Appendix A

RF Test Data for BT (Conducted Measurement)

Product Name: Datecs BT-402

Test Model: BT-402

Environmental Conditions

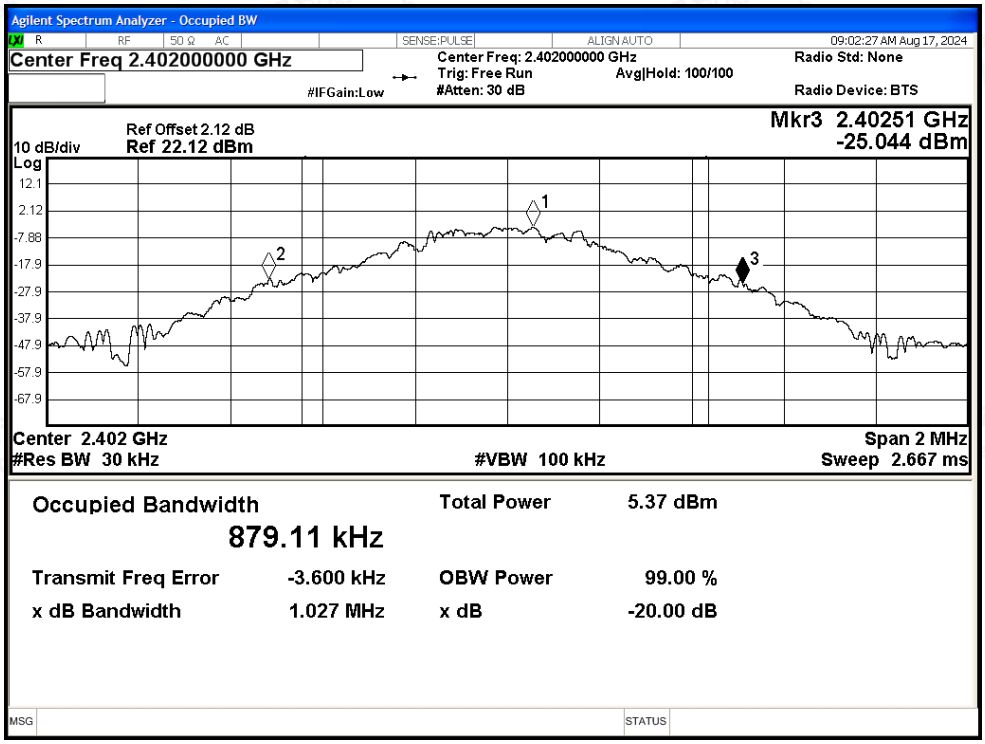
Temperature:	23.8° C
Relative Humidity:	52.3%
ATM Pressure:	100.0 kPa
Test Engineer:	Jay Luo
Supervised by:	Nick Peng

A.1 -20dB Bandwidth

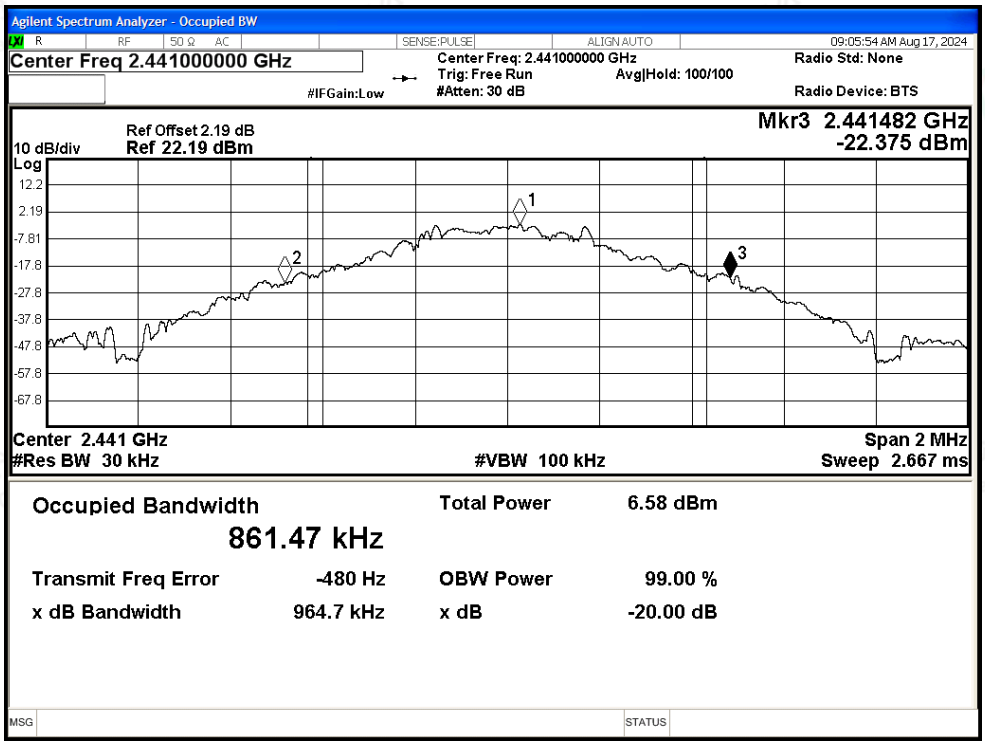
Condition	Mode	Frequency (MHz)	Antenna	-20 dB Bandwidth (MHz)	Limit -20 dB Bandwidth (MHz)	Verdict
NVNT	1-DH5	2402	Ant	1.027	N/A	Pass
NVNT	1-DH5	2441	Ant	0.965	N/A	Pass
NVNT	1-DH5	2480	Ant	0.95	N/A	Pass
NVNT	2-DH5	2402	Ant	1.323	N/A	Pass
NVNT	2-DH5	2441	Ant	1.285	N/A	Pass
NVNT	2-DH5	2480	Ant	1.284	N/A	Pass
NVNT	3-DH5	2402	Ant	1.285	N/A	Pass
NVNT	3-DH5	2441	Ant	1.296	N/A	Pass
NVNT	3-DH5	2480	Ant	1.3	N/A	Pass

Test Graphs

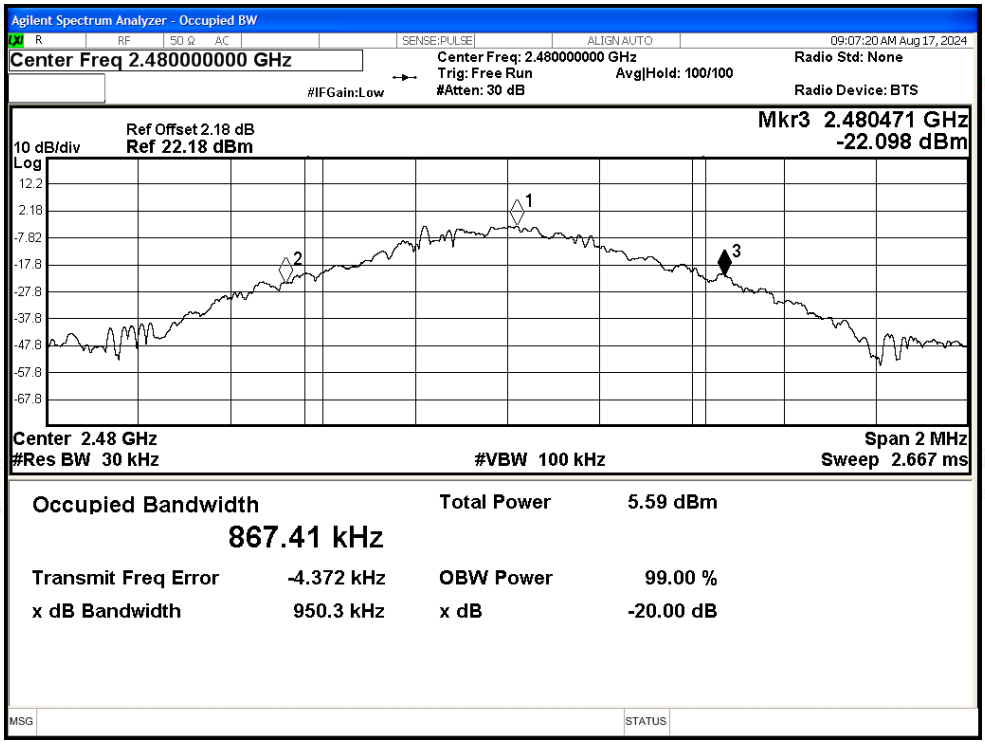
-20dB Bandwidth NVNT 1-DH5 2402MHz Ant



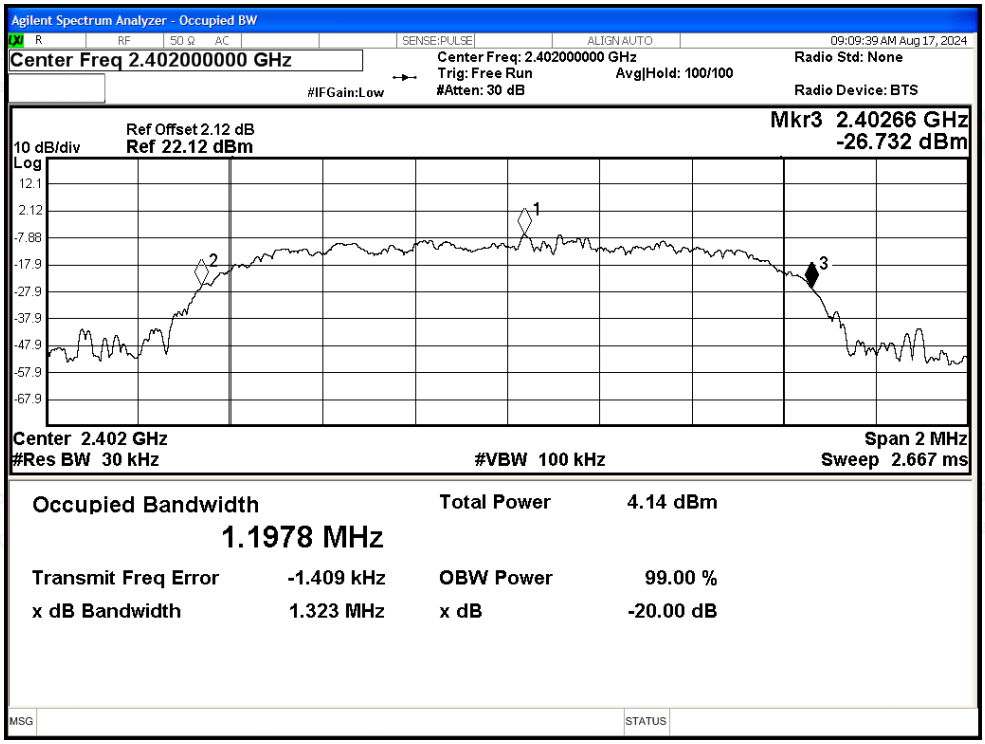
-20dB Bandwidth NVNT 1-DH5 2441MHz Ant



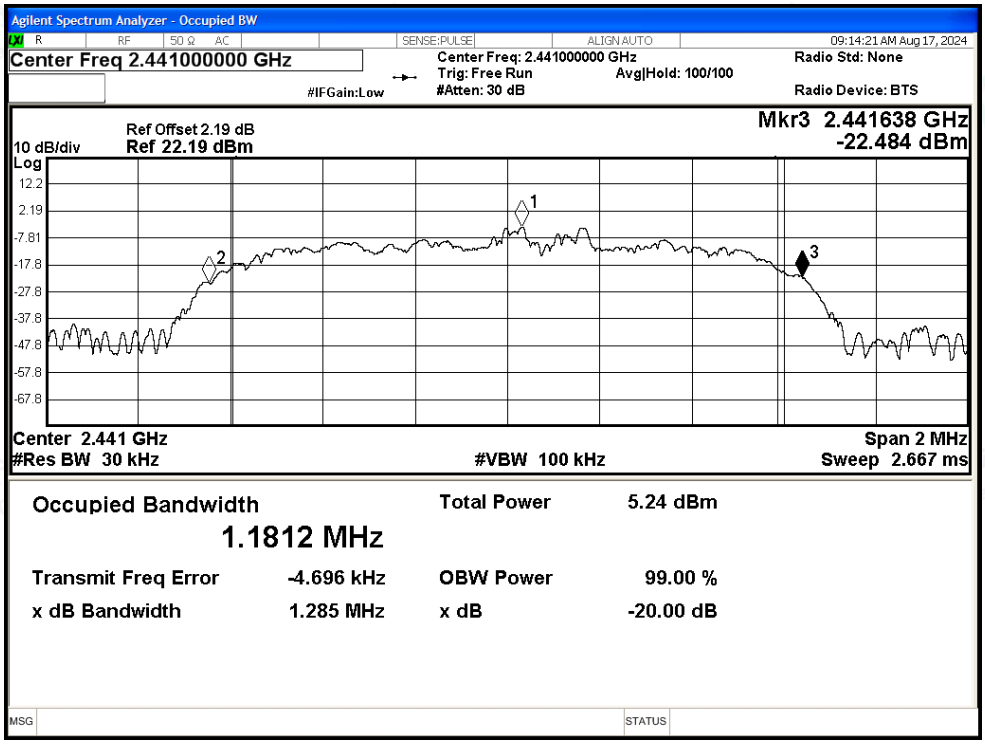
-20dB Bandwidth NVNT 1-DH5 2480MHz Ant



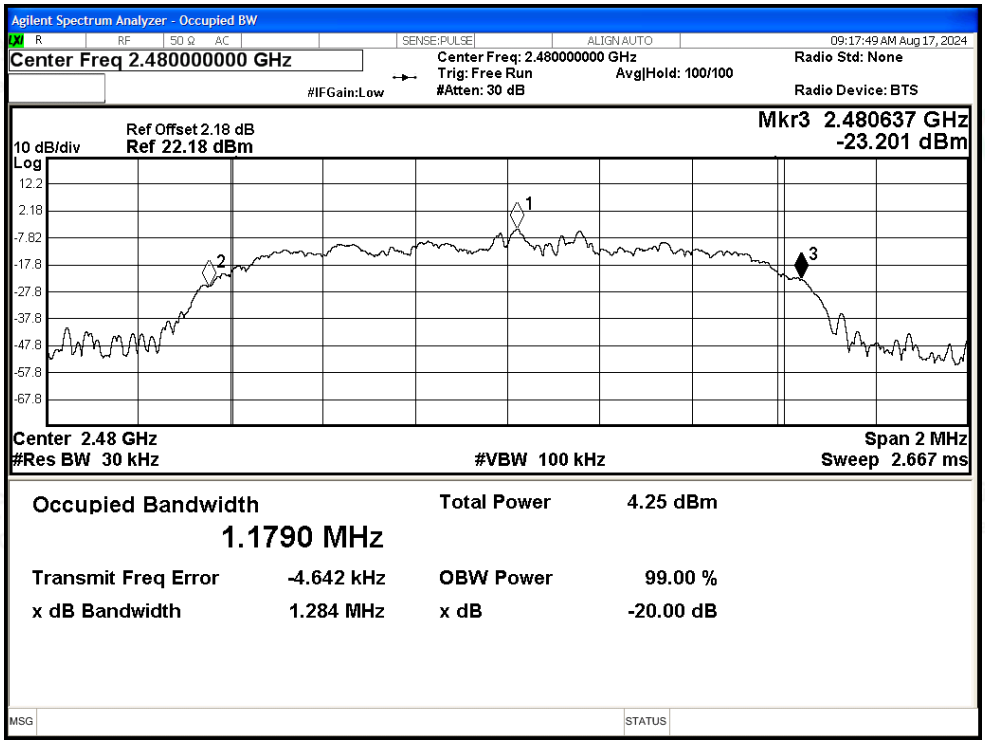
-20dB Bandwidth NVNT 2-DH5 2402MHz Ant



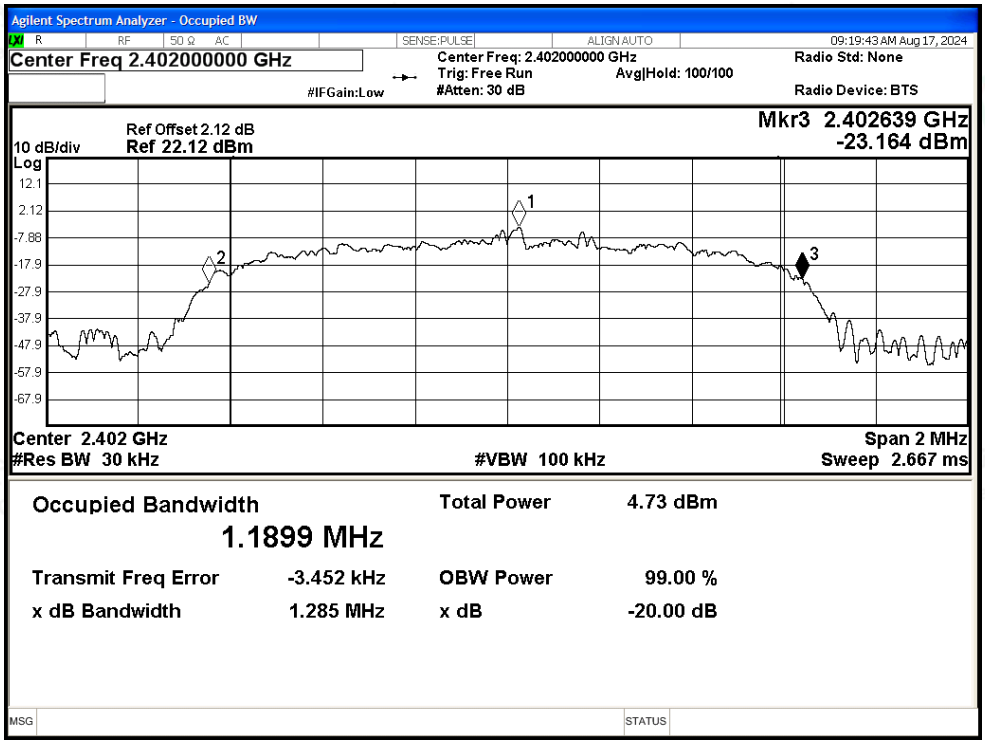
-20dB Bandwidth NVNT 2-DH5 2441MHz Ant



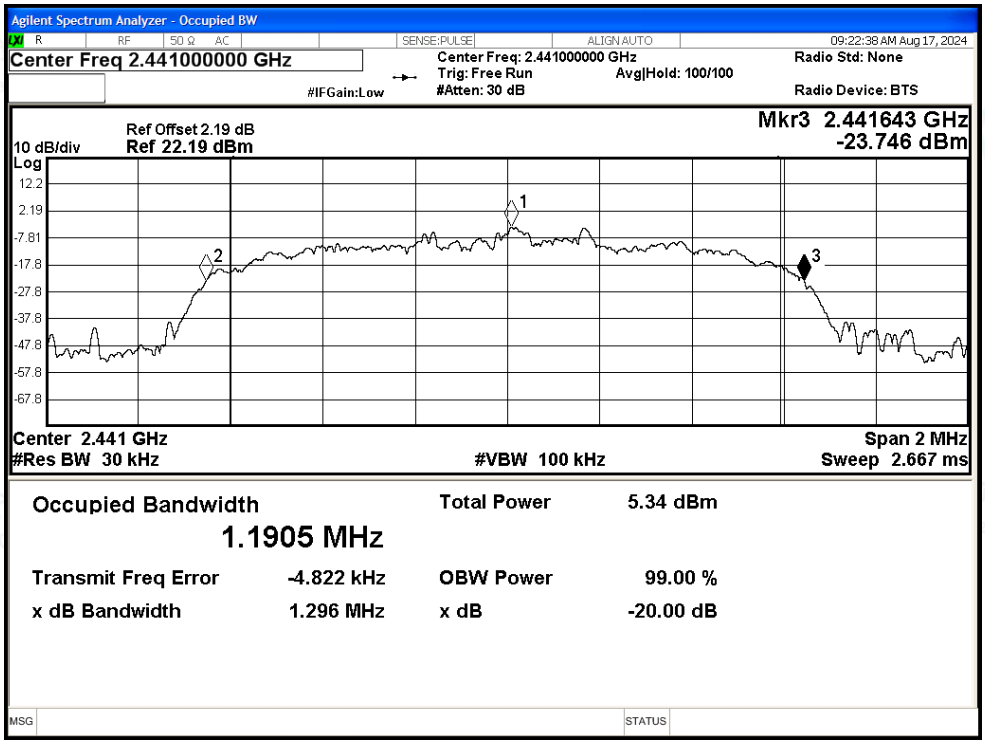
-20dB Bandwidth NVNT 2-DH5 2480MHz Ant



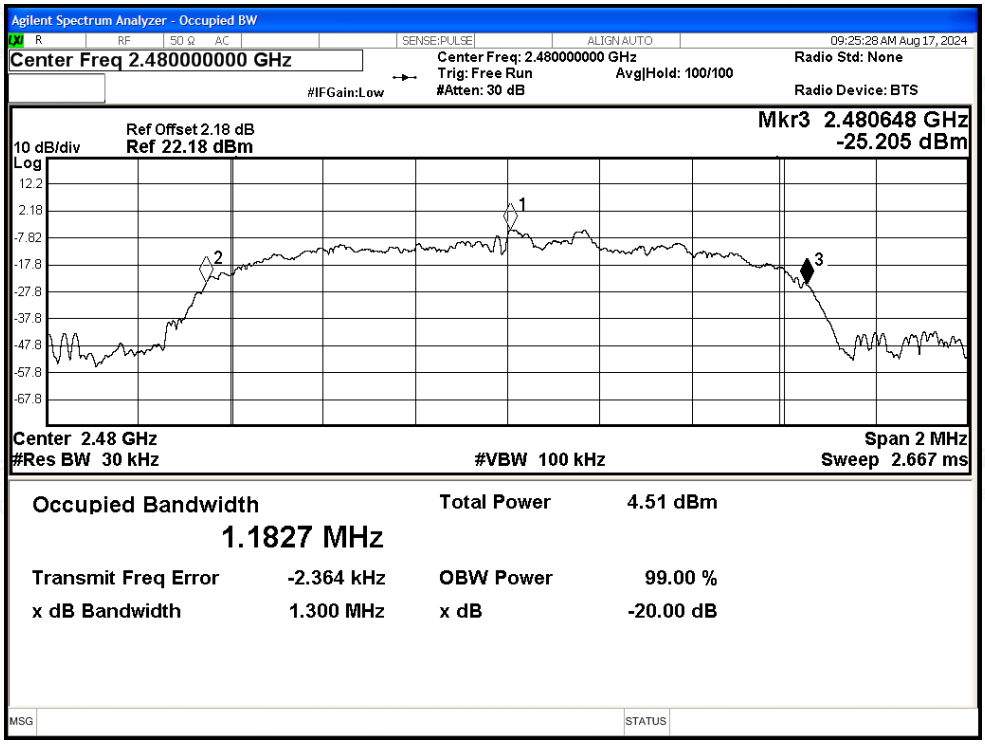
-20dB Bandwidth NVNT 3-DH5 2402MHz Ant



-20dB Bandwidth NVNT 3-DH5 2441MHz Ant



-20dB Bandwidth NVNT 3-DH5 2480MHz Ant

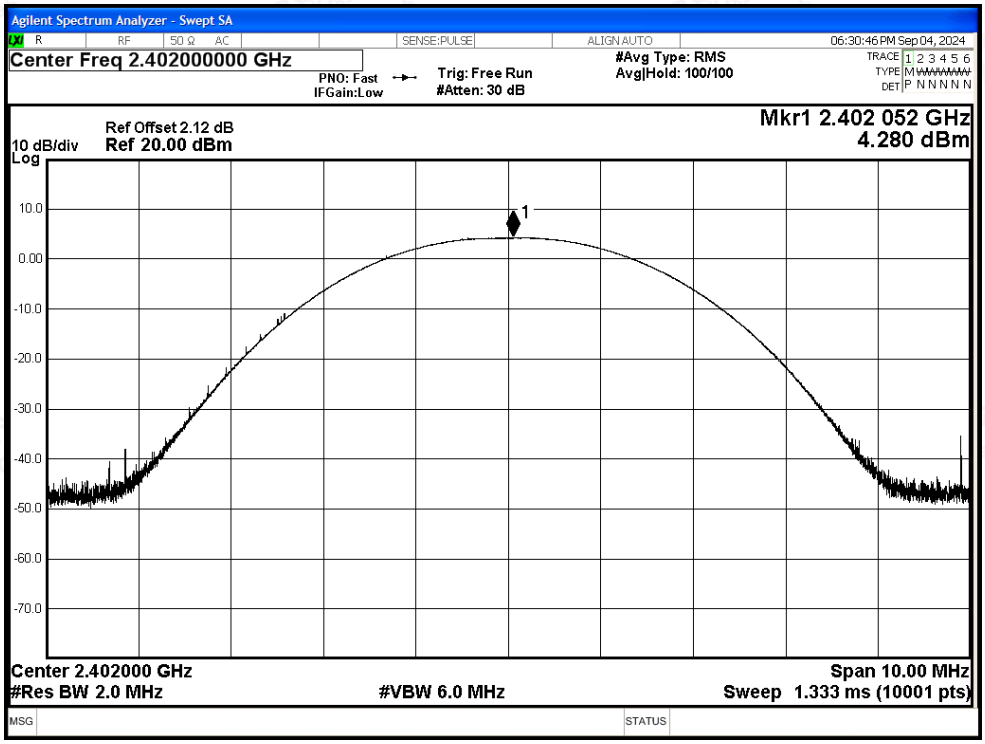


A.2 Maximum Peak Conducted Output Power

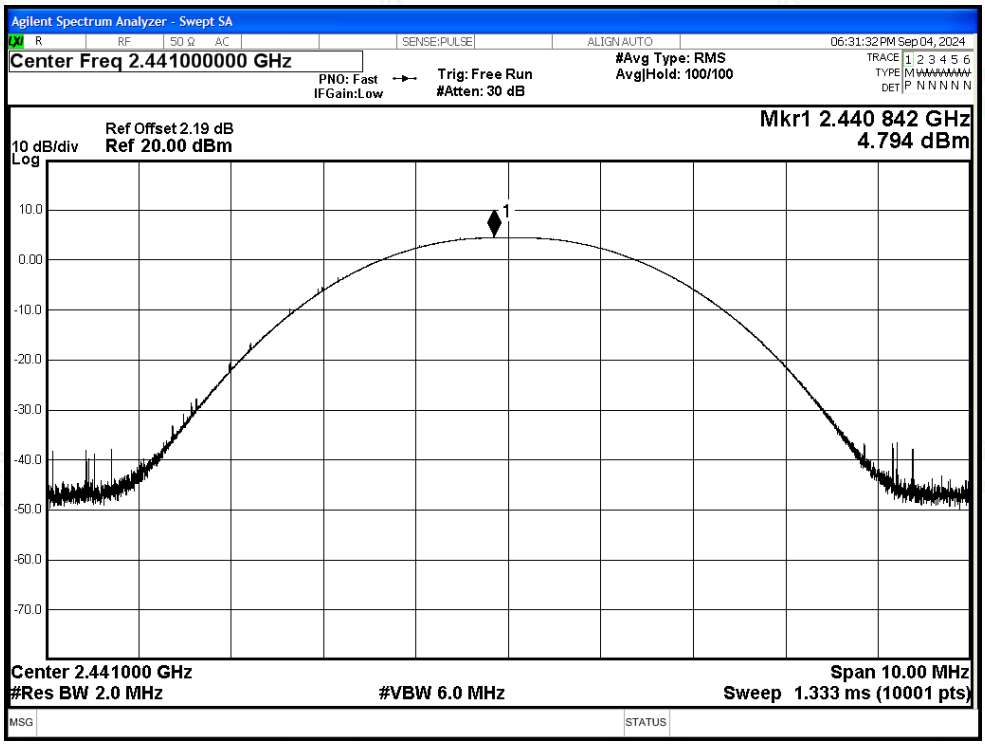
Condition	Mode	Frequency (MHz)	Antenna	Conducted Power (dBm)	Limit (dBm)	Verdict
NVNT	1-DH5	2402	Ant	4.28	21	Pass
NVNT	1-DH5	2441	Ant	4.79	21	Pass
NVNT	1-DH5	2480	Ant	4.06	21	Pass
NVNT	2-DH5	2402	Ant	4.95	21	Pass
NVNT	2-DH5	2441	Ant	4.4	21	Pass
NVNT	2-DH5	2480	Ant	4.8	21	Pass
NVNT	3-DH5	2402	Ant	4.39	21	Pass
NVNT	3-DH5	2441	Ant	4.72	21	Pass
NVNT	3-DH5	2480	Ant	5.01	21	Pass

