



Appendix A

RF Test Data for BT (Conducted Measurement)

Product Name: TWS Bluetooth Headset

Test Model: Z31S

Environmental Conditions

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





A.1 -20dB Bandwidth

Condition	Mode	Frequency (MHz)	Antenna	-20 dB Bandwidth (MHz)	Limit -20 dB Bandwidth (MHz)	Verdict
NVNT	1-DH5	2402	Ant1	0.939	0	Pass
NVNT	1-DH5	2441	Ant1	0.944	0	Pass
NVNT	1-DH5	2480	Ant1	0.95	0	Pass
NVNT	2-DH5	2402	Ant1	1.316	0	Pass
NVNT	2-DH5	2441	Ant1	1.262	0	Pass
NVNT	2-DH5	2480	Ant1	1.269	0	Pass
NVNT	3-DH5	2402	Ant1	1.269	0	Pass
NVNT	3-DH5	2441	Ant1	1.263	0	Pass
NVNT	3-DH5	2480	Ant1	1.291	0	Pass

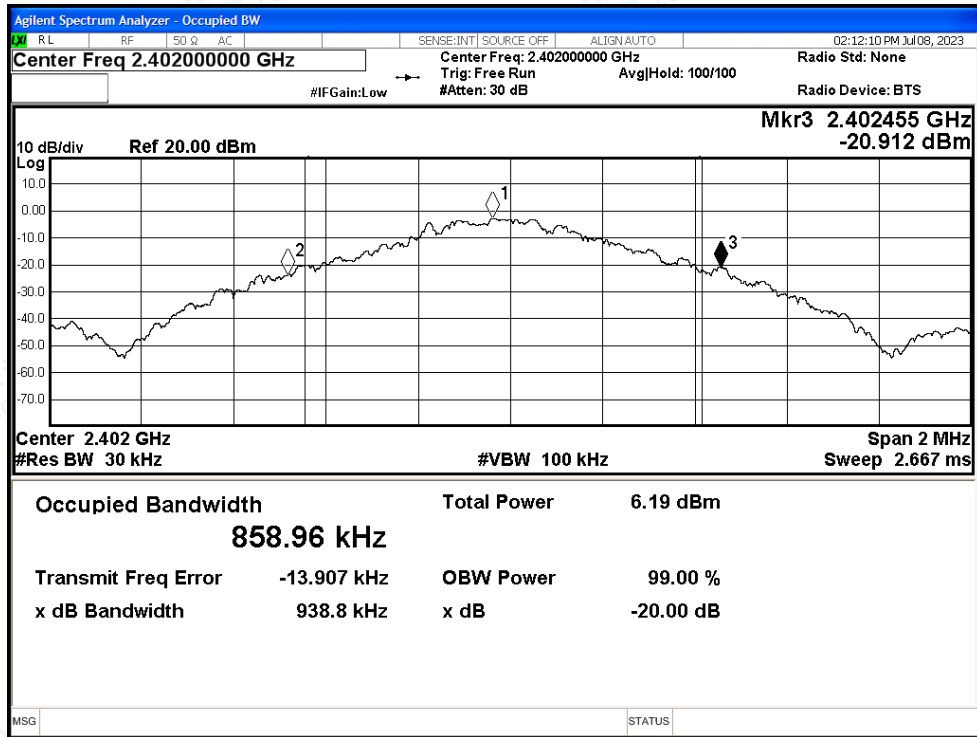


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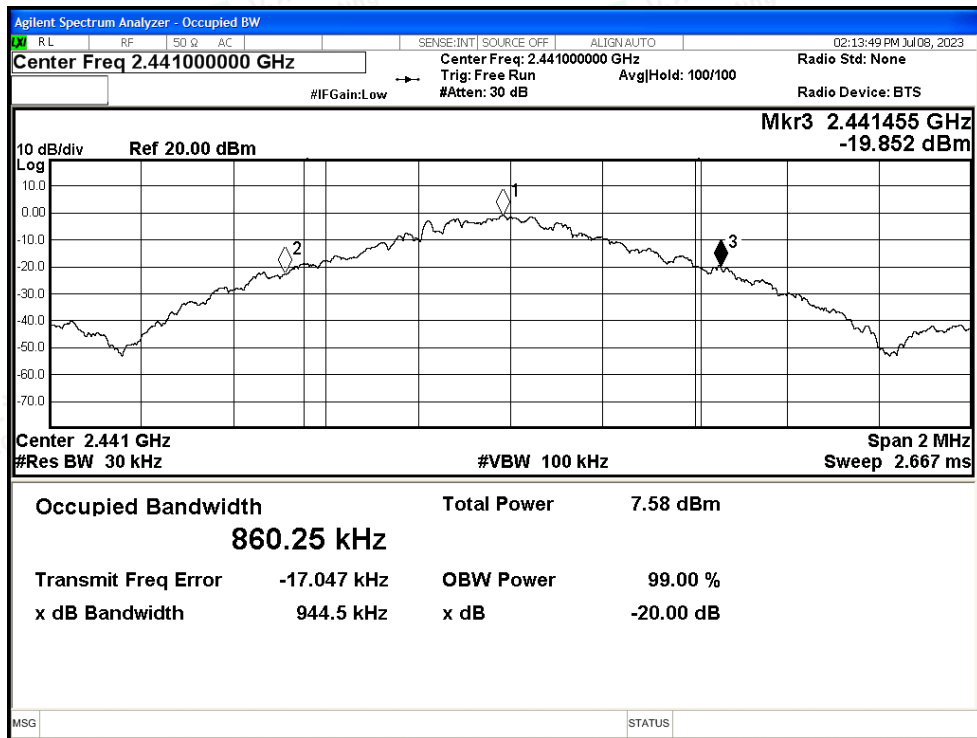


