Appendix A

RF Test Data for BT (Conducted Measurement)

Product Name: Wireless earphone

Test Model: Dual-Pro 2

Environmental Conditions

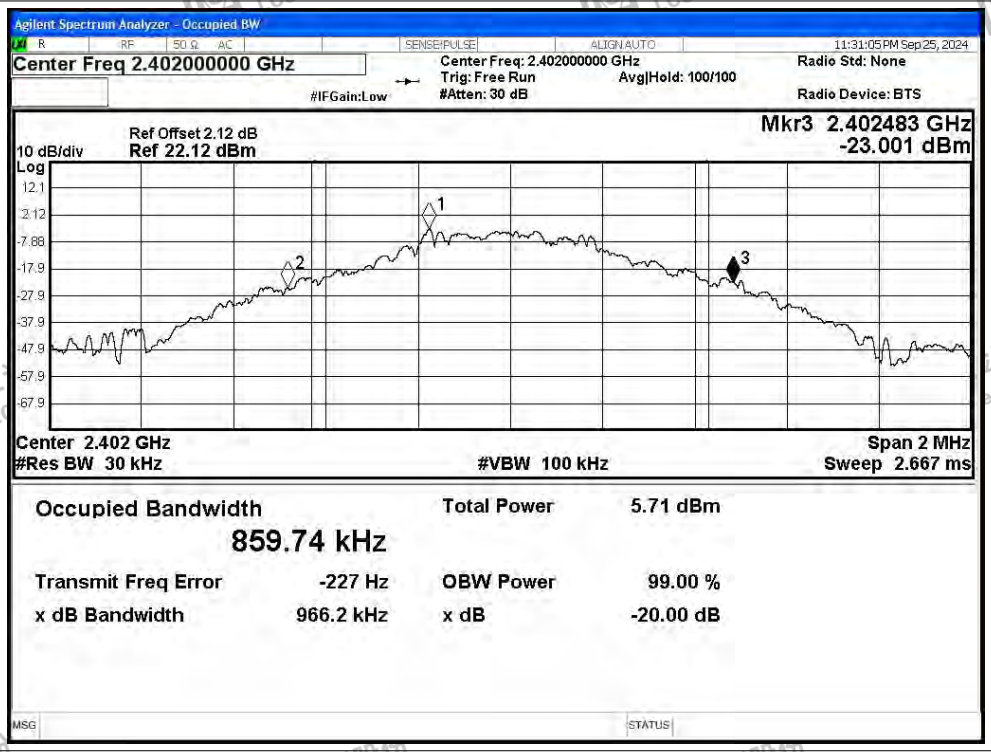
Temperature:	23.6° C
Relative Humidity:	52.0%
ATM Pressure:	100.0 kPa
Test Engineer:	Jay Luo
Supervised by:	Nick Peng

A.1 -20dB Bandwidth

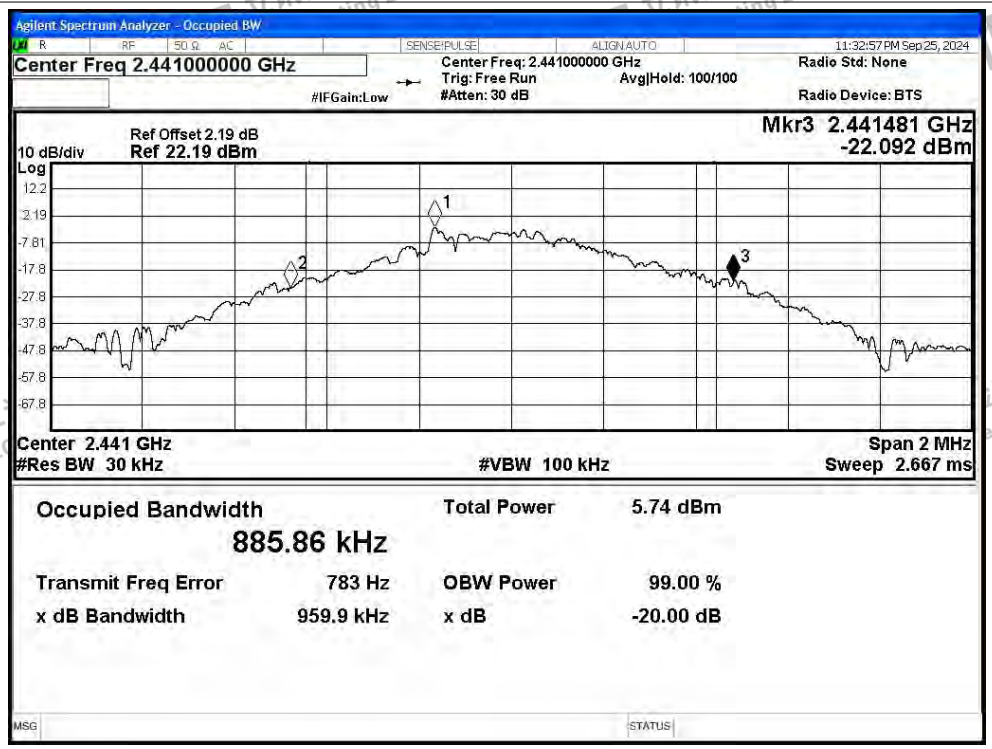
Condition	Mode	Frequency (MHz)	Antenna	-20 dB Bandwidth (MHz)	Limit -20 dB Bandwidth (MHz)	Verdict
NVNT	1-DH5	2402	Ant1	0.966	N/A	Pass
NVNT	1-DH5	2441	Ant1	0.96	N/A	Pass
NVNT	1-DH5	2480	Ant1	0.958	N/A	Pass
NVNT	2-DH5	2402	Ant1	1.281	N/A	Pass
NVNT	2-DH5	2441	Ant1	1.33	N/A	Pass
NVNT	2-DH5	2480	Ant1	1.284	N/A	Pass
NVNT	3-DH5	2402	Ant1	1.306	N/A	Pass
NVNT	3-DH5	2441	Ant1	1.29	N/A	Pass
NVNT	3-DH5	2480	Ant1	1.309	N/A	Pass

Test Graphs

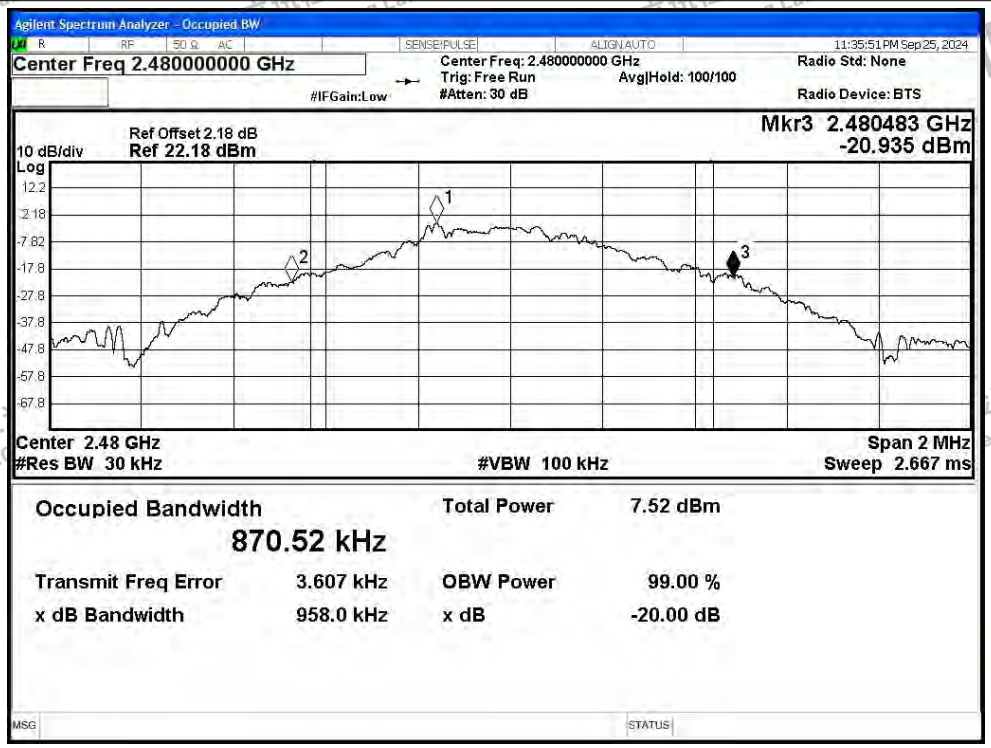
-20dB Bandwidth NVNT 1-DH5 2402MHz Ant1



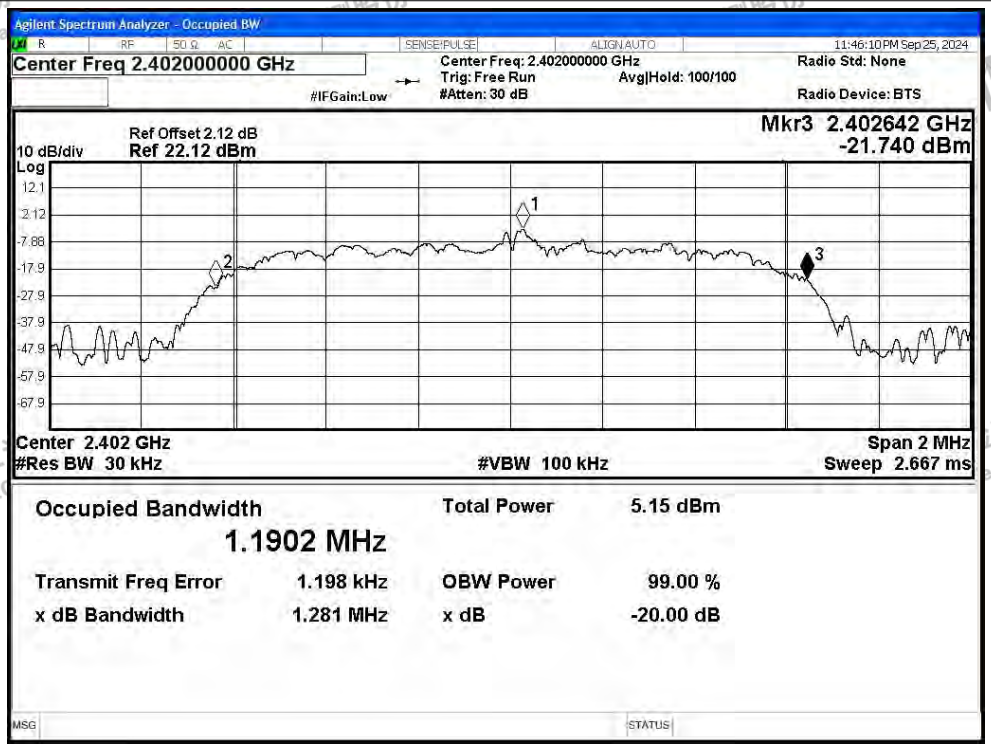
-20dB Bandwidth NVNT 1-DH5 2441MHz Ant1



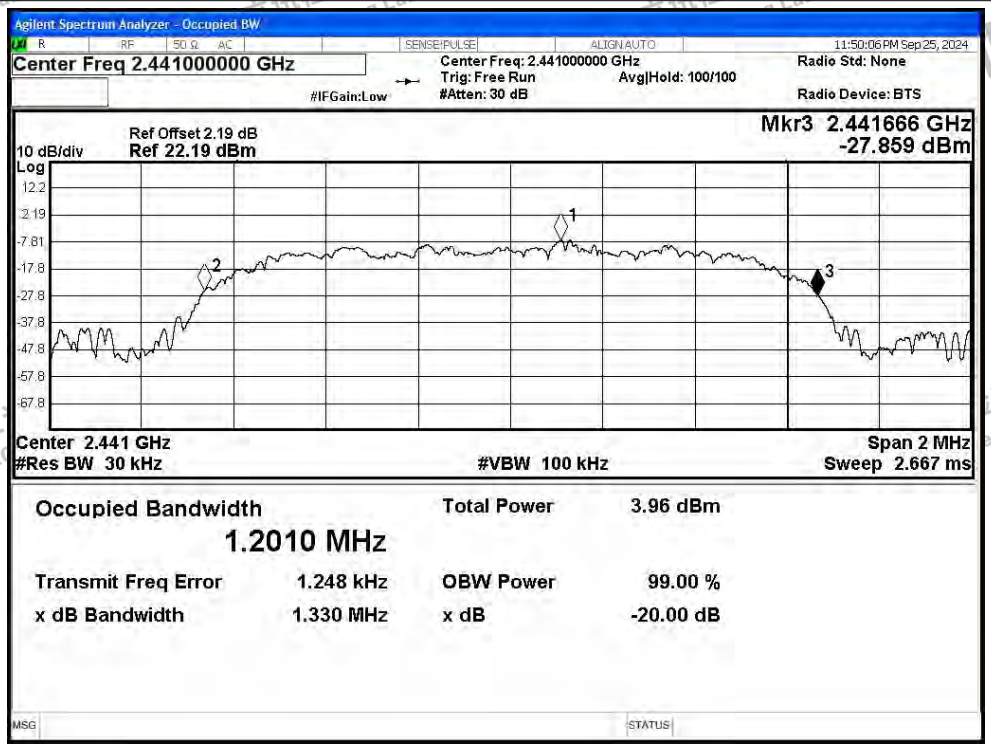
-20dB Bandwidth NVNT 1-DH5 2480MHz Ant1



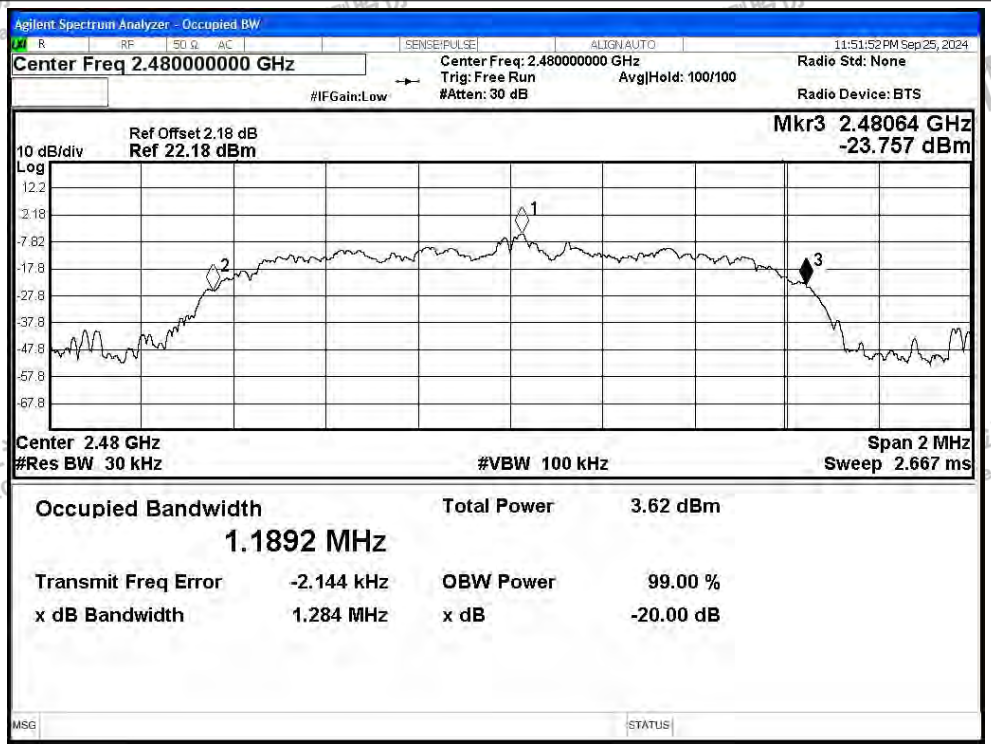
-20dB Bandwidth NVNT 2-DH5 2402MHz Ant1



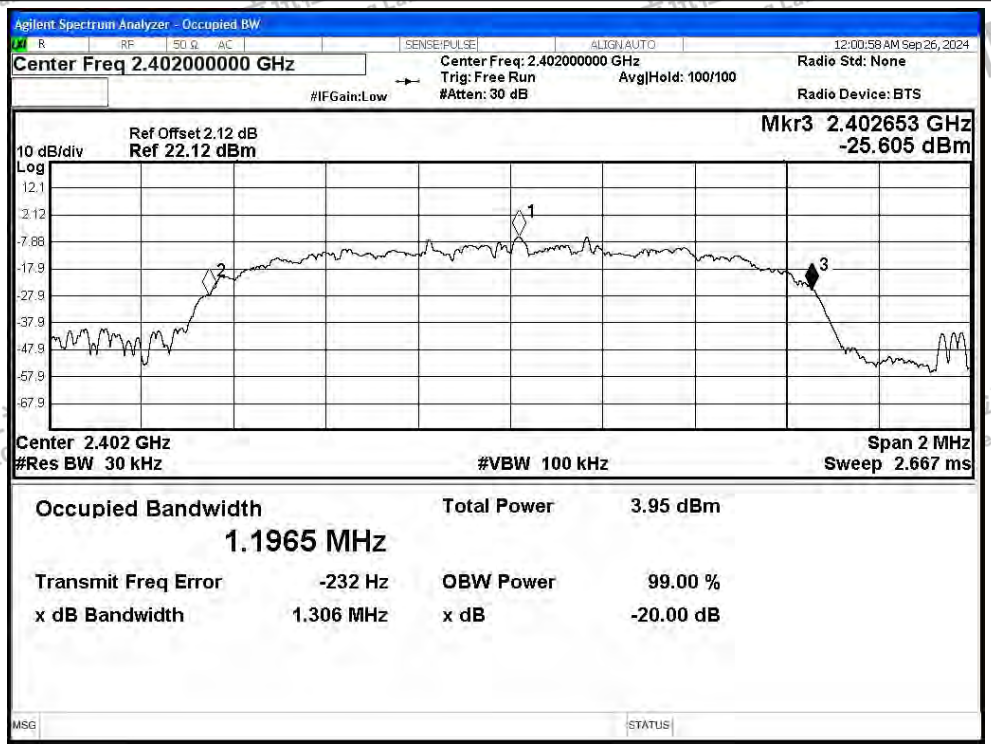
-20dB Bandwidth NVNT 2-DH5 2441MHz Ant1



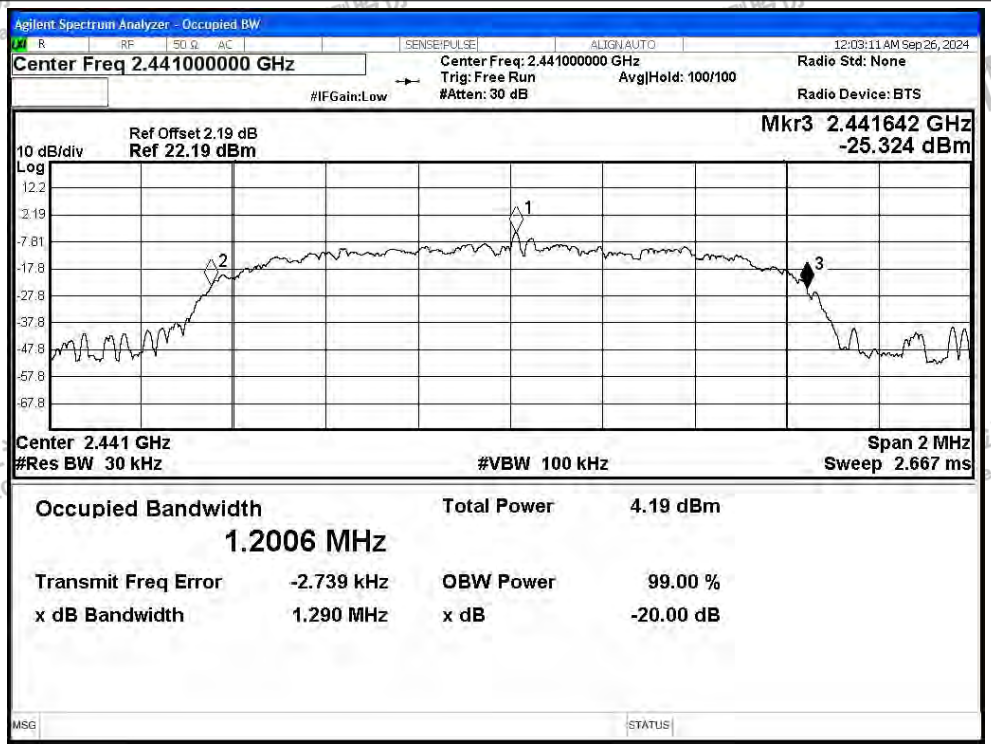
-20dB Bandwidth NVNT 2-DH5 2480MHz Ant1



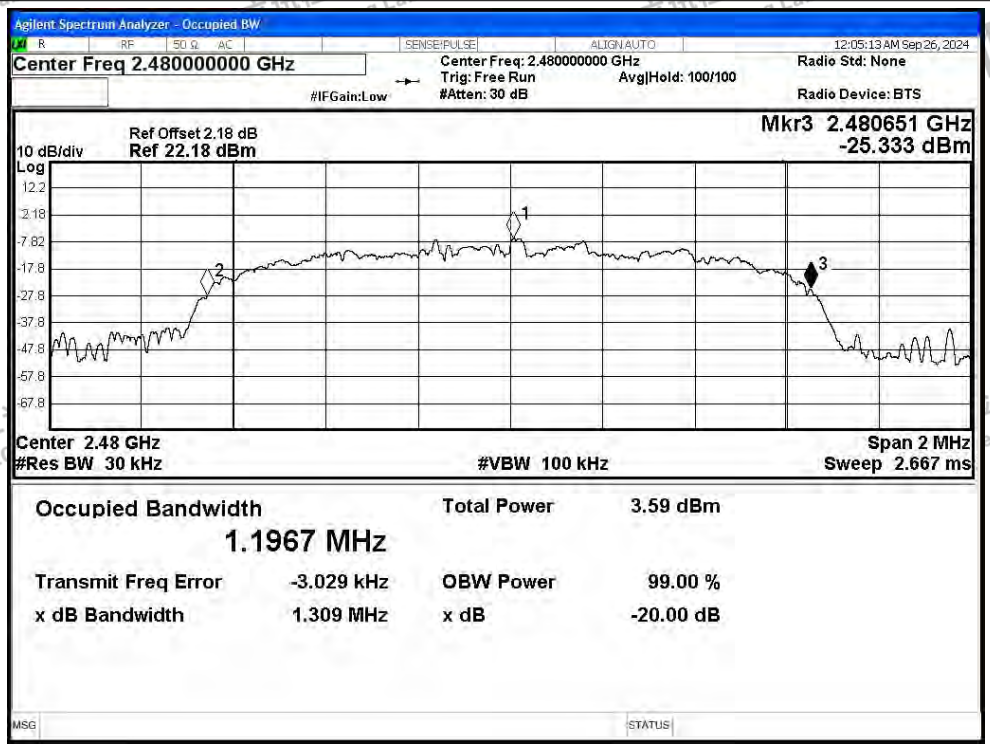
-20dB Bandwidth NVNT 3-DH5 2402MHz Ant1



-20dB Bandwidth NVNT 3-DH5 2441MHz Ant1



-20dB Bandwidth NVNT 3-DH5 2480MHz Ant1

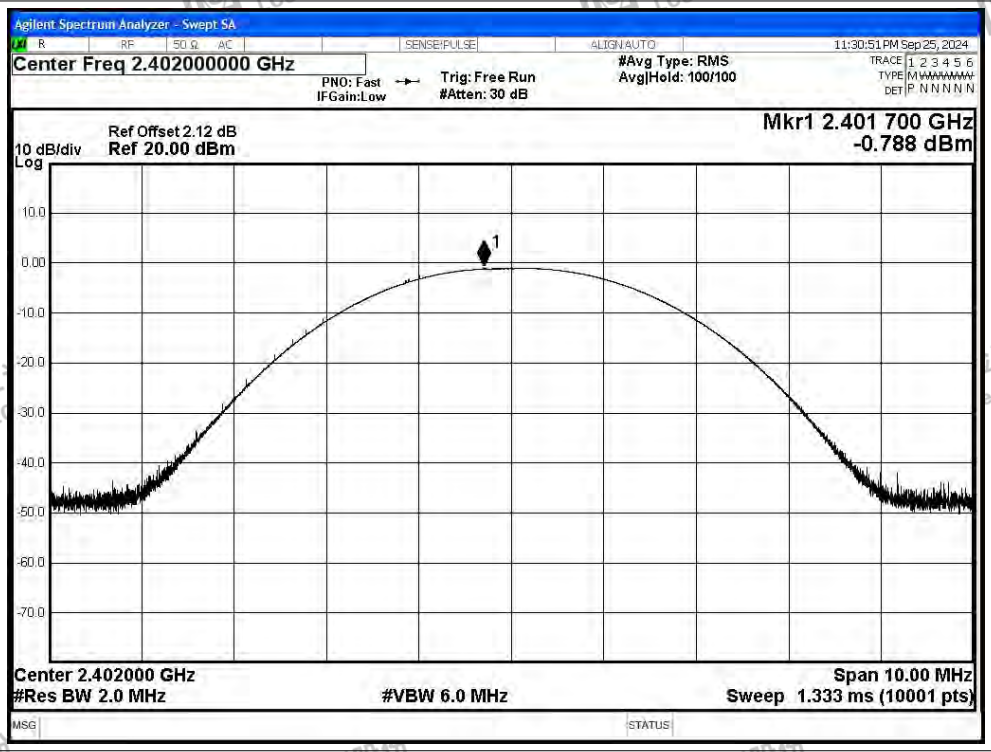


A.2 Maximum Peak Conducted Output Power

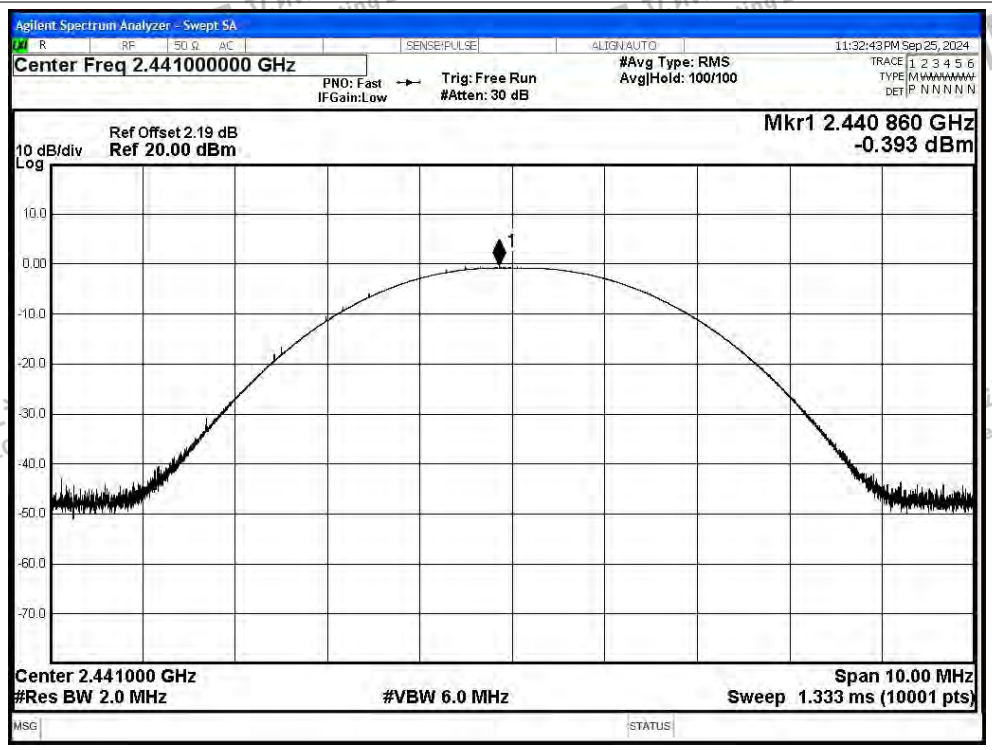
Condition	Mode	Frequency (MHz)	Antenna	Conducted Power (dBm)	Limit (dBm)	Verdict
NVNT	1-DH5	2402	Ant1	-0.79	21	Pass
NVNT	1-DH5	2441	Ant1	-0.39	21	Pass
NVNT	1-DH5	2480	Ant1	1.08	21	Pass
NVNT	2-DH5	2402	Ant1	1.05	21	Pass
NVNT	2-DH5	2441	Ant1	0.25	21	Pass
NVNT	2-DH5	2480	Ant1	-0.64	21	Pass
NVNT	3-DH5	2402	Ant1	0.17	21	Pass
NVNT	3-DH5	2441	Ant1	0.54	21	Pass
NVNT	3-DH5	2480	Ant1	-0.35	21	Pass

