



Appendix A

RF Test Data for BT (Conducted Measurement)

Product Name: AVA Nano Brain

Test Model: AVA-CO-CB1

Environmental Conditions

Temperature:	23.8 °C
Relative Humidity:	52.1%
ATM Pressure:	100.0 kPa
Test Engineer:	Ling Zhu
Supervised by:	Li Huan





A.1 -20dB Bandwidth

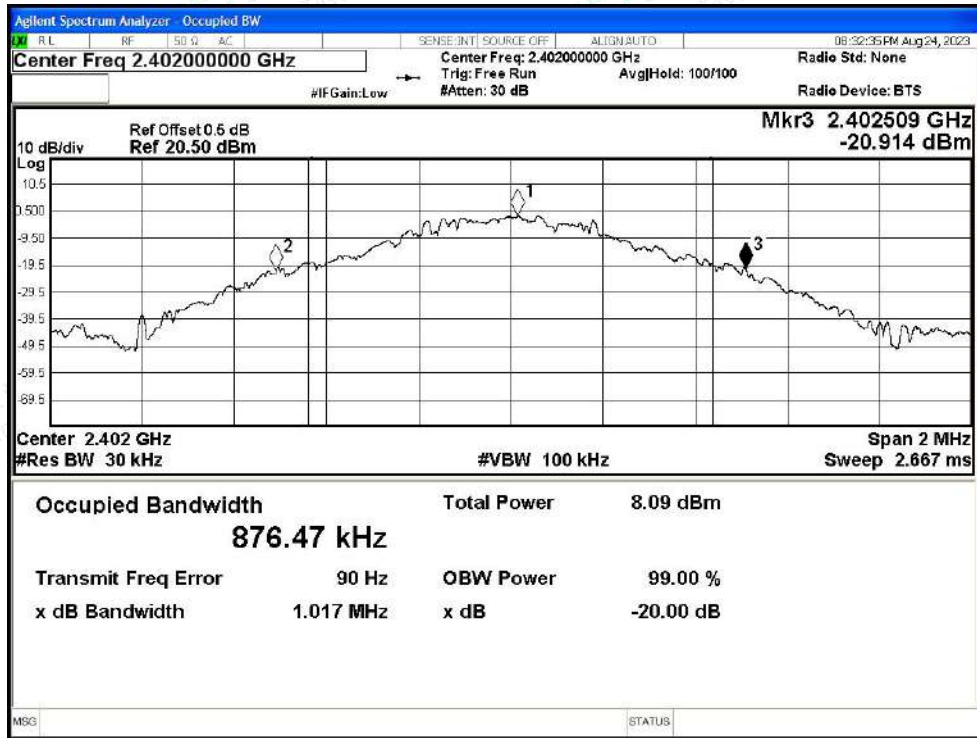
Condition	Mode	Frequency (MHz)	Antenna	-20 dB Bandwidth (MHz)	Limit -20 dB Bandwidth (MHz)	Verdict
NVNT	1-DH5	2402	Ant1	1.017	--	Pass
NVNT	1-DH5	2441	Ant1	0.972	--	Pass
NVNT	1-DH5	2480	Ant1	0.942	--	Pass
NVNT	2-DH5	2402	Ant1	1.287	--	Pass
NVNT	2-DH5	2441	Ant1	1.318	--	Pass
NVNT	2-DH5	2480	Ant1	1.287	--	Pass
NVNT	3-DH5	2402	Ant1	1.287	--	Pass
NVNT	3-DH5	2441	Ant1	1.299	--	Pass
NVNT	3-DH5	2480	Ant1	1.295	--	Pass





Test Graphs

-20dB Bandwidth NVNT 1-DH5 2402MHz Ant1

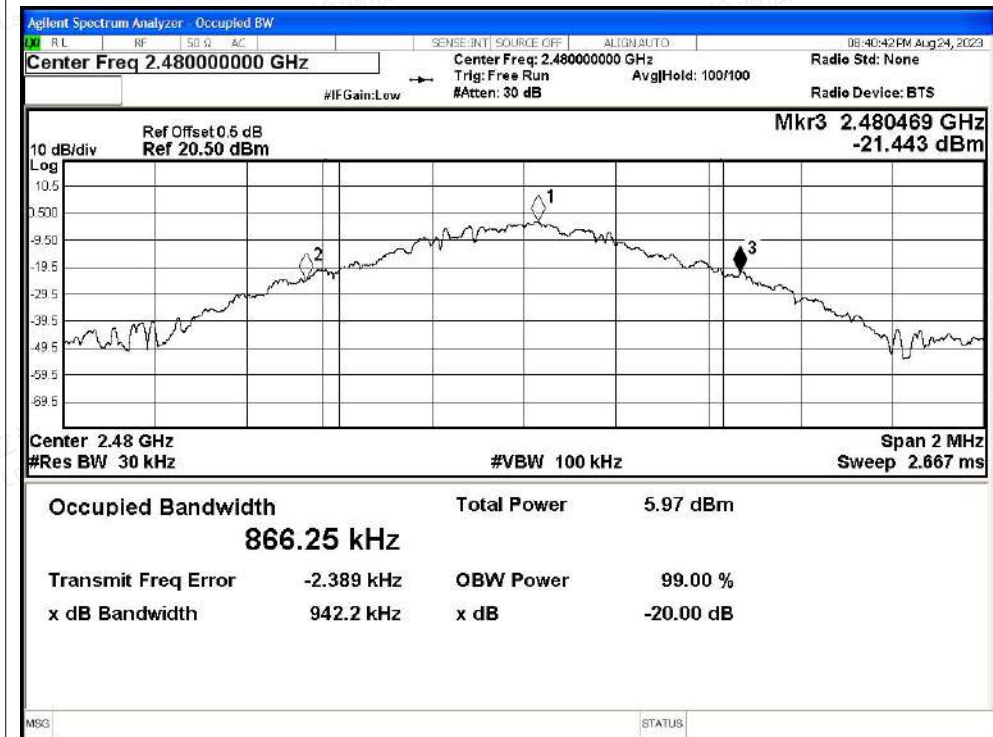


-20dB Bandwidth NVNT 1-DH5 2441MHz Ant1

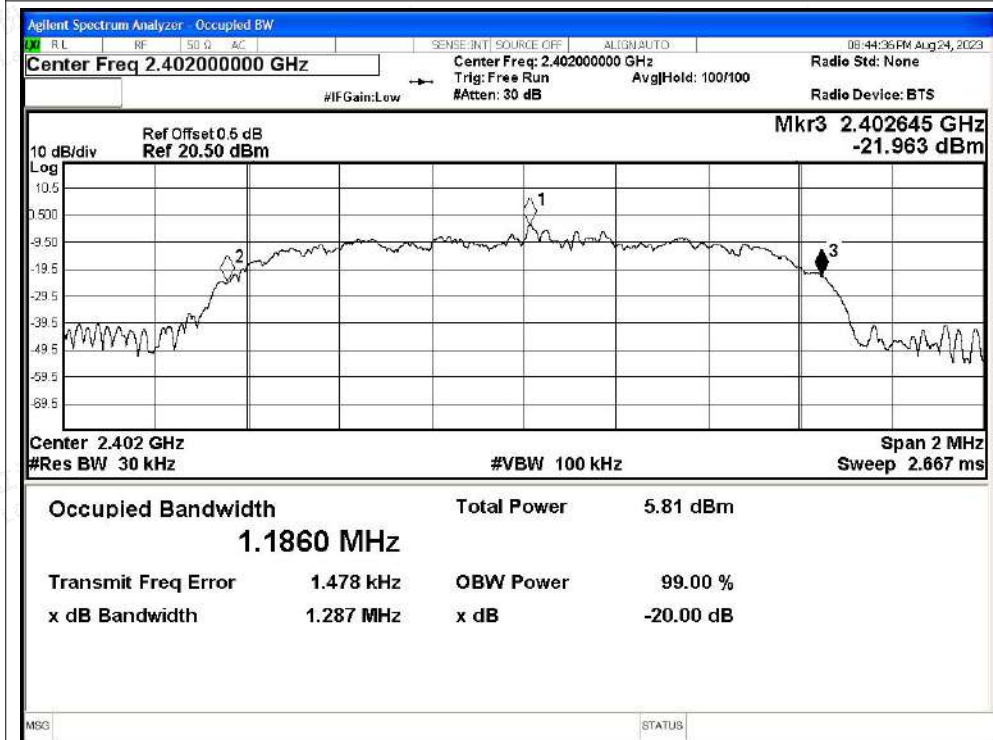




-20dB Bandwidth NVNT 1-DH5 2480MHz Ant1

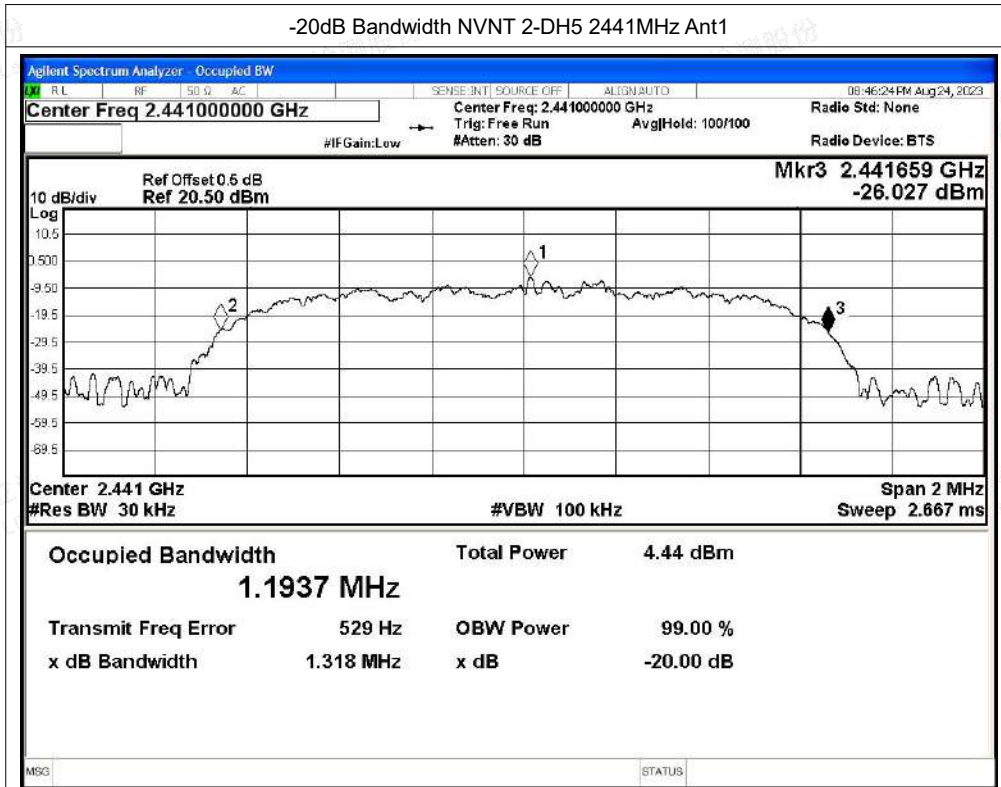


-20dB Bandwidth NVNT 2-DH5 2402MHz Ant1





-20dB Bandwidth NVNT 2-DH5 2441MHz Ant1

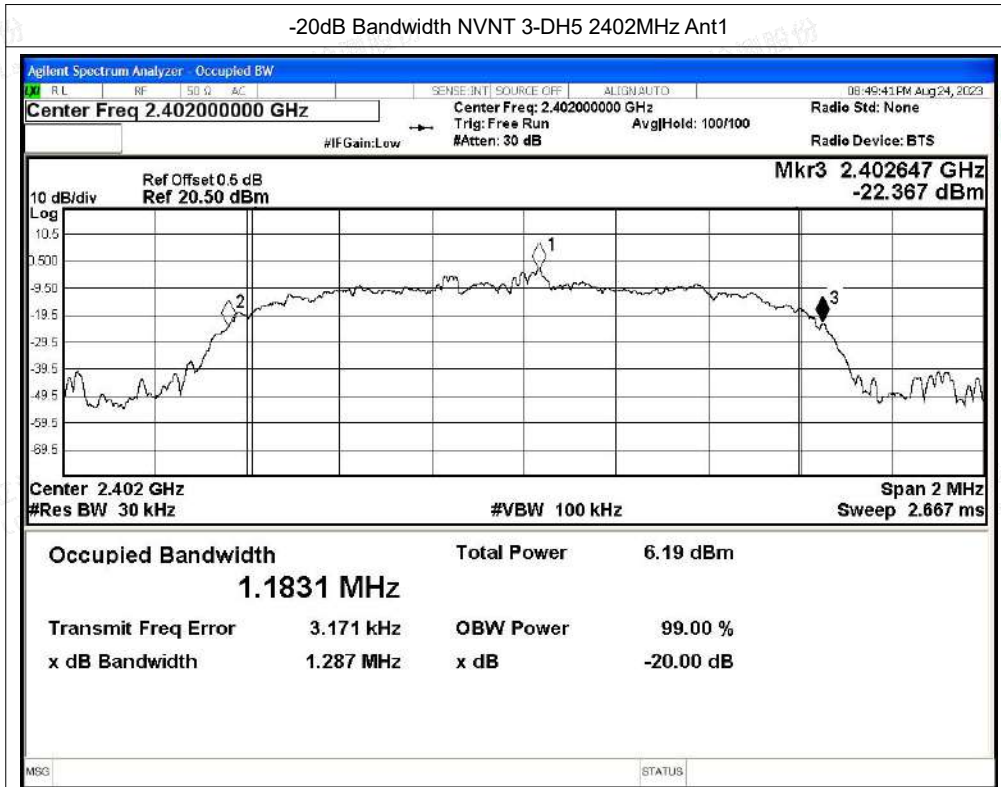


-20dB Bandwidth NVNT 2-DH5 2480MHz Ant1

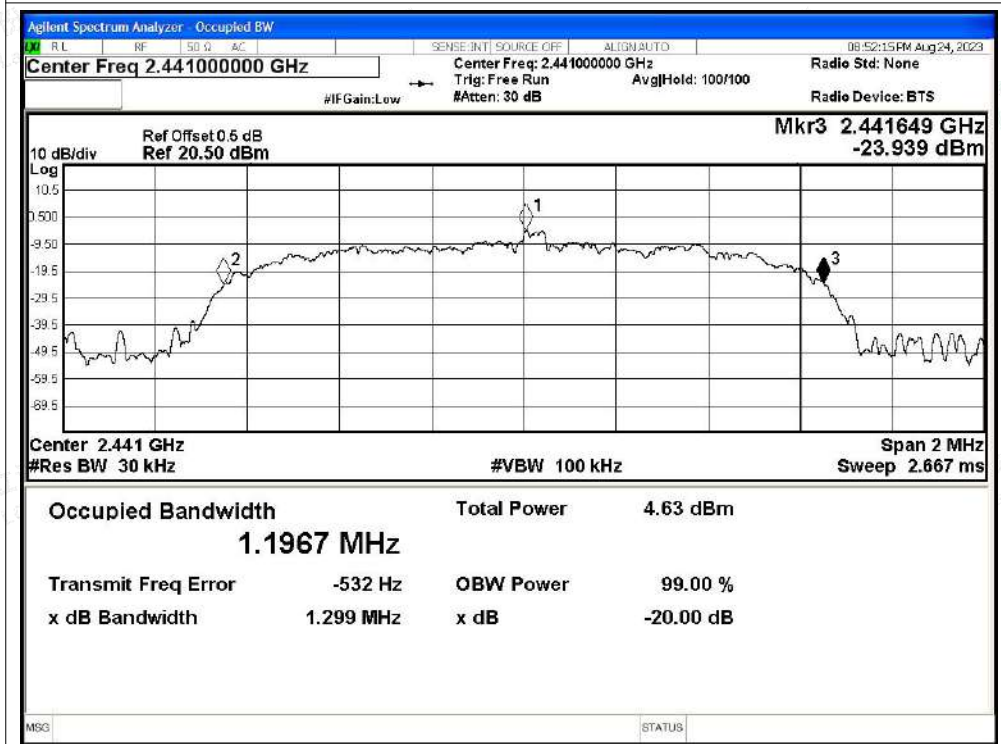


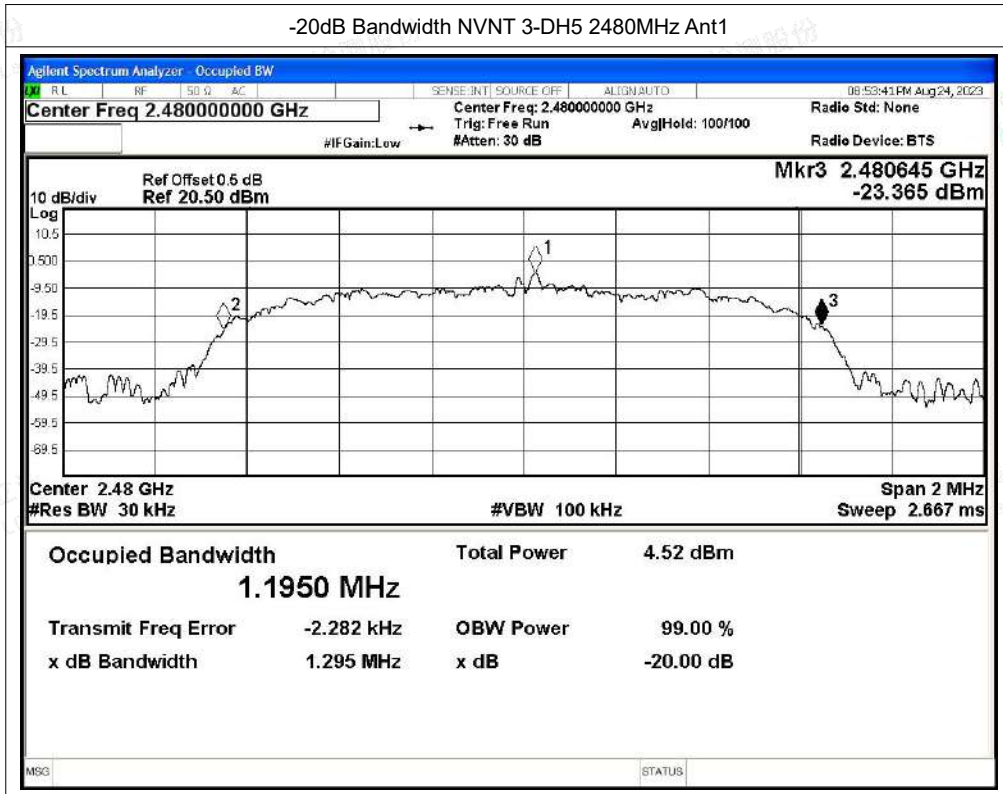


-20dB Bandwidth NVNT 3-DH5 2402MHz Ant1



-20dB Bandwidth NVNT 3-DH5 2441MHz Ant1







A.2 Maximum Conducted Output Power

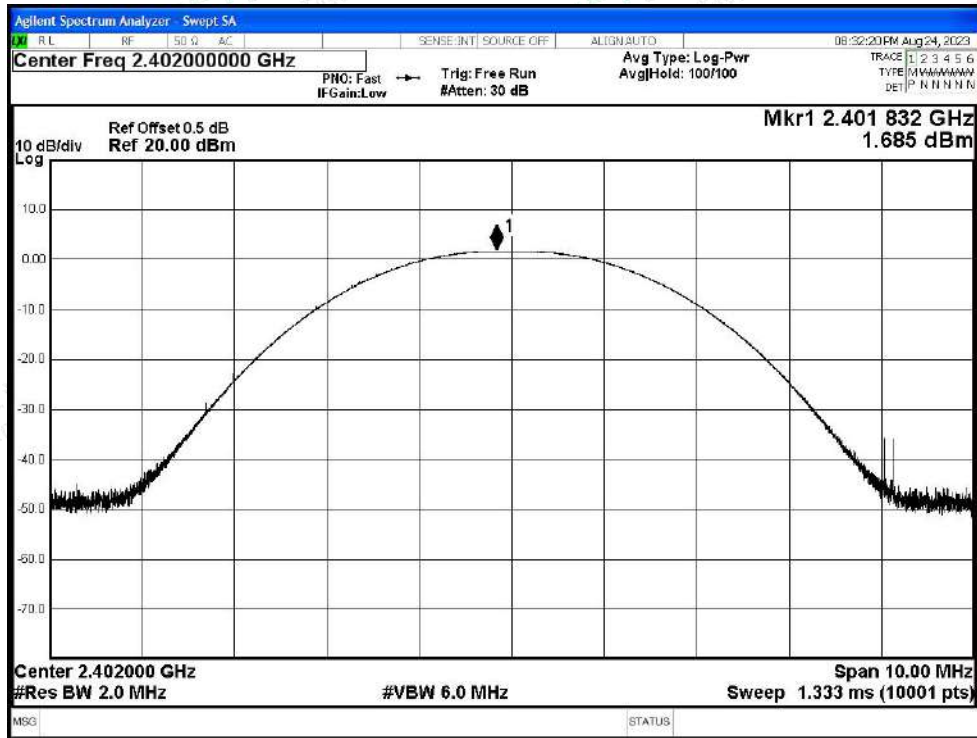
Condition	Mode	Frequency (MHz)	Antenna	Total Power (dBm)	Limit (dBm)	Verdict
NVNT	1-DH5	2402	Ant1	1.69	21	Pass
NVNT	1-DH5	2441	Ant1	0.26	21	Pass
NVNT	1-DH5	2480	Ant1	-0.25	21	Pass
NVNT	2-DH5	2402	Ant1	1.71	21	Pass
NVNT	2-DH5	2441	Ant1	0.34	21	Pass
NVNT	2-DH5	2480	Ant1	0.32	21	Pass
NVNT	3-DH5	2402	Ant1	1.86	21	Pass
NVNT	3-DH5	2441	Ant1	0.51	21	Pass
NVNT	3-DH5	2480	Ant1	0.51	21	Pass