Test Graphs

-20dB Bandwidth NVNT 1-DH5 2402MHz Ant1

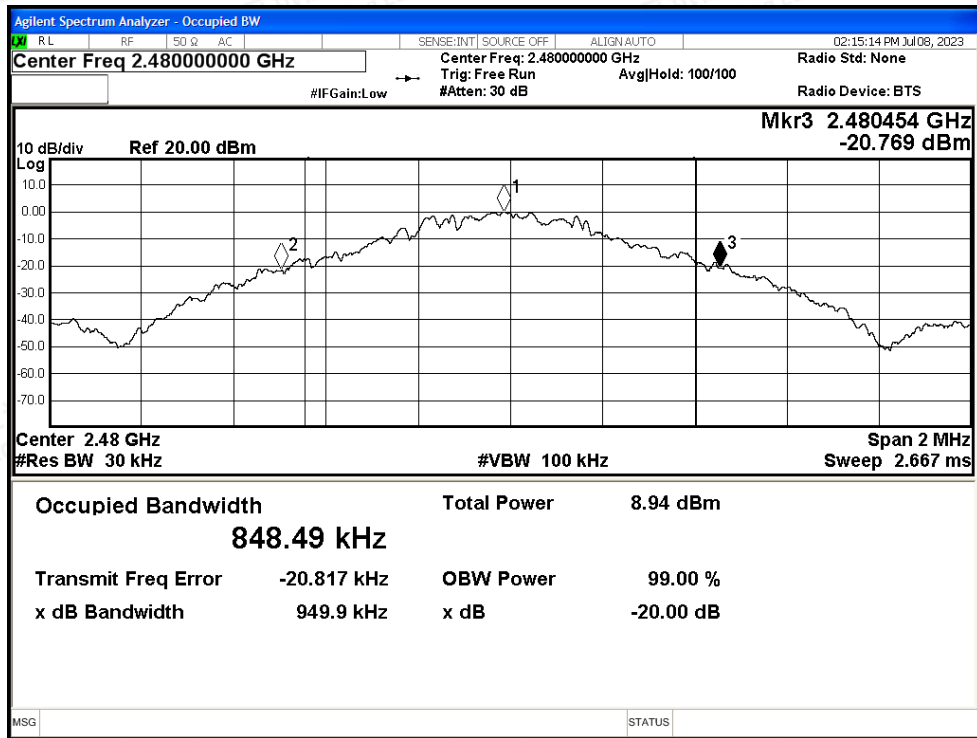


-20dB Bandwidth NVNT 1-DH5 2441MHz Ant1

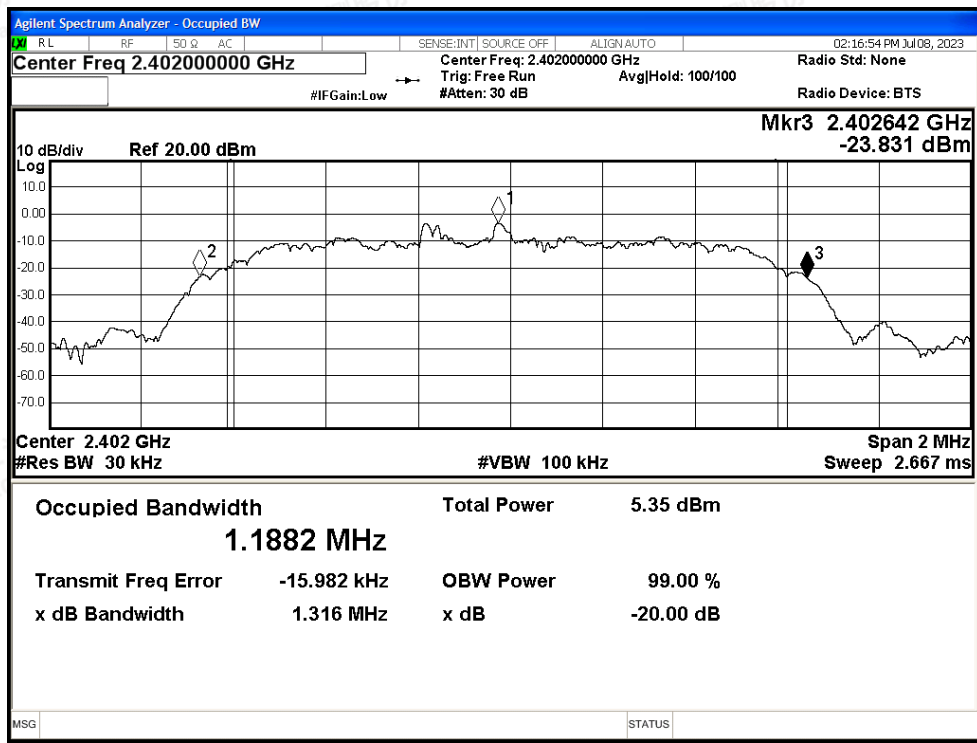




-20dB Bandwidth NVNT 1-DH5 2480MHz Ant1

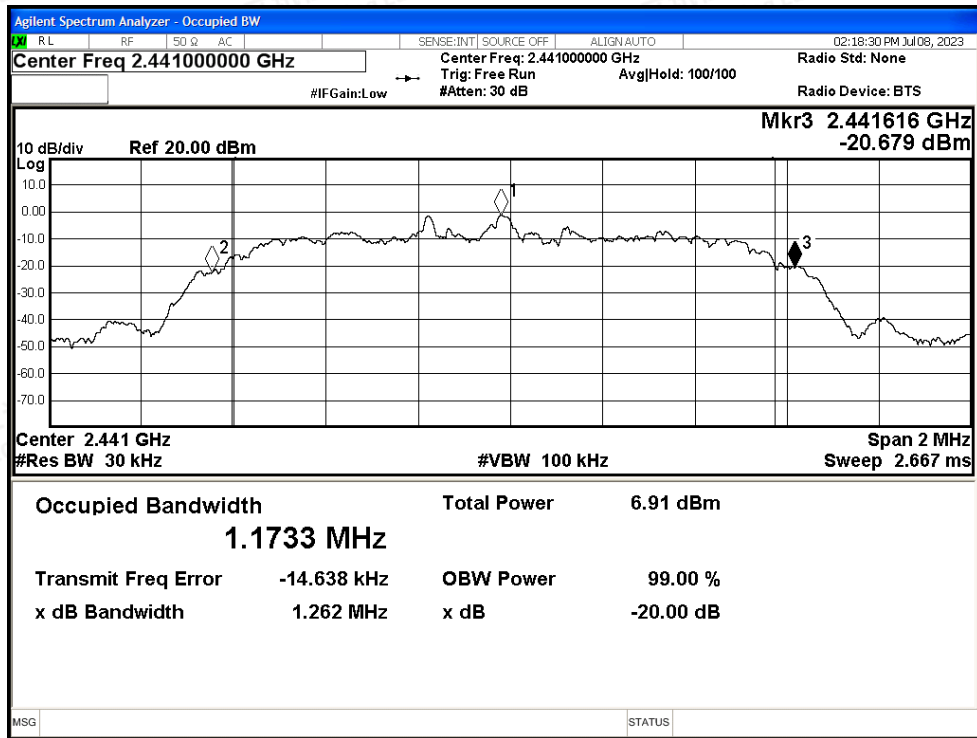


-20dB Bandwidth NVNT 2-DH5 2402MHz Ant1

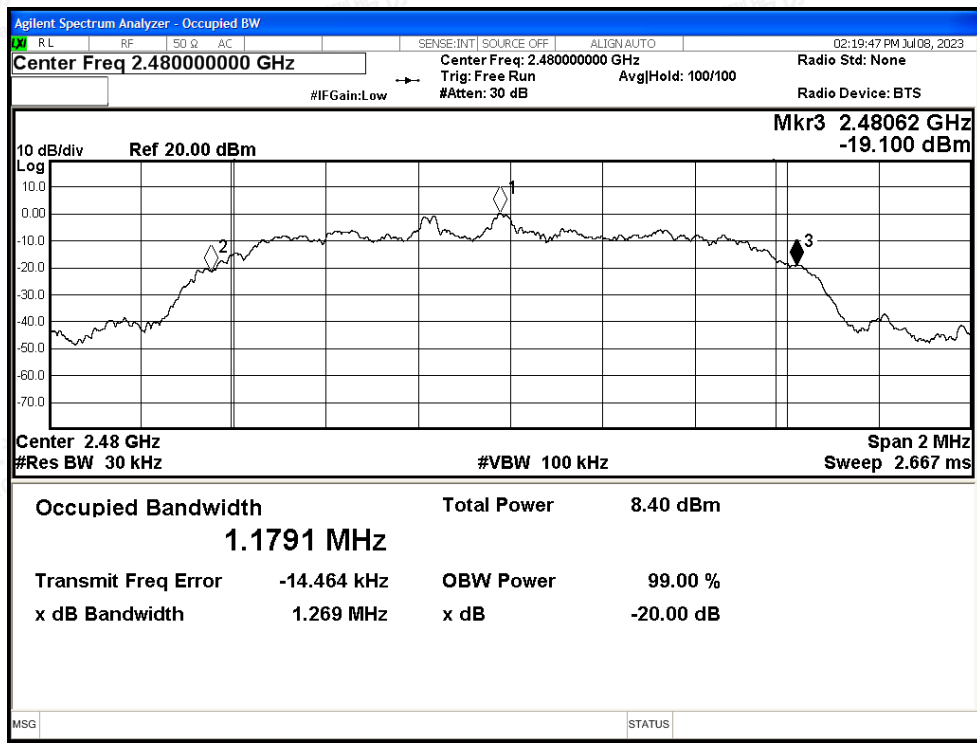




-20dB Bandwidth NVNT 2-DH5 2441MHz Ant1

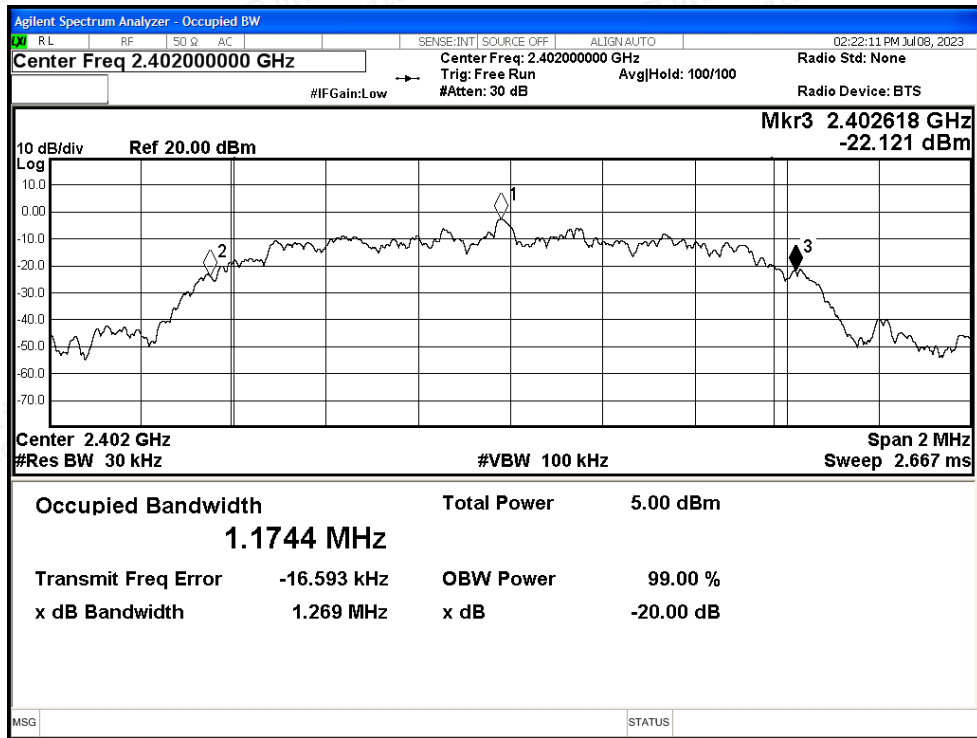


-20dB Bandwidth NVNT 2-DH5 2480MHz Ant1

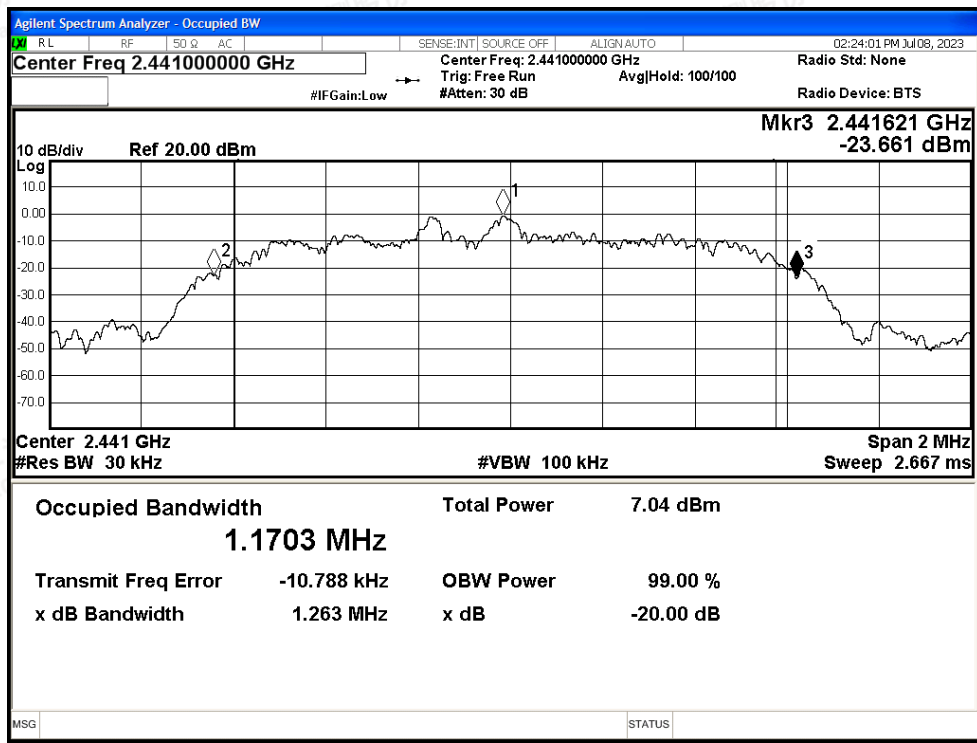




-20dB Bandwidth NVNT 3-DH5 2402MHz Ant1

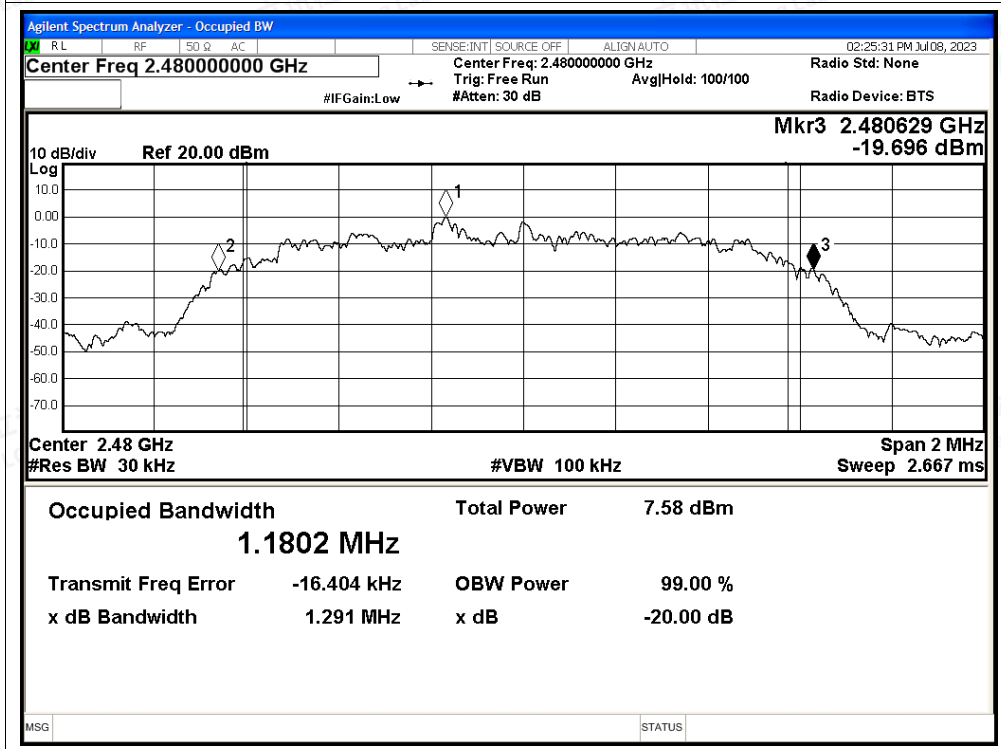


-20dB Bandwidth NVNT 3-DH5 2441MHz Ant1





-20dB Bandwidth NVNT 3-DH5 2480MHz Ant1





A.2 Maximum Conducted Output Power

Condition	Mode	Frequency (MHz)	Antenna	Conducted Power (dBm)	Limit (dBm)	Verdict
NVNT	1-DH5	2402	Ant1	-0.09	21	Pass
NVNT	1-DH5	2441	Ant1	1.26	21	Pass
NVNT	1-DH5	2480	Ant1	2.50	21	Pass
NVNT	2-DH5	2402	Ant1	0.79	21	Pass
NVNT	2-DH5	2441	Ant1	2.17	21	Pass
NVNT	2-DH5	2480	Ant1	0.94	21	Pass
NVNT	3-DH5	2402	Ant1	0.81	21	Pass
NVNT	3-DH5	2441	Ant1	2.27	21	Pass
NVNT	3-DH5	2480	Ant1	1.01	21	Pass

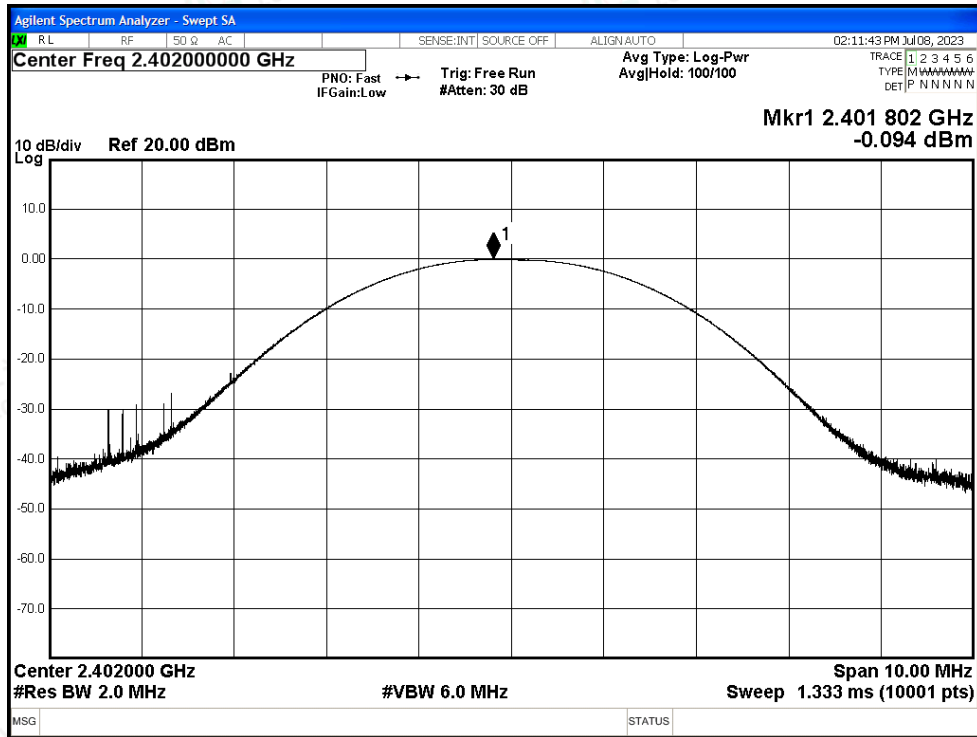


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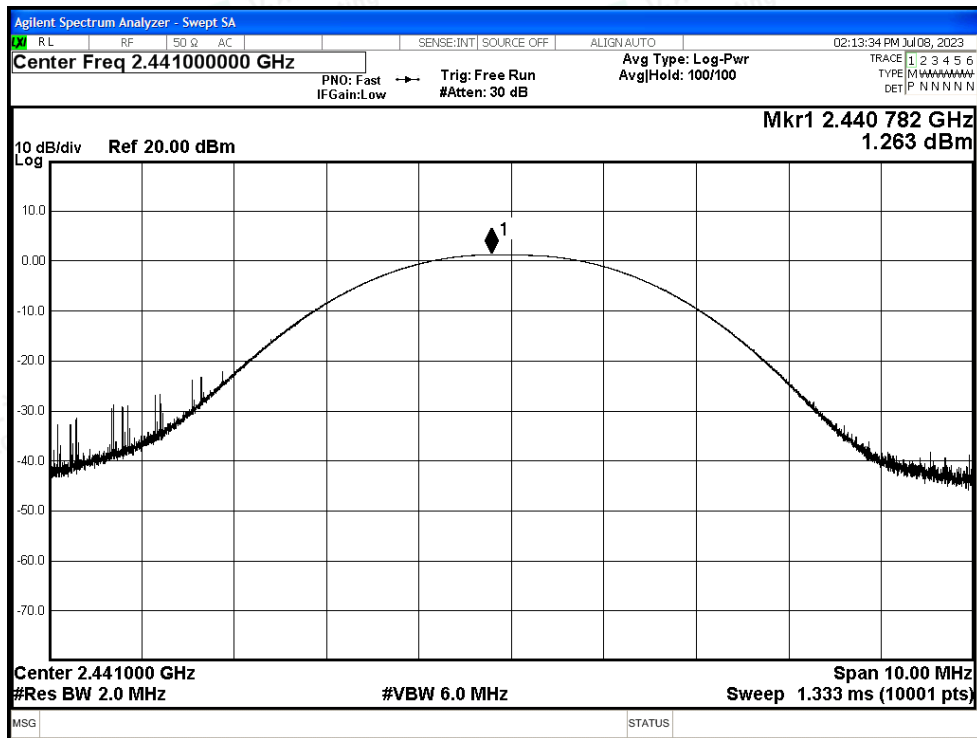


