Appendix A

RF Test Data for BT (Conducted Measurement)

Product Name: TWS Bluetooth Headset

Test Model: Immortal 131

Environmental Conditions

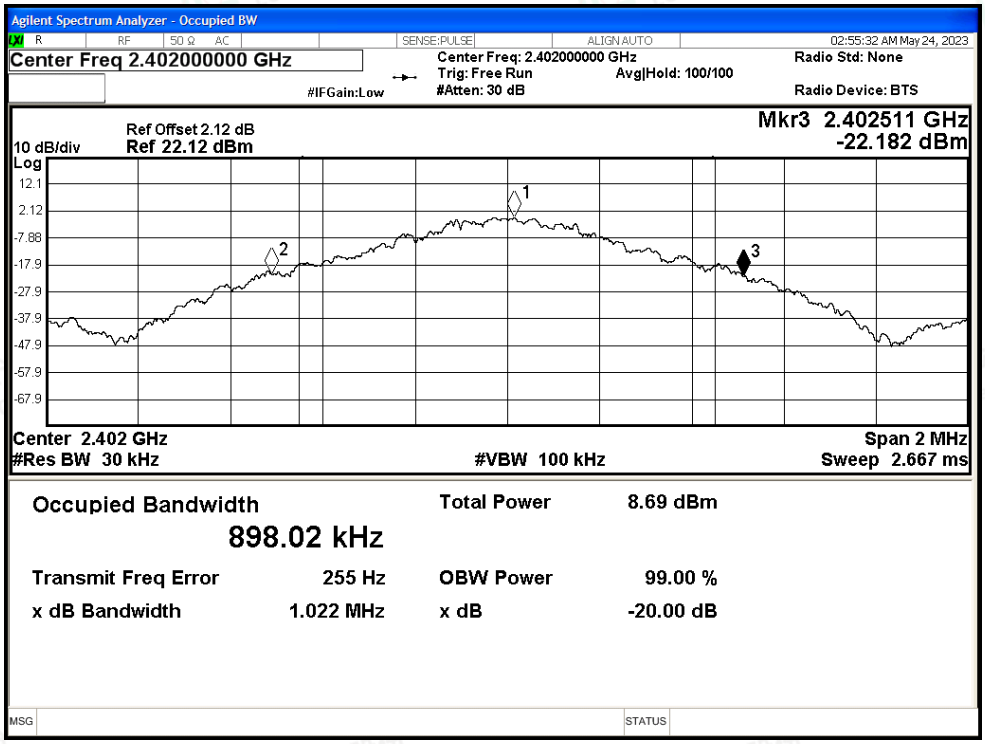
Temperature:	23.8° C
Relative Humidity:	52.1%
ATM Pressure:	100.0 kPa
Test Engineer:	Paddi Chen
Supervised by:	Ling Zhu

A.1 -20dB Bandwidth

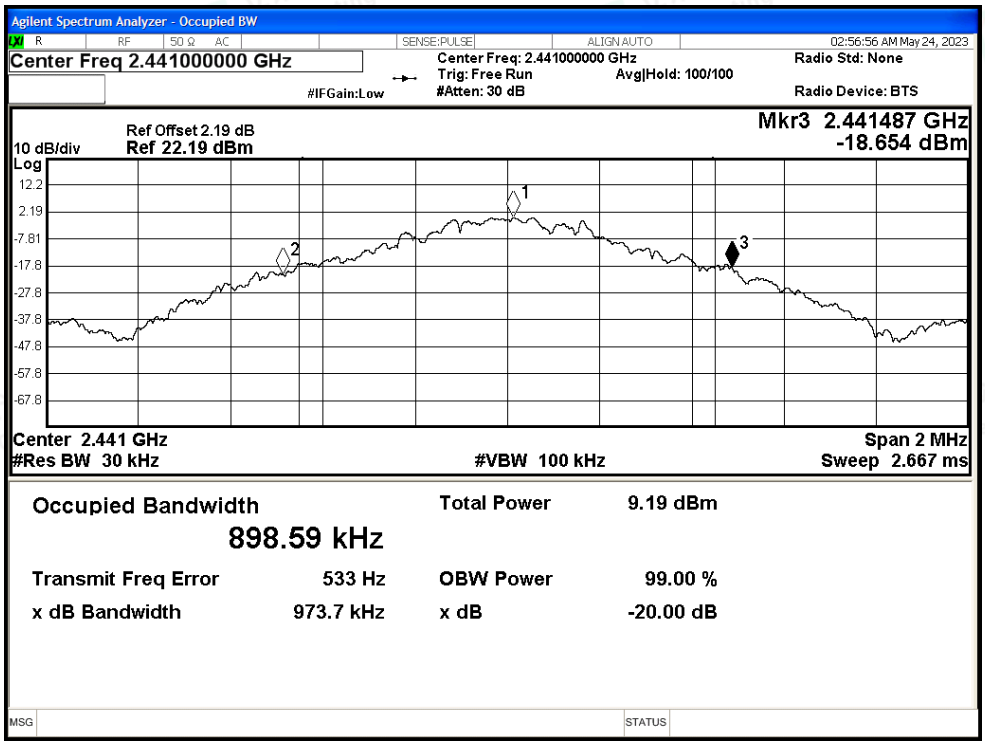
Condition	Mode	Frequency (MHz)	Antenna	-20 dB Bandwidth (MHz)	Limit -20 dB Bandwidth (MHz)	Verdict
NVNT	1-DH5	2402	Ant1	1.022	N/A	Pass
NVNT	1-DH5	2441	Ant1	0.974	N/A	Pass
NVNT	1-DH5	2480	Ant1	1.024	N/A	Pass
NVNT	2-DH5	2402	Ant1	1.318	N/A	Pass
NVNT	2-DH5	2441	Ant1	1.28	N/A	Pass
NVNT	2-DH5	2480	Ant1	1.302	N/A	Pass
NVNT	3-DH5	2402	Ant1	1.289	N/A	Pass
NVNT	3-DH5	2441	Ant1	1.302	N/A	Pass
NVNT	3-DH5	2480	Ant1	1.307	N/A	Pass

Test Graphs

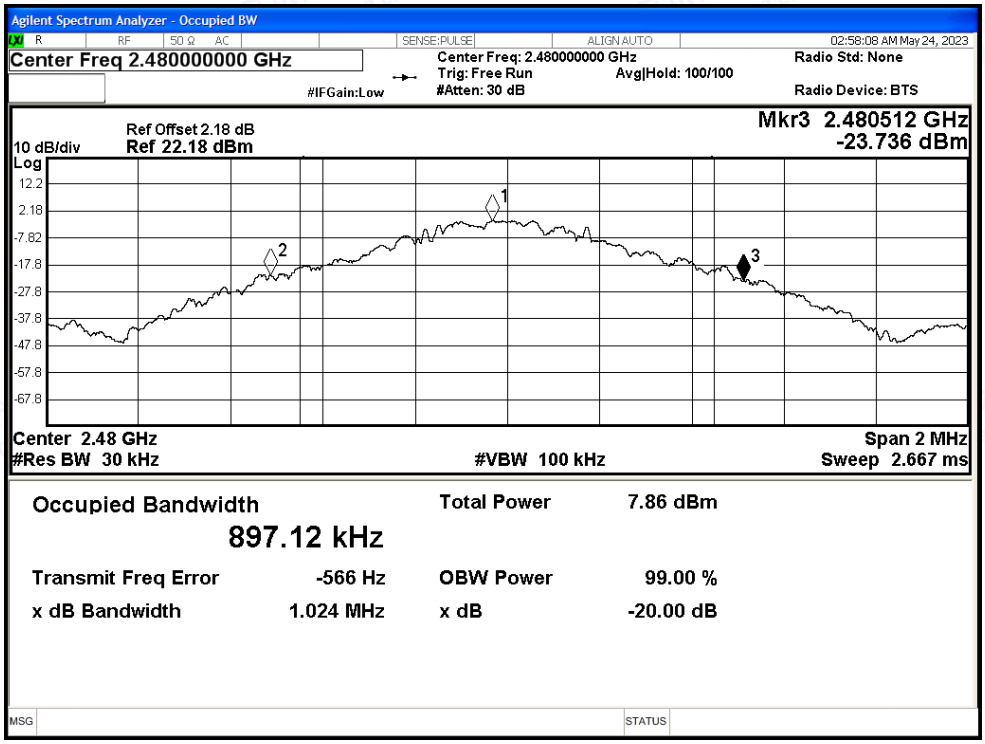
-20dB Bandwidth NVNT 1-DH5 2402MHz Ant1



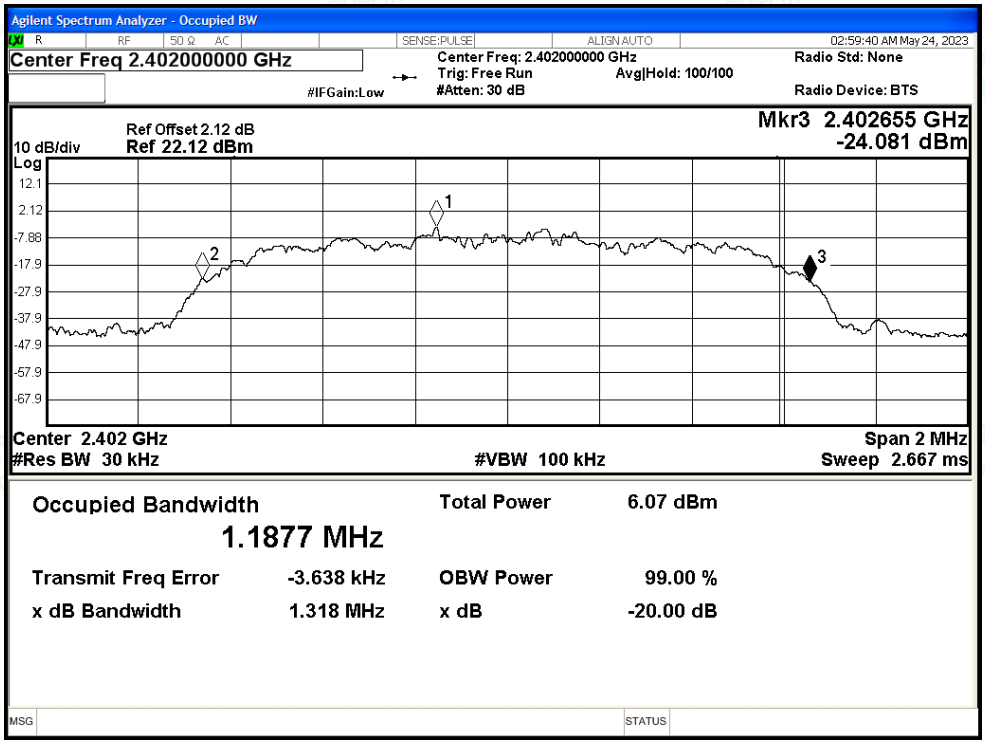
-20dB Bandwidth NVNT 1-DH5 2441MHz Ant1



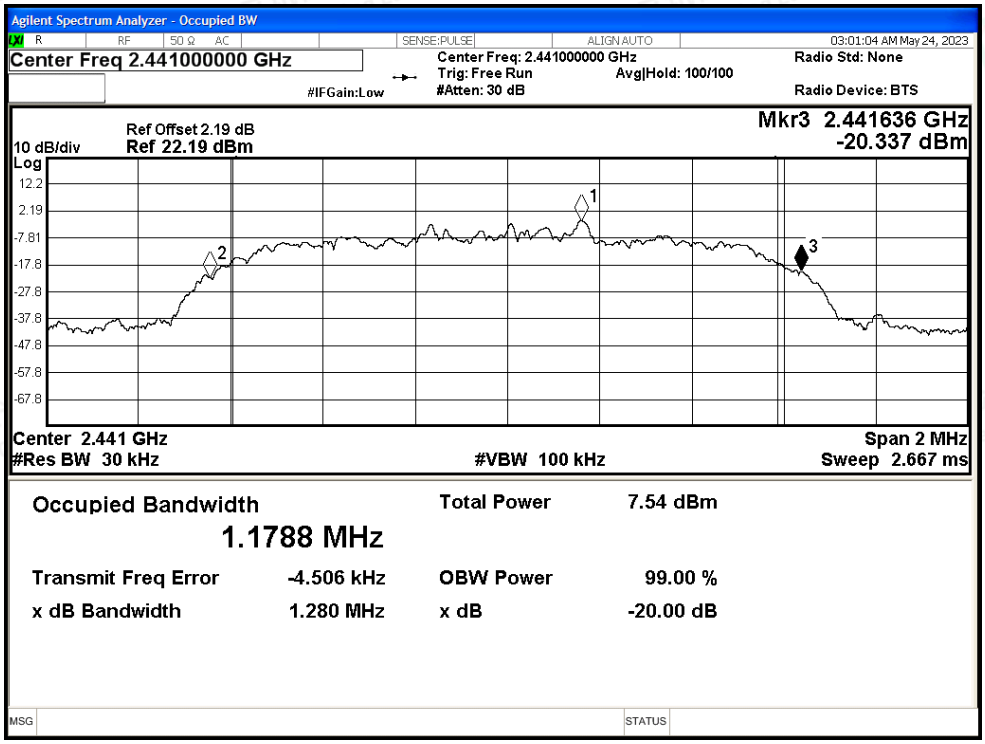
-20dB Bandwidth NVNT 1-DH5 2480MHz Ant1



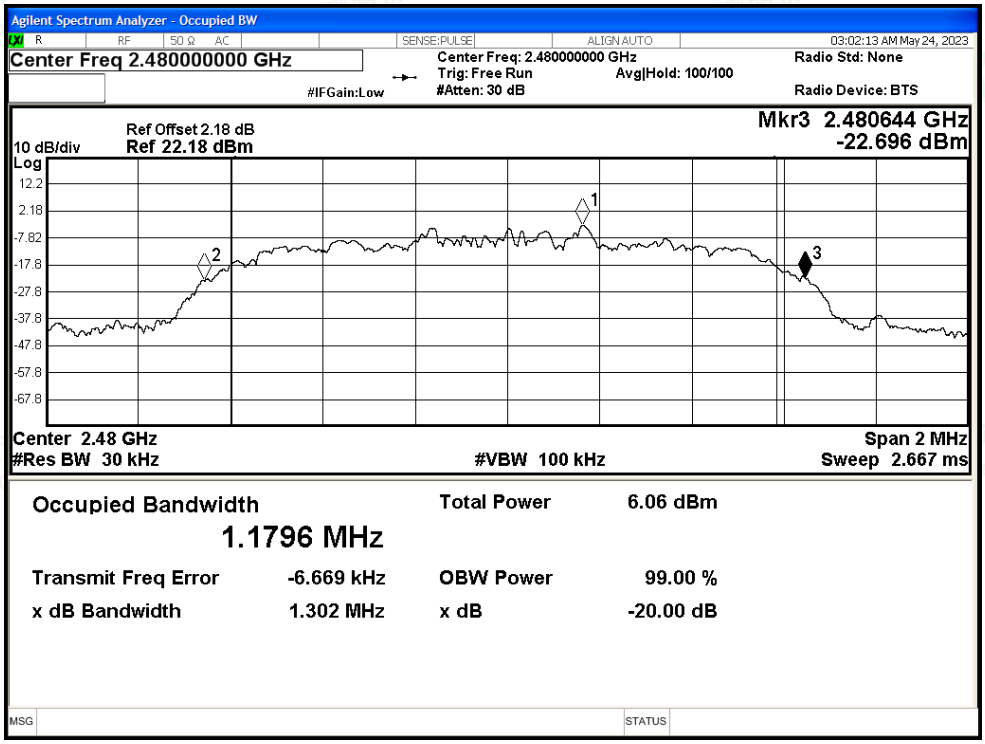
-20dB Bandwidth NVNT 2-DH5 2402MHz Ant1



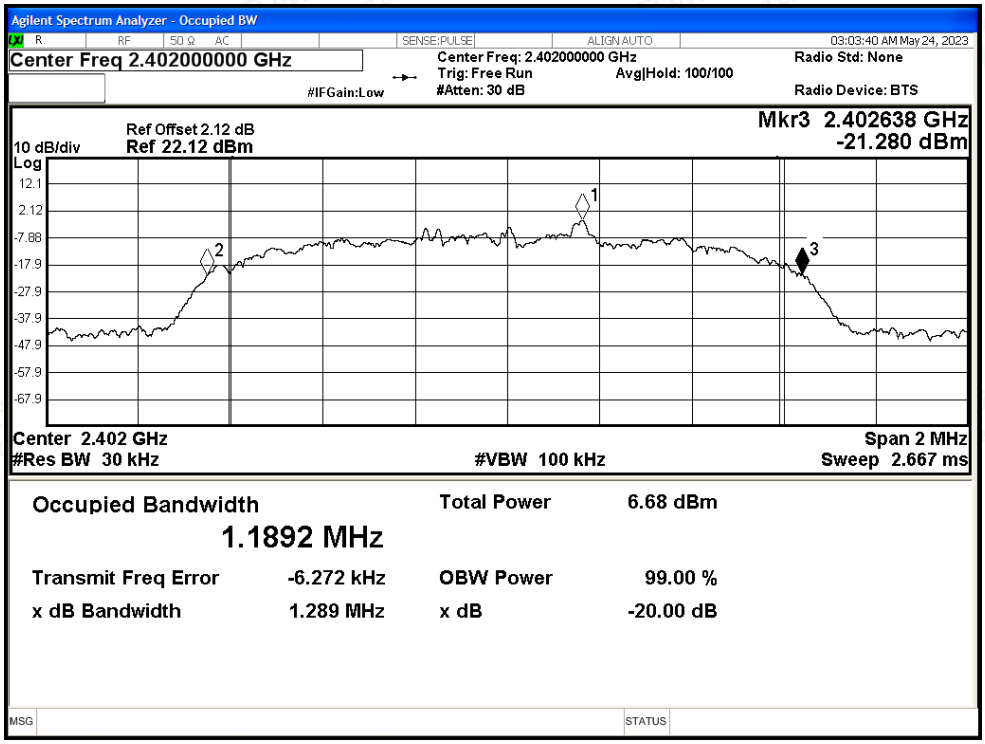
-20dB Bandwidth NVNT 2-DH5 2441MHz Ant1



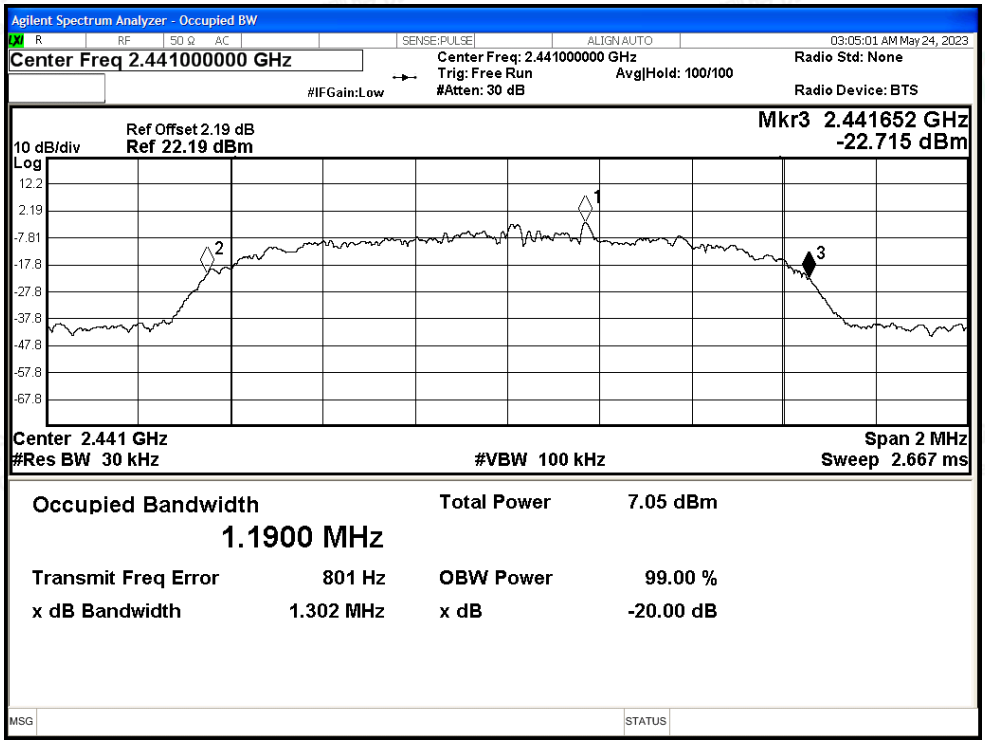
-20dB Bandwidth NVNT 2-DH5 2480MHz Ant1



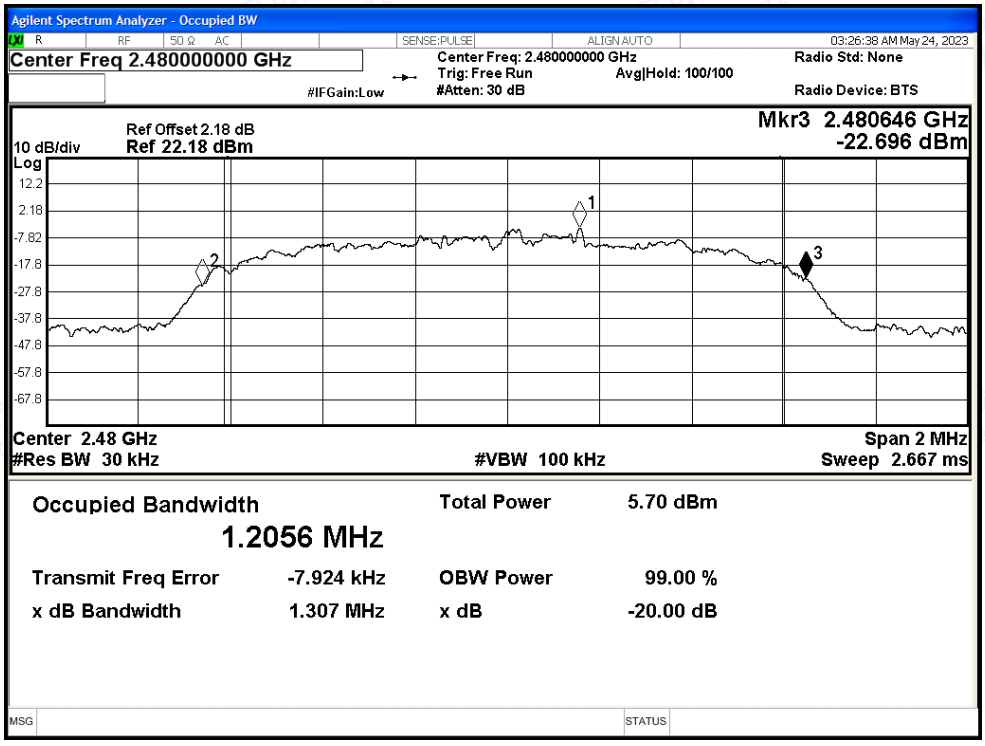
-20dB Bandwidth NVNT 3-DH5 2402MHz Ant1



-20dB Bandwidth NVNT 3-DH5 2441MHz Ant1



-20dB Bandwidth NVNT 3-DH5 2480MHz Ant1

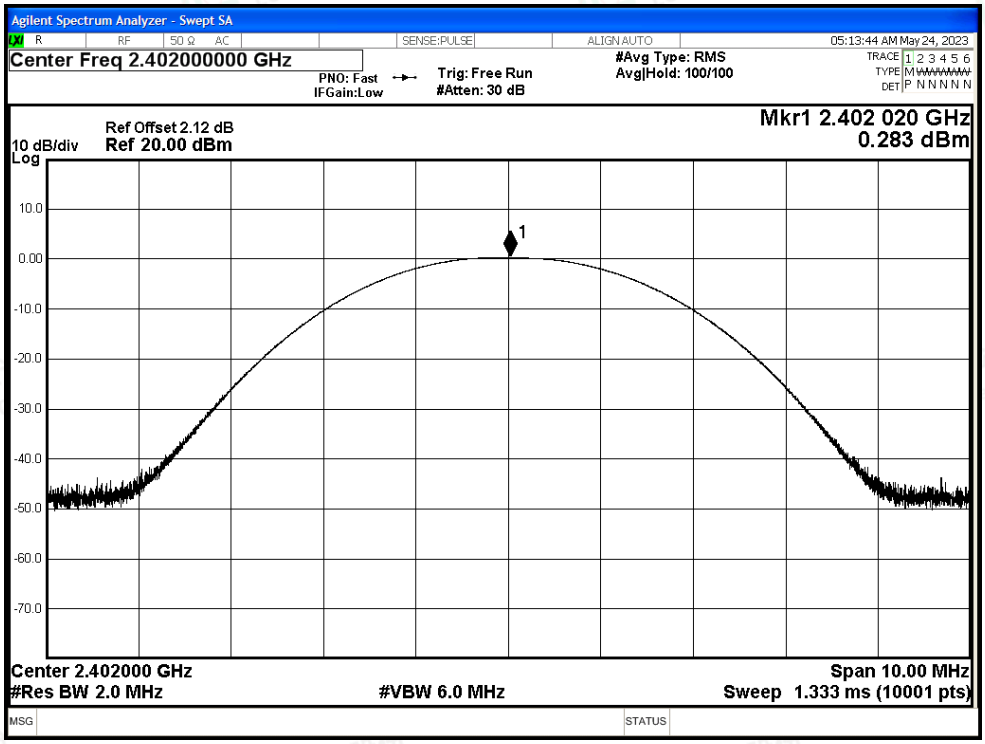


A.2 Maximum Conducted Output Power

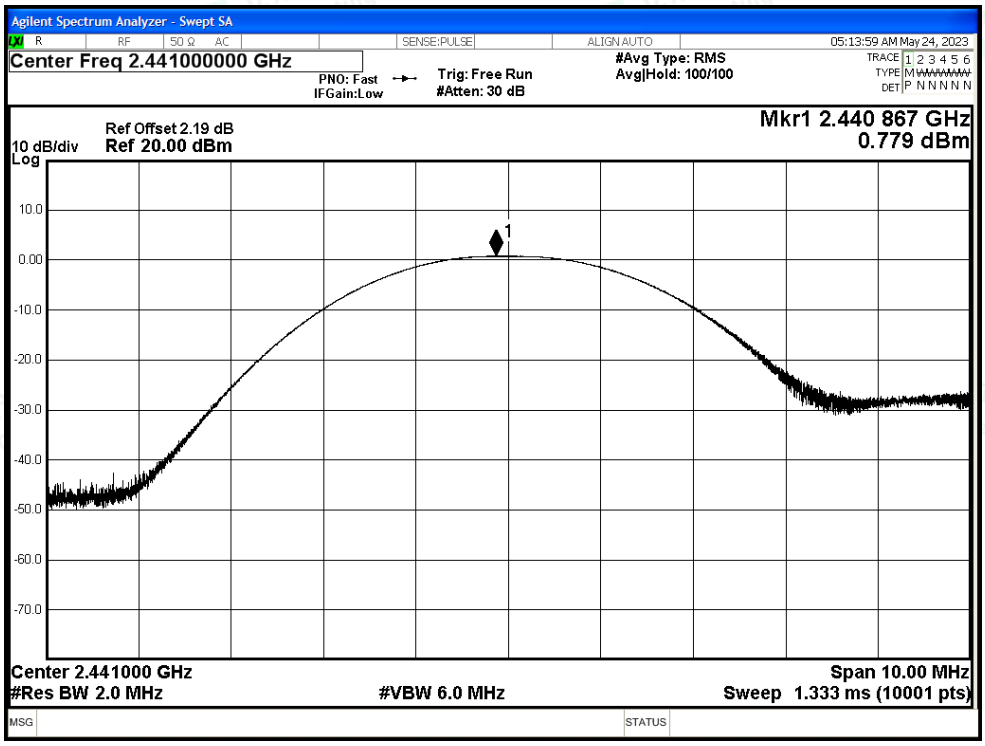
Condition	Mode	Frequency (MHz)	Antenna	Conducted Power (dBm)	Limit (dBm)	Verdict
NVNT	1-DH5	2402	Ant1	0.28	21	Pass
NVNT	1-DH5	2441	Ant1	0.78	21	Pass
NVNT	1-DH5	2480	Ant1	-0.67	21	Pass
NVNT	2-DH5	2402	Ant1	-0.52	21	Pass
NVNT	2-DH5	2441	Ant1	0.04	21	Pass
NVNT	2-DH5	2480	Ant1	-1.3	21	Pass
NVNT	3-DH5	2402	Ant1	-0.44	21	Pass
NVNT	3-DH5	2441	Ant1	0.18	21	Pass
NVNT	3-DH5	2480	Ant1	-1.23	21	Pass

