Appendix A

RF Test Data for BT (Conducted Measurement)

Product Name: RCS RECYCLED PLASTIC SOUNDBOOM WATERPROOF 6W SPEAKER - BLACK

Test Model: 102638-001B

Environmental Conditions

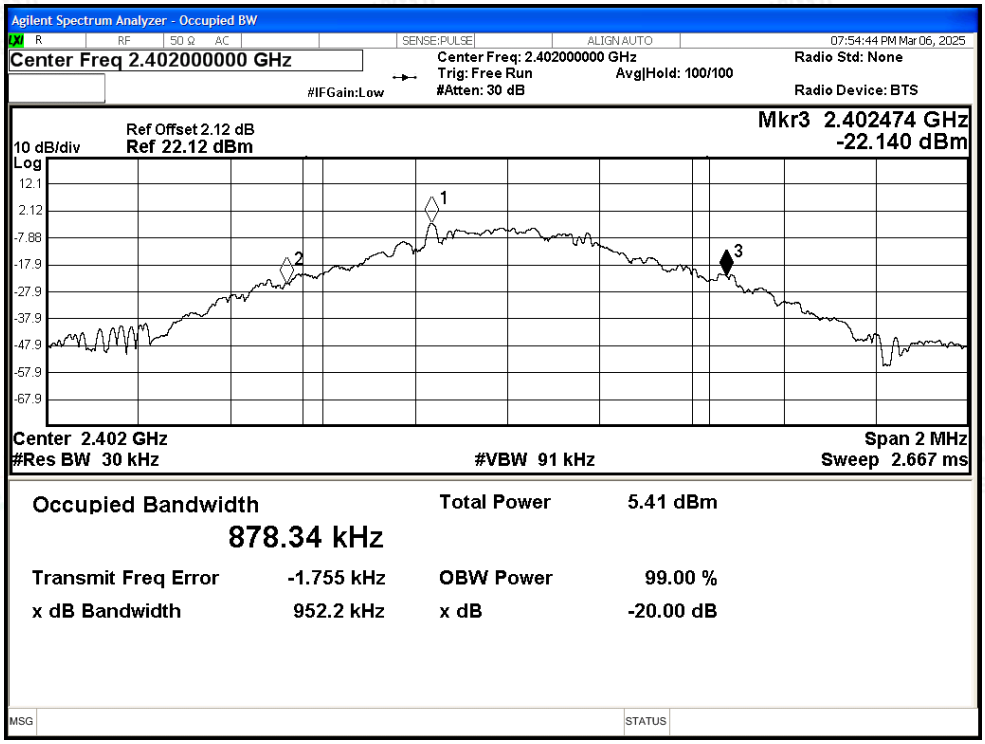
Temperature:	23.8°C
Relative Humidity:	52.1%
ATM Pressure:	100.0 kPa
Test Engineer:	Jerry Chu
Supervised by:	Nick Peng

A.1 -20dB Bandwidth

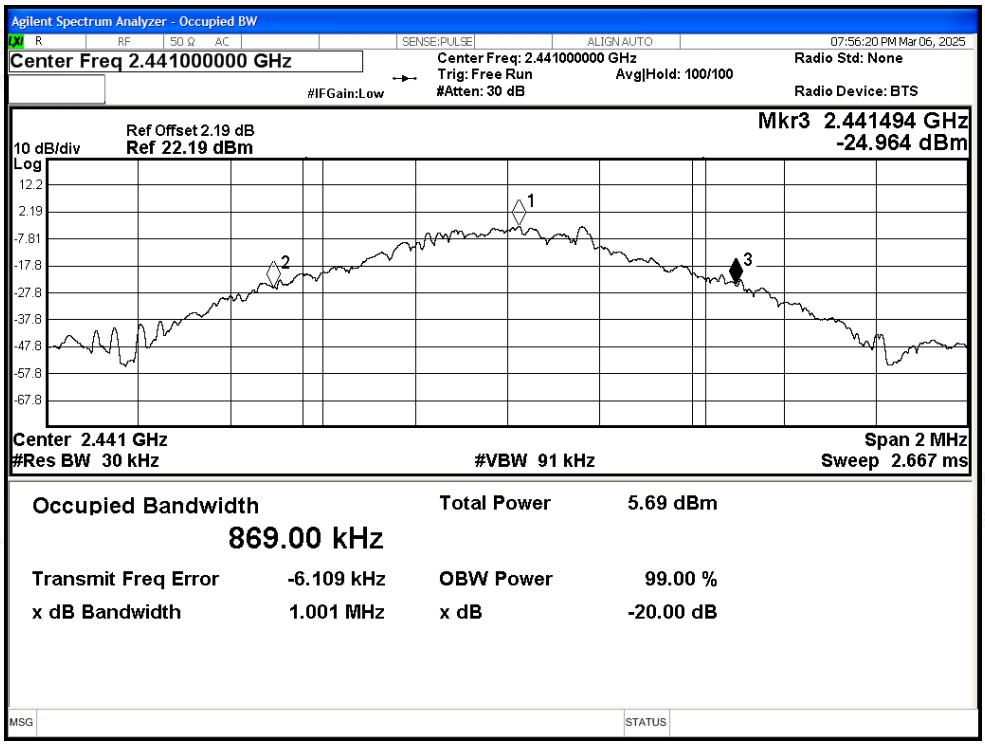
Condition	Mode	Frequency (MHz)	Antenna	-20 dB Bandwidth (MHz)	Limit -20 dB Bandwidth (MHz)	Verdict
NVNT	1-DH5	2402	Ant	0.952	N/A	Pass
NVNT	1-DH5	2441	Ant	1.001	N/A	Pass
NVNT	1-DH5	2480	Ant	0.992	N/A	Pass
NVNT	2-DH5	2402	Ant	1.282	N/A	Pass
NVNT	2-DH5	2441	Ant	1.284	N/A	Pass
NVNT	2-DH5	2480	Ant	1.331	N/A	Pass
NVNT	3-DH5	2402	Ant	1.295	N/A	Pass
NVNT	3-DH5	2441	Ant	1.3	N/A	Pass
NVNT	3-DH5	2480	Ant	1.31	N/A	Pass

Test Graphs

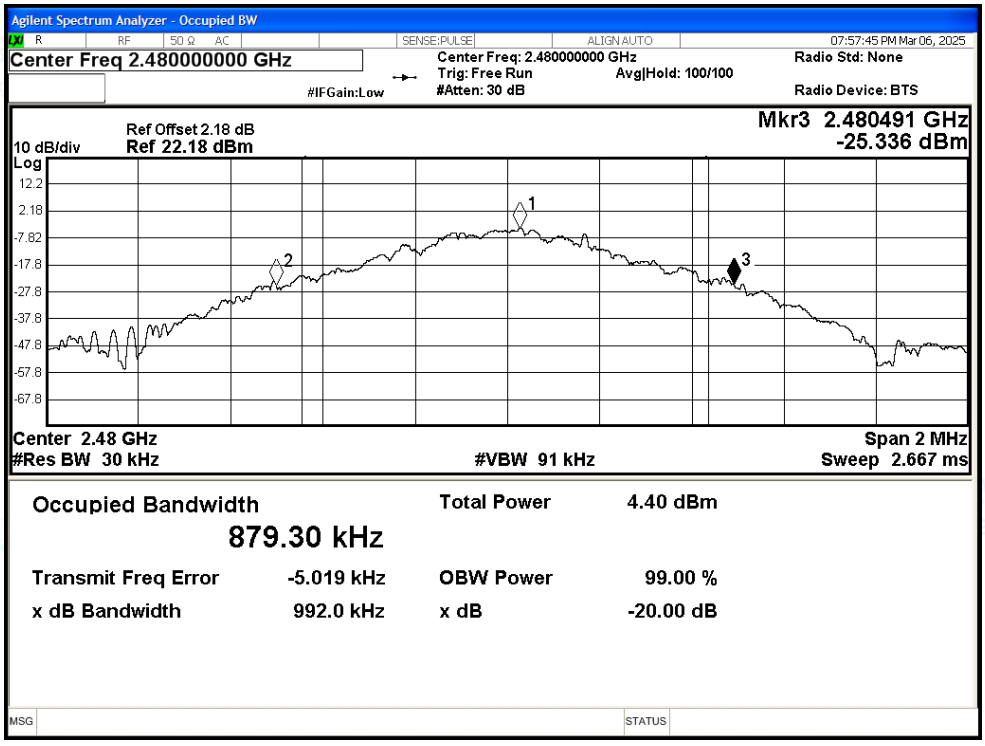
-20dB Bandwidth NVNT 1-DH5 2402MHz Ant



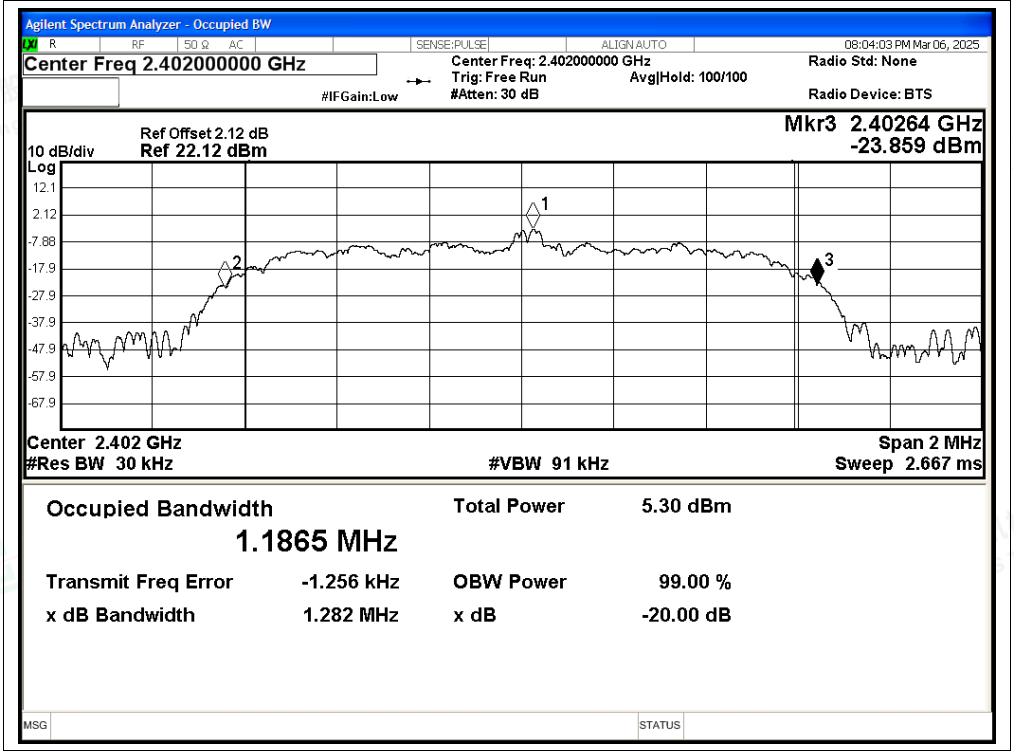
-20dB Bandwidth NVNT 1-DH5 2441MHz Ant



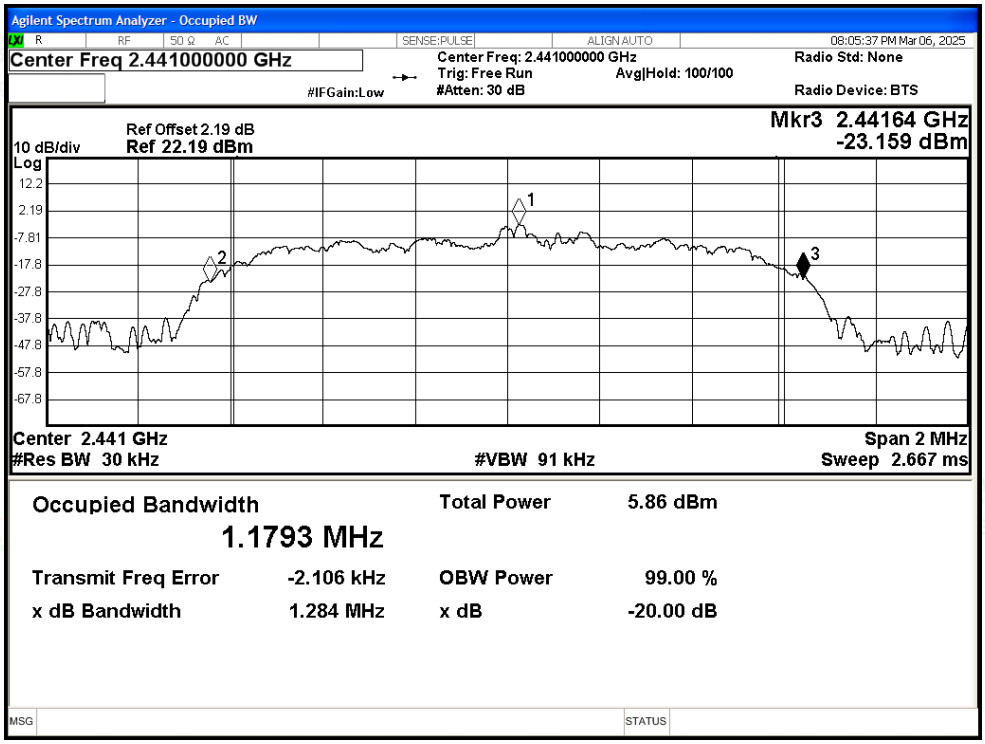
-20dB Bandwidth NVNT 1-DH5 2480MHz Ant



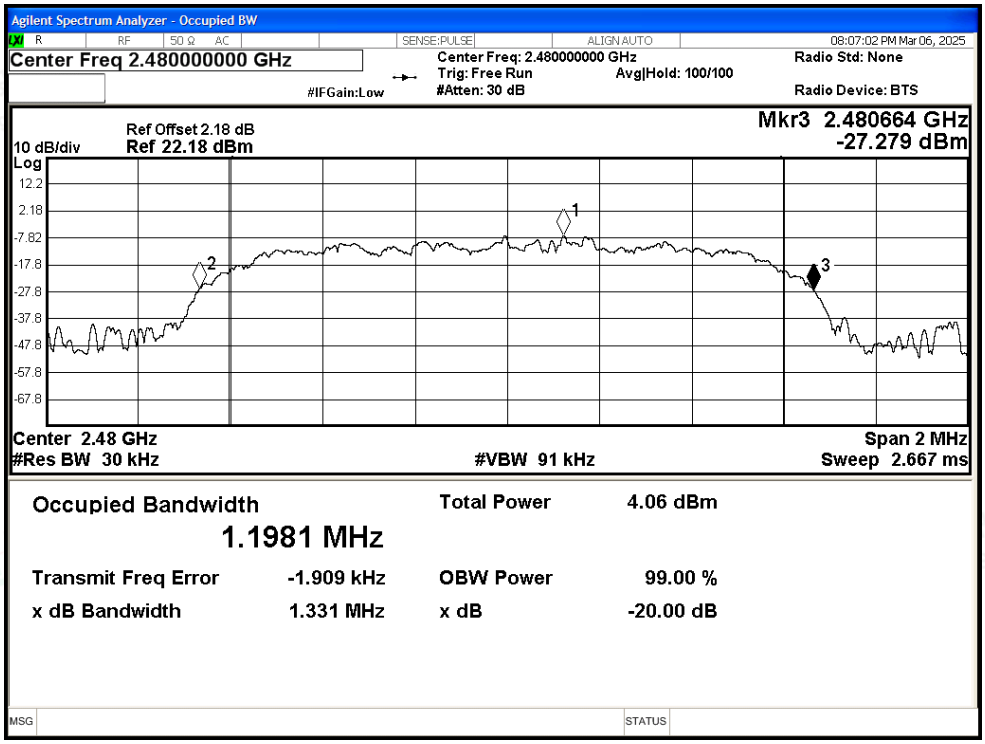
-20dB Bandwidth NVNT 2-DH5 2402MHz Ant



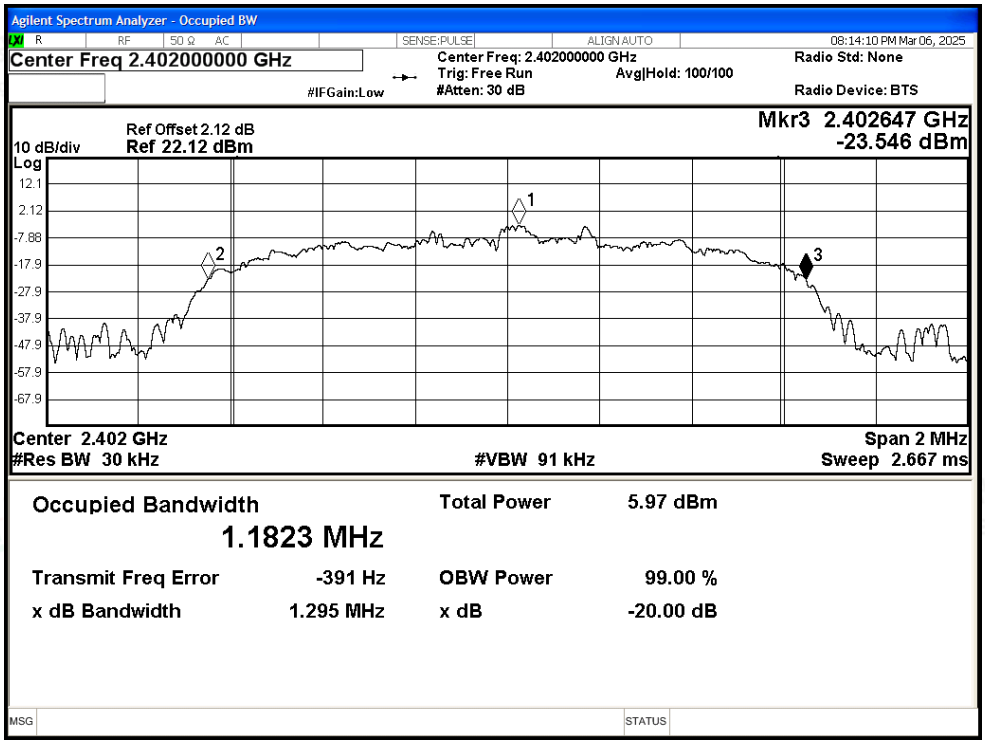
-20dB Bandwidth NVNT 2-DH5 2441MHz Ant



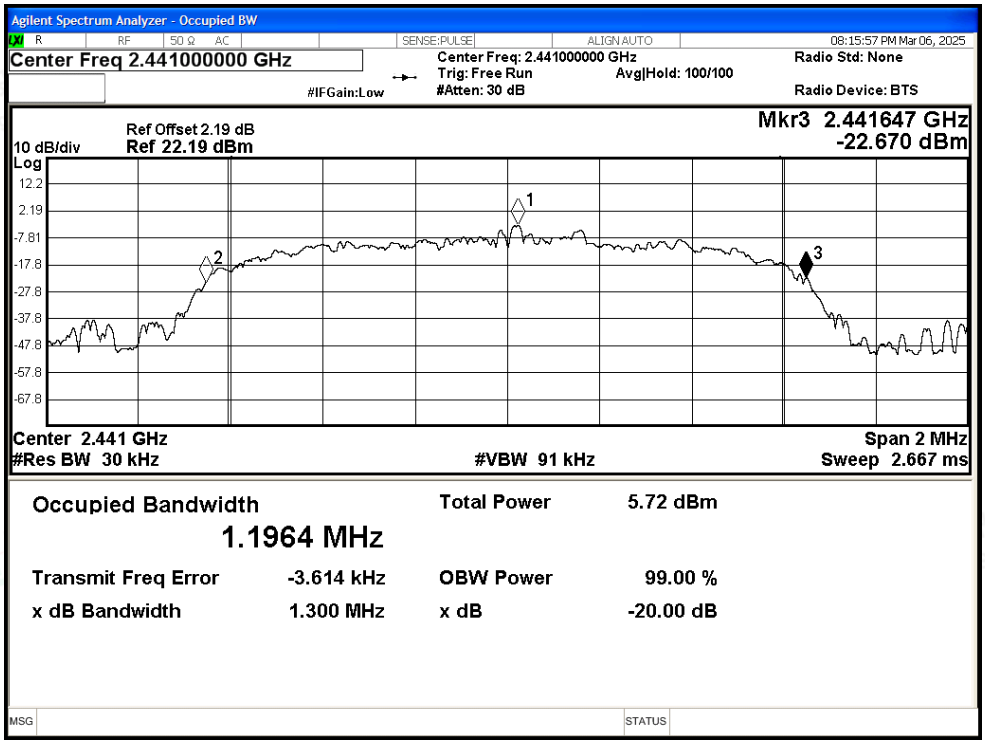
-20dB Bandwidth NVNT 2-DH5 2480MHz Ant



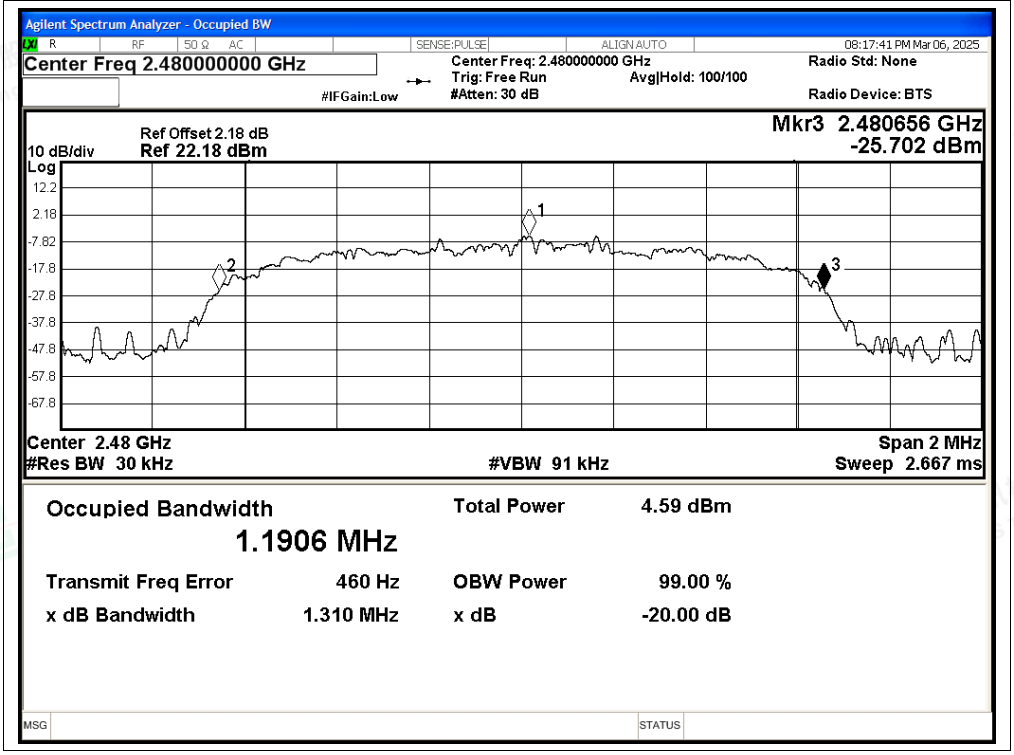
-20dB Bandwidth NVNT 3-DH5 2402MHz Ant



-20dB Bandwidth NVNT 3-DH5 2441MHz Ant



-20dB Bandwidth NVNT 3-DH5 2480MHz Ant

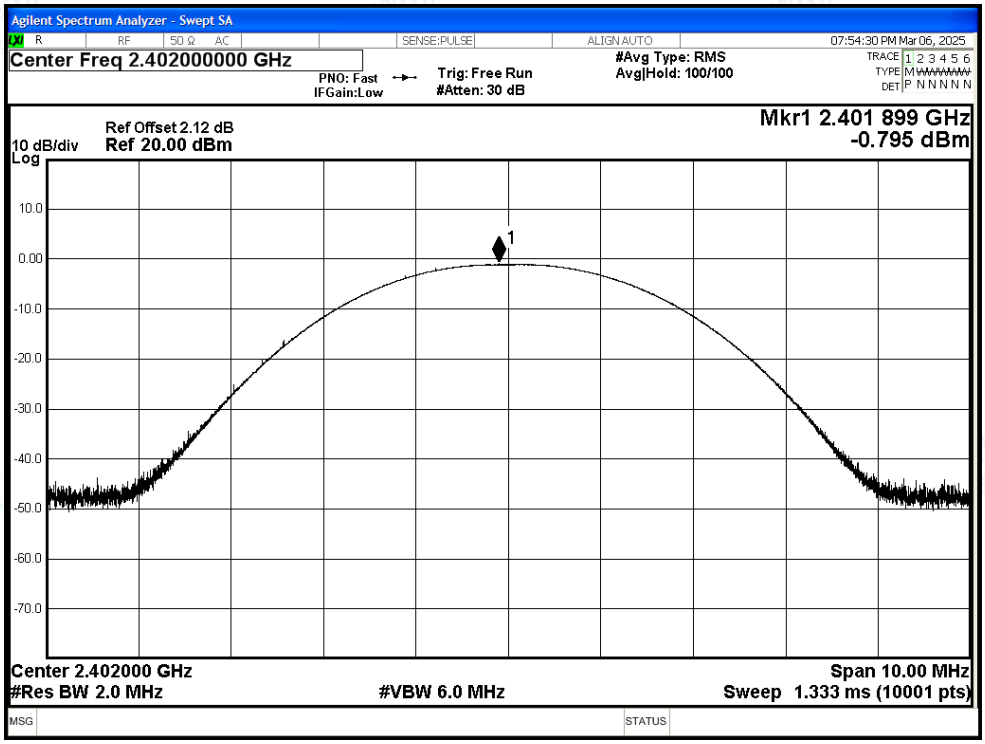


A.2 Maximum Peak Conducted Output Power

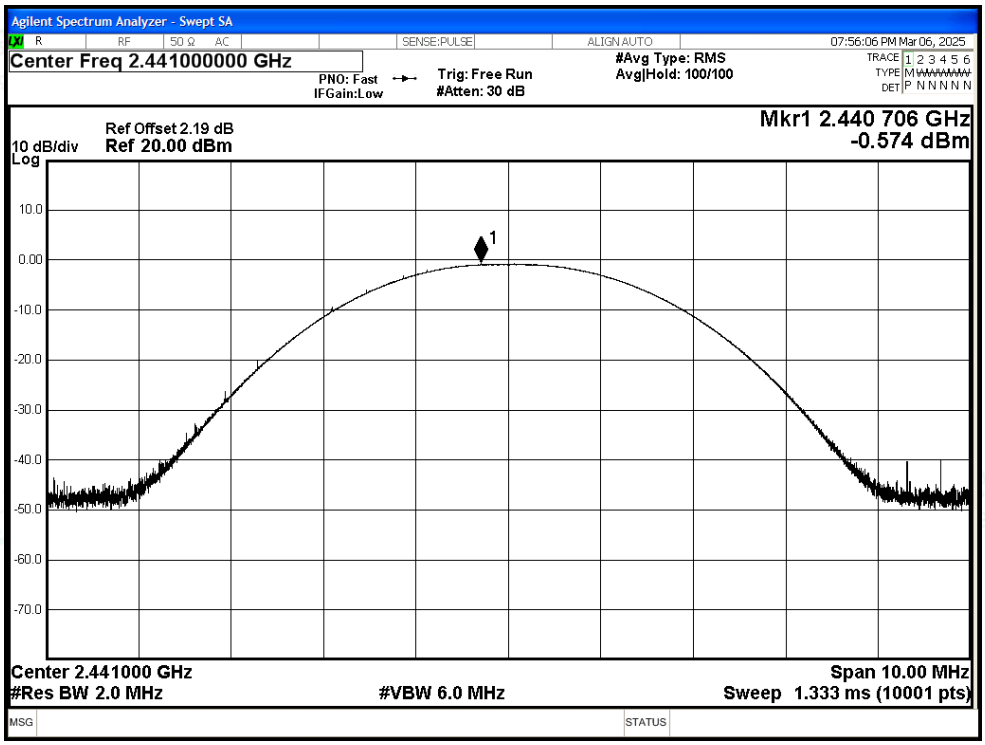
Condition	Mode	Frequency (MHz)	Antenna	Conducted Power (dBm)	Limit (dBm)	Verdict
NVNT	1-DH5	2402	Ant	-0.8	21	Pass
NVNT	1-DH5	2441	Ant	-0.57	21	Pass
NVNT	1-DH5	2480	Ant	-1.63	21	Pass
NVNT	2-DH5	2402	Ant	1.02	21	Pass
NVNT	2-DH5	2441	Ant	1.28	21	Pass
NVNT	2-DH5	2480	Ant	0.13	21	Pass
NVNT	3-DH5	2402	Ant	1.4	21	Pass
NVNT	3-DH5	2441	Ant	1.71	21	Pass
NVNT	3-DH5	2480	Ant	0.57	21	Pass

