



## Appendix A

### RF Test Data for BT (Conducted Measurement)

Product Name: Bluetooth Speaker

Test Model: A SPEAKER10

#### Environmental Conditions

Temperature:	23.8 °C
Relative Humidity:	52.1%
ATM Pressure:	100.0 kPa
Test Engineer:	<i>Joker Hu</i> Joker Hu
Supervised by:	<i>Nick Peng</i> 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	0.92	N/A	Pass
NVNT	1-DH5	2441	Ant1	0.837	N/A	Pass
NVNT	1-DH5	2480	Ant1	0.842	N/A	Pass
NVNT	2-DH5	2402	Ant1	1.281	N/A	Pass
NVNT	2-DH5	2441	Ant1	1.263	N/A	Pass
NVNT	2-DH5	2480	Ant1	1.265	N/A	Pass
NVNT	3-DH5	2402	Ant1	1.296	N/A	Pass
NVNT	3-DH5	2441	Ant1	1.276	N/A	Pass
NVNT	3-DH5	2480	Ant1	1.294	N/A	Pass





Test Graphs

-20dB Bandwidth NVNT 1-DH5 2402MHz Ant1



-20dB Bandwidth NVNT 1-DH5 2441MHz Ant1

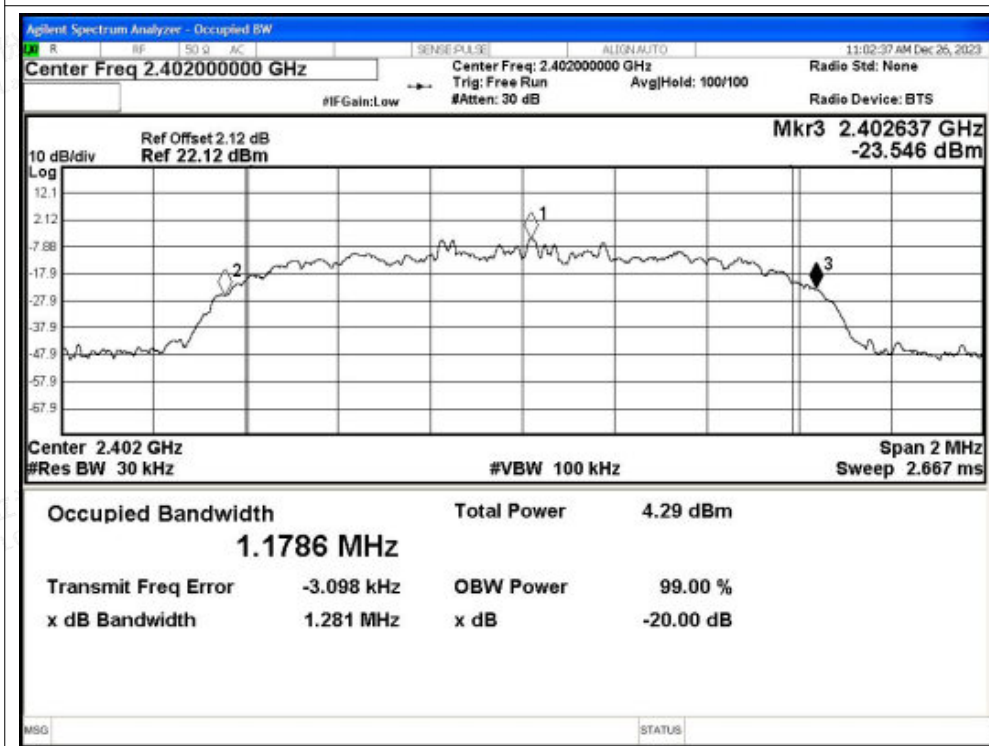




-20dB Bandwidth NVNT 1-DH5 2480MHz Ant1

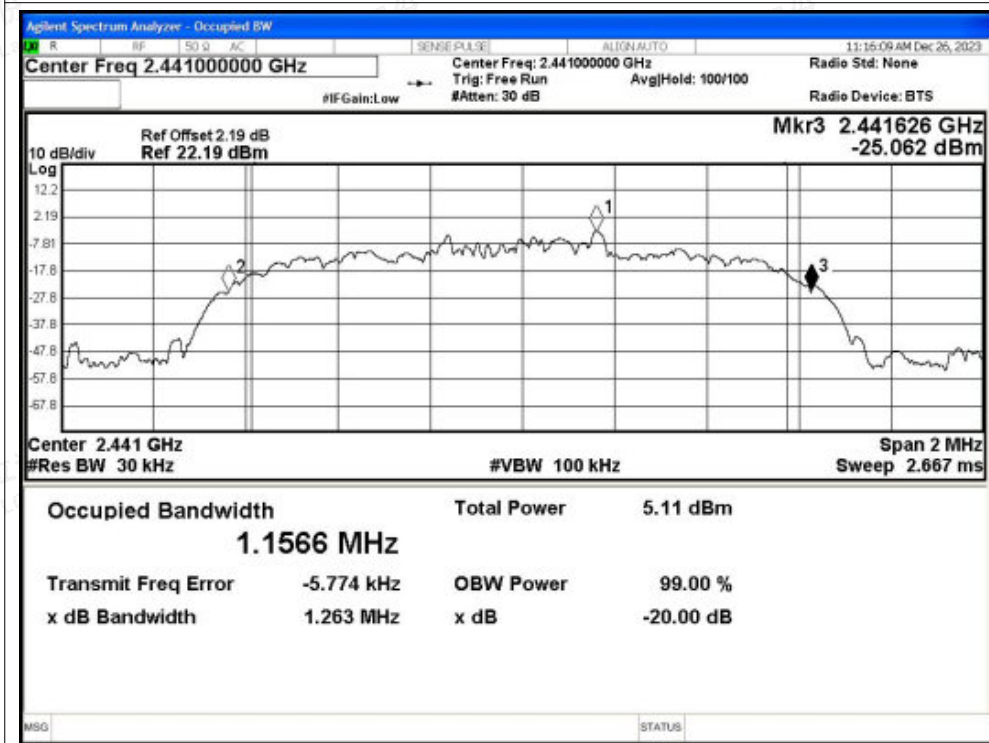


-20dB Bandwidth NVNT 2-DH5 2402MHz Ant1





-20dB Bandwidth NVNT 2-DH5 2441MHz Ant1

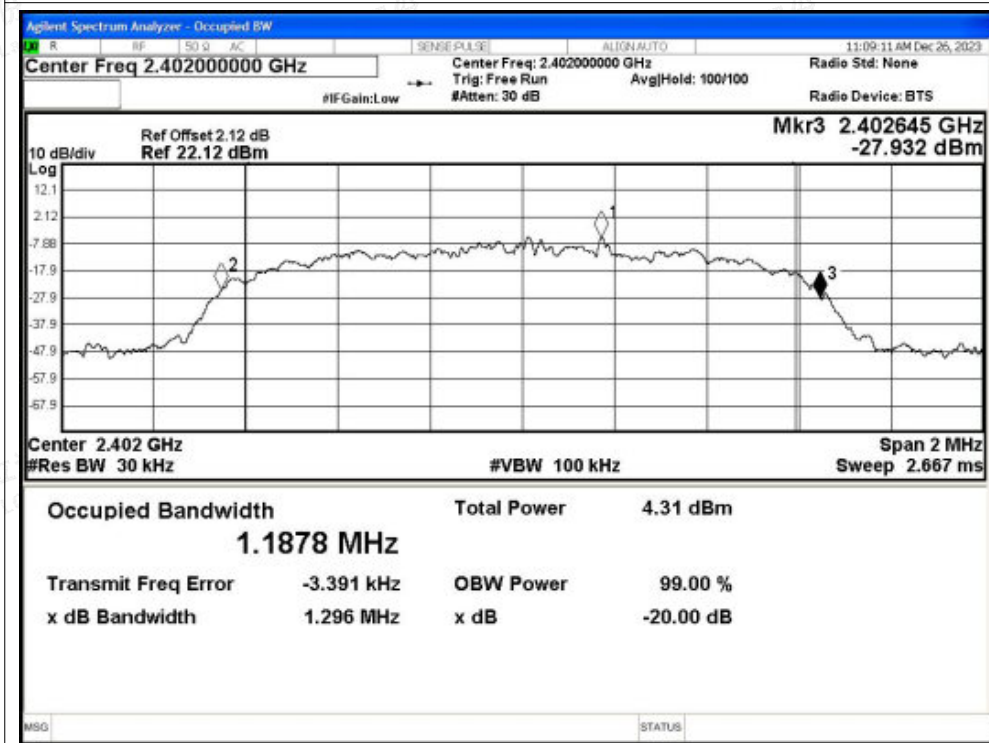


-20dB Bandwidth NVNT 2-DH5 2480MHz Ant1

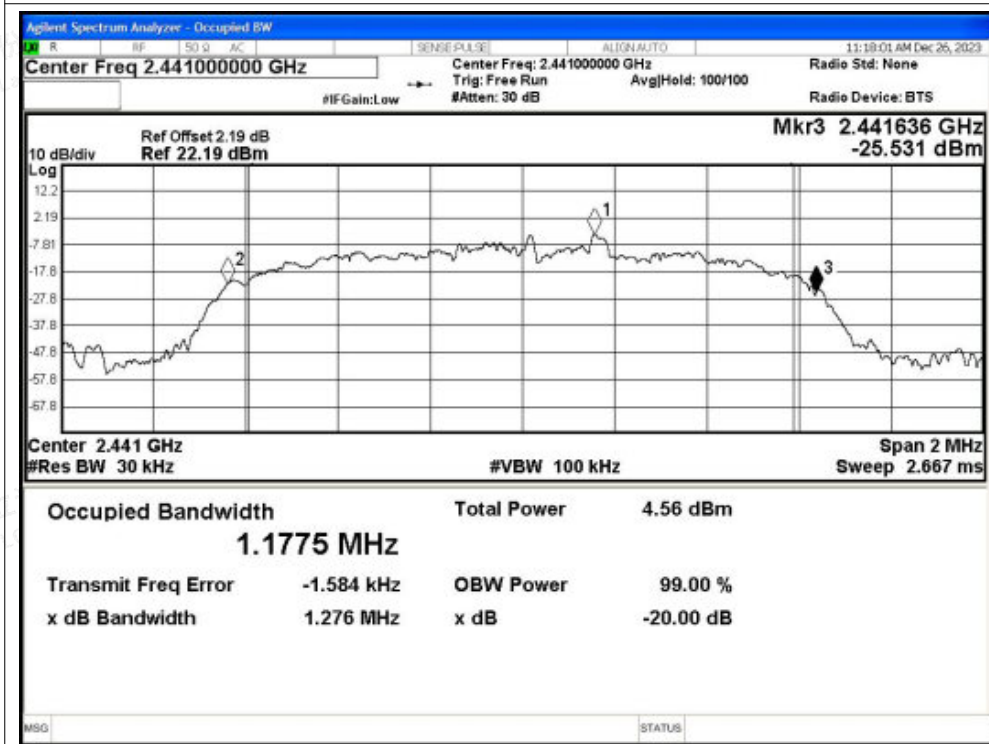




-20dB Bandwidth NVNT 3-DH5 2402MHz Ant1

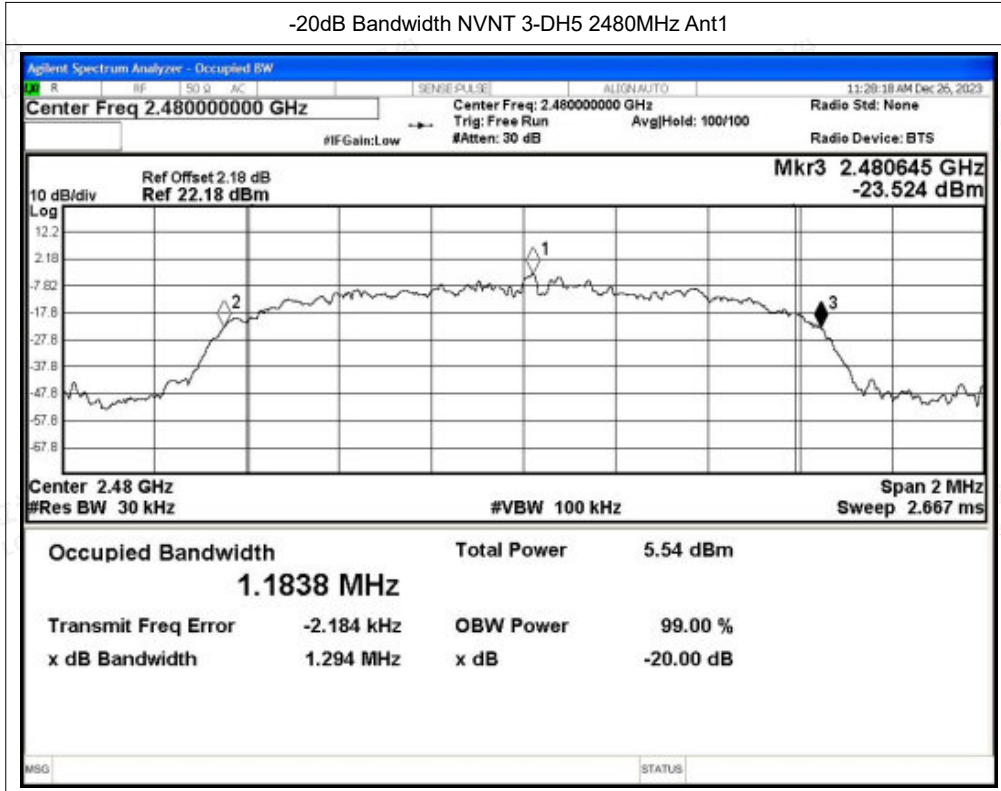


-20dB Bandwidth NVNT 3-DH5 2441MHz Ant1





-20dB Bandwidth NVNT 3-DH5 2480MHz Ant1





## A.2 Maximum Conducted Output Power

Condition	Mode	Frequency (MHz)	Antenna	Total Power (dBm)	Limit (dBm)	Verdict
NVNT	1-DH5	2402	Ant1	0.45	21	Pass
NVNT	1-DH5	2441	Ant1	0.73	21	Pass
NVNT	1-DH5	2480	Ant1	1.9	21	Pass
NVNT	2-DH5	2402	Ant1	-0.18	21	Pass
NVNT	2-DH5	2441	Ant1	-0.06	21	Pass
NVNT	2-DH5	2480	Ant1	1.18	21	Pass
NVNT	3-DH5	2402	Ant1	-0.07	21	Pass
NVNT	3-DH5	2441	Ant1	0.02	21	Pass
NVNT	3-DH5	2480	Ant1	1.19	21	Pass

