



Appendix A

RF Test Data for BT (Conducted Measurement)

Product Name: Ture wireless earbuds

Test Model: CT12

Environmental Conditions

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



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A.1 -20dB Bandwidth

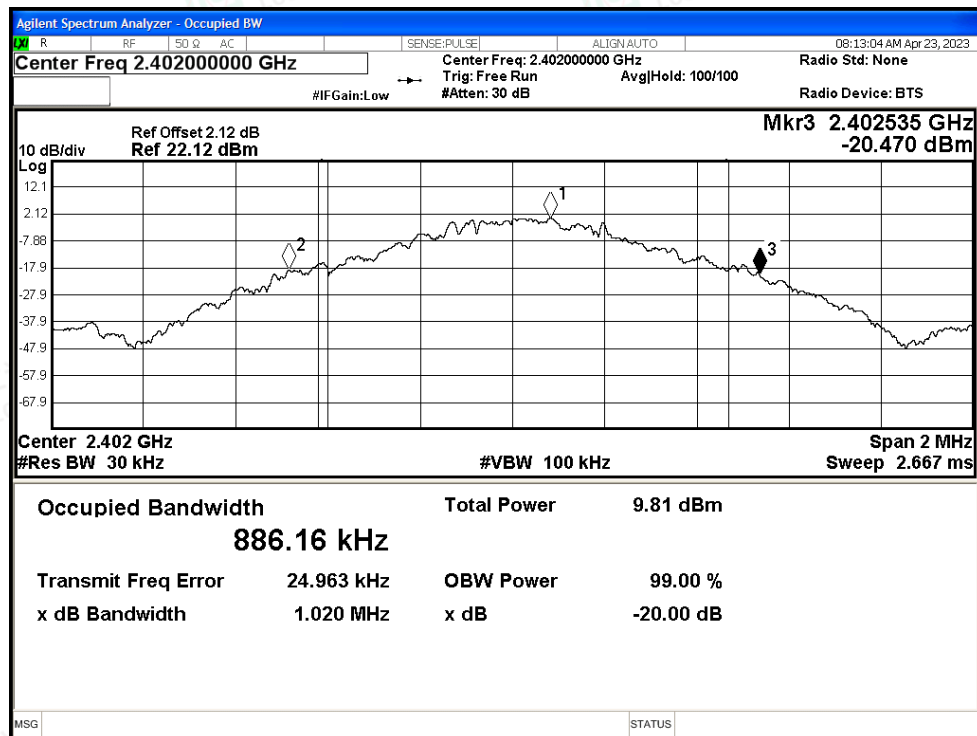
Condition	Mode	Frequency (MHz)	Antenna	-20 dB Bandwidth (MHz)	Limit -20 dB Bandwidth (MHz)	Verdict
NVNT	1-DH5	2402	Ant	1.02	N/A	Pass
NVNT	1-DH5	2441	Ant	1.003	N/A	Pass
NVNT	1-DH5	2480	Ant	0.958	N/A	Pass
NVNT	2-DH5	2402	Ant	1.327	N/A	Pass
NVNT	2-DH5	2441	Ant	1.308	N/A	Pass
NVNT	2-DH5	2480	Ant	1.3	N/A	Pass
NVNT	3-DH5	2402	Ant	1.297	N/A	Pass
NVNT	3-DH5	2441	Ant	1.3	N/A	Pass
NVNT	3-DH5	2480	Ant	1.31	N/A	Pass



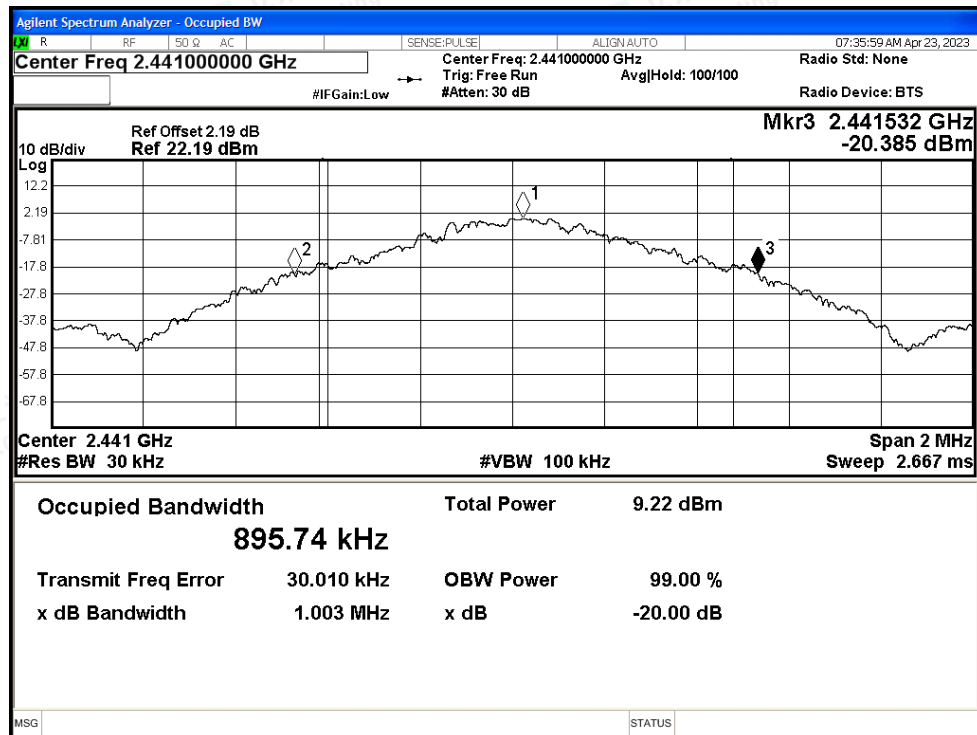


Test Graphs

-20dB Bandwidth NVNT 1-DH5 2402MHz Ant

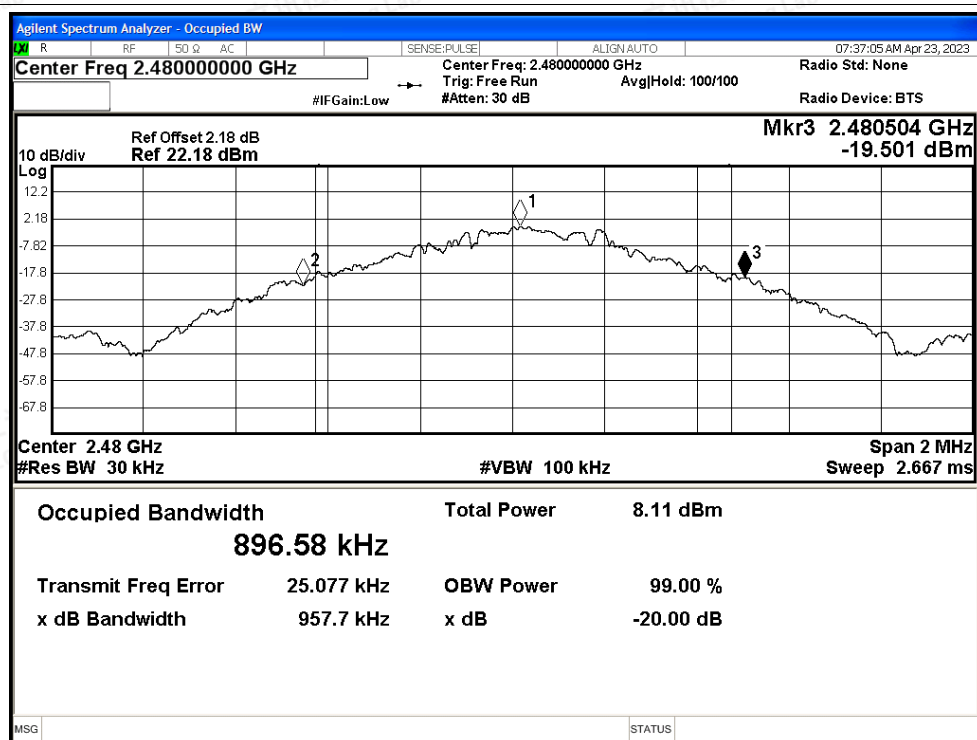


-20dB Bandwidth NVNT 1-DH5 2441MHz Ant

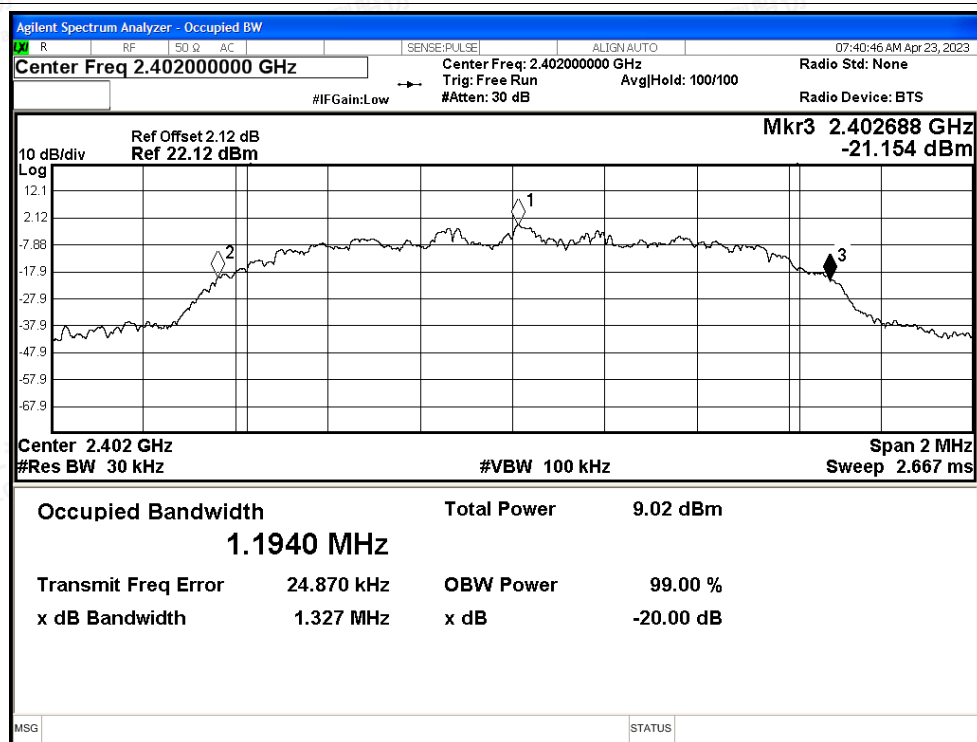




-20dB Bandwidth NVNT 1-DH5 2480MHz Ant

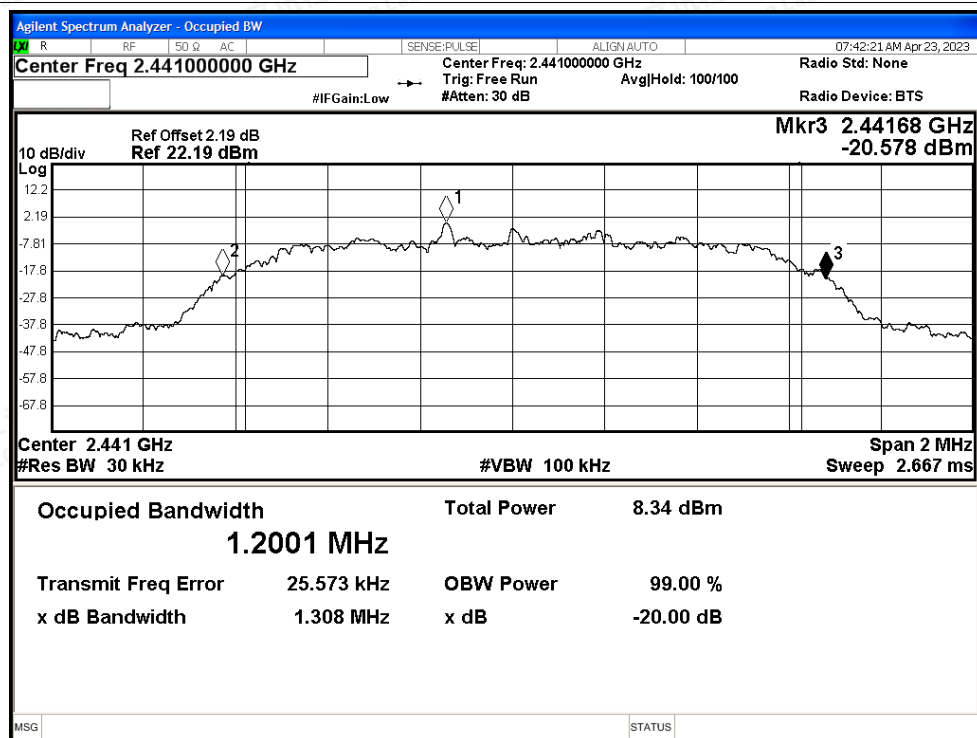


-20dB Bandwidth NVNT 2-DH5 2402MHz Ant

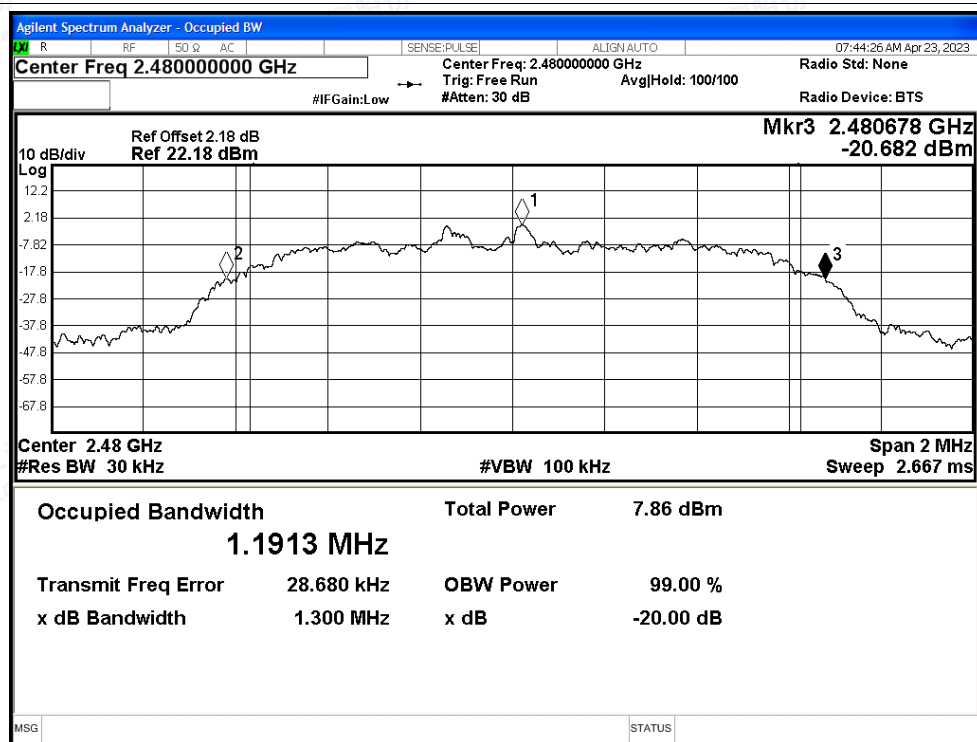




-20dB Bandwidth NVNT 2-DH5 2441MHz Ant

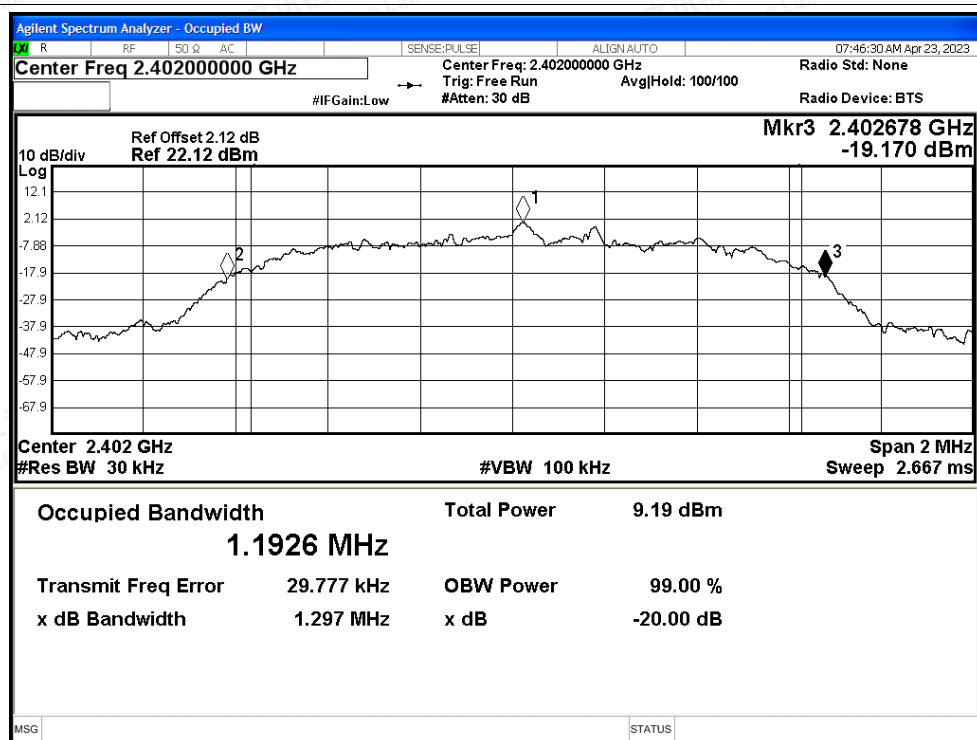


-20dB Bandwidth NVNT 2-DH5 2480MHz Ant

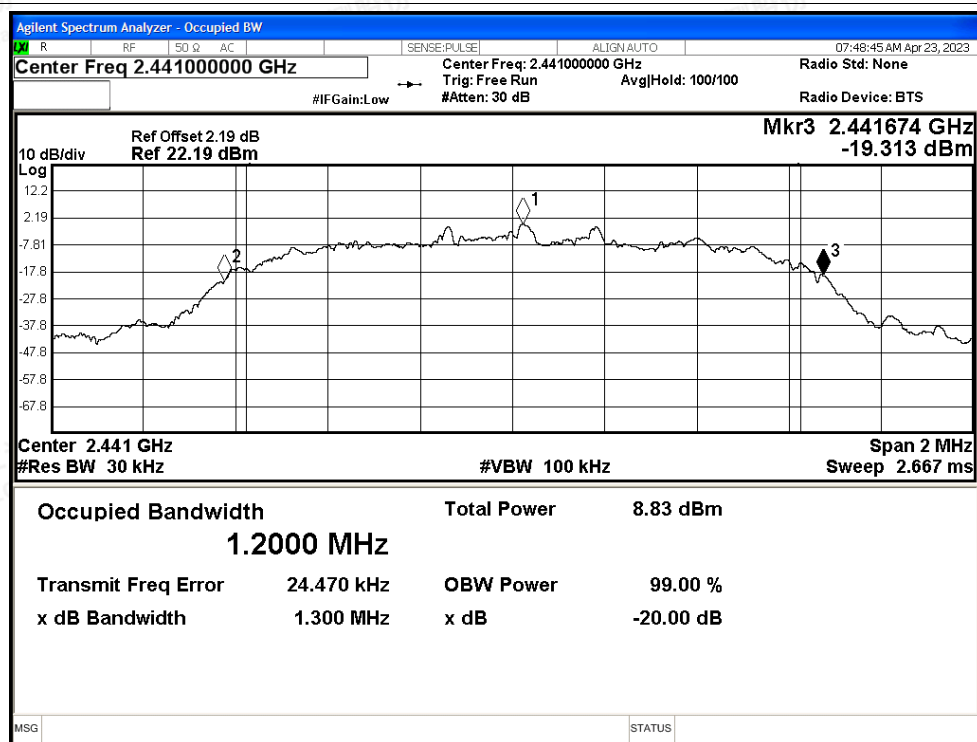




-20dB Bandwidth NVNT 3-DH5 2402MHz Ant

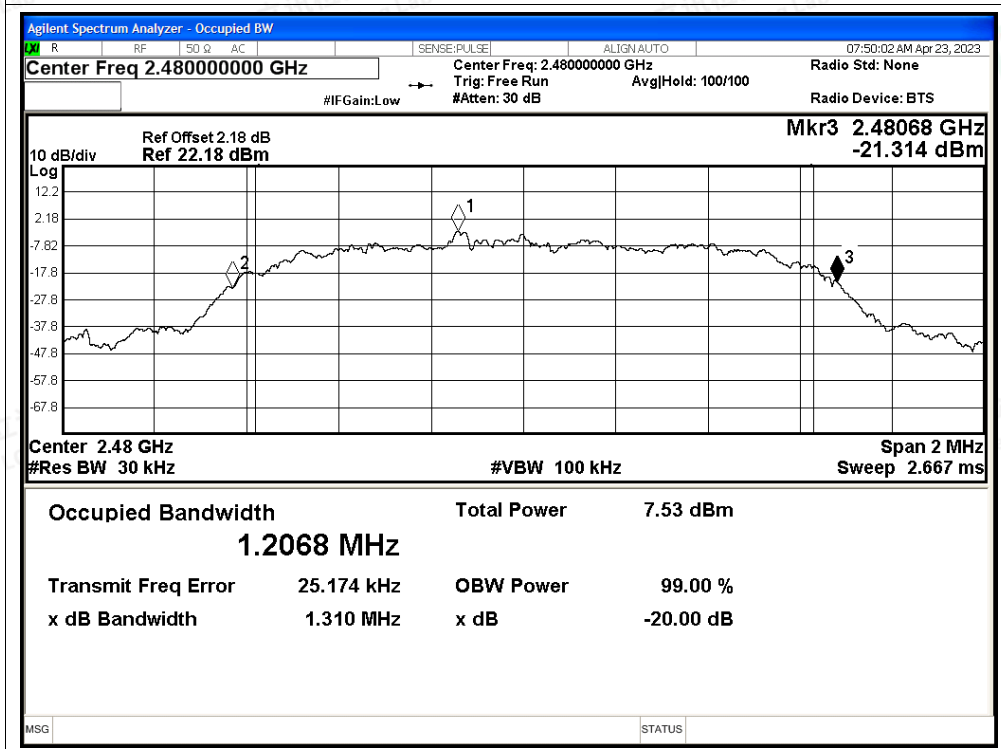


-20dB Bandwidth NVNT 3-DH5 2441MHz Ant





-20dB Bandwidth NVNT 3-DH5 2480MHz Ant





A.2 Maximum Conducted Output Power

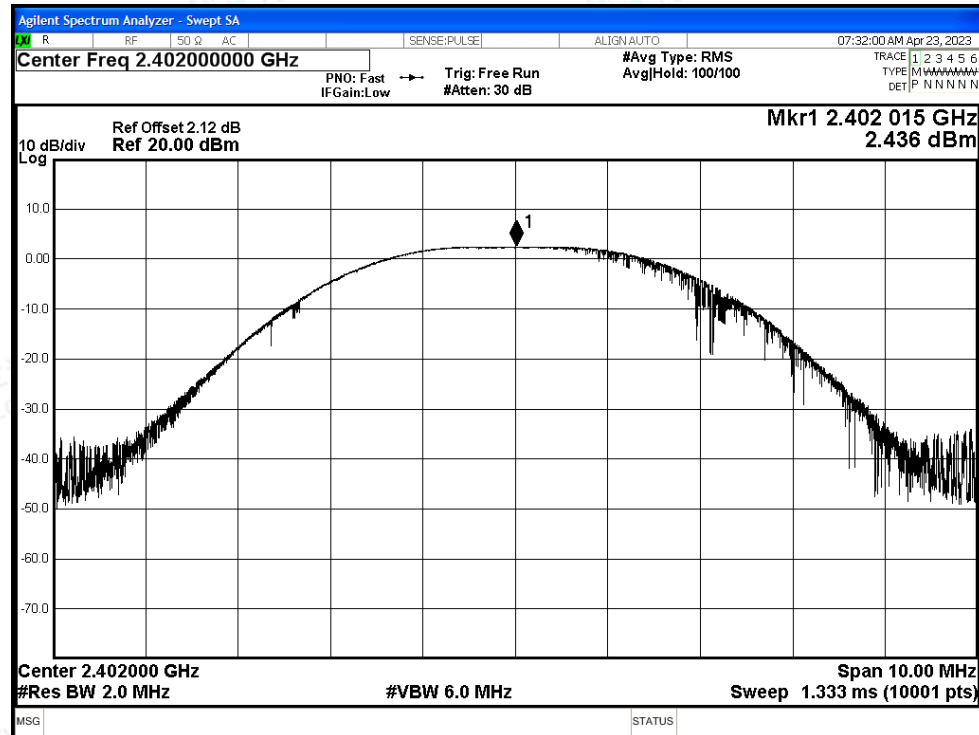
Condition	Mode	Frequency (MHz)	Antenna	Conducted Power (dBm)	Limit (dBm)	Verdict
NVNT	1-DH5	2402	Ant	2.44	21	Pass
NVNT	1-DH5	2441	Ant	2.98	21	Pass
NVNT	1-DH5	2480	Ant	2.17	21	Pass
NVNT	2-DH5	2402	Ant	4.13	21	Pass
NVNT	2-DH5	2441	Ant	3.71	21	Pass
NVNT	2-DH5	2480	Ant	2.98	21	Pass
NVNT	3-DH5	2402	Ant	4.56	21	Pass
NVNT	3-DH5	2441	Ant	4.16	21	Pass
NVNT	3-DH5	2480	Ant	3.38	21	Pass