Test Graphs

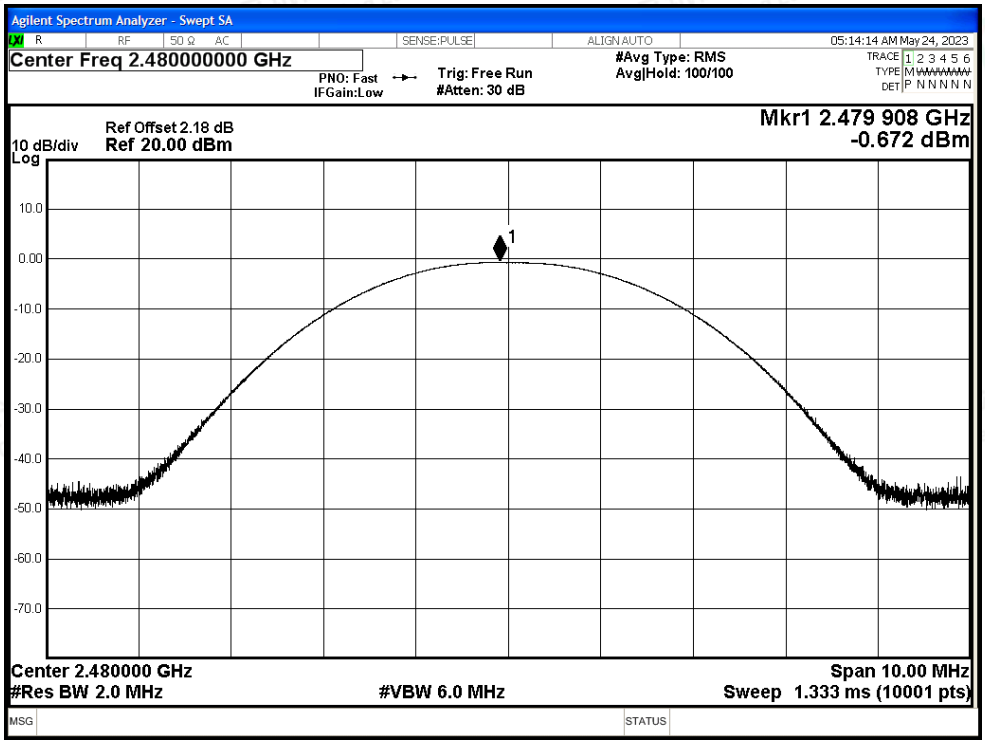
Power NVNT 1-DH5 2402MHz Ant1



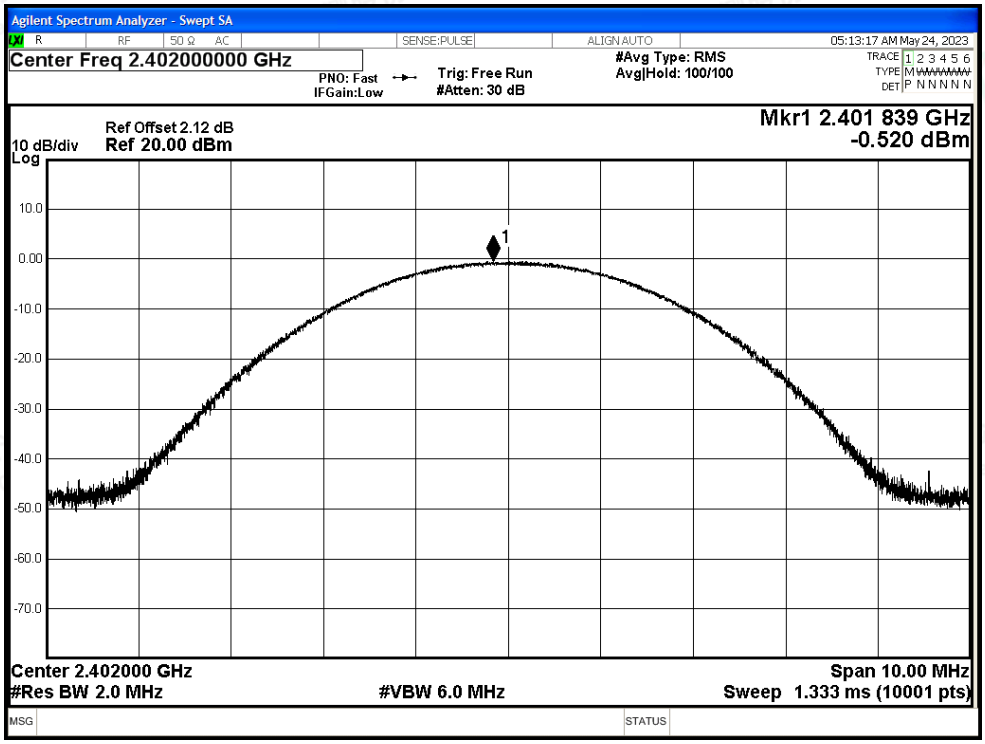
Power NVNT 1-DH5 2441MHz Ant1



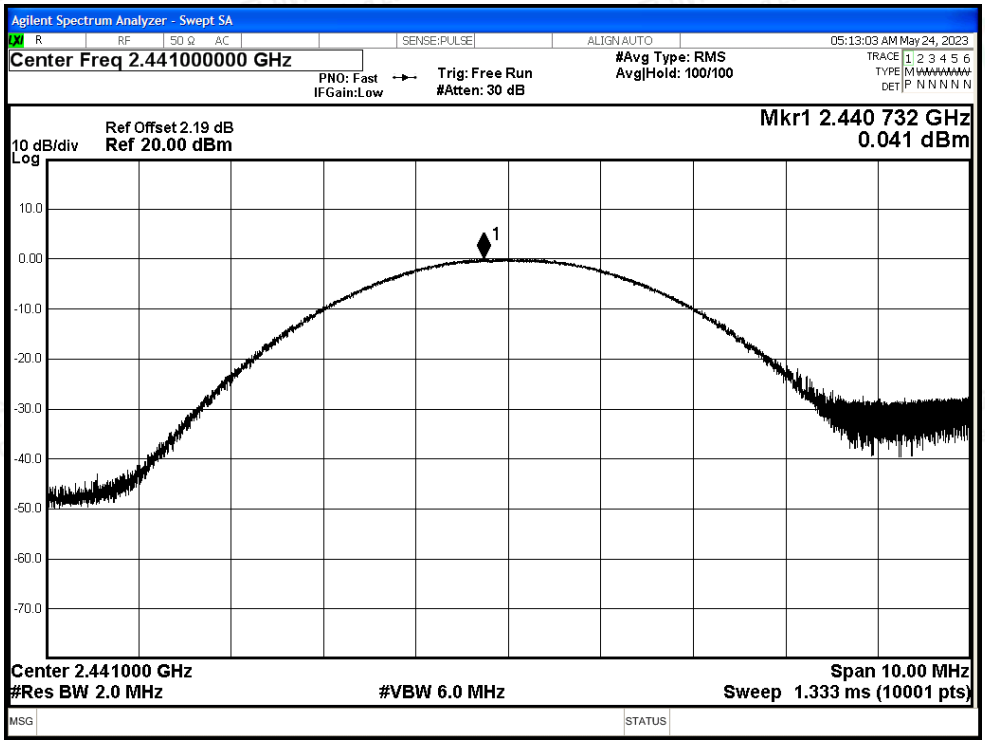
Power NVNT 1-DH5 2480MHz Ant1



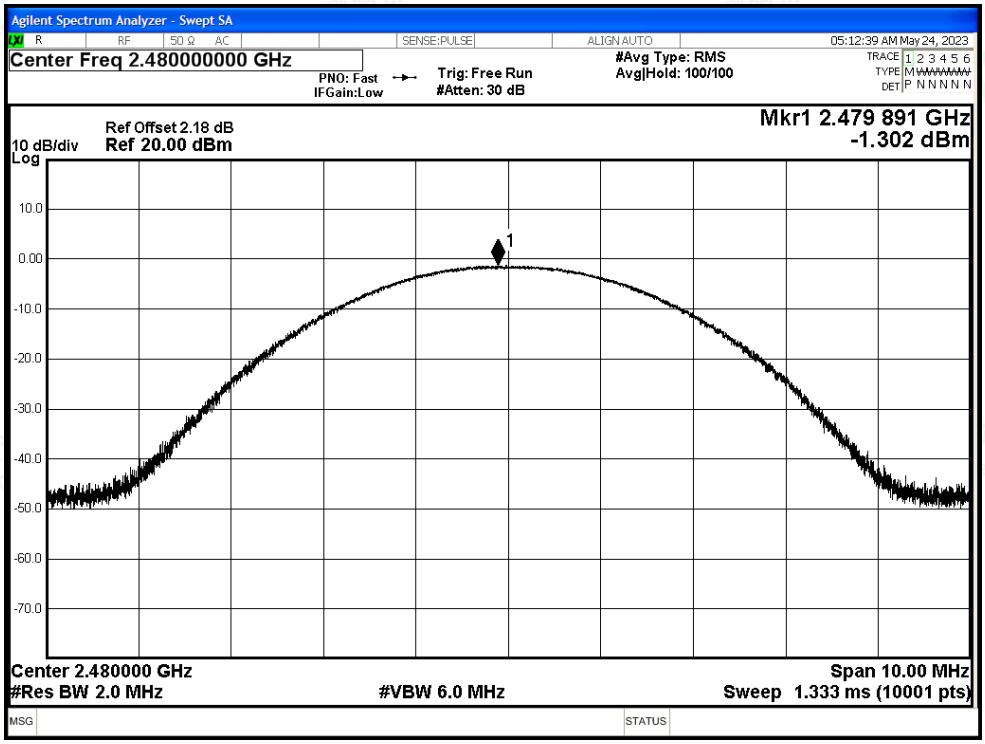
Power NVNT 2-DH5 2402MHz Ant1



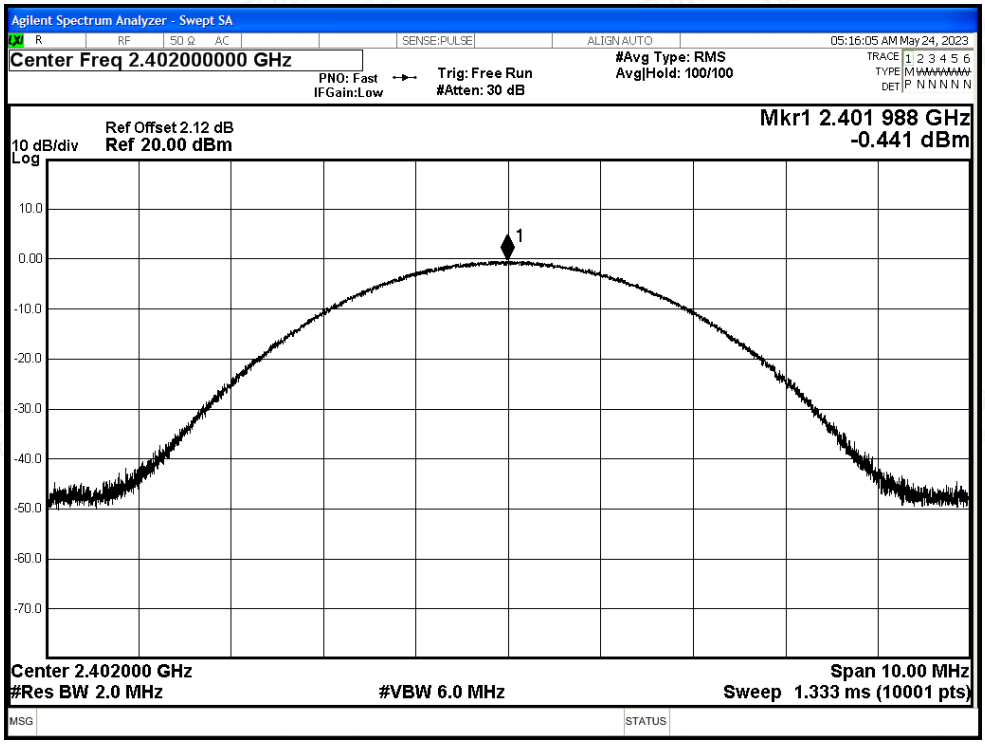
Power NVNT 2-DH5 2441MHz Ant1



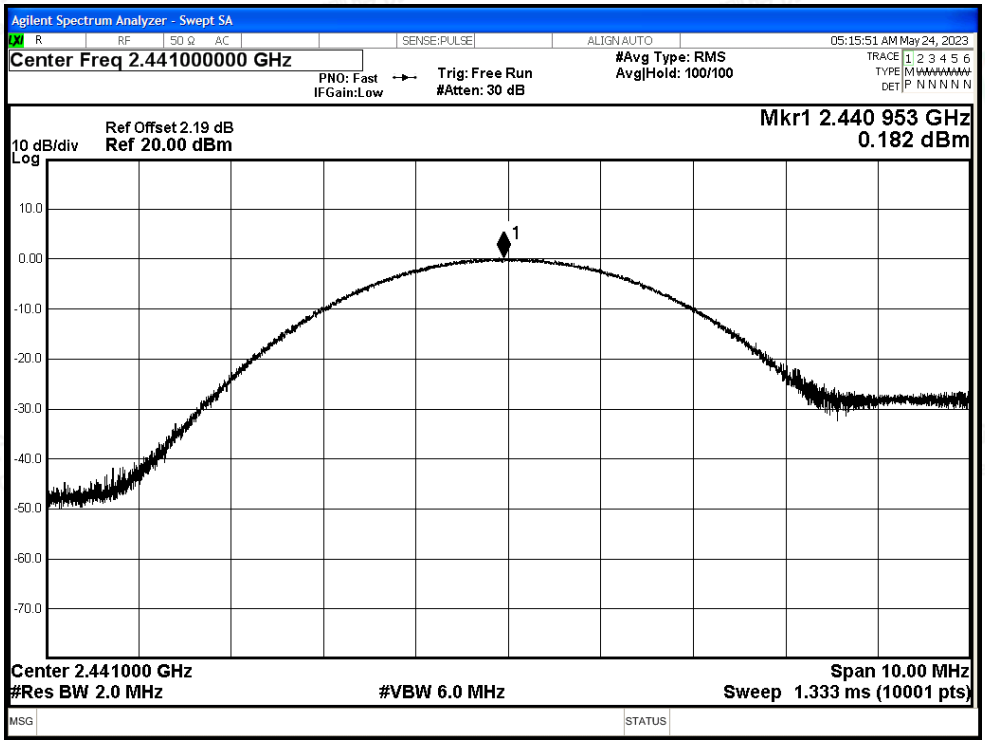
Power NVNT 2-DH5 2480MHz Ant1



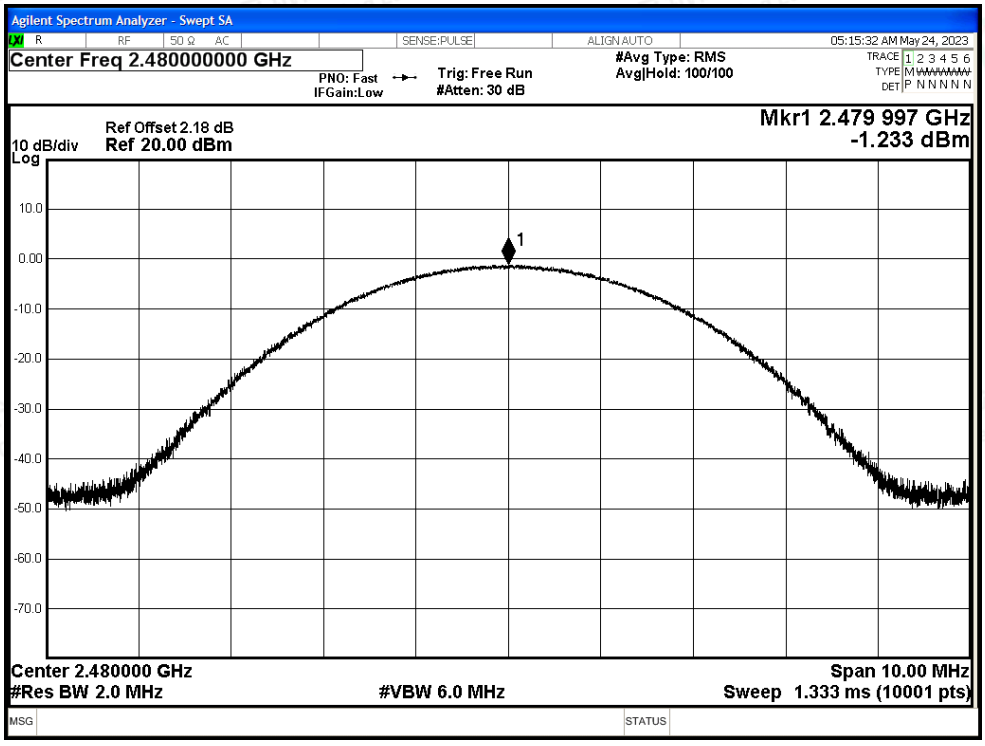
Power NVNT 3-DH5 2402MHz Ant1



Power NVNT 3-DH5 2441MHz Ant1



Power NVNT 3-DH5 2480MHz Ant1

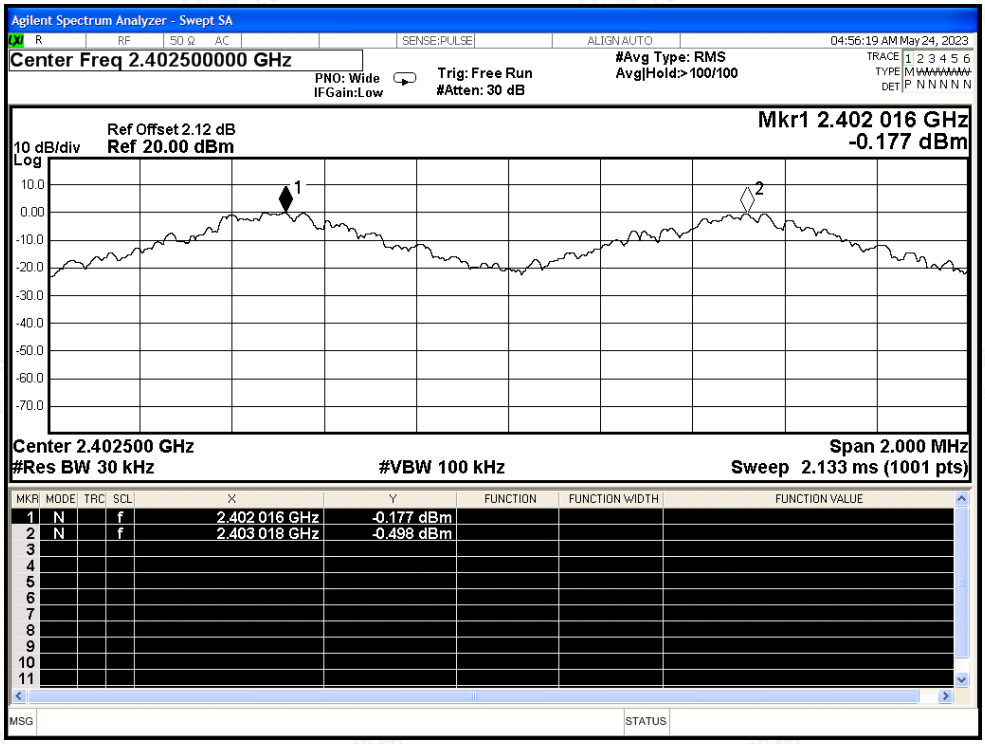


A.3 Carrier Frequencies Separation

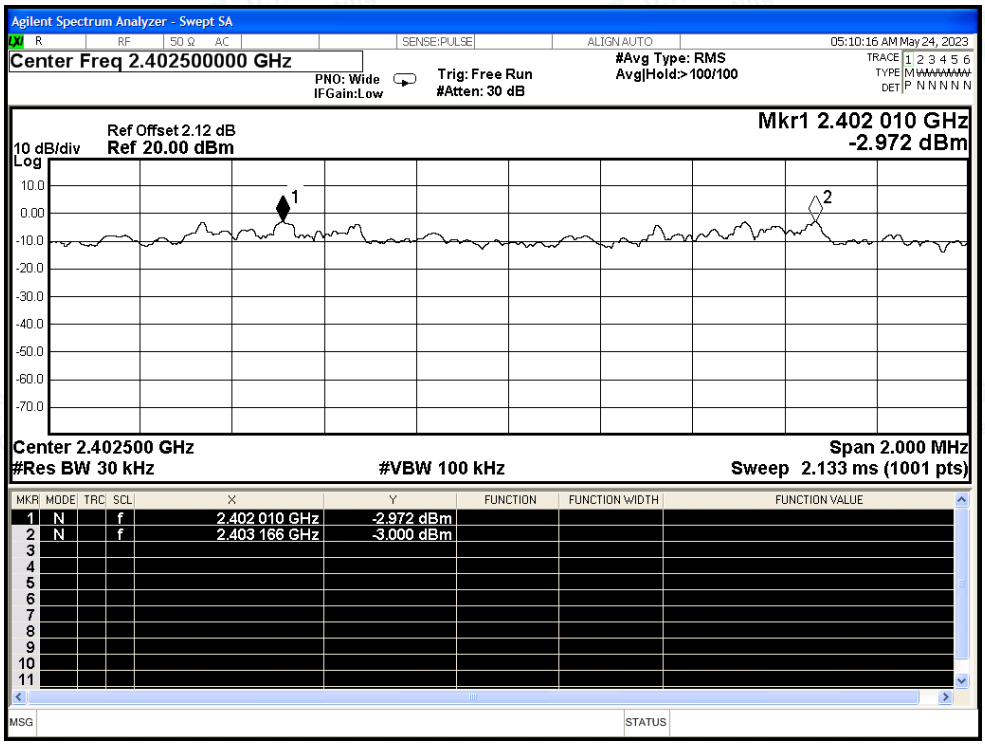
Condition	Mode	Antenna	Hopping Freq1 (MHz)	Hopping Freq2 (MHz)	HFS (MHz)	Limit (MHz)	Verdict
NVNT	1-DH5	Ant1	2402.016	2403.018	1.002	0.683	Pass
NVNT	2-DH5	Ant1	2402.01	2403.166	1.156	0.879	Pass
NVNT	3-DH5	Ant1	2402.17	2403.166	0.996	0.871	Pass

