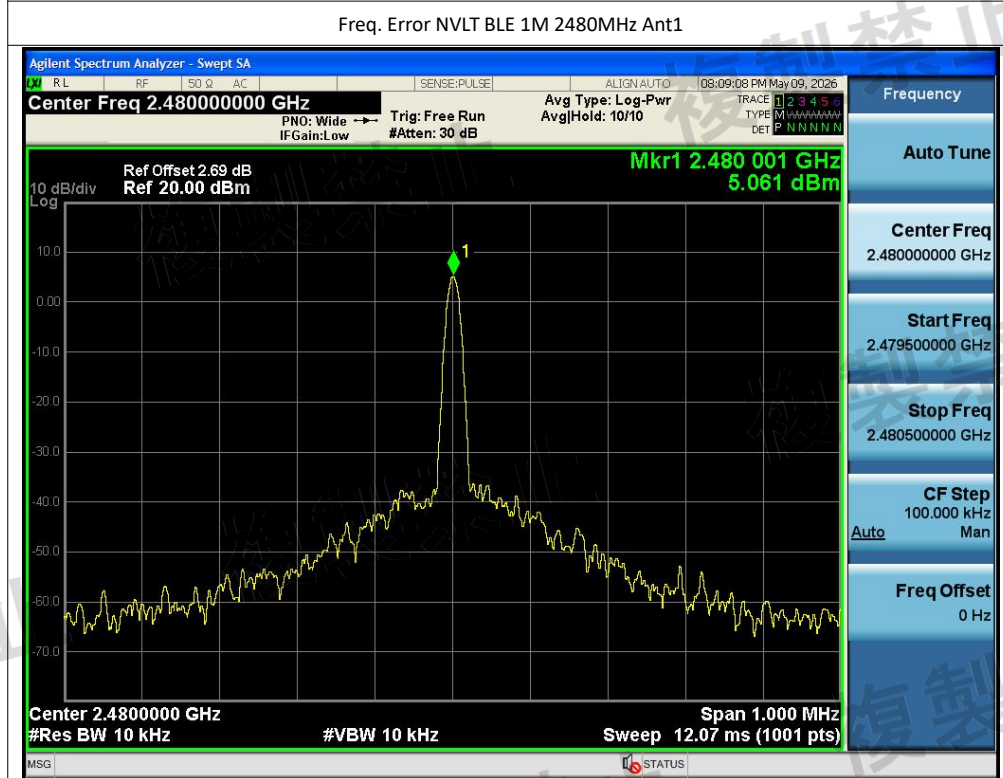
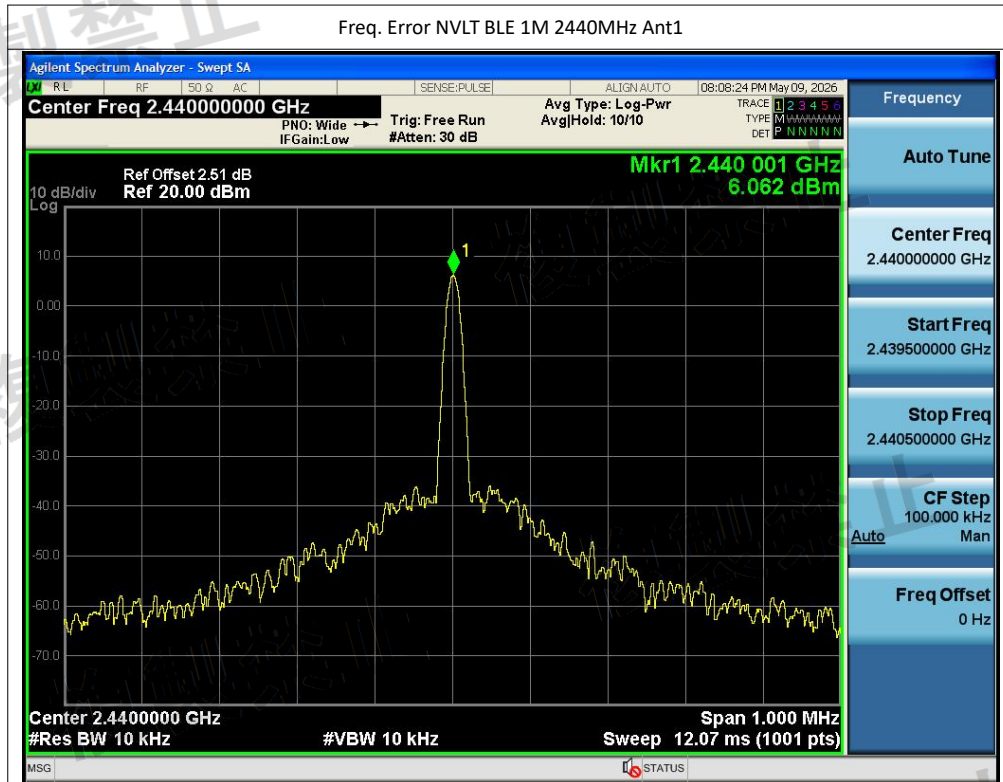
Freq. Error NVNT BLE 1M 2402MHz Ant1

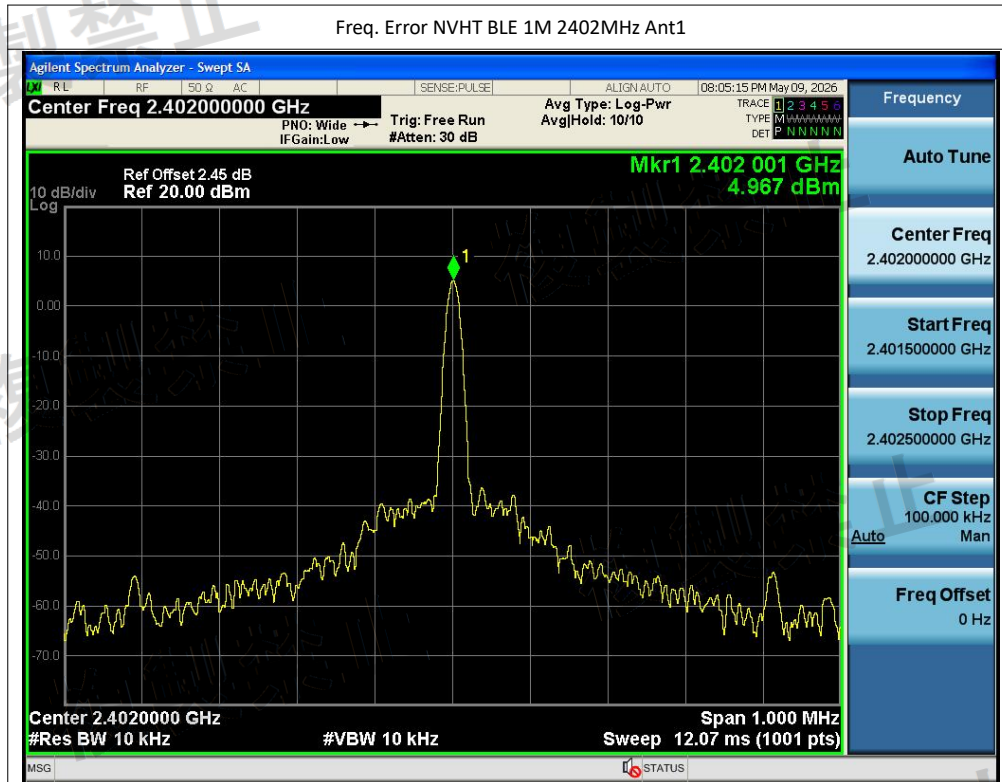


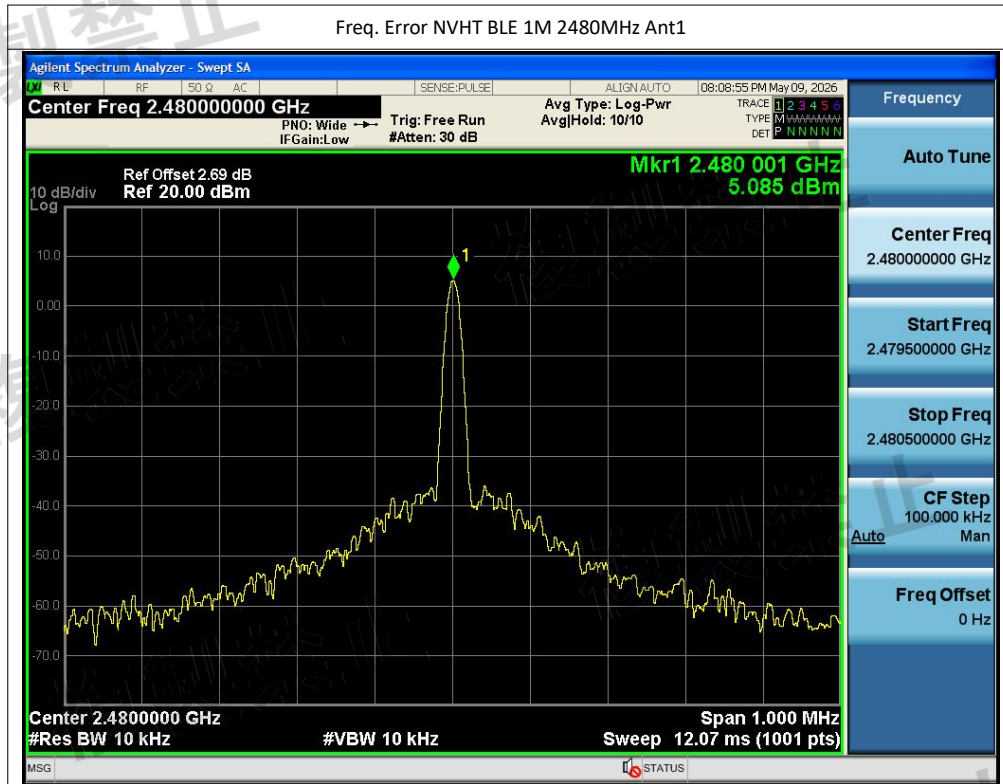
Freq. Error NVNT BLE 1M 2440MHz Ant1









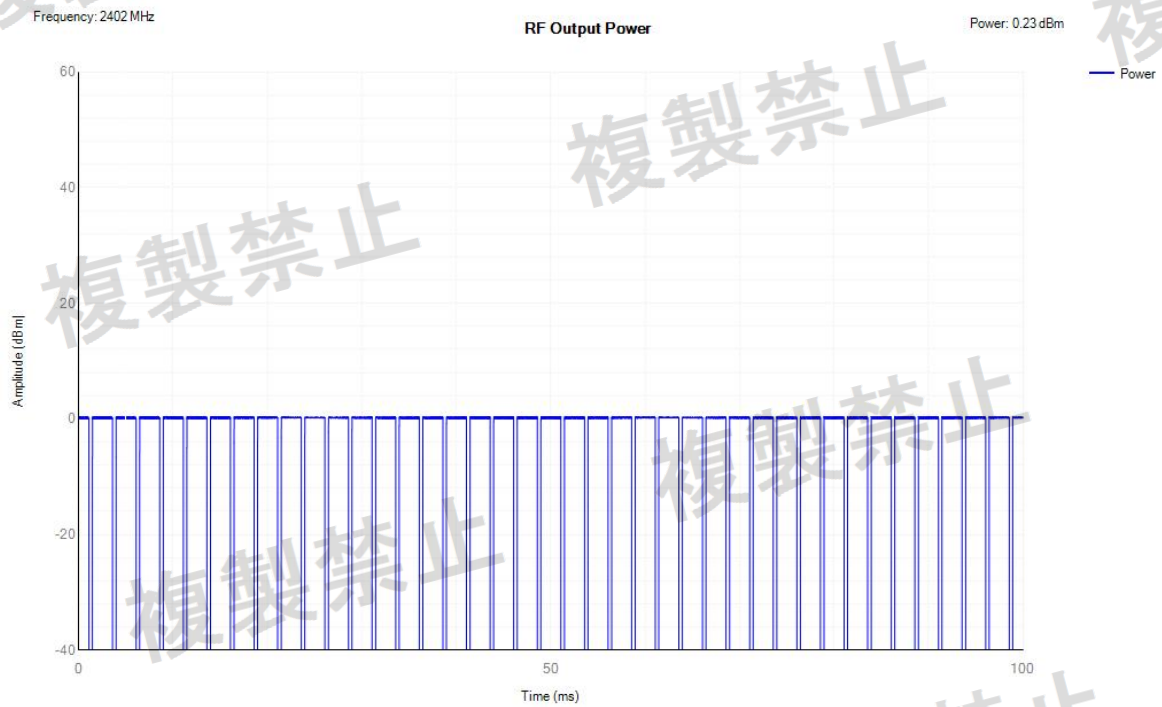


Antenna Power

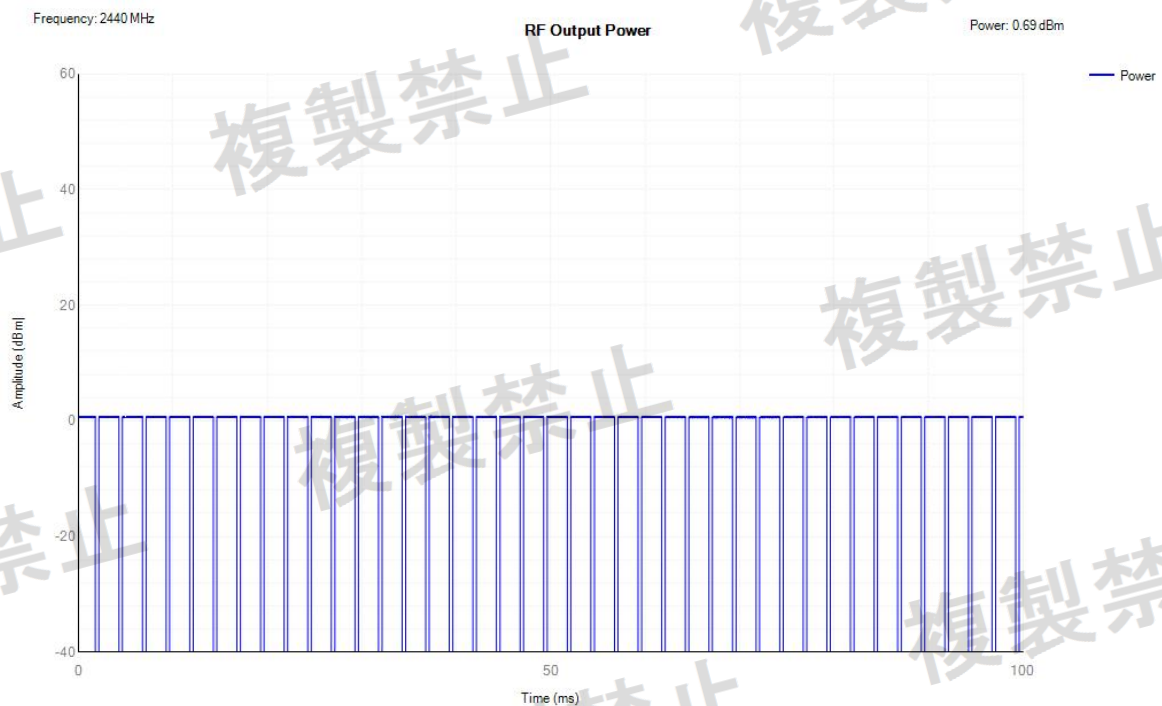
Condition	Mode	Frequency (MHz)	Antenna	Power (dBm)	Power (mW)	Limit (mW)	Declared Power (mW)	Tolerance (%)	Upper Limit (%)	Verdict
NVNT	BLE 1M	2402	Ant1	0.23	1.054	10	1	5.4	20	Pass
NVNT	BLE 1M	2440	Ant1	0.69	1.172	10	1	17.2	20	Pass
NVNT	BLE 1M	2480	Ant1	-0.21	0.953	10	1	-4.7	20	Pass
NVLT	BLE 1M	2402	Ant1	0.02	1.005	10	1	0.5	20	Pass
NVLT	BLE 1M	2440	Ant1	-0.21	0.953	10	1	-4.7	20	Pass
NVLT	BLE 1M	2480	Ant1	-0.17	0.962	10	1	-3.8	20	Pass
NVHT	BLE 1M	2402	Ant1	0.16	1.038	10	1	3.8	20	Pass
NVHT	BLE 1M	2440	Ant1	0.66	1.164	10	1	16.4	20	Pass
NVHT	BLE 1M	2480	Ant1	0.48	1.117	10	1	11.7	20	Pass

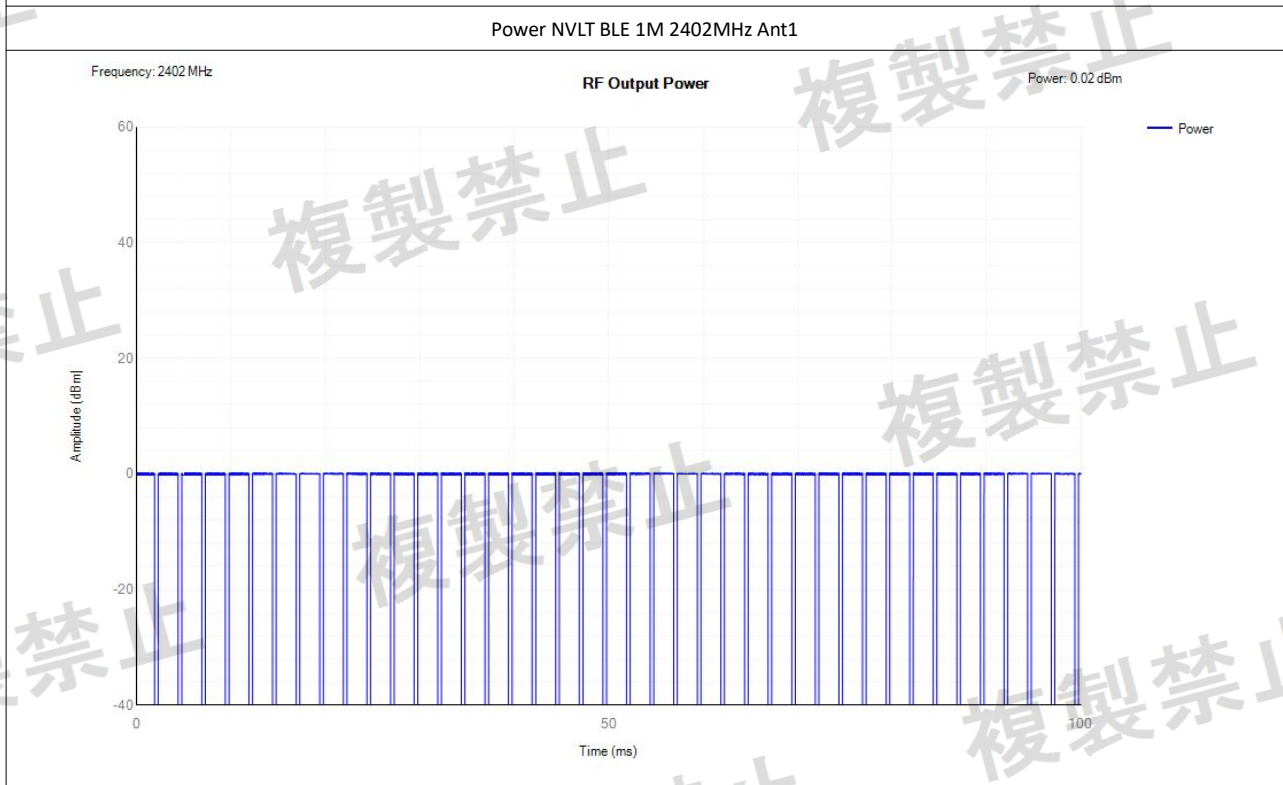
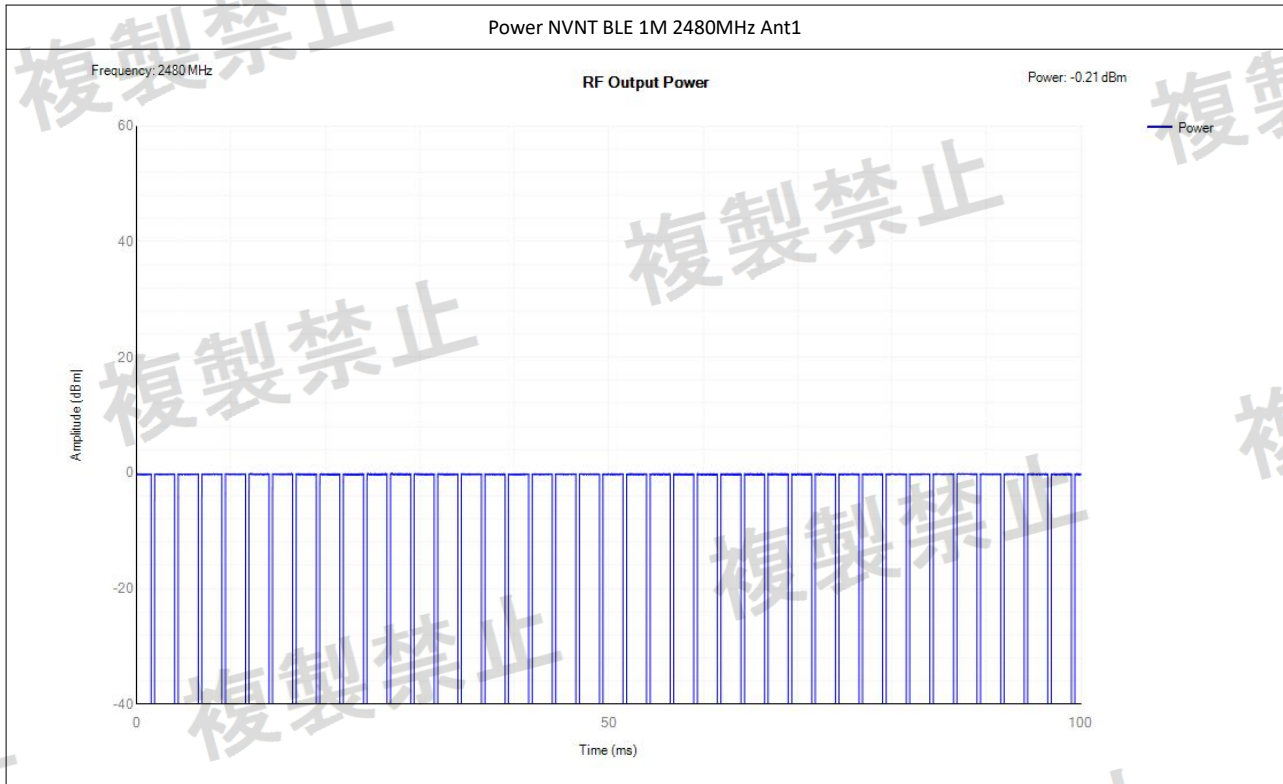
Test Graphs

