



# Appendix A

## RF Test Data for BT (Conducted Measurement)

Product Name: Pepper C1 RFID Reader

Test Model: v2

### Environmental Conditions

Temperature:	23.1° C
Relative Humidity:	52.3%
ATM Pressure:	100.0 kPa
Test Engineer:	Nick Peng
	<i>Nick Peng</i>
Supervised by:	Ling Zhu
	<i>Ling Zhu</i>





### A.1 -20dB Bandwidth

Condition	Mode	Frequency (MHz)	Antenna	-20 dB Bandwidth (MHz)	Limit -20 dB Bandwidth (MHz)	Verdict
NVNT	1-DH5	2402	Ant1	1.007	N/A	Pass
NVNT	1-DH5	2441	Ant1	1.016	N/A	Pass
NVNT	1-DH5	2480	Ant1	0.957	N/A	Pass
NVNT	2-DH5	2402	Ant1	1.288	N/A	Pass
NVNT	2-DH5	2441	Ant1	1.312	N/A	Pass
NVNT	2-DH5	2480	Ant1	1.279	N/A	Pass
NVNT	3-DH5	2402	Ant1	1.278	N/A	Pass
NVNT	3-DH5	2441	Ant1	1.288	N/A	Pass
NVNT	3-DH5	2480	Ant1	1.294	N/A	Pass

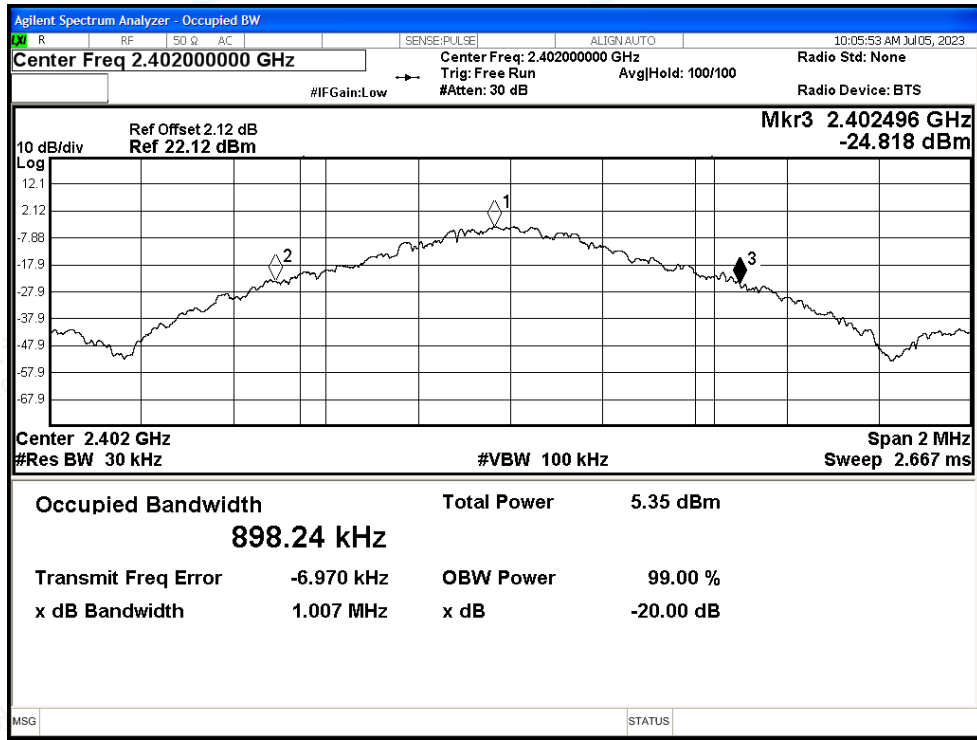


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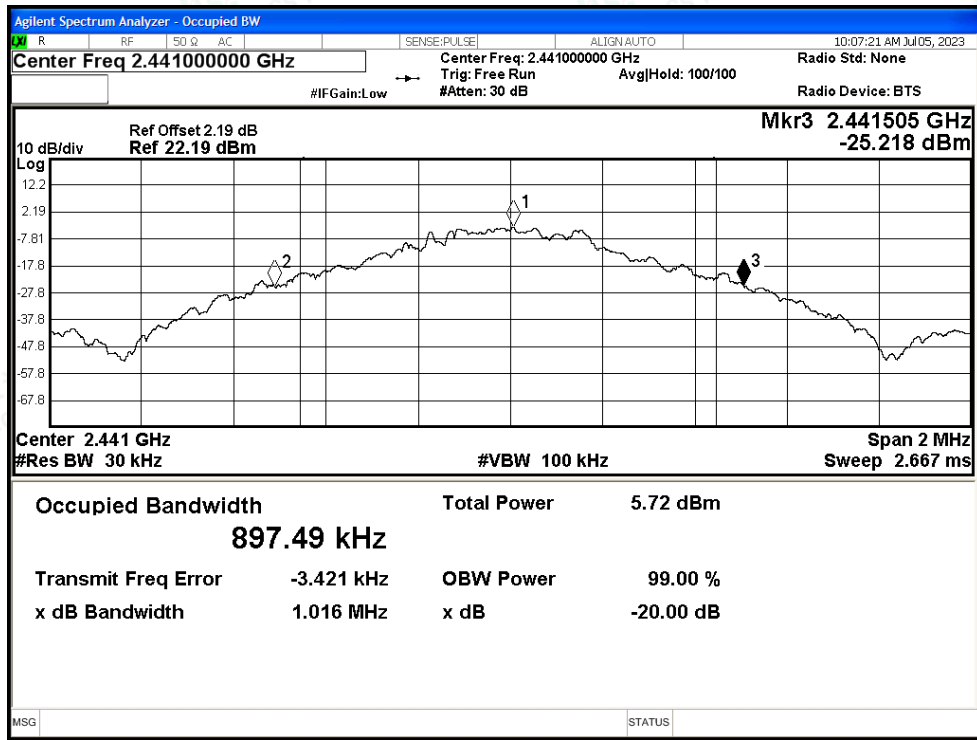


Test Graphs

-20dB Bandwidth NVNT 1-DH5 2402MHz Ant1

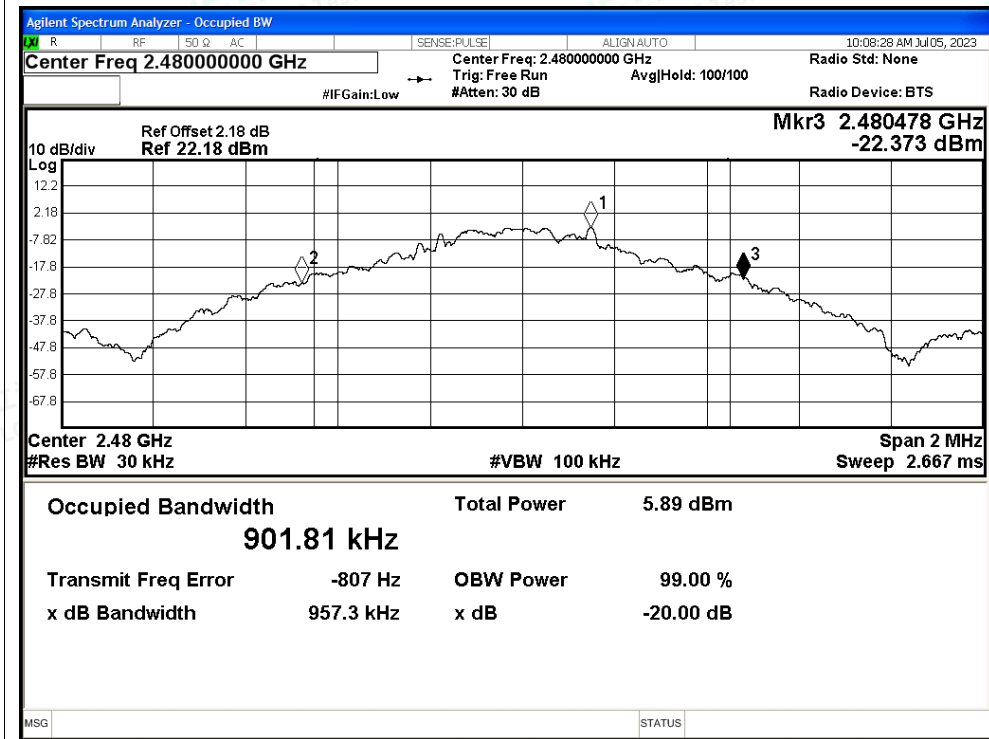


-20dB Bandwidth NVNT 1-DH5 2441MHz Ant1

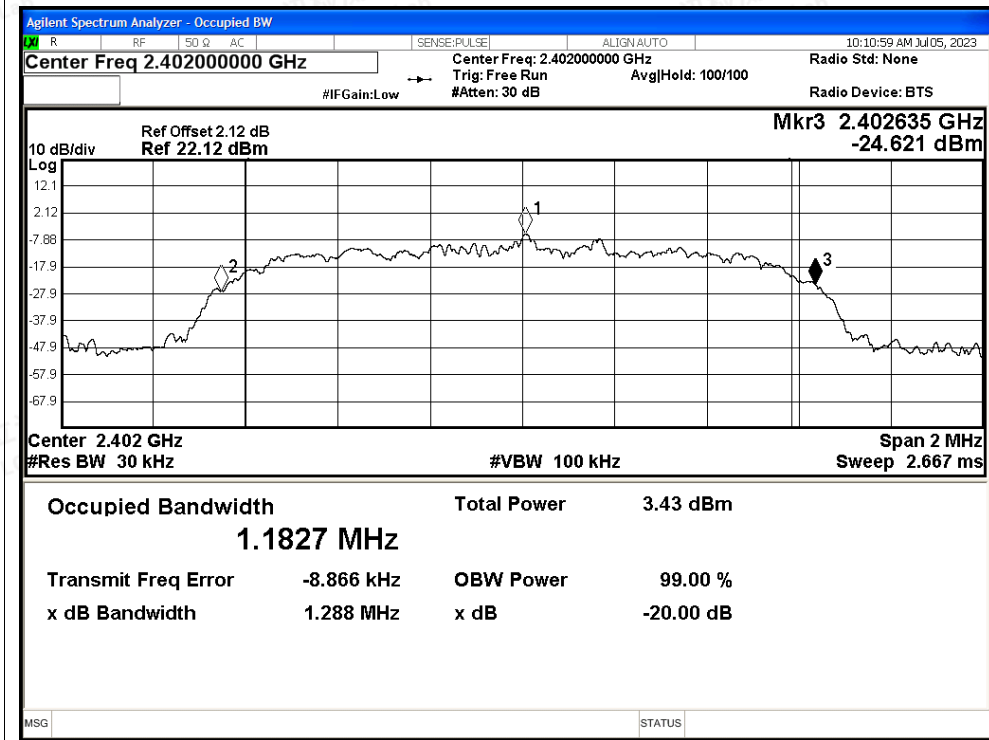




-20dB Bandwidth NVNT 1-DH5 2480MHz Ant1

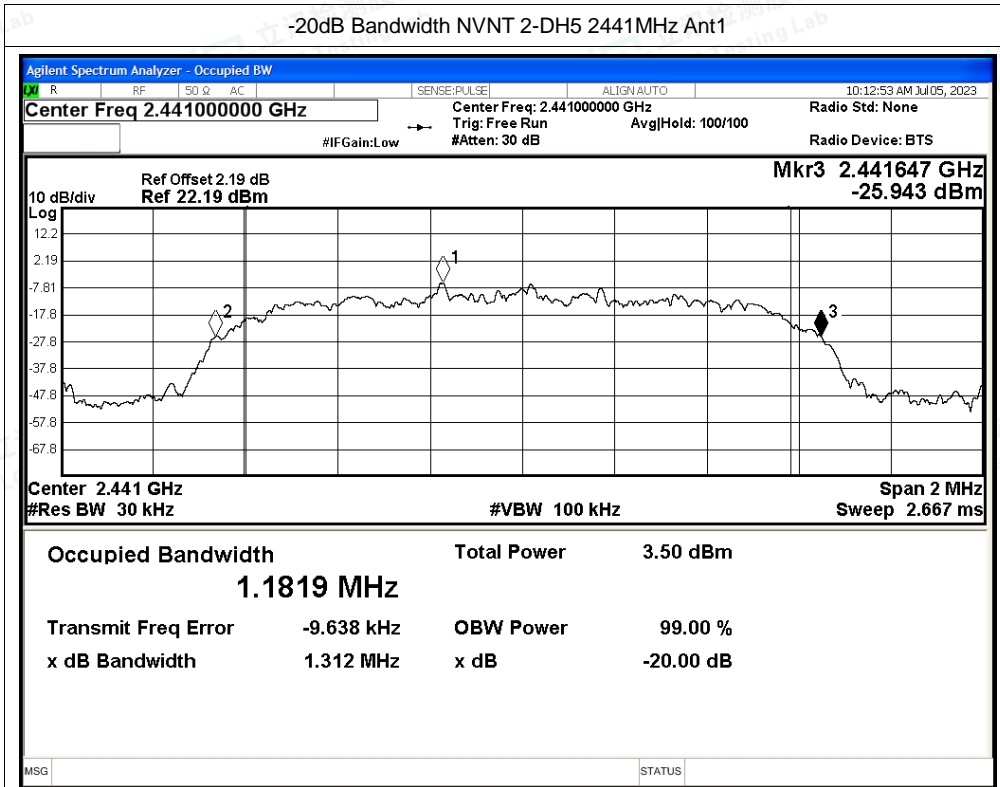


-20dB Bandwidth NVNT 2-DH5 2402MHz Ant1

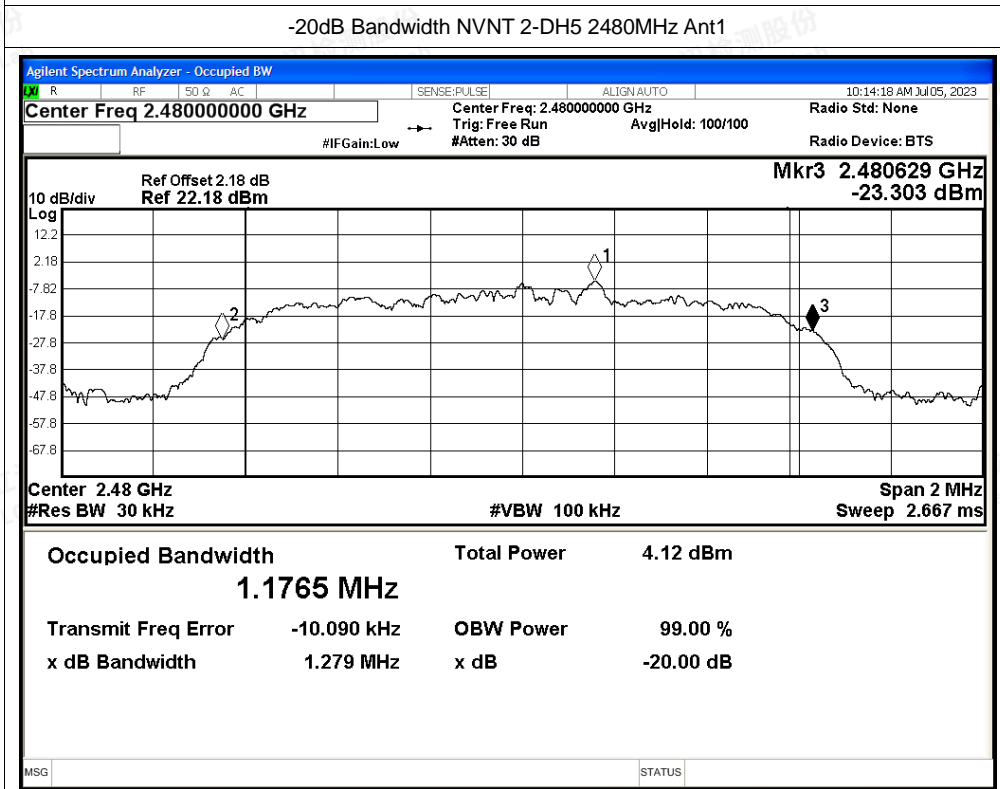




-20dB Bandwidth NVNT 2-DH5 2441MHz Ant1

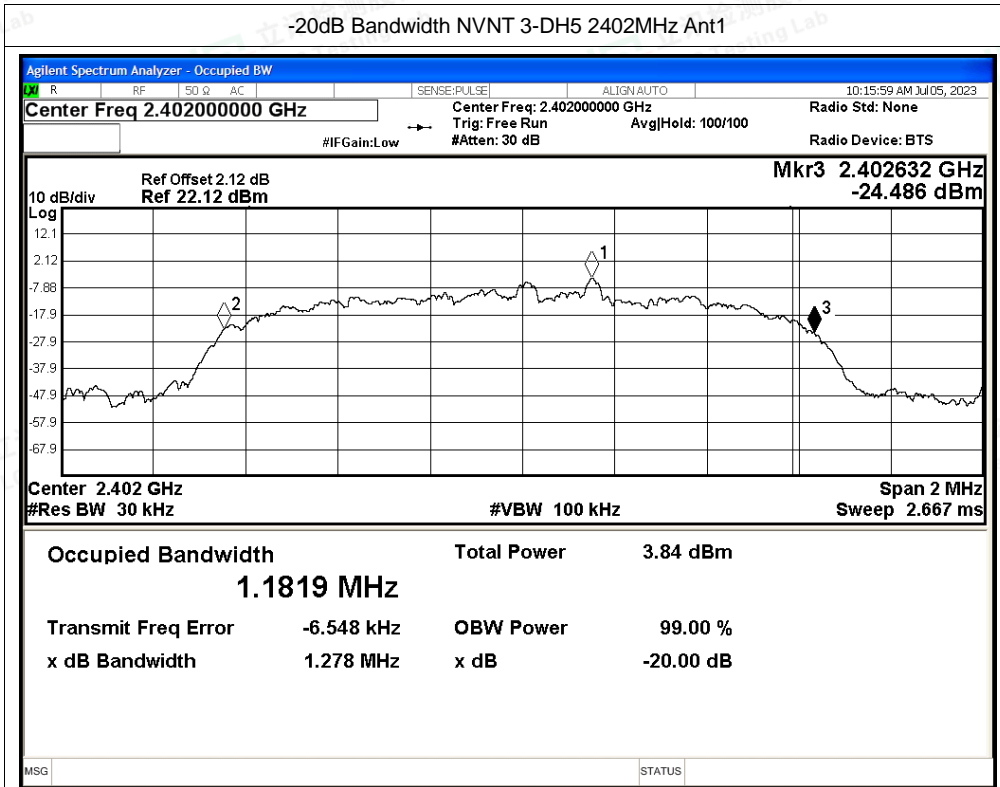


-20dB Bandwidth NVNT 2-DH5 2480MHz Ant1

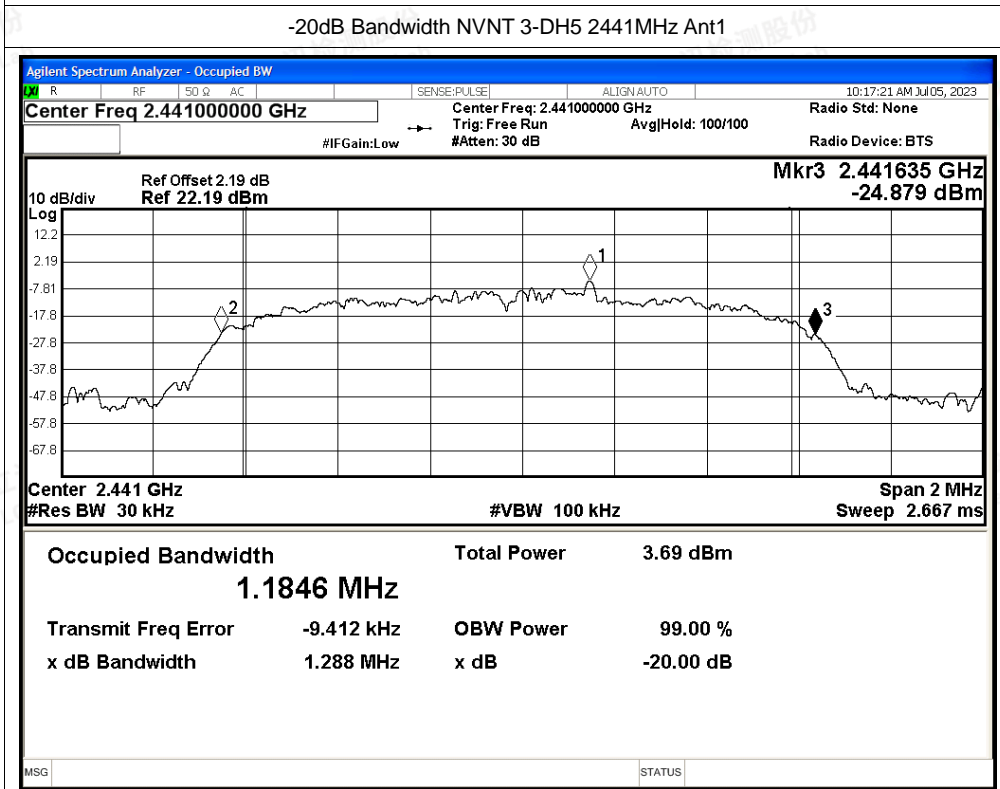




-20dB Bandwidth NVNT 3-DH5 2402MHz Ant1

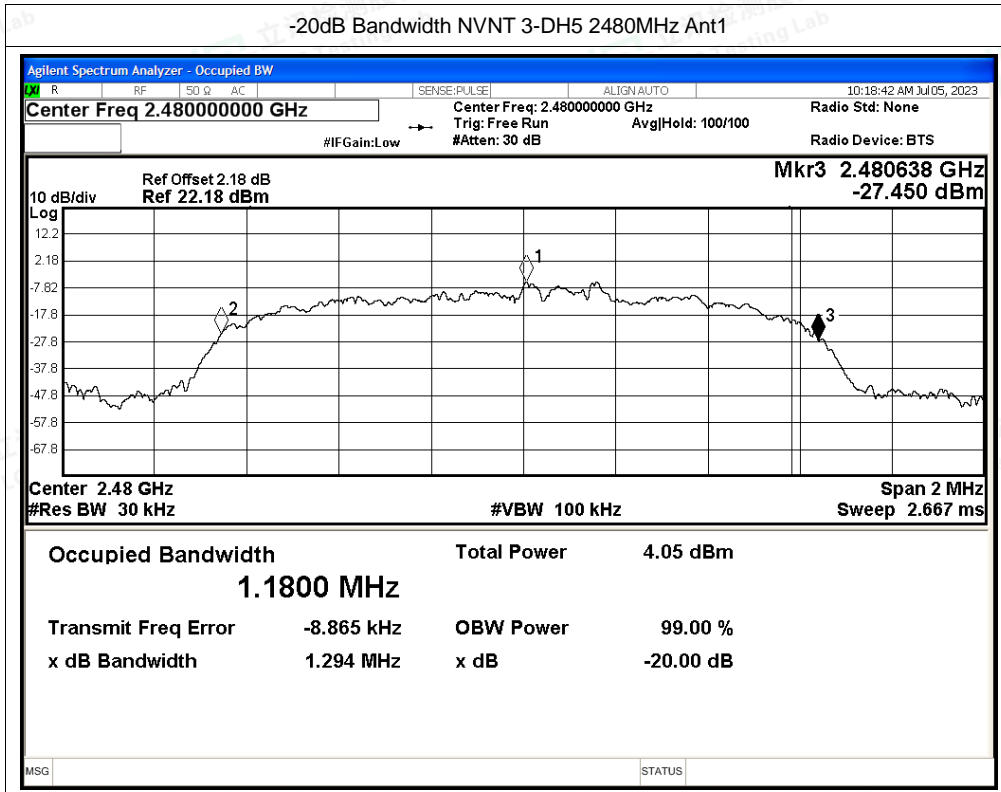


-20dB Bandwidth NVNT 3-DH5 2441MHz Ant1





-20dB Bandwidth NVNT 3-DH5 2480MHz Ant1





## A.2 Maximum Conducted Output Power

Condition	Mode	Frequency (MHz)	Antenna	Total Power (dBm)	Limit (dBm)	Verdict
NVNT	1-DH5	2402	Ant1	-0.73	21	Pass
NVNT	1-DH5	2441	Ant1	-0.56	21	Pass
NVNT	1-DH5	2480	Ant1	-0.45	21	Pass
NVNT	2-DH5	2402	Ant1	-0.94	21	Pass
NVNT	2-DH5	2441	Ant1	-0.74	21	Pass
NVNT	2-DH5	2480	Ant1	-0.69	21	Pass
NVNT	3-DH5	2402	Ant1	-0.87	21	Pass
NVNT	3-DH5	2441	Ant1	-0.71	21	Pass
NVNT	3-DH5	2480	Ant1	-0.6	21	Pass

