Appendix A

RF Test Data for BT (Conducted Measurement)

Product Name: Ture wireless earbuds

Test Model: C11

Environmental Conditions

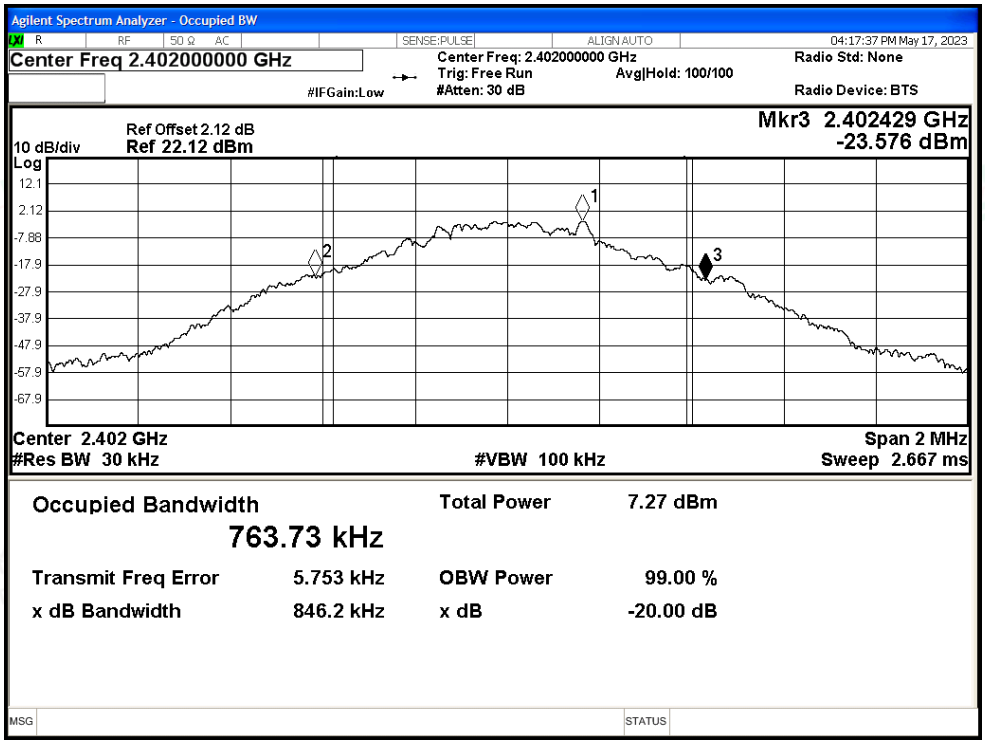
Temperature:	23.8° C
Relative Humidity:	52.1%
ATM Pressure:	100.0 kPa
Test Engineer:	Taylor Hu
Supervised by:	Ling Zhu

A.1 -20dB Bandwidth

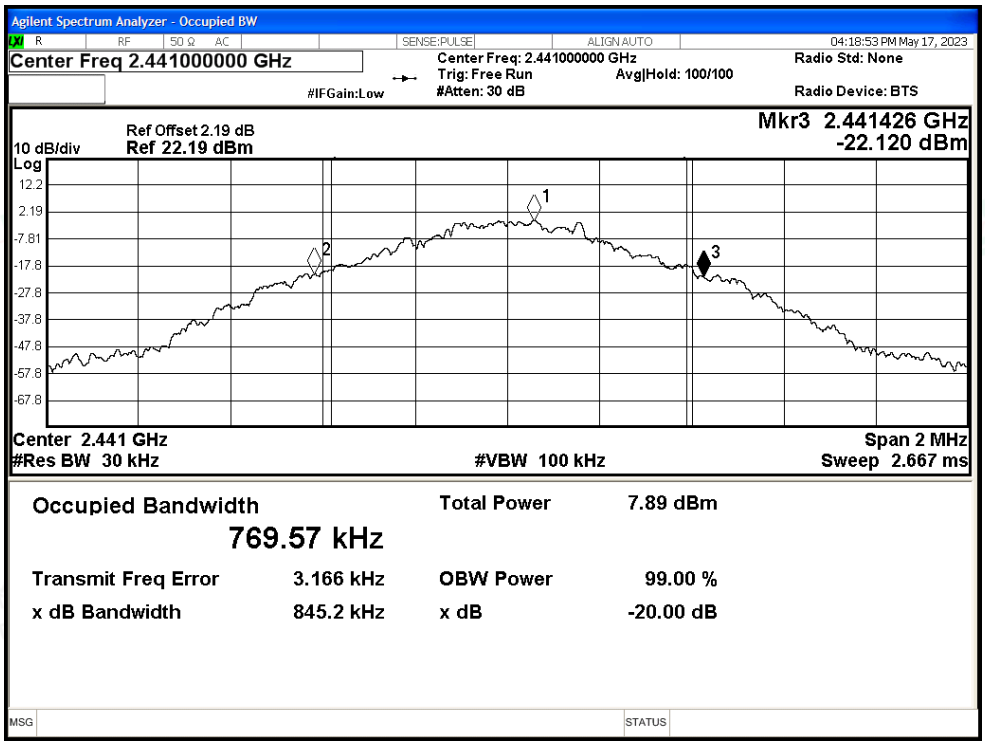
Condition	Mode	Frequency (MHz)	Antenna	-20 dB Bandwidth (MHz)	Verdict
NVNT	1-DH5	2402	Ant	0.846	Pass
NVNT	1-DH5	2441	Ant	0.845	Pass
NVNT	1-DH5	2480	Ant	0.859	Pass
NVNT	2-DH5	2402	Ant	1.285	Pass
NVNT	2-DH5	2441	Ant	1.312	Pass
NVNT	2-DH5	2480	Ant	1.308	Pass
NVNT	3-DH5	2402	Ant	1.298	Pass
NVNT	3-DH5	2441	Ant	1.312	Pass
NVNT	3-DH5	2480	Ant	1.297	Pass

Test Graphs

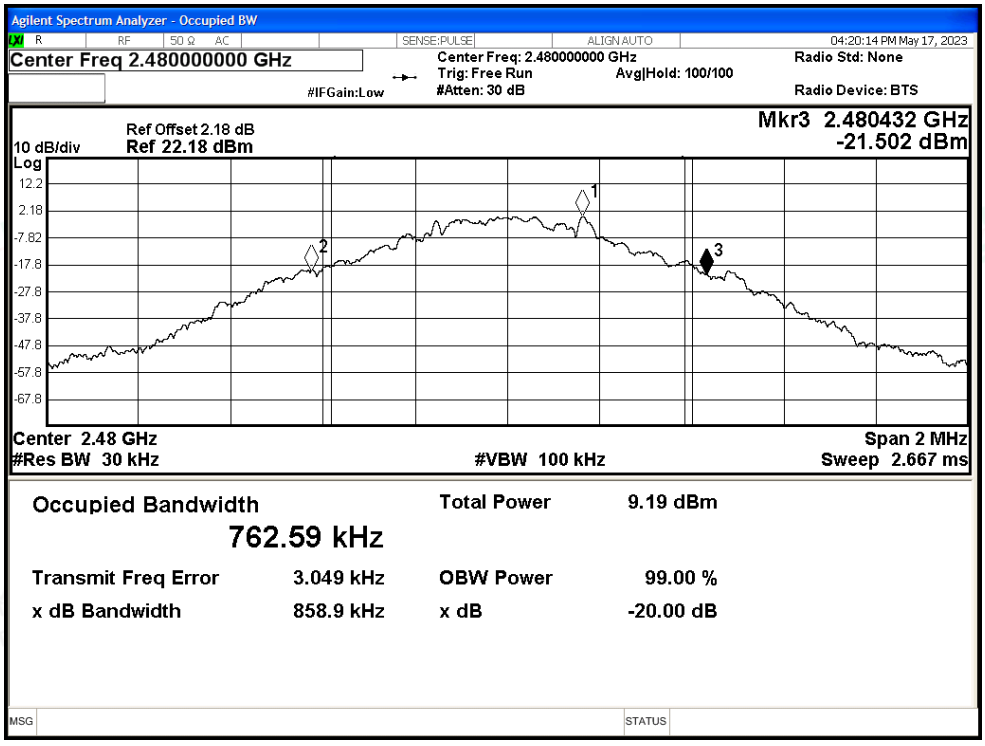
-20dB Bandwidth NVNT 1-DH5 2402MHz Ant



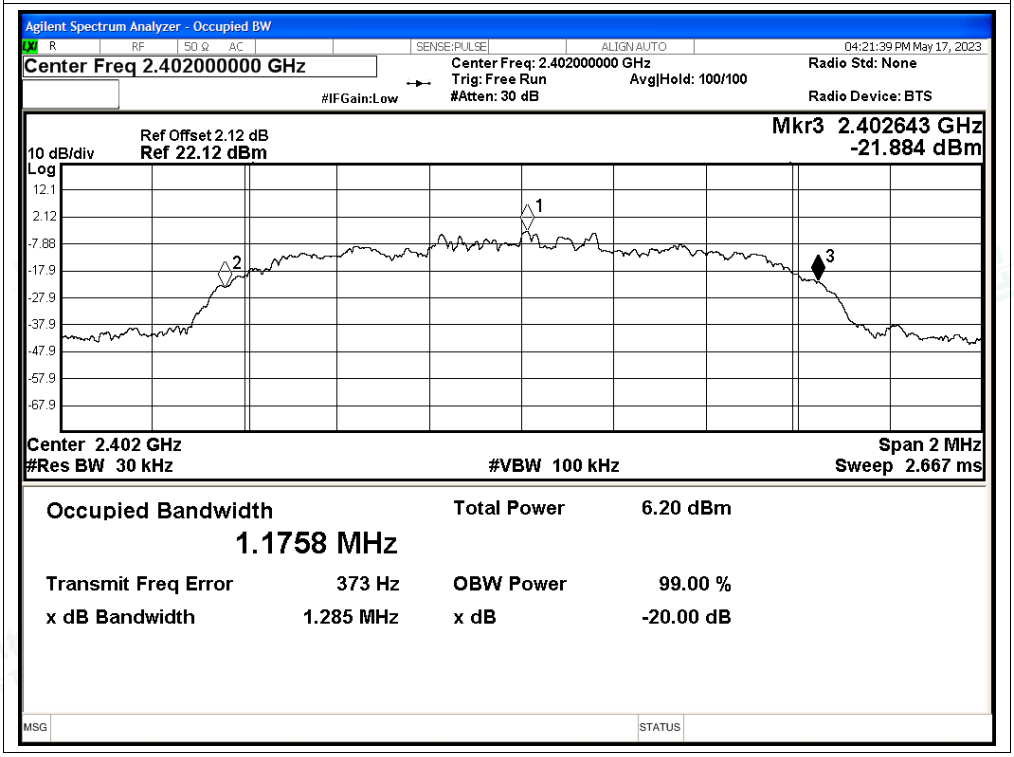
-20dB Bandwidth NVNT 1-DH5 2441MHz Ant



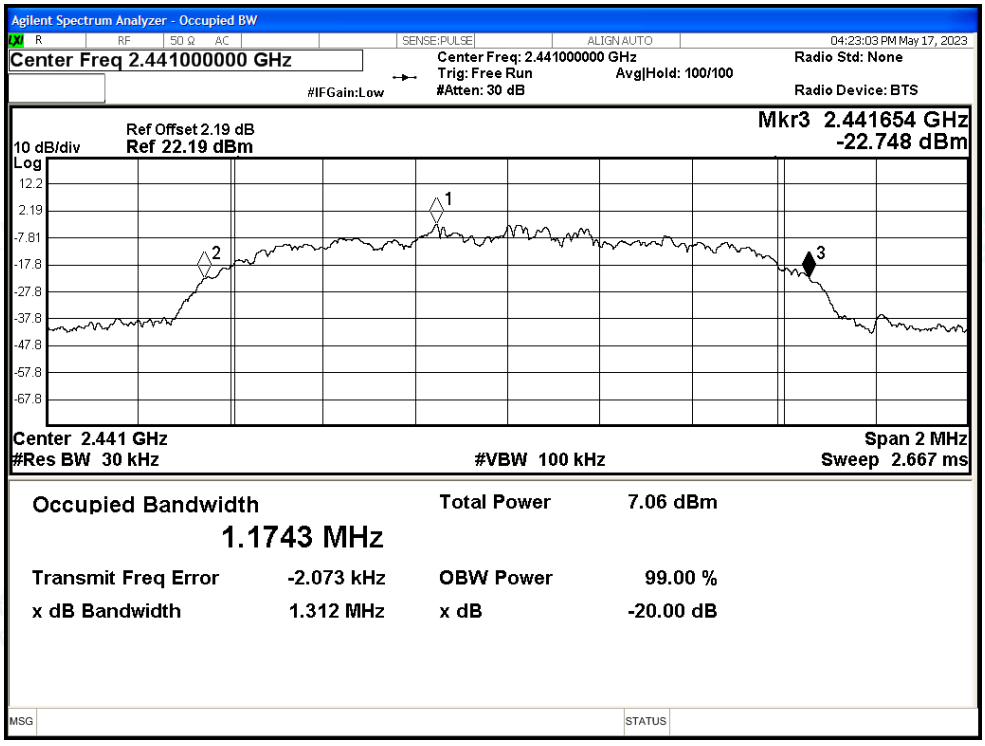
-20dB Bandwidth NVNT 1-DH5 2480MHz Ant



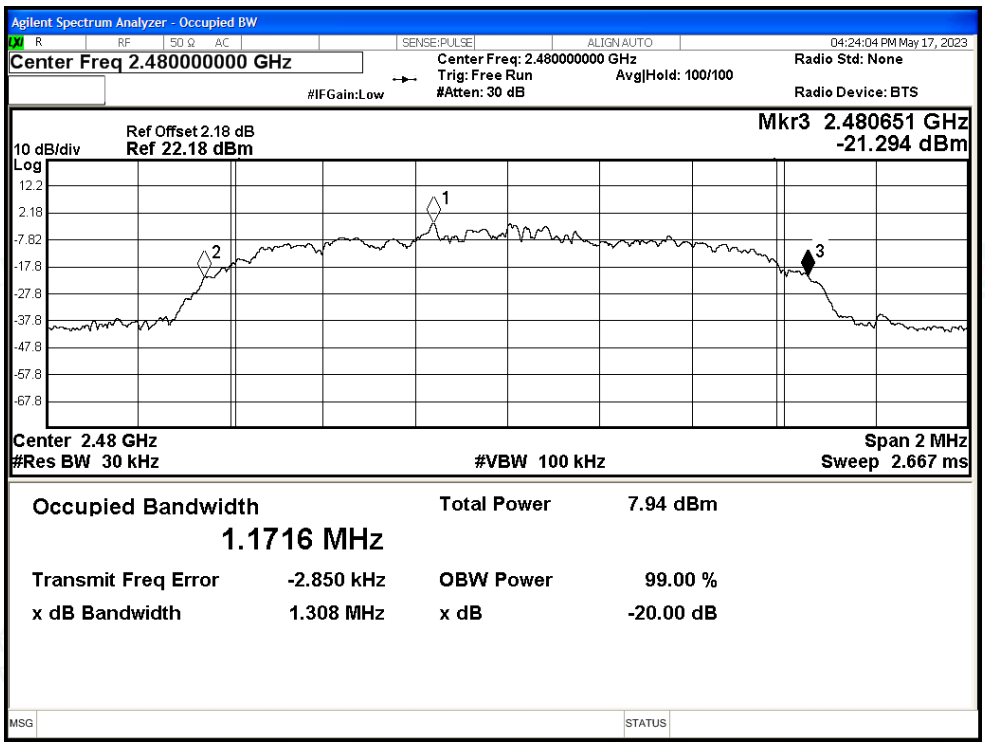
-20dB Bandwidth NVNT 2-DH5 2402MHz Ant



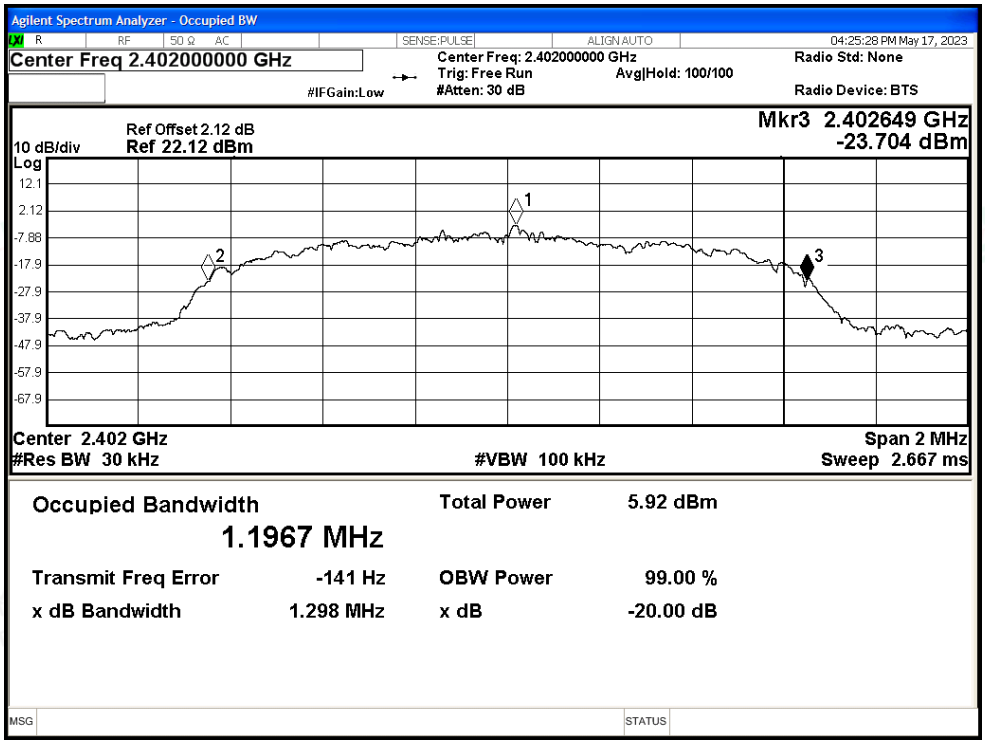
-20dB Bandwidth NVNT 2-DH5 2441MHz Ant



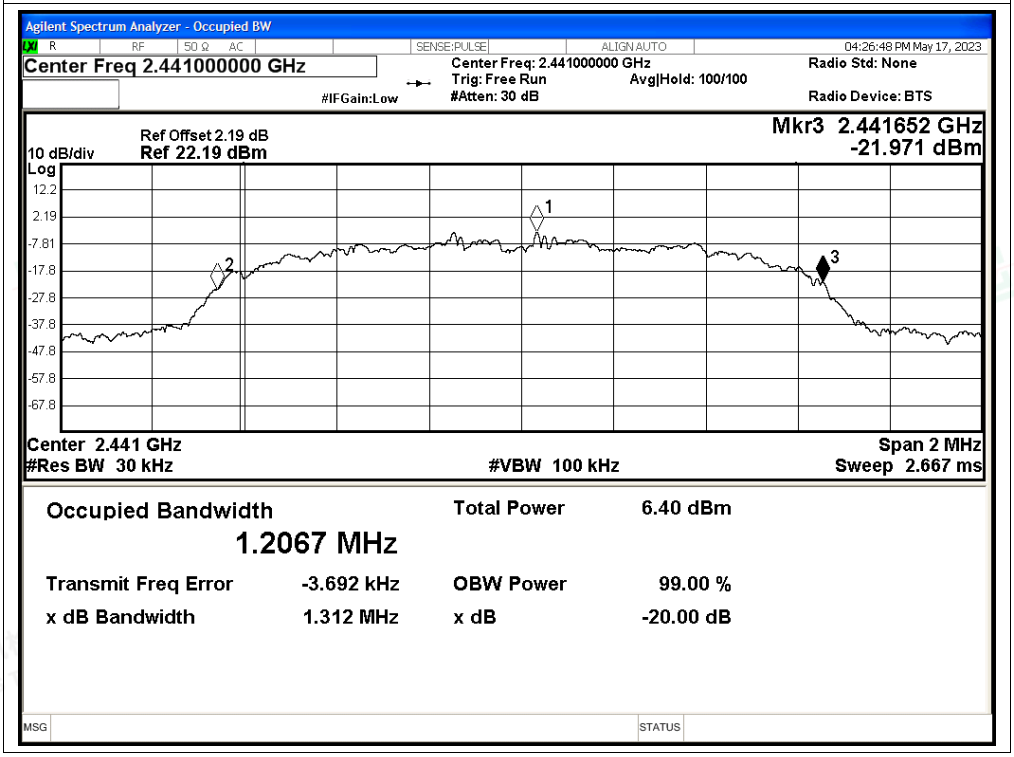
-20dB Bandwidth NVNT 2-DH5 2480MHz Ant



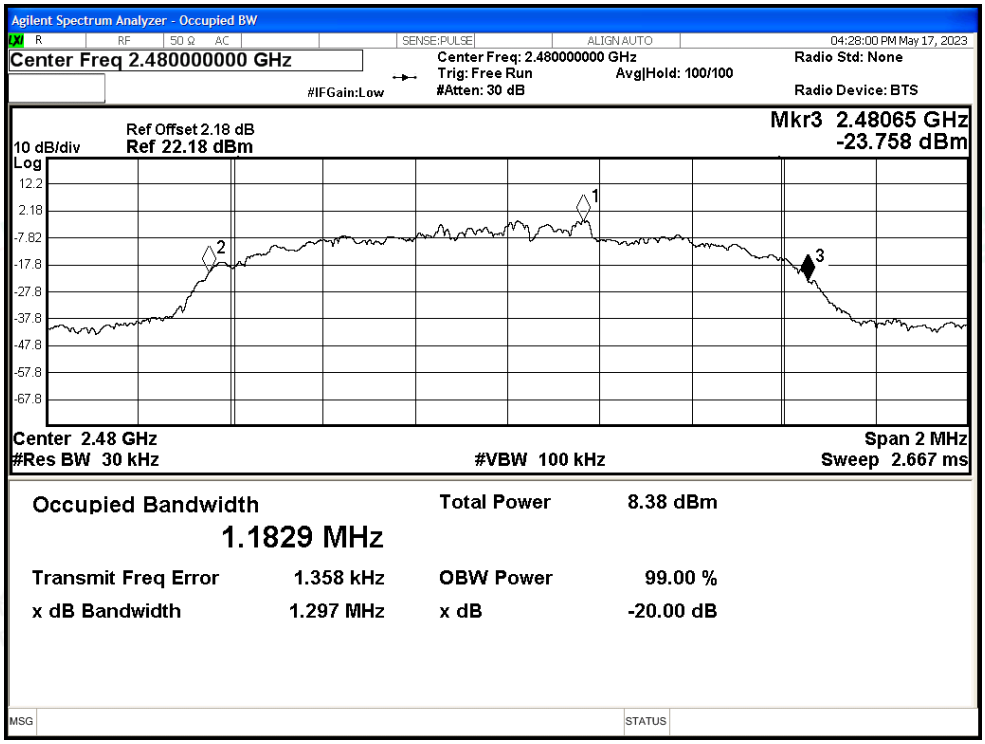
-20dB Bandwidth NVNT 3-DH5 2402MHz Ant



-20dB Bandwidth NVNT 3-DH5 2441MHz Ant



-20dB Bandwidth NVNT 3-DH5 2480MHz Ant

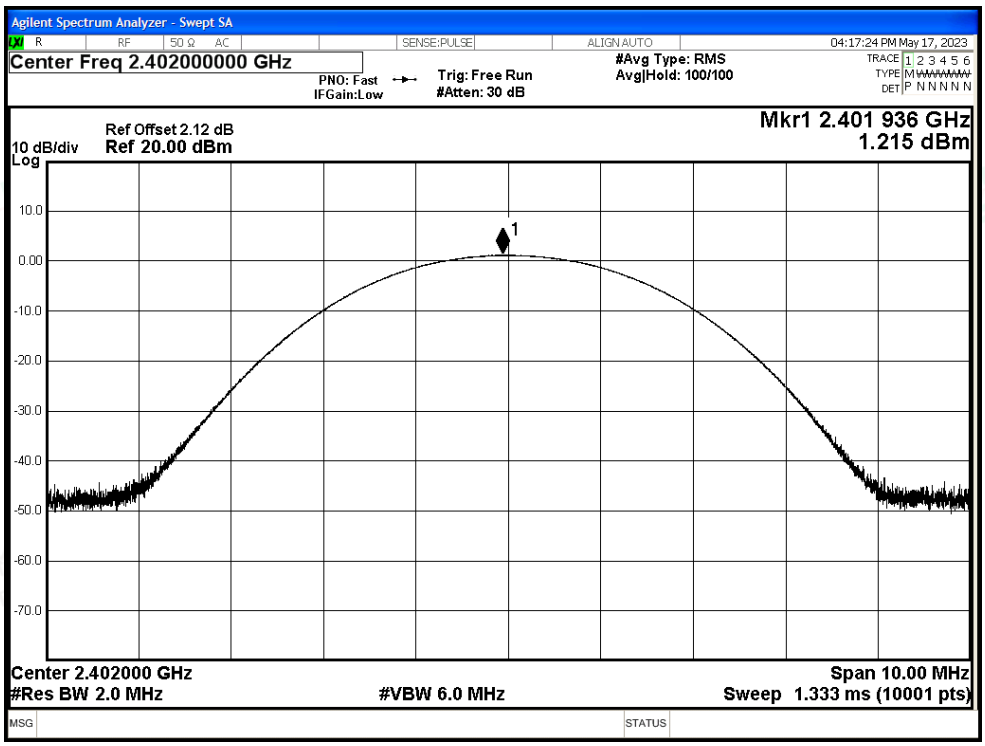


A.2 Maximum Conducted Output Power

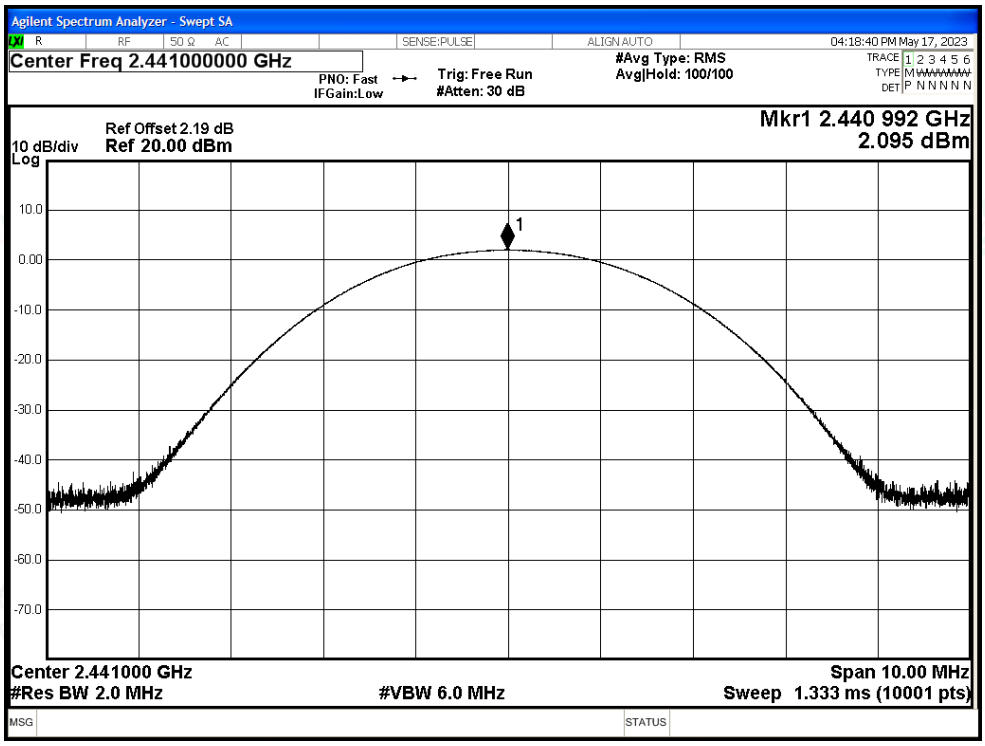
Condition	Mode	Frequency (MHz)	Antenna	Total Power (dBm)	Limit (dBm)	Verdict
NVNT	1-DH5	2402	Ant	1.22	21	Pass
NVNT	1-DH5	2441	Ant	2.10	21	Pass
NVNT	1-DH5	2480	Ant	3.08	21	Pass
NVNT	2-DH5	2402	Ant	1.29	21	Pass
NVNT	2-DH5	2441	Ant	2.18	21	Pass
NVNT	2-DH5	2480	Ant	3.12	21	Pass
NVNT	3-DH5	2402	Ant	1.26	21	Pass
NVNT	3-DH5	2441	Ant	2.13	21	Pass
NVNT	3-DH5	2480	Ant	3.10	21	Pass

