Appendix A

RF Test Data for BT (Conducted Measurement)

Product Name: TV soundbar speaker

Test Model: ZSK-B01

Environmental Conditions

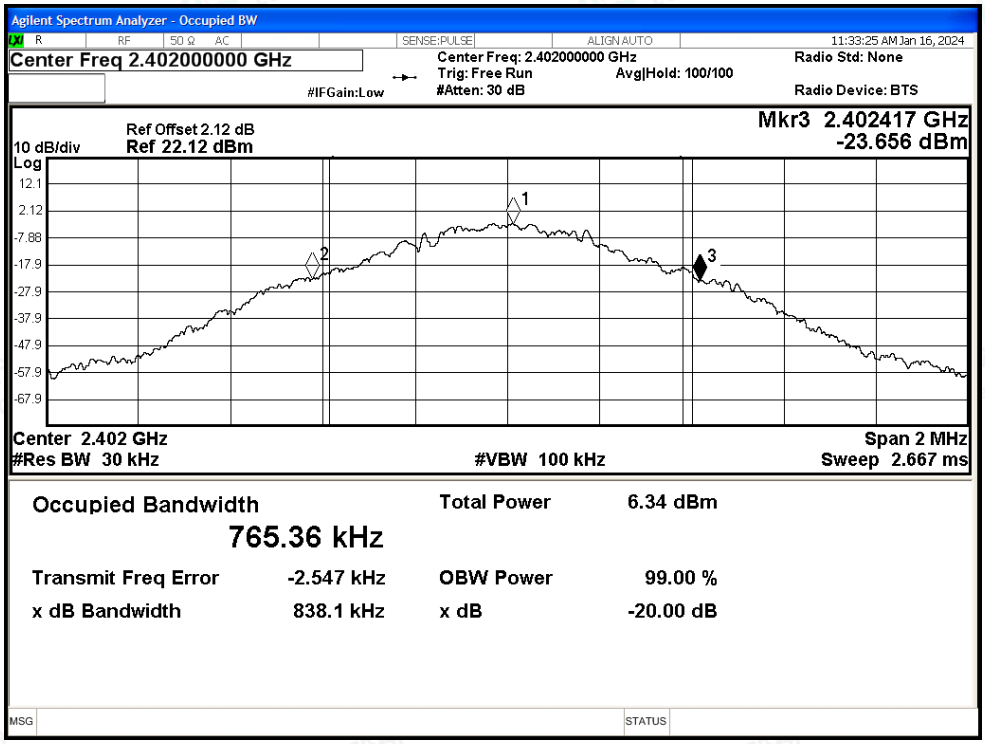
Temperature:	23.8° C
Relative Humidity:	52.1%
ATM Pressure:	100.0 kPa
Test Engineer:	Eason Zhou
Supervised by:	Nick Peng

A.1 -20dB Bandwidth

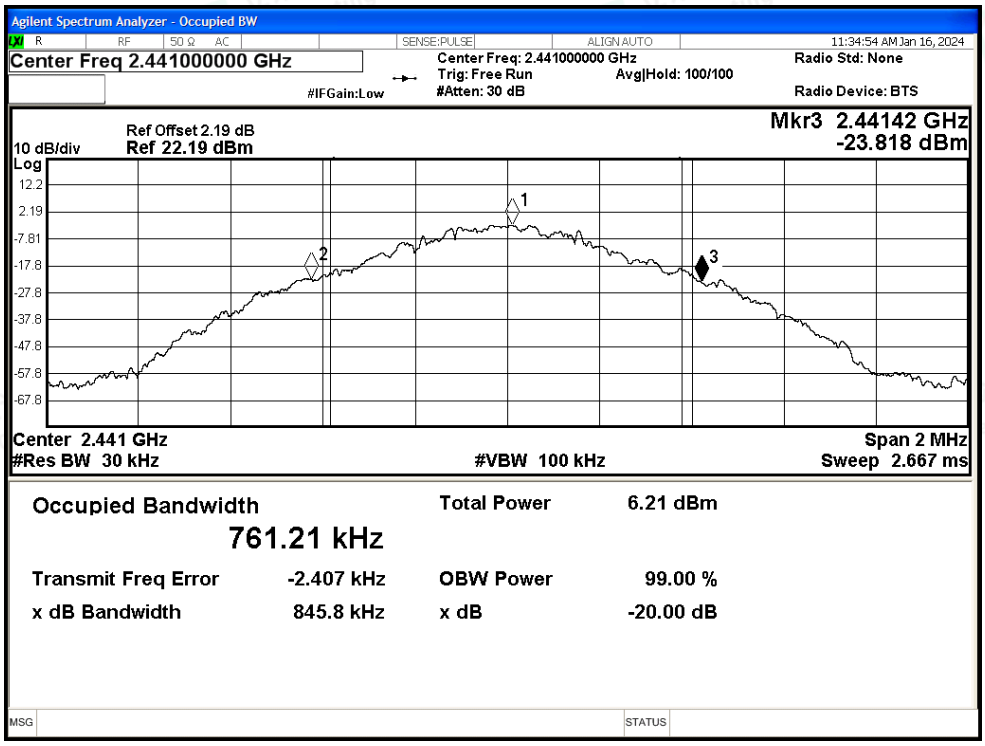
Condition	Mode	Frequency (MHz)	Antenna	-20 dB Bandwidth (MHz)	Limit -20 dB Bandwidth (MHz)	Verdict
NVNT	1-DH5	2402	Ant1	0.838	N/A	Pass
NVNT	1-DH5	2441	Ant1	0.846	N/A	Pass
NVNT	1-DH5	2480	Ant1	0.844	N/A	Pass
NVNT	2-DH5	2402	Ant1	1.279	N/A	Pass
NVNT	2-DH5	2441	Ant1	1.272	N/A	Pass
NVNT	2-DH5	2480	Ant1	1.262	N/A	Pass
NVNT	3-DH5	2402	Ant1	1.291	N/A	Pass
NVNT	3-DH5	2441	Ant1	1.25	N/A	Pass
NVNT	3-DH5	2480	Ant1	1.289	N/A	Pass

Test Graphs

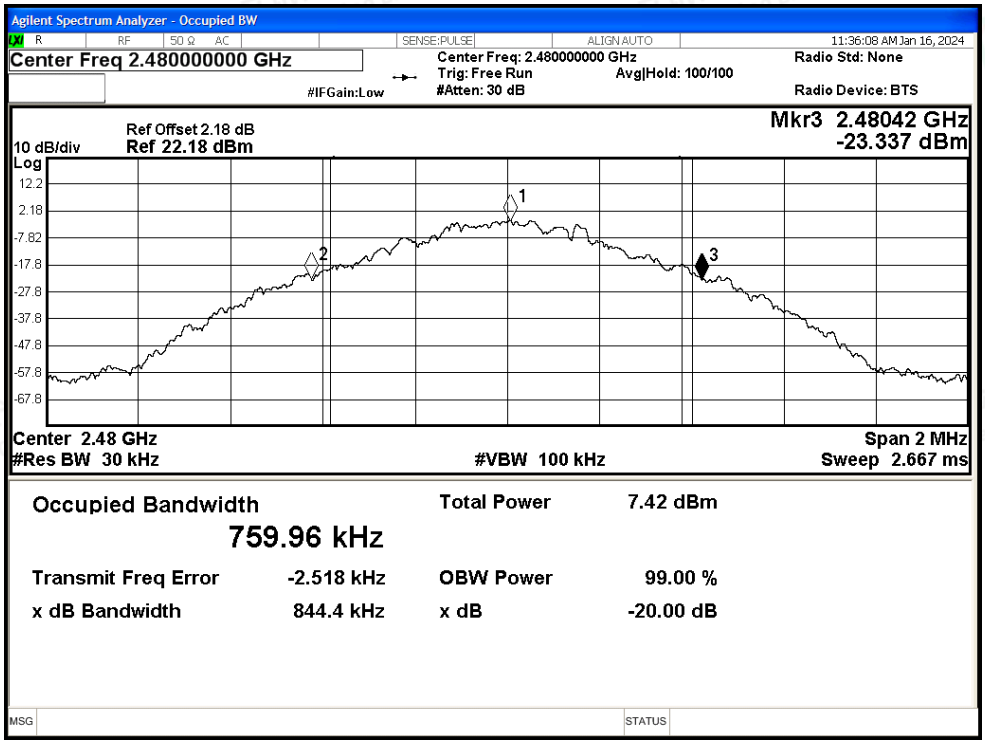
-20dB Bandwidth NVNT 1-DH5 2402MHz Ant1



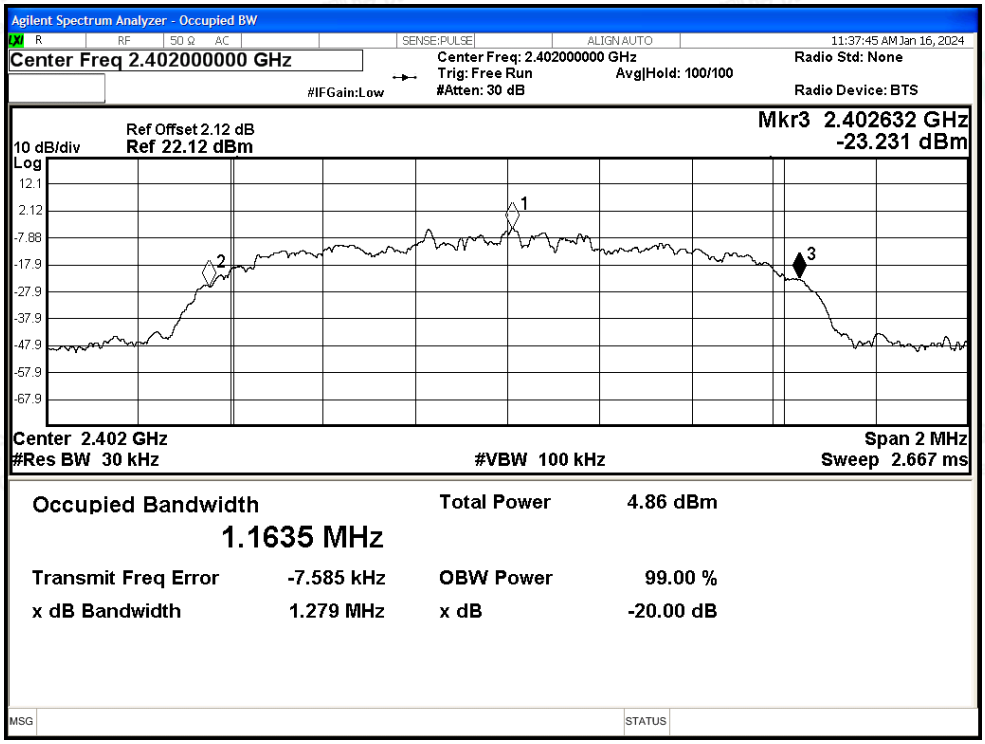
-20dB Bandwidth NVNT 1-DH5 2441MHz Ant1



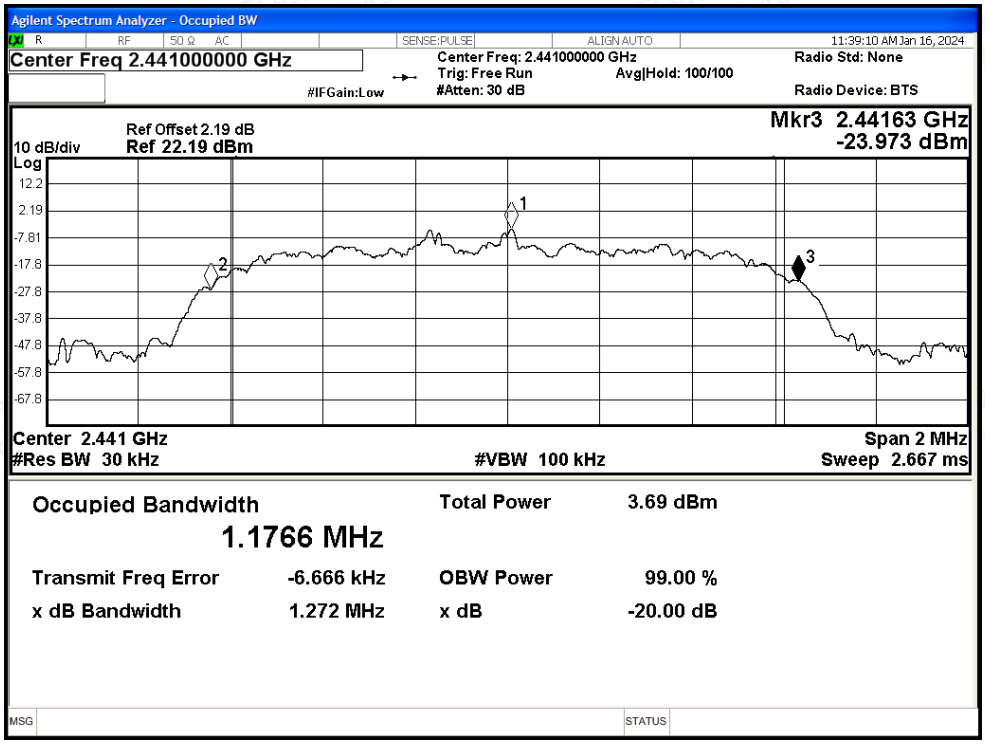
-20dB Bandwidth NVNT 1-DH5 2480MHz Ant1



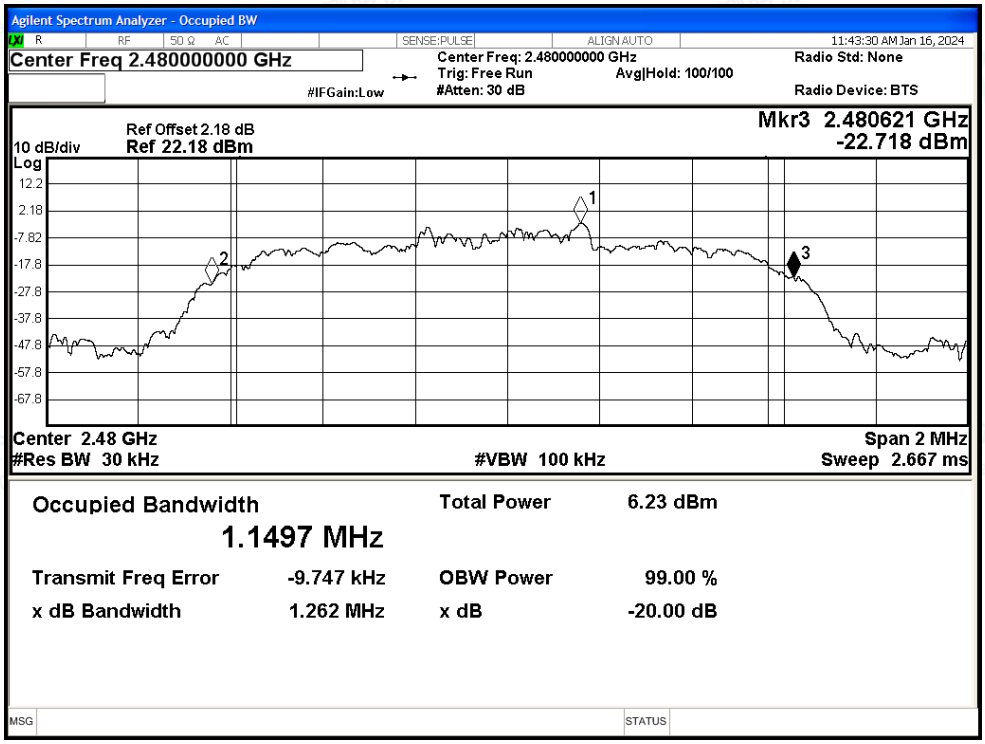
-20dB Bandwidth NVNT 2-DH5 2402MHz Ant1



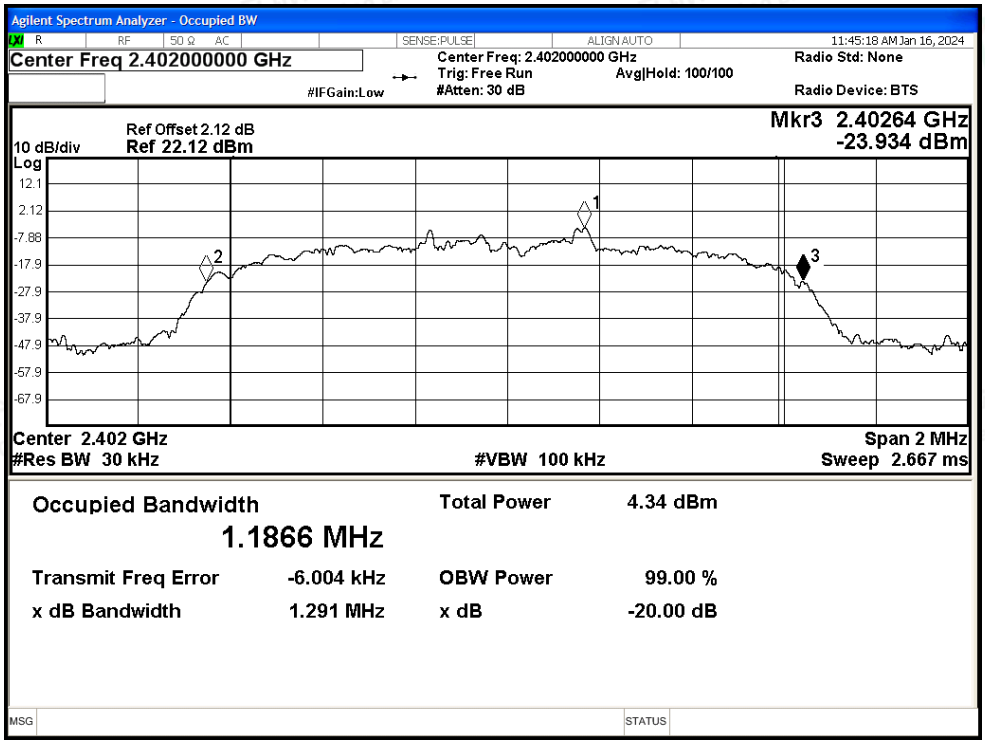
-20dB Bandwidth NVNT 2-DH5 2441MHz Ant1



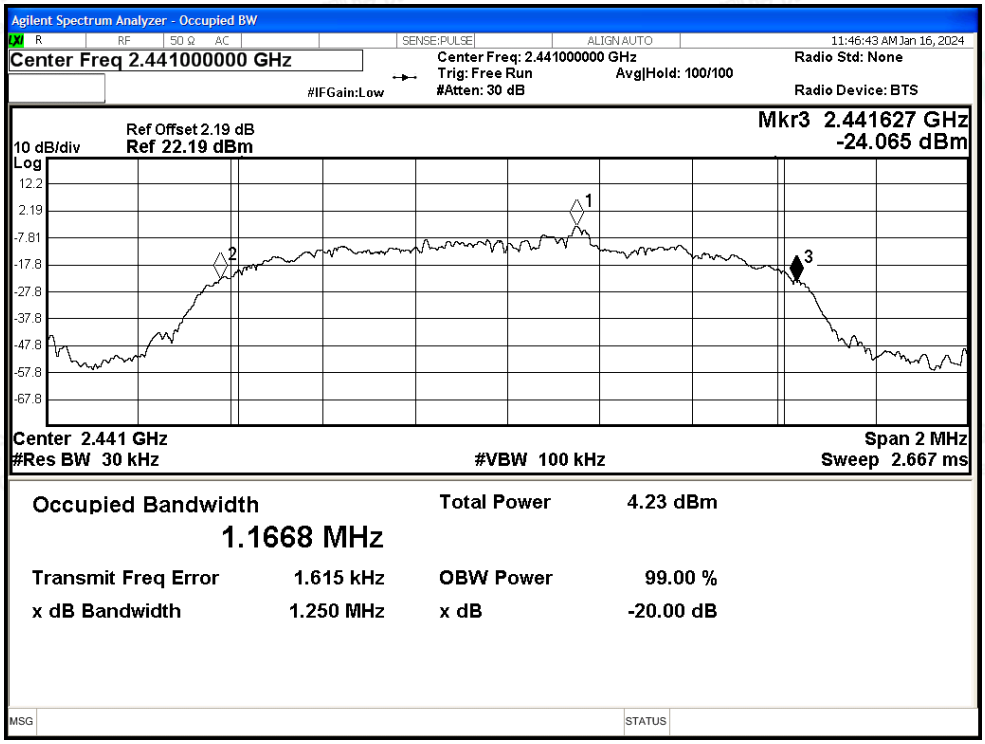
-20dB Bandwidth NVNT 2-DH5 2480MHz Ant1



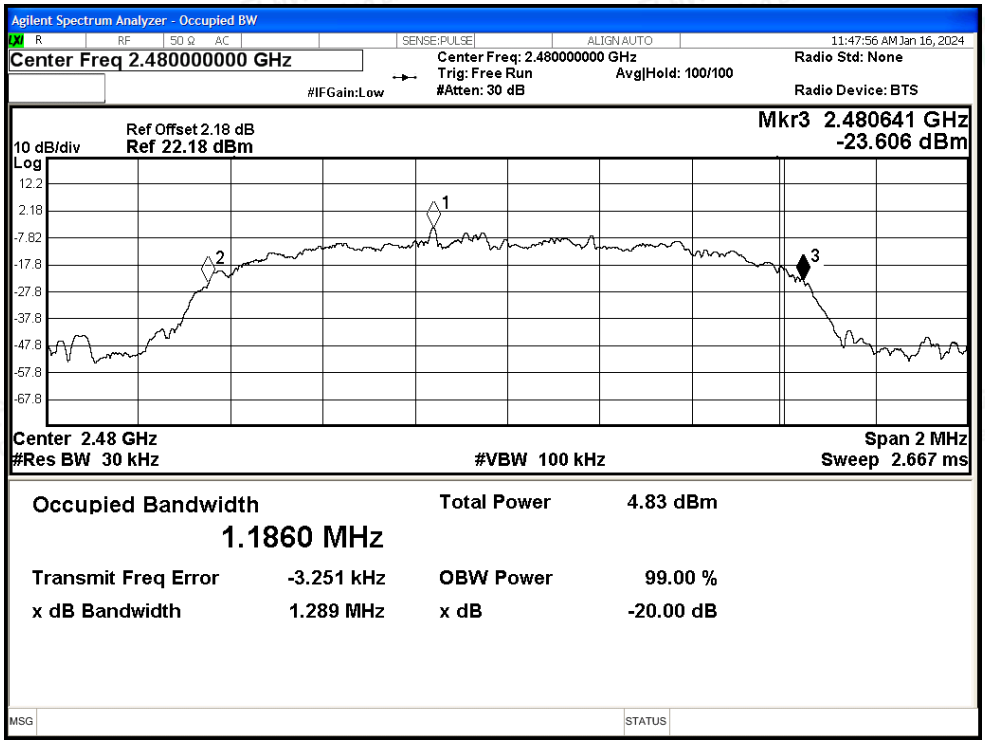
-20dB Bandwidth NVNT 3-DH5 2402MHz Ant1



-20dB Bandwidth NVNT 3-DH5 2441MHz Ant1



-20dB Bandwidth NVNT 3-DH5 2480MHz Ant1

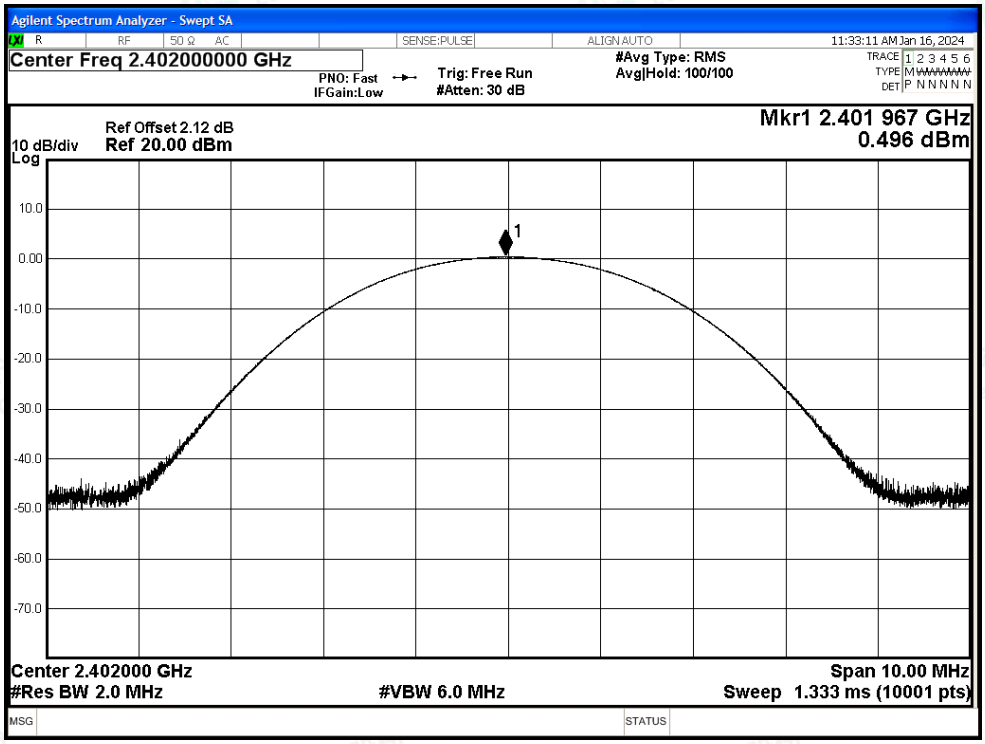


A.2 Maximum Peak Conducted Output Power

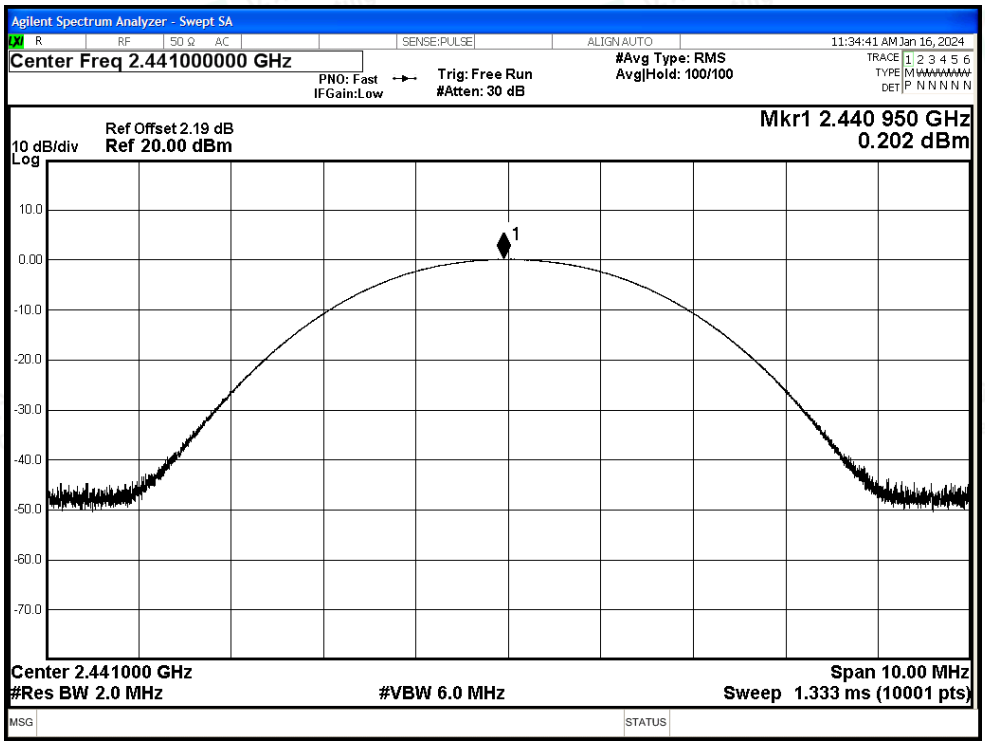
Condition	Mode	Frequency (MHz)	Antenna	Conducted Power (dBm)	Limit (dBm)	Verdict
NVNT	1-DH5	2402	Ant1	0.5	21	Pass
NVNT	1-DH5	2441	Ant1	0.2	21	Pass
NVNT	1-DH5	2480	Ant1	1.46	21	Pass
NVNT	2-DH5	2402	Ant1	-0.38	21	Pass
NVNT	2-DH5	2441	Ant1	-0.47	21	Pass
NVNT	2-DH5	2480	Ant1	0.84	21	Pass
NVNT	3-DH5	2402	Ant1	-0.09	21	Pass
NVNT	3-DH5	2441	Ant1	-0.4	21	Pass
NVNT	3-DH5	2480	Ant1	0.92	21	Pass

