



Appendix A

RF Test Data for BT (Conducted Measurement)

Product Name: Helmet bluetooth headset

Test Model: X10

Environmental Conditions

Temperature:	23.8° C
Relative Humidity:	52.1%
ATM Pressure:	100.0 kPa
Test Engineer:	Joker Hu
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	1.038	N/A	Pass
NVNT	1-DH5	2441	Ant1	1.001	N/A	Pass
NVNT	1-DH5	2480	Ant1	0.963	N/A	Pass
NVNT	2-DH5	2402	Ant1	1.288	N/A	Pass
NVNT	2-DH5	2441	Ant1	1.307	N/A	Pass
NVNT	2-DH5	2480	Ant1	1.288	N/A	Pass
NVNT	3-DH5	2402	Ant1	1.301	N/A	Pass
NVNT	3-DH5	2441	Ant1	1.284	N/A	Pass
NVNT	3-DH5	2480	Ant1	1.288	N/A	Pass



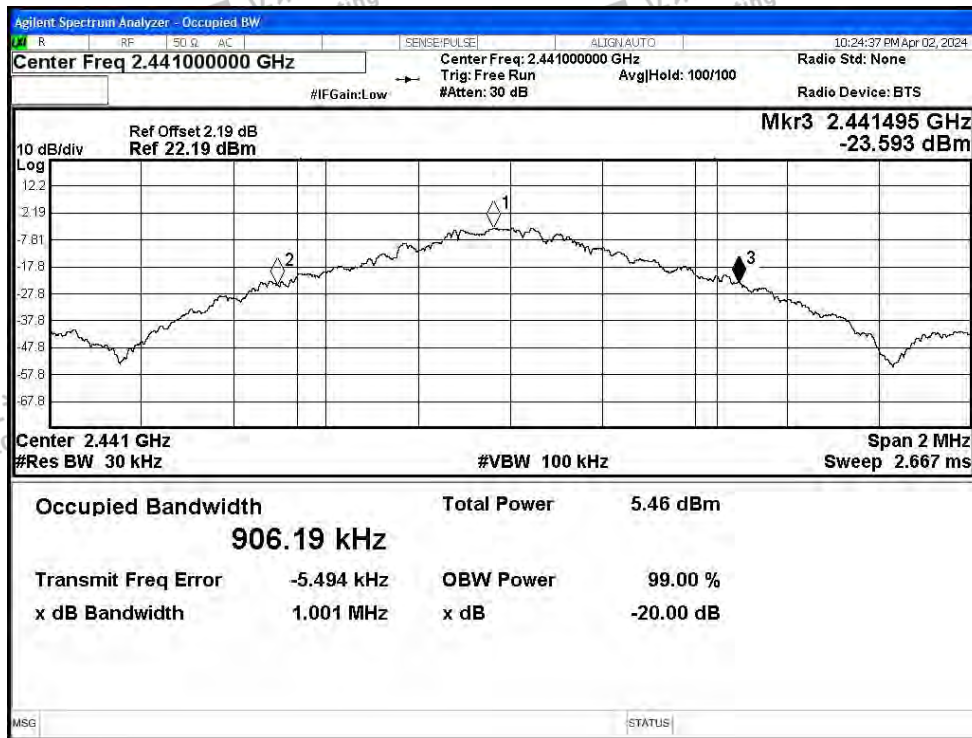


Test Graphs

-20dB Bandwidth NVNT 1-DH5 2402MHz Ant1

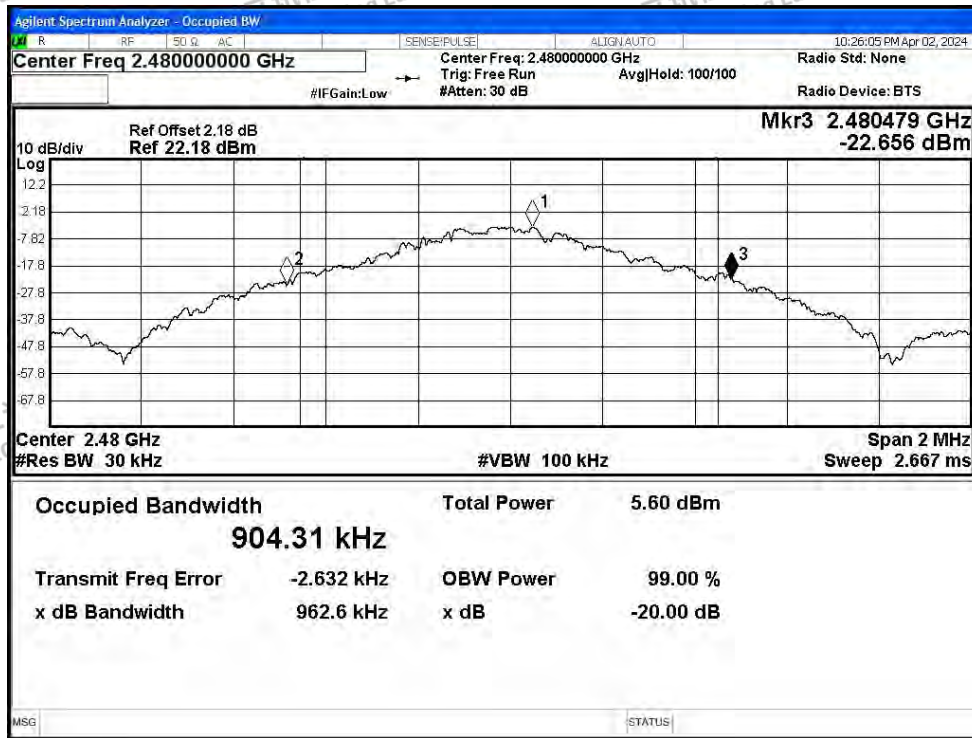


-20dB Bandwidth NVNT 1-DH5 2441MHz Ant1

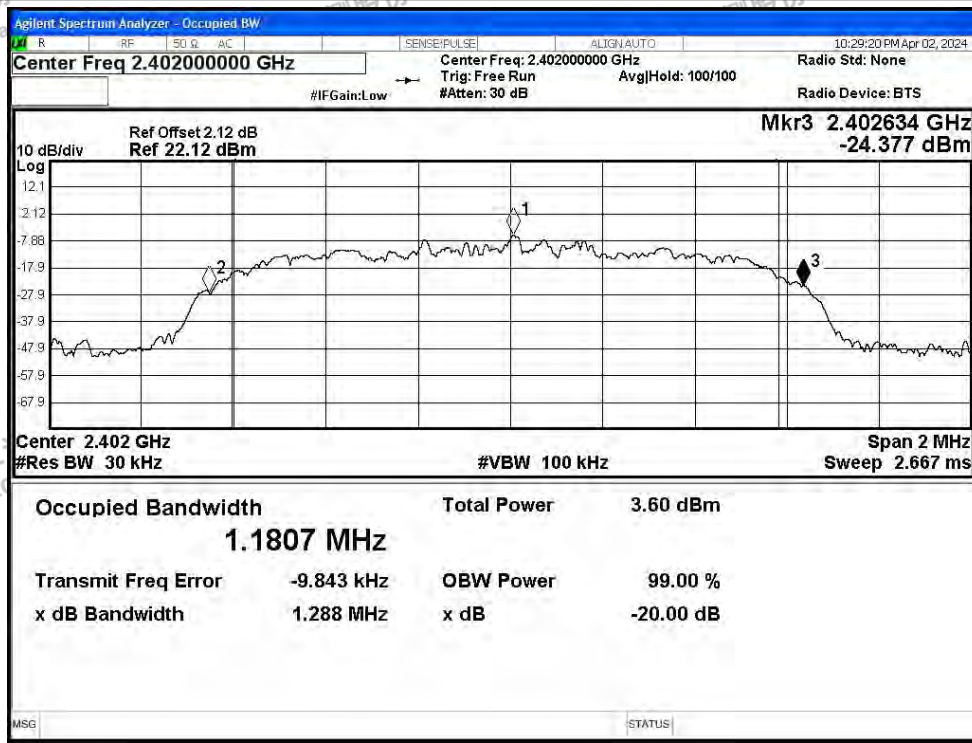




-20dB Bandwidth NVNT 1-DH5 2480MHz Ant1

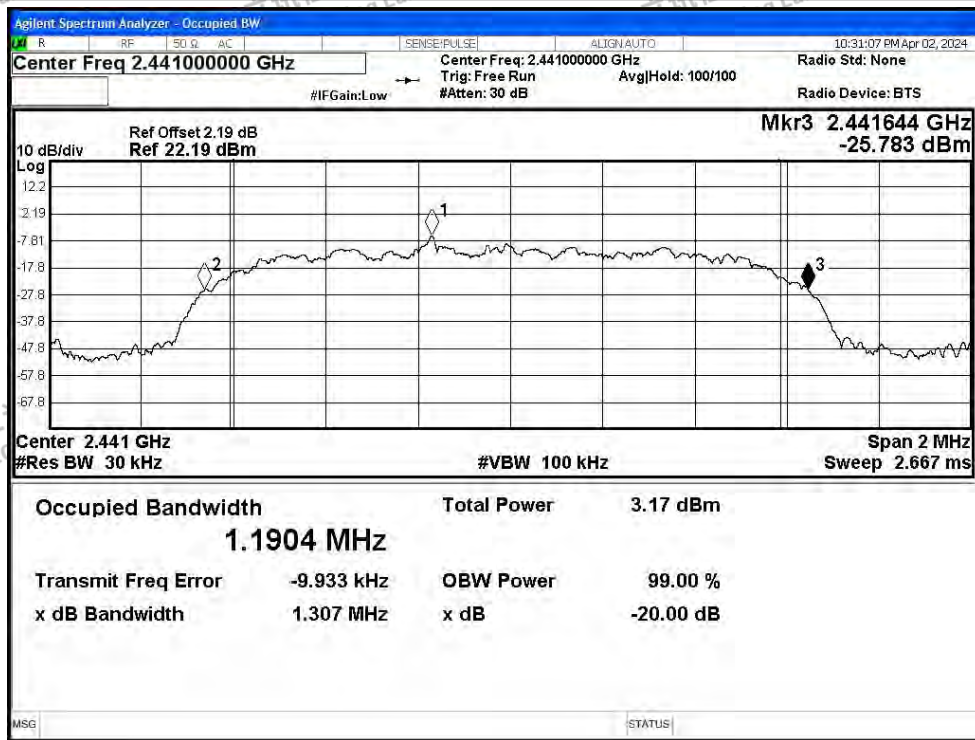


-20dB Bandwidth NVNT 2-DH5 2402MHz Ant1





-20dB Bandwidth NVNT 2-DH5 2441MHz Ant1

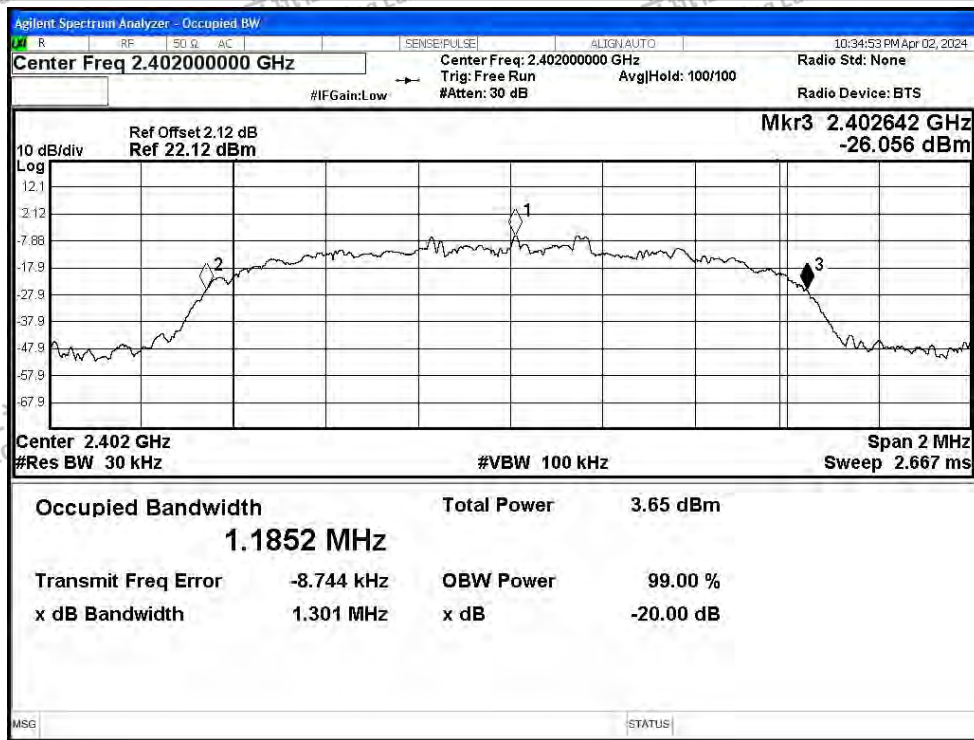


-20dB Bandwidth NVNT 2-DH5 2480MHz Ant1

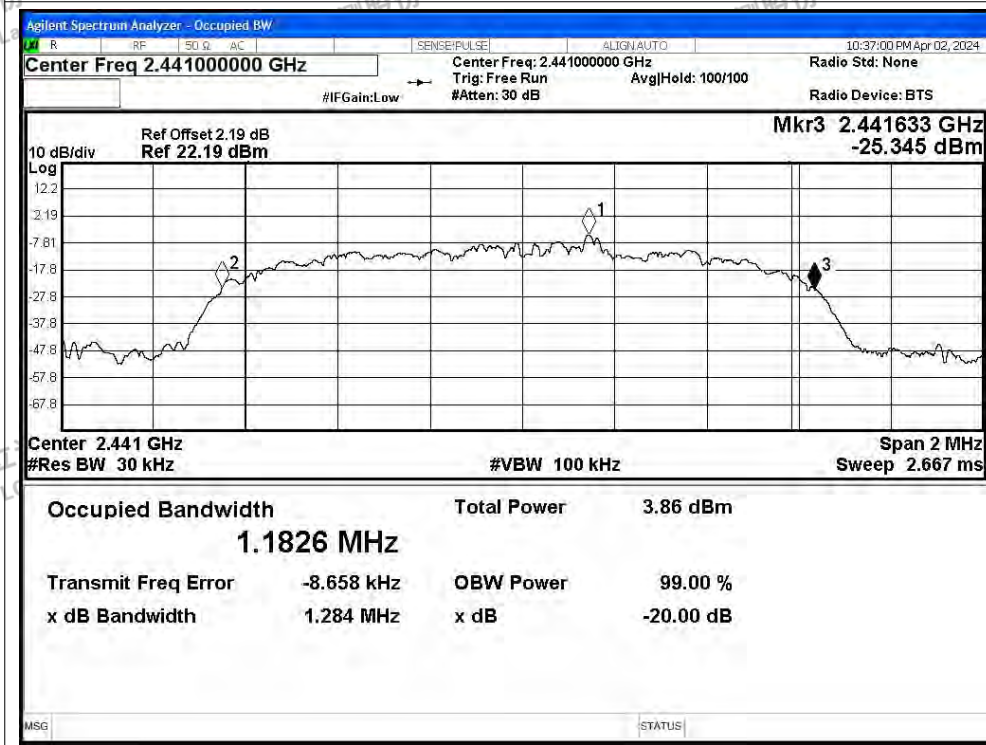




-20dB Bandwidth NVNT 3-DH5 2402MHz Ant1



-20dB Bandwidth NVNT 3-DH5 2441MHz Ant1





-20dB Bandwidth NVNT 3-DH5 2480MHz Ant1





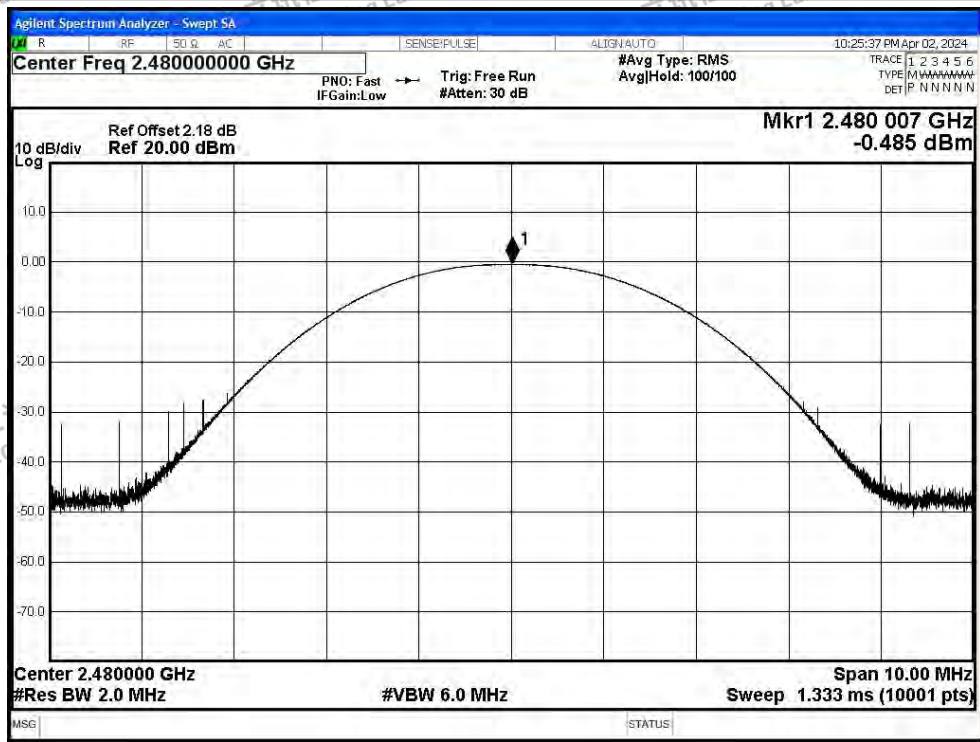
A.2 Maximum Peak Conducted Output Power

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	-0.53	21	Pass
NVNT	1-DH5	2480	Ant1	-0.49	21	Pass
NVNT	2-DH5	2402	Ant1	-0.96	21	Pass
NVNT	2-DH5	2441	Ant1	-0.73	21	Pass
NVNT	2-DH5	2480	Ant1	-0.68	21	Pass
NVNT	3-DH5	2402	Ant1	-0.89	21	Pass
NVNT	3-DH5	2441	Ant1	-0.62	21	Pass
NVNT	3-DH5	2480	Ant1	-0.56	21	Pass