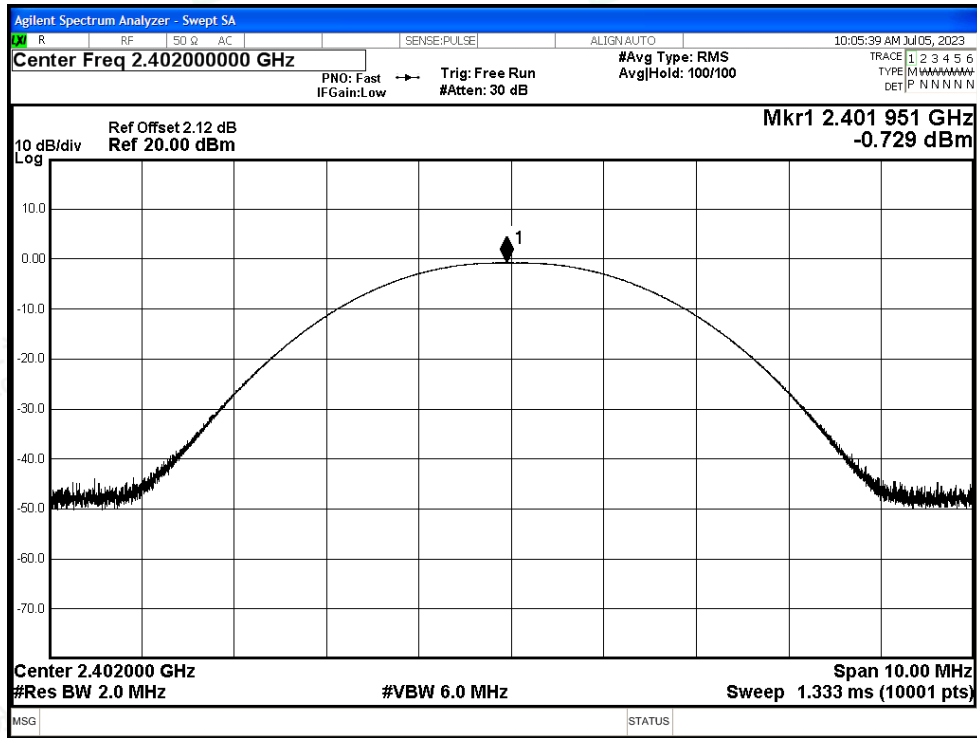




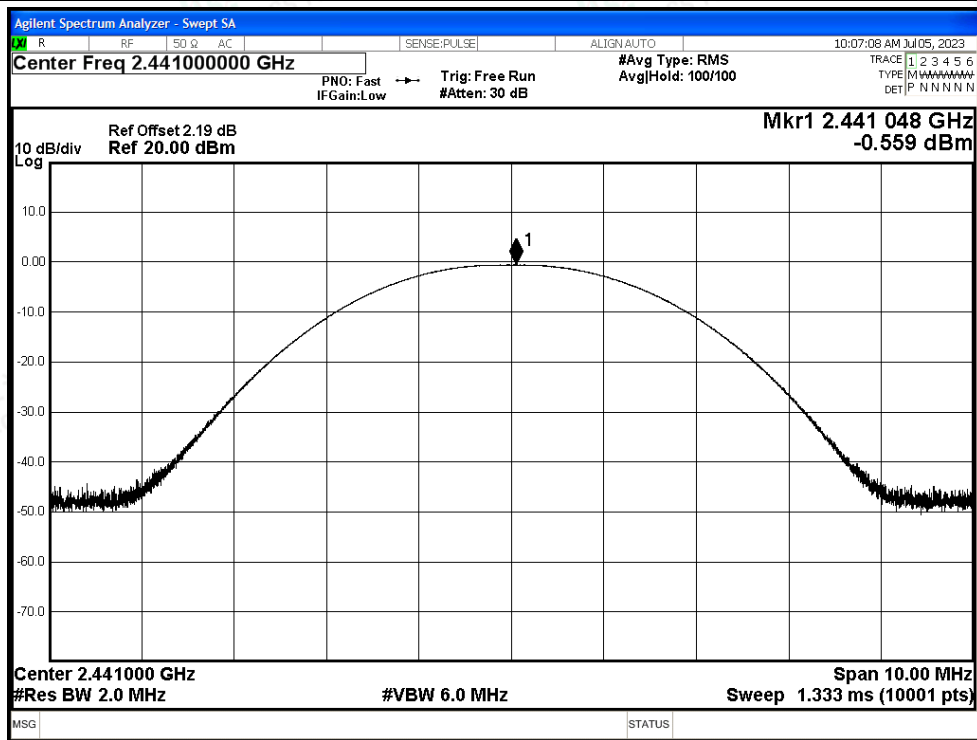


Test Graphs

Power NVNT 1-DH5 2402MHz Ant1

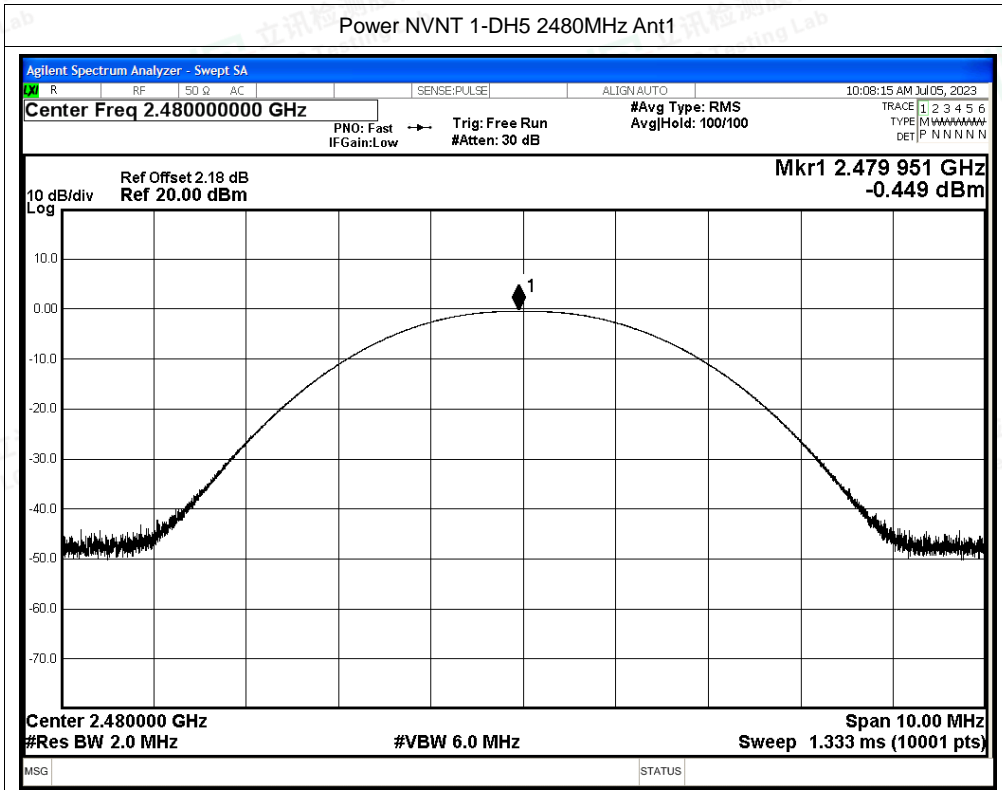


Power NVNT 1-DH5 2441MHz Ant1

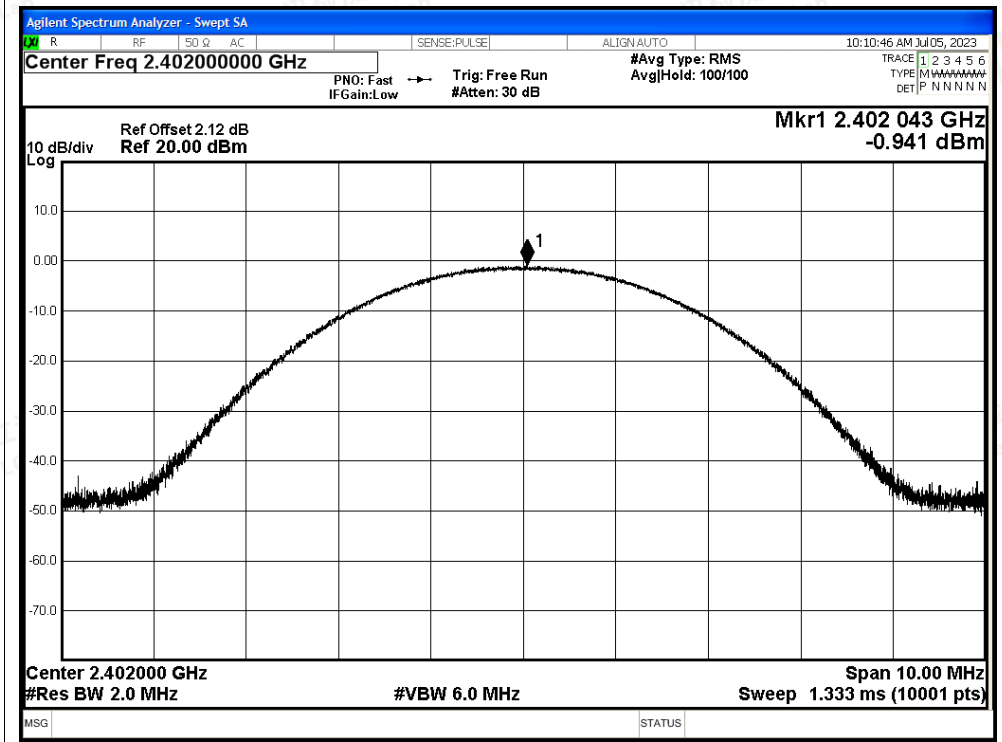




Power NVNT 1-DH5 2480MHz Ant1

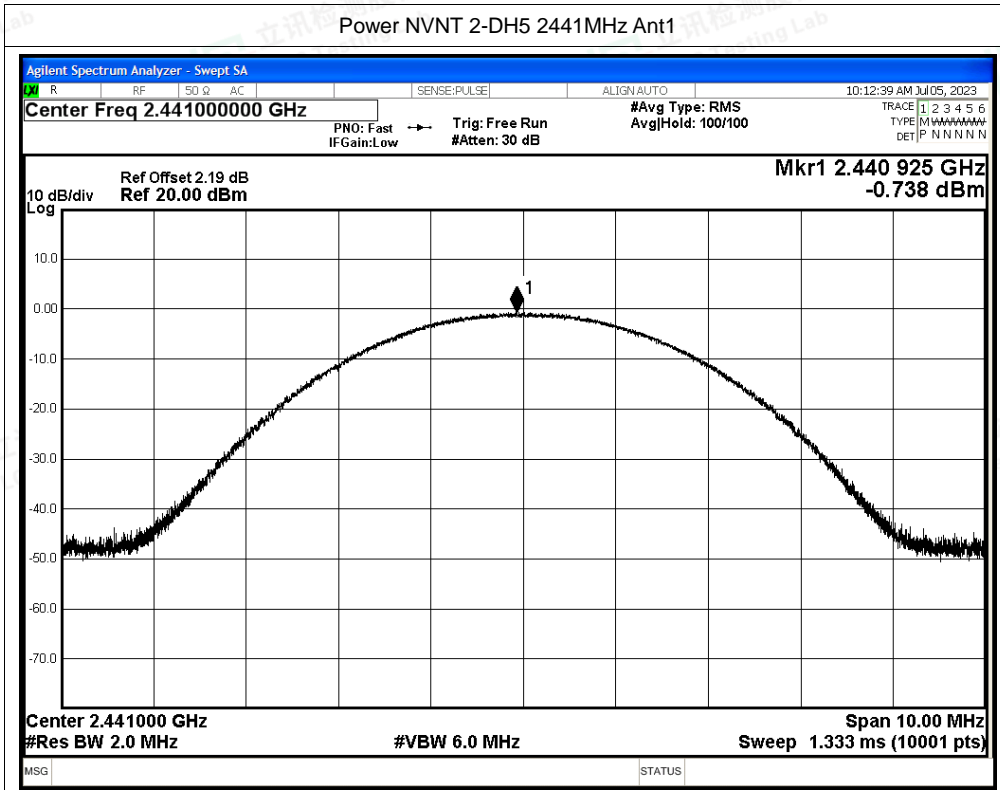


Power NVNT 2-DH5 2402MHz Ant1

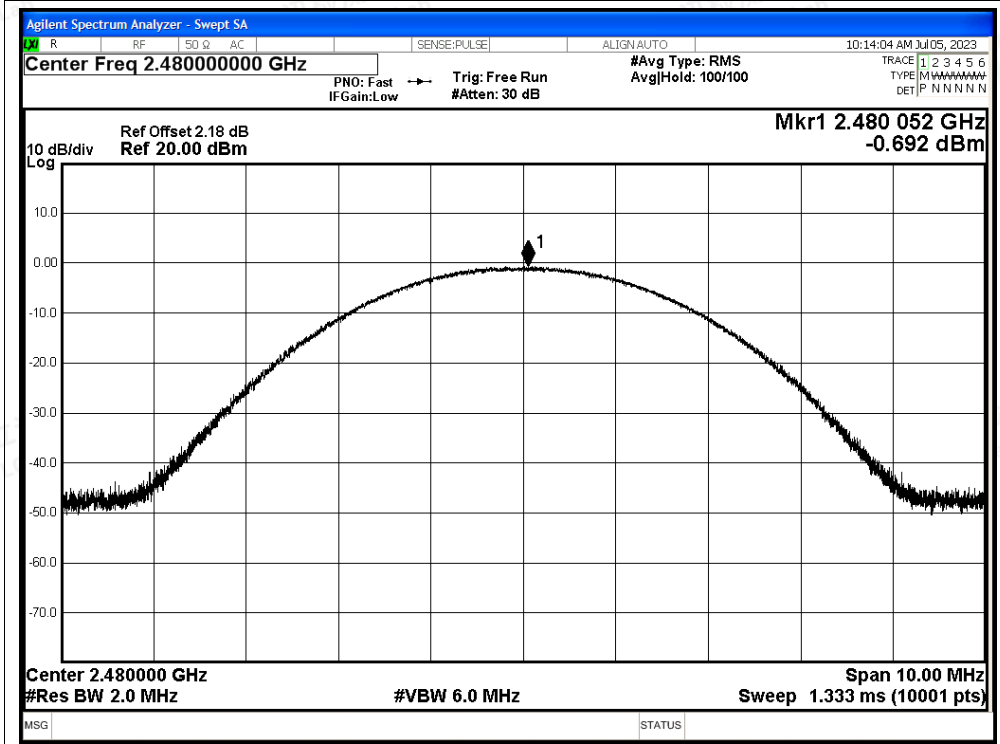




Power NVNT 2-DH5 2441MHz Ant1

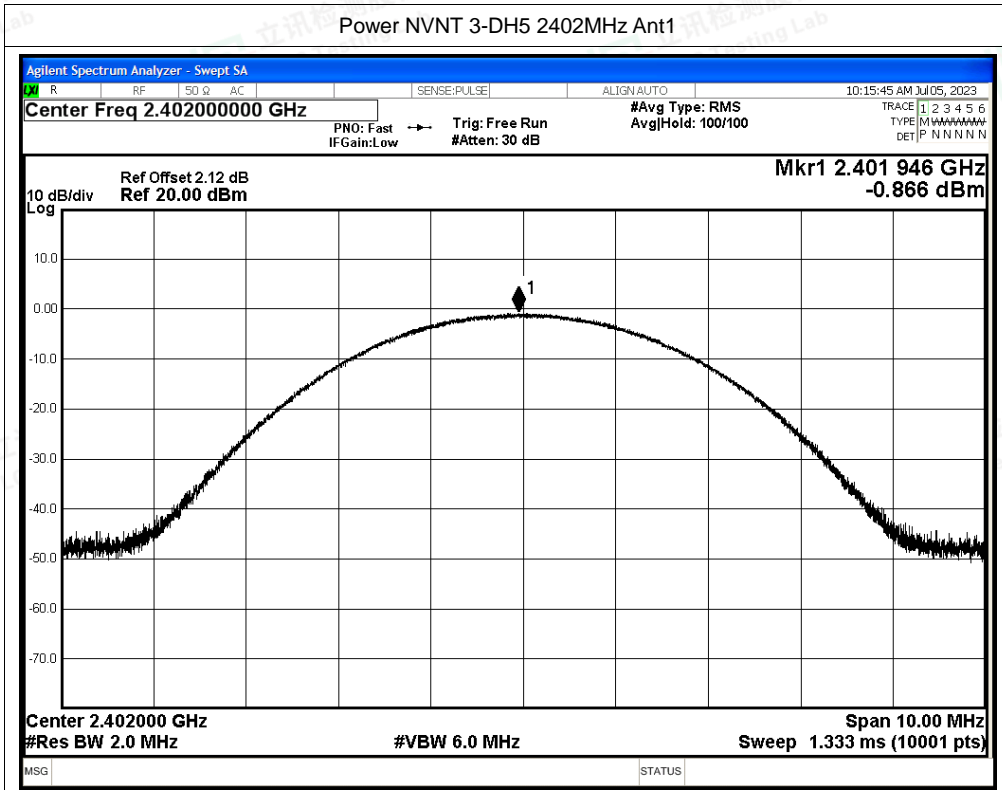


Power NVNT 2-DH5 2480MHz Ant1

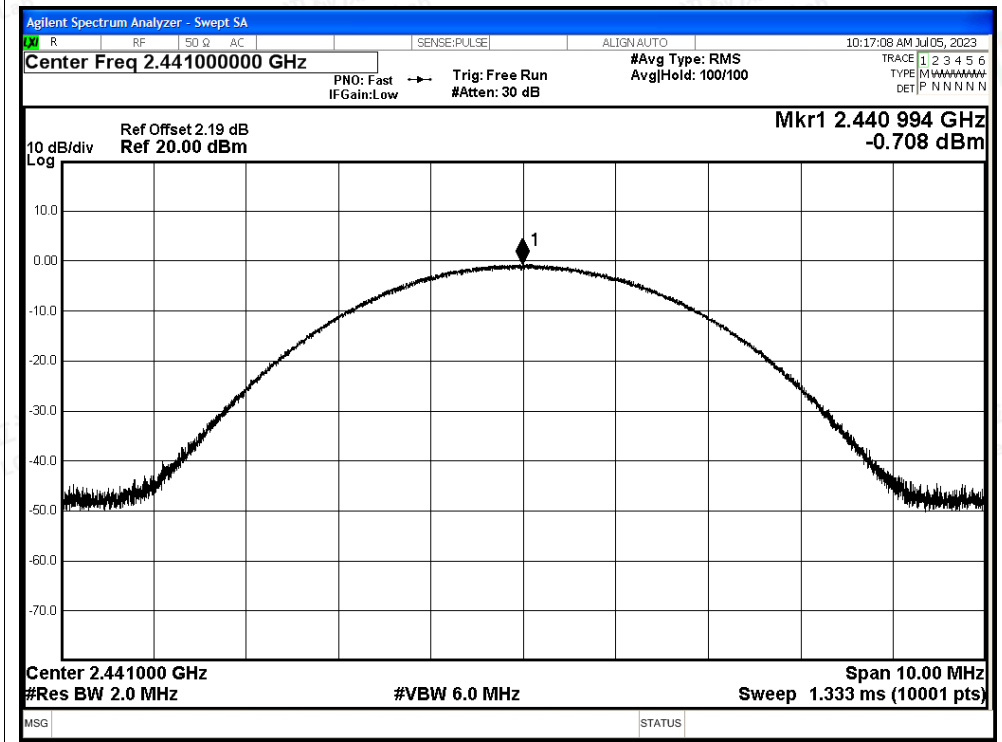


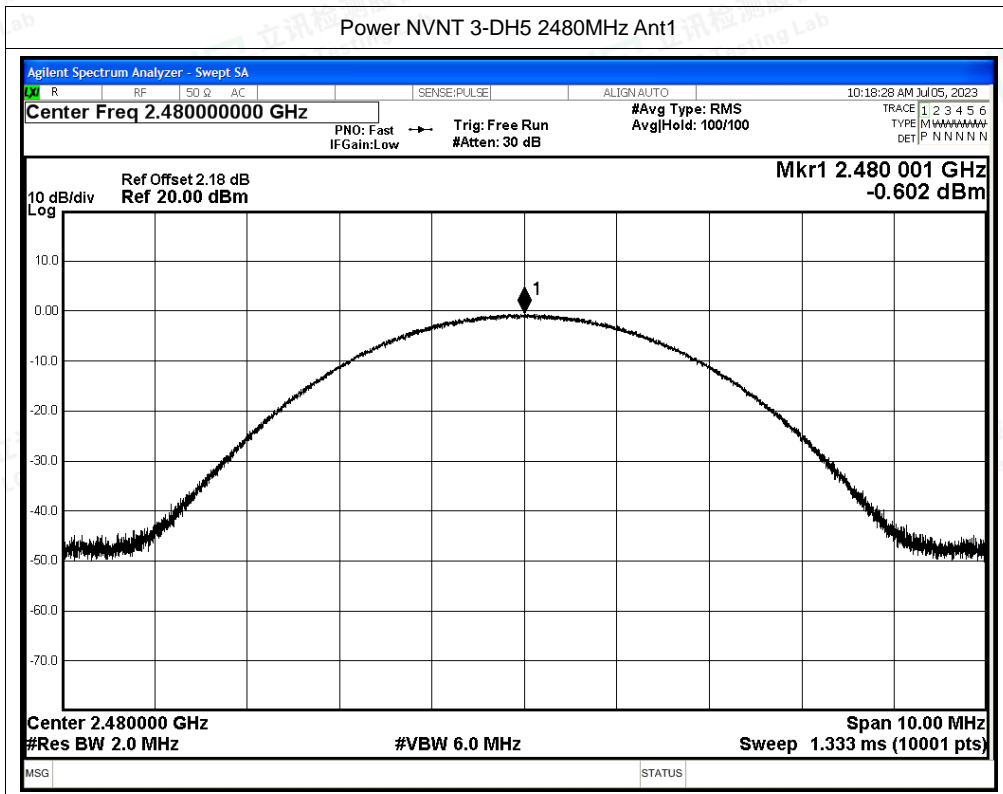


Power NVNT 3-DH5 2402MHz Ant1



Power NVNT 3-DH5 2441MHz Ant1







### A.3 Carrier Frequencies Separation

Condition	Mode	Antenna	Hopping Freq1 (MHz)	Hopping Freq2 (MHz)	HFS (MHz)	Limit (MHz)	Verdict
NVNT	1-DH5	Ant1	2401.966	2403.052	1.086	0.677	Pass
NVNT	2-DH5	Ant1	2402.154	2403.152	0.998	0.875	Pass
NVNT	3-DH5	Ant1	2402.144	2403.158	1.014	0.863	Pass

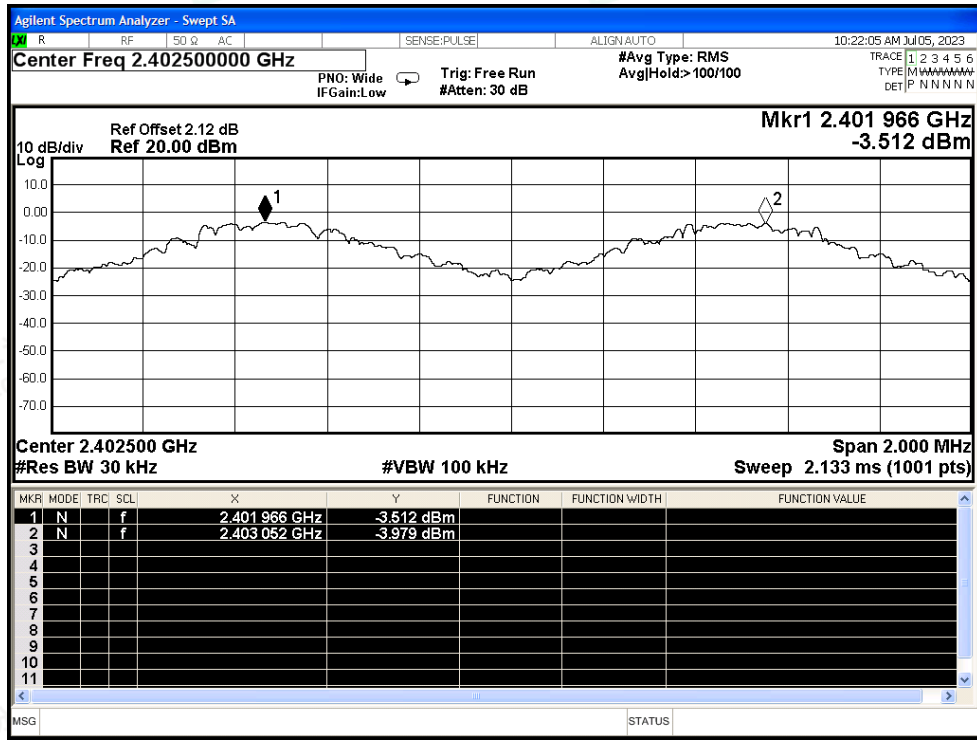


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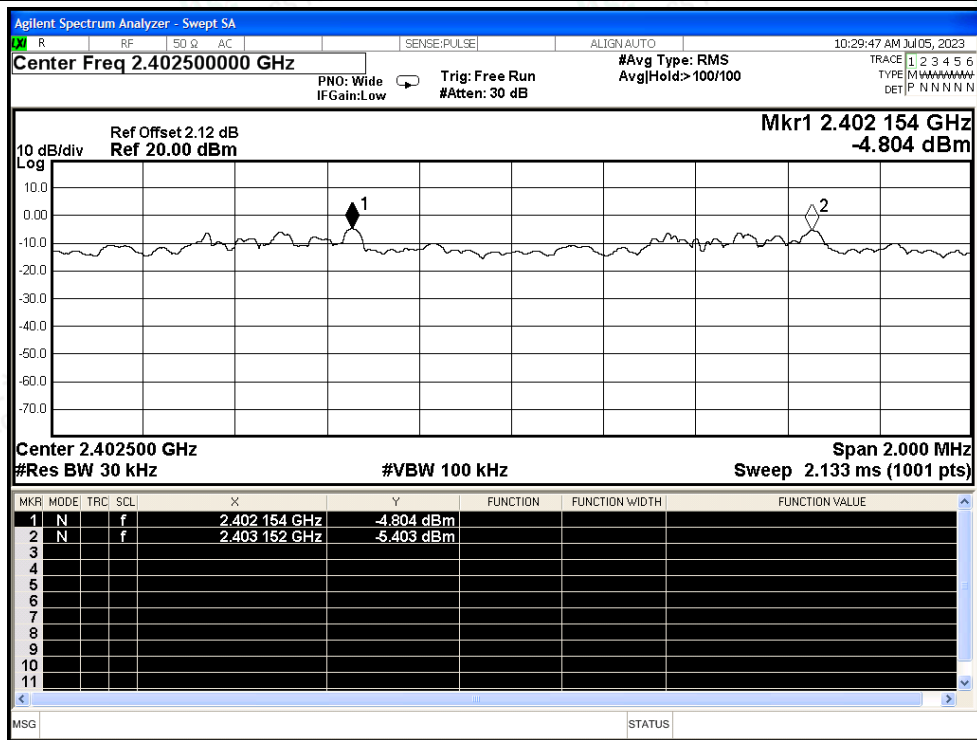


