Appendix A

RF Test Data for BT (Conducted Measurement)

Product Name: NightBird

Test Model: NB10

Environmental Conditions

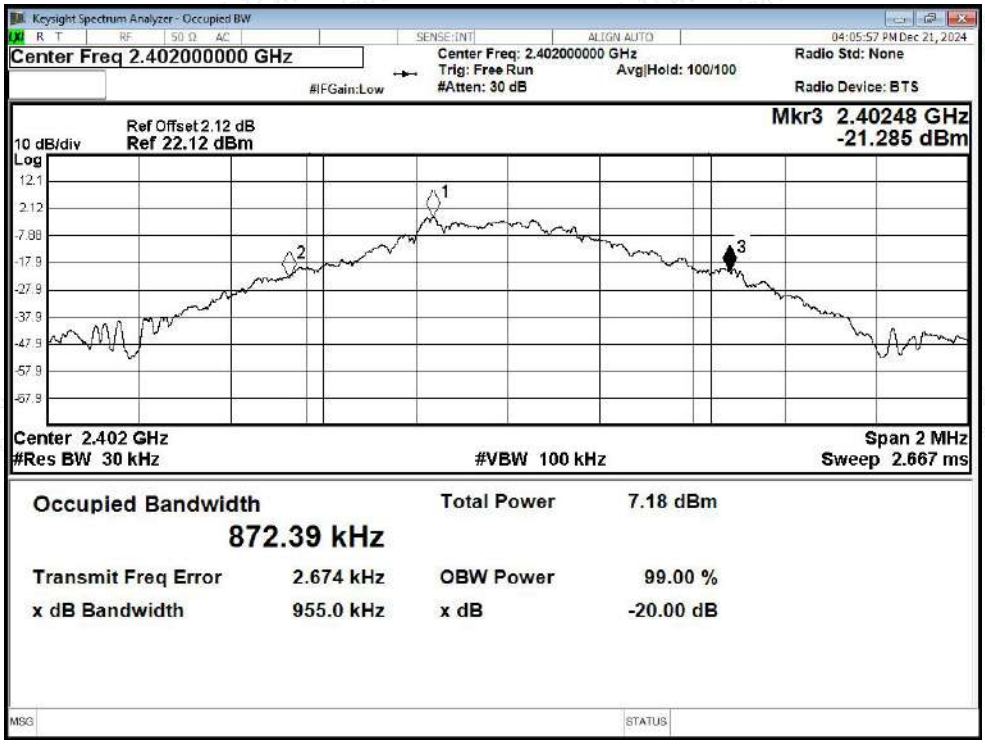
Temperature:	23.8°C
Relative Humidity:	52.3%
ATM Pressure:	100.0 kPa
Test Engineer:	Paddi Chen
Supervised by:	Nick Peng

A.1 -20dB Bandwidth

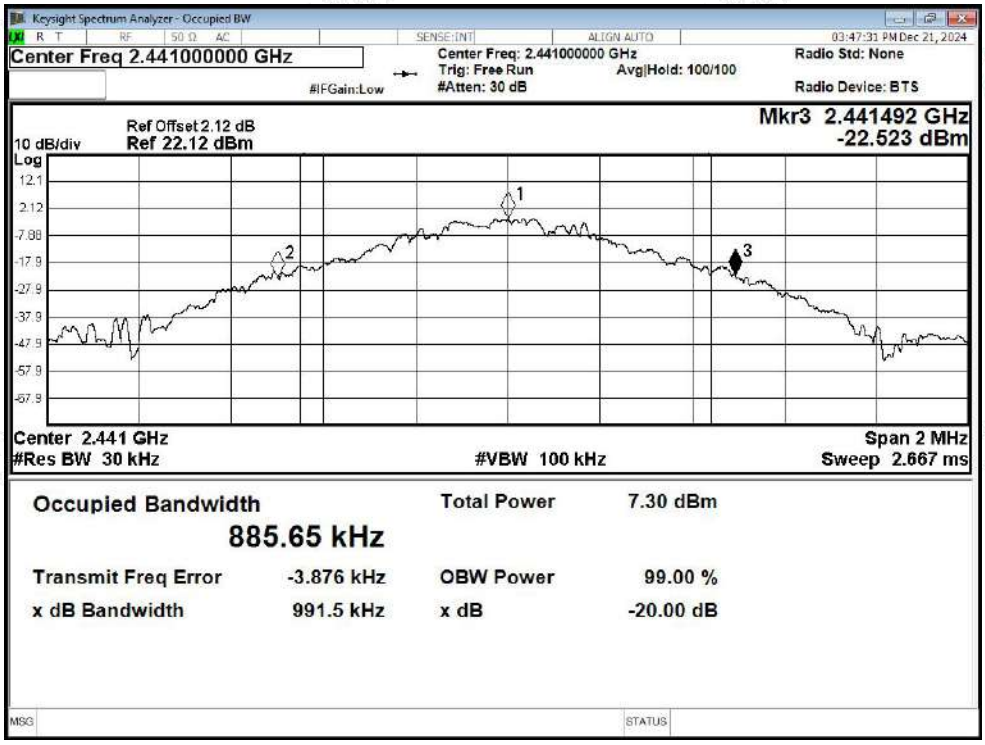
Condition	Mode	Frequency (MHz)	Antenna	-20 dB Bandwidth (MHz)	Limit -20 dB Bandwidth (MHz)	Verdict
NVNT	1-DH5	2402	Ant1	0.955	0	Pass
NVNT	1-DH5	2441	Ant1	0.992	0	Pass
NVNT	1-DH5	2480	Ant1	0.996	0	Pass
NVNT	2-DH5	2402	Ant1	1.295	0	Pass
NVNT	2-DH5	2441	Ant1	1.282	0	Pass
NVNT	2-DH5	2480	Ant1	1.284	0	Pass
NVNT	3-DH5	2402	Ant1	1.329	0	Pass
NVNT	3-DH5	2441	Ant1	1.31	0	Pass
NVNT	3-DH5	2480	Ant1	1.302	0	Pass

Test Graphs

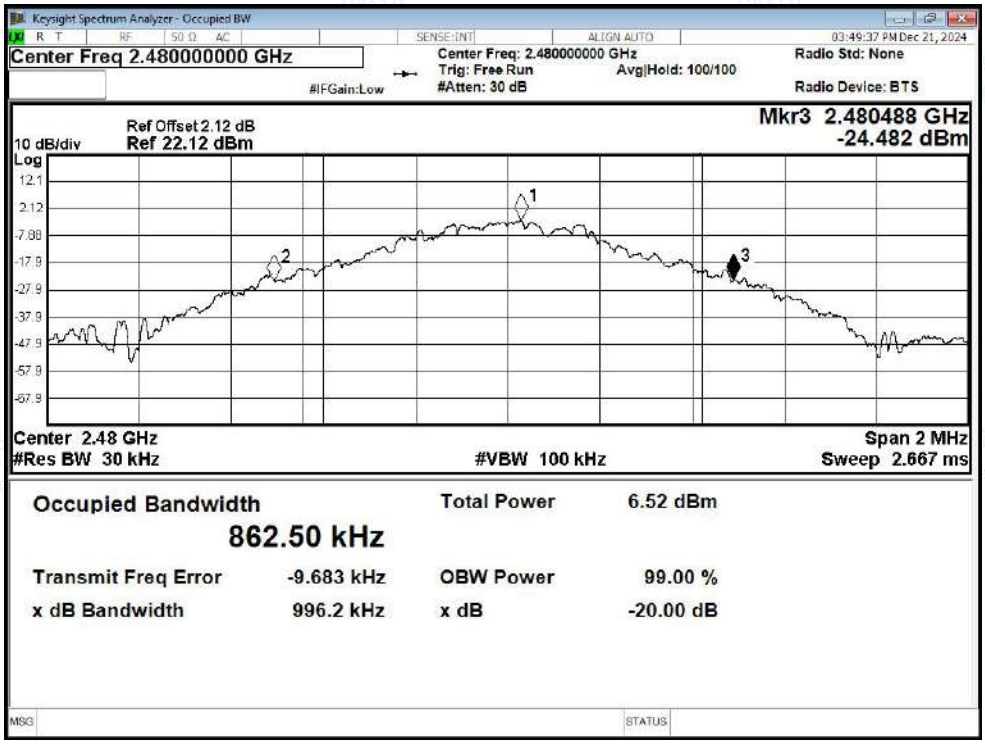
-20dB Bandwidth NVNT 1-DH5 2402MHz Ant1



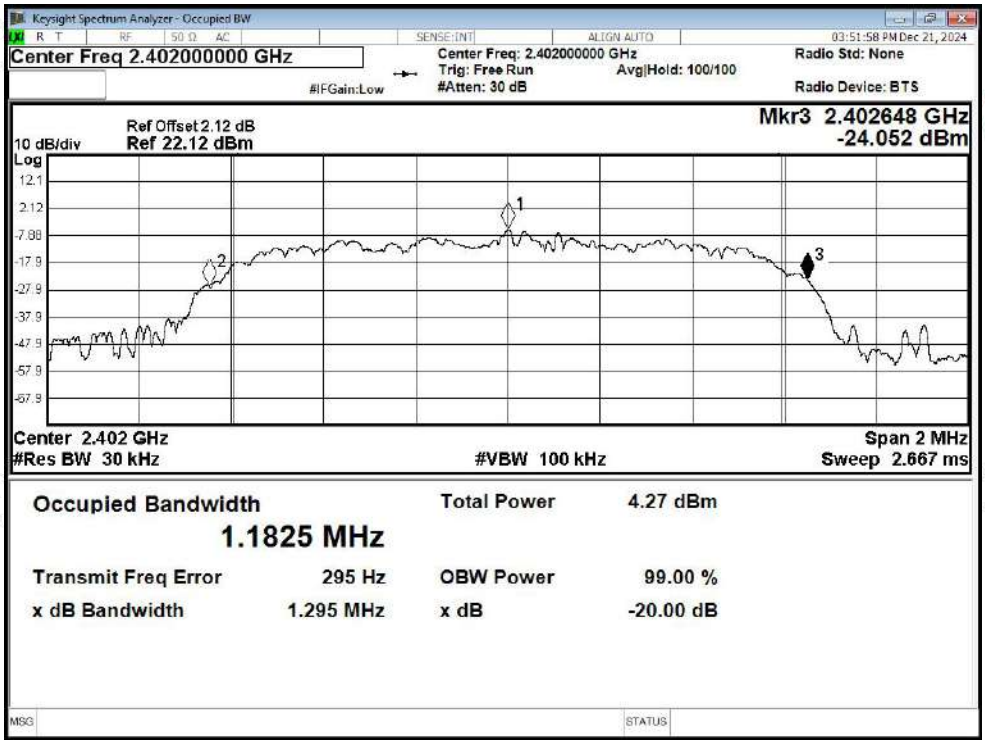
-20dB Bandwidth NVNT 1-DH5 2441MHz Ant1



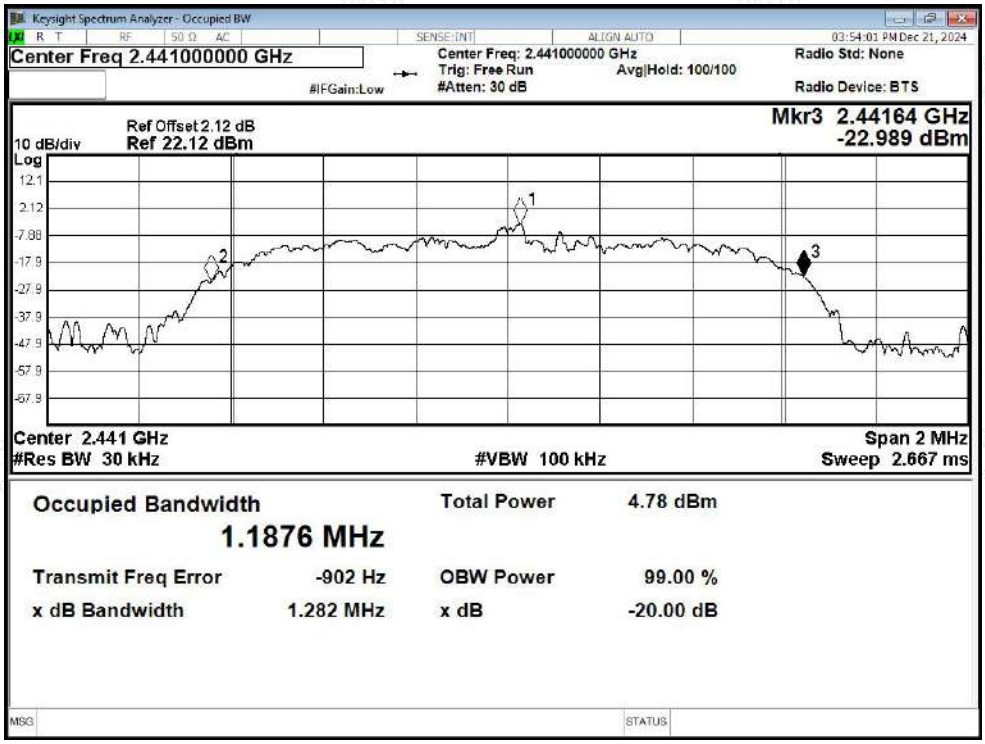
-20dB Bandwidth NVNT 1-DH5 2480MHz Ant1



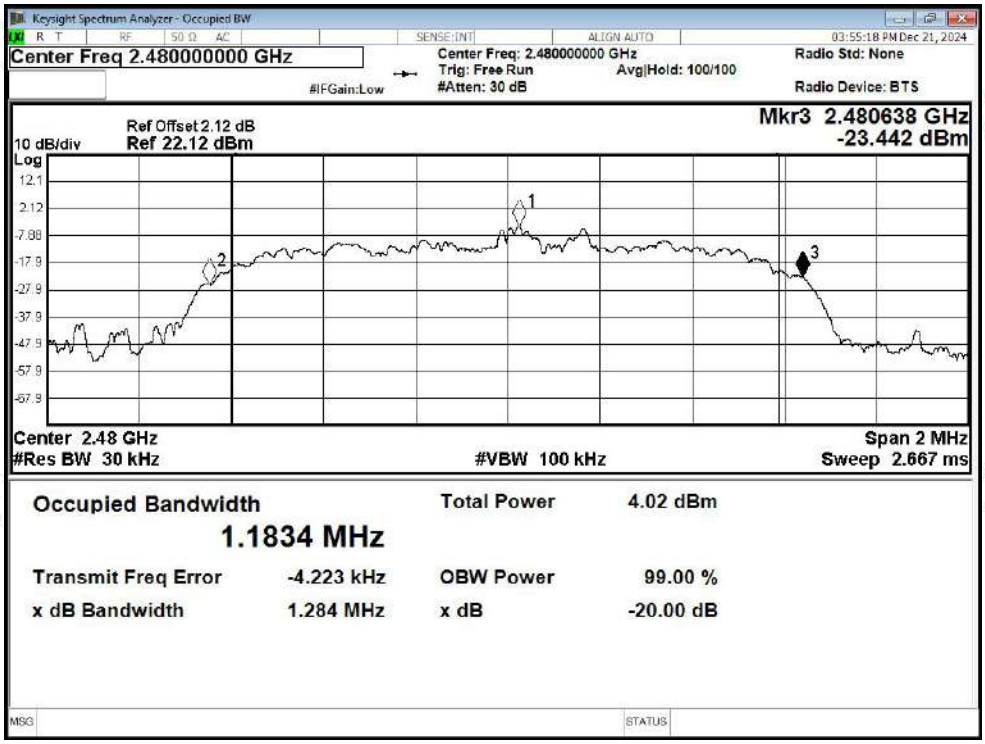
-20dB Bandwidth NVNT 2-DH5 2402MHz Ant1



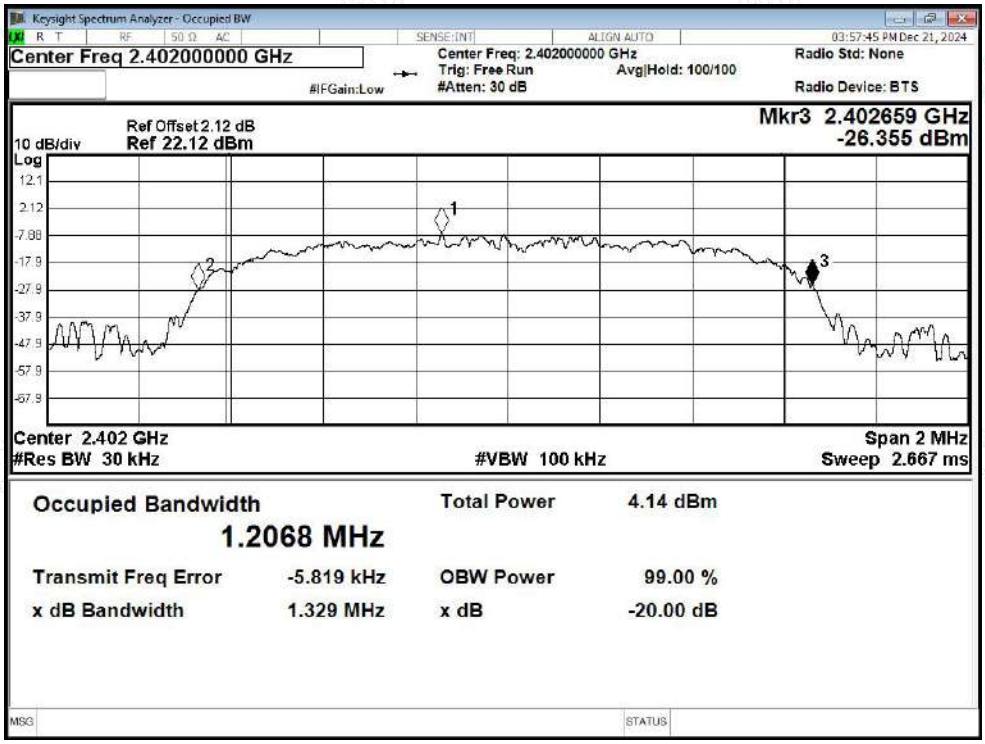
-20dB Bandwidth NVNT 2-DH5 2441MHz Ant1



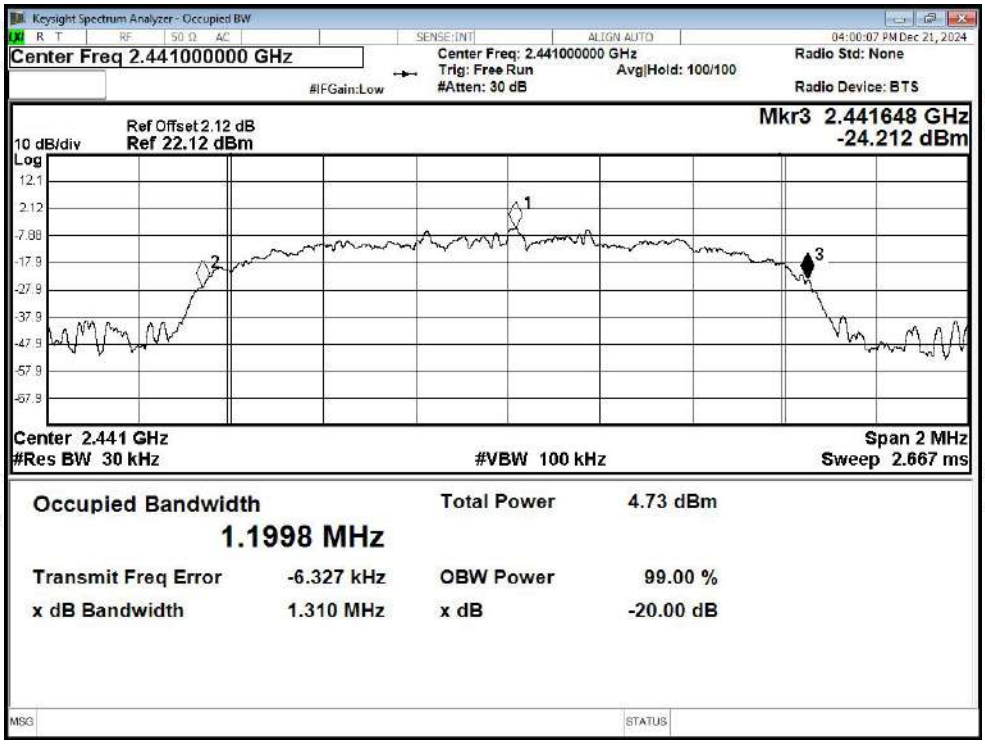
-20dB Bandwidth NVNT 2-DH5 2480MHz Ant1



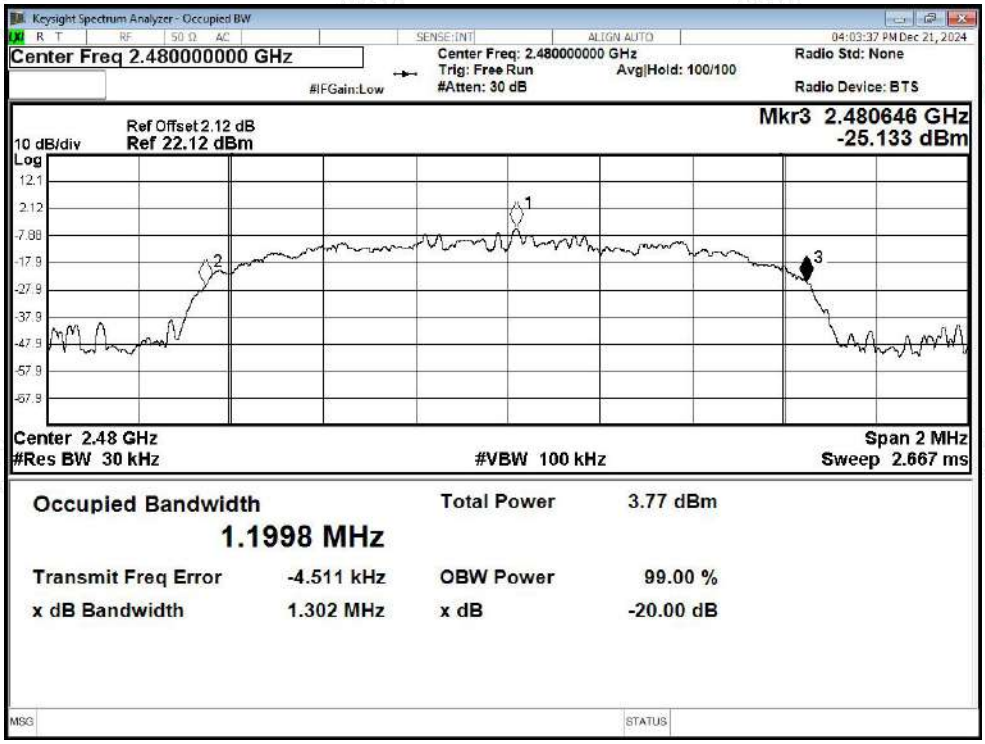
-20dB Bandwidth NVNT 3-DH5 2402MHz Ant1



-20dB Bandwidth NVNT 3-DH5 2441MHz Ant1



-20dB Bandwidth NVNT 3-DH5 2480MHz Ant1

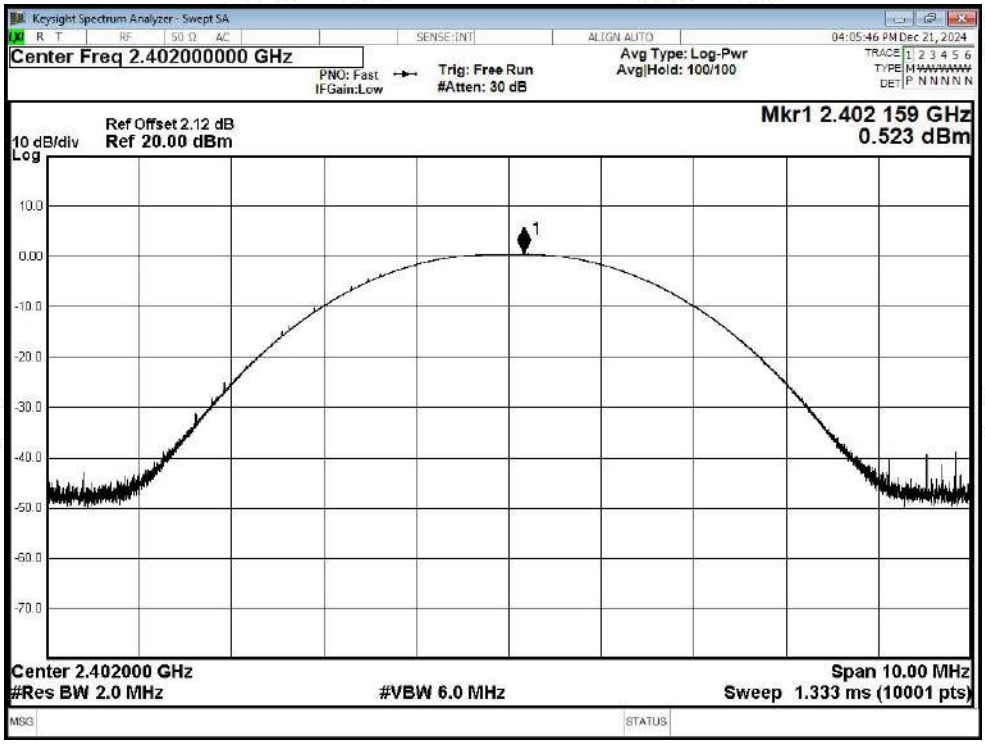


A.2 Maximum Peak Conducted Output Power

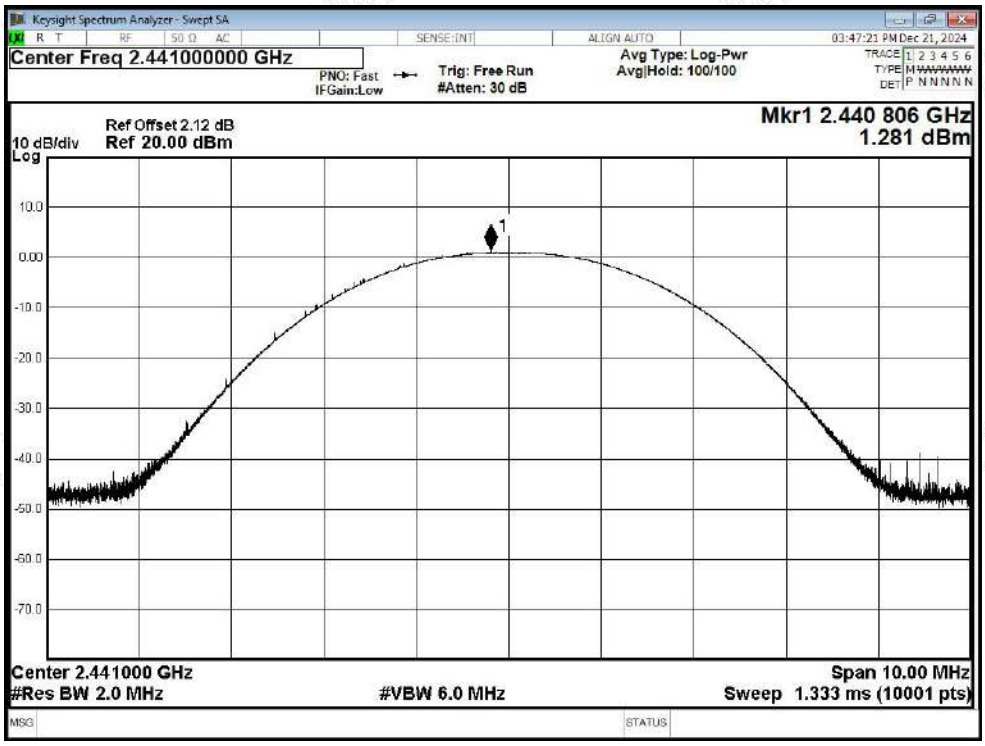
Condition	Mode	Frequency (MHz)	Antenna	Conducted Power (dBm)	Limit (dBm)	Verdict
NVNT	1-DH5	2402	Ant1	0.52	21	Pass
NVNT	1-DH5	2441	Ant1	1.28	21	Pass
NVNT	1-DH5	2480	Ant1	0.25	21	Pass
NVNT	2-DH5	2402	Ant1	0.31	21	Pass
NVNT	2-DH5	2441	Ant1	0.43	21	Pass
NVNT	2-DH5	2480	Ant1	-0.56	21	Pass
NVNT	3-DH5	2402	Ant1	0.7	21	Pass
NVNT	3-DH5	2441	Ant1	0.84	21	Pass
NVNT	3-DH5	2480	Ant1	-0.19	21	Pass

