



Appendix B

RF Test Data for BT LE (Conducted Measurement)

Product Name: Wireless 3D wheel Aligner

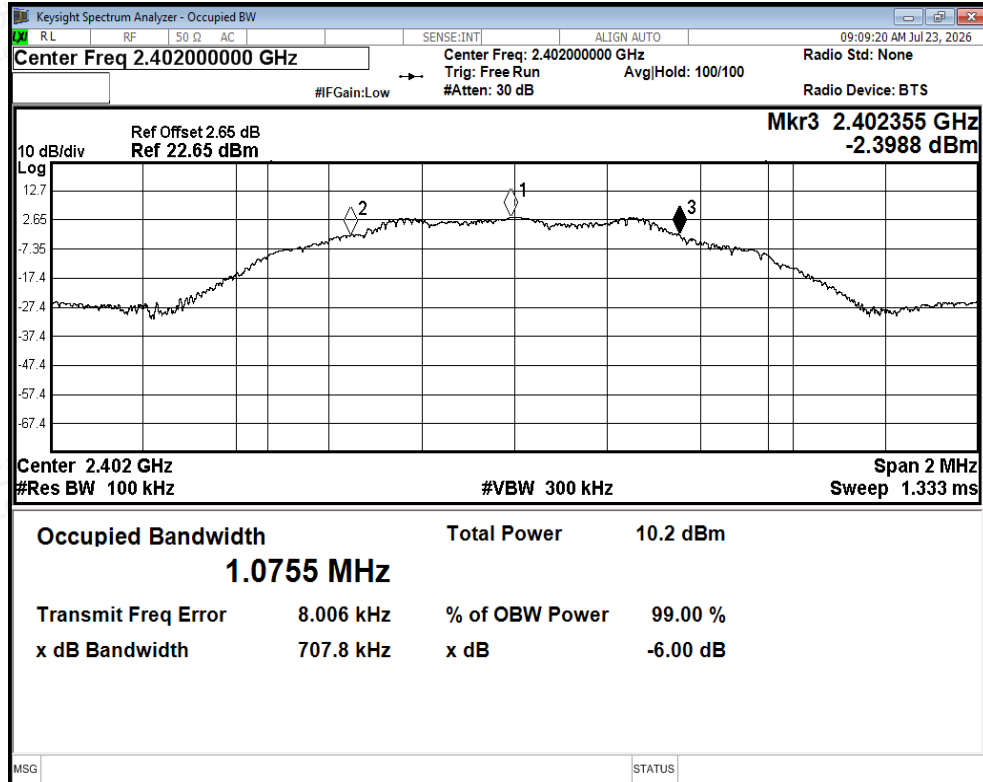
Test Model: WA613 V2.0

Environmental Conditions	
Temperature:	24.2° C
Relative Humidity:	53.4%
ATM Pressure:	100.0 kPa
Test Engineer:	Faith Li
Supervised by:	Can Kun

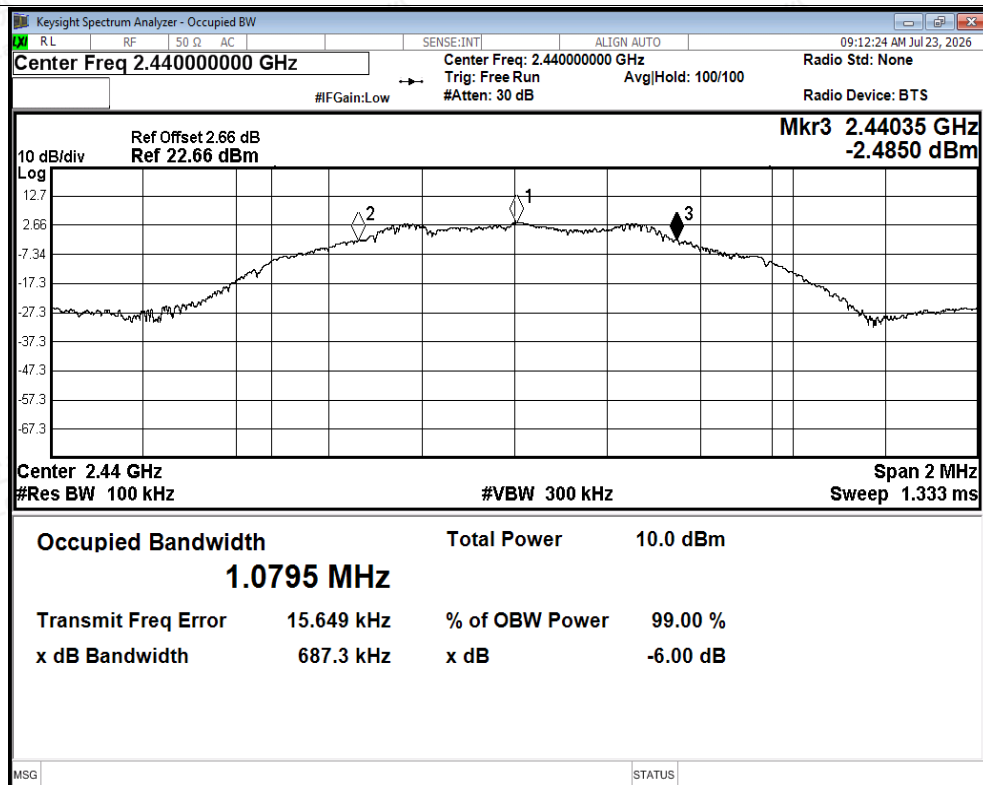


B.1 -6dB Bandwidth

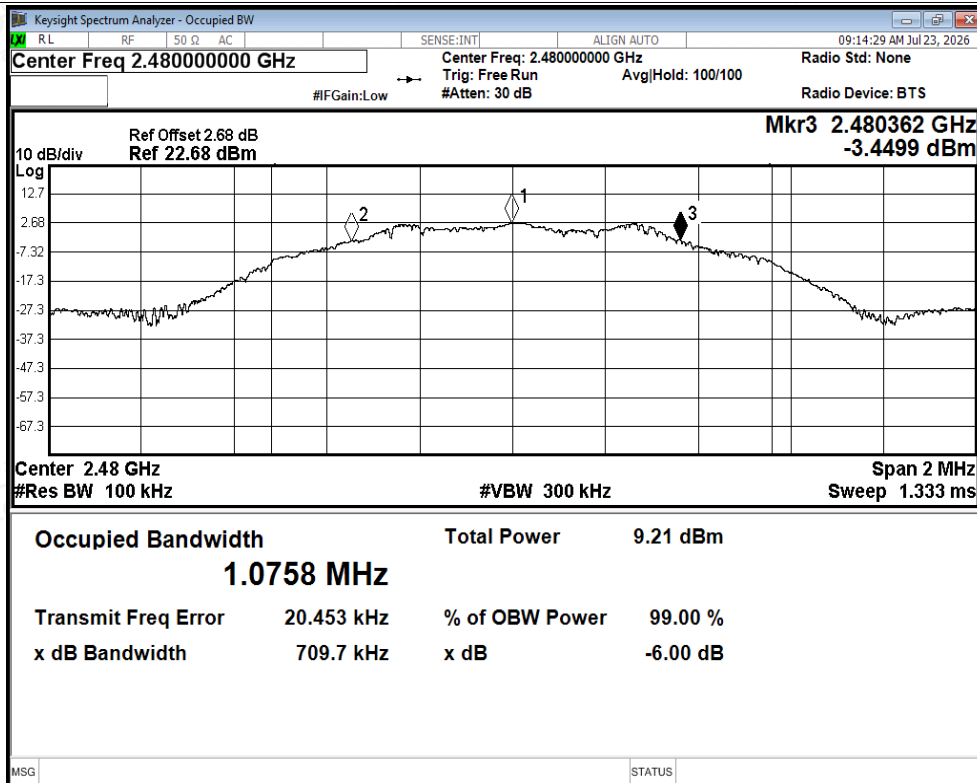
Condition	Mode	Frequency (MHz)	Antenna	-6 dB Bandwidth (MHz)	Limit -6 dB Bandwidth (MHz)	Verdict
NVNT	BLE 1M	2402	Ant1	0.7078	0.5	Pass
NVNT	BLE 1M	2440	Ant1	0.6873	0.5	Pass
NVNT	BLE 1M	2480	Ant1	0.7097	0.5	Pass
NVNT	BLE 2M	2402	Ant1	1.295	0.5	Pass
NVNT	BLE 2M	2440	Ant1	1.067	0.5	Pass
NVNT	BLE 2M	2480	Ant1	1.08	0.5	Pass