Test Graphs

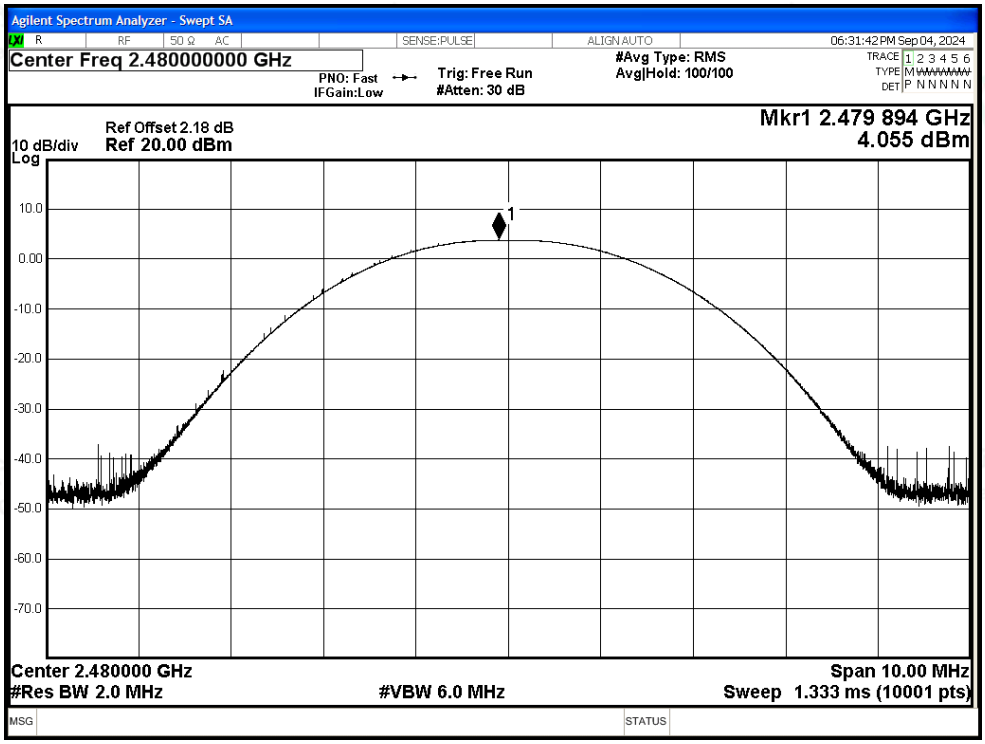
Power NVNT 1-DH5 2402MHz Ant



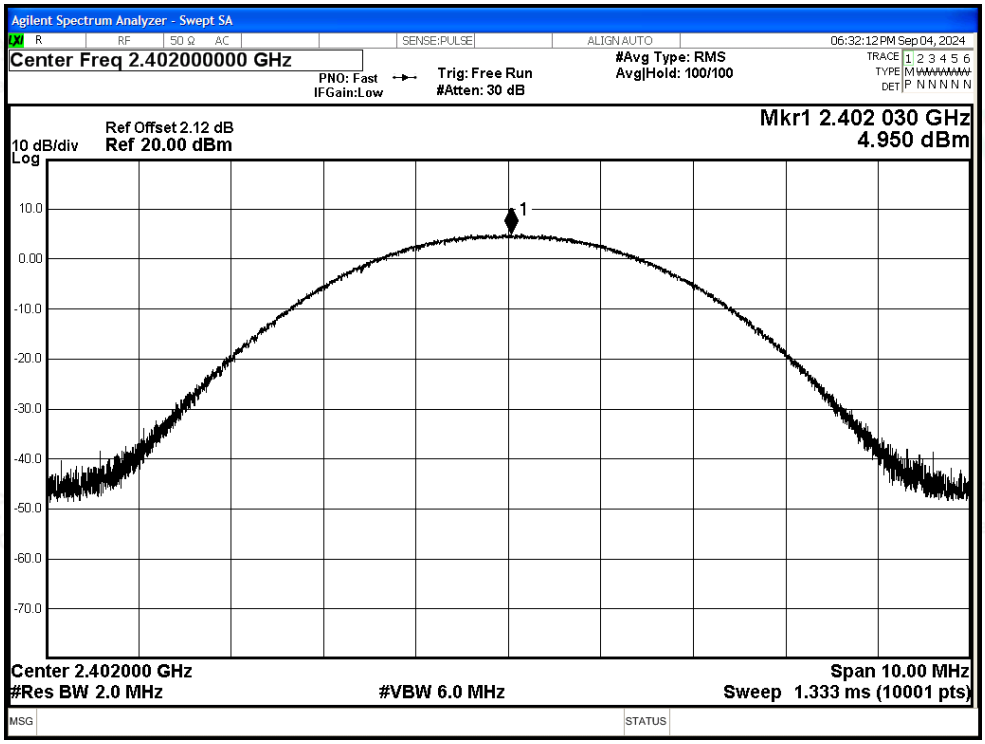
Power NVNT 1-DH5 2441MHz Ant



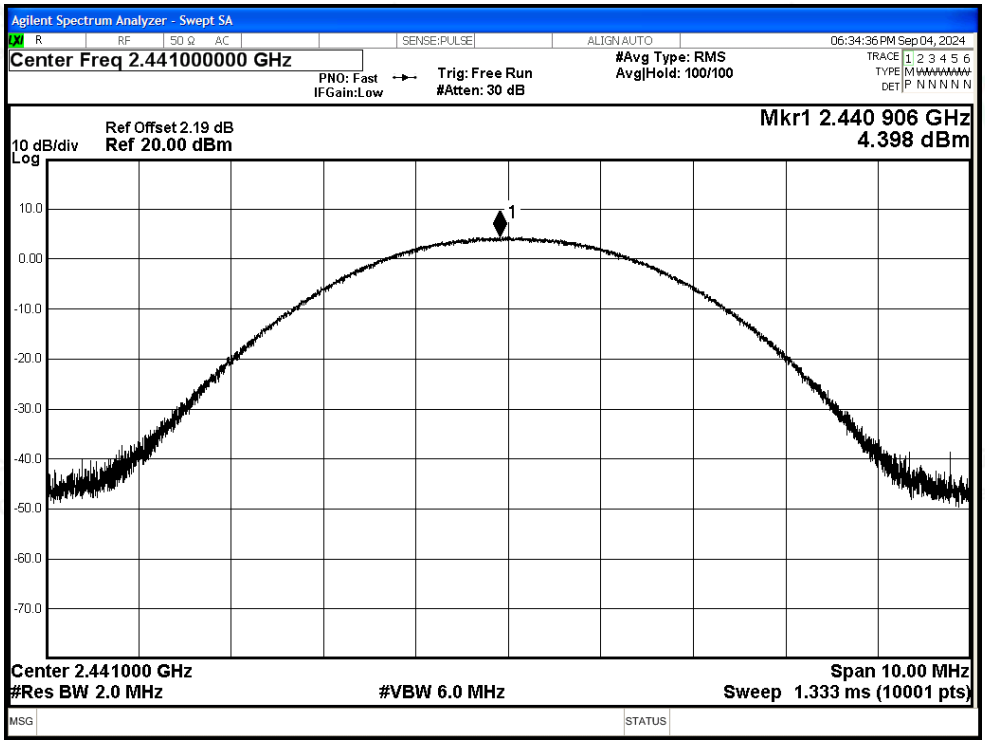
Power NVNT 1-DH5 2480MHz Ant



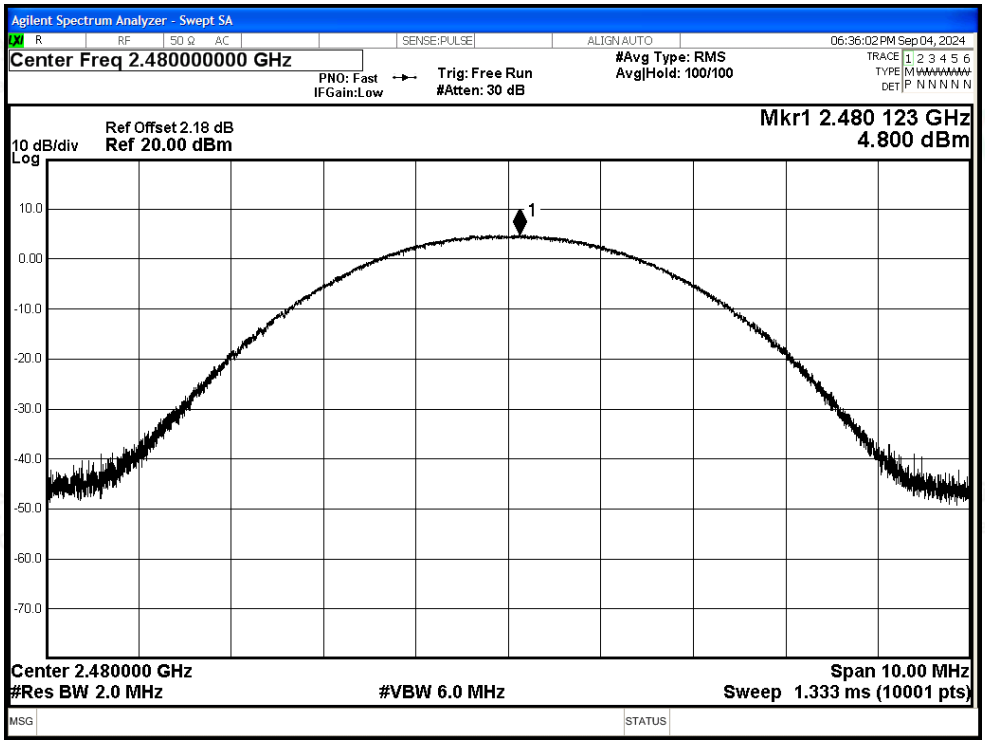
Power NVNT 2-DH5 2402MHz Ant



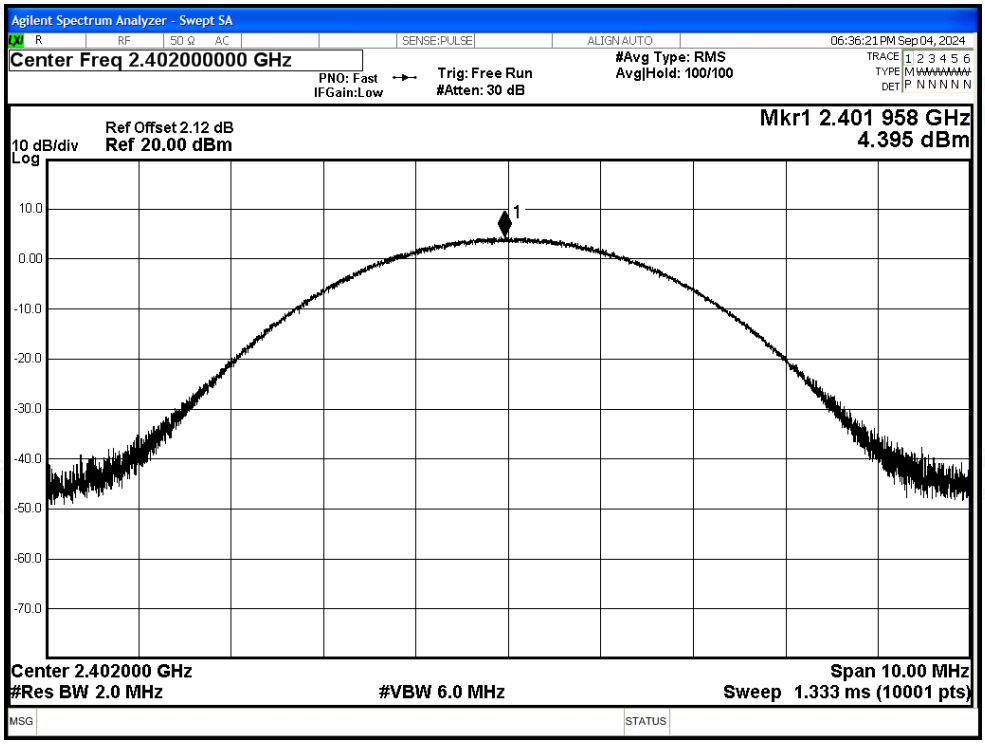
Power NVNT 2-DH5 2441MHz Ant



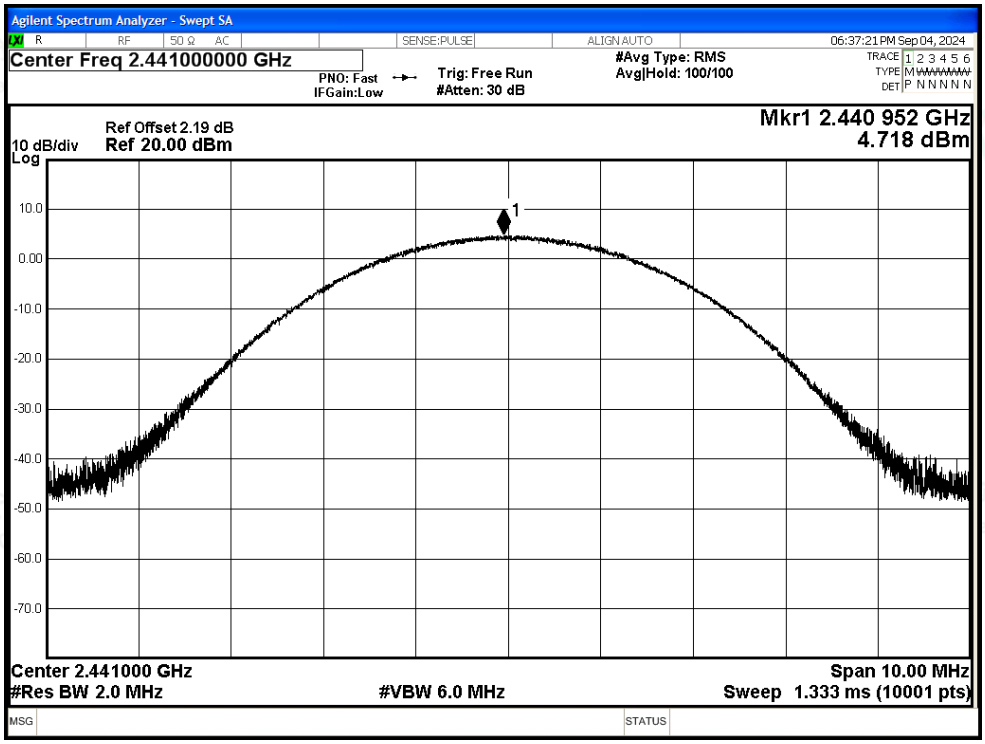
Power NVNT 2-DH5 2480MHz Ant



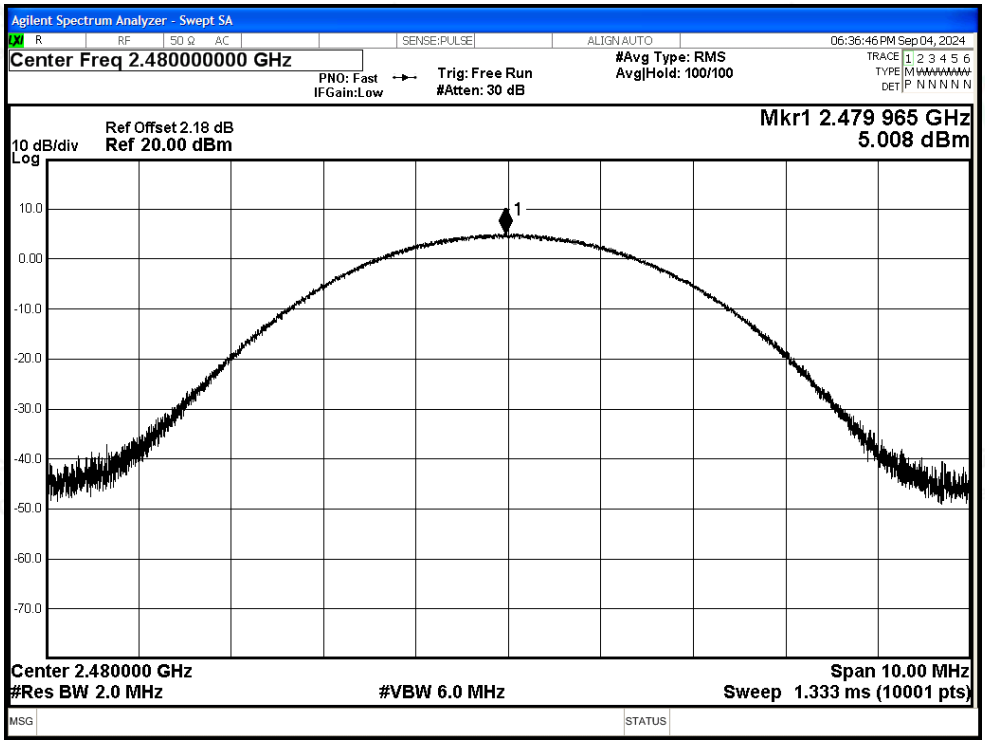
Power NVNT 3-DH5 2402MHz Ant



Power NVNT 3-DH5 2441MHz Ant



Power NVNT 3-DH5 2480MHz Ant

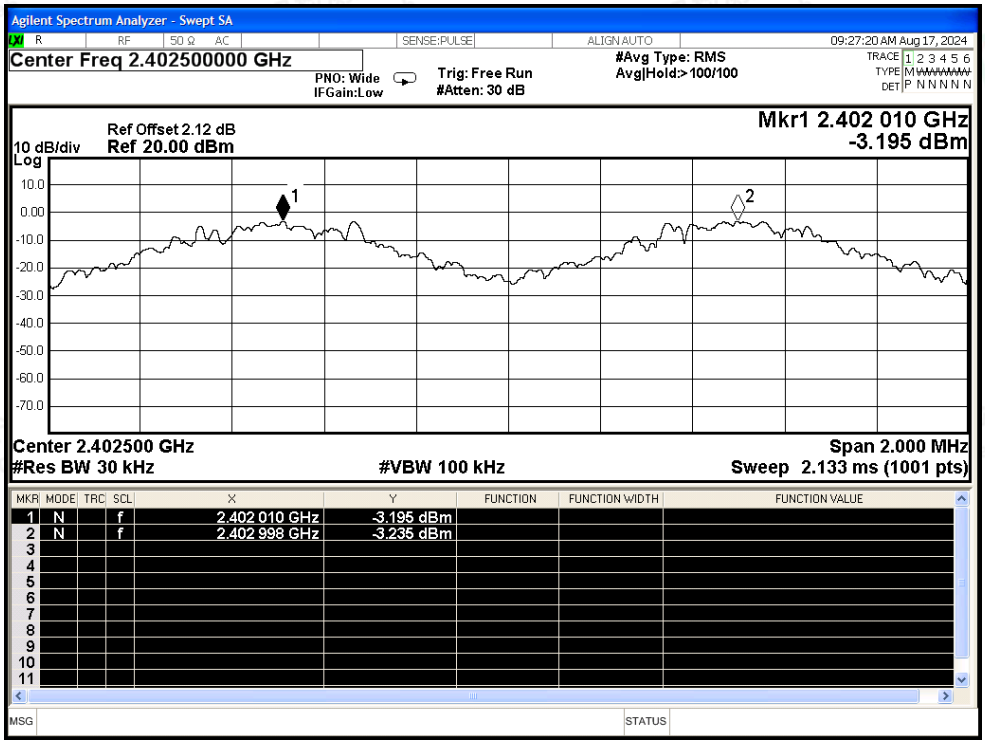


A.3 Carrier Frequencies Separation

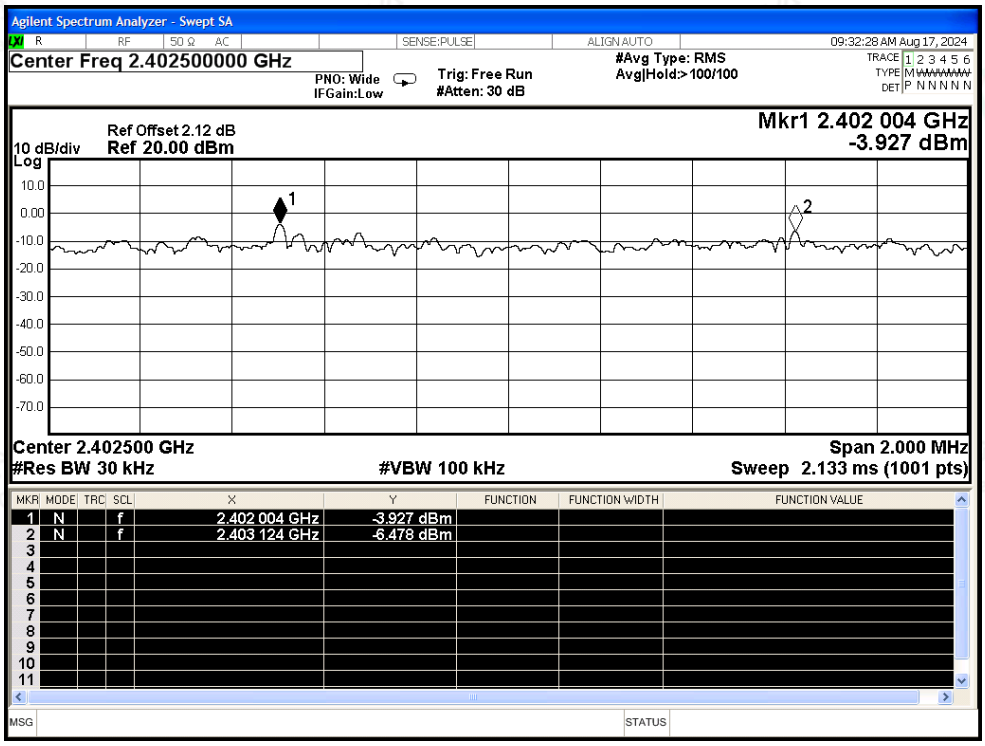
Condition	Mode	Antenna	Hopping Freq1 (MHz)	Hopping Freq2 (MHz)	HFS (MHz)	Limit (MHz)	Verdict
NVNT	1-DH5	Ant	2402.01	2402.998	0.988	0.685	Pass
NVNT	2-DH5	Ant	2402.004	2403.124	1.12	0.882	Pass
NVNT	3-DH5	Ant	2402.024	2403.02	0.996	0.867	Pass

Test Graphs

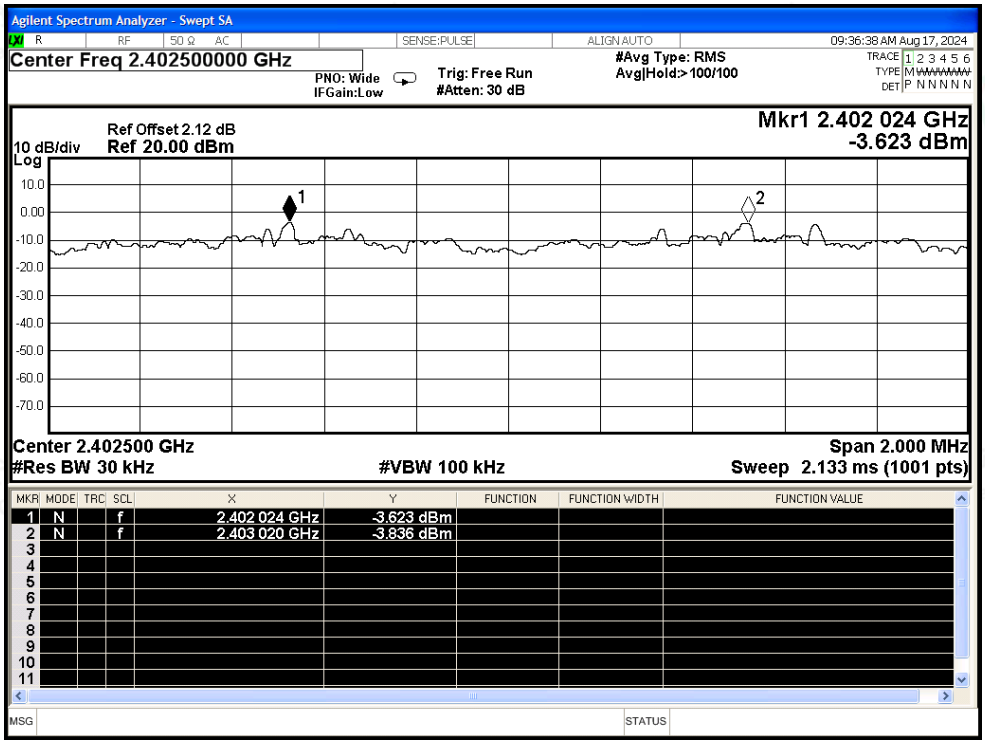
CFS NVNT 1-DH5 2402MHz Ant



CFS NVNT 2-DH5 2402MHz Ant



CFS NVNT 3-DH5 2402MHz Ant

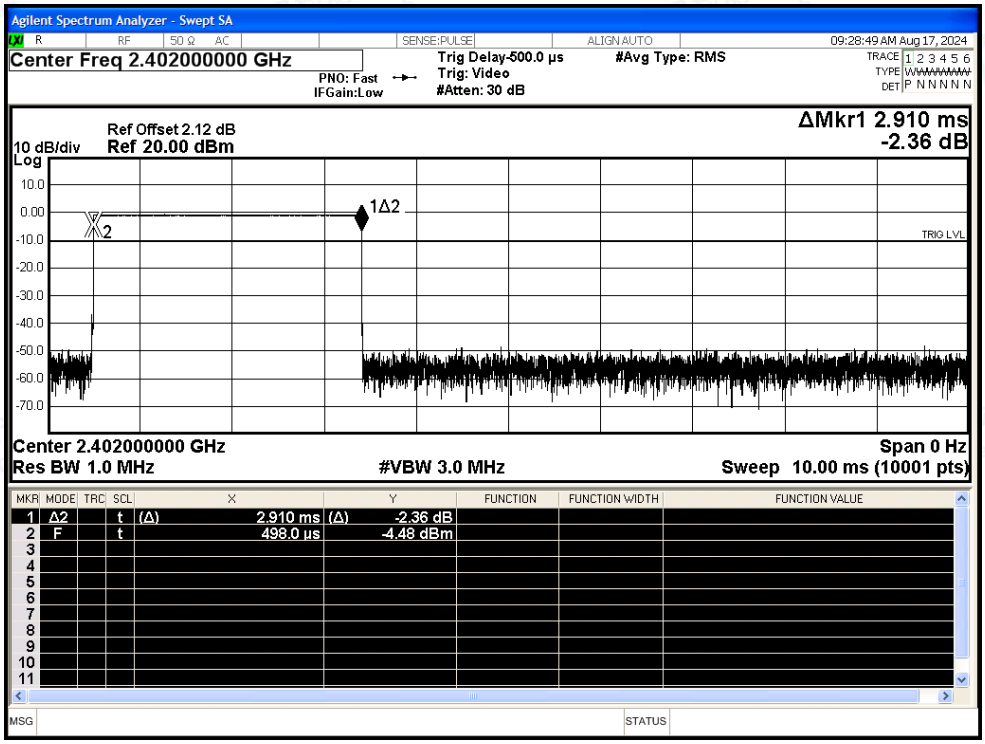


A.4 Dwell Time

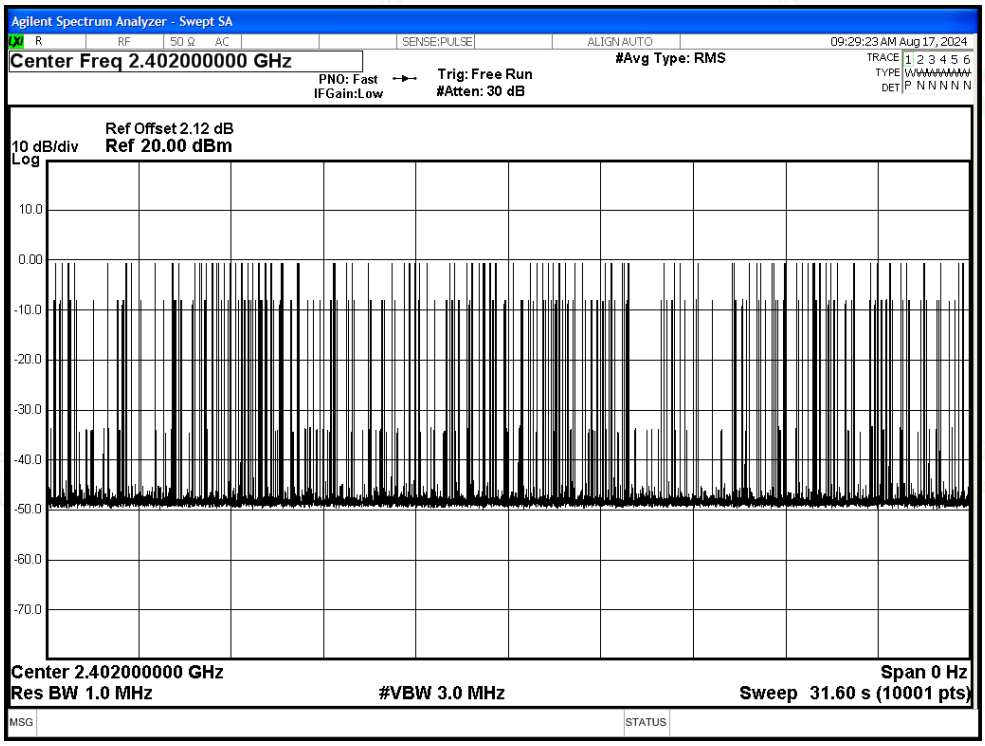
Condition	Mode	Frequency (MHz)	Antenna	Pulse Time (ms)	Total Dwell Time (ms)	Burst Count	Period Time (ms)	Limit (ms)	Verdict
NVNT	1-DH5	2402	Ant	2.91	328.83	113	31600	400	Pass
NVNT	2-DH5	2402	Ant	2.899	292.799	101	31600	400	Pass
NVNT	3-DH5	2402	Ant	2.897	338.949	117	31600	400	Pass