Test Graphs

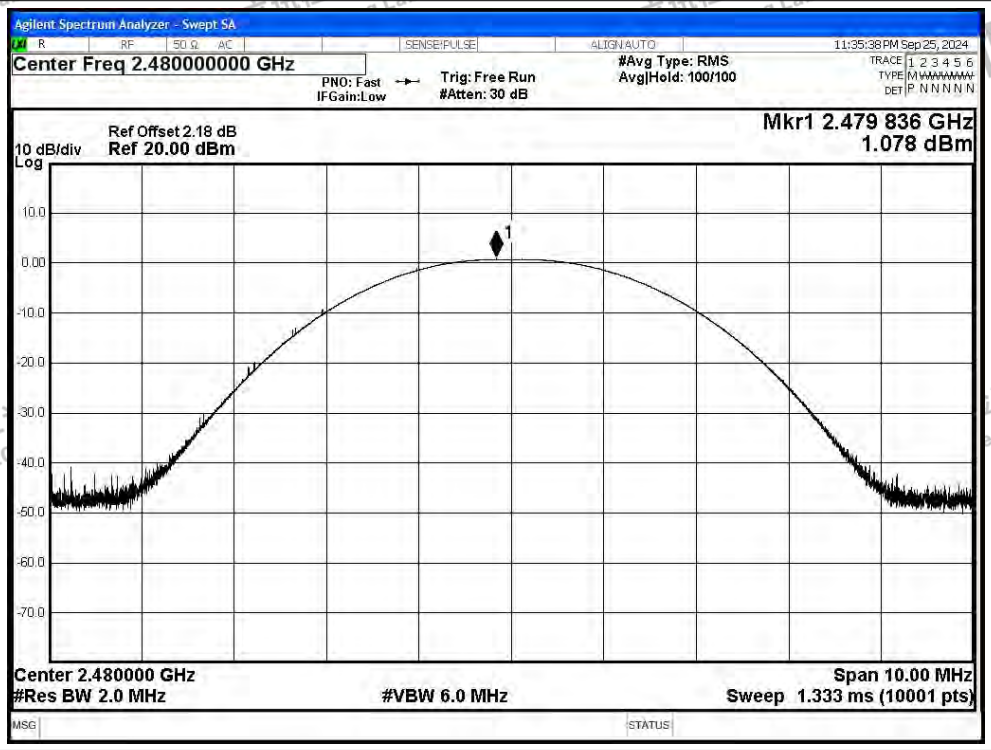
Power NVNT 1-DH5 2402MHz Ant1



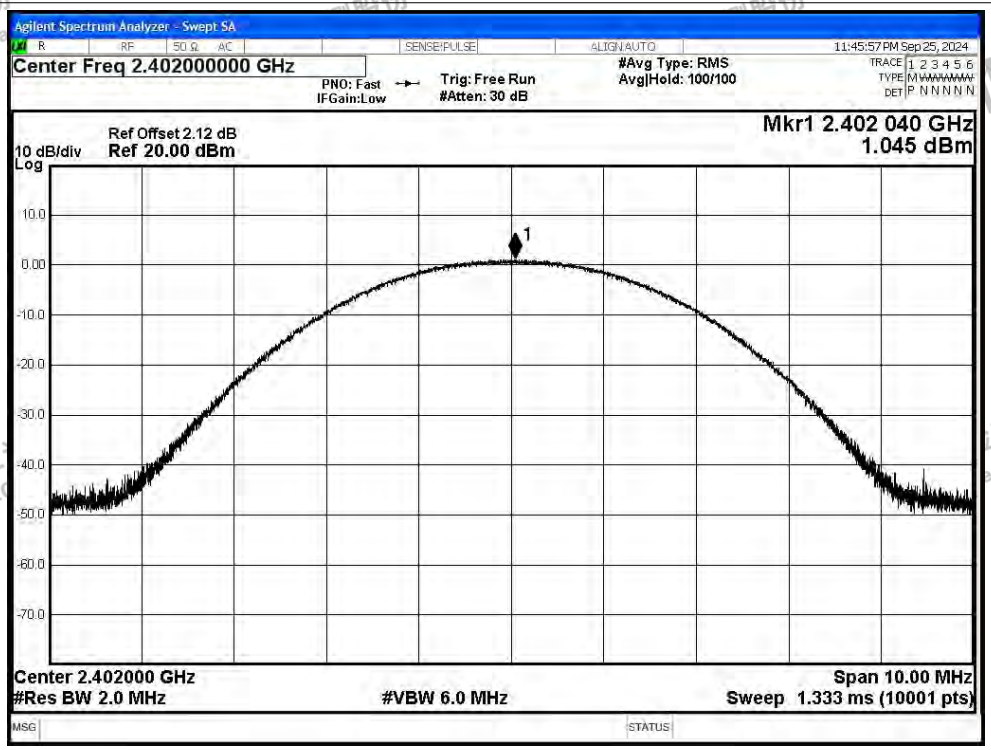
Power NVNT 1-DH5 2441MHz Ant1



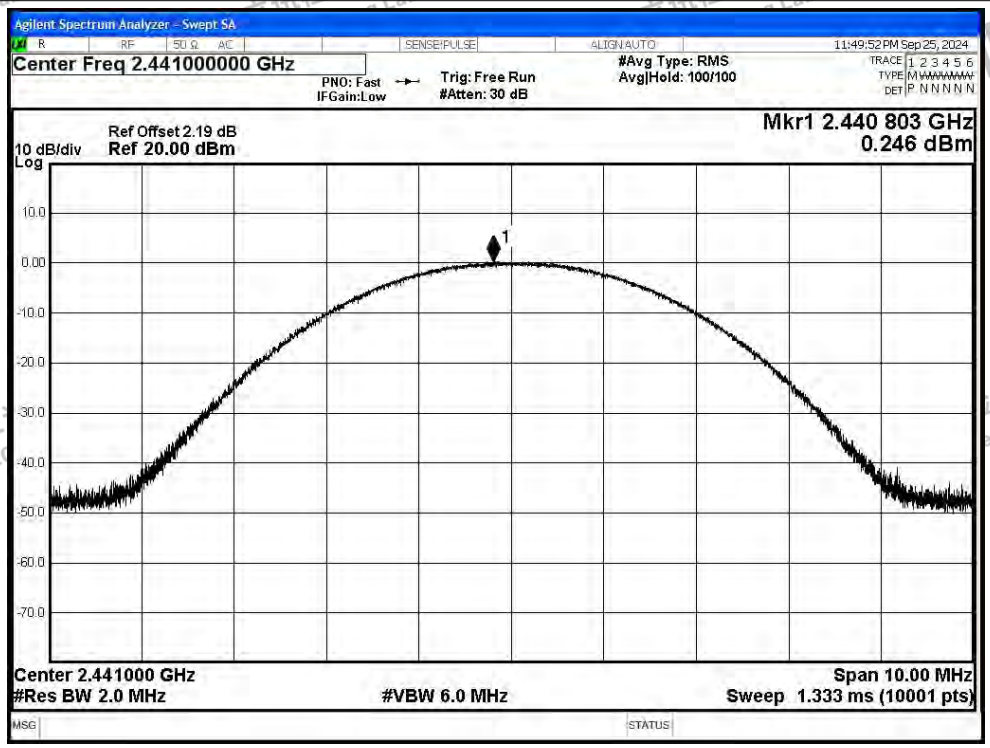
Power NVNT 1-DH5 2480MHz Ant1



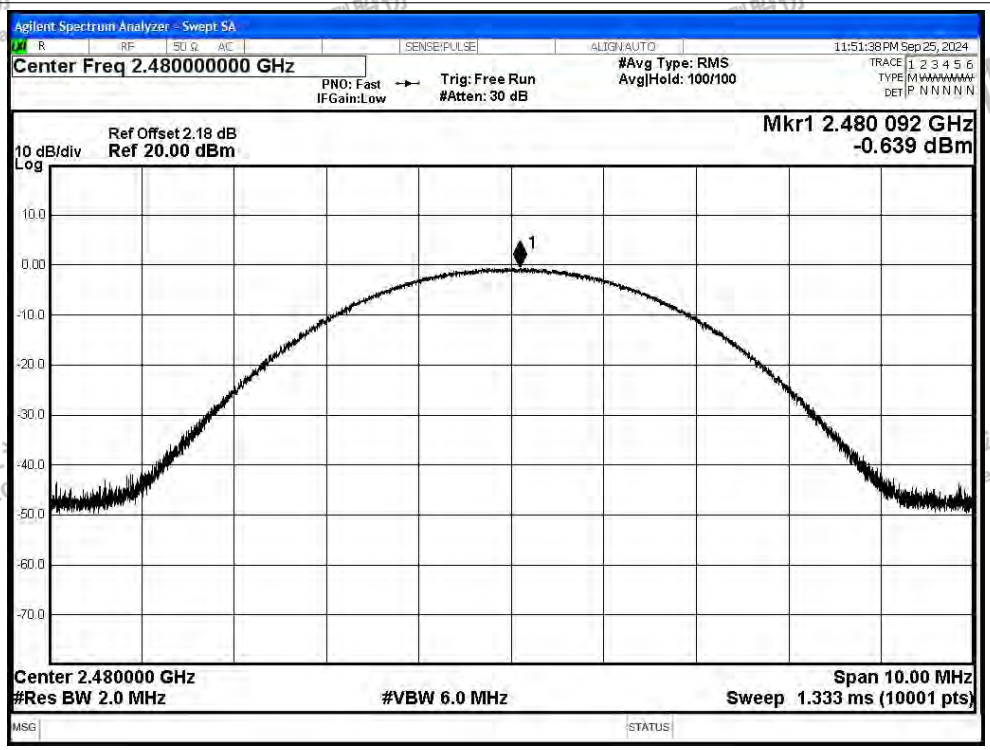
Power NVNT 2-DH5 2402MHz Ant1



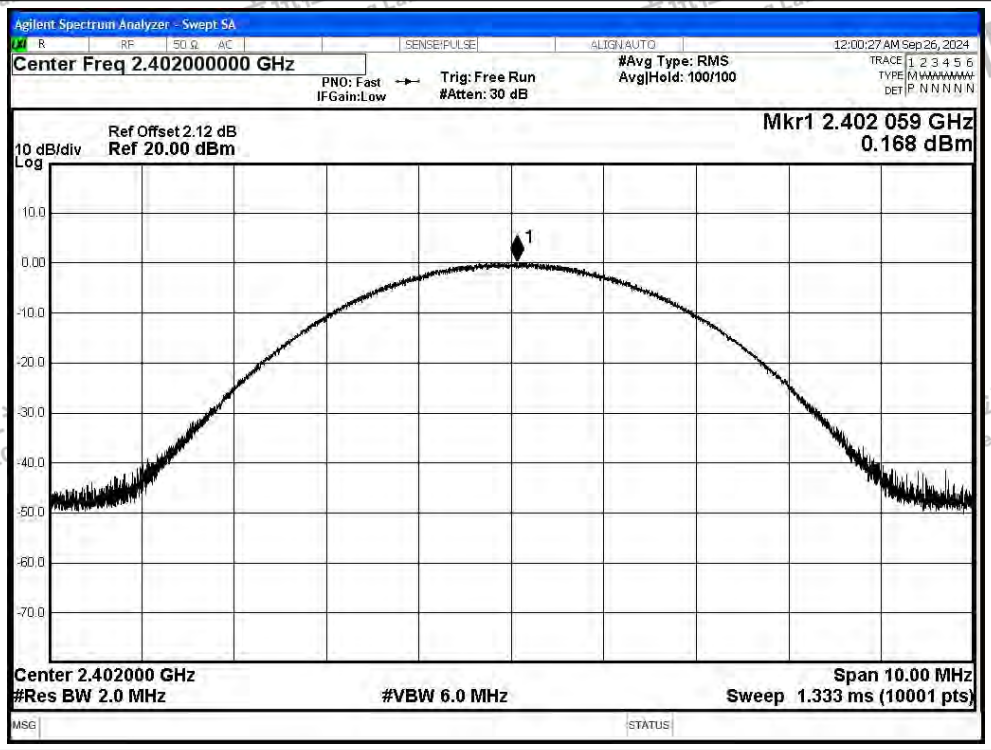
Power NVNT 2-DH5 2441MHz Ant1



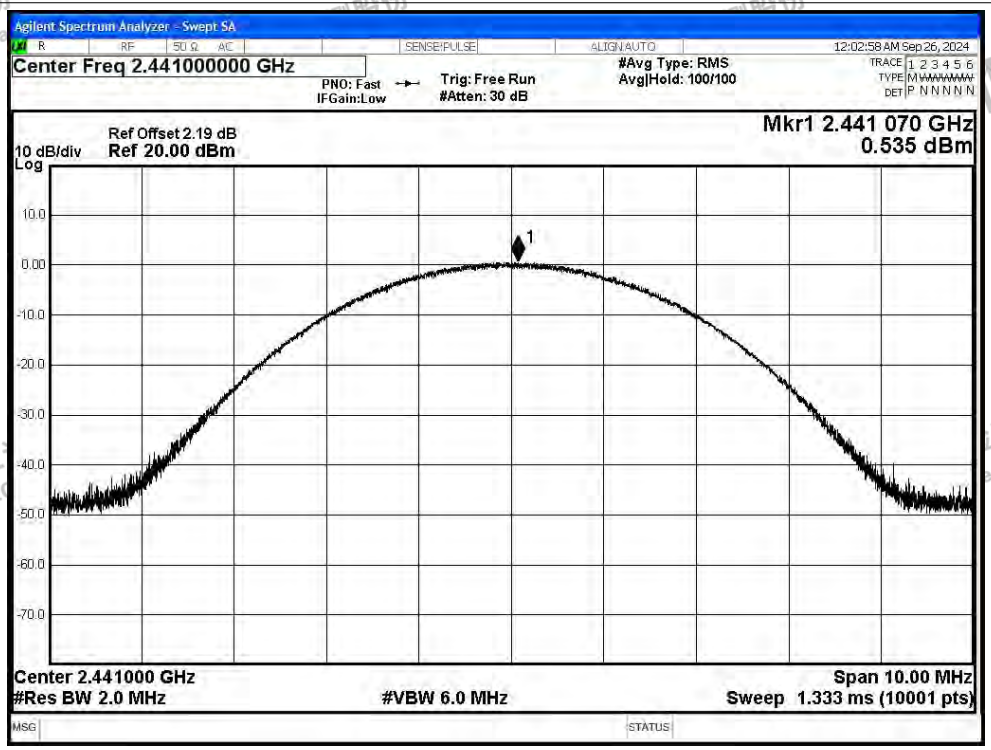
Power NVNT 2-DH5 2480MHz Ant1



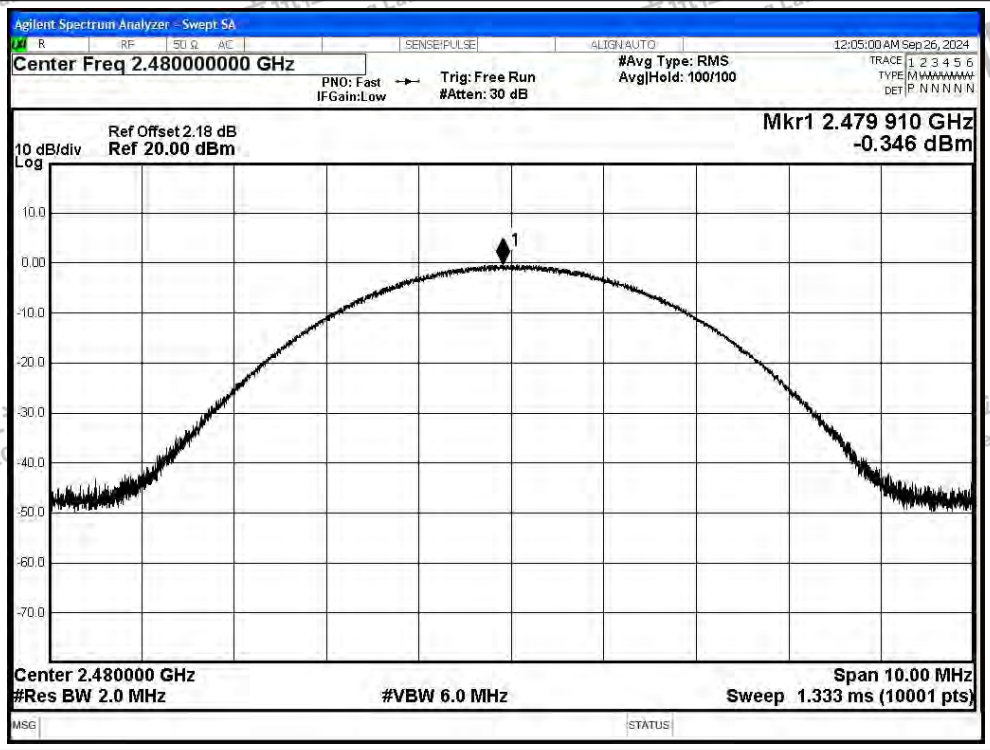
Power NVNT 3-DH5 2402MHz Ant1



Power NVNT 3-DH5 2441MHz Ant1



Power NVNT 3-DH5 2480MHz Ant1

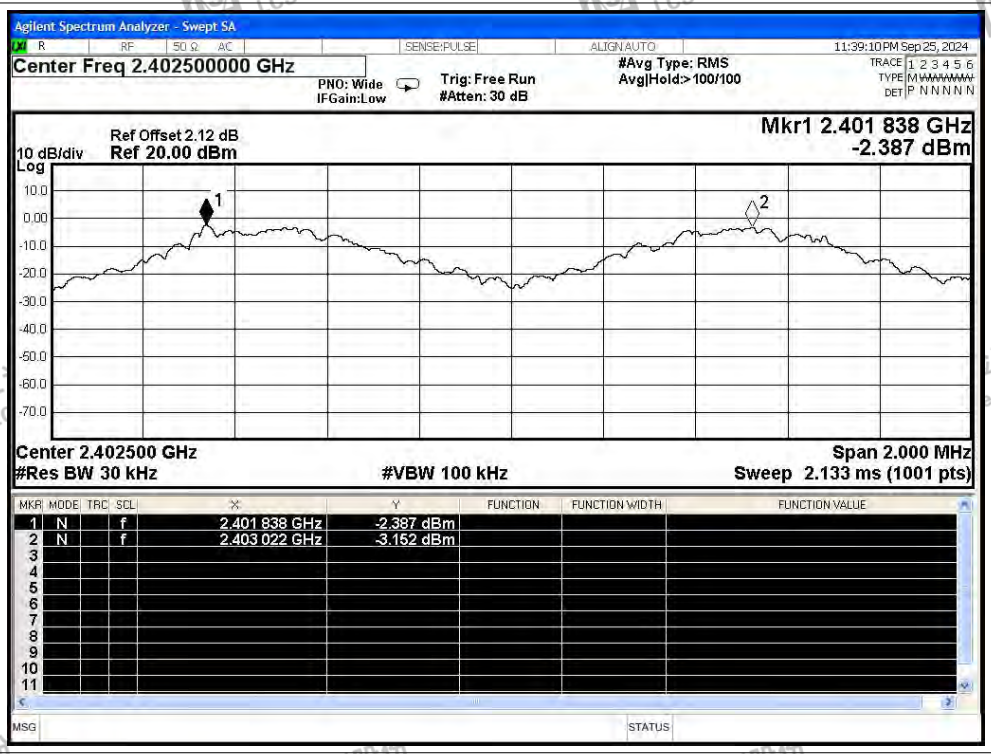


A.3 Carrier Frequencies Separation

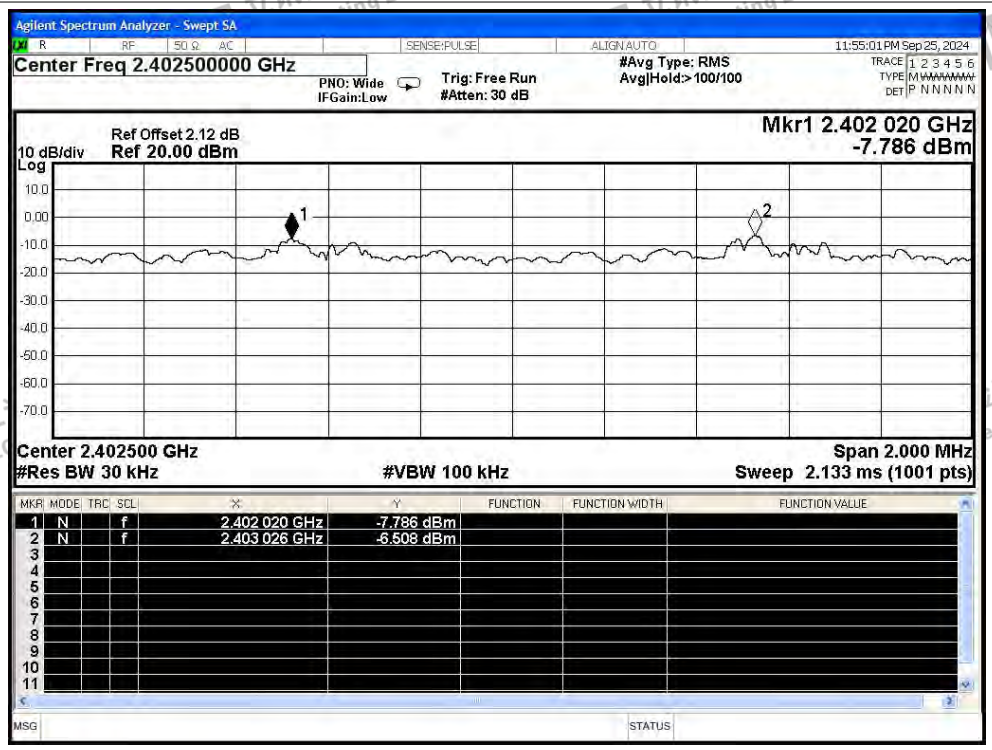
Condition	Mode	Antenna	Hopping Freq1 (MHz)	Hopping Freq2 (MHz)	HFS (MHz)	Limit (MHz)	Verdict
NVNT	1-DH5	Ant1	2401.838	2403.022	1.184	0.644	Pass
NVNT	2-DH5	Ant1	2402.02	2403.026	1.006	0.887	Pass
NVNT	3-DH5	Ant1	2402.01	2403.034	1.024	0.873	Pass

Test Graphs

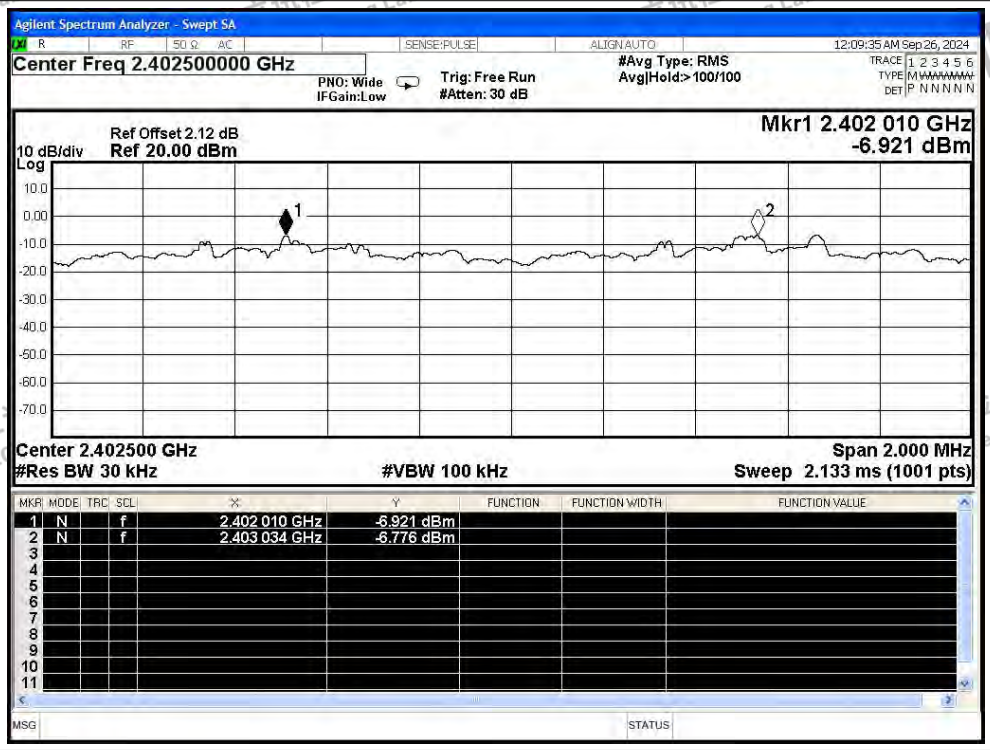
CFS NVNT 1-DH5 2402MHz Ant1



CFS NVNT 2-DH5 2402MHz Ant1



CFS NVNT 3-DH5 2402MHz Ant1

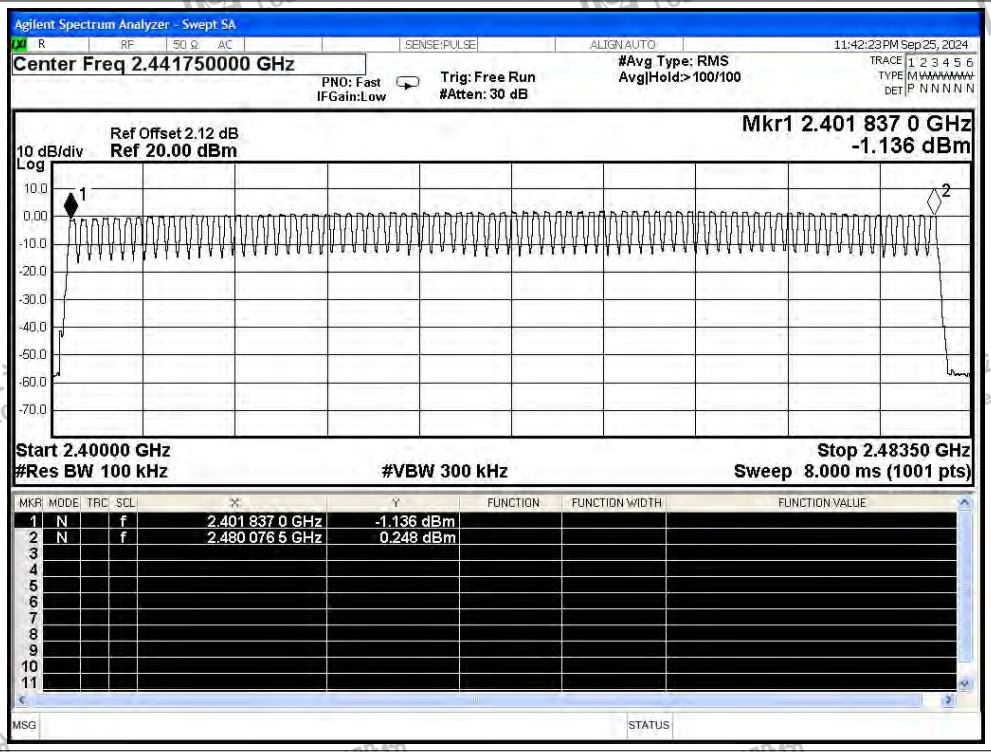


A.4 Number of Hopping Channel

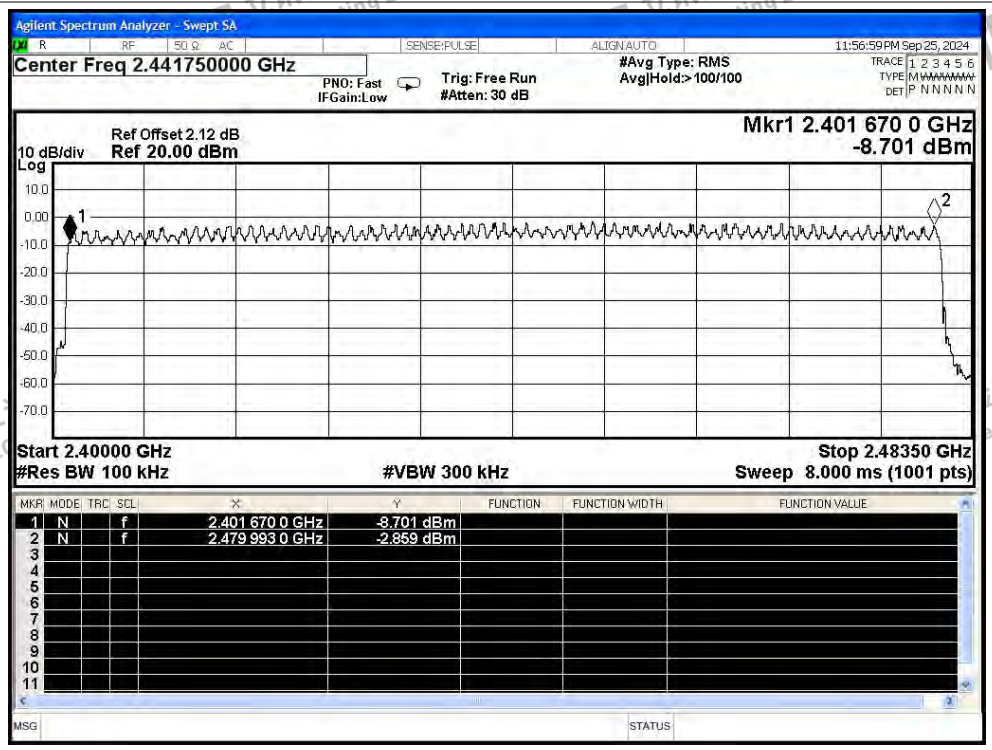
Condition	Mode	Antenna	Hopping Number	Limit	Verdict
NVNT	1-DH5	Ant1	79	15	Pass
NVNT	2-DH5	Ant1	79	15	Pass
NVNT	3-DH5	Ant1	79	15	Pass