Test Graphs

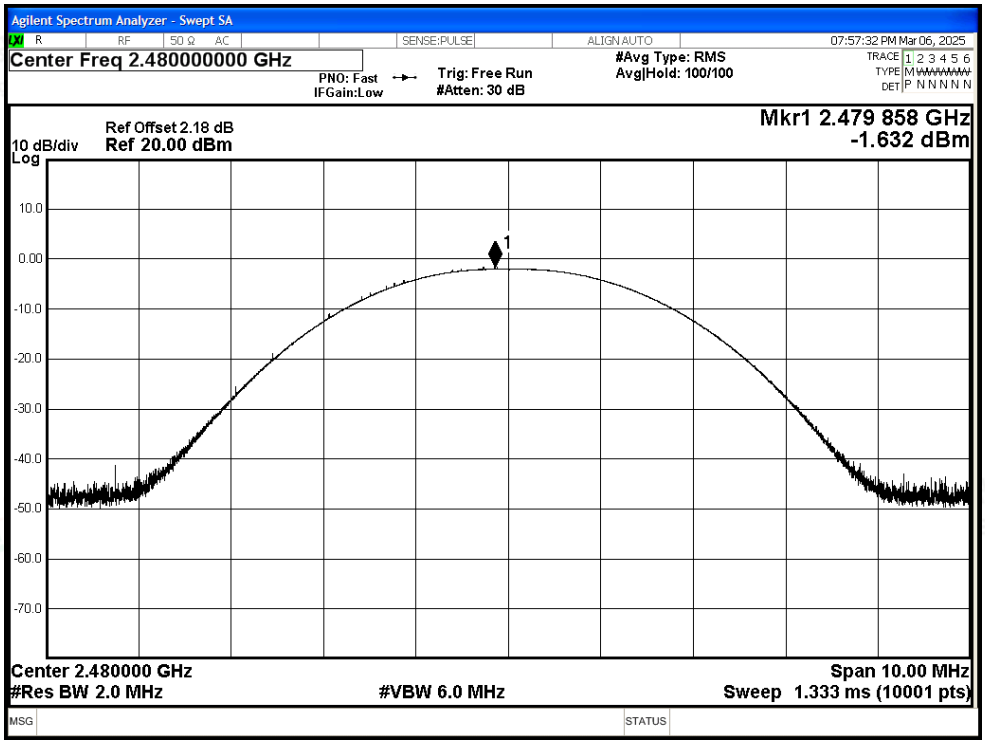
Power NVNT 1-DH5 2402MHz Ant



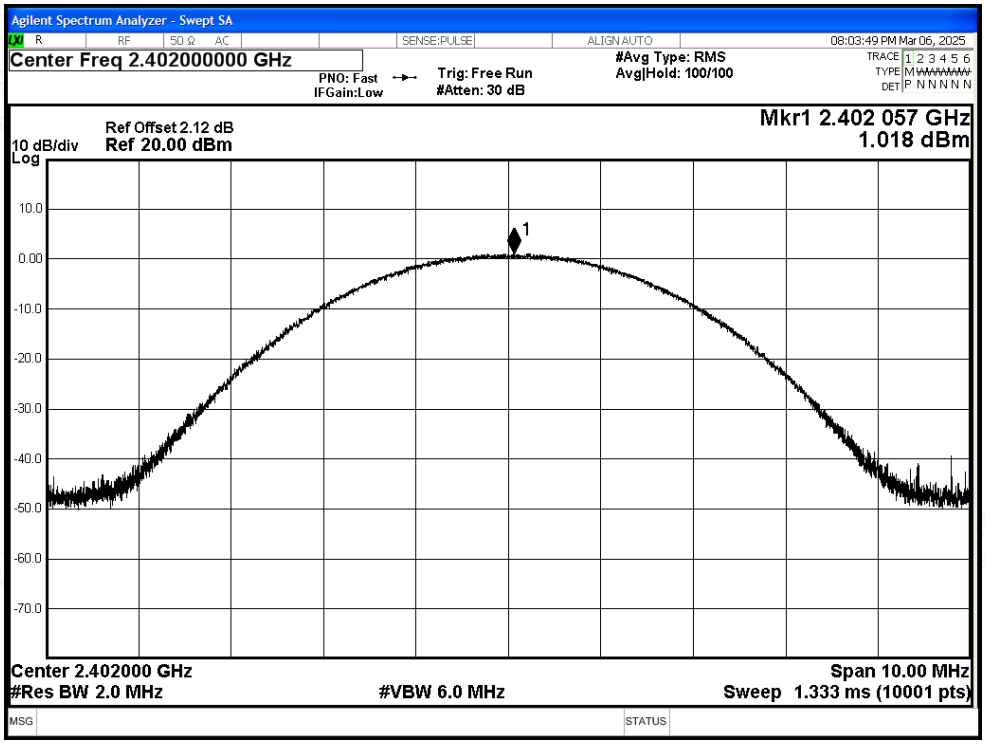
Power NVNT 1-DH5 2441MHz Ant



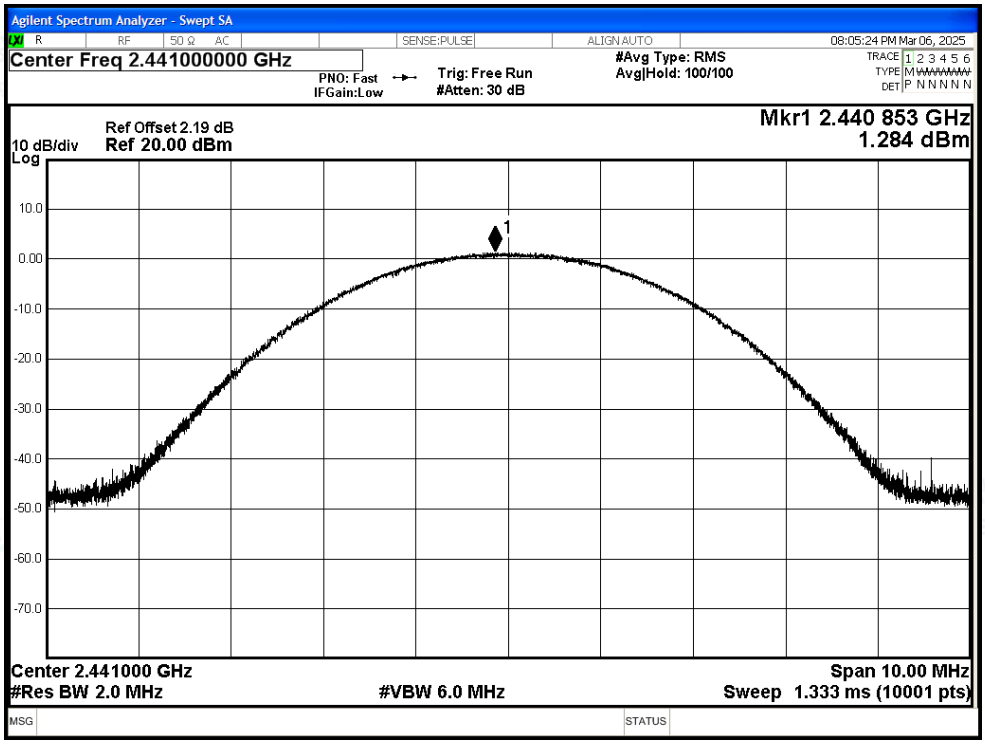
Power NVNT 1-DH5 2480MHz Ant



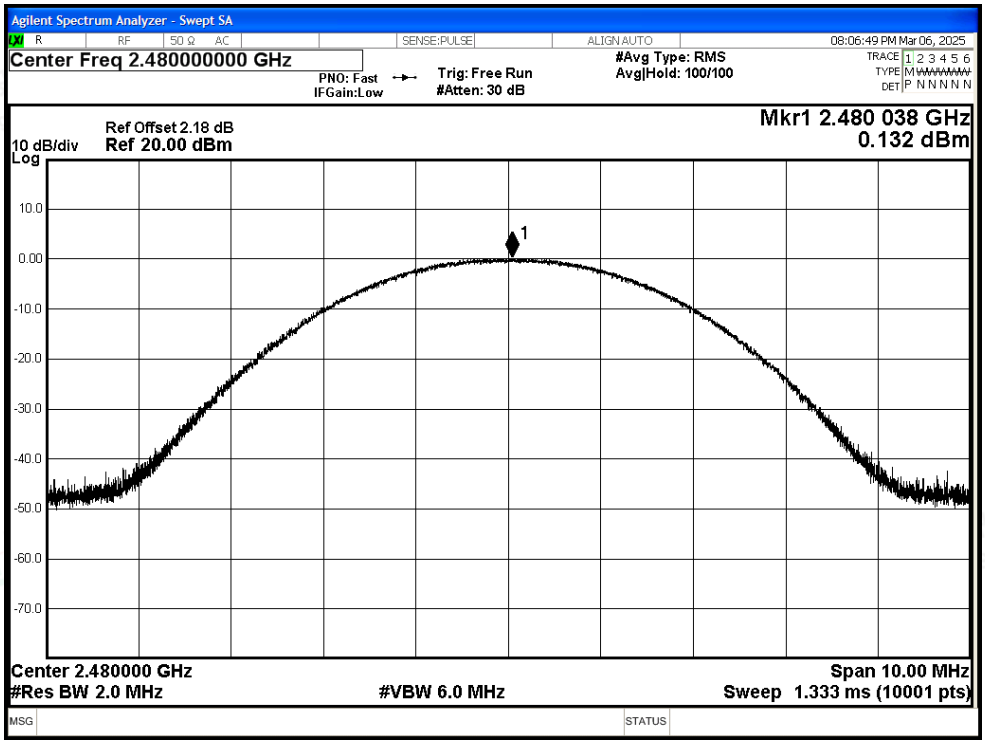
Power NVNT 2-DH5 2402MHz Ant



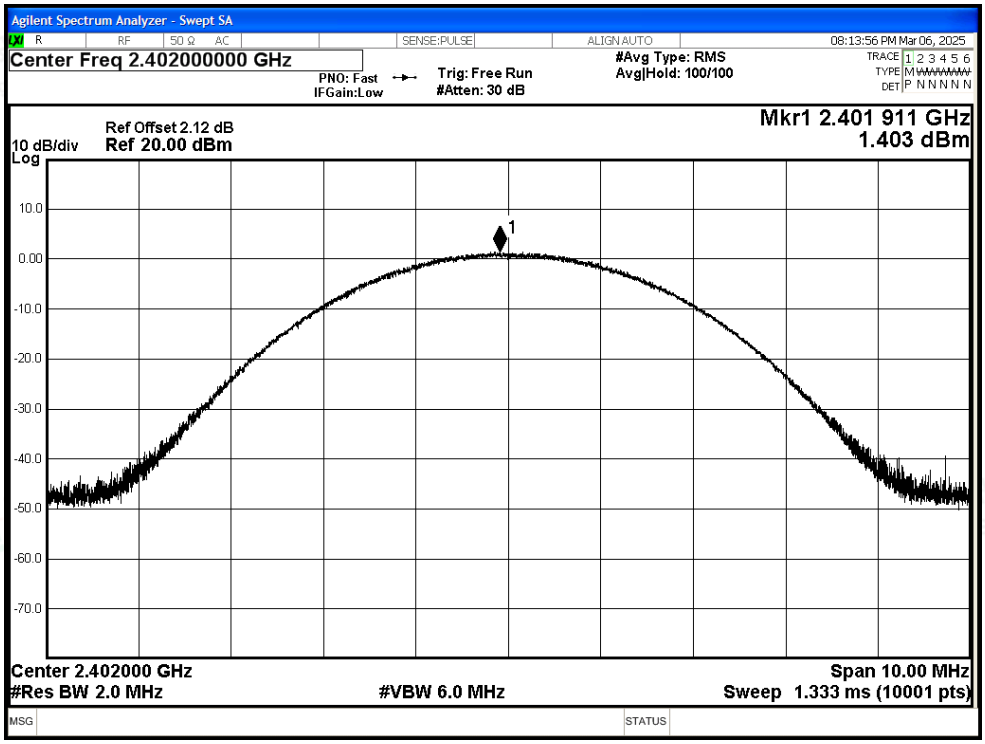
Power NVNT 2-DH5 2441MHz Ant



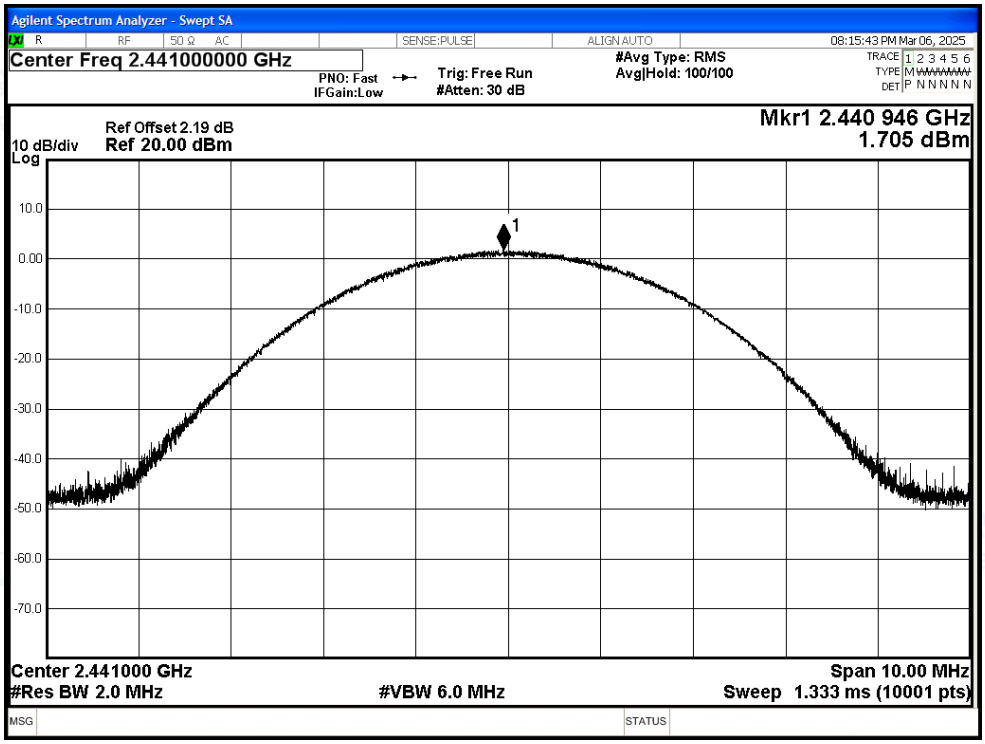
Power NVNT 2-DH5 2480MHz Ant



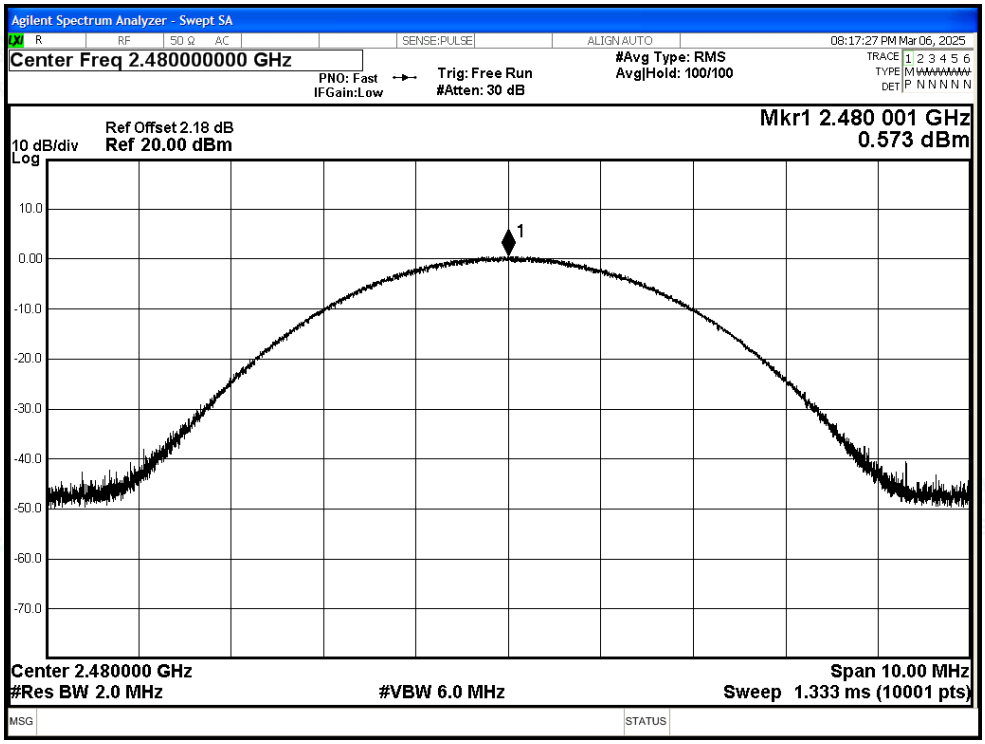
Power NVNT 3-DH5 2402MHz Ant



Power NVNT 3-DH5 2441MHz Ant



Power NVNT 3-DH5 2480MHz Ant

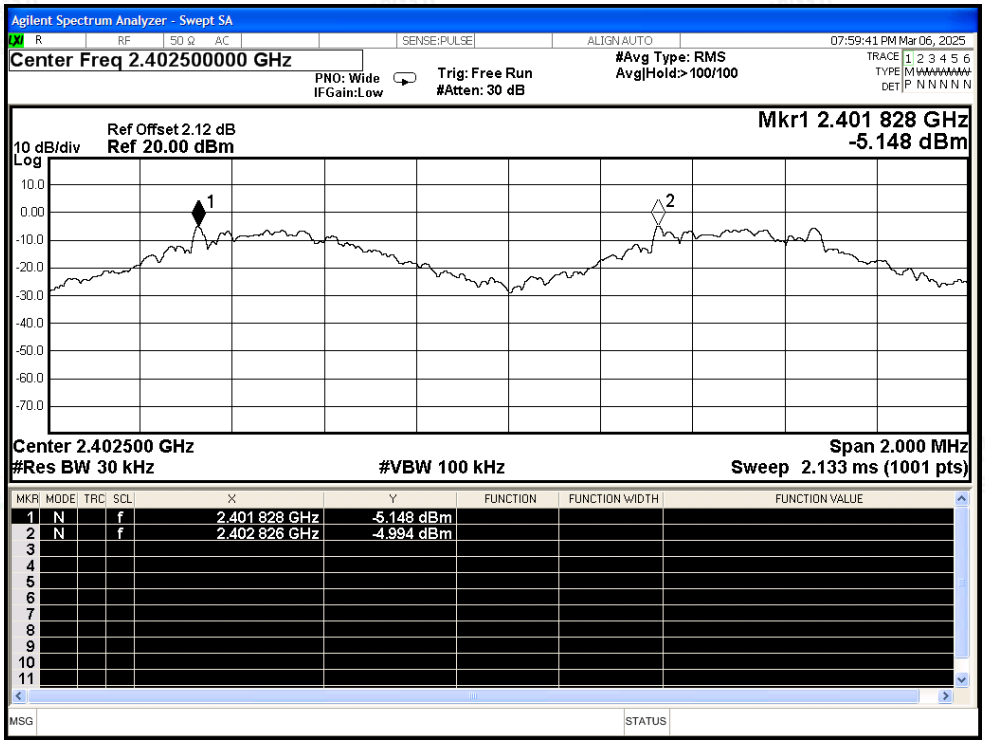


A.3 Carrier Frequencies Separation

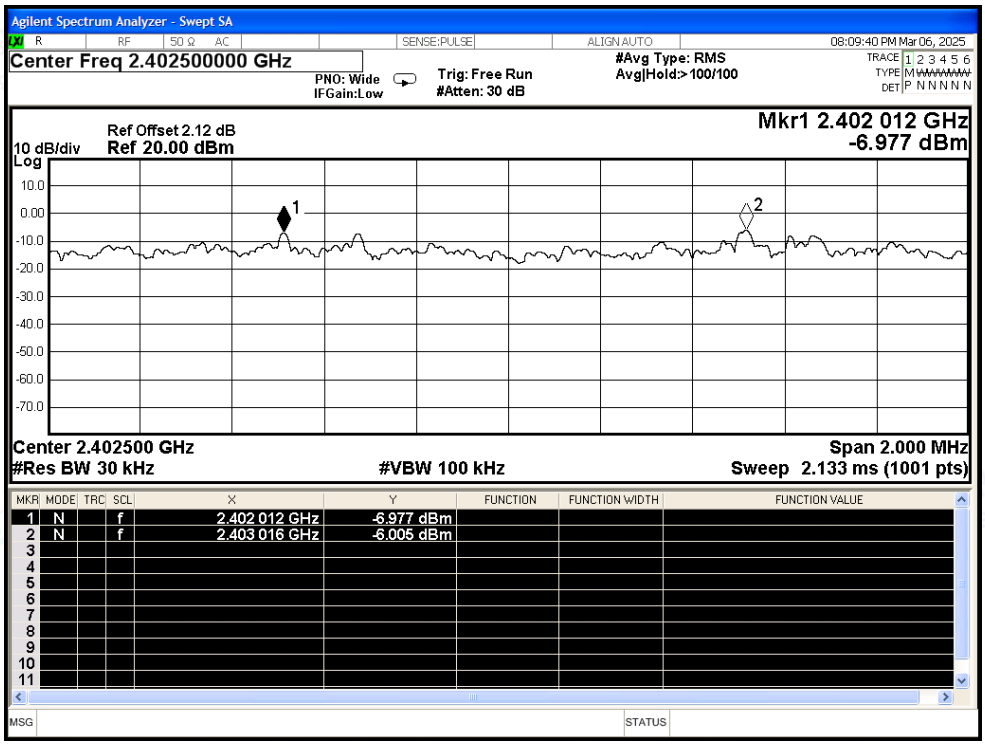
Condition	Mode	Antenna	Hopping Freq1 (MHz)	Hopping Freq2 (MHz)	HFS (MHz)	Limit (MHz)	Verdict
NVNT	1-DH5	Ant	2401.828	2402.826	0.998	0.667	Pass
NVNT	2-DH5	Ant	2402.012	2403.016	1.004	0.887	Pass
NVNT	3-DH5	Ant	2402.028	2403.014	0.986	0.873	Pass

Test Graphs

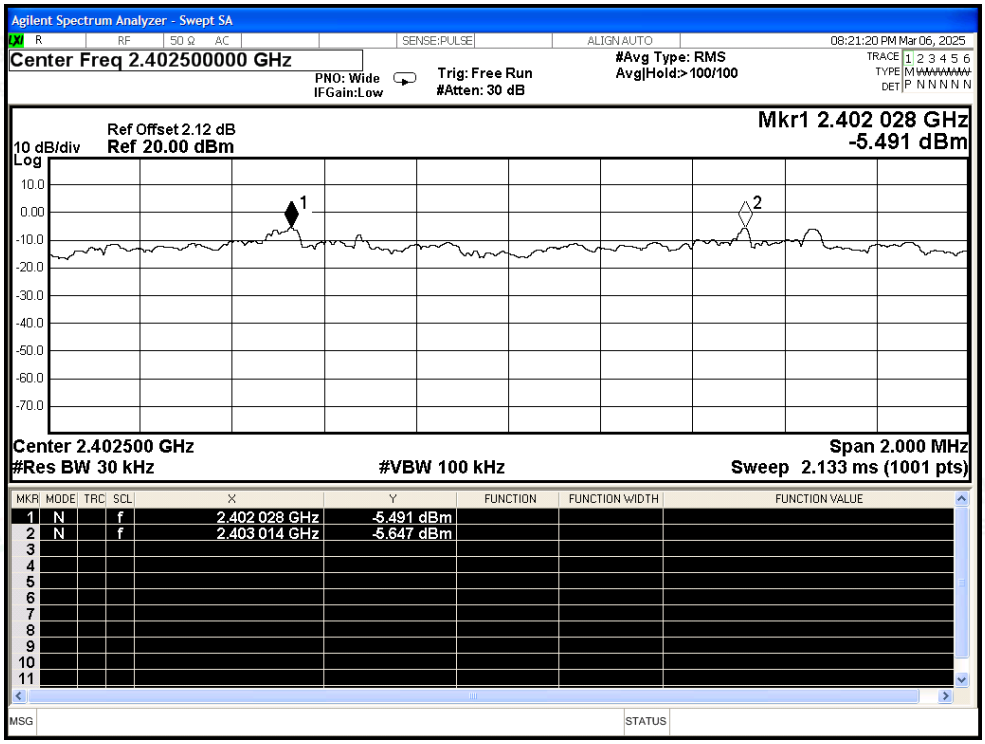
CFS NVNT 1-DH5 2402MHz Ant



CFS NVNT 2-DH5 2402MHz Ant



CFS NVNT 3-DH5 2402MHz Ant

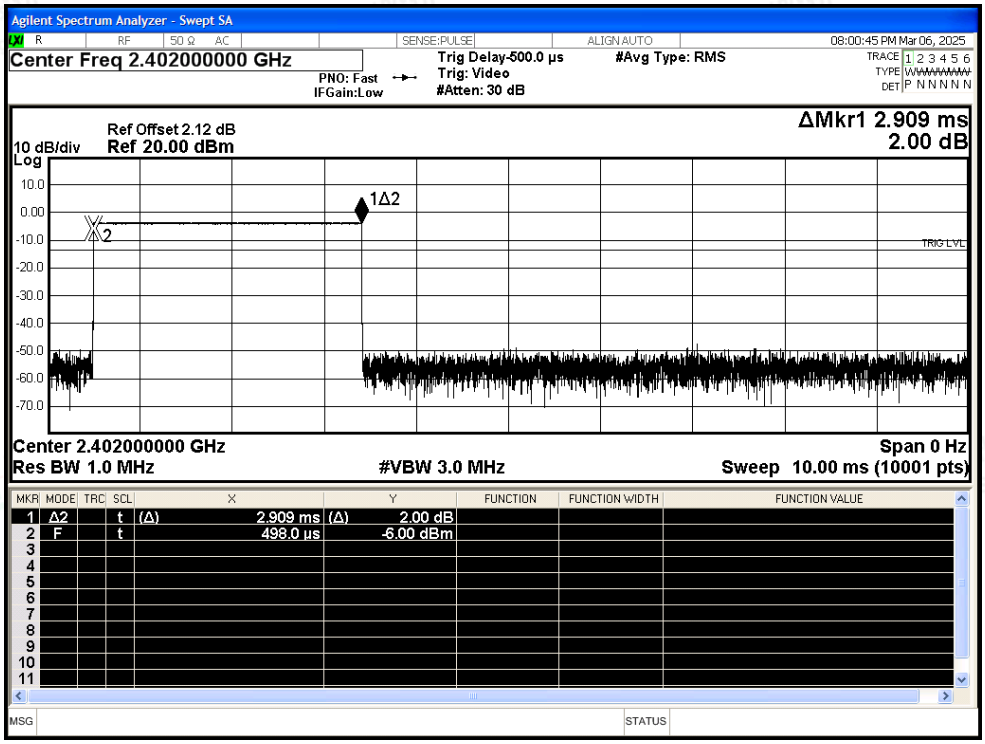


A.4 Dwell Time

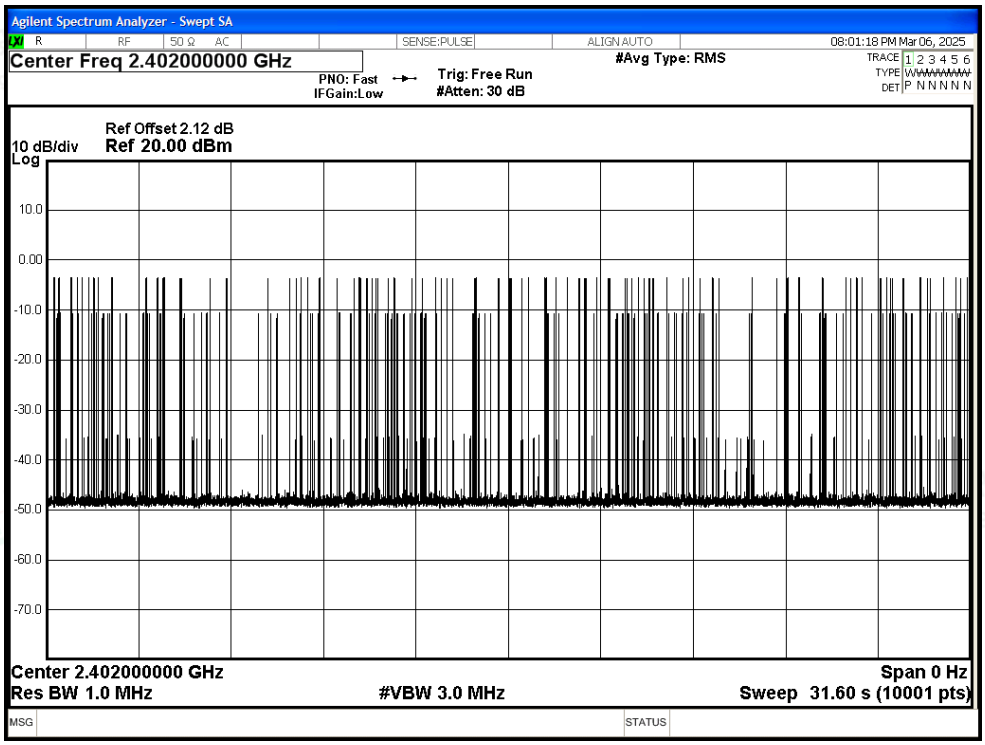
Condition	Mode	Frequency (MHz)	Antenna	Pulse Time (ms)	Total Dwell Time (ms)	Burst Count	Period Time (ms)	Limit (ms)	Verdict
NVNT	1-DH5	2402	Ant	2.909	311.263	107	31600	400	Pass
NVNT	2-DH5	2402	Ant	2.898	321.678	111	31600	400	Pass
NVNT	3-DH5	2402	Ant	2.897	312.876	108	31600	400	Pass