Test Graphs

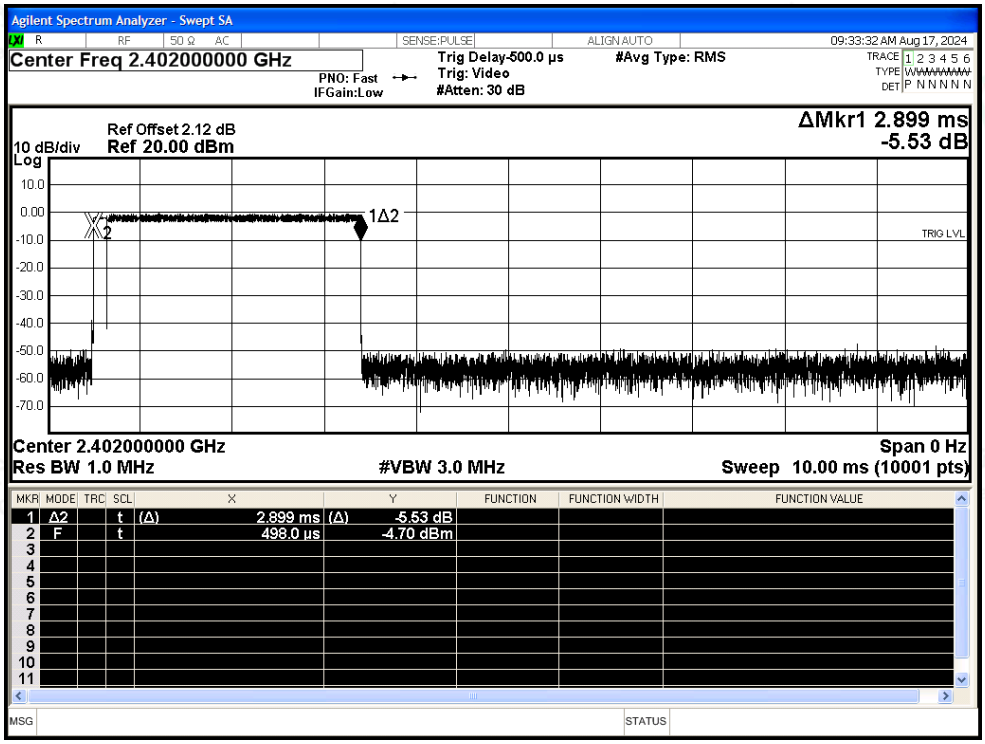
Dwell NVNT 1-DH5 2402MHz Ant One Burst



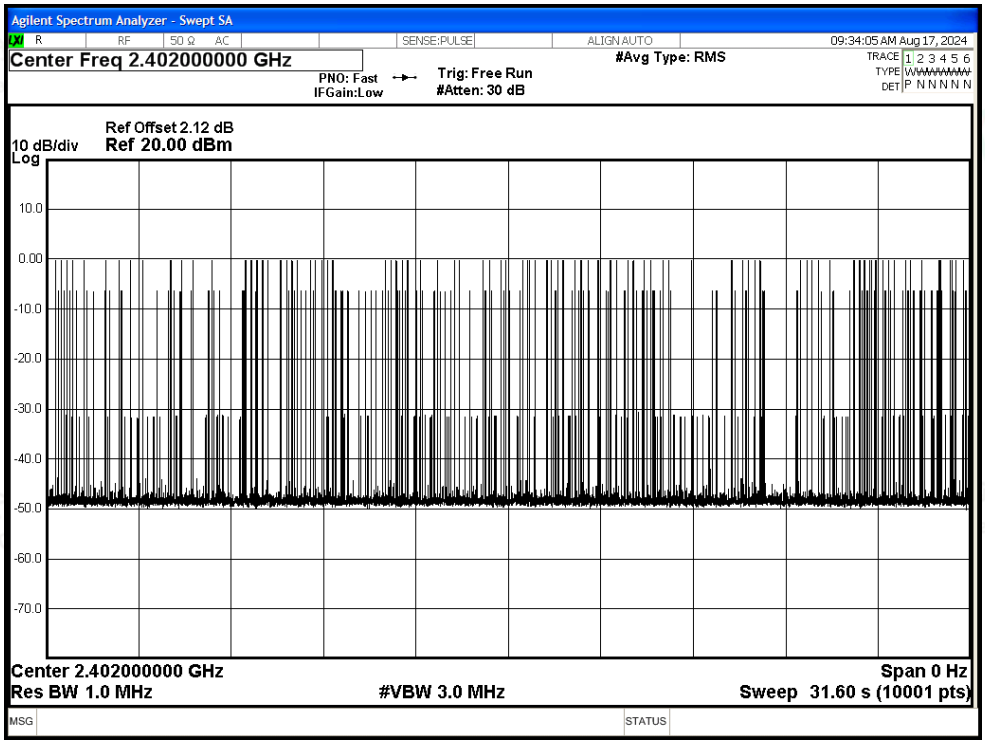
Dwell NVNT 1-DH5 2402MHz Ant Accumulated



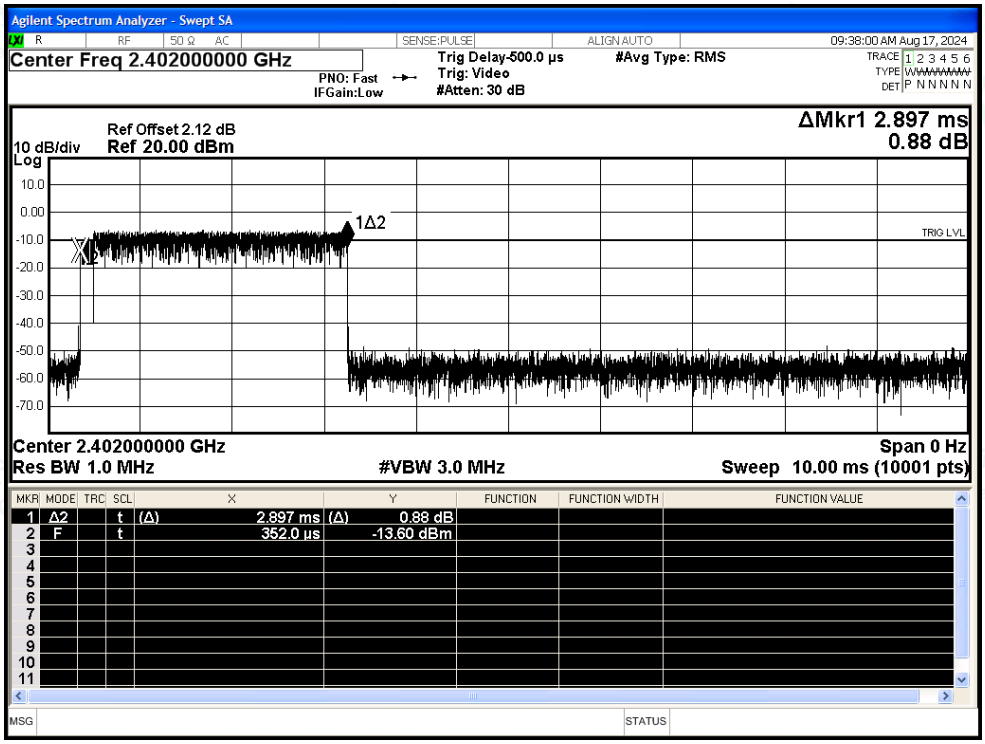
Dwell NVNT 2-DH5 2402MHz Ant One Burst



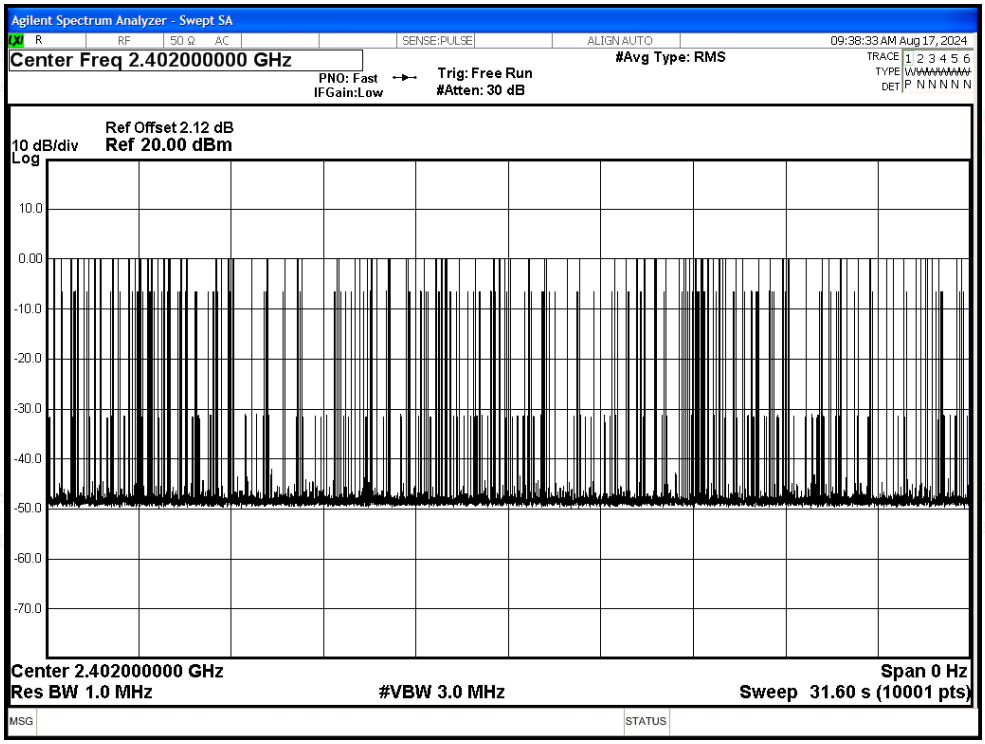
Dwell NVNT 2-DH5 2402MHz Ant Accumulated



Dwell NVNT 3-DH5 2402MHz Ant One Burst



Dwell NVNT 3-DH5 2402MHz Ant Accumulated

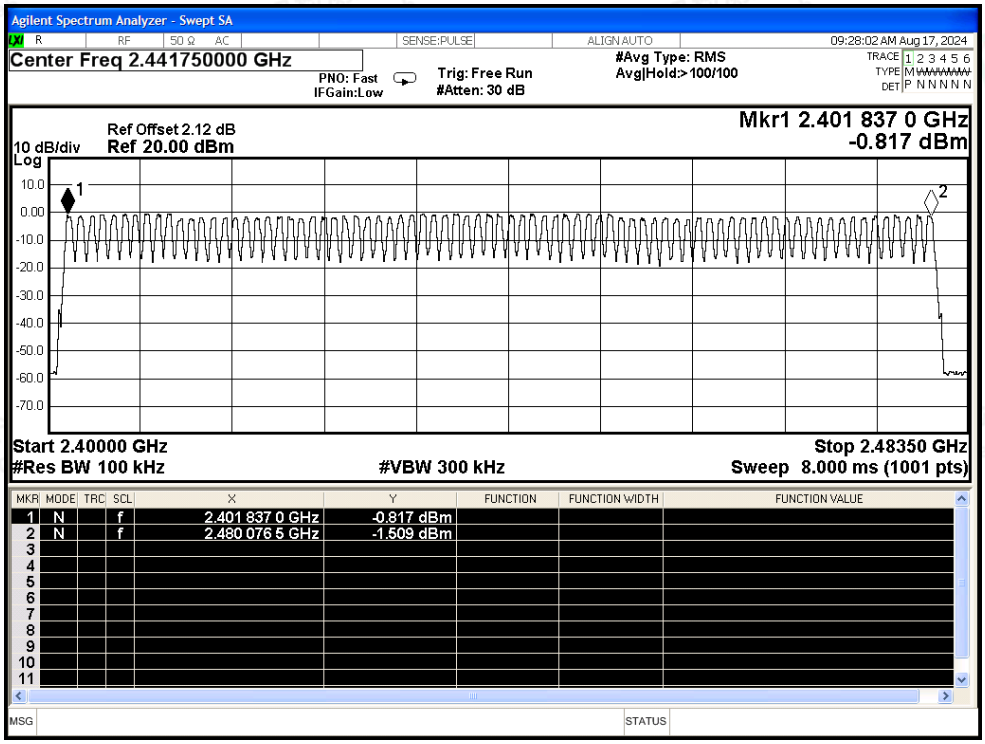


A.5 Number of Hopping Channel

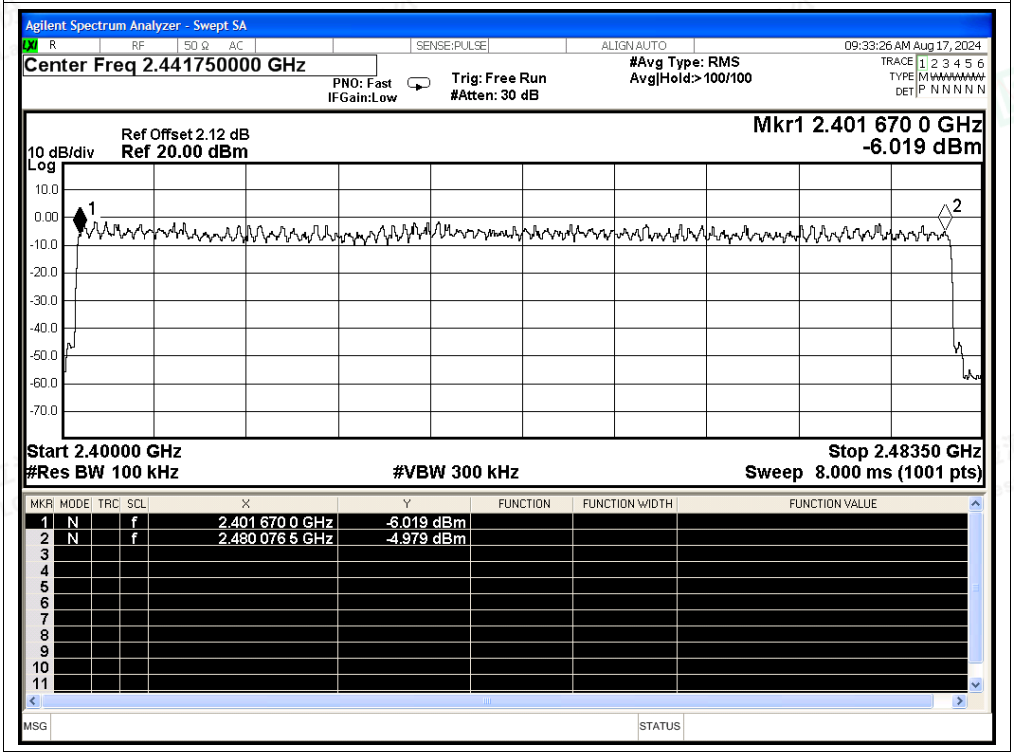
Condition	Mode	Antenna	Hopping Number	Limit	Verdict
NVNT	1-DH5	Ant	79	15	Pass
NVNT	2-DH5	Ant	79	15	Pass
NVNT	3-DH5	Ant	79	15	Pass

Test Graphs

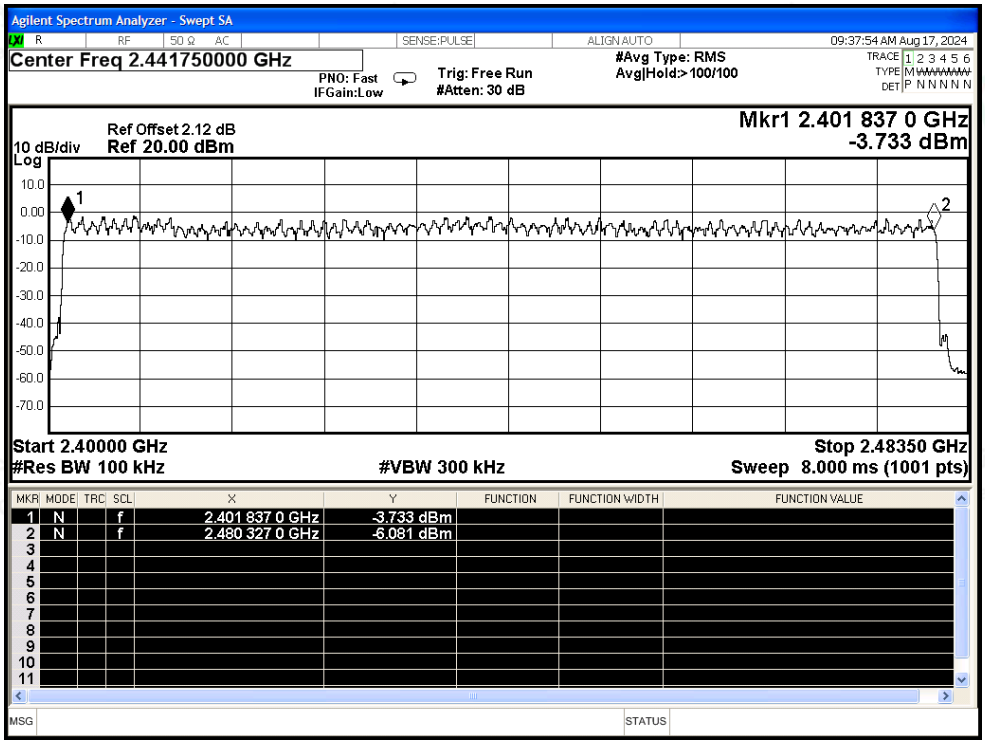
Hopping No. NVNT 1-DH5 2402MHz Ant



Hopping No. NVNT 2-DH5 2402MHz Ant



Hopping No. NVNT 3-DH5 2402MHz Ant

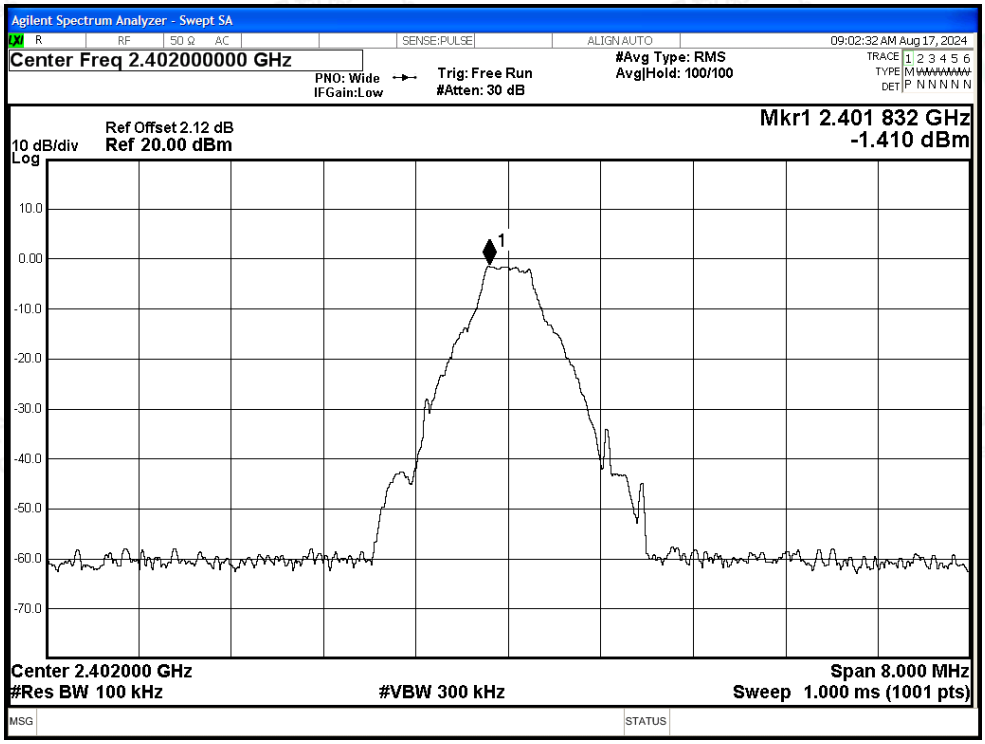


A.6 Band Edge

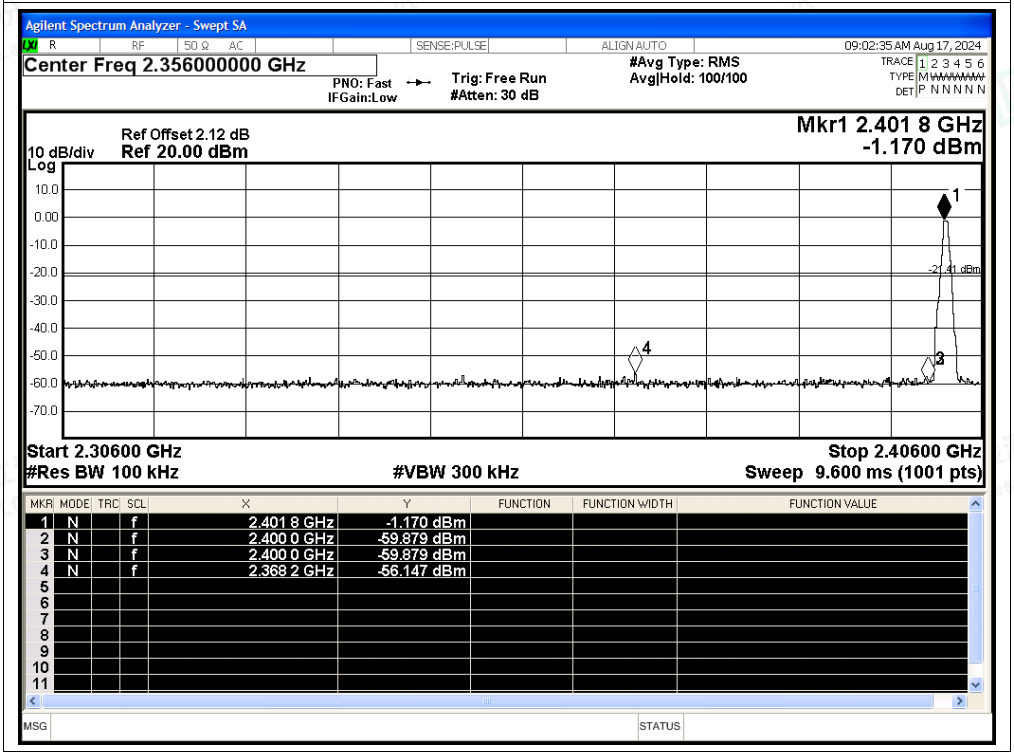
Condition	Mode	Frequency (MHz)	Antenna	Hopping Mode	Max Value (dBc)	Limit (dBc)	Verdict
NVNT	1-DH5	2402	Ant	No-Hopping	-54.74	-20	Pass
NVNT	1-DH5	2480	Ant	No-Hopping	-56.05	-20	Pass
NVNT	2-DH5	2402	Ant	No-Hopping	-52.1	-20	Pass
NVNT	2-DH5	2480	Ant	No-Hopping	-52.72	-20	Pass
NVNT	3-DH5	2402	Ant	No-Hopping	-53.06	-20	Pass
NVNT	3-DH5	2480	Ant	No-Hopping	-54.93	-20	Pass

Test Graphs

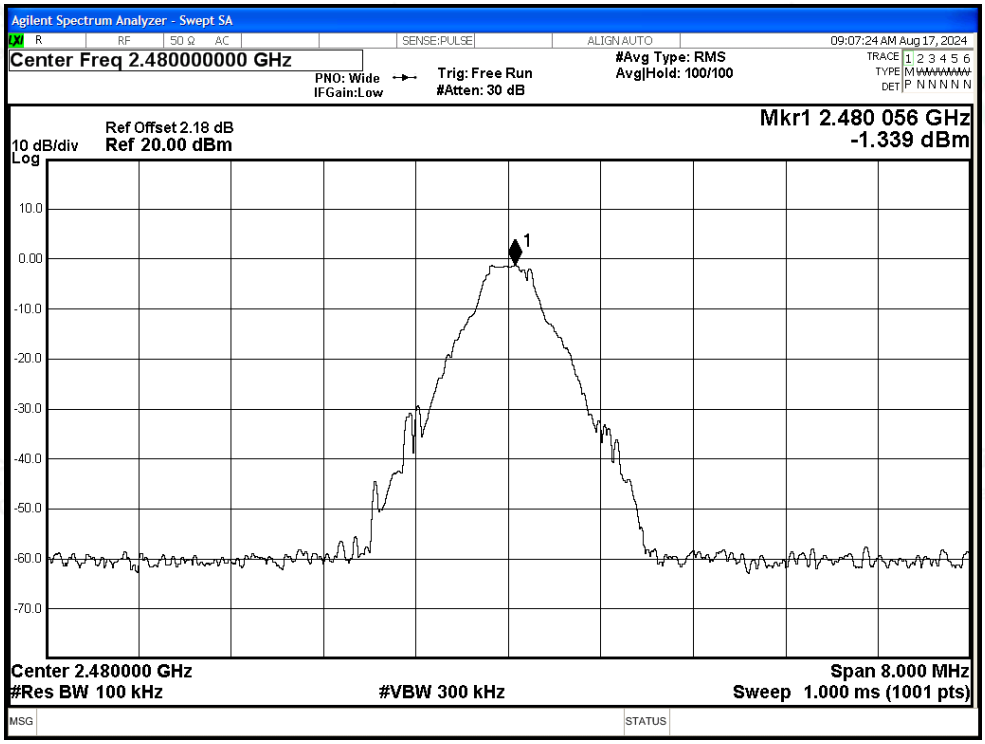
Band Edge NVNT 1-DH5 2402MHz Ant No-Hopping Ref



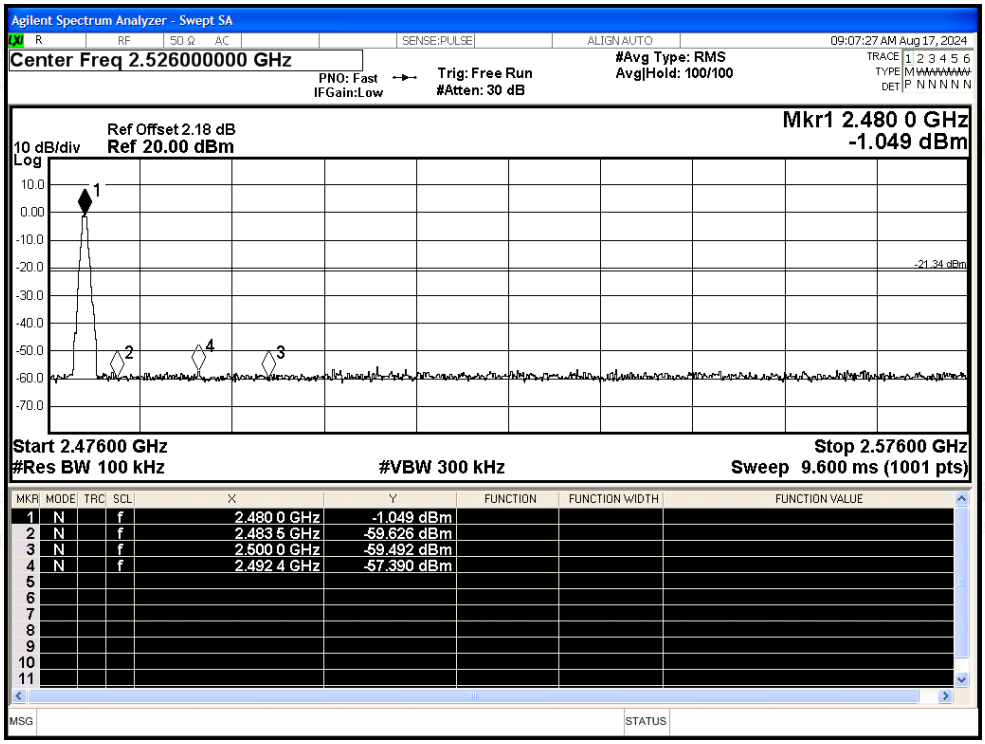
Band Edge NVNT 1-DH5 2402MHz Ant No-Hopping Emission



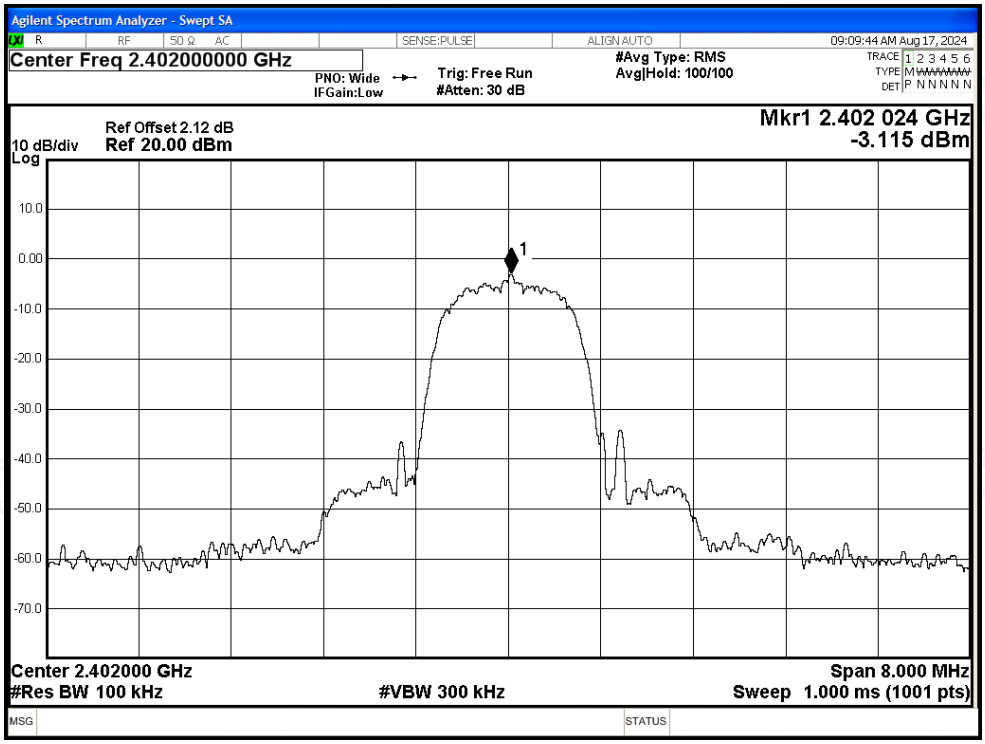
Band Edge NVNT 1-DH5 2480MHz Ant No-Hopping Ref