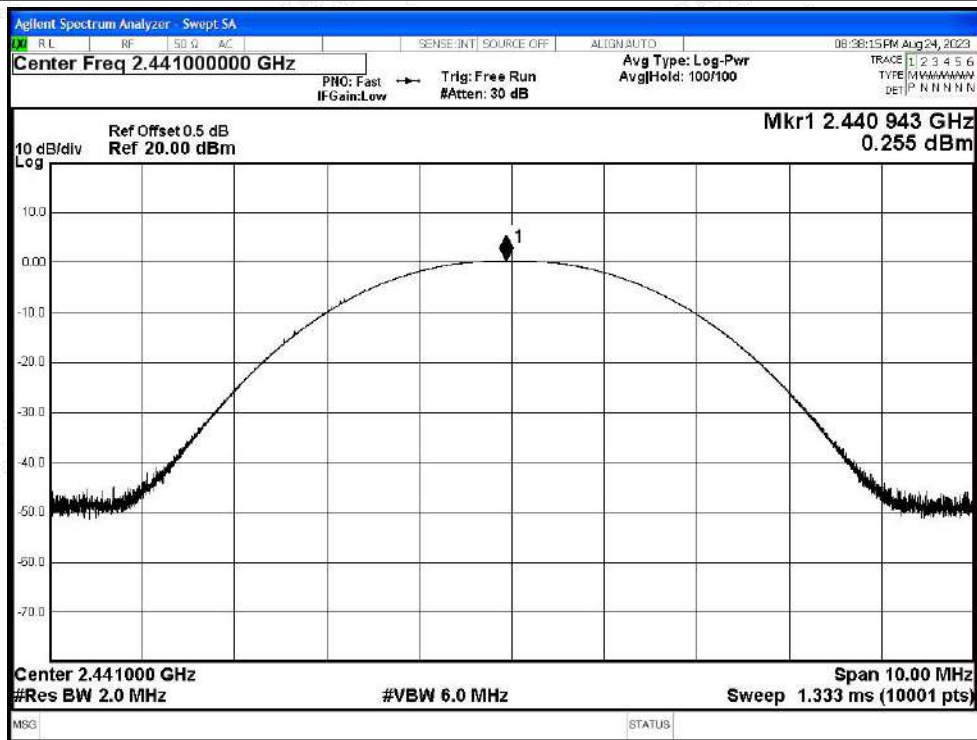


Test Graphs

Power NVNT 1-DH5 2402MHz Ant1

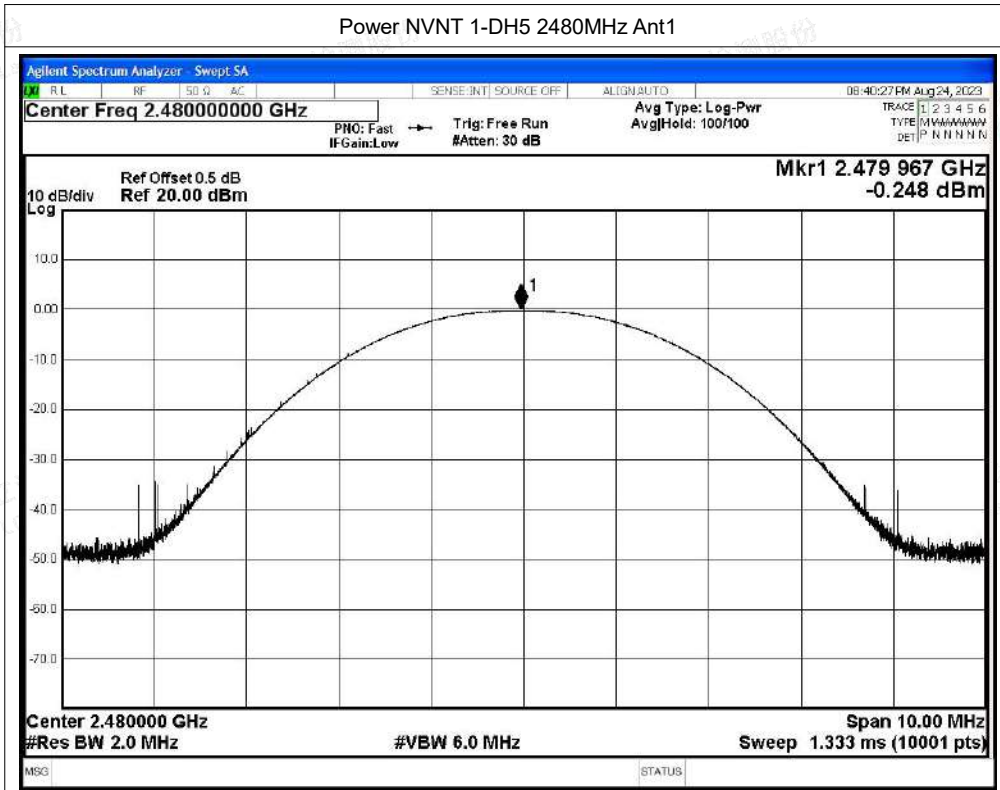


Power NVNT 1-DH5 2441MHz Ant1

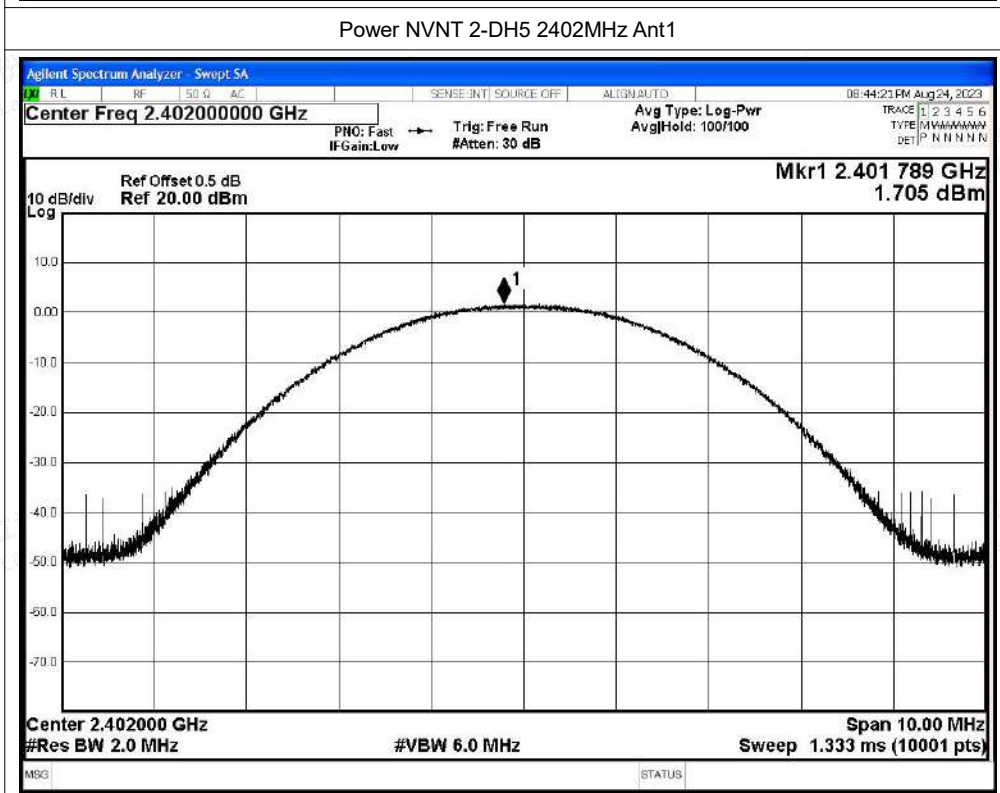




Power NVNT 1-DH5 2480MHz Ant1

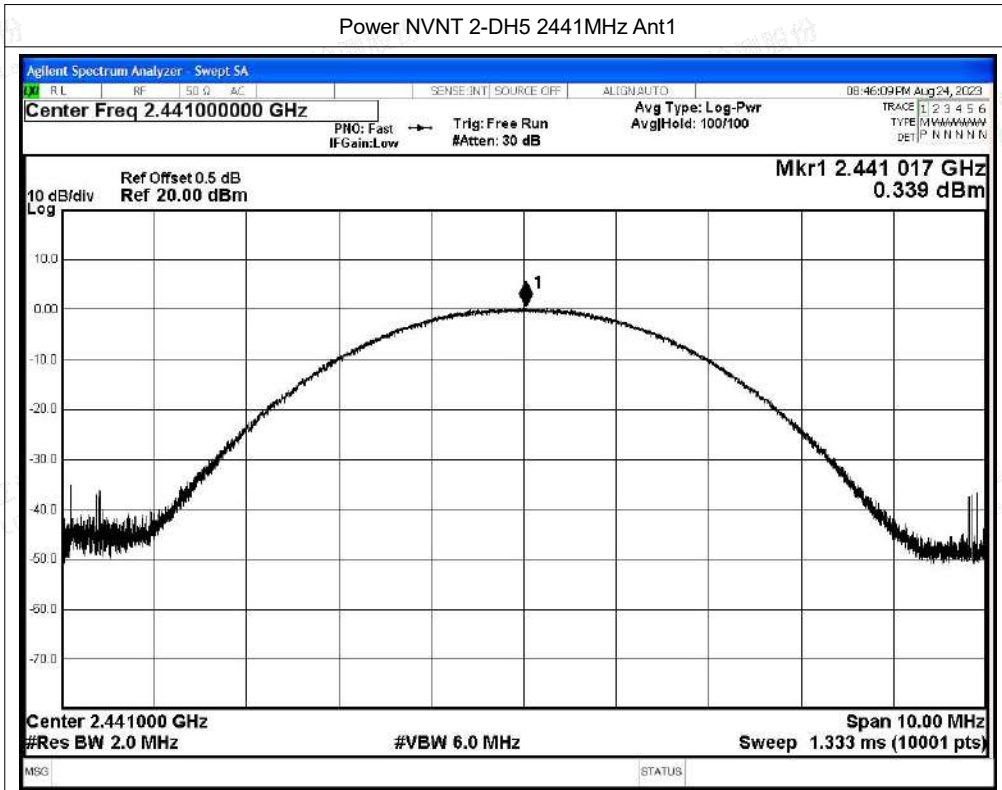


Power NVNT 2-DH5 2402MHz Ant1

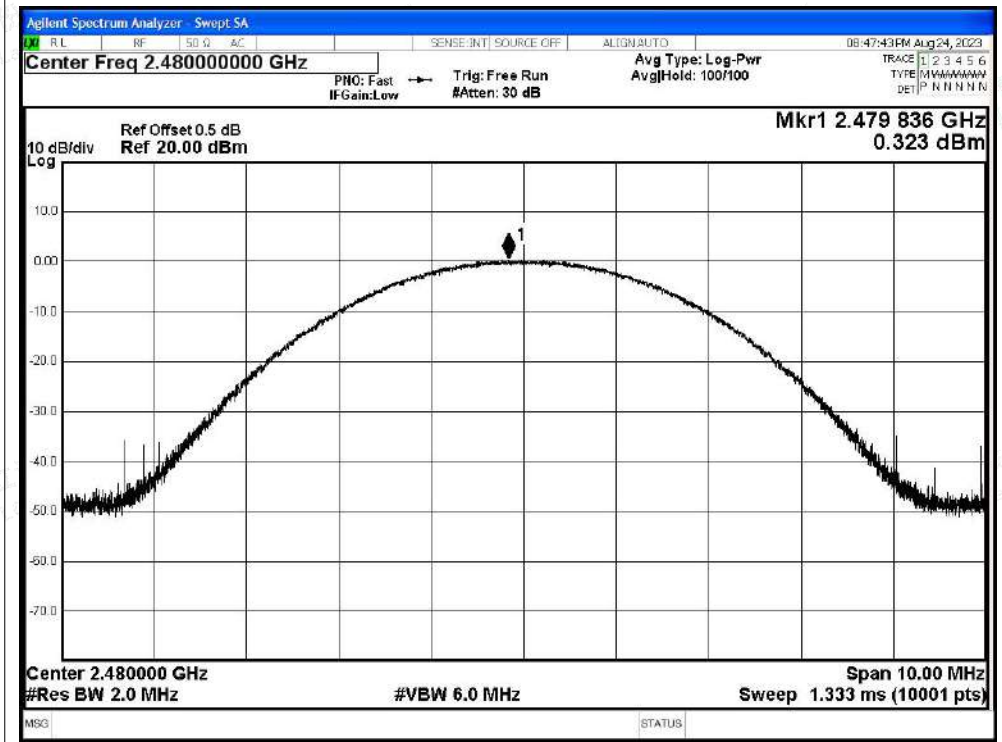




Power NVNT 2-DH5 2441MHz Ant1

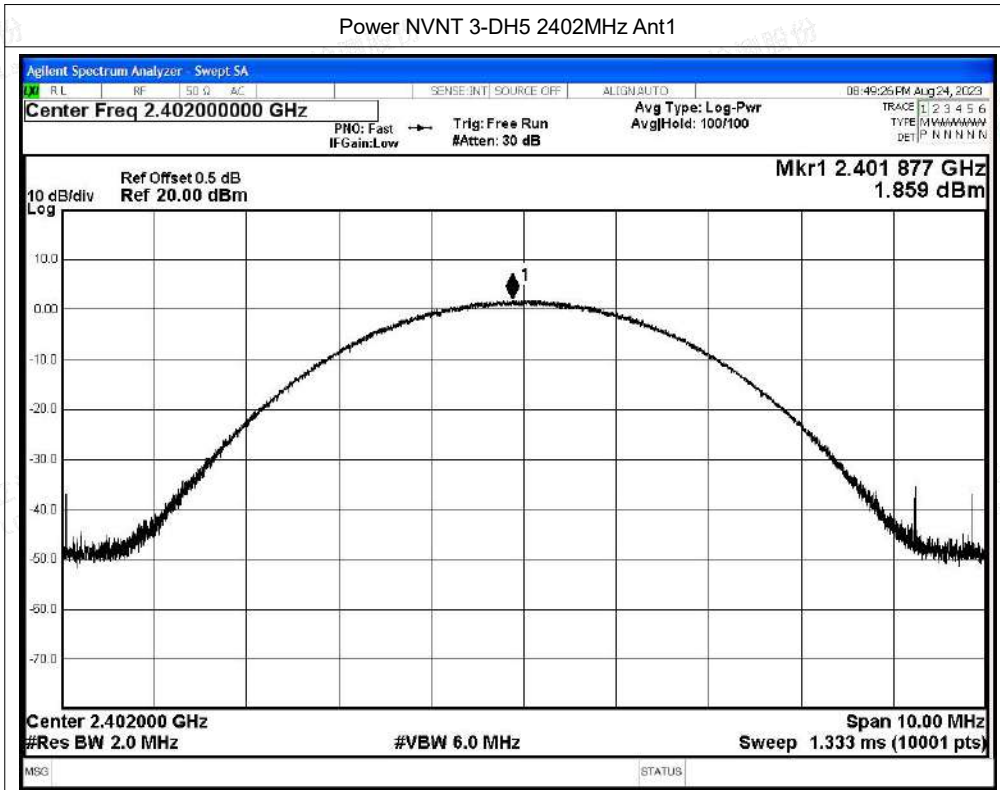


Power NVNT 2-DH5 2480MHz Ant1

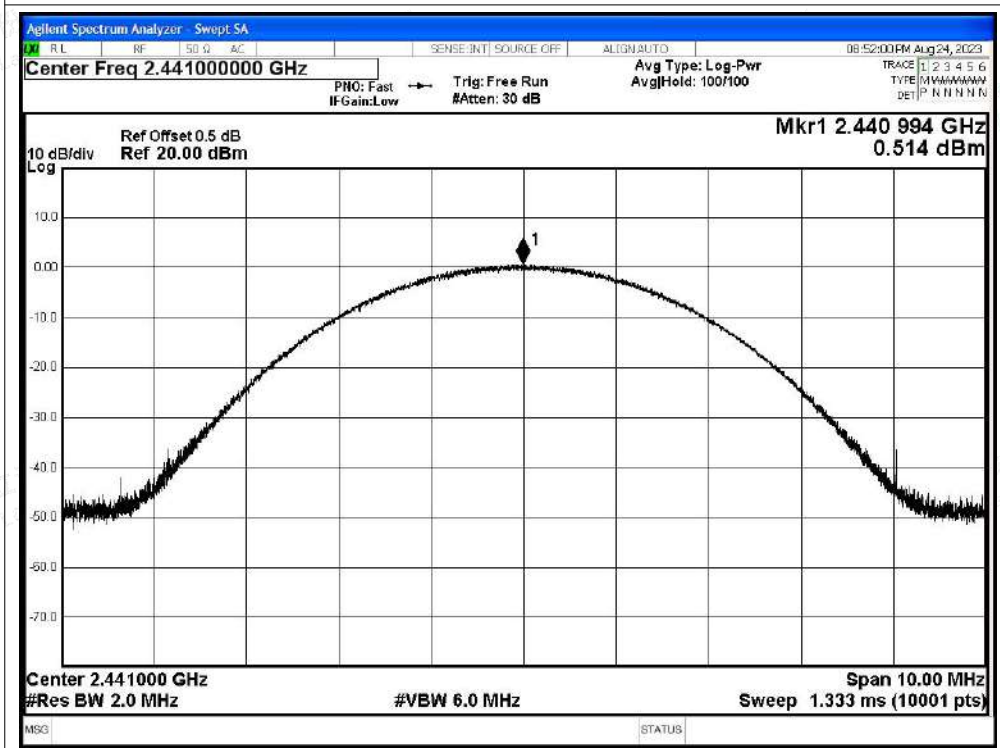


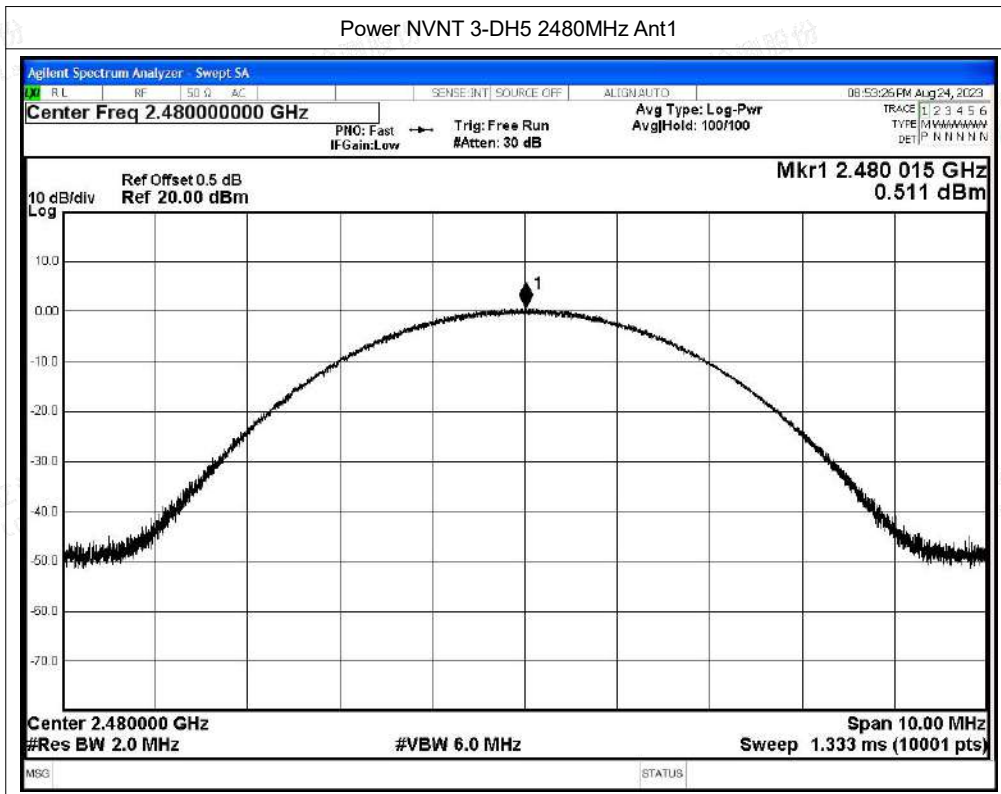


Power NVNT 3-DH5 2402MHz Ant1



Power NVNT 3-DH5 2441MHz Ant1







A.3 Carrier Frequencies Separation

Condition	Mode	Antenna	Hopping Freq1 (MHz)	Hopping Freq2 (MHz)	HFS (MHz)	Limit (MHz)	Verdict
NVNT	1-DH5	Ant1	2402.03	2402.984	0.954	0.678	Pass
NVNT	2-DH5	Ant1	2402.036	2403.006	0.97	0.879	Pass
NVNT	3-DH5	Ant1	2401.912	2403.004	1.092	0.866	Pass



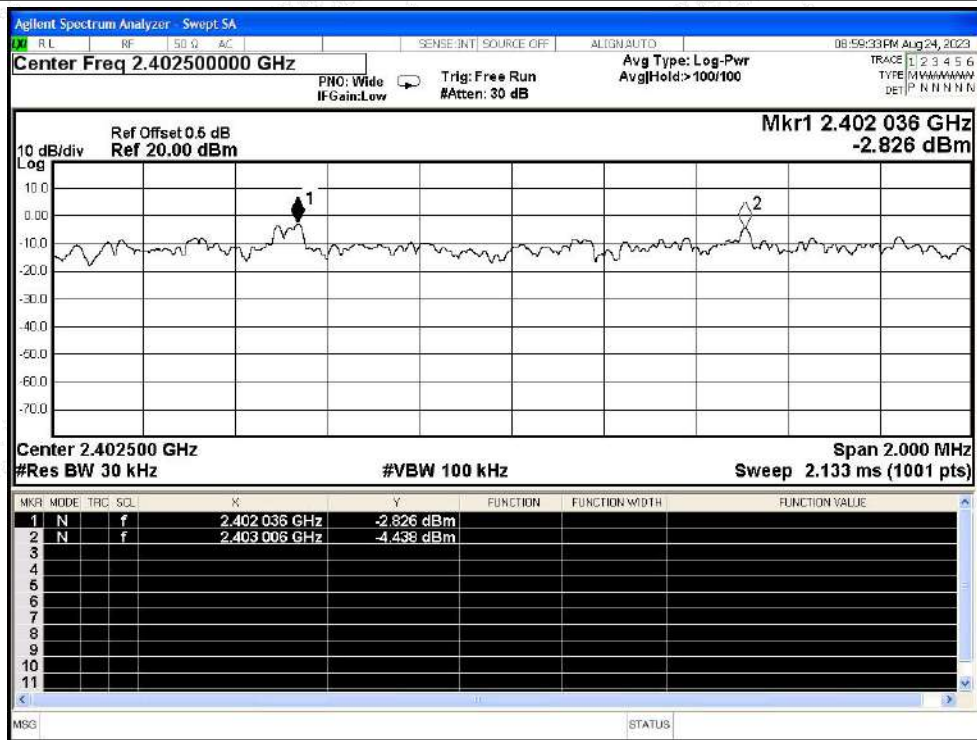


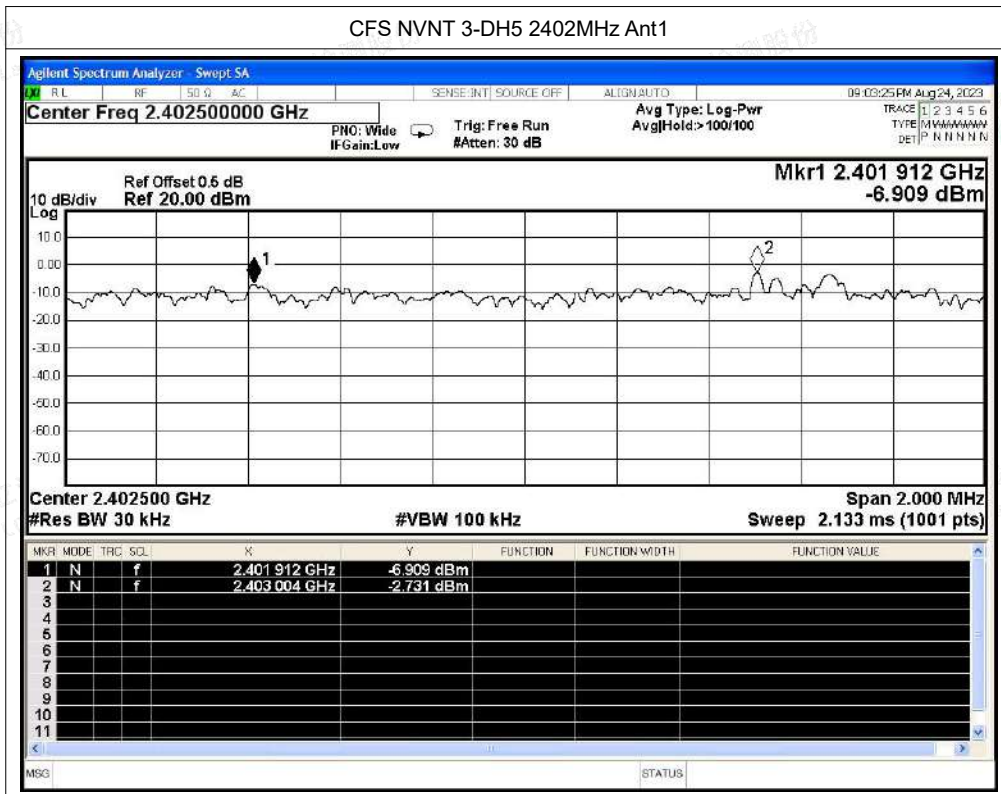
Test Graphs

CFS NVNT 1-DH5 2402MHz Ant1



CFS NVNT 2-DH5 2402MHz Ant1







A.4 Dwell Time

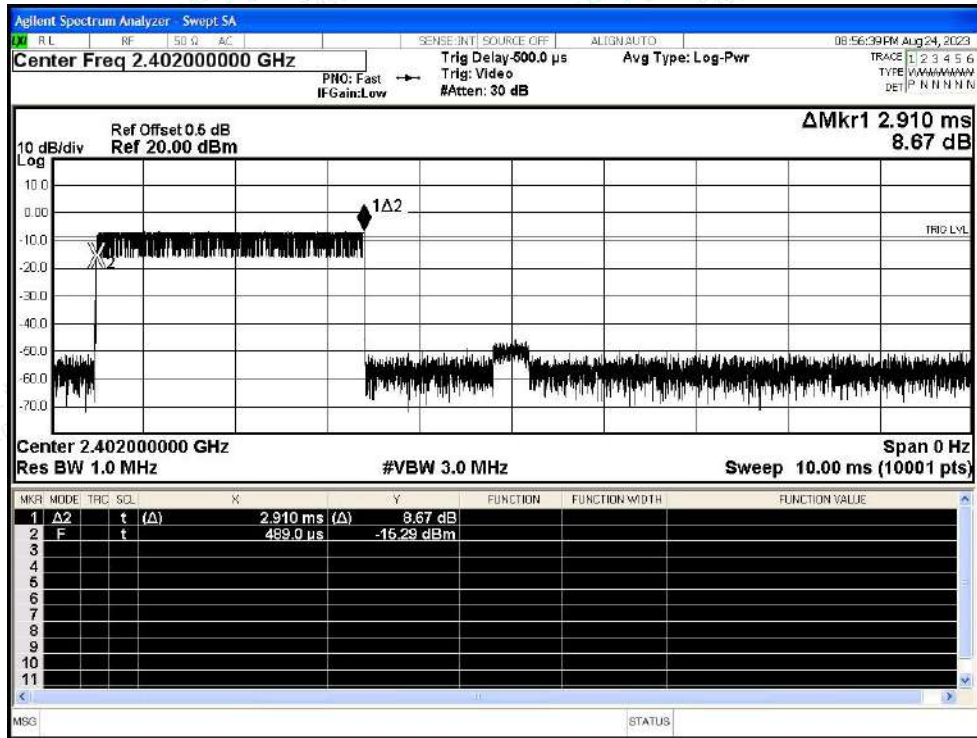
Condition	Mode	Frequency (MHz)	Antenna	Pulse Time (ms)	Total Dwell Time (ms)	Burst Count	Period Time (ms)	Limit (ms)	Verdict
NVNT	1-DH5	2402	Ant1	2.91	299.73	103	31600	400	Pass
NVNT	2-DH5	2402	Ant1	2.898	278.208	96	31600	400	Pass
NVNT	3-DH5	2402	Ant1	2.897	298.391	103	31600	400	Pass