Test Graphs

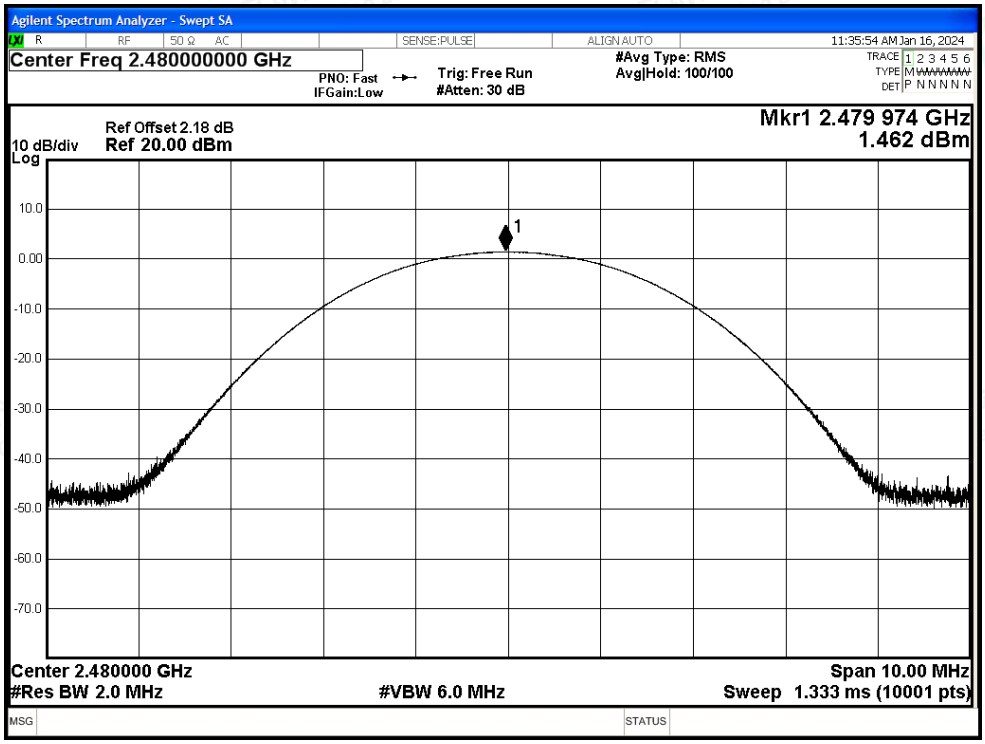
Power NVNT 1-DH5 2402MHz Ant1



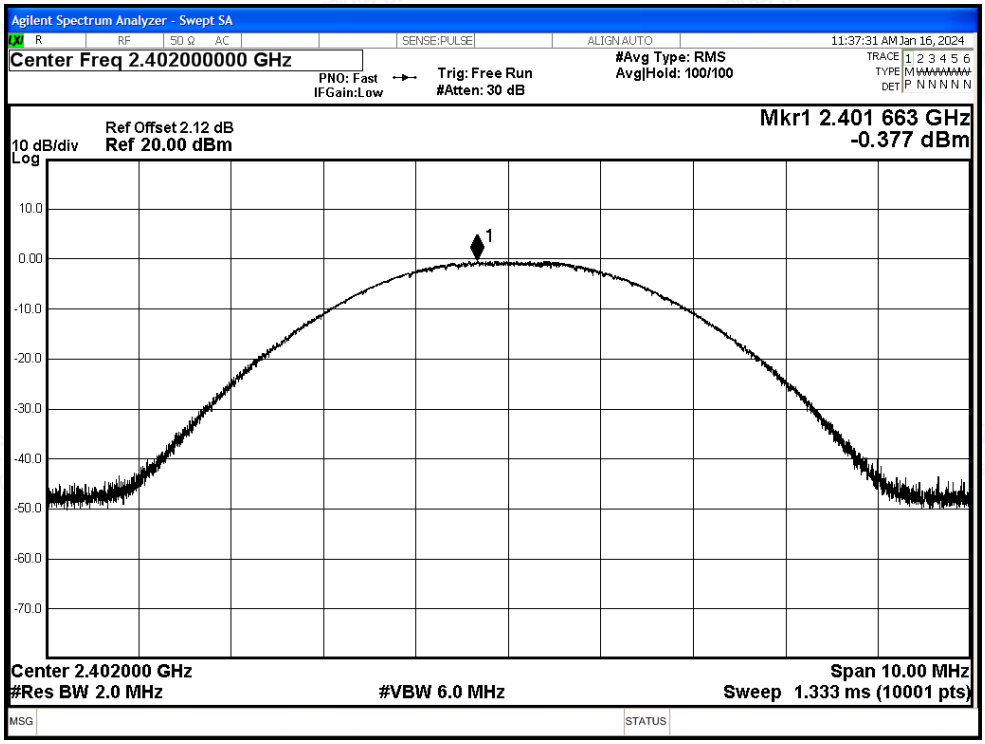
Power NVNT 1-DH5 2441MHz Ant1



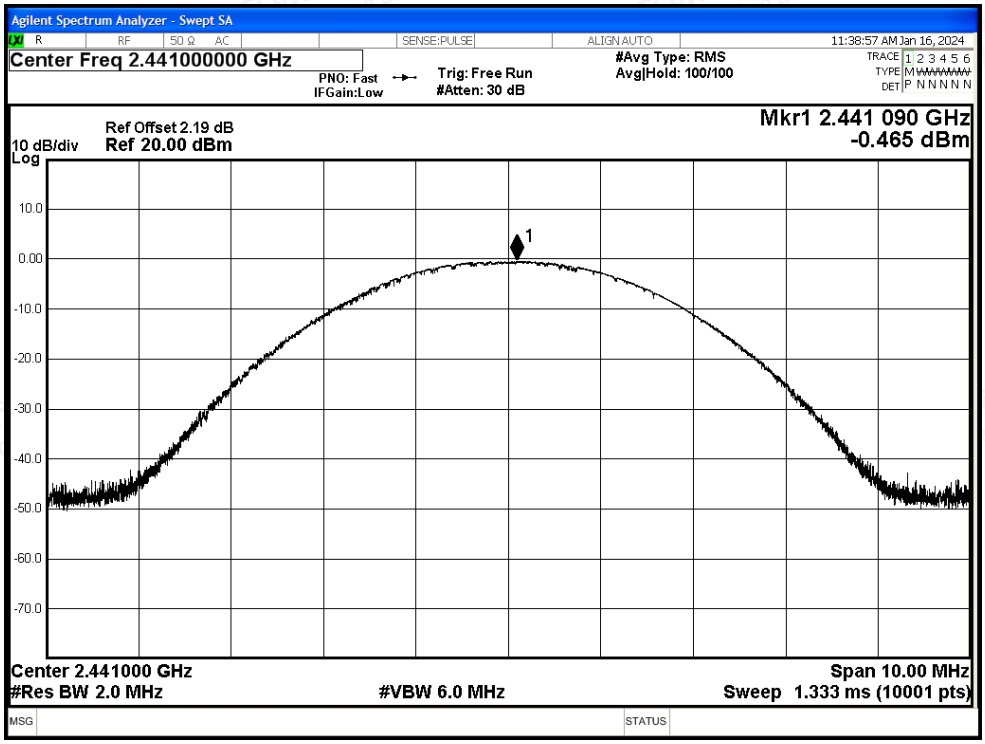
Power NVNT 1-DH5 2480MHz Ant1



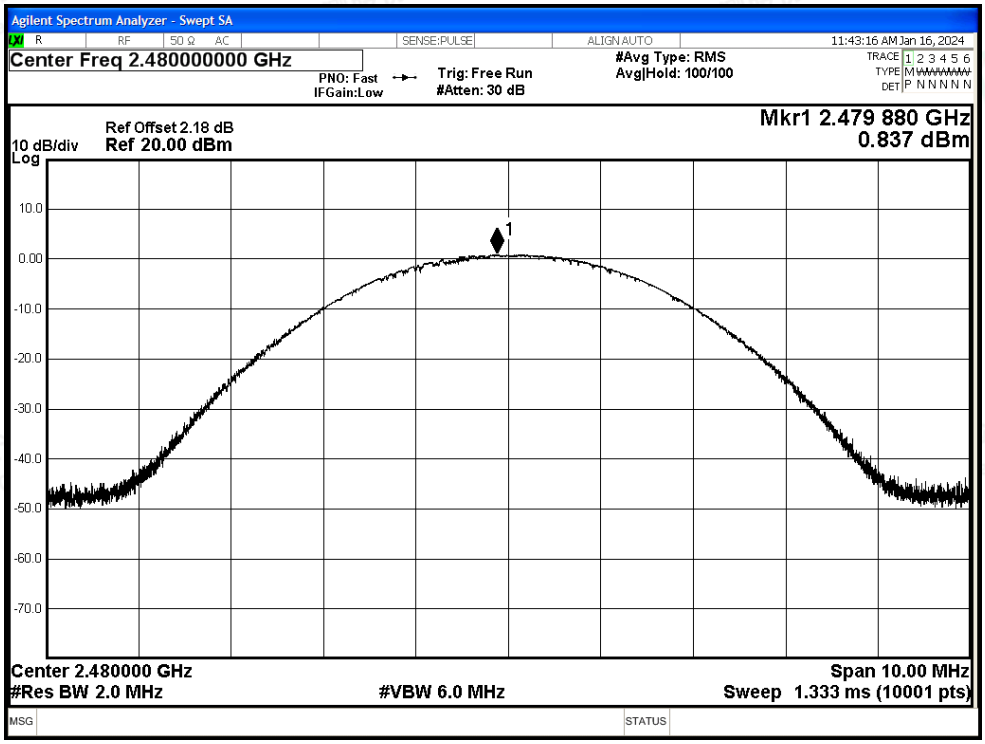
Power NVNT 2-DH5 2402MHz Ant1



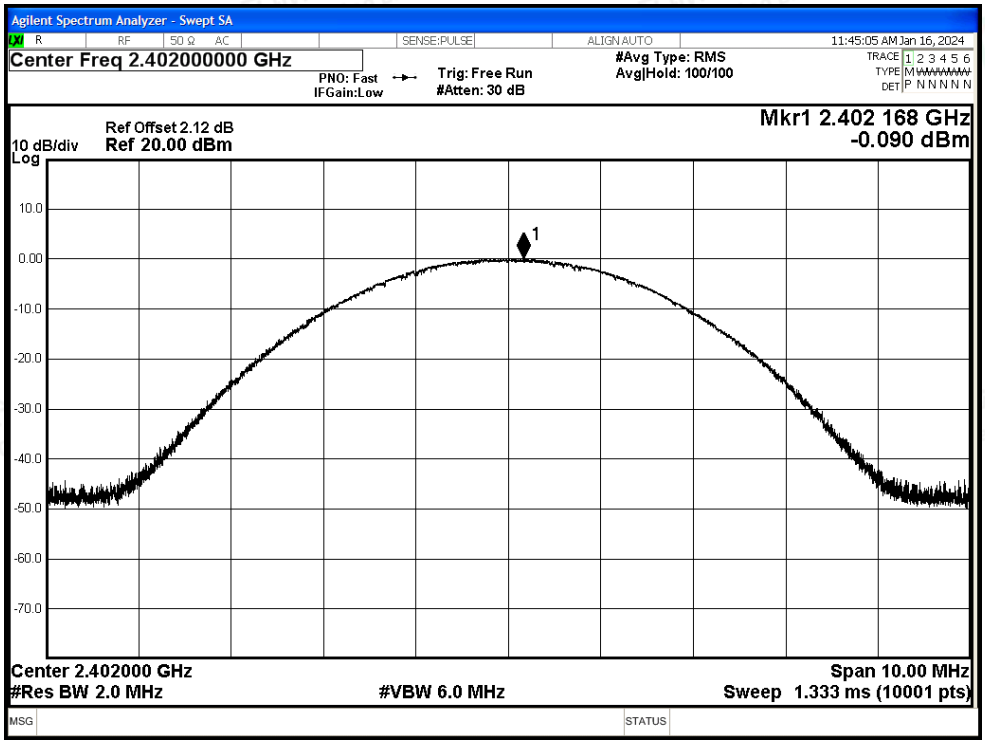
Power NVNT 2-DH5 2441MHz Ant1



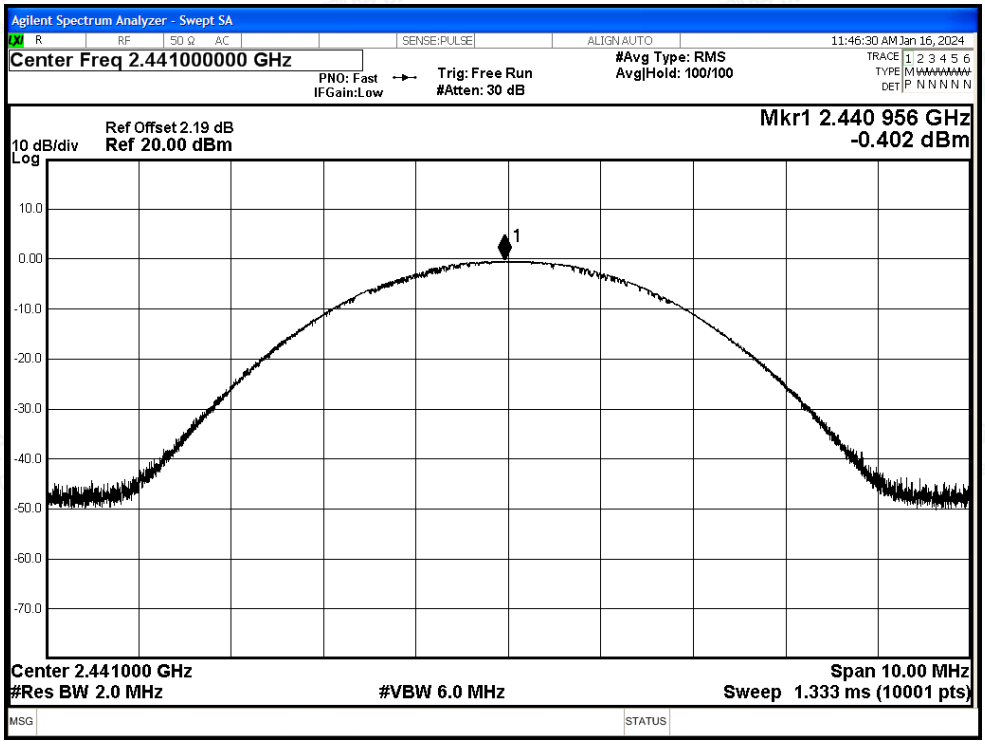
Power NVNT 2-DH5 2480MHz Ant1



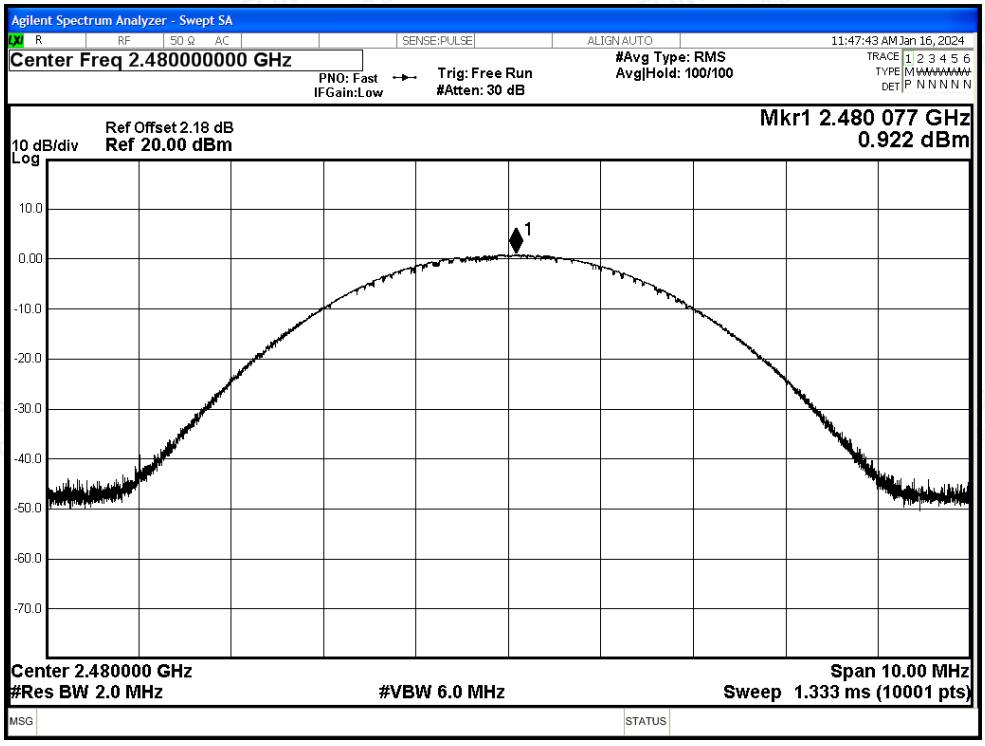
Power NVNT 3-DH5 2402MHz Ant1



Power NVNT 3-DH5 2441MHz Ant1



Power NVNT 3-DH5 2480MHz Ant1

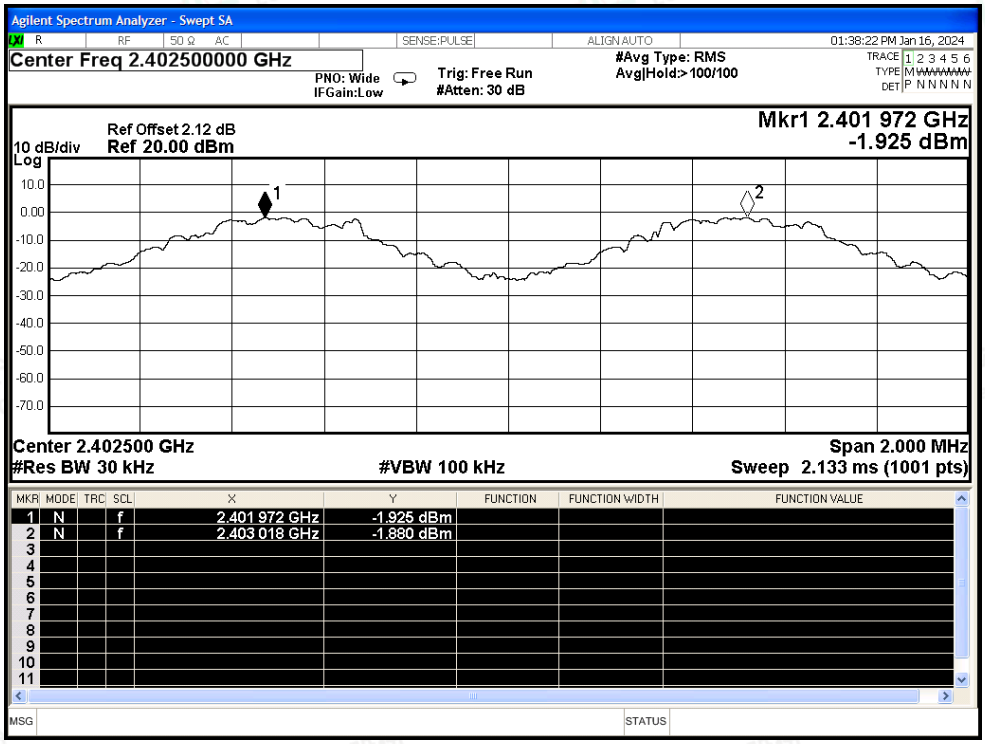


A.3 Carrier Frequencies Separation

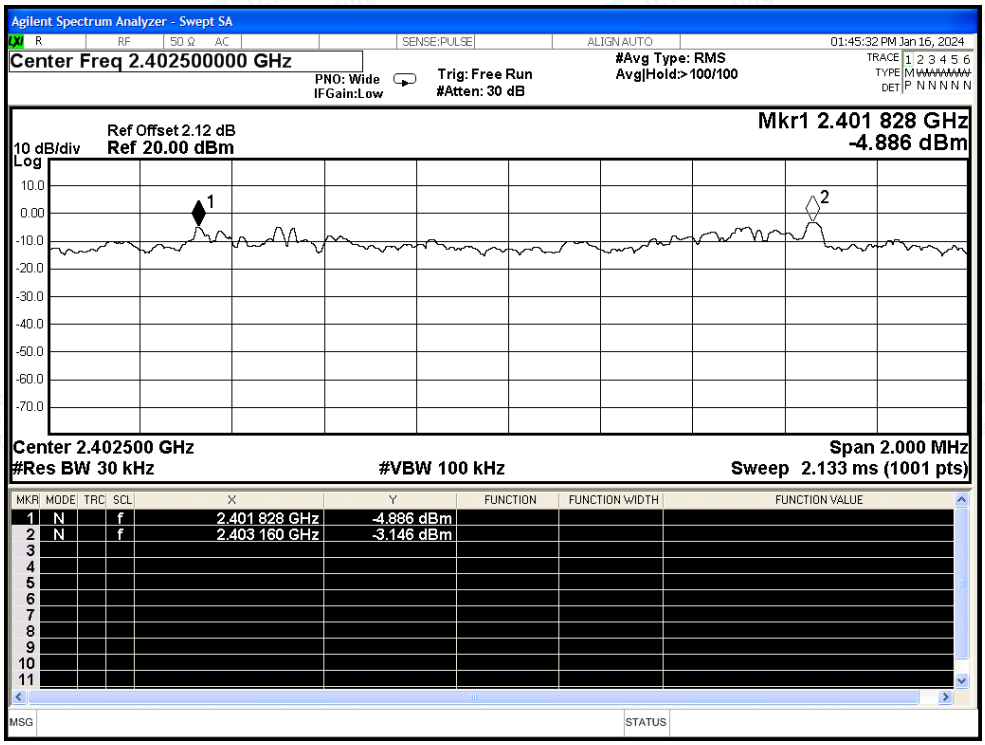
Condition	Mode	Antenna	Hopping Freq1 (MHz)	Hopping Freq2 (MHz)	HFS (MHz)	Limit (MHz)	Verdict
NVNT	1-DH5	Ant1	2401.972	2403.018	1.046	0.564	Pass
NVNT	2-DH5	Ant1	2401.828	2403.16	1.332	0.853	Pass
NVNT	3-DH5	Ant1	2402.164	2403.164	1	0.861	Pass

Test Graphs

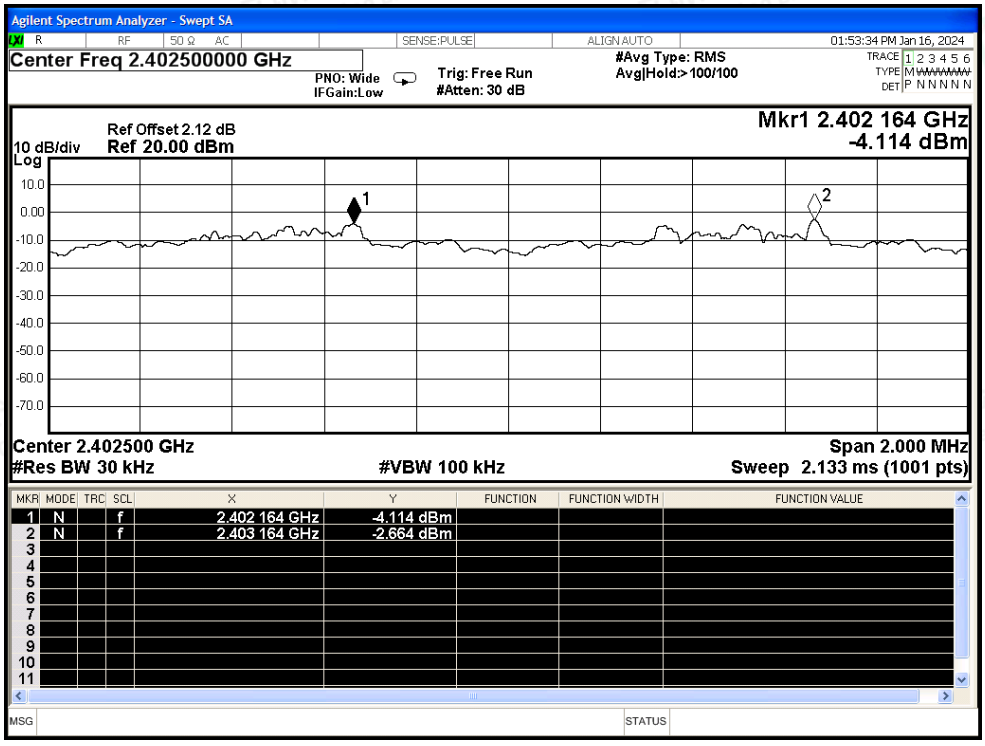
CFS NVNT 1-DH5 2402MHz Ant1



CFS NVNT 2-DH5 2402MHz Ant1



CFS NVNT 3-DH5 2402MHz Ant1

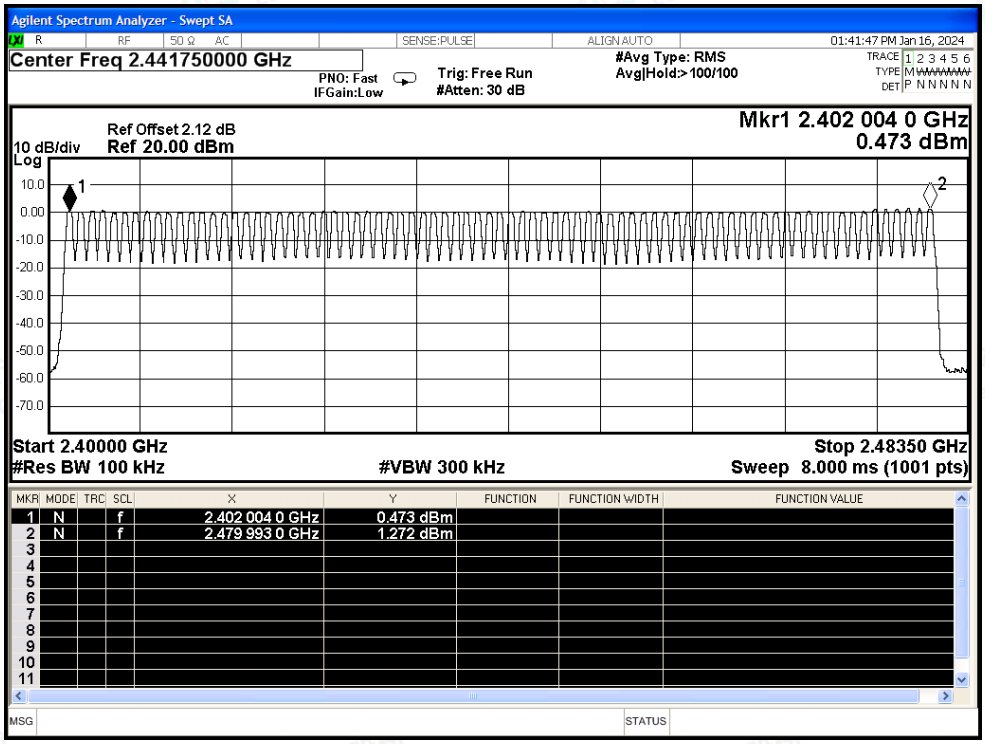


A.4 Number of Hopping Channel

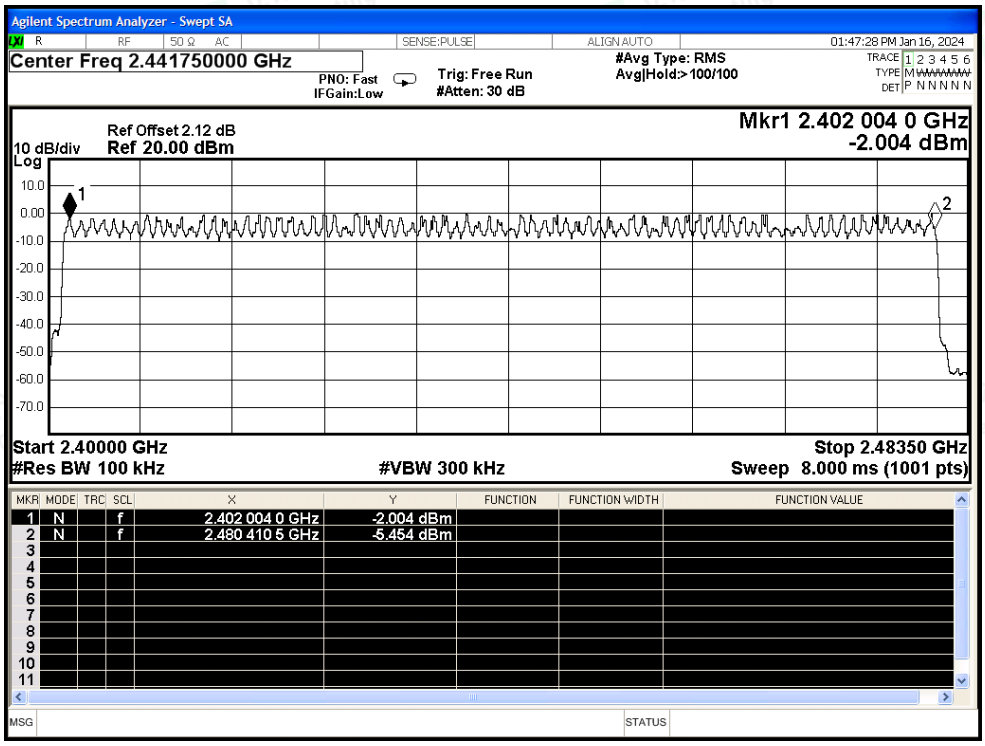
Condition	Mode	Antenna	Hopping Number	Limit	Verdict
NVNT	1-DH5	Ant1	79	15	Pass
NVNT	2-DH5	Ant1	79	15	Pass
NVNT	3-DH5	Ant1	79	15	Pass