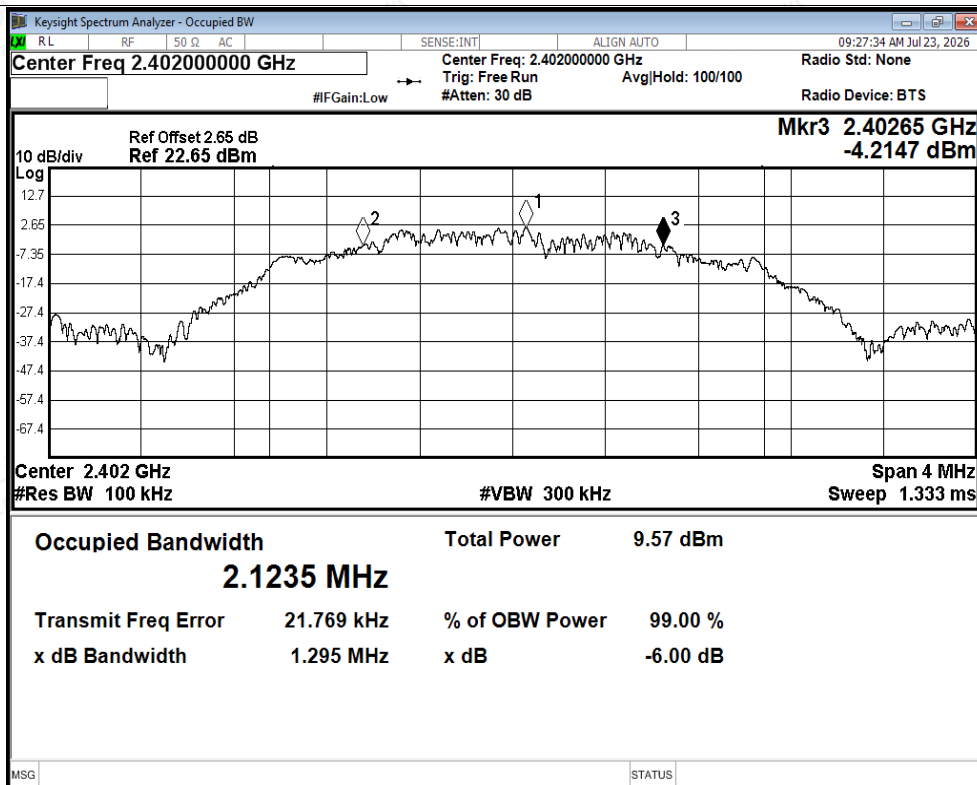
-6dB Bandwidth NVNT BLE 1M 2402MHz Ant1



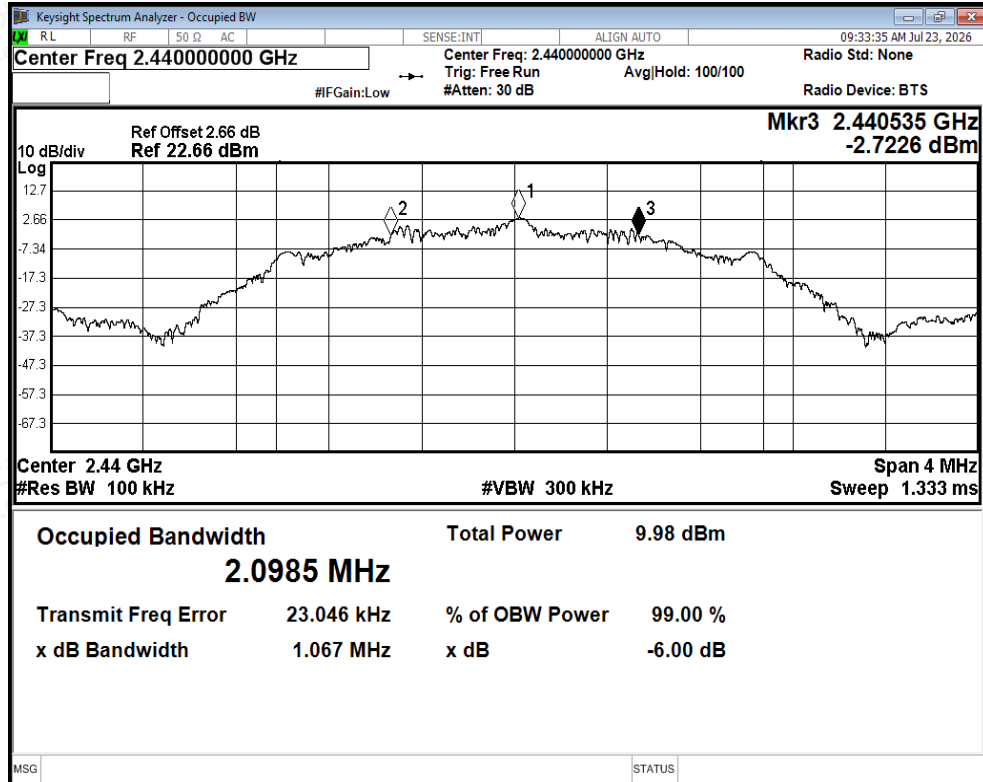
-6dB Bandwidth NVNT BLE 1M 2440MHz Ant1



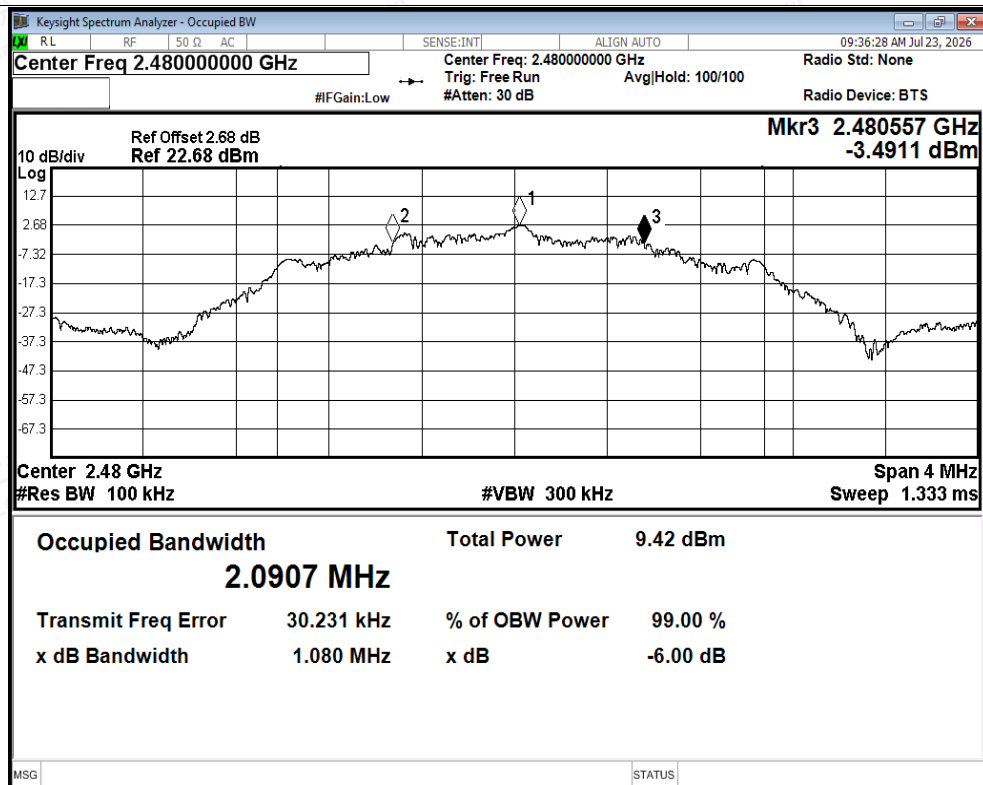
-6dB Bandwidth NVNT BLE 1M 2480MHz Ant1



-6dB Bandwidth NVNT BLE 2M 2402MHz Ant1



-6dB Bandwidth NVNT BLE 2M 2440MHz Ant1

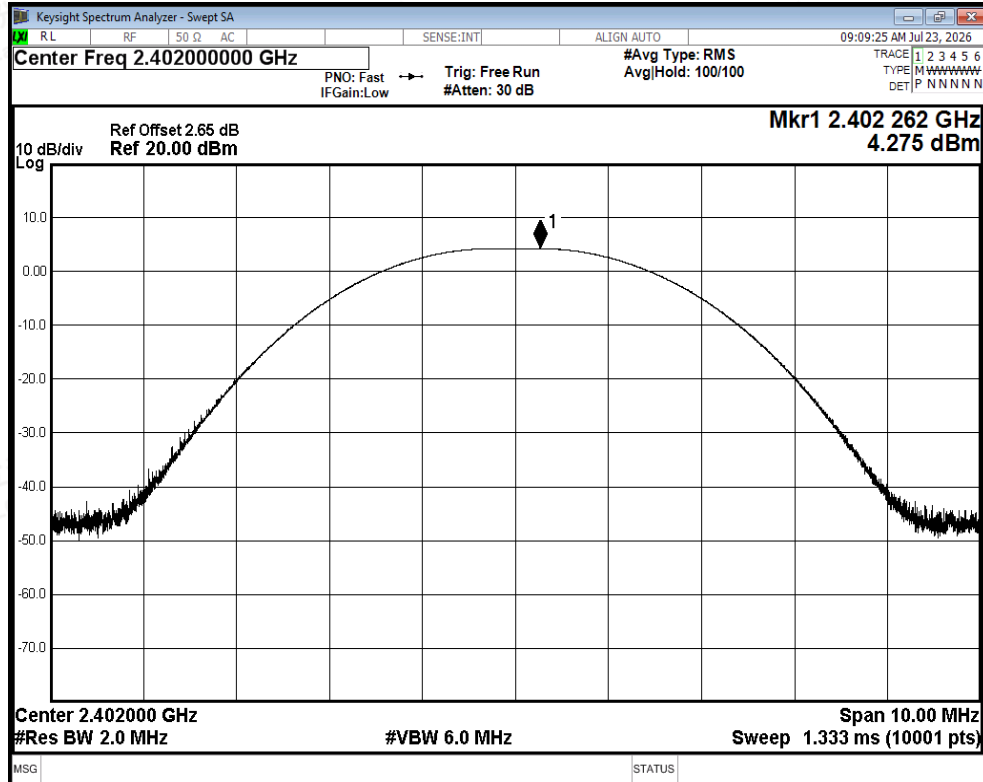


-6dB Bandwidth NVNT BLE 2M 2480MHz Ant1

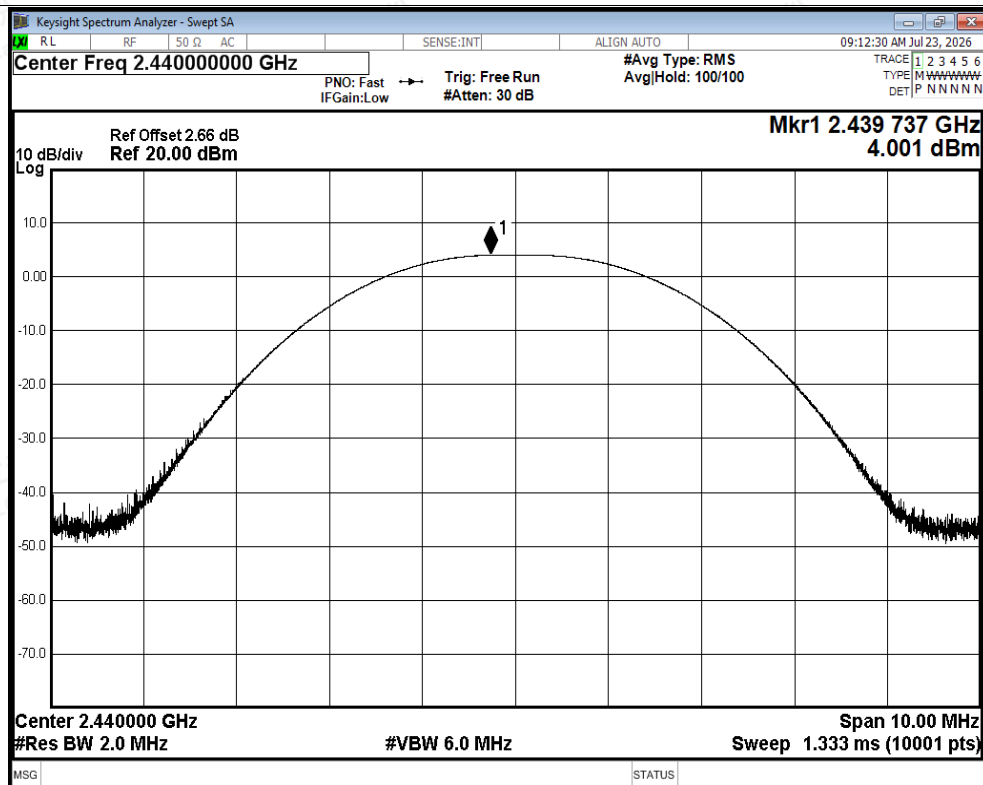


B.2 Maximum Peak Conducted Output Power

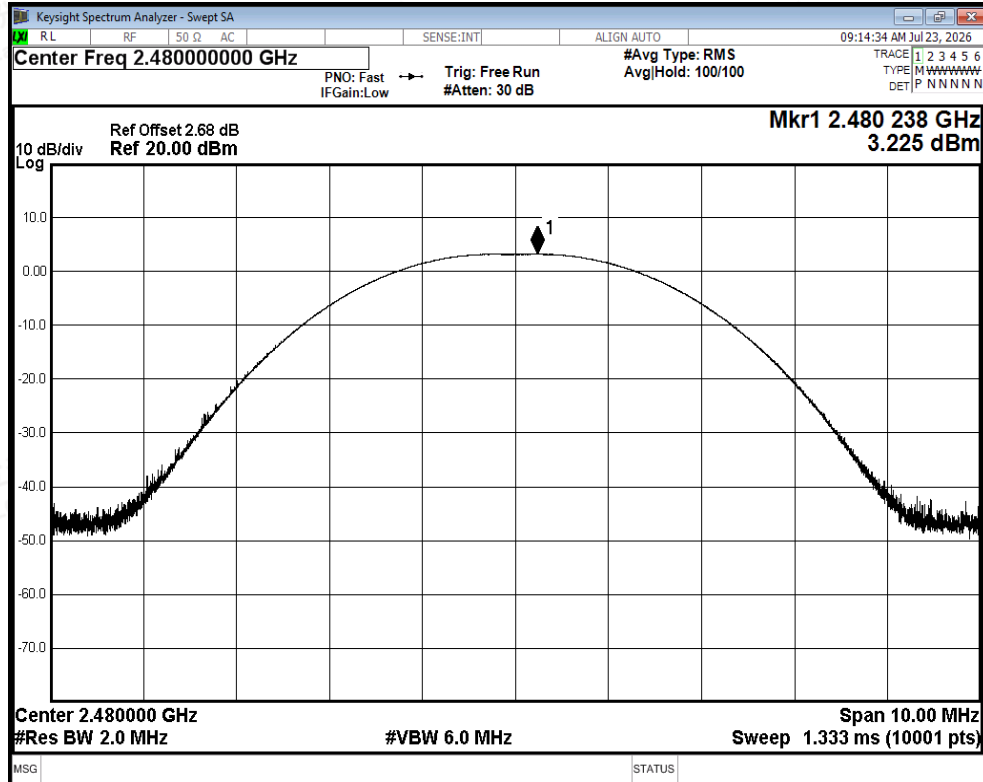
Condition	Mode	Frequency (MHz)	Antenna	Conducted Power (dBm)	Limit Conducted(dBm)	Verdict
NVNT	BLE 1M	2402	Ant1	4.28	30	Pass
NVNT	BLE 1M	2440	Ant1	4	30	Pass
NVNT	BLE 1M	2480	Ant1	3.23	30	Pass
NVNT	BLE 2M	2402	Ant1	4.52	30	Pass
NVNT	BLE 2M	2440	Ant1	4.23	30	Pass
NVNT	BLE 2M	2480	Ant1	3.45	30	Pass



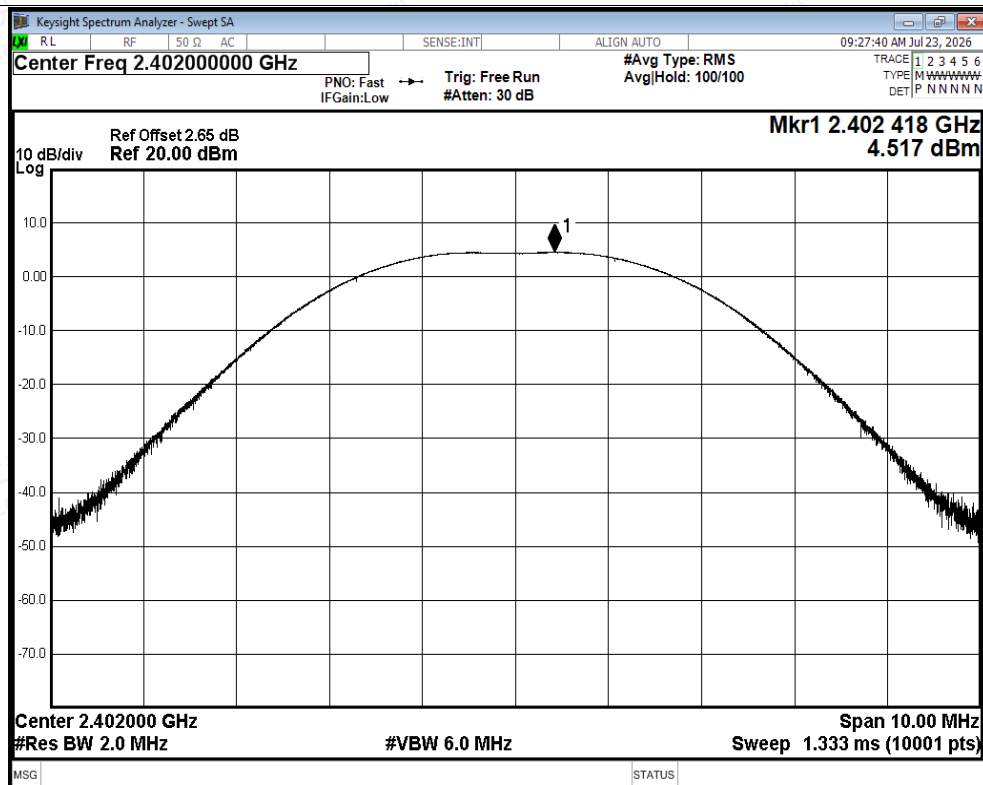
Peak Power NVNT BLE 1M 2402MHz Ant1



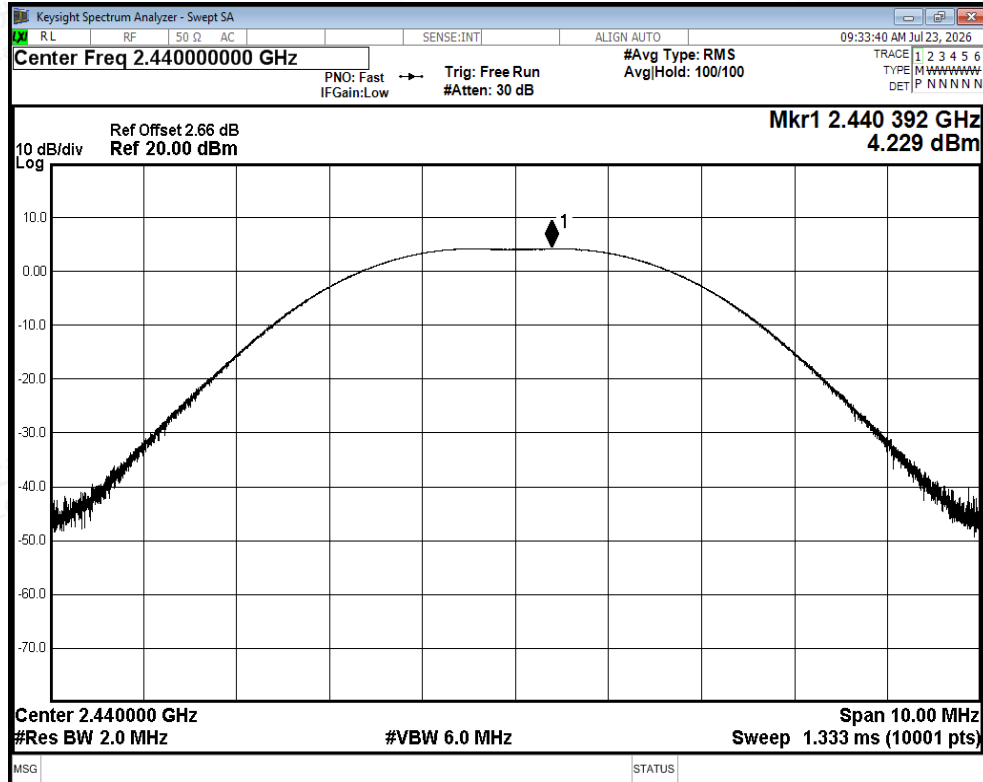
Peak Power NVNT BLE 1M 2440MHz Ant1



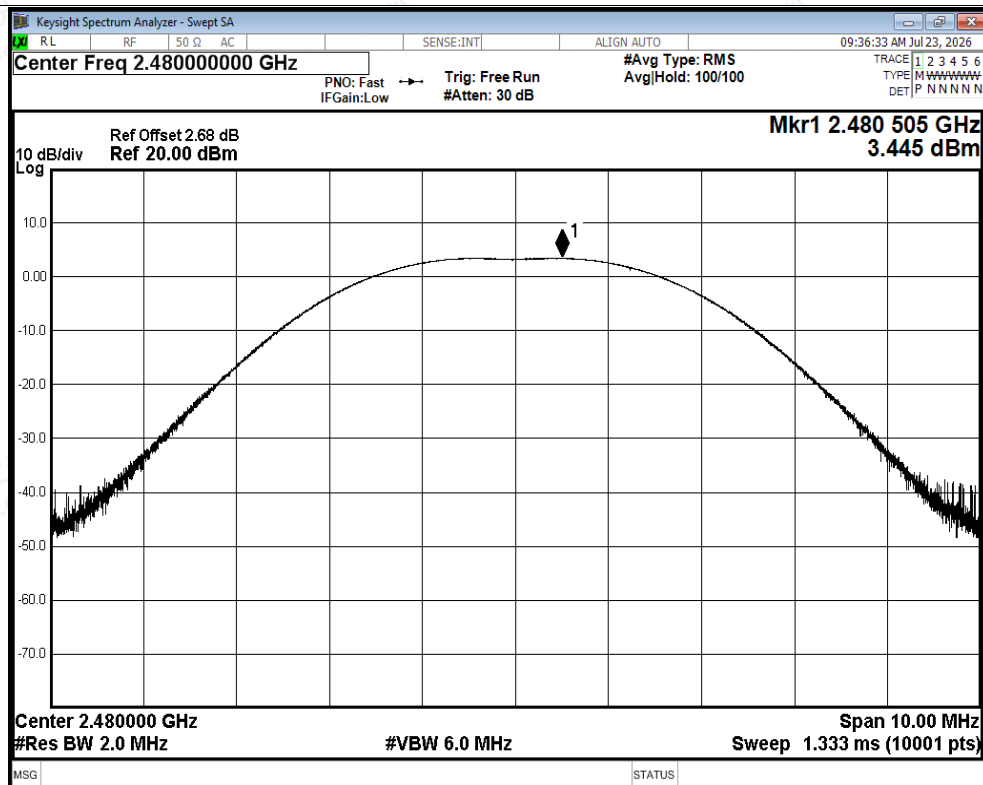
Peak Power NVNT BLE 1M 2480MHz Ant1



Peak Power NVNT BLE 2M 2402MHz Ant1



Peak Power NVNT BLE 2M 2440MHz Ant1

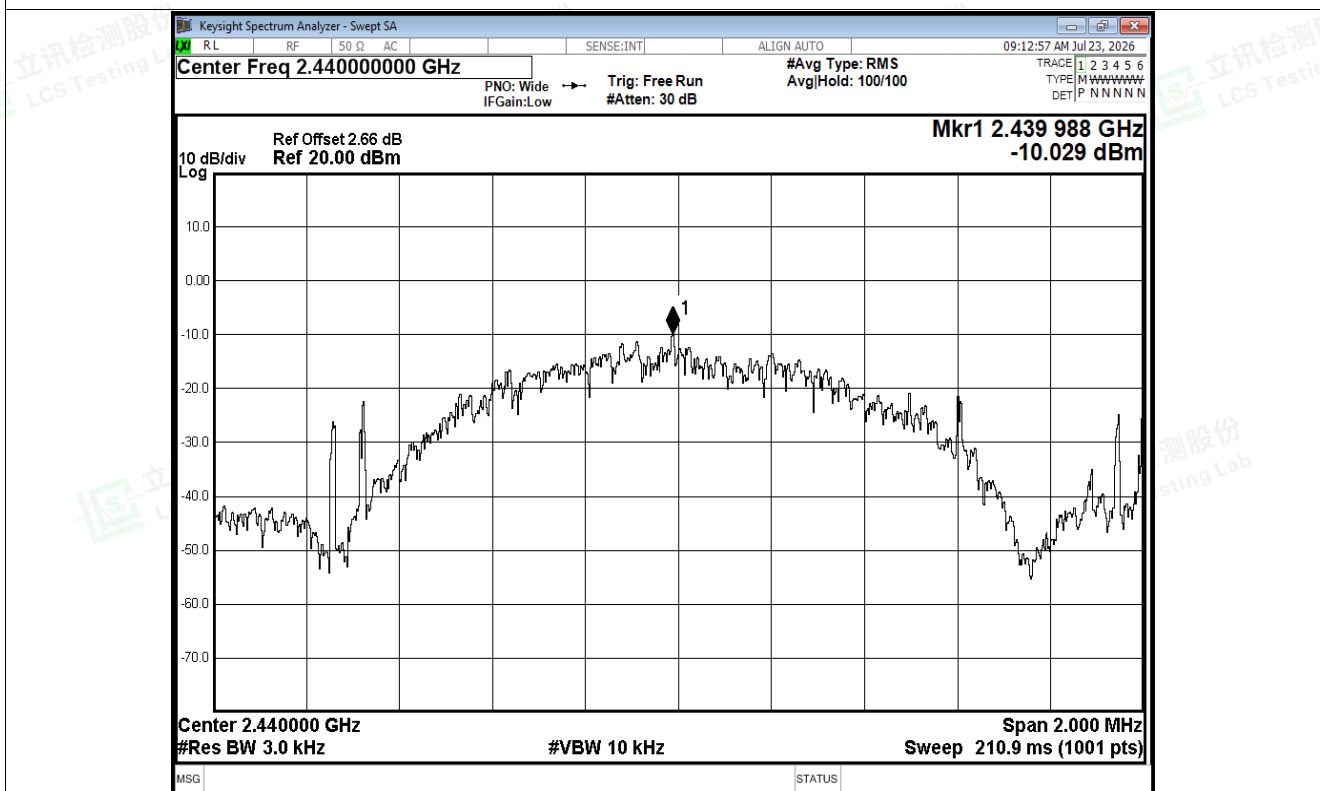
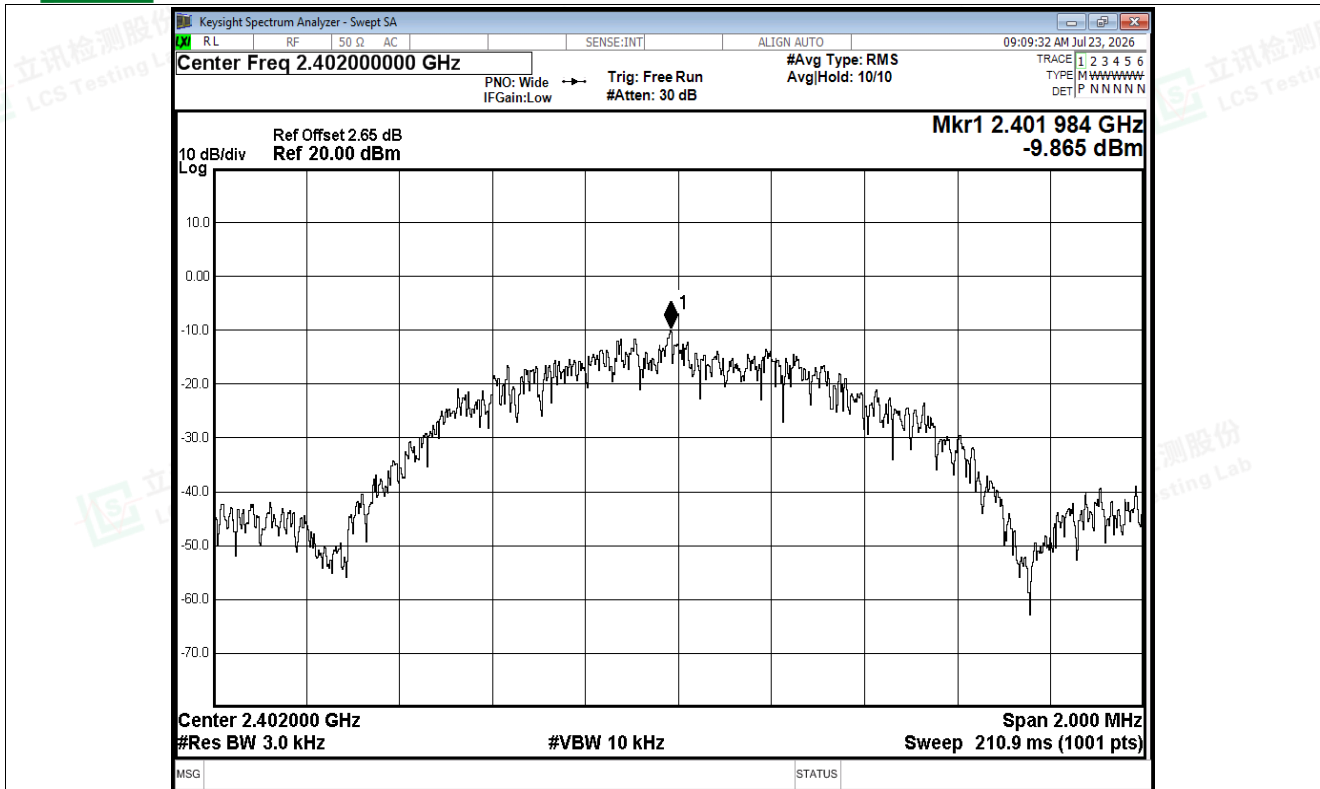