Test Graphs

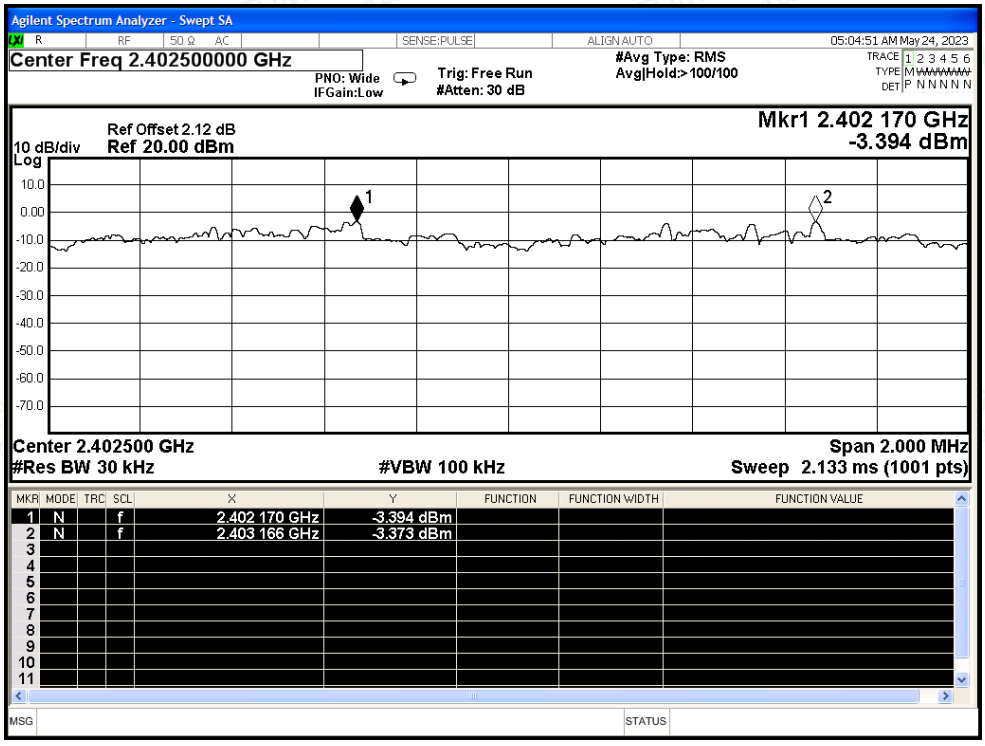
CFS NVNT 1-DH5 2402MHz Ant1



CFS NVNT 2-DH5 2402MHz Ant1



CFS NVNT 3-DH5 2402MHz Ant1

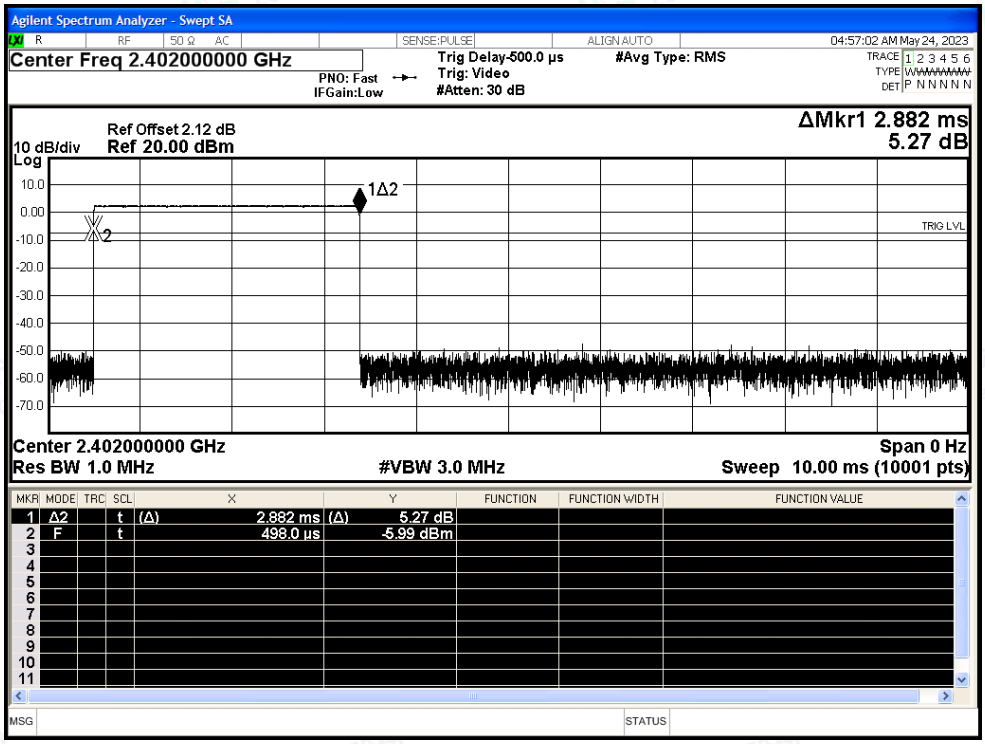


A.4 Dwell Time

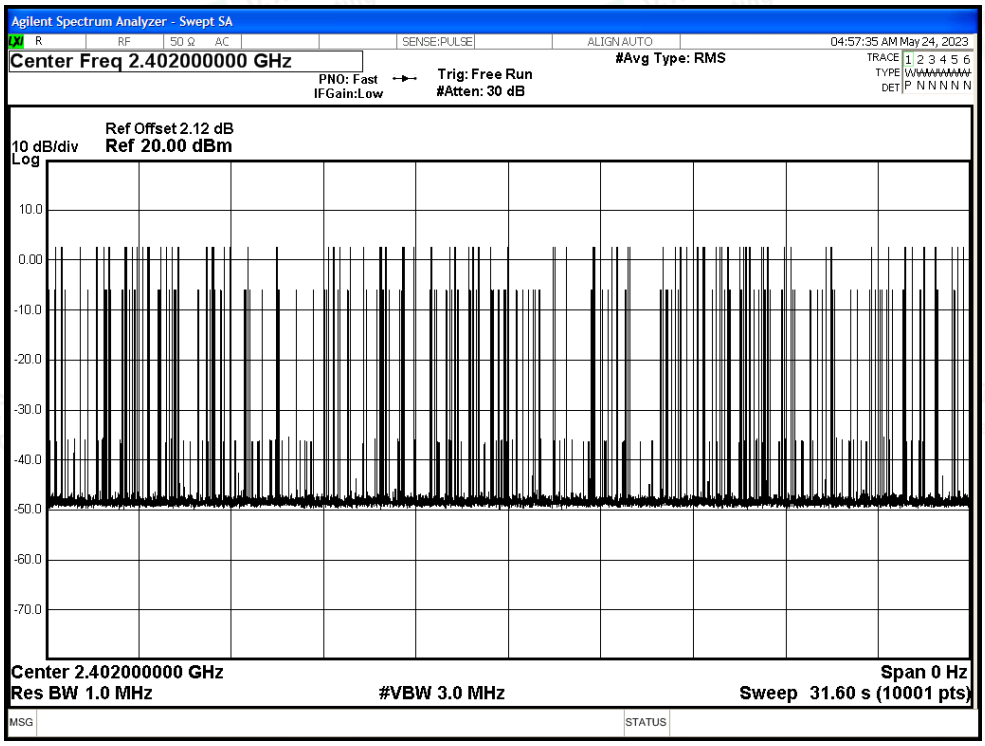
Condition	Mode	Frequency (MHz)	Antenna	Pulse Time (ms)	Total Dwell Time (ms)	Burst Count	Period Time (ms)	Limit (ms)	Verdict
NVNT	1-DH5	2402	Ant1	2.882	270.908	94	31600	400	Pass
NVNT	2-DH5	2402	Ant1	2.88	334.08	116	31600	400	Pass
NVNT	3-DH5	2402	Ant1	2.887	285.813	99	31600	400	Pass

Test Graphs

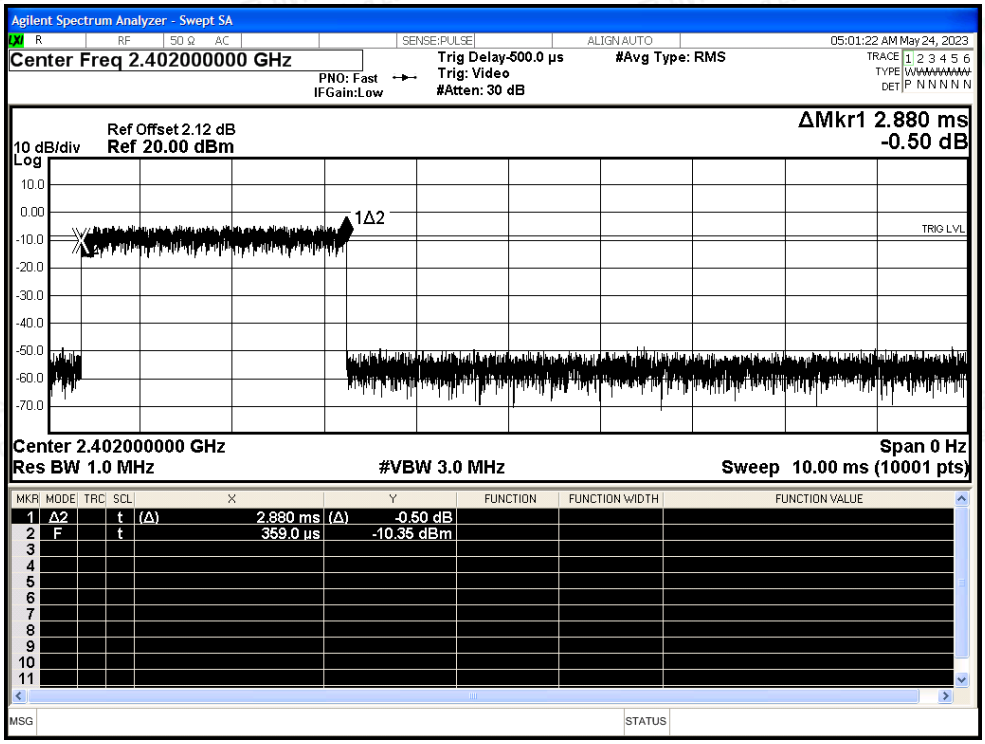
Dwell NVNT 1-DH5 2402MHz Ant1 One Burst



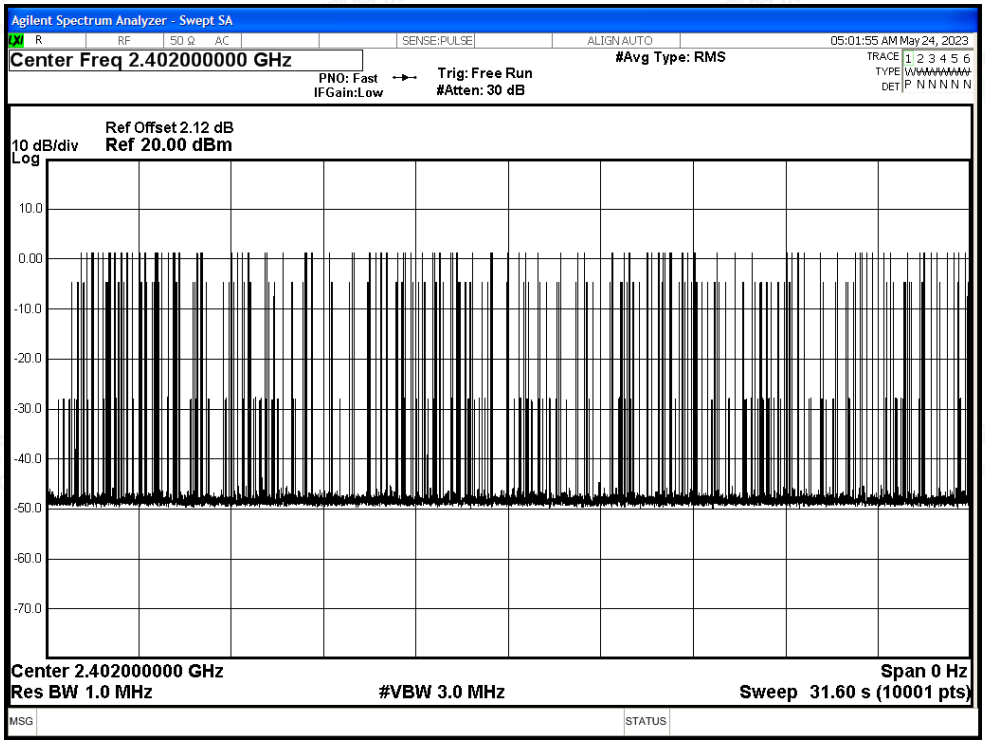
Dwell NVNT 1-DH5 2402MHz Ant1 Accumulated



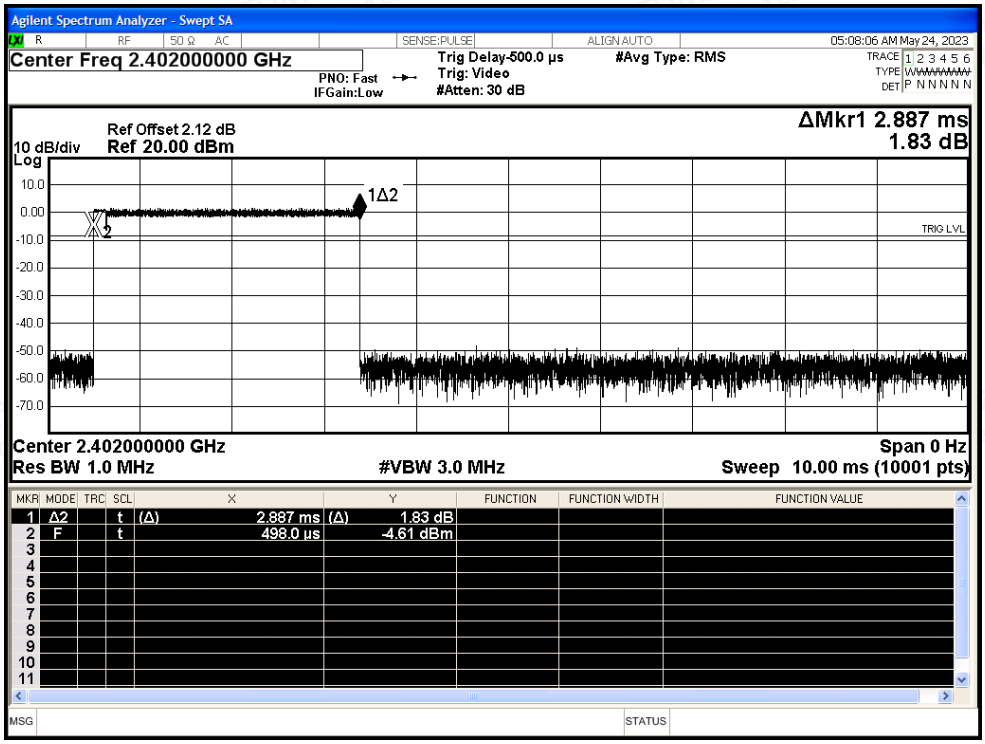
Dwell NVNT 2-DH5 2402MHz Ant1 One Burst



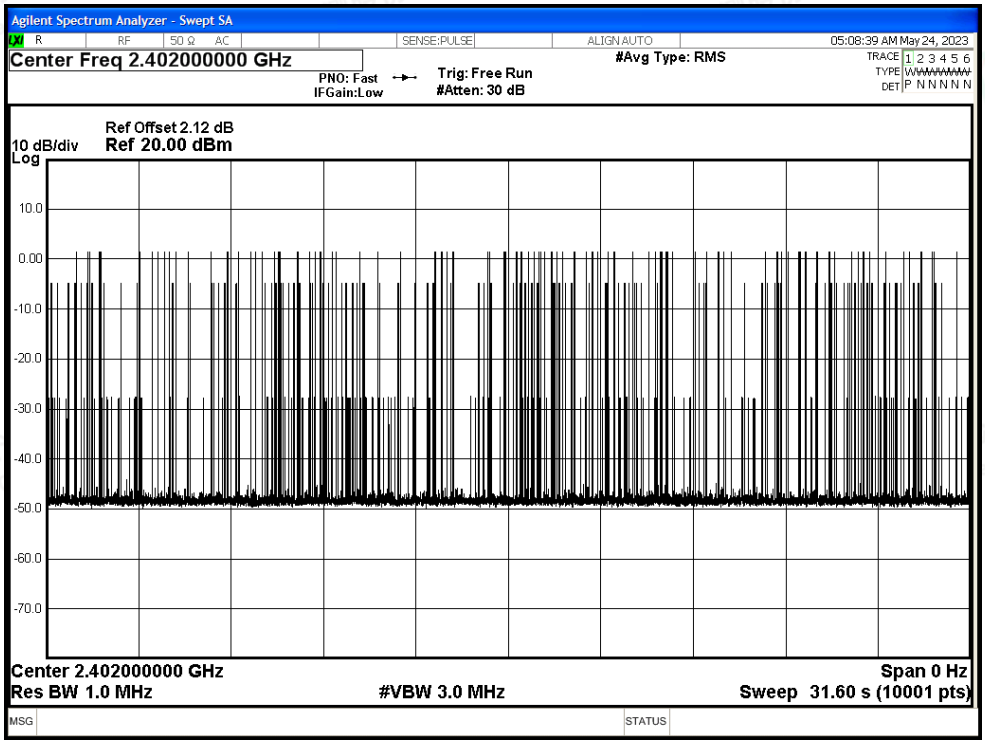
Dwell NVNT 2-DH5 2402MHz Ant1 Accumulated



Dwell NVNT 3-DH5 2402MHz Ant1 One Burst



Dwell NVNT 3-DH5 2402MHz Ant1 Accumulated

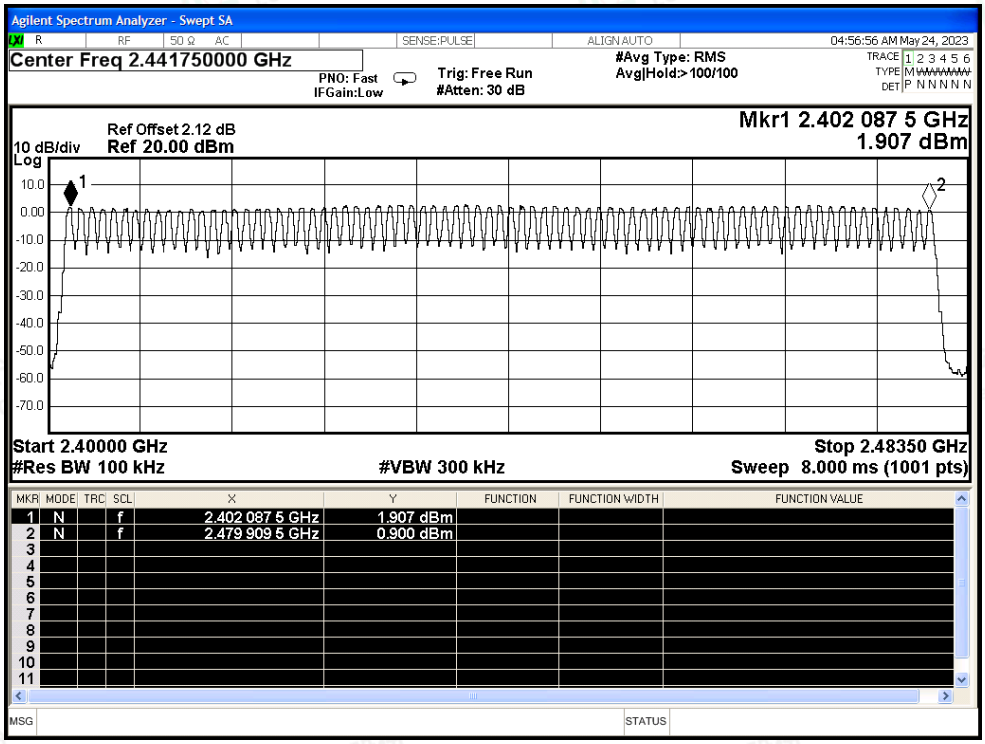


A.5 Number of Hopping Channel

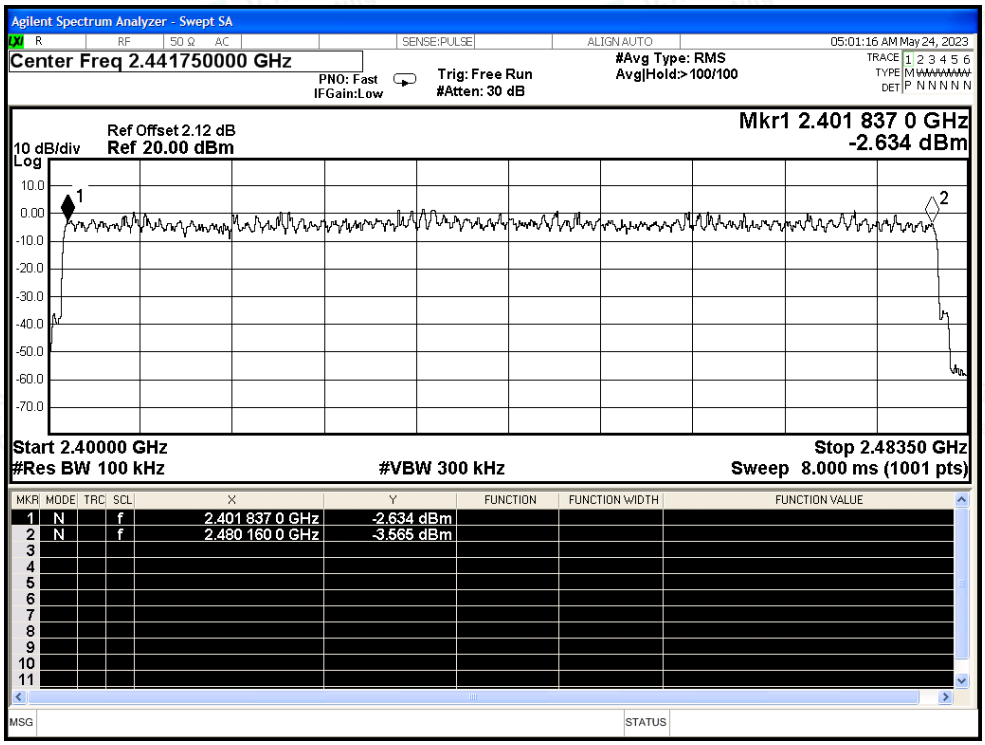
Condition	Mode	Antenna	Hopping Number	Limit	Verdict
NVNT	1-DH5	Ant1	79	15	Pass
NVNT	2-DH5	Ant1	79	15	Pass
NVNT	3-DH5	Ant1	79	15	Pass

Test Graphs

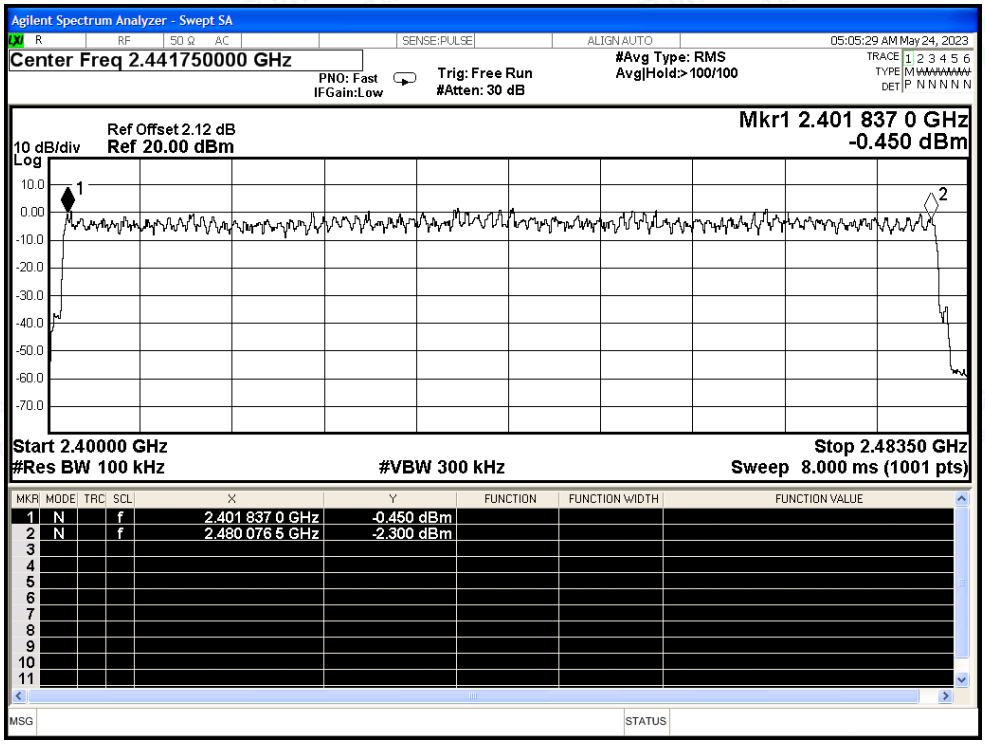
Hopping No. NVNT 1-DH5 2402MHz Ant1



Hopping No. NVNT 2-DH5 2402MHz Ant1



Hopping No. NVNT 3-DH5 2402MHz Ant1

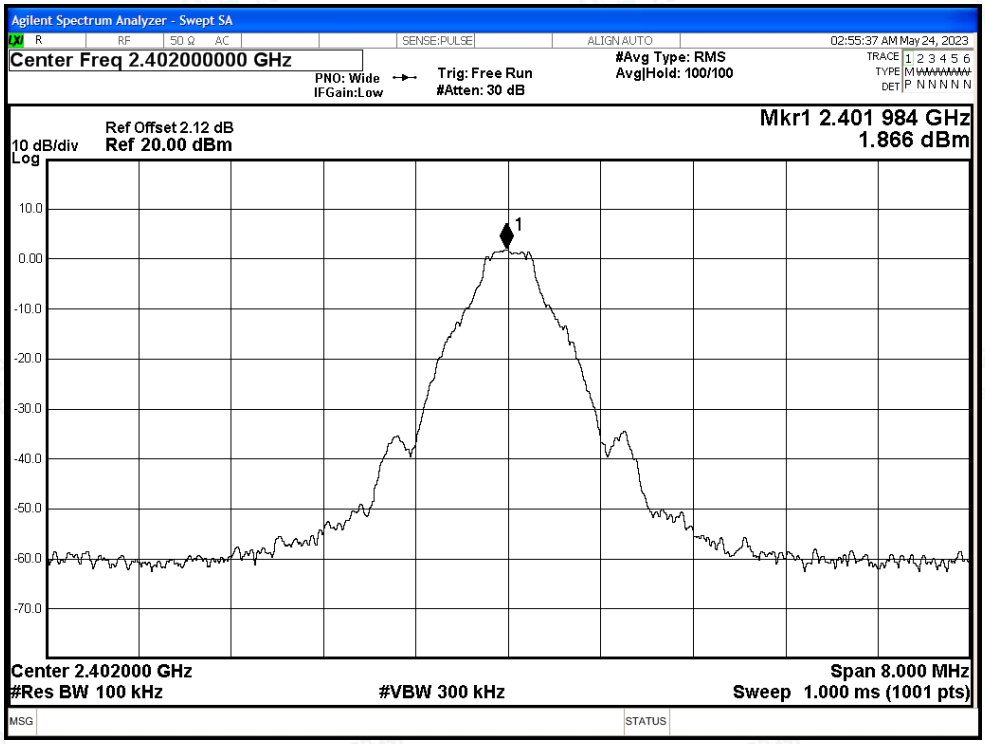


A.6 Band Edge

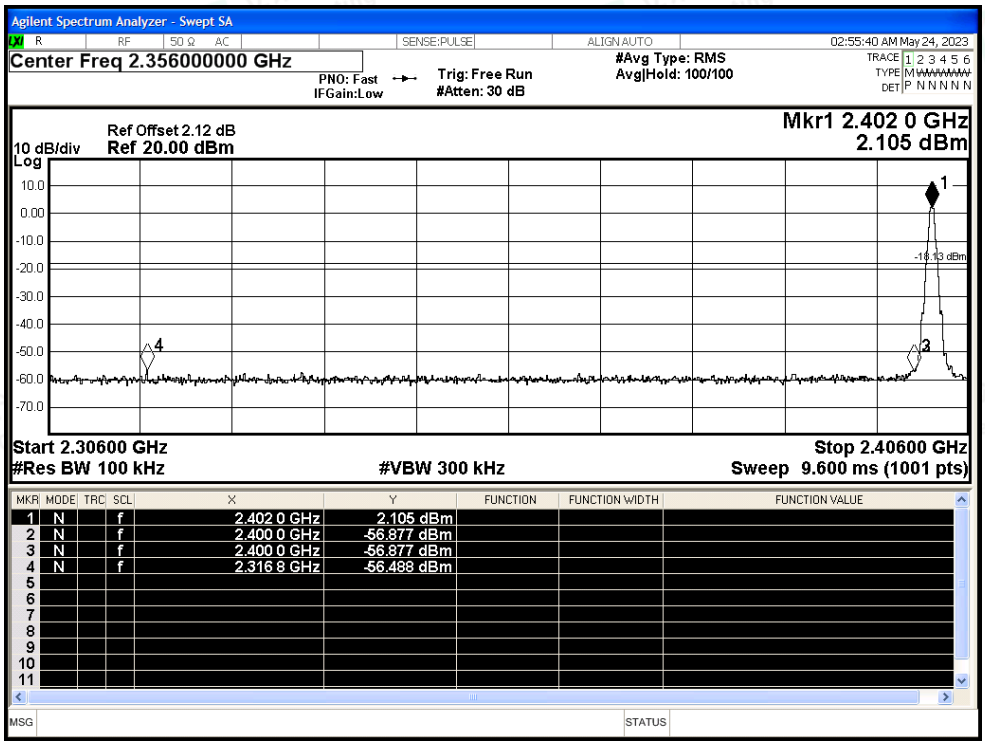
Condition	Mode	Frequency (MHz)	Antenna	Hopping Mode	Max Value (dBc)	Limit (dBc)	Verdict
NVNT	1-DH5	2402	Ant1	No-Hopping	-58.35	-20	Pass
NVNT	1-DH5	2480	Ant1	No-Hopping	-57.79	-20	Pass
NVNT	2-DH5	2402	Ant1	No-Hopping	-56.52	-20	Pass
NVNT	2-DH5	2480	Ant1	No-Hopping	-55.42	-20	Pass
NVNT	3-DH5	2402	Ant1	No-Hopping	-54.23	-20	Pass
NVNT	3-DH5	2480	Ant1	No-Hopping	-55.27	-20	Pass