Test Graphs

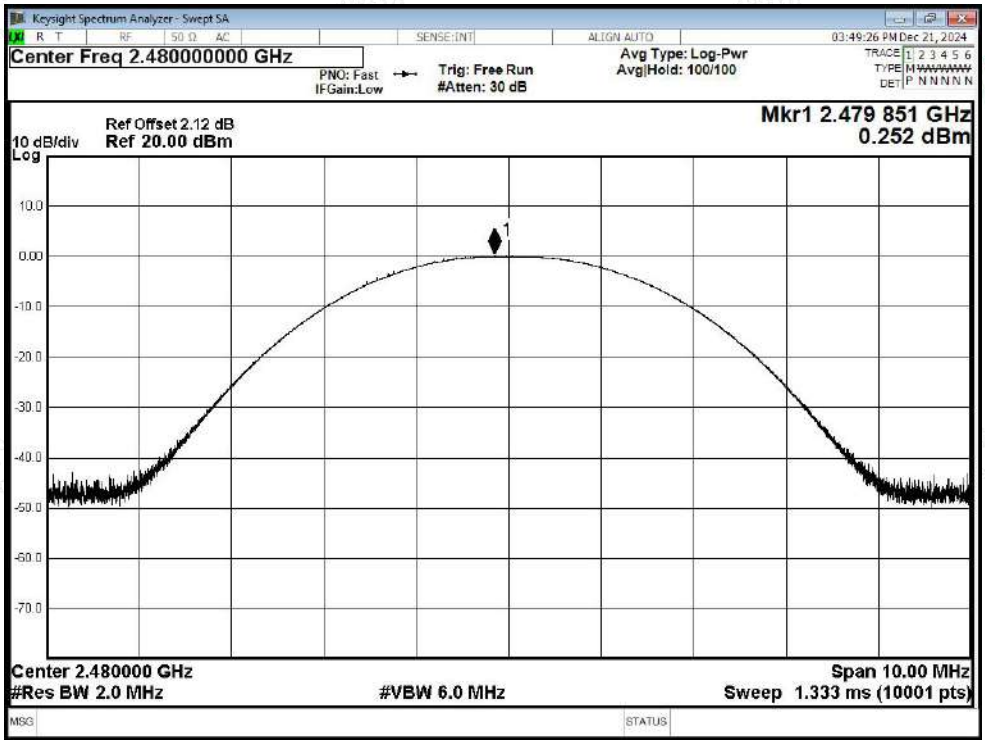
Power NVNT 1-DH5 2402MHz Ant1



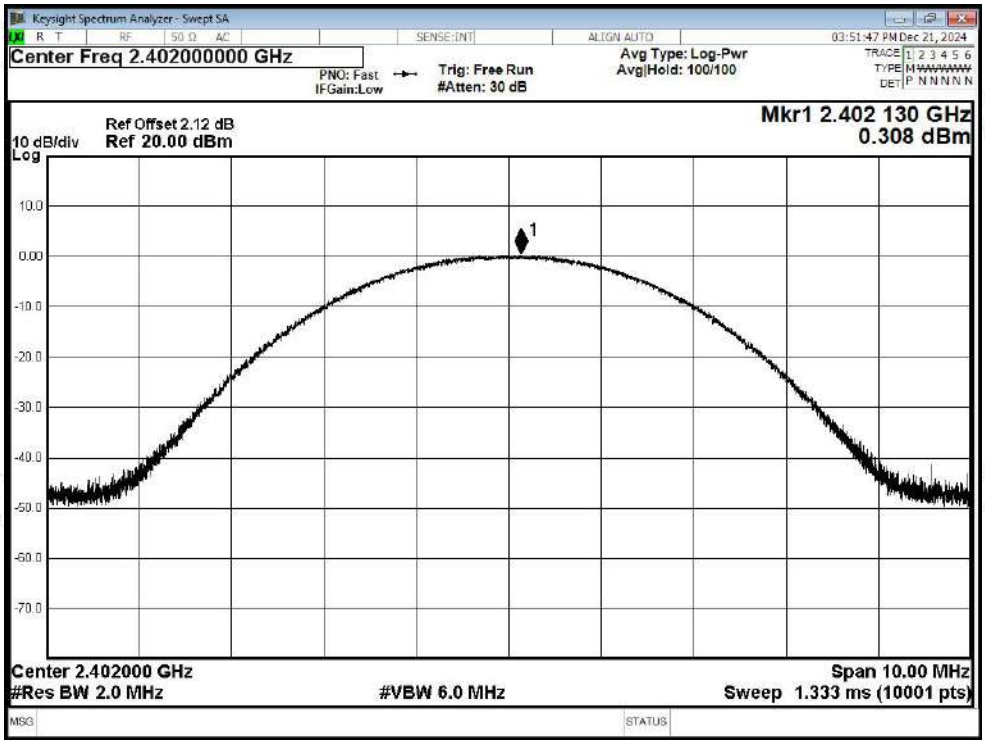
Power NVNT 1-DH5 2441MHz Ant1



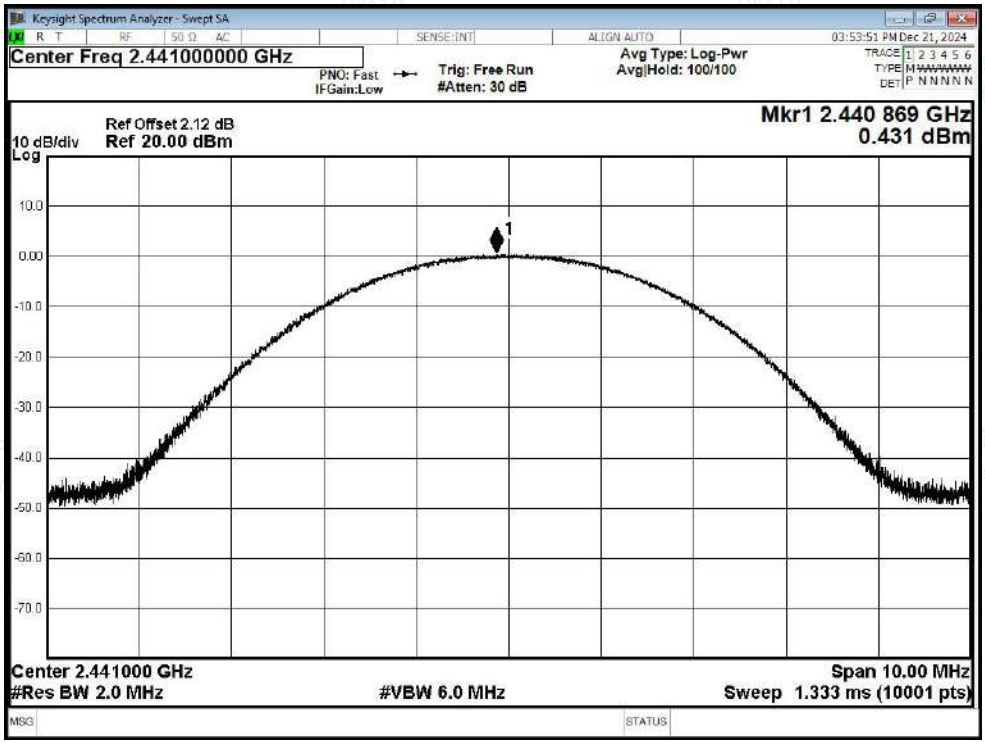
Power NVNT 1-DH5 2480MHz Ant1



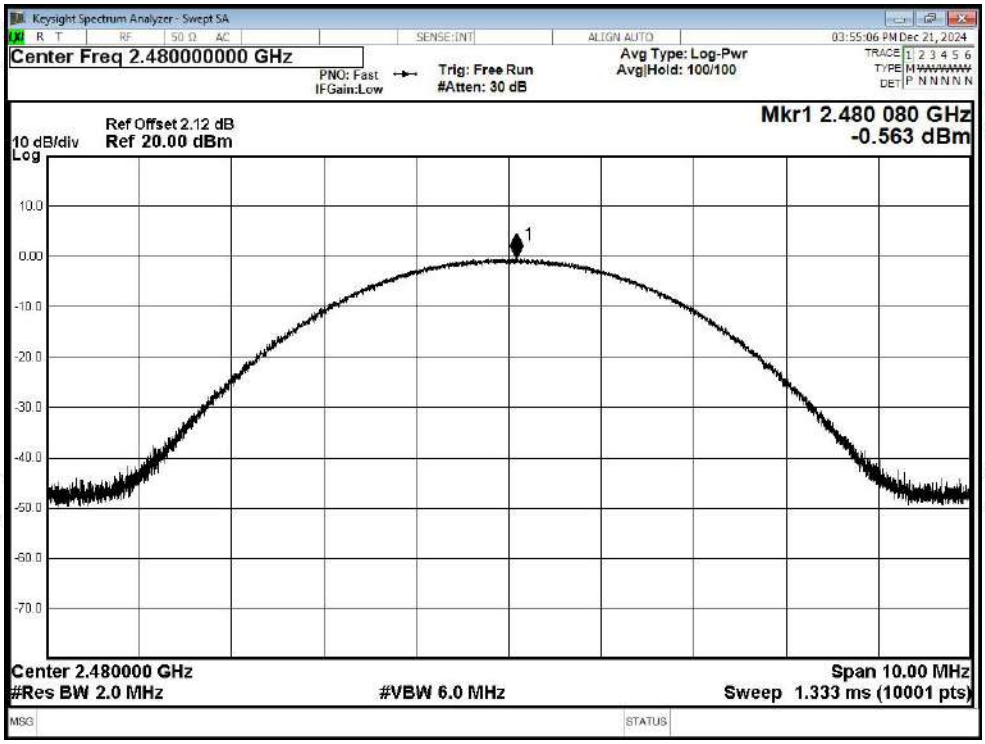
Power NVNT 2-DH5 2402MHz Ant1



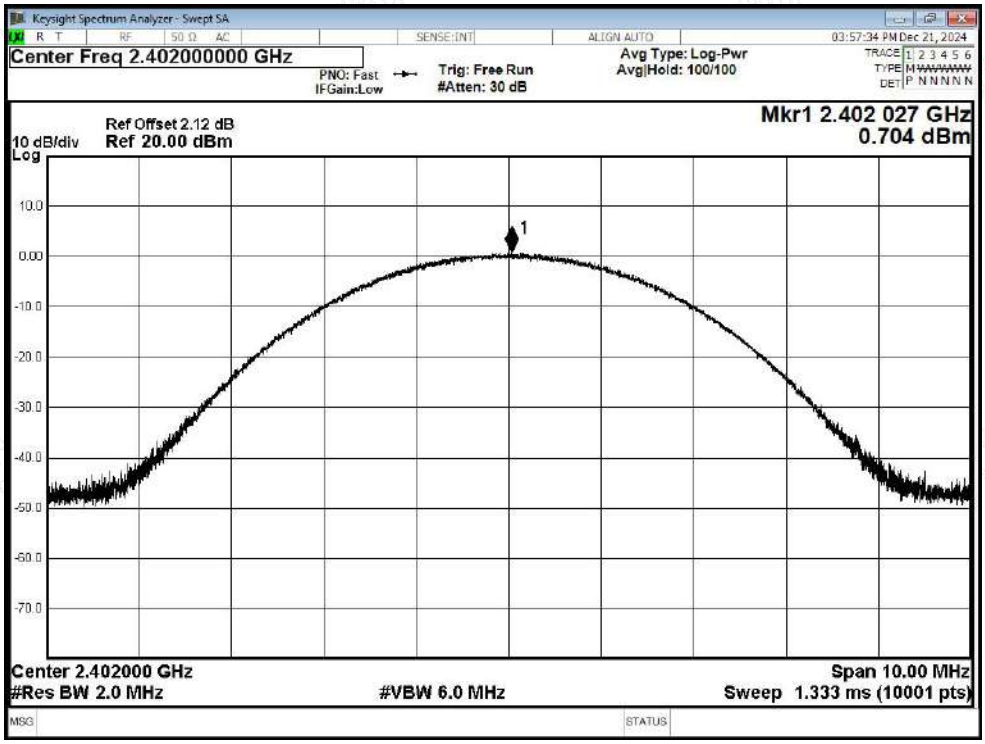
Power NVNT 2-DH5 2441MHz Ant1



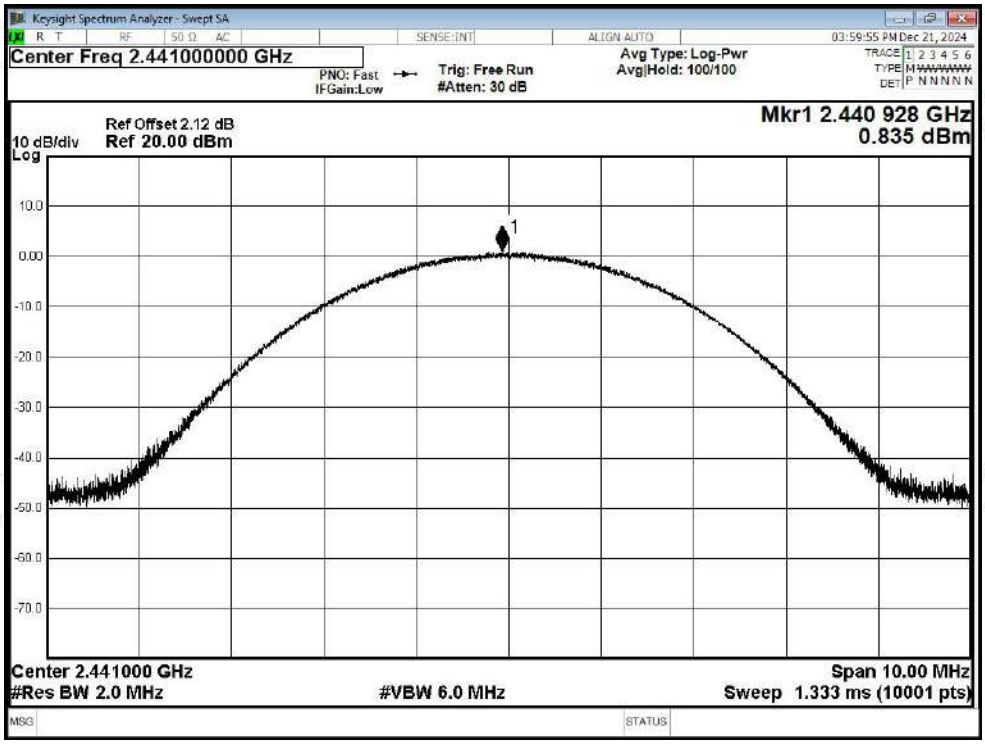
Power NVNT 2-DH5 2480MHz Ant1



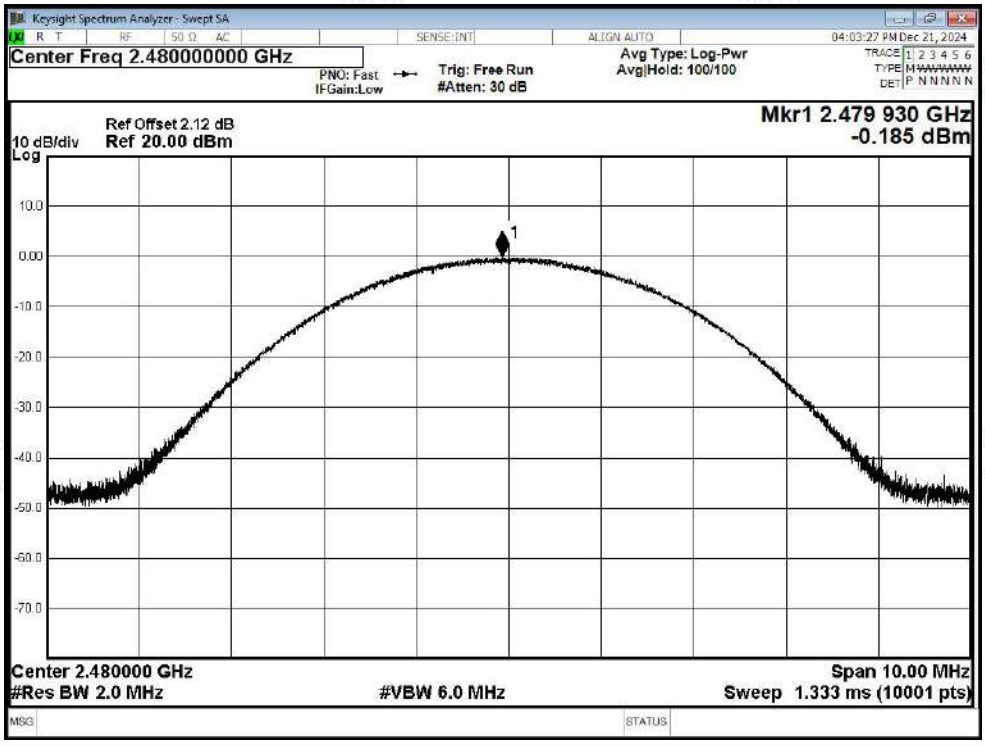
Power NVNT 3-DH5 2402MHz Ant1



Power NVNT 3-DH5 2441MHz Ant1



Power NVNT 3-DH5 2480MHz Ant1



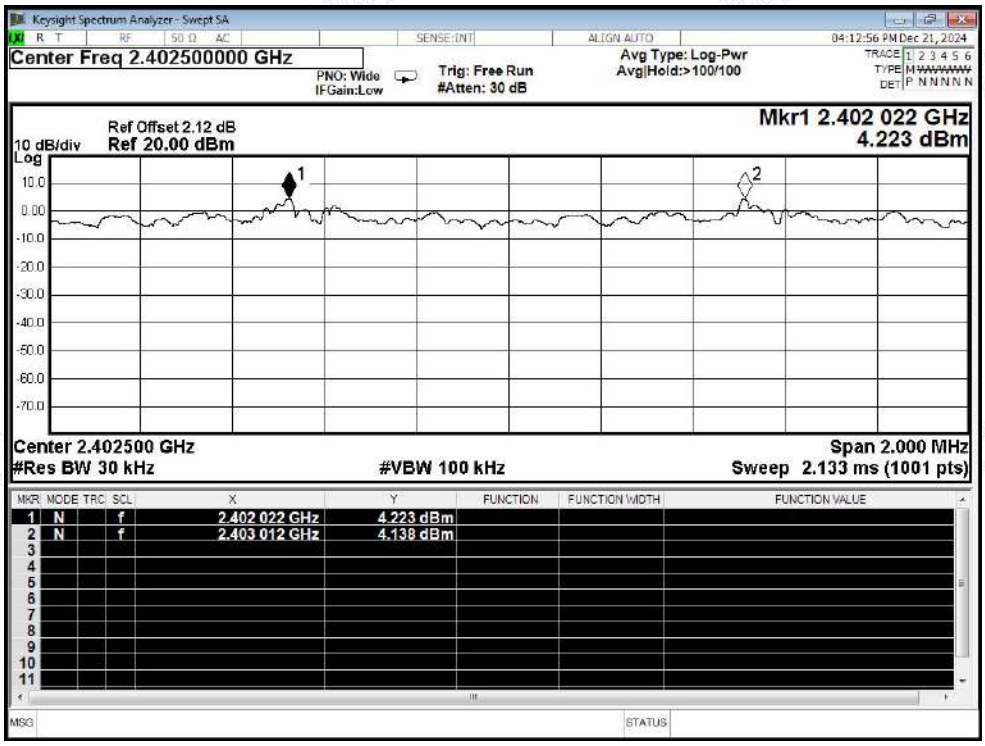
A.3 Carrier Frequencies Separation

Condition	Mode	Antenna	Hopping Freq1 (MHz)	Hopping Freq2 (MHz)	HFS (MHz)	Limit (MHz)	Verdict
NVNT	1-DH5	Ant1	2401.822	2403.01	1.188	0.664	Pass
NVNT	2-DH5	Ant1	2402.022	2403.012	0.99	0.863	Pass
NVNT	3-DH5	Ant1	2402.006	2403.028	1.022	0.886	Pass

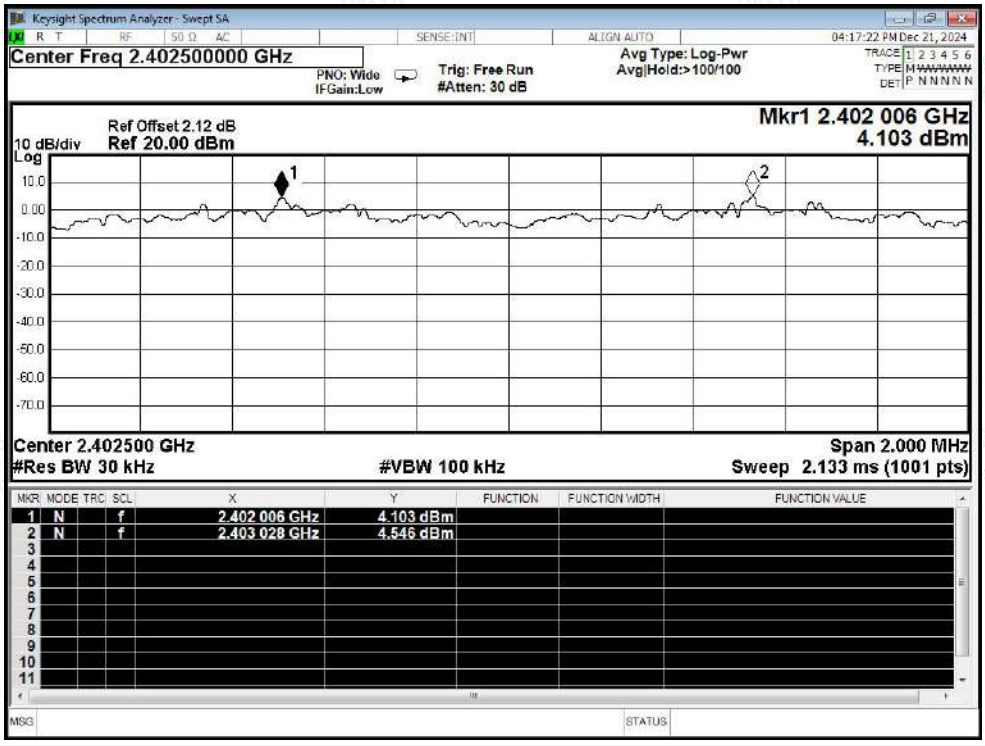
Test Graphs

CFS NVNT 1-DH5 2402MHz Ant1

CFS NVNT 2-DH5 2402MHz Ant1



CFS NVNT 3-DH5 2402MHz Ant1

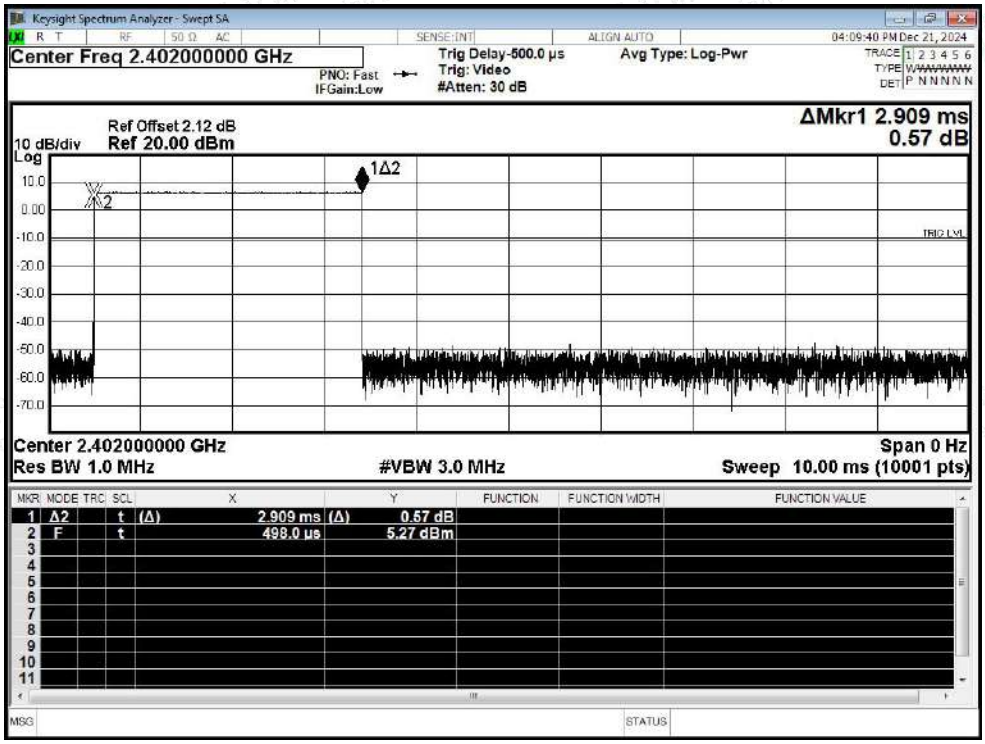


A.4 Dwell Time

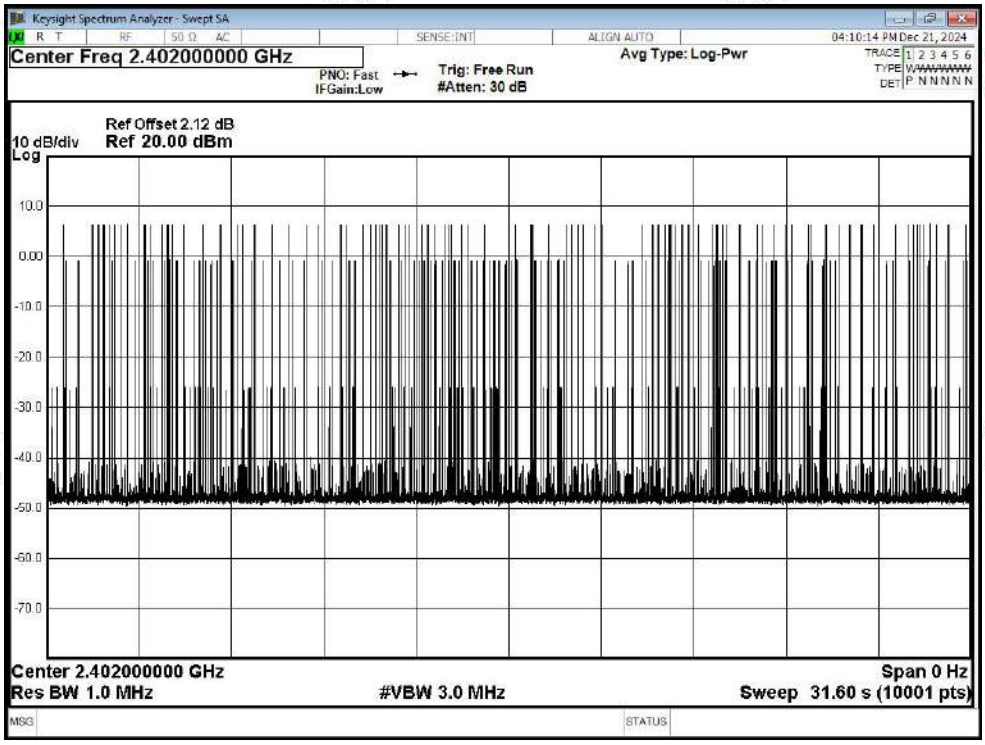
Condition	Mode	Frequency (MHz)	Antenna	Pulse Time (ms)	Total Dwell Time (ms)	Burst Count	Period Time (ms)	Limit (ms)	Verdict
NVNT	1-DH5	2402	Ant1	2.909	331.626	114	31600	400	Pass
NVNT	2-DH5	2402	Ant1	2.899	289.9	100	31600	400	Pass
NVNT	3-DH5	2402	Ant1	2.897	309.979	107	31600	400	Pass