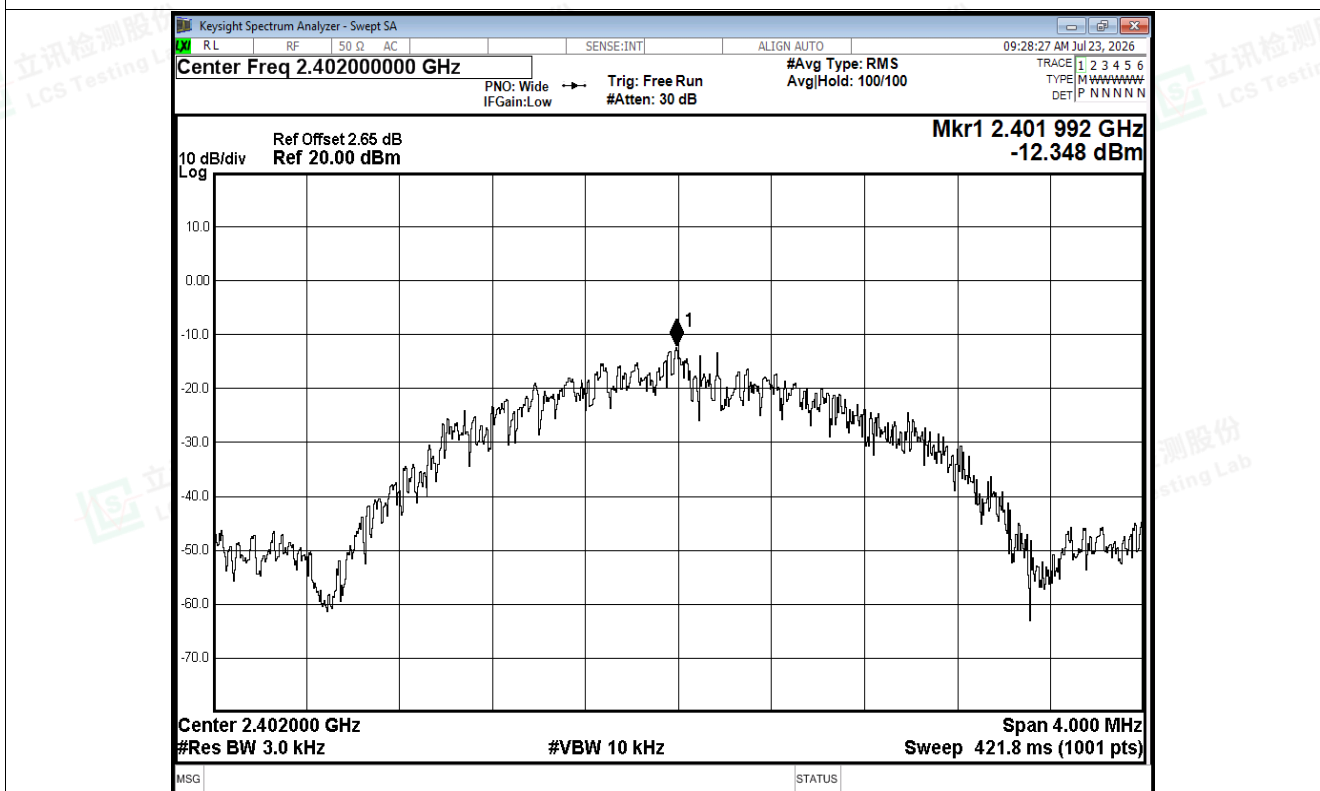
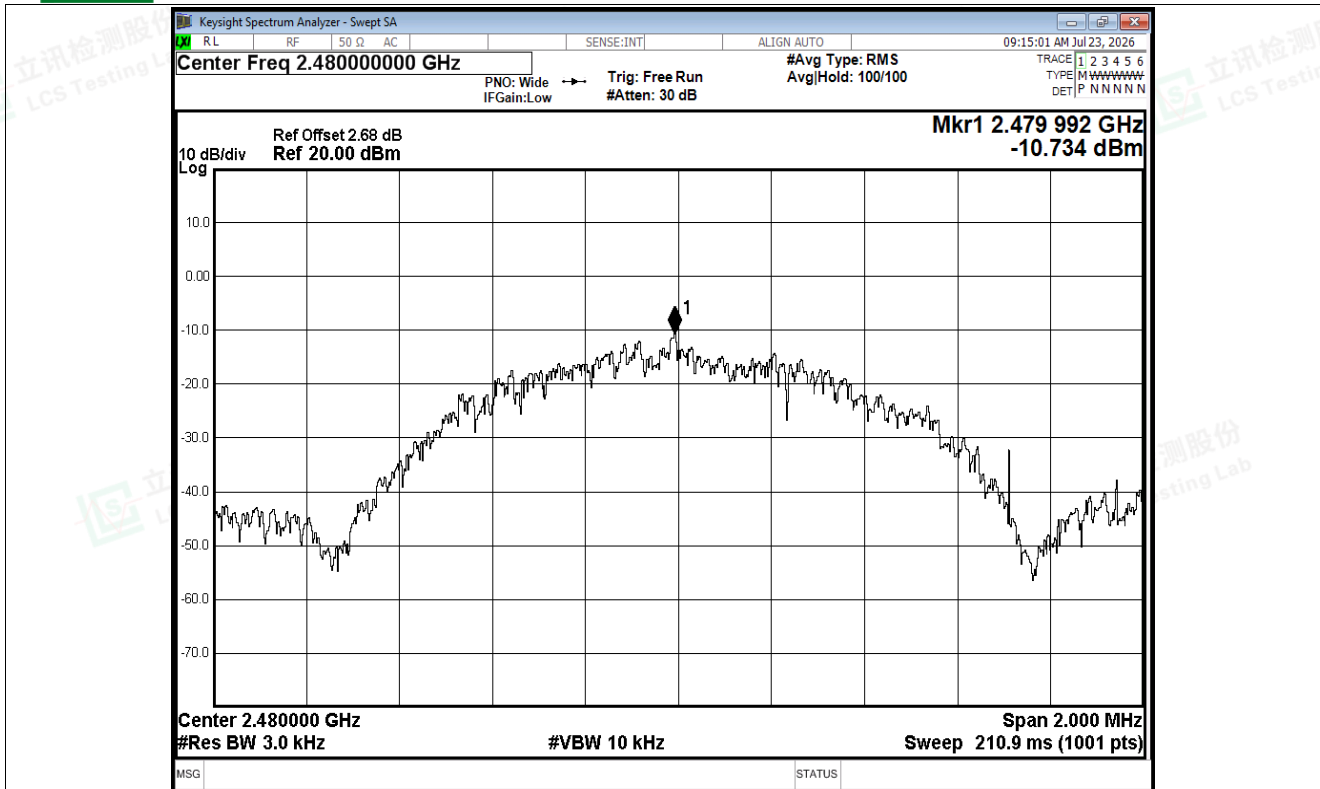
Peak Power NVNT BLE 2M 2480MHz Ant1

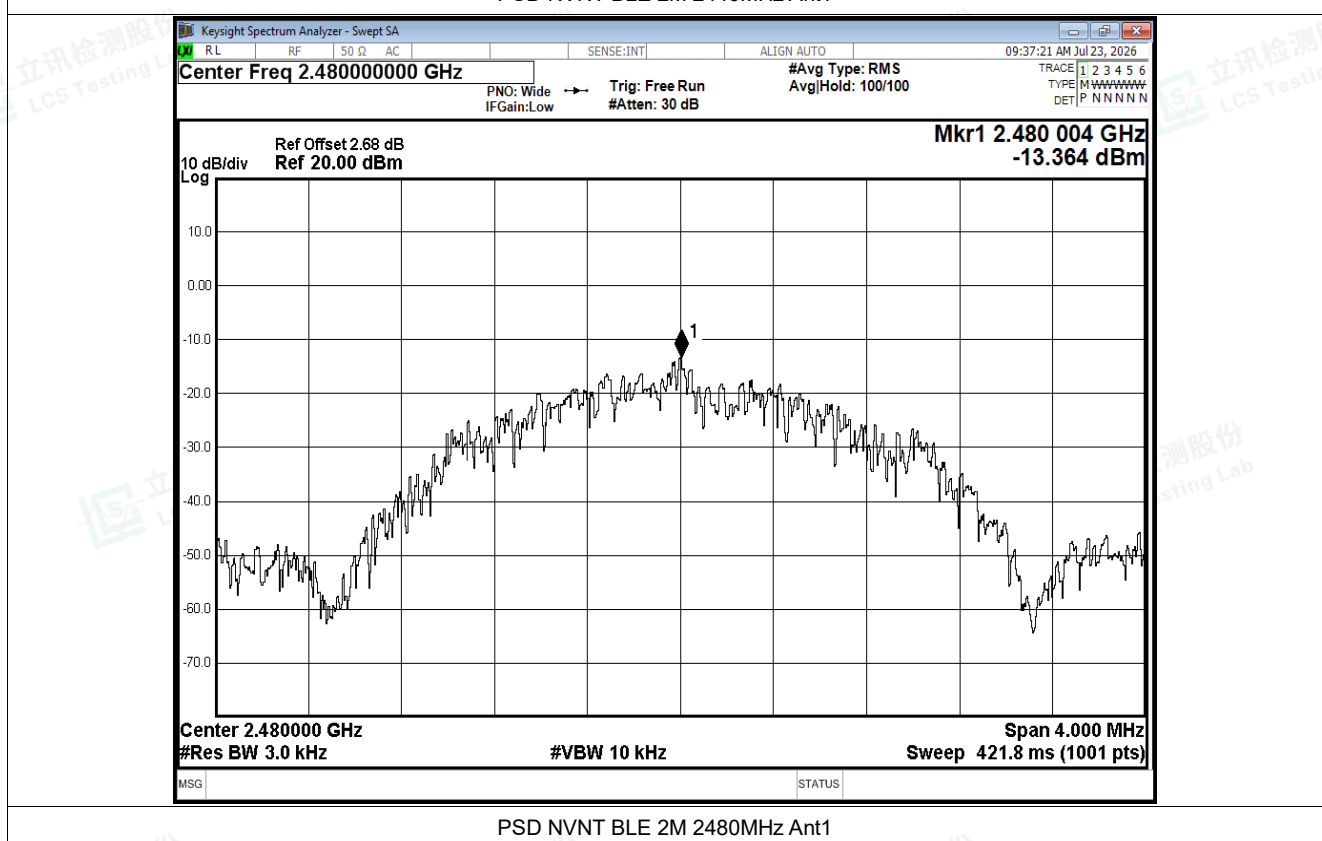
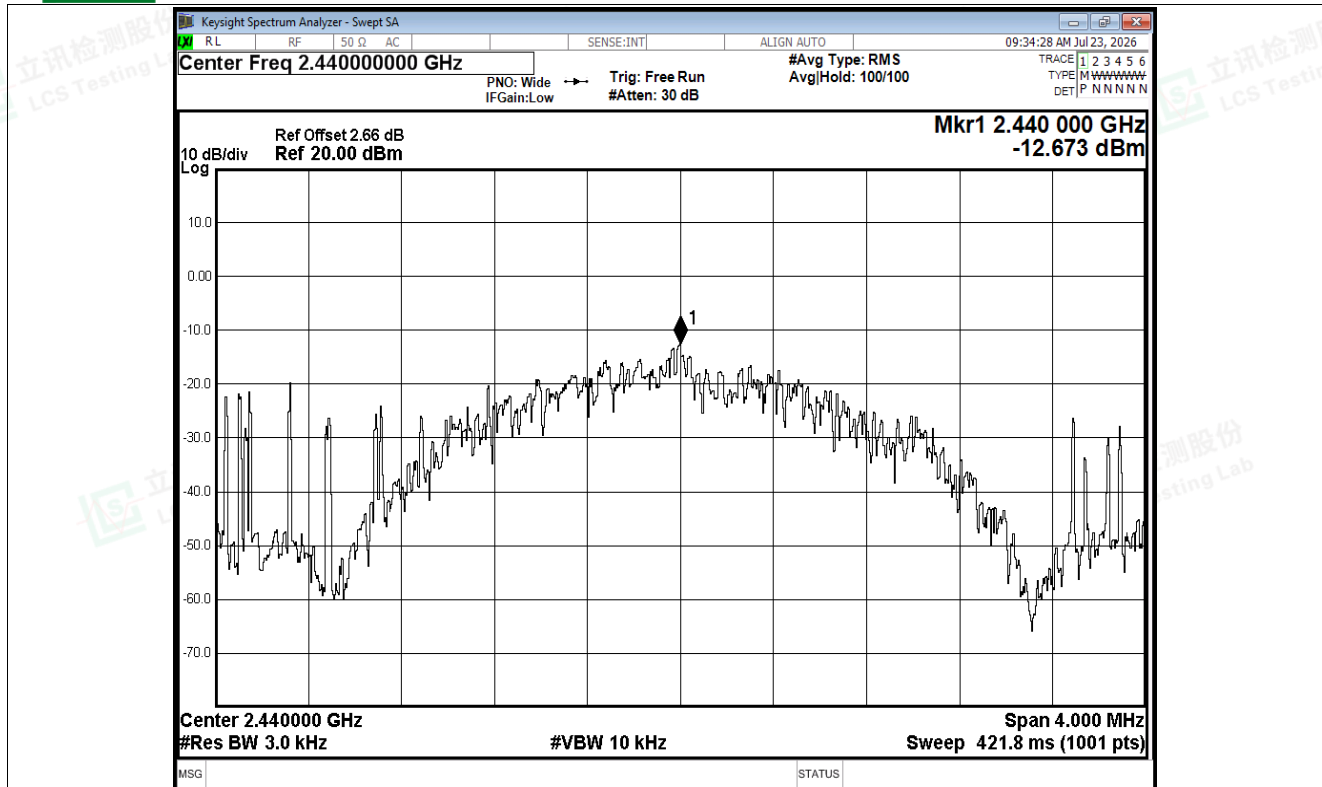


B.3 Maximum Power Spectral Density Level

Condition	Mode	Frequency (MHz)	Antenna	Conducted PSD (dBm/3kHz)	Duty Factor (dB)	Total PSD (dBm/3kHz)	Limit (dBm/3kHz)	Verdict
NVNT	BLE 1M	2402	Ant1	-9.87	0	-9.87	8	Pass
NVNT	BLE 1M	2440	Ant1	-10.03	0	-10.03	8	Pass
NVNT	BLE 1M	2480	Ant1	-10.73	0	-10.73	8	Pass
NVNT	BLE 2M	2402	Ant1	-12.35	0	-12.35	8	Pass
NVNT	BLE 2M	2440	Ant1	-12.67	0	-12.67	8	Pass
NVNT	BLE 2M	2480	Ant1	-13.36	0	-13.36	8	Pass