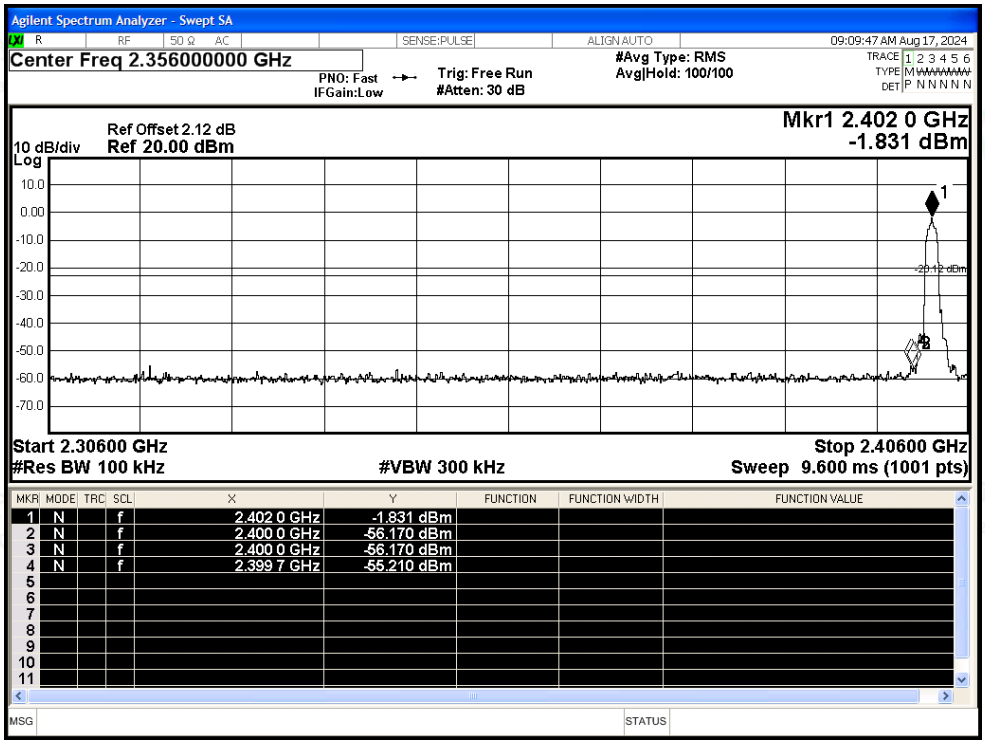
Band Edge NVNT 1-DH5 2480MHz Ant No-Hopping Emission



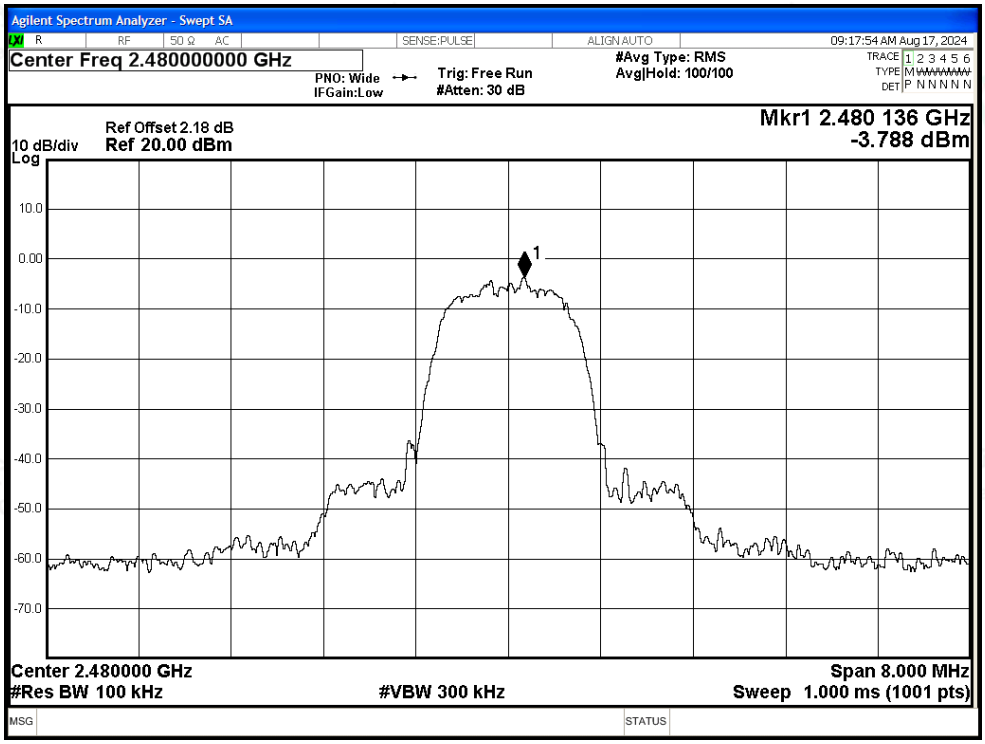
Band Edge NVNT 2-DH5 2402MHz Ant No-Hopping Ref



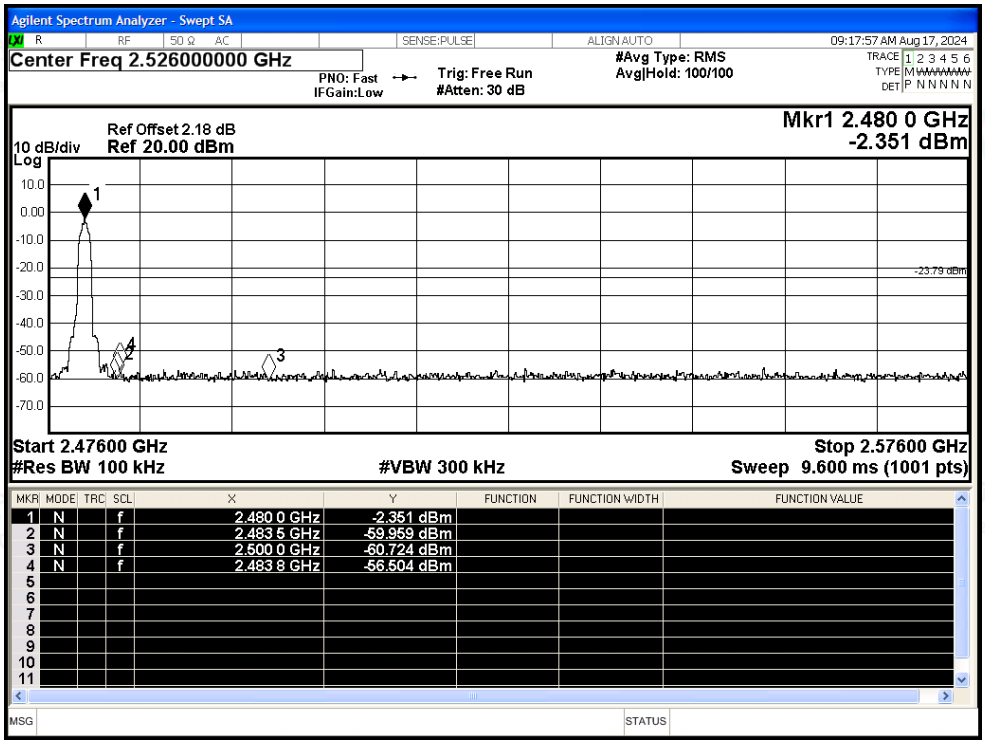
Band Edge NVNT 2-DH5 2402MHz Ant No-Hopping Emission



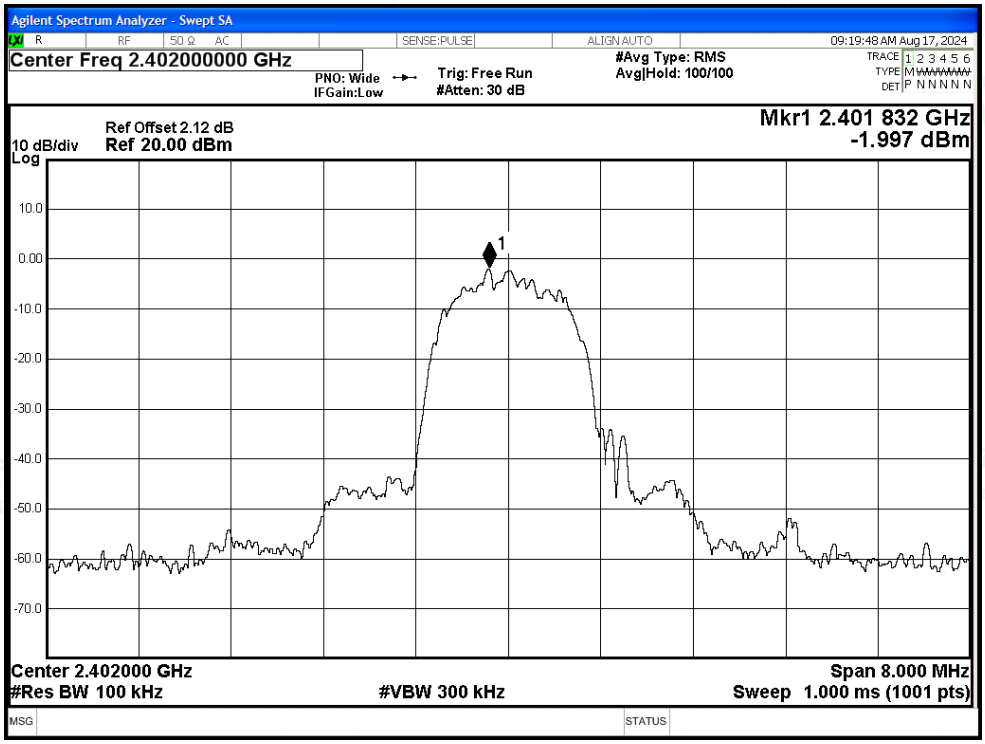
Band Edge NVNT 2-DH5 2480MHz Ant No-Hopping Ref



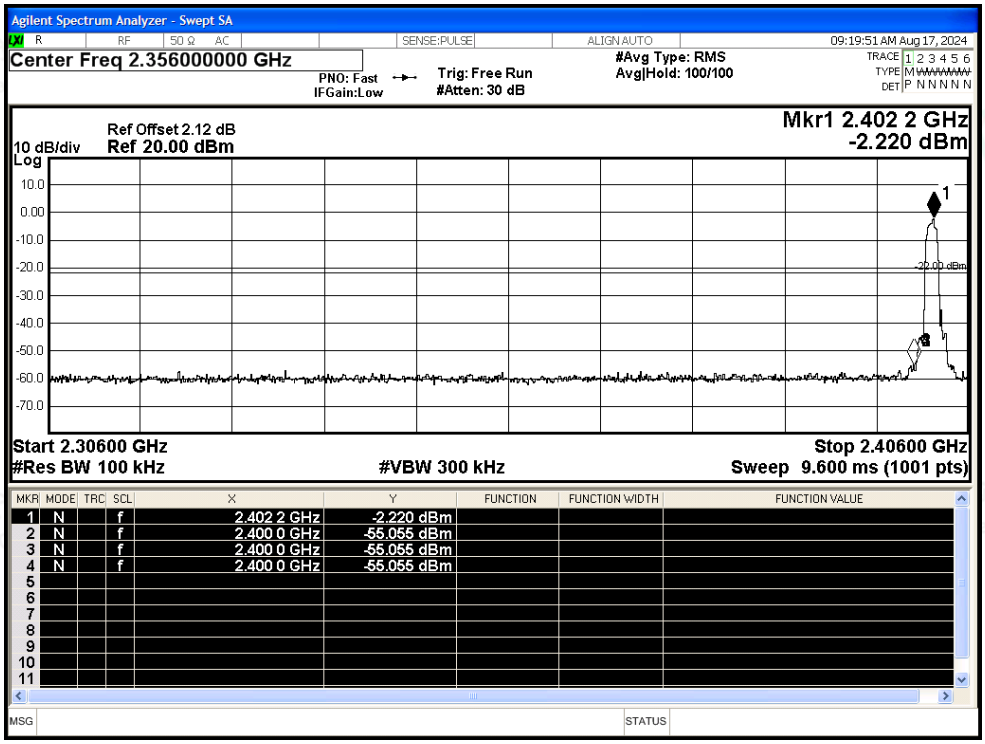
Band Edge NVNT 2-DH5 2480MHz Ant No-Hopping Emission



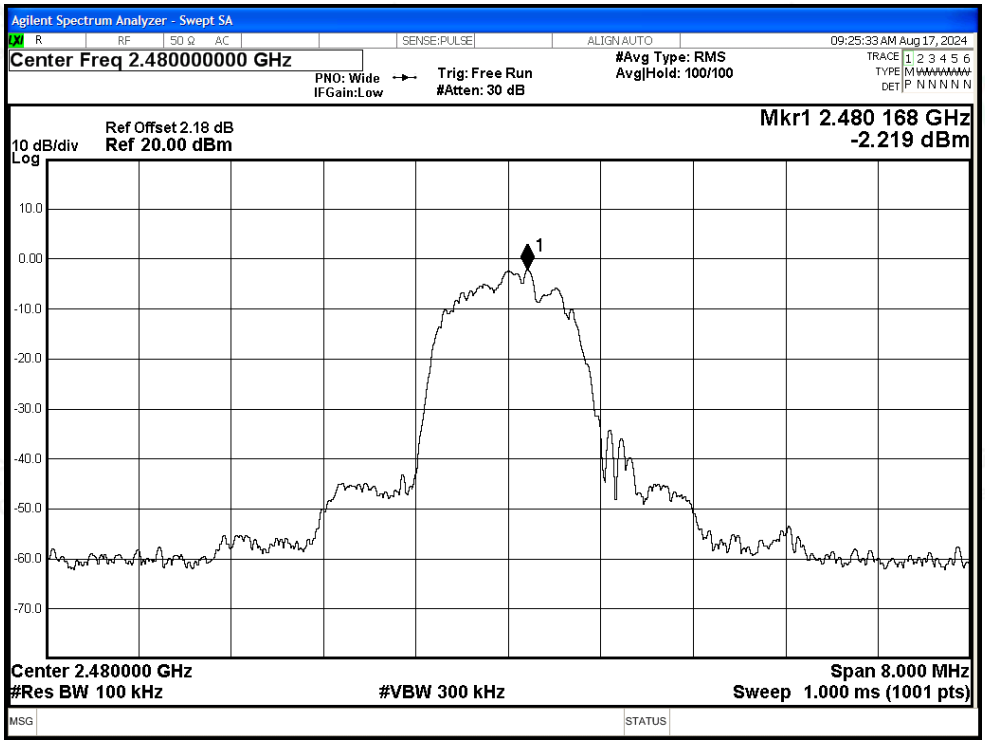
Band Edge NVNT 3-DH5 2402MHz Ant No-Hopping Ref



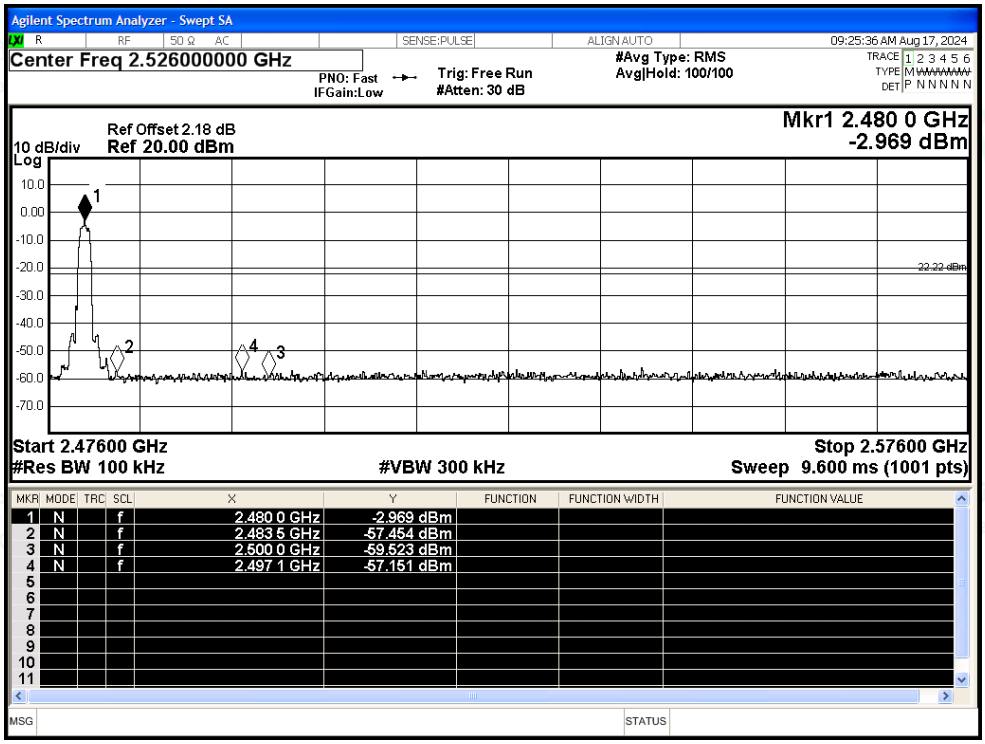
Band Edge NVNT 3-DH5 2402MHz Ant No-Hopping Emission



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



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

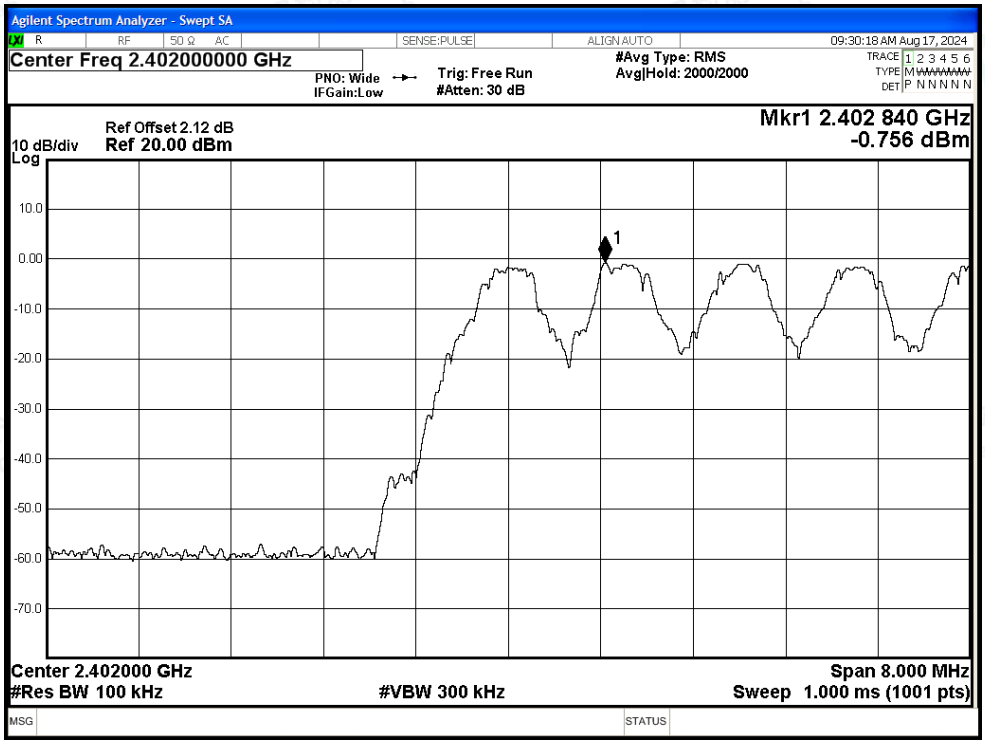


(Hopping)

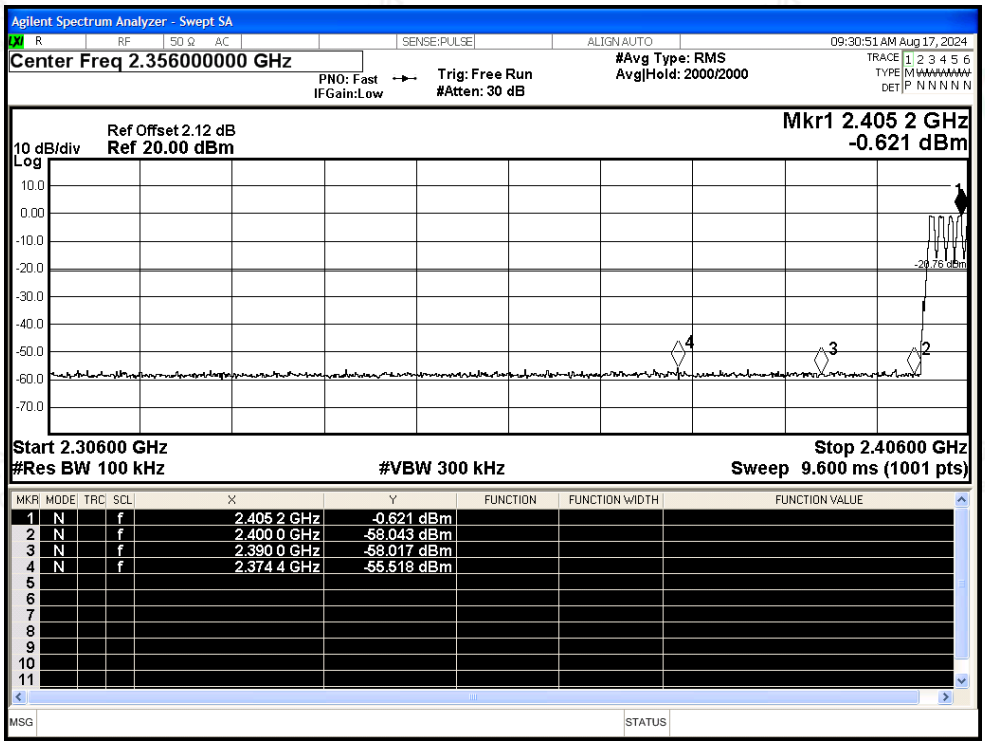
Condition	Mode	Frequency (MHz)	Antenna	Hopping Mode	Max Value (dBc)	Limit (dBc)	Verdict
NVNT	1-DH5	2402	Ant	Hopping	-54.76	-20	Pass
NVNT	1-DH5	2480	Ant	Hopping	-54.95	-20	Pass
NVNT	2-DH5	2402	Ant	Hopping	-53.62	-20	Pass
NVNT	2-DH5	2480	Ant	Hopping	-53.8	-20	Pass
NVNT	3-DH5	2402	Ant	Hopping	-54.94	-20	Pass
NVNT	3-DH5	2480	Ant	Hopping	-51.9	-20	Pass

Test Graphs

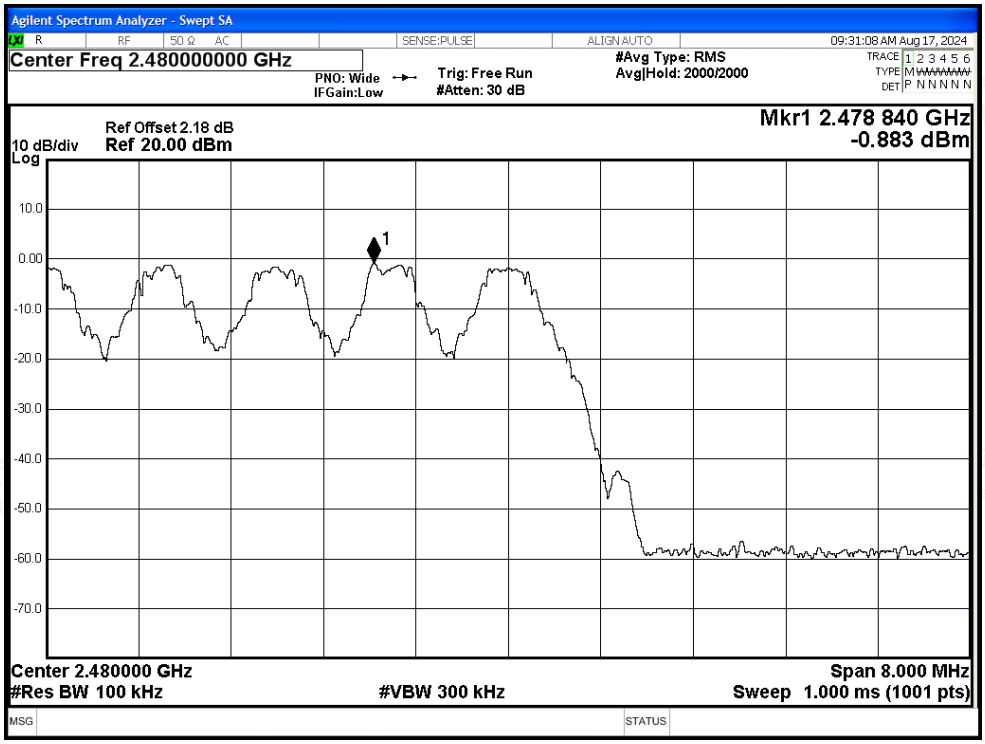
Band Edge(Hopping) NVNT 1-DH5 2402MHz Ant Hopping Ref



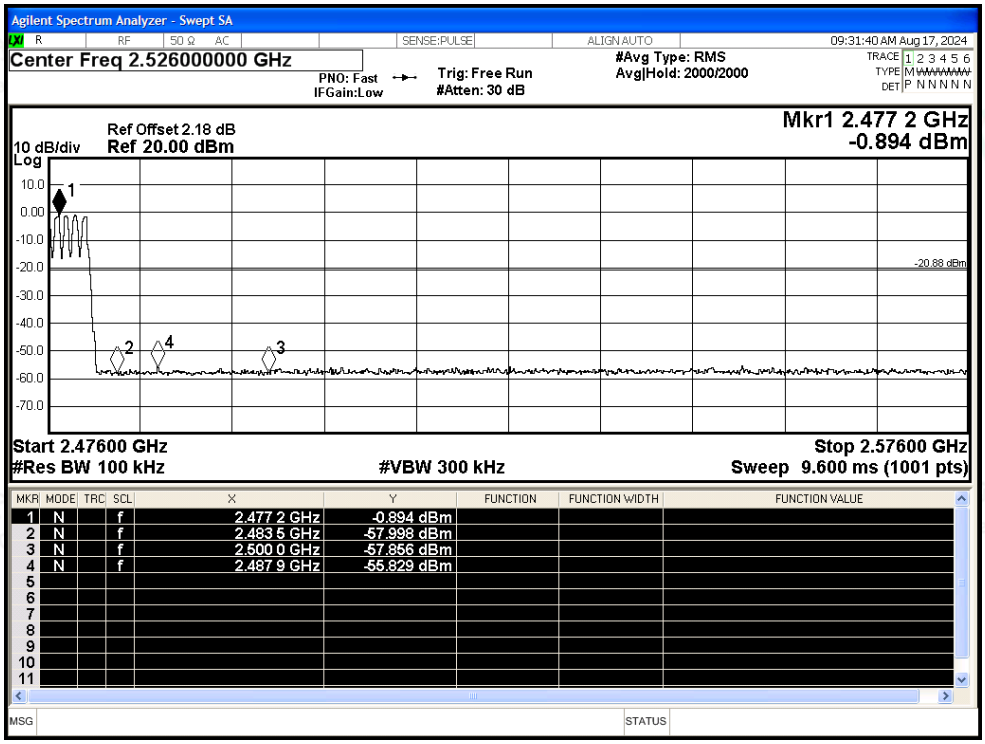
Band Edge(Hopping) NVNT 1-DH5 2402MHz Ant Hopping Emission



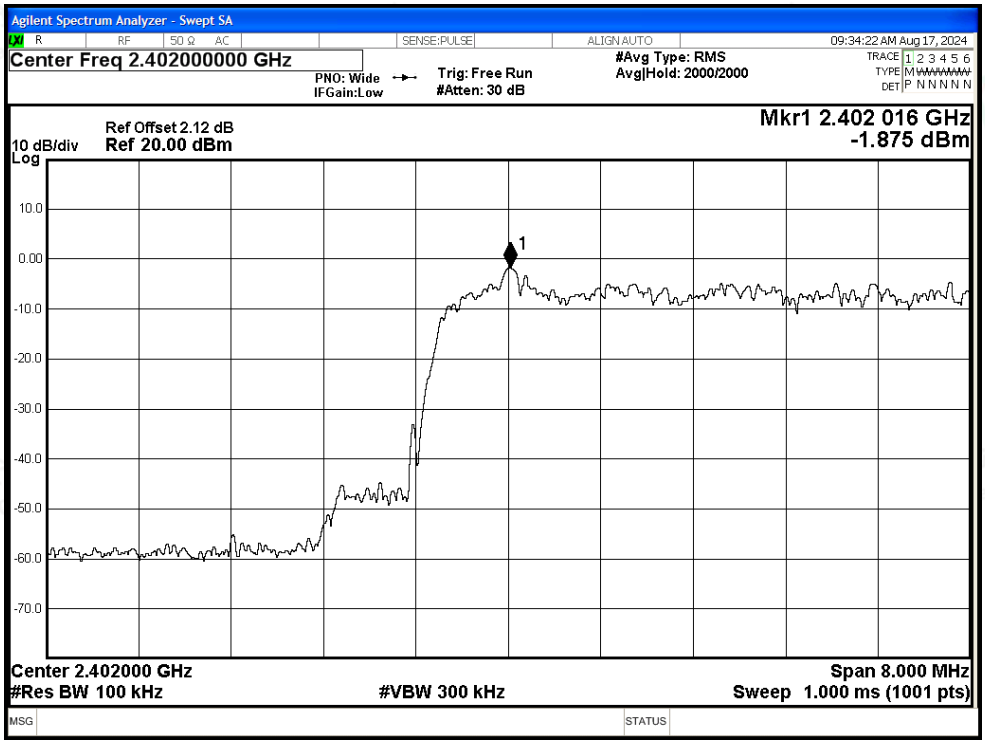
Band Edge(Hopping) NVNT 1-DH5 2480MHz Ant Hopping Ref