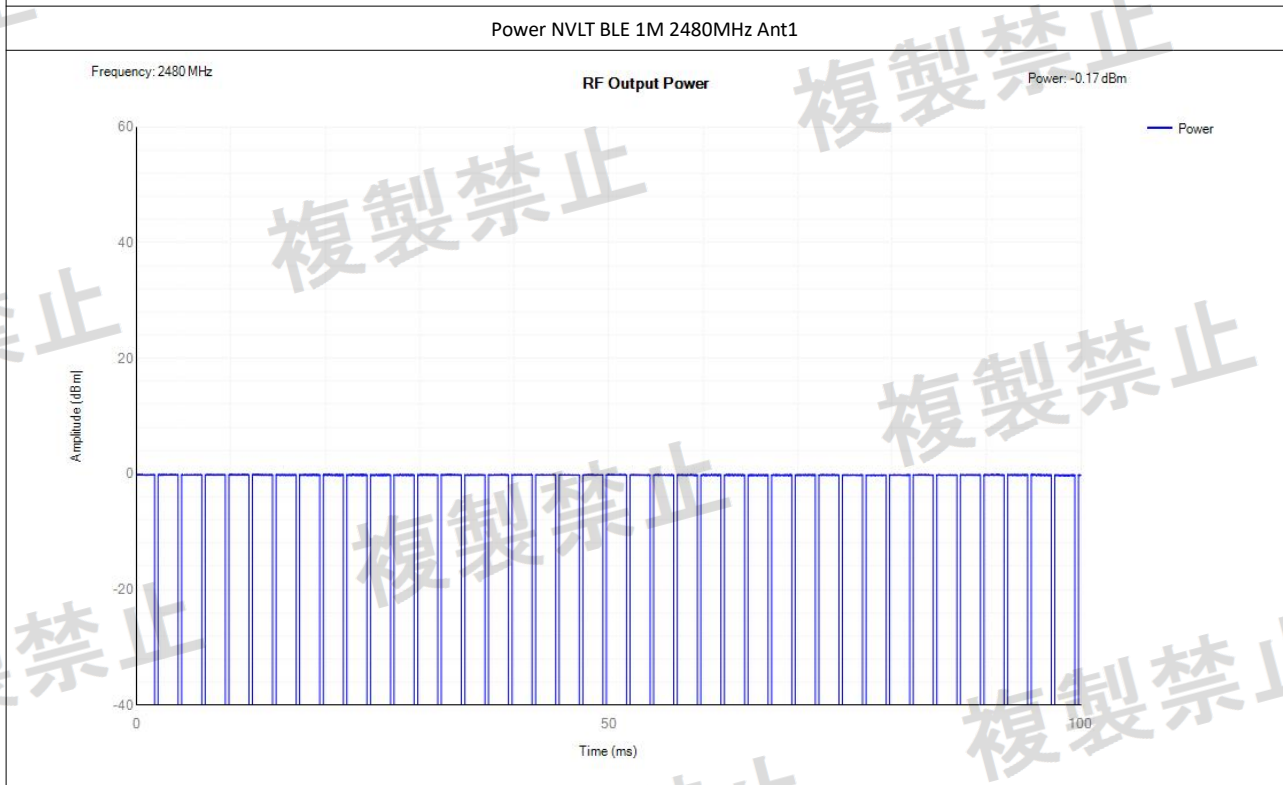
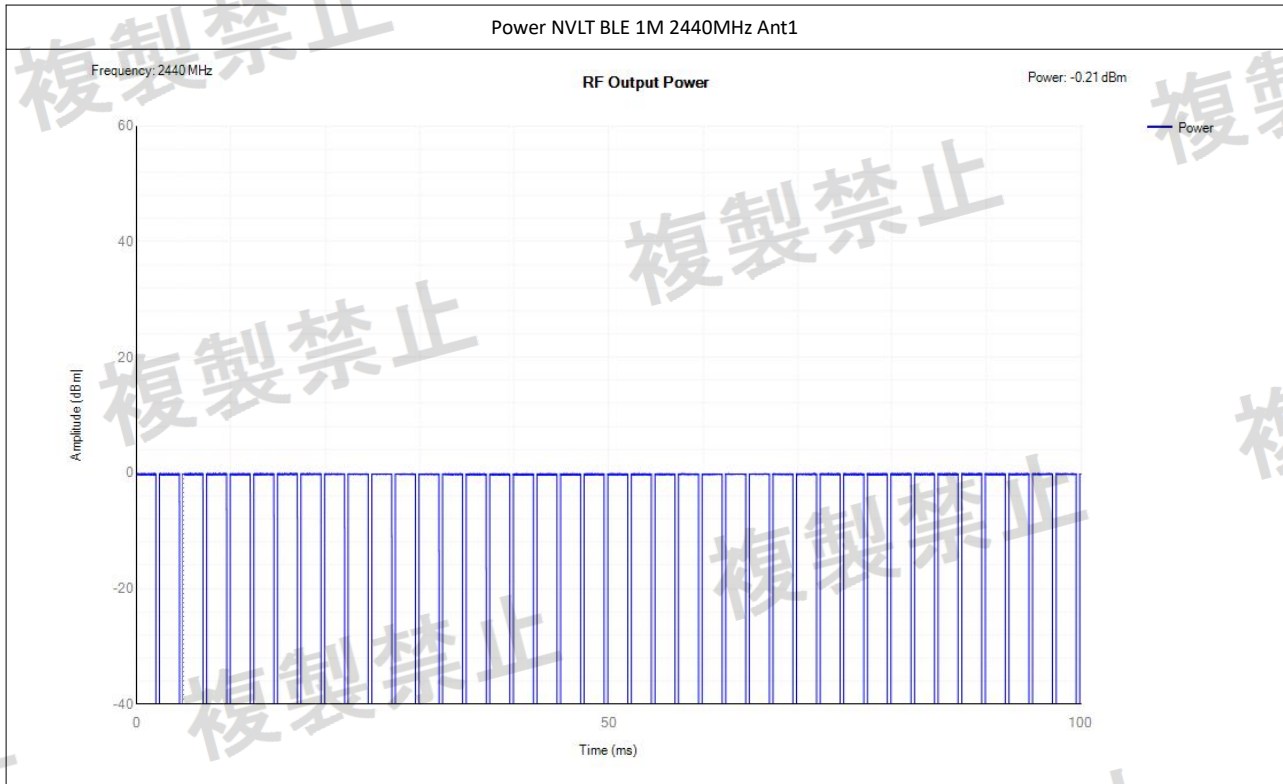
Power NVNT BLE 1M 2402MHz Ant1

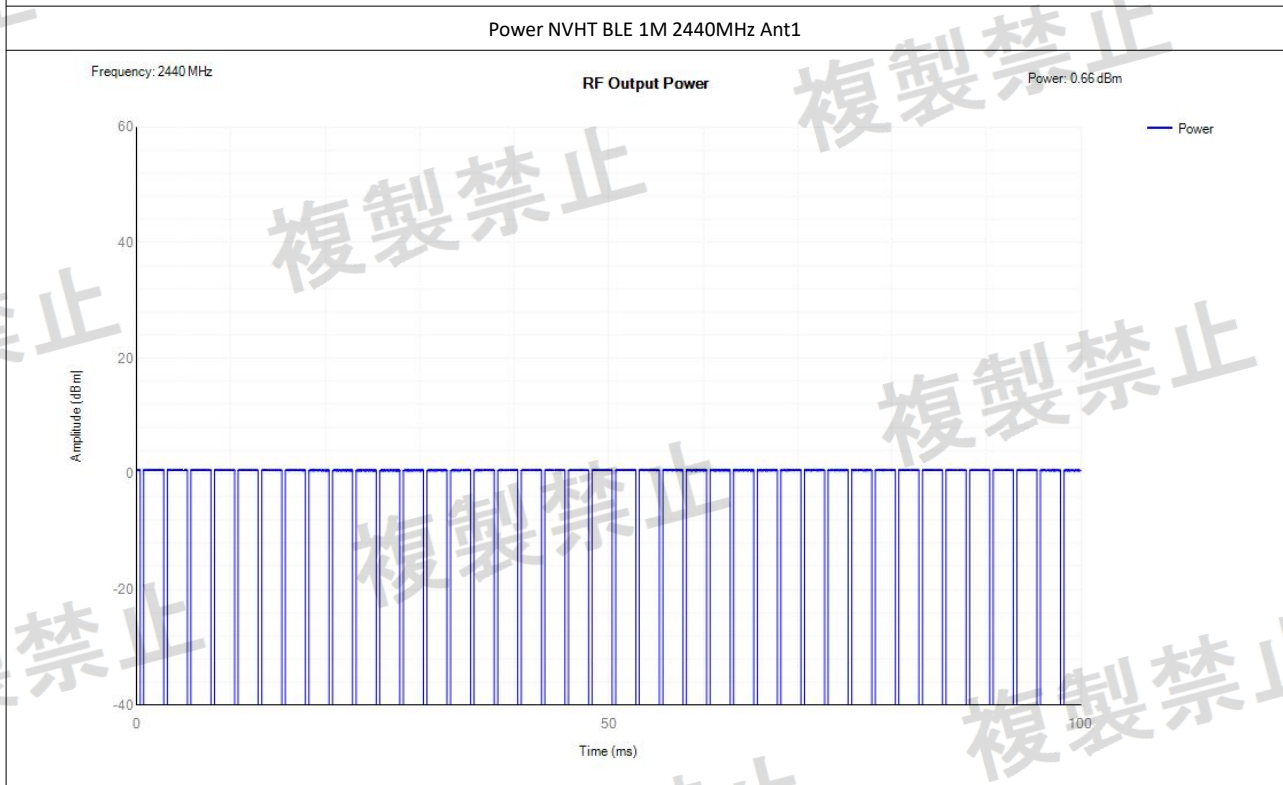
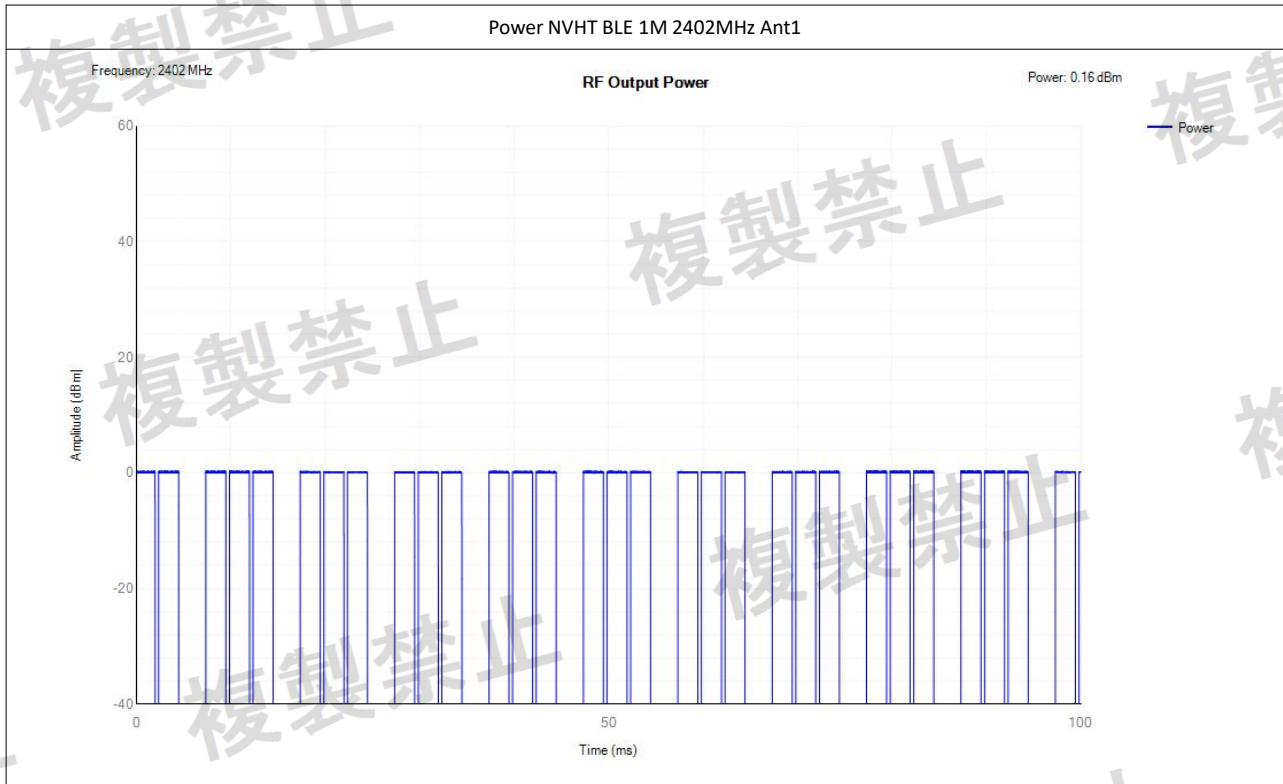


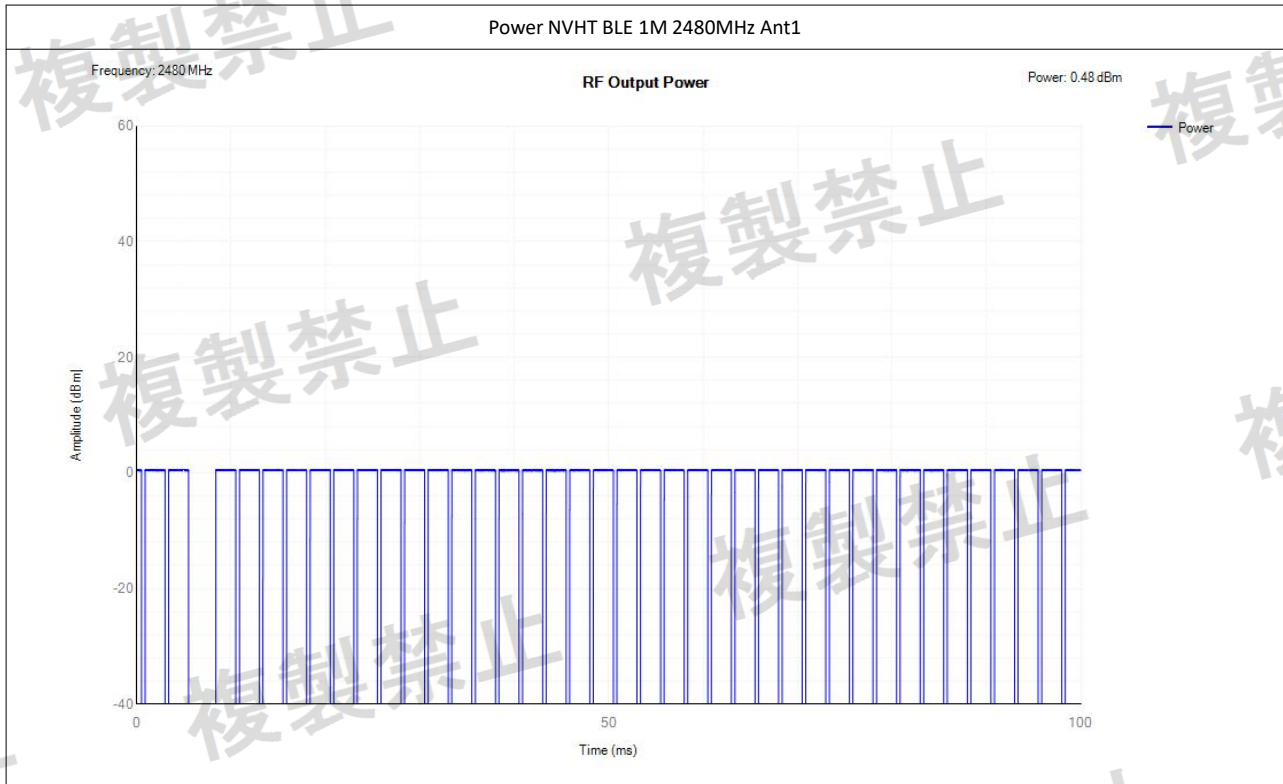
Power NVNT BLE 1M 2440MHz Ant1











EIRP Power

Condition	Mode	Frequency (MHz)	Antenna	Antenna Power (mW)	Antenna Power (dBm)	Gain (dBi)	EIRP Power (dBm)	Limit (dBm)	Verdict
NVNT	BLE 1M	2402	Ant1	1.054	0.23	1.3	1.53	12.14	Pass
NVNT	BLE 1M	2440	Ant1	1.172	0.69	1.3	1.99	12.14	Pass
NVNT	BLE 1M	2480	Ant1	0.953	-0.21	1.3	1.09	12.14	Pass
NVLT	BLE 1M	2402	Ant1	1.005	0.02	1.3	1.32	12.14	Pass
NVLT	BLE 1M	2440	Ant1	0.953	-0.21	1.3	1.09	12.14	Pass
NVLT	BLE 1M	2480	Ant1	0.962	-0.17	1.3	1.13	12.14	Pass
NVHT	BLE 1M	2402	Ant1	1.038	0.16	1.3	1.46	12.14	Pass
NVHT	BLE 1M	2440	Ant1	1.164	0.66	1.3	1.96	12.14	Pass
NVHT	BLE 1M	2480	Ant1	1.117	0.48	1.3	1.78	12.14	Pass

Occupied Channel Bandwidth

Condition	Mode	Frequency (MHz)	Antenna	99% OBW (MHz)	Lower Limit (MHz)	Upper Limit (MHz)	Verdict
NVNT	BLE 1M	2402	Ant1	1.224	N/A	26	Pass
NVNT	BLE 1M	2440	Ant1	1.2237	N/A	26	Pass
NVNT	BLE 1M	2480	Ant1	1.225	N/A	26	Pass
NVLT	BLE 1M	2402	Ant1	1.2233	N/A	26	Pass
NVLT	BLE 1M	2440	Ant1	1.2244	N/A	26	Pass
NVLT	BLE 1M	2480	Ant1	1.2246	N/A	26	Pass
NVHT	BLE 1M	2402	Ant1	1.2236	N/A	26	Pass
NVHT	BLE 1M	2440	Ant1	1.2246	N/A	26	Pass
NVHT	BLE 1M	2480	Ant1	1.2259	N/A	26	Pass

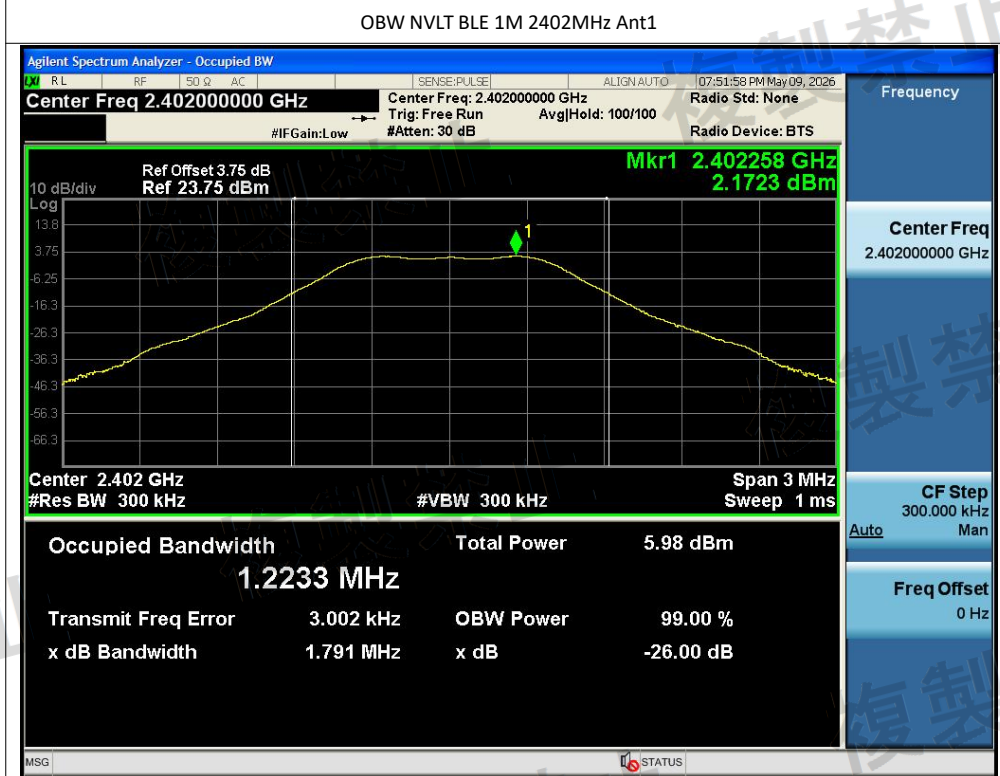
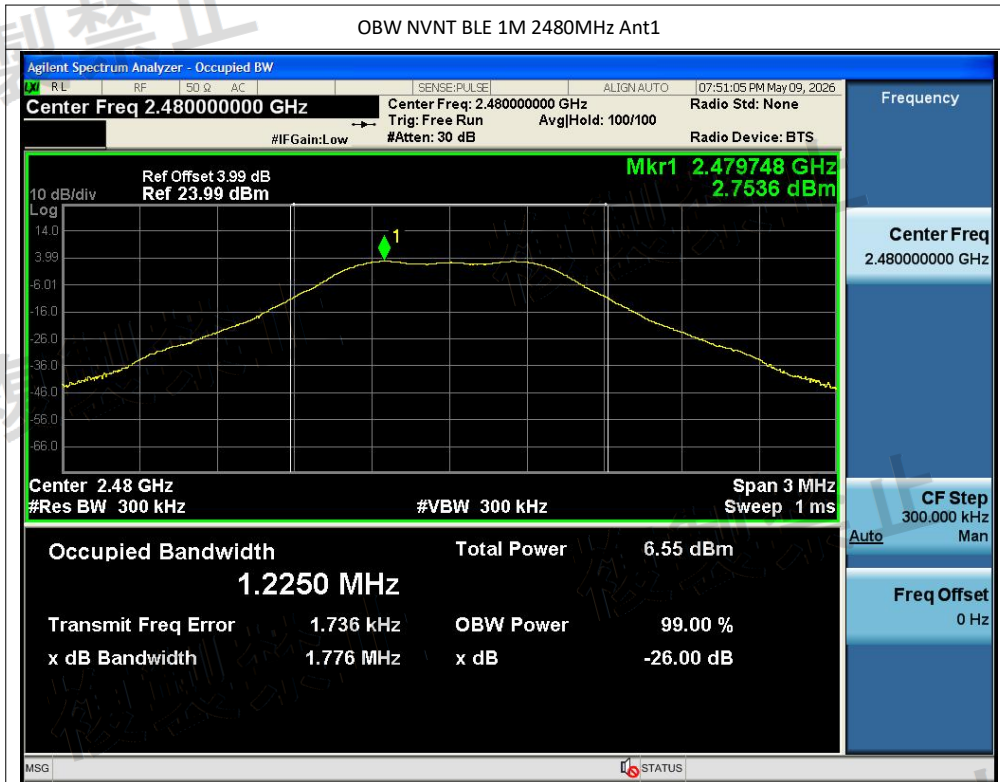
Test Graphs