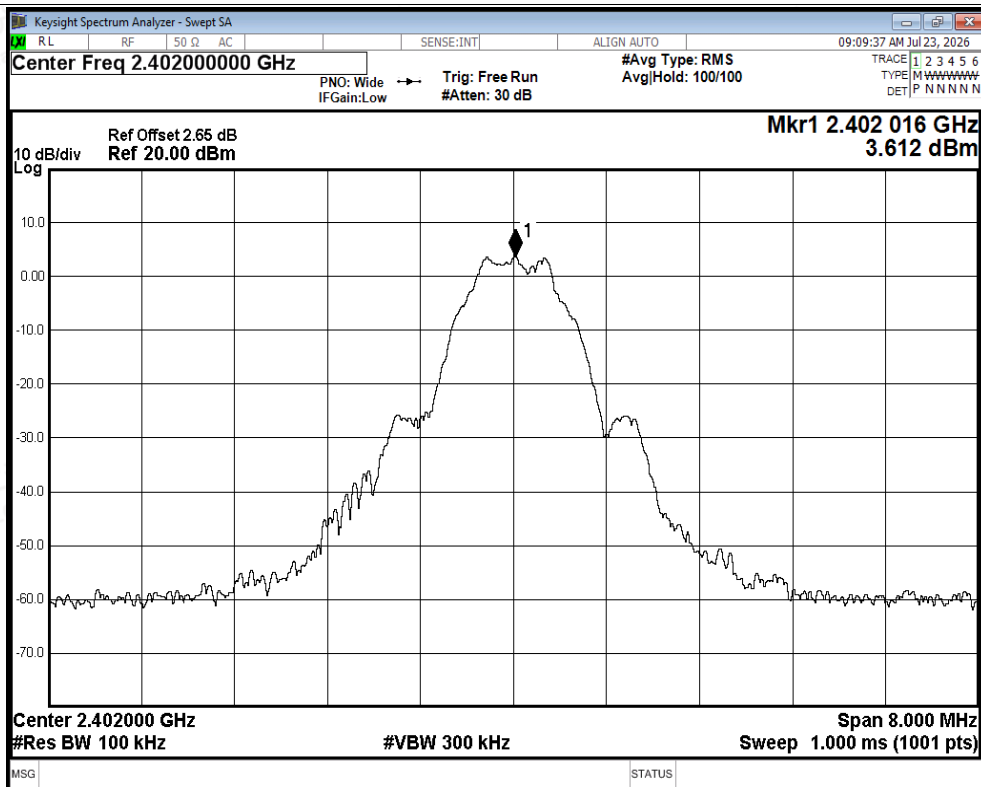




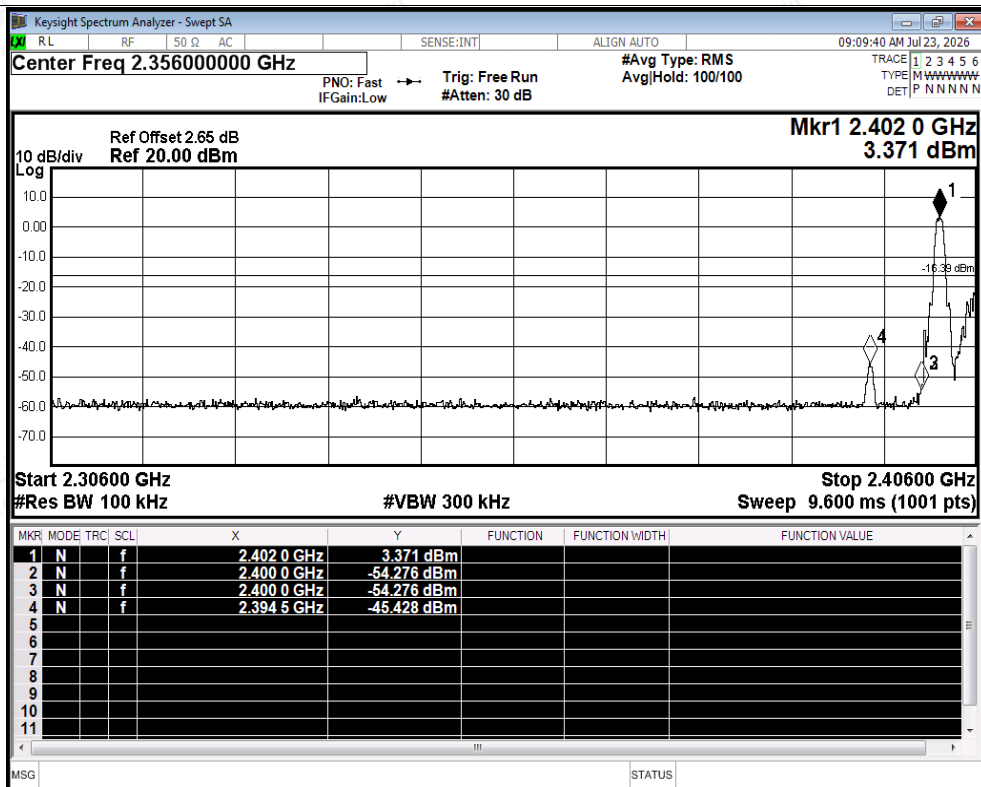


B.4 Band Edge

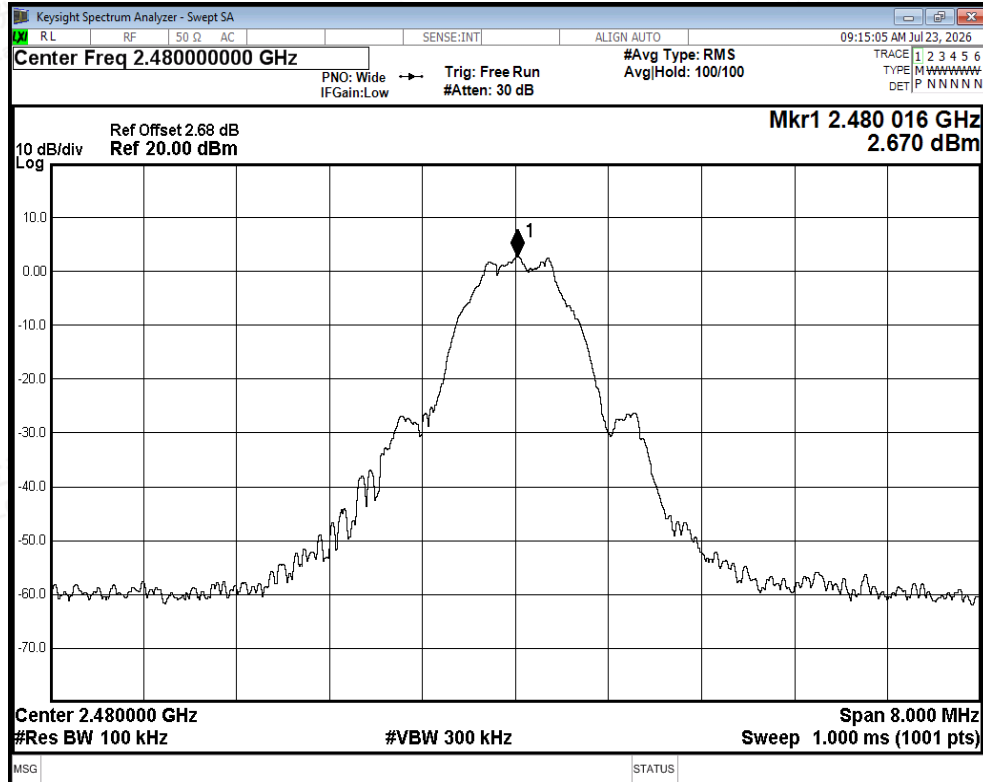
Condition	Mode	Frequency (MHz)	Antenna	Max Value (dBc)	Limit (dBc)	Verdict
NVNT	BLE 1M	2402	Ant1	-49.03	-20	Pass
NVNT	BLE 1M	2480	Ant1	-56.65	-20	Pass
NVNT	BLE 2M	2402	Ant1	-28.27	-20	Pass
NVNT	BLE 2M	2480	Ant1	-59.21	-20	Pass



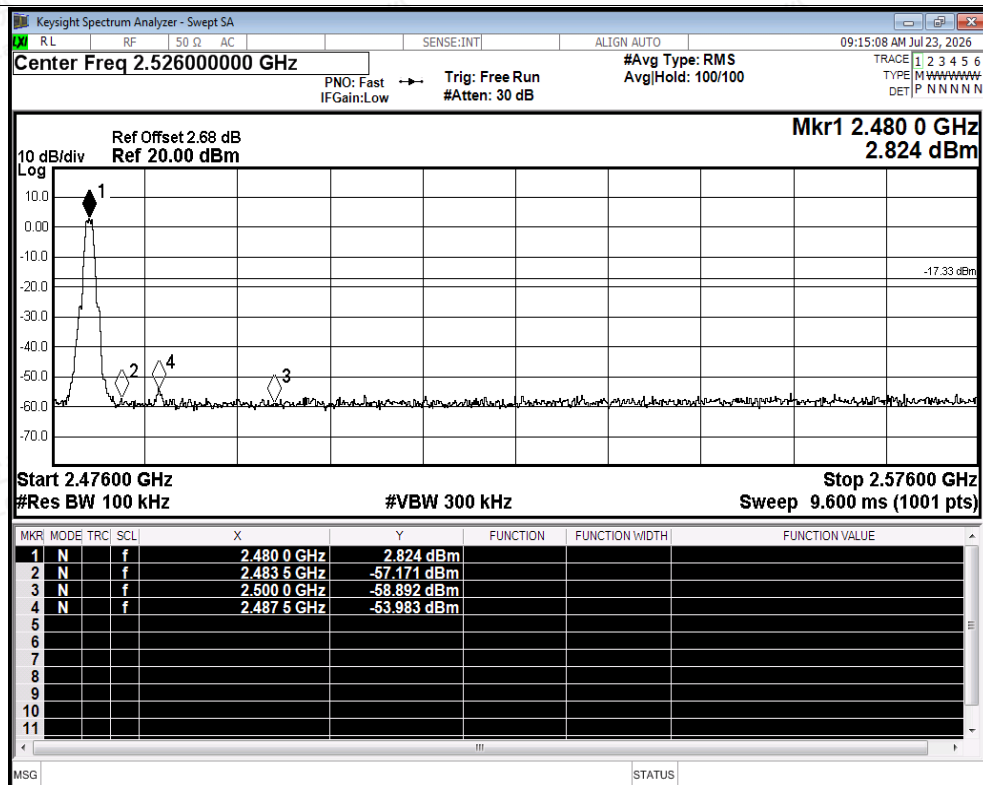
Band Edge NVNT BLE 1M 2402MHz Ant1 Ref



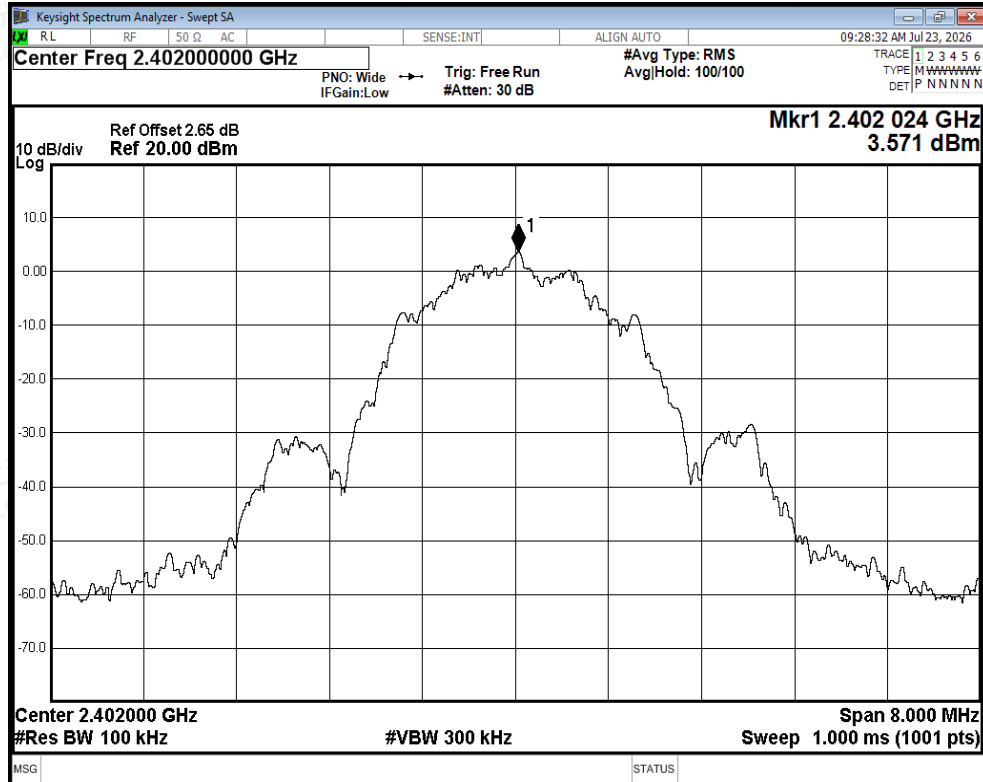
Band Edge NVNT BLE 1M 2402MHz Ant1 Emission



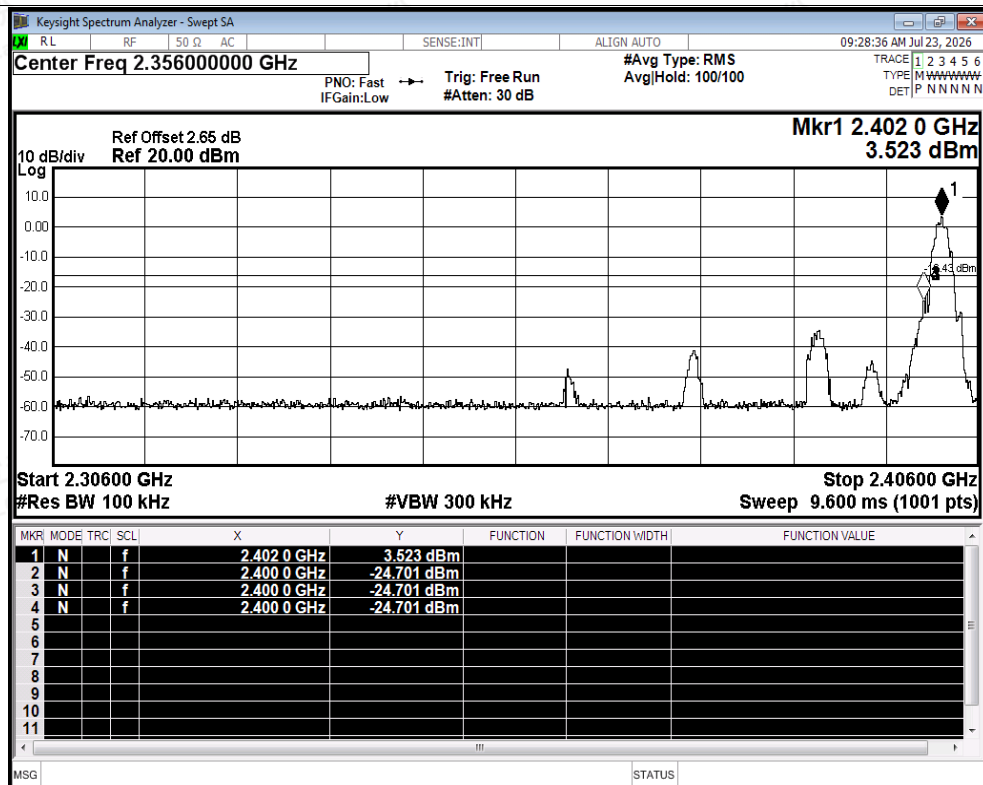
Band Edge NVNT BLE 1M 2480MHz Ant1 Ref



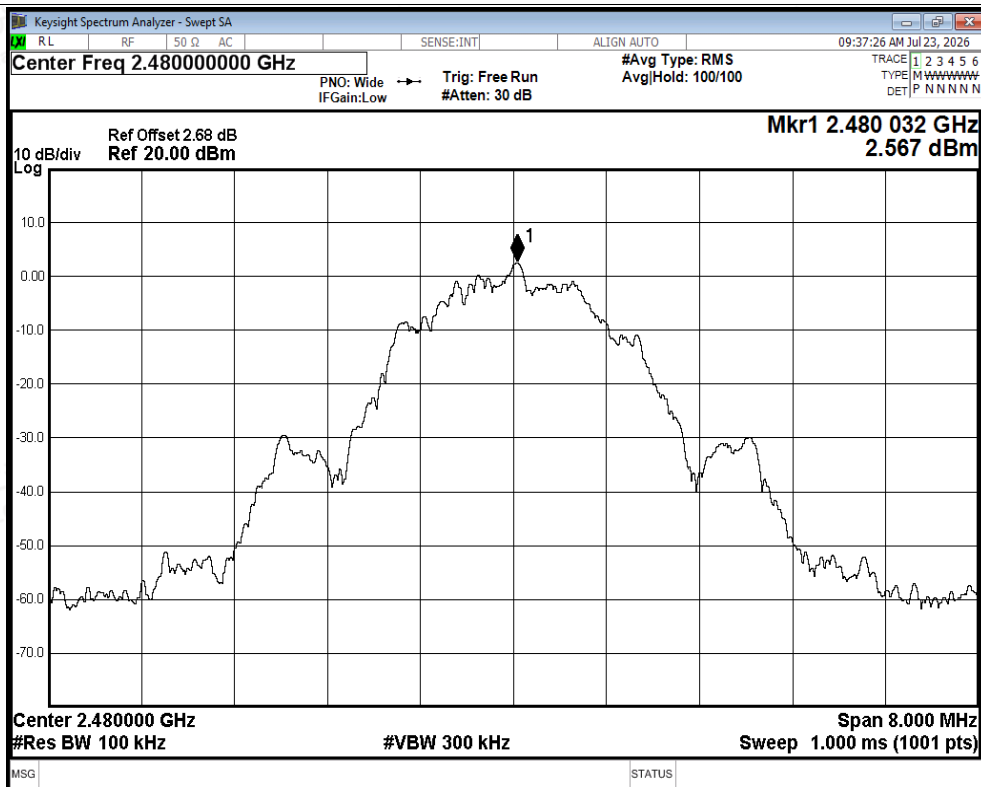
Band Edge NVNT BLE 1M 2480MHz Ant1 Emission