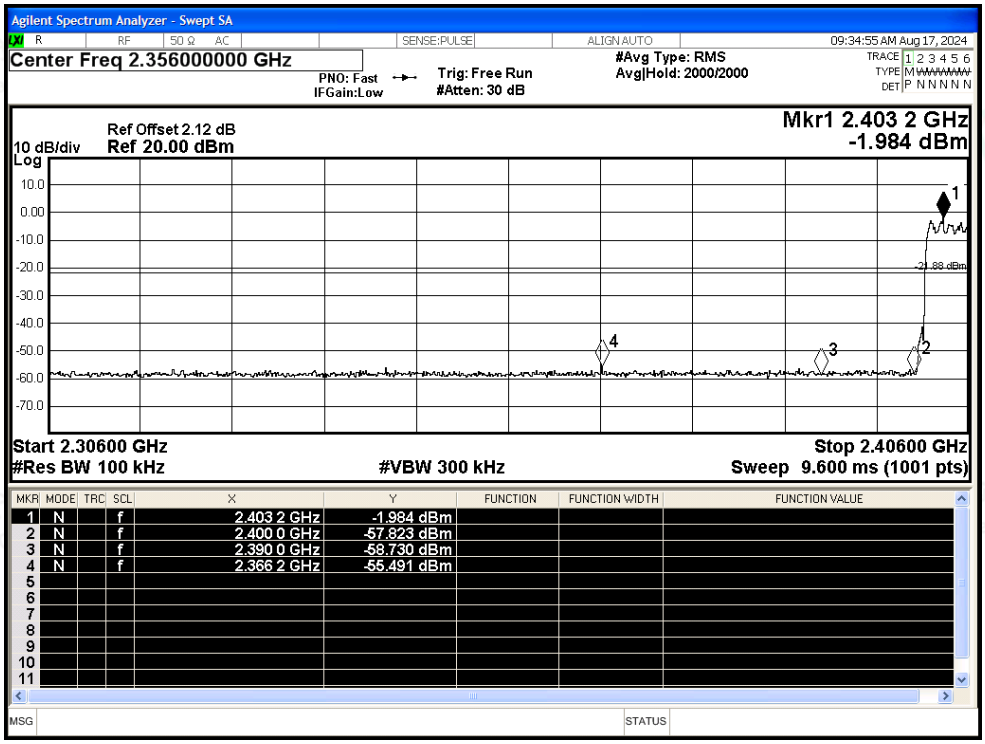
Band Edge(Hopping) NVNT 1-DH5 2480MHz Ant Hopping Emission



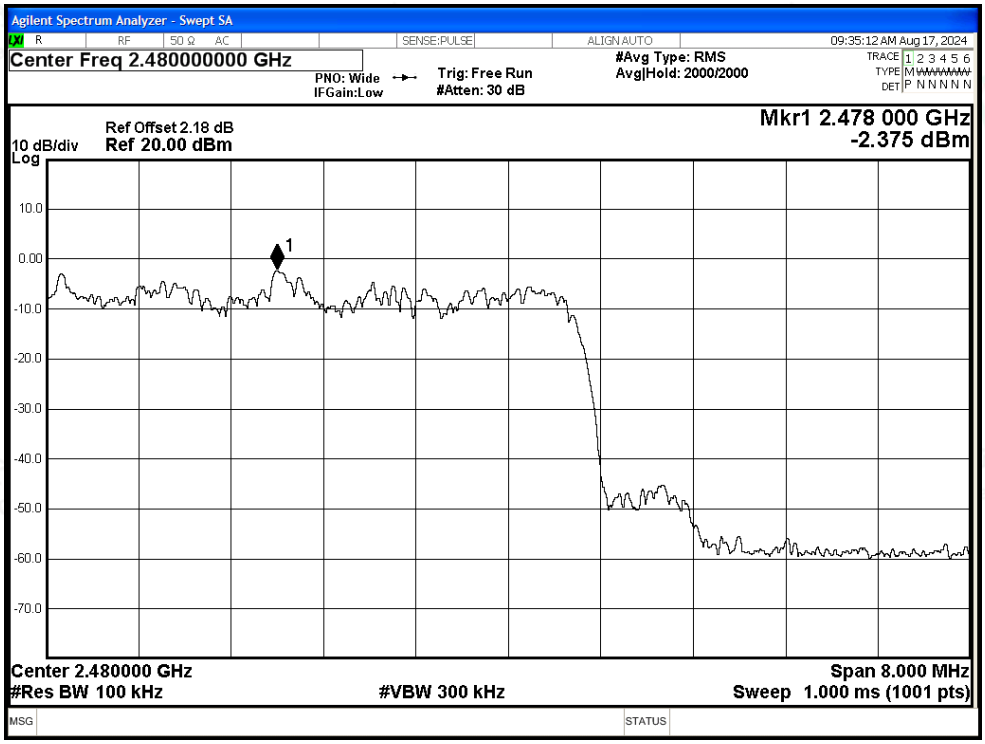
Band Edge(Hopping) NVNT 2-DH5 2402MHz Ant Hopping Ref



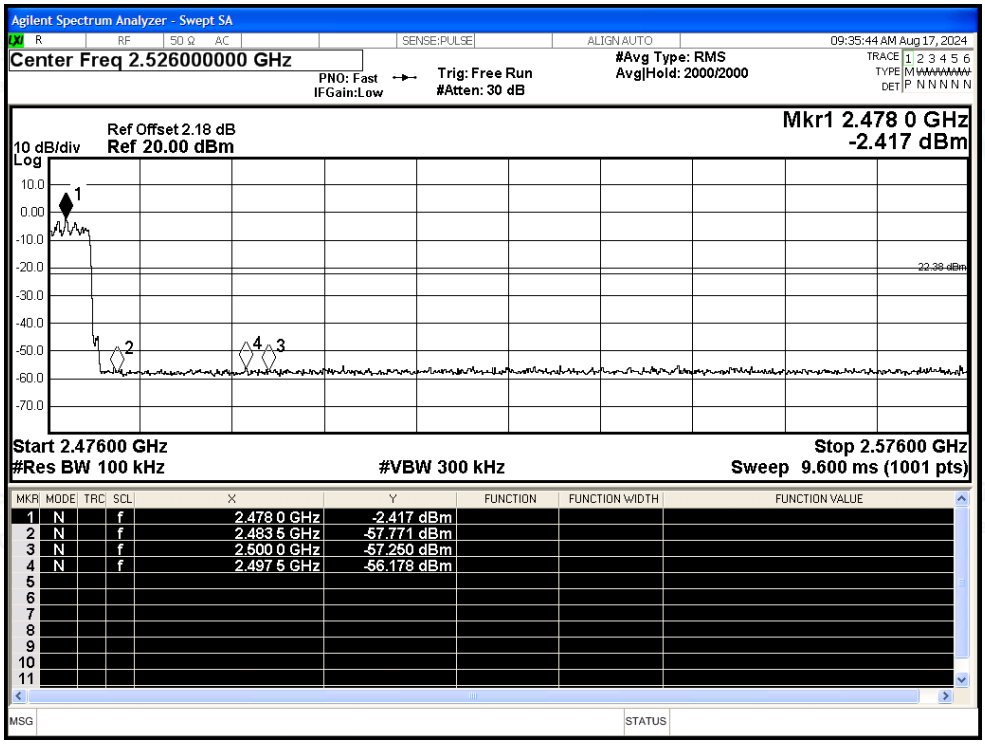
Band Edge(Hopping) NVNT 2-DH5 2402MHz Ant Hopping Emission



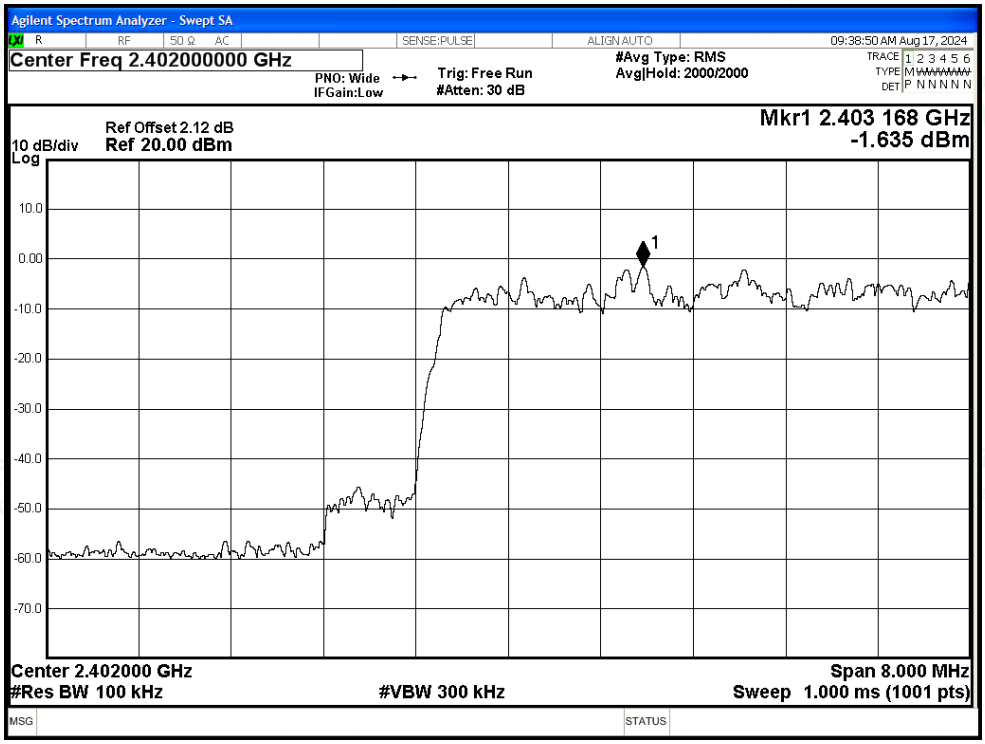
Band Edge(Hopping) NVNT 2-DH5 2480MHz Ant Hopping Ref



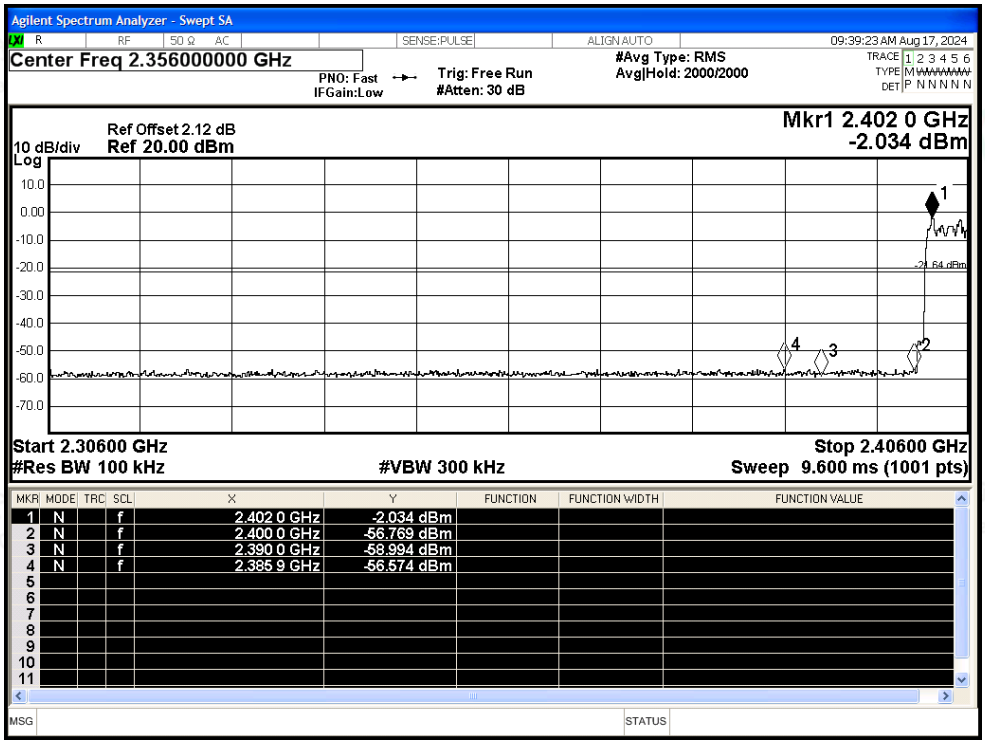
Band Edge(Hopping) NVNT 2-DH5 2480MHz Ant Hopping Emission



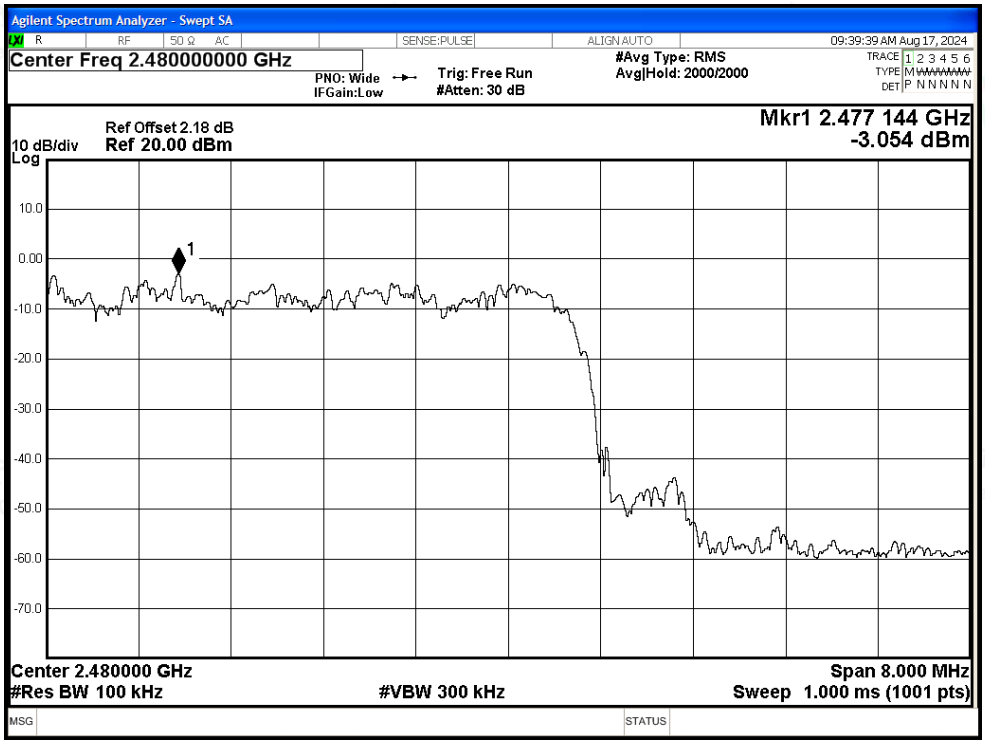
Band Edge(Hopping) NVNT 3-DH5 2402MHz Ant Hopping Ref



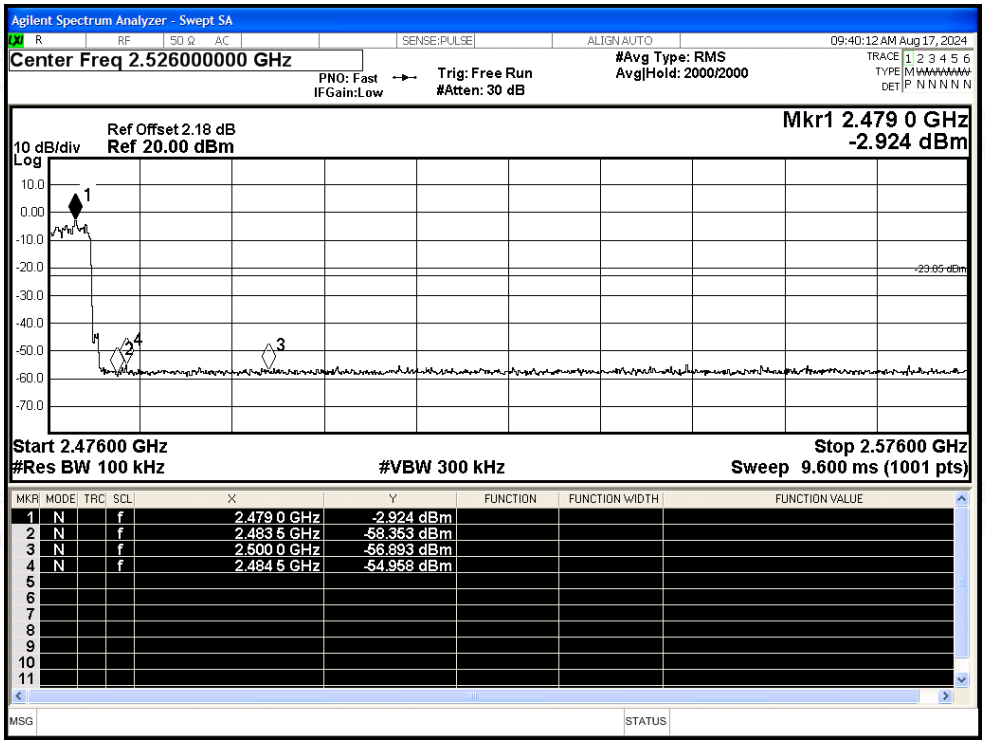
Band Edge(Hopping) NVNT 3-DH5 2402MHz Ant Hopping Emission



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



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

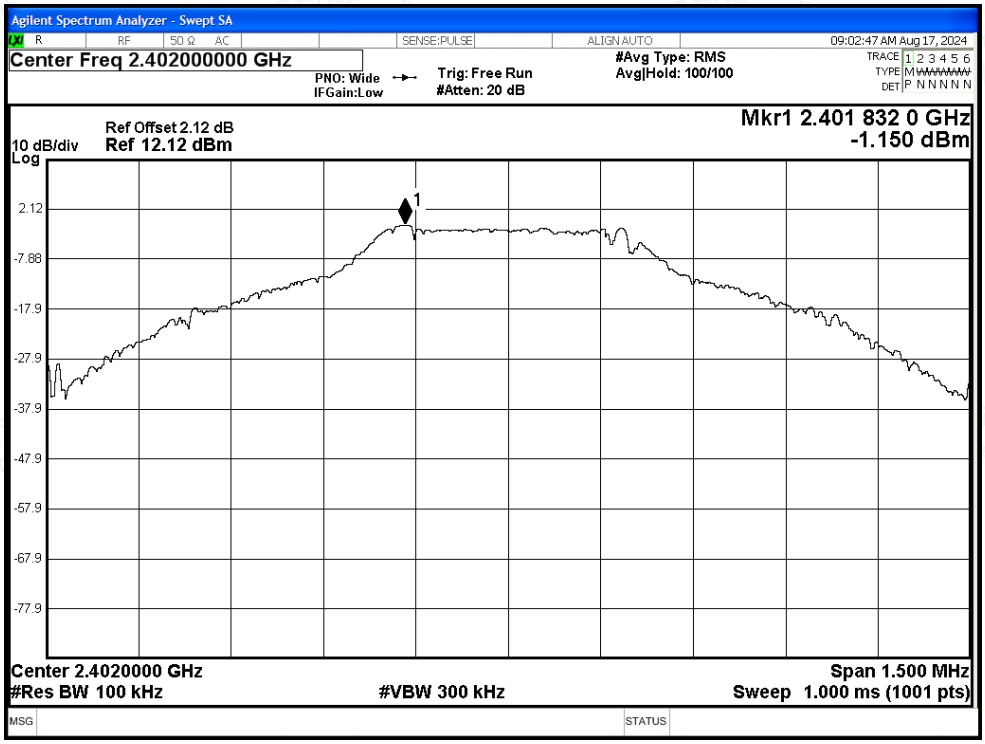


A.7 Conducted RF Spurious Emission

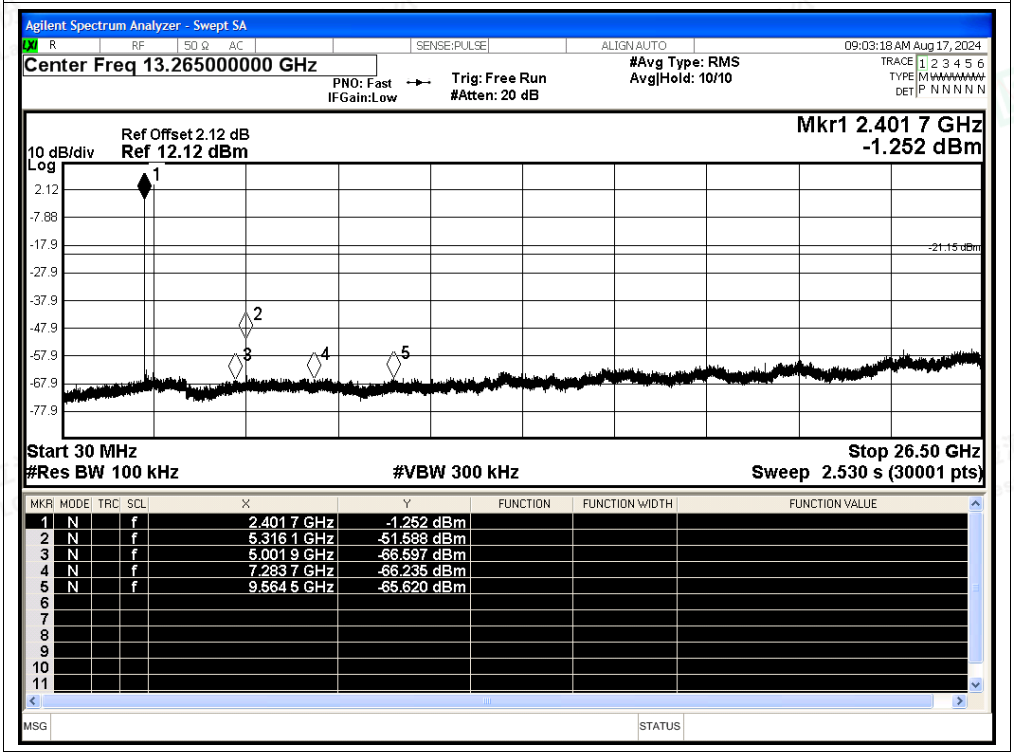
Condition	Mode	Frequency (MHz)	Antenna	Max Value (dBc)	Limit (dBc)	Verdict
NVNT	1-DH5	2402	Ant	-50.44	-20	Pass
NVNT	1-DH5	2441	Ant	-54.97	-20	Pass
NVNT	1-DH5	2480	Ant	-54.72	-20	Pass
NVNT	2-DH5	2402	Ant	-49.86	-20	Pass
NVNT	2-DH5	2441	Ant	-53.48	-20	Pass
NVNT	2-DH5	2480	Ant	-51.99	-20	Pass
NVNT	3-DH5	2402	Ant	-51.16	-20	Pass
NVNT	3-DH5	2441	Ant	-54.32	-20	Pass
NVNT	3-DH5	2480	Ant	-52.35	-20	Pass

Test Graphs

Tx. Spurious NVNT 1-DH5 2402MHz Ant Ref

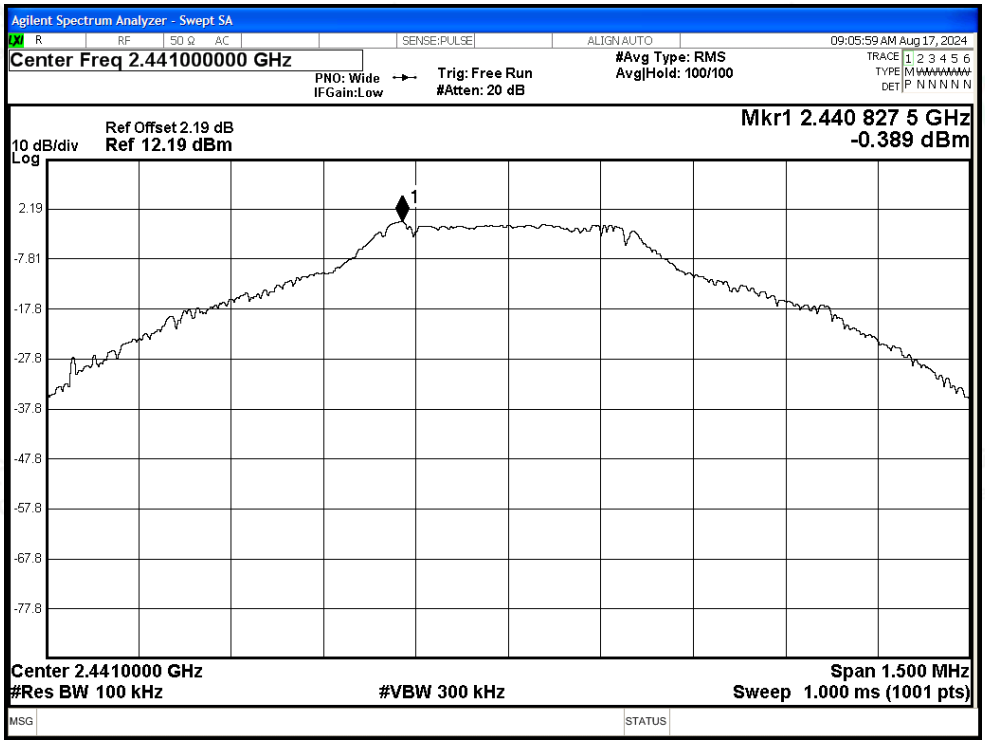


Tx. Spurious NVNT 1-DH5 2402MHz Ant Emission

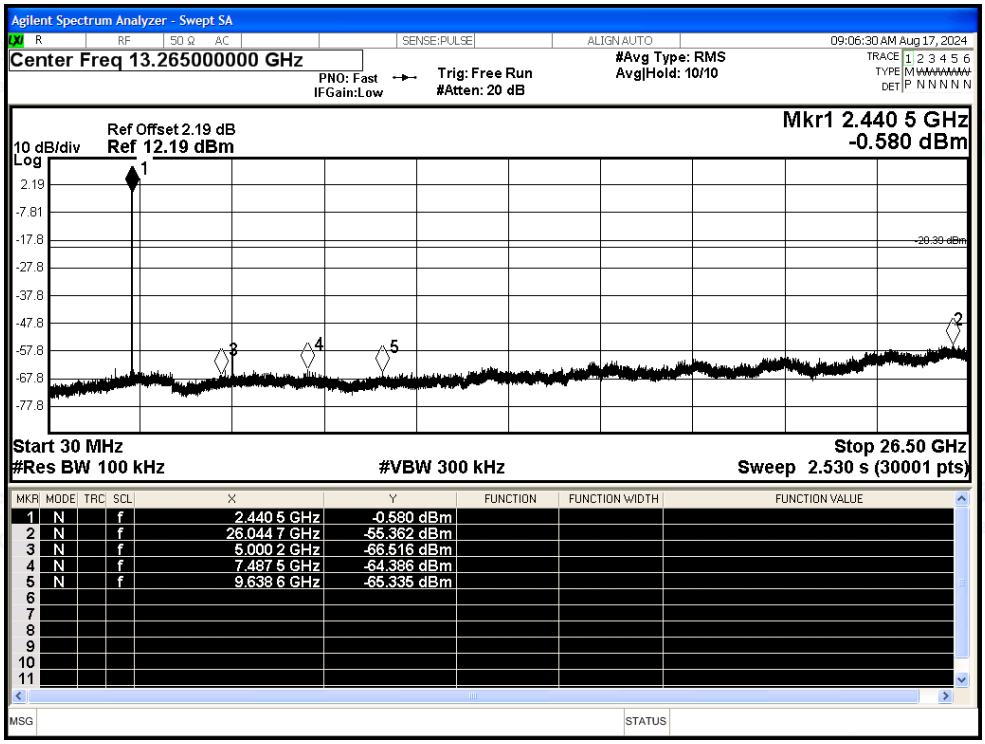


MKR	MODE	TRC	SCL	X	Y	FUNCTION	FUNCTION WIDTH	FUNCTION VALUE
1	N		f	2.401 7 GHz	-1.252 dBm			
2	N		f	5.316 1 GHz	-51.588 dBm			
3	N		f	5.001 9 GHz	-66.597 dBm			
4	N		f	7.283 7 GHz	-66.235 dBm			
5	N		f	9.564 5 GHz	-65.620 dBm			
6								
7								
8								
9								
10								
11								