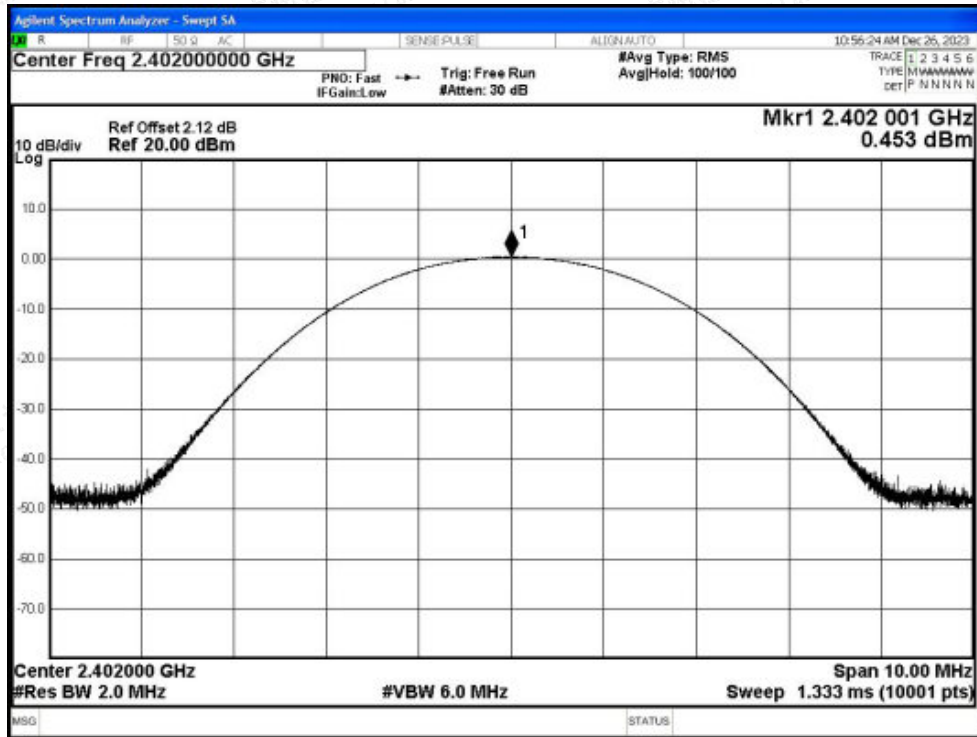




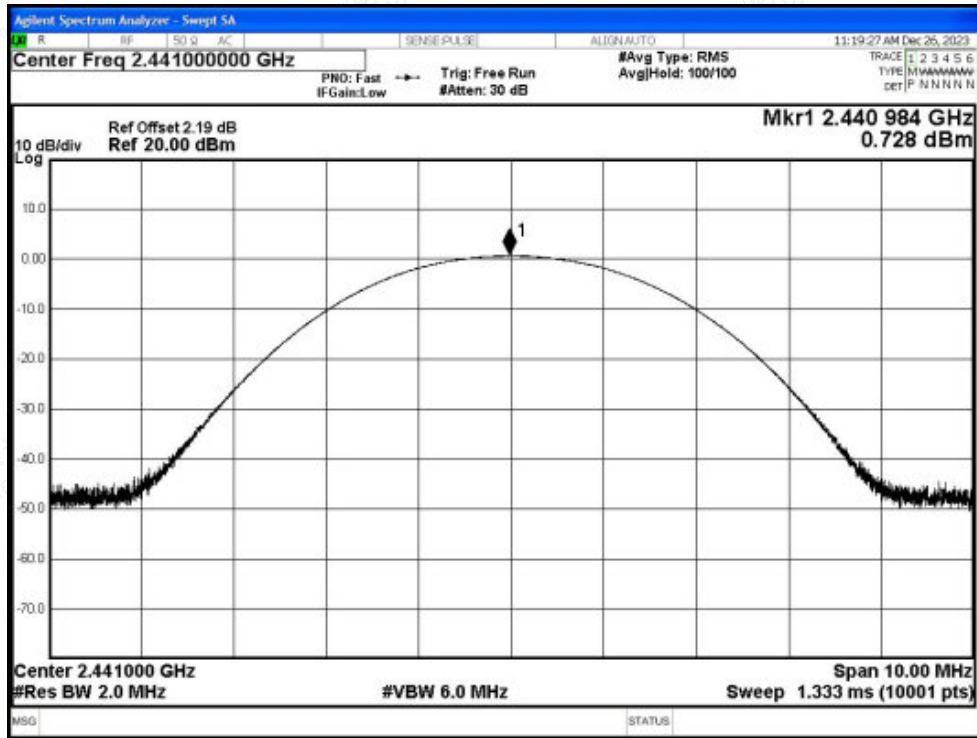


Test Graphs

Power NVNT 1-DH5 2402MHz Ant1

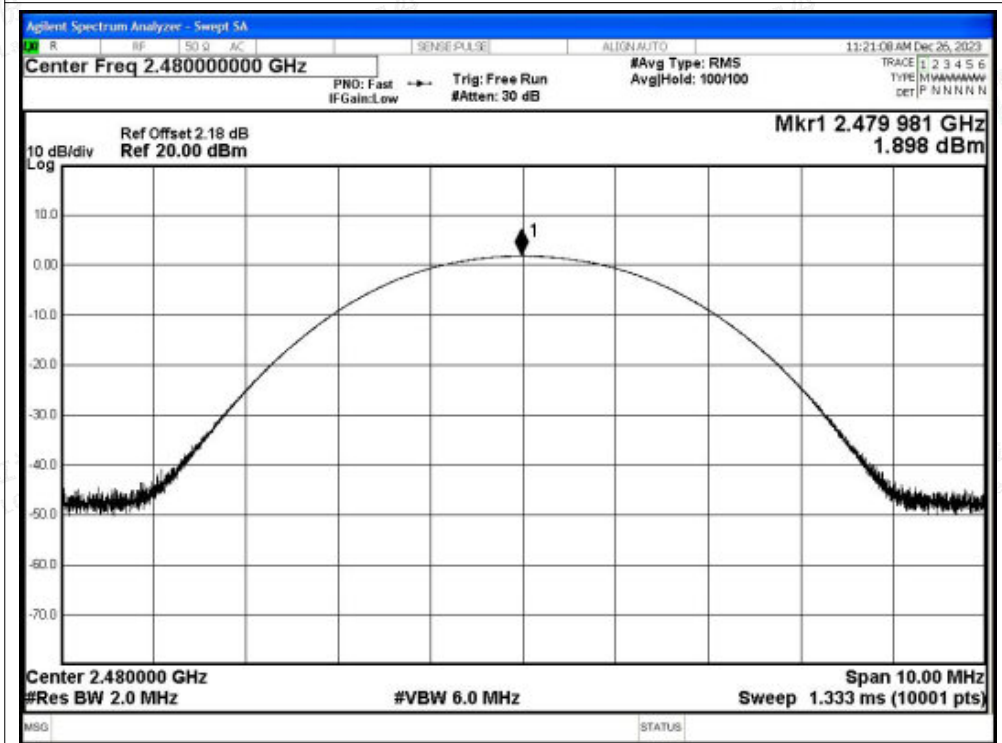


Power NVNT 1-DH5 2441MHz Ant1

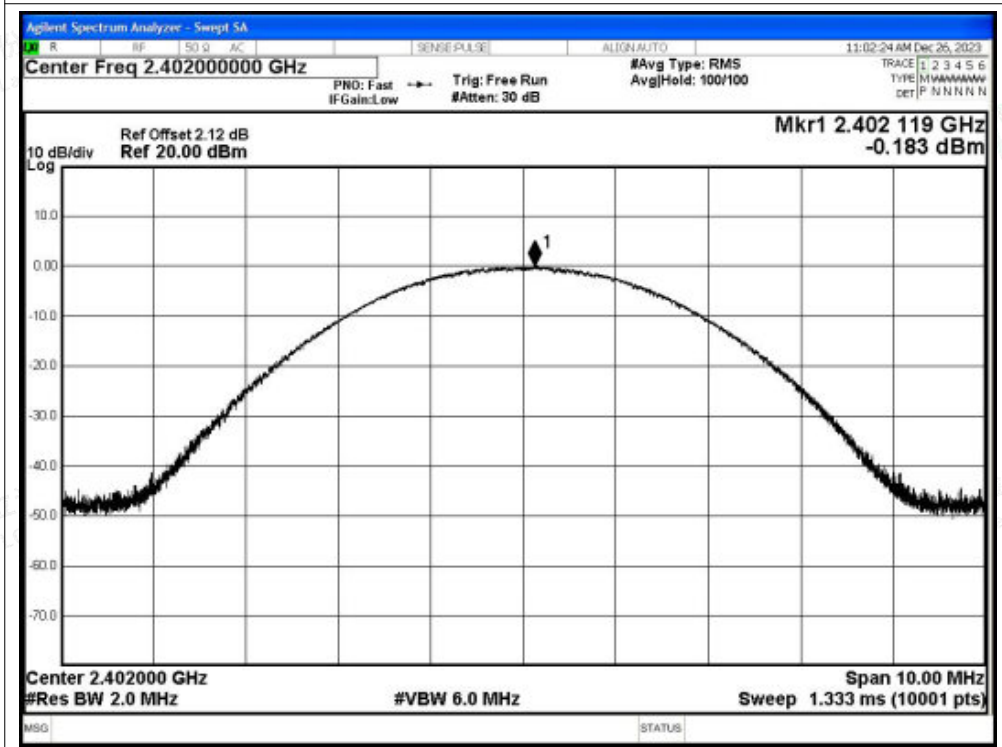




Power NVNT 1-DH5 2480MHz Ant1

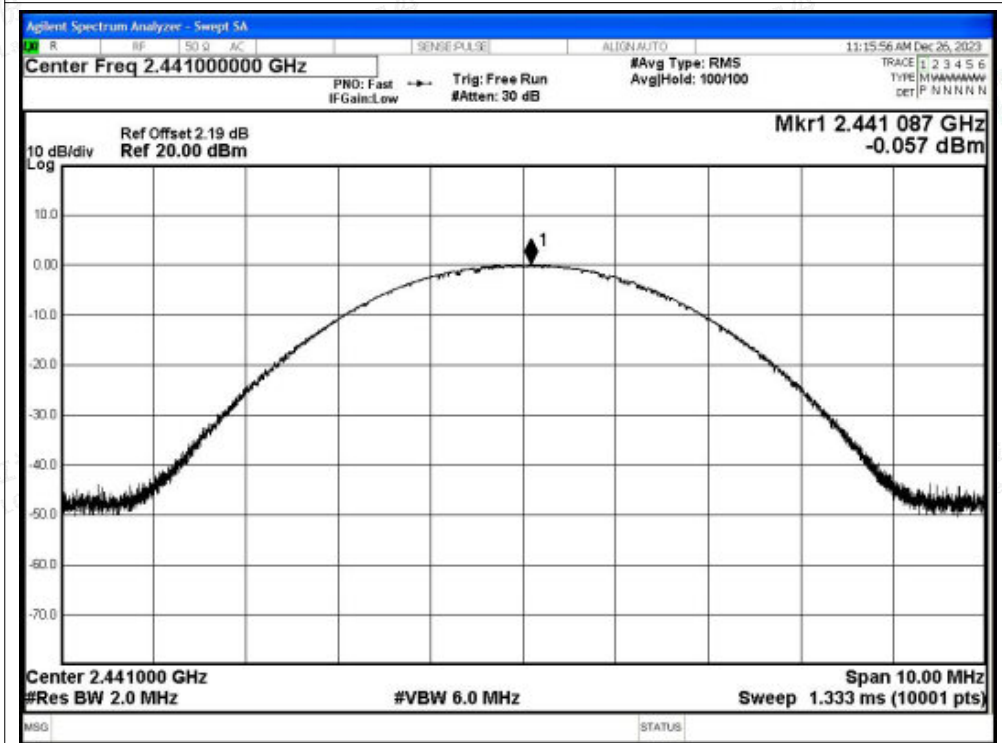


Power NVNT 2-DH5 2402MHz Ant1

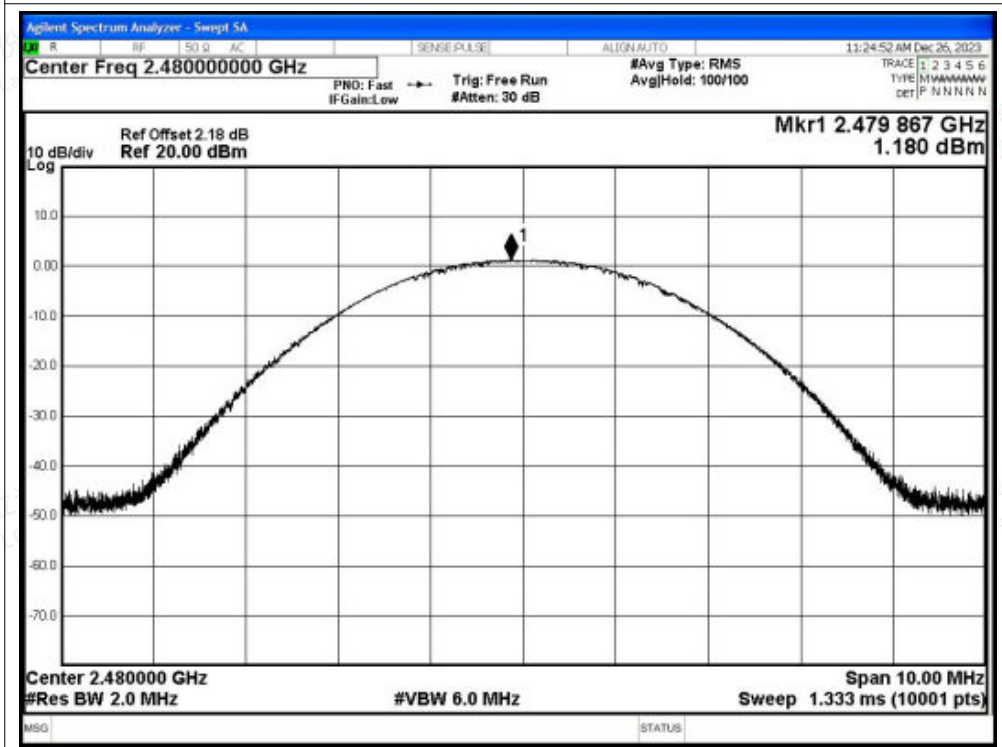




Power NVNT 2-DH5 2441MHz Ant1

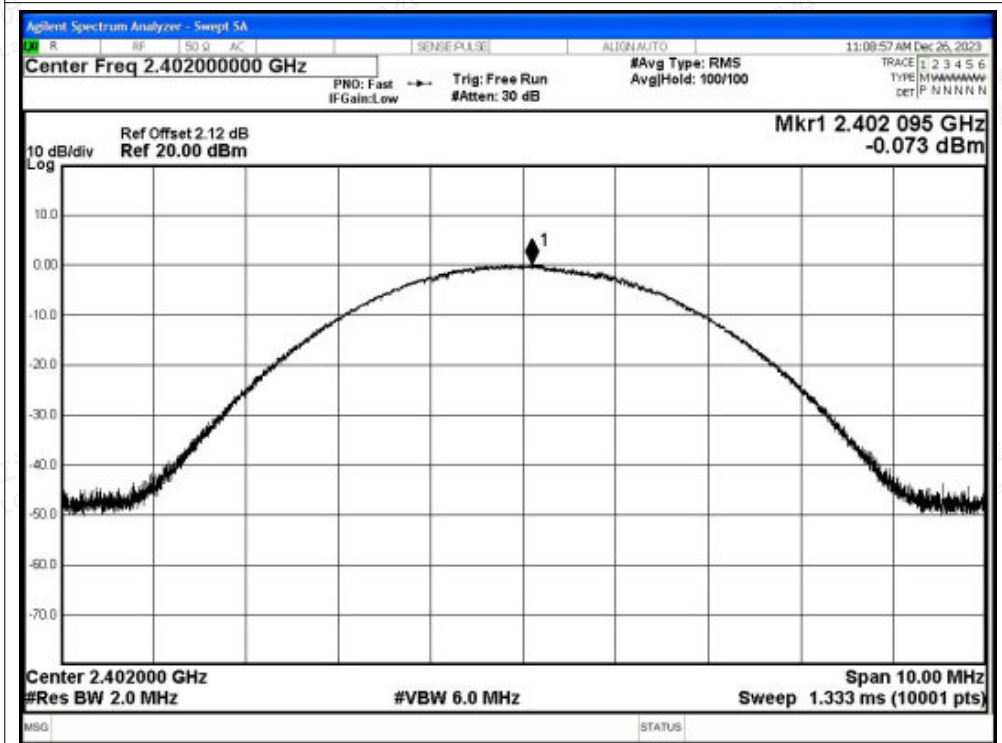


Power NVNT 2-DH5 2480MHz Ant1

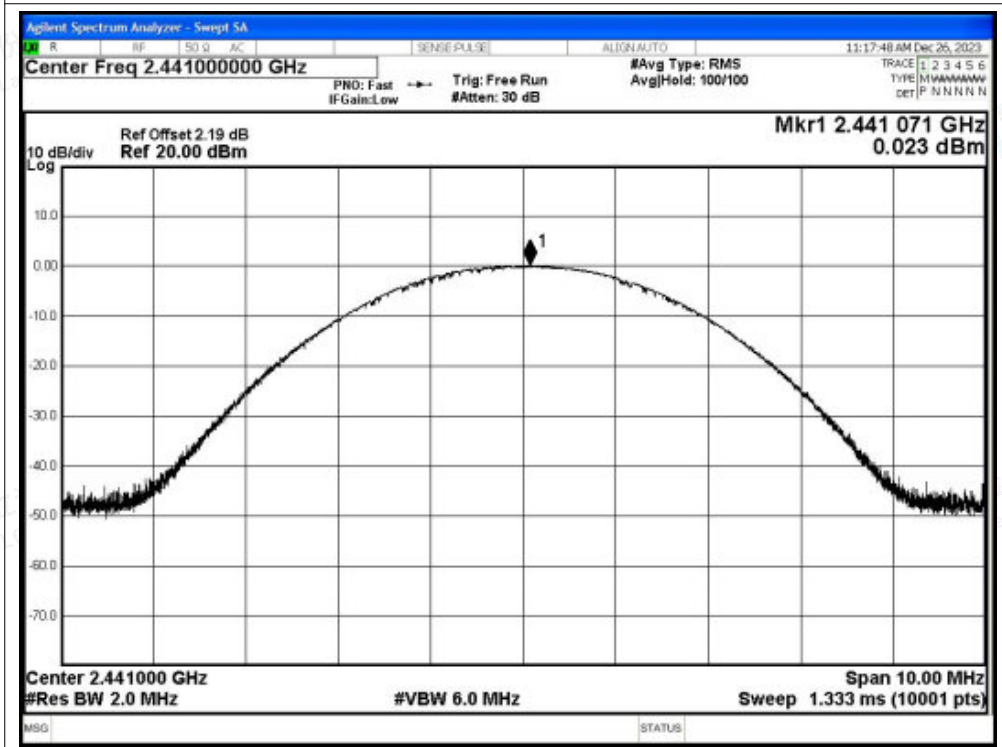


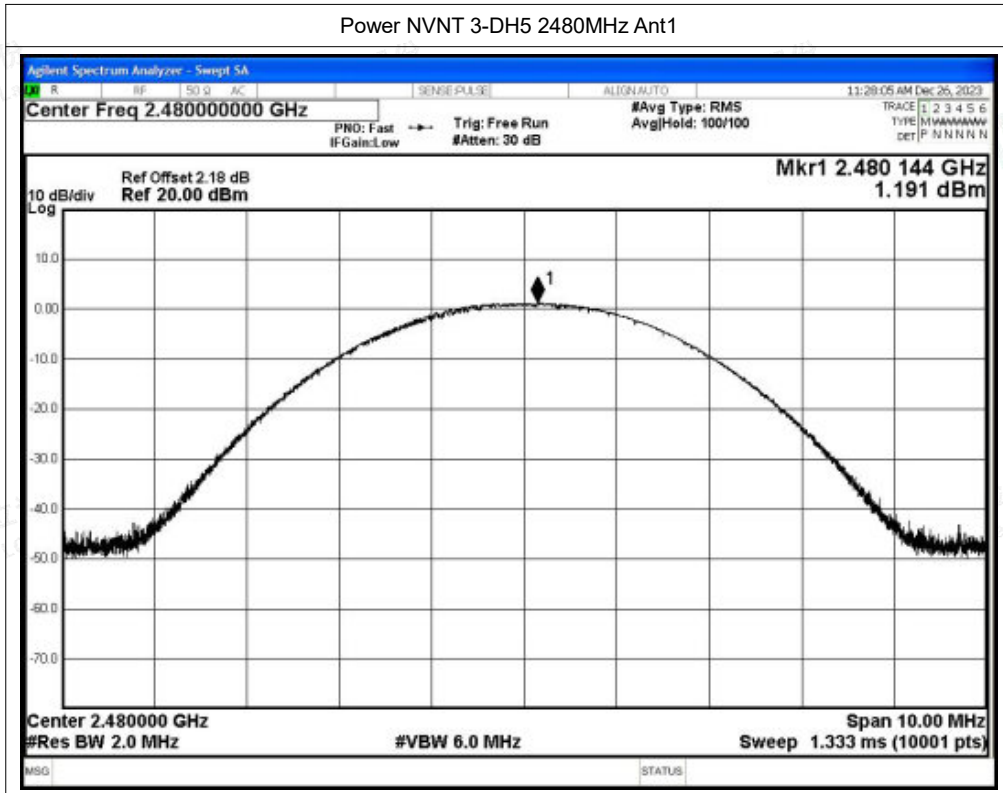


Power NVNT 3-DH5 2402MHz Ant1



Power NVNT 3-DH5 2441MHz Ant1







### A.3 Carrier Frequencies Separation

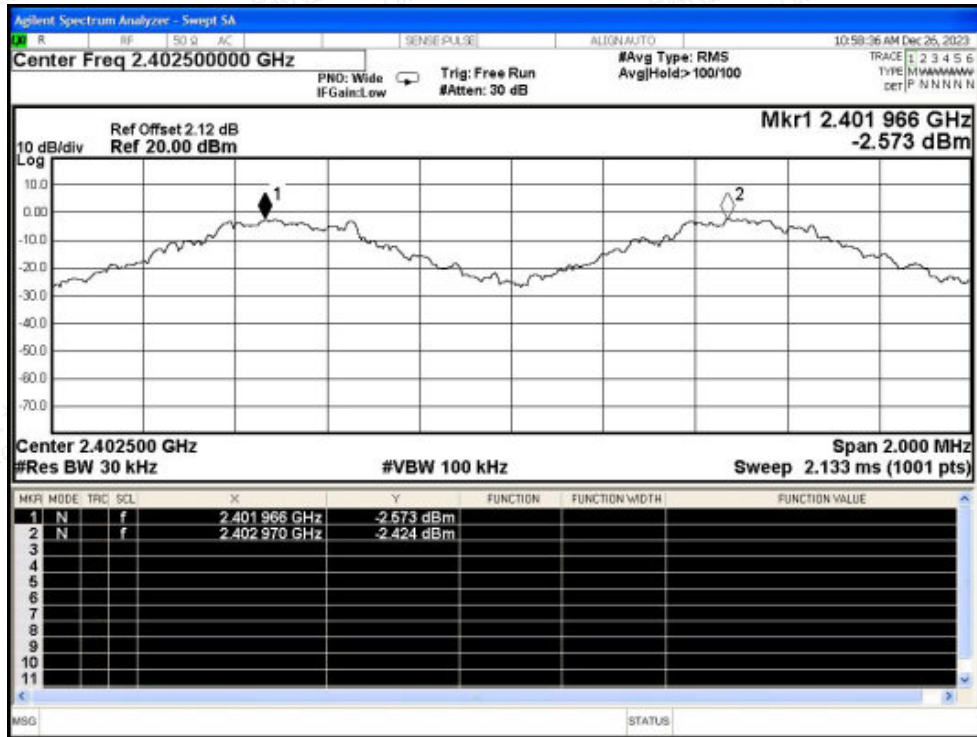
Condition	Mode	Antenna	Hopping Freq1 (MHz)	Hopping Freq2 (MHz)	HFS (MHz)	Limit (MHz)	Verdict
NVNT	1-DH5	Ant1	2401.966	2402.97	1.004	0.613	Pass
NVNT	2-DH5	Ant1	2402.012	2403.154	1.142	0.854	Pass
NVNT	3-DH5	Ant1	2401.898	2403.1	1.202	0.864	Pass



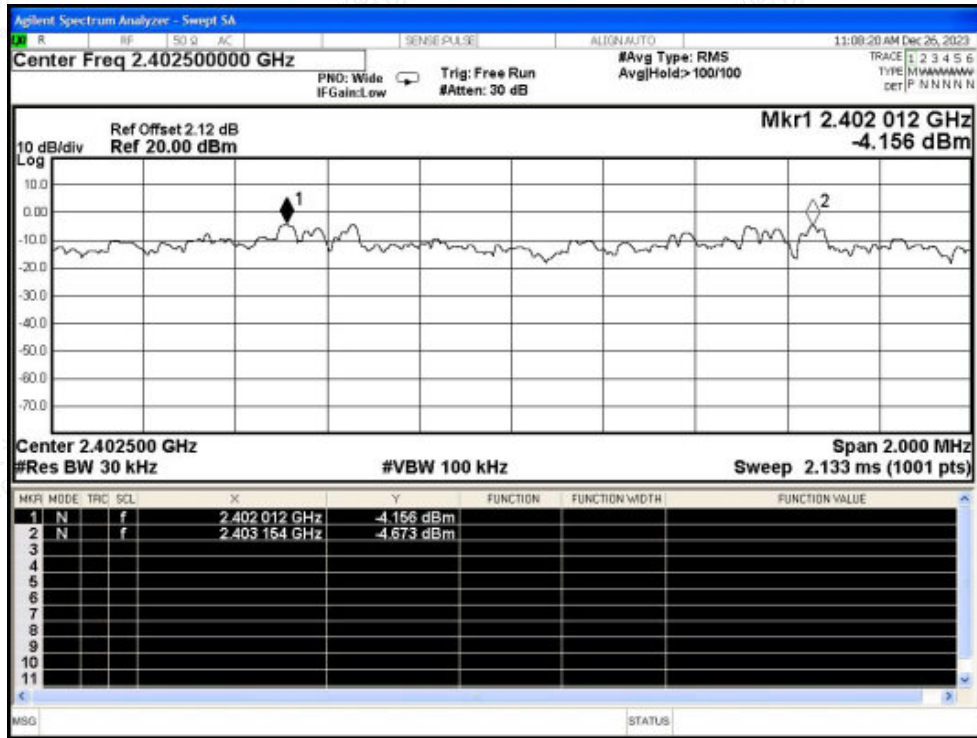


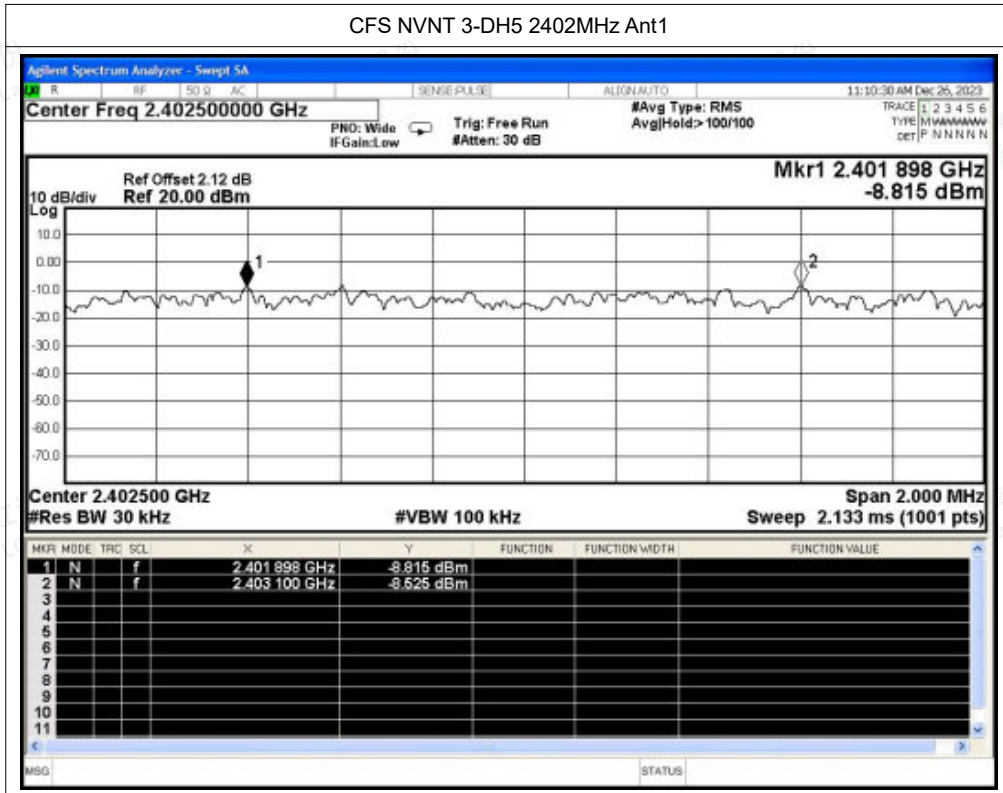
Test Graphs

CFS NVNT 1-DH5 2402MHz Ant1



CFS NVNT 2-DH5 2402MHz Ant1









### A.4 Dwell Time

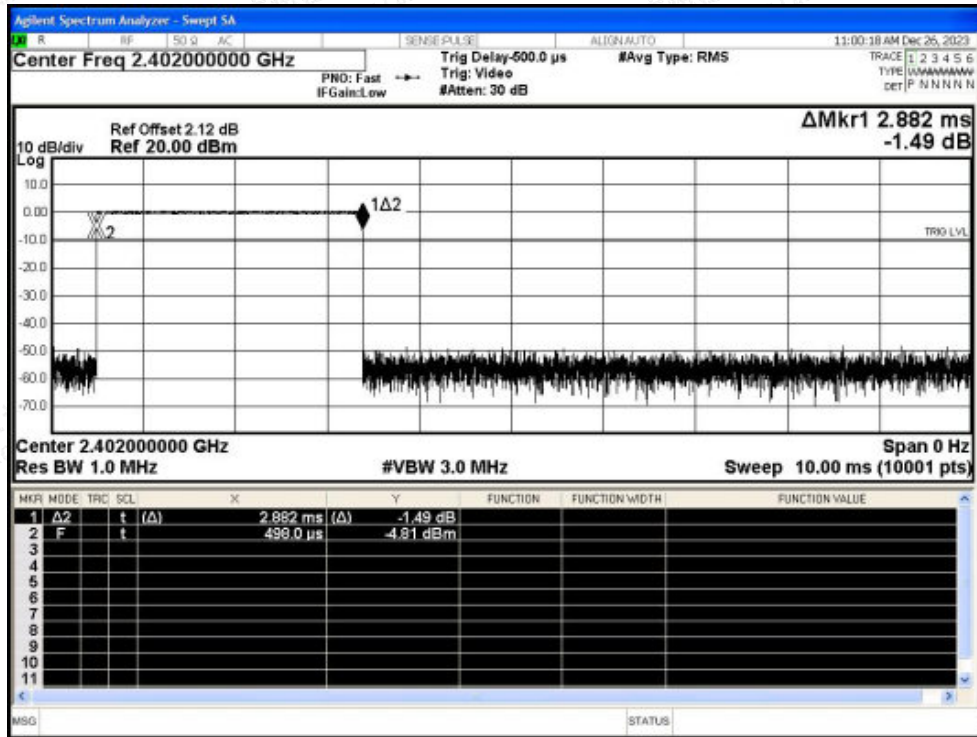
Condition	Mode	Frequency (MHz)	Antenna	Pulse Time (ms)	Total Dwell Time (ms)	Burst Count	Period Time (ms)	Limit (ms)	Verdict
NVNT	1-DH5	2402	Ant1	2.882	334.312	116	31600	400	Pass
NVNT	2-DH5	2402	Ant1	2.881	282.338	98	31600	400	Pass
NVNT	3-DH5	2402	Ant1	2.886	311.688	108	31600	400	Pass



