



Appendix A

RF Test Data for BT (Conducted Measurement)

Product Name: Hyundai Mini PC

Test Model: HTN4020MPC

Environmental Conditions

Temperature:	23.8° C
Relative Humidity:	52.2%
ATM Pressure:	100.0 kPa
Test Engineer:	Nick Peng
Supervised by:	Li Huan





A.1 -20dB Bandwidth

Condition	Mode	Frequency (MHz)	Antenna	-20 dB Bandwidth (MHz)	Limit -20 dB Bandwidth (MHz)	Verdict
NVNT	1-DH5	2402	Ant1	1.031	N/A	Pass
NVNT	1-DH5	2441	Ant1	1.013	N/A	Pass
NVNT	1-DH5	2480	Ant1	1.028	N/A	Pass
NVNT	2-DH5	2402	Ant1	1.279	N/A	Pass
NVNT	2-DH5	2441	Ant1	1.288	N/A	Pass
NVNT	2-DH5	2480	Ant1	1.277	N/A	Pass
NVNT	3-DH5	2402	Ant1	1.268	N/A	Pass
NVNT	3-DH5	2441	Ant1	1.299	N/A	Pass
NVNT	3-DH5	2480	Ant1	1.296	N/A	Pass



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Test Graphs

-20dB Bandwidth NVNT 1-DH5 2402MHz Ant1

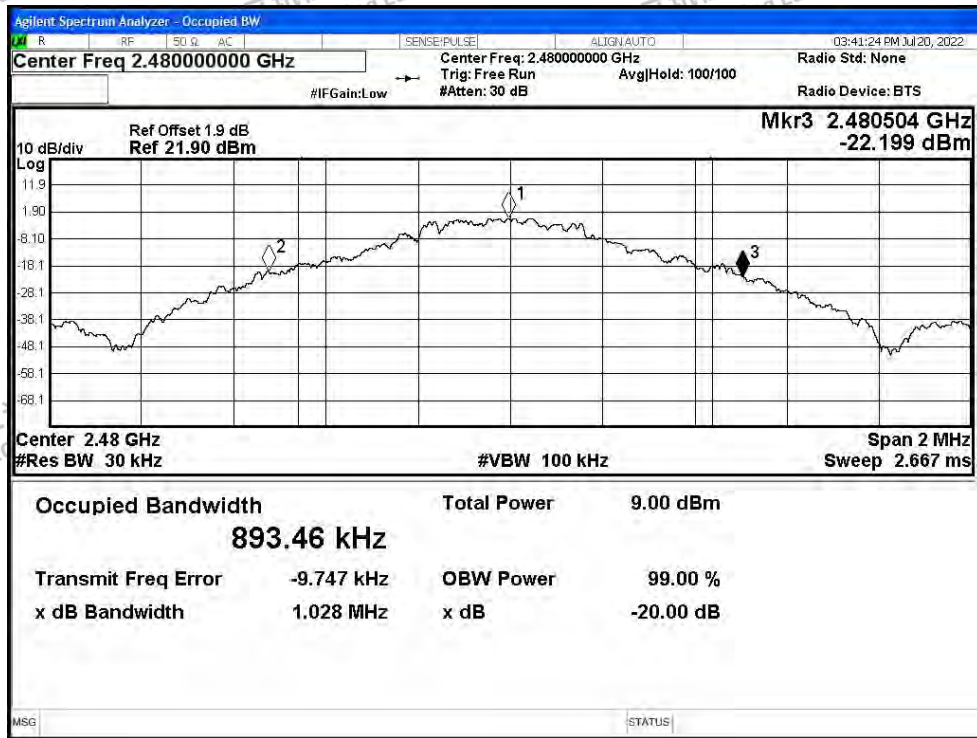


-20dB Bandwidth NVNT 1-DH5 2441MHz Ant1

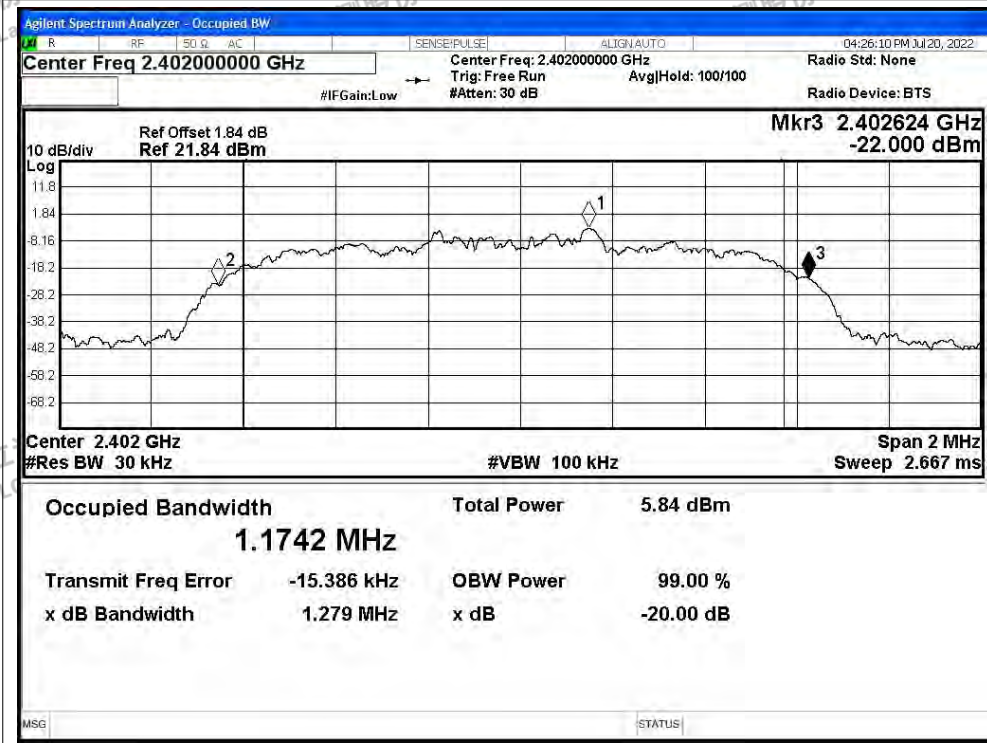




-20dB Bandwidth NVNT 1-DH5 2480MHz Ant1

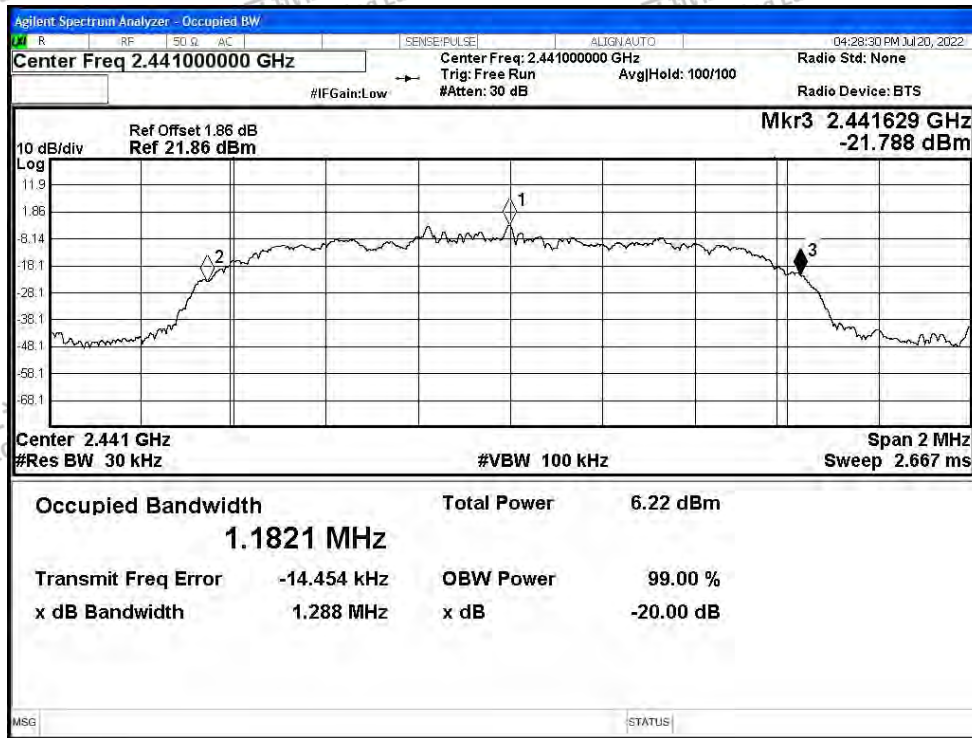


-20dB Bandwidth NVNT 2-DH5 2402MHz Ant1

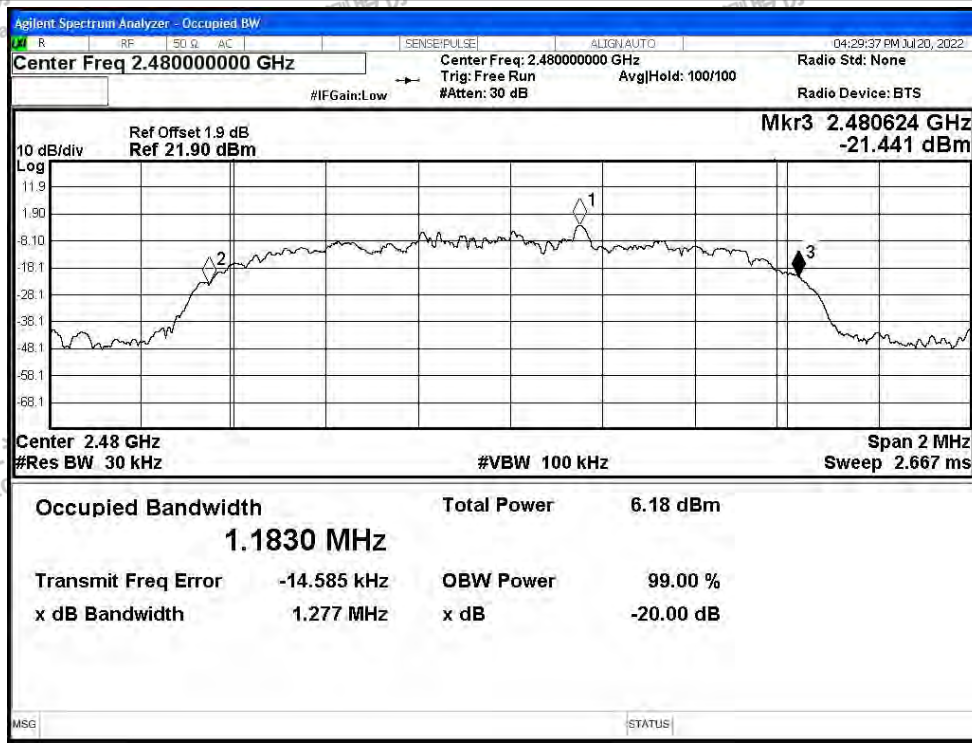




-20dB Bandwidth NVNT 2-DH5 2441MHz Ant1

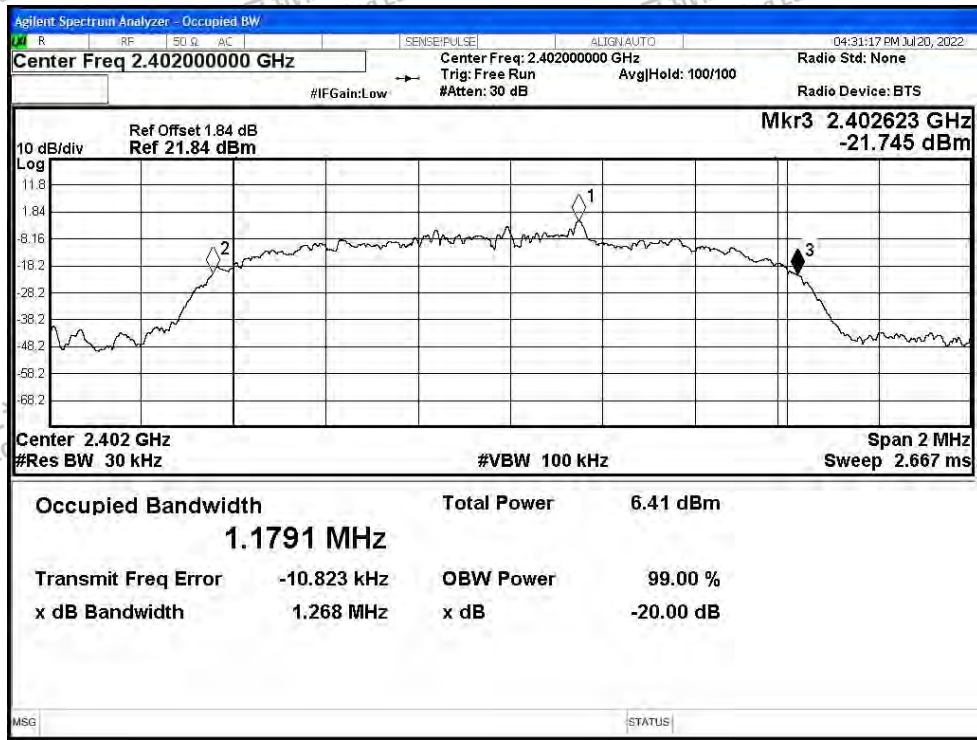


-20dB Bandwidth NVNT 2-DH5 2480MHz Ant1

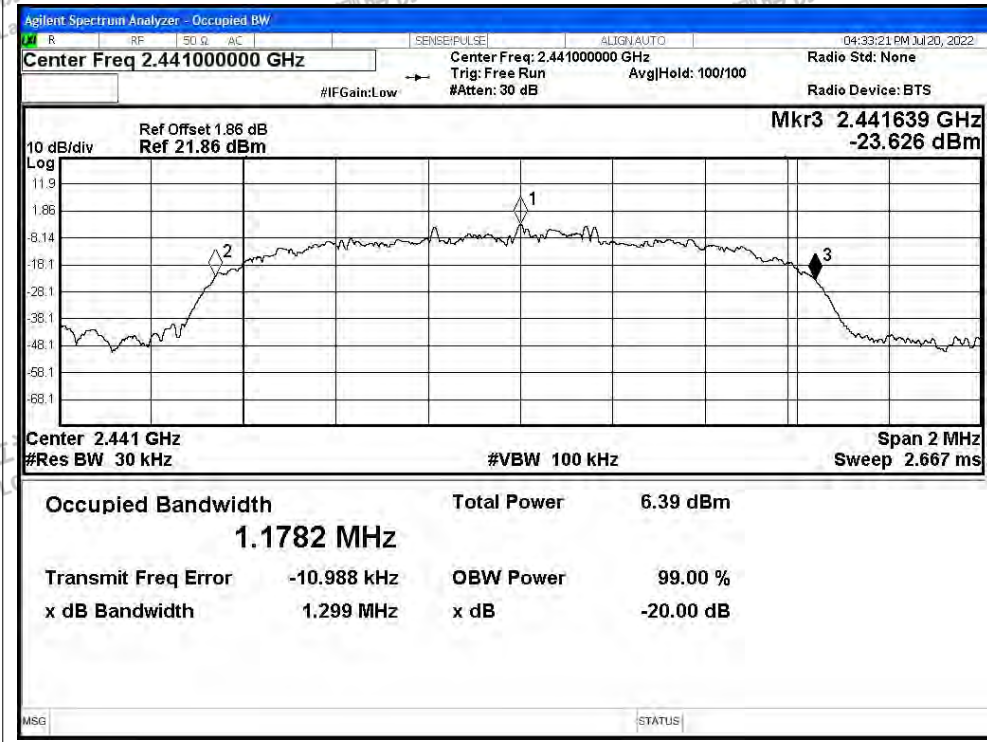




-20dB Bandwidth NVNT 3-DH5 2402MHz Ant1

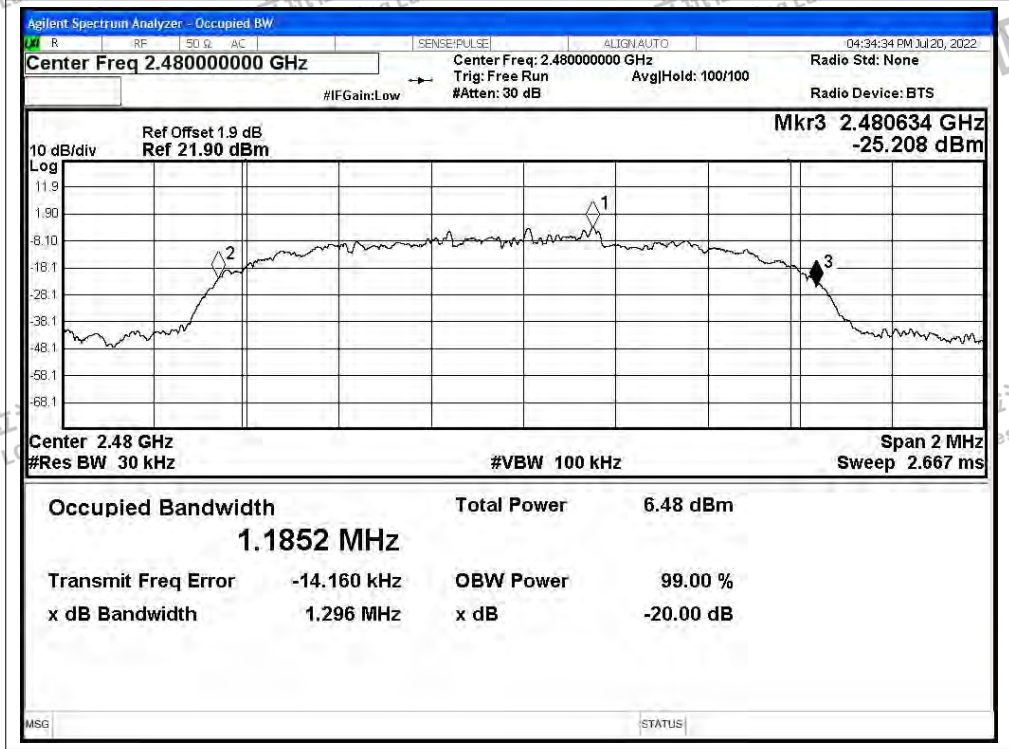


-20dB Bandwidth NVNT 3-DH5 2441MHz Ant1





-20dB Bandwidth NVNT 3-DH5 2480MHz Ant1





A.2 Maximum Conducted Output Power

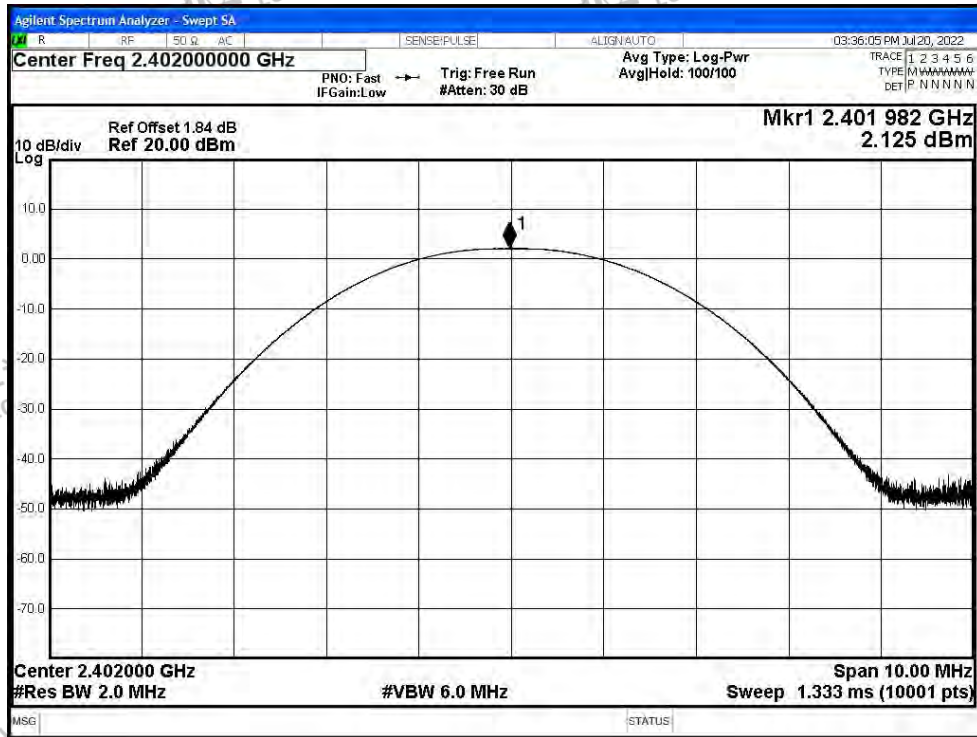
Condition	Mode	Frequency (MHz)	Antenna	Conducted Power (dBm)	Duty Factor (dB)	Total Power (dBm)	Limit (dBm)	Verdict
NVNT	1-DH5	2402	Ant1	2.13	0	2.13	21	Pass
NVNT	1-DH5	2441	Ant1	2.46	0	2.46	21	Pass
NVNT	1-DH5	2480	Ant1	2.54	0	2.54	21	Pass
NVNT	2-DH5	2402	Ant1	1.74	0	1.74	21	Pass
NVNT	2-DH5	2441	Ant1	1.84	0	1.84	21	Pass
NVNT	2-DH5	2480	Ant1	1.55	0	1.55	21	Pass
NVNT	3-DH5	2402	Ant1	1.77	0	1.77	21	Pass
NVNT	3-DH5	2441	Ant1	2.39	0	2.39	21	Pass
NVNT	3-DH5	2480	Ant1	2.07	0	2.07	21	Pass