Test Graphs

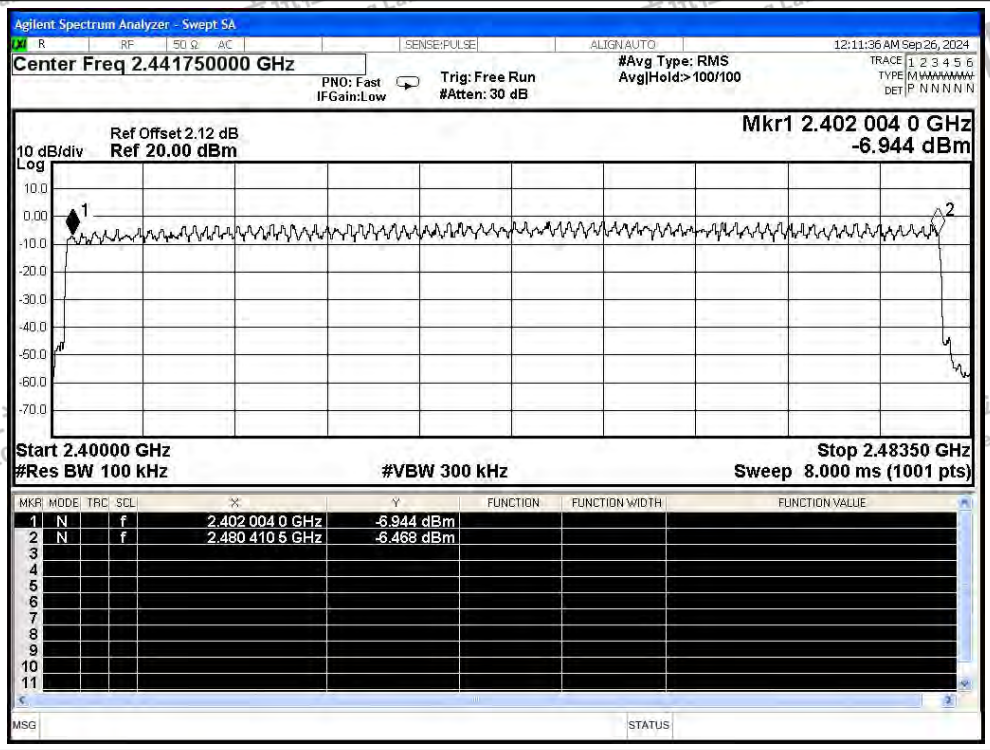
Hopping No. NVNT 1-DH5 2402MHz Ant1



Hopping No. NVNT 2-DH5 2402MHz Ant1



Hopping No. NVNT 3-DH5 2402MHz Ant1

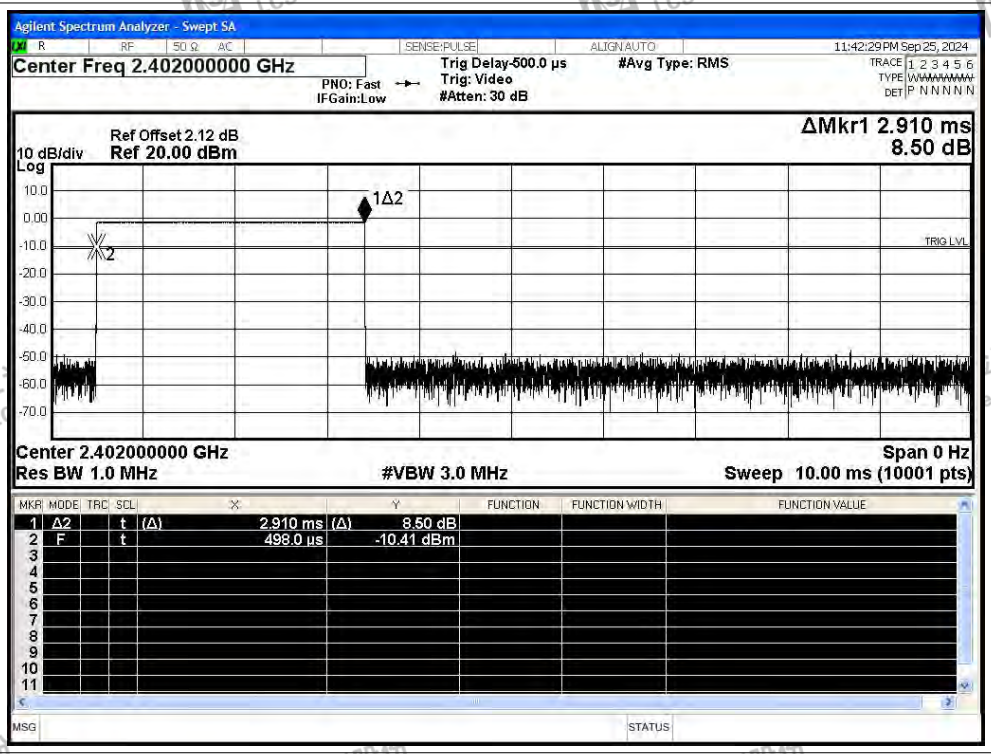


A.5 Dwell Time

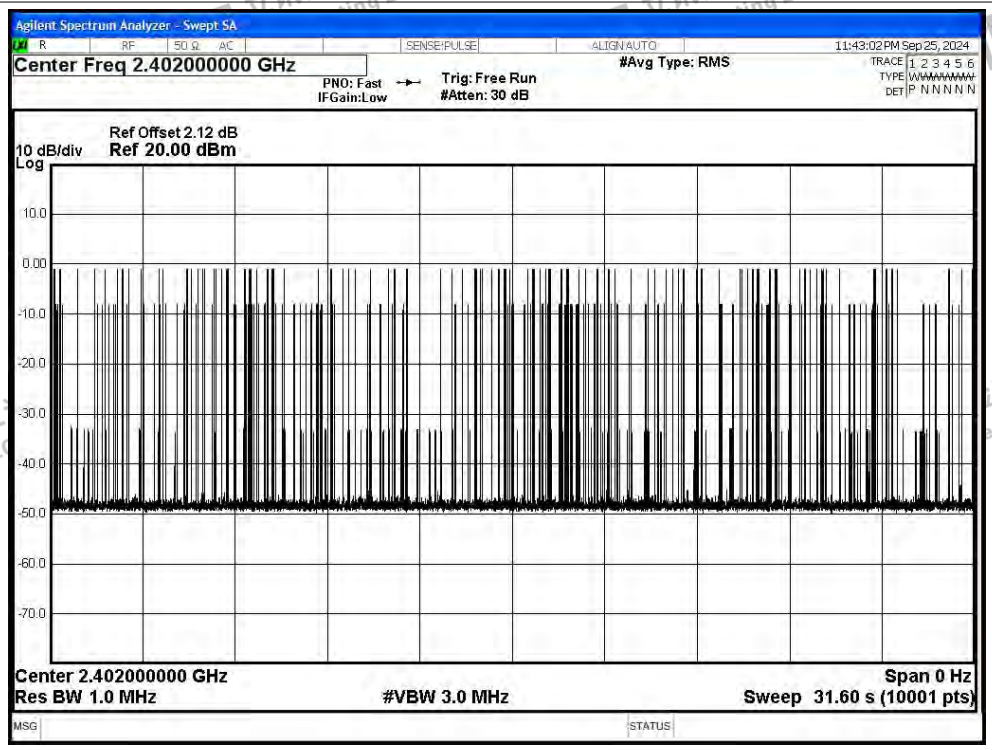
Condition	Mode	Frequency (MHz)	Antenna	Pulse Time (ms)	Total Dwell Time (ms)	Burst Count	Period Time (ms)	Limit (ms)	Verdict
NVNT	1-DH5	2402	Ant1	2.91	325.92	112	31600	400	Pass
NVNT	2-DH5	2402	Ant1	2.898	327.474	113	31600	400	Pass
NVNT	3-DH5	2402	Ant1	2.897	318.67	110	31600	400	Pass

Test Graphs

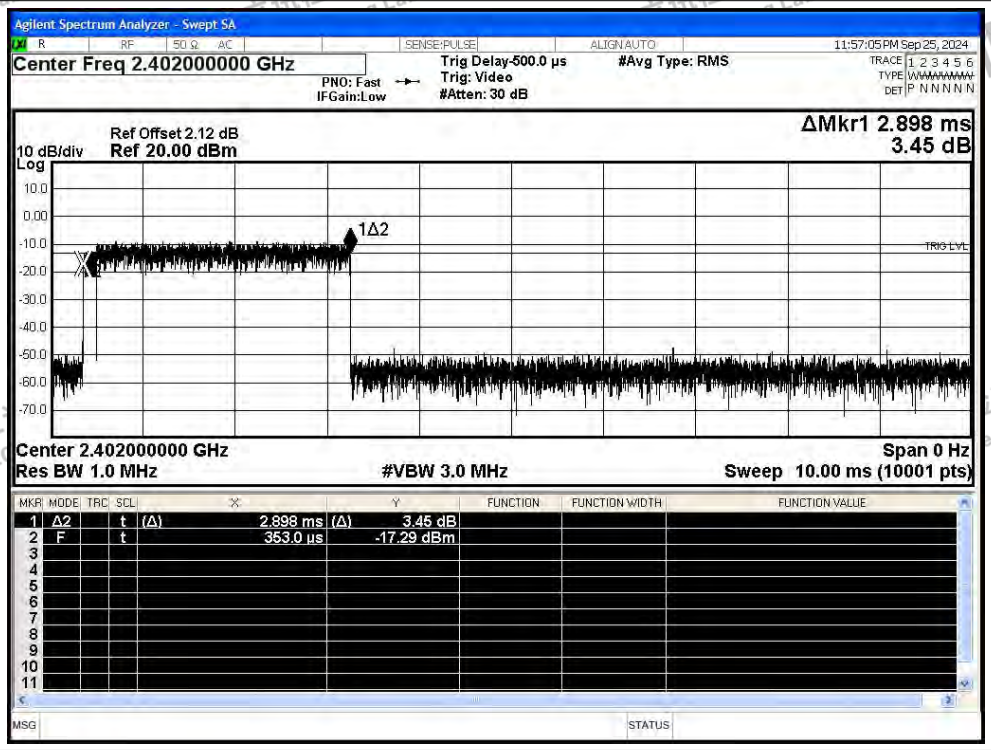
Dwell NVNT 1-DH5 2402MHz Ant1 One Burst



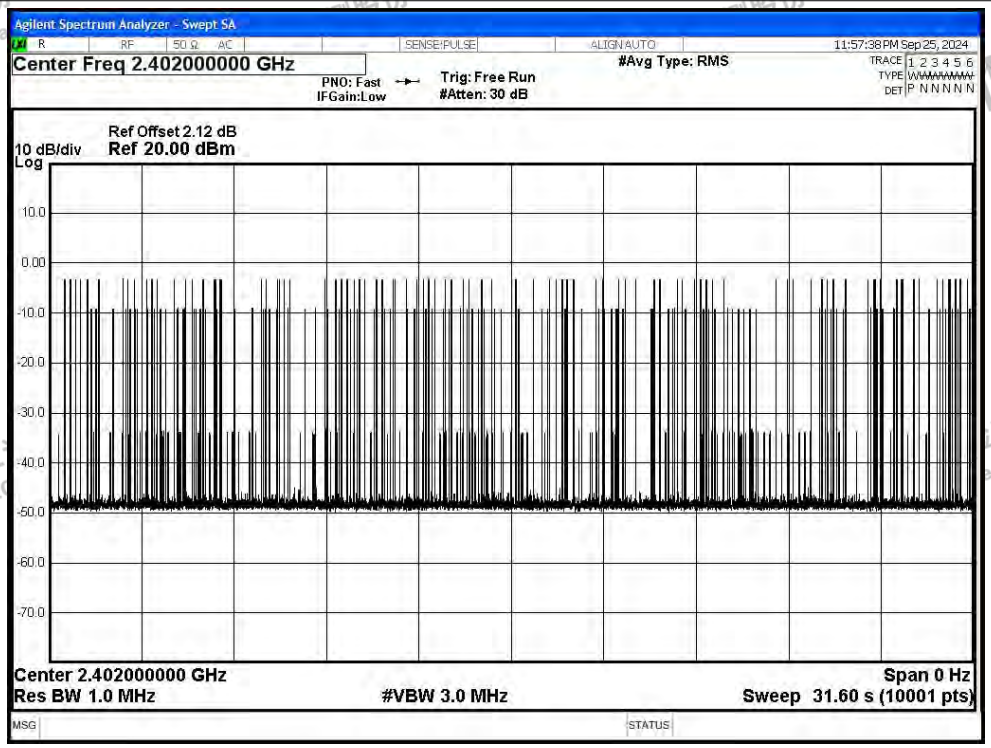
Dwell NVNT 1-DH5 2402MHz Ant1 Accumulated



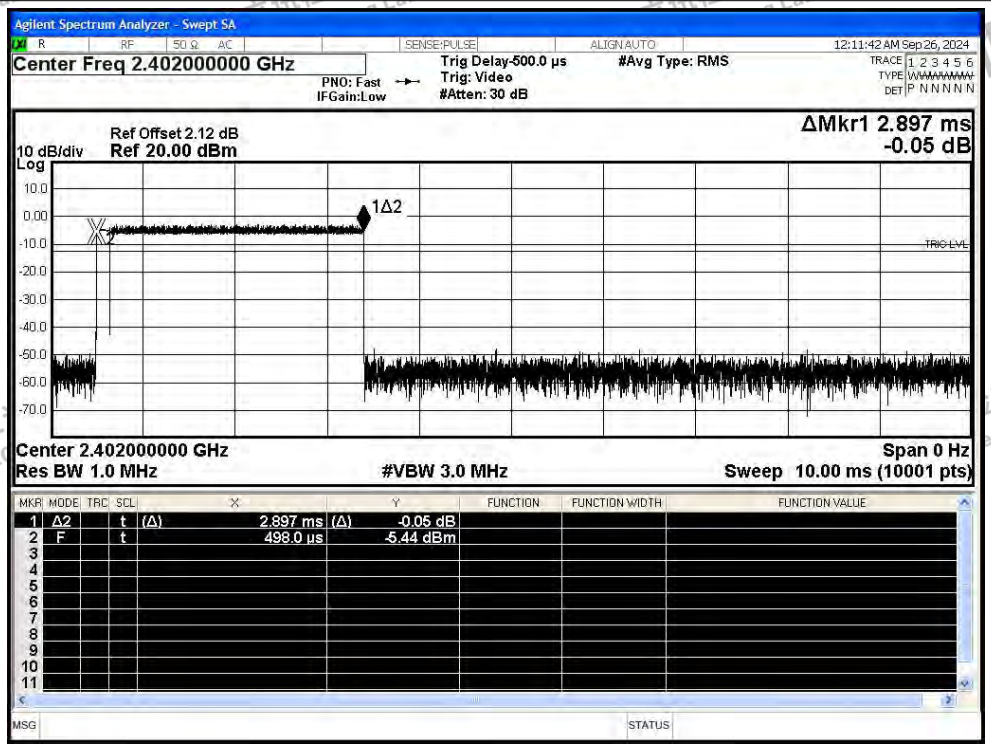
Dwell NVNT 2-DH5 2402MHz Ant1 One Burst



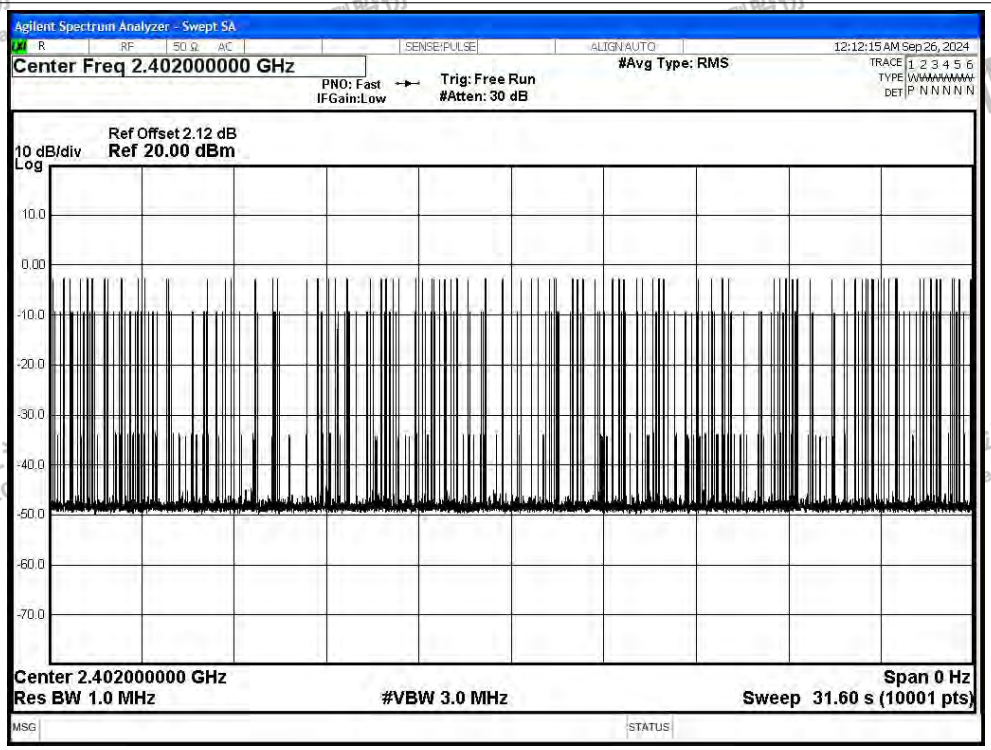
Dwell NVNT 2-DH5 2402MHz Ant1 Accumulated



Dwell NVNT 3-DH5 2402MHz Ant1 One Burst



Dwell NVNT 3-DH5 2402MHz Ant1 Accumulated

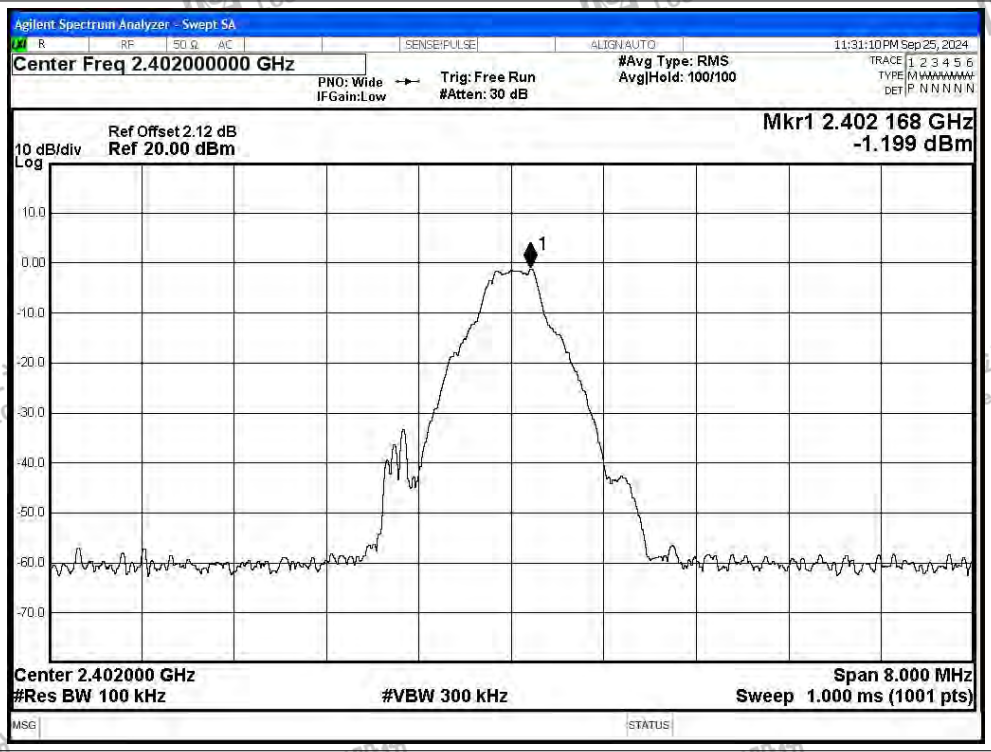


A.6 Band Edge

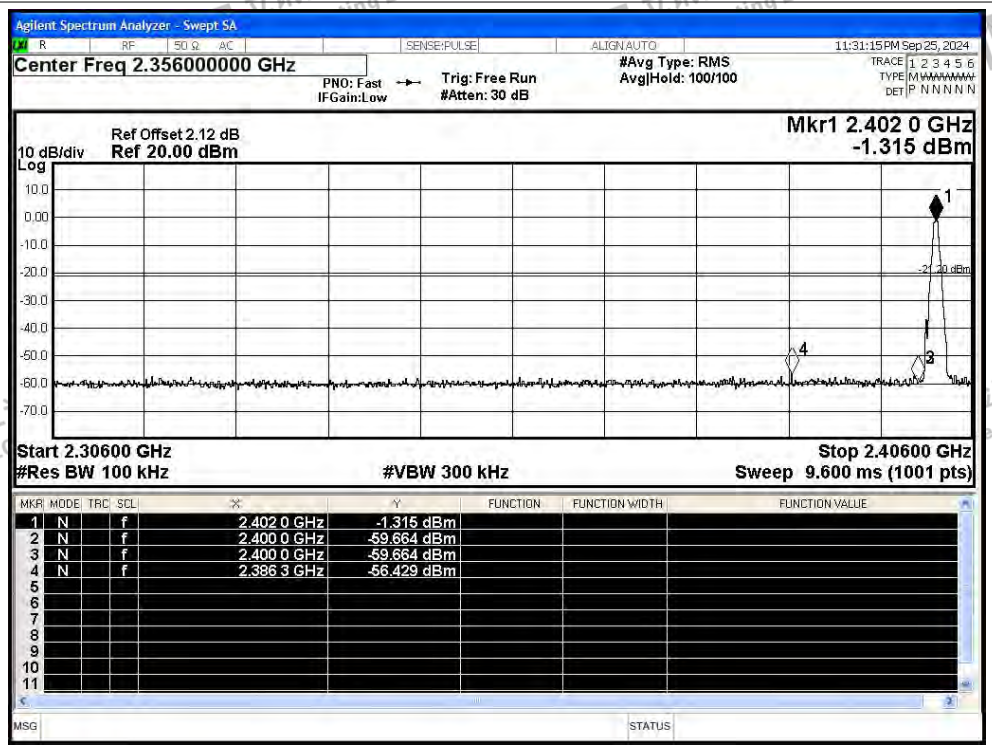
Condition	Mode	Frequency (MHz)	Antenna	Hopping Mode	Max Value (dBc)	Limit (dBc)	Verdict
NVNT	1-DH5	2402	Ant1	No-Hopping	-55.23	-20	Pass
NVNT	1-DH5	2480	Ant1	No-Hopping	-56.52	-20	Pass
NVNT	2-DH5	2402	Ant1	No-Hopping	-51.67	-20	Pass
NVNT	2-DH5	2480	Ant1	No-Hopping	-53.52	-20	Pass
NVNT	3-DH5	2402	Ant1	No-Hopping	-50.54	-20	Pass
NVNT	3-DH5	2480	Ant1	No-Hopping	-54.72	-20	Pass

Test Graphs

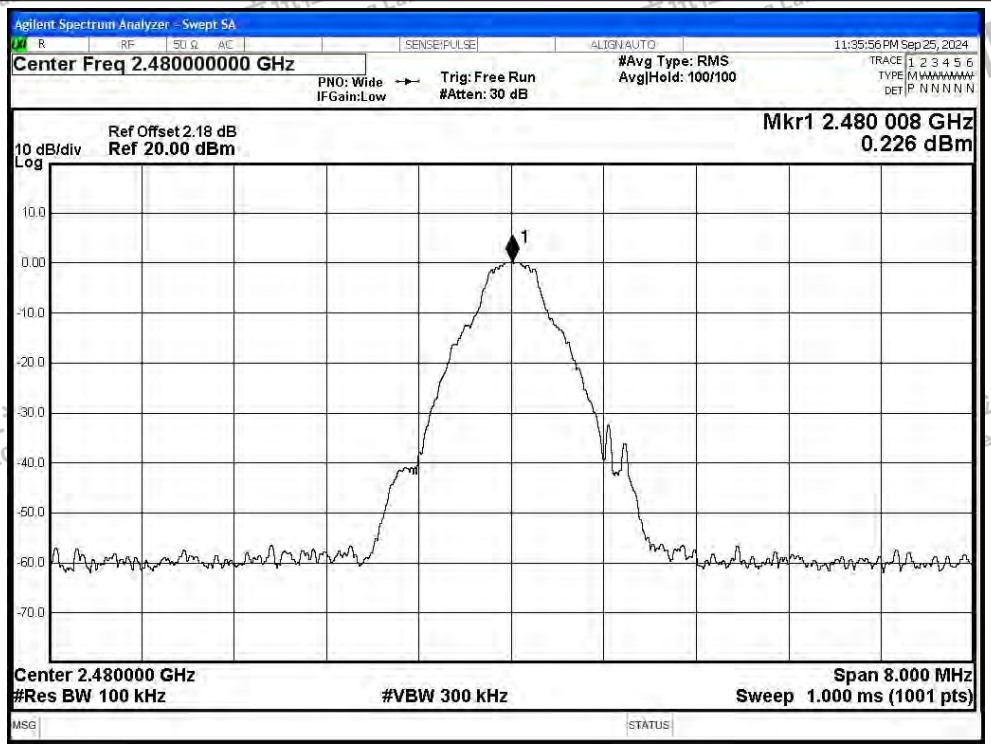
Band Edge NVNT 1-DH5 2402MHz Ant1 No-Hopping Ref



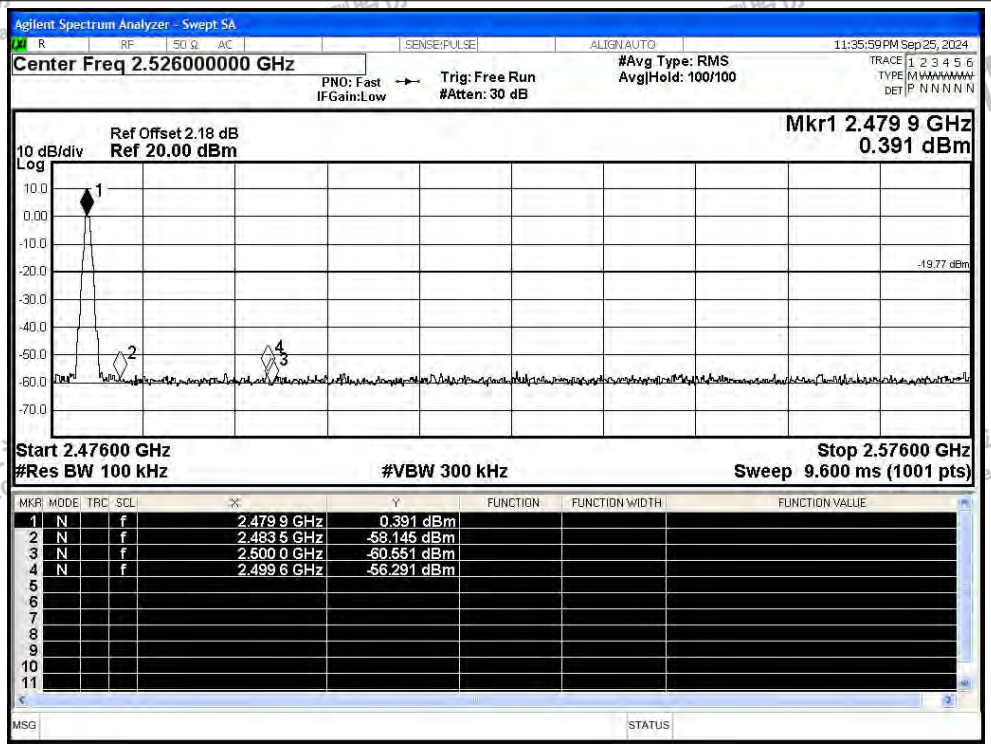
Band Edge NVNT 1-DH5 2402MHz Ant1 No-Hopping Emission