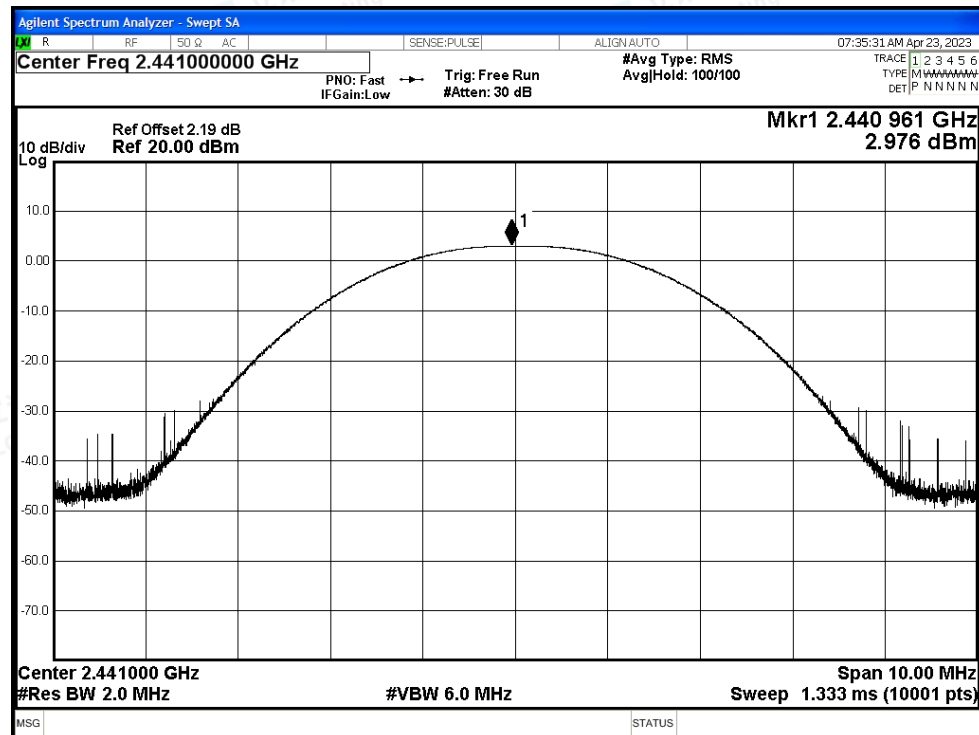


Test Graphs

Power NVNT 1-DH5 2402MHz Ant

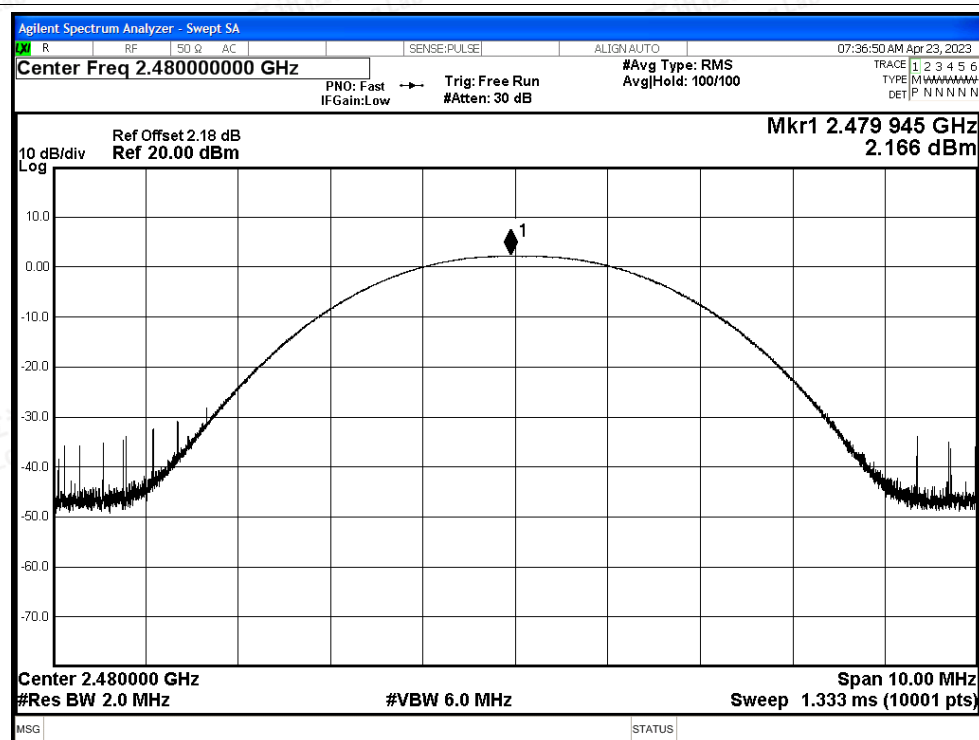


Power NVNT 1-DH5 2441MHz Ant

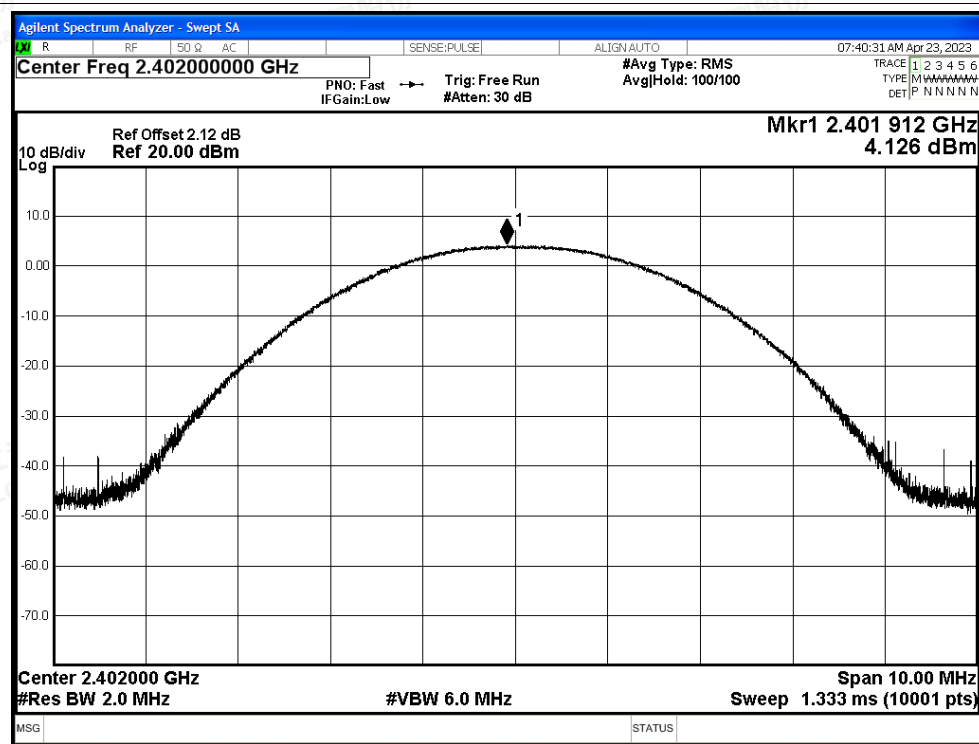




Power NVNT 1-DH5 2480MHz Ant

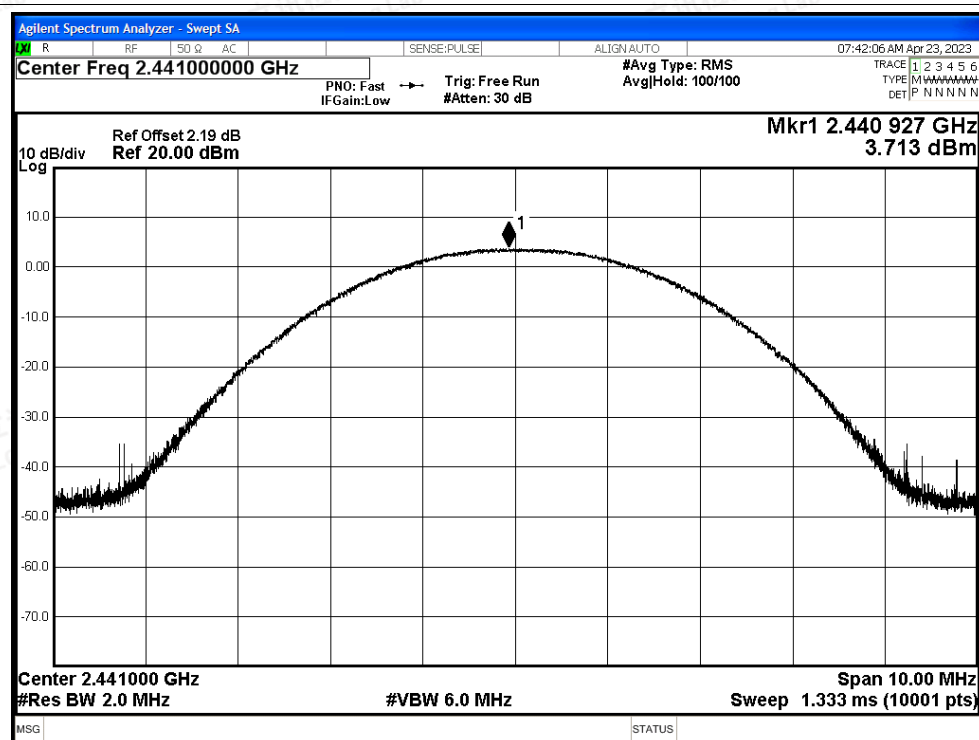


Power NVNT 2-DH5 2402MHz Ant

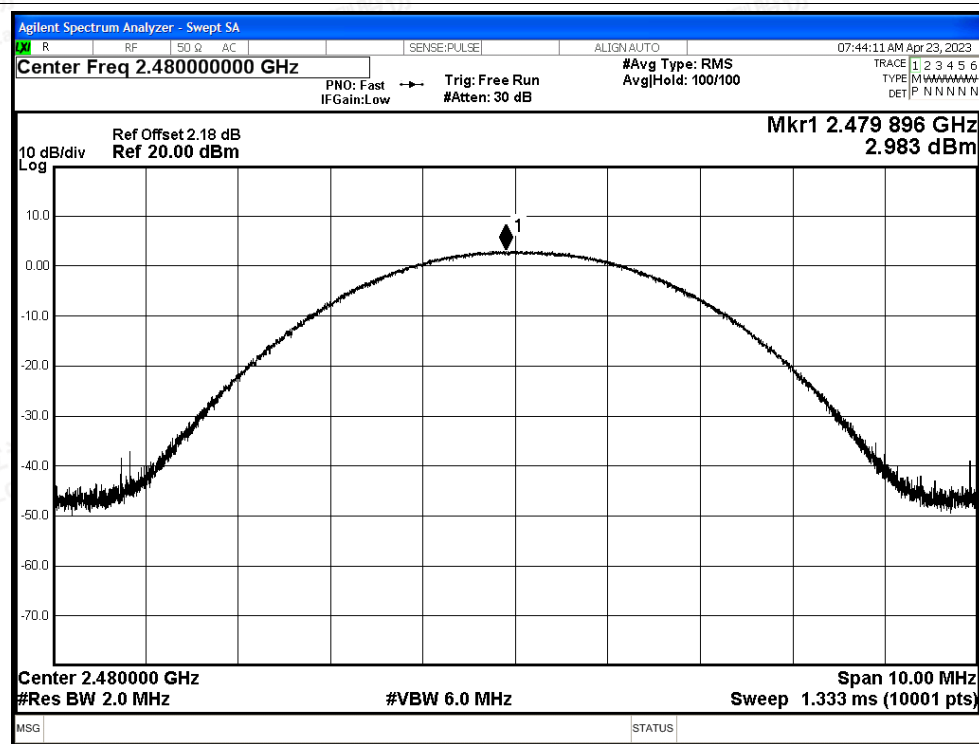




Power NVNT 2-DH5 2441MHz Ant

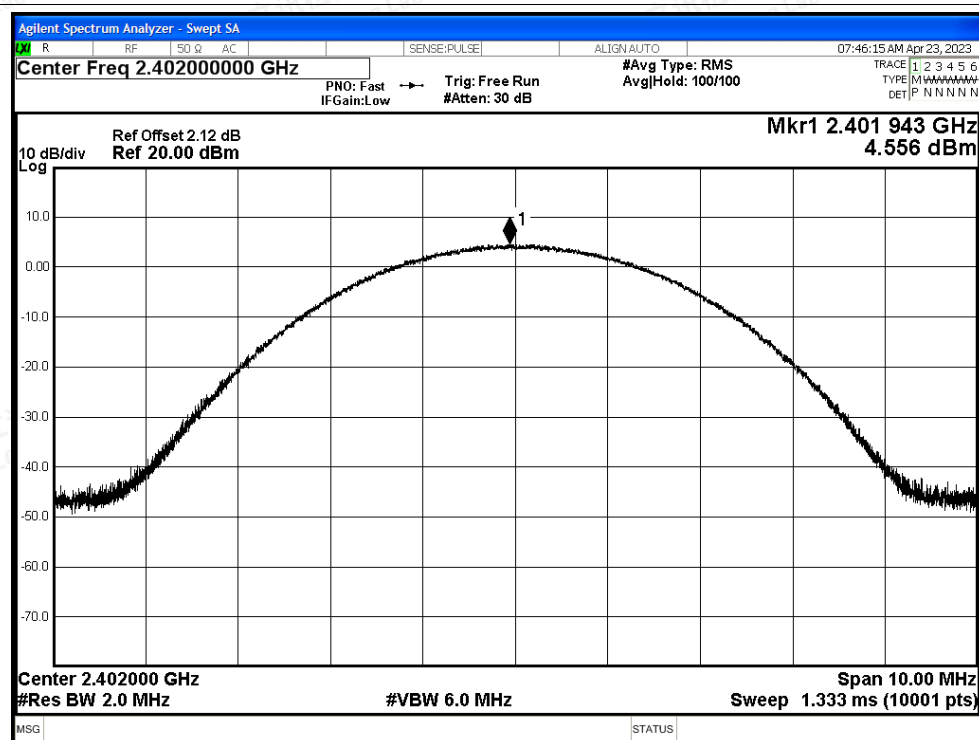


Power NVNT 2-DH5 2480MHz Ant

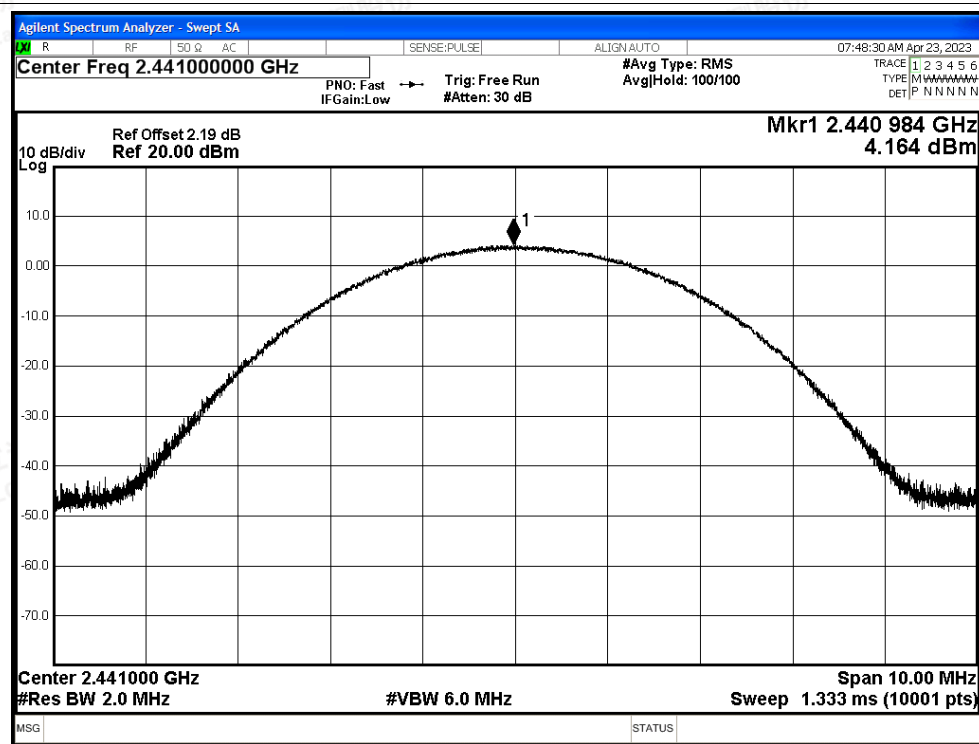


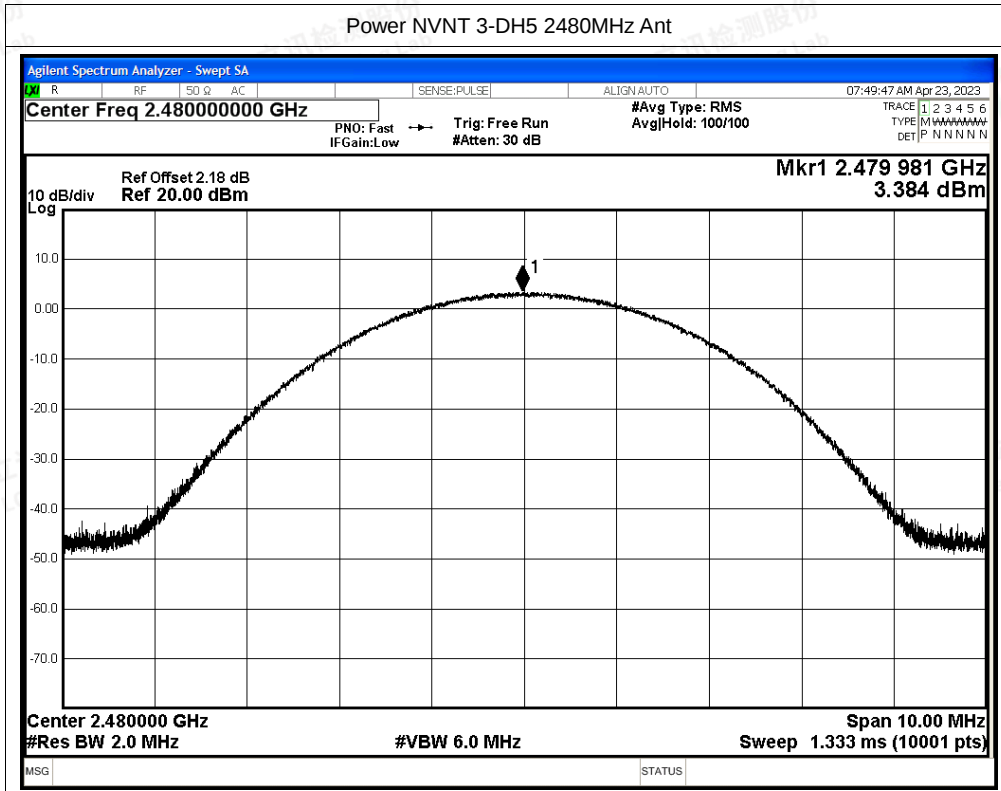


Power NVNT 3-DH5 2402MHz Ant



Power NVNT 3-DH5 2441MHz Ant







A.3 Carrier Frequencies Separation

Condition	Mode	Antenna	Hopping Freq1 (MHz)	Hopping Freq2 (MHz)	HFS (MHz)	Limit (MHz)	Verdict
NVNT	1-DH5	Ant	2402.036	2403.042	1.006	0.680	Pass
NVNT	2-DH5	Ant	2401.866	2403.022	1.156	0.885	Pass
NVNT	3-DH5	Ant	2402.01	2403.02	1.010	0.873	Pass

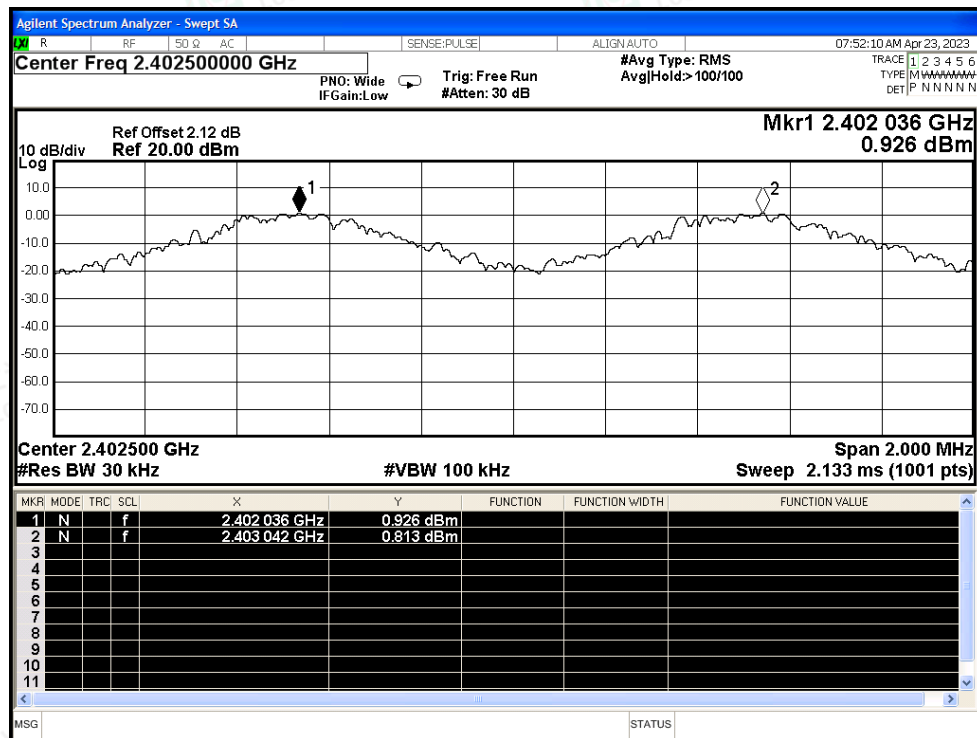


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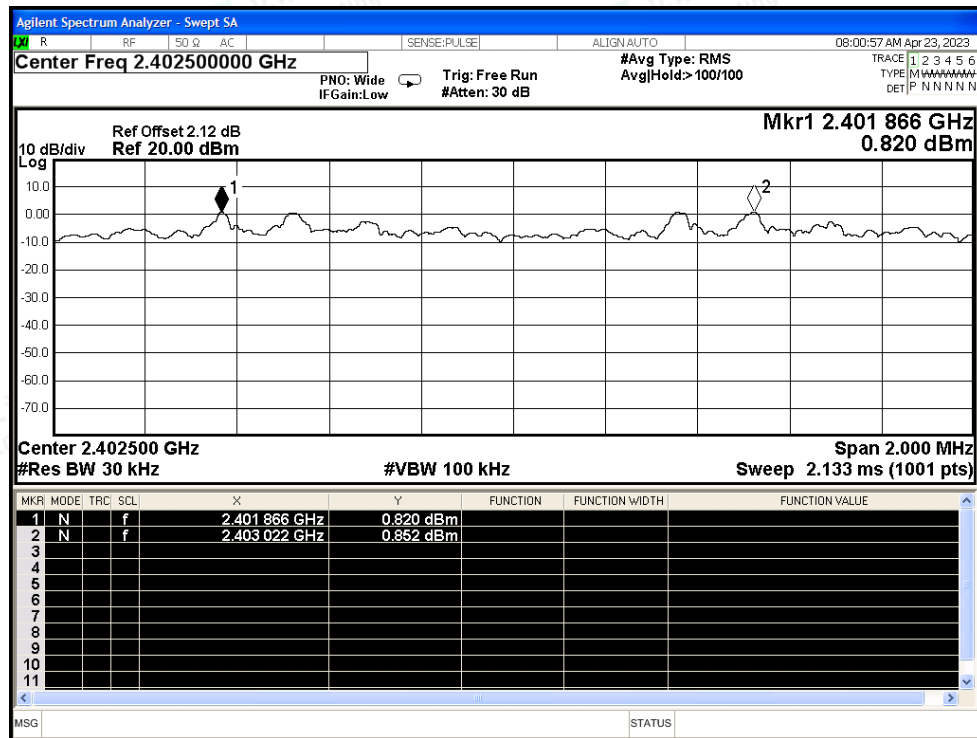