Test Graphs

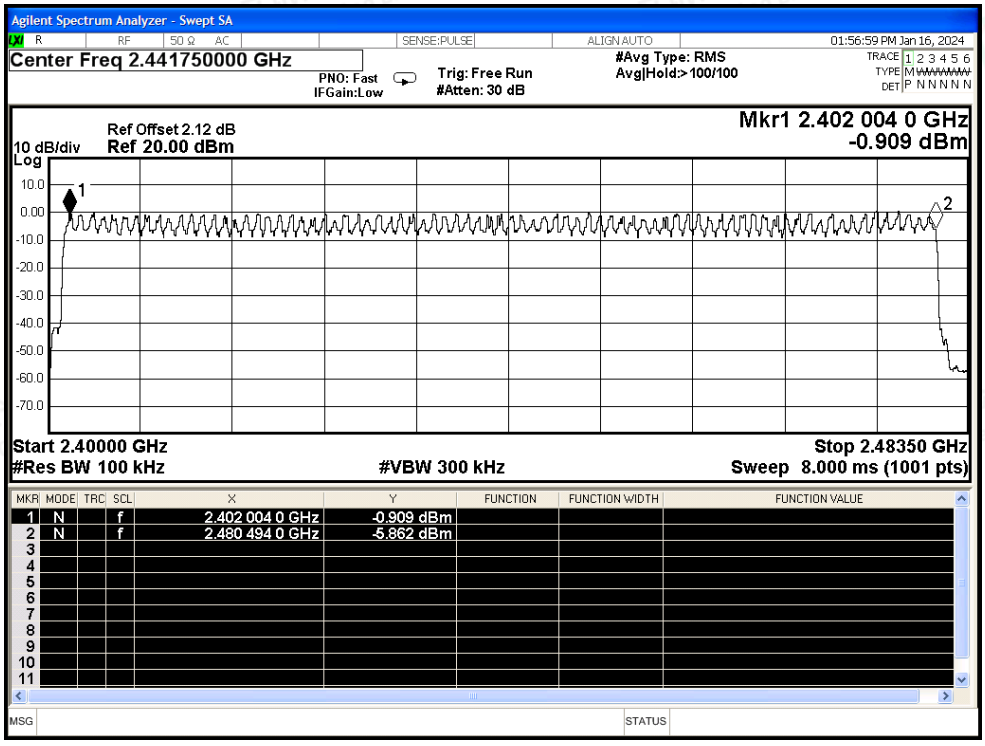
Hopping No. NVNT 1-DH5 2402MHz Ant1



Hopping No. NVNT 2-DH5 2402MHz Ant1



Hopping No. NVNT 3-DH5 2402MHz Ant1

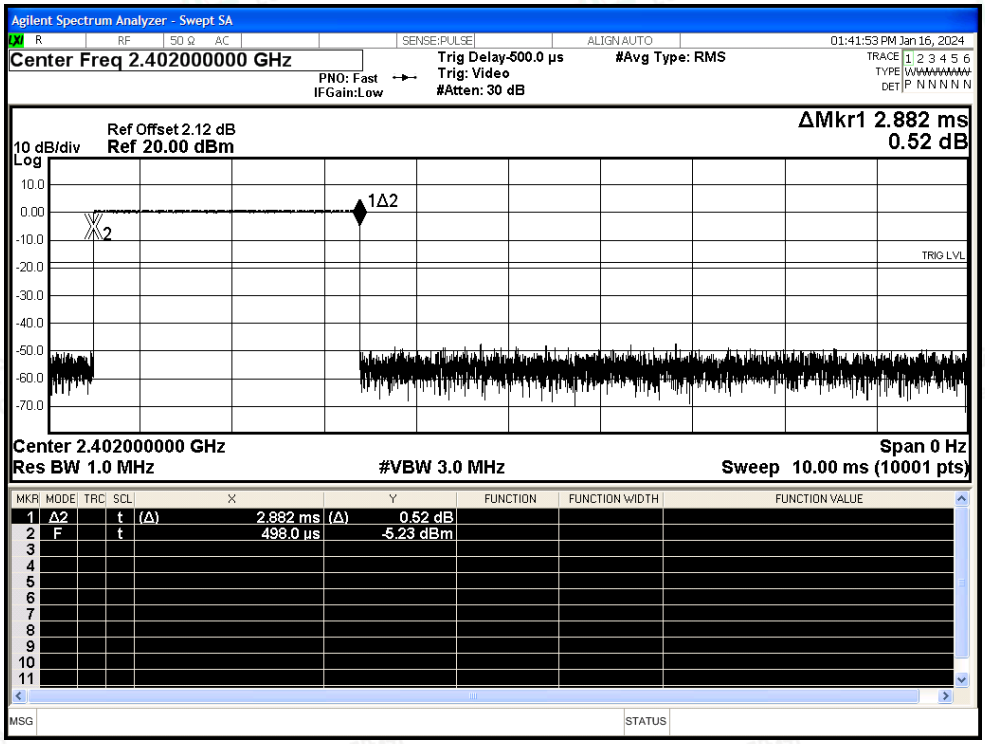


A.5 Dwell Time

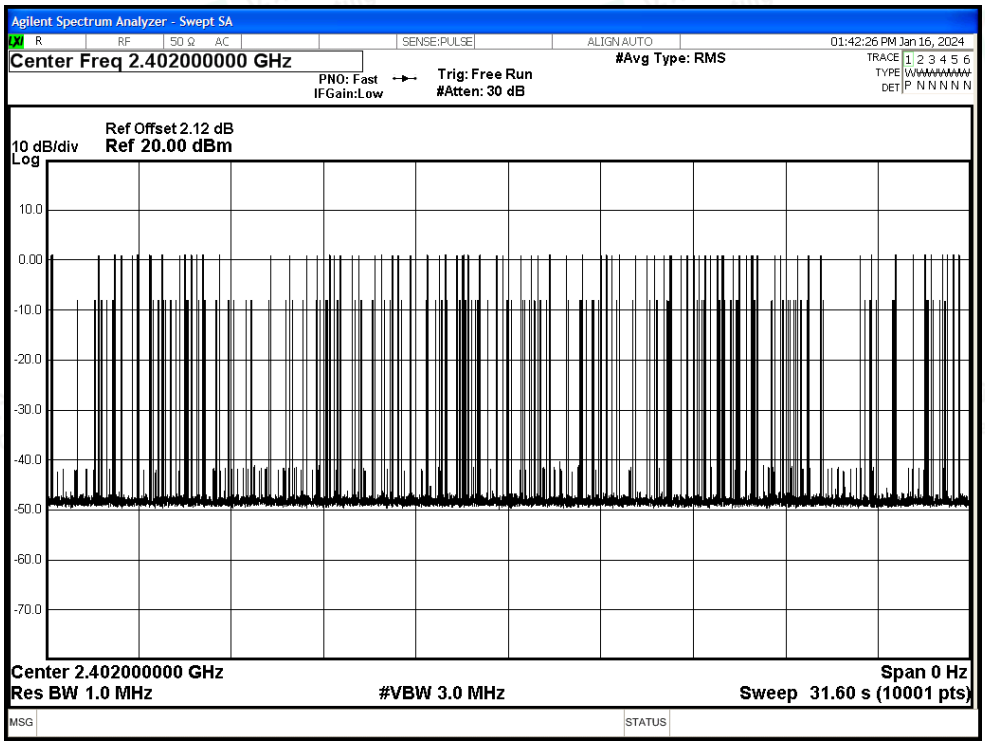
Condition	Mode	Frequency (MHz)	Antenna	Pulse Time (ms)	Total Dwell Time (ms)	Burst Count	Period Time (ms)	Limit (ms)	Verdict
NVNT	1-DH5	2402	Ant1	2.882	325.666	113	31600	400	Pass
NVNT	2-DH5	2402	Ant1	2.885	314.465	109	31600	400	Pass
NVNT	3-DH5	2402	Ant1	2.887	294.474	102	31600	400	Pass

Test Graphs

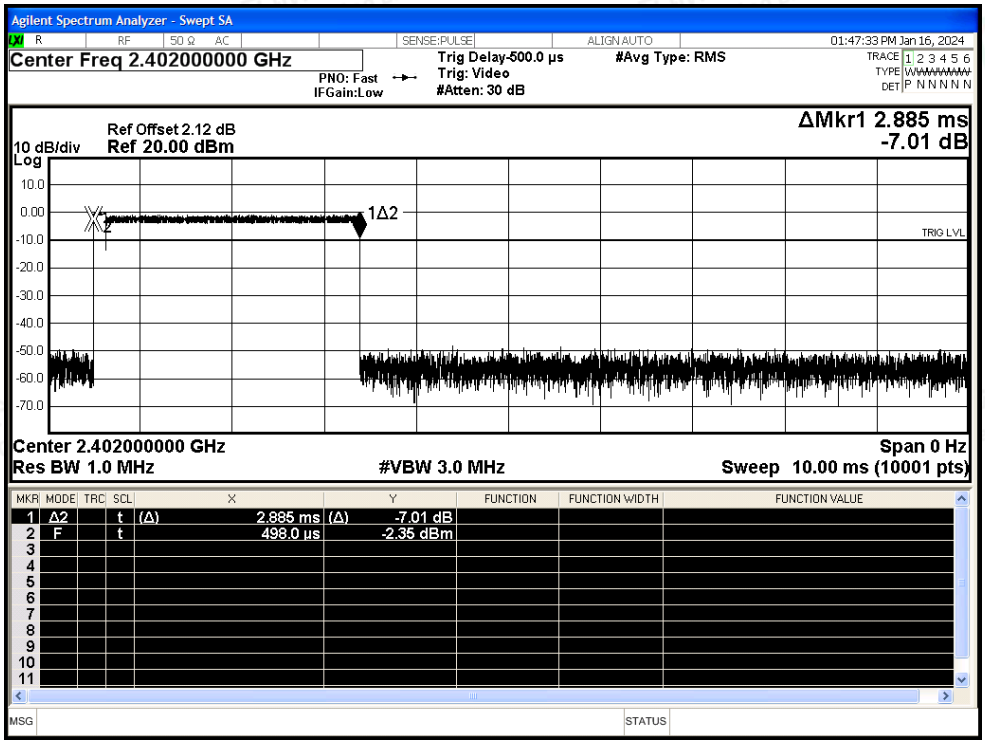
Dwell NVNT 1-DH5 2402MHz Ant1 One Burst



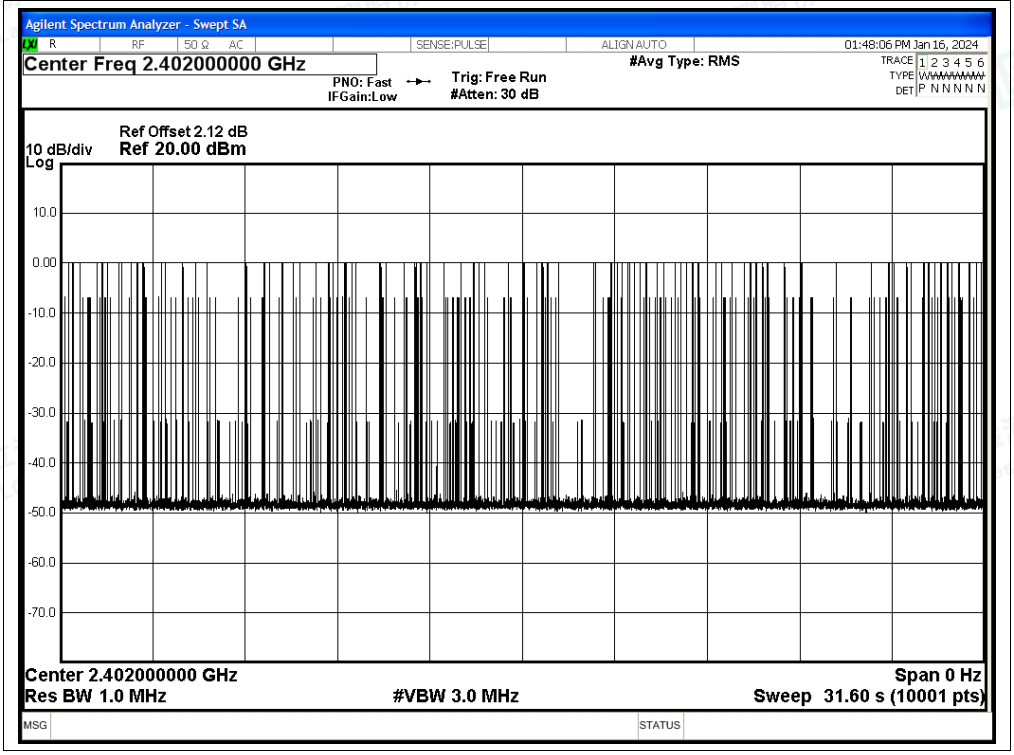
Dwell NVNT 1-DH5 2402MHz Ant1 Accumulated



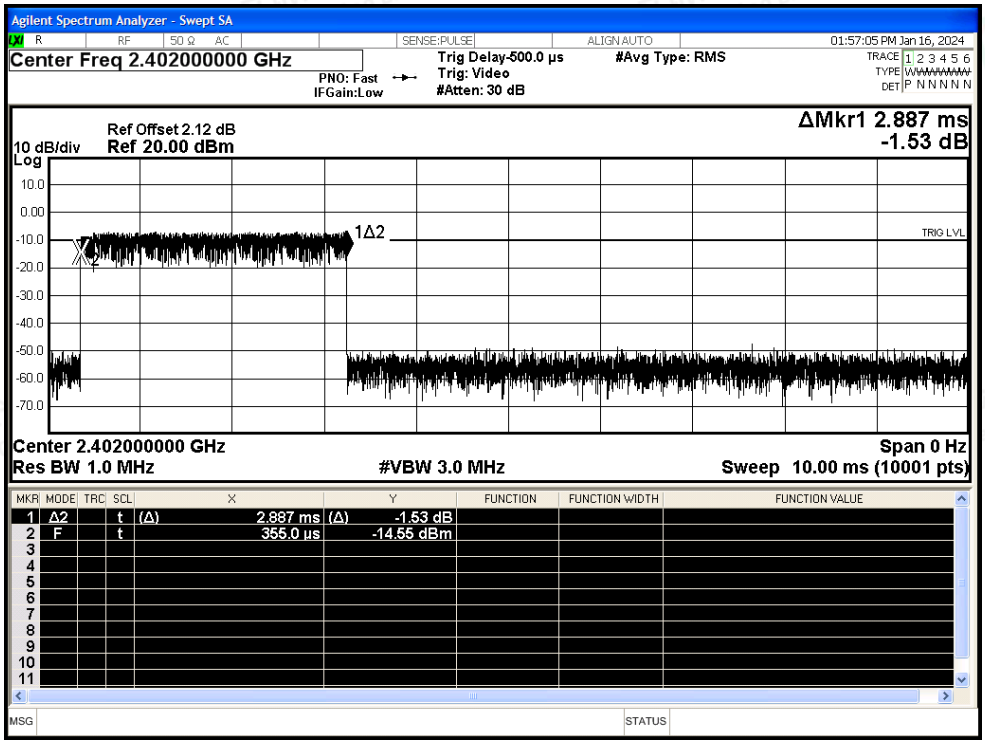
Dwell NVNT 2-DH5 2402MHz Ant1 One Burst



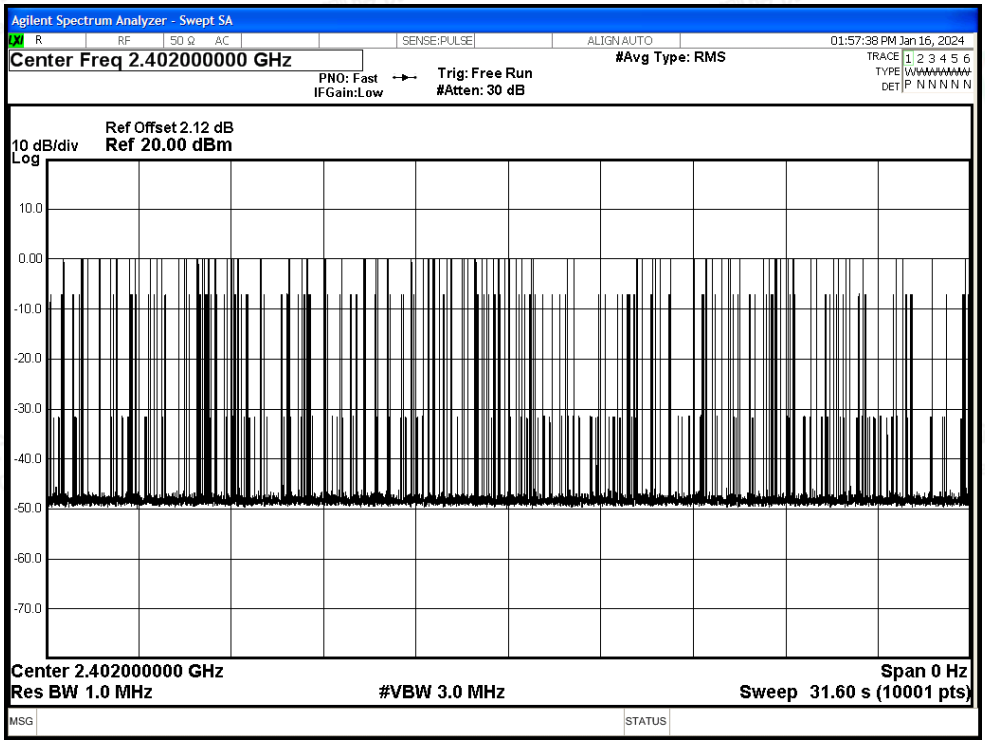
Dwell NVNT 2-DH5 2402MHz Ant1 Accumulated



Dwell NVNT 3-DH5 2402MHz Ant1 One Burst



Dwell NVNT 3-DH5 2402MHz Ant1 Accumulated

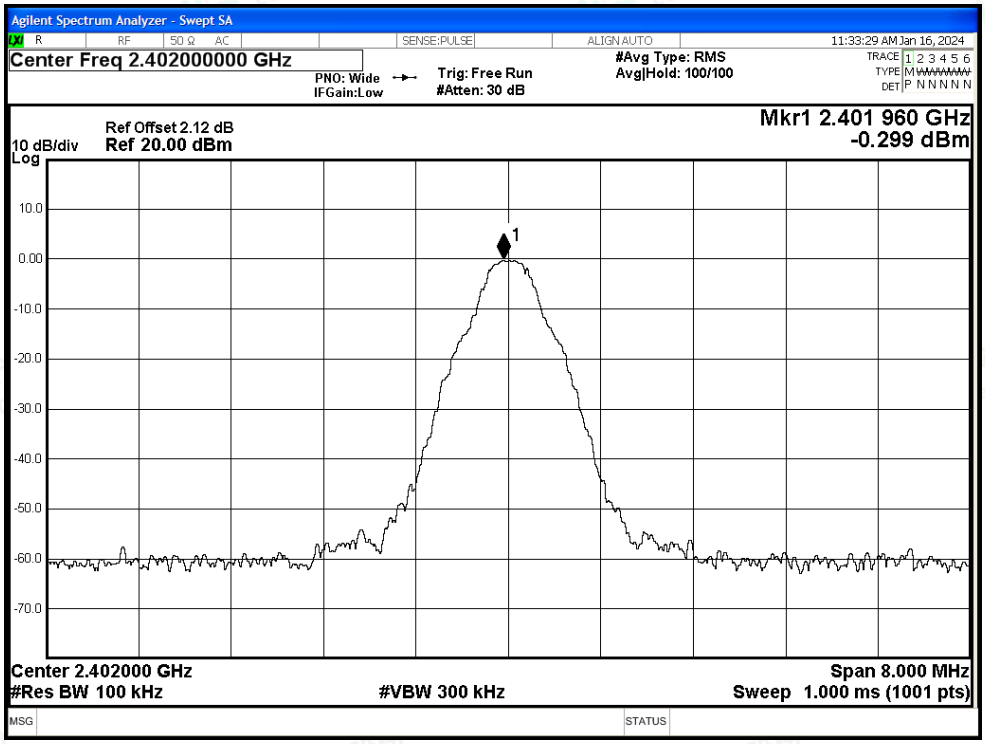


A.6 Band Edge

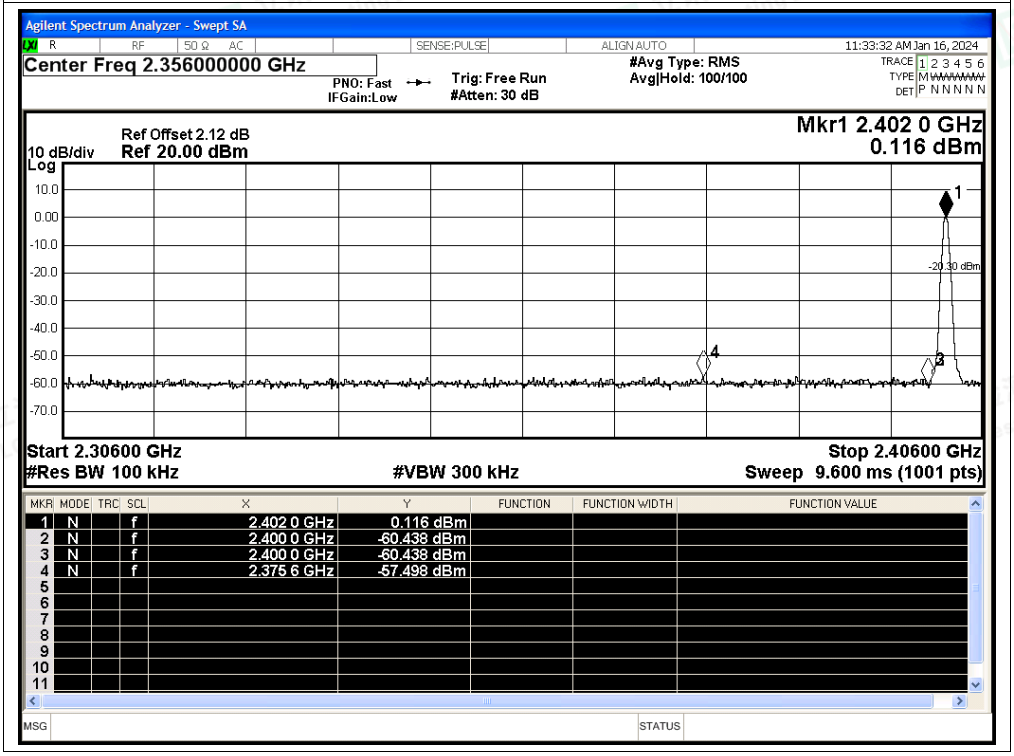
Condition	Mode	Frequency (MHz)	Antenna	Hopping Mode	Max Value (dBc)	Limit (dBc)	Verdict
NVNT	1-DH5	2402	Ant1	No-Hopping	-57.2	-20	Pass
NVNT	1-DH5	2480	Ant1	No-Hopping	-56.66	-20	Pass
NVNT	2-DH5	2402	Ant1	No-Hopping	-54.6	-20	Pass
NVNT	2-DH5	2480	Ant1	No-Hopping	-57.57	-20	Pass
NVNT	3-DH5	2402	Ant1	No-Hopping	-55.9	-20	Pass
NVNT	3-DH5	2480	Ant1	No-Hopping	-55.24	-20	Pass

Test Graphs

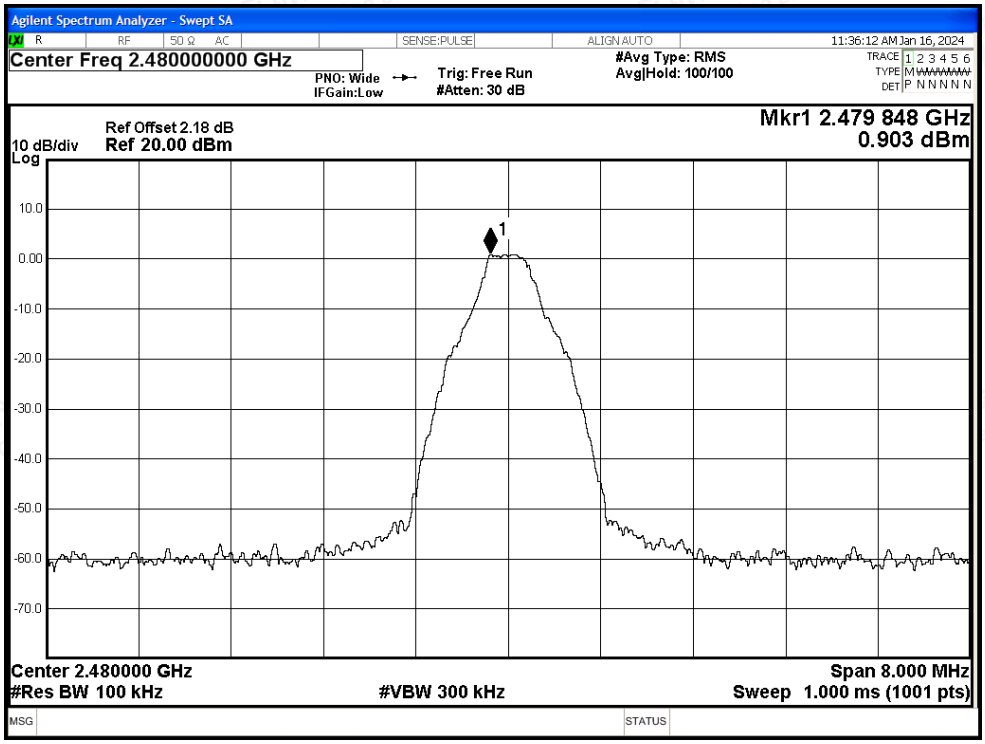
Band Edge NVNT 1-DH5 2402MHz Ant1 No-Hopping Ref



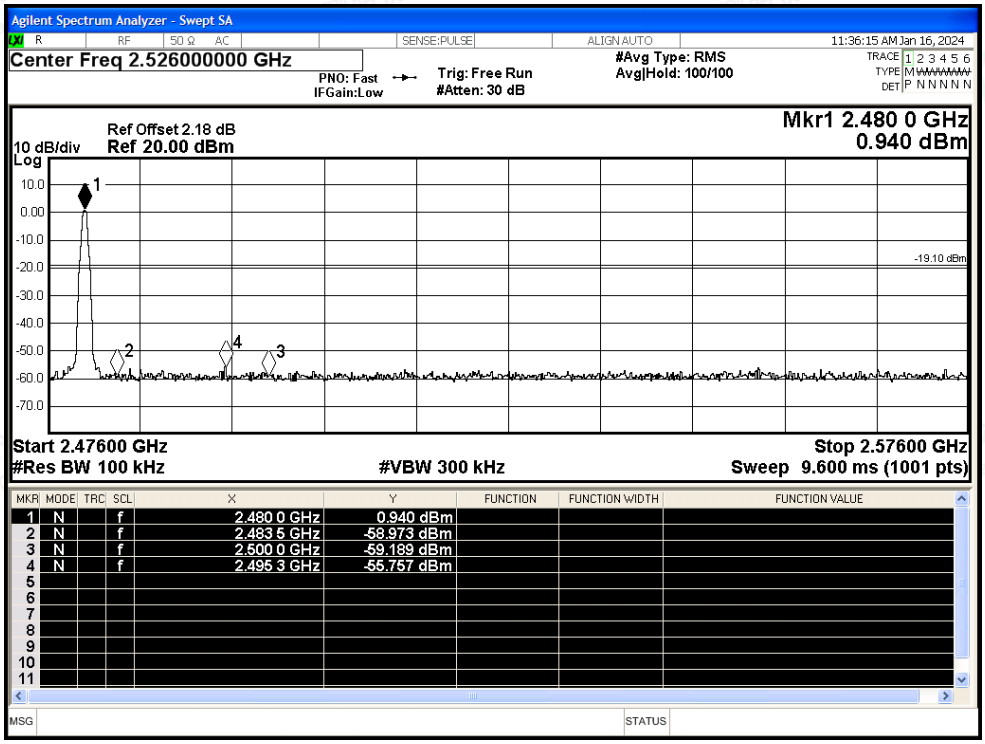
Band Edge NVNT 1-DH5 2402MHz Ant1 No-Hopping Emission



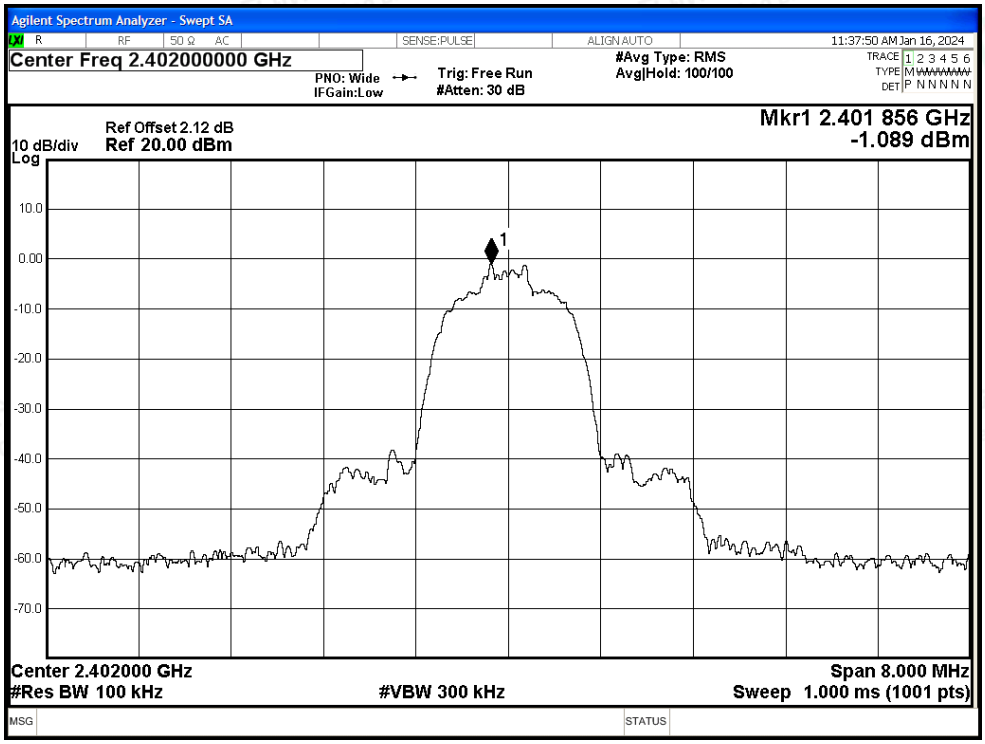
Band Edge NVNT 1-DH5 2480MHz Ant1 No-Hopping Ref