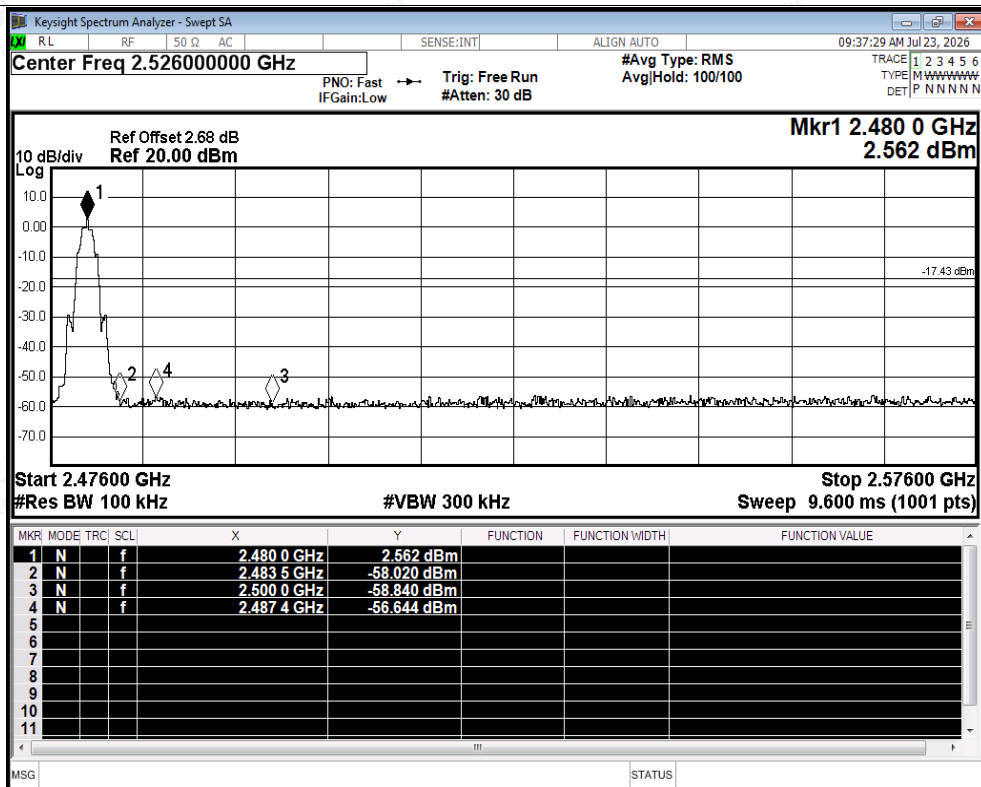
Band Edge NVNT BLE 2M 2402MHz Ant1 Ref



Band Edge NVNT BLE 2M 2402MHz Ant1 Emission



Band Edge NVNT BLE 2M 2480MHz Ant1 Ref

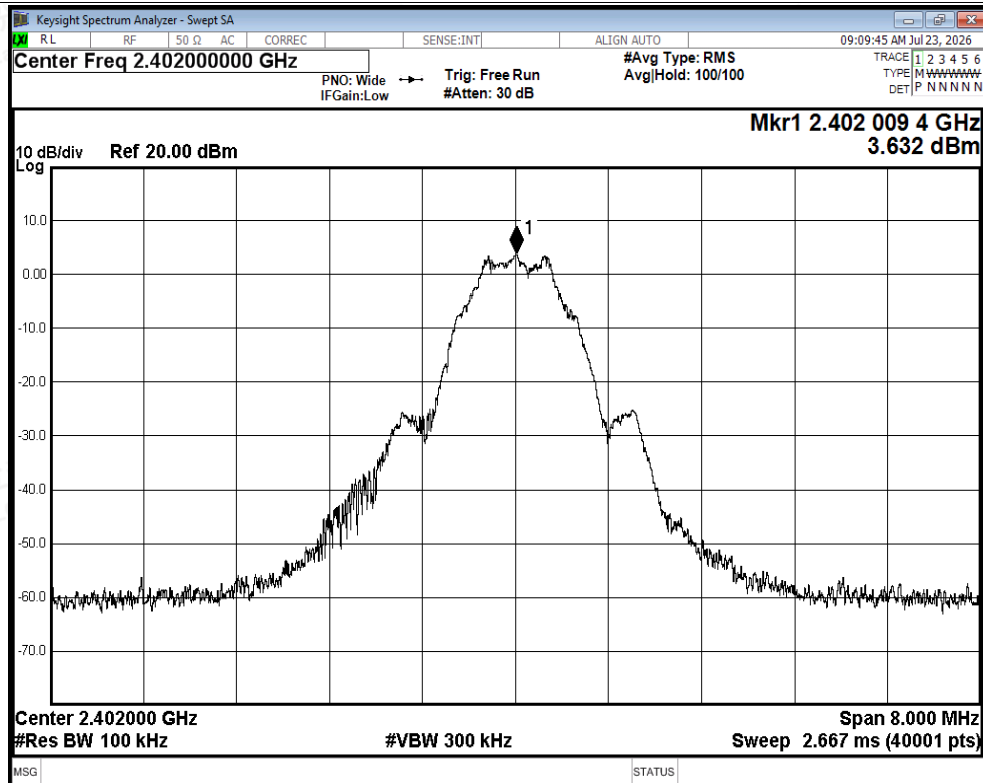


Band Edge NVNT BLE 2M 2480MHz Ant1 Emission

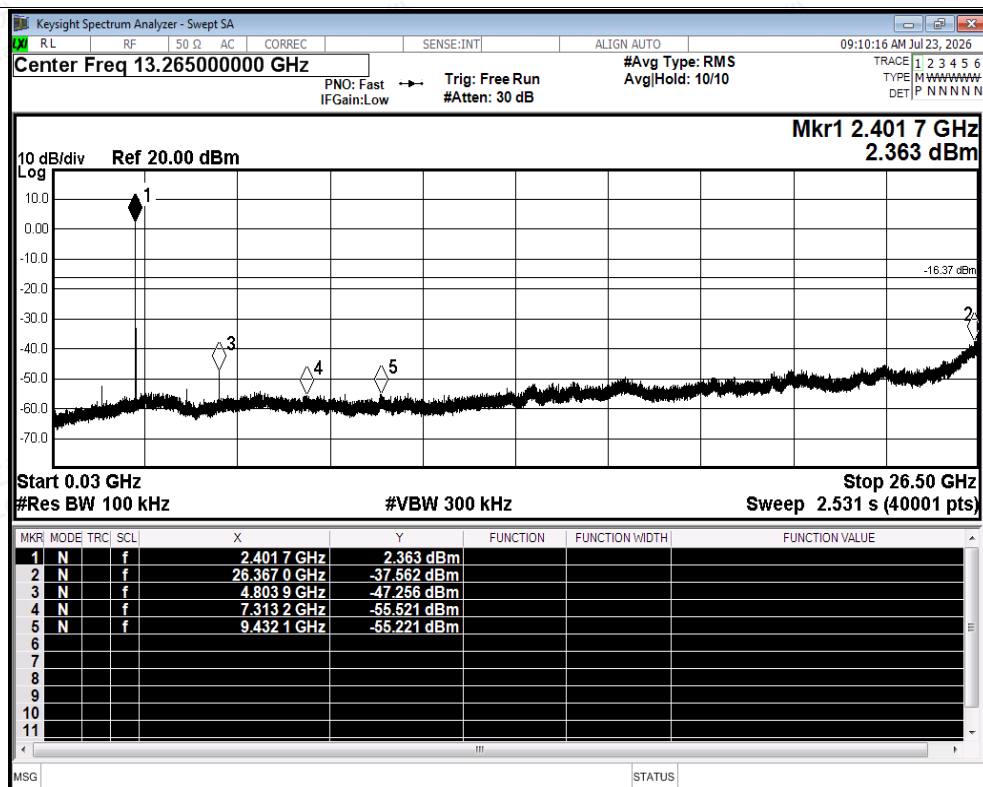


B.5 Conducted RF Spurious Emission

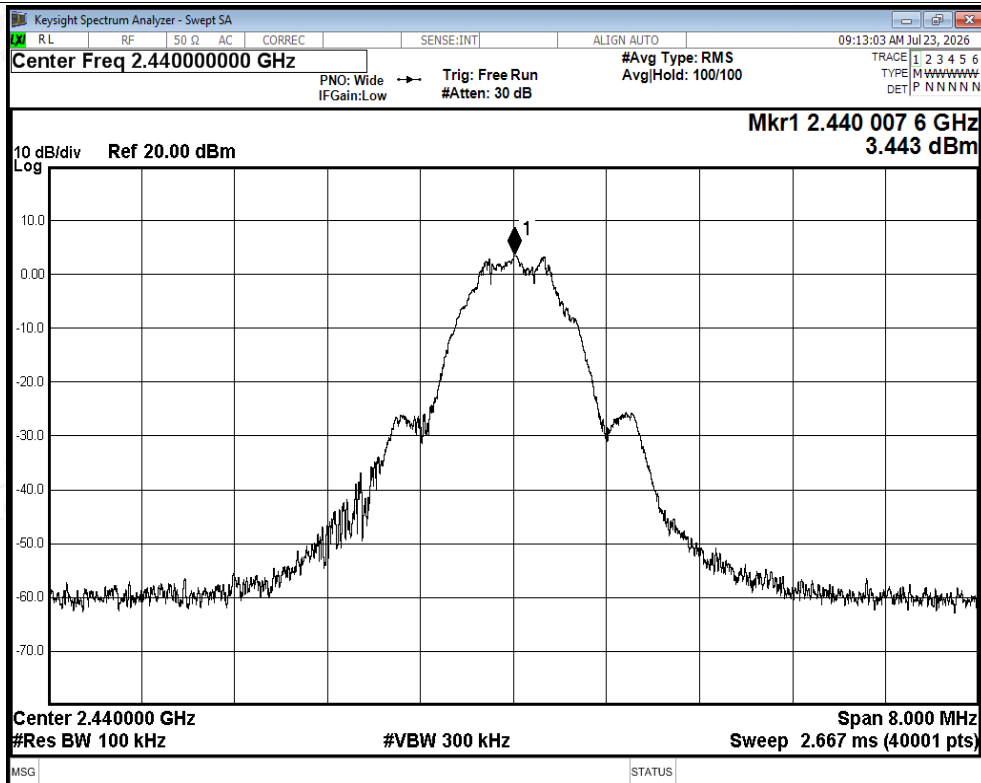
Condition	Mode	Frequency (MHz)	Antenna	Max Value (dBc)	Limit (dBc)	Verdict
NVNT	BLE 1M	2402	Ant1	-41.19	-20	Pass
NVNT	BLE 1M	2440	Ant1	-40.55	-20	Pass
NVNT	BLE 1M	2480	Ant1	-39.32	-20	Pass
NVNT	BLE 2M	2402	Ant1	-50.41	-20	Pass
NVNT	BLE 2M	2440	Ant1	-49.05	-20	Pass
NVNT	BLE 2M	2480	Ant1	-47.7	-20	Pass



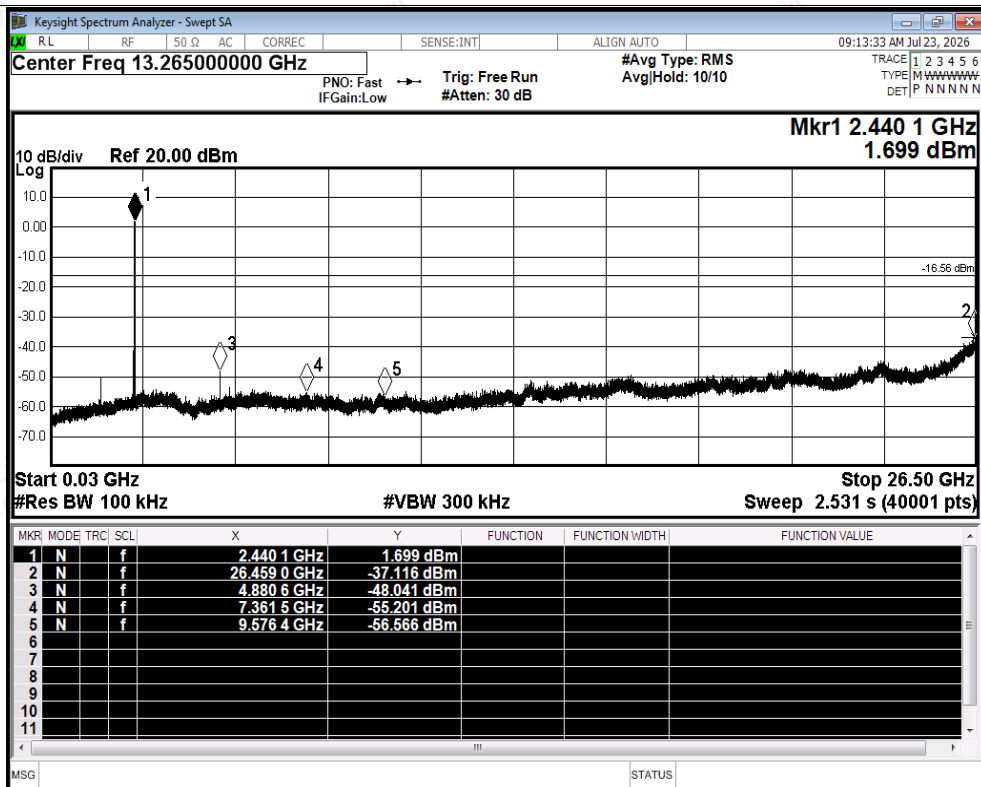
Tx. Spurious NVNT BLE 1M 2402MHz Ant1 Ref



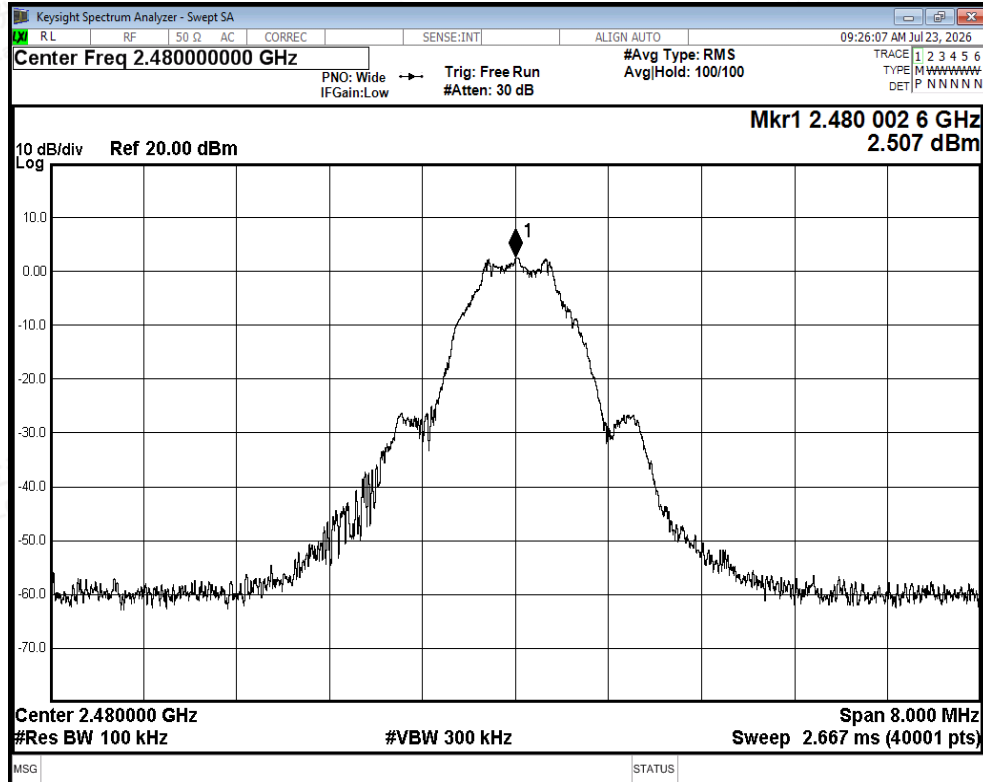
Tx. Spurious NVNT BLE 1M 2402MHz Ant1 Emission



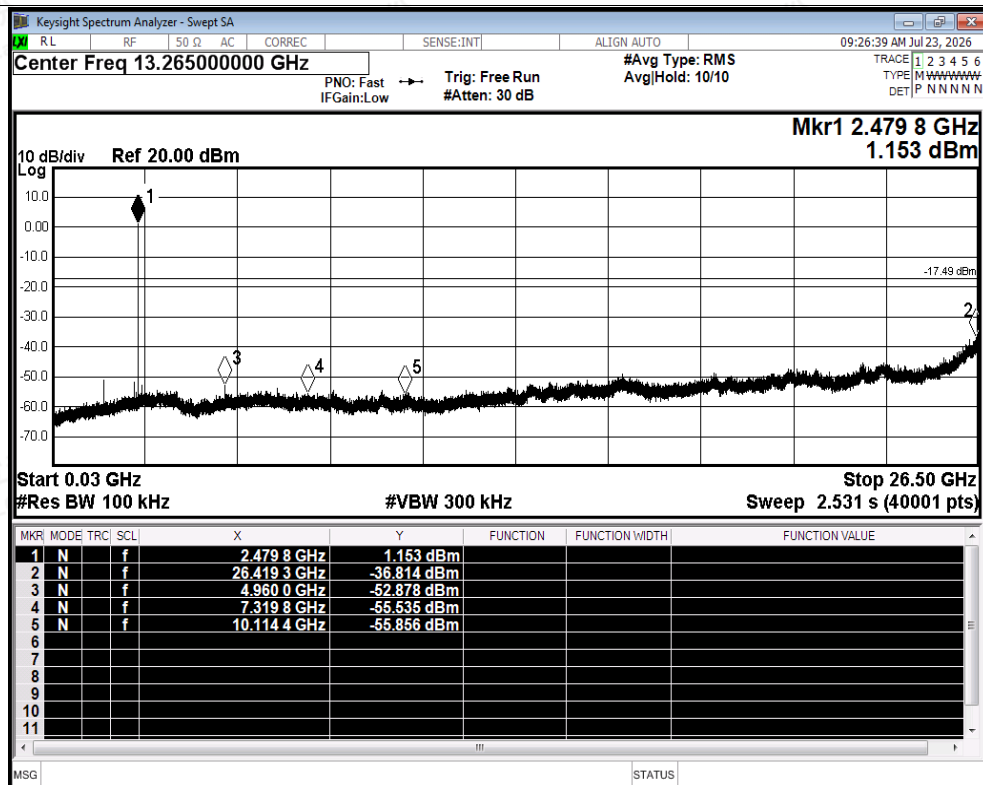
Tx. Spurious NVNT BLE 1M 2440MHz Ant1 Ref