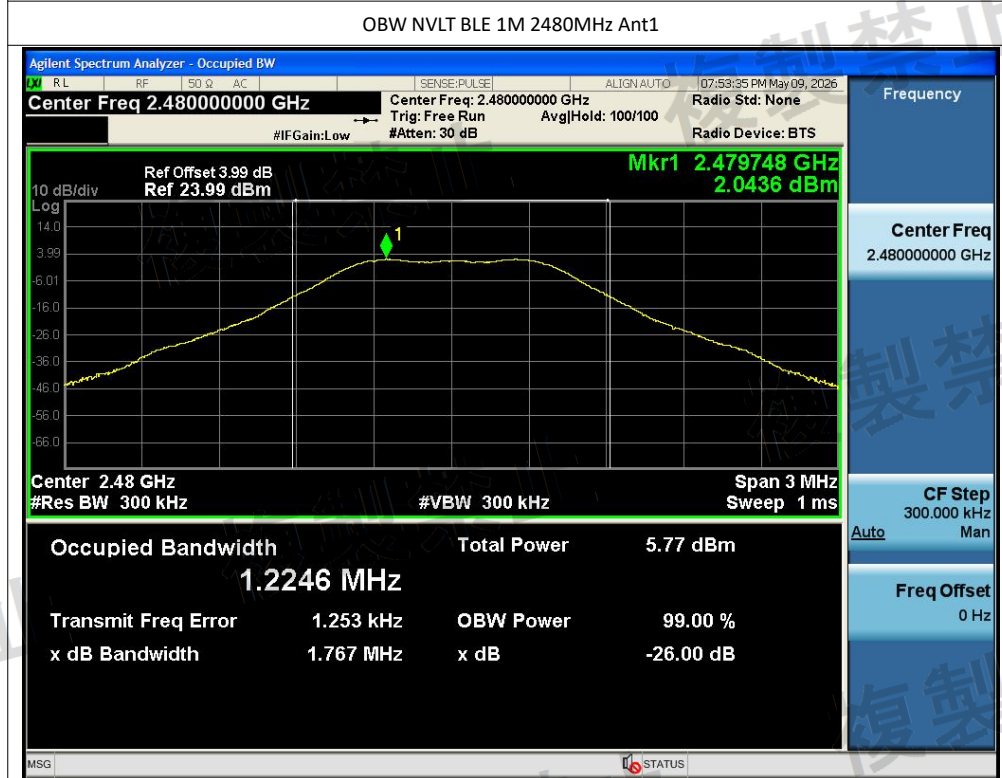
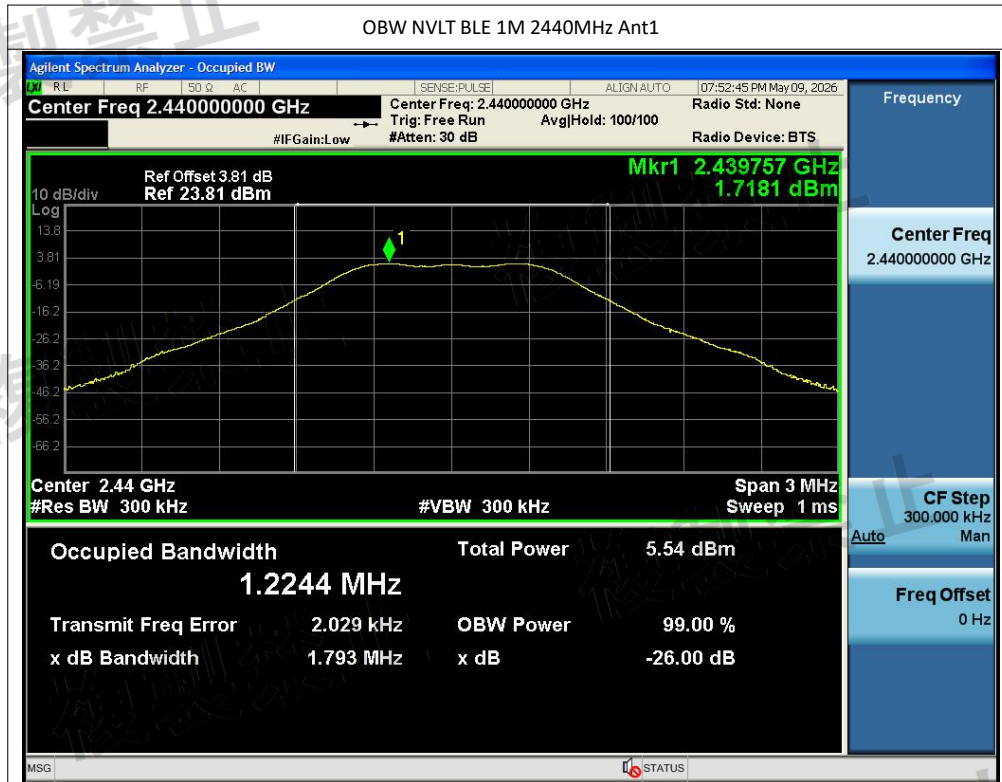
OBW NVNT BLE 1M 2402MHz Ant1

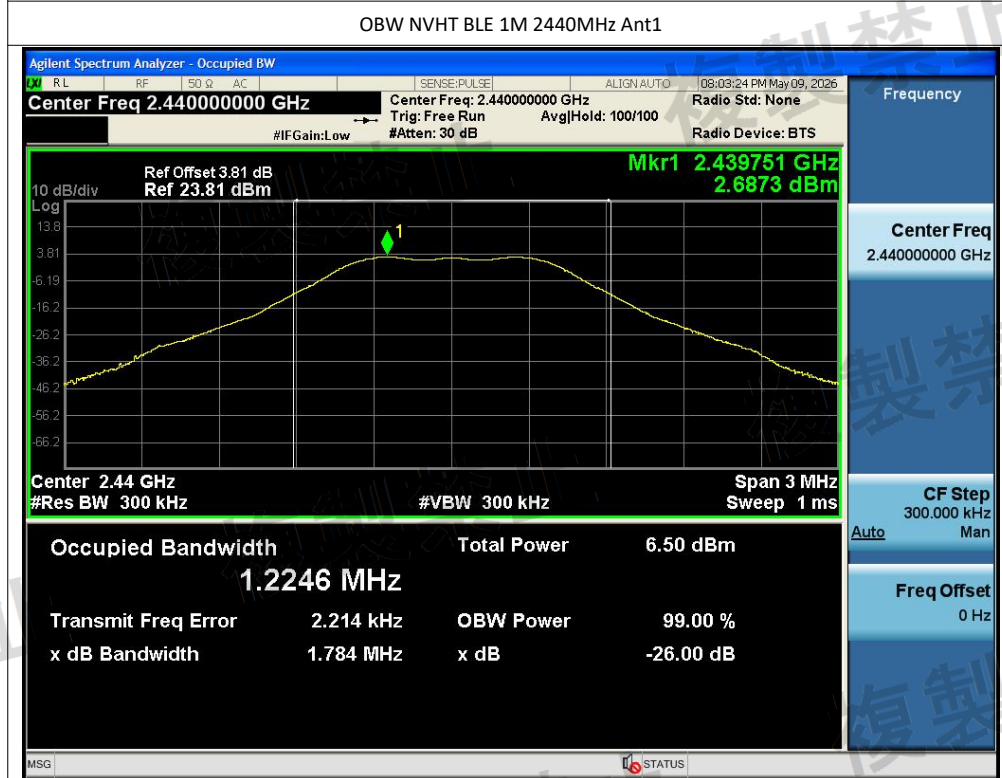
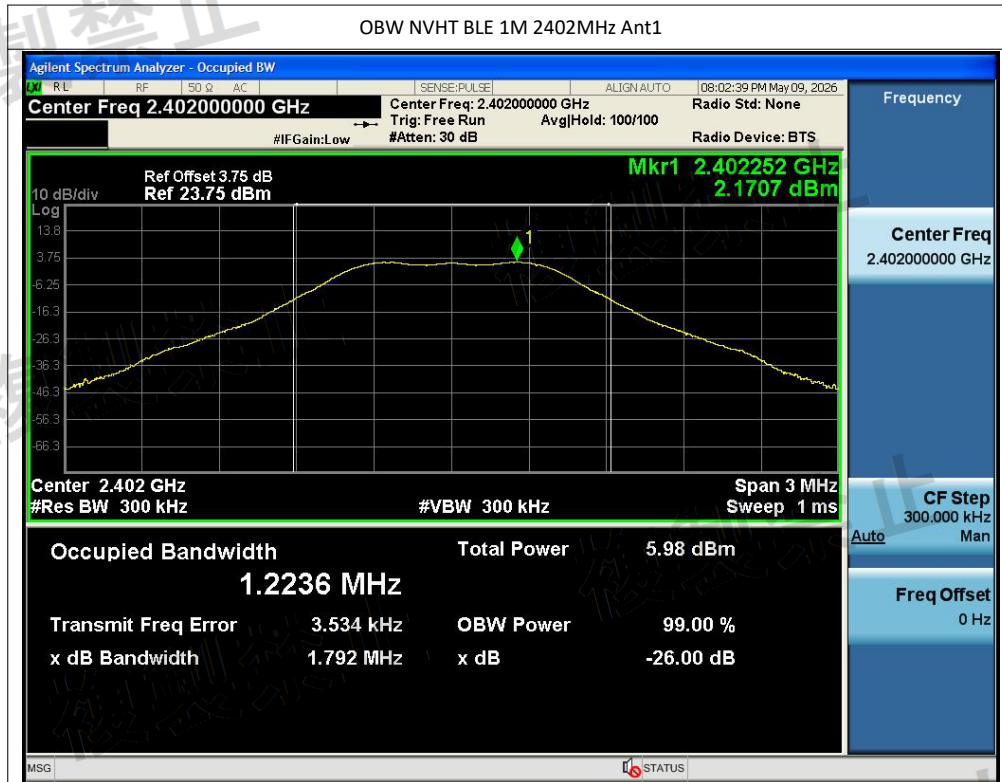


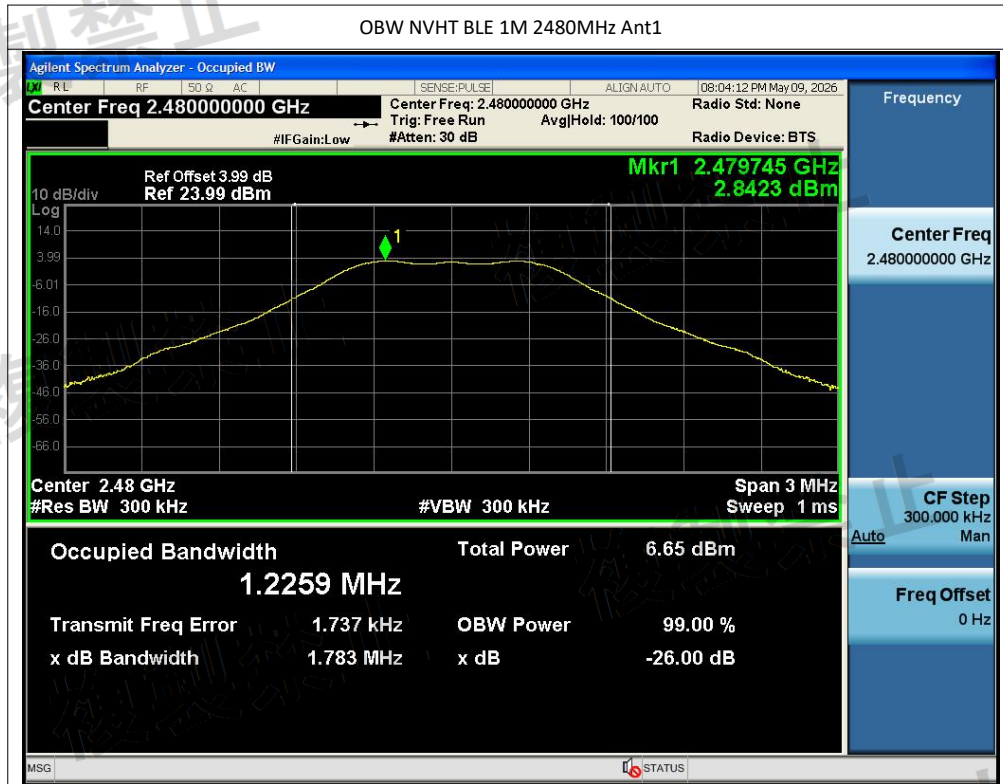
OBW NVNT BLE 1M 2440MHz Ant1











Spreading Bandwidth

Condition	Mode	Frequency (MHz)	Antenna	90% OBW (MHz)
NVNT	BLE 1M	2402	Ant1	0.82268
NVNT	BLE 1M	2440	Ant1	0.82271
NVNT	BLE 1M	2480	Ant1	0.82318
NVLT	BLE 1M	2402	Ant1	0.82263
NVLT	BLE 1M	2440	Ant1	0.82276
NVLT	BLE 1M	2480	Ant1	0.82282
NVHT	BLE 1M	2402	Ant1	0.82234
NVHT	BLE 1M	2440	Ant1	0.82258
NVHT	BLE 1M	2480	Ant1	0.82334

Test Graphs

Spreading Bandwidth NVNT BLE 1M 2402MHz Ant1



Spreading Bandwidth NVNT BLE 1M 2440MHz Ant1



Spreading Bandwidth NVNT BLE 1M 2480MHz Ant1



Spreading Bandwidth NVLT BLE 1M 2402MHz Ant1



Spreading Bandwidth NVLT BLE 1M 2440MHz Ant1



Spreading Bandwidth NVLT BLE 1M 2480MHz Ant1

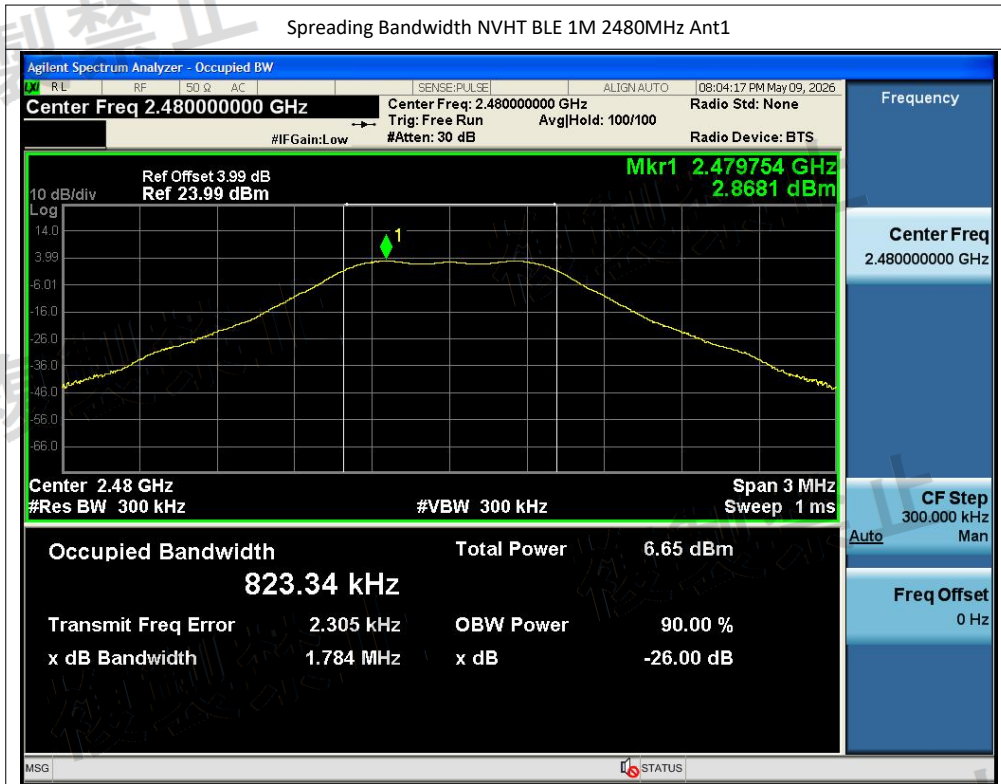


Spreading Bandwidth NVHT BLE 1M 2402MHz Ant1



Spreading Bandwidth NVHT BLE 1M 2440MHz Ant1





Tx Spurious Emission

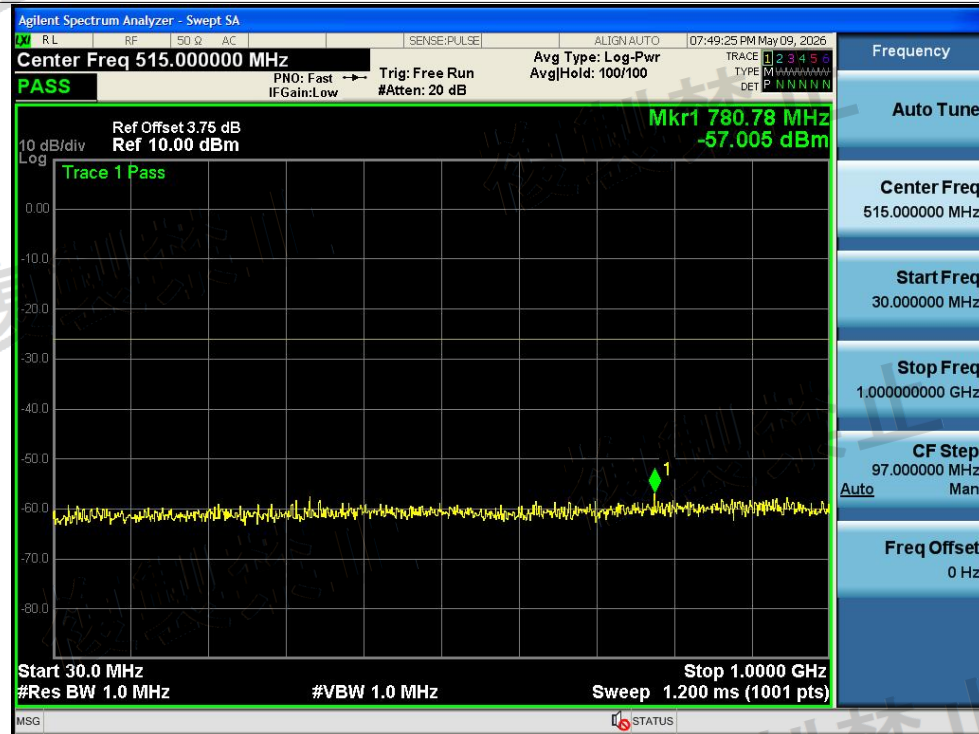
Condition	Mode	Frequency (MHz)	Antenna	Range (MHz)	Emission Frequency (MHz)	Max Peak Value (dBm)	Max RMS Value (dBm)	Max Peak Value (uW)	Max RMS Value (uW)	Limit Start(uW)	Limit Stop (uW)	Verdict
NVNT	BLE 1M	2402	Ant1	30-1000	780.78	-57.00	NA	0.002	NA	2.5	2.5	Pass
NVNT	BLE 1M	2402	Ant1	1000-2387	2294.07	-56.91	NA	0.002	NA	2.5	2.5	Pass
NVNT	BLE 1M	2402	Ant1	2387-2400	2400.00	-35.93	NA	0.2553	NA	25	25	Pass
NVNT	BLE 1M	2402	Ant1	2483.5-2496.5	2484.45	-56.42	NA	0.0023	NA	25	25	Pass
NVNT	BLE 1M	2402	Ant1	2496.5-13000	12789.93	-53.63	NA	0.0043	NA	2.5	2.5	Pass
NVNT	BLE 1M	2440	Ant1	30-1000	911.73	-56.76	NA	0.0021	NA	2.5	2.5	Pass
NVNT	BLE 1M	2440	Ant1	1000-2387	2366.19	-56.79	NA	0.0021	NA	2.5	2.5	Pass
NVNT	BLE 1M	2440	Ant1	2387-2400	2396.39	-55.43	NA	0.0029	NA	25	25	Pass
NVNT	BLE 1M	2440	Ant1	2483.5-2496.5	2483.84	-56.30	NA	0.0023	NA	25	25	Pass
NVNT	BLE 1M	2440	Ant1	2496.5-13000	5321.94	-51.82	NA	0.0066	NA	2.5	2.5	Pass
NVNT	BLE 1M	2480	Ant1	30-1000	989.33	-56.89	NA	0.002	NA	2.5	2.5	Pass
NVNT	BLE 1M	2480	Ant1	1000-2387	2031.93	-55.45	NA	0.0029	NA	2.5	2.5	Pass
NVNT	BLE 1M	2480	Ant1	2387-2400	2394.80	-56.12	NA	0.0024	NA	25	25	Pass
NVNT	BLE 1M	2480	Ant1	2483.5-2496.5	2483.79	-43.32	NA	0.0466	NA	25	25	Pass
NVNT	BLE 1M	2480	Ant1	2496.5-13000	12873.96	-53.58	NA	0.0044	NA	2.5	2.5	Pass
NVLT	BLE 1M	2402	Ant1	30-1000	930.16	-56.38	NA	0.0023	NA	2.5	2.5	Pass
NVLT	BLE 1M	2402	Ant1	1000-2387	2387.00	-56.08	NA	0.0025	NA	2.5	2.5	Pass
NVLT	BLE 1M	2402	Ant1	2387-2400	2400.00	-36.03	NA	0.2495	NA	25	25	Pass

NVLT	BLE 1M	2402	Ant1	2483.5-2496.5	2493.80	-56.83	NA	0.0021	NA	25	25	Pass
NVLT	BLE 1M	2402	Ant1	2496.5-13000	12663.89	-53.47	NA	0.0045	NA	2.5	2.5	Pass
NVLT	BLE 1M	2440	Ant1	30-1000	32.91	-37.32	NA	0.1854	NA	2.5	2.5	Pass
NVLT	BLE 1M	2440	Ant1	1000-2387	2282.98	-56.03	NA	0.0025	NA	2.5	2.5	Pass
NVLT	BLE 1M	2440	Ant1	2387-2400	2387.51	-56.52	NA	0.0022	NA	25	25	Pass
NVLT	BLE 1M	2440	Ant1	2483.5-2496.5	2489.40	-56.14	NA	0.0024	NA	25	25	Pass
NVLT	BLE 1M	2440	Ant1	2496.5-13000	12758.42	-53.42	NA	0.0045	NA	2.5	2.5	Pass
NVLT	BLE 1M	2480	Ant1	30-1000	124.09	-55.16	NA	0.003	NA	2.5	2.5	Pass
NVLT	BLE 1M	2480	Ant1	1000-2387	2115.15	-55.79	NA	0.0026	NA	2.5	2.5	Pass
NVLT	BLE 1M	2480	Ant1	2387-2400	2396.57	-56.89	NA	0.002	NA	25	25	Pass
NVLT	BLE 1M	2480	Ant1	2483.5-2496.5	2483.99	-42.94	NA	0.0508	NA	25	25	Pass
NVLT	BLE 1M	2480	Ant1	2496.5-13000	5279.93	-51.53	NA	0.007	NA	2.5	2.5	Pass
NVHT	BLE 1M	2402	Ant1	30-1000	331.67	-57.16	NA	0.0019	NA	2.5	2.5	Pass
NVHT	BLE 1M	2402	Ant1	1000-2387	2202.53	-56.35	NA	0.0023	NA	2.5	2.5	Pass
NVHT	BLE 1M	2402	Ant1	2387-2400	2400.00	-35.90	NA	0.257	NA	25	25	Pass
NVHT	BLE 1M	2402	Ant1	2483.5-2496.5	2496.02	-56.77	NA	0.0021	NA	25	25	Pass
NVHT	BLE 1M	2402	Ant1	2496.5-13000	12621.87	-53.44	NA	0.0045	NA	2.5	2.5	Pass
NVHT	BLE 1M	2440	Ant1	30-1000	986.42	-57.04	NA	0.002	NA	2.5	2.5	Pass
NVHT	BLE 1M	2440	Ant1	1000-2387	1941.77	-56.56	NA	0.0022	NA	2.5	2.5	Pass
NVHT	BLE 1M	2440	Ant1	2387-2400	2398.34	-55.51	NA	0.0028	NA	25	25	Pass
NVHT	BLE 1M	2440	Ant1	2483.5-2496.5	2487.30	-57.26	NA	0.0019	NA	25	25	Pass

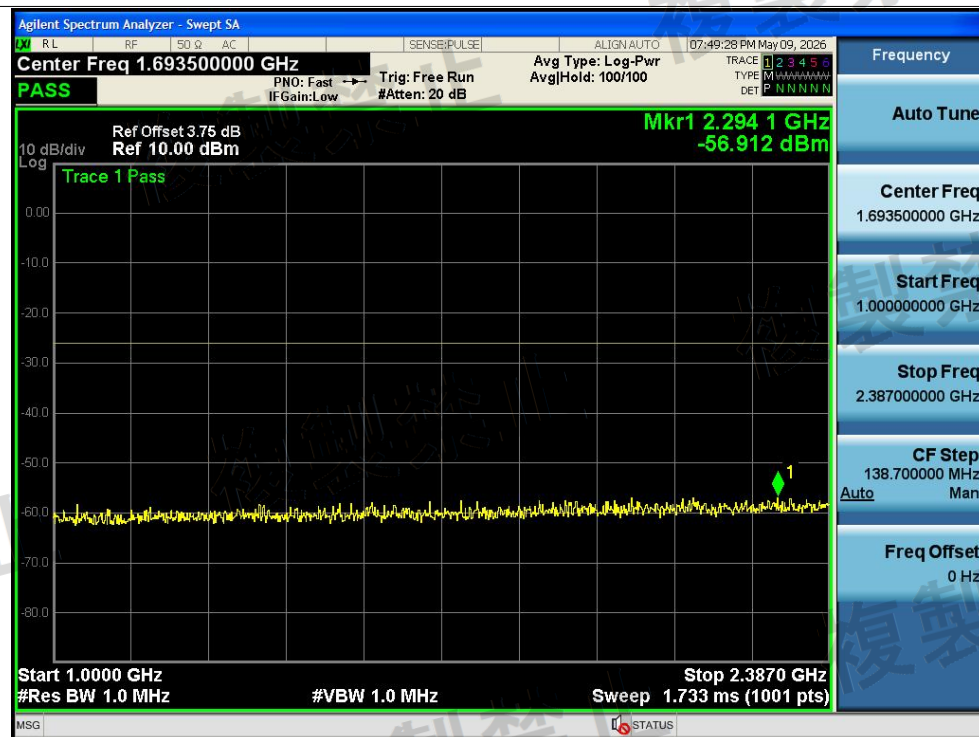
NVHT	BLE 1M	2440	Ant1	2496.5-13000	2538.51	-41.95	NA	0.0638	NA	2.5	2.5	Pass
NVHT	BLE 1M	2480	Ant1	30-1000	781.75	-57.15	NA	0.0019	NA	2.5	2.5	Pass
NVHT	BLE 1M	2480	Ant1	1000-2387	2310.71	-55.46	NA	0.0028	NA	2.5	2.5	Pass
NVHT	BLE 1M	2480	Ant1	2387-2400	2395.50	-56.57	NA	0.0022	NA	25	25	Pass
NVHT	BLE 1M	2480	Ant1	2483.5-2496.5	2484.10	-43.74	NA	0.0423	NA	25	25	Pass
NVHT	BLE 1M	2480	Ant1	2496.5-13000	5332.45	-51.01	NA	0.0079	NA	2.5	2.5	Pass