Test Graphs

CFS NVNT 1-DH5 2402MHz Ant

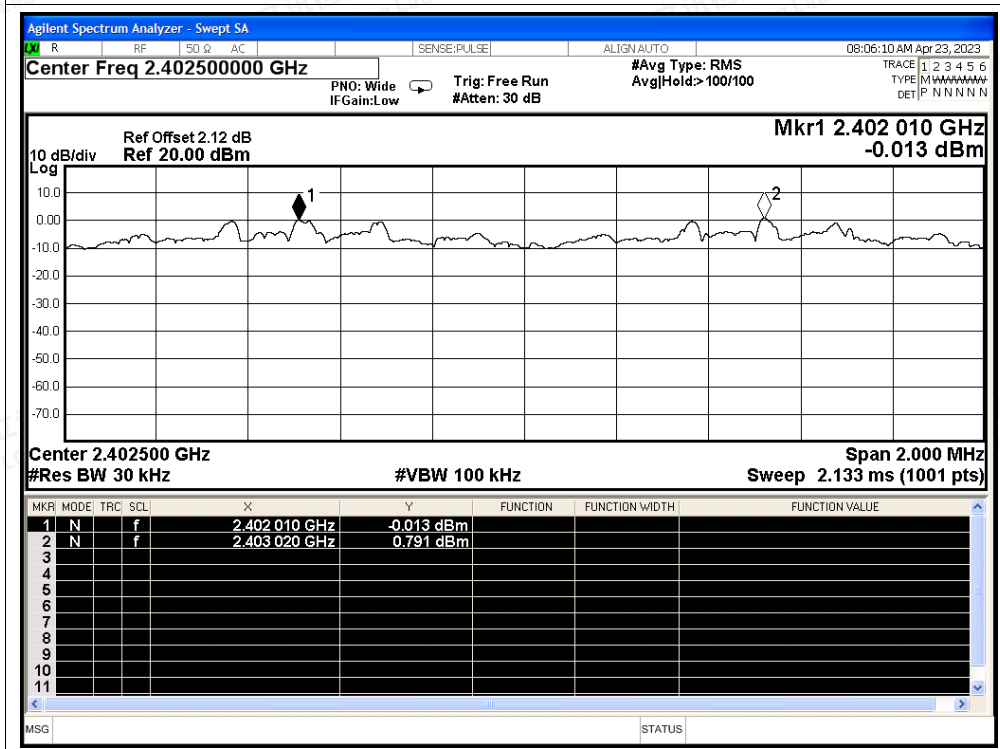


CFS NVNT 2-DH5 2402MHz Ant





CFS NVNT 3-DH5 2402MHz Ant





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	Ant	2.888	317.68	110	31600	400	Pass
NVNT	2-DH5	2402	Ant	2.891	303.555	105	31600	400	Pass
NVNT	3-DH5	2402	Ant	2.892	315.228	109	31600	400	Pass

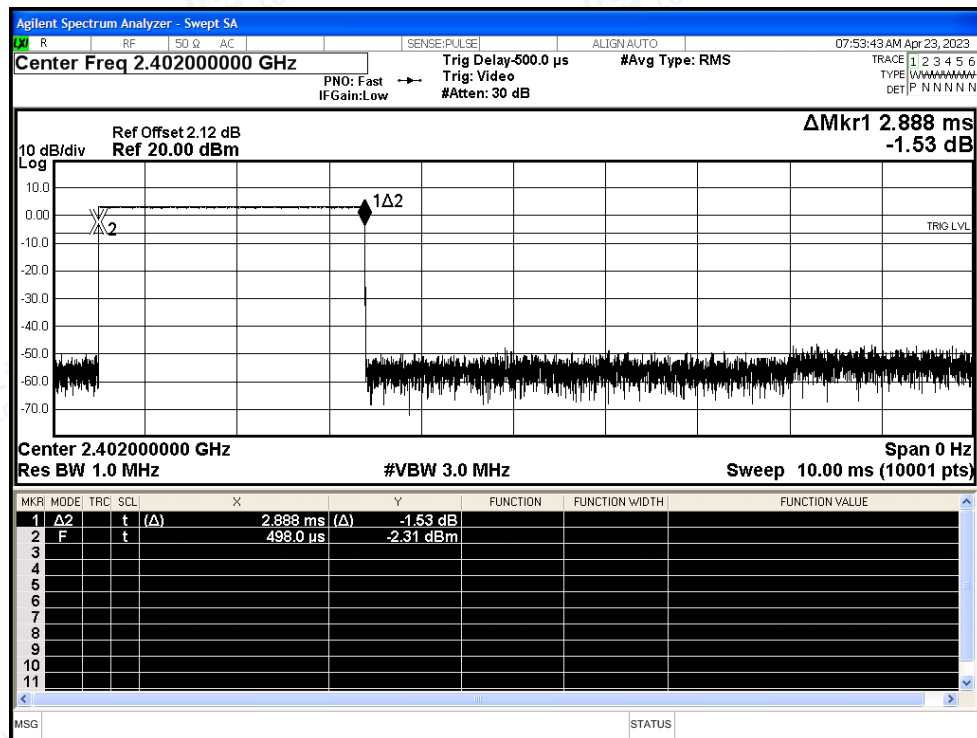


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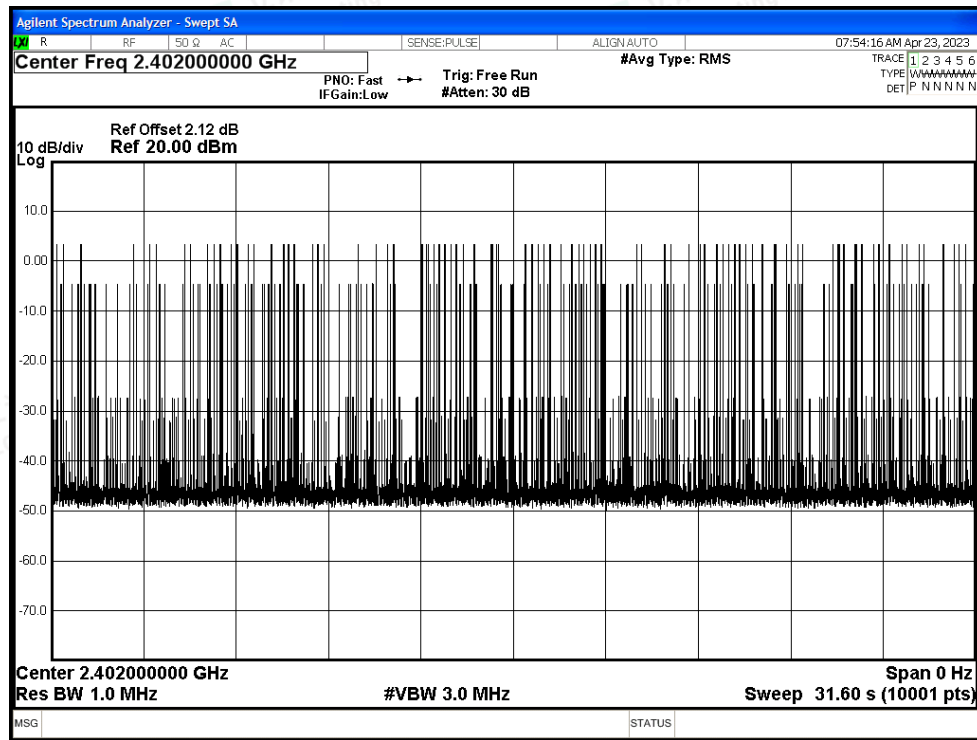


Test Graphs

Dwell NVNT 1-DH5 2402MHz Ant One Burst

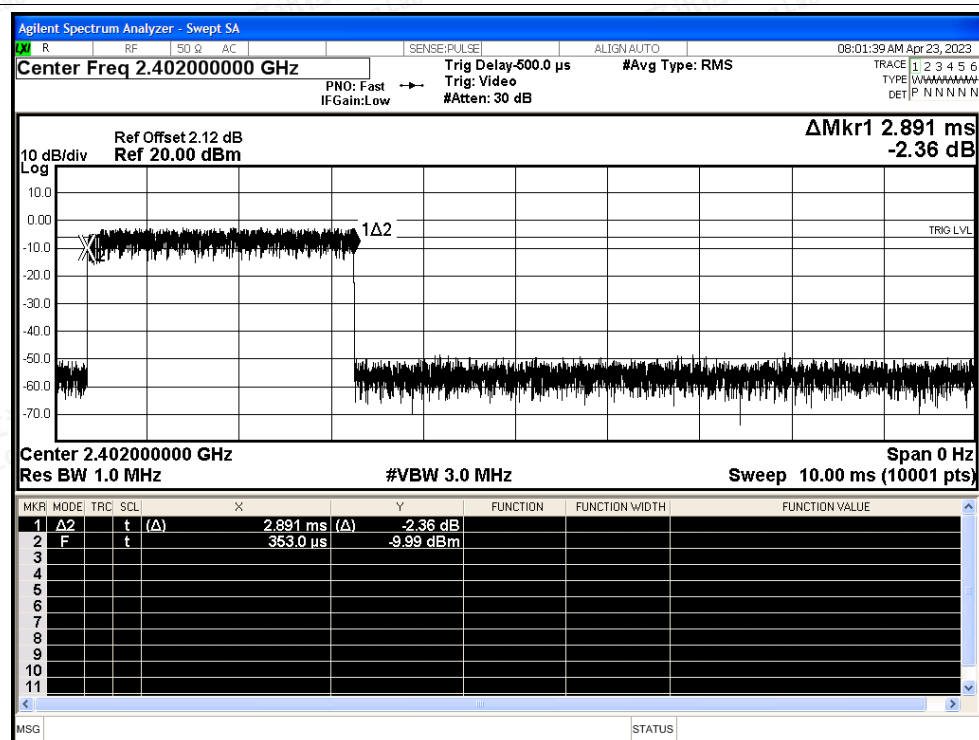


Dwell NVNT 1-DH5 2402MHz Ant Accumulated

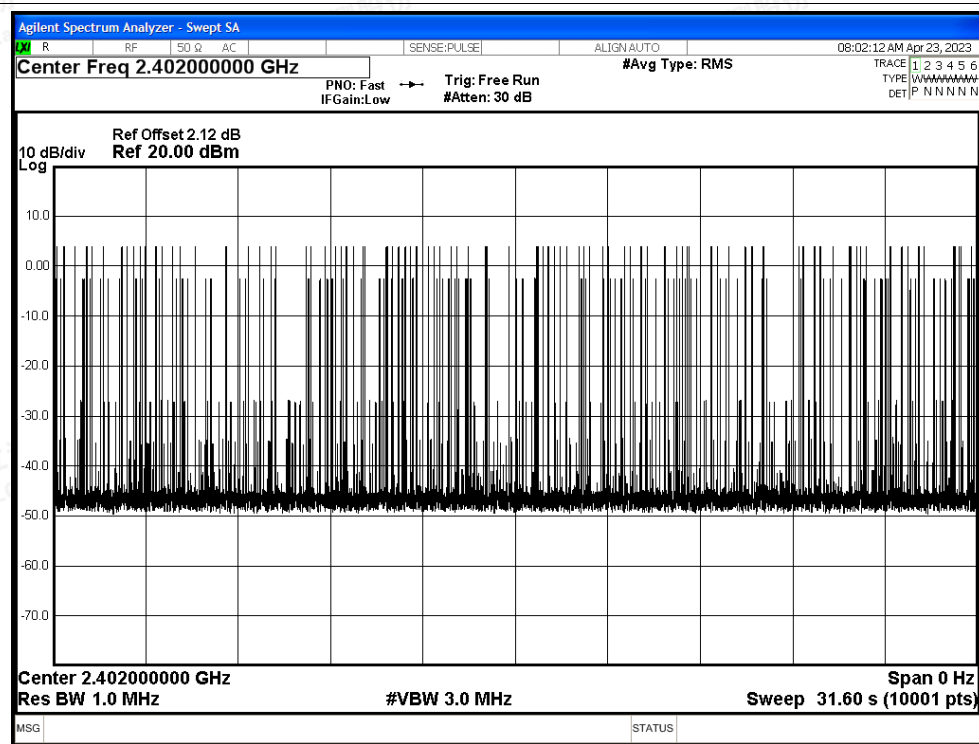




Dwell NVNT 2-DH5 2402MHz Ant One Burst

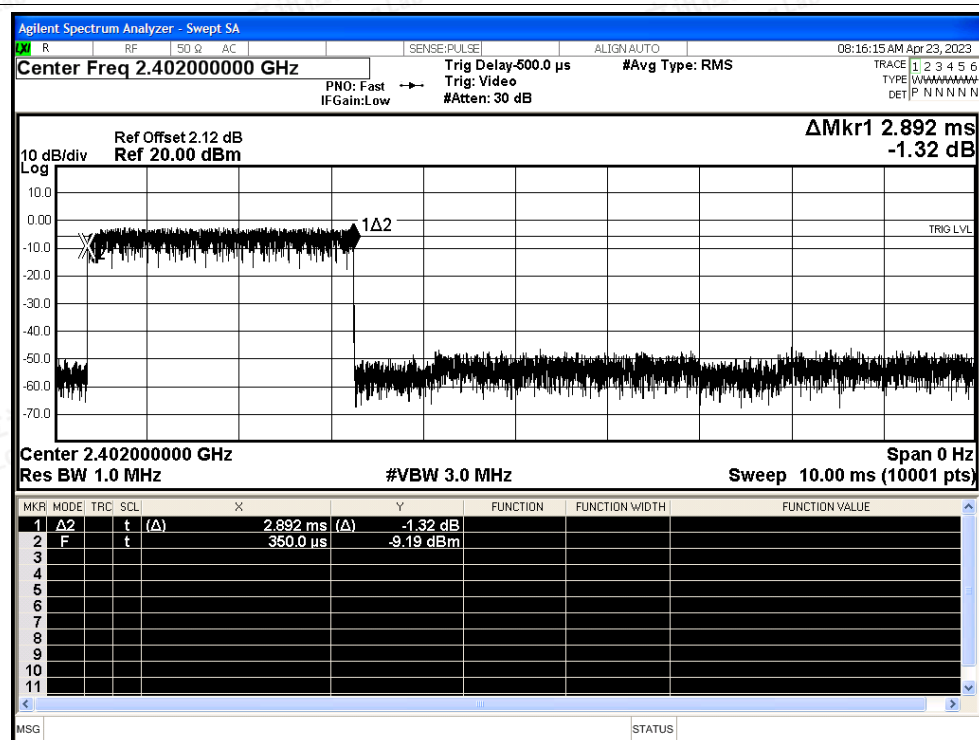


Dwell NVNT 2-DH5 2402MHz Ant Accumulated

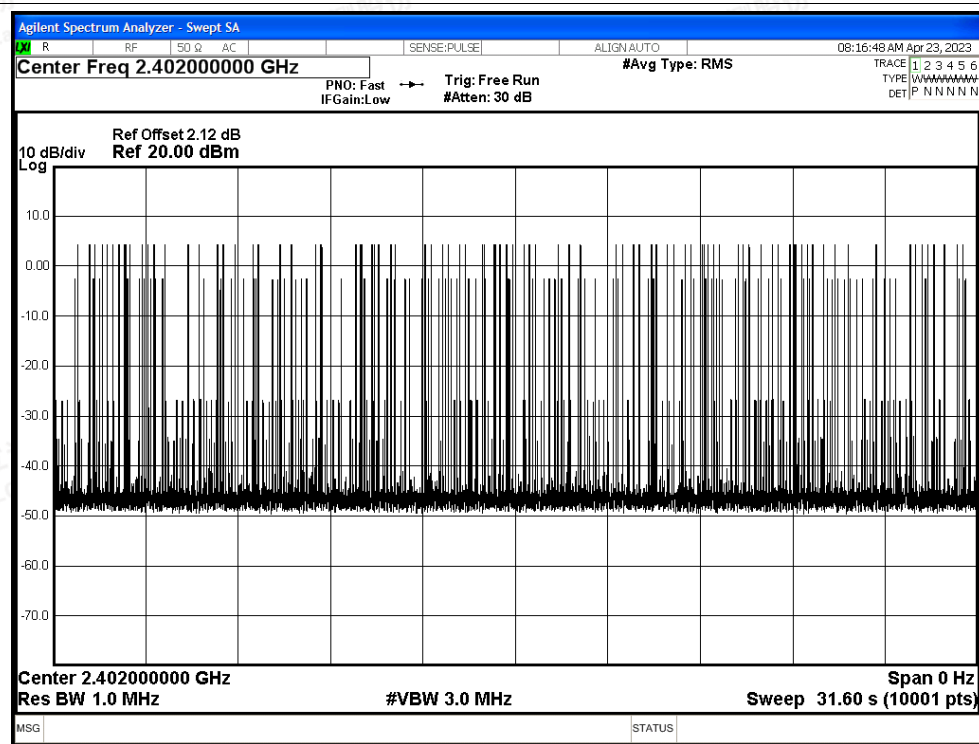




Dwell NVNT 3-DH5 2402MHz Ant One Burst



Dwell NVNT 3-DH5 2402MHz Ant Accumulated





A.5 Number of Hopping Channel

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

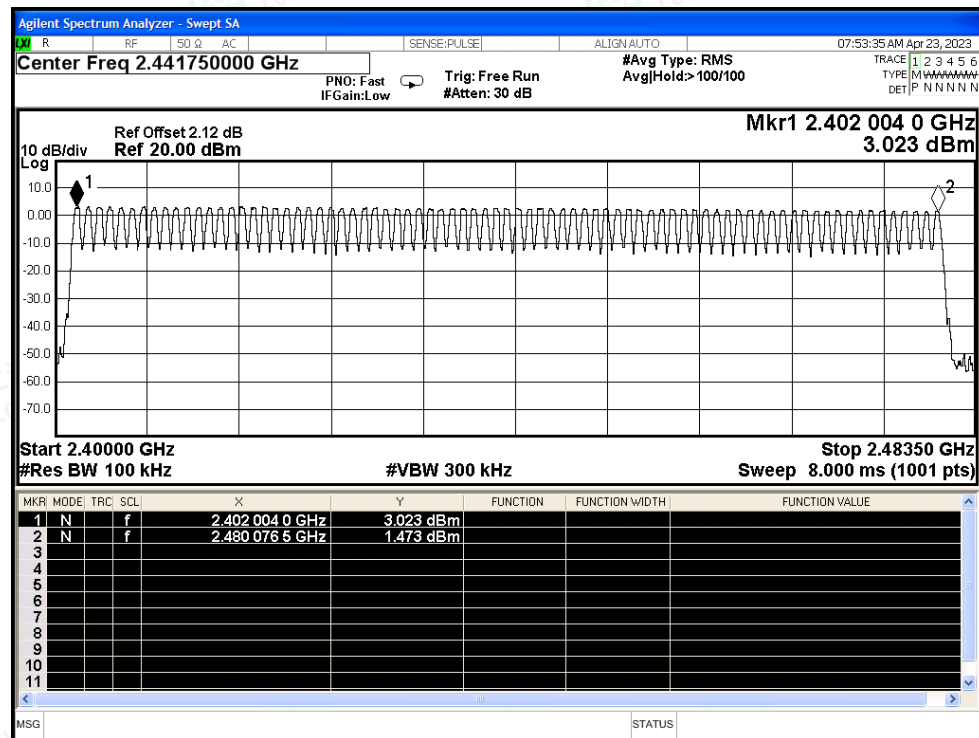


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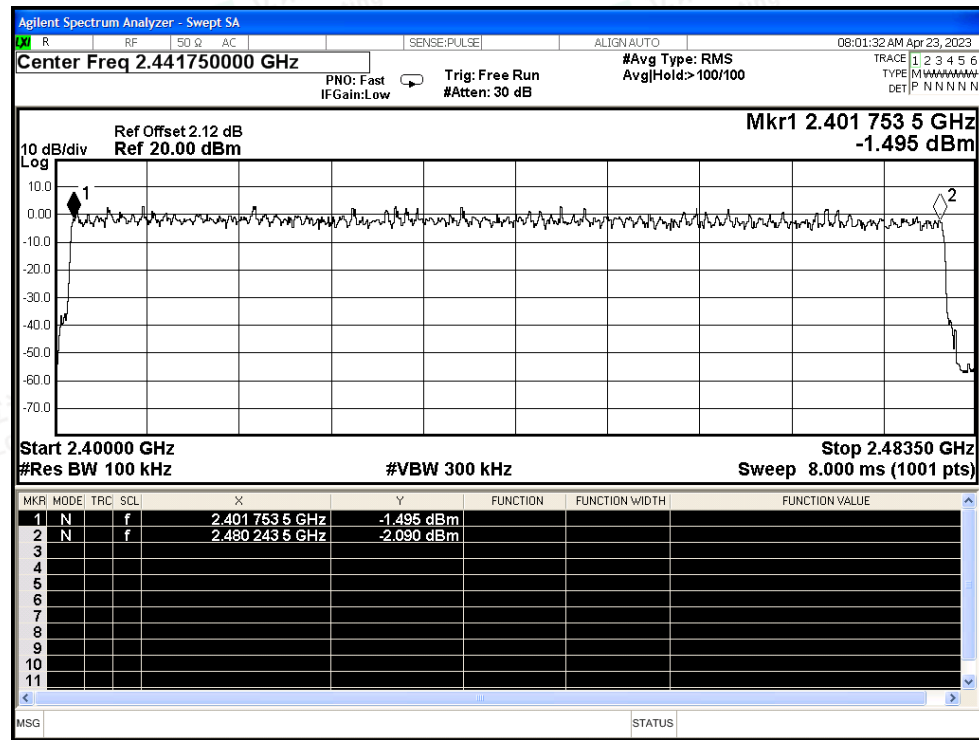


Test Graphs

Hopping No. NVNT 1-DH5 2402MHz Ant

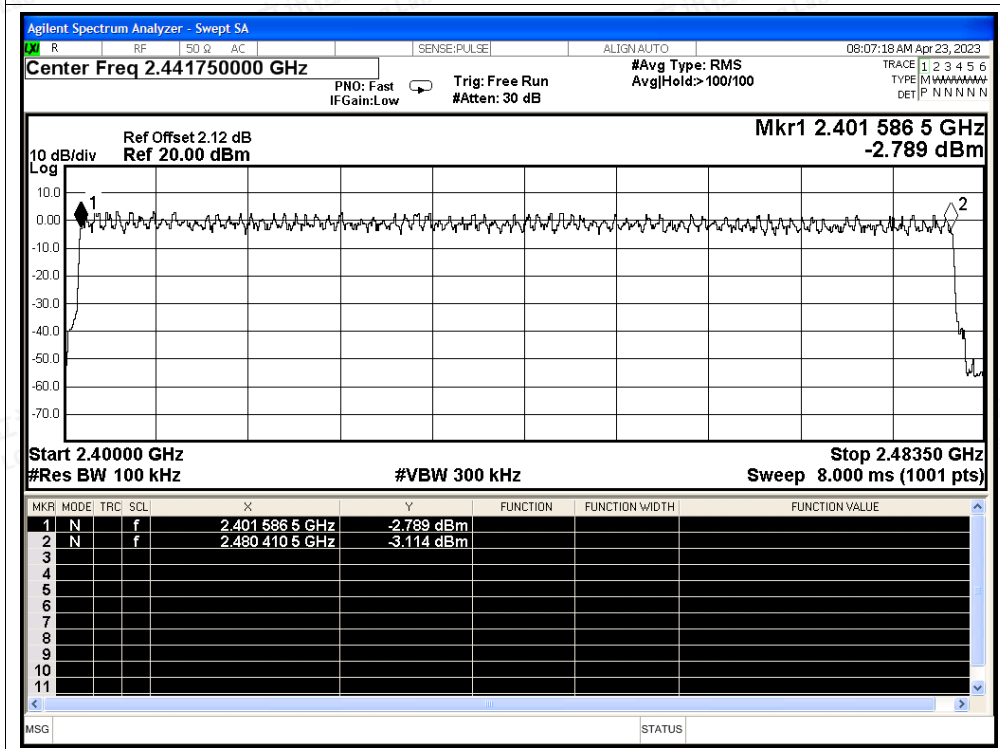


Hopping No. NVNT 2-DH5 2402MHz Ant





Hopping No. NVNT 3-DH5 2402MHz Ant



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A.6 Band Edge

Condition	Mode	Frequency (MHz)	Antenna	Hopping Mode	Max Value (dBc)	Limit (dBc)	Verdict
NVNT	1-DH5	2402	Ant	No-Hopping	-38.23	-20	Pass
NVNT	1-DH5	2480	Ant	No-Hopping	-57.95	-20	Pass
NVNT	2-DH5	2402	Ant	No-Hopping	-51.98	-20	Pass
NVNT	2-DH5	2480	Ant	No-Hopping	-54	-20	Pass
NVNT	3-DH5	2402	Ant	No-Hopping	-52.66	-20	Pass
NVNT	3-DH5	2480	Ant	No-Hopping	-57.96	-20	Pass