Test Graphs

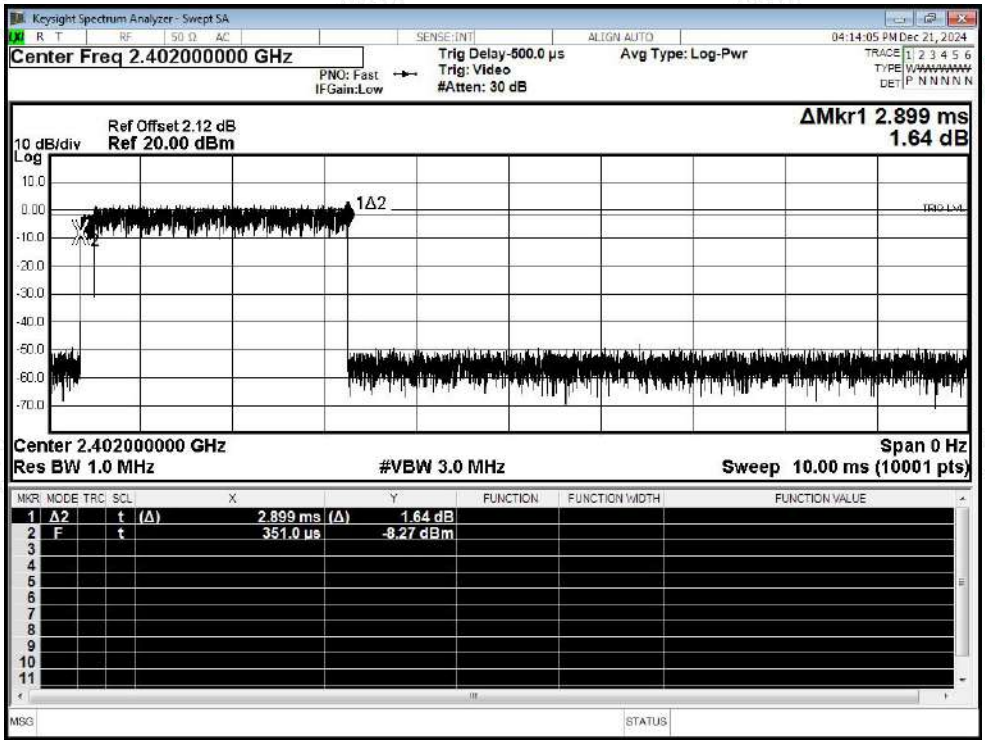
Dwell NVNT 1-DH5 2402MHz Ant1 One Burst



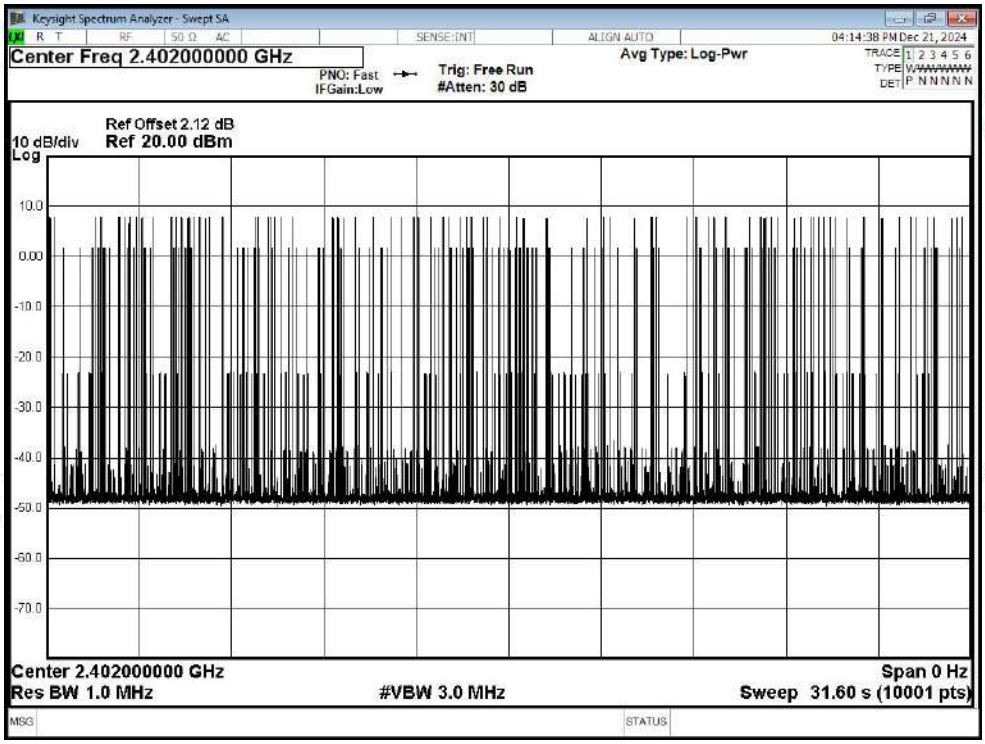
Dwell NVNT 1-DH5 2402MHz Ant1 Accumulated



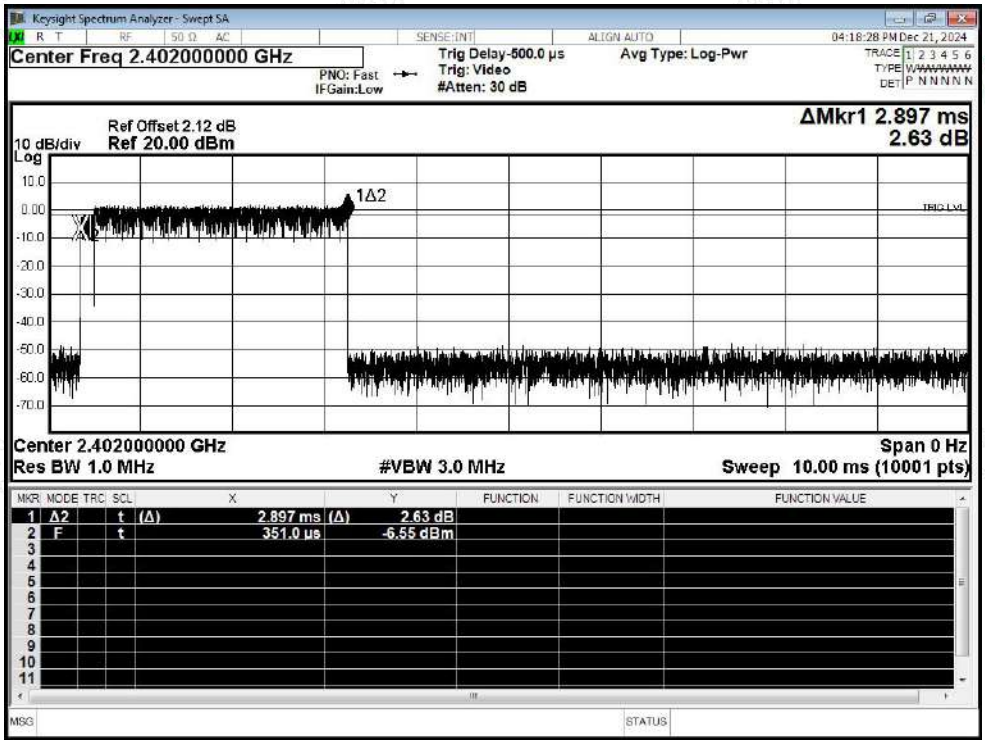
Dwell NVNT 2-DH5 2402MHz Ant1 One Burst



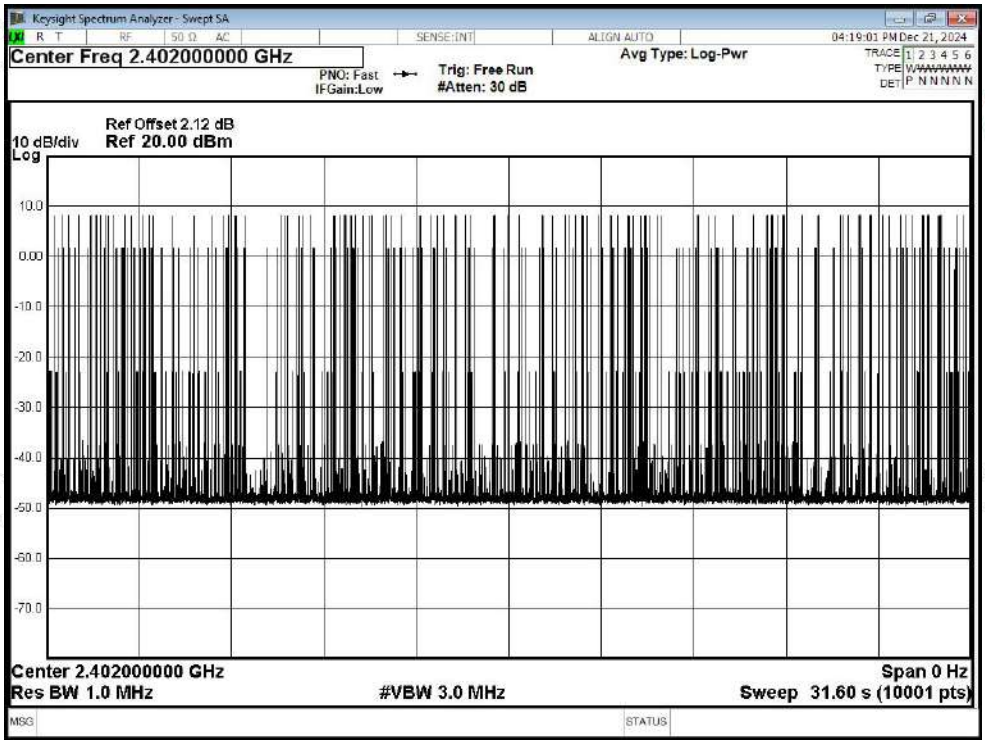
Dwell NVNT 2-DH5 2402MHz Ant1 Accumulated



Dwell NVNT 3-DH5 2402MHz Ant1 One Burst



Dwell NVNT 3-DH5 2402MHz Ant1 Accumulated

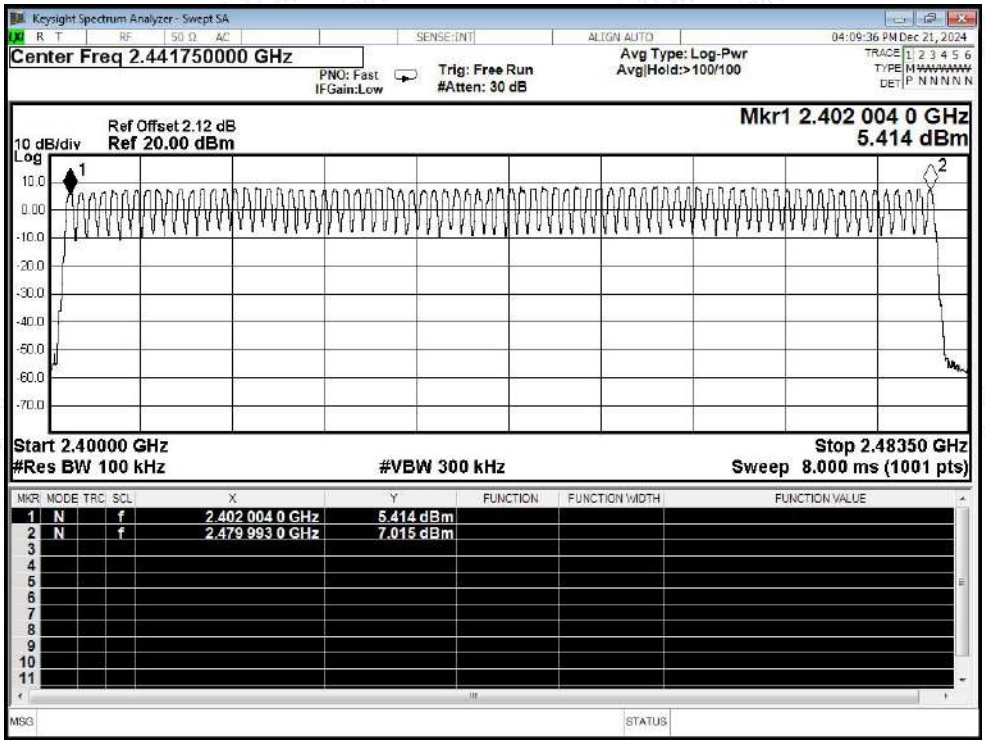


A.5 Number of Hopping Channel

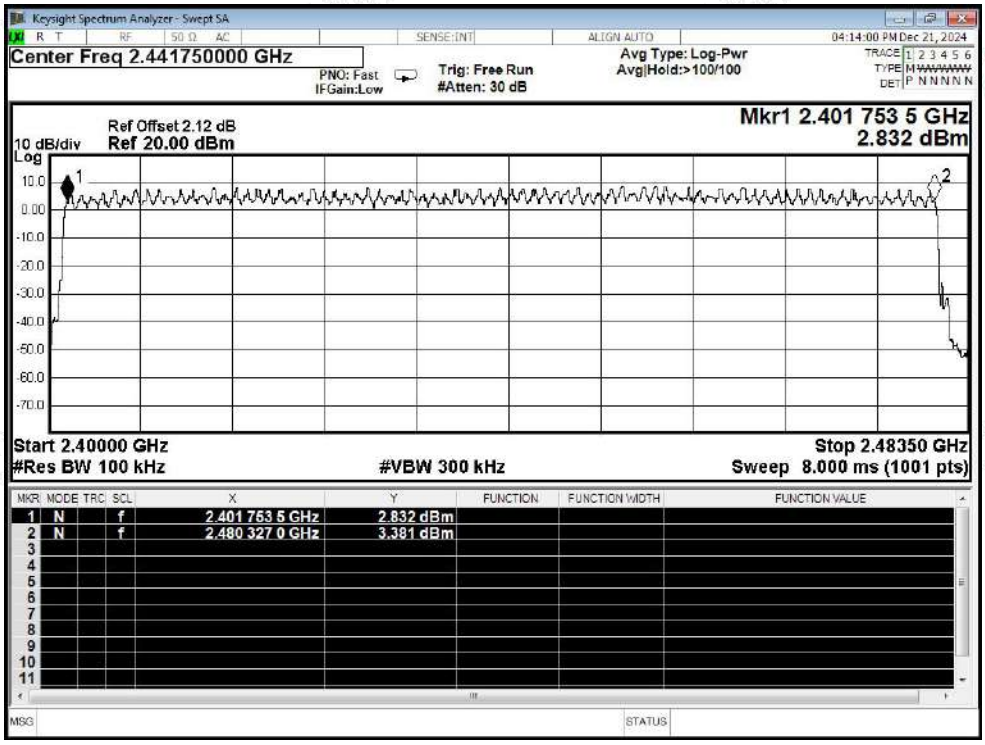
Condition	Mode	Antenna	Hopping Number	Limit	Verdict
NVNT	1-DH5	Ant1	79	15	Pass
NVNT	2-DH5	Ant1	79	15	Pass
NVNT	3-DH5	Ant1	79	15	Pass

Test Graphs

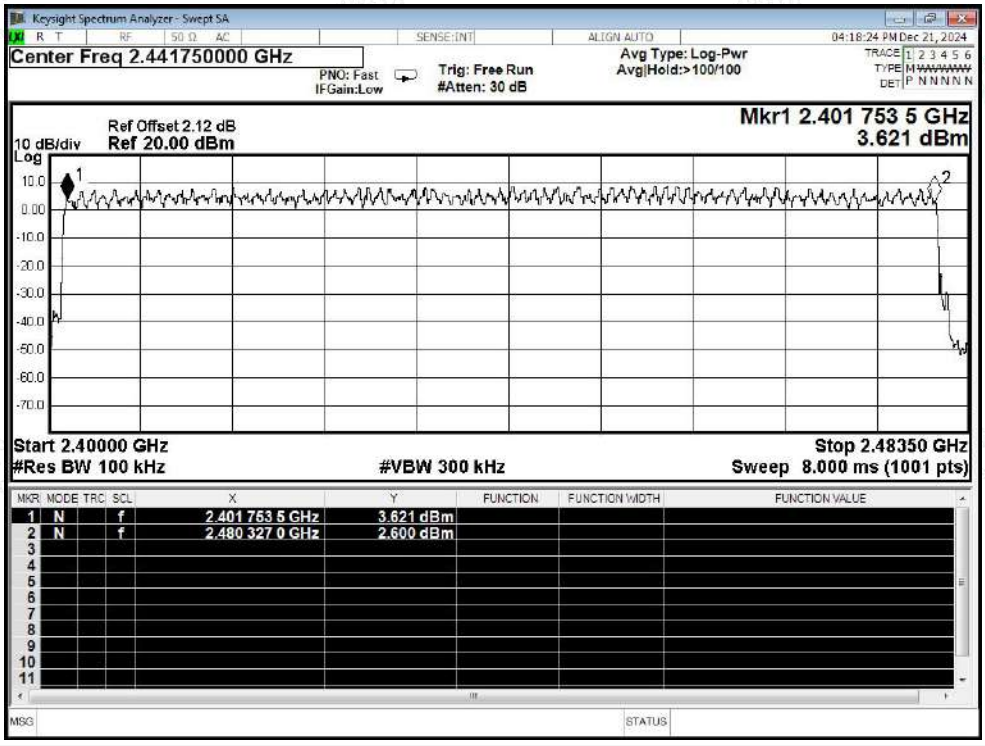
Hopping No. NVNT 1-DH5 2402MHz Ant1



Hopping No. NVNT 2-DH5 2402MHz Ant1



Hopping No. NVNT 3-DH5 2402MHz Ant1

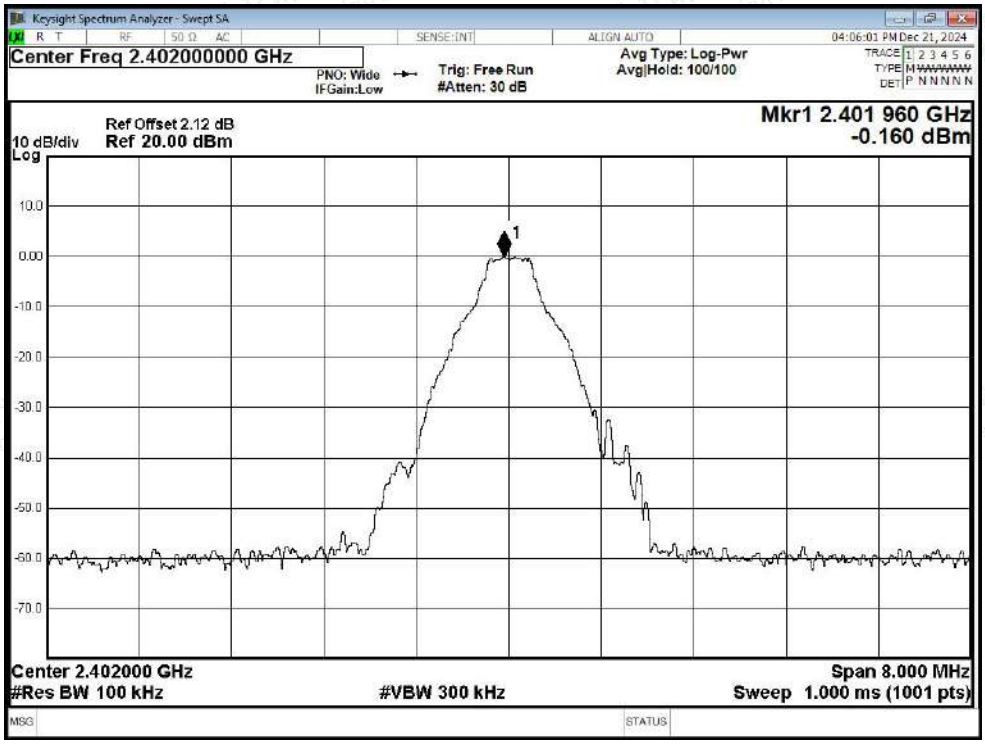


A.6 Band Edge

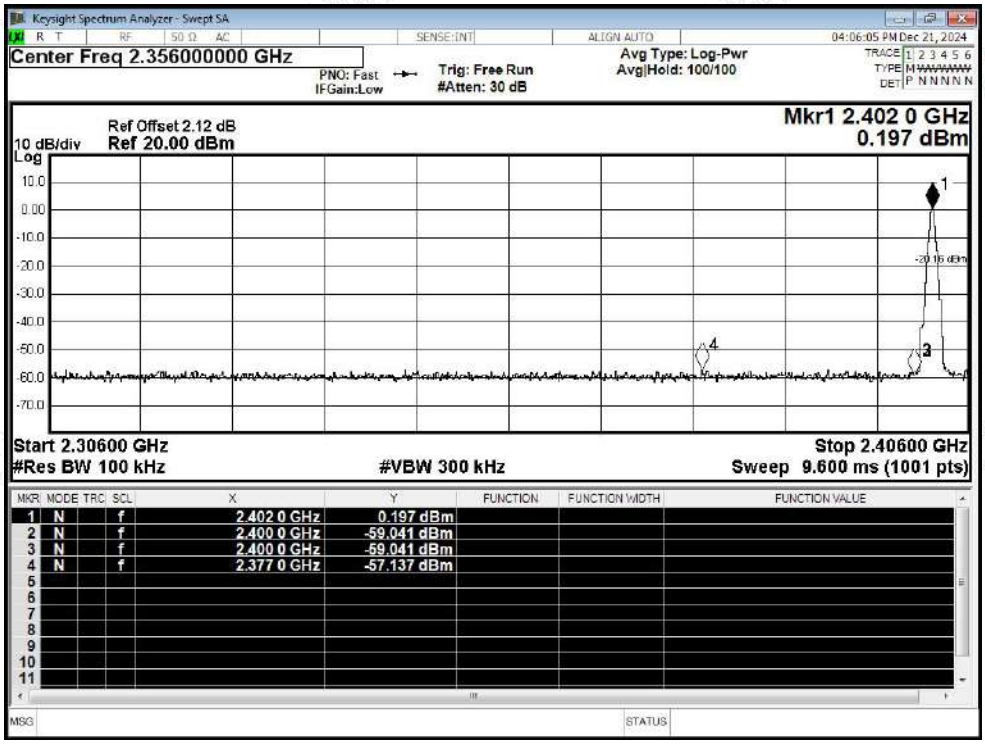
Condition	Mode	Frequency (MHz)	Antenna	Hopping Mode	Max Value (dBc)	Limit (dBc)	Verdict
NVNT	1-DH5	2402	Ant1	No-Hopping	-56.98	-20	Pass
NVNT	1-DH5	2480	Ant1	No-Hopping	-56.96	-20	Pass
NVNT	2-DH5	2402	Ant1	No-Hopping	-49.99	-20	Pass
NVNT	2-DH5	2480	Ant1	No-Hopping	-52.94	-20	Pass
NVNT	3-DH5	2402	Ant1	No-Hopping	-51.23	-20	Pass
NVNT	3-DH5	2480	Ant1	No-Hopping	-54.41	-20	Pass

Test Graphs

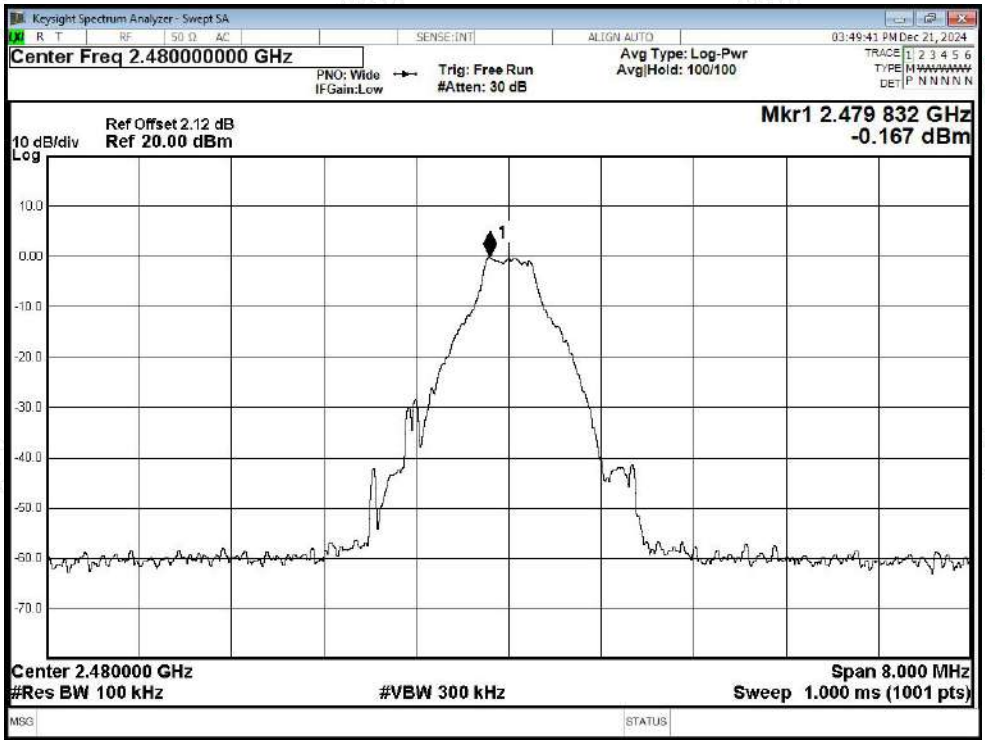
Band Edge NVNT 1-DH5 2402MHz Ant1 No-Hopping Ref



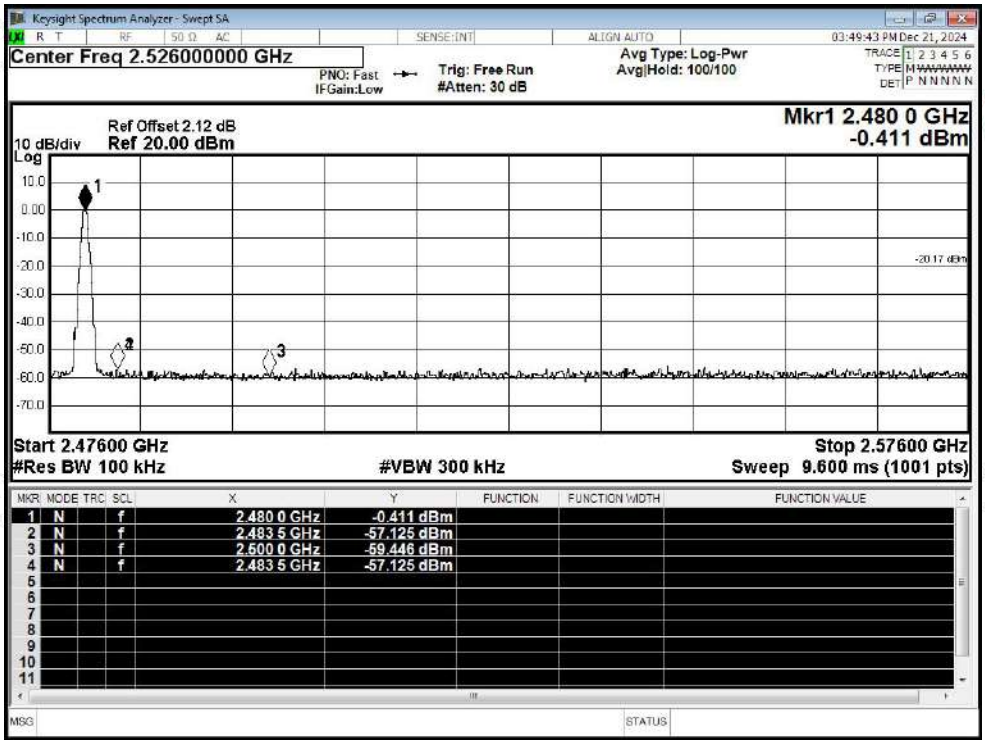
Band Edge NVNT 1-DH5 2402MHz Ant1 No-Hopping Emission



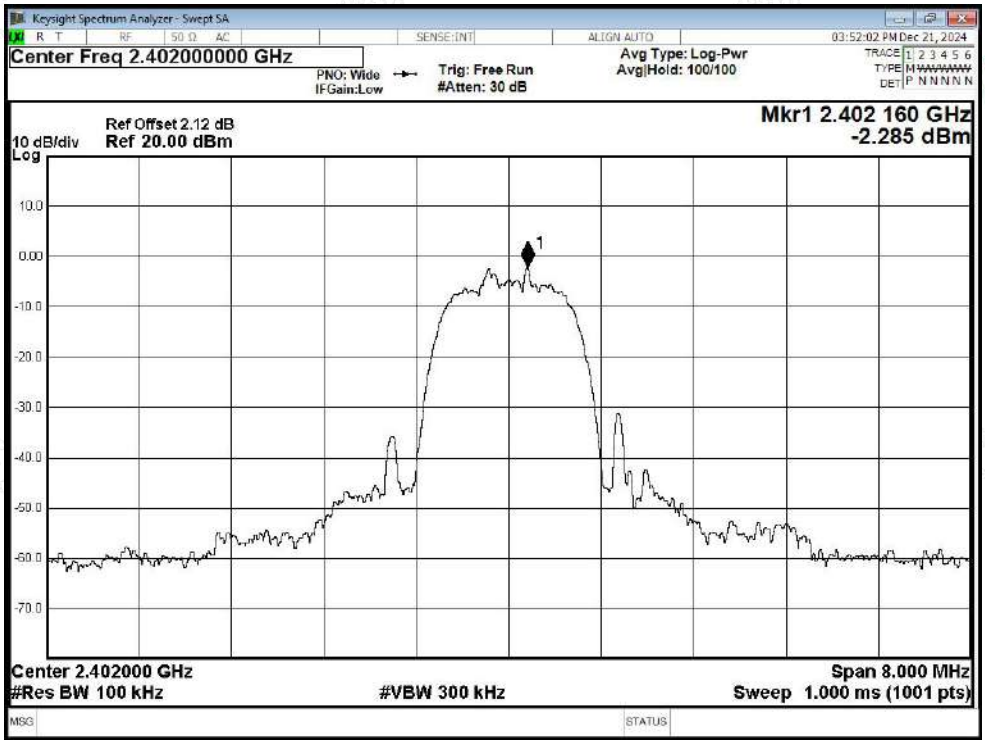
Band Edge NVNT 1-DH5 2480MHz Ant1 No-Hopping Ref