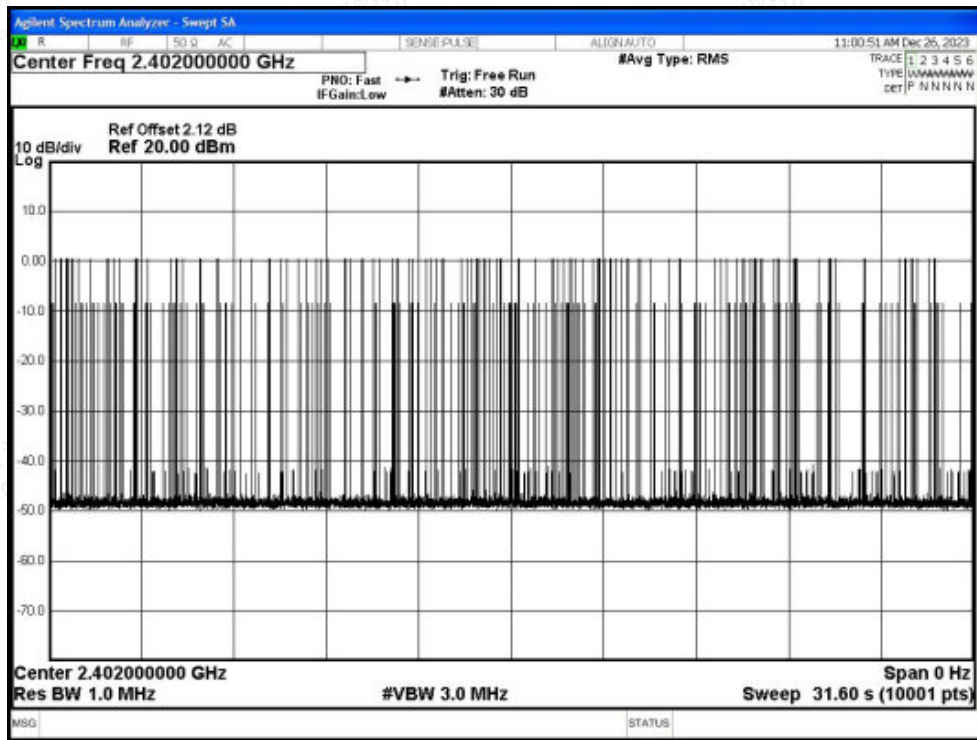


Test Graphs

Dwell NVNT 1-DH5 2402MHz Ant1 One Burst

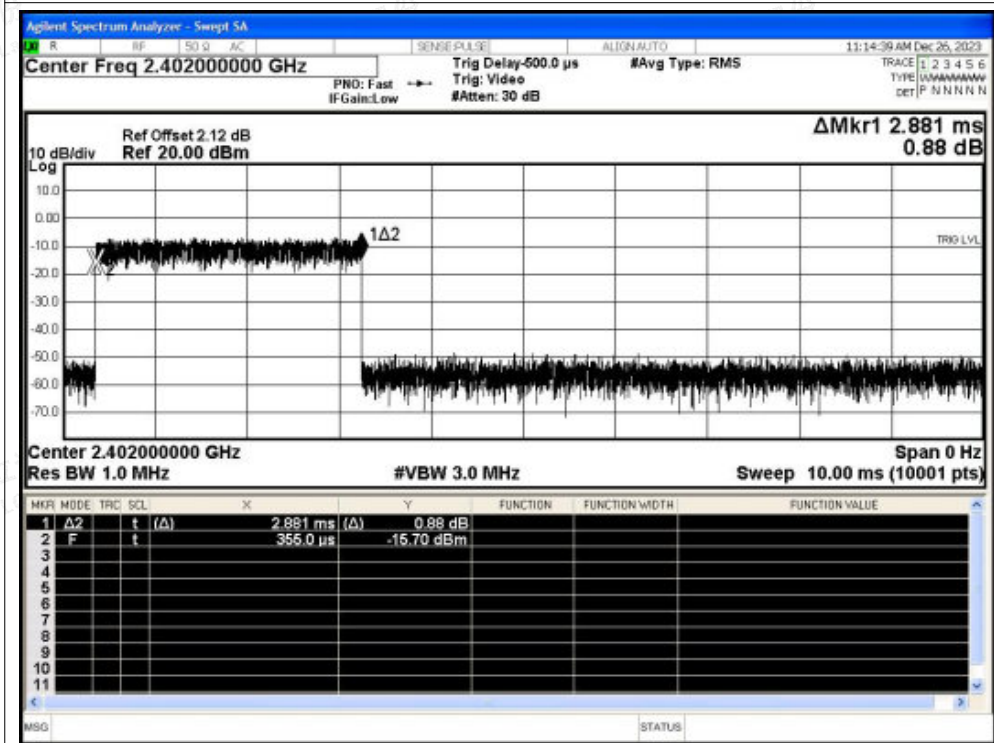


Dwell NVNT 1-DH5 2402MHz Ant1 Accumulated

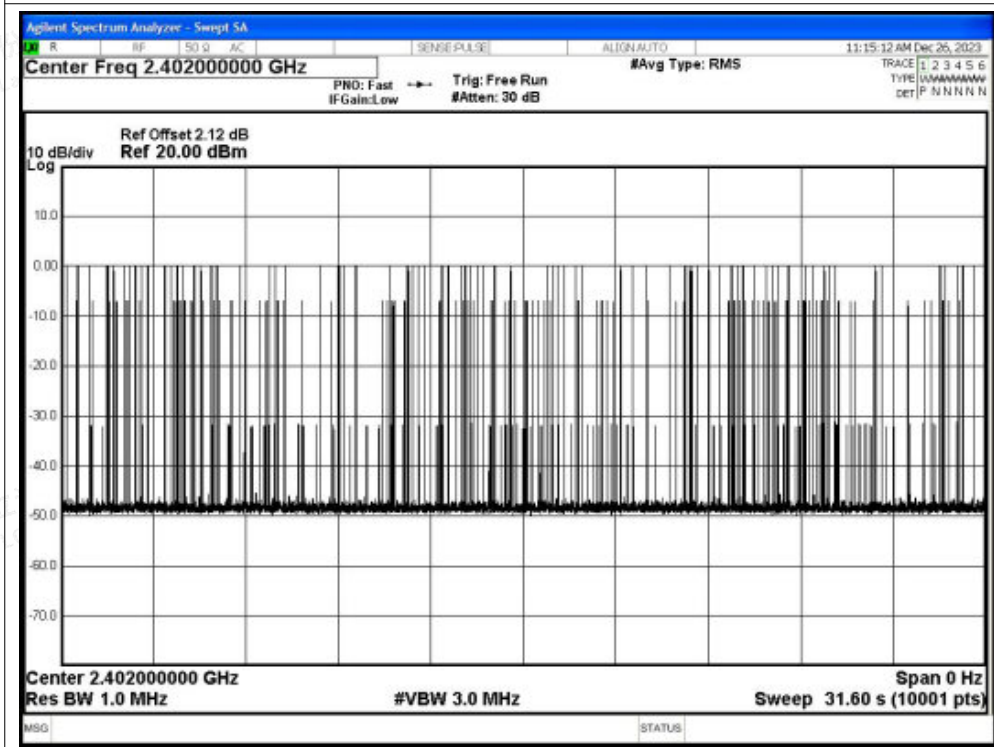




Dwell NVNT 2-DH5 2402MHz Ant1 One Burst

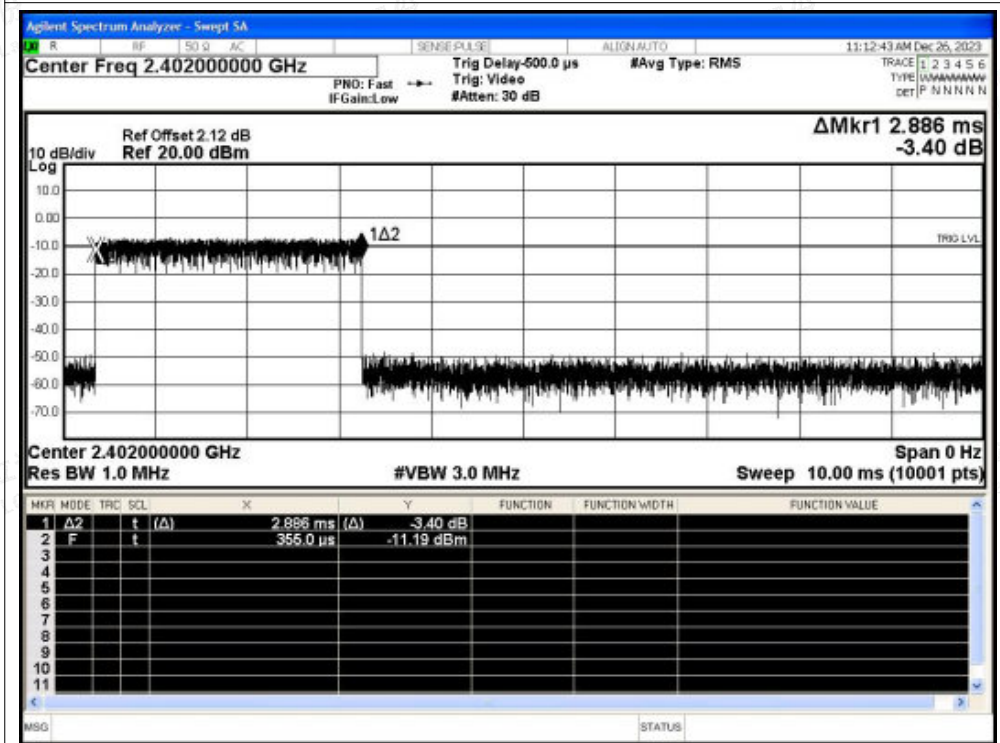


Dwell NVNT 2-DH5 2402MHz Ant1 Accumulated

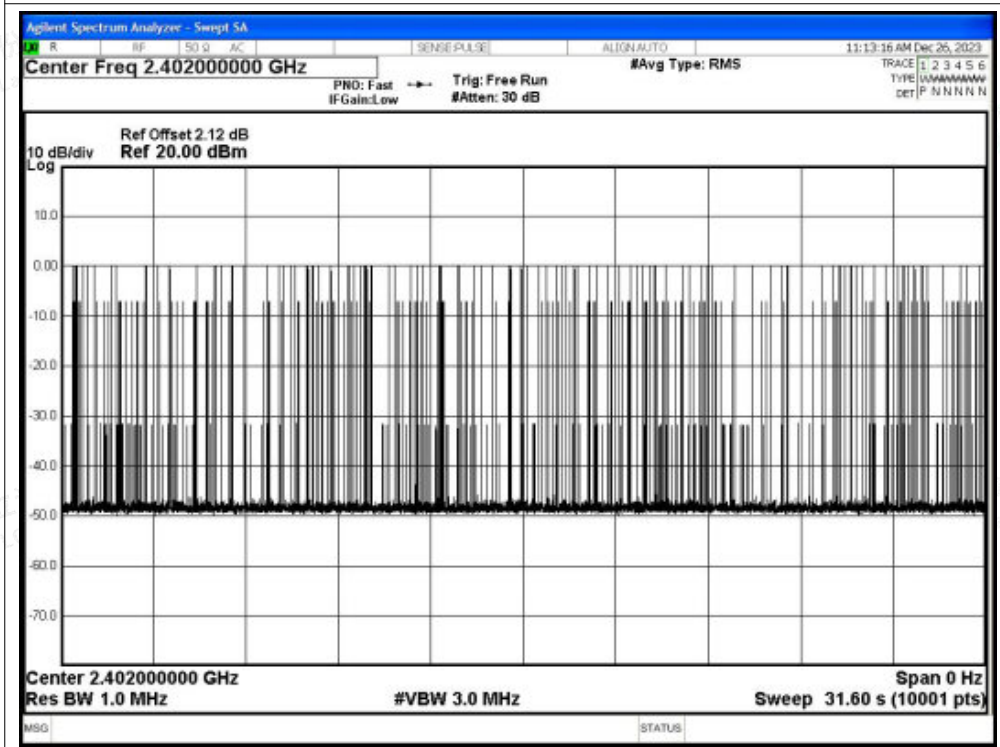




Dwell NVNT 3-DH5 2402MHz Ant1 One Burst



Dwell NVNT 3-DH5 2402MHz Ant1 Accumulated





### A.5 Number of Hopping Channel

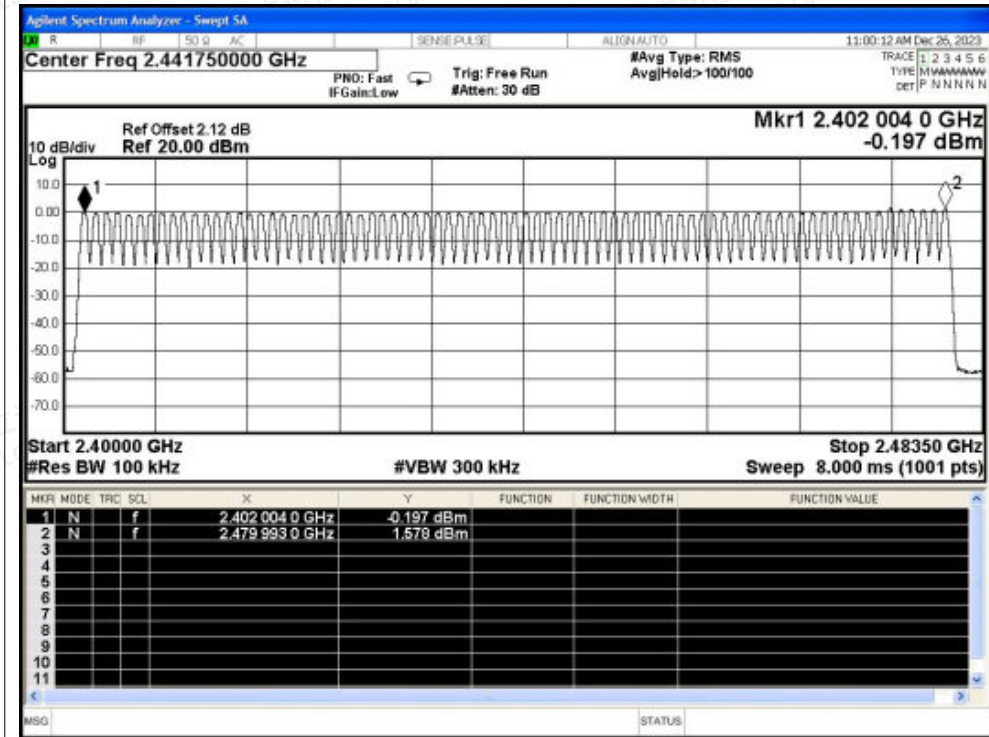
Condition	Mode	Antenna	Hopping Number	Limit	Verdict
NVNT	1-DH5	Ant1	79	15	Pass
NVNT	2-DH5	Ant1	79	15	Pass
NVNT	3-DH5	Ant1	79	15	Pass



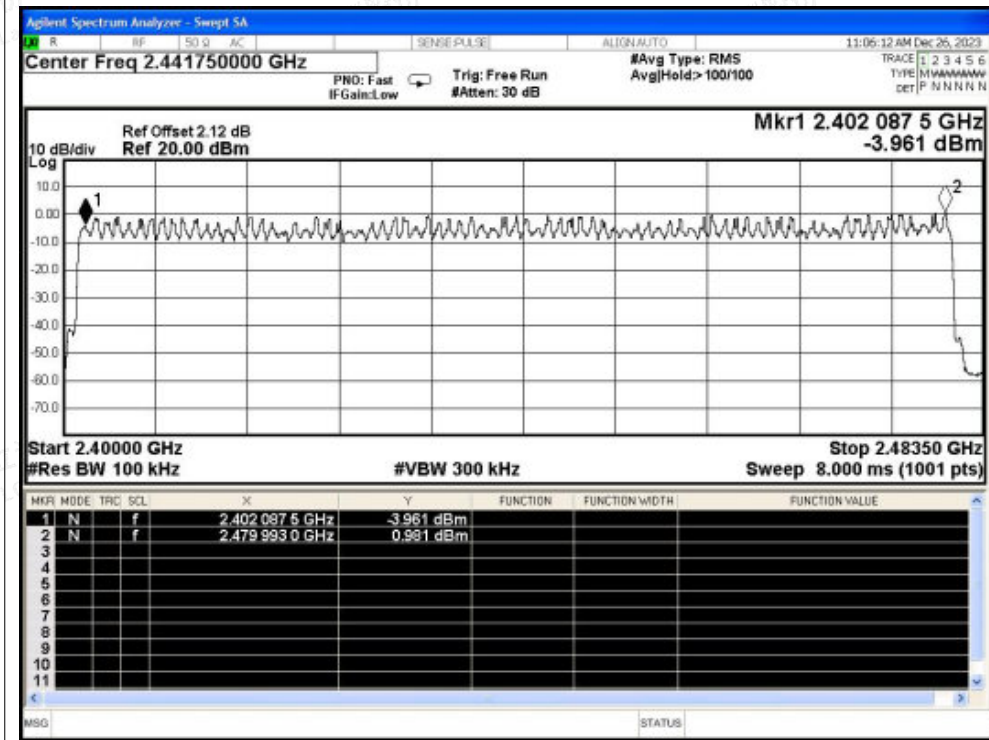


Test Graphs

Hopping No. NVNT 1-DH5 2402MHz Ant1

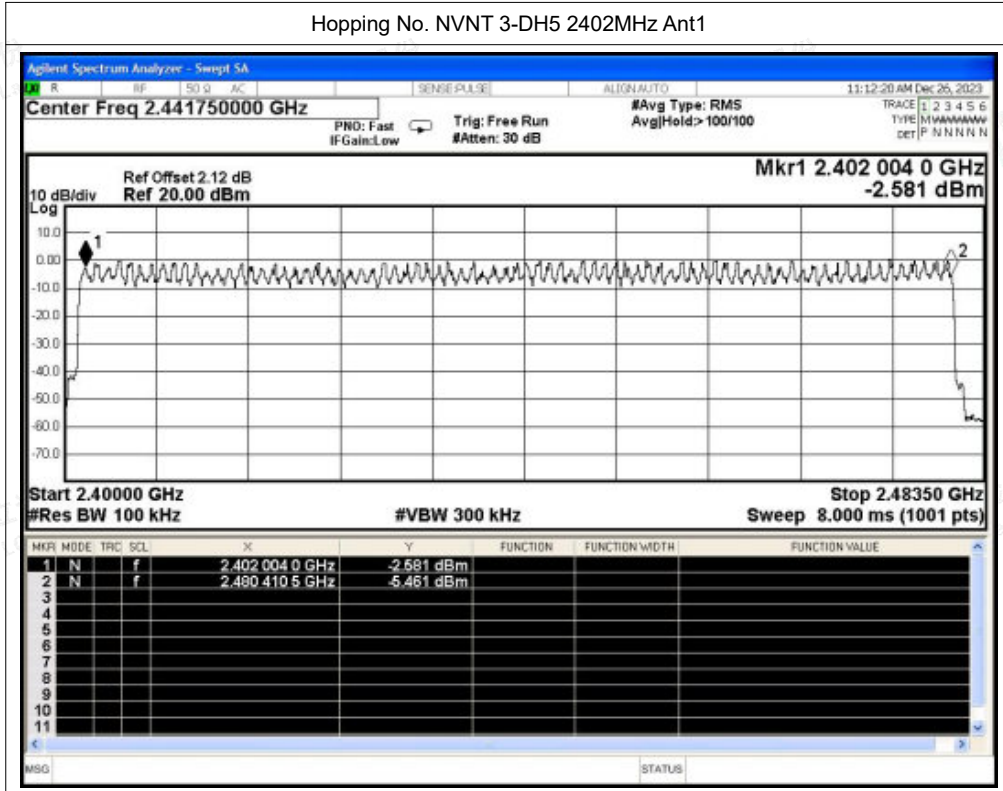


Hopping No. NVNT 2-DH5 2402MHz Ant1





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	-55.96	-20	Pass
NVNT	1-DH5	2480	Ant1	No-Hopping	-58.75	-20	Pass
NVNT	2-DH5	2402	Ant1	No-Hopping	-54.26	-20	Pass
NVNT	2-DH5	2480	Ant1	No-Hopping	-58.37	-20	Pass
NVNT	3-DH5	2402	Ant1	No-Hopping	-55.94	-20	Pass
NVNT	3-DH5	2480	Ant1	No-Hopping	-53.68	-20	Pass