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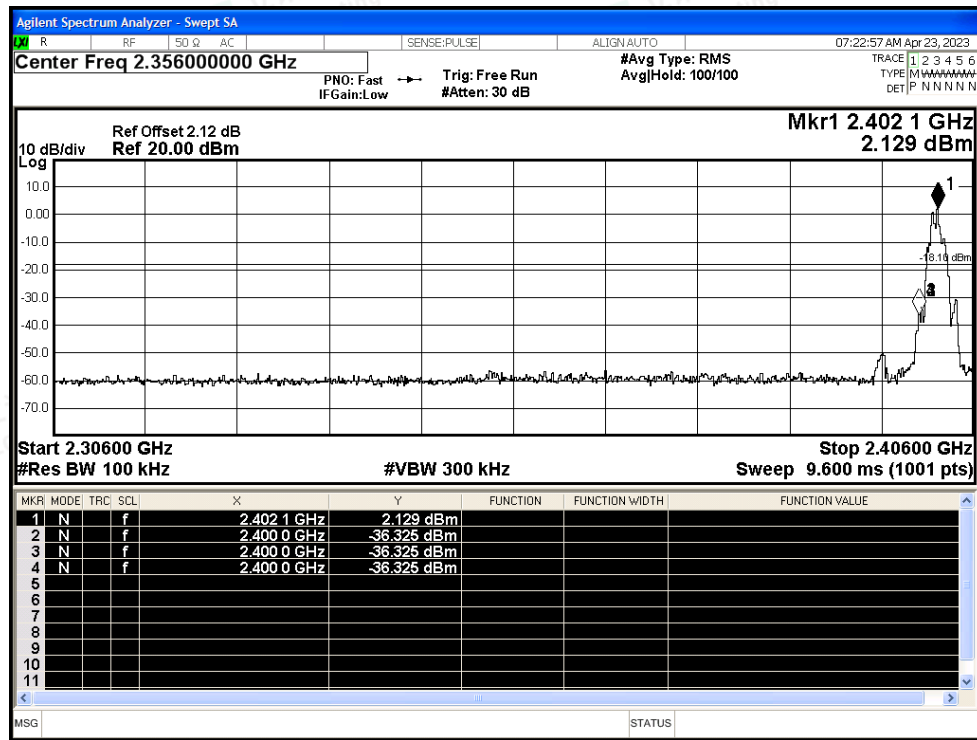


Test Graphs

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

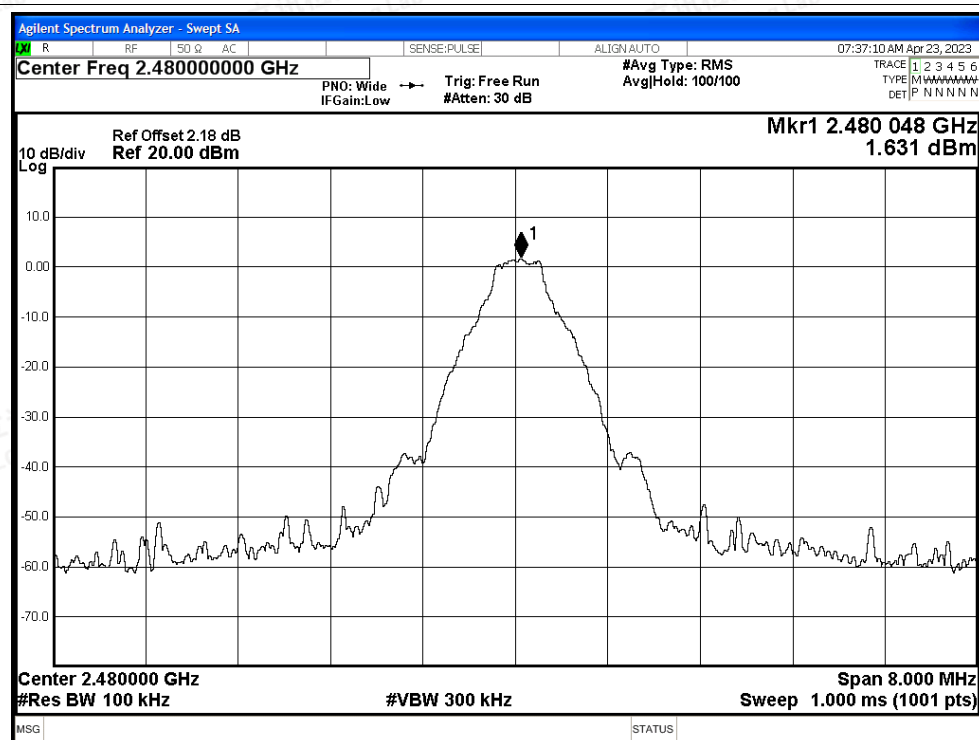


Band Edge NVNT 1-DH5 2402MHz Ant No-Hopping Emission

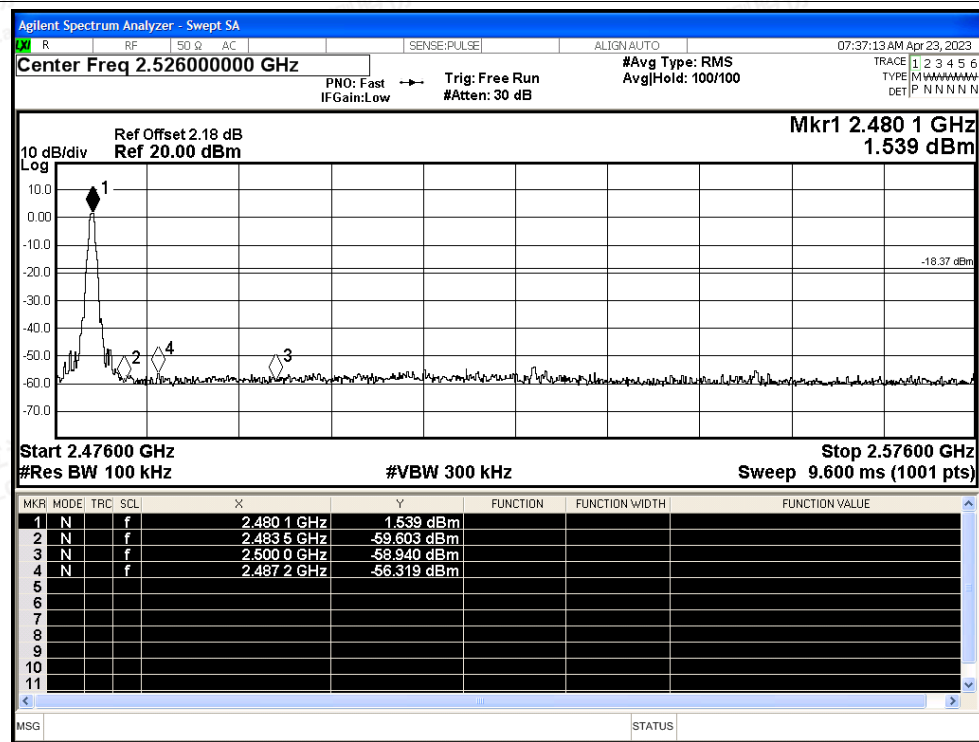




Band Edge NVNT 1-DH5 2480MHz Ant No-Hopping Ref

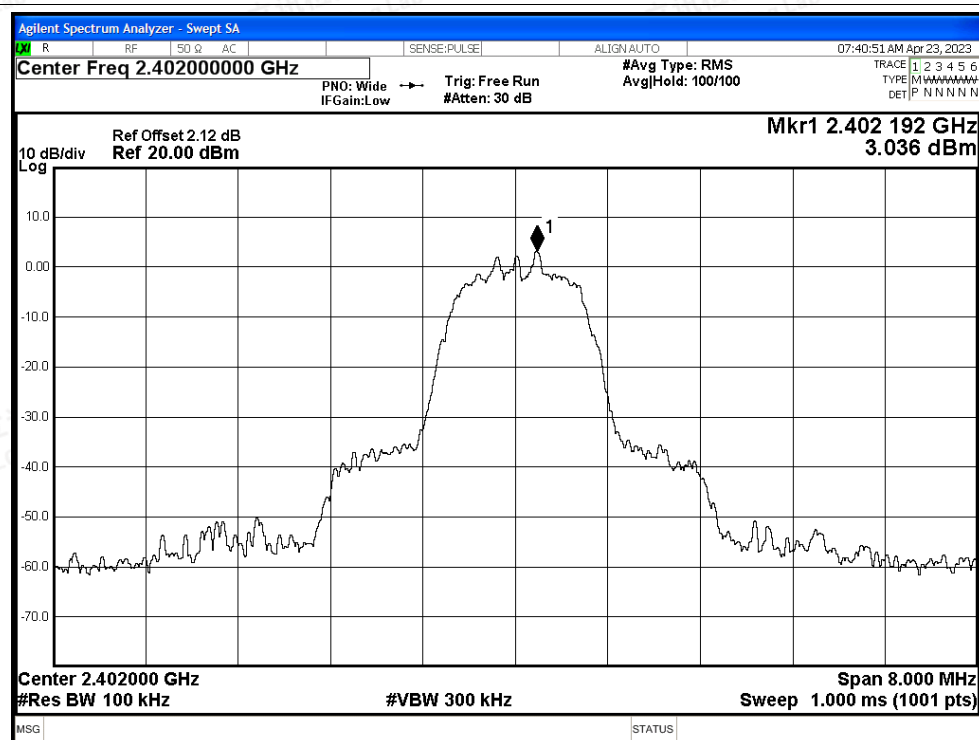


Band Edge NVNT 1-DH5 2480MHz Ant No-Hopping Emission

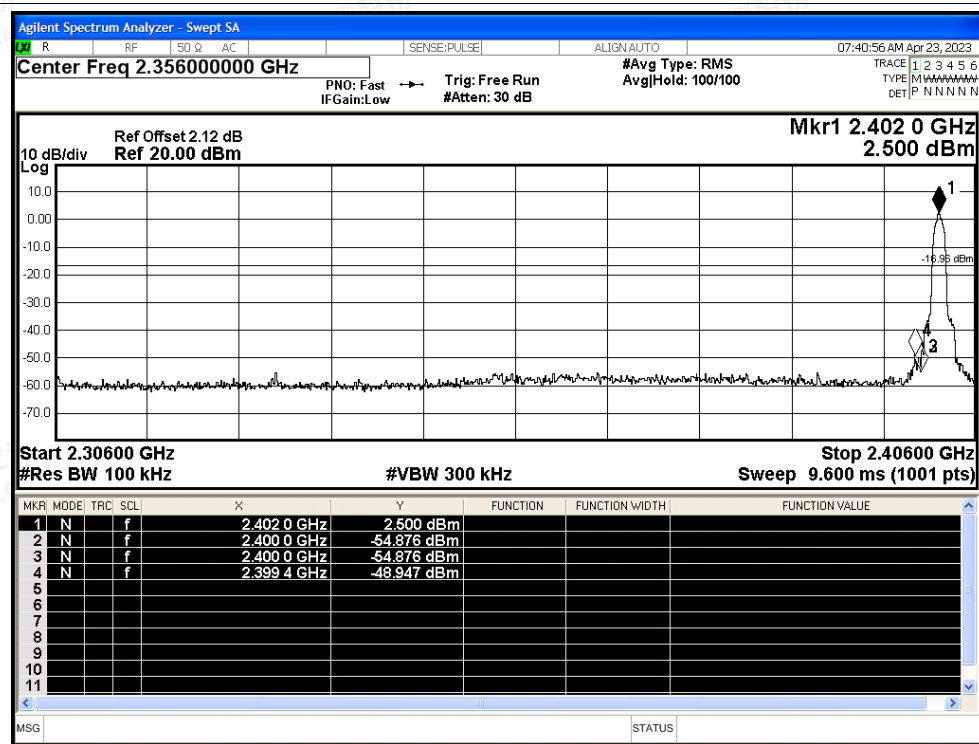




Band Edge NVNT 2-DH5 2402MHz Ant No-Hopping Ref

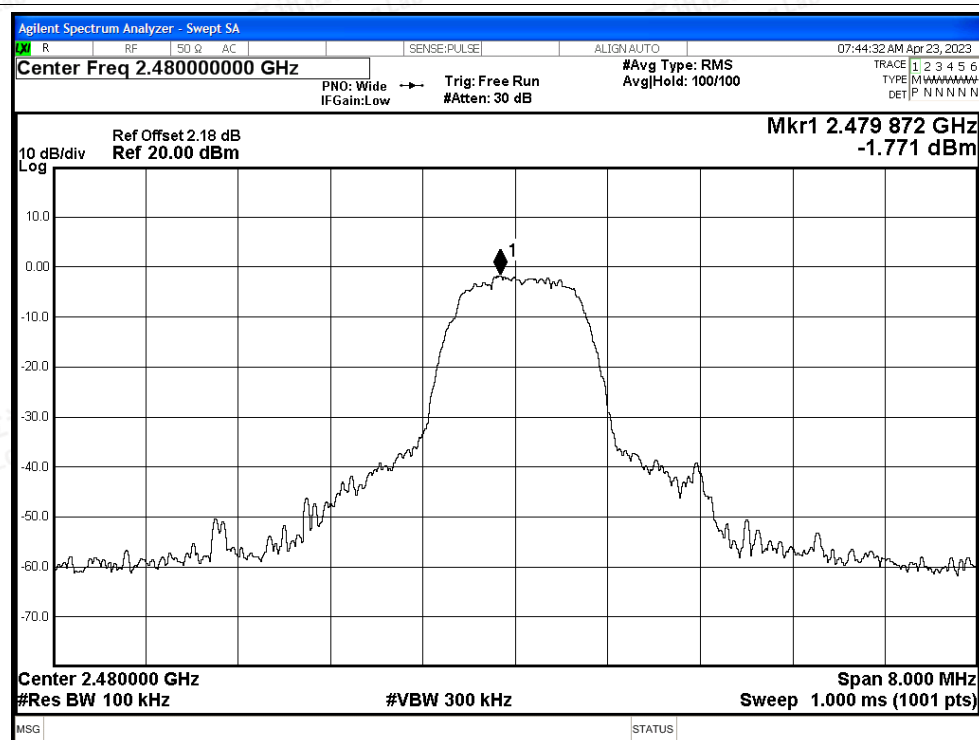


Band Edge NVNT 2-DH5 2402MHz Ant No-Hopping Emission

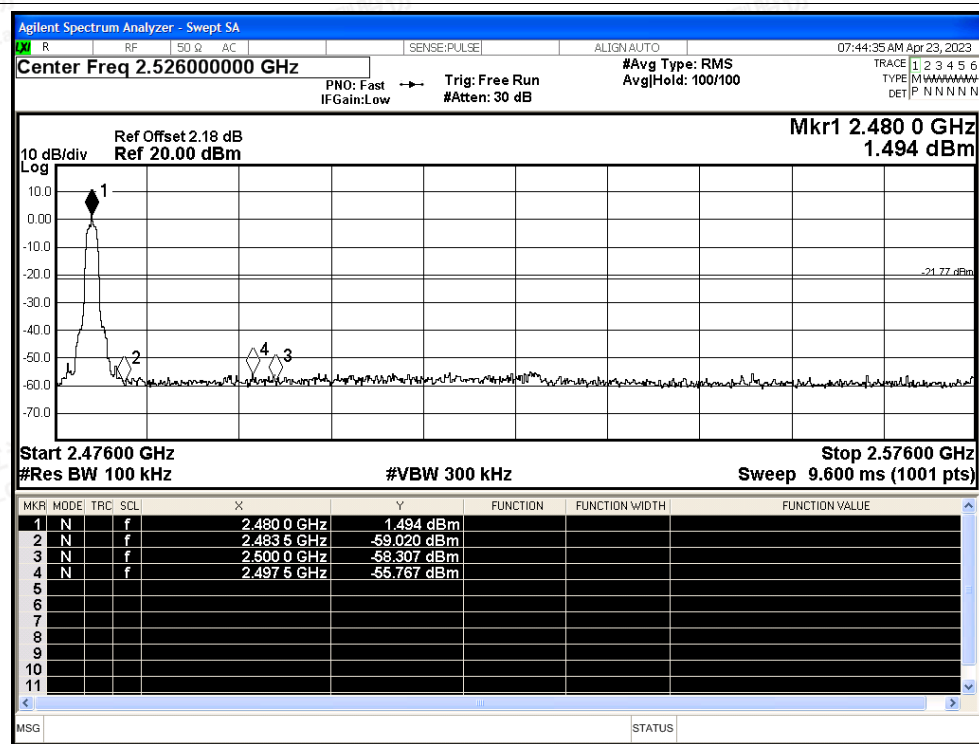




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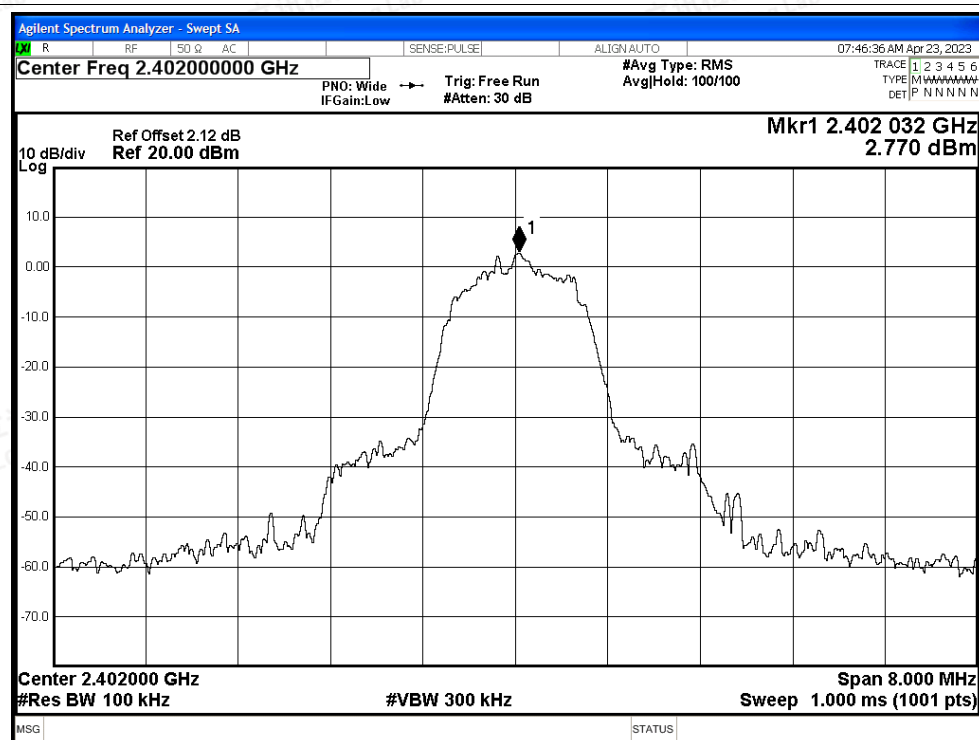


Band Edge NVNT 2-DH5 2480MHz Ant No-Hopping Emission

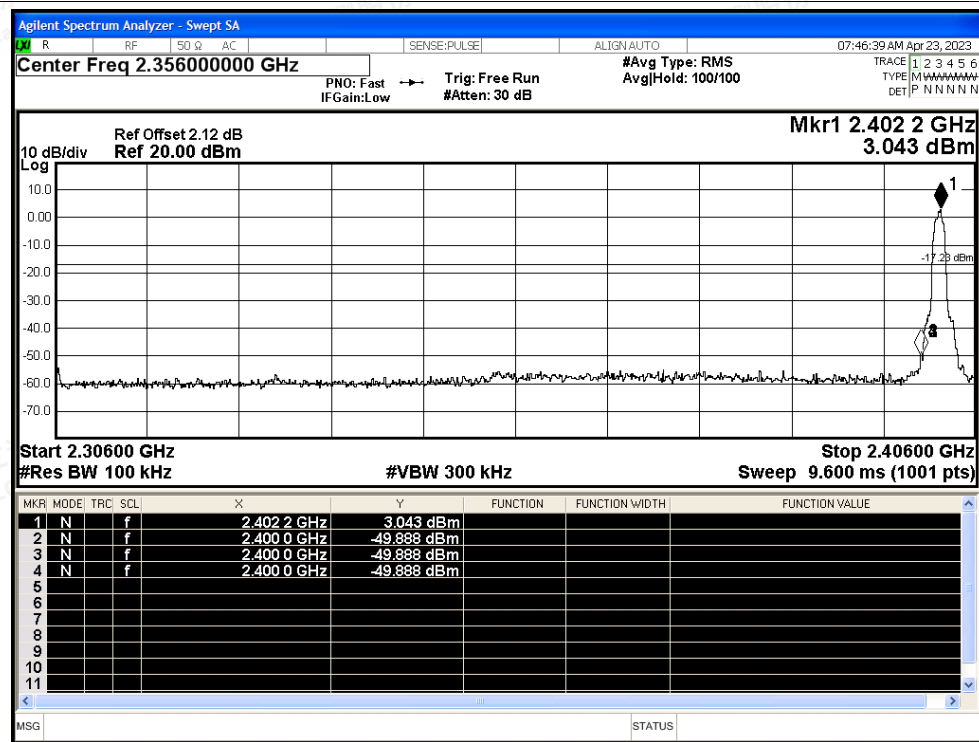




Band Edge NVNT 3-DH5 2402MHz Ant No-Hopping Ref

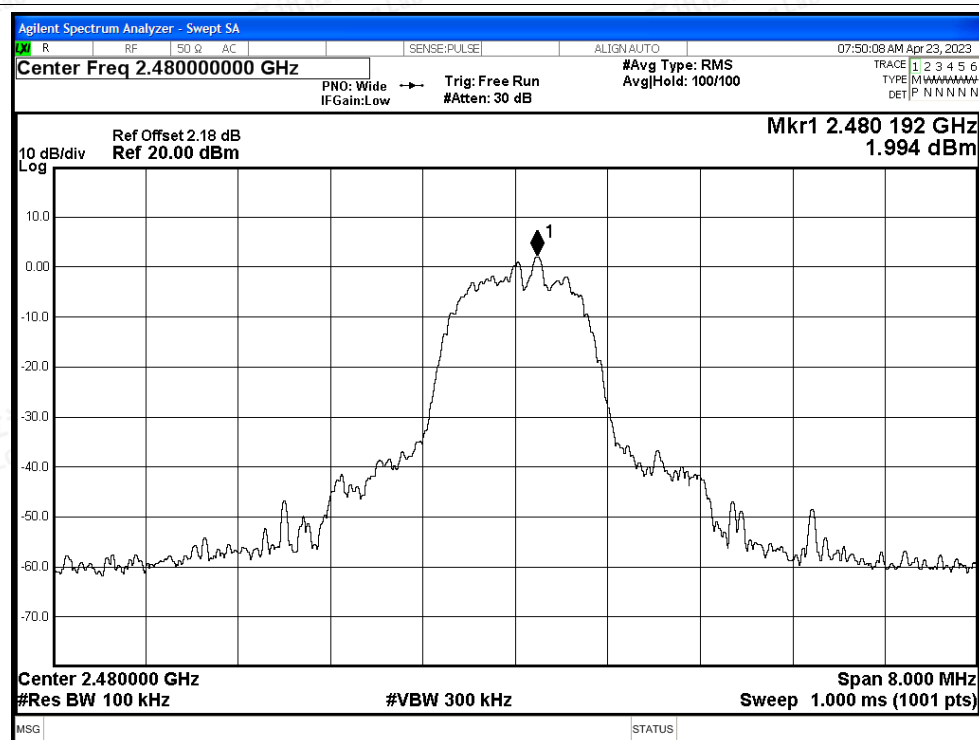


Band Edge NVNT 3-DH5 2402MHz Ant No-Hopping Emission

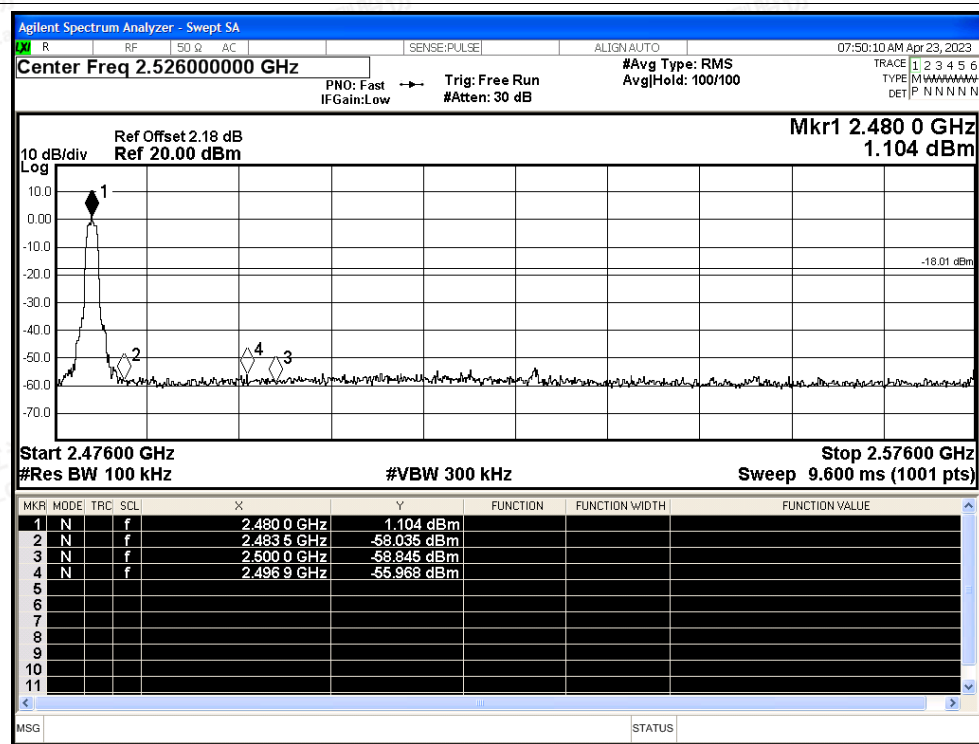




Band Edge NVNT 3-DH5 2480MHz Ant No-Hopping Ref



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



**(Hopping)**

Condition	Mode	Frequency (MHz)	Antenna	Hopping Mode	Max Value (dBc)	Limit (dBc)	Verdict
NVNT	1-DH5	2402	Ant	Hopping	-53.63	-20	Pass
NVNT	1-DH5	2480	Ant	Hopping	-53.02	-20	Pass
NVNT	2-DH5	2402	Ant	Hopping	-54.36	-20	Pass
NVNT	2-DH5	2480	Ant	Hopping	-53.5	-20	Pass
NVNT	3-DH5	2402	Ant	Hopping	-52.5	-20	Pass
NVNT	3-DH5	2480	Ant	Hopping	-54.55	-20	Pass