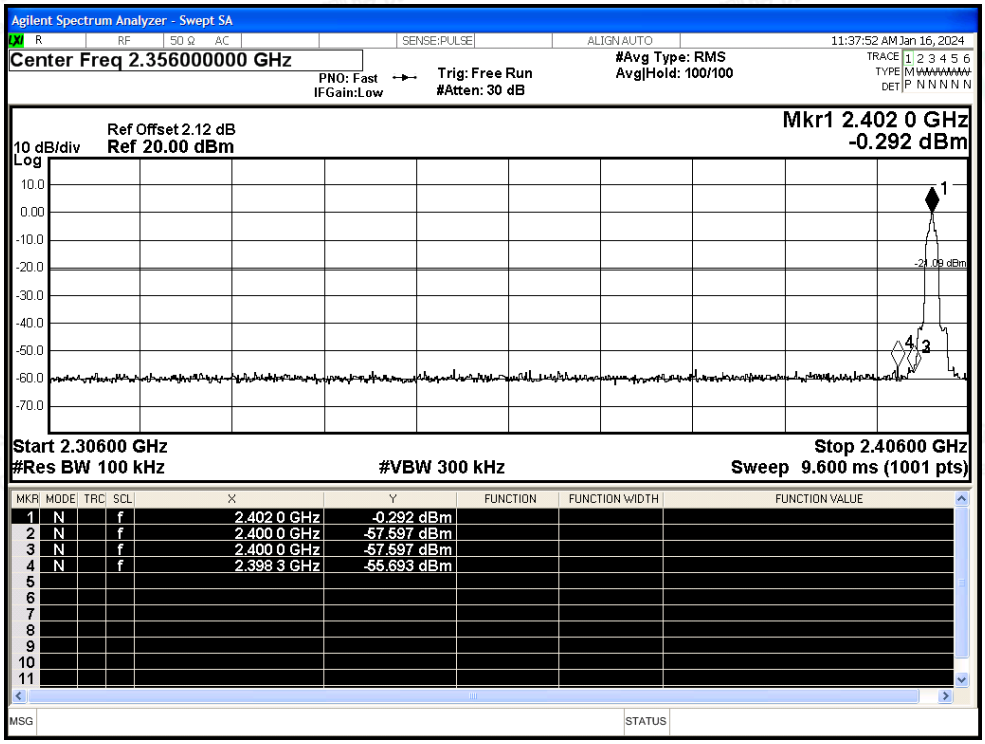
Band Edge NVNT 1-DH5 2480MHz Ant1 No-Hopping Emission



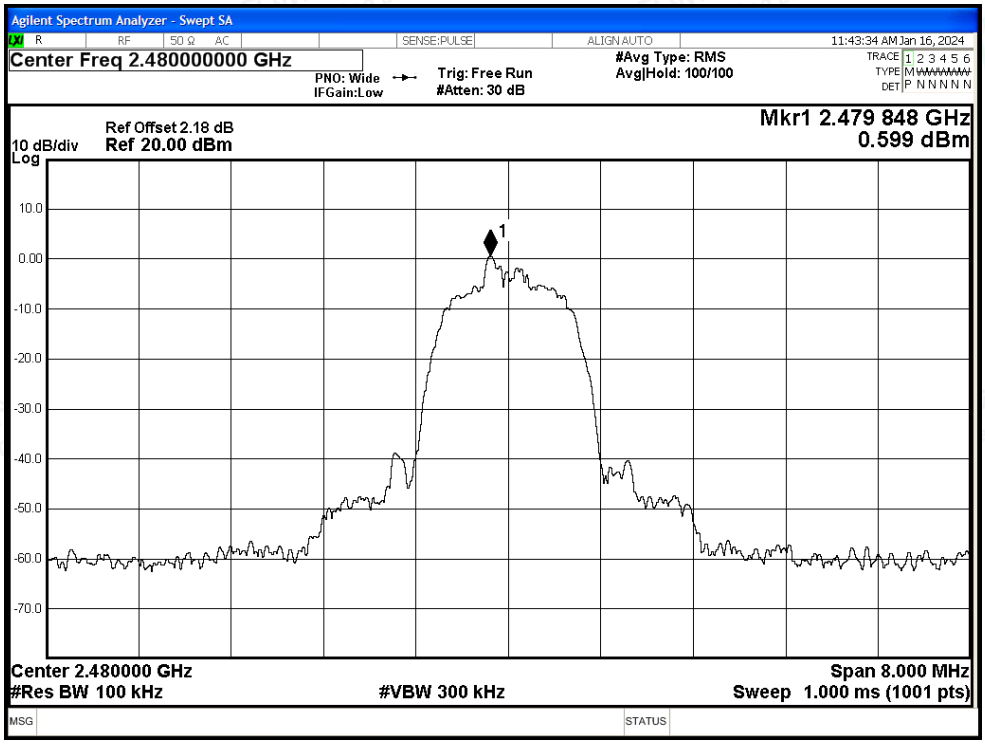
Band Edge NVNT 2-DH5 2402MHz Ant1 No-Hopping Ref



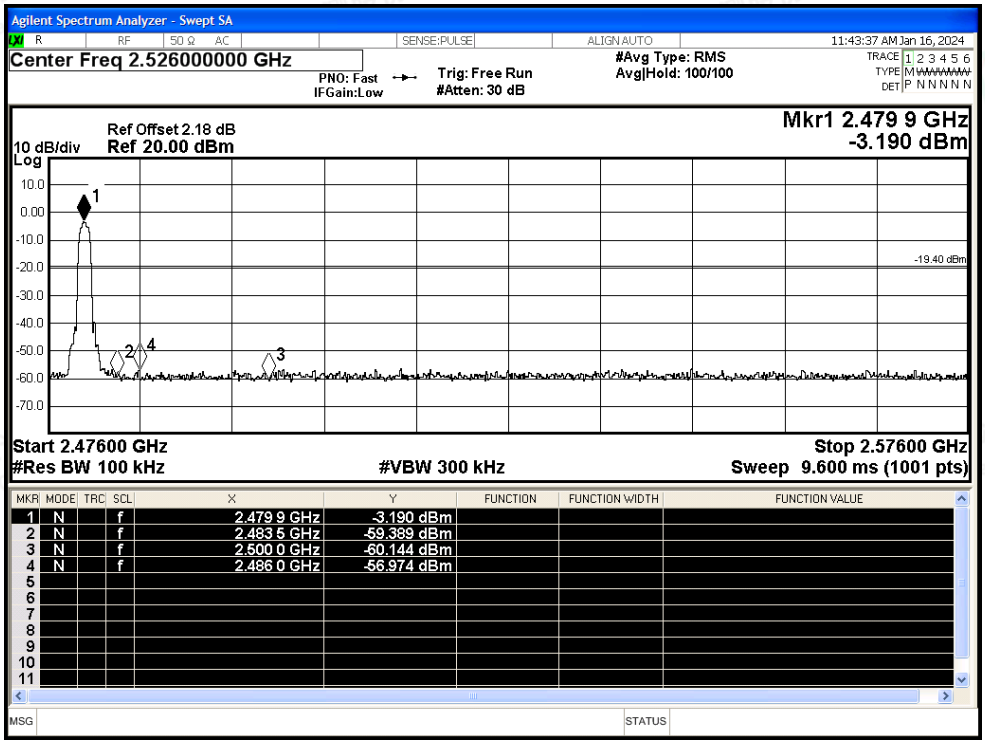
Band Edge NVNT 2-DH5 2402MHz Ant1 No-Hopping Emission



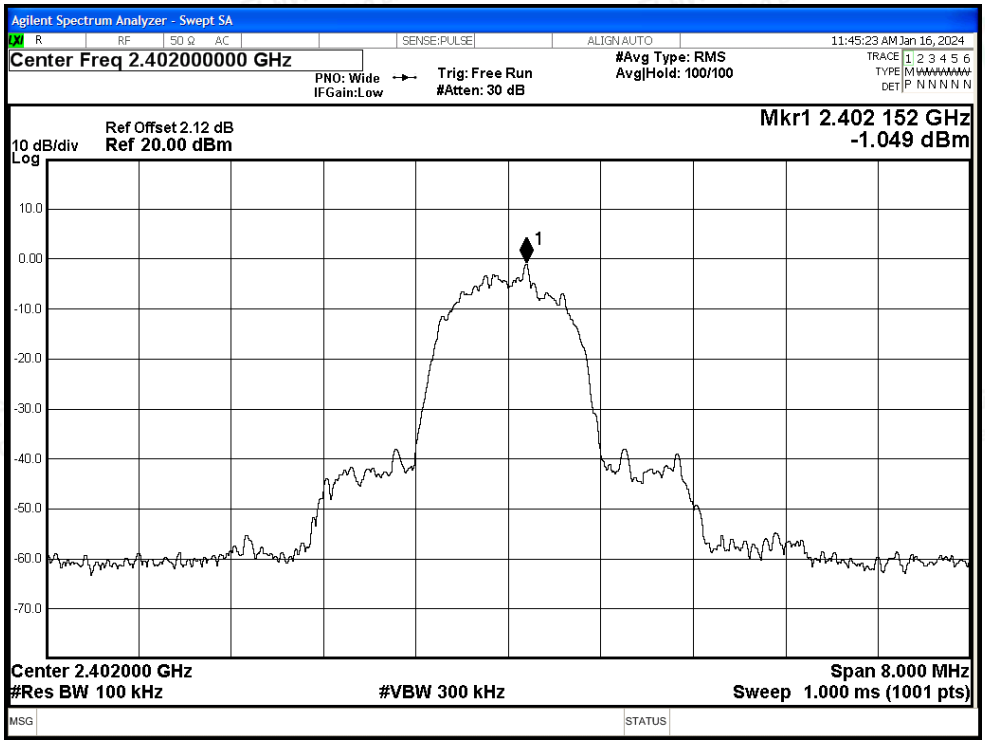
Band Edge NVNT 2-DH5 2480MHz Ant1 No-Hopping Ref



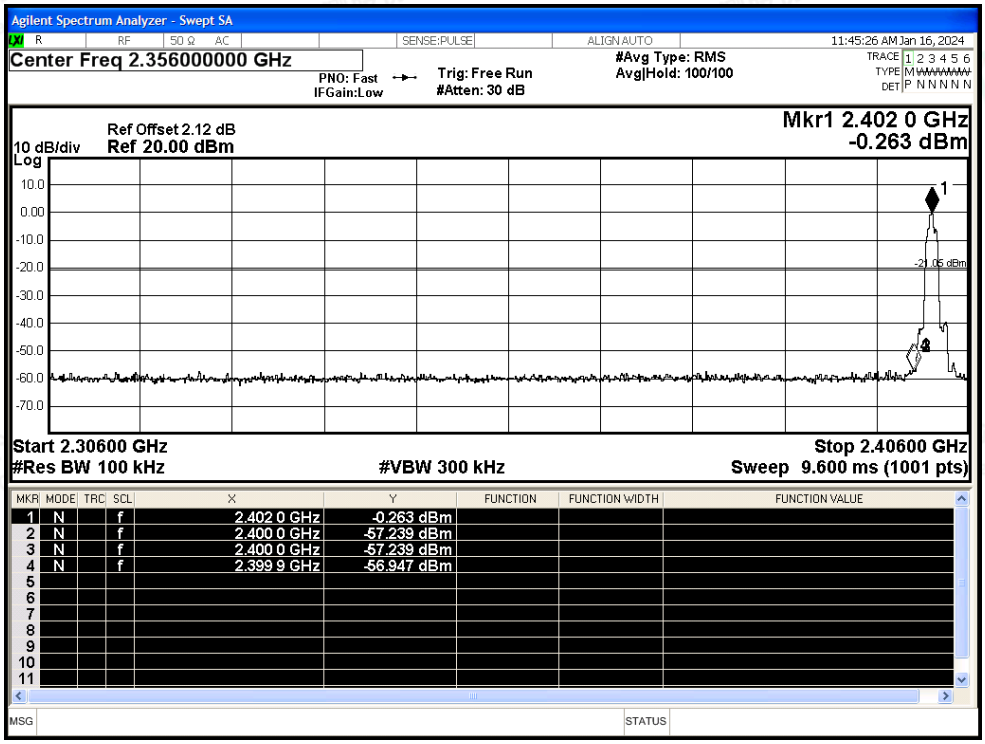
Band Edge NVNT 2-DH5 2480MHz Ant1 No-Hopping Emission



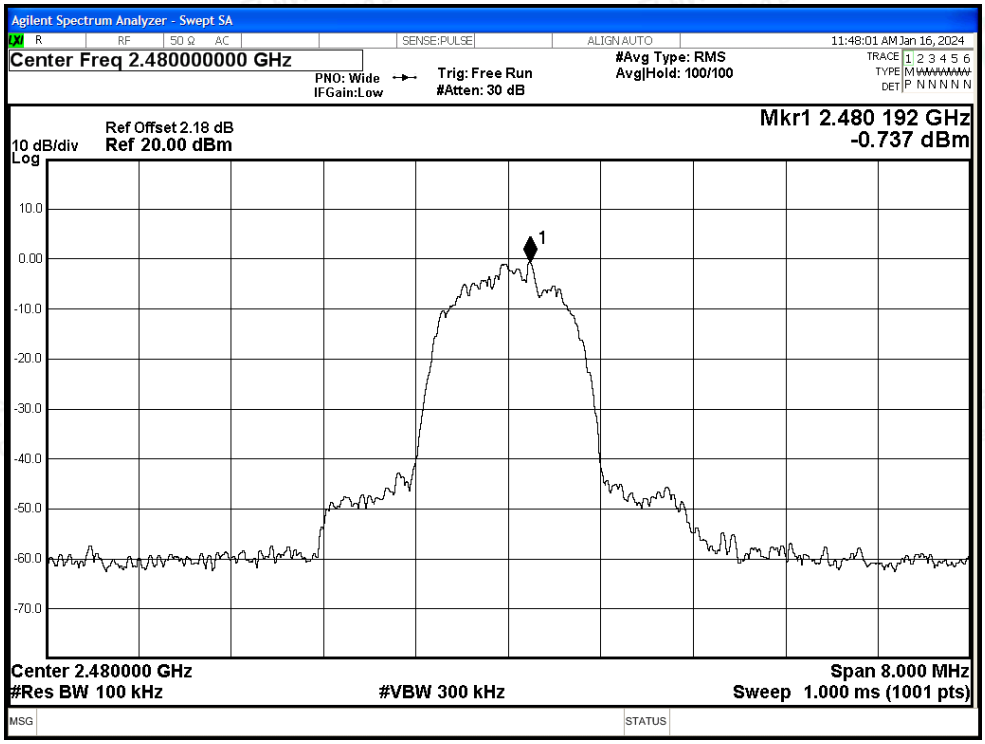
Band Edge NVNT 3-DH5 2402MHz Ant1 No-Hopping Ref



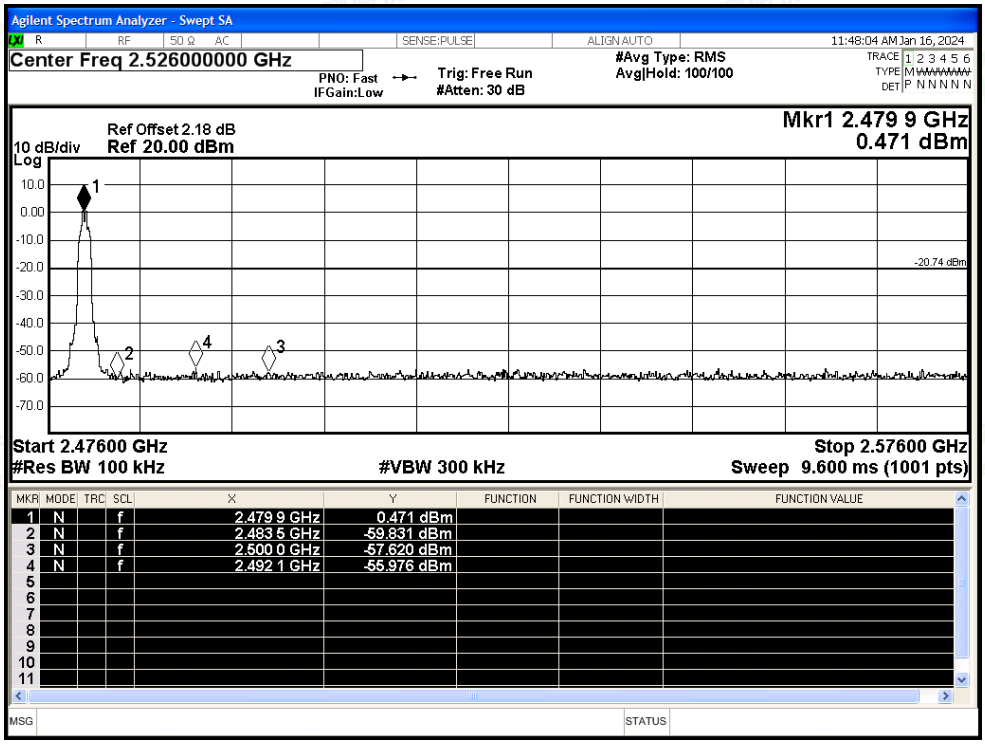
Band Edge NVNT 3-DH5 2402MHz Ant1 No-Hopping Emission



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



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

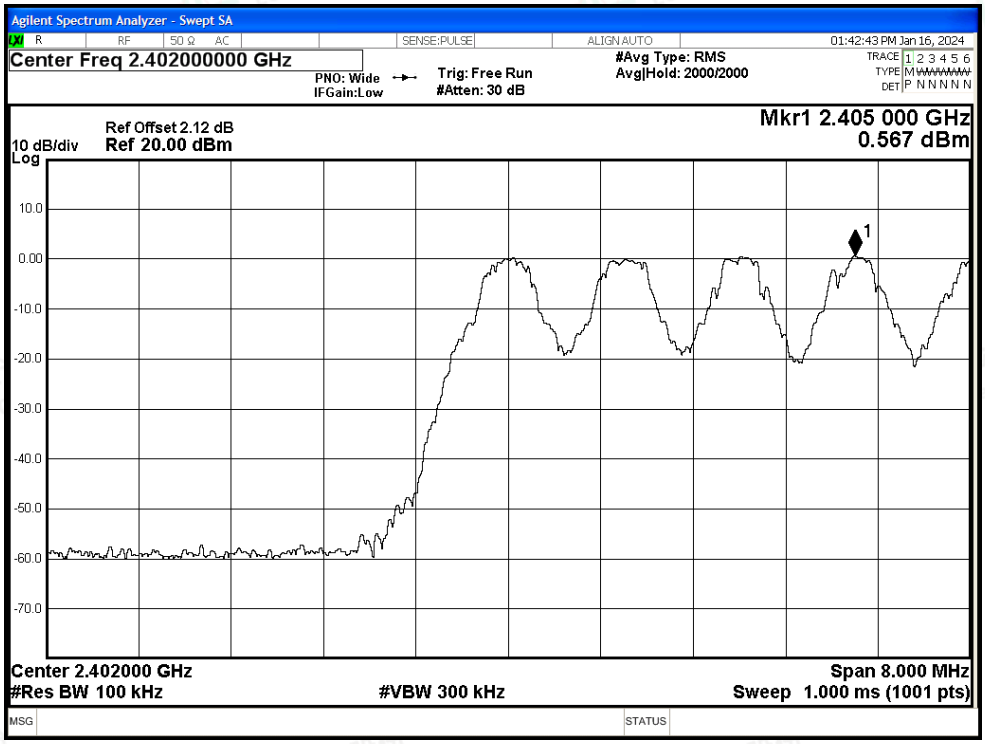


(Hopping)

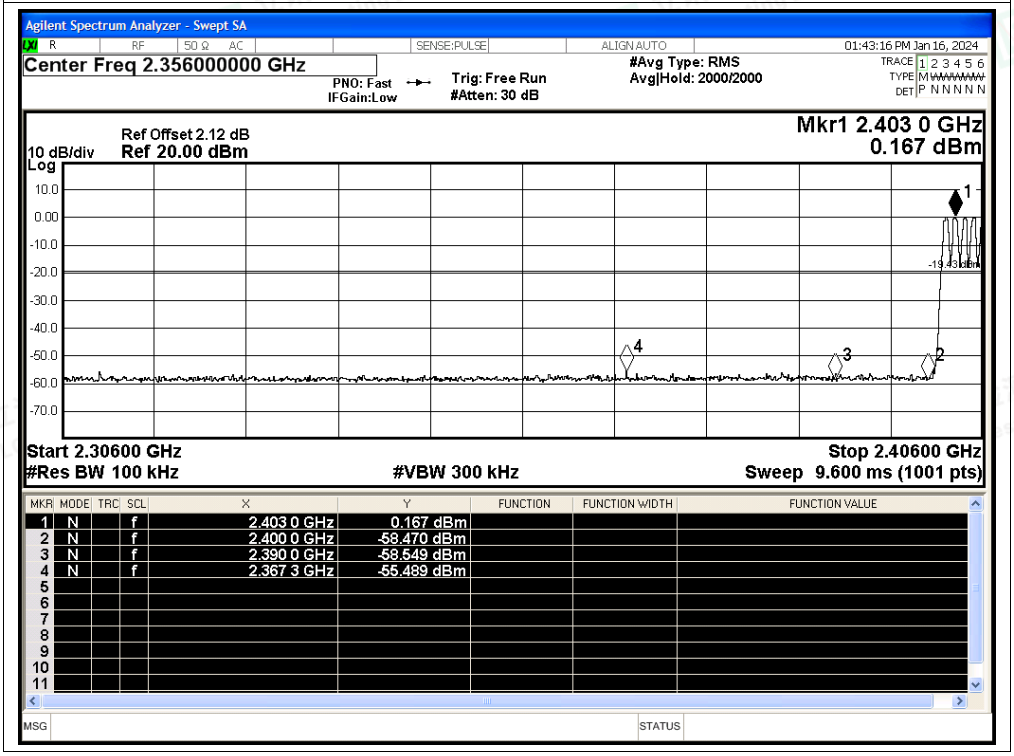
Condition	Mode	Frequency (MHz)	Antenna	Hopping Mode	Max Value (dBc)	Limit (dBc)	Verdict
NVNT	1-DH5	2402	Ant1	Hopping	-56.06	-20	Pass
NVNT	1-DH5	2480	Ant1	Hopping	-57.27	-20	Pass
NVNT	2-DH5	2402	Ant1	Hopping	-55.58	-20	Pass
NVNT	2-DH5	2480	Ant1	Hopping	-56.4	-20	Pass
NVNT	3-DH5	2402	Ant1	Hopping	-54.97	-20	Pass
NVNT	3-DH5	2480	Ant1	Hopping	-53.66	-20	Pass

Test Graphs

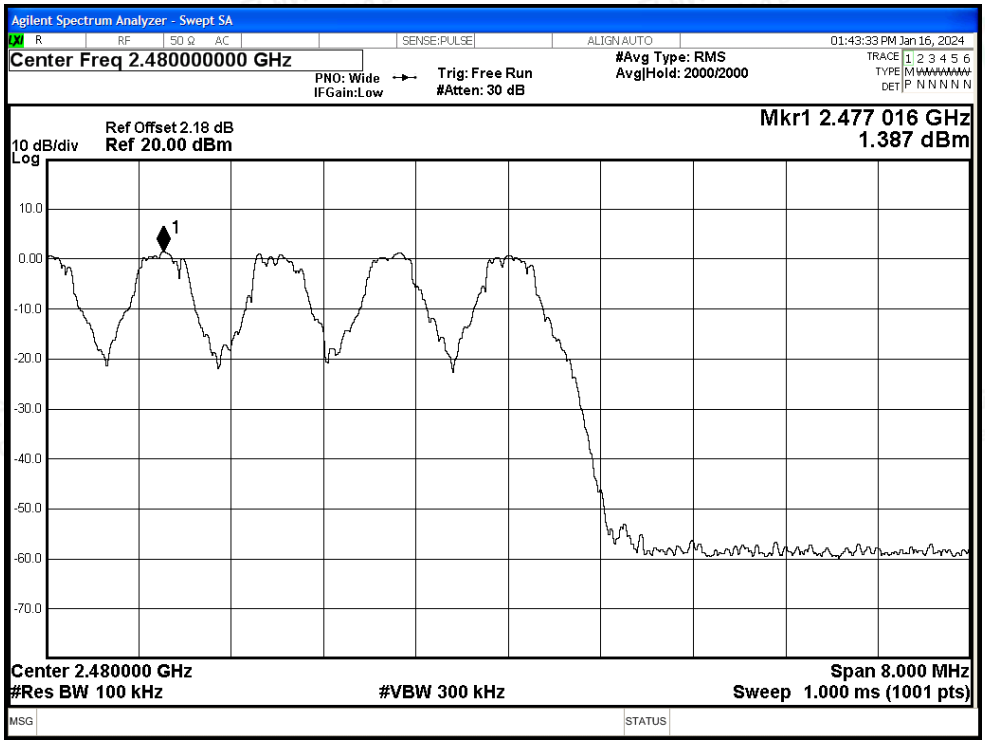
Band Edge(Hopping) NVNT 1-DH5 2402MHz Ant1 Hopping Ref



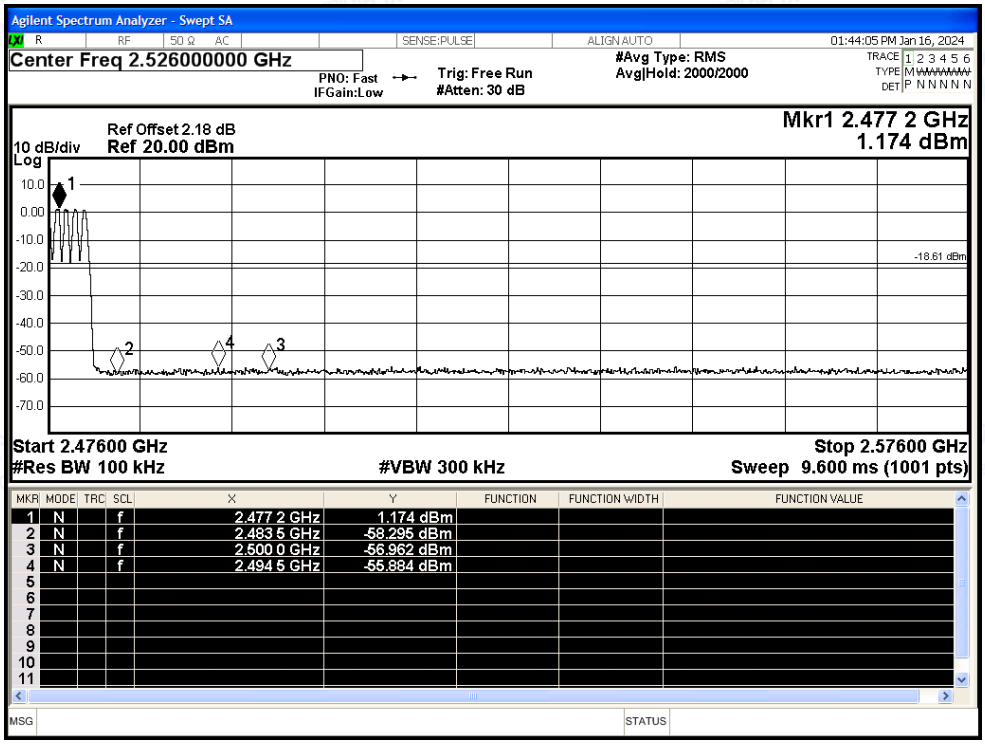
Band Edge(Hopping) NVNT 1-DH5 2402MHz Ant1 Hopping Emission



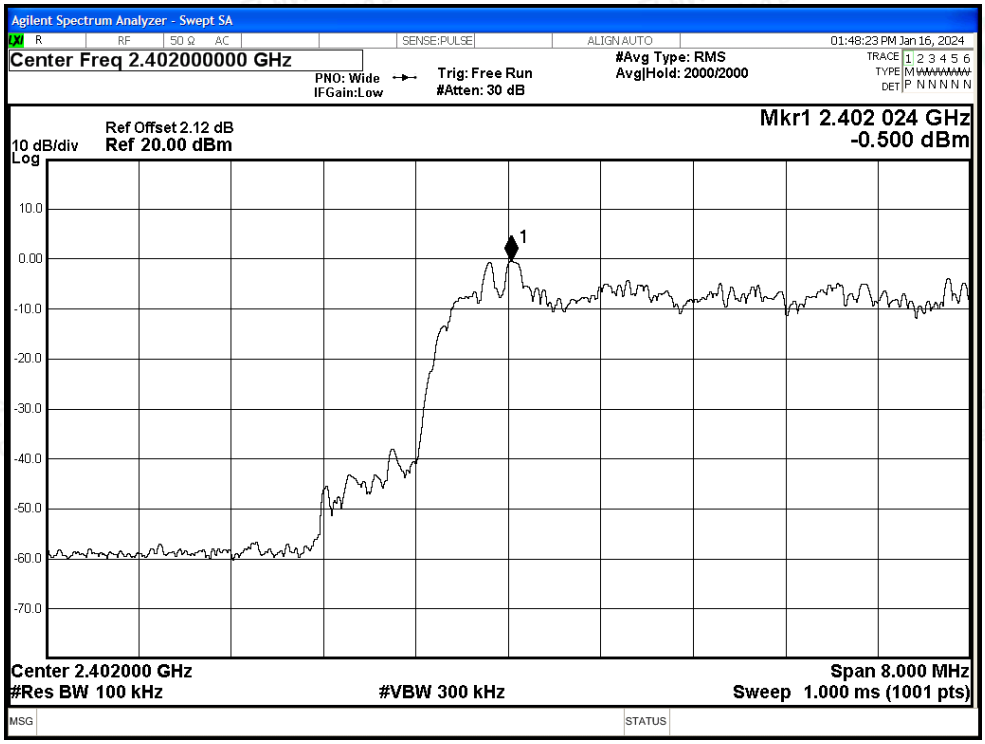
Band Edge(Hopping) NVNT 1-DH5 2480MHz Ant1 Hopping Ref