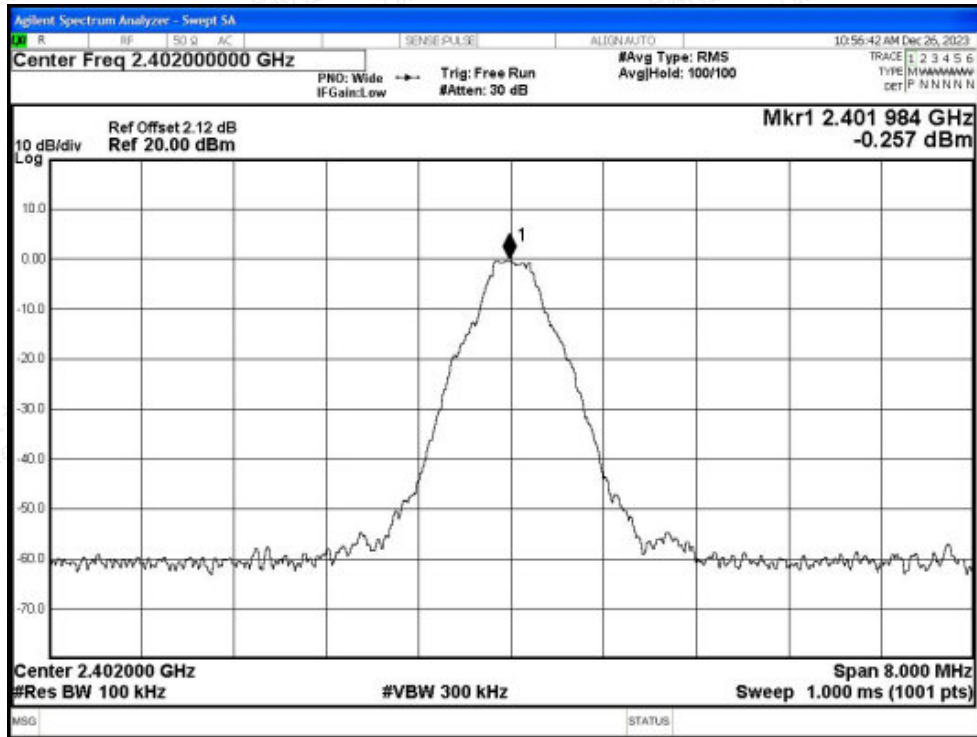




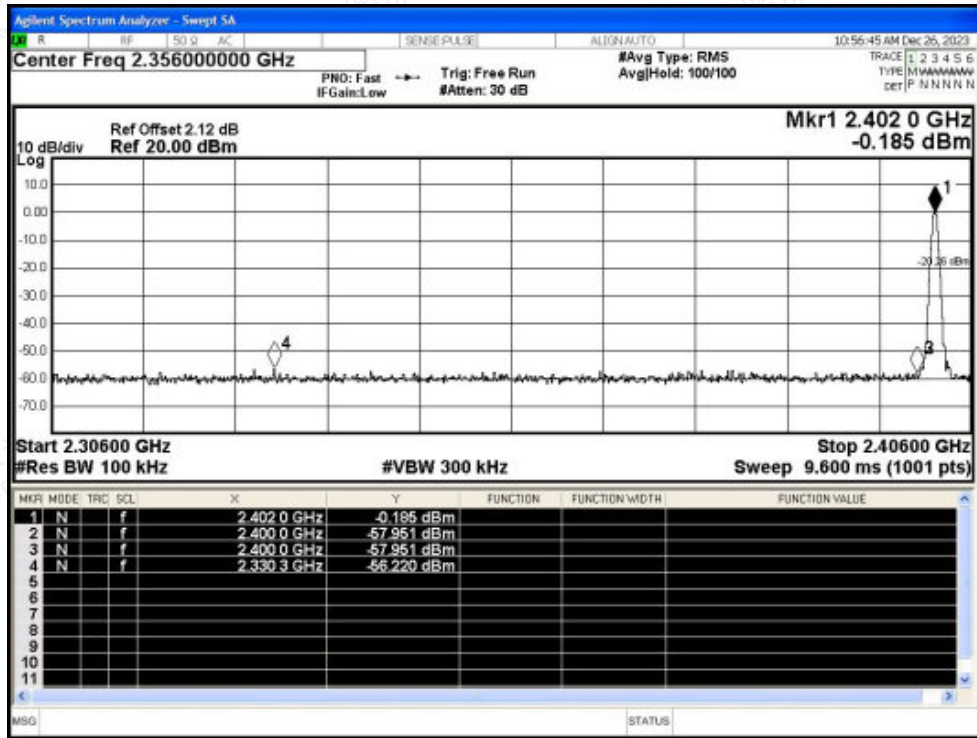


Test Graphs

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

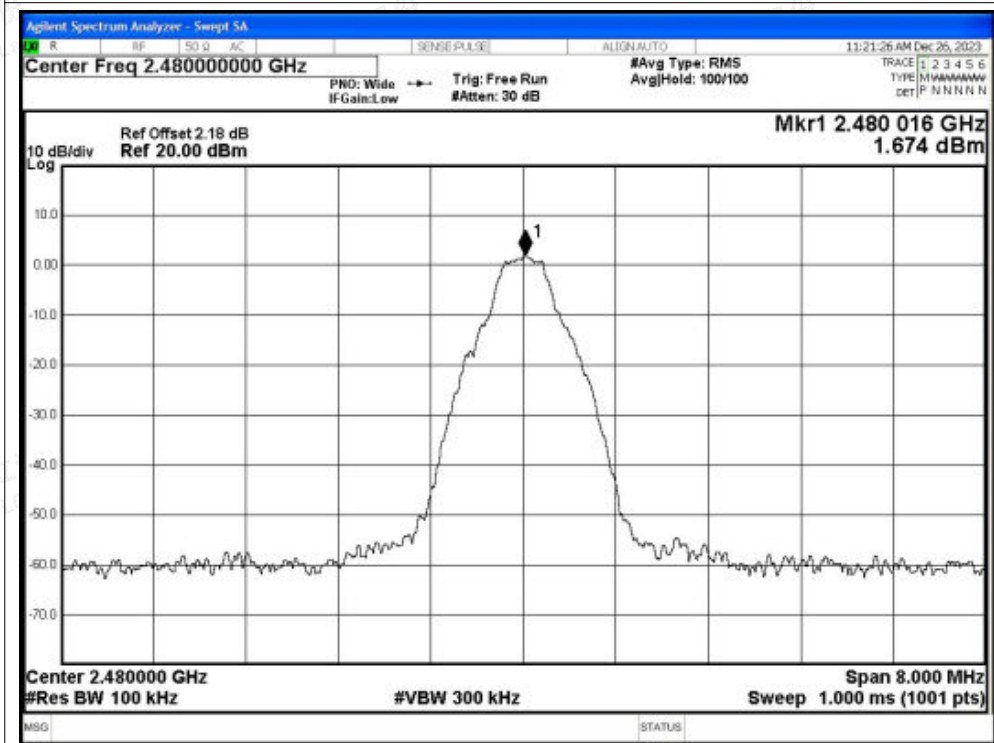


Band Edge NVNT 1-DH5 2402MHz Ant1 No-Hopping Emission

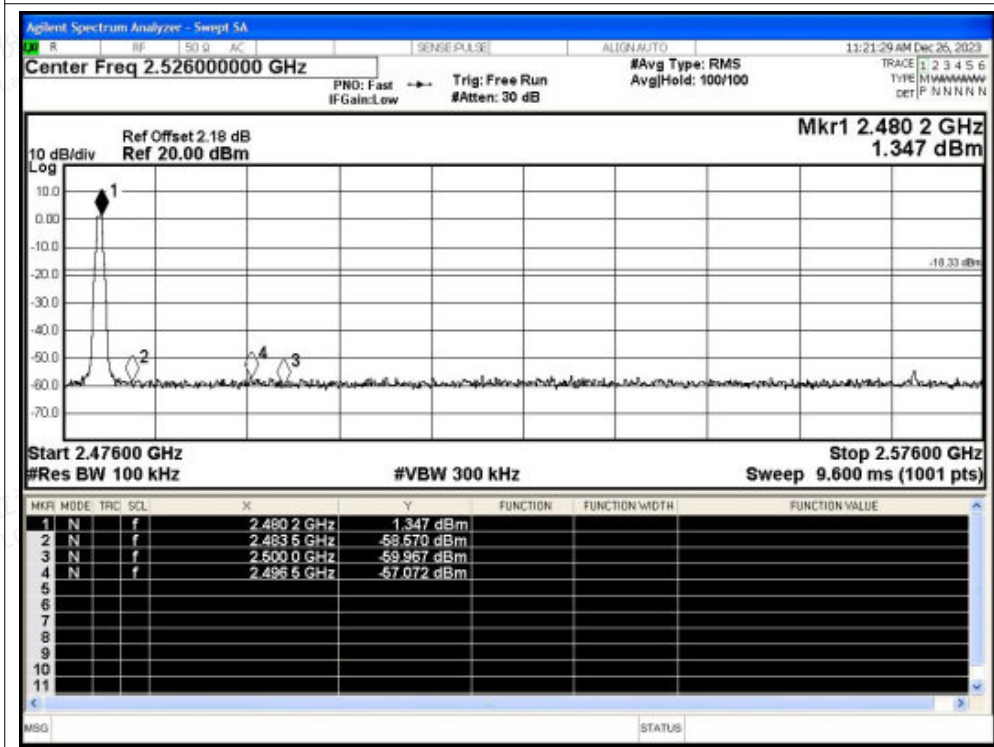




Band Edge NVNT 1-DH5 2480MHz Ant1 No-Hopping Ref

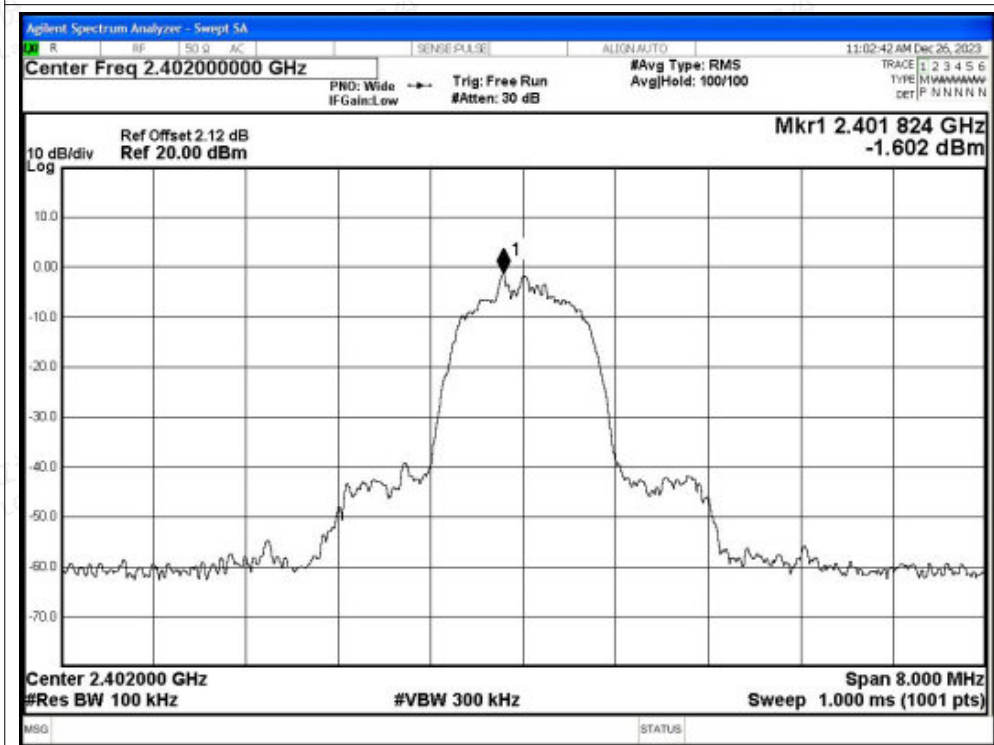


Band Edge NVNT 1-DH5 2480MHz Ant1 No-Hopping Emission

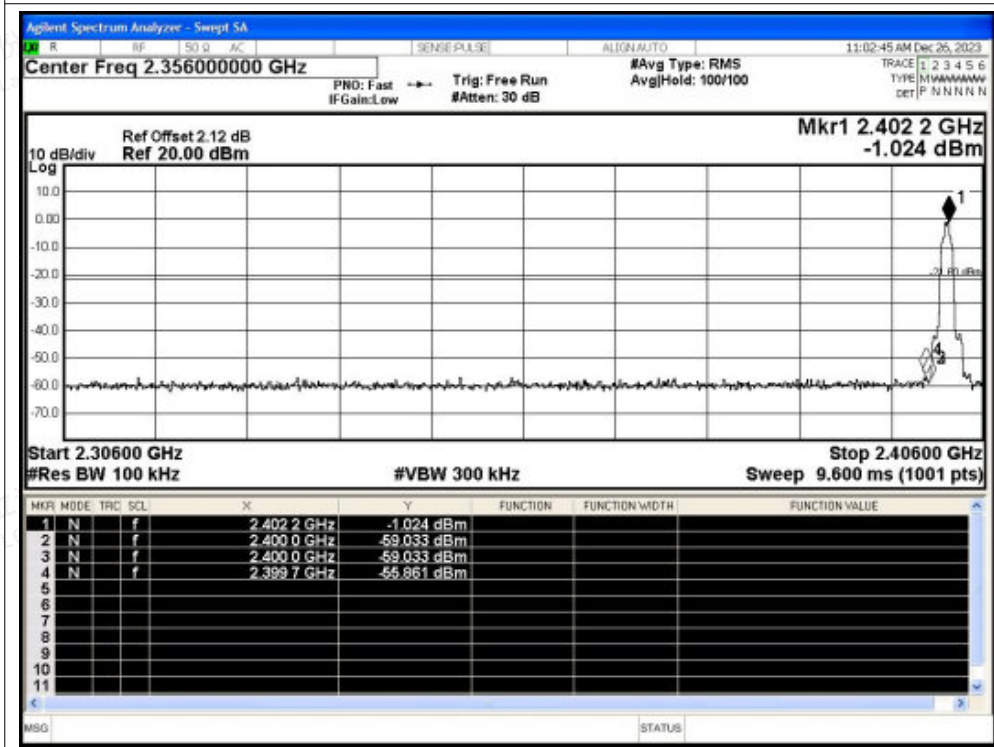




Band Edge NVNT 2-DH5 2402MHz Ant1 No-Hopping Ref

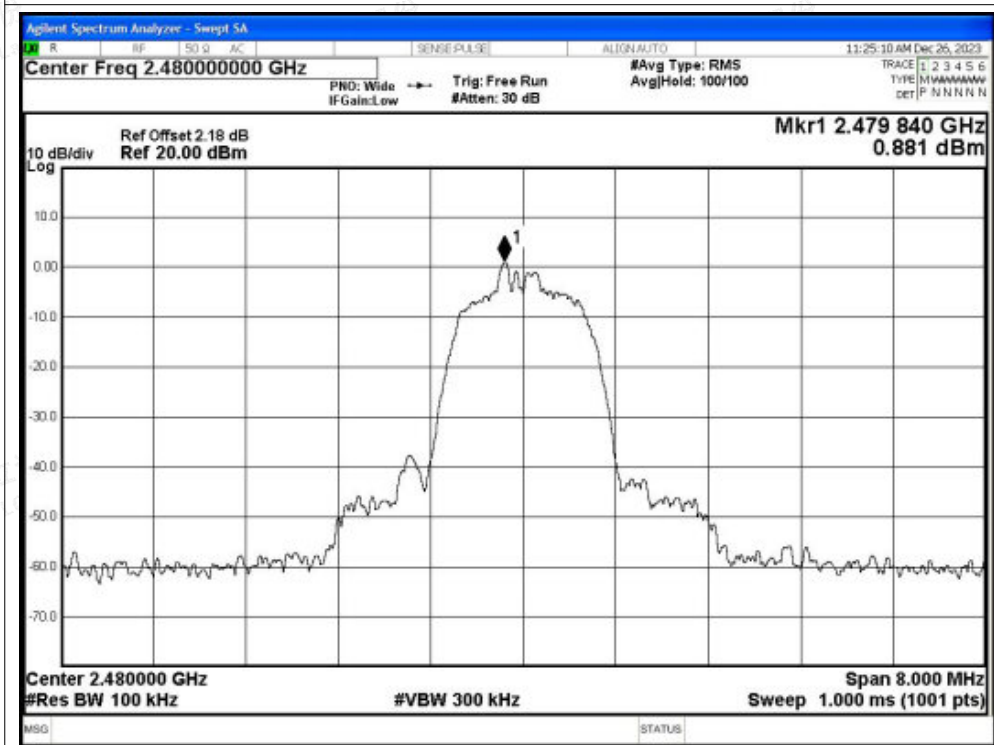


Band Edge NVNT 2-DH5 2402MHz Ant1 No-Hopping Emission

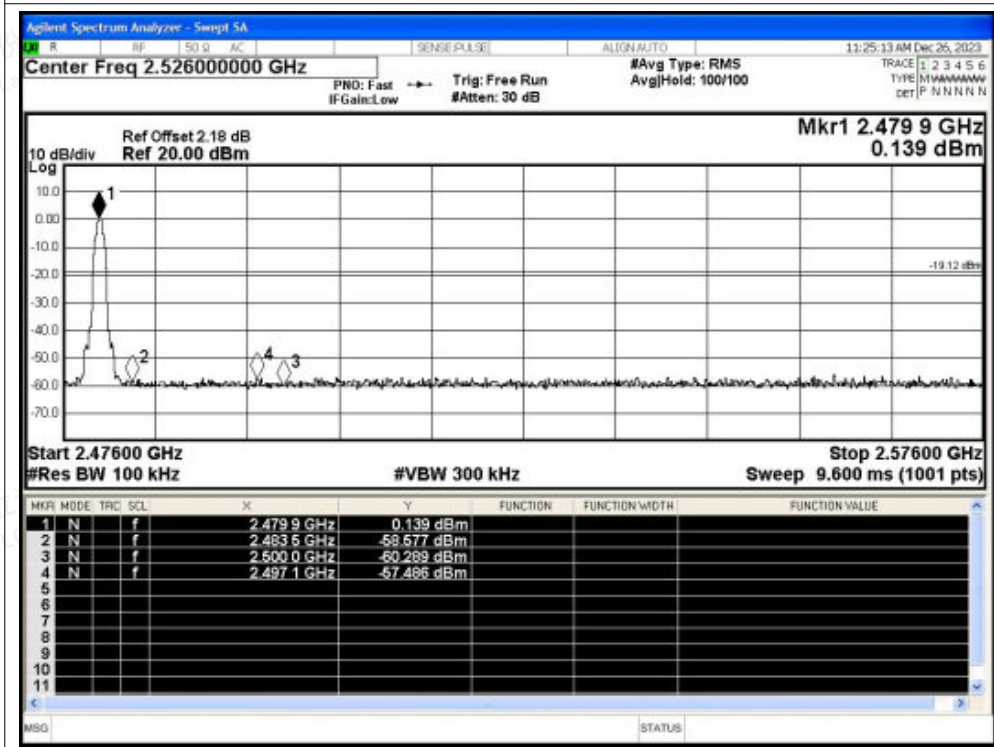




Band Edge NVNT 2-DH5 2480MHz Ant1 No-Hopping Ref

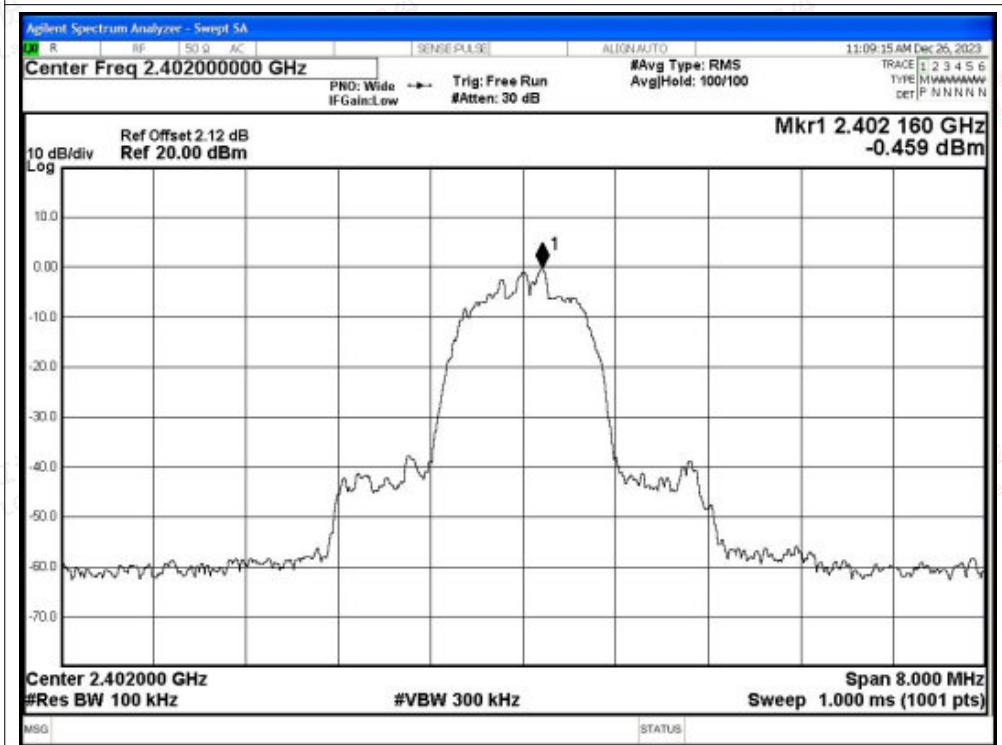


Band Edge NVNT 2-DH5 2480MHz Ant1 No-Hopping Emission

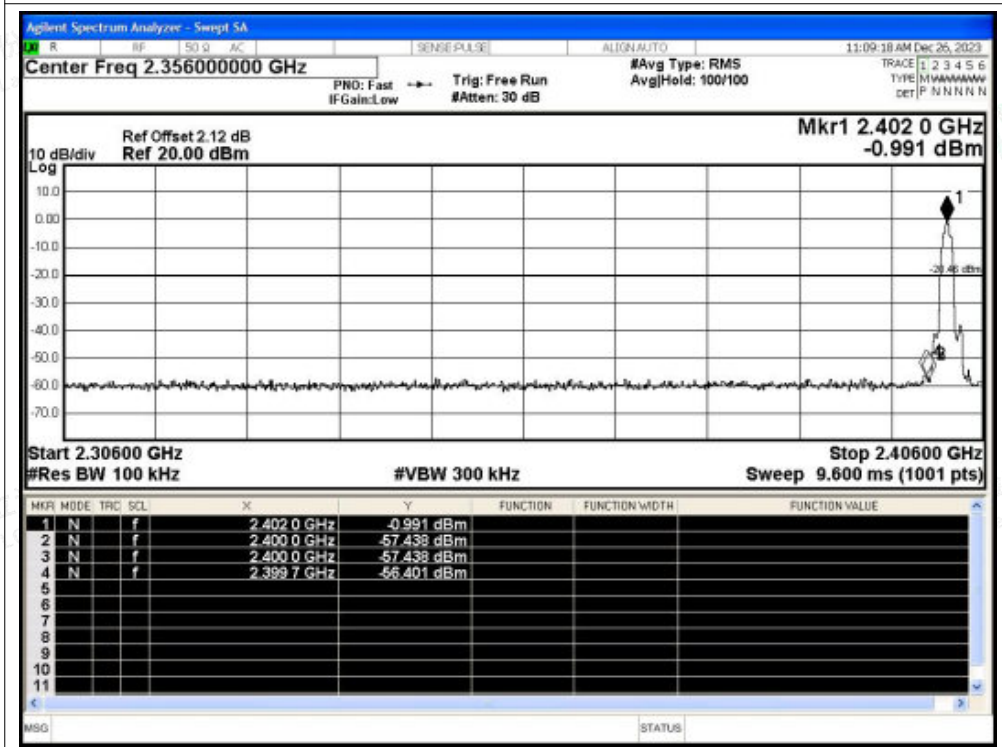




Band Edge NVNT 3-DH5 2402MHz Ant1 No-Hopping Ref

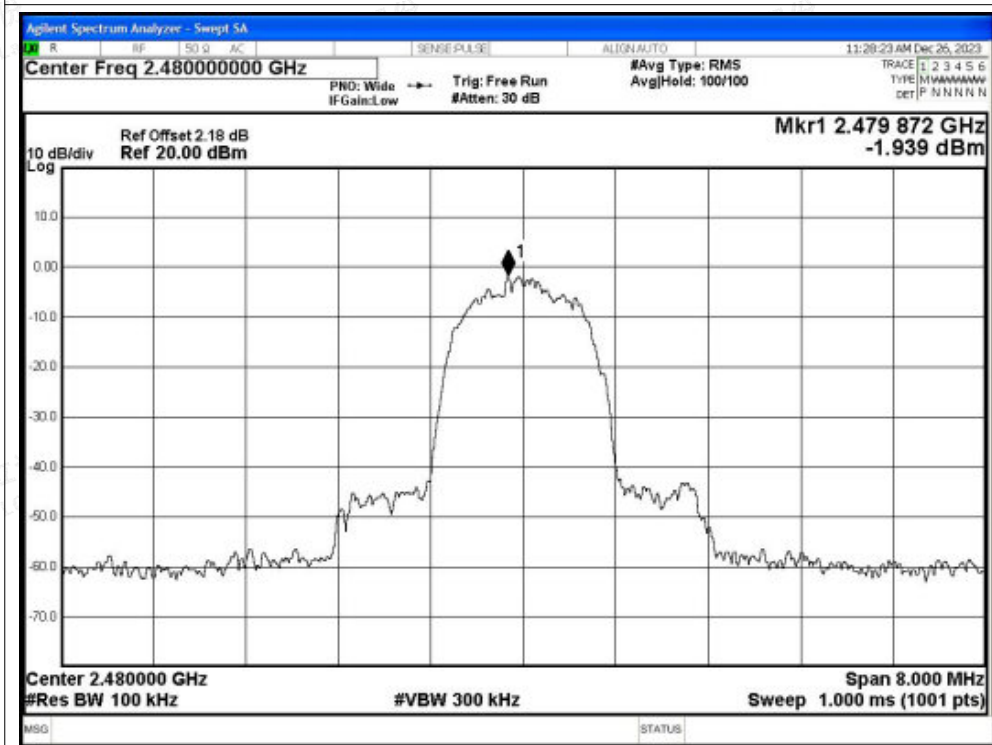


Band Edge NVNT 3-DH5 2402MHz Ant1 No-Hopping Emission

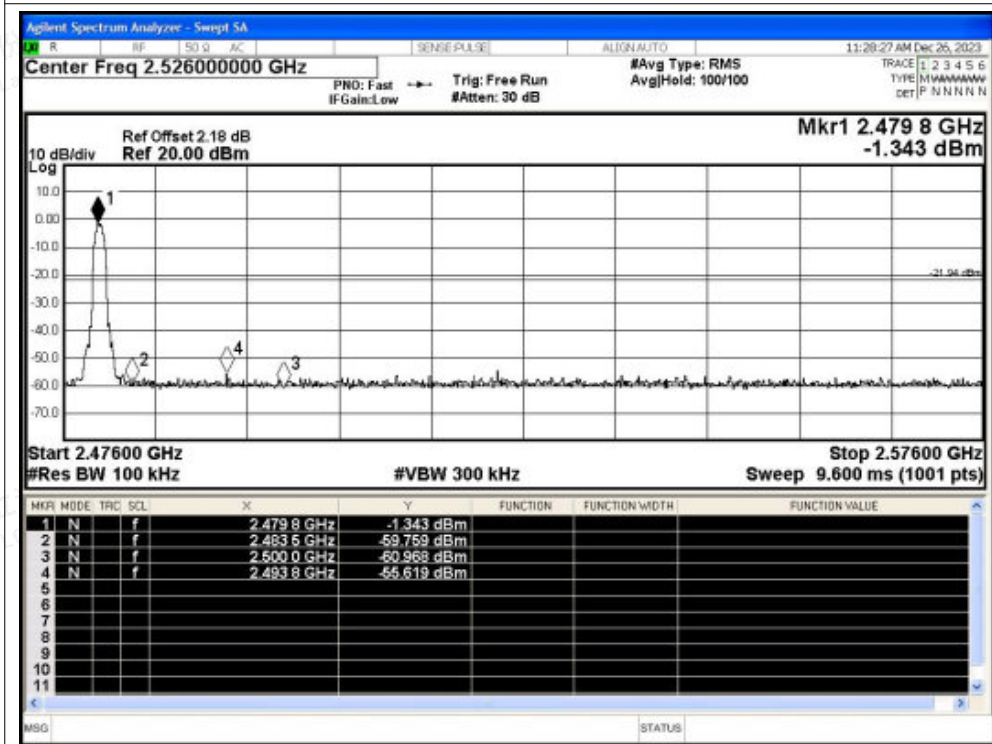




Band Edge NVNT 3-DH5 2480MHz Ant1 No-Hopping Ref



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





### (Hopping)

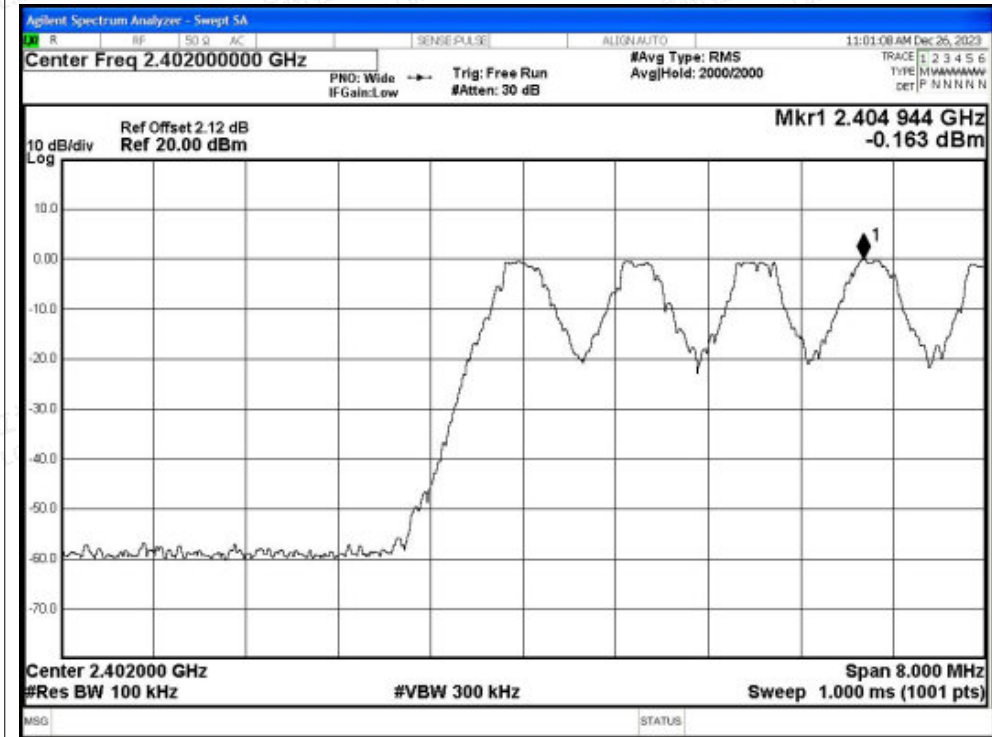
Condition	Mode	Frequency (MHz)	Antenna	Hopping Mode	Max Value (dBc)	Limit (dBc)	Verdict
NVNT	1-DH5	2402	Ant1	Hopping	-55.63	-20	Pass
NVNT	1-DH5	2480	Ant1	Hopping	-56.72	-20	Pass
NVNT	2-DH5	2402	Ant1	Hopping	-55.96	-20	Pass
NVNT	2-DH5	2480	Ant1	Hopping	-56.4	-20	Pass
NVNT	3-DH5	2402	Ant1	Hopping	-55.94	-20	Pass
NVNT	3-DH5	2480	Ant1	Hopping	-55.4	-20	Pass



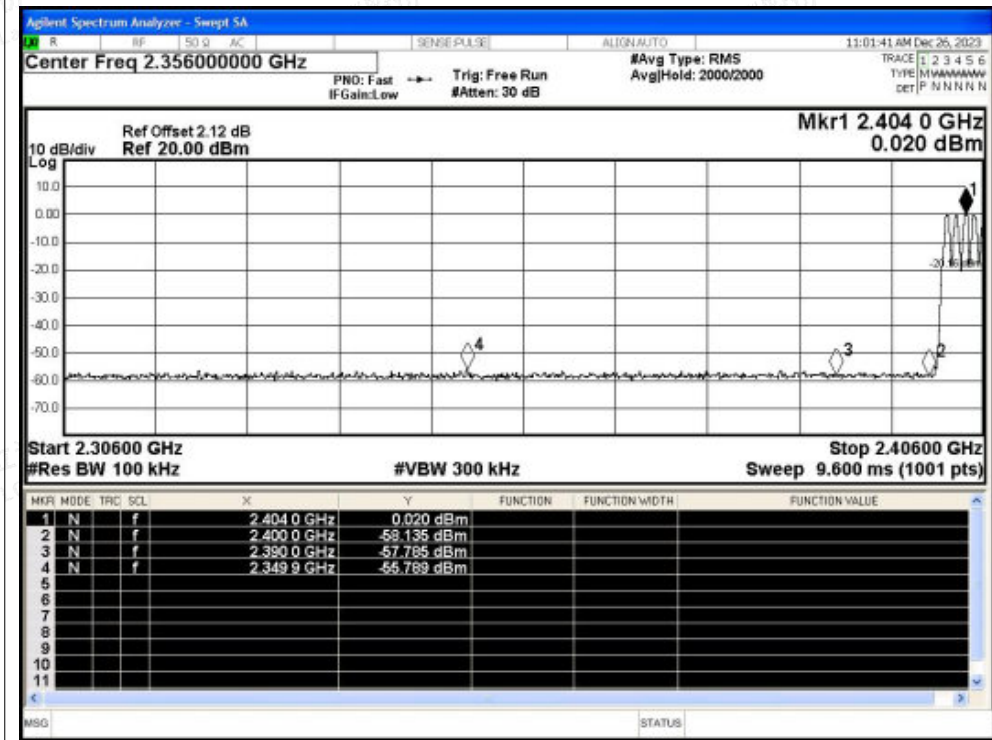


Test Graphs

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



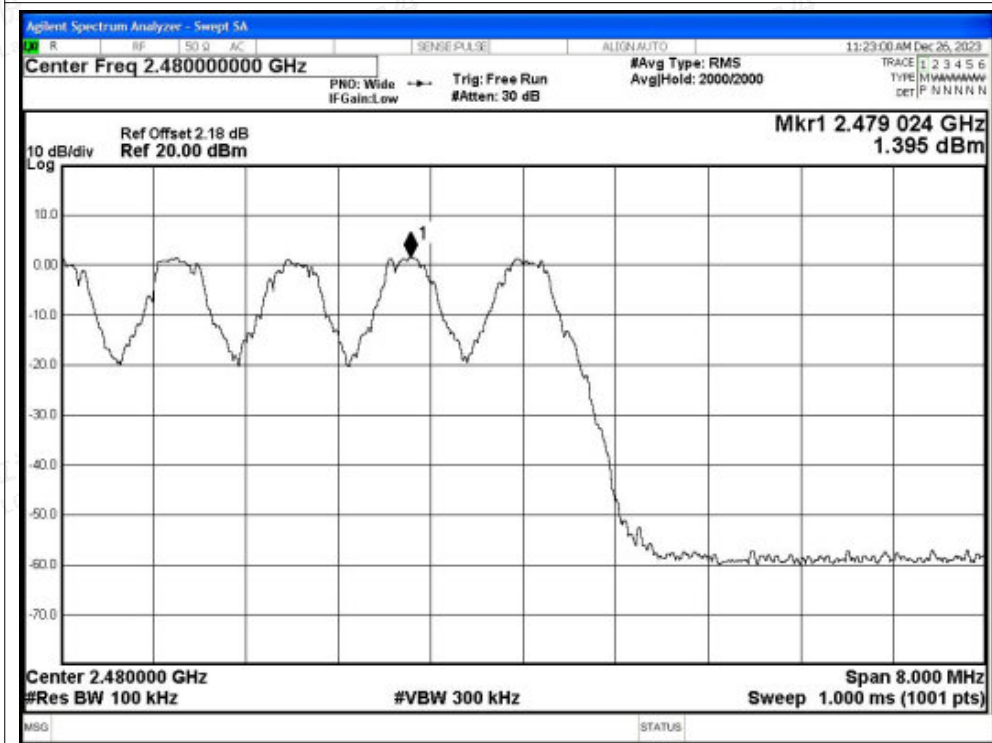
Band Edge(Hopping) NVNT 1-DH5 2402MHz Ant1 Hopping Emission