Test Graphs

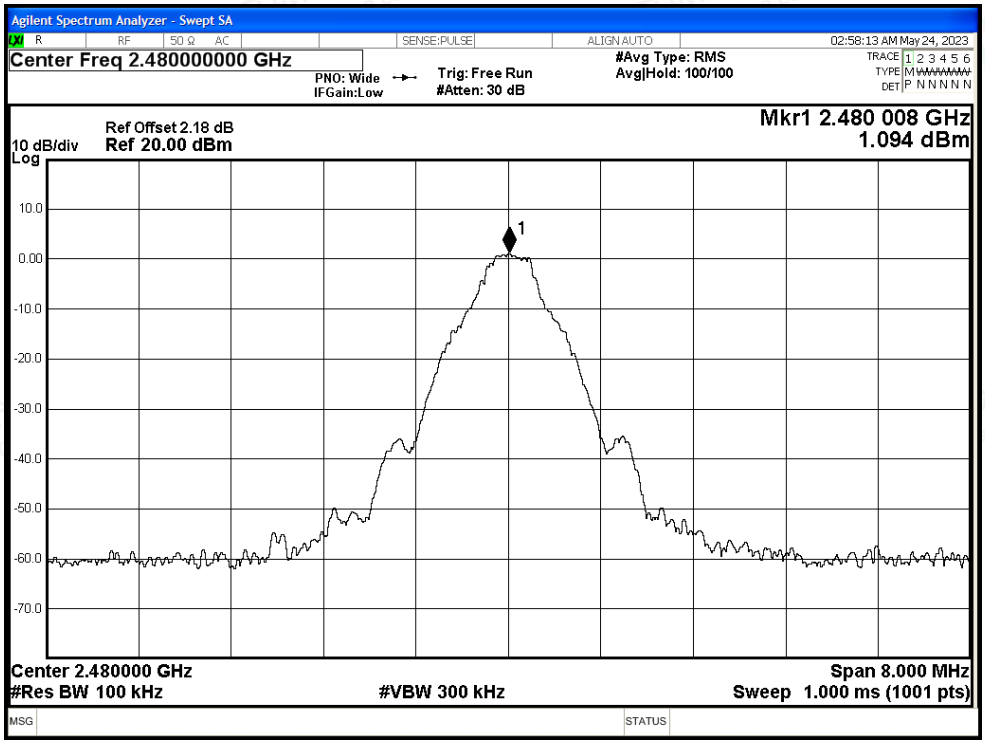
Band Edge NVNT 1-DH5 2402MHz Ant1 No-Hopping Ref



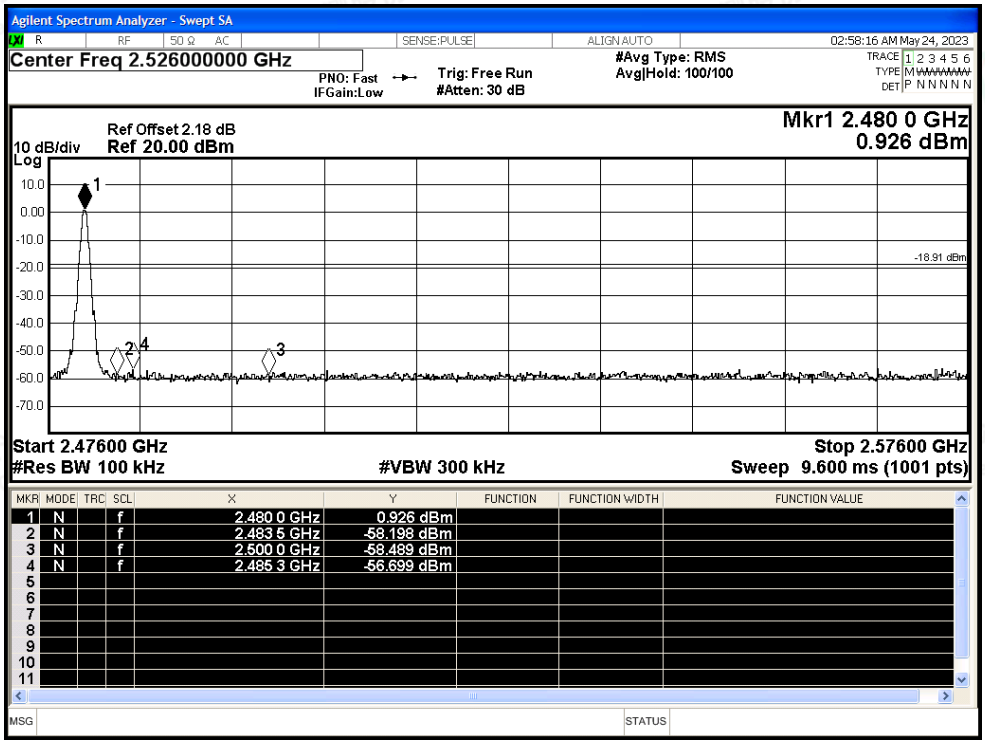
Band Edge NVNT 1-DH5 2402MHz Ant1 No-Hopping Emission



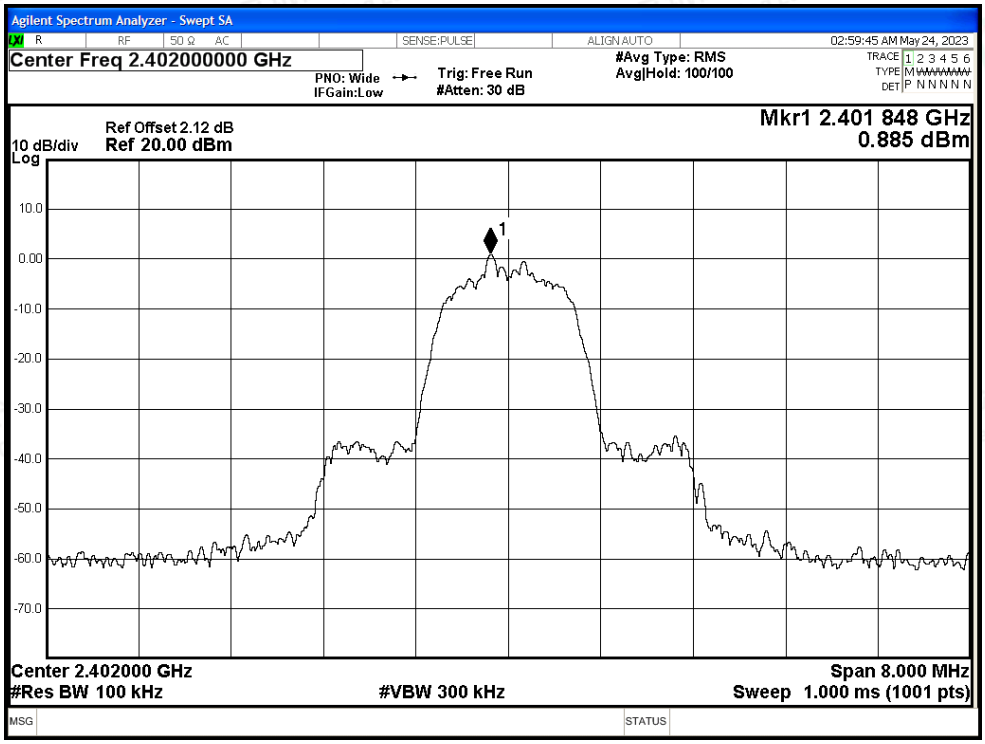
Band Edge NVNT 1-DH5 2480MHz Ant1 No-Hopping Ref



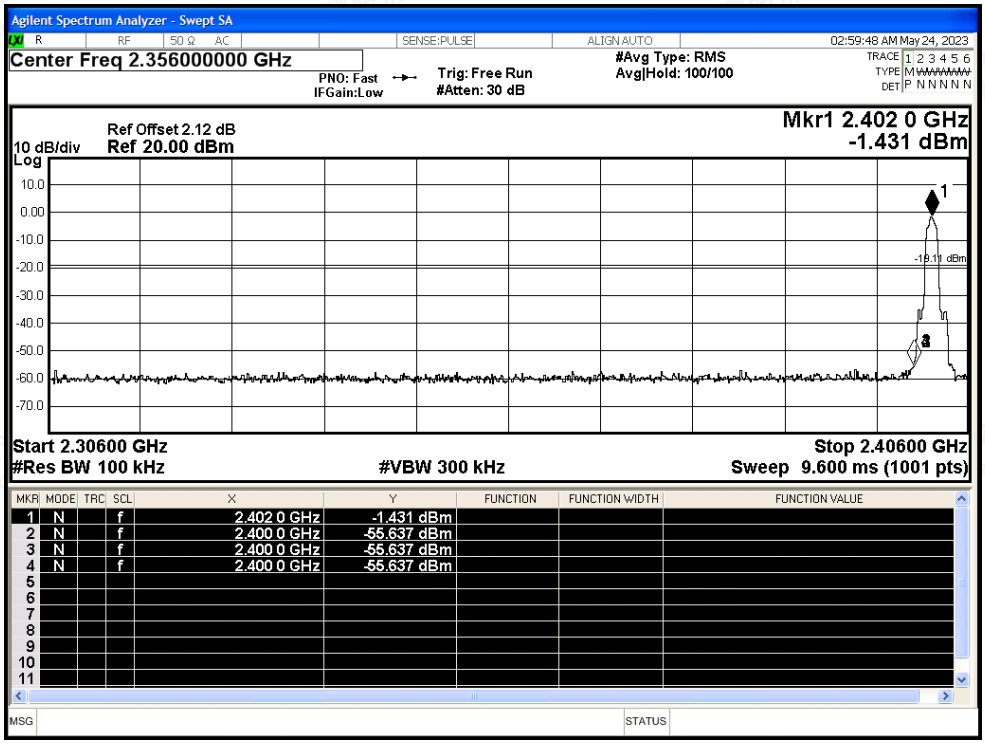
Band Edge NVNT 1-DH5 2480MHz Ant1 No-Hopping Emission



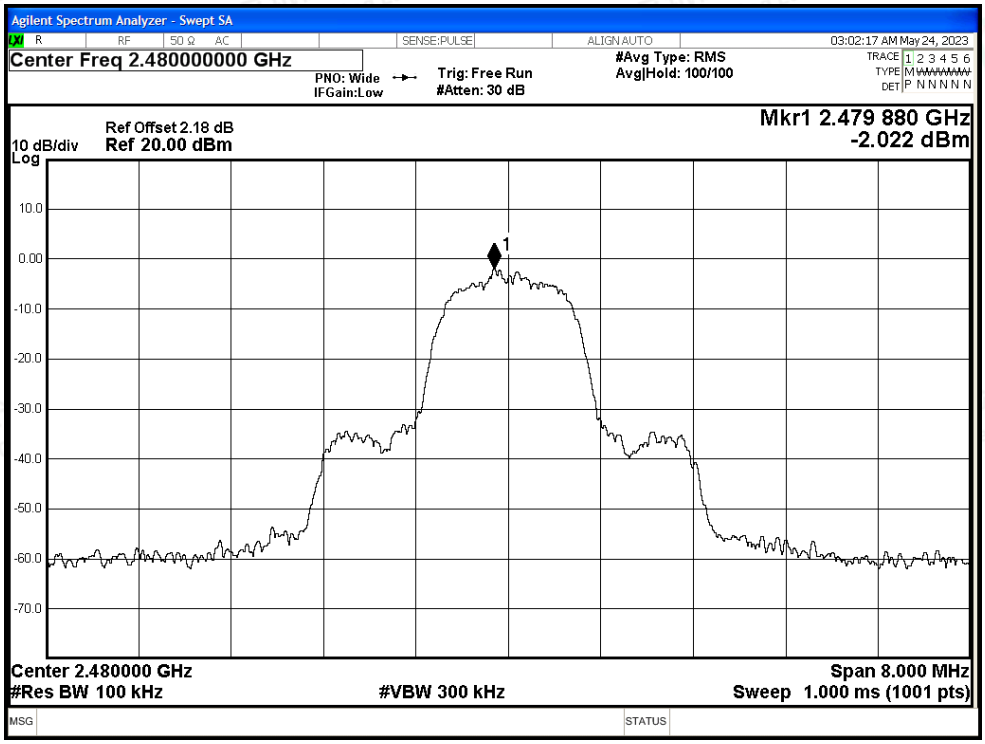
Band Edge NVNT 2-DH5 2402MHz Ant1 No-Hopping Ref



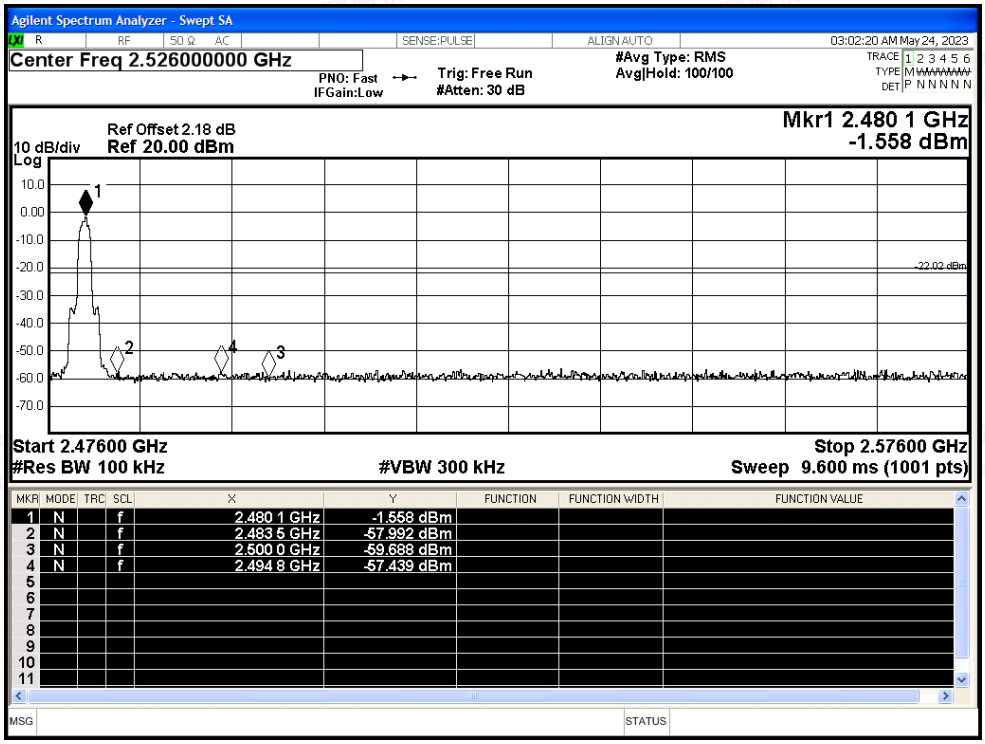
Band Edge NVNT 2-DH5 2402MHz Ant1 No-Hopping Emission



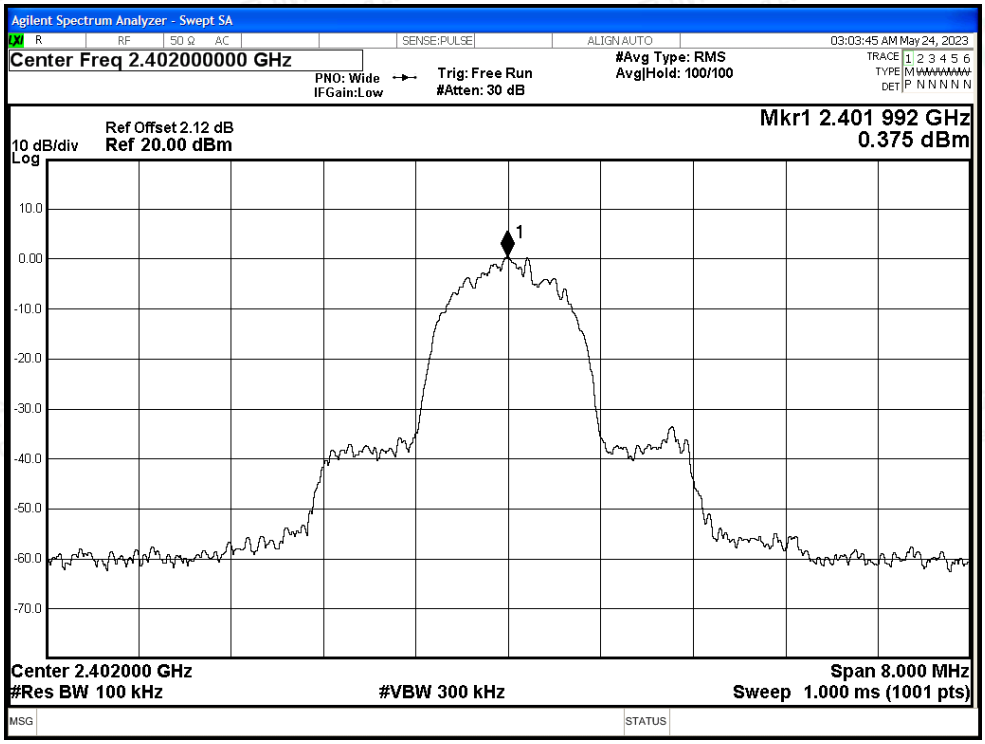
Band Edge NVNT 2-DH5 2480MHz Ant1 No-Hopping Ref



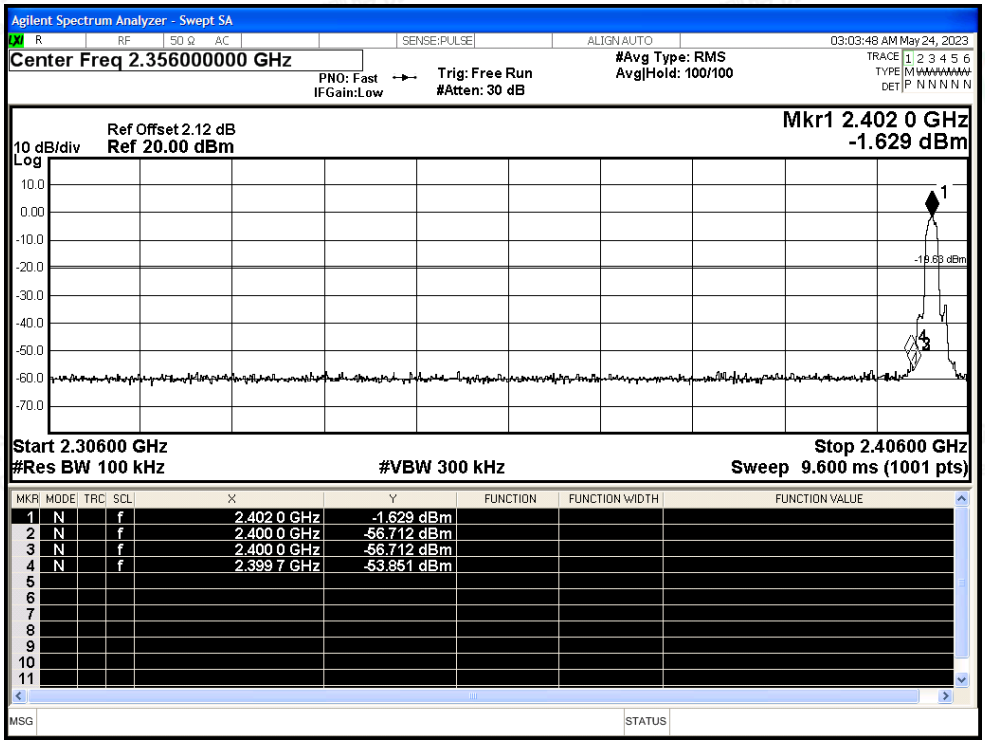
Band Edge NVNT 2-DH5 2480MHz Ant1 No-Hopping Emission



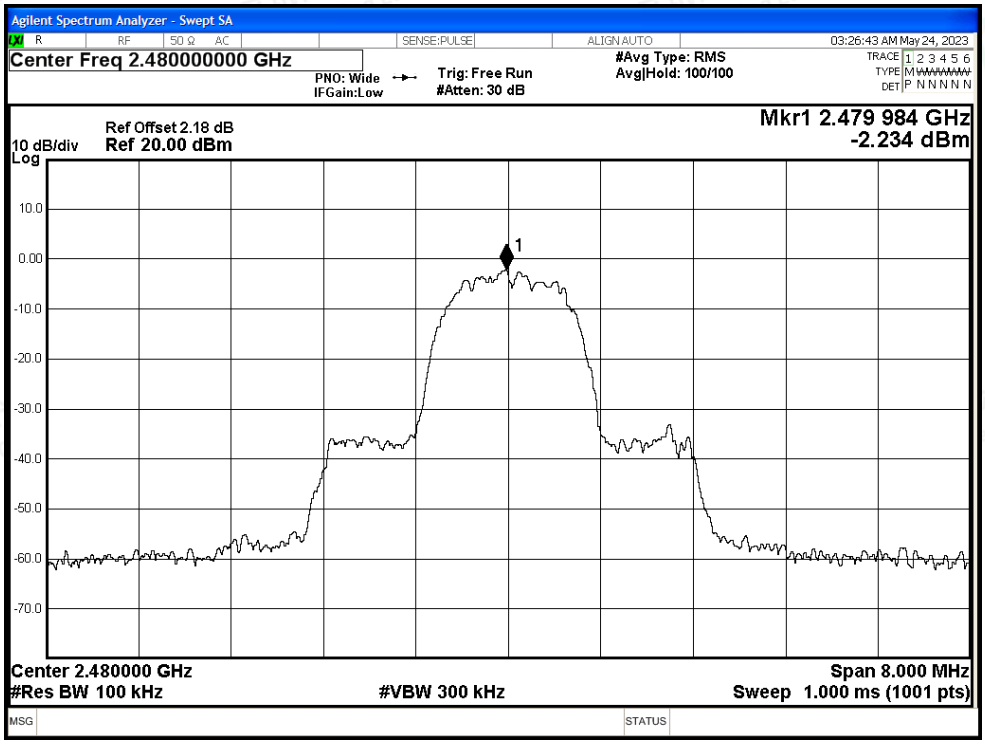
Band Edge NVNT 3-DH5 2402MHz Ant1 No-Hopping Ref



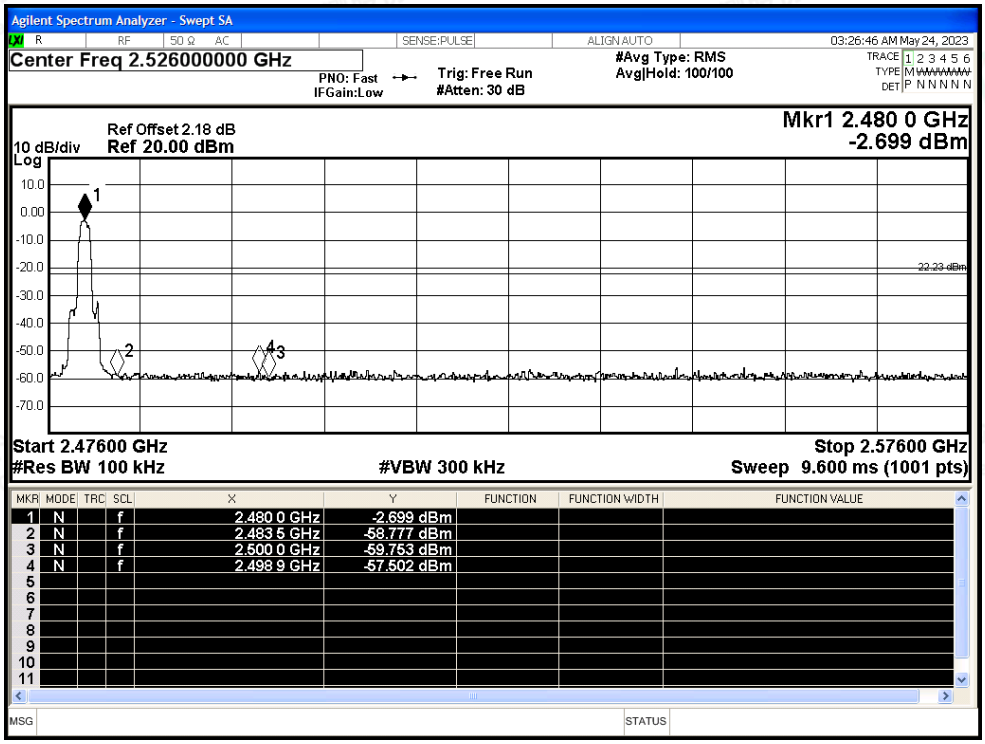
Band Edge NVNT 3-DH5 2402MHz Ant1 No-Hopping Emission



Band Edge NVNT 3-DH5 2480MHz Ant1 No-Hopping Ref



Band Edge NVNT 3-DH5 2480MHz Ant1 No-Hopping Emission

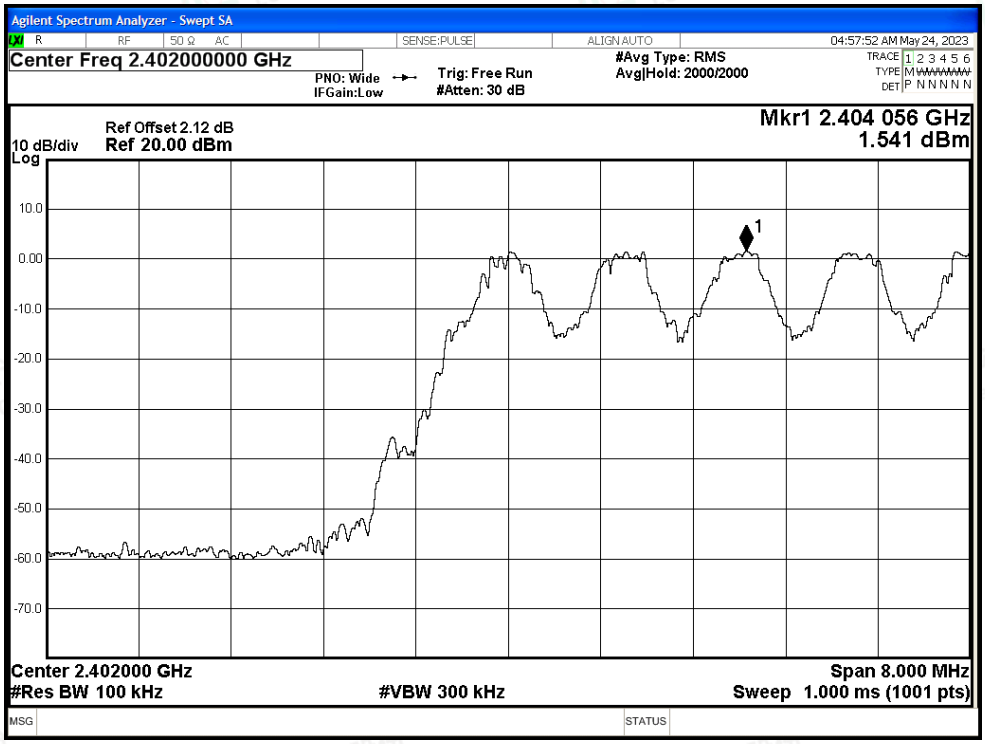


(Hopping)