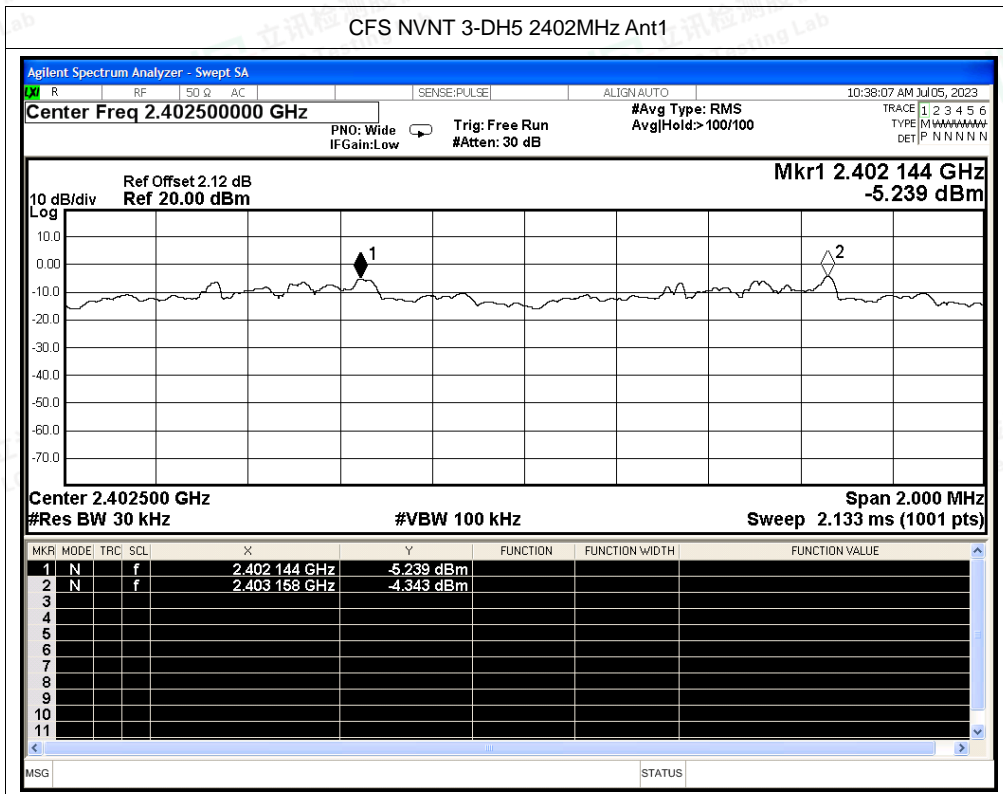
Test Graphs

CFS NVNT 1-DH5 2402MHz Ant1



CFS NVNT 2-DH5 2402MHz Ant1









### A.4 Dwell Time

Condition	Mode	Frequency (MHz)	Antenna	Pulse Time (ms)	Total Dwell Time (ms)	Burst Count	Period Time (ms)	Limit (ms)	Verdict
NVNT	1-DH5	2402	Ant1	2.882	302.61	105	31600	400	Pass
NVNT	2-DH5	2402	Ant1	2.885	311.58	108	31600	400	Pass
NVNT	3-DH5	2402	Ant1	2.887	297.361	103	31600	400	Pass

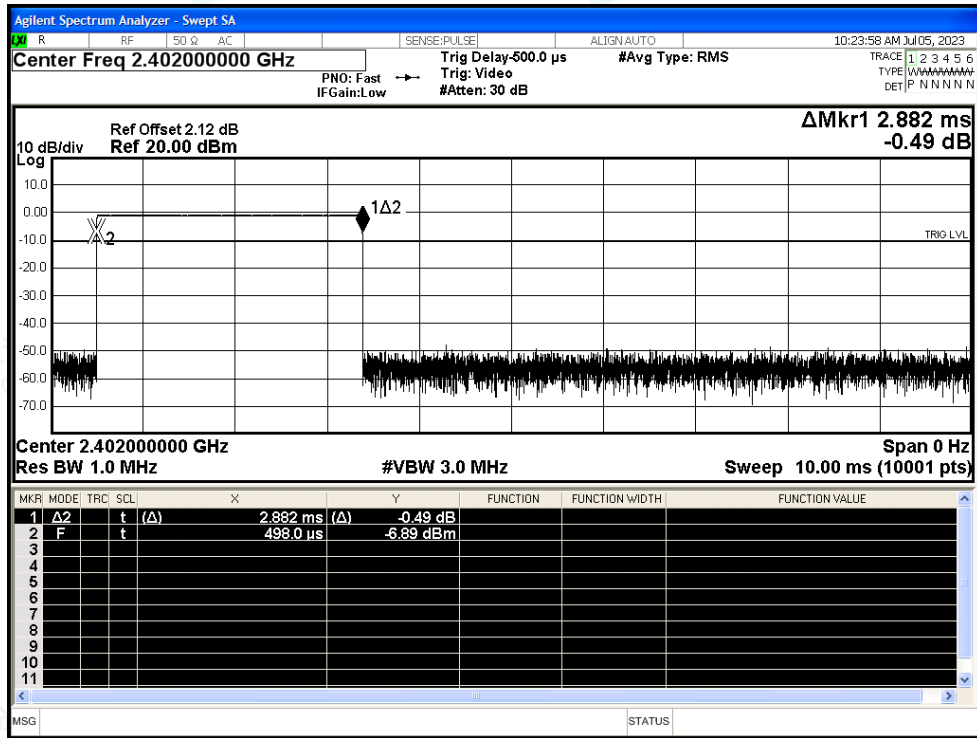


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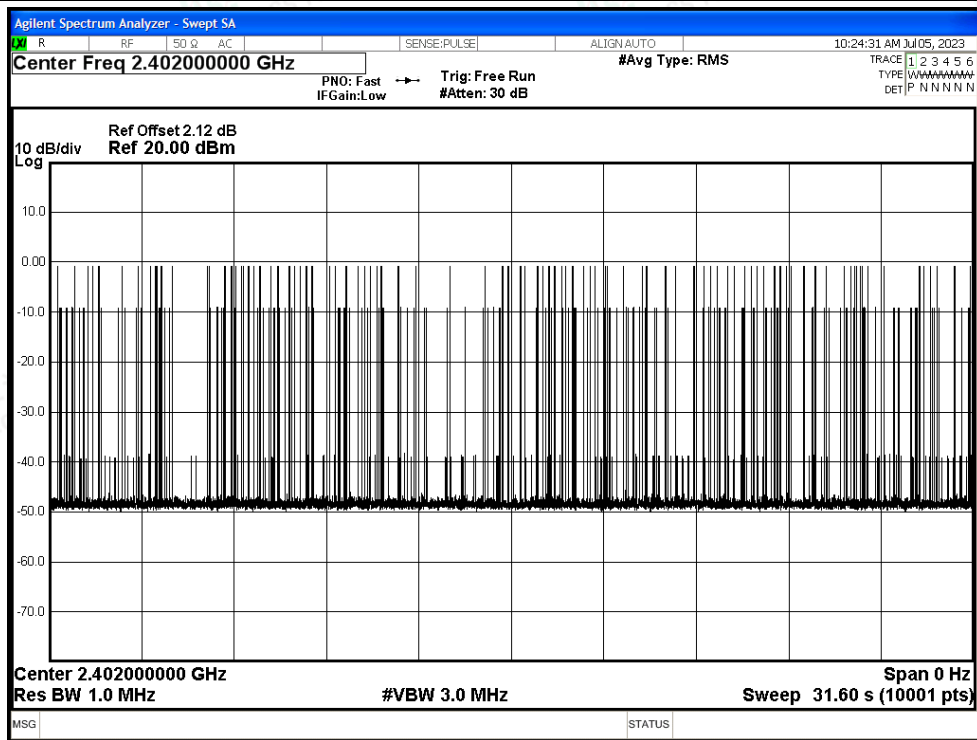


Test Graphs

Dwell NVNT 1-DH5 2402MHz Ant1 One Burst

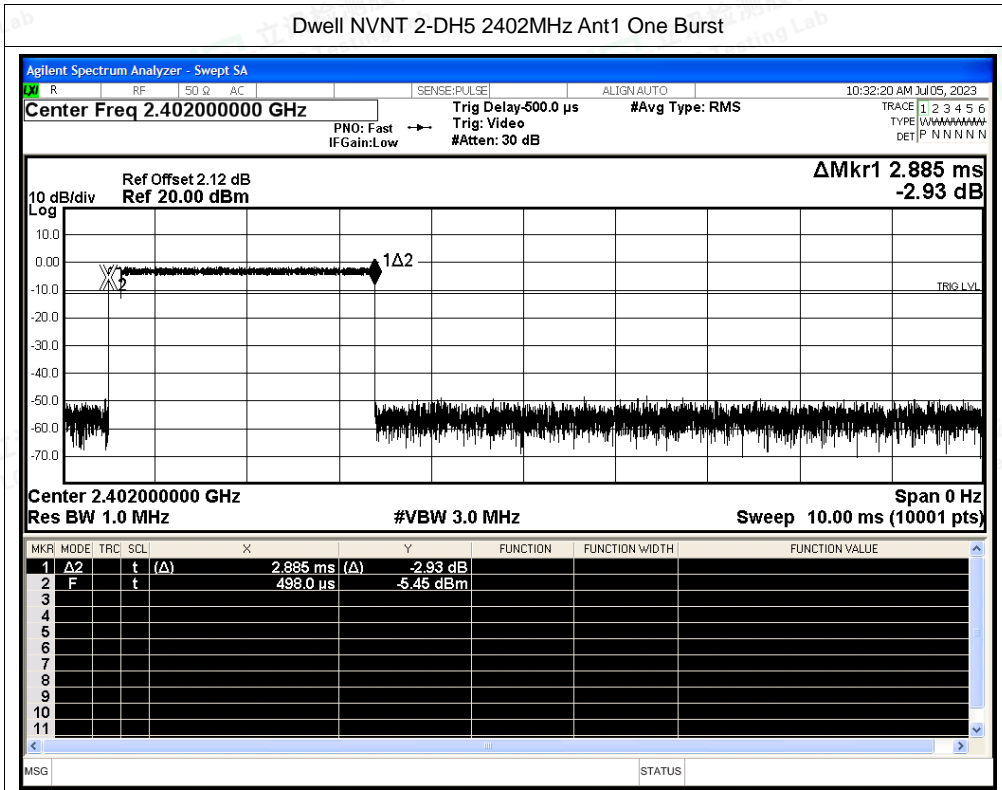


Dwell NVNT 1-DH5 2402MHz Ant1 Accumulated

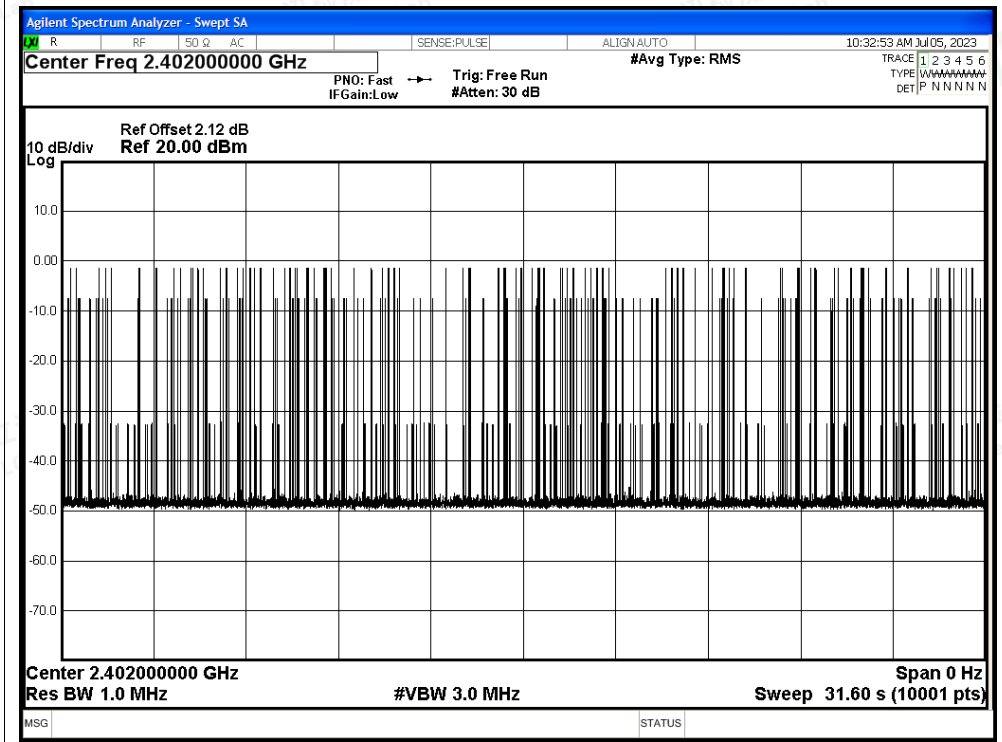




Dwell NVNT 2-DH5 2402MHz Ant1 One Burst

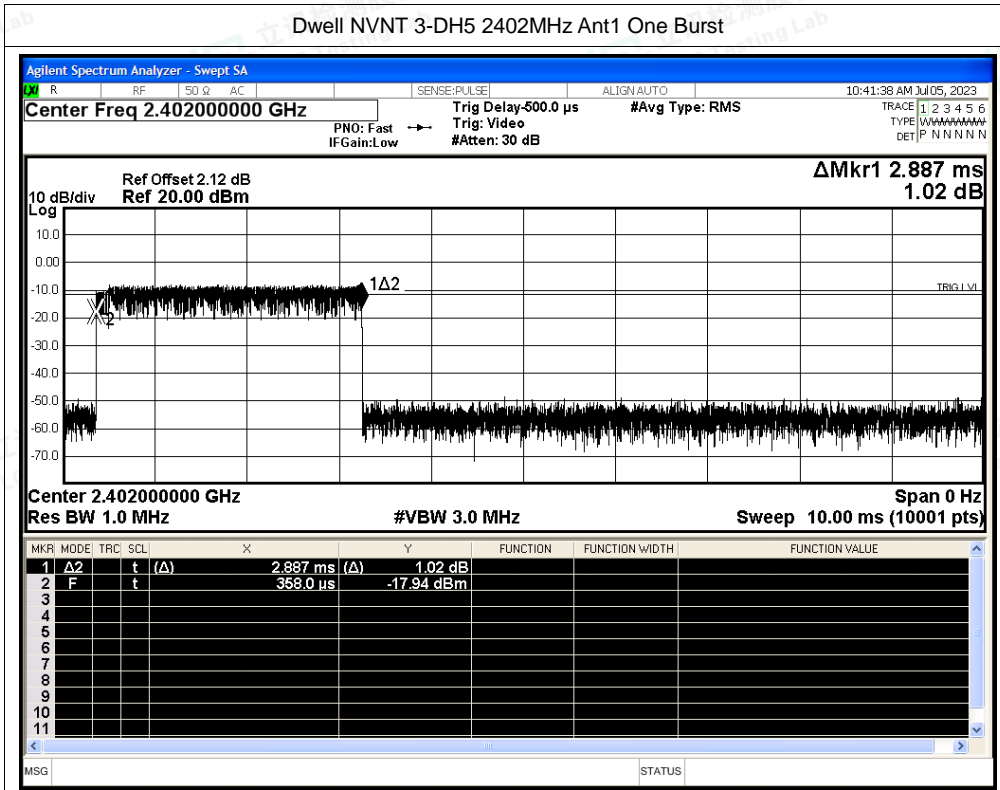


Dwell NVNT 2-DH5 2402MHz Ant1 Accumulated

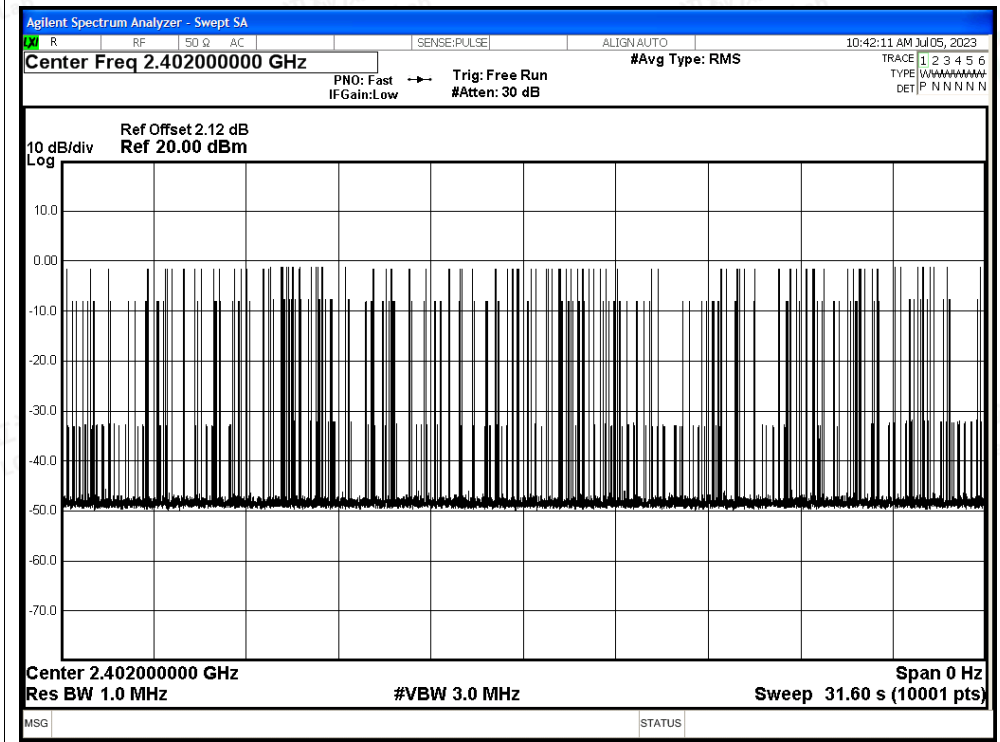




Dwell NVNT 3-DH5 2402MHz Ant1 One Burst



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

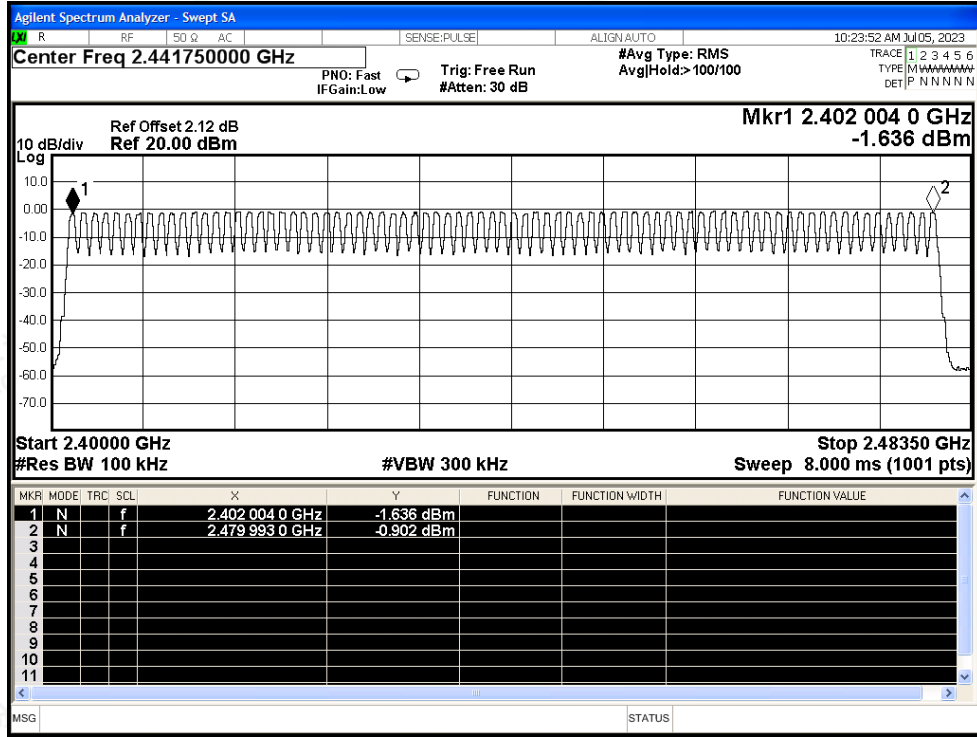


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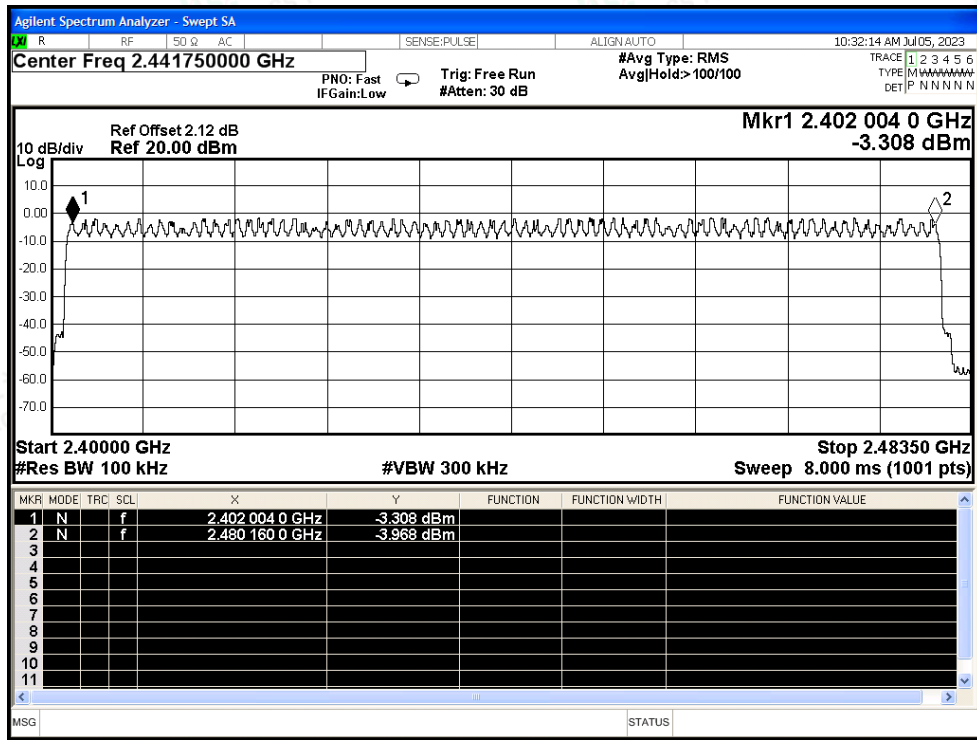


Test Graphs

Hopping No. NVNT 1-DH5 2402MHz Ant1

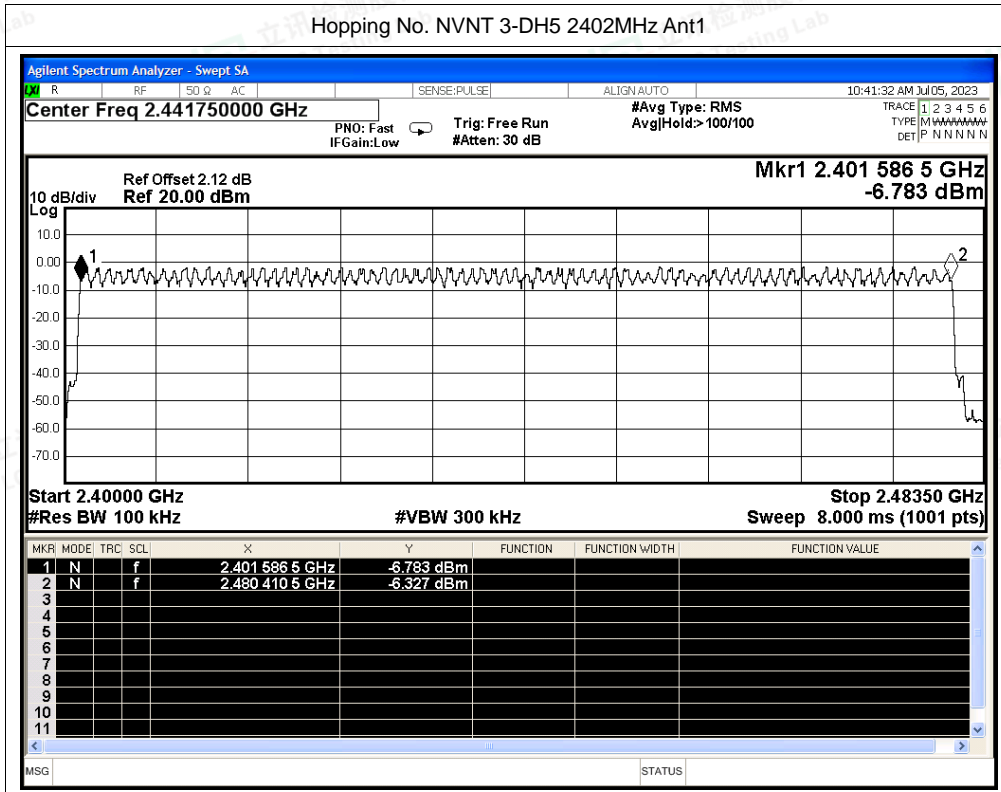


Hopping No. NVNT 2-DH5 2402MHz Ant1





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	-54.99	-20	Pass
NVNT	1-DH5	2480	Ant1	No-Hopping	-55.61	-20	Pass
NVNT	2-DH5	2402	Ant1	No-Hopping	-53.07	-20	Pass
NVNT	2-DH5	2480	Ant1	No-Hopping	-55.58	-20	Pass
NVNT	3-DH5	2402	Ant1	No-Hopping	-52.5	-20	Pass
NVNT	3-DH5	2480	Ant1	No-Hopping	-52.72	-20	Pass