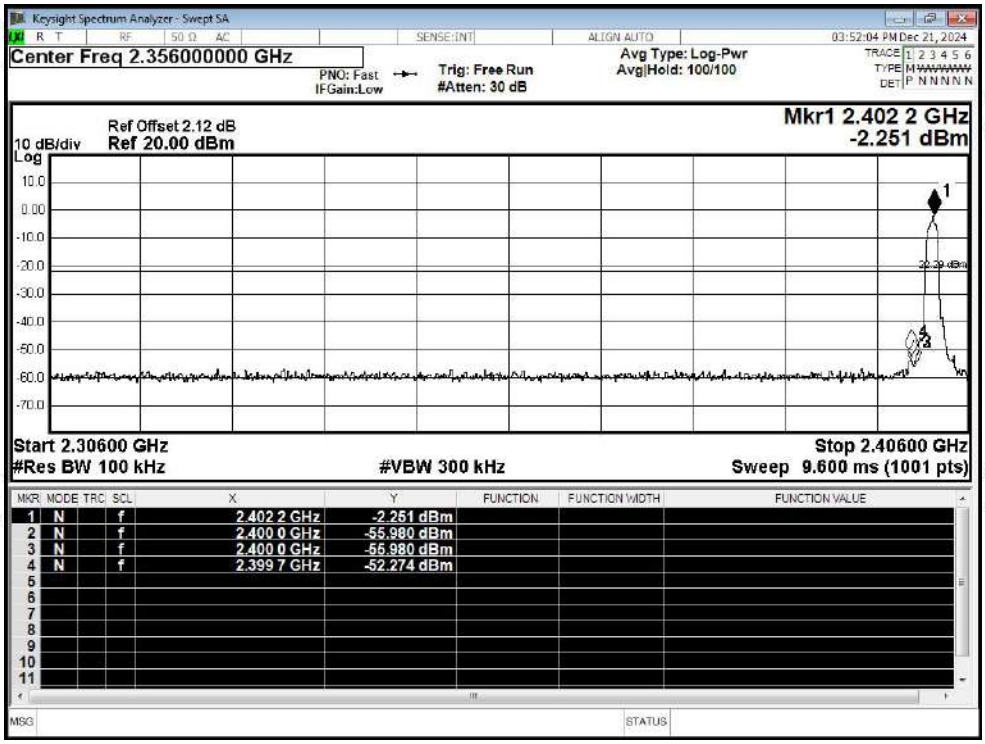
Band Edge NVNT 1-DH5 2480MHz Ant1 No-Hopping Emission



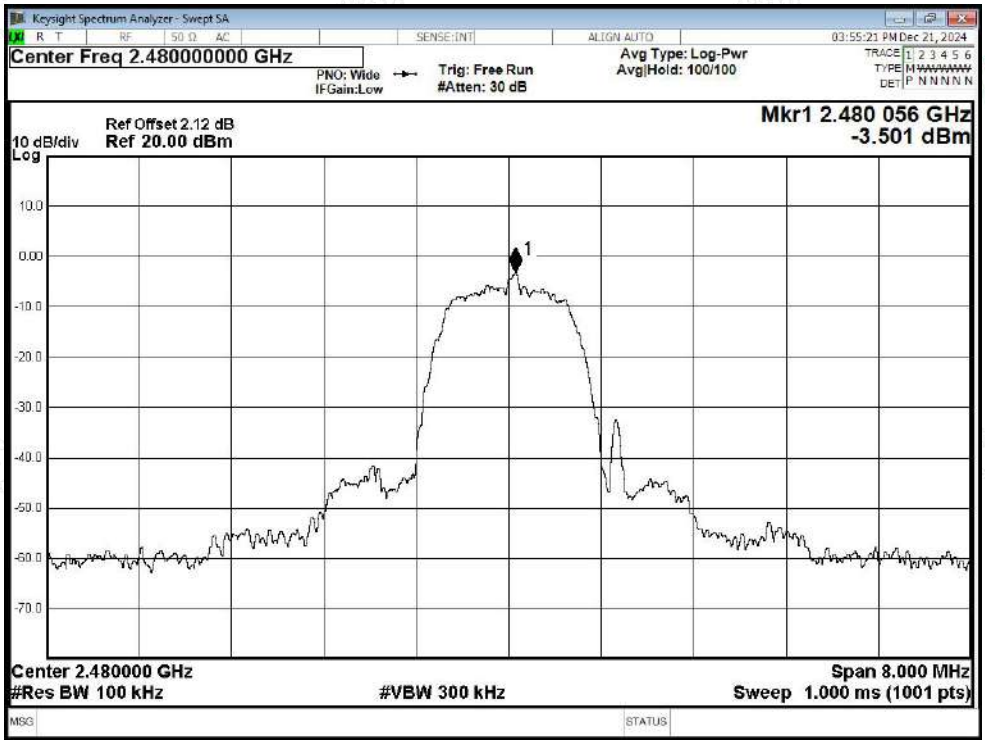
Band Edge NVNT 2-DH5 2402MHz Ant1 No-Hopping Ref



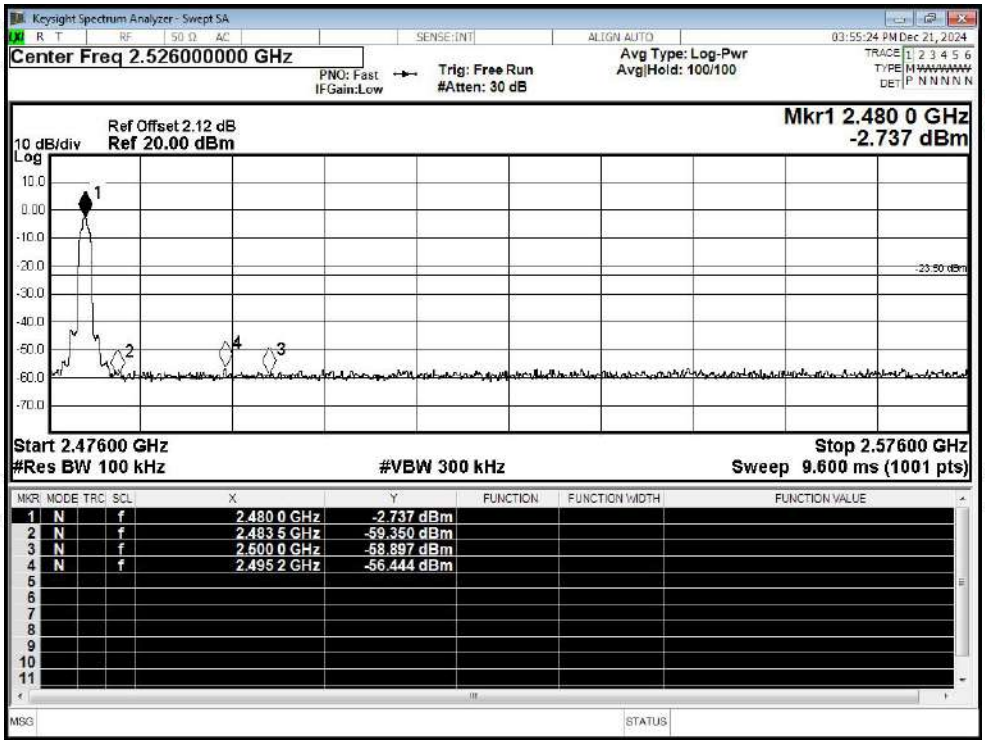
Band Edge NVNT 2-DH5 2402MHz Ant1 No-Hopping Emission



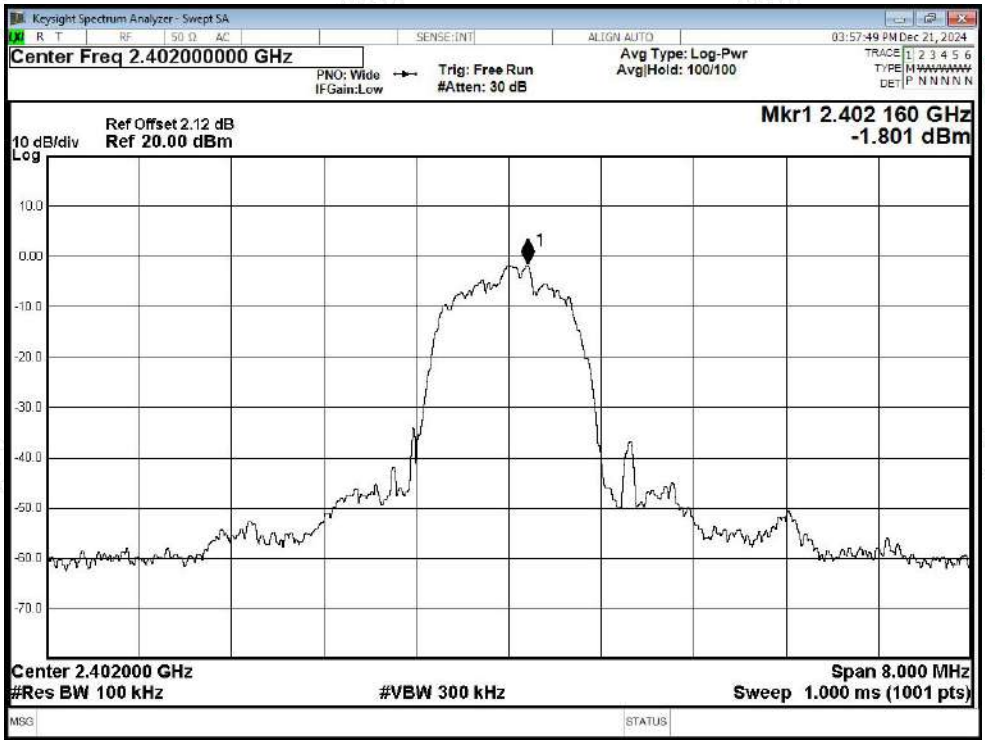
Band Edge NVNT 2-DH5 2480MHz Ant1 No-Hopping Ref



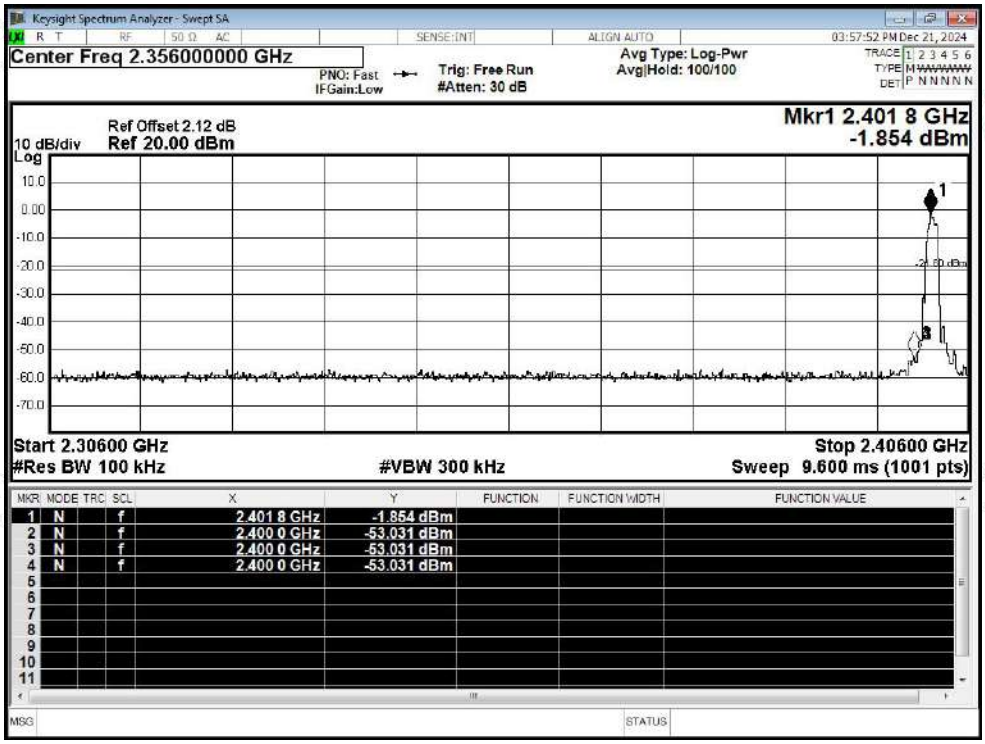
Band Edge NVNT 2-DH5 2480MHz Ant1 No-Hopping Emission



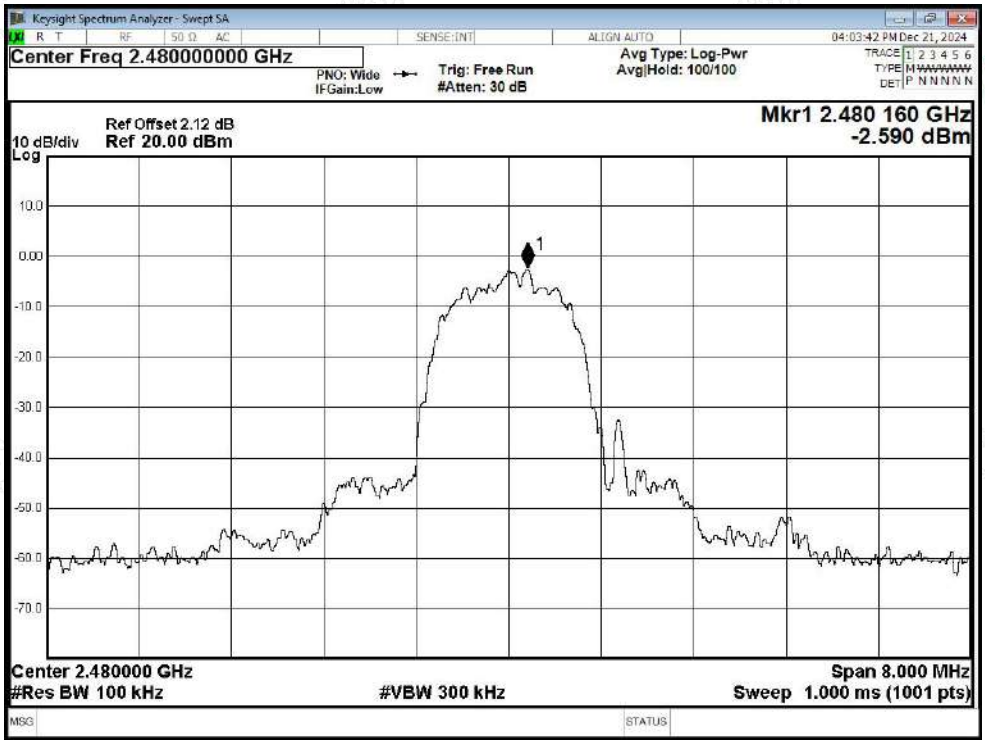
Band Edge NVNT 3-DH5 2402MHz Ant1 No-Hopping Ref



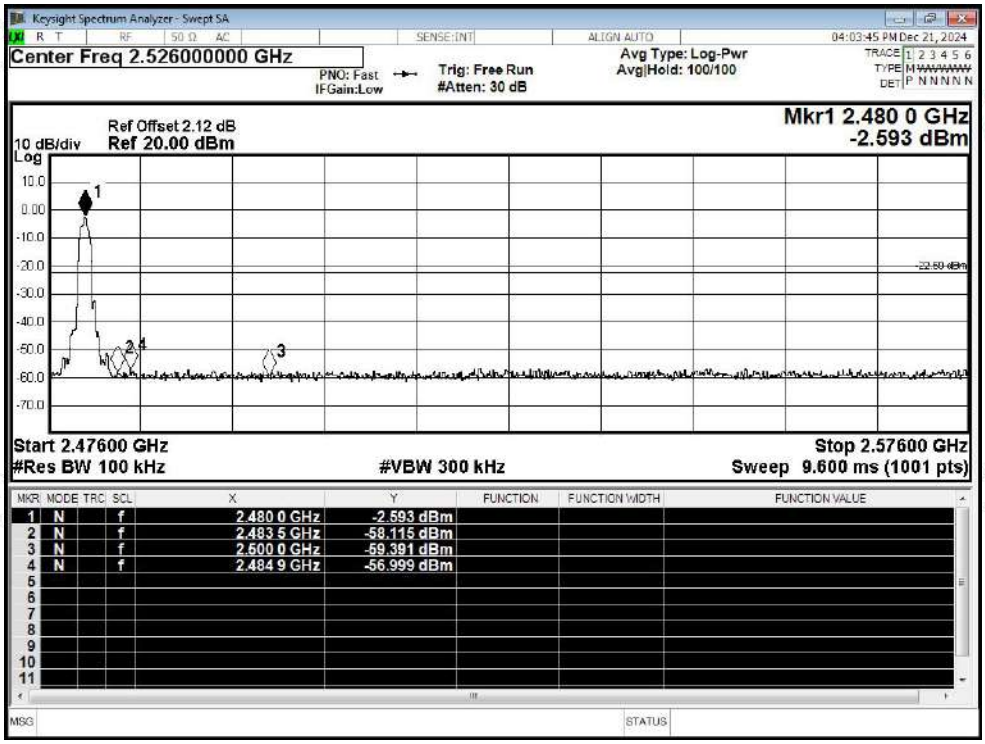
Band Edge NVNT 3-DH5 2402MHz Ant1 No-Hopping Emission



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



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

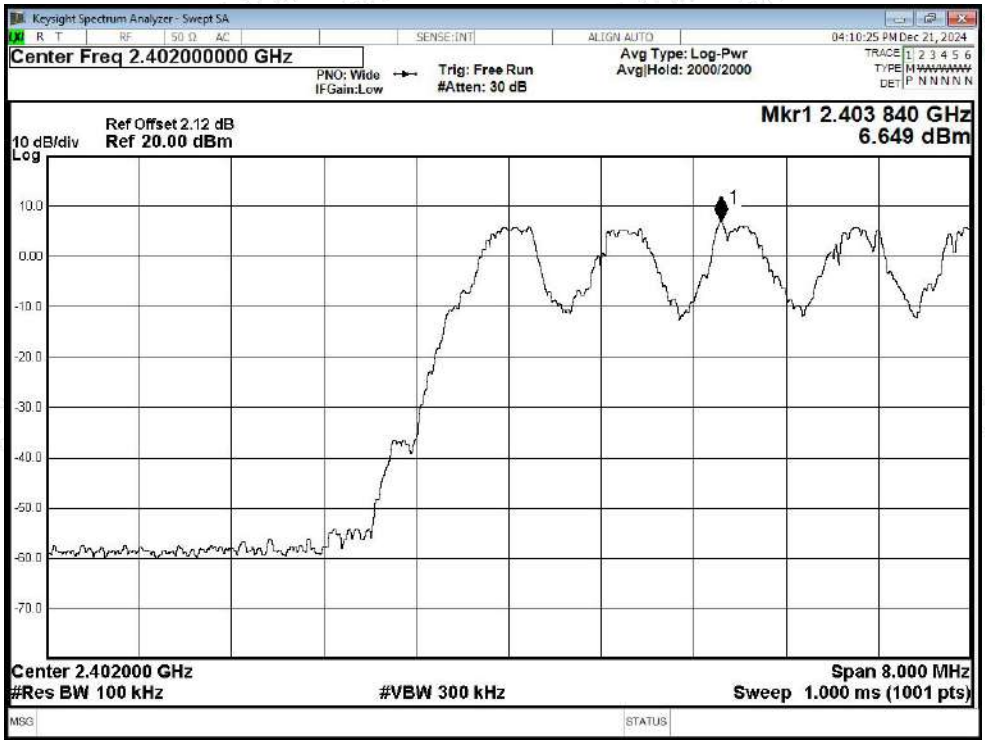


(Hopping)

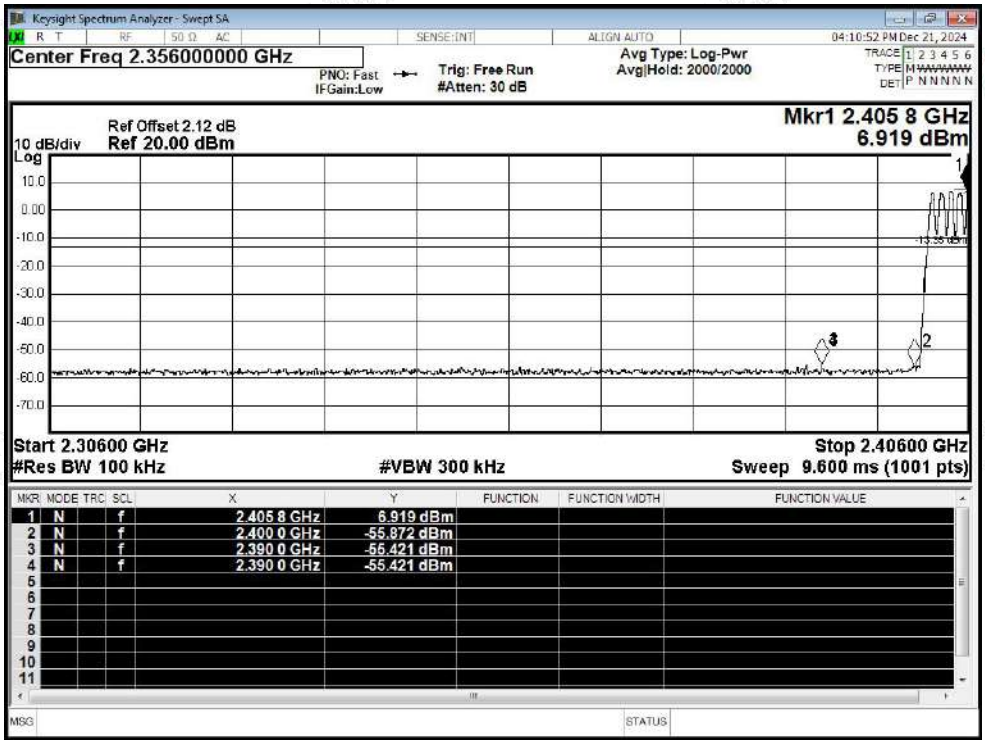
Condition	Mode	Frequency (MHz)	Antenna	Hopping Mode	Max Value (dBc)	Limit (dBc)	Verdict
NVNT	1-DH5	2402	Ant1	Hopping	-62.07	-20	Pass
NVNT	1-DH5	2480	Ant1	Hopping	-62.54	-20	Pass
NVNT	2-DH5	2402	Ant1	Hopping	-60.87	-20	Pass
NVNT	2-DH5	2480	Ant1	Hopping	-60.75	-20	Pass
NVNT	3-DH5	2402	Ant1	Hopping	-60.96	-20	Pass
NVNT	3-DH5	2480	Ant1	Hopping	-58.38	-20	Pass

Test Graphs

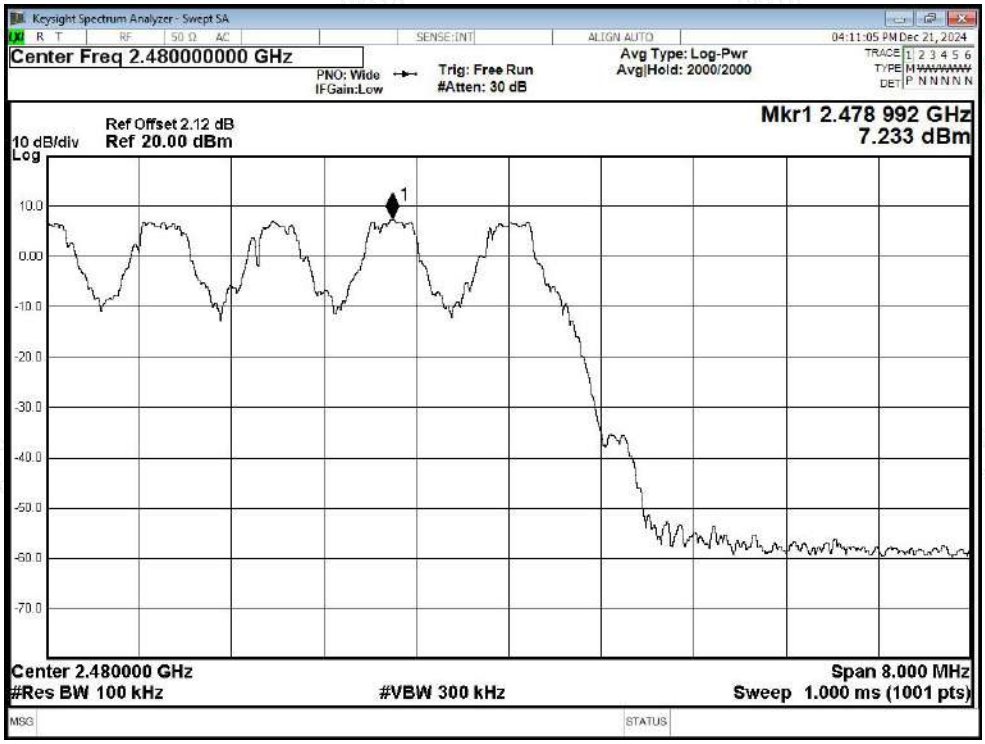
Band Edge(Hopping) NVNT 1-DH5 2402MHz Ant1 Hopping Ref



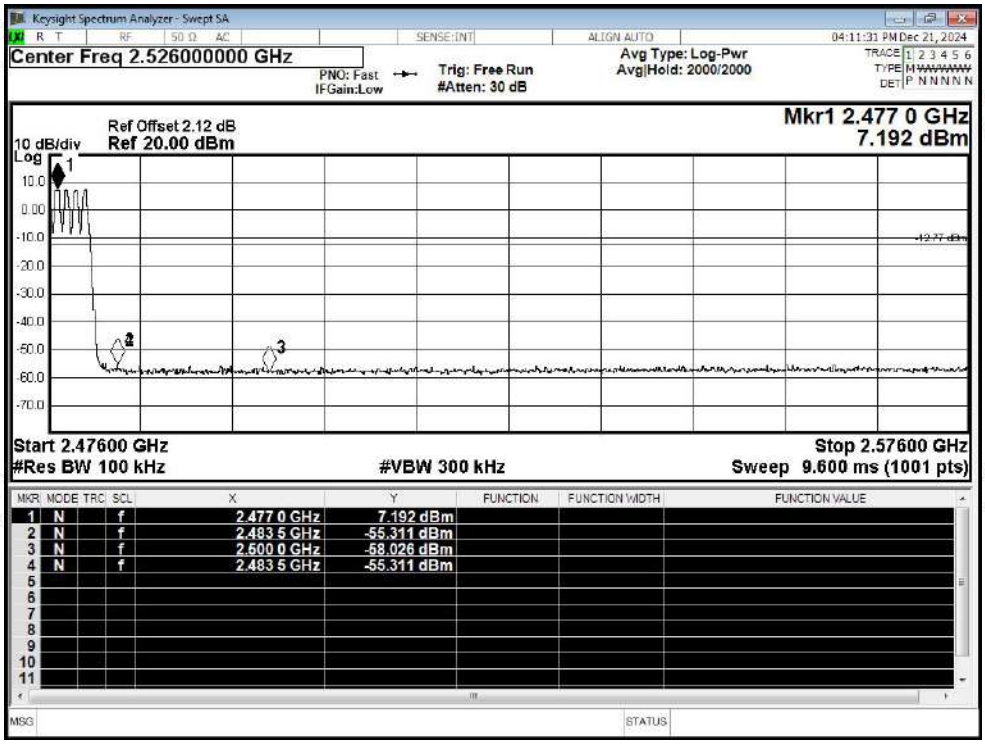
Band Edge(Hopping) NVNT 1-DH5 2402MHz Ant1 Hopping Emission



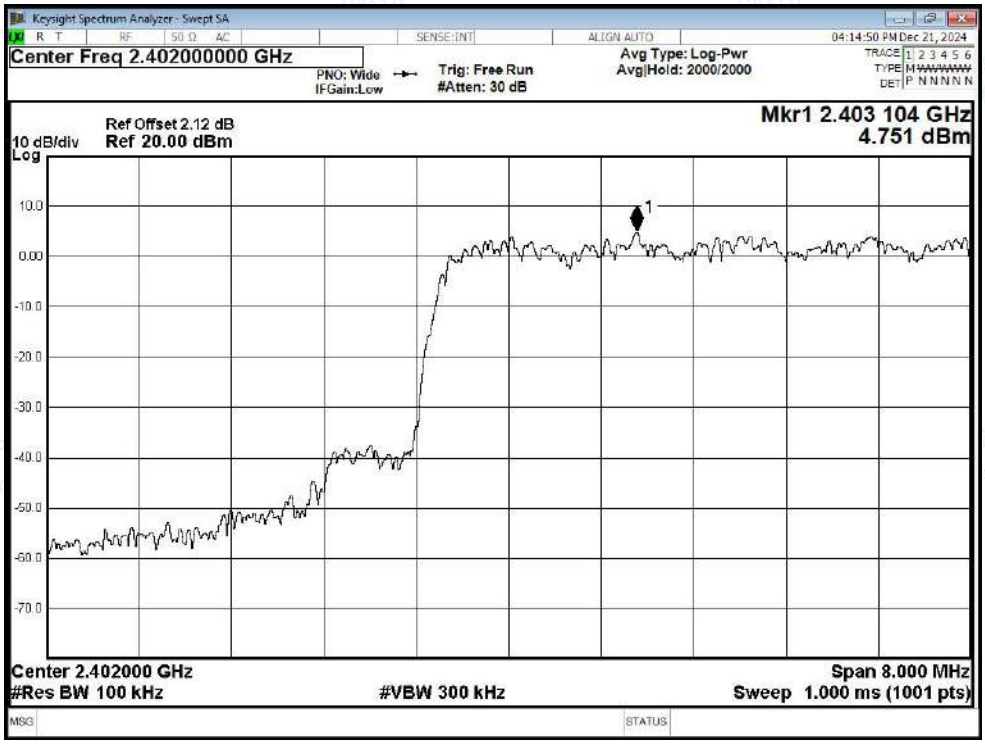
Band Edge(Hopping) NVNT 1-DH5 2480MHz Ant1 Hopping Ref