Test Graphs

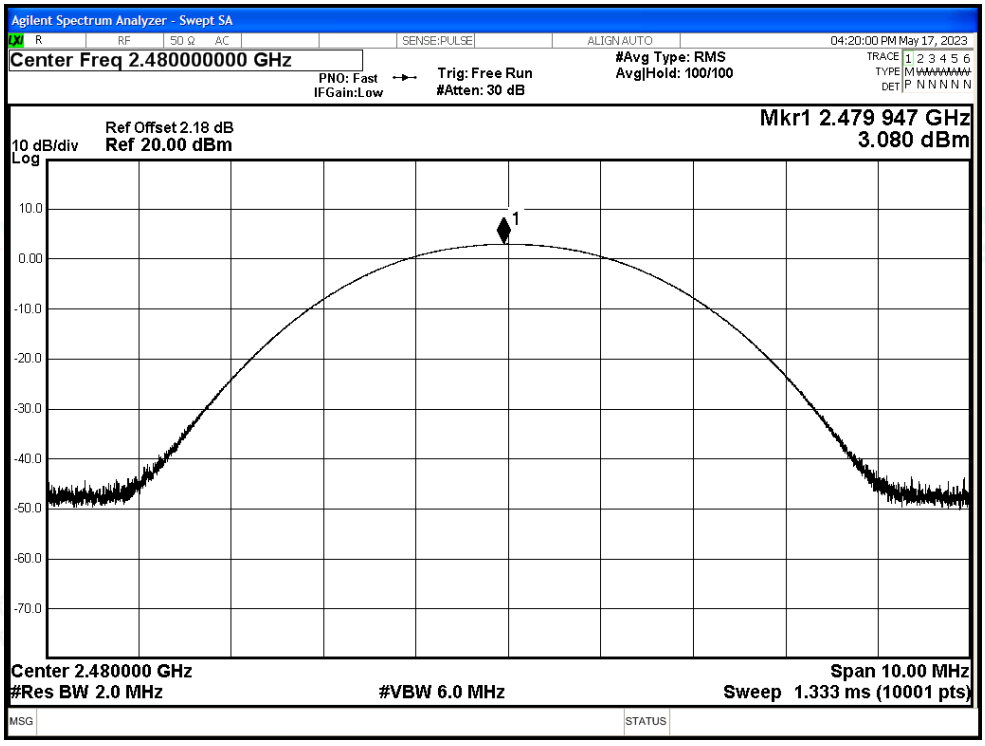
Power NVNT 1-DH5 2402MHz Ant



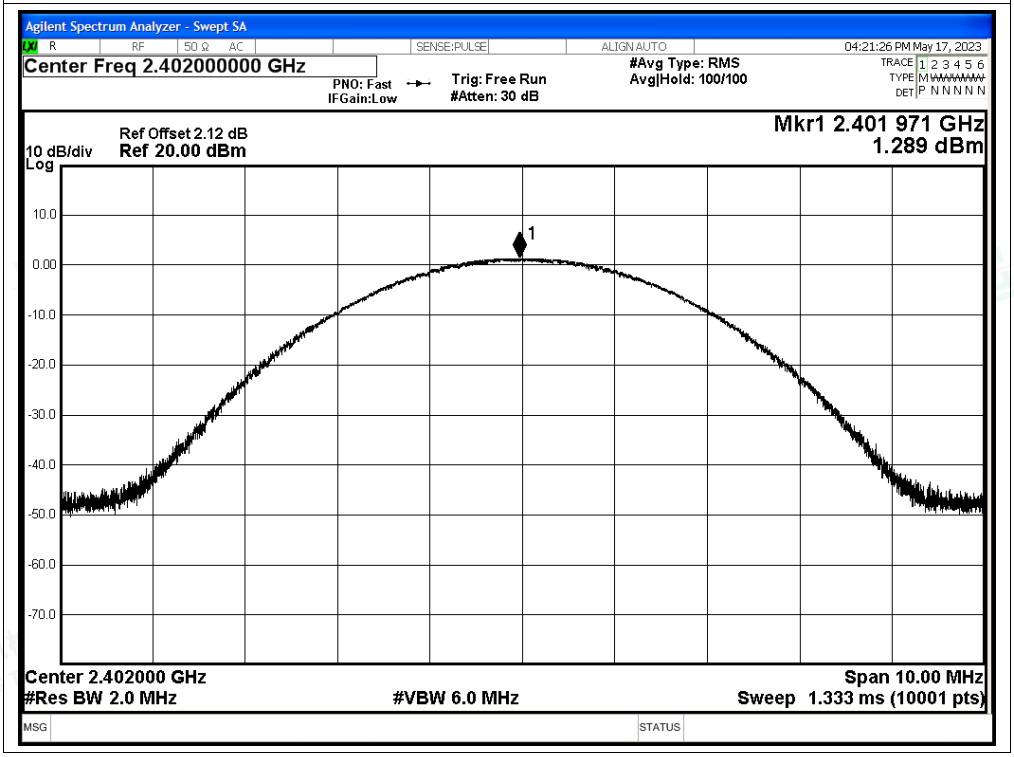
Power NVNT 1-DH5 2441MHz Ant



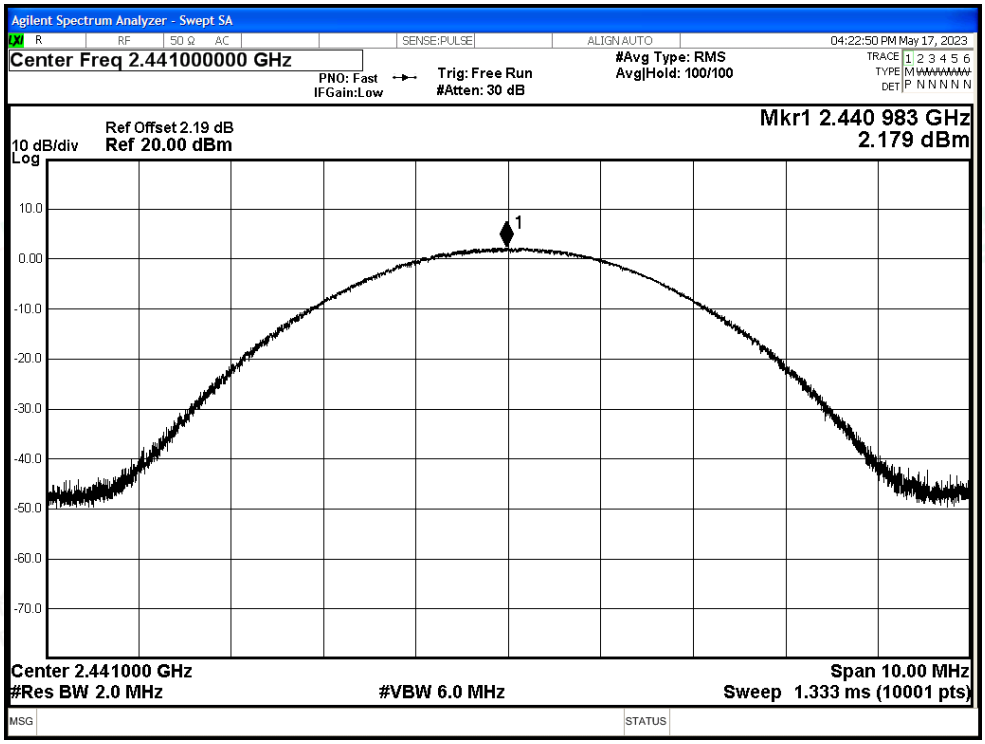
Power NVNT 1-DH5 2480MHz Ant



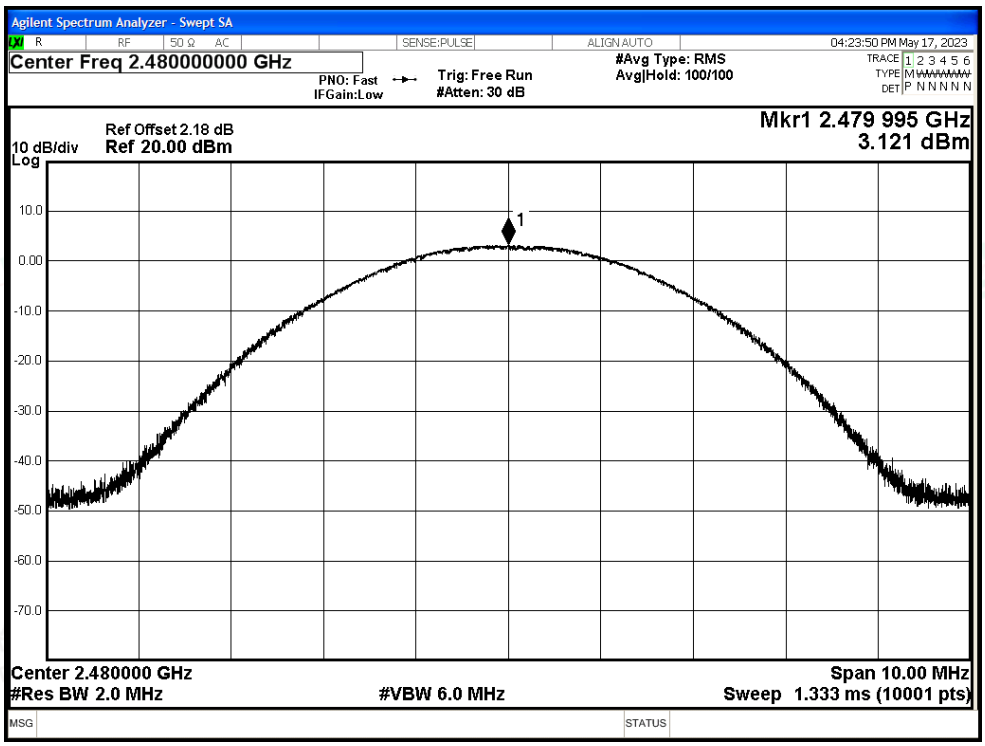
Power NVNT 2-DH5 2402MHz Ant



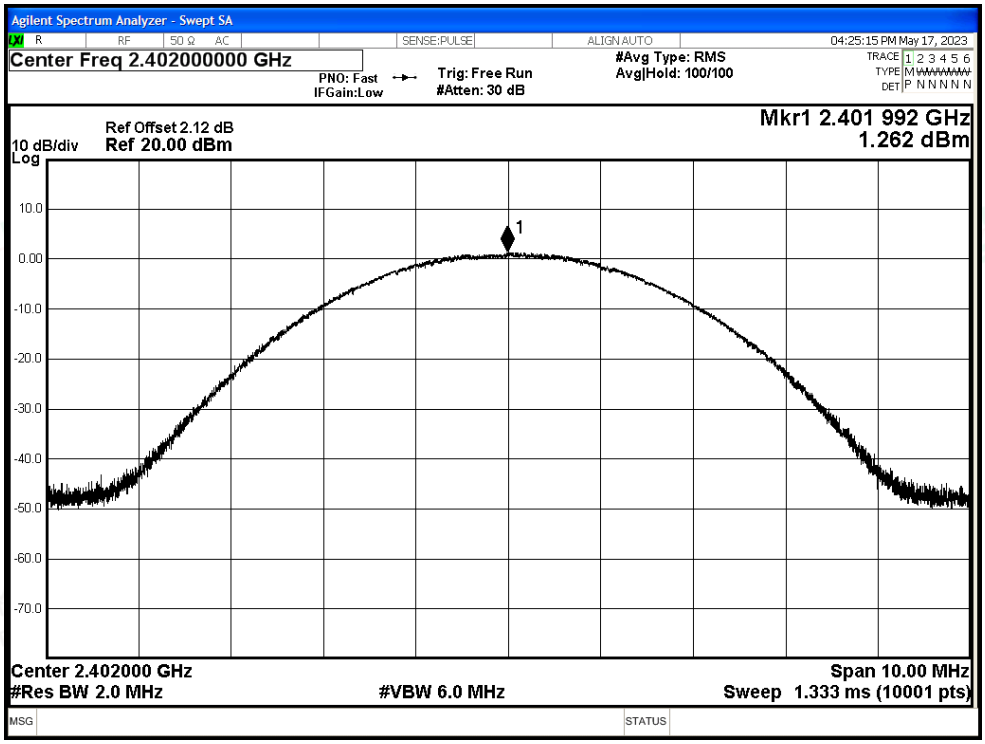
Power NVNT 2-DH5 2441MHz Ant



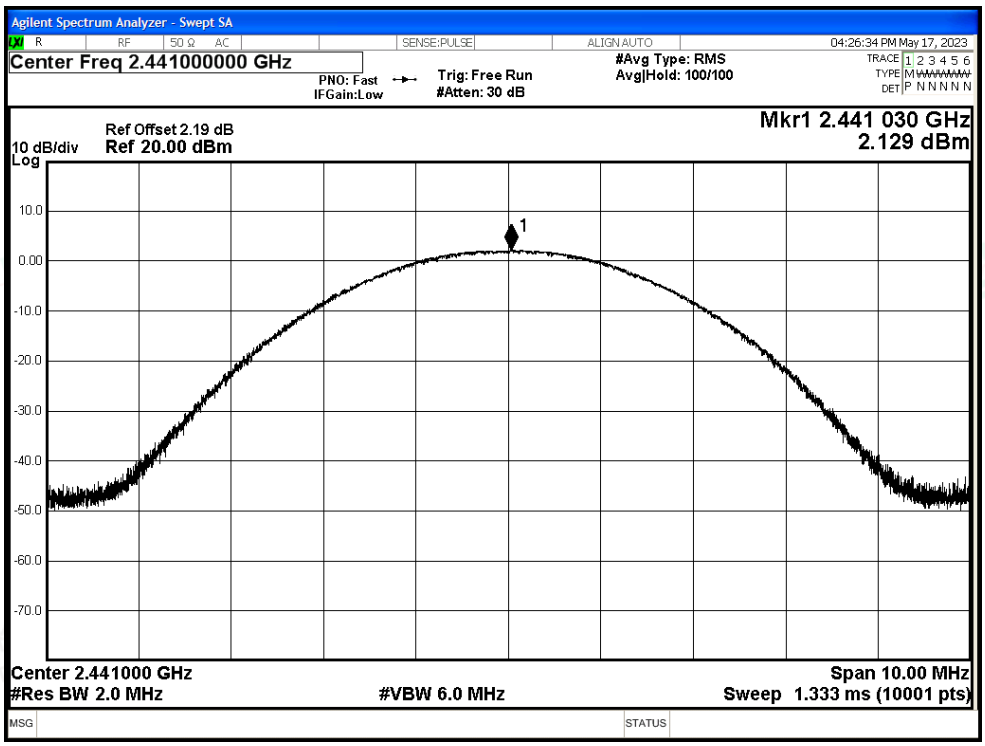
Power NVNT 2-DH5 2480MHz Ant



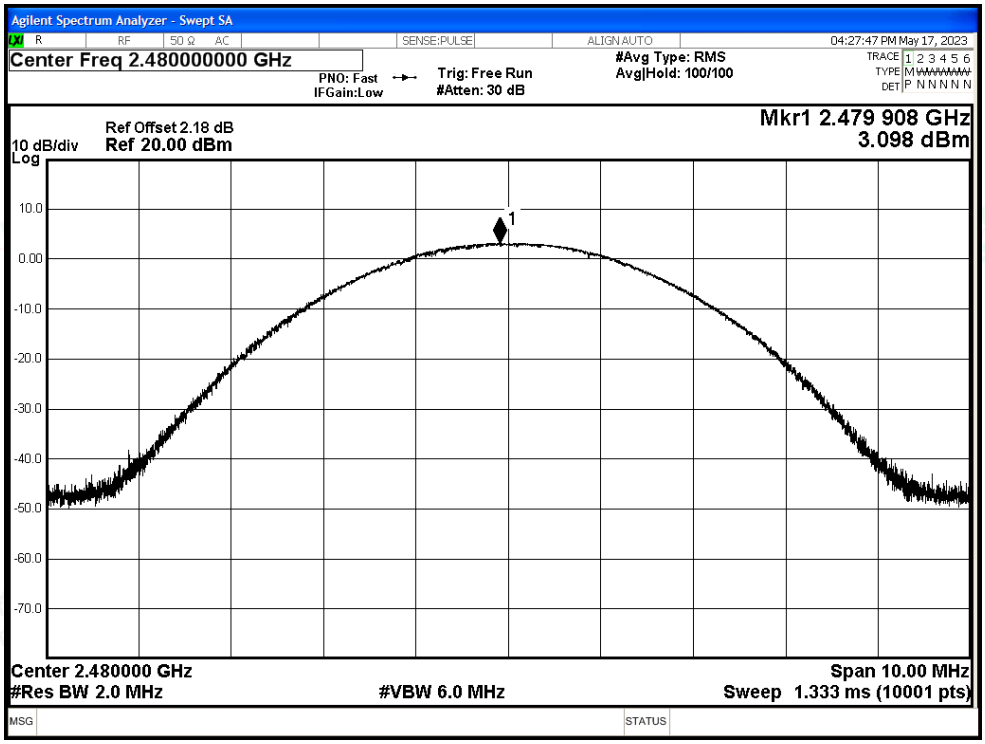
Power NVNT 3-DH5 2402MHz Ant



Power NVNT 3-DH5 2441MHz Ant



Power NVNT 3-DH5 2480MHz Ant

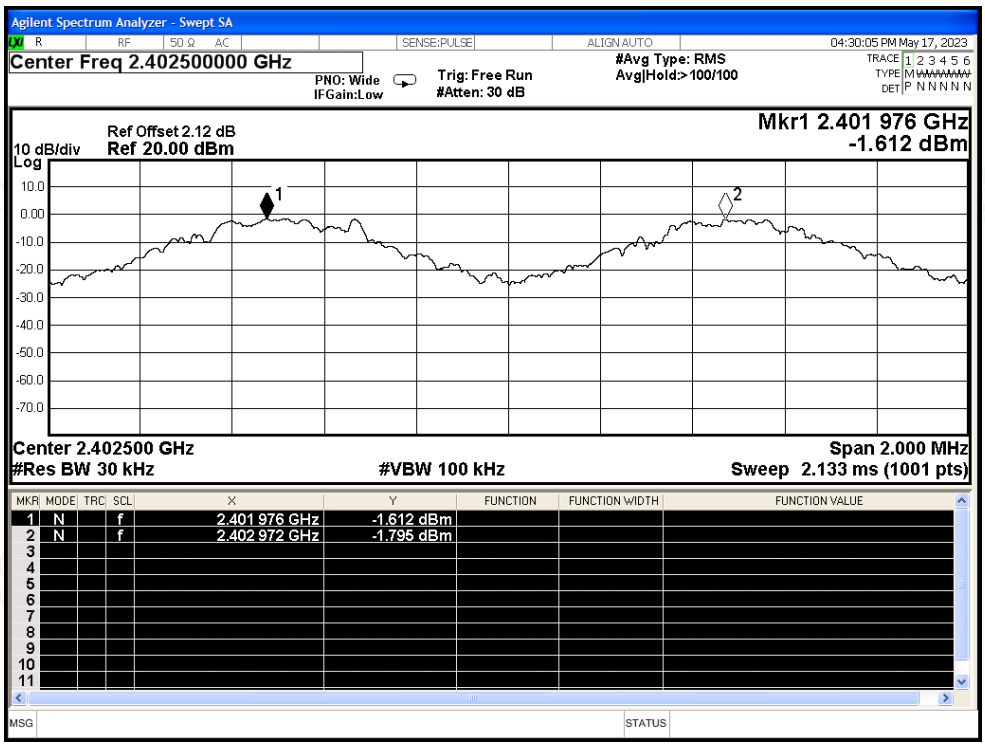


A.3 Carrier Frequencies Separation

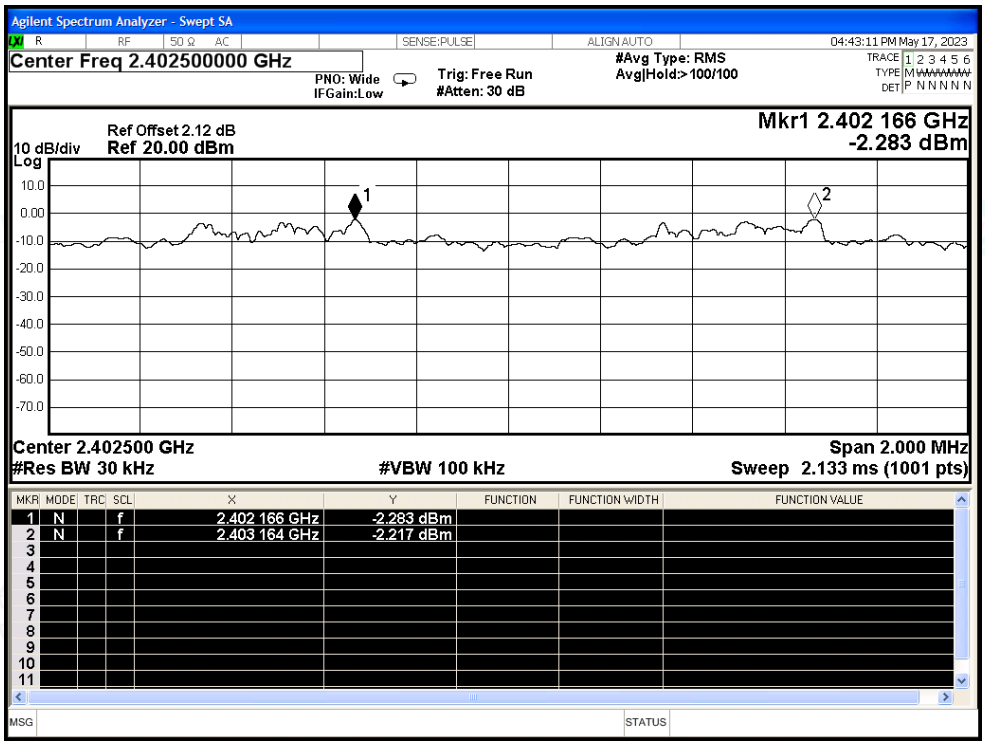
Condition	Mode	Antenna	Hopping Freq1 (MHz)	Hopping Freq2 (MHz)	HFS (MHz)	Limit (MHz)	Verdict
NVNT	1-DH5	Ant	2401.976	2402.972	0.996	0.573	Pass
NVNT	2-DH5	Ant	2402.166	2403.164	0.998	0.875	Pass
NVNT	3-DH5	Ant	2402.02	2403.166	1.146	0.875	Pass