Test Graphs

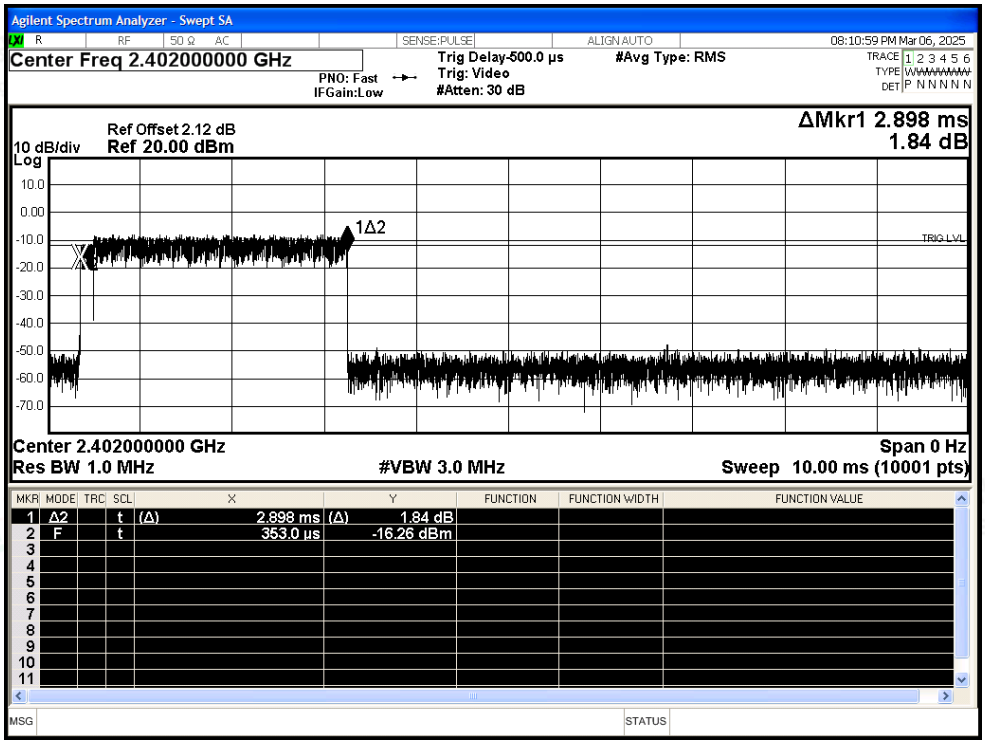
Dwell NVNT 1-DH5 2402MHz Ant One Burst



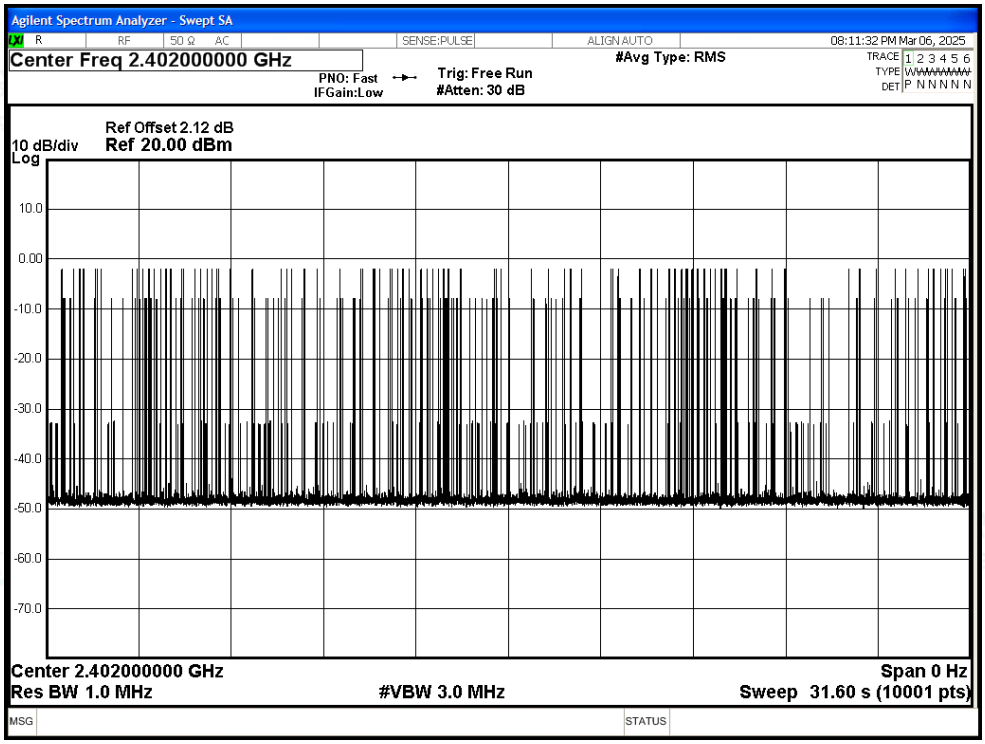
Dwell NVNT 1-DH5 2402MHz Ant Accumulated



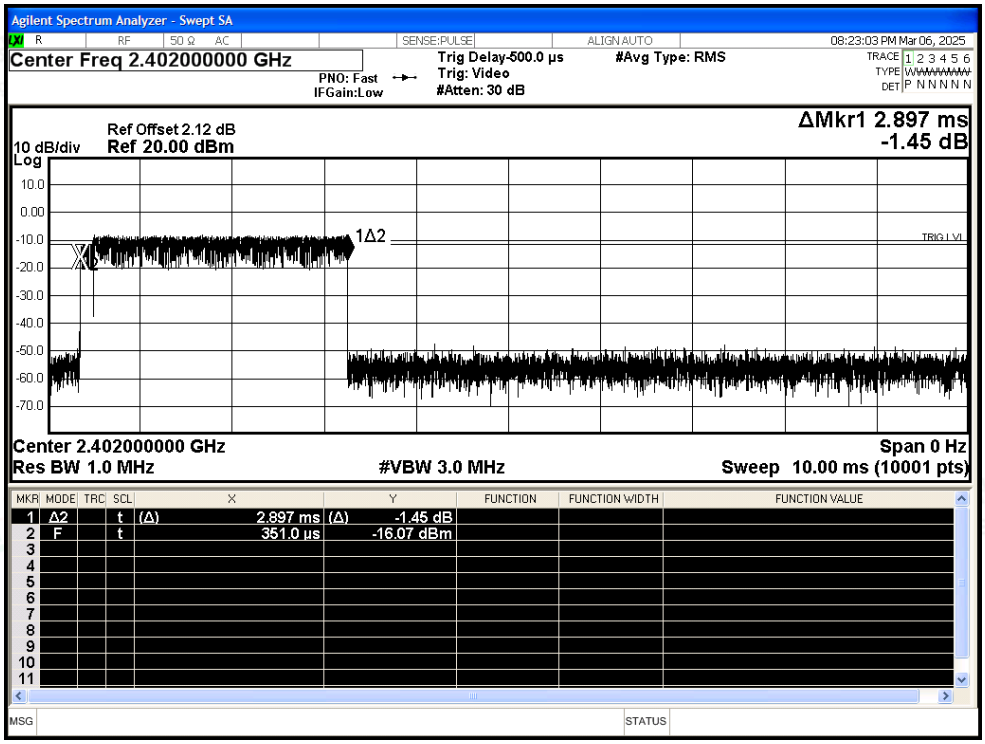
Dwell NVNT 2-DH5 2402MHz Ant One Burst



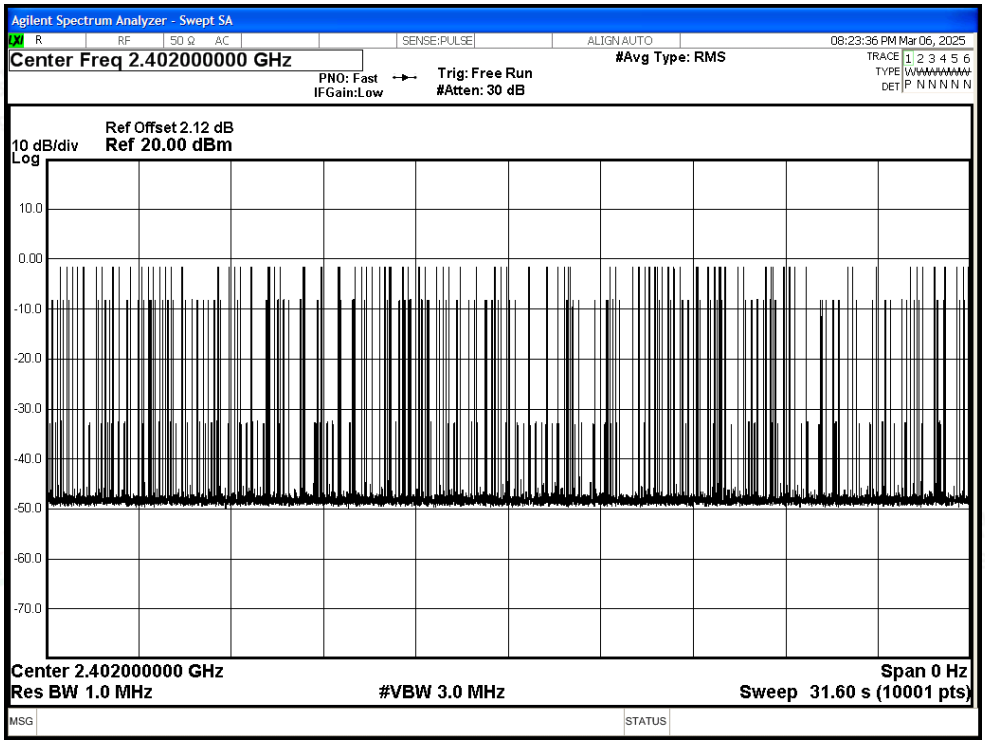
Dwell NVNT 2-DH5 2402MHz Ant Accumulated



Dwell NVNT 3-DH5 2402MHz Ant One Burst



Dwell NVNT 3-DH5 2402MHz Ant Accumulated

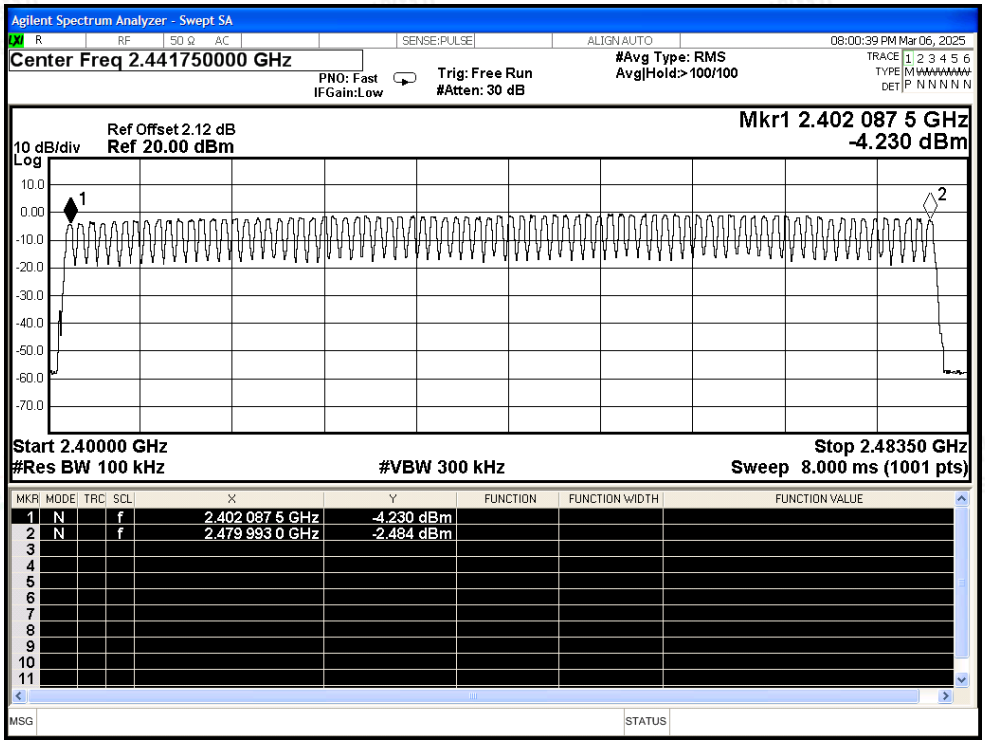


A.5 Number of Hopping Channel

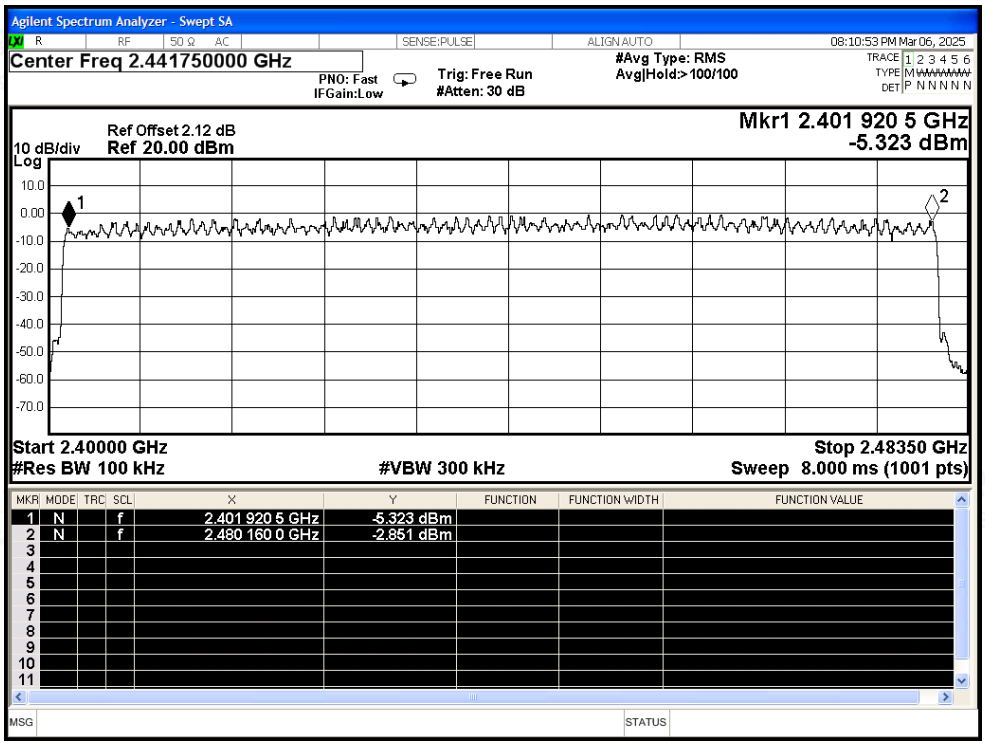
Condition	Mode	Antenna	Hopping Number	Limit	Verdict
NVNT	1-DH5	Ant	79	15	Pass
NVNT	2-DH5	Ant	79	15	Pass
NVNT	3-DH5	Ant	79	15	Pass

Test Graphs

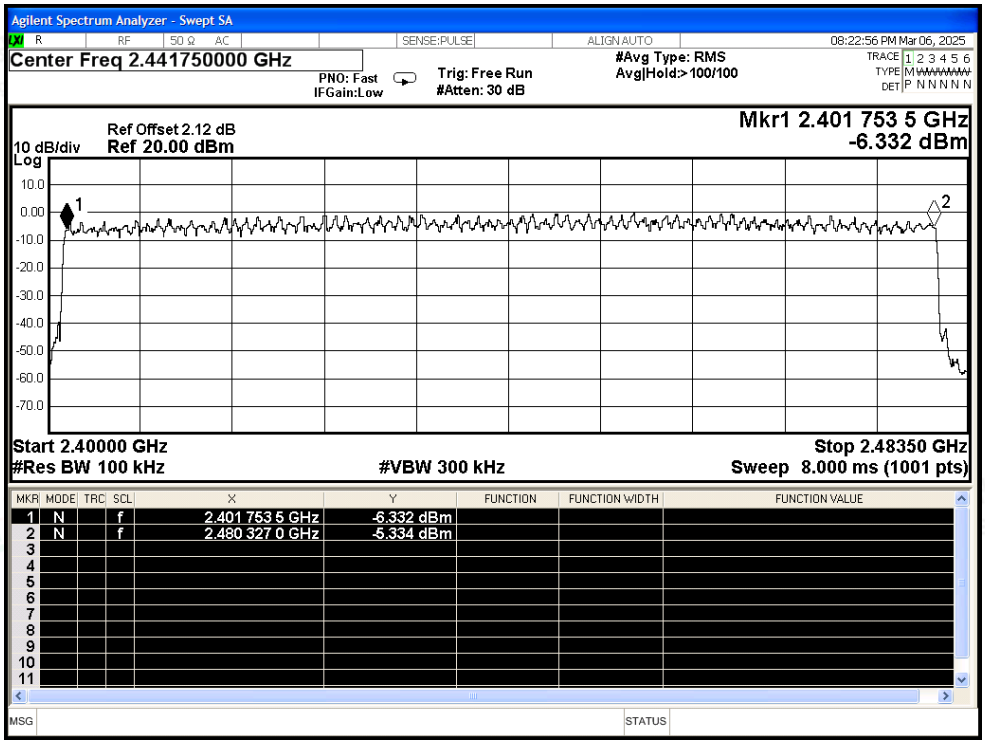
Hopping No. NVNT 1-DH5 2402MHz Ant



Hopping No. NVNT 2-DH5 2402MHz Ant



Hopping No. NVNT 3-DH5 2402MHz Ant

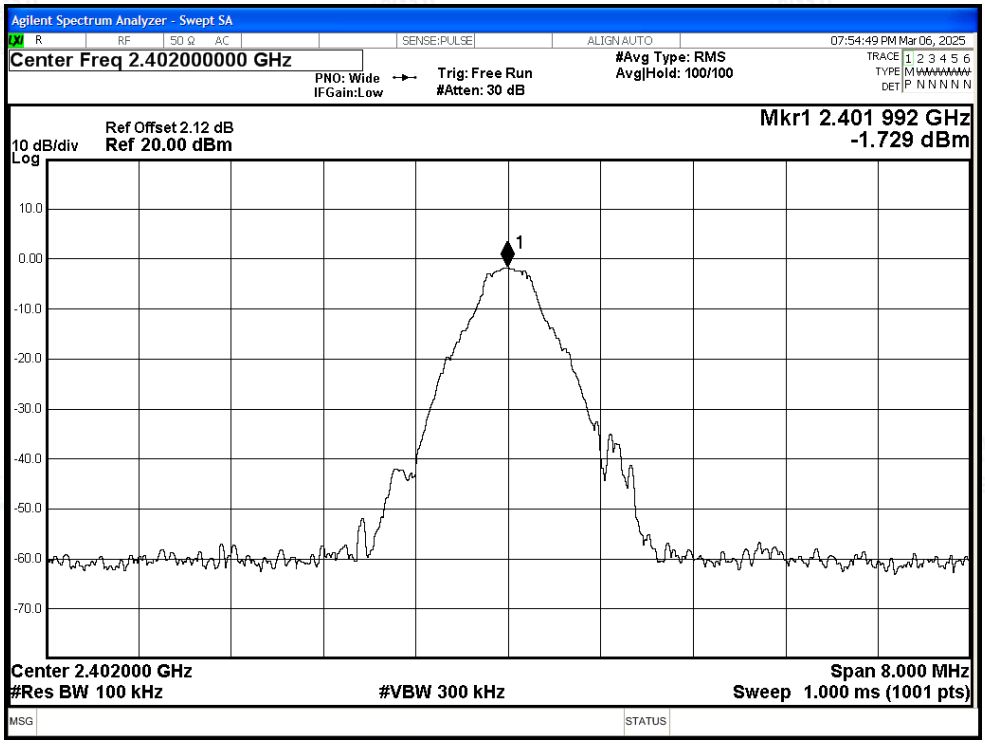


A.6 Band Edge

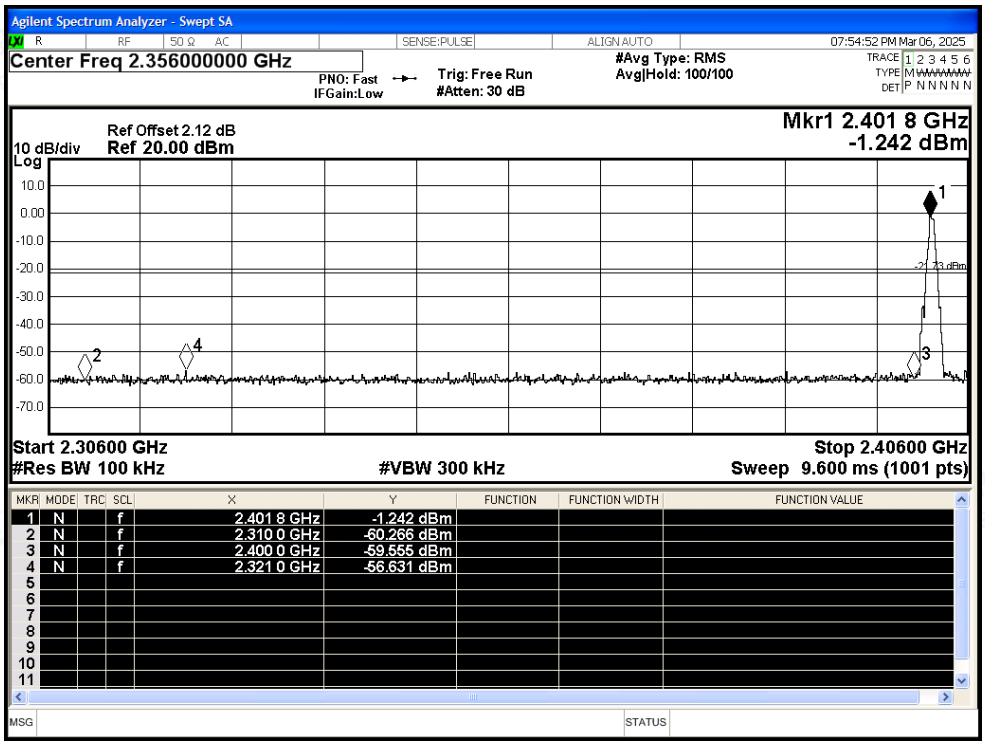
Condition	Mode	Frequency (MHz)	Antenna	Hopping Mode	Max Value (dBc)	Limit (dBc)	Verdict
NVNT	1-DH5	2402	Ant	No-Hopping	-54.9	-20	Pass
NVNT	1-DH5	2480	Ant	No-Hopping	-55.14	-20	Pass
NVNT	2-DH5	2402	Ant	No-Hopping	-52.77	-20	Pass
NVNT	2-DH5	2480	Ant	No-Hopping	-54.67	-20	Pass
NVNT	3-DH5	2402	Ant	No-Hopping	-51.51	-20	Pass
NVNT	3-DH5	2480	Ant	No-Hopping	-53.79	-20	Pass

Test Graphs

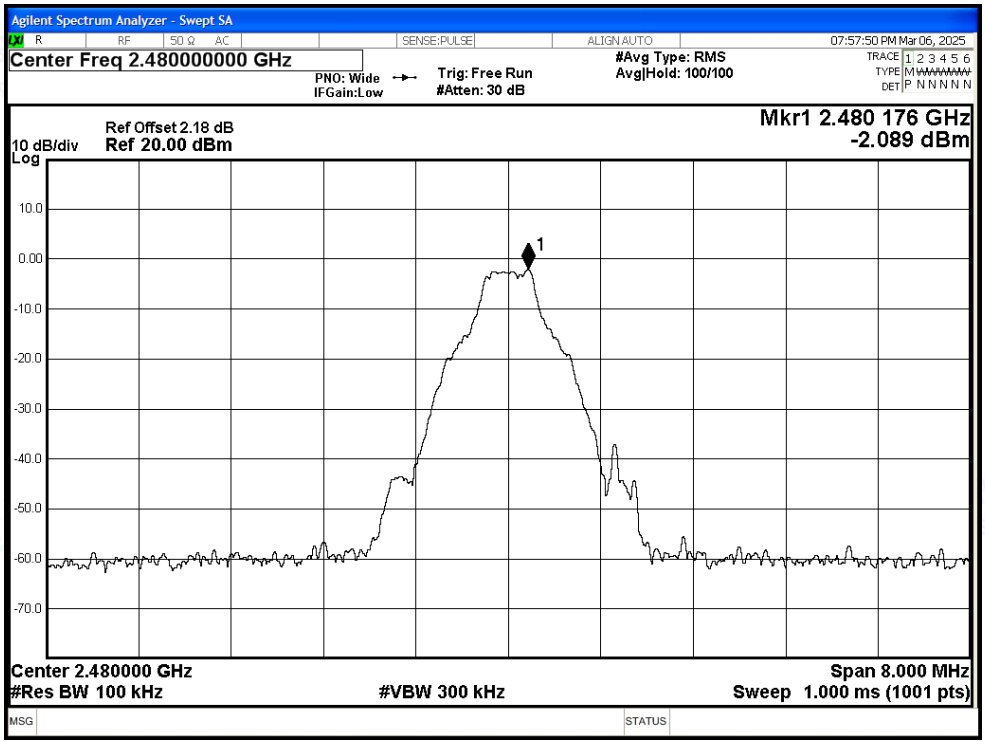
Band Edge NVNT 1-DH5 2402MHz Ant No-Hopping Ref



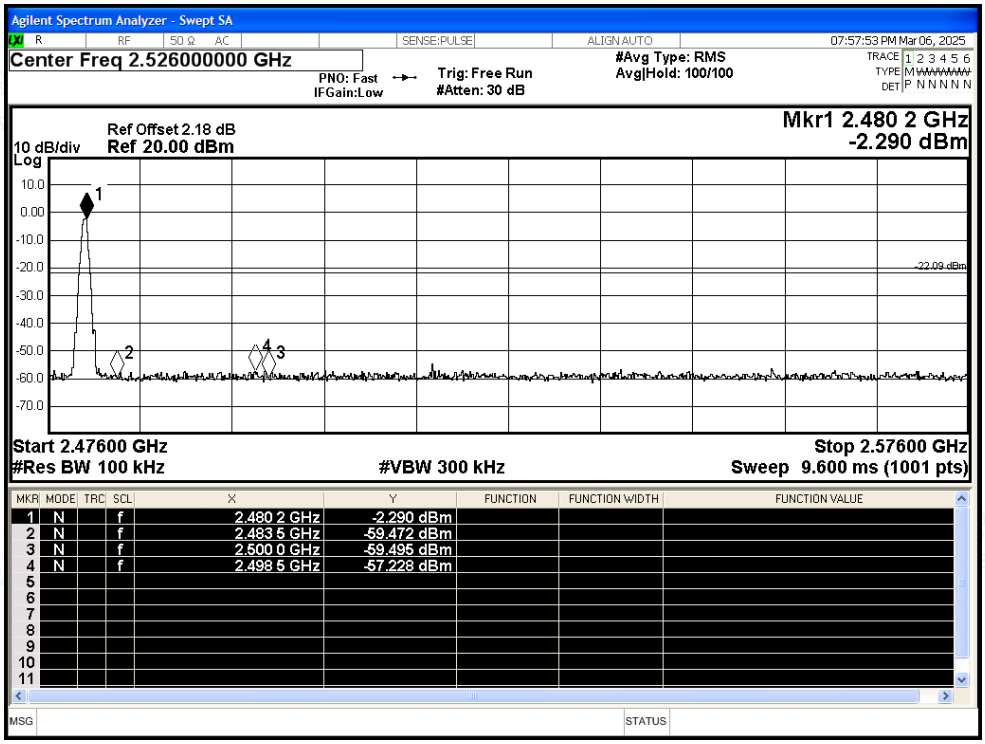
Band Edge NVNT 1-DH5 2402MHz Ant No-Hopping Emission



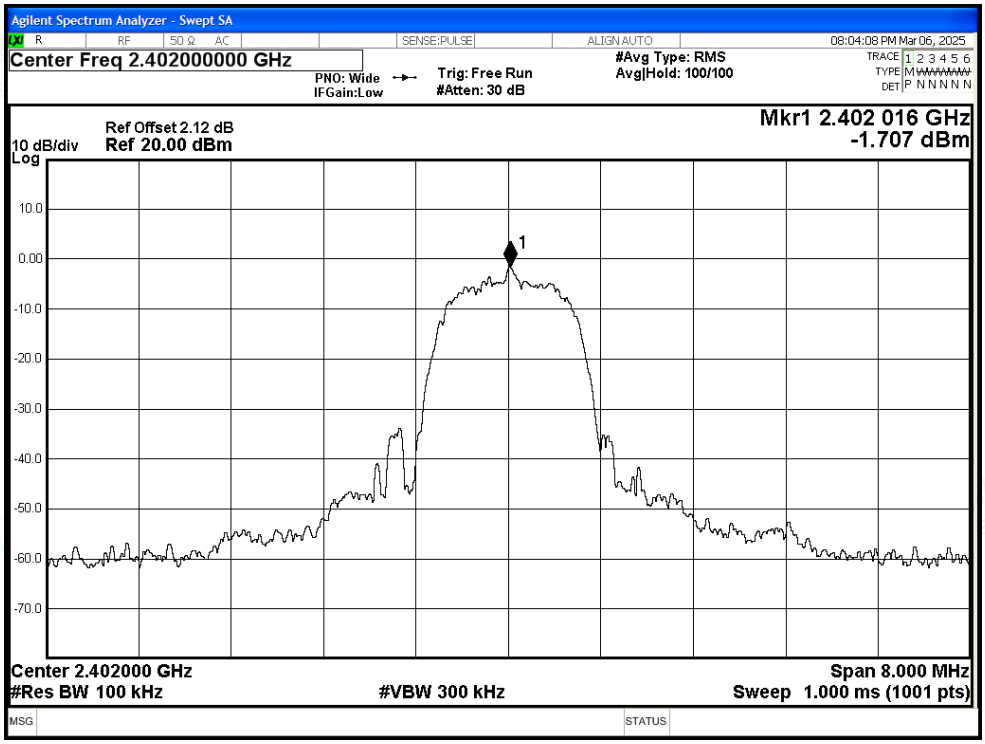
Band Edge NVNT 1-DH5 2480MHz Ant No-Hopping Ref



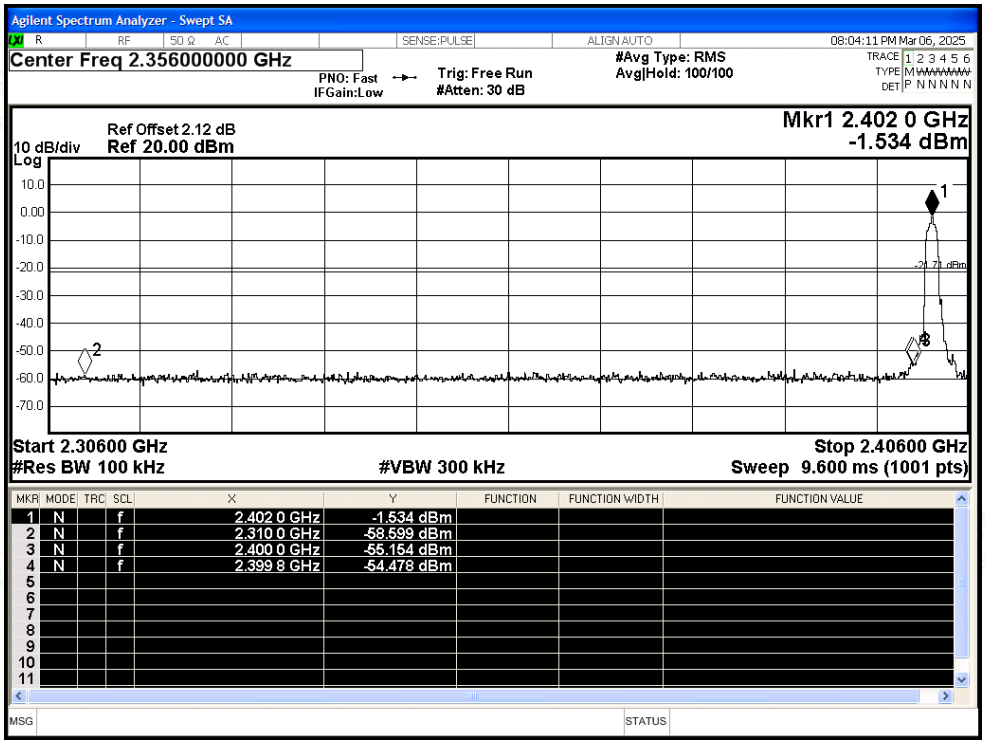
Band Edge NVNT 1-DH5 2480MHz Ant No-Hopping Emission