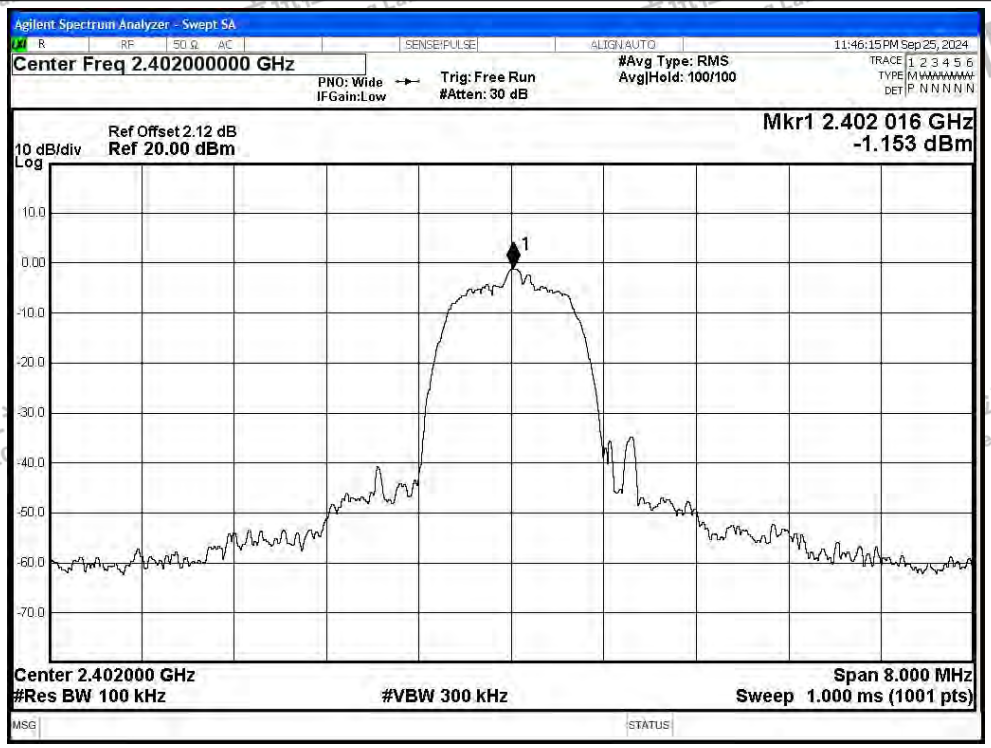
Band Edge NVNT 1-DH5 2480MHz Ant1 No-Hopping Ref



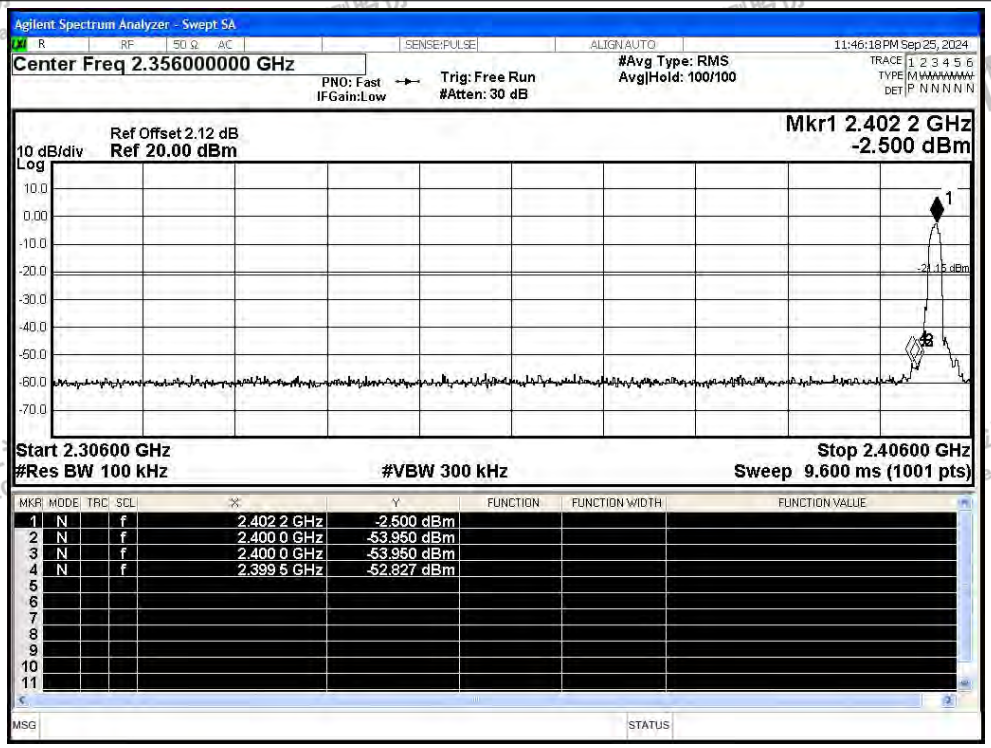
Band Edge NVNT 1-DH5 2480MHz Ant1 No-Hopping Emission



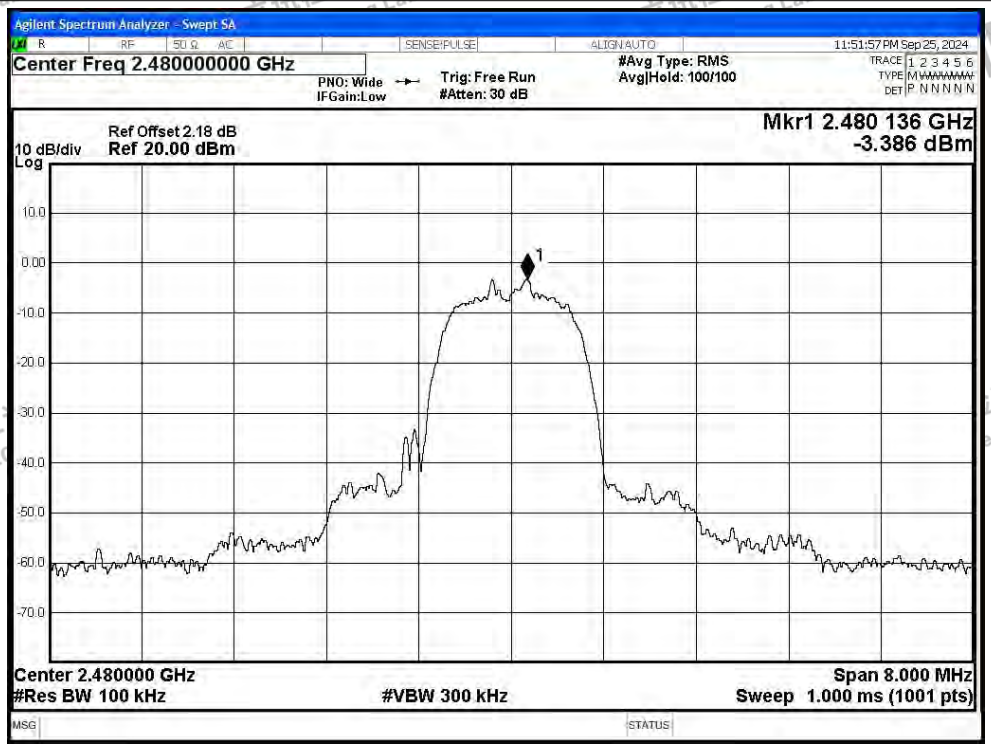
Band Edge NVNT 2-DH5 2402MHz Ant1 No-Hopping Ref



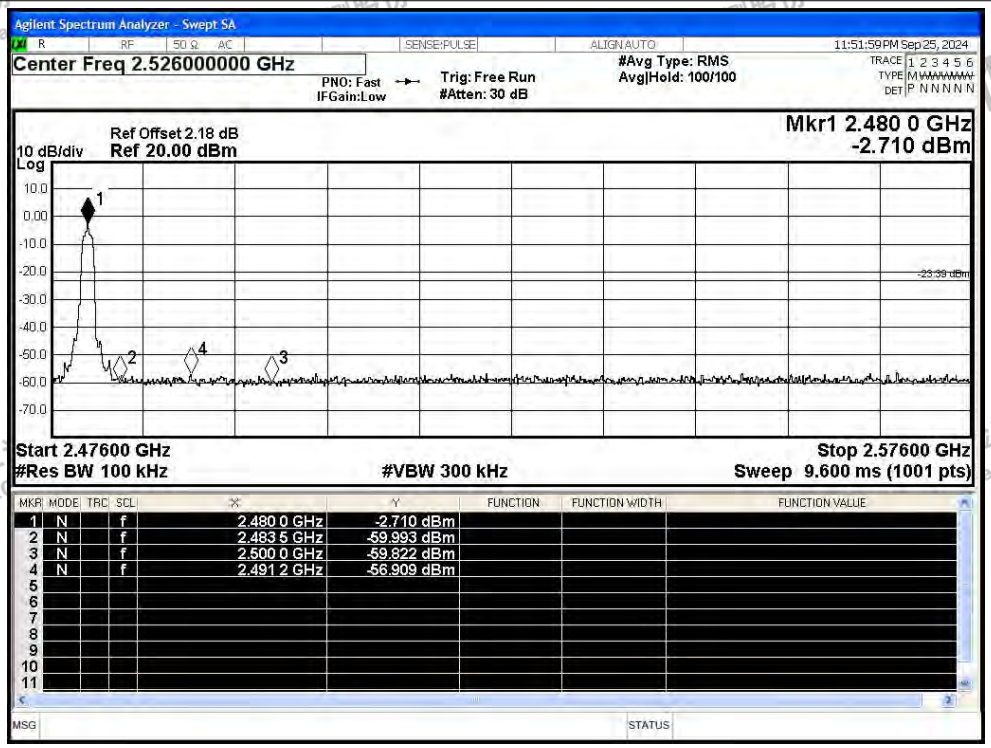
Band Edge NVNT 2-DH5 2402MHz Ant1 No-Hopping Emission



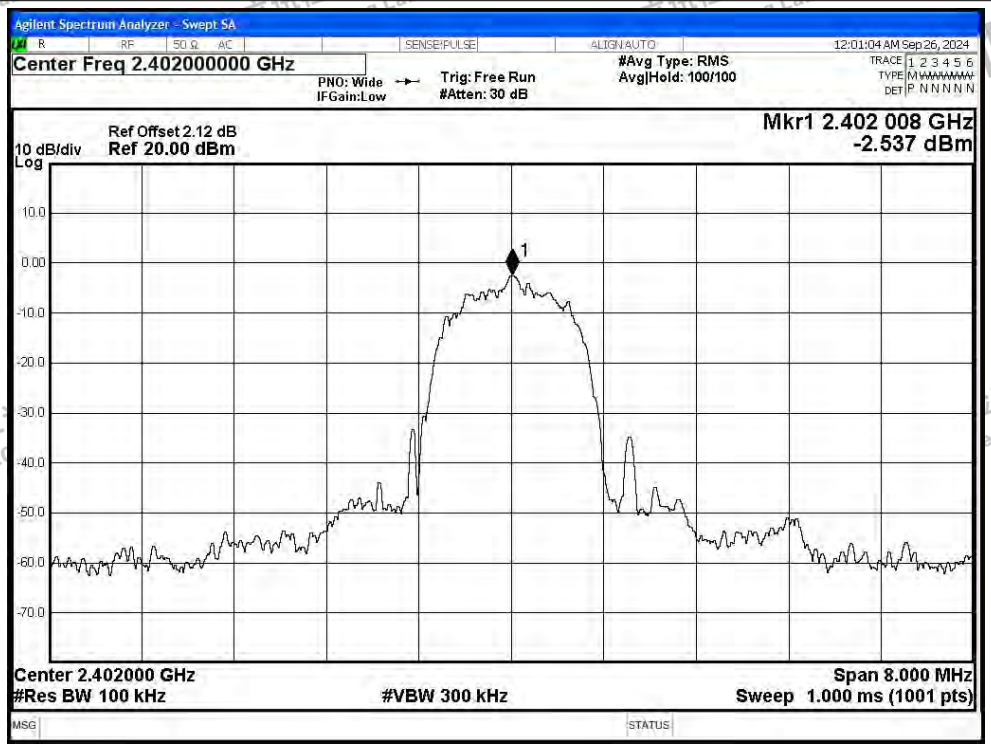
Band Edge NVNT 2-DH5 2480MHz Ant1 No-Hopping Ref



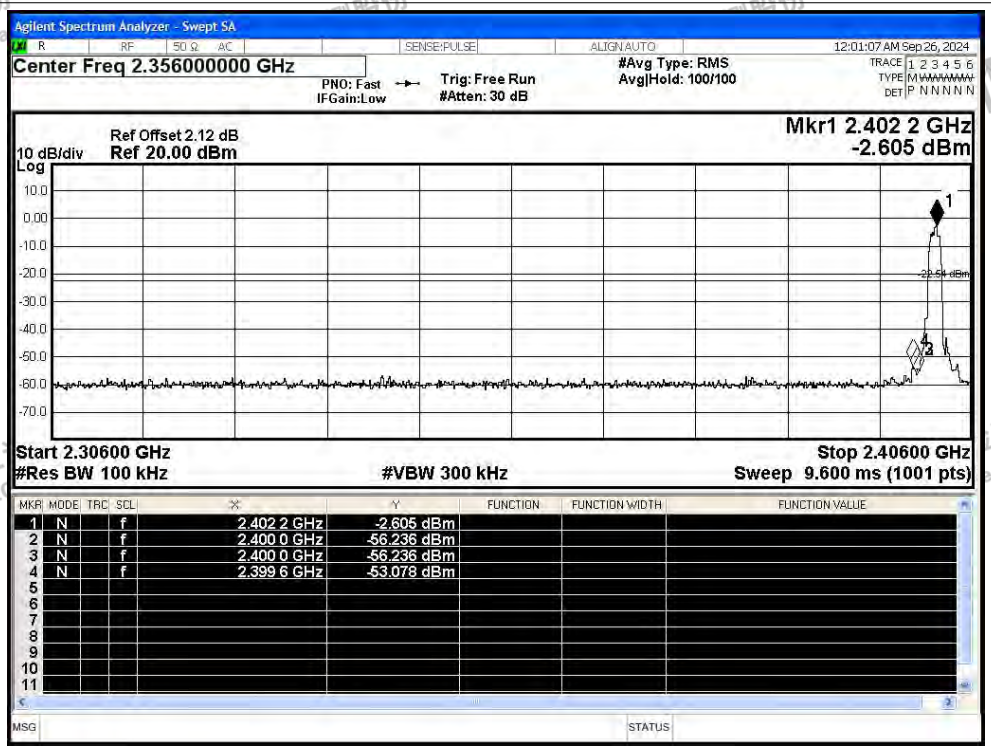
Band Edge NVNT 2-DH5 2480MHz Ant1 No-Hopping Emission



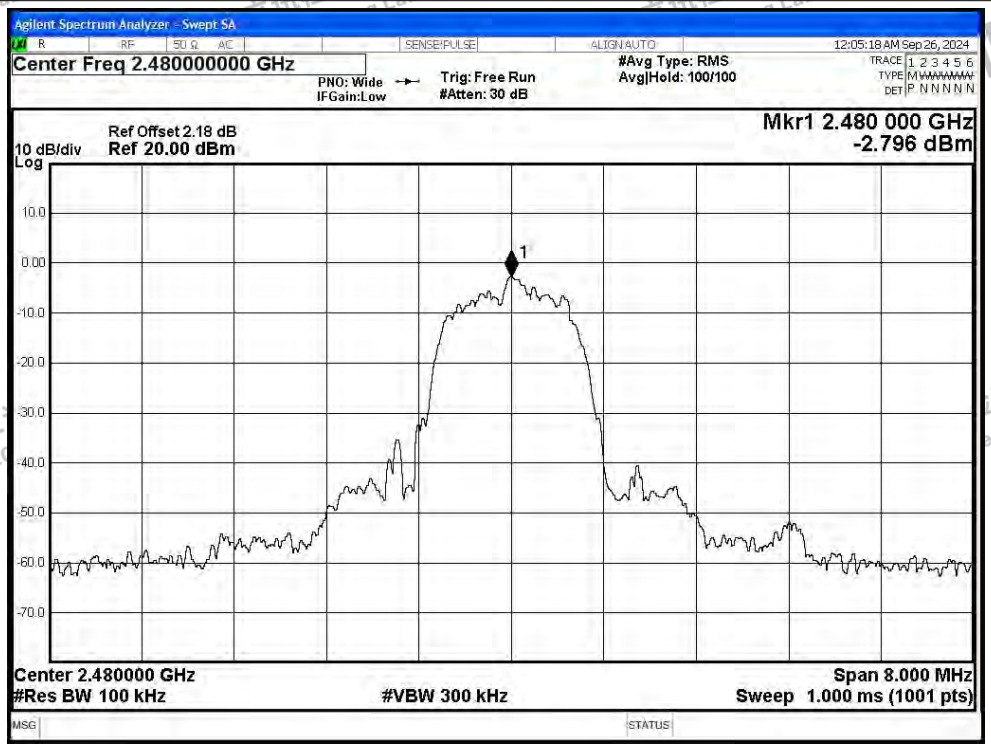
Band Edge NVNT 3-DH5 2402MHz Ant1 No-Hopping Ref



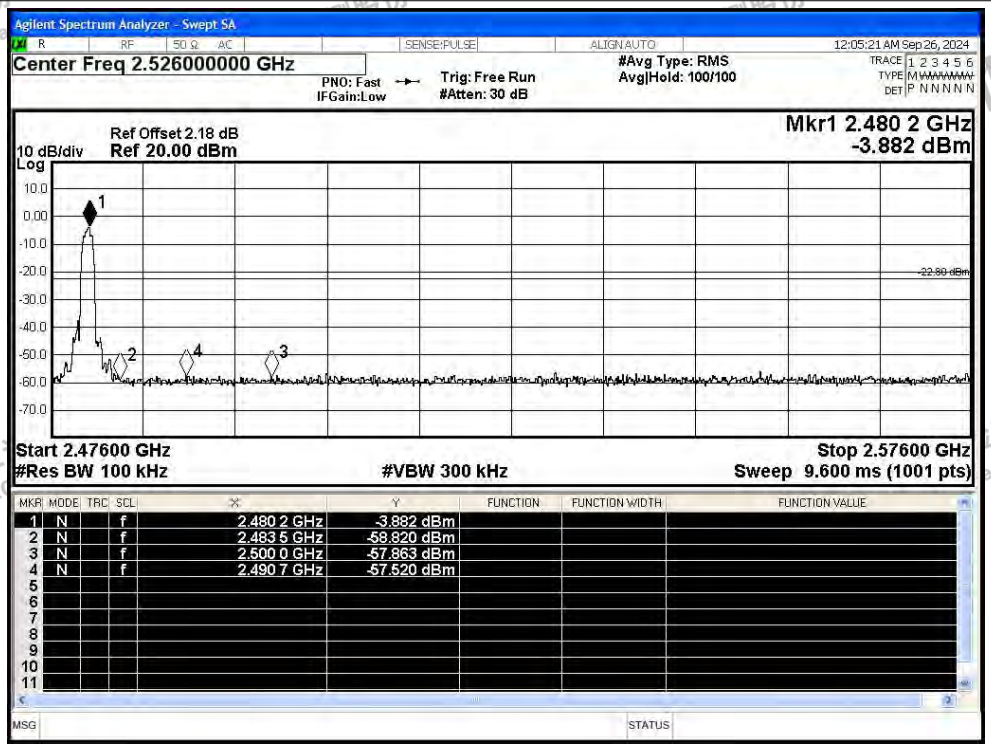
Band Edge NVNT 3-DH5 2402MHz Ant1 No-Hopping Emission



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



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

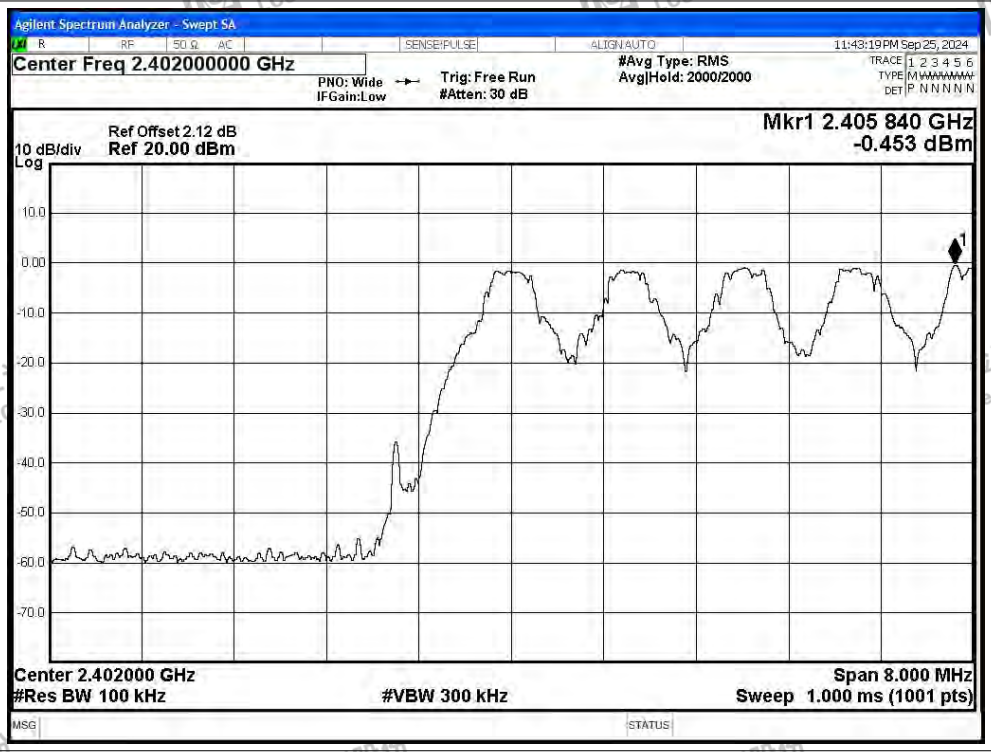


(Hopping)

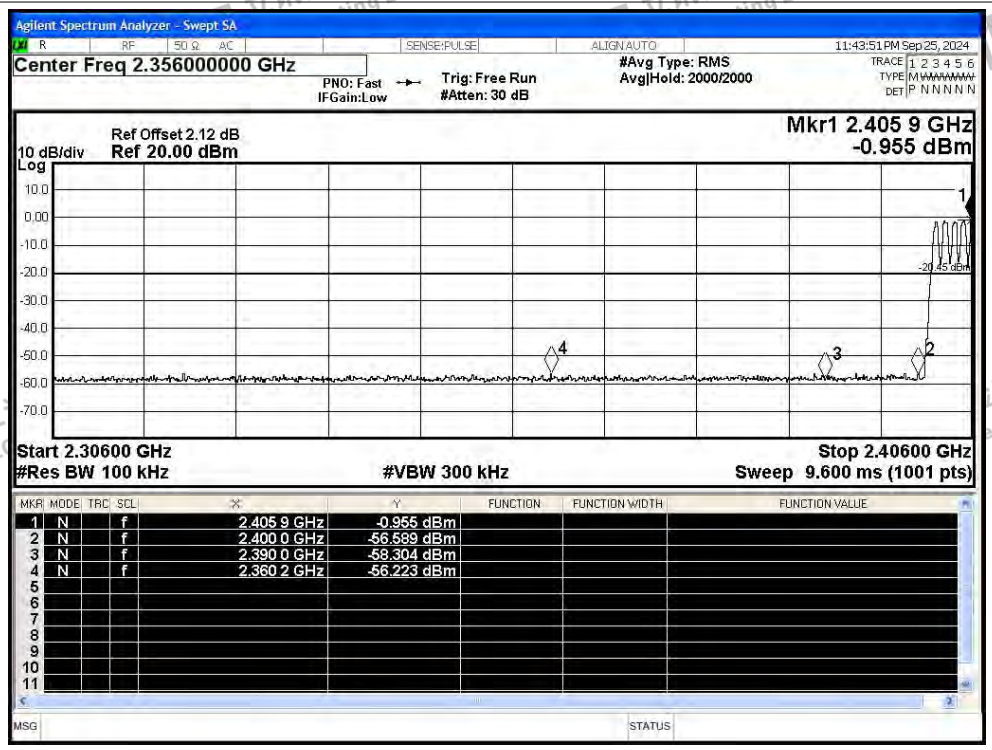
Condition	Mode	Frequency (MHz)	Antenna	Hopping Mode	Max Value (dBc)	Limit (dBc)	Verdict
NVNT	1-DH5	2402	Ant1	Hopping	-55.77	-20	Pass
NVNT	1-DH5	2480	Ant1	Hopping	-56.61	-20	Pass
NVNT	2-DH5	2402	Ant1	Hopping	-51.41	-20	Pass
NVNT	2-DH5	2480	Ant1	Hopping	-52.58	-20	Pass
NVNT	3-DH5	2402	Ant1	Hopping	-51.4	-20	Pass
NVNT	3-DH5	2480	Ant1	Hopping	-52.15	-20	Pass

Test Graphs

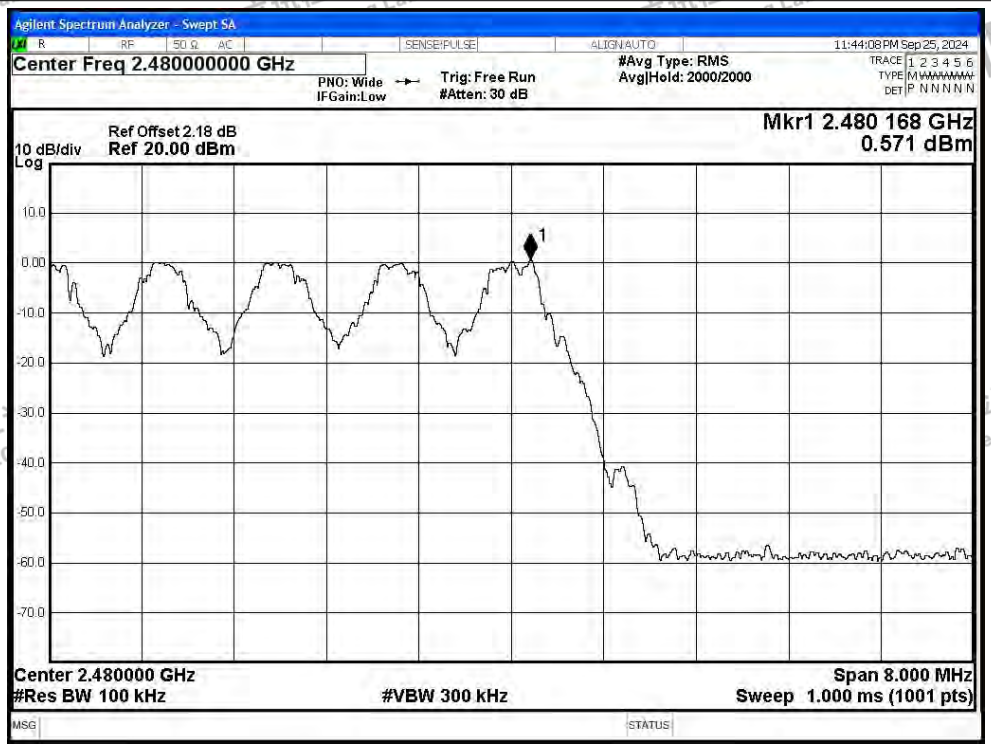
Band Edge(Hopping) NVNT 1-DH5 2402MHz Ant1 Hopping Ref



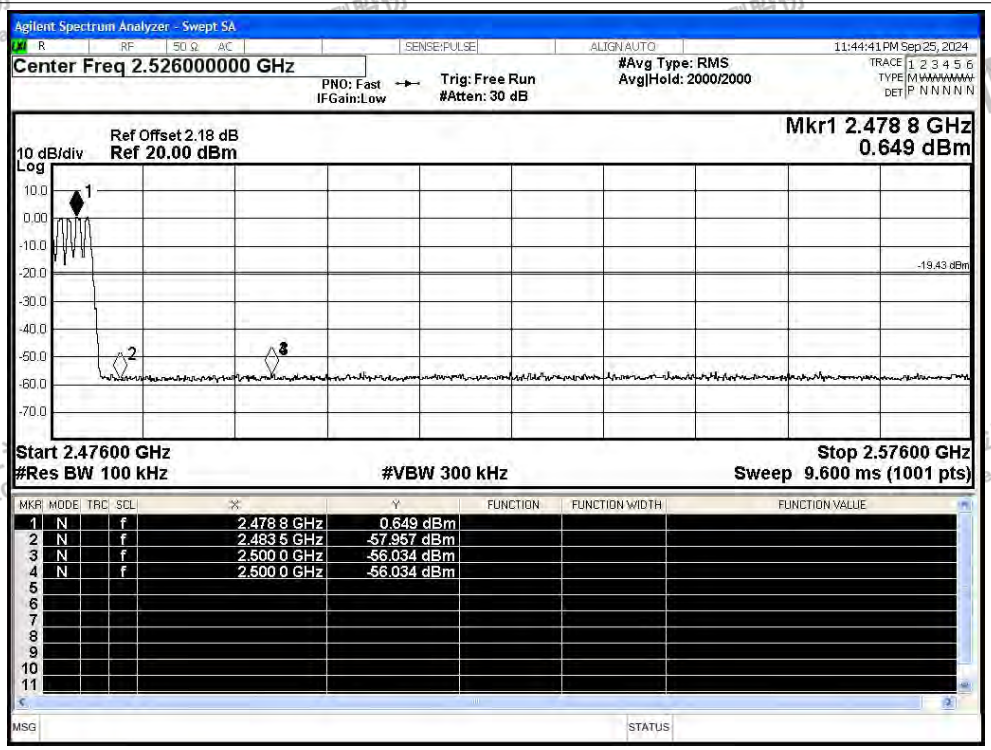
Band Edge(Hopping) NVNT 1-DH5 2402MHz Ant1 Hopping Emission