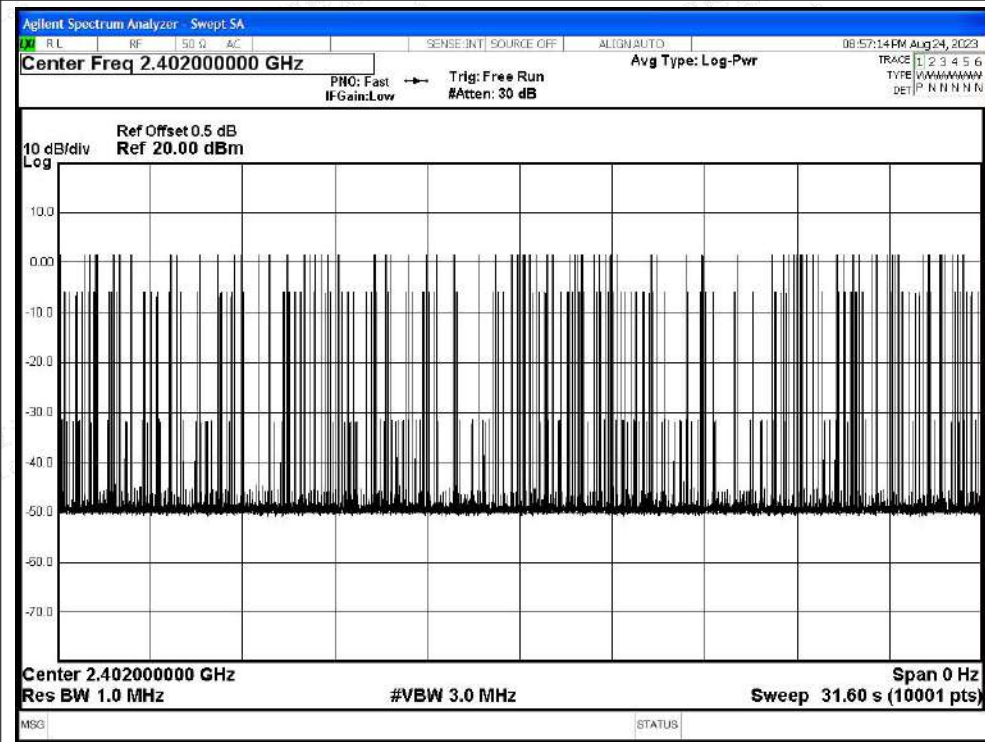


Test Graphs

Dwell NVNT 1-DH5 2402MHz Ant1 One Burst



Dwell NVNT 1-DH5 2402MHz Ant1 Accumulated



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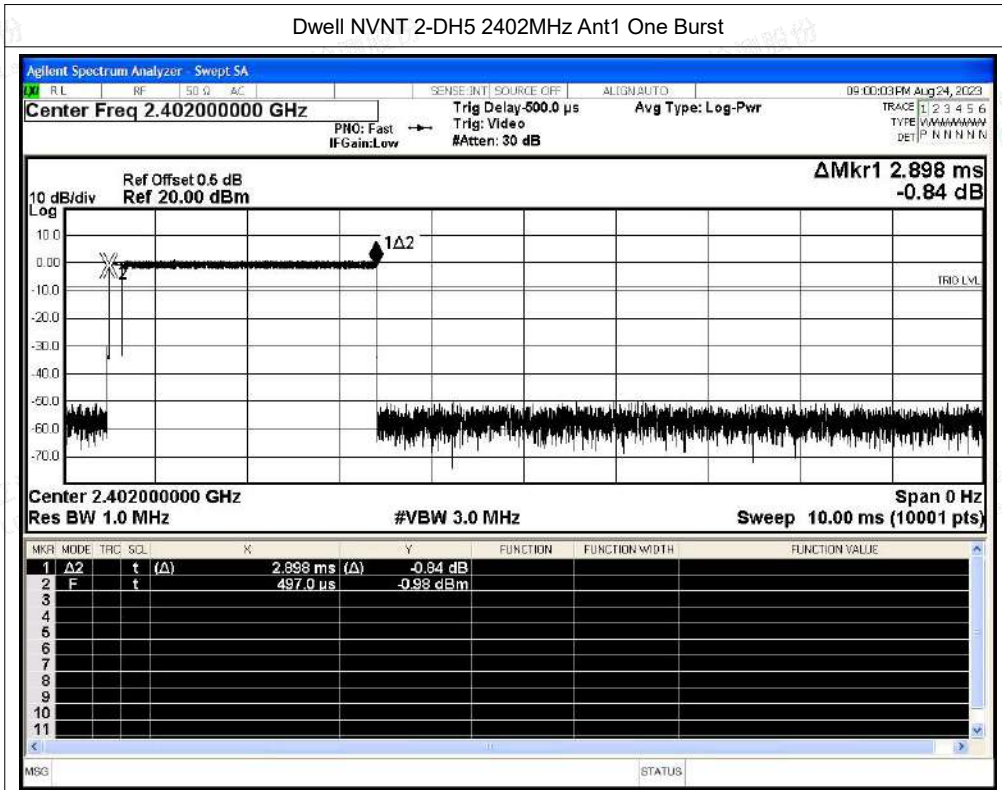
Add: 101, 201 Bldg A & 301 Bldg C, Juji Industrial Park Yabianxueziwei, Shajing Street, Baoan District, Shenzhen, 518000, China

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

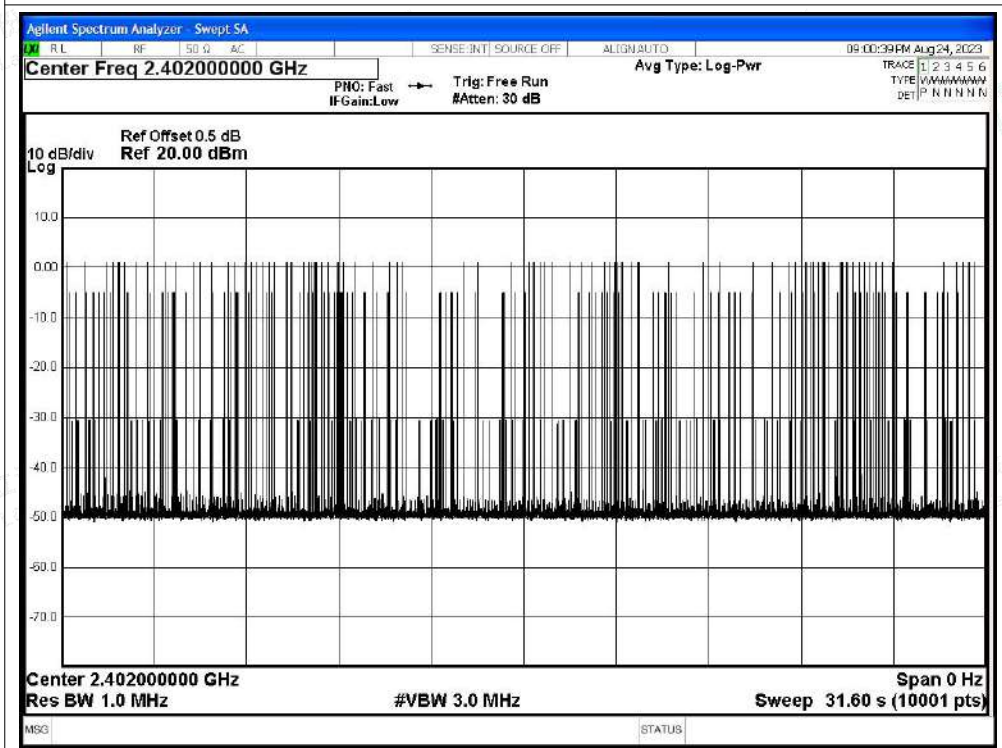
Scan code to check authenticity



Dwell NVNT 2-DH5 2402MHz Ant1 One Burst

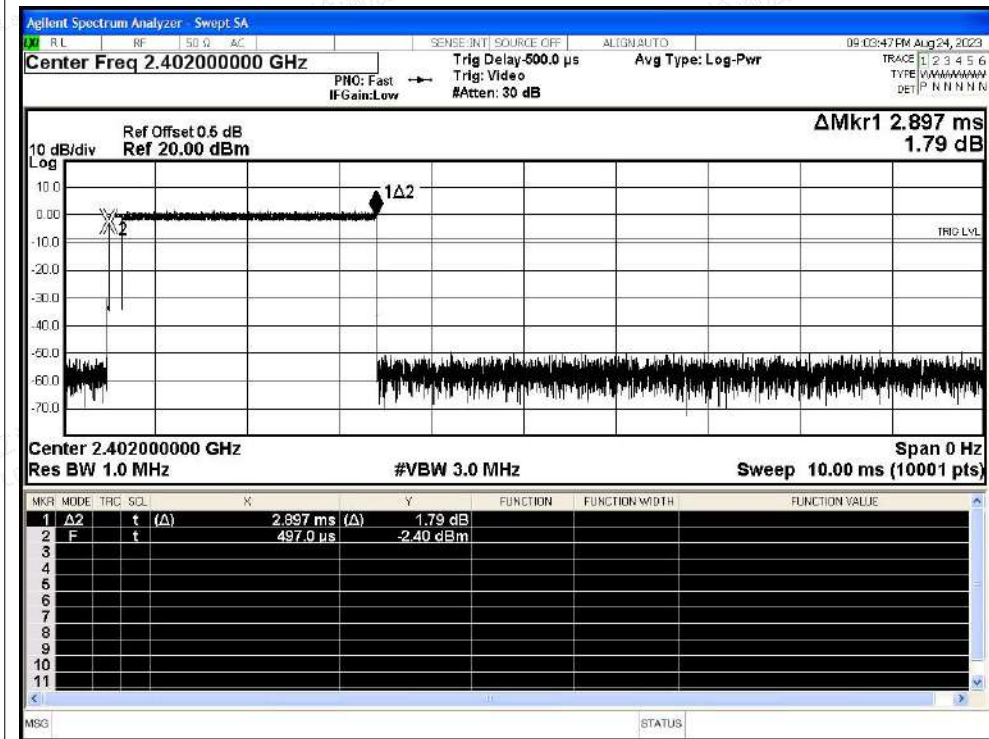


Dwell NVNT 2-DH5 2402MHz Ant1 Accumulated

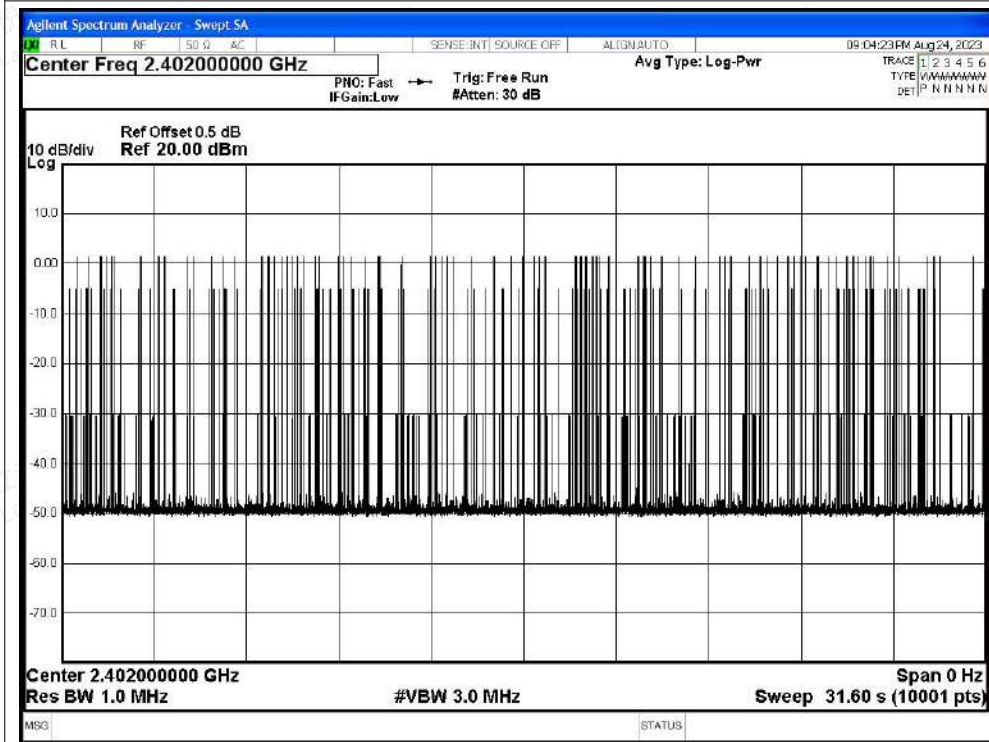




Dwell NVNT 3-DH5 2402MHz Ant1 One Burst



Dwell NVNT 3-DH5 2402MHz Ant1 Accumulated





A.5 Number of Hopping Channel

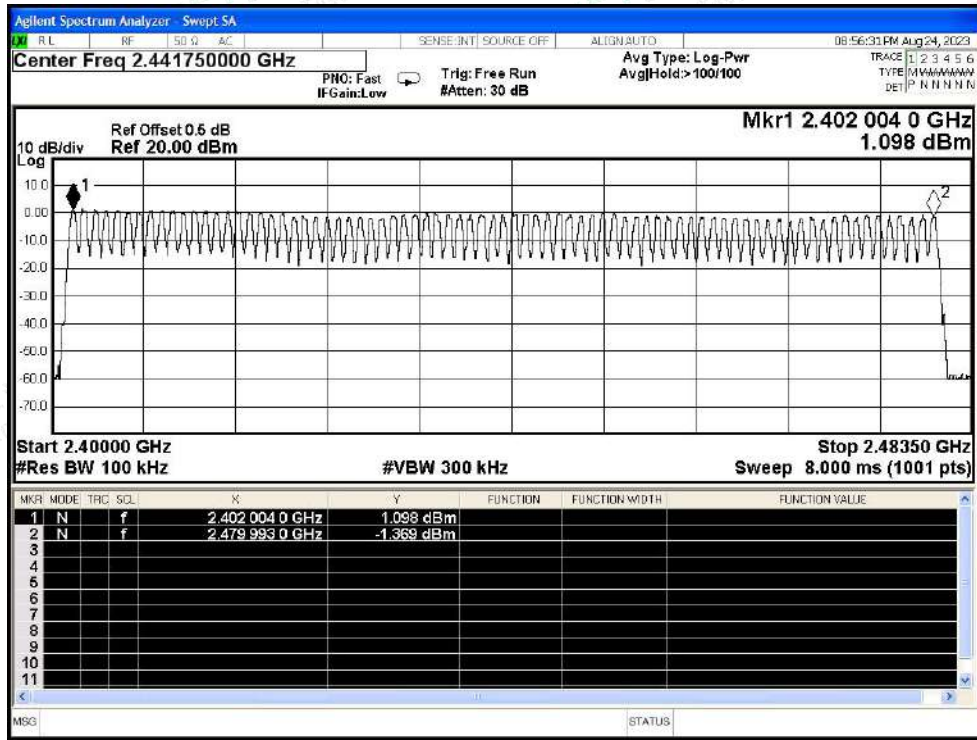
Condition	Mode	Antenna	Hopping Number	Limit	Verdict
NVNT	1-DH5	Ant1	79	15	Pass
NVNT	2-DH5	Ant1	79	15	Pass
NVNT	3-DH5	Ant1	79	15	Pass



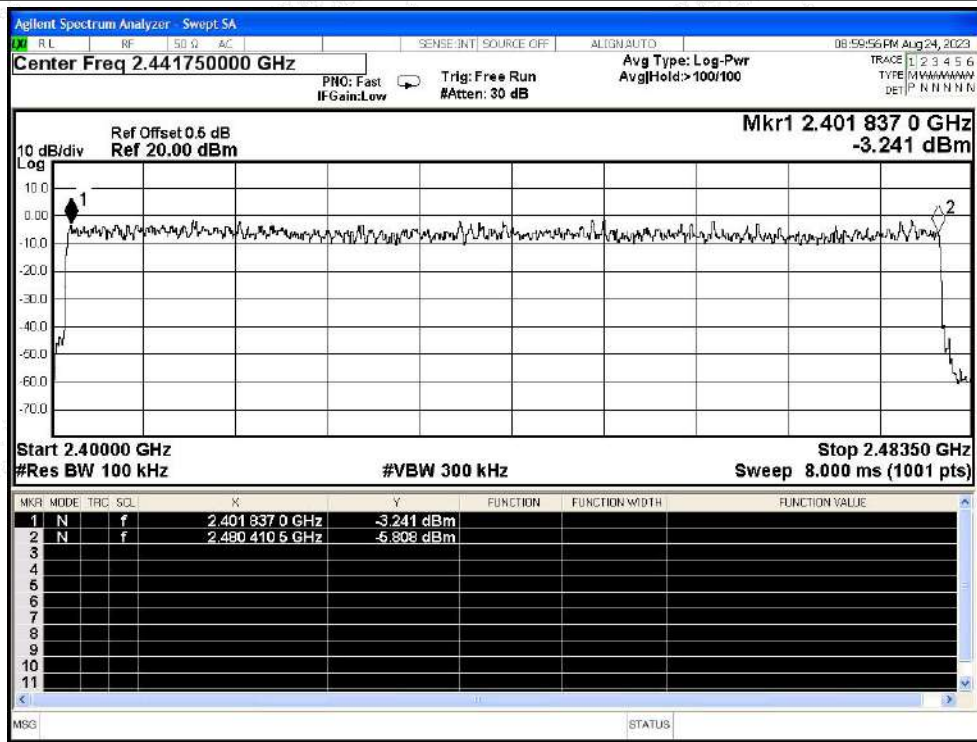


Test Graphs

Hopping No. NVNT 1-DH5 2402MHz Ant1

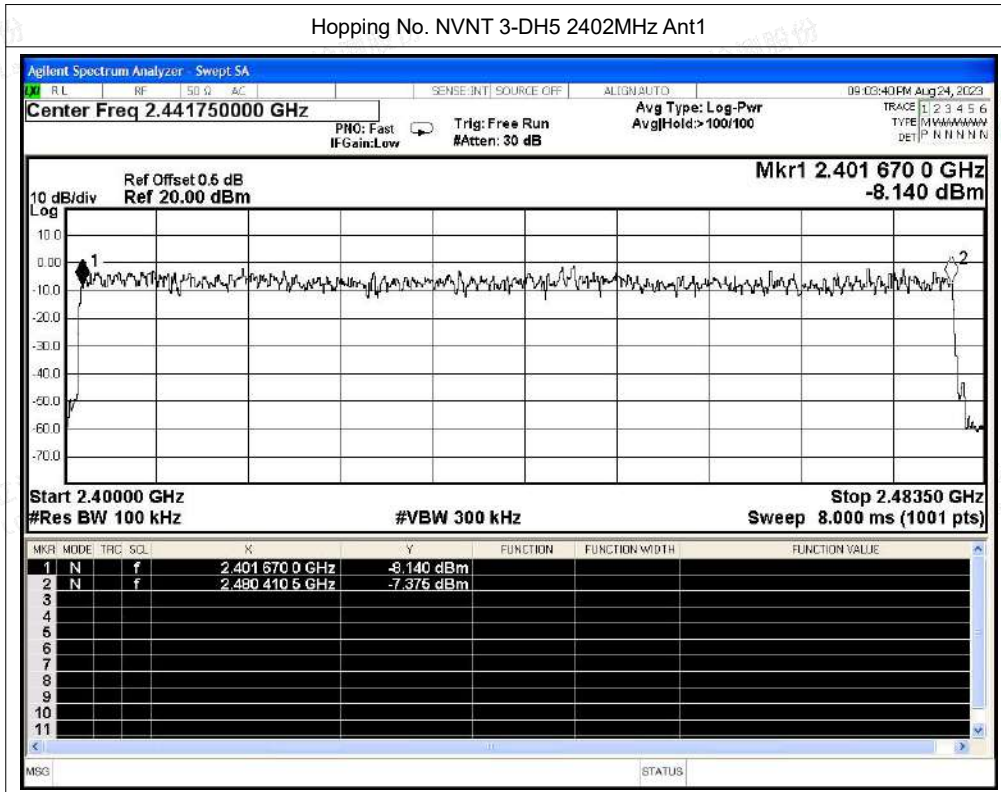


Hopping No. NVNT 2-DH5 2402MHz Ant1





Hopping No. NVNT 3-DH5 2402MHz Ant1





A.6 Band Edge

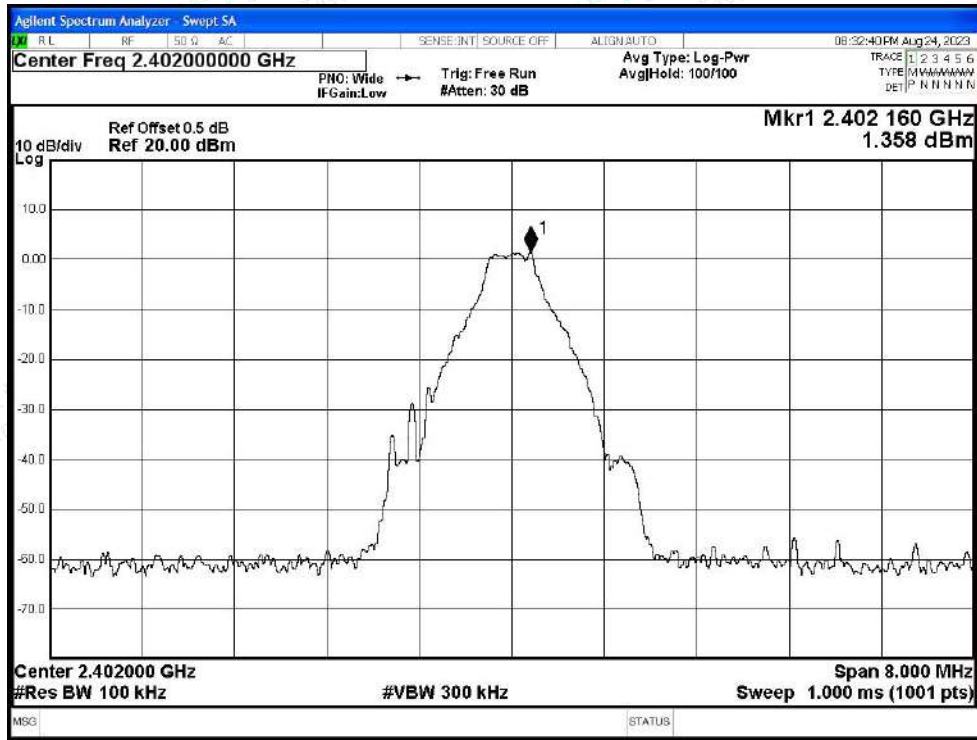
Condition	Mode	Frequency (MHz)	Antenna	Hopping Mode	Max Value (dBc)	Limit (dBc)	Verdict
NVNT	1-DH5	2402	Ant1	No-Hopping	-58.96	-20	Pass
NVNT	1-DH5	2480	Ant1	No-Hopping	-57.05	-20	Pass
NVNT	2-DH5	2402	Ant1	No-Hopping	-56.02	-20	Pass
NVNT	2-DH5	2480	Ant1	No-Hopping	-55.64	-20	Pass
NVNT	3-DH5	2402	Ant1	No-Hopping	-52.29	-20	Pass
NVNT	3-DH5	2480	Ant1	No-Hopping	-55.44	-20	Pass