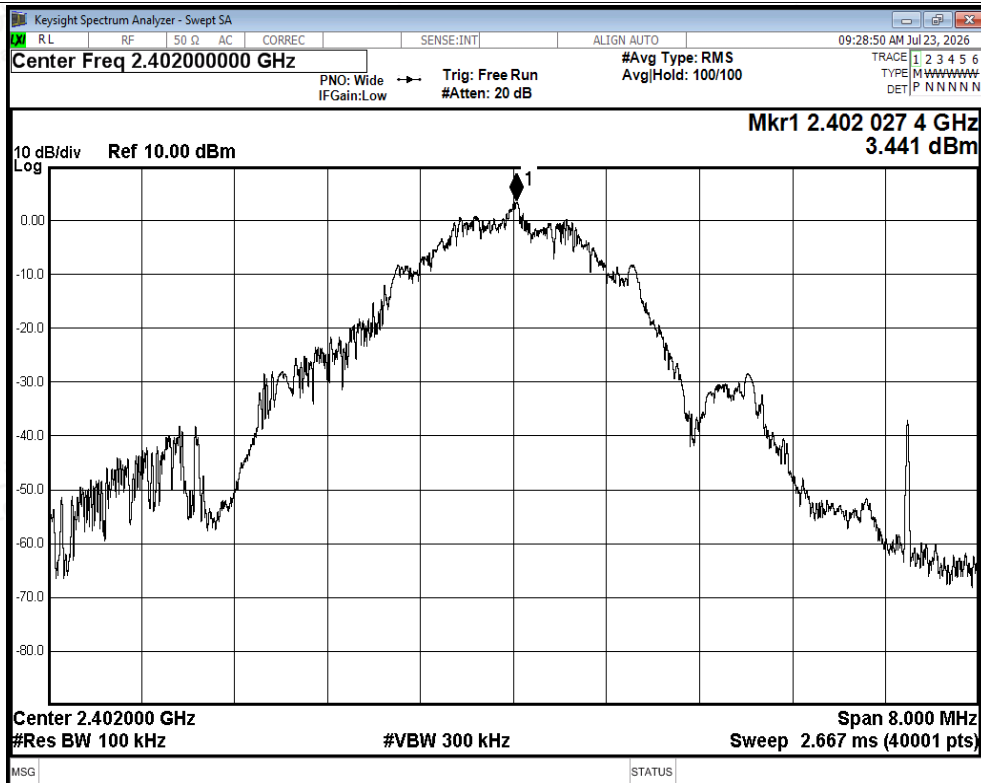
Tx. Spurious NVNT BLE 1M 2440MHz Ant1 Emission



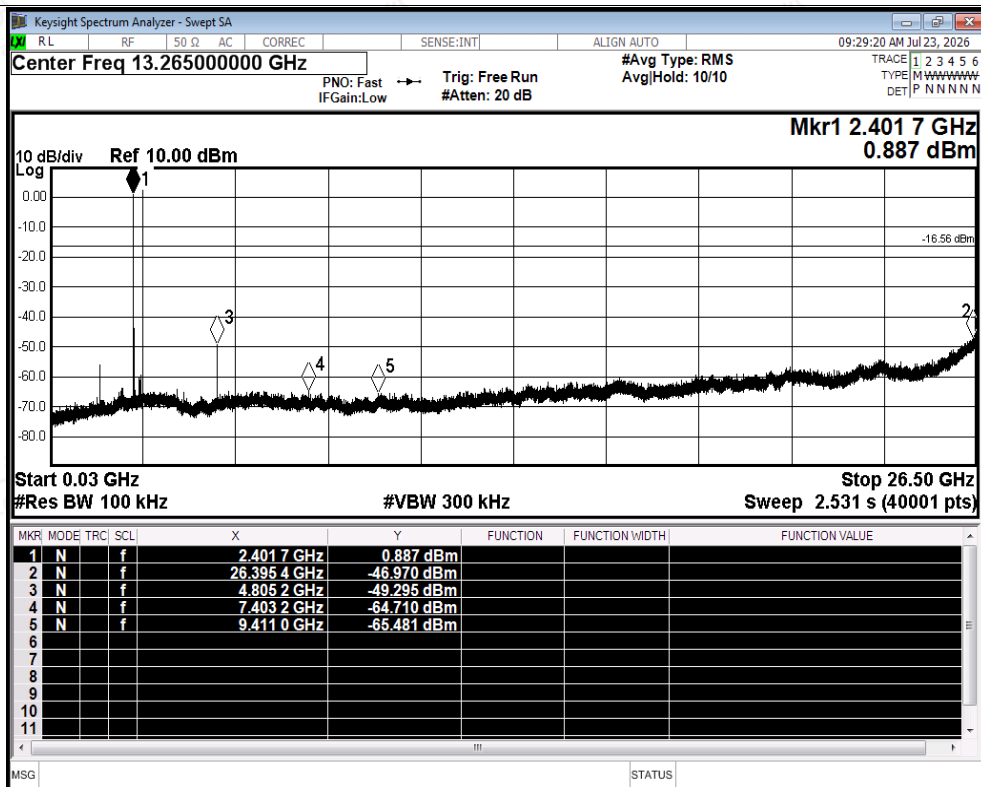
Tx. Spurious NVNT BLE 1M 2480MHz Ant1 Ref



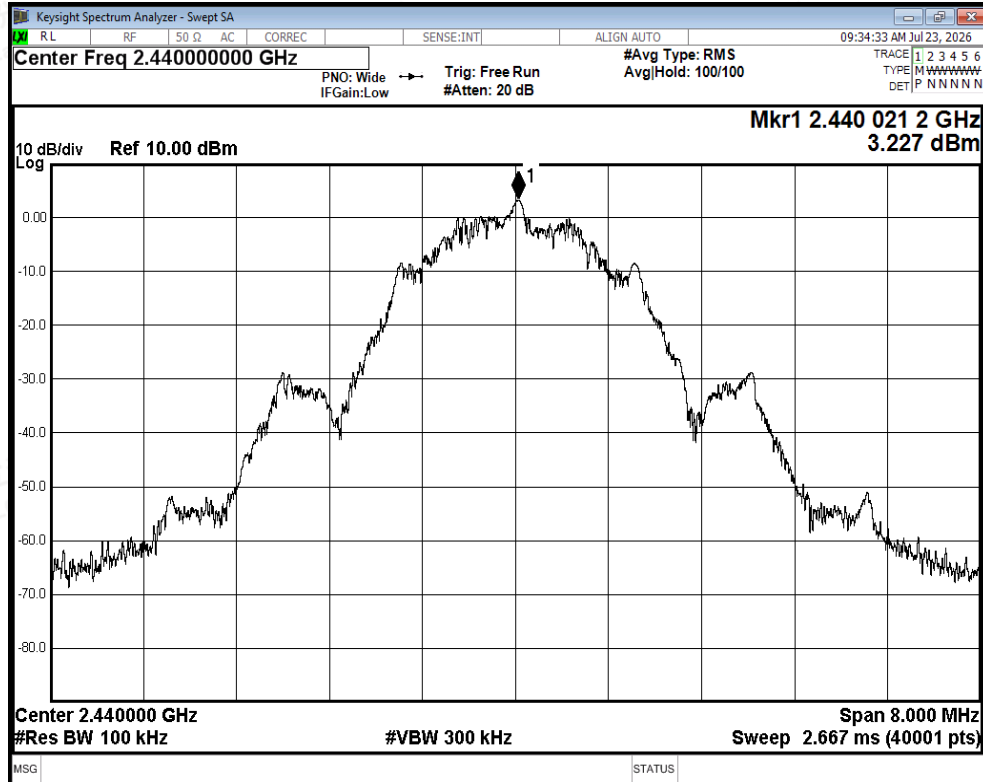
Tx. Spurious NVNT BLE 1M 2480MHz Ant1 Emission



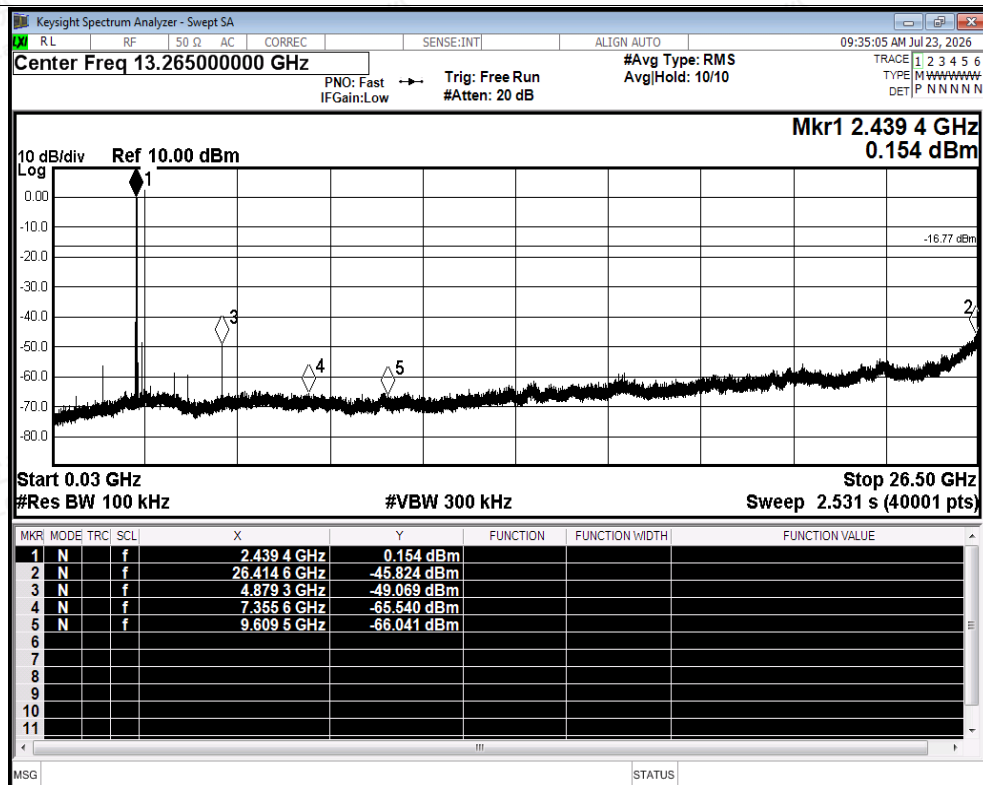
Tx. Spurious NVNT BLE 2M 2402MHz Ant1 Ref



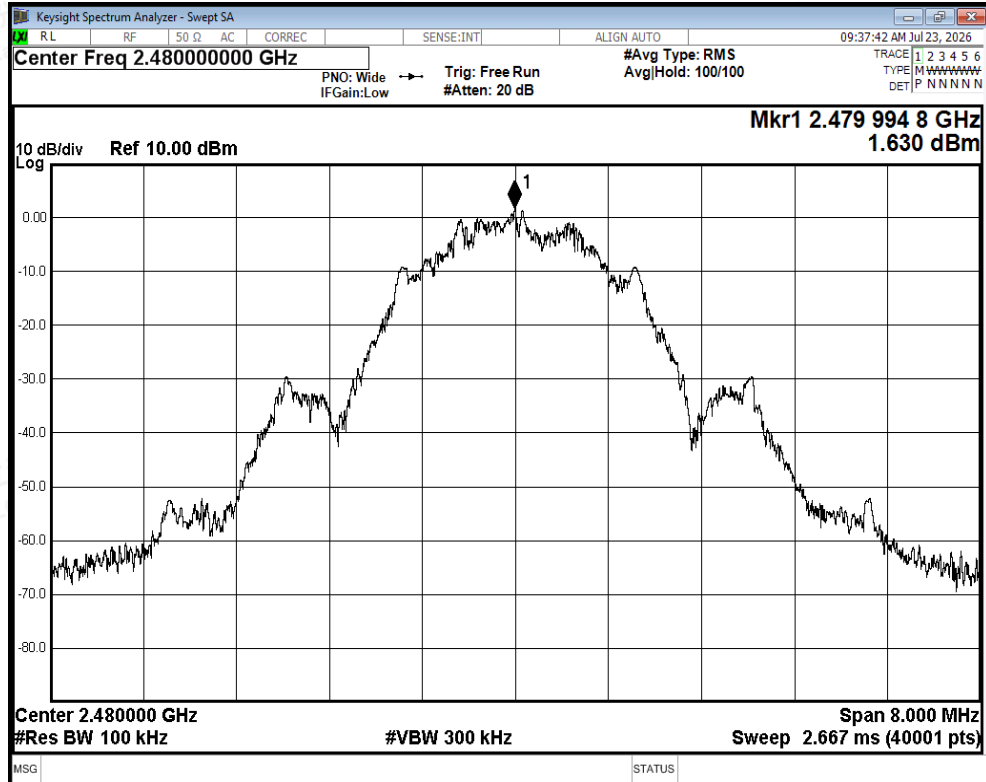
Tx. Spurious NVNT BLE 2M 2402MHz Ant1 Emission



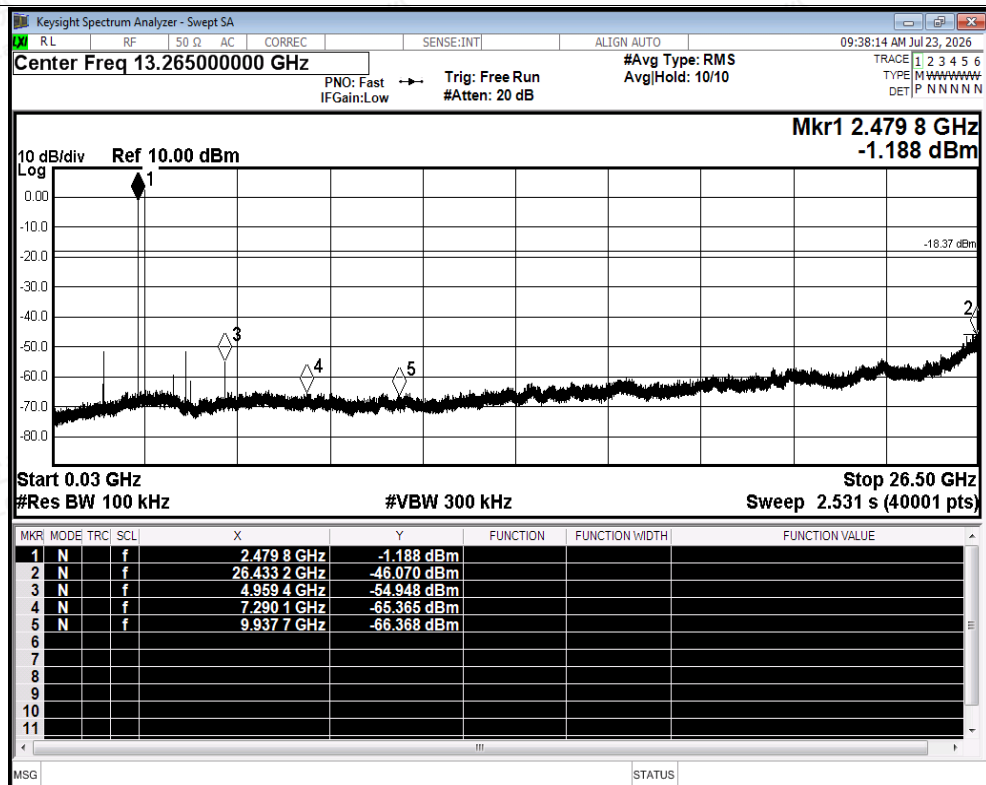
Tx. Spurious NVNT BLE 2M 2440MHz Ant1 Ref