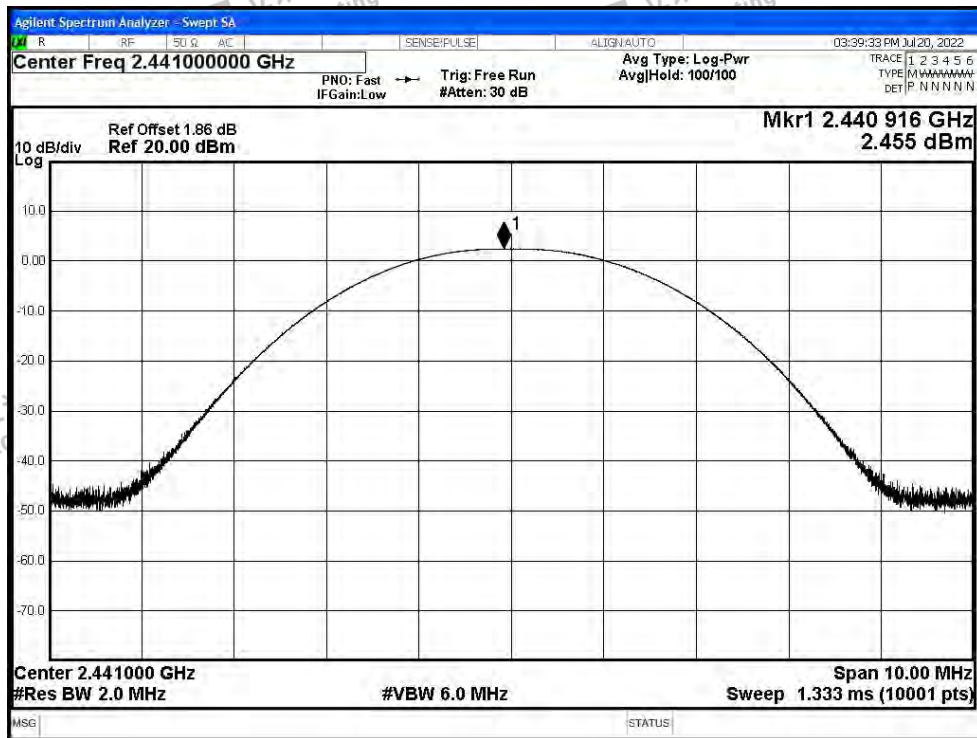


Test Graphs

Power NVNT 1-DH5 2402MHz Ant1

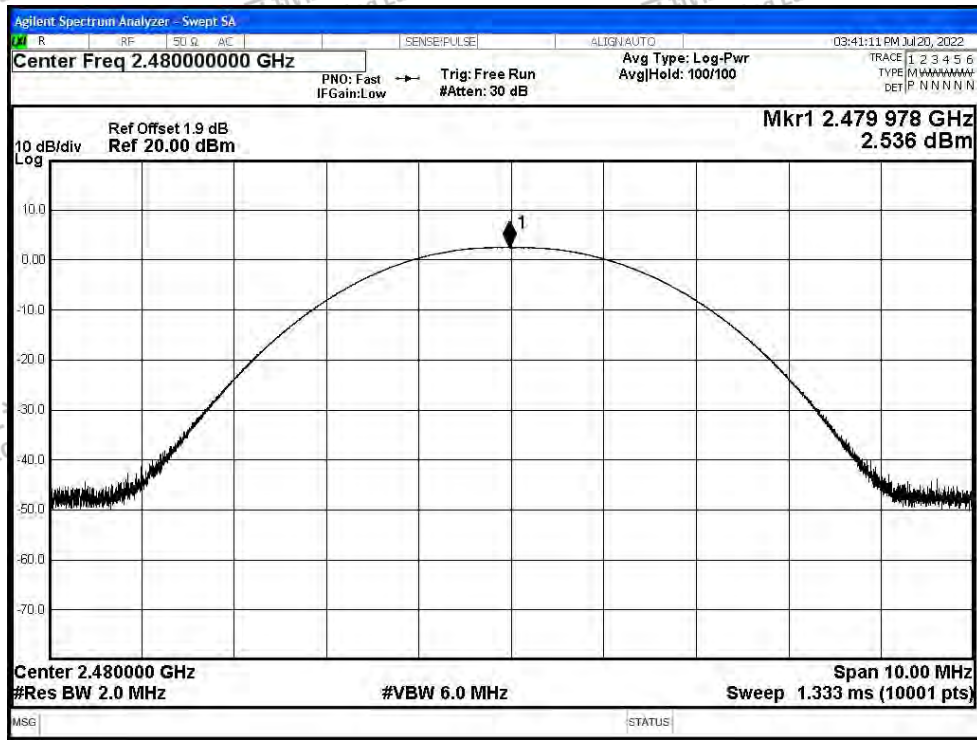


Power NVNT 1-DH5 2441MHz Ant1

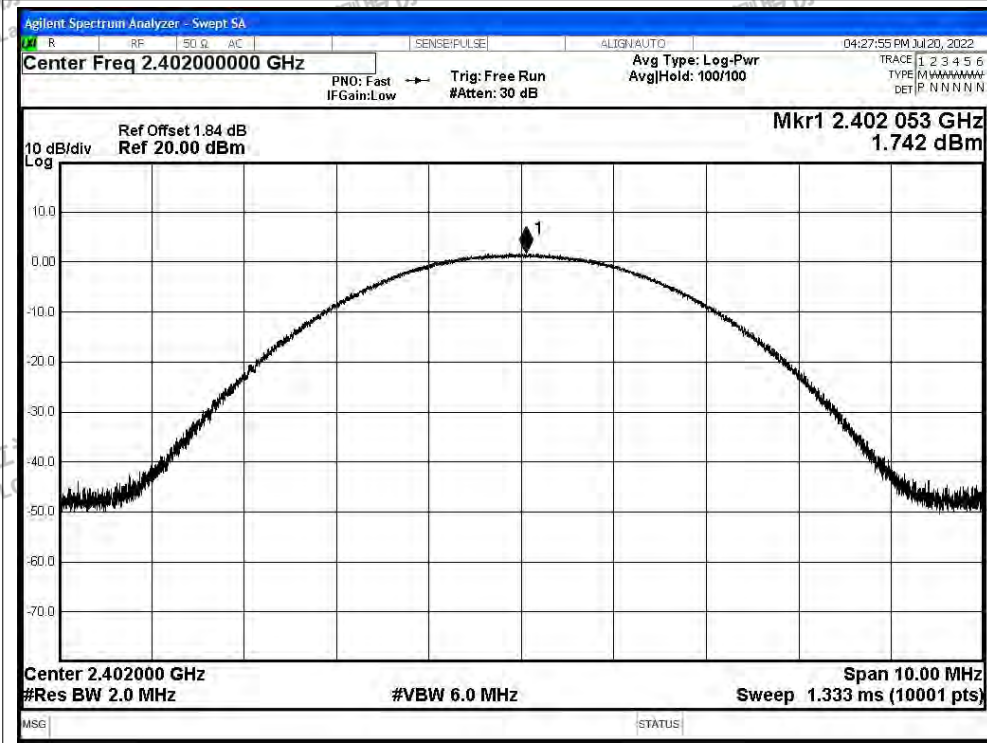




Power NVNT 1-DH5 2480MHz Ant1

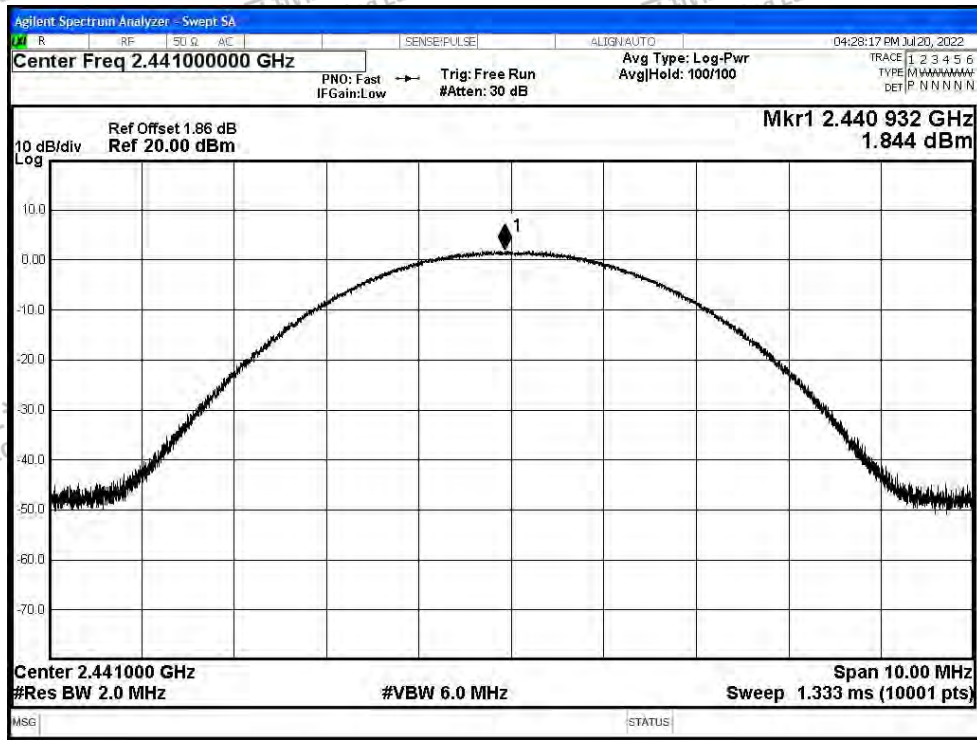


Power NVNT 2-DH5 2402MHz Ant1

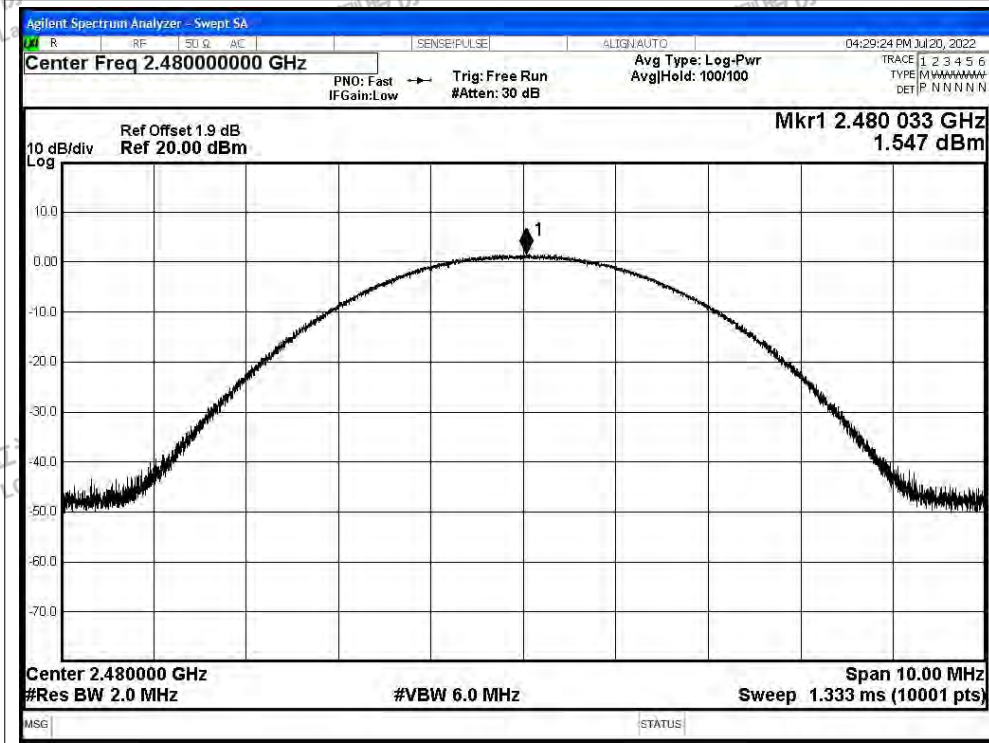




Power NVNT 2-DH5 2441MHz Ant1

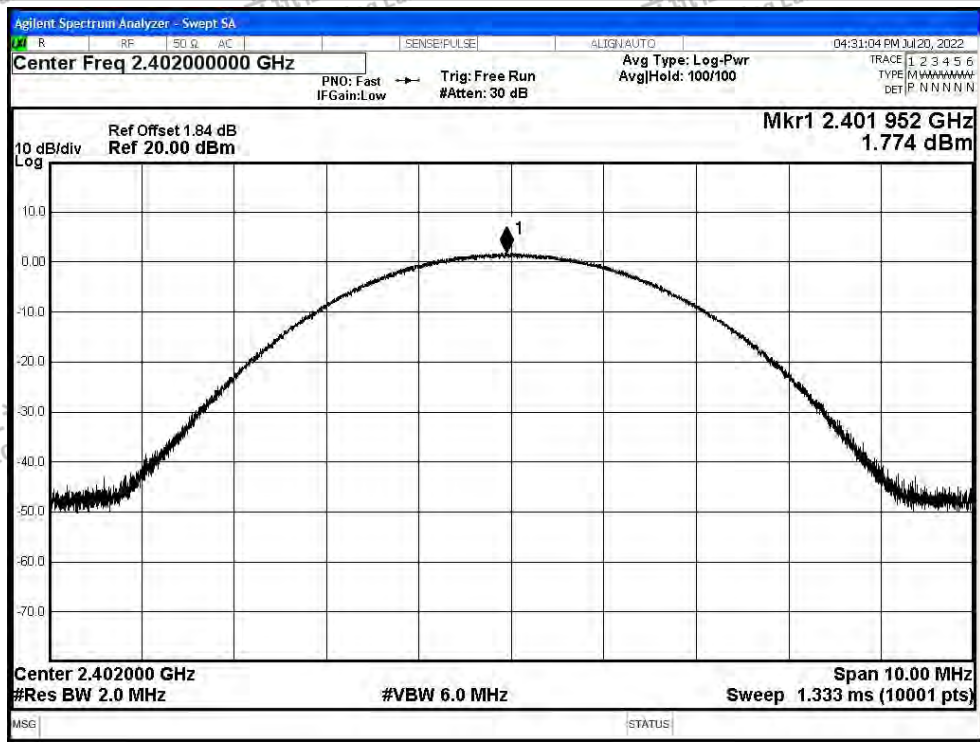


Power NVNT 2-DH5 2480MHz Ant1

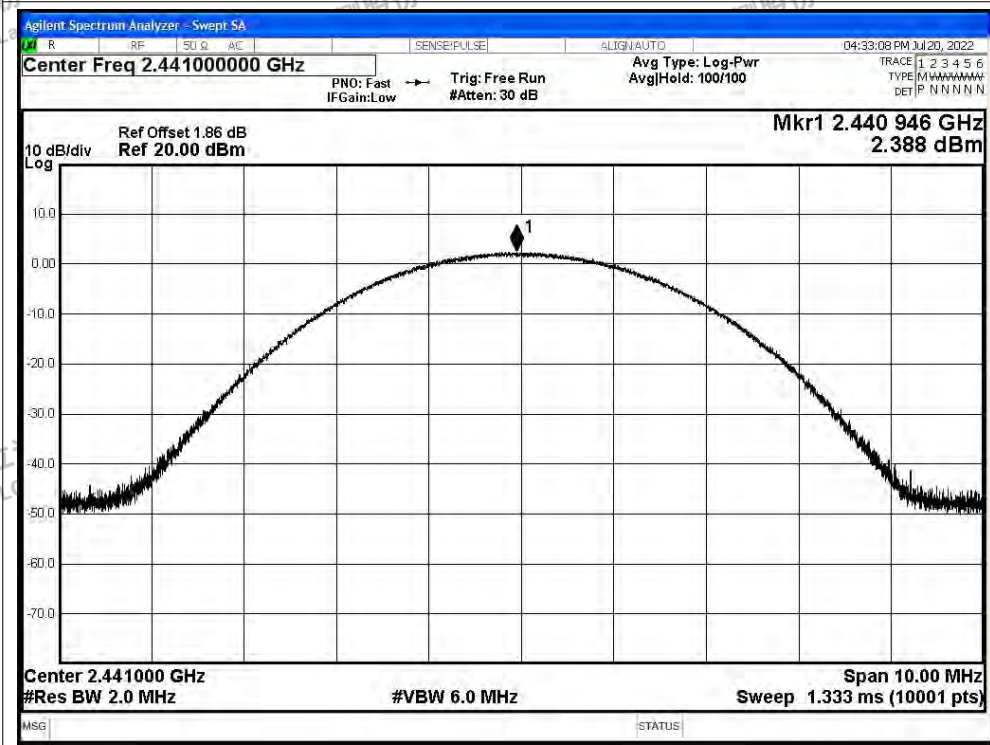




Power NVNT 3-DH5 2402MHz Ant1

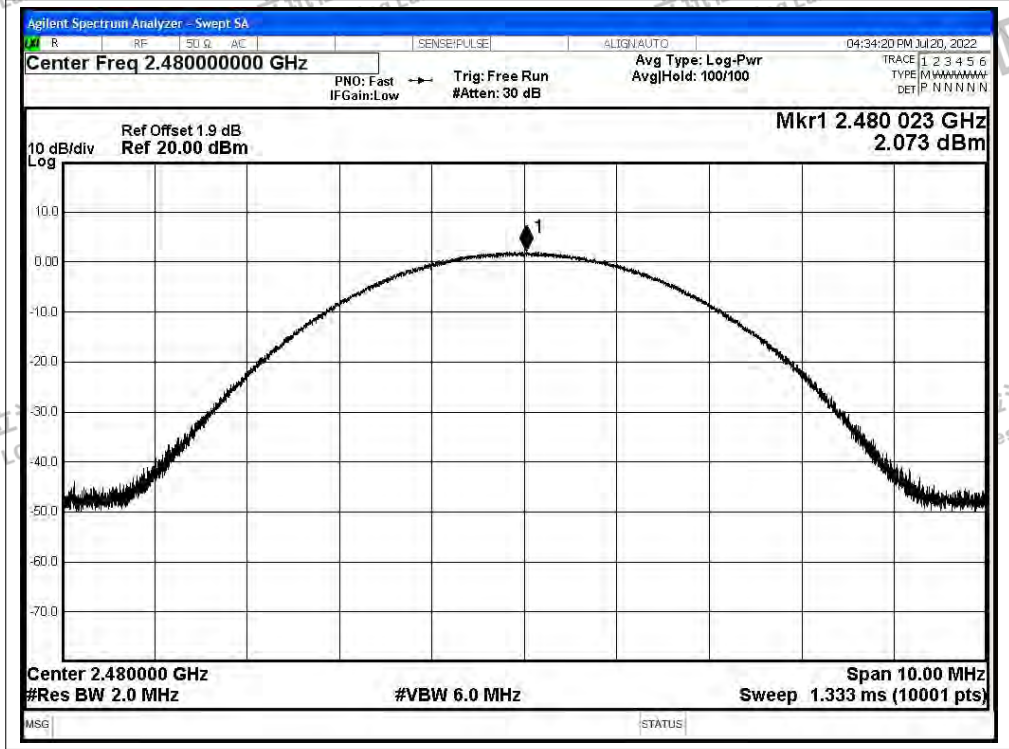


Power NVNT 3-DH5 2441MHz Ant1





Power NVNT 3-DH5 2480MHz Ant1



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A.3 Carrier Frequencies Separation

Condition	Mode	Antenna	Hopping Freq1 (MHz)	Hopping Freq2 (MHz)	HFS (MHz)	Limit (MHz)	Verdict
NVNT	1-DH5	Ant1	2401.968	2402.988	1.02	0.687	Pass
NVNT	2-DH5	Ant1	2402.146	2403.152	1.006	0.853	Pass
NVNT	3-DH5	Ant1	2401.814	2403.006	1.192	0.845	Pass



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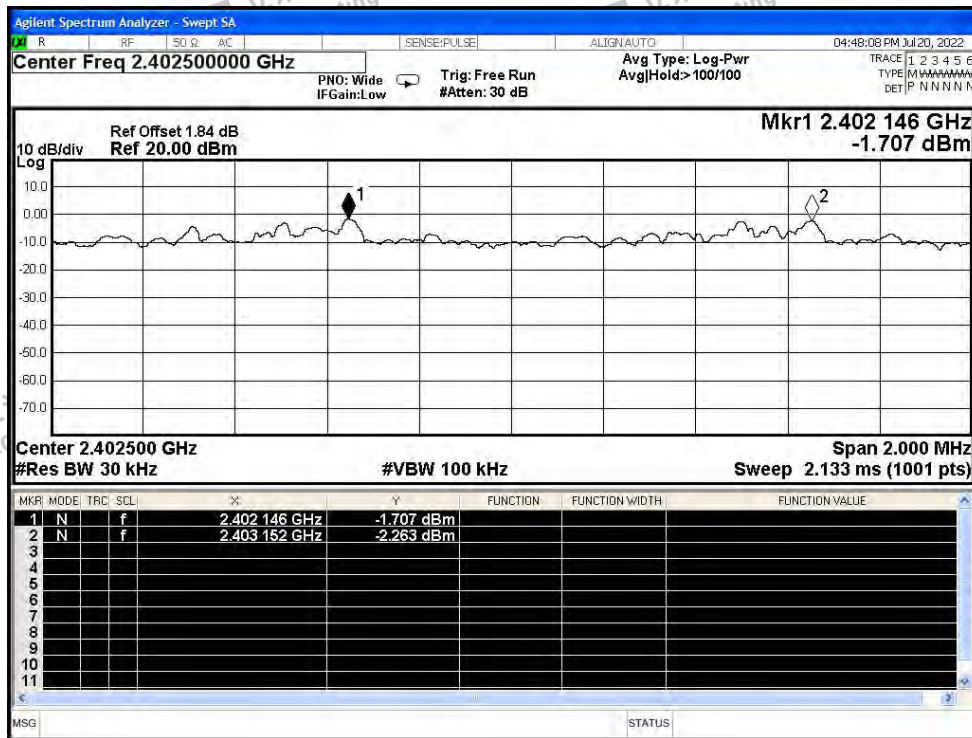


Test Graphs

CFS NVNT 1-DH5 2402MHz Ant1

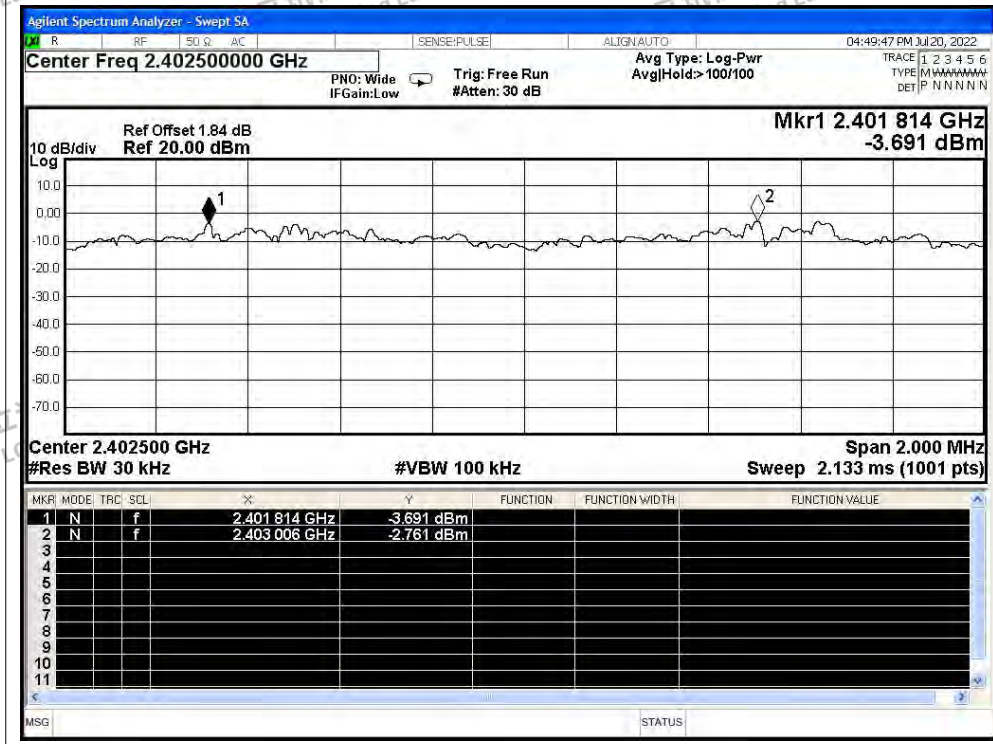


CFS NVNT 2-DH5 2402MHz Ant1





CFS NVNT 3-DH5 2402MHz Ant1





A.4 Dwell Time

Condition	Mode	Frequency (MHz)	Antenna	Pulse Time (ms)	Total Dwell Time (ms)	Burst Count	Period Time (ms)	Limit (ms)	Verdict
NVNT	1-DH5	2402	Ant1	2.882	285.318	99	31600	400	Pass
NVNT	2-DH5	2402	Ant1	2.88	288	100	31600	400	Pass
NVNT	3-DH5	2402	Ant1	2.886	323.232	112	31600	400	Pass