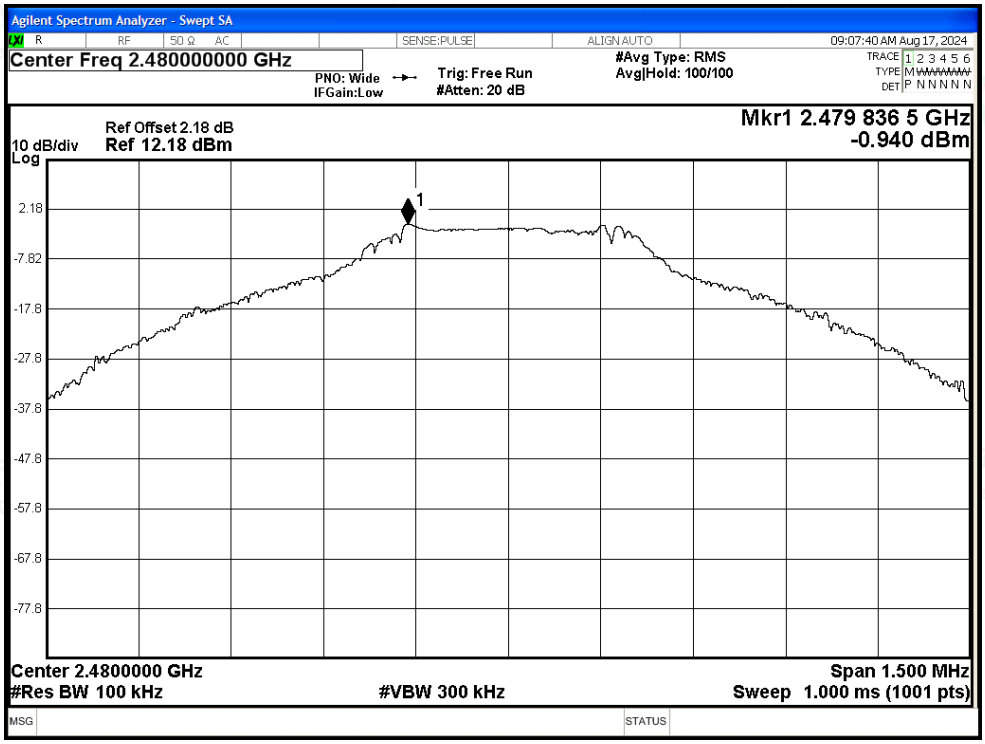
Tx. Spurious NVNT 1-DH5 2441MHz Ant Ref



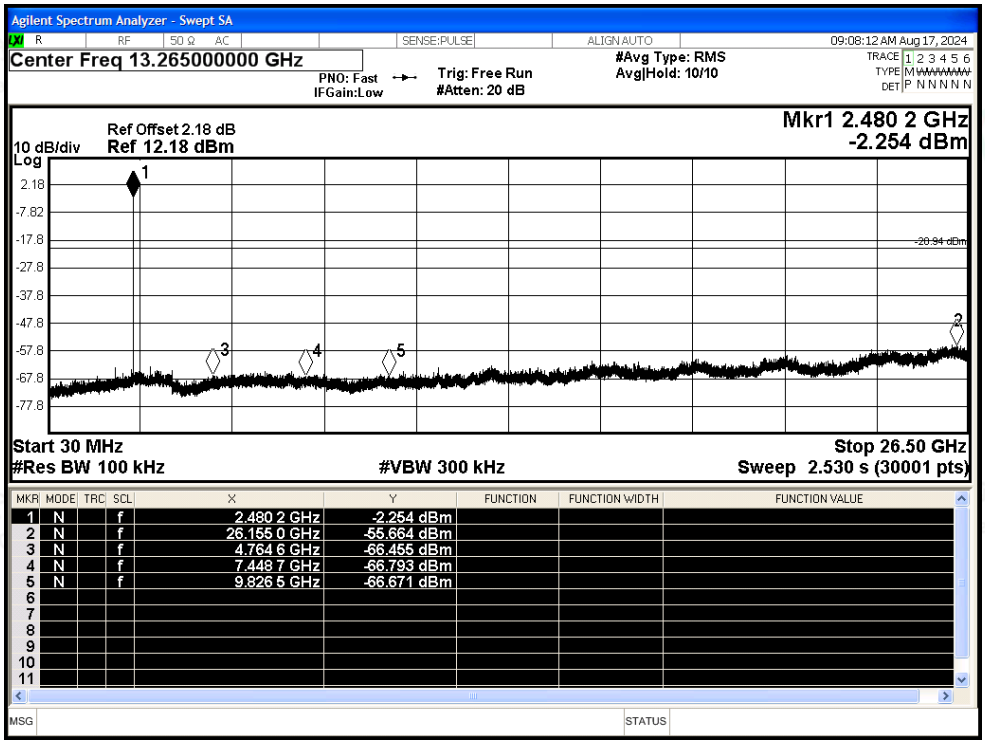
Tx. Spurious NVNT 1-DH5 2441MHz Ant Emission



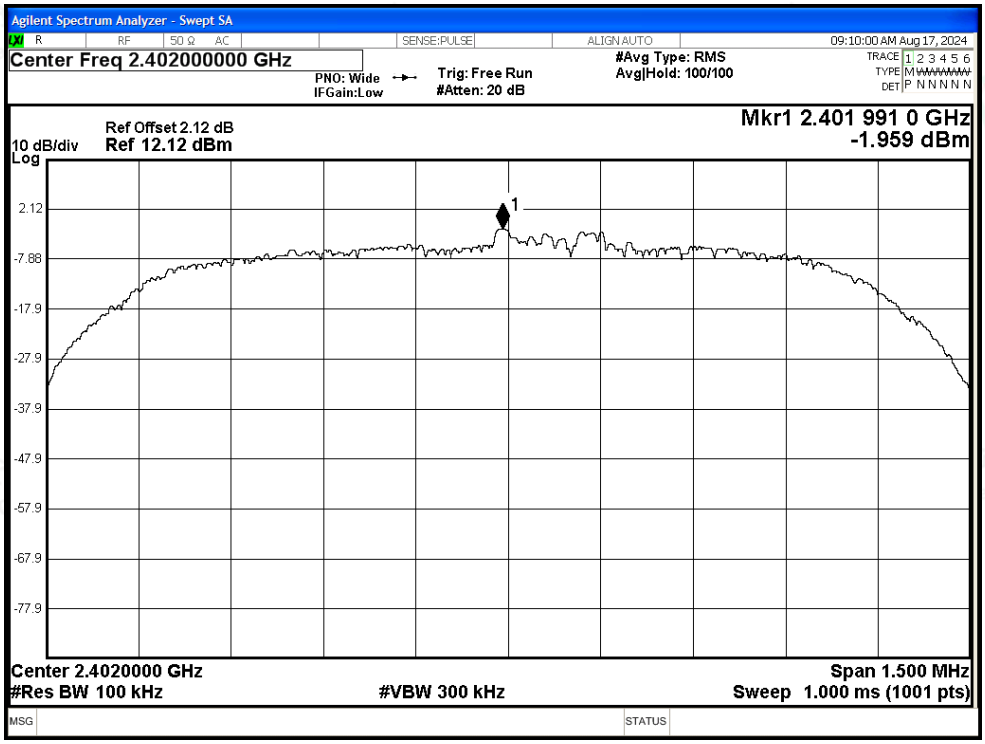
Tx. Spurious NVNT 1-DH5 2480MHz Ant Ref



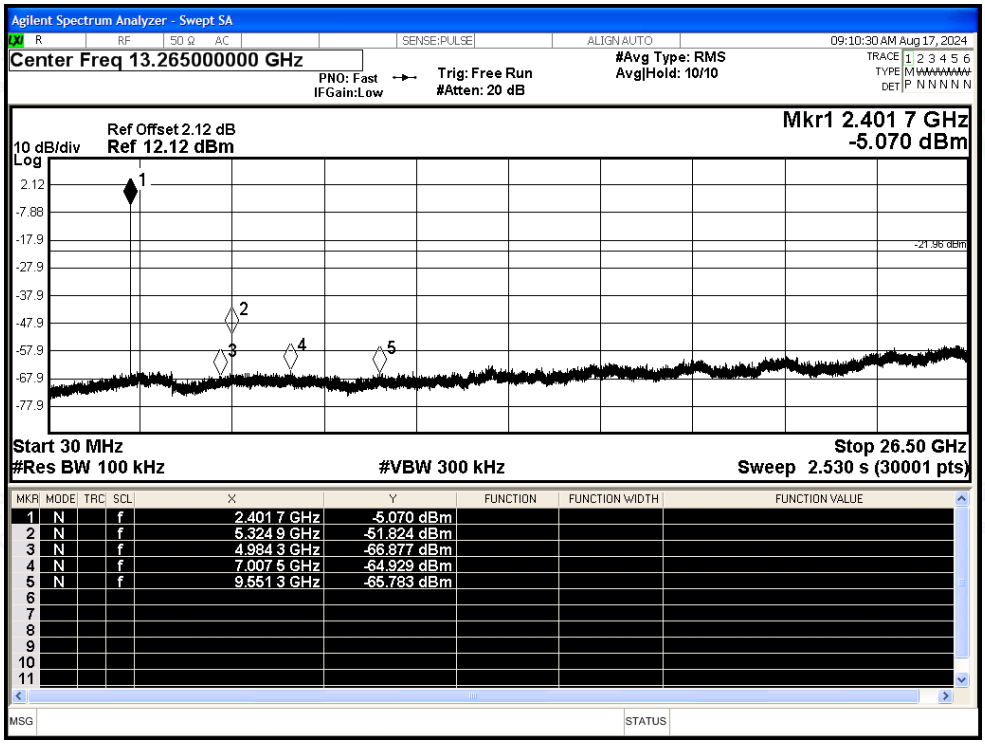
Tx. Spurious NVNT 1-DH5 2480MHz Ant Emission



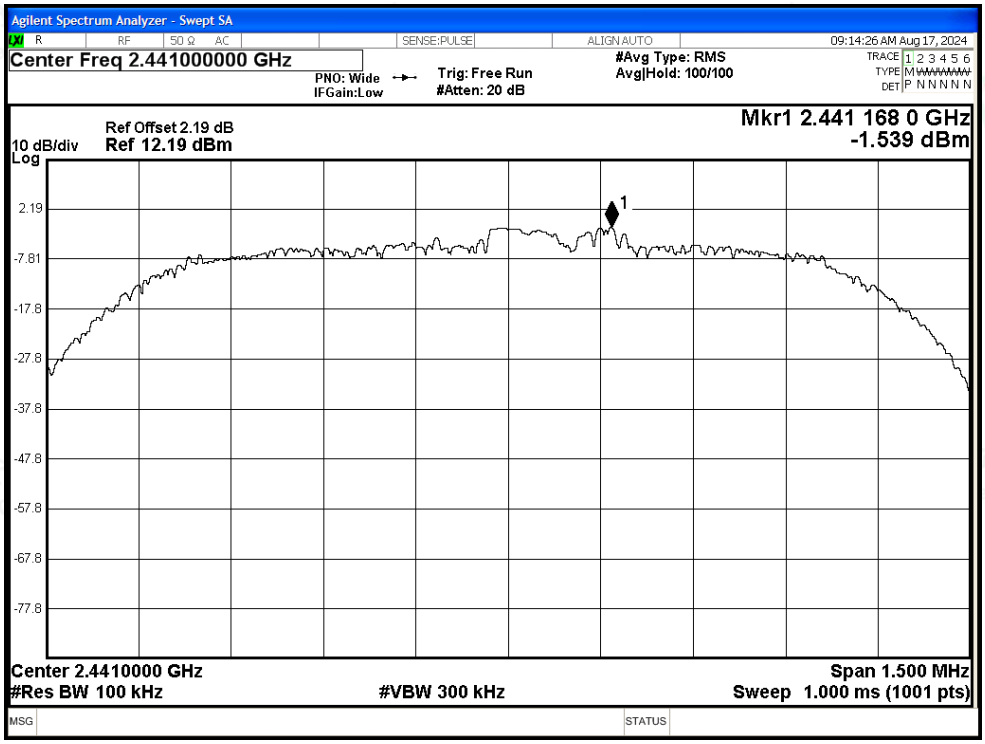
Tx. Spurious NVNT 2-DH5 2402MHz Ant Ref



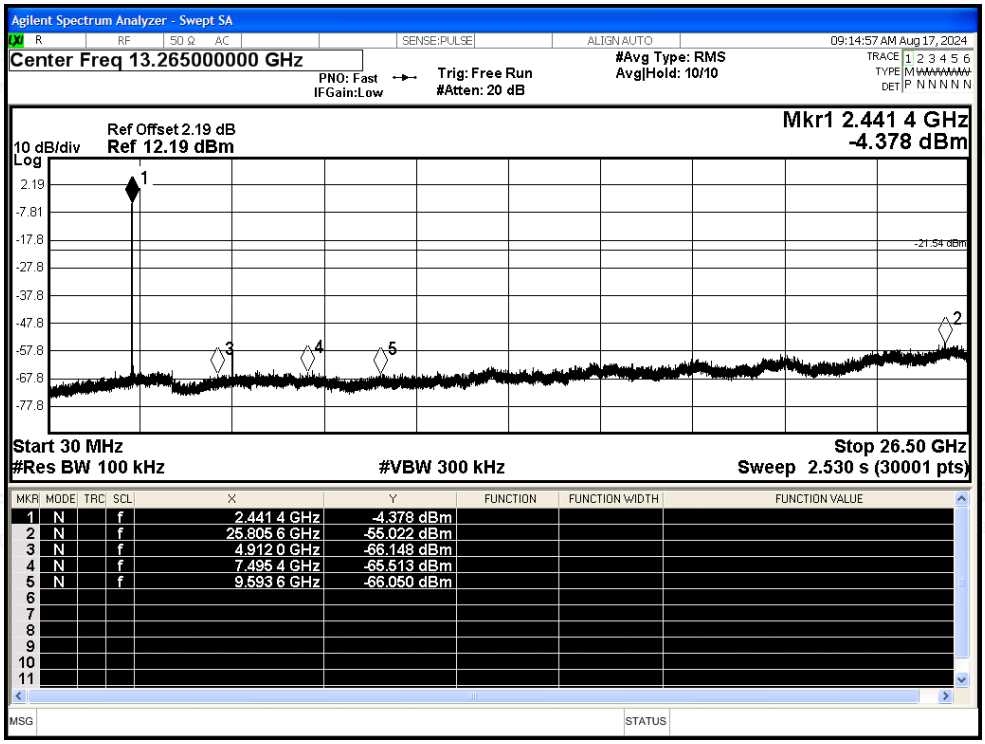
Tx. Spurious NVNT 2-DH5 2402MHz Ant Emission



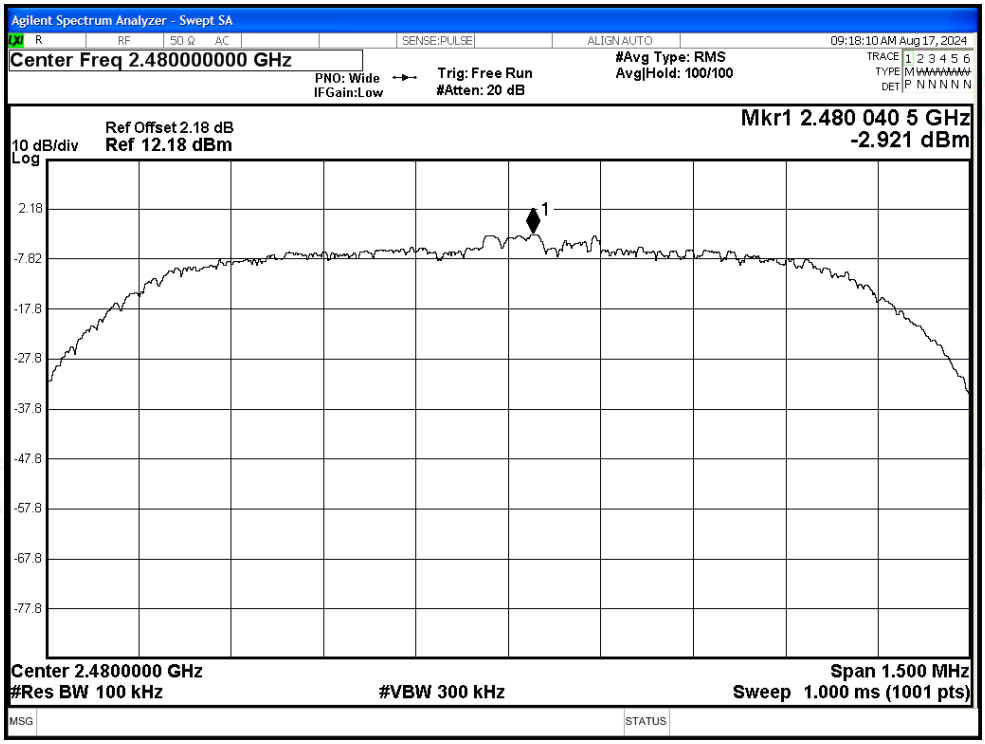
Tx. Spurious NVNT 2-DH5 2441MHz Ant Ref



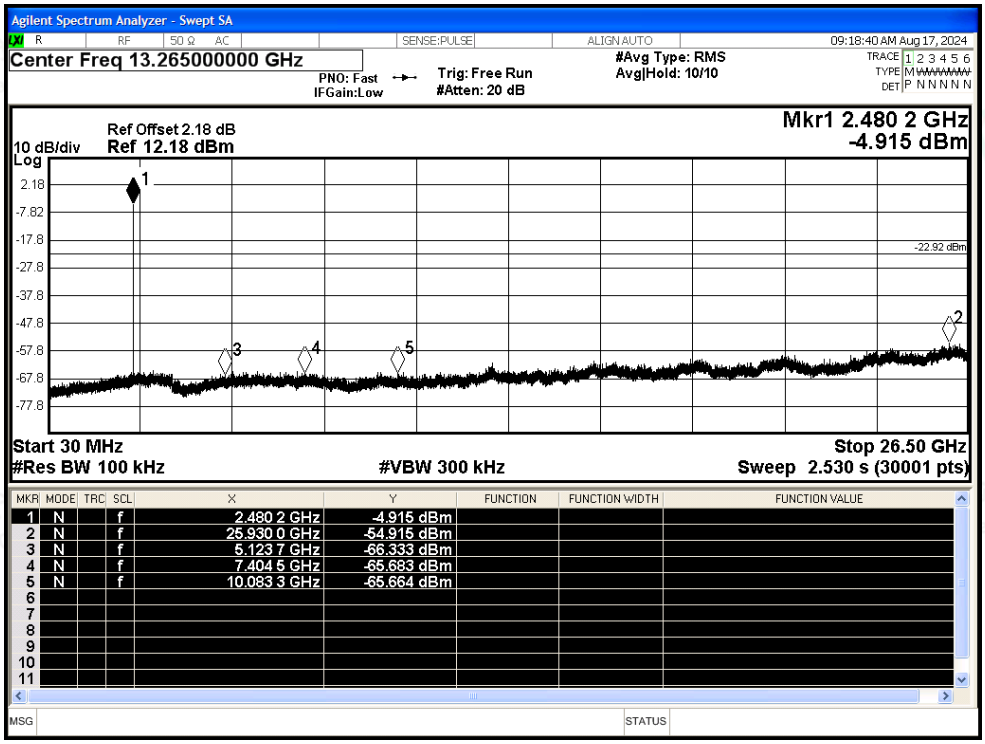
Tx. Spurious NVNT 2-DH5 2441MHz Ant Emission



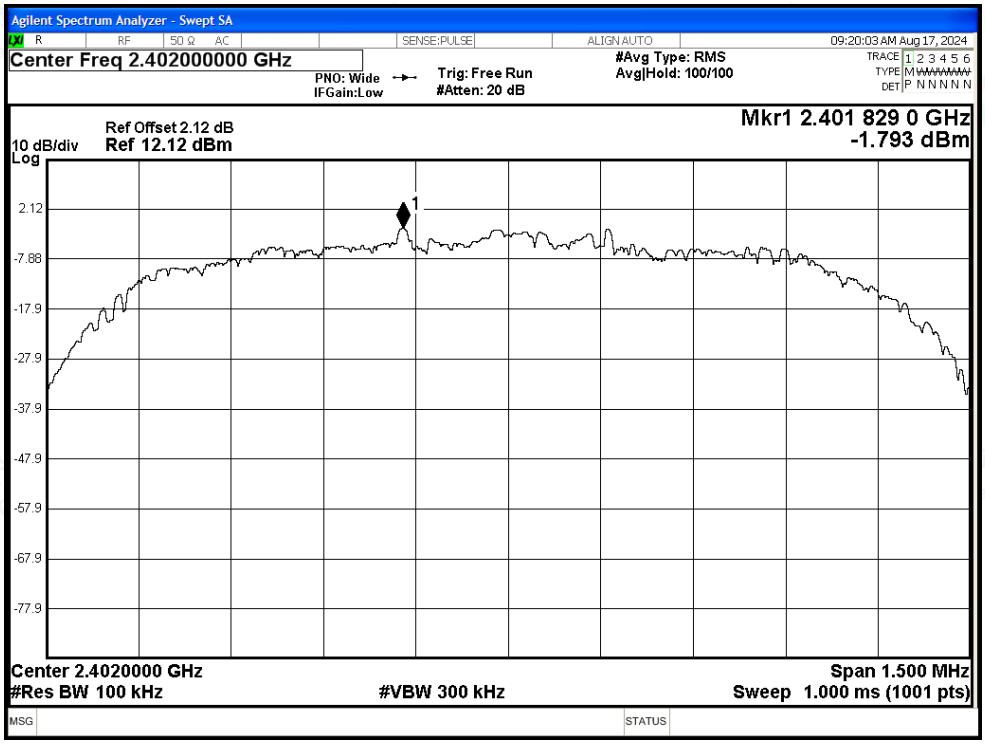
Tx. Spurious NVNT 2-DH5 2480MHz Ant Ref



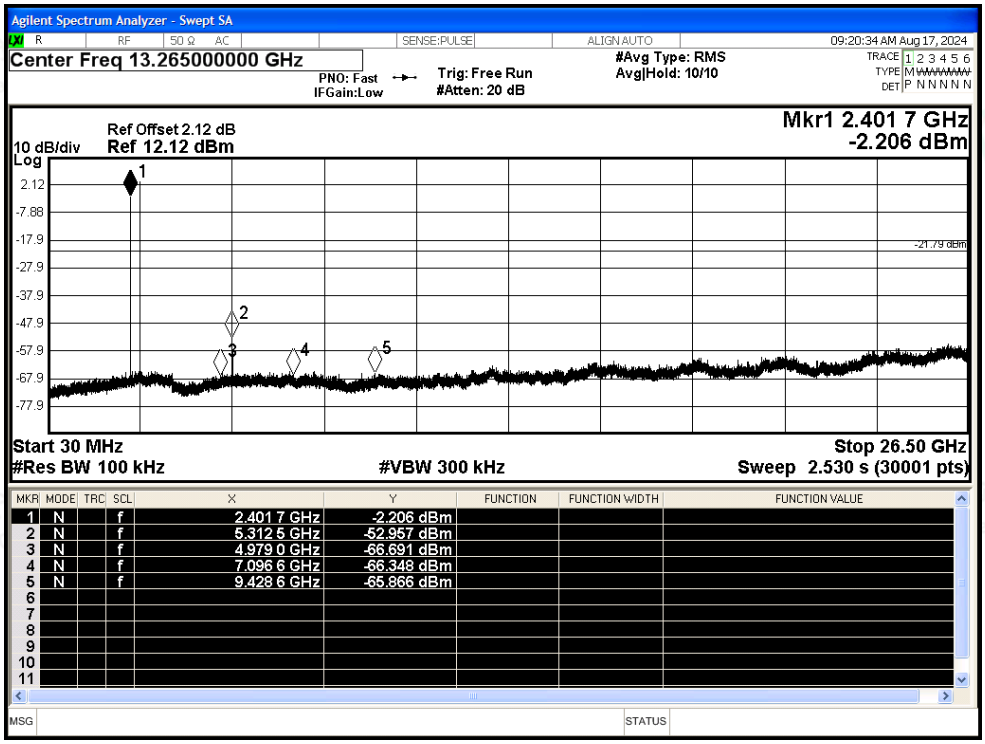
Tx. Spurious NVNT 2-DH5 2480MHz Ant Emission



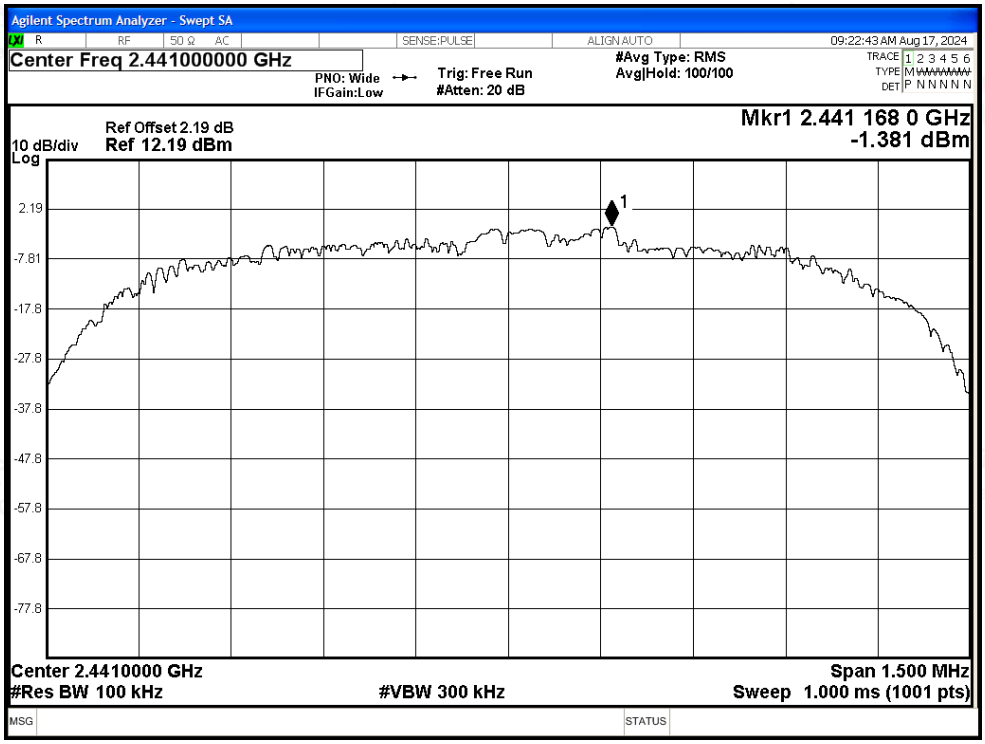
Tx. Spurious NVNT 3-DH5 2402MHz Ant Ref



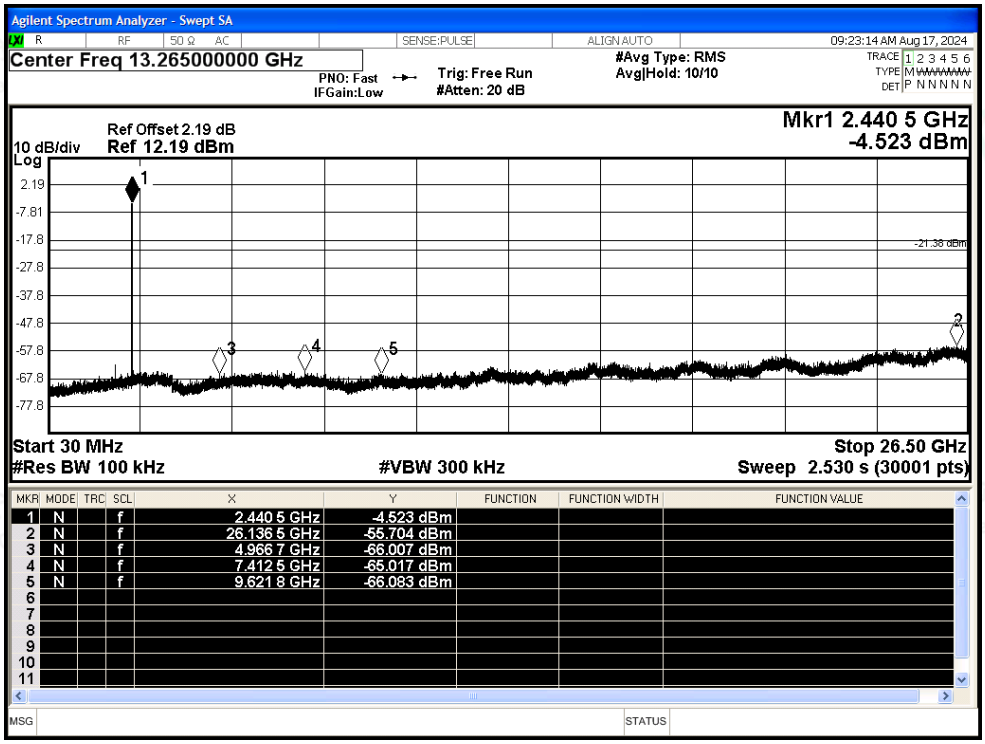
Tx. Spurious NVNT 3-DH5 2402MHz Ant Emission