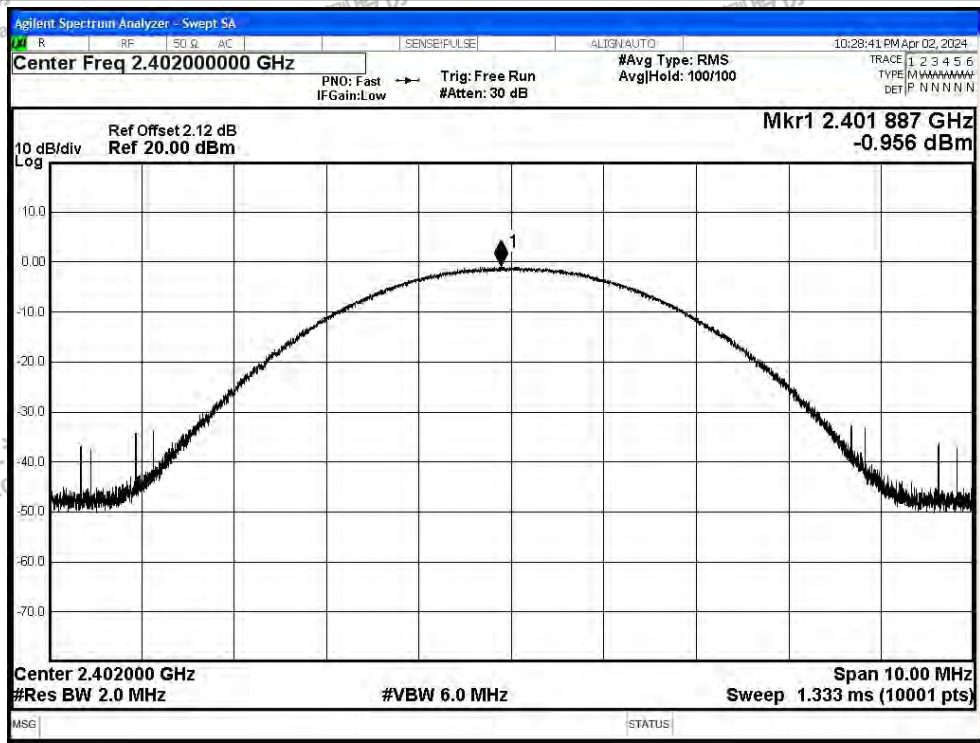




Power NVNT 1-DH5 2480MHz Ant1

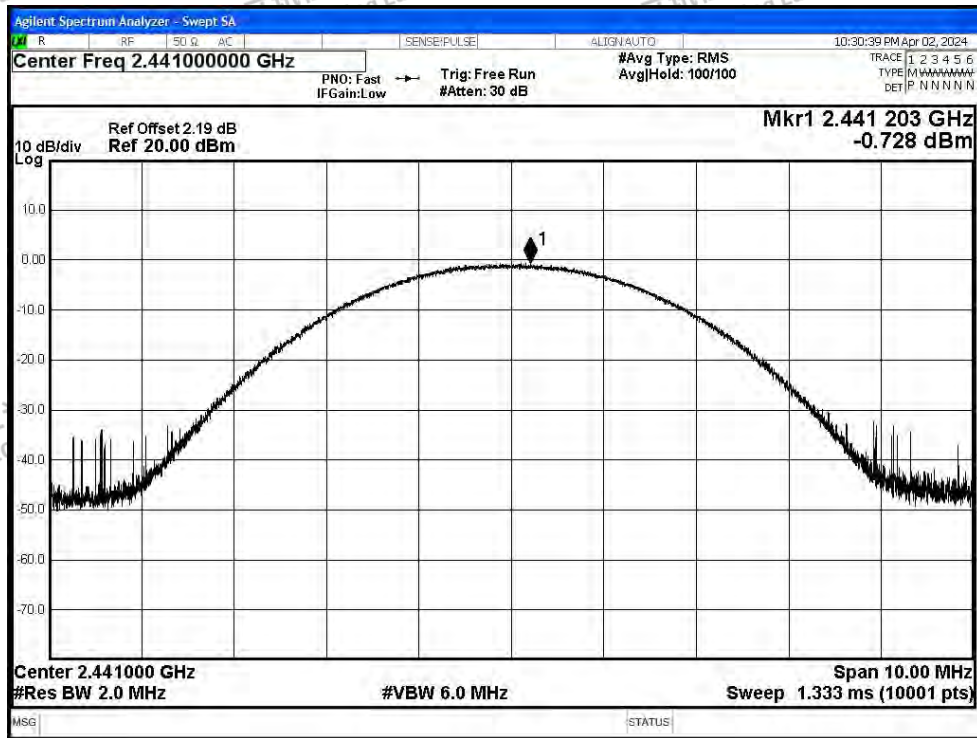


Power NVNT 2-DH5 2402MHz Ant1

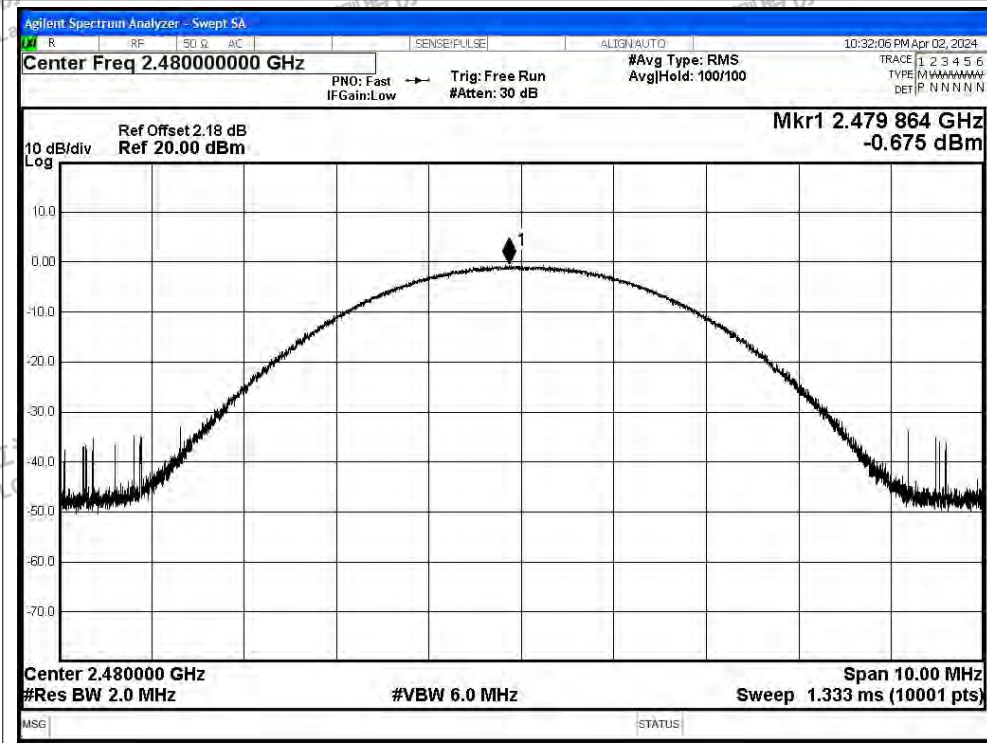




Power NVNT 2-DH5 2441MHz Ant1

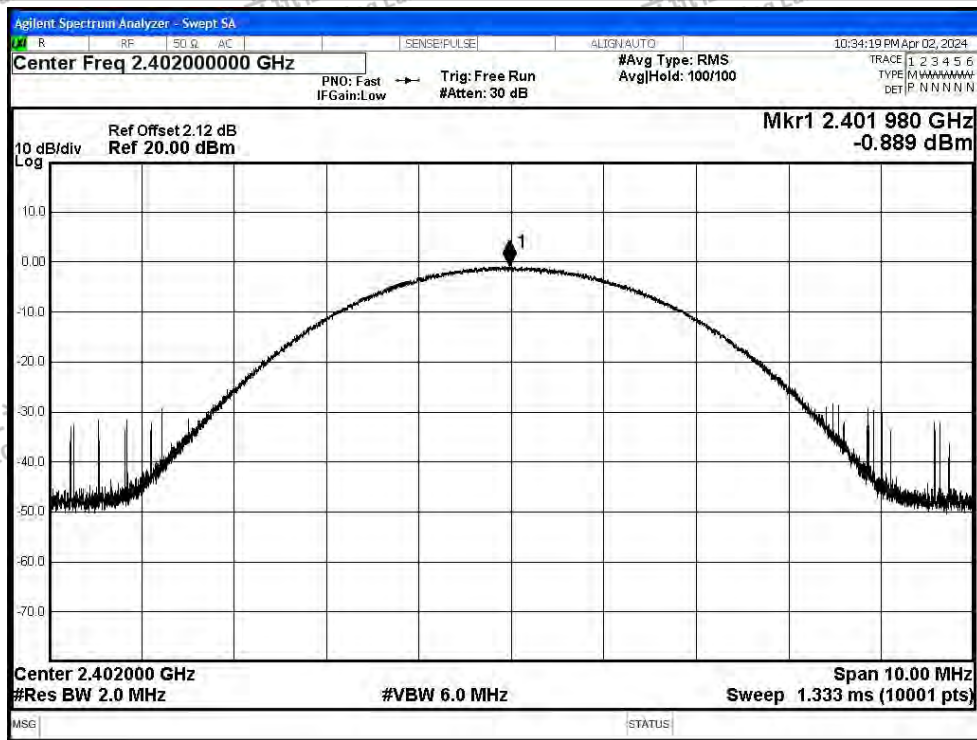


Power NVNT 2-DH5 2480MHz Ant1

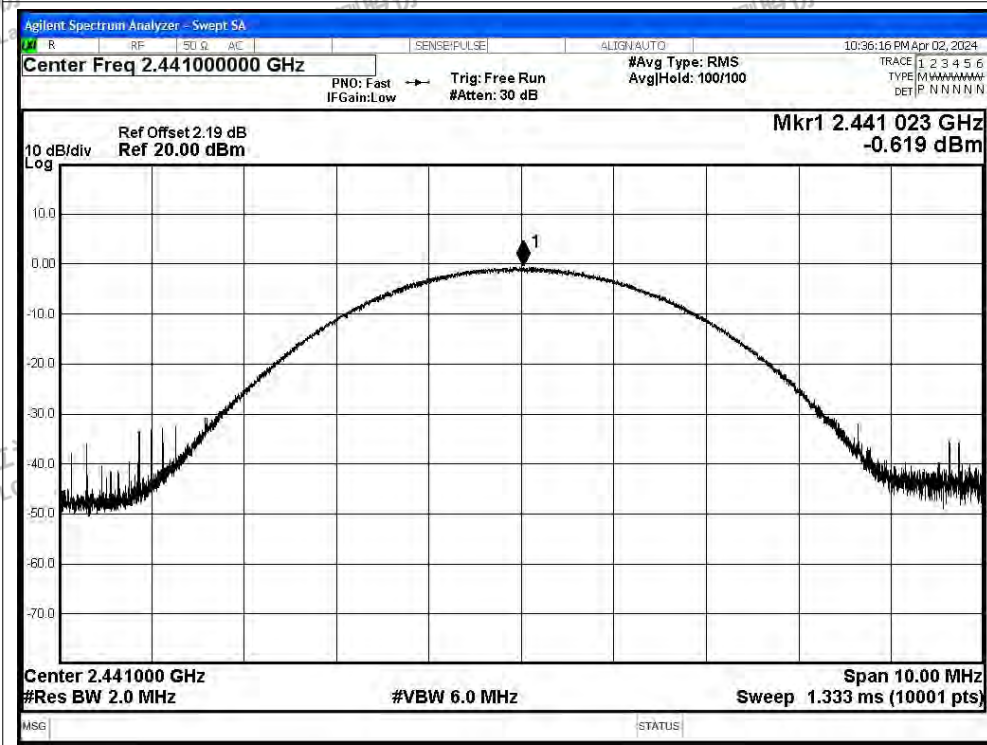




Power NVNT 3-DH5 2402MHz Ant1

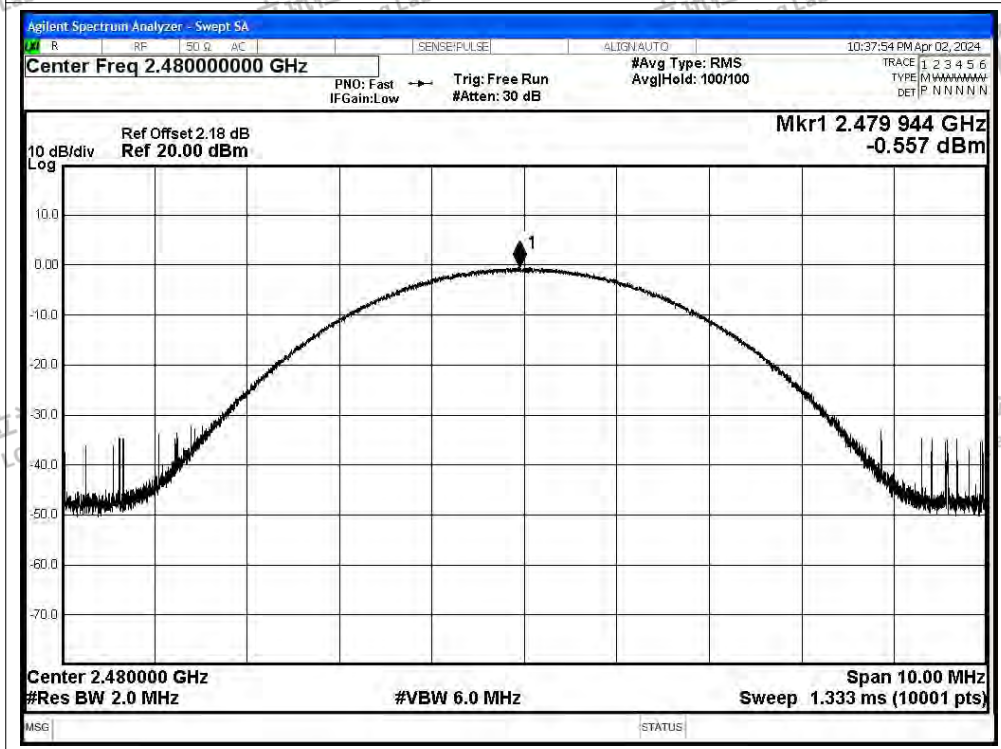


Power NVNT 3-DH5 2441MHz Ant1





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	2401.954	2403.052	1.098	0.692	Pass
NVNT	2-DH5	Ant1	2402.01	2403.012	1.002	0.871	Pass
NVNT	3-DH5	Ant1	2402.006	2403.026	1.02	0.867	Pass

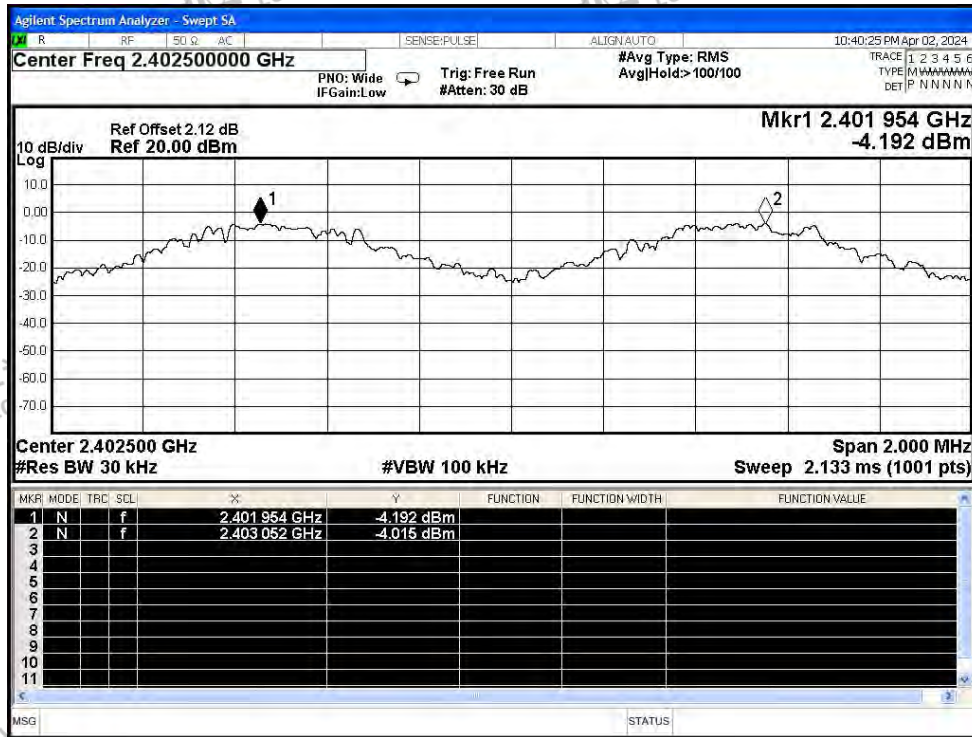


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Scan code to check authenticity

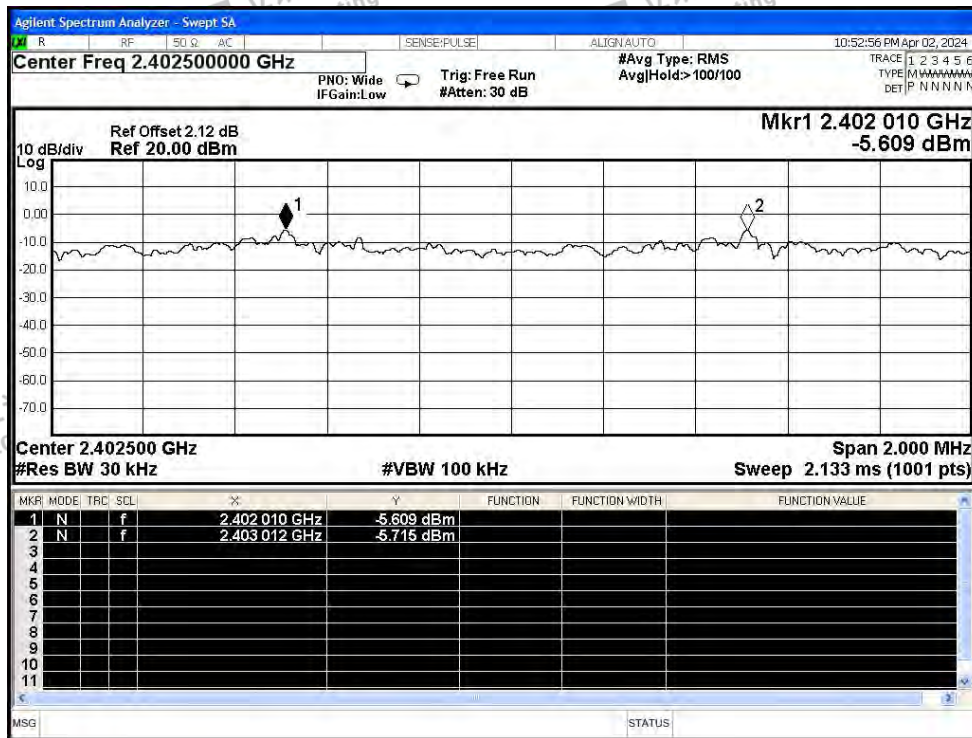


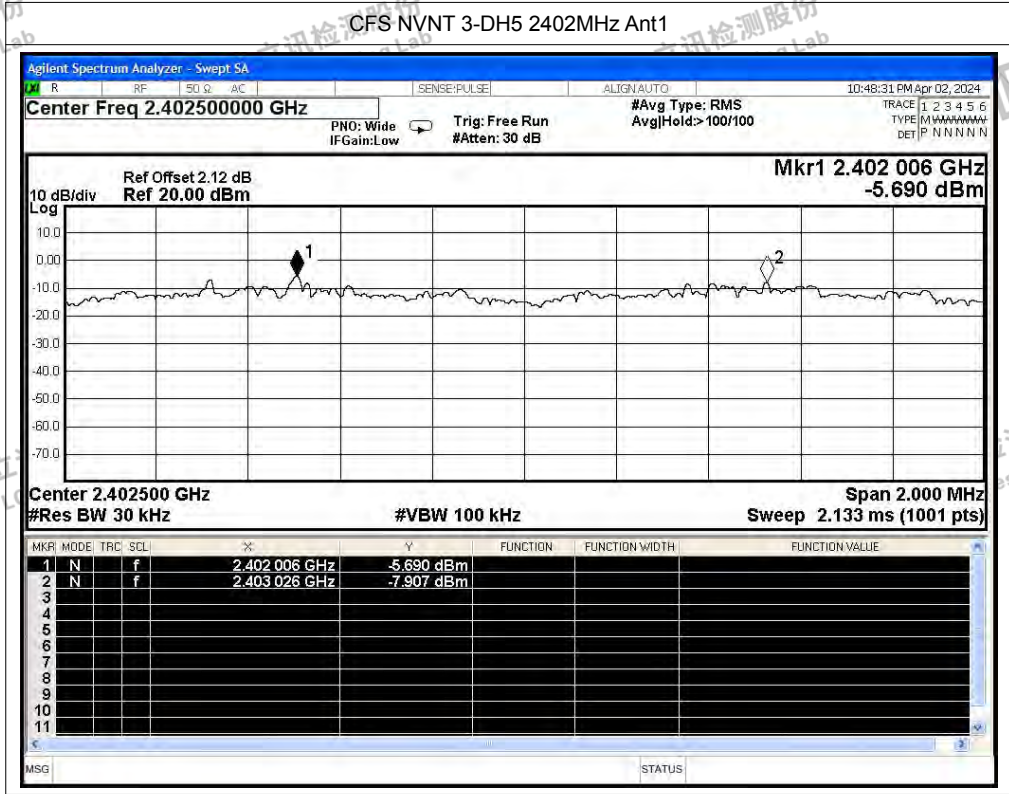
Test Graphs

CFS NVNT 1-DH5 2402MHz Ant1



CFS NVNT 2-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

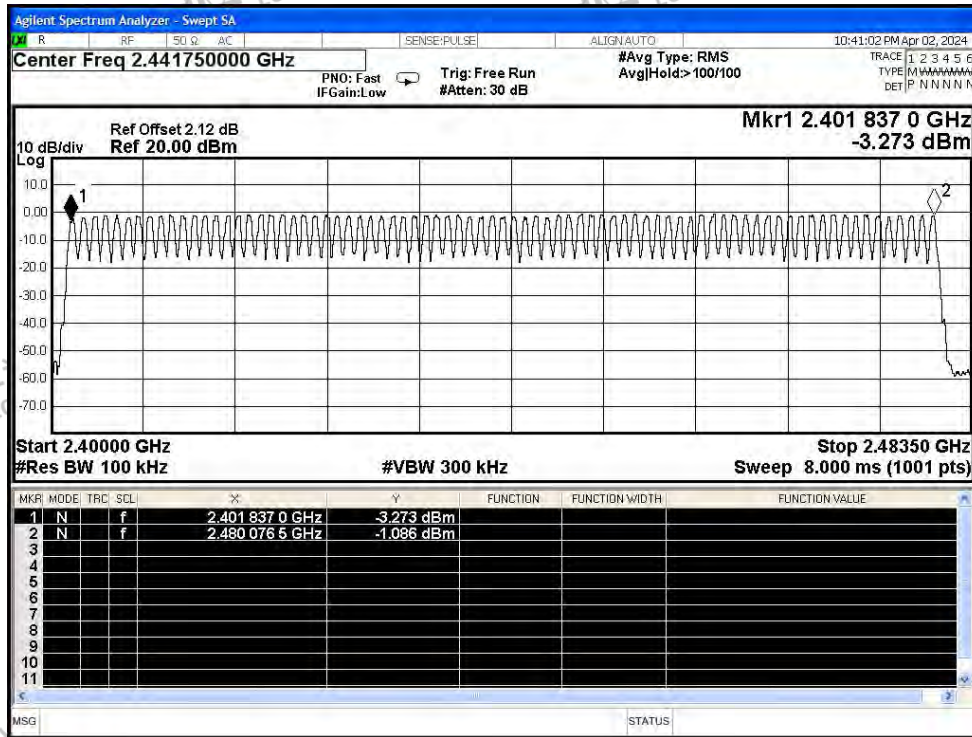


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Scan code to check authenticity

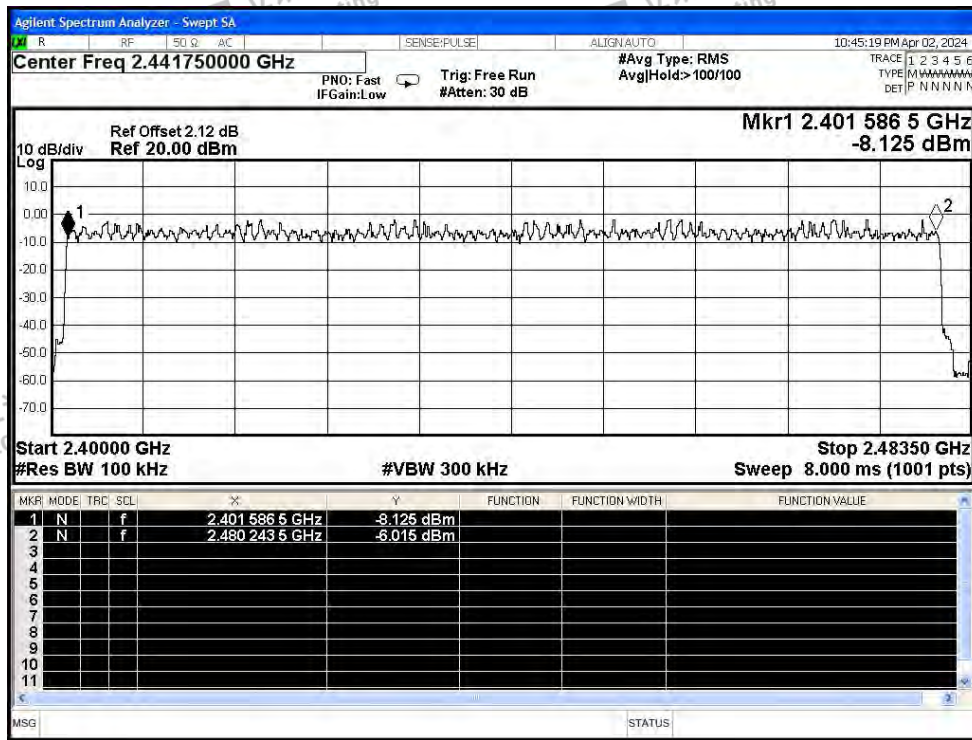


Test Graphs

Hopping No. NVNT 1-DH5 2402MHz Ant1

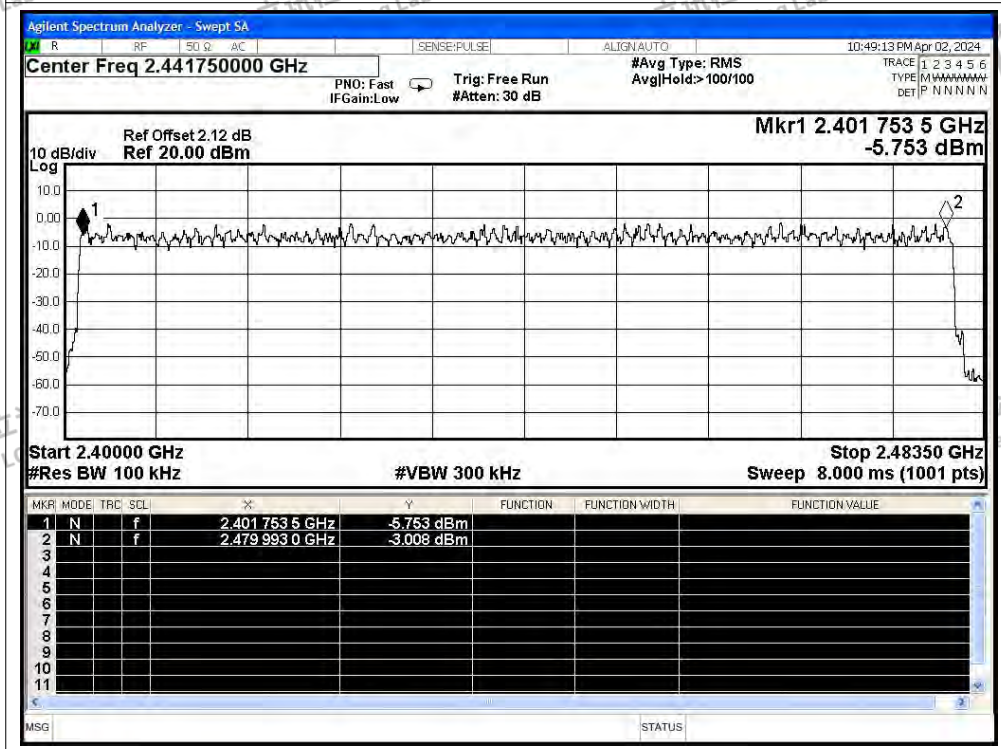


Hopping No. NVNT 2-DH5 2402MHz Ant1





Hopping No. NVNT 3-DH5 2402MHz Ant1



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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	311.256	108	31600	400	Pass
NVNT	2-DH5	2402	Ant1	2.88	313.92	109	31600	400	Pass
NVNT	3-DH5	2402	Ant1	2.887	326.231	113	31600	400	Pass

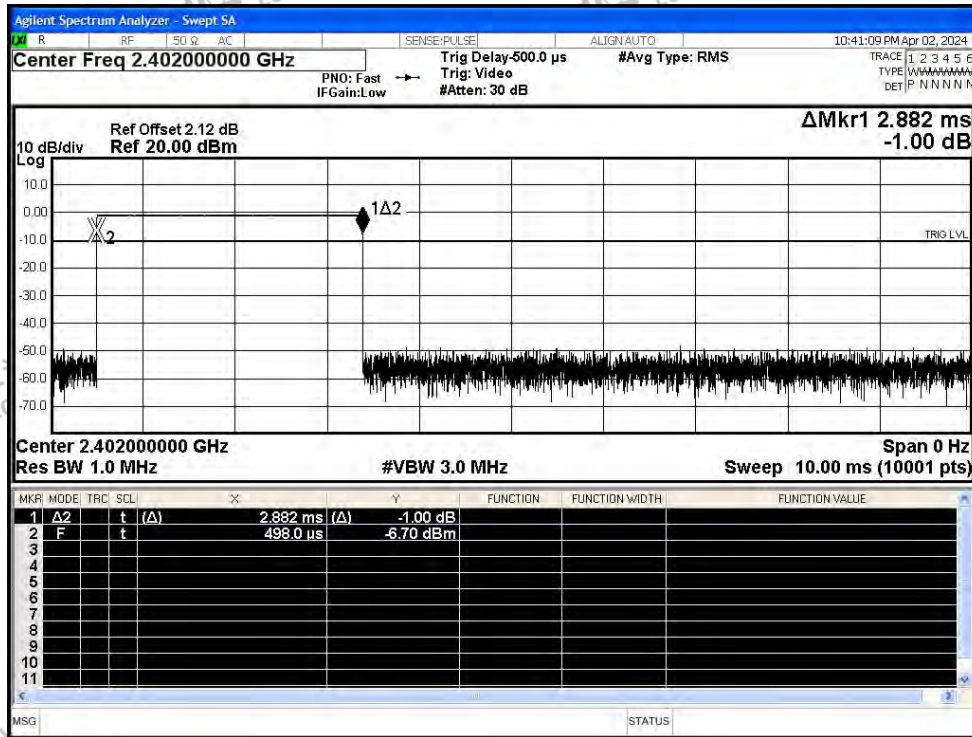


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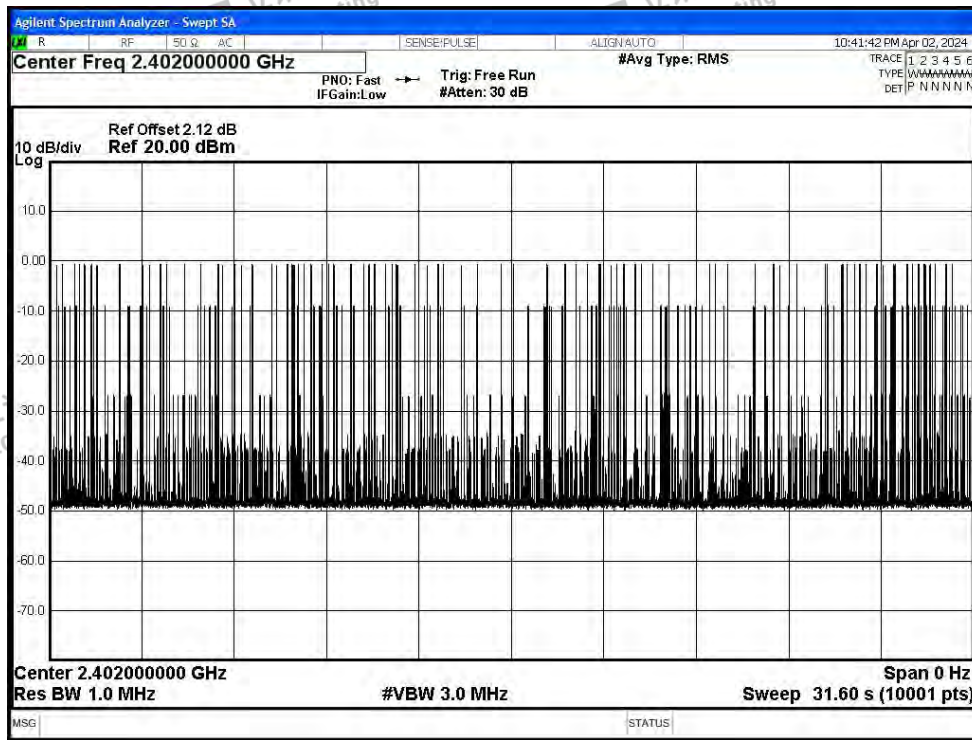