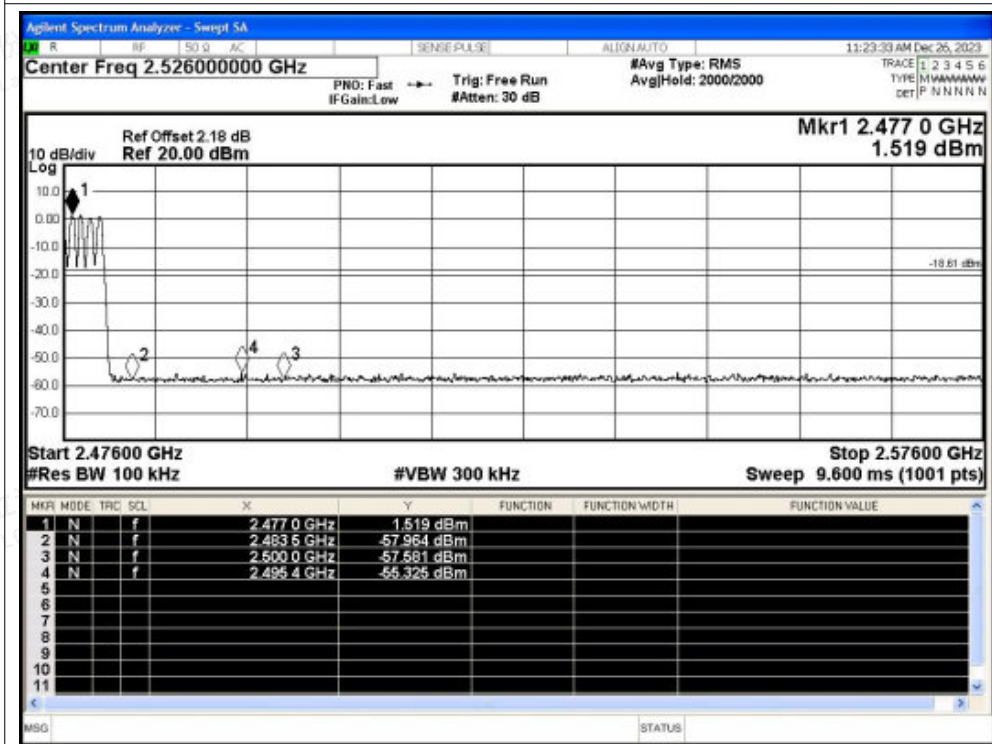




Band Edge(Hopping) NVNT 1-DH5 2480MHz Ant1 Hopping Ref



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

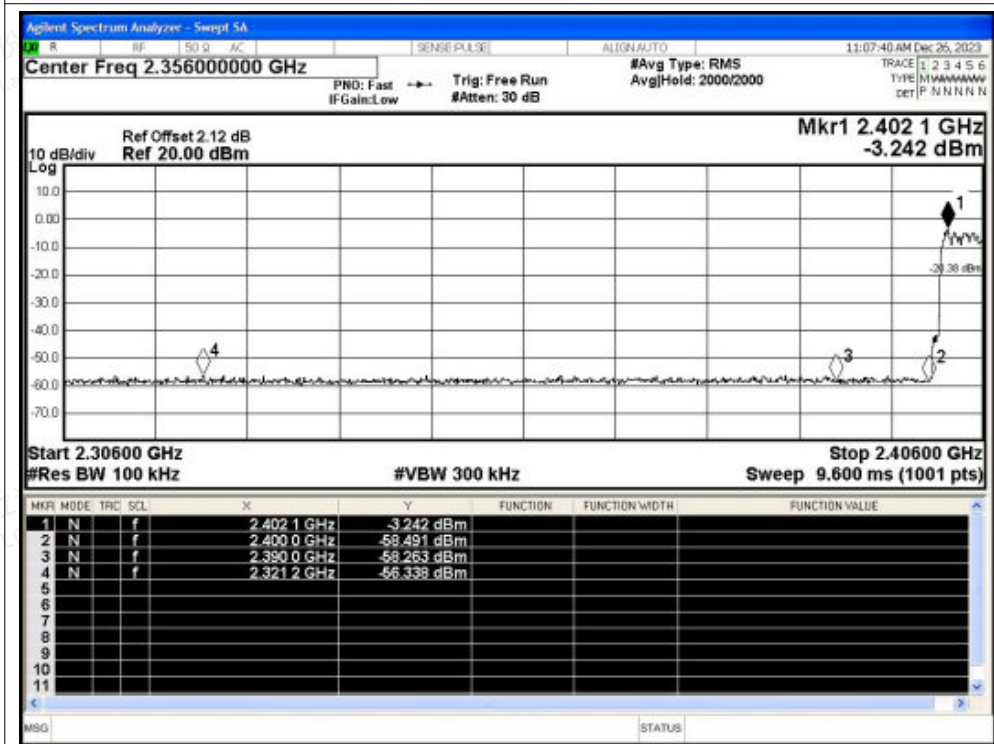




Band Edge(Hopping) NVNT 2-DH5 2402MHz Ant1 Hopping Ref

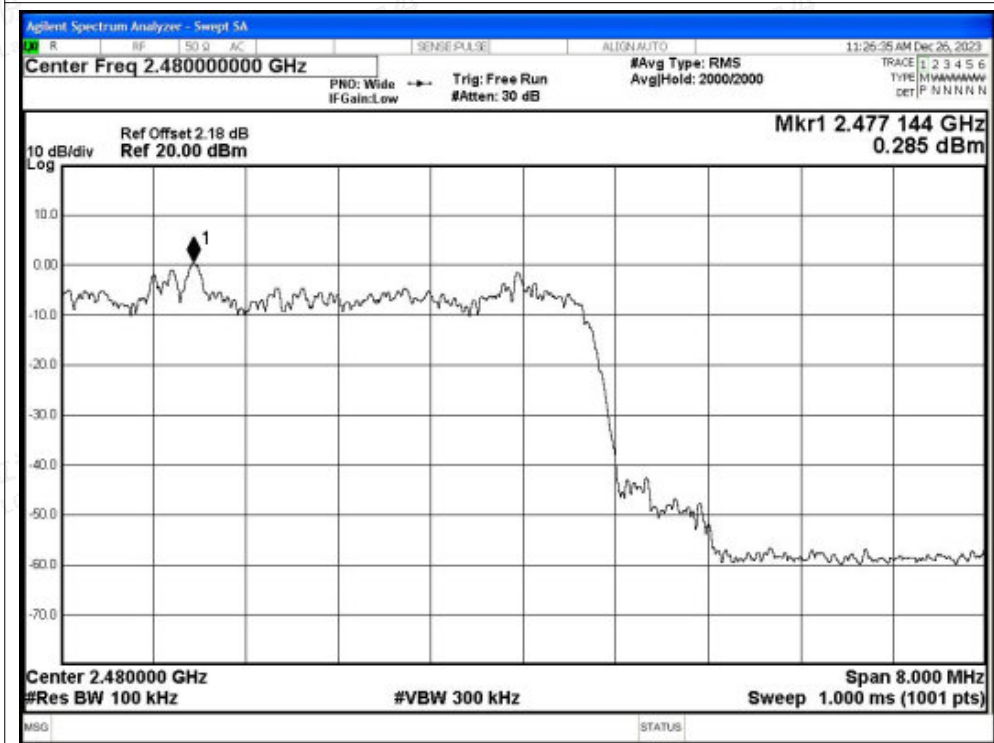


Band Edge(Hopping) NVNT 2-DH5 2402MHz Ant1 Hopping Emission

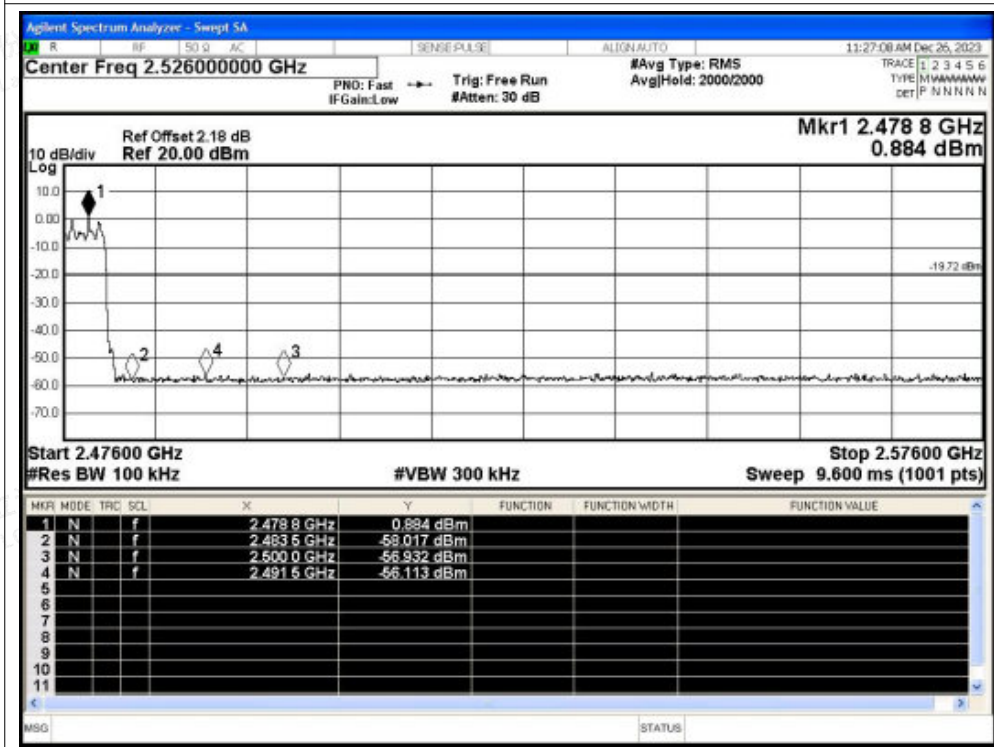




Band Edge(Hopping) NVNT 2-DH5 2480MHz Ant1 Hopping Ref



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

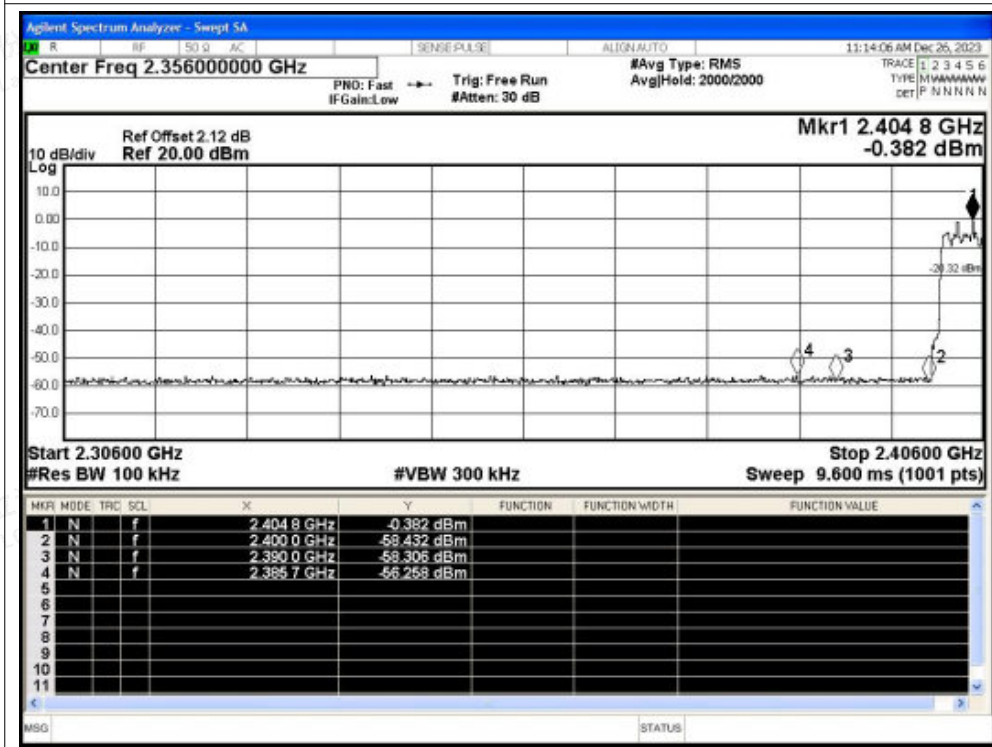




Band Edge(Hopping) NVNT 3-DH5 2402MHz Ant1 Hopping Ref

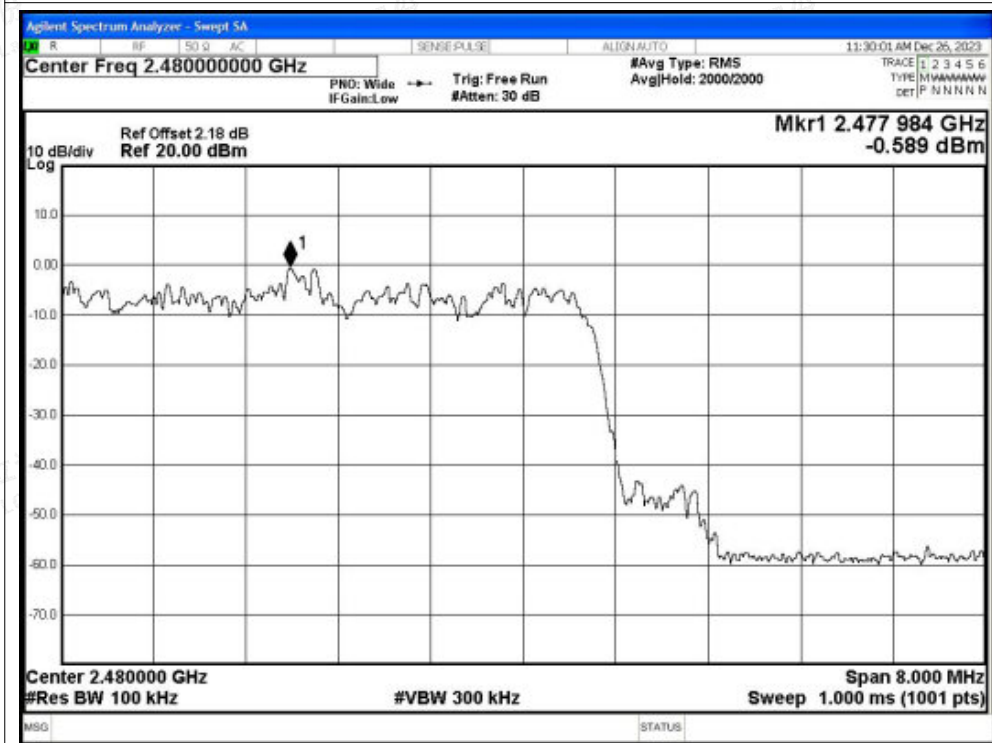


Band Edge(Hopping) NVNT 3-DH5 2402MHz Ant1 Hopping Emission

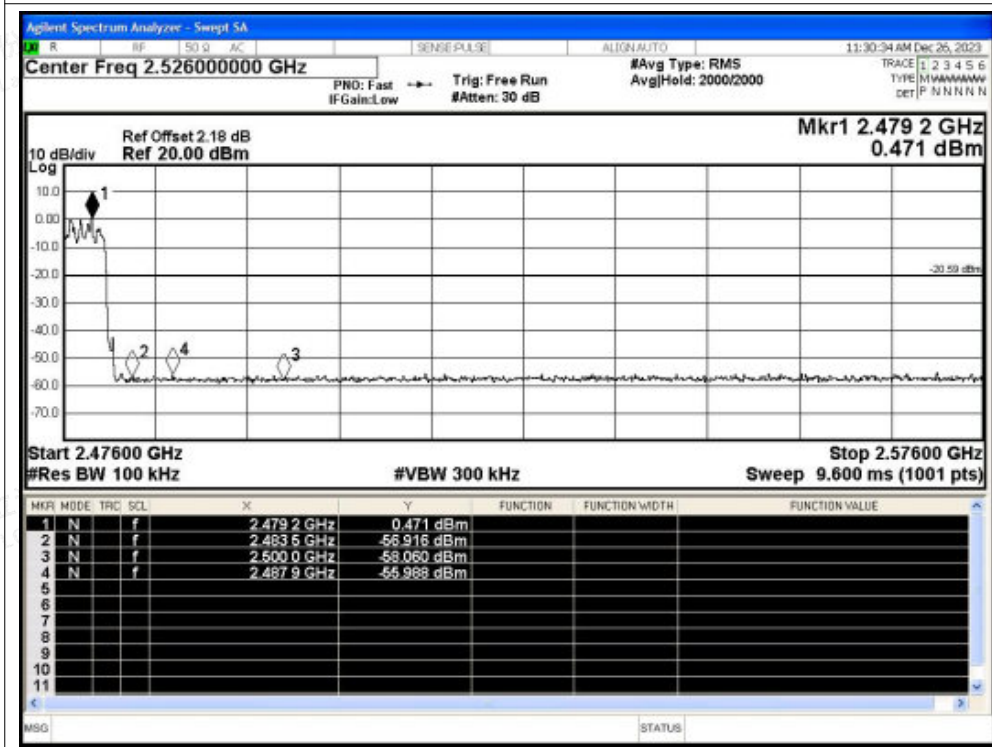




Band Edge(Hopping) NVNT 3-DH5 2480MHz Ant1 Hopping Ref



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	-54.21	-20	Pass
NVNT	1-DH5	2441	Ant1	-54.93	-20	Pass
NVNT	1-DH5	2480	Ant1	-56.32	-20	Pass
NVNT	2-DH5	2402	Ant1	-55.03	-20	Pass
NVNT	2-DH5	2441	Ant1	-54.41	-20	Pass
NVNT	2-DH5	2480	Ant1	-55.69	-20	Pass
NVNT	3-DH5	2402	Ant1	-53.92	-20	Pass
NVNT	3-DH5	2441	Ant1	-55.19	-20	Pass
NVNT	3-DH5	2480	Ant1	-56.02	-20	Pass



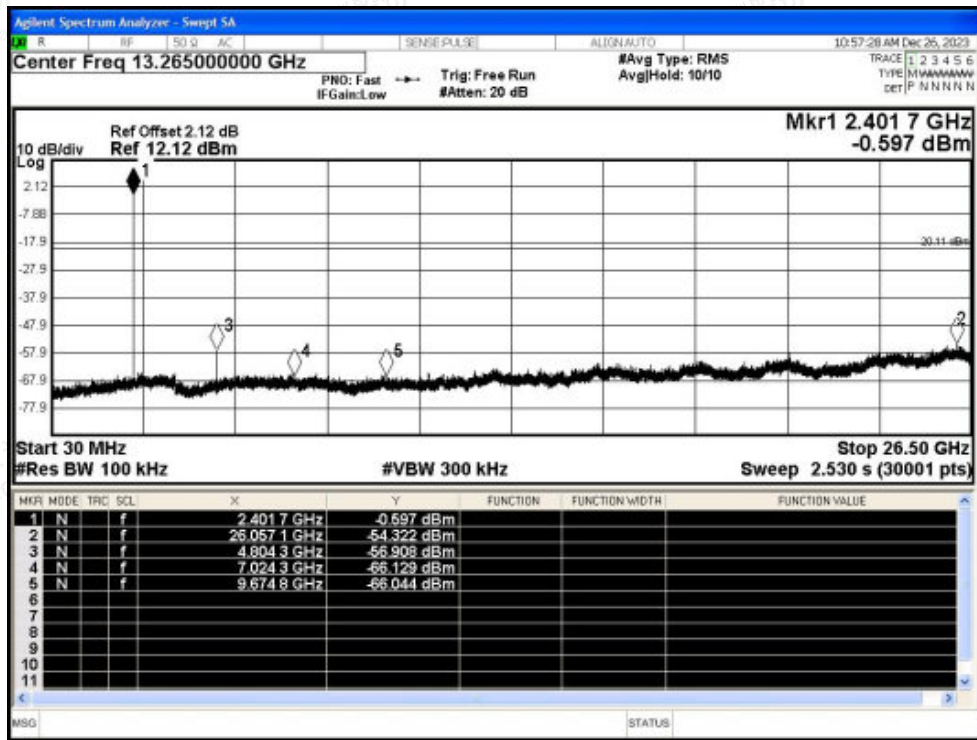


Test Graphs

Tx. Spurious NVNT 1-DH5 2402MHz Ant1 Ref

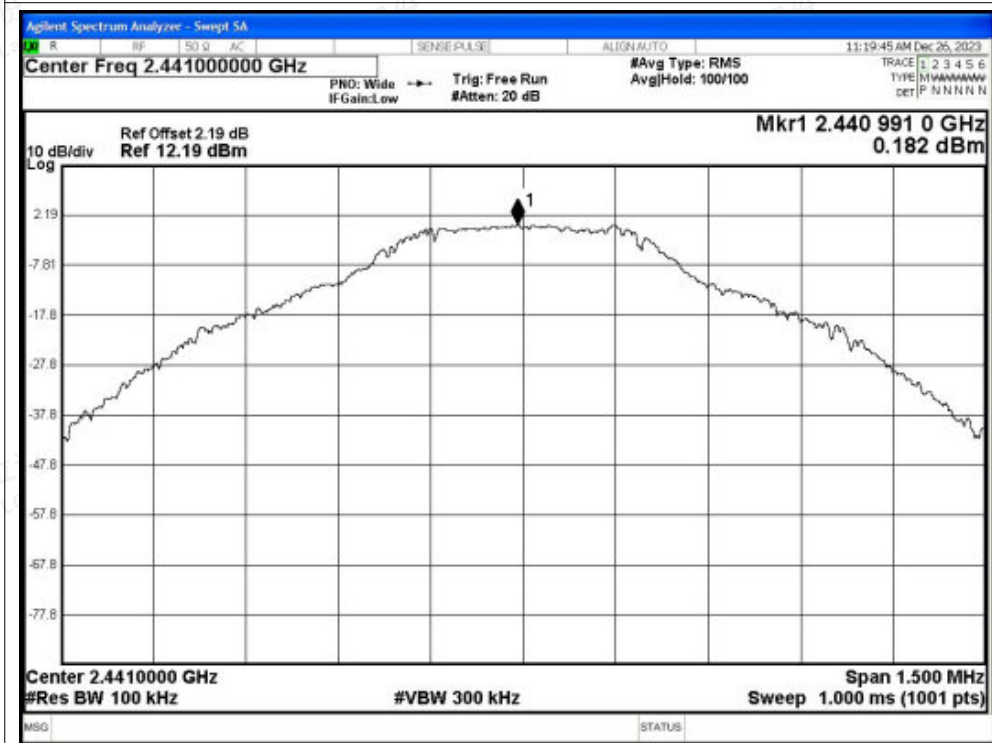


Tx. Spurious NVNT 1-DH5 2402MHz Ant1 Emission

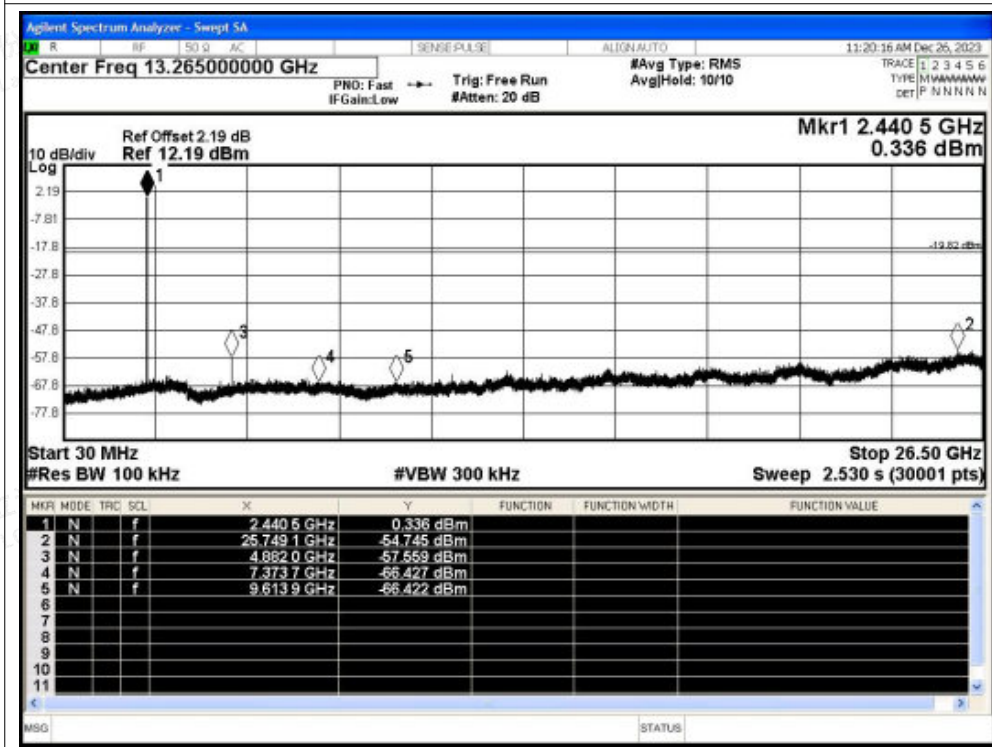




Tx. Spurious NVNT 1-DH5 2441MHz Ant1 Ref



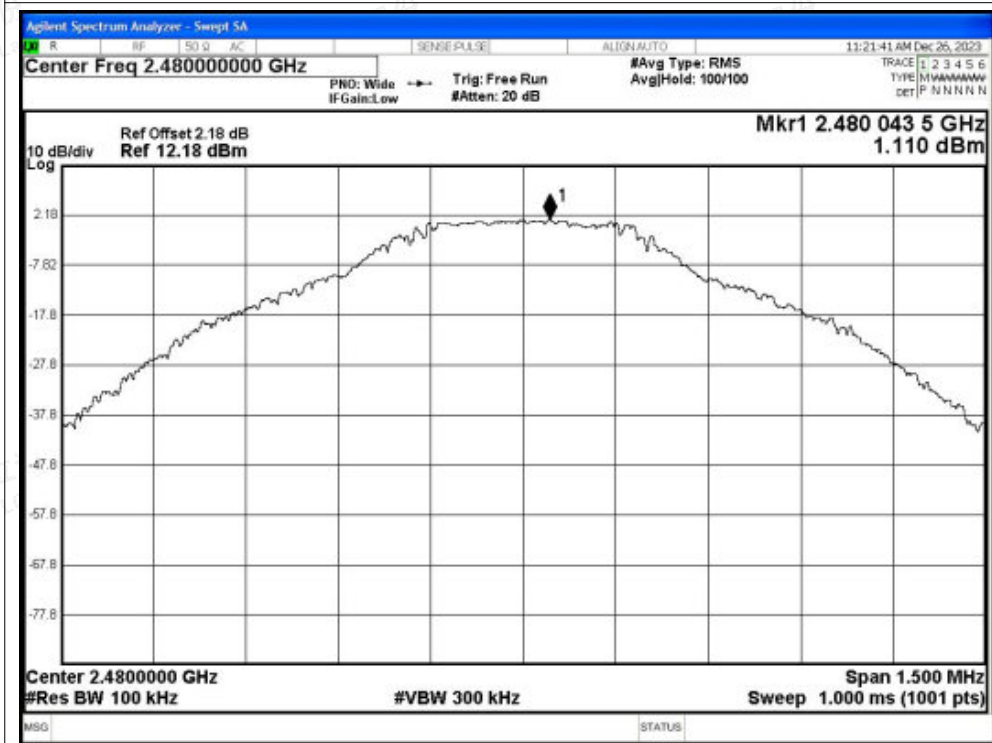
Tx. Spurious NVNT 1-DH5 2441MHz Ant1 Emission