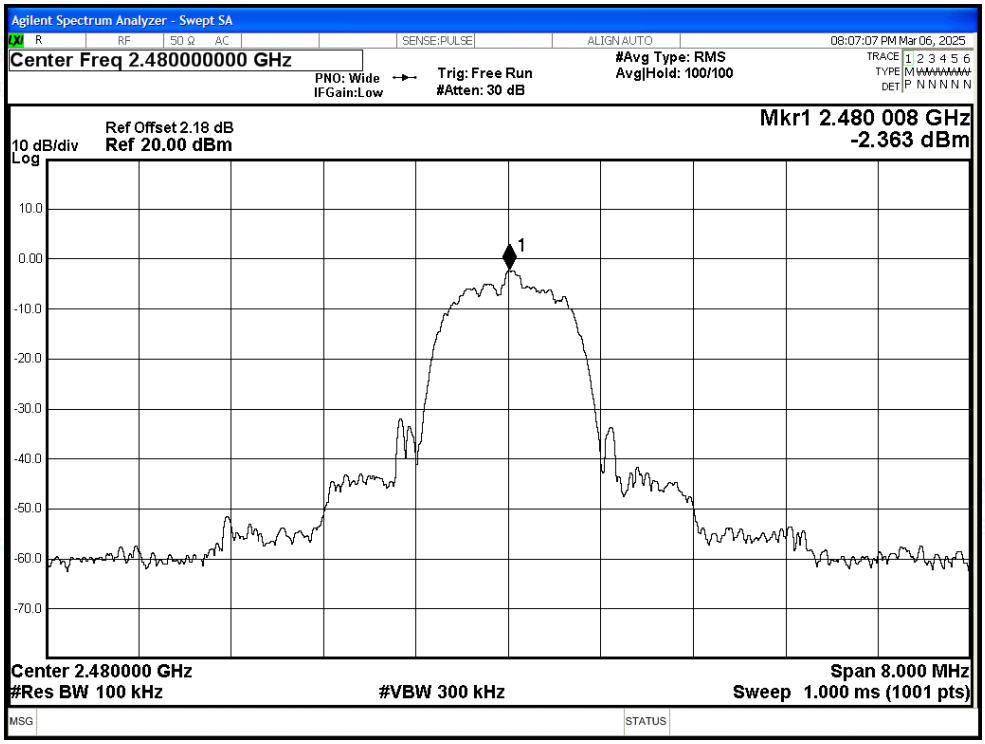
Band Edge NVNT 2-DH5 2402MHz Ant No-Hopping Ref



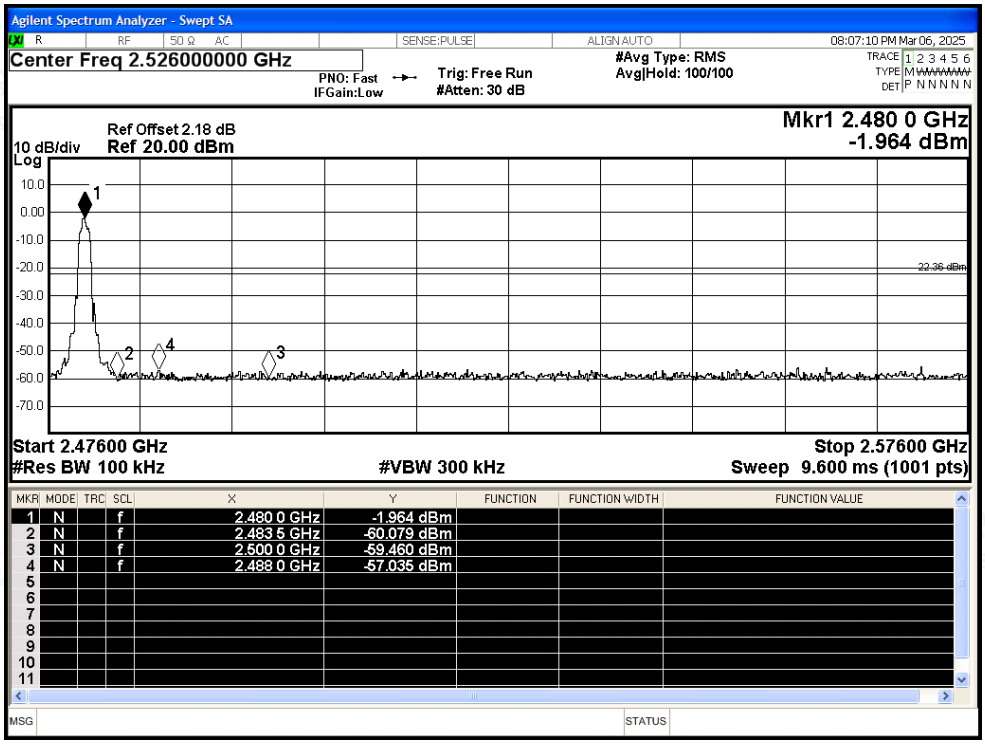
Band Edge NVNT 2-DH5 2402MHz Ant No-Hopping Emission



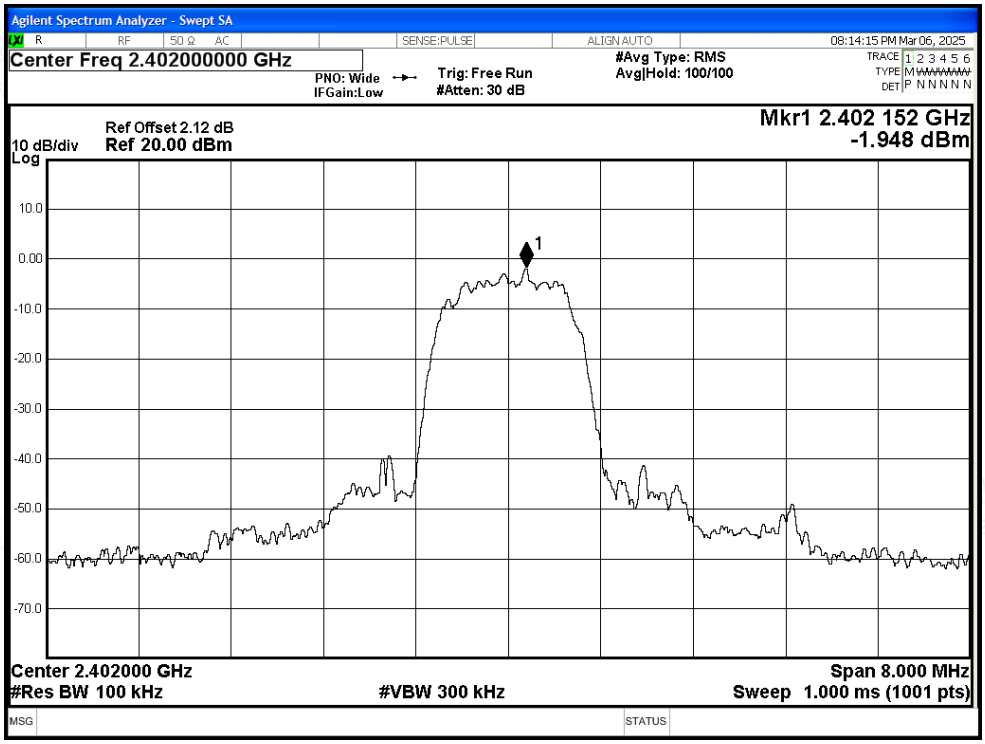
Band Edge NVNT 2-DH5 2480MHz Ant No-Hopping Ref



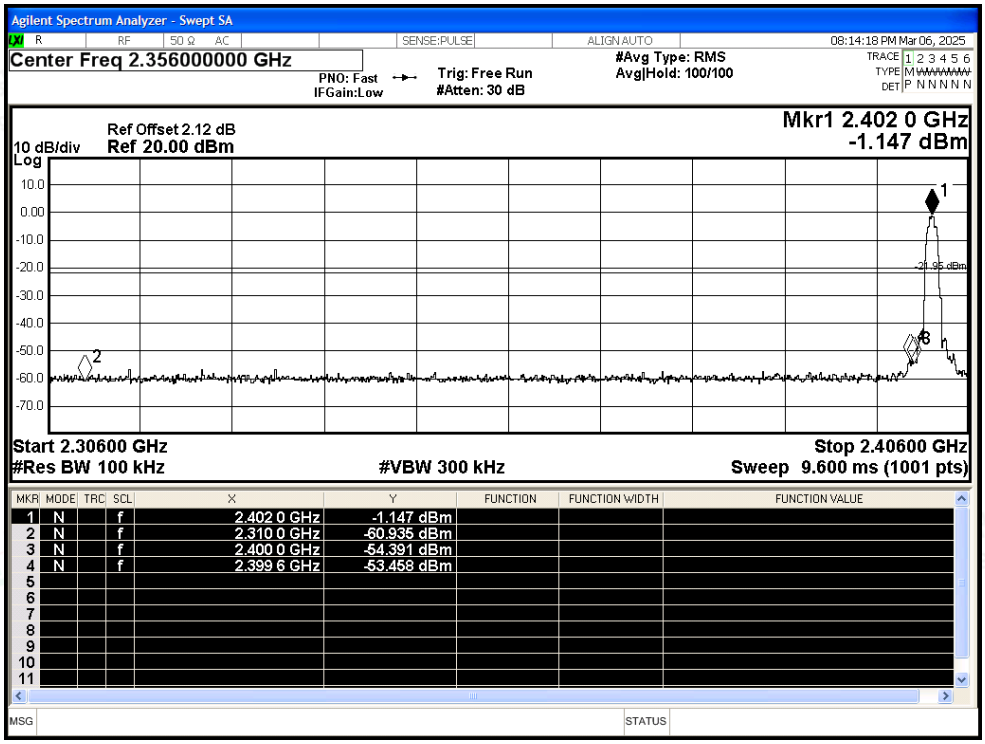
Band Edge NVNT 2-DH5 2480MHz Ant No-Hopping Emission



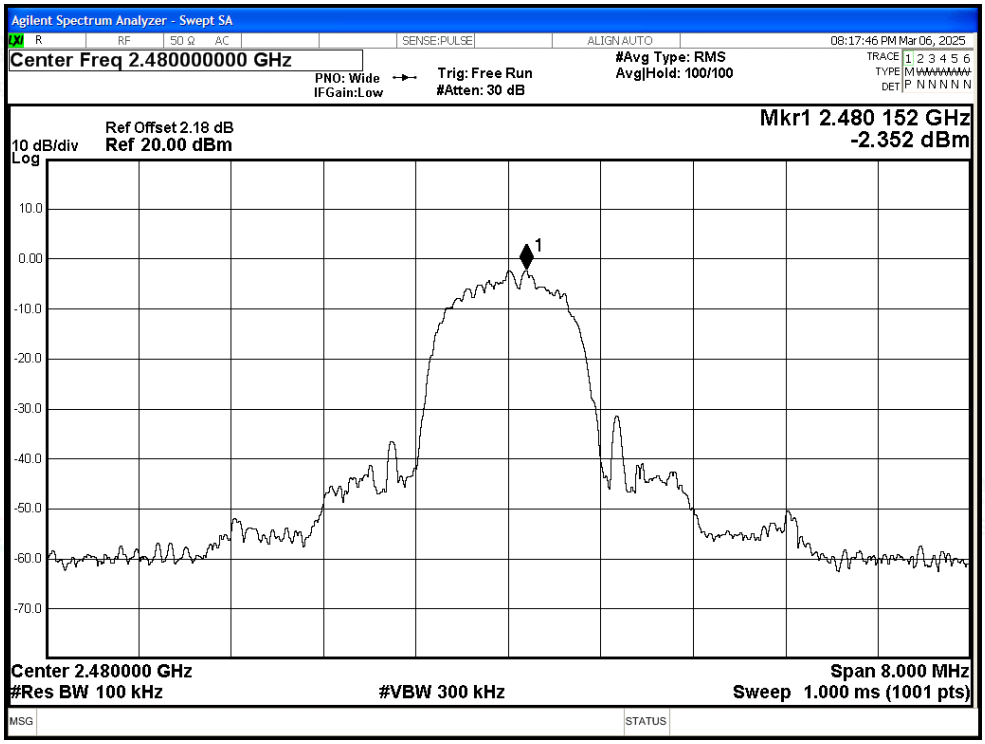
Band Edge NVNT 3-DH5 2402MHz Ant No-Hopping Ref



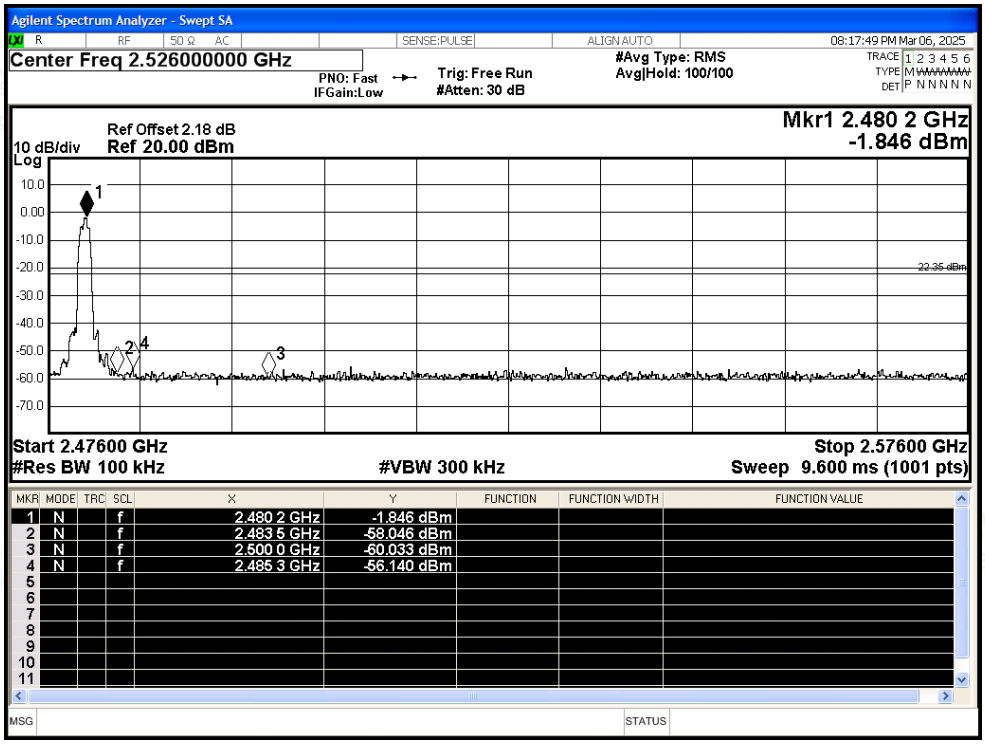
Band Edge NVNT 3-DH5 2402MHz Ant No-Hopping Emission



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



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

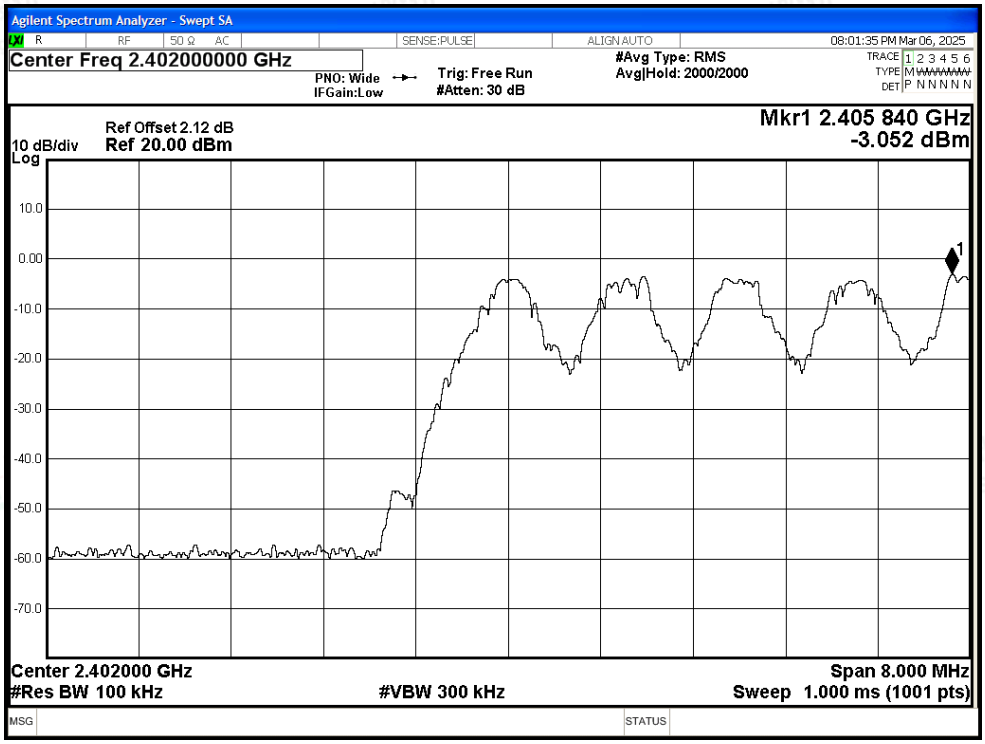


(Hopping)

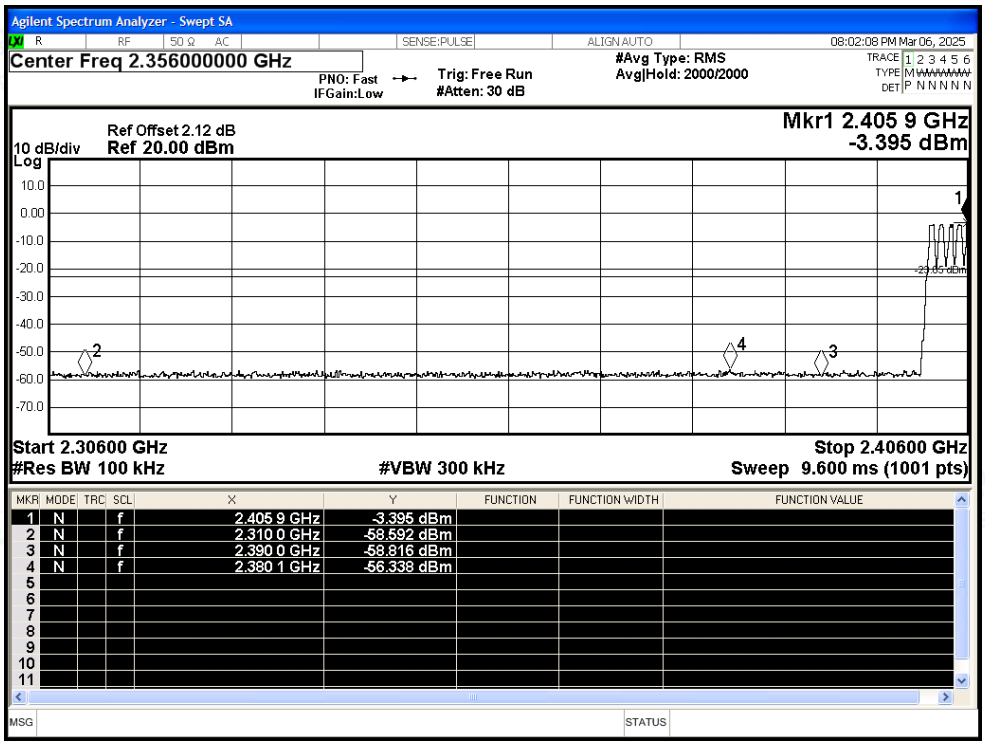
Condition	Mode	Frequency (MHz)	Antenna	Hopping Mode	Max Value (dBc)	Limit (dBc)	Verdict
NVNT	1-DH5	2402	Ant	Hopping	-53.29	-20	Pass
NVNT	1-DH5	2480	Ant	Hopping	-53.31	-20	Pass
NVNT	2-DH5	2402	Ant	Hopping	-51.57	-20	Pass
NVNT	2-DH5	2480	Ant	Hopping	-54.21	-20	Pass
NVNT	3-DH5	2402	Ant	Hopping	-51.23	-20	Pass
NVNT	3-DH5	2480	Ant	Hopping	-53.87	-20	Pass

Test Graphs

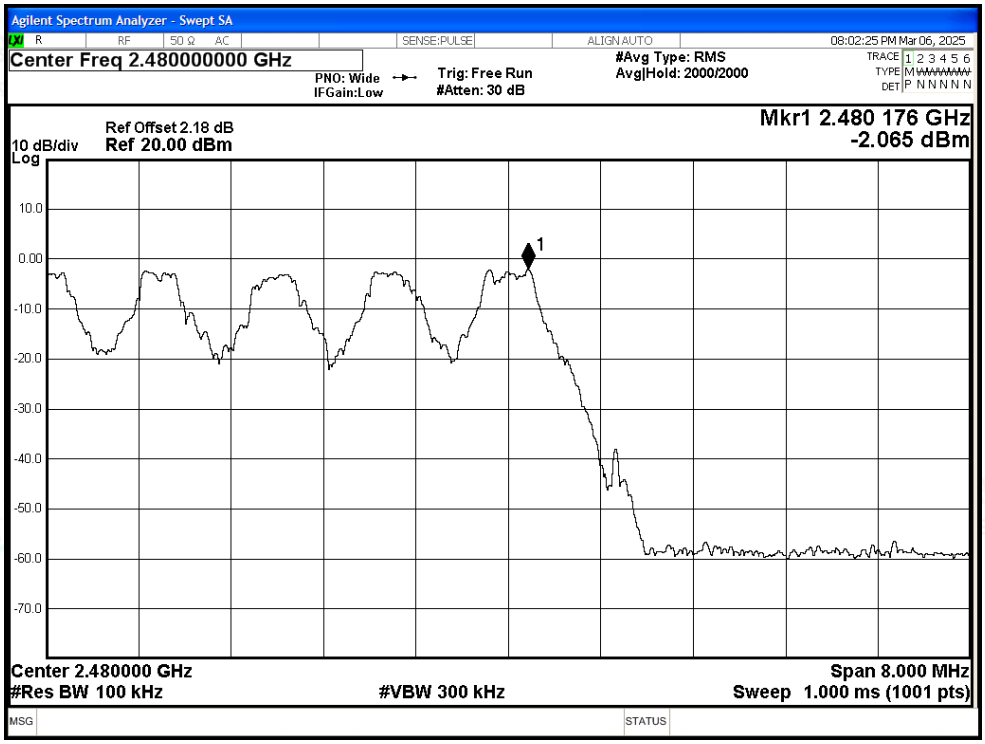
Band Edge(Hopping) NVNT 1-DH5 2402MHz Ant Hopping Ref



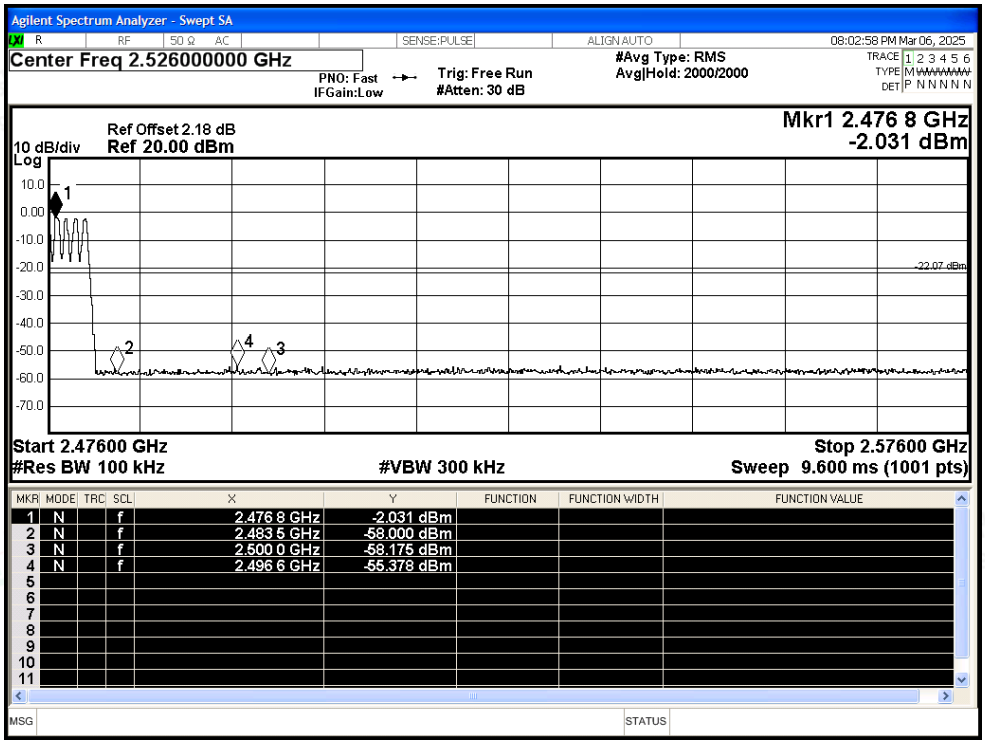
Band Edge(Hopping) NVNT 1-DH5 2402MHz Ant Hopping Emission



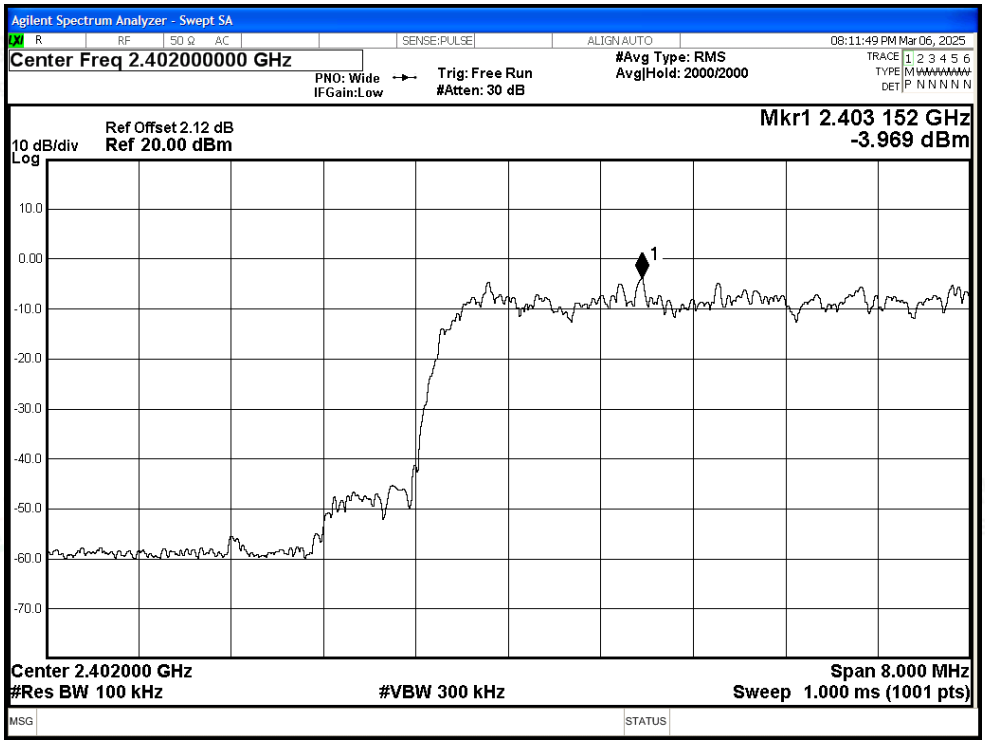
Band Edge(Hopping) NVNT 1-DH5 2480MHz Ant Hopping Ref



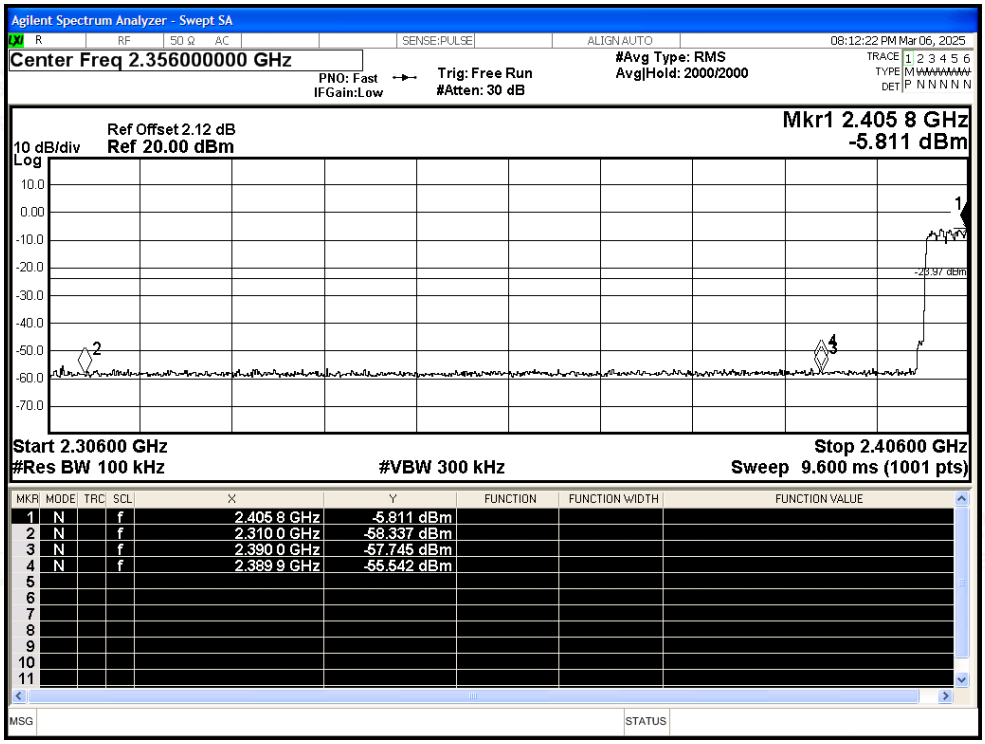
Band Edge(Hopping) NVNT 1-DH5 2480MHz Ant Hopping Emission



