

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	2402.01	10000	4.16	50	Pass
NVNT	BLE 1M	2440	Ant1	2440.009	9000	3.69	50	Pass
NVNT	BLE 1M	2480	Ant1	2480.009	9000	3.63	50	Pass
NVLT	BLE 1M	2402	Ant1	2402.01	10000	4.16	50	Pass
NVLT	BLE 1M	2440	Ant1	2440.01	10000	4.1	50	Pass
NVLT	BLE 1M	2480	Ant1	2480.01	10000	4.03	50	Pass
NVHT	BLE 1M	2402	Ant1	2402.009	9000	3.75	50	Pass
NVHT	BLE 1M	2440	Ant1	2440.009	9000	3.69	50	Pass
NVHT	BLE 1M	2480	Ant1	2480.01	10000	4.03	50	Pass

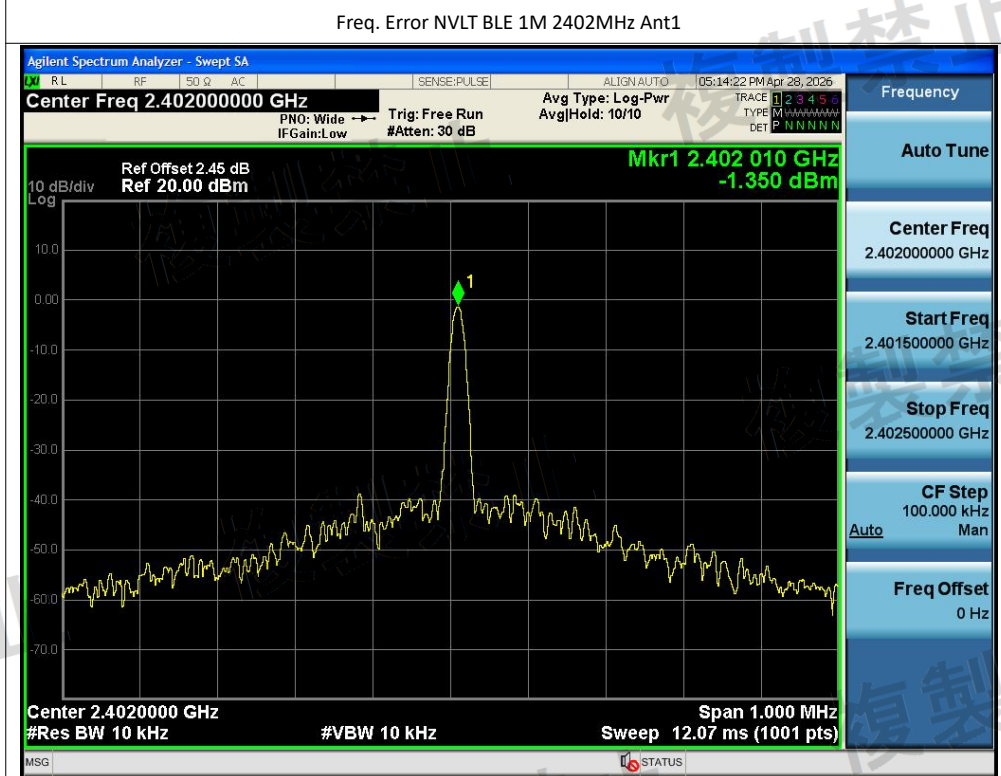
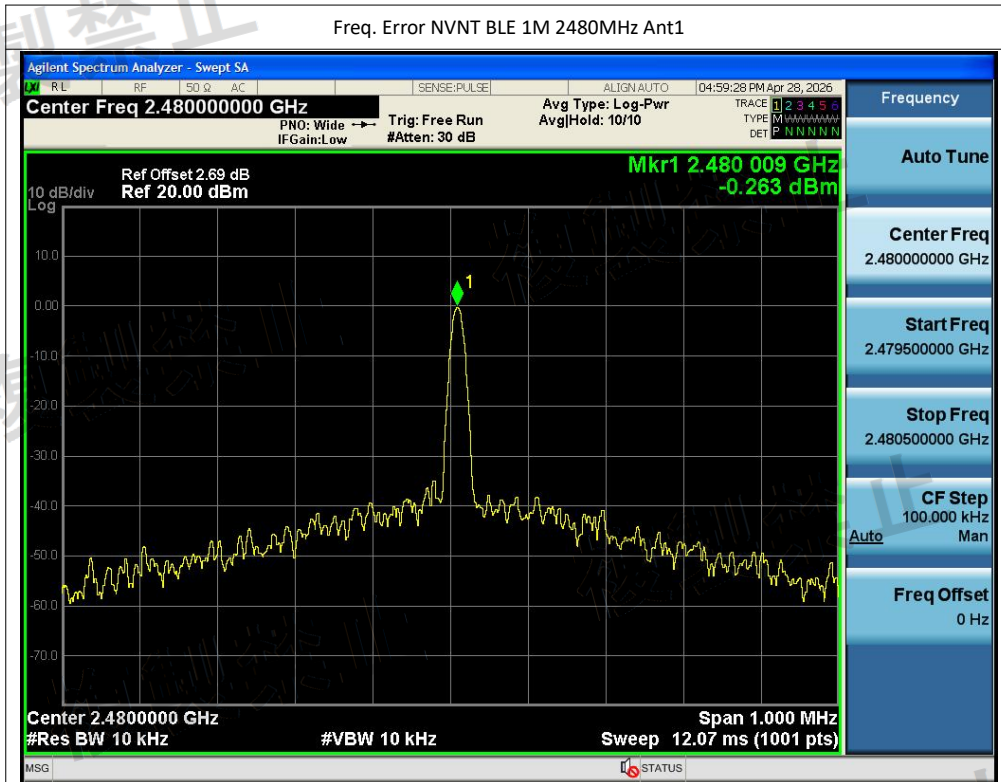
Test Graphs

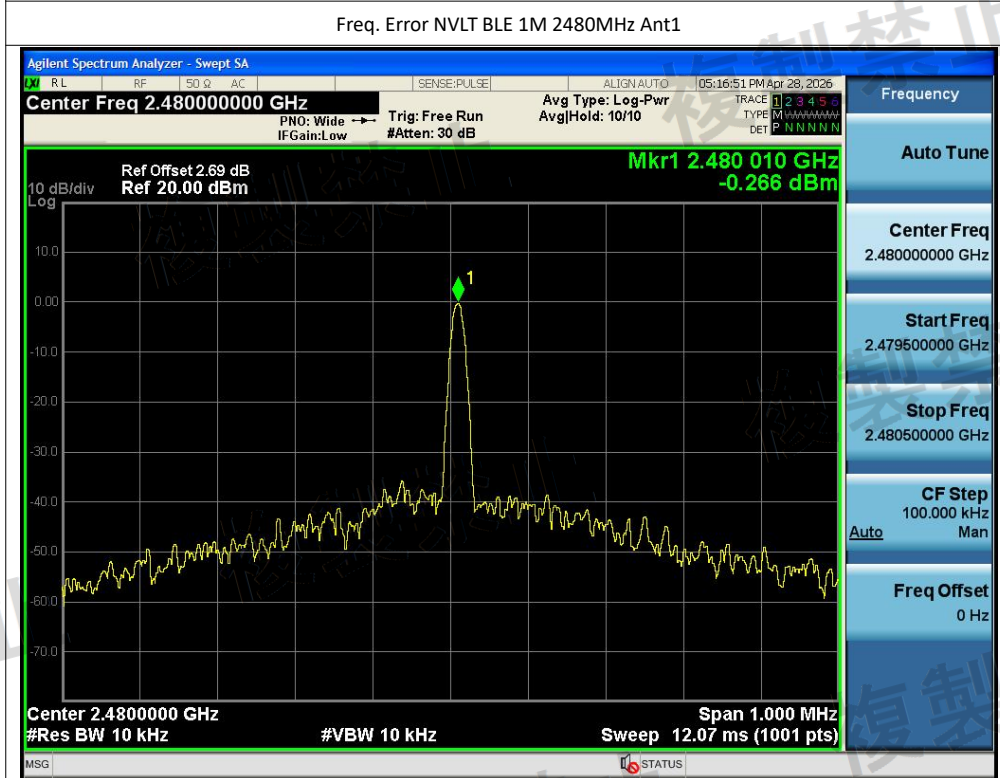
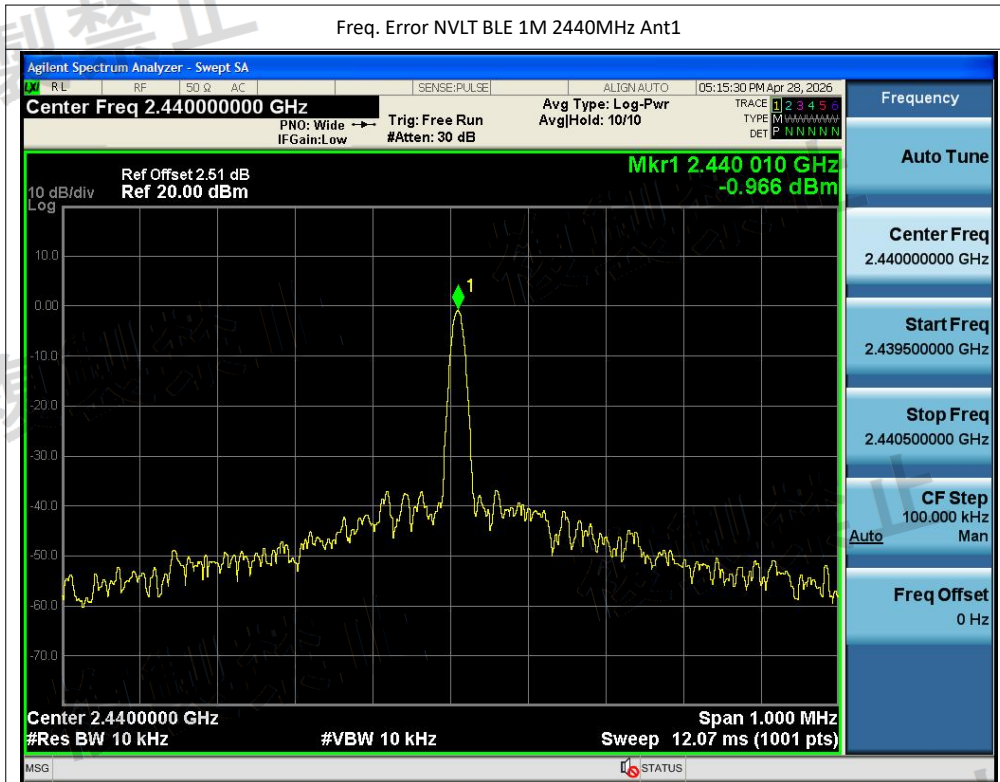
Freq. Error NVNT BLE 1M 2402MHz Ant1

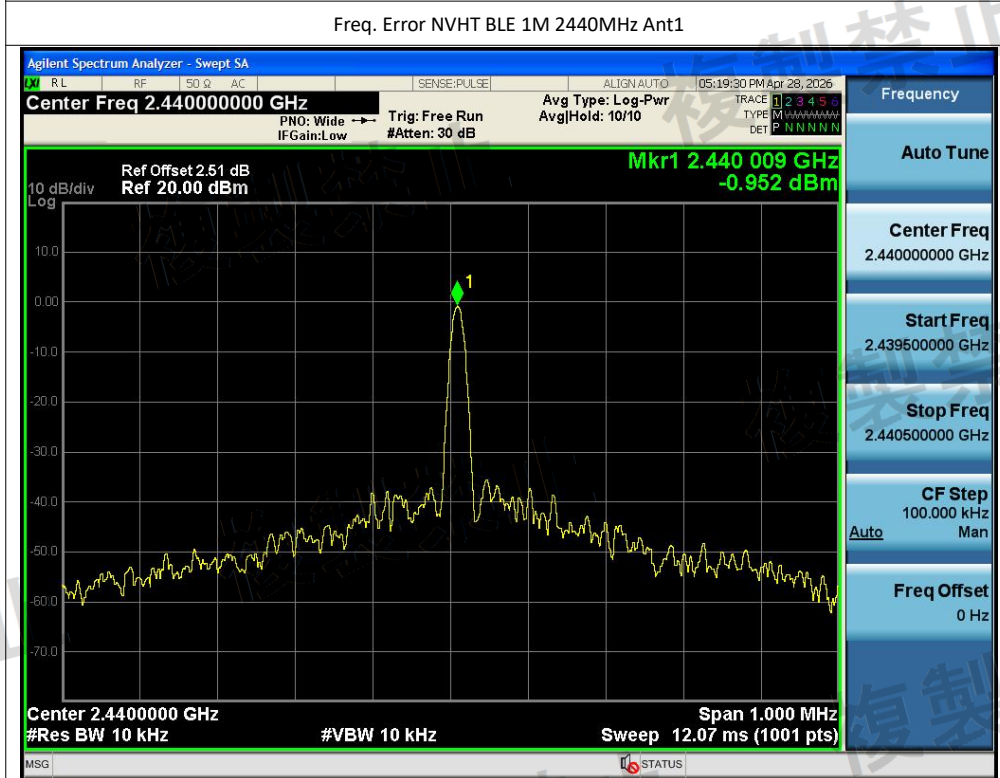
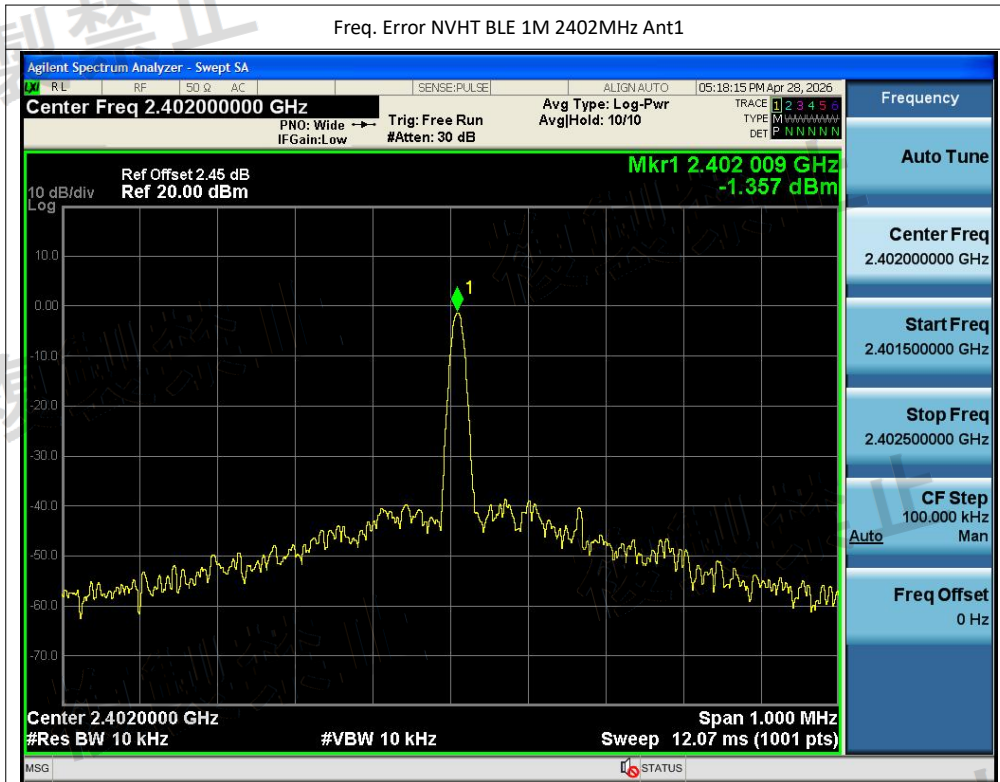


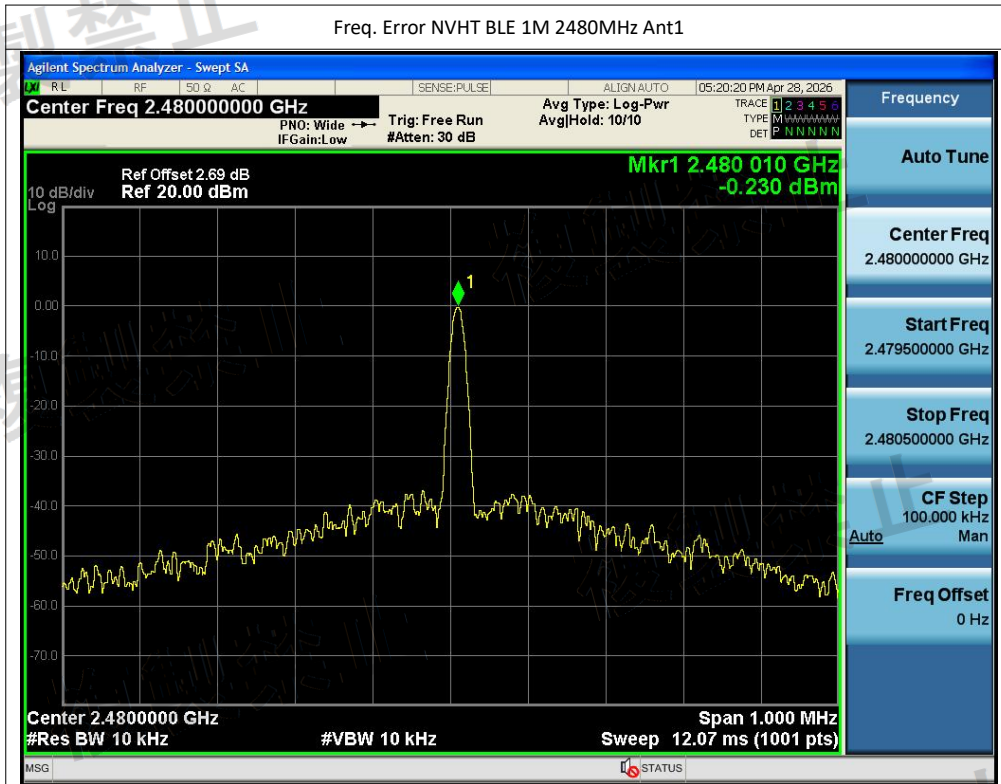
Freq. Error NVNT BLE 1M 2440MHz Ant1









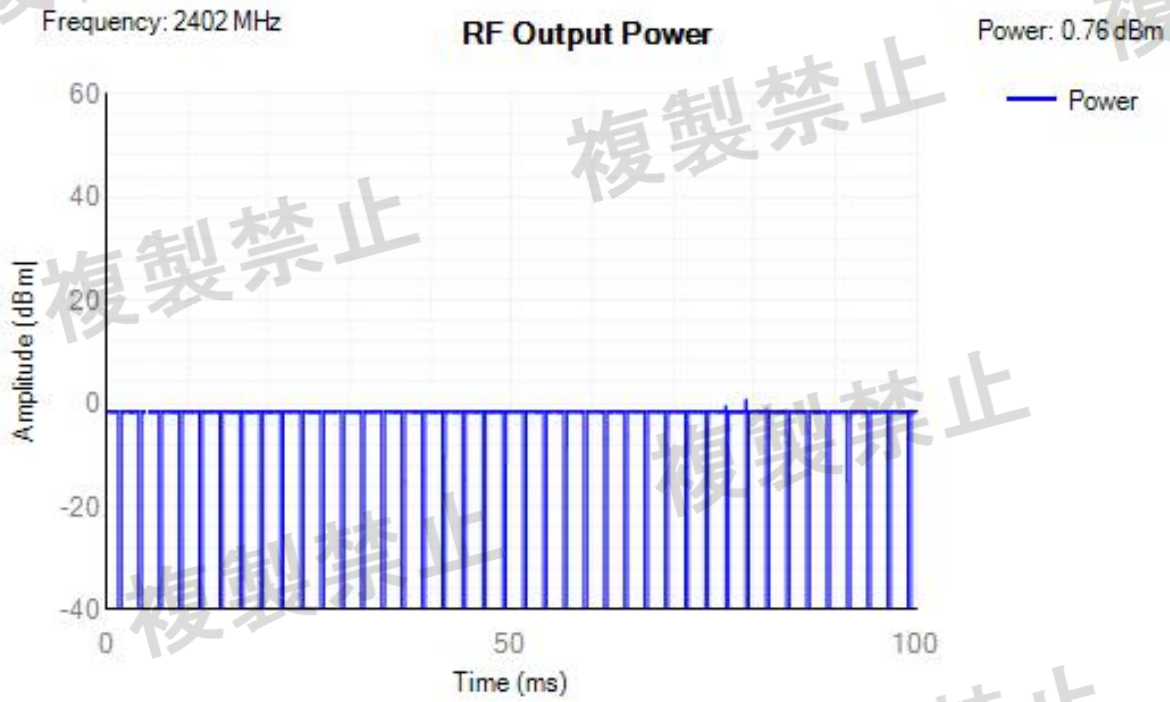


Antenna Power

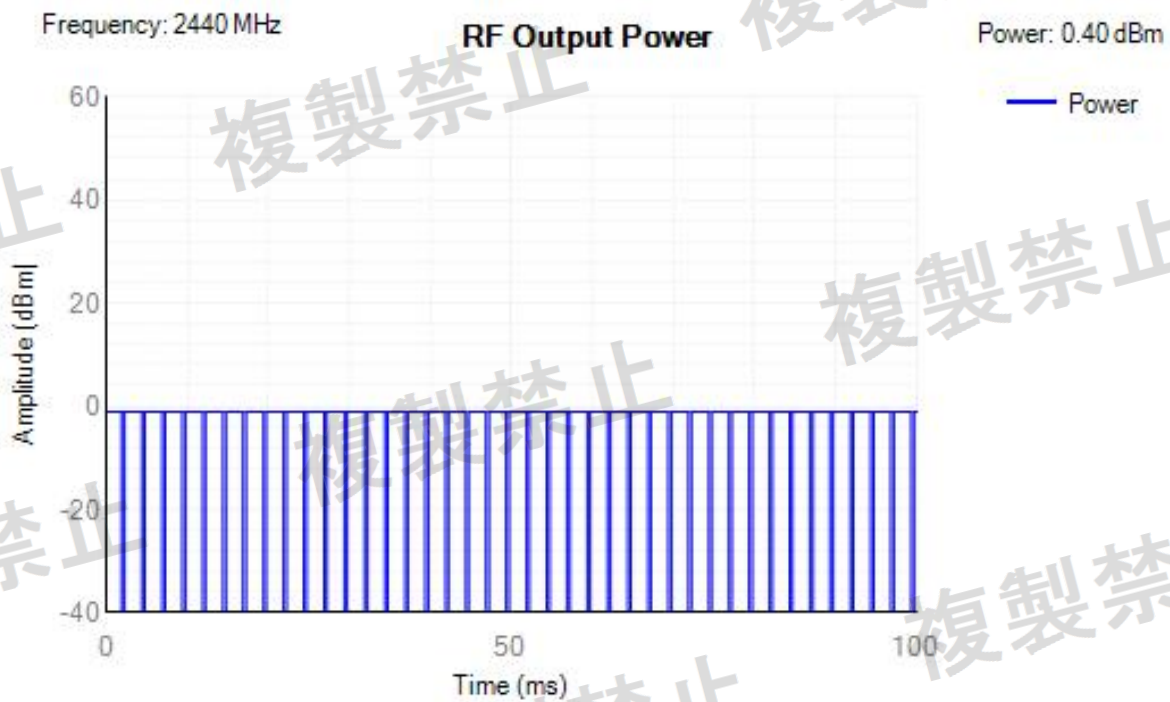
Condition	Mode	Frequency (MHz)	Antenna	Power (dBm)	Power (mW)	Limit (mW)	Declared Power (mW)	Tolerance (%)	Upper Limit (%)	Verdict
NVNT	BLE 1M	2402	Ant1	0.76	1.191	10	1	19.1	20	Pass
NVNT	BLE 1M	2440	Ant1	0.4	1.096	10	1	9.6	20	Pass
NVNT	BLE 1M	2480	Ant1	-0.73	0.845	10	1	-15.5	20	Pass
NVLT	BLE 1M	2402	Ant1	-1.46	0.714	10	1	-28.6	20	Pass
NVLT	BLE 1M	2440	Ant1	-0.99	0.796	10	1	-20.4	20	Pass
NVLT	BLE 1M	2480	Ant1	-0.74	0.843	10	1	-15.7	20	Pass
NVHT	BLE 1M	2402	Ant1	-1.45	0.716	10	1	-28.4	20	Pass
NVHT	BLE 1M	2440	Ant1	-1	0.794	10	1	-20.6	20	Pass
NVHT	BLE 1M	2480	Ant1	-0.74	0.843	10	1	-15.7	20	Pass

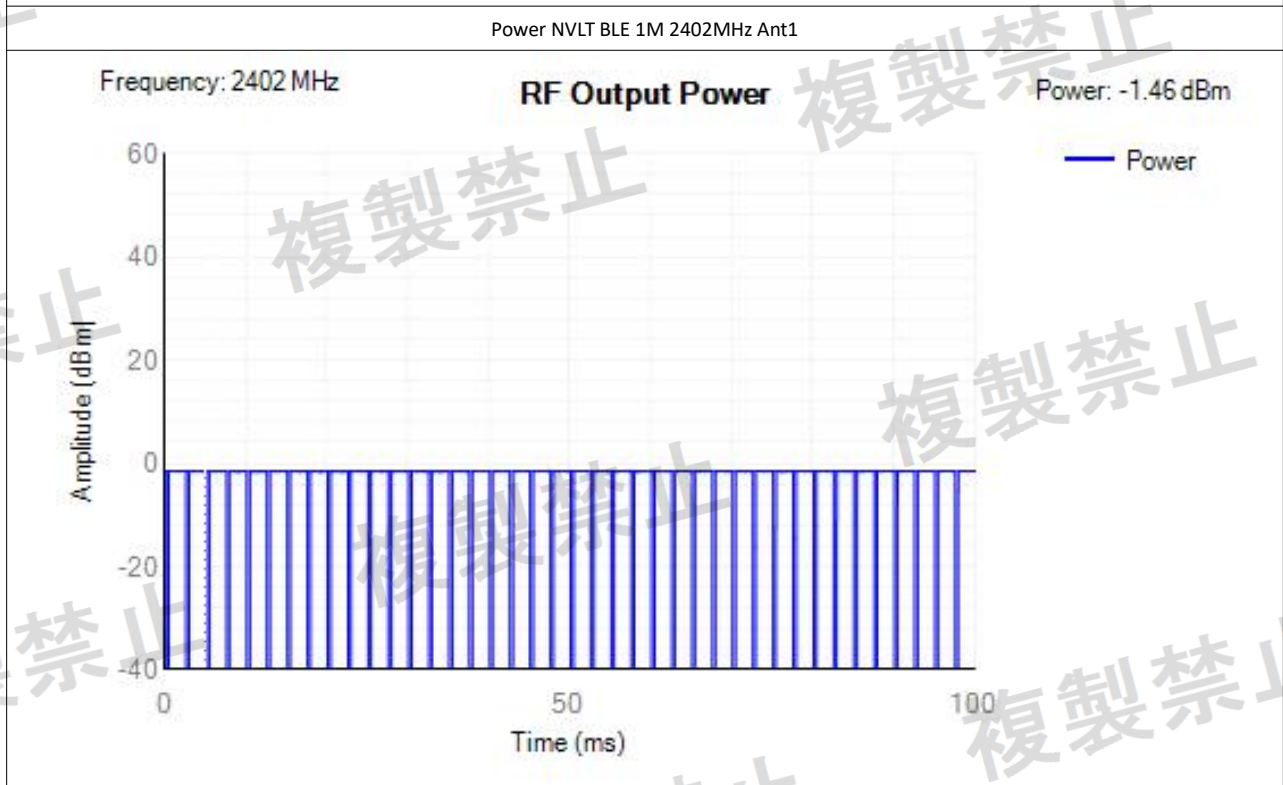
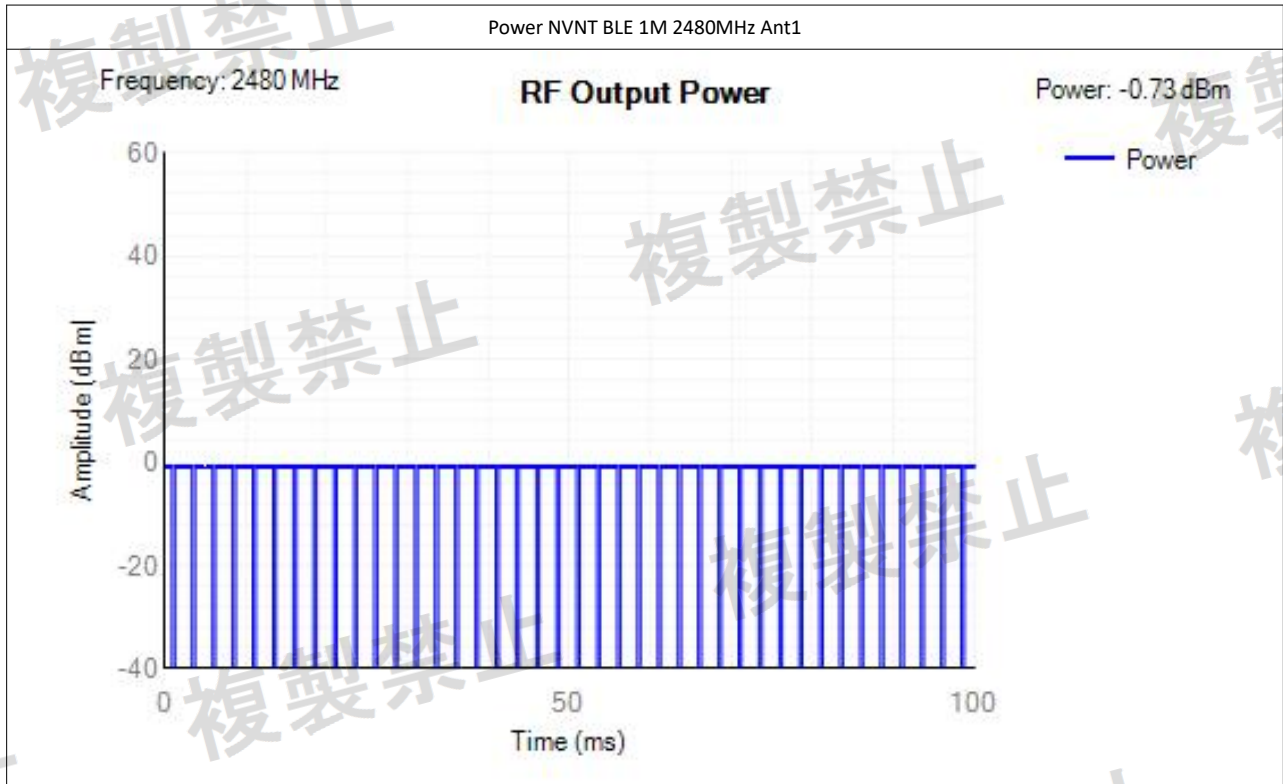
Test Graphs