Test Graphs

Dwell-NVNT 1-DH5 2402MHz Ant1 One Burst

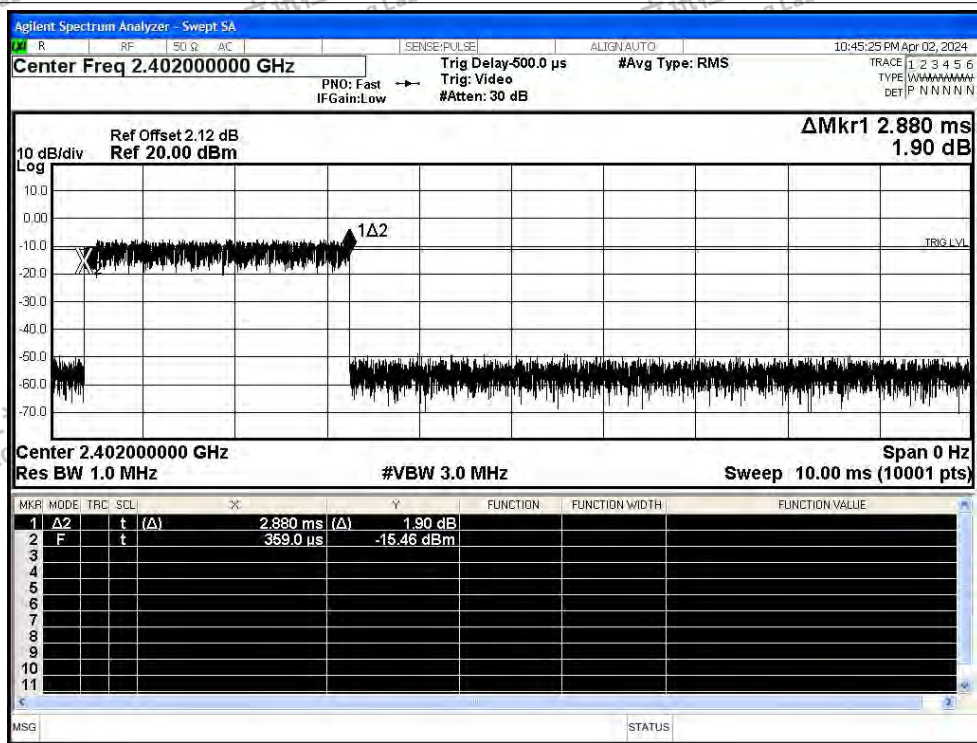


Dwell-NVNT 1-DH5 2402MHz Ant1 Accumulated

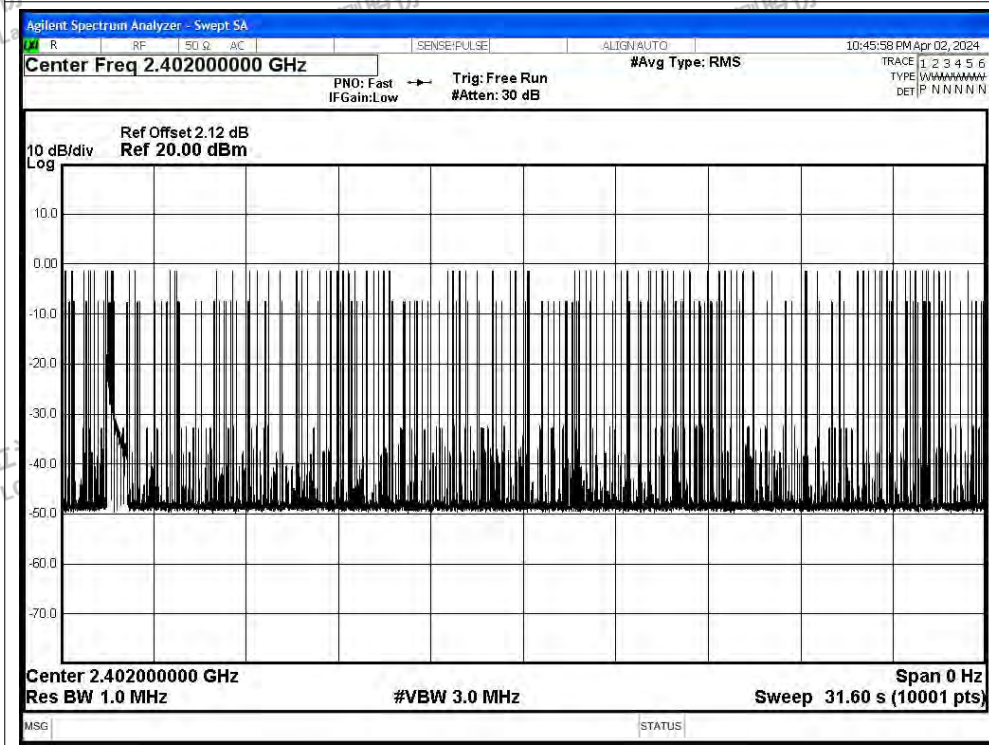




Dwell NVNT 2-DH5 2402MHz Ant1 One Burst

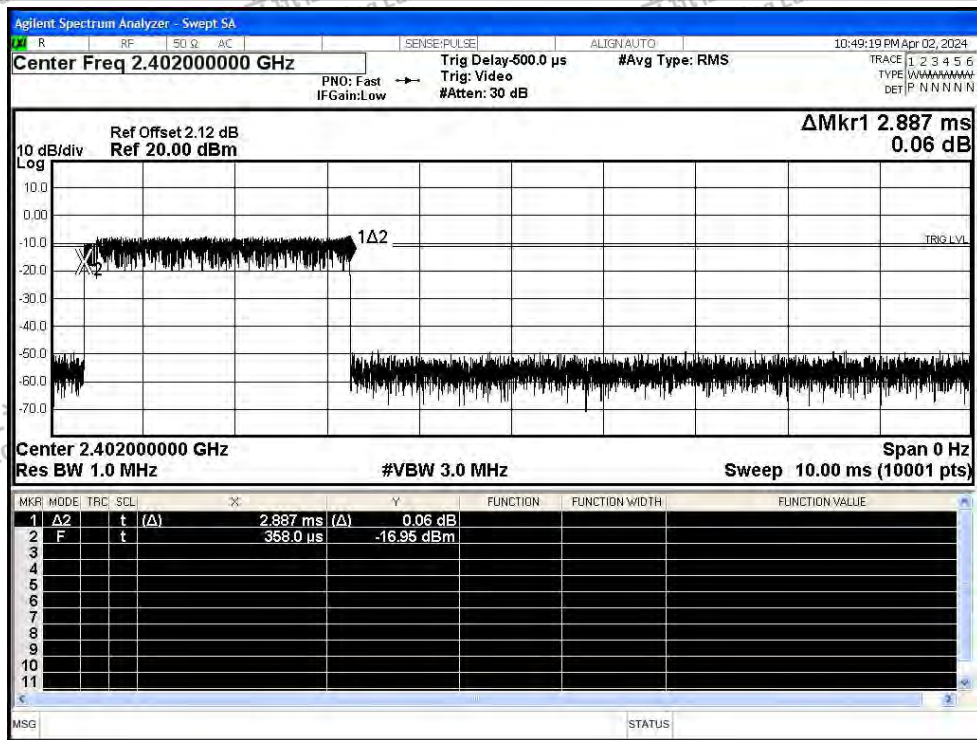


Dwell NVNT 2-DH5 2402MHz Ant1 Accumulated

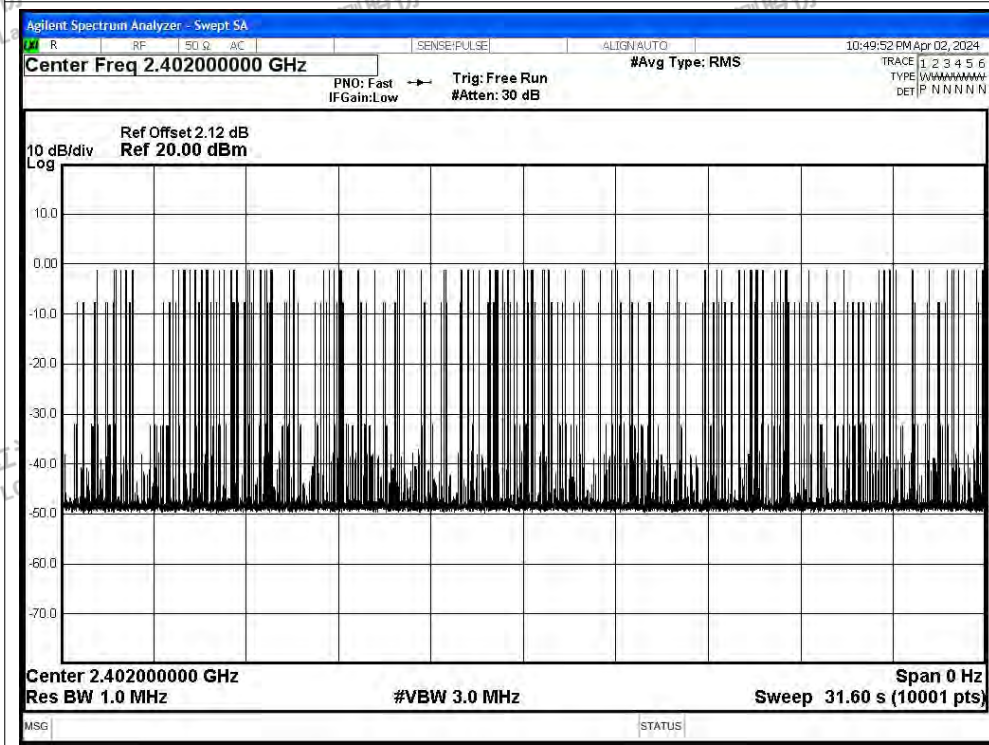




Dwell NVNT 3-DH5 2402MHz Ant1 One Burst



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	-49.66	-20	Pass
NVNT	1-DH5	2480	Ant1	No-Hopping	-56.14	-20	Pass
NVNT	2-DH5	2402	Ant1	No-Hopping	-52	-20	Pass
NVNT	2-DH5	2480	Ant1	No-Hopping	-51.64	-20	Pass
NVNT	3-DH5	2402	Ant1	No-Hopping	-49.71	-20	Pass
NVNT	3-DH5	2480	Ant1	No-Hopping	-54.86	-20	Pass

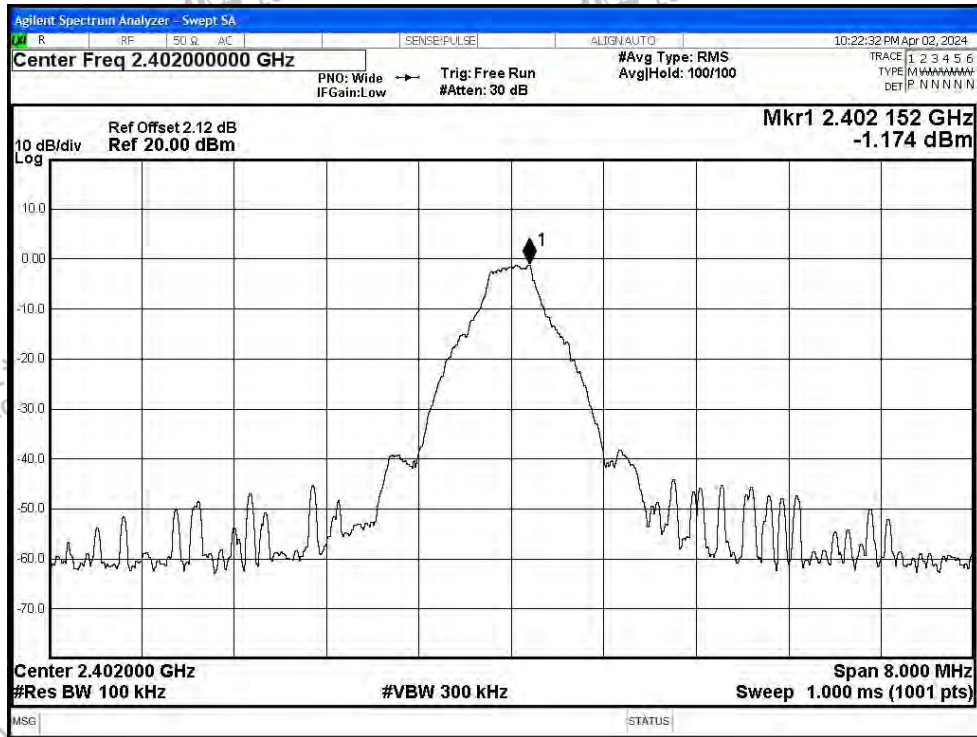


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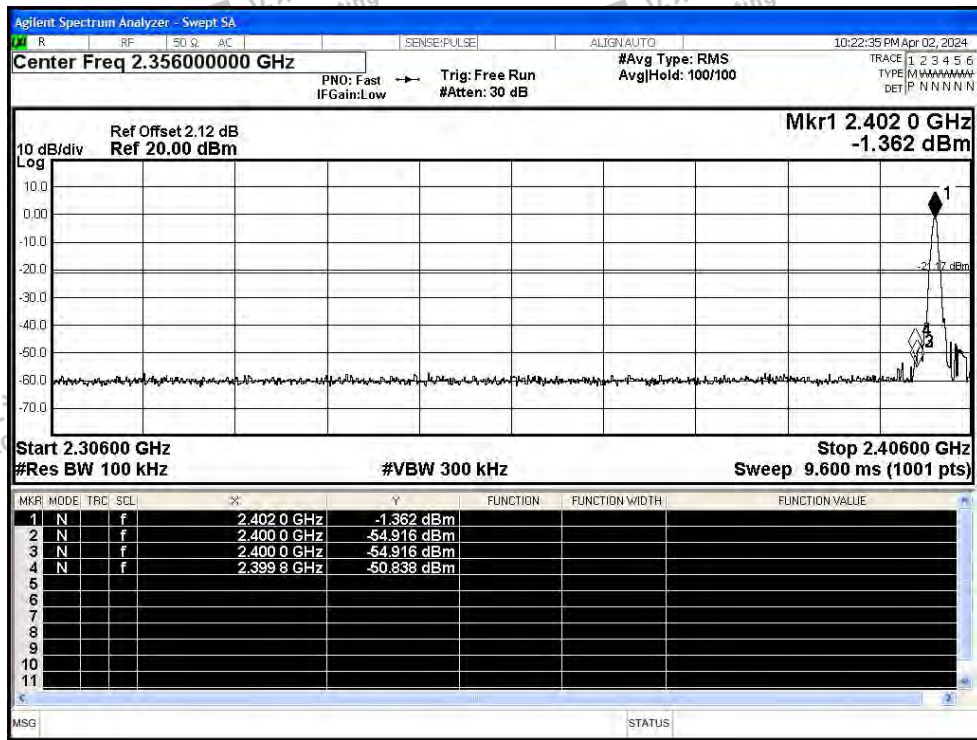