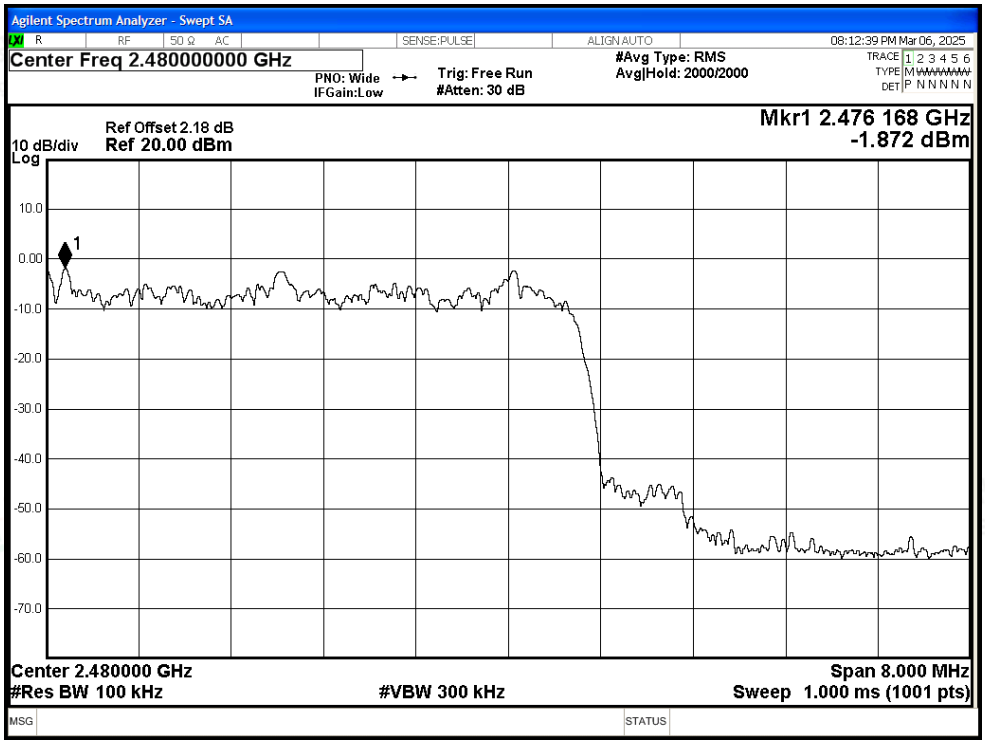
Band Edge(Hopping) NVNT 2-DH5 2402MHz Ant Hopping Ref



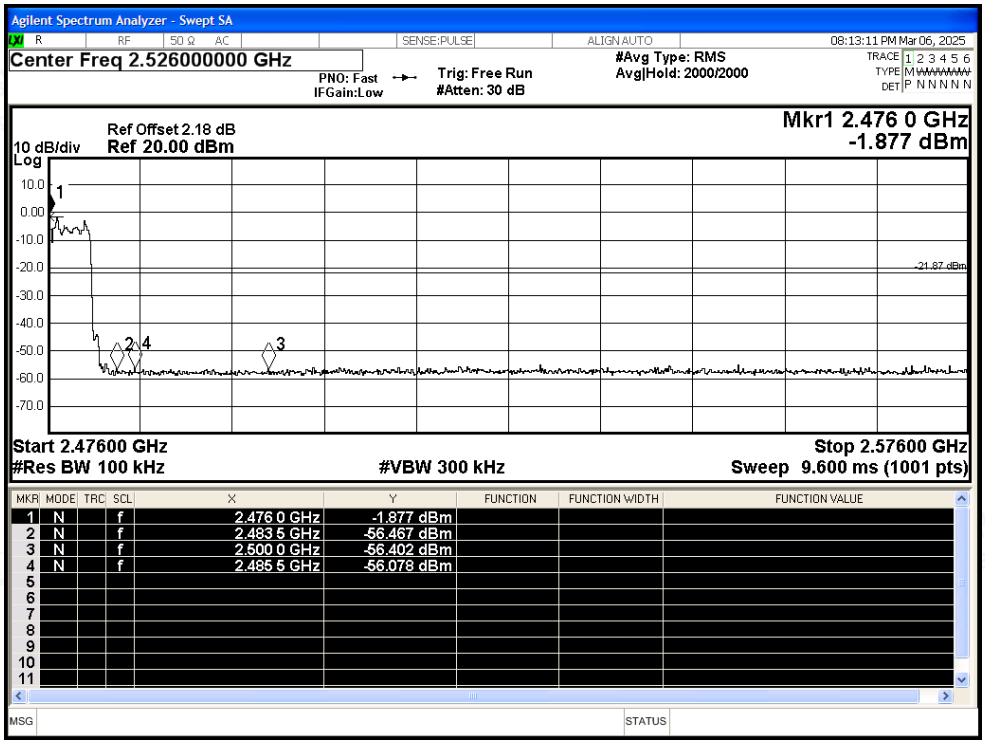
Band Edge(Hopping) NVNT 2-DH5 2402MHz Ant Hopping Emission



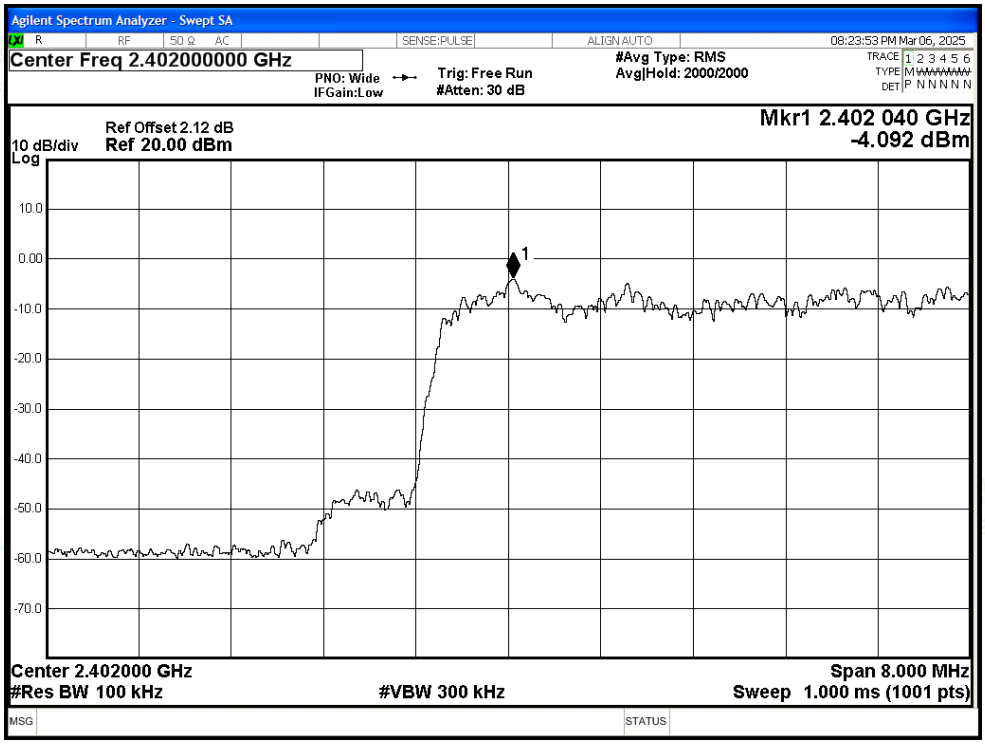
Band Edge(Hopping) NVNT 2-DH5 2480MHz Ant Hopping Ref



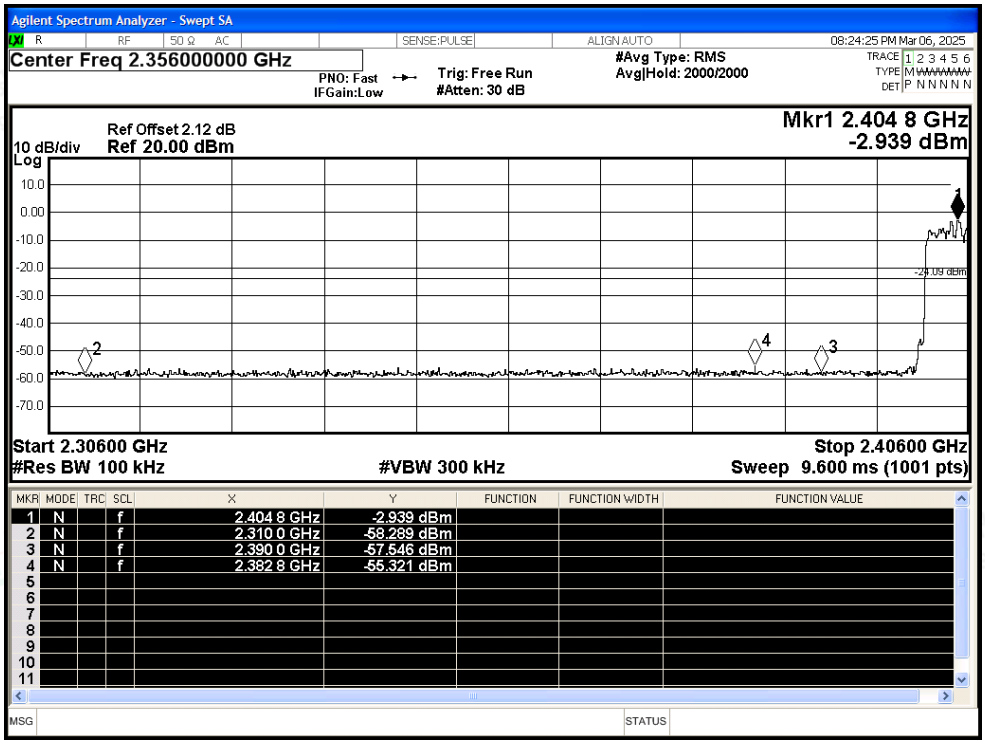
Band Edge(Hopping) NVNT 2-DH5 2480MHz Ant Hopping Emission



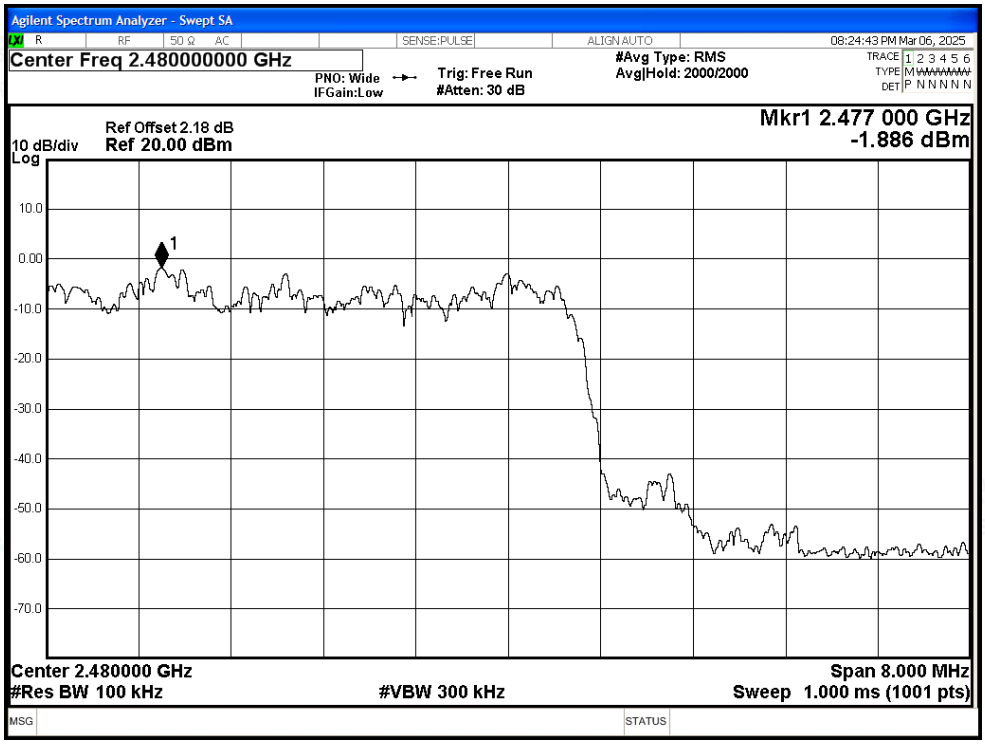
Band Edge(Hopping) NVNT 3-DH5 2402MHz Ant Hopping Ref



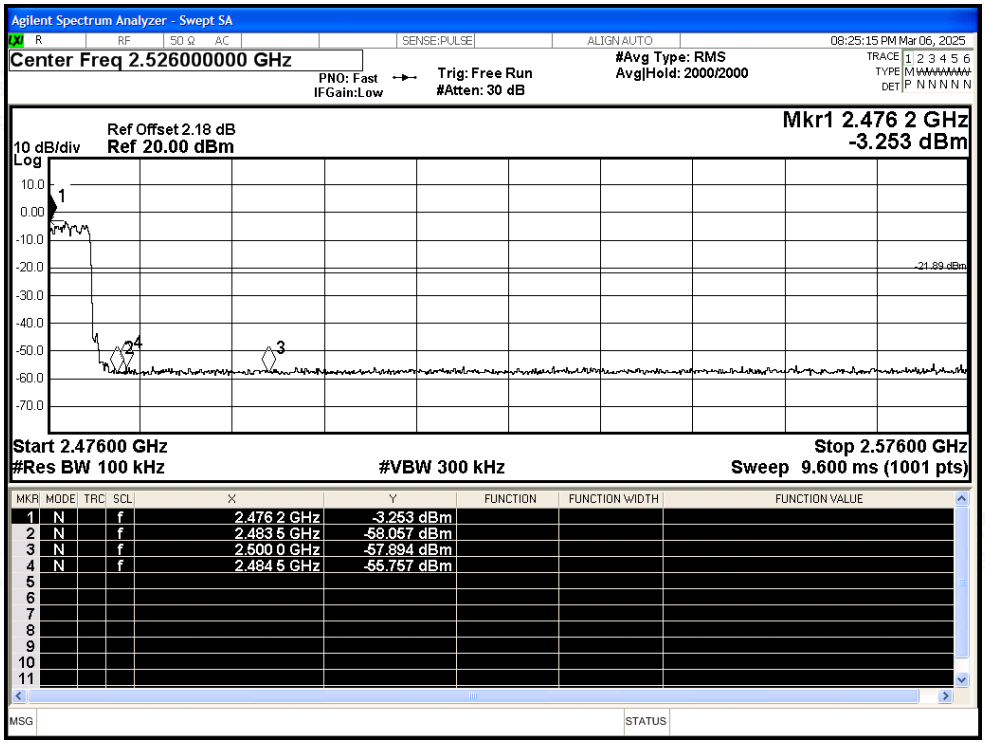
Band Edge(Hopping) NVNT 3-DH5 2402MHz Ant Hopping Emission



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



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

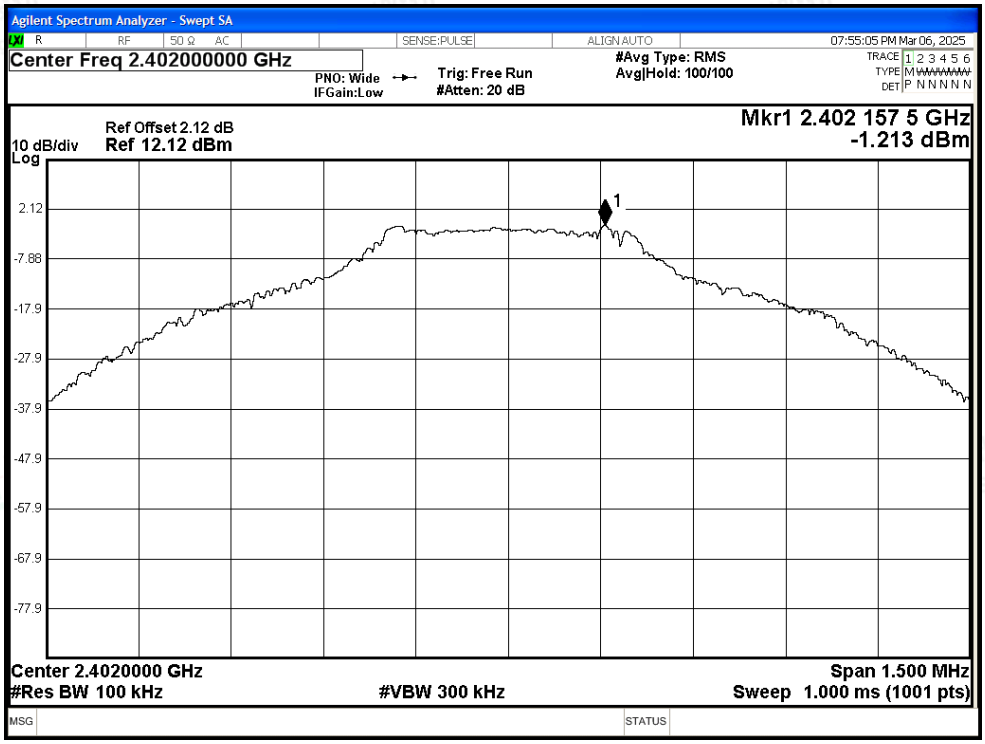


A.7 Conducted RF Spurious Emission

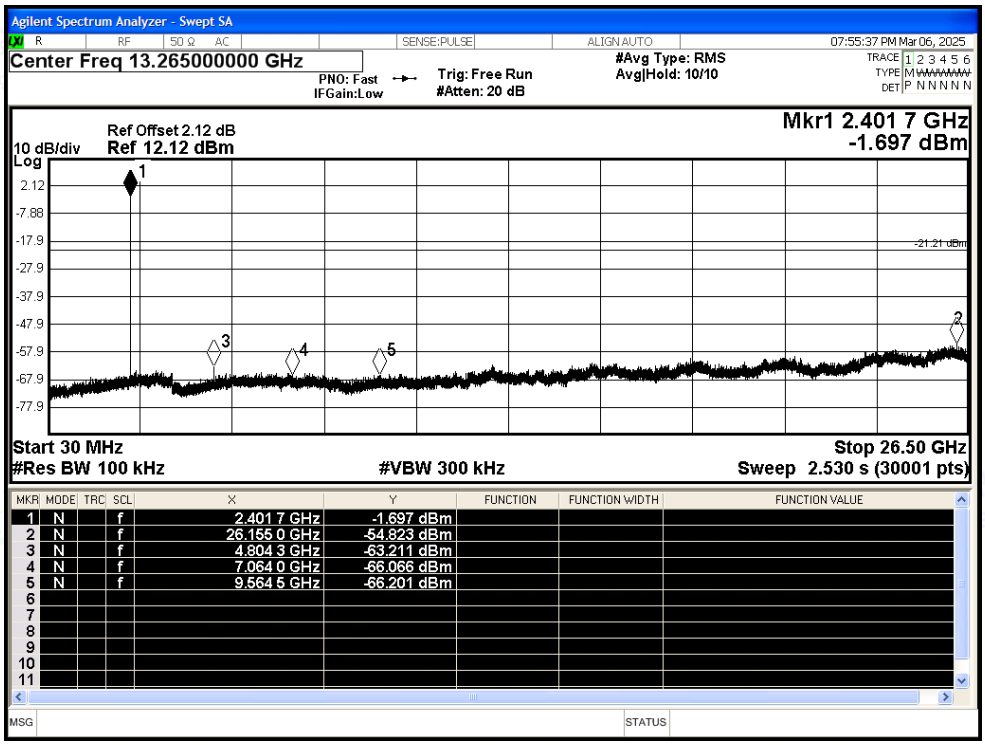
Condition	Mode	Frequency (MHz)	Antenna	Max Value (dBc)	Limit (dBc)	Verdict
NVNT	1-DH5	2402	Ant	-53.61	-20	Pass
NVNT	1-DH5	2441	Ant	-54.15	-20	Pass
NVNT	1-DH5	2480	Ant	-53.29	-20	Pass
NVNT	2-DH5	2402	Ant	-53.65	-20	Pass
NVNT	2-DH5	2441	Ant	-53.93	-20	Pass
NVNT	2-DH5	2480	Ant	-51.76	-20	Pass
NVNT	3-DH5	2402	Ant	-53.98	-20	Pass
NVNT	3-DH5	2441	Ant	-53.13	-20	Pass
NVNT	3-DH5	2480	Ant	-52.36	-20	Pass

Test Graphs

Tx. Spurious NVNT 1-DH5 2402MHz Ant Ref

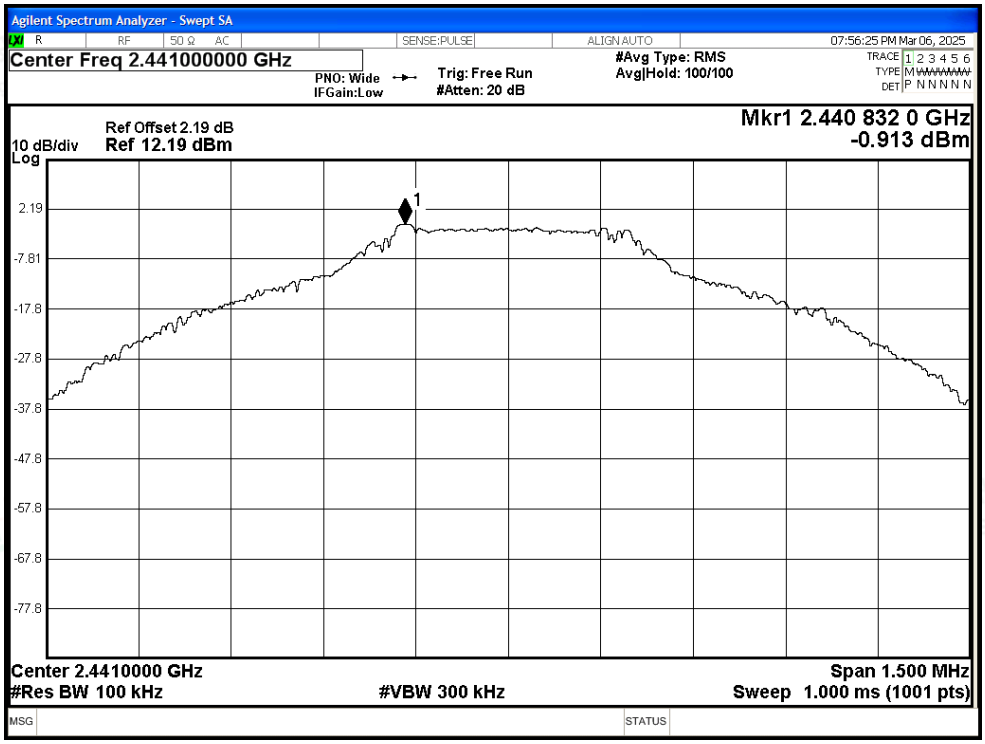


Tx. Spurious NVNT 1-DH5 2402MHz Ant Emission

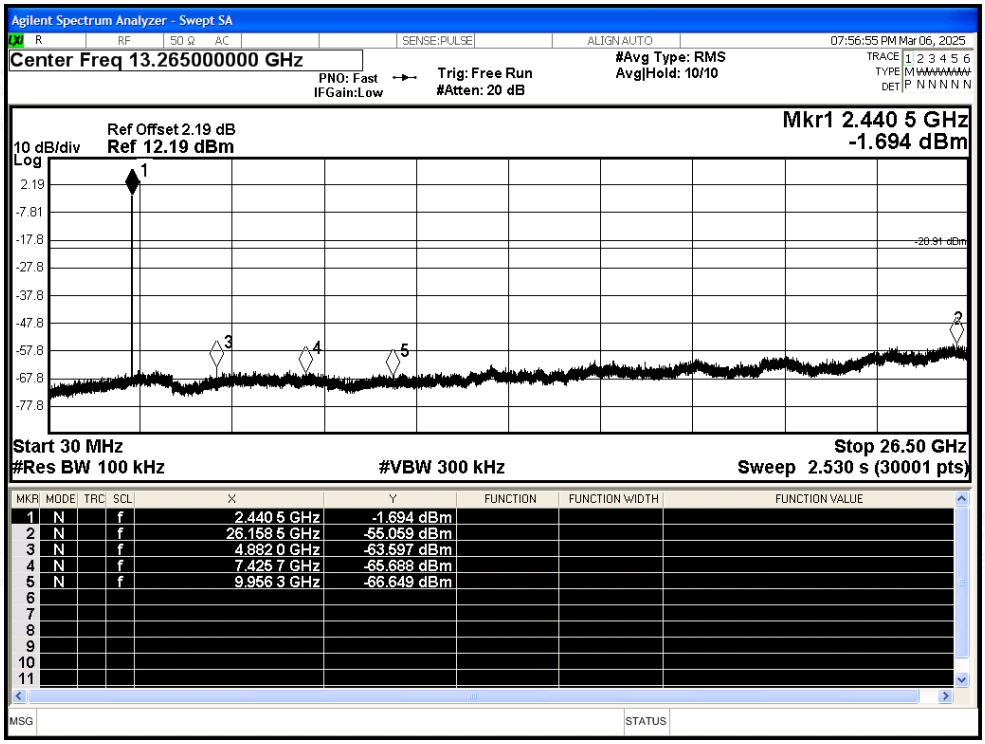


MKR	MODE	TRC	SCL	X	Y	FUNCTION	FUNCTION WIDTH	FUNCTION VALUE
1	N		f	2.401 7 GHz	-1.697 dBm			
2	N		f	26.155 0 GHz	-54.823 dBm			
3	N		f	4.804 3 GHz	-63.211 dBm			
4	N		f	7.064 0 GHz	-66.066 dBm			
5	N		f	9.564 5 GHz	-66.201 dBm			
6								
7								
8								
9								
10								
11								

Tx. Spurious NVNT 1-DH5 2441MHz Ant Ref

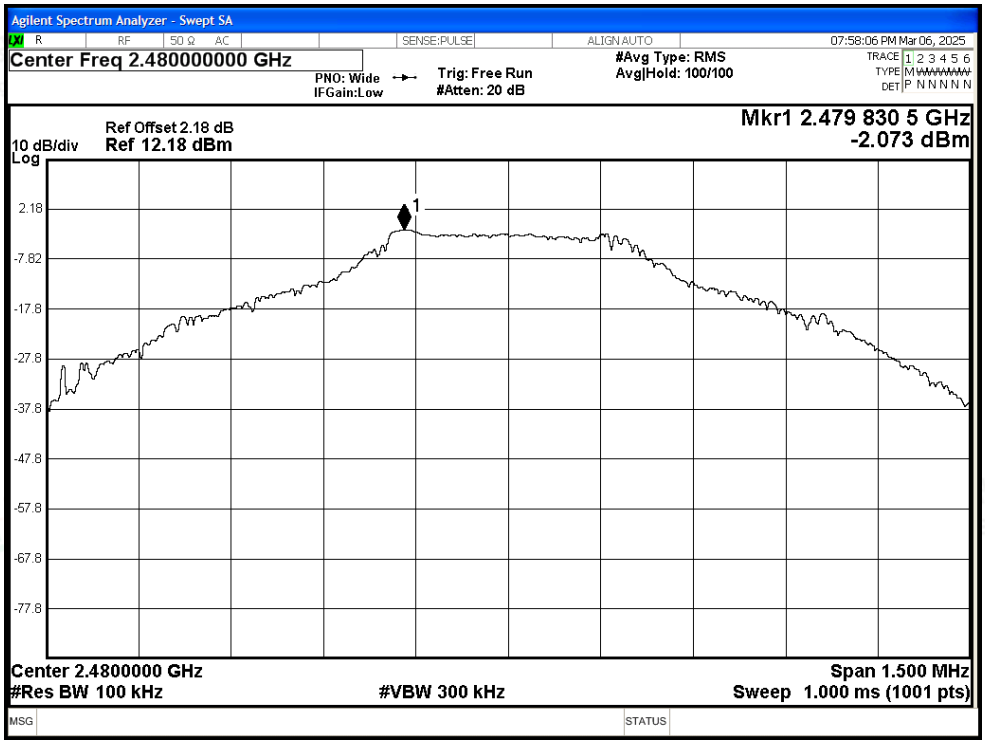


Tx. Spurious NVNT 1-DH5 2441MHz Ant Emission

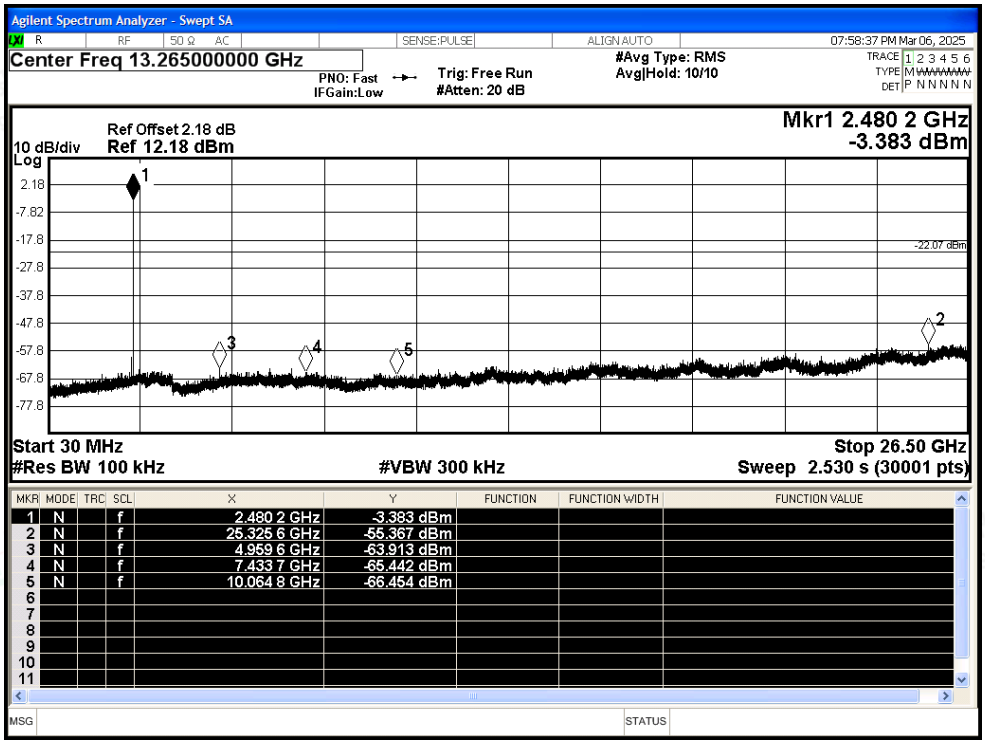


MKR	MODE	TRC	SCL	X	Y	FUNCTION	FUNCTION WIDTH	FUNCTION VALUE
1	N		f	2.440 5 GHz	-1.694 dBm			
2	N		f	26.158 5 GHz	-55.059 dBm			
3	N		f	4.882 0 GHz	-63.597 dBm			
4	N		f	7.425 7 GHz	-65.688 dBm			
5	N		f	9.956 3 GHz	-66.649 dBm			
6								
7								
8								
9								
10								
11								