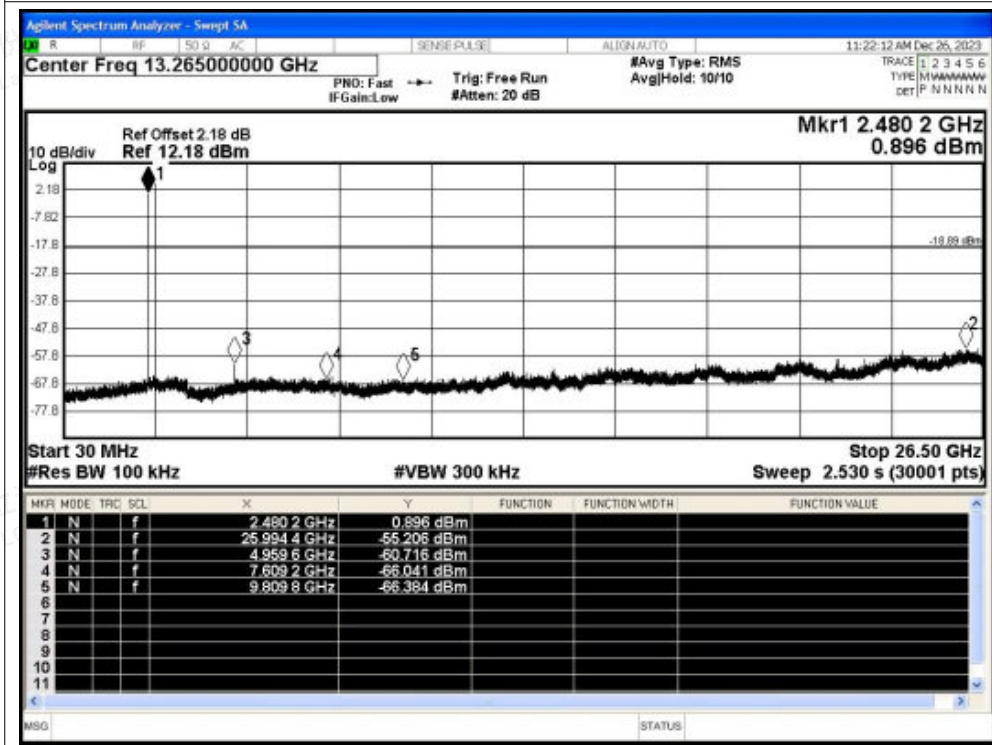




Tx. Spurious NVNT 1-DH5 2480MHz Ant1 Ref

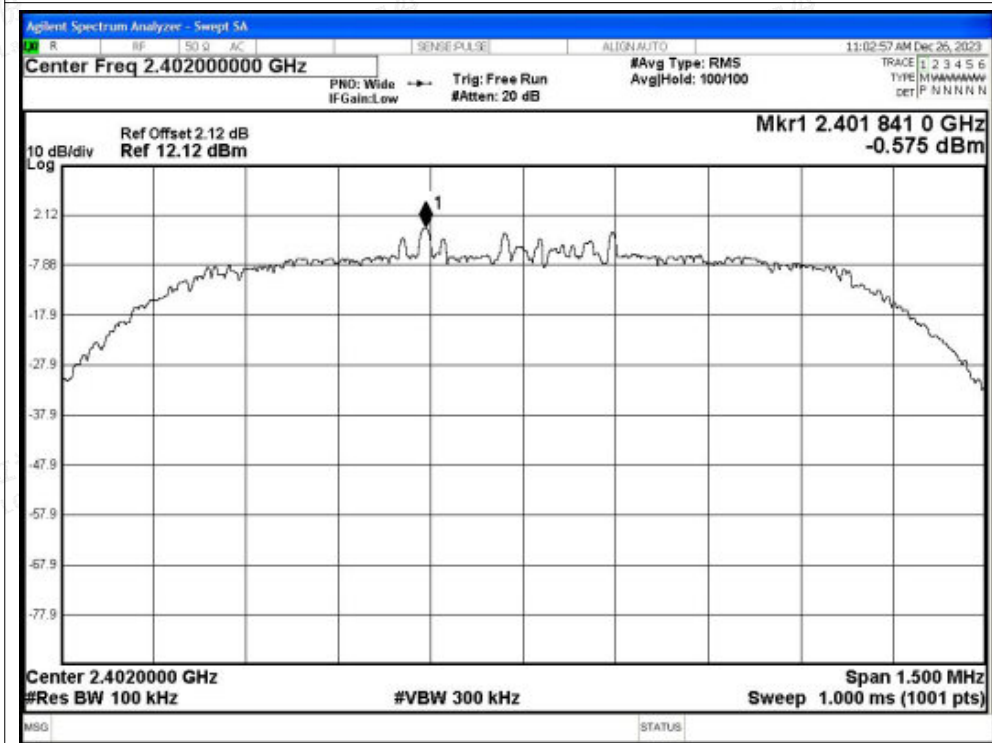


Tx. Spurious NVNT 1-DH5 2480MHz Ant1 Emission

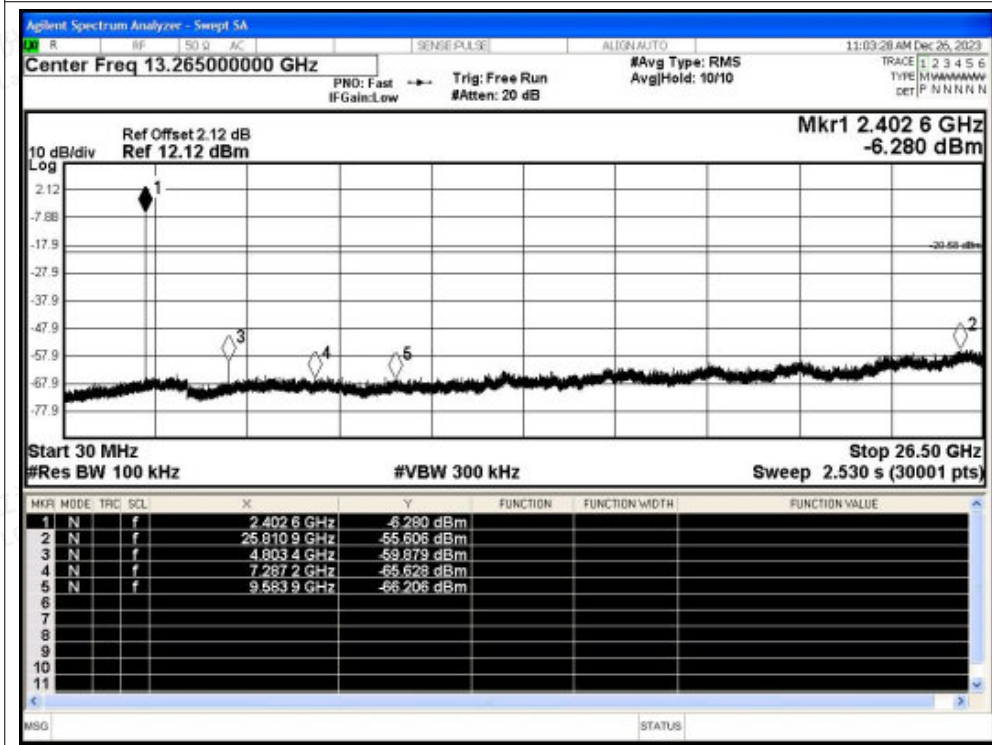




Tx. Spurious NVNT 2-DH5 2402MHz Ant1 Ref

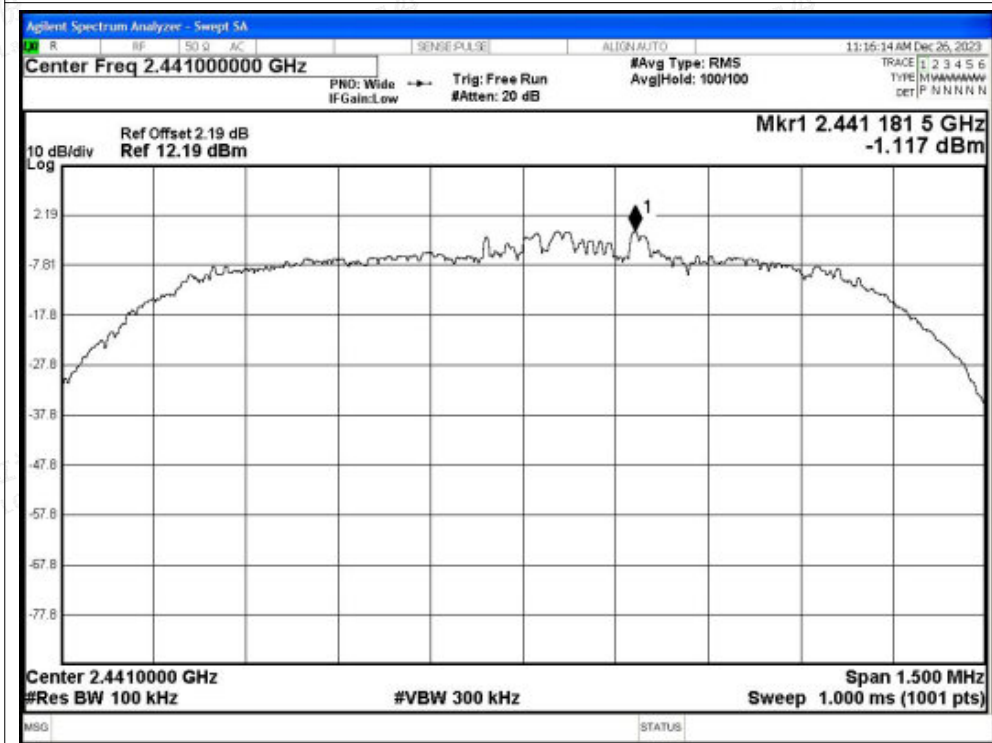


Tx. Spurious NVNT 2-DH5 2402MHz Ant1 Emission

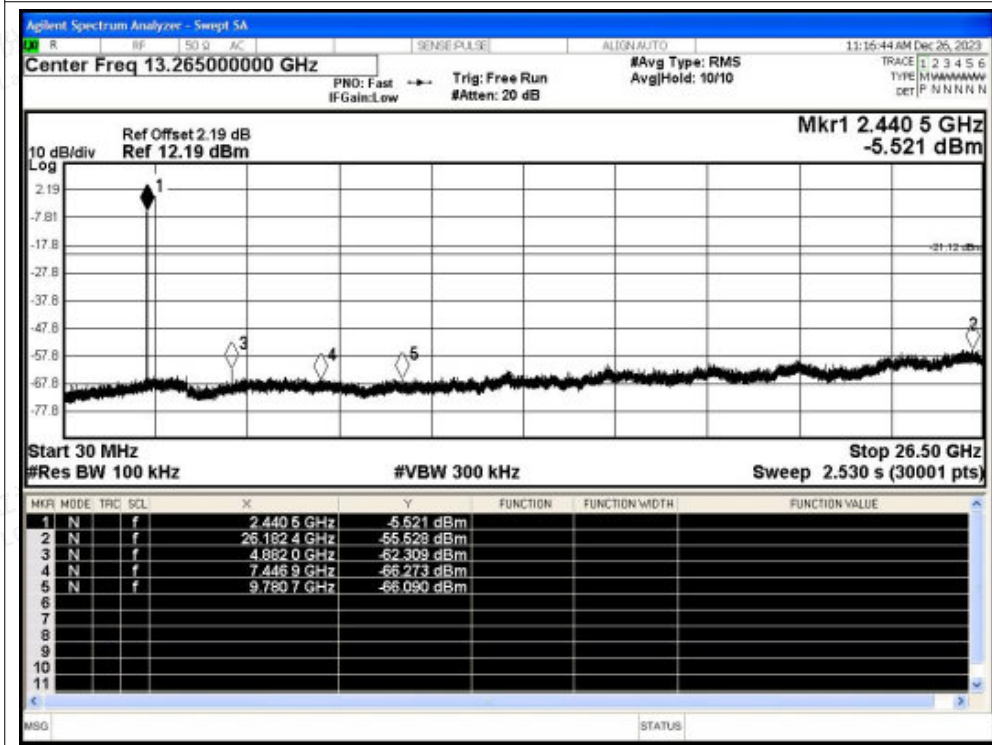




Tx. Spurious NVNT 2-DH5 2441MHz Ant1 Ref

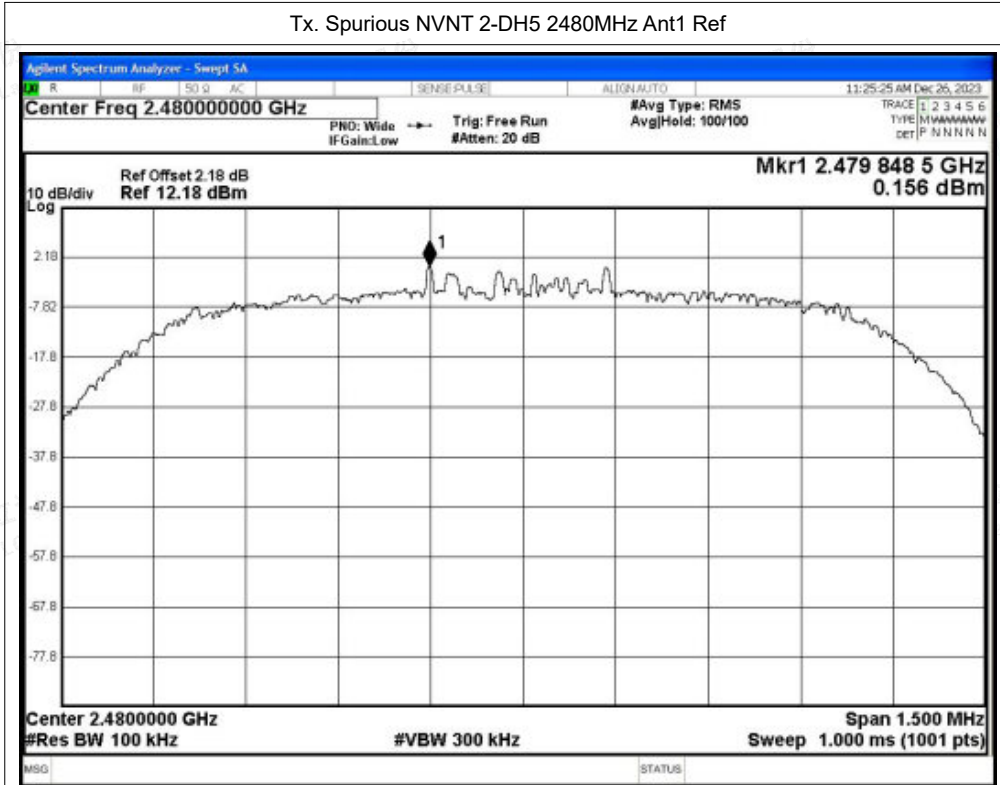


Tx. Spurious NVNT 2-DH5 2441MHz Ant1 Emission

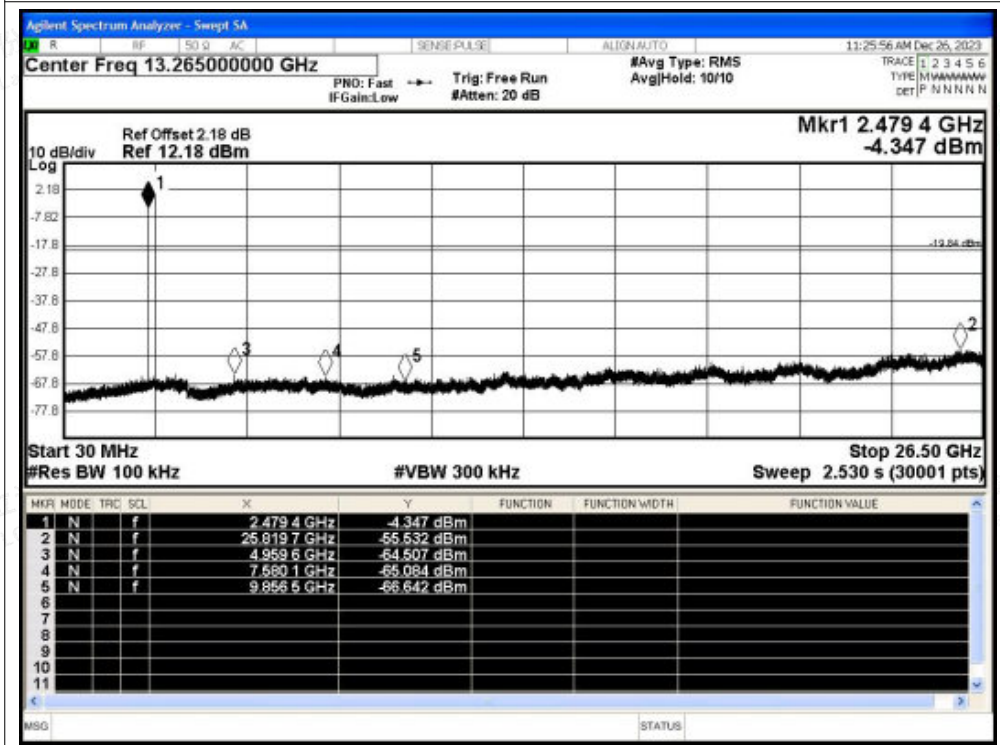




Tx. Spurious NVNT 2-DH5 2480MHz Ant1 Ref

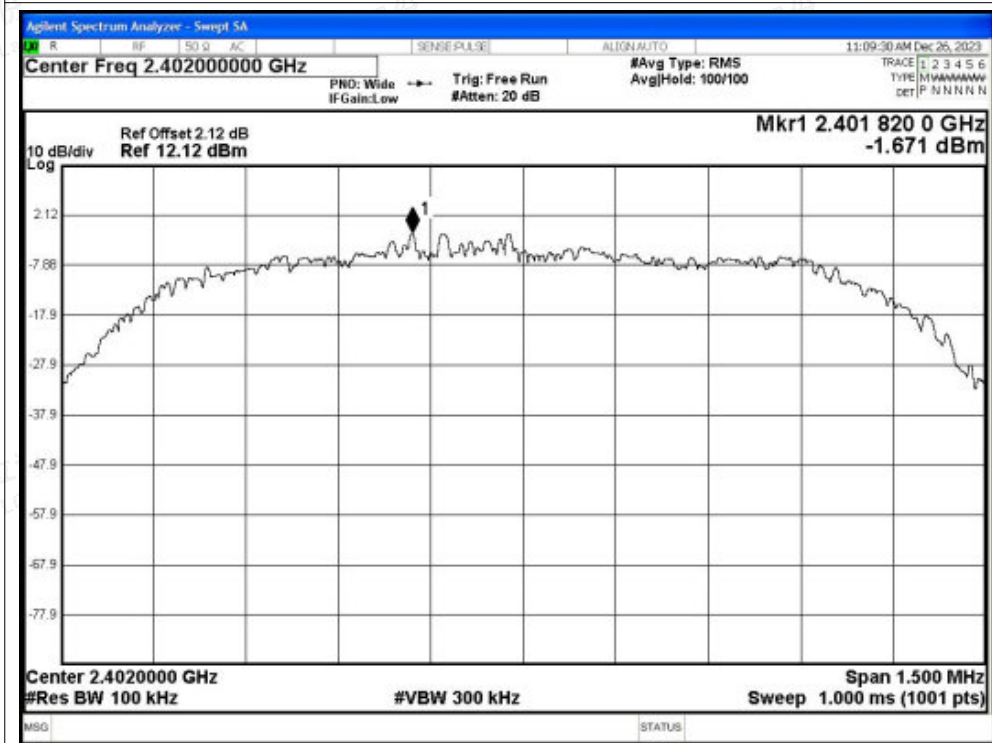


Tx. Spurious NVNT 2-DH5 2480MHz Ant1 Emission

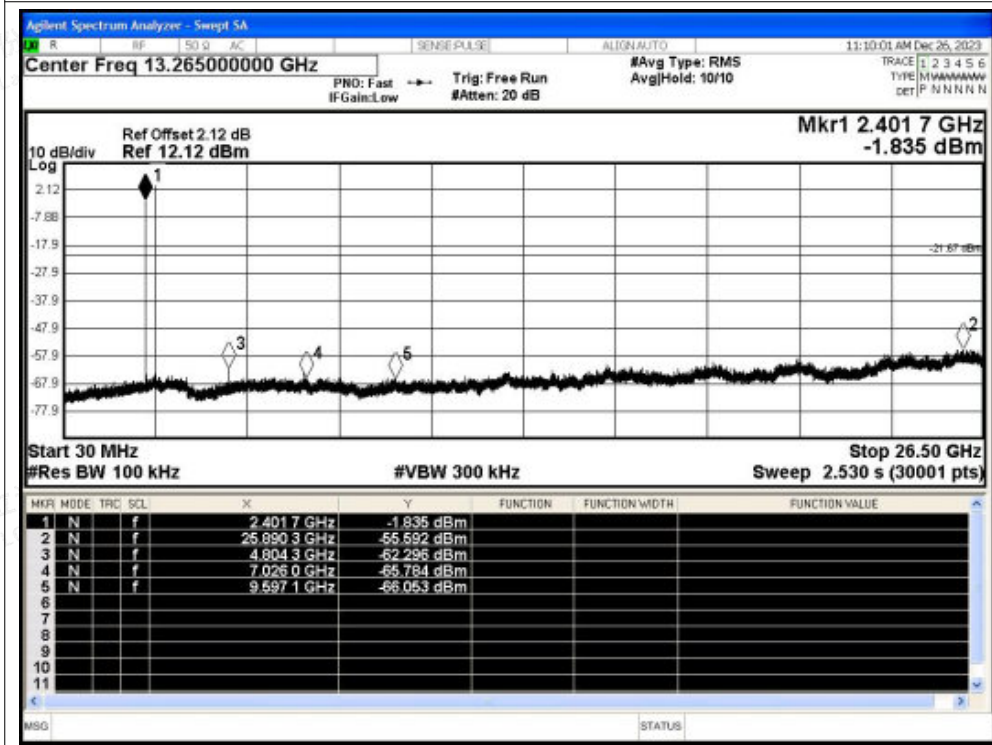




Tx. Spurious NVNT 3-DH5 2402MHz Ant1 Ref

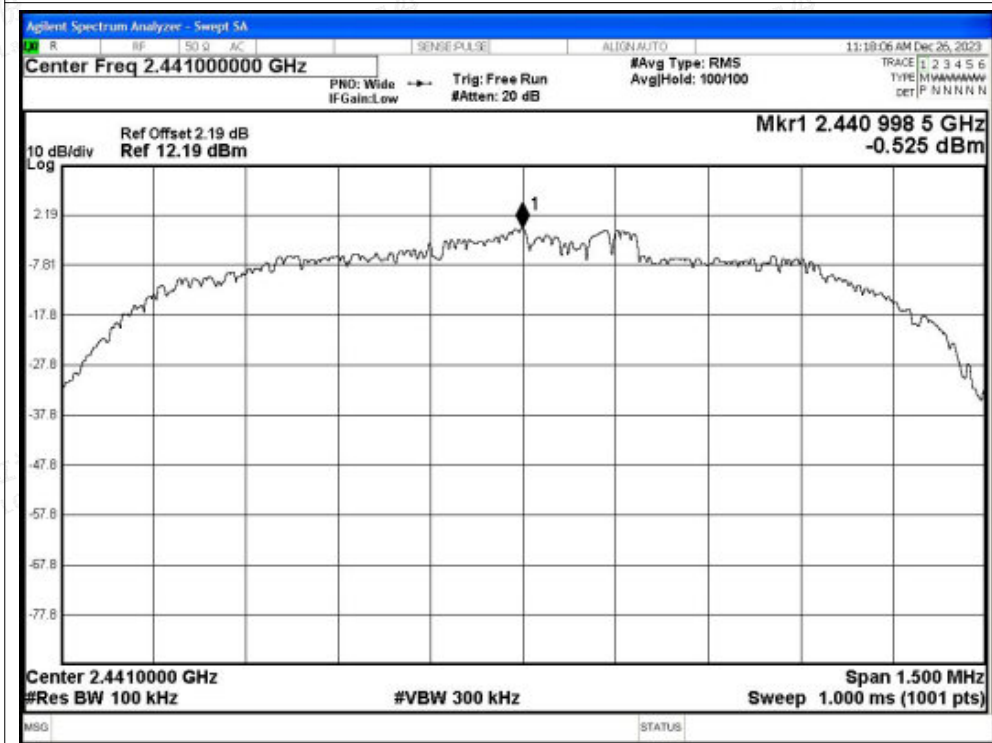


Tx. Spurious NVNT 3-DH5 2402MHz Ant1 Emission

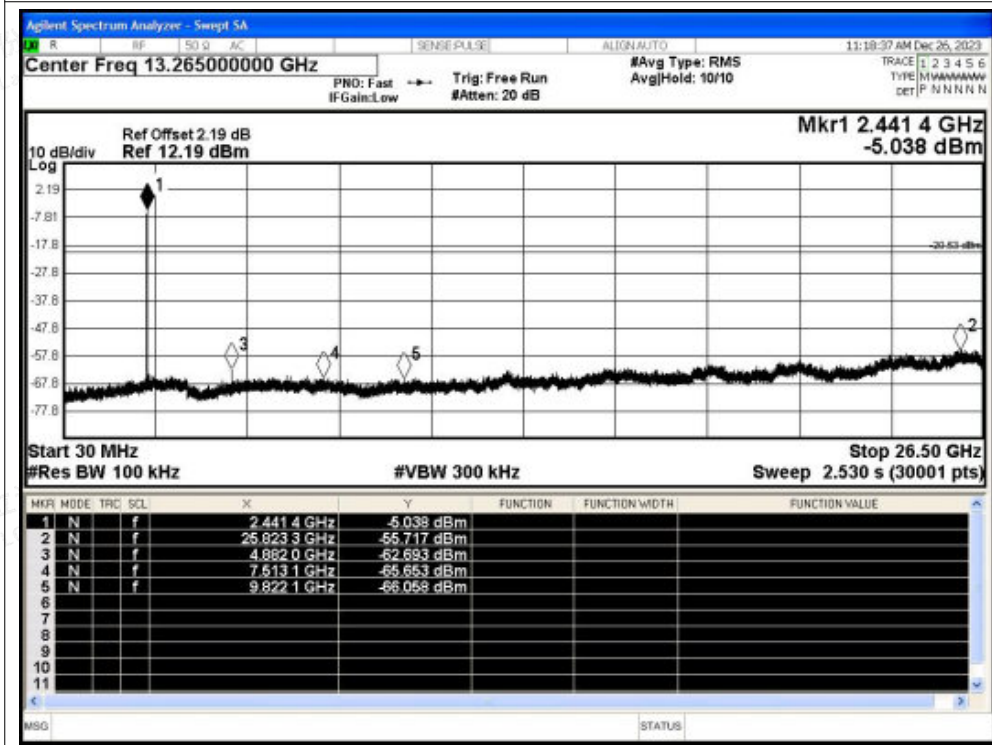




Tx. Spurious NVNT 3-DH5 2441MHz Ant1 Ref



Tx. Spurious NVNT 3-DH5 2441MHz Ant1 Emission

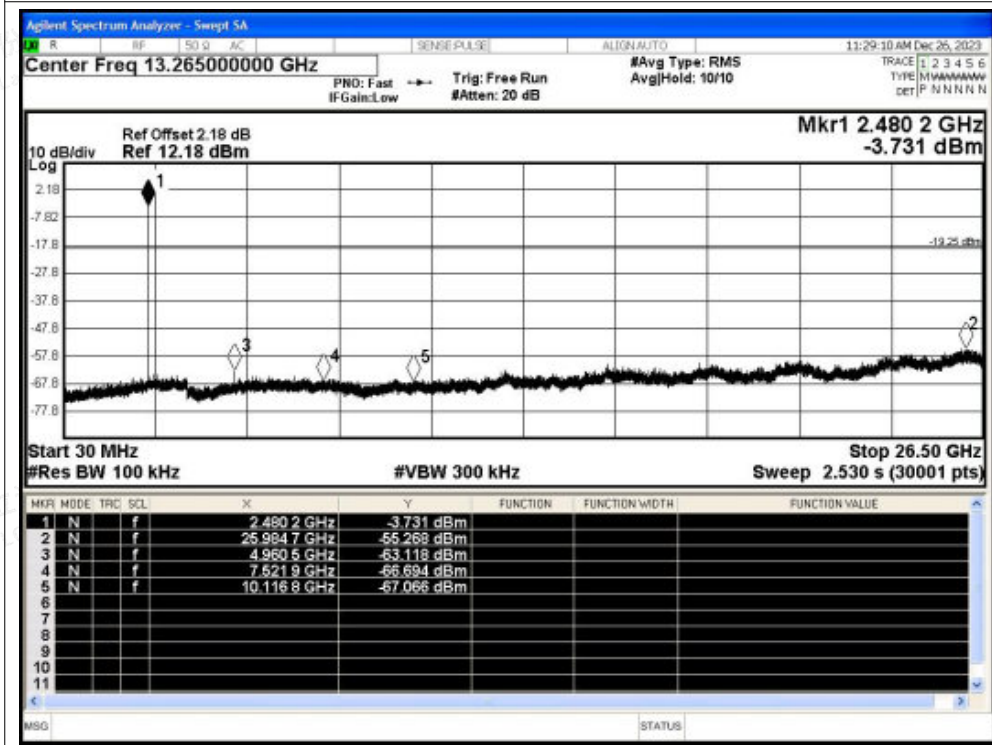




Tx. Spurious NVNT 3-DH5 2480MHz Ant1 Ref



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	76.88	1.14	0.35
NVNT	1-DH5	2441	Ant1	76.88	1.14	0.35
NVNT	1-DH5	2480	Ant1	76.88	1.14	0.35
NVNT	2-DH5	2402	Ant1	76.96	1.14	0.35
NVNT	2-DH5	2441	Ant1	76.99	1.14	0.35
NVNT	2-DH5	2480	Ant1	76.96	1.14	0.35
NVNT	3-DH5	2402	Ant1	77.04	1.13	0.35
NVNT	3-DH5	2441	Ant1	77.04	1.13	0.35
NVNT	3-DH5	2480	Ant1	77.01	1.13	0.35