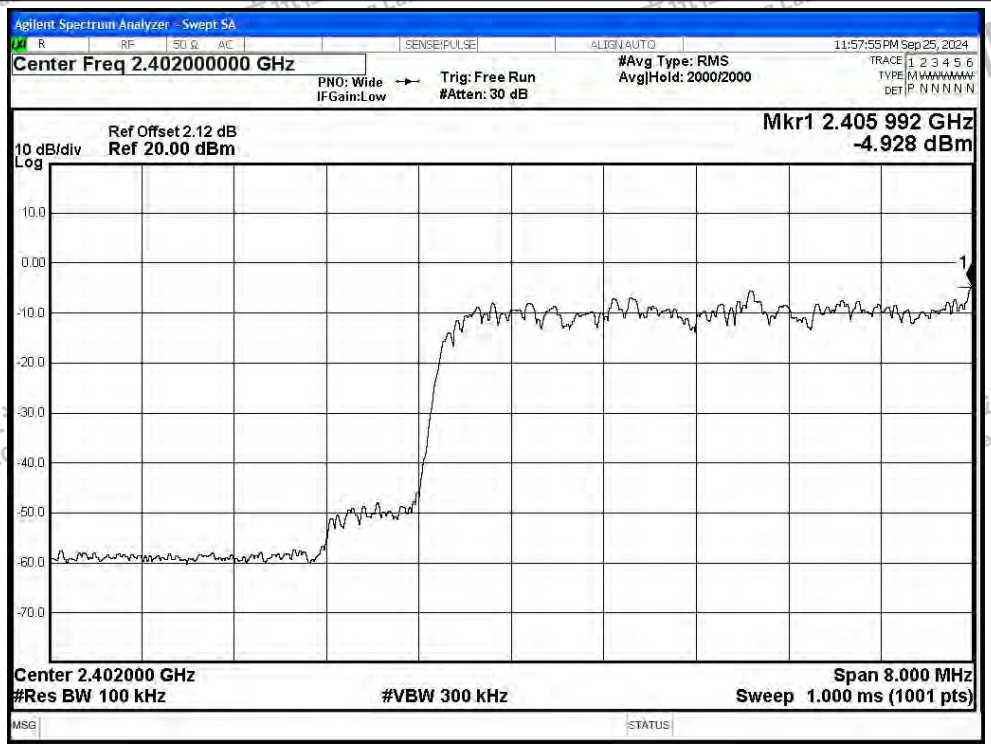
Band Edge(Hopping) NVNT 1-DH5 2480MHz Ant1 Hopping Ref



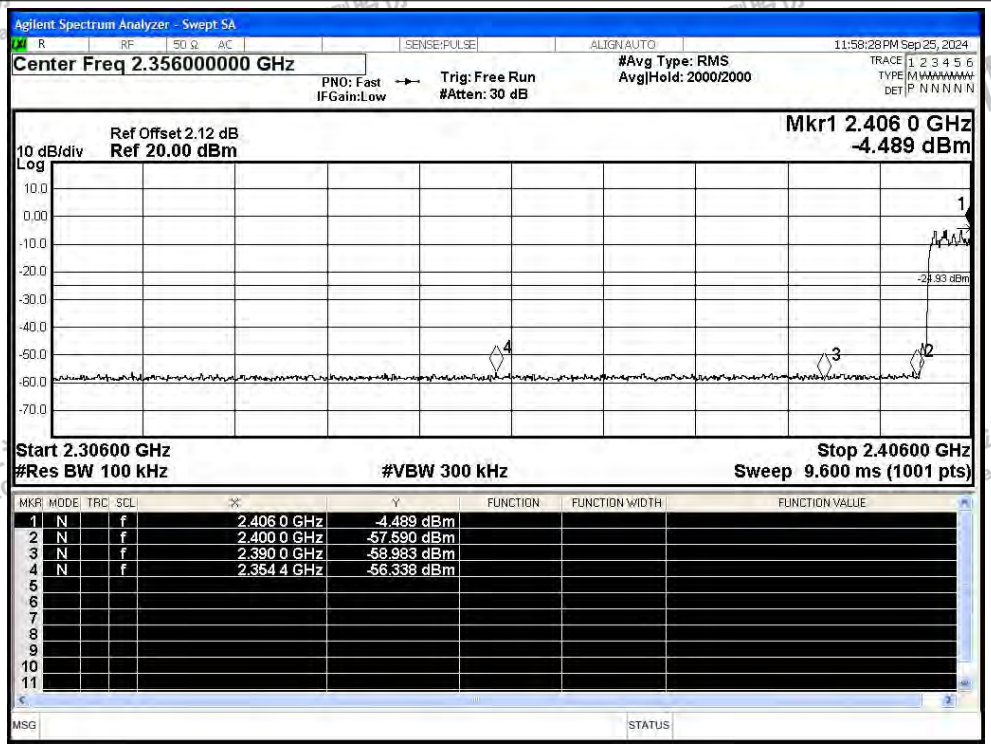
Band Edge(Hopping) NVNT 1-DH5 2480MHz Ant1 Hopping Emission



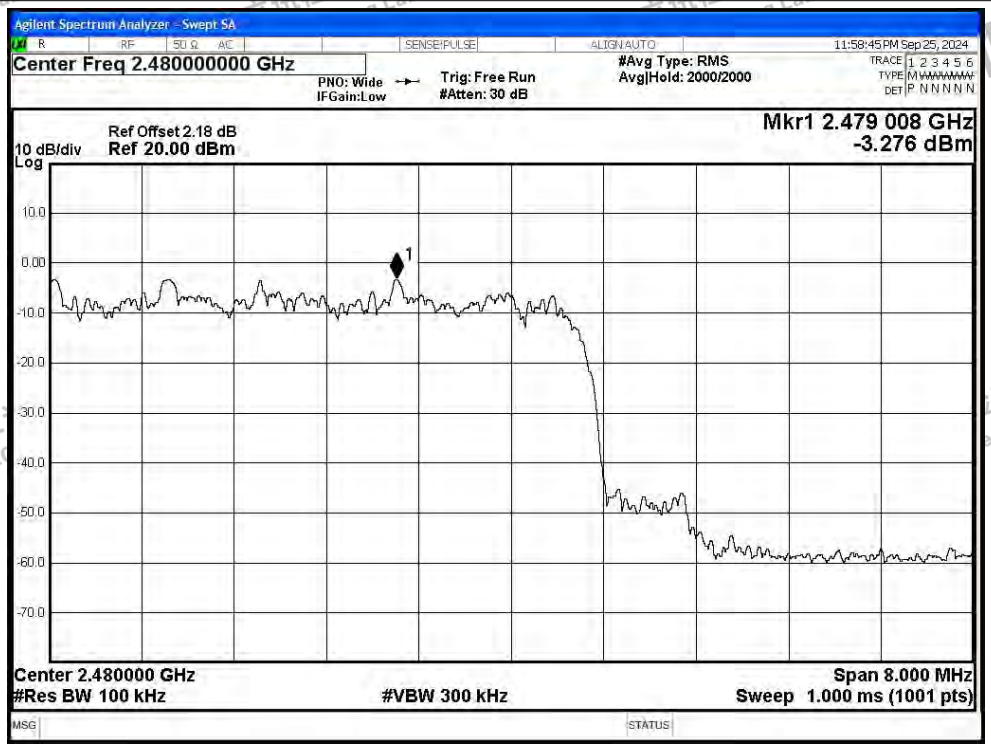
Band Edge(Hopping) NVNT 2-DH5 2402MHz Ant1 Hopping Ref



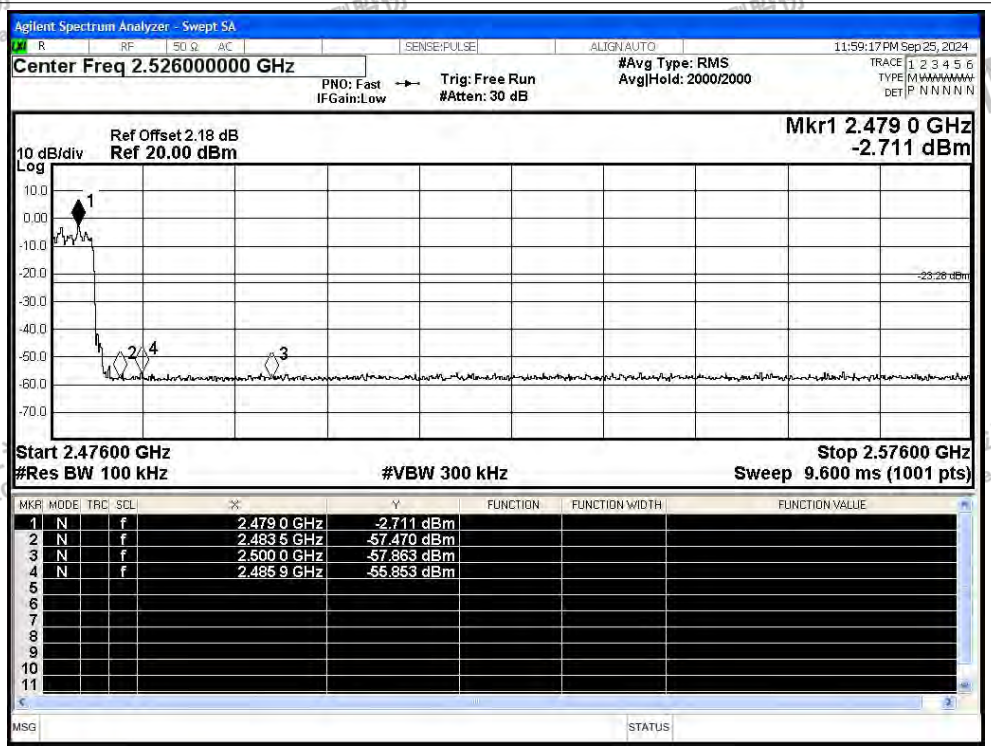
Band Edge(Hopping) NVNT 2-DH5 2402MHz Ant1 Hopping Emission



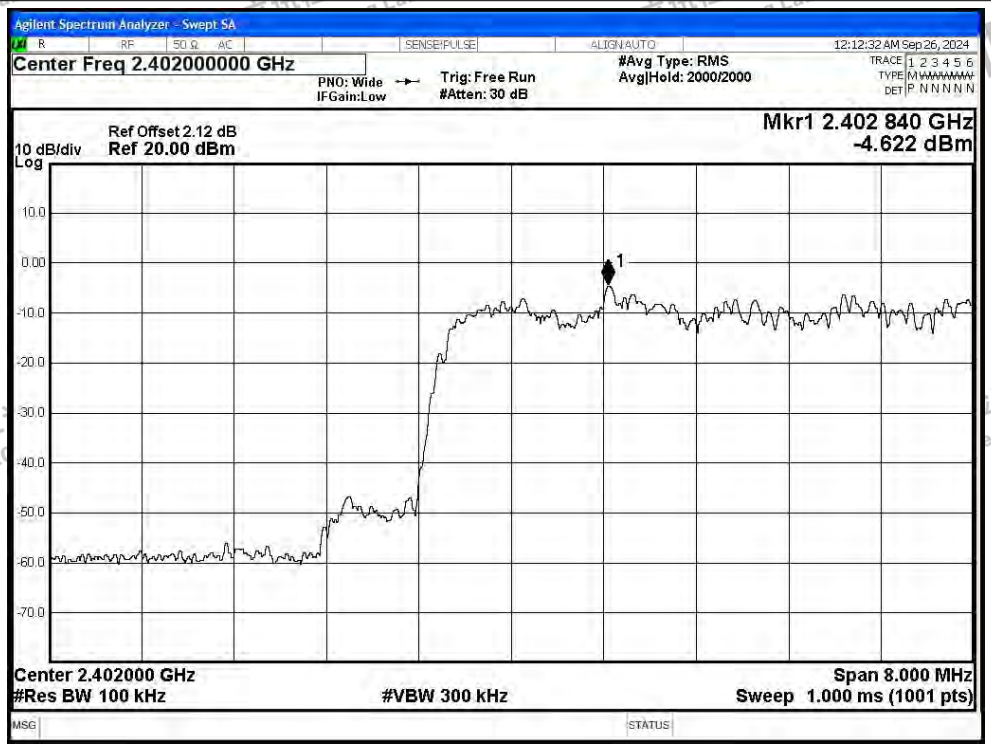
Band Edge(Hopping) NVNT 2-DH5 2480MHz Ant1 Hopping Ref



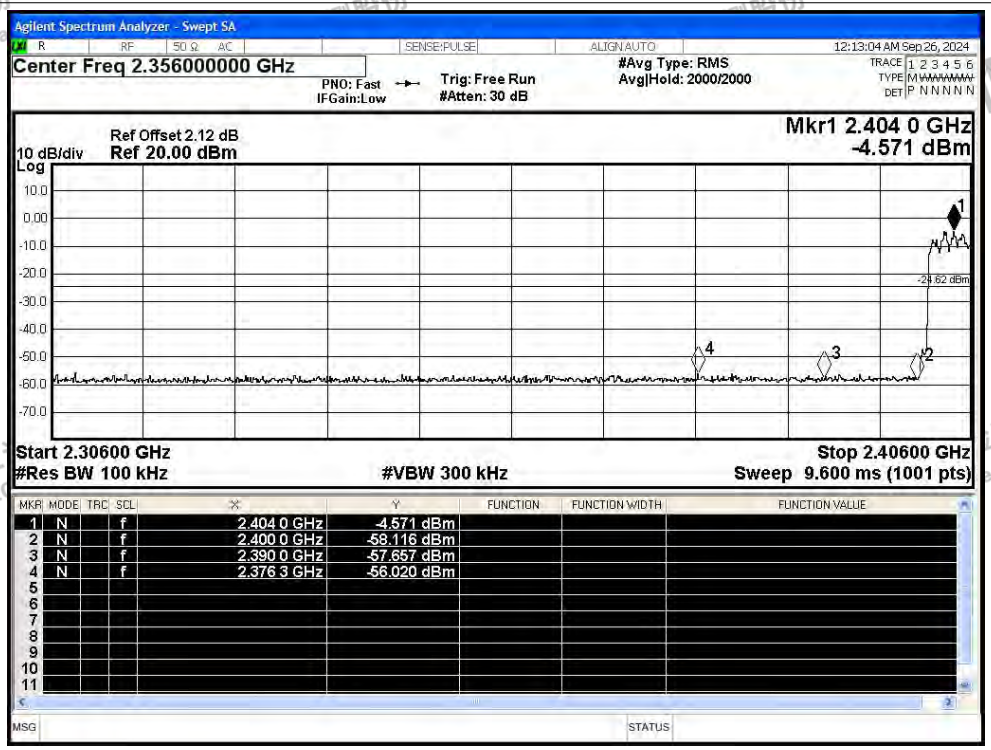
Band Edge(Hopping) NVNT 2-DH5 2480MHz Ant1 Hopping Emission



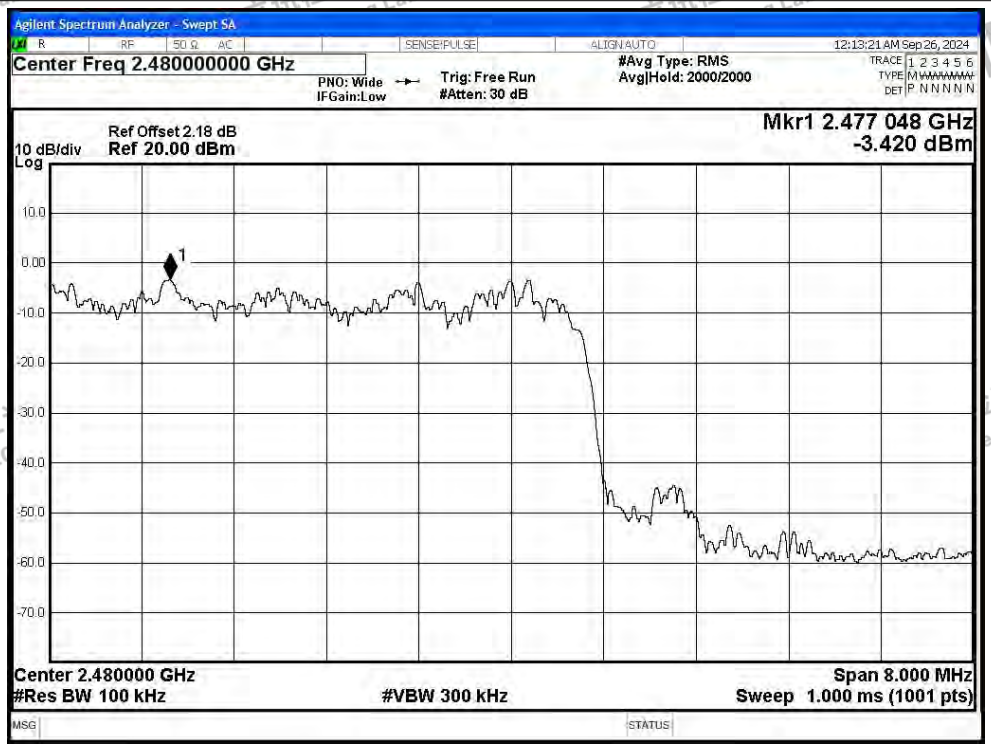
Band Edge(Hopping) NVNT 3-DH5 2402MHz Ant1 Hopping Ref



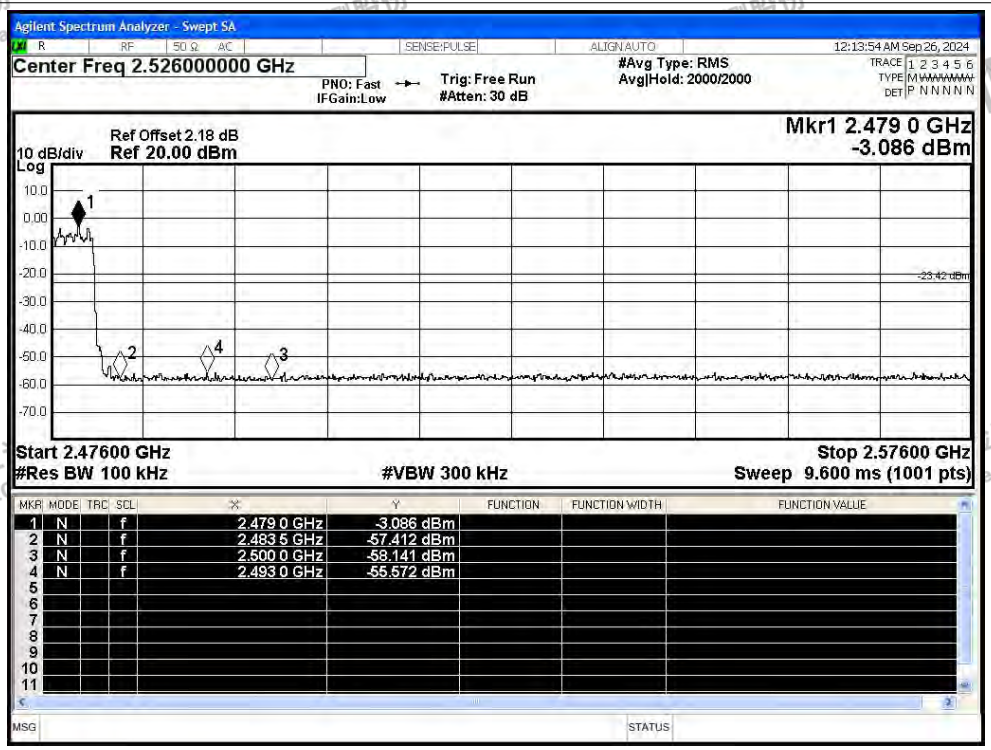
Band Edge(Hopping) NVNT 3-DH5 2402MHz Ant1 Hopping Emission



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



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



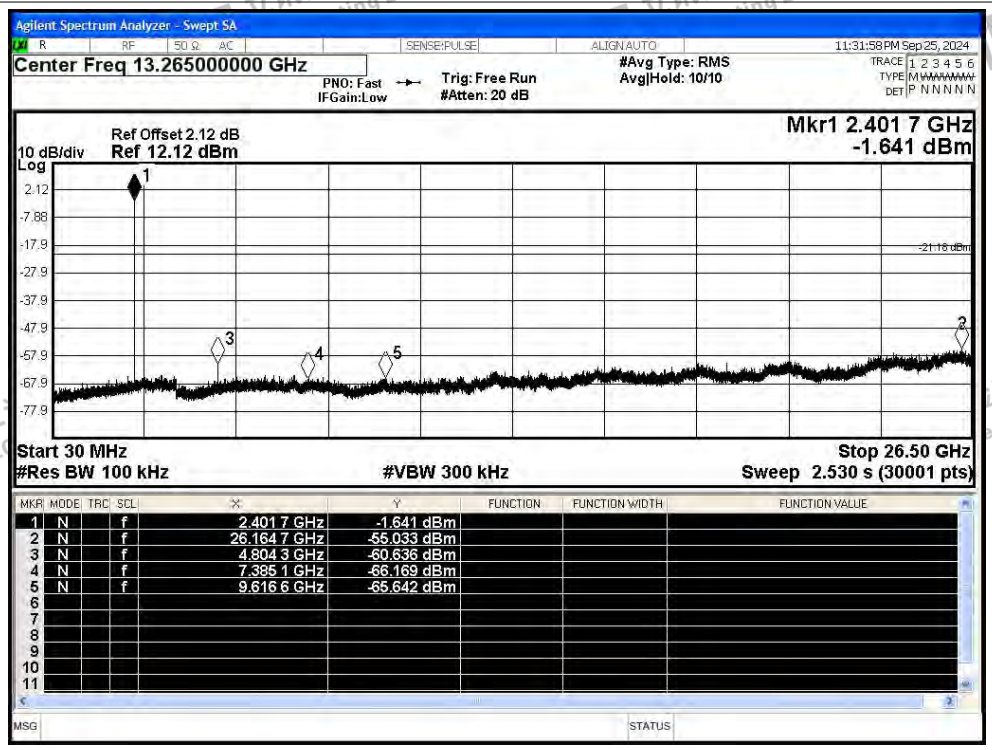
A.7 Conducted RF Spurious Emission

Condition	Mode	Frequency (MHz)	Antenna	Max Value (dBc)	Limit (dBc)	Verdict
NVNT	1-DH5	2402	Ant1	-53.85	-20	Pass
NVNT	1-DH5	2441	Ant1	-54.67	-20	Pass
NVNT	1-DH5	2480	Ant1	-55.47	-20	Pass
NVNT	2-DH5	2402	Ant1	-54.08	-20	Pass
NVNT	2-DH5	2441	Ant1	-53.41	-20	Pass
NVNT	2-DH5	2480	Ant1	-51.65	-20	Pass
NVNT	3-DH5	2402	Ant1	-53.09	-20	Pass
NVNT	3-DH5	2441	Ant1	-52.04	-20	Pass
NVNT	3-DH5	2480	Ant1	-51.69	-20	Pass

Test Graphs

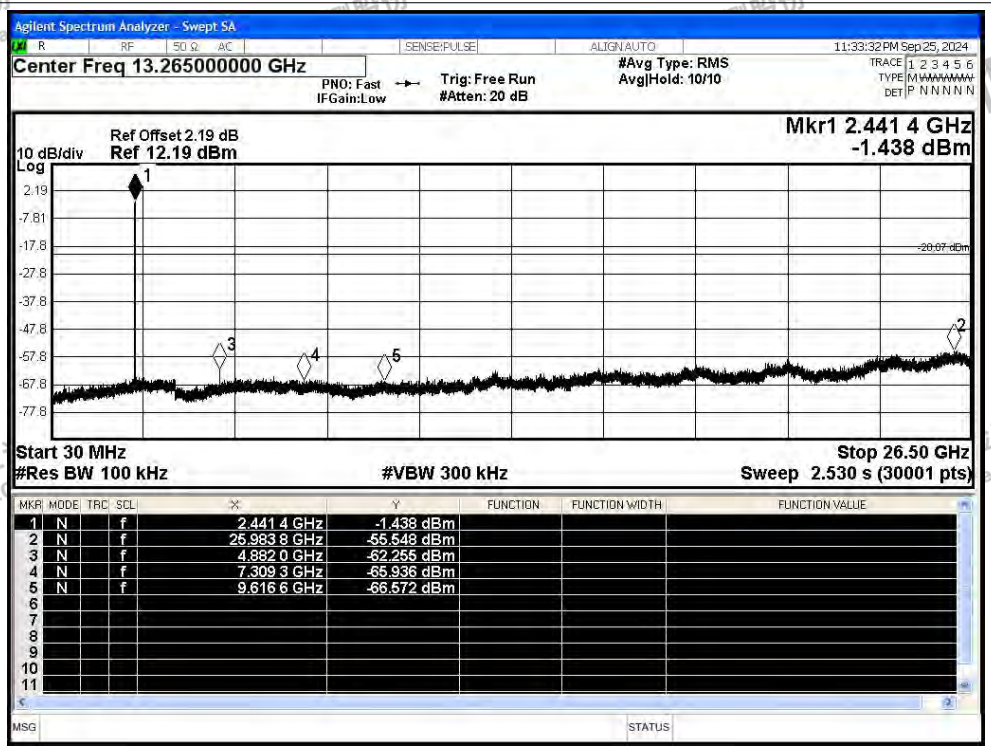
Tx. Spurious NVNT 1-DH5 2402MHz Ant1 Ref

Tx. Spurious NVNT 1-DH5 2402MHz Ant1 Emission

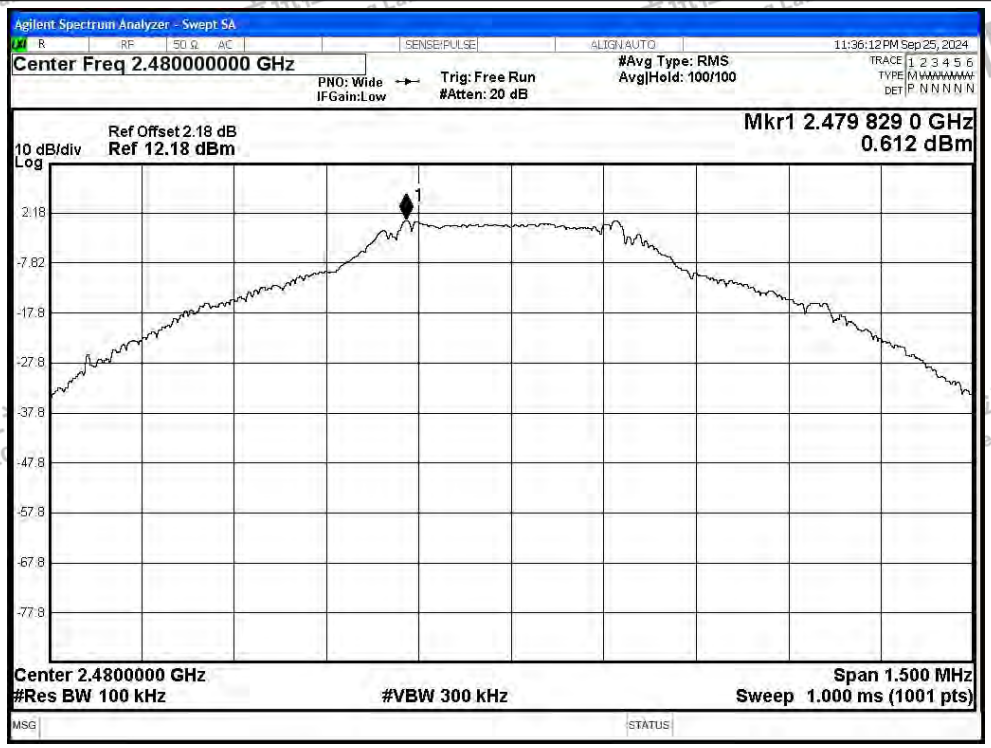


Tx. Spurious NVNT 1-DH5 2441MHz Ant1 Ref

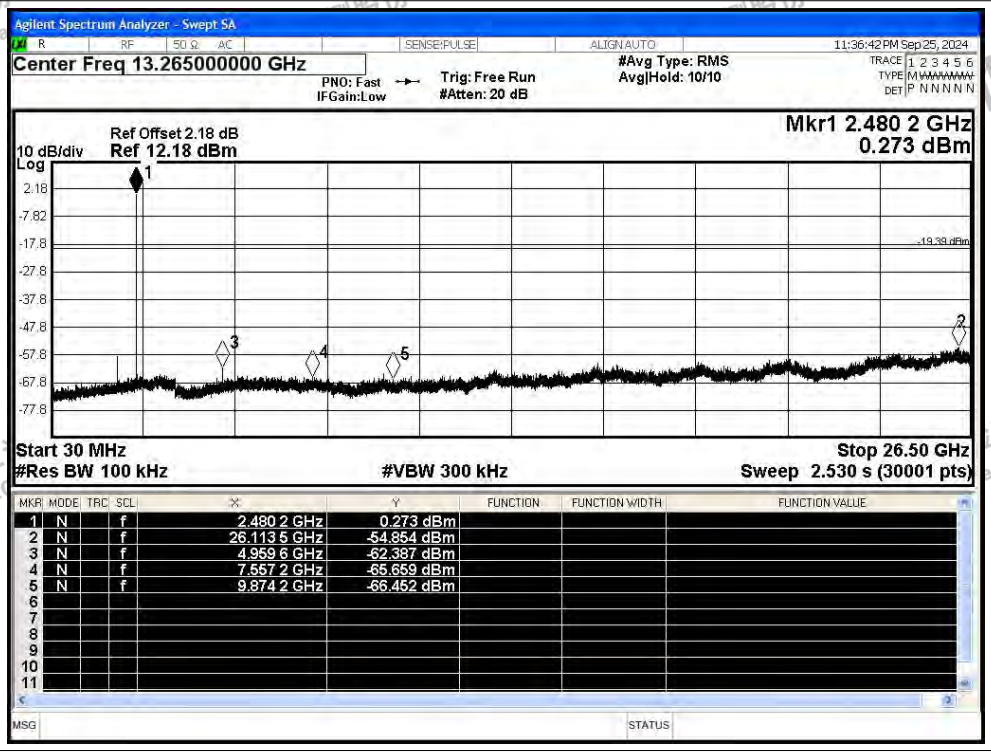
Tx. Spurious NVNT 1-DH5 2441MHz Ant1 Emission