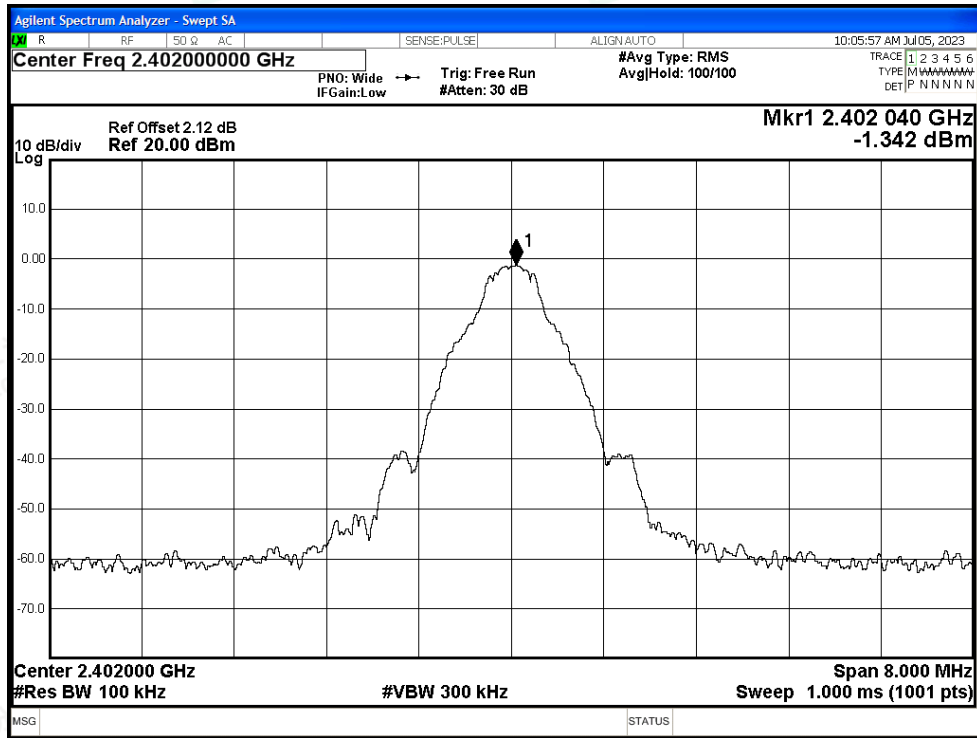
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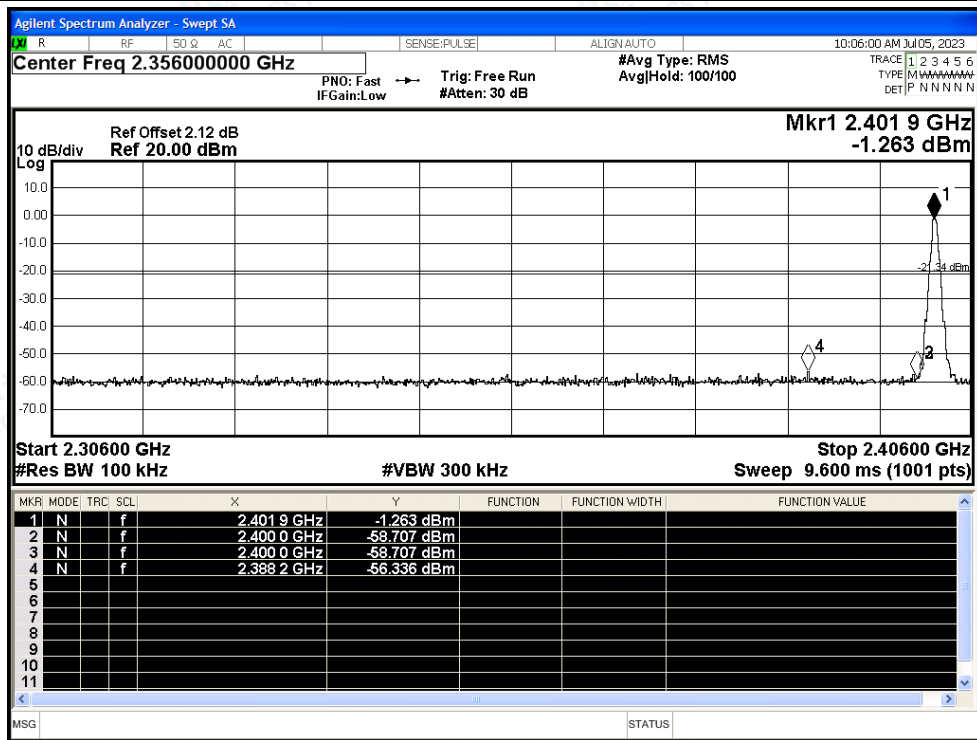


Test Graphs

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

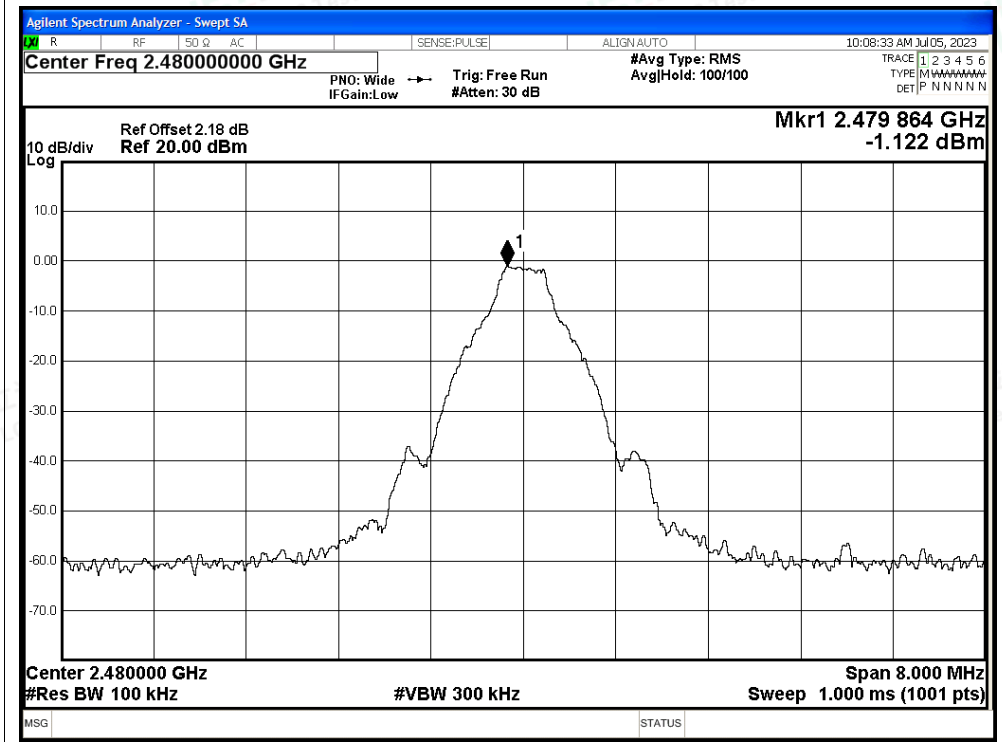


Band Edge NVNT 1-DH5 2402MHz Ant1 No-Hopping Emission

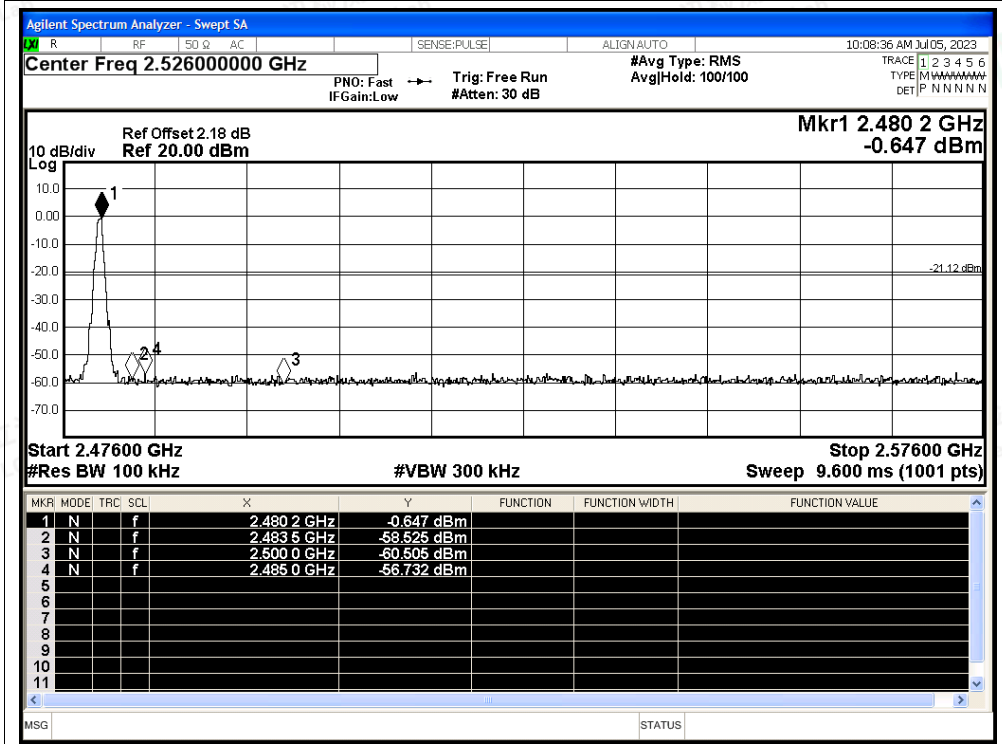




Band Edge NVNT 1-DH5 2480MHz Ant1 No-Hopping Ref

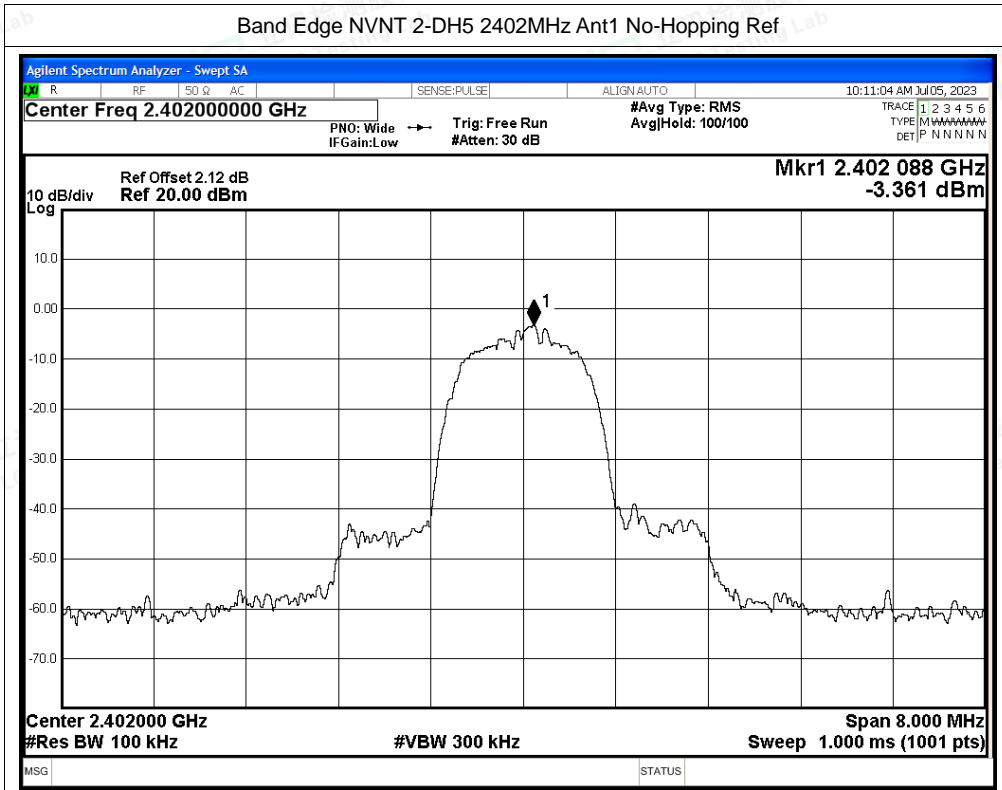


Band Edge NVNT 1-DH5 2480MHz Ant1 No-Hopping Emission

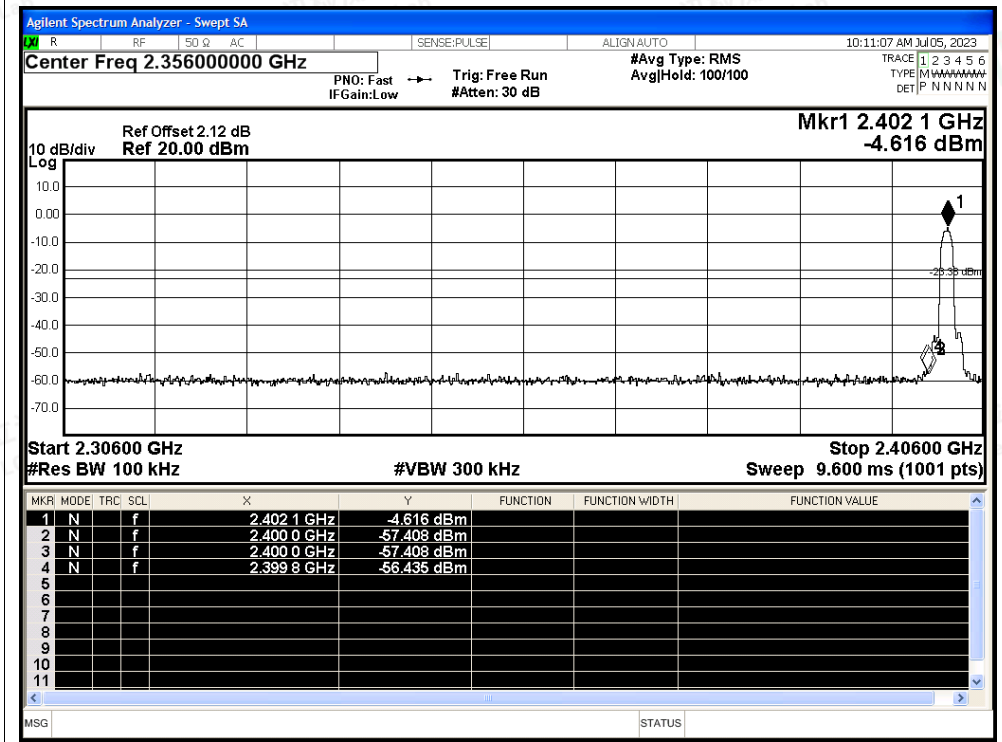




Band Edge NVNT 2-DH5 2402MHz Ant1 No-Hopping Ref

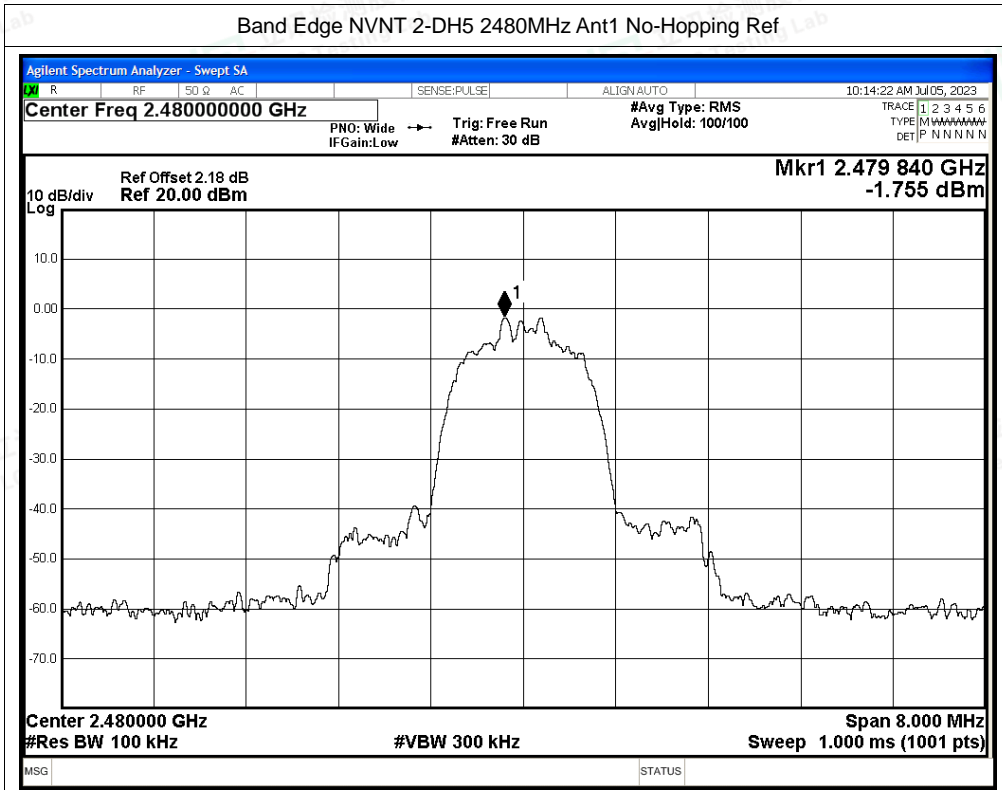


Band Edge NVNT 2-DH5 2402MHz Ant1 No-Hopping Emission

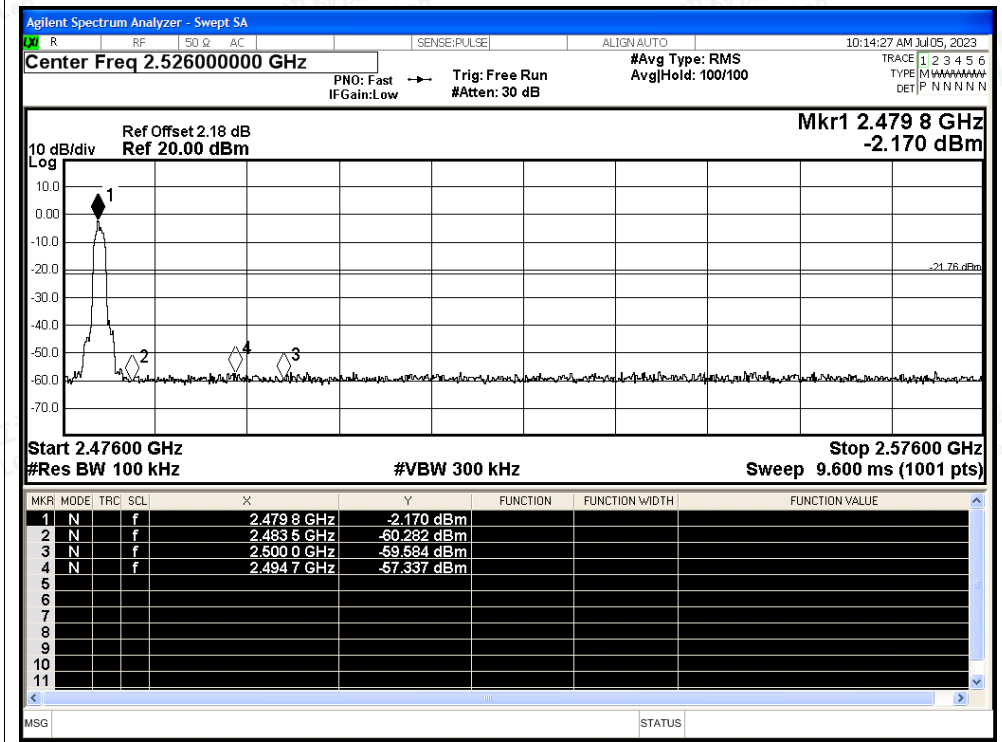




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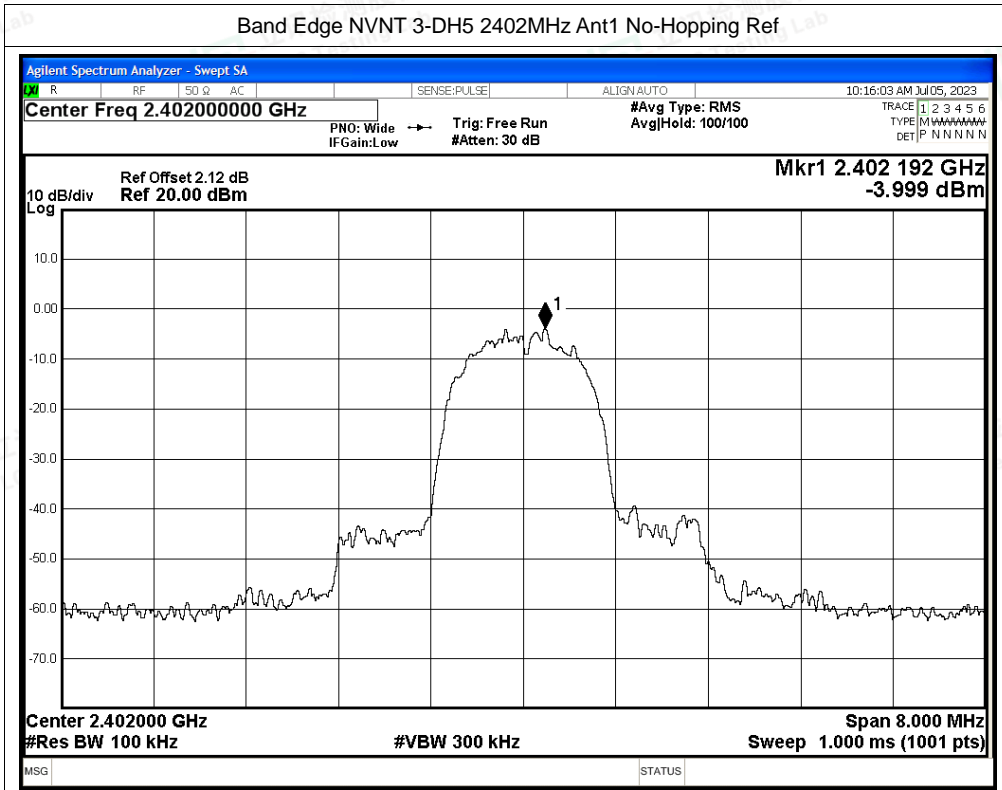


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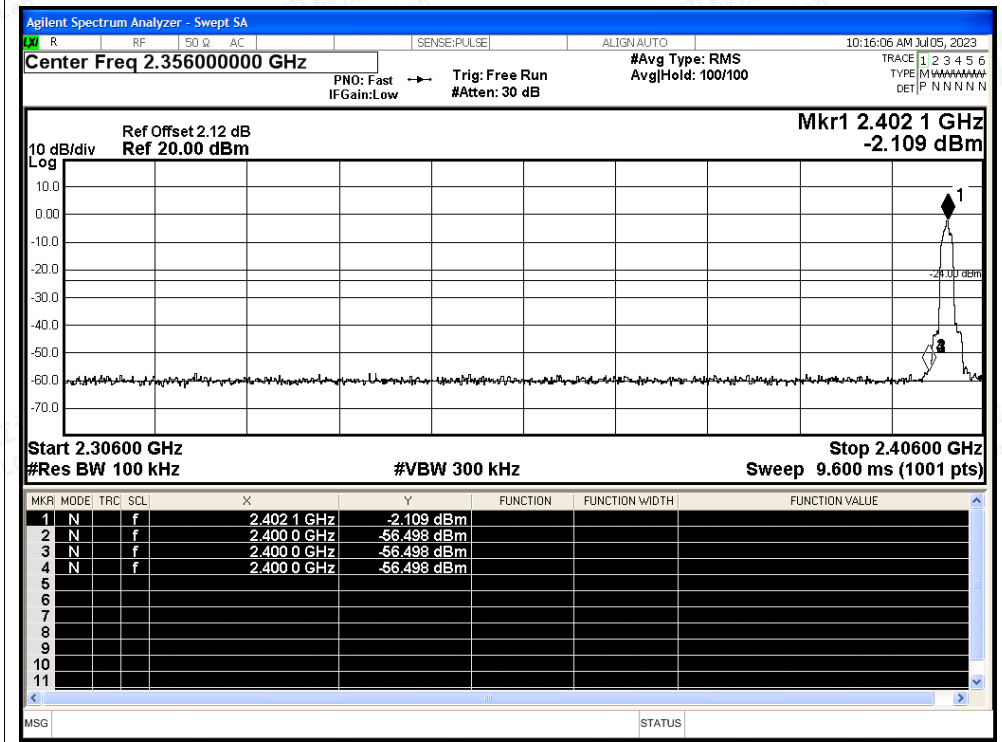




Band Edge NVNT 3-DH5 2402MHz Ant1 No-Hopping Ref

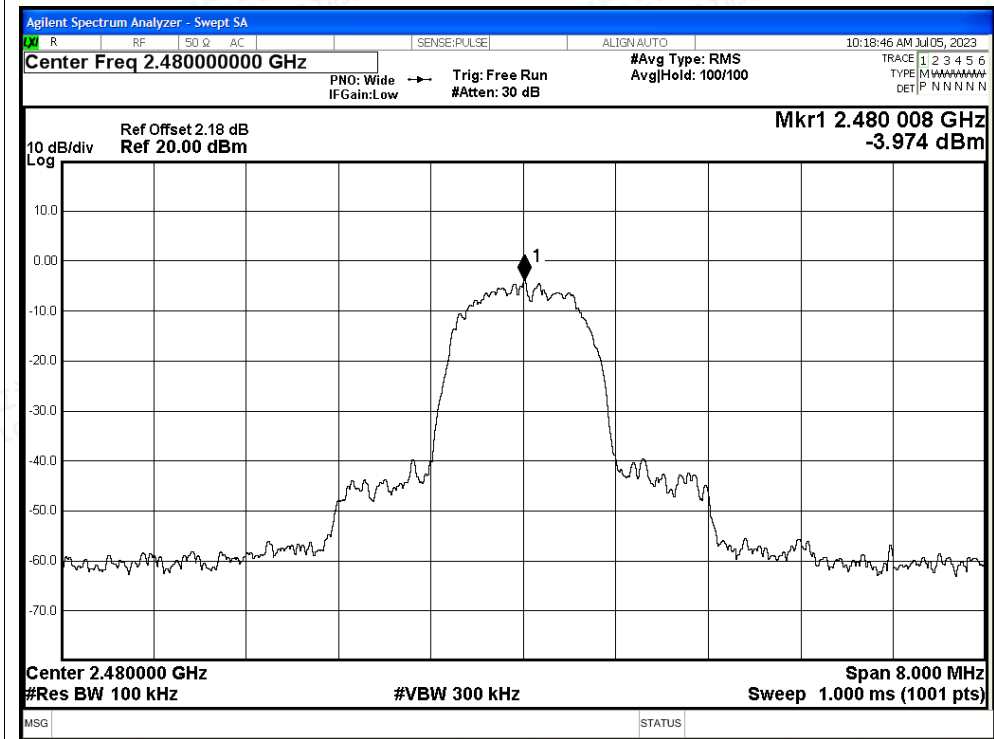


Band Edge NVNT 3-DH5 2402MHz Ant1 No-Hopping Emission

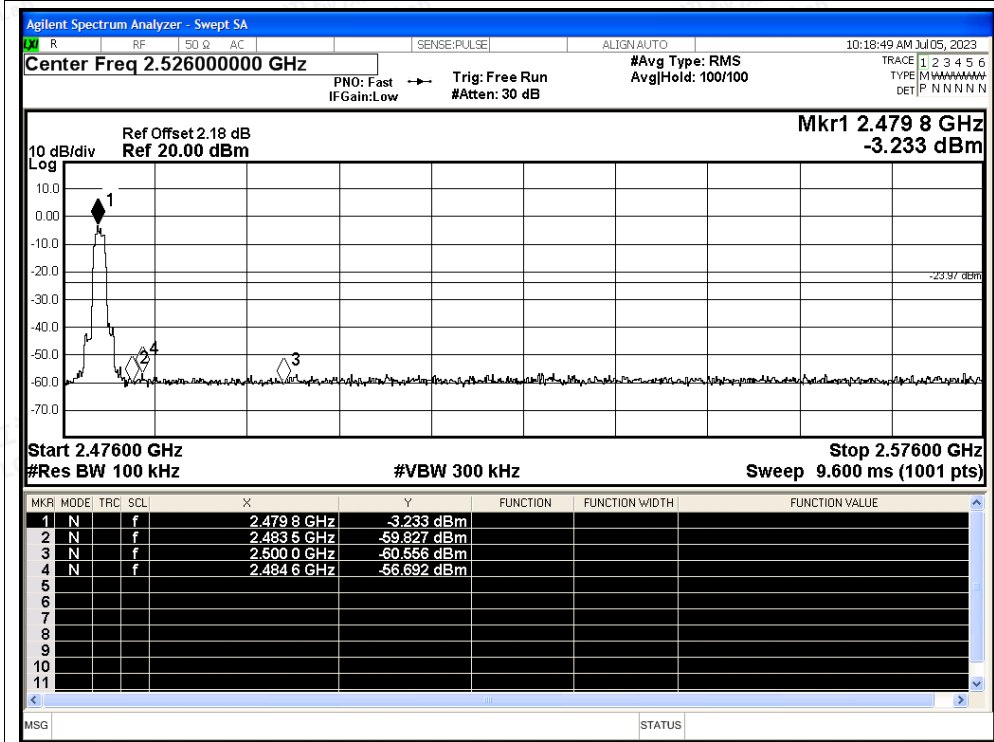




Band Edge NVNT 3-DH5 2480MHz Ant1 No-Hopping Ref



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	-54.76	-20	Pass
NVNT	1-DH5	2480	Ant1	Hopping	-55.21	-20	Pass
NVNT	2-DH5	2402	Ant1	Hopping	-54.34	-20	Pass
NVNT	2-DH5	2480	Ant1	Hopping	-53.84	-20	Pass
NVNT	3-DH5	2402	Ant1	Hopping	-53.81	-20	Pass
NVNT	3-DH5	2480	Ant1	Hopping	-52.22	-20	Pass