Test Graphs

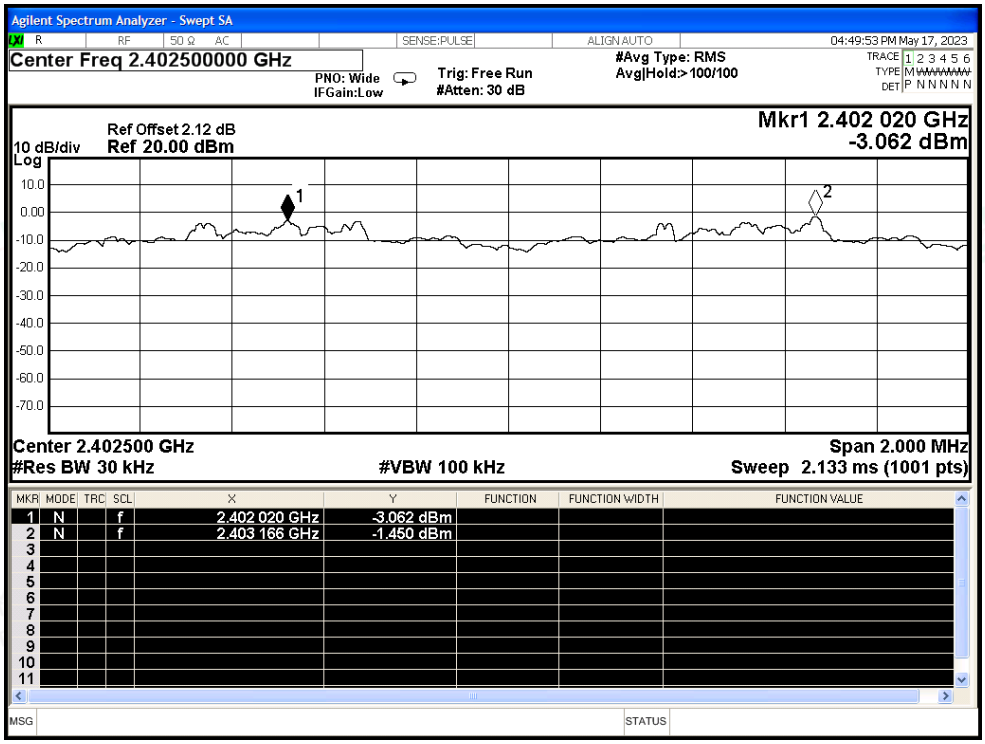
CFS NVNT 1-DH5 2402MHz Ant



CFS NVNT 2-DH5 2402MHz Ant



CFS NVNT 3-DH5 2402MHz Ant

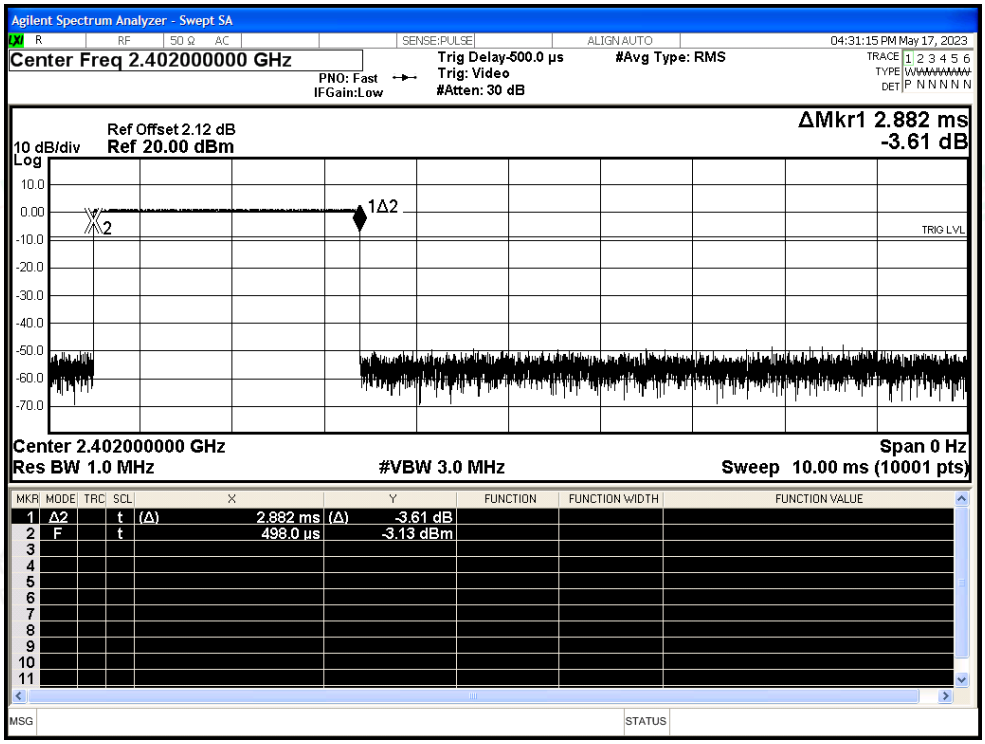


A.4 Dwell Time

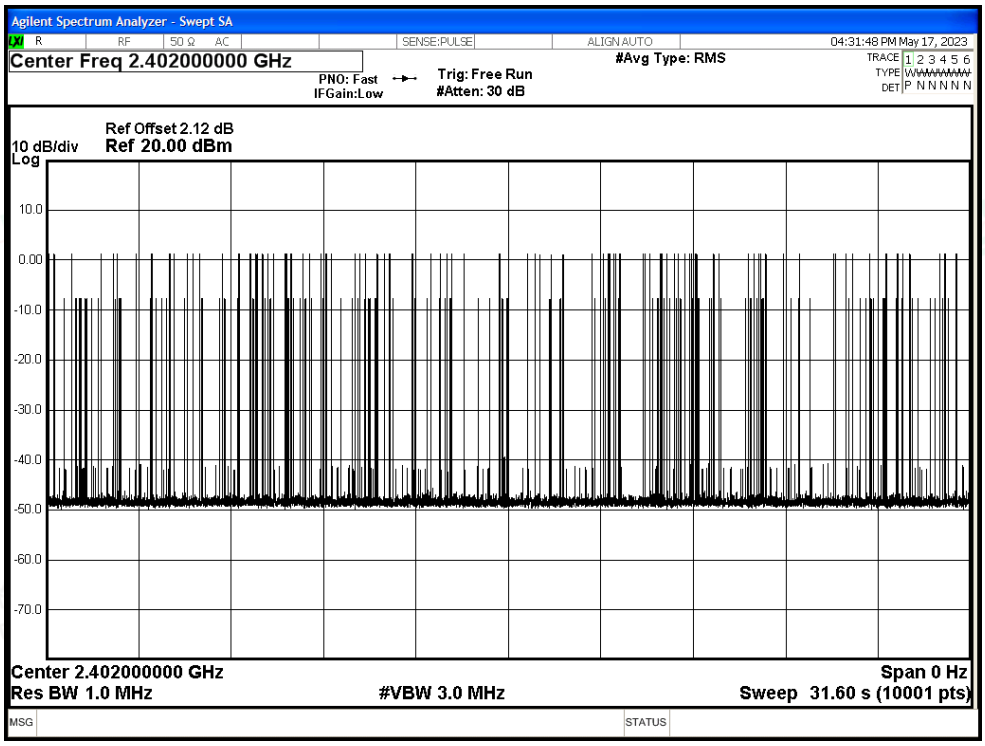
Condition	Mode	Frequency (MHz)	Antenna	Pulse Time (ms)	Total Dwell Time (ms)	Burst Count	Period Time (ms)	Limit (ms)	Verdict
NVNT	1-DH5	2402	Ant	2.882	279.554	97	31600	400	Pass
NVNT	2-DH5	2402	Ant	2.885	294.27	102	31600	400	Pass
NVNT	3-DH5	2402	Ant	2.887	265.604	92	31600	400	Pass

Test Graphs

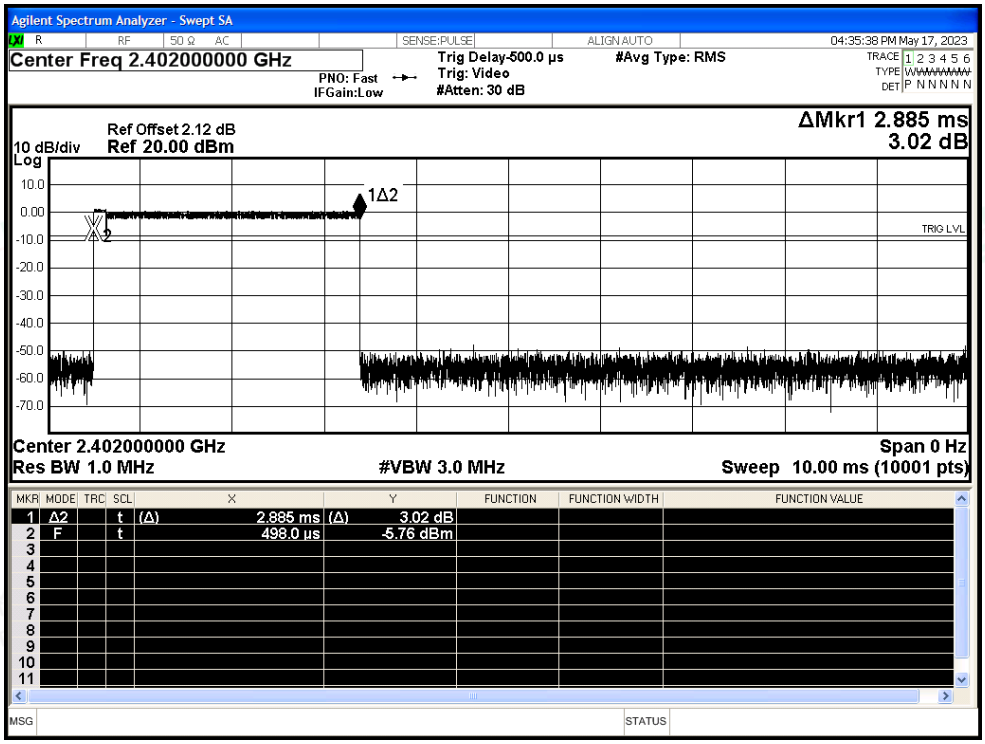
Dwell NVNT 1-DH5 2402MHz Ant One Burst



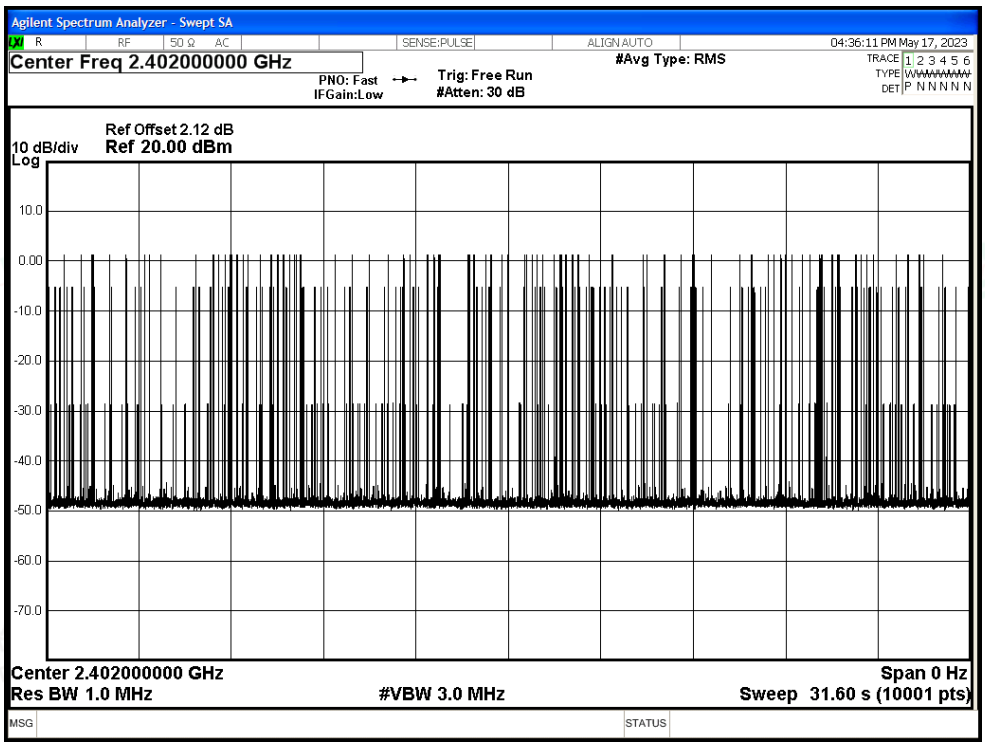
Dwell NVNT 1-DH5 2402MHz Ant Accumulated



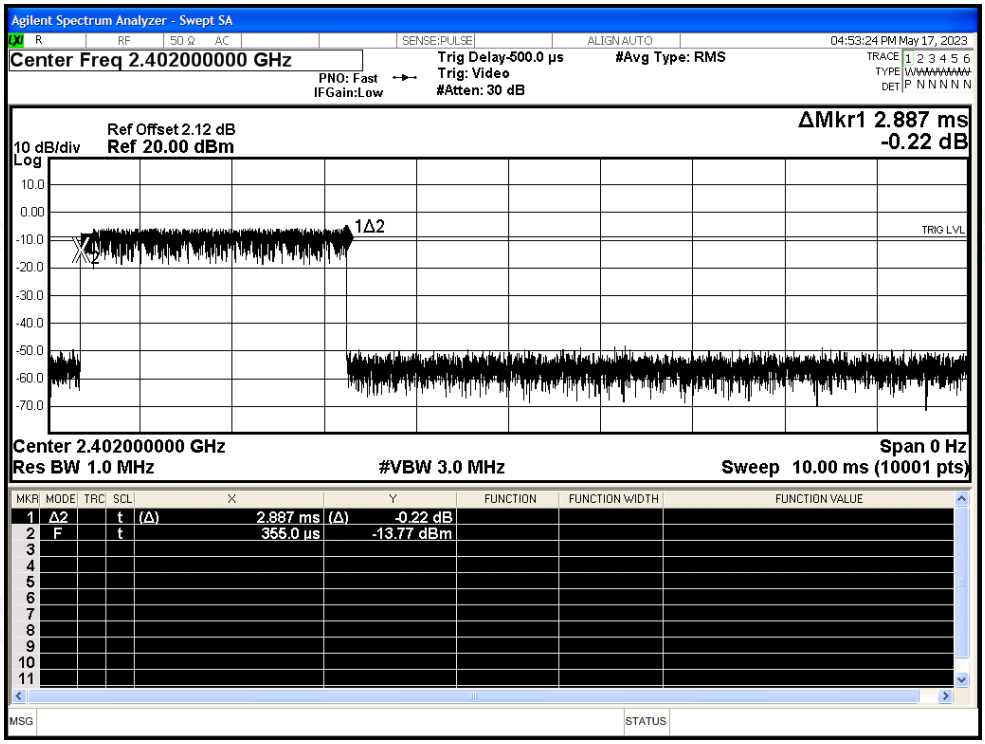
Dwell NVNT 2-DH5 2402MHz Ant One Burst



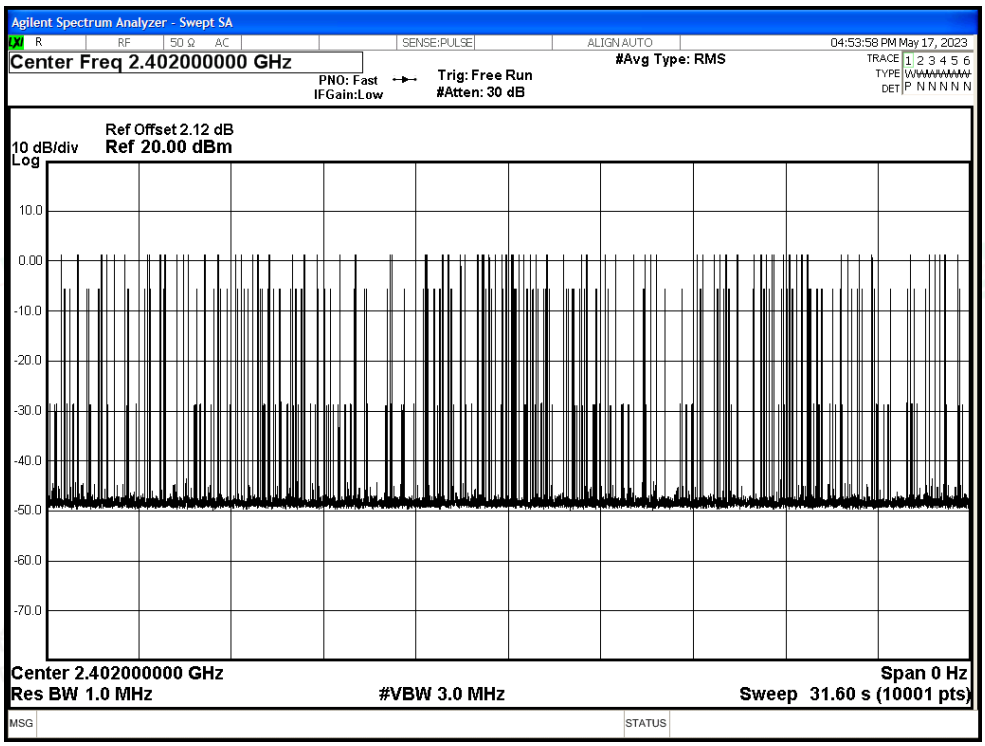
Dwell NVNT 2-DH5 2402MHz Ant Accumulated



Dwell NVNT 3-DH5 2402MHz Ant One Burst



Dwell NVNT 3-DH5 2402MHz Ant Accumulated

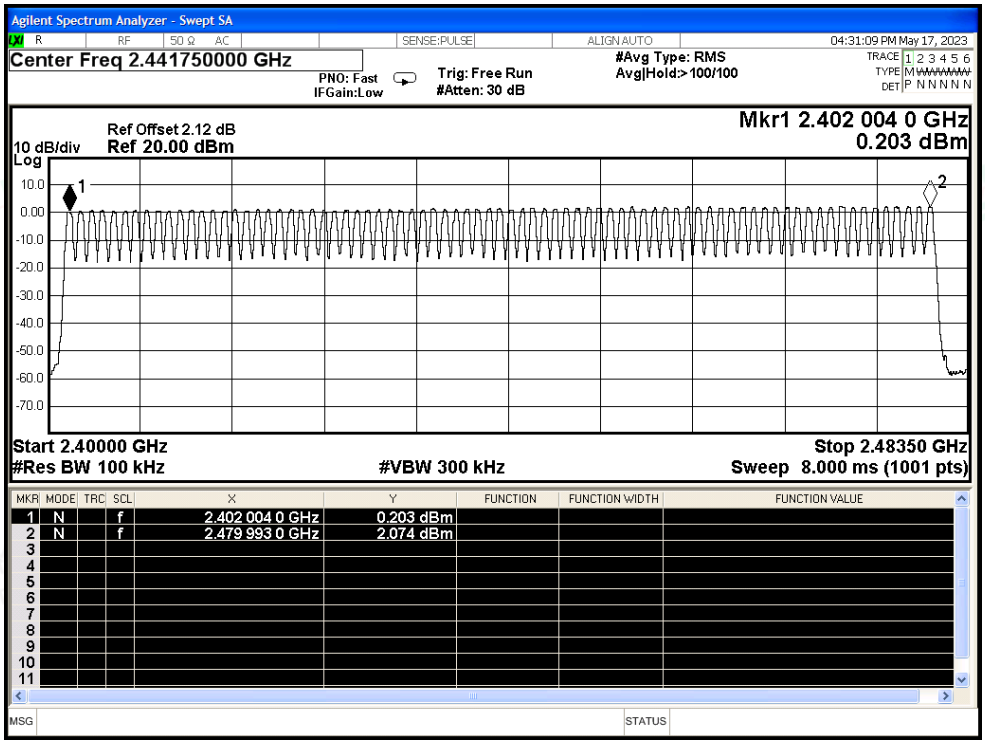


A.5 Number of Hopping Channel

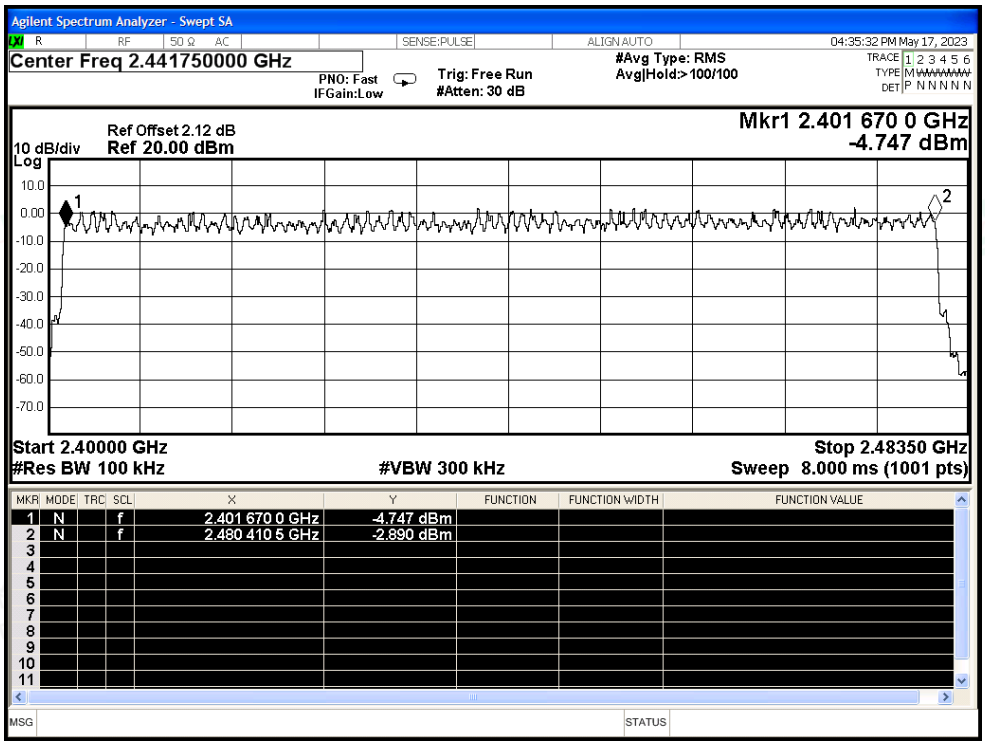
Condition	Mode	Antenna	Hopping Number	Limit	Verdict
NVNT	1-DH5	Ant	79	15	Pass
NVNT	2-DH5	Ant	79	15	Pass
NVNT	3-DH5	Ant	79	15	Pass

Test Graphs

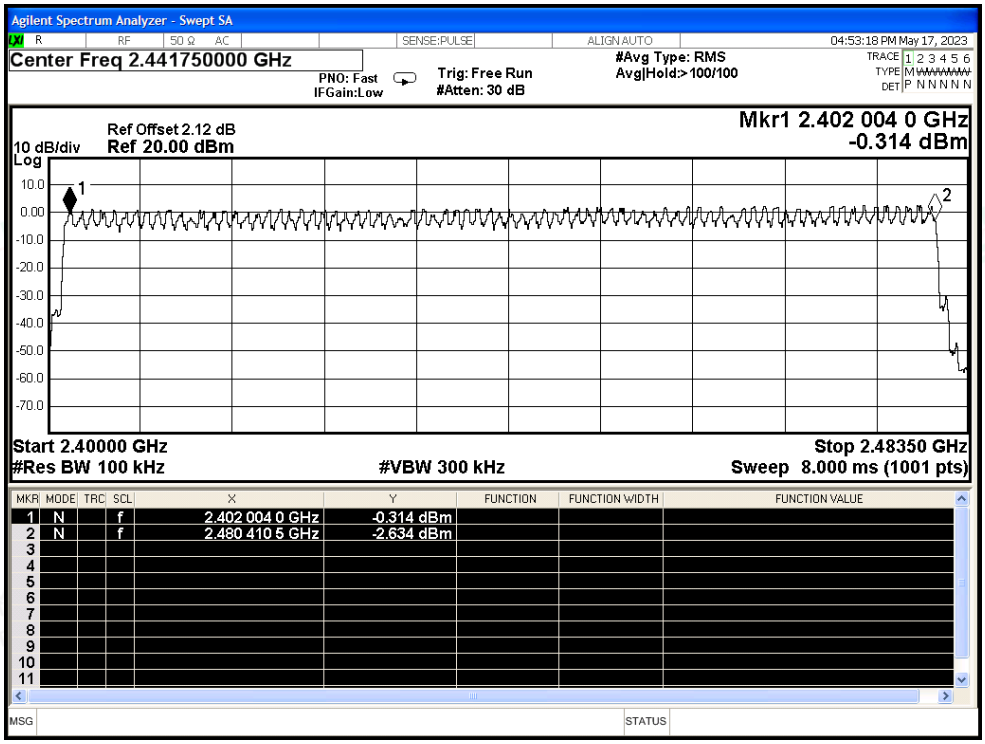
Hopping No. NVNT 1-DH5 2402MHz Ant



Hopping No. NVNT 2-DH5 2402MHz Ant



Hopping No. NVNT 3-DH5 2402MHz Ant

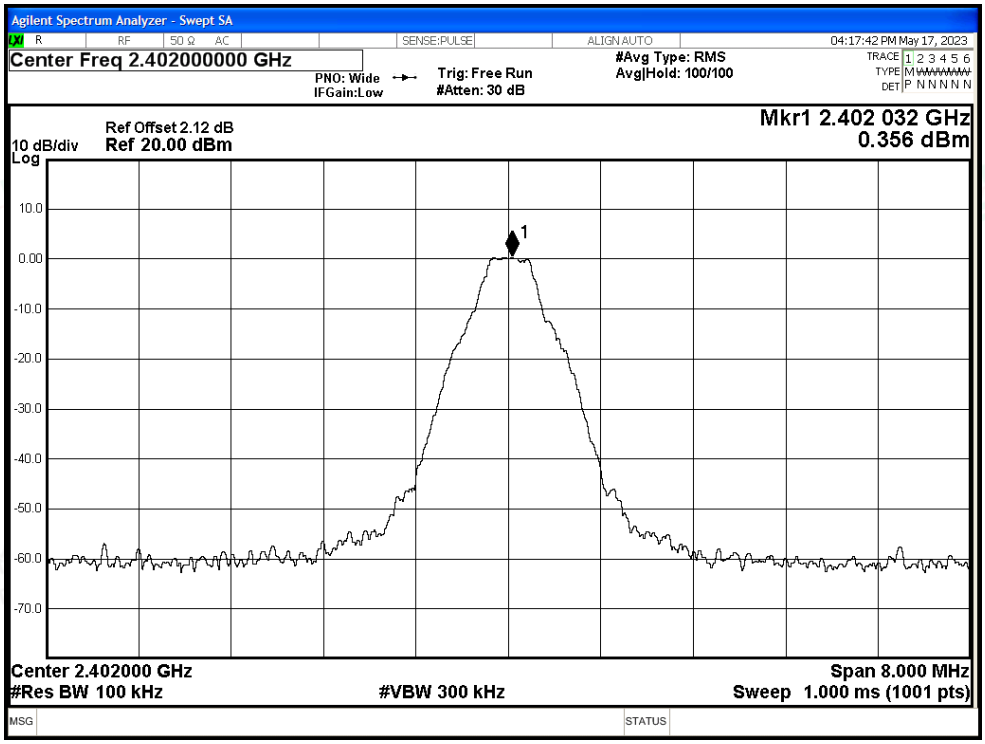


A.6 Band Edge

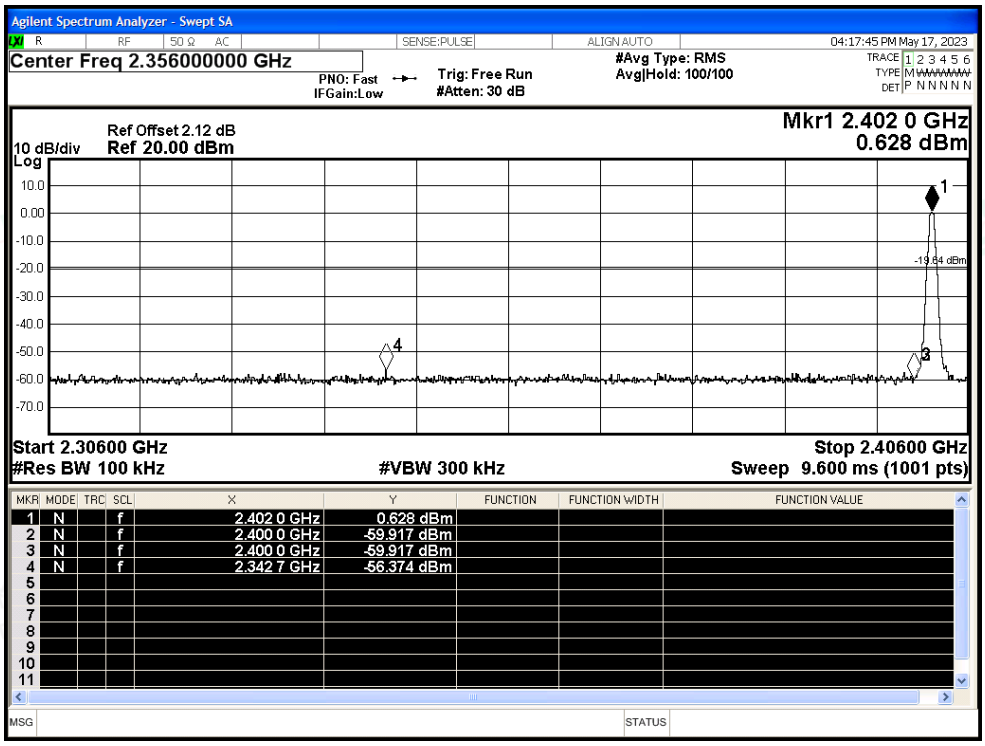
Condition	Mode	Frequency (MHz)	Antenna	Hopping Mode	Max Value (dBc)	Limit (dBc)	Verdict
NVNT	1-DH5	2402	Ant	No-Hopping	-56.73	-20	Pass
NVNT	1-DH5	2480	Ant	No-Hopping	-59.3	-20	Pass
NVNT	2-DH5	2402	Ant	No-Hopping	-52.4	-20	Pass
NVNT	2-DH5	2480	Ant	No-Hopping	-59.01	-20	Pass
NVNT	3-DH5	2402	Ant	No-Hopping	-51.46	-20	Pass
NVNT	3-DH5	2480	Ant	No-Hopping	-58.41	-20	Pass