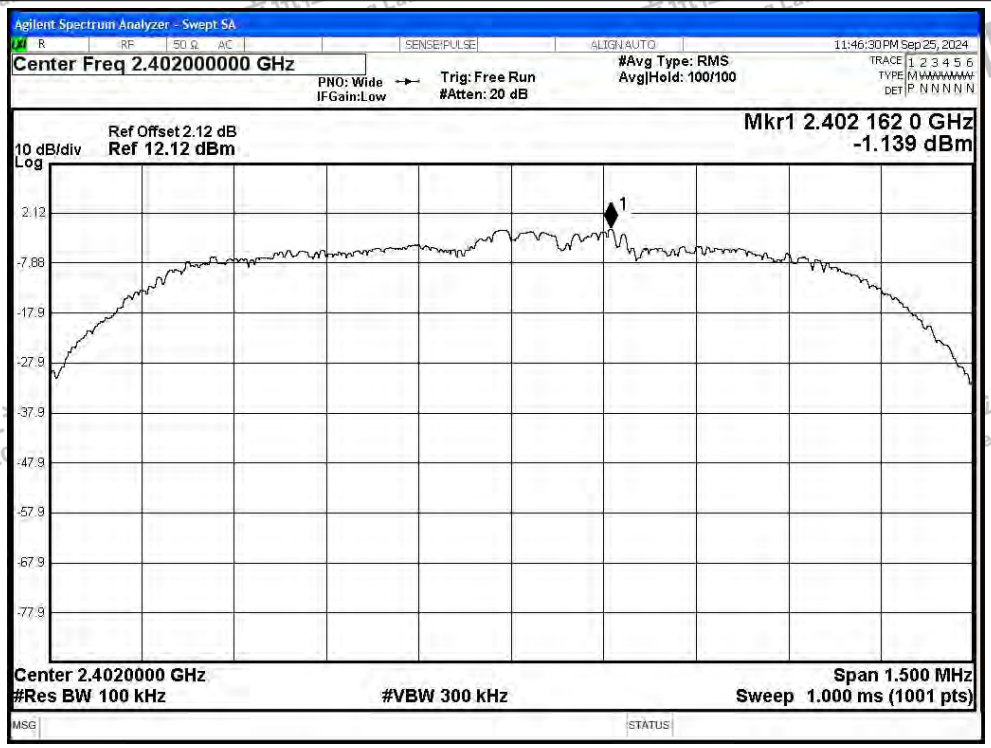
Tx. Spurious NVNT 1-DH5 2480MHz Ant1 Ref



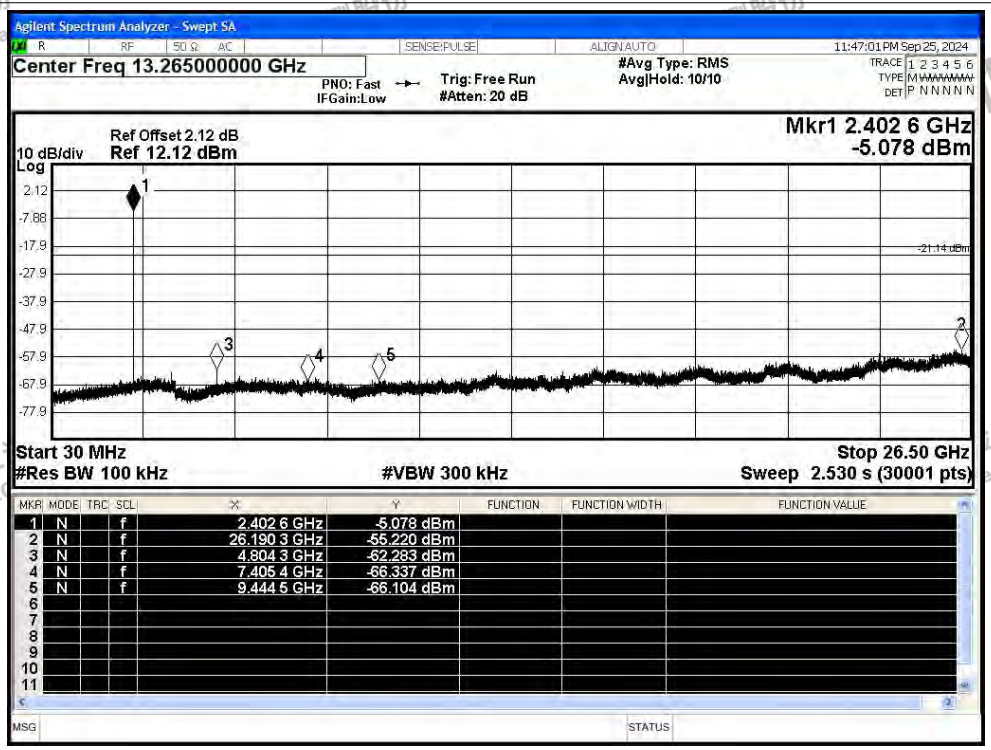
Tx. Spurious NVNT 1-DH5 2480MHz Ant1 Emission



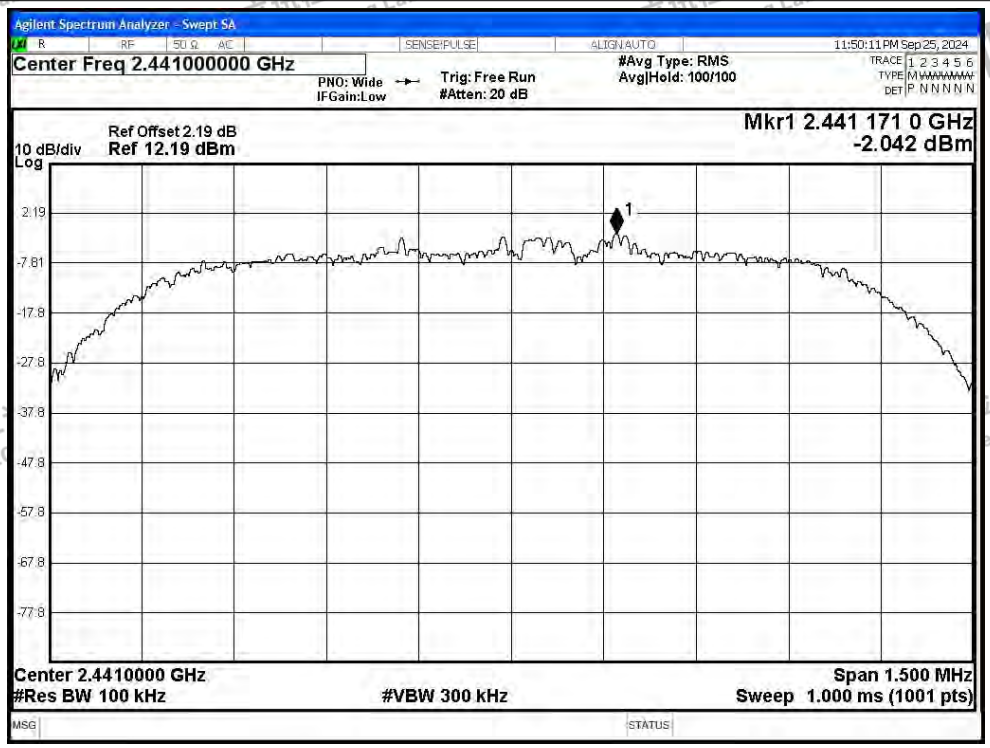
Tx. Spurious NVNT 2-DH5 2402MHz Ant1 Ref



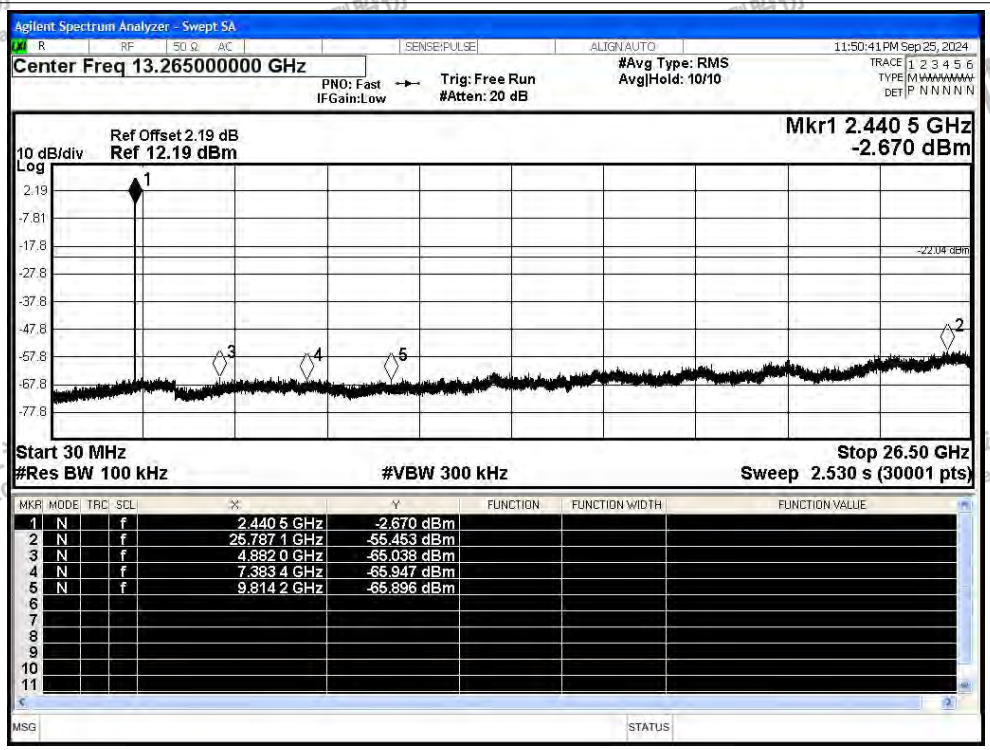
Tx. Spurious NVNT 2-DH5 2402MHz Ant1 Emission



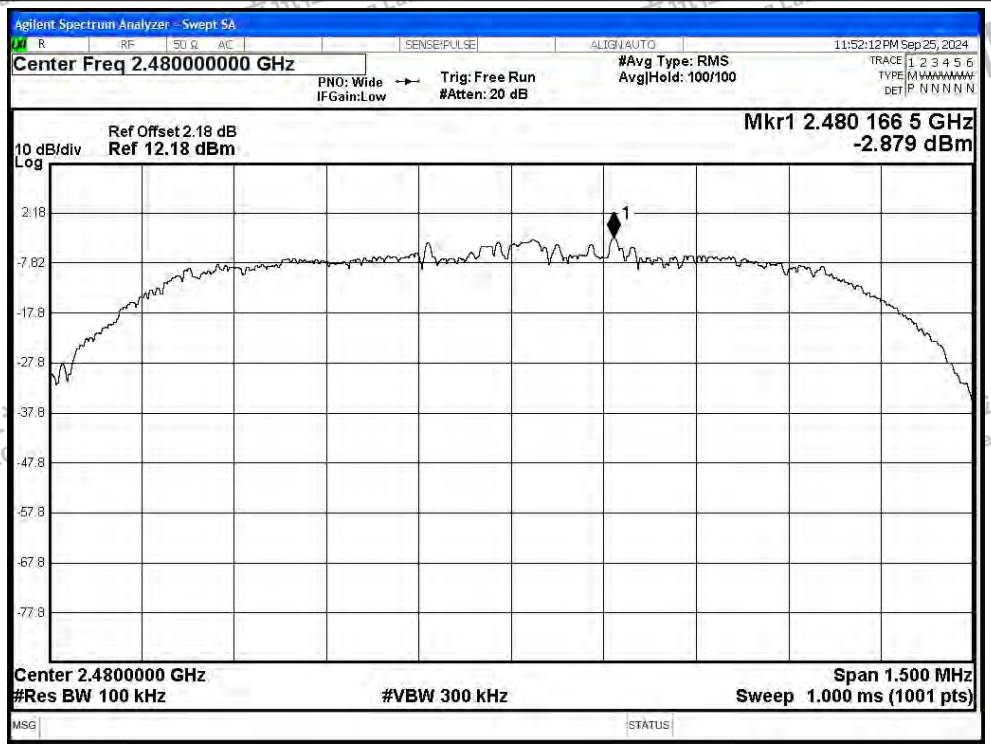
Tx. Spurious NVNT 2-DH5 2441MHz Ant1 Ref



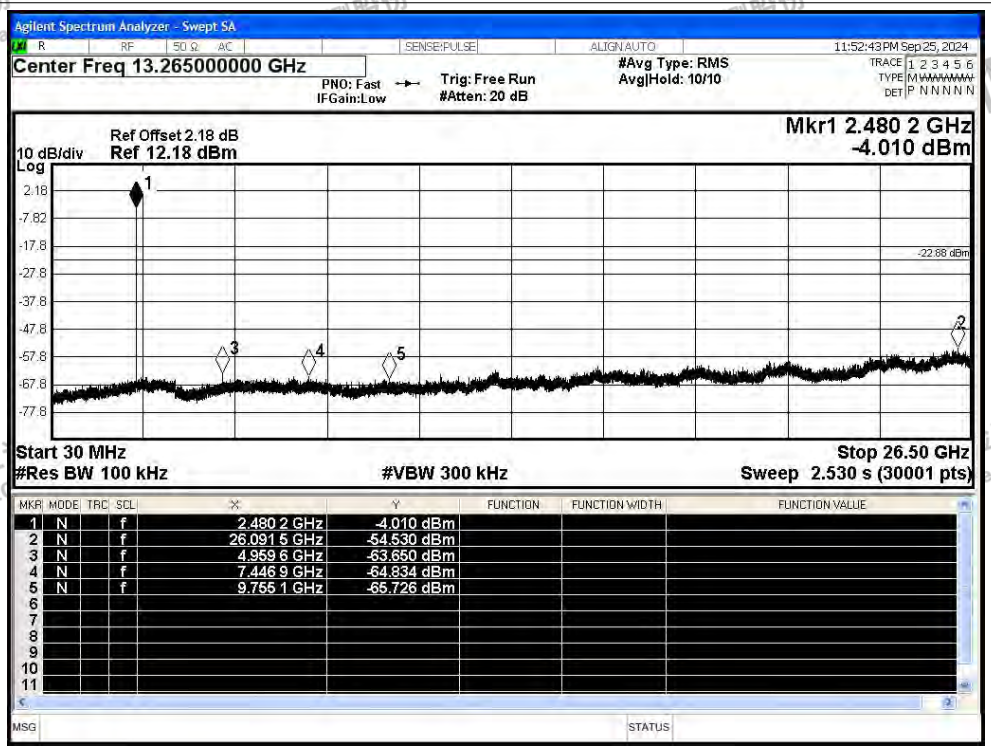
Tx. Spurious NVNT 2-DH5 2441MHz Ant1 Emission



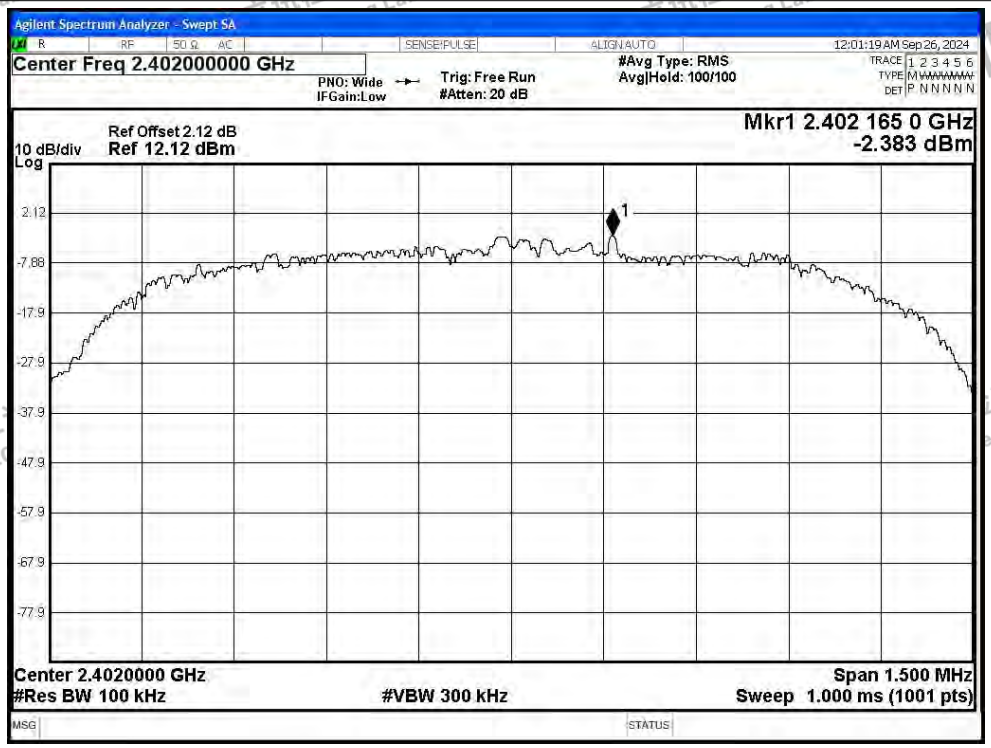
Tx. Spurious NVNT 2-DH5 2480MHz Ant1 Ref



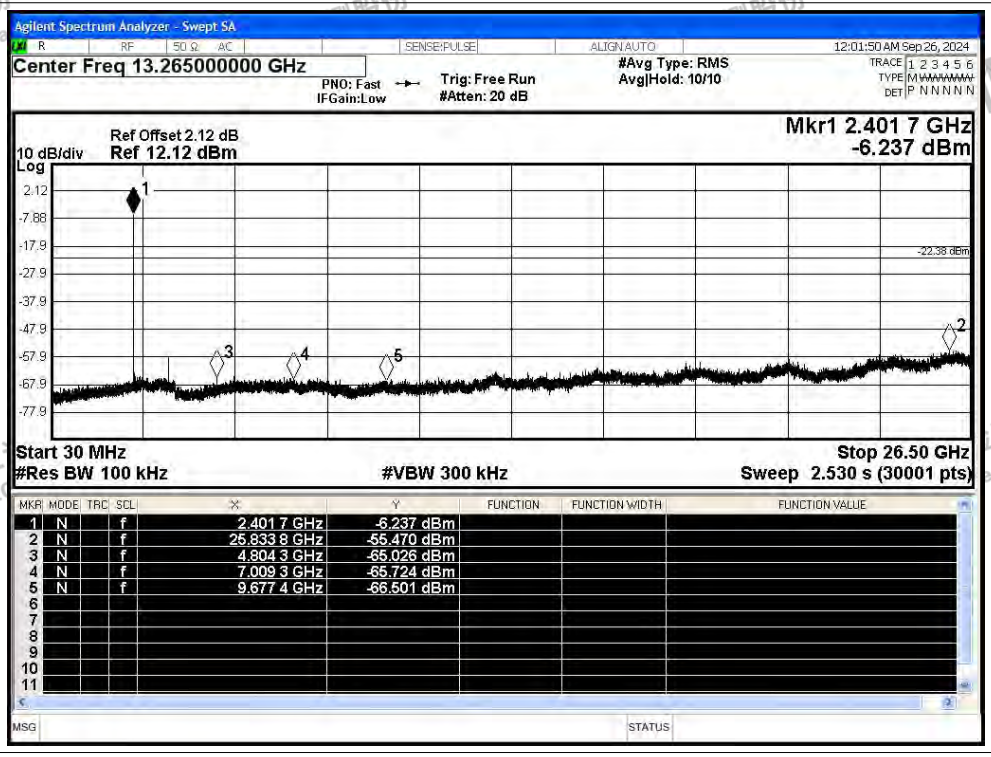
Tx. Spurious NVNT 2-DH5 2480MHz Ant1 Emission



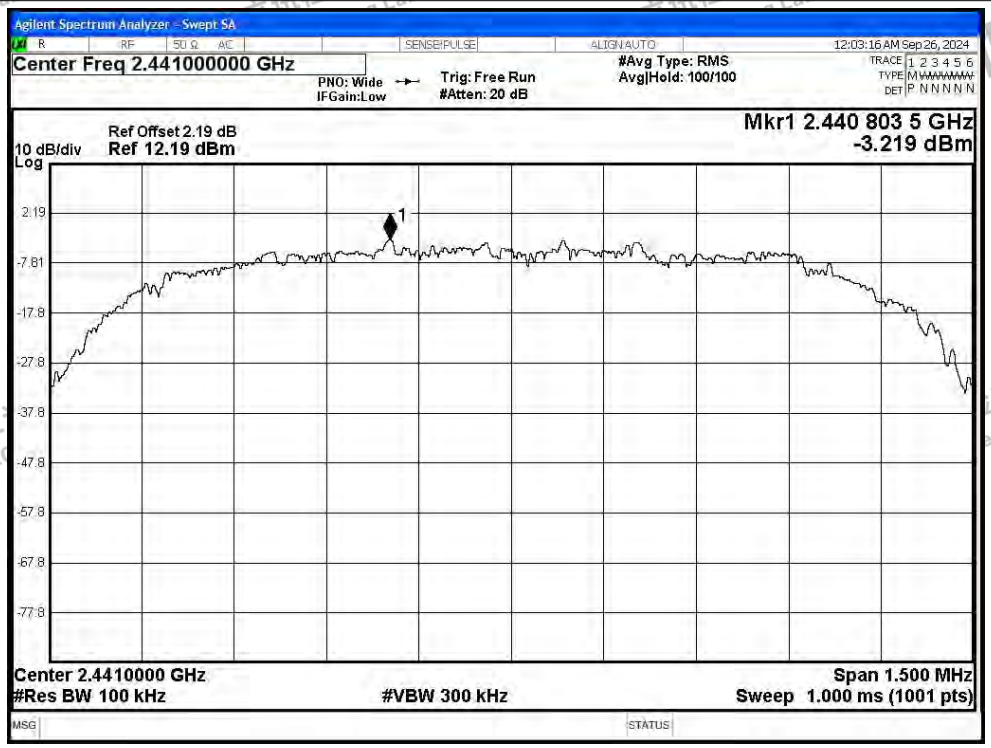
Tx. Spurious NVNT 3-DH5 2402MHz Ant1 Ref



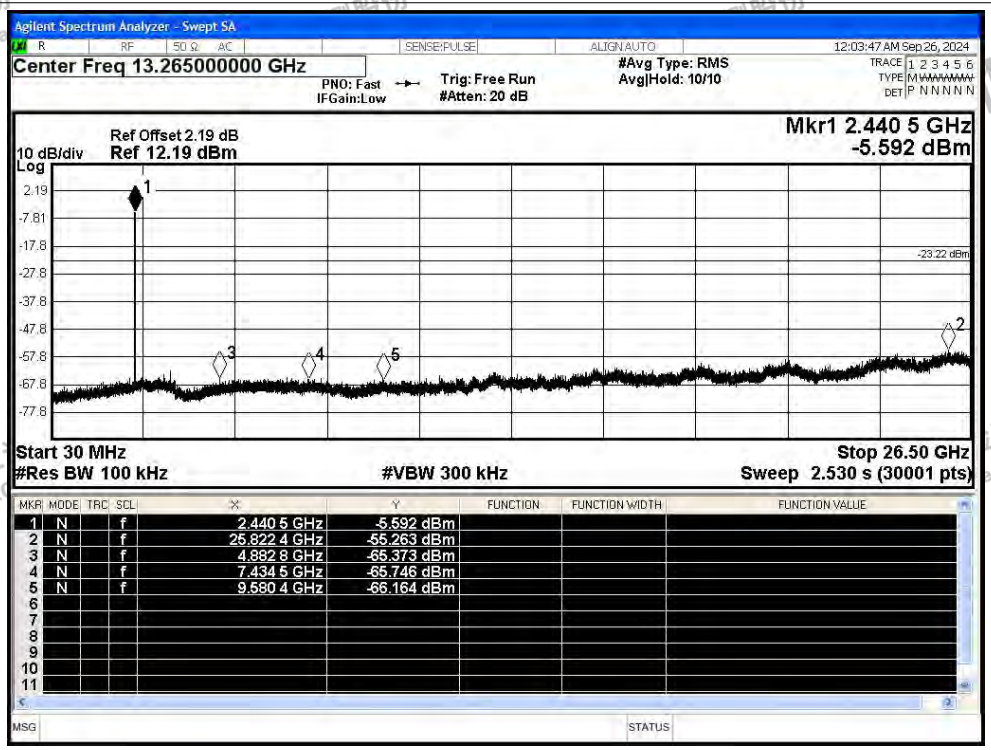
Tx. Spurious NVNT 3-DH5 2402MHz Ant1 Emission



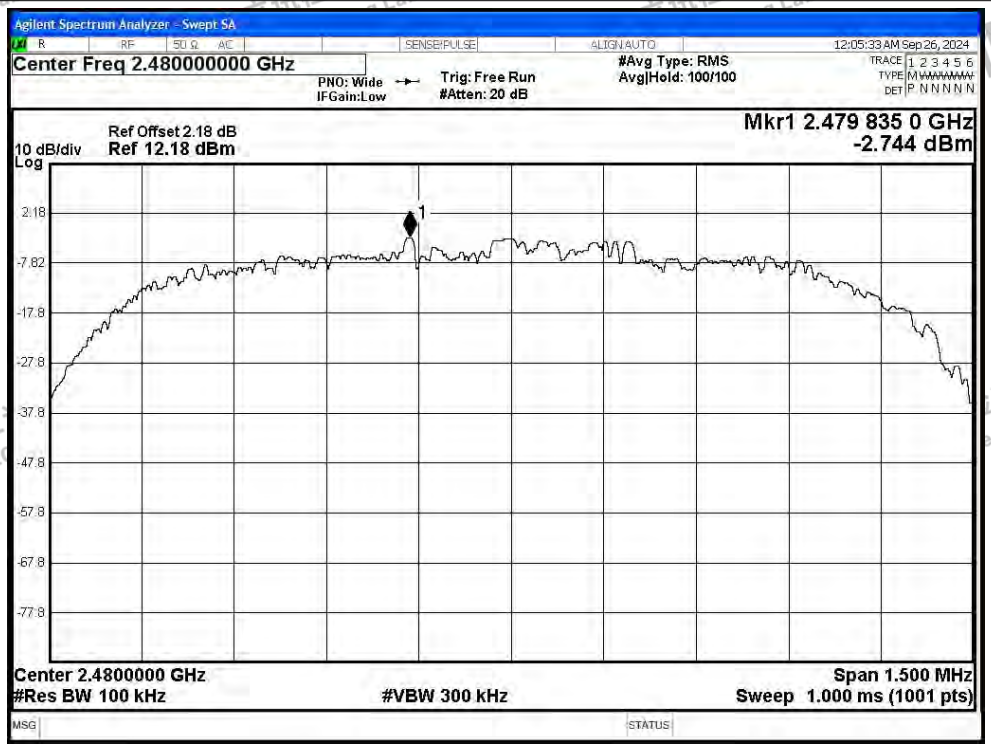
Tx. Spurious NVNT 3-DH5 2441MHz Ant1 Ref