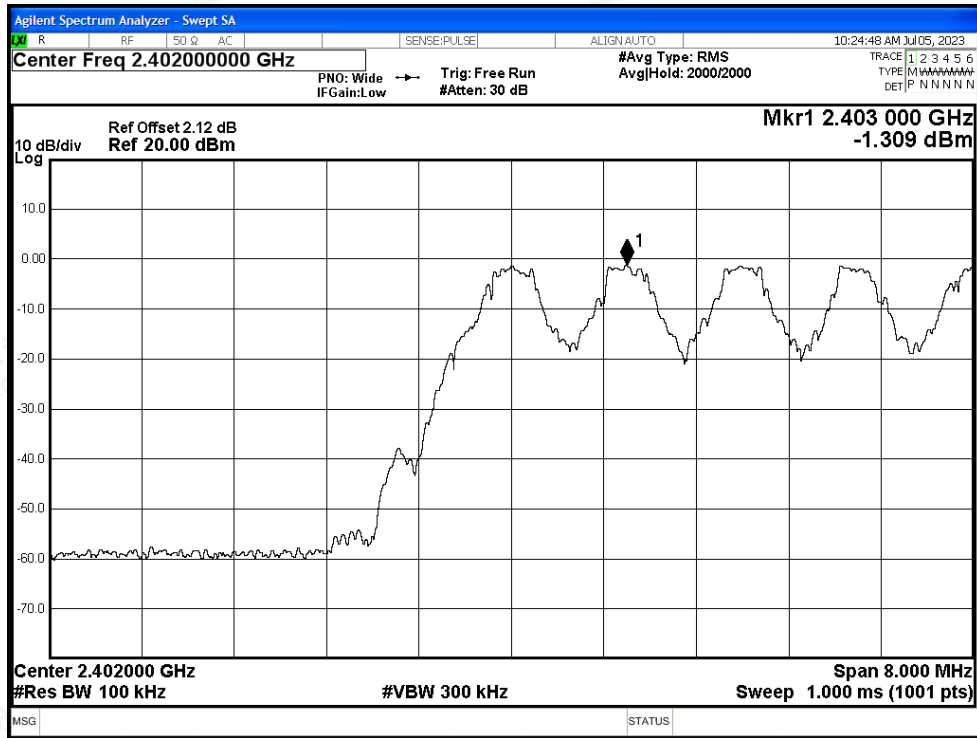


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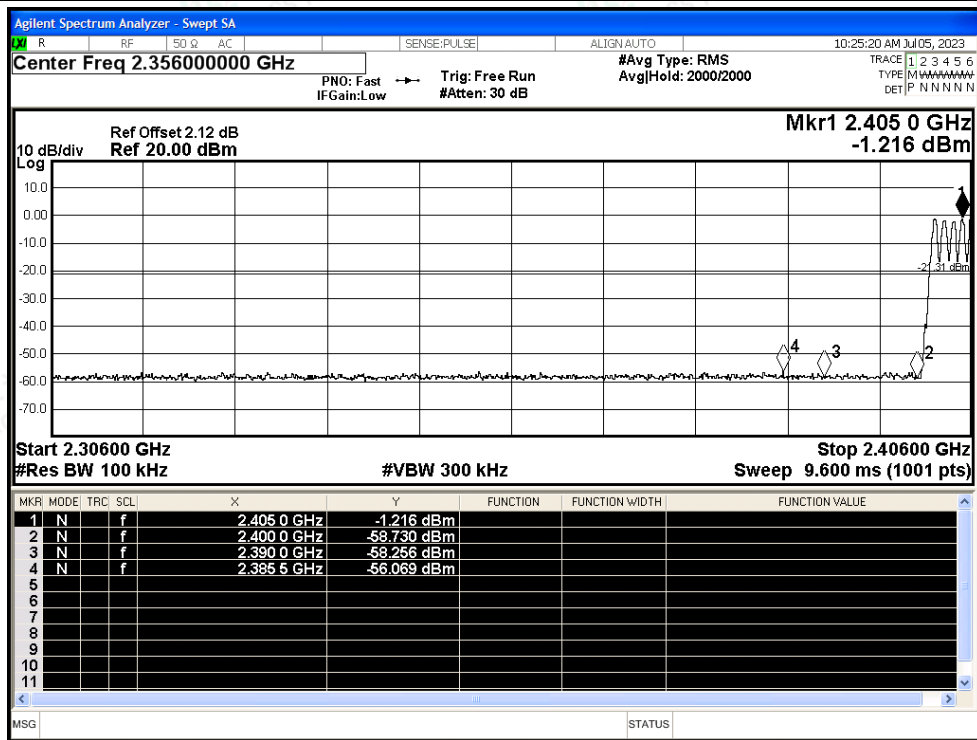


Test Graphs

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



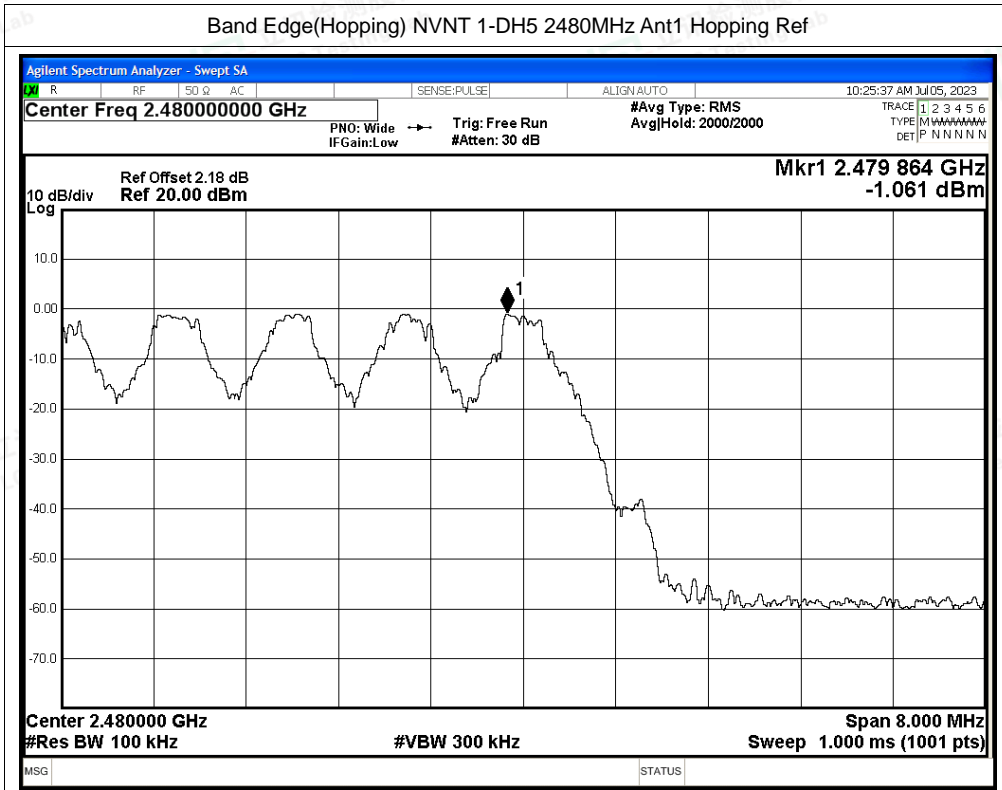
Band Edge(Hopping) NVNT 1-DH5 2402MHz Ant1 Hopping Emission



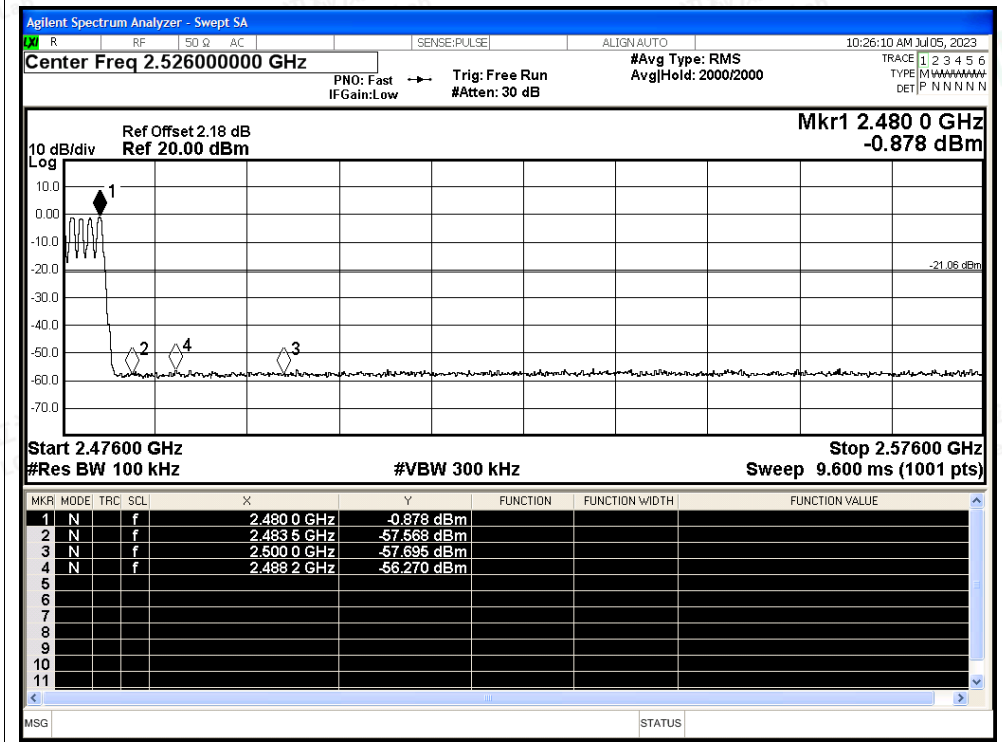




Band Edge(Hopping) NVNT 1-DH5 2480MHz Ant1 Hopping Ref



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

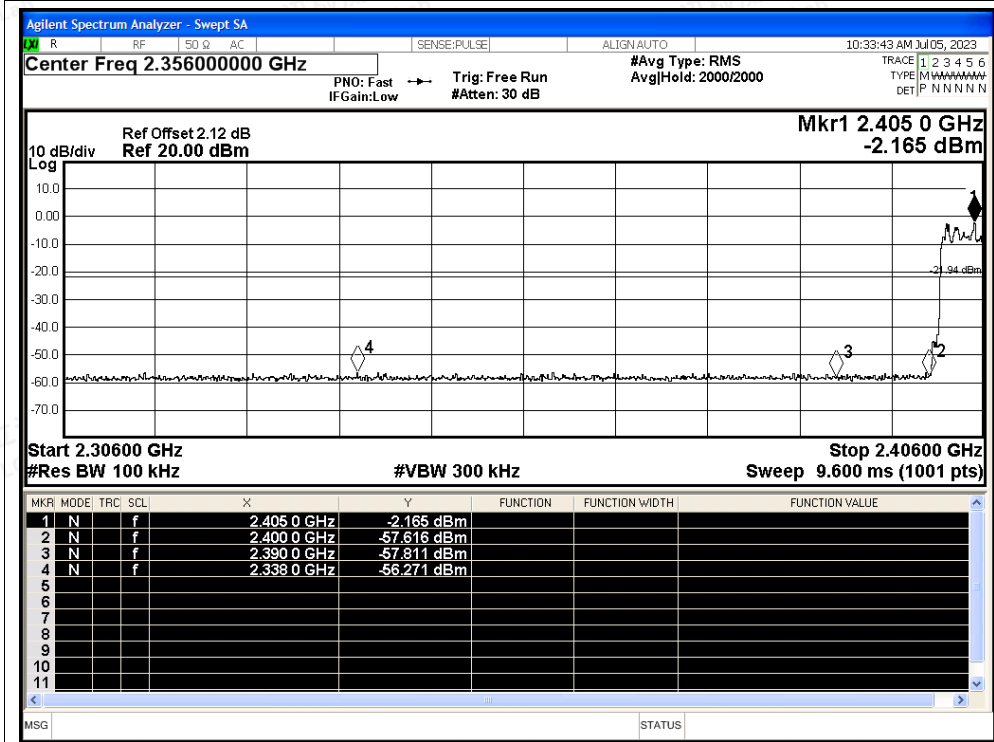




Band Edge(Hopping) NVNT 2-DH5 2402MHz Ant1 Hopping Ref

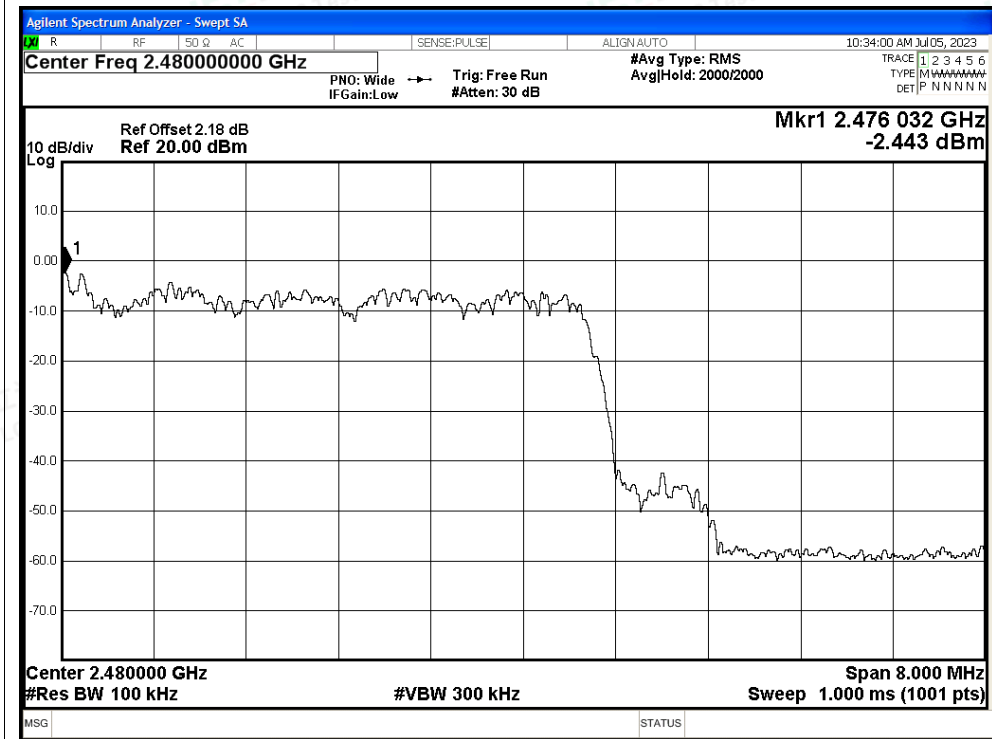


Band Edge(Hopping) NVNT 2-DH5 2402MHz Ant1 Hopping Emission

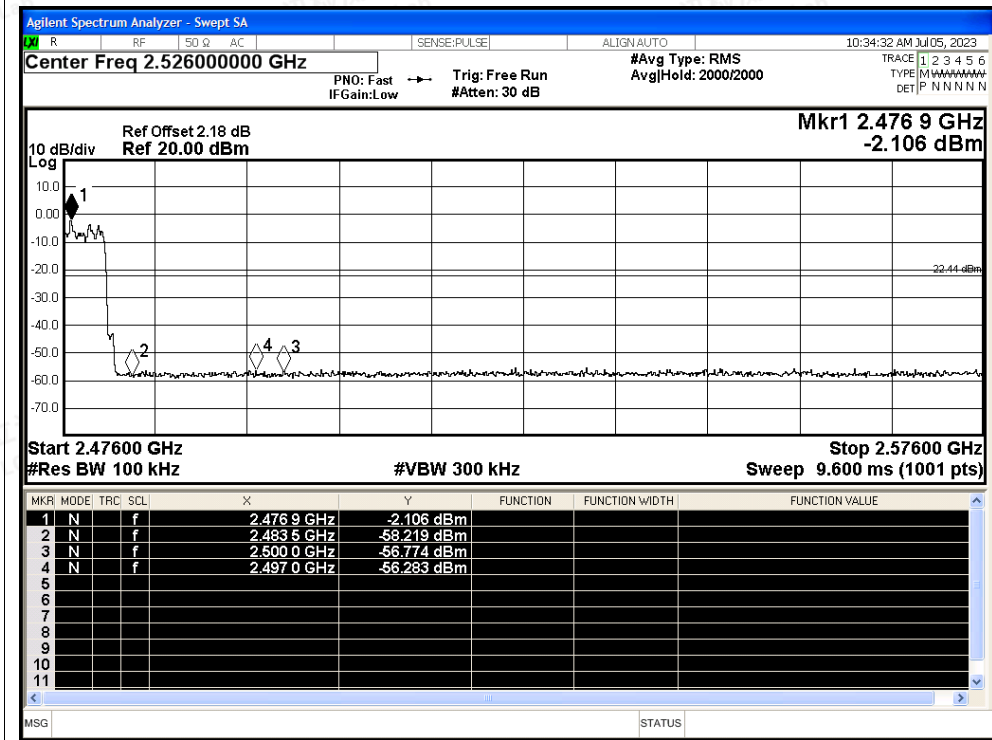




Band Edge(Hopping) NVNT 2-DH5 2480MHz Ant1 Hopping Ref

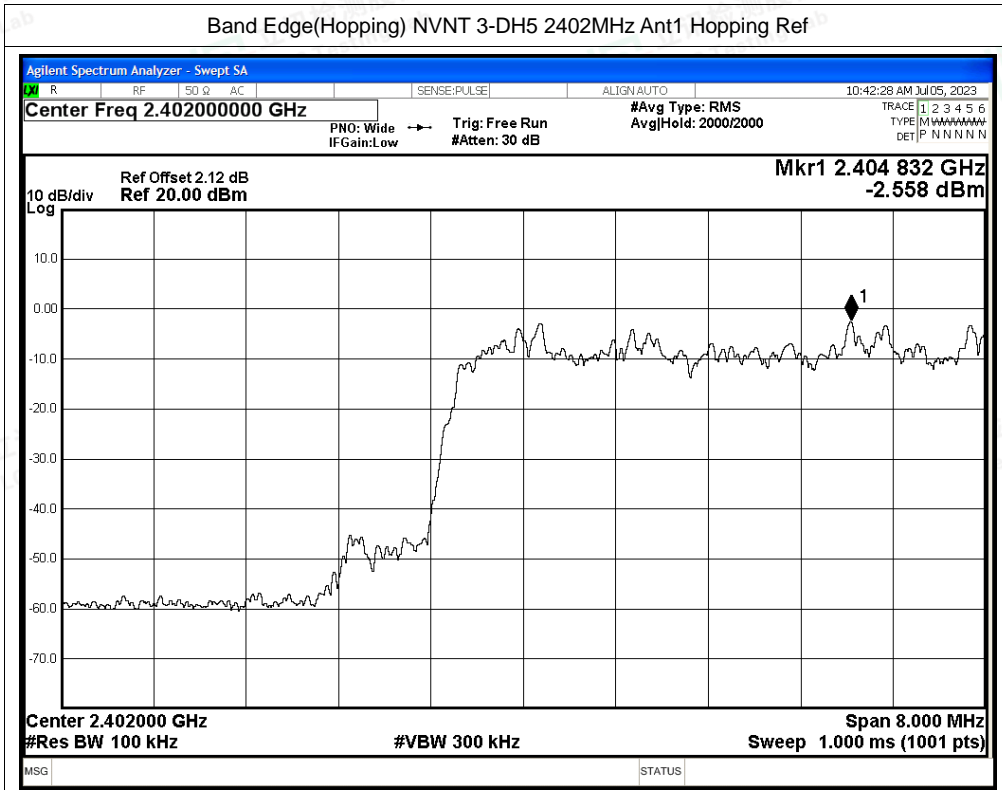


Band Edge(Hopping) NVNT 2-DH5 2480MHz Ant1 Hopping Emission

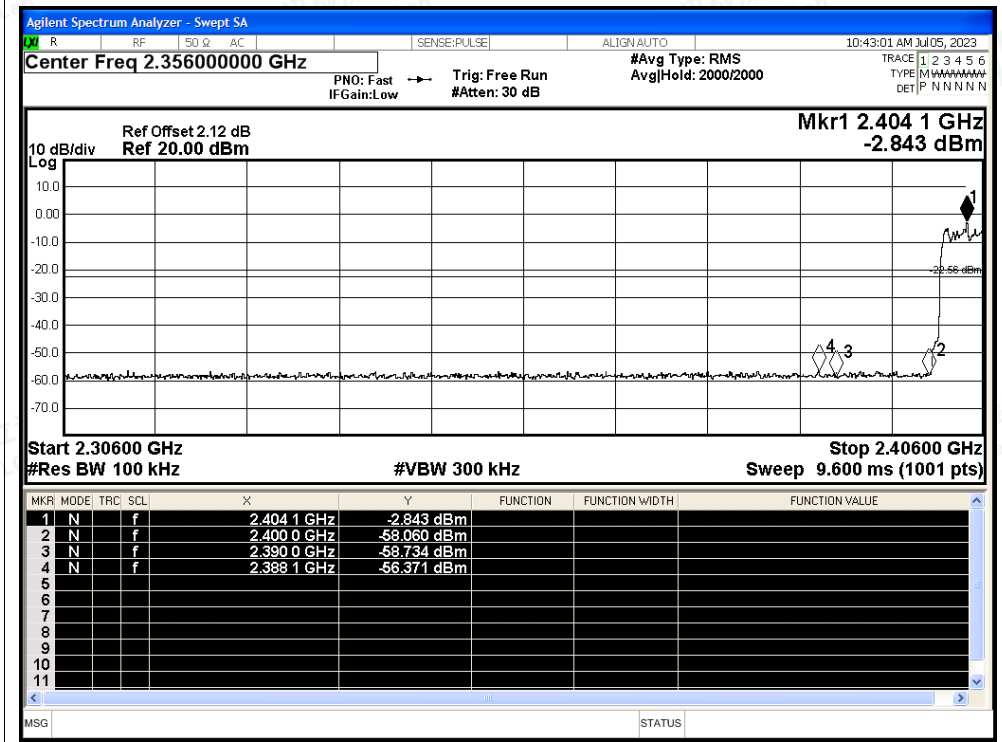


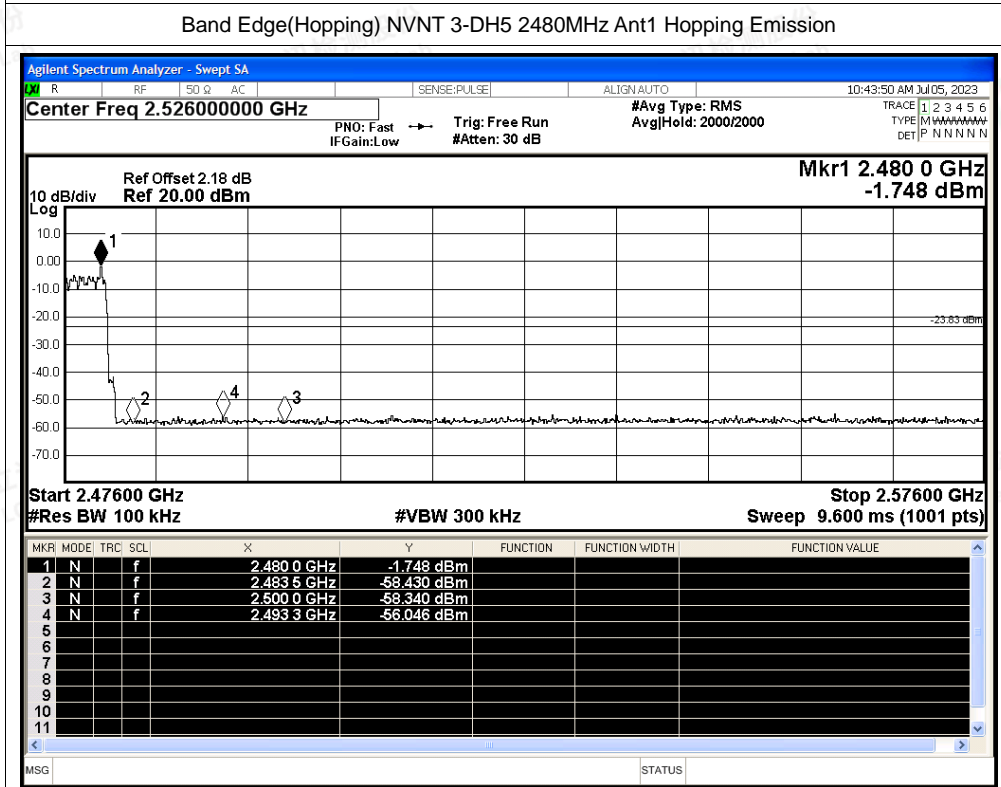
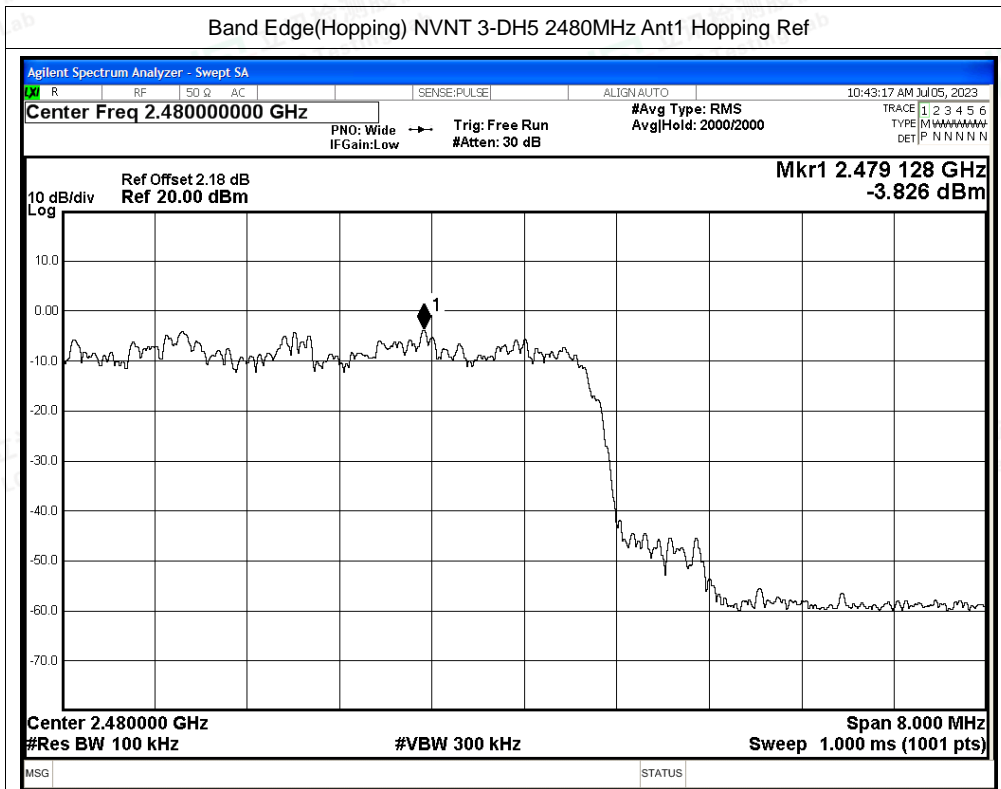