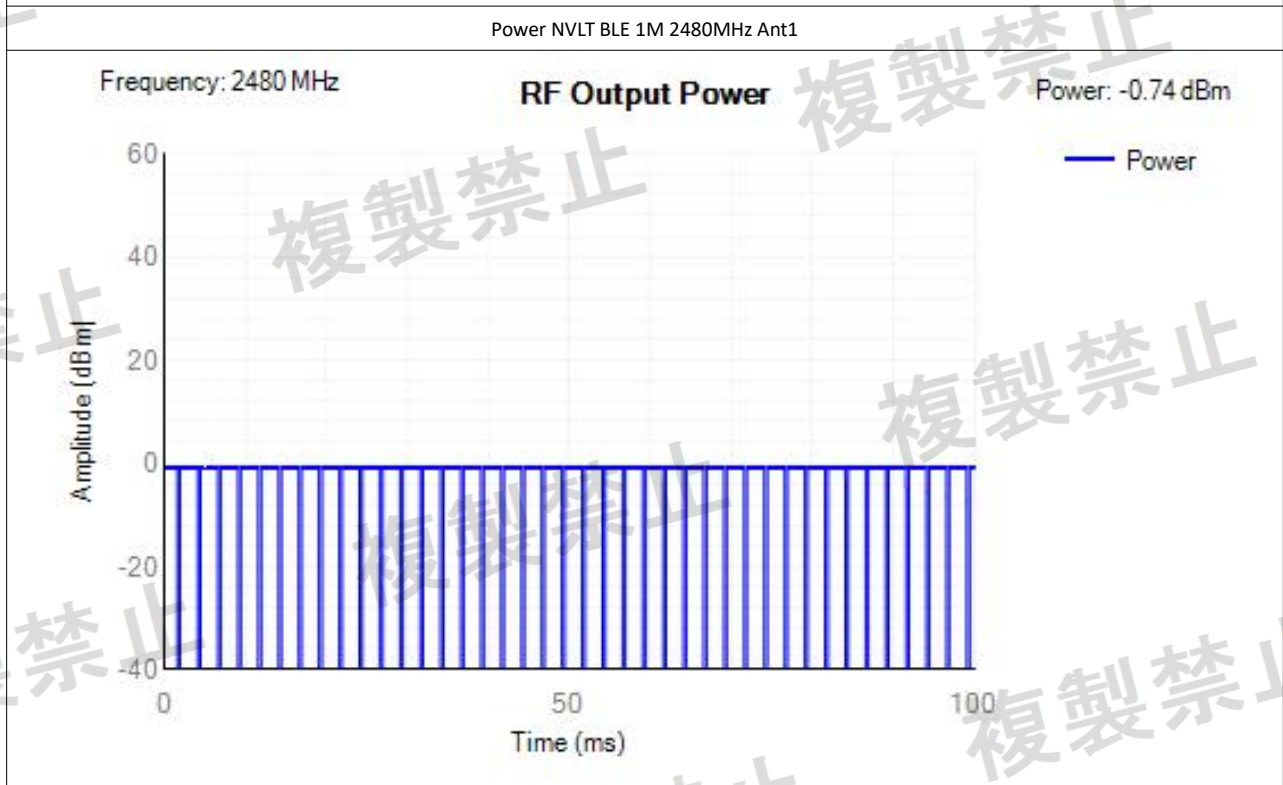
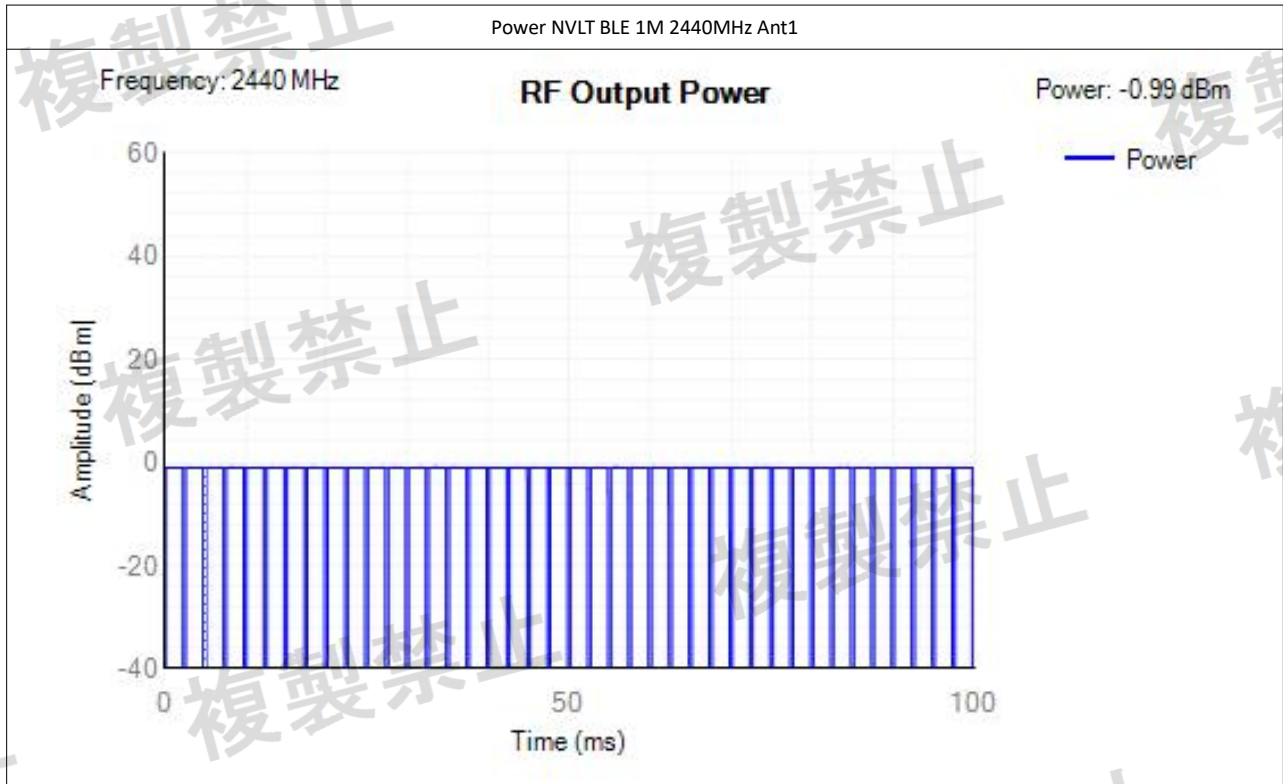
Power NVNT BLE 1M 2402MHz Ant1

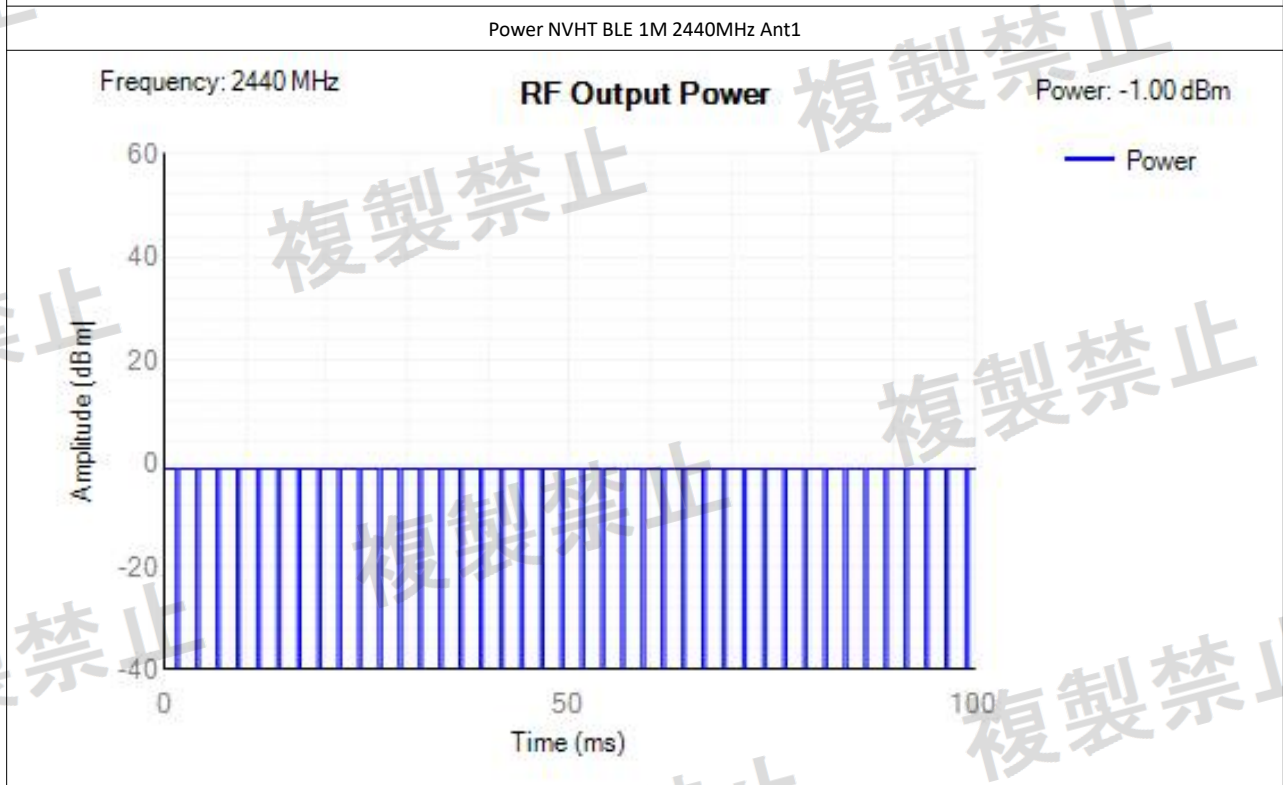
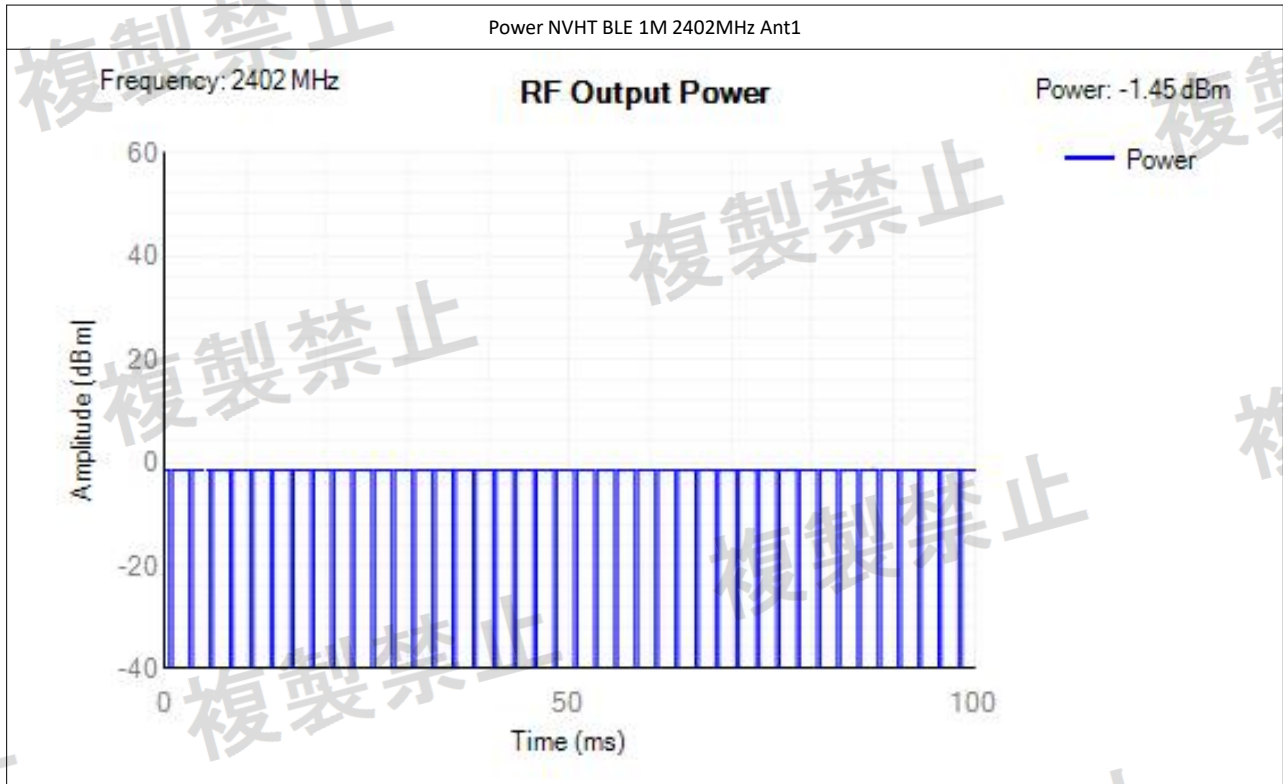


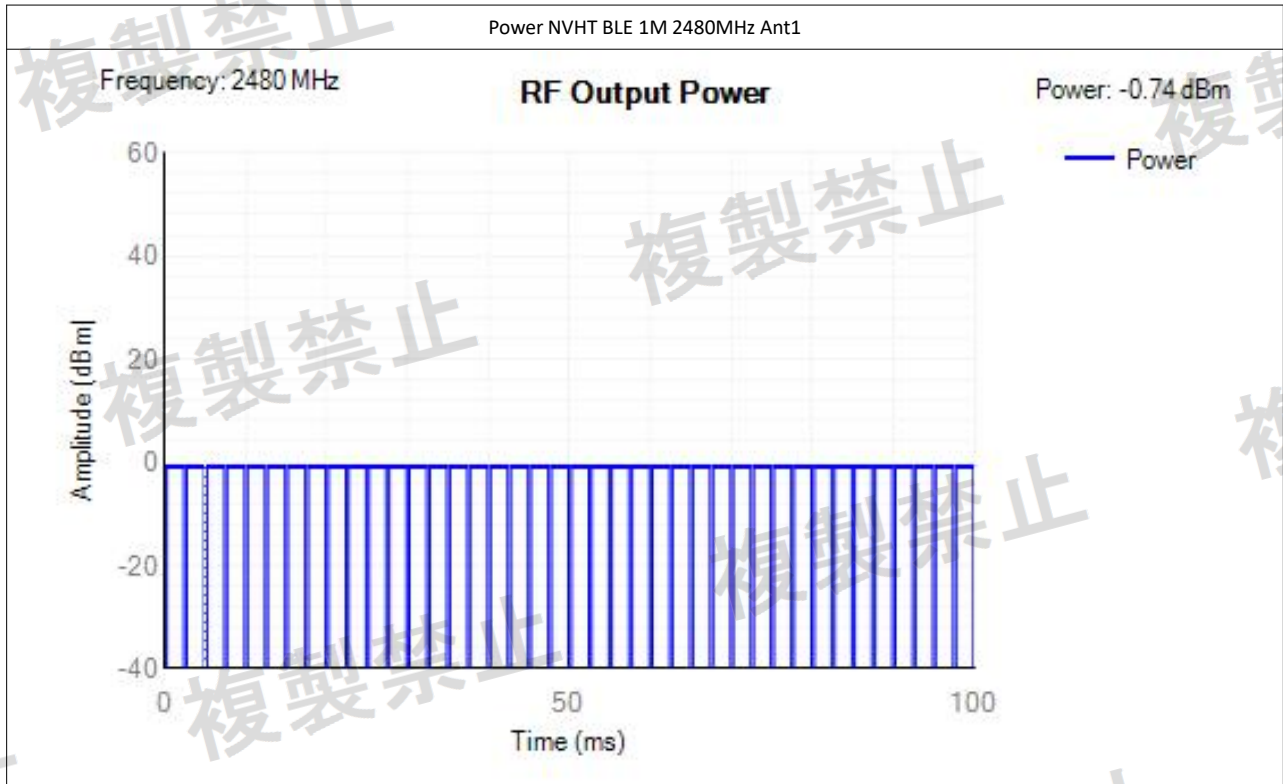
Power NVNT BLE 1M 2440MHz Ant1











EIRP Power

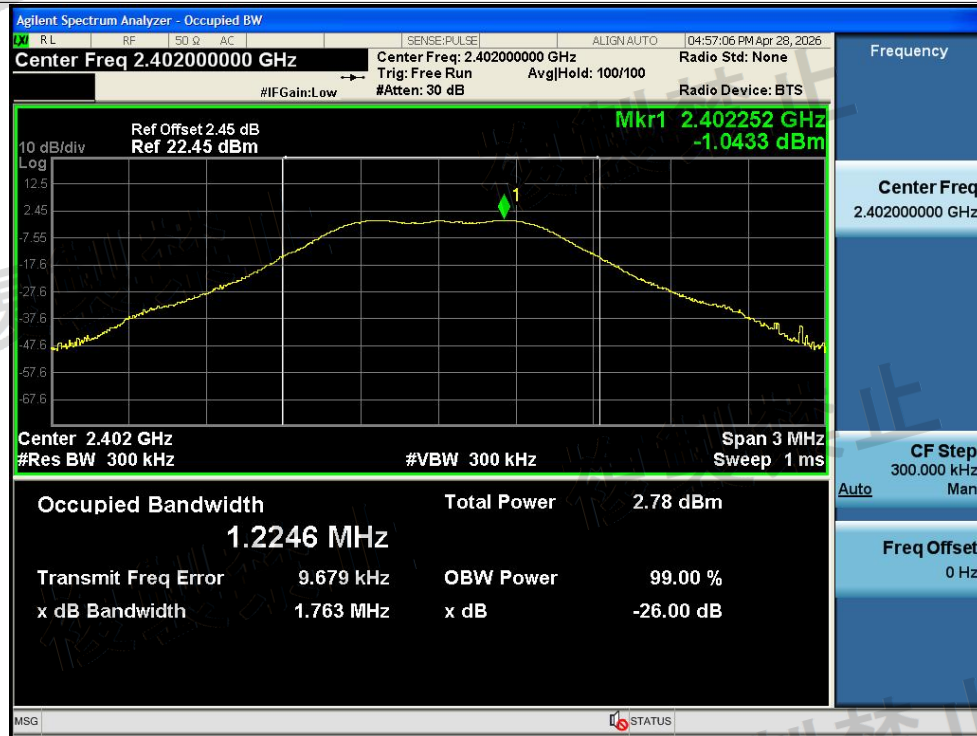
Condition	Mode	Frequency (MHz)	Antenna	Antenna Power (mW)	Antenna Power (dBm)	Gain (dBi)	EIRP Power (dBm)	Limit (dBm)	Verdict
NVNT	BLE 1M	2402	Ant1	1.191	0.76	5.3	6.06	12.14	Pass
NVNT	BLE 1M	2440	Ant1	1.096	0.4	5.3	5.7	12.14	Pass
NVNT	BLE 1M	2480	Ant1	0.845	-0.73	5.3	4.57	12.14	Pass
NVLT	BLE 1M	2402	Ant1	0.714	-1.46	5.3	3.84	12.14	Pass
NVLT	BLE 1M	2440	Ant1	0.796	-0.99	5.3	4.31	12.14	Pass
NVLT	BLE 1M	2480	Ant1	0.843	-0.74	5.3	4.56	12.14	Pass
NVHT	BLE 1M	2402	Ant1	0.716	-1.45	5.3	3.85	12.14	Pass
NVHT	BLE 1M	2440	Ant1	0.794	-1	5.3	4.3	12.14	Pass
NVHT	BLE 1M	2480	Ant1	0.843	-0.74	5.3	4.56	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	1.2246	N/A	26	Pass
NVNT	BLE 1M	2440	Ant1	1.2296	N/A	26	Pass
NVNT	BLE 1M	2480	Ant1	1.2376	N/A	26	Pass
NVLT	BLE 1M	2402	Ant1	1.2257	N/A	26	Pass
NVLT	BLE 1M	2440	Ant1	1.2309	N/A	26	Pass
NVLT	BLE 1M	2480	Ant1	1.2337	N/A	26	Pass
NVHT	BLE 1M	2402	Ant1	1.2261	N/A	26	Pass
NVHT	BLE 1M	2440	Ant1	1.2303	N/A	26	Pass
NVHT	BLE 1M	2480	Ant1	1.2369	N/A	26	Pass

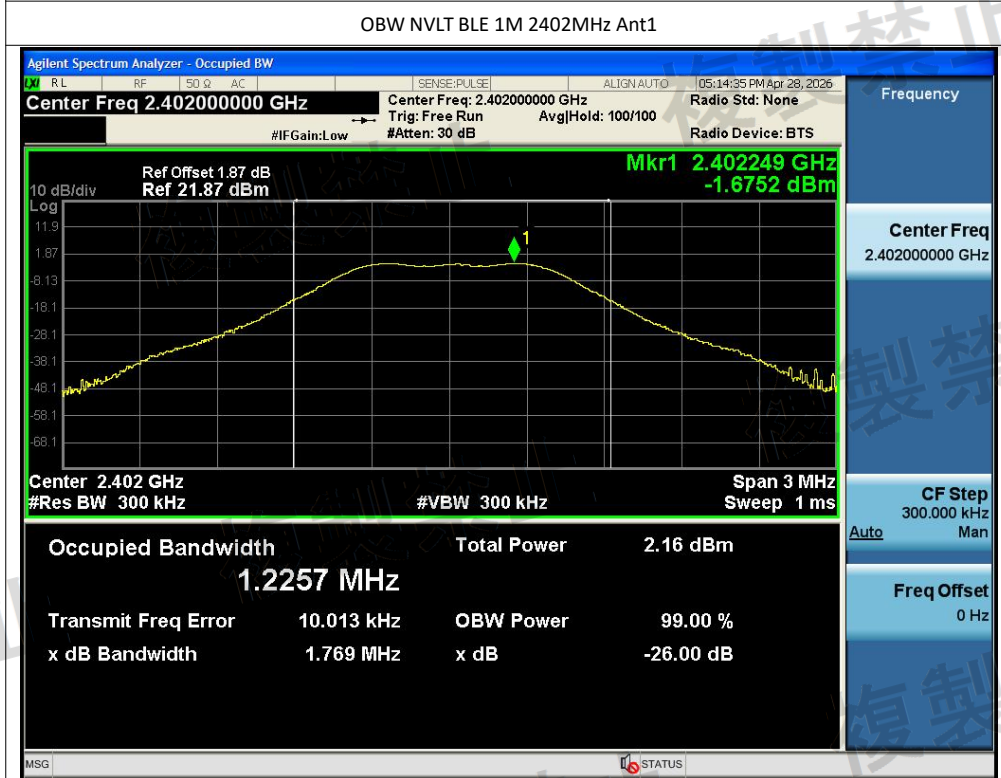
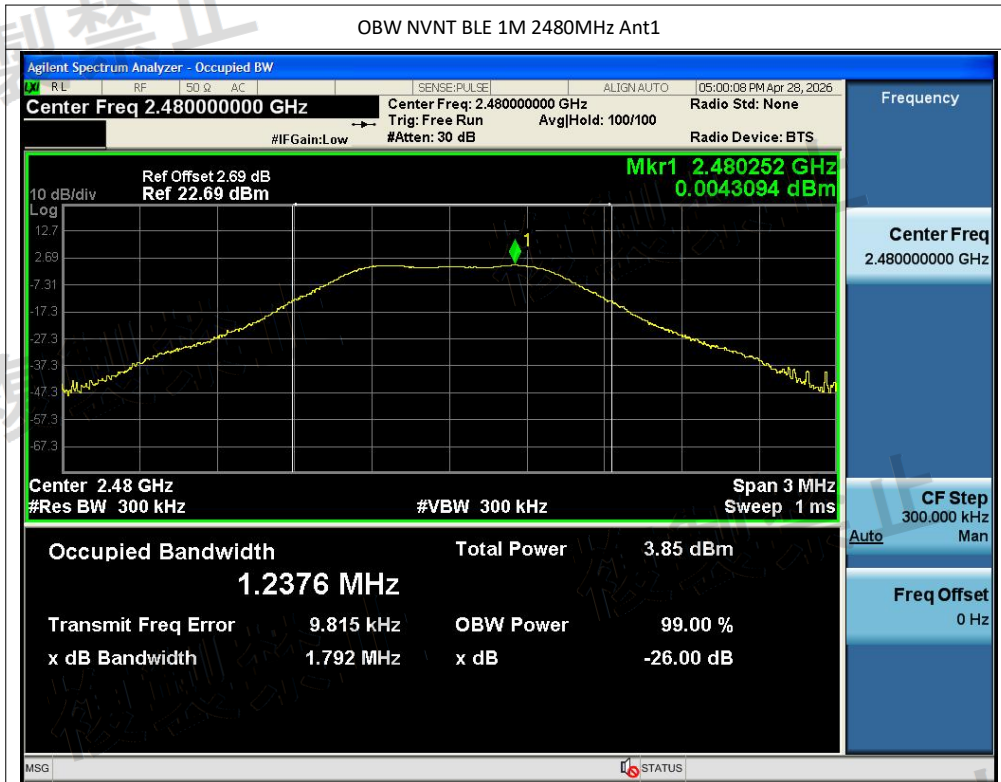
Test Graphs