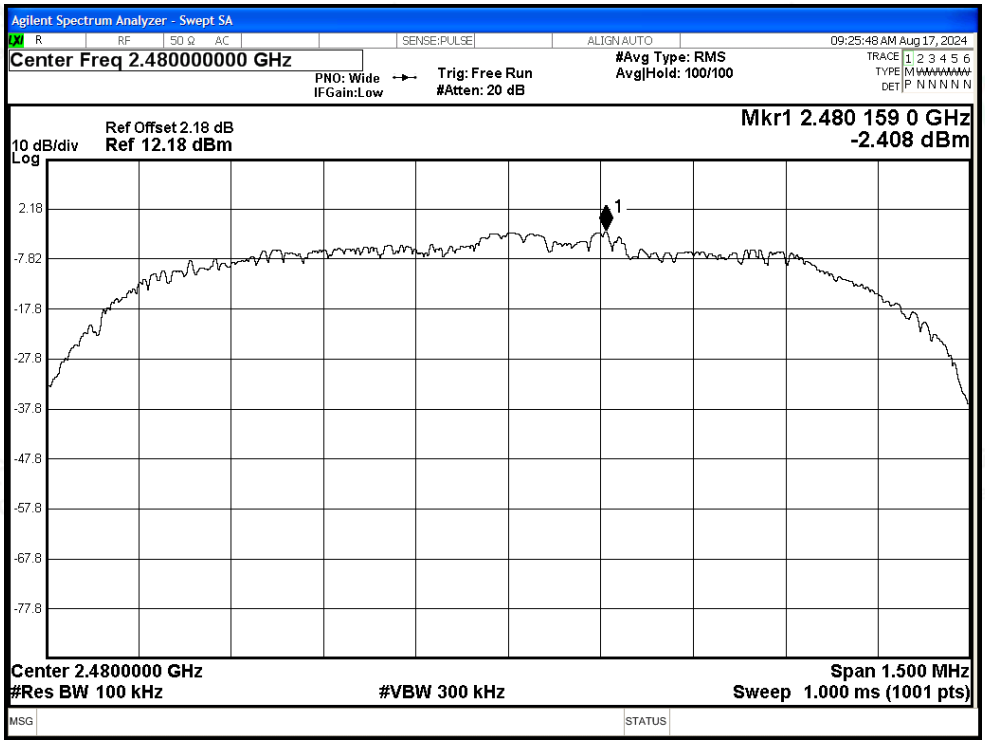
Tx. Spurious NVNT 3-DH5 2441MHz Ant Ref



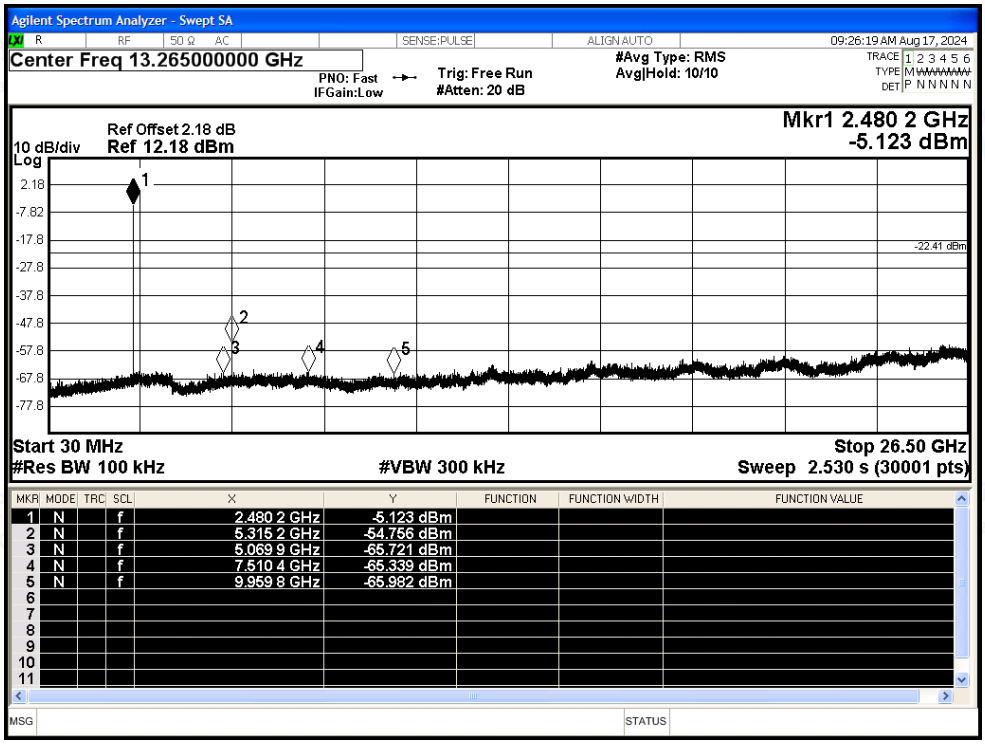
Tx. Spurious NVNT 3-DH5 2441MHz Ant Emission



Tx. Spurious NVNT 3-DH5 2480MHz Ant Ref



Tx. Spurious NVNT 3-DH5 2480MHz Ant Emission

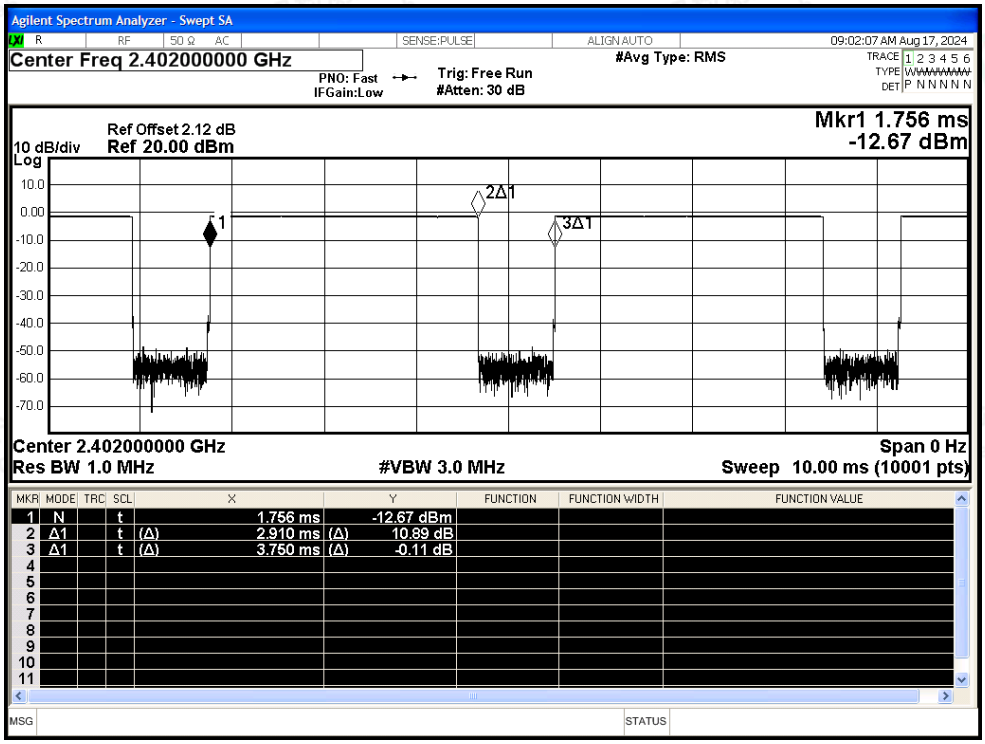


A.8 Duty Cycle

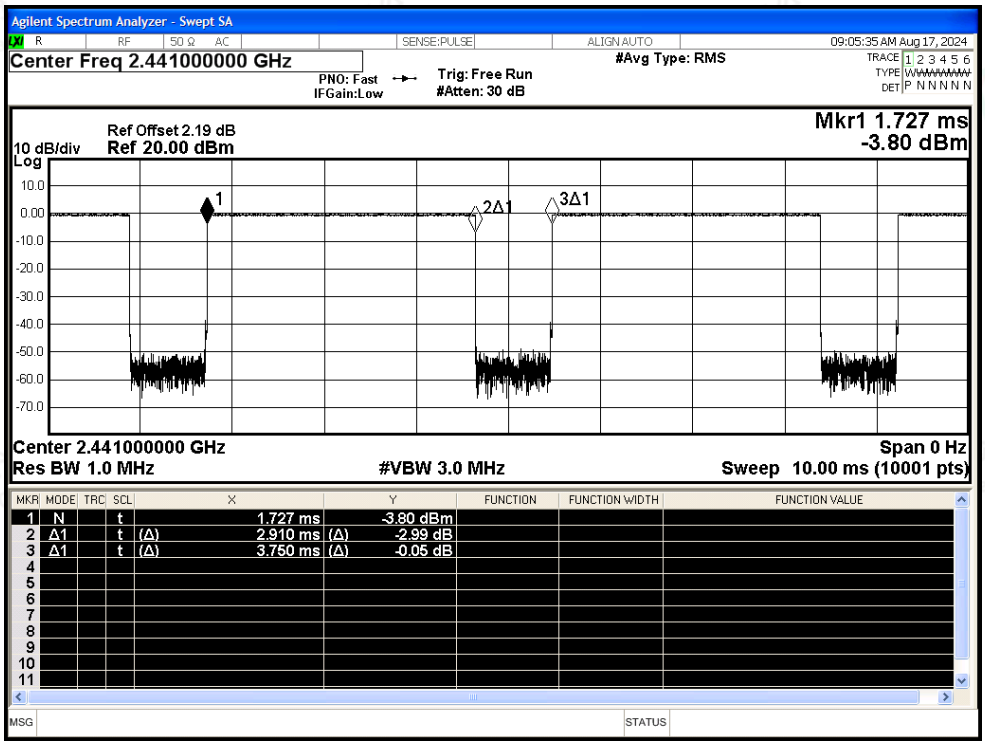
Condition	Mode	Frequency (MHz)	Antenna	Duty Cycle (%)	Correction Factor (dB)	1/T (kHz)
NVNT	1-DH5	2402	Ant	77.6	1.1	0.34
NVNT	1-DH5	2441	Ant	77.6	1.1	0.34
NVNT	1-DH5	2480	Ant	77.6	1.1	0.34
NVNT	2-DH5	2402	Ant	76.43	1.17	0.36
NVNT	2-DH5	2441	Ant	76.41	1.17	0.36
NVNT	2-DH5	2480	Ant	76.41	1.17	0.36
NVNT	3-DH5	2402	Ant	76.38	1.17	0.36
NVNT	3-DH5	2441	Ant	76.38	1.17	0.36
NVNT	3-DH5	2480	Ant	76.37	1.17	0.36