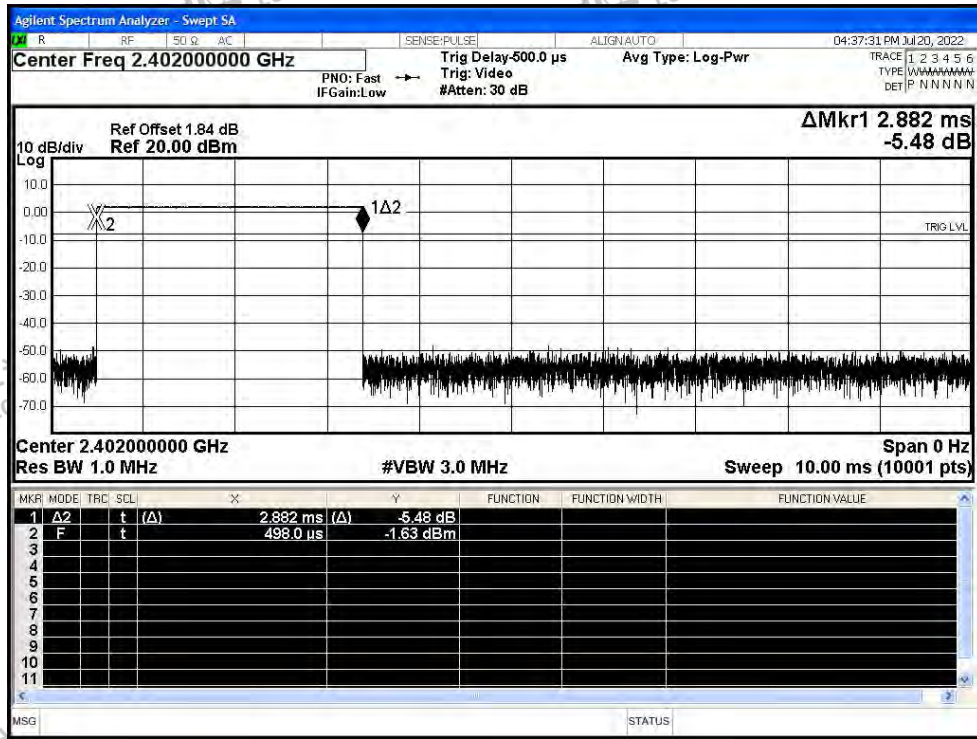


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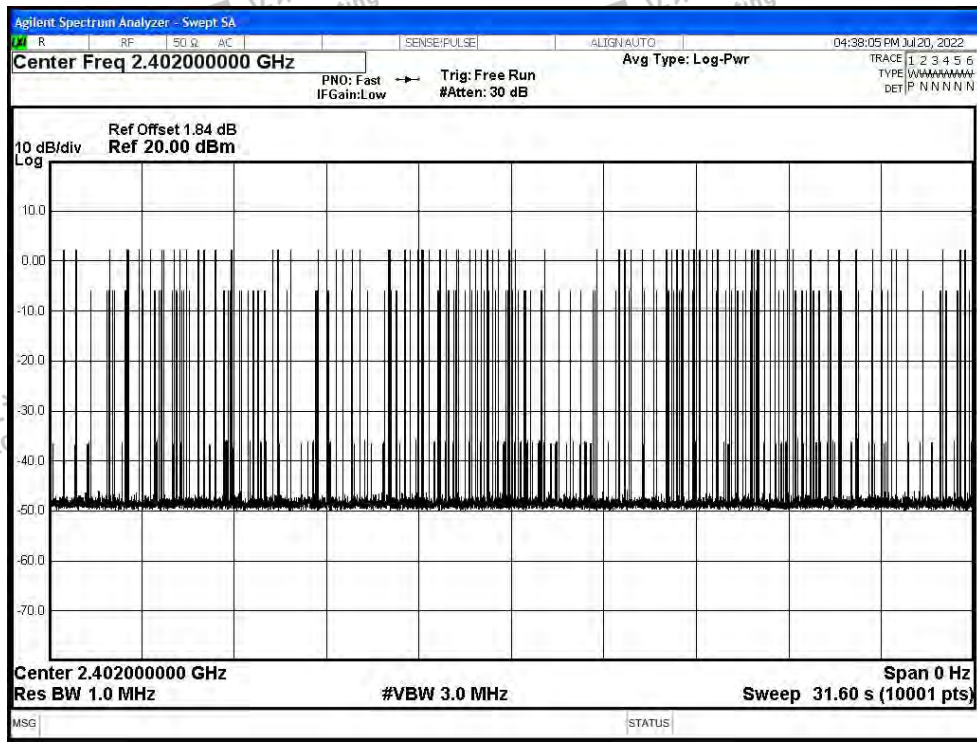


Test Graphs

Dwell-NVNT 1-DH5 2402MHz Ant1 One Burst

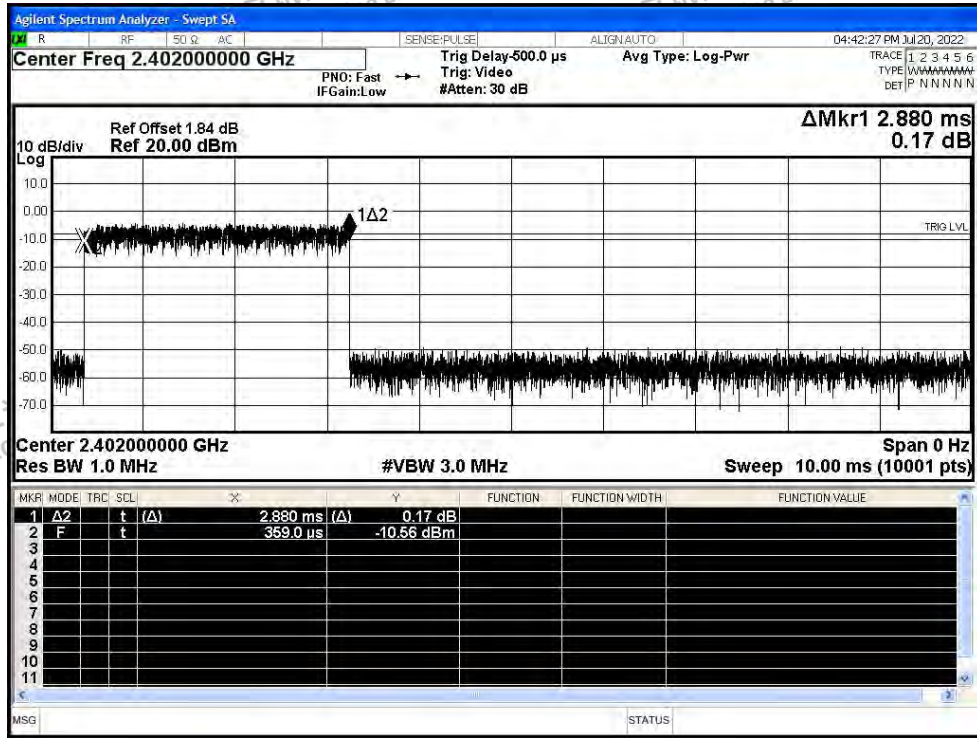


Dwell NVNT 1-DH5 2402MHz Ant1 Accumulated

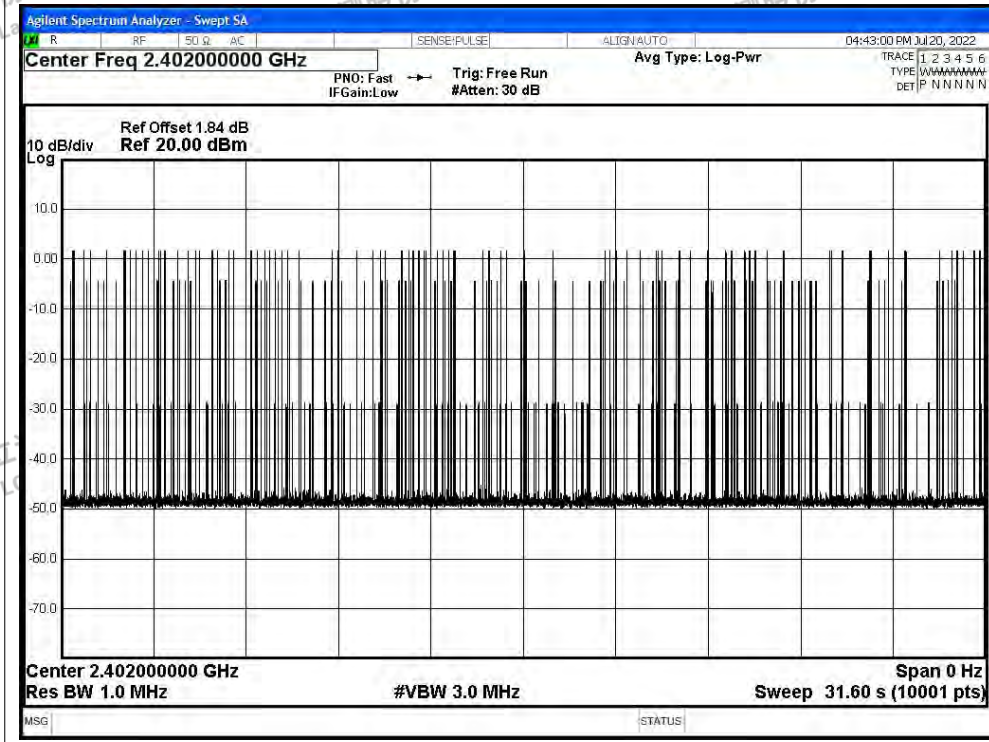




Dwell NVNT 2-DH5 2402MHz Ant1 One Burst

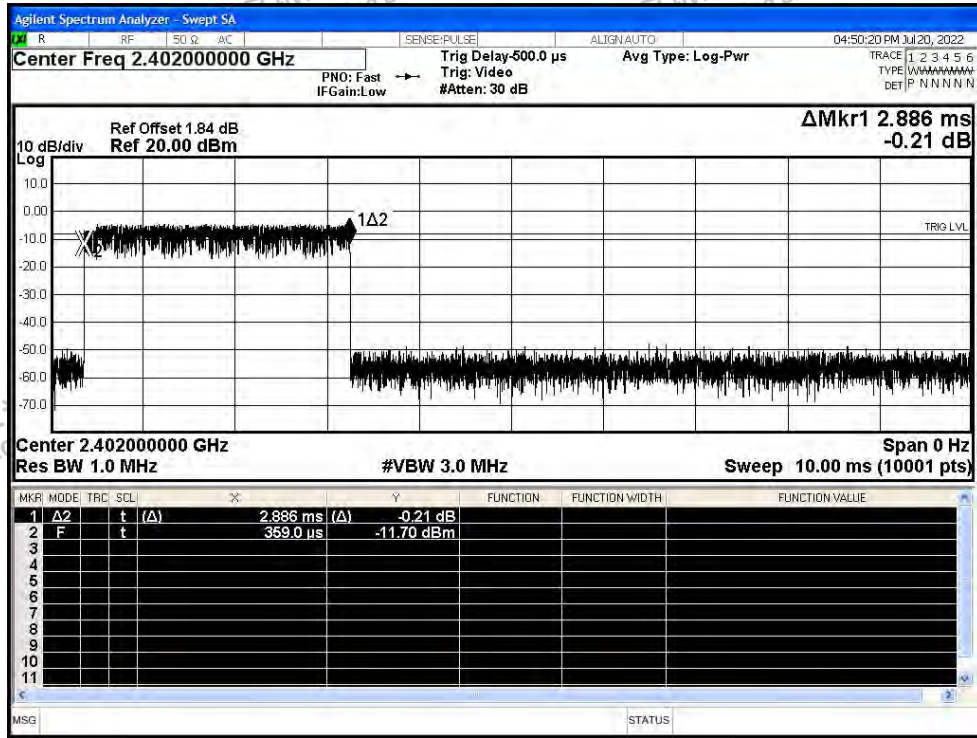


Dwell NVNT 2-DH5 2402MHz Ant1 Accumulated

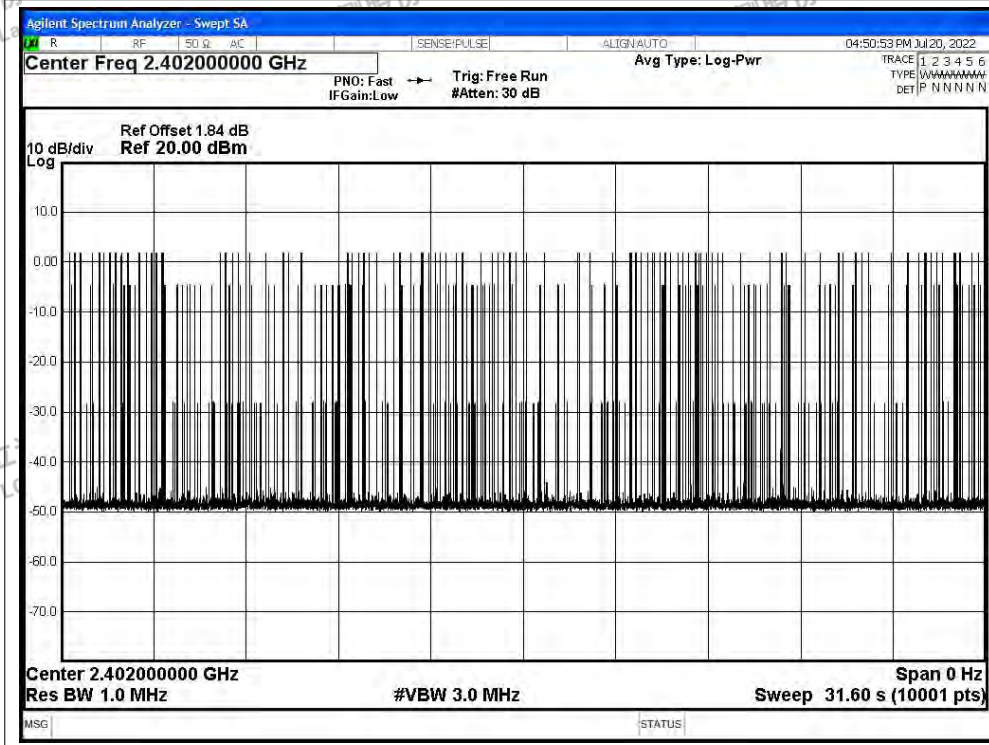




Dwell NVNT 3-DH5 2402MHz Ant1 One Burst



Dwell NVNT 3-DH5 2402MHz Ant1 Accumulated





A.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

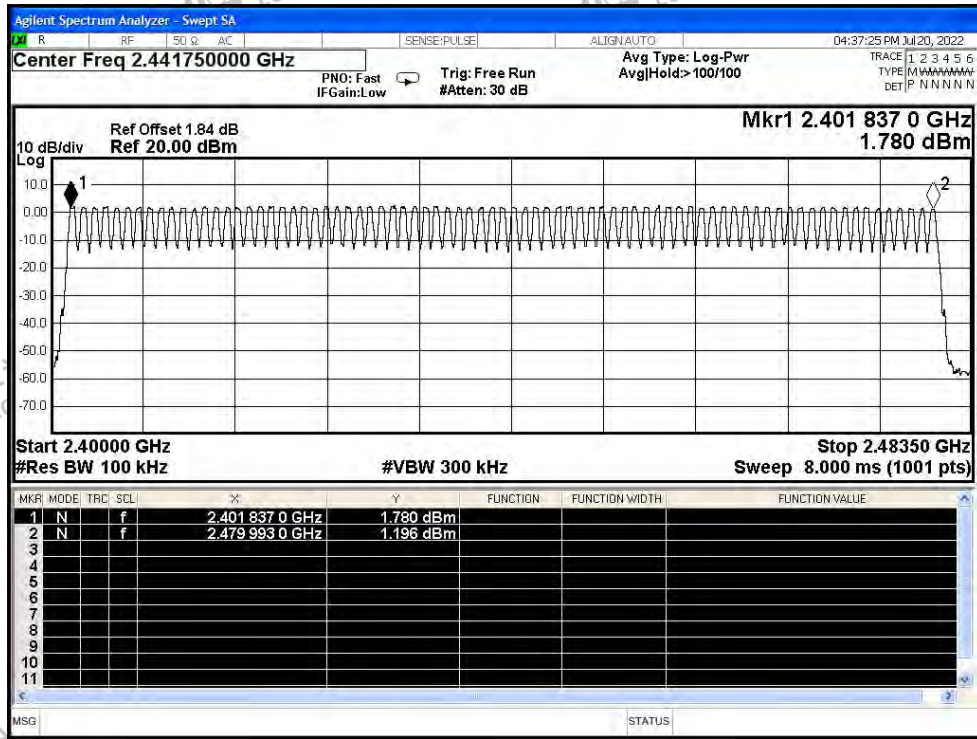


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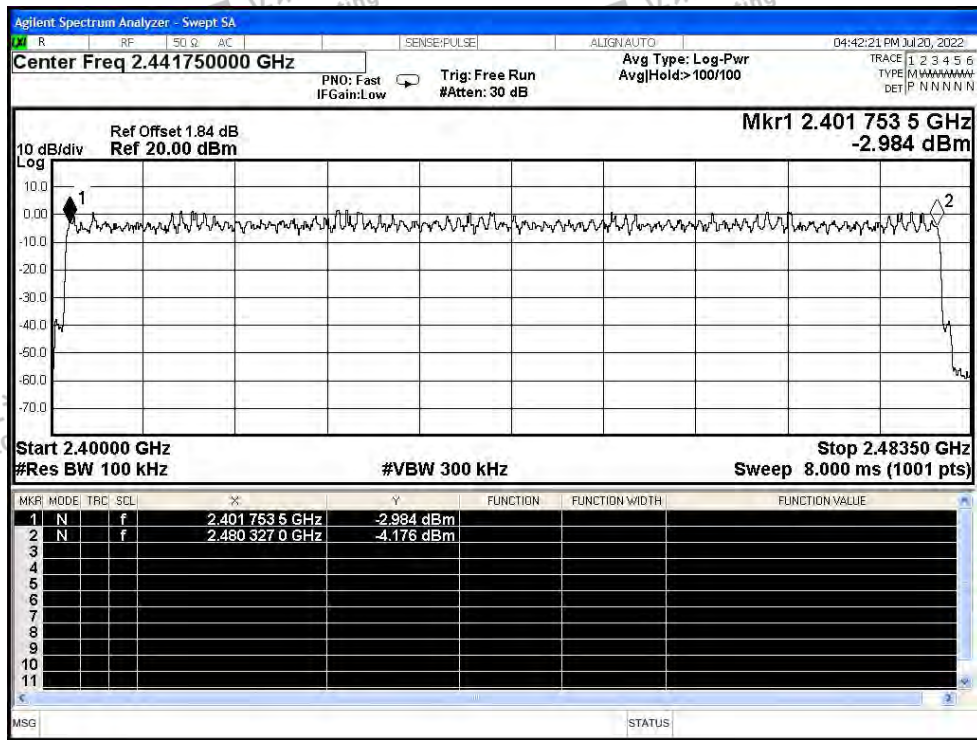


Test Graphs

Hopping No. NVNT 1-DH5 2402MHz Ant1

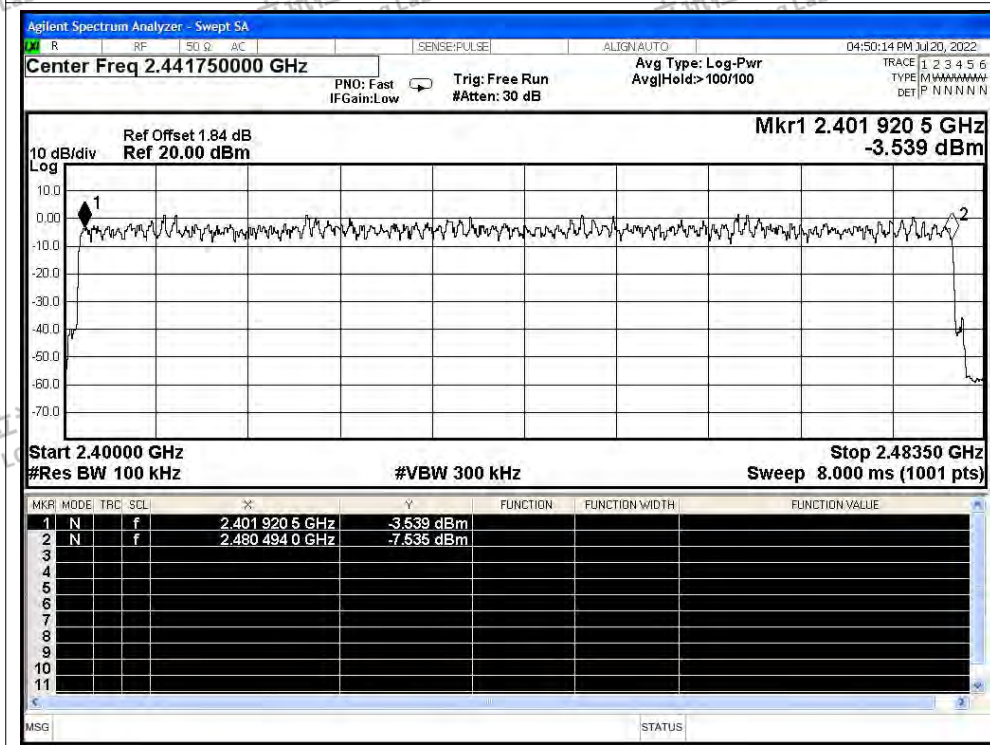


Hopping No. NVNT 2-DH5 2402MHz Ant1





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	-57.18	-20	Pass
NVNT	1-DH5	2480	Ant1	No-Hopping	-58.51	-20	Pass
NVNT	2-DH5	2402	Ant1	No-Hopping	-53.52	-20	Pass
NVNT	2-DH5	2480	Ant1	No-Hopping	-57.29	-20	Pass
NVNT	3-DH5	2402	Ant1	No-Hopping	-54.69	-20	Pass
NVNT	3-DH5	2480	Ant1	No-Hopping	-57.77	-20	Pass

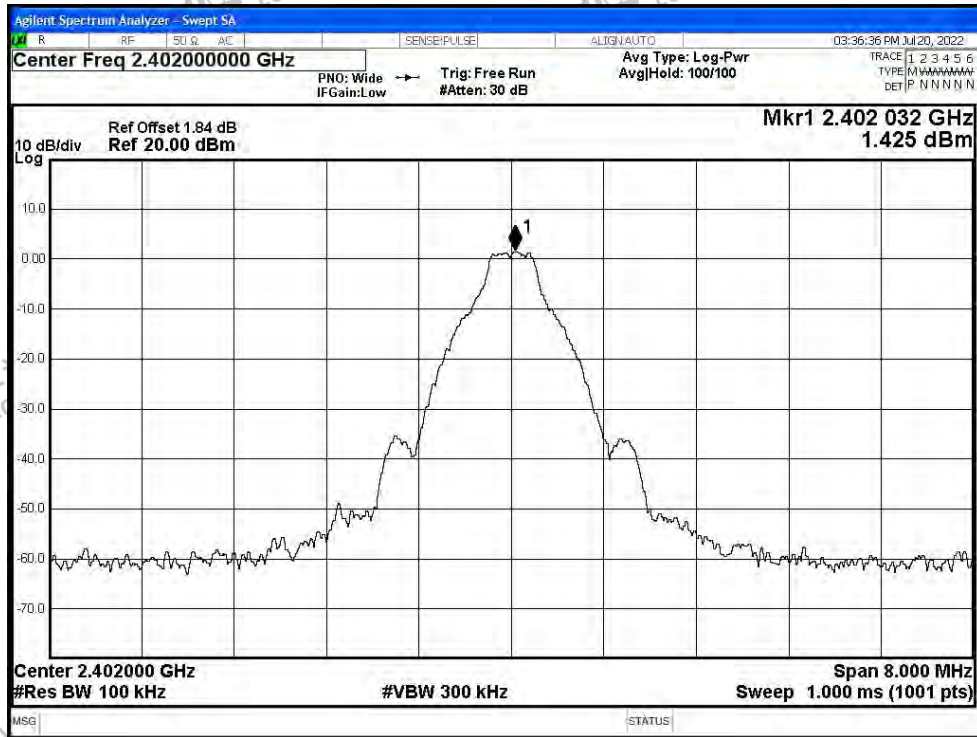


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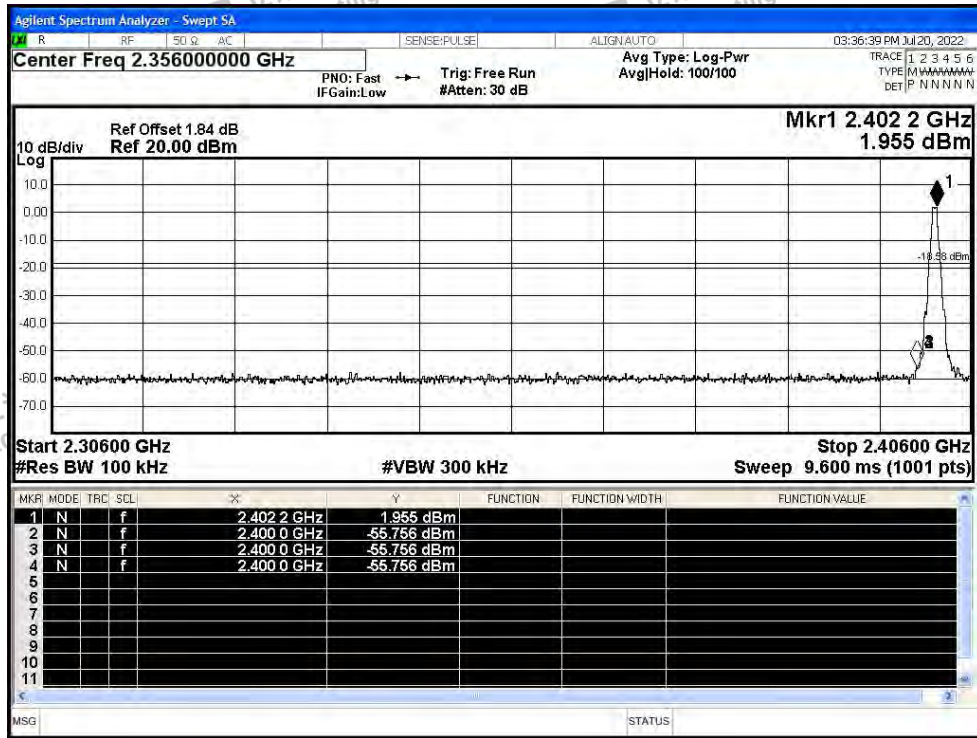