Band Edge(Hopping) NVNT 3-DH5 2402MHz Ant1 Hopping Ref



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







## A.7 Conducted RF Spurious Emission

Condition	Mode	Frequency (MHz)	Antenna	Max Value (dBc)	Limit (dBc)	Verdict
NVNT	1-DH5	2402	Ant1	-53.54	-20	Pass
NVNT	1-DH5	2441	Ant1	-54.33	-20	Pass
NVNT	1-DH5	2480	Ant1	-53.67	-20	Pass
NVNT	2-DH5	2402	Ant1	-52.82	-20	Pass
NVNT	2-DH5	2441	Ant1	-53.51	-20	Pass
NVNT	2-DH5	2480	Ant1	-52.89	-20	Pass
NVNT	3-DH5	2402	Ant1	-52.94	-20	Pass
NVNT	3-DH5	2441	Ant1	-51.79	-20	Pass
NVNT	3-DH5	2480	Ant1	-53.08	-20	Pass

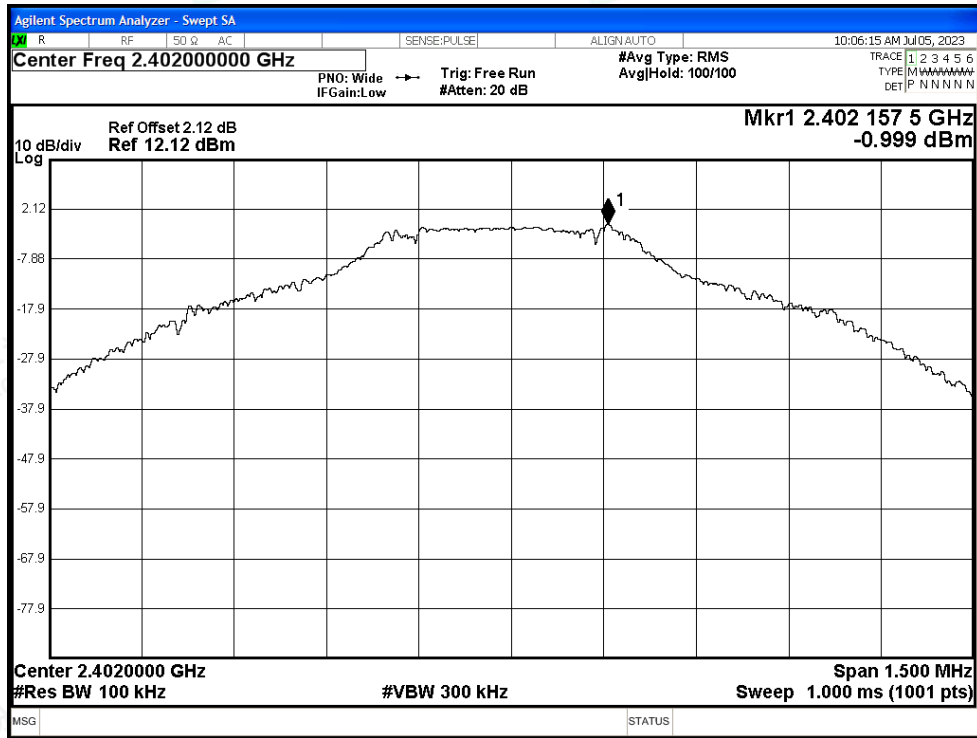


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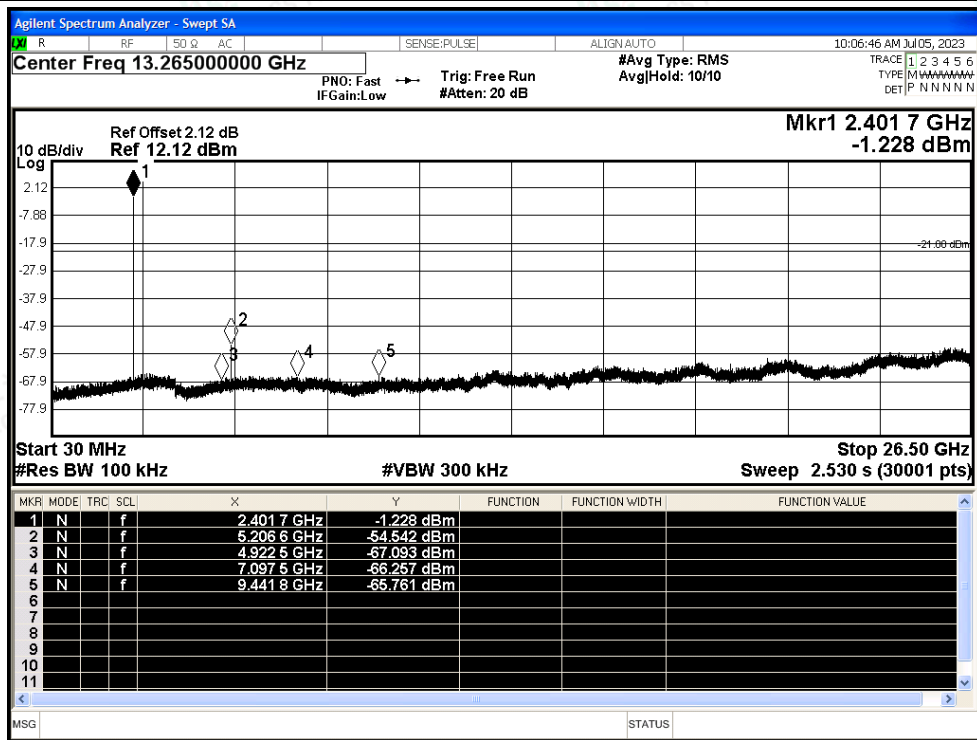


Test Graphs

Tx. Spurious NVNT 1-DH5 2402MHz Ant1 Ref

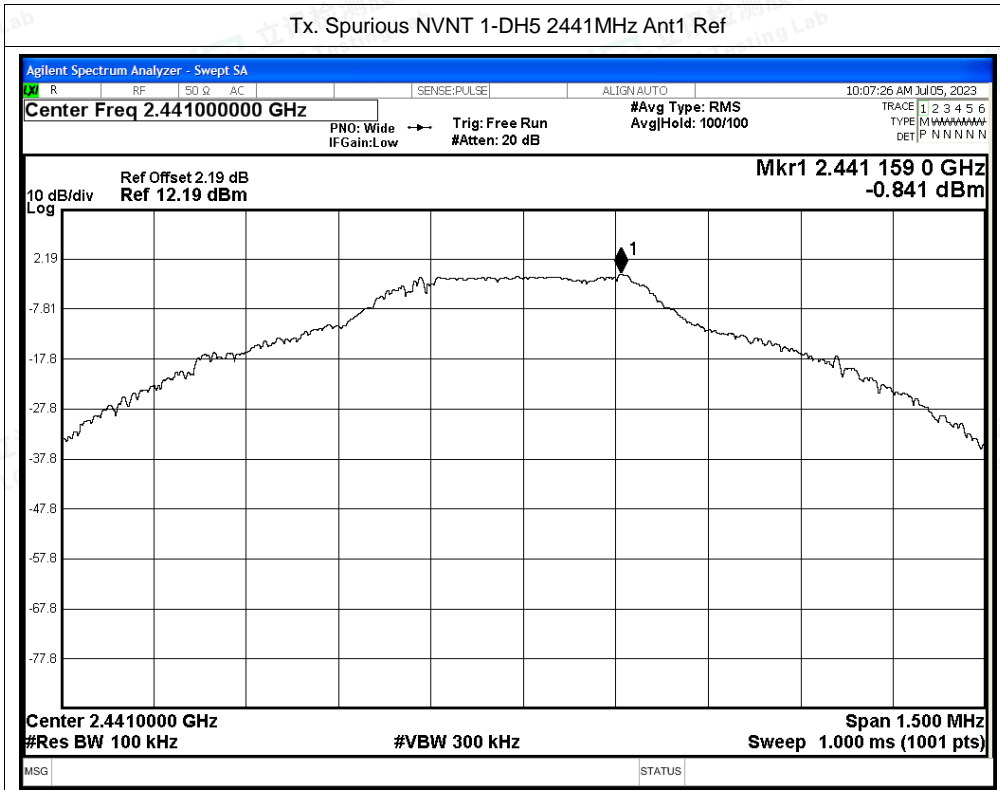


Tx. Spurious NVNT 1-DH5 2402MHz Ant1 Emission

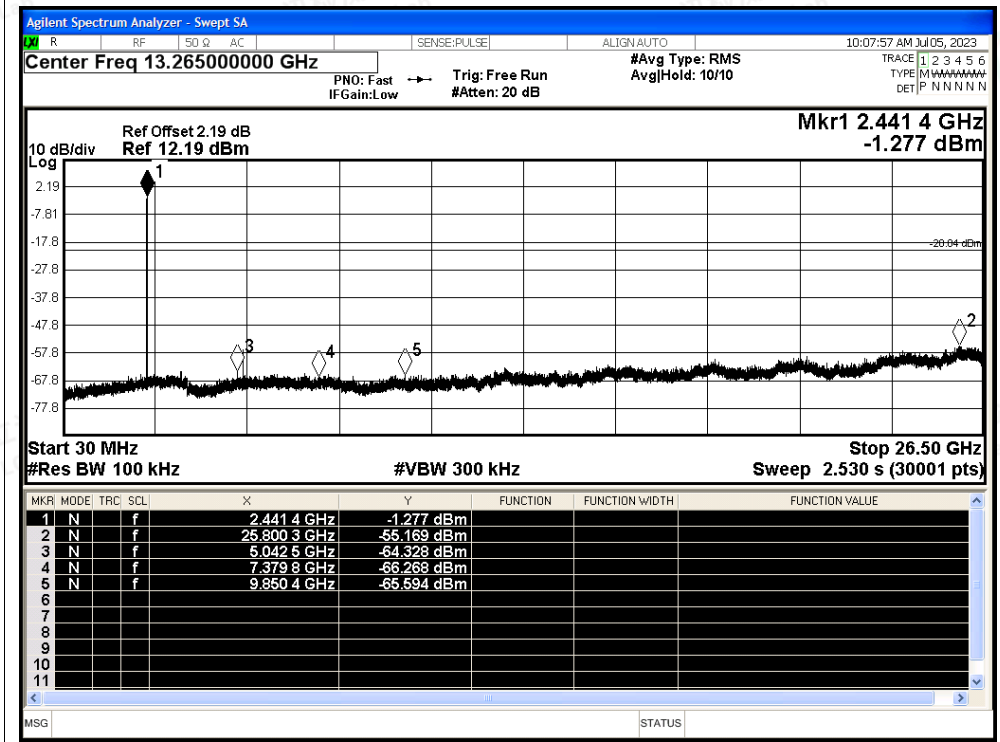




Tx. Spurious NVNT 1-DH5 2441MHz Ant1 Ref



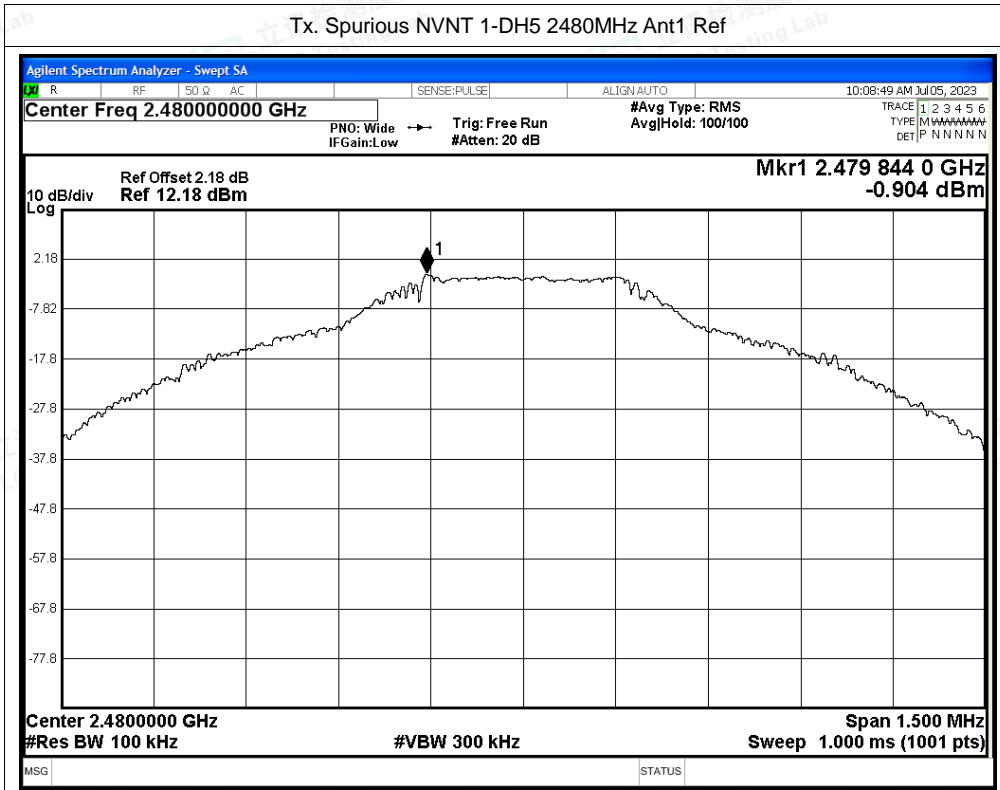
Tx. Spurious NVNT 1-DH5 2441MHz Ant1 Emission



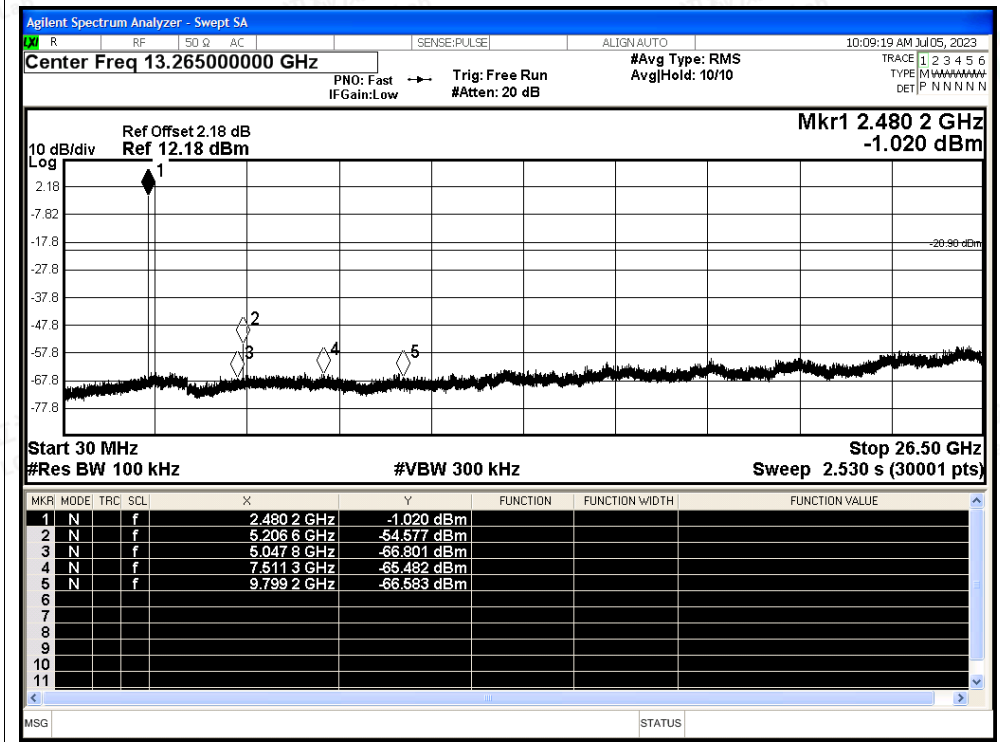




Tx. Spurious NVNT 1-DH5 2480MHz Ant1 Ref

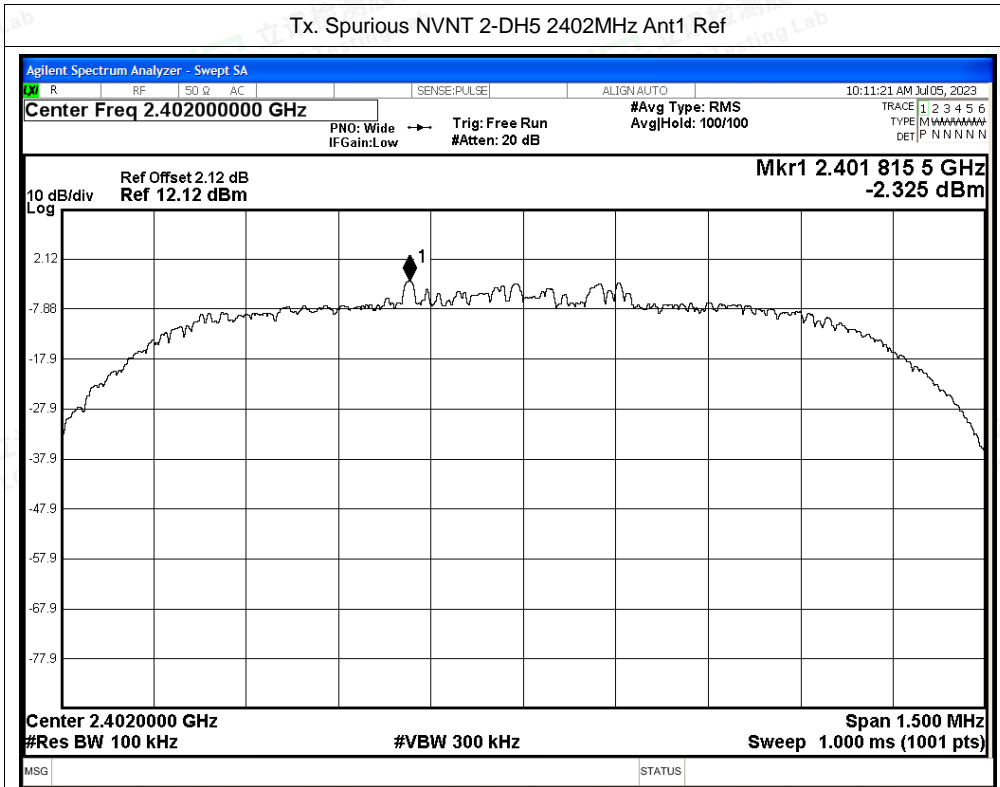


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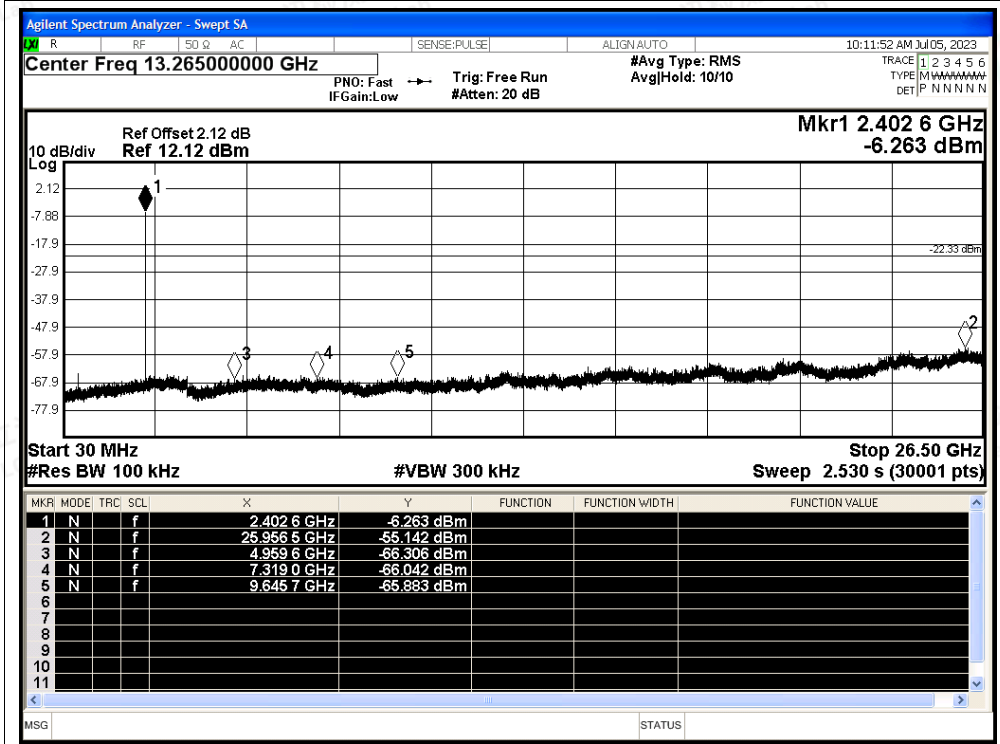




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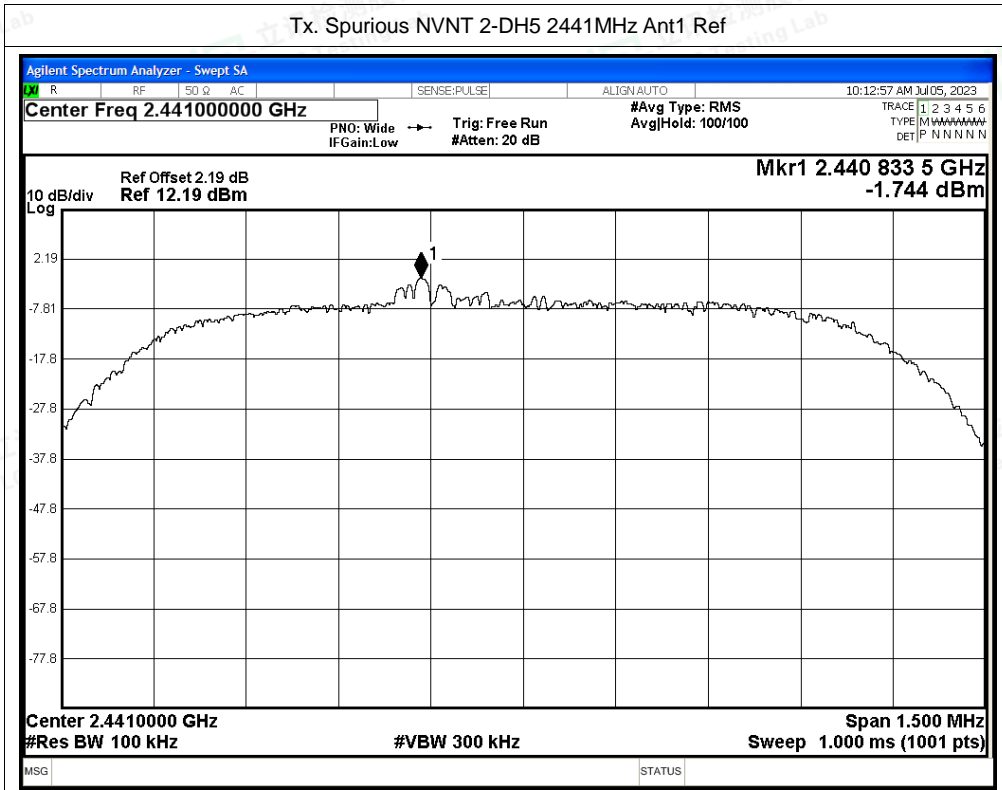