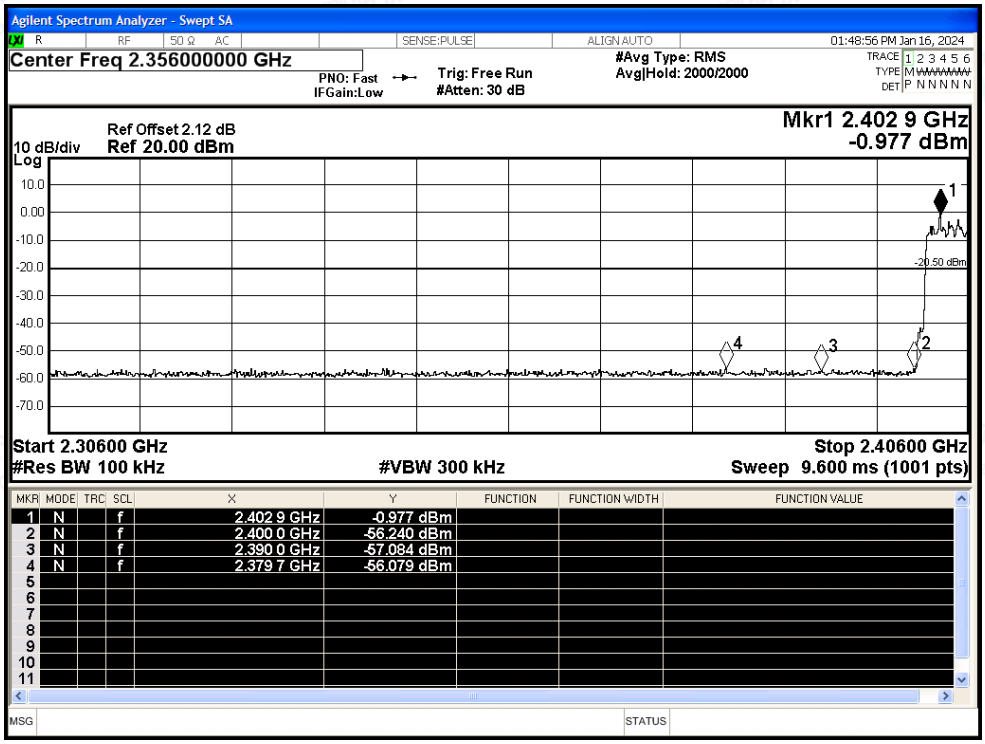
Band Edge(Hopping) NVNT 1-DH5 2480MHz Ant1 Hopping Emission



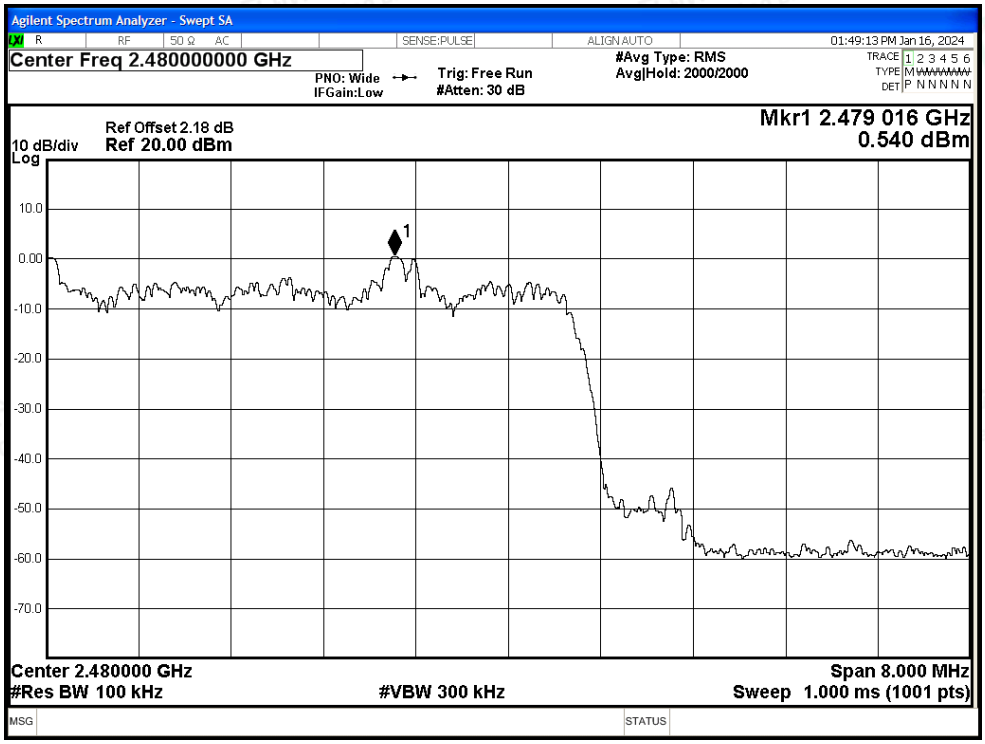
Band Edge(Hopping) NVNT 2-DH5 2402MHz Ant1 Hopping Ref



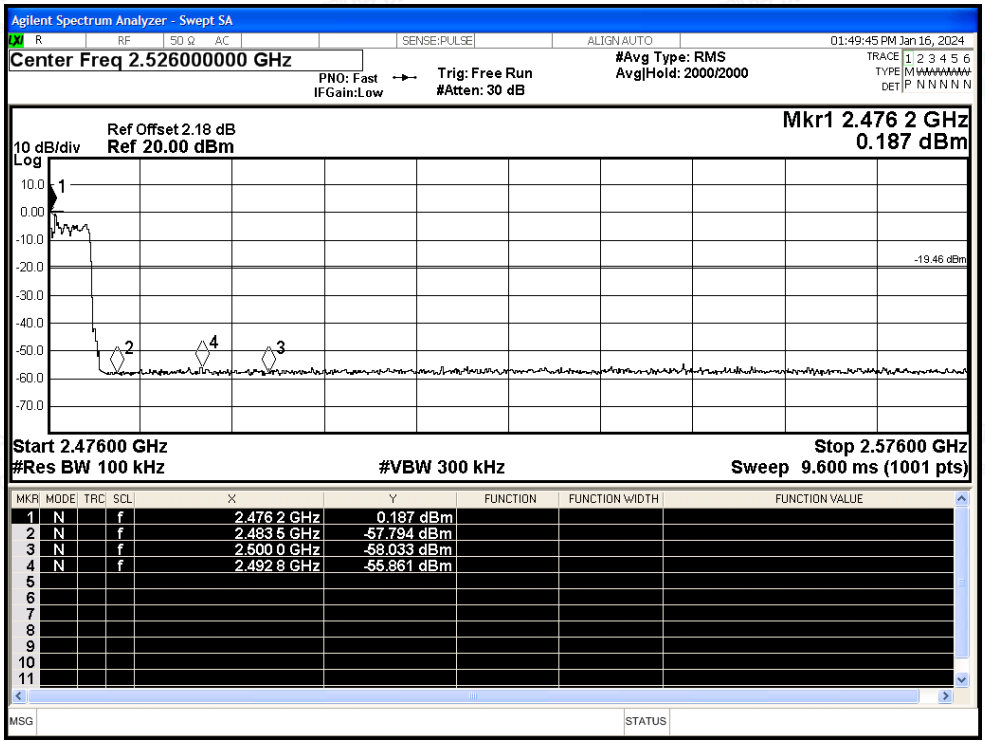
Band Edge(Hopping) NVNT 2-DH5 2402MHz Ant1 Hopping Emission



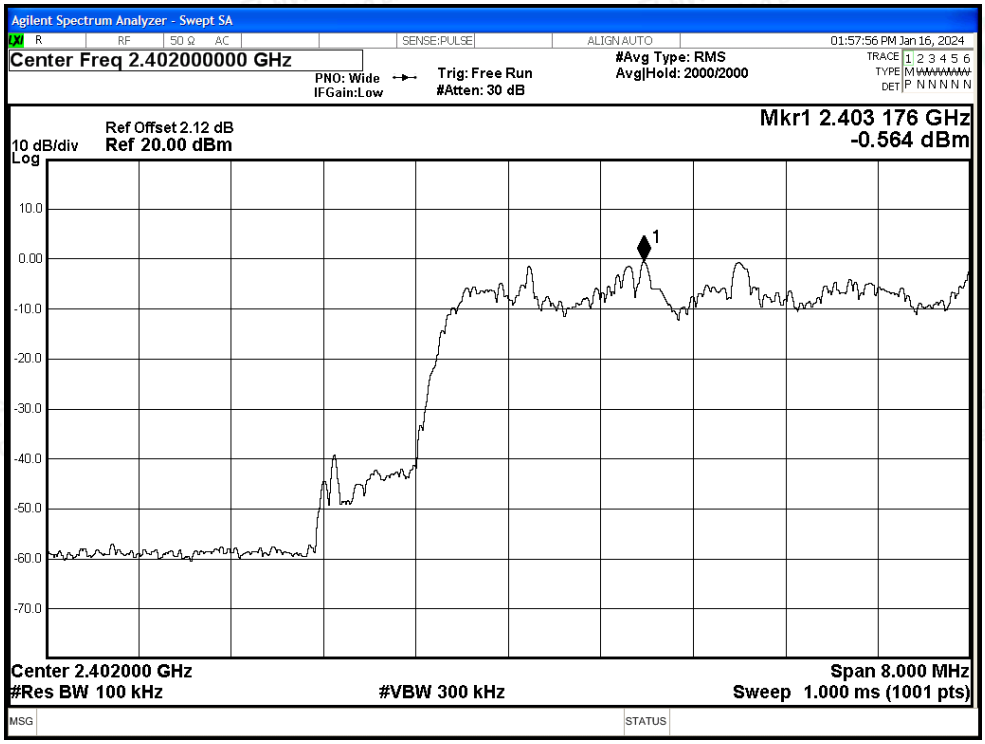
Band Edge(Hopping) NVNT 2-DH5 2480MHz Ant1 Hopping Ref



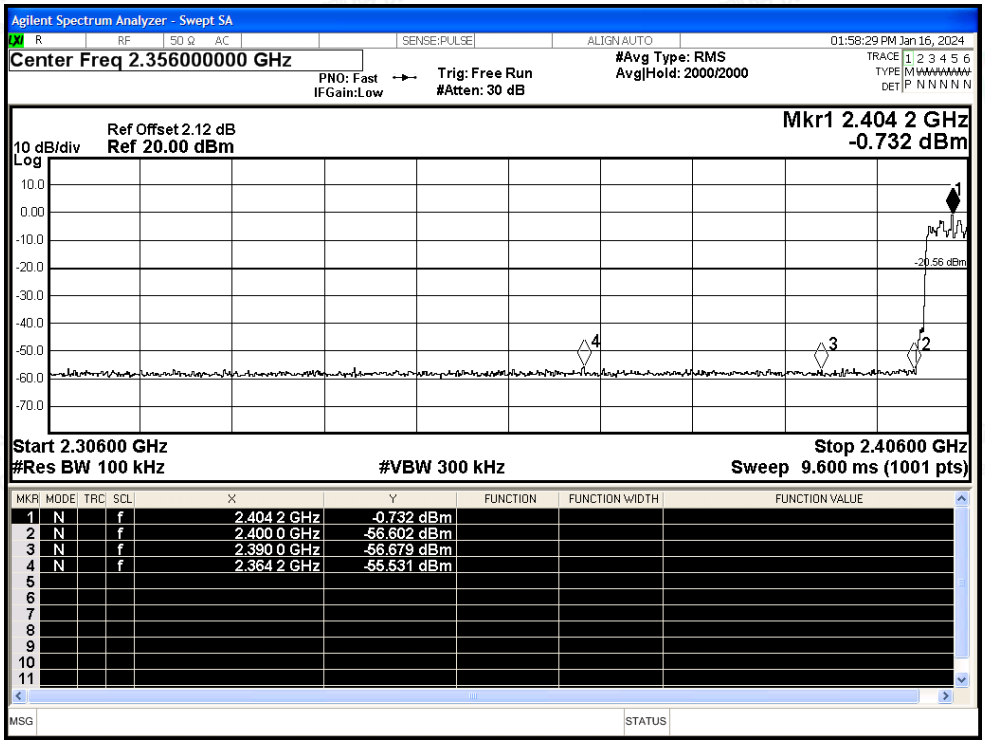
Band Edge(Hopping) NVNT 2-DH5 2480MHz Ant1 Hopping Emission



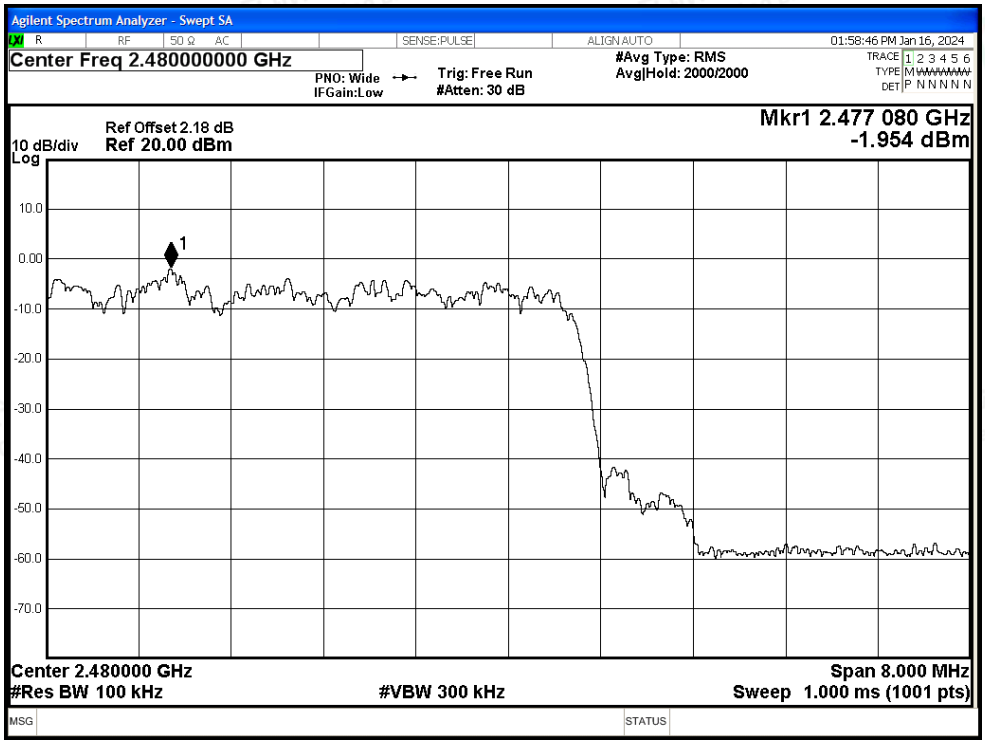
Band Edge(Hopping) NVNT 3-DH5 2402MHz Ant1 Hopping Ref



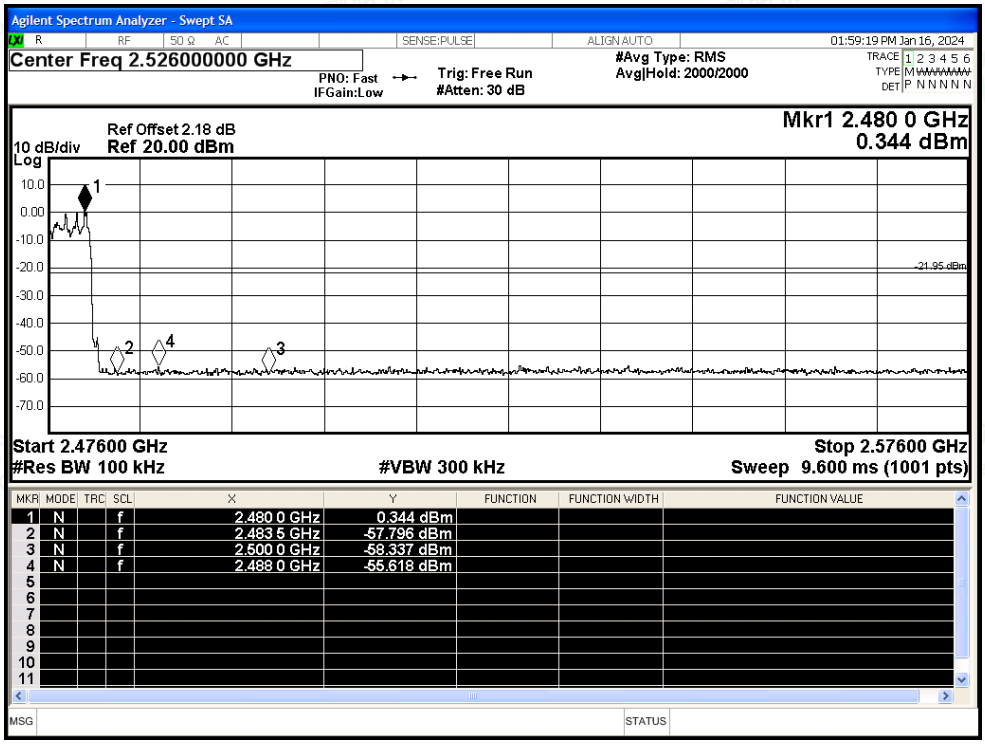
Band Edge(Hopping) NVNT 3-DH5 2402MHz Ant1 Hopping Emission



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



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

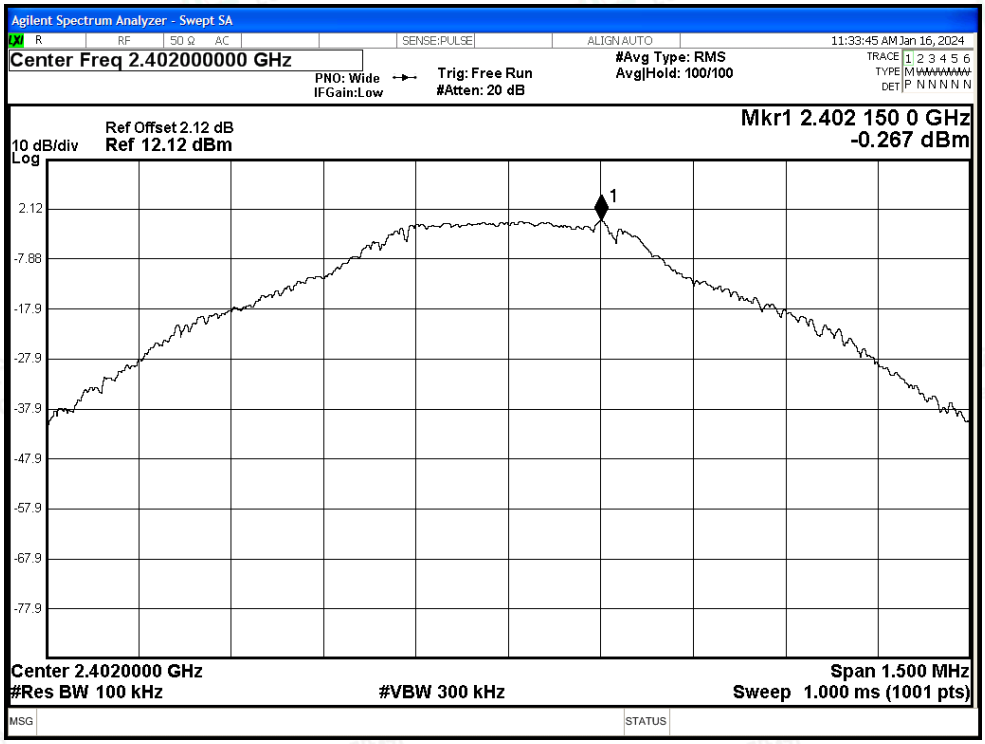


A.7 Conducted RF Spurious Emission

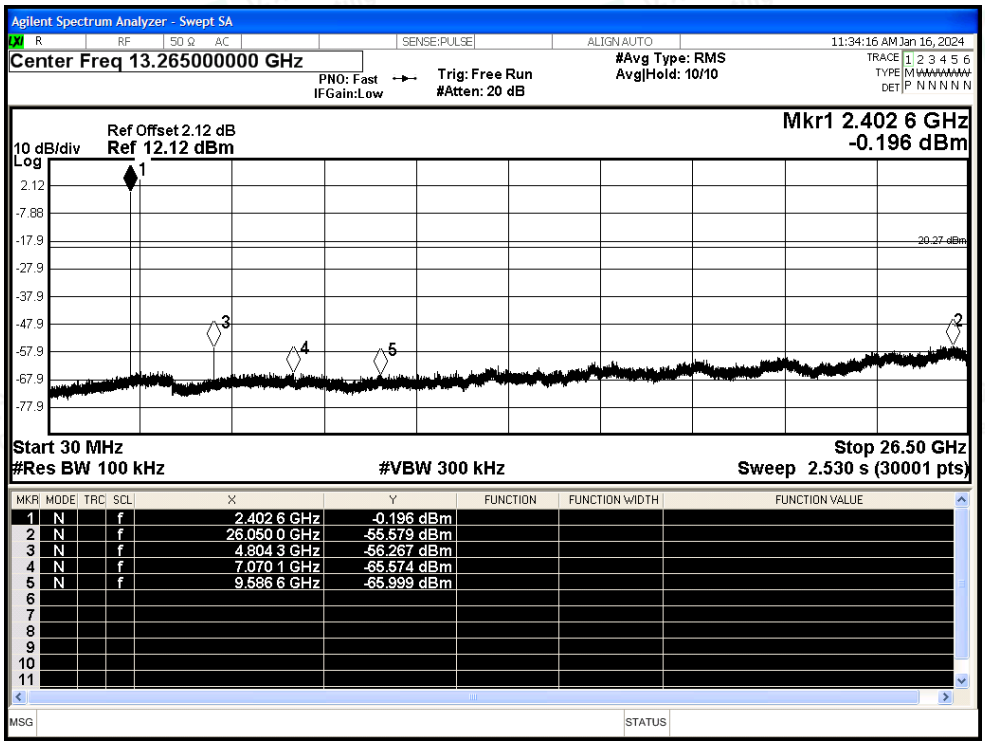
Condition	Mode	Frequency (MHz)	Antenna	Max Value (dBc)	Limit (dBc)	Verdict
NVNT	1-DH5	2402	Ant1	-55.31	-20	Pass
NVNT	1-DH5	2441	Ant1	-55.07	-20	Pass
NVNT	1-DH5	2480	Ant1	-55.36	-20	Pass
NVNT	2-DH5	2402	Ant1	-54.44	-20	Pass
NVNT	2-DH5	2441	Ant1	-54.78	-20	Pass
NVNT	2-DH5	2480	Ant1	-54.6	-20	Pass
NVNT	3-DH5	2402	Ant1	-54.54	-20	Pass
NVNT	3-DH5	2441	Ant1	-53.76	-20	Pass
NVNT	3-DH5	2480	Ant1	-54.92	-20	Pass

Test Graphs

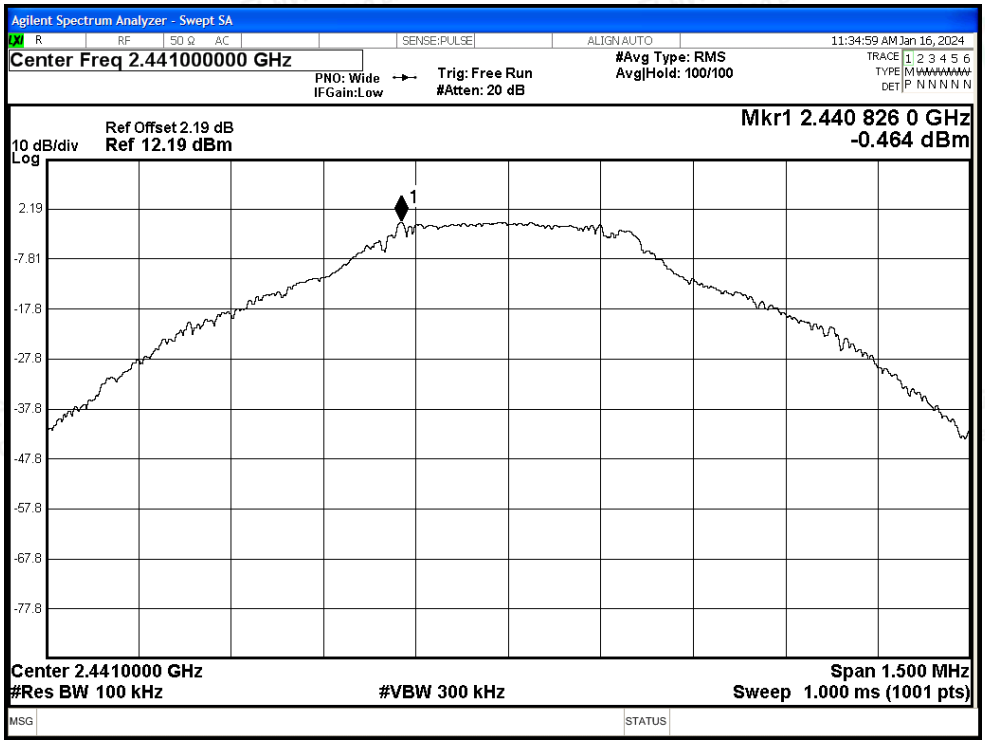
Tx. Spurious NVNT 1-DH5 2402MHz Ant1 Ref



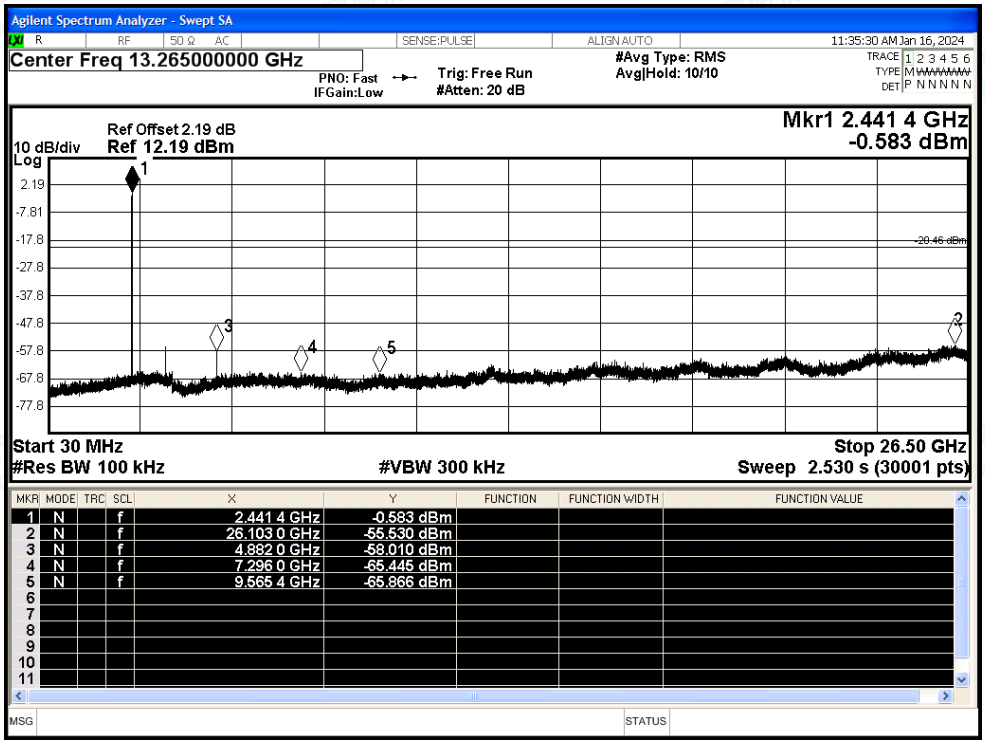
Tx. Spurious NVNT 1-DH5 2402MHz Ant1 Emission



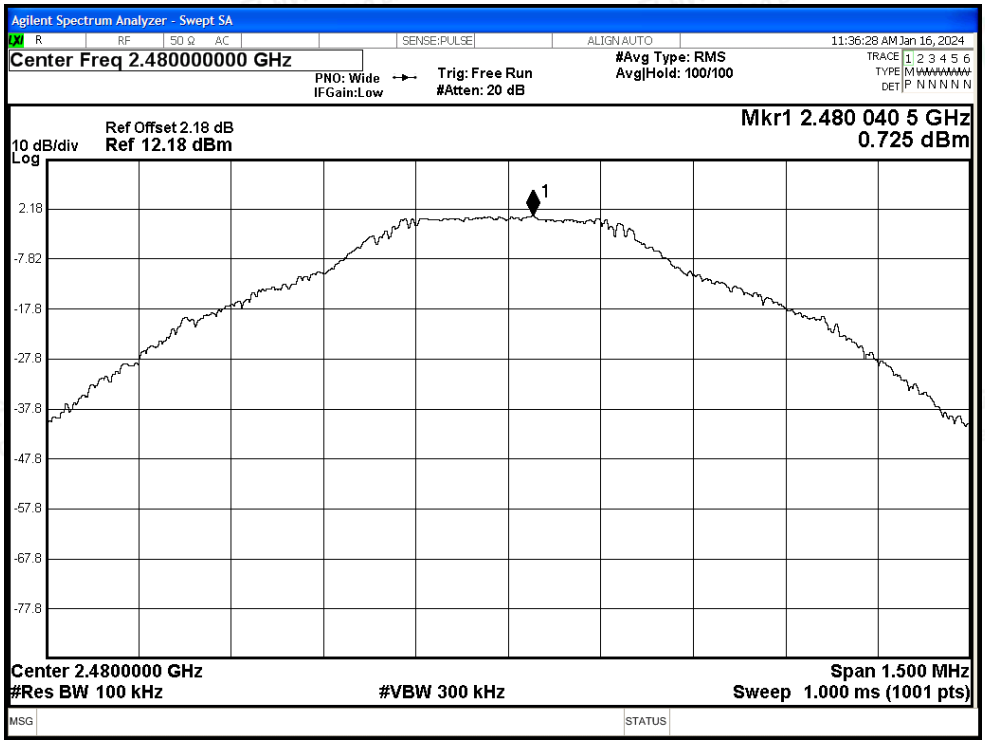
Tx. Spurious NVNT 1-DH5 2441MHz Ant1 Ref