Test Graphs

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

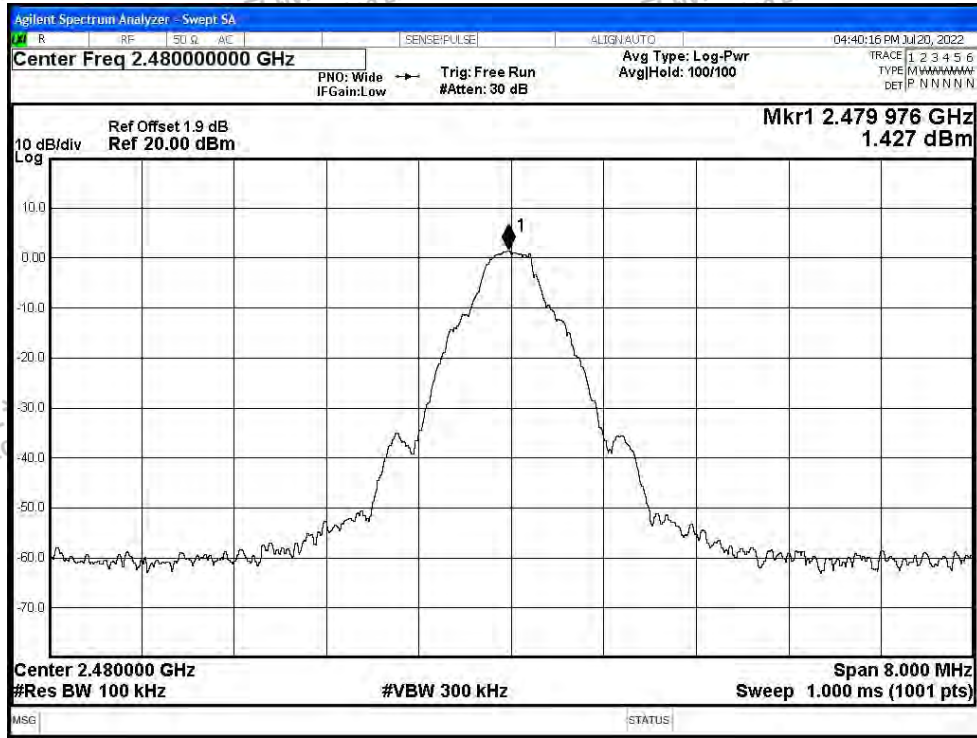


Band Edge NVNT 1-DH5 2402MHz Ant1 No-Hopping Emission

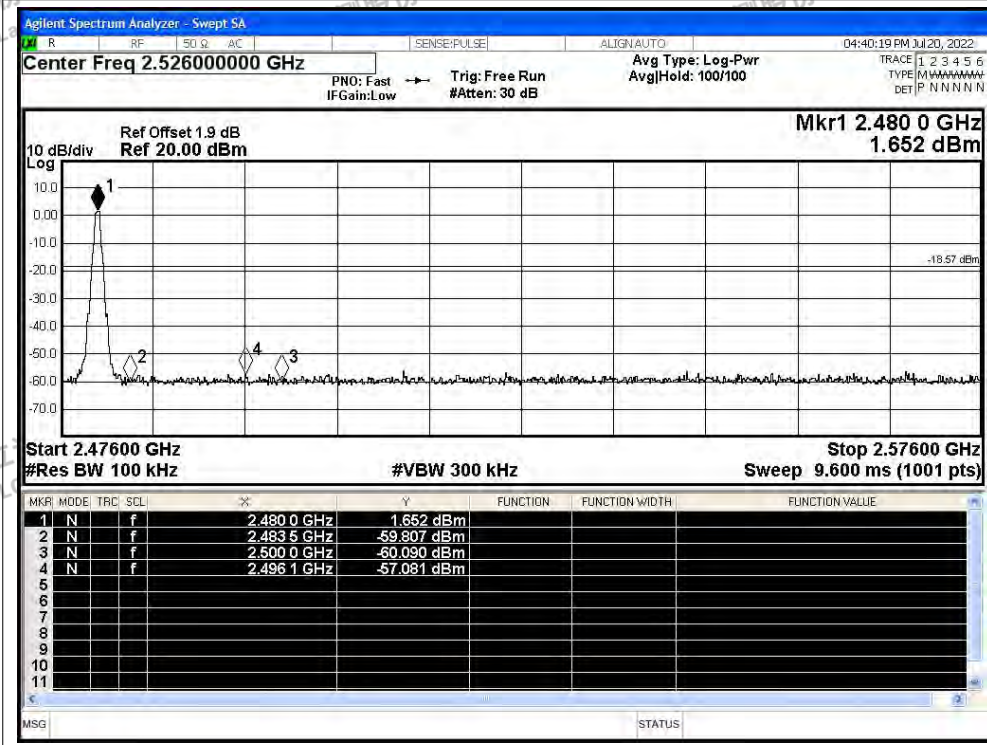




Band Edge NVNT 1-DH5 2480MHz Ant1 No-Hopping Ref

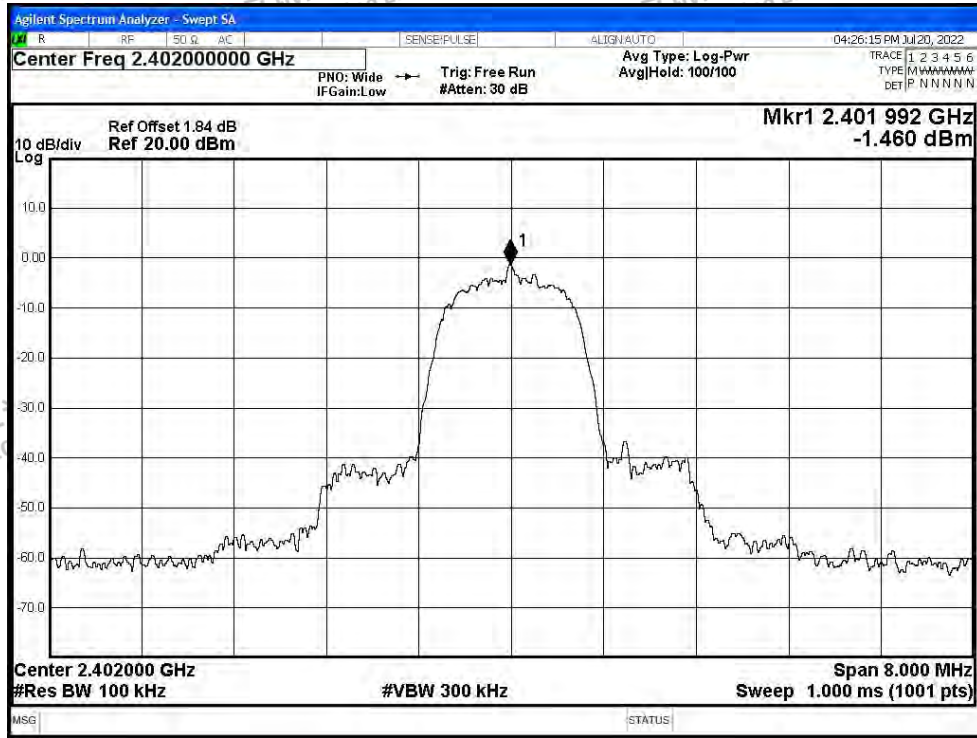


Band Edge NVNT 1-DH5 2480MHz Ant1 No-Hopping Emission

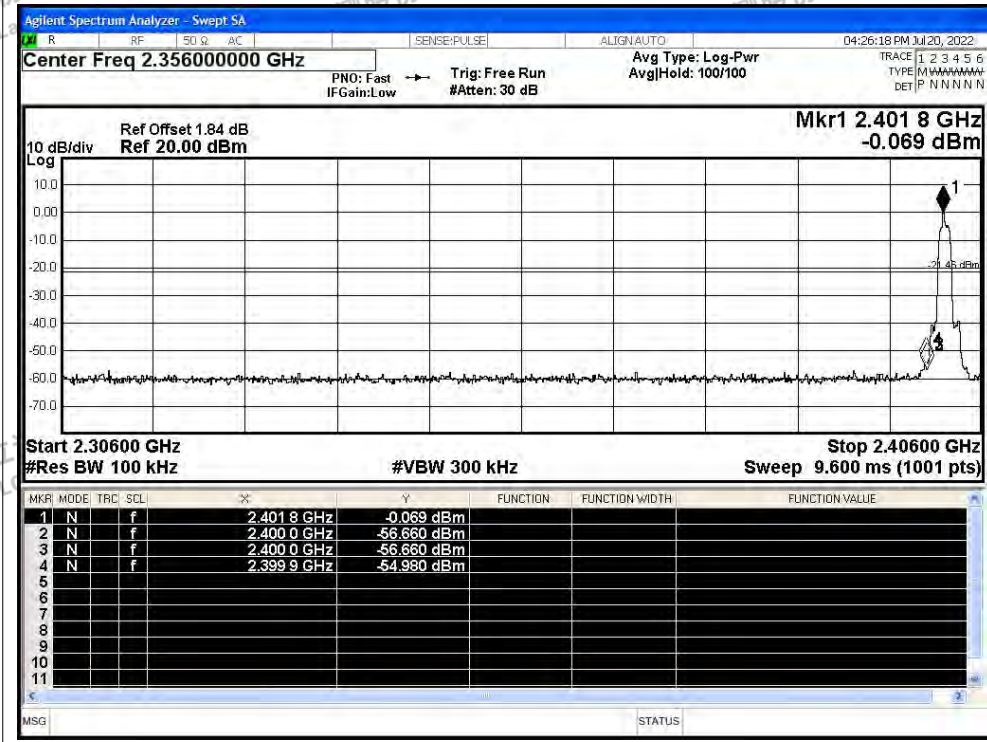




Band Edge NVNT 2-DH5 2402MHz Ant1 No-Hopping Ref

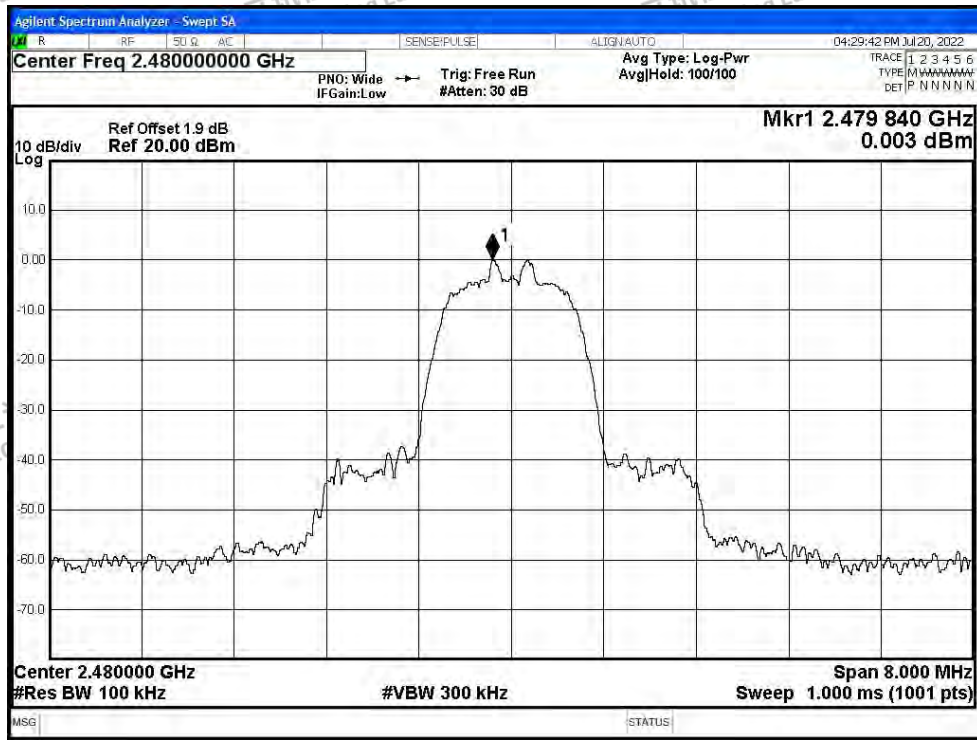


Band Edge NVNT 2-DH5 2402MHz Ant1 No-Hopping Emission

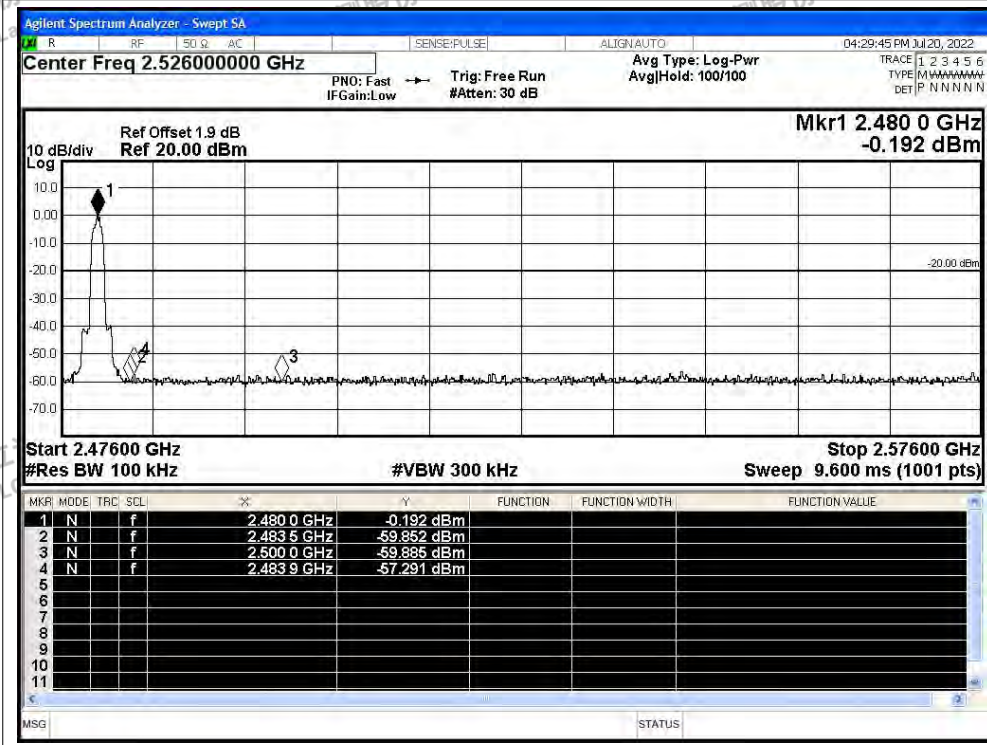




Band Edge NVNT 2-DH5 2480MHz Ant1 No-Hopping Ref

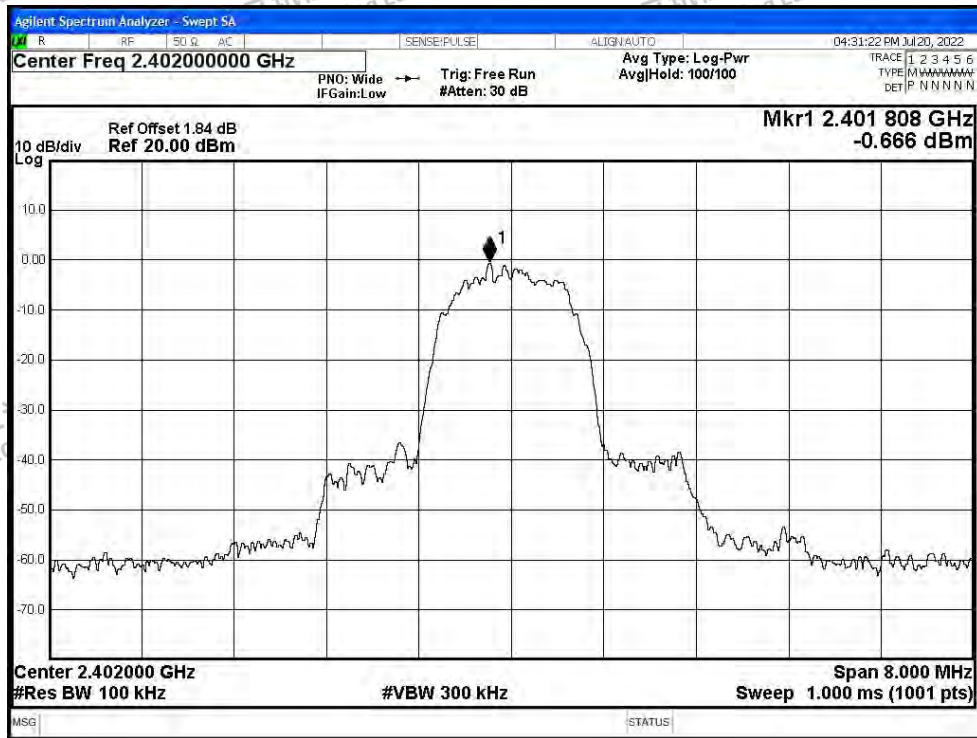


Band Edge NVNT 2-DH5 2480MHz Ant1 No-Hopping Emission

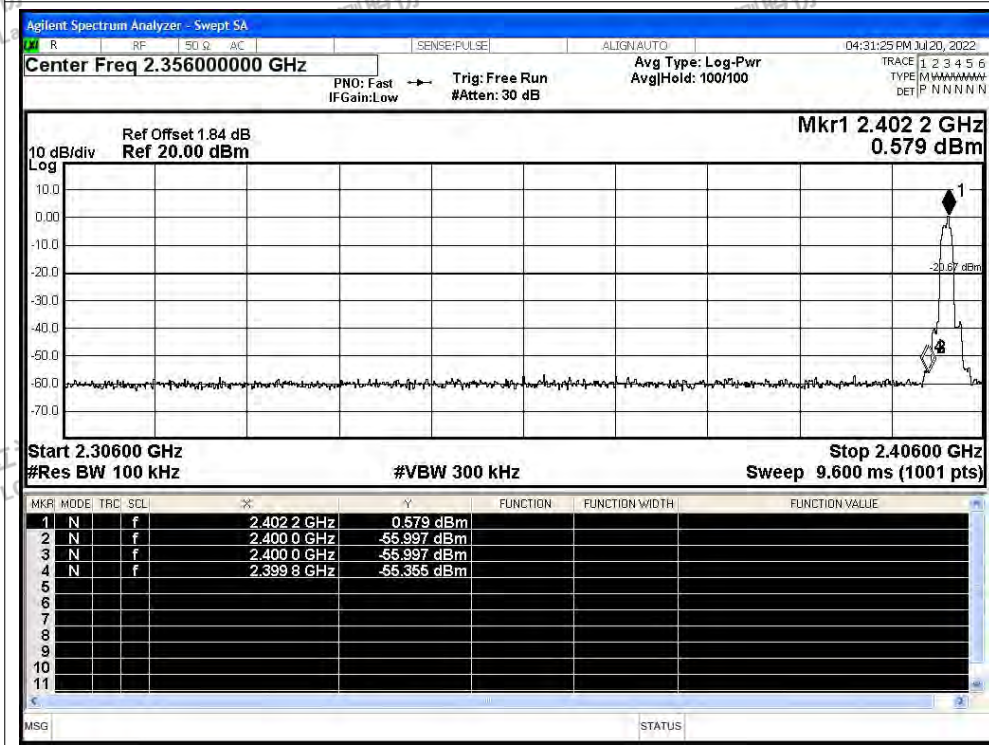




Band Edge NVNT 3-DH5 2402MHz Ant1 No-Hopping Ref

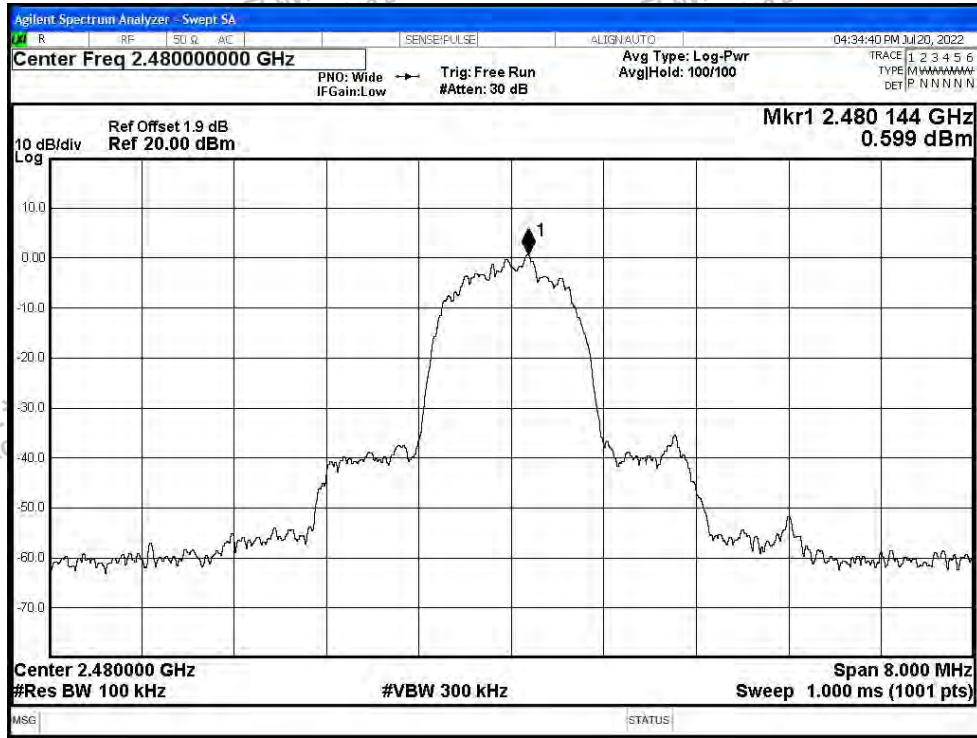


Band Edge NVNT 3-DH5 2402MHz Ant1 No-Hopping Emission

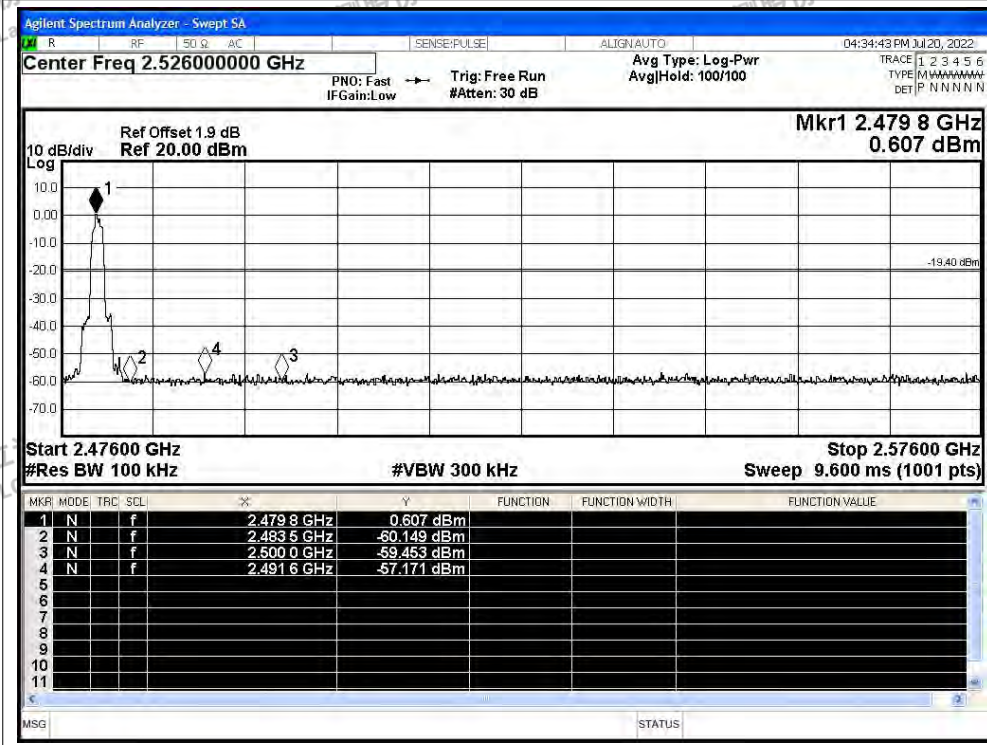




Band Edge NVNT 3-DH5 2480MHz Ant1 No-Hopping Ref



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	-57.68	-20	Pass
NVNT	1-DH5	2480	Ant1	Hopping	-57.82	-20	Pass
NVNT	2-DH5	2402	Ant1	Hopping	-56.72	-20	Pass
NVNT	2-DH5	2480	Ant1	Hopping	-56.92	-20	Pass
NVNT	3-DH5	2402	Ant1	Hopping	-56.03	-20	Pass
NVNT	3-DH5	2480	Ant1	Hopping	-57.56	-20	Pass