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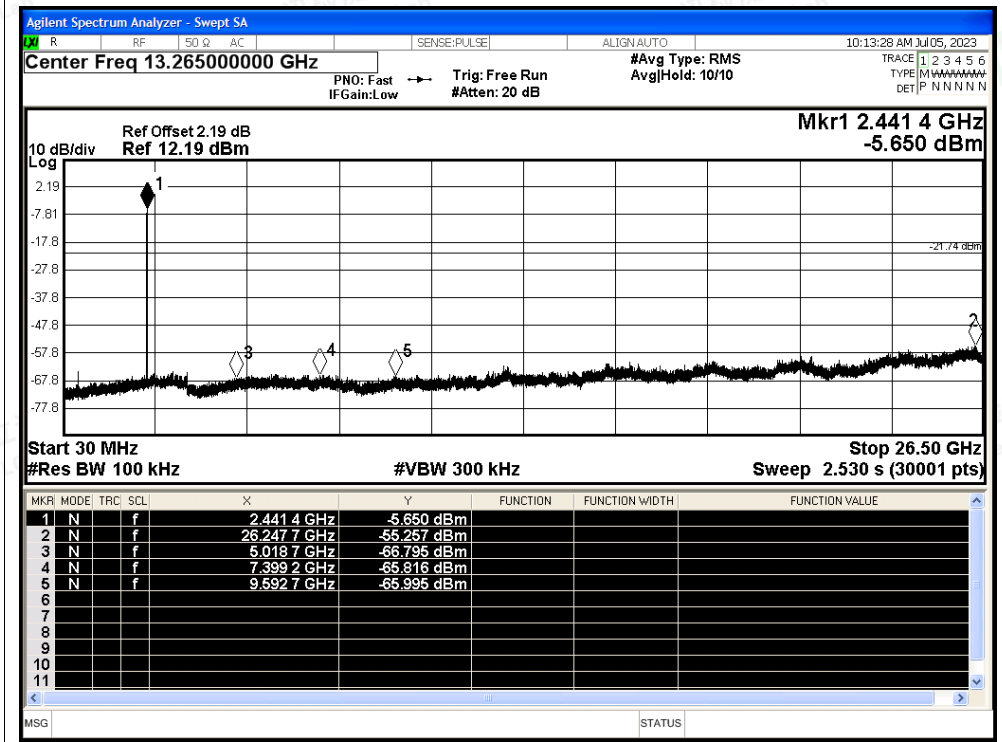




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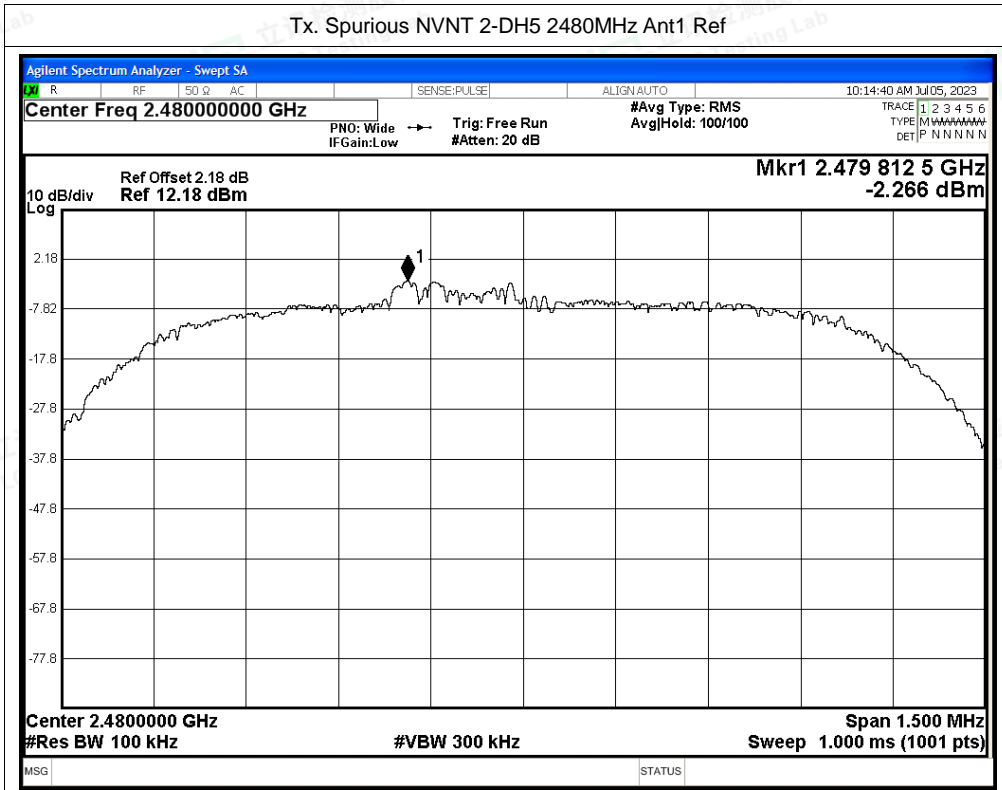


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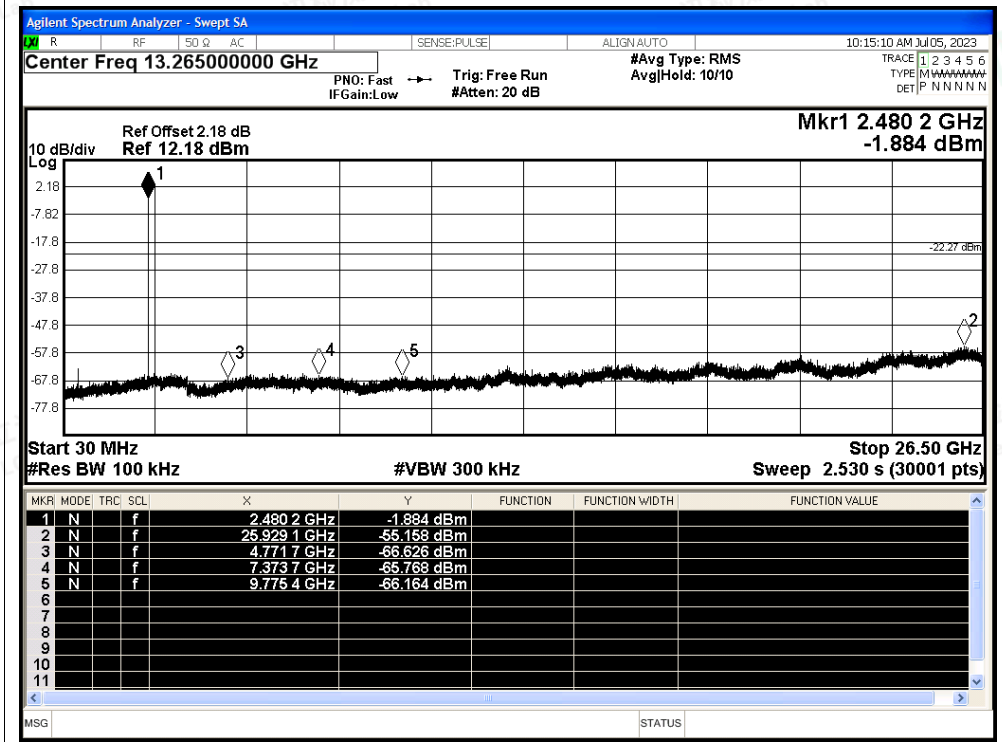




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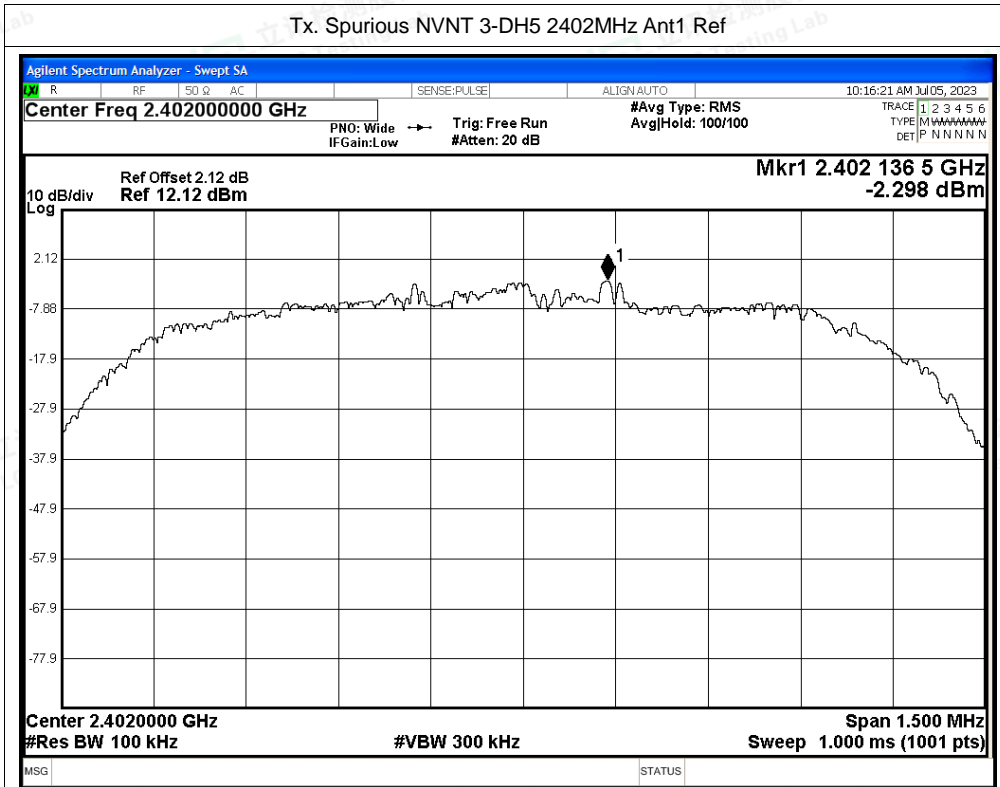


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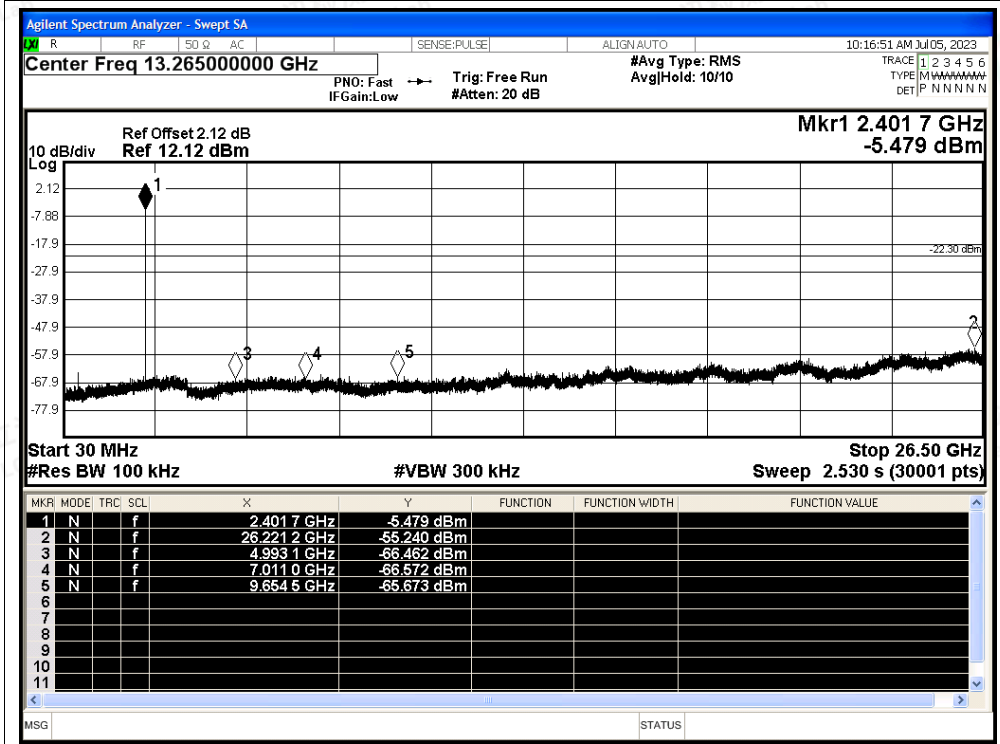




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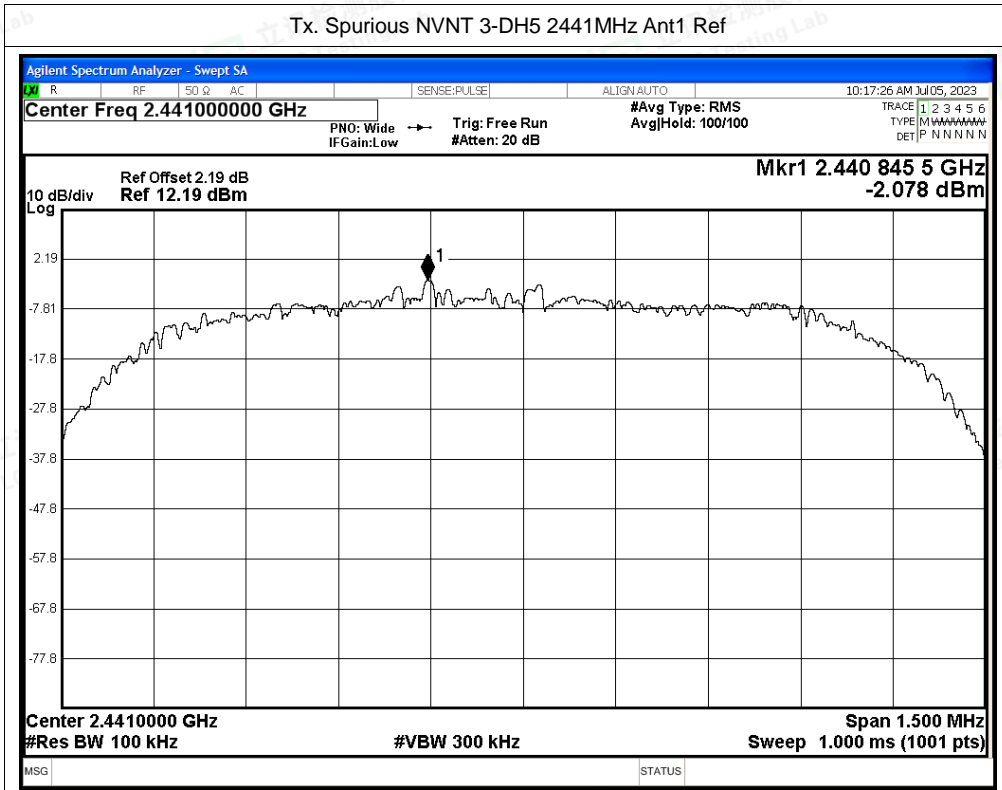


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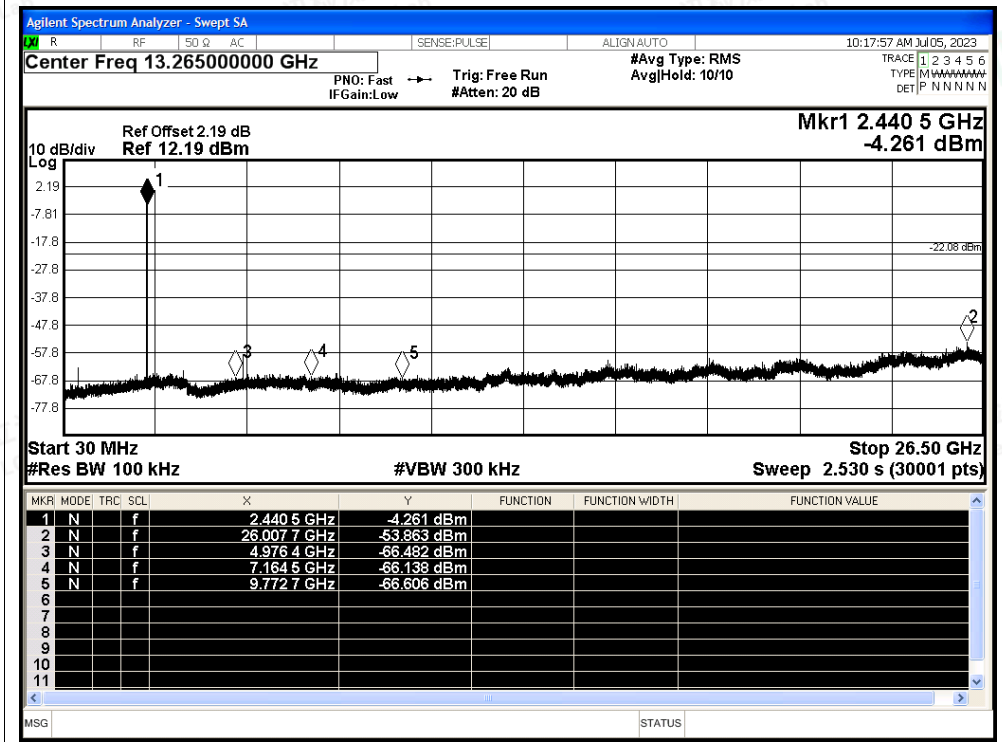




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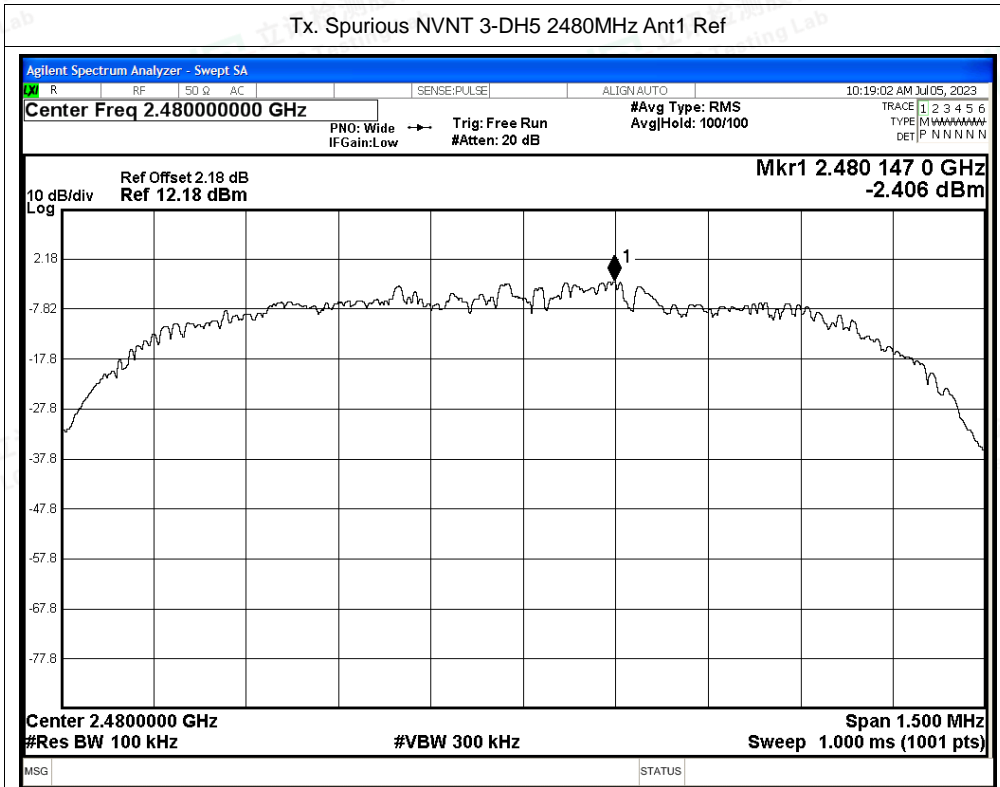


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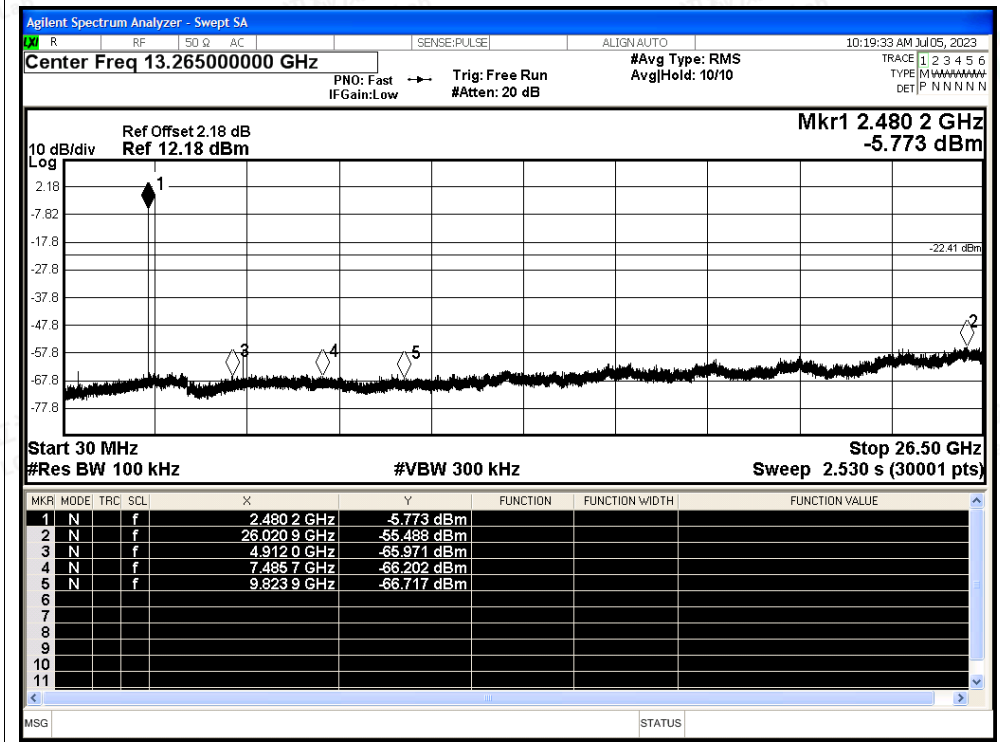




Tx. Spurious NVNT 3-DH5 2480MHz Ant1 Ref



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	-51.82	2	45.44	Peak	74	Pass
NVNT	1-DH5	2402	Ant1	No-Hopping	2310	-57.95	2	39.31	Average	54	Pass
NVNT	1-DH5	2402	Ant1	No-Hopping	2383.92	-47.31	2	49.95	Peak	74	Pass
NVNT	1-DH5	2402	Ant1	No-Hopping	2387.376	-57.44	2	39.82	Average	54	Pass
NVNT	1-DH5	2402	Ant1	No-Hopping	2390	-51.03	2	46.23	Peak	74	Pass
NVNT	1-DH5	2402	Ant1	No-Hopping	2390	-57.64	2	39.62	Average	54	Pass
NVNT	1-DH5	2480	Ant1	No-Hopping	2483.5	-51	2	46.26	Peak	74	Pass
NVNT	1-DH5	2480	Ant1	No-Hopping	2483.5	-55.88	2	41.38	Average	54	Pass
NVNT	1-DH5	2480	Ant1	No-Hopping	2491.72	-46.84	2	50.42	Peak	74	Pass
NVNT	1-DH5	2480	Ant1	No-Hopping	2483.512	-55.88	2	41.38	Average	54	Pass
NVNT	1-DH5	2480	Ant1	No-Hopping	2500	-50.87	2	46.39	Peak	74	Pass
NVNT	1-DH5	2480	Ant1	No-Hopping	2500	-57.26	2	40	Average	54	Pass
NVNT	2-DH5	2402	Ant1	No-Hopping	2310	-48.4	2	48.86	Peak	74	Pass
NVNT	2-DH5	2402	Ant1	No-Hopping	2310	-57.97	2	39.29	Average	54	Pass
NVNT	2-DH5	2402	Ant1	No-Hopping	2377.68	-48.08	2	49.18	Peak	74	Pass
NVNT	2-DH5	2402	Ant1	No-Hopping	2385.552	-57.39	2	39.87	Average	54	Pass
NVNT	2-DH5	2402	Ant1	No-Hopping	2390	-50.02	2	47.24	Peak	74	Pass
NVNT	2-DH5	2402	Ant1	No-Hopping	2390	-57.63	2	39.63	Average	54	Pass
NVNT	2-DH5	2480	Ant1	No-Hopping	2483.5	-50.85	2	46.41	Peak	74	Pass
NVNT	2-DH5	2480	Ant1	No-Hopping	2483.5	-55.98	2	41.28	Average	54	Pass
NVNT	2-DH5	2480	Ant1	No-Hopping	2488.048	-46.89	2	50.37	Peak	74	Pass
NVNT	2-DH5	2480	Ant1	No-Hopping	2483.512	-55.98	2	41.28	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	-57.32	2	39.94	Average	54	Pass
NVNT	3-DH5	2402	Ant1	No-Hopping	2310	-51.41	2	45.85	Peak	74	Pass
NVNT	3-DH5	2402	Ant1	No-Hopping	2310	-57.95	2	39.31	Average	54	Pass
NVNT	3-DH5	2402	Ant1	No-Hopping	2318.064	-47.35	2	49.91	Peak	74	Pass
NVNT	3-DH5	2402	Ant1	No-Hopping	2388.912	-57.41	2	39.85	Average	54	Pass
NVNT	3-DH5	2402	Ant1	No-Hopping	2390	-50.29	2	46.97	Peak	74	Pass
NVNT	3-DH5	2402	Ant1	No-Hopping	2390	-57.72	2	39.54	Average	54	Pass
NVNT	3-DH5	2480	Ant1	No-Hopping	2483.5	-50.54	2	46.72	Peak	74	Pass
NVNT	3-DH5	2480	Ant1	No-Hopping	2483.5	-55.98	2	41.28	Average	54	Pass
NVNT	3-DH5	2480	Ant1	No-Hopping	2484.424	-47.24	2	50.02	Peak	74	Pass
NVNT	3-DH5	2480	Ant1	No-Hopping	2483.512	-55.98	2	41.28	Average	54	Pass
NVNT	3-DH5	2480	Ant1	No-Hopping	2500	-49.5	2	47.76	Peak	74	Pass
NVNT	3-DH5	2480	Ant1	No-Hopping	2500	-57.37	2	39.89	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