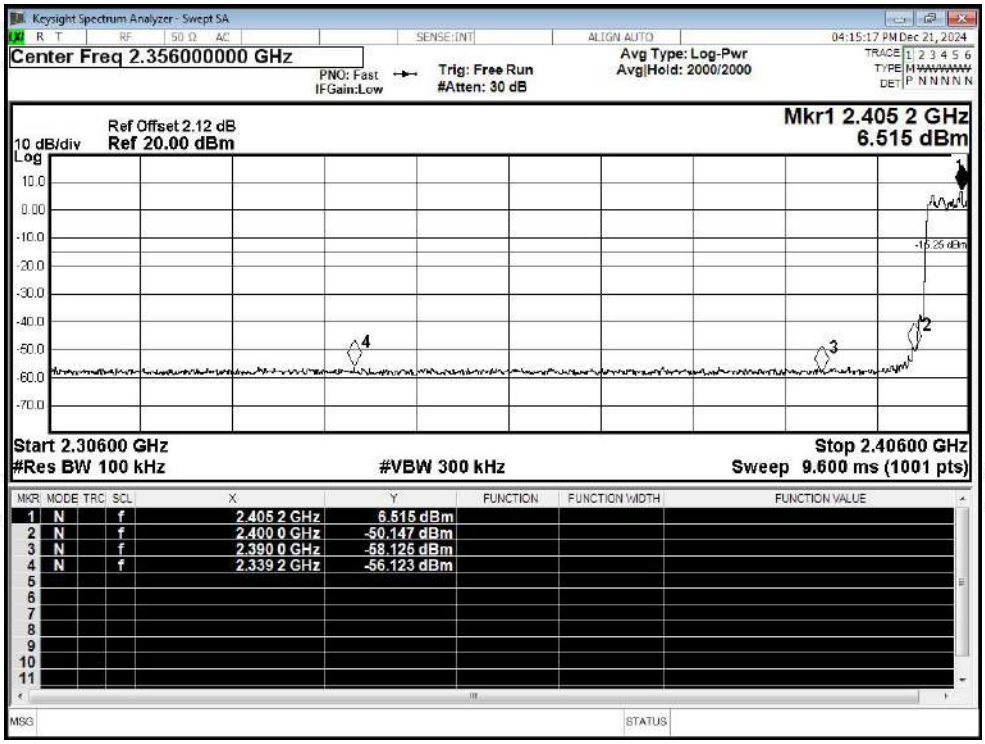
Band Edge(Hopping) NVNT 1-DH5 2480MHz Ant1 Hopping Emission



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

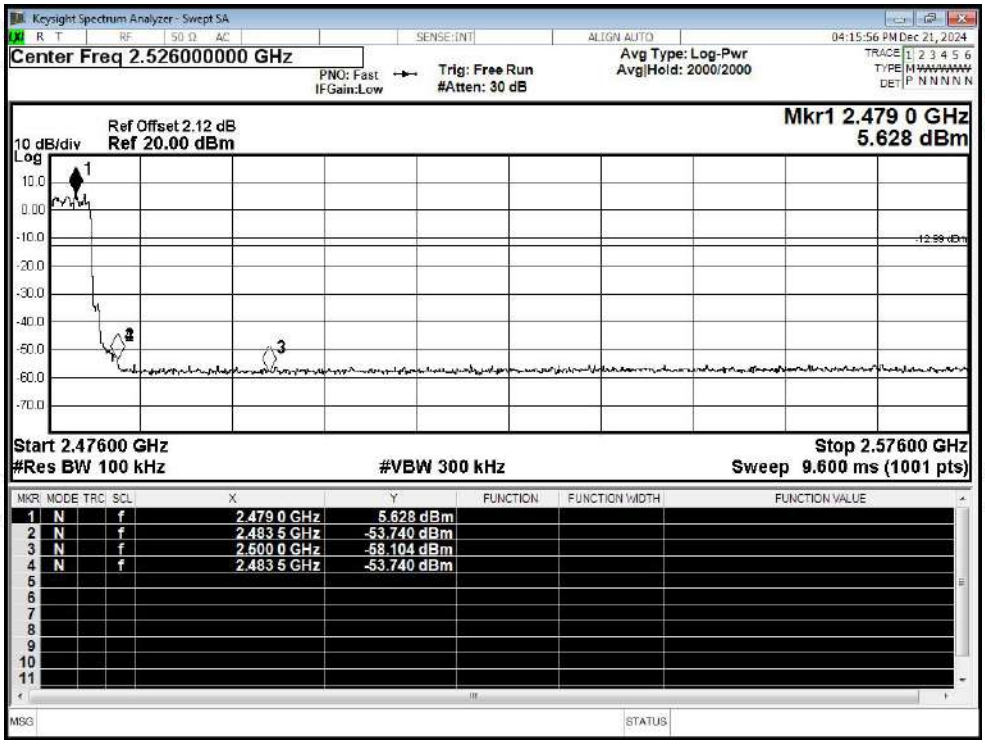


Band Edge(Hopping) NVNT 2-DH5 2402MHz Ant1 Hopping Emission

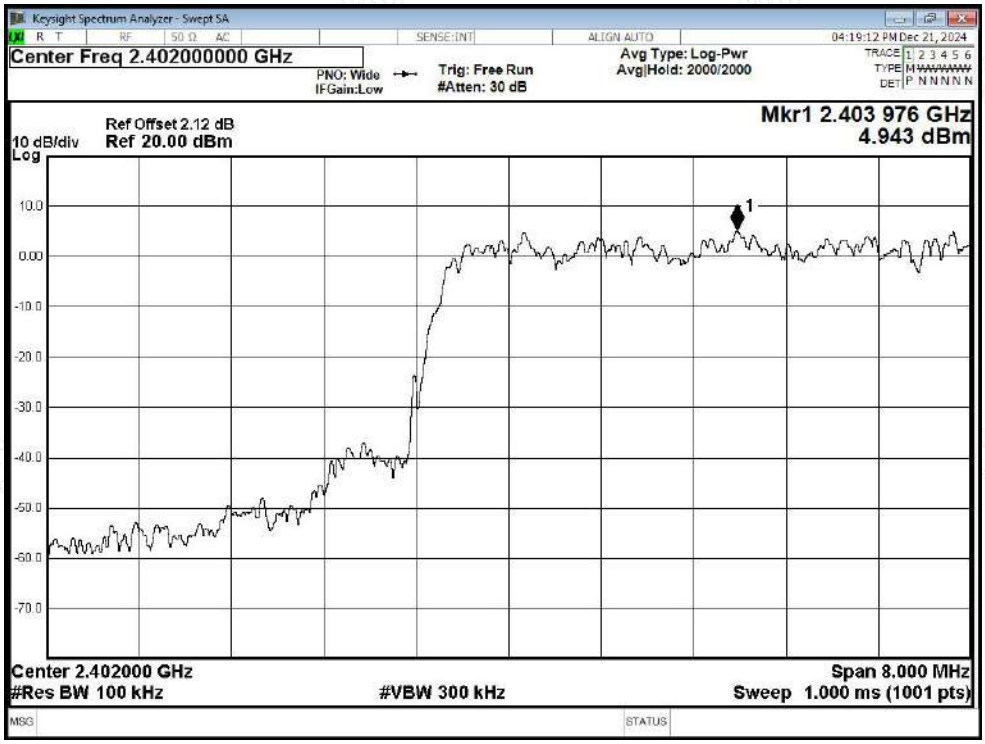


Band Edge(Hopping) NVNT 2-DH5 2480MHz Ant1 Hopping Ref

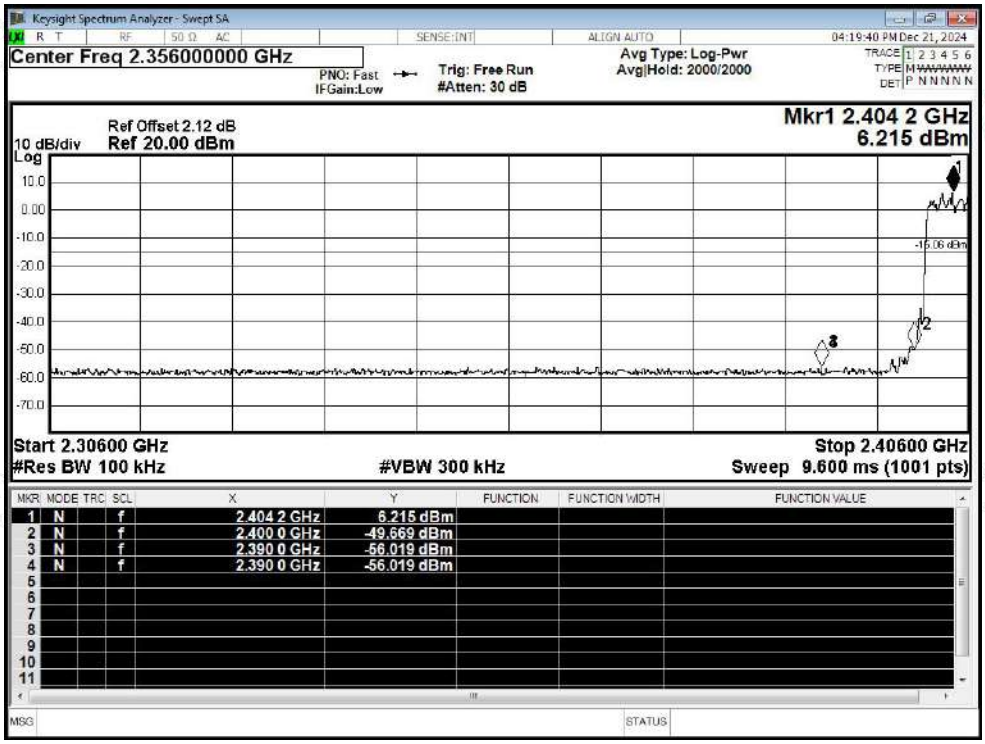
Band Edge(Hopping) NVNT 2-DH5 2480MHz Ant1 Hopping Emission



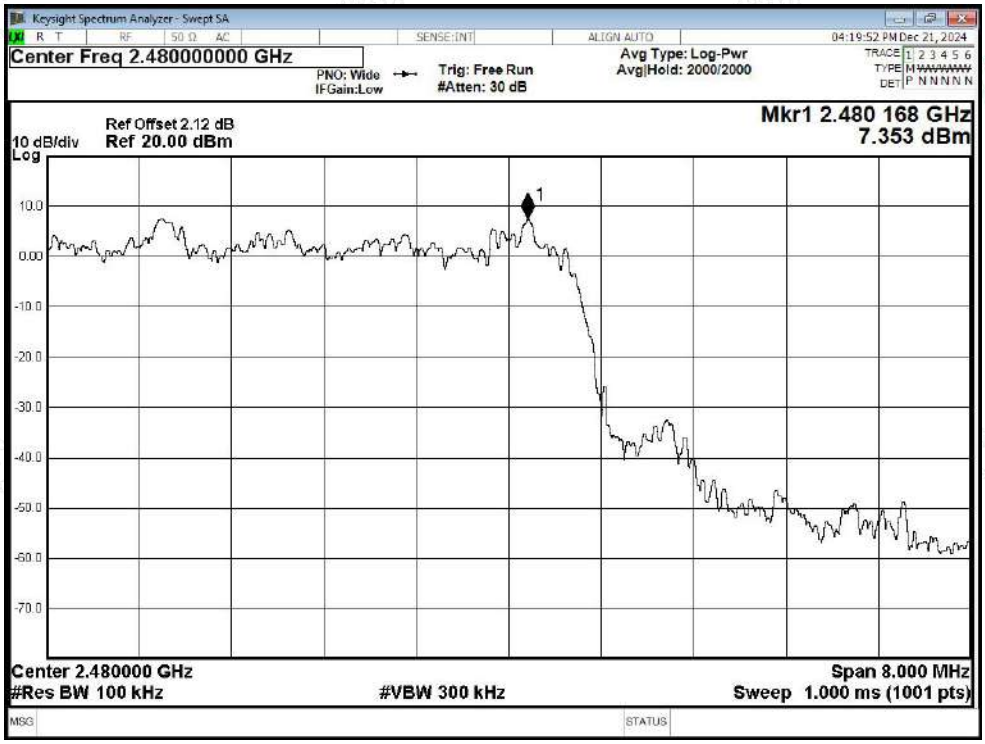
Band Edge(Hopping) NVNT 3-DH5 2402MHz Ant1 Hopping Ref



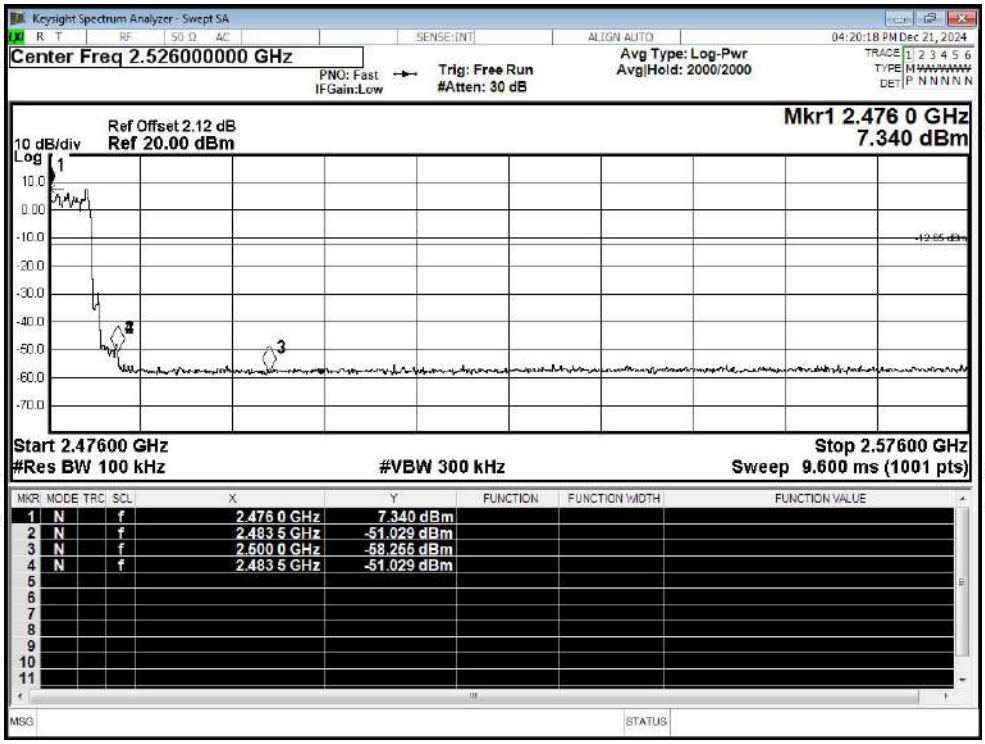
Band Edge(Hopping) NVNT 3-DH5 2402MHz Ant1 Hopping Emission



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



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

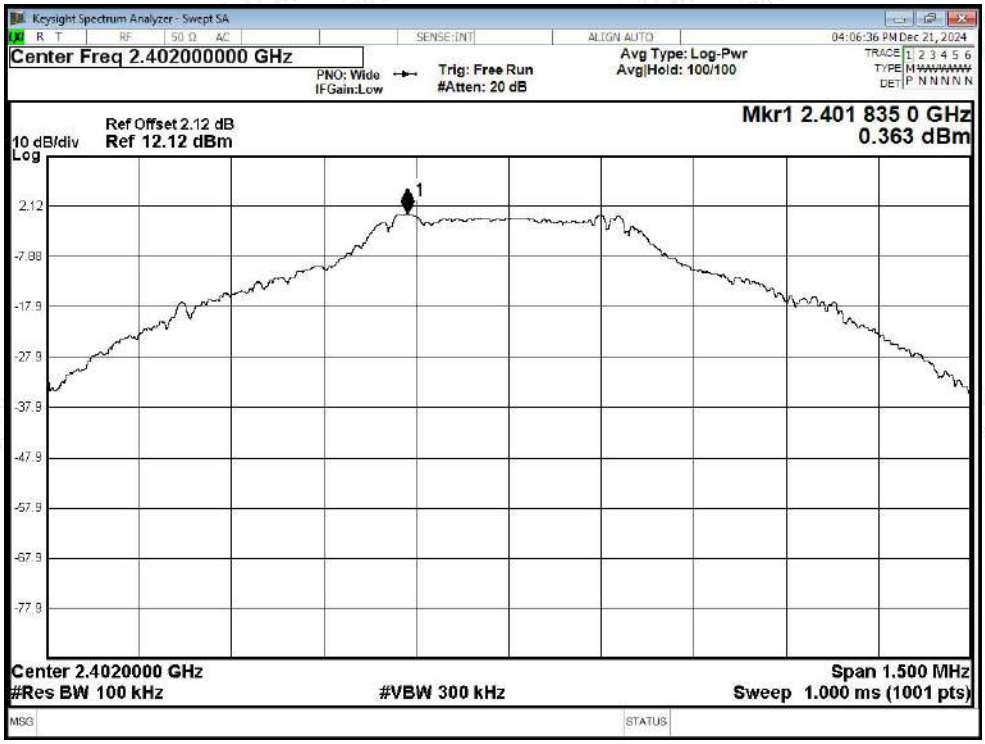


A.7 Conducted RF Spurious Emission

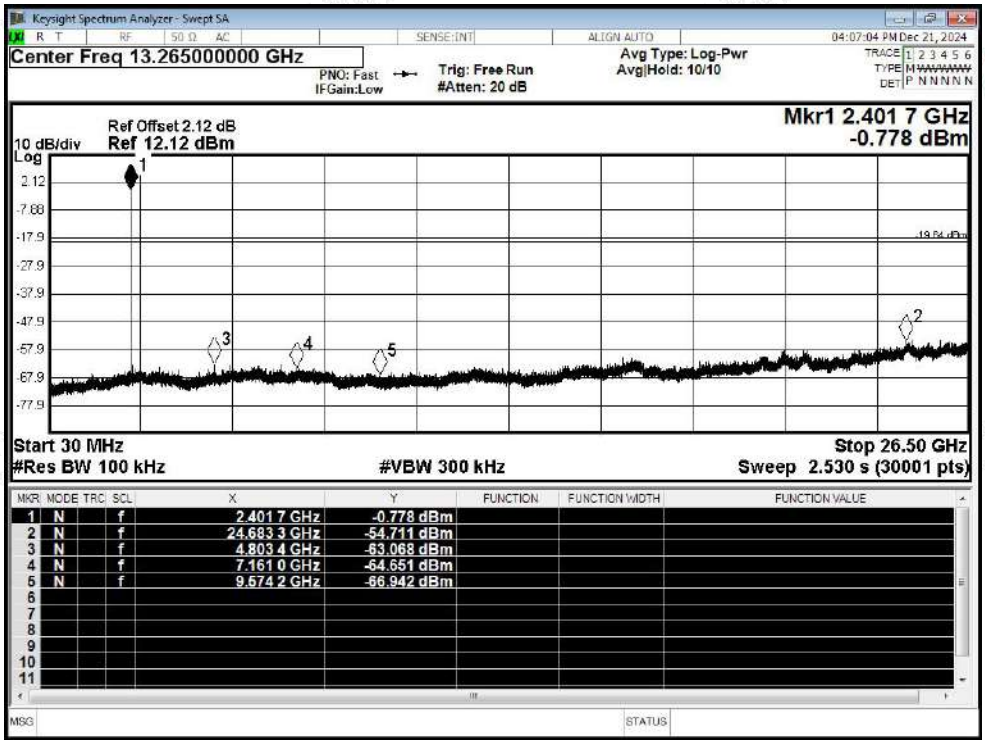
Condition	Mode	Frequency (MHz)	Antenna	Max Value (dBc)	Limit (dBc)	Verdict
NVNT	1-DH5	2402	Ant1	-55.07	-20	Pass
NVNT	1-DH5	2441	Ant1	-55.32	-20	Pass
NVNT	1-DH5	2480	Ant1	-54.05	-20	Pass
NVNT	2-DH5	2402	Ant1	-51.68	-20	Pass
NVNT	2-DH5	2441	Ant1	-51.72	-20	Pass
NVNT	2-DH5	2480	Ant1	-50.23	-20	Pass
NVNT	3-DH5	2402	Ant1	-52.31	-20	Pass
NVNT	3-DH5	2441	Ant1	-52.42	-20	Pass
NVNT	3-DH5	2480	Ant1	-50.43	-20	Pass

Test Graphs

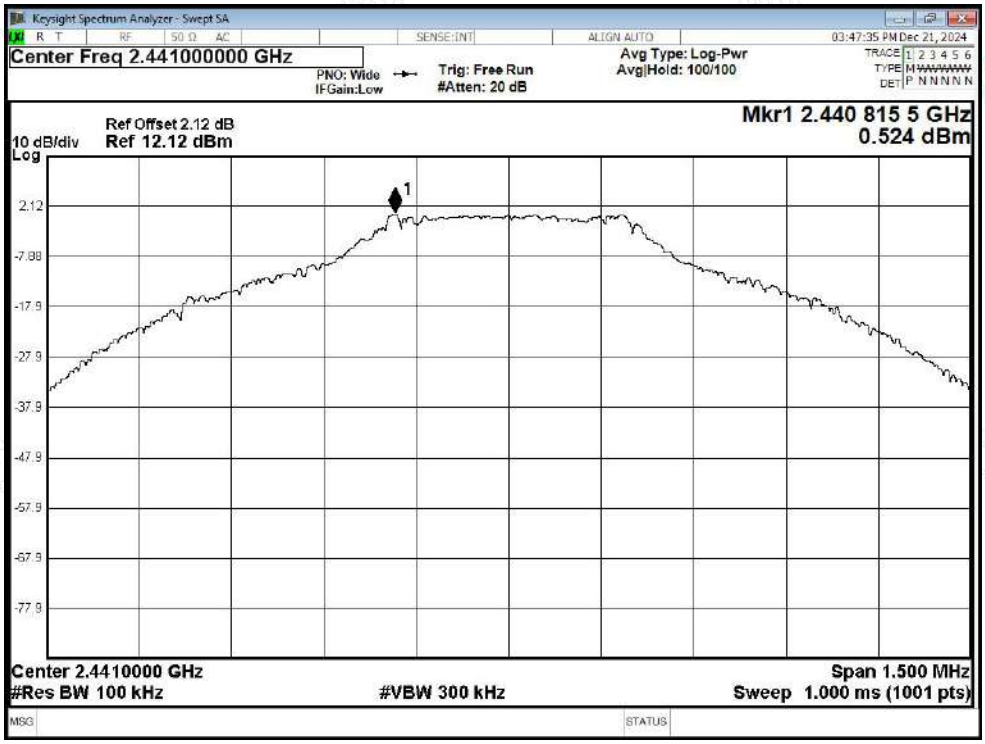
Tx. Spurious NVNT 1-DH5 2402MHz Ant1 Ref



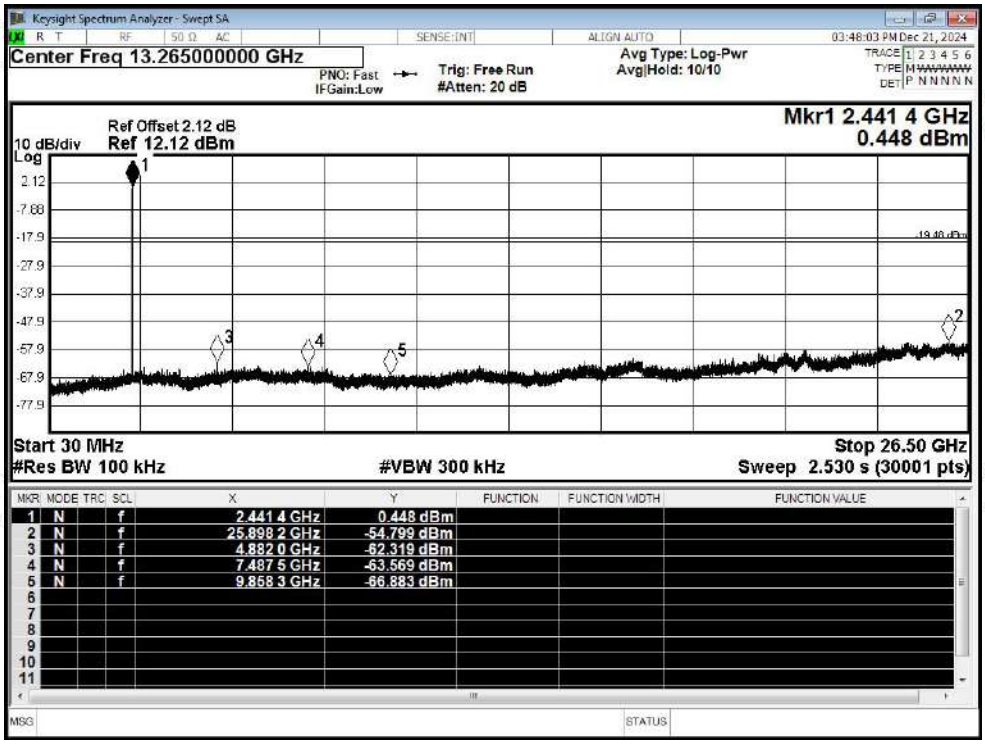
Tx. Spurious NVNT 1-DH5 2402MHz Ant1 Emission



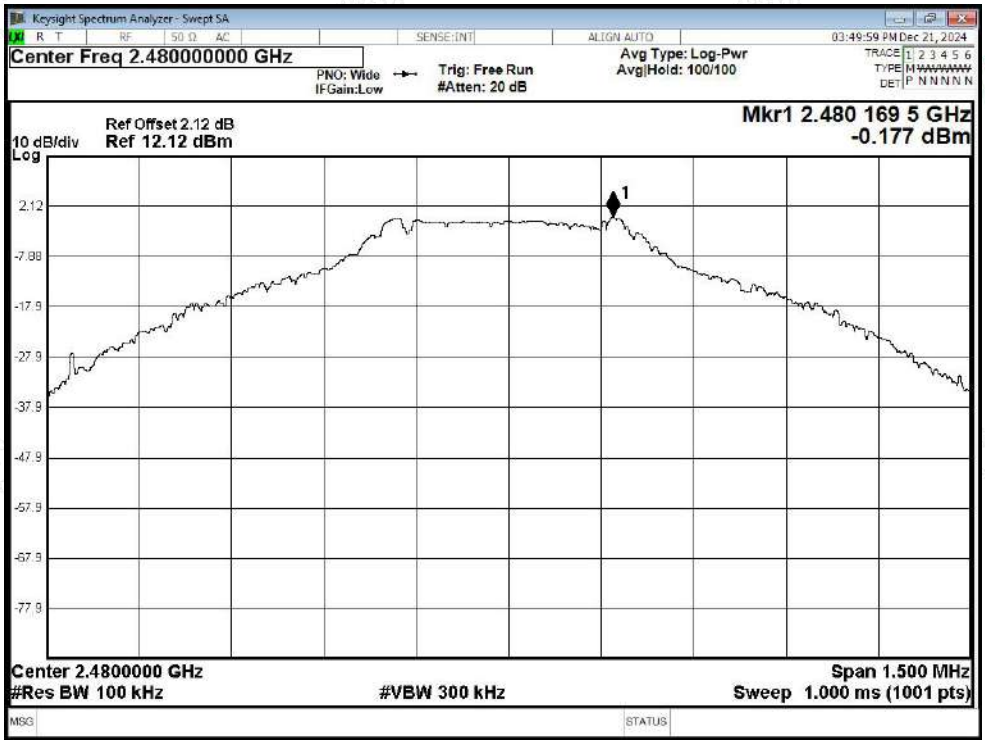
Tx. Spurious NVNT 1-DH5 2441MHz Ant1 Ref



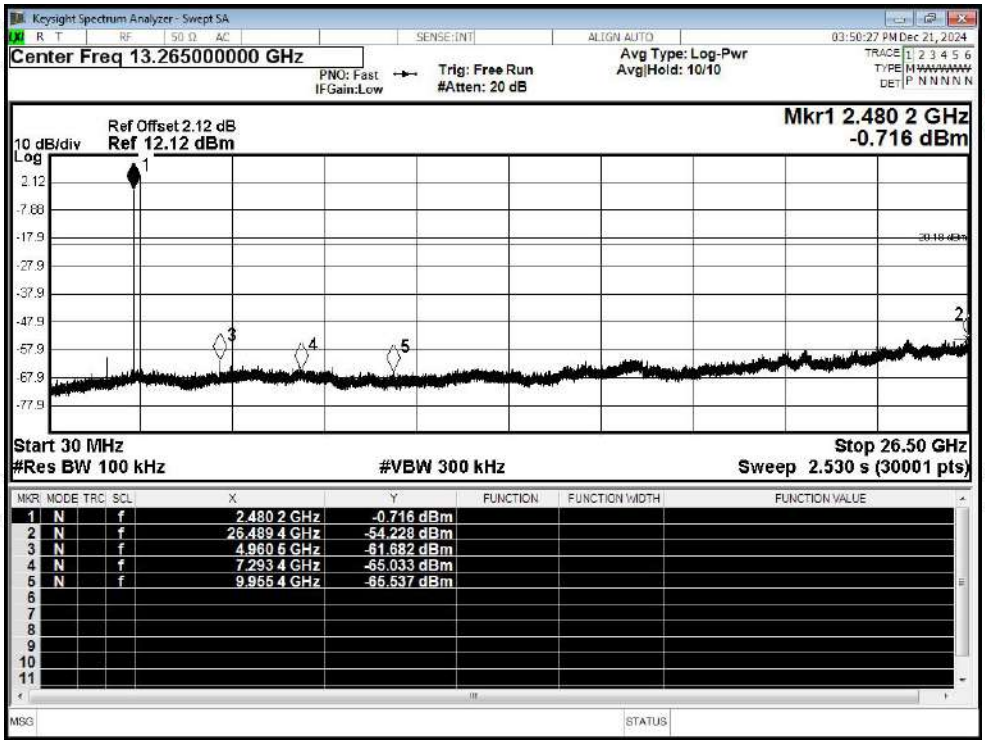
Tx. Spurious NVNT 1-DH5 2441MHz Ant1 Emission