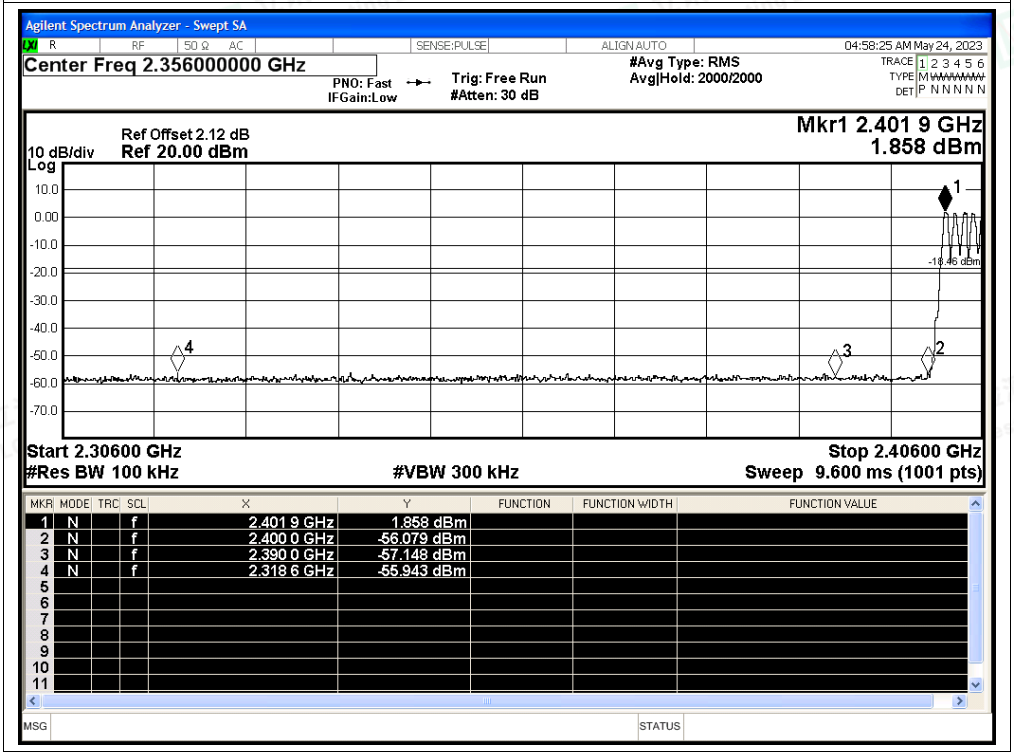
Condition	Mode	Frequency (MHz)	Antenna	Hopping Mode	Max Value (dBc)	Limit (dBc)	Verdict
NVNT	1-DH5	2402	Ant1	Hopping	-57.48	-20	Pass
NVNT	1-DH5	2480	Ant1	Hopping	-56.99	-20	Pass
NVNT	2-DH5	2402	Ant1	Hopping	-56.33	-20	Pass
NVNT	2-DH5	2480	Ant1	Hopping	-54.04	-20	Pass
NVNT	3-DH5	2402	Ant1	Hopping	-55.46	-20	Pass
NVNT	3-DH5	2480	Ant1	Hopping	-56.32	-20	Pass

Test Graphs

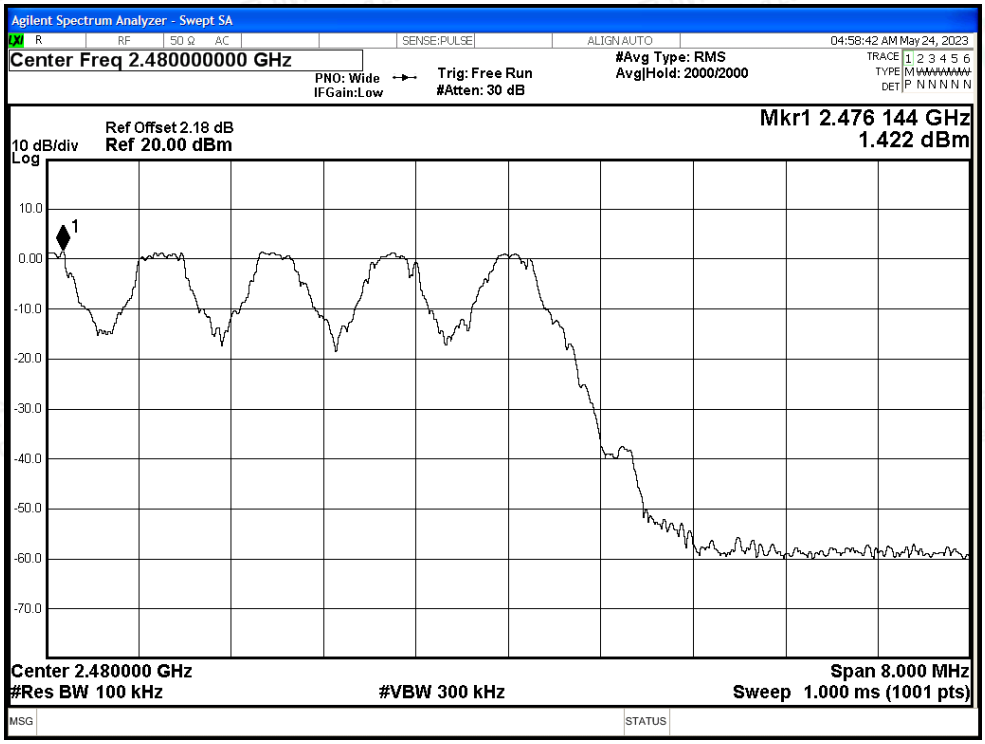
Band Edge(Hopping) NVNT 1-DH5 2402MHz Ant1 Hopping Ref



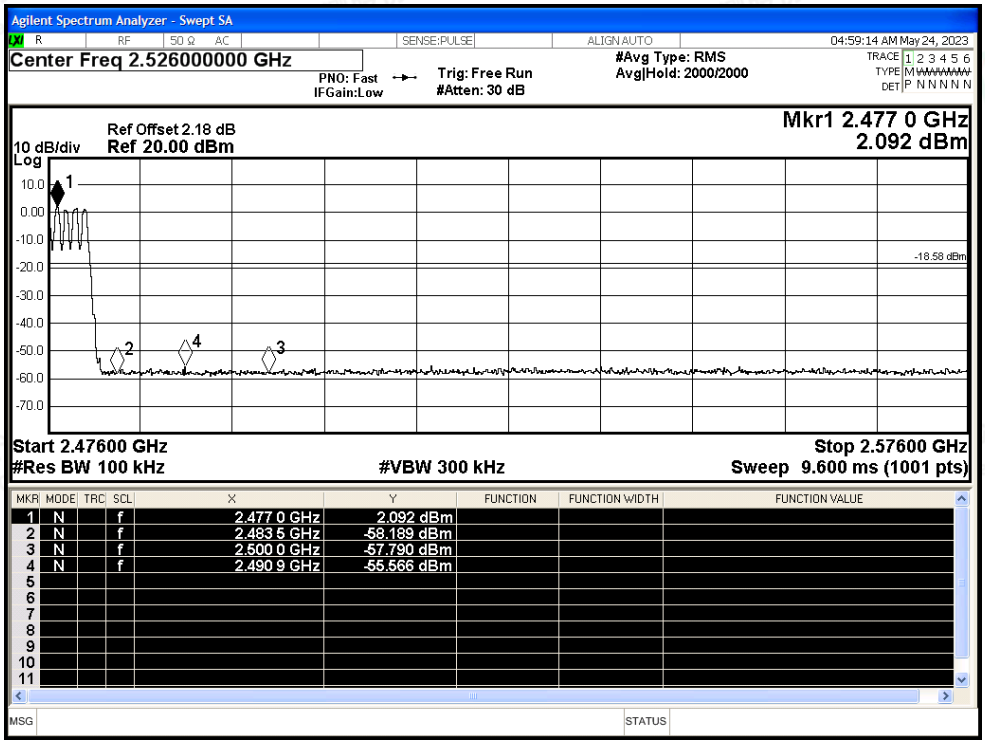
Band Edge(Hopping) NVNT 1-DH5 2402MHz Ant1 Hopping Emission



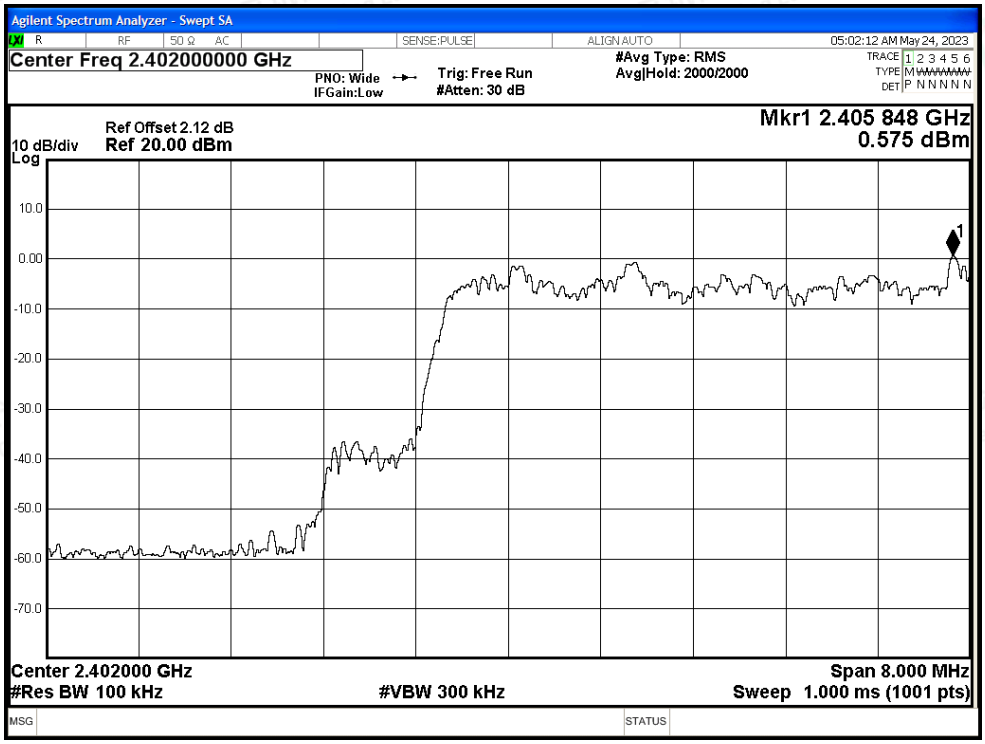
Band Edge(Hopping) NVNT 1-DH5 2480MHz Ant1 Hopping Ref



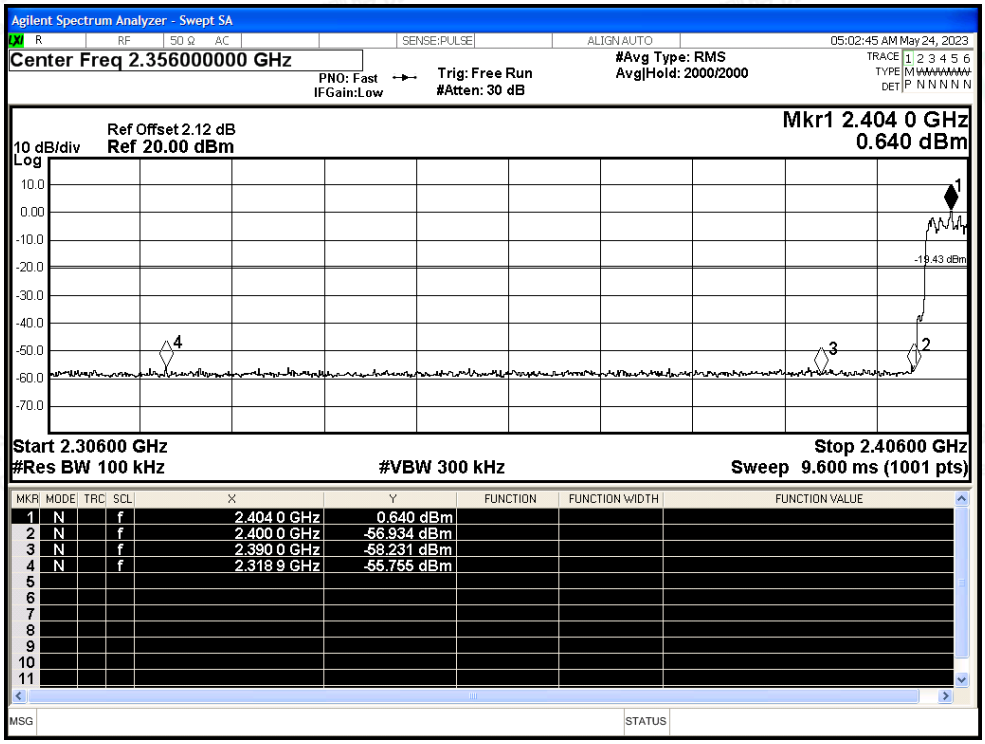
Band Edge(Hopping) NVNT 1-DH5 2480MHz Ant1 Hopping Emission



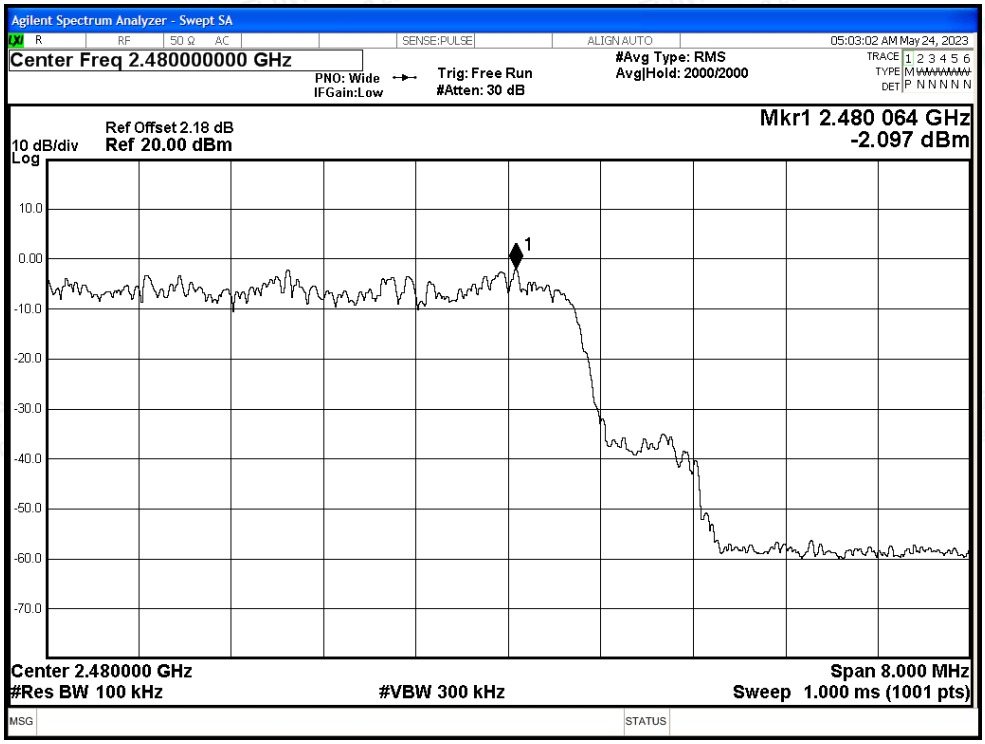
Band Edge(Hopping) NVNT 2-DH5 2402MHz Ant1 Hopping Ref



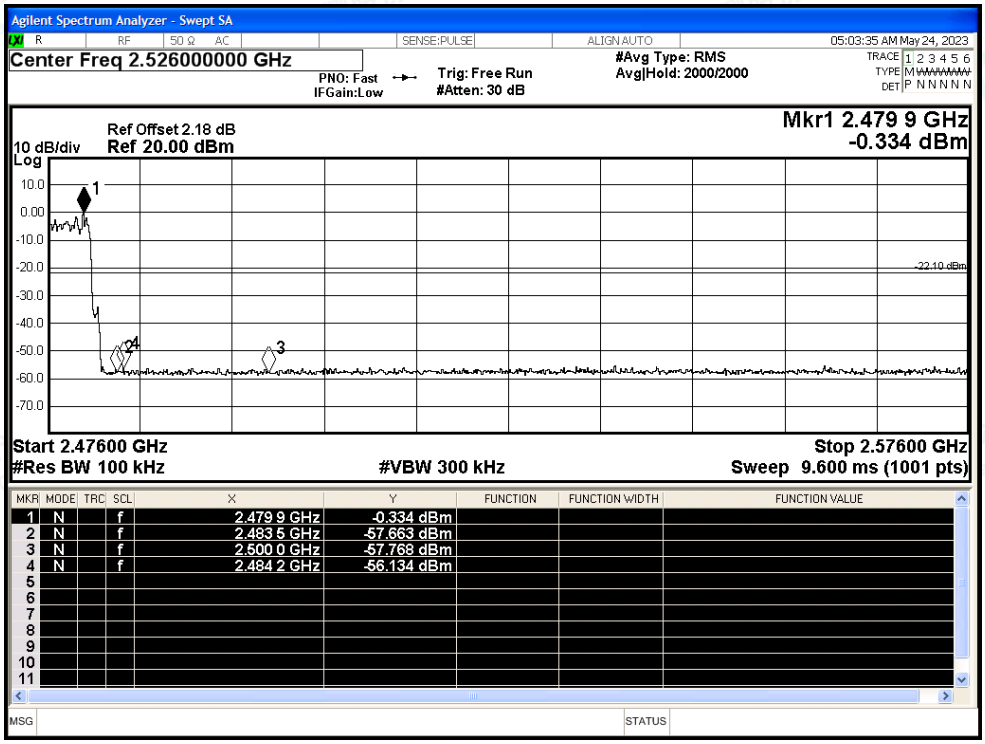
Band Edge(Hopping) NVNT 2-DH5 2402MHz Ant1 Hopping Emission



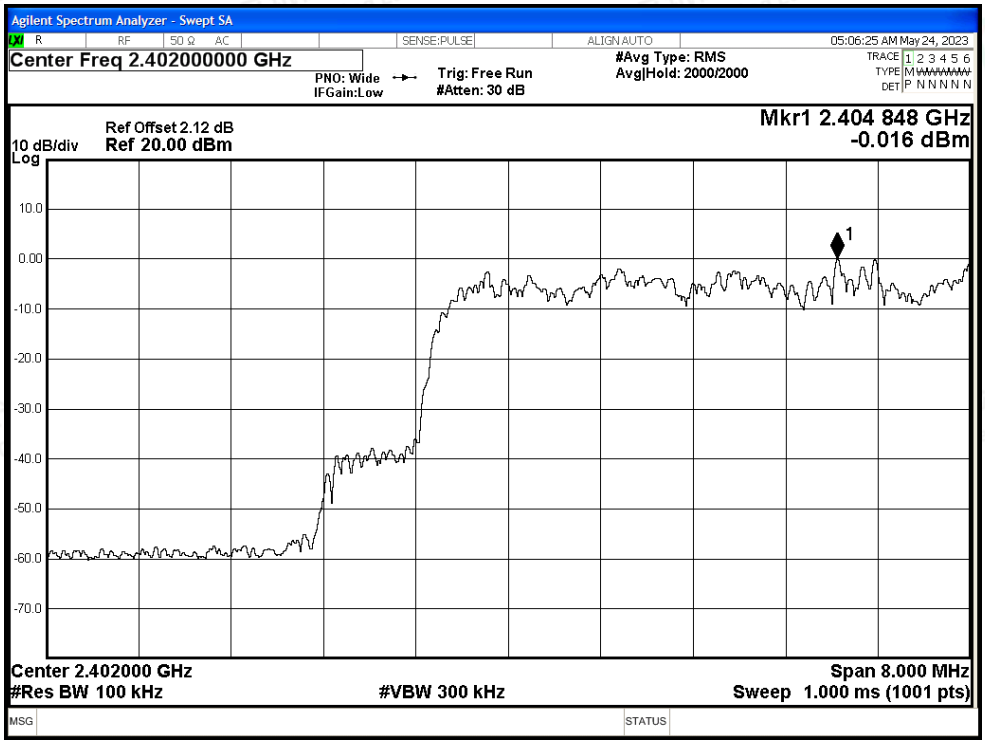
Band Edge(Hopping) NVNT 2-DH5 2480MHz Ant1 Hopping Ref



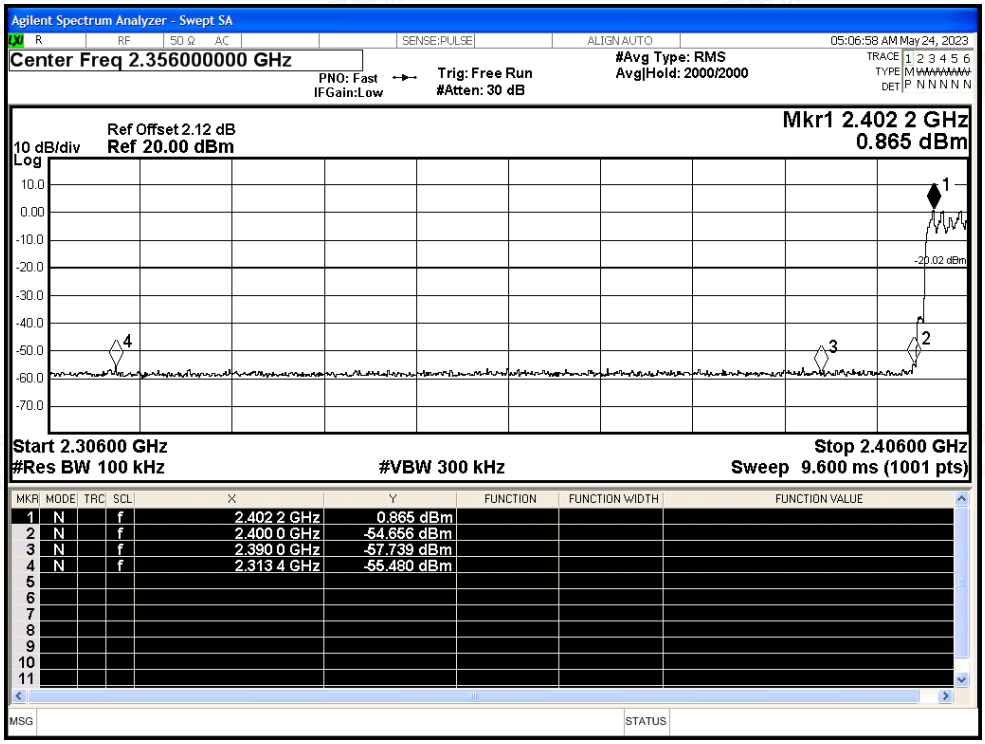
Band Edge(Hopping) NVNT 2-DH5 2480MHz Ant1 Hopping Emission



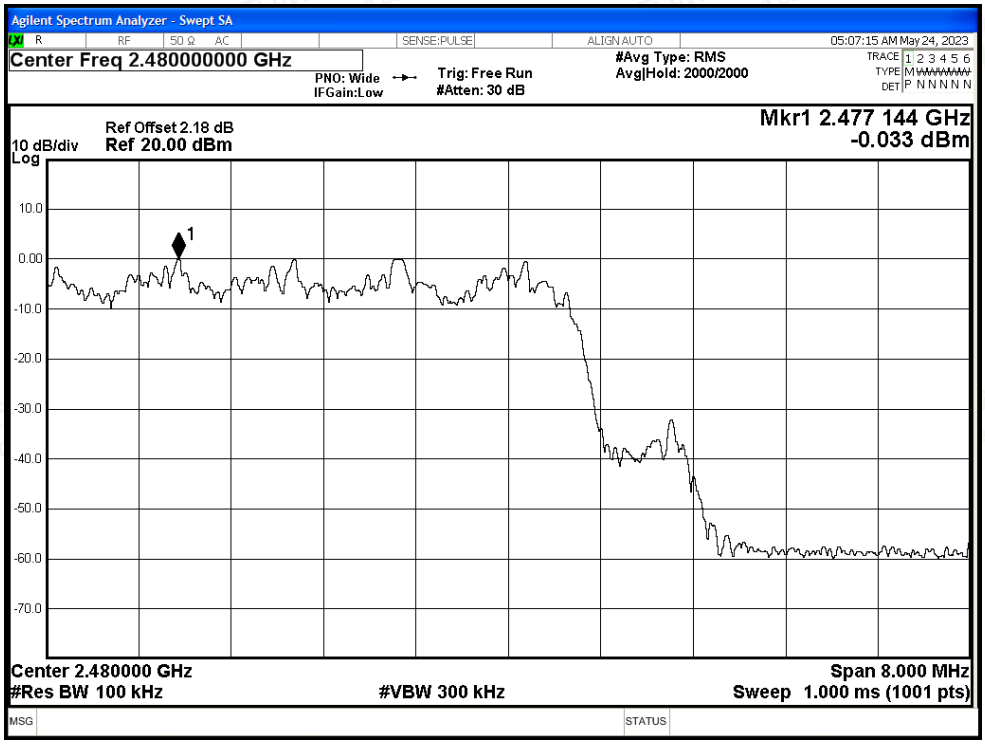
Band Edge(Hopping) NVNT 3-DH5 2402MHz Ant1 Hopping Ref