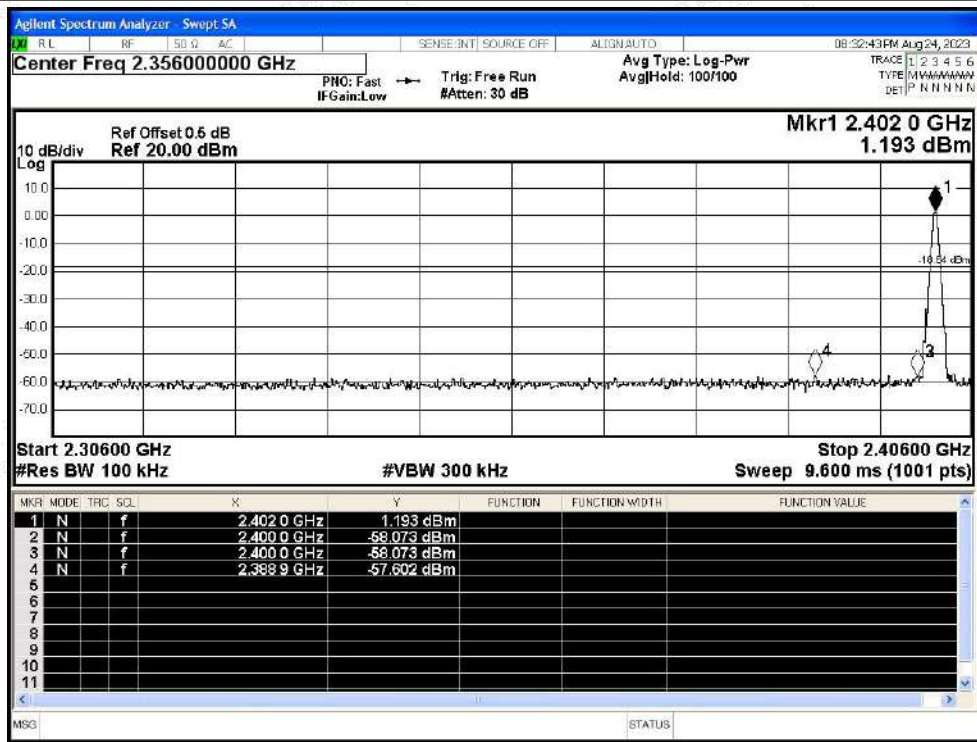


Test Graphs

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

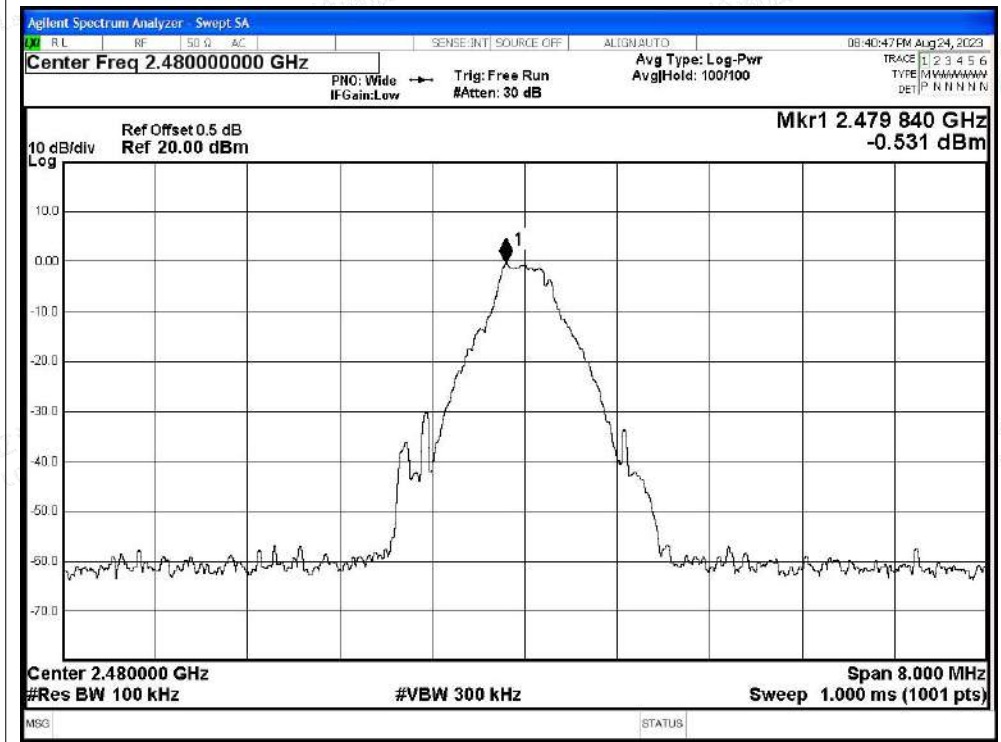


Band Edge NVNT 1-DH5 2402MHz Ant1 No-Hopping Emission

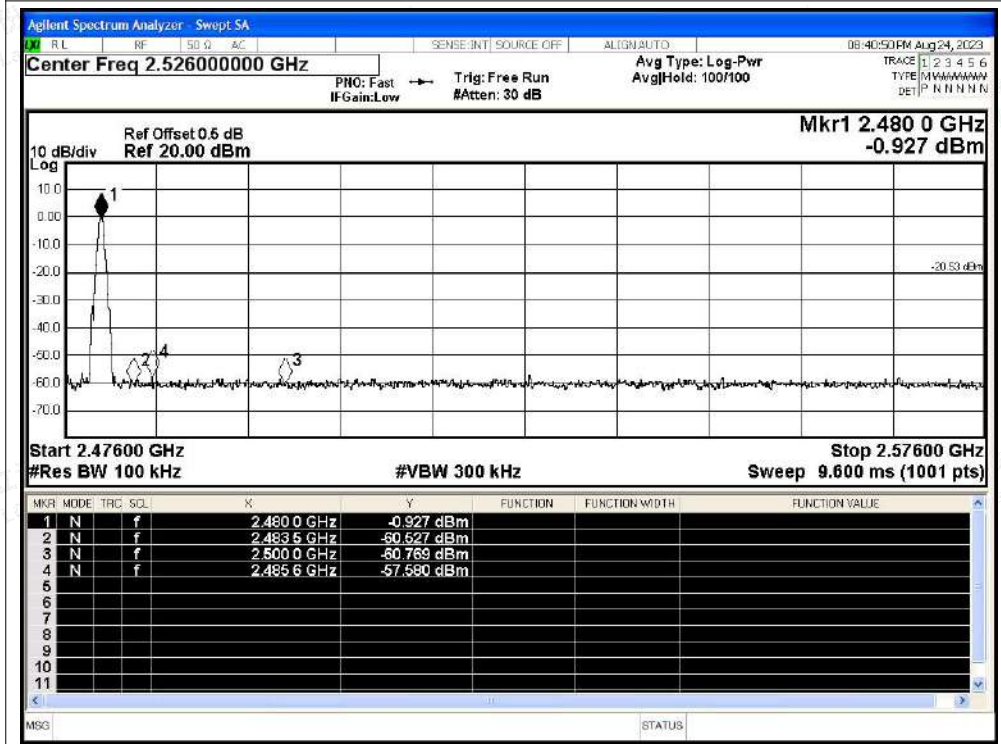




Band Edge NVNT 1-DH5 2480MHz Ant1 No-Hopping Ref

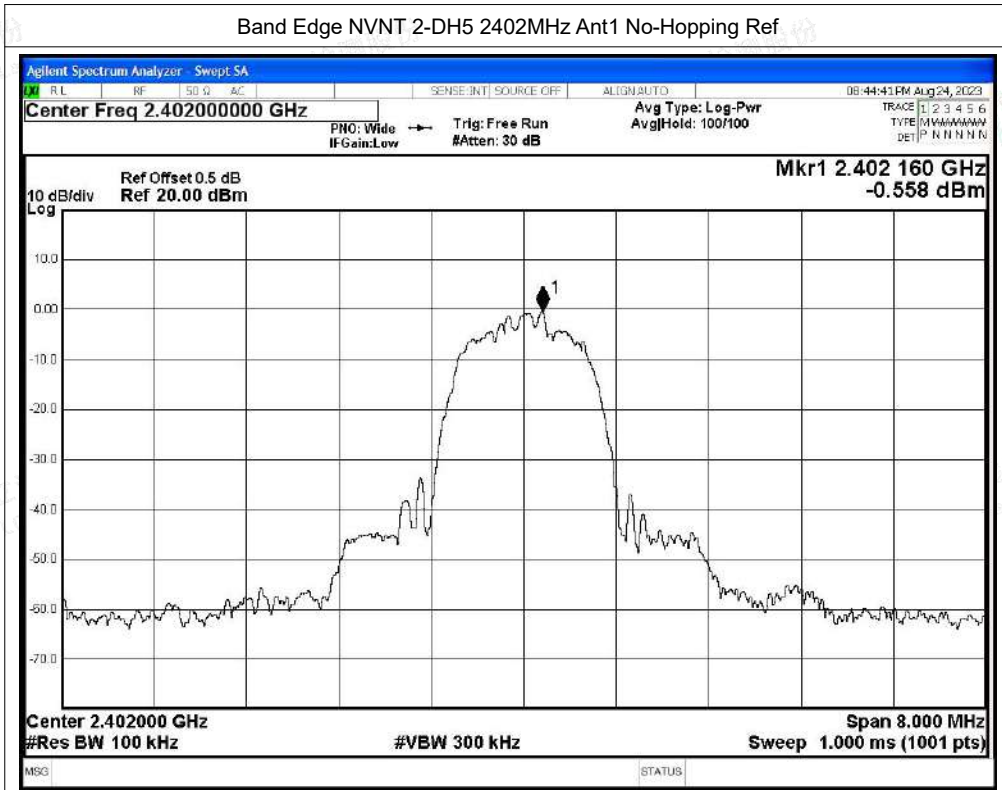


Band Edge NVNT 1-DH5 2480MHz Ant1 No-Hopping Emission

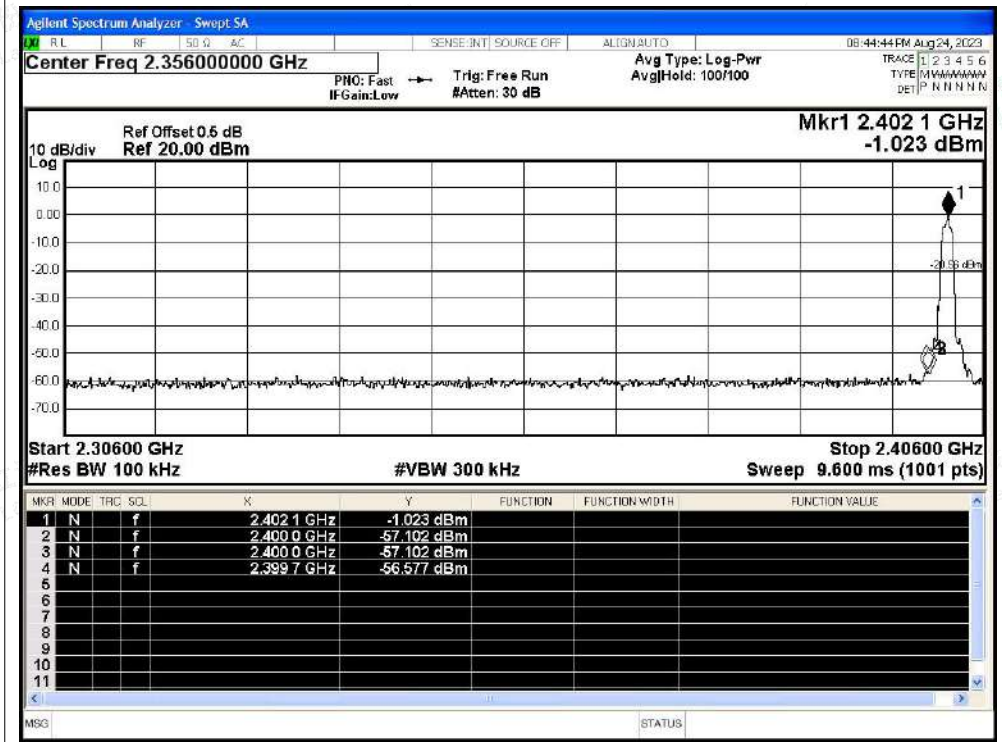




Band Edge NVNT 2-DH5 2402MHz Ant1 No-Hopping Ref

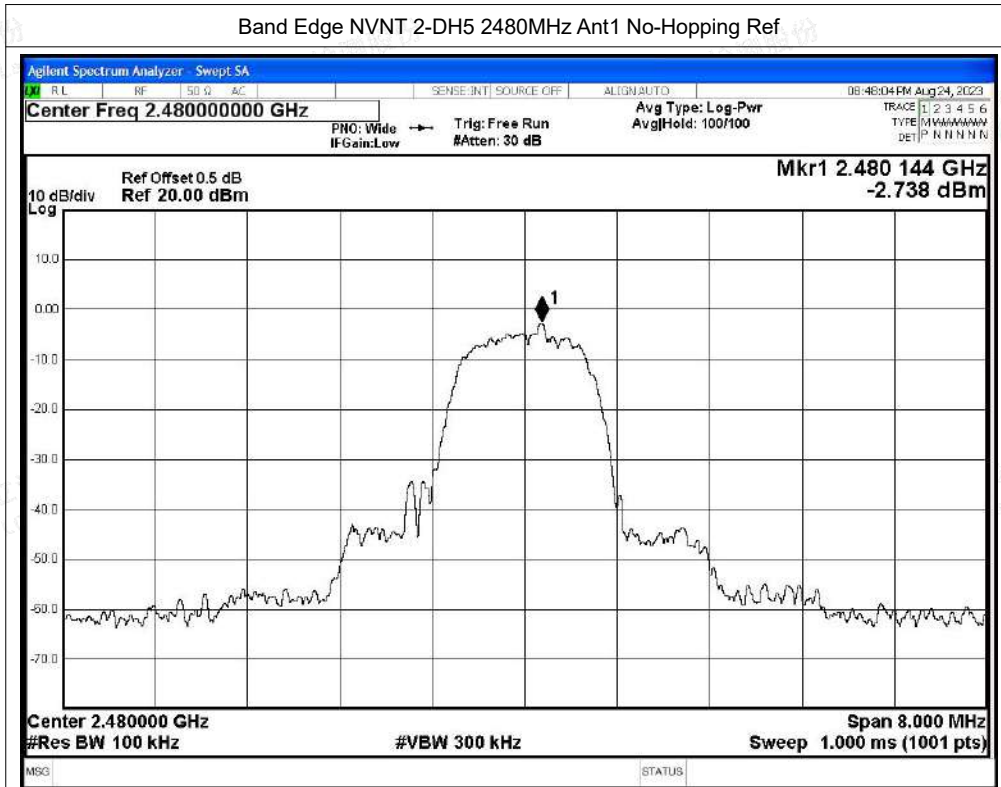


Band Edge NVNT 2-DH5 2402MHz Ant1 No-Hopping Emission

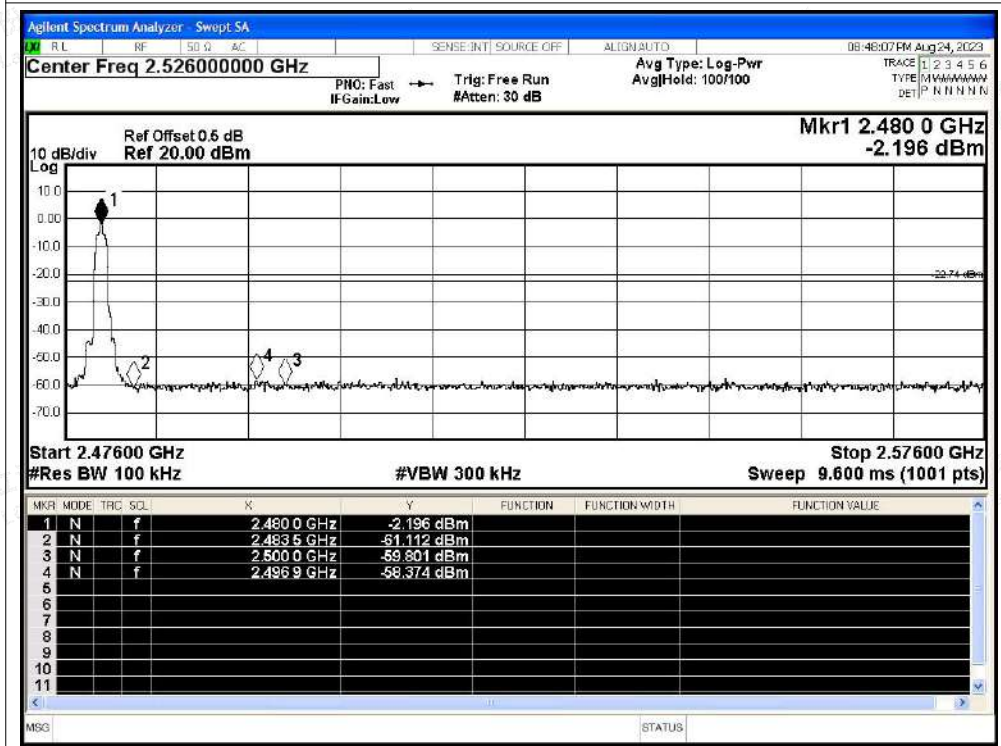




Band Edge NVNT 2-DH5 2480MHz Ant1 No-Hopping Ref

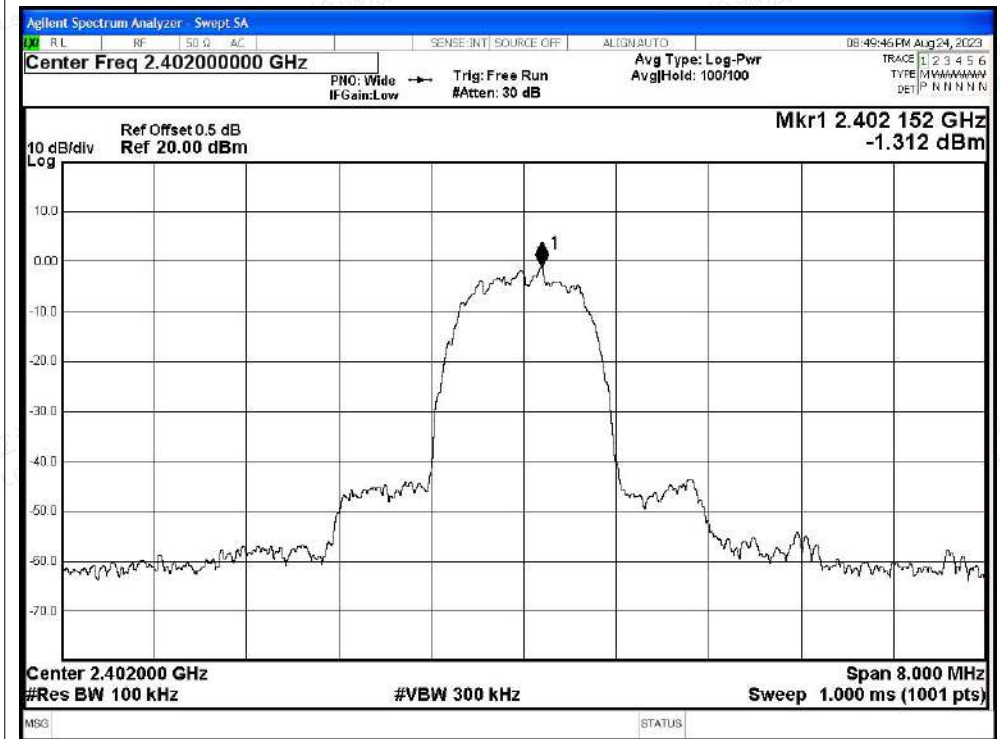


Band Edge NVNT 2-DH5 2480MHz Ant1 No-Hopping Emission

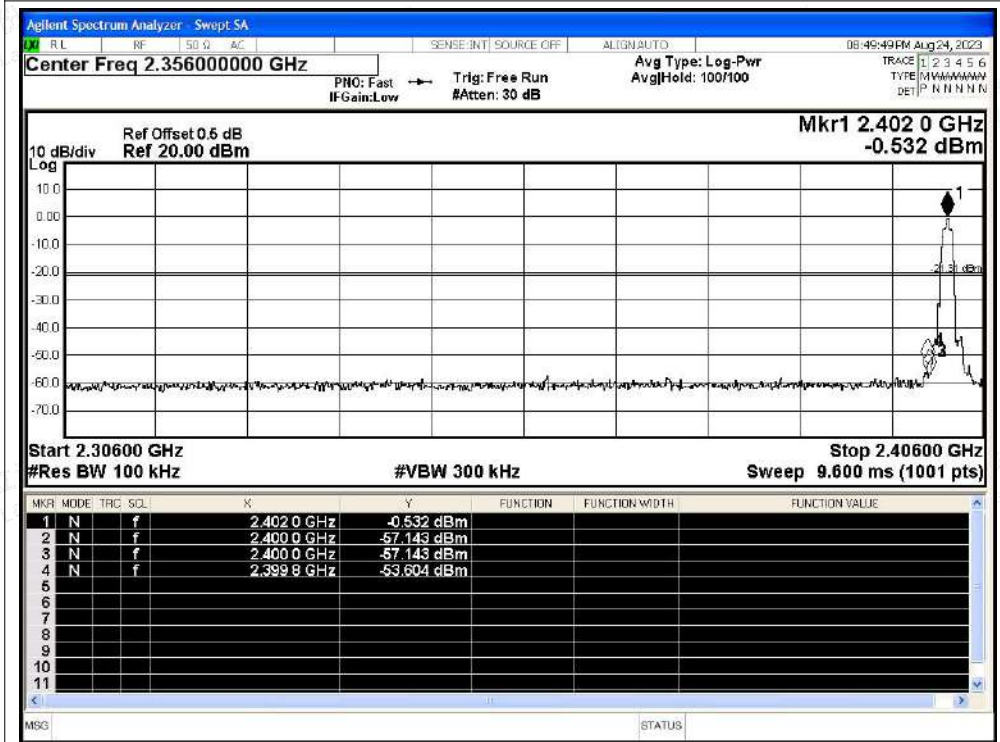




Band Edge NVNT 3-DH5 2402MHz Ant1 No-Hopping Ref

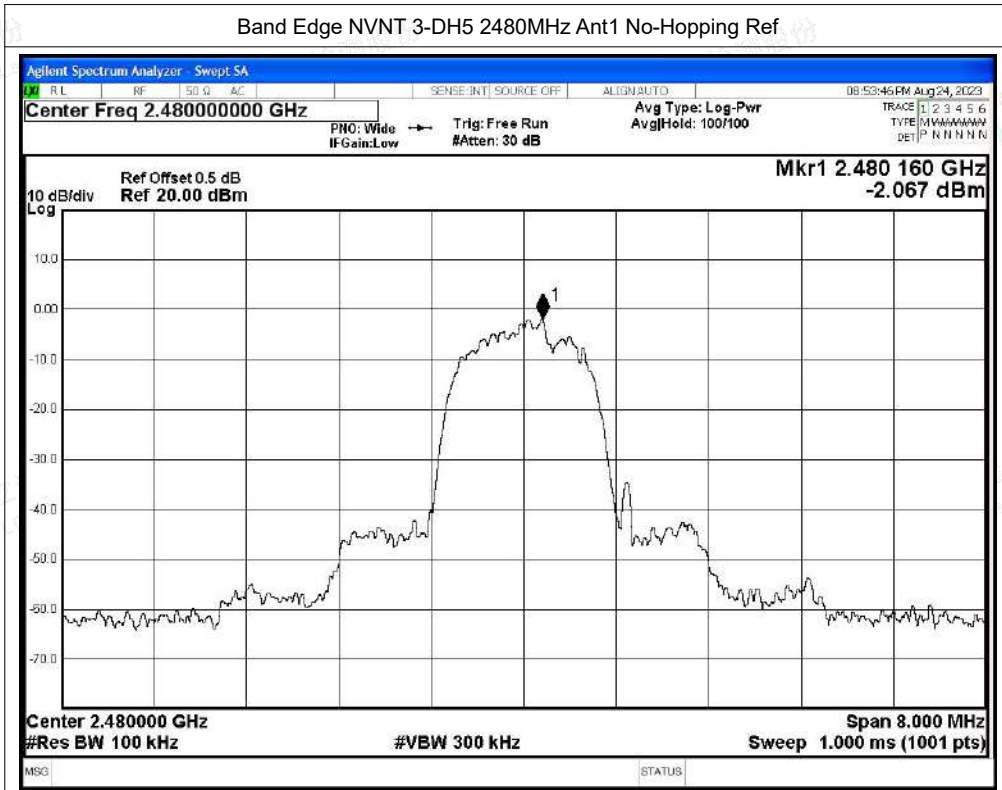


Band Edge NVNT 3-DH5 2402MHz Ant1 No-Hopping Emission

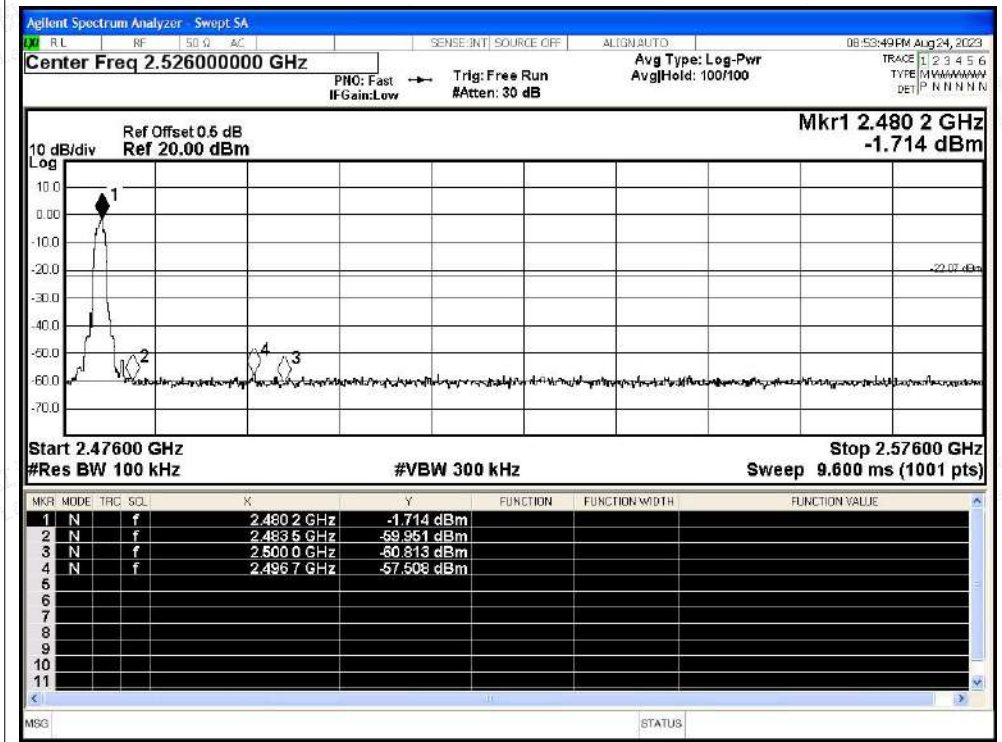




Band Edge NVNT 3-DH5 2480MHz Ant1 No-Hopping Ref



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





(Hopping)

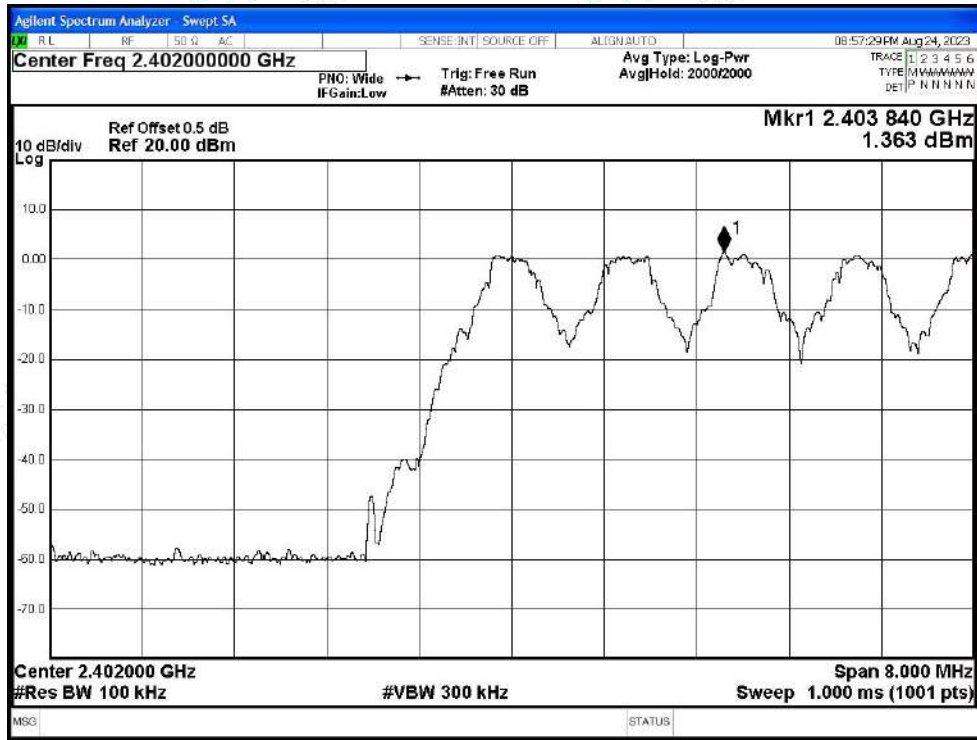
Condition	Mode	Frequency (MHz)	Antenna	Hopping Mode	Max Value (dBc)	Limit (dBc)	Verdict
NVNT	1-DH5	2402	Ant1	Hopping	-57.54	-20	Pass
NVNT	1-DH5	2480	Ant1	Hopping	-56.64	-20	Pass
NVNT	2-DH5	2402	Ant1	Hopping	-55.68	-20	Pass
NVNT	2-DH5	2480	Ant1	Hopping	-53.29	-20	Pass
NVNT	3-DH5	2402	Ant1	Hopping	-55.82	-20	Pass
NVNT	3-DH5	2480	Ant1	Hopping	-55.03	-20	Pass