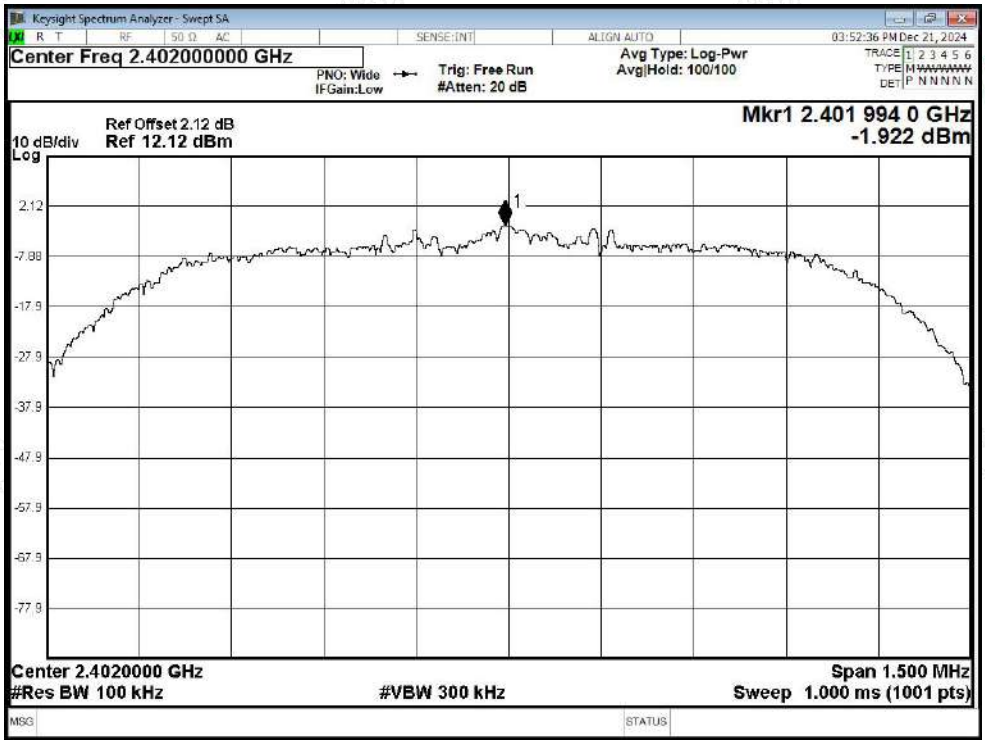
Tx. Spurious NVNT 1-DH5 2480MHz Ant1 Ref



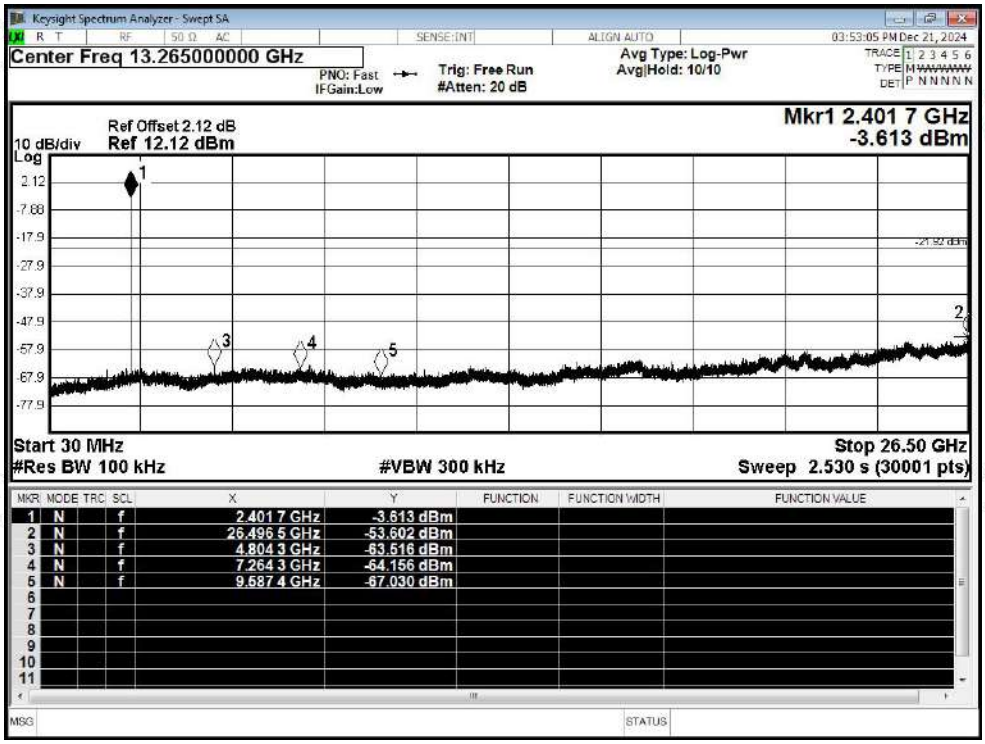
Tx. Spurious NVNT 1-DH5 2480MHz Ant1 Emission



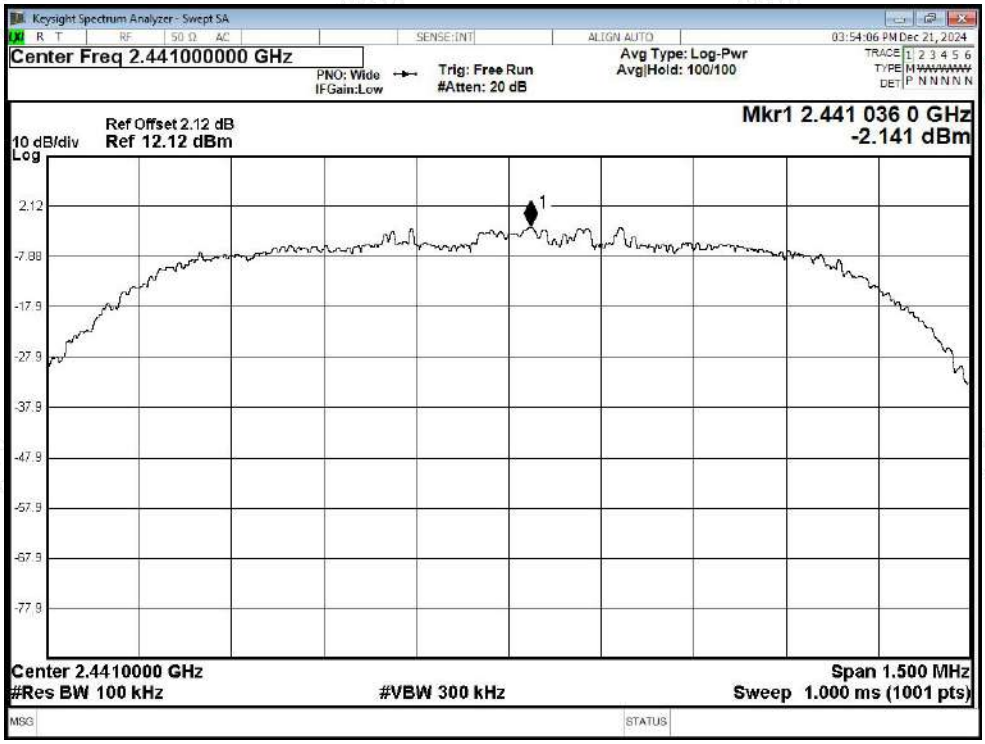
Tx. Spurious NVNT 2-DH5 2402MHz Ant1 Ref



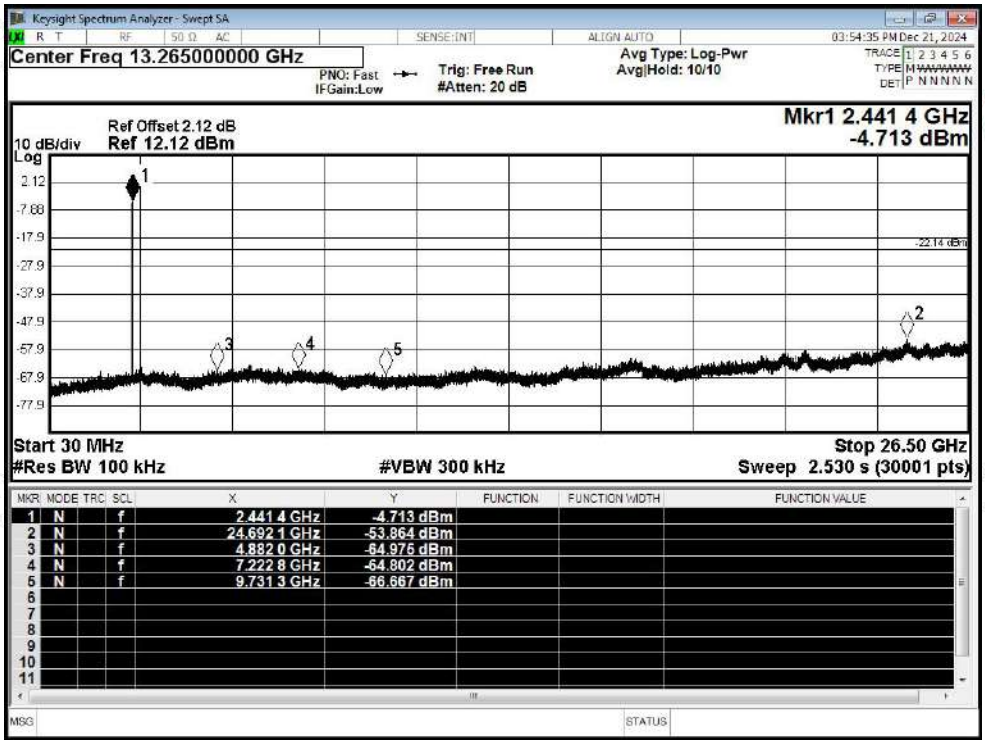
Tx. Spurious NVNT 2-DH5 2402MHz Ant1 Emission



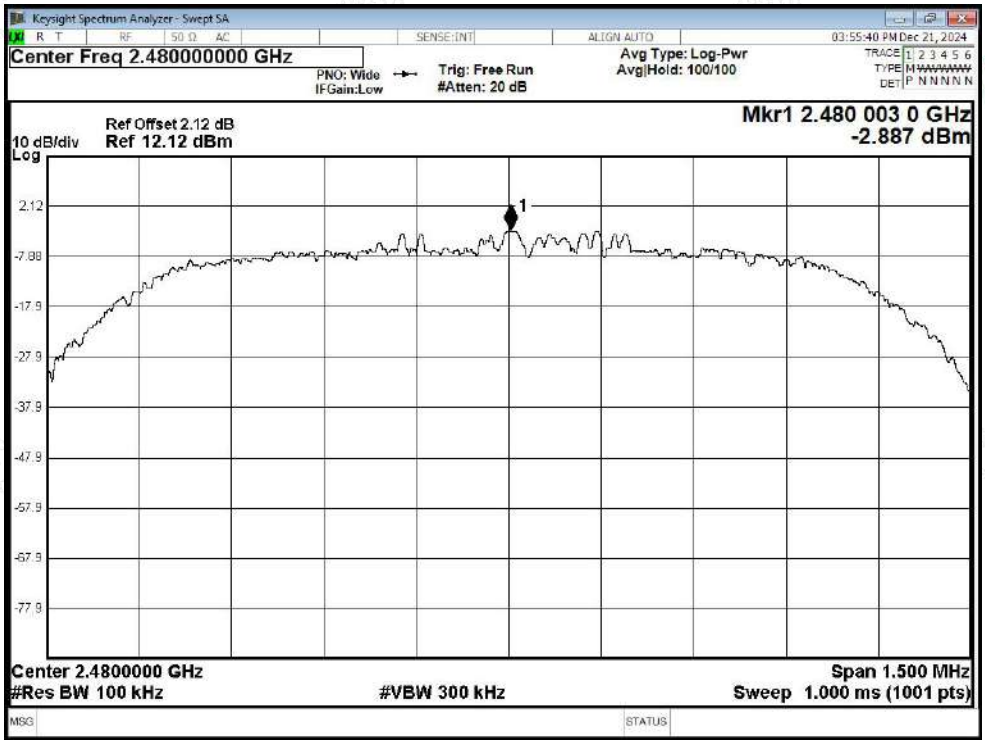
Tx. Spurious NVNT 2-DH5 2441MHz Ant1 Ref



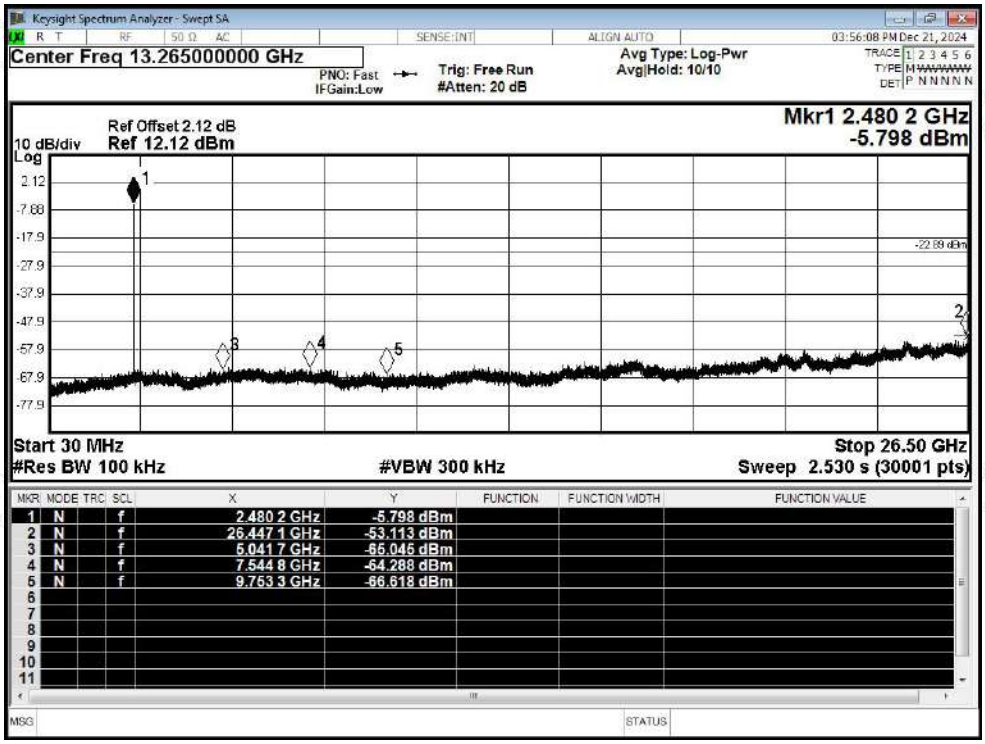
Tx. Spurious NVNT 2-DH5 2441MHz Ant1 Emission



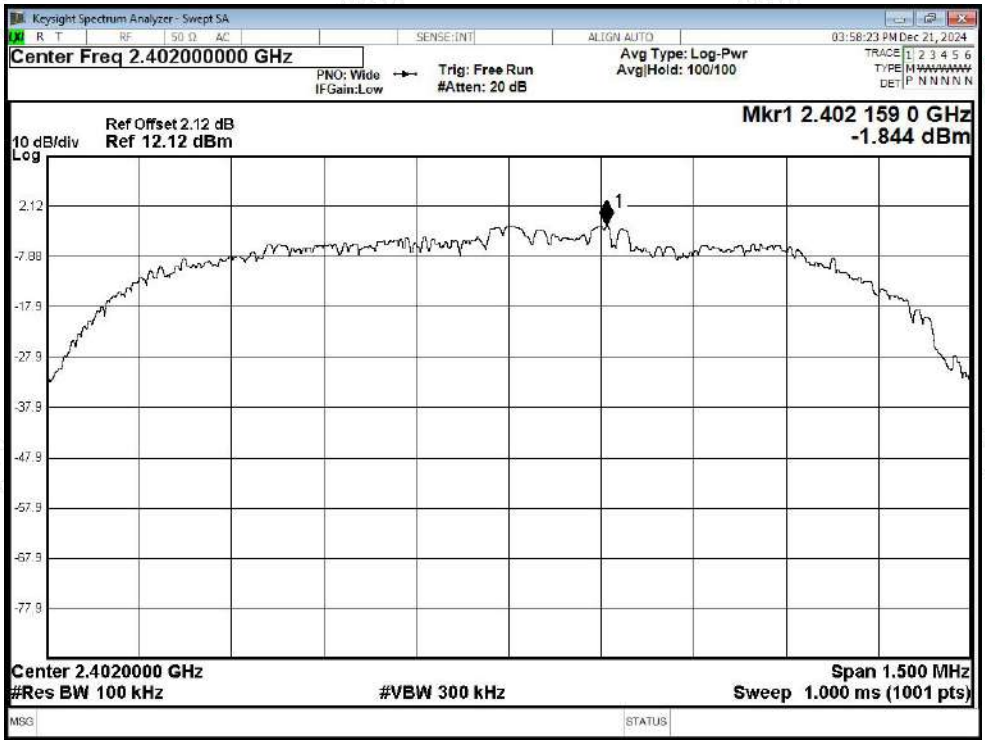
Tx. Spurious NVNT 2-DH5 2480MHz Ant1 Ref



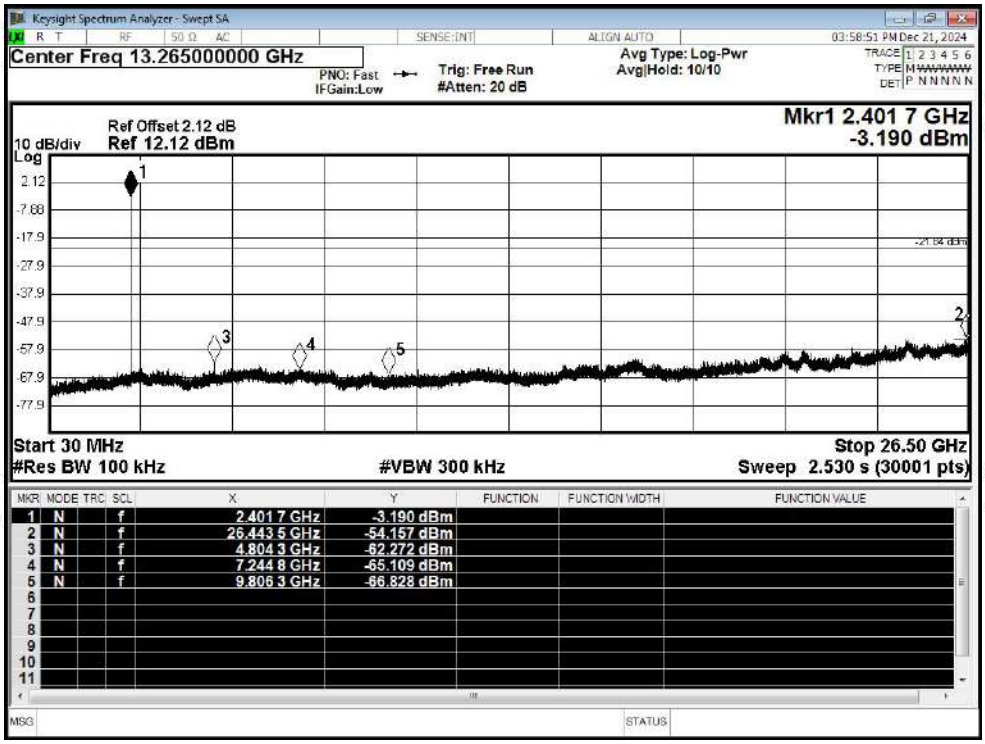
Tx. Spurious NVNT 2-DH5 2480MHz Ant1 Emission



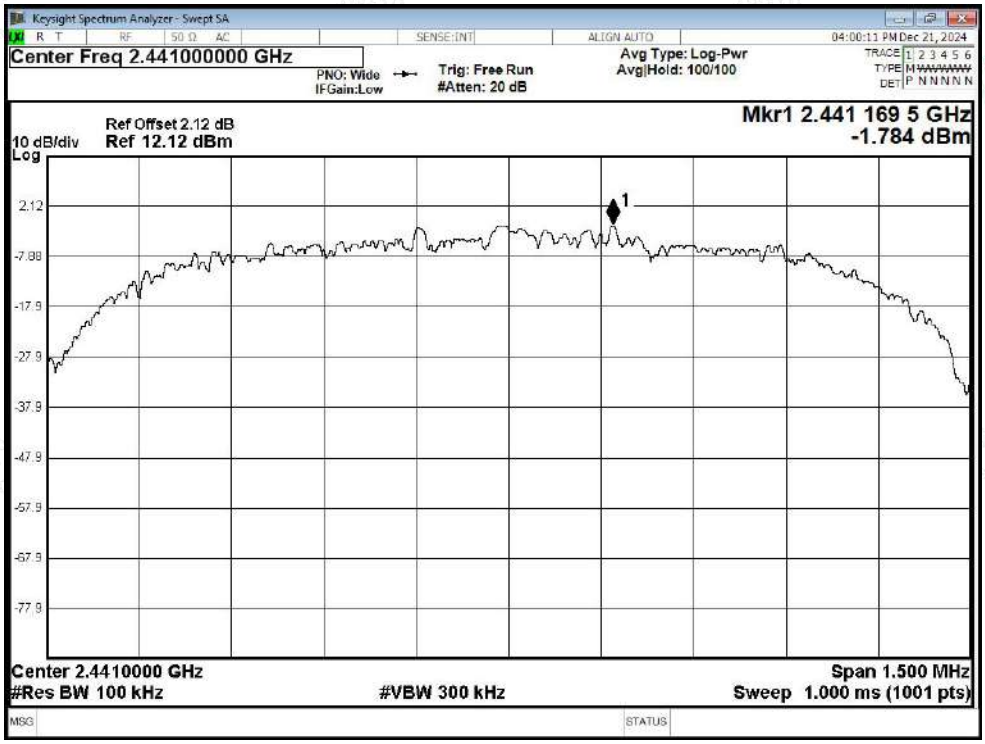
Tx. Spurious NVNT 3-DH5 2402MHz Ant1 Ref



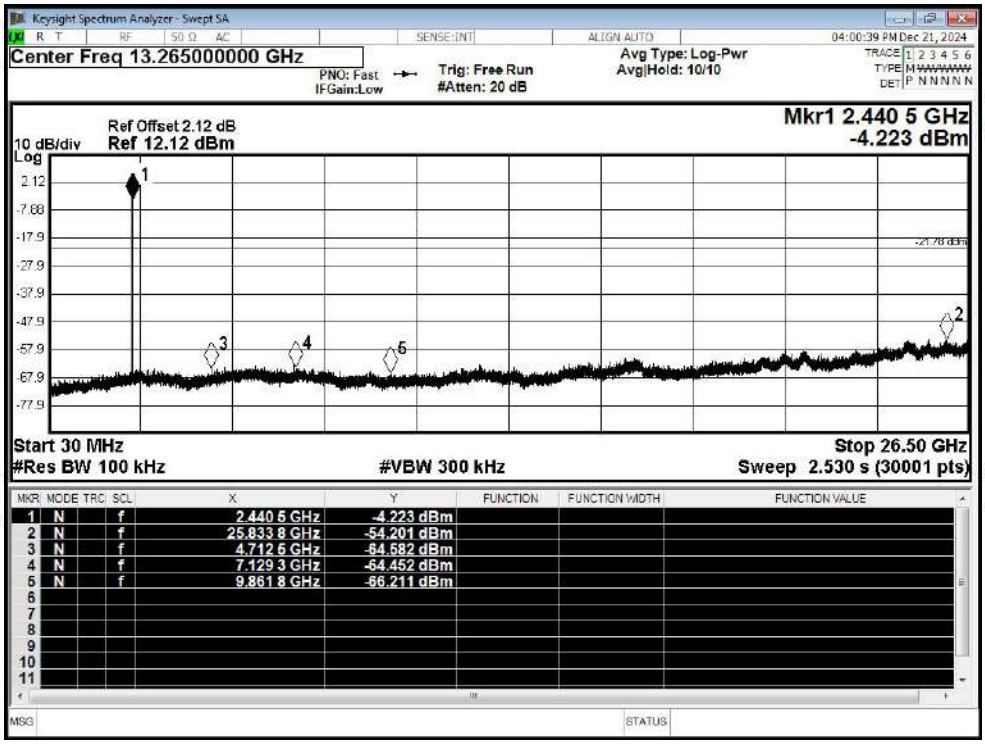
Tx. Spurious NVNT 3-DH5 2402MHz Ant1 Emission



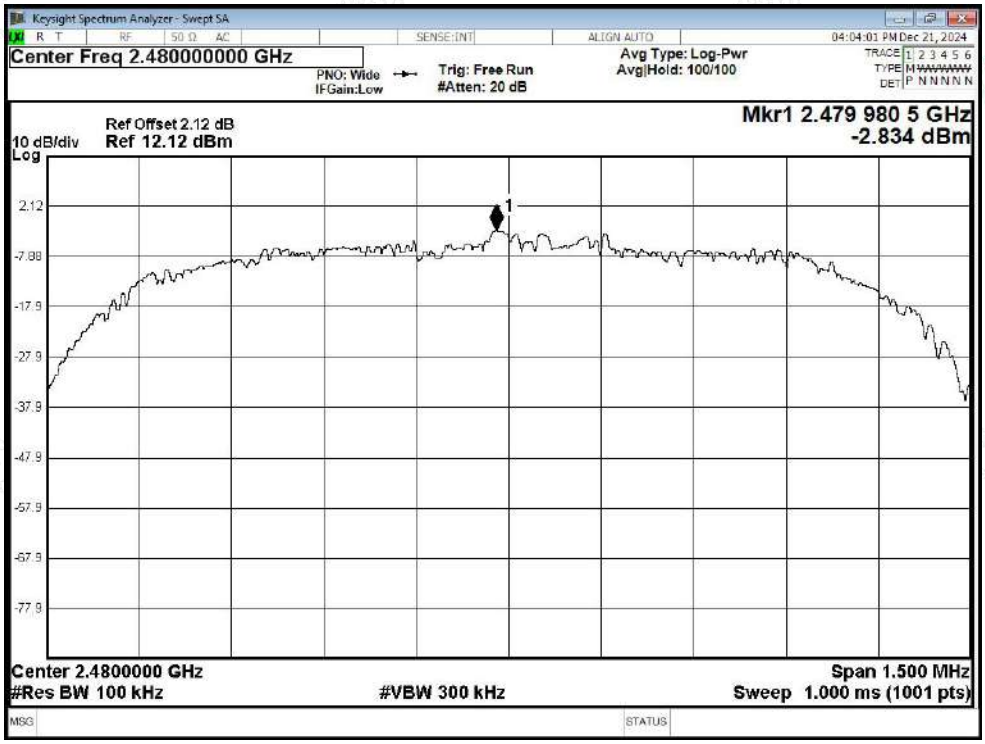
Tx. Spurious NVNT 3-DH5 2441MHz Ant1 Ref