Test Graphs

Power NVNT 1-DH5 2402MHz Ant1

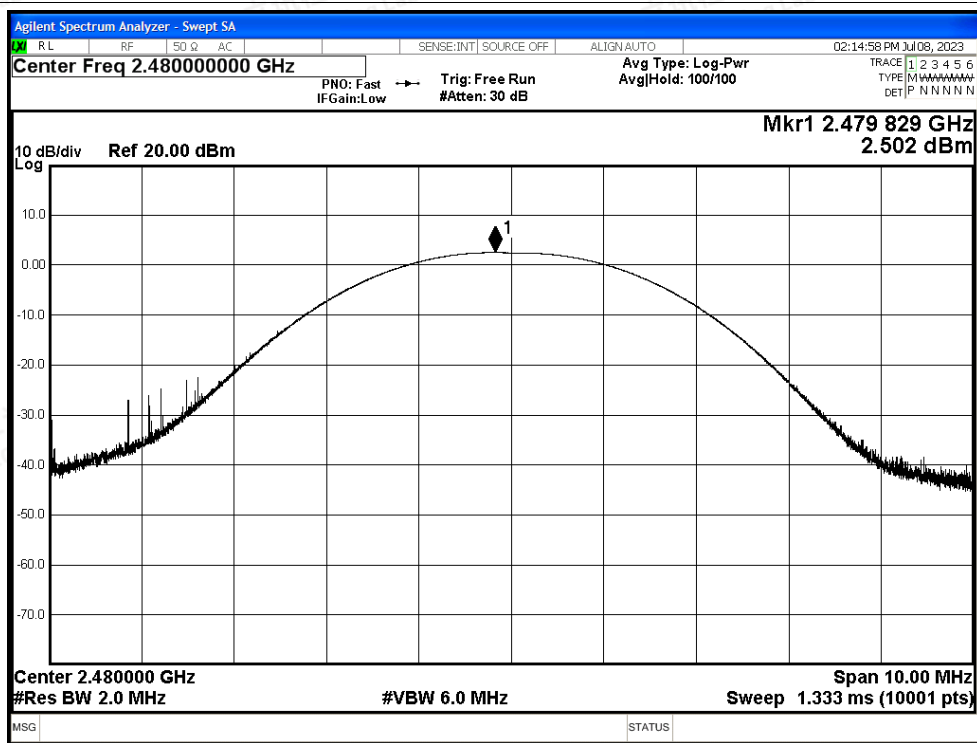


Power NVNT 1-DH5 2441MHz Ant1

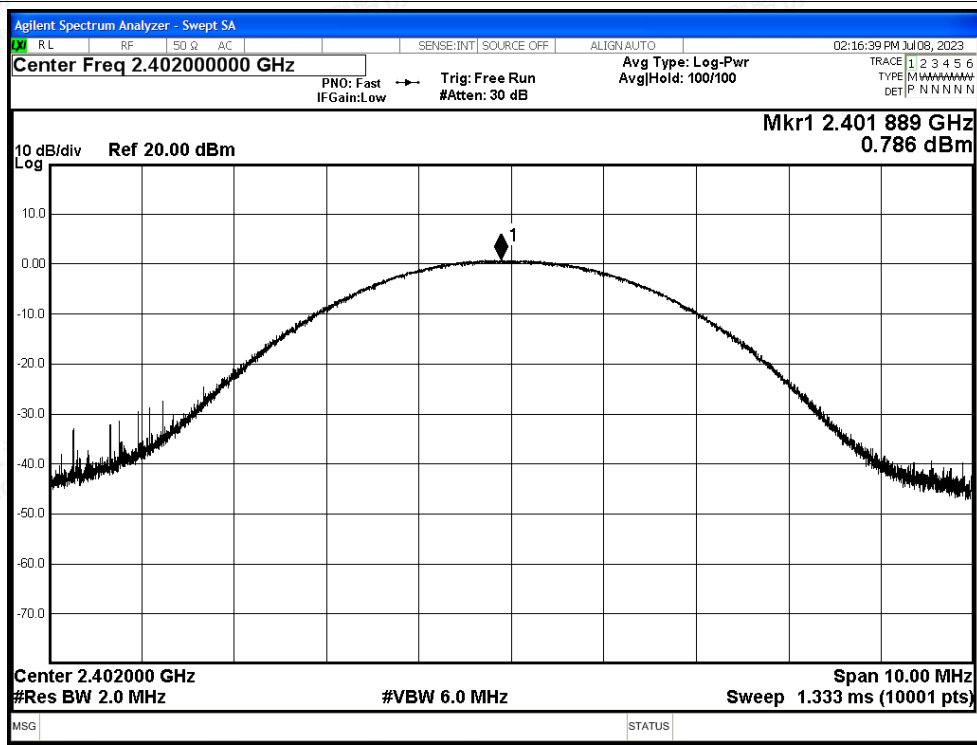




Power NVNT 1-DH5 2480MHz Ant1

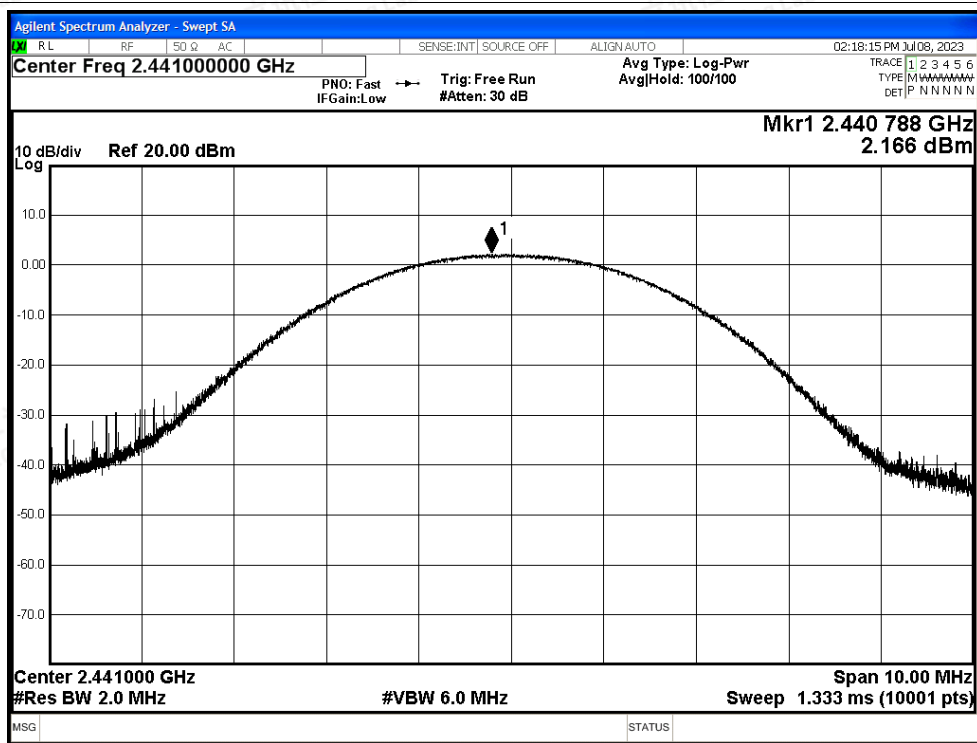


Power NVNT 2-DH5 2402MHz Ant1

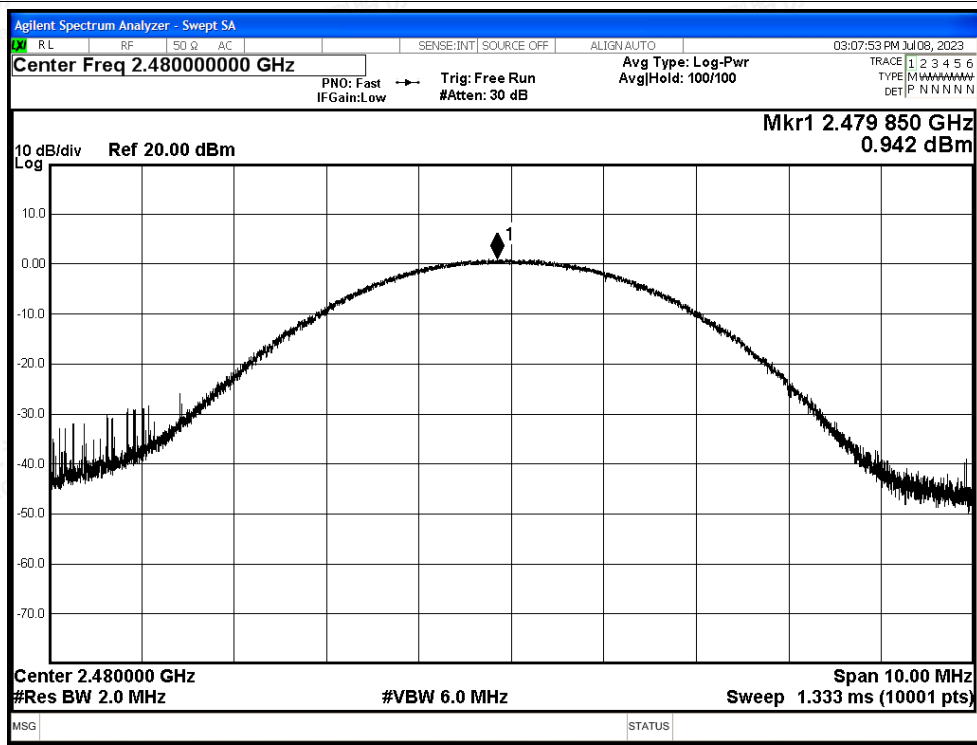




Power NVNT 2-DH5 2441MHz Ant1

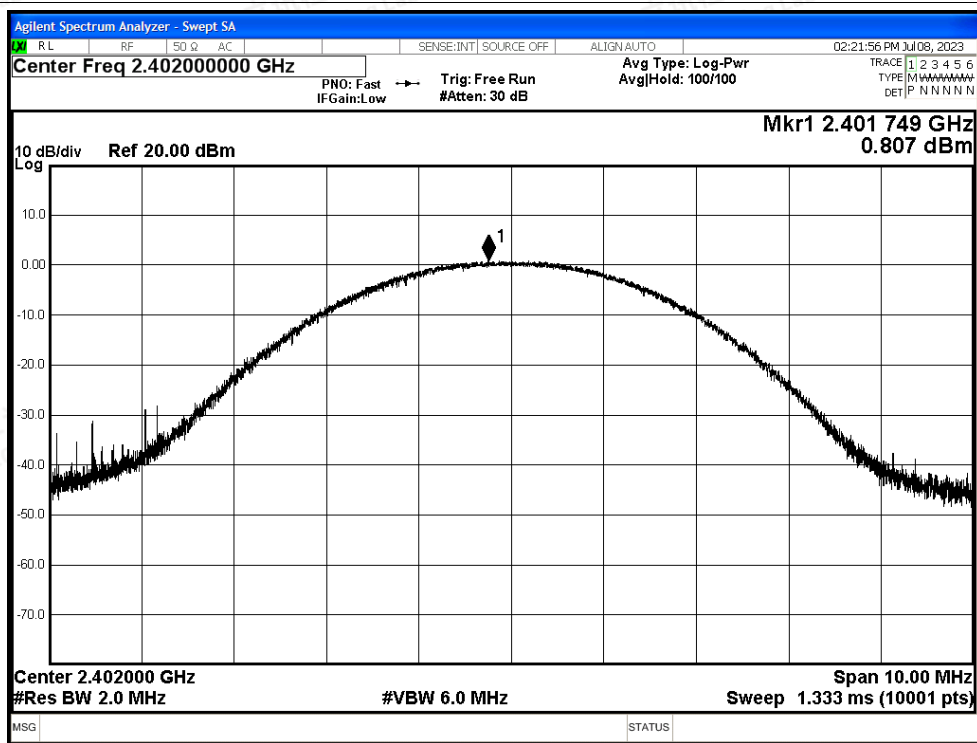


Power NVNT 2-DH5 2480MHz Ant1

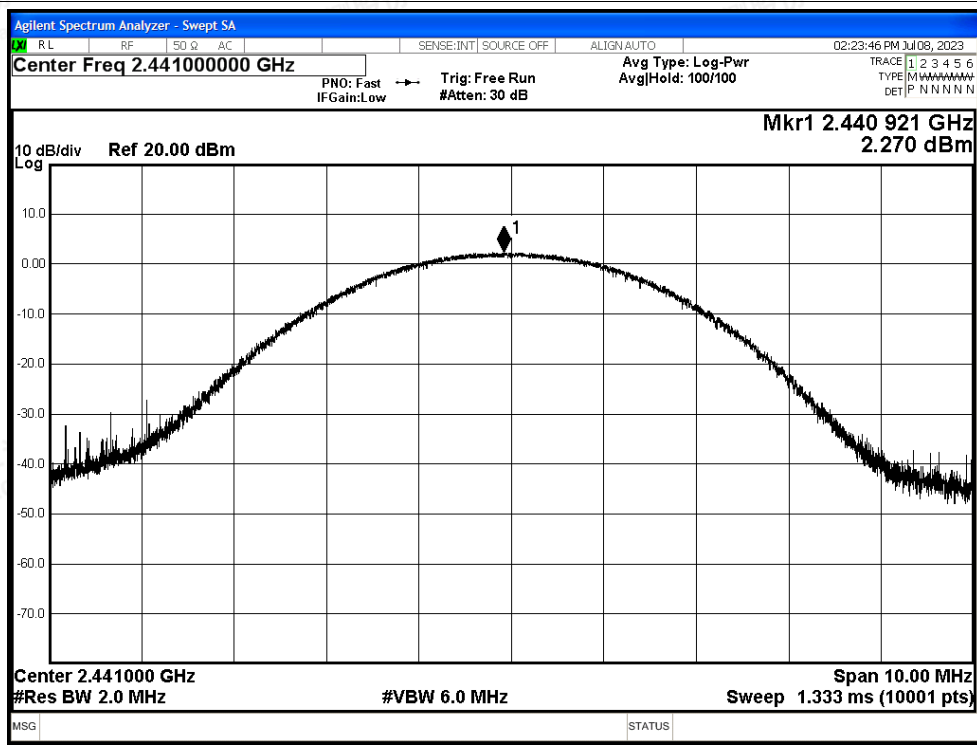




Power NVNT 3-DH5 2402MHz Ant1

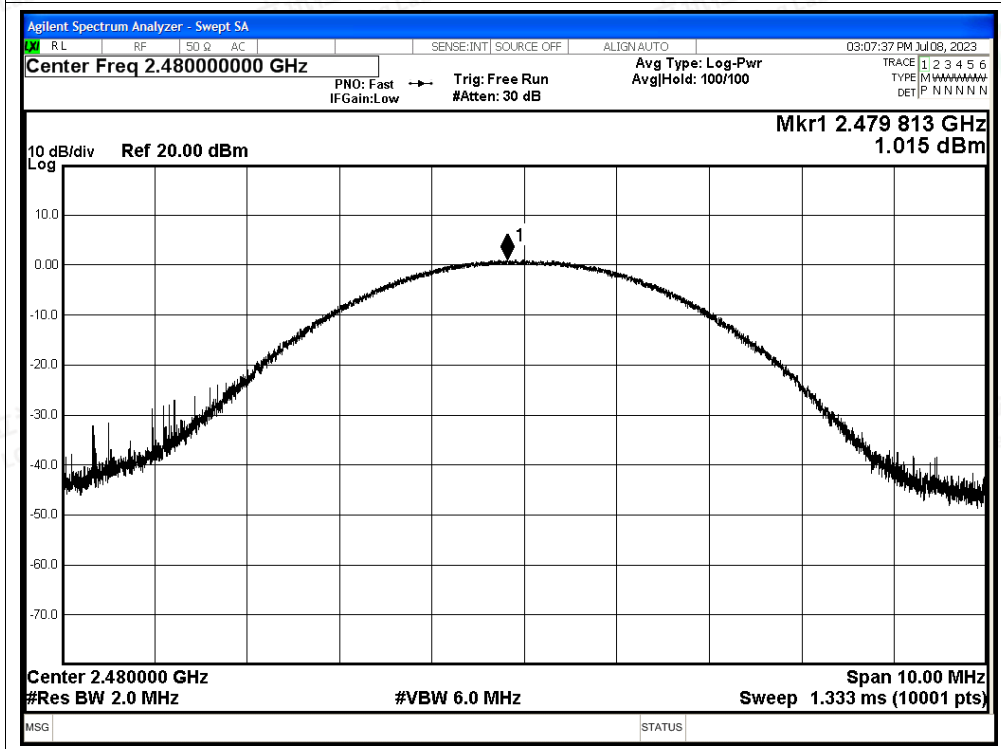


Power NVNT 3-DH5 2441MHz Ant1





Power NVNT 3-DH5 2480MHz Ant1





A.3 Carrier Frequencies Separation

Condition	Mode	Antenna	Hopping Freq1 (MHz)	Hopping Freq2 (MHz)	HFS (MHz)	Limit (MHz)	Verdict
NVNT	1-DH5	Ant1	2401.984	2402.984	1	0.633	Pass
NVNT	2-DH5	Ant1	2401.984	2402.978	0.994	0.877	Pass
NVNT	3-DH5	Ant1	2401.832	2402.982	1.15	0.861	Pass