Test Graphs

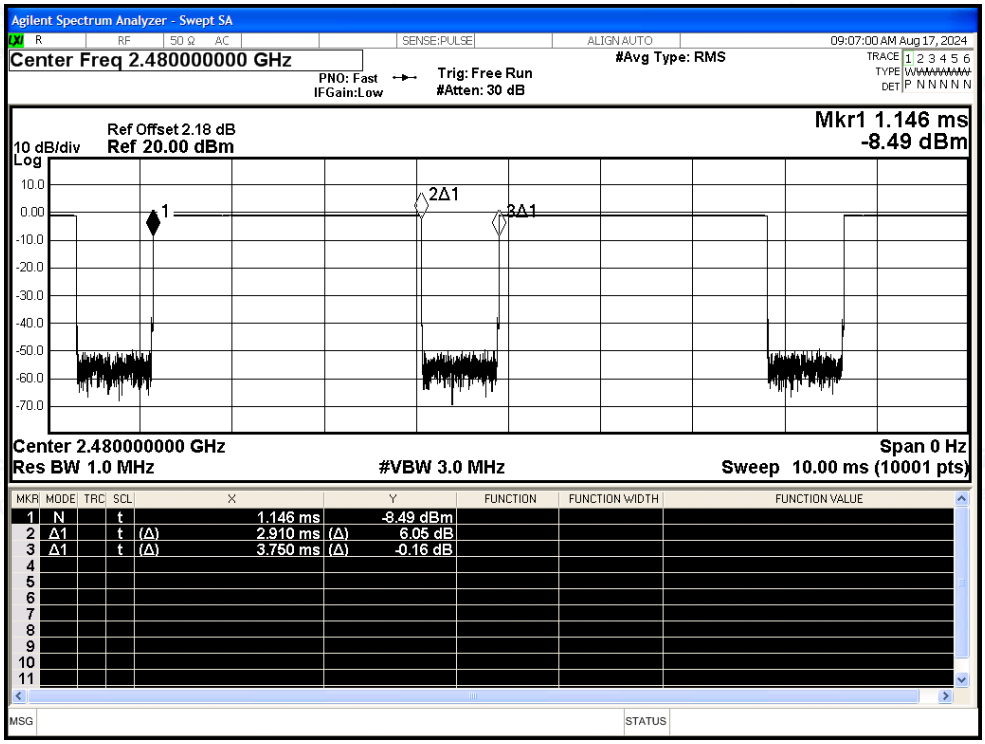
Duty Cycle NVNT 1-DH5 2402MHz Ant



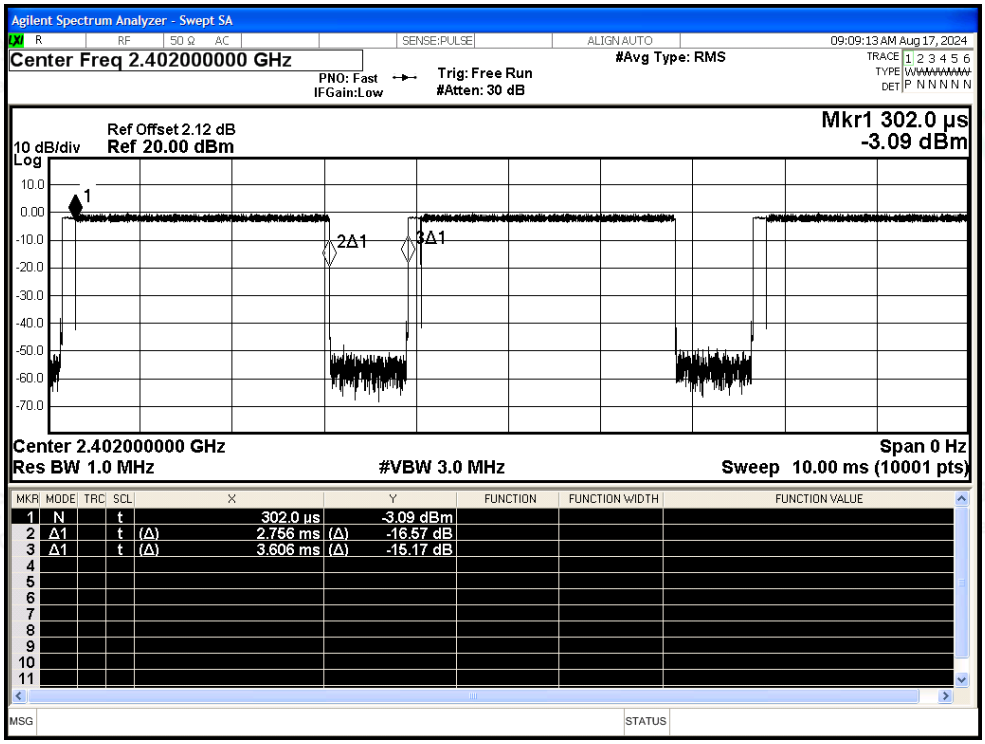
Duty Cycle NVNT 1-DH5 2441MHz Ant



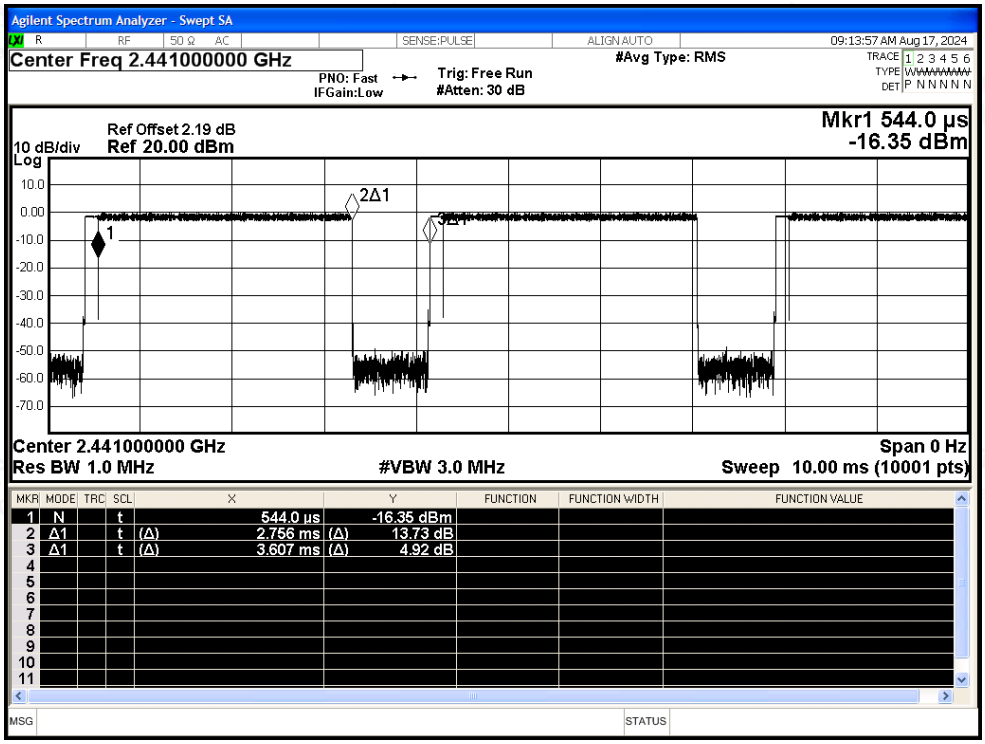
Duty Cycle NVNT 1-DH5 2480MHz Ant



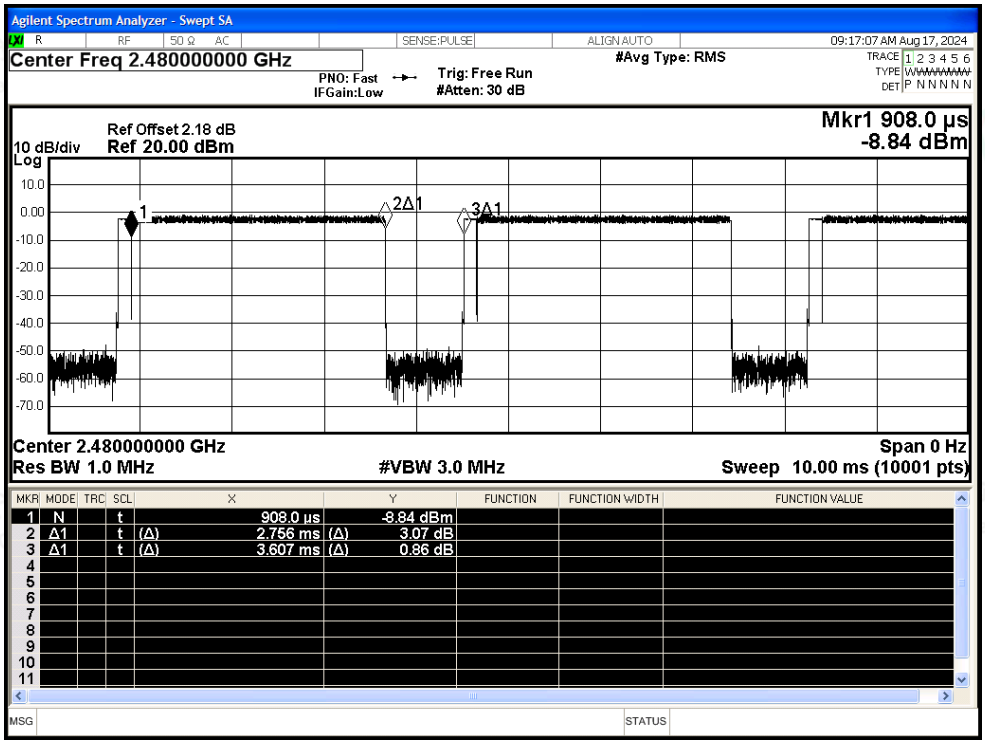
Duty Cycle NVNT 2-DH5 2402MHz Ant



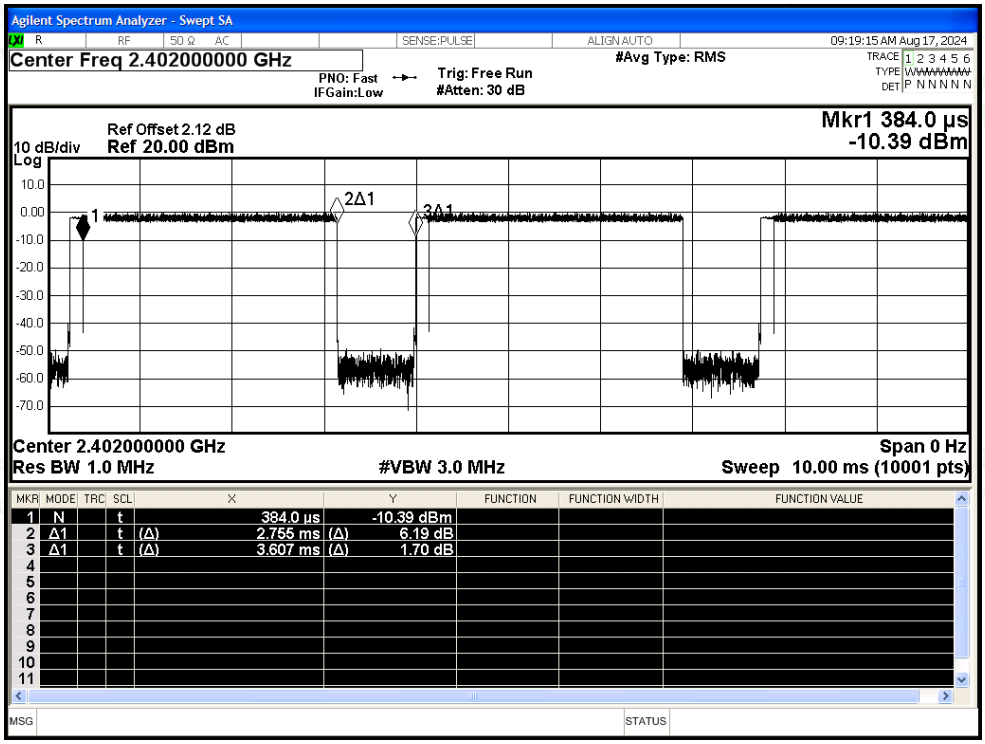
Duty Cycle NVNT 2-DH5 2441MHz Ant



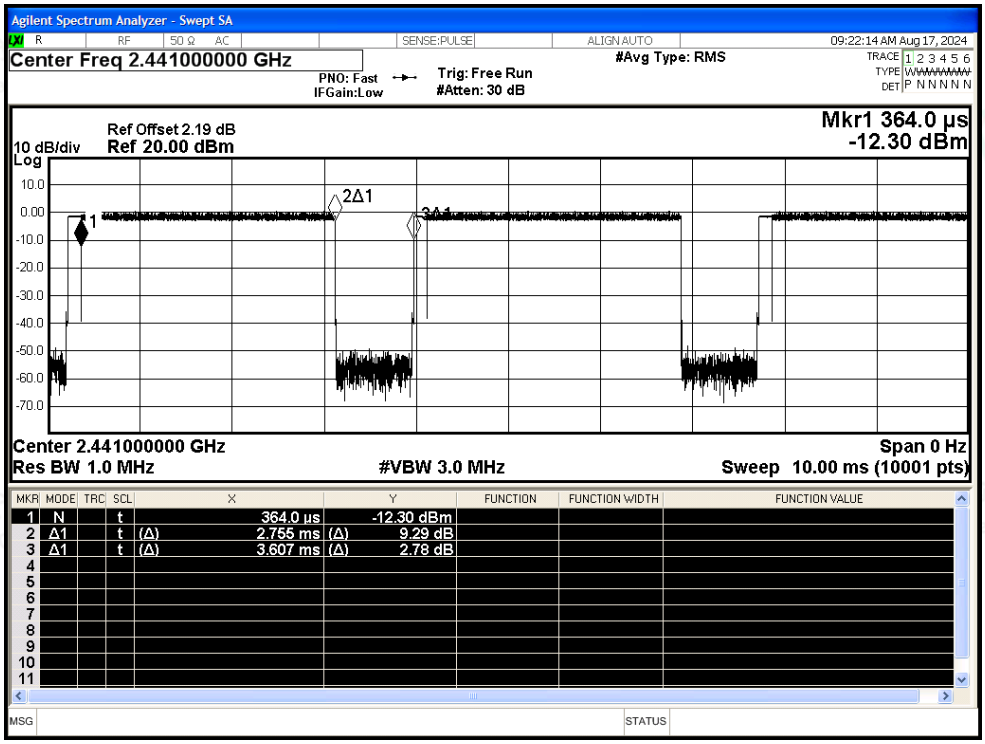
Duty Cycle NVNT 2-DH5 2480MHz Ant



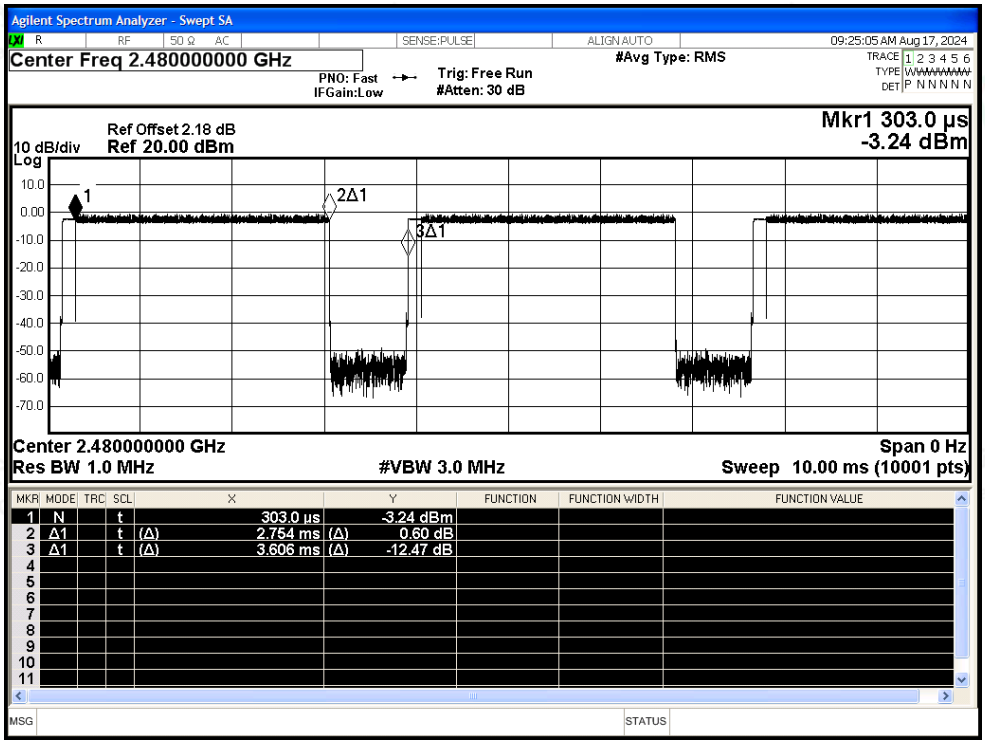
Duty Cycle NVNT 3-DH5 2402MHz Ant



Duty Cycle NVNT 3-DH5 2441MHz Ant



Duty Cycle NVNT 3-DH5 2480MHz Ant

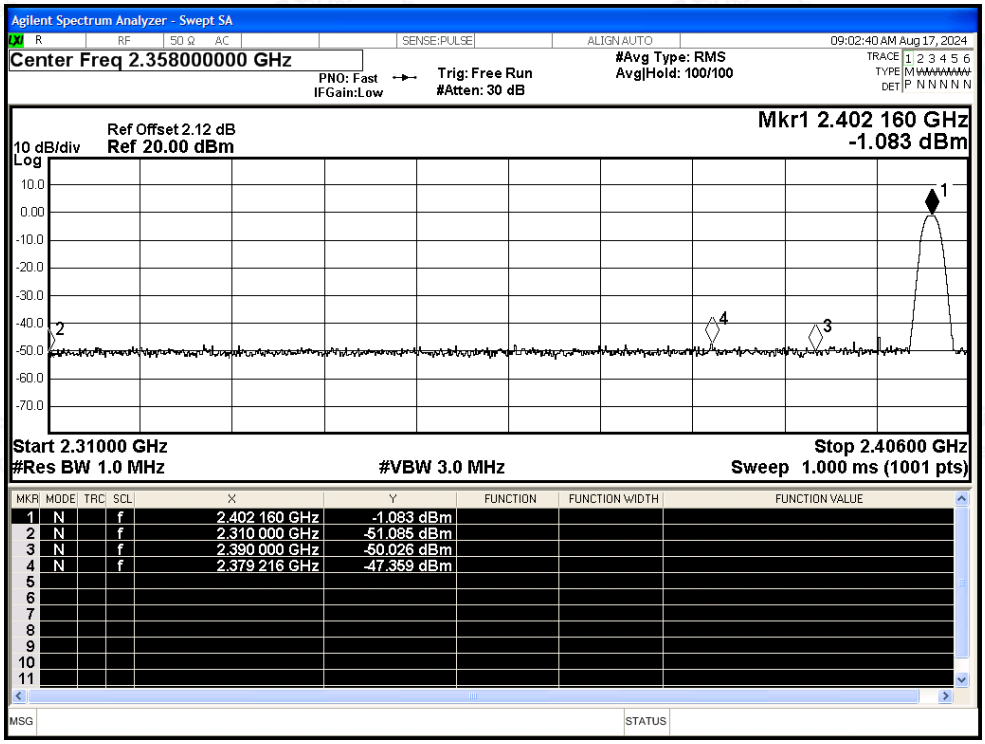


A.9 Restrict Band

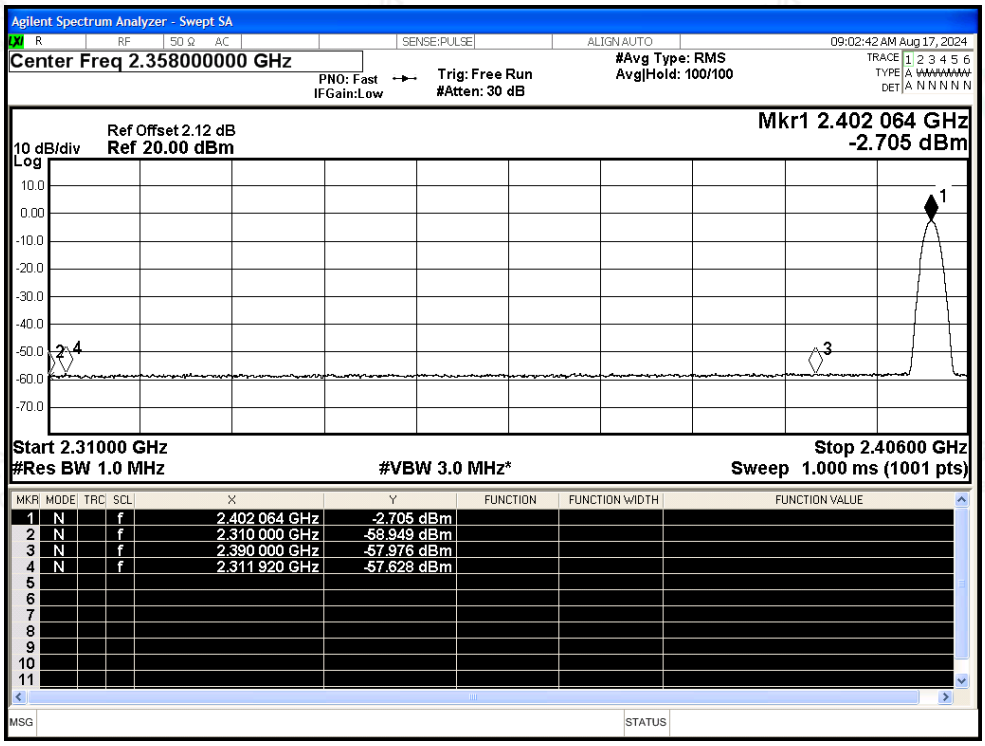
Condition	Mode	Frequency (MHz)	Antenna	Hopping Mode	Spur Freq (MHz)	Power (dBm)	Gain (dBi)	Duty Factor (dB)	E (dBuV/m)	Detector	Limit (dBuV/m)	Verdict
NVNT	1-DH5	2402	Ant	No-Hopping	2310	-51.09	2	-	46.17	Peak	74	Pass
NVNT	1-DH5	2402	Ant	No-Hopping	2310	-58.95	2	1.1	39.41	Average	54	Pass
NVNT	1-DH5	2402	Ant	No-Hopping	2379.216	-47.36	2	-	49.90	Peak	74	Pass
NVNT	1-DH5	2402	Ant	No-Hopping	2311.92	-57.63	2	1.1	40.73	Average	54	Pass
NVNT	1-DH5	2402	Ant	No-Hopping	2390	-50.03	2	-	47.23	Peak	74	Pass
NVNT	1-DH5	2402	Ant	No-Hopping	2390	-57.98	2	1.1	40.38	Average	54	Pass
NVNT	1-DH5	2480	Ant	No-Hopping	2483.5	-48.07	2	-	49.19	Peak	74	Pass
NVNT	1-DH5	2480	Ant	No-Hopping	2483.5	-57.6	2	1.1	40.76	Average	54	Pass
NVNT	1-DH5	2480	Ant	No-Hopping	2483.632	-42.72	2	-	54.54	Peak	74	Pass
NVNT	1-DH5	2480	Ant	No-Hopping	2484.376	-56.95	2	1.1	41.41	Average	54	Pass
NVNT	1-DH5	2480	Ant	No-Hopping	2500	-49.97	2	-	47.29	Peak	74	Pass
NVNT	1-DH5	2480	Ant	No-Hopping	2500	-57.98	2	1.1	40.38	Average	54	Pass
NVNT	2-DH5	2402	Ant	No-Hopping	2310	-50.88	2	-	46.38	Peak	74	Pass
NVNT	2-DH5	2402	Ant	No-Hopping	2310	-59.01	2	1.17	39.42	Average	54	Pass
NVNT	2-DH5	2402	Ant	No-Hopping	2373.648	-47.13	2	-	50.13	Peak	74	Pass
NVNT	2-DH5	2402	Ant	No-Hopping	2387.568	-57.41	2	1.17	41.02	Average	54	Pass
NVNT	2-DH5	2402	Ant	No-Hopping	2390	-50.39	2	-	46.87	Peak	74	Pass
NVNT	2-DH5	2402	Ant	No-Hopping	2390	-58.5	2	1.17	39.93	Average	54	Pass
NVNT	2-DH5	2480	Ant	No-Hopping	2483.5	-47.44	2	-	49.82	Peak	74	Pass
NVNT	2-DH5	2480	Ant	No-Hopping	2483.5	-57.14	2	1.17	41.29	Average	54	Pass
NVNT	2-DH5	2480	Ant	No-Hopping	2484.88	-46.38	2	-	50.88	Peak	74	Pass
NVNT	2-DH5	2480	Ant	No-Hopping	2497.864	-56.93	2	1.17	41.50	Average	54	Pass
NVNT	2-DH5	2480	Ant	No-Hopping	2500	-52.15	2	-	45.11	Peak	74	Pass
NVNT	2-DH5	2480	Ant	No-Hopping	2500	-57.93	2	1.17	40.50	Average	54	Pass
NVNT	3-DH5	2402	Ant	No-Hopping	2310	-51.08	2	-	46.18	Peak	74	Pass
NVNT	3-DH5	2402	Ant	No-Hopping	2310	-58.68	2	1.17	39.75	Average	54	Pass
NVNT	3-DH5	2402	Ant	No-Hopping	2389.968	-47.26	2	-	50.00	Peak	74	Pass
NVNT	3-DH5	2402	Ant	No-Hopping	2368.272	-57.8	2	1.17	40.63	Average	54	Pass
NVNT	3-DH5	2402	Ant	No-Hopping	2390	-47.26	2	-	50.00	Peak	74	Pass
NVNT	3-DH5	2402	Ant	No-Hopping	2390	-58.78	2	1.17	39.65	Average	54	Pass
NVNT	3-DH5	2480	Ant	No-Hopping	2483.5	-48.76	2	-	48.50	Peak	74	Pass
NVNT	3-DH5	2480	Ant	No-Hopping	2483.5	-57.46	2	1.17	40.97	Average	54	Pass
NVNT	3-DH5	2480	Ant	No-Hopping	2483.872	-44.13	2	-	53.13	Peak	74	Pass
NVNT	3-DH5	2480	Ant	No-Hopping	2483.536	-56.97	2	1.17	41.46	Average	54	Pass
NVNT	3-DH5	2480	Ant	No-Hopping	2500	-50.5	2	-	46.76	Peak	74	Pass
NVNT	3-DH5	2480	Ant	No-Hopping	2500	-57.48	2	1.17	40.95	Average	54	Pass

Test Graphs

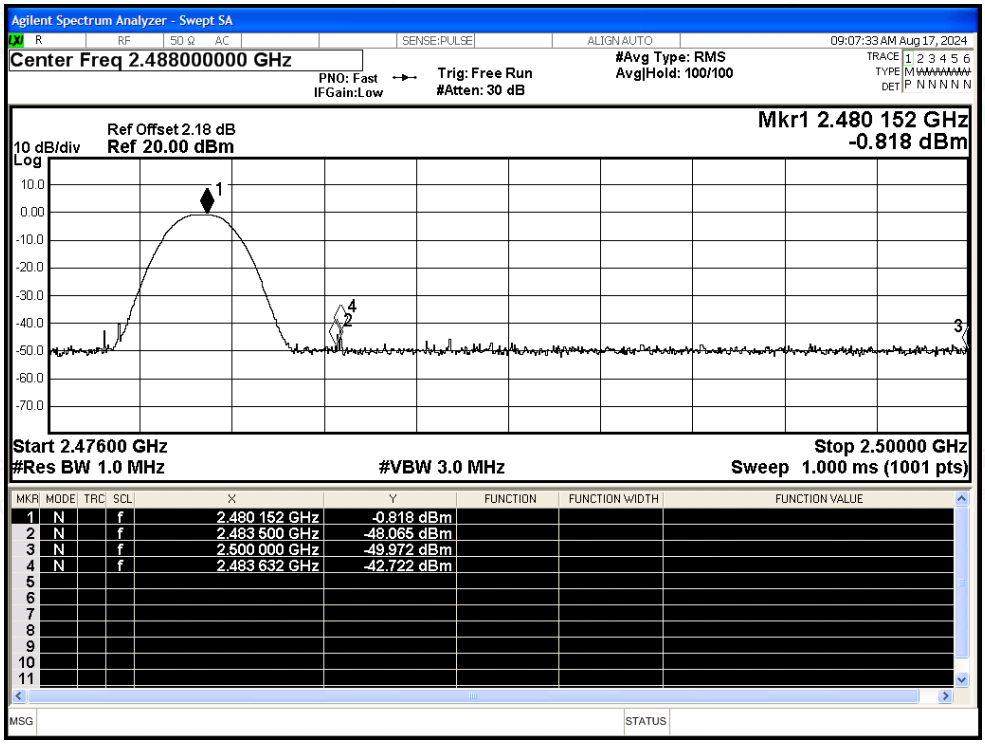
Restrict Band NVNT 1-DH5 2402MHz Ant No-Hopping Peak



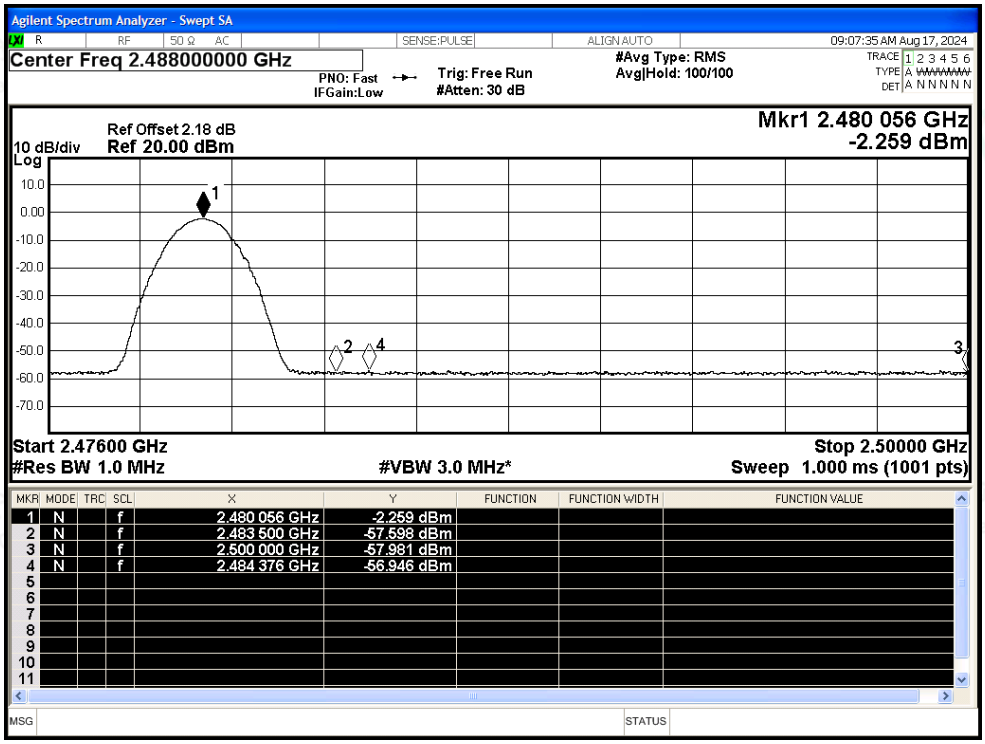
Restrict Band NVNT 1-DH5 2402MHz Ant No-Hopping Average



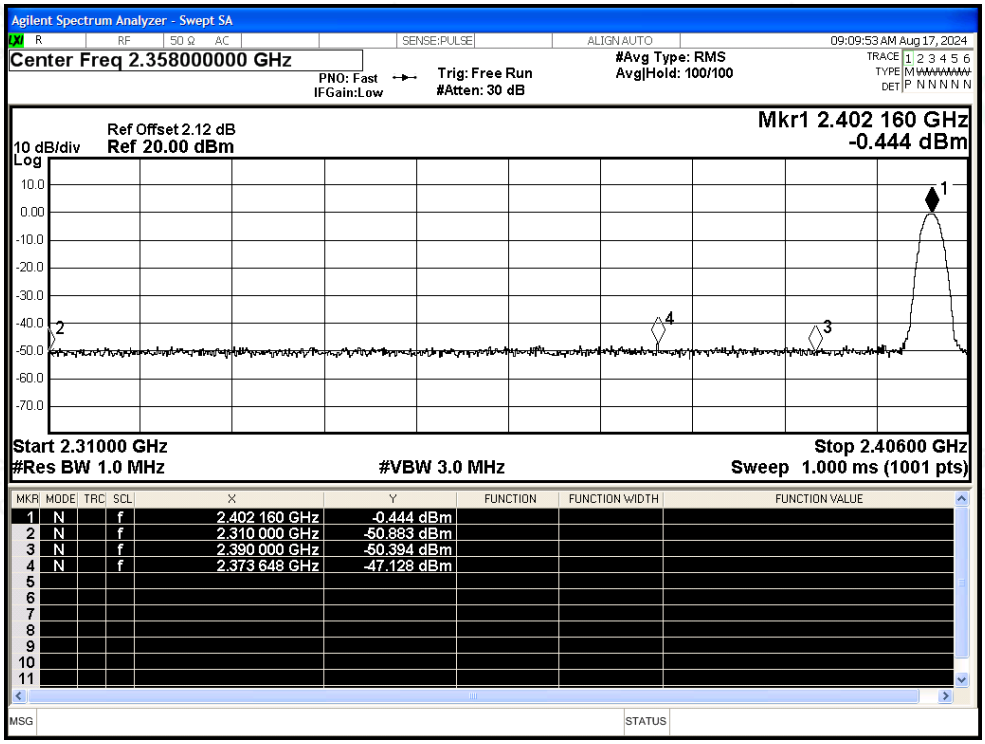
Restrict Band NVNT 1-DH5 2480MHz Ant No-Hopping Peak



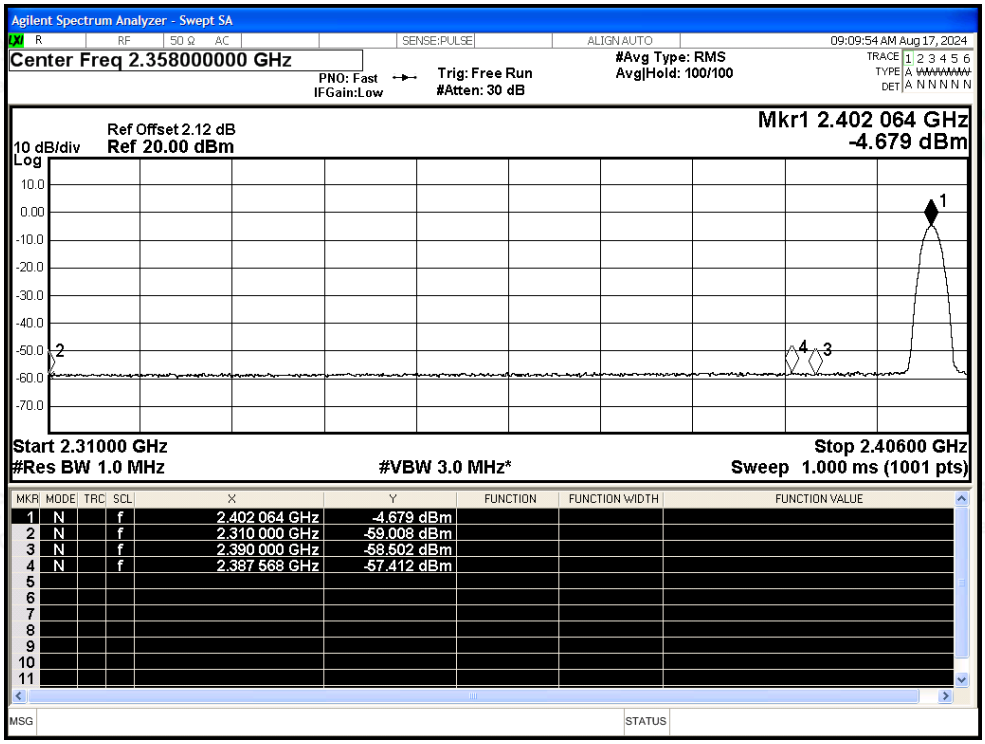
Restrict Band NVNT 1-DH5 2480MHz Ant No-Hopping Average



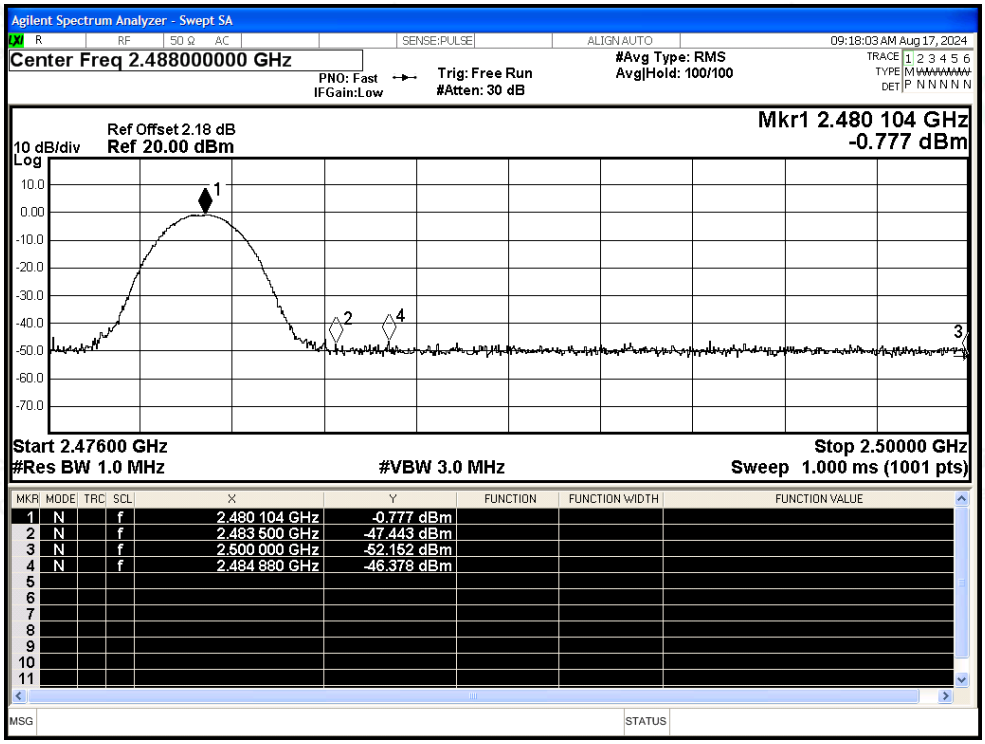
Restrict Band NVNT 2-DH5 2402MHz Ant No-Hopping Peak



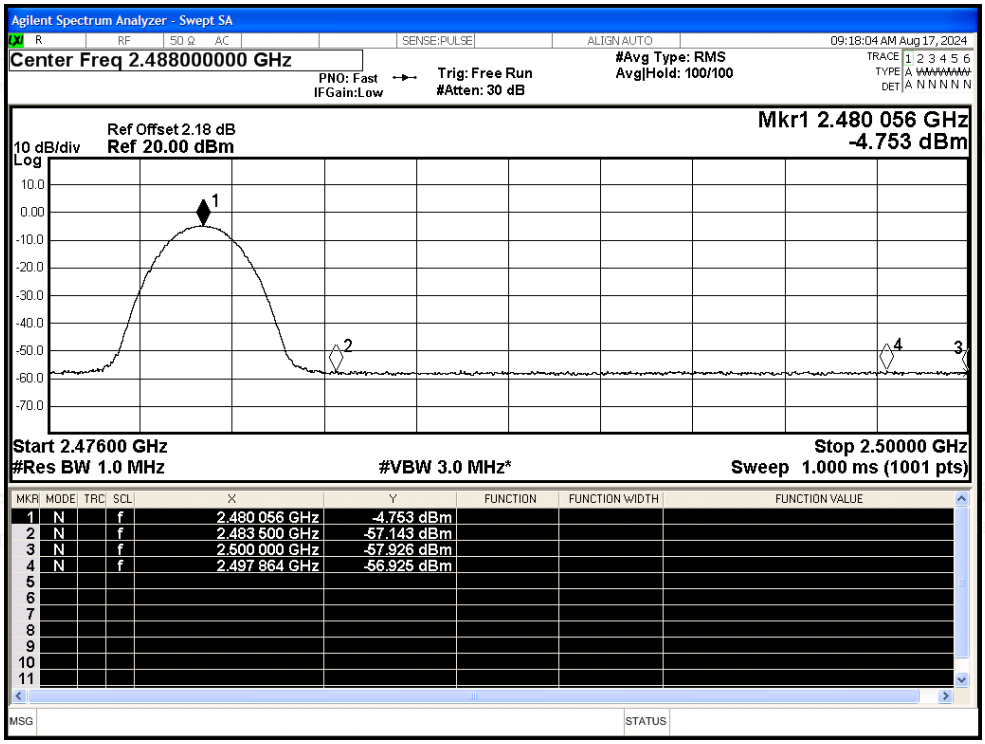
Restrict Band NVNT 2-DH5 2402MHz Ant No-Hopping Average



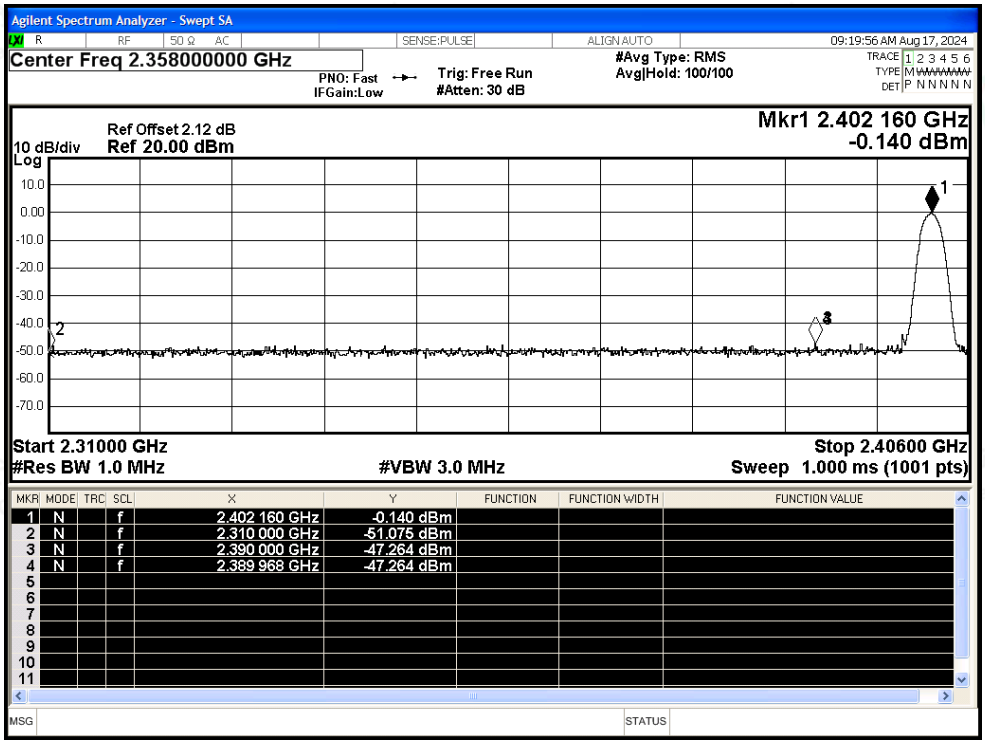
Restrict Band NVNT 2-DH5 2480MHz Ant No-Hopping Peak



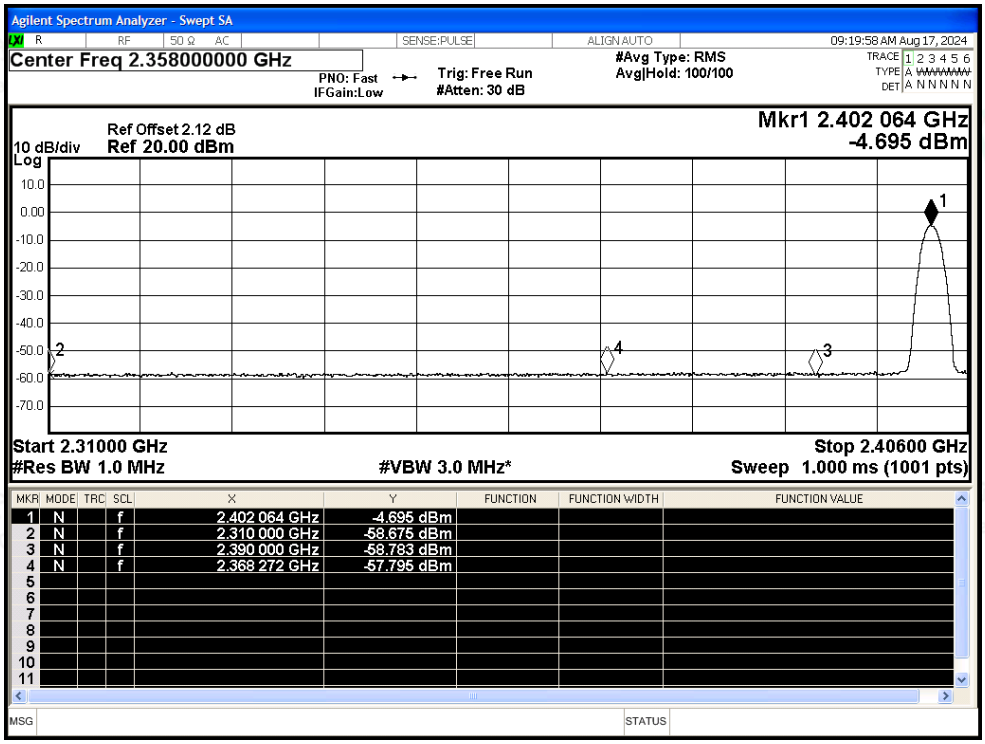
Restrict Band NVNT 2-DH5 2480MHz Ant No-Hopping Average



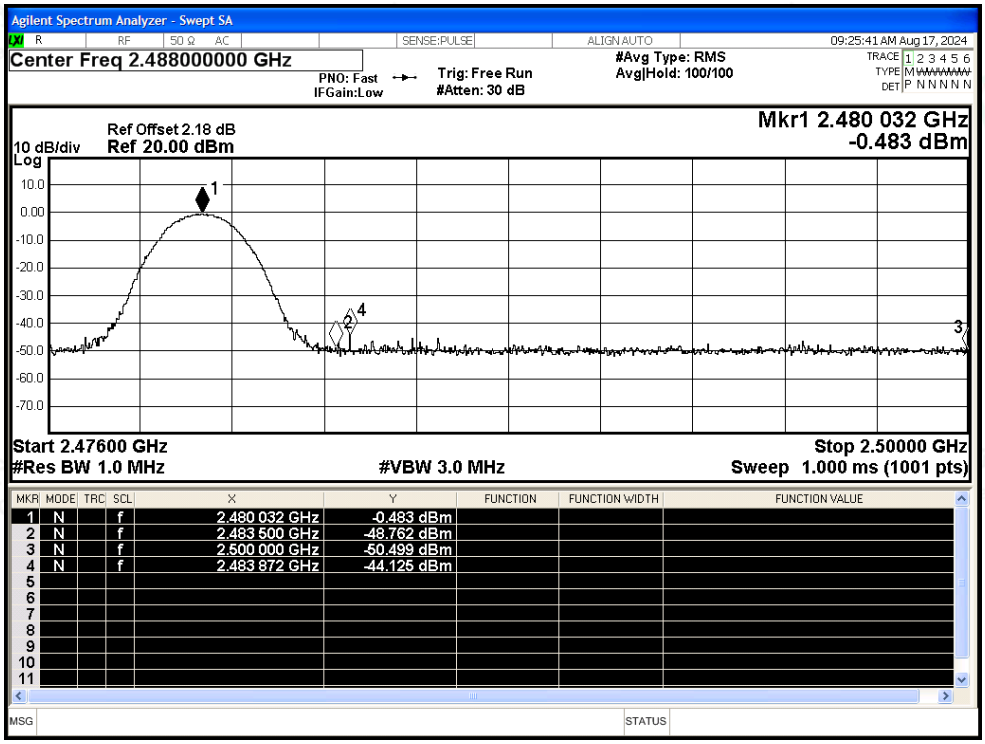
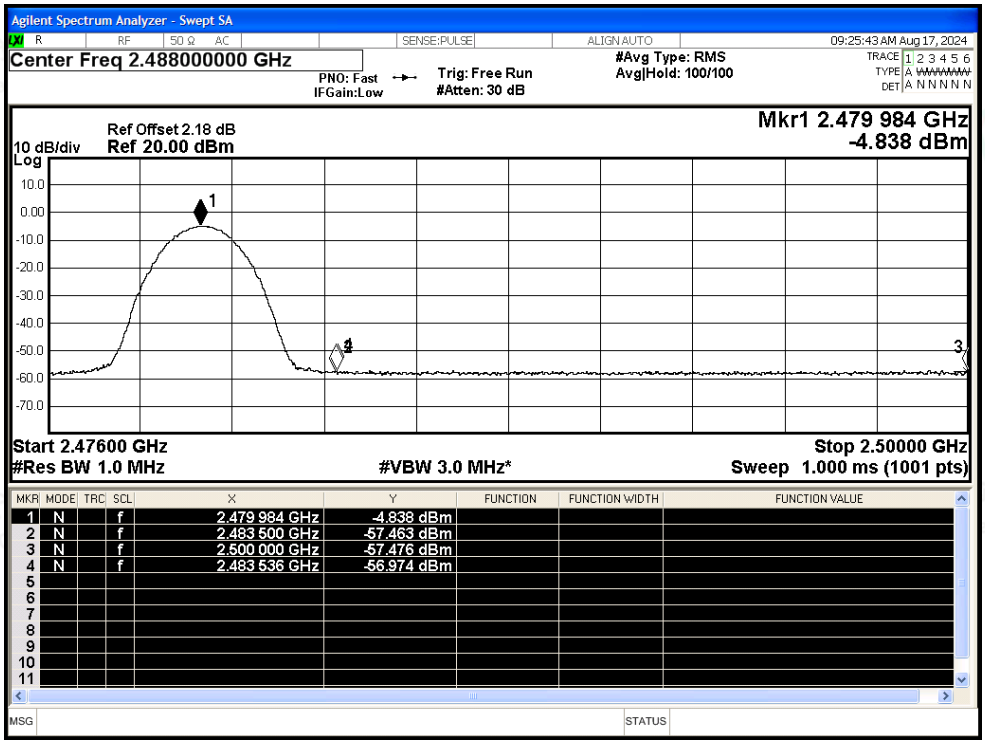
Restrict Band NVNT 3-DH5 2402MHz Ant No-Hopping Peak



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