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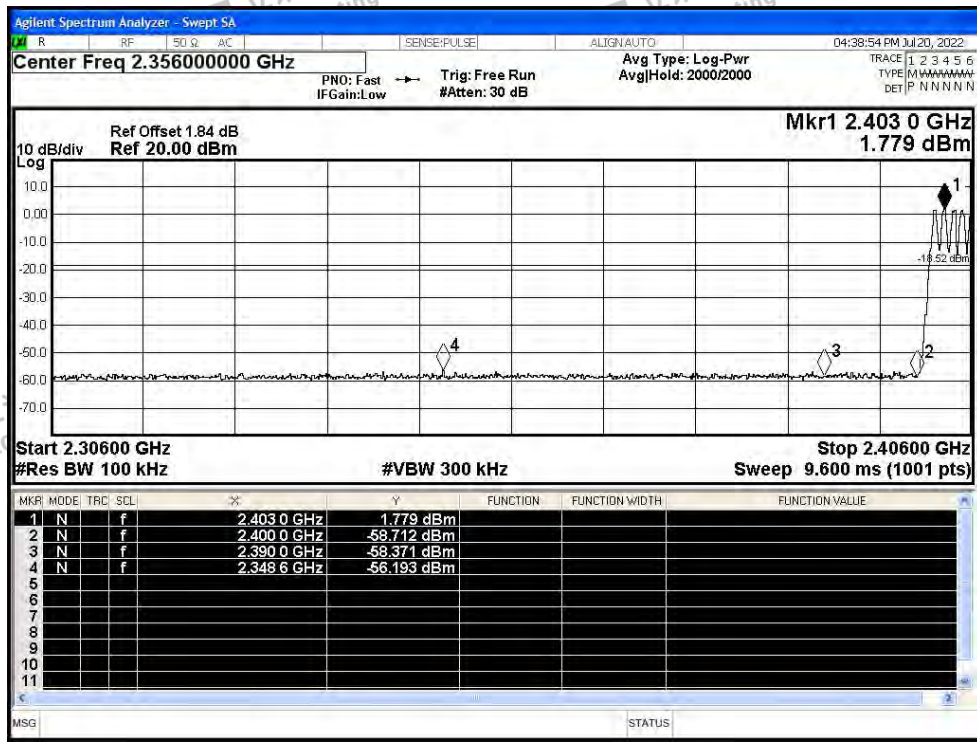


Test Graphs

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

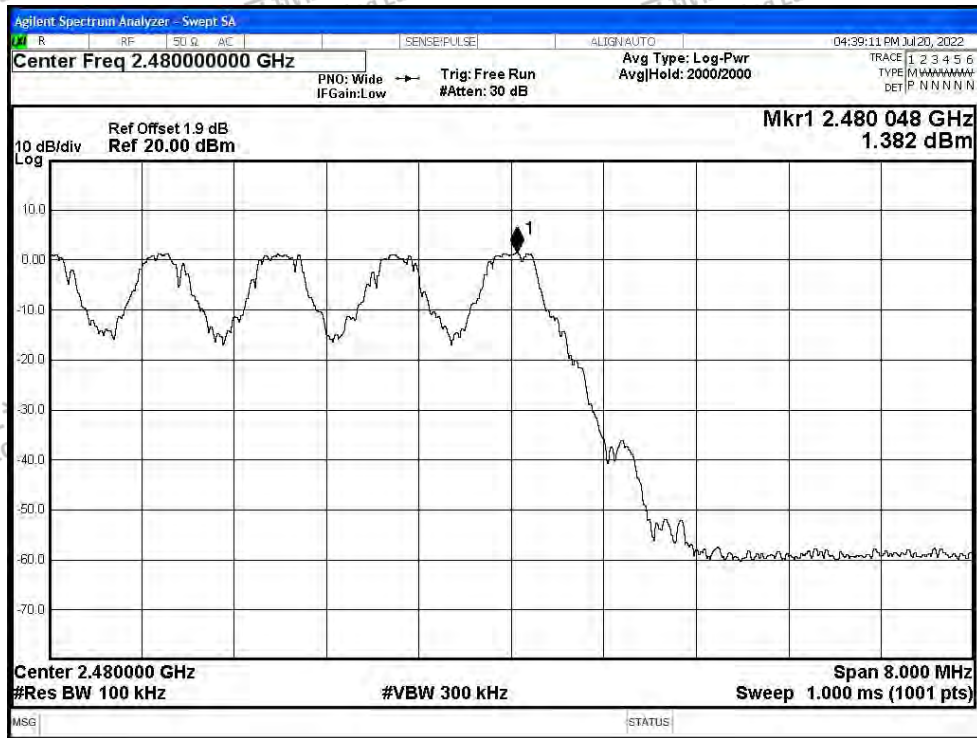


Band Edge(Hopping) NVNT 1-DH5 2402MHz Ant1 Hopping Emission

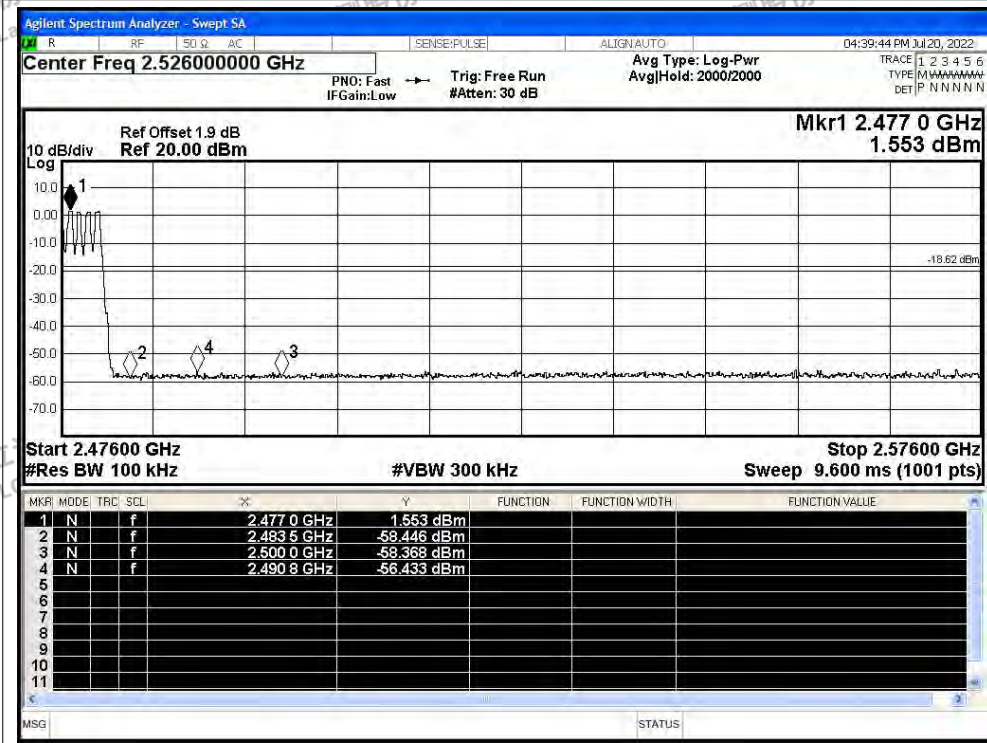




Band Edge(Hopping) NVNT 1-DH5 2480MHz Ant1 Hopping Ref



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

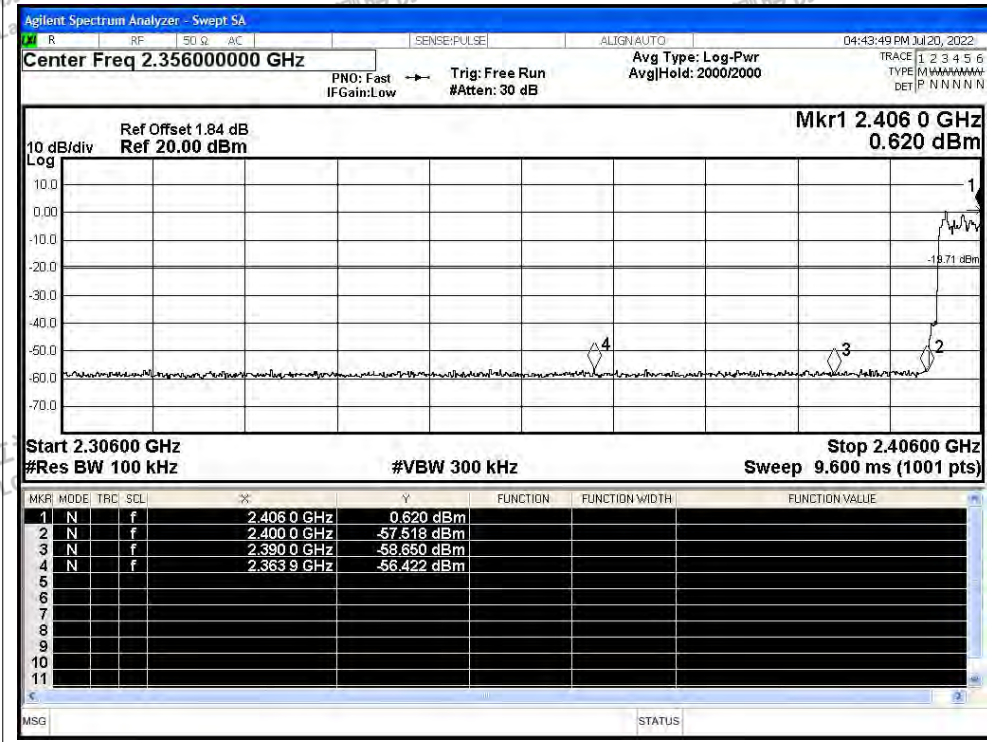




Band Edge(Hopping) NVNT 2-DH5 2402MHz Ant1 Hopping Ref

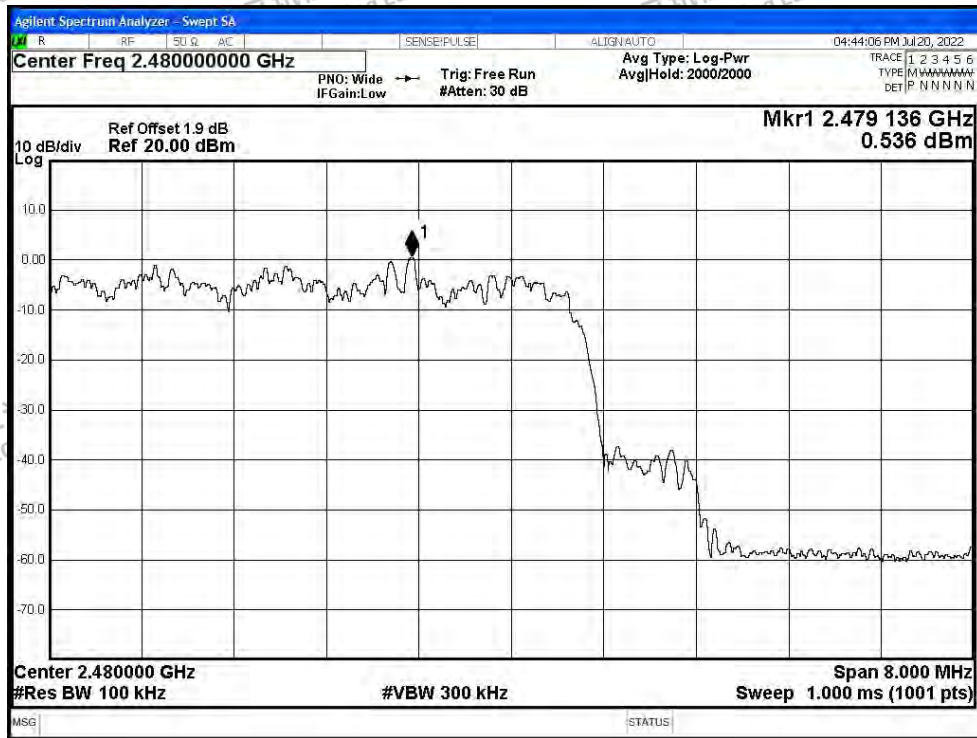


Band Edge(Hopping) NVNT 2-DH5 2402MHz Ant1 Hopping Emission

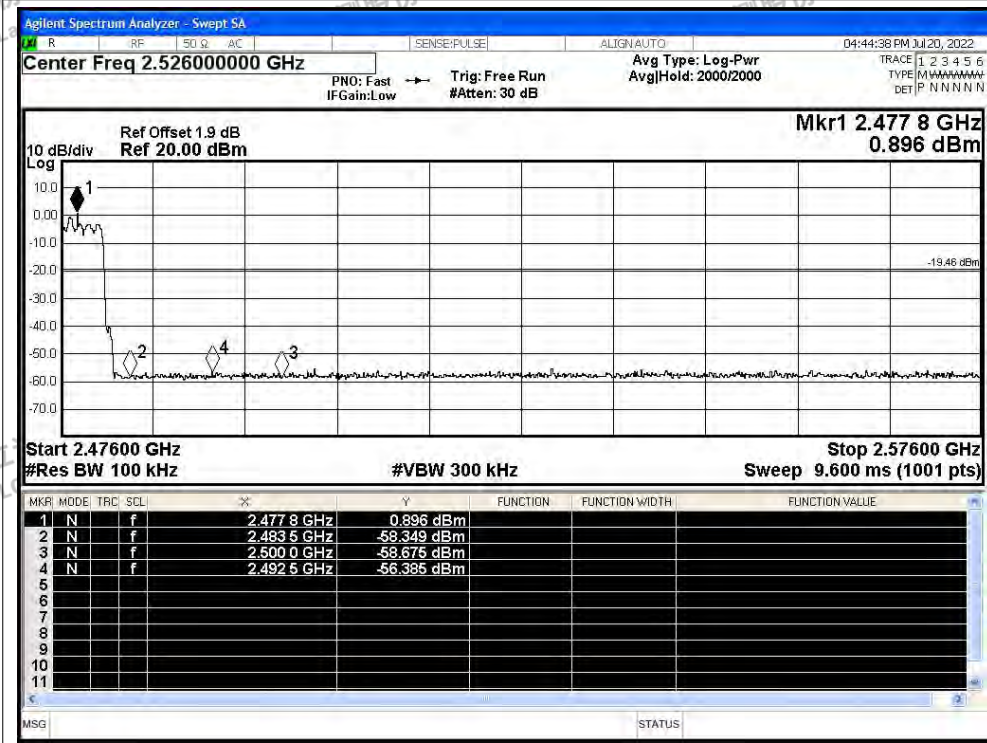




Band Edge(Hopping) NVNT 2-DH5 2480MHz Ant1 Hopping Ref



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

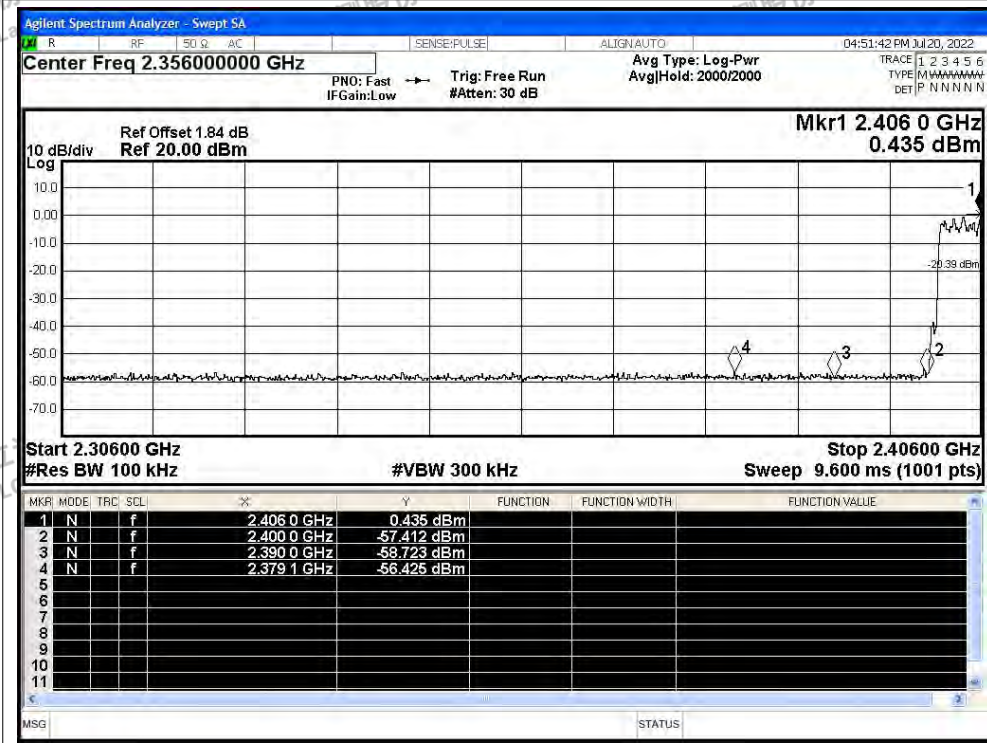




Band Edge(Hopping) NVNT 3-DH5 2402MHz Ant1 Hopping Ref



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

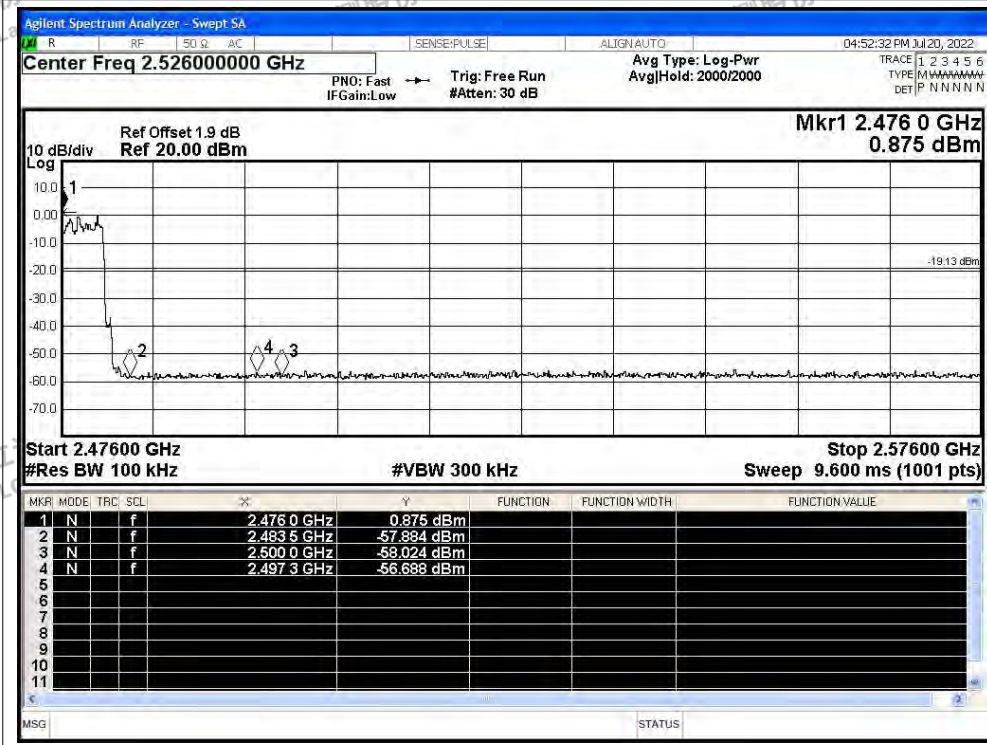




Band Edge(Hopping) NVNT 3-DH5 2480MHz Ant1 Hopping Ref



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	-56.81	-20	Pass
NVNT	1-DH5	2441	Ant1	-57.26	-20	Pass
NVNT	1-DH5	2480	Ant1	-57.44	-20	Pass
NVNT	2-DH5	2402	Ant1	-54.06	-20	Pass
NVNT	2-DH5	2441	Ant1	-55.73	-20	Pass
NVNT	2-DH5	2480	Ant1	-56.03	-20	Pass
NVNT	3-DH5	2402	Ant1	-52.29	-20	Pass
NVNT	3-DH5	2441	Ant1	-50.93	-20	Pass
NVNT	3-DH5	2480	Ant1	-55.78	-20	Pass