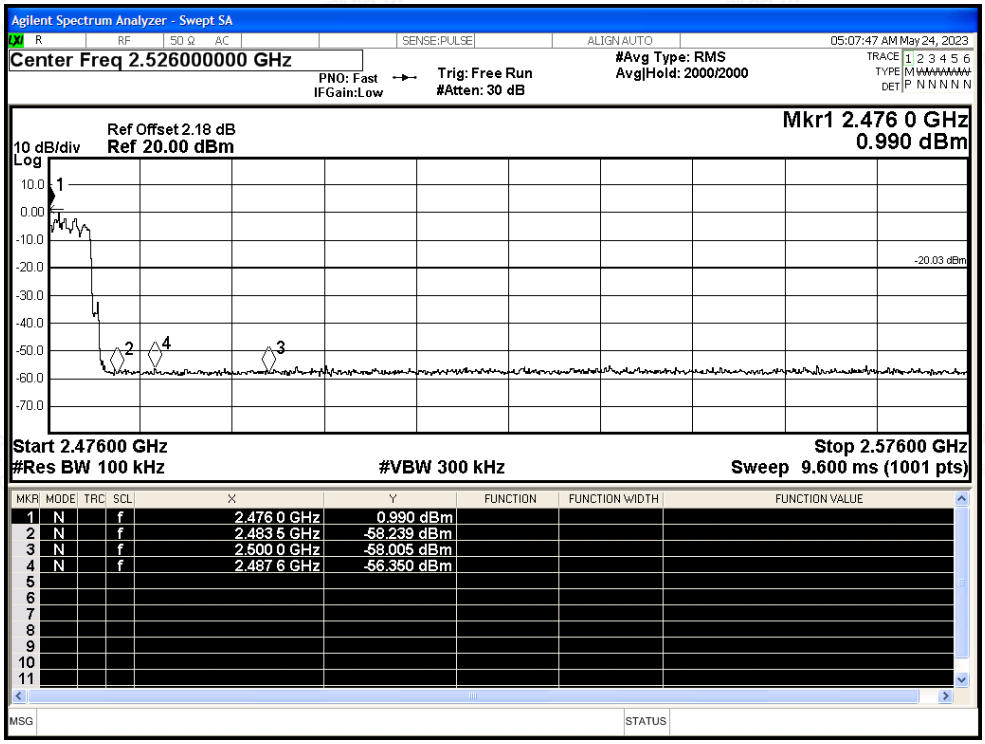
Band Edge(Hopping) NVNT 3-DH5 2402MHz Ant1 Hopping Emission



Band Edge(Hopping) NVNT 3-DH5 2480MHz Ant1 Hopping Ref



Band Edge(Hopping) NVNT 3-DH5 2480MHz Ant1 Hopping Emission

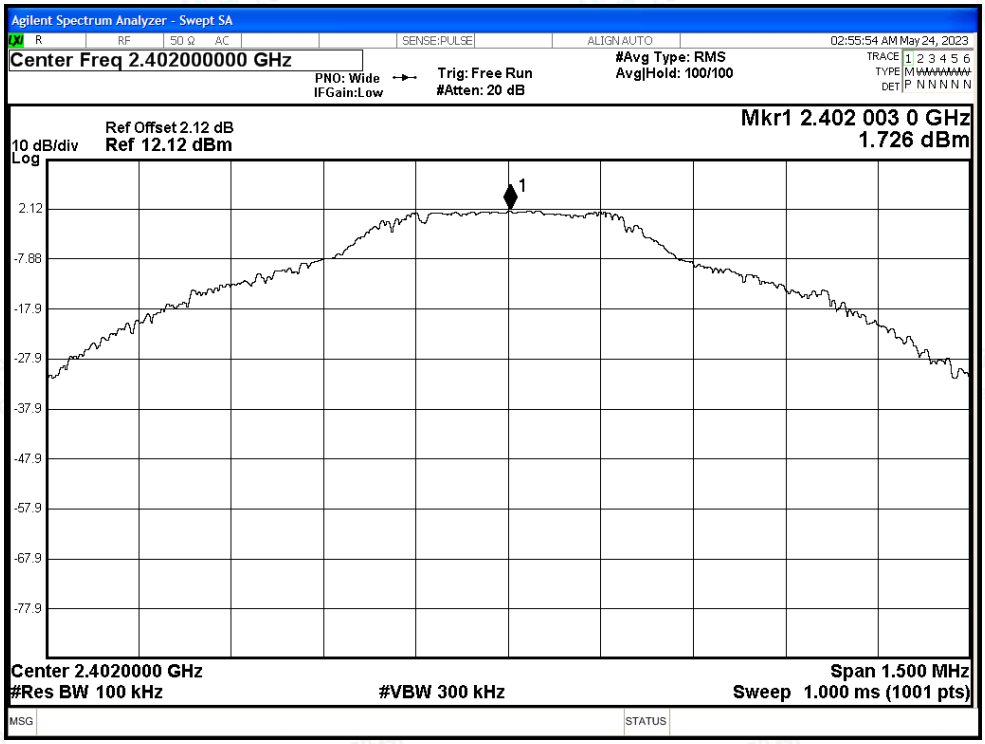


A.7 Conducted RF Spurious Emission

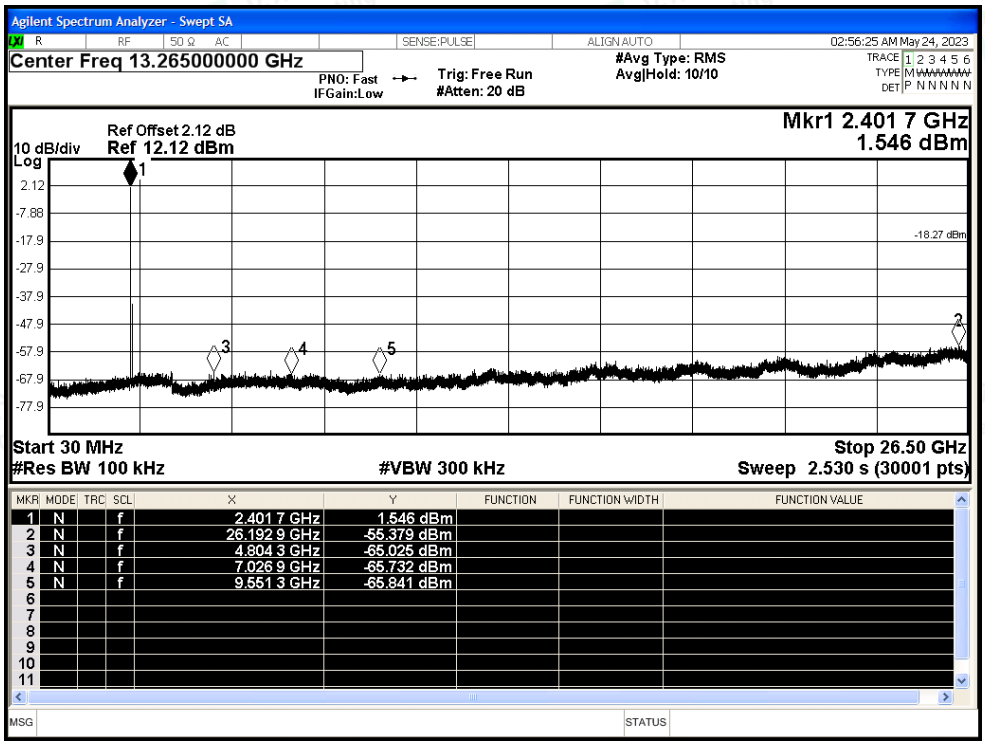
Condition	Mode	Frequency (MHz)	Antenna	Max Value (dBc)	Limit (dBc)	Verdict
NVNT	1-DH5	2402	Ant1	-57.11	-20	Pass
NVNT	1-DH5	2441	Ant1	-56.25	-20	Pass
NVNT	1-DH5	2480	Ant1	-54.07	-20	Pass
NVNT	2-DH5	2402	Ant1	-55.82	-20	Pass
NVNT	2-DH5	2441	Ant1	-54.24	-20	Pass
NVNT	2-DH5	2480	Ant1	-54.66	-20	Pass
NVNT	3-DH5	2402	Ant1	-52.44	-20	Pass
NVNT	3-DH5	2441	Ant1	-57.14	-20	Pass
NVNT	3-DH5	2480	Ant1	-55.53	-20	Pass

Test Graphs

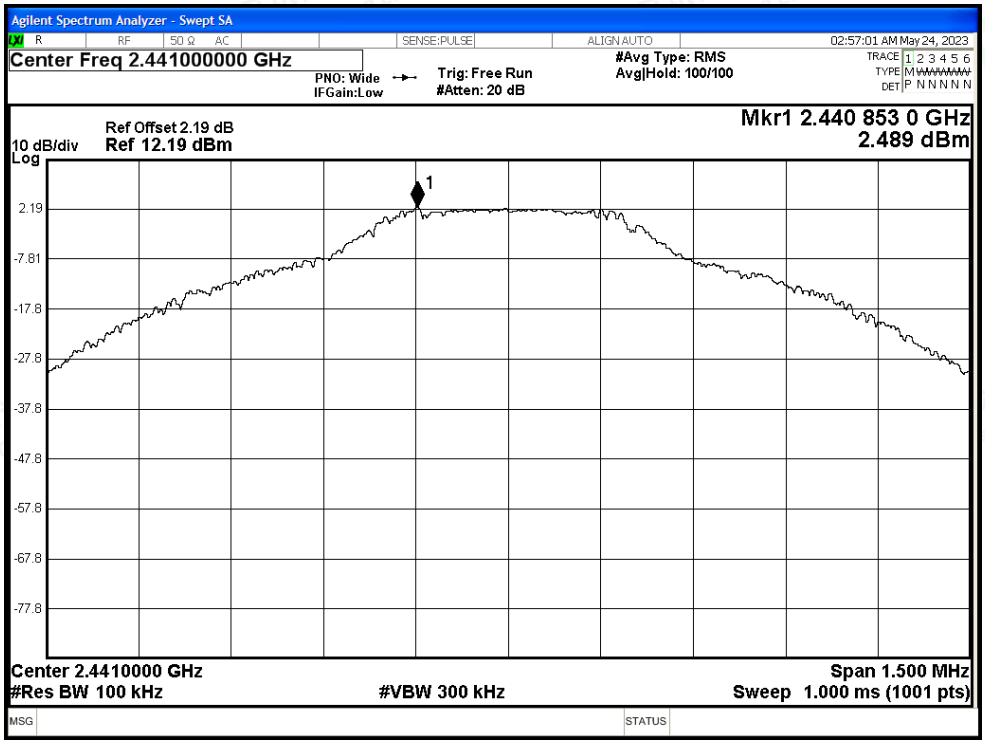
Tx. Spurious NVNT 1-DH5 2402MHz Ant1 Ref



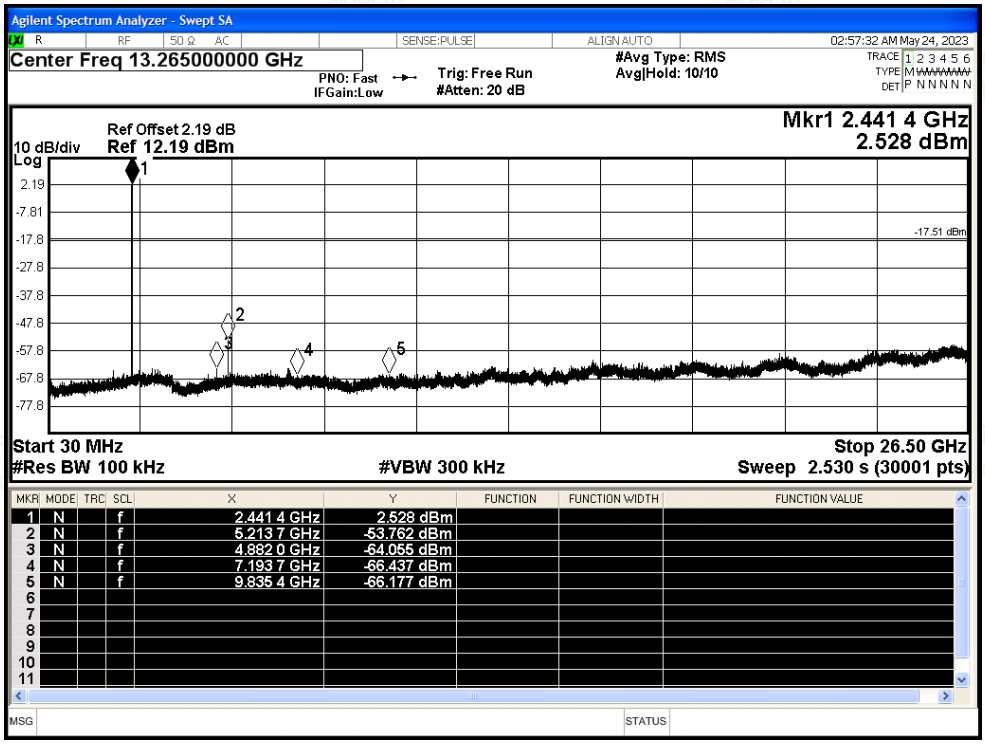
Tx. Spurious NVNT 1-DH5 2402MHz Ant1 Emission



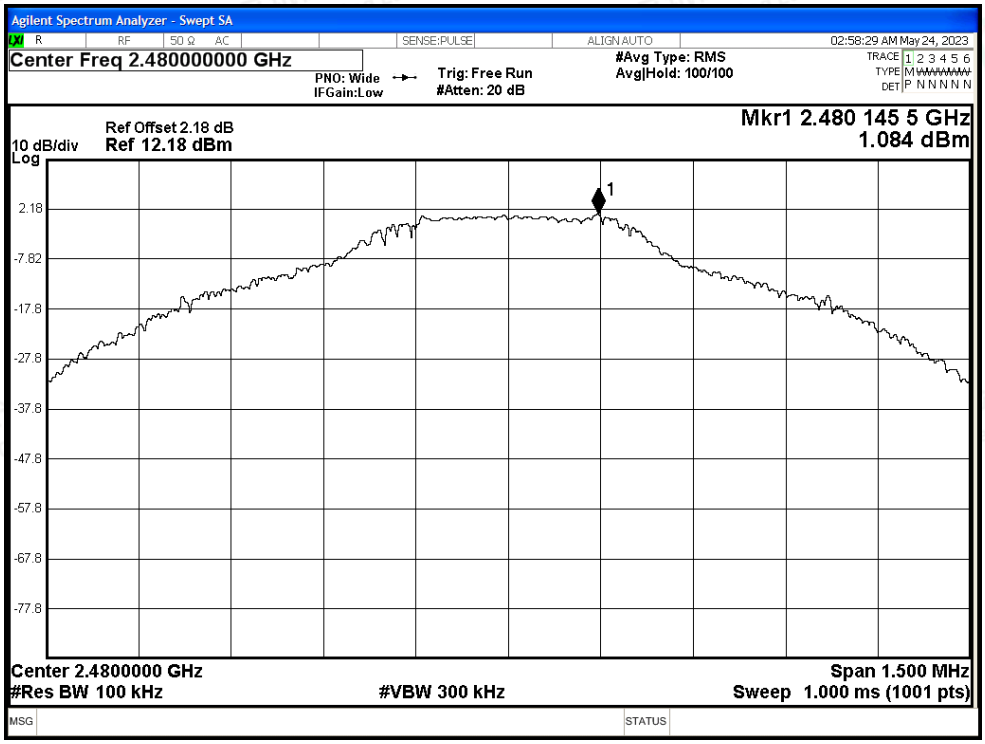
Tx. Spurious NVNT 1-DH5 2441MHz Ant1 Ref



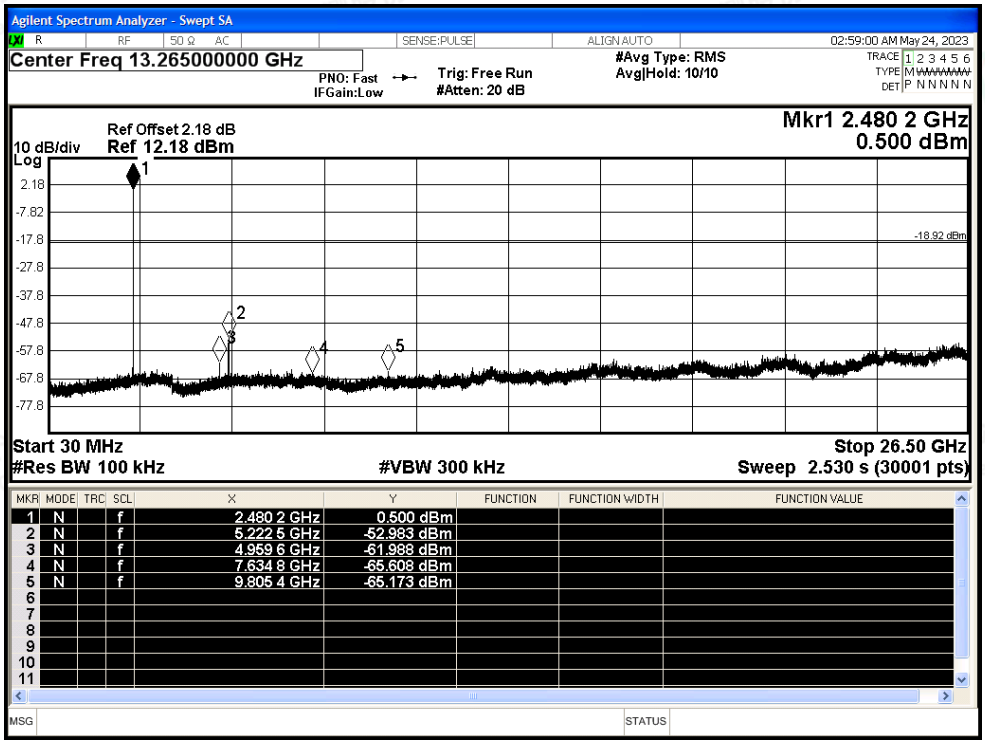
Tx. Spurious NVNT 1-DH5 2441MHz Ant1 Emission



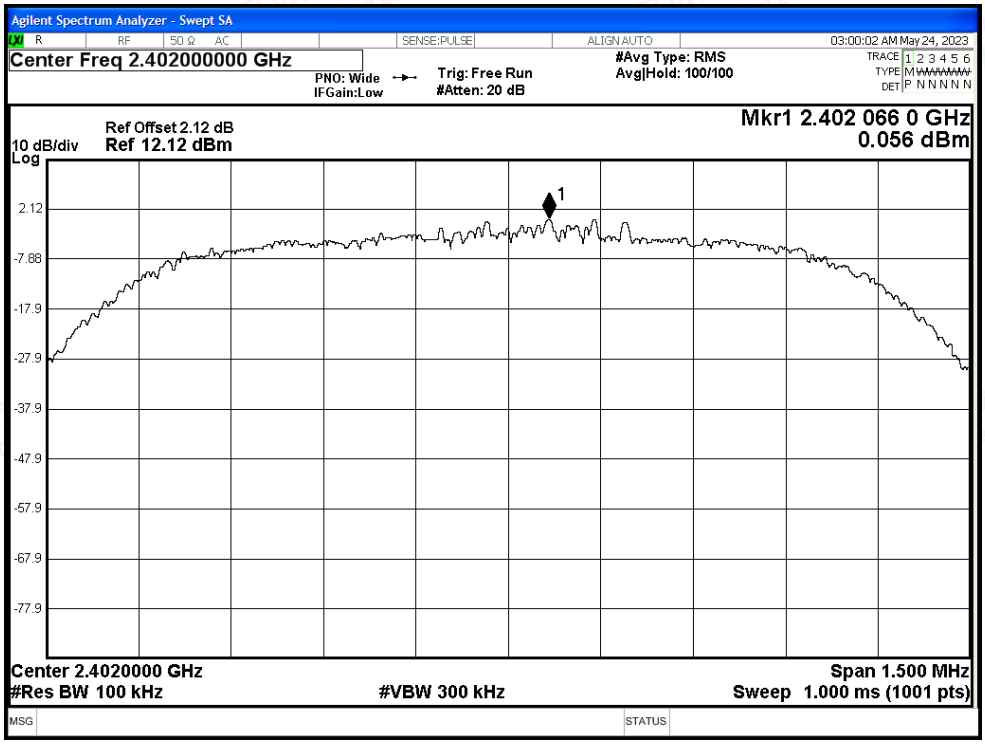
Tx. Spurious NVNT 1-DH5 2480MHz Ant1 Ref



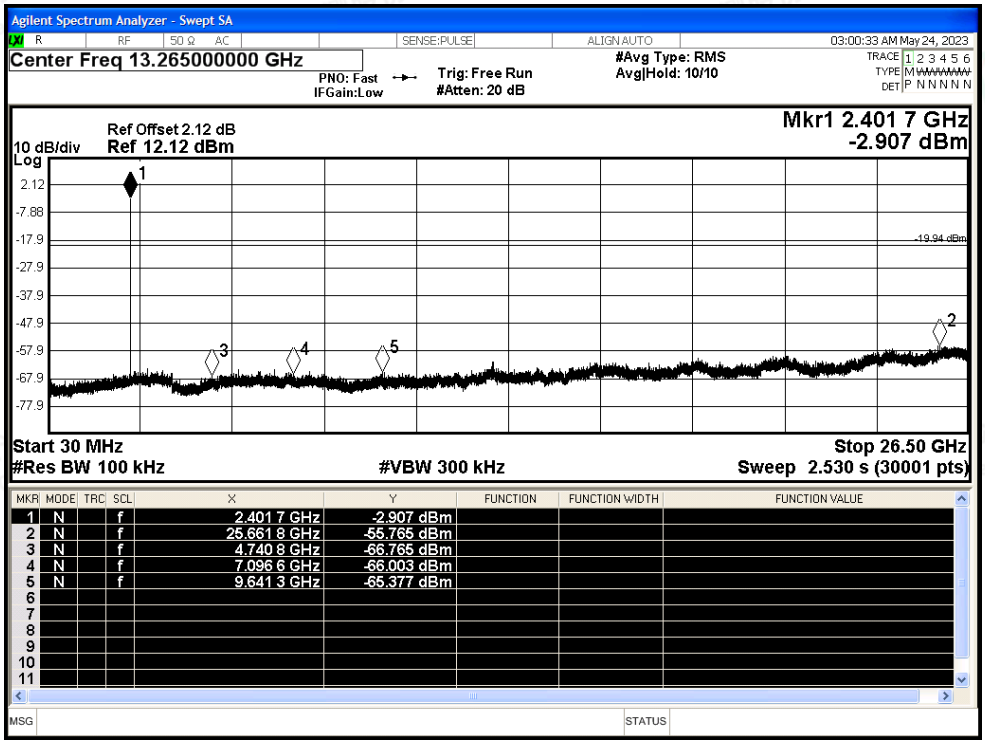
Tx. Spurious NVNT 1-DH5 2480MHz Ant1 Emission



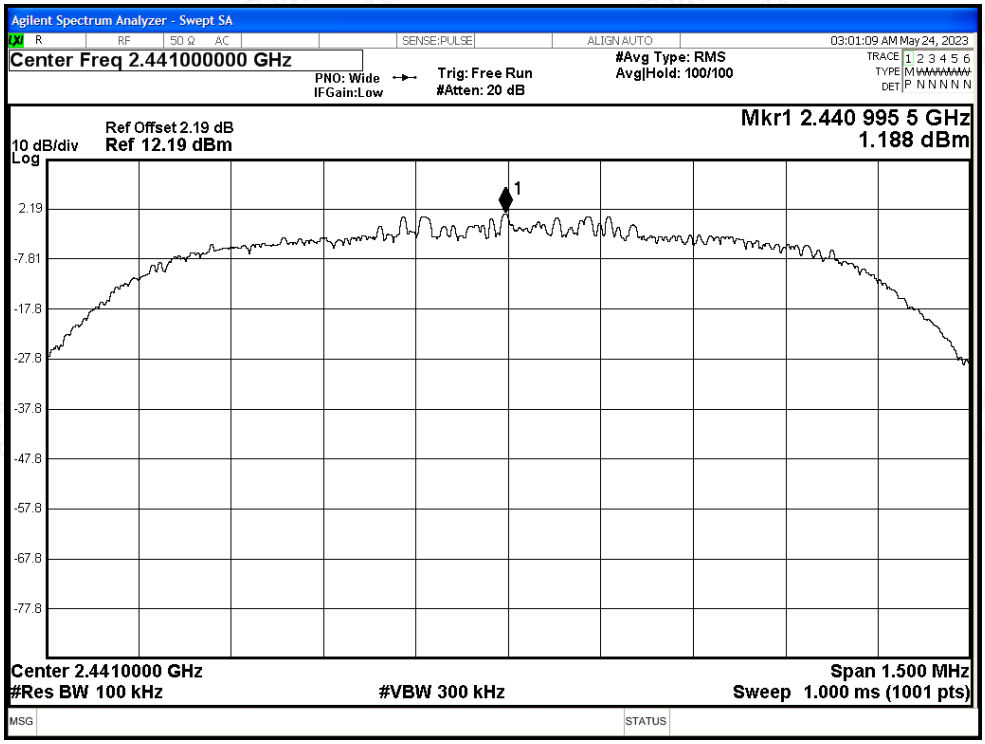
Tx. Spurious NVNT 2-DH5 2402MHz Ant1 Ref



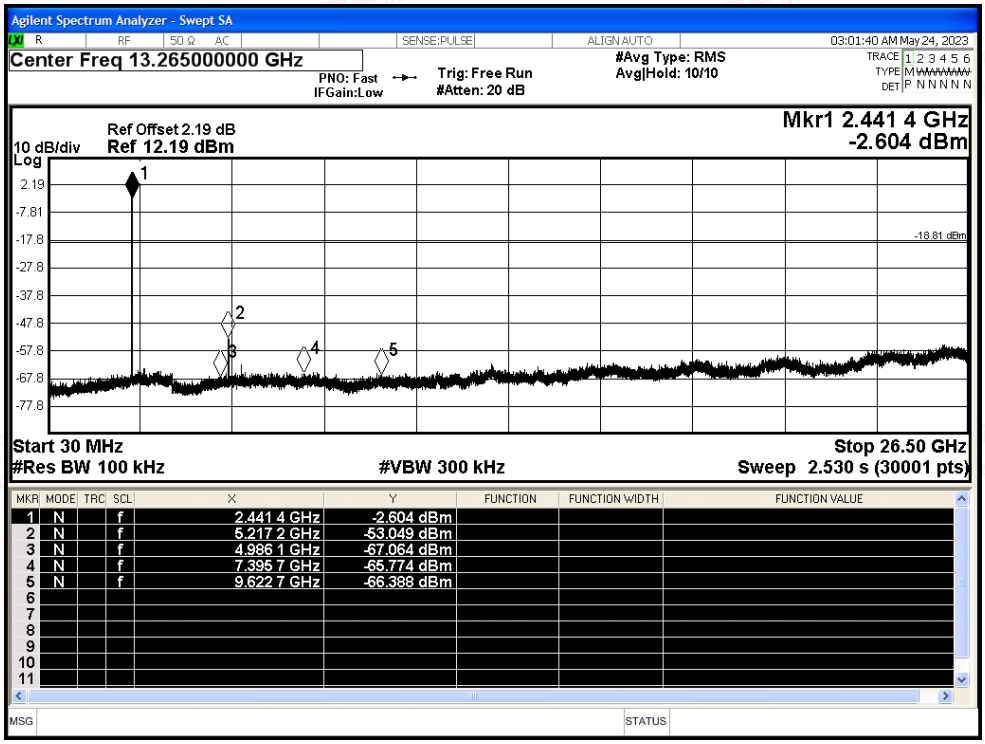
Tx. Spurious NVNT 2-DH5 2402MHz Ant1 Emission