Tx. Spurious NVNT 1-DH5 2480MHz Ant Ref

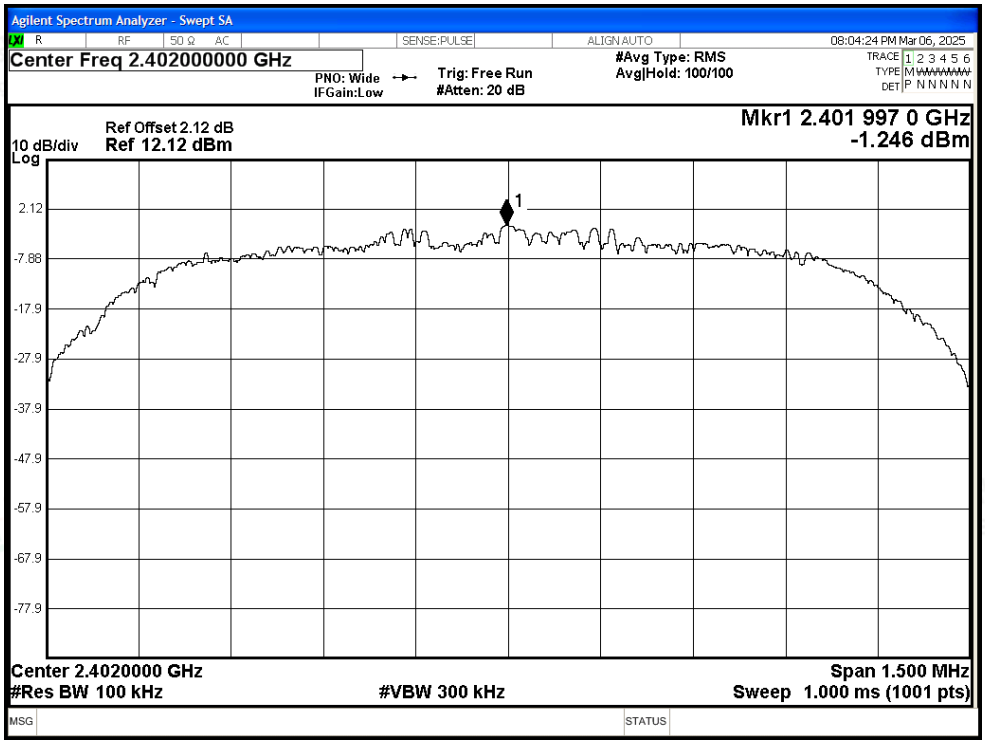


Tx. Spurious NVNT 1-DH5 2480MHz Ant Emission

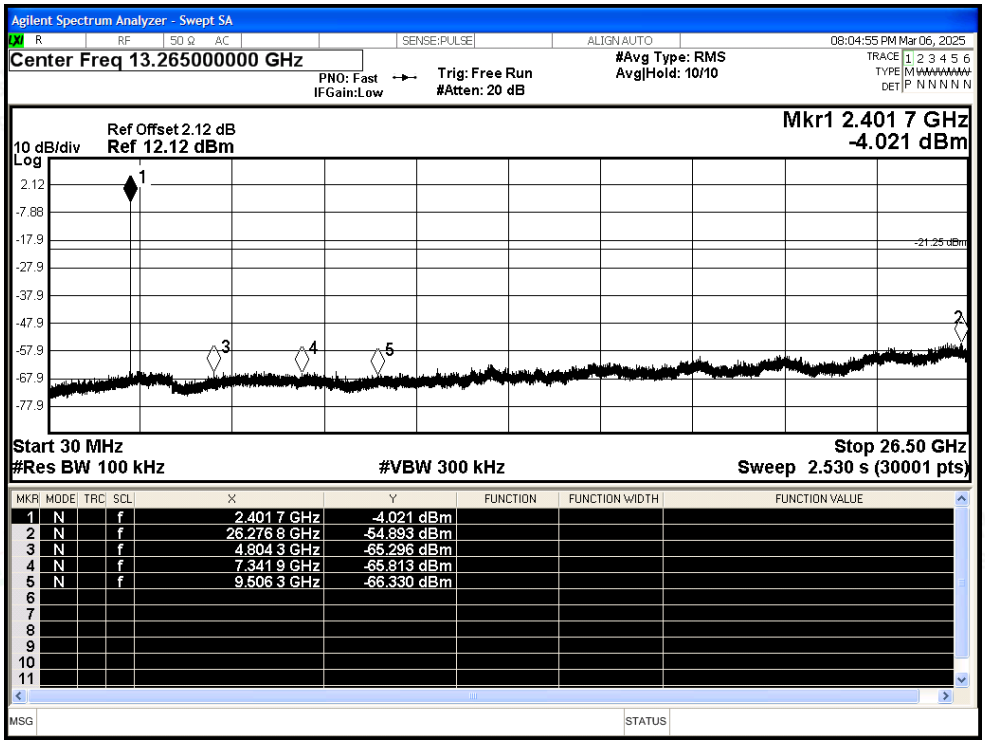


MKR	MODE	TRC	SCL	X	Y	FUNCTION	FUNCTION WIDTH	FUNCTION VALUE
1	N		f	2.480 2 GHz	-3.383 dBm			
2	N		f	25.325 6 GHz	-55.367 dBm			
3	N		f	4.959 6 GHz	-63.913 dBm			
4	N		f	7.433 7 GHz	-65.442 dBm			
5	N		f	10.064 8 GHz	-66.454 dBm			
6								
7								
8								
9								
10								
11								

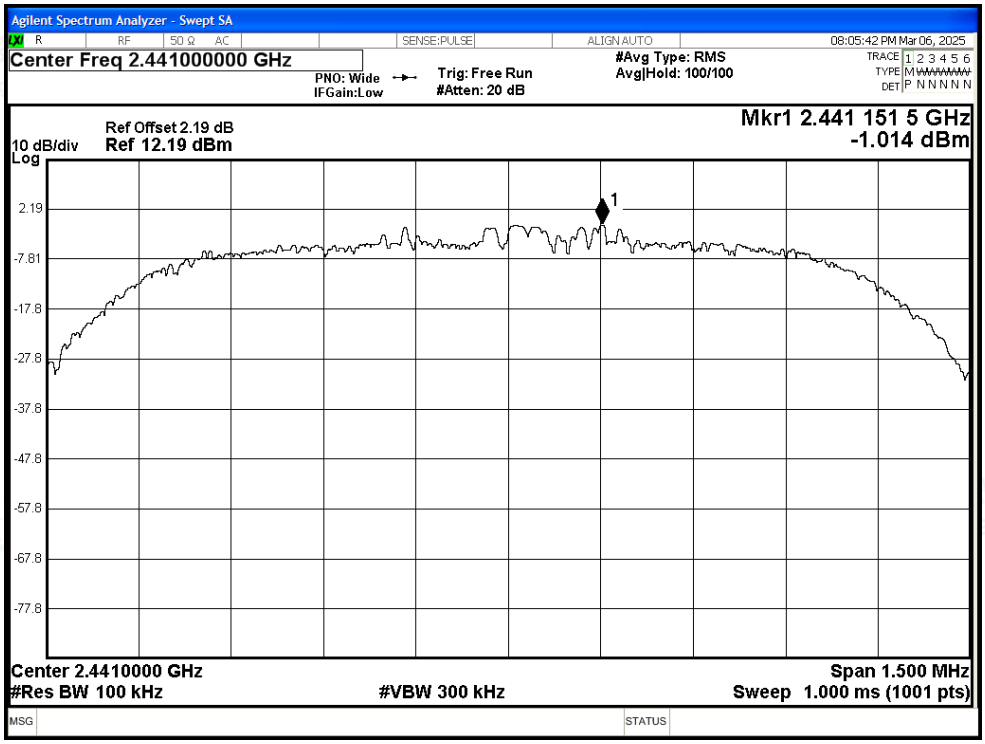
Tx. Spurious NVNT 2-DH5 2402MHz Ant Ref



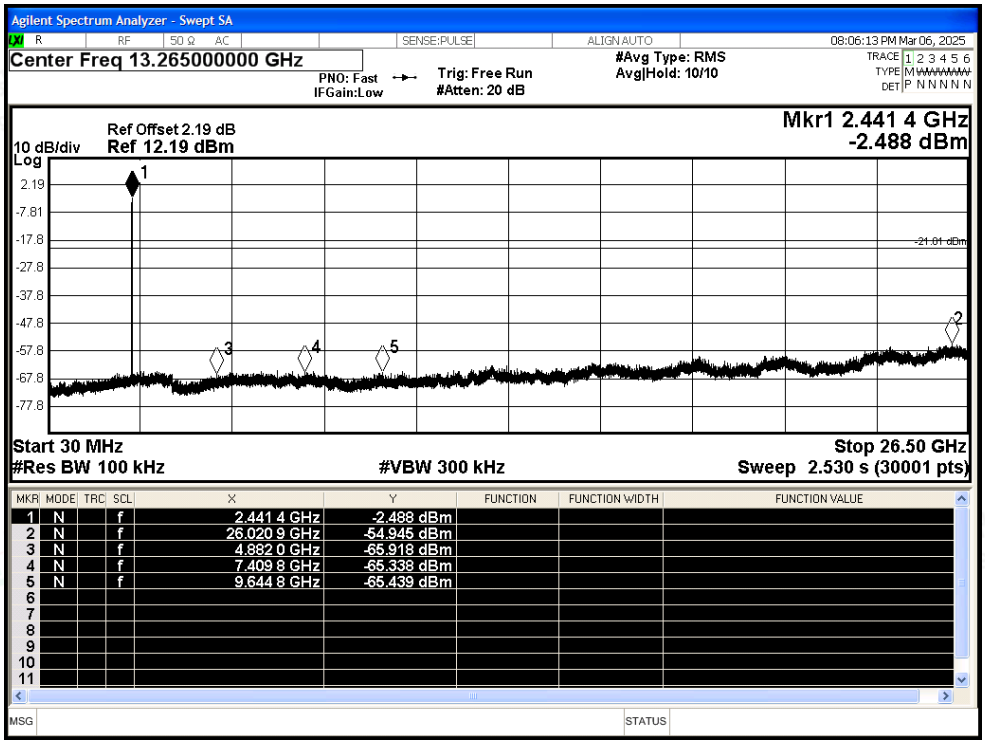
Tx. Spurious NVNT 2-DH5 2402MHz Ant Emission



Tx. Spurious NVNT 2-DH5 2441MHz Ant Ref

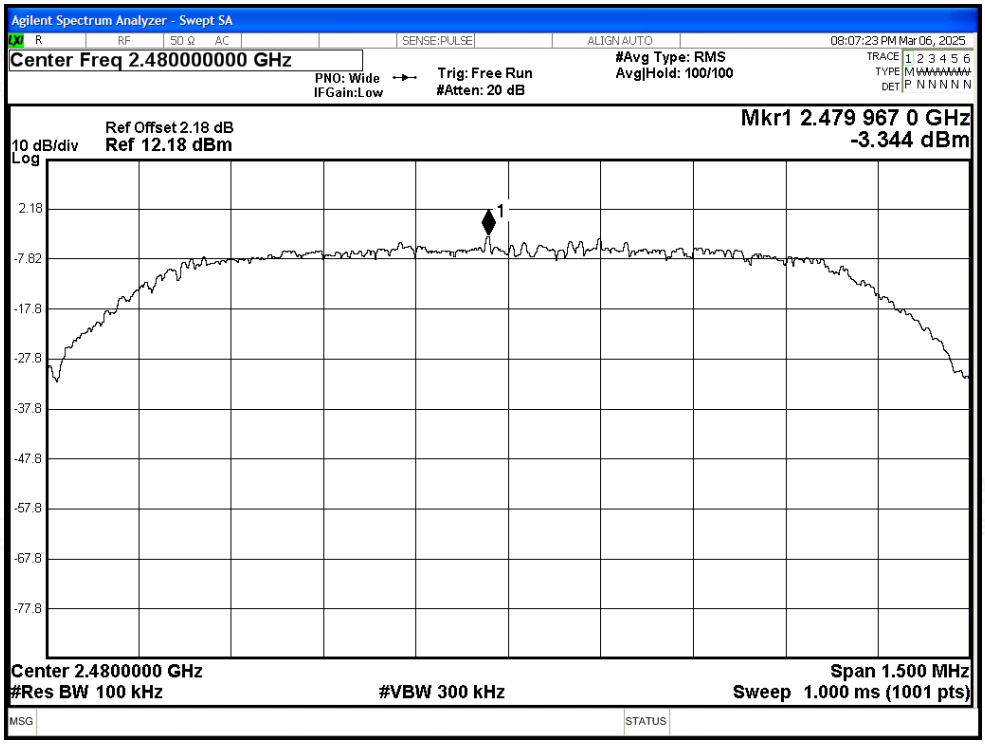


Tx. Spurious NVNT 2-DH5 2441MHz Ant Emission

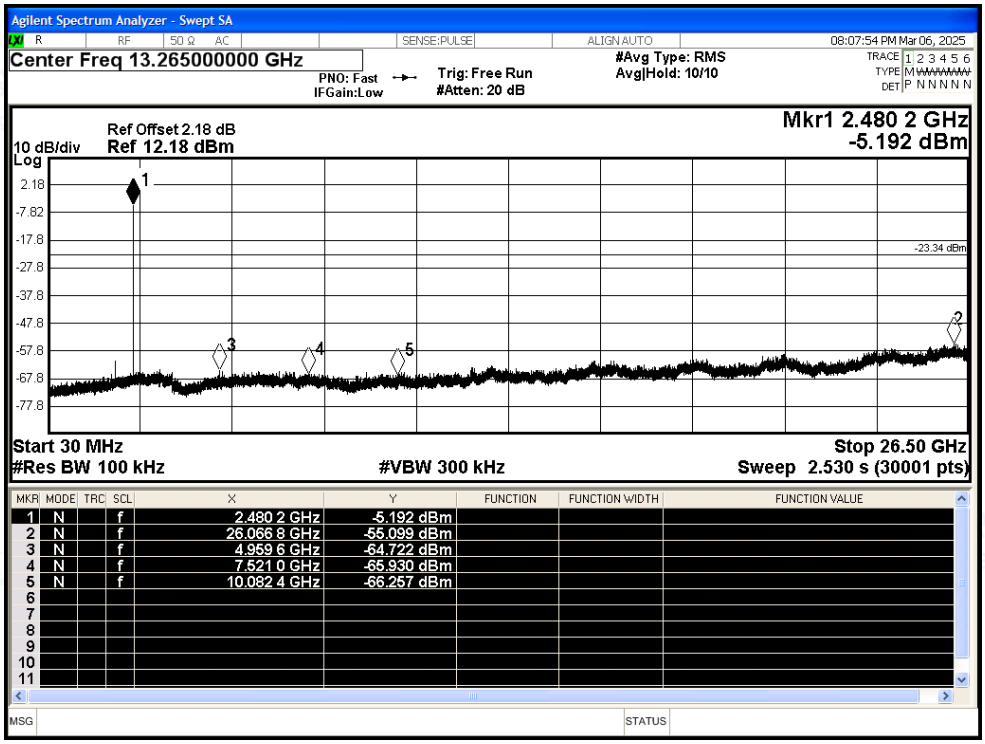


MKR	MODE	TRC	SCL	X	Y	FUNCTION	FUNCTION WIDTH	FUNCTION VALUE
1	N		f	2.441 4 GHz	-2.488 dBm			
2	N		f	26.020 9 GHz	-54.945 dBm			
3	N		f	4.882 0 GHz	-65.918 dBm			
4	N		f	7.409 8 GHz	-65.338 dBm			
5	N		f	9.644 8 GHz	-65.439 dBm			
6								
7								
8								
9								
10								
11								

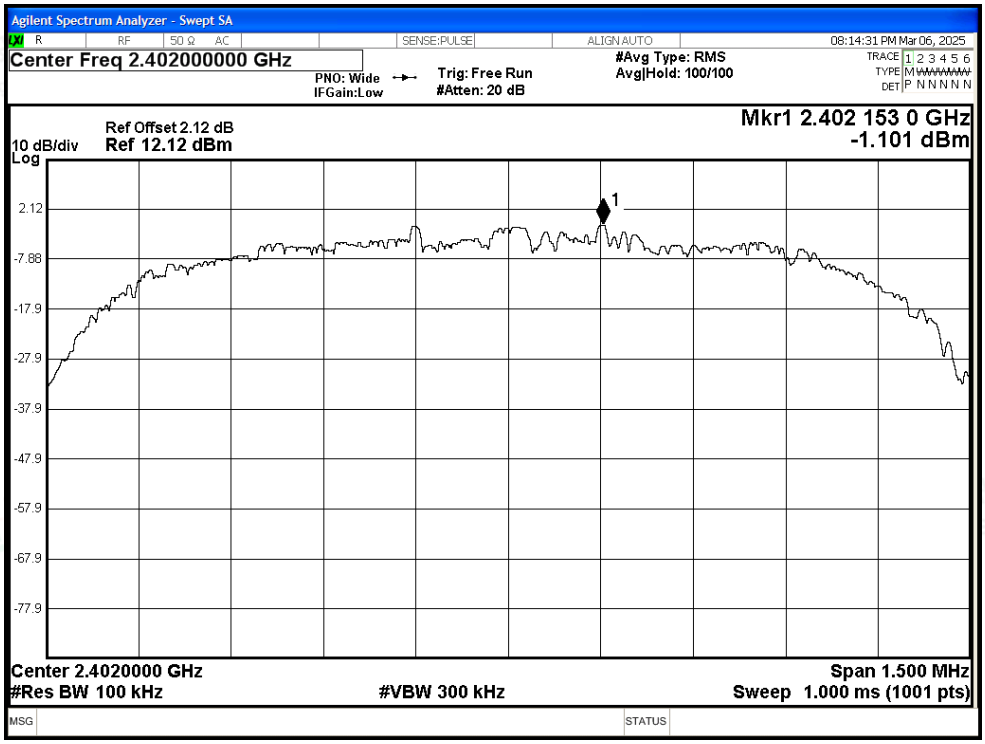
Tx. Spurious NVNT 2-DH5 2480MHz Ant Ref



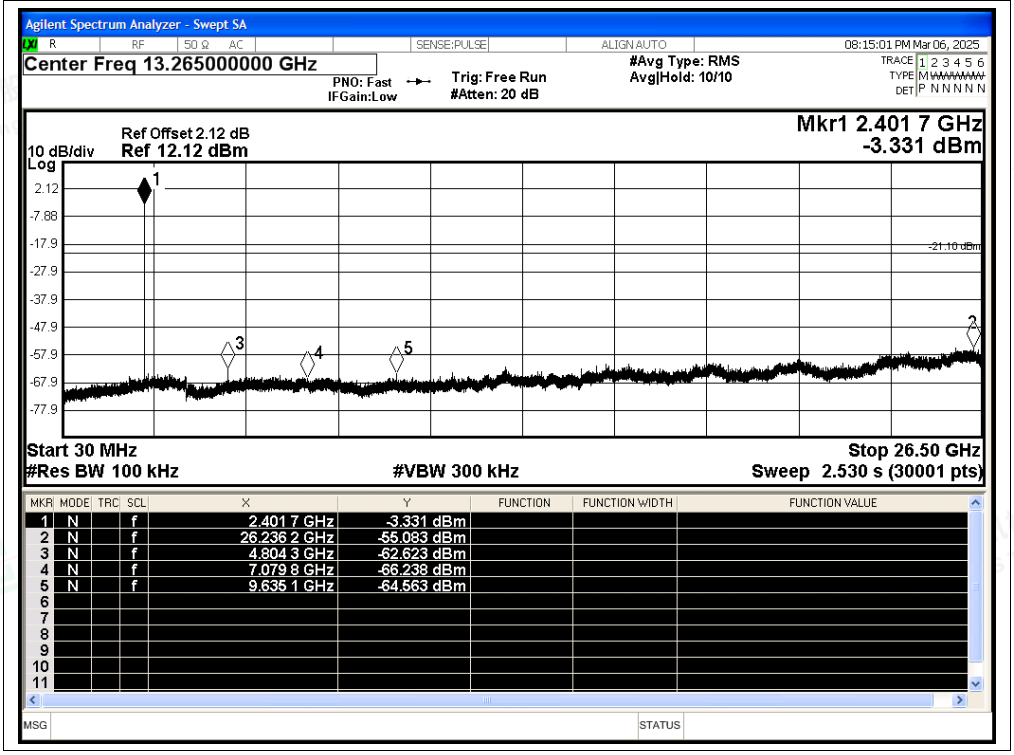
Tx. Spurious NVNT 2-DH5 2480MHz Ant Emission



Tx. Spurious NVNT 3-DH5 2402MHz Ant Ref

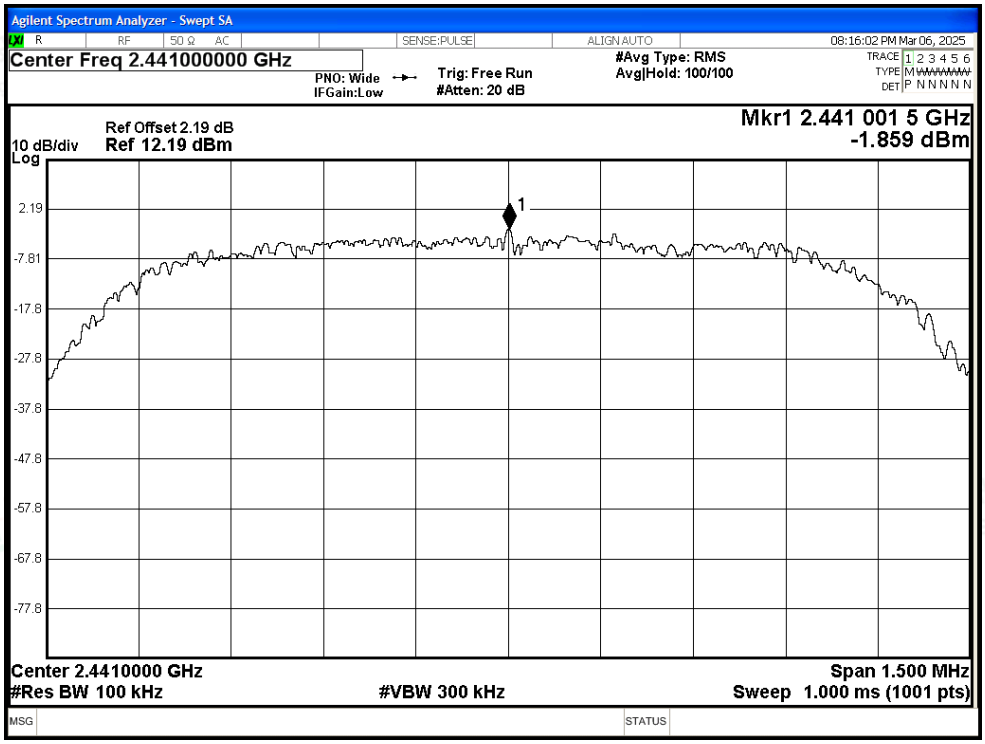


Tx. Spurious NVNT 3-DH5 2402MHz Ant Emission

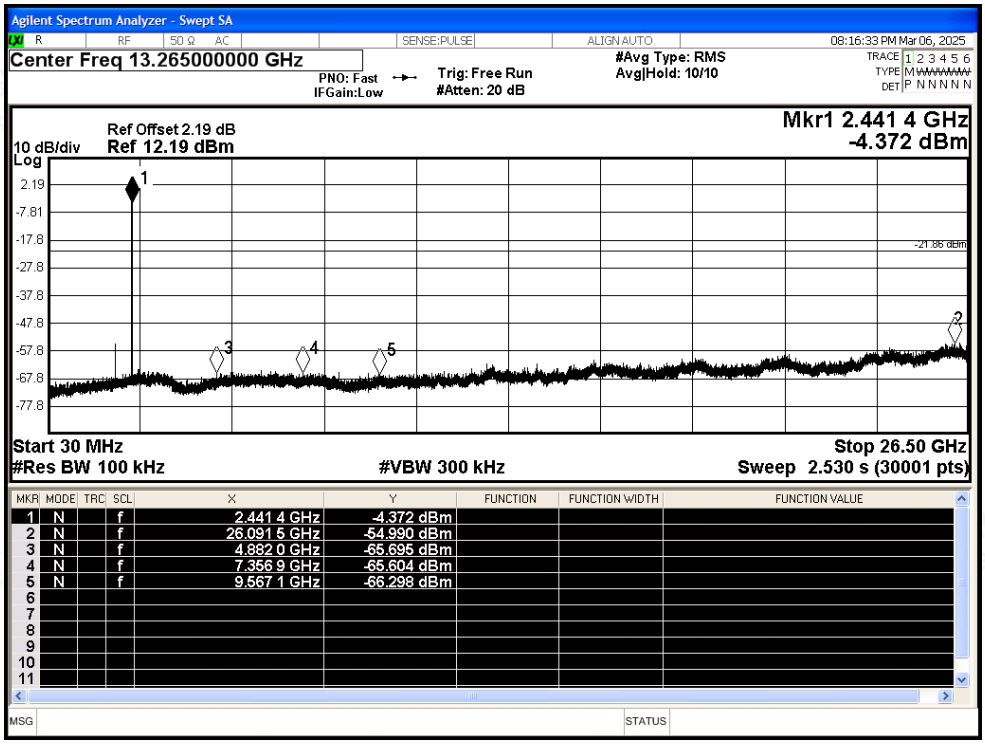


MKR	MODE	TRC	SCL	X	Y	FUNCTION	FUNCTION WIDTH	FUNCTION VALUE
1	N		f	2.401 7 GHz	-3.331 dBm			
2	N		f	26.236 2 GHz	-55.083 dBm			
3	N		f	4.804 3 GHz	-62.623 dBm			
4	N		f	7.079 8 GHz	-66.238 dBm			
5	N		f	9.635 1 GHz	-64.563 dBm			
6								
7								
8								
9								
10								
11								