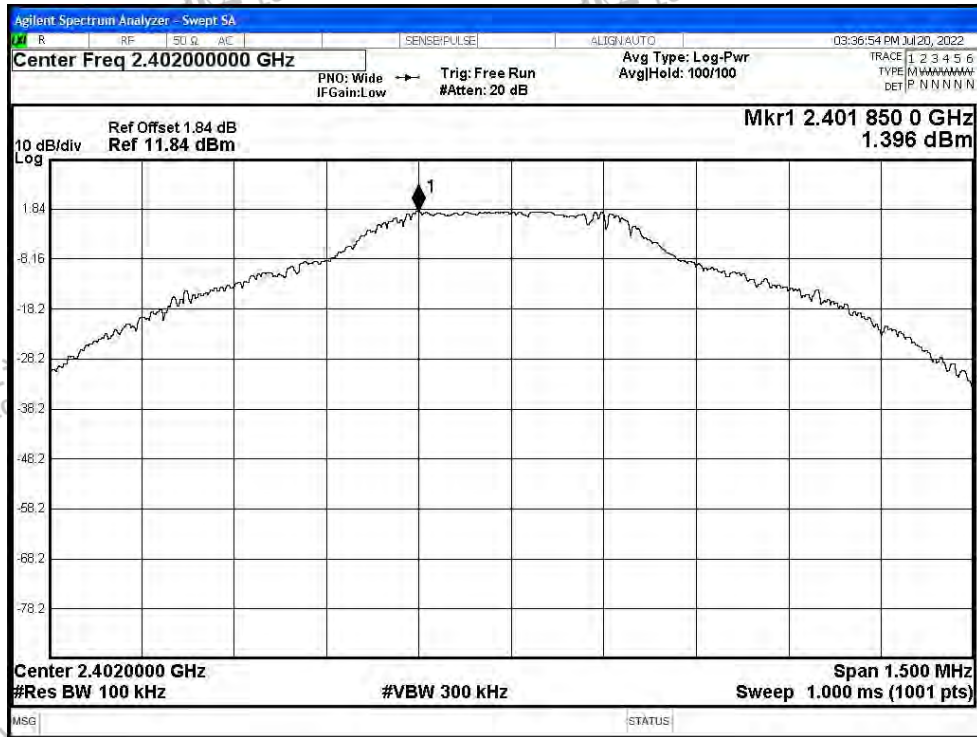


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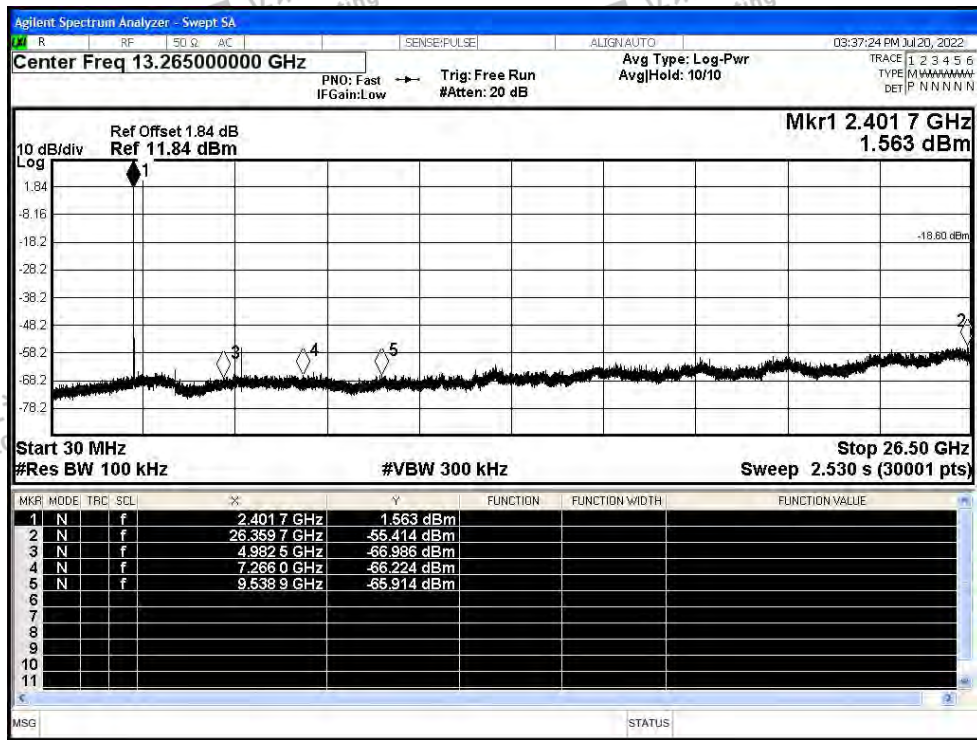


Test Graphs

Tx. Spurious NVNT 1-DH5 2402MHz Ant1 Ref

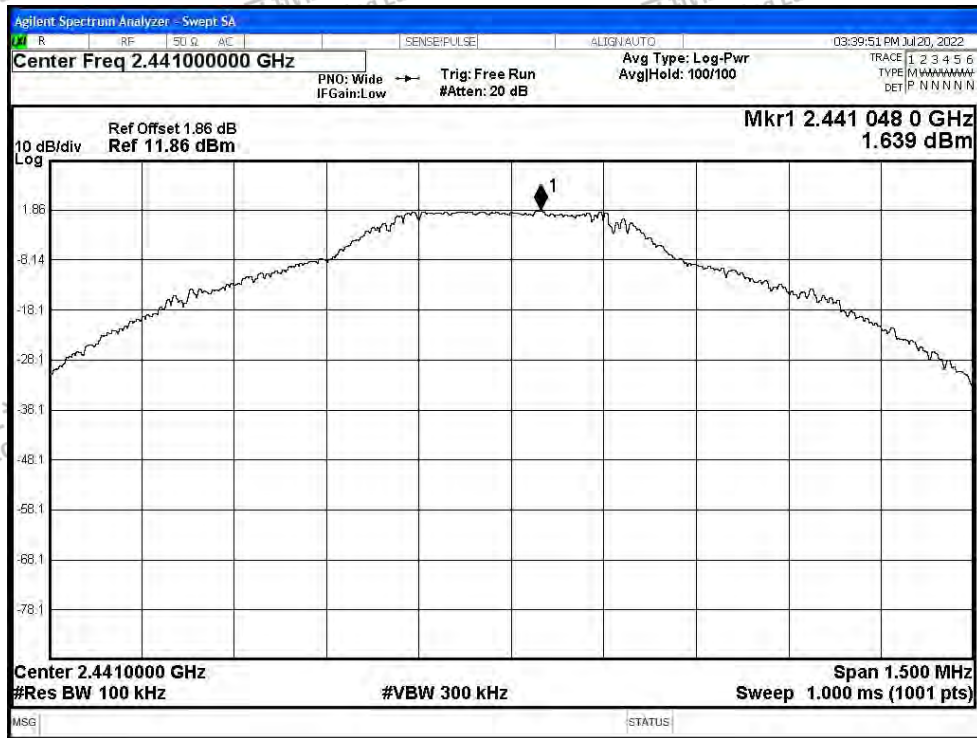


Tx. Spurious NVNT 1-DH5 2402MHz Ant1 Emission

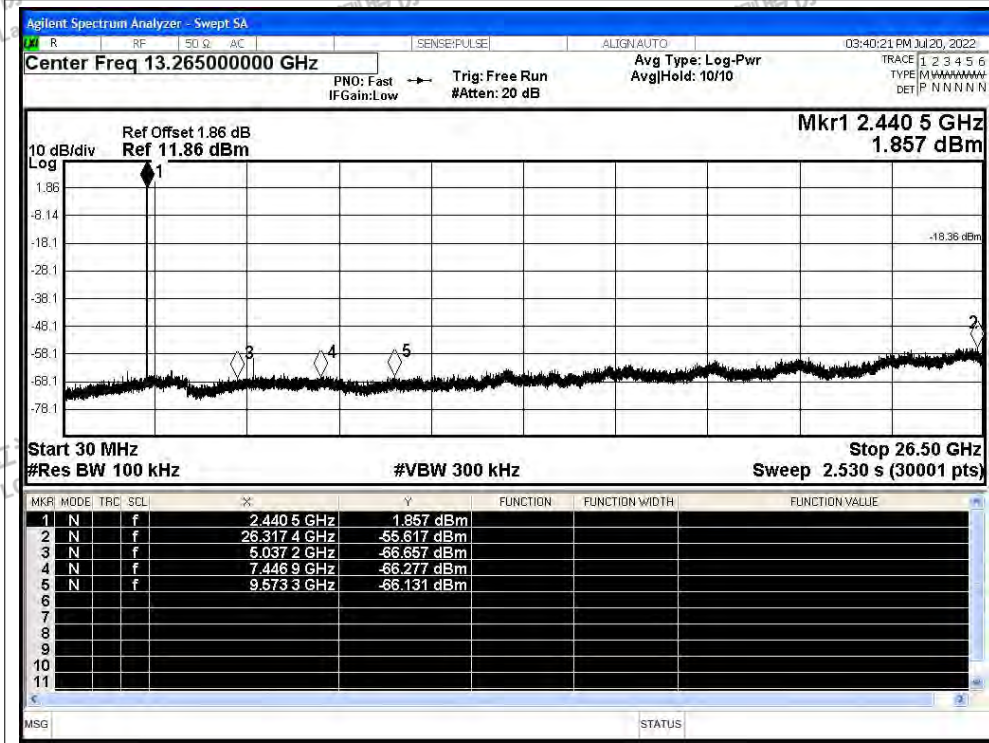




Tx. Spurious NVNT 1-DH5 2441MHz Ant1 Ref

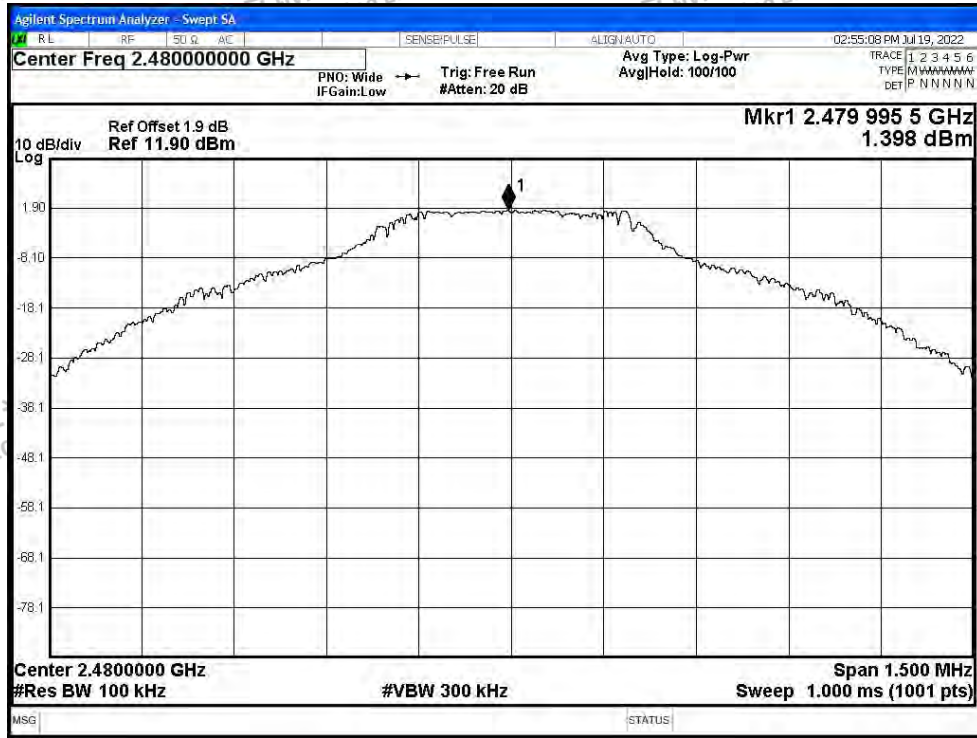


Tx. Spurious NVNT 1-DH5 2441MHz Ant1 Emission

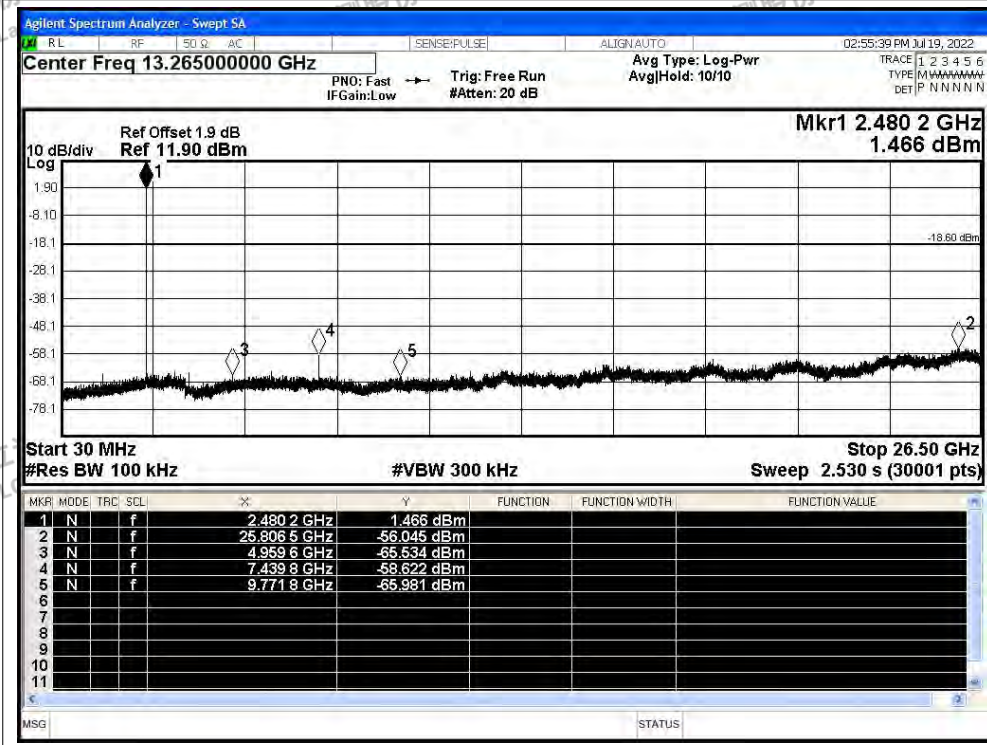




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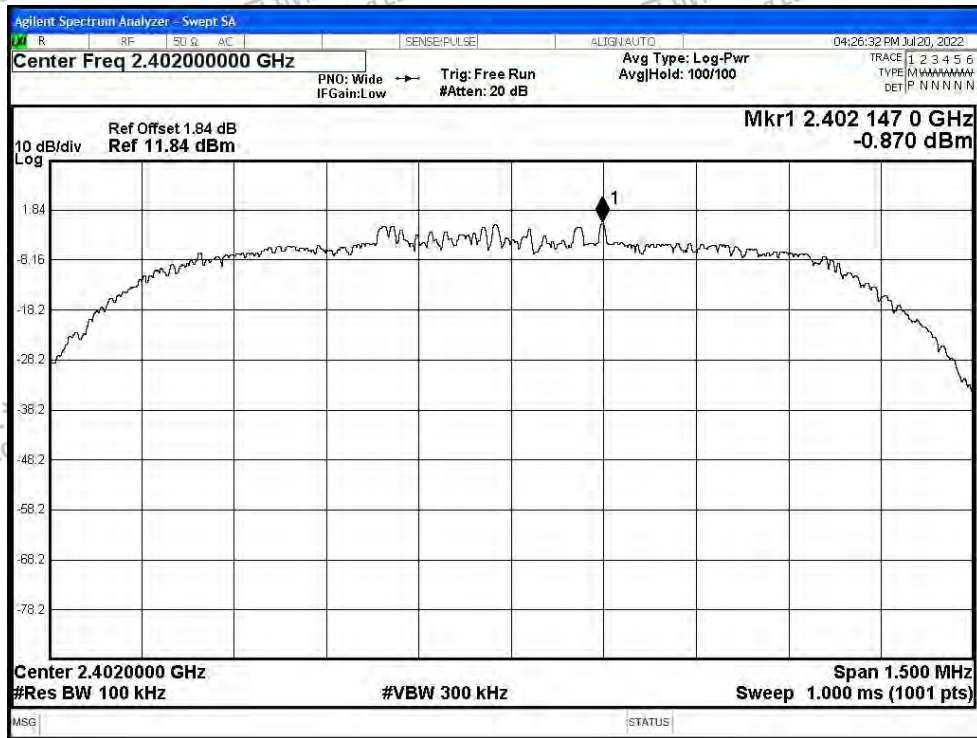


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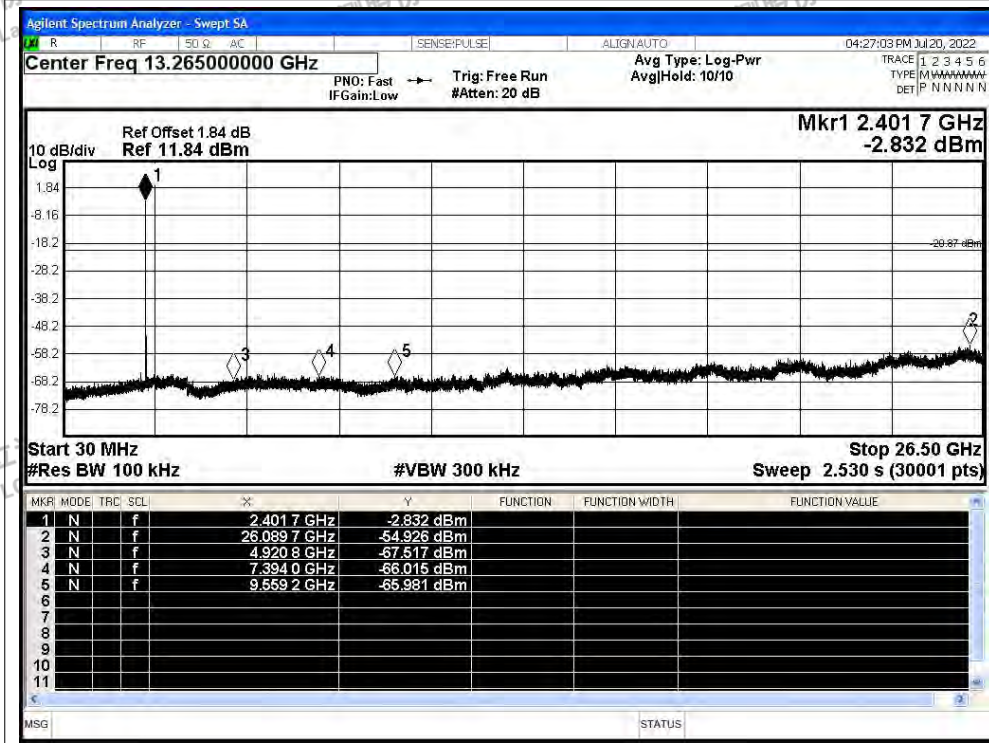




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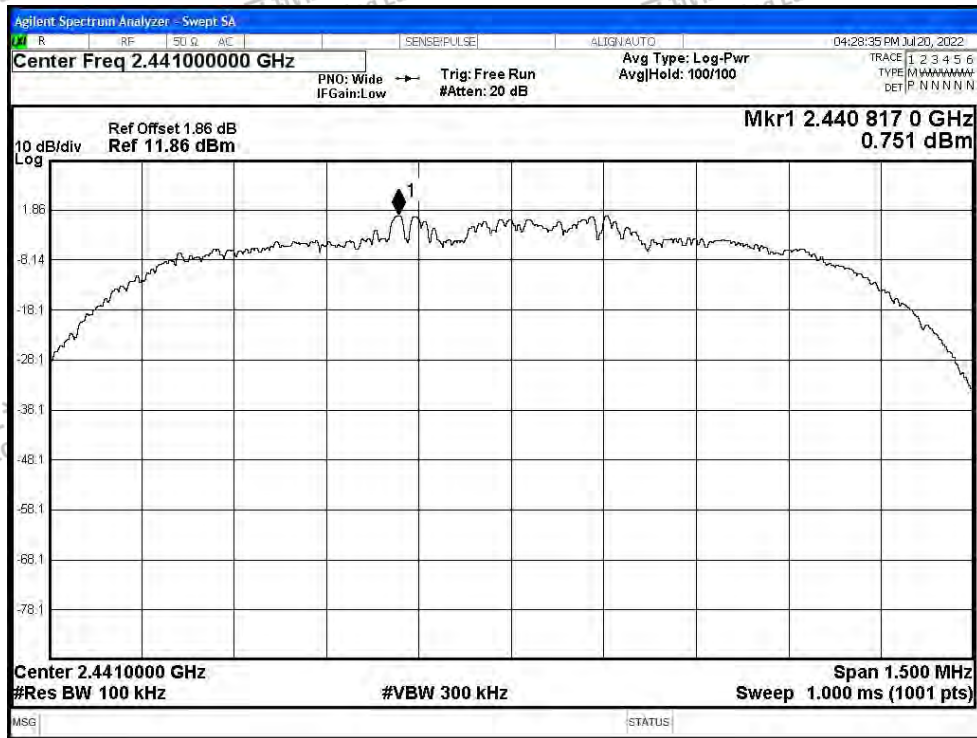


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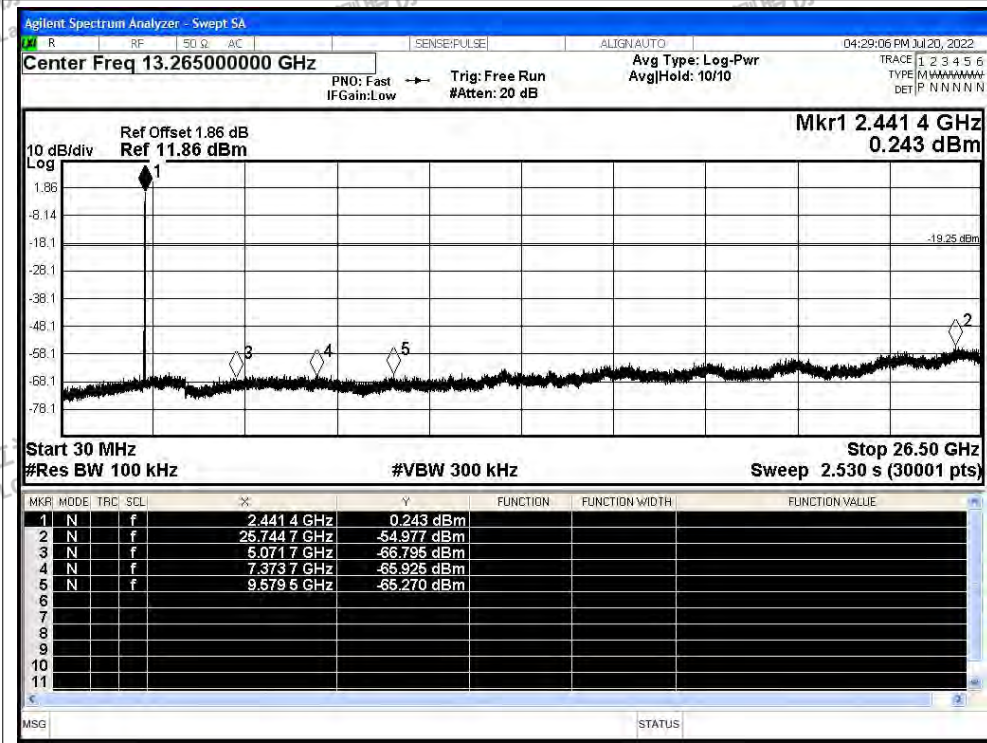




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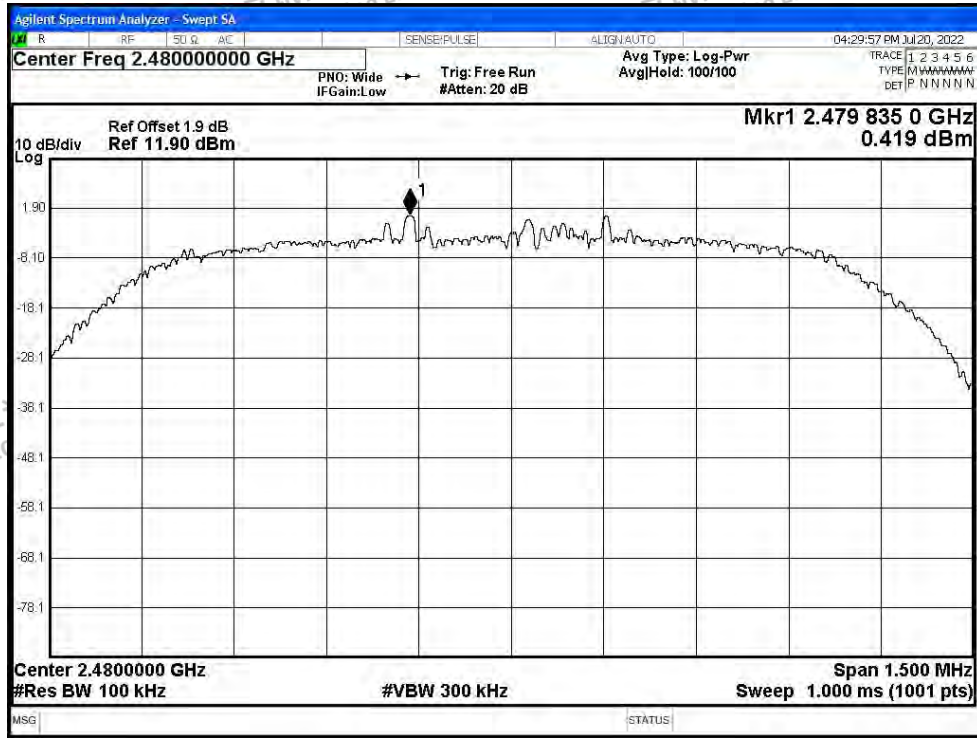