Test Graphs

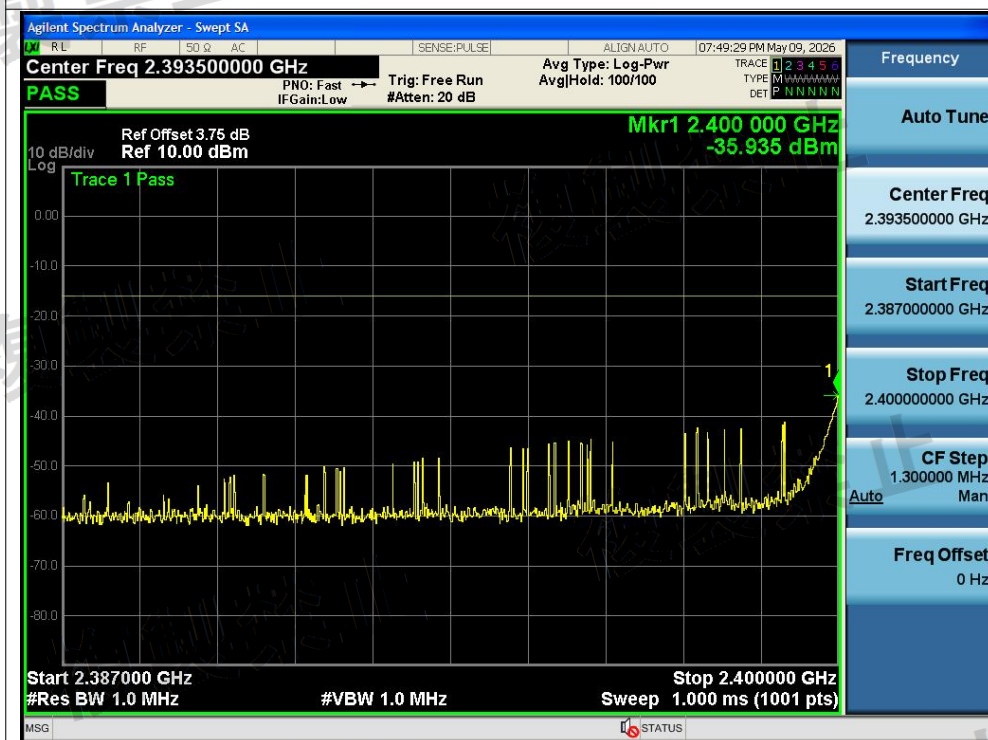
Tx. Spurious NVNT BLE 1M 2402MHz Ant1 @ 30MHz-1000MHz



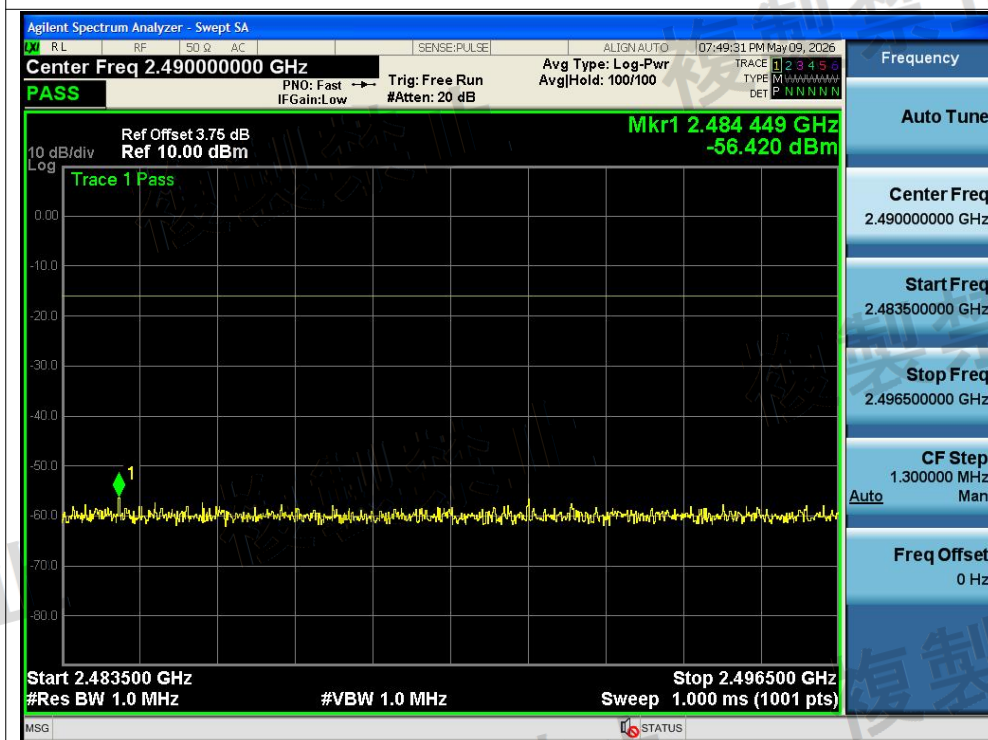
Tx. Spurious NVNT BLE 1M 2402MHz Ant1 @ 1000MHz-2387MHz



Tx. Spurious NVNT BLE 1M 2402MHz Ant1 @ 2387MHz-2400MHz



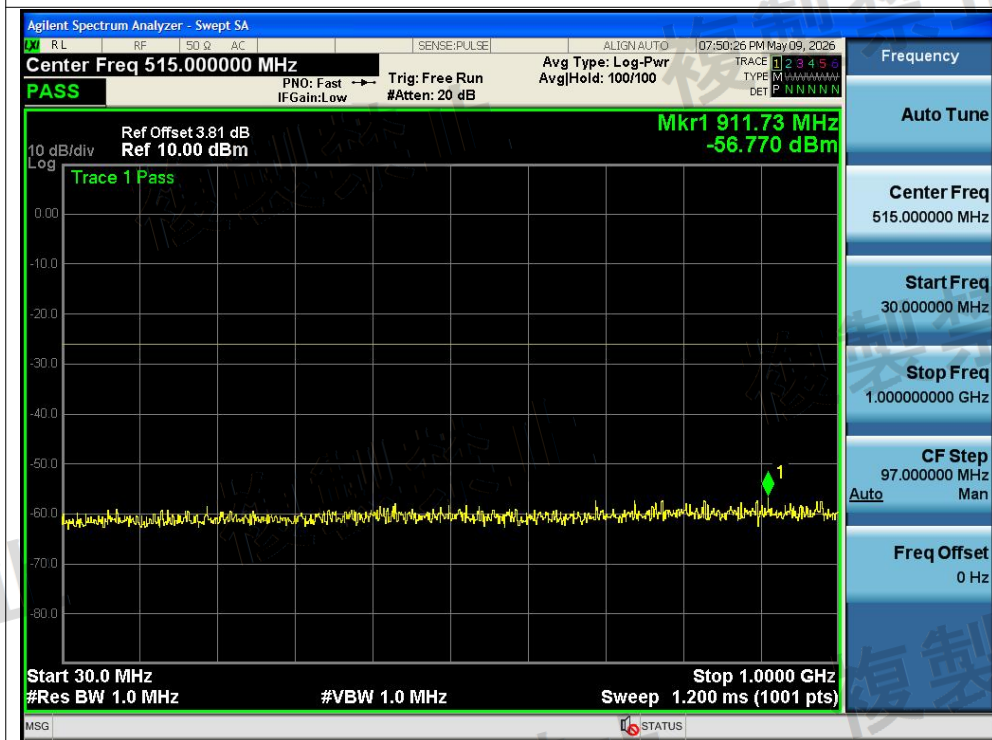
Tx. Spurious NVNT BLE 1M 2402MHz Ant1 @ 2483.5MHz-2496.5MHz



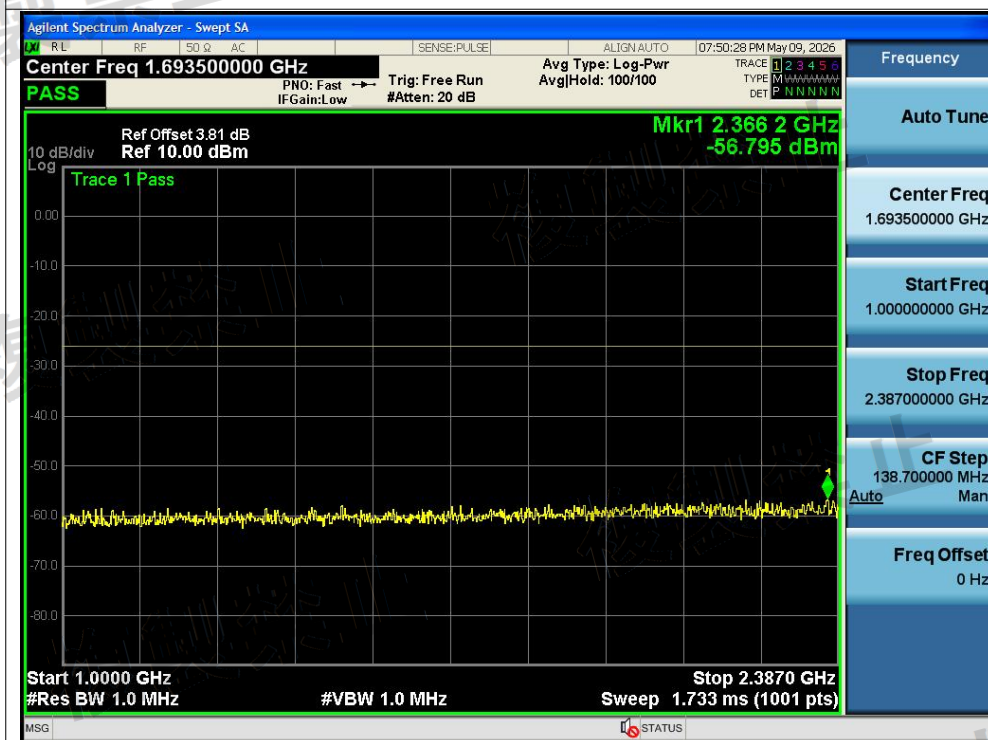
Tx. Spurious NVNT BLE 1M 2402MHz Ant1 @ 2496.5MHz-13000MHz



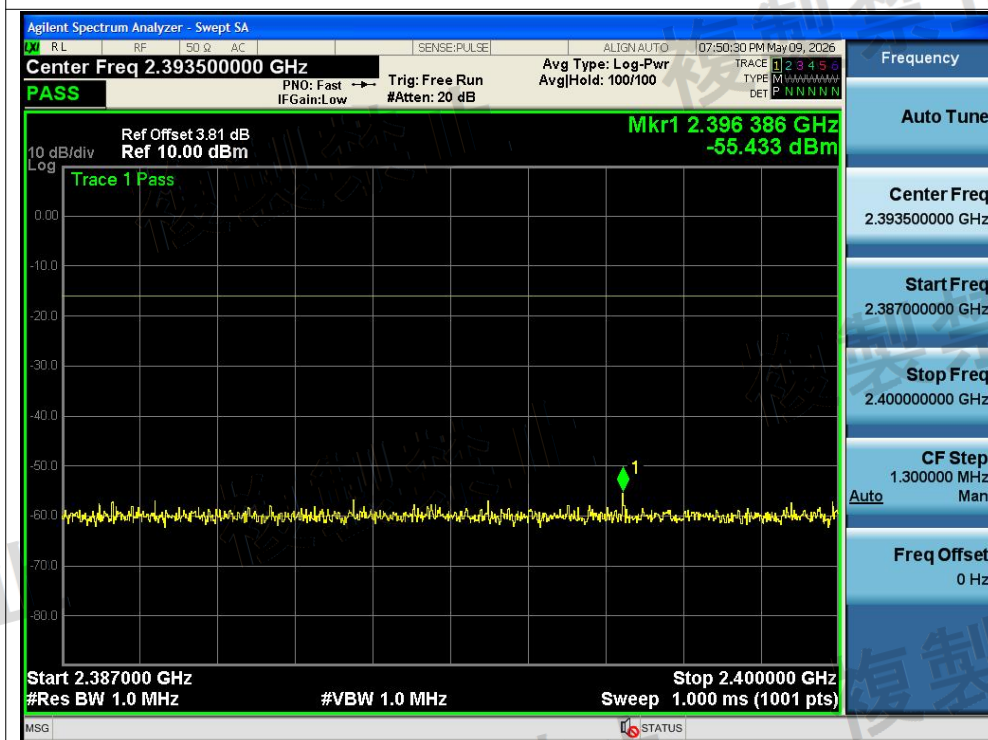
Tx. Spurious NVNT BLE 1M 2440MHz Ant1 @ 30MHz-1000MHz



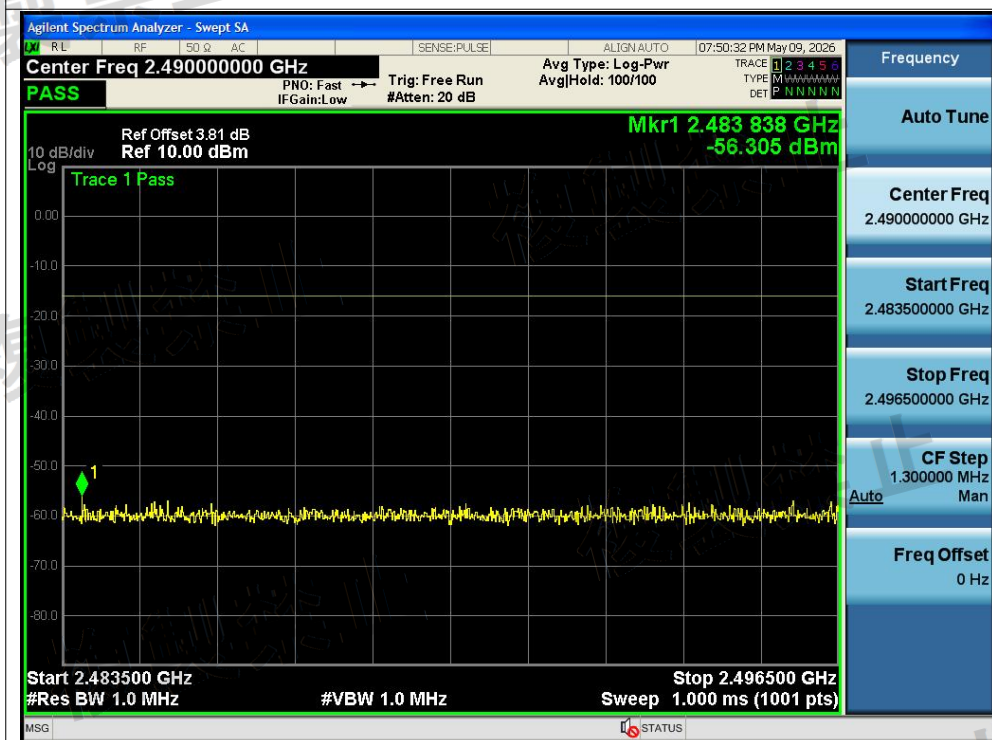
Tx. Spurious NVNT BLE 1M 2440MHz Ant1 @ 1000MHz-2387MHz



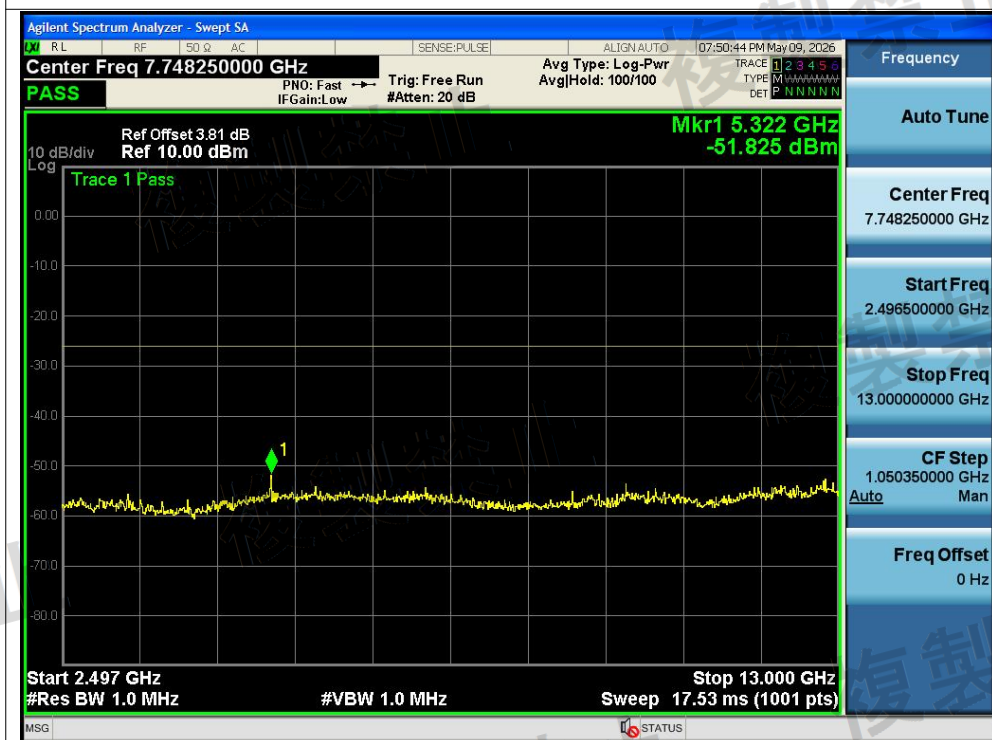
Tx. Spurious NVNT BLE 1M 2440MHz Ant1 @ 2387MHz-2400MHz



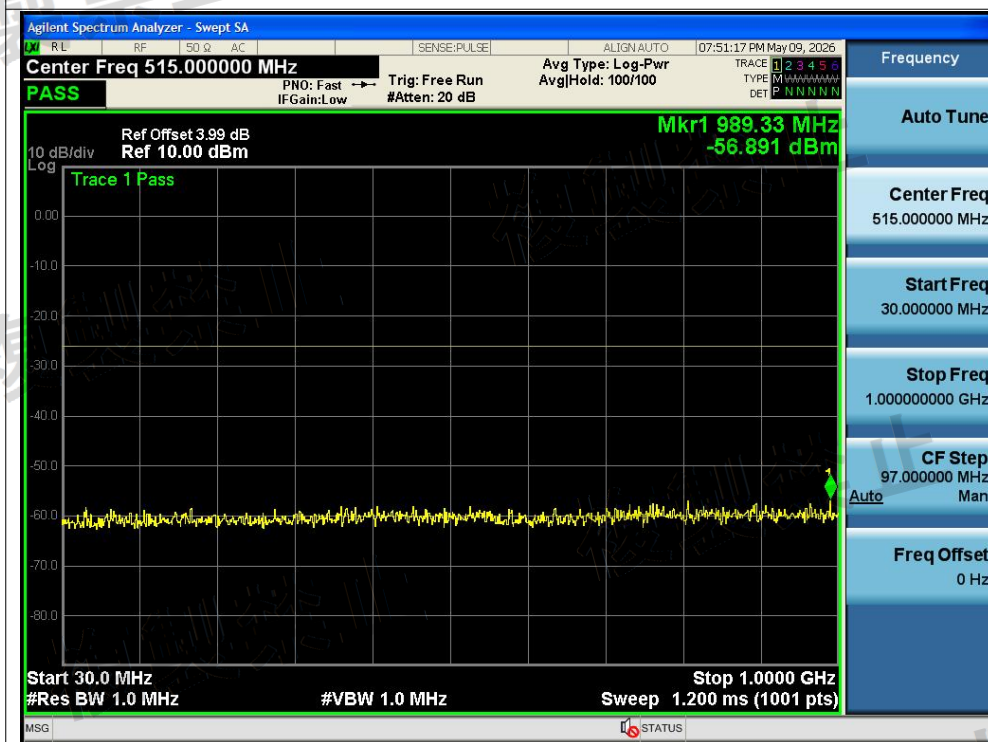
Tx. Spurious NVNT BLE 1M 2440MHz Ant1 @ 2483.5MHz-2496.5MHz



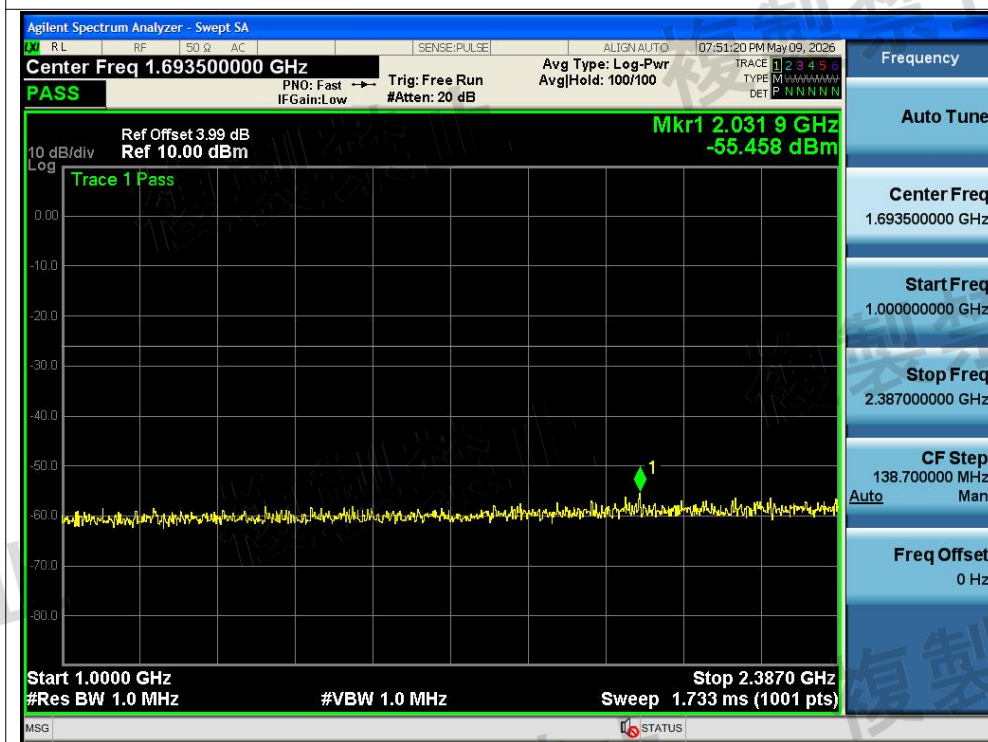
Tx. Spurious NVNT BLE 1M 2440MHz Ant1 @ 2496.5MHz-13000MHz