Test Graphs

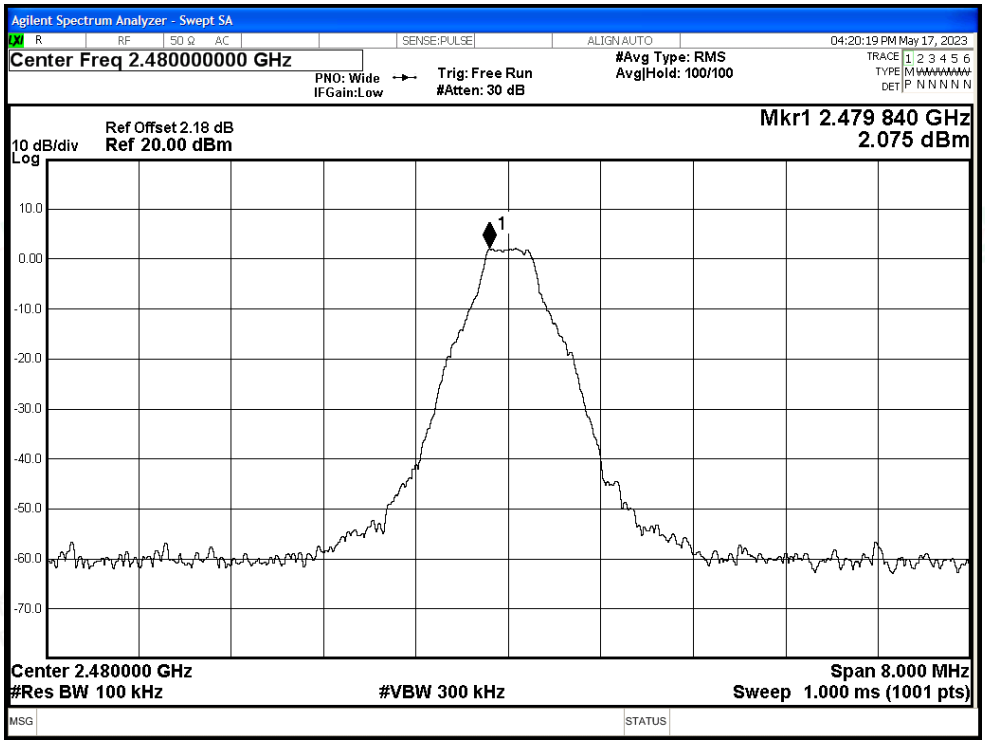
Band Edge NVNT 1-DH5 2402MHz Ant No-Hopping Ref



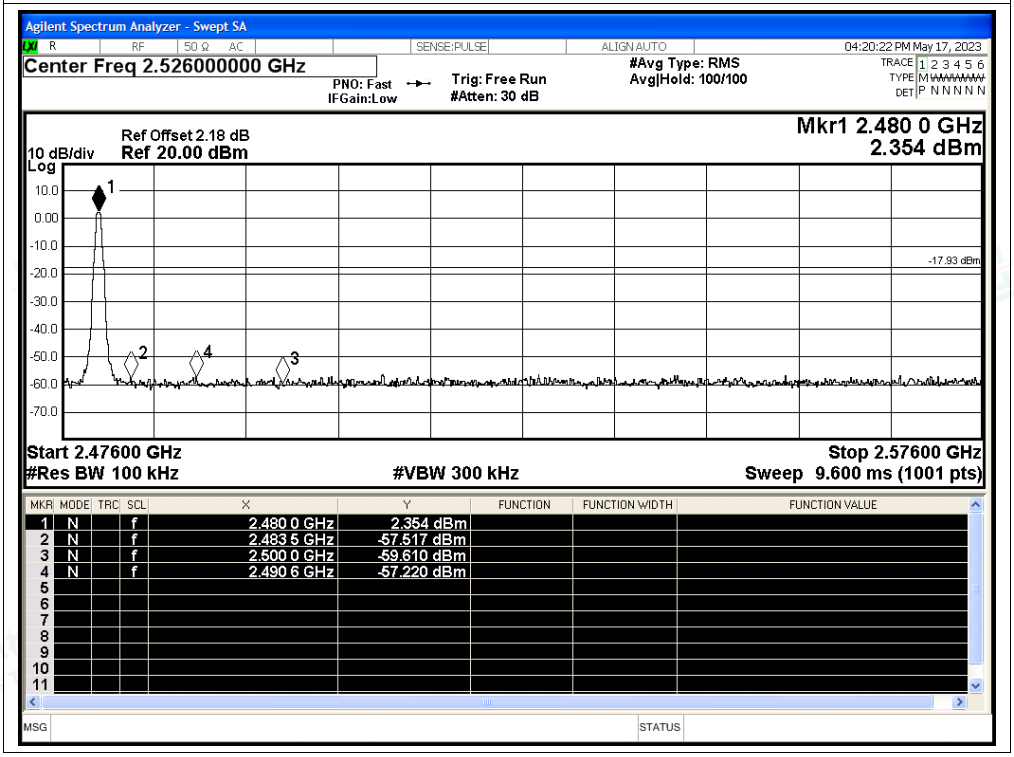
Band Edge NVNT 1-DH5 2402MHz Ant No-Hopping Emission



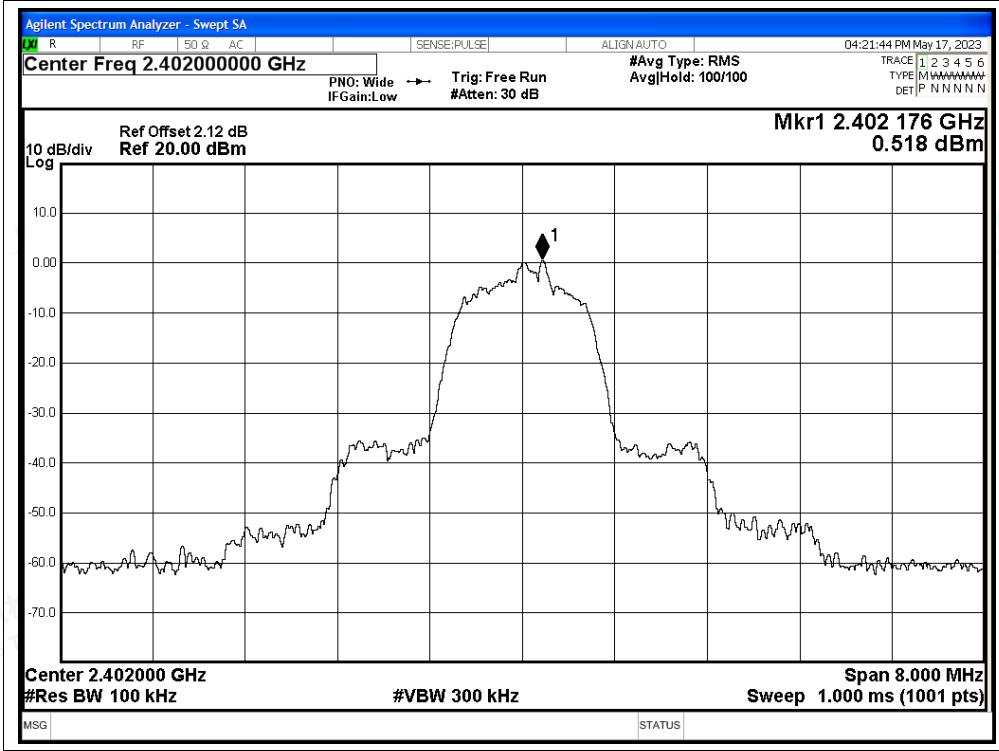
Band Edge NVNT 1-DH5 2480MHz Ant No-Hopping Ref



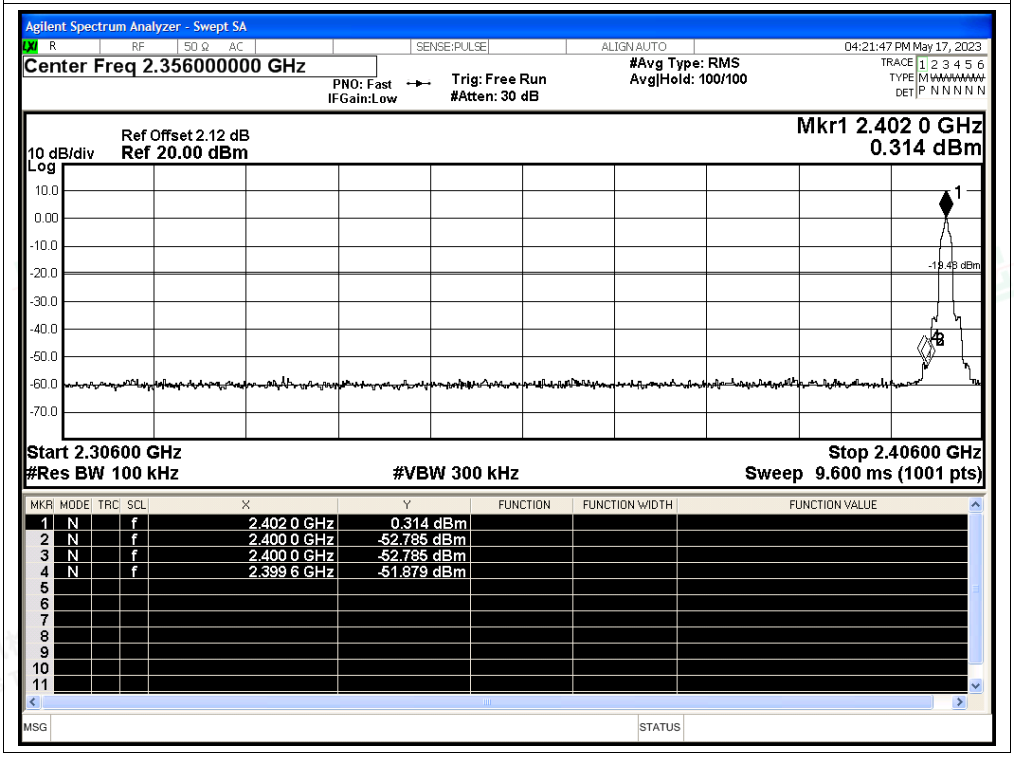
Band Edge NVNT 1-DH5 2480MHz Ant No-Hopping Emission



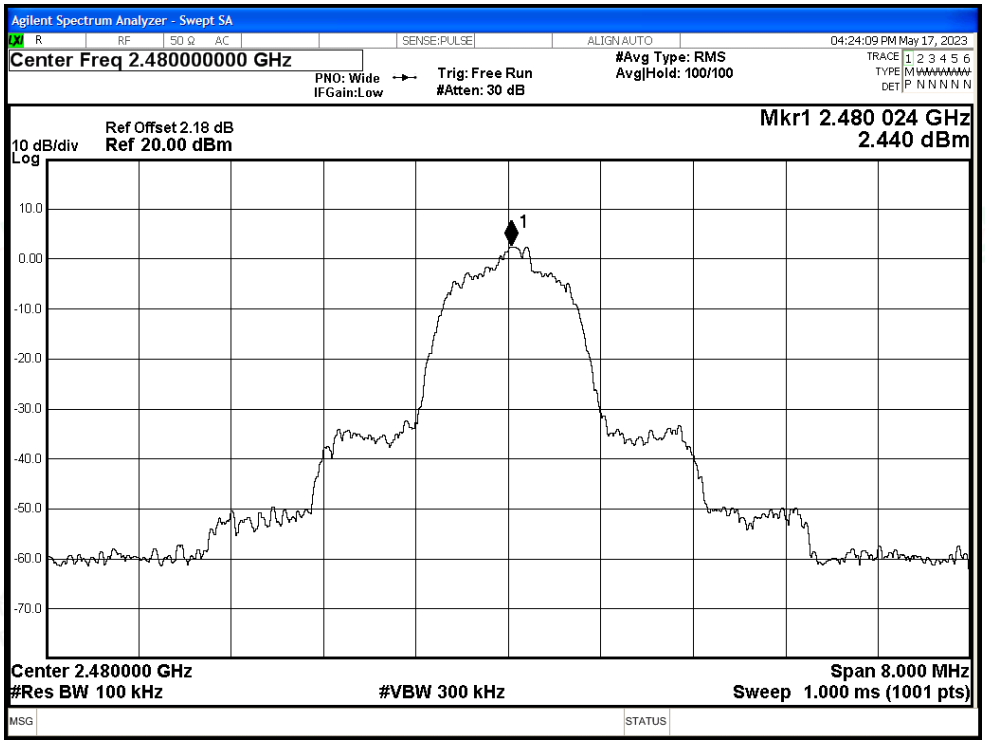
Band Edge NVNT 2-DH5 2402MHz Ant No-Hopping Ref



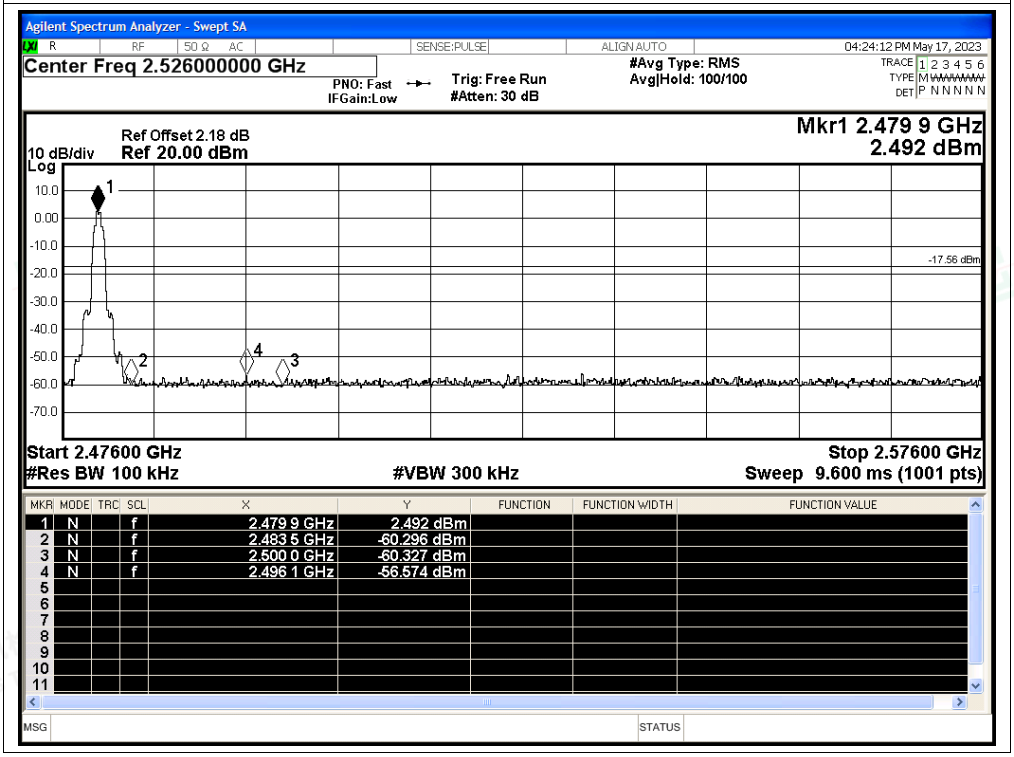
Band Edge NVNT 2-DH5 2402MHz Ant No-Hopping Emission



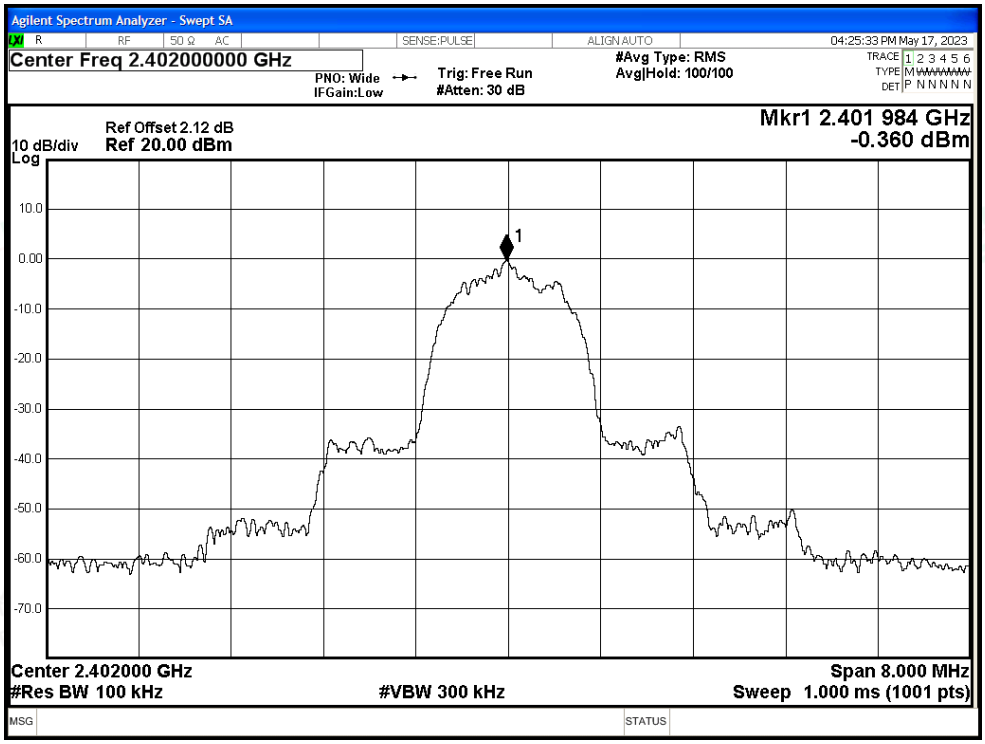
Band Edge NVNT 2-DH5 2480MHz Ant No-Hopping Ref



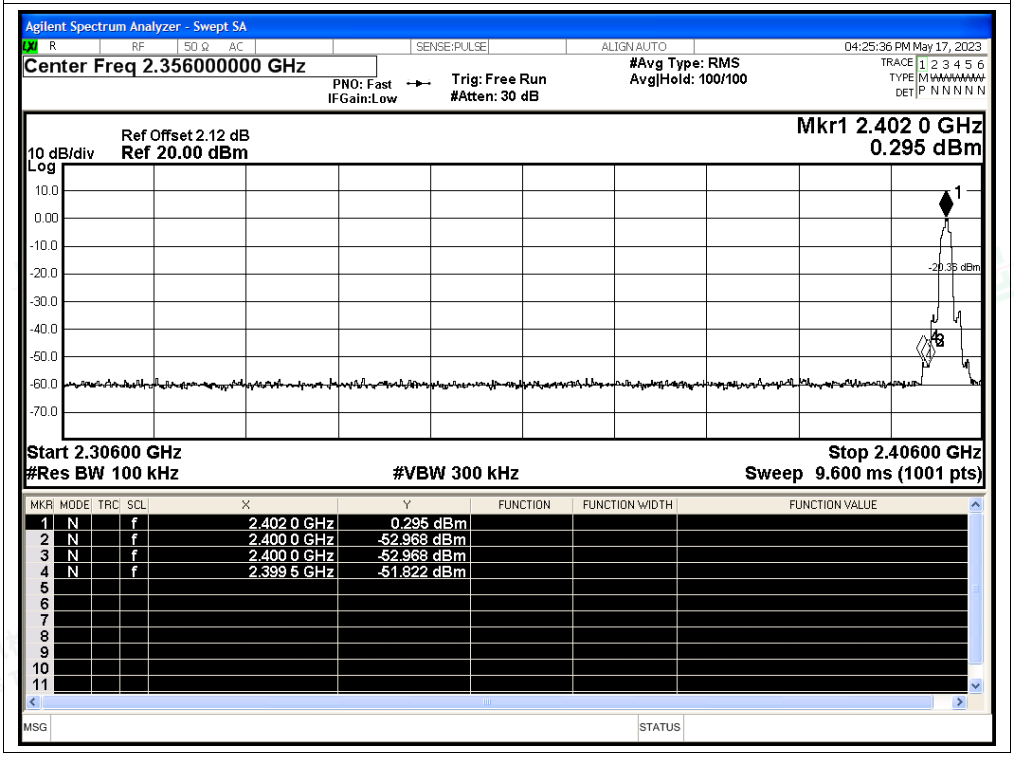
Band Edge NVNT 2-DH5 2480MHz Ant No-Hopping Emission



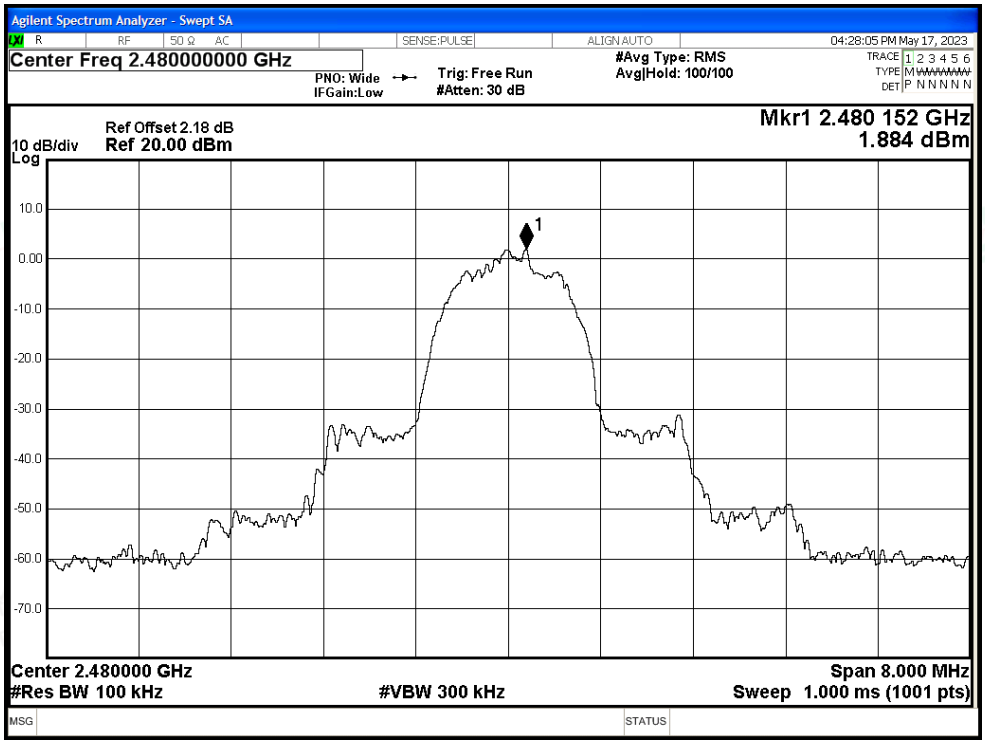
Band Edge NVNT 3-DH5 2402MHz Ant No-Hopping Ref



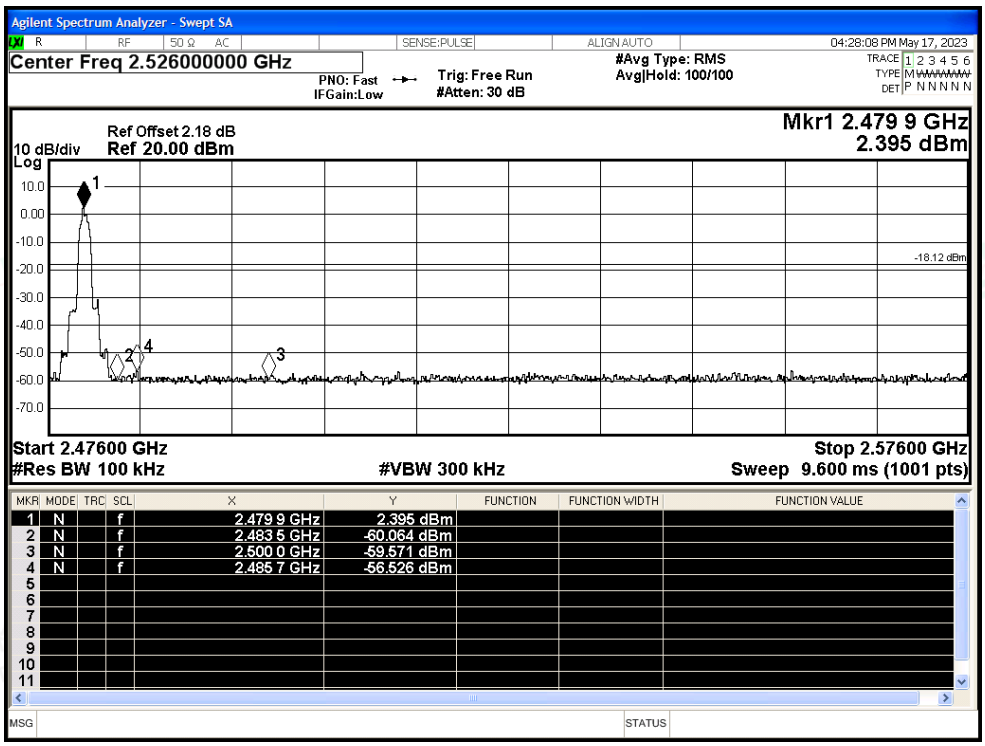
Band Edge NVNT 3-DH5 2402MHz Ant No-Hopping Emission



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



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

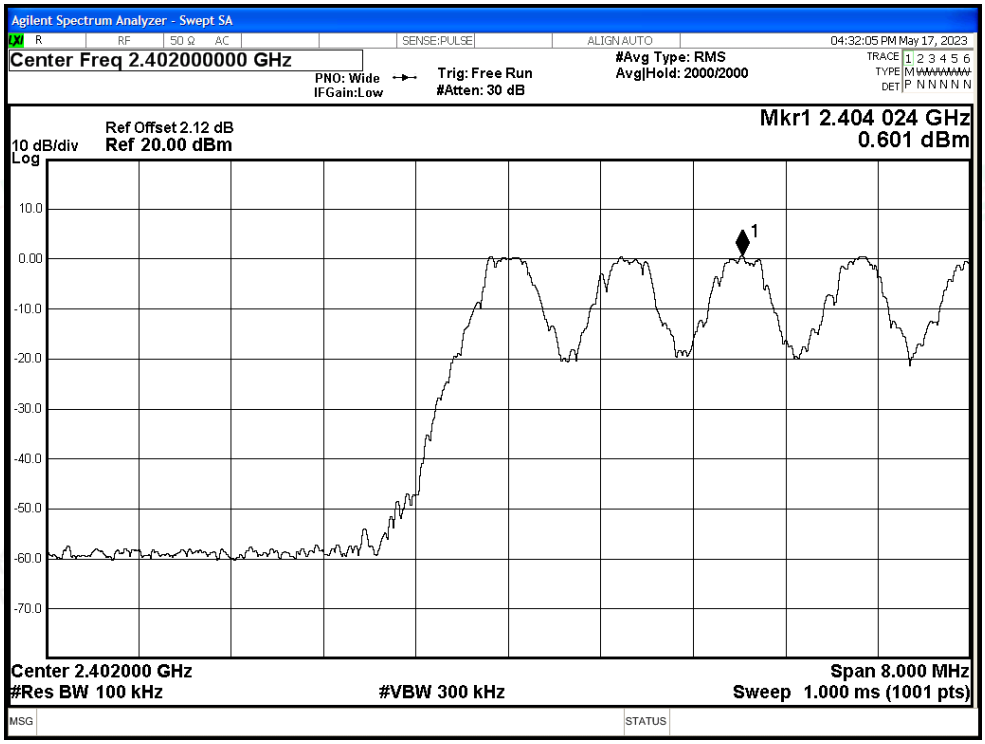


(Hopping)