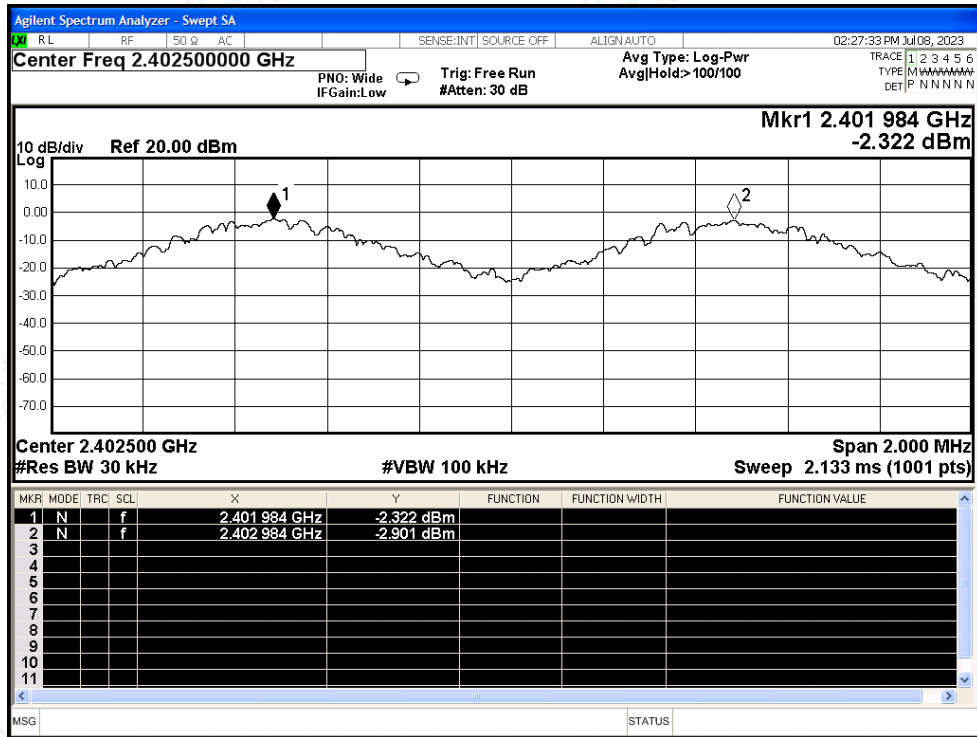


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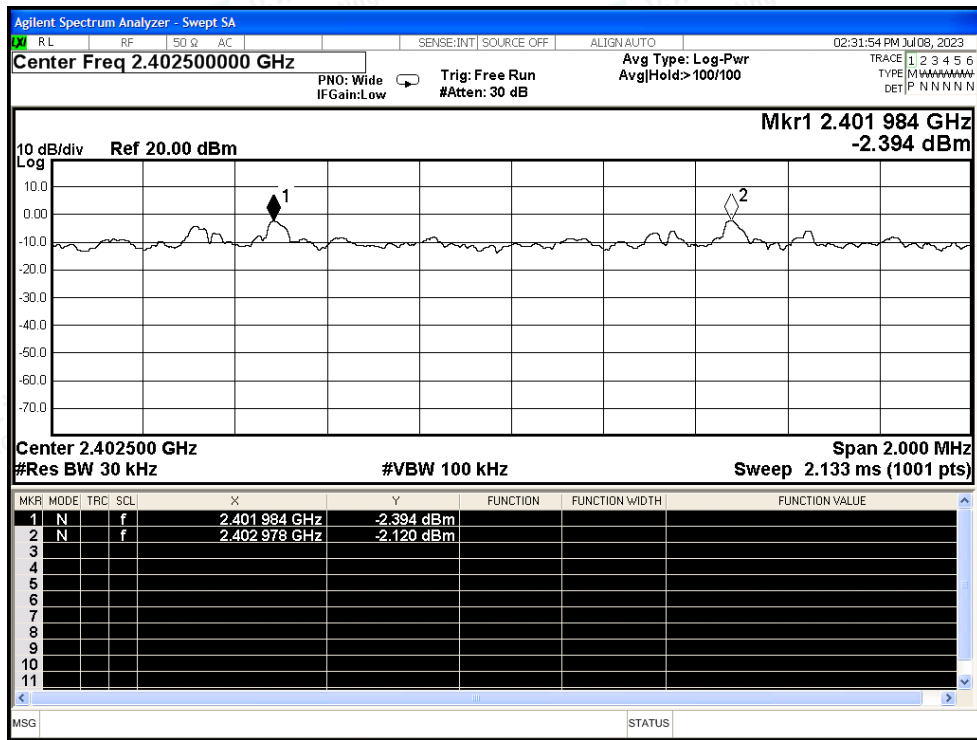


Test Graphs

CFS NVNT 1-DH5 2402MHz Ant1

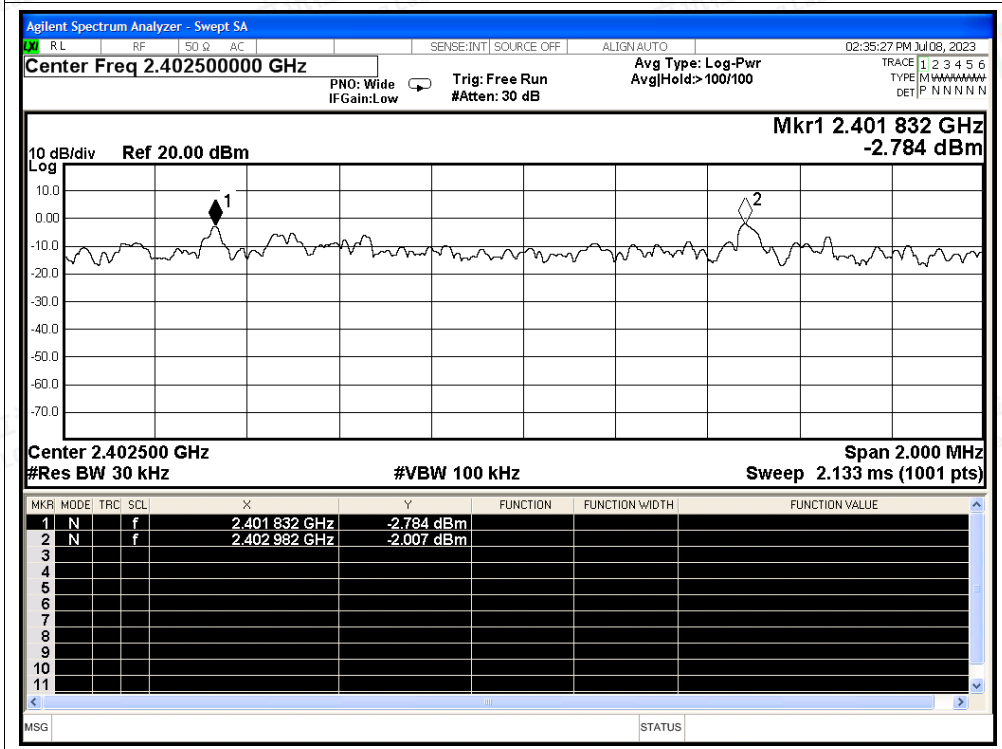


CFS NVNT 2-DH5 2402MHz Ant1





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	311.256	108	31600	400	Pass
NVNT	2-DH5	2402	Ant1	2.88	311.04	108	31600	400	Pass
NVNT	3-DH5	2402	Ant1	2.887	320.457	111	31600	400	Pass

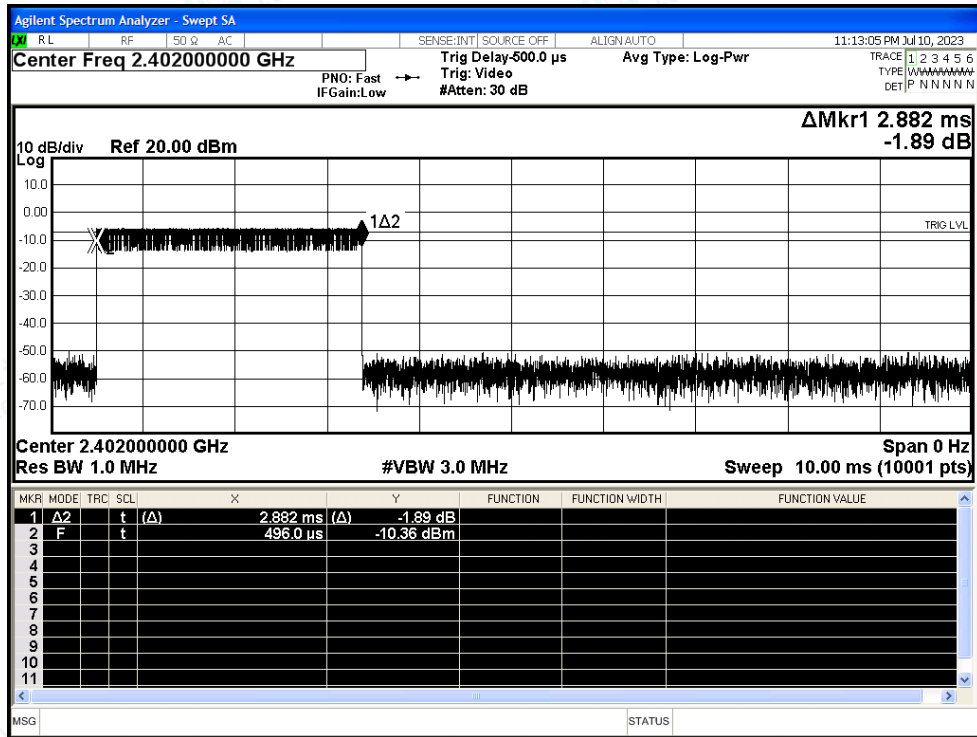


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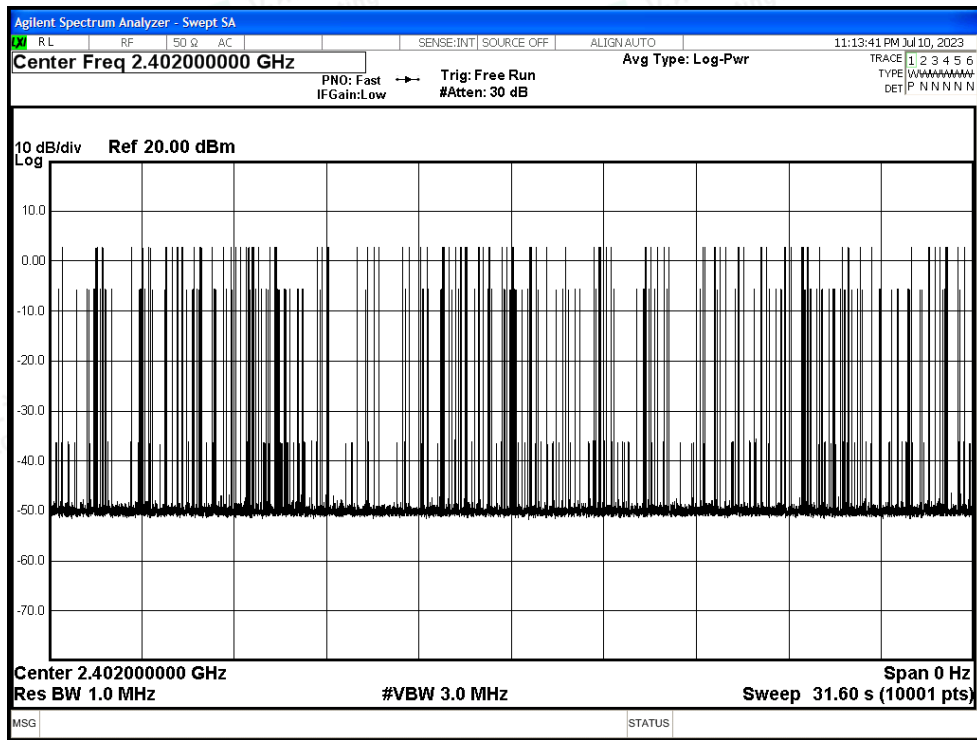