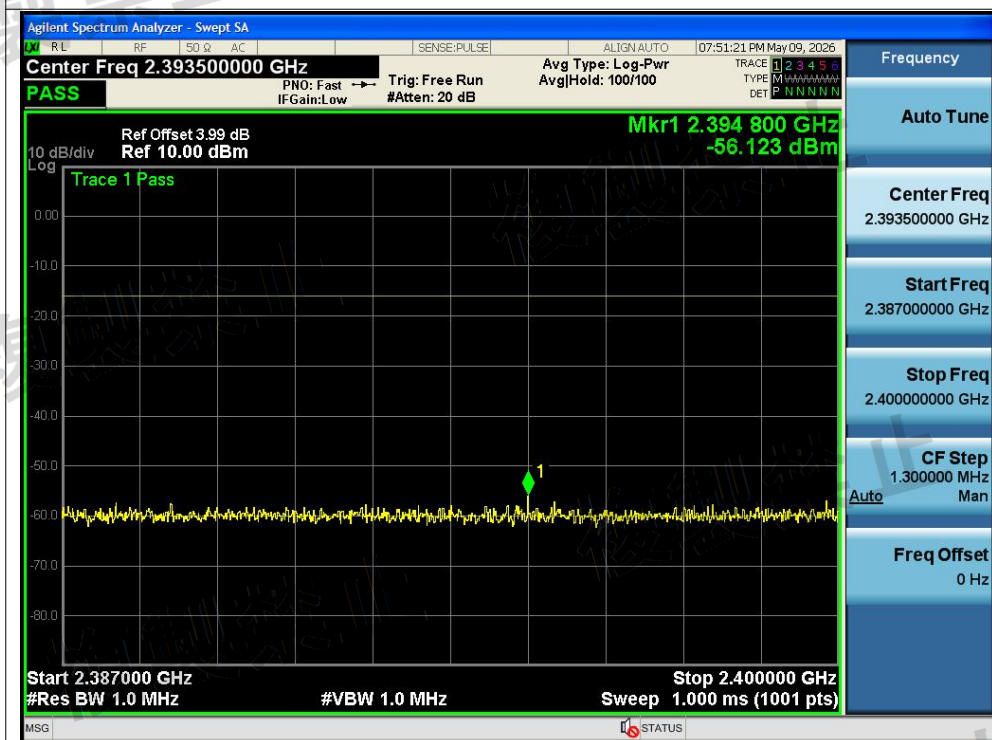
Tx. Spurious NVNT BLE 1M 2480MHz Ant1 @ 30MHz-1000MHz



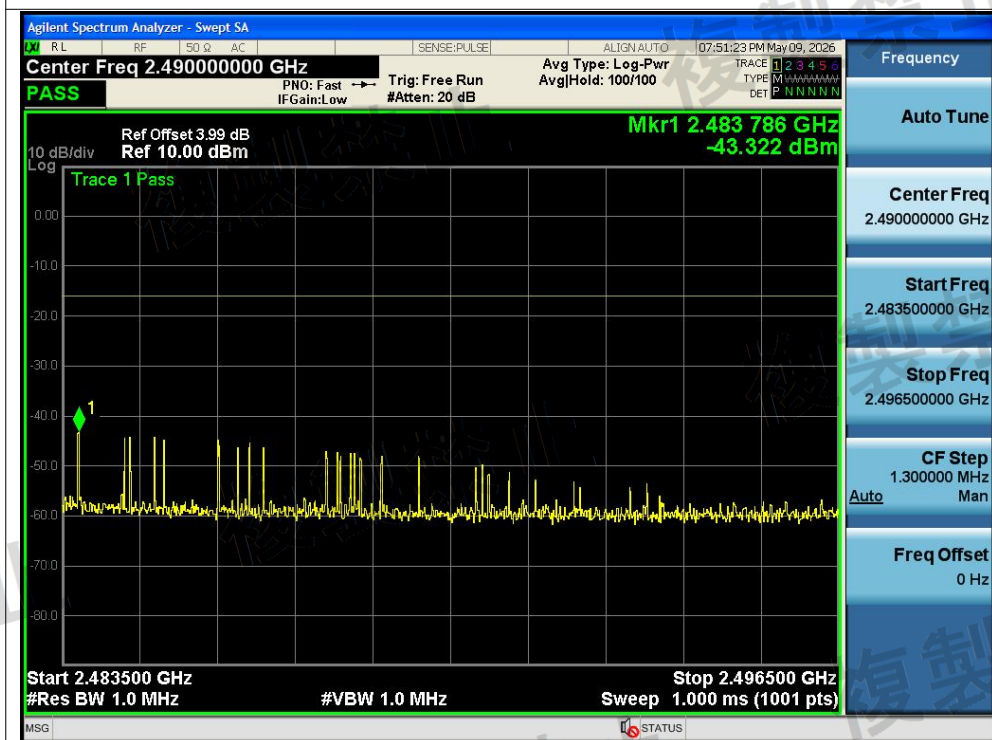
Tx. Spurious NVNT BLE 1M 2480MHz Ant1 @ 1000MHz-2387MHz



Tx. Spurious NVNT BLE 1M 2480MHz Ant1 @ 2387MHz-2400MHz



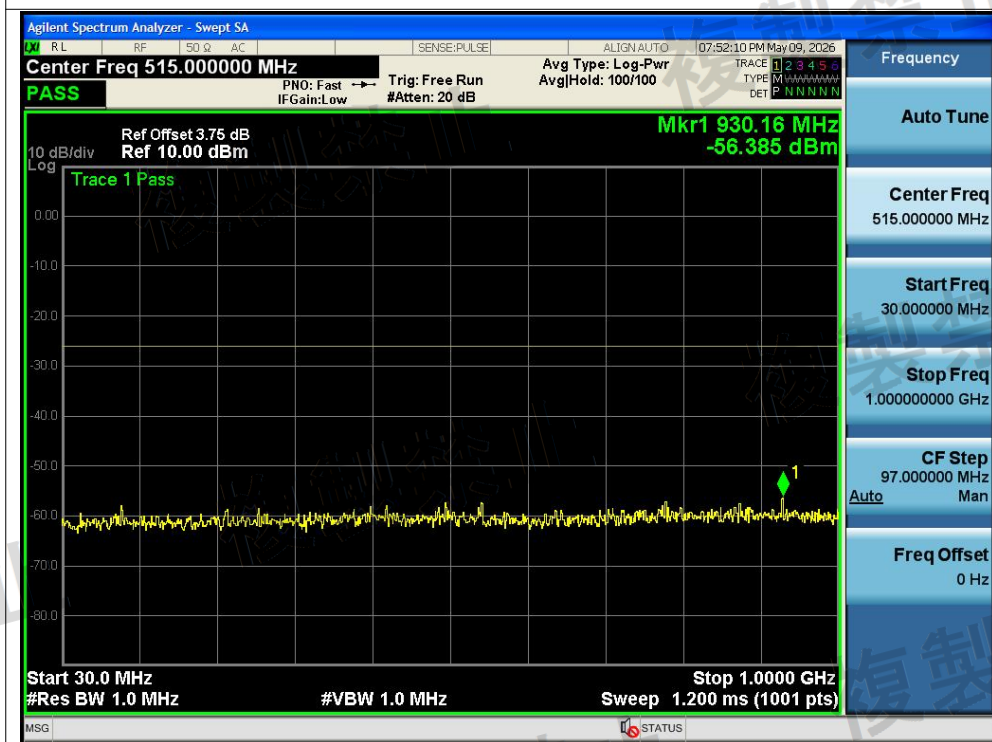
Tx. Spurious NVNT BLE 1M 2480MHz Ant1 @ 2483.5MHz-2496.5MHz



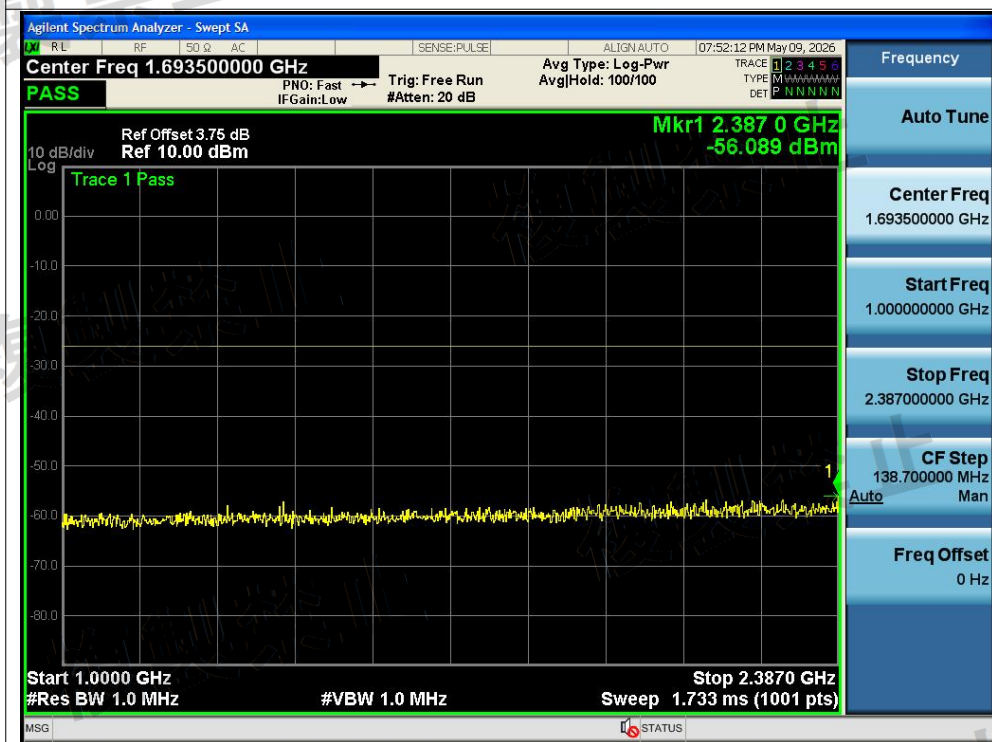
Tx. Spurious NVNT BLE 1M 2480MHz Ant1 @ 2496.5MHz-13000MHz



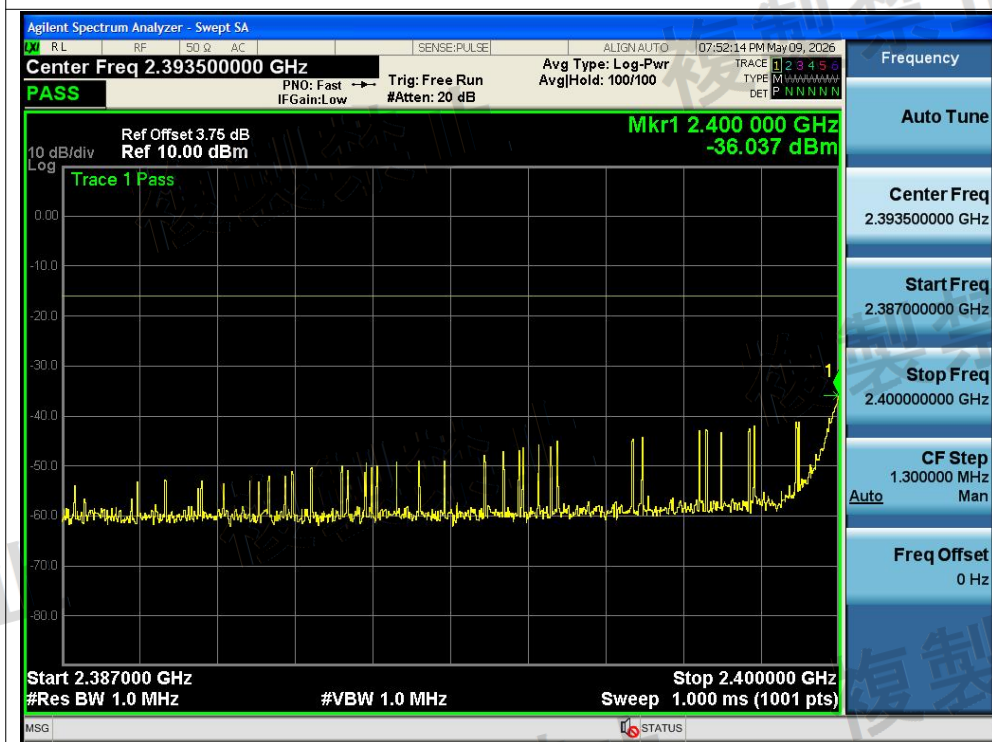
Tx. Spurious NVLT BLE 1M 2402MHz Ant1 @ 30MHz-1000MHz



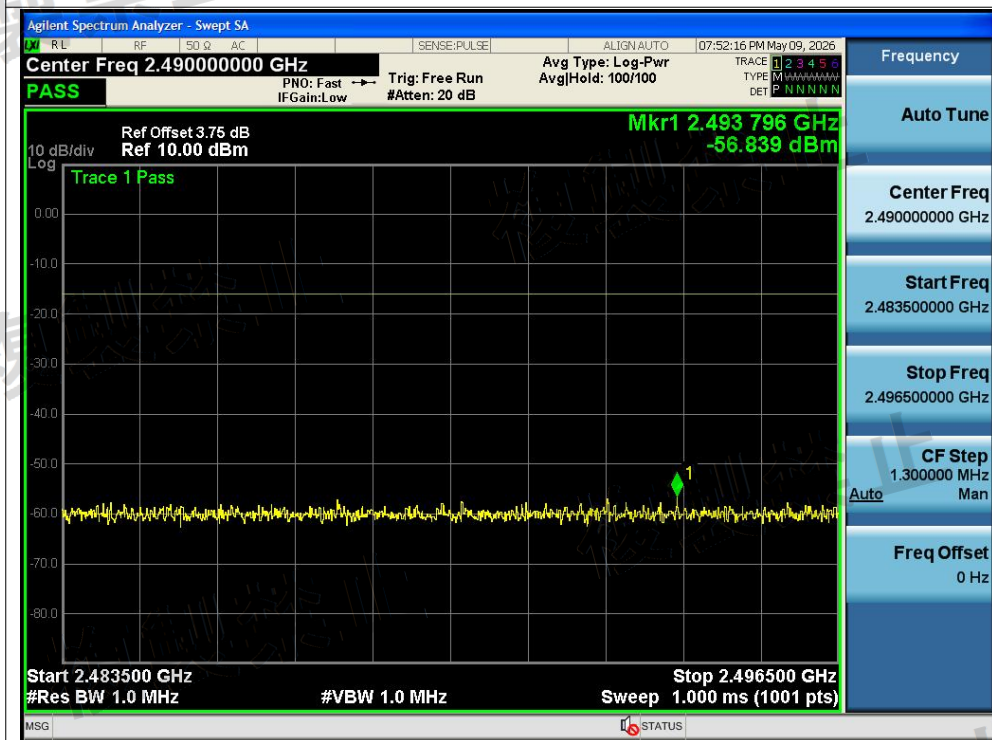
Tx: Spurious NVLT BLE 1M 2402MHz Ant1 @ 1000MHz-2387MHz



Tx: Spurious NVLT BLE 1M 2402MHz Ant1 @ 2387MHz-2400MHz



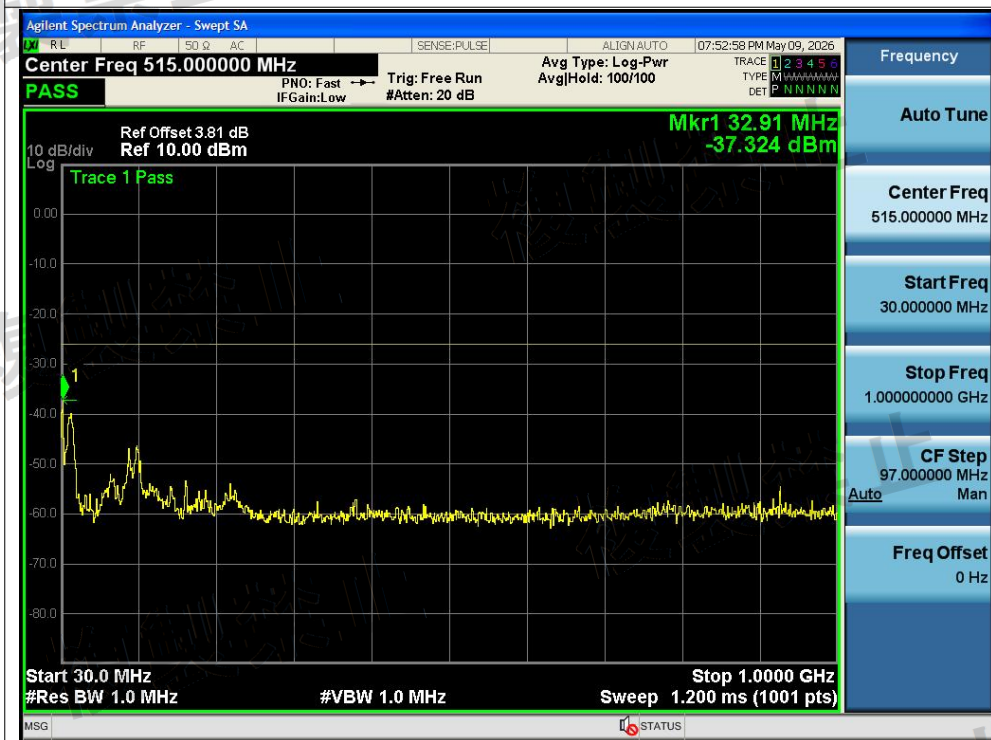
Tx. Spurious NVLT BLE 1M 2402MHz Ant1 @ 2483.5MHz-2496.5MHz



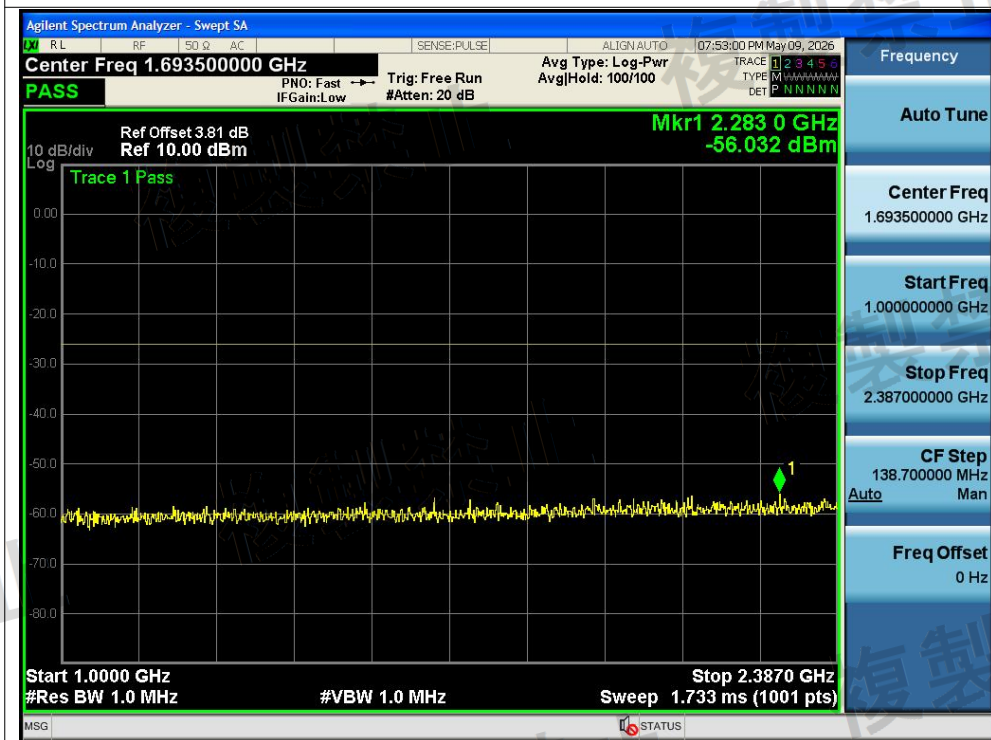
Tx. Spurious NVLT BLE 1M 2402MHz Ant1 @ 2496.5MHz-13000MHz



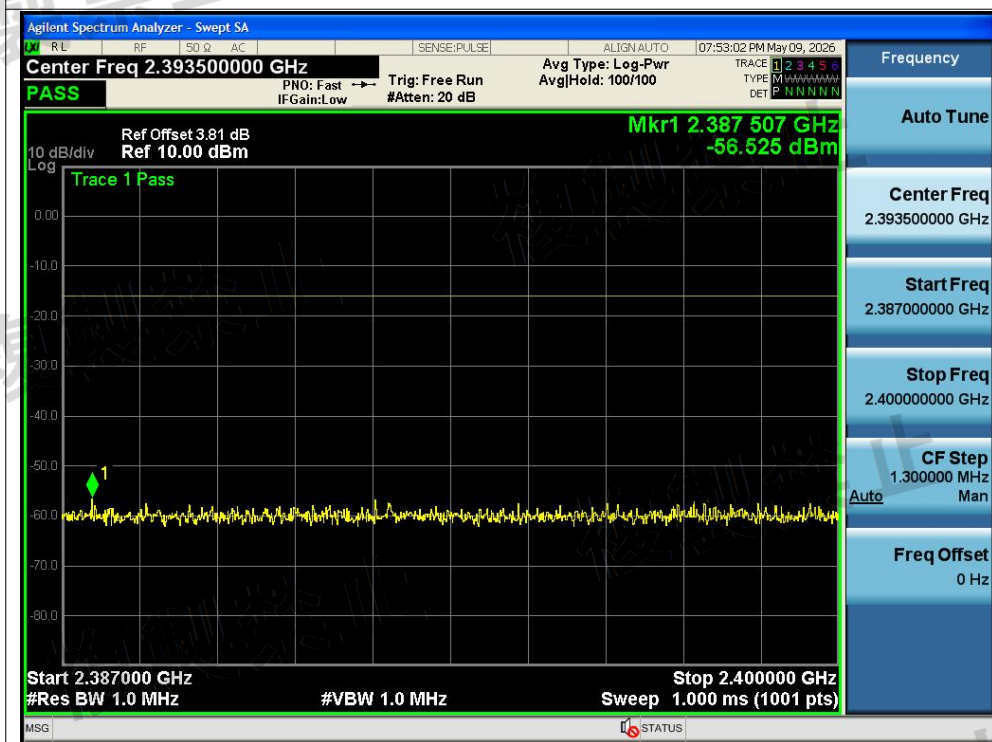
Tx. Spurious NVLT BLE 1M 2440MHz Ant1 @ 30MHz-1000MHz



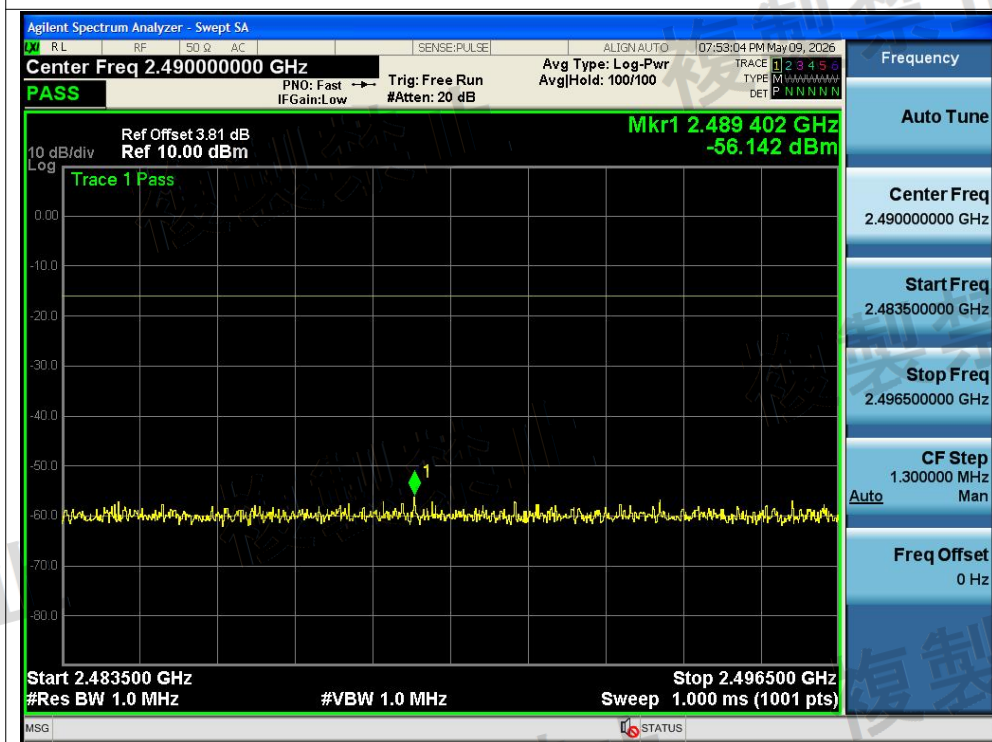
Tx. Spurious NVLT BLE 1M 2440MHz Ant1 @ 1000MHz-2387MHz