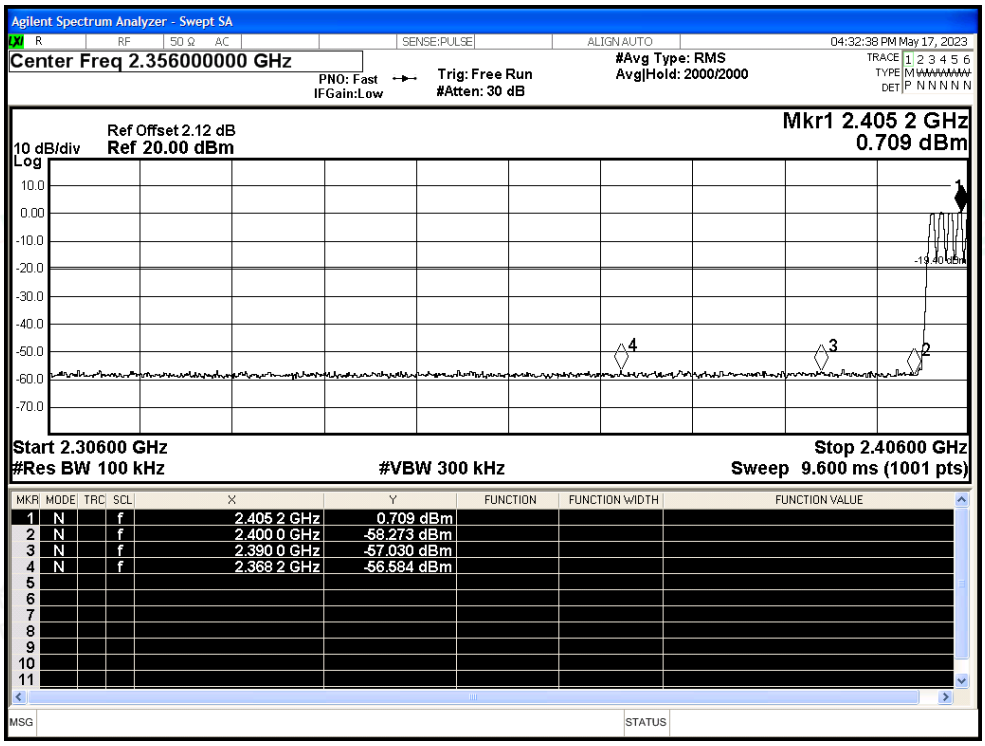
Condition	Mode	Frequency (MHz)	Antenna	Hopping Mode	Max Value (dBc)	Limit (dBc)	Verdict
NVNT	1-DH5	2402	Ant	Hopping	-57.19	-20	Pass
NVNT	1-DH5	2480	Ant	Hopping	-57.7	-20	Pass
NVNT	2-DH5	2402	Ant	Hopping	-56.3	-20	Pass
NVNT	2-DH5	2480	Ant	Hopping	-58.49	-20	Pass
NVNT	3-DH5	2402	Ant	Hopping	-56.17	-20	Pass
NVNT	3-DH5	2480	Ant	Hopping	-57.48	-20	Pass

Test Graphs

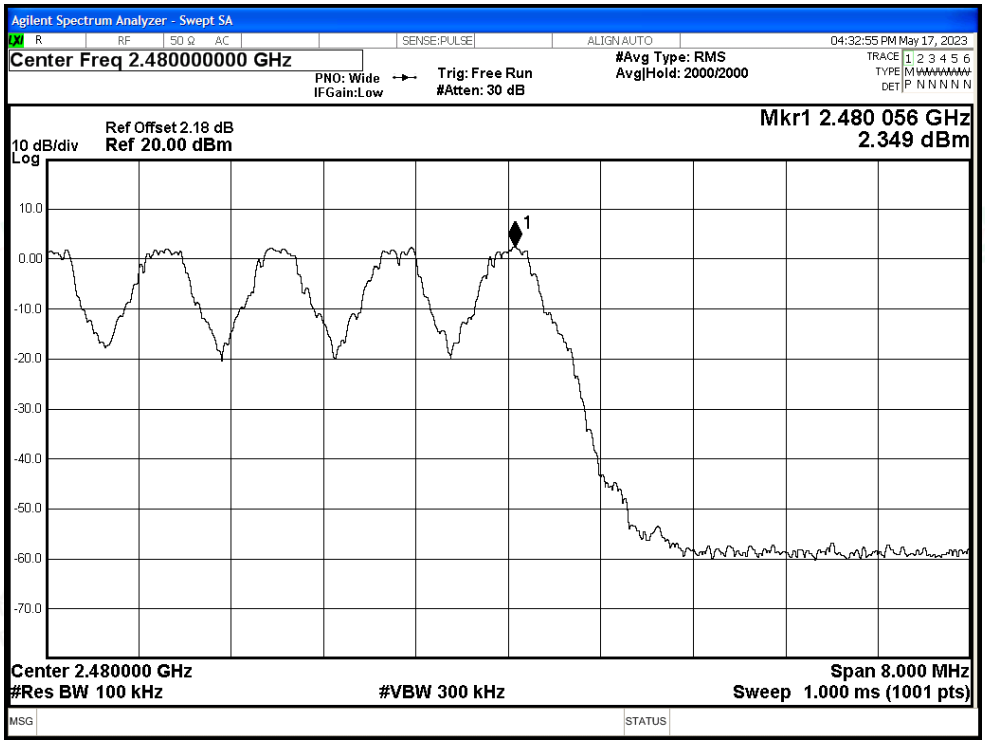
Band Edge(Hopping) NVNT 1-DH5 2402MHz Ant Hopping Ref



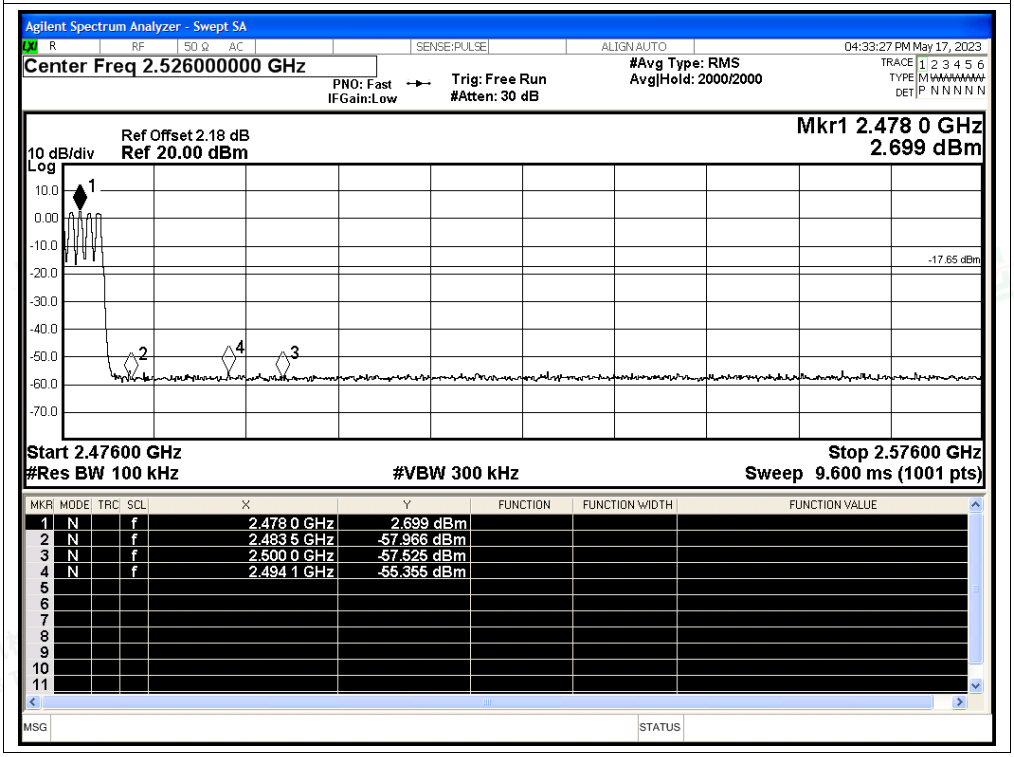
Band Edge(Hopping) NVNT 1-DH5 2402MHz Ant Hopping Emission



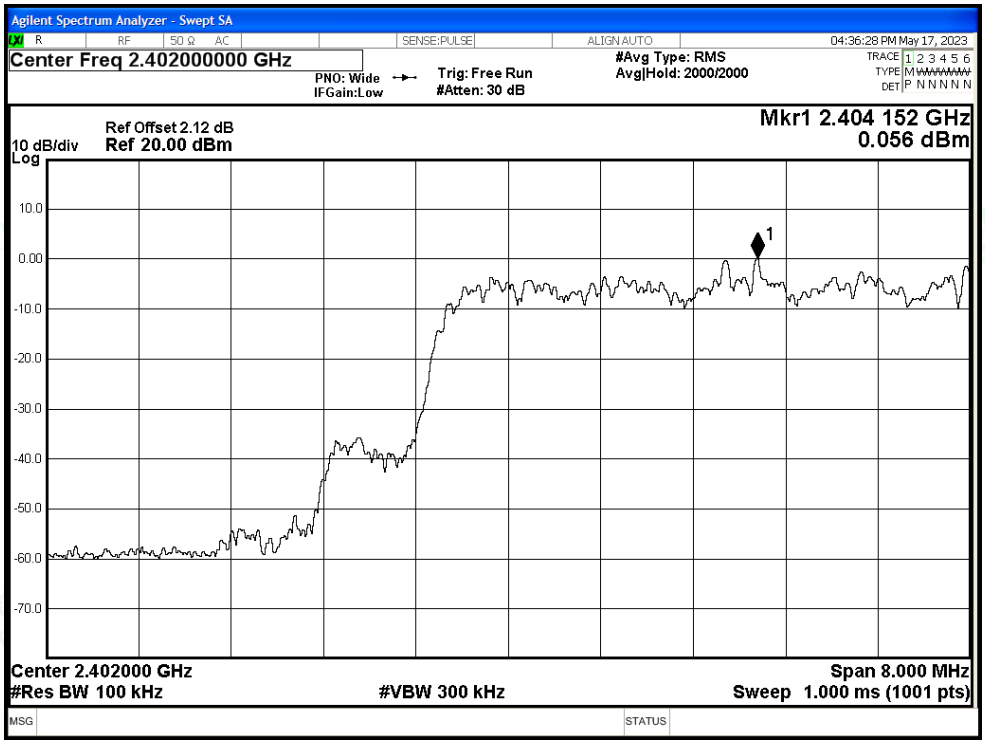
Band Edge(Hopping) NVNT 1-DH5 2480MHz Ant Hopping Ref



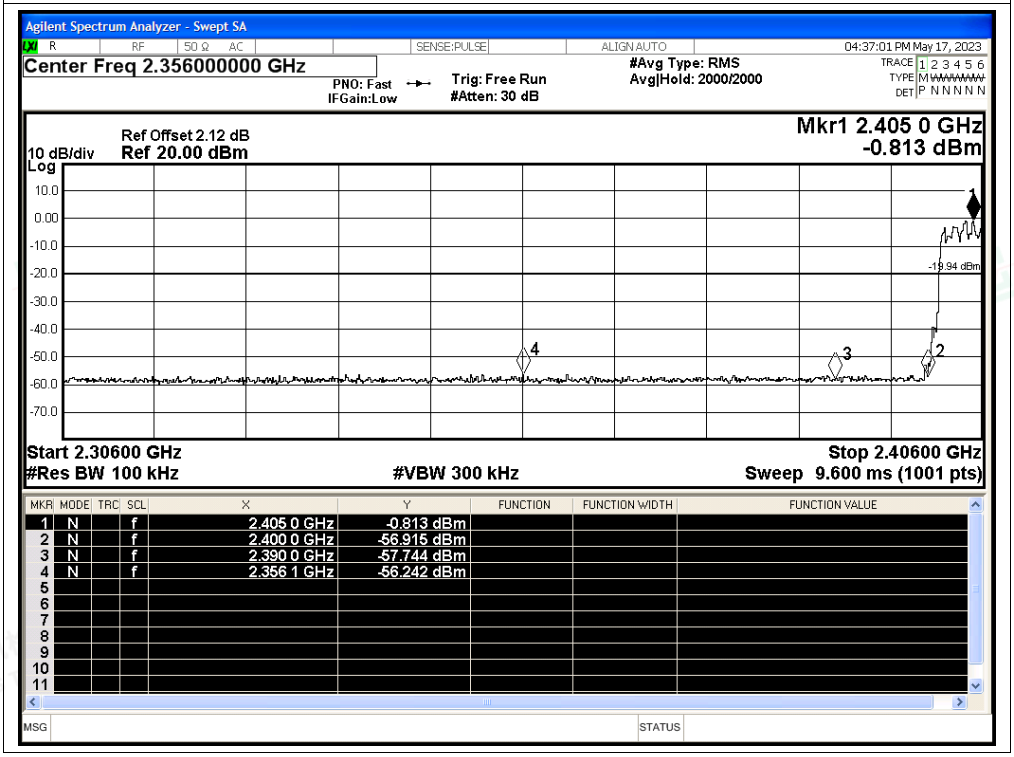
Band Edge(Hopping) NVNT 1-DH5 2480MHz Ant Hopping Emission



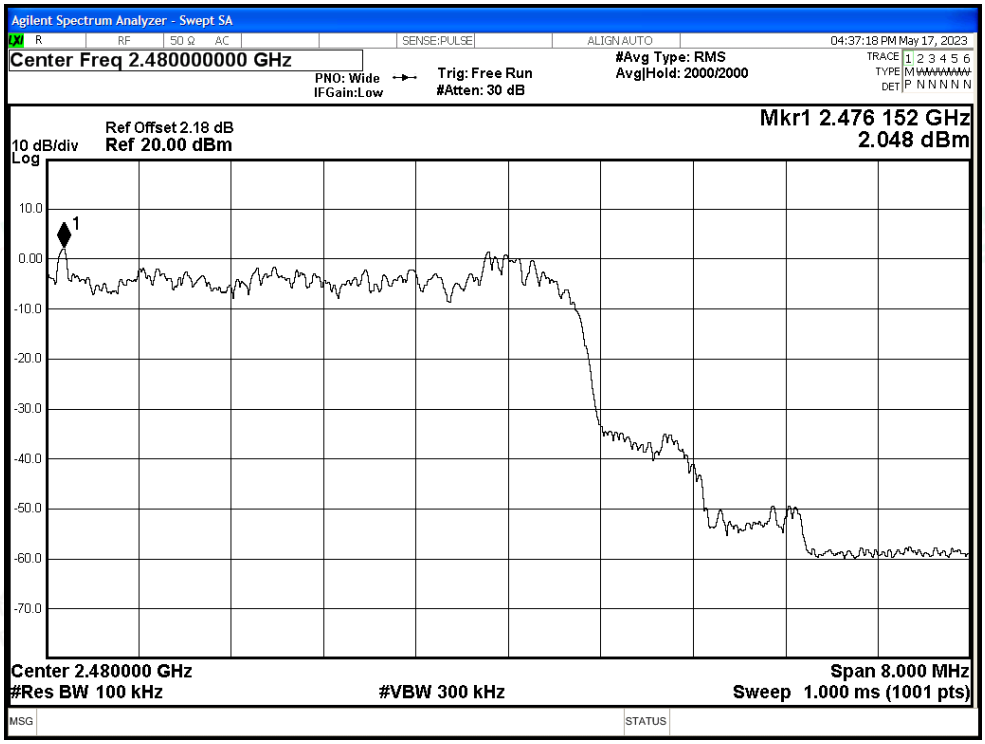
Band Edge(Hopping) NVNT 2-DH5 2402MHz Ant Hopping Ref



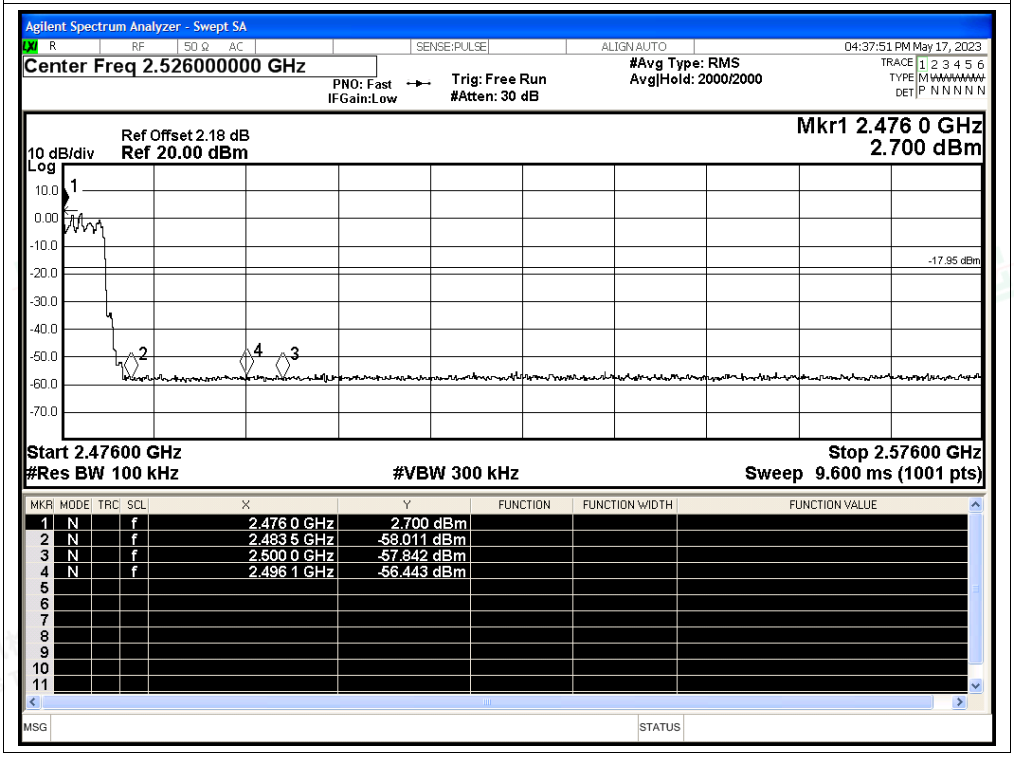
Band Edge(Hopping) NVNT 2-DH5 2402MHz Ant Hopping Emission



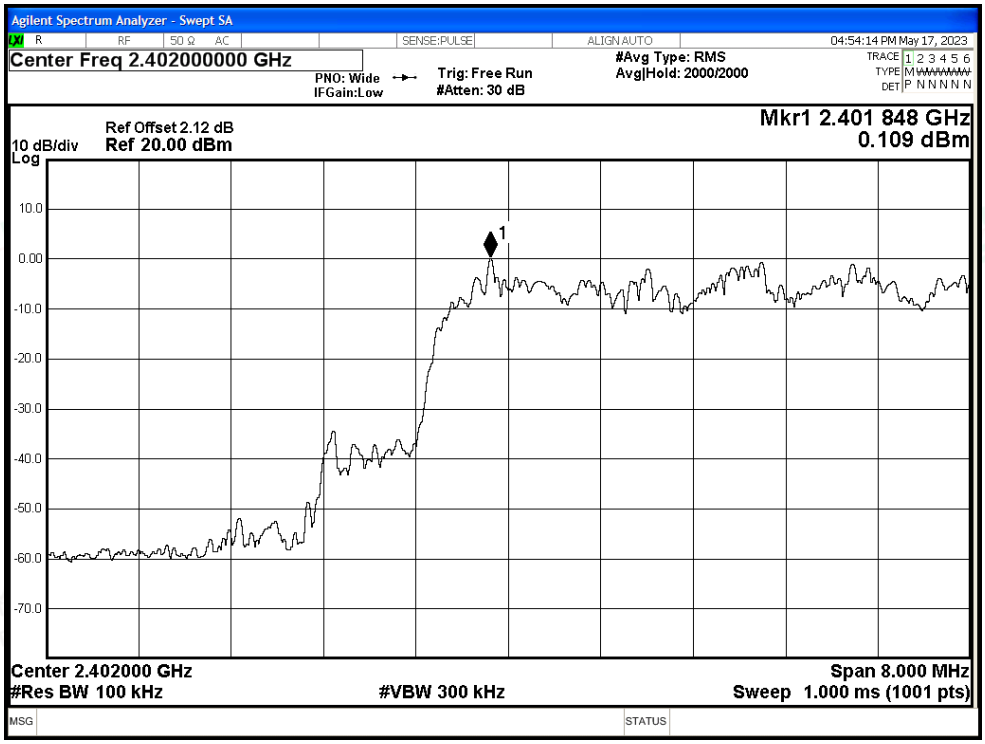
Band Edge(Hopping) NVNT 2-DH5 2480MHz Ant Hopping Ref



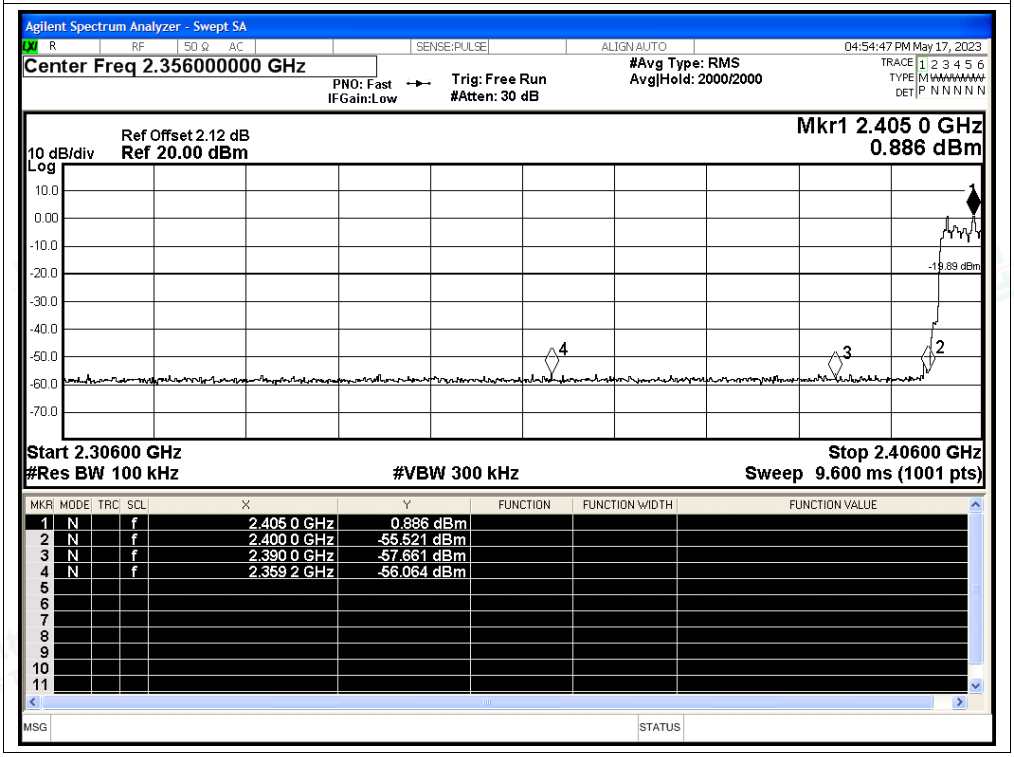
Band Edge(Hopping) NVNT 2-DH5 2480MHz Ant Hopping Emission



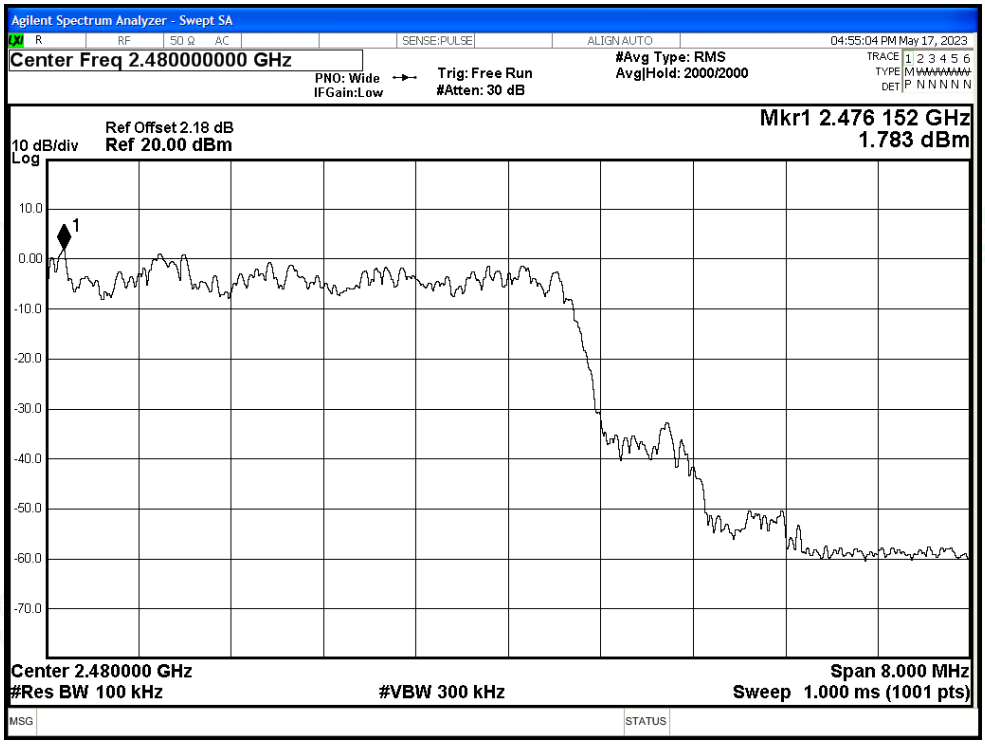
Band Edge(Hopping) NVNT 3-DH5 2402MHz Ant Hopping Ref