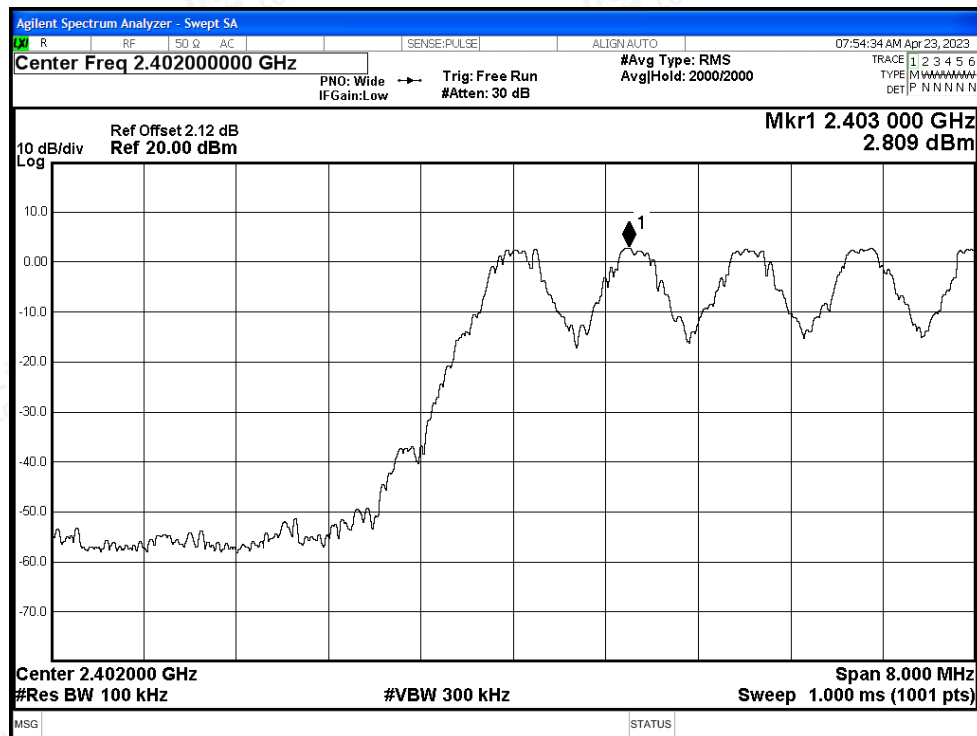


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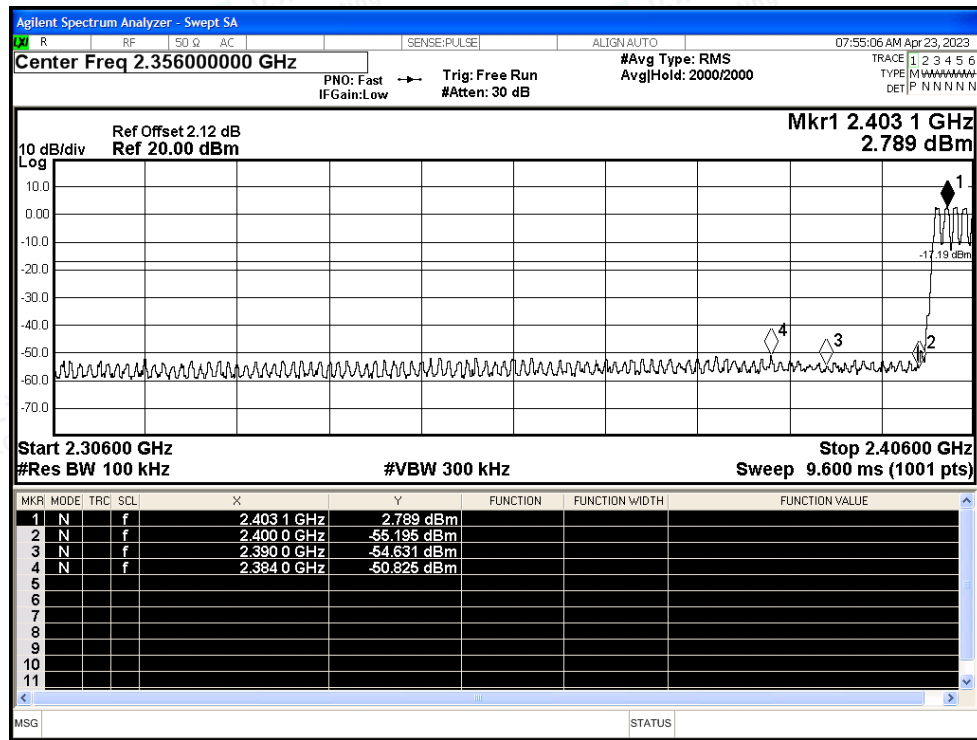


Test Graphs

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



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



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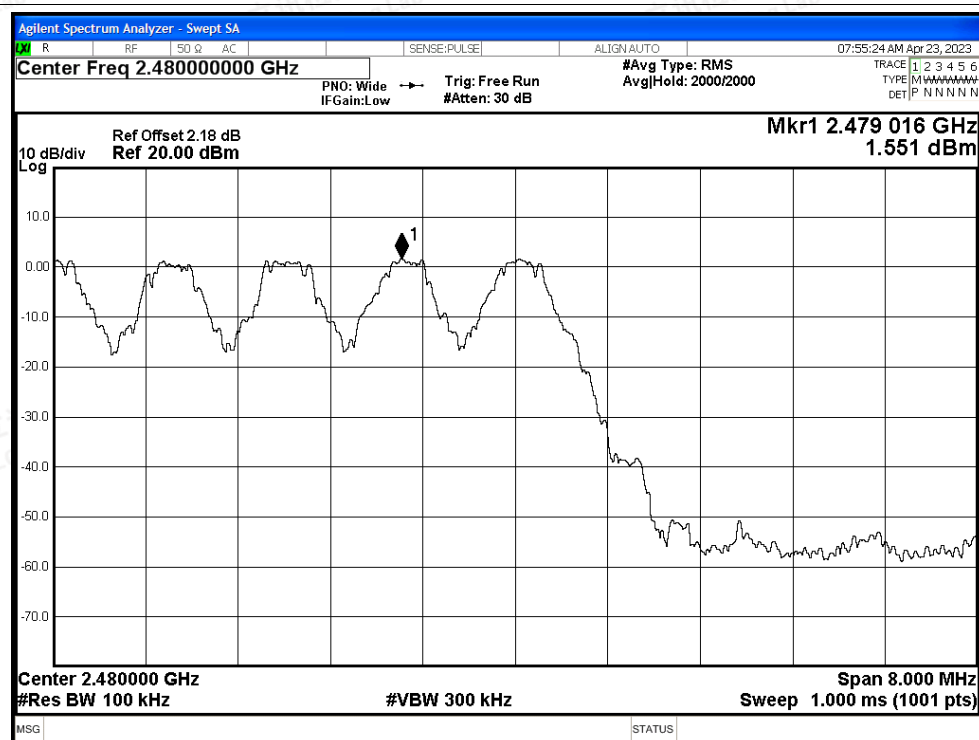
Add: 101, 201 Bldg A & 301 Bldg C, Juji Industrial Park Yabianxueziwei, Shajing Street, Baoan District, Shenzhen, 518000, China

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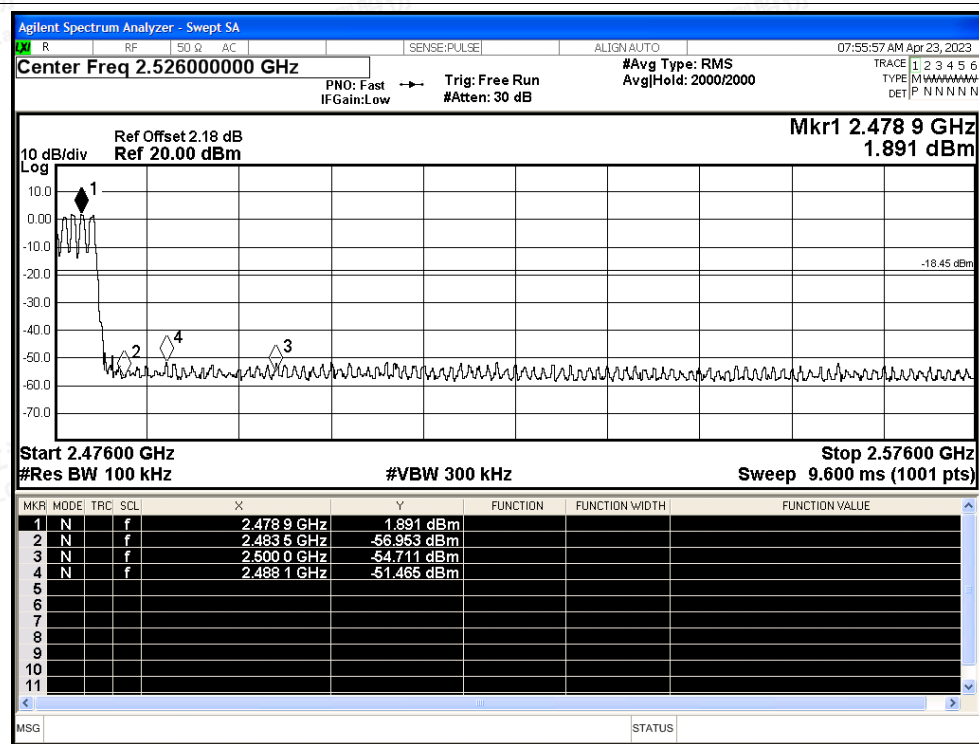
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Band Edge(Hopping) NVNT 1-DH5 2480MHz Ant Hopping Ref



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



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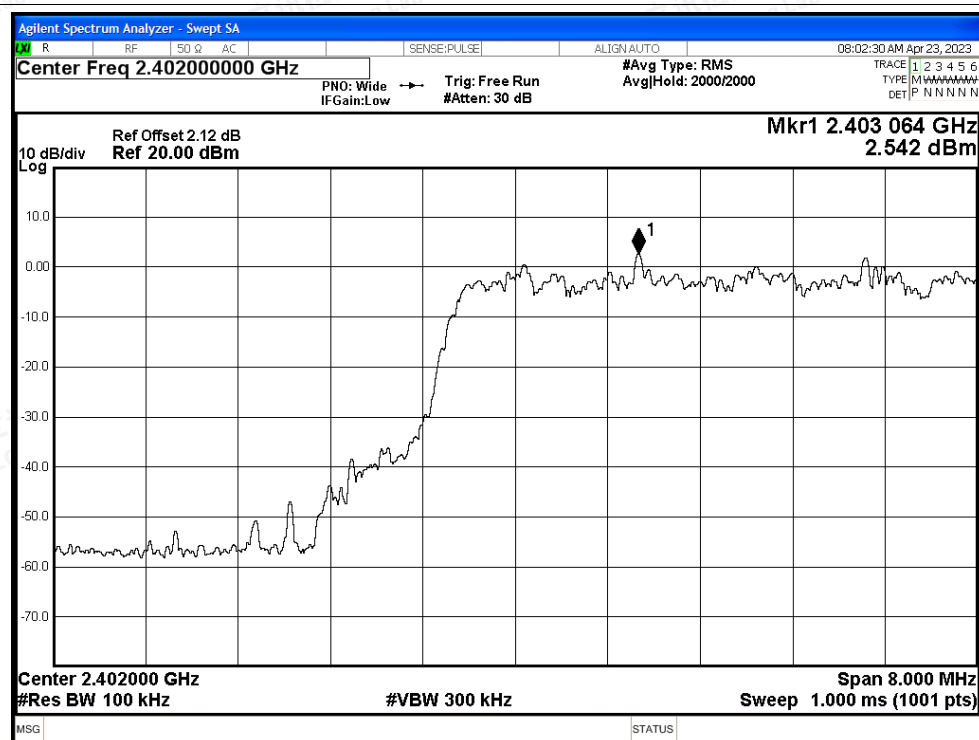
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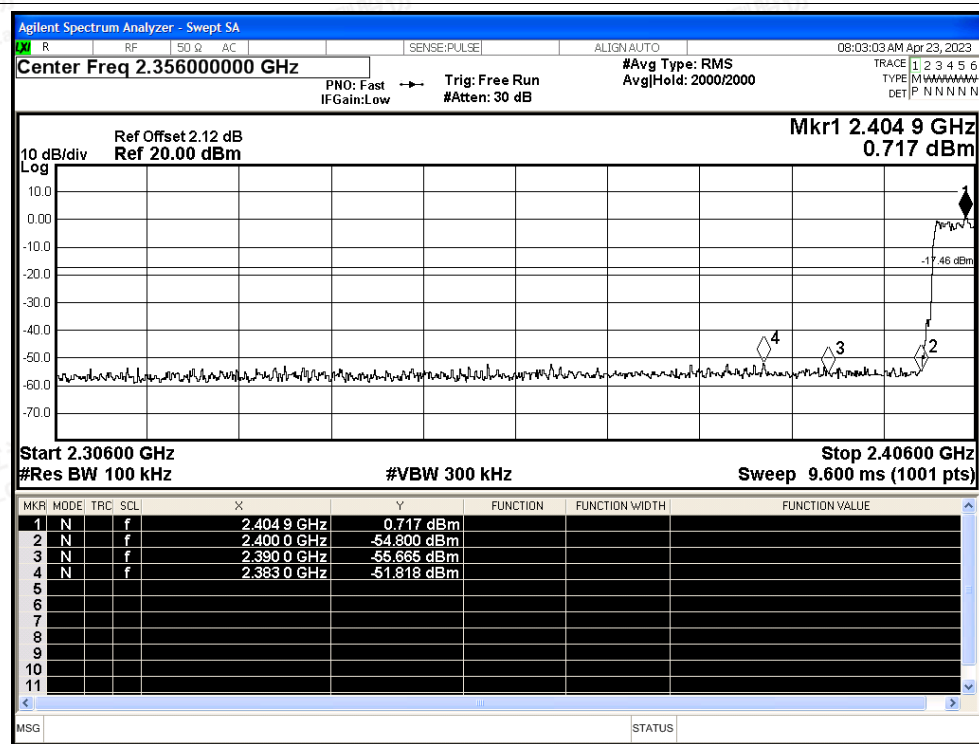
Scan code to check authenticity



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

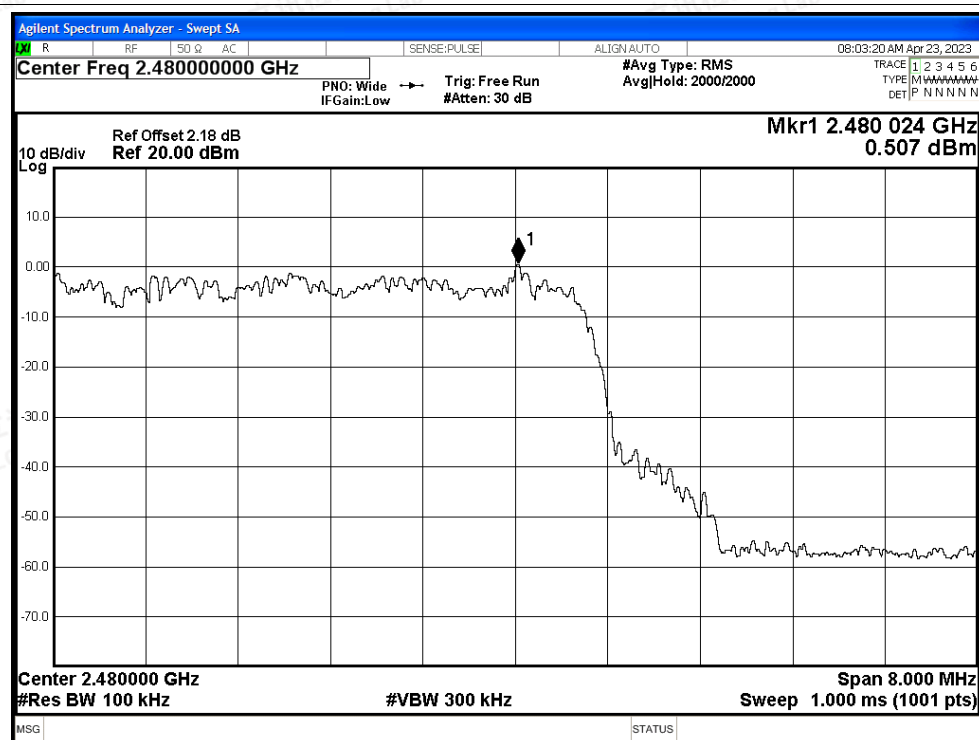


Band Edge(Hopping) NVNT 2-DH5 2402MHz Ant Hopping Emission

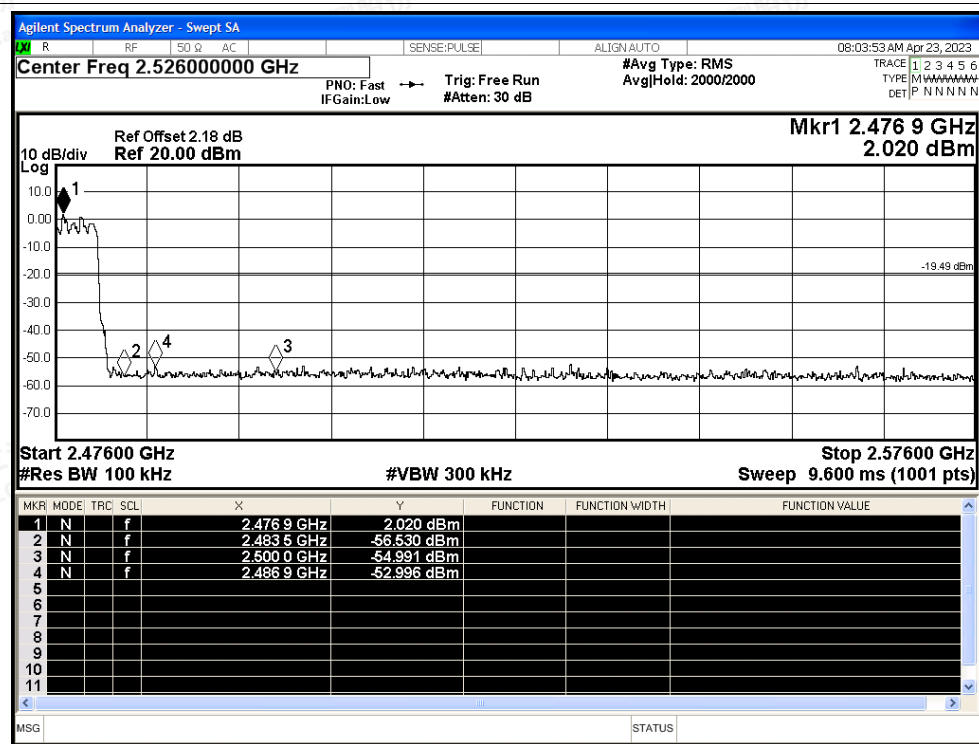




Band Edge(Hopping) NVNT 2-DH5 2480MHz Ant Hopping Ref



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

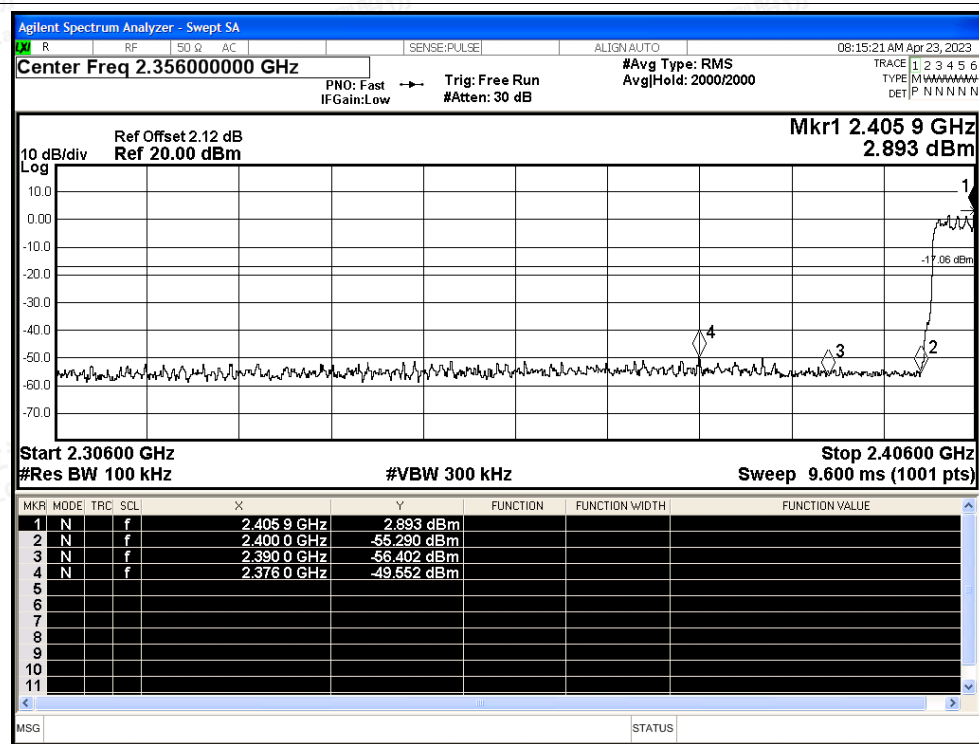




Band Edge(Hopping) NVNT 3-DH5 2402MHz Ant Hopping Ref



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

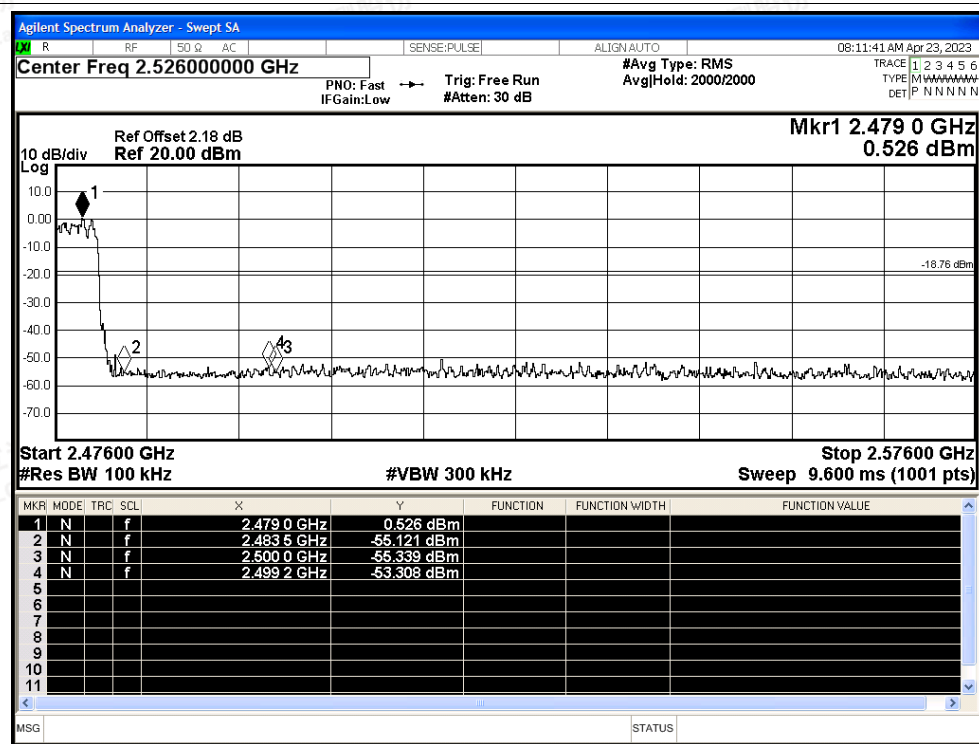




Band Edge(Hopping) NVNT 3-DH5 2480MHz Ant Hopping Ref



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





A.7 Conducted RF Spurious Emission

Condition	Mode	Frequency (MHz)	Antenna	Max Value (dBc)	Limit (dBc)	Verdict
NVNT	1-DH5	2402	Ant	-41.86	-20	Pass
NVNT	1-DH5	2441	Ant	-44.15	-20	Pass
NVNT	1-DH5	2480	Ant	-44.39	-20	Pass
NVNT	2-DH5	2402	Ant	-41.67	-20	Pass
NVNT	2-DH5	2441	Ant	-43.58	-20	Pass
NVNT	2-DH5	2480	Ant	-43.99	-20	Pass
NVNT	3-DH5	2402	Ant	-41.02	-20	Pass
NVNT	3-DH5	2441	Ant	-43.85	-20	Pass
NVNT	3-DH5	2480	Ant	-43.88	-20	Pass