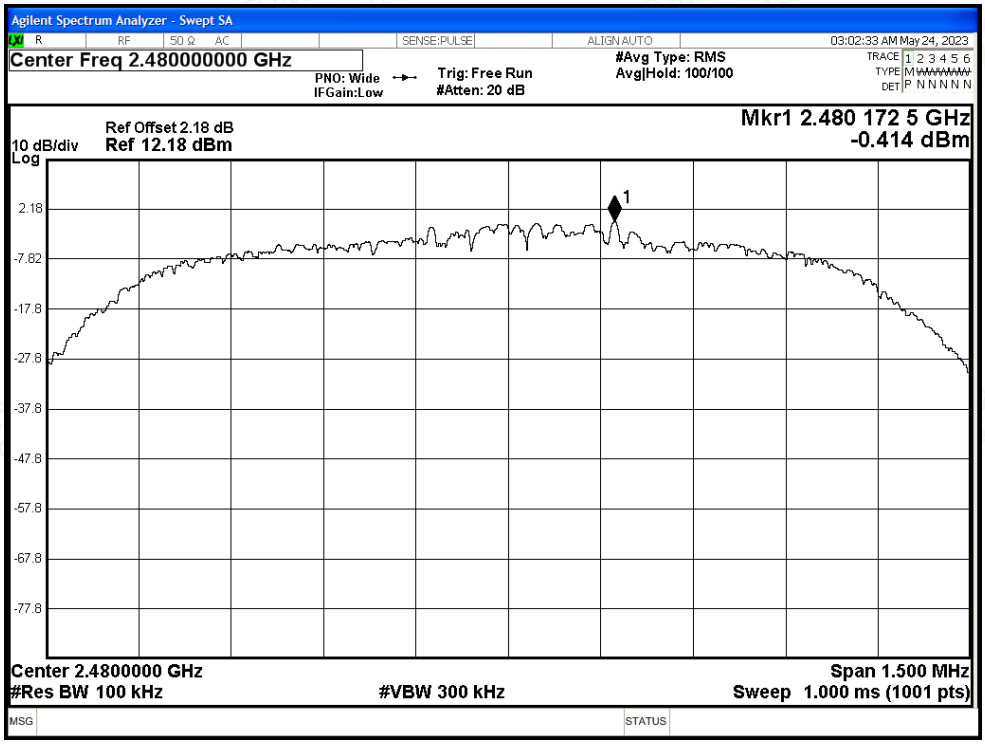
Tx. Spurious NVNT 2-DH5 2441MHz Ant1 Ref



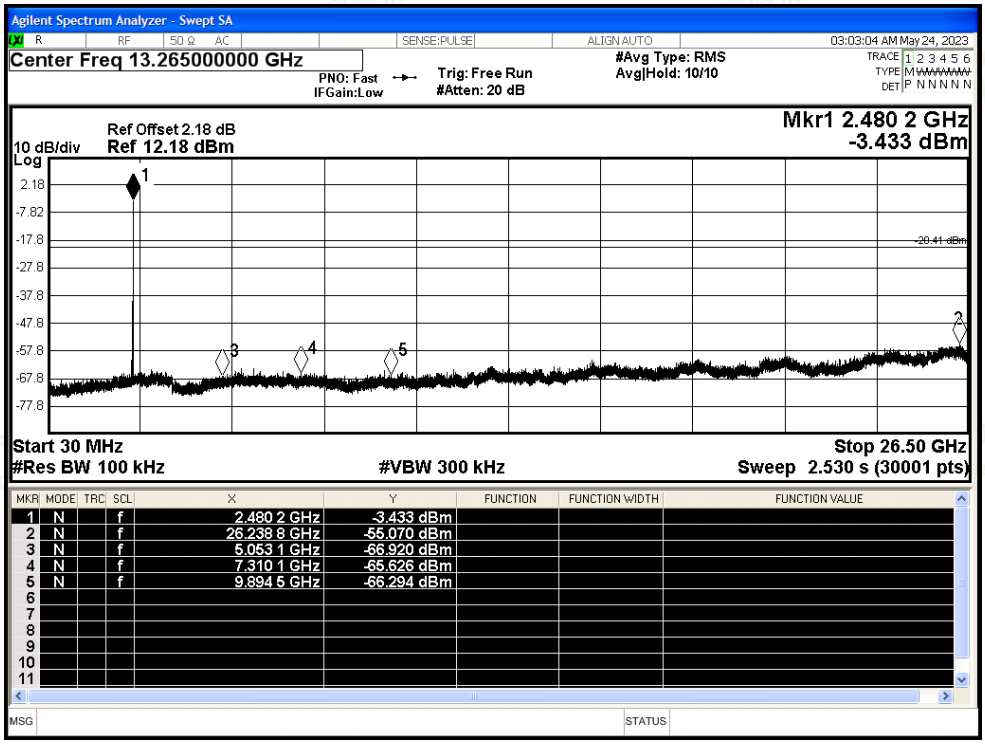
Tx. Spurious NVNT 2-DH5 2441MHz Ant1 Emission



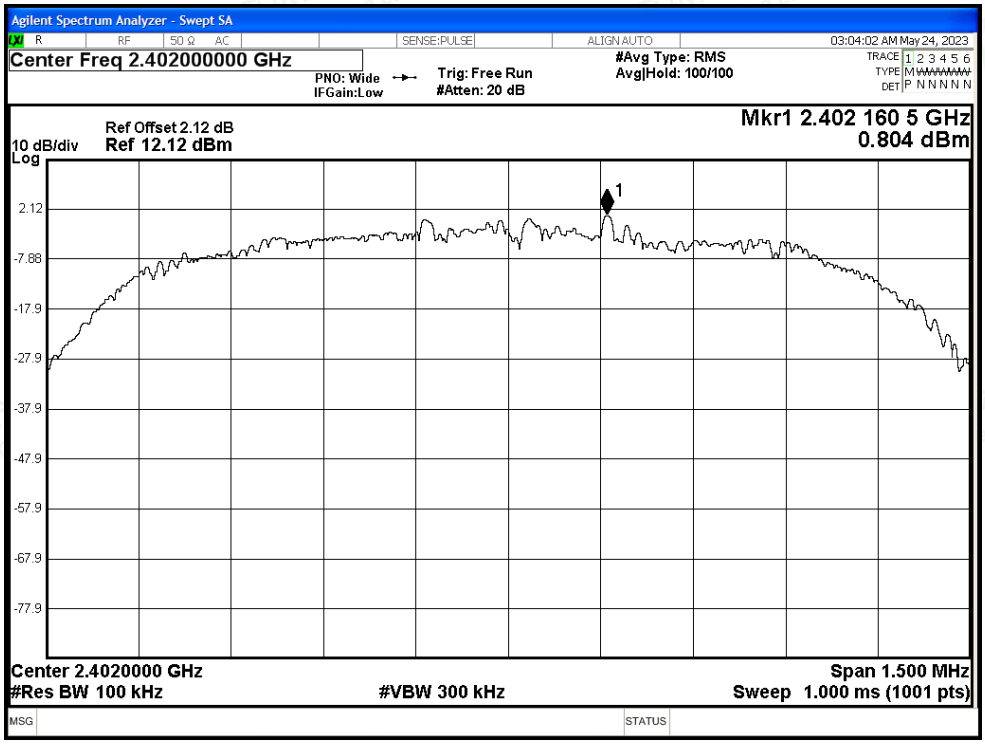
Tx. Spurious NVNT 2-DH5 2480MHz Ant1 Ref



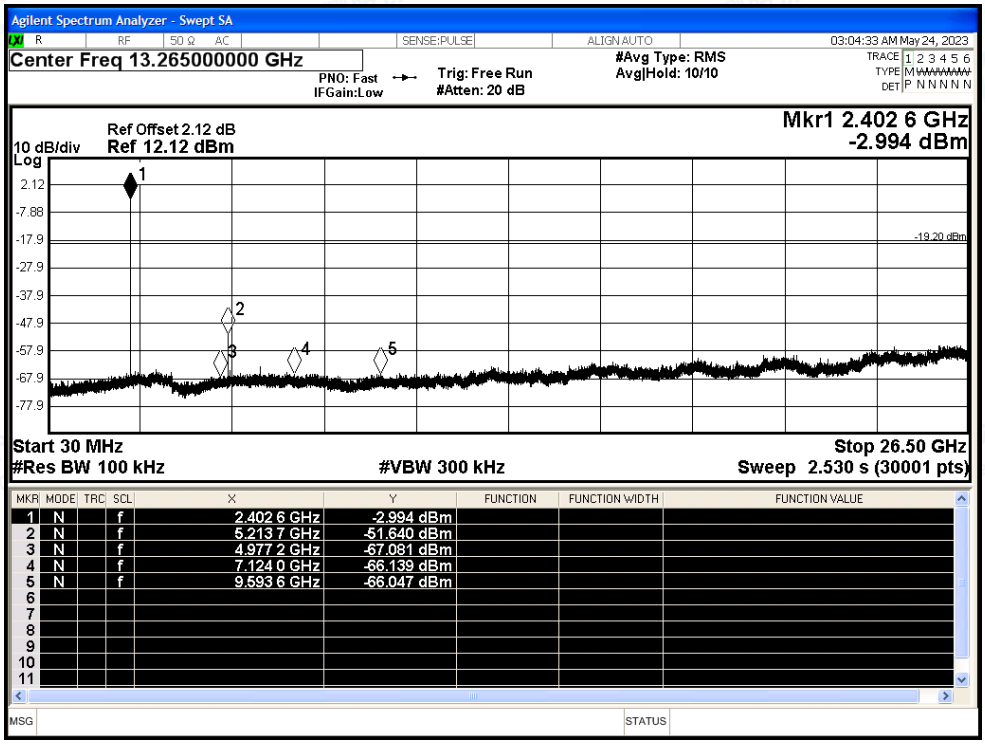
Tx. Spurious NVNT 2-DH5 2480MHz Ant1 Emission



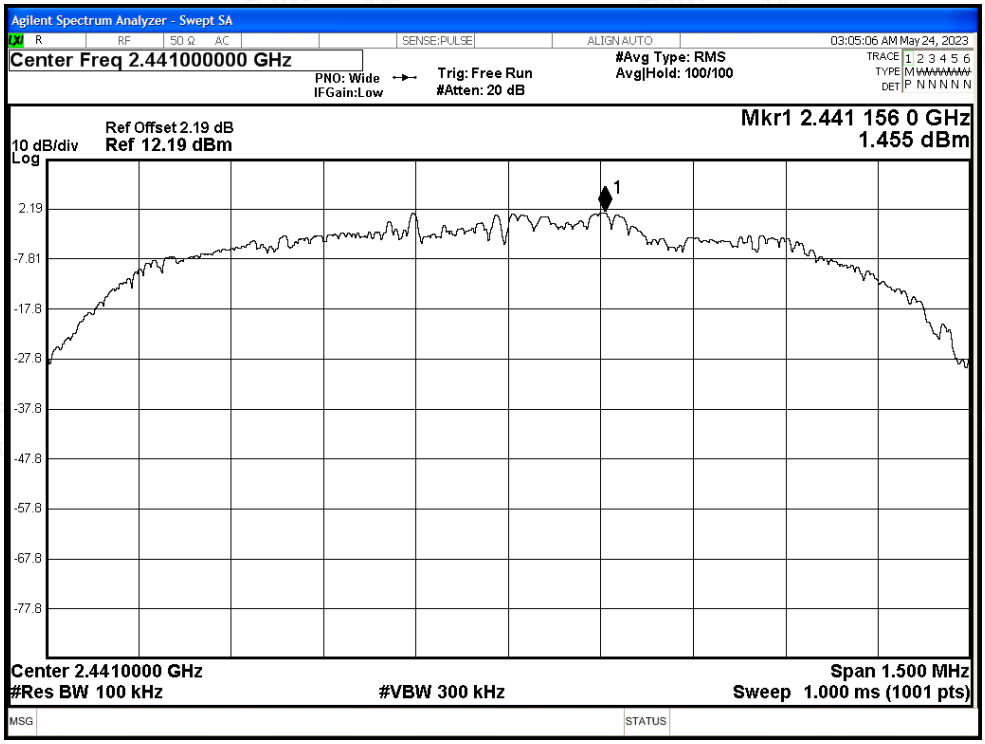
Tx. Spurious NVNT 3-DH5 2402MHz Ant1 Ref



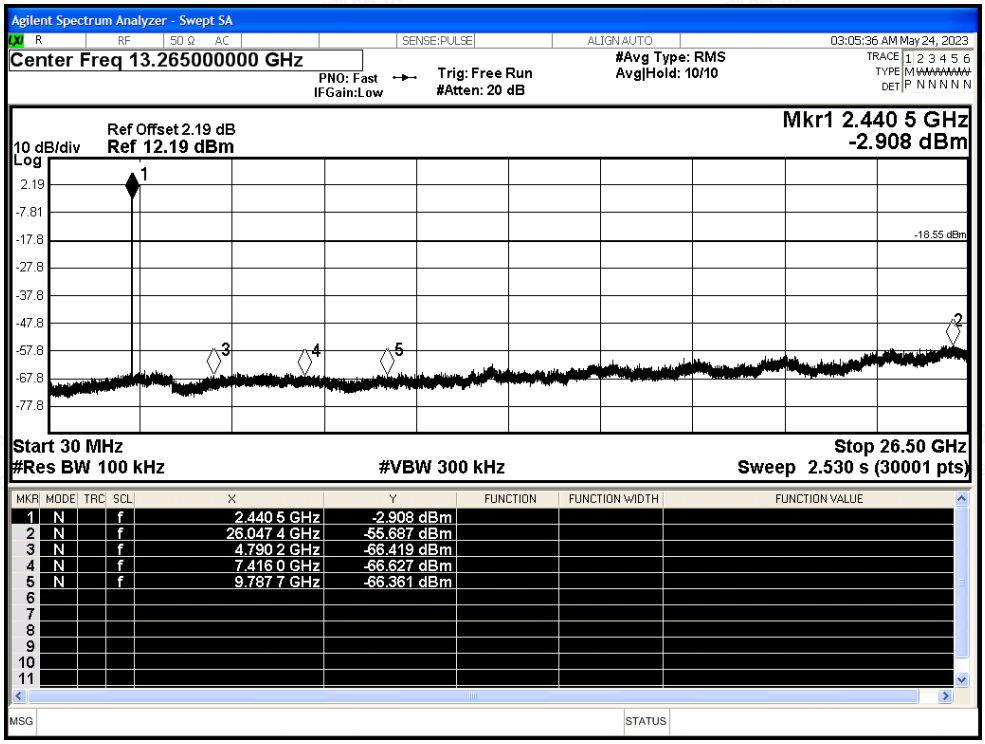
Tx. Spurious NVNT 3-DH5 2402MHz Ant1 Emission



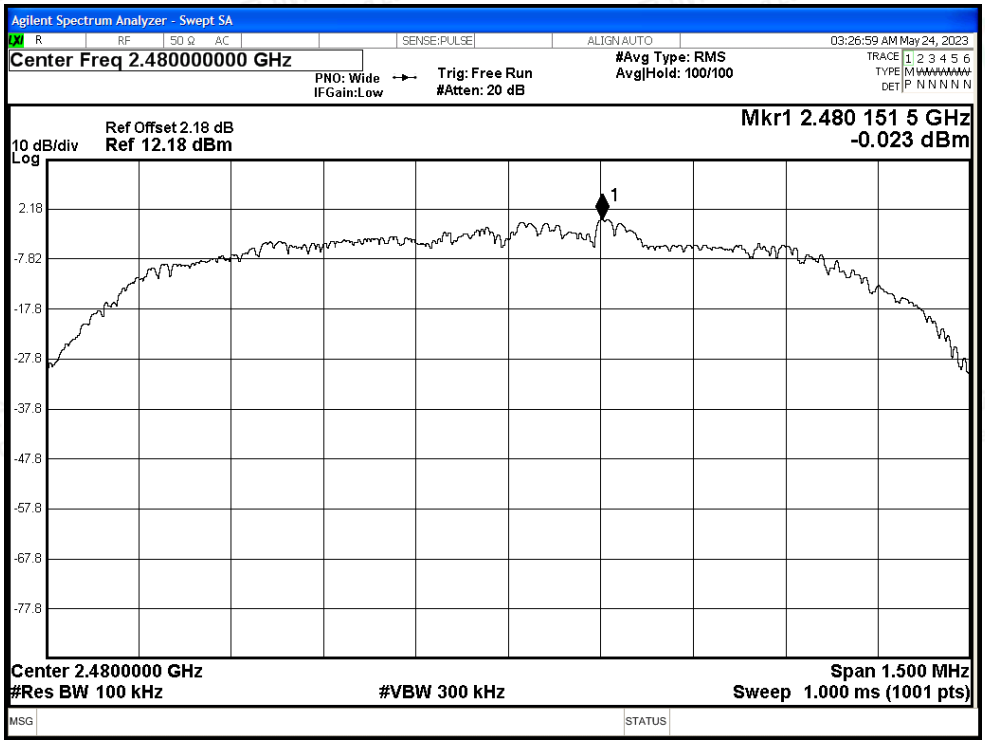
Tx. Spurious NVNT 3-DH5 2441MHz Ant1 Ref



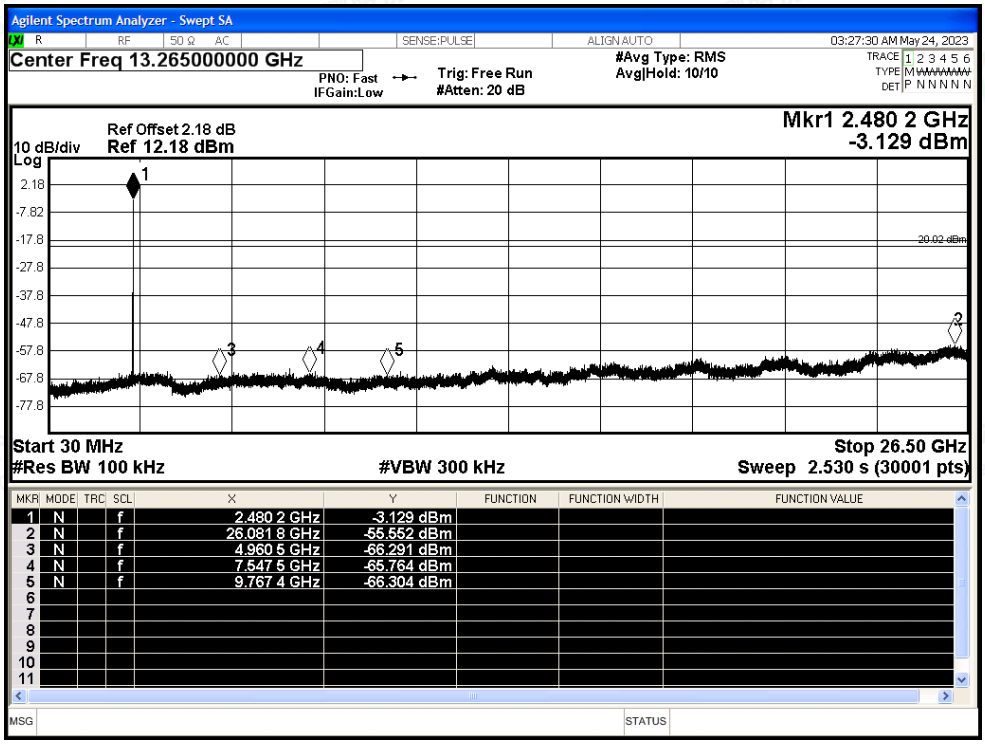
Tx. Spurious NVNT 3-DH5 2441MHz Ant1 Emission



Tx. Spurious NVNT 3-DH5 2480MHz Ant1 Ref



Tx. Spurious NVNT 3-DH5 2480MHz Ant1 Emission

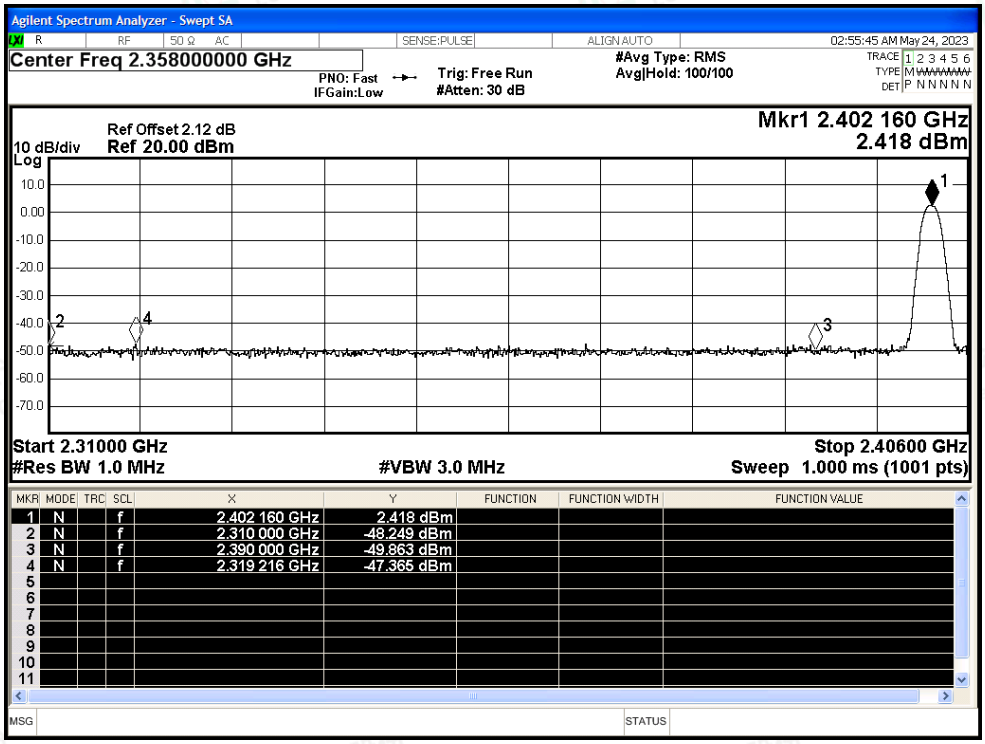


A.8 Restrict Band

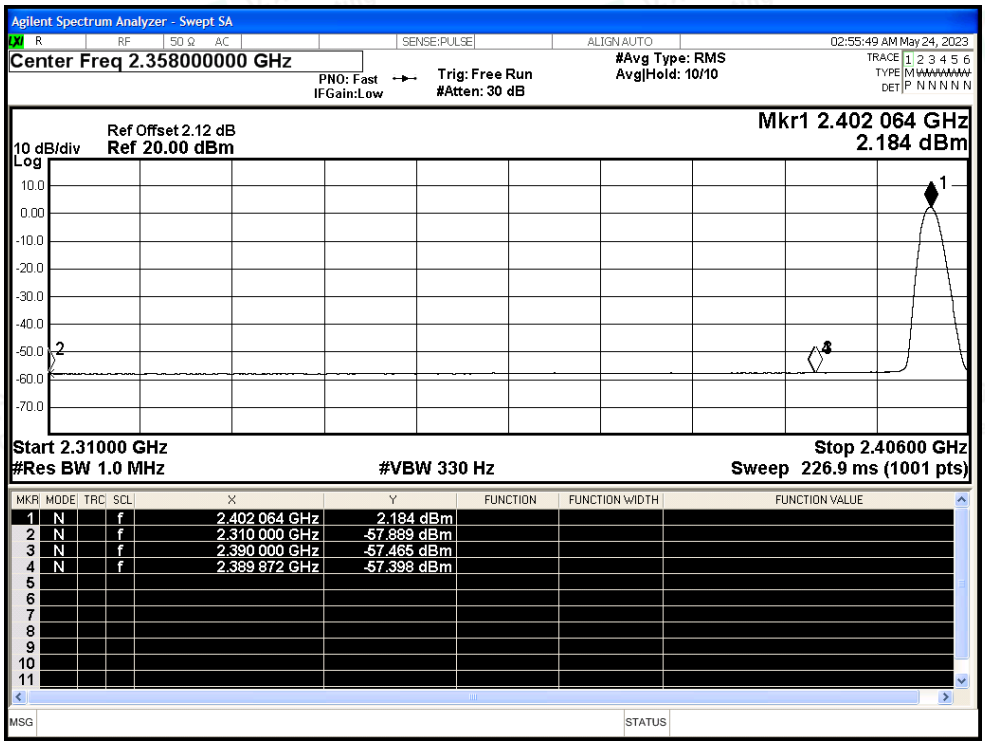
Condition	Mode	Frequency (MHz)	Antenna	Hopping Mode	Spur Freq (MHz)	Power (dBm)	Gain (dBi)	E (dBuV/m)	Detector	Limit (dBuV/m)	Verdict
NVNT	1-DH5	2402	Ant1	No-Hopping	2310	-48.25	2	49.01	Peak	74	Pass
NVNT	1-DH5	2402	Ant1	No-Hopping	2310	-57.89	2	39.37	Average	54	Pass
NVNT	1-DH5	2402	Ant1	No-Hopping	2319.216	-47.37	2	49.89	Peak	74	Pass
NVNT	1-DH5	2402	Ant1	No-Hopping	2389.872	-57.4	2	39.86	Average	54	Pass
NVNT	1-DH5	2402	Ant1	No-Hopping	2390	-49.86	2	47.4	Peak	74	Pass
NVNT	1-DH5	2402	Ant1	No-Hopping	2390	-57.47	2	39.79	Average	54	Pass
NVNT	1-DH5	2480	Ant1	No-Hopping	2483.5	-48.52	2	48.74	Peak	74	Pass
NVNT	1-DH5	2480	Ant1	No-Hopping	2483.5	-55.31	2	41.95	Average	54	Pass
NVNT	1-DH5	2480	Ant1	No-Hopping	2497.456	-46.62	2	50.64	Peak	74	Pass
NVNT	1-DH5	2480	Ant1	No-Hopping	2483.512	-55.31	2	41.95	Average	54	Pass
NVNT	1-DH5	2480	Ant1	No-Hopping	2500	-49.34	2	47.92	Peak	74	Pass
NVNT	1-DH5	2480	Ant1	No-Hopping	2500	-57.14	2	40.12	Average	54	Pass
NVNT	2-DH5	2402	Ant1	No-Hopping	2310	-51.9	2	45.36	Peak	74	Pass
NVNT	2-DH5	2402	Ant1	No-Hopping	2310	-58.06	2	39.2	Average	54	Pass
NVNT	2-DH5	2402	Ant1	No-Hopping	2381.904	-47.87	2	49.39	Peak	74	Pass
NVNT	2-DH5	2402	Ant1	No-Hopping	2386.992	-57.39	2	39.87	Average	54	Pass
NVNT	2-DH5	2402	Ant1	No-Hopping	2390	-50.05	2	47.21	Peak	74	Pass
NVNT	2-DH5	2402	Ant1	No-Hopping	2390	-57.58	2	39.68	Average	54	Pass
NVNT	2-DH5	2480	Ant1	No-Hopping	2483.5	-49.84	2	47.42	Peak	74	Pass
NVNT	2-DH5	2480	Ant1	No-Hopping	2483.5	-54.99	2	42.27	Average	54	Pass
NVNT	2-DH5	2480	Ant1	No-Hopping	2486.704	-47.42	2	49.84	Peak	74	Pass
NVNT	2-DH5	2480	Ant1	No-Hopping	2483.512	-54.99	2	42.27	Average	54	Pass
NVNT	2-DH5	2480	Ant1	No-Hopping	2500	-50.37	2	46.89	Peak	74	Pass
NVNT	2-DH5	2480	Ant1	No-Hopping	2500	-57.3	2	39.96	Average	54	Pass
NVNT	3-DH5	2402	Ant1	No-Hopping	2310	-50.53	2	46.73	Peak	74	Pass
NVNT	3-DH5	2402	Ant1	No-Hopping	2310	-57.97	2	39.29	Average	54	Pass
NVNT	3-DH5	2402	Ant1	No-Hopping	2387.952	-47.84	2	49.42	Peak	74	Pass
NVNT	3-DH5	2402	Ant1	No-Hopping	2388.432	-57.38	2	39.88	Average	54	Pass
NVNT	3-DH5	2402	Ant1	No-Hopping	2390	-50.89	2	46.37	Peak	74	Pass
NVNT	3-DH5	2402	Ant1	No-Hopping	2390	-57.59	2	39.67	Average	54	Pass
NVNT	3-DH5	2480	Ant1	No-Hopping	2483.5	-49.54	2	47.72	Peak	74	Pass
NVNT	3-DH5	2480	Ant1	No-Hopping	2483.5	-54.99	2	42.27	Average	54	Pass
NVNT	3-DH5	2480	Ant1	No-Hopping	2498.128	-45.86	2	51.4	Peak	74	Pass
NVNT	3-DH5	2480	Ant1	No-Hopping	2483.512	-54.99	2	42.27	Average	54	Pass
NVNT	3-DH5	2480	Ant1	No-Hopping	2500	-48.24	2	49.02	Peak	74	Pass
NVNT	3-DH5	2480	Ant1	No-Hopping	2500	-57.24	2	40.02	Average	54	Pass