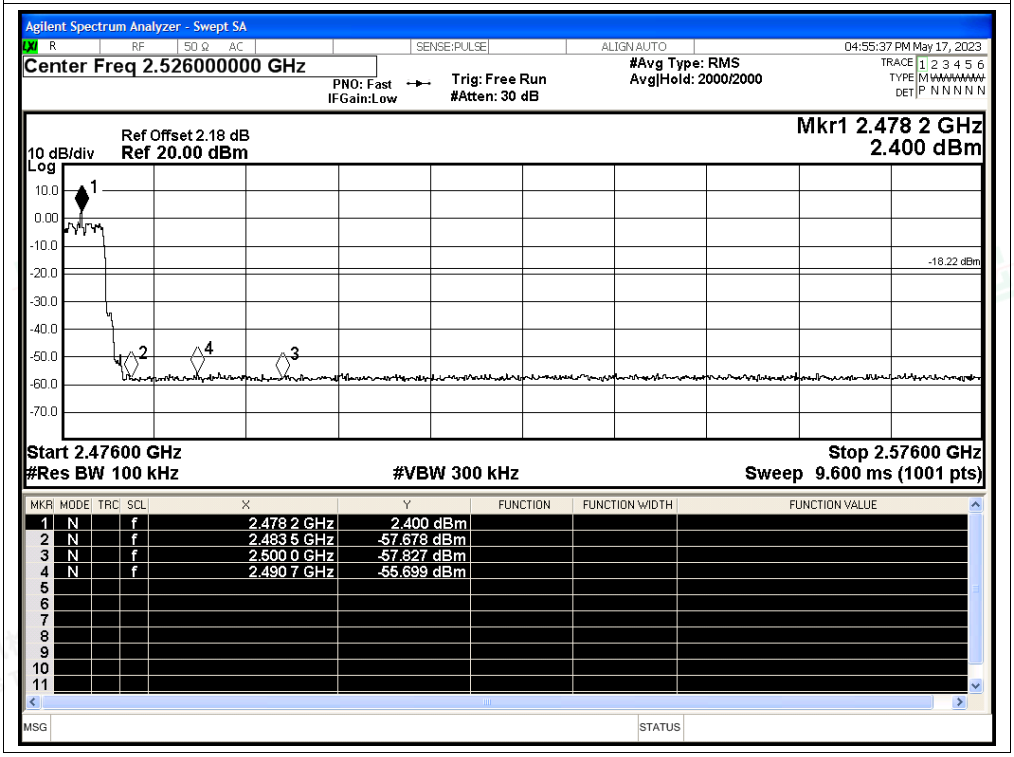
Band Edge(Hopping) NVNT 3-DH5 2402MHz Ant Hopping Emission



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



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

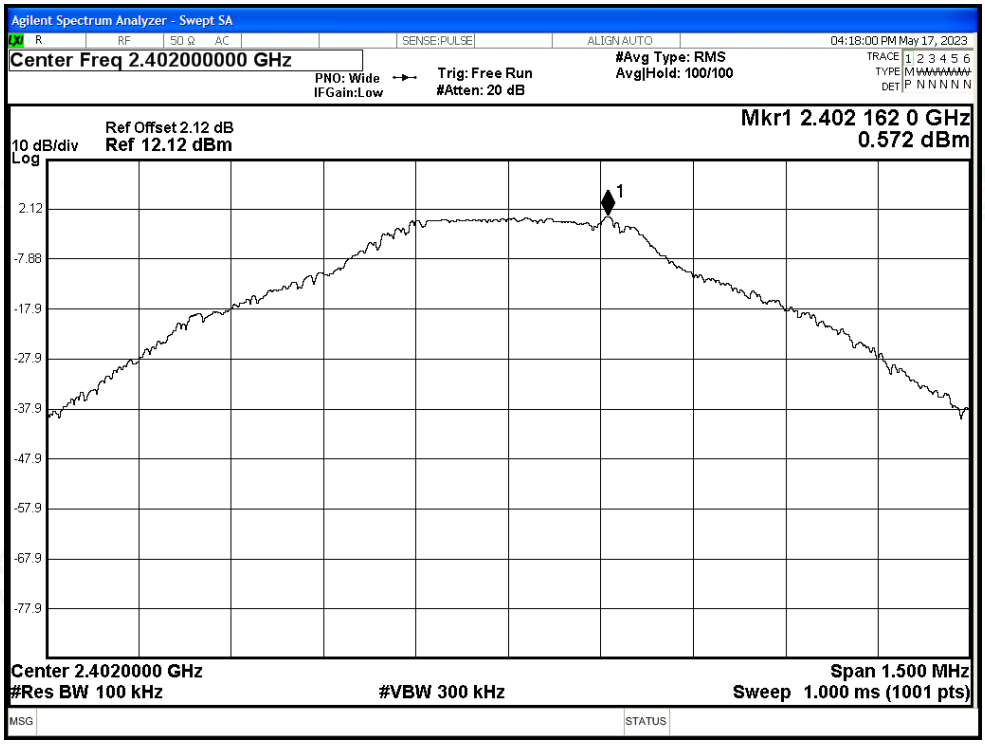


A.7 Conducted RF Spurious Emission

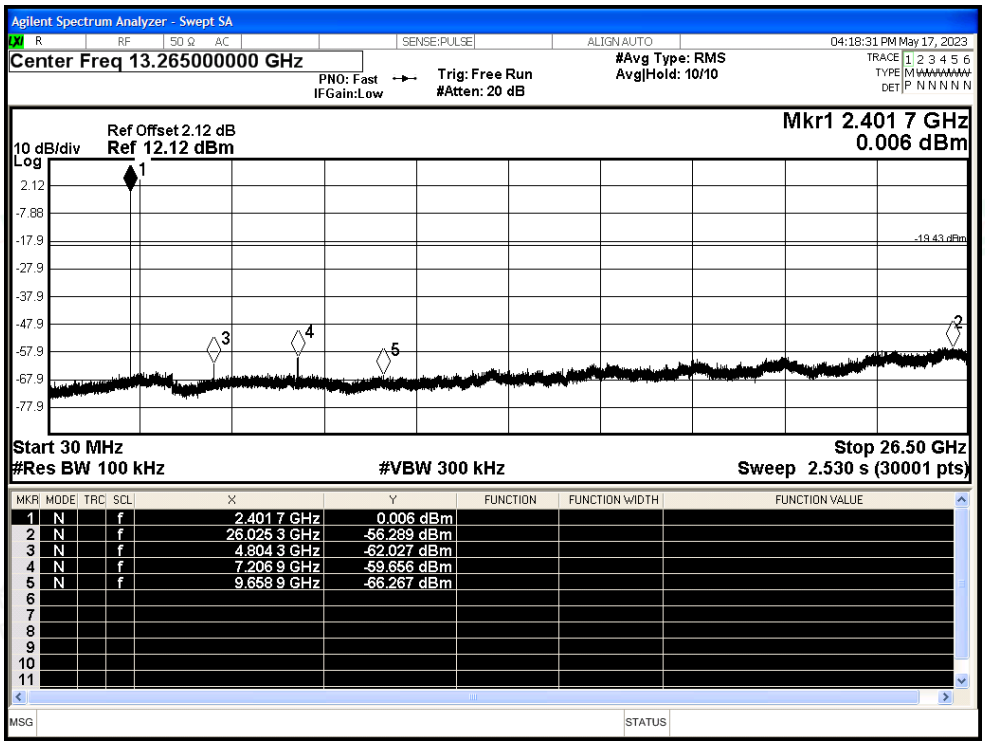
Condition	Mode	Frequency (MHz)	Antenna	Max Value (dBc)	Limit (dBc)	Verdict
NVNT	1-DH5	2402	Ant	-56.86	-20	Pass
NVNT	1-DH5	2441	Ant	-56.78	-20	Pass
NVNT	1-DH5	2480	Ant	-57.84	-20	Pass
NVNT	2-DH5	2402	Ant	-56.08	-20	Pass
NVNT	2-DH5	2441	Ant	-56.56	-20	Pass
NVNT	2-DH5	2480	Ant	-58.12	-20	Pass
NVNT	3-DH5	2402	Ant	-55.53	-20	Pass
NVNT	3-DH5	2441	Ant	-57.91	-20	Pass
NVNT	3-DH5	2480	Ant	-57.54	-20	Pass

Test Graphs

Tx. Spurious NVNT 1-DH5 2402MHz Ant Ref

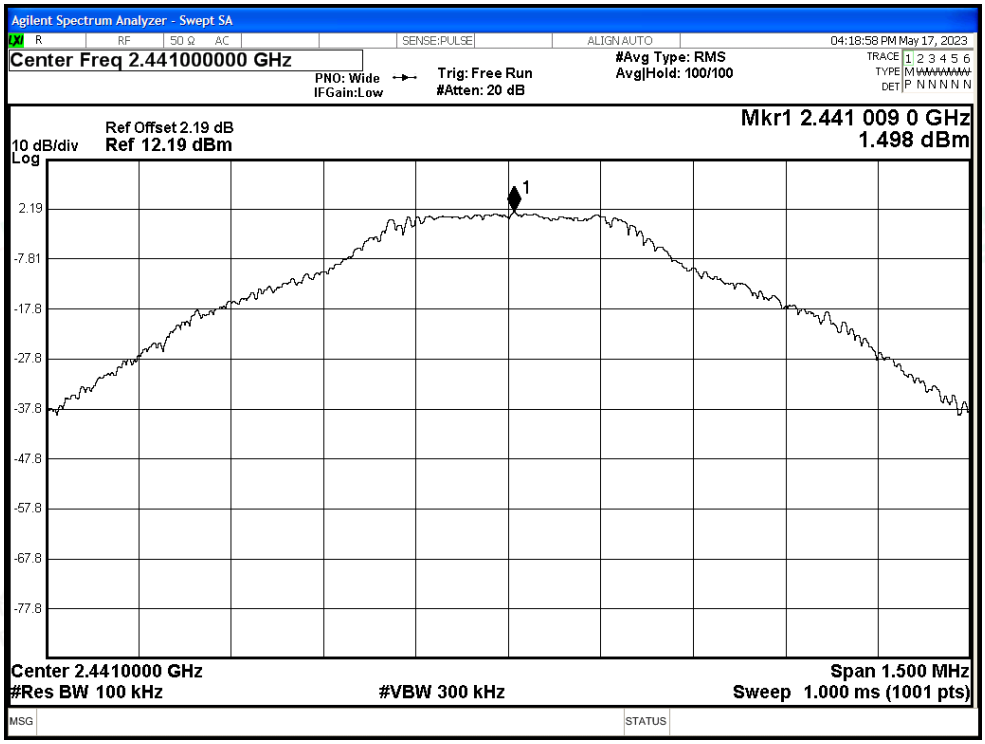


Tx. Spurious NVNT 1-DH5 2402MHz Ant Emission

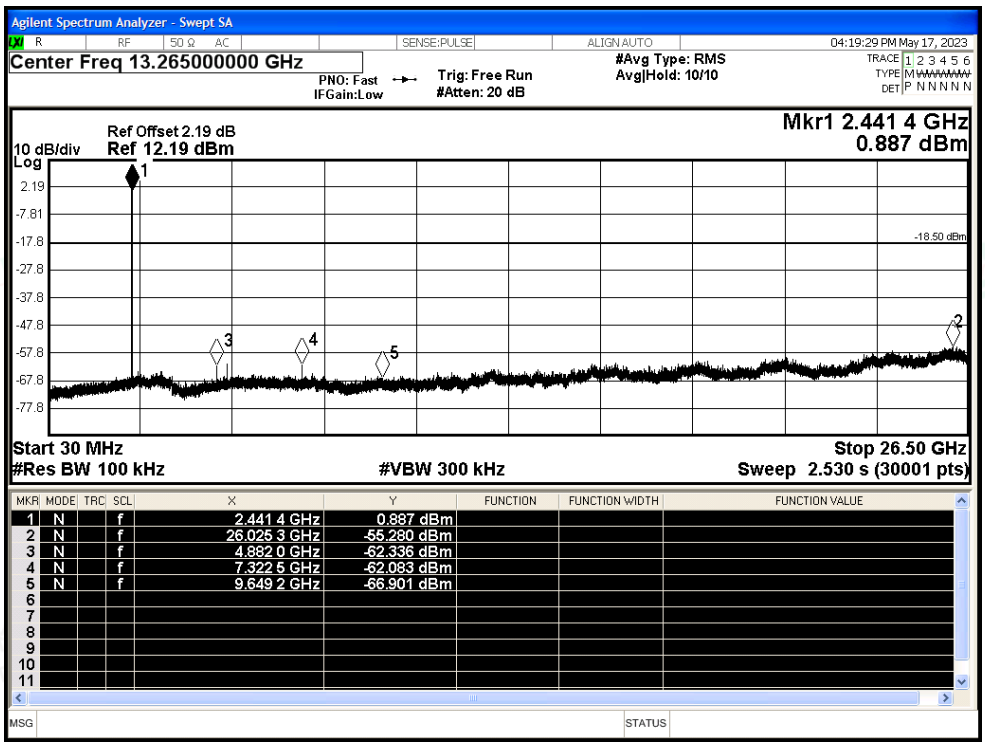


MKR	MODE	TRC	SCL	X	Y	FUNCTION	FUNCTION WIDTH	FUNCTION VALUE
1	N		f	2.401 7 GHz	0.006 dBm			
2	N		f	26.025 3 GHz	-56.289 dBm			
3	N		f	4.804 3 GHz	-62.027 dBm			
4	N		f	7.206 9 GHz	-59.656 dBm			
5	N		f	9.658 9 GHz	-66.267 dBm			
6								
7								
8								
9								
10								
11								

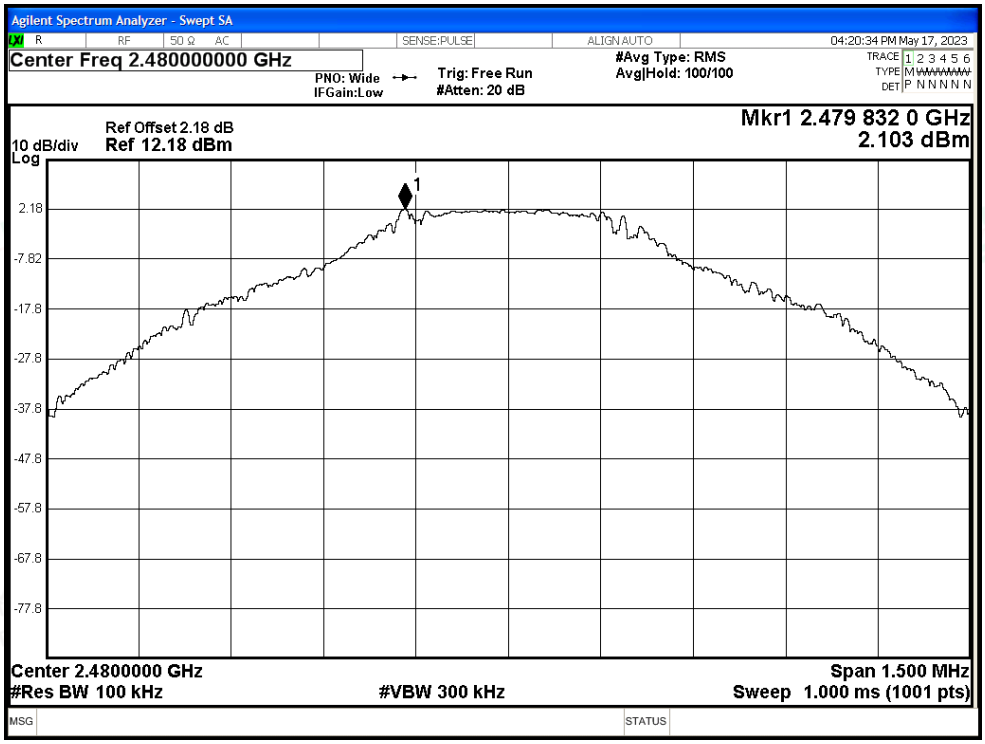
Tx. Spurious NVNT 1-DH5 2441MHz Ant Ref



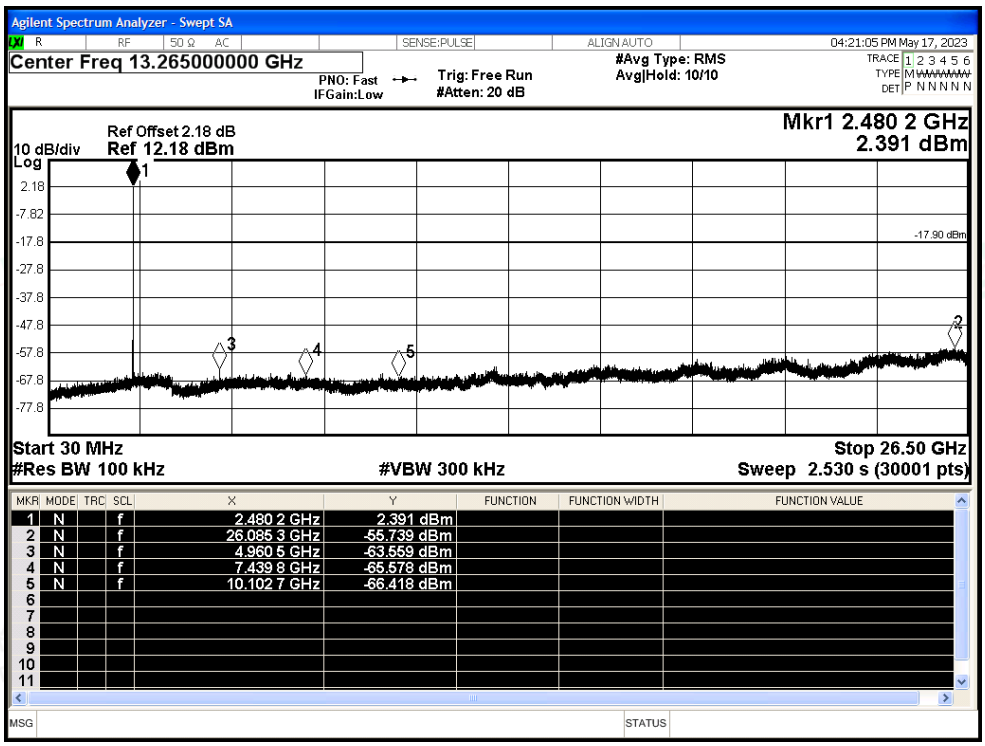
Tx. Spurious NVNT 1-DH5 2441MHz Ant Emission



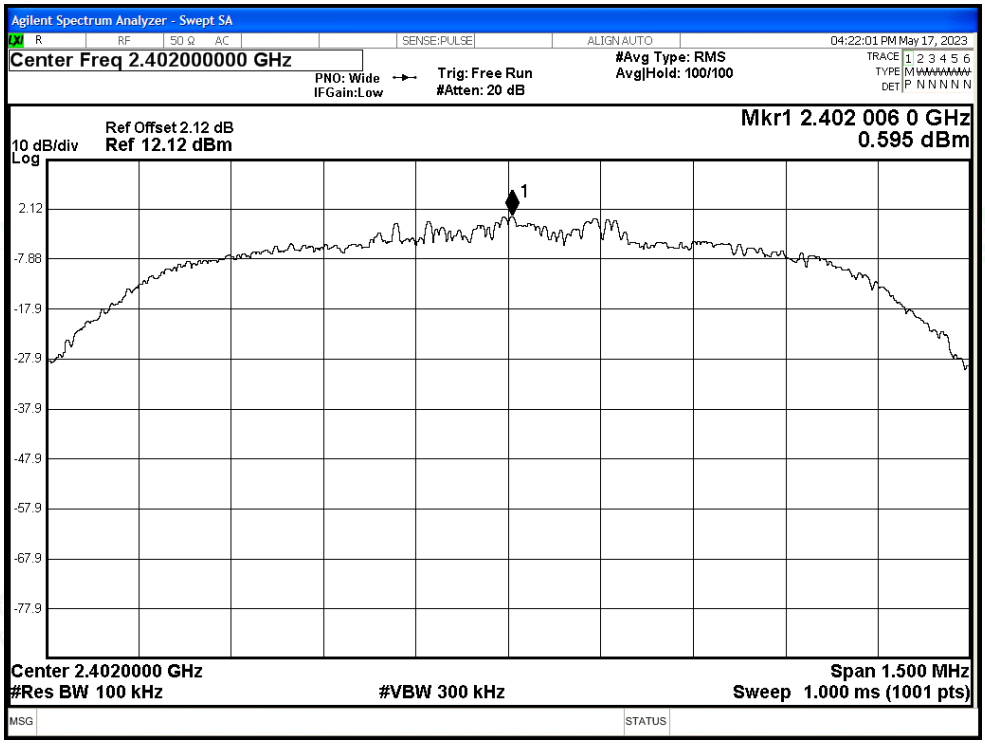
Tx. Spurious NVNT 1-DH5 2480MHz Ant Ref



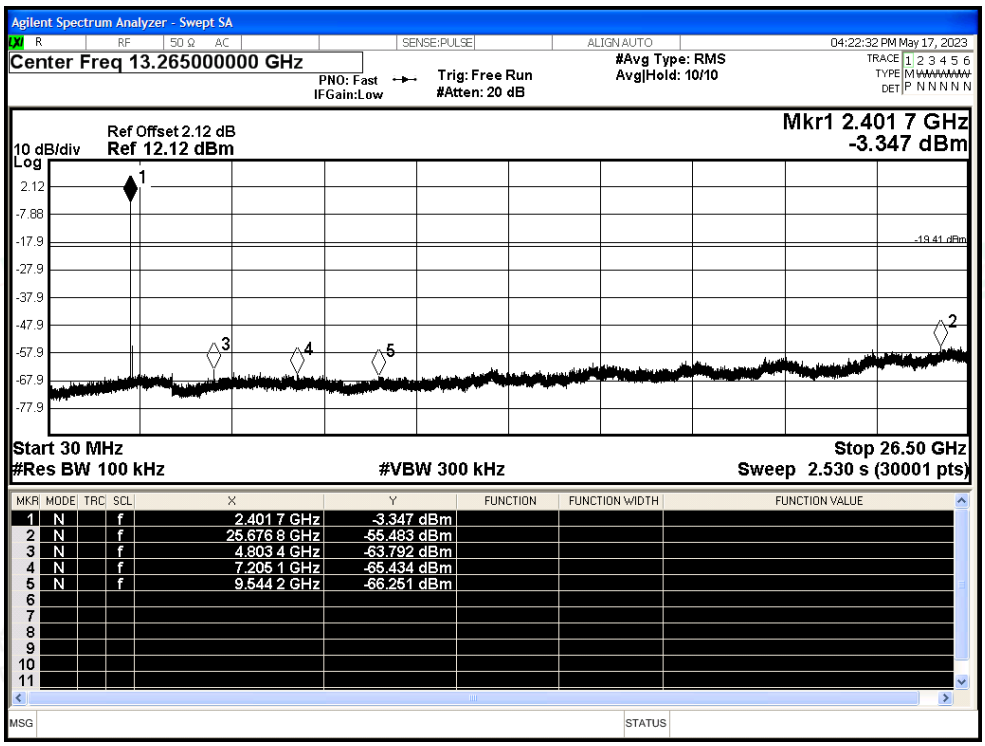
Tx. Spurious NVNT 1-DH5 2480MHz Ant Emission



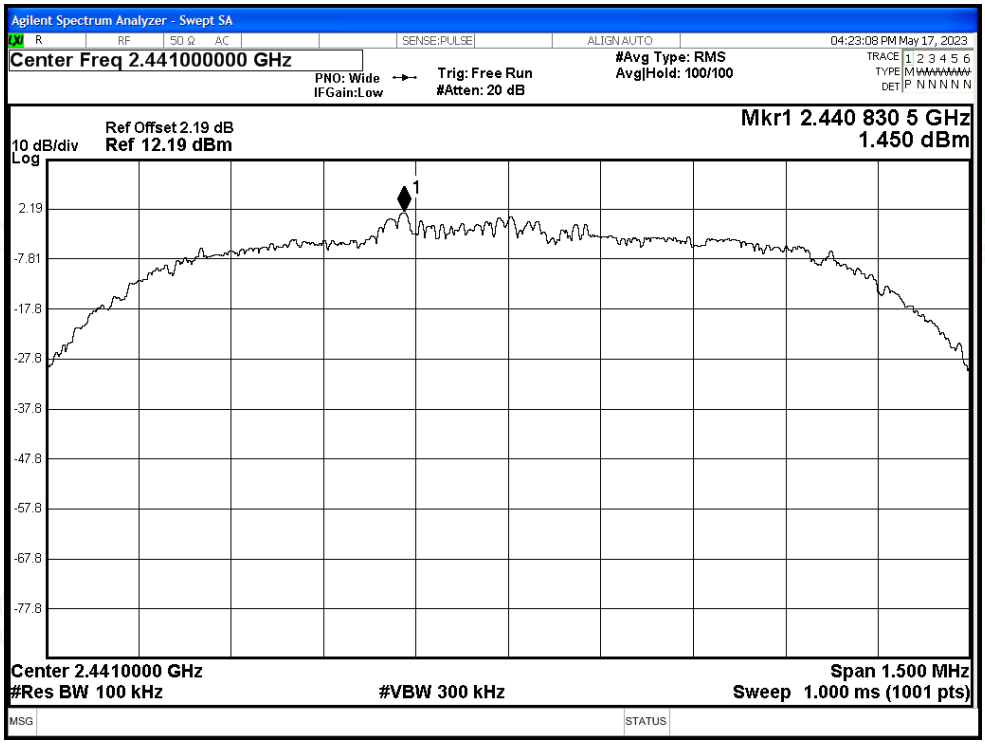
Tx. Spurious NVNT 2-DH5 2402MHz Ant Ref



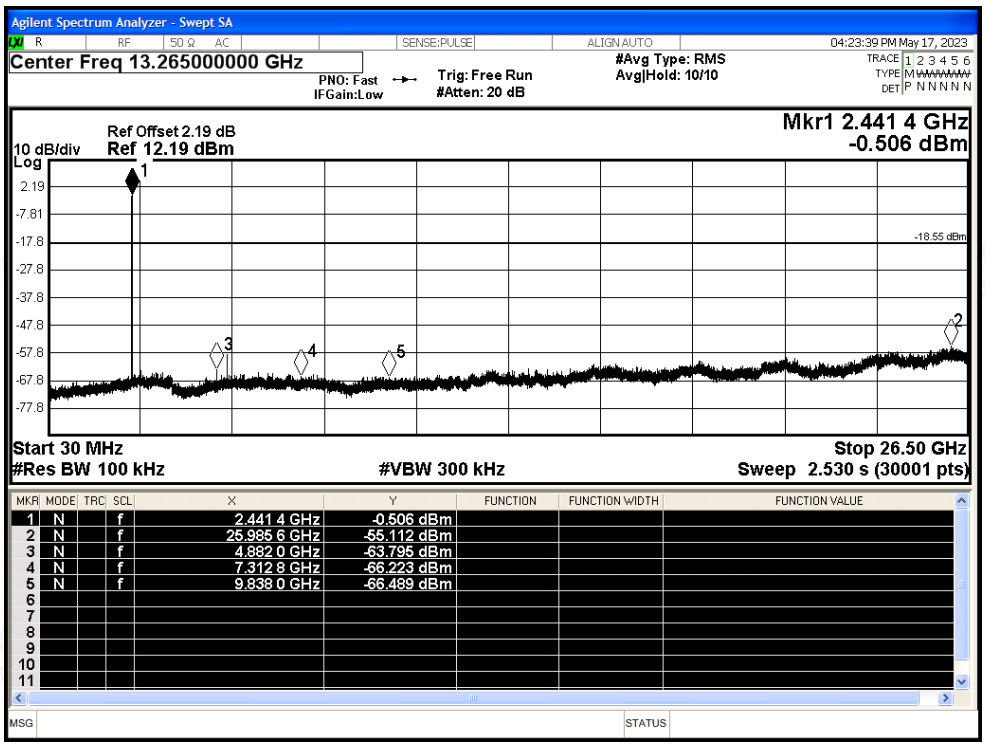
Tx. Spurious NVNT 2-DH5 2402MHz Ant Emission