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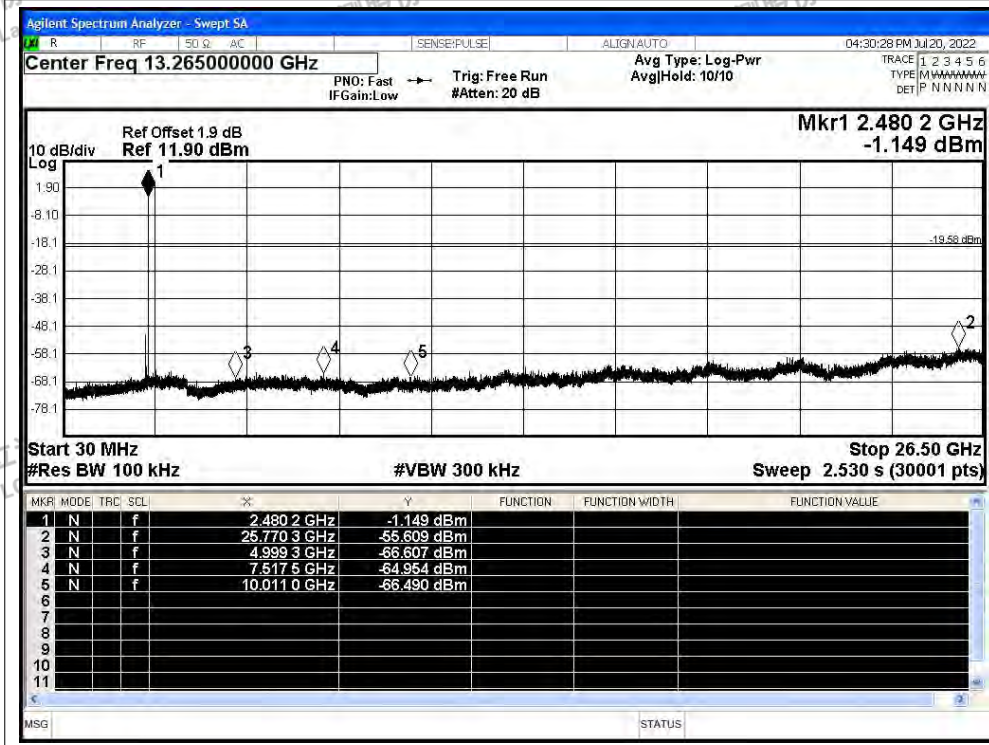




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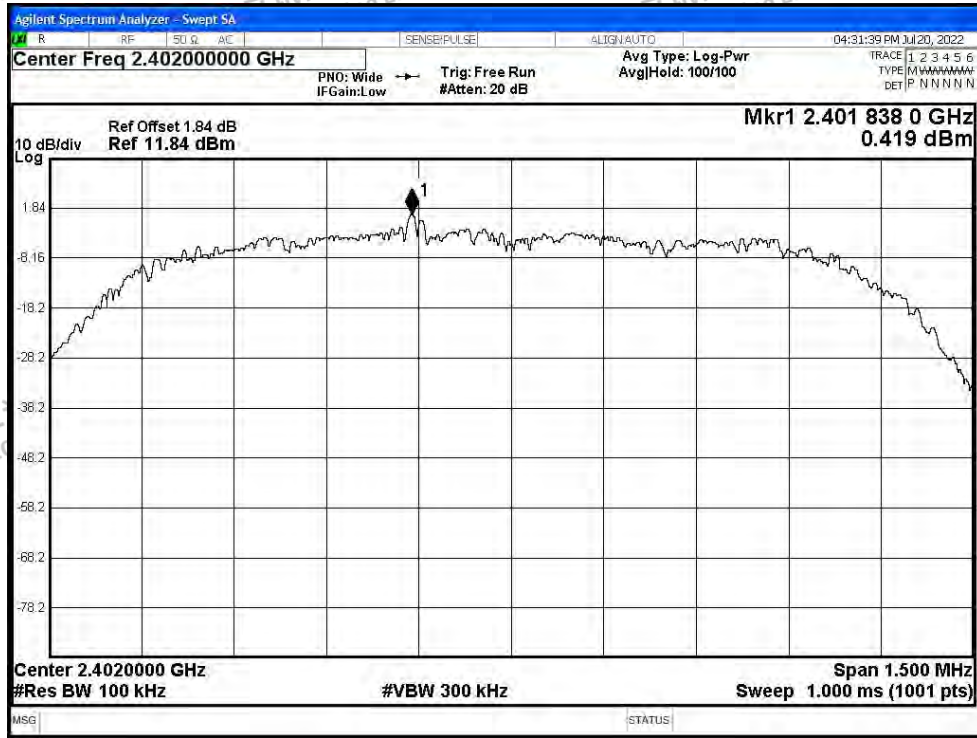


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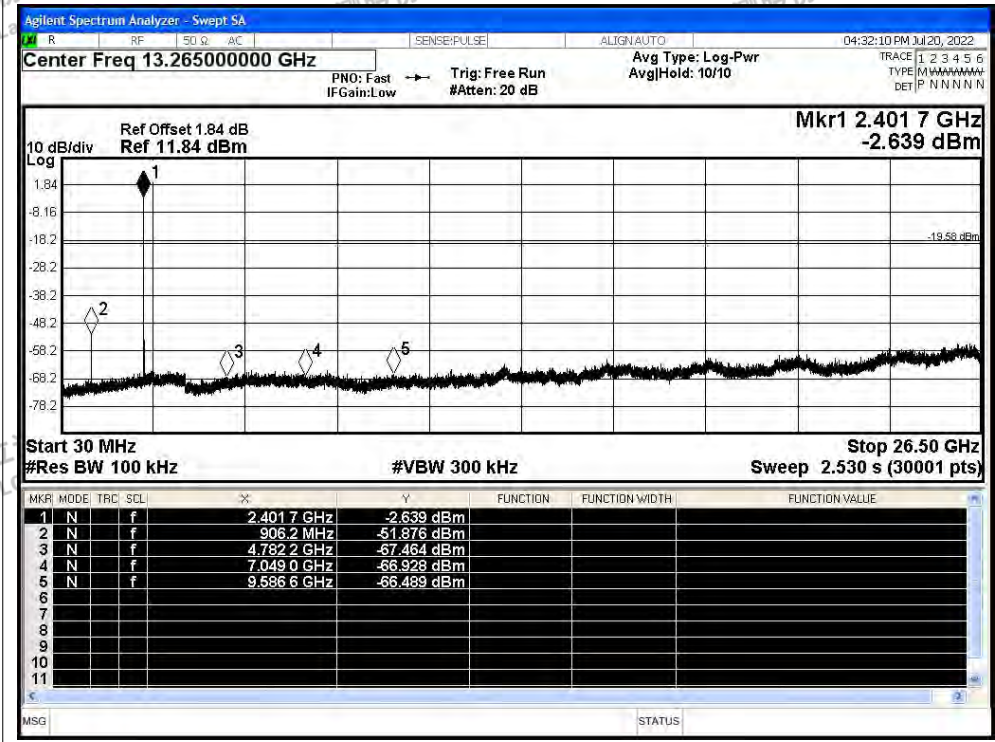




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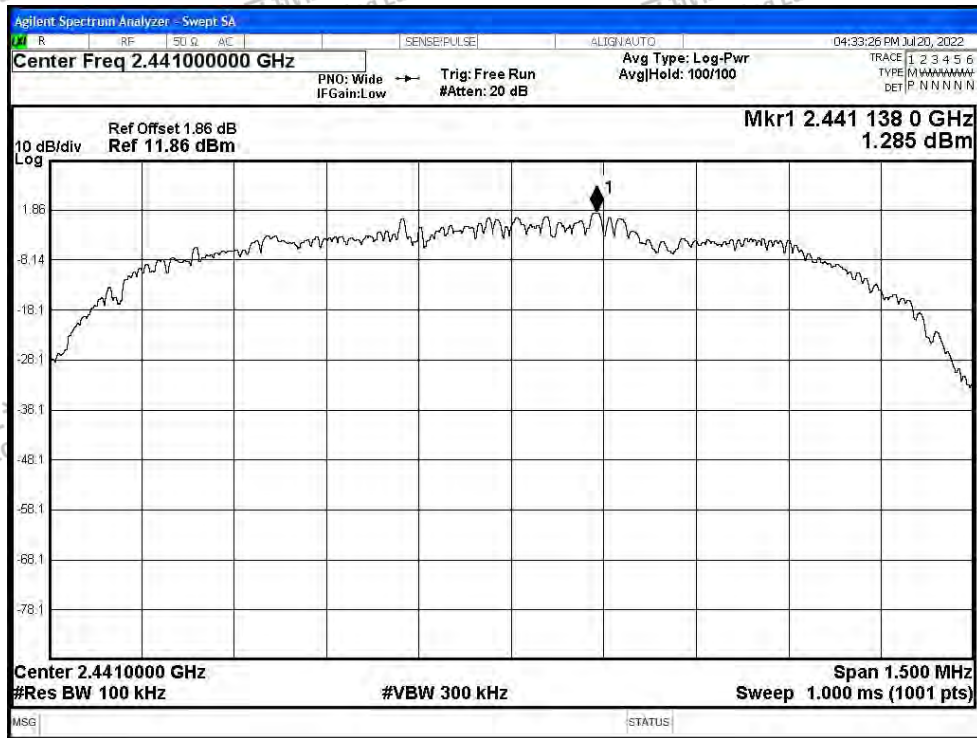


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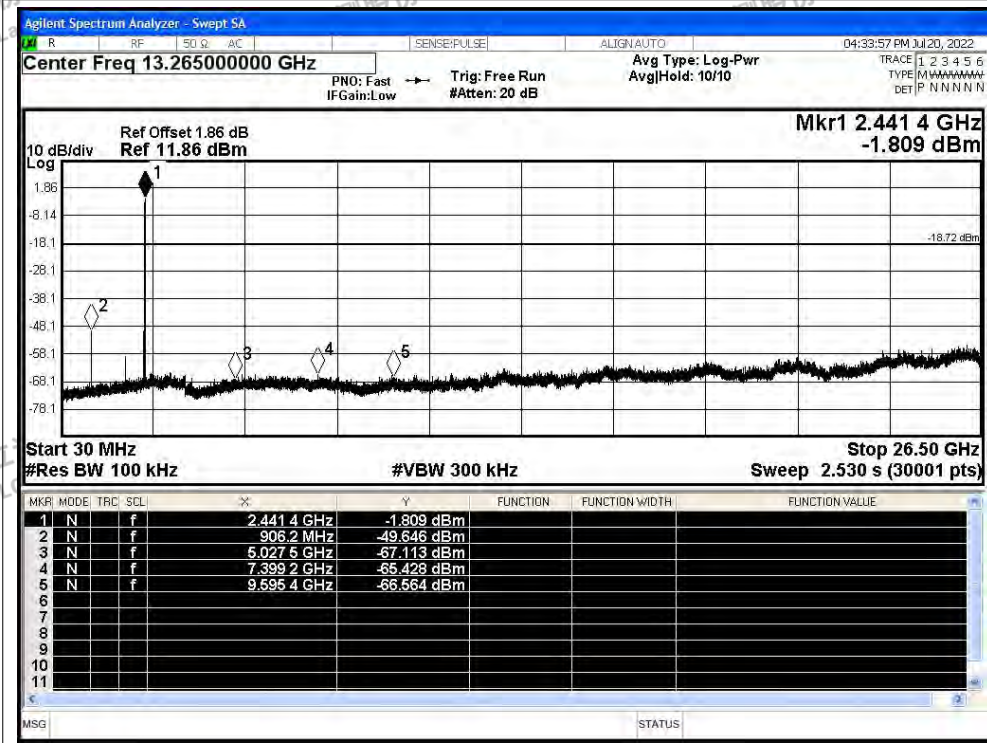




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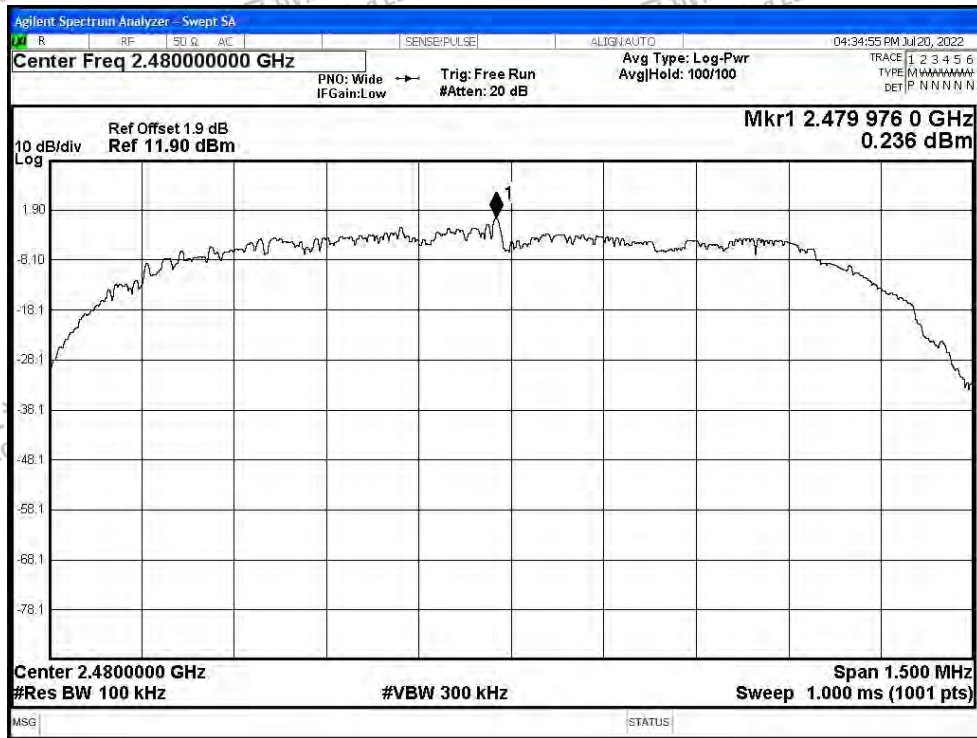


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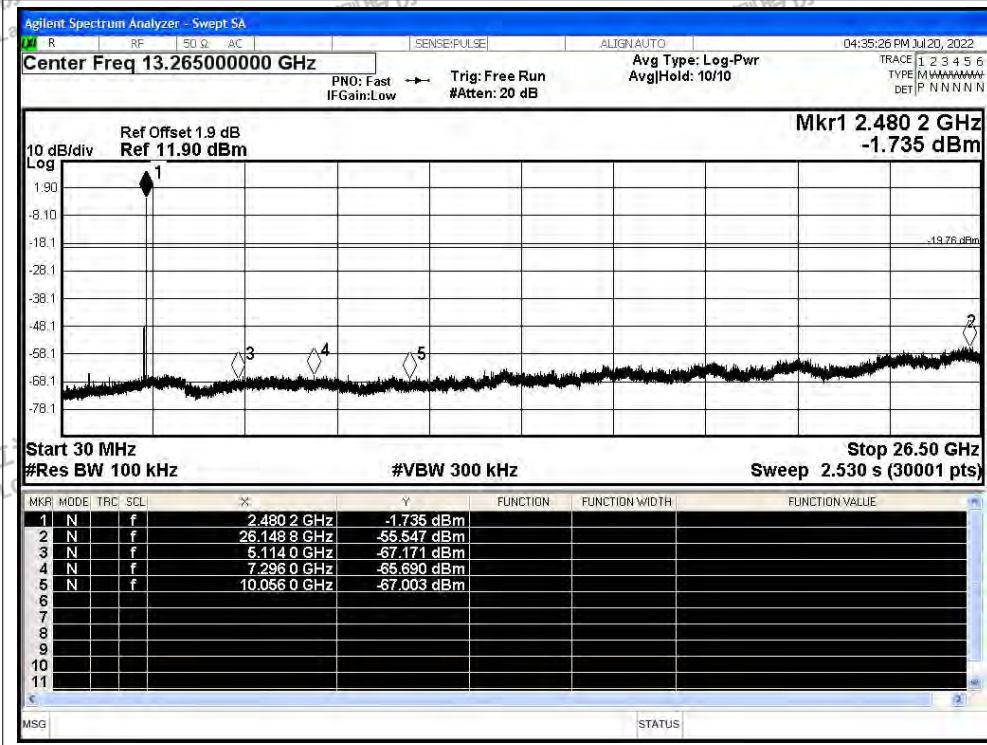




Tx. Spurious NVNT 3-DH5 2480MHz Ant1 Ref



Tx. Spurious NVNT 3-DH5 2480MHz Ant1 Emission





A.8 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	-50.53	2.15	46.85	Peak	74	Pass
NVNT	1-DH5	2402	Ant1	No-Hopping	2310	-60.65	2.15	36.73	Average	54	Pass
NVNT	1-DH5	2402	Ant1	No-Hopping	2389.872	-47.57	2.15	49.81	Peak	74	Pass
NVNT	1-DH5	2402	Ant1	No-Hopping	2387.952	-60.03	2.15	37.35	Average	54	Pass
NVNT	1-DH5	2402	Ant1	No-Hopping	2390	-51.92	2.15	45.46	Peak	74	Pass
NVNT	1-DH5	2402	Ant1	No-Hopping	2390	-60.17	2.15	37.21	Average	54	Pass
NVNT	1-DH5	2480	Ant1	No-Hopping	2483.5	-49.39	2.15	47.99	Peak	74	Pass
NVNT	1-DH5	2480	Ant1	No-Hopping	2483.5	-59.59	2.15	37.79	Average	54	Pass
NVNT	1-DH5	2480	Ant1	No-Hopping	2487.736	-47.55	2.15	49.83	Peak	74	Pass
NVNT	1-DH5	2480	Ant1	No-Hopping	2483.848	-59.56	2.15	37.82	Average	54	Pass
NVNT	1-DH5	2480	Ant1	No-Hopping	2500	-51.07	2.15	46.31	Peak	74	Pass
NVNT	1-DH5	2480	Ant1	No-Hopping	2500	-59.94	2.15	37.44	Average	54	Pass
NVNT	2-DH5	2402	Ant1	No-Hopping	2310	-51.73	2.15	45.65	Peak	74	Pass
NVNT	2-DH5	2402	Ant1	No-Hopping	2310	-60.67	2.15	36.71	Average	54	Pass
NVNT	2-DH5	2402	Ant1	No-Hopping	2384.592	-47.85	2.15	49.53	Peak	74	Pass
NVNT	2-DH5	2402	Ant1	No-Hopping	2380.176	-60.09	2.15	37.29	Average	54	Pass
NVNT	2-DH5	2402	Ant1	No-Hopping	2390	-49.25	2.15	48.13	Peak	74	Pass
NVNT	2-DH5	2402	Ant1	No-Hopping	2390	-60.27	2.15	37.11	Average	54	Pass
NVNT	2-DH5	2480	Ant1	No-Hopping	2483.5	-50.71	2.15	46.67	Peak	74	Pass
NVNT	2-DH5	2480	Ant1	No-Hopping	2483.5	-59.72	2.15	37.66	Average	54	Pass
NVNT	2-DH5	2480	Ant1	No-Hopping	2492.416	-47.48	2.15	49.90	Peak	74	Pass
NVNT	2-DH5	2480	Ant1	No-Hopping	2483.848	-59.58	2.15	37.80	Average	54	Pass
NVNT	2-DH5	2480	Ant1	No-Hopping	2500	-50.93	2.15	46.45	Peak	74	Pass
NVNT	2-DH5	2480	Ant1	No-Hopping	2500	-59.89	2.15	37.49	Average	54	Pass
NVNT	3-DH5	2402	Ant1	No-Hopping	2310	-52.02	2.15	45.36	Peak	74	Pass
NVNT	3-DH5	2402	Ant1	No-Hopping	2310	-60.63	2.15	36.75	Average	54	Pass
NVNT	3-DH5	2402	Ant1	No-Hopping	2388.912	-47.01	2.15	50.37	Peak	74	Pass
NVNT	3-DH5	2402	Ant1	No-Hopping	2388.144	-60.15	2.15	37.23	Average	54	Pass
NVNT	3-DH5	2402	Ant1	No-Hopping	2390	-50.08	2.15	47.30	Peak	74	Pass
NVNT	3-DH5	2402	Ant1	No-Hopping	2390	-60.37	2.15	37.01	Average	54	Pass
NVNT	3-DH5	2480	Ant1	No-Hopping	2483.5	-49.34	2.15	48.04	Peak	74	Pass
NVNT	3-DH5	2480	Ant1	No-Hopping	2483.5	-59.63	2.15	37.75	Average	54	Pass
NVNT	3-DH5	2480	Ant1	No-Hopping	2486.632	-46.78	2.15	50.60	Peak	74	Pass
NVNT	3-DH5	2480	Ant1	No-Hopping	2483.536	-59.56	2.15	37.82	Average	54	Pass
NVNT	3-DH5	2480	Ant1	No-Hopping	2500	-51.1	2.15	46.28	Peak	74	Pass
NVNT	3-DH5	2480	Ant1	No-Hopping	2500	-59.97	2.15	37.41	Average	54	Pass

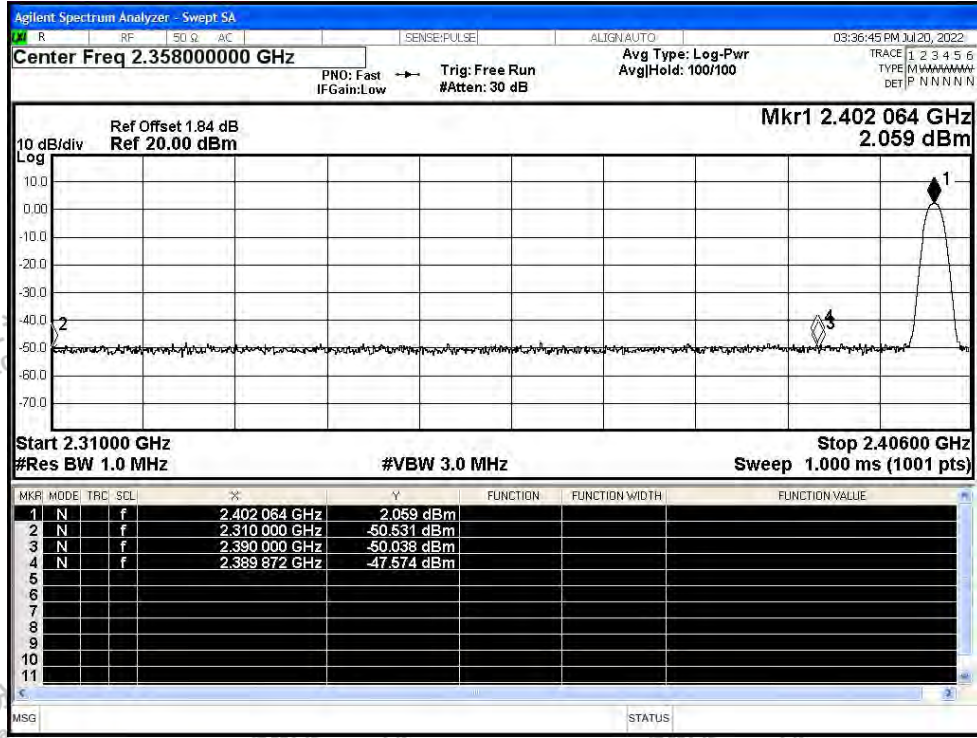


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 Scan code to check authenticity