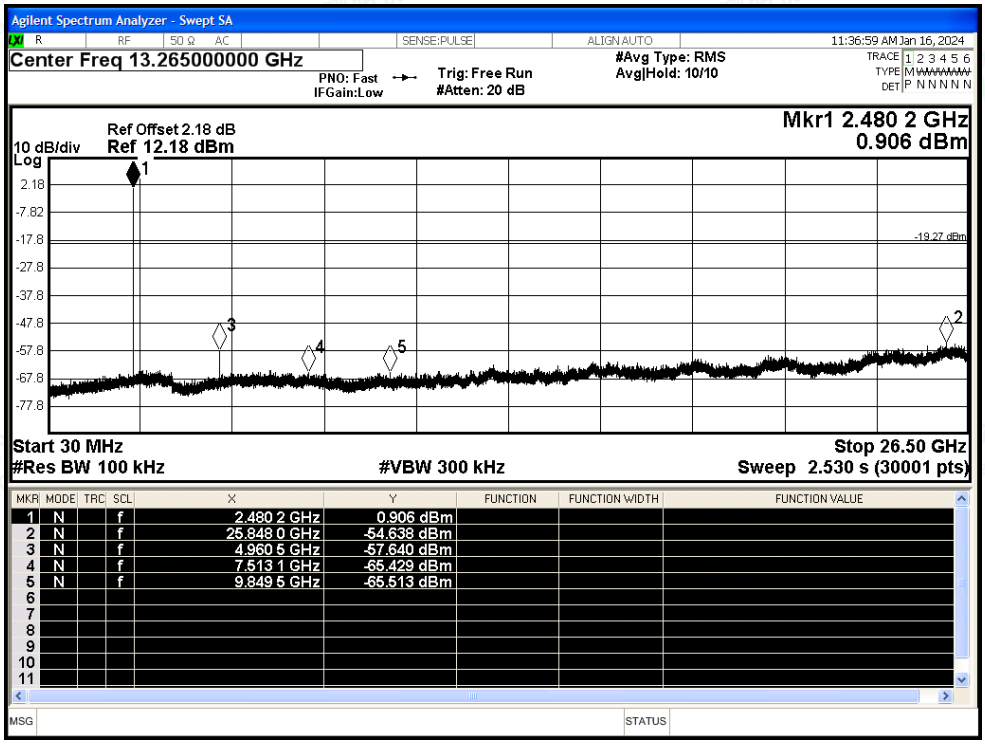
Tx. Spurious NVNT 1-DH5 2441MHz Ant1 Emission



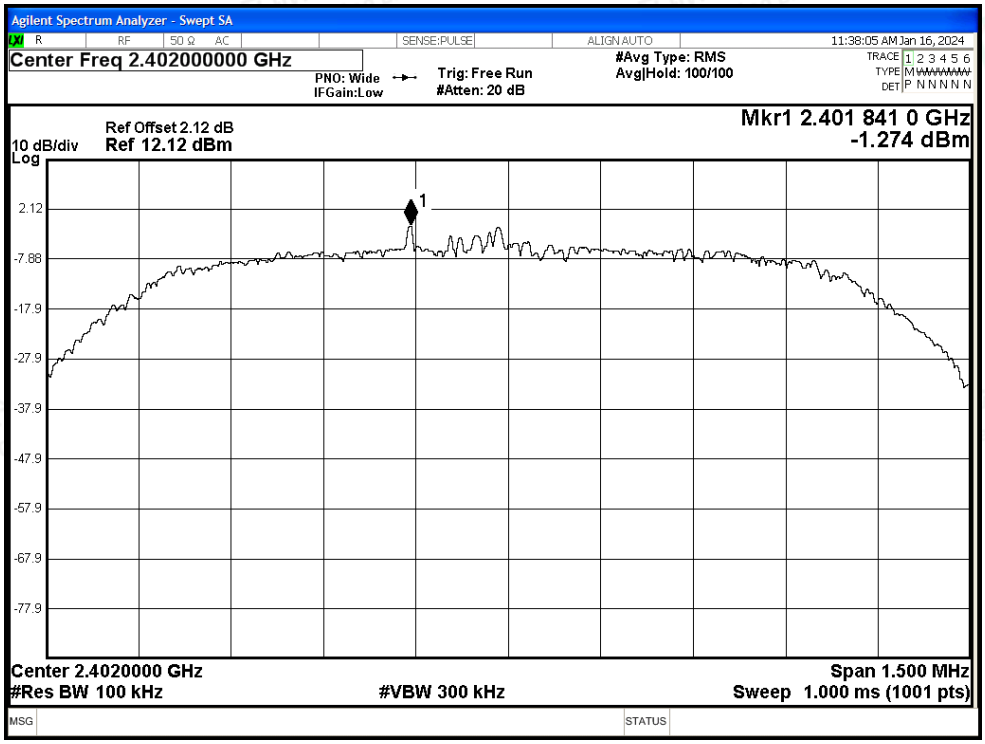
Tx. Spurious NVNT 1-DH5 2480MHz Ant1 Ref



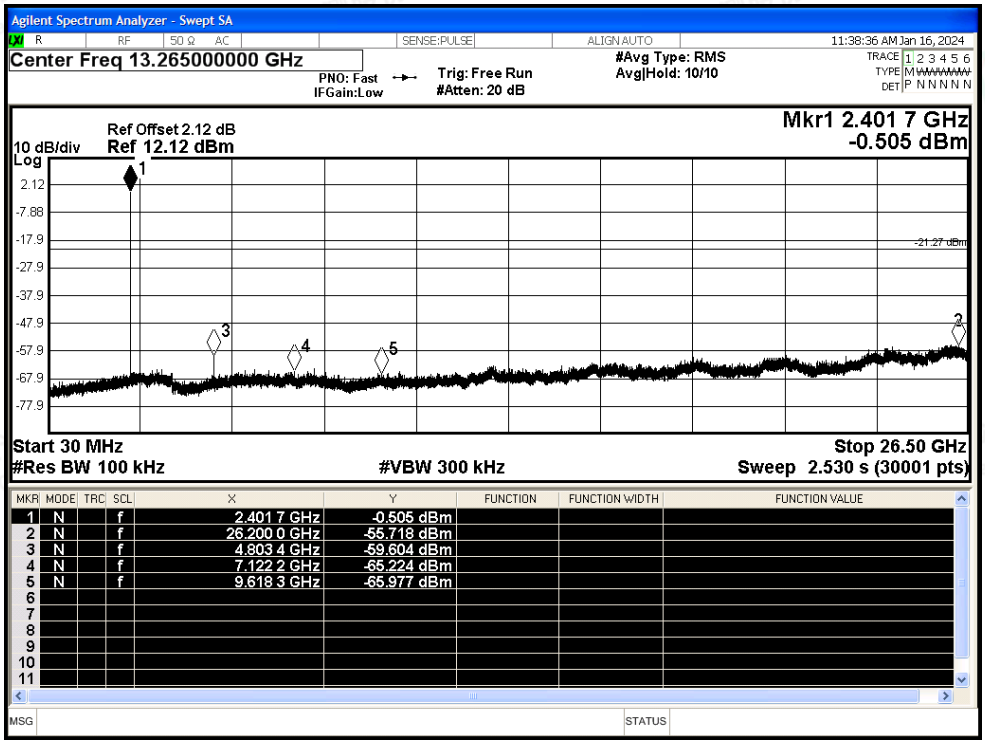
Tx. Spurious NVNT 1-DH5 2480MHz Ant1 Emission



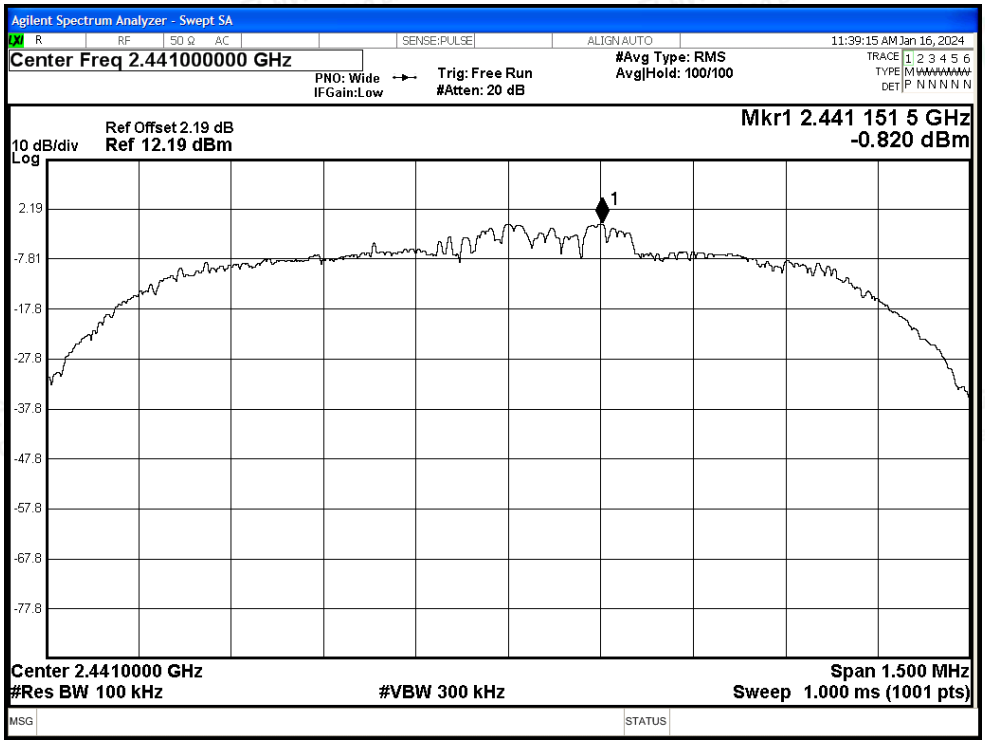
Tx. Spurious NVNT 2-DH5 2402MHz Ant1 Ref



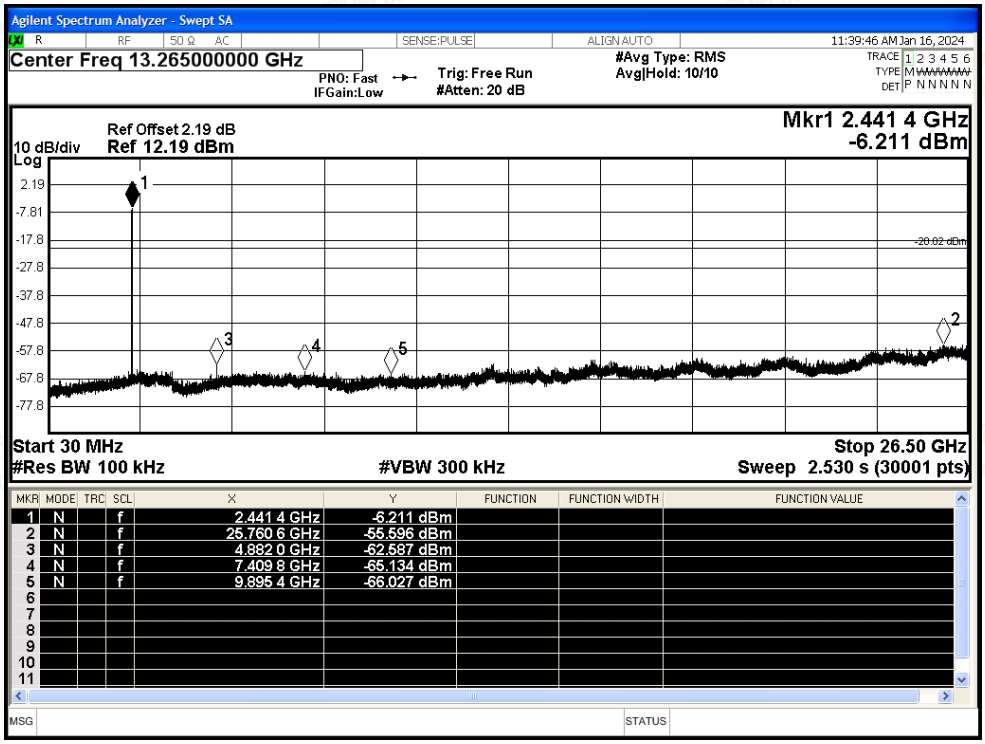
Tx. Spurious NVNT 2-DH5 2402MHz Ant1 Emission



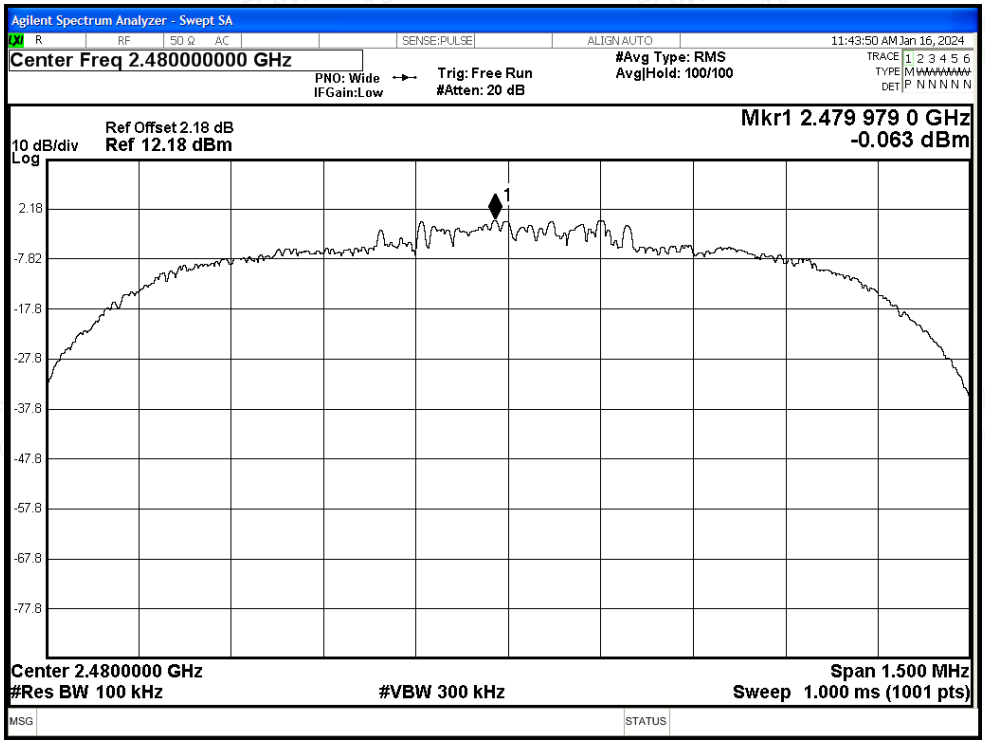
Tx. Spurious NVNT 2-DH5 2441MHz Ant1 Ref



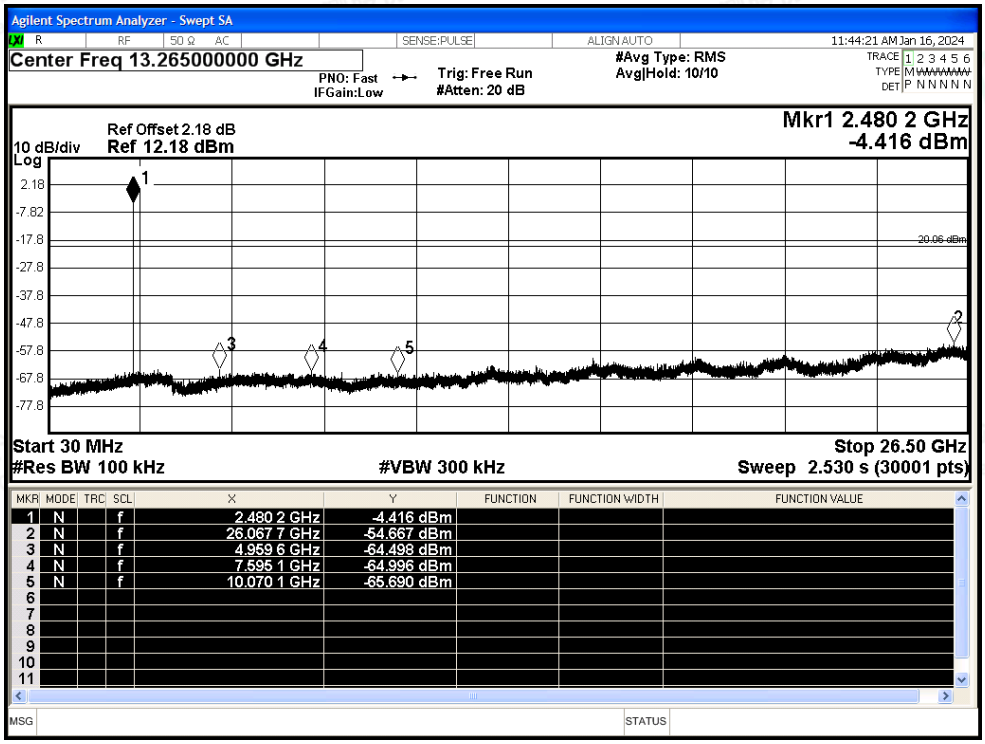
Tx. Spurious NVNT 2-DH5 2441MHz Ant1 Emission



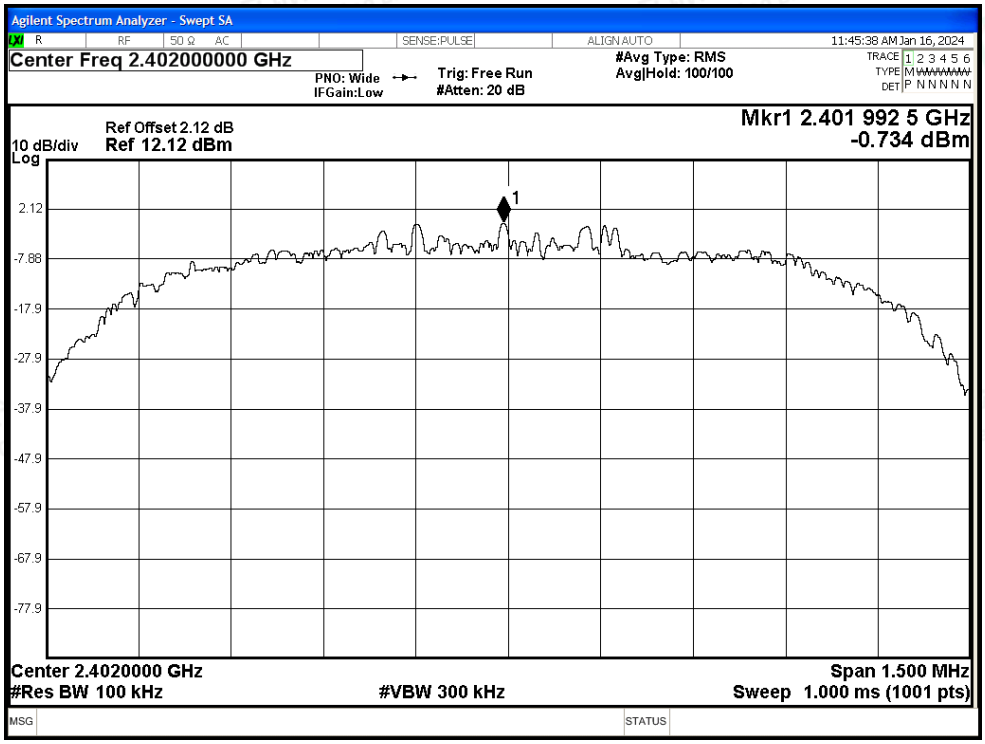
Tx. Spurious NVNT 2-DH5 2480MHz Ant1 Ref



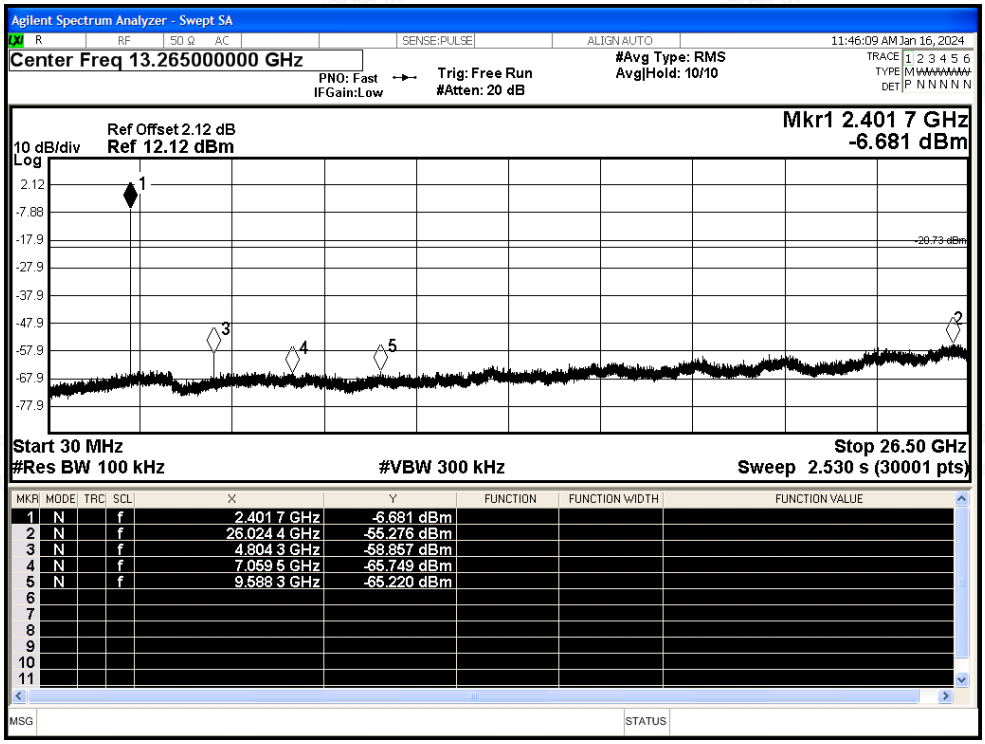
Tx. Spurious NVNT 2-DH5 2480MHz Ant1 Emission



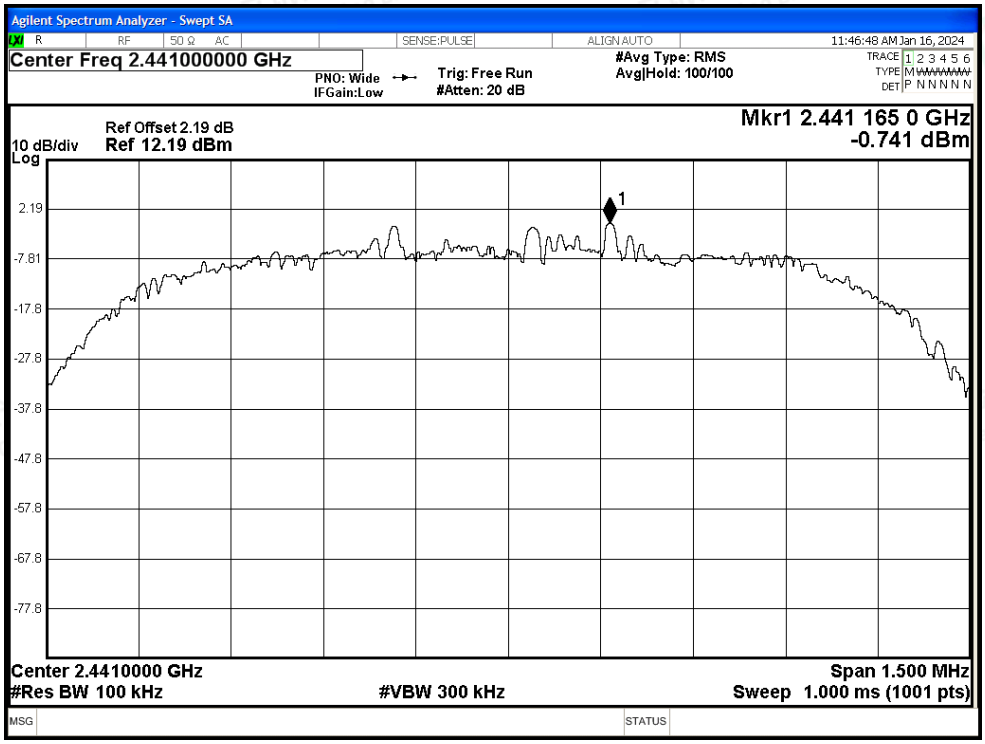
Tx. Spurious NVNT 3-DH5 2402MHz Ant1 Ref



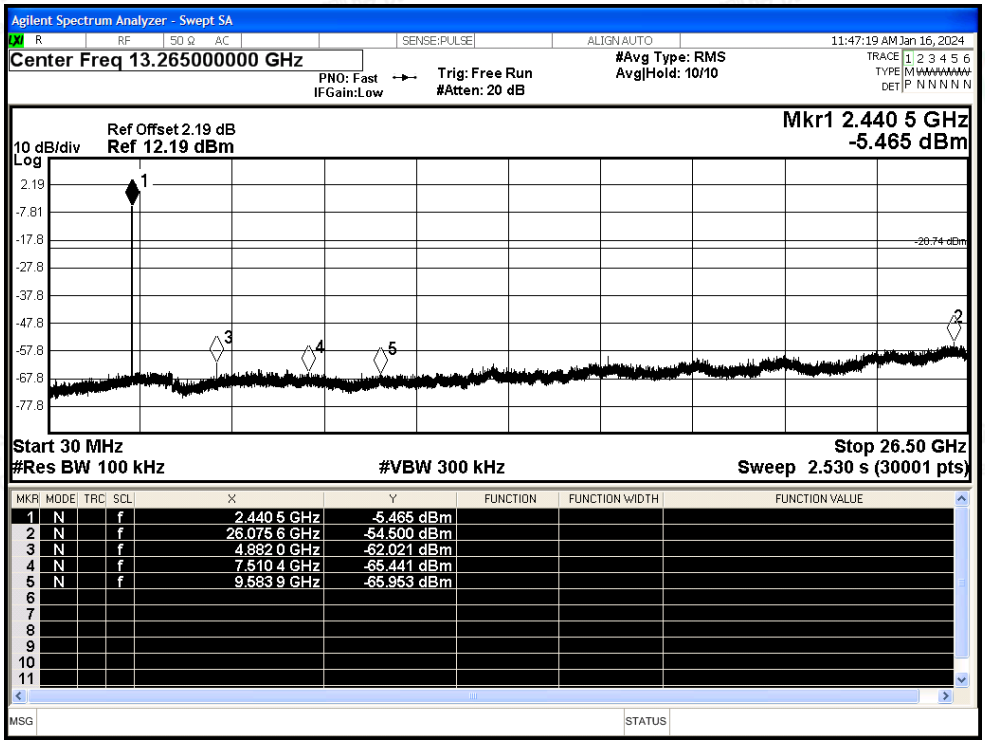
Tx. Spurious NVNT 3-DH5 2402MHz Ant1 Emission



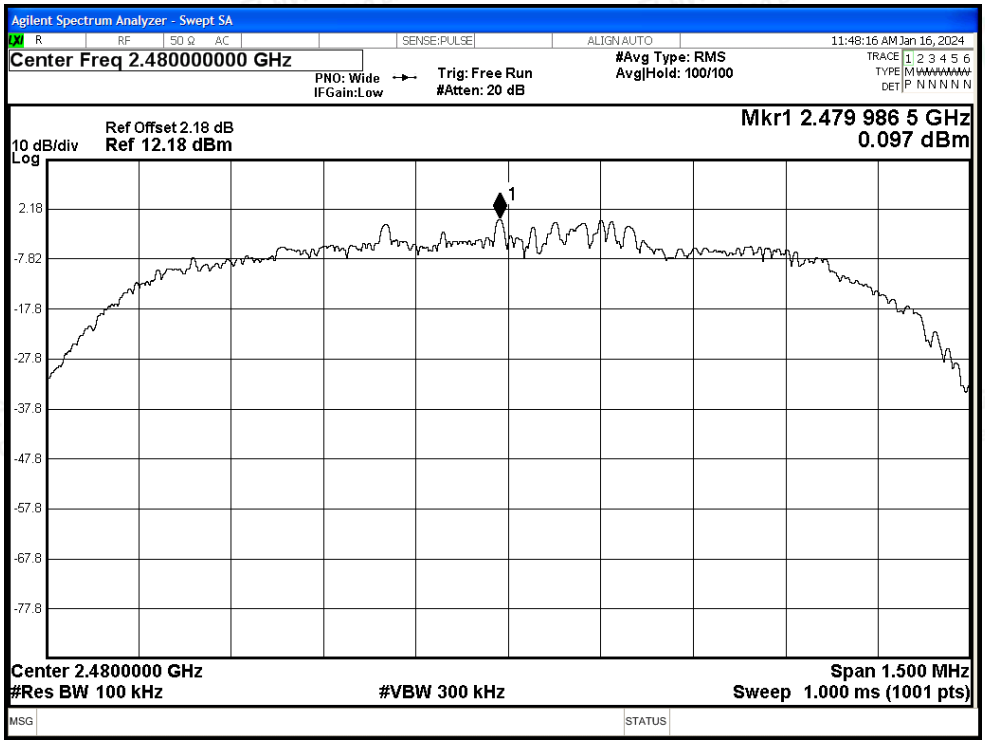
Tx. Spurious NVNT 3-DH5 2441MHz Ant1 Ref