Tx. Spurious NVLT BLE 1M 2440MHz Ant1 @ 2387MHz-2400MHz



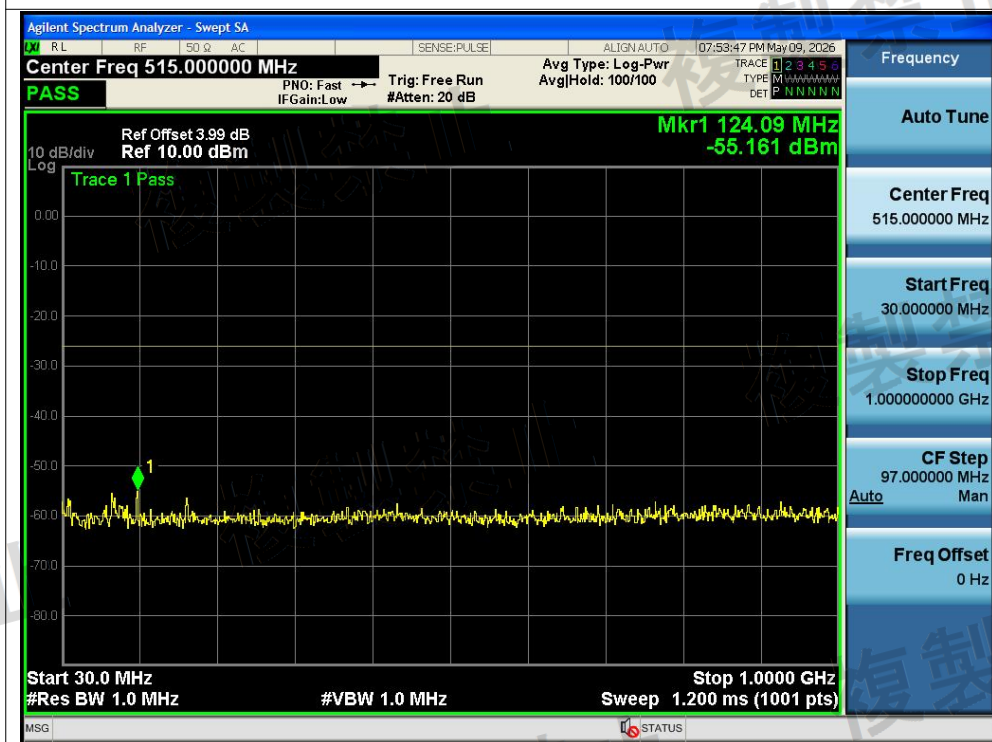
Tx. Spurious NVLT BLE 1M 2440MHz Ant1 @ 2483.5MHz-2496.5MHz



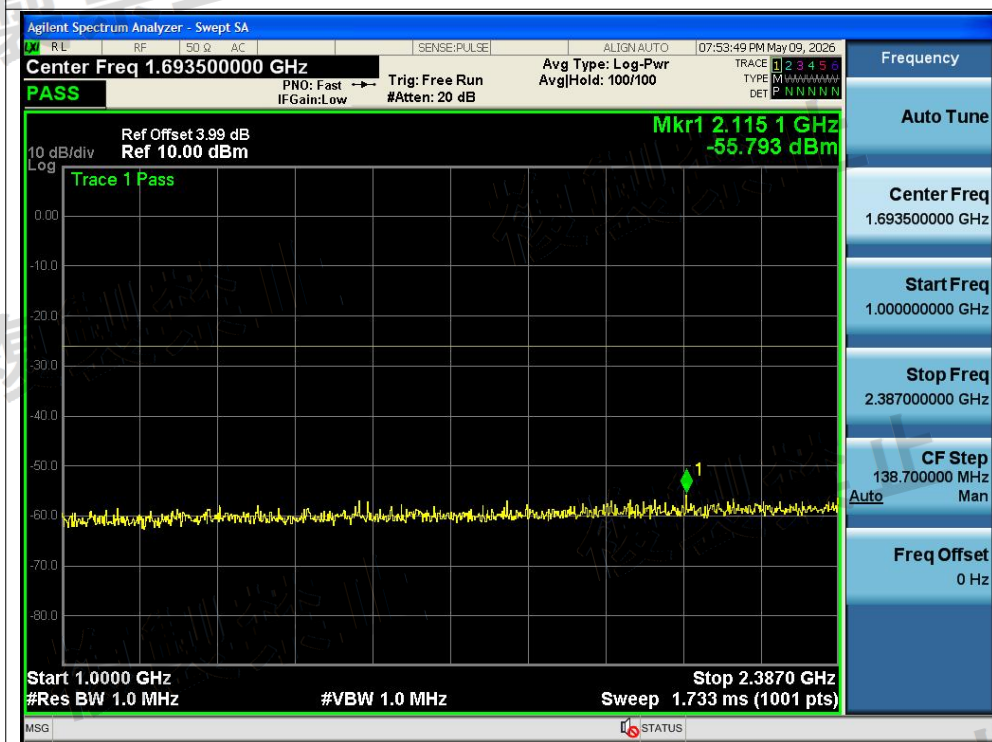
Tx. Spurious NVLT BLE 1M 2440MHz Ant1 @ 2496.5MHz-13000MHz



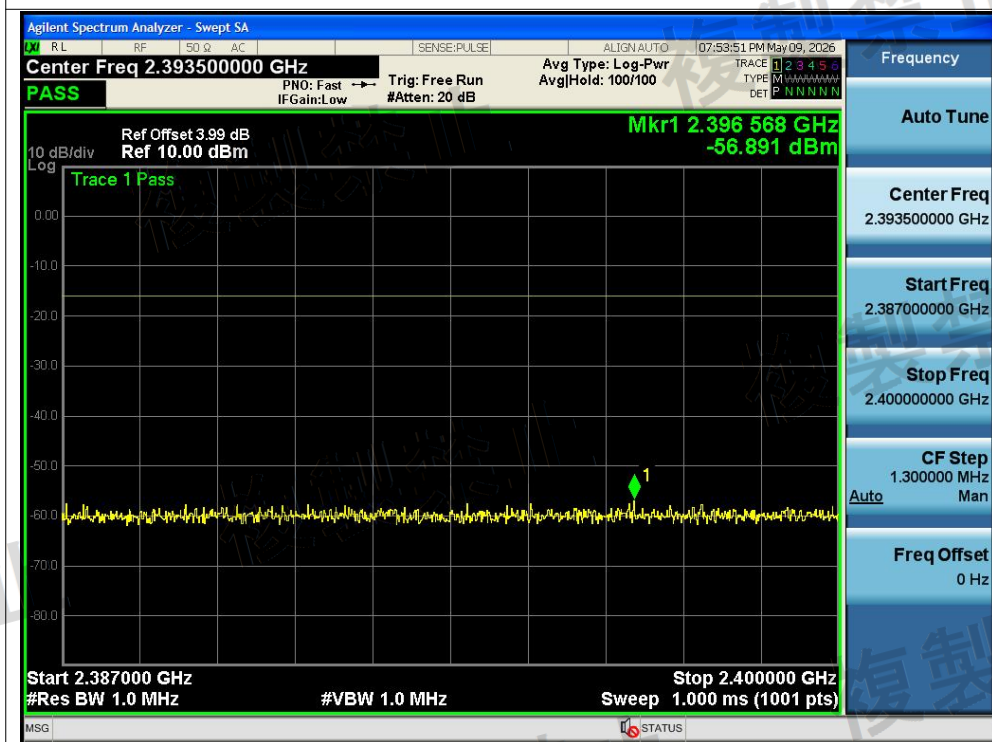
Tx. Spurious NVLT BLE 1M 2480MHz Ant1 @ 30MHz-1000MHz



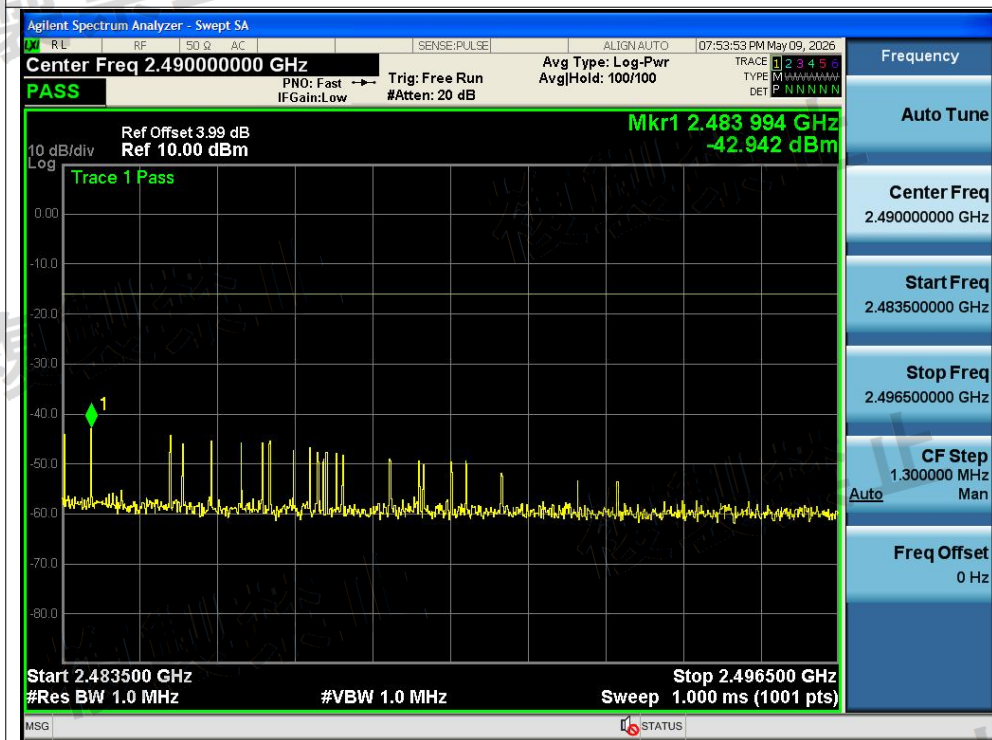
Tx. Spurious NVLT BLE 1M 2480MHz Ant1 @ 1000MHz-2387MHz



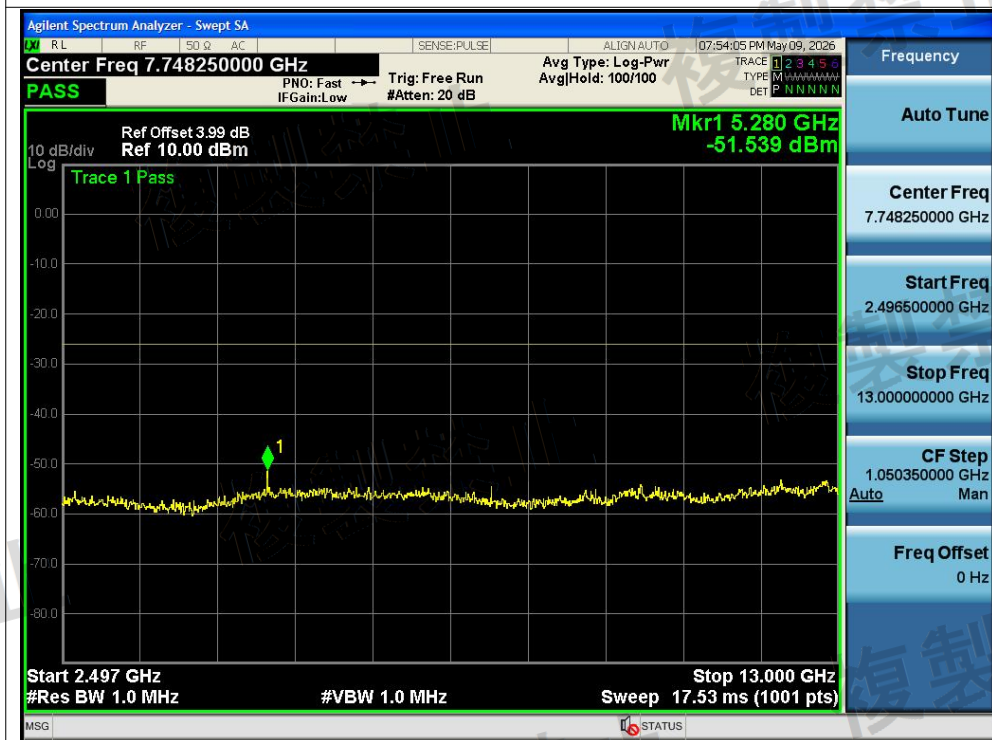
Tx. Spurious NVLT BLE 1M 2480MHz Ant1 @ 2387MHz-2400MHz



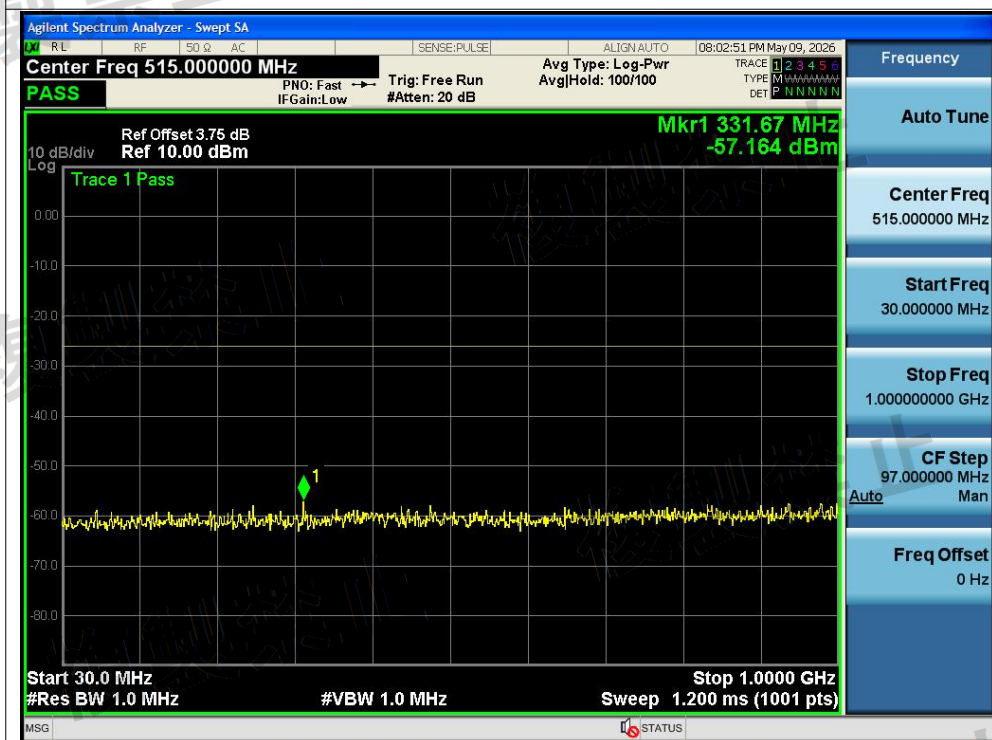
Tx. Spurious NVLT BLE 1M 2480MHz Ant1 @ 2483.5MHz-2496.5MHz



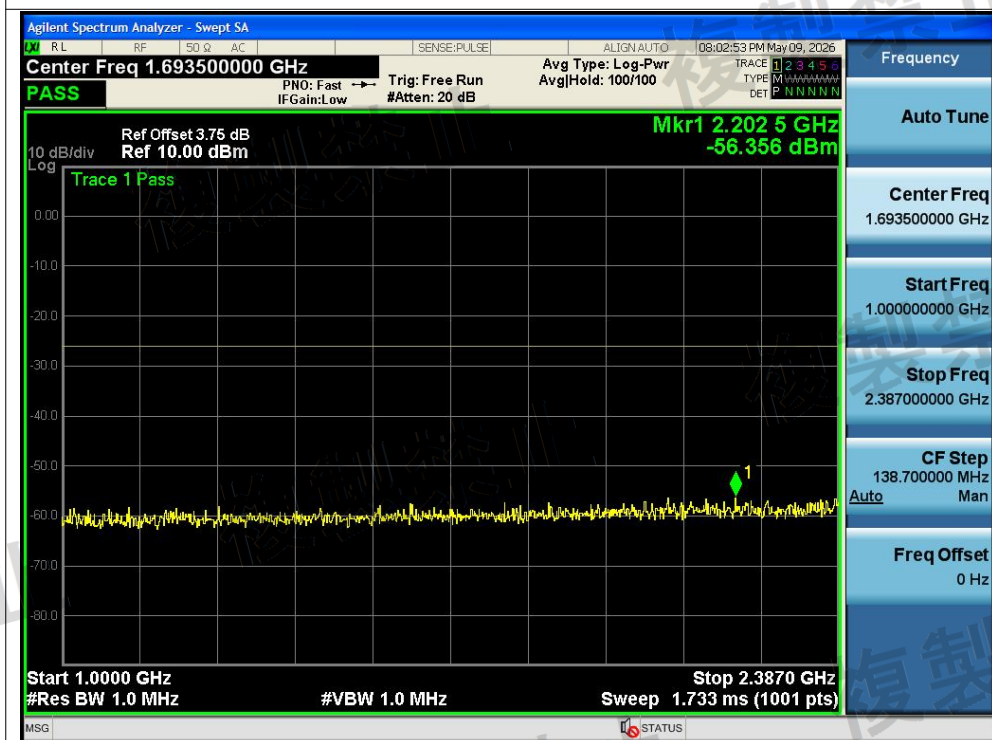
Tx. Spurious NVLT BLE 1M 2480MHz Ant1 @ 2496.5MHz-13000MHz



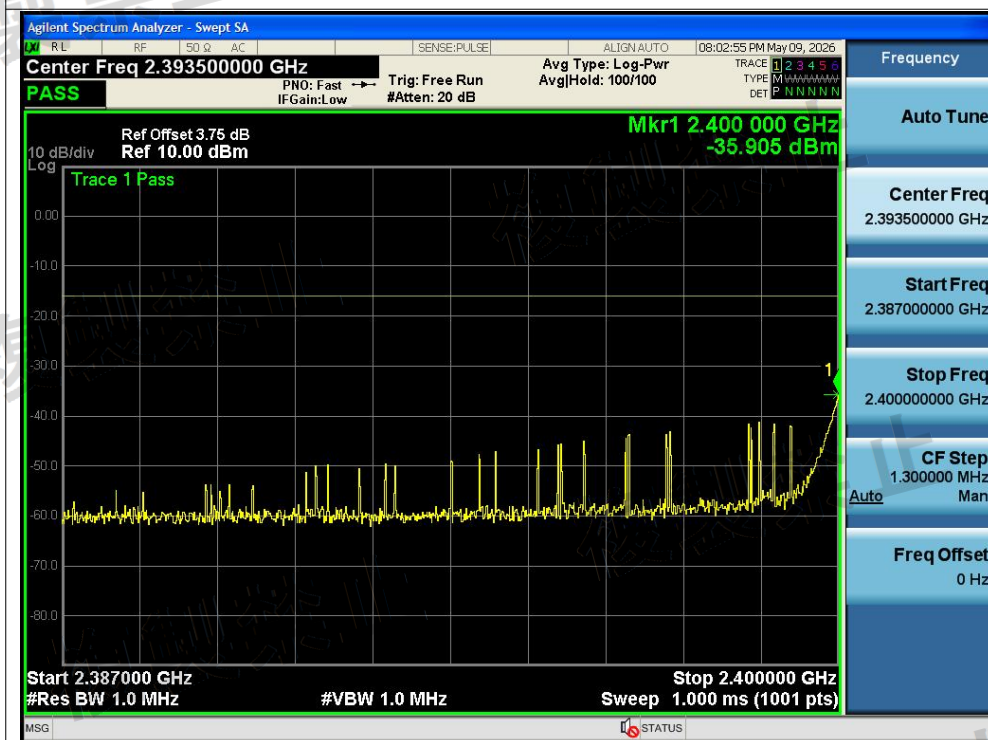
Tx. Spurious NVHT BLE 1M 2402MHz Ant1 @ 30MHz-1000MHz



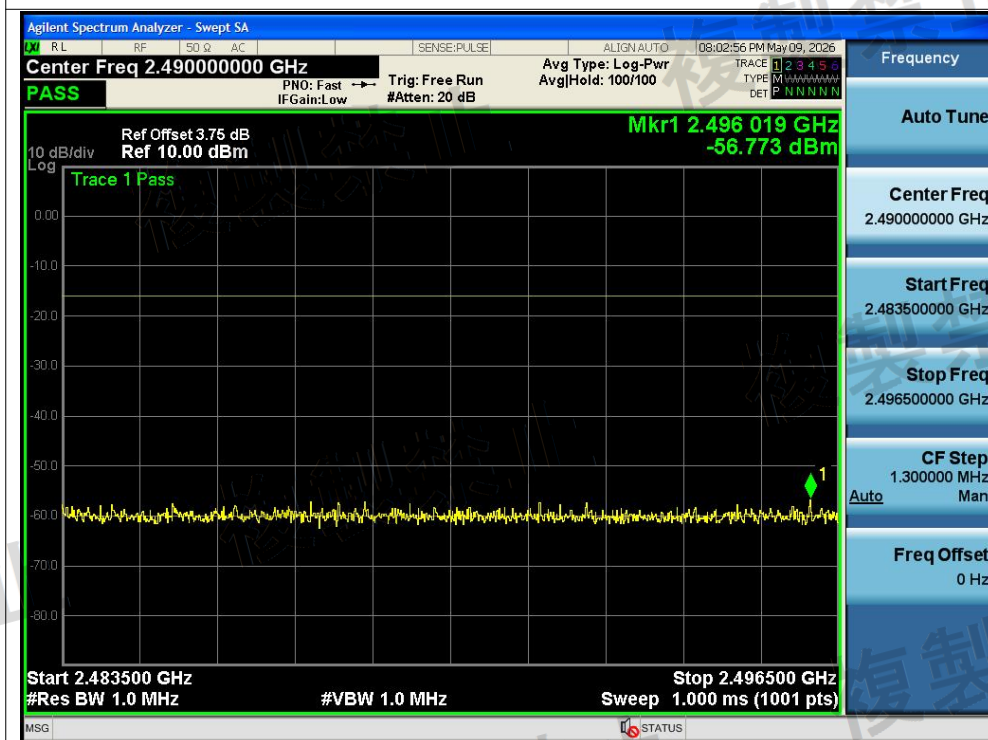
Tx. Spurious NVHT BLE 1M 2402MHz Ant1 @ 1000MHz-2387MHz



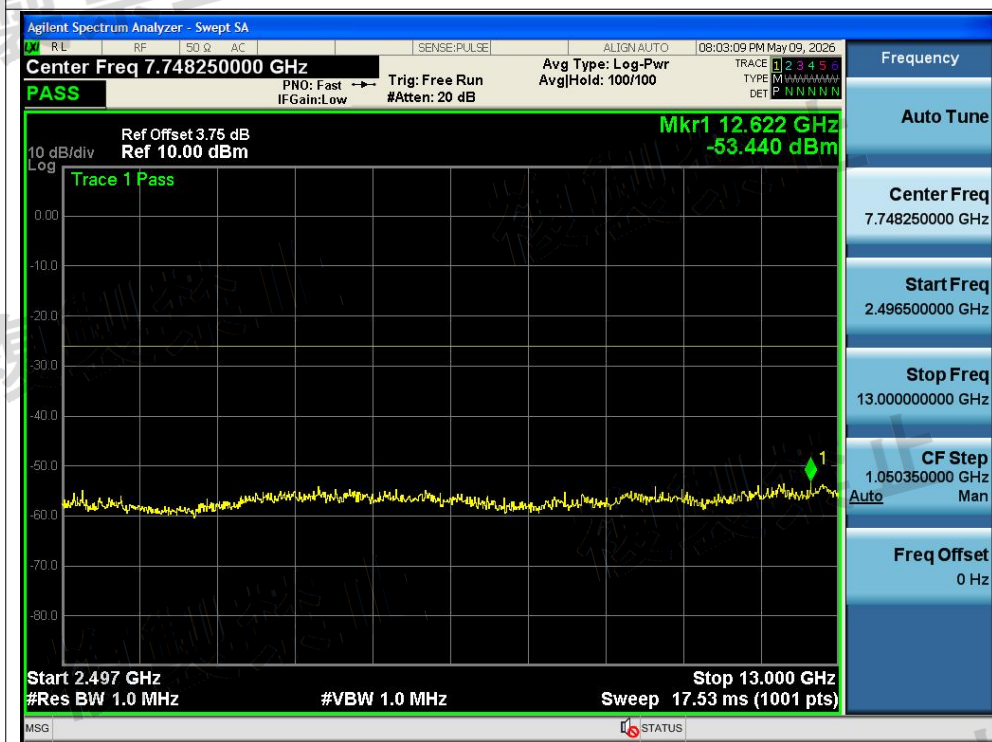
Tx. Spurious NVHT BLE 1M 2402MHz Ant1 @ 2387MHz-2400MHz