Tx. Spurious NVNT BLE 2M 2440MHz Ant1 Emission



Tx. Spurious NVNT BLE 2M 2480MHz Ant1 Ref

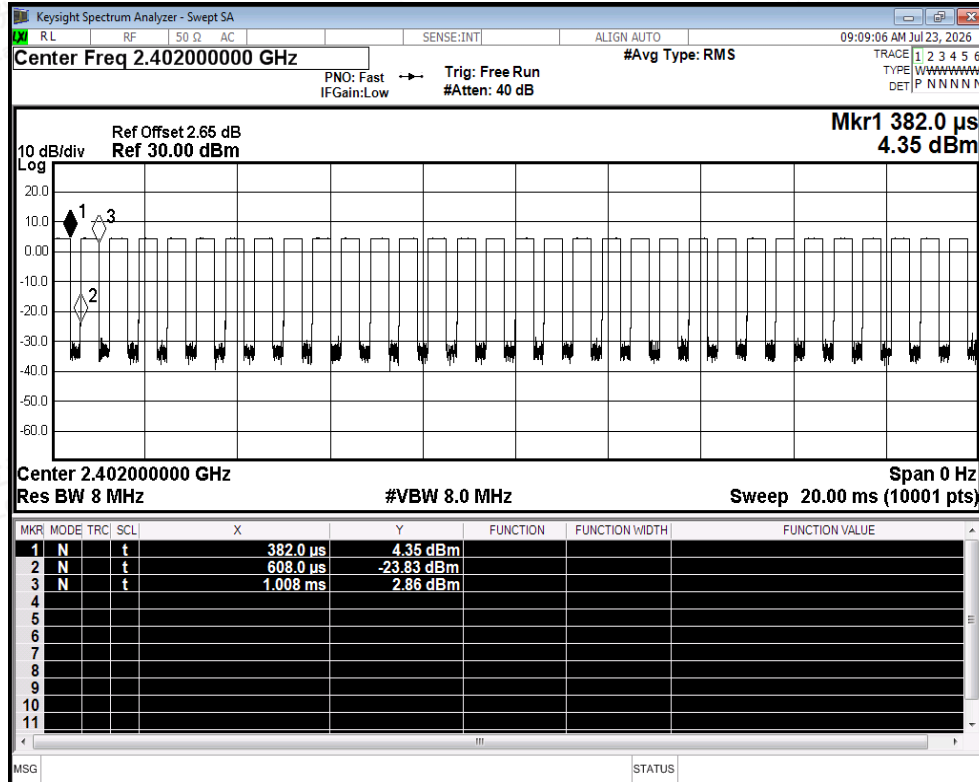


Tx. Spurious NVNT BLE 2M 2480MHz Ant1 Emission

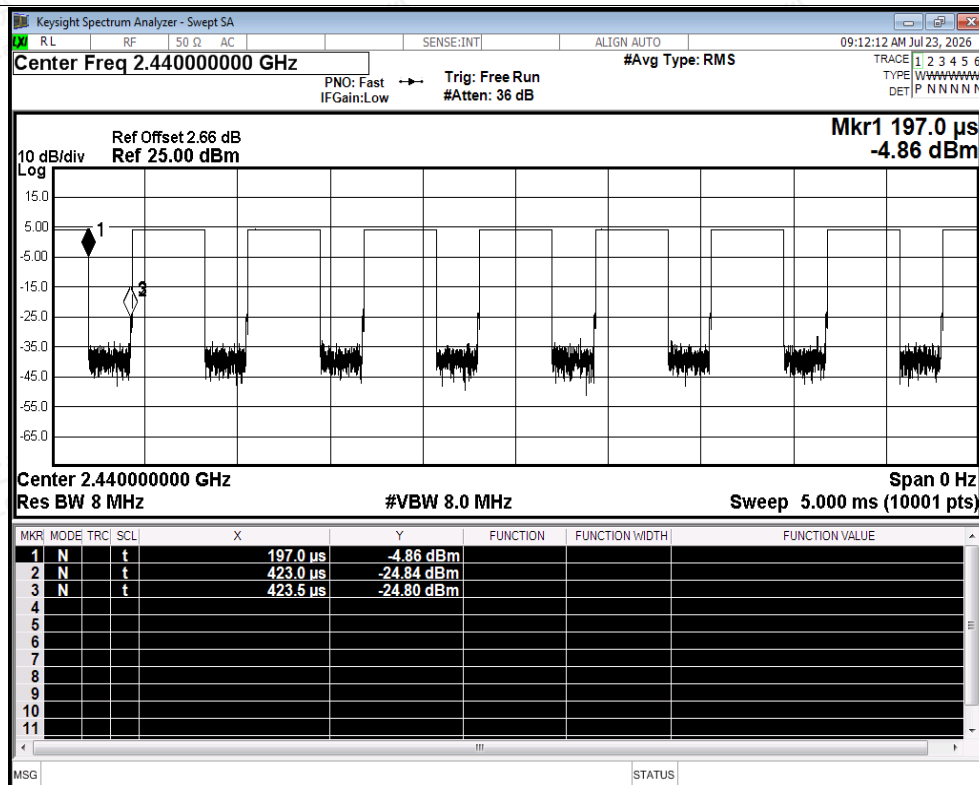


B.6 Duty Cycle

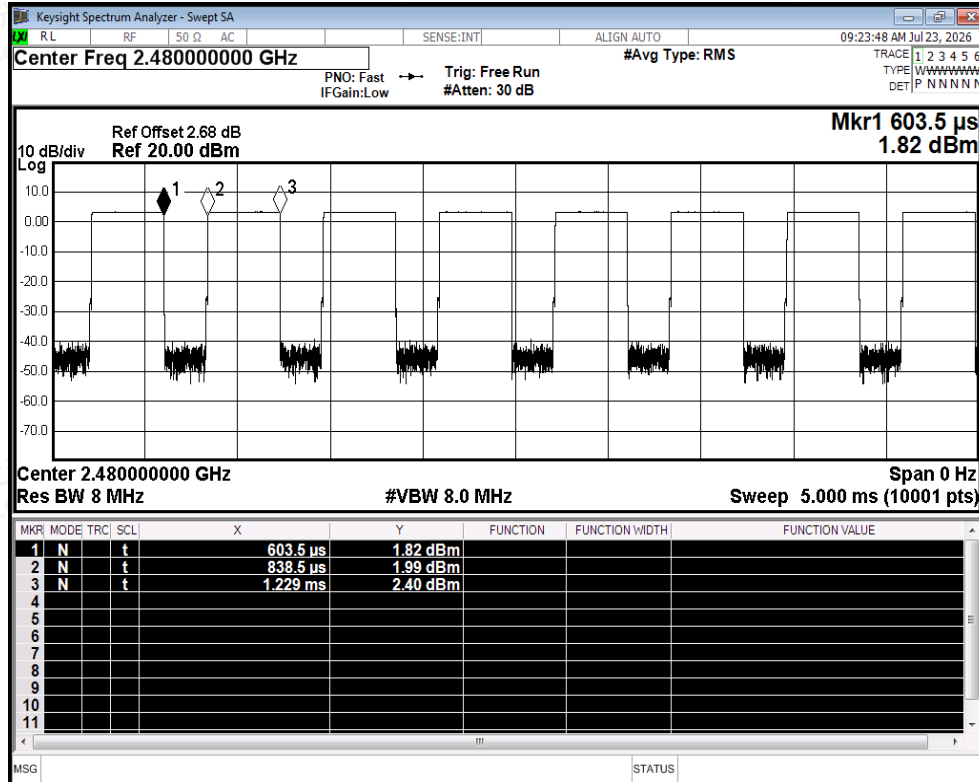
Condition	Mode	Frequency (MHz)	Antenna	Duty Cycle (%)	Correction Factor (dB)	1/T (kHz)
NVNT	BLE 1M	2402	Ant1	63.9	1.95	2.5
NVNT	BLE 1M	2440	Ant1	62.4	2.05	2.56
NVNT	BLE 1M	2480	Ant1	62.4	2.05	2.56
NVNT	BLE 2M	2402	Ant1	32.96	4.82	4.85
NVNT	BLE 2M	2440	Ant1	32.96	4.82	4.85
NVNT	BLE 2M	2480	Ant1	32.88	4.83	4.87