Test Graphs

Dwell NVNT 1-DH5 2402MHz Ant1 One Burst

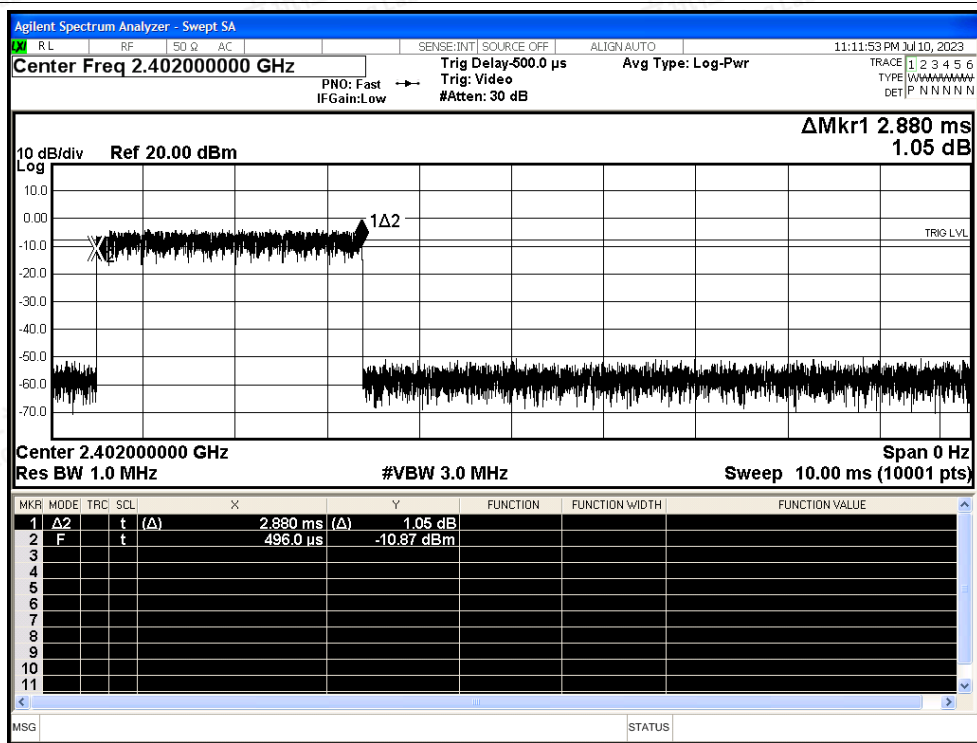


Dwell NVNT 1-DH5 2402MHz Ant1 Accumulated

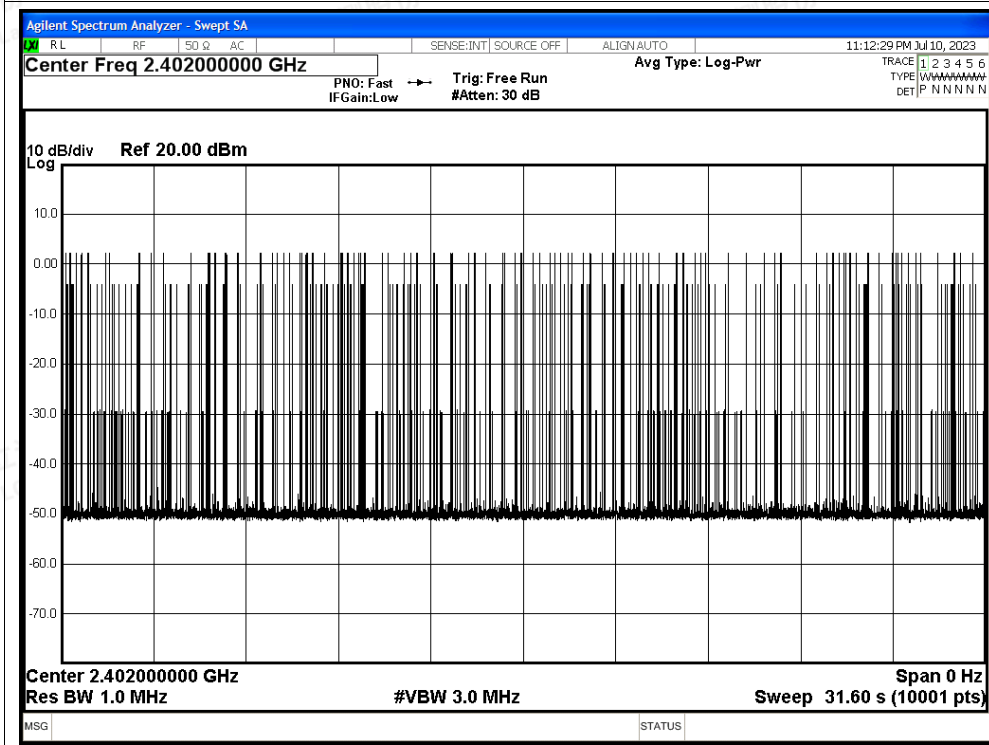




Dwell NVNT 2-DH5 2402MHz Ant1 One Burst

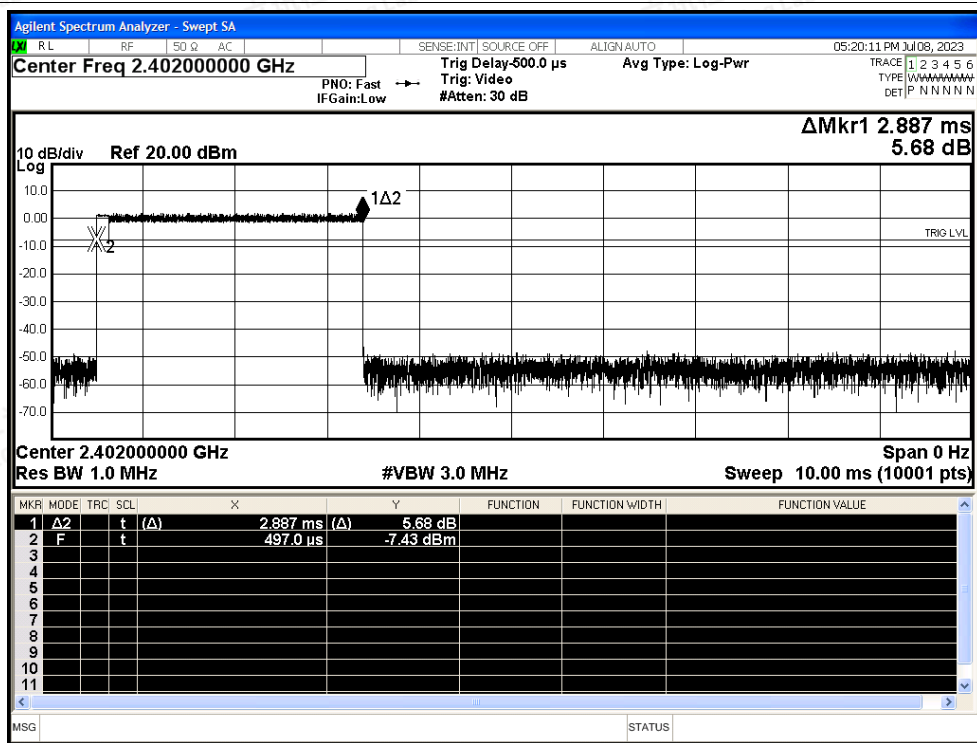


Dwell NVNT 2-DH5 2402MHz Ant1 Accumulated

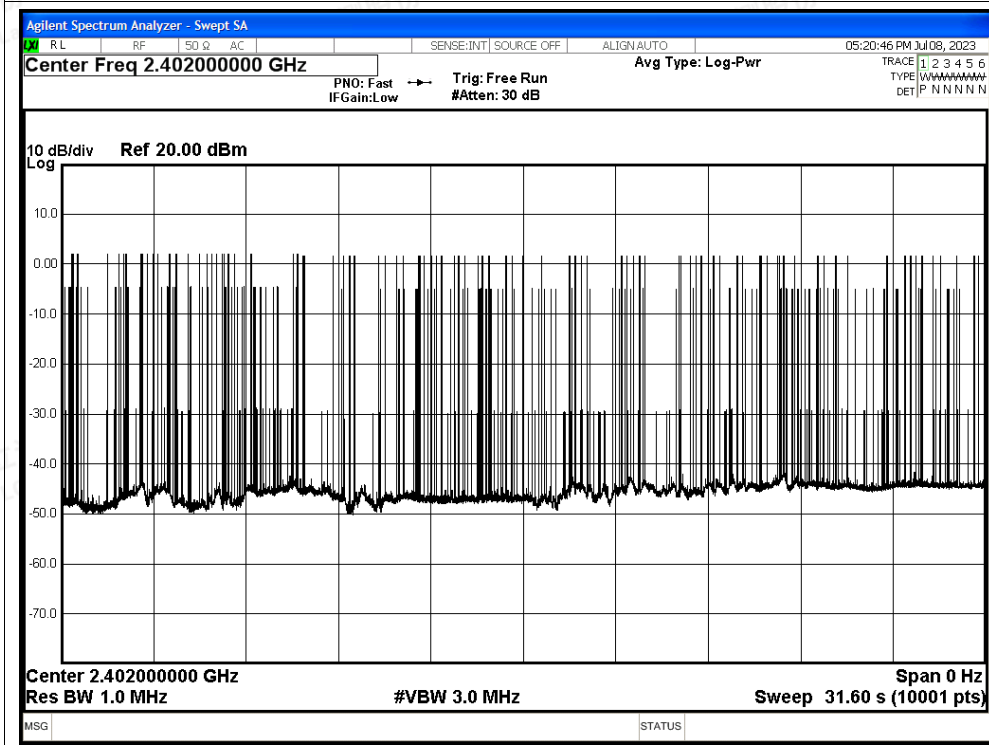




Dwell NVNT 3-DH5 2402MHz Ant1 One Burst



Dwell NVNT 3-DH5 2402MHz Ant1 Accumulated





A.5 Number of Hopping Channel

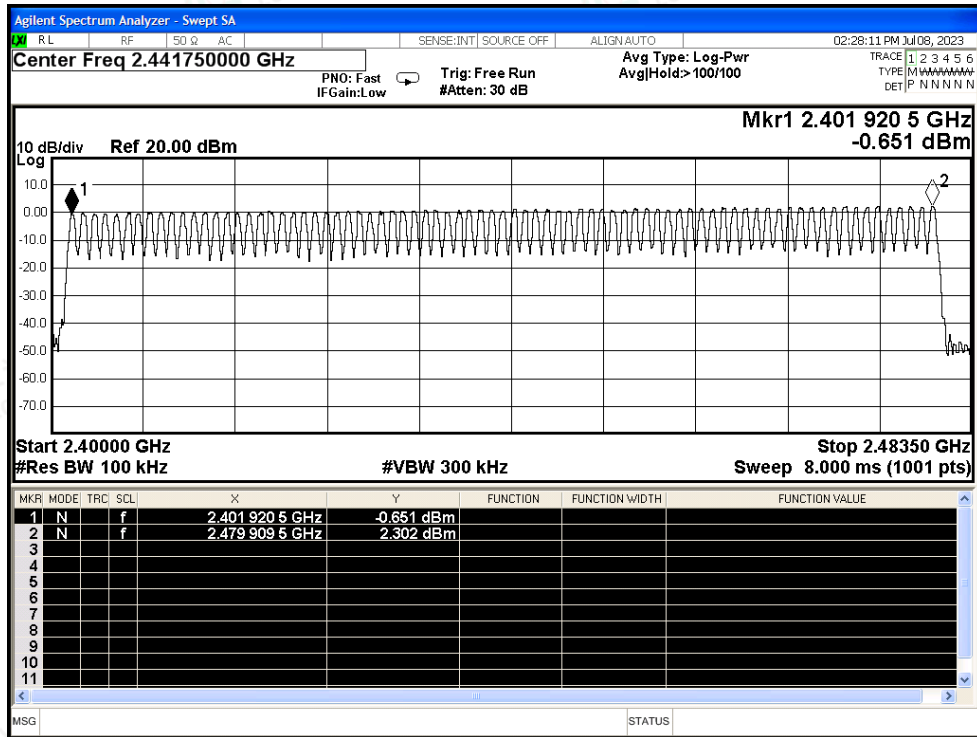
Condition	Mode	Antenna	Hopping Number	Limit	Verdict
NVNT	1-DH5	Ant1	79	15	Pass
NVNT	2-DH5	Ant1	79	15	Pass
NVNT	3-DH5	Ant1	79	15	Pass