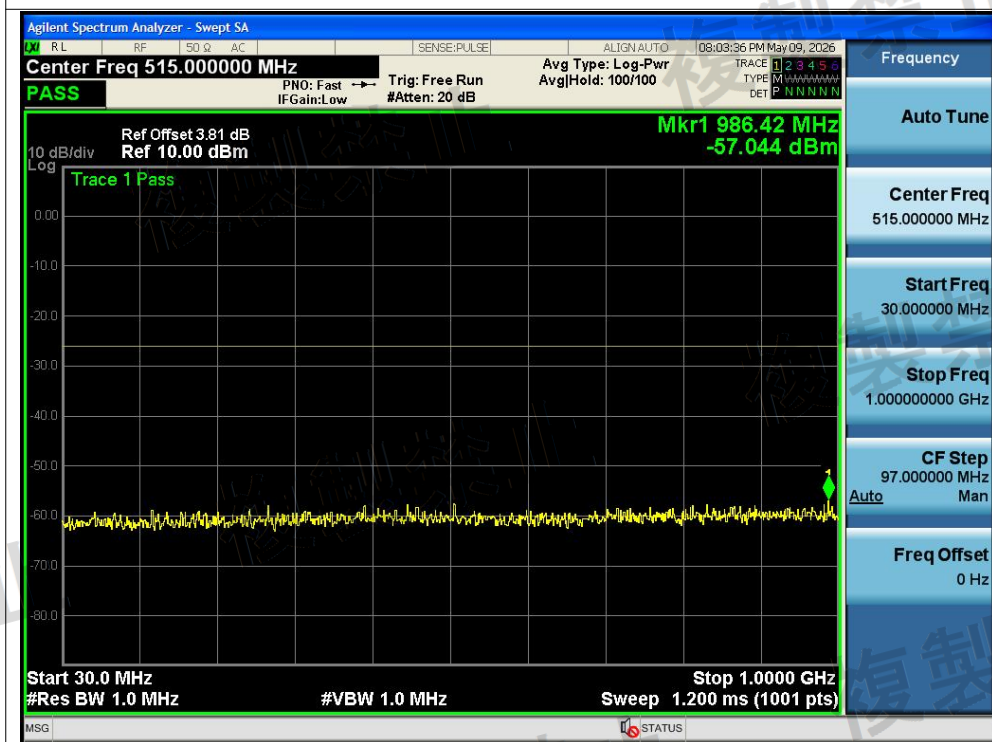
Tx. Spurious NVHT BLE 1M 2402MHz Ant1 @ 2483.5MHz-2496.5MHz



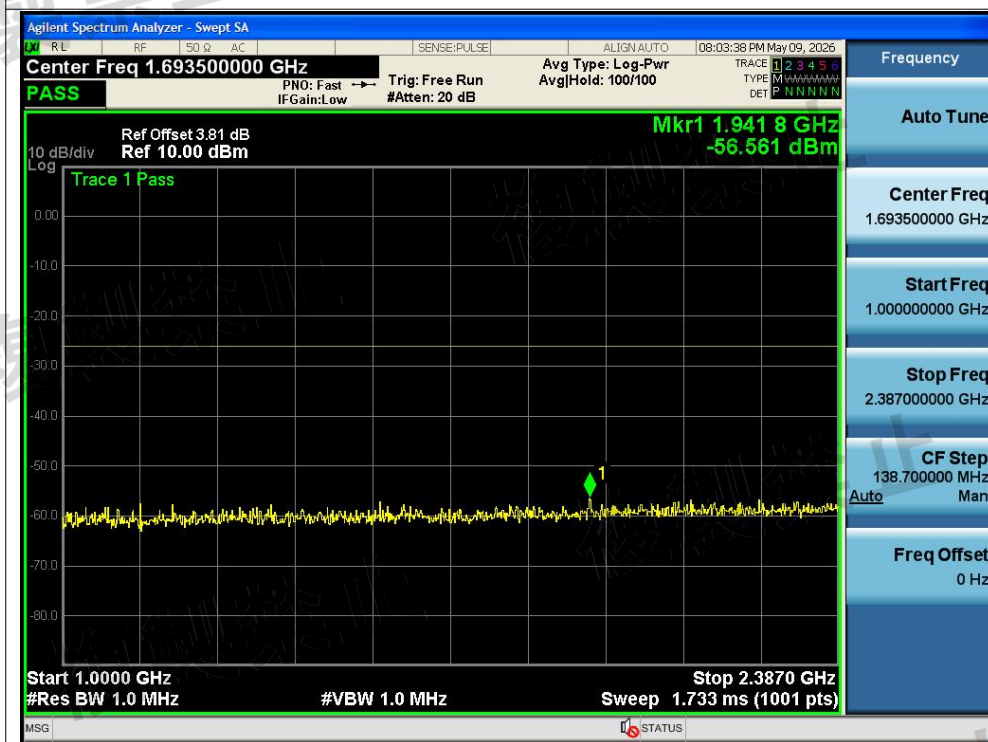
Tx. Spurious NVHT BLE 1M 2402MHz Ant1 @ 2496.5MHz-13000MHz



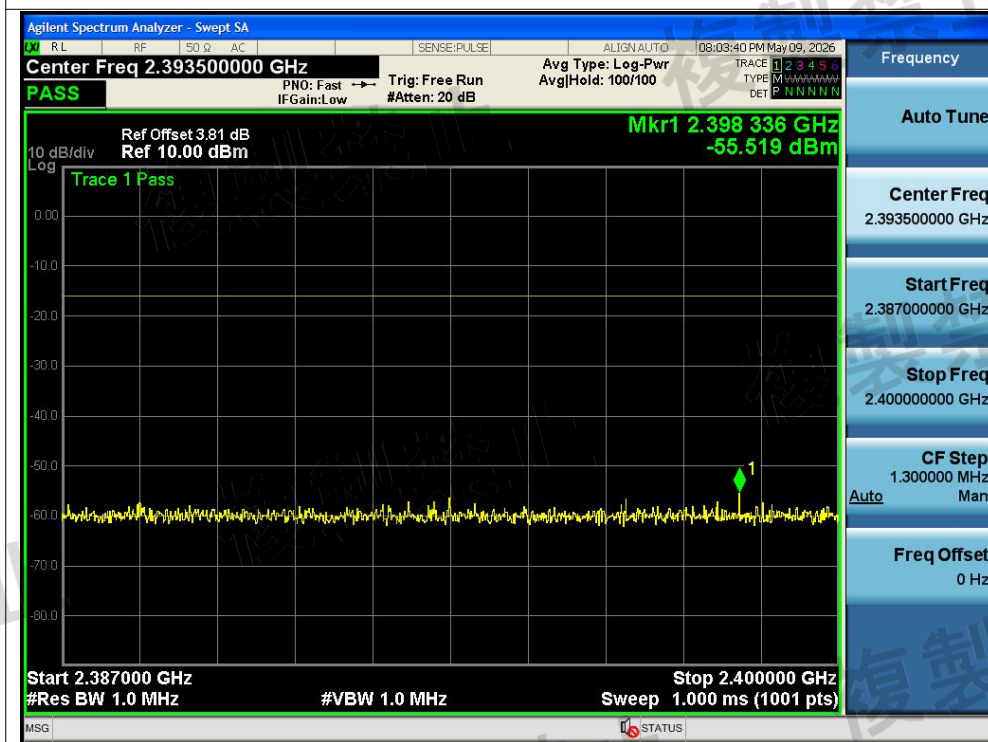
Tx. Spurious NVHT BLE 1M 2440MHz Ant1 @ 30MHz-1000MHz



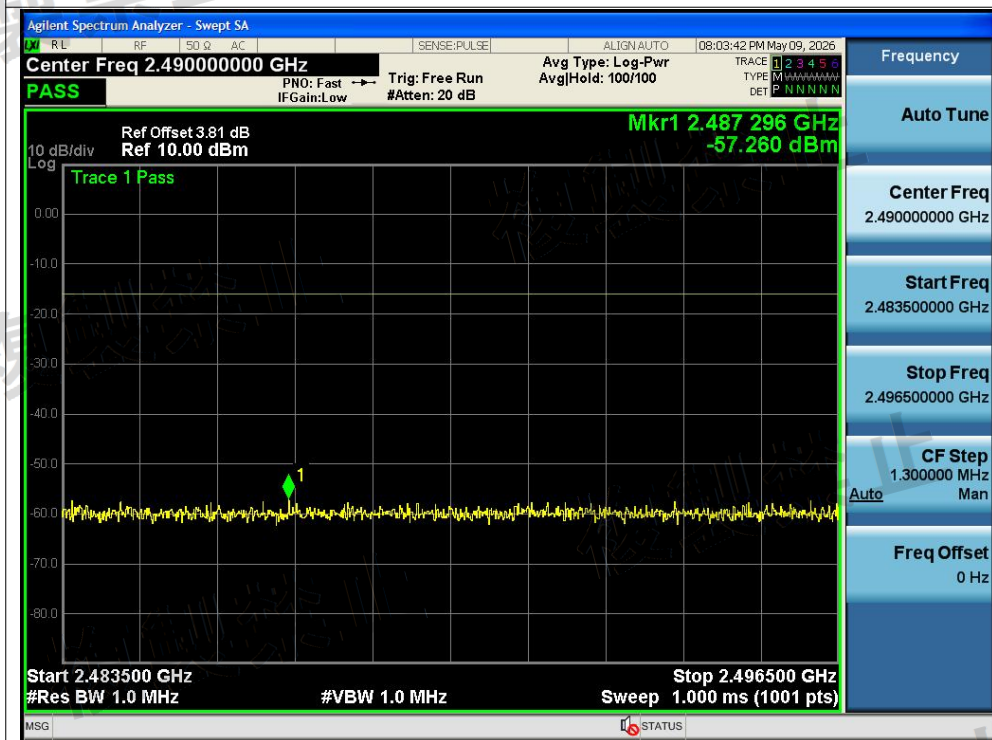
Tx. Spurious NVHT BLE 1M 2440MHz Ant1 @ 1000MHz-2387MHz



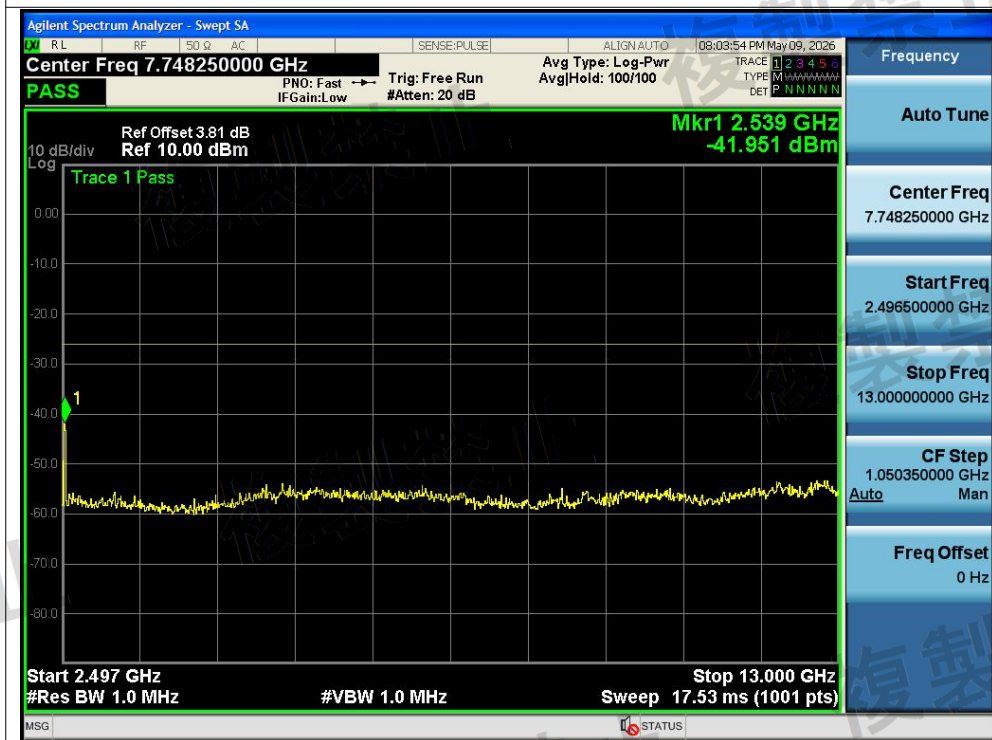
Tx. Spurious NVHT BLE 1M 2440MHz Ant1 @ 2387MHz-2400MHz



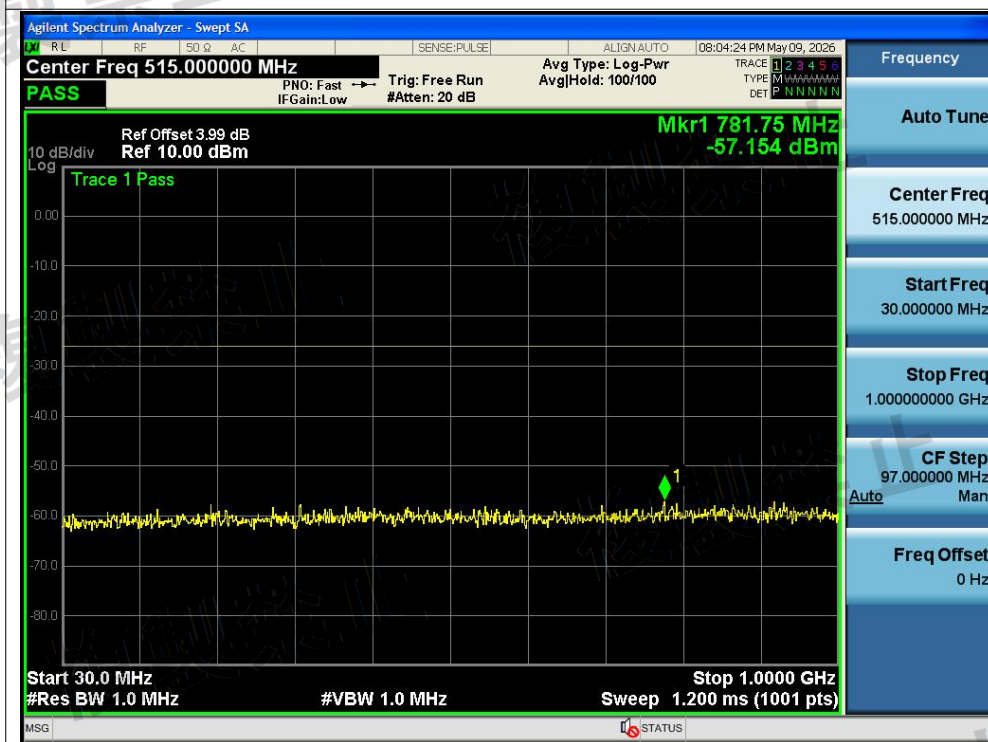
Tx. Spurious NVHT BLE 1M 2440MHz Ant1 @ 2483.5MHz-2496.5MHz



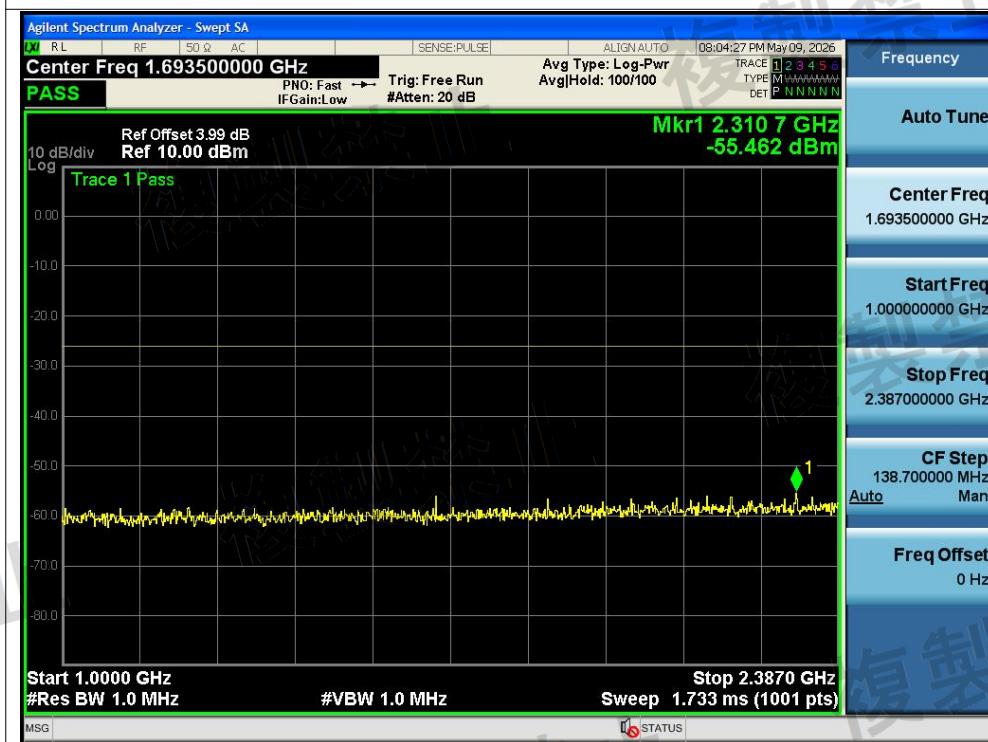
Tx. Spurious NVHT BLE 1M 2440MHz Ant1 @ 2496.5MHz-13000MHz



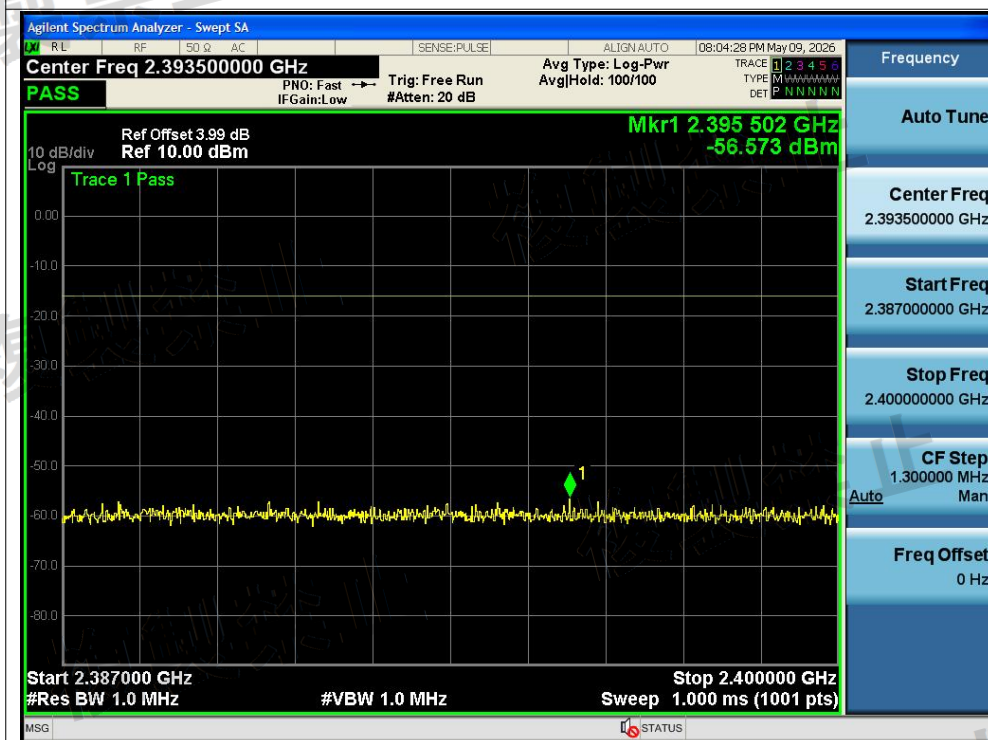
Tx. Spurious NVHT BLE 1M 2480MHz Ant1 @ 30MHz-1000MHz



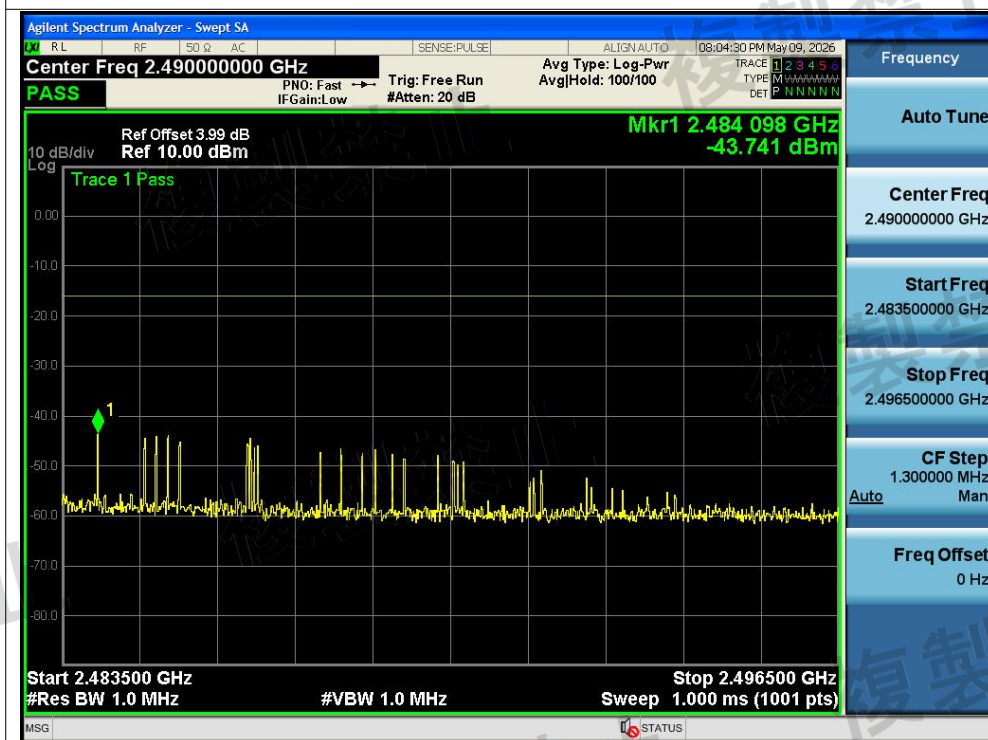
Tx. Spurious NVHT BLE 1M 2480MHz Ant1 @ 1000MHz-2387MHz