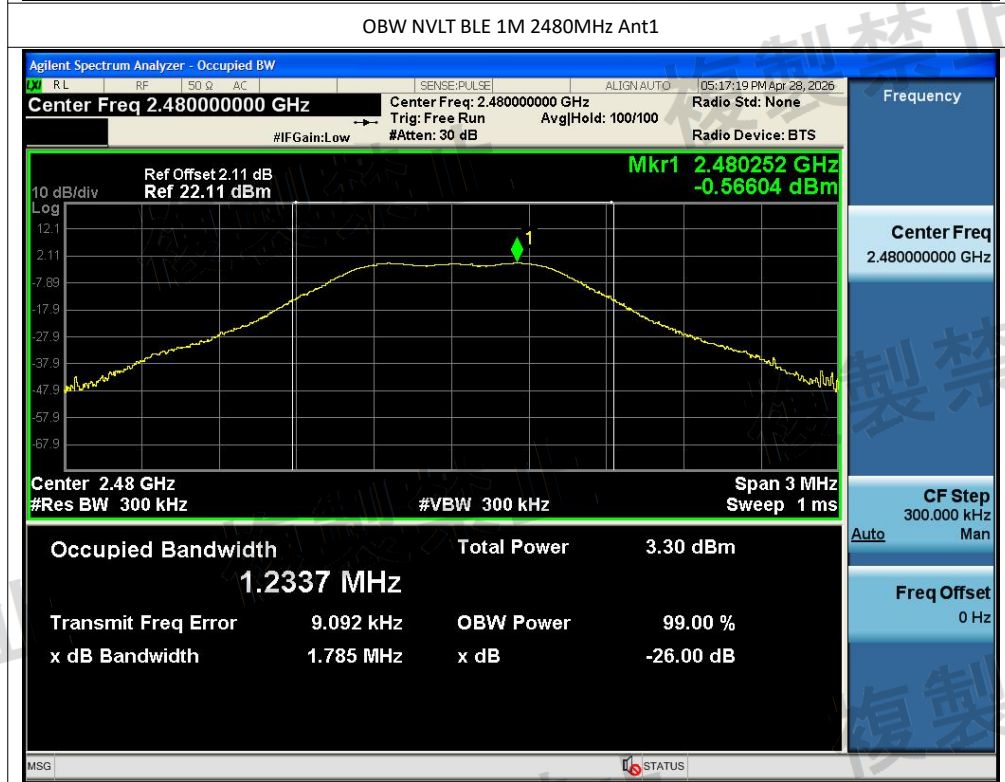
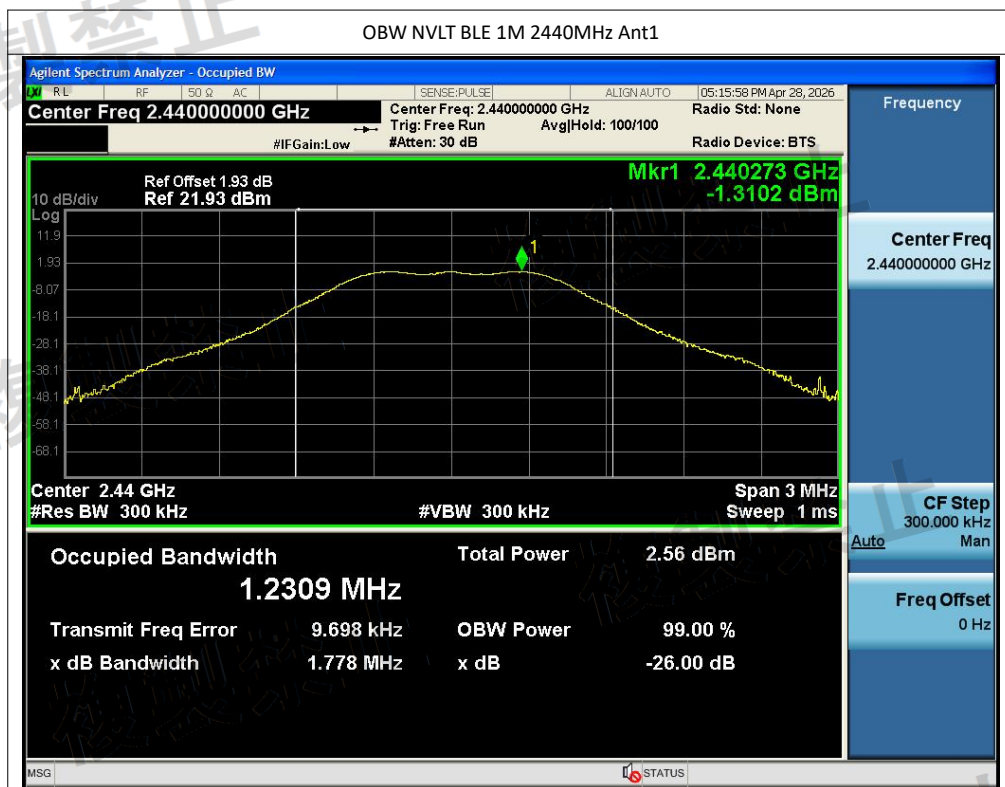
OBW NVNT BLE 1M 2402MHz Ant1

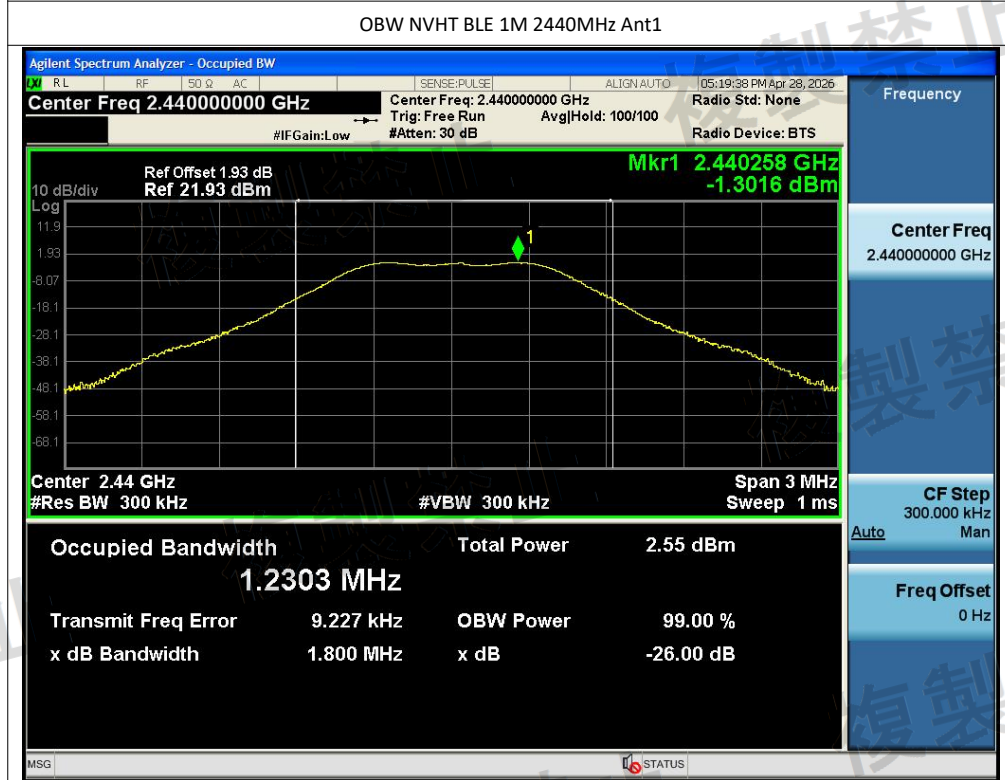
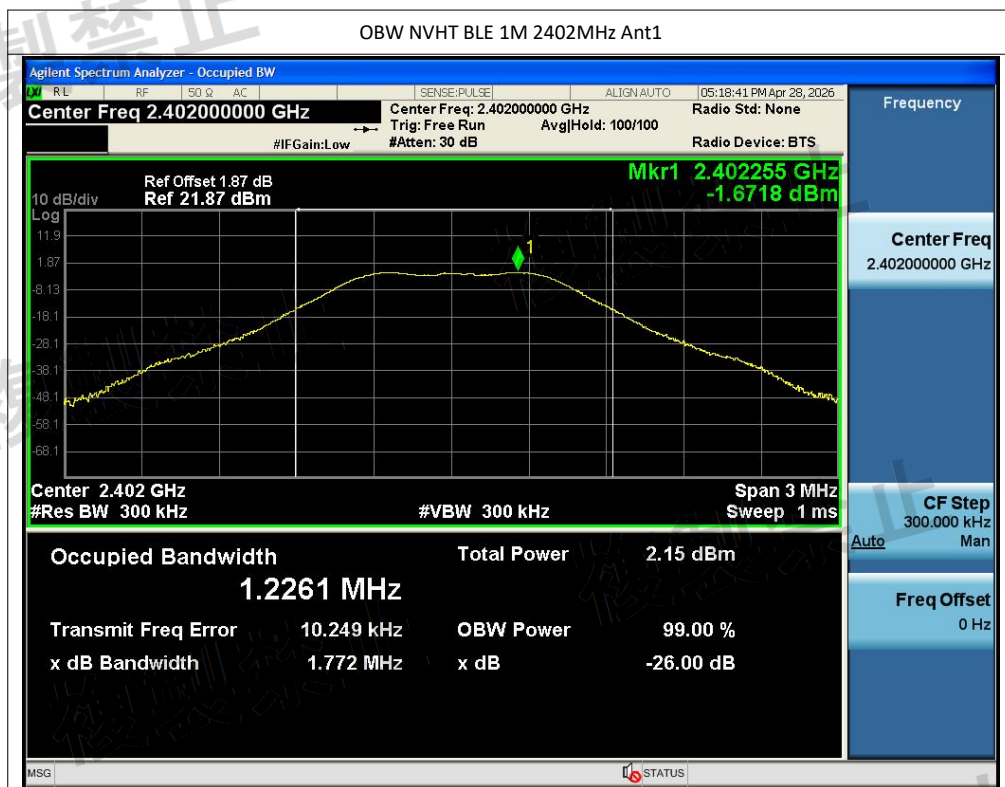


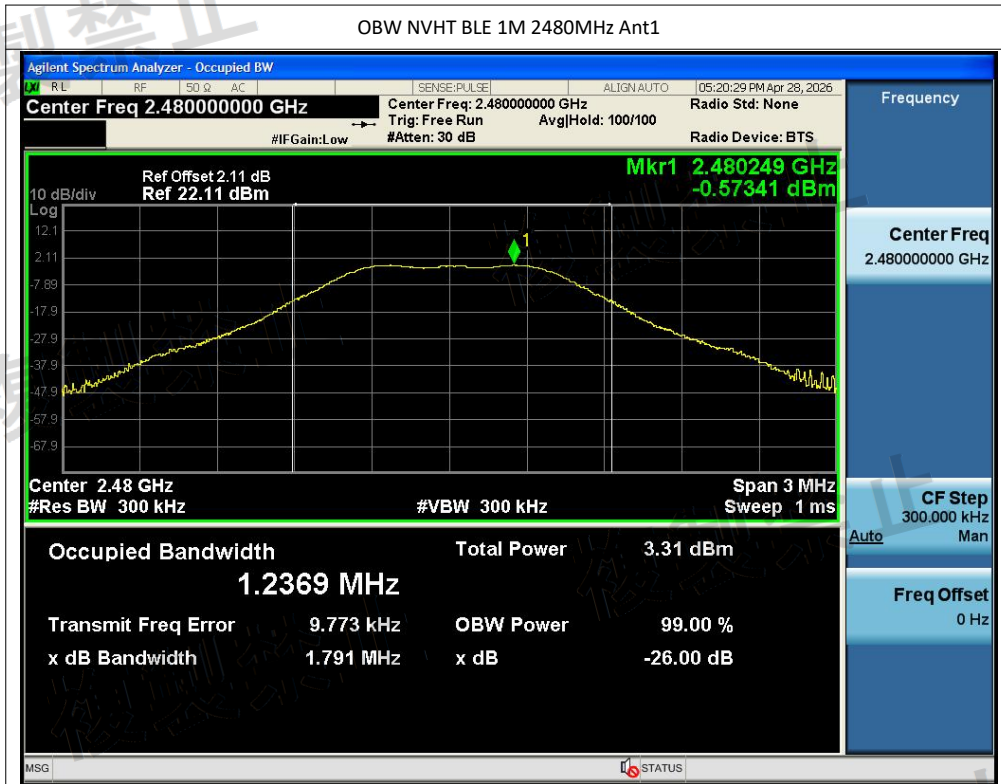
OBW NVNT BLE 1M 2440MHz Ant1











Spreading Bandwidth

Condition	Mode	Frequency (MHz)	Antenna	90% OBW (MHz)
NVNT	BLE 1M	2402	Ant1	0.82263
NVNT	BLE 1M	2440	Ant1	0.82532
NVNT	BLE 1M	2480	Ant1	0.82778
NVLT	BLE 1M	2402	Ant1	0.82327
NVLT	BLE 1M	2440	Ant1	0.82564
NVLT	BLE 1M	2480	Ant1	0.8266
NVHT	BLE 1M	2402	Ant1	0.82147
NVHT	BLE 1M	2440	Ant1	0.82503
NVHT	BLE 1M	2480	Ant1	0.82659

Test Graphs

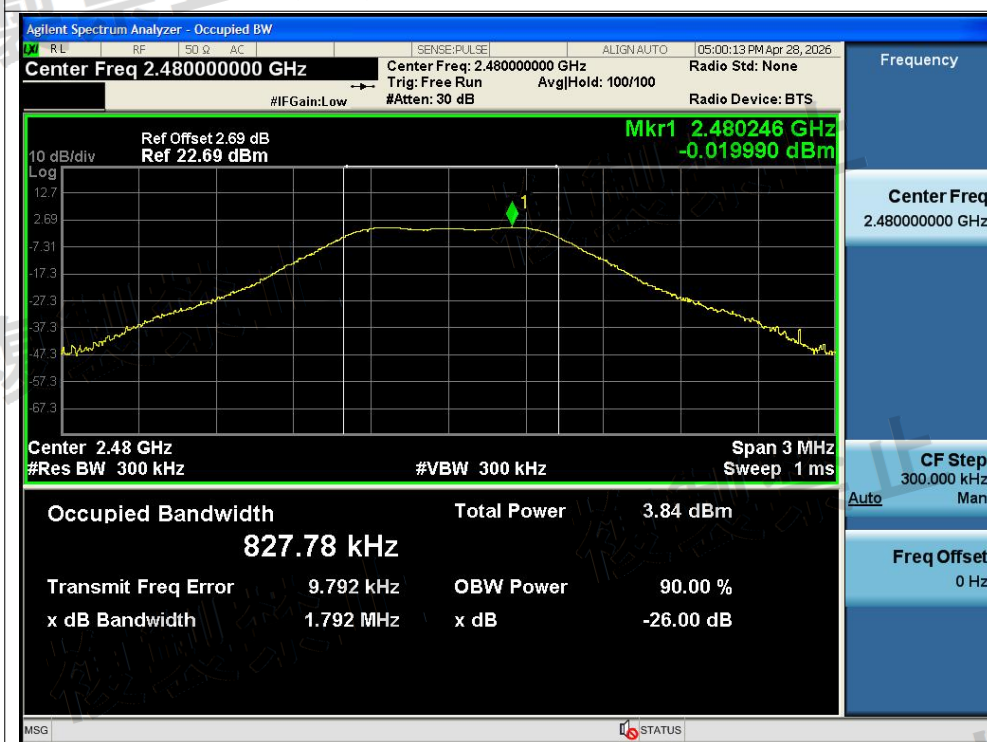
Spreading Bandwidth NVNT BLE 1M 2402MHz Ant1



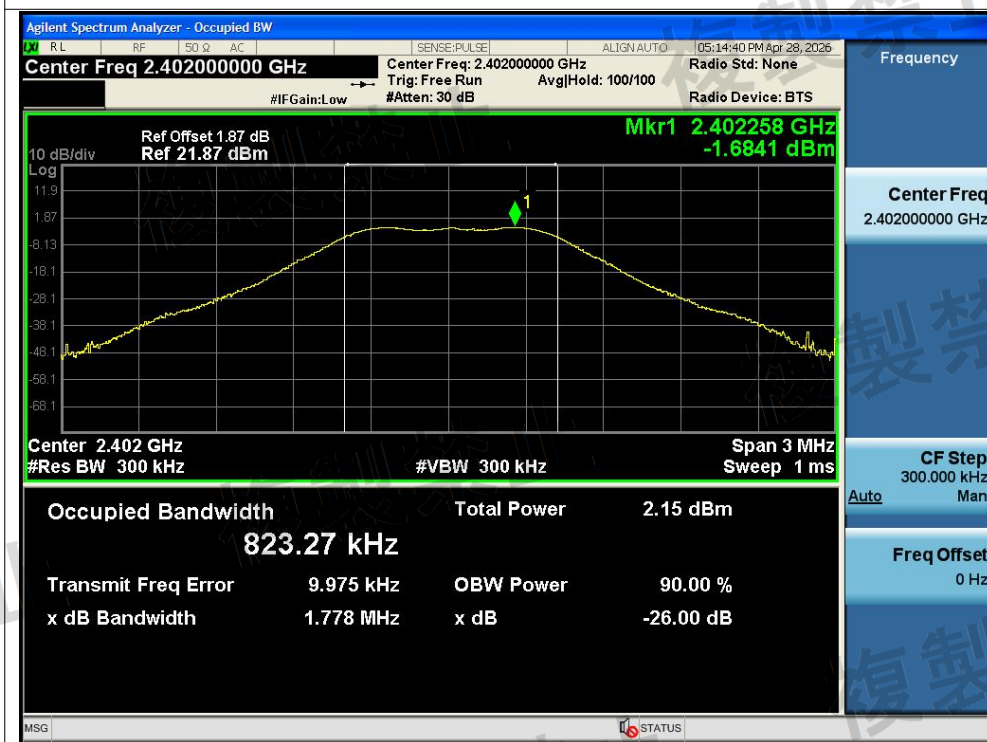
Spreading Bandwidth NVNT BLE 1M 2440MHz Ant1



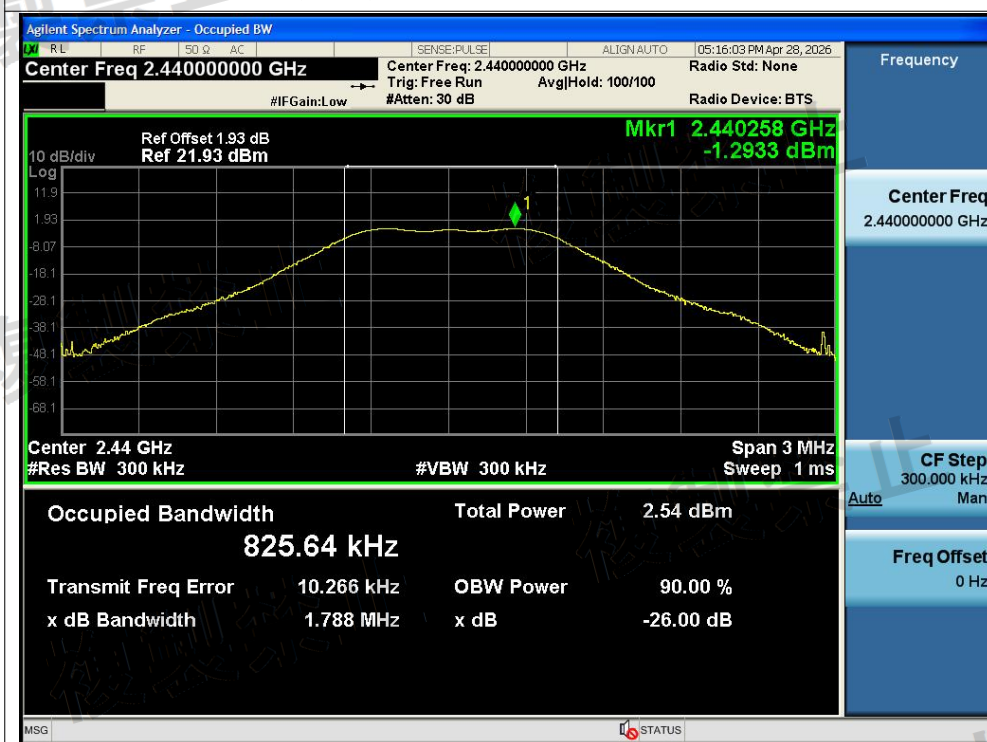
Spreading Bandwidth NVNT BLE 1M 2480MHz Ant1



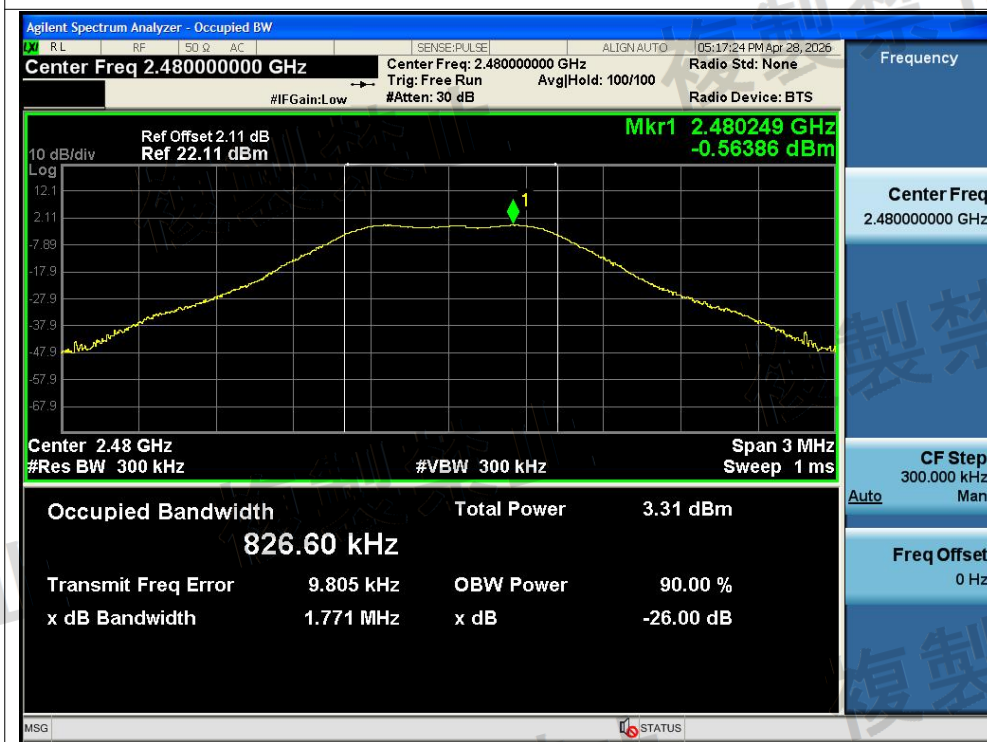
Spreading Bandwidth NVLT BLE 1M 2402MHz Ant1



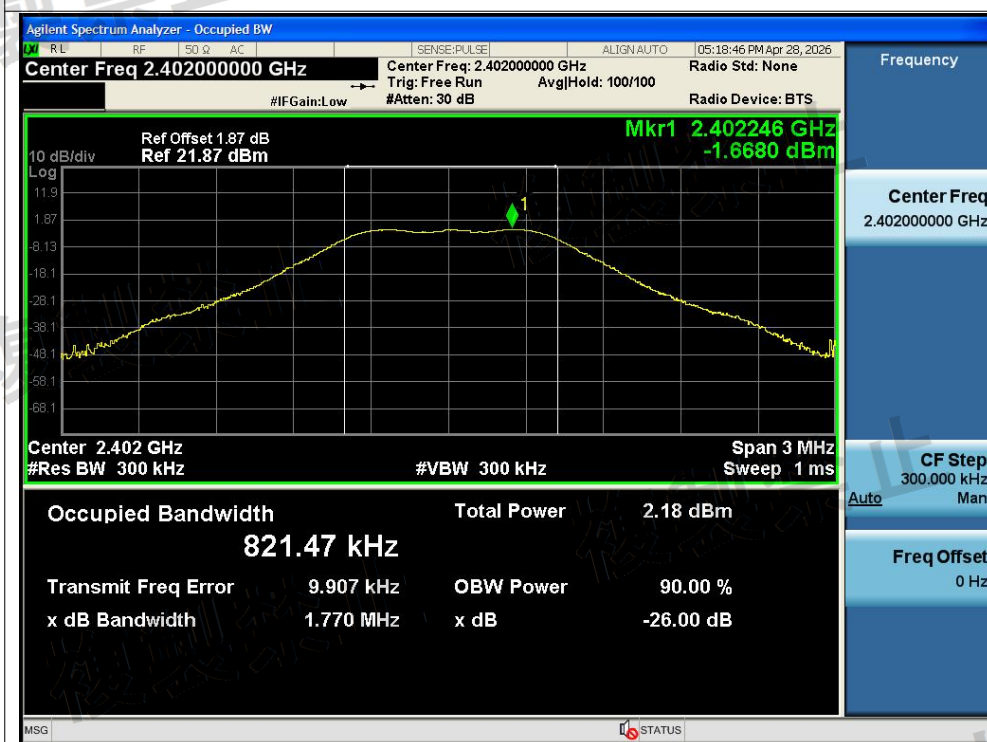
Spreading Bandwidth NVLT BLE 1M 2440MHz Ant1



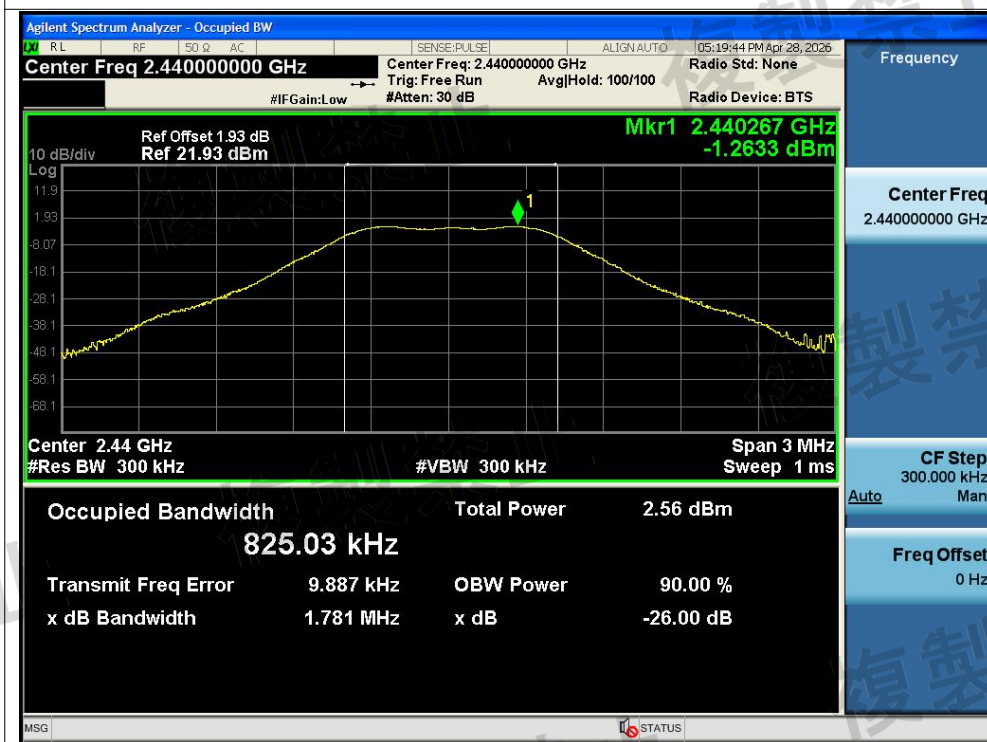
Spreading Bandwidth NVLT BLE 1M 2480MHz Ant1