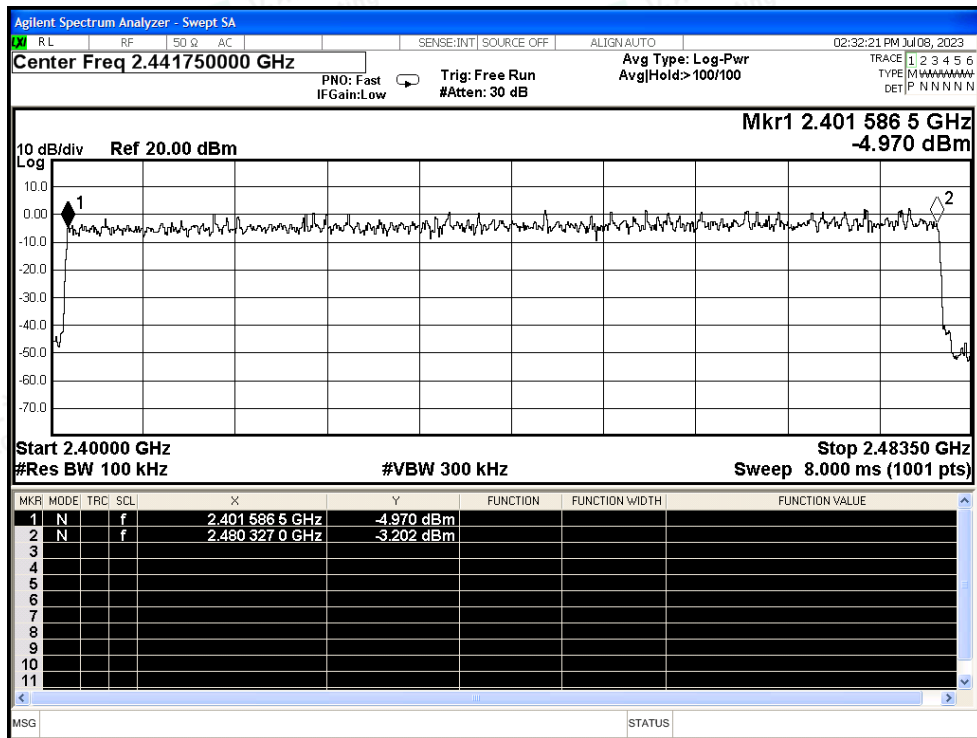


Test Graphs

Hopping No. NVNT 1-DH5 2402MHz Ant1

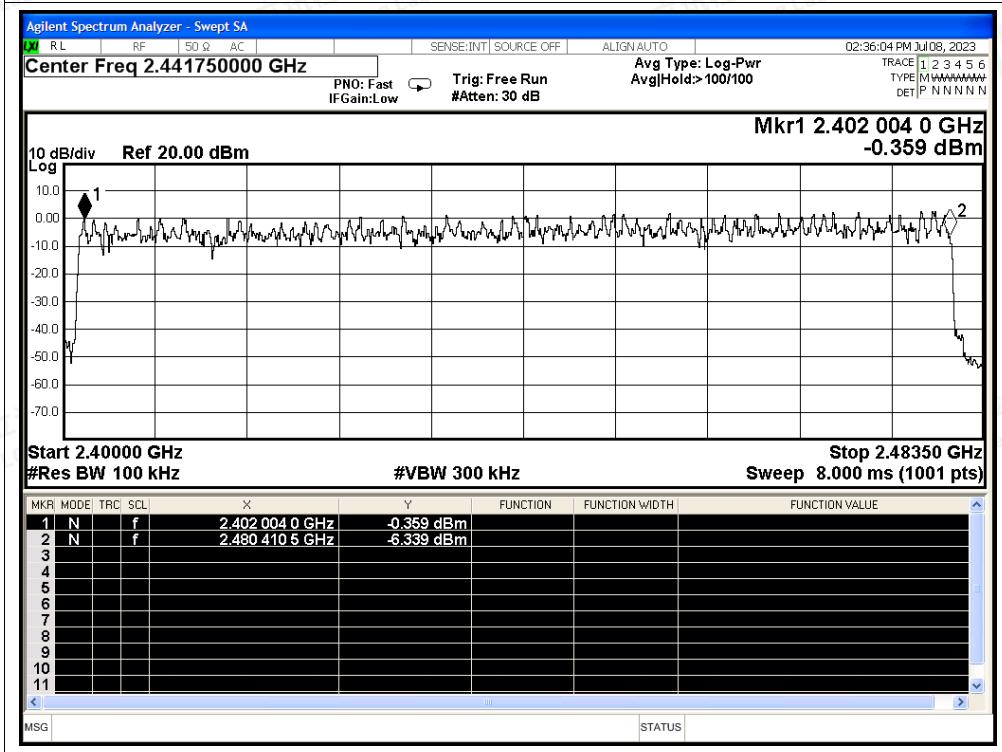


Hopping No. NVNT 2-DH5 2402MHz Ant1





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	-40.03	-20	Pass
NVNT	1-DH5	2480	Ant1	No-Hopping	-47.33	-20	Pass
NVNT	2-DH5	2402	Ant1	No-Hopping	-41.77	-20	Pass
NVNT	2-DH5	2480	Ant1	No-Hopping	-50.29	-20	Pass
NVNT	3-DH5	2402	Ant1	No-Hopping	-38.78	-20	Pass
NVNT	3-DH5	2480	Ant1	No-Hopping	-48.9	-20	Pass

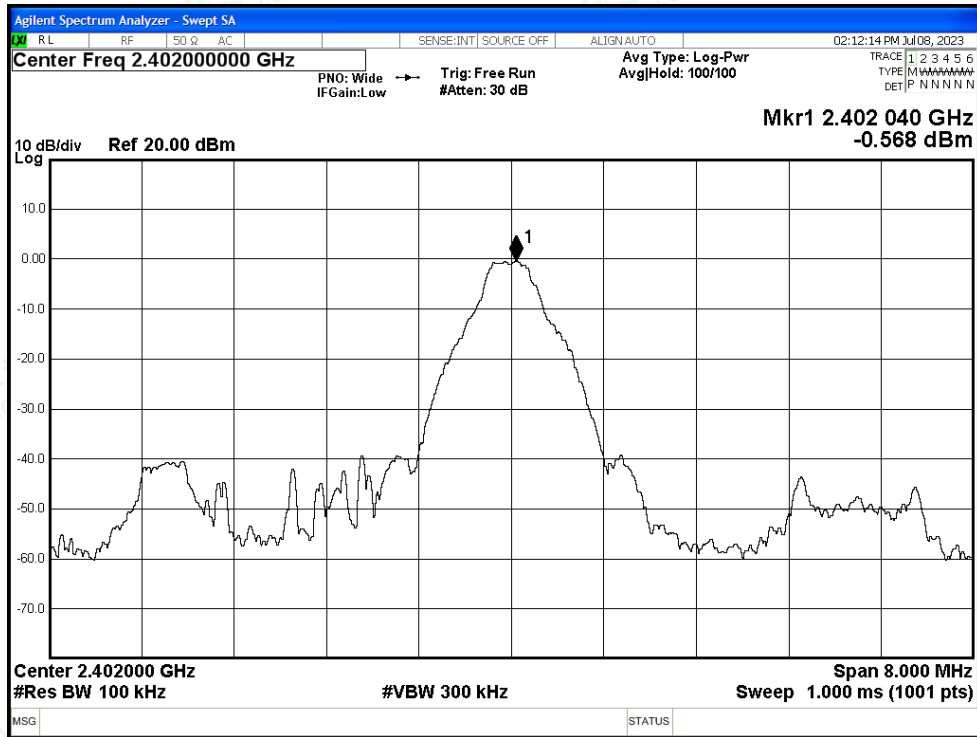


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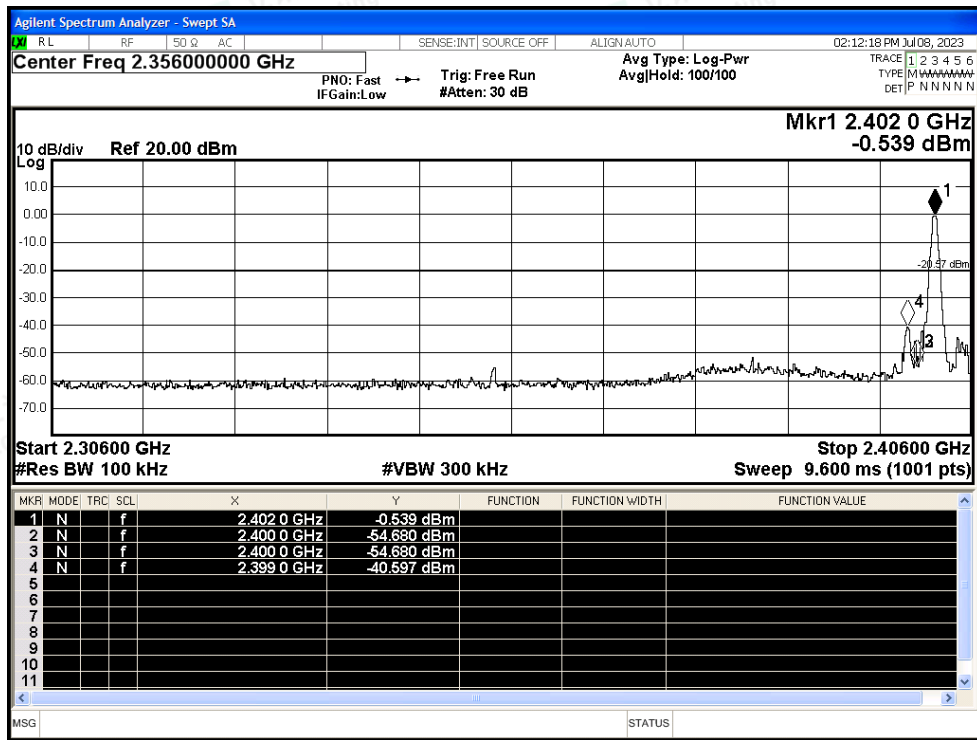