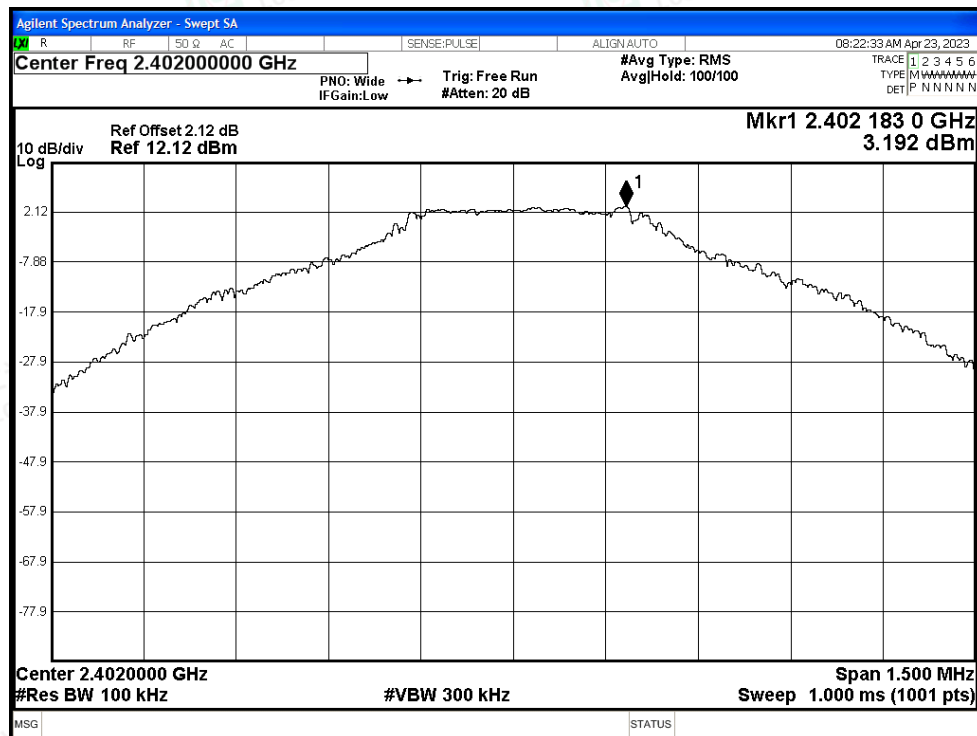


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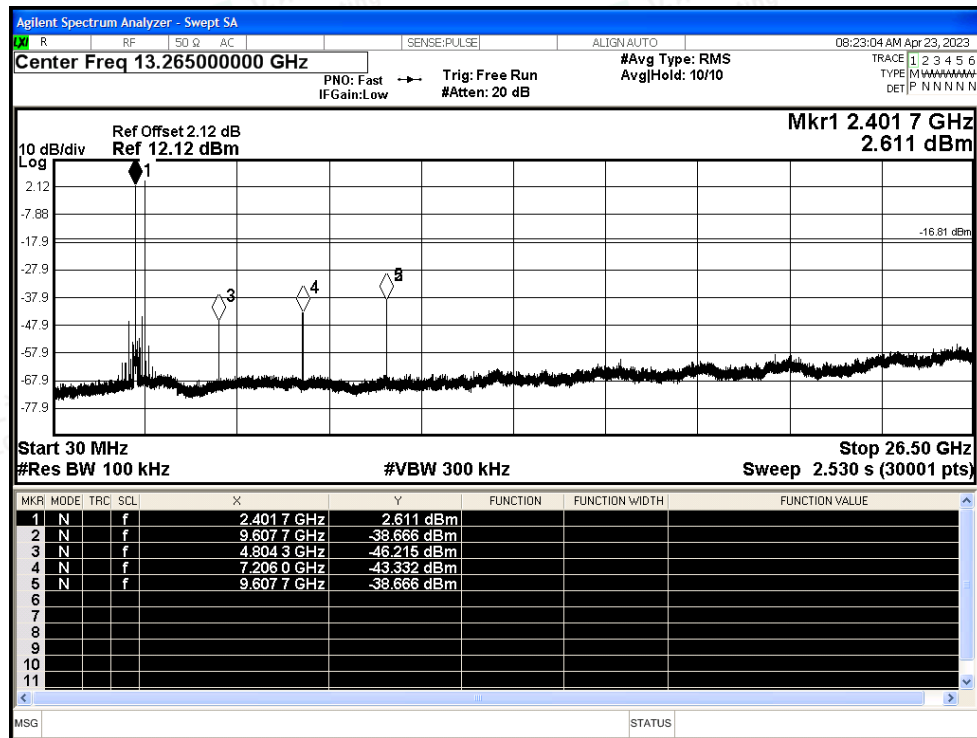


Test Graphs

Tx. Spurious NVNT 1-DH5 2402MHz Ant Ref

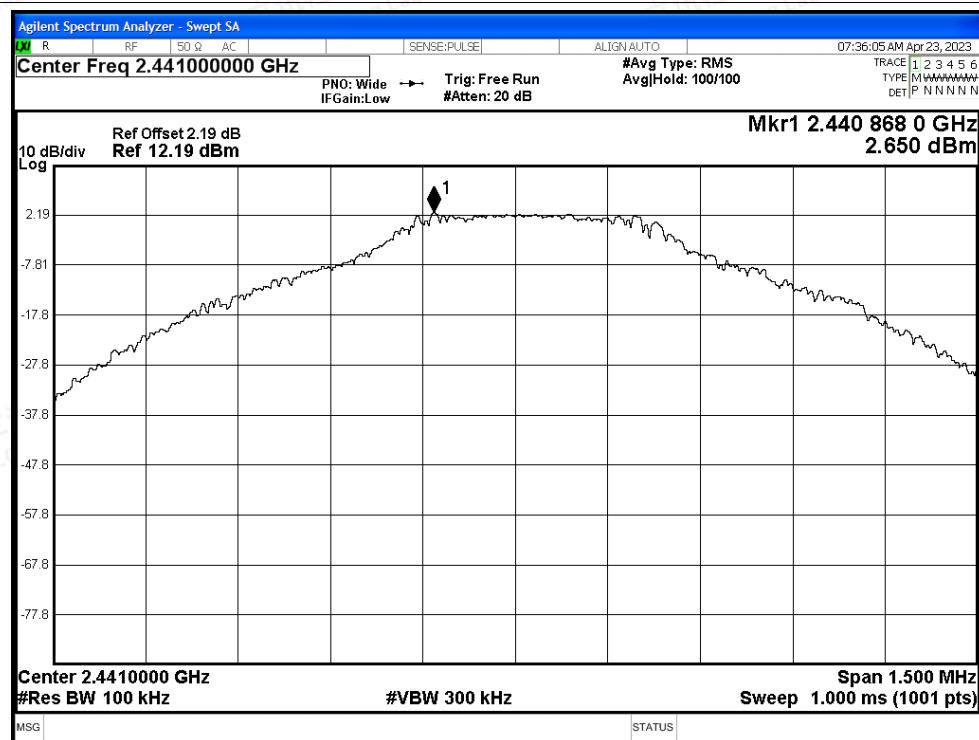


Tx. Spurious NVNT 1-DH5 2402MHz Ant Emission

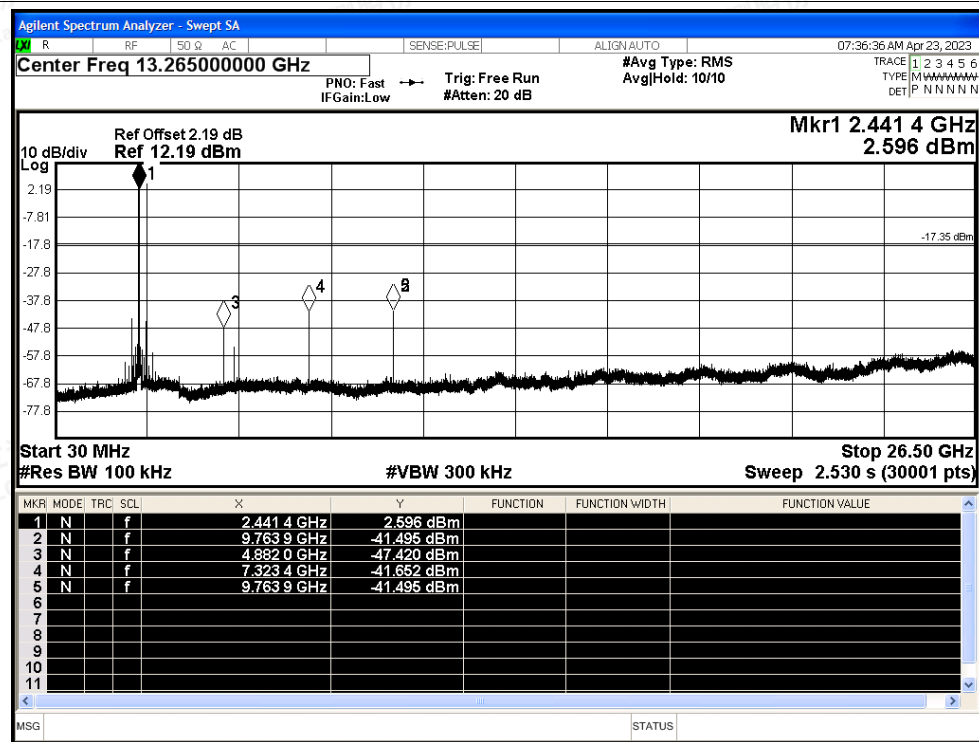




Tx. Spurious NVNT 1-DH5 2441MHz Ant Ref



Tx. Spurious NVNT 1-DH5 2441MHz Ant Emission

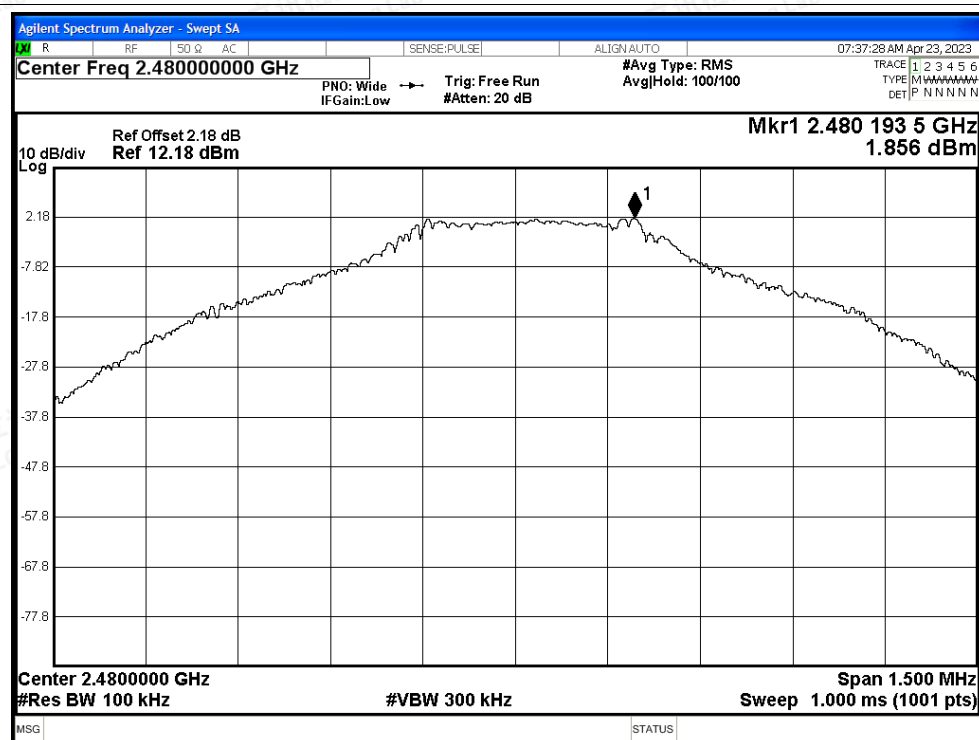


MKR	MODE	TRC	SCL	X	Y	FUNCTION	FUNCTION WIDTH	FUNCTION VALUE
1	N		f	2.441 4 GHz	2.596 dBm			
2	N		f	9.763 9 GHz	-41.495 dBm			
3	N		f	4.882 0 GHz	-47.420 dBm			
4	N		f	7.323 4 GHz	-41.652 dBm			
5	N		f	9.763 9 GHz	-41.495 dBm			
6								
7								
8								
9								
10								
11								

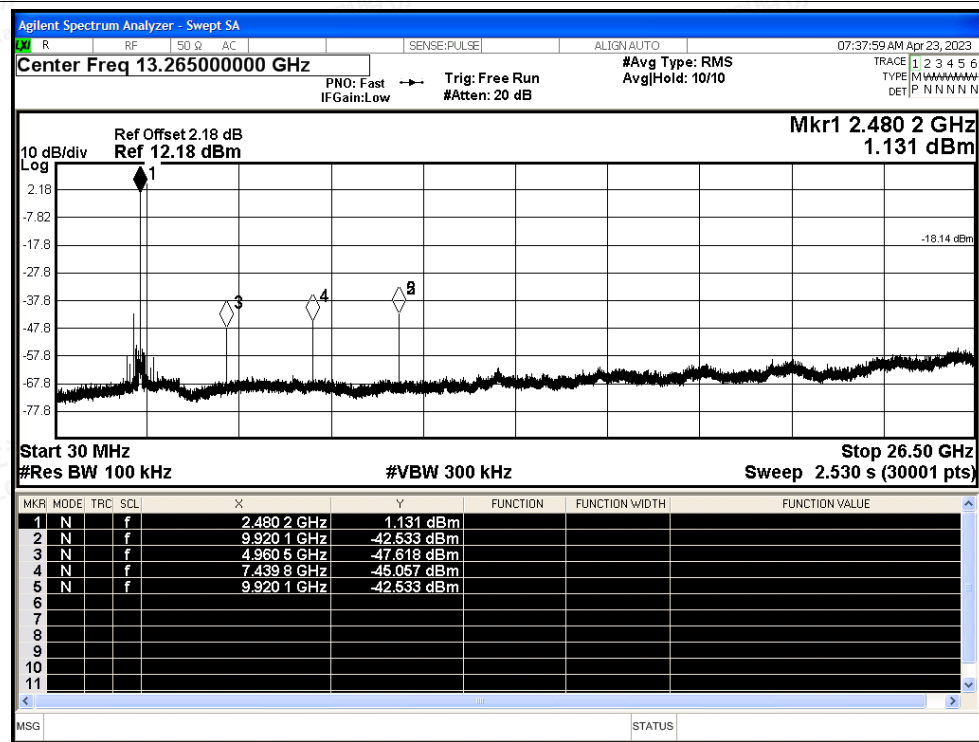




Tx. Spurious NVNT 1-DH5 2480MHz Ant Ref

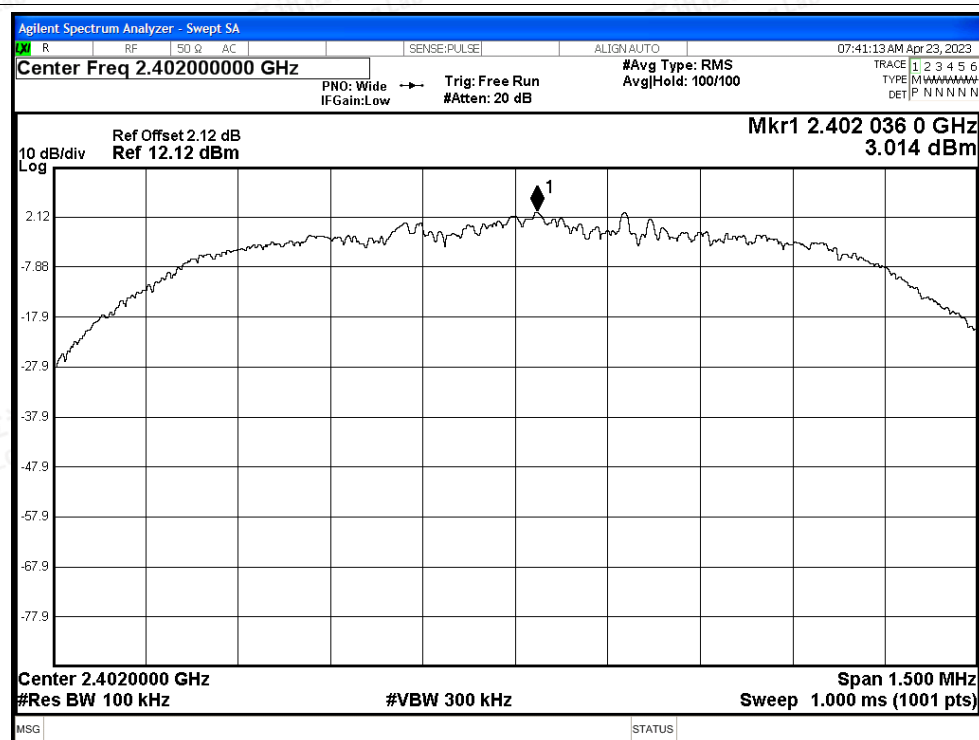


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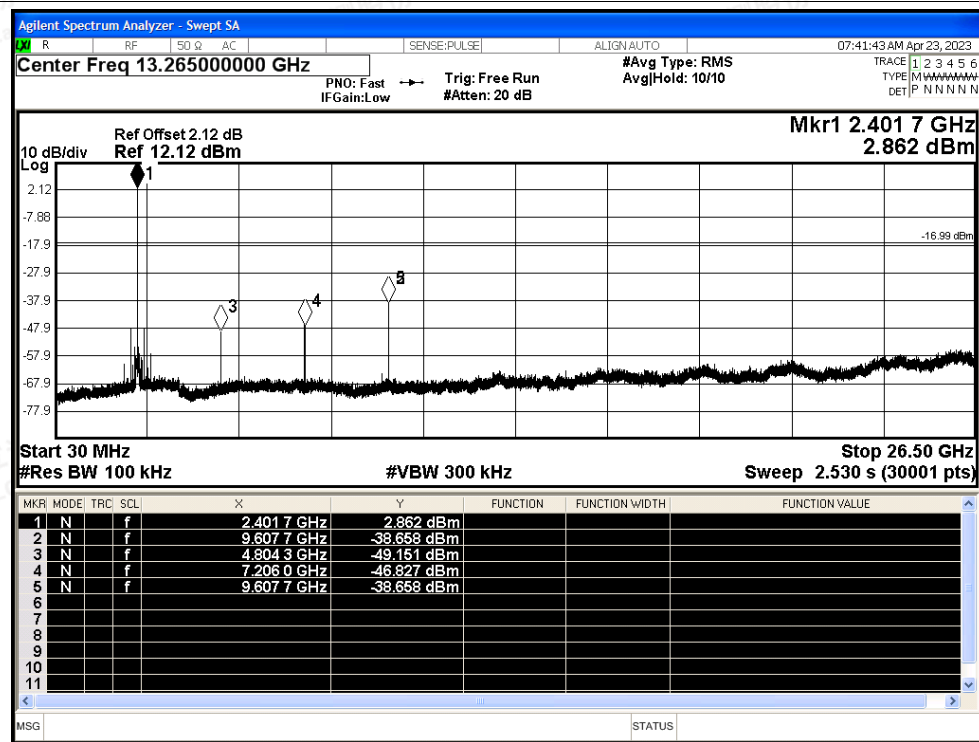




Tx. Spurious NVNT 2-DH5 2402MHz Ant Ref

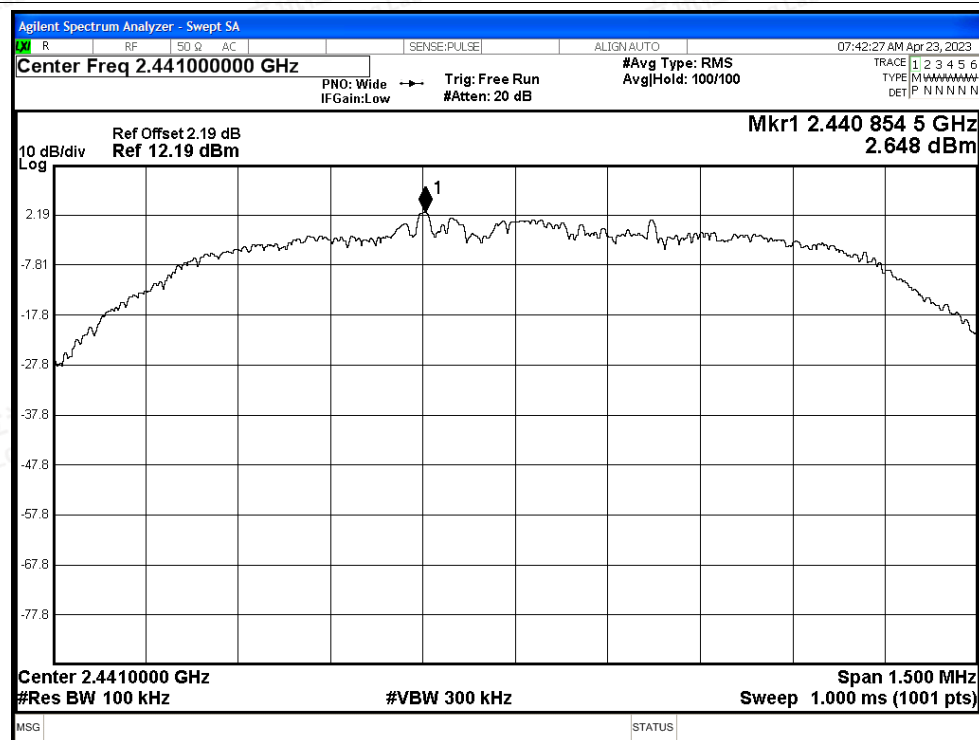


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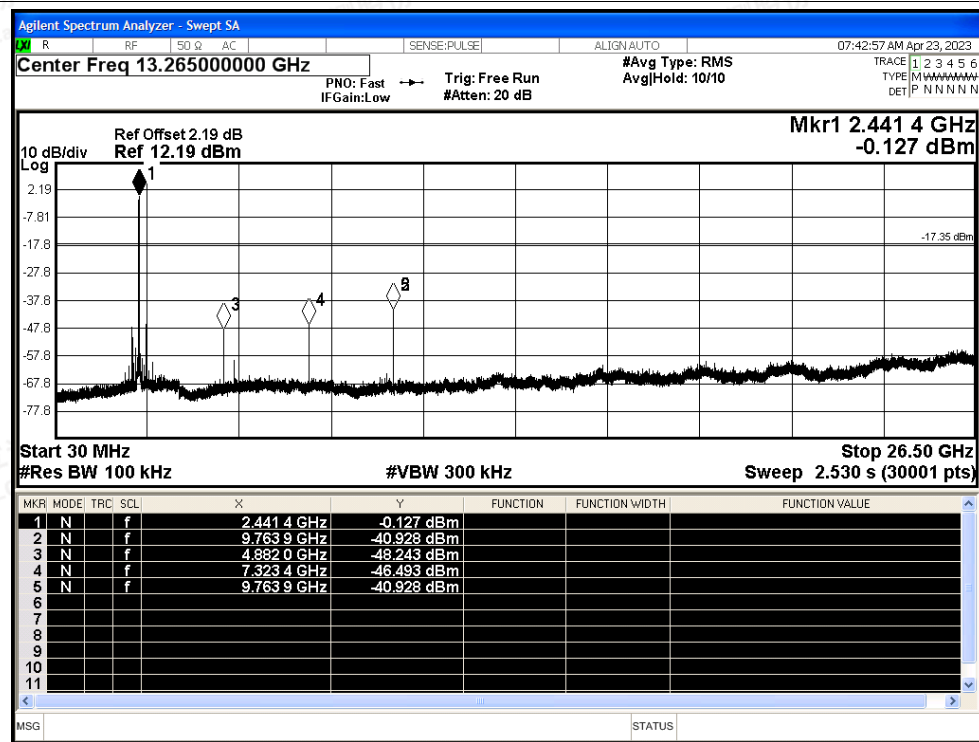