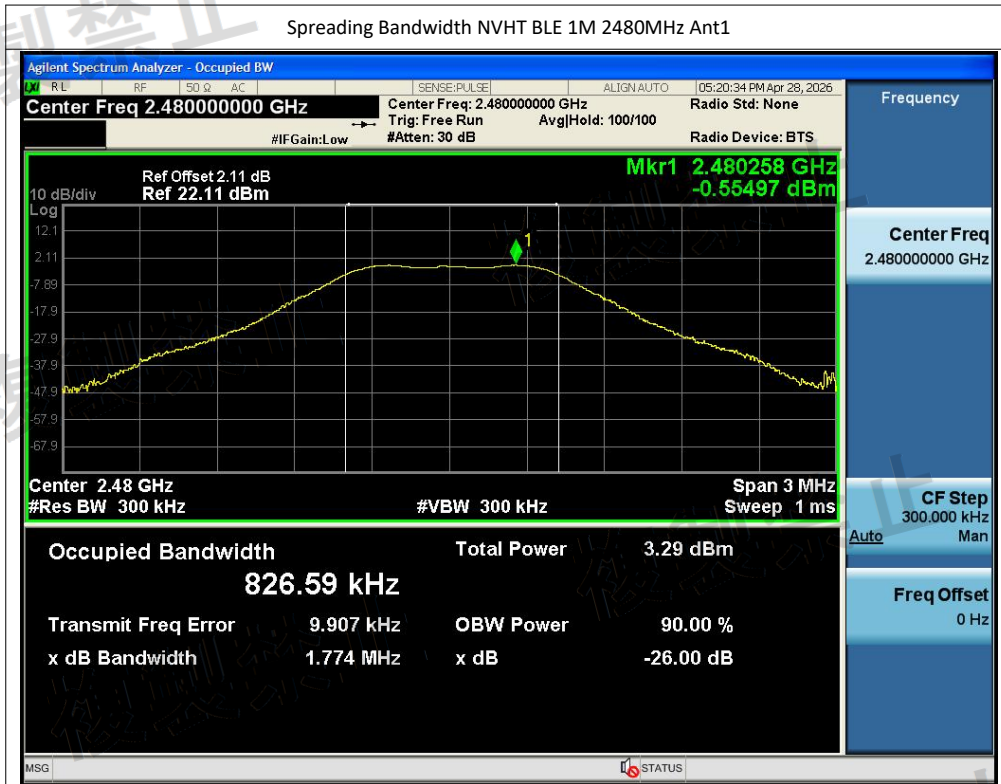


Spreading Bandwidth NVHT BLE 1M 2402MHz Ant1



Spreading Bandwidth NVHT BLE 1M 2440MHz Ant1





Tx Spurious Emission

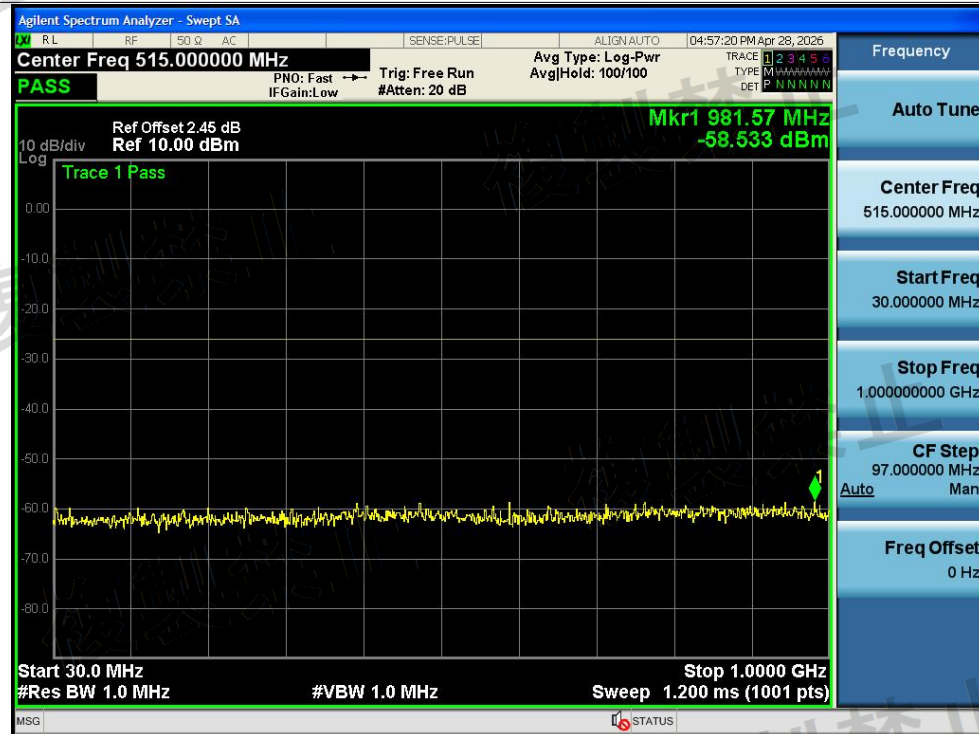
Condition	Mode	Frequency (MHz)	Antenna	Range (MHz)	Emission Frequency (MHz)	Max Peak Value (dBm)	Max RMS Value (dBm)	Max Peak Value (uW)	Max RMS Value (uW)	Limit Start(uW)	Limit Stop (uW)	Verdict
NVNT	BLE 1M	2402	Ant1	30-1000	981.57	-58.53	NA	0.0014	NA	2.5	2.5	Pass
NVNT	BLE 1M	2402	Ant1	1000-2387	2378.68	-45.45	NA	0.0285	NA	2.5	2.5	Pass
NVNT	BLE 1M	2402	Ant1	2387-2400	2400.00	-37.46	NA	0.1795	NA	25	25	Pass
NVNT	BLE 1M	2402	Ant1	2483.5-2496.5	2496.03	-57.55	NA	0.0018	NA	25	25	Pass
NVNT	BLE 1M	2402	Ant1	2496.5-13000	4807.27	-44.90	NA	0.0324	NA	2.5	2.5	Pass
NVNT	BLE 1M	2440	Ant1	30-1000	811.82	-57.93	NA	0.0016	NA	2.5	2.5	Pass
NVNT	BLE 1M	2440	Ant1	1000-2387	2368.97	-55.62	NA	0.0027	NA	2.5	2.5	Pass
NVNT	BLE 1M	2440	Ant1	2387-2400	2392.29	-44.57	NA	0.0349	NA	25	25	Pass
NVNT	BLE 1M	2440	Ant1	2483.5-2496.5	2488.13	-42.67	NA	0.0541	NA	25	25	Pass
NVNT	BLE 1M	2440	Ant1	2496.5-13000	4880.79	-43.65	NA	0.0432	NA	2.5	2.5	Pass
NVNT	BLE 1M	2480	Ant1	30-1000	814.73	-58.09	NA	0.0016	NA	2.5	2.5	Pass
NVNT	BLE 1M	2480	Ant1	1000-2387	2385.61	-56.56	NA	0.0022	NA	2.5	2.5	Pass
NVNT	BLE 1M	2480	Ant1	2387-2400	2399.05	-57.40	NA	0.0018	NA	25	25	Pass
NVNT	BLE 1M	2480	Ant1	2483.5-2496.5	2492.04	-41.34	NA	0.0735	NA	25	25	Pass
NVNT	BLE 1M	2480	Ant1	2496.5-13000	4964.82	-41.86	NA	0.0652	NA	2.5	2.5	Pass
NVLT	BLE 1M	2402	Ant1	30-1000	964.11	-59.19	NA	0.0012	NA	2.5	2.5	Pass
NVLT	BLE 1M	2402	Ant1	1000-2387	2355.10	-45.57	NA	0.0277	NA	2.5	2.5	Pass
NVLT	BLE 1M	2402	Ant1	2387-2400	2399.61	-36.68	NA	0.2148	NA	25	25	Pass

NVLT	BLE 1M	2402	Ant1	2483.5-2496.5	2496.23	-57.42	NA	0.0018	NA	25	25	Pass
NVLT	BLE 1M	2402	Ant1	2496.5-13000	4807.27	-45.42	NA	0.0287	NA	2.5	2.5	Pass
NVLT	BLE 1M	2440	Ant1	30-1000	863.23	-58.48	NA	0.0014	NA	2.5	2.5	Pass
NVLT	BLE 1M	2440	Ant1	1000-2387	2344.00	-56.73	NA	0.0021	NA	2.5	2.5	Pass
NVLT	BLE 1M	2440	Ant1	2387-2400	2392.24	-42.70	NA	0.0537	NA	25	25	Pass
NVLT	BLE 1M	2440	Ant1	2483.5-2496.5	2487.92	-40.02	NA	0.0995	NA	25	25	Pass
NVLT	BLE 1M	2440	Ant1	2496.5-13000	4880.79	-44.03	NA	0.0395	NA	2.5	2.5	Pass
NVLT	BLE 1M	2480	Ant1	30-1000	939.86	-58.74	NA	0.0013	NA	2.5	2.5	Pass
NVLT	BLE 1M	2480	Ant1	1000-2387	2385.61	-55.80	NA	0.0026	NA	2.5	2.5	Pass
NVLT	BLE 1M	2480	Ant1	2387-2400	2399.70	-58.19	NA	0.0015	NA	25	25	Pass
NVLT	BLE 1M	2480	Ant1	2483.5-2496.5	2491.77	-41.15	NA	0.0767	NA	25	25	Pass
NVLT	BLE 1M	2480	Ant1	2496.5-13000	2528.01	-41.65	NA	0.0684	NA	2.5	2.5	Pass
NVHT	BLE 1M	2402	Ant1	30-1000	545.07	-59.32	NA	0.0012	NA	2.5	2.5	Pass
NVHT	BLE 1M	2402	Ant1	1000-2387	2355.10	-45.12	NA	0.0308	NA	2.5	2.5	Pass
NVHT	BLE 1M	2402	Ant1	2387-2400	2399.69	-36.60	NA	0.2188	NA	25	25	Pass
NVHT	BLE 1M	2402	Ant1	2483.5-2496.5	2490.78	-58.19	NA	0.0015	NA	25	25	Pass
NVHT	BLE 1M	2402	Ant1	2496.5-13000	4807.27	-45.65	NA	0.0272	NA	2.5	2.5	Pass
NVHT	BLE 1M	2440	Ant1	30-1000	487.84	-58.72	NA	0.0013	NA	2.5	2.5	Pass
NVHT	BLE 1M	2440	Ant1	1000-2387	2381.45	-57.12	NA	0.0019	NA	2.5	2.5	Pass
NVHT	BLE 1M	2440	Ant1	2387-2400	2391.88	-43.65	NA	0.0432	NA	25	25	Pass
NVHT	BLE 1M	2440	Ant1	2483.5-2496.5	2488.02	-40.75	NA	0.0841	NA	25	25	Pass

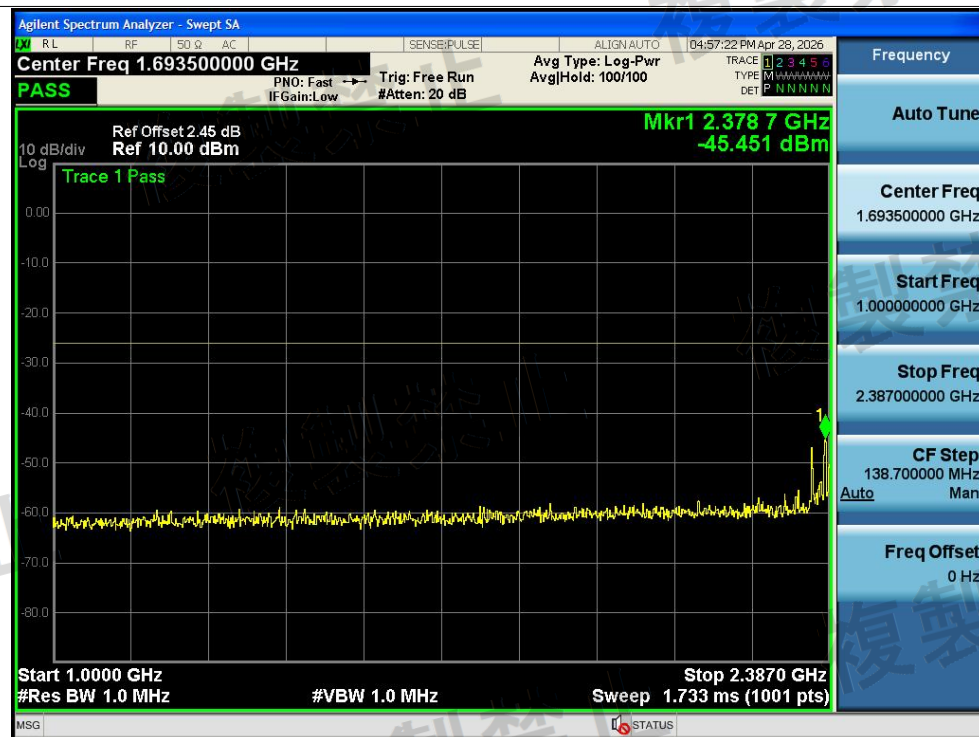
NVHT	BLE 1M	2440	Ant1	2496.5-13000	4880.79	-44.37	NA	0.0366	NA	2.5	2.5	Pass
NVHT	BLE 1M	2480	Ant1	30-1000	696.39	-58.27	NA	0.0015	NA	2.5	2.5	Pass
NVHT	BLE 1M	2480	Ant1	1000-2387	2385.61	-55.82	NA	0.0026	NA	2.5	2.5	Pass
NVHT	BLE 1M	2480	Ant1	2387-2400	2394.11	-57.12	NA	0.0019	NA	25	25	Pass
NVHT	BLE 1M	2480	Ant1	2483.5-2496.5	2492.46	-41.53	NA	0.0703	NA	25	25	Pass
NVHT	BLE 1M	2480	Ant1	2496.5-13000	2528.01	-41.84	NA	0.0655	NA	2.5	2.5	Pass

Test Graphs

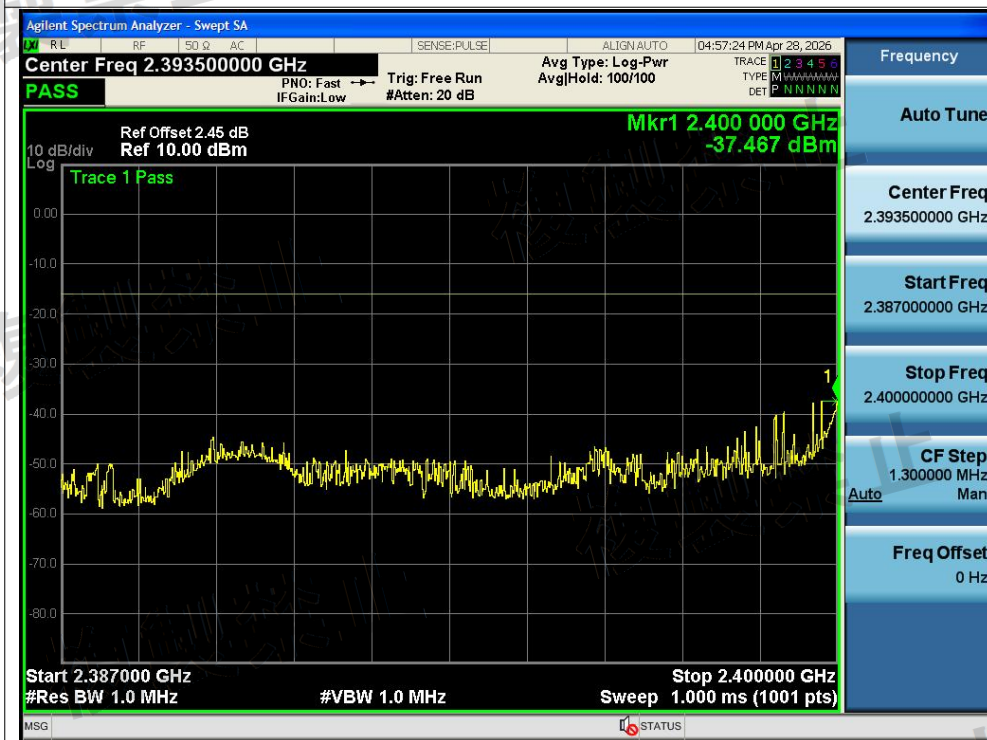
Tx. Spurious NVNT BLE 1M 2402MHz Ant1 @ 30MHz-1000MHz



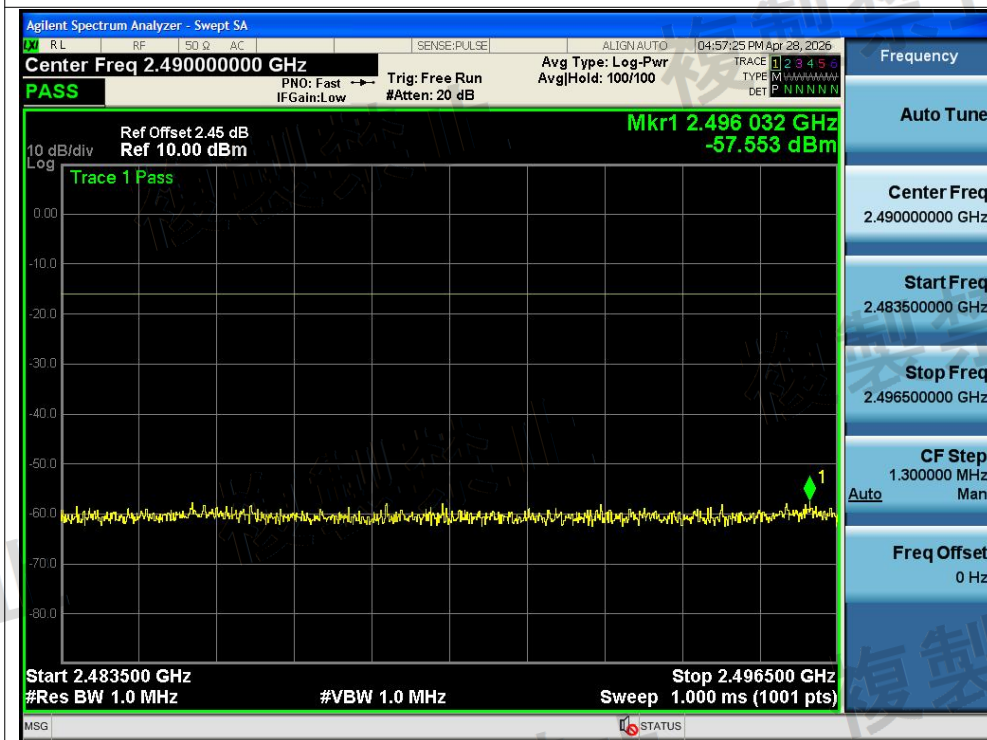
Tx. Spurious NVNT BLE 1M 2402MHz Ant1 @ 1000MHz-2387MHz



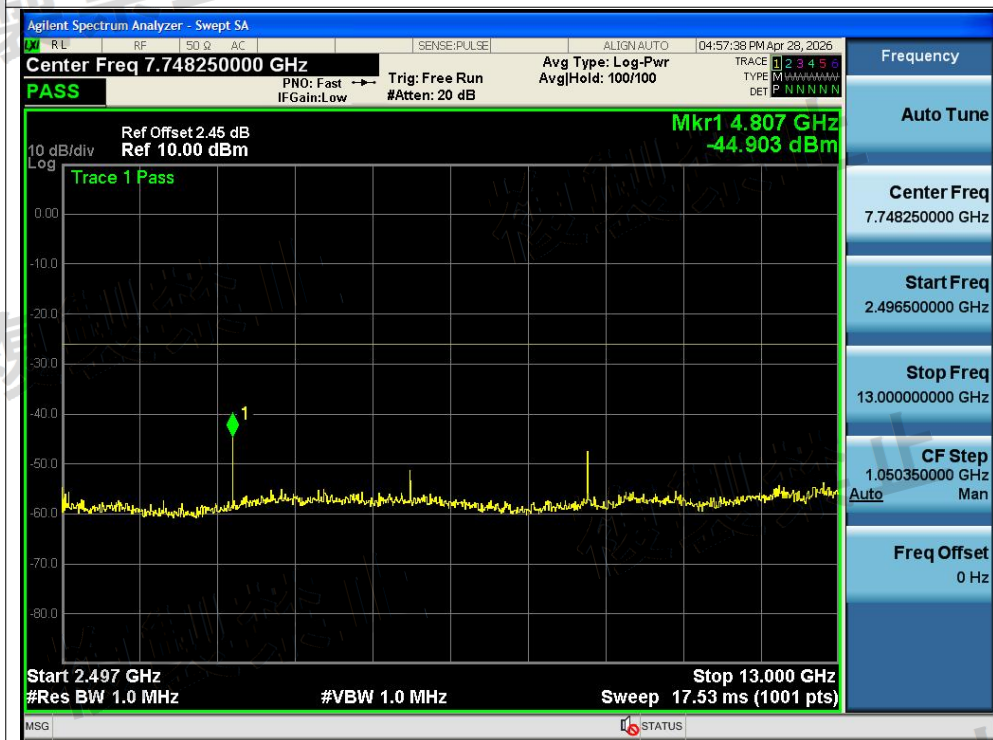
Tx. Spurious NVNT BLE 1M 2402MHz Ant1 @ 2387MHz-2400MHz



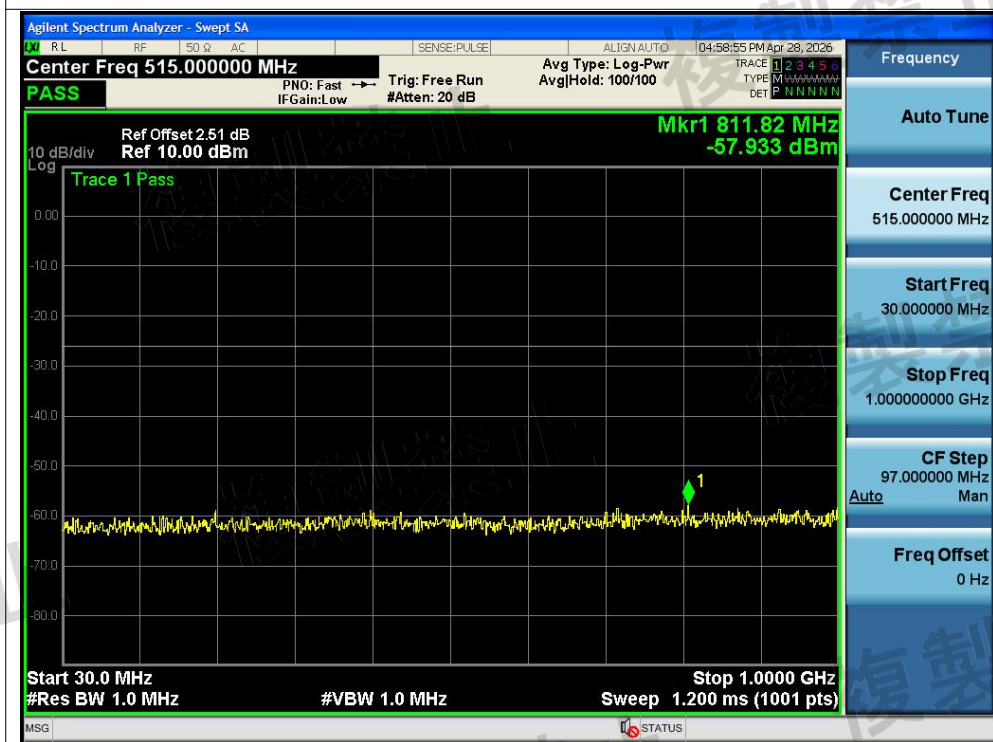
Tx. Spurious NVNT BLE 1M 2402MHz Ant1 @ 2483.5MHz-2496.5MHz



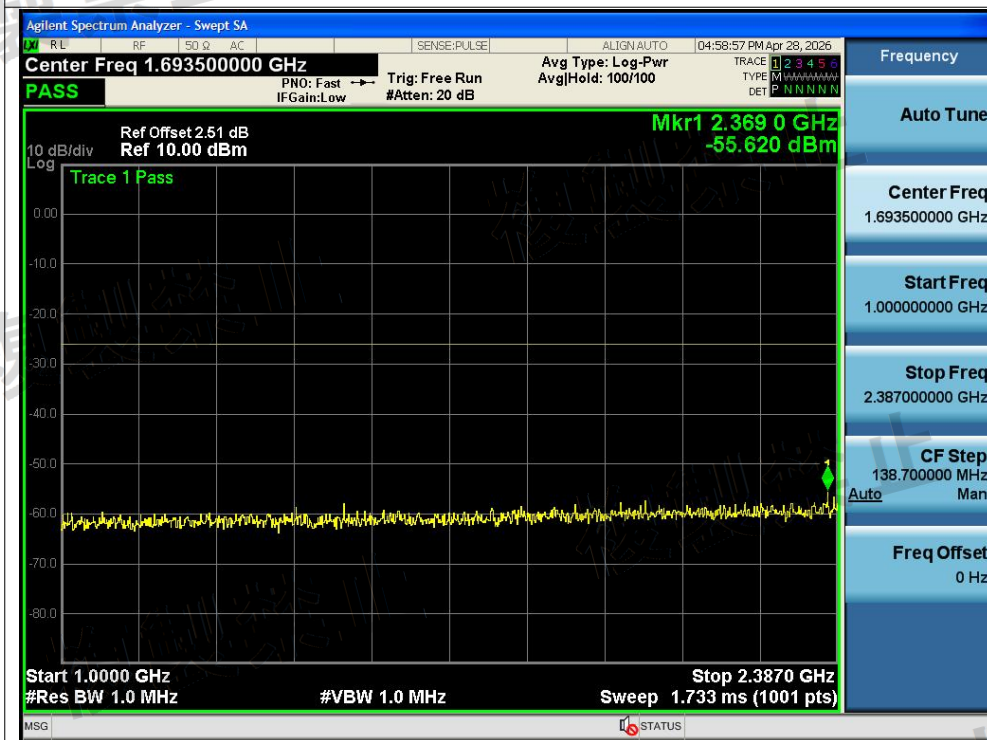
Tx. Spurious NVNT BLE 1M 2402MHz Ant1 @ 2496.5MHz-13000MHz



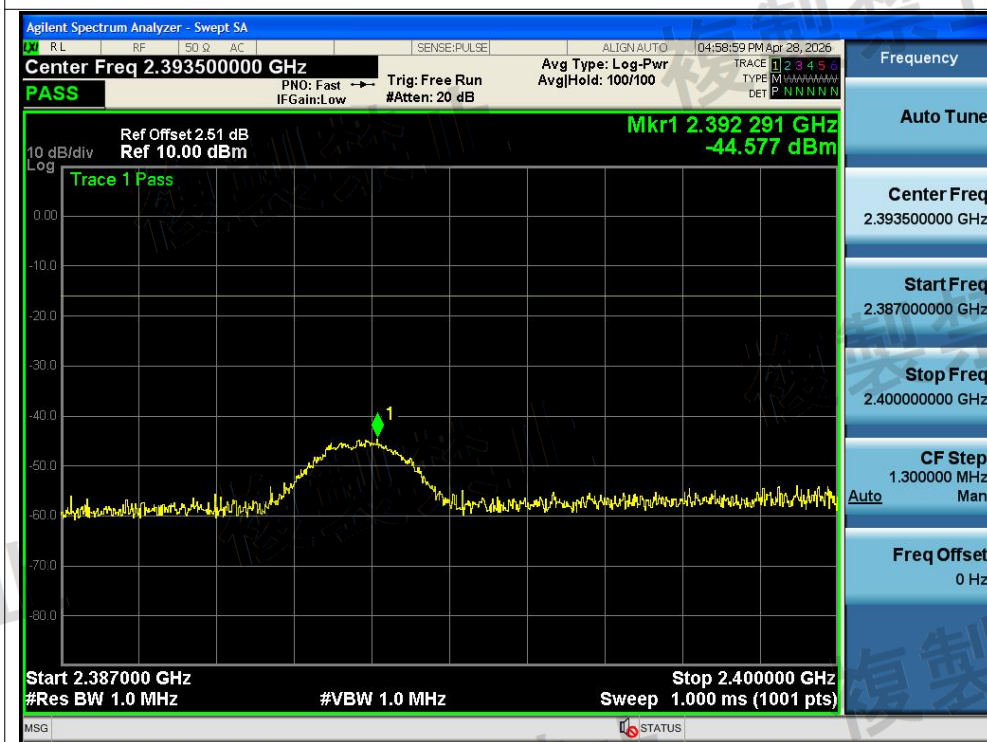
Tx. Spurious NVNT BLE 1M 2440MHz Ant1 @ 30MHz-1000MHz