Test Graphs

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

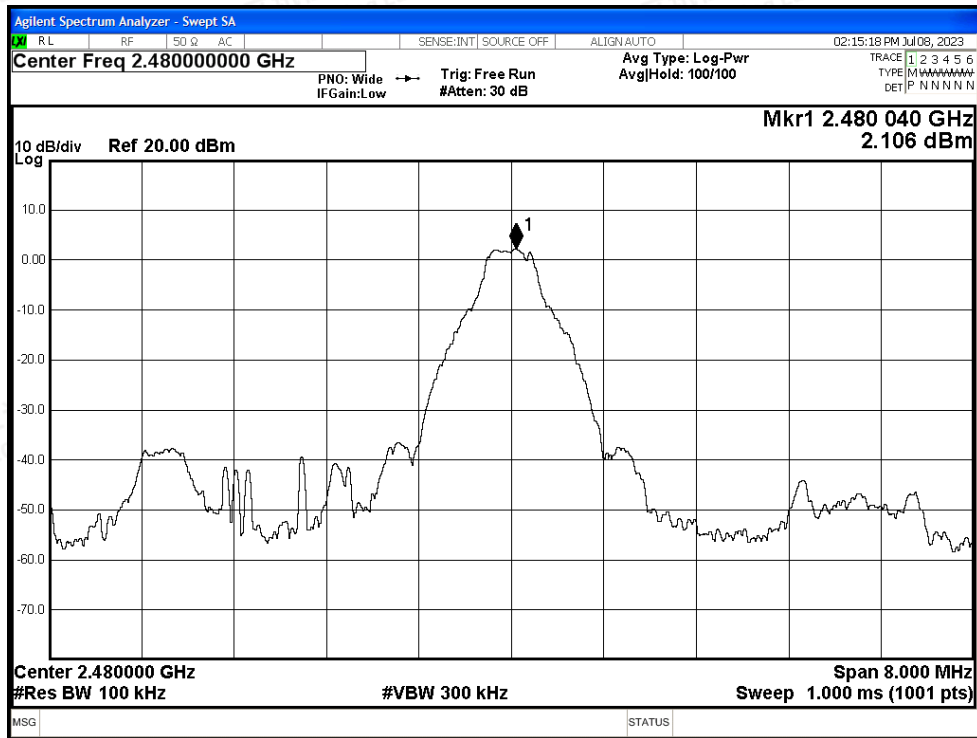


Band Edge NVNT 1-DH5 2402MHz Ant1 No-Hopping Emission

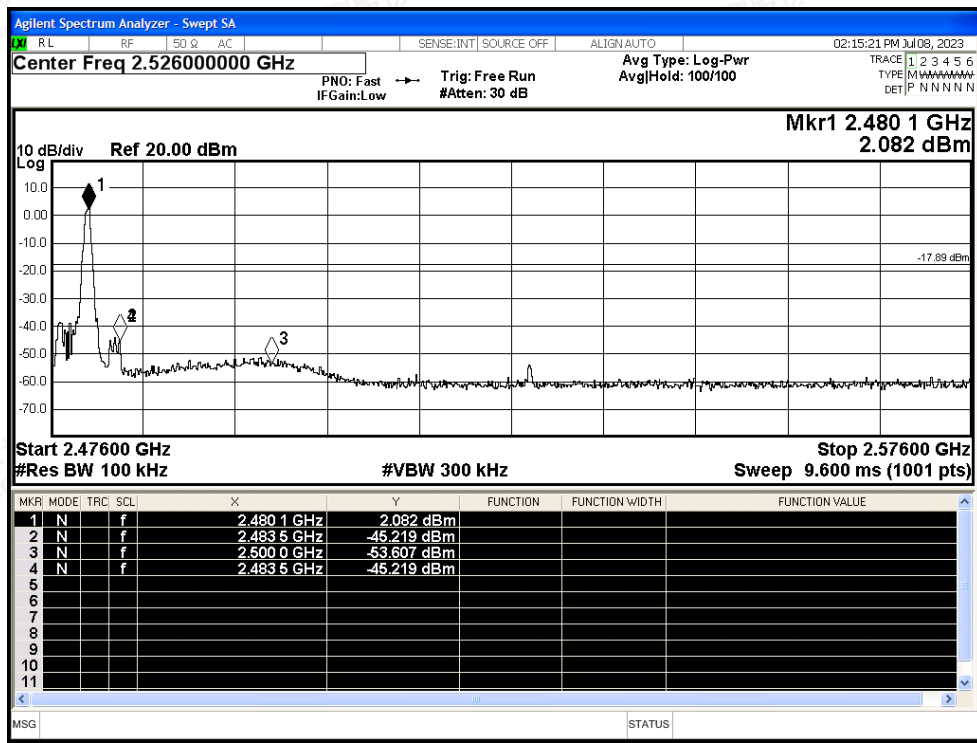




Band Edge NVNT 1-DH5 2480MHz Ant1 No-Hopping Ref

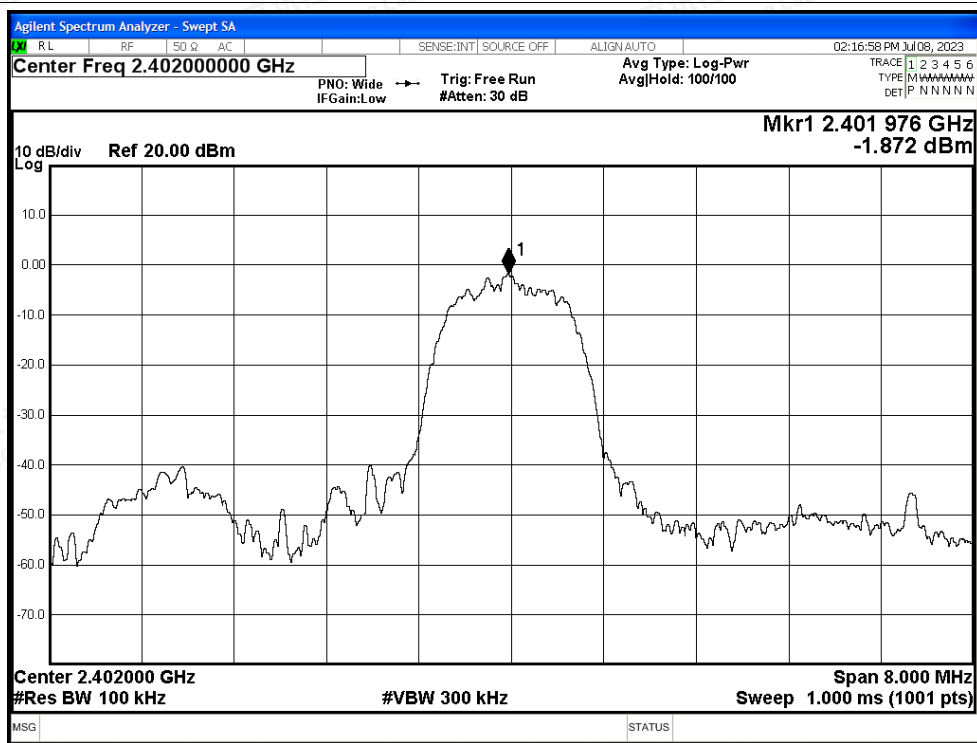


Band Edge NVNT 1-DH5 2480MHz Ant1 No-Hopping Emission

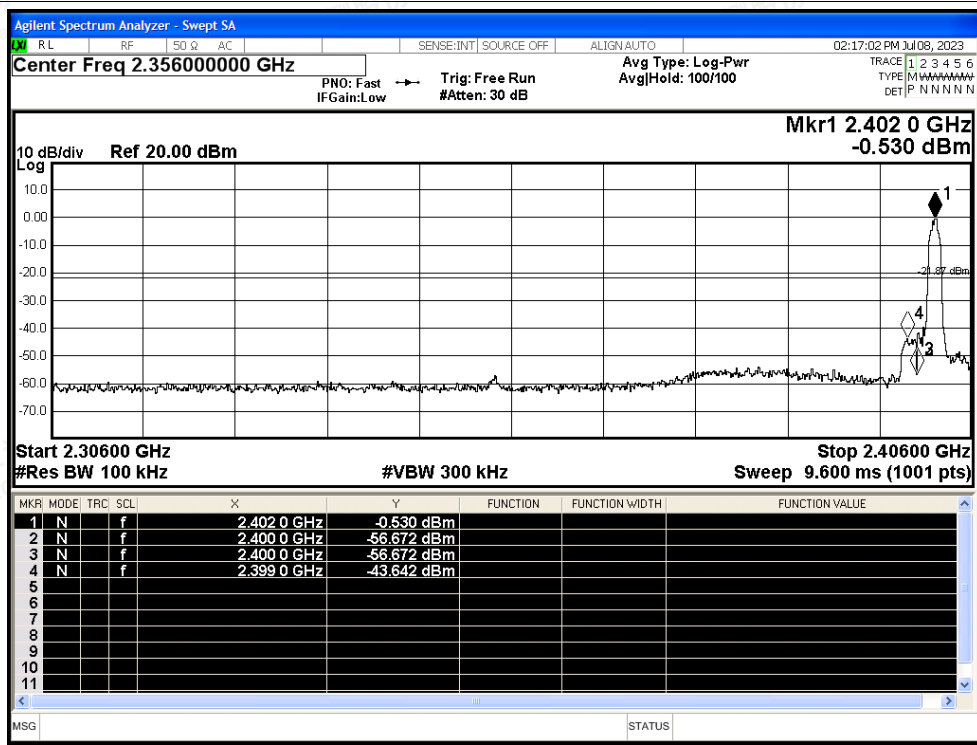




Band Edge NVNT 2-DH5 2402MHz Ant1 No-Hopping Ref

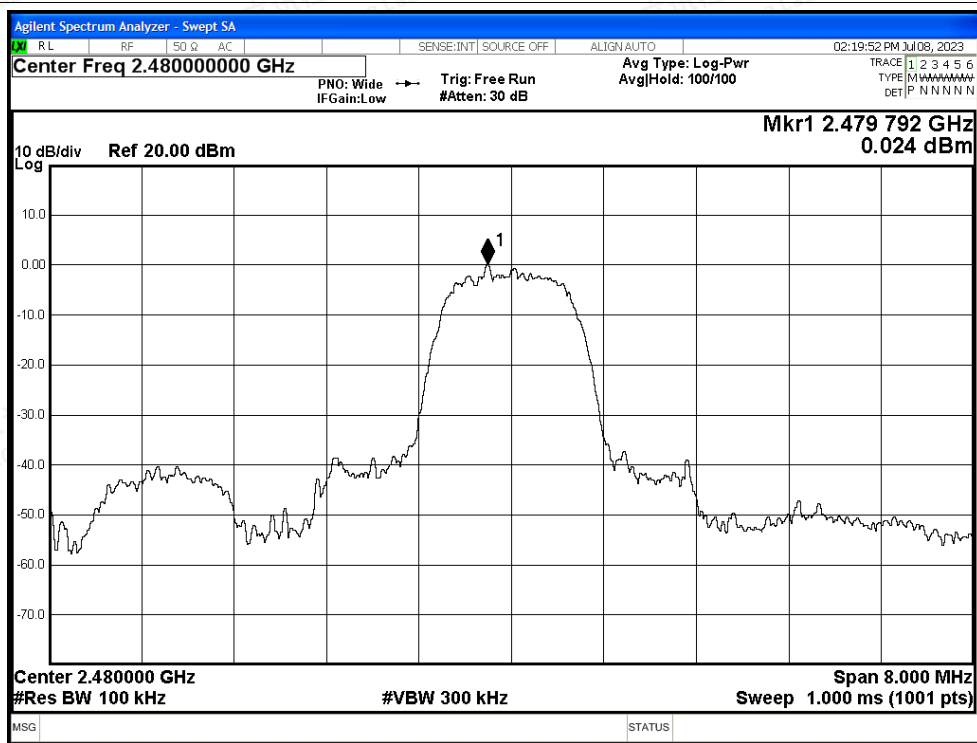


Band Edge NVNT 2-DH5 2402MHz Ant1 No-Hopping Emission

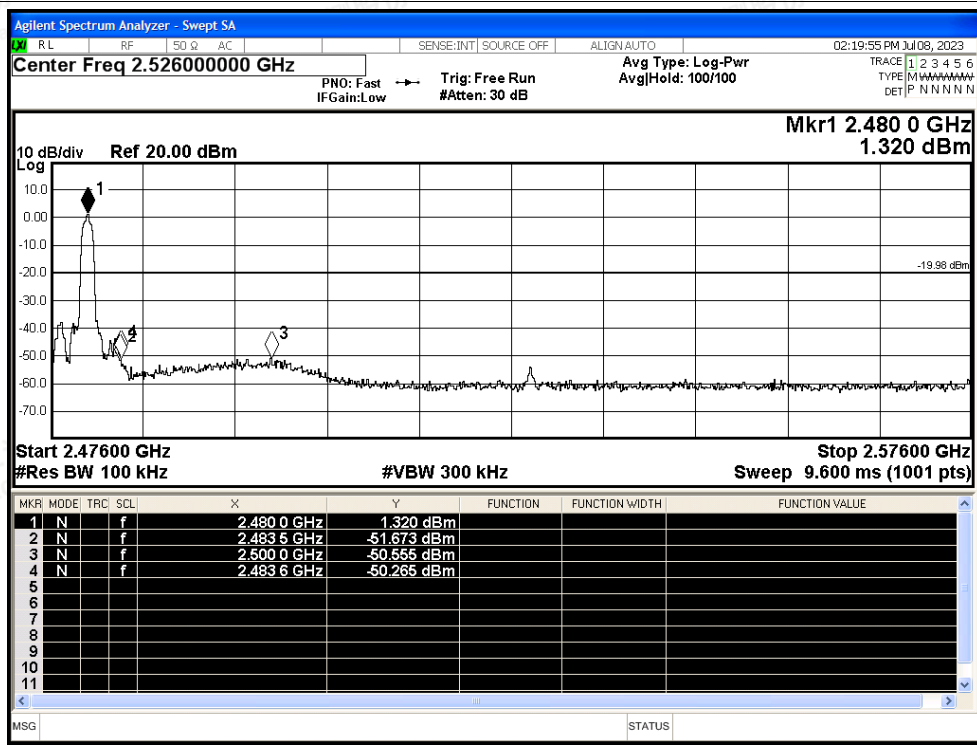




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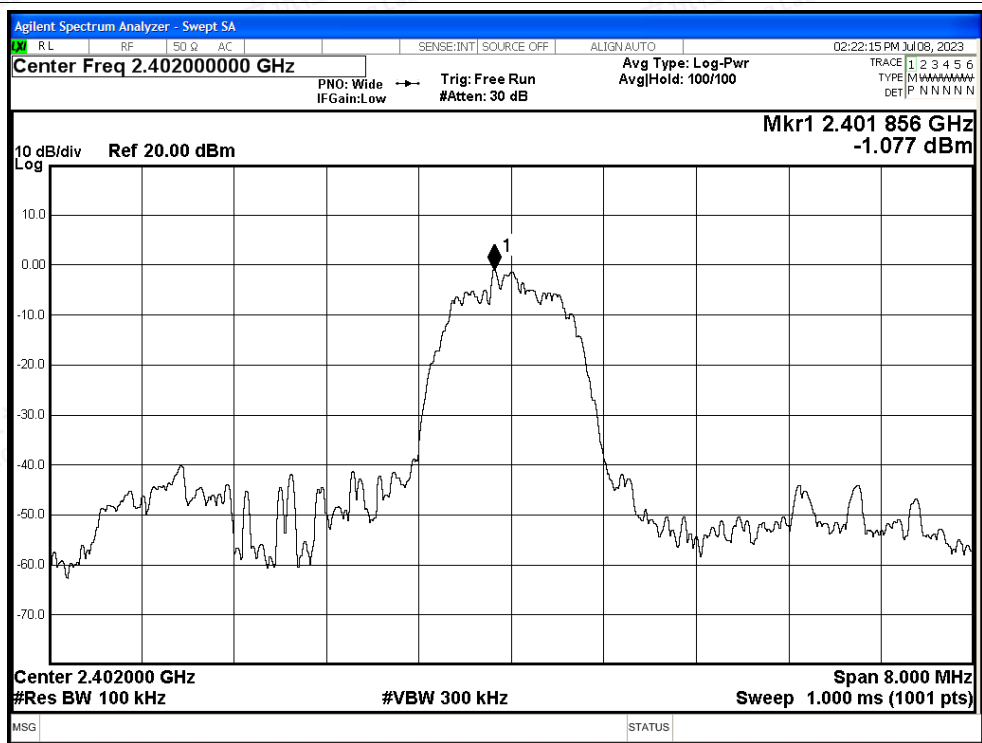