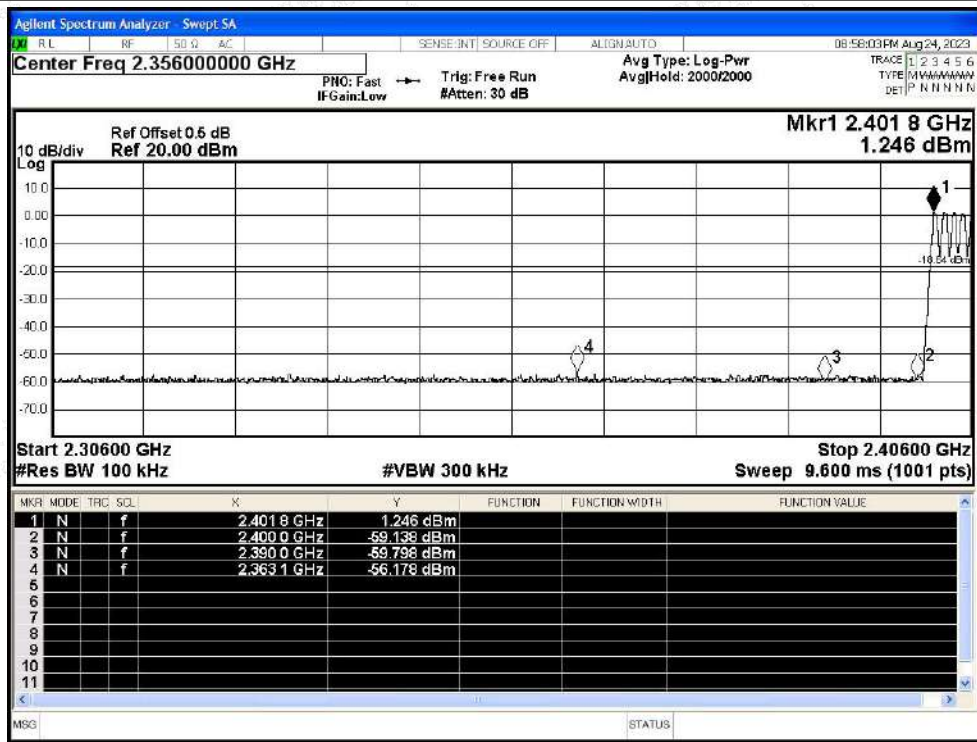


Test Graphs

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

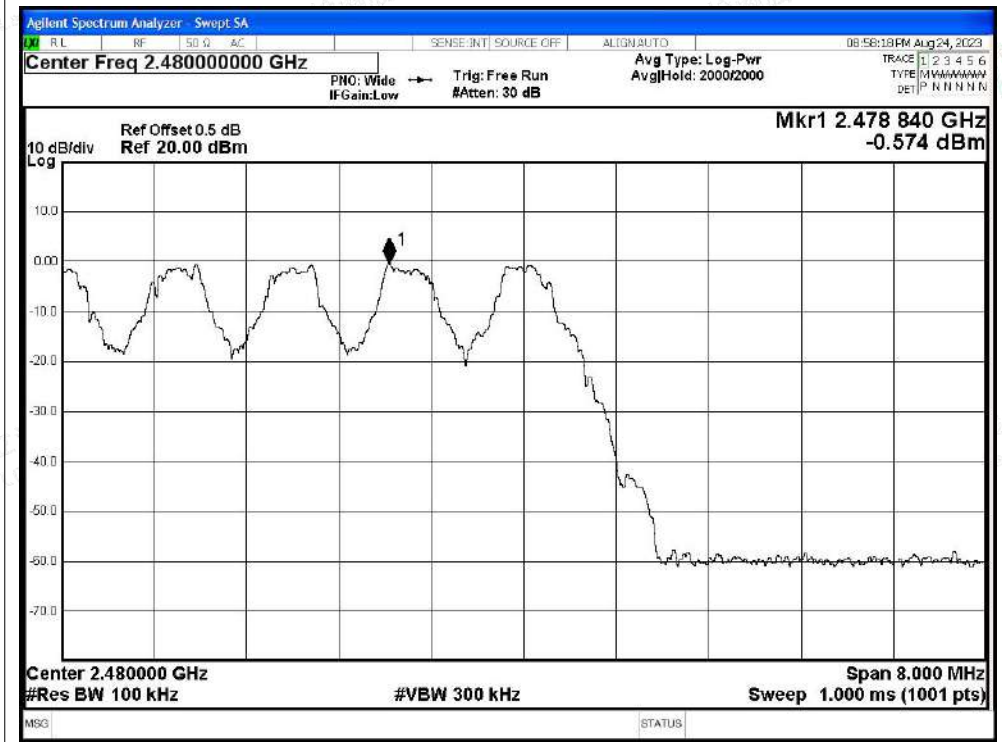


Band Edge(Hopping) NVNT 1-DH5 2402MHz Ant1 Hopping Emission

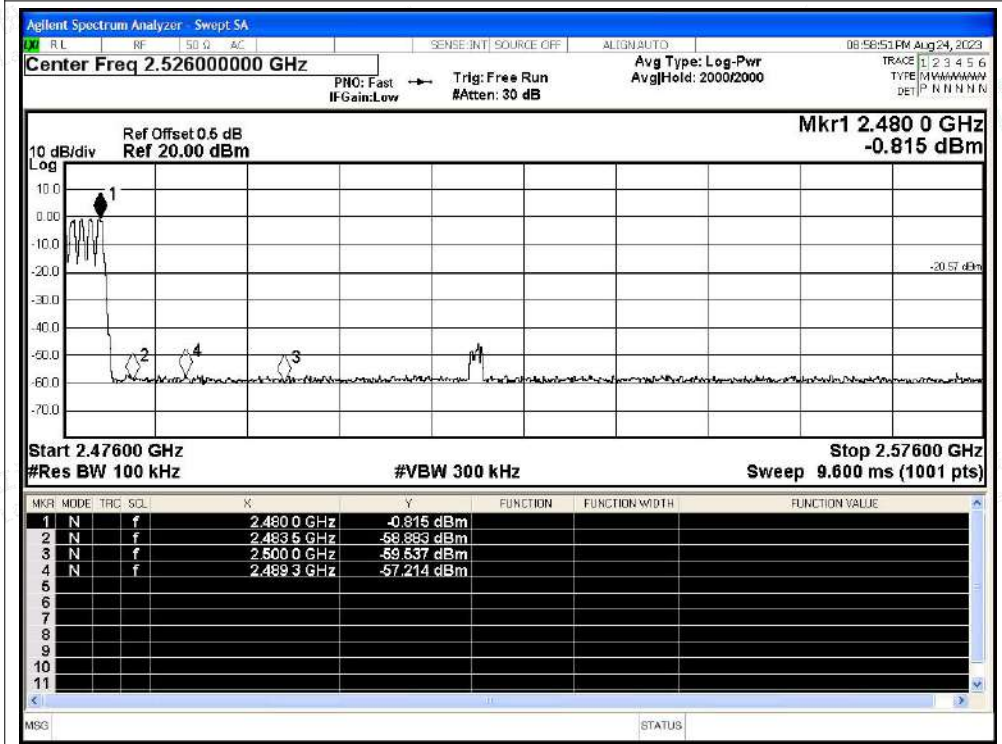




Band Edge(Hopping) NVNT 1-DH5 2480MHz Ant1 Hopping Ref

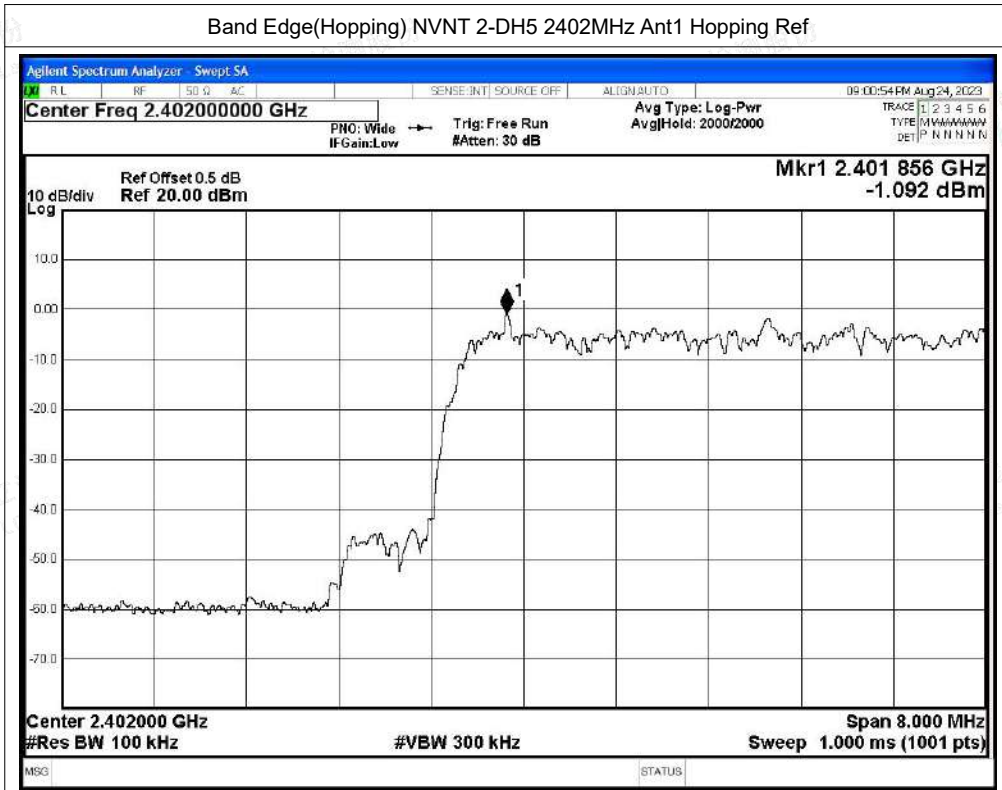


Band Edge(Hopping) NVNT 1-DH5 2480MHz Ant1 Hopping Emission

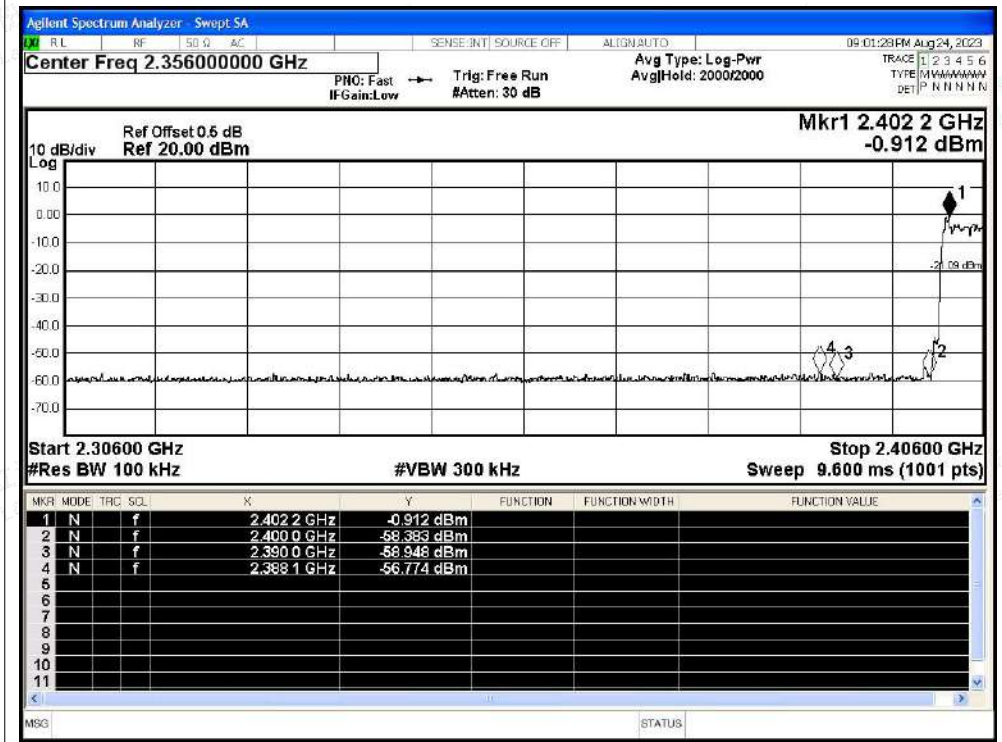




Band Edge(Hopping) NVNT 2-DH5 2402MHz Ant1 Hopping Ref

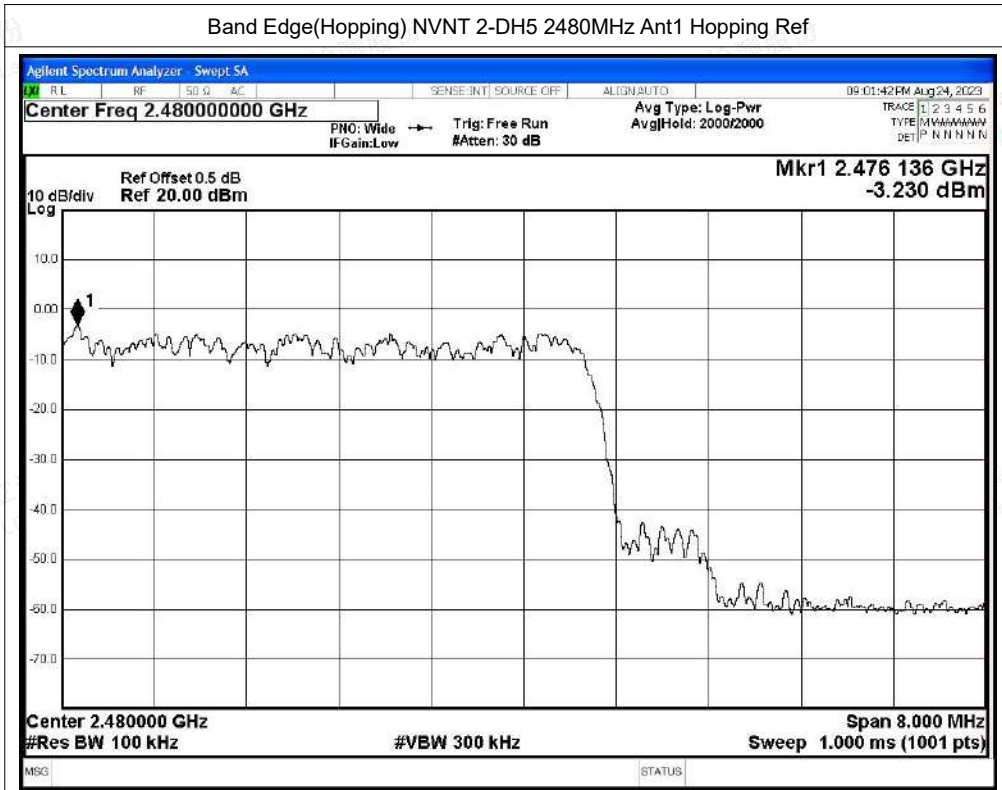


Band Edge(Hopping) NVNT 2-DH5 2402MHz Ant1 Hopping Emission

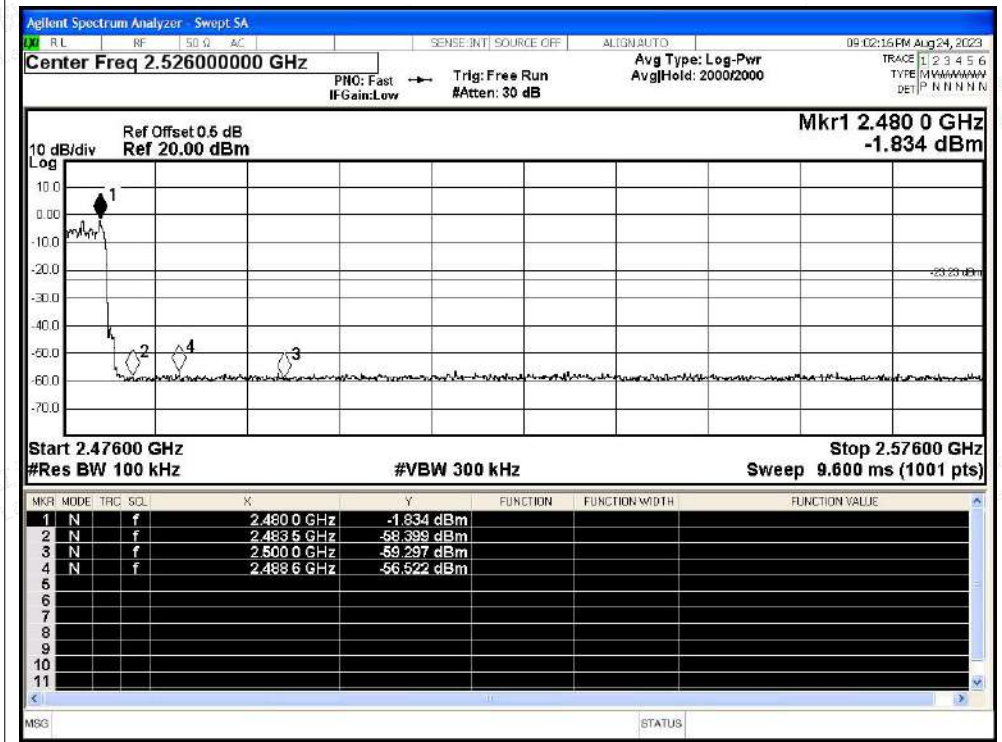




Band Edge(Hopping) NVNT 2-DH5 2480MHz Ant1 Hopping Ref

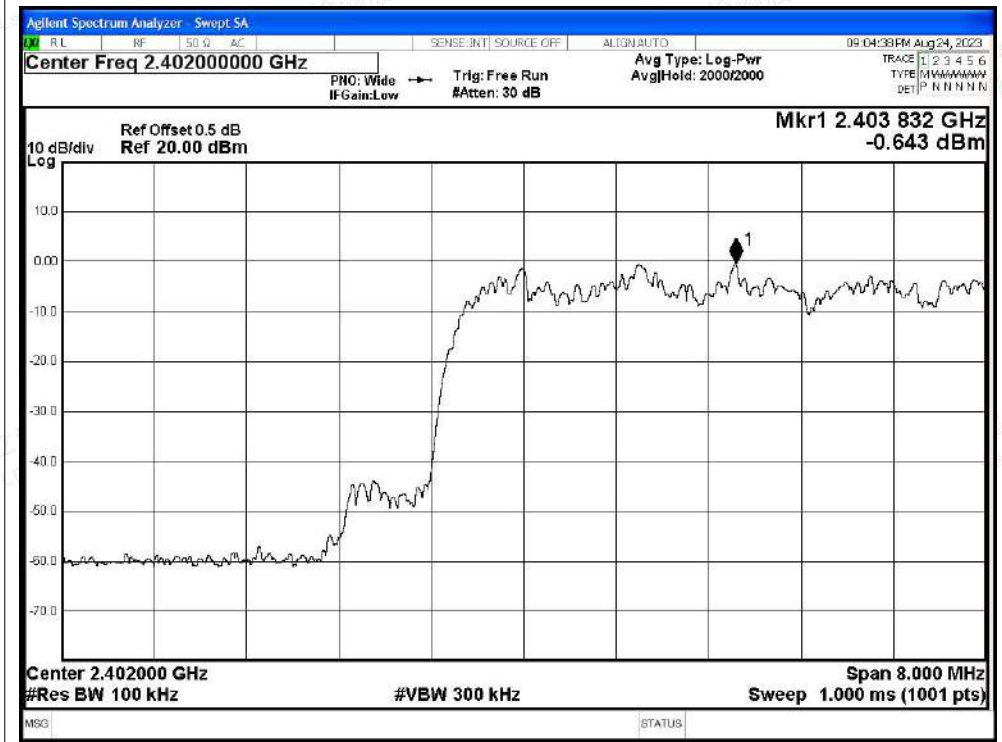


Band Edge(Hopping) NVNT 2-DH5 2480MHz Ant1 Hopping Emission

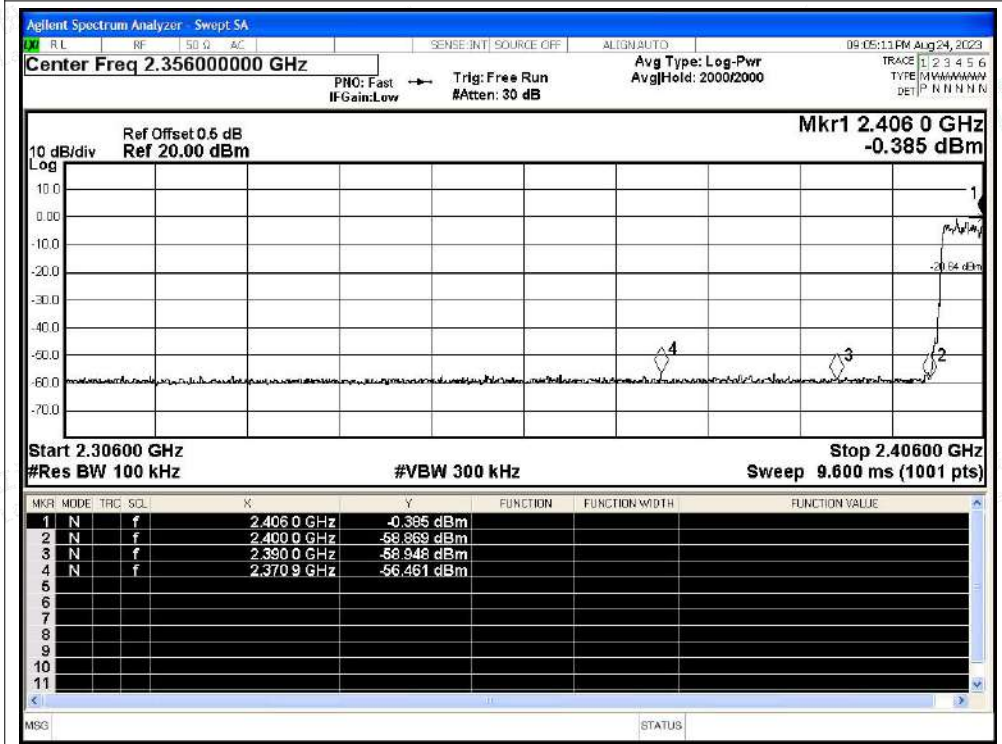




Band Edge(Hopping) NVNT 3-DH5 2402MHz Ant1 Hopping Ref



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

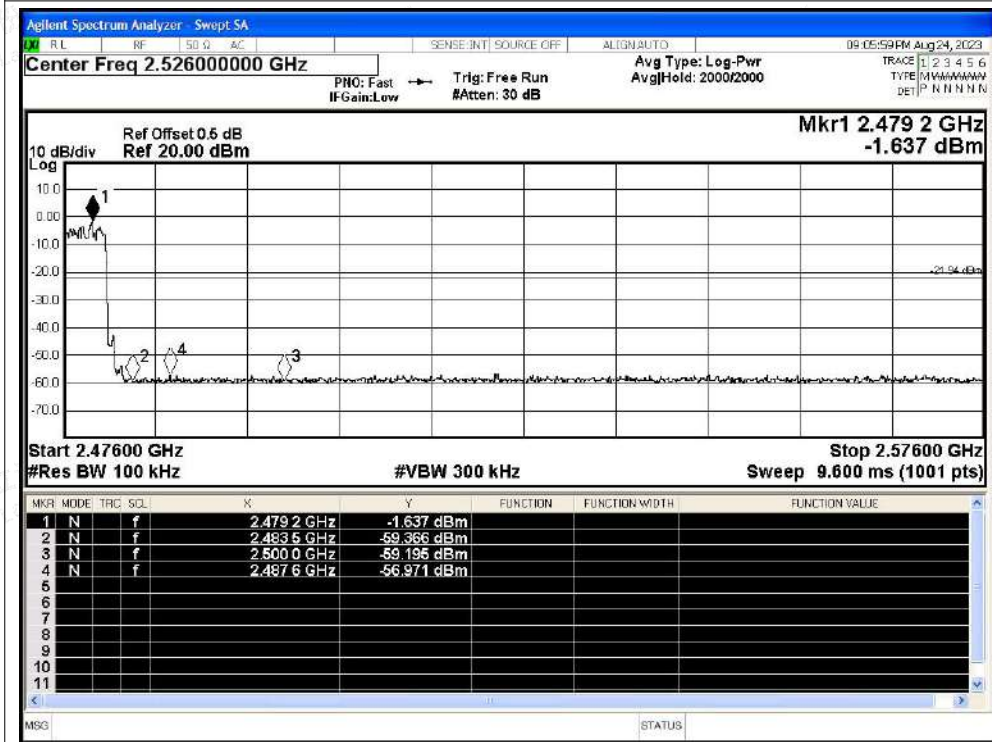




Band Edge(Hopping) NVNT 3-DH5 2480MHz Ant1 Hopping Ref



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	-57.64	-20	Pass
NVNT	1-DH5	2441	Ant1	-55.91	-20	Pass
NVNT	1-DH5	2480	Ant1	-55.45	-20	Pass
NVNT	2-DH5	2402	Ant1	-56.8	-20	Pass
NVNT	2-DH5	2441	Ant1	-54.84	-20	Pass
NVNT	2-DH5	2480	Ant1	-51	-20	Pass
NVNT	3-DH5	2402	Ant1	-55.97	-20	Pass
NVNT	3-DH5	2441	Ant1	-43.07	-20	Pass
NVNT	3-DH5	2480	Ant1	-47.07	-20	Pass