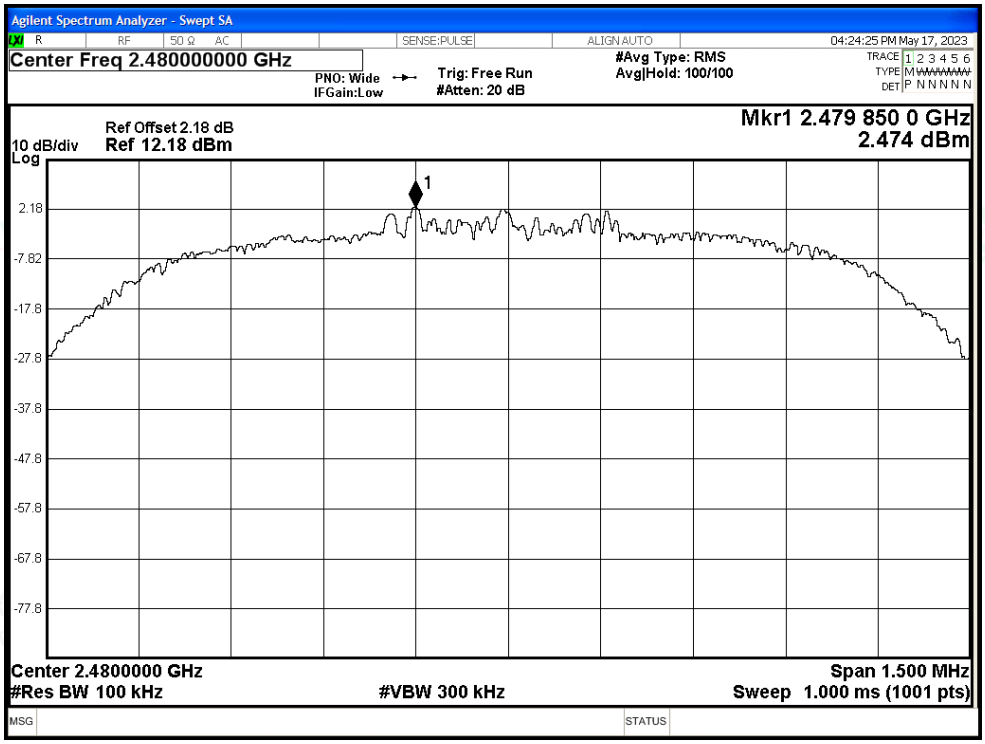
Tx. Spurious NVNT 2-DH5 2441MHz Ant Ref



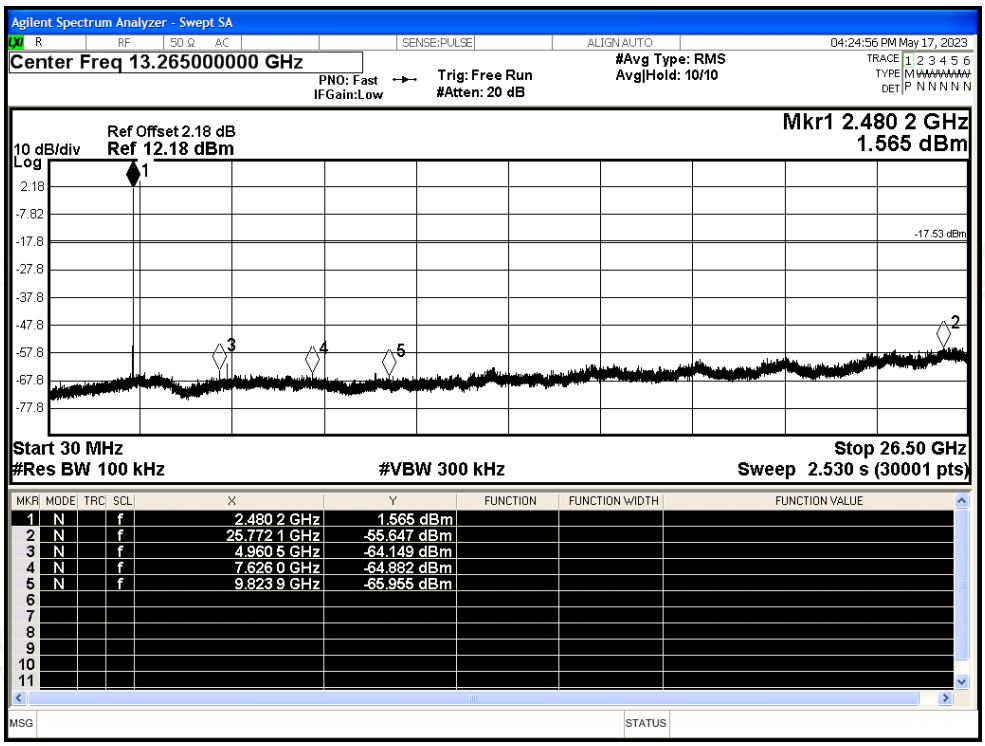
Tx. Spurious NVNT 2-DH5 2441MHz Ant Emission



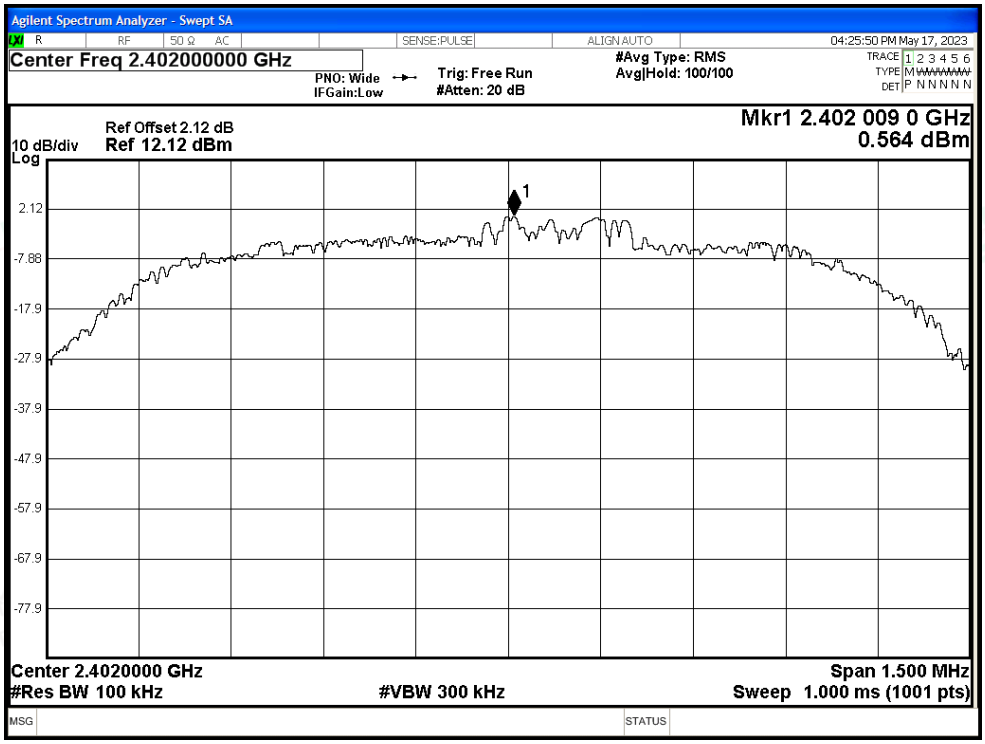
Tx. Spurious NVNT 2-DH5 2480MHz Ant Ref



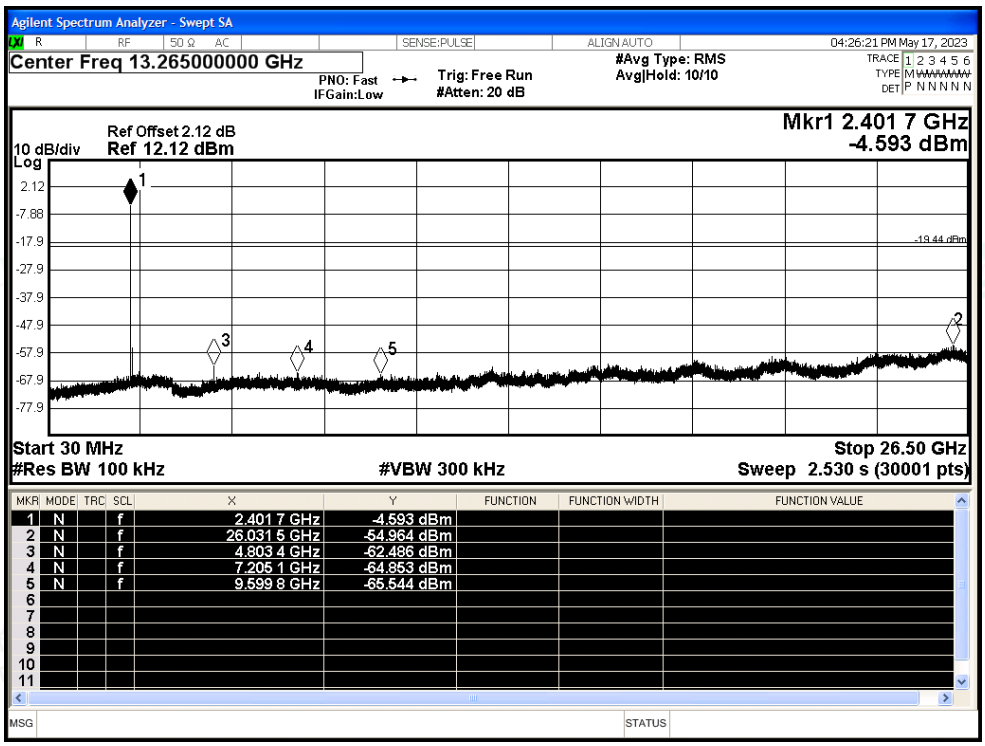
Tx. Spurious NVNT 2-DH5 2480MHz Ant Emission



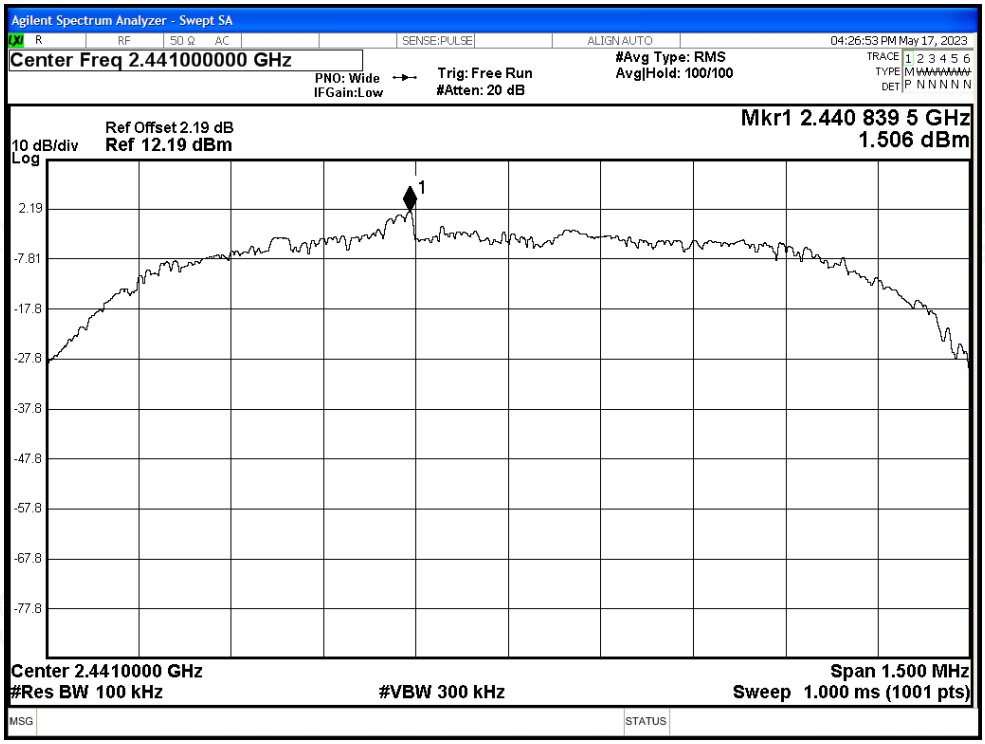
Tx. Spurious NVNT 3-DH5 2402MHz Ant Ref



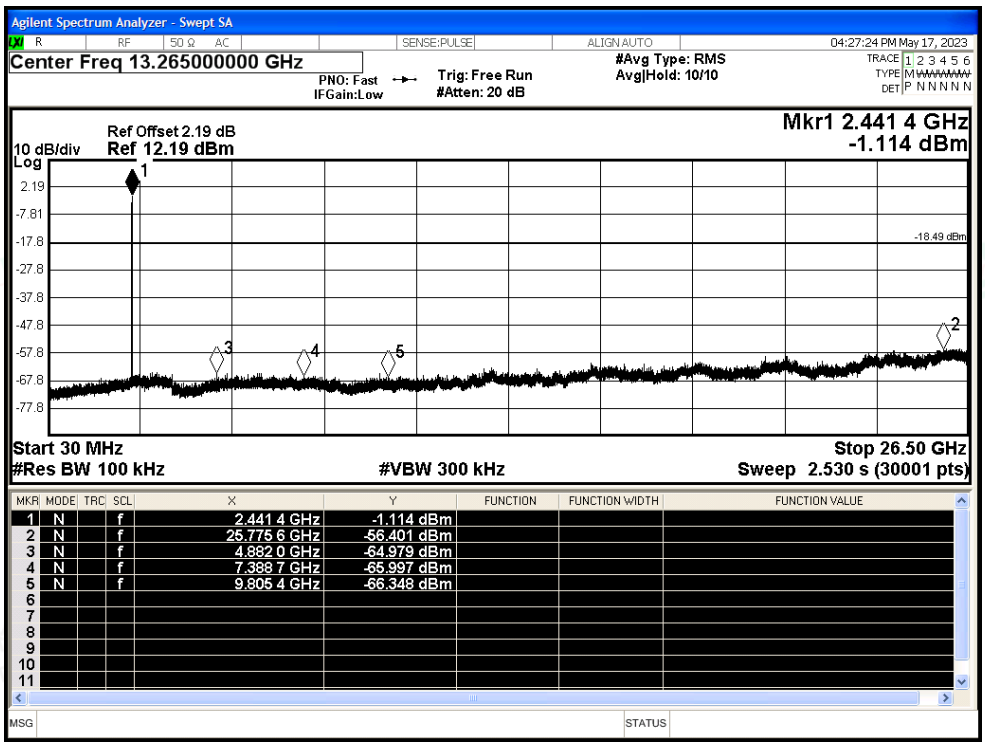
Tx. Spurious NVNT 3-DH5 2402MHz Ant Emission



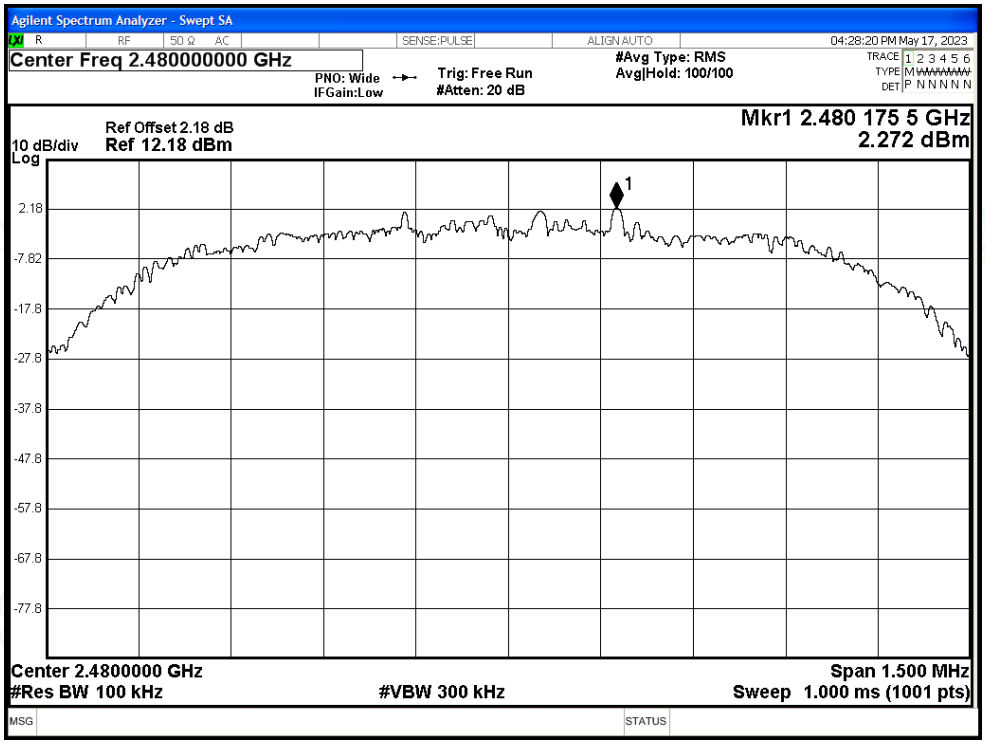
Tx. Spurious NVNT 3-DH5 2441MHz Ant Ref



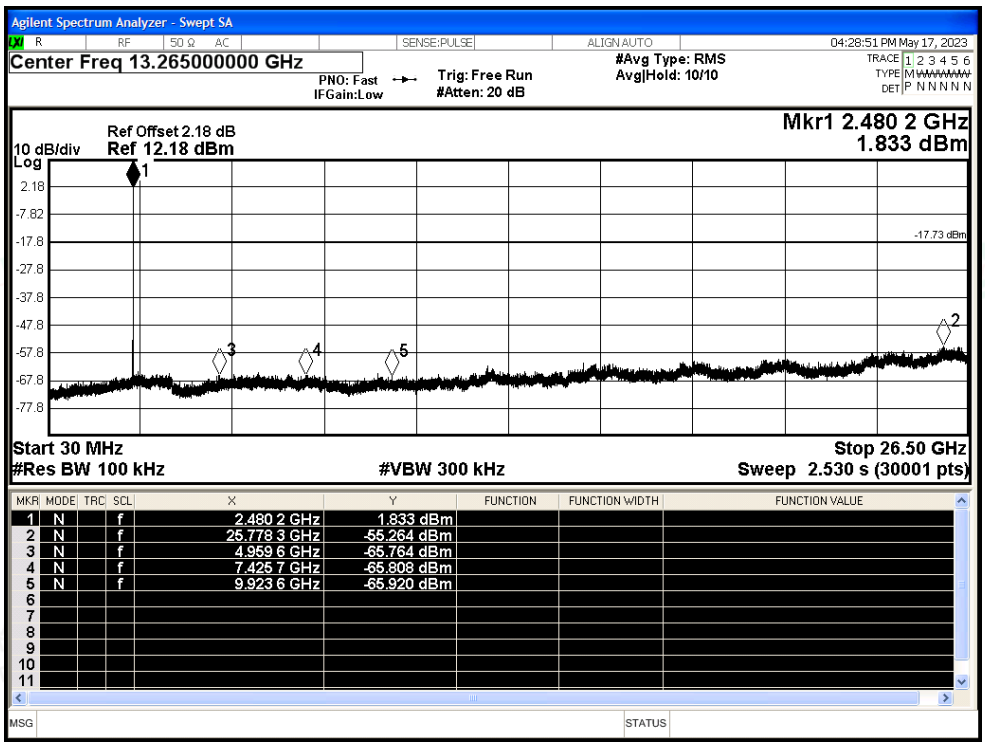
Tx. Spurious NVNT 3-DH5 2441MHz Ant Emission



Tx. Spurious NVNT 3-DH5 2480MHz Ant Ref



Tx. Spurious NVNT 3-DH5 2480MHz Ant Emission

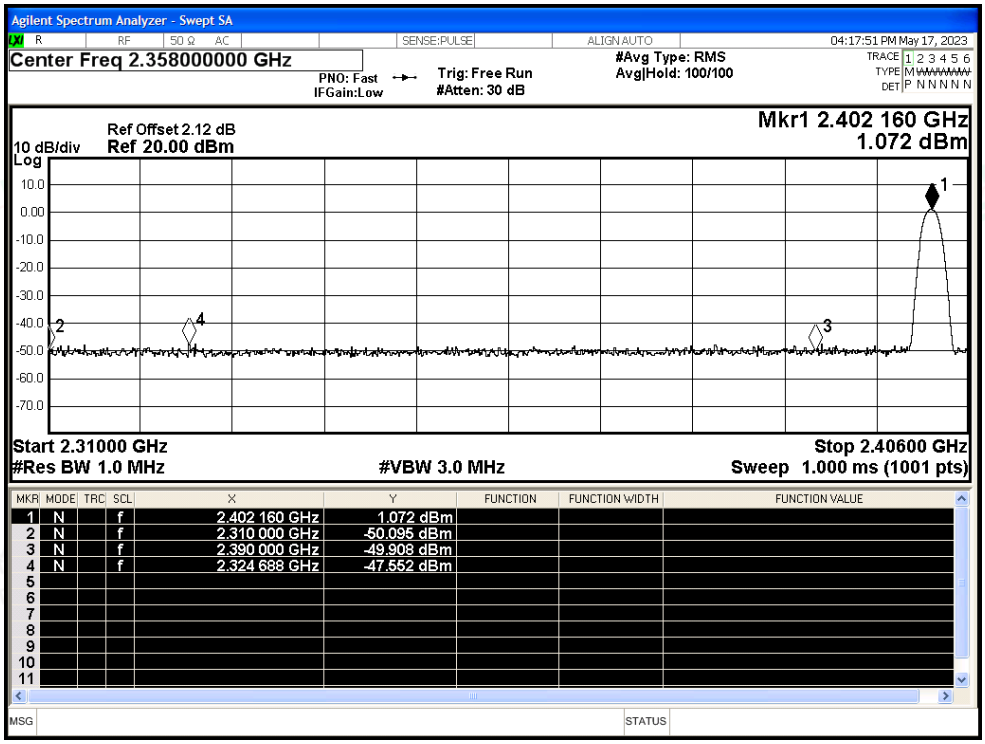


A.8 Restrict Band

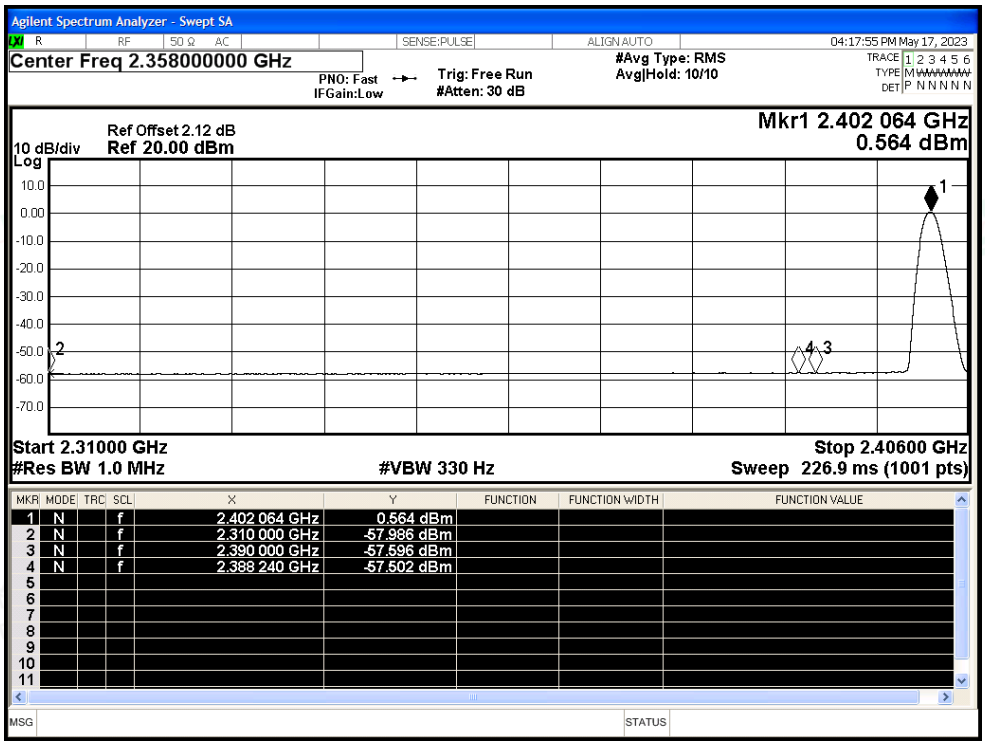
Condition	Mode	Frequency (MHz)	Antenna	Hopping Mode	Spur Freq (MHz)	Power (dBm)	Gain (dBi)	E (dBuV/m)	Detector	Limit (dBuV/m)	Verdict
NVNT	1-DH5	2402	Ant	No-Hopping	2310	-50.1	2.67	47.80	Peak	74	Pass
NVNT	1-DH5	2402	Ant	No-Hopping	2310	-57.99	2.67	39.91	Average	54	Pass
NVNT	1-DH5	2402	Ant	No-Hopping	2324.688	-47.55	2.67	50.35	Peak	74	Pass
NVNT	1-DH5	2402	Ant	No-Hopping	2388.24	-57.5	2.67	40.40	Average	54	Pass
NVNT	1-DH5	2402	Ant	No-Hopping	2390	-49.91	2.67	47.99	Peak	74	Pass
NVNT	1-DH5	2402	Ant	No-Hopping	2390	-57.6	2.67	40.30	Average	54	Pass
NVNT	1-DH5	2480	Ant	No-Hopping	2483.5	-50.06	2.67	47.84	Peak	74	Pass
NVNT	1-DH5	2480	Ant	No-Hopping	2483.5	-54.84	2.67	43.06	Average	54	Pass
NVNT	1-DH5	2480	Ant	No-Hopping	2489.344	-47.11	2.67	50.79	Peak	74	Pass
NVNT	1-DH5	2480	Ant	No-Hopping	2483.512	-54.84	2.67	43.06	Average	54	Pass
NVNT	1-DH5	2480	Ant	No-Hopping	2500	-51.96	2.67	45.94	Peak	74	Pass
NVNT	1-DH5	2480	Ant	No-Hopping	2500	-57.15	2.67	40.75	Average	54	Pass
NVNT	2-DH5	2402	Ant	No-Hopping	2310	-50.97	2.67	46.93	Peak	74	Pass
NVNT	2-DH5	2402	Ant	No-Hopping	2310	-57.88	2.67	40.02	Average	54	Pass
NVNT	2-DH5	2402	Ant	No-Hopping	2317.488	-46.42	2.67	51.48	Peak	74	Pass
NVNT	2-DH5	2402	Ant	No-Hopping	2389.392	-57.47	2.67	40.43	Average	54	Pass
NVNT	2-DH5	2402	Ant	No-Hopping	2390	-50.71	2.67	47.19	Peak	74	Pass
NVNT	2-DH5	2402	Ant	No-Hopping	2390	-57.64	2.67	40.26	Average	54	Pass
NVNT	2-DH5	2480	Ant	No-Hopping	2483.5	-49.87	2.67	48.03	Peak	74	Pass
NVNT	2-DH5	2480	Ant	No-Hopping	2483.5	-54.08	2.67	43.82	Average	54	Pass
NVNT	2-DH5	2480	Ant	No-Hopping	2487.64	-47.07	2.67	50.83	Peak	74	Pass
NVNT	2-DH5	2480	Ant	No-Hopping	2483.512	-54.08	2.67	43.82	Average	54	Pass
NVNT	2-DH5	2480	Ant	No-Hopping	2500	-51.32	2.67	46.58	Peak	74	Pass
NVNT	2-DH5	2480	Ant	No-Hopping	2500	-57.14	2.67	40.76	Average	54	Pass
NVNT	3-DH5	2402	Ant	No-Hopping	2310	-50.59	2.67	47.31	Peak	74	Pass
NVNT	3-DH5	2402	Ant	No-Hopping	2310	-57.97	2.67	39.93	Average	54	Pass
NVNT	3-DH5	2402	Ant	No-Hopping	2339.568	-47.73	2.67	50.17	Peak	74	Pass
NVNT	3-DH5	2402	Ant	No-Hopping	2389.008	-57.44	2.67	40.46	Average	54	Pass
NVNT	3-DH5	2402	Ant	No-Hopping	2390	-51.83	2.67	46.07	Peak	74	Pass
NVNT	3-DH5	2402	Ant	No-Hopping	2390	-57.63	2.67	40.27	Average	54	Pass
NVNT	3-DH5	2480	Ant	No-Hopping	2483.5	-50.19	2.67	47.71	Peak	74	Pass
NVNT	3-DH5	2480	Ant	No-Hopping	2483.5	-54.07	2.67	43.83	Average	54	Pass
NVNT	3-DH5	2480	Ant	No-Hopping	2490.616	-46.83	2.67	51.07	Peak	74	Pass
NVNT	3-DH5	2480	Ant	No-Hopping	2483.512	-54.07	2.67	43.83	Average	54	Pass
NVNT	3-DH5	2480	Ant	No-Hopping	2500	-50.25	2.67	47.65	Peak	74	Pass
NVNT	3-DH5	2480	Ant	No-Hopping	2500	-57.26	2.67	40.64	Average	54	Pass