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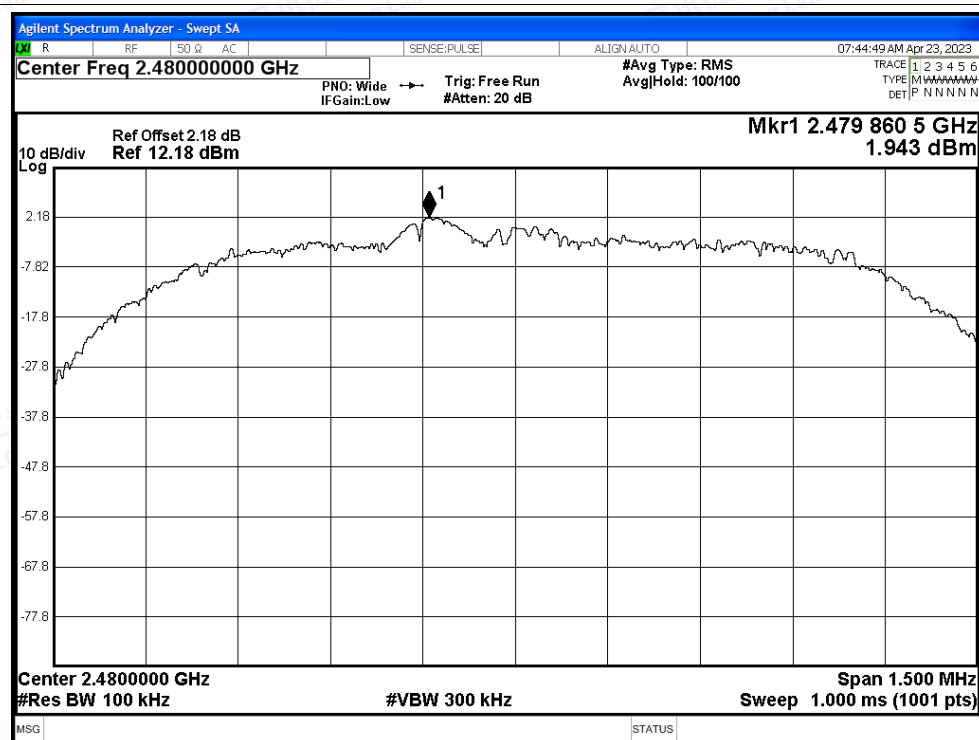


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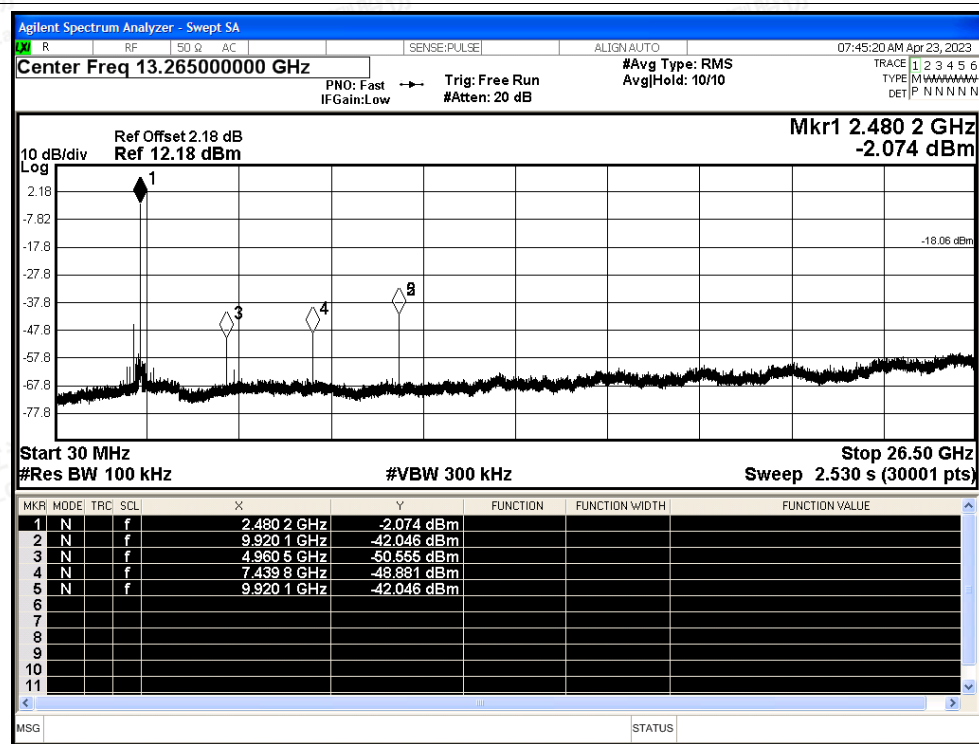




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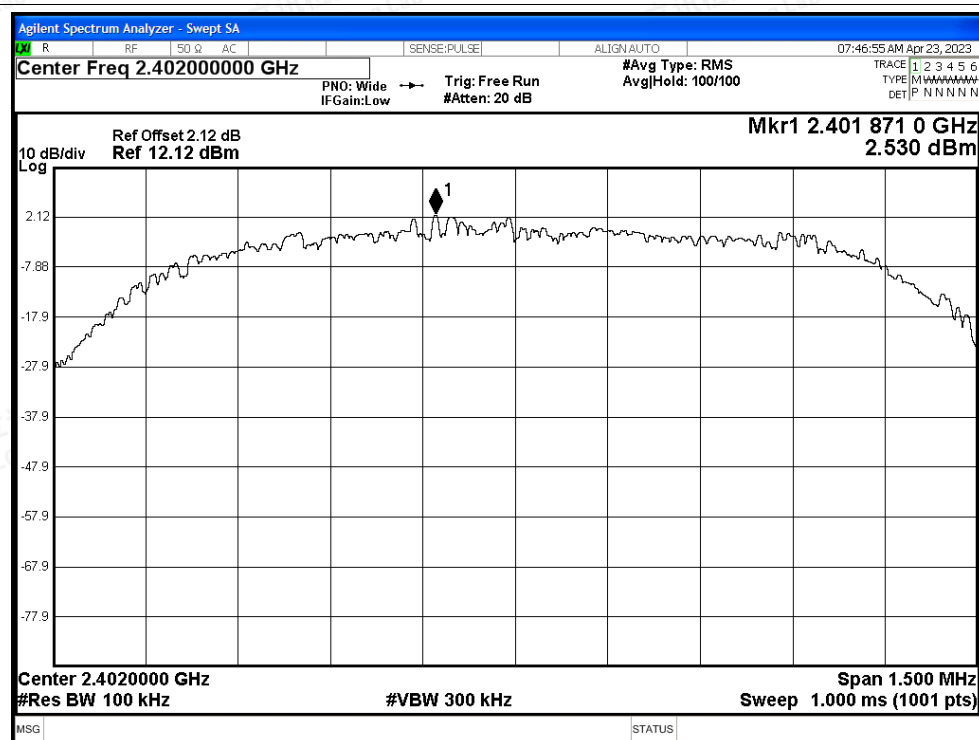


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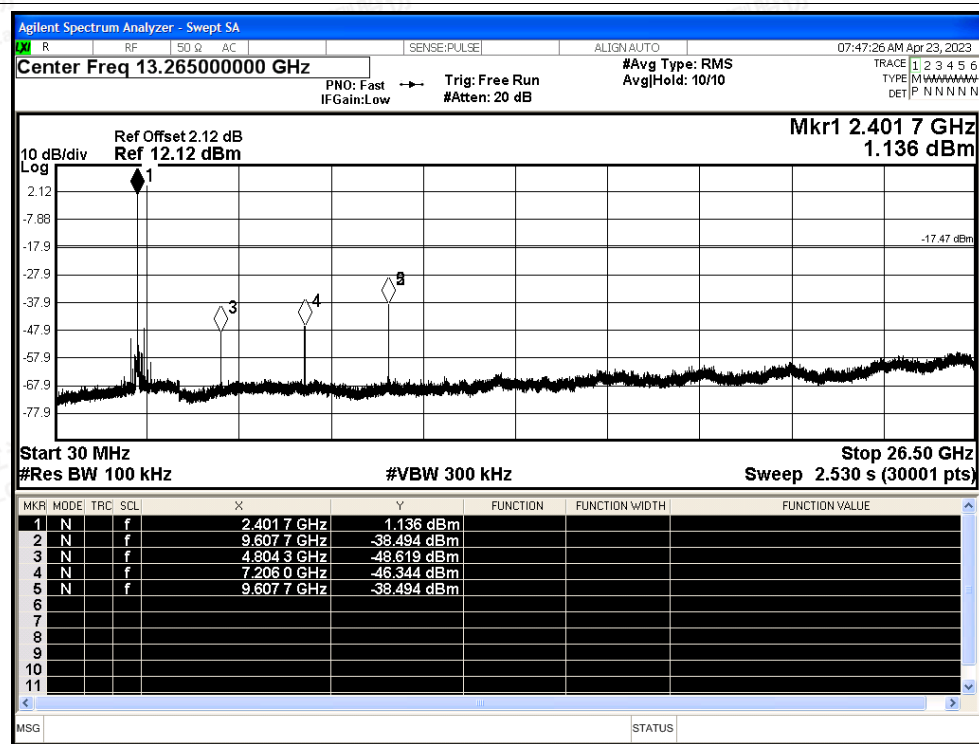




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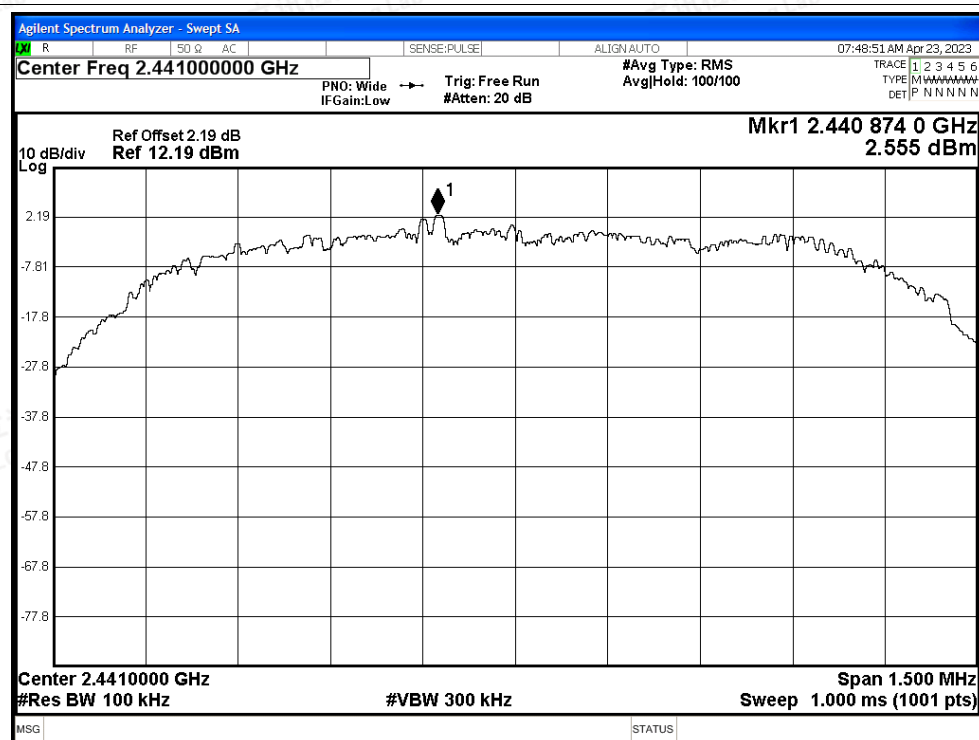


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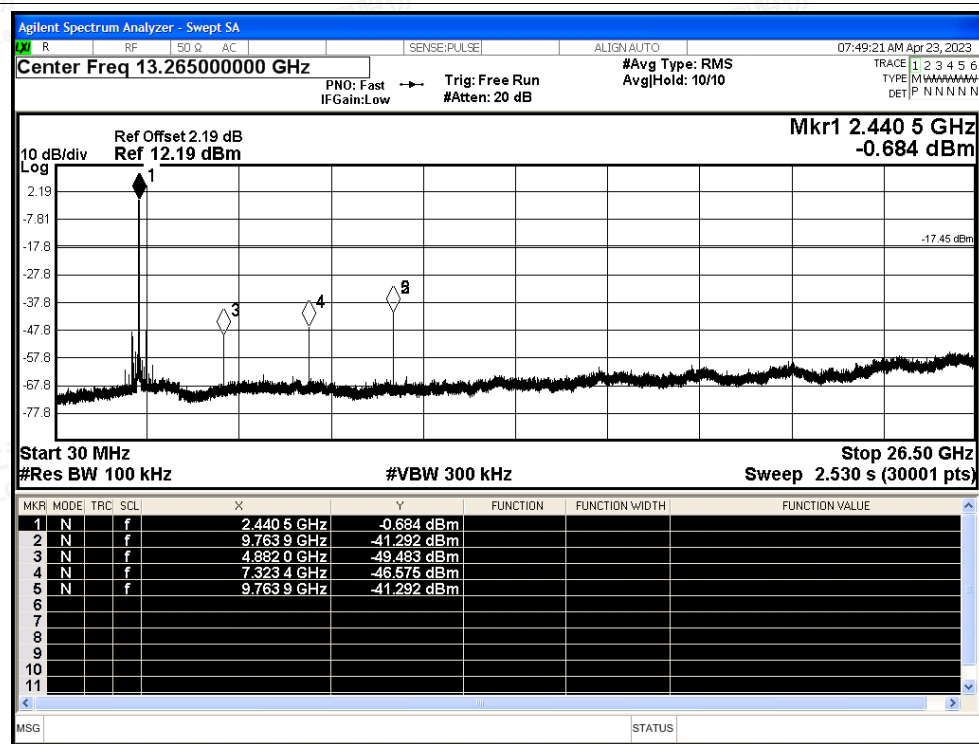


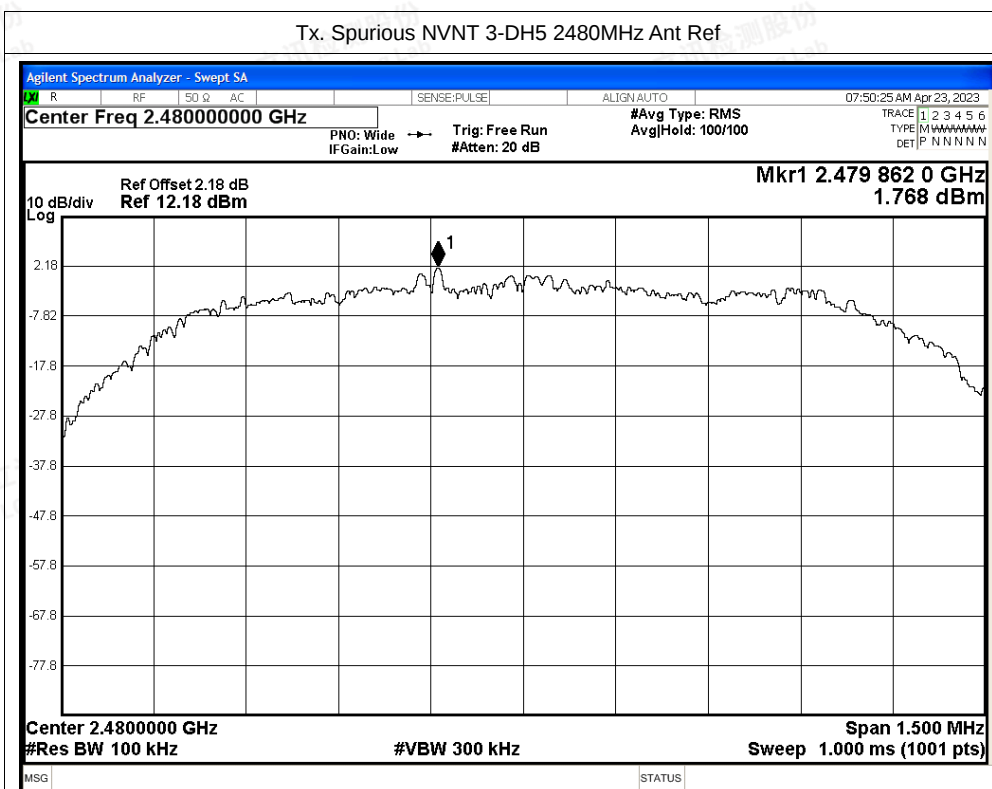


Tx. Spurious NVNT 3-DH5 2441MHz Ant Ref

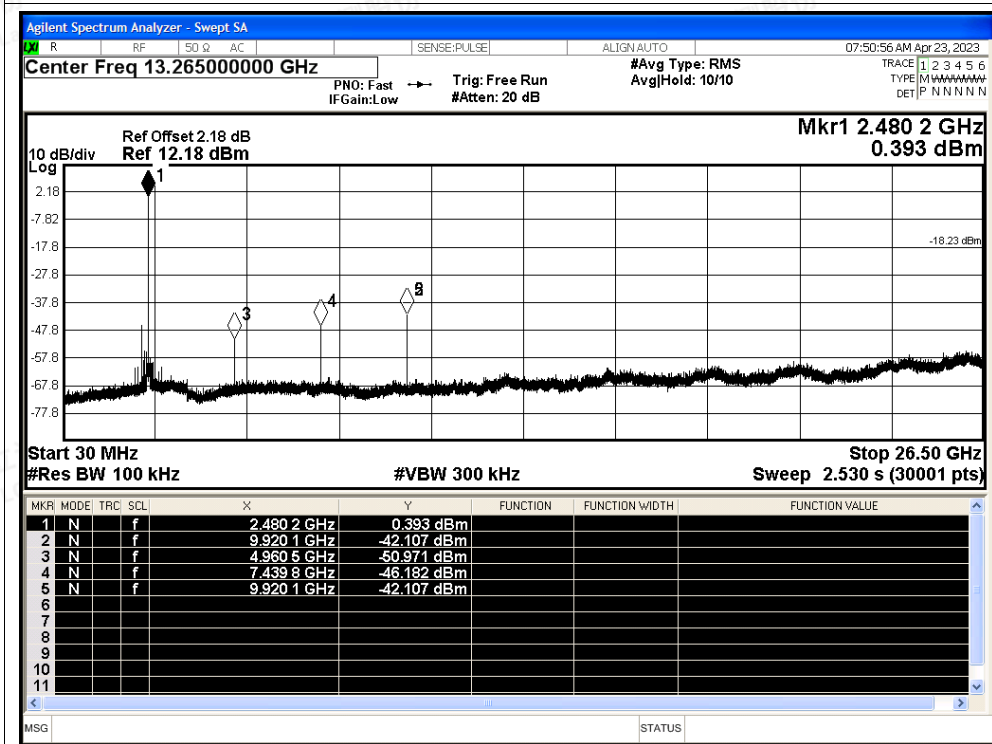


Tx. Spurious NVNT 3-DH5 2441MHz Ant Emission





Tx. Spurious NVNT 3-DH5 2480MHz Ant 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	Ant	No-Hopping	2310	-51.4	2.67	46.50	Peak	74	Pass
NVNT	1-DH5	2402	Ant	No-Hopping	2310	-57.91	2.67	39.99	Average	54	Pass
NVNT	1-DH5	2402	Ant	No-Hopping	2370.384	-45.66	2.67	52.24	Peak	74	Pass
NVNT	1-DH5	2402	Ant	No-Hopping	2353.968	-53.4	2.67	44.50	Average	54	Pass
NVNT	1-DH5	2402	Ant	No-Hopping	2390	-50.3	2.67	47.60	Peak	74	Pass
NVNT	1-DH5	2402	Ant	No-Hopping	2390	-56.28	2.67	41.62	Average	54	Pass
NVNT	1-DH5	2480	Ant	No-Hopping	2483.5	-48.21	2.67	49.69	Peak	74	Pass
NVNT	1-DH5	2480	Ant	No-Hopping	2483.5	-53.94	2.67	43.96	Average	54	Pass
NVNT	1-DH5	2480	Ant	No-Hopping	2484.232	-39.09	2.67	58.81	Peak	74	Pass
NVNT	1-DH5	2480	Ant	No-Hopping	2483.512	-53.94	2.67	43.96	Average	54	Pass
NVNT	1-DH5	2480	Ant	No-Hopping	2500	-49.99	2.67	47.91	Peak	74	Pass
NVNT	1-DH5	2480	Ant	No-Hopping	2500	-55.94	2.67	41.96	Average	54	Pass
NVNT	2-DH5	2402	Ant	No-Hopping	2310	-51.07	2.67	46.83	Peak	74	Pass
NVNT	2-DH5	2402	Ant	No-Hopping	2310	-57.96	2.67	39.94	Average	54	Pass
NVNT	2-DH5	2402	Ant	No-Hopping	2370.096	-45.61	2.67	52.29	Peak	74	Pass
NVNT	2-DH5	2402	Ant	No-Hopping	2354.064	-54.27	2.67	43.63	Average	54	Pass
NVNT	2-DH5	2402	Ant	No-Hopping	2390	-49.68	2.67	48.22	Peak	74	Pass
NVNT	2-DH5	2402	Ant	No-Hopping	2390	-56.31	2.67	41.59	Average	54	Pass
NVNT	2-DH5	2480	Ant	No-Hopping	2483.5	-49.11	2.67	48.79	Peak	74	Pass
NVNT	2-DH5	2480	Ant	No-Hopping	2483.5	-53.51	2.67	44.39	Average	54	Pass
NVNT	2-DH5	2480	Ant	No-Hopping	2483.776	-40.89	2.67	57.01	Peak	74	Pass
NVNT	2-DH5	2480	Ant	No-Hopping	2483.512	-53.51	2.67	44.39	Average	54	Pass
NVNT	2-DH5	2480	Ant	No-Hopping	2500	-48.34	2.67	49.56	Peak	74	Pass
NVNT	2-DH5	2480	Ant	No-Hopping	2500	-55.87	2.67	42.03	Average	54	Pass
NVNT	3-DH5	2402	Ant	No-Hopping	2310	-51.13	2.67	46.77	Peak	74	Pass
NVNT	3-DH5	2402	Ant	No-Hopping	2310	-57.99	2.67	39.91	Average	54	Pass
NVNT	3-DH5	2402	Ant	No-Hopping	2378.064	-44.88	2.67	53.02	Peak	74	Pass
NVNT	3-DH5	2402	Ant	No-Hopping	2353.968	-54.13	2.67	43.77	Average	54	Pass
NVNT	3-DH5	2402	Ant	No-Hopping	2390	-50.25	2.67	47.65	Peak	74	Pass
NVNT	3-DH5	2402	Ant	No-Hopping	2390	-56.26	2.67	41.64	Average	54	Pass
NVNT	3-DH5	2480	Ant	No-Hopping	2483.5	-47.73	2.67	50.17	Peak	74	Pass
NVNT	3-DH5	2480	Ant	No-Hopping	2483.5	-53.16	2.67	44.74	Average	54	Pass
NVNT	3-DH5	2480	Ant	No-Hopping	2496.16	-45.48	2.67	52.42	Peak	74	Pass
NVNT	3-DH5	2480	Ant	No-Hopping	2483.512	-53.16	2.67	44.74	Average	54	Pass
NVNT	3-DH5	2480	Ant	No-Hopping	2500	-49.6	2.67	48.30	Peak	74	Pass
NVNT	3-DH5	2480	Ant	No-Hopping	2500	-56.01	2.67	41.89	Average	54	Pass