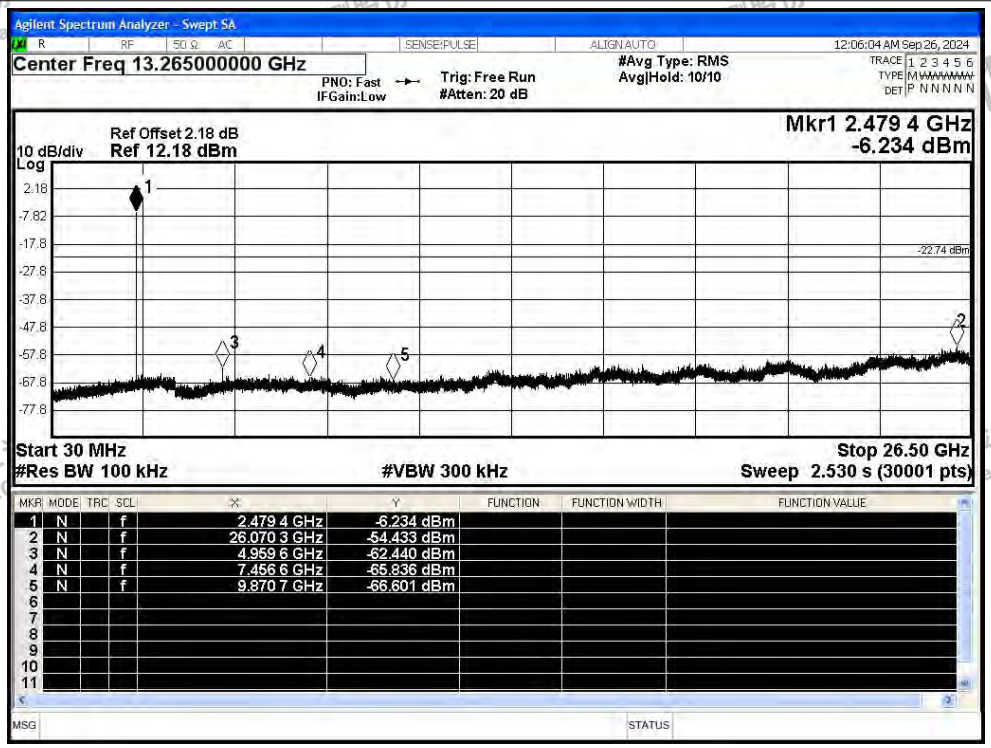
Tx. Spurious NVNT 3-DH5 2441MHz Ant1 Emission



Tx. Spurious NVNT 3-DH5 2480MHz Ant1 Ref



Tx. Spurious NVNT 3-DH5 2480MHz Ant1 Emission

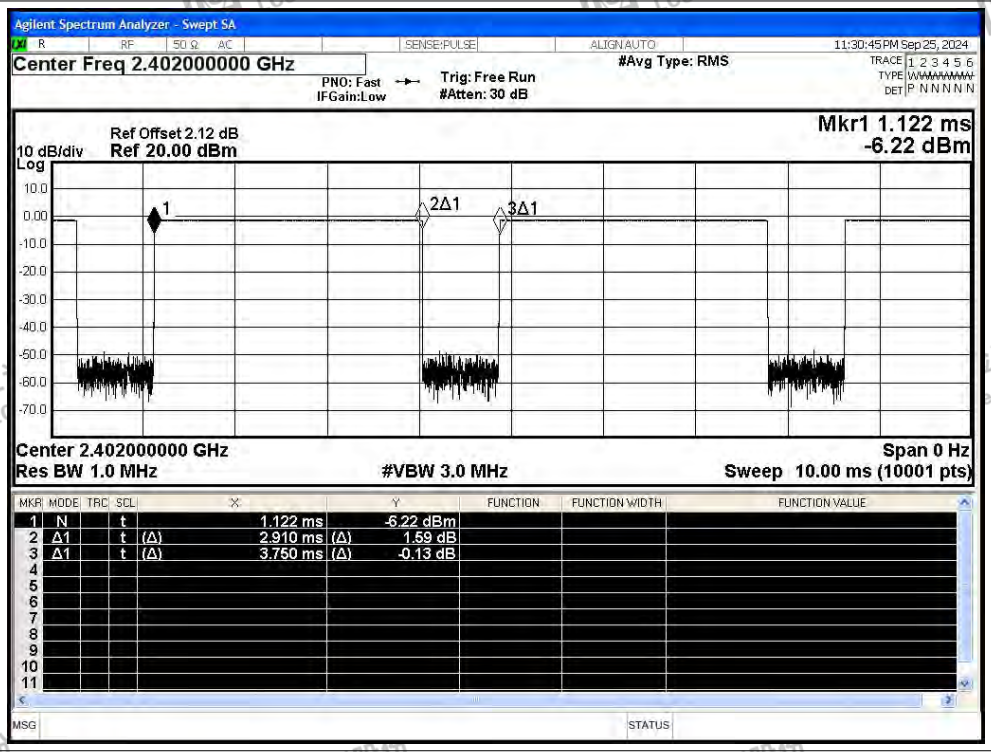


A.8 Duty Cycle

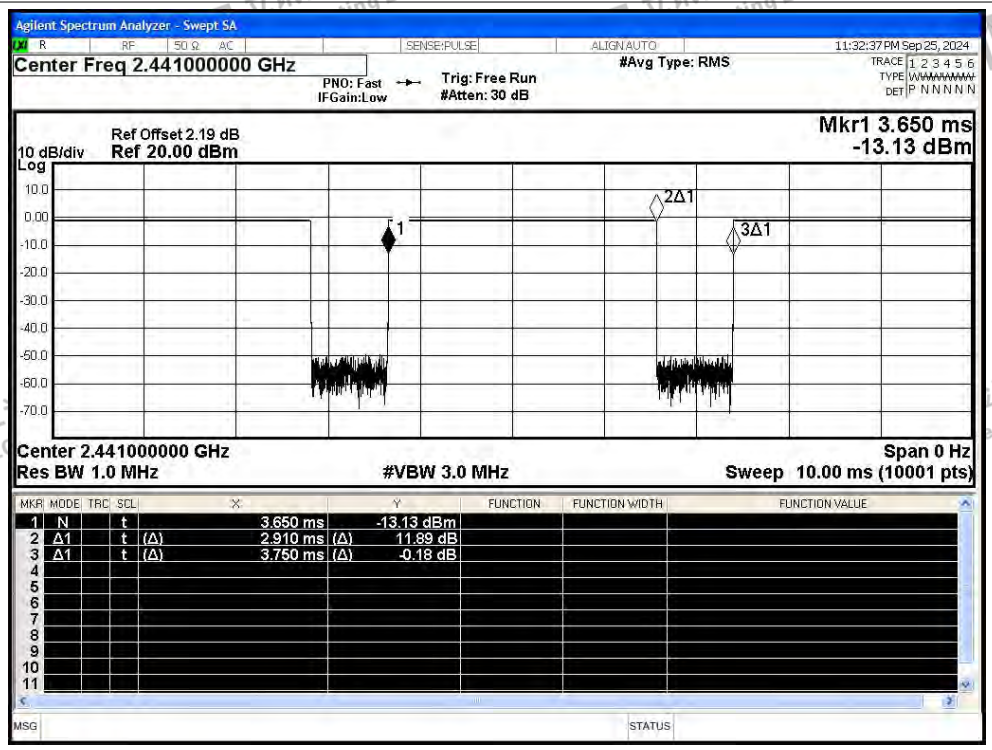
Condition	Mode	Frequency (MHz)	Antenna	Duty Cycle (%)	Correction Factor (dB)	1/T (kHz)
NVNT	1-DH5	2402	Ant1	77.6	1.1	0.34
NVNT	1-DH5	2441	Ant1	77.6	1.1	0.34
NVNT	1-DH5	2480	Ant1	77.63	1.1	0.34
NVNT	2-DH5	2402	Ant1	77.28	1.12	0.35
NVNT	2-DH5	2441	Ant1	77.28	1.12	0.35
NVNT	2-DH5	2480	Ant1	77.28	1.12	0.35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