Test Graphs

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

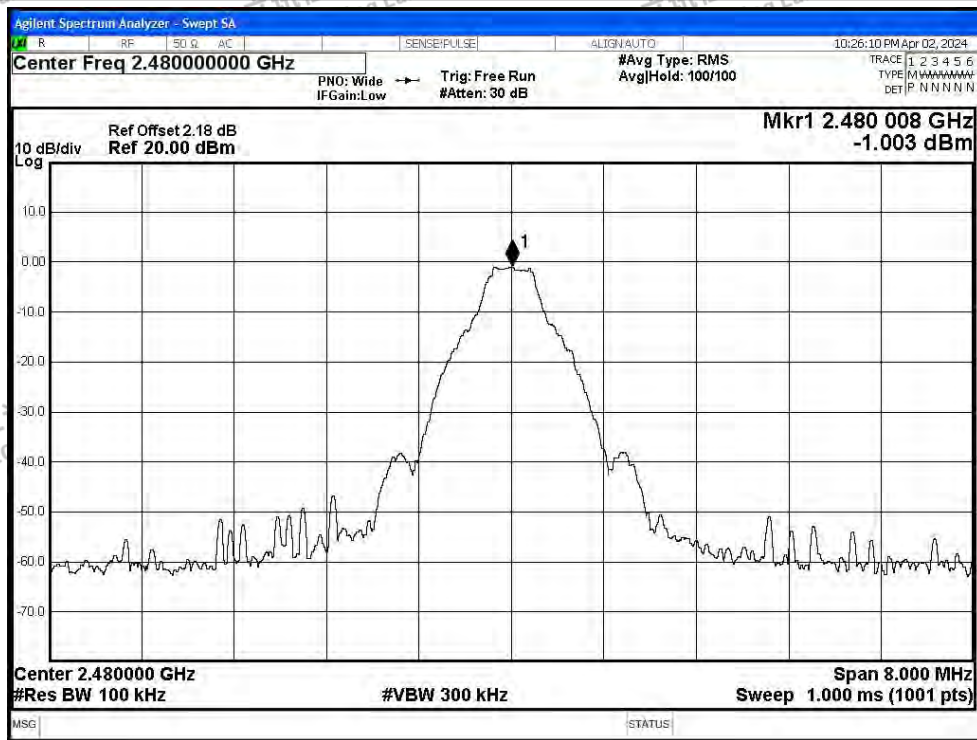


Band Edge NVNT 1-DH5 2402MHz Ant1 No-Hopping Emission

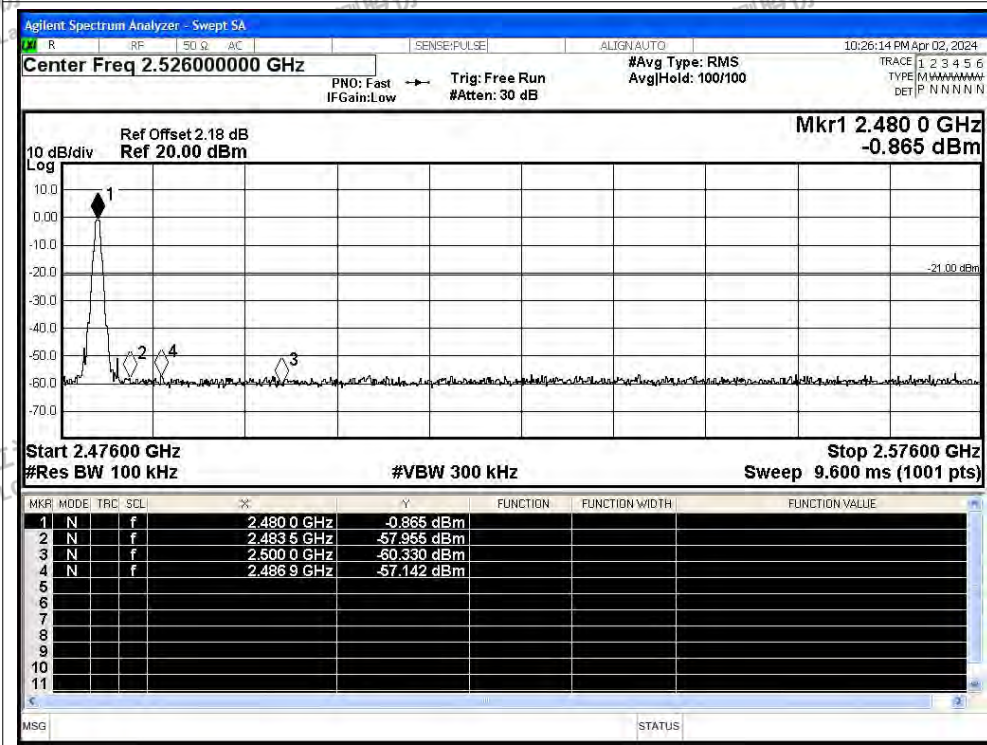




Band Edge NVNT 1-DH5 2480MHz Ant1 No-Hopping Ref

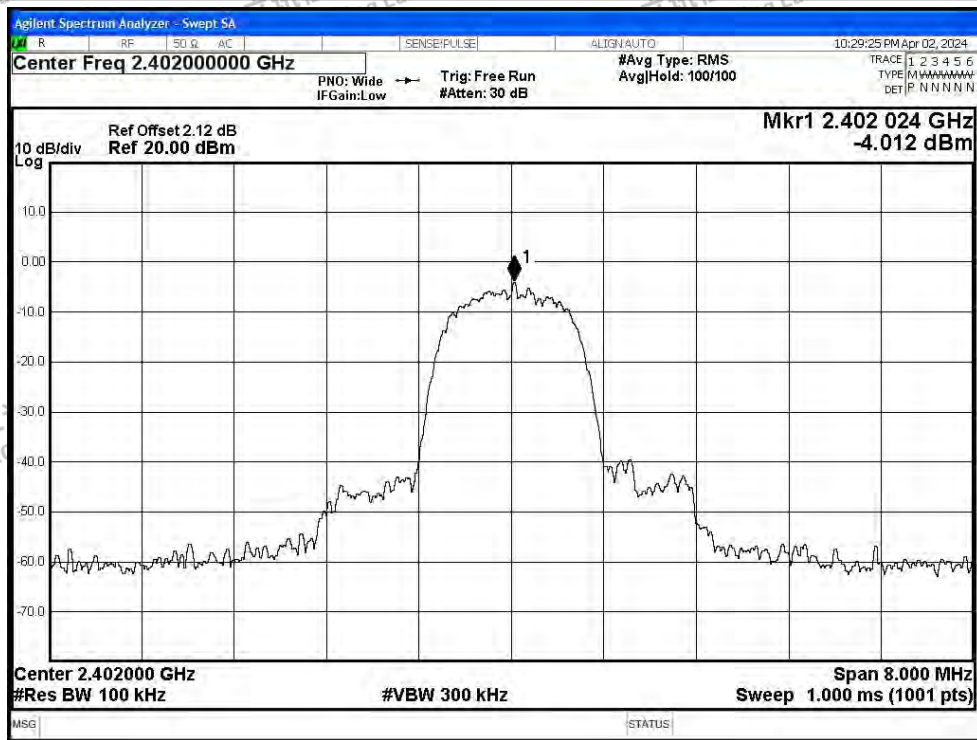


Band Edge NVNT 1-DH5 2480MHz Ant1 No-Hopping Emission

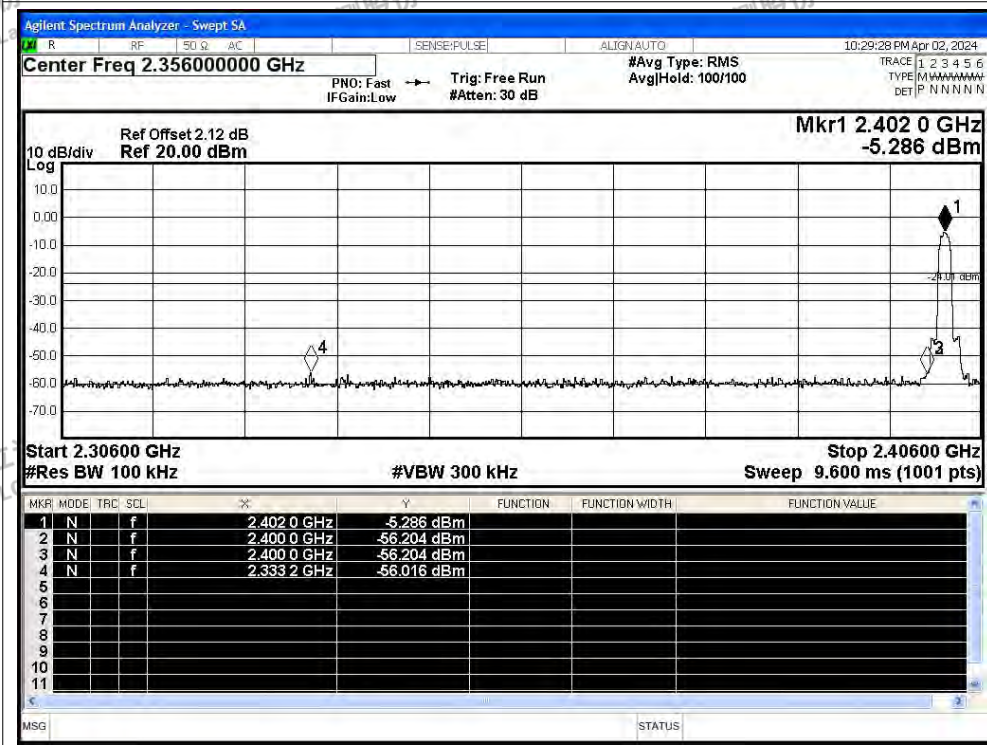




Band Edge NVNT 2-DH5 2402MHz Ant1 No-Hopping Ref

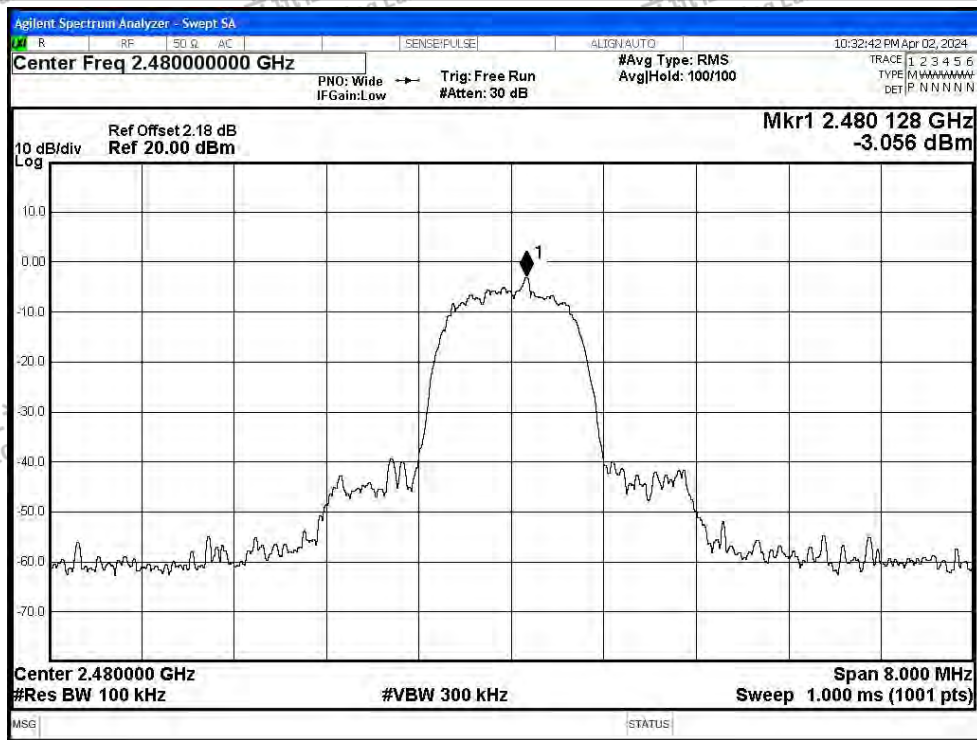


Band Edge NVNT 2-DH5 2402MHz Ant1 No-Hopping Emission

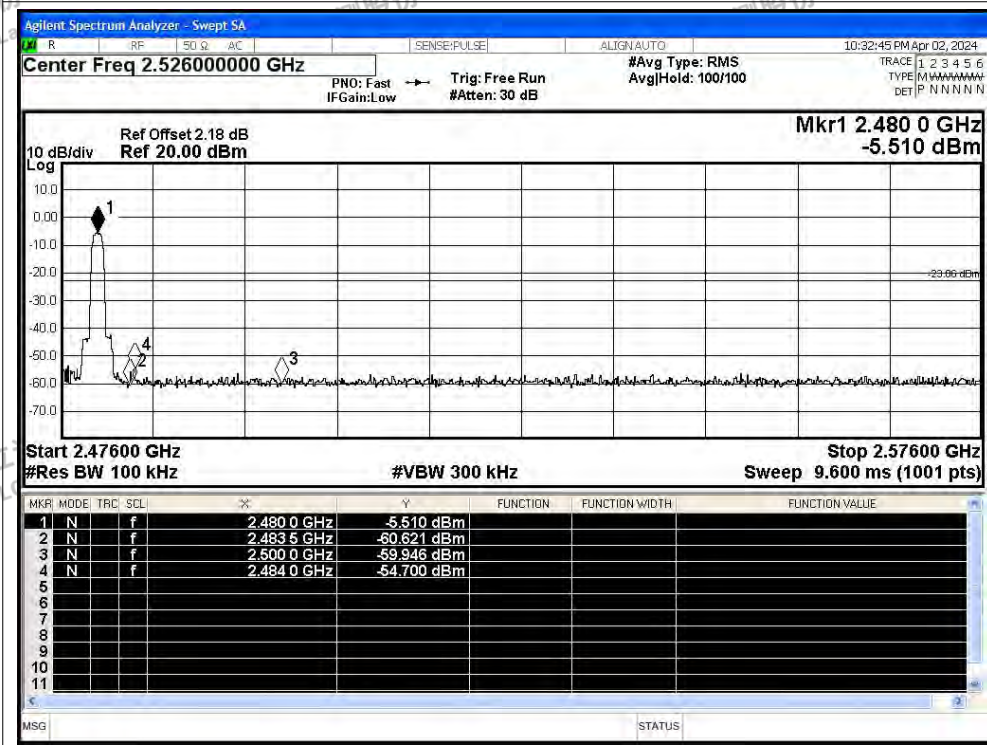




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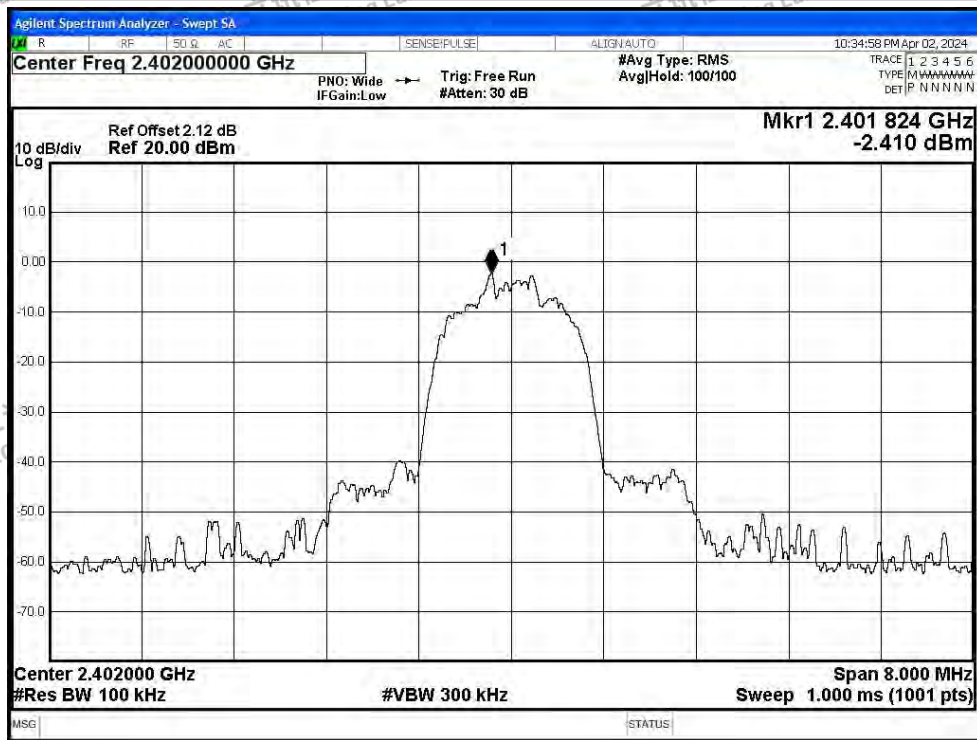


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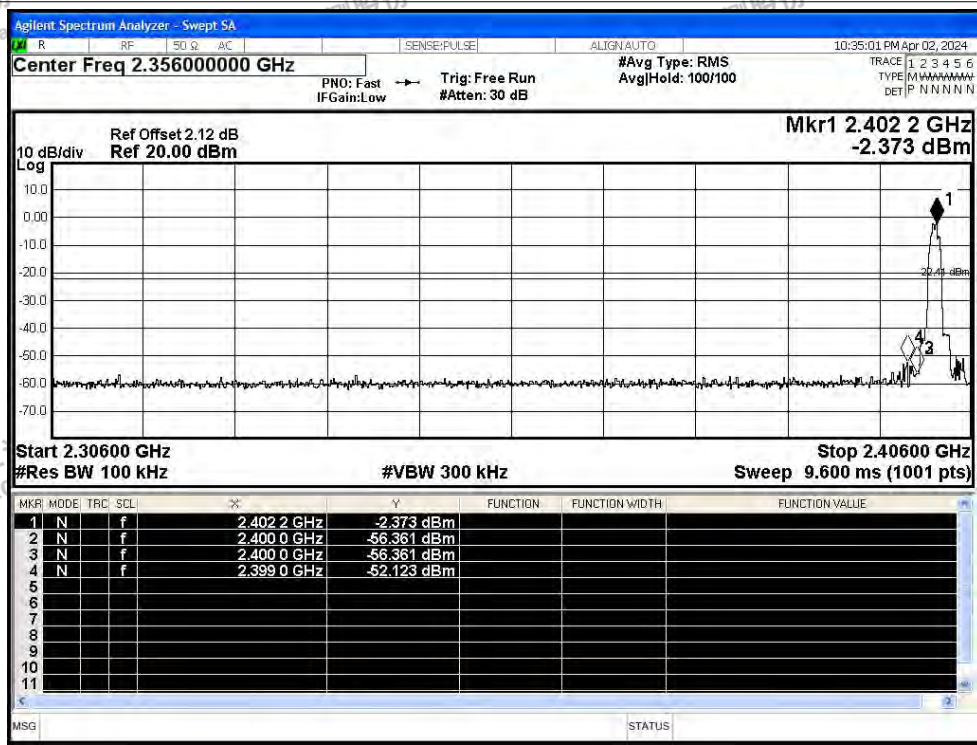




Band Edge NVNT 3-DH5 2402MHz Ant1 No-Hopping Ref

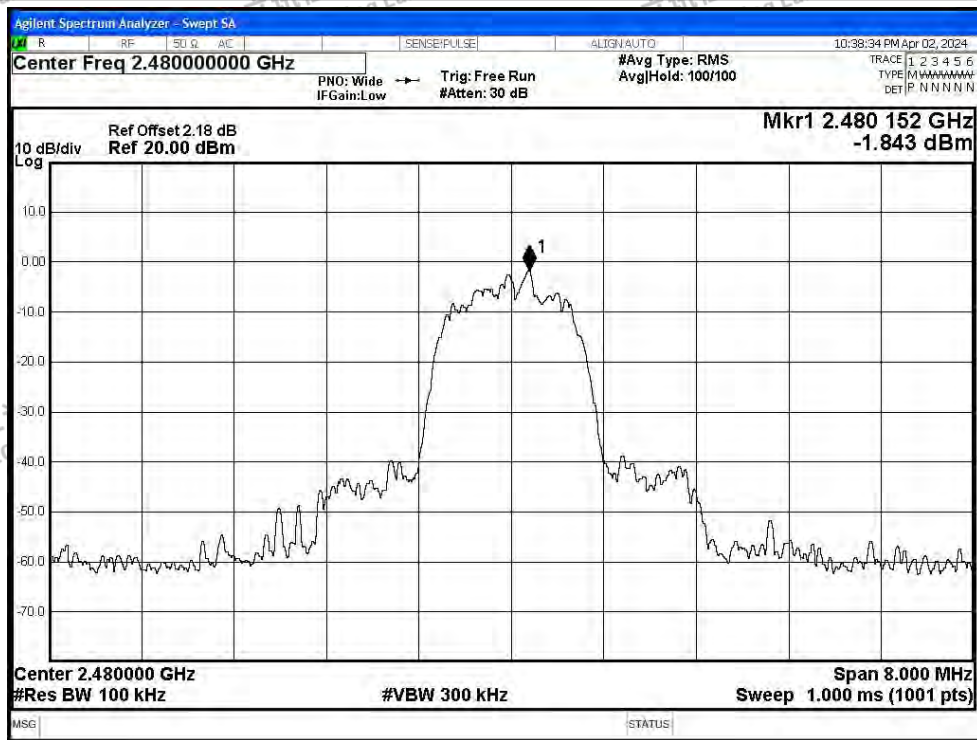


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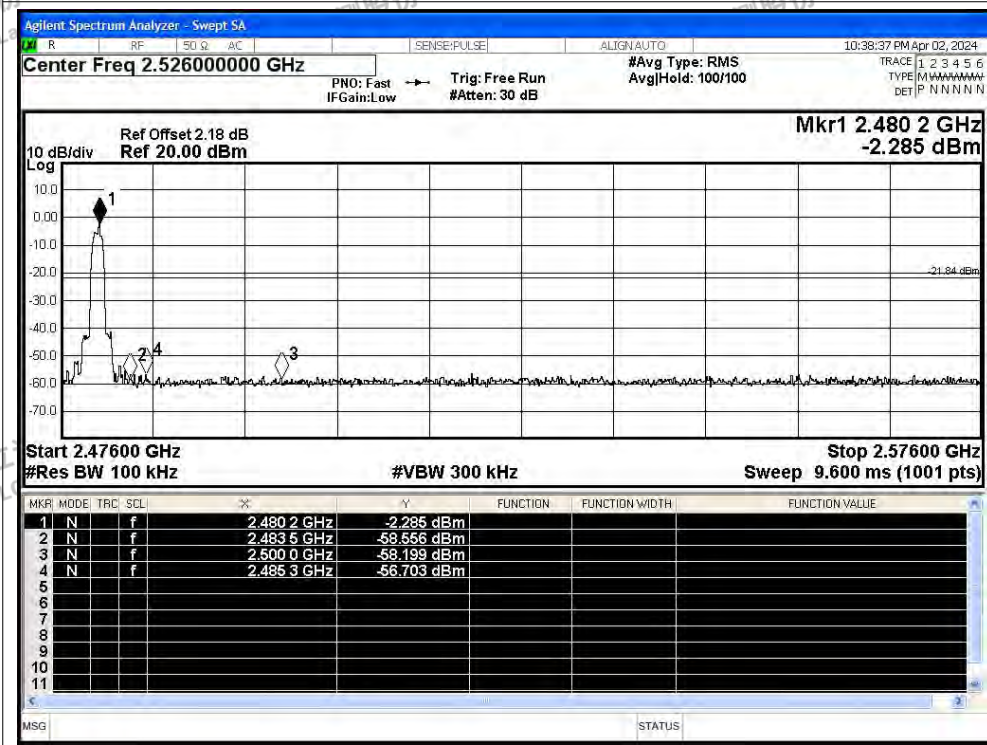




Band Edge NVNT 3-DH5 2480MHz Ant1 No-Hopping Ref



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	-54.99	-20	Pass
NVNT	1-DH5	2480	Ant1	Hopping	-51.84	-20	Pass
NVNT	2-DH5	2402	Ant1	Hopping	-52.93	-20	Pass
NVNT	2-DH5	2480	Ant1	Hopping	-53.59	-20	Pass
NVNT	3-DH5	2402	Ant1	Hopping	-53.63	-20	Pass
NVNT	3-DH5	2480	Ant1	Hopping	-53.91	-20	Pass