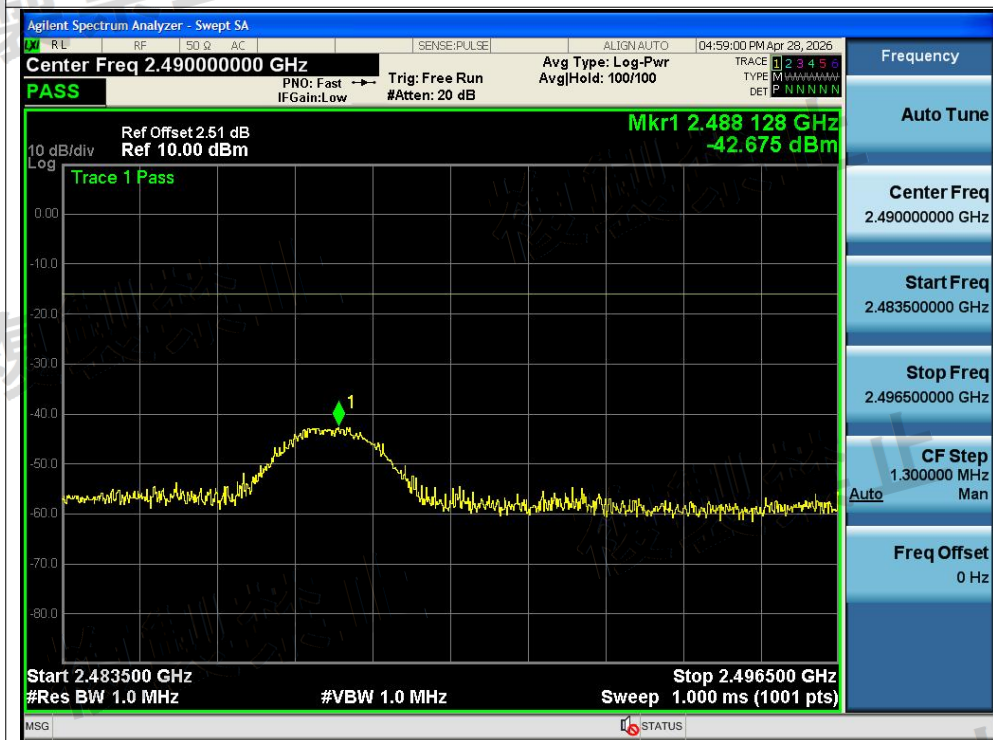
Tx. Spurious NVNT BLE 1M 2440MHz Ant1 @ 1000MHz-2387MHz



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



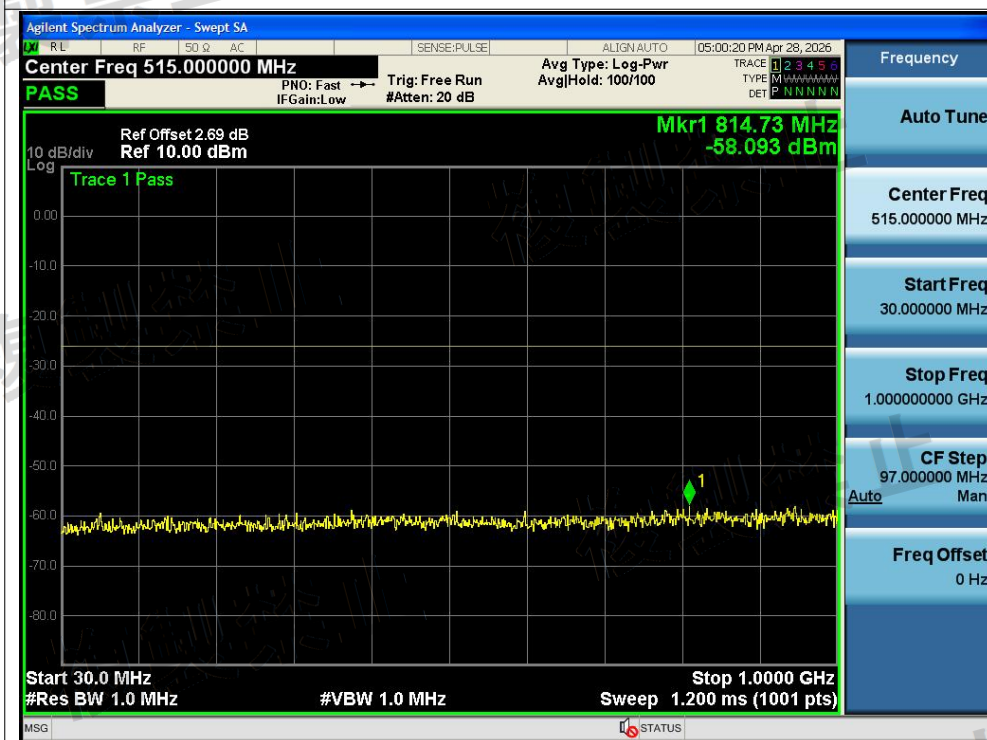
Tx. Spurious NVNT BLE 1M 2440MHz Ant1 @ 2483.5MHz-2496.5MHz



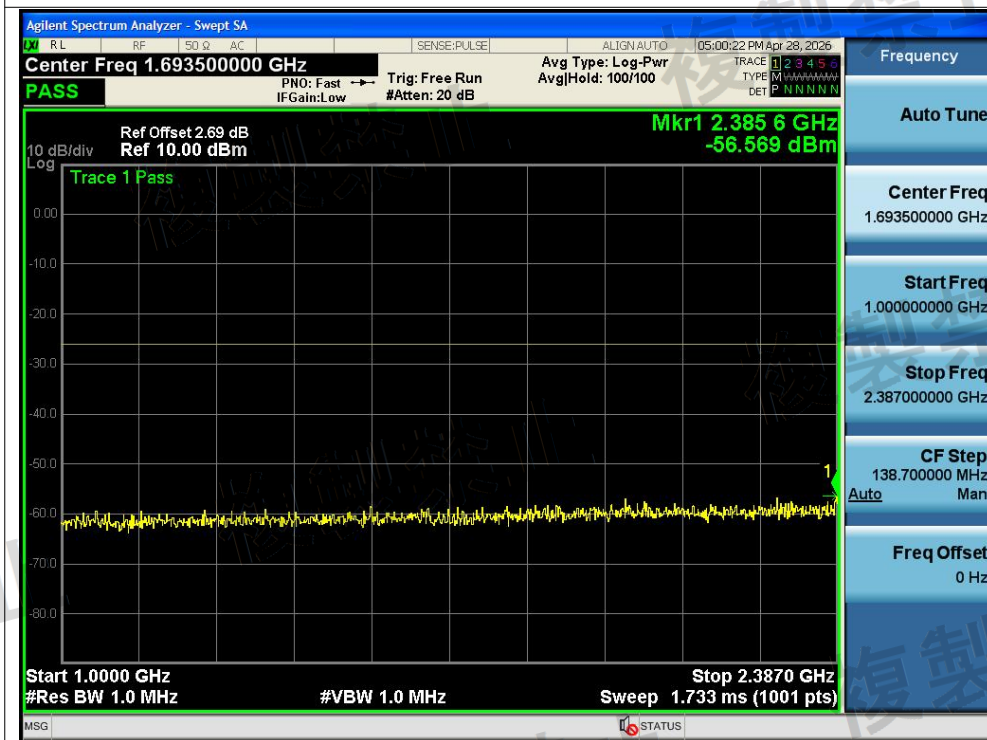
Tx. Spurious NVNT BLE 1M 2440MHz Ant1 @ 2496.5MHz-13000MHz



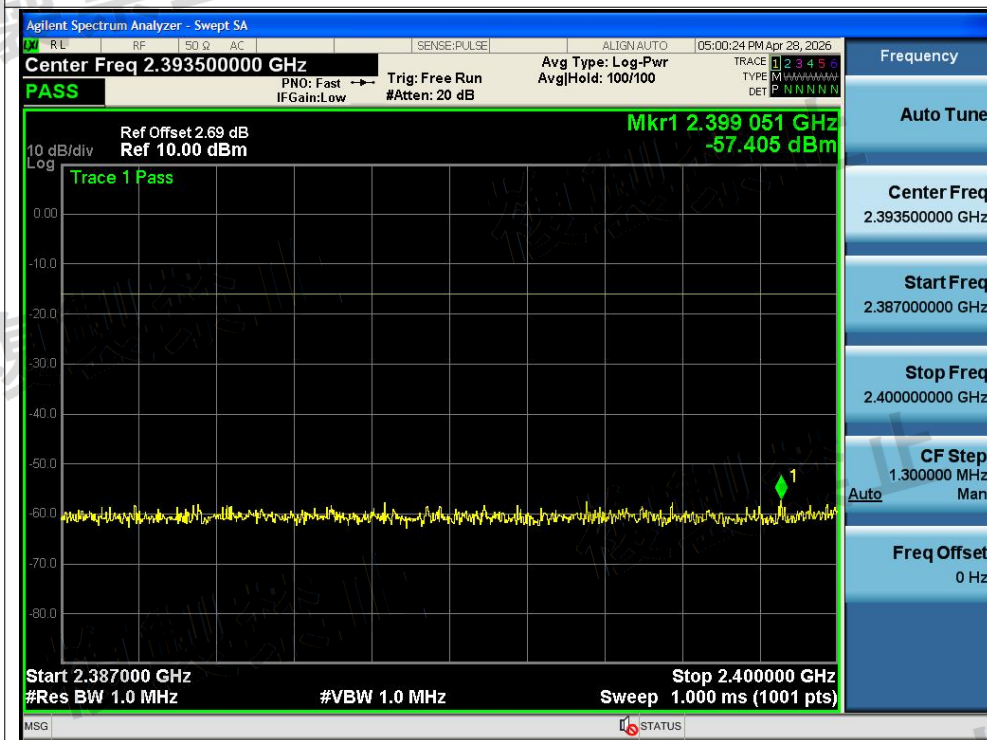
Tx. Spurious NVNT BLE 1M 2480MHz Ant1 @ 30MHz-1000MHz



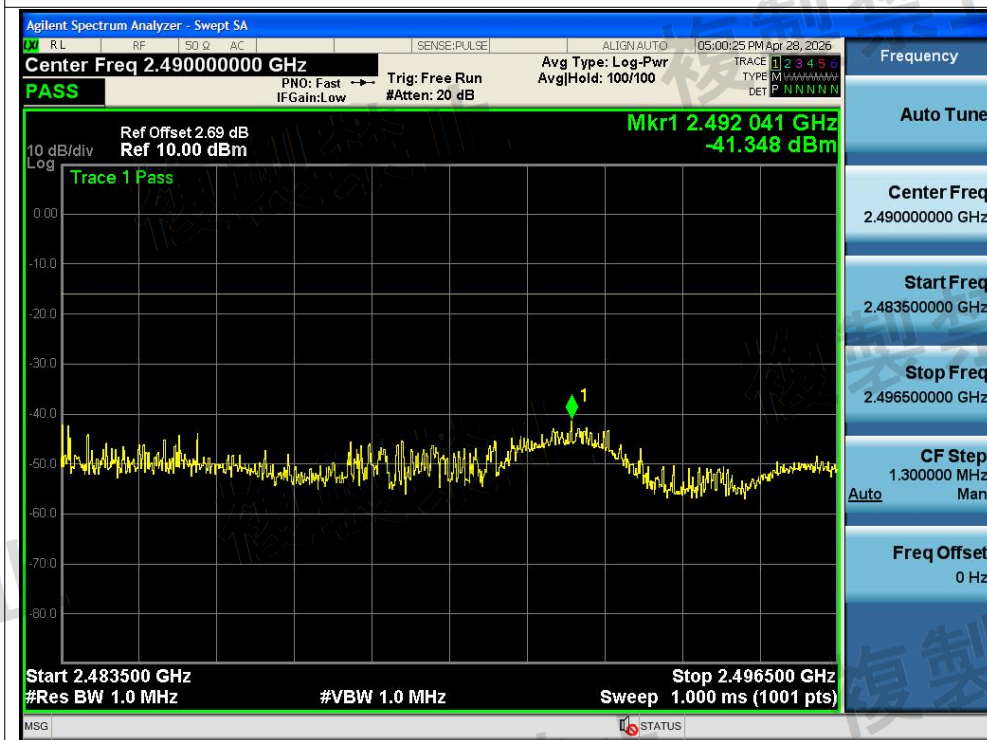
Tx. Spurious NVNT BLE 1M 2480MHz Ant1 @ 1000MHz-2387MHz



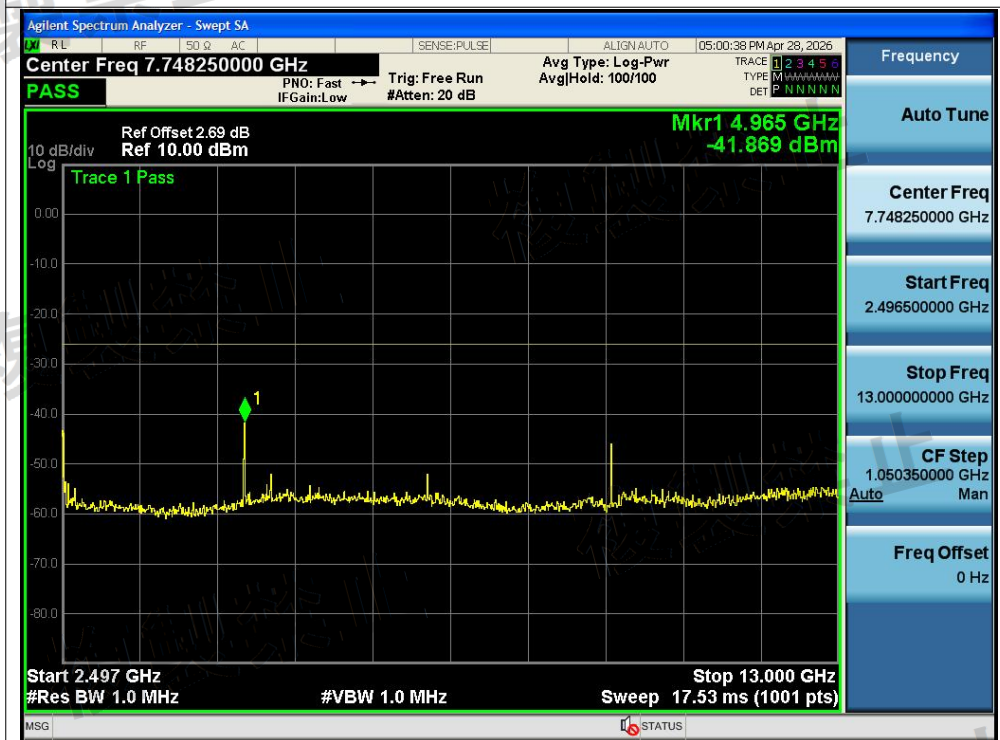
Tx. Spurious NVNT BLE 1M 2480MHz Ant1 @ 2387MHz-2400MHz



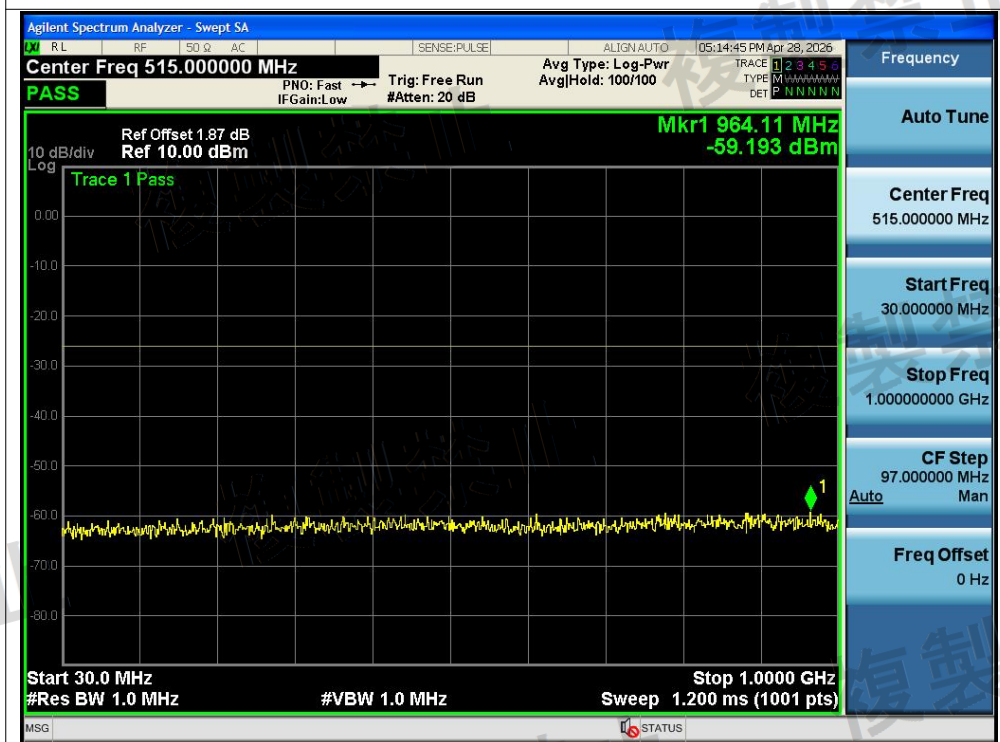
Tx. Spurious NVNT BLE 1M 2480MHz Ant1 @ 2483.5MHz-2496.5MHz



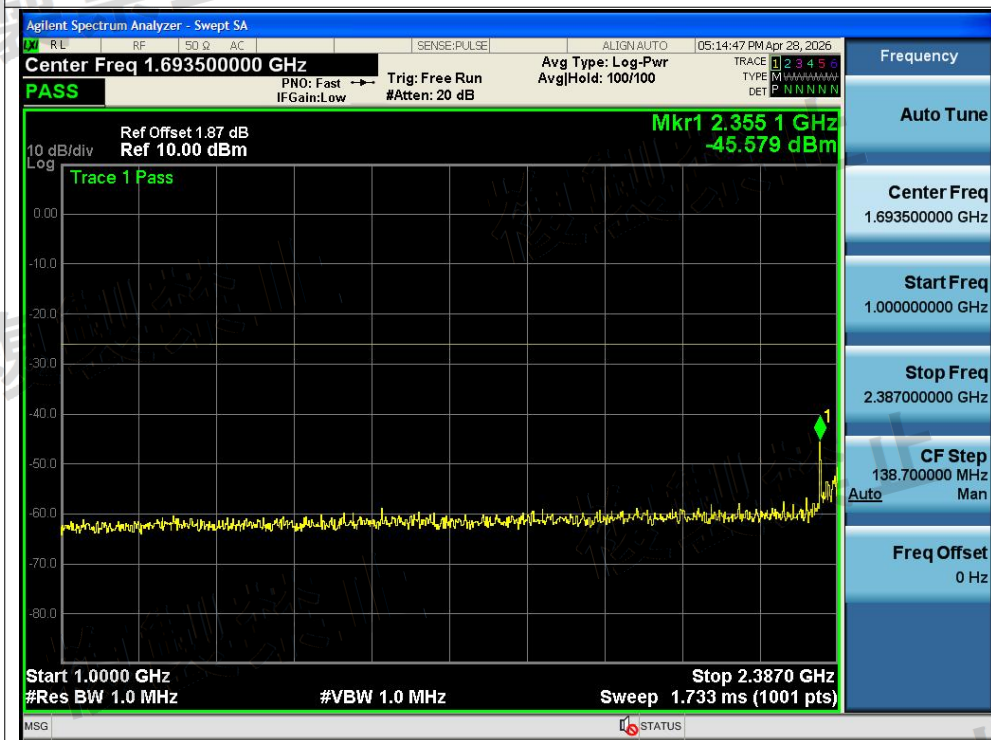
Tx. Spurious NVNT BLE 1M 2480MHz Ant1 @ 2496.5MHz-13000MHz



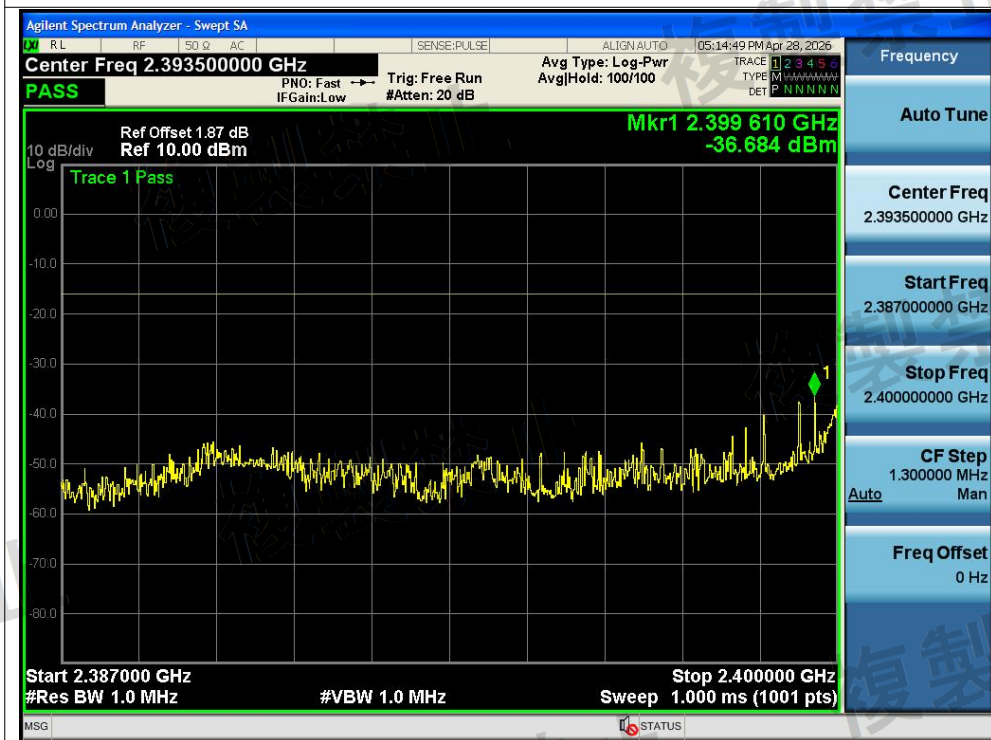
Tx. Spurious NVLT BLE 1M 2402MHz Ant1 @ 30MHz-1000MHz



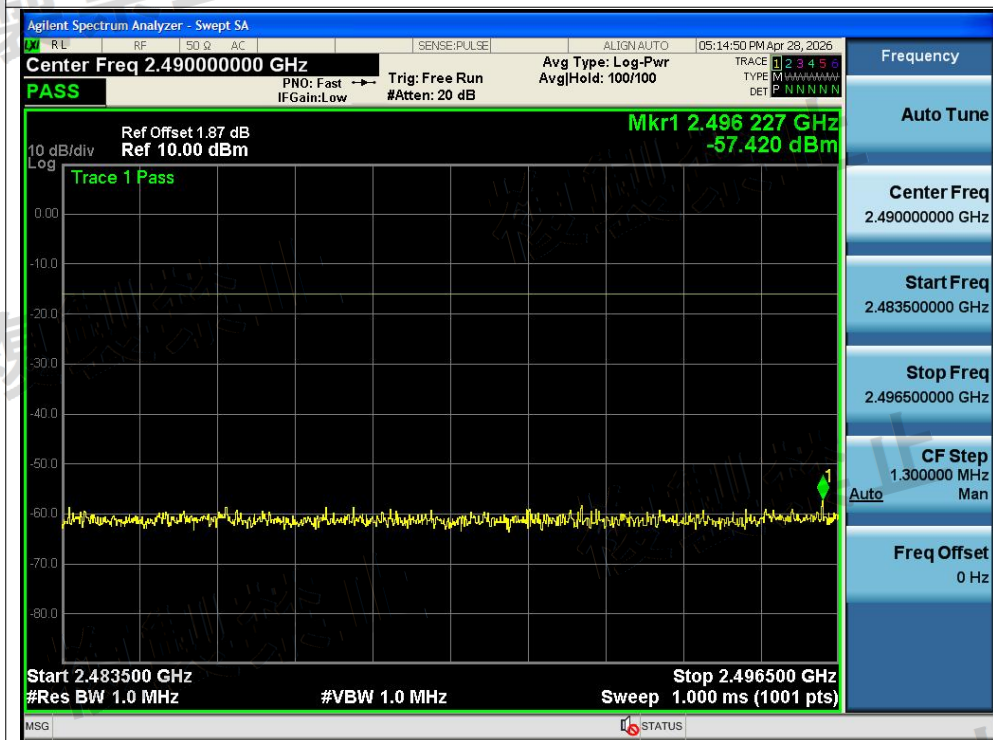
Tx. Spurious NVLT BLE 1M 2402MHz Ant1 @ 1000MHz-2387MHz



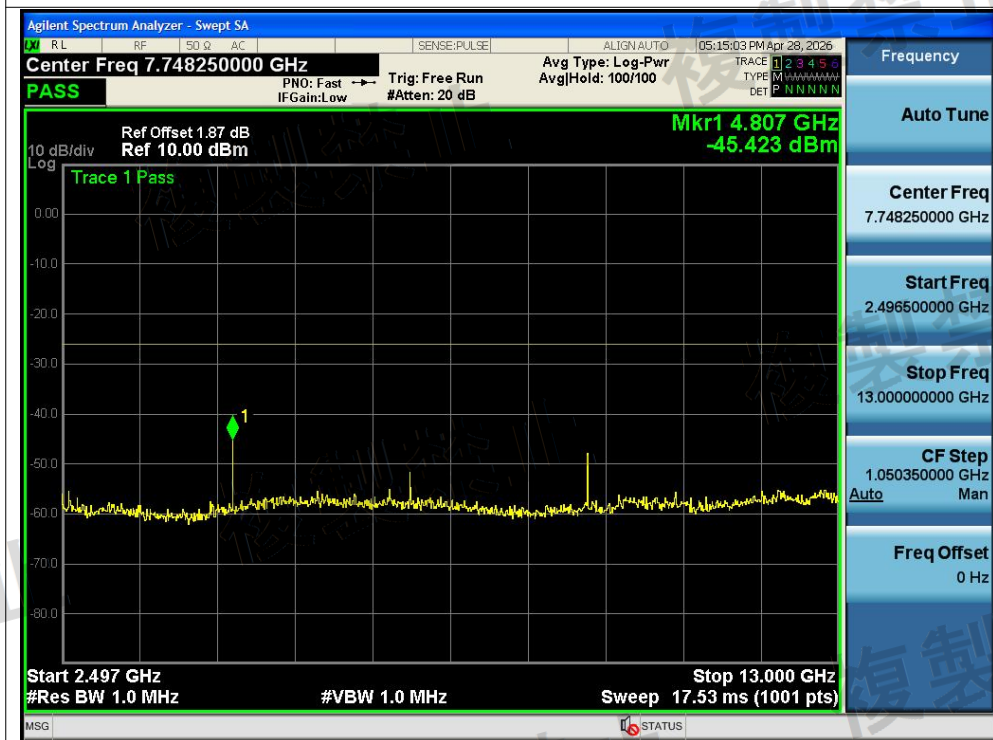
Tx. Spurious NVLT BLE 1M 2402MHz Ant1 @ 2387MHz-2400MHz



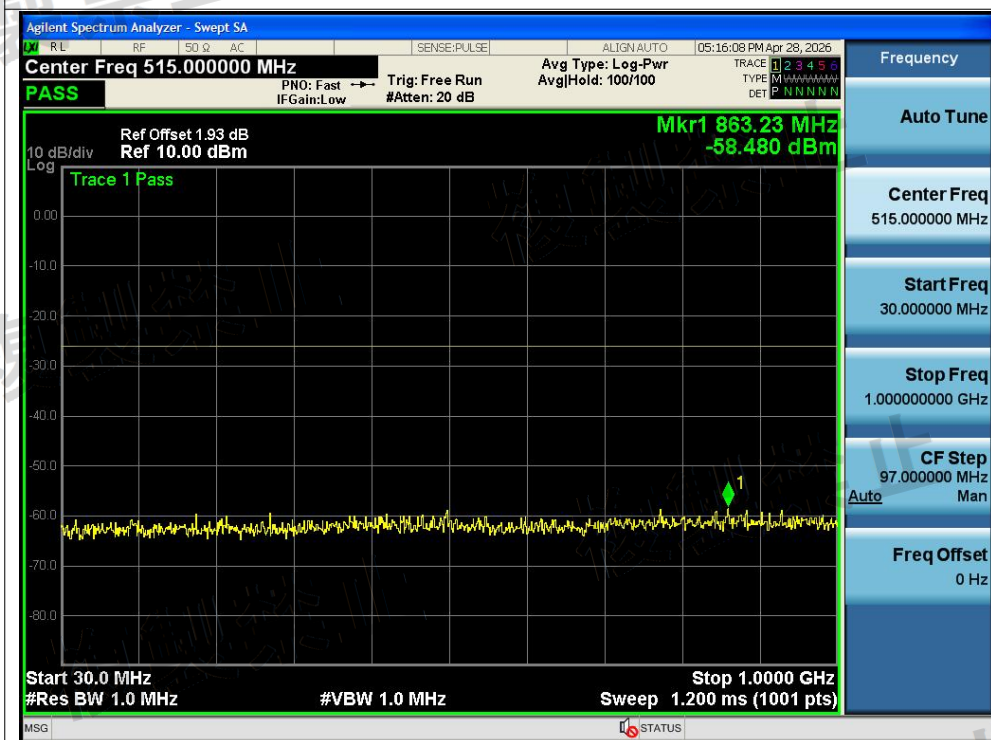
Tx. Spurious NVLT BLE 1M 2402MHz Ant1 @ 2483.5MHz-2496.5MHz