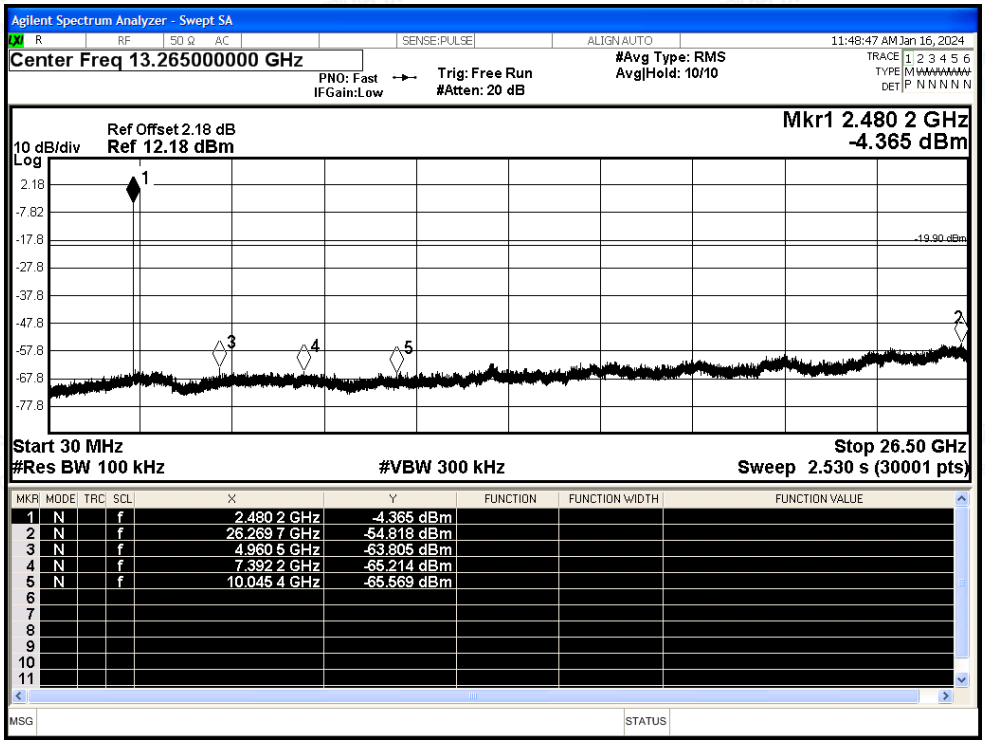
Tx. Spurious NVNT 3-DH5 2441MHz Ant1 Emission



Tx. Spurious NVNT 3-DH5 2480MHz Ant1 Ref



Tx. Spurious NVNT 3-DH5 2480MHz Ant1 Emission

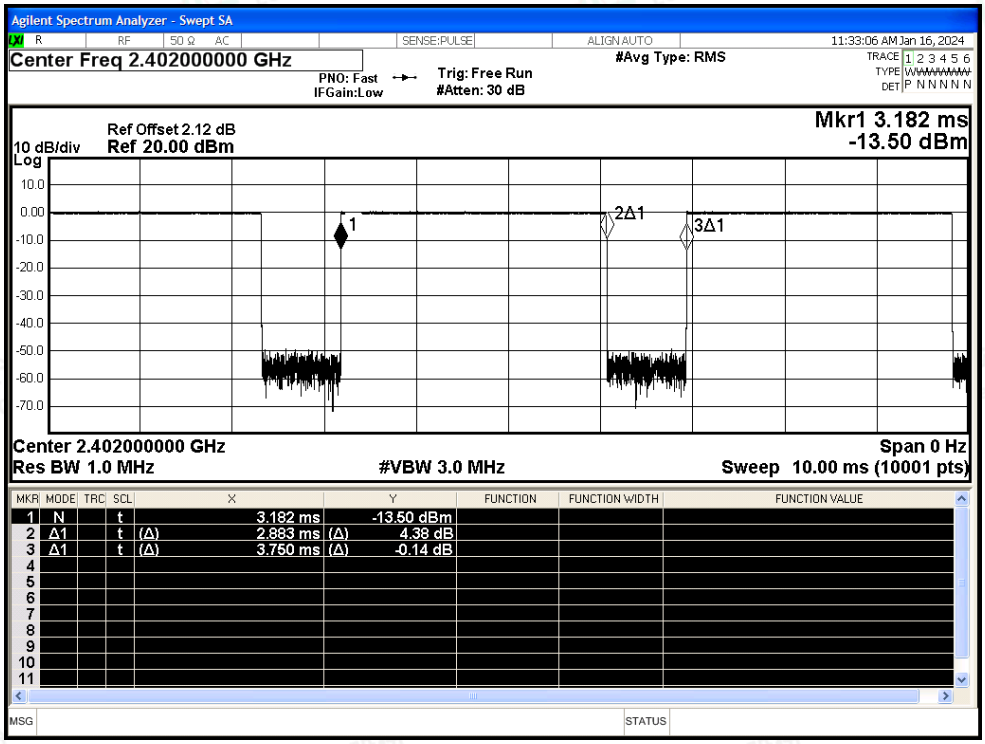


A.8 Duty Cycle

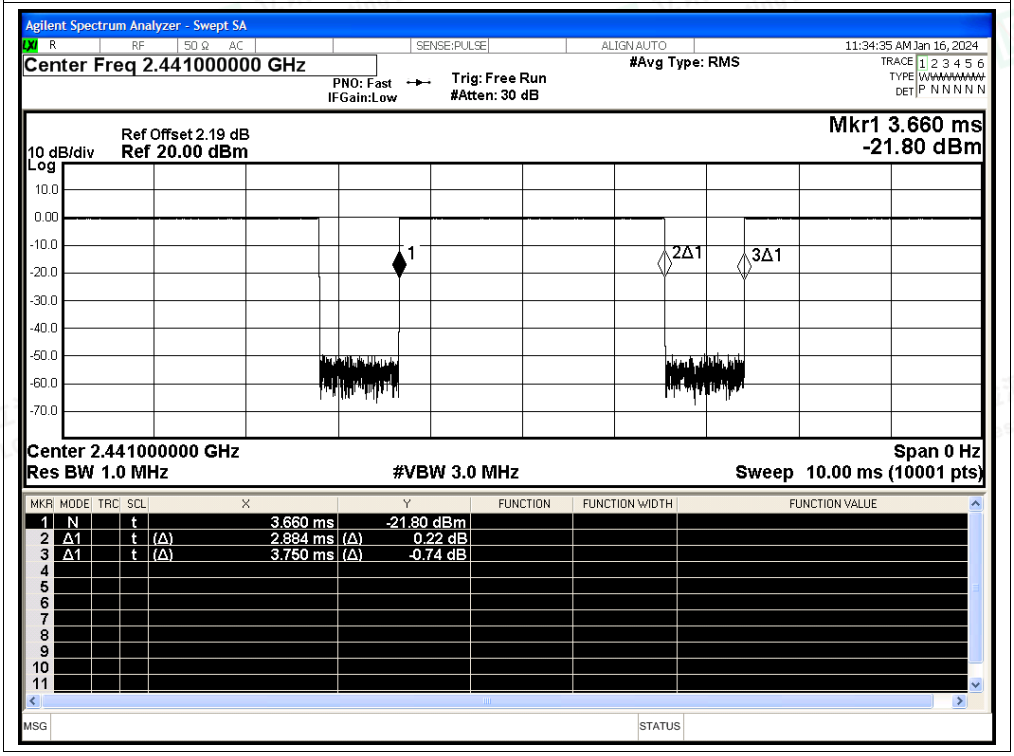
Condition	Mode	Frequency (MHz)	Antenna	Duty Cycle (%)	Correction Factor (dB)	1/T (kHz)
NVNT	1-DH5	2402	Ant1	76.88	1.14	0.35
NVNT	1-DH5	2441	Ant1	76.91	1.14	0.35
NVNT	1-DH5	2480	Ant1	76.88	1.14	0.35
NVNT	2-DH5	2402	Ant1	76.99	1.14	0.35
NVNT	2-DH5	2441	Ant1	76.96	1.14	0.35
NVNT	2-DH5	2480	Ant1	76.99	1.14	0.35
NVNT	3-DH5	2402	Ant1	77.04	1.13	0.35
NVNT	3-DH5	2441	Ant1	77.01	1.13	0.35
NVNT	3-DH5	2480	Ant1	77.01	1.13	0.35