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Add: 101, 201 Bldg A & 301 Bldg C, Juji Industrial Park Yabianxueziwei, Shajing Street, Baoan District, Shenzhen, 518000, China

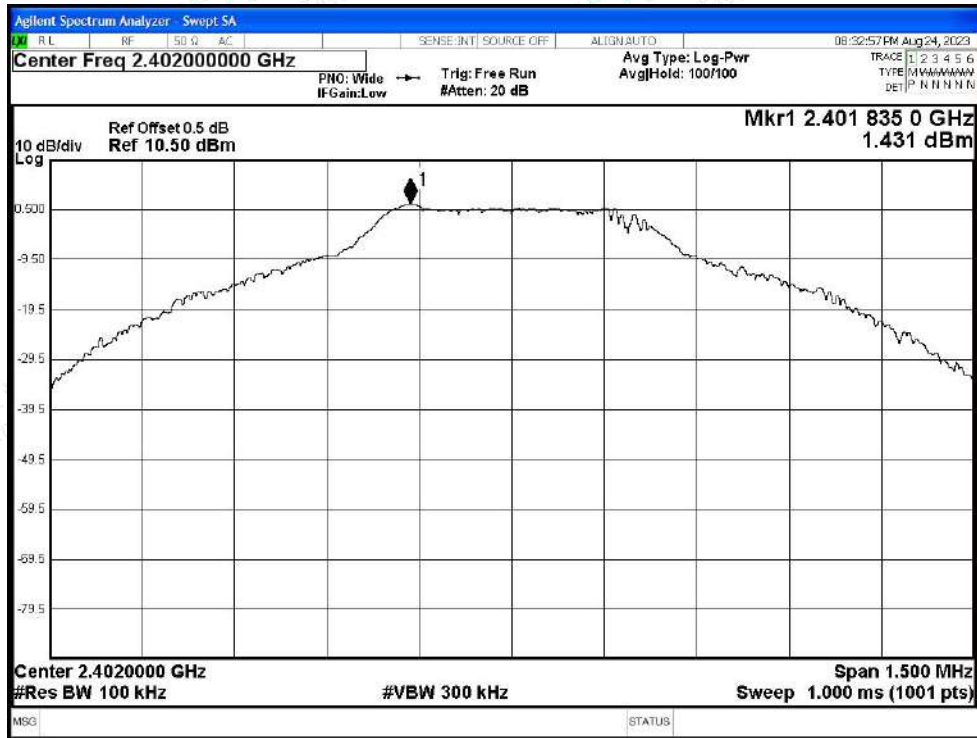
Tel: +(86) 0755-82591330 | E-mail: webmaster@lcs-cert.com | Web: www.lcs-cert.com