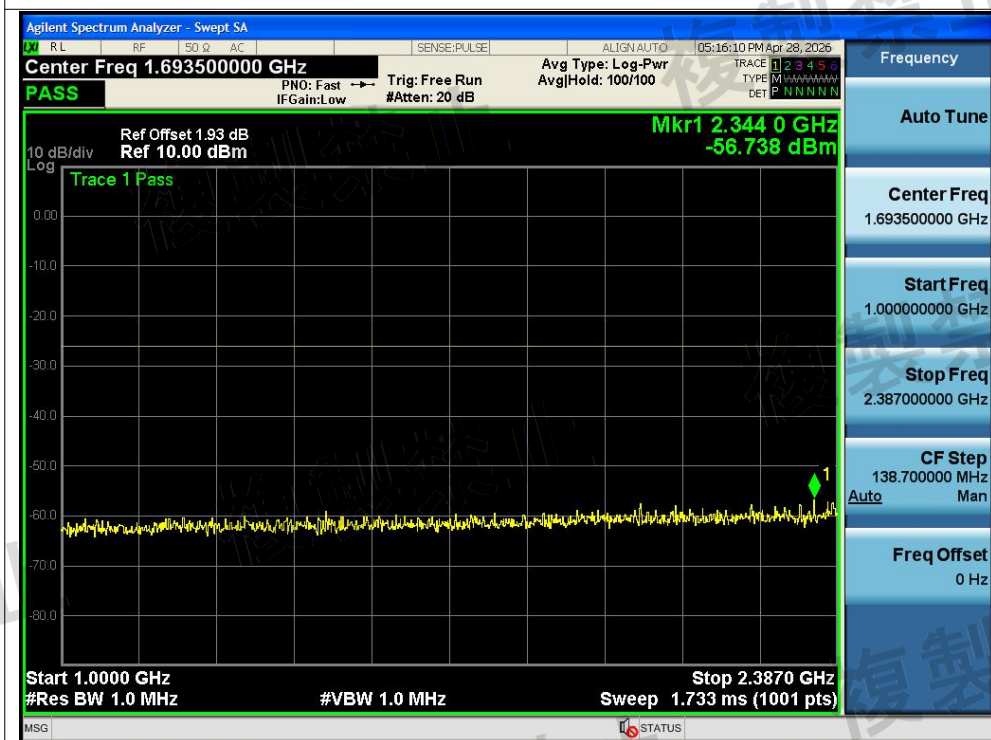
Tx. Spurious NVLT BLE 1M 2402MHz Ant1 @ 2496.5MHz-13000MHz



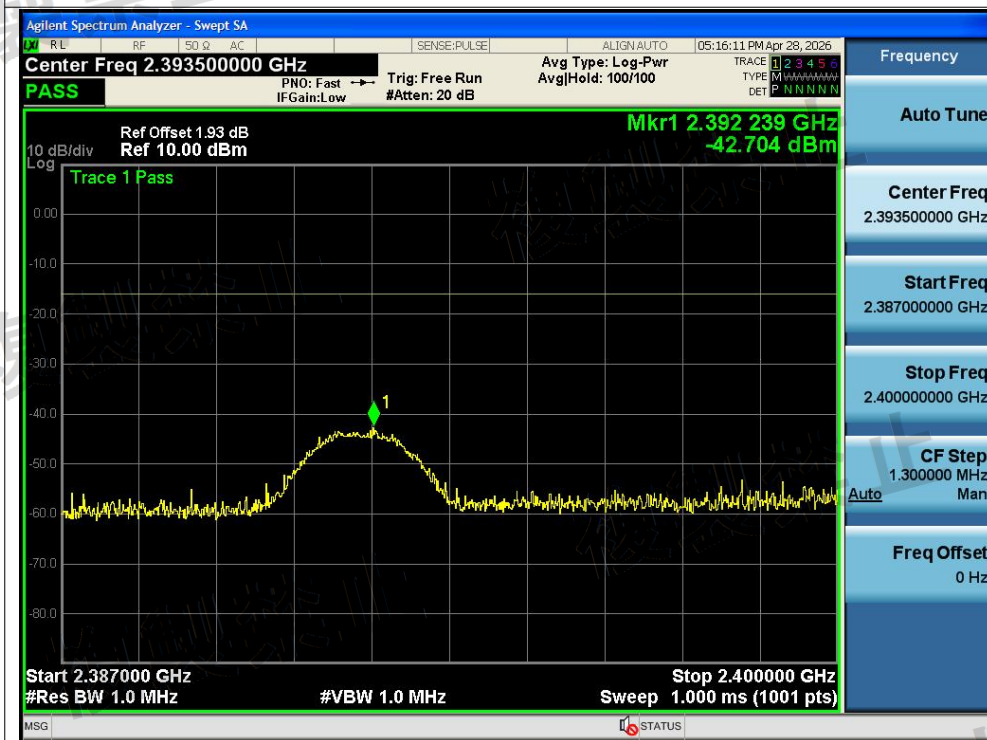
Tx. Spurious NVLT BLE 1M 2440MHz Ant1 @ 30MHz-1000MHz



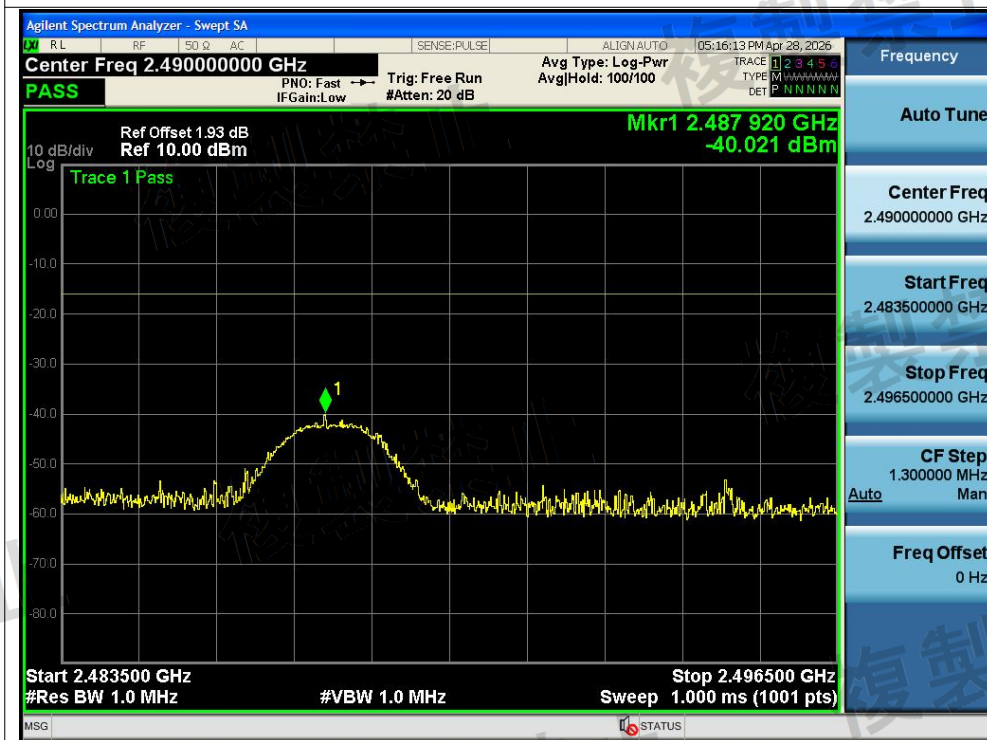
Tx. Spurious NVLT BLE 1M 2440MHz Ant1 @ 1000MHz-2387MHz



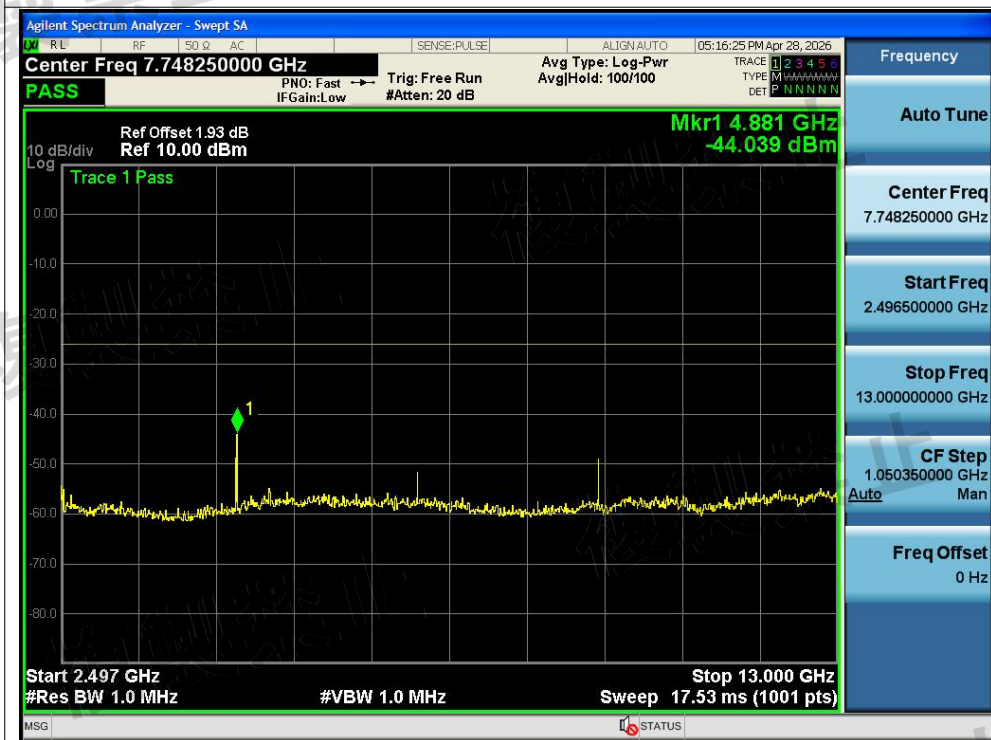
Tx. Spurious NVLT BLE 1M 2440MHz Ant1 @ 2387MHz-2400MHz



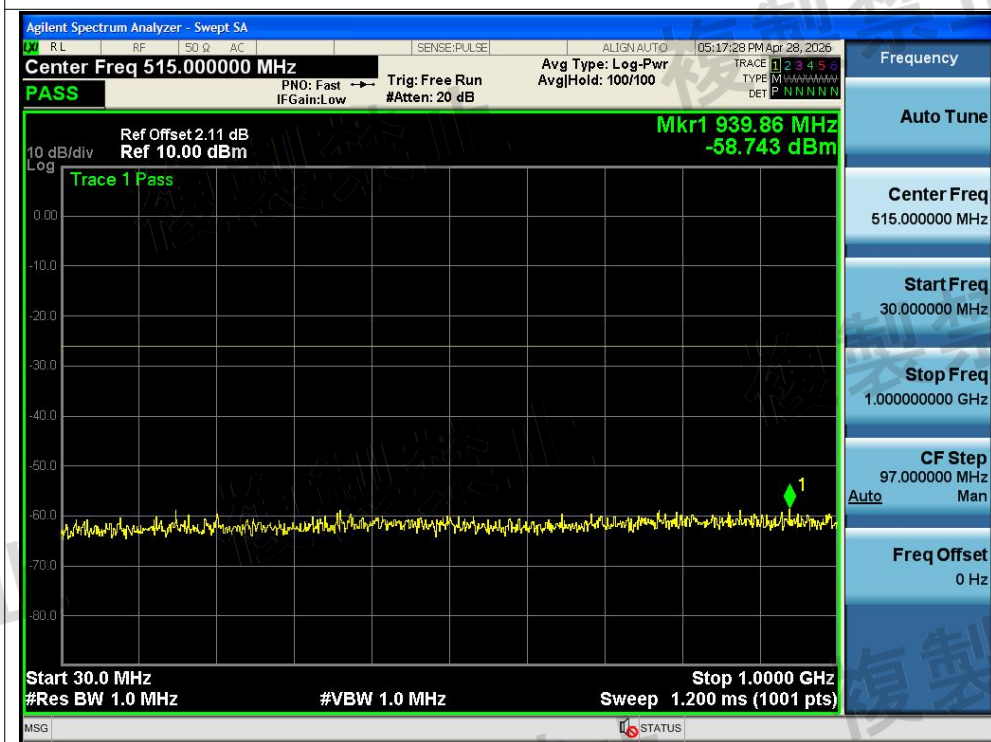
Tx. Spurious NVLT BLE 1M 2440MHz Ant1 @ 2483.5MHz-2496.5MHz



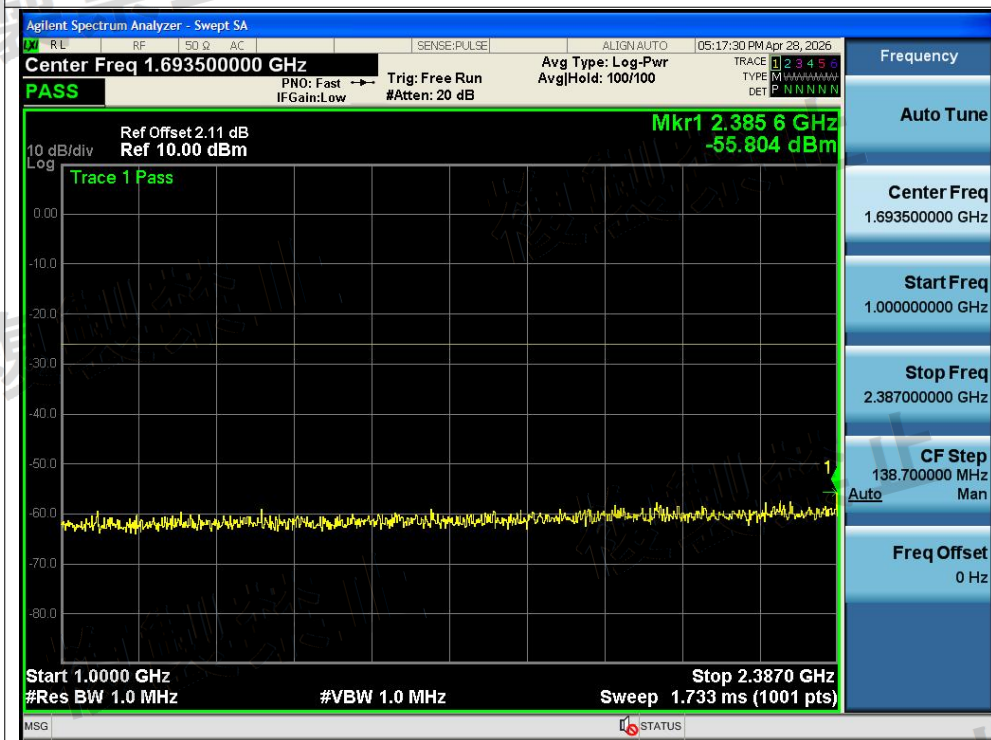
Tx. Spurious NVLT BLE 1M 2440MHz Ant1 @ 2496.5MHz-13000MHz



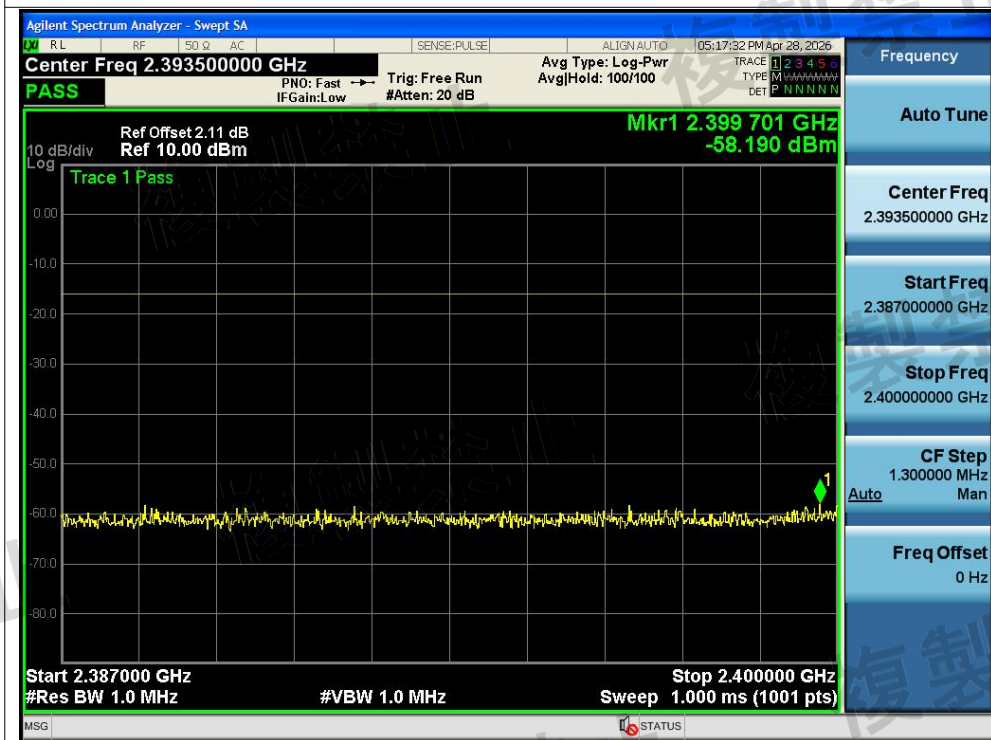
Tx. Spurious NVLT BLE 1M 2480MHz Ant1 @ 30MHz-1000MHz



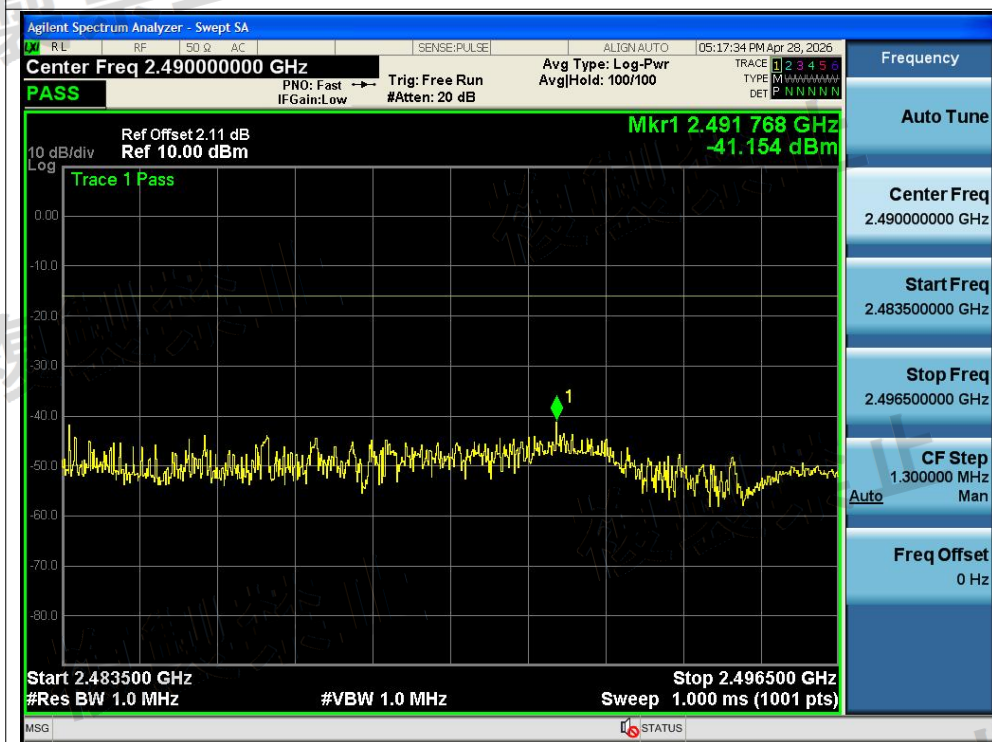
Tx. Spurious NVLT BLE 1M 2480MHz Ant1 @ 1000MHz-2387MHz



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



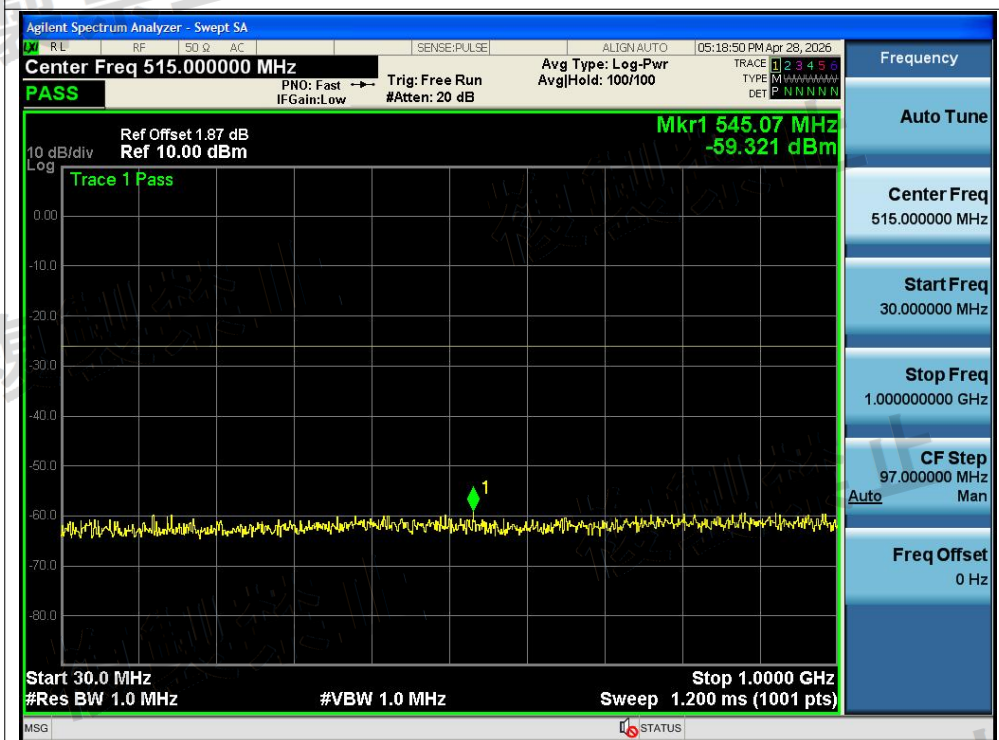
Tx. Spurious NVLT BLE 1M 2480MHz Ant1 @ 2483.5MHz-2496.5MHz



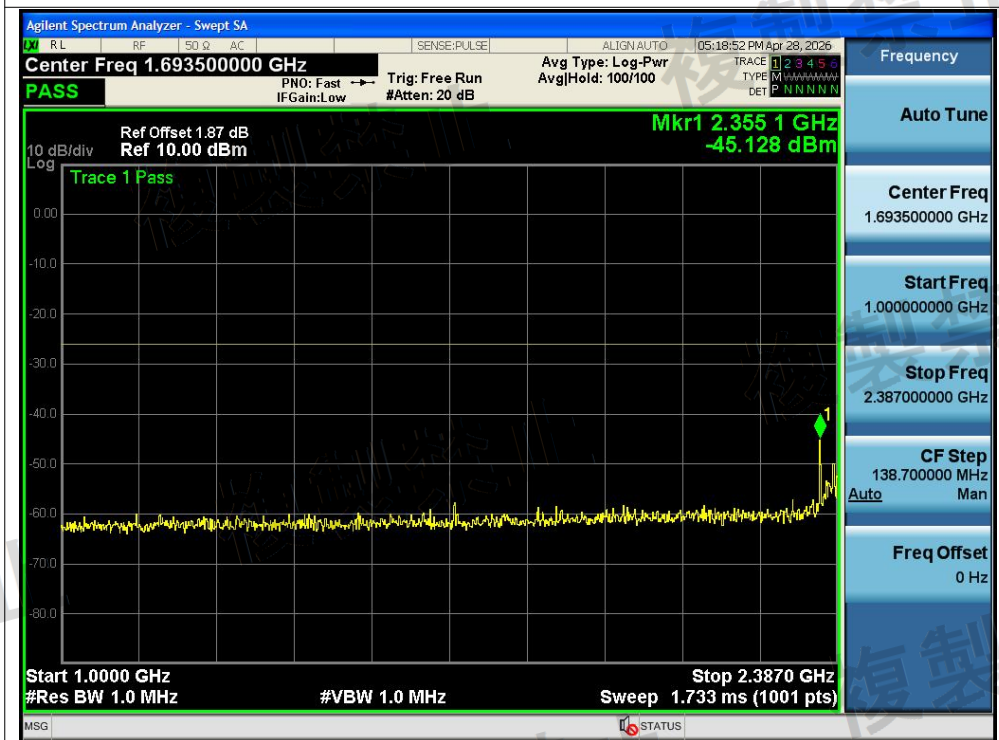
Tx. Spurious NVLT BLE 1M 2480MHz Ant1 @ 2496.5MHz-13000MHz



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



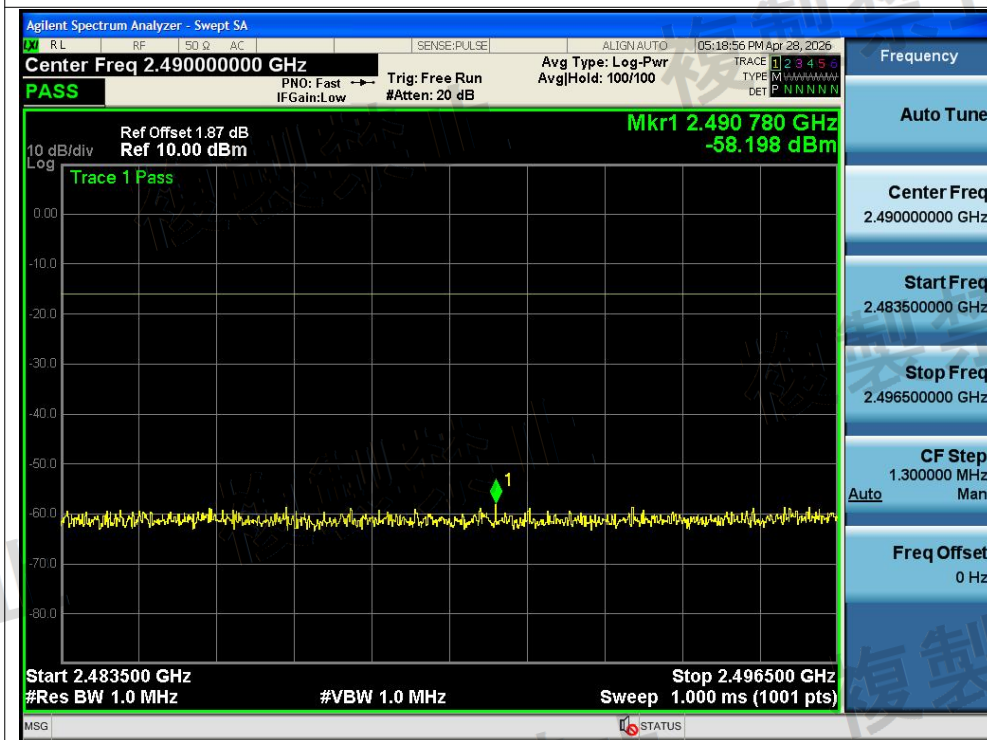
Tx. Spurious NVHT BLE 1M 2402MHz Ant1 @ 1000MHz-2387MHz