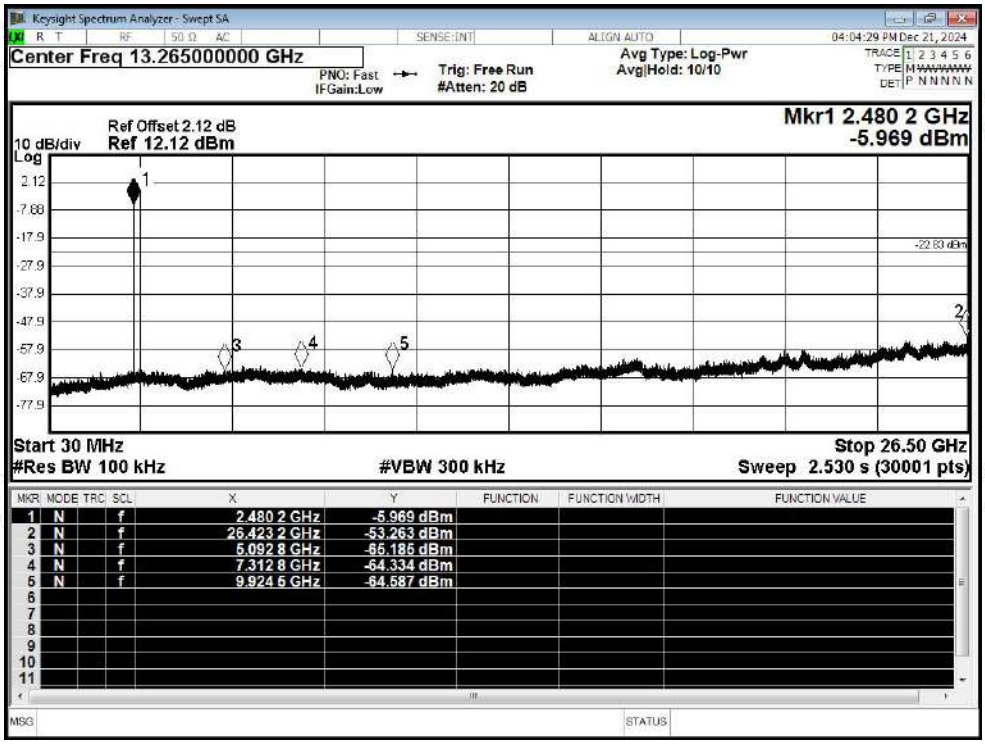
Tx. Spurious NVNT 3-DH5 2441MHz Ant1 Emission



Tx. Spurious NVNT 3-DH5 2480MHz Ant1 Ref



Tx. Spurious NVNT 3-DH5 2480MHz Ant1 Emission

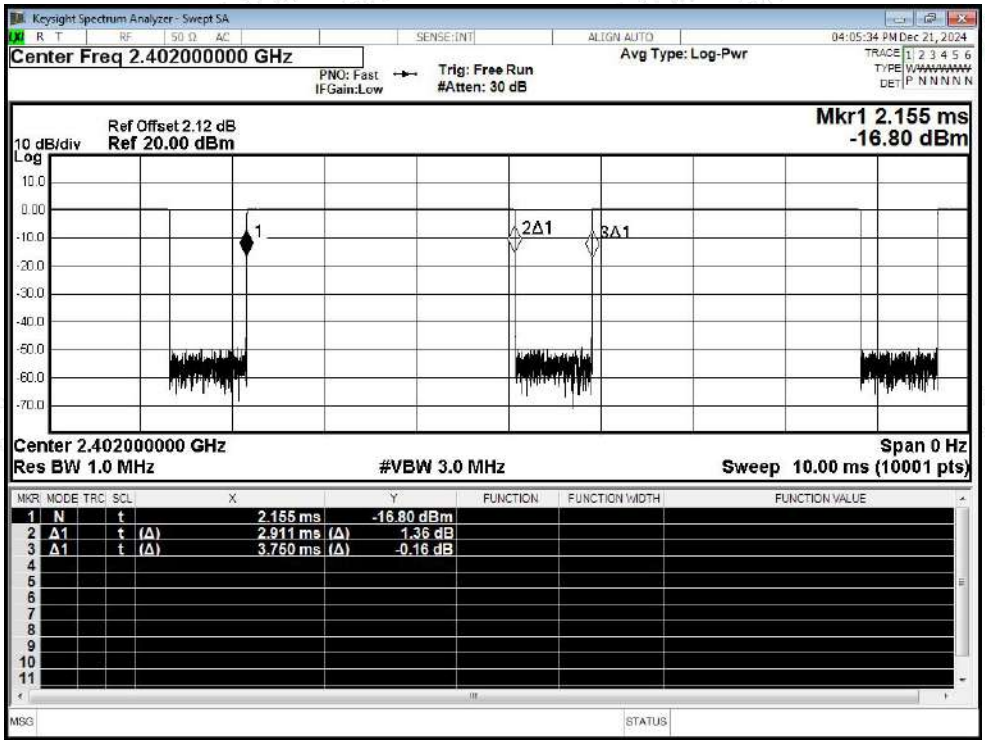


A.8 Duty Cycle

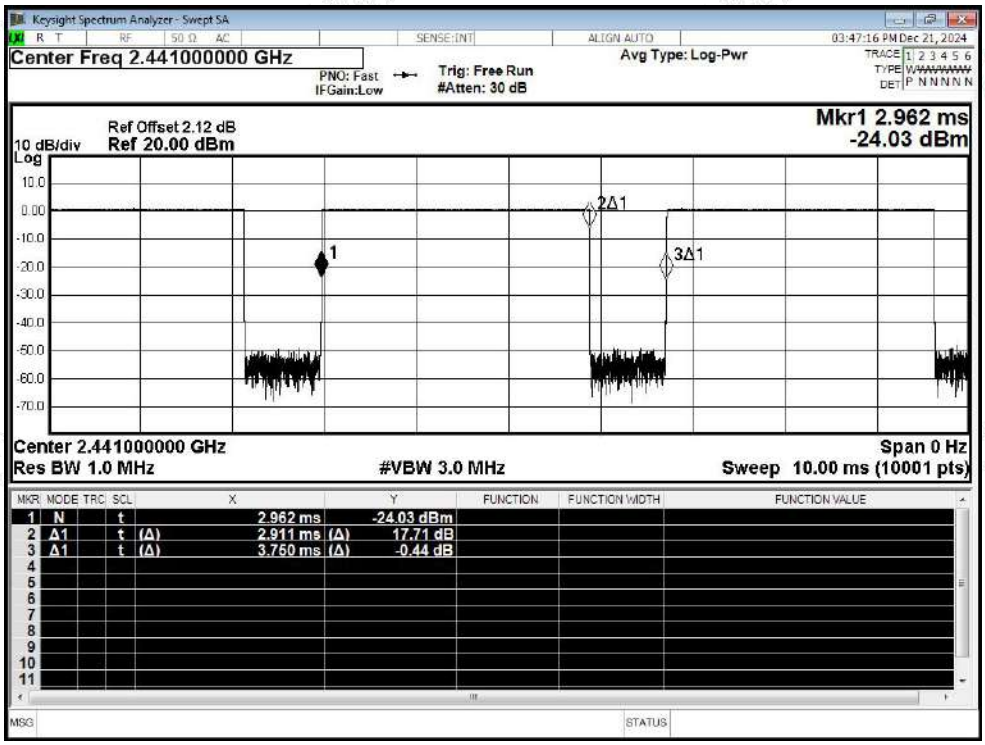
Condition	Mode	Frequency (MHz)	Antenna	Duty Cycle (%)	Correction Factor (dB)	1/T (kHz)
NVNT	1-DH5	2402	Ant1	77.63	1.1	0.34
NVNT	1-DH5	2441	Ant1	77.63	1.1	0.34
NVNT	1-DH5	2480	Ant1	77.6	1.1	0.34
NVNT	2-DH5	2402	Ant1	77.28	1.12	0.35
NVNT	2-DH5	2441	Ant1	77.33	1.12	0.34
NVNT	2-DH5	2480	Ant1	77.28	1.12	0.35
NVNT	3-DH5	2402	Ant1	77.28	1.12	0.35
NVNT	3-DH5	2441	Ant1	77.28	1.12	0.35
NVNT	3-DH5	2480	Ant1	77.33	1.12	0.34