Test Graphs

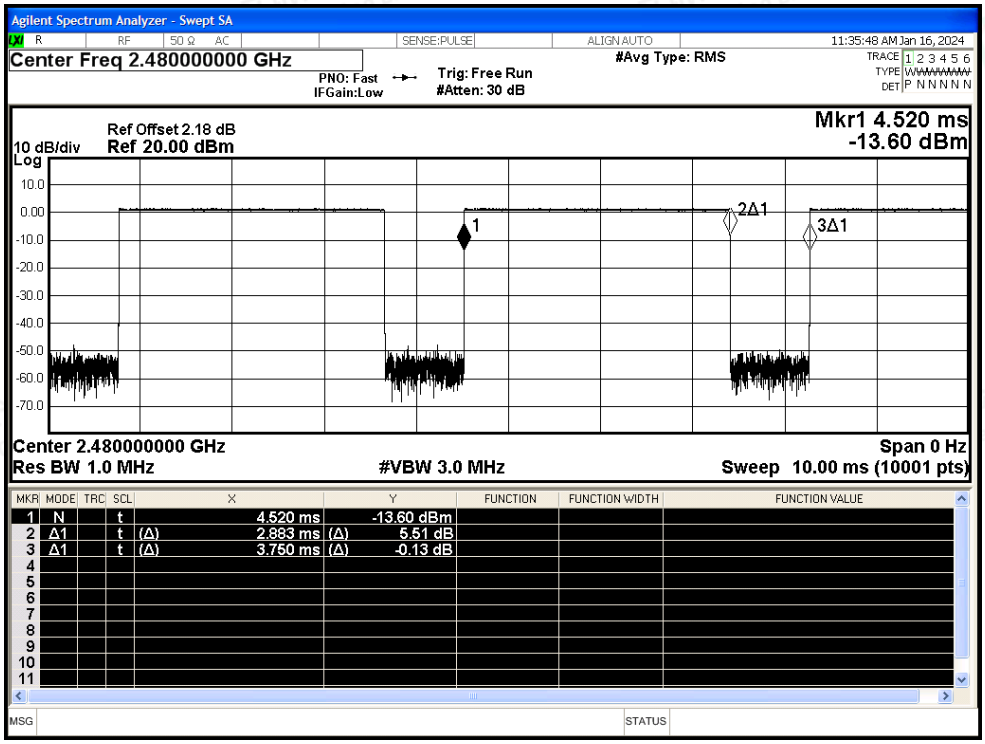
Duty Cycle NVNT 1-DH5 2402MHz Ant1



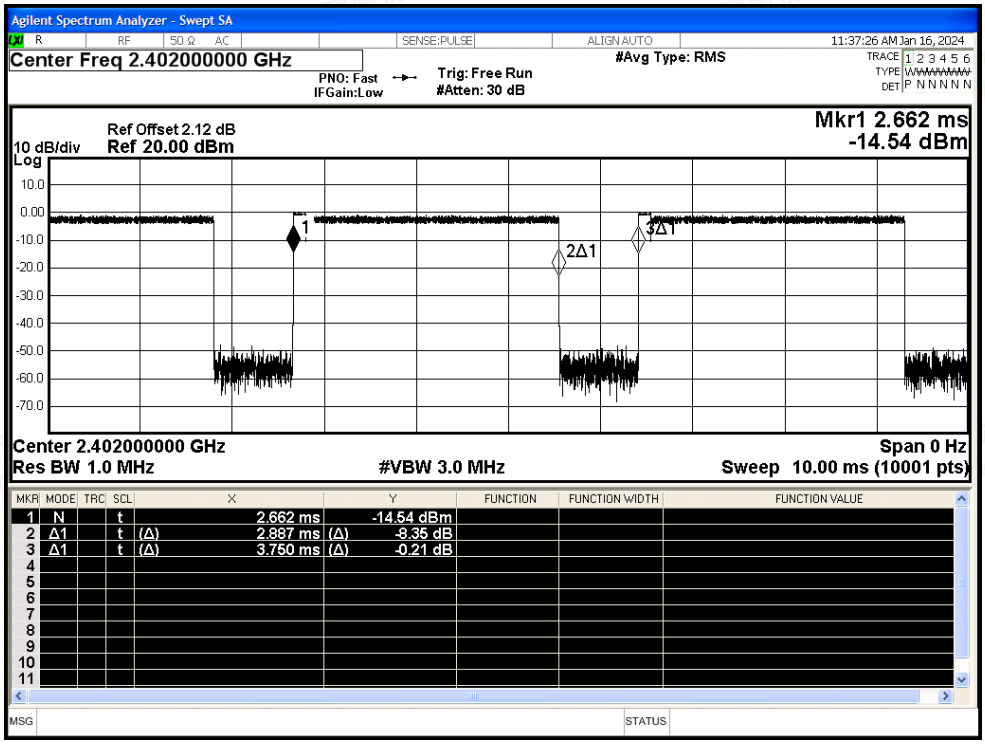
Duty Cycle NVNT 1-DH5 2441MHz Ant1



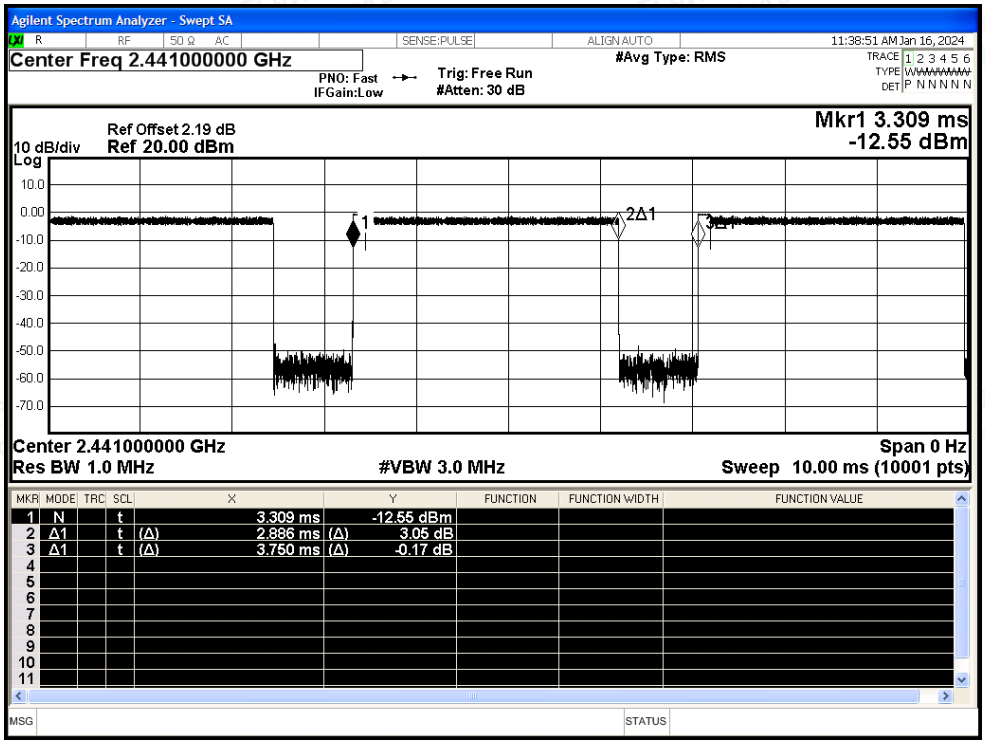
Duty Cycle NVNT 1-DH5 2480MHz Ant1



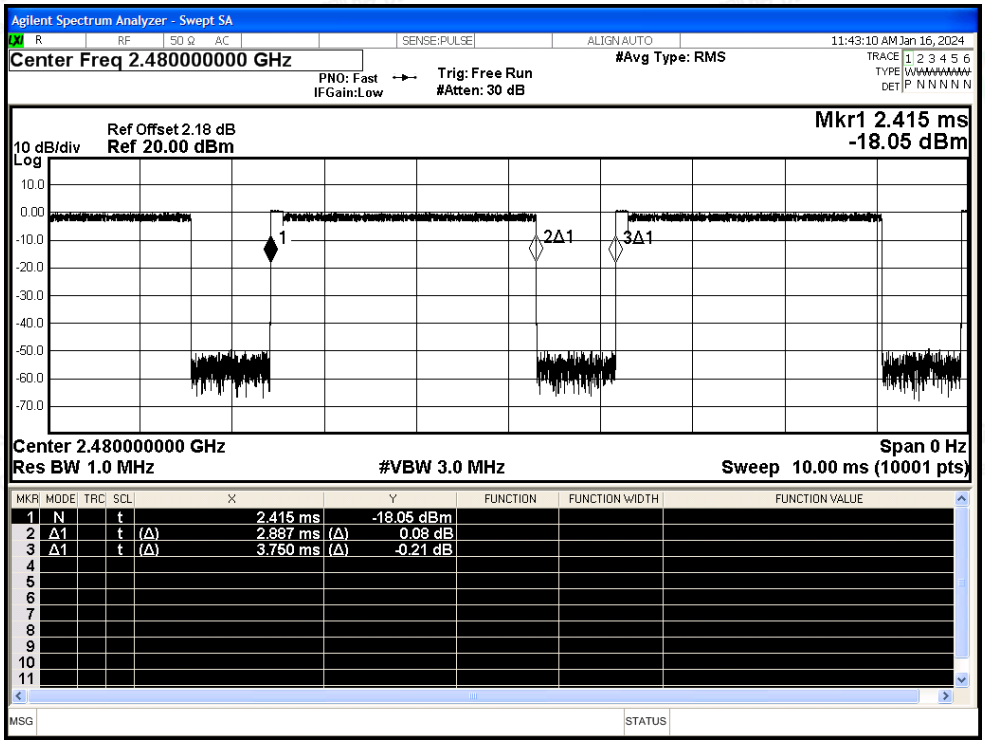
Duty Cycle NVNT 2-DH5 2402MHz Ant1



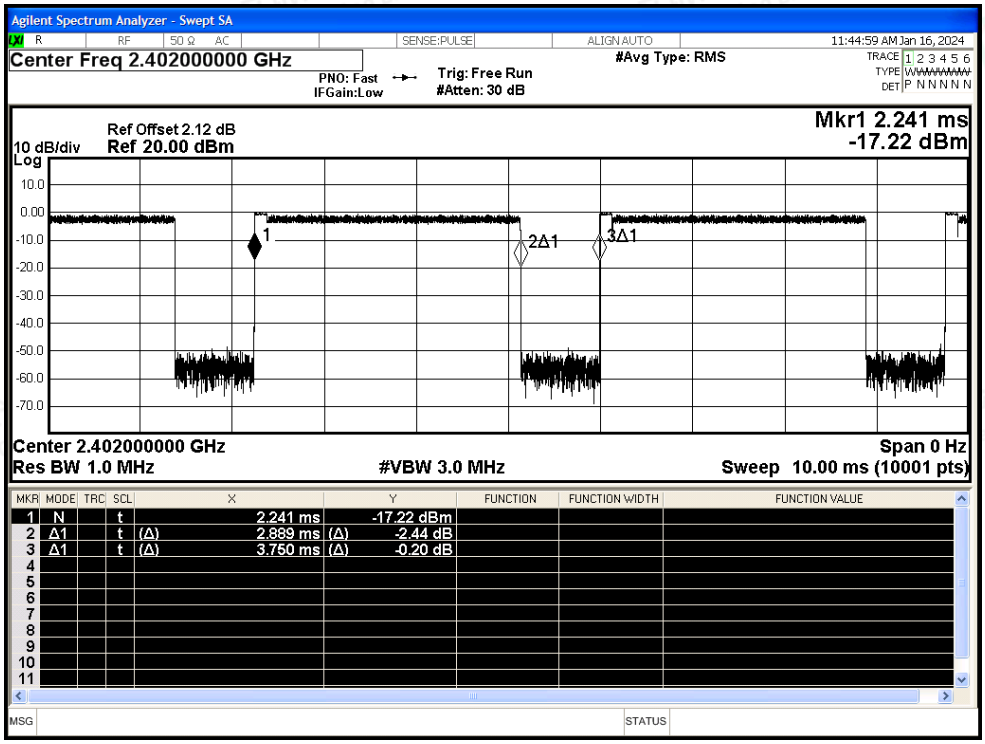
Duty Cycle NVNT 2-DH5 2441MHz Ant1



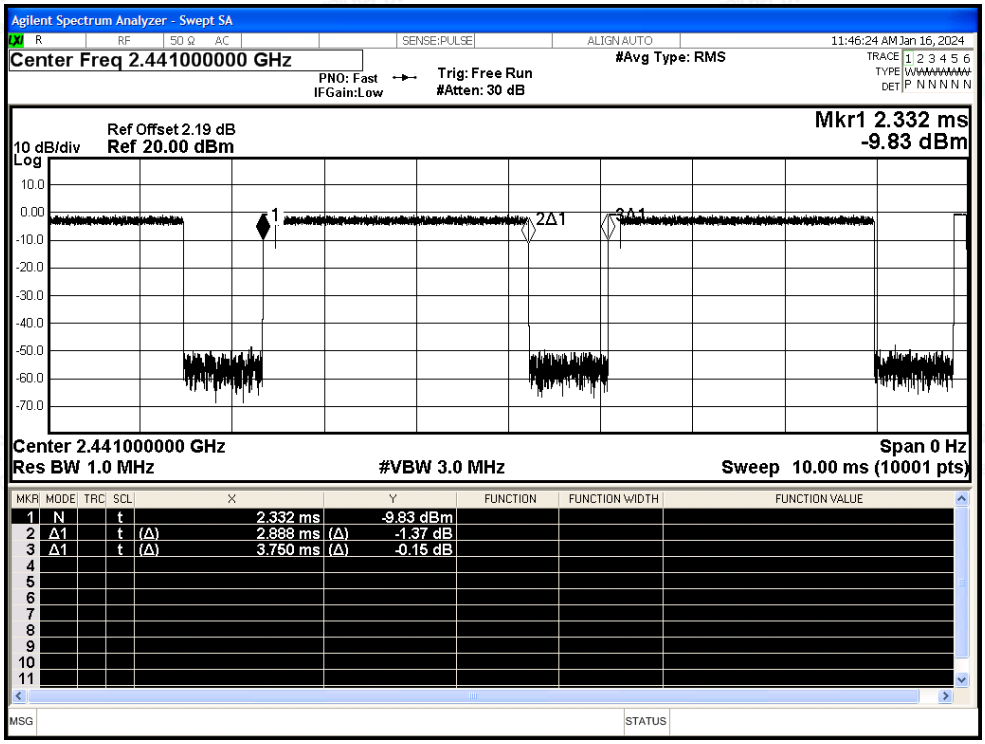
Duty Cycle NVNT 2-DH5 2480MHz Ant1



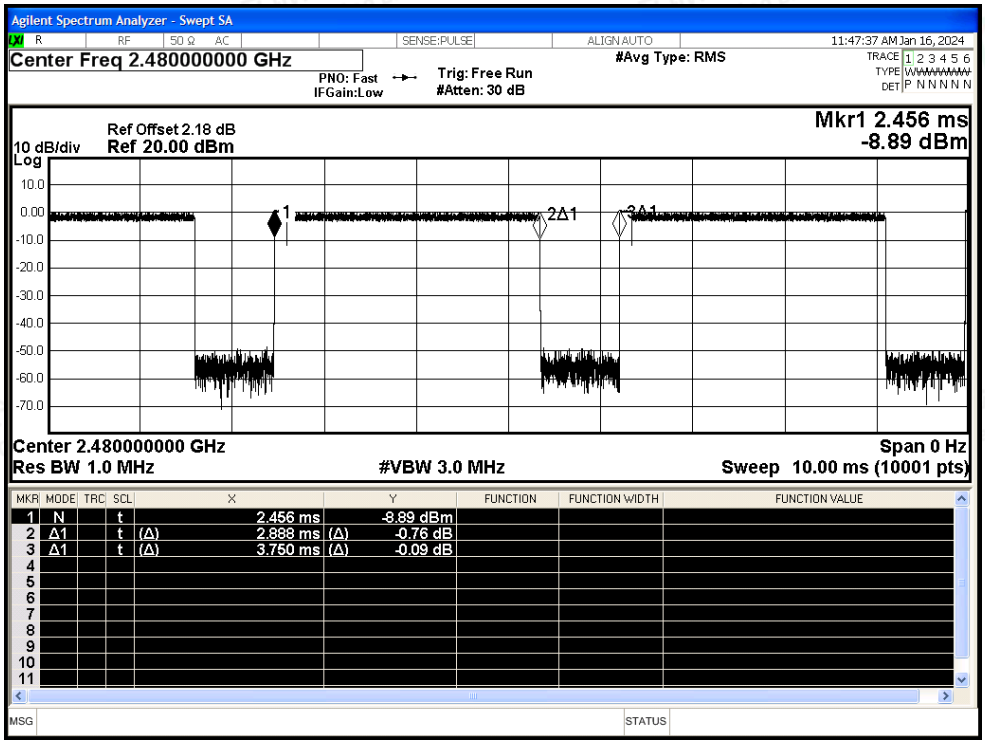
Duty Cycle NVNT 3-DH5 2402MHz Ant1



Duty Cycle NVNT 3-DH5 2441MHz Ant1



Duty Cycle NVNT 3-DH5 2480MHz Ant1

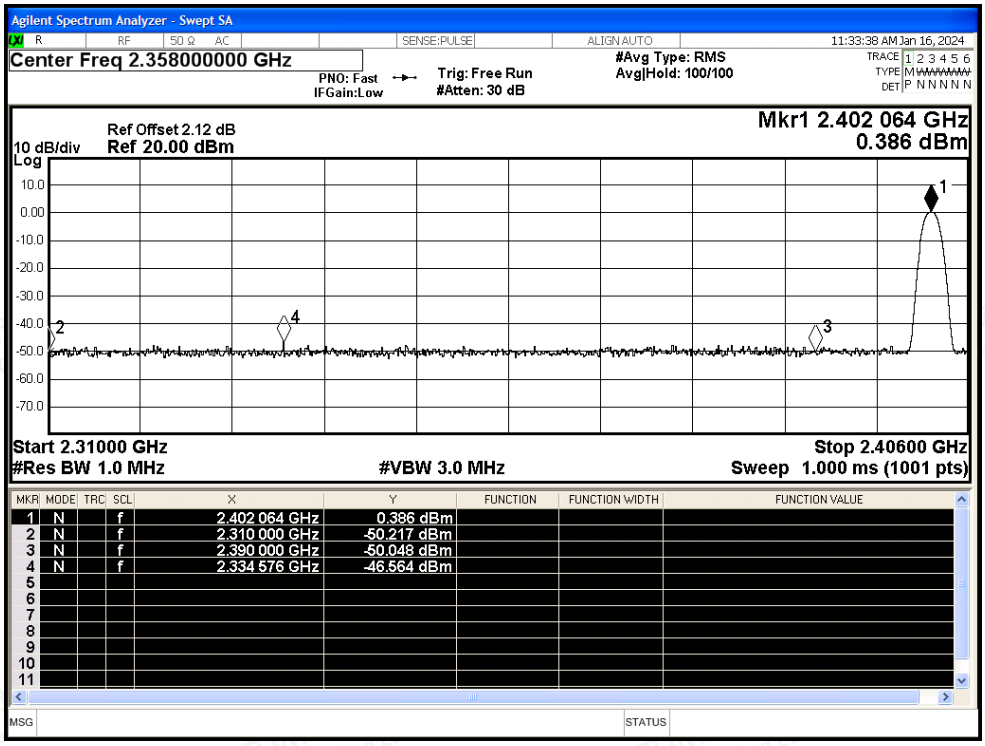


A.9 Restrict Band

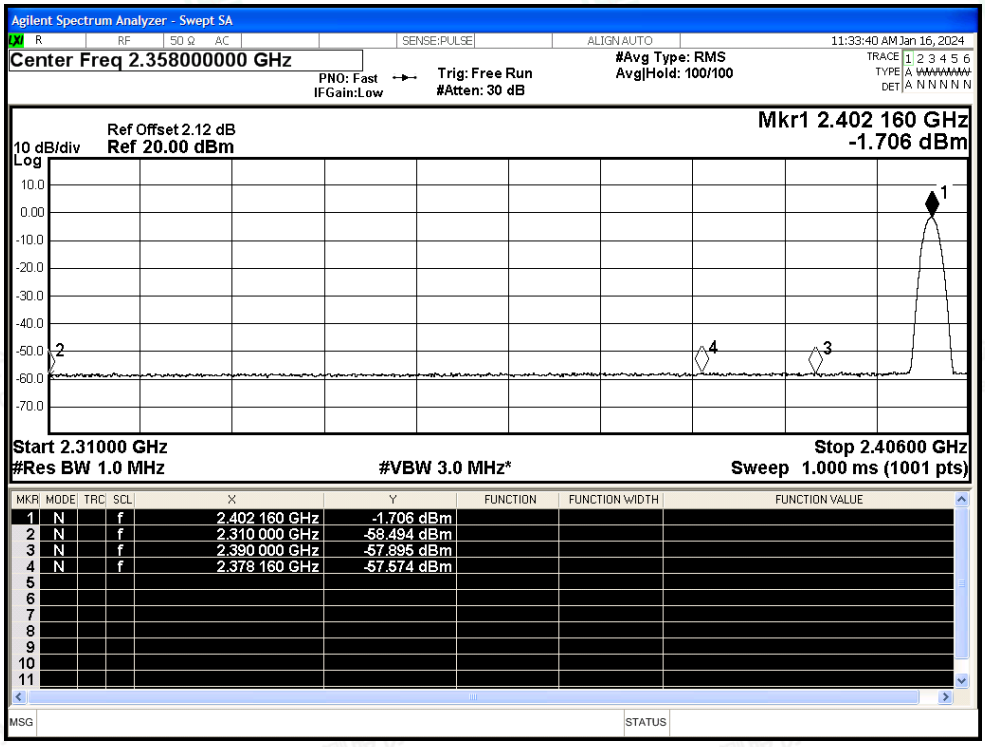
Condition	Mode	Frequency (MHz)	Antenna	Hopping Mode	Spur Freq (MHz)	Power (dBm)	Gain (dBi)	Duty Factor (dB)	E (dBuV/m)	Detector	Limit (dBuV/m)	Verdict
NVNT	1-DH5	2402	Ant1	No-Hopping	2310	-50.22	2	-	47.04	Peak	74	Pass
NVNT	1-DH5	2402	Ant1	No-Hopping	2310	-58.49	2	1.14	39.91	Average	54	Pass
NVNT	1-DH5	2402	Ant1	No-Hopping	2334.576	-46.56	2	-	50.7	Peak	74	Pass
NVNT	1-DH5	2402	Ant1	No-Hopping	2378.16	-57.57	2	1.14	40.83	Average	54	Pass
NVNT	1-DH5	2402	Ant1	No-Hopping	2390	-50.05	2	-	47.21	Peak	74	Pass
NVNT	1-DH5	2402	Ant1	No-Hopping	2390	-57.9	2	1.14	40.5	Average	54	Pass
NVNT	1-DH5	2480	Ant1	No-Hopping	2483.5	-48.84	2	-	48.42	Peak	74	Pass
NVNT	1-DH5	2480	Ant1	No-Hopping	2483.5	-57.84	2	1.14	40.56	Average	54	Pass
NVNT	1-DH5	2480	Ant1	No-Hopping	2498.992	-46.52	2	-	50.74	Peak	74	Pass
NVNT	1-DH5	2480	Ant1	No-Hopping	2485.12	-56.91	2	1.14	41.49	Average	54	Pass
NVNT	1-DH5	2480	Ant1	No-Hopping	2500	-49.65	2	-	47.61	Peak	74	Pass
NVNT	1-DH5	2480	Ant1	No-Hopping	2500	-58.15	2	1.14	40.25	Average	54	Pass
NVNT	2-DH5	2402	Ant1	No-Hopping	2310	-50.49	2	-	46.77	Peak	74	Pass
NVNT	2-DH5	2402	Ant1	No-Hopping	2310	-58.18	2	1.14	40.22	Average	54	Pass
NVNT	2-DH5	2402	Ant1	No-Hopping	2319.12	-46.92	2	-	50.34	Peak	74	Pass
NVNT	2-DH5	2402	Ant1	No-Hopping	2385.84	-57.6	2	1.14	40.8	Average	54	Pass
NVNT	2-DH5	2402	Ant1	No-Hopping	2390	-50.27	2	-	46.99	Peak	74	Pass
NVNT	2-DH5	2402	Ant1	No-Hopping	2390	-58.83	2	1.14	39.57	Average	54	Pass
NVNT	2-DH5	2480	Ant1	No-Hopping	2483.5	-50.11	2	-	47.15	Peak	74	Pass
NVNT	2-DH5	2480	Ant1	No-Hopping	2483.5	-57.57	2	1.14	40.83	Average	54	Pass
NVNT	2-DH5	2480	Ant1	No-Hopping	2488.384	-47.11	2	-	50.15	Peak	74	Pass
NVNT	2-DH5	2480	Ant1	No-Hopping	2498.896	-56.89	2	1.14	41.51	Average	54	Pass
NVNT	2-DH5	2480	Ant1	No-Hopping	2500	-48.91	2	-	48.35	Peak	74	Pass
NVNT	2-DH5	2480	Ant1	No-Hopping	2500	-58.25	2	1.14	40.15	Average	54	Pass
NVNT	3-DH5	2402	Ant1	No-Hopping	2310	-51.02	2	-	46.24	Peak	74	Pass
NVNT	3-DH5	2402	Ant1	No-Hopping	2310	-58.41	2	1.13	39.98	Average	54	Pass
NVNT	3-DH5	2402	Ant1	No-Hopping	2356.944	-47.05	2	-	50.21	Peak	74	Pass
NVNT	3-DH5	2402	Ant1	No-Hopping	2373.168	-57.59	2	1.13	40.8	Average	54	Pass
NVNT	3-DH5	2402	Ant1	No-Hopping	2390	-51.03	2	-	46.23	Peak	74	Pass
NVNT	3-DH5	2402	Ant1	No-Hopping	2390	-58.6	2	1.13	39.79	Average	54	Pass
NVNT	3-DH5	2480	Ant1	No-Hopping	2483.5	-49.77	2	-	47.49	Peak	74	Pass
NVNT	3-DH5	2480	Ant1	No-Hopping	2483.5	-57.63	2	1.13	40.76	Average	54	Pass
NVNT	3-DH5	2480	Ant1	No-Hopping	2493.376	-47.61	2	-	49.65	Peak	74	Pass
NVNT	3-DH5	2480	Ant1	No-Hopping	2483.632	-56.94	2	1.13	41.45	Average	54	Pass
NVNT	3-DH5	2480	Ant1	No-Hopping	2500	-50.77	2	-	46.49	Peak	74	Pass
NVNT	3-DH5	2480	Ant1	No-Hopping	2500	-57.79	2	1.13	40.6	Average	54	Pass

Test Graphs

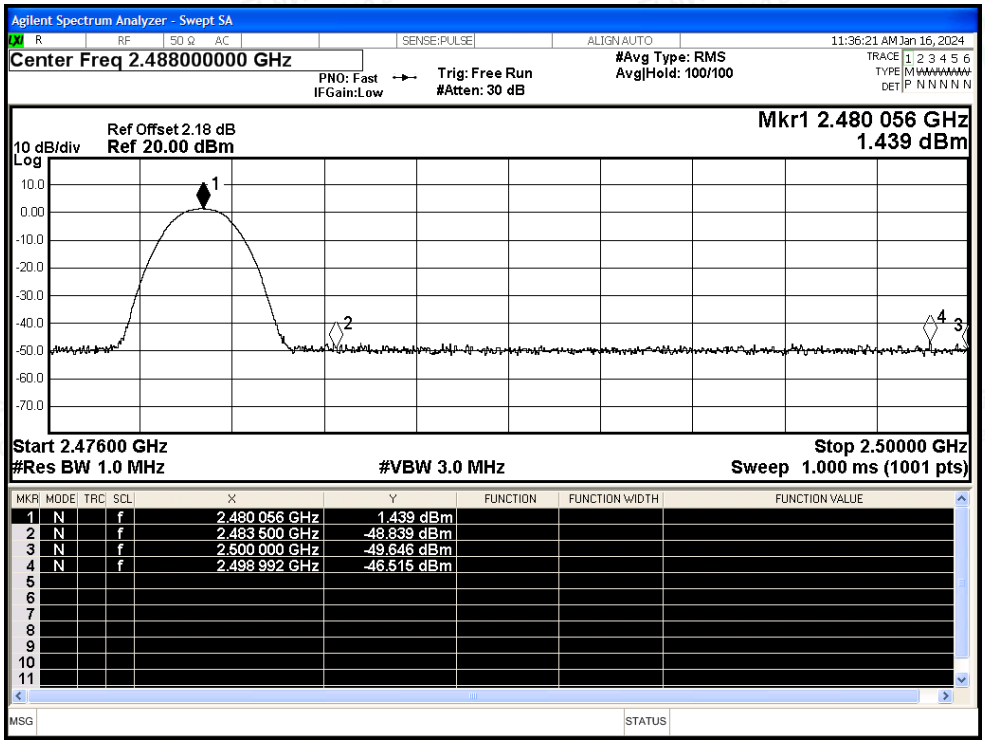
Restrict Band NVNT 1-DH5 2402MHz Ant1 No-Hopping Peak



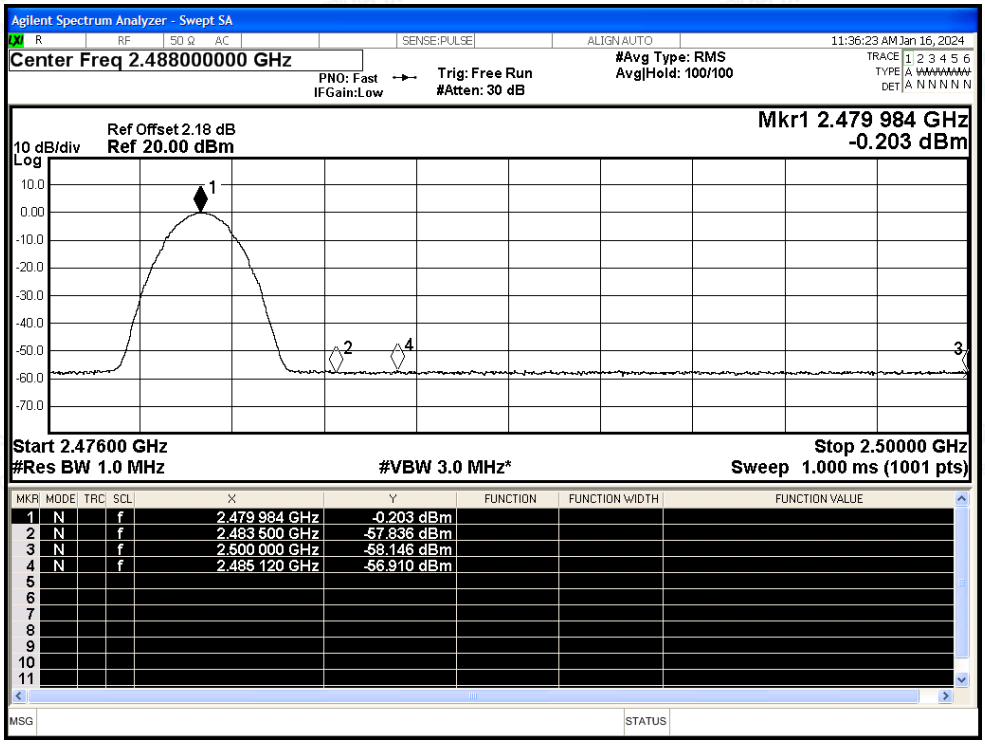
Restrict Band NVNT 1-DH5 2402MHz Ant1 No-Hopping Average



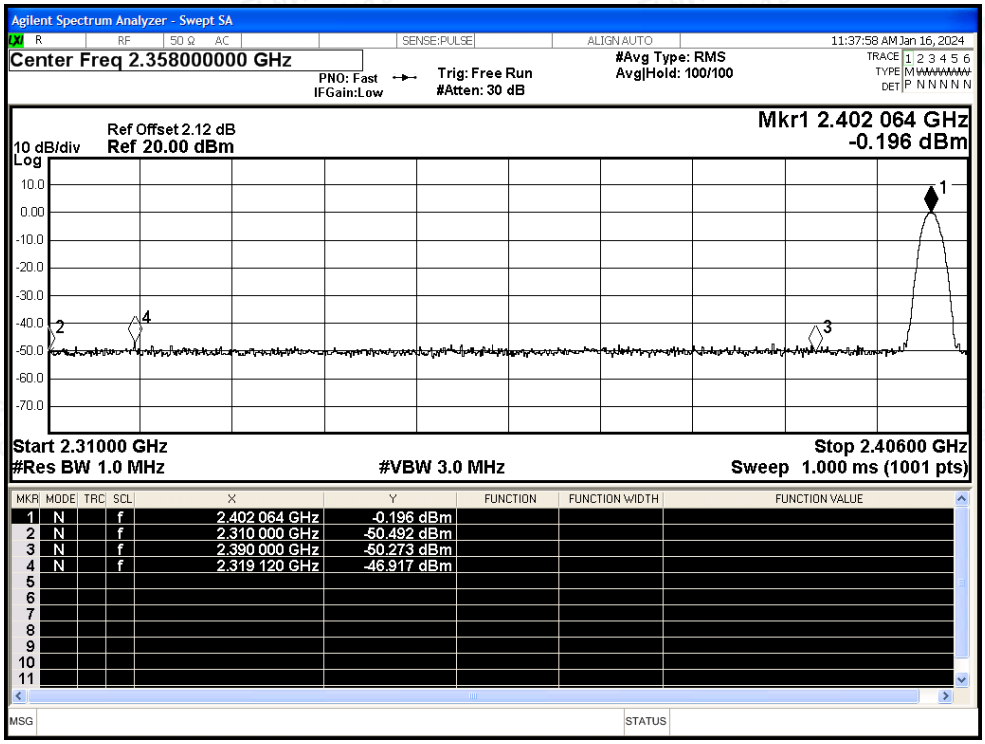
Restrict Band NVNT 1-DH5 2480MHz Ant1 No-Hopping Peak



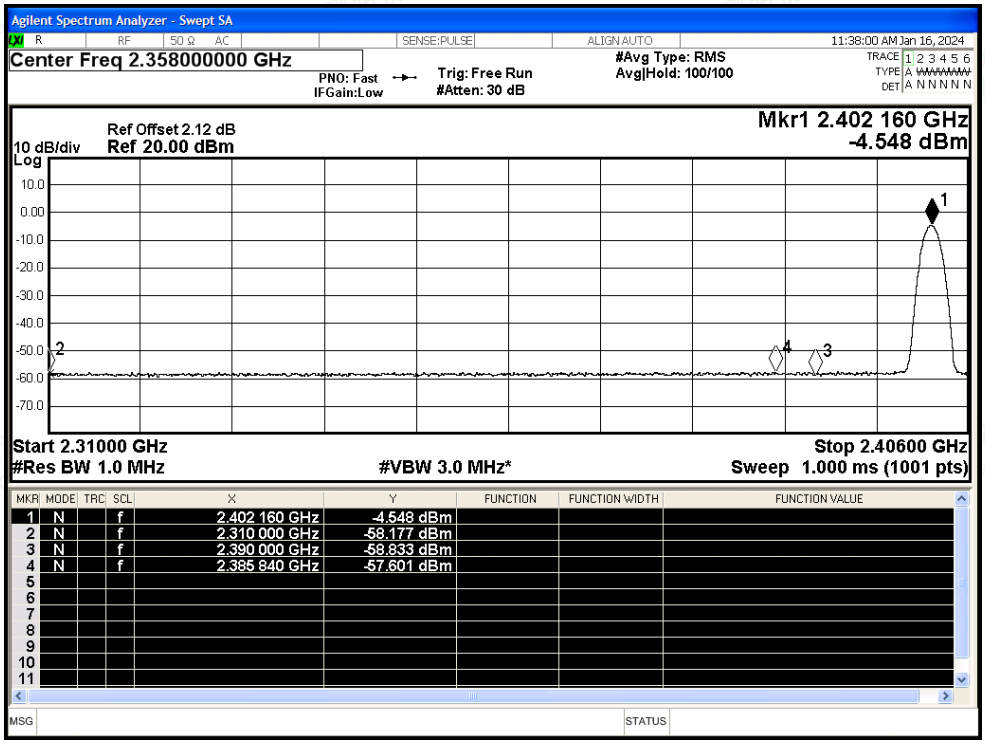
Restrict Band NVNT 1-DH5 2480MHz Ant1 No-Hopping Average



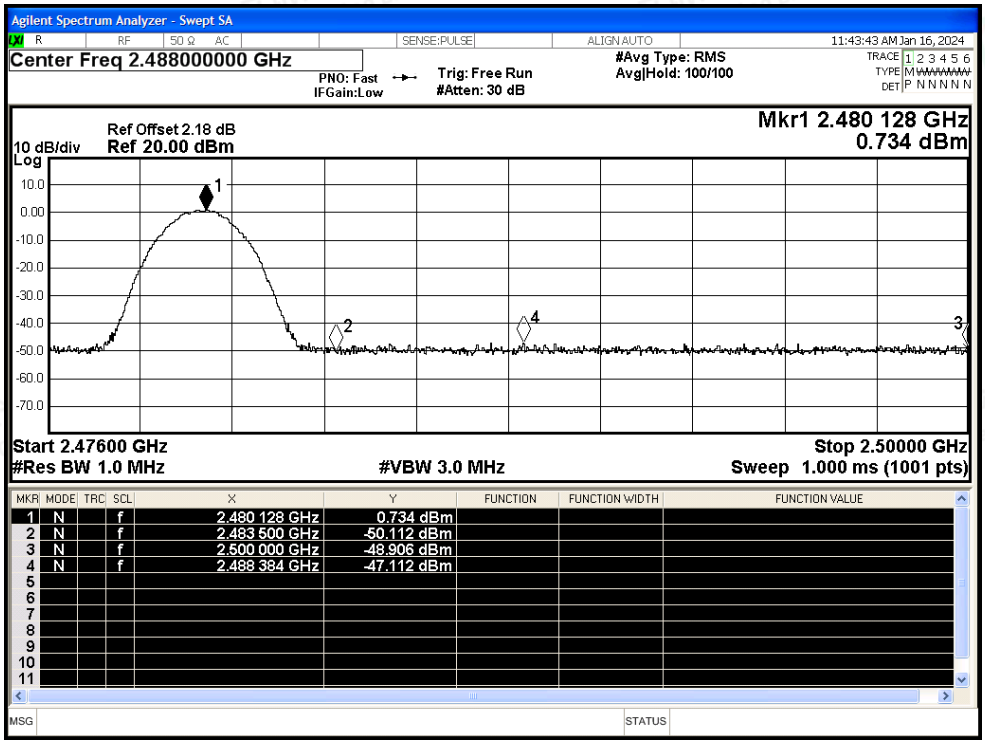
Restrict Band NVNT 2-DH5 2402MHz Ant1 No-Hopping Peak



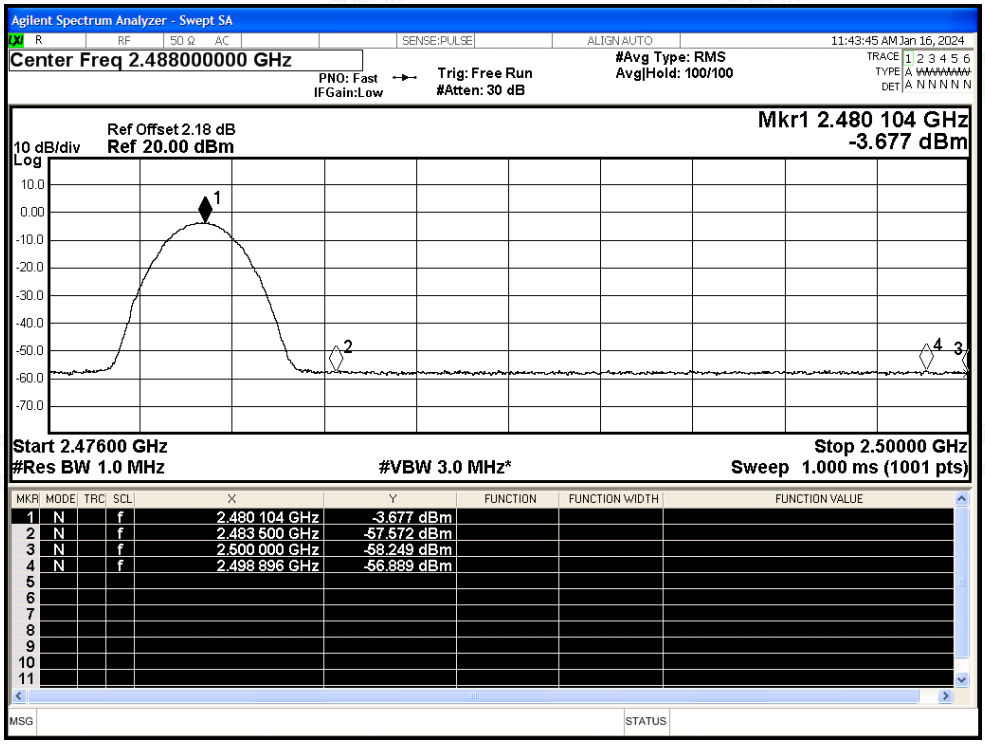
Restrict Band NVNT 2-DH5 2402MHz Ant1 No-Hopping Average



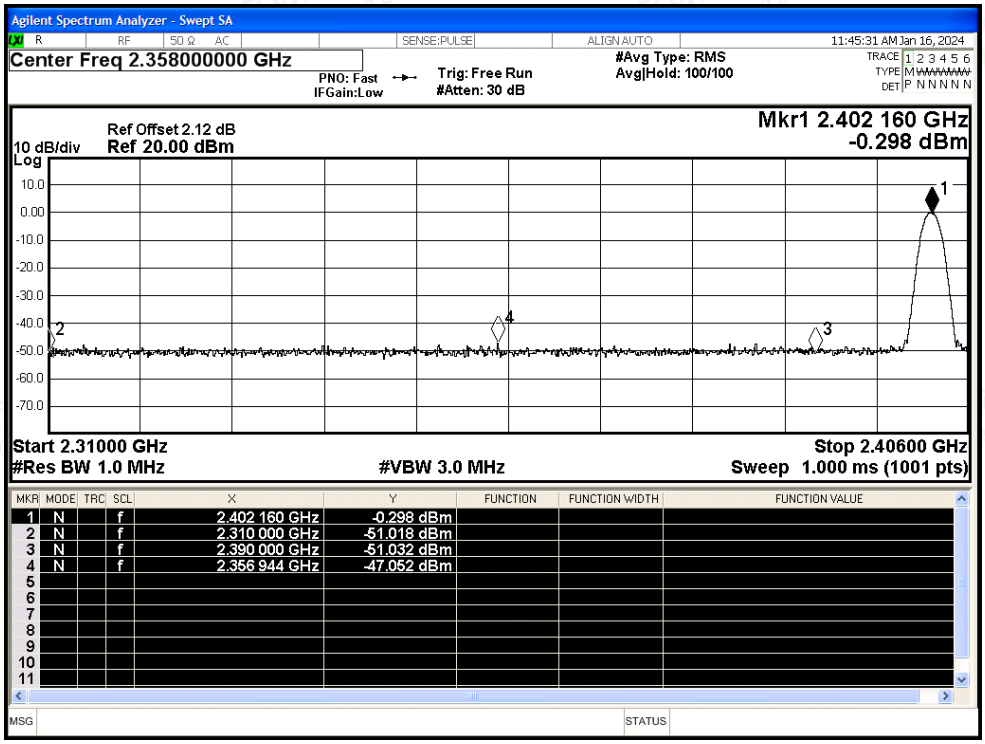
Restrict Band NVNT 2-DH5 2480MHz Ant1 No-Hopping Peak



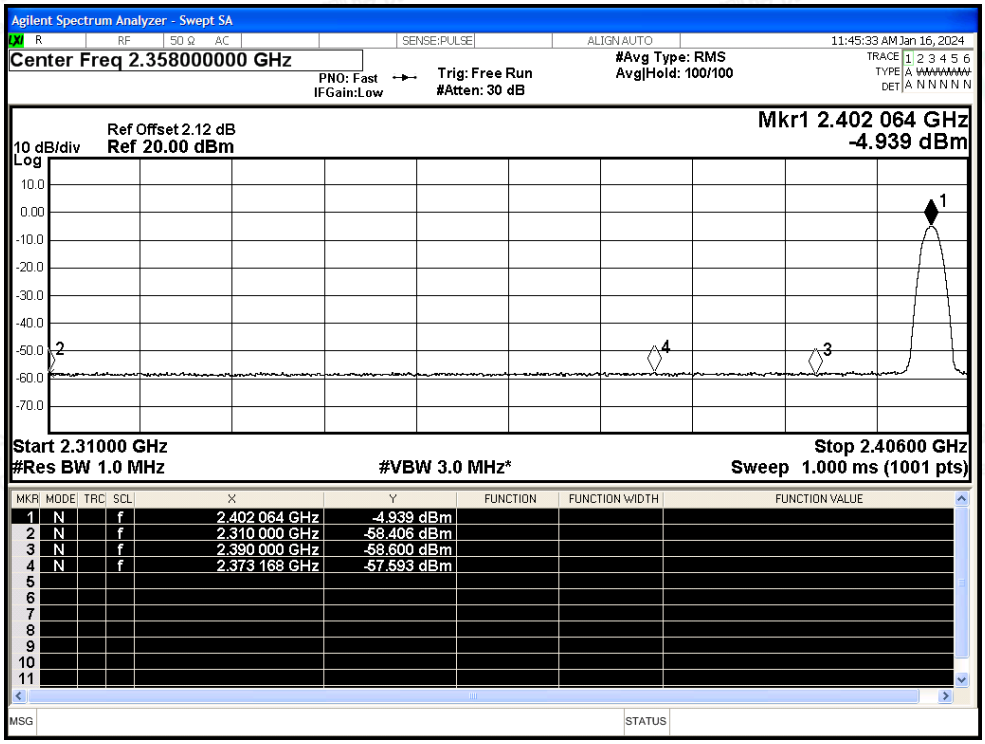
Restrict Band NVNT 2-DH5 2480MHz Ant1 No-Hopping Average



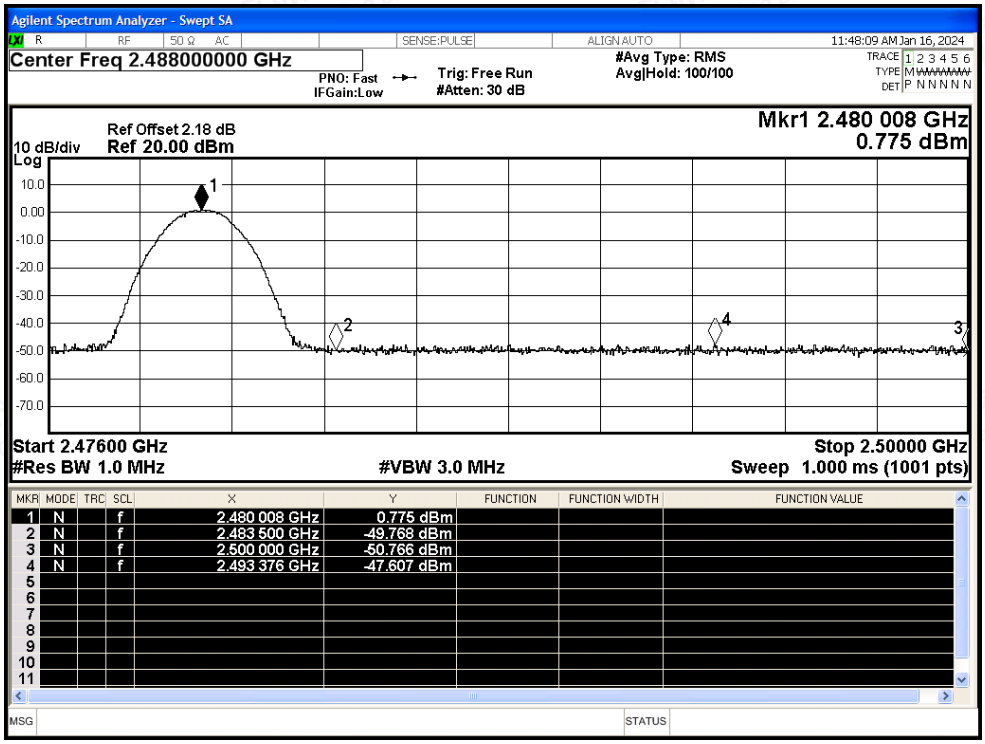
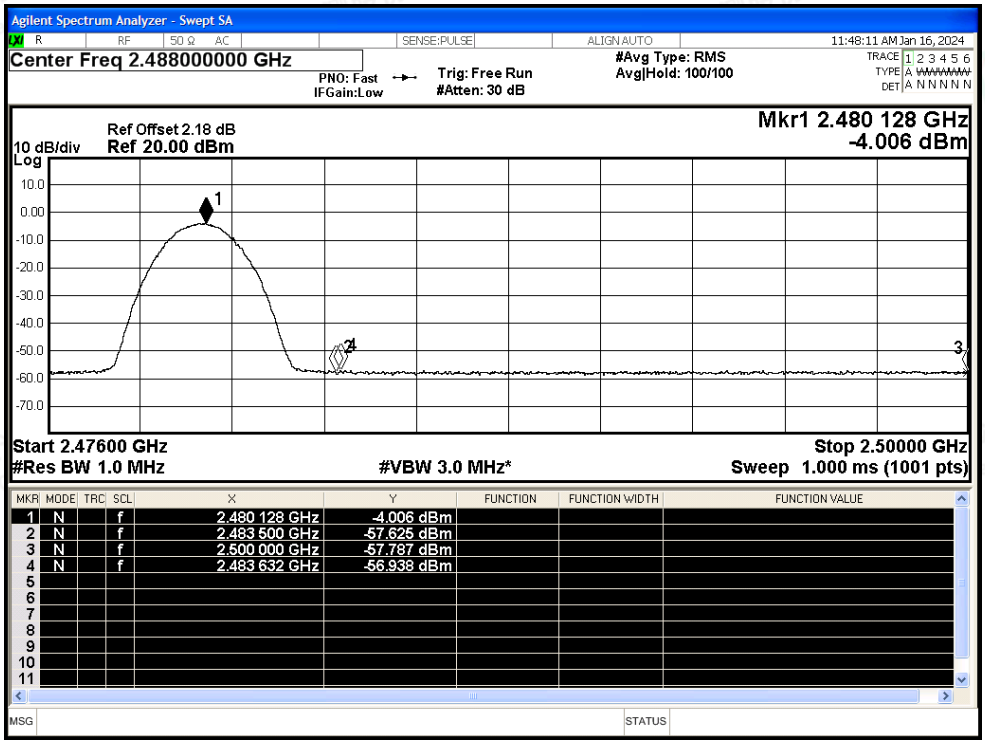
Restrict Band NVNT 3-DH5 2402MHz Ant1 No-Hopping Peak



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