Tx. Spurious NVNT 3-DH5 2441MHz Ant Ref

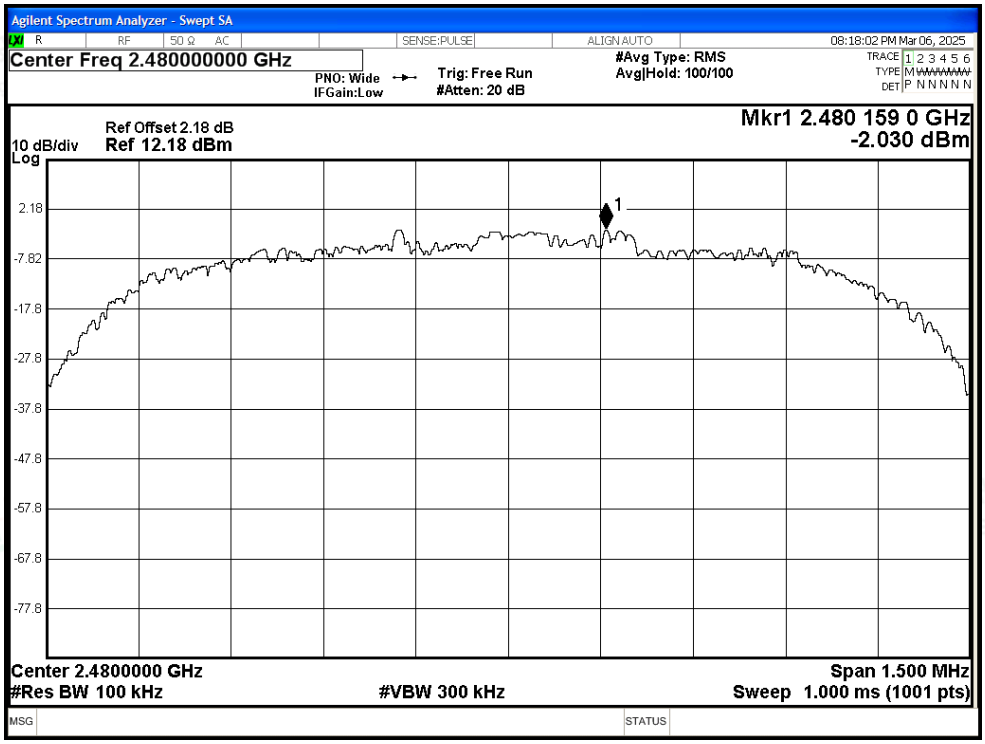


Tx. Spurious NVNT 3-DH5 2441MHz Ant Emission

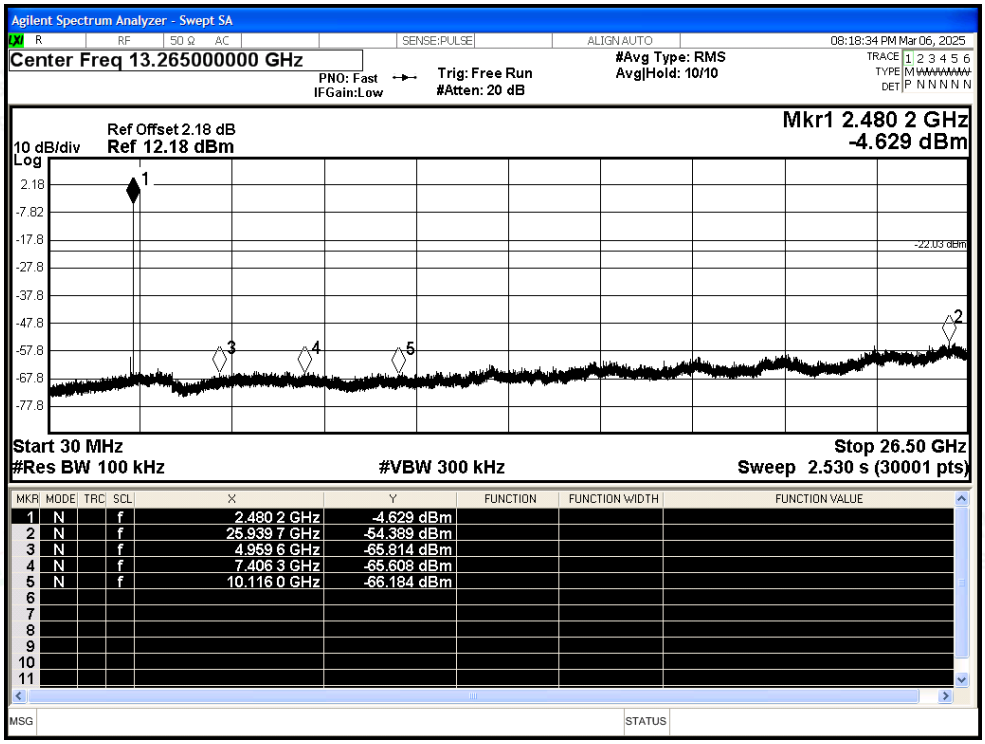


MKR	MODE	TRC	SCL	X	Y	FUNCTION	FUNCTION WIDTH	FUNCTION VALUE
1	N		f	2.441 4 GHz	-4.372 dBm			
2	N		f	26.091 5 GHz	-54.990 dBm			
3	N		f	4.882 0 GHz	-65.695 dBm			
4	N		f	7.356 9 GHz	-65.604 dBm			
5	N		f	9.567 1 GHz	-66.298 dBm			
6								
7								
8								
9								
10								
11								

Tx. Spurious NVNT 3-DH5 2480MHz Ant Ref



Tx. Spurious NVNT 3-DH5 2480MHz Ant Emission



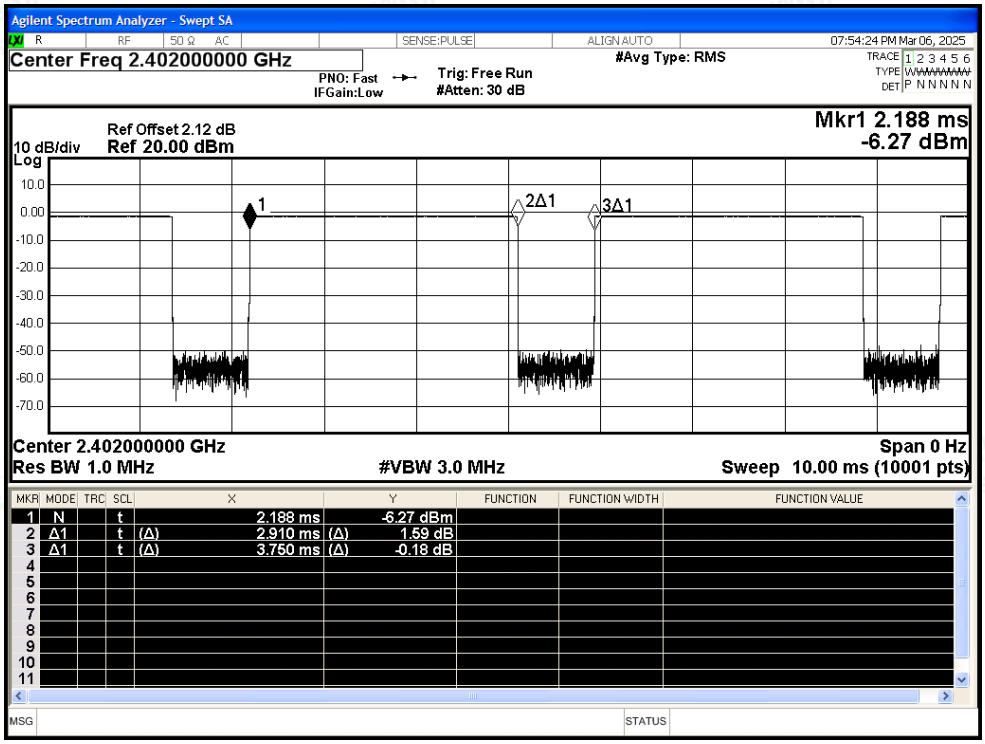
MKR	MODE	TRC	SCL	X	Y	FUNCTION	FUNCTION WIDTH	FUNCTION VALUE
1	N		f	2.480 2 GHz	-4.629 dBm			
2	N		f	25.939 7 GHz	-54.389 dBm			
3	N		f	4.959 6 GHz	-65.814 dBm			
4	N		f	7.406 3 GHz	-65.608 dBm			
5	N		f	10.116 0 GHz	-66.184 dBm			
6								
7								
8								
9								
10								
11								

A.8 Duty Cycle

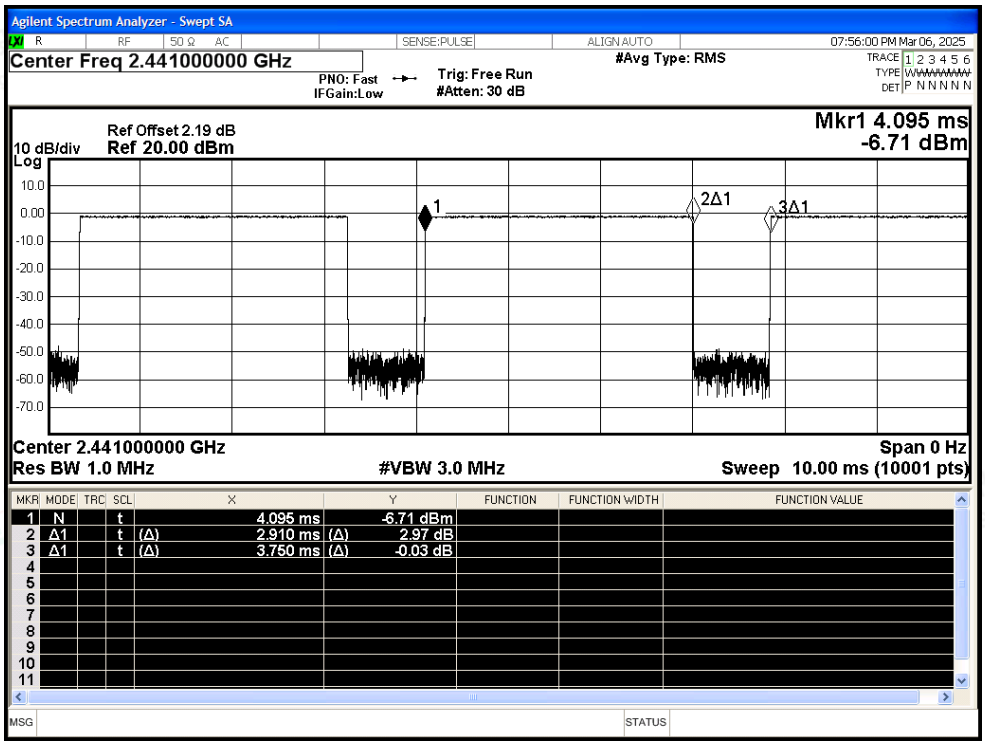
Condition	Mode	Frequency (MHz)	Antenna	Duty Cycle (%)	Correction Factor (dB)	1/T (kHz)
NVNT	1-DH5	2402	Ant	77.6	1.1	0.34
NVNT	1-DH5	2441	Ant	77.6	1.1	0.34
NVNT	1-DH5	2480	Ant	77.63	1.1	0.34
NVNT	2-DH5	2402	Ant	77.28	1.12	0.35
NVNT	2-DH5	2441	Ant	77.28	1.12	0.35
NVNT	2-DH5	2480	Ant	77.28	1.12	0.35
NVNT	3-DH5	2402	Ant	77.28	1.12	0.35
NVNT	3-DH5	2441	Ant	77.28	1.12	0.35
NVNT	3-DH5	2480	Ant	77.28	1.12	0.35