Test Graphs

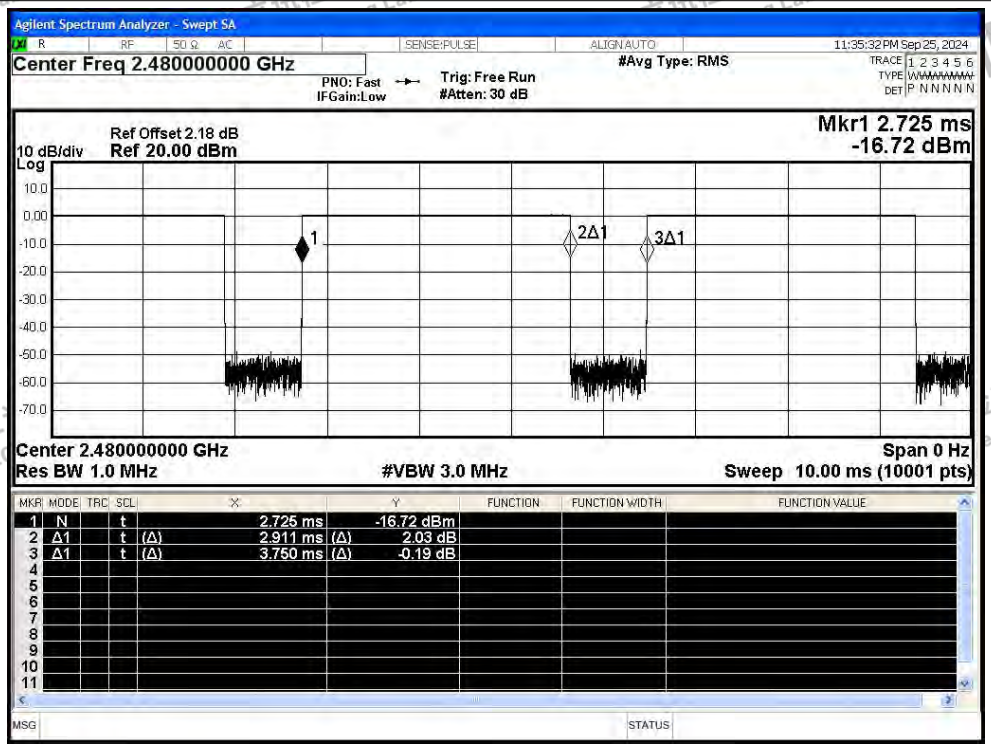
Duty Cycle NVNT 1-DH5 2402MHz Ant1



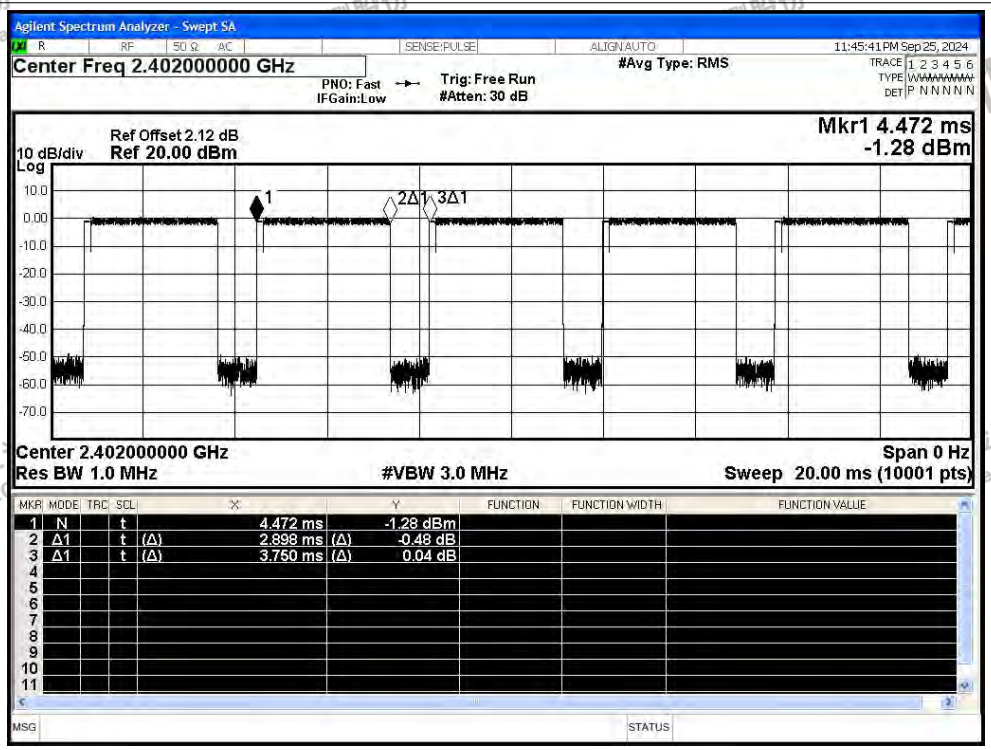
Duty Cycle NVNT 1-DH5 2441MHz Ant1



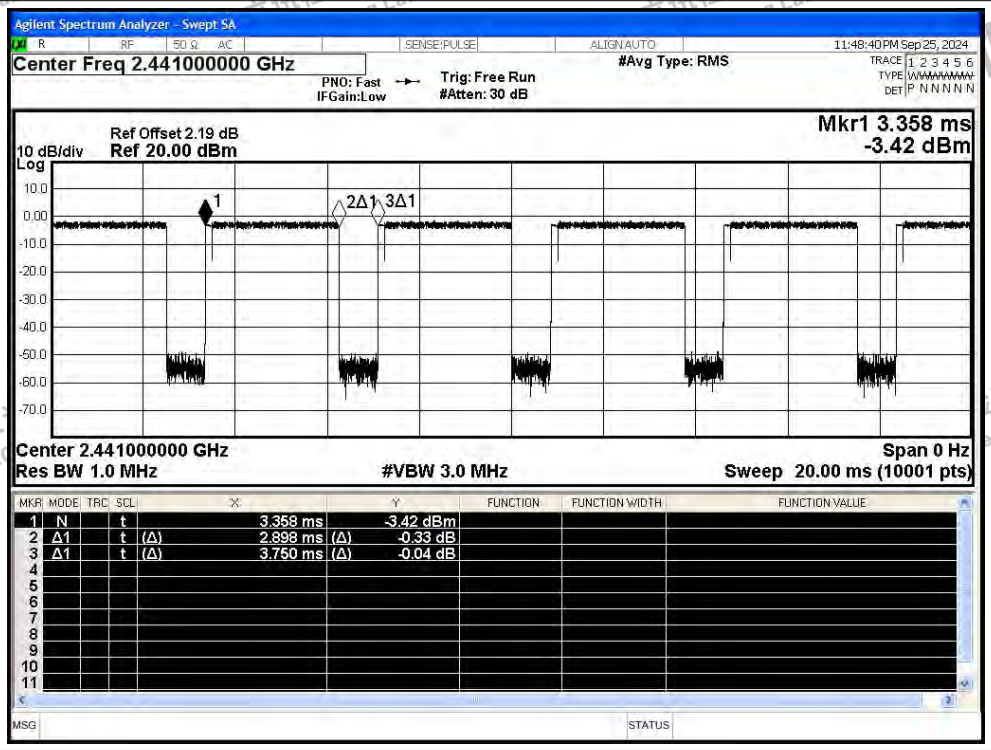
Duty Cycle NVNT 1-DH5 2480MHz Ant1



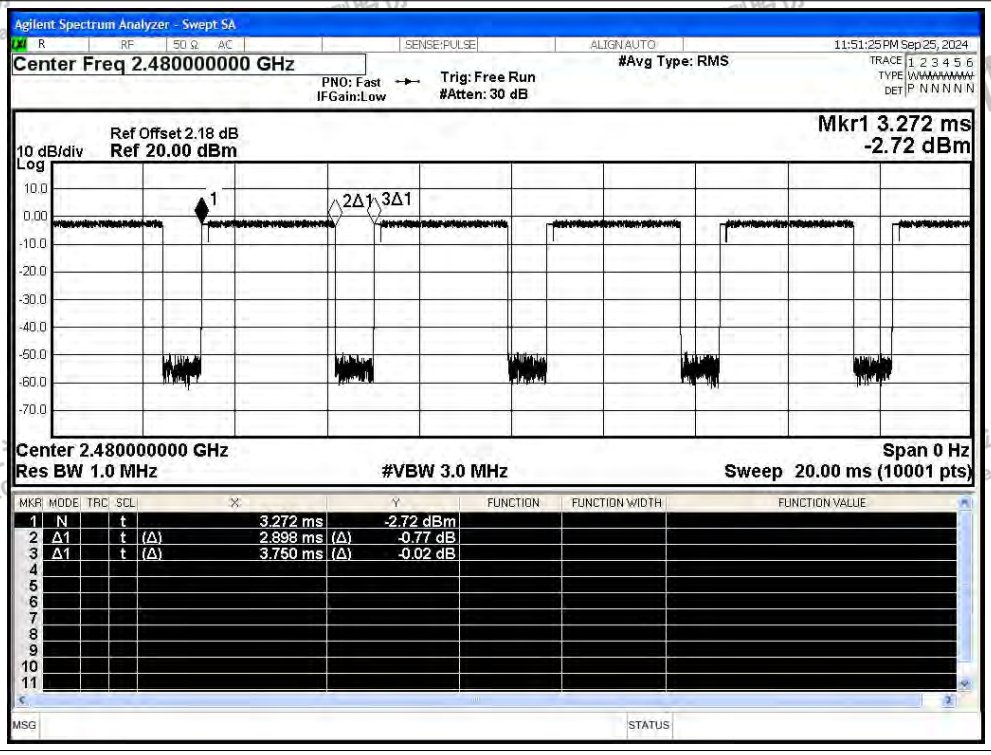
Duty Cycle NVNT 2-DH5 2402MHz Ant1



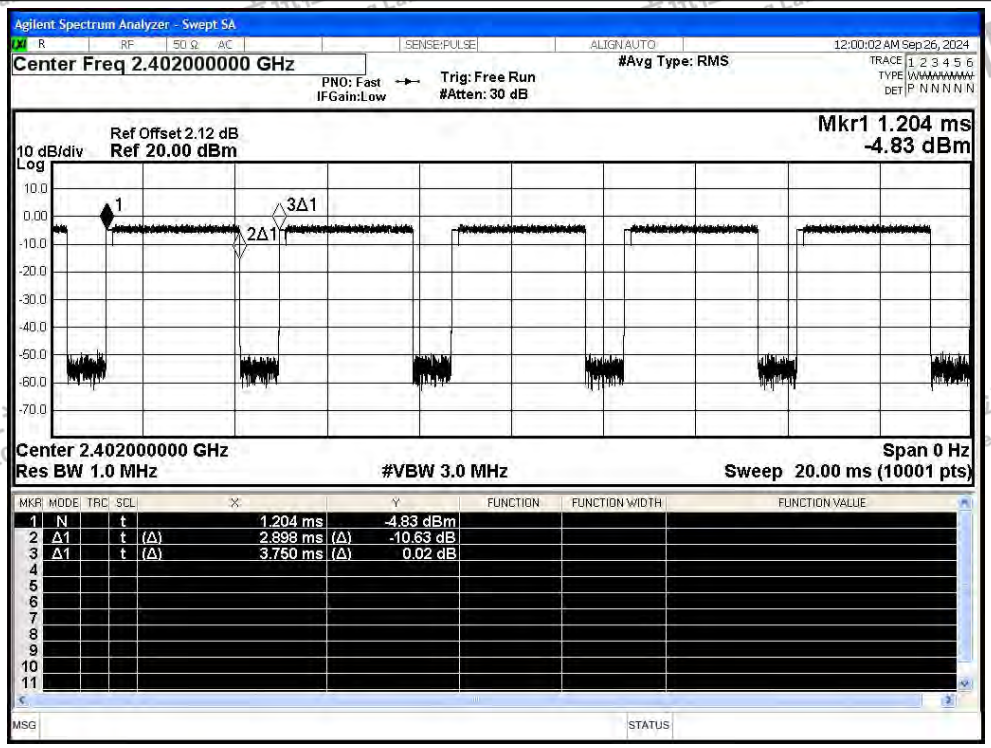
Duty Cycle NVNT 2-DH5 2441MHz Ant1



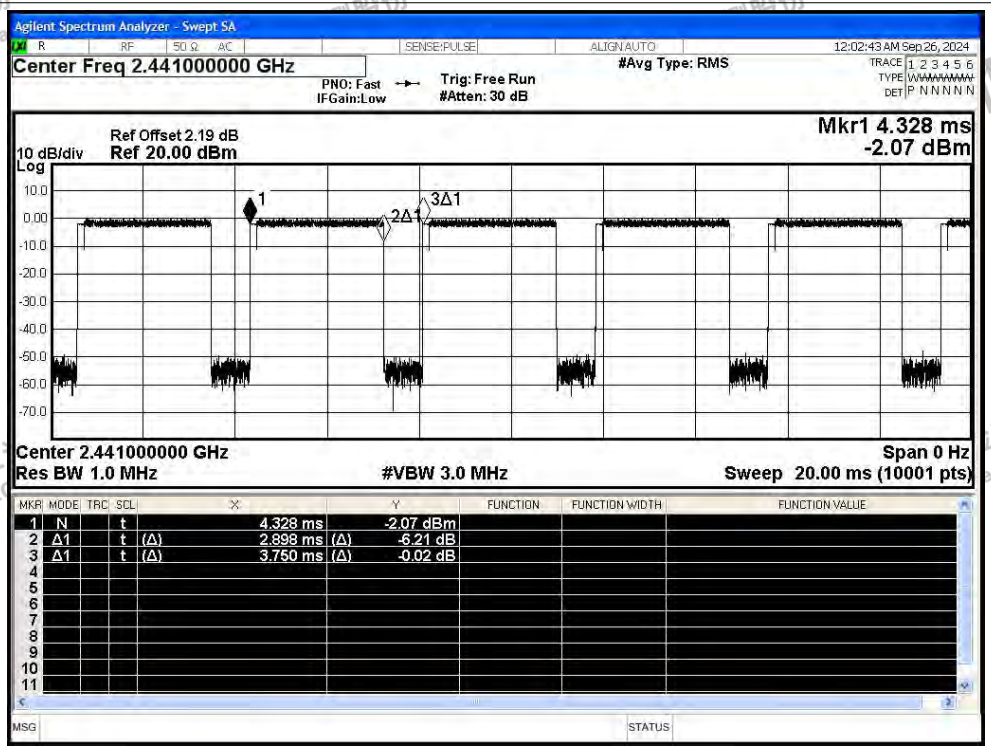
Duty Cycle NVNT 2-DH5 2480MHz Ant1



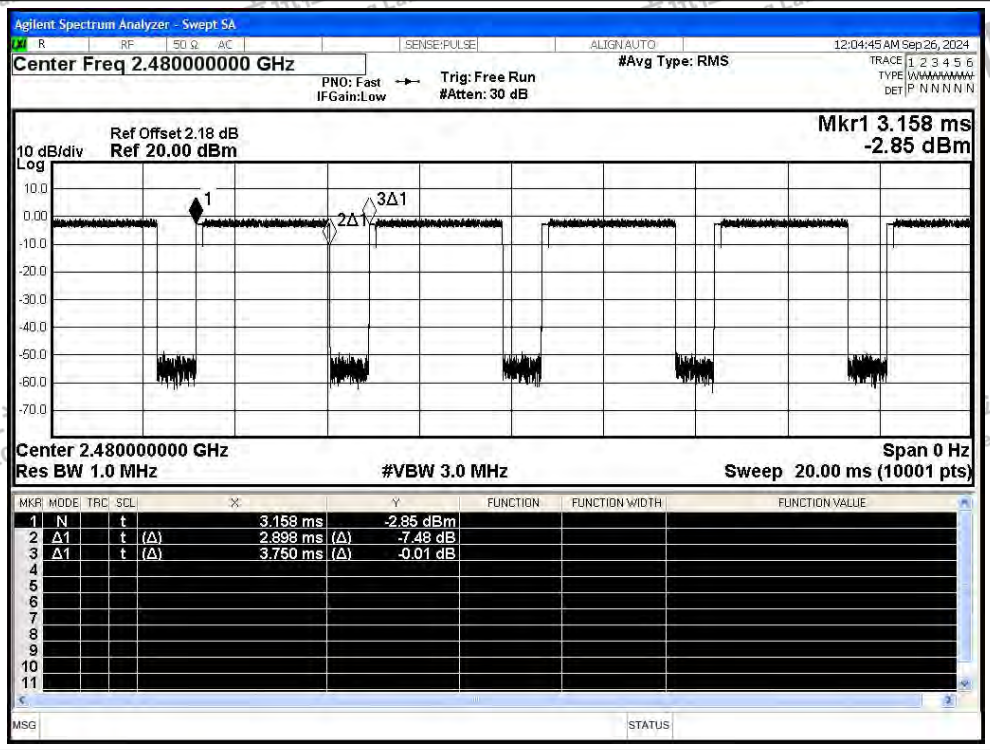
Duty Cycle NVNT 3-DH5 2402MHz Ant1



Duty Cycle NVNT 3-DH5 2441MHz Ant1



Duty Cycle NVNT 3-DH5 2480MHz Ant1

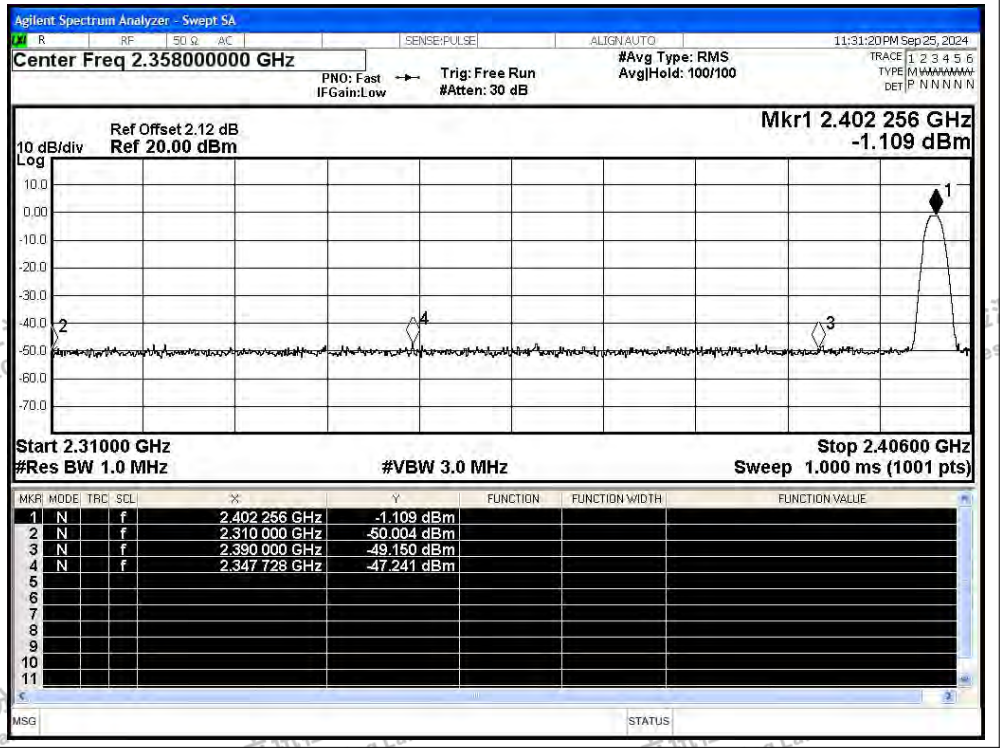


A.9 Restrict Band

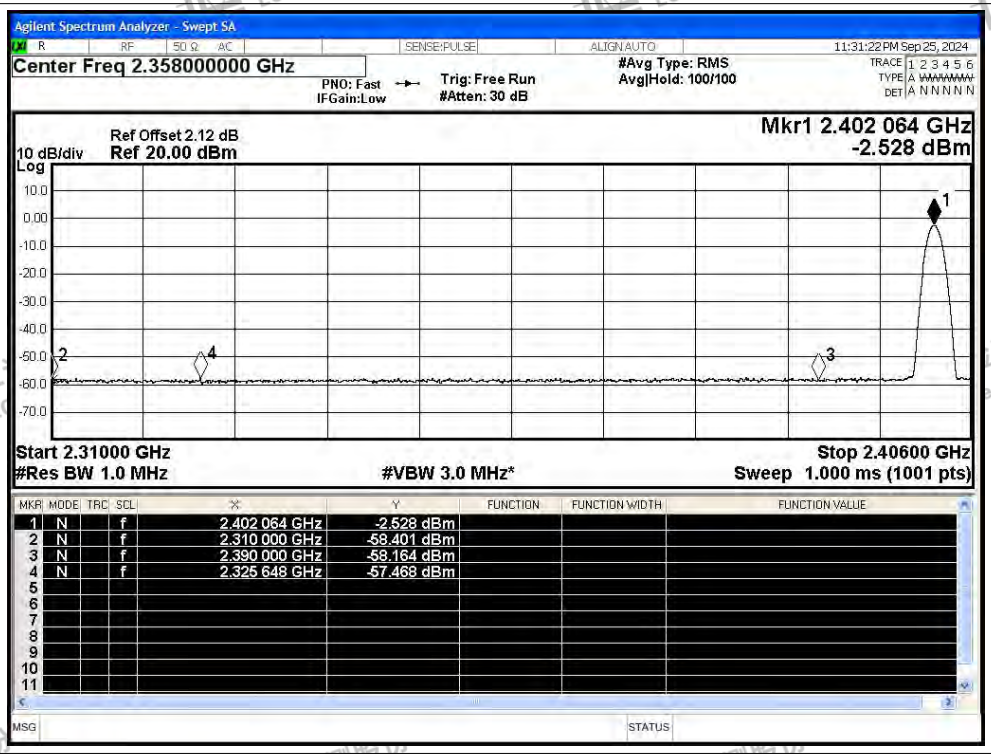
Condition	Mode	Frequency (MHz)	Antenna	Hopping Mode	Spur Freq (MHz)	Power (dBm)	Gain (dBi)	Duty Factor (dB)	E (dBuV/m)	Detector	Limit (dBuV/m)	Verdict
NVNT	1-DH5	2402	Ant1	No-Hopping	2310	-50	2	-	47.26	Peak	74	Pass
NVNT	1-DH5	2402	Ant1	No-Hopping	2310	-58.4	2	1.1	39.96	Average	54	Pass
NVNT	1-DH5	2402	Ant1	No-Hopping	2347.728	-47.24	2	-	50.02	Peak	74	Pass
NVNT	1-DH5	2402	Ant1	No-Hopping	2325.648	-57.47	2	1.1	40.89	Average	54	Pass
NVNT	1-DH5	2402	Ant1	No-Hopping	2390	-49.15	2	-	48.11	Peak	74	Pass
NVNT	1-DH5	2402	Ant1	No-Hopping	2390	-58.16	2	1.1	40.2	Average	54	Pass
NVNT	1-DH5	2480	Ant1	No-Hopping	2483.5	-49.88	2	-	47.38	Peak	74	Pass
NVNT	1-DH5	2480	Ant1	No-Hopping	2483.5	-57.47	2	1.1	40.89	Average	54	Pass
NVNT	1-DH5	2480	Ant1	No-Hopping	2498.2	-46.21	2	-	51.05	Peak	74	Pass
NVNT	1-DH5	2480	Ant1	No-Hopping	2483.872	-56.98	2	1.1	41.38	Average	54	Pass
NVNT	1-DH5	2480	Ant1	No-Hopping	2500	-49.66	2	-	47.6	Peak	74	Pass
NVNT	1-DH5	2480	Ant1	No-Hopping	2500	-57.91	2	1.1	40.45	Average	54	Pass
NVNT	2-DH5	2402	Ant1	No-Hopping	2310	-51.16	2	-	46.1	Peak	74	Pass
NVNT	2-DH5	2402	Ant1	No-Hopping	2310	-58.61	2	1.12	39.77	Average	54	Pass
NVNT	2-DH5	2402	Ant1	No-Hopping	2384.016	-47.56	2	-	49.7	Peak	74	Pass
NVNT	2-DH5	2402	Ant1	No-Hopping	2389.488	-57.58	2	1.12	40.8	Average	54	Pass
NVNT	2-DH5	2402	Ant1	No-Hopping	2390	-50.2	2	-	47.06	Peak	74	Pass
NVNT	2-DH5	2402	Ant1	No-Hopping	2390	-57.81	2	1.12	40.57	Average	54	Pass
NVNT	2-DH5	2480	Ant1	No-Hopping	2483.5	-48.44	2	-	48.82	Peak	74	Pass
NVNT	2-DH5	2480	Ant1	No-Hopping	2483.5	-57.5	2	1.12	40.88	Average	54	Pass
NVNT	2-DH5	2480	Ant1	No-Hopping	2492.944	-46.9	2	-	50.36	Peak	74	Pass
NVNT	2-DH5	2480	Ant1	No-Hopping	2485.408	-57.09	2	1.12	41.29	Average	54	Pass
NVNT	2-DH5	2480	Ant1	No-Hopping	2500	-49.46	2	-	47.8	Peak	74	Pass
NVNT	2-DH5	2480	Ant1	No-Hopping	2500	-58.28	2	1.12	40.1	Average	54	Pass
NVNT	3-DH5	2402	Ant1	No-Hopping	2310	-49.68	2	-	47.58	Peak	74	Pass
NVNT	3-DH5	2402	Ant1	No-Hopping	2310	-58.55	2	1.12	39.83	Average	54	Pass
NVNT	3-DH5	2402	Ant1	No-Hopping	2370.192	-47.09	2	-	50.17	Peak	74	Pass
NVNT	3-DH5	2402	Ant1	No-Hopping	2382.768	-57.62	2	1.12	40.76	Average	54	Pass
NVNT	3-DH5	2402	Ant1	No-Hopping	2390	-50.06	2	-	47.2	Peak	74	Pass
NVNT	3-DH5	2402	Ant1	No-Hopping	2390	-58.02	2	1.12	40.36	Average	54	Pass
NVNT	3-DH5	2480	Ant1	No-Hopping	2483.5	-49.74	2	-	47.52	Peak	74	Pass
NVNT	3-DH5	2480	Ant1	No-Hopping	2483.5	-57.86	2	1.12	40.52	Average	54	Pass
NVNT	3-DH5	2480	Ant1	No-Hopping	2499.4	-46.92	2	-	50.34	Peak	74	Pass
NVNT	3-DH5	2480	Ant1	No-Hopping	2494.984	-57.13	2	1.12	41.25	Average	54	Pass
NVNT	3-DH5	2480	Ant1	No-Hopping	2500	-50.01	2	-	47.25	Peak	74	Pass
NVNT	3-DH5	2480	Ant1	No-Hopping	2500	-57.65	2	1.12	40.73	Average	54	Pass

Test Graphs

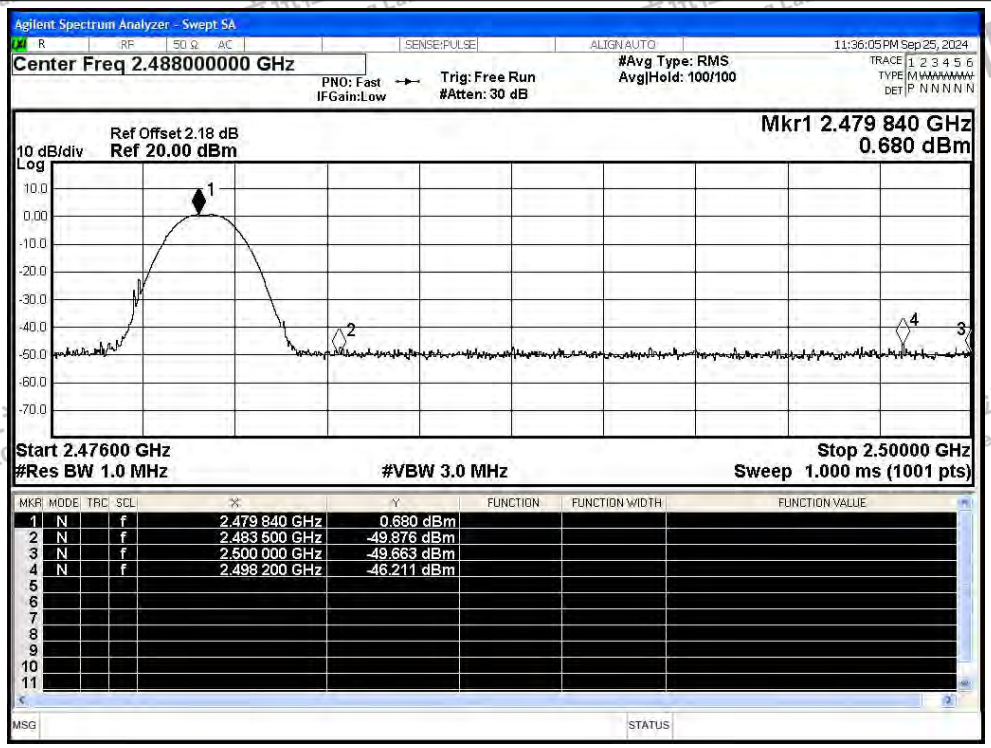
Restrict Band NVNT 1-DH5 2402MHz Ant1 No-Hopping Peak



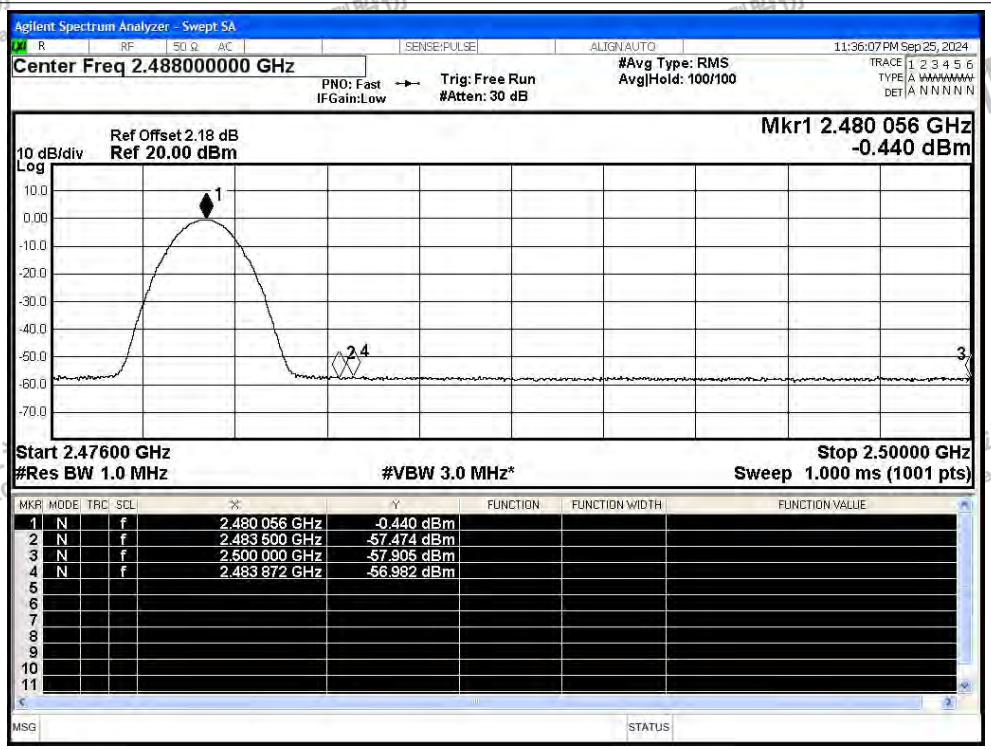
Restrict Band NVNT 1-DH5 2402MHz Ant1 No-Hopping Average



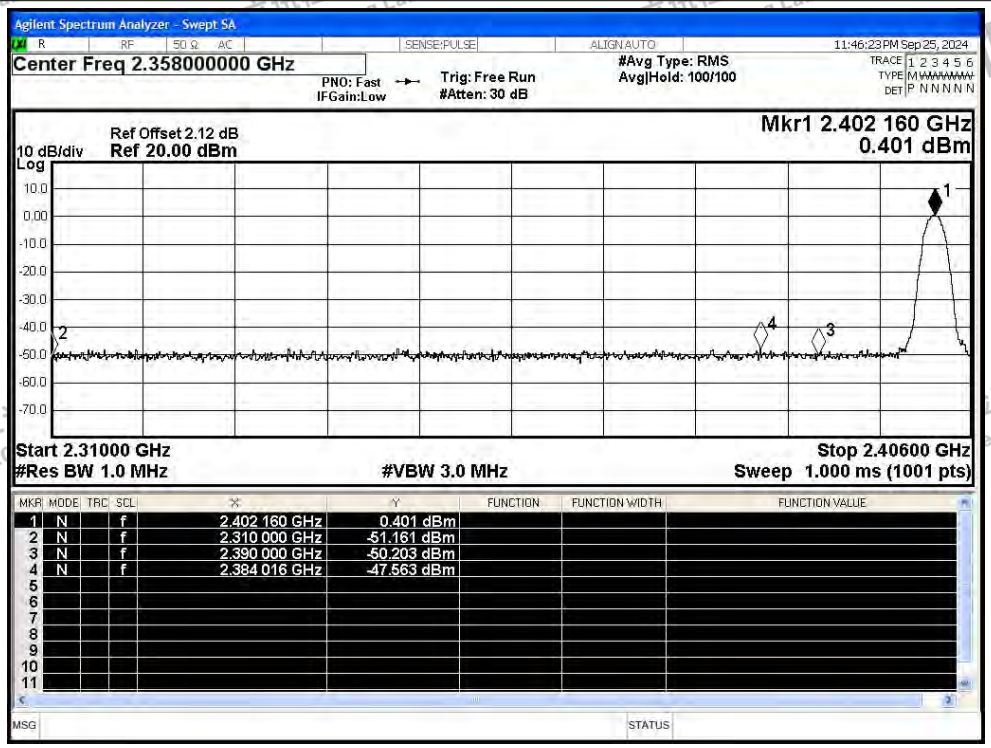
Restrict Band NVNT 1-DH5 2480MHz Ant1 No-Hopping Peak



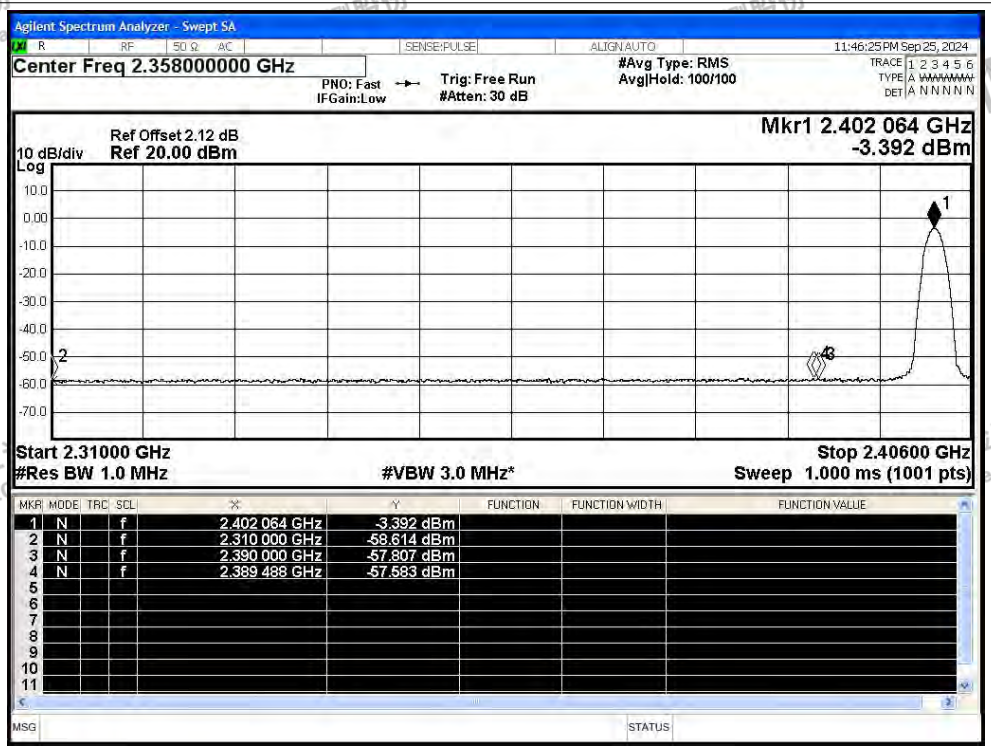
Restrict Band NVNT 1-DH5 2480MHz Ant1 No-Hopping Average



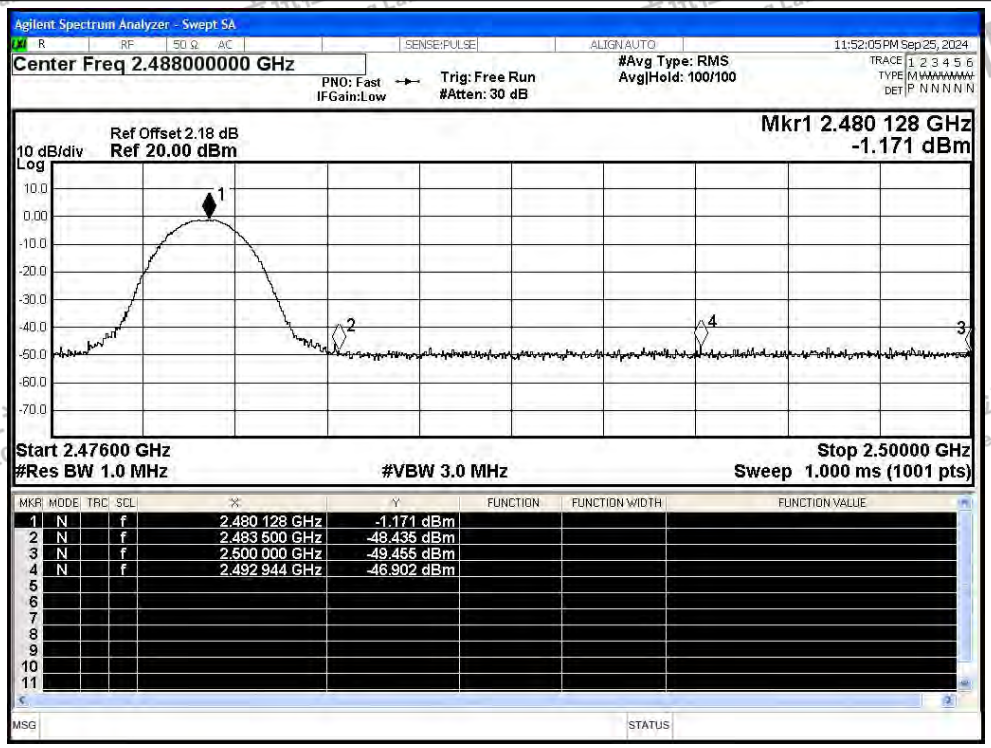
Restrict Band NVNT 2-DH5 2402MHz Ant1 No-Hopping Peak



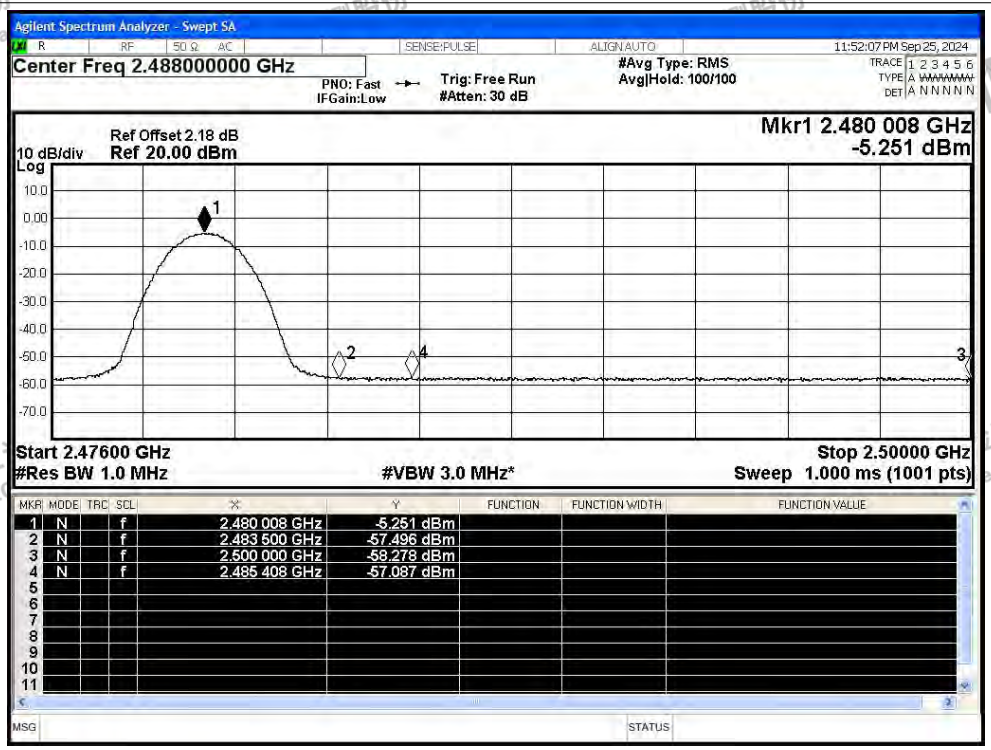
Restrict Band NVNT 2-DH5 2402MHz Ant1 No-Hopping Average



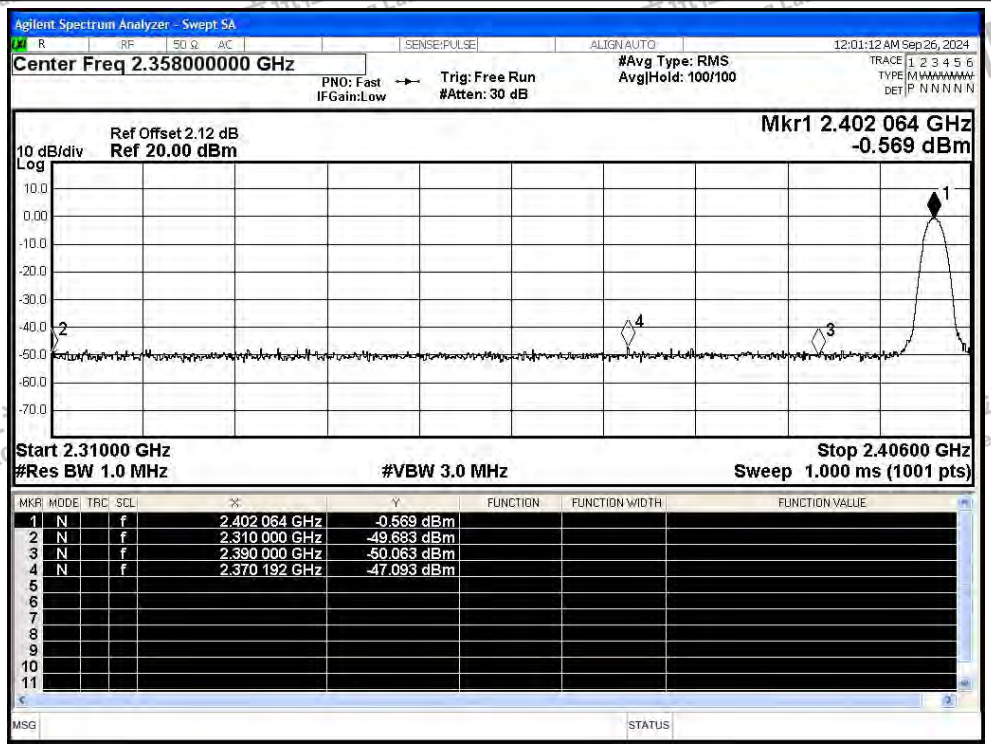
Restrict Band NVNT 2-DH5 2480MHz Ant1 No-Hopping Peak



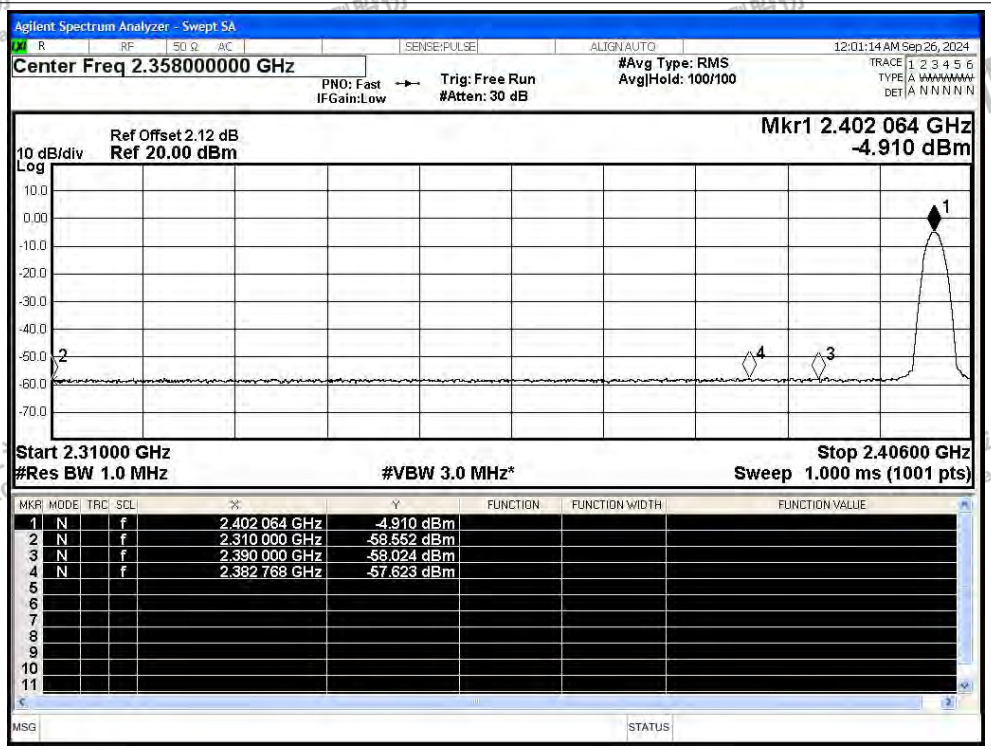
Restrict Band NVNT 2-DH5 2480MHz Ant1 No-Hopping Average



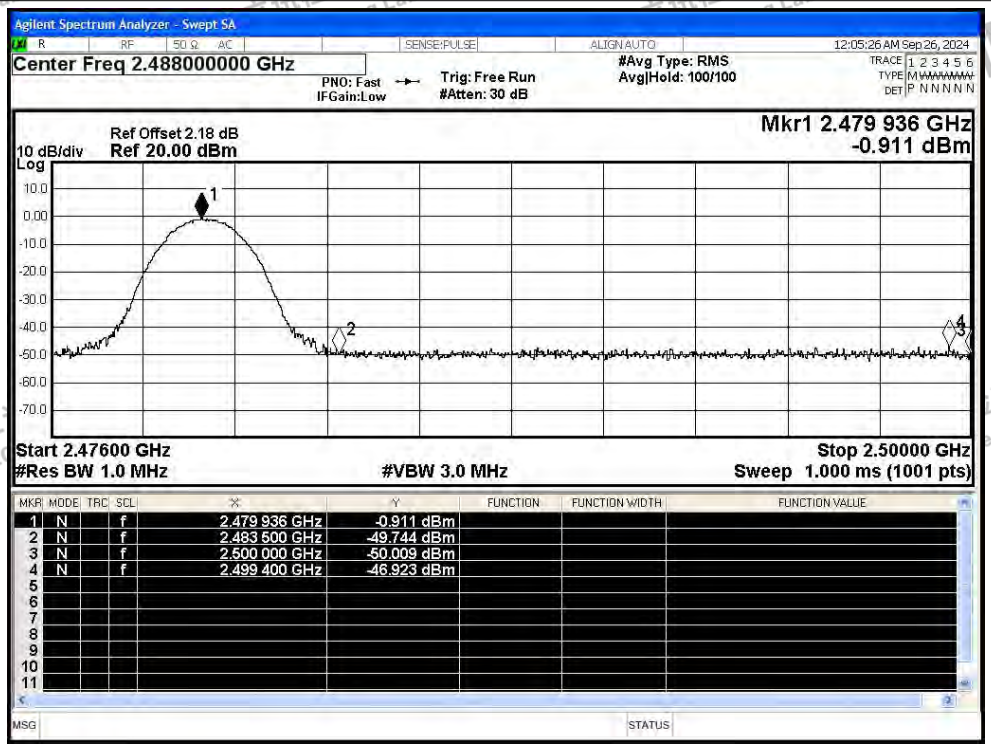
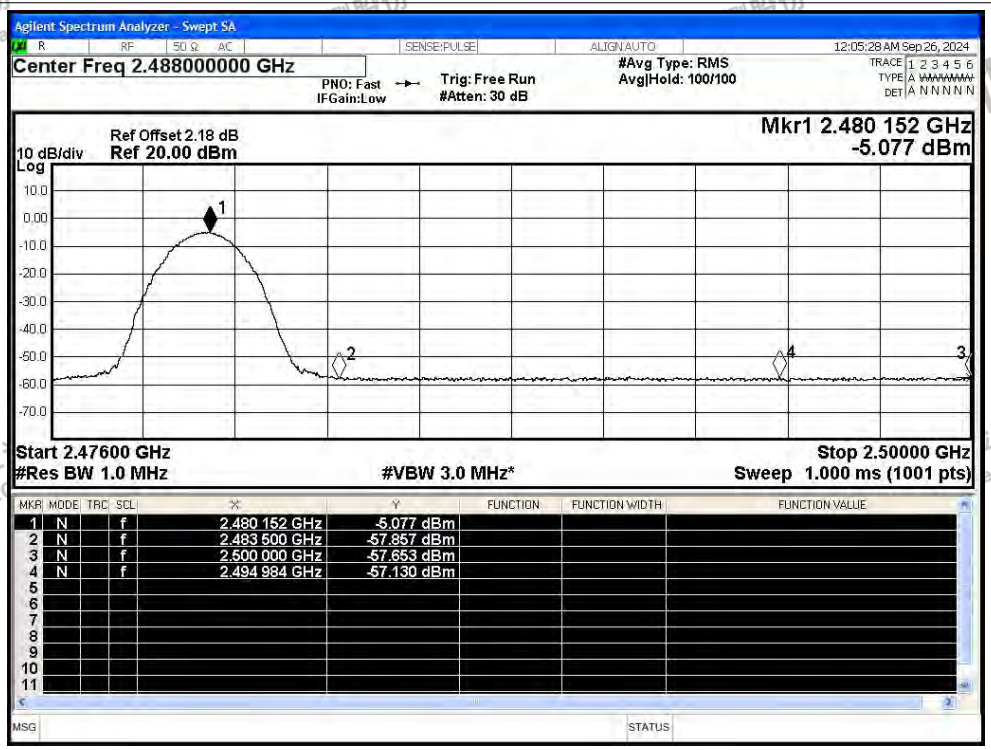
Restrict Band NVNT 3-DH5 2402MHz Ant1 No-Hopping Peak



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