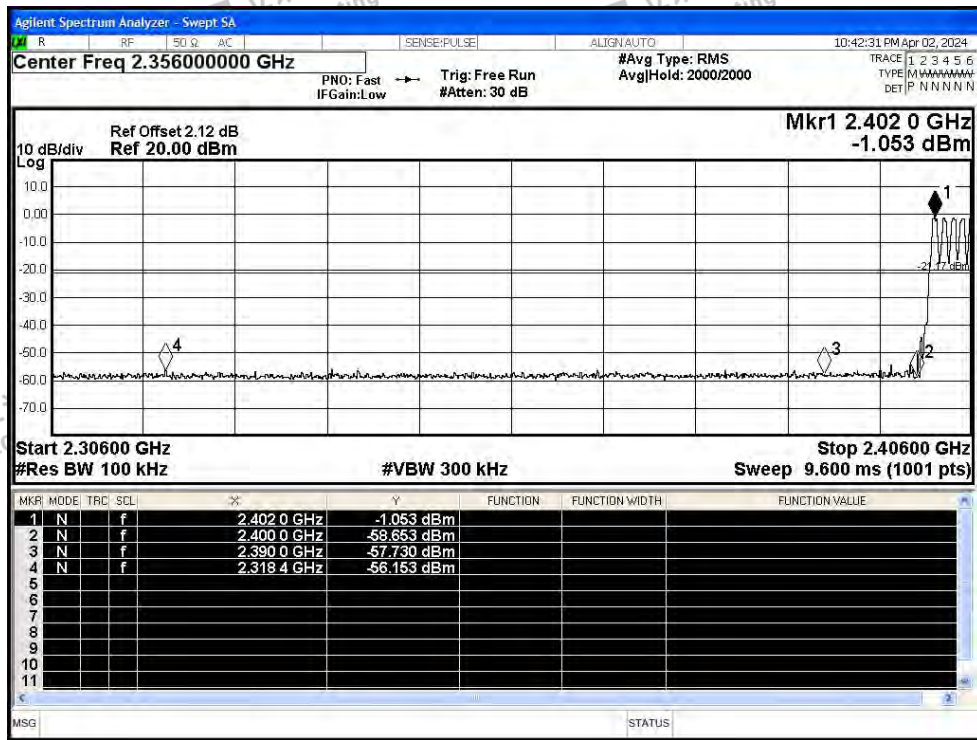


Test Graphs

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

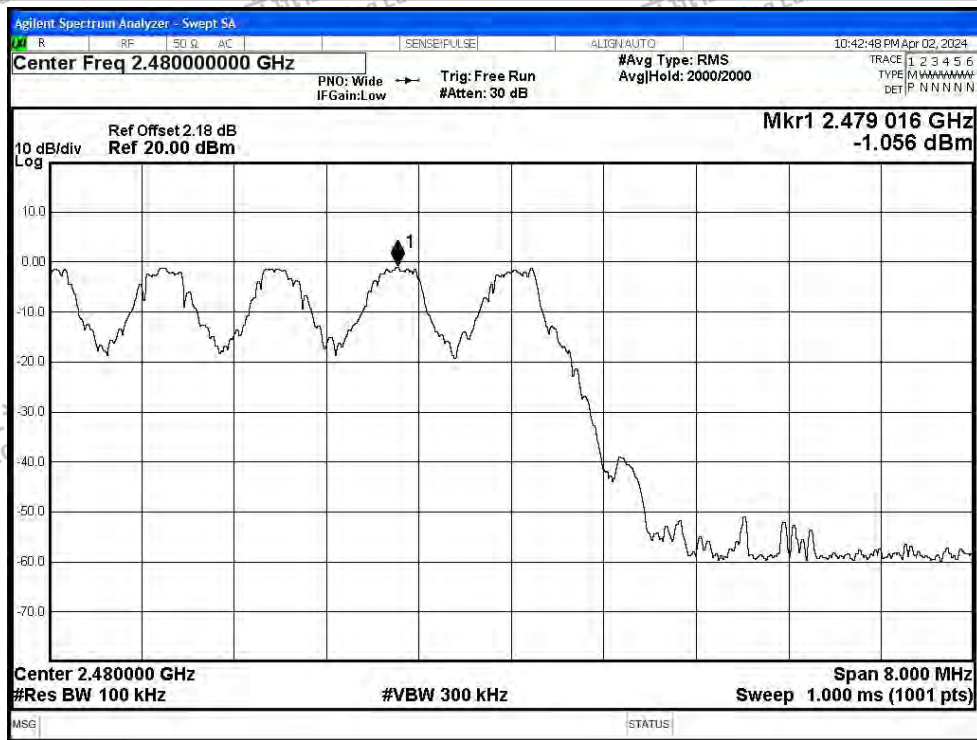


Band Edge(Hopping) NVNT 1-DH5 2402MHz Ant1 Hopping Emission

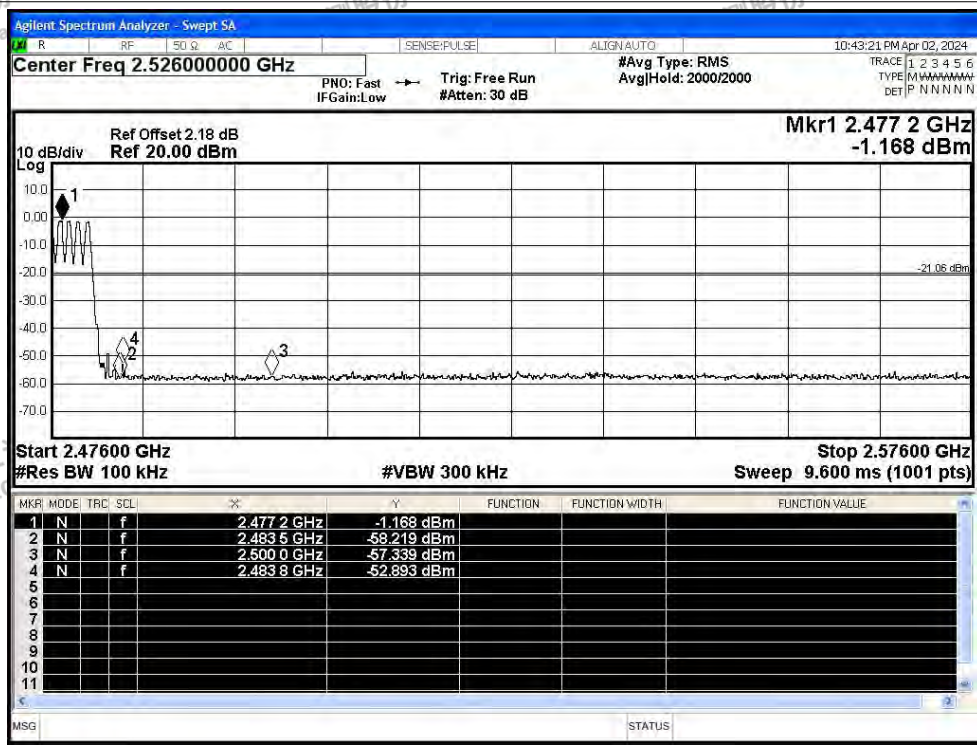




Band Edge(Hopping) NVNT 1-DH5 2480MHz Ant1 Hopping Ref

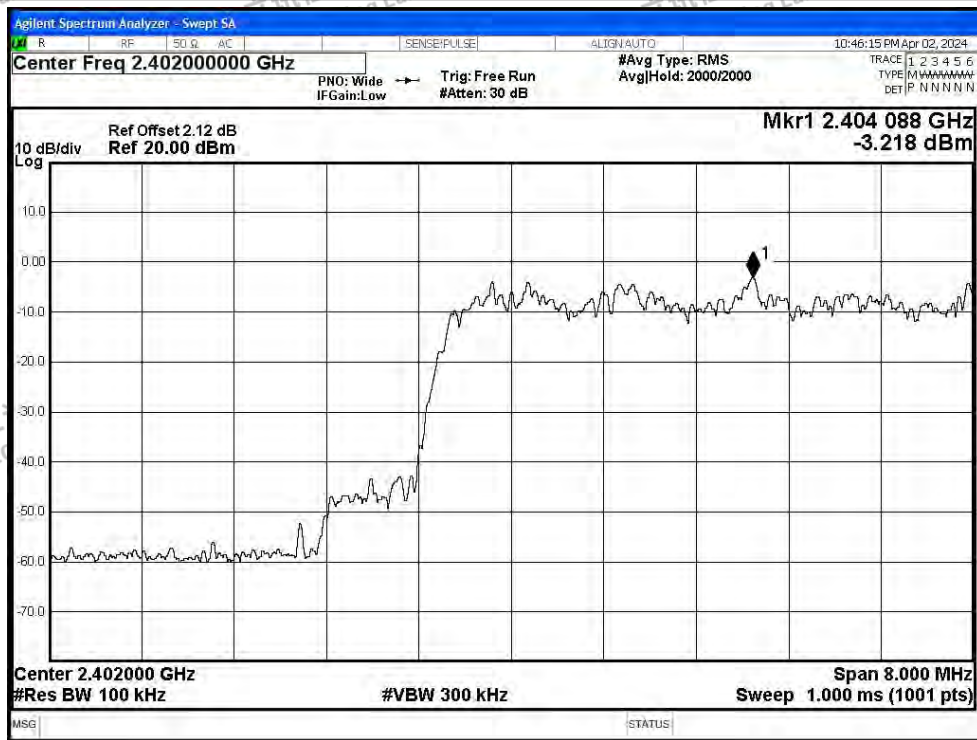


Band Edge(Hopping) NVNT 1-DH5 2480MHz Ant1 Hopping Emission

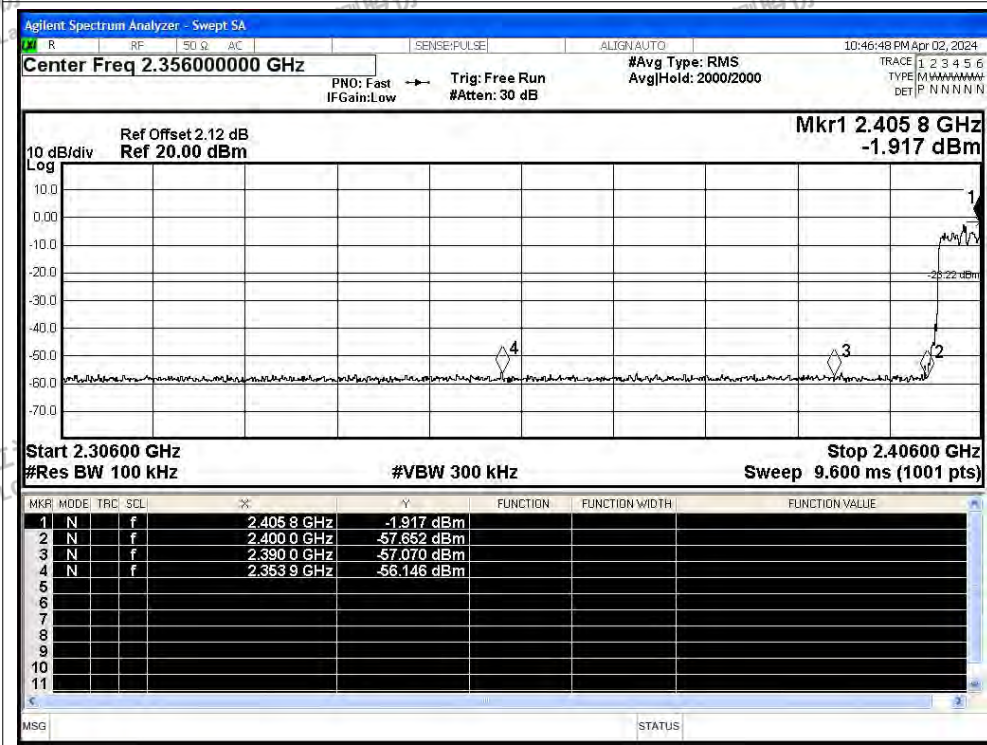




Band Edge(Hopping) NVNT 2-DH5 2402MHz Ant1 Hopping Ref

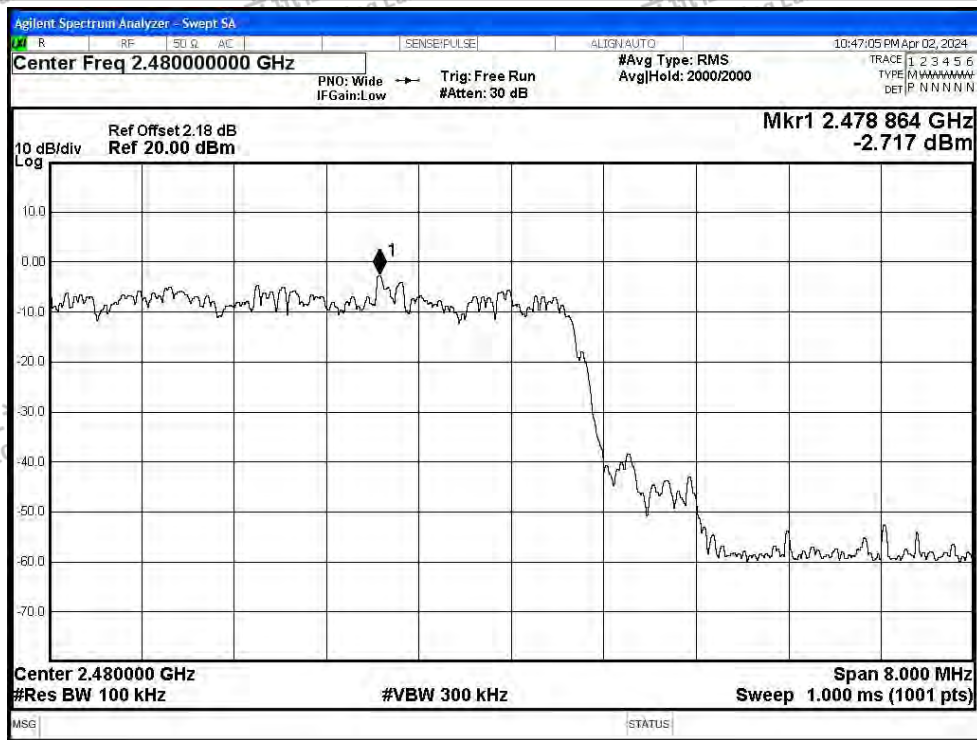


Band Edge(Hopping) NVNT 2-DH5 2402MHz Ant1 Hopping Emission

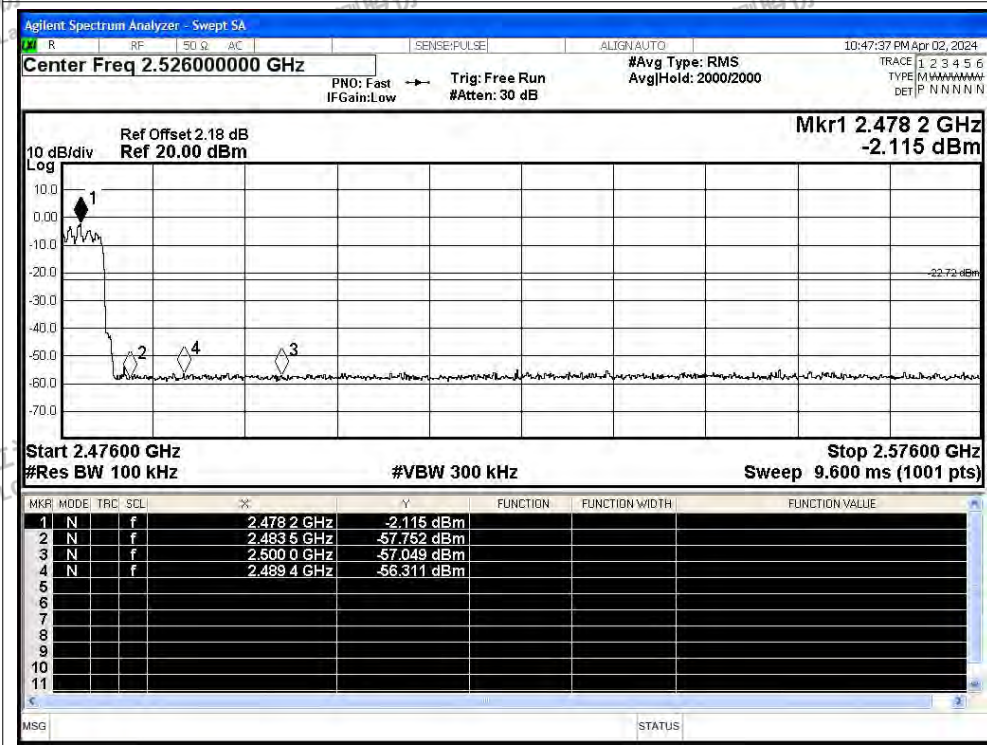




Band Edge(Hopping) NVNT 2-DH5 2480MHz Ant1 Hopping Ref

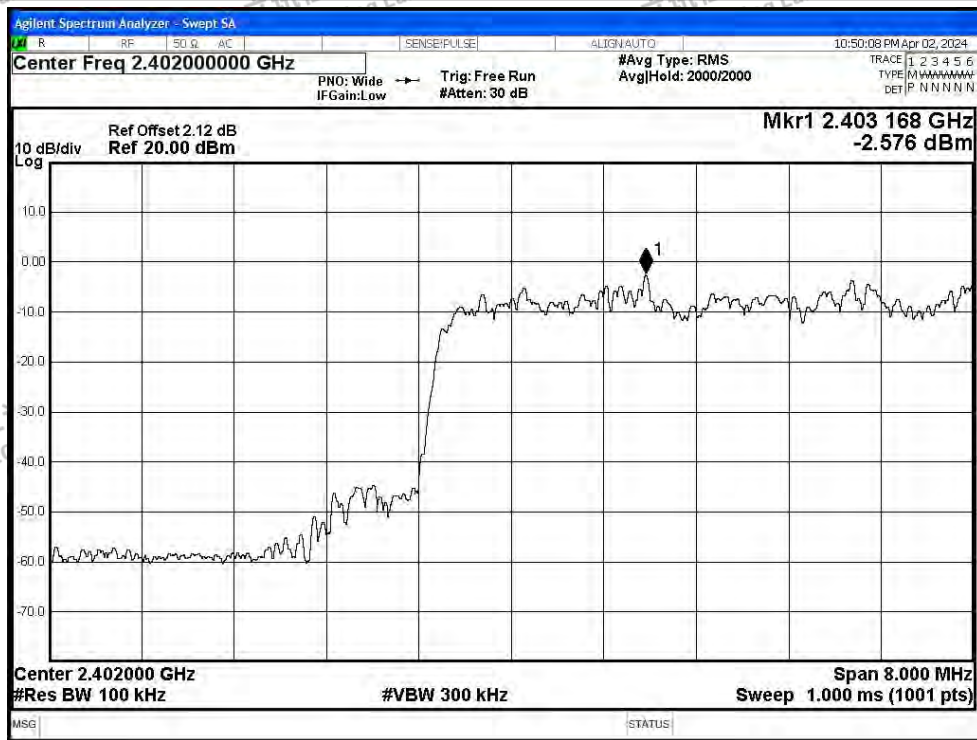


Band Edge(Hopping) NVNT 2-DH5 2480MHz Ant1 Hopping Emission

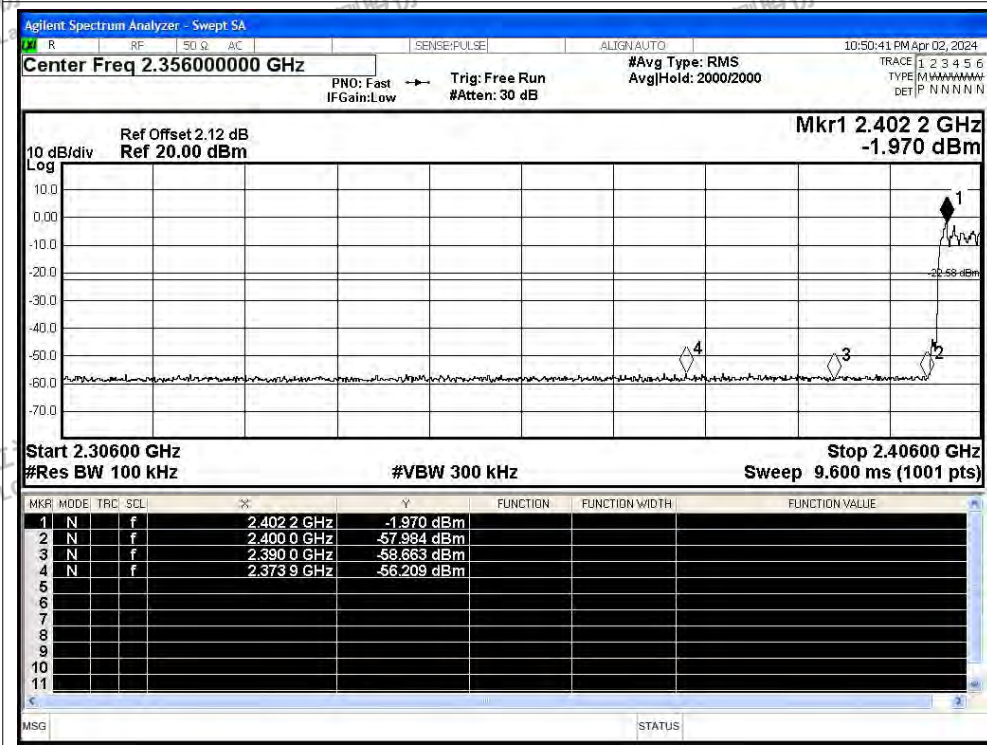




Band Edge(Hopping) NVNT 3-DH5 2402MHz Ant1 Hopping Ref

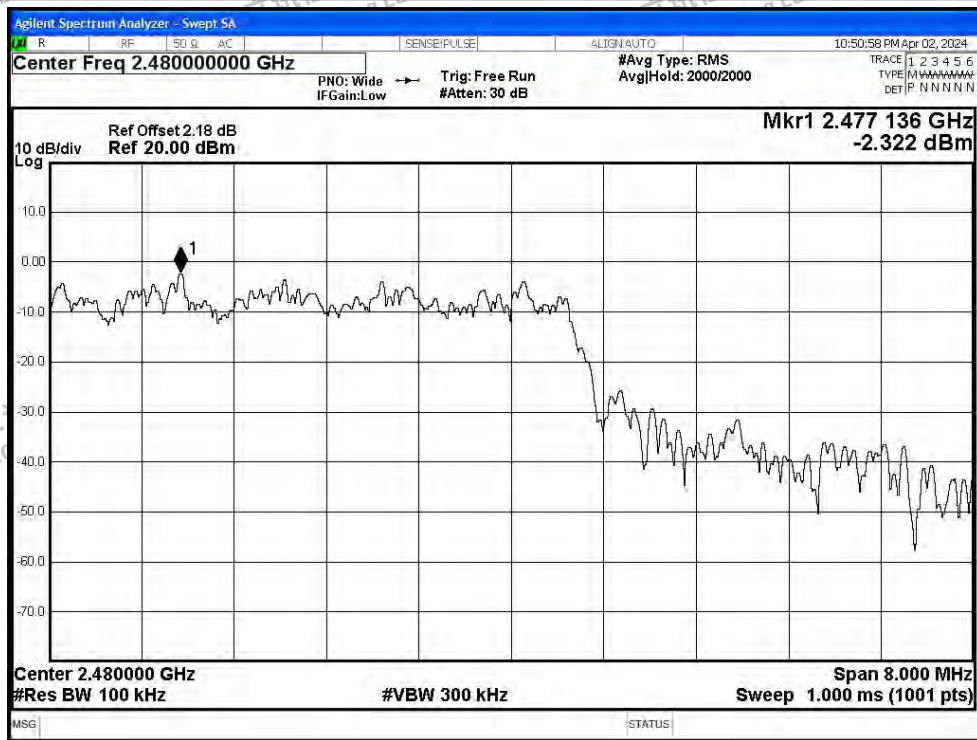


Band Edge(Hopping) NVNT 3-DH5 2402MHz Ant1 Hopping Emission

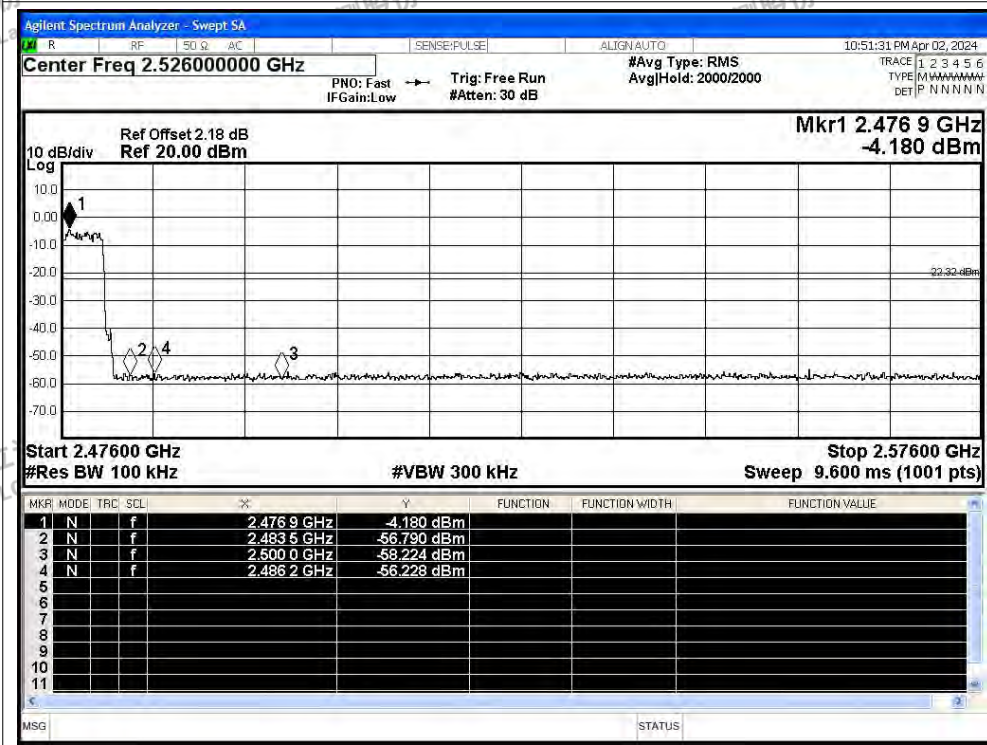




Band Edge(Hopping) NVNT 3-DH5 2480MHz Ant1 Hopping Ref



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	-20	Pass
NVNT	1-DH5	2441	Ant1	-54.34	-20	Pass
NVNT	1-DH5	2480	Ant1	-54.69	-20	Pass
NVNT	2-DH5	2402	Ant1	-53.24	-20	Pass
NVNT	2-DH5	2441	Ant1	-53.1	-20	Pass
NVNT	2-DH5	2480	Ant1	-52.94	-20	Pass
NVNT	3-DH5	2402	Ant1	-53.06	-20	Pass
NVNT	3-DH5	2441	Ant1	-52.57	-20	Pass
NVNT	3-DH5	2480	Ant1	-53.44	-20	Pass



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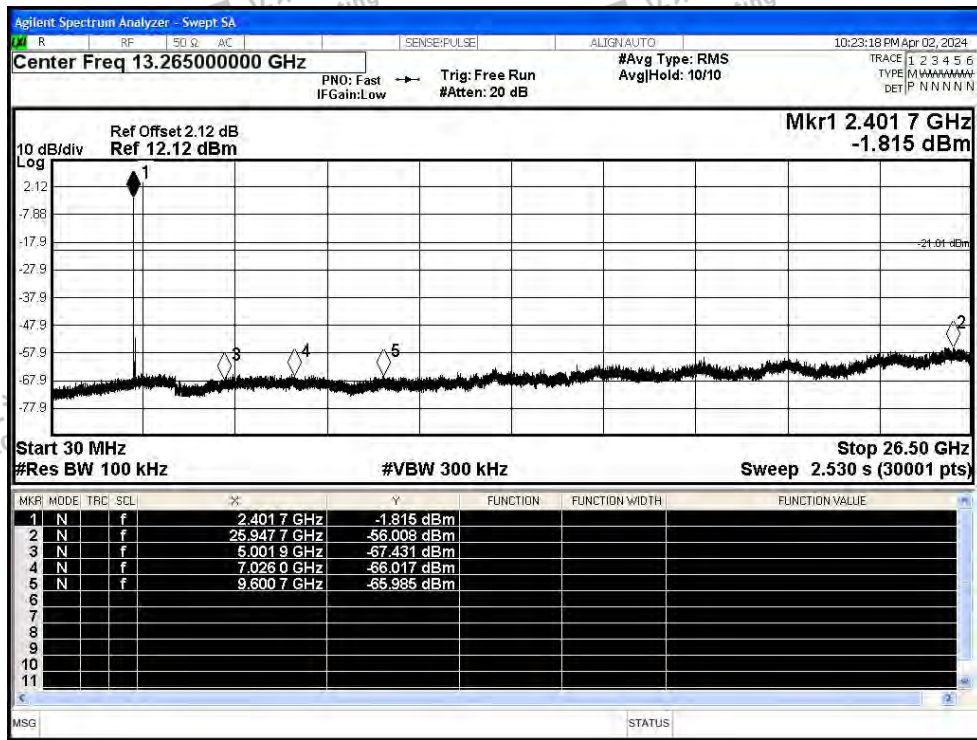