Test Graphs

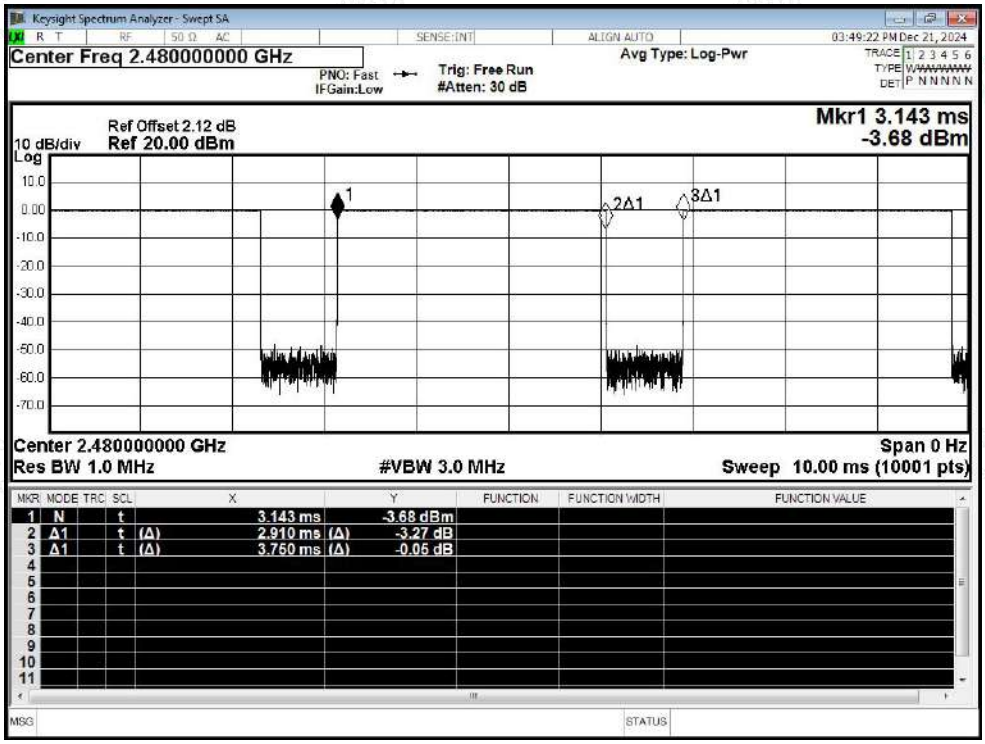
Duty Cycle NVNT 1-DH5 2402MHz Ant1



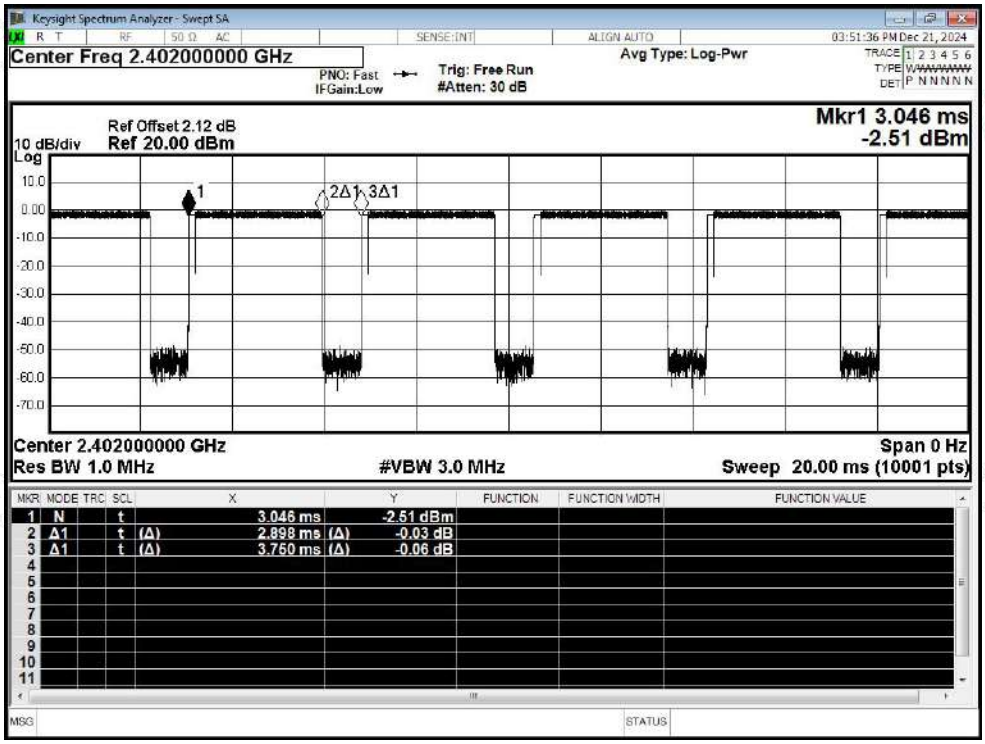
Duty Cycle NVNT 1-DH5 2441MHz Ant1



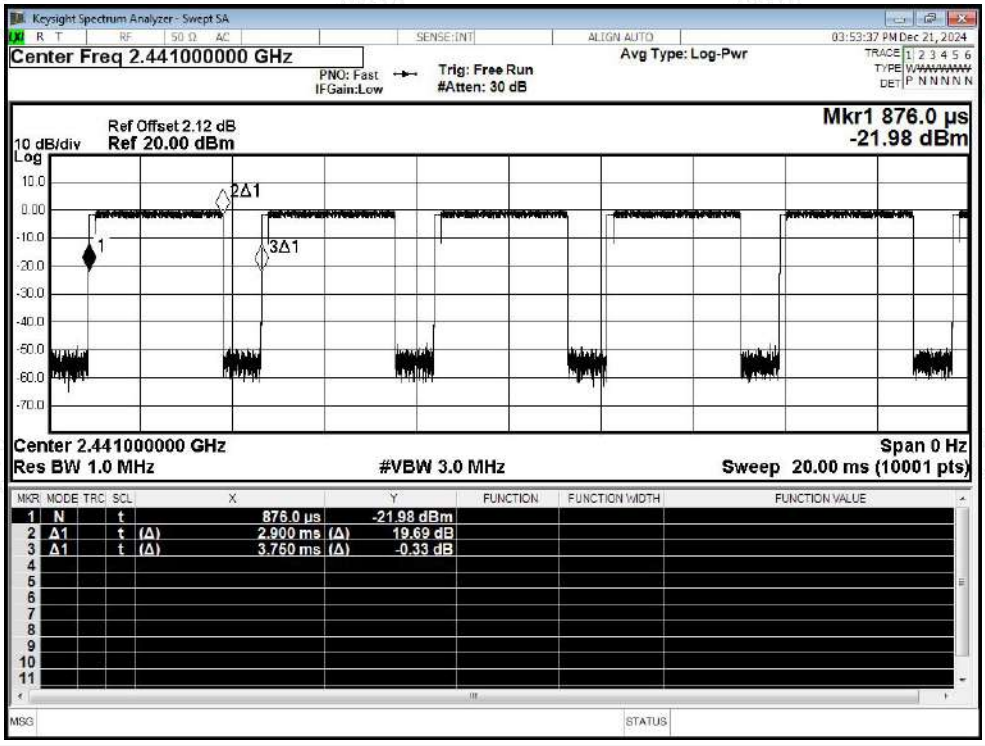
Duty Cycle NVNT 1-DH5 2480MHz Ant1



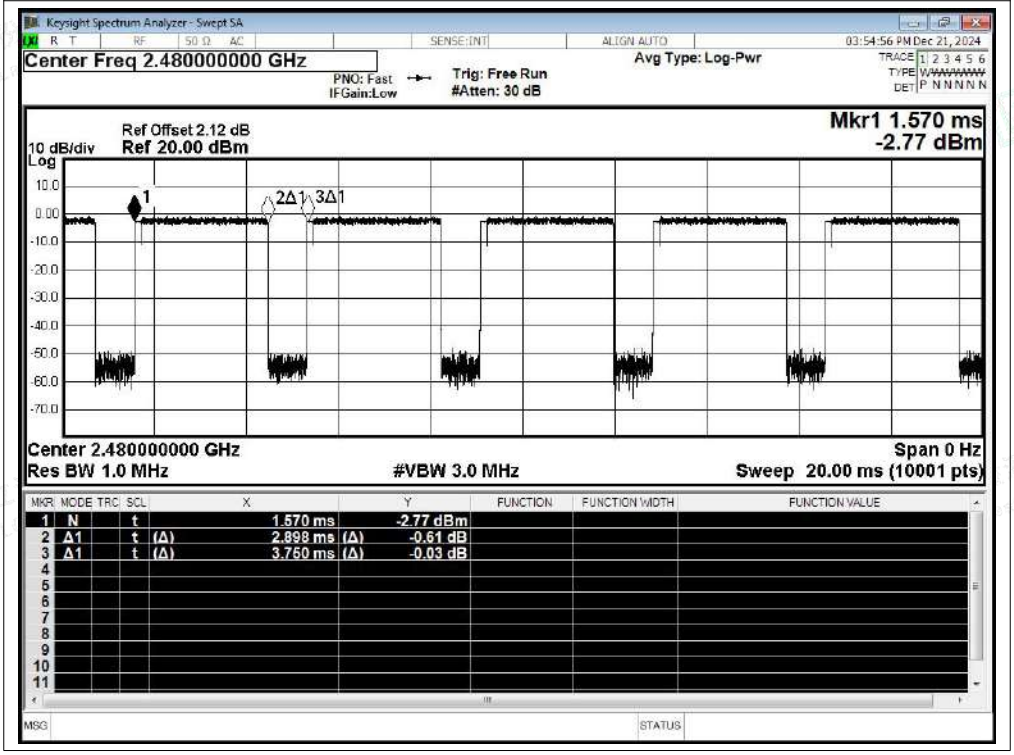
Duty Cycle NVNT 2-DH5 2402MHz Ant1



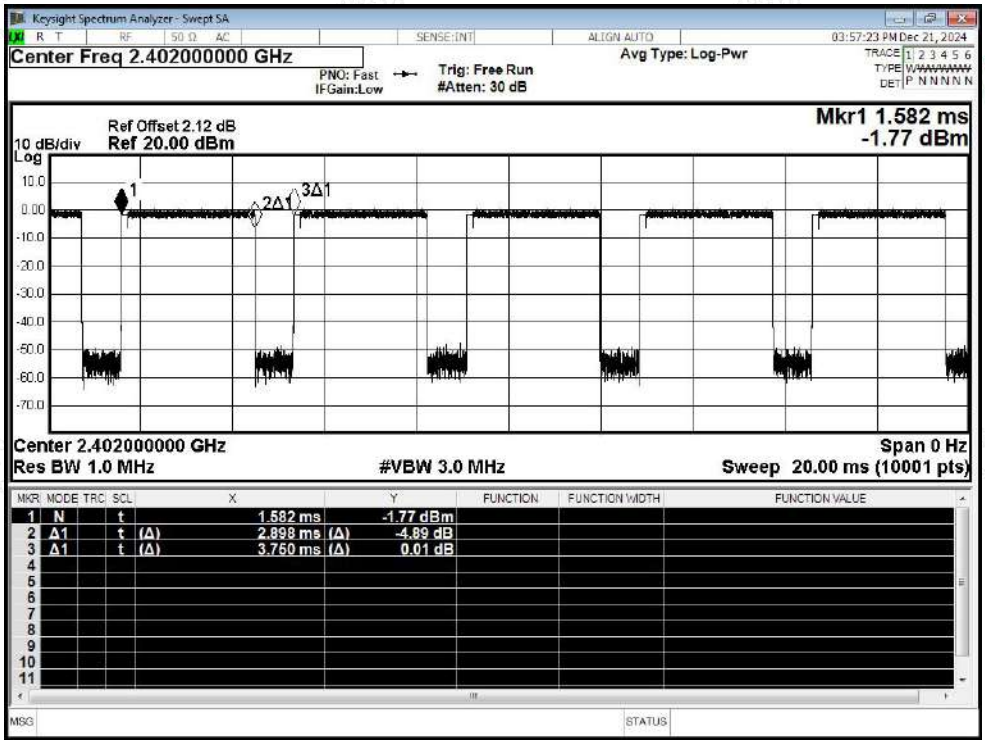
Duty Cycle NVNT 2-DH5 2441MHz Ant1



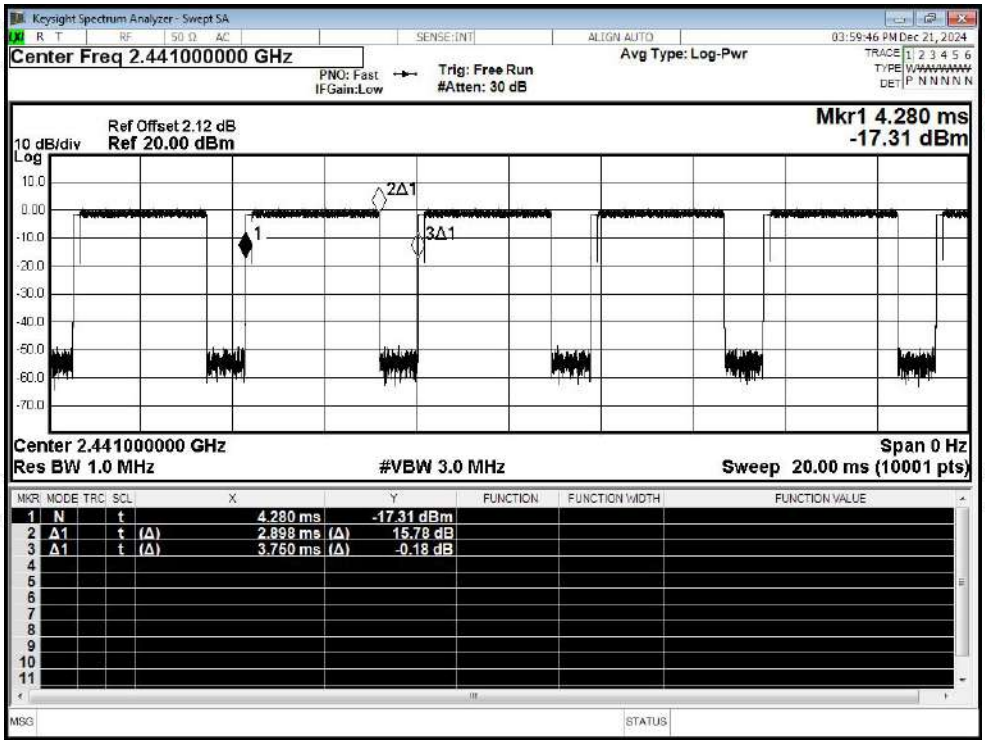
Duty Cycle NVNT 2-DH5 2480MHz Ant1



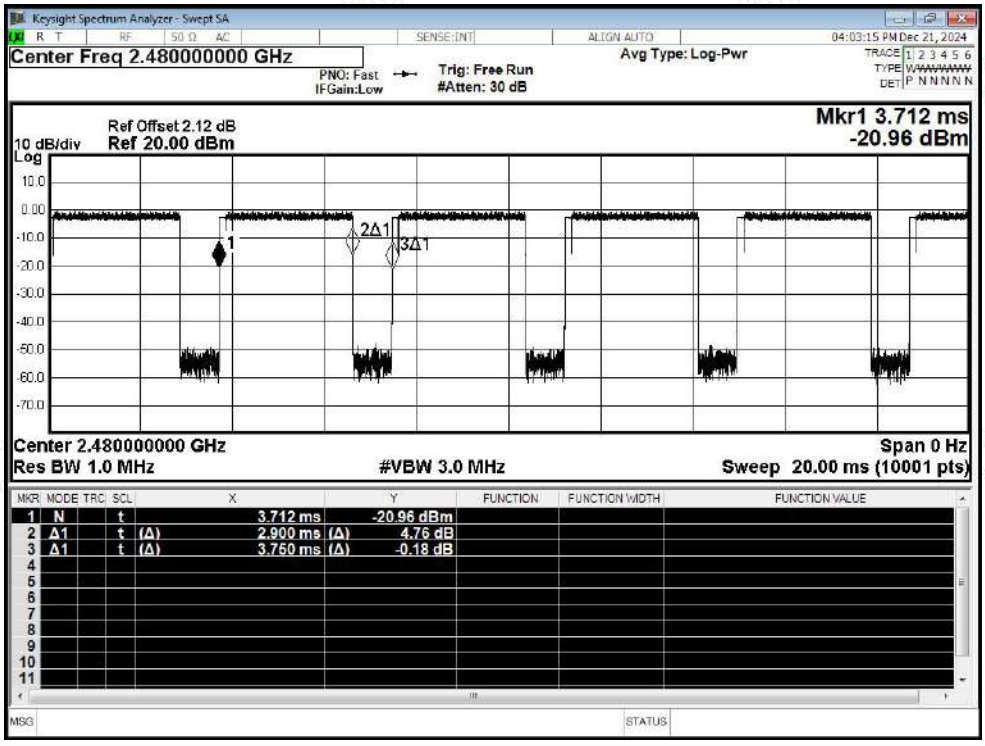
Duty Cycle NVNT 3-DH5 2402MHz Ant1



Duty Cycle NVNT 3-DH5 2441MHz Ant1



Duty Cycle NVNT 3-DH5 2480MHz Ant1

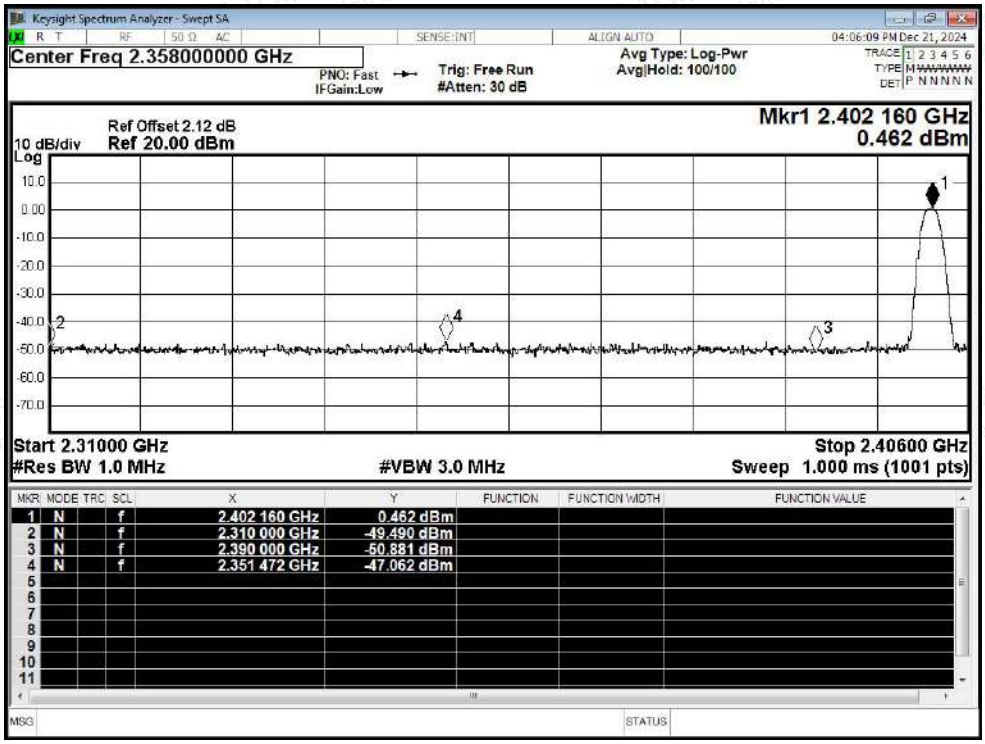


A.9 Restrict Band

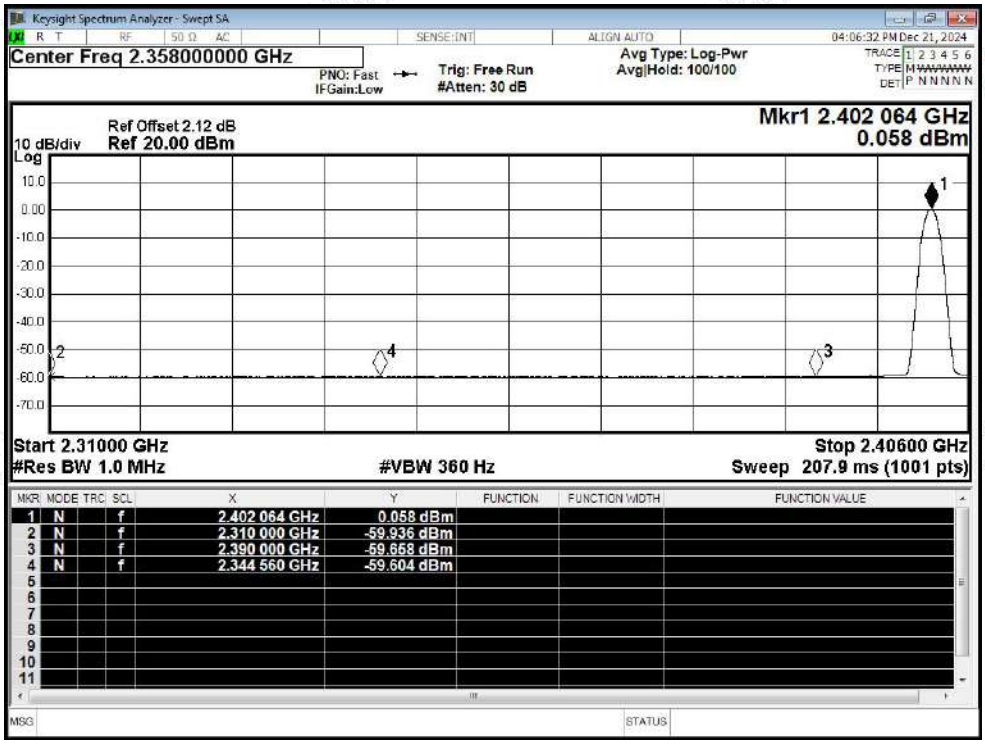
Condition	Mode	Frequency (MHz)	Antenna	Hopping Mode	Spur Freq (MHz)	Power (dBm)	Gain (dBi)	E (dBuV/m)	Detector	Limit (dBuV/m)	Verdict
NVNT	1-DH5	2402	Ant1	No-Hopping	2310	-49.49	2	47.77	Peak	74	Pass
NVNT	1-DH5	2402	Ant1	No-Hopping	2310	-59.94	2	37.32	Average	54	Pass
NVNT	1-DH5	2402	Ant1	No-Hopping	2351.472	-47.06	2	50.20	Peak	74	Pass
NVNT	1-DH5	2402	Ant1	No-Hopping	2344.56	-59.6	2	37.66	Average	54	Pass
NVNT	1-DH5	2402	Ant1	No-Hopping	2390	-50.88	2	46.38	Peak	74	Pass
NVNT	1-DH5	2402	Ant1	No-Hopping	2390	-59.66	2	37.60	Average	54	Pass
NVNT	1-DH5	2480	Ant1	No-Hopping	2483.5	-48.99	2	48.27	Peak	74	Pass
NVNT	1-DH5	2480	Ant1	No-Hopping	2483.5	-59.19	2	38.07	Average	54	Pass
NVNT	1-DH5	2480	Ant1	No-Hopping	2484.712	-46.84	2	50.42	Peak	74	Pass
NVNT	1-DH5	2480	Ant1	No-Hopping	2483.536	-59.16	2	38.10	Average	54	Pass
NVNT	1-DH5	2480	Ant1	No-Hopping	2500	-50.31	2	46.95	Peak	74	Pass
NVNT	1-DH5	2480	Ant1	No-Hopping	2500	-59.57	2	37.69	Average	54	Pass
NVNT	2-DH5	2402	Ant1	No-Hopping	2310	-50.5	2	46.76	Peak	74	Pass
NVNT	2-DH5	2402	Ant1	No-Hopping	2310	-59.88	2	37.38	Average	54	Pass
NVNT	2-DH5	2402	Ant1	No-Hopping	2387.184	-46.64	2	50.62	Peak	74	Pass
NVNT	2-DH5	2402	Ant1	No-Hopping	2382	-59.57	2	37.69	Average	54	Pass
NVNT	2-DH5	2402	Ant1	No-Hopping	2390	-51.08	2	46.18	Peak	74	Pass
NVNT	2-DH5	2402	Ant1	No-Hopping	2390	-59.86	2	37.40	Average	54	Pass
NVNT	2-DH5	2480	Ant1	No-Hopping	2483.5	-50.18	2	47.08	Peak	74	Pass
NVNT	2-DH5	2480	Ant1	No-Hopping	2483.5	-59.11	2	38.15	Average	54	Pass
NVNT	2-DH5	2480	Ant1	No-Hopping	2484.16	-47.05	2	50.21	Peak	74	Pass
NVNT	2-DH5	2480	Ant1	No-Hopping	2483.512	-59.11	2	38.15	Average	54	Pass
NVNT	2-DH5	2480	Ant1	No-Hopping	2500	-51	2	46.26	Peak	74	Pass
NVNT	2-DH5	2480	Ant1	No-Hopping	2500	-59.69	2	37.57	Average	54	Pass
NVNT	3-DH5	2402	Ant1	No-Hopping	2310	-51.64	2	45.62	Peak	74	Pass
NVNT	3-DH5	2402	Ant1	No-Hopping	2310	-59.97	2	37.29	Average	54	Pass
NVNT	3-DH5	2402	Ant1	No-Hopping	2389.392	-46.74	2	50.52	Peak	74	Pass
NVNT	3-DH5	2402	Ant1	No-Hopping	2389.2	-59.6	2	37.66	Average	54	Pass
NVNT	3-DH5	2402	Ant1	No-Hopping	2390	-47.54	2	49.72	Peak	74	Pass
NVNT	3-DH5	2402	Ant1	No-Hopping	2390	-59.73	2	37.53	Average	54	Pass
NVNT	3-DH5	2480	Ant1	No-Hopping	2483.5	-50.3	2	46.96	Peak	74	Pass
NVNT	3-DH5	2480	Ant1	No-Hopping	2483.5	-59.01	2	38.25	Average	54	Pass
NVNT	3-DH5	2480	Ant1	No-Hopping	2484.856	-46.73	2	50.53	Peak	74	Pass
NVNT	3-DH5	2480	Ant1	No-Hopping	2483.512	-59.01	2	38.25	Average	54	Pass
NVNT	3-DH5	2480	Ant1	No-Hopping	2500	-50.21	2	47.05	Peak	74	Pass
NVNT	3-DH5	2480	Ant1	No-Hopping	2500	-59.59	2	37.67	Average	54	Pass

Test Graphs

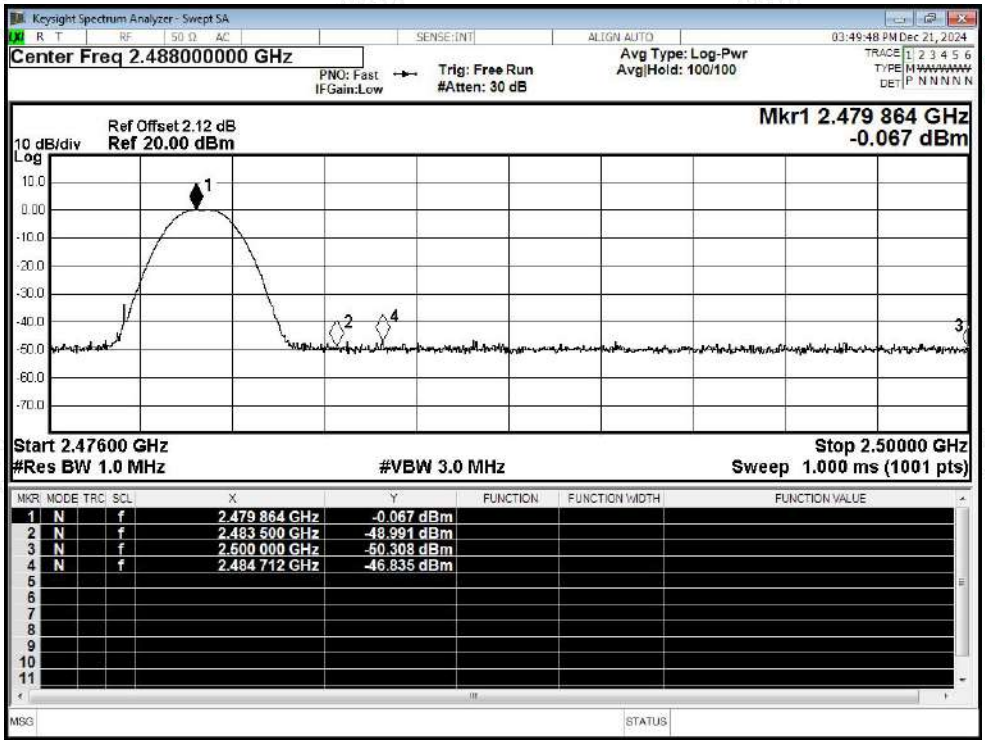
Restrict Band NVNT 1-DH5 2402MHz Ant1 No-Hopping Peak



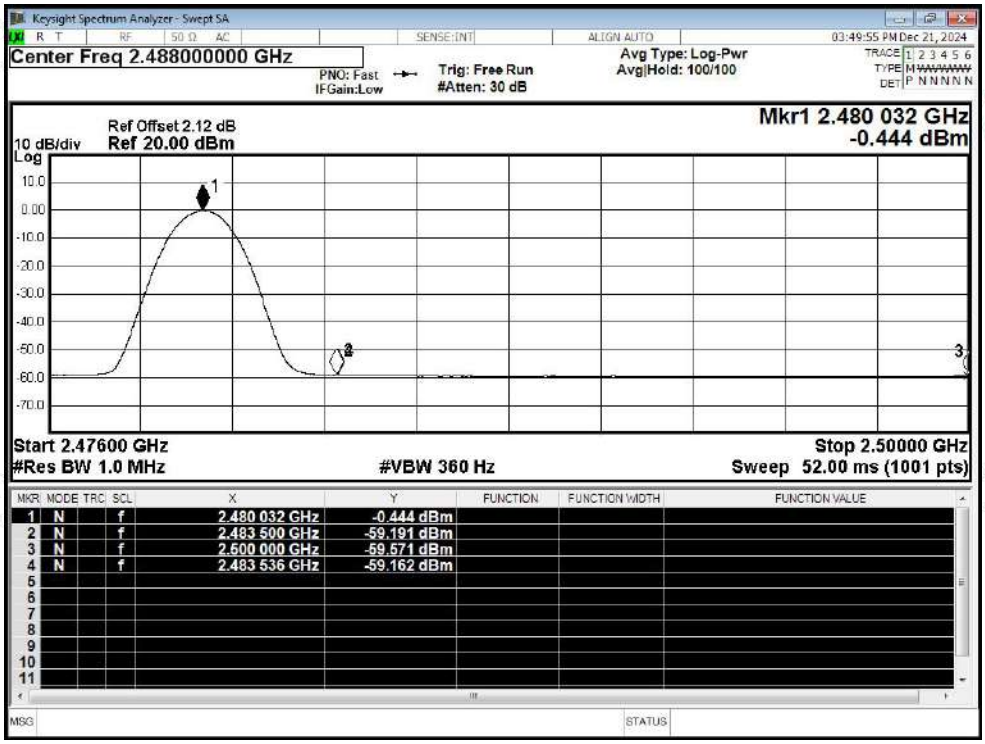
Restrict Band NVNT 1-DH5 2402MHz Ant1 No-Hopping Average



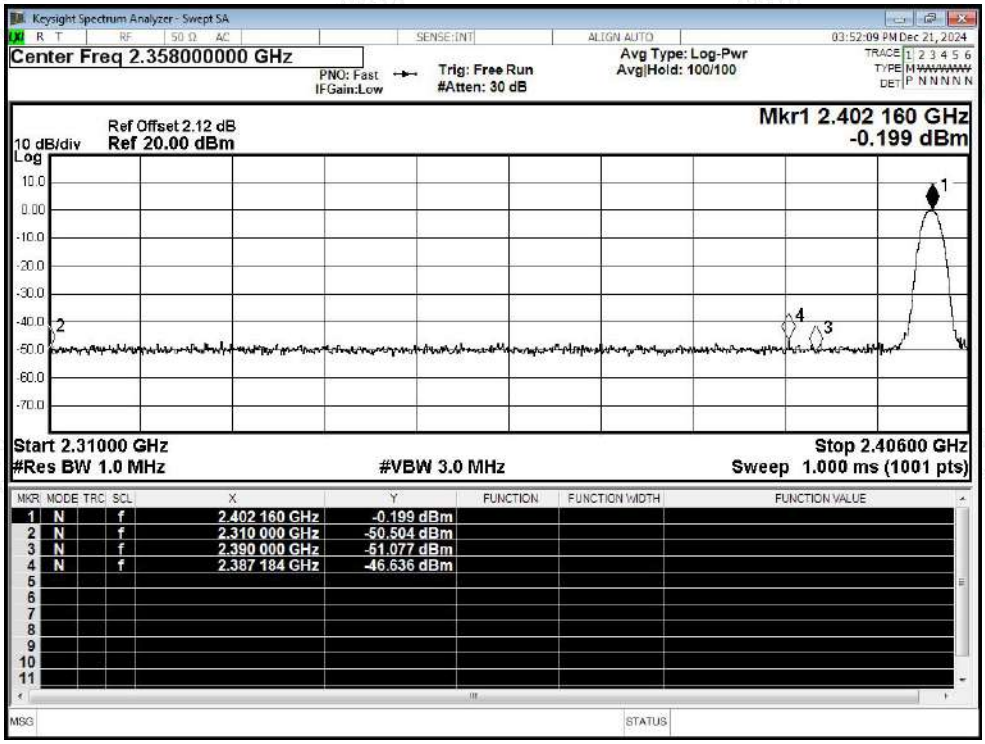
Restrict Band NVNT 1-DH5 2480MHz Ant1 No-Hopping Peak



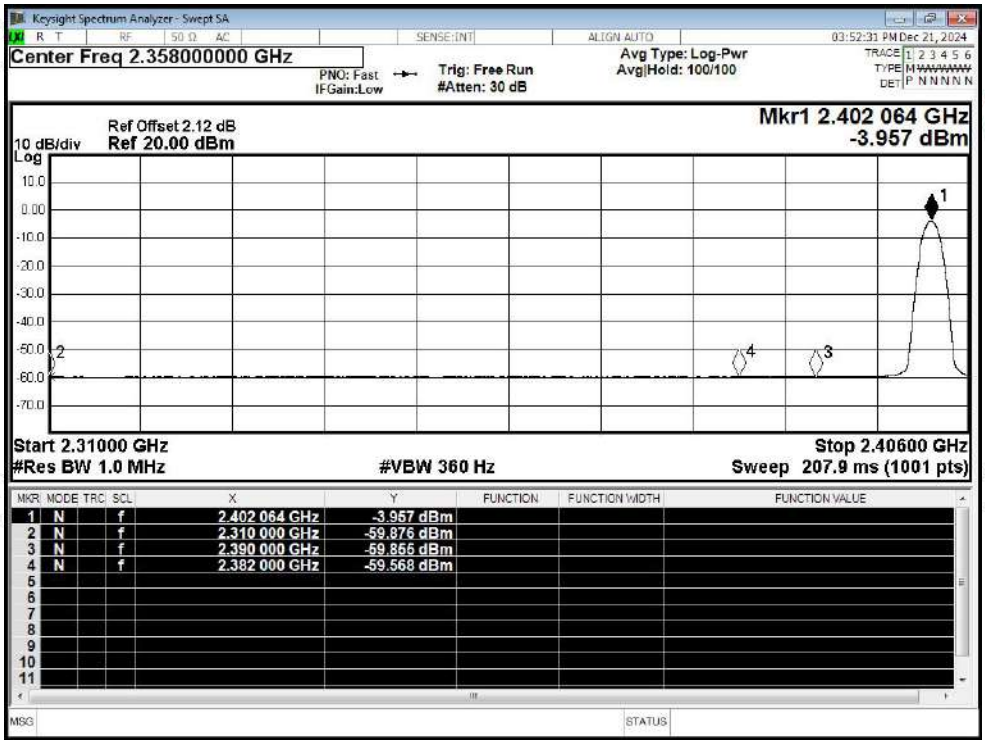
Restrict Band NVNT 1-DH5 2480MHz Ant1 No-Hopping Average



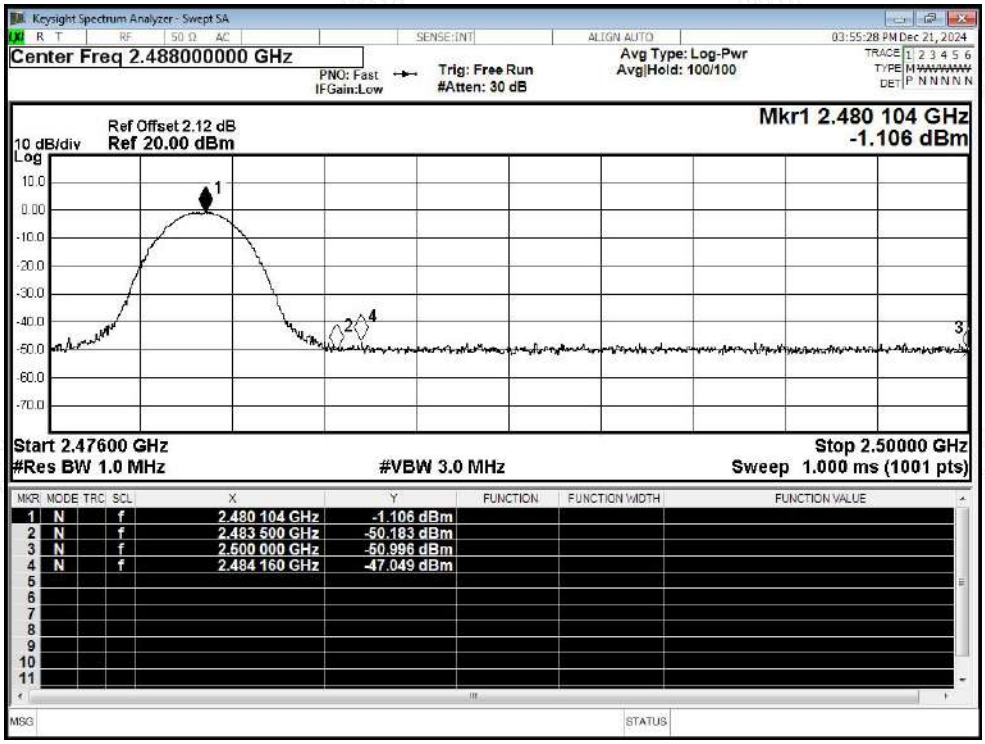
Restrict Band NVNT 2-DH5 2402MHz Ant1 No-Hopping Peak



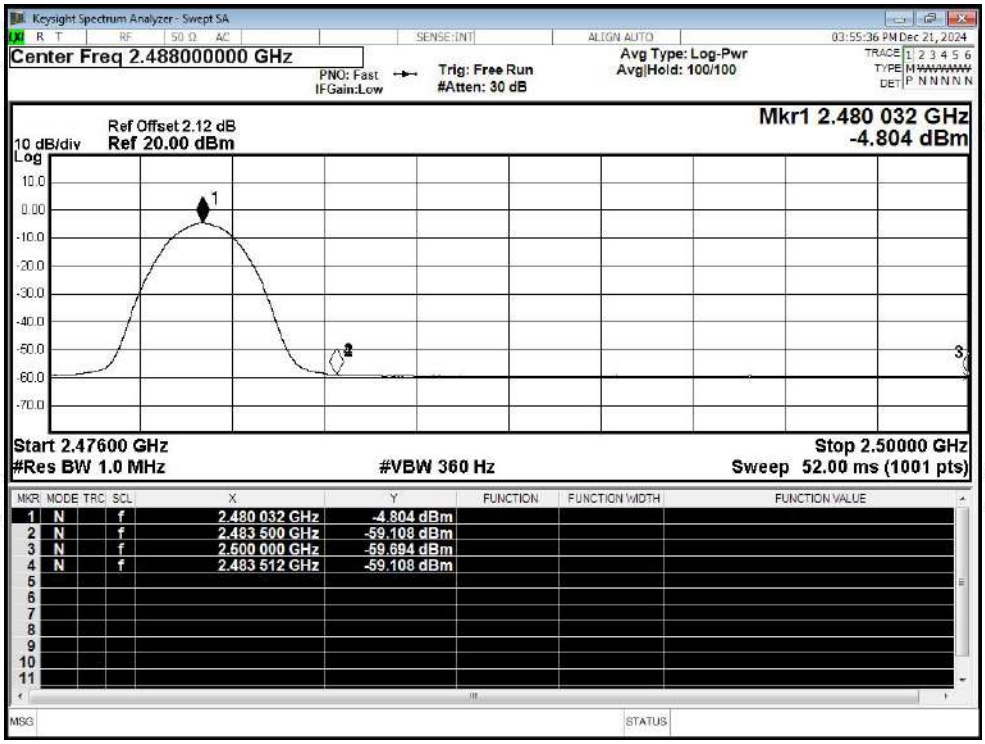
Restrict Band NVNT 2-DH5 2402MHz Ant1 No-Hopping Average



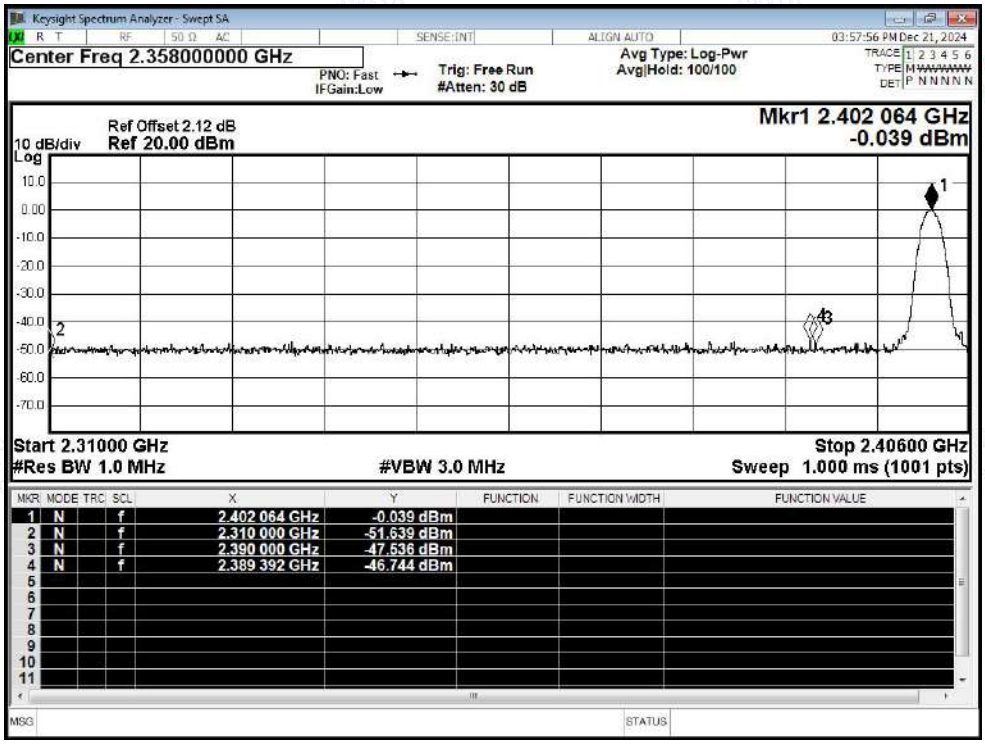
Restrict Band NVNT 2-DH5 2480MHz Ant1 No-Hopping Peak



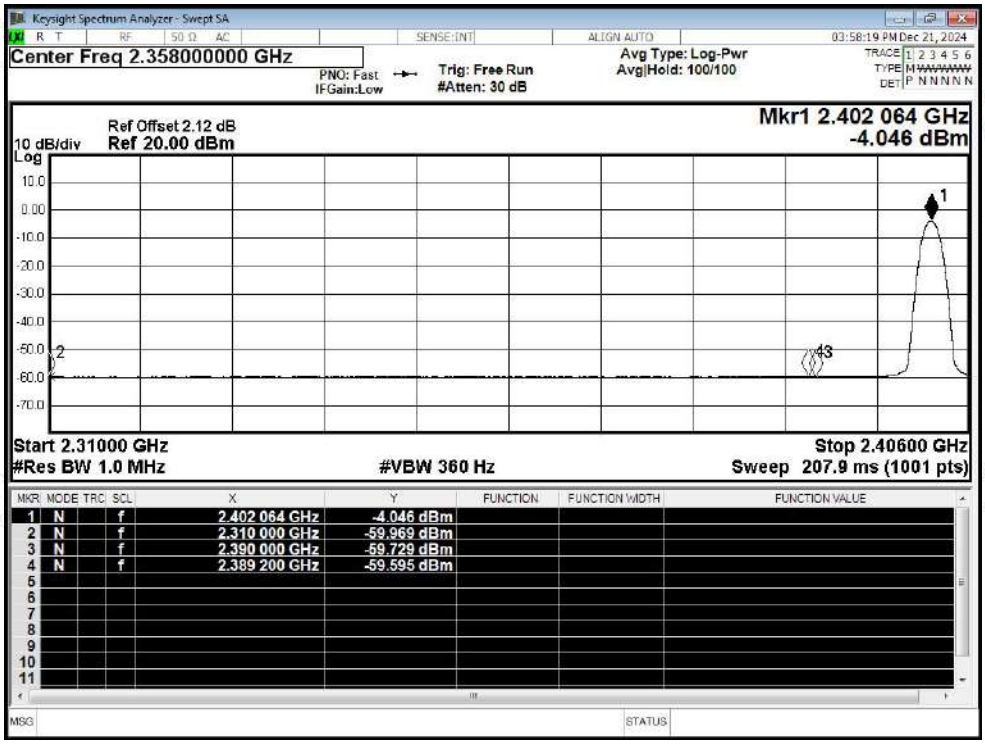
Restrict Band NVNT 2-DH5 2480MHz Ant1 No-Hopping Average



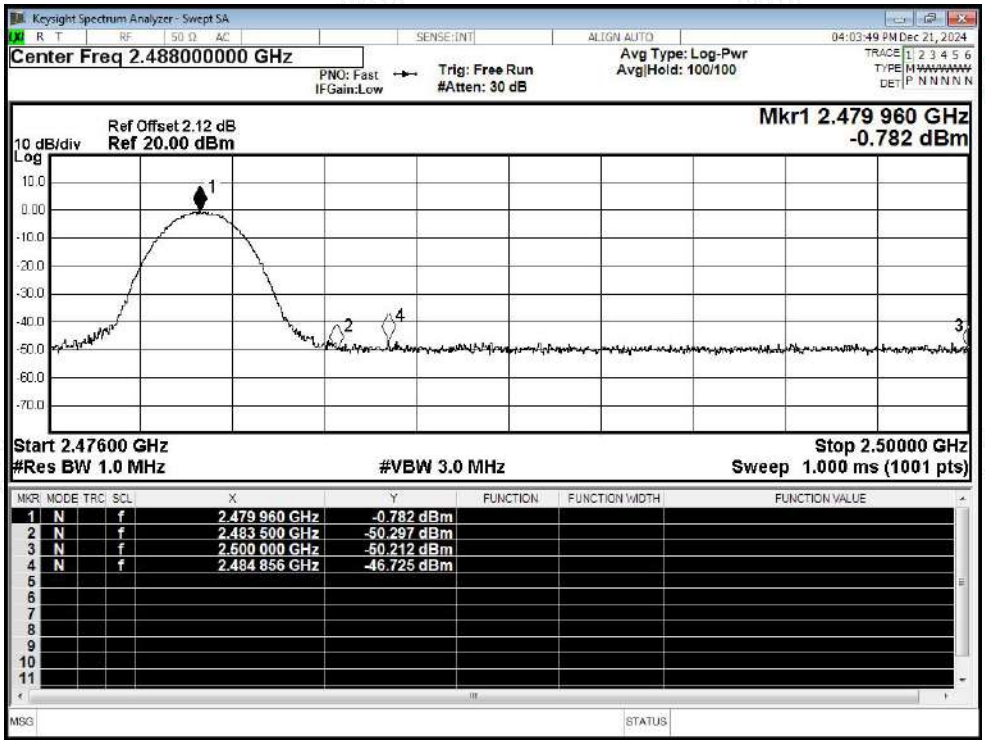
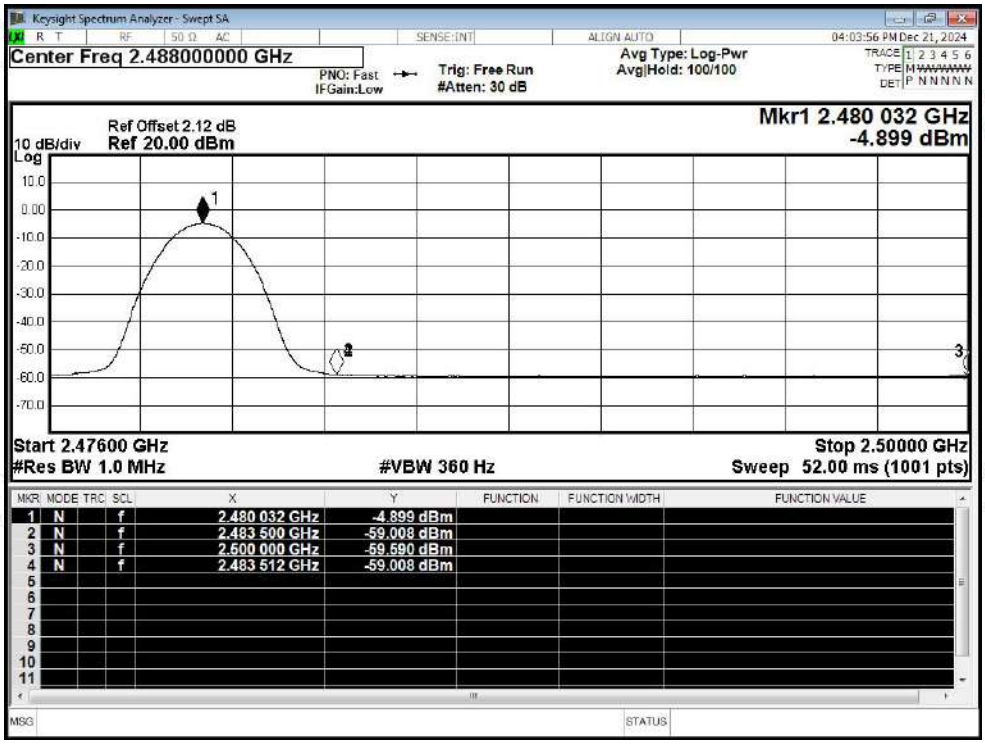
Restrict Band NVNT 3-DH5 2402MHz Ant1 No-Hopping Peak



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



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



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