Test Graphs

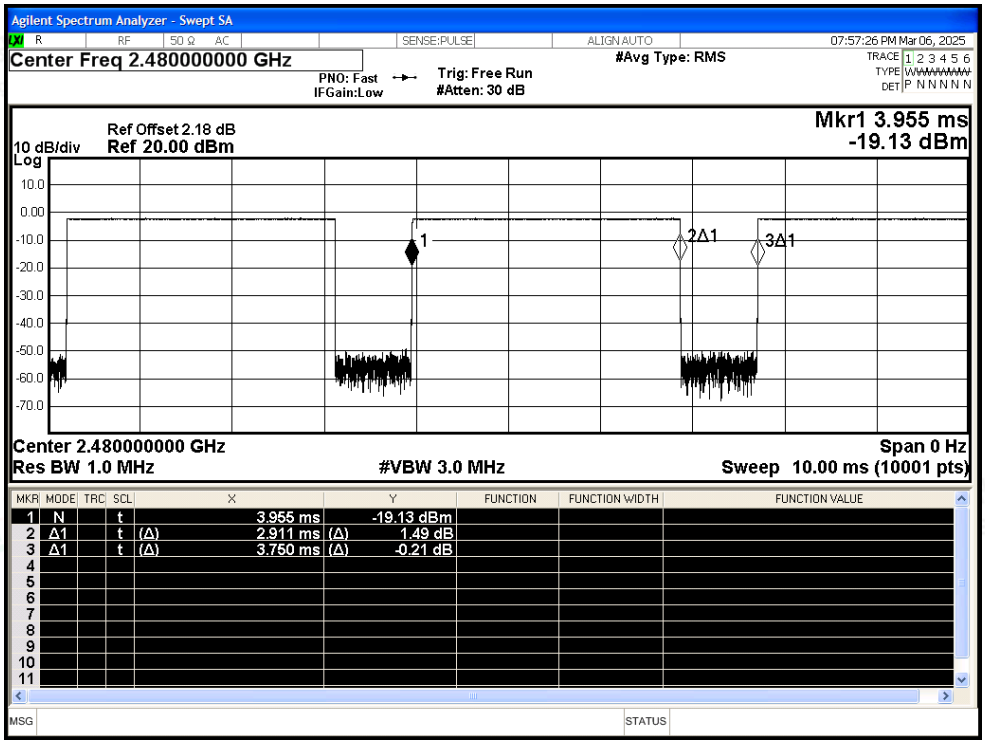
Duty Cycle NVNT 1-DH5 2402MHz Ant



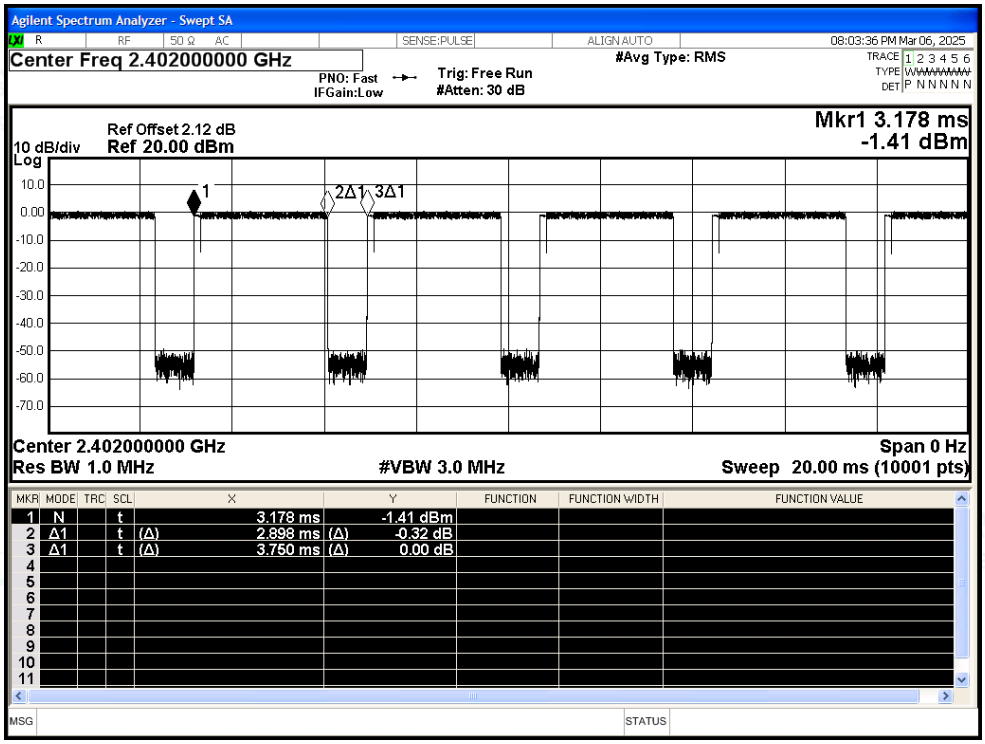
Duty Cycle NVNT 1-DH5 2441MHz Ant



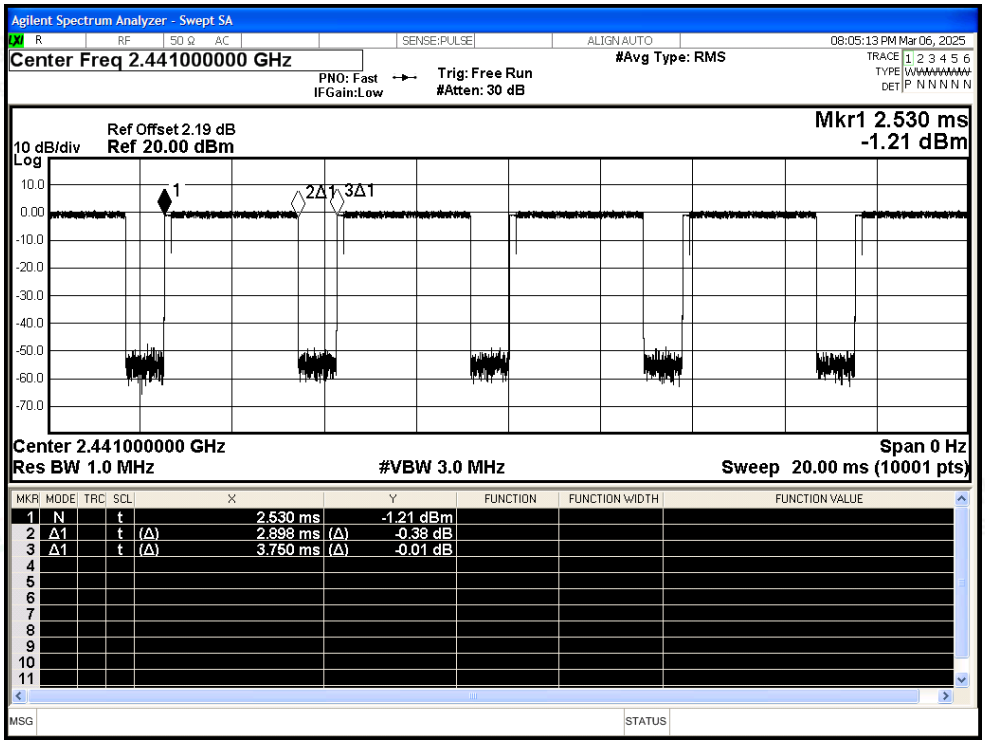
Duty Cycle NVNT 1-DH5 2480MHz Ant



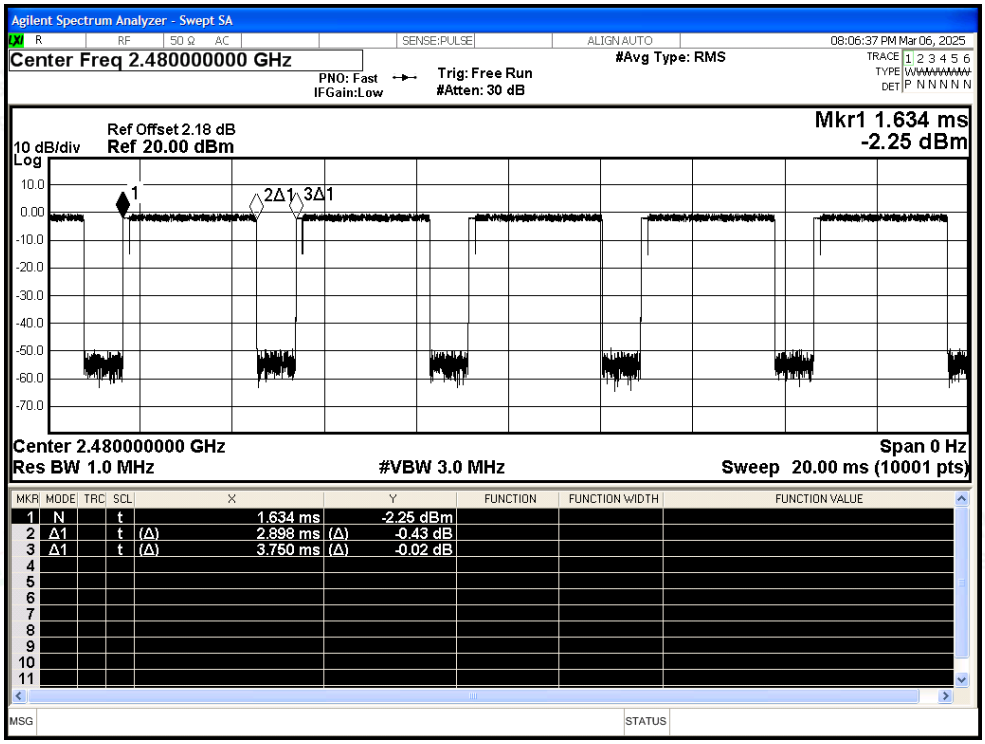
Duty Cycle NVNT 2-DH5 2402MHz Ant



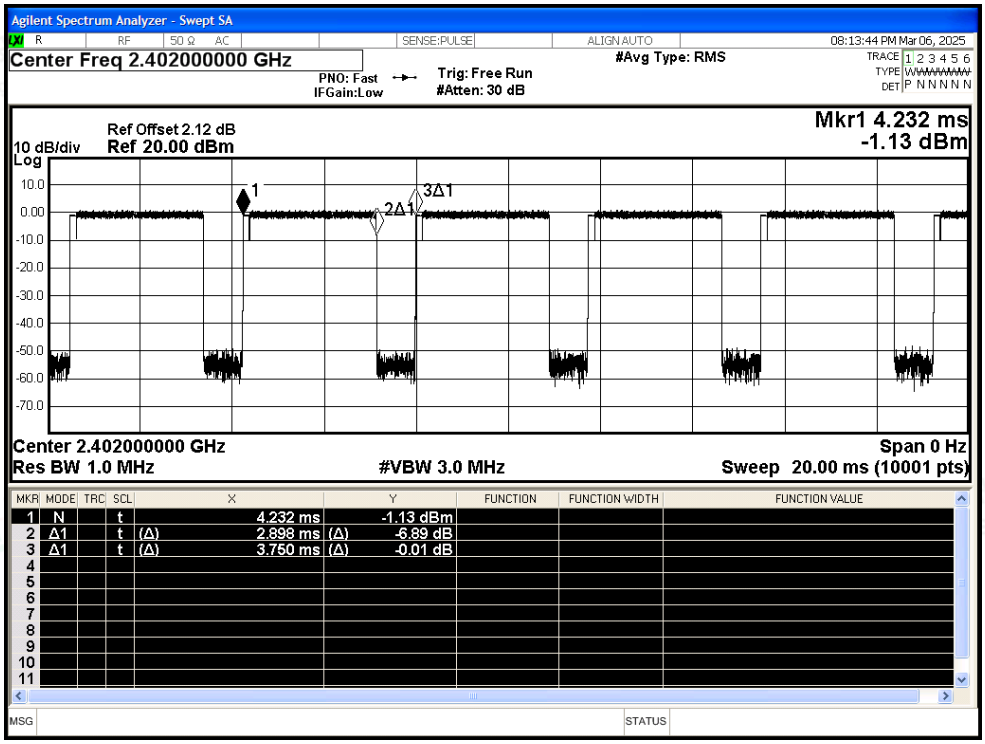
Duty Cycle NVNT 2-DH5 2441MHz Ant



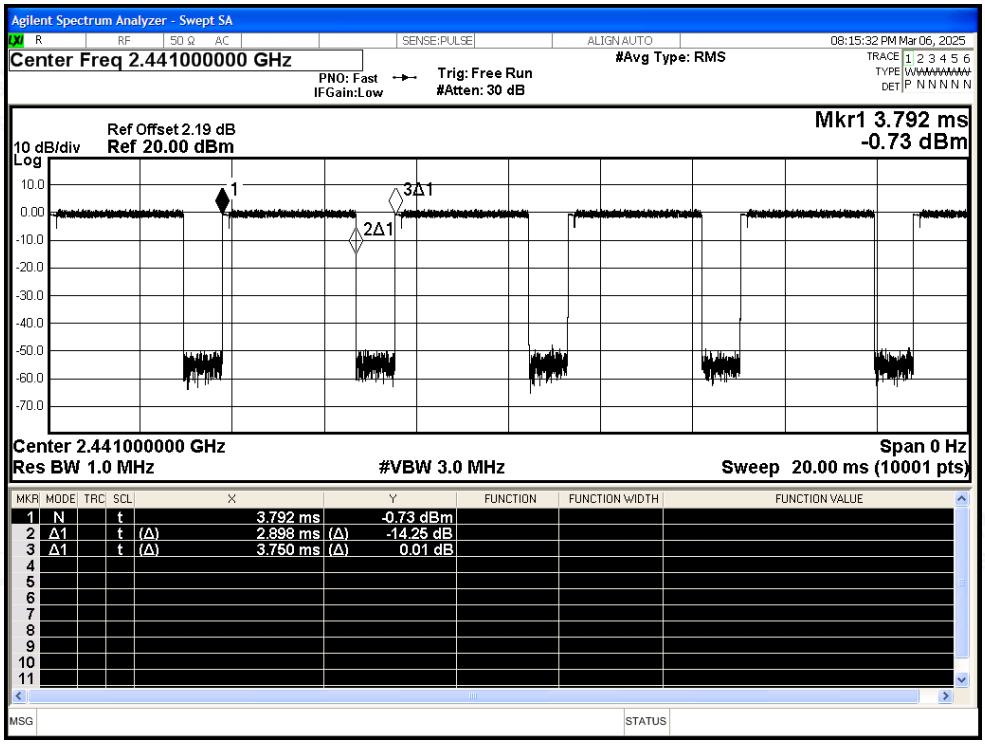
Duty Cycle NVNT 2-DH5 2480MHz Ant



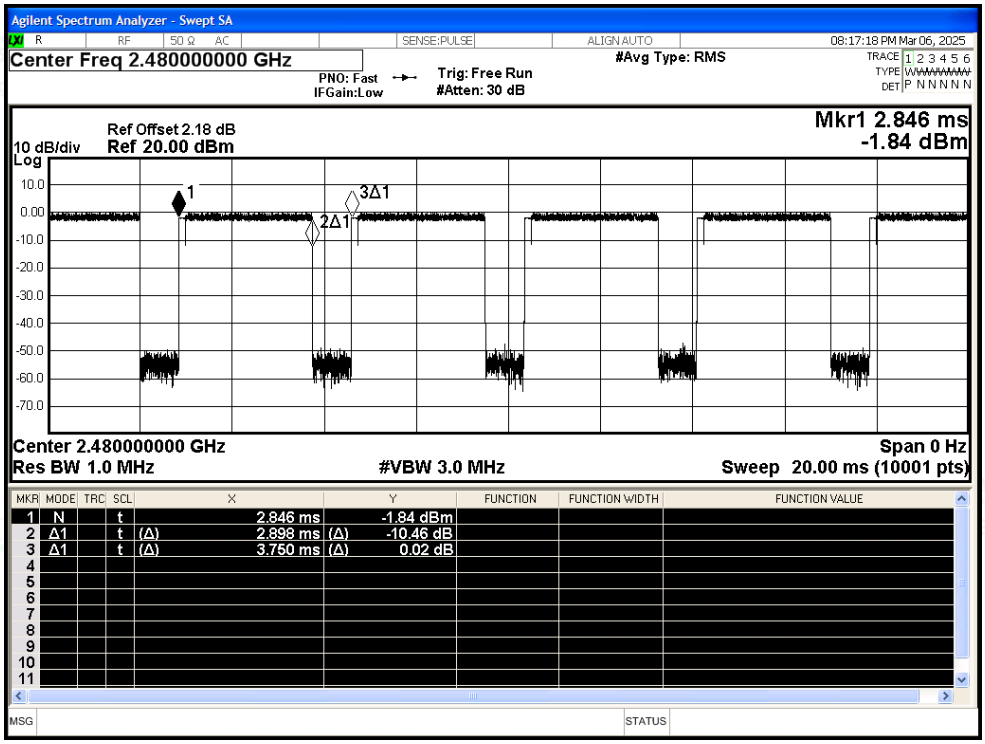
Duty Cycle NVNT 3-DH5 2402MHz Ant



Duty Cycle NVNT 3-DH5 2441MHz Ant



Duty Cycle NVNT 3-DH5 2480MHz Ant

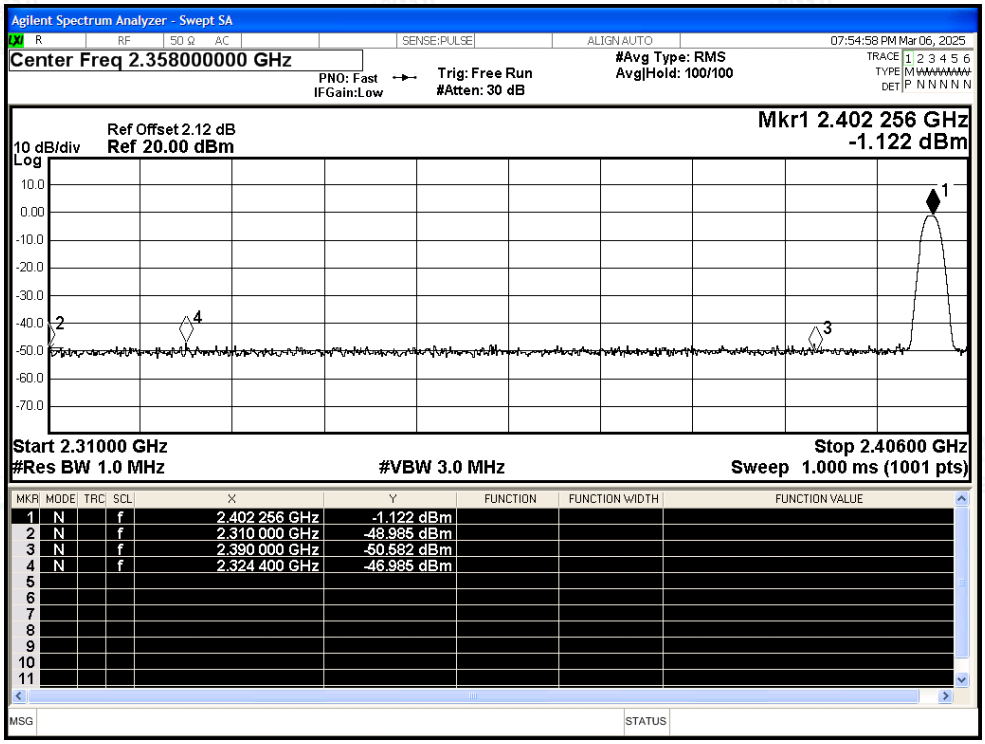


A.9 Restrict Band

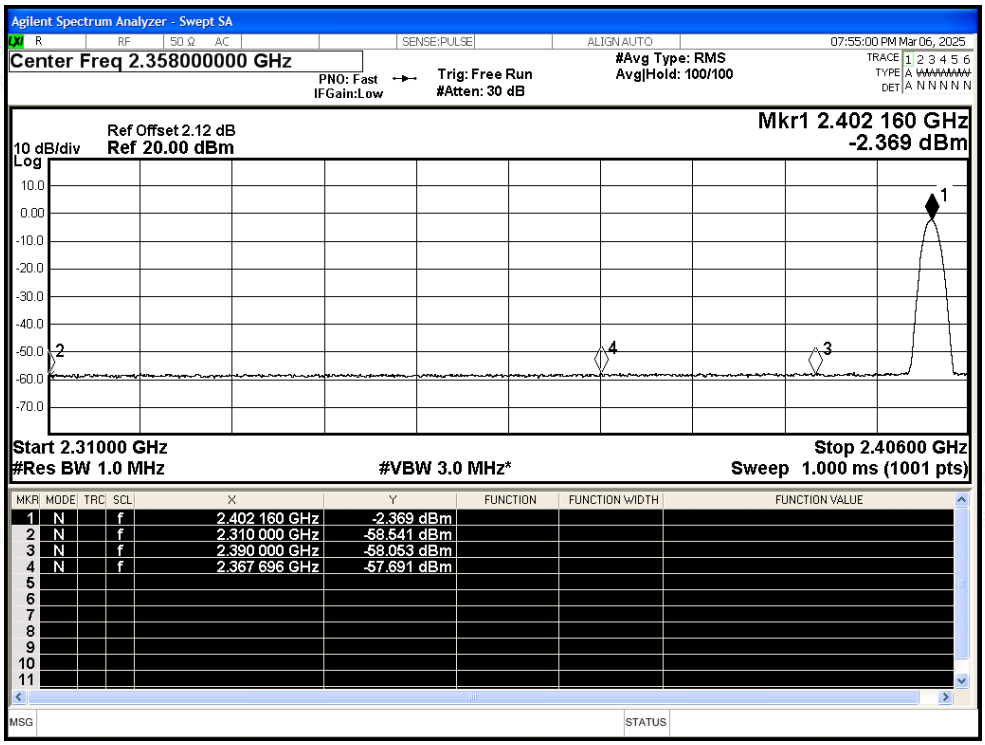
Condition	Mode	Frequency (MHz)	Antenna	Hopping Mode	Spur Freq (MHz)	Power (dBm)	Gain (dBi)	Duty Factor (dB)	E (dBuV/m)	Detector	Limit (dBuV/m)	Verdict
NVNT	1-DH5	2402	Ant	No-Hopping	2310	-48.99	2	-	48.27	Peak	74	Pass
NVNT	1-DH5	2402	Ant	No-Hopping	2310	-58.54	2	1.1	39.82	Average	54	Pass
NVNT	1-DH5	2402	Ant	No-Hopping	2324.4	-46.99	2	-	50.27	Peak	74	Pass
NVNT	1-DH5	2402	Ant	No-Hopping	2367.696	-57.69	2	1.1	40.67	Average	54	Pass
NVNT	1-DH5	2402	Ant	No-Hopping	2390	-50.58	2	-	46.68	Peak	74	Pass
NVNT	1-DH5	2402	Ant	No-Hopping	2390	-58.05	2	1.1	40.31	Average	54	Pass
NVNT	1-DH5	2480	Ant	No-Hopping	2483.5	-48.34	2	-	48.92	Peak	74	Pass
NVNT	1-DH5	2480	Ant	No-Hopping	2483.5	-57.98	2	1.1	40.38	Average	54	Pass
NVNT	1-DH5	2480	Ant	No-Hopping	2490.976	-46.95	2	-	50.31	Peak	74	Pass
NVNT	1-DH5	2480	Ant	No-Hopping	2497.12	-57.1	2	1.1	41.26	Average	54	Pass
NVNT	1-DH5	2480	Ant	No-Hopping	2500	-49.69	2	-	47.57	Peak	74	Pass
NVNT	1-DH5	2480	Ant	No-Hopping	2500	-58.26	2	1.1	40.1	Average	54	Pass
NVNT	2-DH5	2402	Ant	No-Hopping	2310	-50.33	2	-	46.93	Peak	74	Pass
NVNT	2-DH5	2402	Ant	No-Hopping	2310	-58.4	2	1.12	39.98	Average	54	Pass
NVNT	2-DH5	2402	Ant	No-Hopping	2359.152	-47.63	2	-	49.63	Peak	74	Pass
NVNT	2-DH5	2402	Ant	No-Hopping	2362.032	-57.48	2	1.12	40.9	Average	54	Pass
NVNT	2-DH5	2402	Ant	No-Hopping	2390	-49.87	2	-	47.39	Peak	74	Pass
NVNT	2-DH5	2402	Ant	No-Hopping	2390	-58.45	2	1.12	39.93	Average	54	Pass
NVNT	2-DH5	2480	Ant	No-Hopping	2483.5	-50.74	2	-	46.52	Peak	74	Pass
NVNT	2-DH5	2480	Ant	No-Hopping	2483.5	-57.54	2	1.12	40.84	Average	54	Pass
NVNT	2-DH5	2480	Ant	No-Hopping	2490.76	-46.28	2	-	50.98	Peak	74	Pass
NVNT	2-DH5	2480	Ant	No-Hopping	2485.552	-56.92	2	1.12	41.46	Average	54	Pass
NVNT	2-DH5	2480	Ant	No-Hopping	2500	-48.28	2	-	48.98	Peak	74	Pass
NVNT	2-DH5	2480	Ant	No-Hopping	2500	-57.99	2	1.12	40.39	Average	54	Pass
NVNT	3-DH5	2402	Ant	No-Hopping	2310	-50.74	2	-	46.52	Peak	74	Pass
NVNT	3-DH5	2402	Ant	No-Hopping	2310	-58.65	2	1.12	39.73	Average	54	Pass
NVNT	3-DH5	2402	Ant	No-Hopping	2370.864	-46.92	2	-	50.34	Peak	74	Pass
NVNT	3-DH5	2402	Ant	No-Hopping	2378.16	-57.61	2	1.12	40.77	Average	54	Pass
NVNT	3-DH5	2402	Ant	No-Hopping	2390	-51.92	2	-	45.34	Peak	74	Pass
NVNT	3-DH5	2402	Ant	No-Hopping	2390	-58.43	2	1.12	39.95	Average	54	Pass
NVNT	3-DH5	2480	Ant	No-Hopping	2483.5	-48.99	2	-	48.27	Peak	74	Pass
NVNT	3-DH5	2480	Ant	No-Hopping	2483.5	-56.93	2	1.12	41.45	Average	54	Pass
NVNT	3-DH5	2480	Ant	No-Hopping	2485.432	-46.96	2	-	50.3	Peak	74	Pass
NVNT	3-DH5	2480	Ant	No-Hopping	2483.512	-56.93	2	1.12	41.45	Average	54	Pass
NVNT	3-DH5	2480	Ant	No-Hopping	2500	-48.33	2	-	48.93	Peak	74	Pass
NVNT	3-DH5	2480	Ant	No-Hopping	2500	-57.84	2	1.12	40.54	Average	54	Pass

Test Graphs

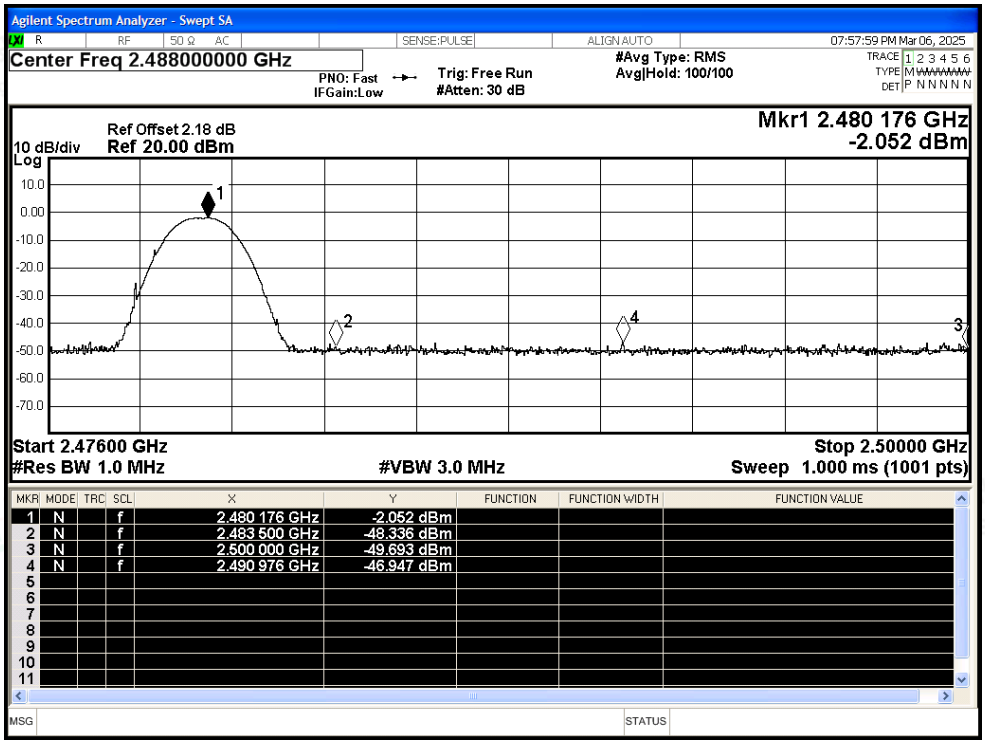
Restrict Band NVNT 1-DH5 2402MHz Ant No-Hopping Peak



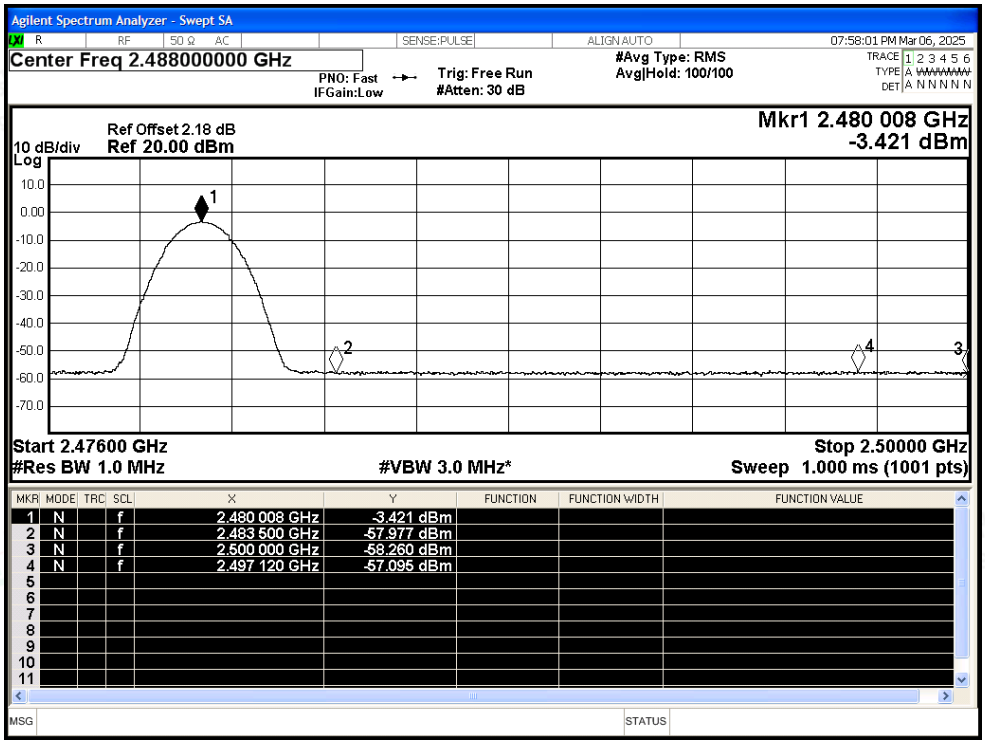
Restrict Band NVNT 1-DH5 2402MHz Ant No-Hopping Average



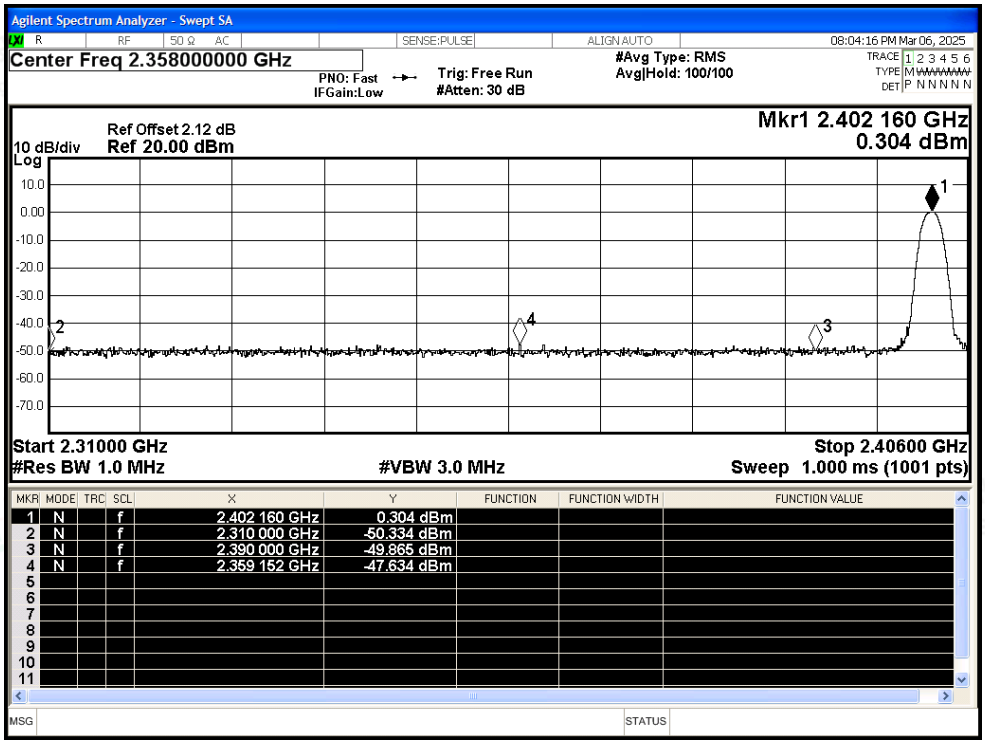
Restrict Band NVNT 1-DH5 2480MHz Ant No-Hopping Peak



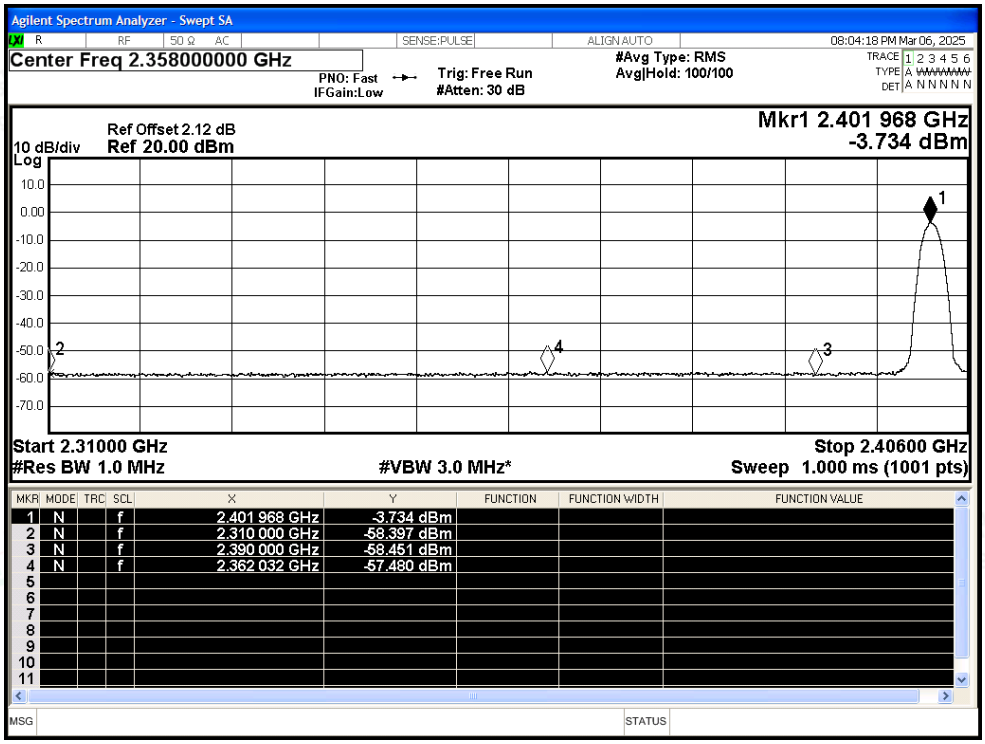
Restrict Band NVNT 1-DH5 2480MHz Ant No-Hopping Average



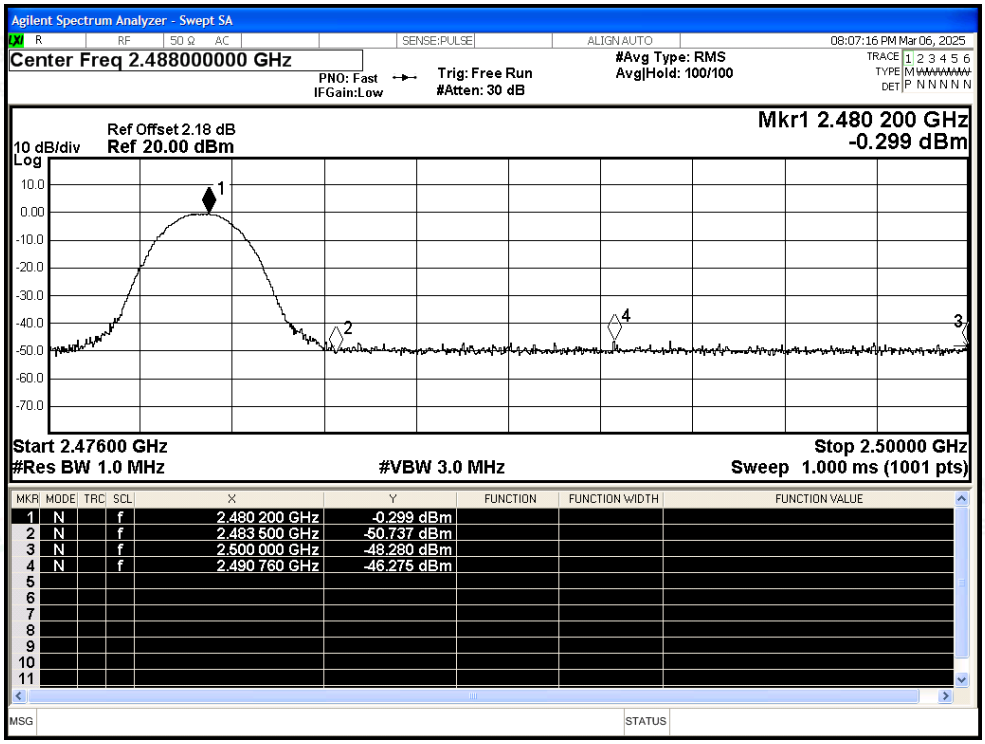
Restrict Band NVNT 2-DH5 2402MHz Ant No-Hopping Peak



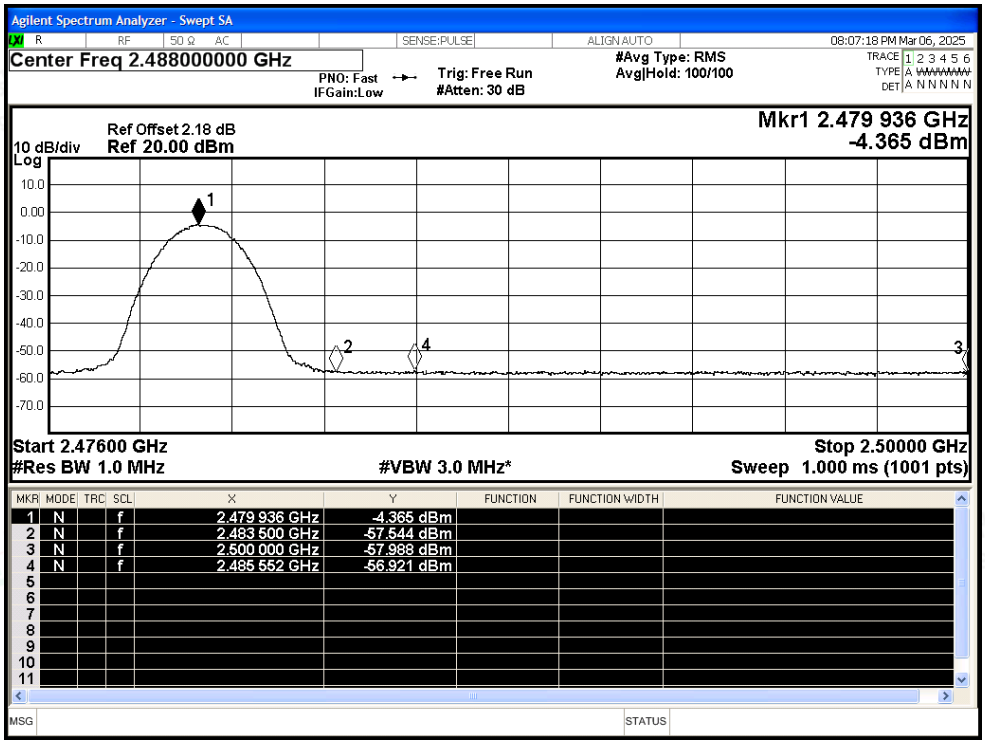
Restrict Band NVNT 2-DH5 2402MHz Ant No-Hopping Average



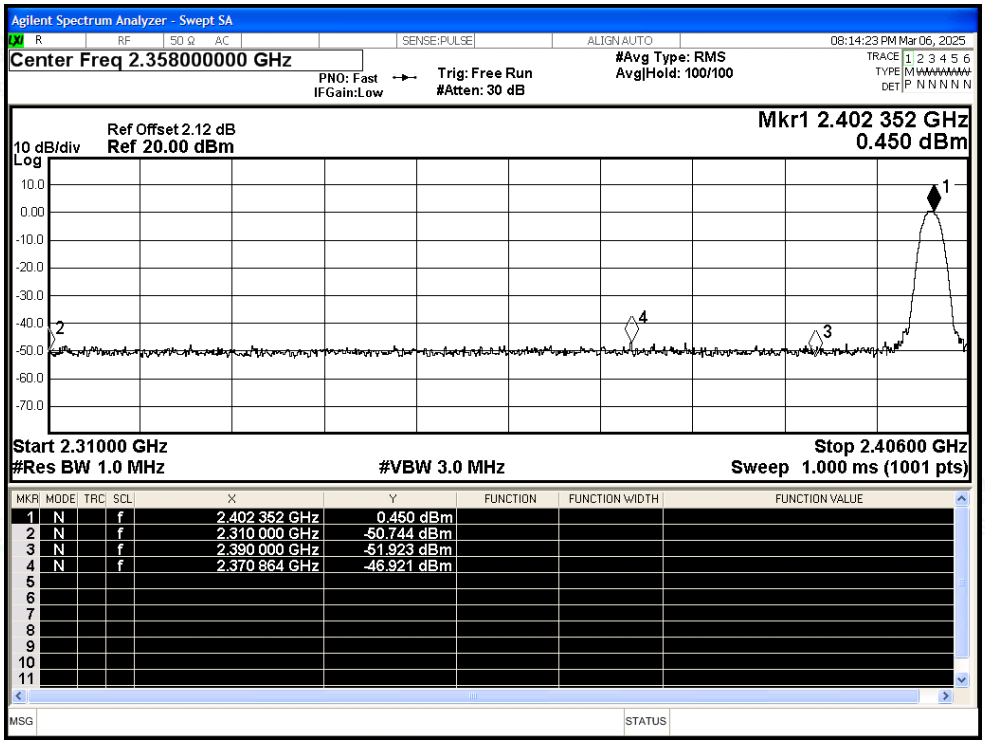
Restrict Band NVNT 2-DH5 2480MHz Ant No-Hopping Peak



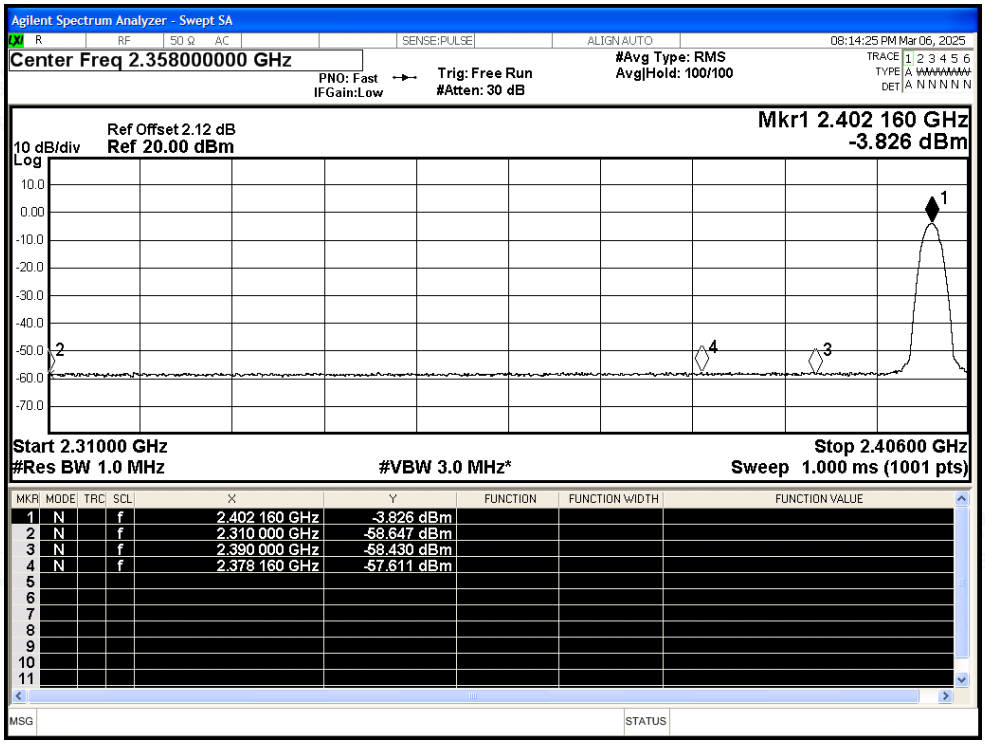
Restrict Band NVNT 2-DH5 2480MHz Ant No-Hopping Average



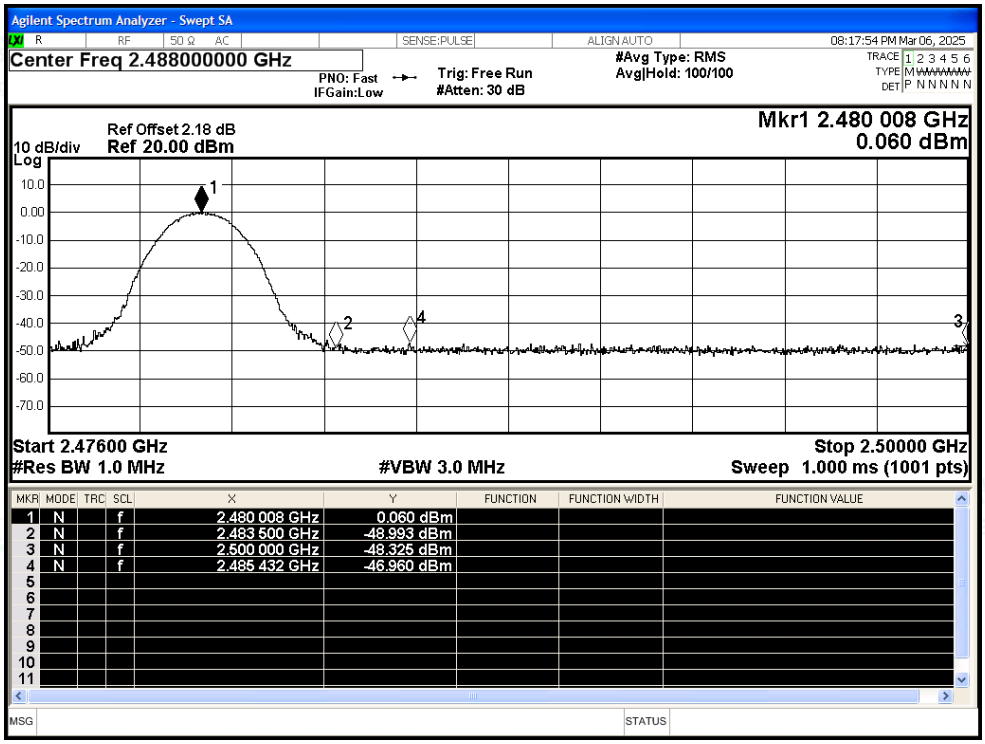
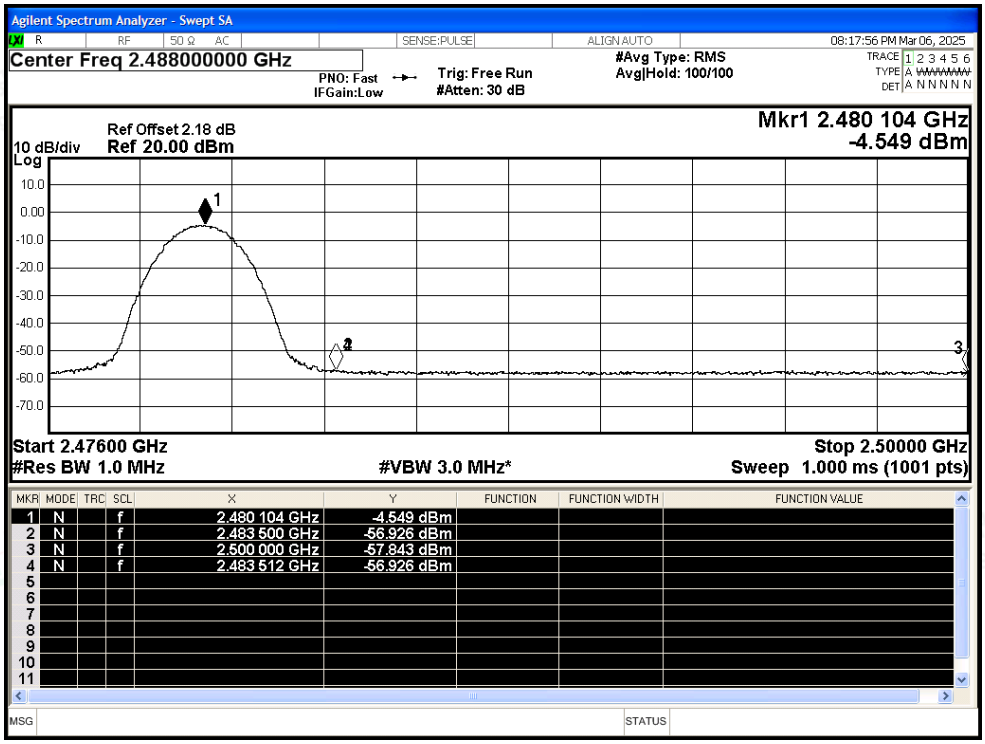
Restrict Band NVNT 3-DH5 2402MHz Ant No-Hopping Peak



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



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



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