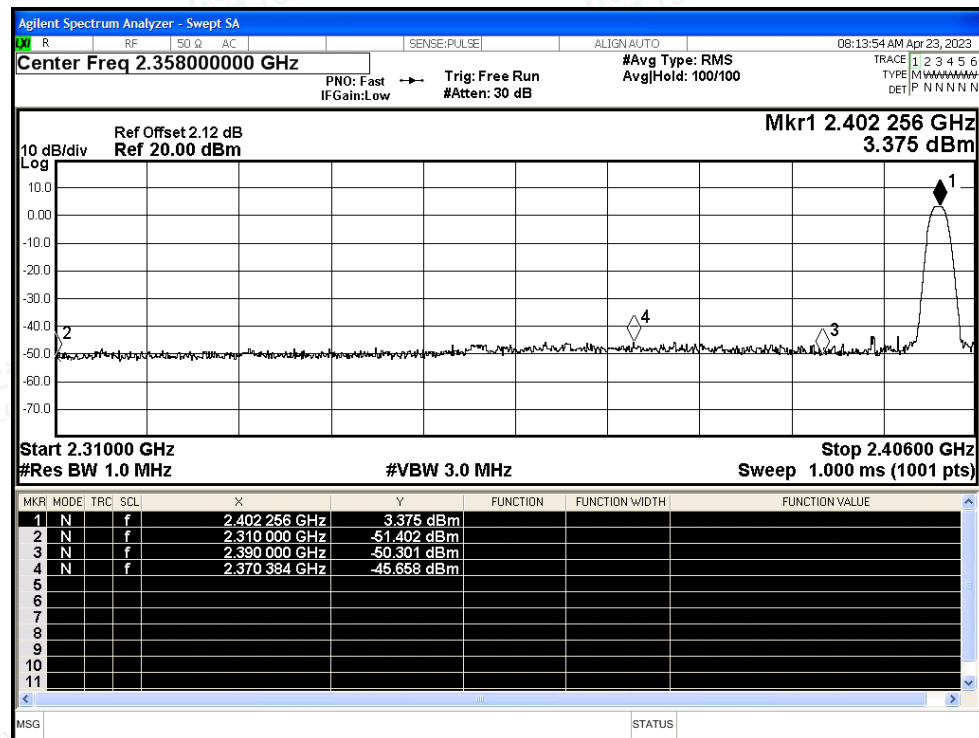


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Scan code to check authenticity

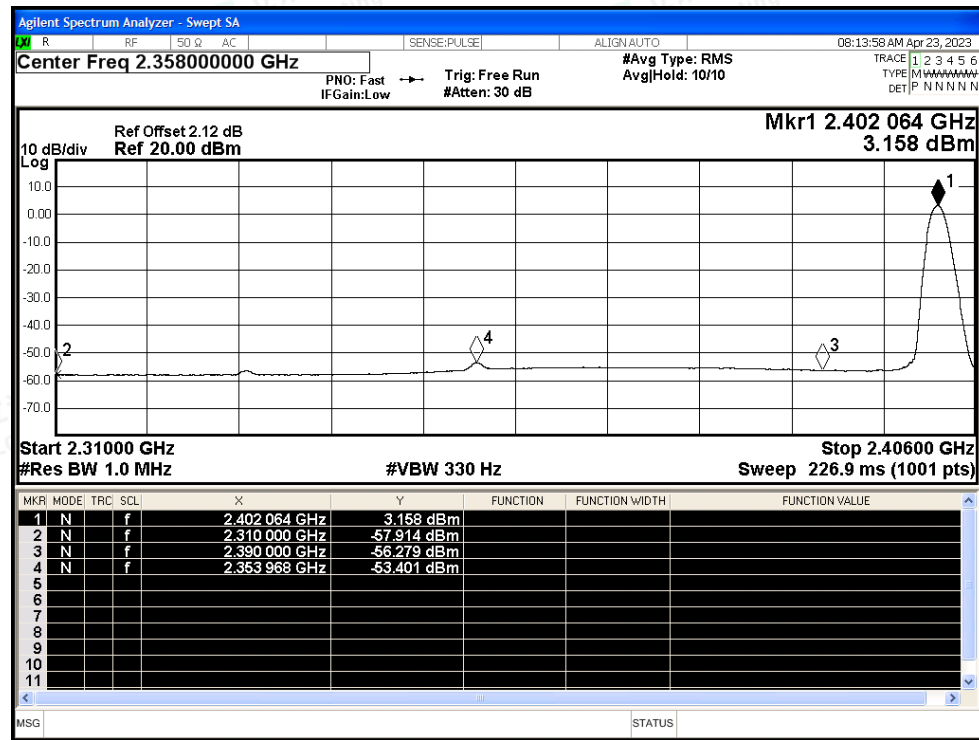


Test Graphs

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

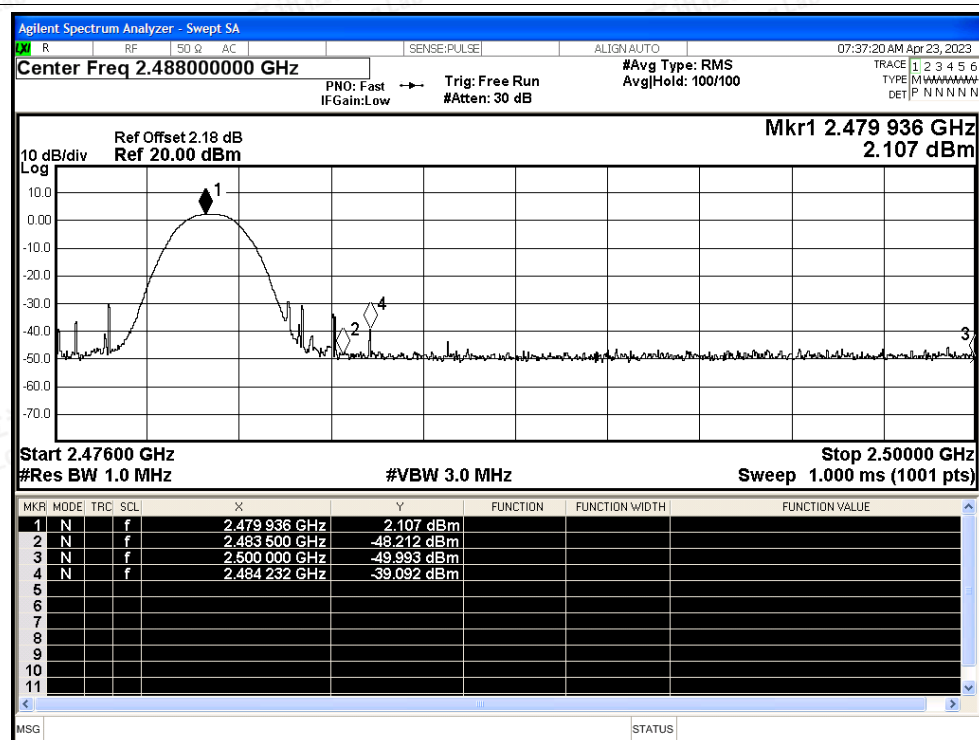


Restrict Band NVNT 1-DH5 2402MHz Ant No-Hopping Average

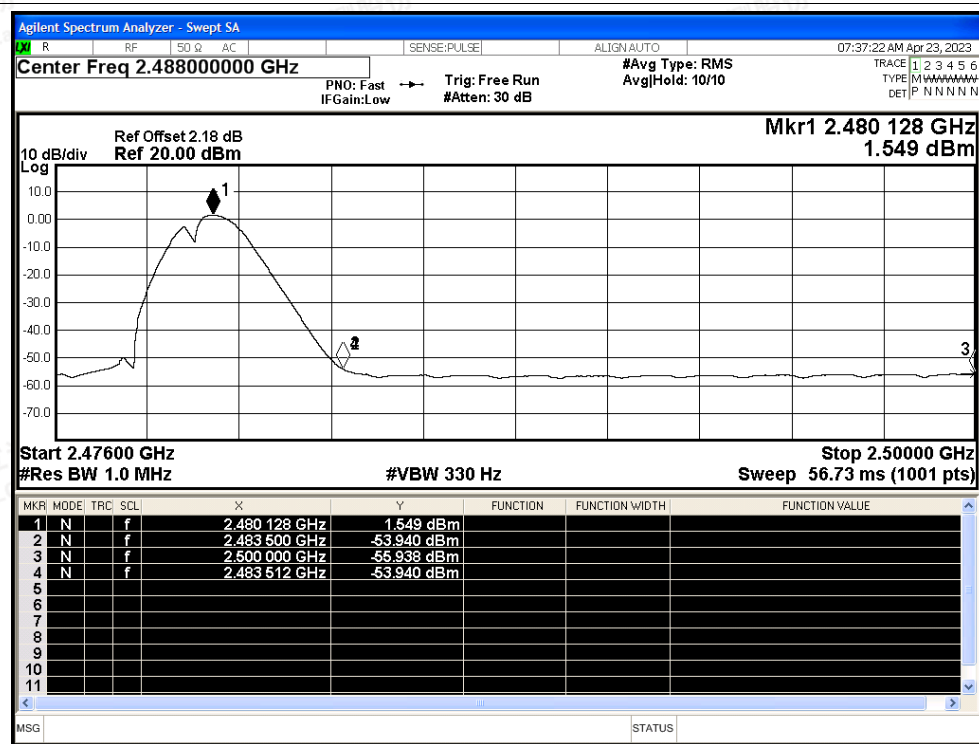




Restrict Band NVNT 1-DH5 2480MHz Ant No-Hopping Peak

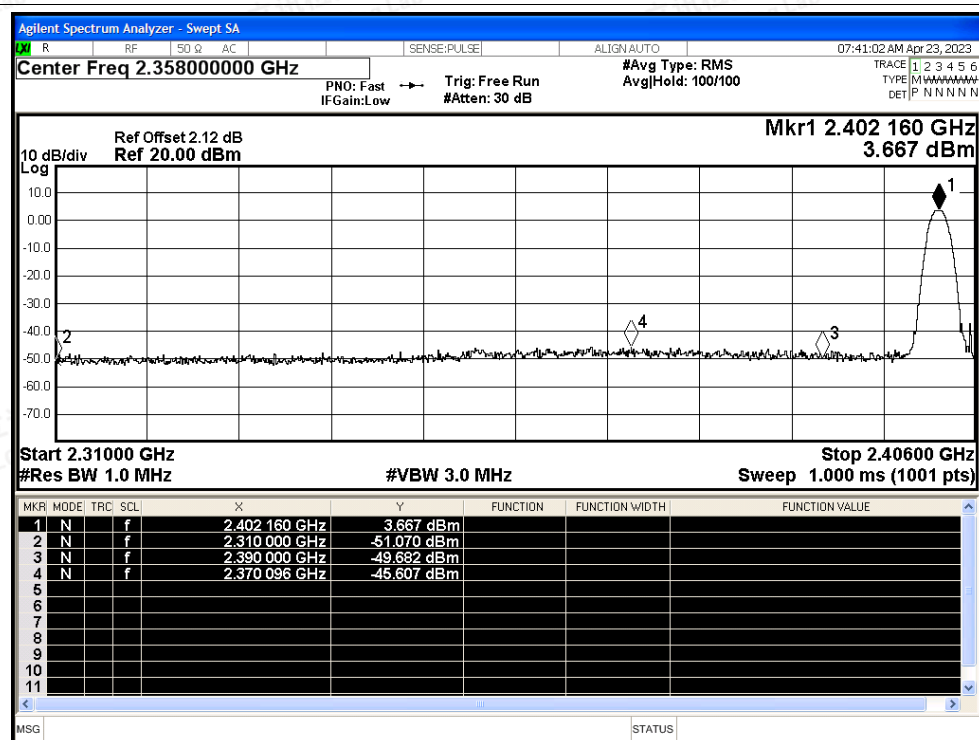


Restrict Band NVNT 1-DH5 2480MHz Ant No-Hopping Average

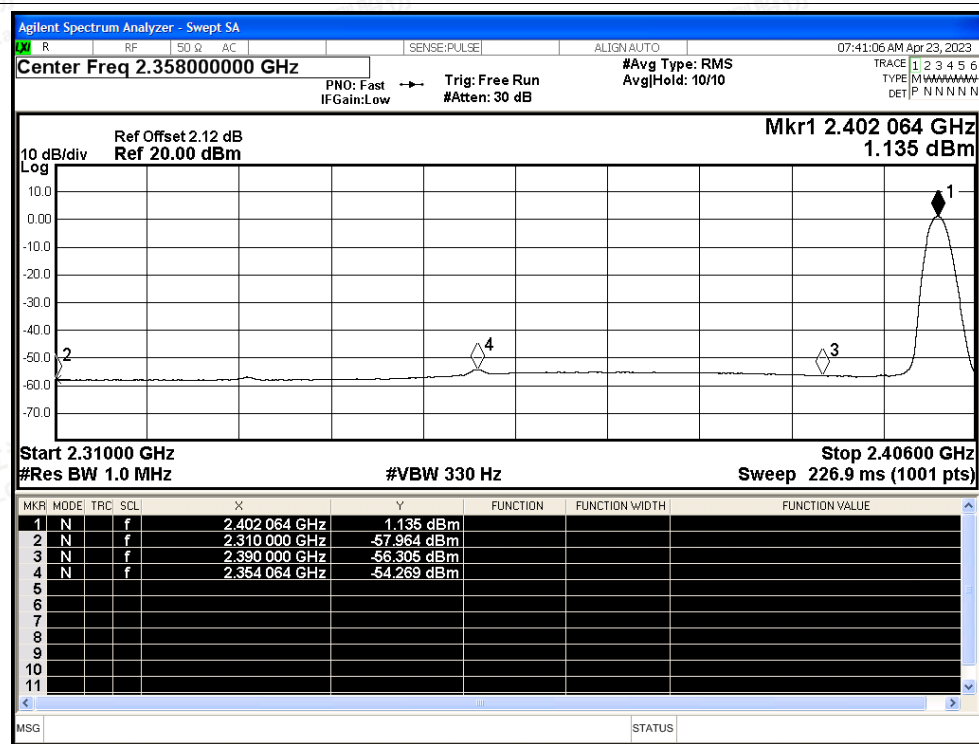




Restrict Band NVNT 2-DH5 2402MHz Ant No-Hopping Peak

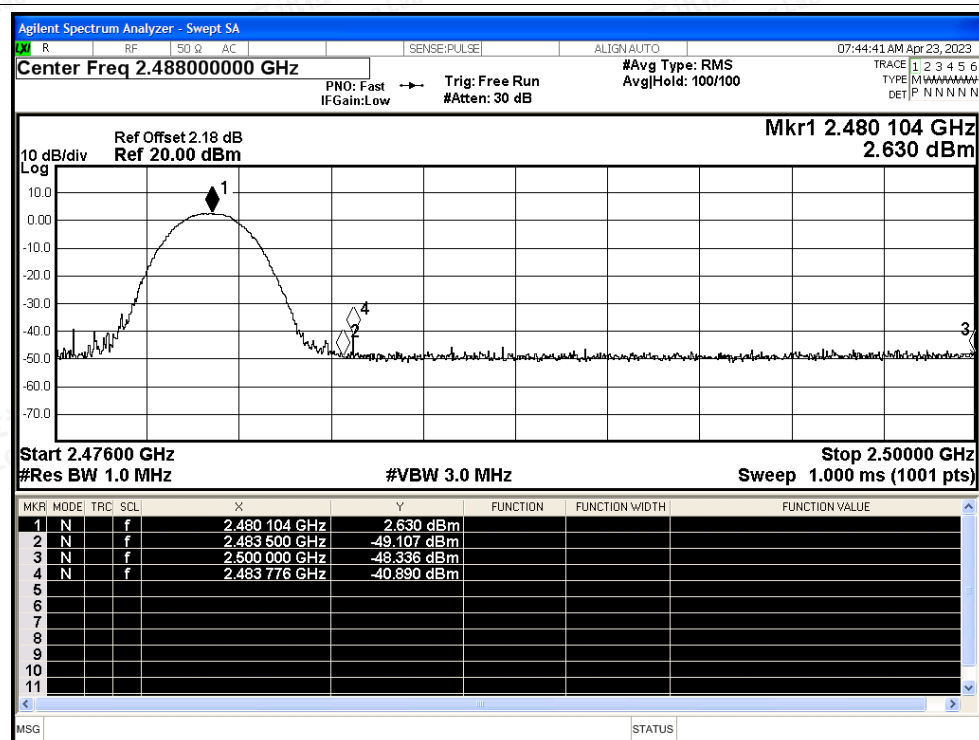


Restrict Band NVNT 2-DH5 2402MHz Ant No-Hopping Average

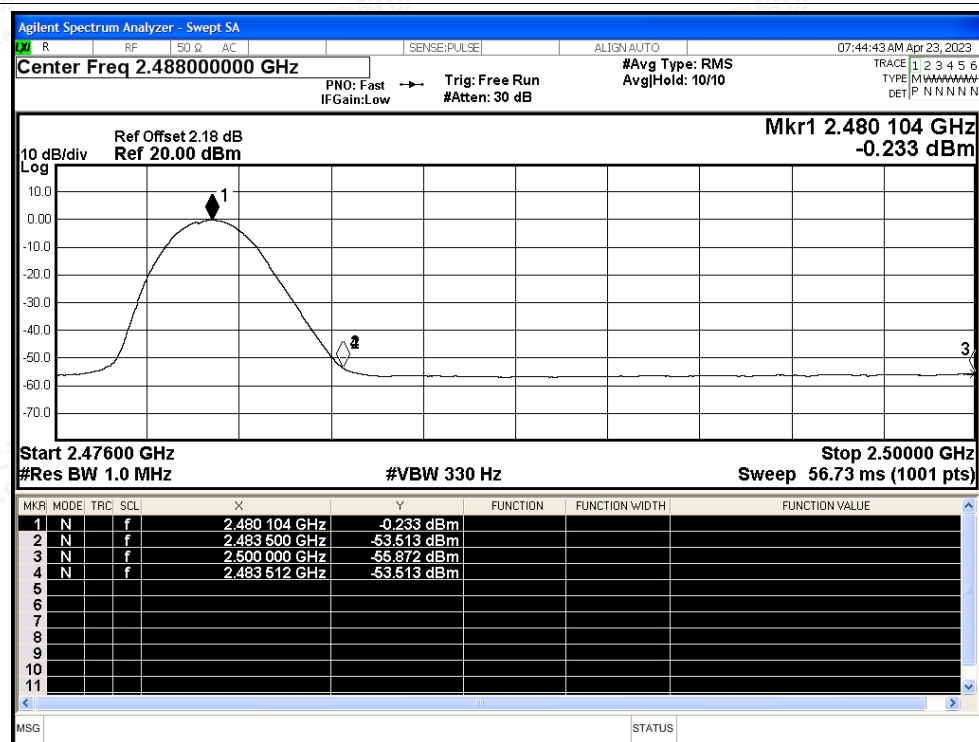




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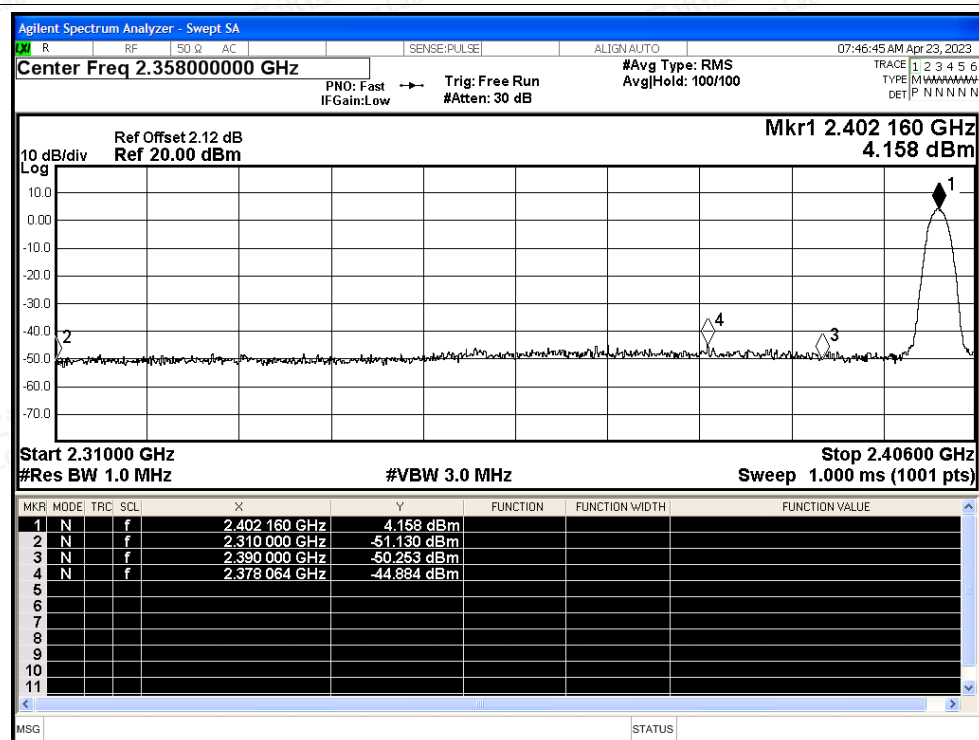


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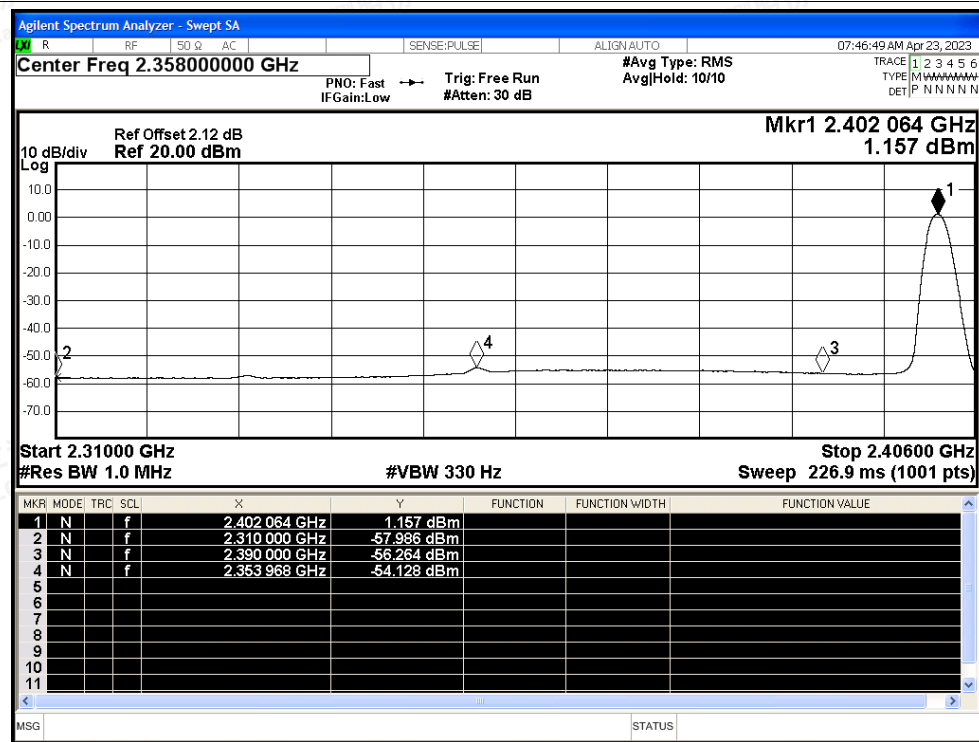




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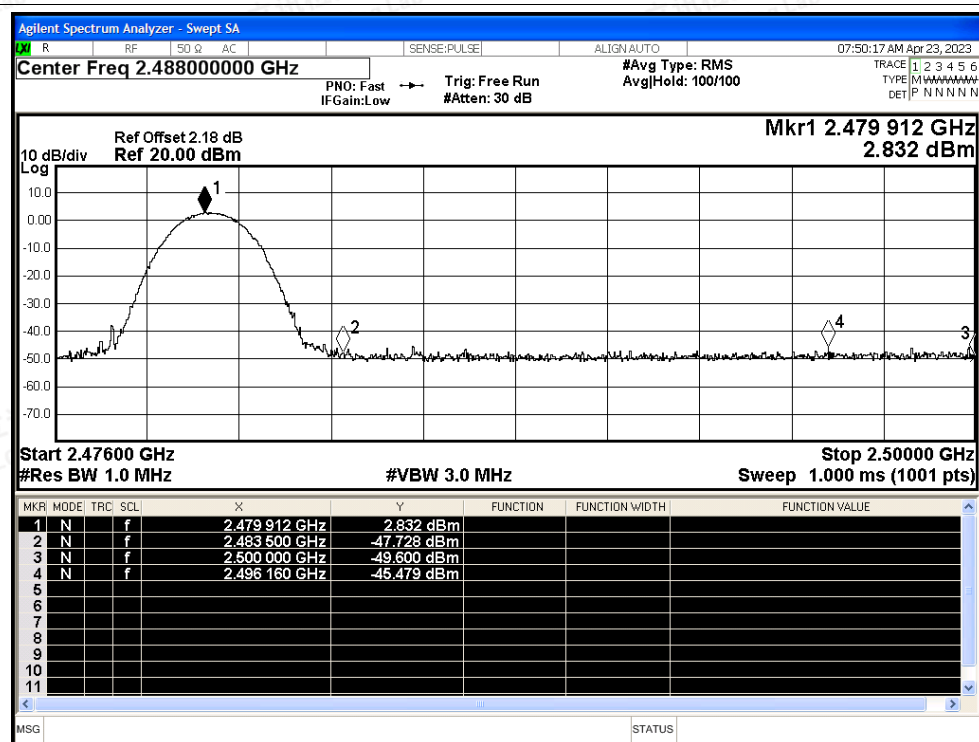


Restrict Band NVNT 3-DH5 2402MHz Ant No-Hopping Average





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



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