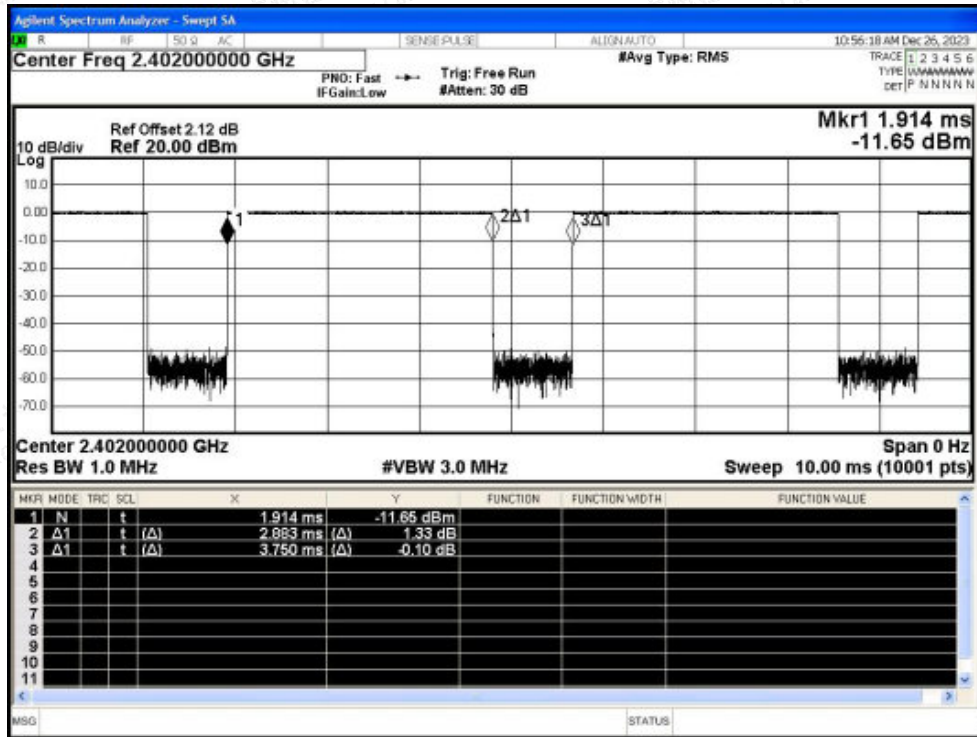




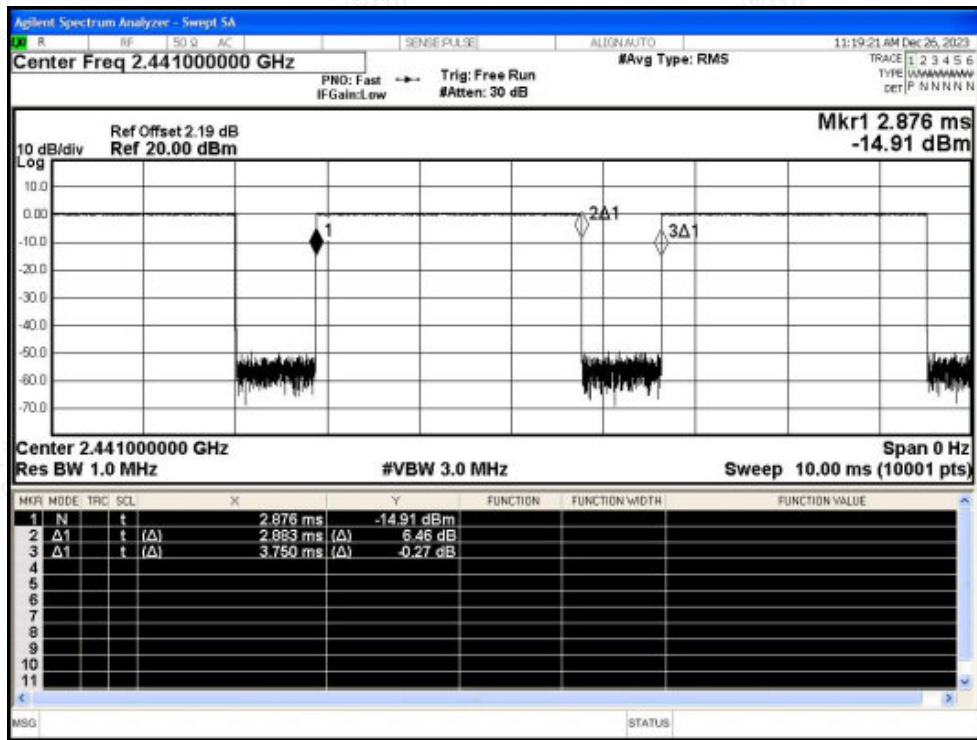


Test Graphs

Duty Cycle NVNT 1-DH5 2402MHz Ant1

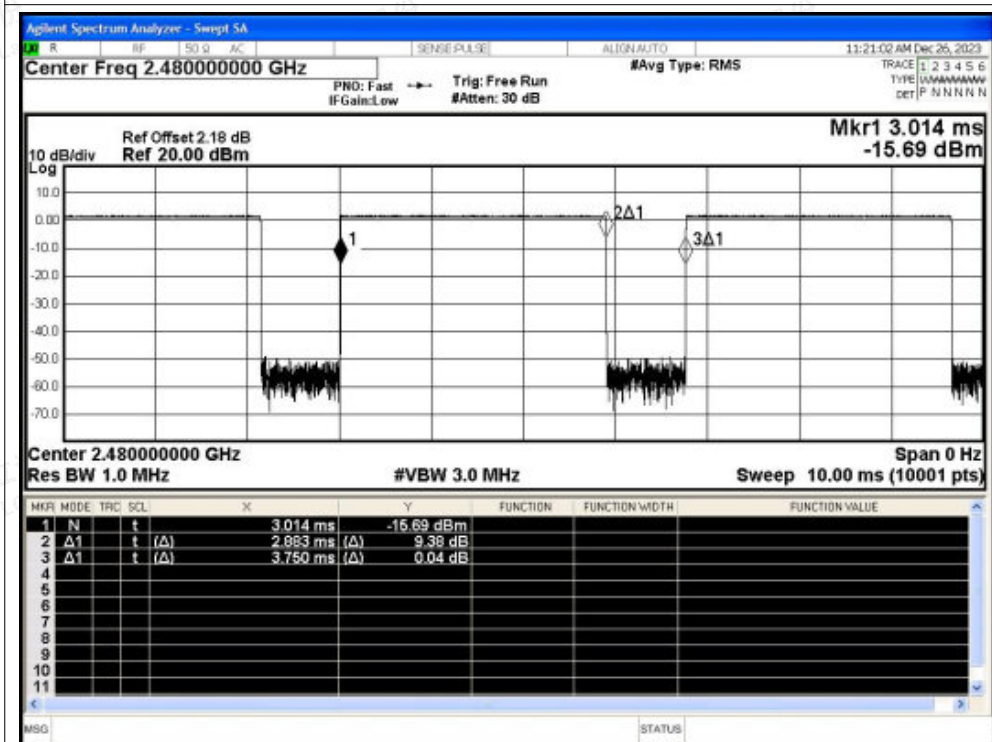


Duty Cycle NVNT 1-DH5 2441MHz Ant1

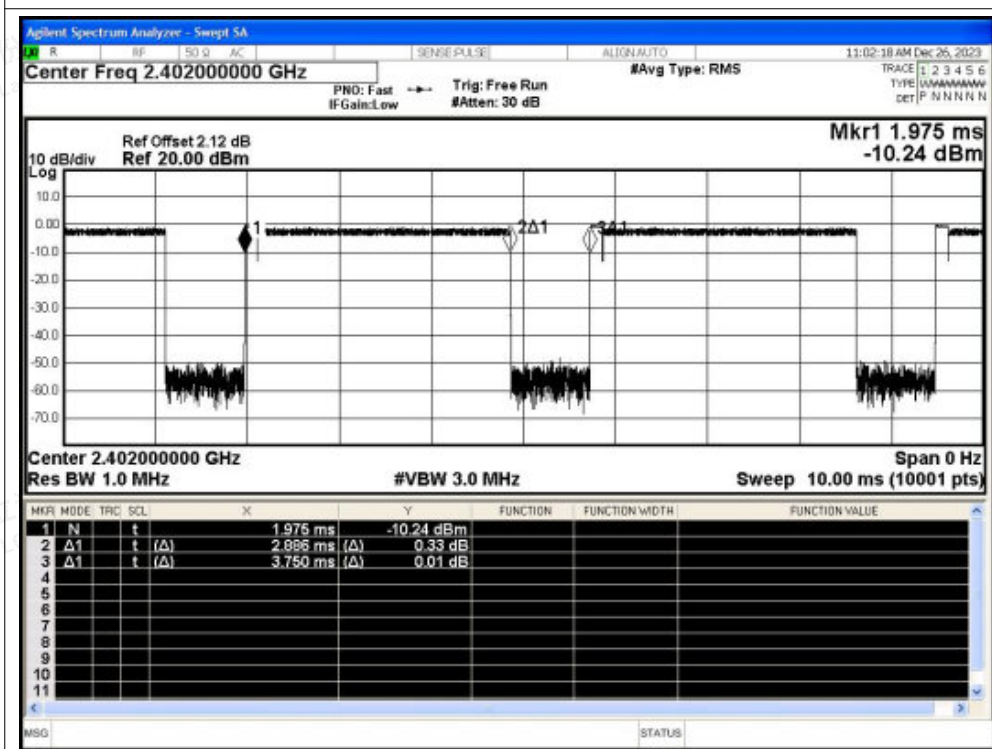




Duty Cycle NVNT 1-DH5 2480MHz Ant1

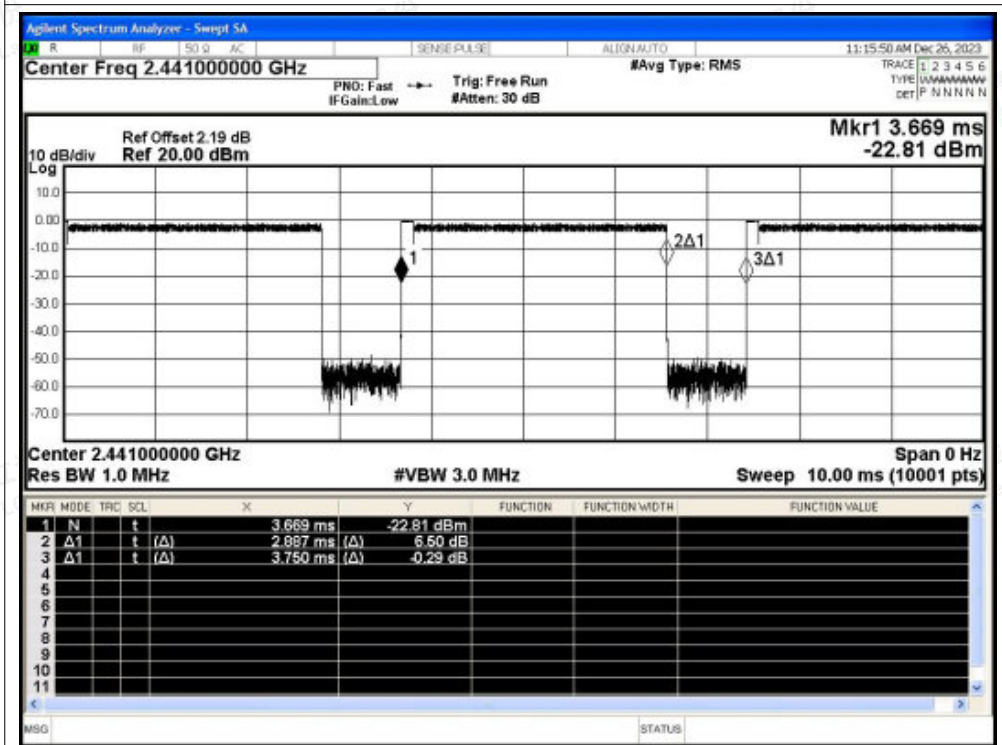


Duty Cycle NVNT 2-DH5 2402MHz Ant1

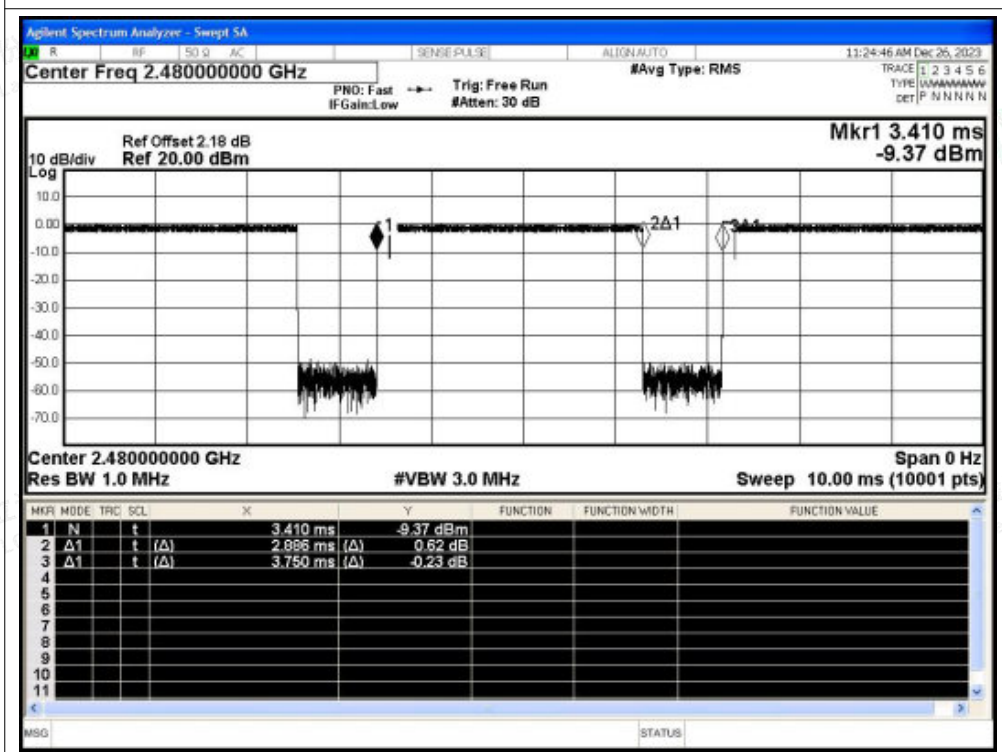




Duty Cycle NVNT 2-DH5 2441MHz Ant1

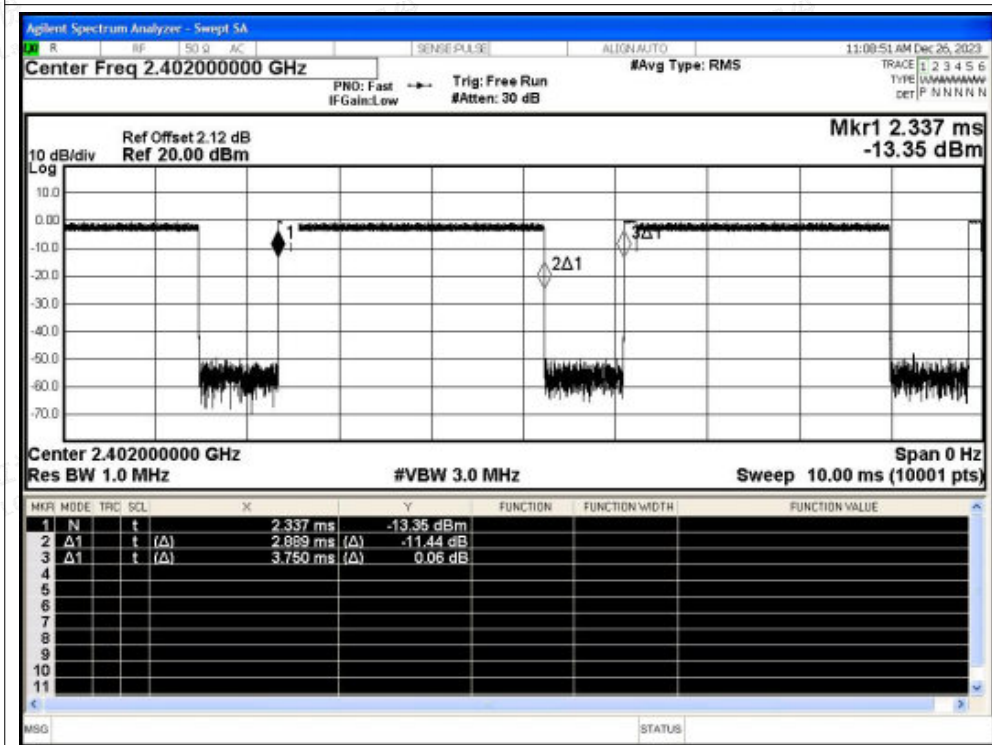


Duty Cycle NVNT 2-DH5 2480MHz Ant1

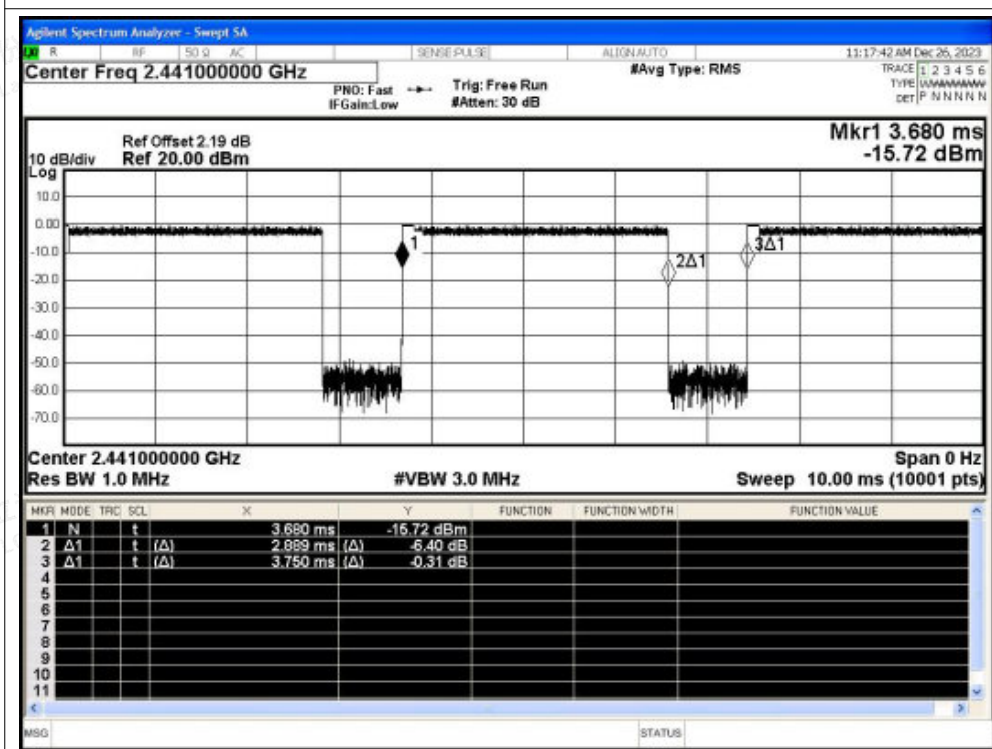




Duty Cycle NVNT 3-DH5 2402MHz Ant1

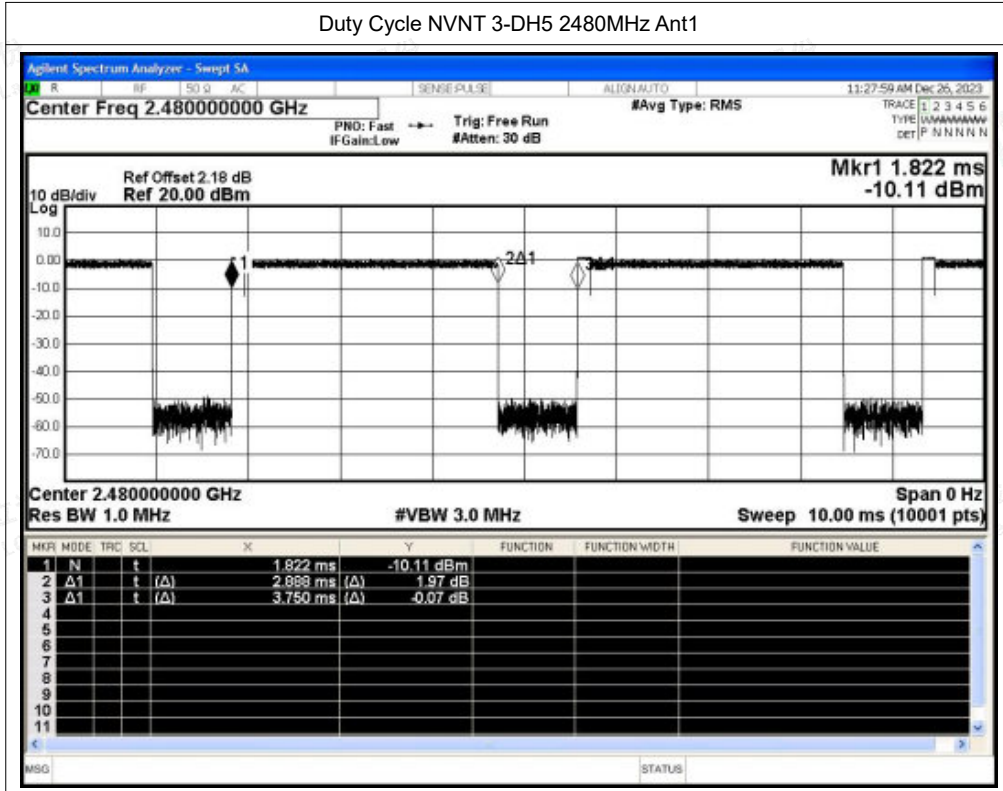


Duty Cycle NVNT 3-DH5 2441MHz Ant1





Duty Cycle NVNT 3-DH5 2480MHz Ant1





### A.9 Restrict Band

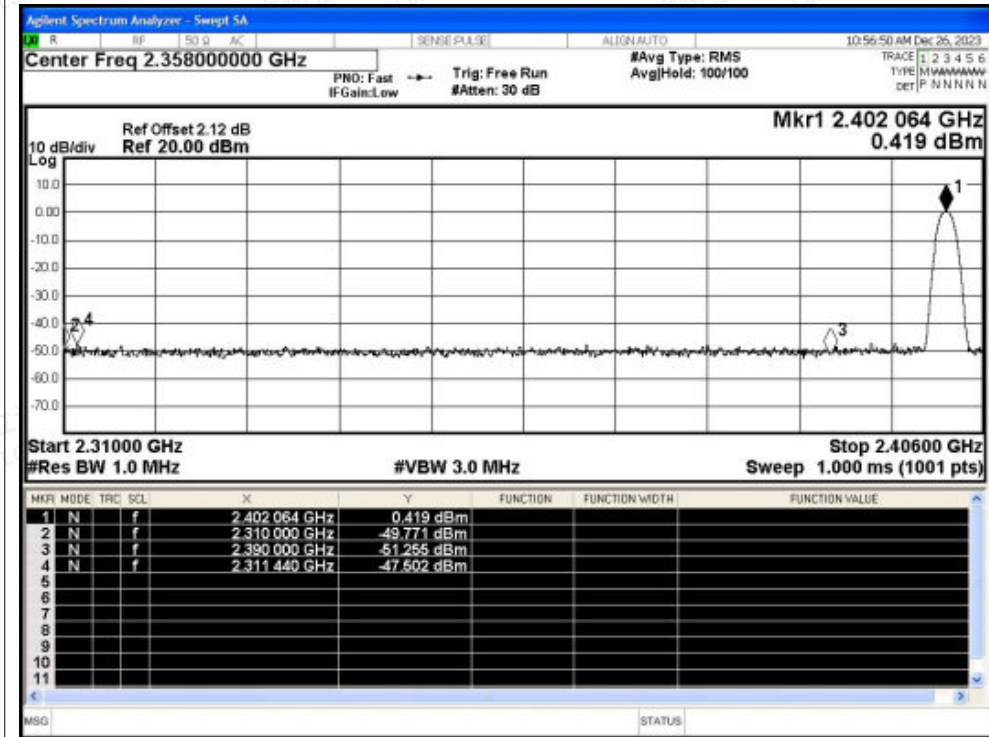
Condition	Mode	Frequency (MHz)	Antenna	Hopping Mode	Spur Freq (MHz)	Power (dBm)	Gain (dBi)	E (dBuV/m)	Detector	Limit (dBuV/m)	Verdict
NVNT	1-DH5	2402	Ant1	No-Hopping	2310	-49.77	2.0	47.49	Peak	74	Pass
NVNT	1-DH5	2402	Ant1	No-Hopping	2310	-58.41	2.0	38.85	Average	54	Pass
NVNT	1-DH5	2402	Ant1	No-Hopping	2311.44	-47.5	2.0	49.76	Peak	74	Pass
NVNT	1-DH5	2402	Ant1	No-Hopping	2368.464	-57.66	2.0	39.6	Average	54	Pass
NVNT	1-DH5	2402	Ant1	No-Hopping	2390	-51.26	2.0	46	Peak	74	Pass
NVNT	1-DH5	2402	Ant1	No-Hopping	2390	-58.7	2.0	38.56	Average	54	Pass
NVNT	1-DH5	2480	Ant1	No-Hopping	2483.5	-49.76	2.0	47.5	Peak	74	Pass
NVNT	1-DH5	2480	Ant1	No-Hopping	2483.5	-57.69	2.0	39.57	Average	54	Pass
NVNT	1-DH5	2480	Ant1	No-Hopping	2484.712	-46.85	2.0	50.41	Peak	74	Pass
NVNT	1-DH5	2480	Ant1	No-Hopping	2492.008	-56.94	2.0	40.32	Average	54	Pass
NVNT	1-DH5	2480	Ant1	No-Hopping	2500	-49.5	2.0	47.76	Peak	74	Pass
NVNT	1-DH5	2480	Ant1	No-Hopping	2500	-58.18	2.0	39.08	Average	54	Pass
NVNT	2-DH5	2402	Ant1	No-Hopping	2310	-50.64	2.0	46.62	Peak	74	Pass
NVNT	2-DH5	2402	Ant1	No-Hopping	2310	-59.25	2.0	38.01	Average	54	Pass
NVNT	2-DH5	2402	Ant1	No-Hopping	2322.672	-47.84	2.0	49.42	Peak	74	Pass
NVNT	2-DH5	2402	Ant1	No-Hopping	2387.952	-57.61	2.0	39.65	Average	54	Pass
NVNT	2-DH5	2402	Ant1	No-Hopping	2390	-49.58	2.0	47.68	Peak	74	Pass
NVNT	2-DH5	2402	Ant1	No-Hopping	2390	-57.79	2.0	39.47	Average	54	Pass
NVNT	2-DH5	2480	Ant1	No-Hopping	2483.5	-49.59	2.0	47.67	Peak	74	Pass
NVNT	2-DH5	2480	Ant1	No-Hopping	2483.5	-58.01	2.0	39.25	Average	54	Pass
NVNT	2-DH5	2480	Ant1	No-Hopping	2497.624	-46.63	2.0	50.63	Peak	74	Pass
NVNT	2-DH5	2480	Ant1	No-Hopping	2485.768	-56.97	2.0	40.29	Average	54	Pass
NVNT	2-DH5	2480	Ant1	No-Hopping	2500	-49.56	2.0	47.7	Peak	74	Pass
NVNT	2-DH5	2480	Ant1	No-Hopping	2500	-57.91	2.0	39.35	Average	54	Pass
NVNT	3-DH5	2402	Ant1	No-Hopping	2310	-51.09	2.0	46.17	Peak	74	Pass
NVNT	3-DH5	2402	Ant1	No-Hopping	2310	-58.8	2.0	38.46	Average	54	Pass
NVNT	3-DH5	2402	Ant1	No-Hopping	2384.784	-47.29	2.0	49.97	Peak	74	Pass
NVNT	3-DH5	2402	Ant1	No-Hopping	2378.352	-57.43	2.0	39.83	Average	54	Pass
NVNT	3-DH5	2402	Ant1	No-Hopping	2390	-48.93	2.0	48.33	Peak	74	Pass
NVNT	3-DH5	2402	Ant1	No-Hopping	2390	-58.07	2.0	39.19	Average	54	Pass
NVNT	3-DH5	2480	Ant1	No-Hopping	2483.5	-50.54	2.0	46.72	Peak	74	Pass
NVNT	3-DH5	2480	Ant1	No-Hopping	2483.5	-57.62	2.0	39.64	Average	54	Pass
NVNT	3-DH5	2480	Ant1	No-Hopping	2486.368	-46.6	2.0	50.66	Peak	74	Pass
NVNT	3-DH5	2480	Ant1	No-Hopping	2484.016	-57.21	2.0	40.05	Average	54	Pass
NVNT	3-DH5	2480	Ant1	No-Hopping	2500	-50.16	2.0	47.1	Peak	74	Pass
NVNT	3-DH5	2480	Ant1	No-Hopping	2500	-58.24	2.0	39.02	Average	54	Pass