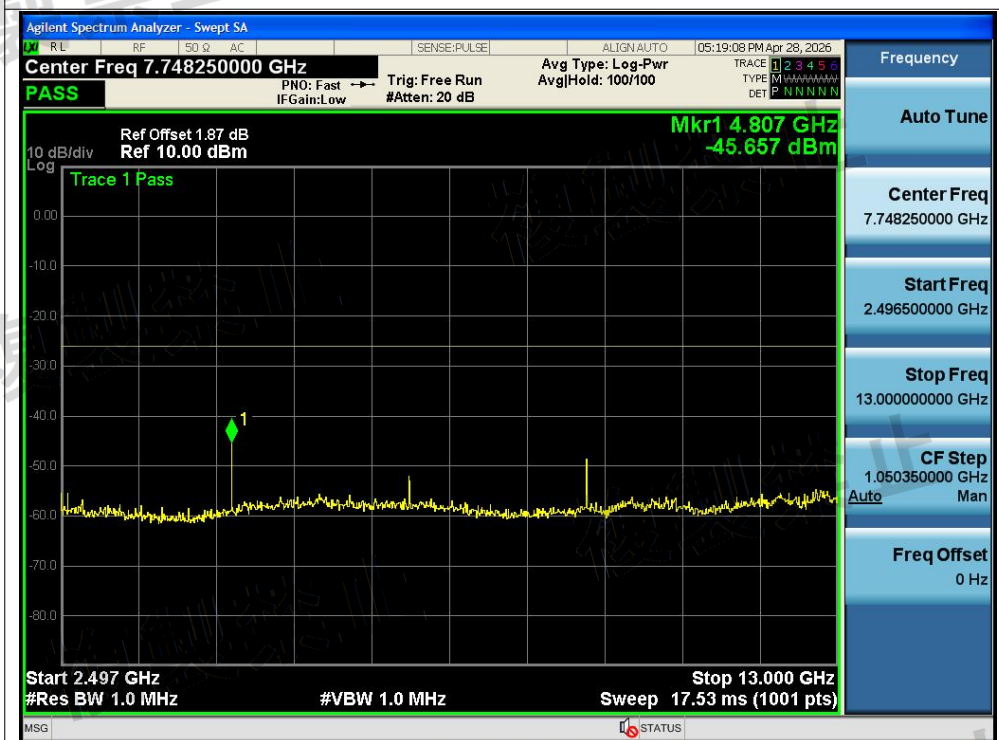
Tx. Spurious NVHT BLE 1M 2402MHz Ant1 @ 2387MHz-2400MHz



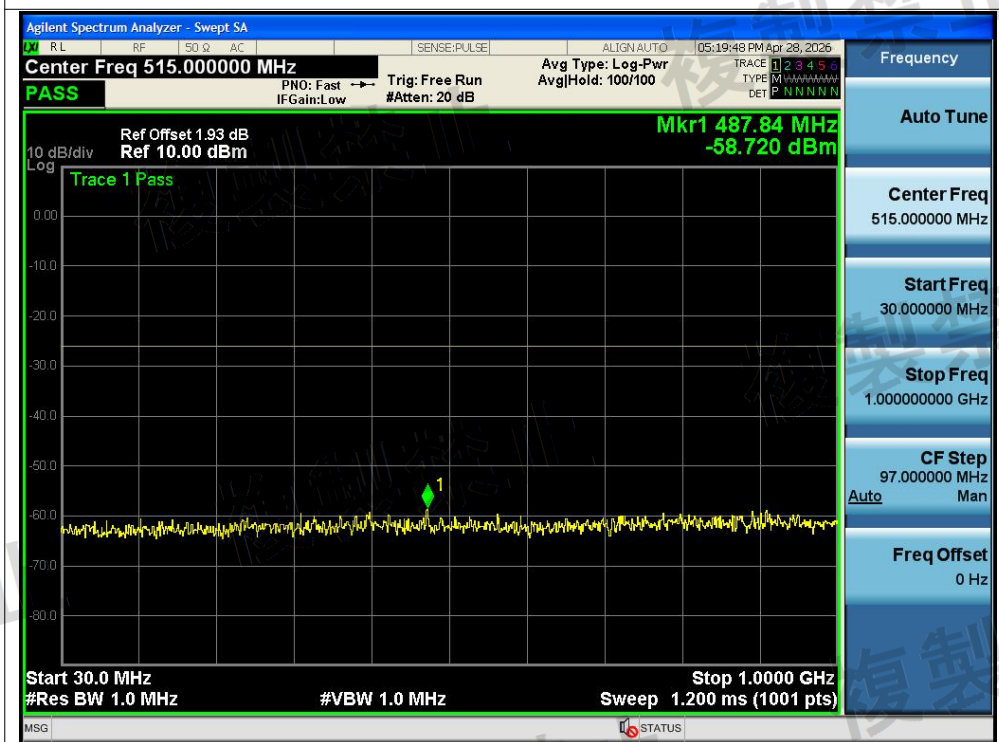
Tx. Spurious NVHT BLE 1M 2402MHz Ant1 @ 2483.5MHz-2496.5MHz



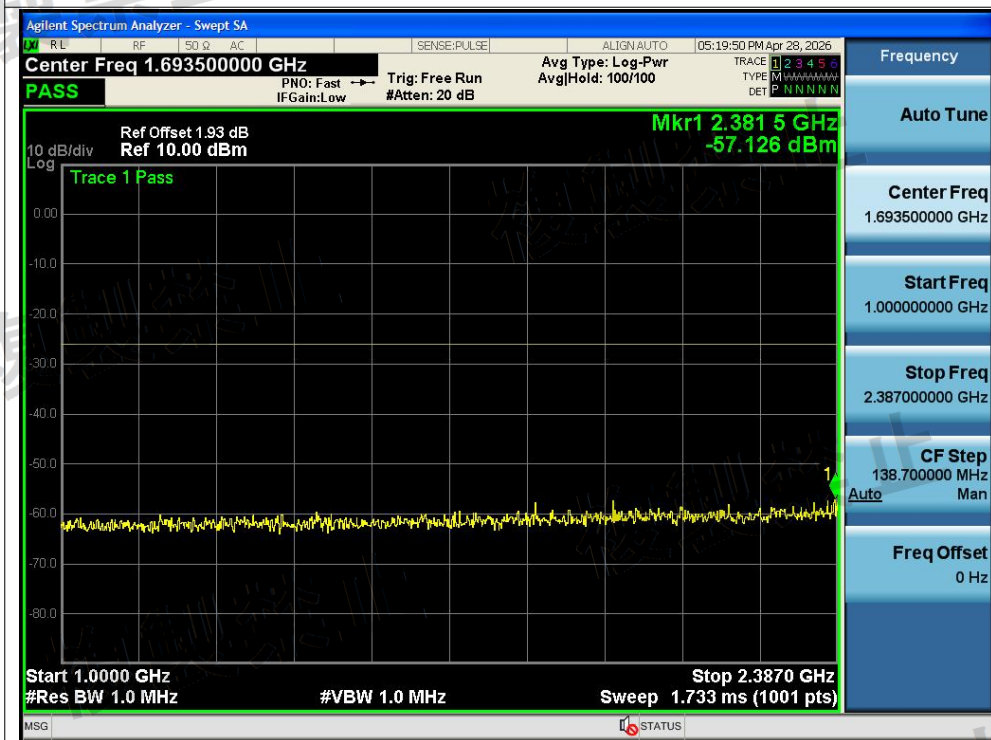
Tx. Spurious NVHT BLE 1M 2402MHz Ant1 @ 2496.5MHz-13000MHz



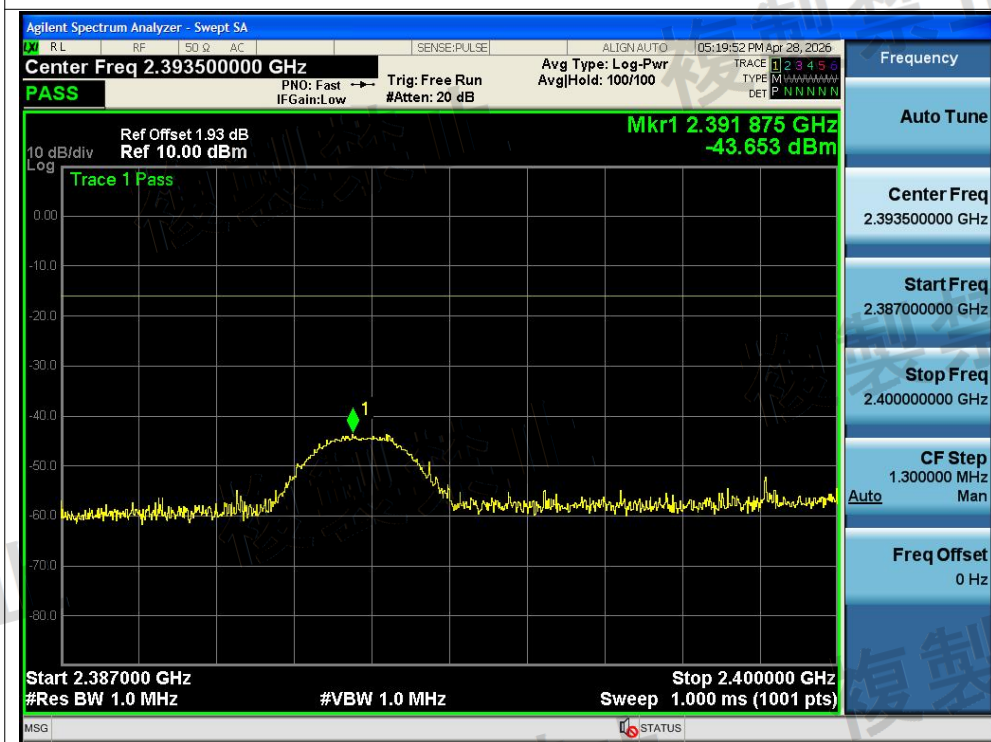
Tx. Spurious NVHT BLE 1M 2440MHz Ant1 @ 30MHz-1000MHz



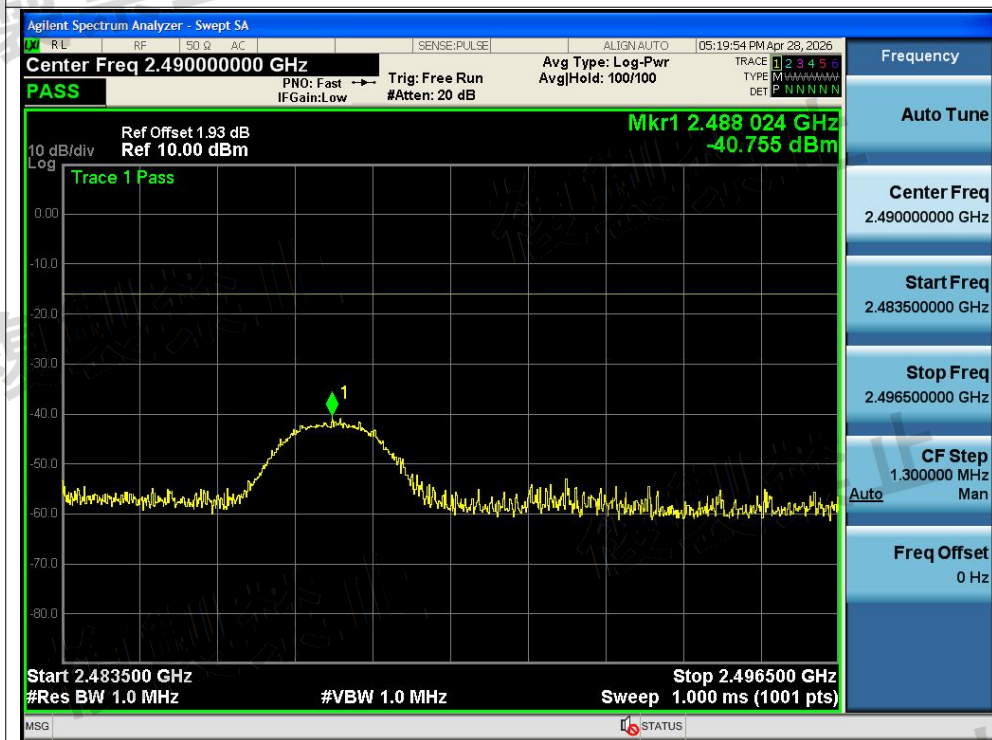
Tx. Spurious NVHT BLE 1M 2440MHz Ant1 @ 1000MHz-2387MHz



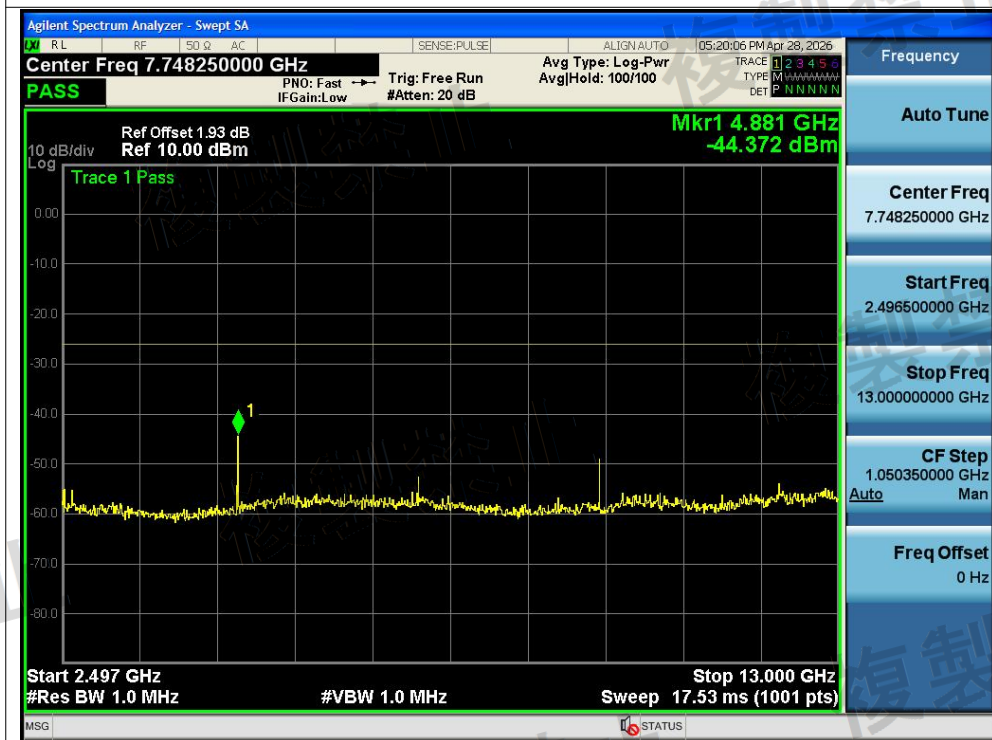
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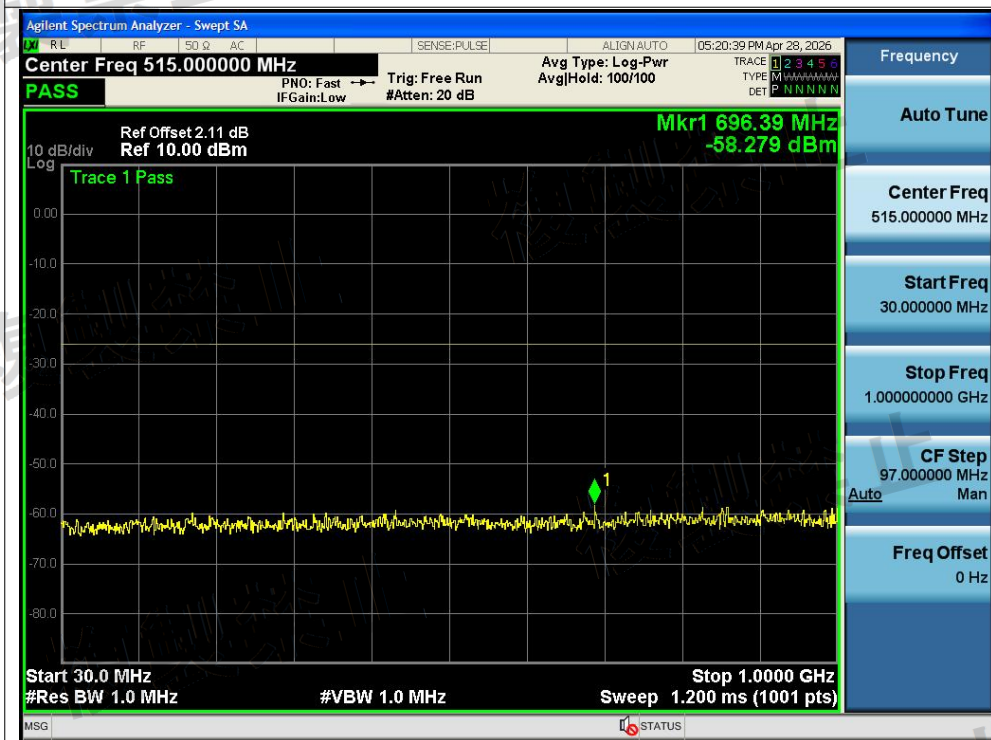
Tx. Spurious NVHT BLE 1M 2440MHz Ant1 @ 2483.5MHz-2496.5MHz



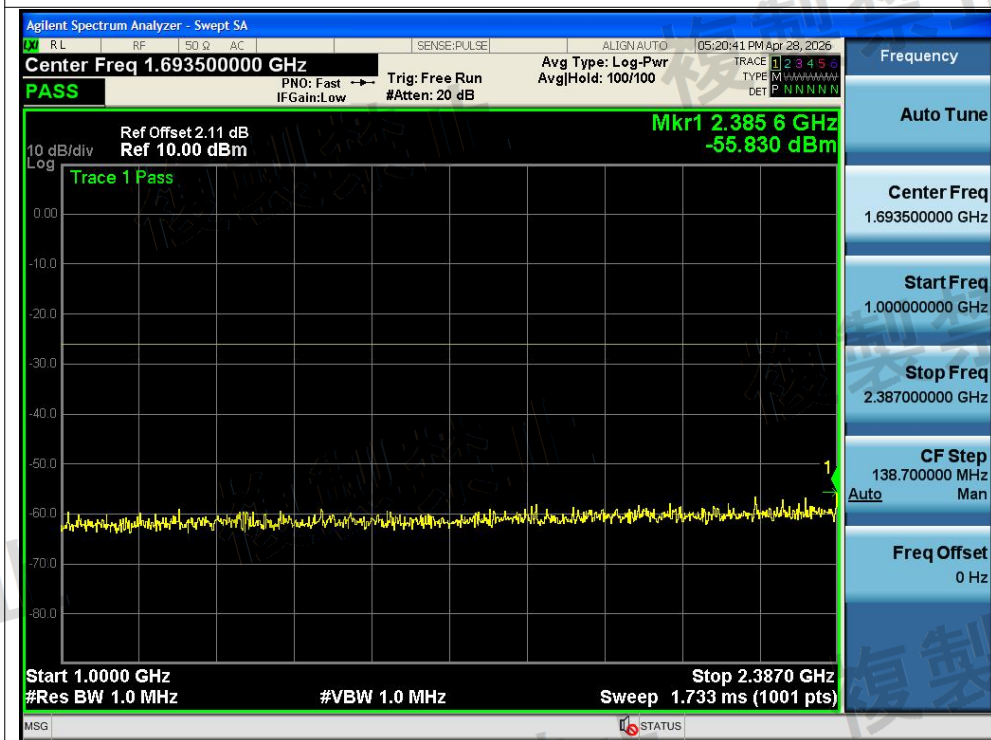
Tx. Spurious NVHT BLE 1M 2440MHz Ant1 @ 2496.5MHz-13000MHz



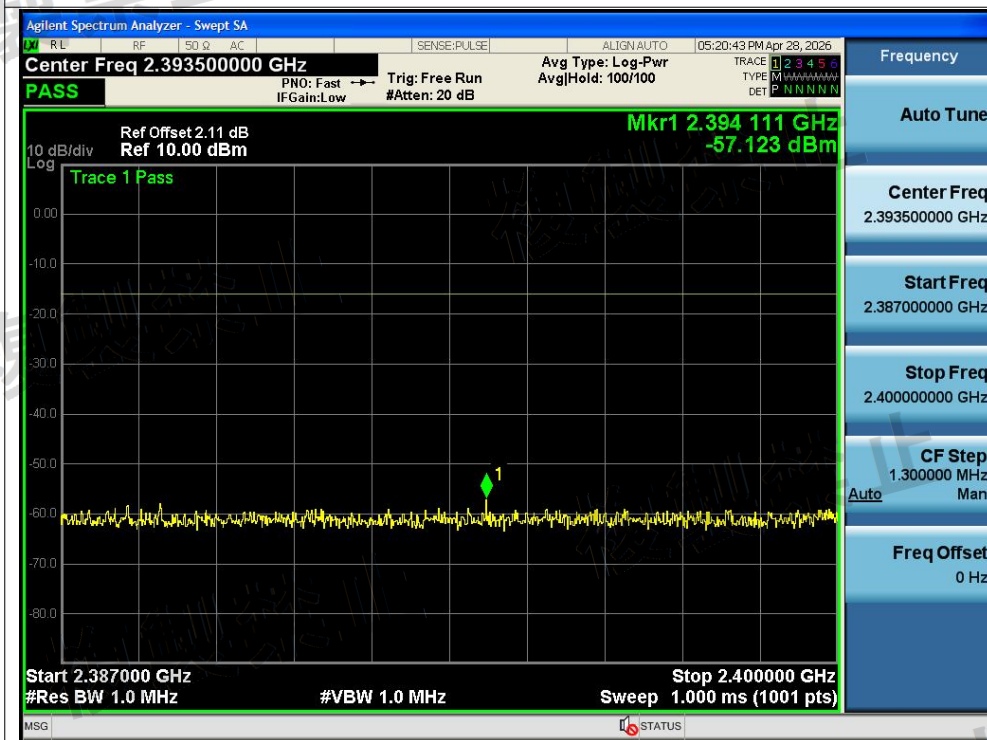
Tx. Spurious NVHT BLE 1M 2480MHz Ant1 @ 30MHz-1000MHz



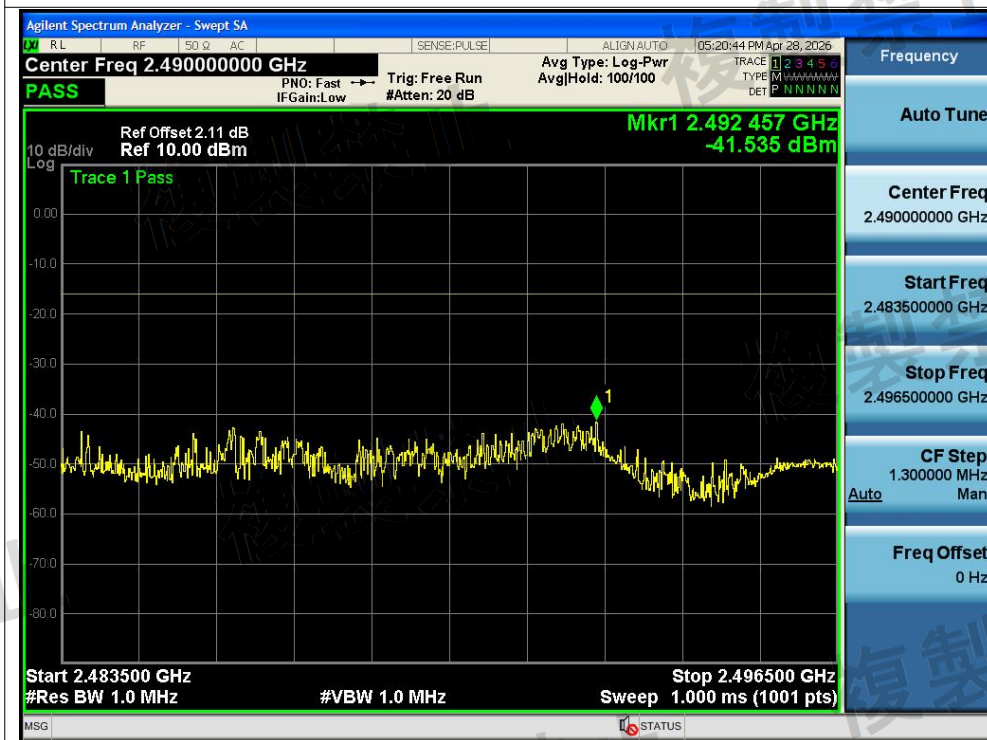
Tx. Spurious NVHT BLE 1M 2480MHz Ant1 @ 1000MHz-2387MHz

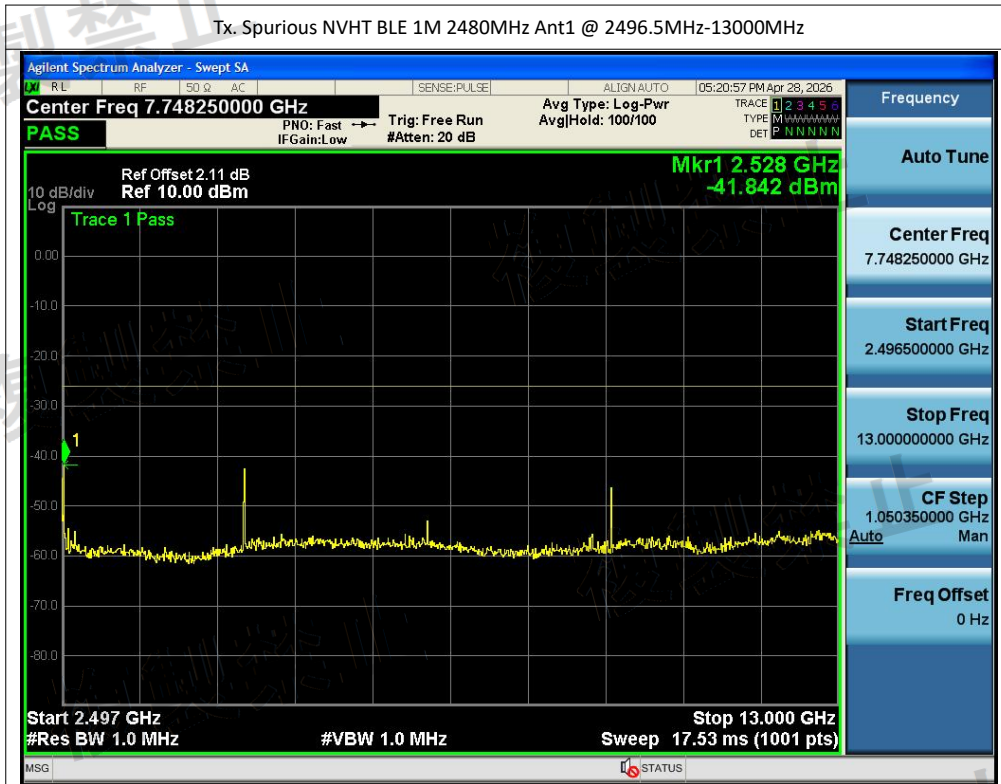


Tx. Spurious NVHT BLE 1M 2480MHz Ant1 @ 2387MHz-2400MHz



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



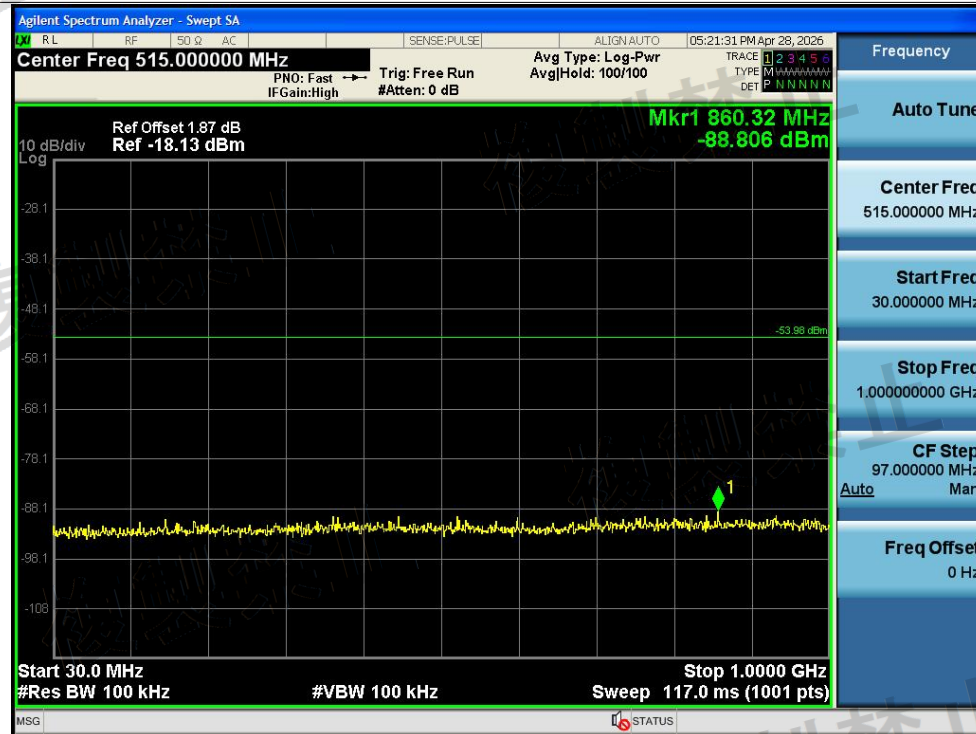


Rx Spurious Emission

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	860.32	-88.81	NA	0.0013	NA	4	Pass
NVNT	BLE 1M	2402	Ant1	1000-13000	2416.00	-75.34	NA	0.0292	NA	20	Pass
NVNT	BLE 1M	2440	Ant1	30-1000	835.10	-89.47	NA	0.0011	NA	4	Pass
NVNT	BLE 1M	2440	Ant1	1000-13000	2440.00	-71.78	NA	0.0664	NA	20	Pass
NVNT	BLE 1M	2480	Ant1	30-1000	798.24	-89.33	NA	0.0012	NA	4	Pass
NVNT	BLE 1M	2480	Ant1	1000-13000	2440.00	-70.42	NA	0.0908	NA	20	Pass
NVLT	BLE 1M	2402	Ant1	30-1000	996.12	-88.88	NA	0.0013	NA	4	Pass
NVLT	BLE 1M	2402	Ant1	1000-13000	7336.00	-75.52	NA	0.0281	NA	20	Pass
NVLT	BLE 1M	2440	Ant1	30-1000	879.72	-89.35	NA	0.0012	NA	4	Pass
NVLT	BLE 1M	2440	Ant1	1000-13000	2416.00	-70.11	NA	0.0975	NA	20	Pass
NVLT	BLE 1M	2480	Ant1	30-1000	889.42	-88.45	NA	0.0014	NA	4	Pass
NVLT	BLE 1M	2480	Ant1	1000-13000	12172.00	-75.37	NA	0.029	NA	20	Pass
NVHT	BLE 1M	2402	Ant1	30-1000	933.07	-88.57	NA	0.0014	NA	4	Pass
NVHT	BLE 1M	2402	Ant1	1000-13000	2452.00	-74.81	NA	0.033	NA	20	Pass
NVHT	BLE 1M	2440	Ant1	30-1000	480.08	-89.08	NA	0.0012	NA	4	Pass
NVHT	BLE 1M	2440	Ant1	1000-13000	12304.00	-76.25	NA	0.0237	NA	20	Pass
NVHT	BLE 1M	2480	Ant1	30-1000	918.52	-88.88	NA	0.0013	NA	4	Pass
NVHT	BLE 1M	2480	Ant1	1000-13000	12208.00	-74.57	NA	0.0349	NA	20	Pass