Test Graphs

Tx. Spurious NVNT 1-DH5 2402MHz Ant1 Ref

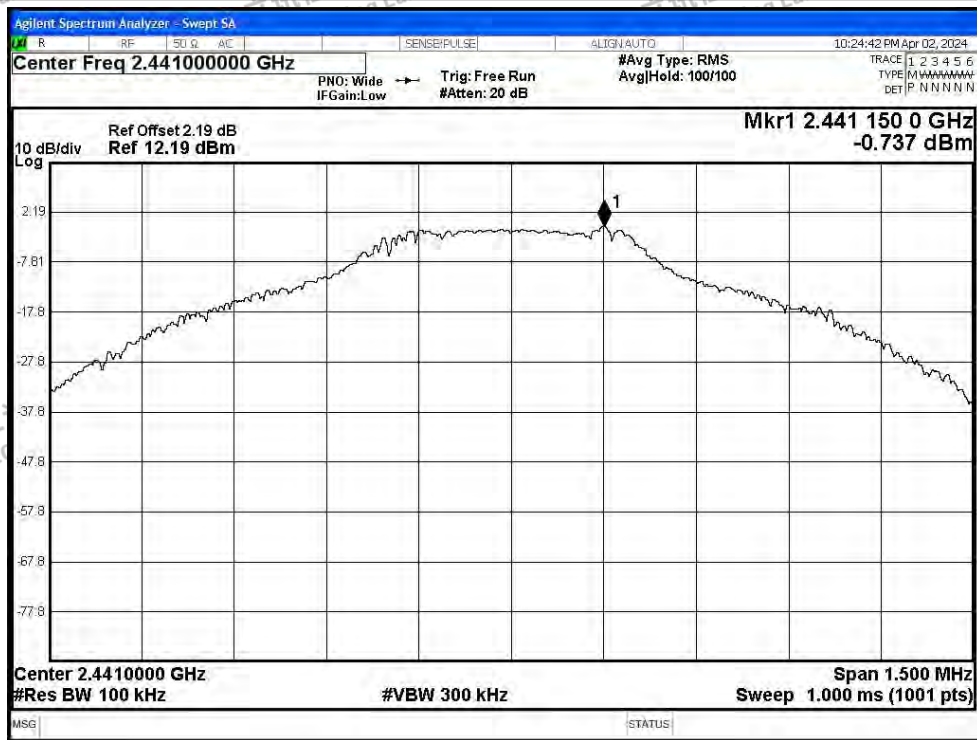


Tx. Spurious NVNT 1-DH5 2402MHz Ant1 Emission

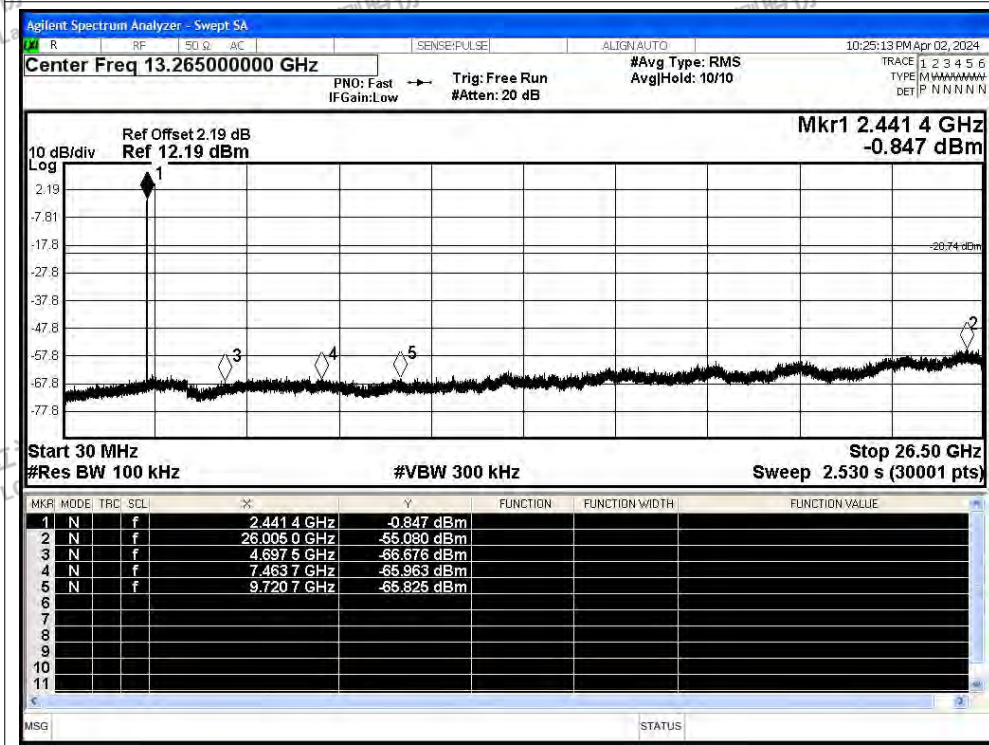




Tx. Spurious NVNT 1-DH5 2441MHz Ant1 Ref

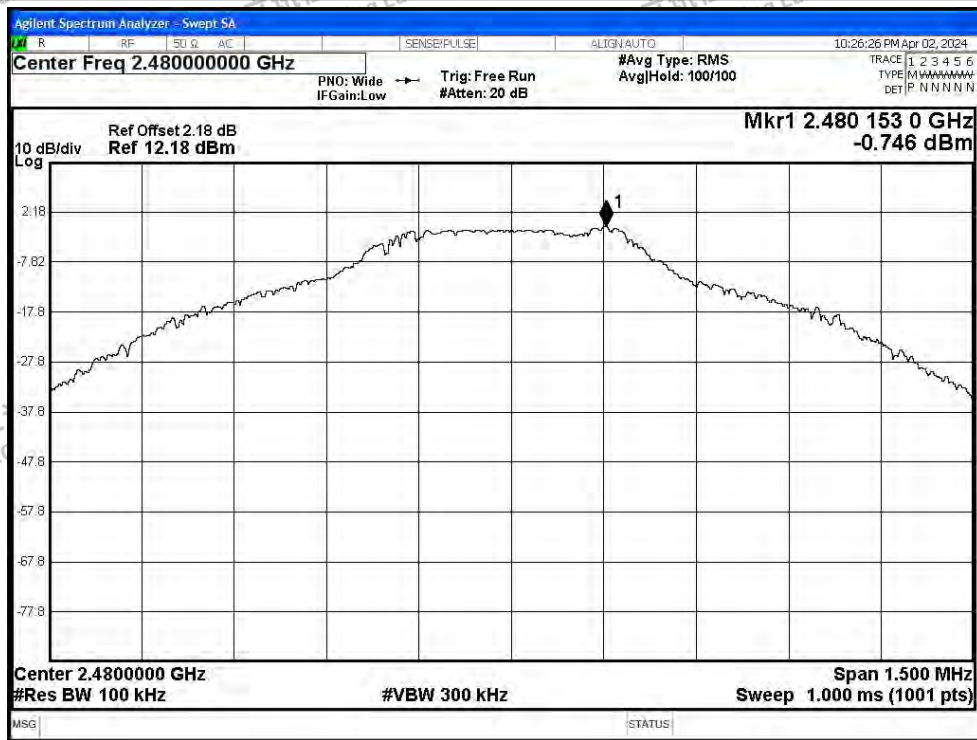


Tx. Spurious NVNT 1-DH5 2441MHz Ant1 Emission

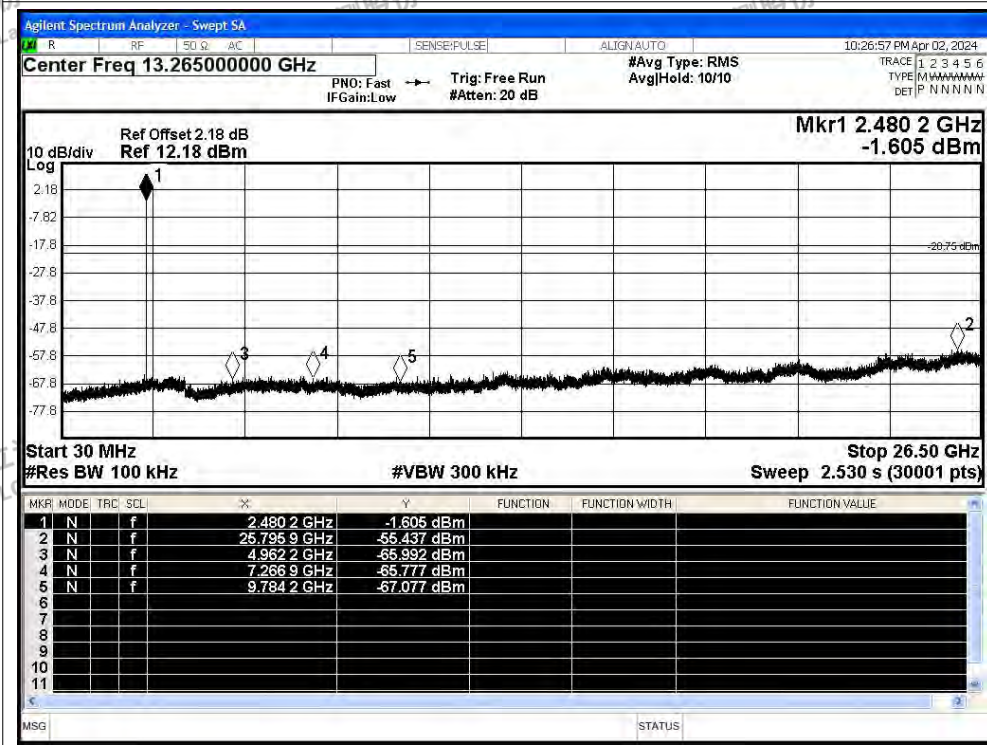




Tx. Spurious NVNT 1-DH5 2480MHz Ant1 Ref

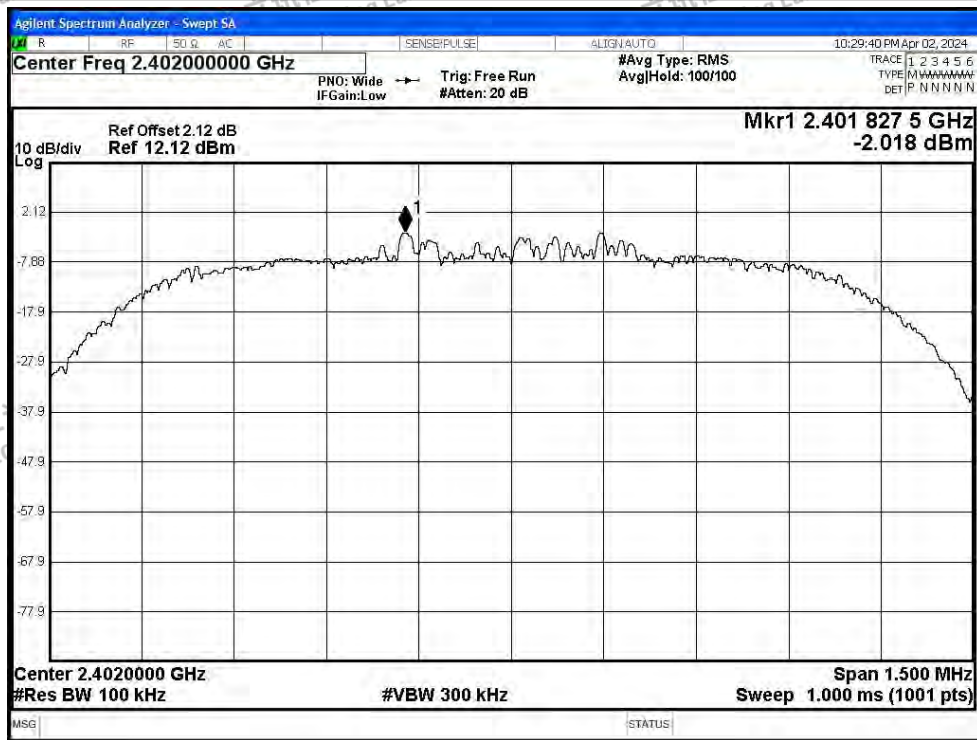


Tx. Spurious NVNT 1-DH5 2480MHz Ant1 Emission

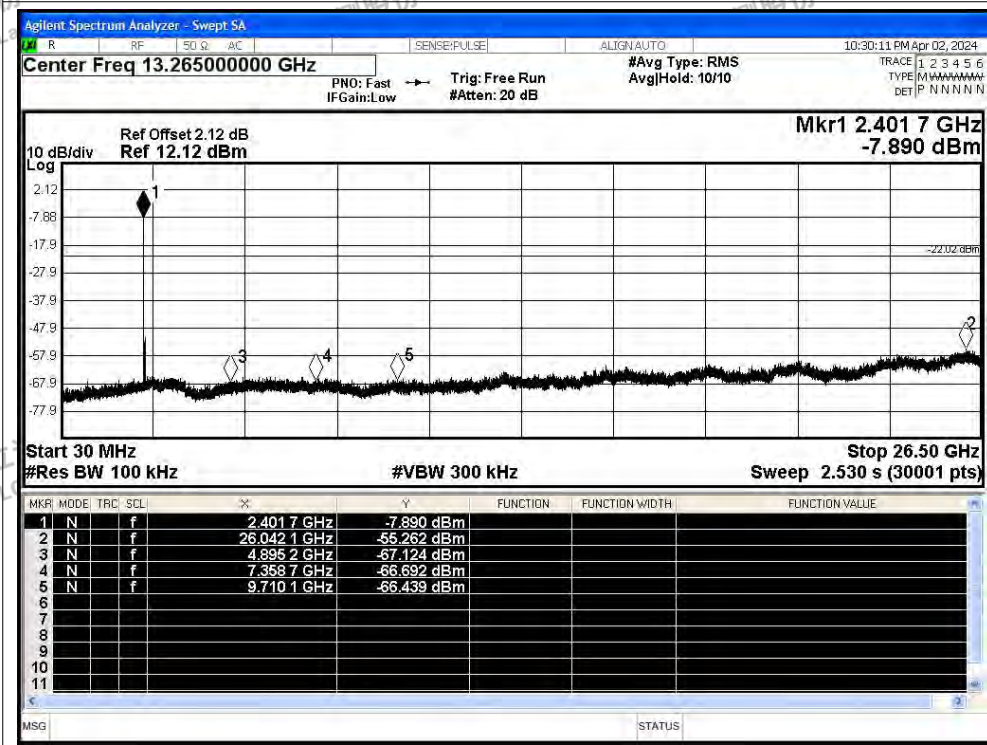




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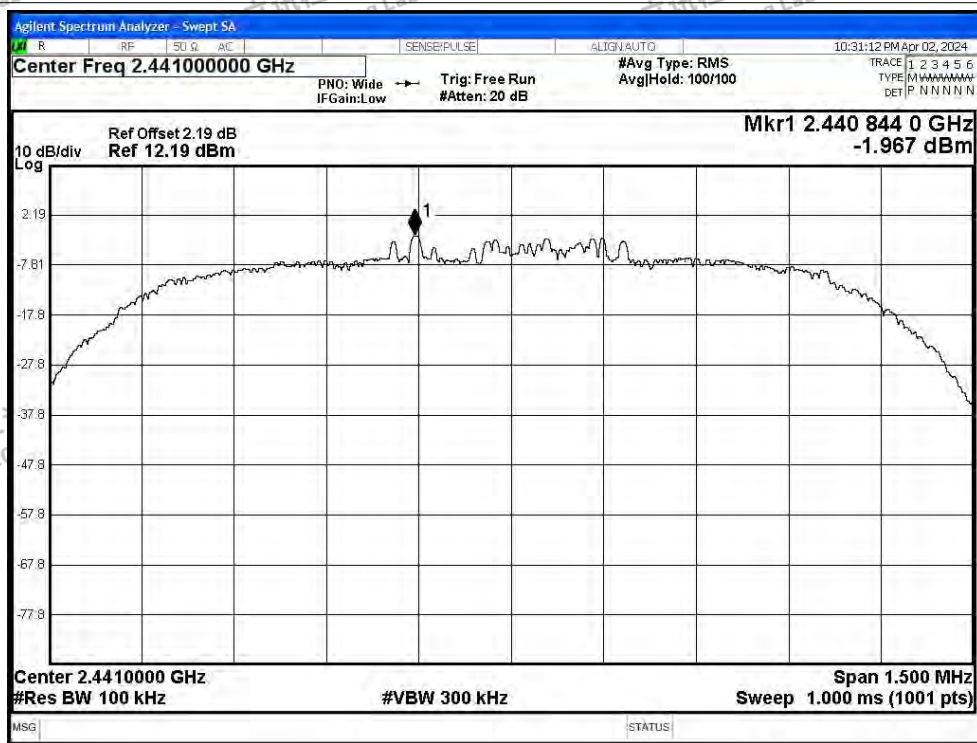


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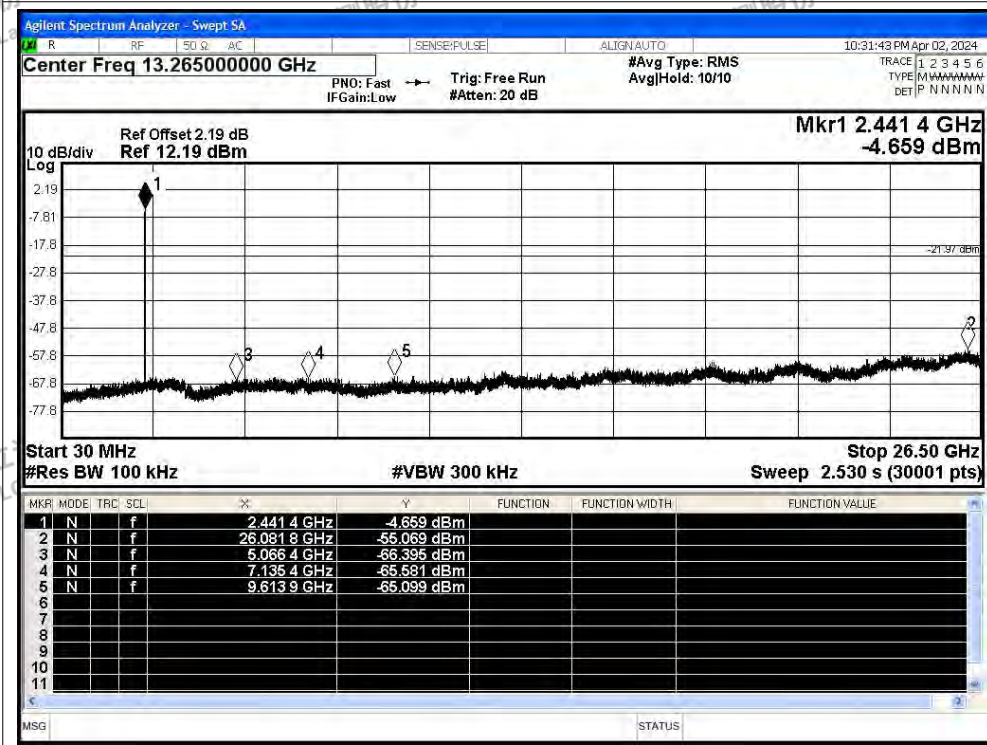




Tx. Spurious NVNT 2-DH5 2441MHz Ant1 Ref

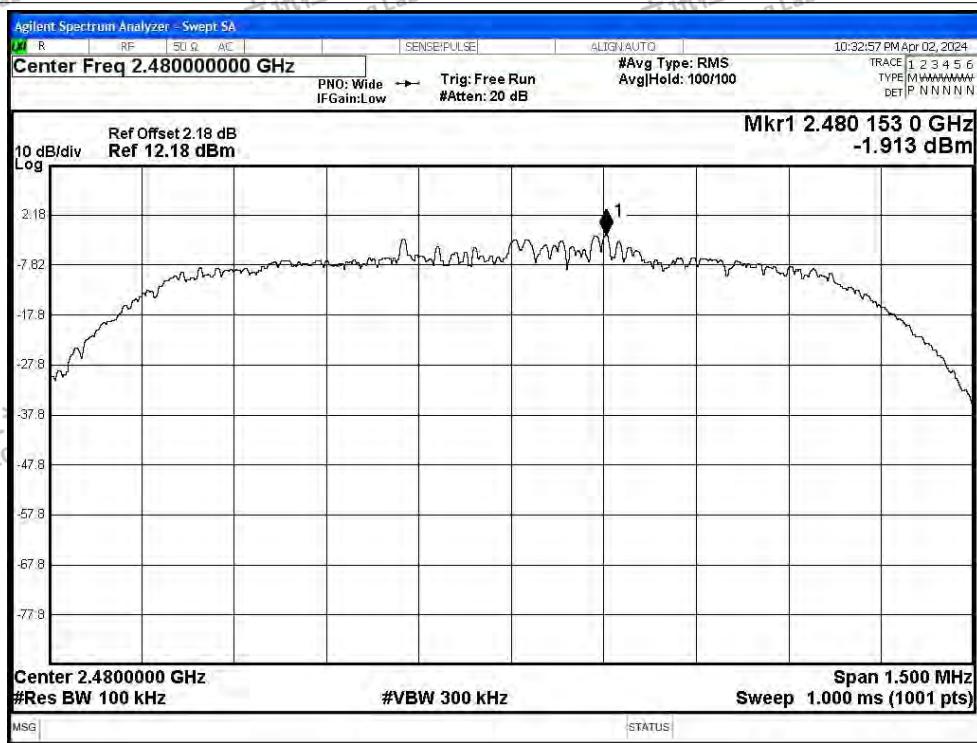


Tx. Spurious NVNT 2-DH5 2441MHz Ant1 Emission

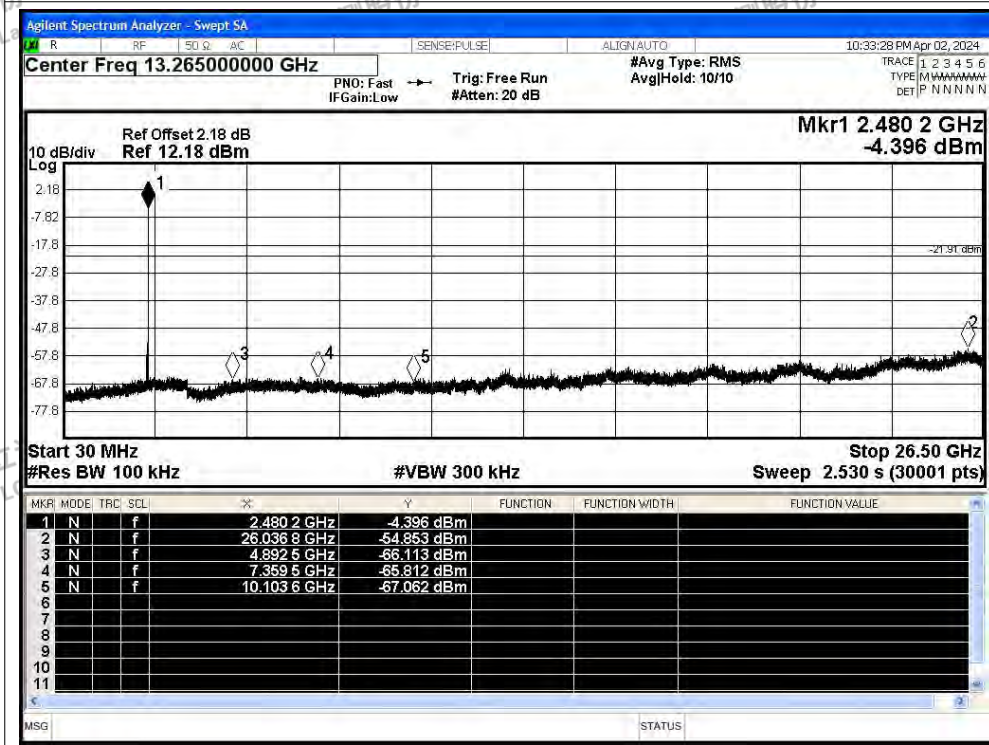




Tx. Spurious NVNT 2-DH5 2480MHz Ant1 Ref

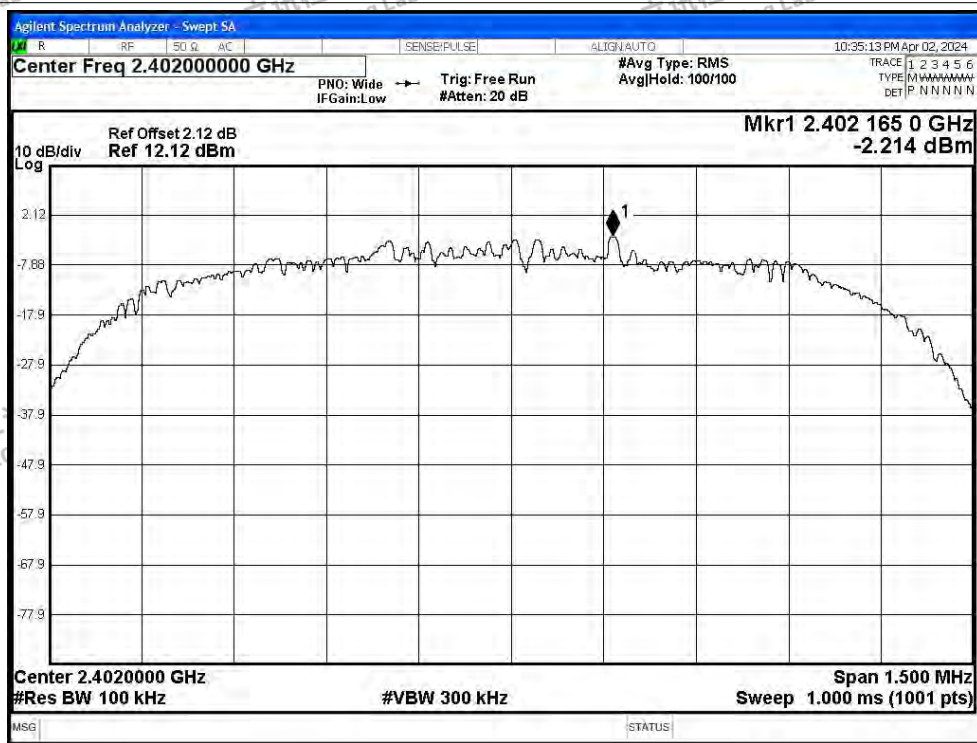


Tx. Spurious NVNT 2-DH5 2480MHz Ant1 Emission

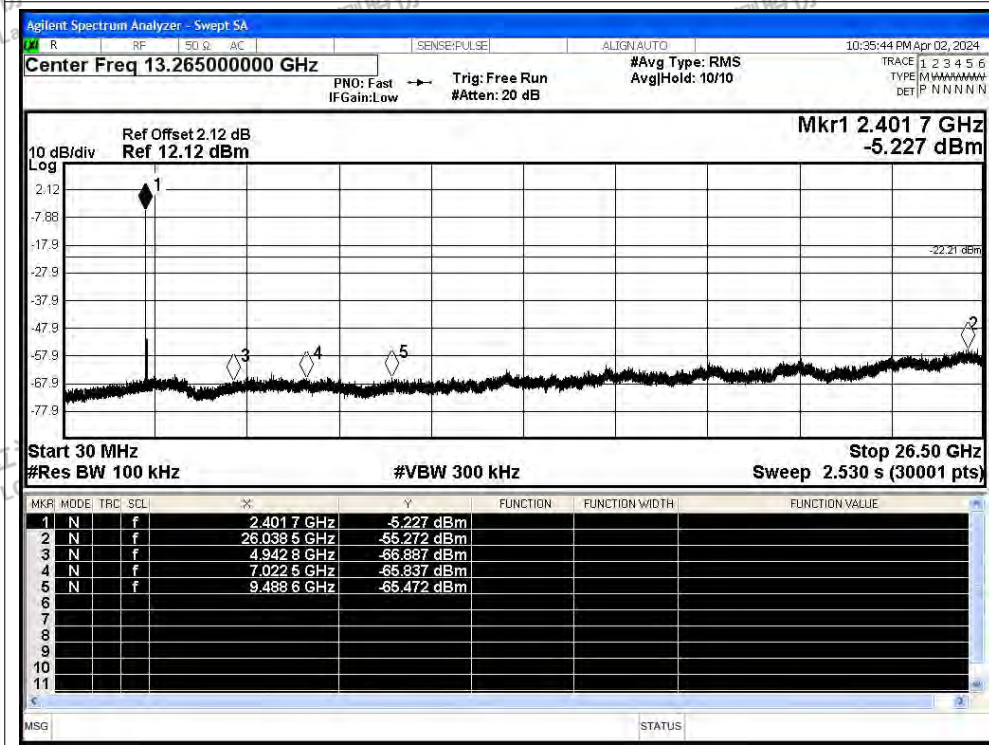




Tx. Spurious NVNT 3-DH5 2402MHz Ant1 Ref

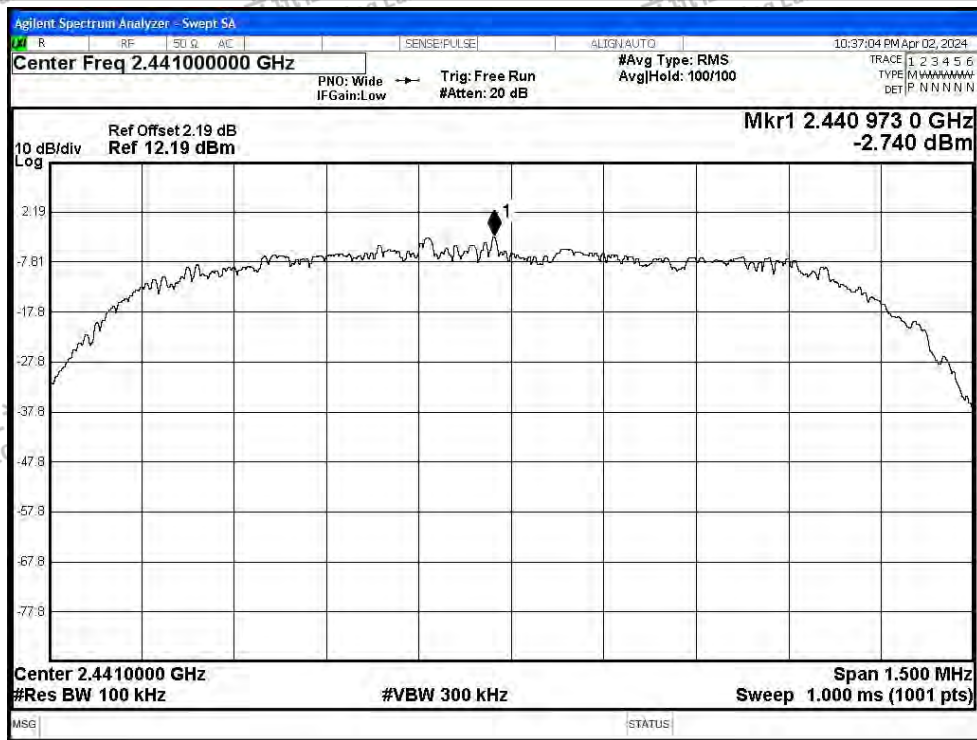


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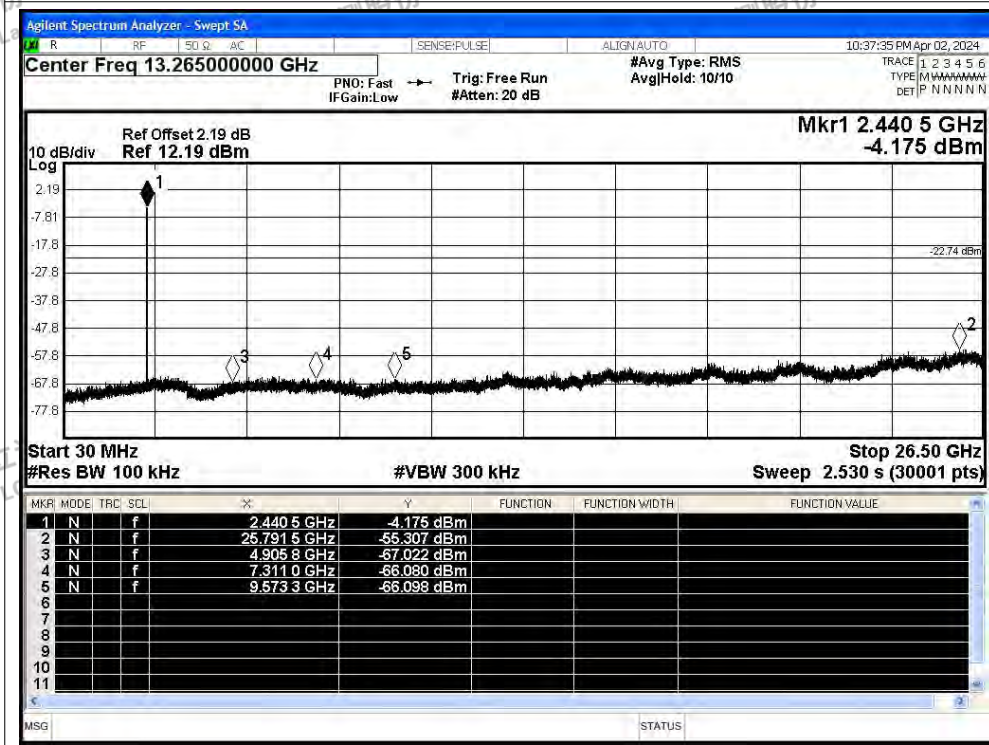




Tx. Spurious NVNT 3-DH5 2441MHz Ant1 Ref

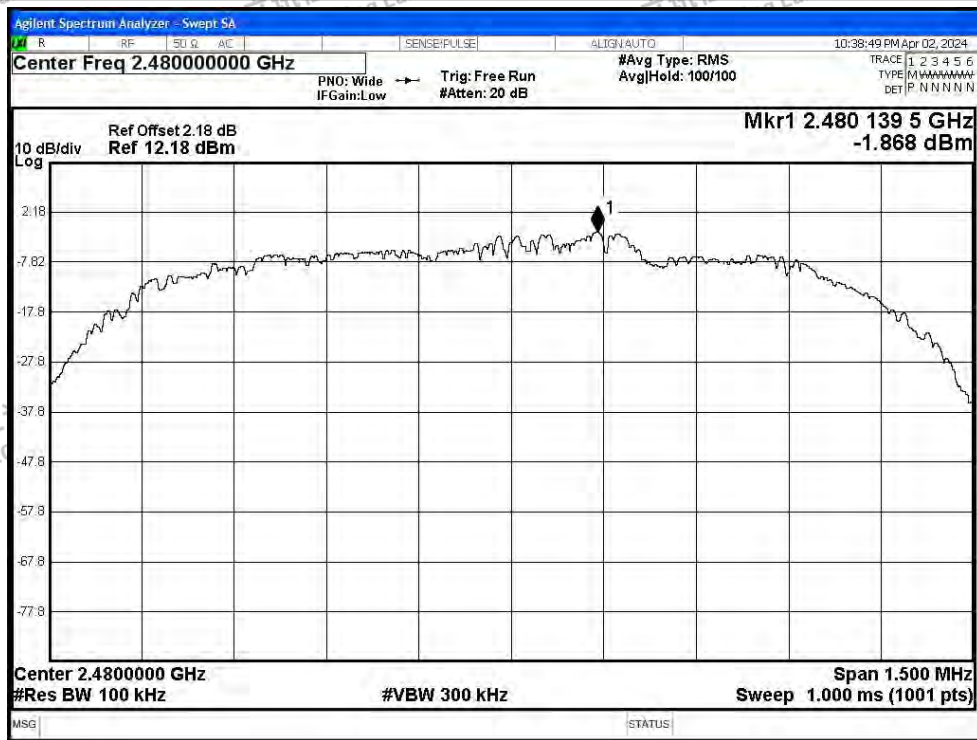


Tx. Spurious NVNT 3-DH5 2441MHz Ant1 Emission

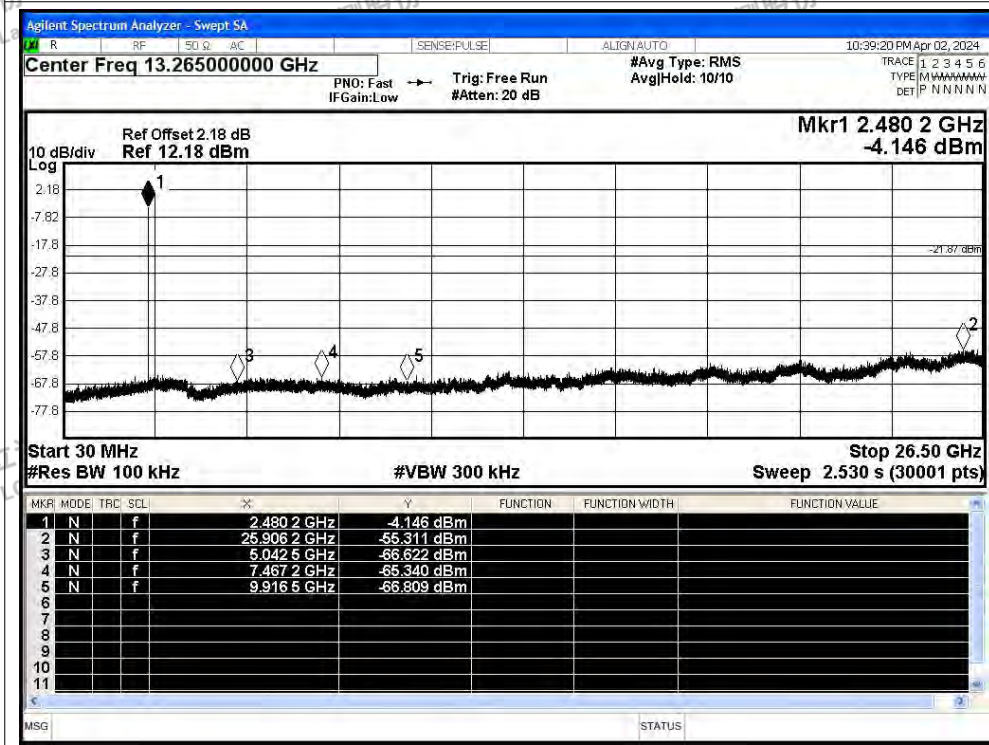




Tx. Spurious NVNT 3-DH5 2480MHz Ant1 Ref



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	76.91	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	77.01	1.13	0.35
NVNT	3-DH5	2402	Ant1	77.01	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