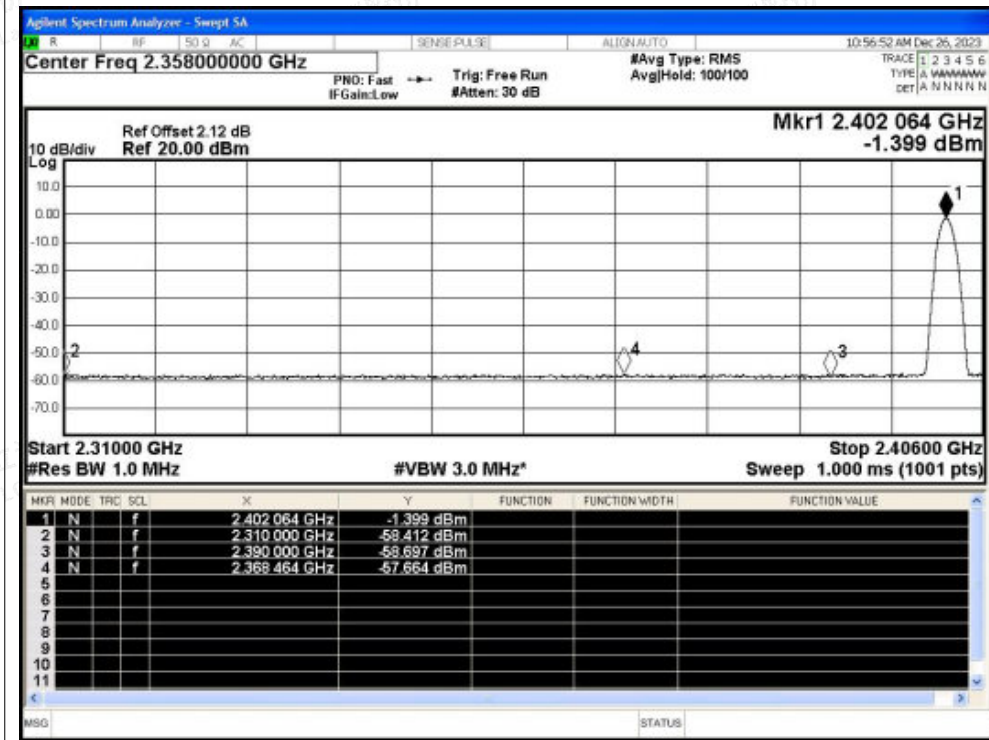


Test Graphs

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

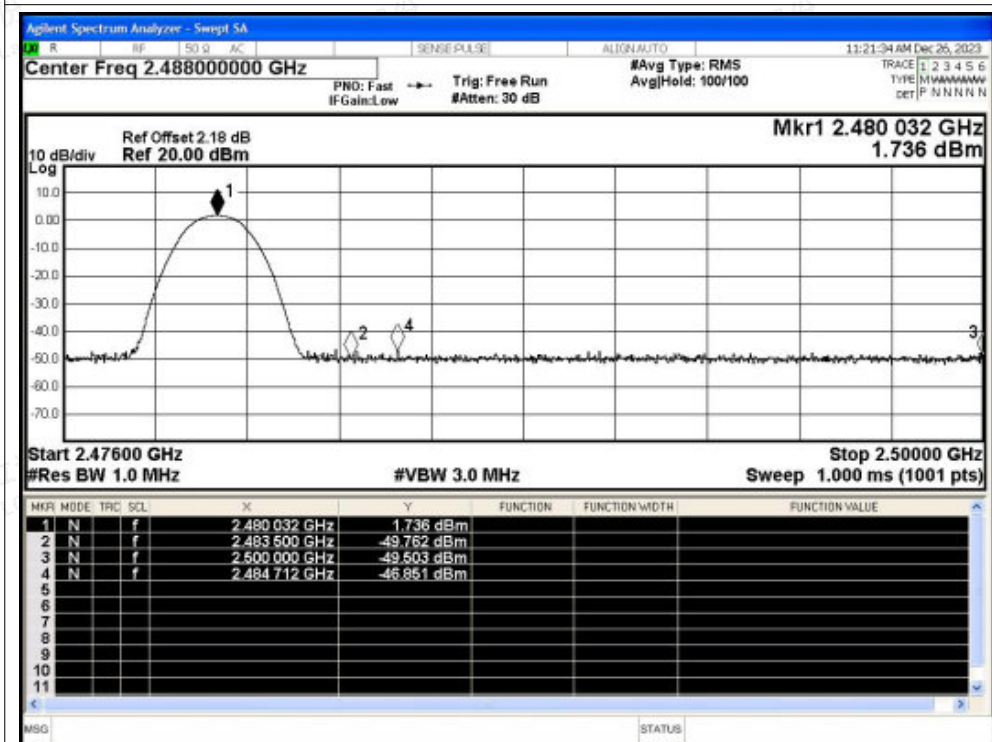


Restrict Band NVNT 1-DH5 2402MHz Ant1 No-Hopping Average

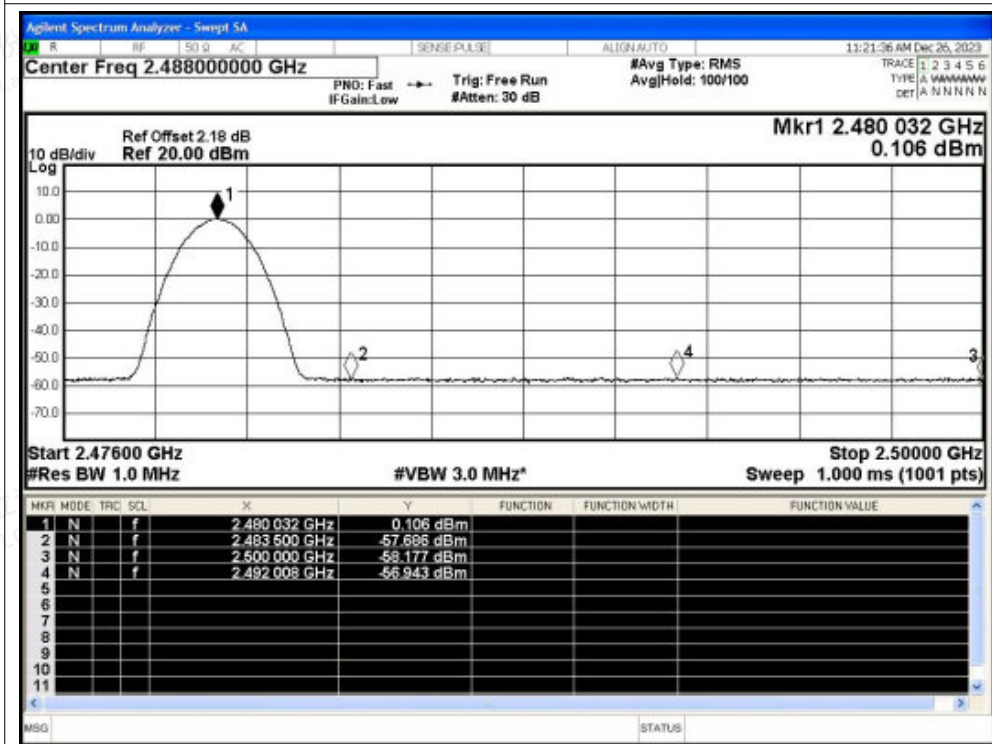




Restrict Band NVNT 1-DH5 2480MHz Ant1 No-Hopping Peak



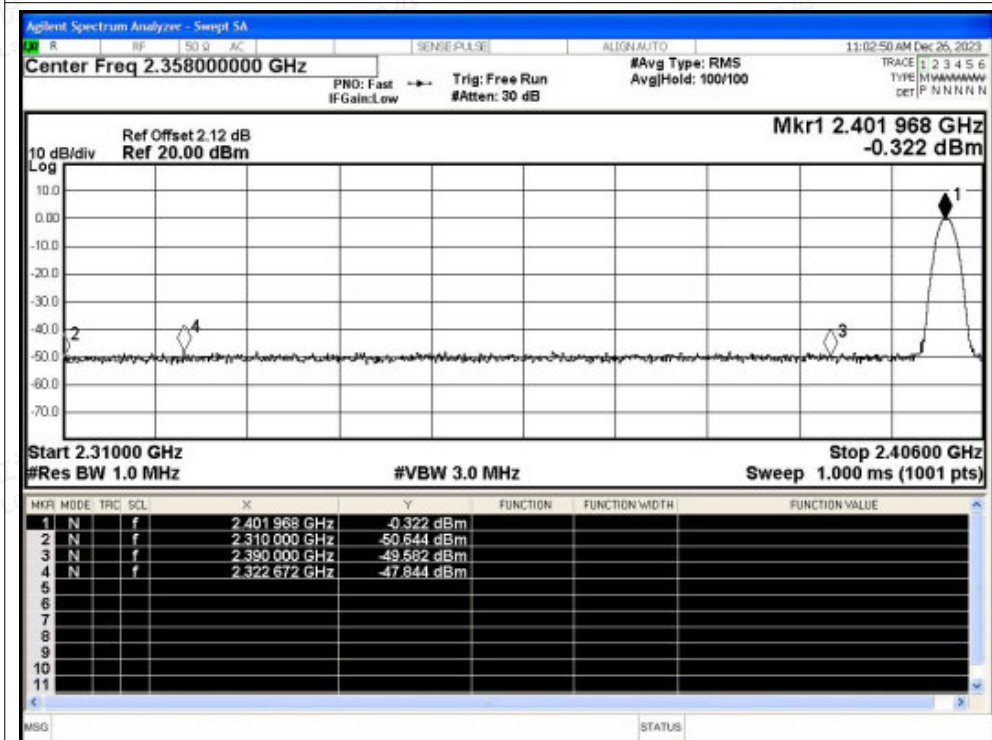
Restrict Band NVNT 1-DH5 2480MHz Ant1 No-Hopping Average



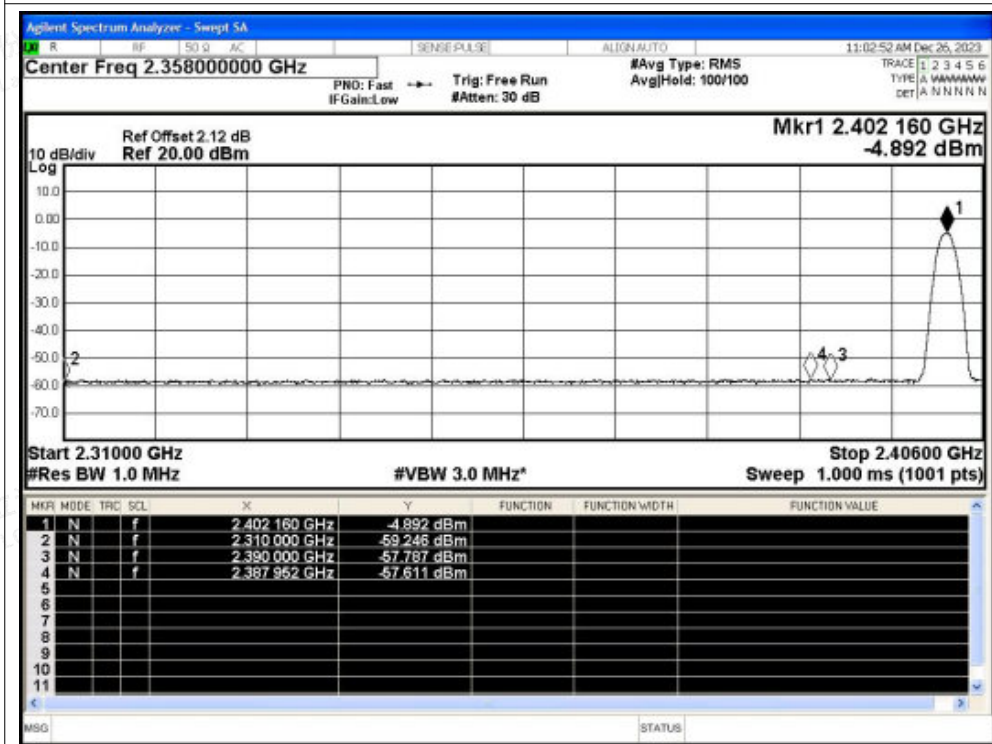




Restrict Band NVNT 2-DH5 2402MHz Ant1 No-Hopping Peak

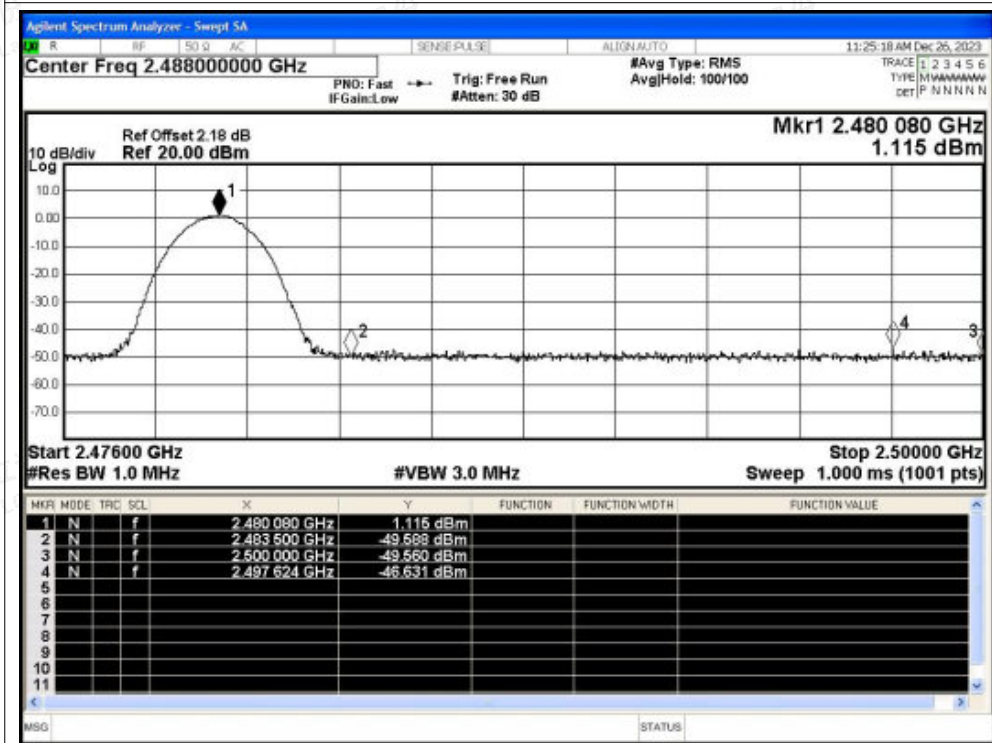


Restrict Band NVNT 2-DH5 2402MHz Ant1 No-Hopping Average

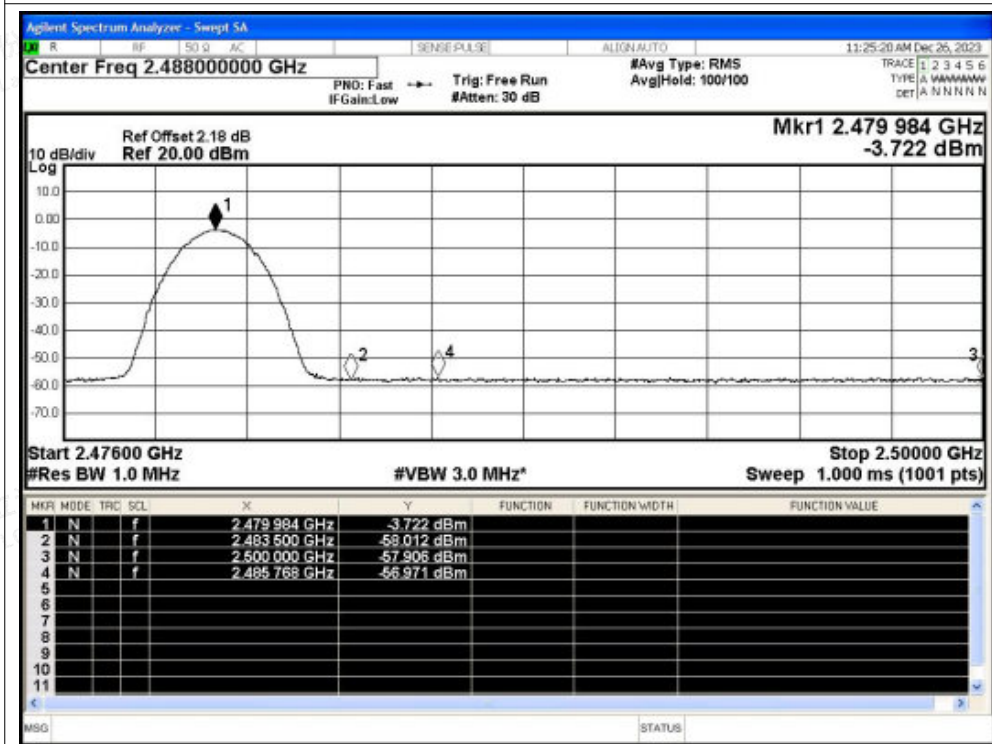




Restrict Band NVNT 2-DH5 2480MHz Ant1 No-Hopping Peak

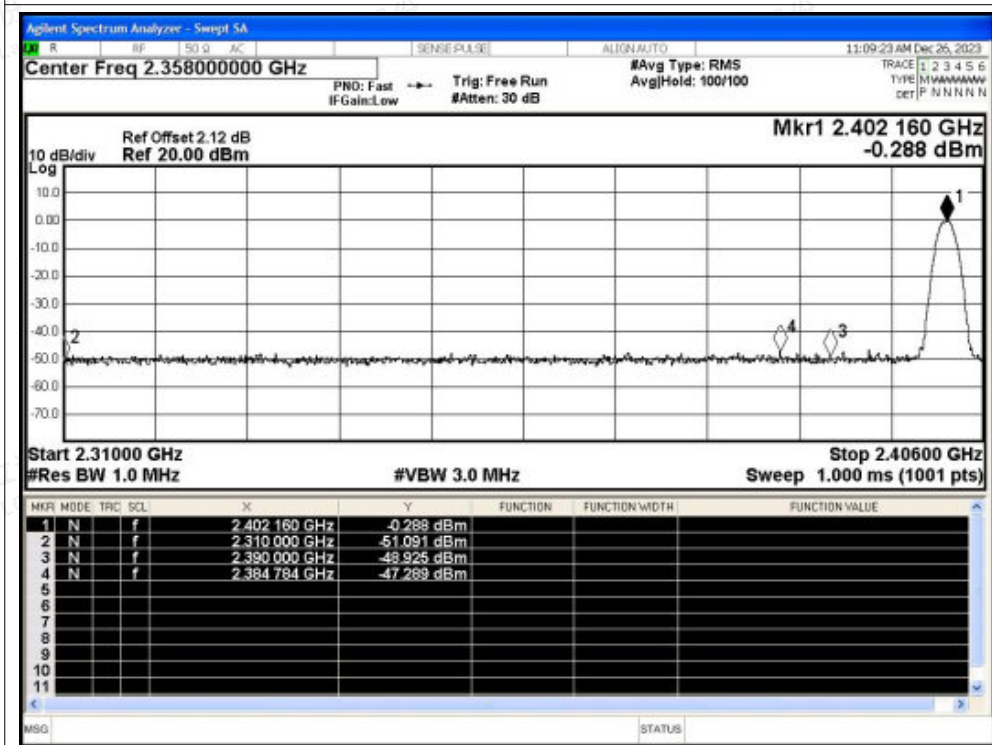


Restrict Band NVNT 2-DH5 2480MHz Ant1 No-Hopping Average

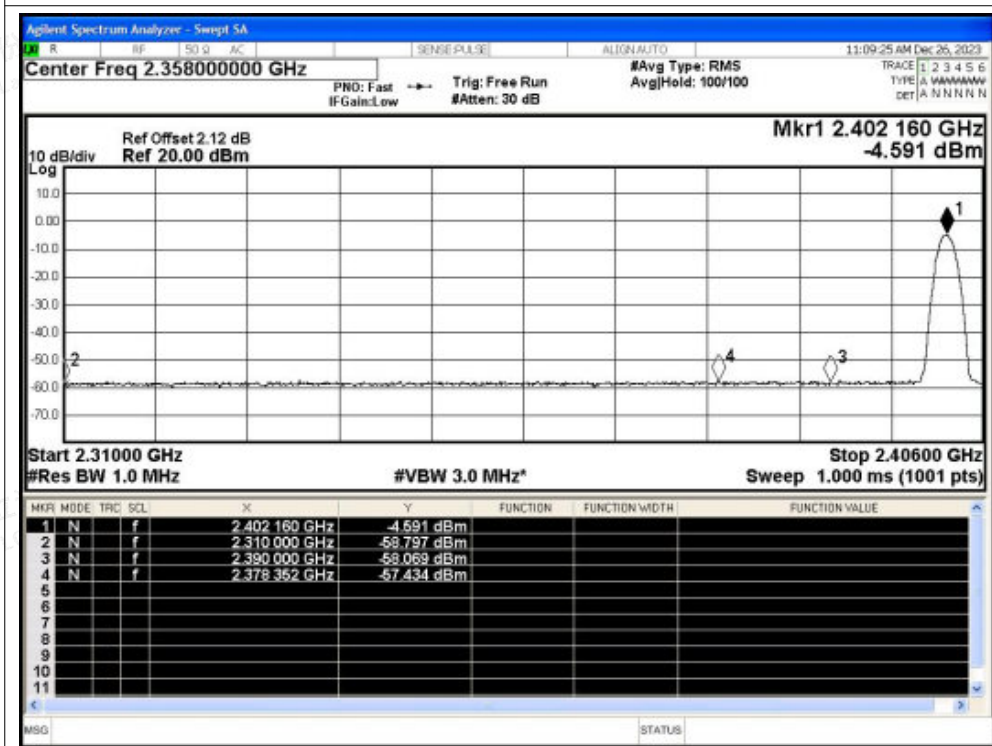




Restrict Band NVNT 3-DH5 2402MHz Ant1 No-Hopping Peak

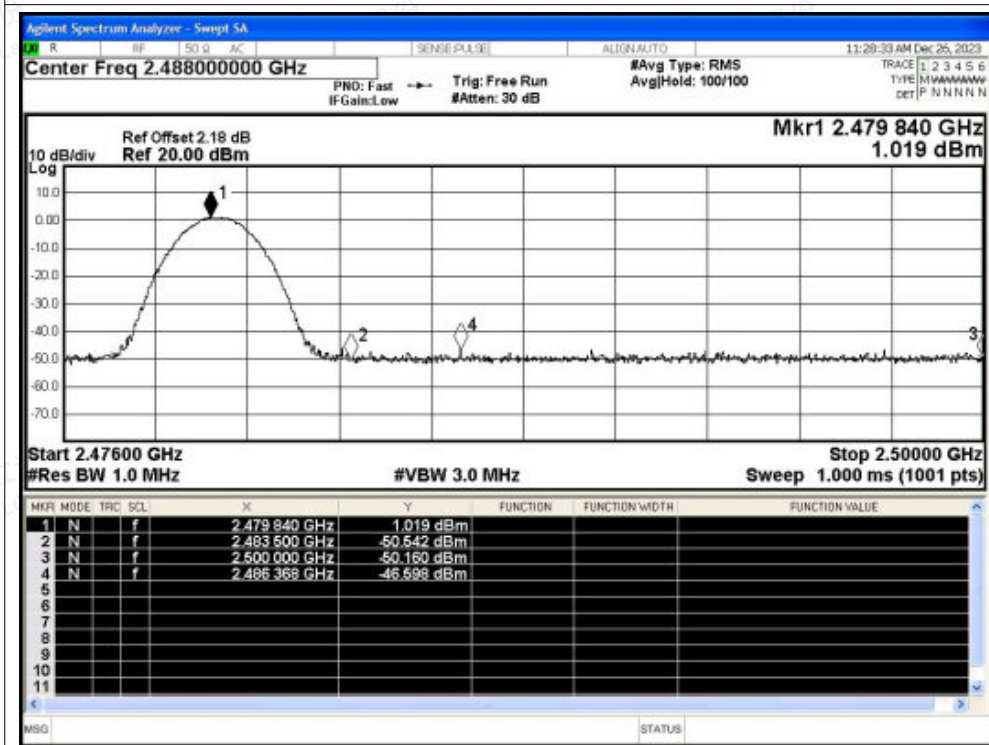


Restrict Band NVNT 3-DH5 2402MHz Ant1 No-Hopping Average





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



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