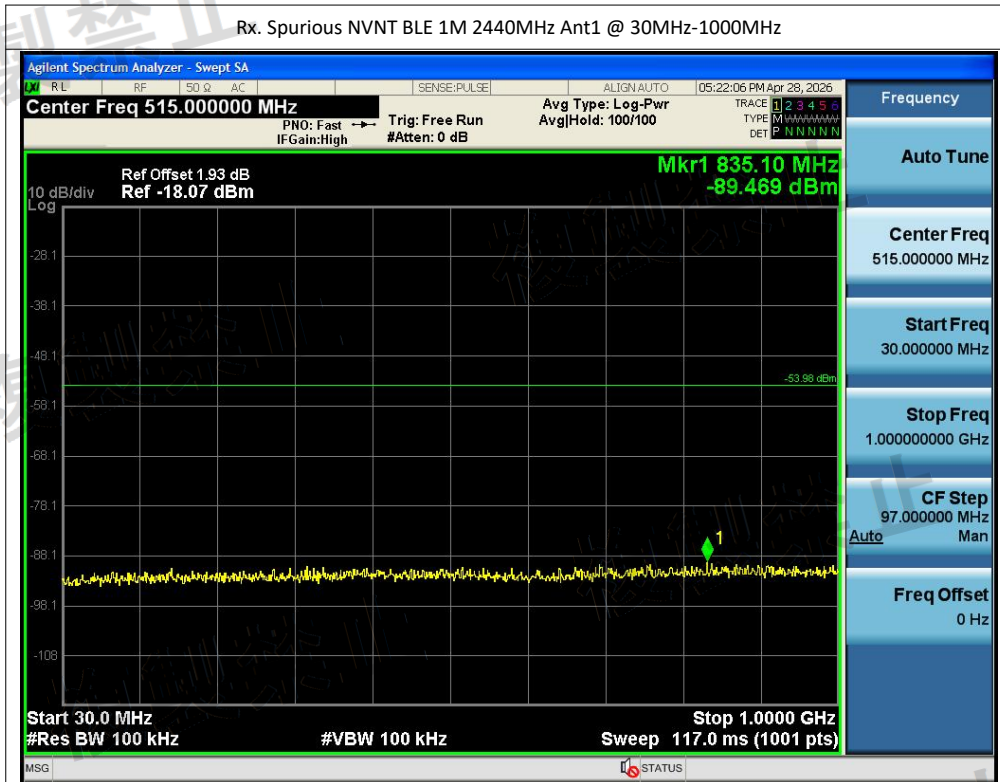
Test Graphs

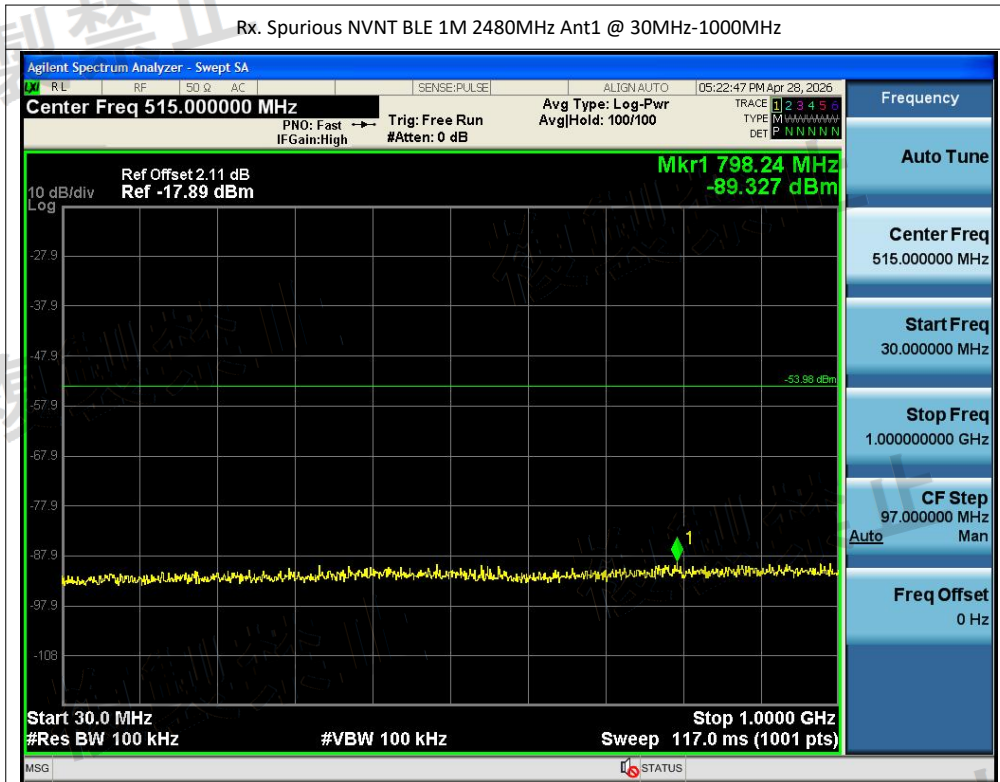
Rx. Spurious NVNT BLE 1M 2402MHz Ant1 @ 30MHz-1000MHz



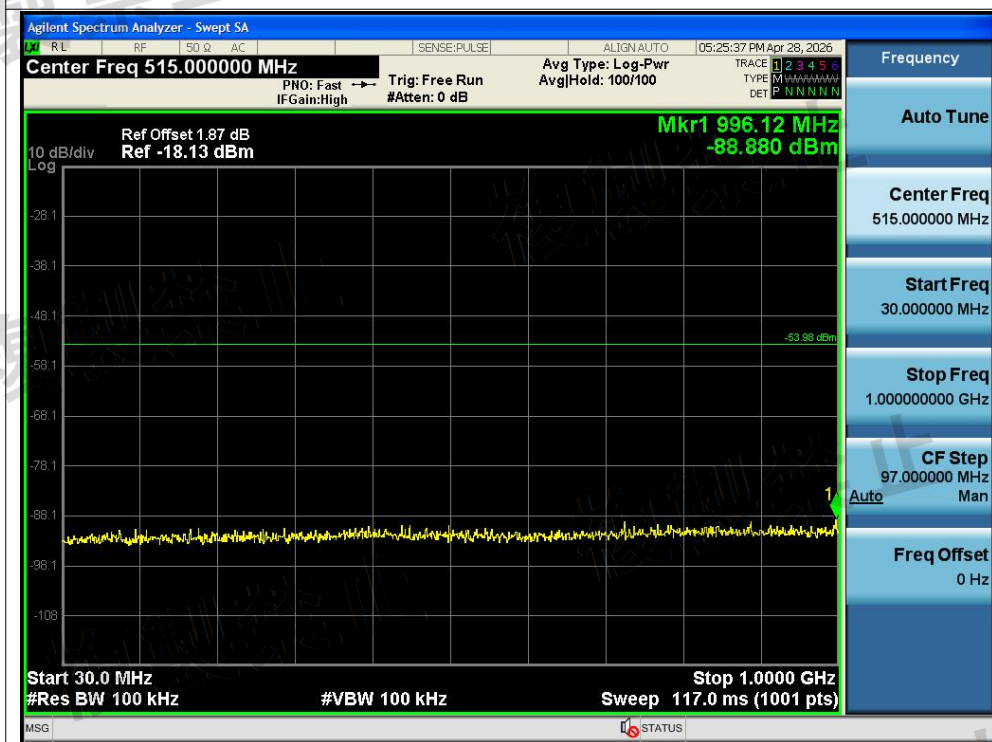
Rx. Spurious NVNT BLE 1M 2402MHz Ant1 @ 1000MHz-13000MHz



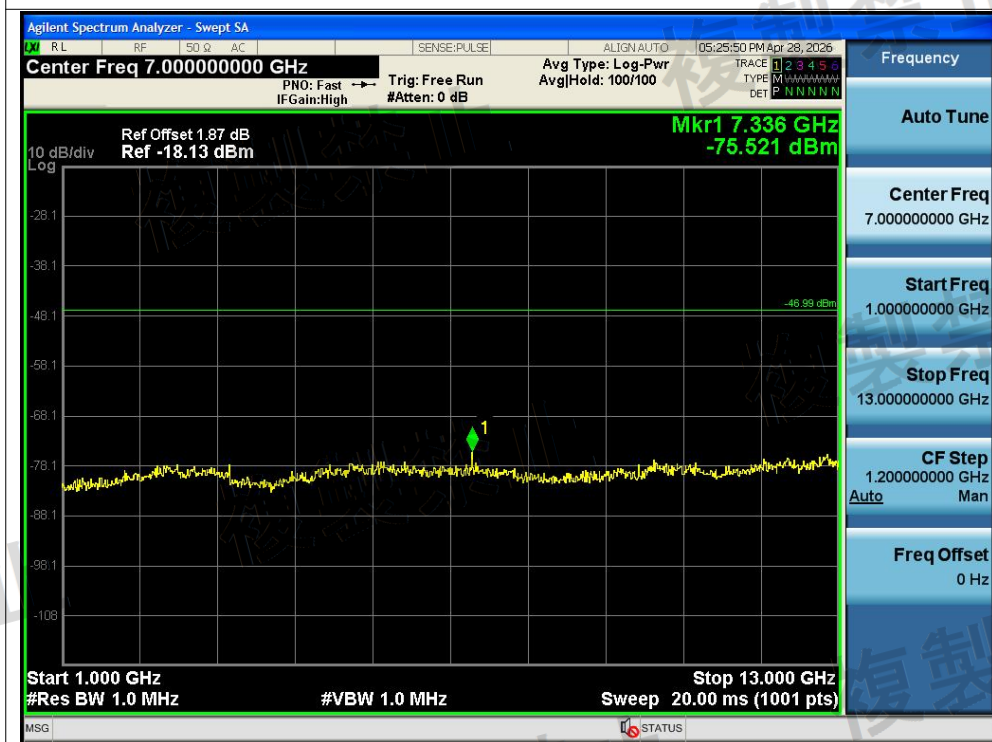




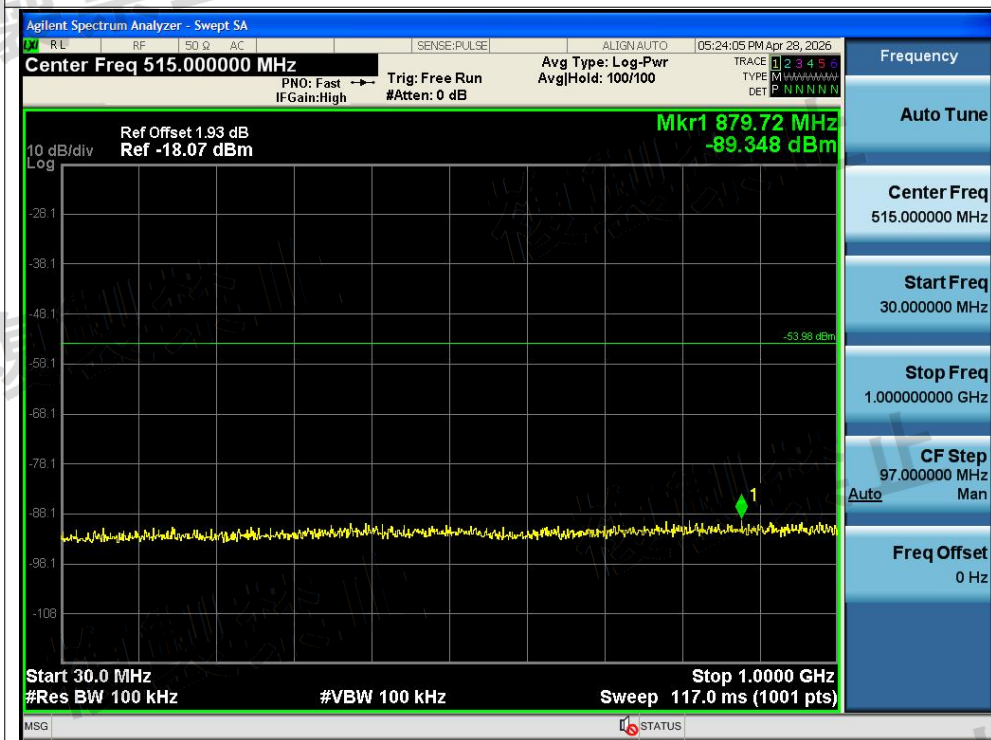
Rx. Spurious NVLT BLE 1M 2402MHz Ant1 @ 30MHz-1000MHz



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



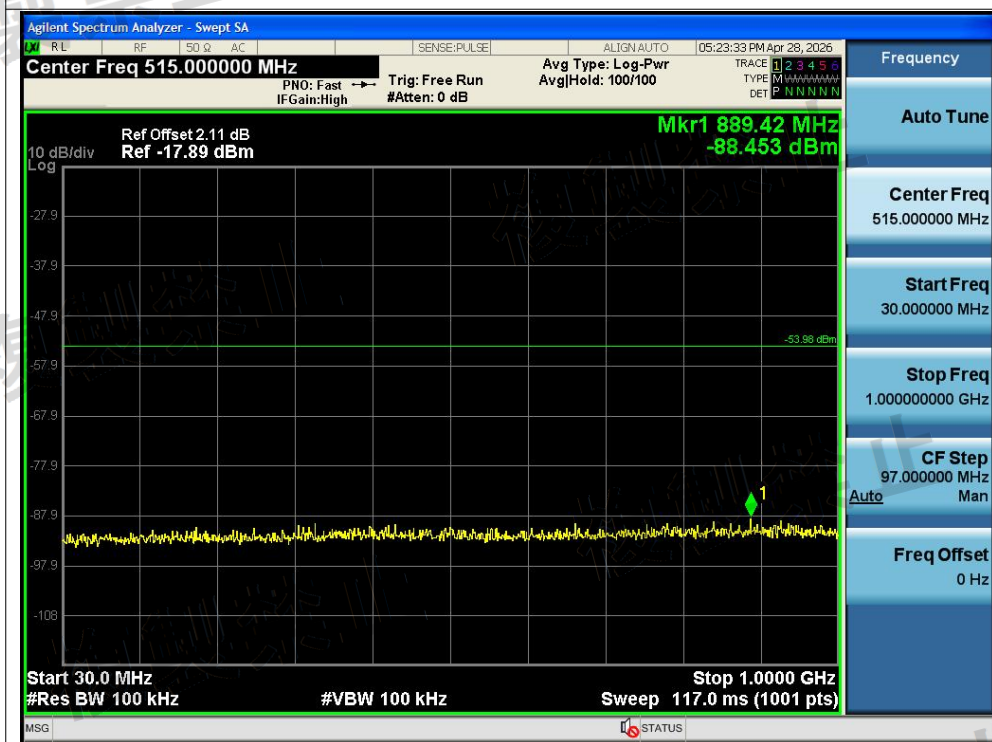
Rx. Spurious NVLT BLE 1M 2440MHz Ant1 @ 30MHz-1000MHz



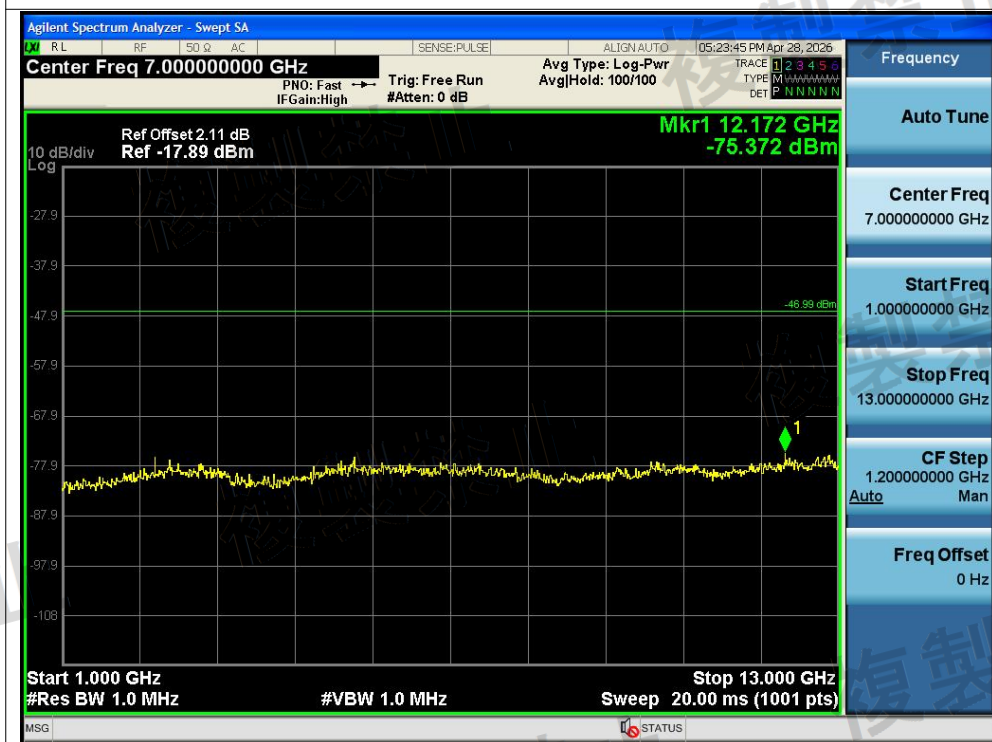
Rx. Spurious NVLT BLE 1M 2440MHz Ant1 @ 1000MHz-13000MHz



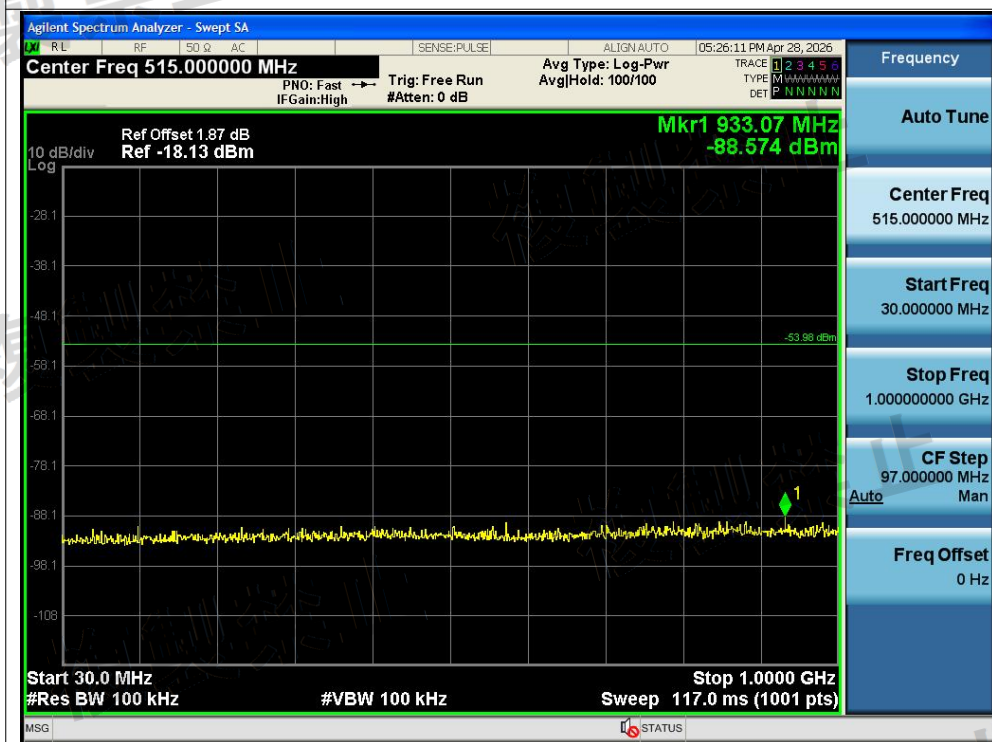
Rx. Spurious NVLT BLE 1M 2480MHz Ant1 @ 30MHz-1000MHz



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

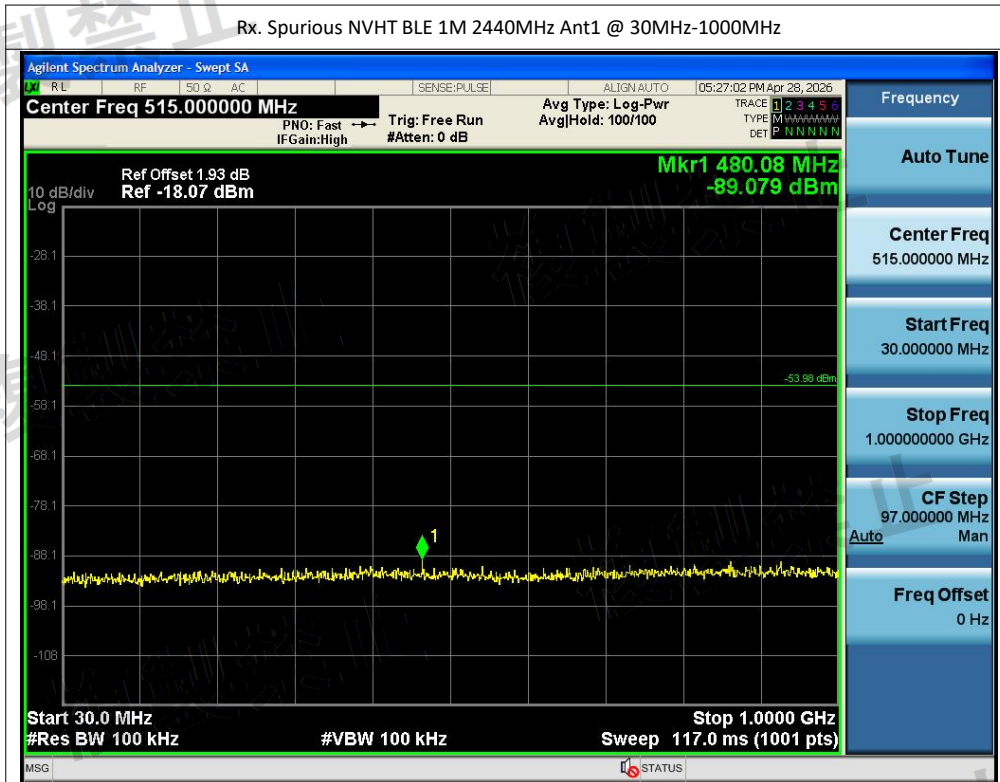


Rx. Spurious NVHT BLE 1M 2402MHz Ant1 @ 30MHz-1000MHz

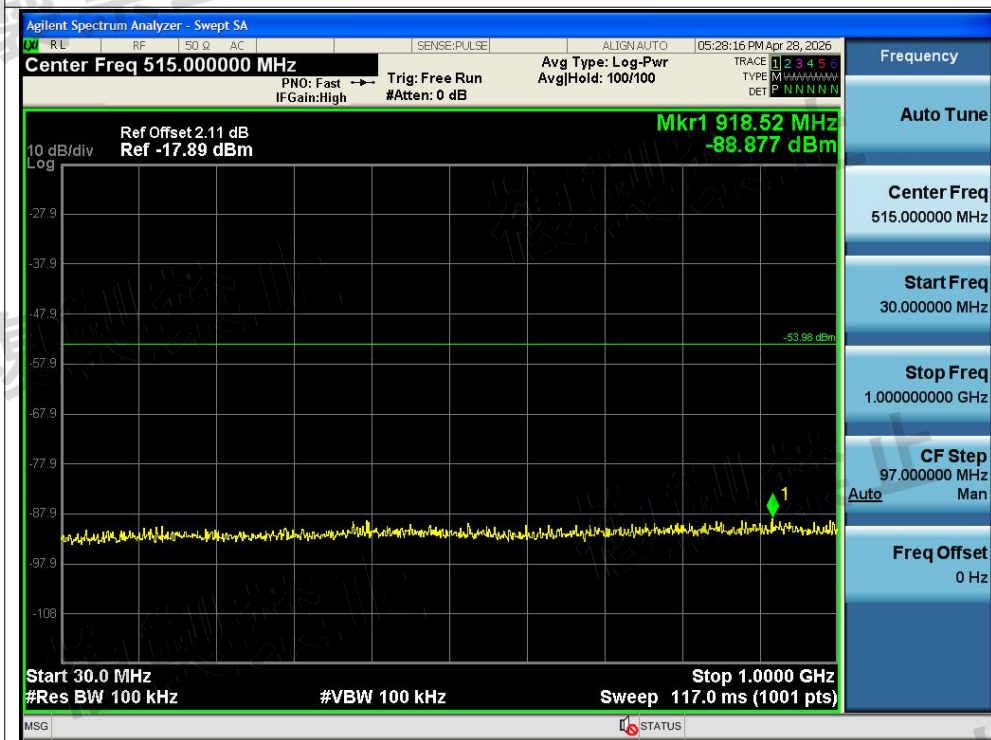


Rx. Spurious NVHT BLE 1M 2402MHz Ant1 @ 1000MHz-13000MHz





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



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