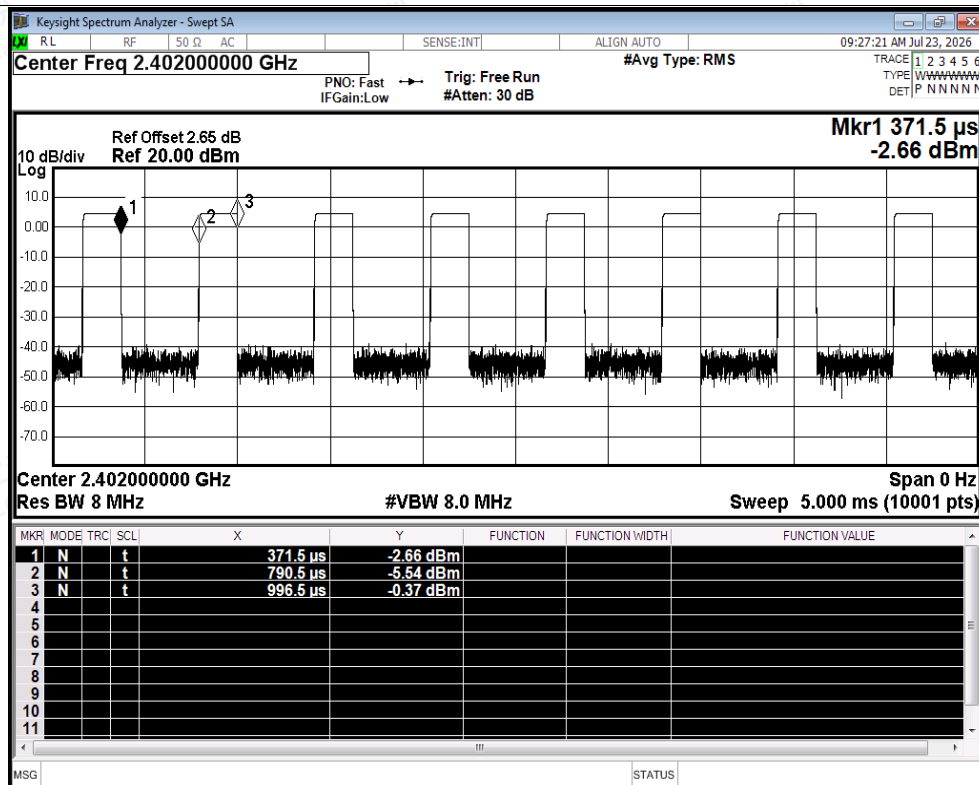
Duty Cycle NVNT BLE 1M 2402MHz Ant1



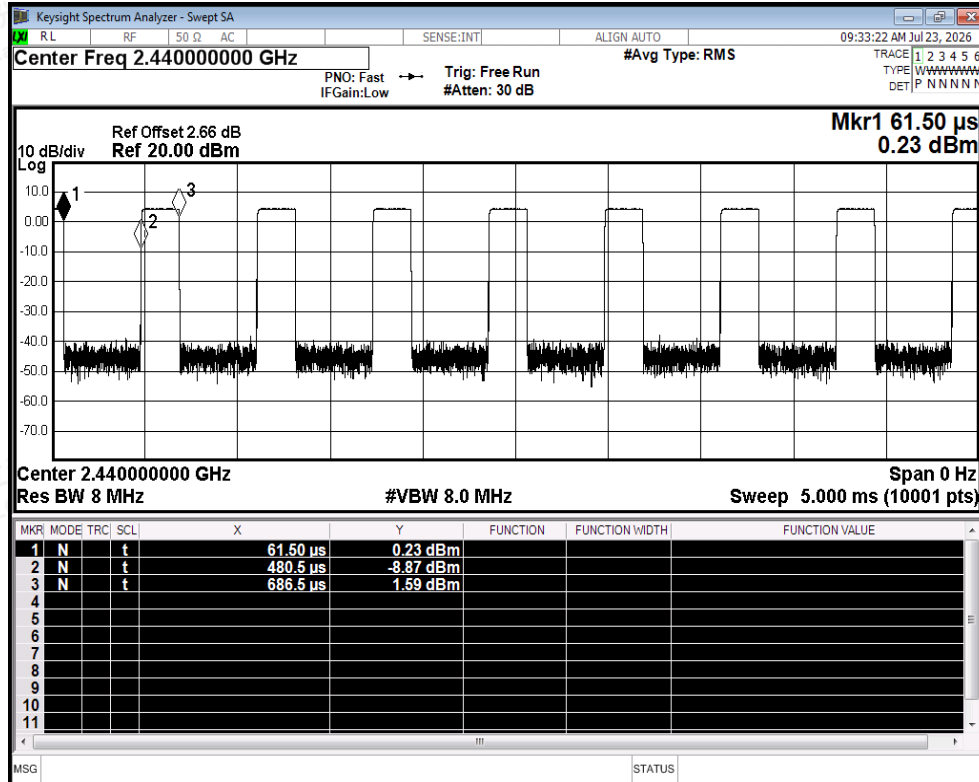
Duty Cycle NVNT BLE 1M 2440MHz Ant1



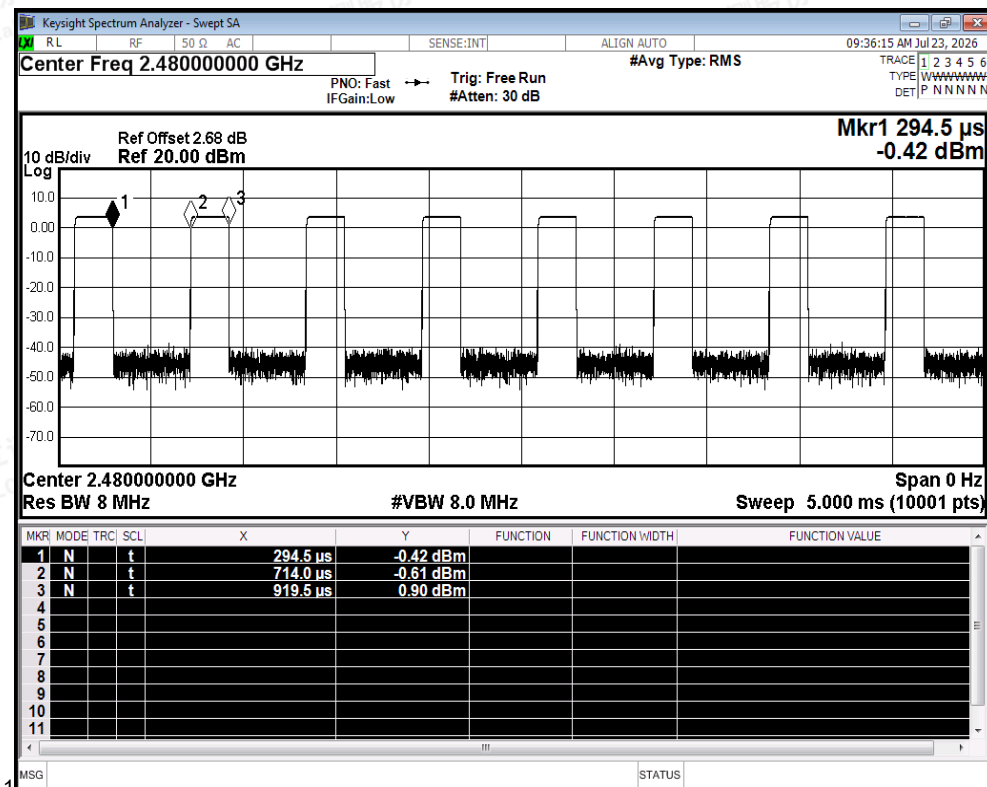
Duty Cycle NVNT BLE 1M 2480MHz Ant1



Duty Cycle NVNT BLE 2M 2402MHz Ant1



Duty Cycle NVNT BLE 2M 2440MHz Ant1

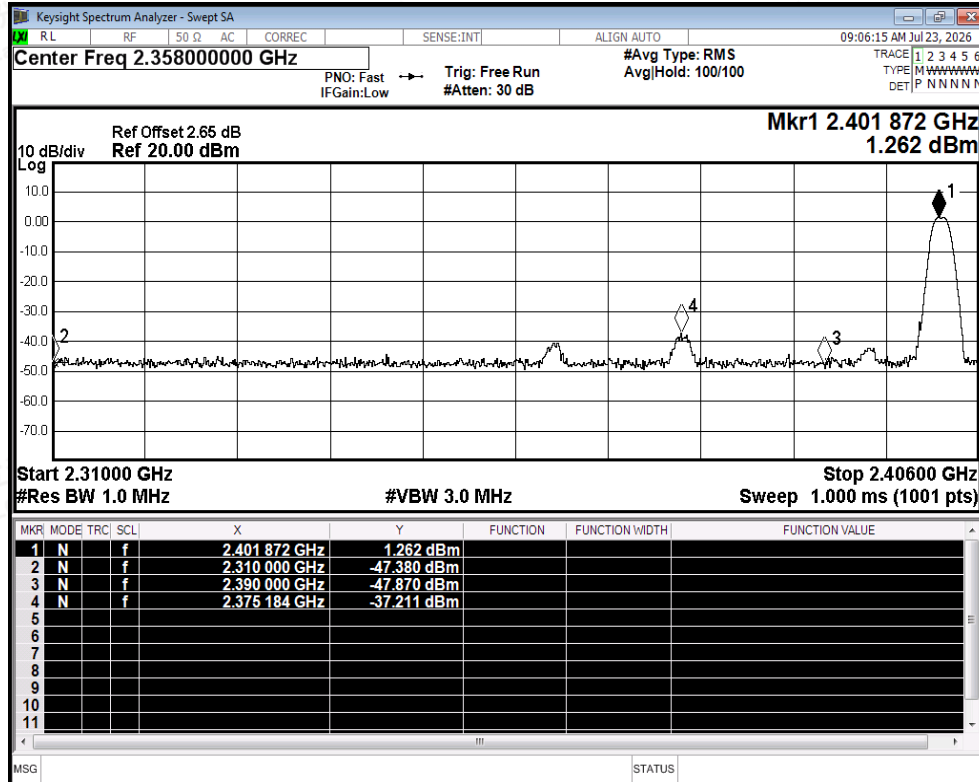


Duty Cycle NVNT BLE 2M 2480MHz Ant1

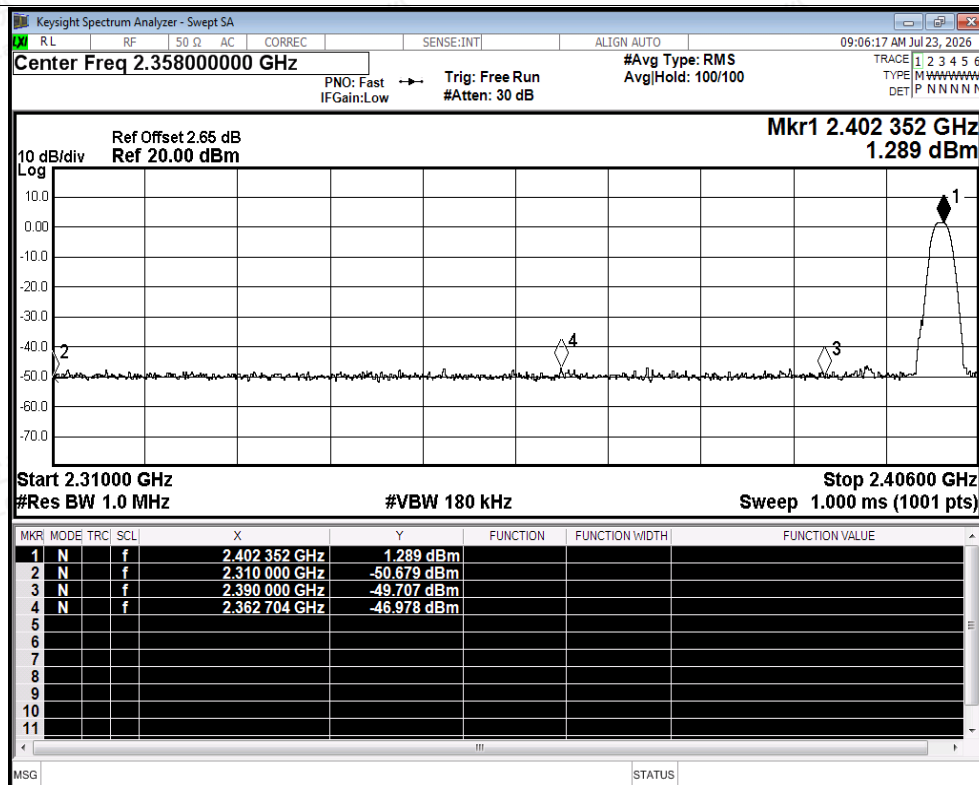


B.7 Restrict Band

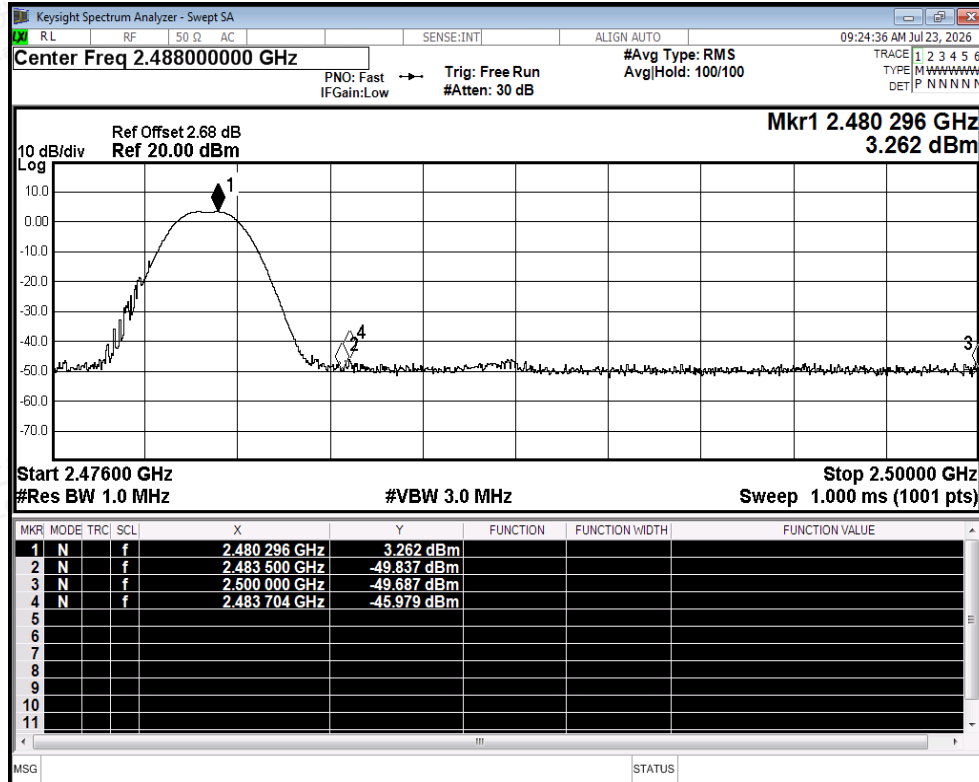
Condition	Mode	Frequency (MHz)	Antenna	Spur Freq (MHz)	Power (dBm)	Gain (dBi)	E (dBuV/m)	Detector	Limit (dBuV/m)	Verdict
NVNT	BLE 1M	2402	Ant1	2310	-47.37	2	49.89	Peak	74	Pass
NVNT	BLE 1M	2402	Ant1	2310	-50.67	2	46.59	Average	54	Pass
NVNT	BLE 1M	2402	Ant1	2375.184	-37.21	2	60.05	Peak	74	Pass
NVNT	BLE 1M	2402	Ant1	2362.704	-46.97	2	50.29	Average	54	Pass
NVNT	BLE 1M	2402	Ant1	2390	-49.1	2	48.16	Peak	74	Pass
NVNT	BLE 1M	2402	Ant1	2390	-50.53	2	46.73	Average	54	Pass
NVNT	BLE 1M	2480	Ant1	2483.5	-49.83	2	47.43	Peak	74	Pass
NVNT	BLE 1M	2480	Ant1	2483.5	-52.48	2	44.78	Average	54	Pass
NVNT	BLE 1M	2480	Ant1	2483.704	-45.97	2	51.29	Peak	74	Pass
NVNT	BLE 1M	2480	Ant1	2487.544	-47.17	2	50.09	Average	54	Pass
NVNT	BLE 1M	2480	Ant1	2500	-49.68	2	47.58	Peak	74	Pass
NVNT	BLE 1M	2480	Ant1	2500	-56.37	2	40.89	Average	54	Pass
NVNT	BLE 2M	2402	Ant1	2310	-48.57	2	48.69	Peak	74	Pass
NVNT	BLE 2M	2402	Ant1	2310	-56.13	2	41.13	Average	54	Pass
NVNT	BLE 2M	2402	Ant1	2355.312	-47.13	2	50.13	Peak	74	Pass
NVNT	BLE 2M	2402	Ant1	2322.48	-55.5	2	41.76	Average	54	Pass
NVNT	BLE 2M	2402	Ant1	2390	-48.39	2	48.87	Peak	74	Pass
NVNT	BLE 2M	2402	Ant1	2390	-56.21	2	41.05	Average	54	Pass
NVNT	BLE 2M	2480	Ant1	2483.5	-44.25	2	53.01	Peak	74	Pass
NVNT	BLE 2M	2480	Ant1	2483.5	-49.4	2	47.86	Average	54	Pass
NVNT	BLE 2M	2480	Ant1	2484.184	-43.81	2	53.45	Peak	74	Pass
NVNT	BLE 2M	2480	Ant1	2483.512	-49.4	2	47.86	Average	54	Pass
NVNT	BLE 2M	2480	Ant1	2500	-50.8	2	46.46	Peak	74	Pass
NVNT	BLE 2M	2480	Ant1	2500	-56.29	2	40.97	Average	54	Pass



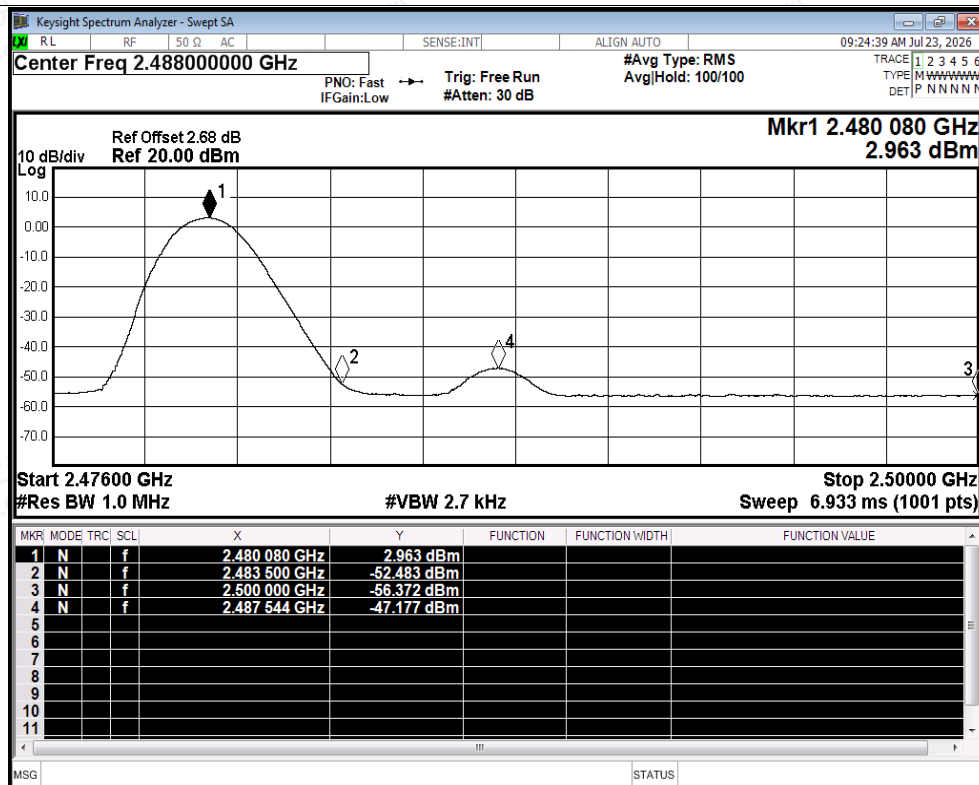
Restrict Band NVNT BLE 1M 2402MHz Ant1 Peak



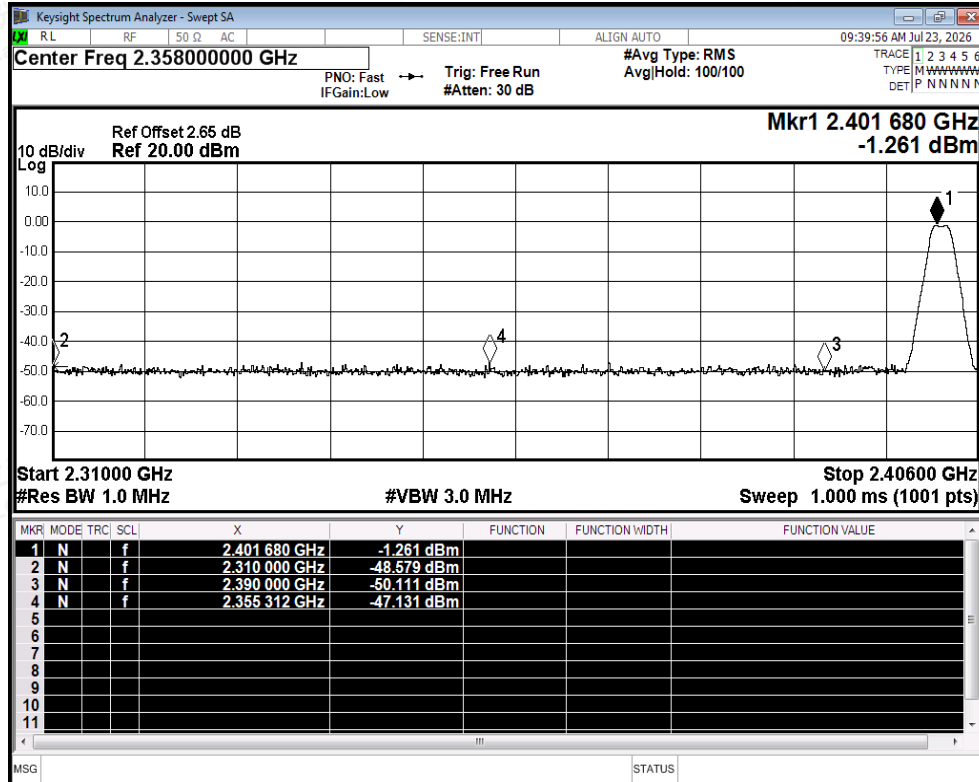
Restrict Band NVNT BLE 1M 2402MHz Ant1 Average



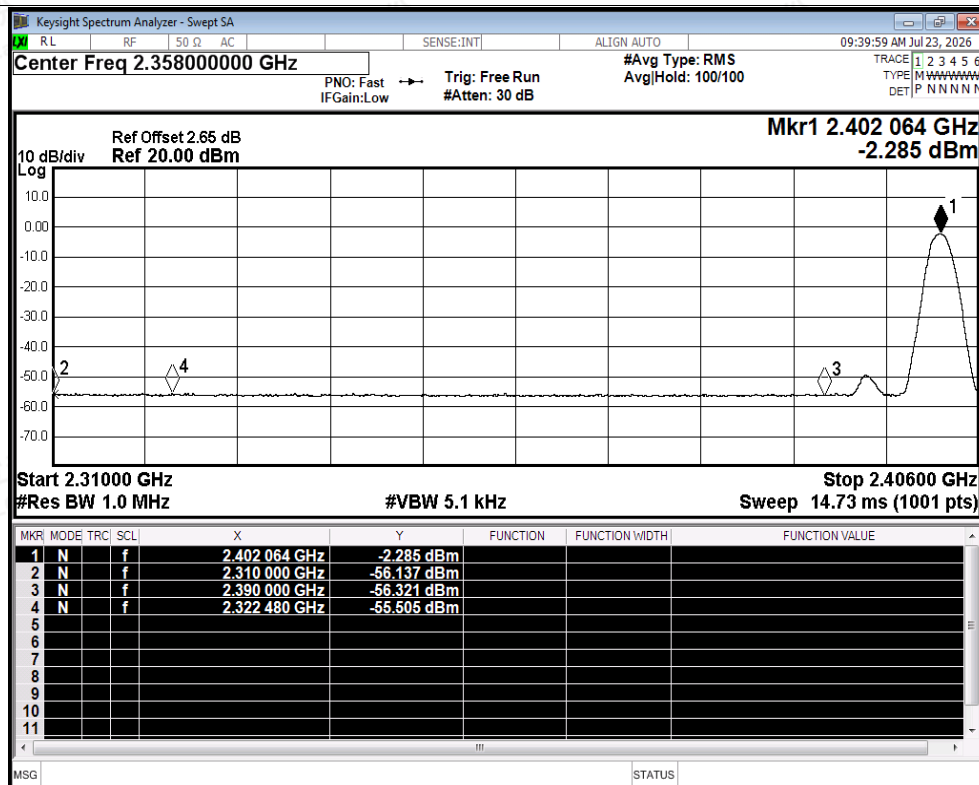
Restrict Band NVNT BLE 1M 2480MHz Ant1 Peak



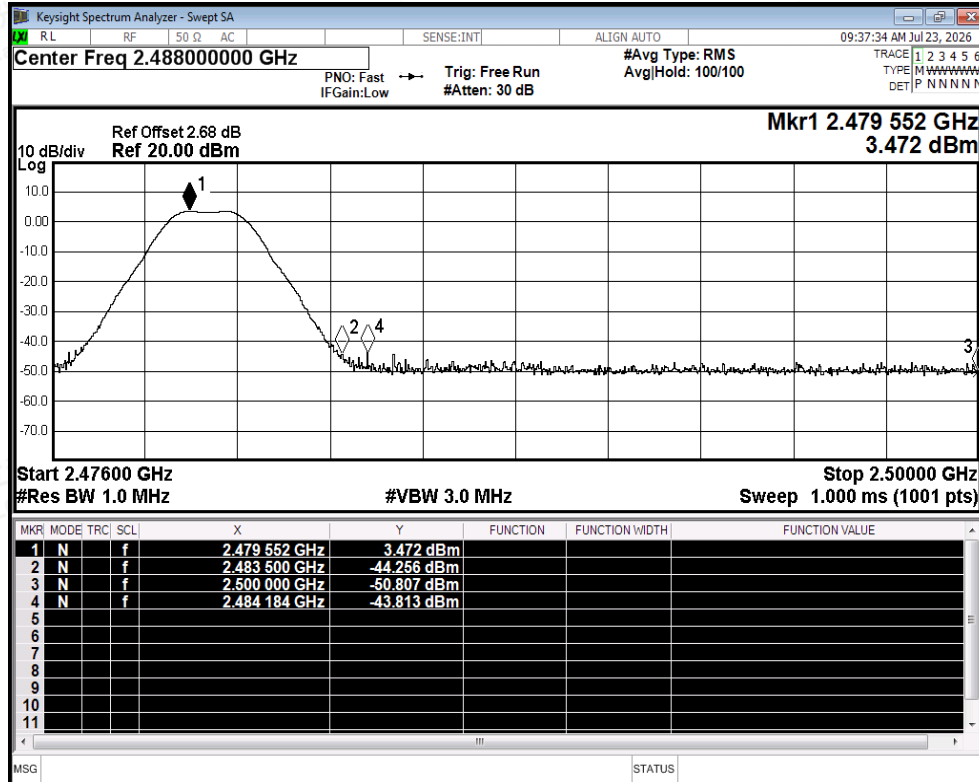
Restrict Band NVNT BLE 1M 2480MHz Ant1 Average



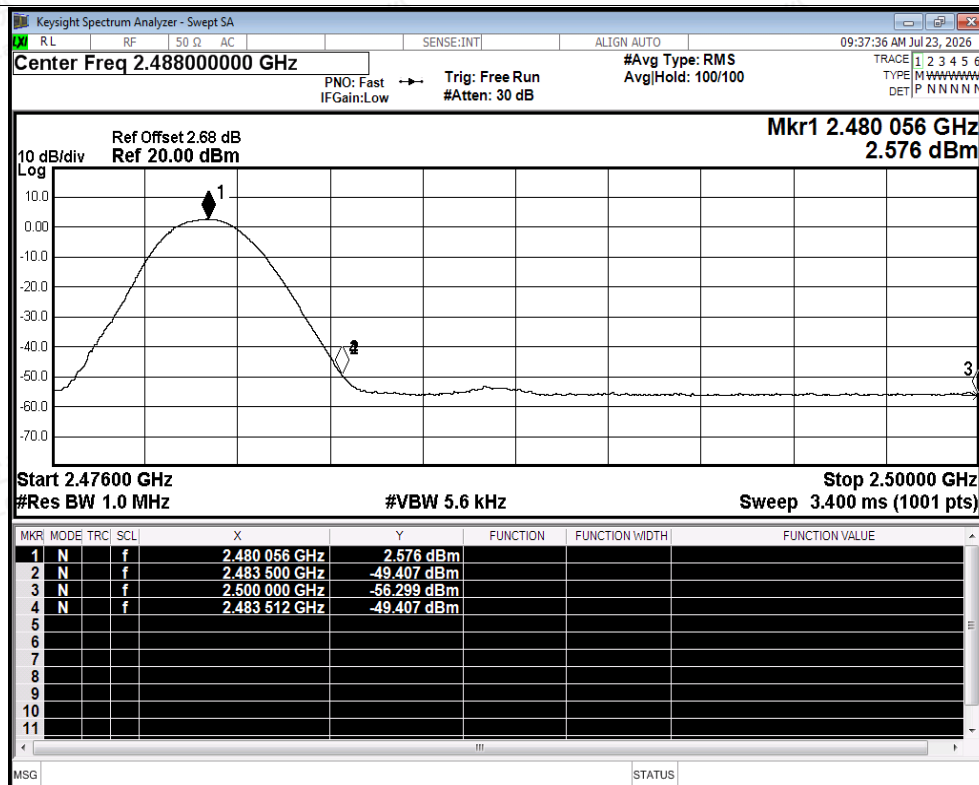
Restrict Band NVNT BLE 2M 2402MHz Ant1 Peak



Restrict Band NVNT BLE 2M 2402MHz Ant1 Average



Restrict Band NVNT BLE 2M 2480MHz Ant1 Peak



Restrict Band NVNT BLE 2M 2480MHz Ant1 Average