Scan code to check authenticity

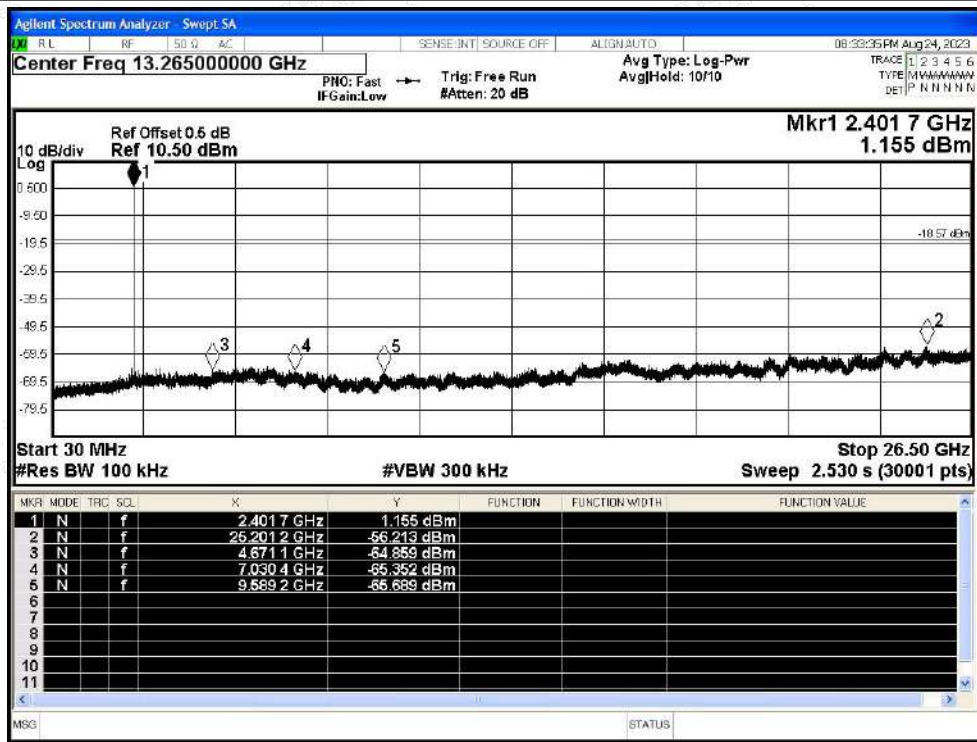


Test Graphs

Tx. Spurious NVNT 1-DH5 2402MHz Ant1 Ref

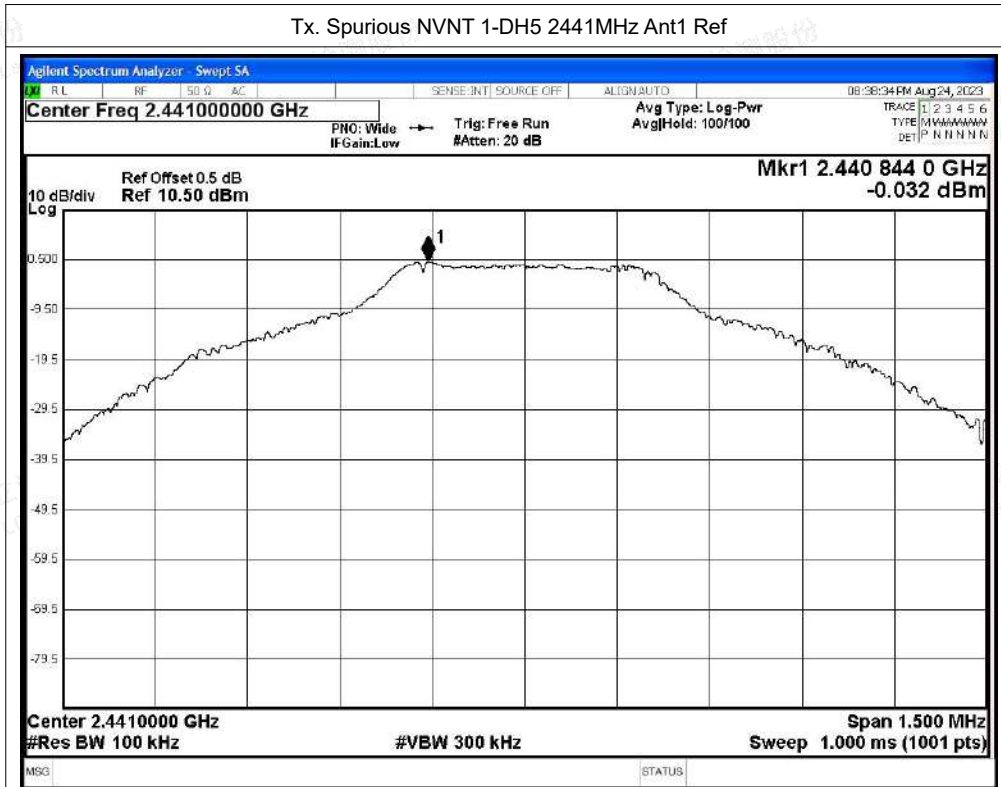


Tx. Spurious NVNT 1-DH5 2402MHz Ant1 Emission

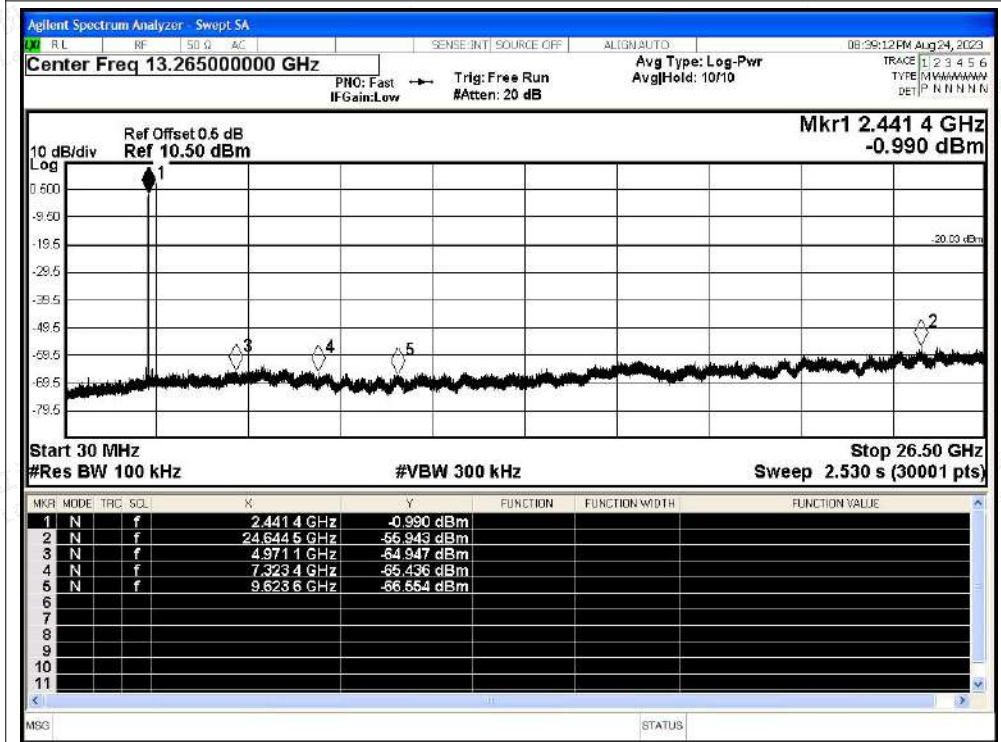




Tx. Spurious NVNT 1-DH5 2441MHz Ant1 Ref

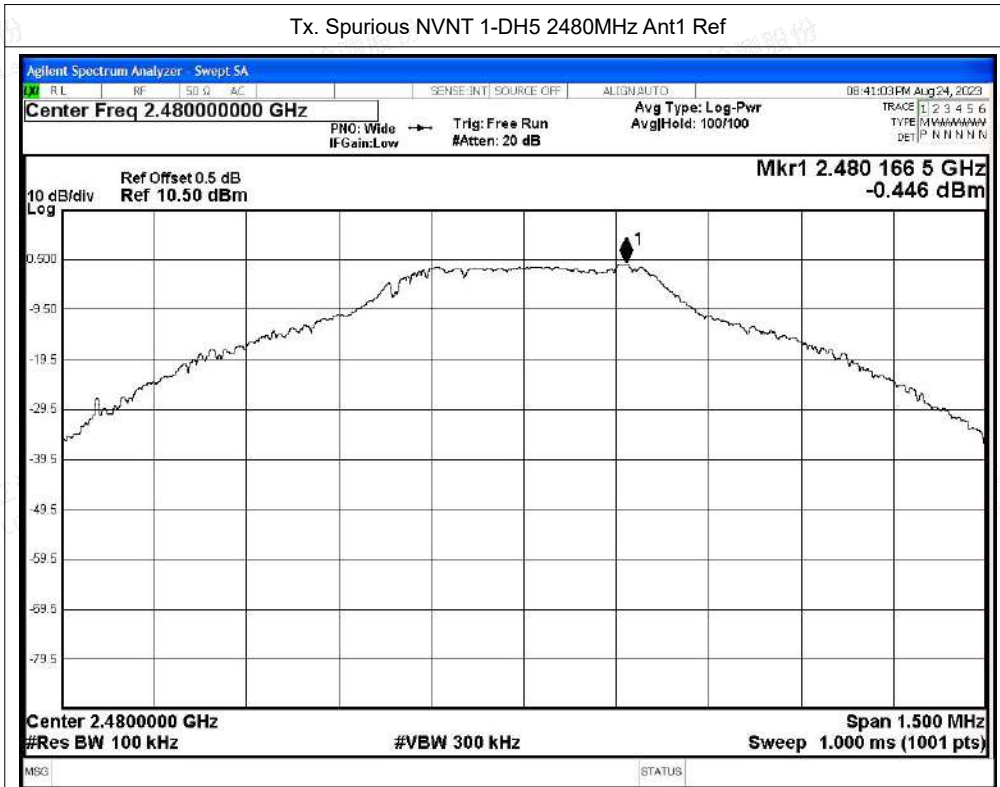


Tx. Spurious NVNT 1-DH5 2441MHz Ant1 Emission

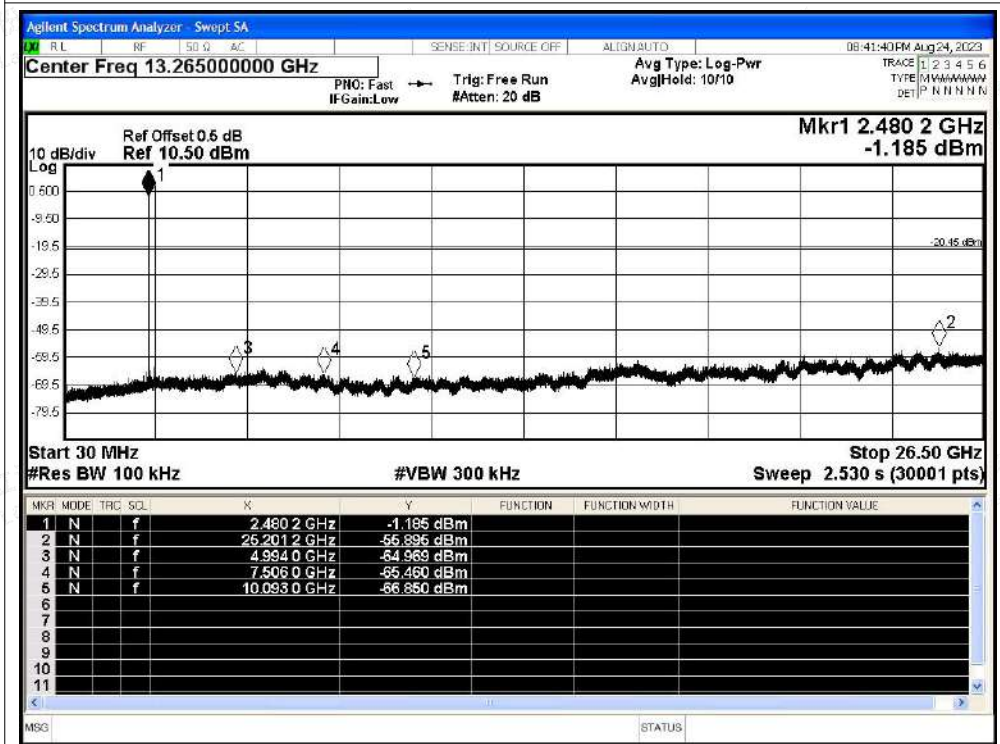




Tx. Spurious NVNT 1-DH5 2480MHz Ant1 Ref

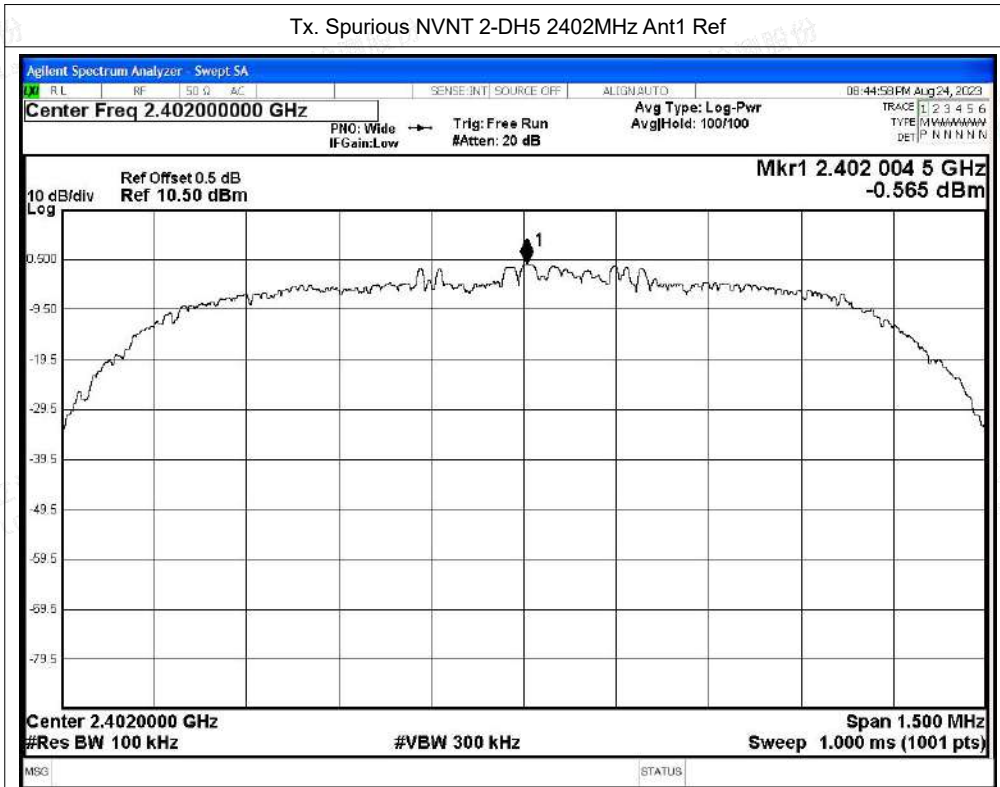


Tx. Spurious NVNT 1-DH5 2480MHz Ant1 Emission

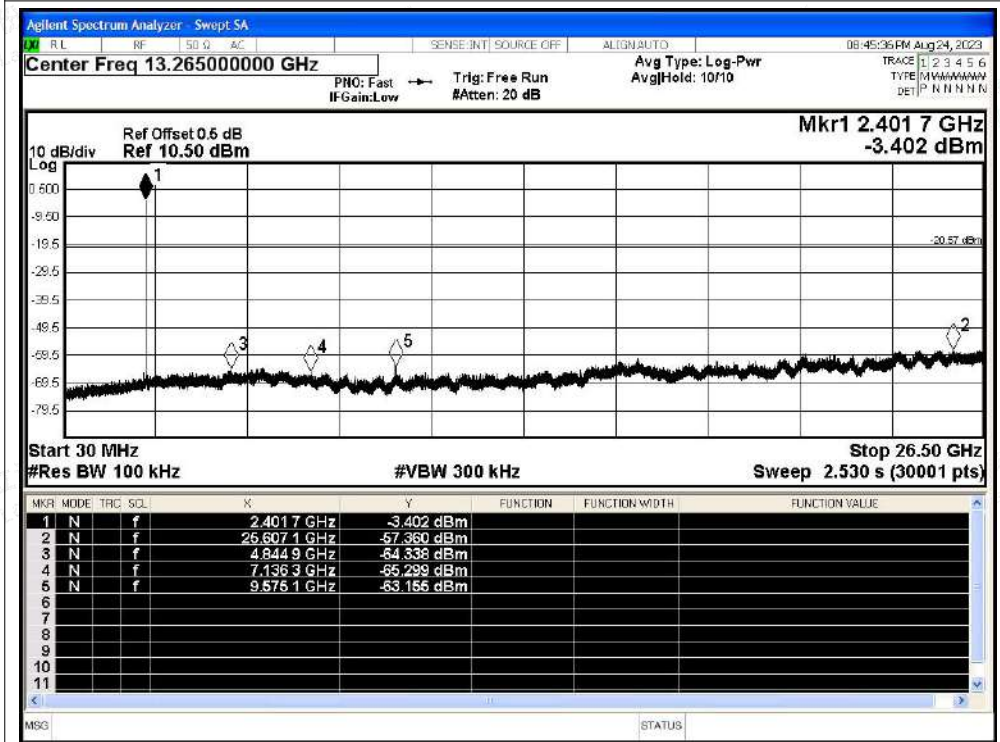




Tx. Spurious NVNT 2-DH5 2402MHz Ant1 Ref

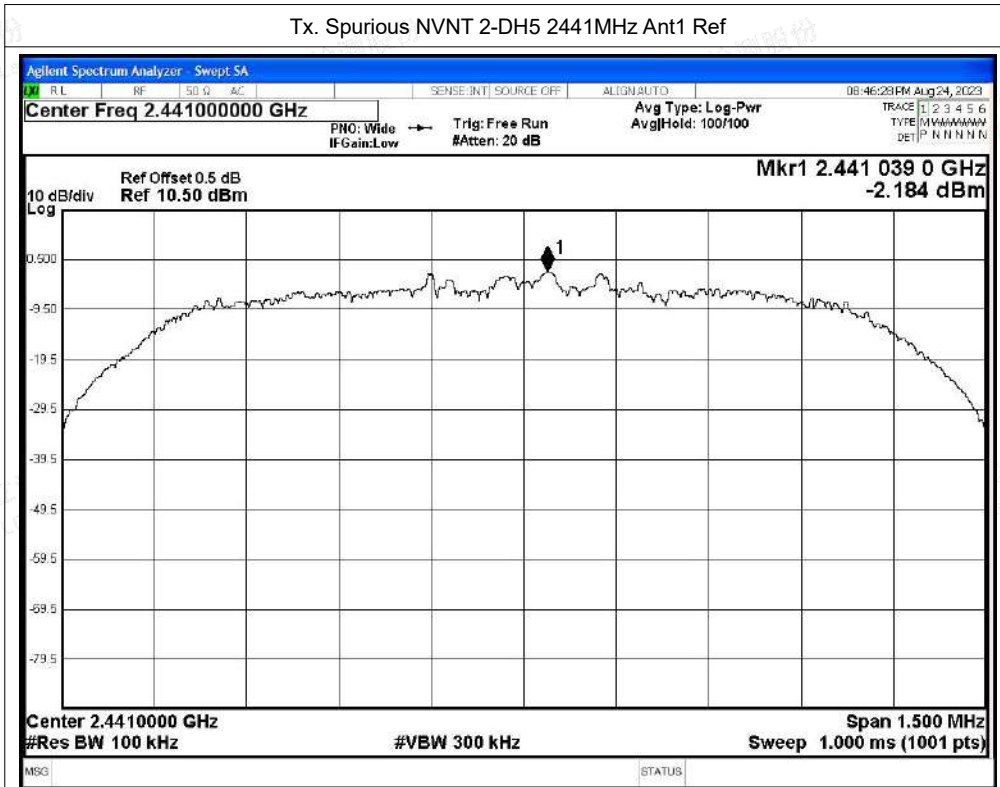


Tx. Spurious NVNT 2-DH5 2402MHz Ant1 Emission

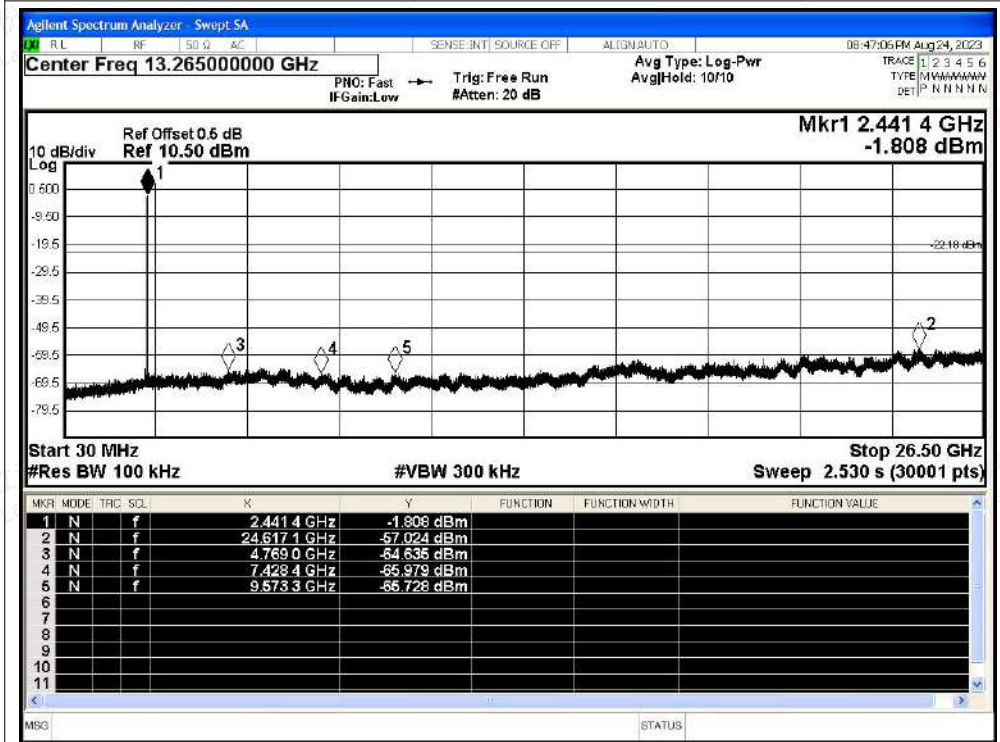




Tx. Spurious NVNT 2-DH5 2441MHz Ant1 Ref

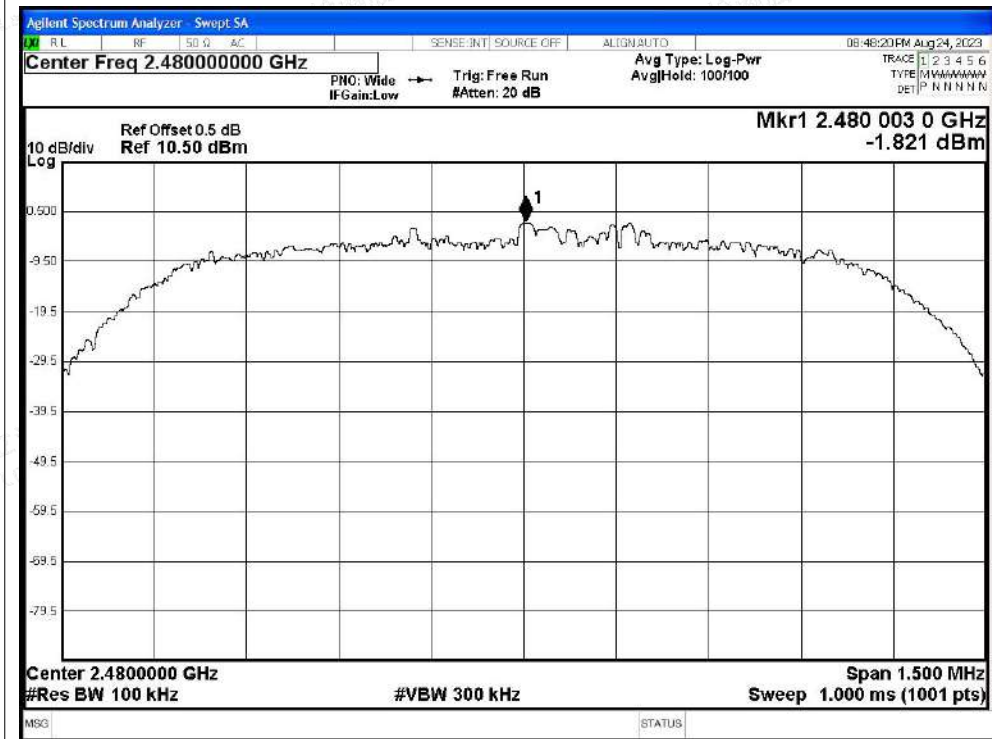


Tx. Spurious NVNT 2-DH5 2441MHz Ant1 Emission

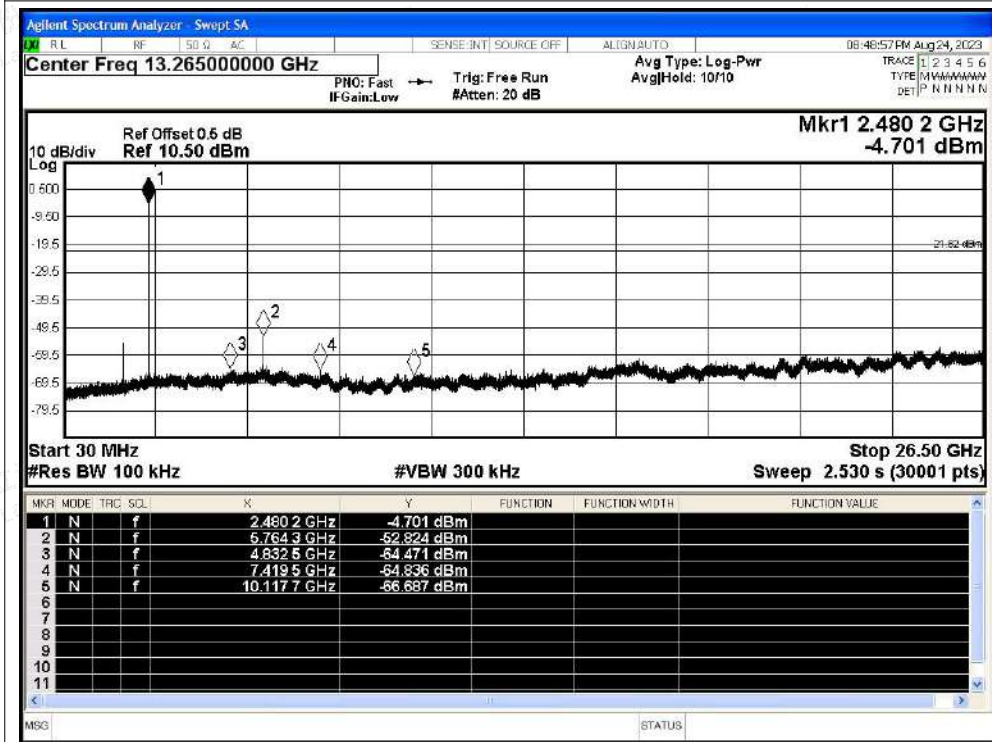




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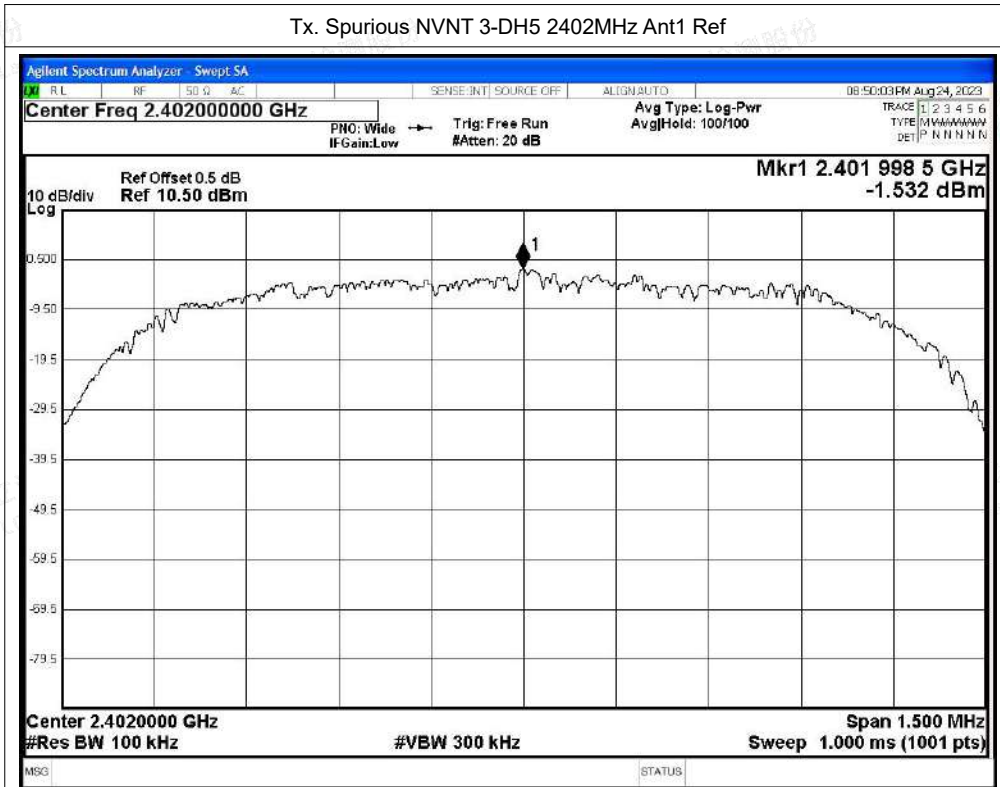


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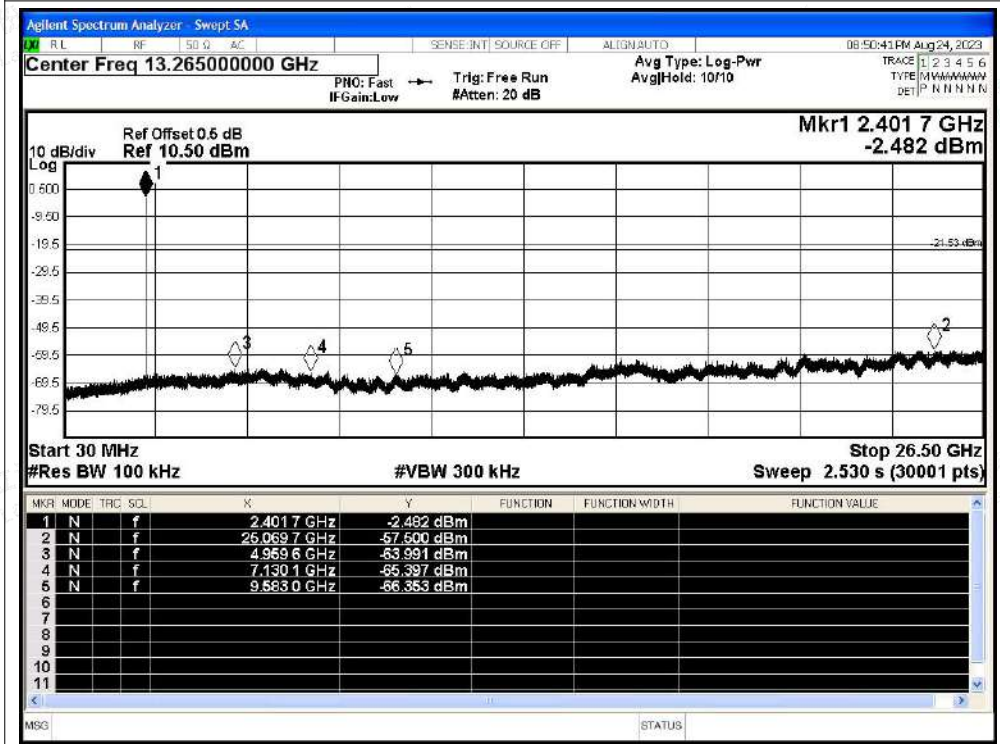




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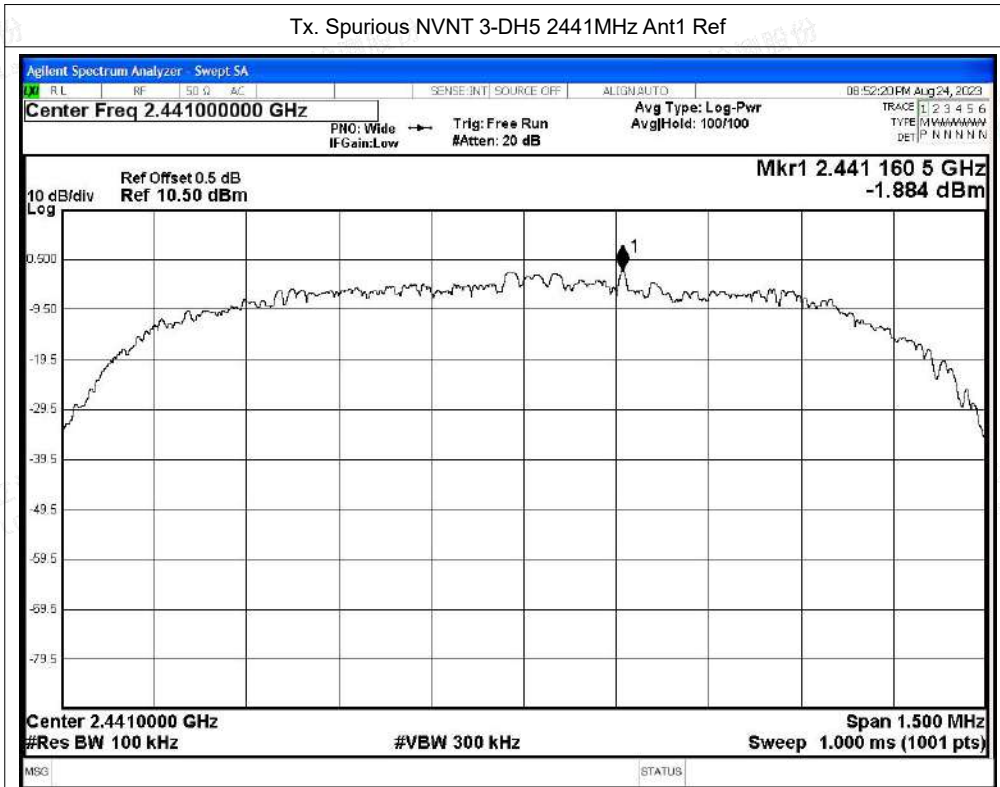


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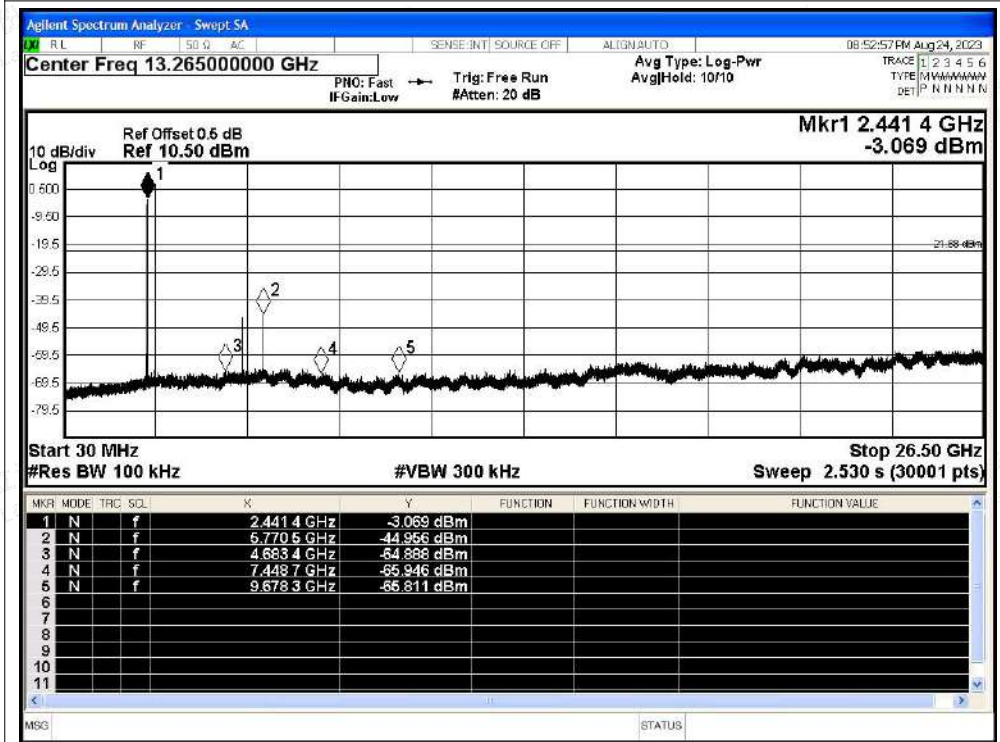




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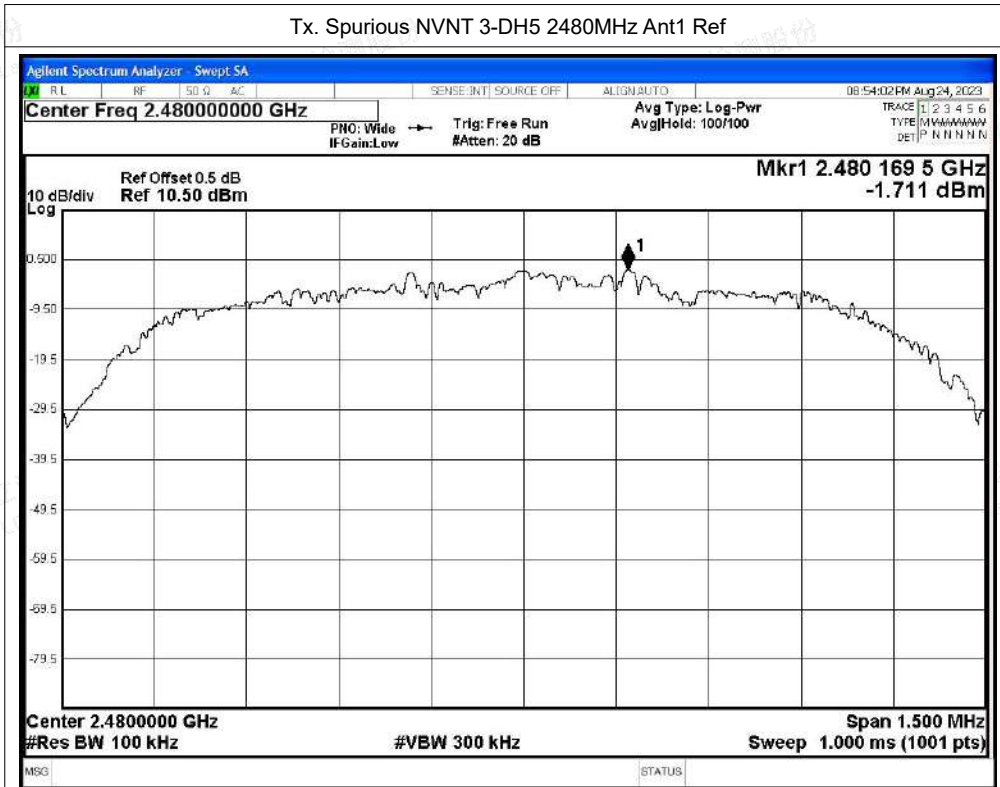


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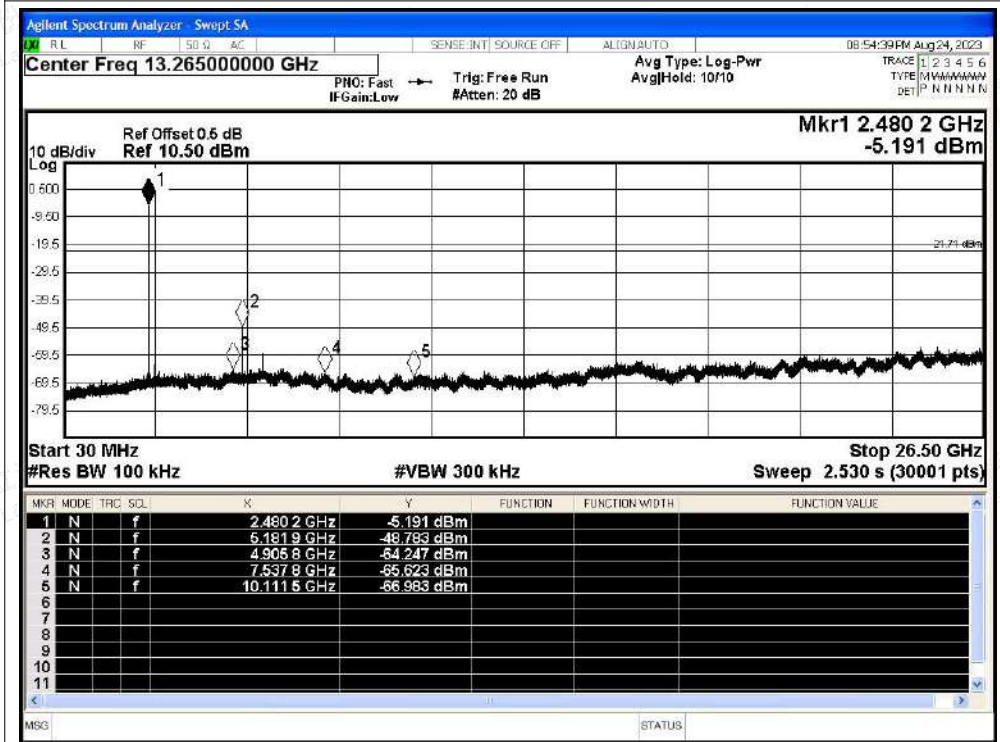




Tx. Spurious NVNT 3-DH5 2480MHz Ant1 Ref



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	-51.44	3.2	47.02	Peak	74	Pass
NVNT	1-DH5	2402	Ant1	No-Hopping	2310	-61.34	3.2	37.12	Average	54	Pass
NVNT	1-DH5	2402	Ant1	No-Hopping	2359.344	-48.57	3.2	49.89	Peak	74	Pass
NVNT	1-DH5	2402	Ant1	No-Hopping	2338.032	-60.57	3.2	37.89	Average	54	Pass
NVNT	1-DH5	2402	Ant1	No-Hopping	2390	-50.06	3.2	48.40	Peak	74	Pass
NVNT	1-DH5	2402	Ant1	No-Hopping	2390	-60.82	3.2	37.64	Average	54	Pass
NVNT	1-DH5	2480	Ant1	No-Hopping	2483.5	-50.91	3.2	47.55	Peak	74	Pass
NVNT	1-DH5	2480	Ant1	No-Hopping	2483.5	-60.74	3.2	37.72	Average	54	Pass
NVNT	1-DH5	2480	Ant1	No-Hopping	2484.808	-41.82	3.2	56.64	Peak	74	Pass
NVNT	1-DH5	2480	Ant1	No-Hopping	2484.232	-60.49	3.2	37.97	Average	54	Pass
NVNT	1-DH5	2480	Ant1	No-Hopping	2500	-51.81	3.2	46.65	Peak	74	Pass
NVNT	1-DH5	2480	Ant1	No-Hopping	2500	-60.97	3.2	37.49	Average	54	Pass
NVNT	2-DH5	2402	Ant1	No-Hopping	2310	-52.09	3.2	46.37	Peak	74	Pass
NVNT	2-DH5	2402	Ant1	No-Hopping	2310	-61.4	3.2	37.06	Average	54	Pass
NVNT	2-DH5	2402	Ant1	No-Hopping	2333.232	-48.77	3.2	49.69	Peak	74	Pass
NVNT	2-DH5	2402	Ant1	No-Hopping	2373.648	-60.75	3.2	37.71	Average	54	Pass
NVNT	2-DH5	2402	Ant1	No-Hopping	2390	-52.64	3.2	45.82	Peak	74	Pass
NVNT	2-DH5	2402	Ant1	No-Hopping	2390	-61.01	3.2	37.45	Average	54	Pass
NVNT	2-DH5	2480	Ant1	No-Hopping	2483.5	-51.91	3.2	46.55	Peak	74	Pass
NVNT	2-DH5	2480	Ant1	No-Hopping	2483.5	-60.63	3.2	37.83	Average	54	Pass
NVNT	2-DH5	2480	Ant1	No-Hopping	2485.84	-42.25	3.2	56.21	Peak	74	Pass
NVNT	2-DH5	2480	Ant1	No-Hopping	2483.968	-60.55	3.2	37.91	Average	54	Pass
NVNT	2-DH5	2480	Ant1	No-Hopping	2500	-52.2	3.2	46.26	Peak	74	Pass
NVNT	2-DH5	2480	Ant1	No-Hopping	2500	-60.96	3.2	37.50	Average	54	Pass
NVNT	3-DH5	2402	Ant1	No-Hopping	2310	-50.69	3.2	47.77	Peak	74	Pass
NVNT	3-DH5	2402	Ant1	No-Hopping	2310	-61.4	3.2	37.06	Average	54	Pass
NVNT	3-DH5	2402	Ant1	No-Hopping	2346.288	-48.13	3.2	50.33	Peak	74	Pass
NVNT	3-DH5	2402	Ant1	No-Hopping	2337.936	-60.7	3.2	37.76	Average	54	Pass
NVNT	3-DH5	2402	Ant1	No-Hopping	2390	-50.37	3.2	48.09	Peak	74	Pass
NVNT	3-DH5	2402	Ant1	No-Hopping	2390	-60.91	3.2	37.55	Average	54	Pass
NVNT	3-DH5	2480	Ant1	No-Hopping	2483.5	-50.44	3.2	48.02	Peak	74	Pass
NVNT	3-DH5	2480	Ant1	No-Hopping	2483.5	-60.64	3.2	37.82	Average	54	Pass
NVNT	3-DH5	2480	Ant1	No-Hopping	2487.616	-47.68	3.2	50.78	Peak	74	Pass
NVNT	3-DH5	2480	Ant1	No-Hopping	2483.536	-60.61	3.2	37.85	Average	54	Pass
NVNT	3-DH5	2480	Ant1	No-Hopping	2500	-51.12	3.2	47.34	Peak	74	Pass
NVNT	3-DH5	2480	Ant1	No-Hopping	2500	-61.02	3.2	37.44	Average	54	Pass



Shenzhen LCS Compliance Testing Laboratory Ltd.