Test Graphs

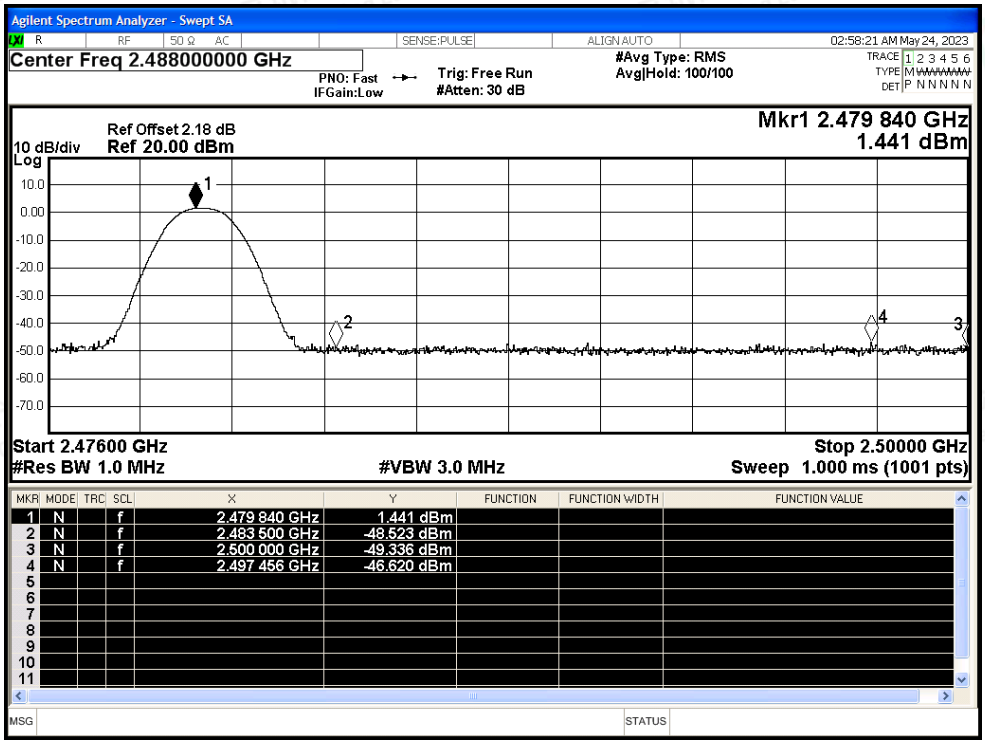
Restrict Band NVNT 1-DH5 2402MHz Ant1 No-Hopping Peak



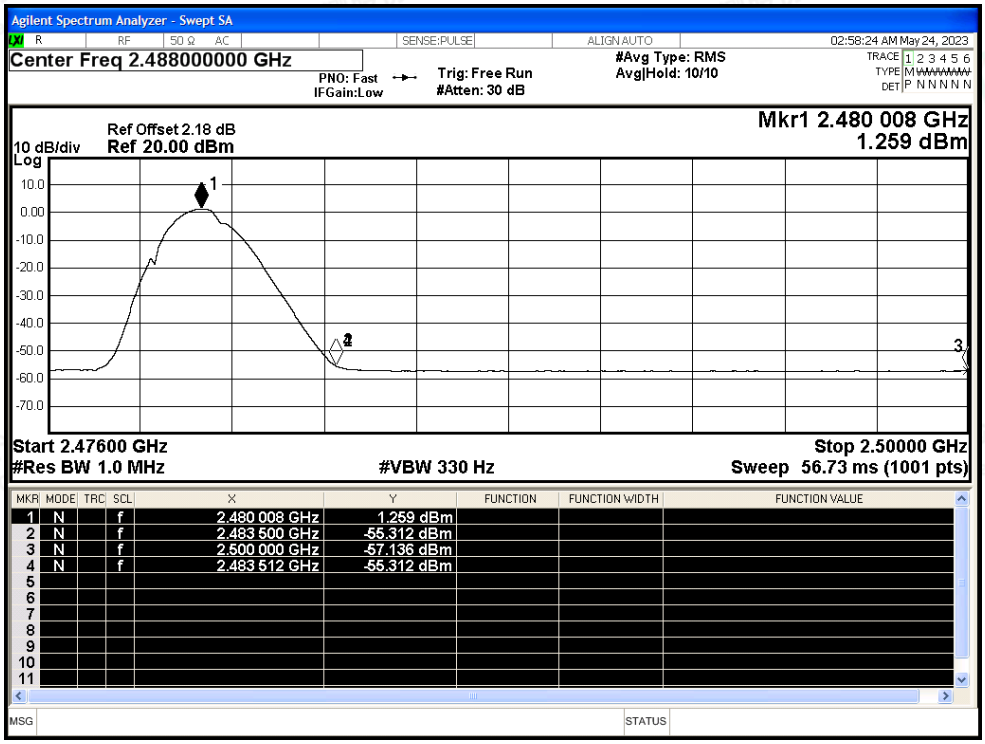
Restrict Band NVNT 1-DH5 2402MHz Ant1 No-Hopping Average



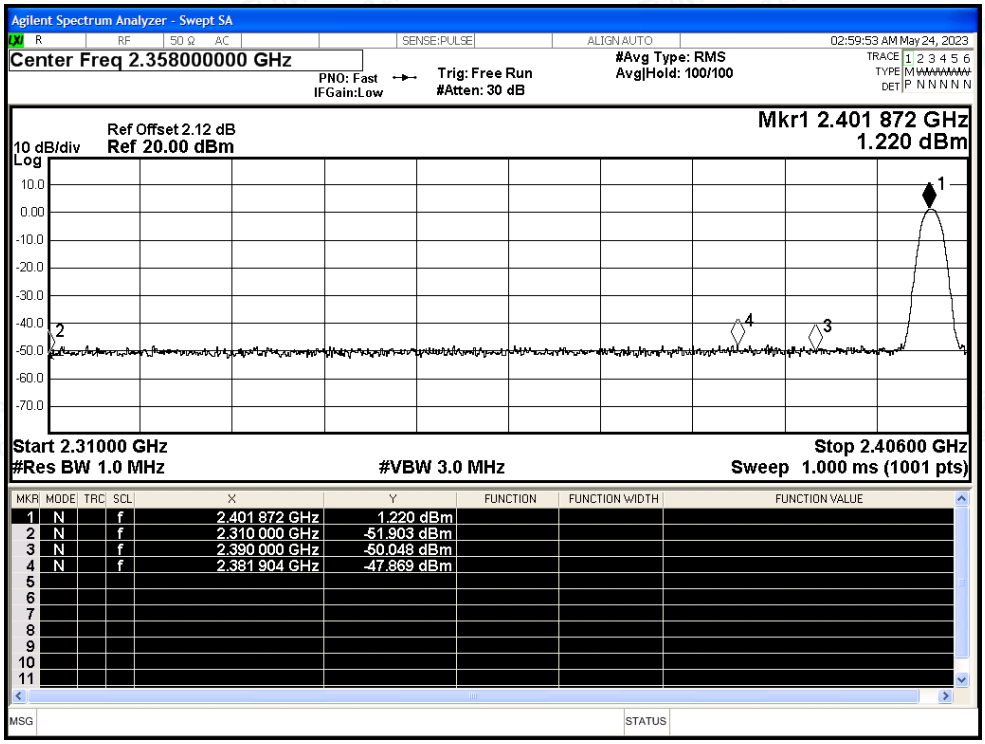
Restrict Band NVNT 1-DH5 2480MHz Ant1 No-Hopping Peak



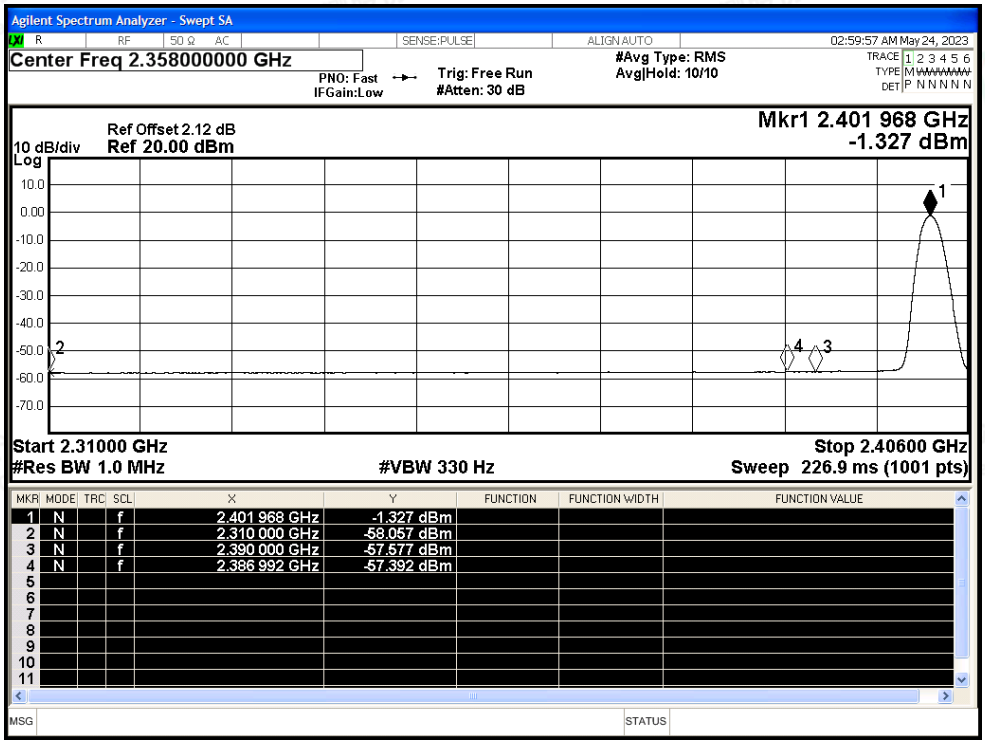
Restrict Band NVNT 1-DH5 2480MHz Ant1 No-Hopping Average



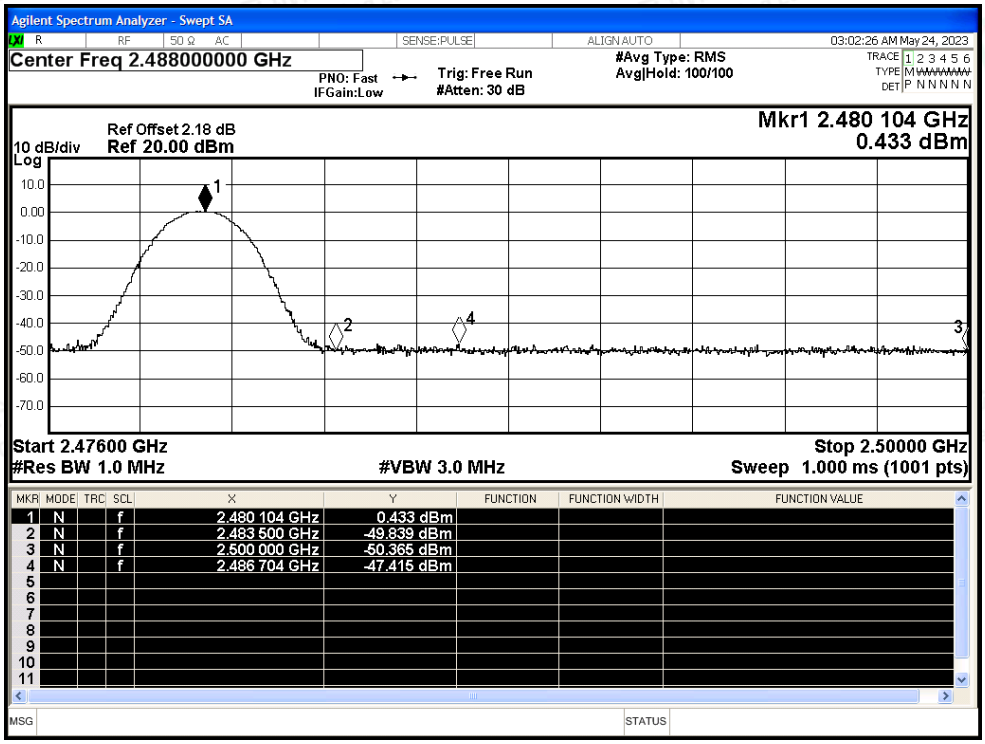
Restrict Band NVNT 2-DH5 2402MHz Ant1 No-Hopping Peak



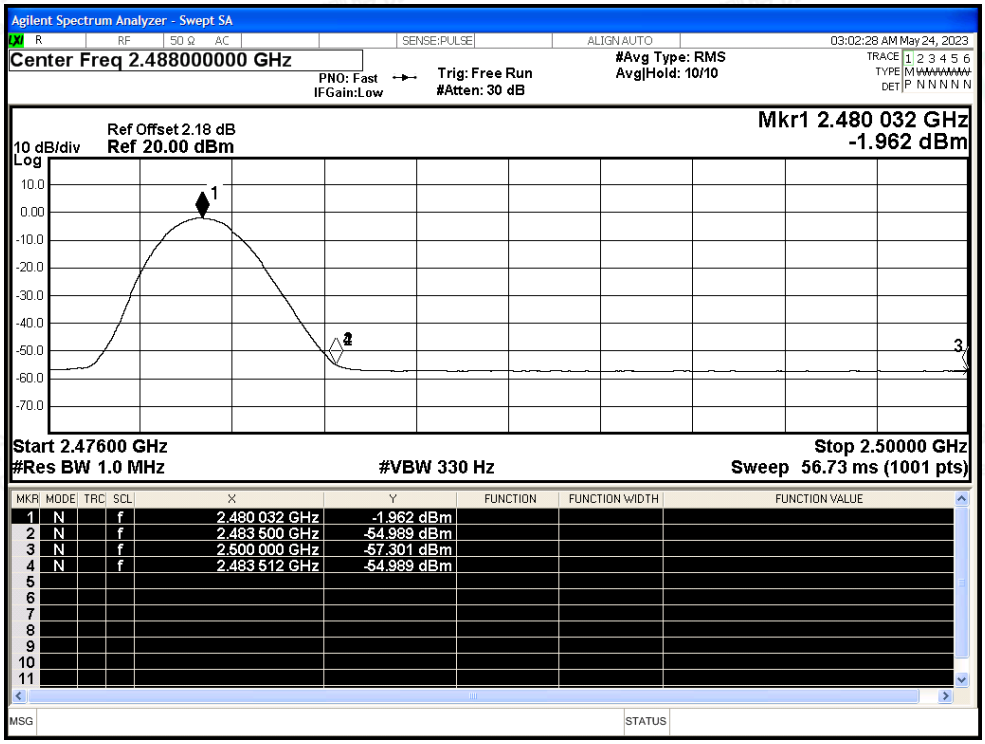
Restrict Band NVNT 2-DH5 2402MHz Ant1 No-Hopping Average



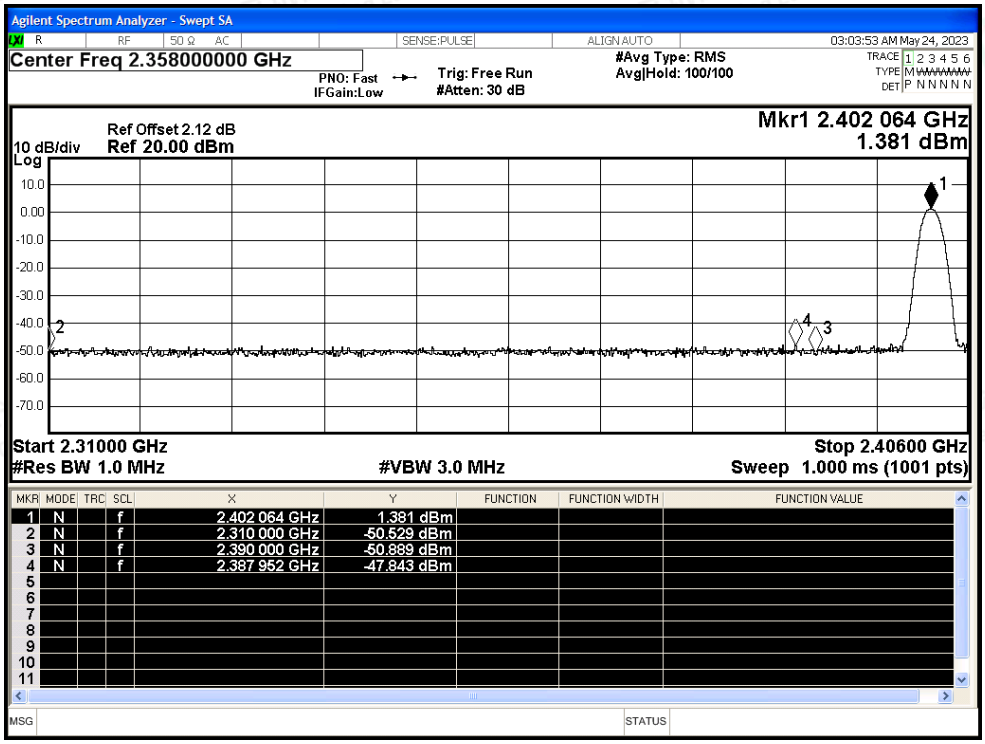
Restrict Band NVNT 2-DH5 2480MHz Ant1 No-Hopping Peak



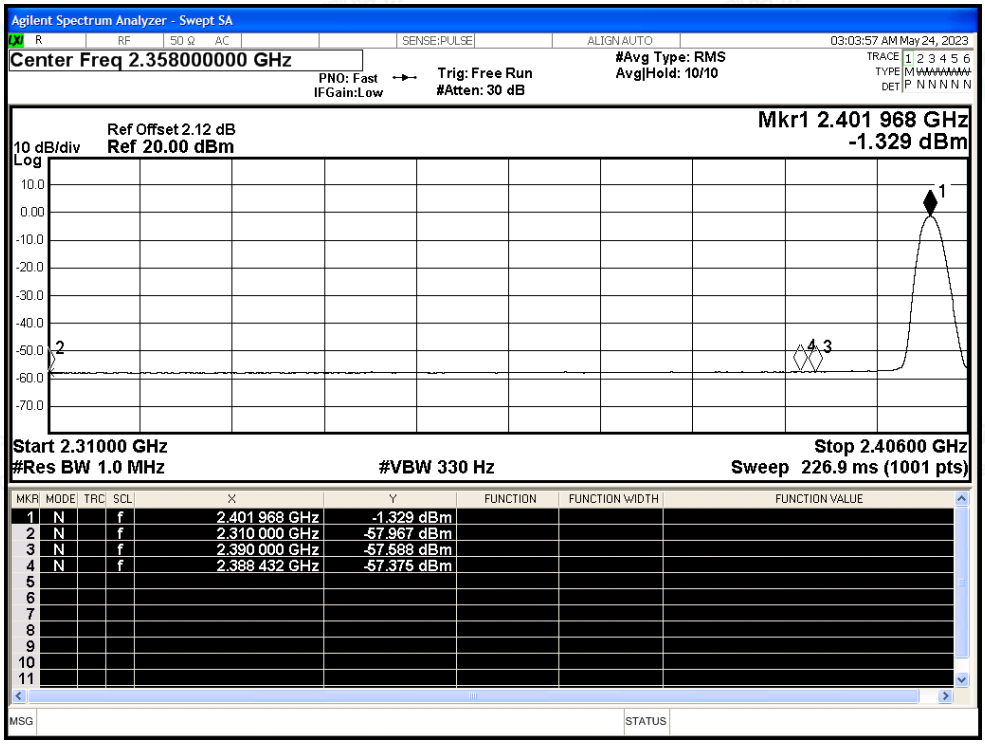
Restrict Band NVNT 2-DH5 2480MHz Ant1 No-Hopping Average



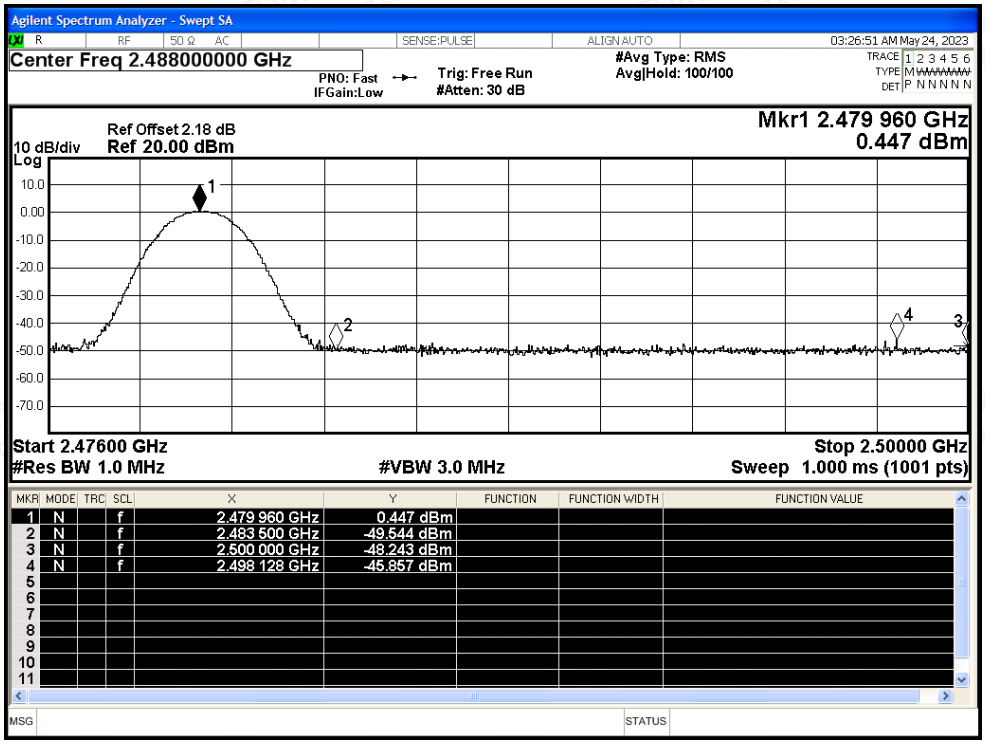
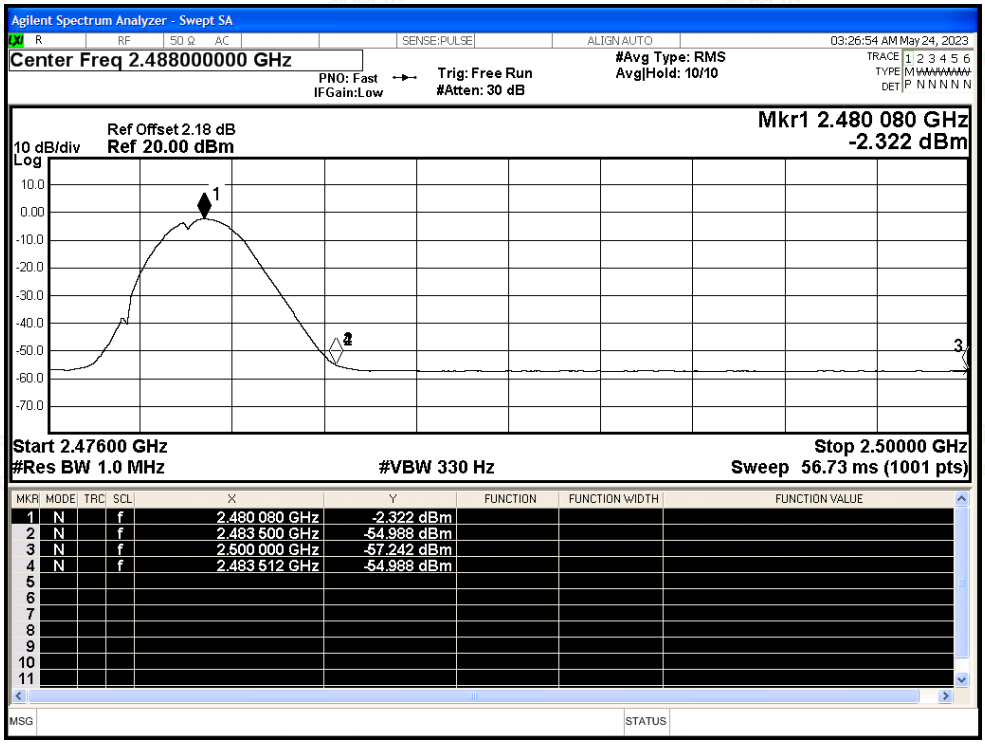
Restrict Band NVNT 3-DH5 2402MHz Ant1 No-Hopping Peak



Restrict Band NVNT 3-DH5 2402MHz Ant1 No-Hopping Average



Restrict Band NVNT 3-DH5 2480MHz Ant1 No-Hopping Peak



Restrict Band NVNT 3-DH5 2480MHz Ant1 No-Hopping Average