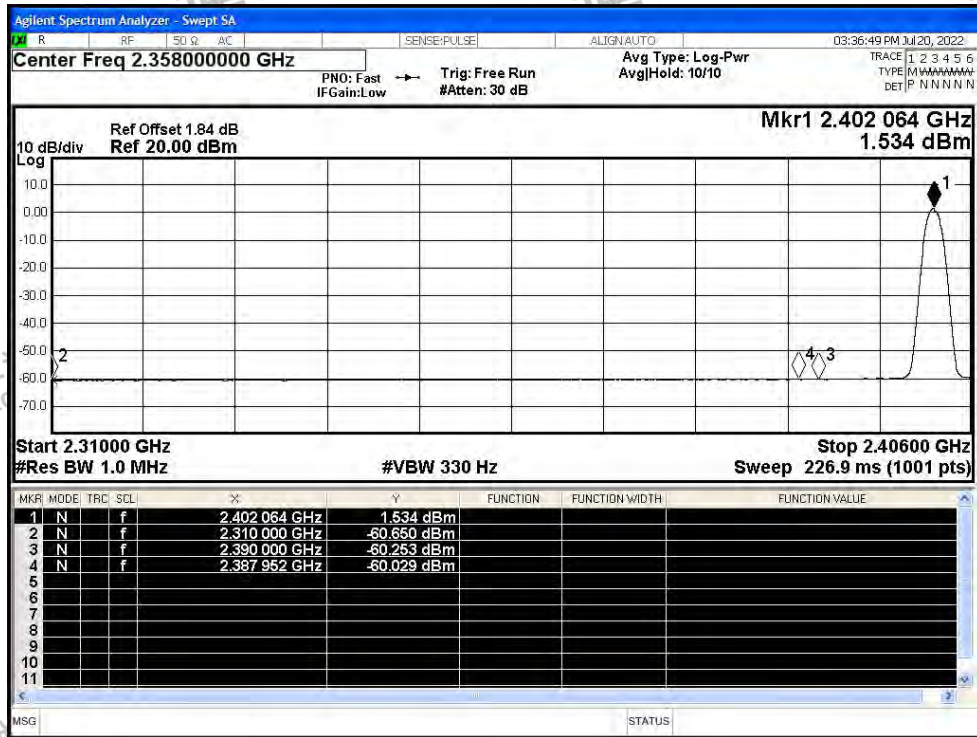


Test Graphs

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

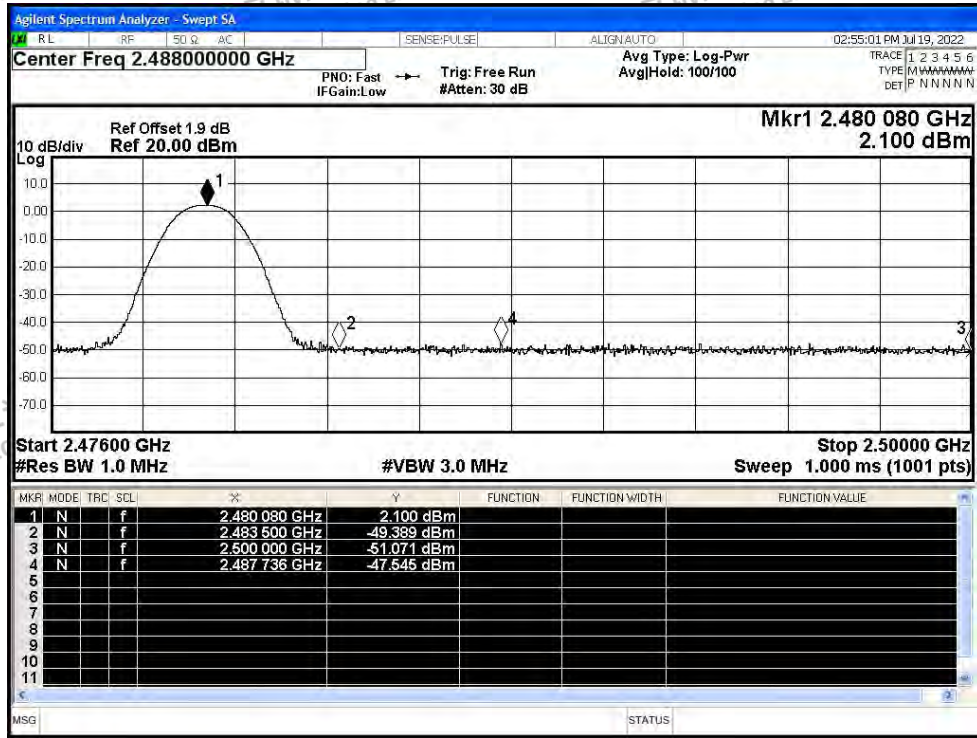


Restrict Band NVNT 1-DH5 2402MHz Ant1 No-Hopping Average

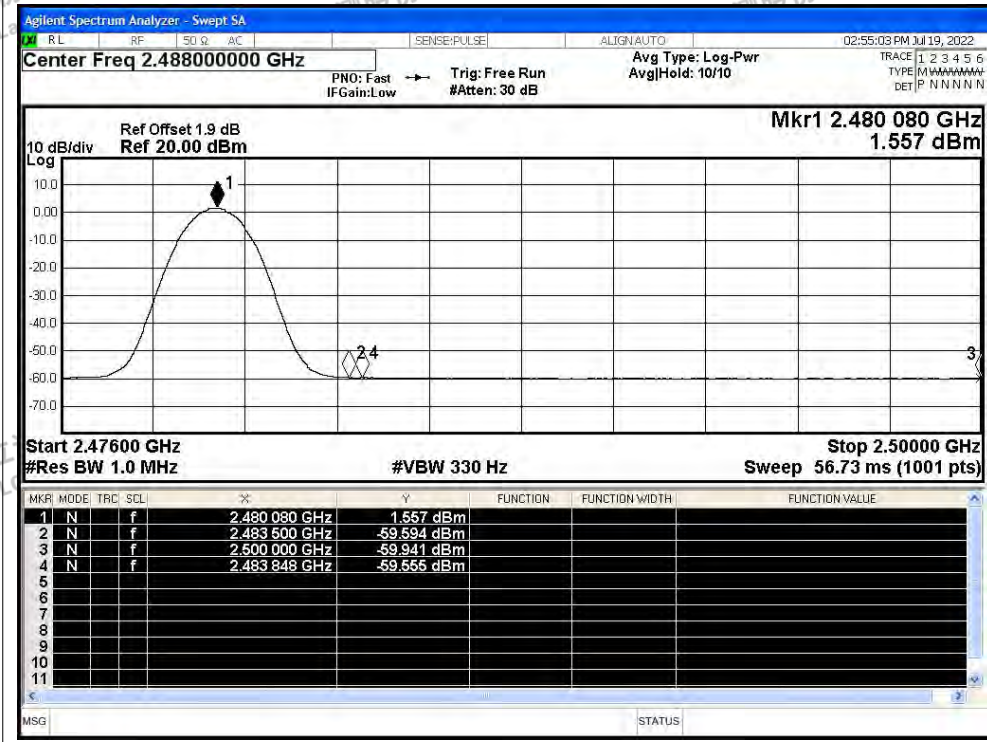




Restrict Band NVNT 1-DH5 2480MHz Ant1 No-Hopping Peak

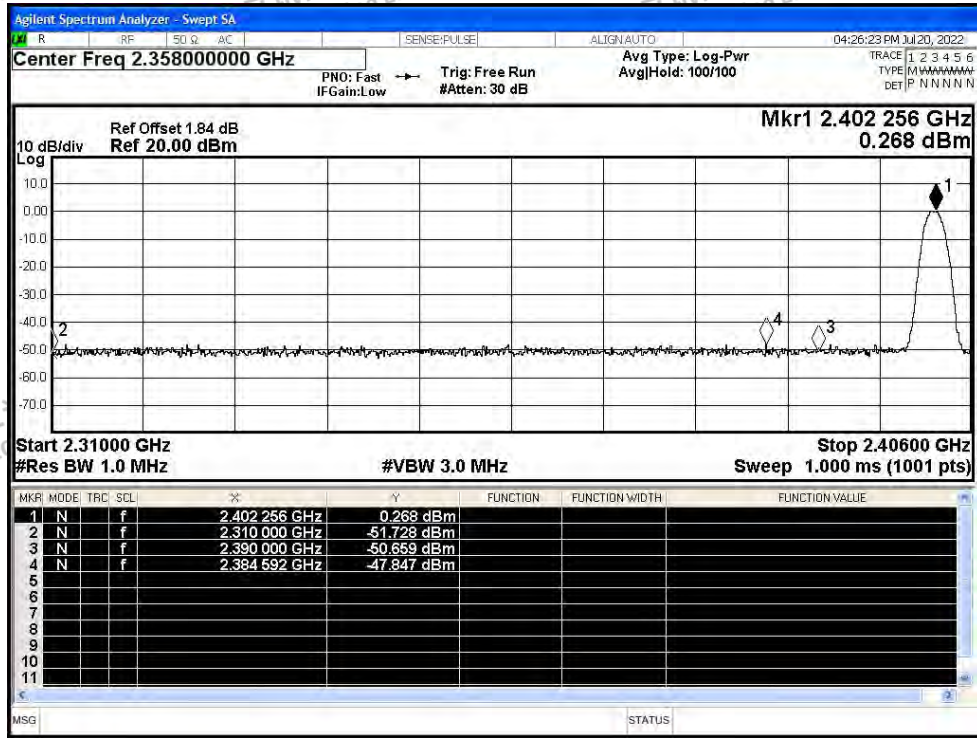


Restrict Band NVNT 1-DH5 2480MHz Ant1 No-Hopping Average

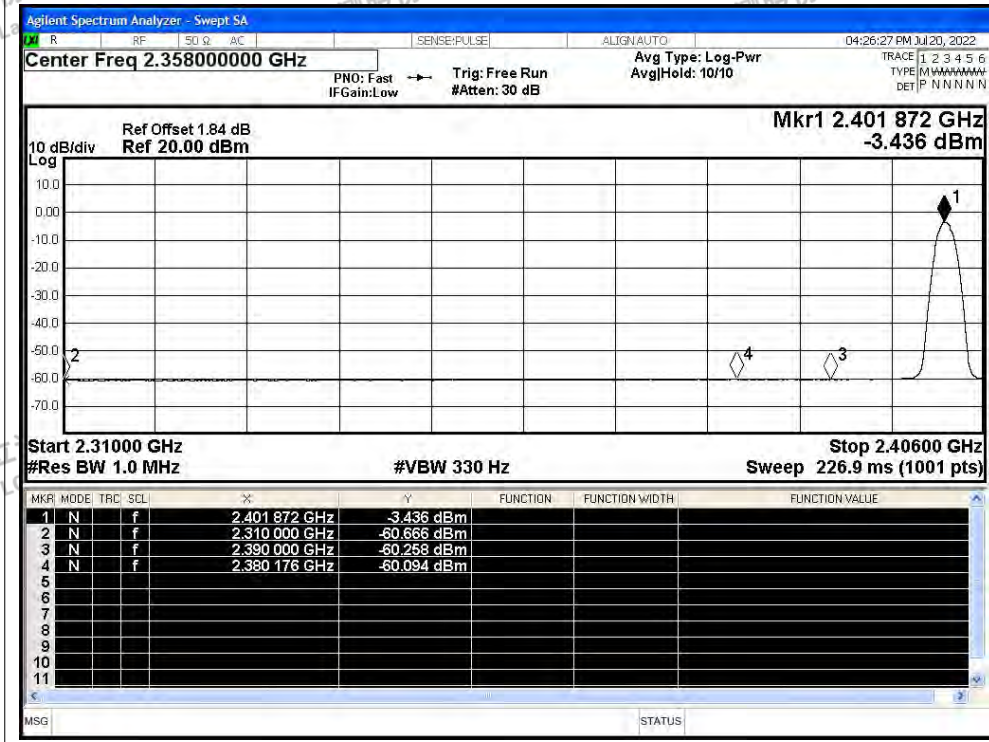




Restrict Band NVNT 2-DH5 2402MHz Ant1 No-Hopping Peak

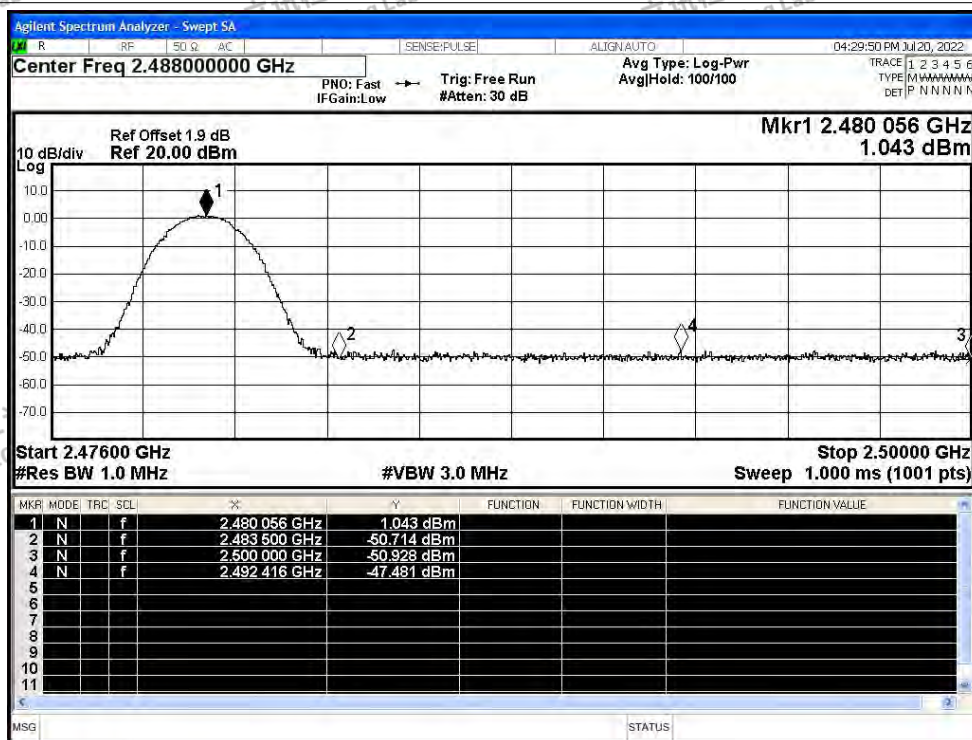


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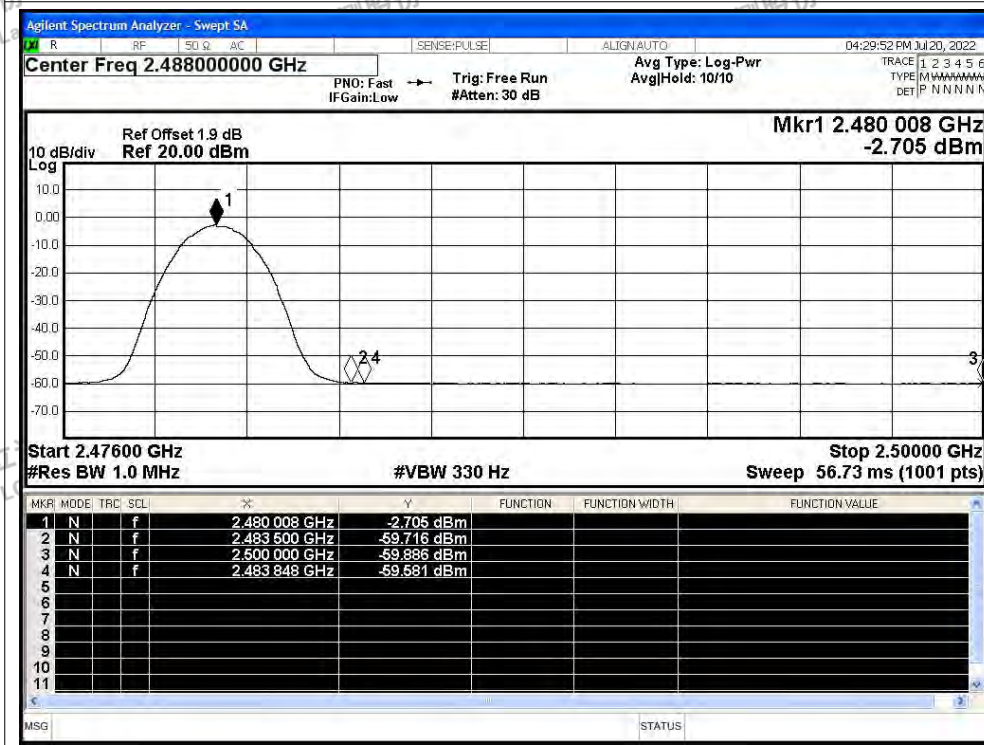




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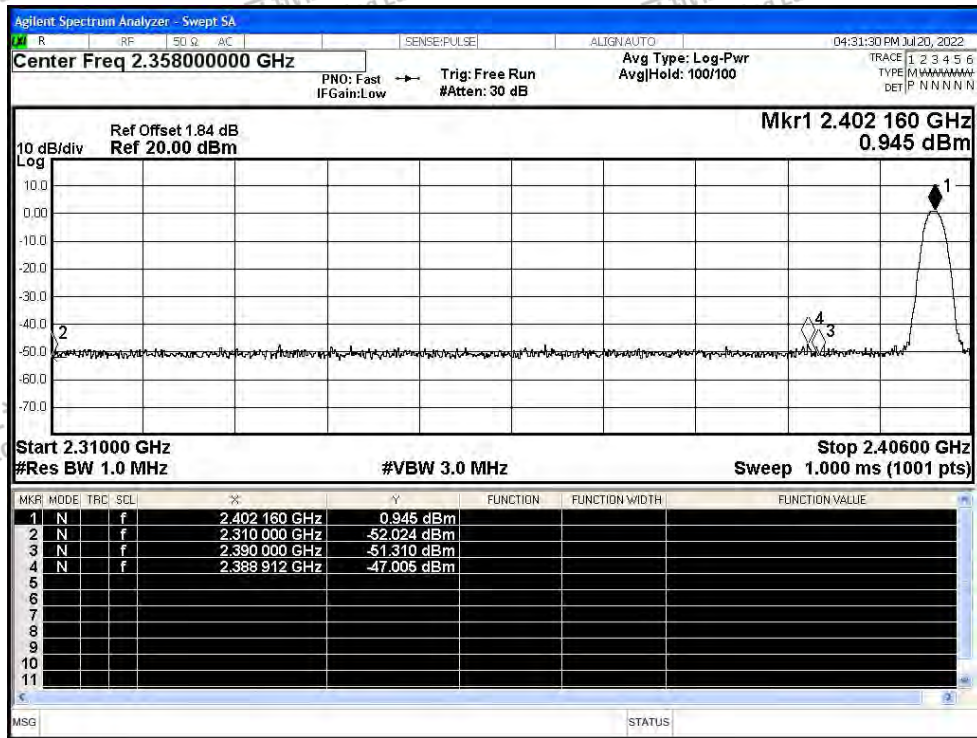


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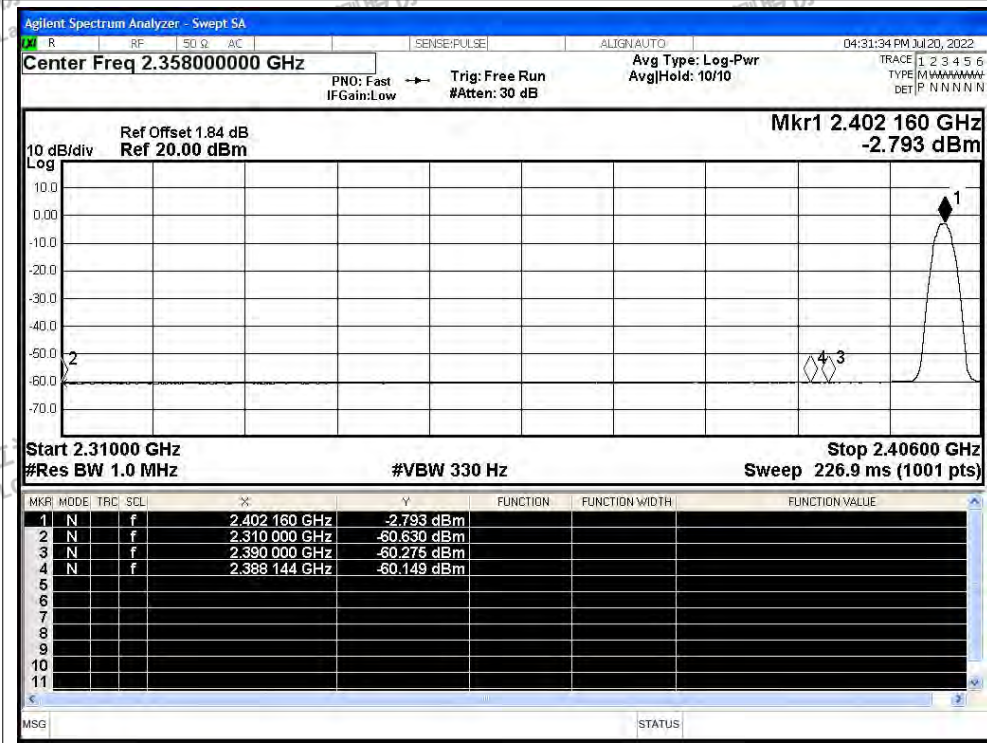




Restrict Band NVNT 3-DH5 2402MHz Ant1 No-Hopping Peak

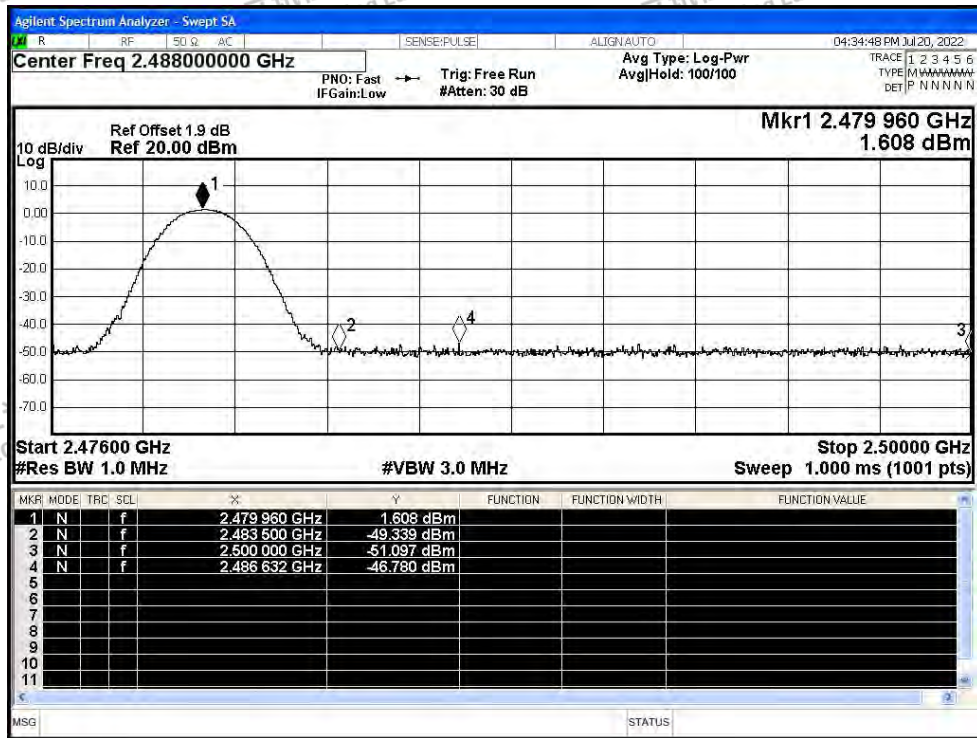


Restrict Band NVNT 3-DH5 2402MHz Ant1 No-Hopping Average





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



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