Add: 101, 201 Bldg A & 301 Bldg C, Juji Industrial Park Yabianxueziwei, Shajing Street, Baoan District, Shenzhen, 518000, China

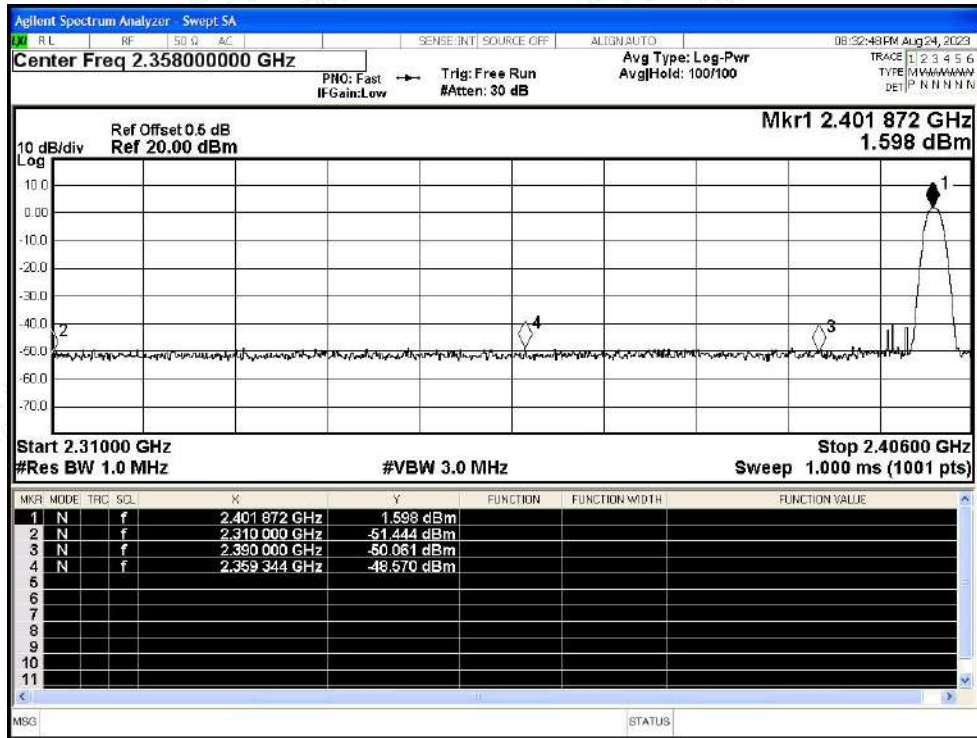
Tel: +(86) 0755-82591330 | E-mail: webmaster@lcs-cert.com | Web: www.lcs-cert.com

Scan code to check authenticity

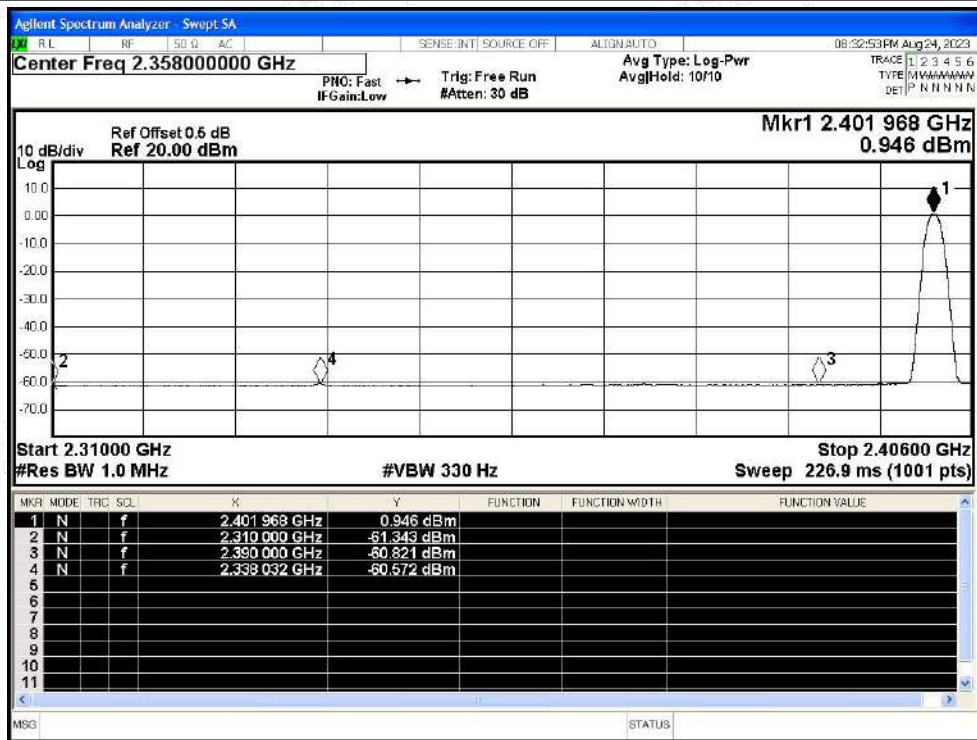


Test Graphs

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



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



Shenzhen LCS Compliance Testing Laboratory Ltd.

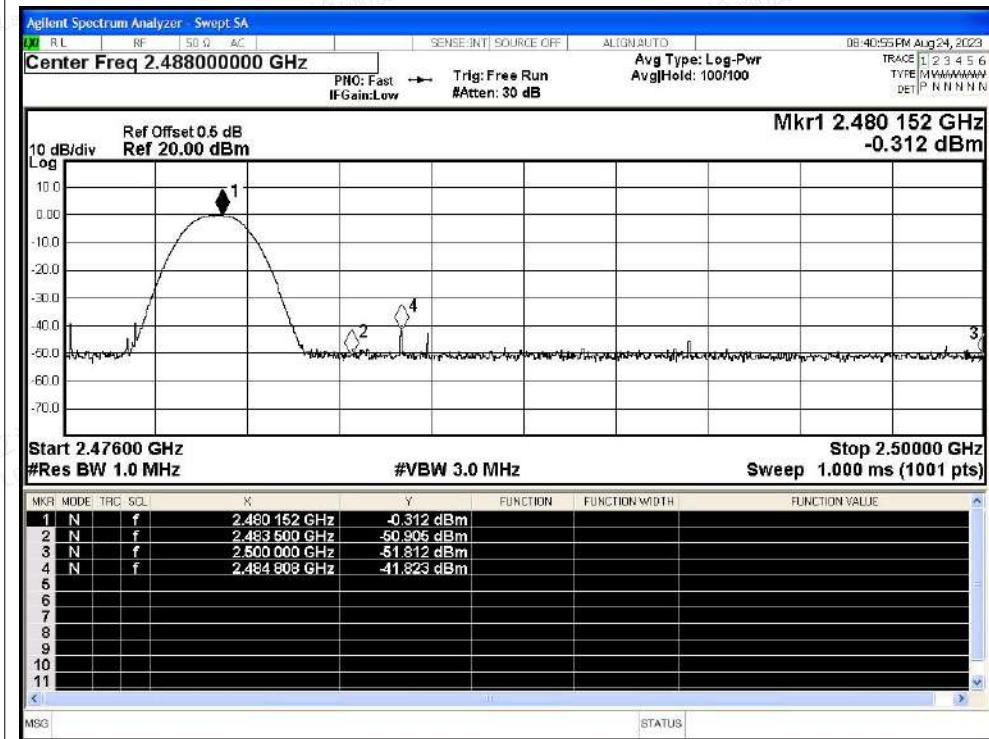
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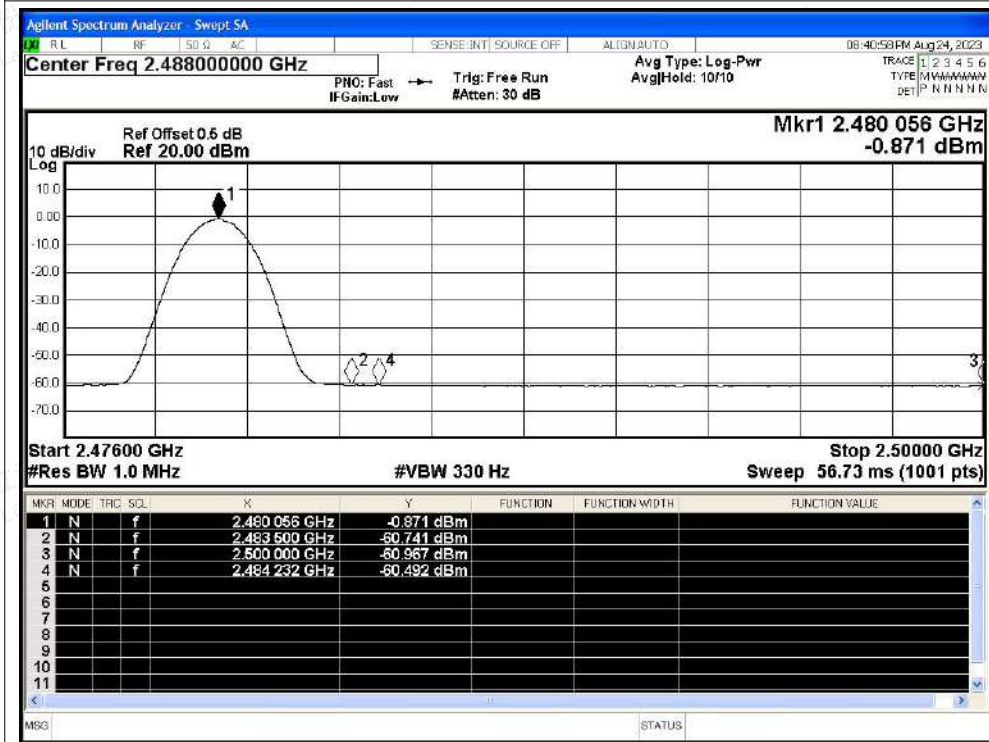
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Restrict Band NVNT 1-DH5 2480MHz Ant1 No-Hopping Peak

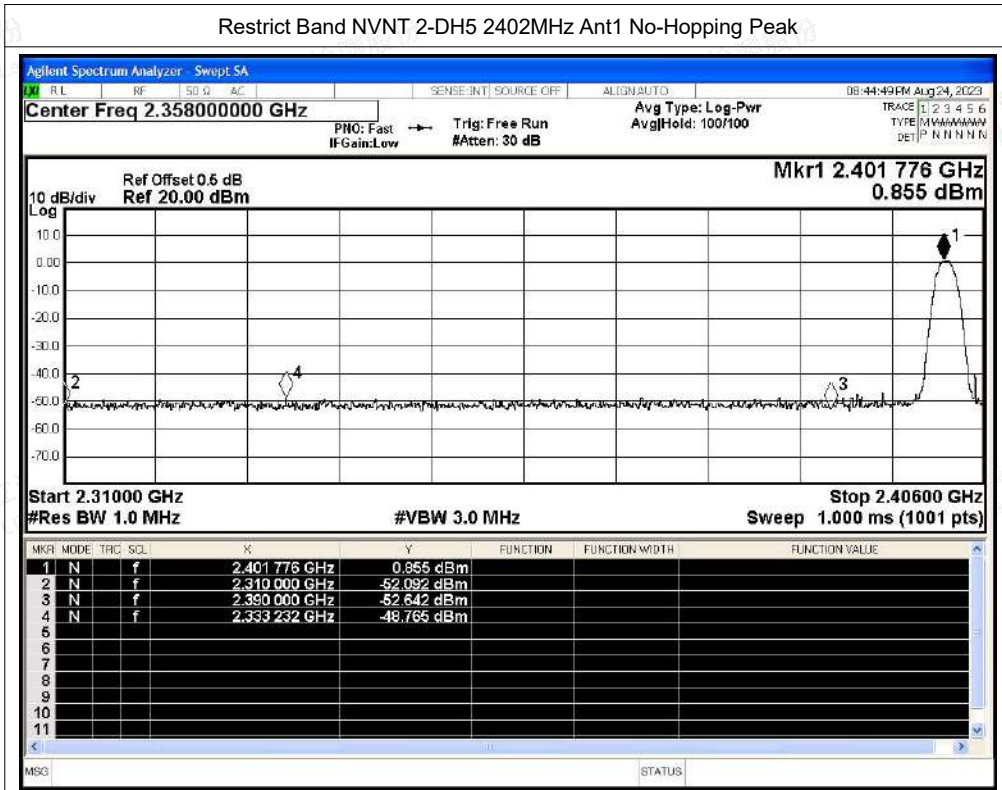


Restrict Band NVNT 1-DH5 2480MHz Ant1 No-Hopping Average

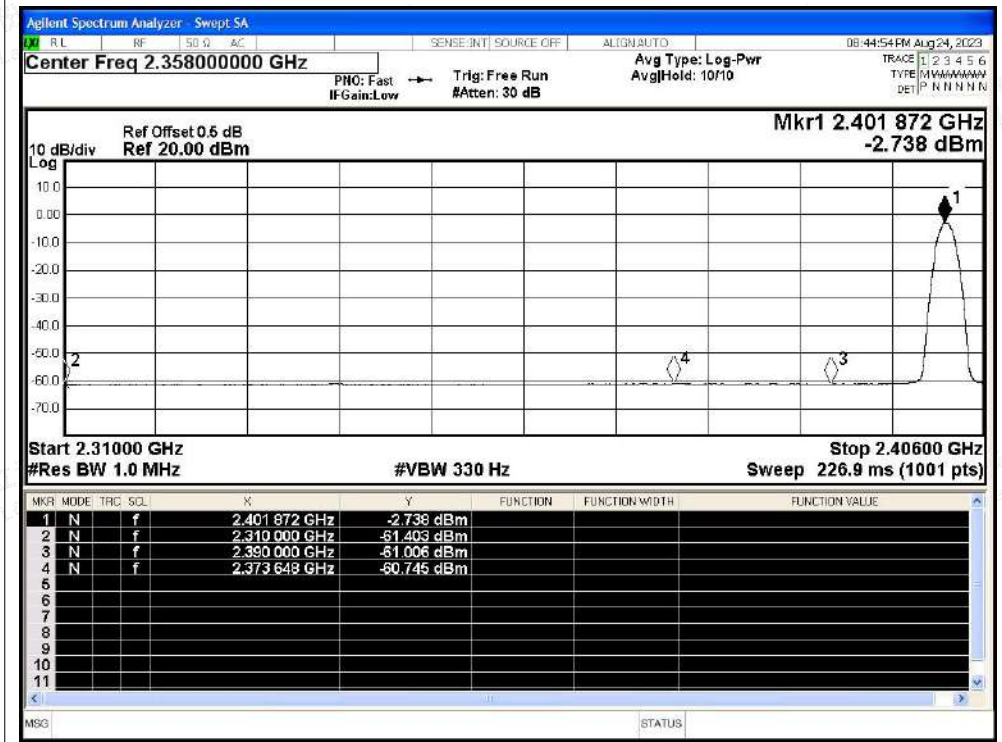




Restrict Band NVNT 2-DH5 2402MHz Ant1 No-Hopping Peak

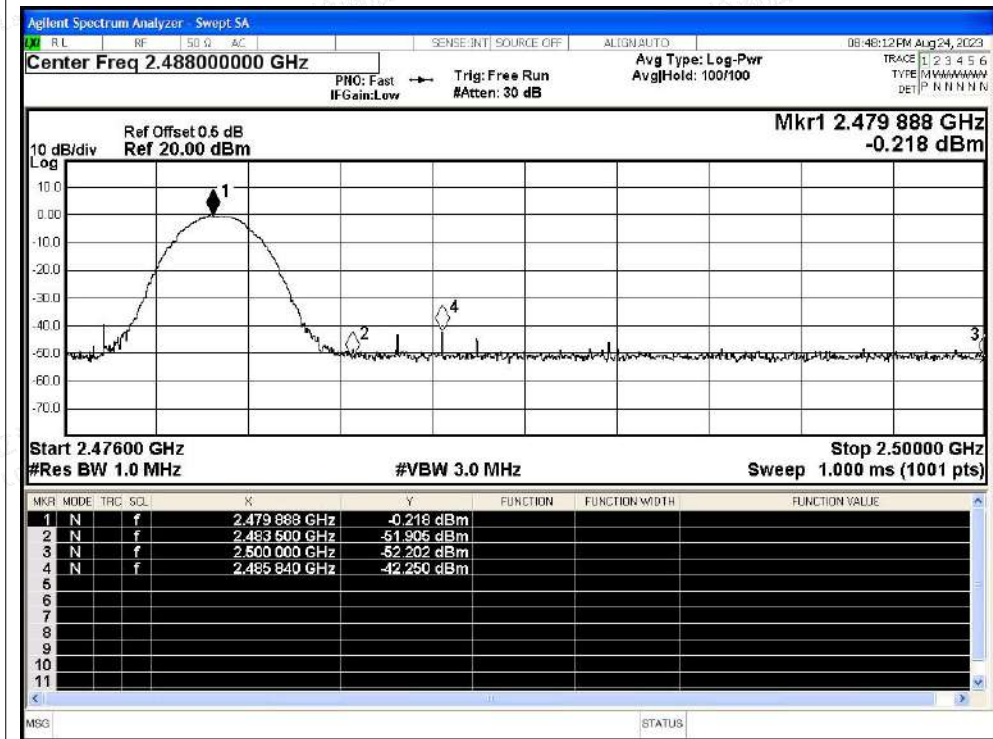


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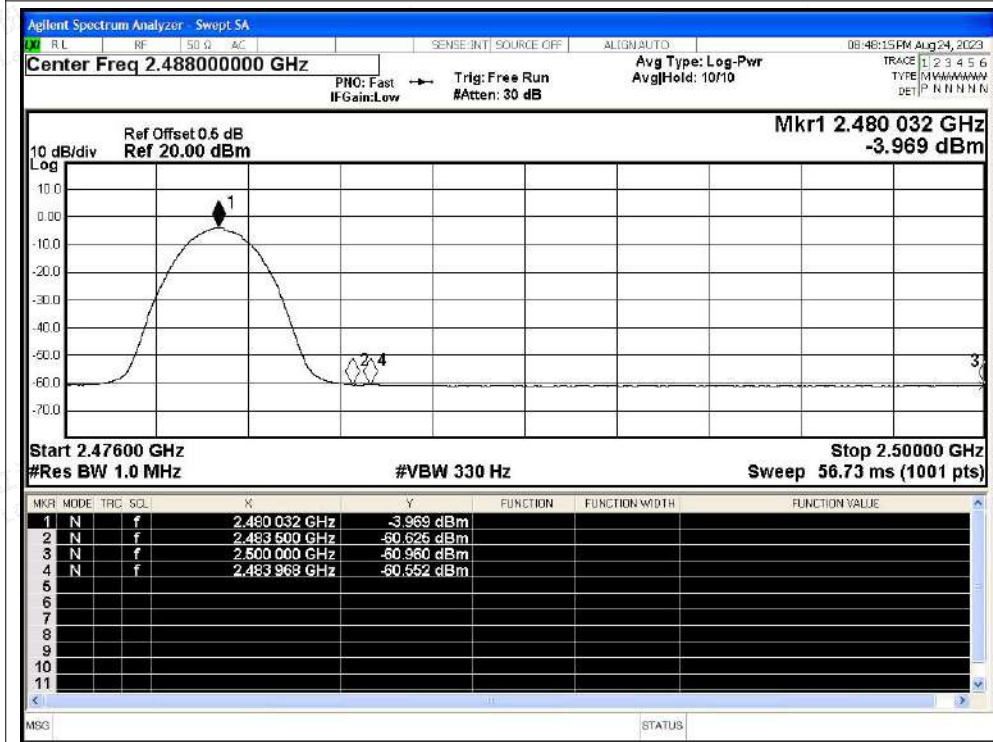




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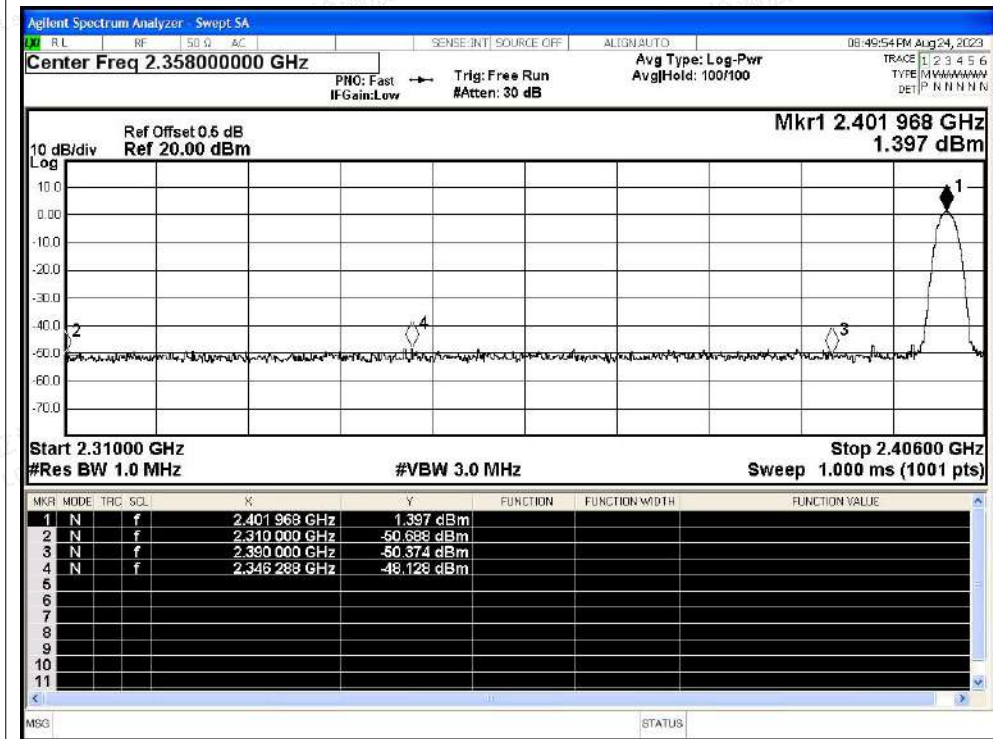


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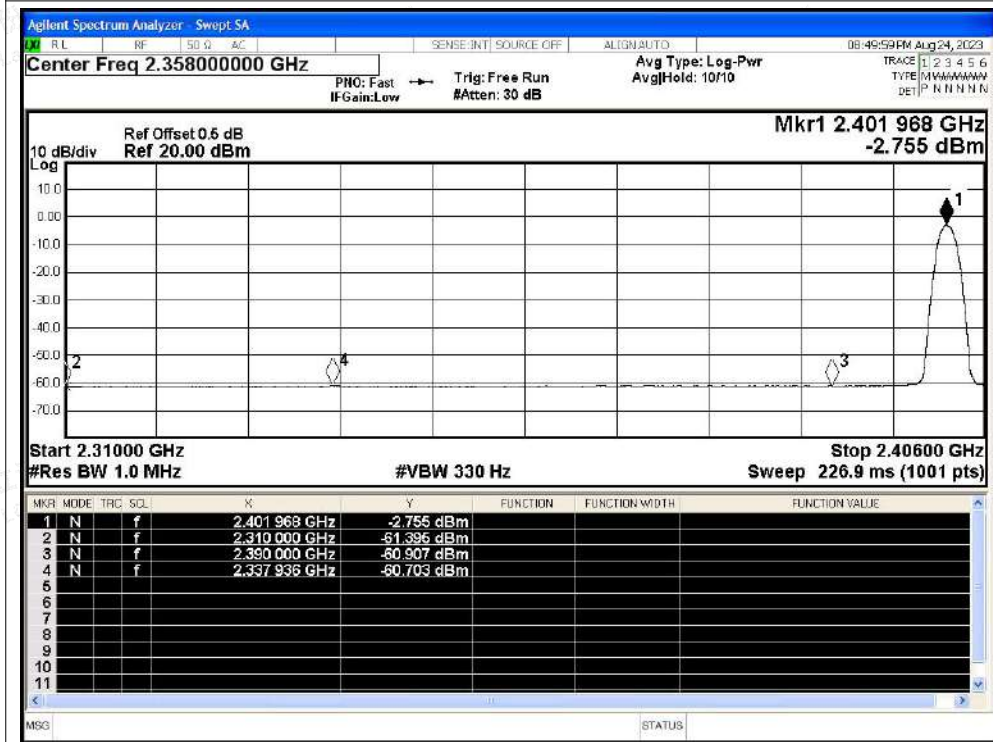




Restrict Band NVNT 3-DH5 2402MHz Ant1 No-Hopping Peak

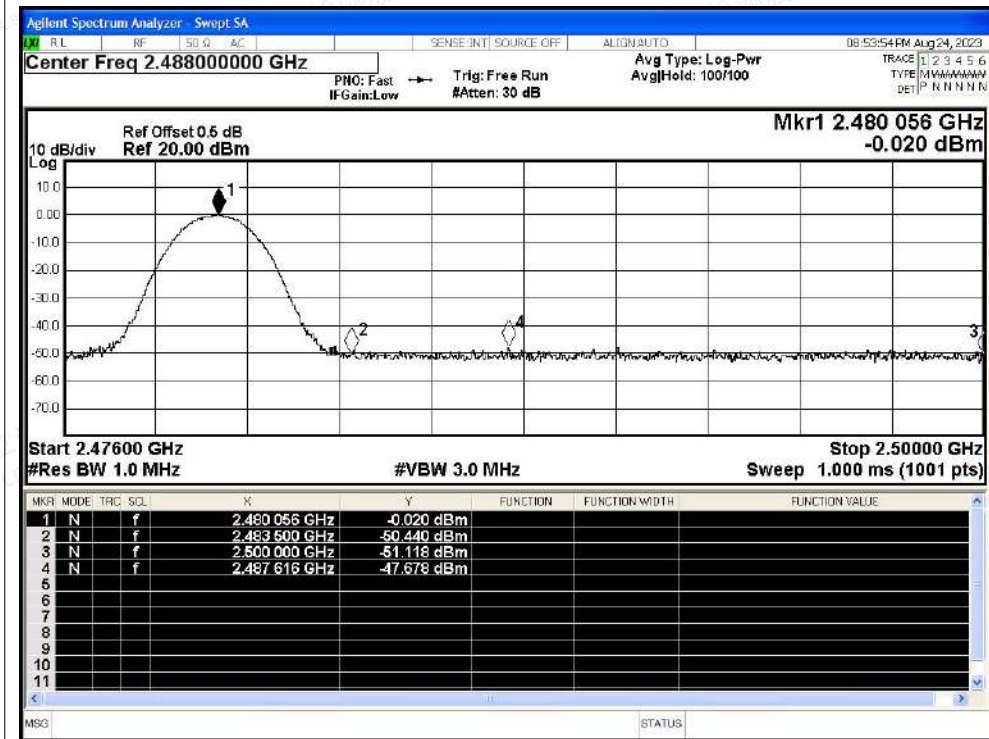


Restrict Band NVNT 3-DH5 2402MHz Ant1 No-Hopping Average





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



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