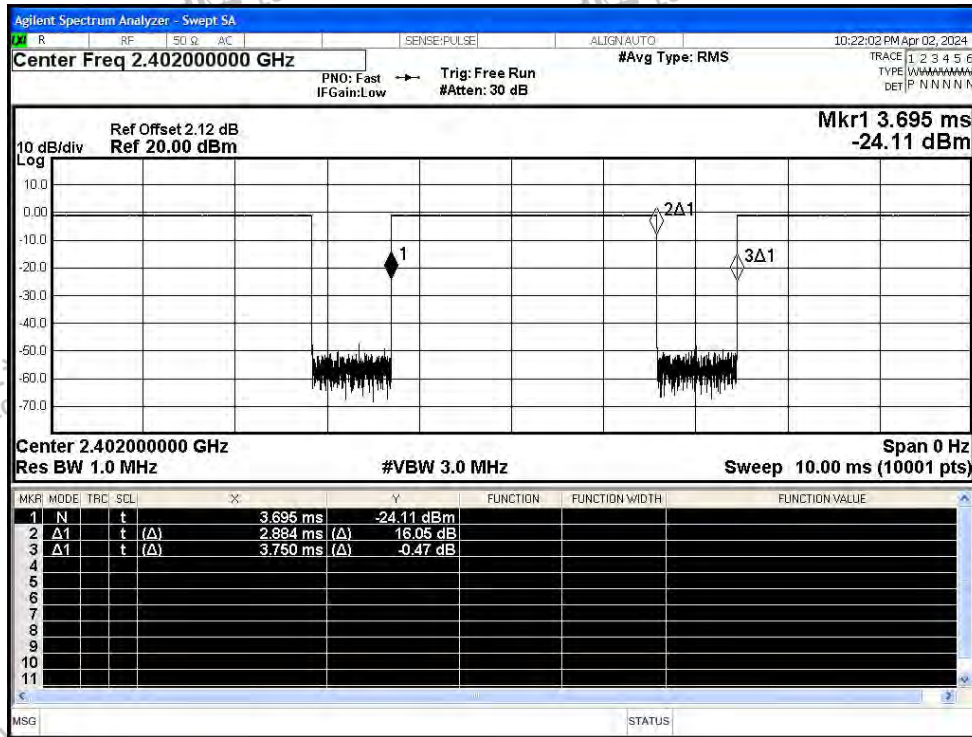


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 Tel: +(86) 0755-82591330 | E-mail: webmaster@lcs-cert.com | Web: www.lcs-cert.com
 Scan code to check authenticity

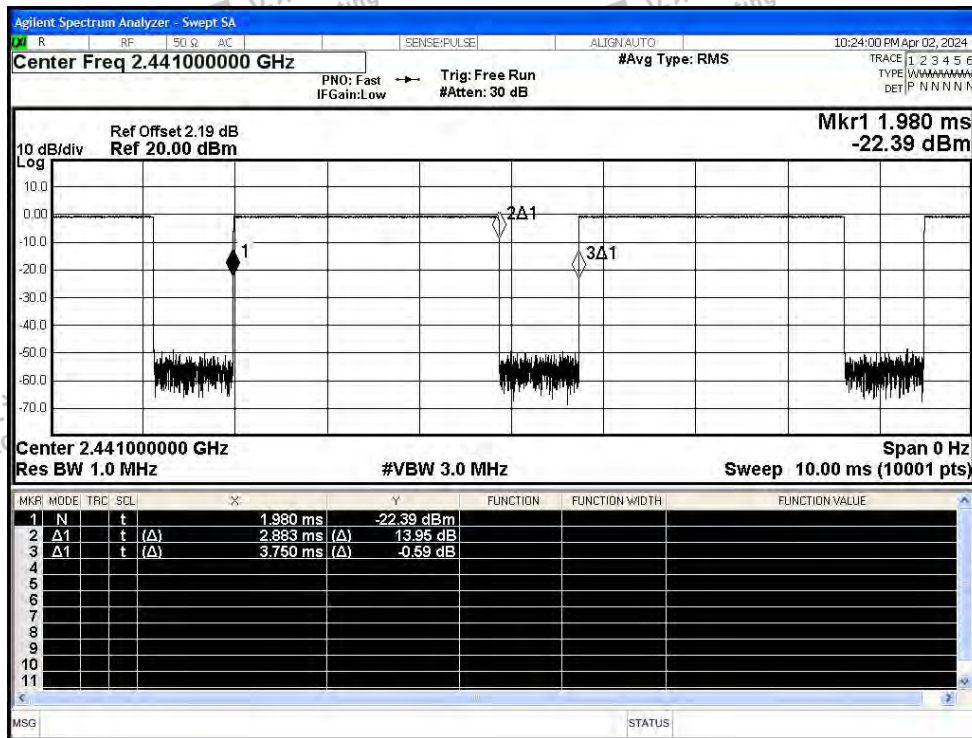


Test Graphs

Duty Cycle NVNT 1-DH5 2402MHz Ant1

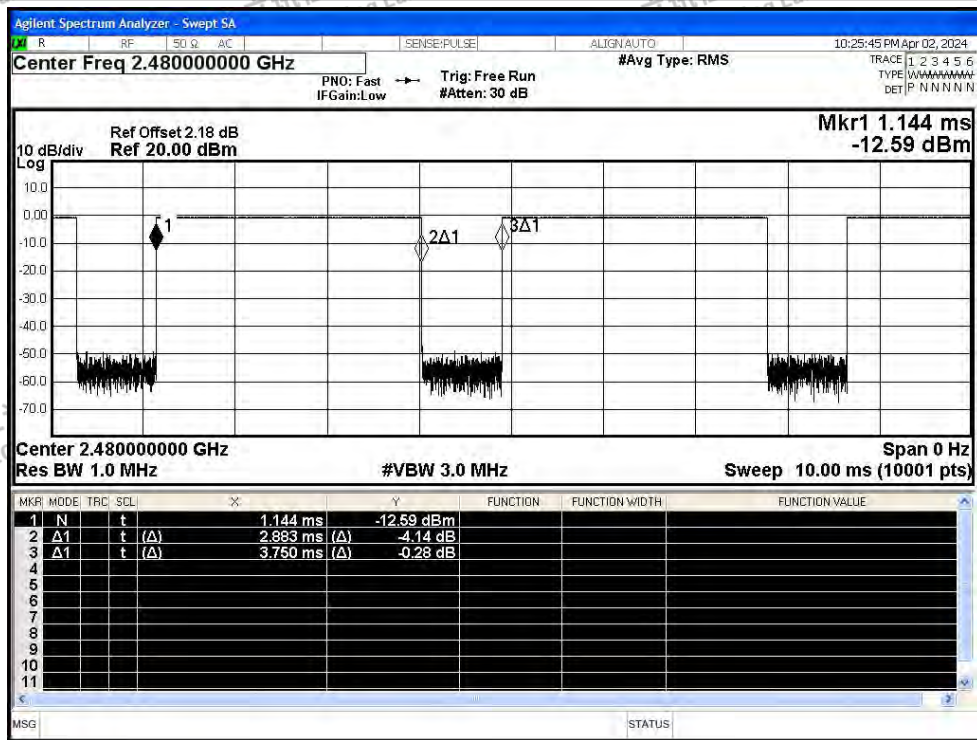


Duty Cycle NVNT 1-DH5 2441MHz Ant1

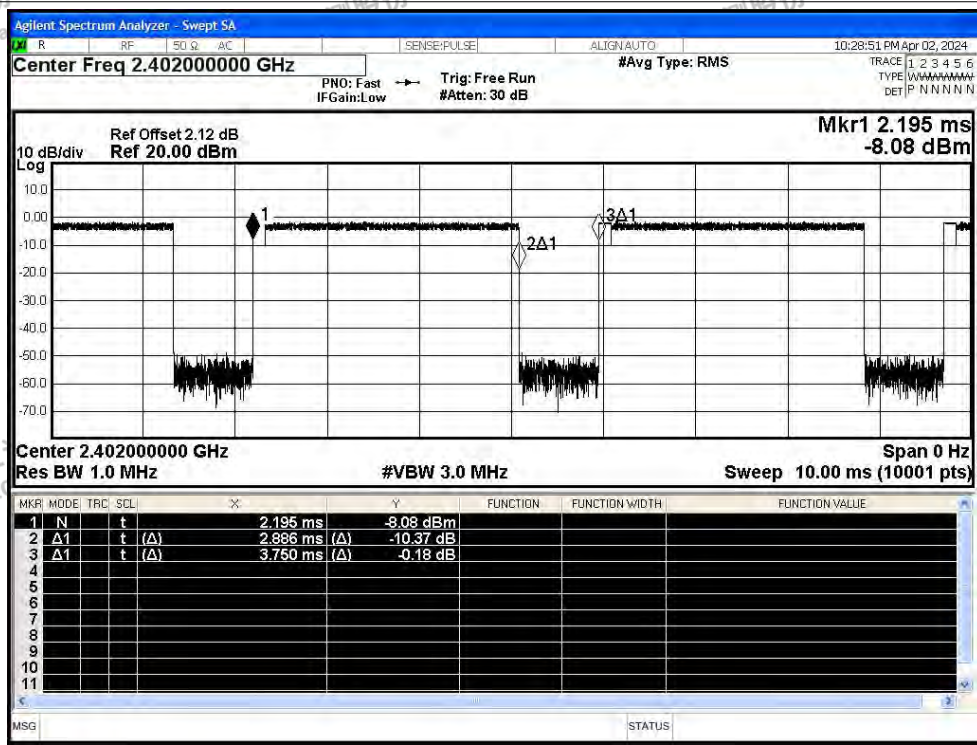




Duty Cycle NVNT 1-DH5 2480MHz Ant1

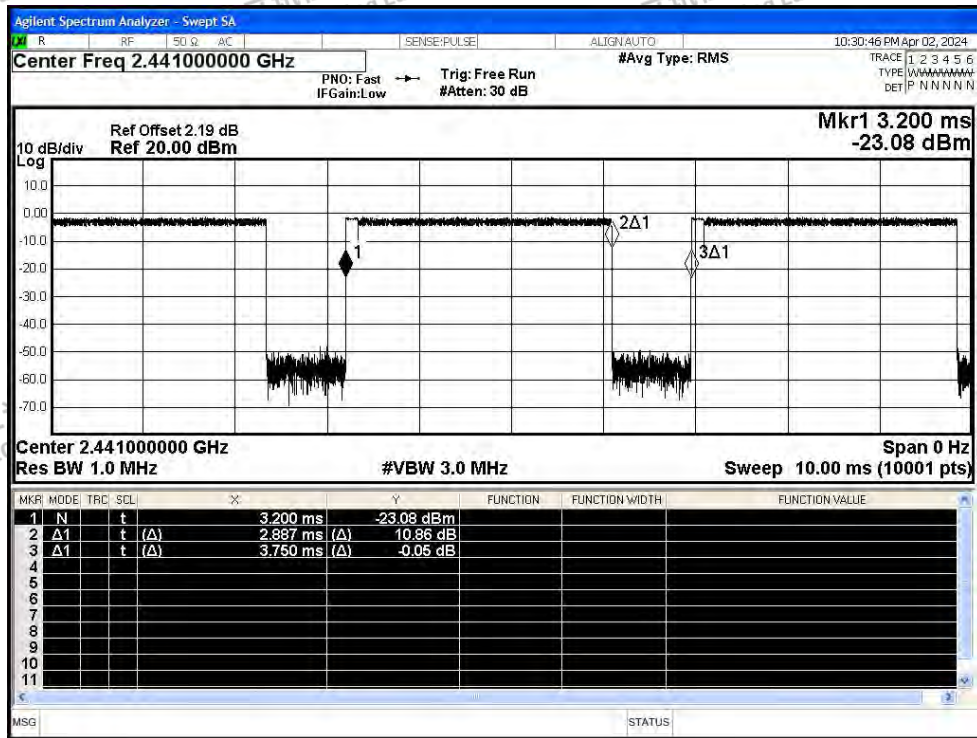


Duty Cycle NVNT 2-DH5 2402MHz Ant1

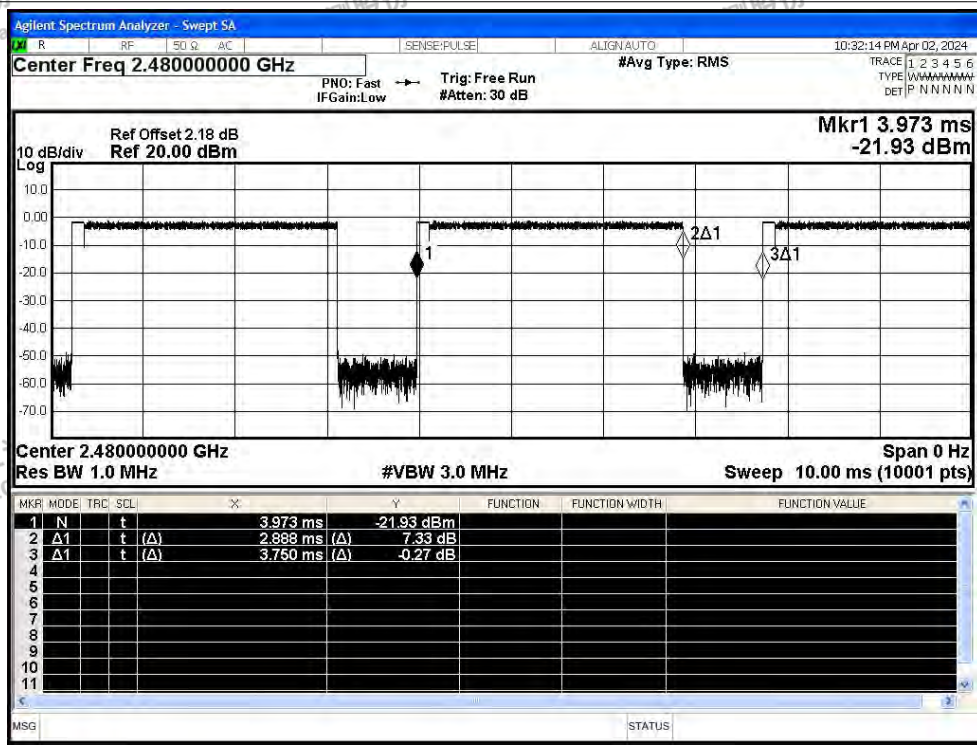




Duty Cycle NVNT 2-DH5 2441MHz Ant1

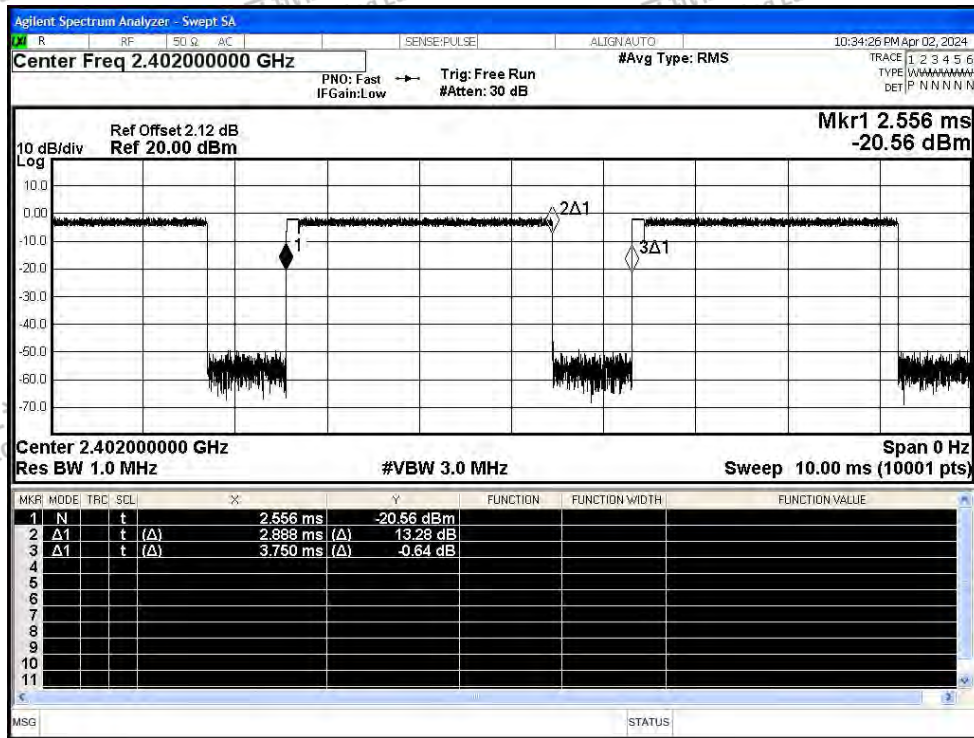


Duty Cycle NVNT 2-DH5 2480MHz Ant1

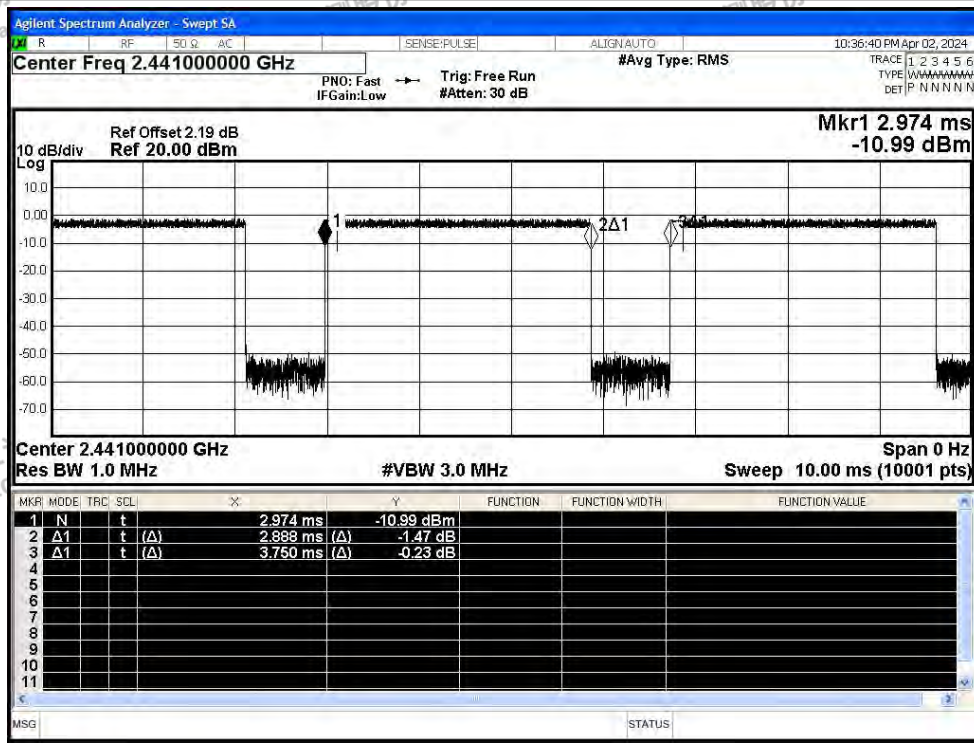




Duty Cycle NVNT 3-DH5 2402MHz Ant1

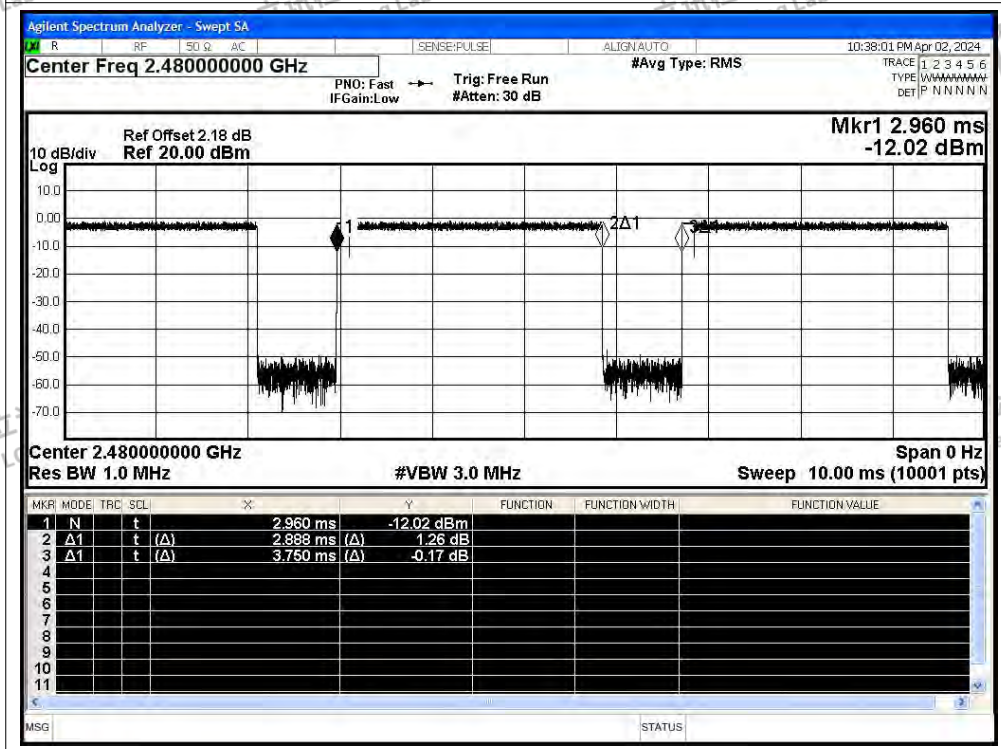


Duty Cycle NVNT 3-DH5 2441MHz Ant1





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	-50.72	2	-	46.54	Peak	74	Pass
NVNT	1-DH5	2402	Ant1	No-Hopping	2310	-59.1	2	1.14	39.3	Average	54	Pass
NVNT	1-DH5	2402	Ant1	No-Hopping	2354.256	-47.32	2	-	49.94	Peak	74	Pass
NVNT	1-DH5	2402	Ant1	No-Hopping	2381.328	-57.65	2	1.14	40.75	Average	54	Pass
NVNT	1-DH5	2402	Ant1	No-Hopping	2390	-50.9	2	-	46.36	Peak	74	Pass
NVNT	1-DH5	2402	Ant1	No-Hopping	2390	-58.33	2	1.14	40.07	Average	54	Pass
NVNT	1-DH5	2480	Ant1	No-Hopping	2483.5	-51.89	2	-	45.37	Peak	74	Pass
NVNT	1-DH5	2480	Ant1	No-Hopping	2483.5	-58.48	2	1.14	39.92	Average	54	Pass
NVNT	1-DH5	2480	Ant1	No-Hopping	2483.92	-36.95	2	-	60.31	Peak	74	Pass
NVNT	1-DH5	2480	Ant1	No-Hopping	2485.192	-56.78	2	1.14	41.62	Average	54	Pass
NVNT	1-DH5	2480	Ant1	No-Hopping	2500	-49.39	2	-	47.87	Peak	74	Pass
NVNT	1-DH5	2480	Ant1	No-Hopping	2500	-57.81	2	1.14	40.59	Average	54	Pass
NVNT	2-DH5	2402	Ant1	No-Hopping	2310	-50.09	2	-	47.17	Peak	74	Pass
NVNT	2-DH5	2402	Ant1	No-Hopping	2310	-59.21	2	1.14	39.19	Average	54	Pass
NVNT	2-DH5	2402	Ant1	No-Hopping	2363.568	-47.3	2	-	49.96	Peak	74	Pass
NVNT	2-DH5	2402	Ant1	No-Hopping	2374.512	-57.79	2	1.14	40.61	Average	54	Pass
NVNT	2-DH5	2402	Ant1	No-Hopping	2390	-50.25	2	-	47.01	Peak	74	Pass
NVNT	2-DH5	2402	Ant1	No-Hopping	2390	-58.52	2	1.14	39.88	Average	54	Pass
NVNT	2-DH5	2480	Ant1	No-Hopping	2483.5	-49.27	2	-	47.99	Peak	74	Pass
NVNT	2-DH5	2480	Ant1	No-Hopping	2483.5	-58.02	2	1.13	40.37	Average	54	Pass
NVNT	2-DH5	2480	Ant1	No-Hopping	2485	-42.54	2	-	54.72	Peak	74	Pass
NVNT	2-DH5	2480	Ant1	No-Hopping	2483.896	-56.89	2	1.13	41.5	Average	54	Pass
NVNT	2-DH5	2480	Ant1	No-Hopping	2500	-51.26	2	-	46	Peak	74	Pass
NVNT	2-DH5	2480	Ant1	No-Hopping	2500	-57.97	2	1.13	40.42	Average	54	Pass
NVNT	3-DH5	2402	Ant1	No-Hopping	2310	-50.64	2	-	46.62	Peak	74	Pass
NVNT	3-DH5	2402	Ant1	No-Hopping	2310	-58.61	2	1.13	39.78	Average	54	Pass
NVNT	3-DH5	2402	Ant1	No-Hopping	2384.304	-47.96	2	-	49.3	Peak	74	Pass
NVNT	3-DH5	2402	Ant1	No-Hopping	2368.368	-57.54	2	1.13	40.85	Average	54	Pass
NVNT	3-DH5	2402	Ant1	No-Hopping	2390	-48.92	2	-	48.34	Peak	74	Pass
NVNT	3-DH5	2402	Ant1	No-Hopping	2390	-58.2	2	1.13	40.19	Average	54	Pass
NVNT	3-DH5	2480	Ant1	No-Hopping	2483.5	-50.2	2	-	47.06	Peak	74	Pass
NVNT	3-DH5	2480	Ant1	No-Hopping	2483.5	-57.98	2	1.13	40.41	Average	54	Pass
NVNT	3-DH5	2480	Ant1	No-Hopping	2483.704	-40.3	2	-	56.96	Peak	74	Pass
NVNT	3-DH5	2480	Ant1	No-Hopping	2483.848	-57.04	2	1.13	41.35	Average	54	Pass
NVNT	3-DH5	2480	Ant1	No-Hopping	2500	-47.79	2	-	49.47	Peak	74	Pass
NVNT	3-DH5	2480	Ant1	No-Hopping	2500	-57.82	2	1.13	40.57	Average	54	Pass