Tx. Spurious NVHT BLE 1M 2480MHz Ant1 @ 2387MHz-2400MHz



Tx. Spurious NVHT BLE 1M 2480MHz Ant1 @ 2483.5MHz-2496.5MHz



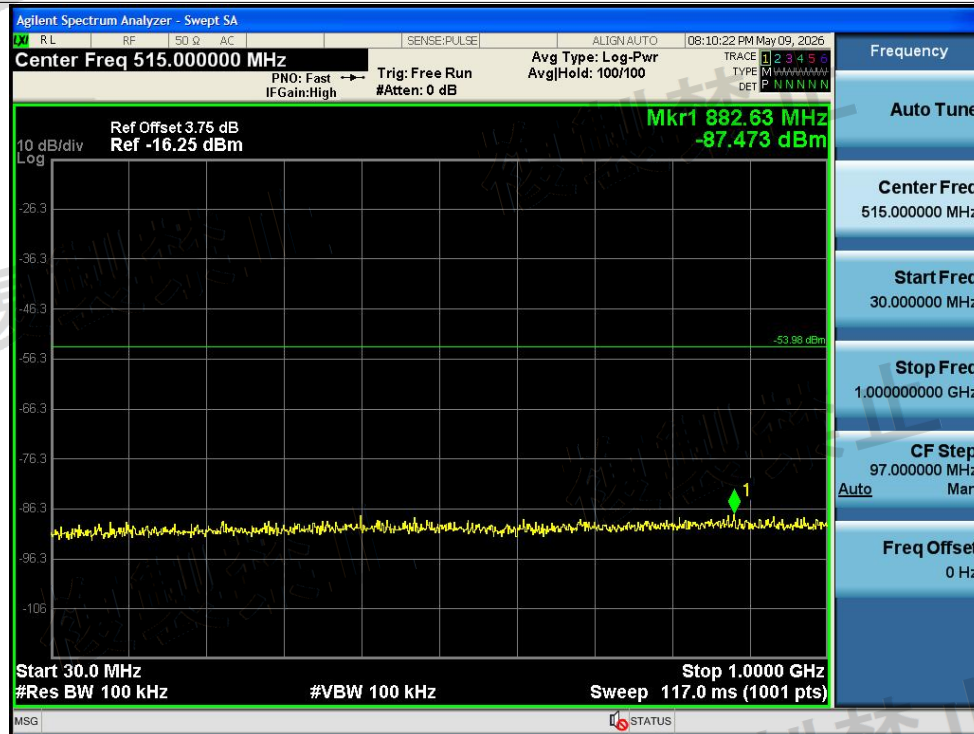


Rx Spurious Emission

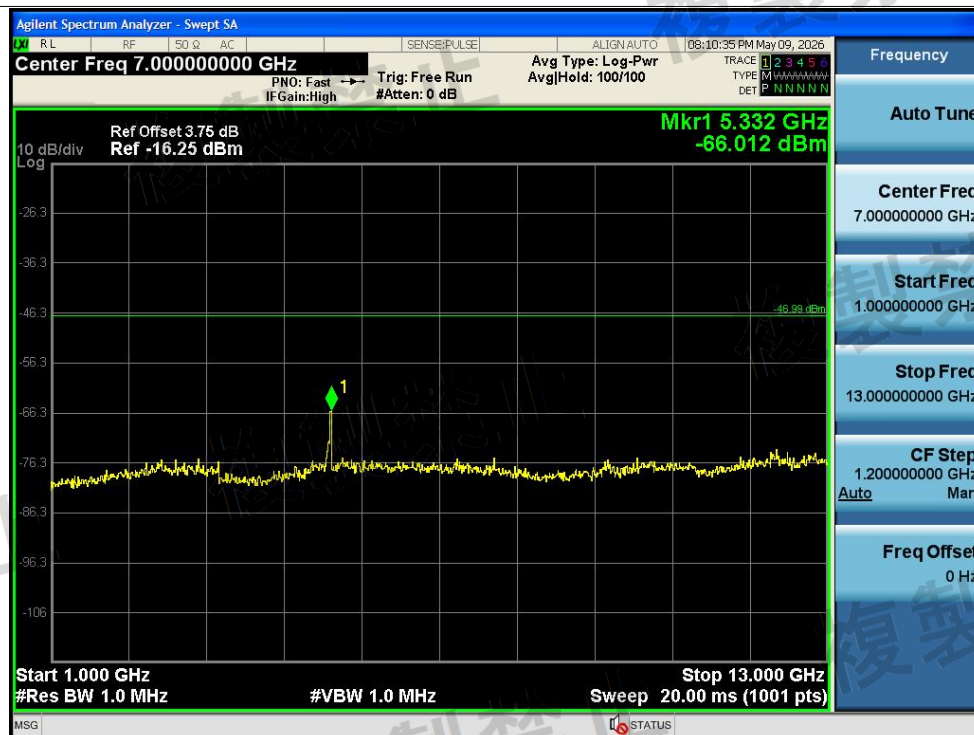
Condition	Mode	Frequency (MHz)	Antenna	Range (MHz)	Emission Frequency (MHz)	Max Peak Value (dBm)	Max RMS Value (dBm)	Max Peak Value (nW)	Max RMS Value (nW)	Limit (nW)	Verdict
NVNT	BLE 1M	2402	Ant1	30-1000	882.63	-87.47	NA	0.0018	NA	4	Pass
NVNT	BLE 1M	2402	Ant1	1000-13000	5332.00	-66.01	NA	0.2506	NA	20	Pass
NVNT	BLE 1M	2440	Ant1	30-1000	994.18	-86.87	NA	0.0021	NA	4	Pass
NVNT	BLE 1M	2440	Ant1	1000-13000	12760.00	-73.97	NA	0.0401	NA	20	Pass
NVNT	BLE 1M	2480	Ant1	30-1000	785.63	-86.87	NA	0.0021	NA	4	Pass
NVNT	BLE 1M	2480	Ant1	1000-13000	12796.00	-73.96	NA	0.0402	NA	20	Pass
NVLT	BLE 1M	2402	Ant1	30-1000	871.96	-87.22	NA	0.0019	NA	4	Pass
NVLT	BLE 1M	2402	Ant1	1000-13000	12796.00	-73.50	NA	0.0447	NA	20	Pass
NVLT	BLE 1M	2440	Ant1	30-1000	860.32	-86.62	NA	0.0022	NA	4	Pass
NVLT	BLE 1M	2440	Ant1	1000-13000	5332.00	-64.61	NA	0.3459	NA	20	Pass
NVLT	BLE 1M	2480	Ant1	30-1000	898.15	-87.29	NA	0.0019	NA	4	Pass
NVLT	BLE 1M	2480	Ant1	1000-13000	5260.00	-73.28	NA	0.047	NA	20	Pass
NVHT	BLE 1M	2402	Ant1	30-1000	781.75	-87.84	NA	0.0016	NA	4	Pass
NVHT	BLE 1M	2402	Ant1	1000-13000	12772.00	-73.41	NA	0.0456	NA	20	Pass
NVHT	BLE 1M	2440	Ant1	30-1000	902.03	-87.28	NA	0.0019	NA	4	Pass
NVHT	BLE 1M	2440	Ant1	1000-13000	5920.00	-74.10	NA	0.0389	NA	20	Pass
NVHT	BLE 1M	2480	Ant1	30-1000	807.94	-87.01	NA	0.002	NA	4	Pass
NVHT	BLE 1M	2480	Ant1	1000-13000	12856.00	-74.39	NA	0.0364	NA	20	Pass

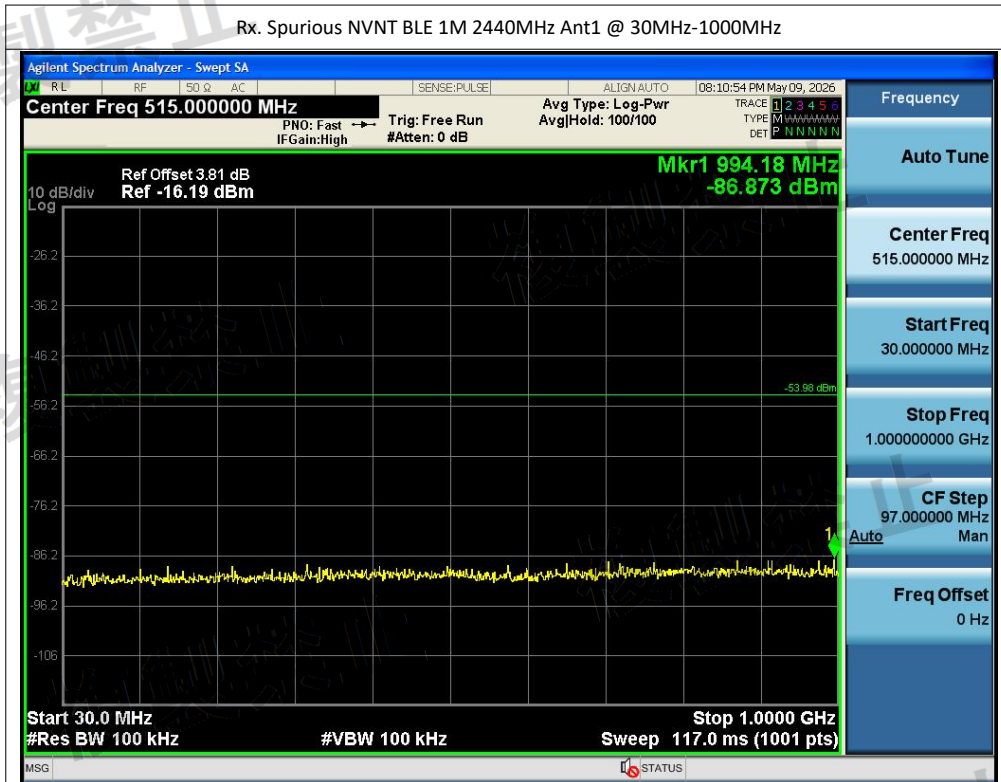
Test Graphs

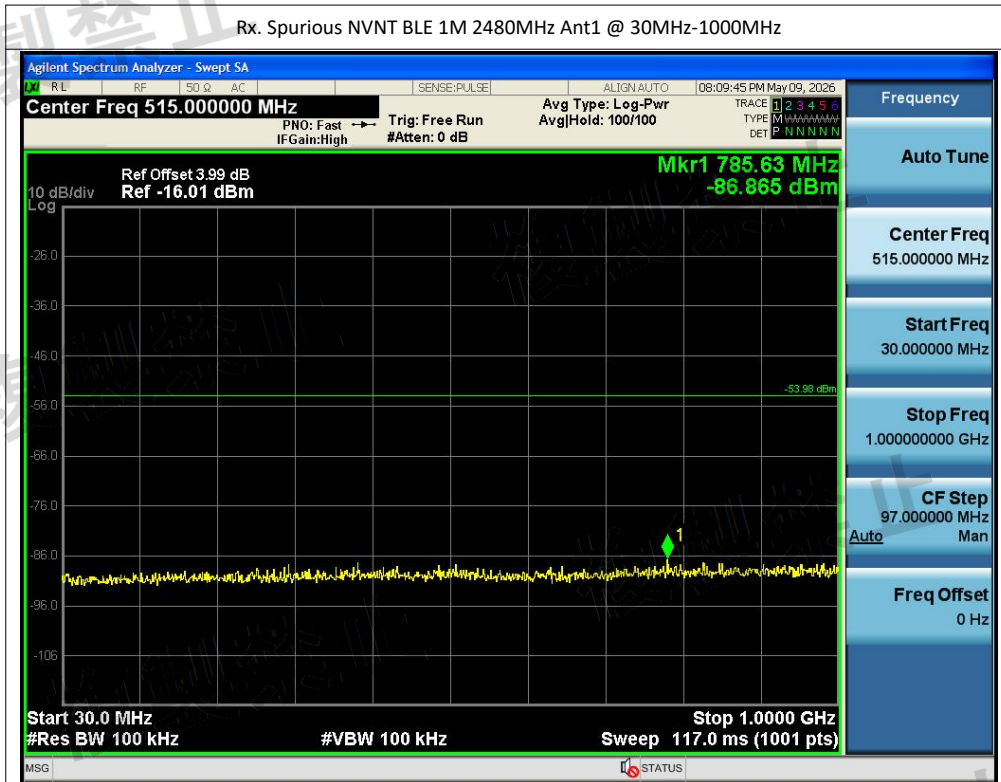
Rx. Spurious NVNT BLE 1M 2402MHz Ant1 @ 30MHz-1000MHz



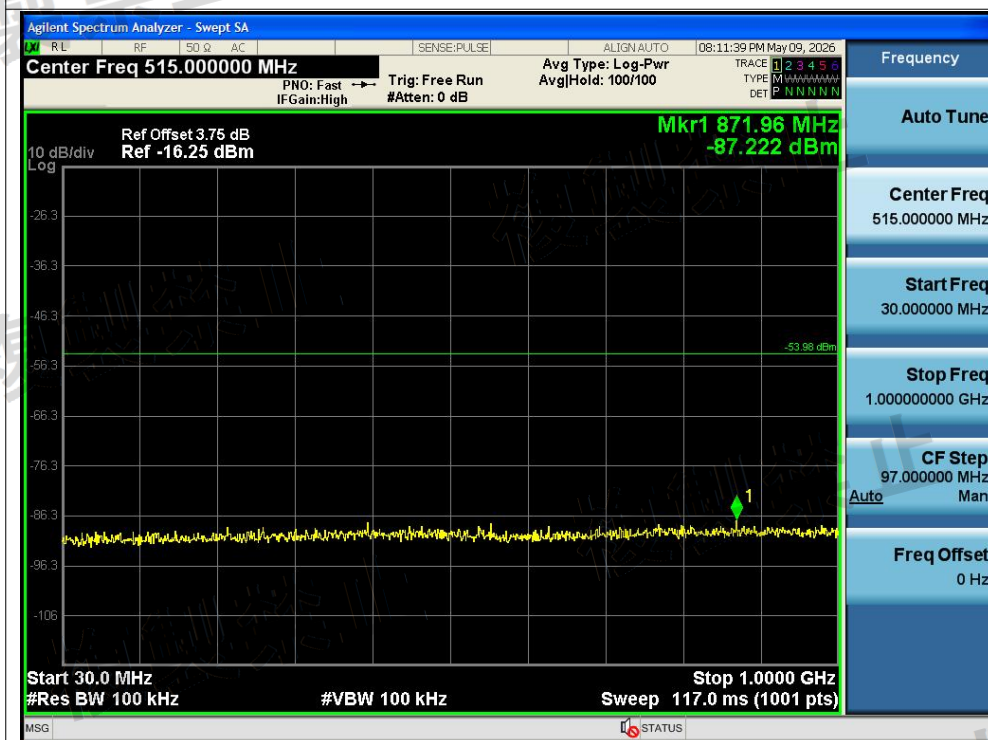
Rx. Spurious NVNT BLE 1M 2402MHz Ant1 @ 1000MHz-13000MHz



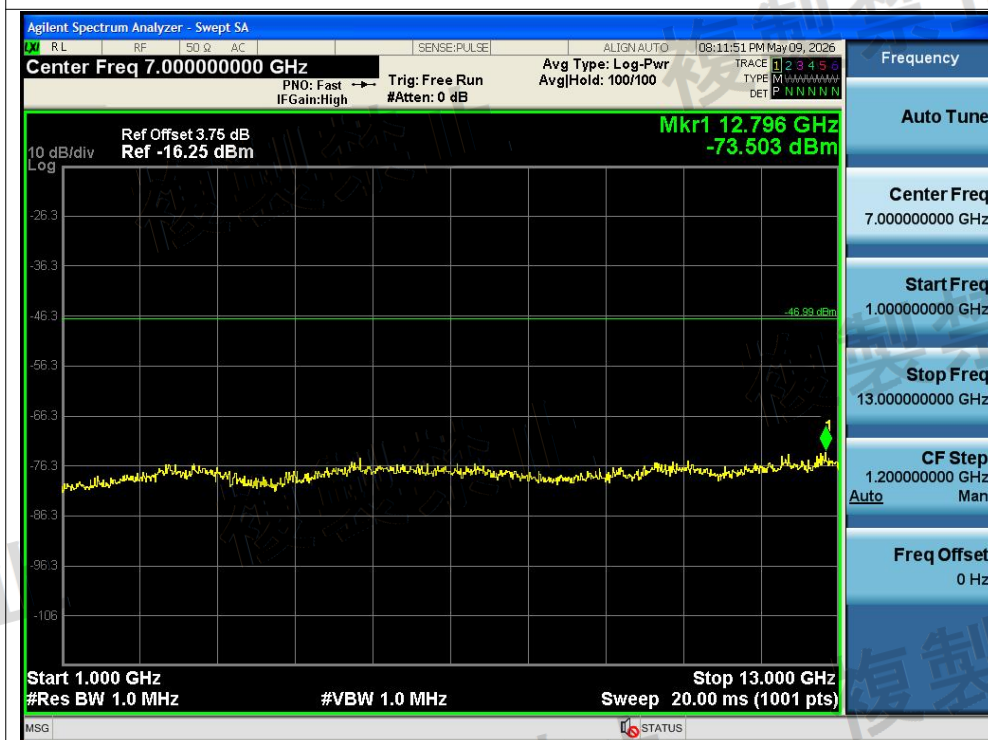




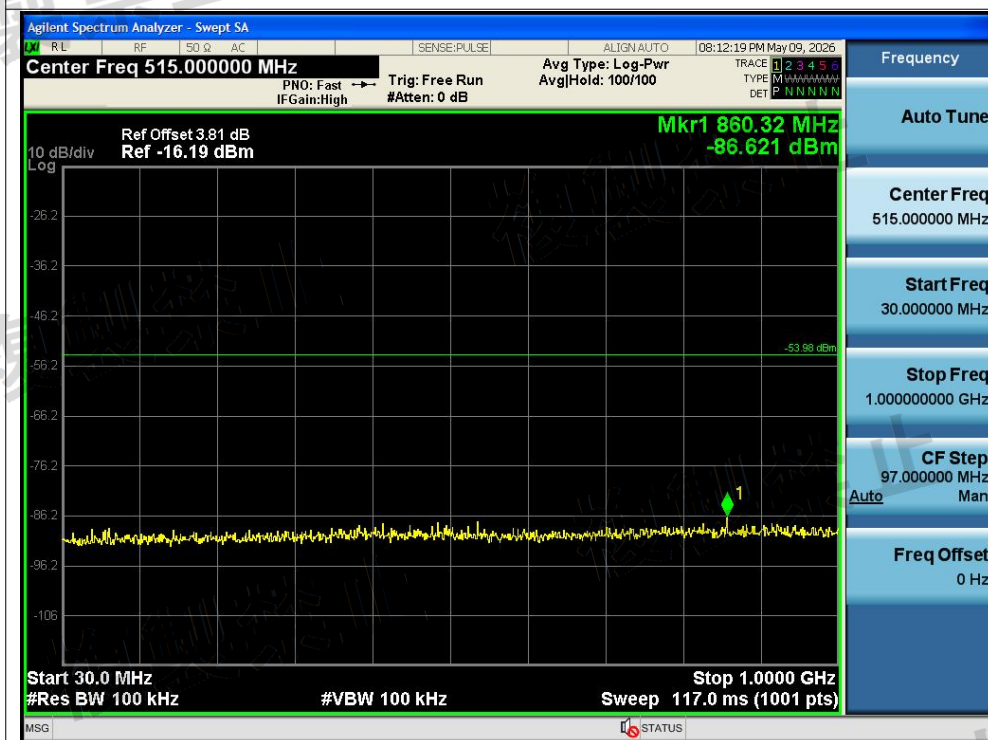
Rx. Spurious NVLT BLE 1M 2402MHz Ant1 @ 30MHz-1000MHz



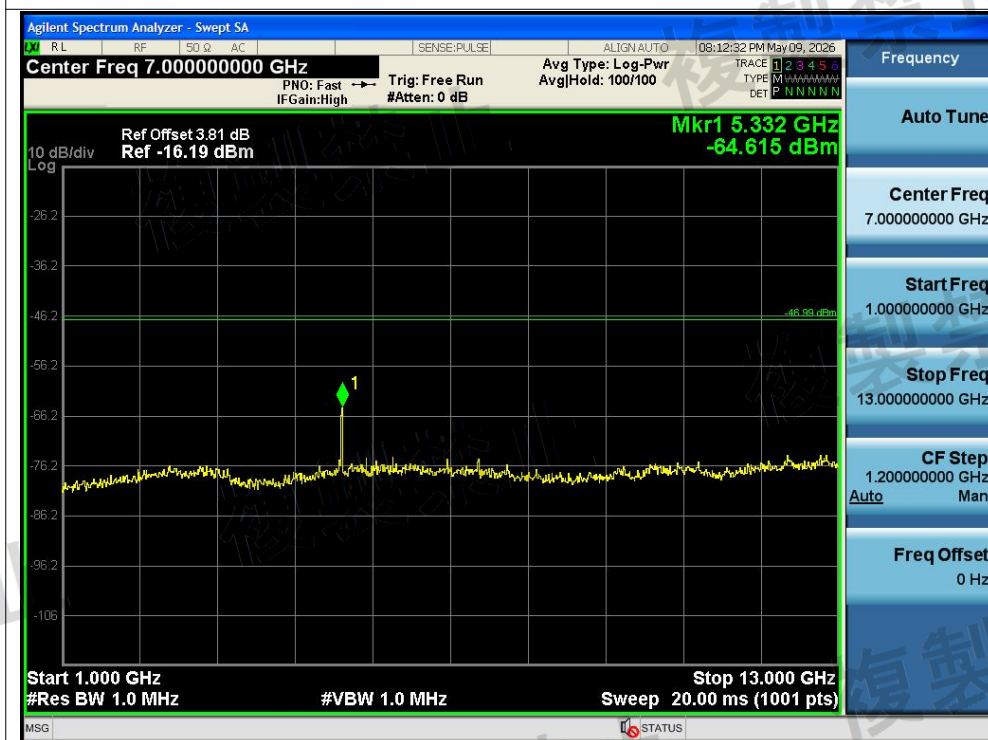
Rx. Spurious NVLT BLE 1M 2402MHz Ant1 @ 1000MHz-13000MHz



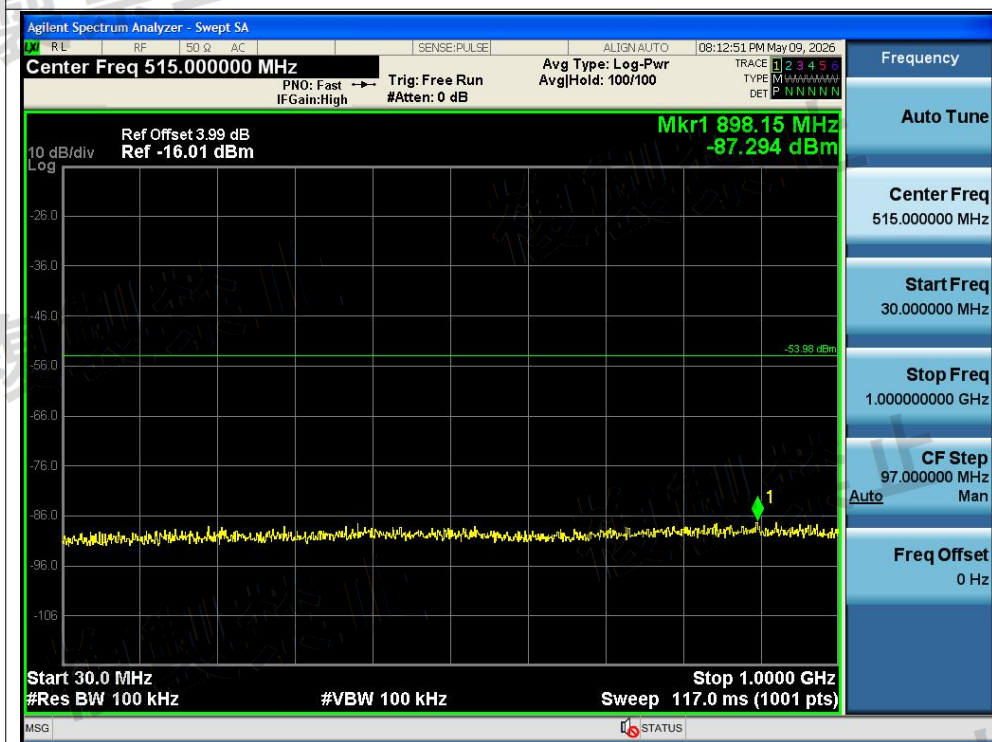
Rx. Spurious NVLT BLE 1M 2440MHz Ant1 @ 30MHz-1000MHz



Rx. Spurious NVLT BLE 1M 2440MHz Ant1 @ 1000MHz-13000MHz



Rx. Spurious NVLT BLE 1M 2480MHz Ant1 @ 30MHz-1000MHz



Rx. Spurious NVLT BLE 1M 2480MHz Ant1 @ 1000MHz-13000MHz