Test Graphs

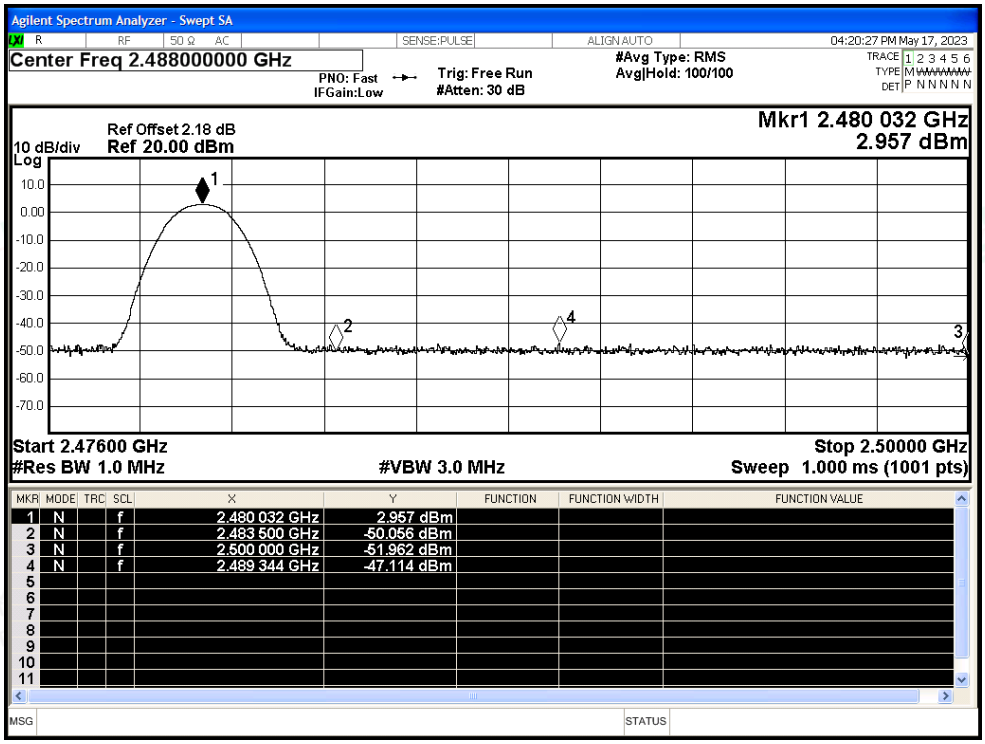
Restrict Band NVNT 1-DH5 2402MHz Ant No-Hopping Peak



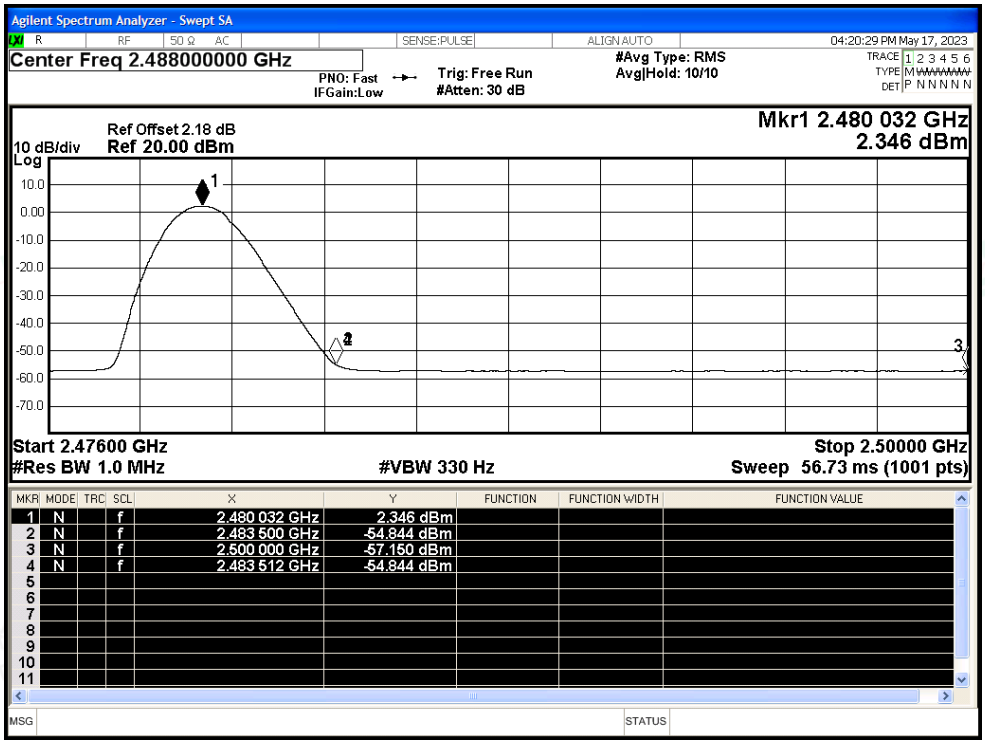
Restrict Band NVNT 1-DH5 2402MHz Ant No-Hopping Average



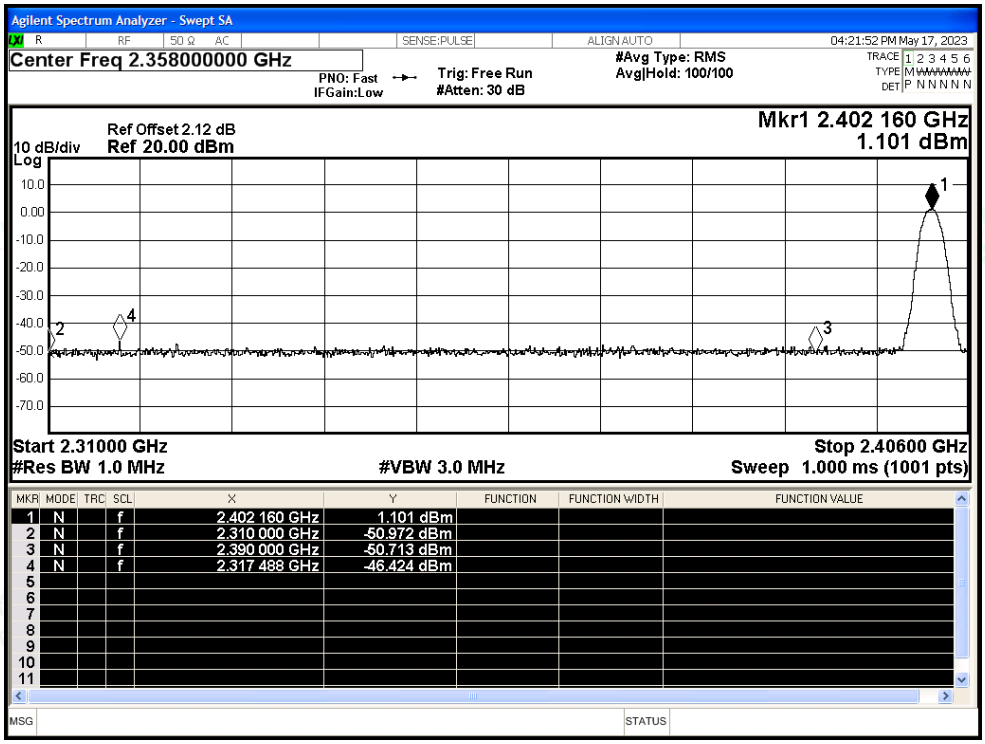
Restrict Band NVNT 1-DH5 2480MHz Ant No-Hopping Peak



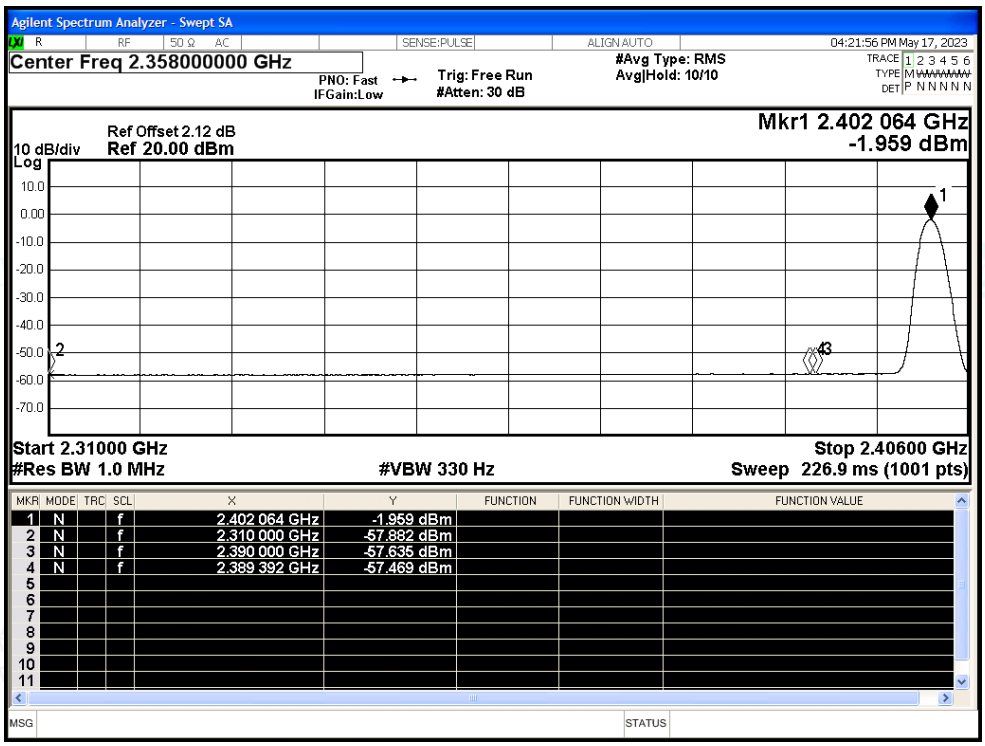
Restrict Band NVNT 1-DH5 2480MHz Ant No-Hopping Average



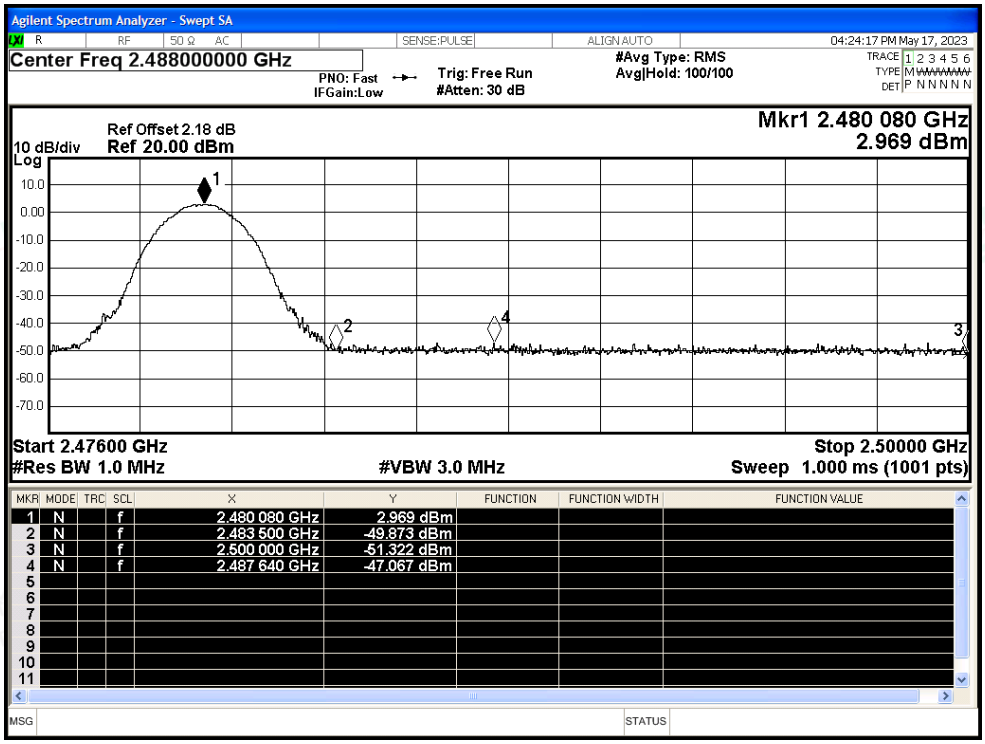
Restrict Band NVNT 2-DH5 2402MHz Ant No-Hopping Peak



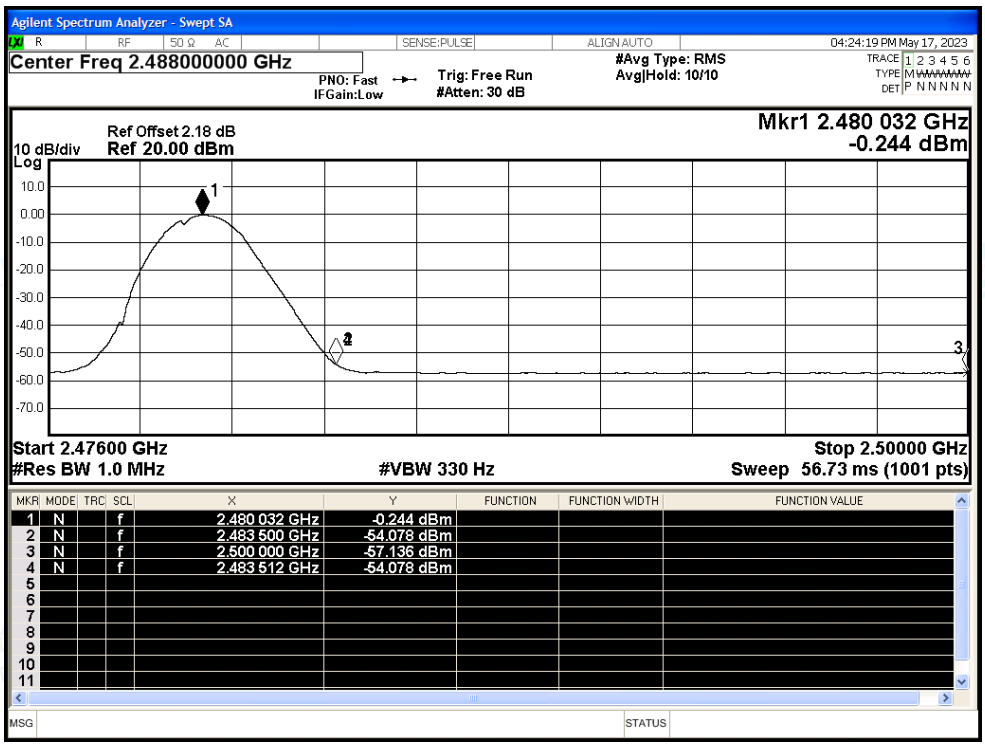
Restrict Band NVNT 2-DH5 2402MHz Ant No-Hopping Average



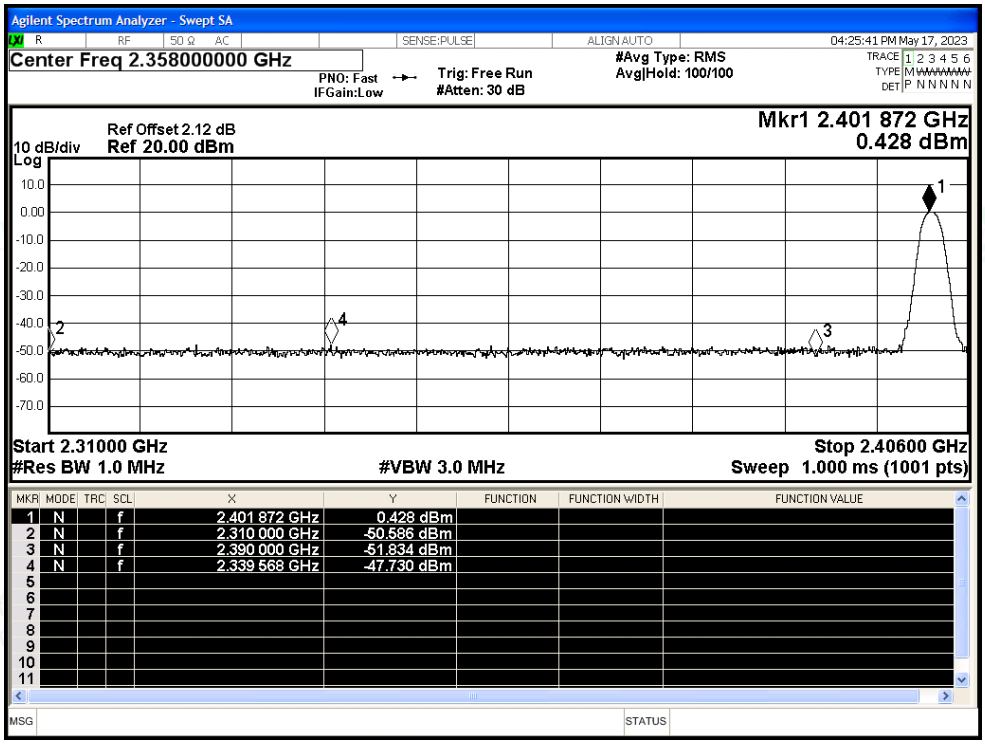
Restrict Band NVNT 2-DH5 2480MHz Ant No-Hopping Peak



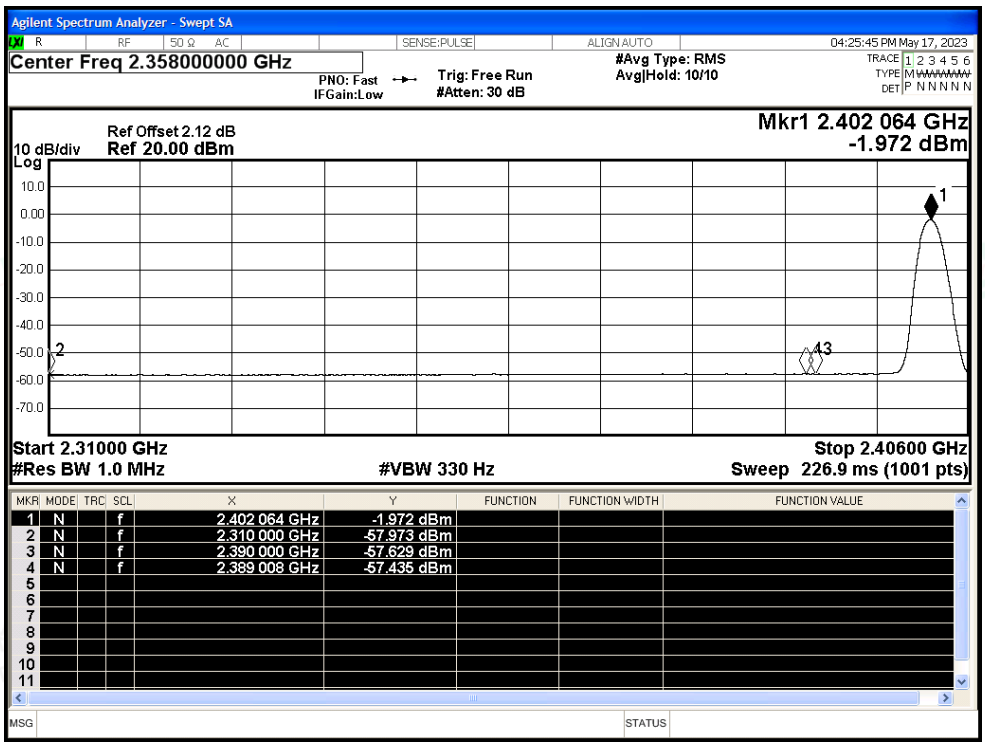
Restrict Band NVNT 2-DH5 2480MHz Ant No-Hopping Average



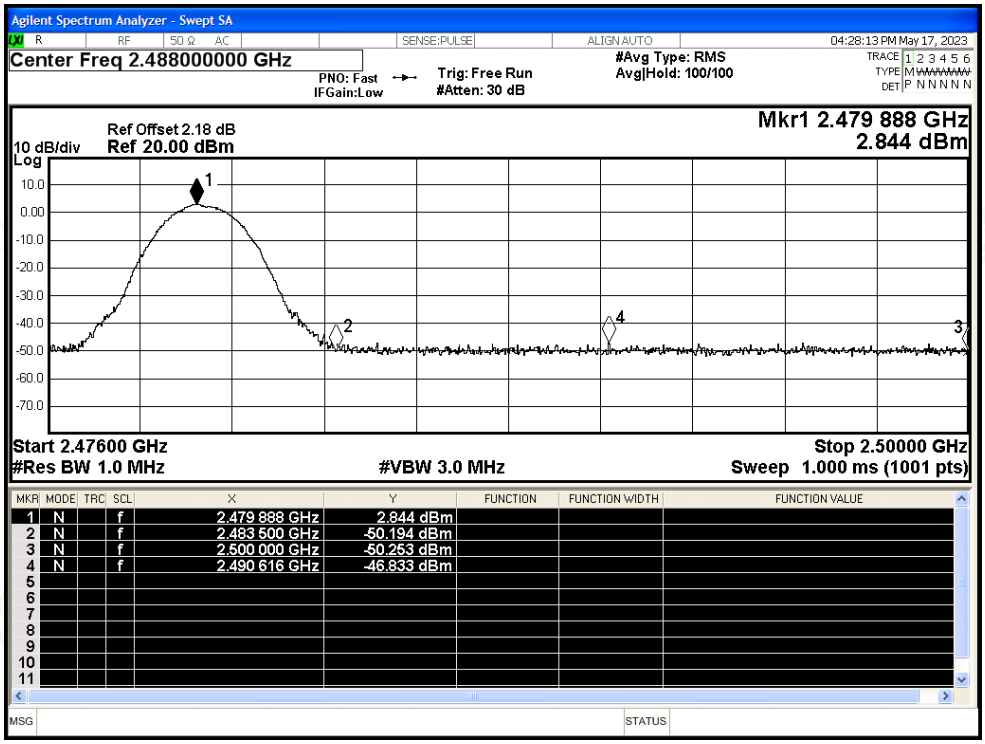
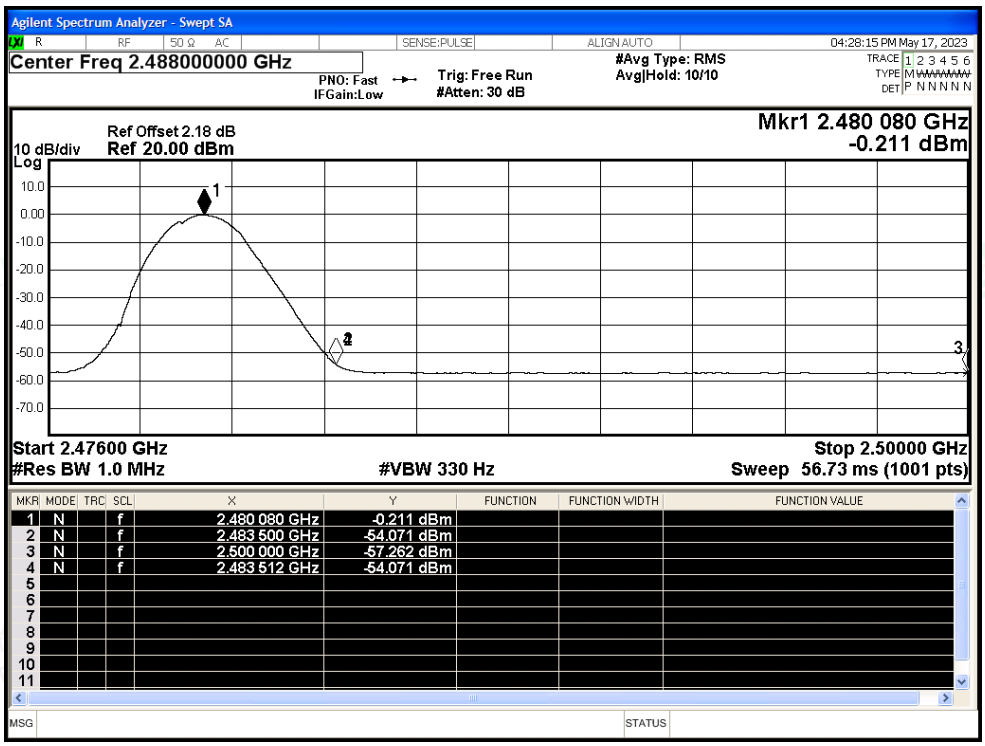
Restrict Band NVNT 3-DH5 2402MHz Ant No-Hopping Peak



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