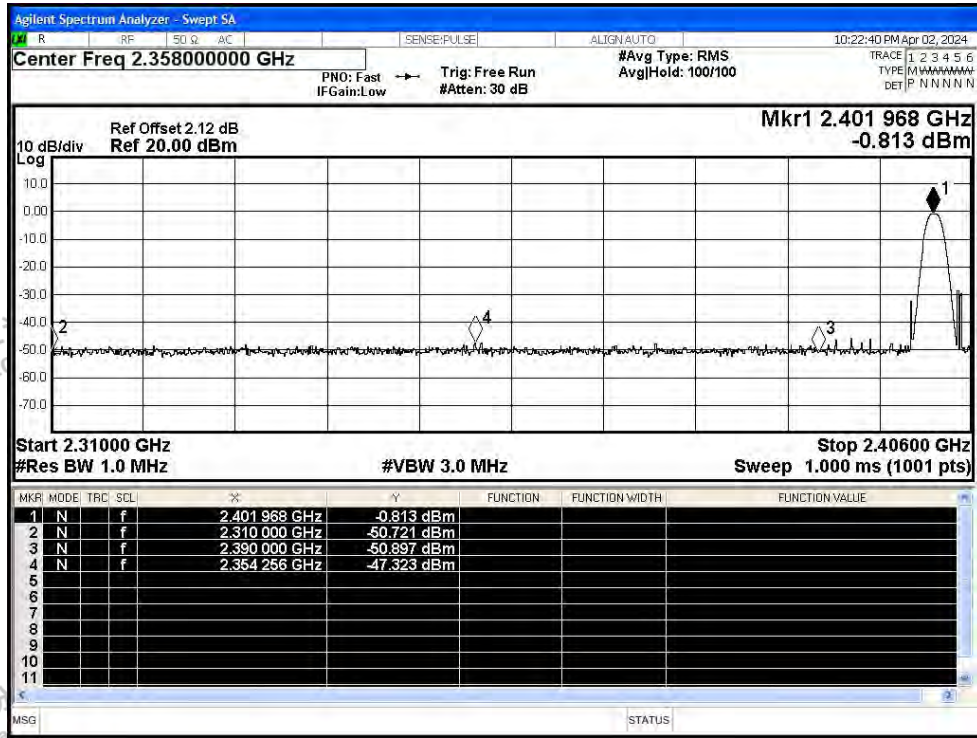


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 Scan code to check authenticity

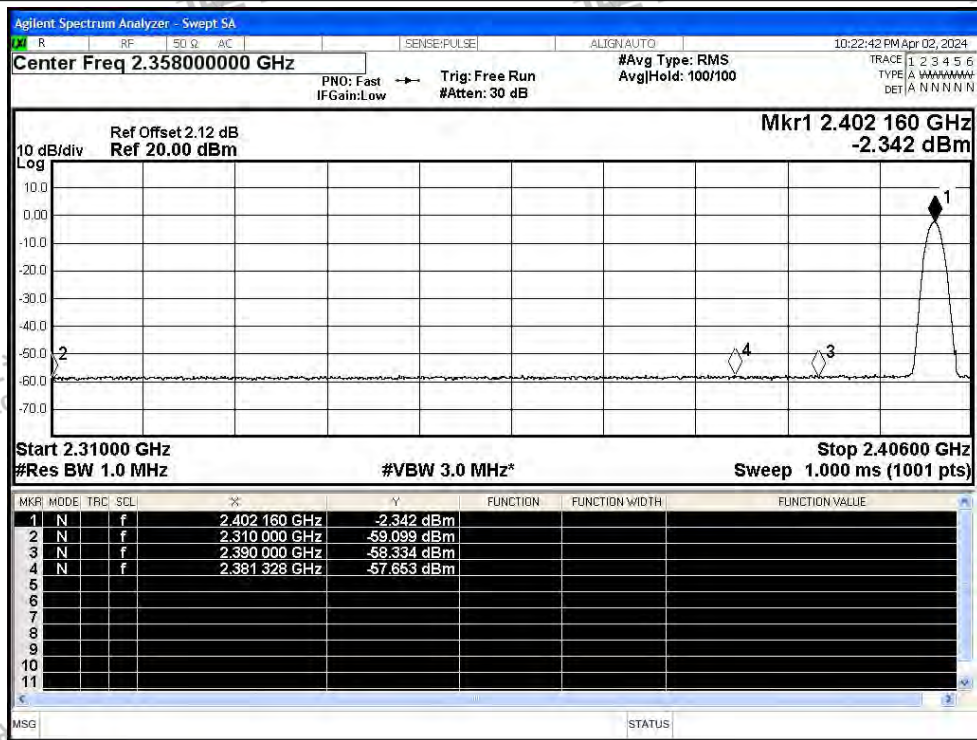


Test Graphs

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

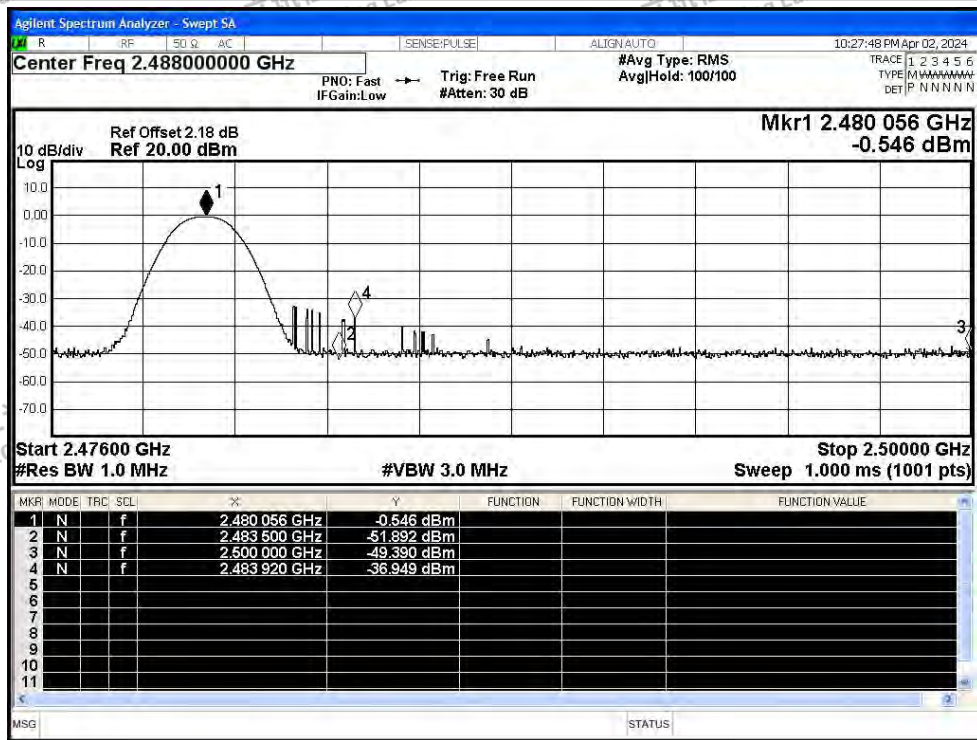


Restrict Band NVNT 1-DH5 2402MHz Ant1 No-Hopping Average

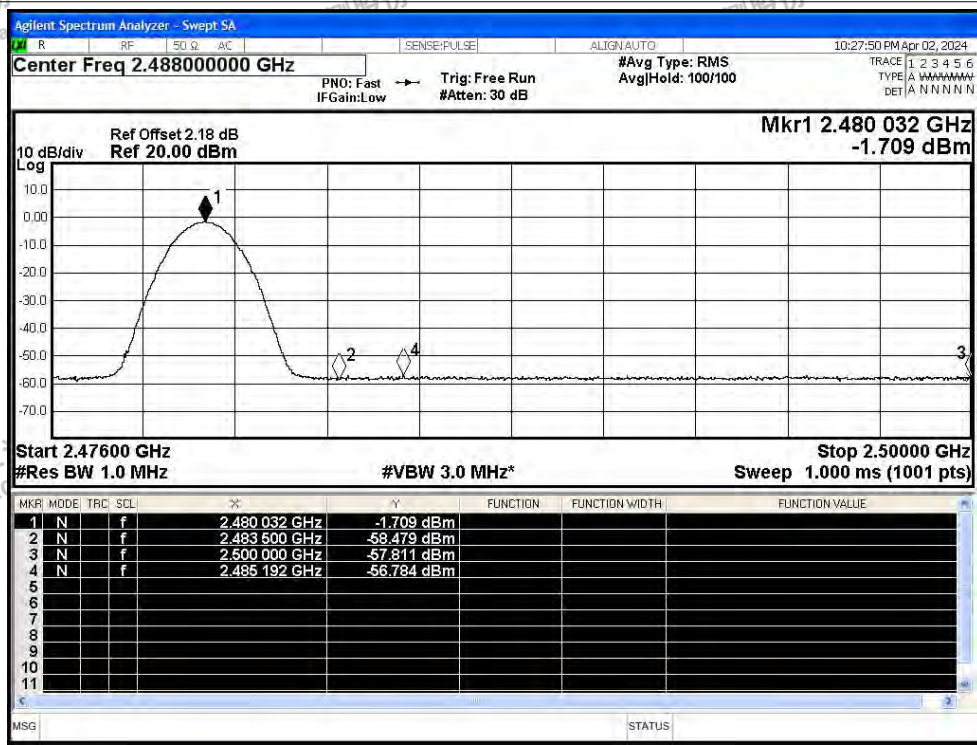




Restrict Band NVNT 1-DH5 2480MHz Ant1 No-Hopping Peak

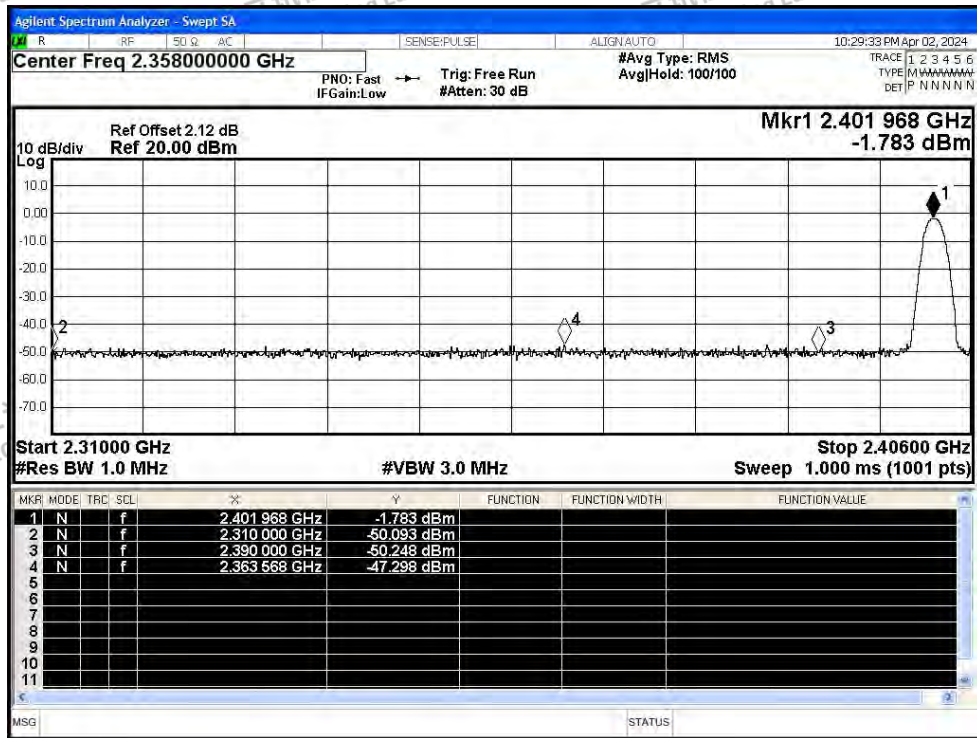


Restrict Band NVNT 1-DH5 2480MHz Ant1 No-Hopping Average

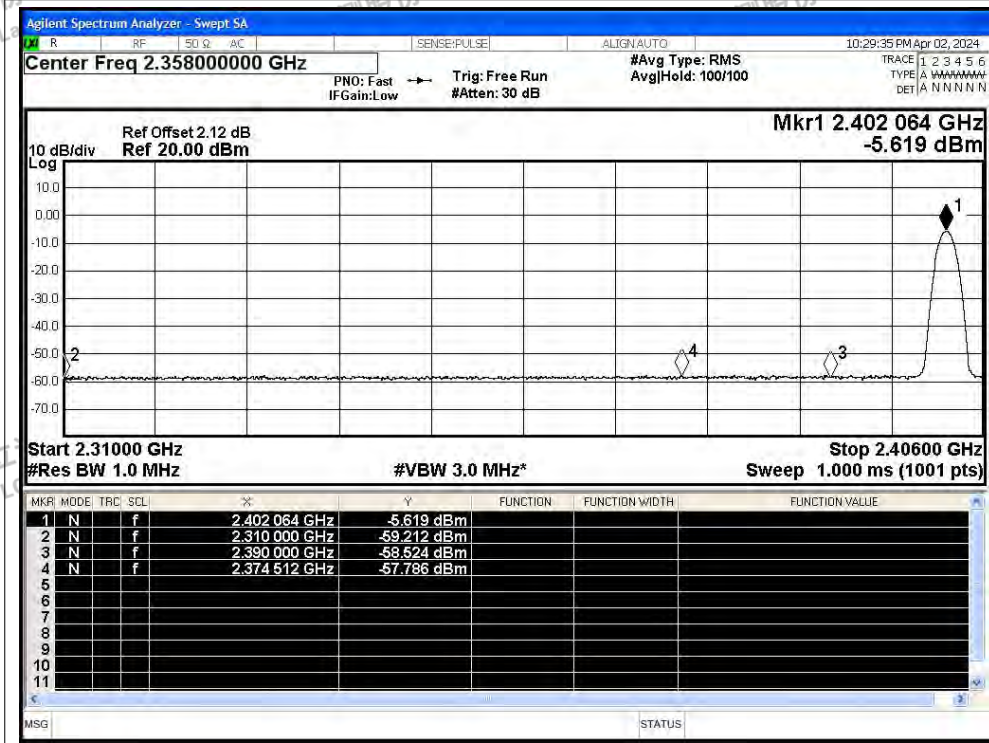




Restrict Band NVNT 2-DH5 2402MHz Ant1 No-Hopping Peak

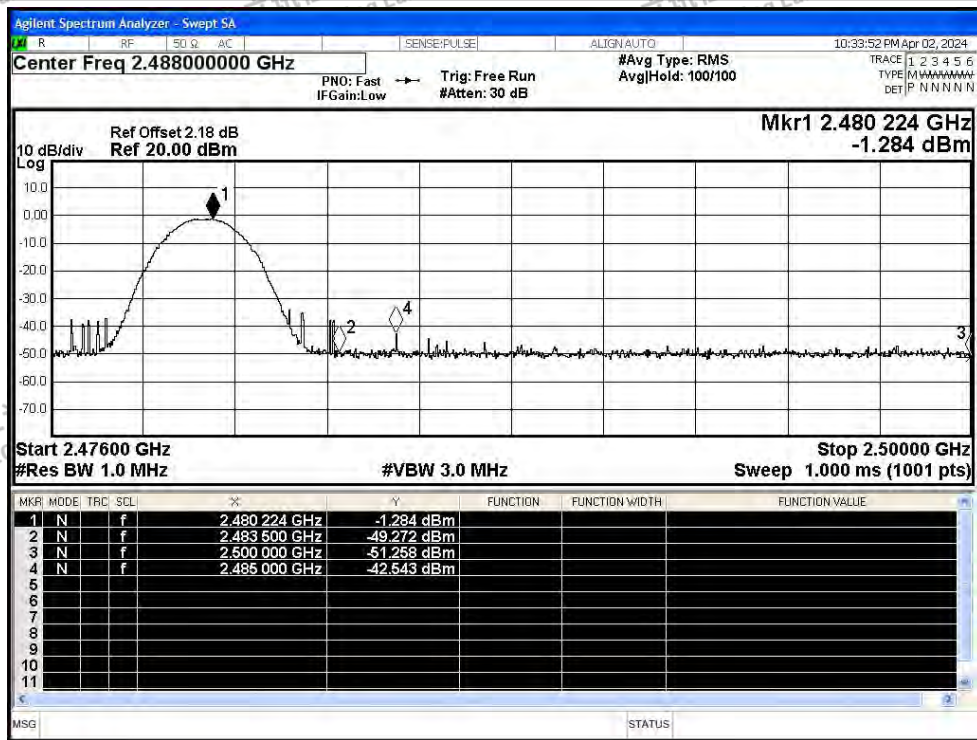


Restrict Band NVNT 2-DH5 2402MHz Ant1 No-Hopping Average

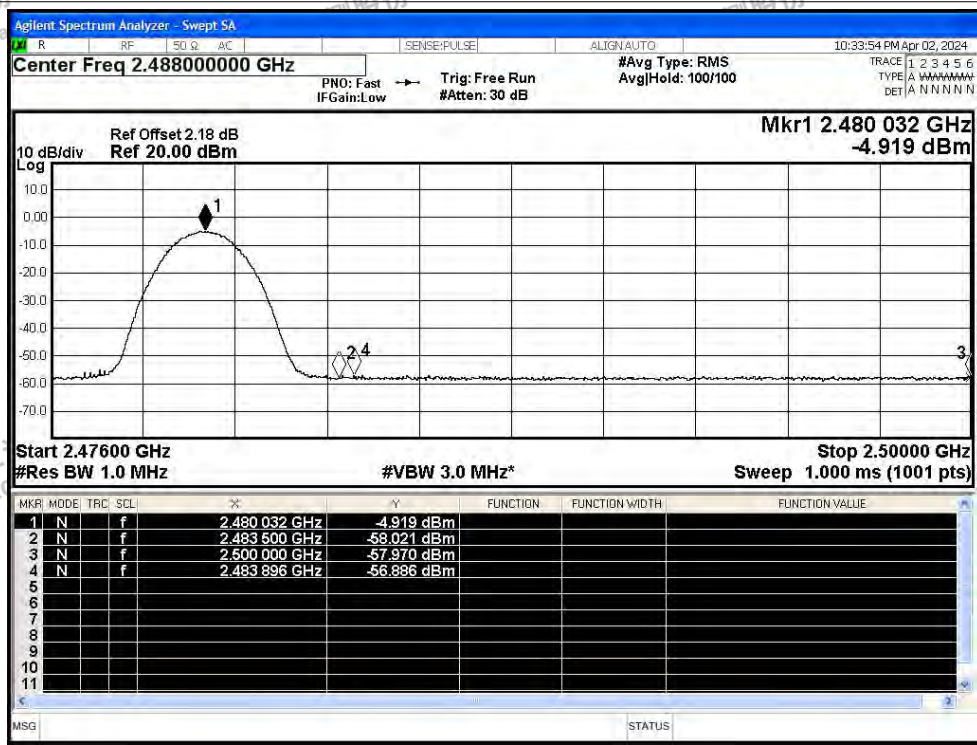




Restrict Band NVNT 2-DH5 2480MHz Ant1 No-Hopping Peak

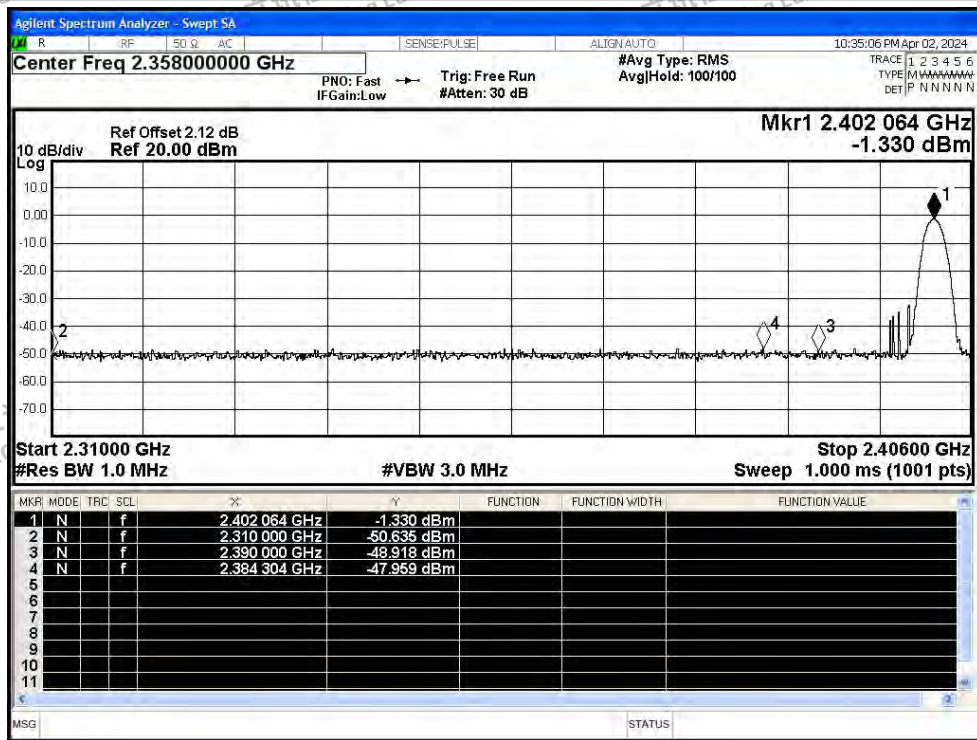


Restrict Band NVNT 2-DH5 2480MHz Ant1 No-Hopping Average

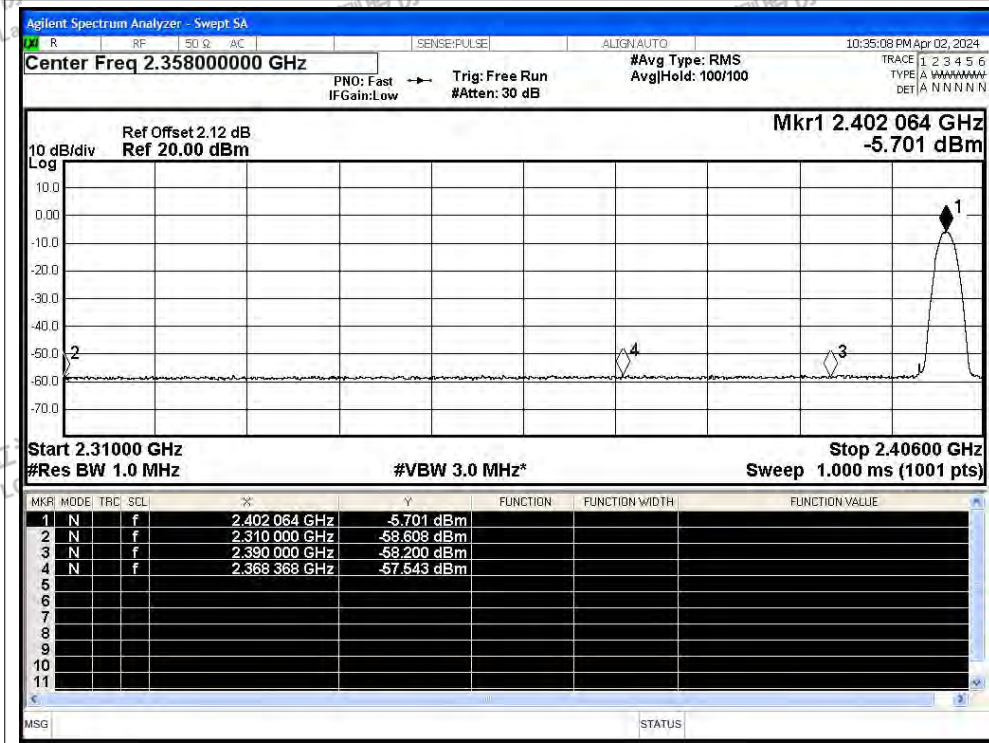




Restrict Band NVNT 3-DH5 2402MHz Ant1 No-Hopping Peak

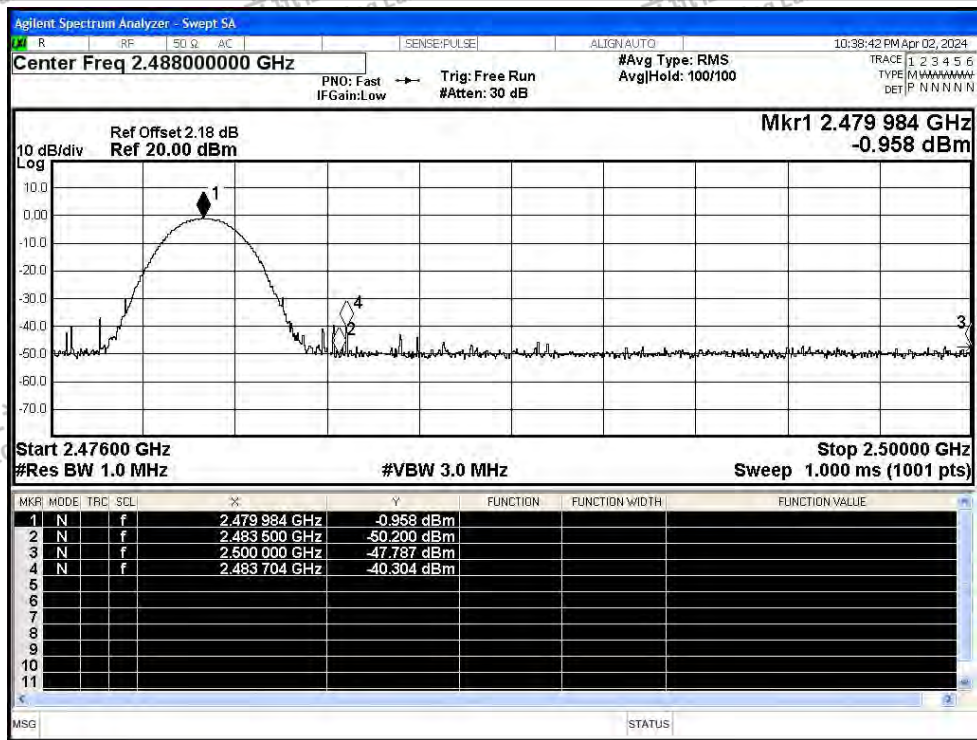


Restrict Band NVNT 3-DH5 2402MHz Ant1 No-Hopping Average





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



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