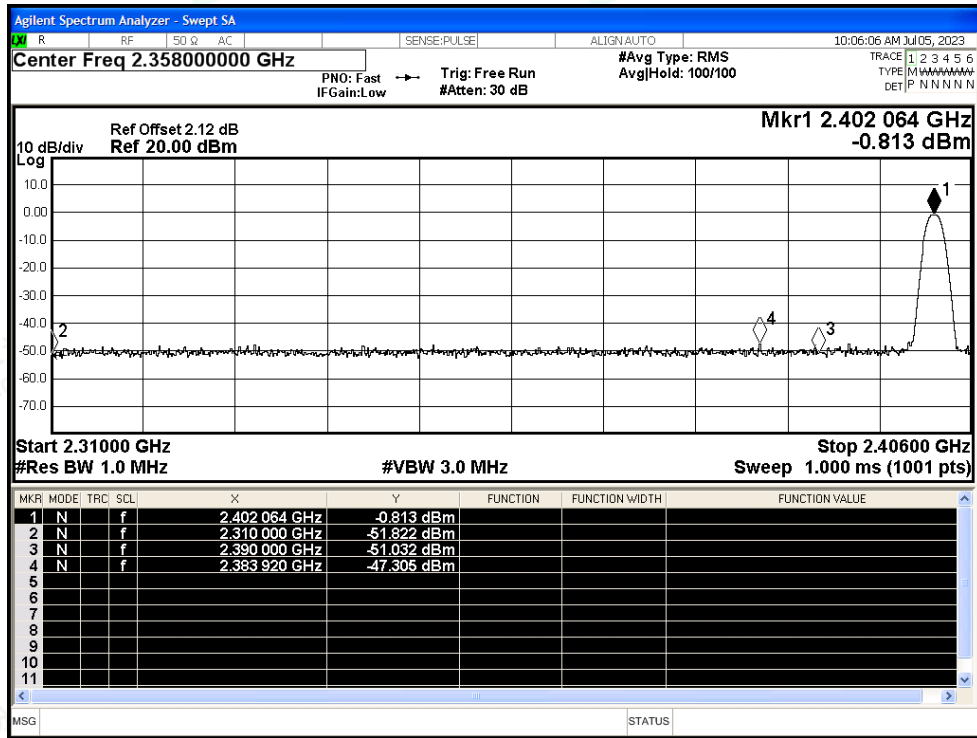


Shenzhen LCS Compliance Testing Laboratory Ltd.  
Add: 101, 201 Bldg A & 301 Bldg C, Juji Industrial Park Yabianxueziwei, Shajing Street, Baoan District, Shenzhen, 518000, China  
Tel: +(86) 0755-82591330 | E-mail: webmaster@lcs-cert.com | Web: www.lcs-cert.com  
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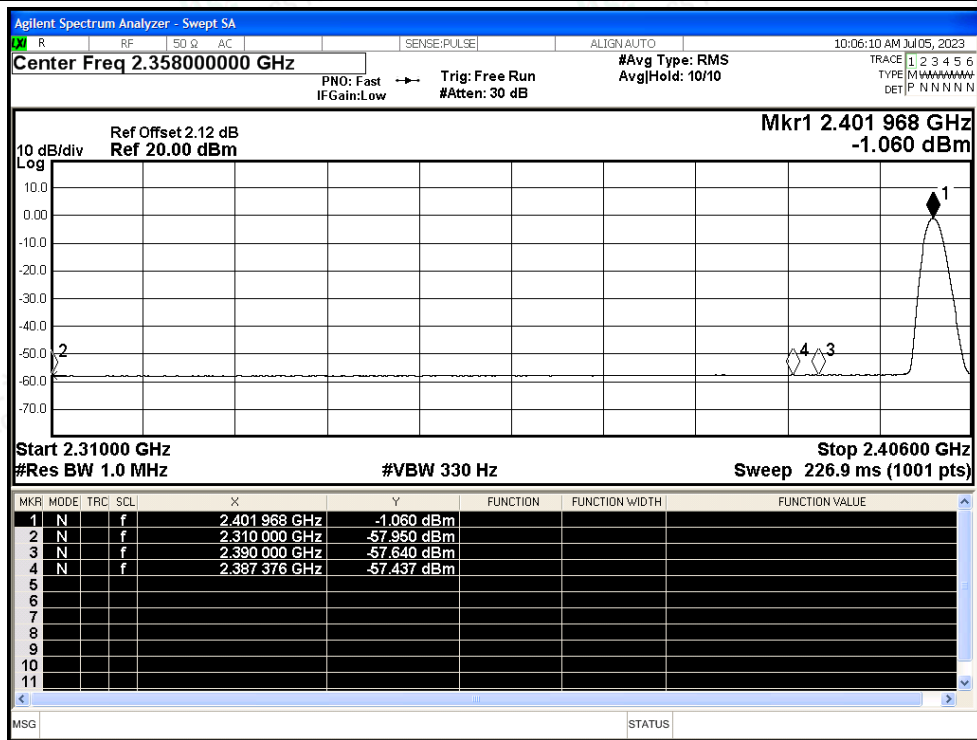


Test Graphs

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

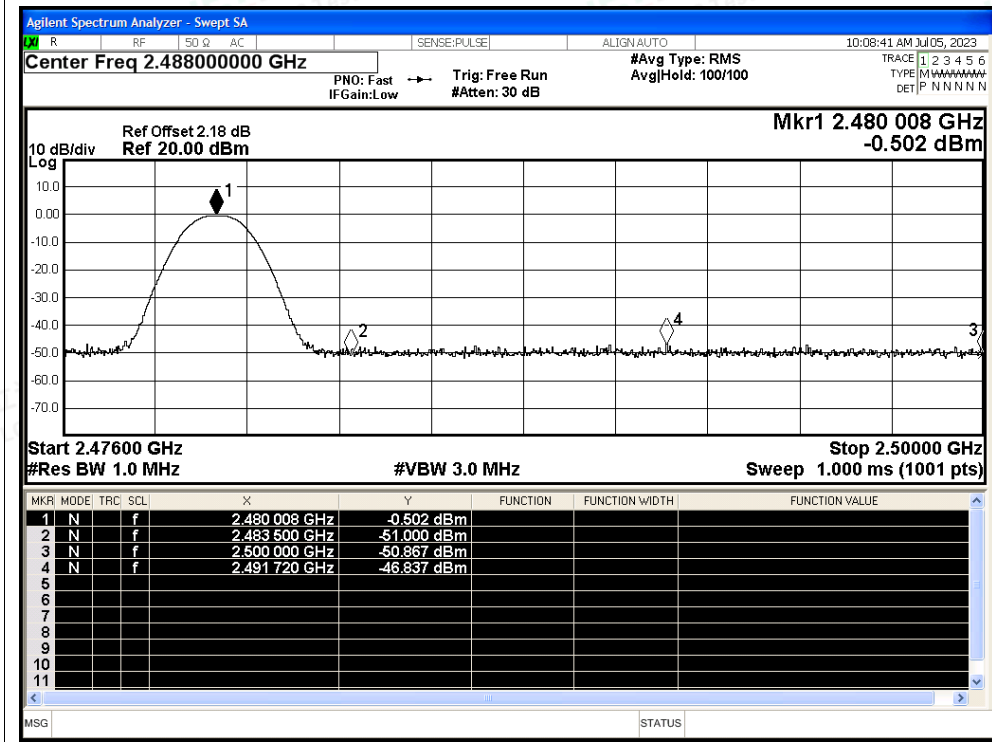


Restrict Band NVNT 1-DH5 2402MHz Ant1 No-Hopping Average

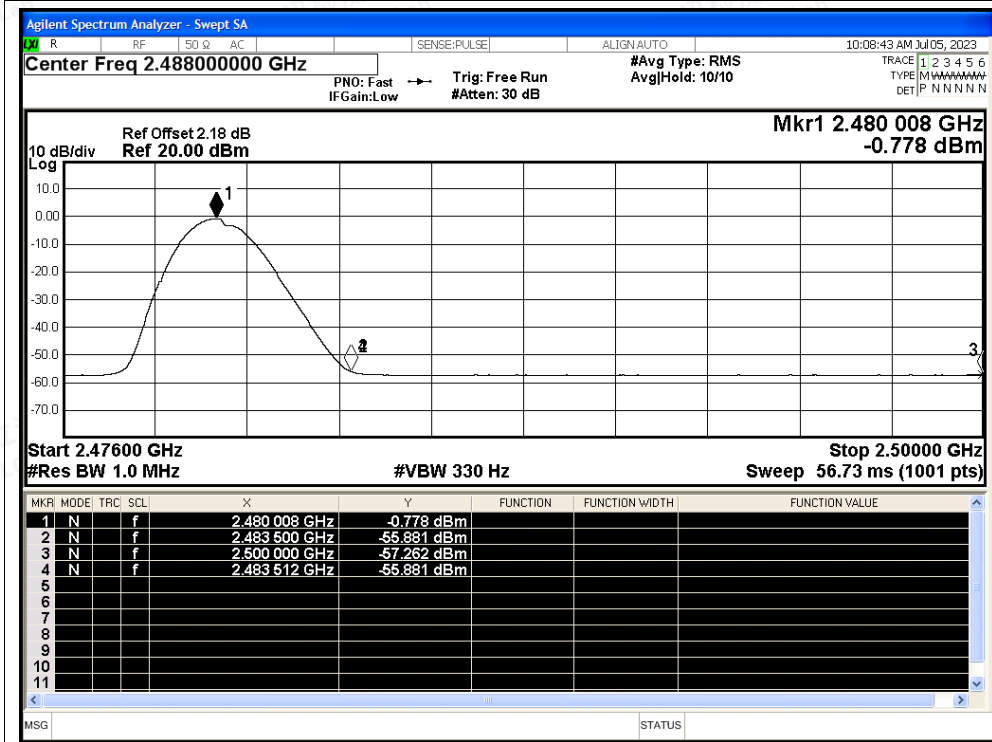




Restrict Band NVNT 1-DH5 2480MHz Ant1 No-Hopping Peak

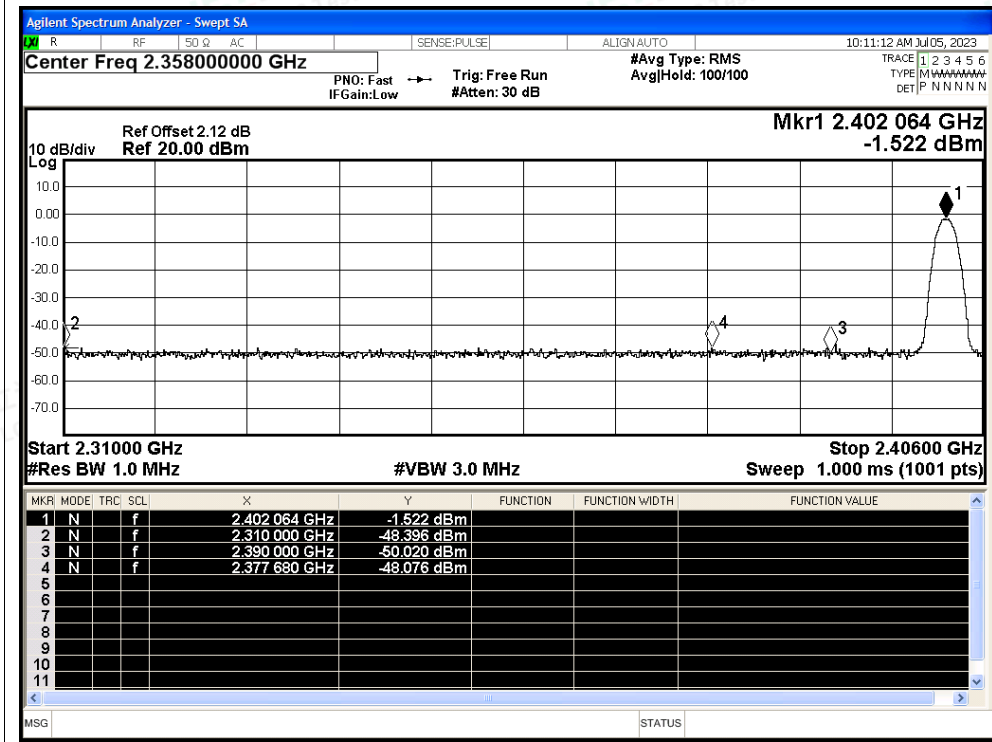


Restrict Band NVNT 1-DH5 2480MHz Ant1 No-Hopping Average

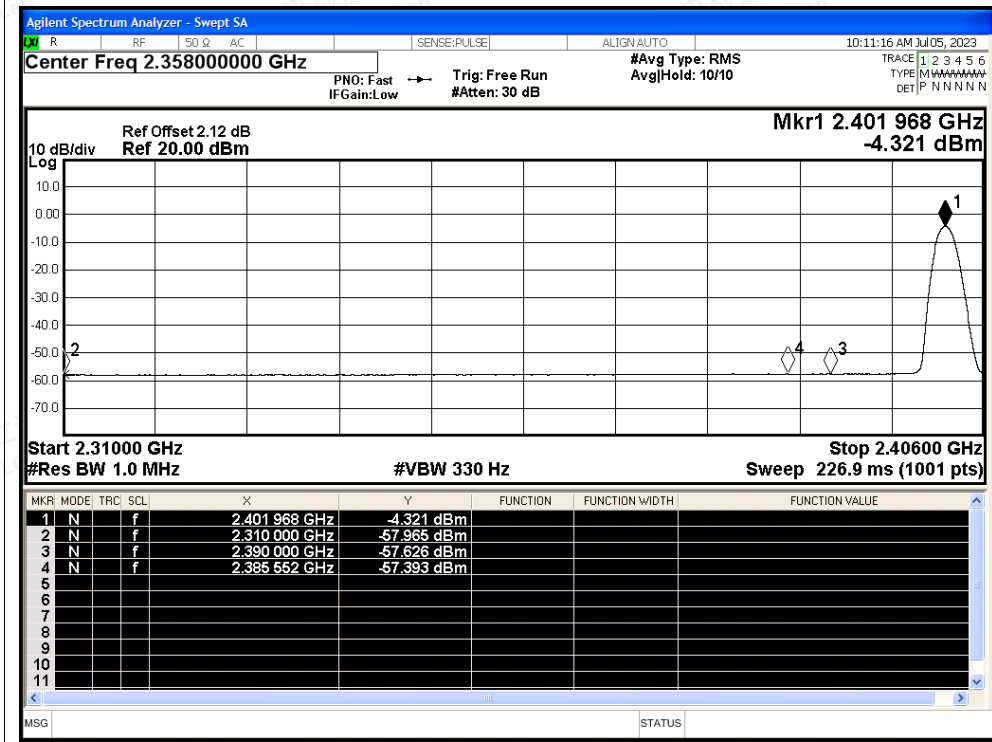




Restrict Band NVNT 2-DH5 2402MHz Ant1 No-Hopping Peak

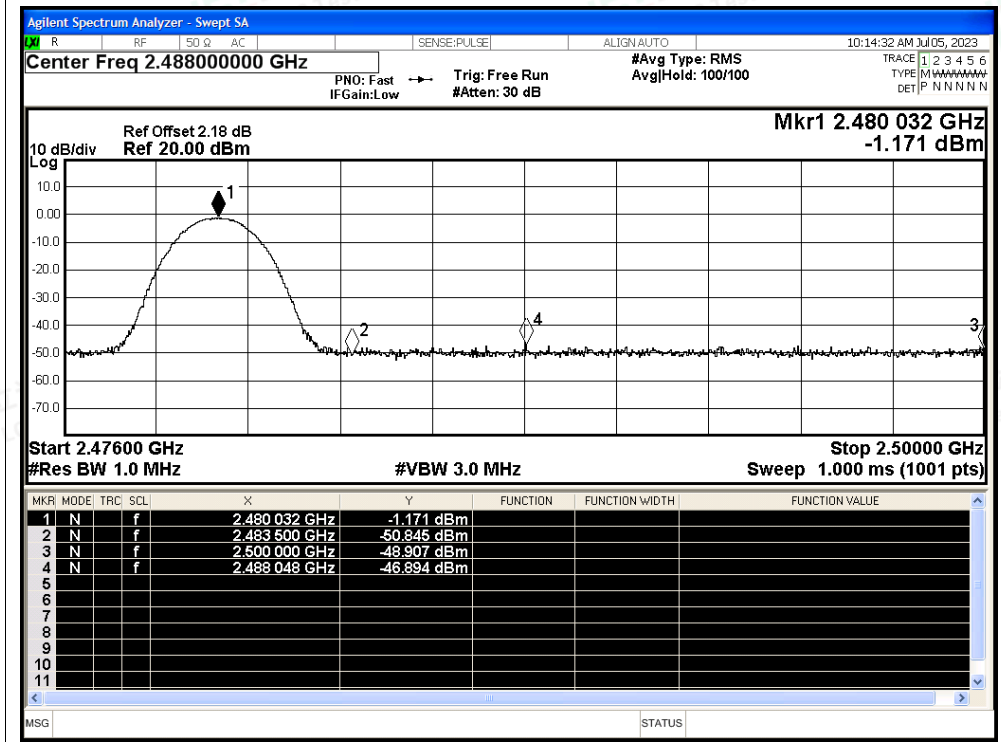


Restrict Band NVNT 2-DH5 2402MHz Ant1 No-Hopping Average

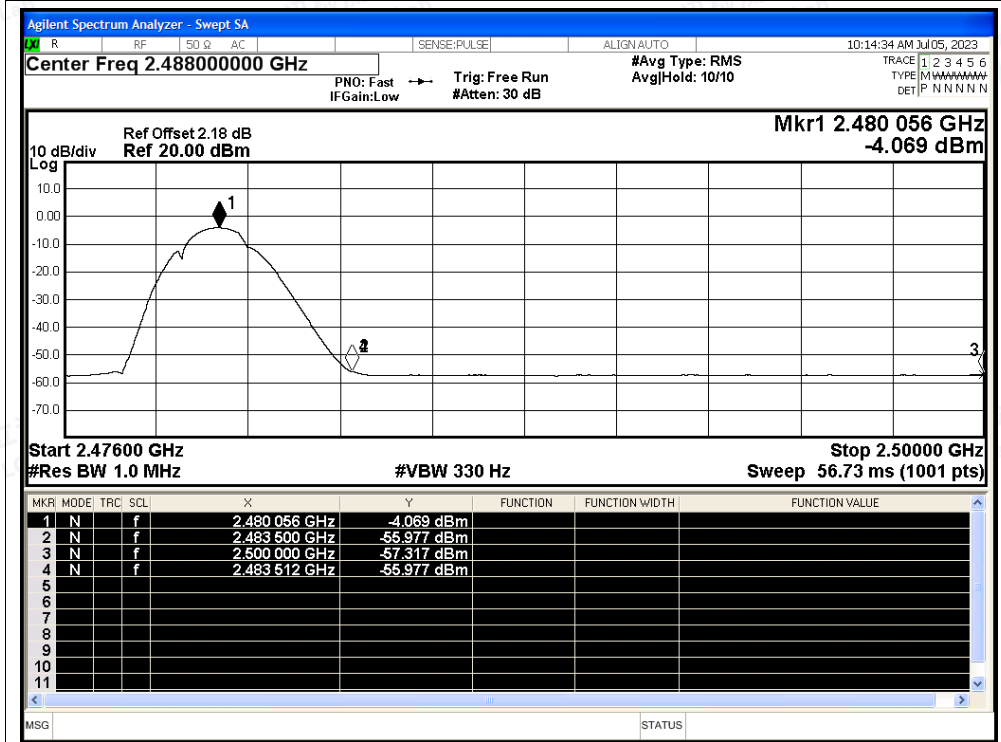




Restrict Band NVNT 2-DH5 2480MHz Ant1 No-Hopping Peak

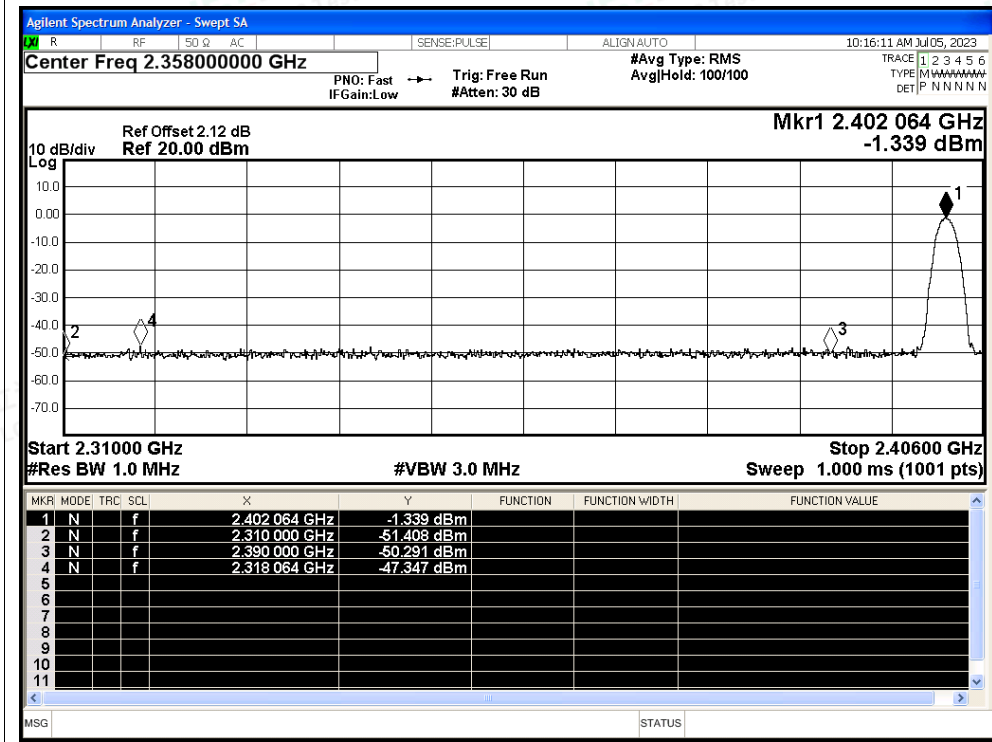


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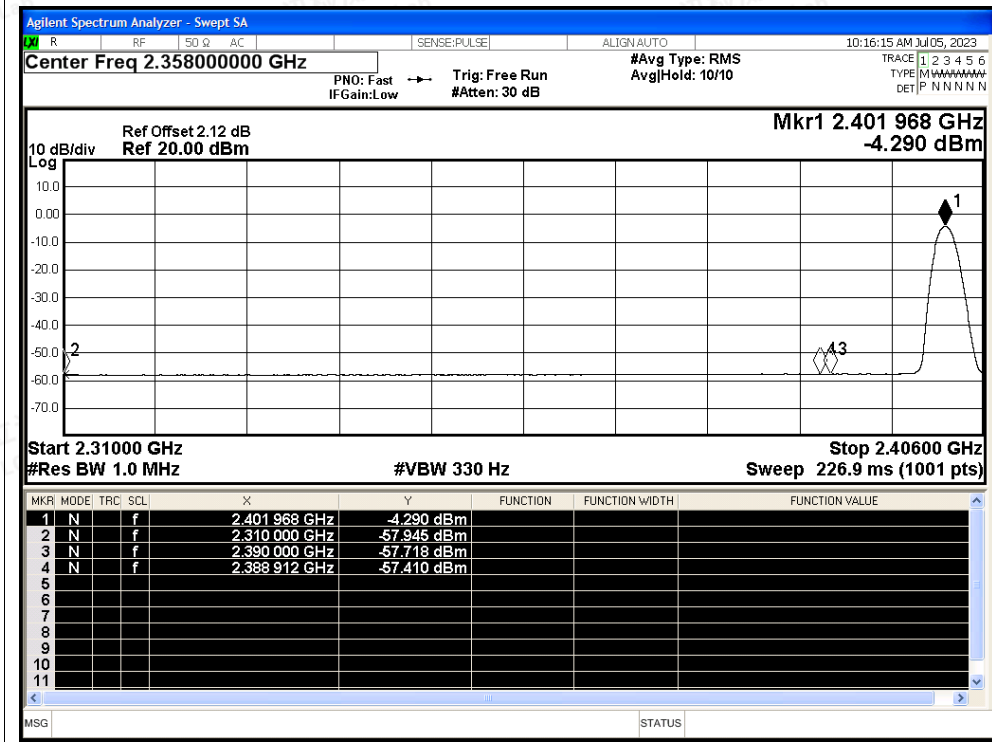




Restrict Band NVNT 3-DH5 2402MHz Ant1 No-Hopping Peak

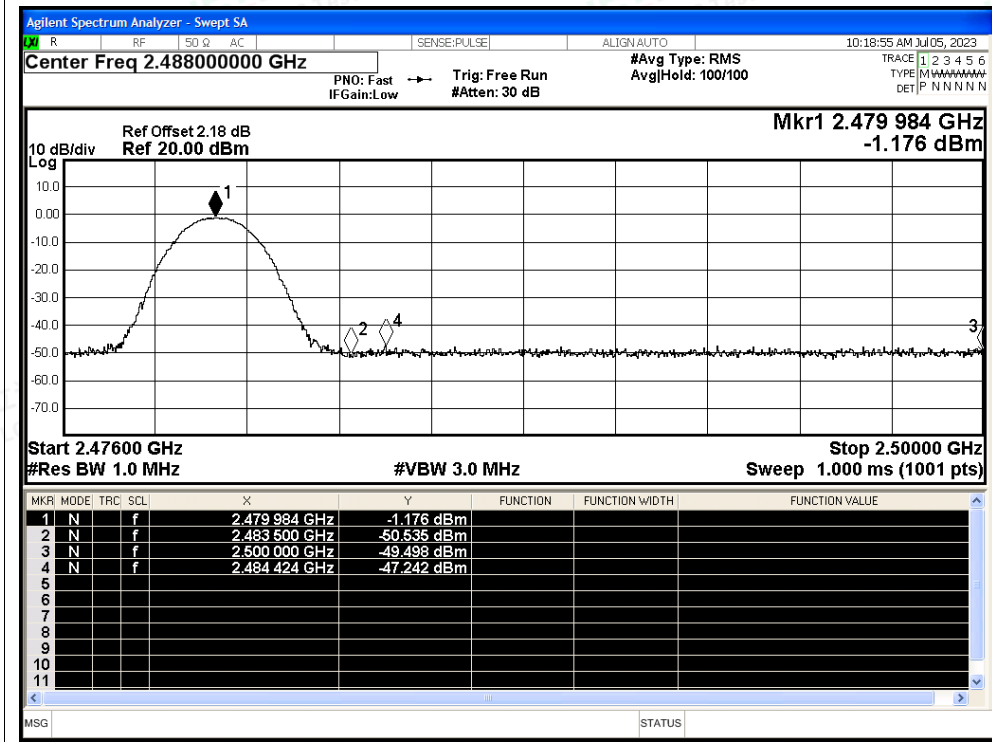


Restrict Band NVNT 3-DH5 2402MHz Ant1 No-Hopping Average





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



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