Band Edge NVNT 2-DH5 2480MHz Ant1 No-Hopping Emission

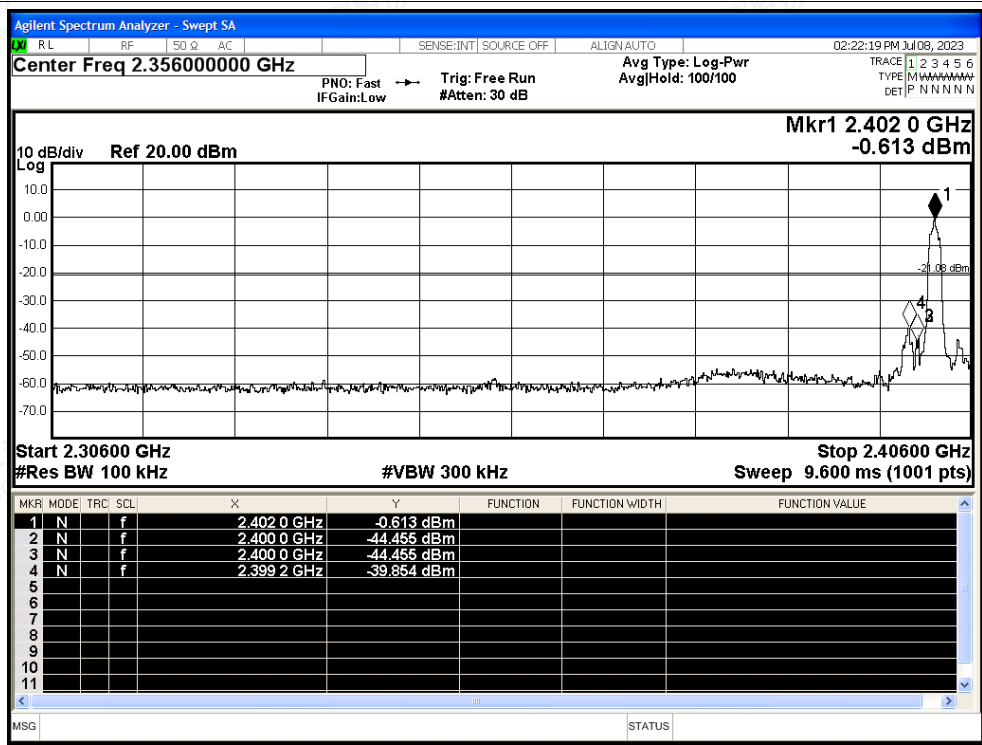




Band Edge NVNT 3-DH5 2402MHz Ant1 No-Hopping Ref

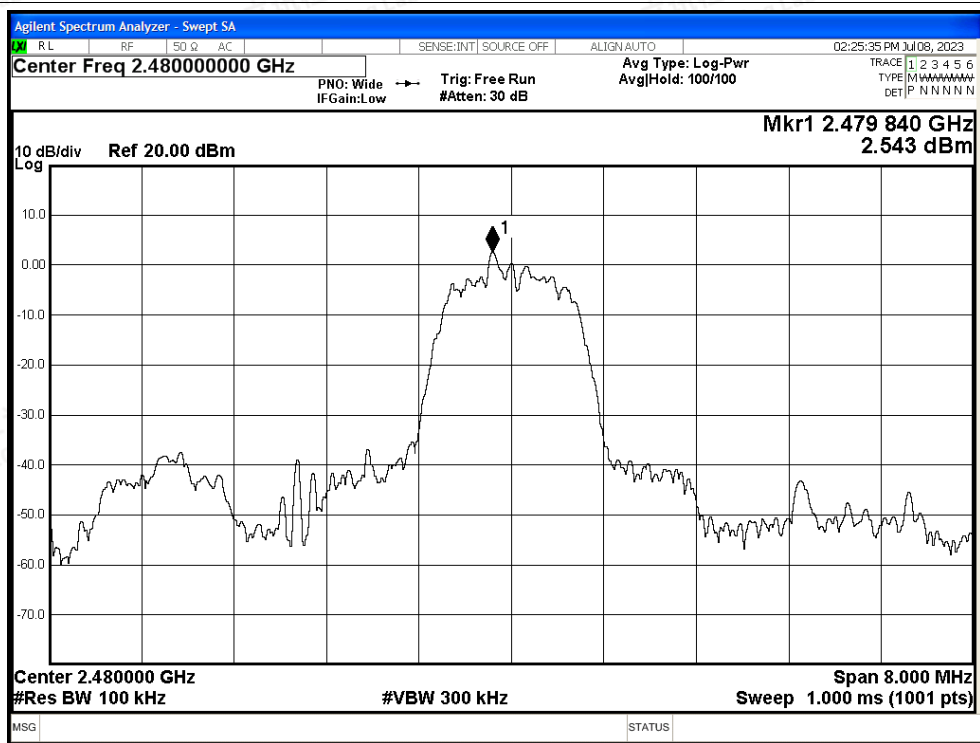


Band Edge NVNT 3-DH5 2402MHz Ant1 No-Hopping Emission

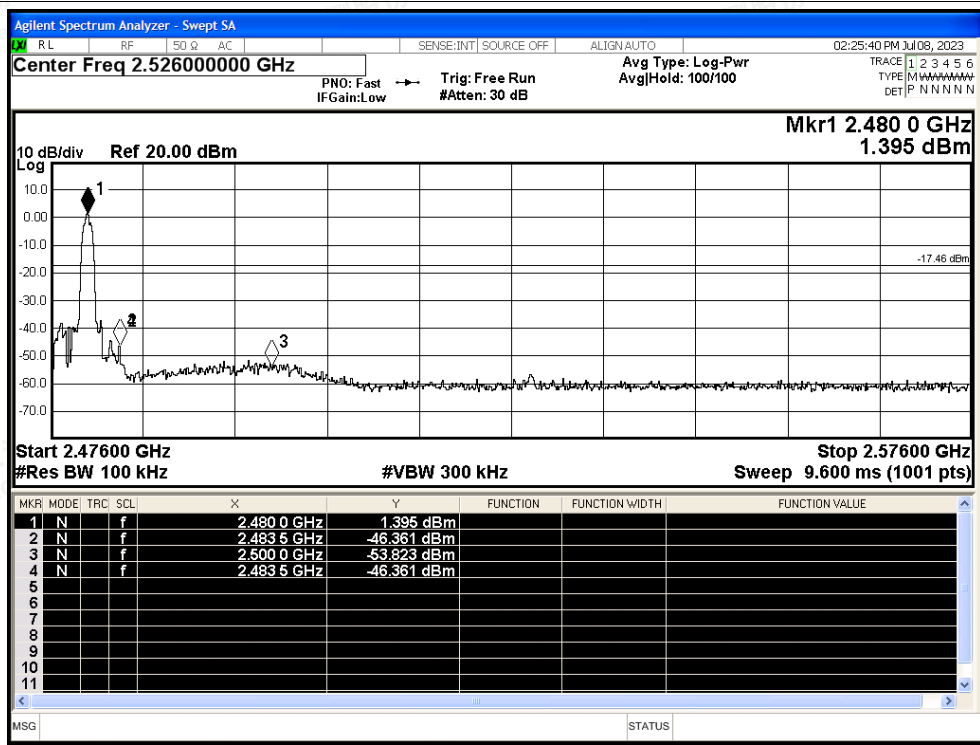




Band Edge NVNT 3-DH5 2480MHz Ant1 No-Hopping Ref



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	-52.66	-20	Pass
NVNT	1-DH5	2480	Ant1	Hopping	-50.15	-20	Pass
NVNT	2-DH5	2402	Ant1	Hopping	-53.27	-20	Pass
NVNT	2-DH5	2480	Ant1	Hopping	-52.94	-20	Pass
NVNT	3-DH5	2402	Ant1	Hopping	-54.1	-20	Pass
NVNT	3-DH5	2480	Ant1	Hopping	-50.87	-20	Pass

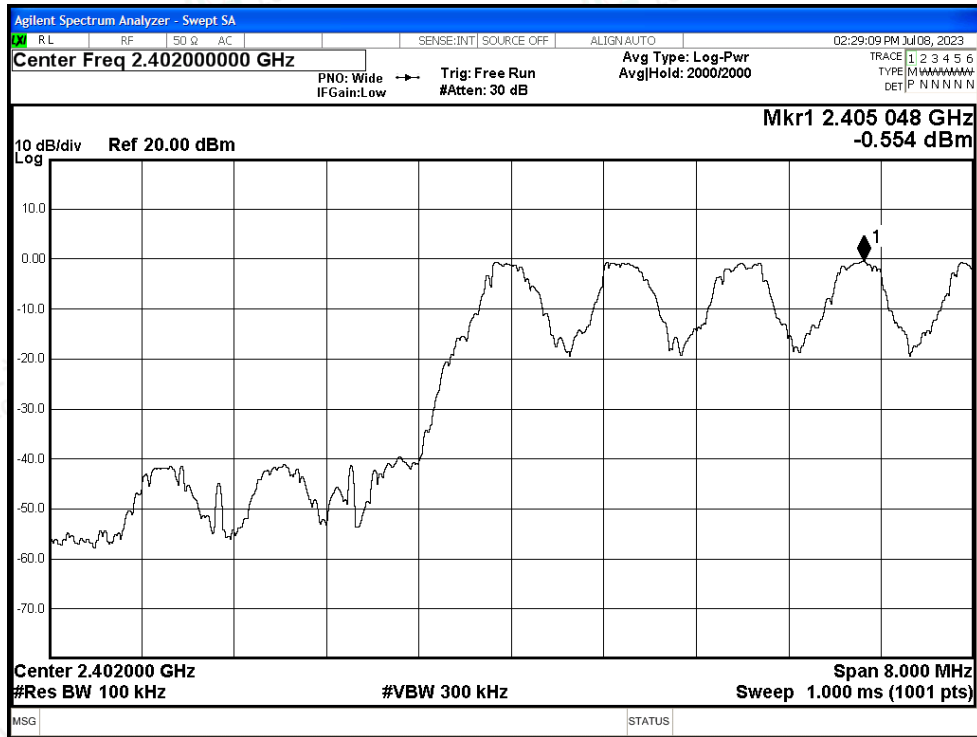


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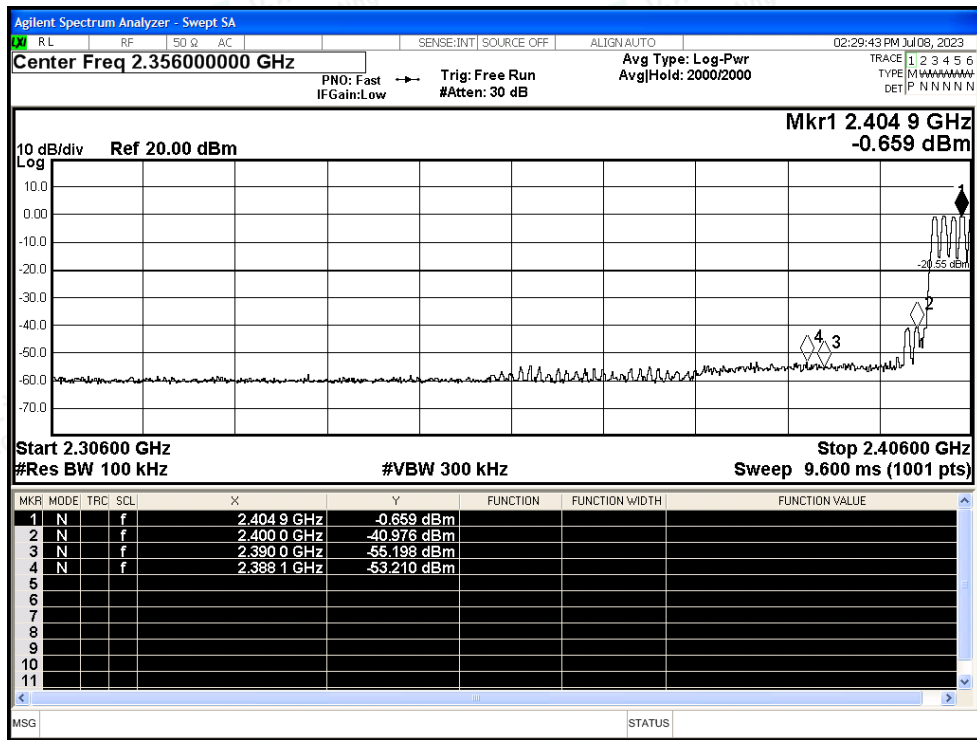


Test Graphs

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

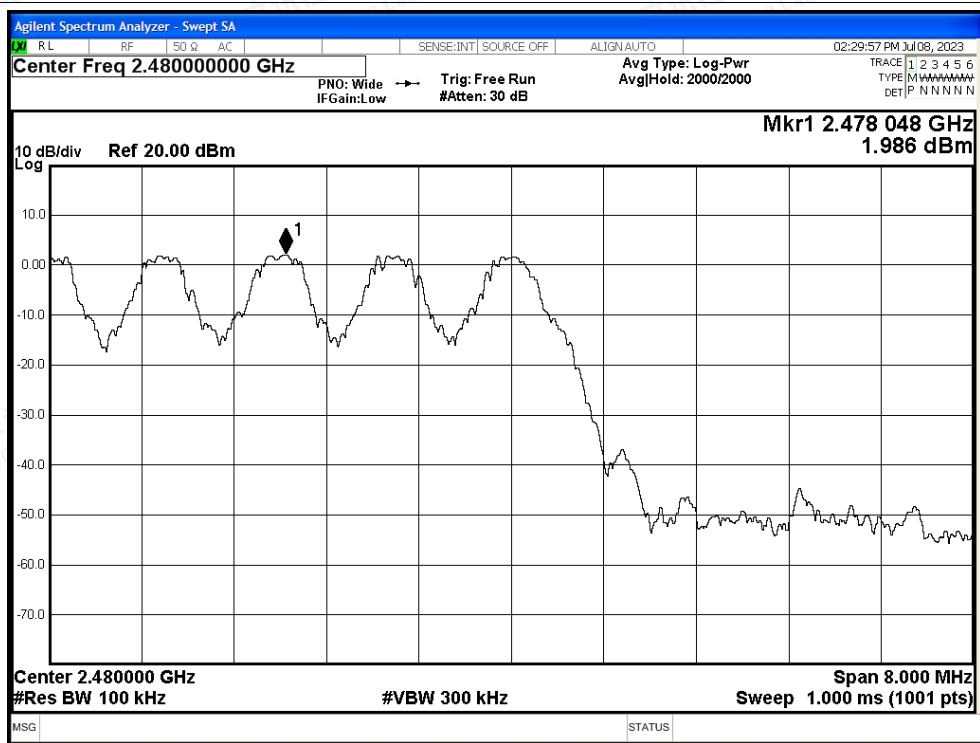


Band Edge(Hopping) NVNT 1-DH5 2402MHz Ant1 Hopping Emission

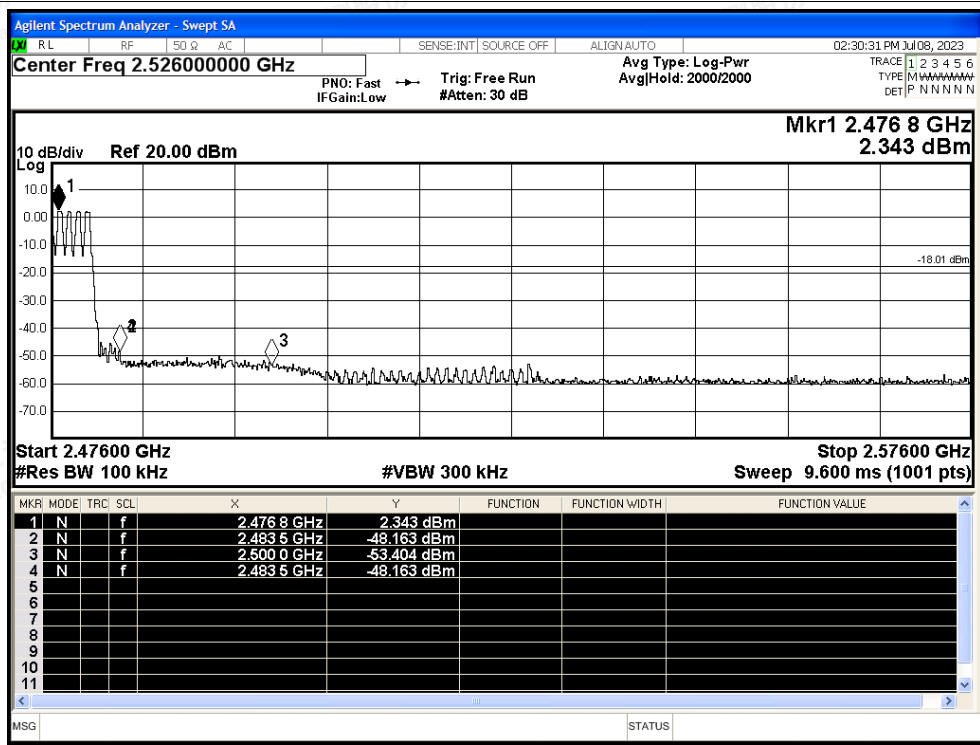




Band Edge(Hopping) NVNT 1-DH5 2480MHz Ant1 Hopping Ref

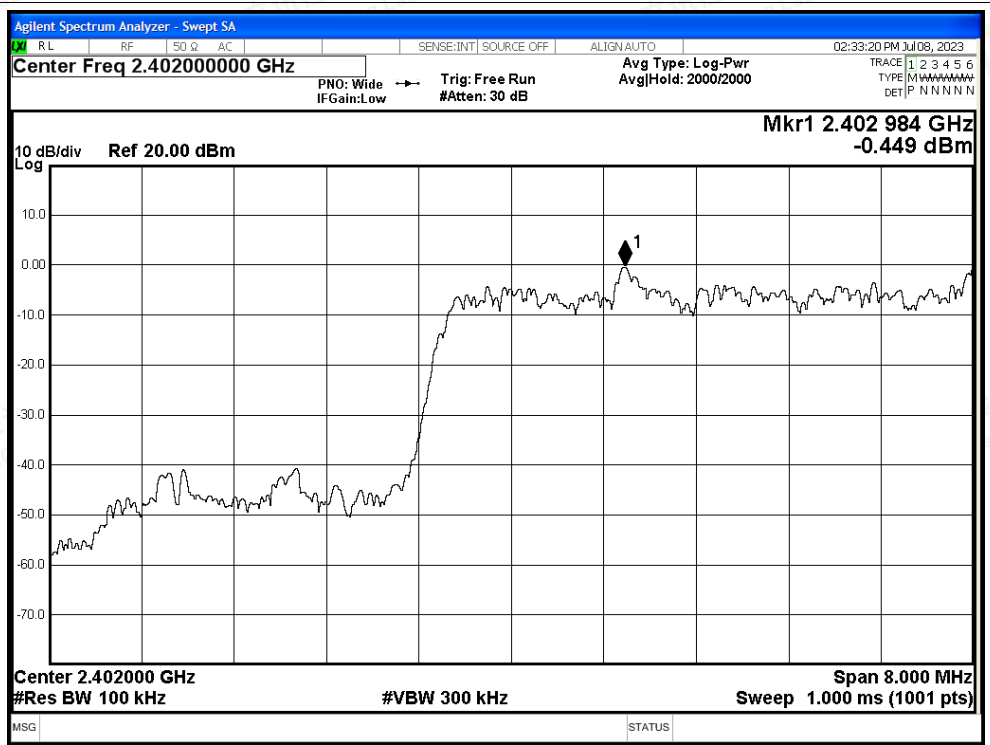


Band Edge(Hopping) NVNT 1-DH5 2480MHz Ant1 Hopping Emission

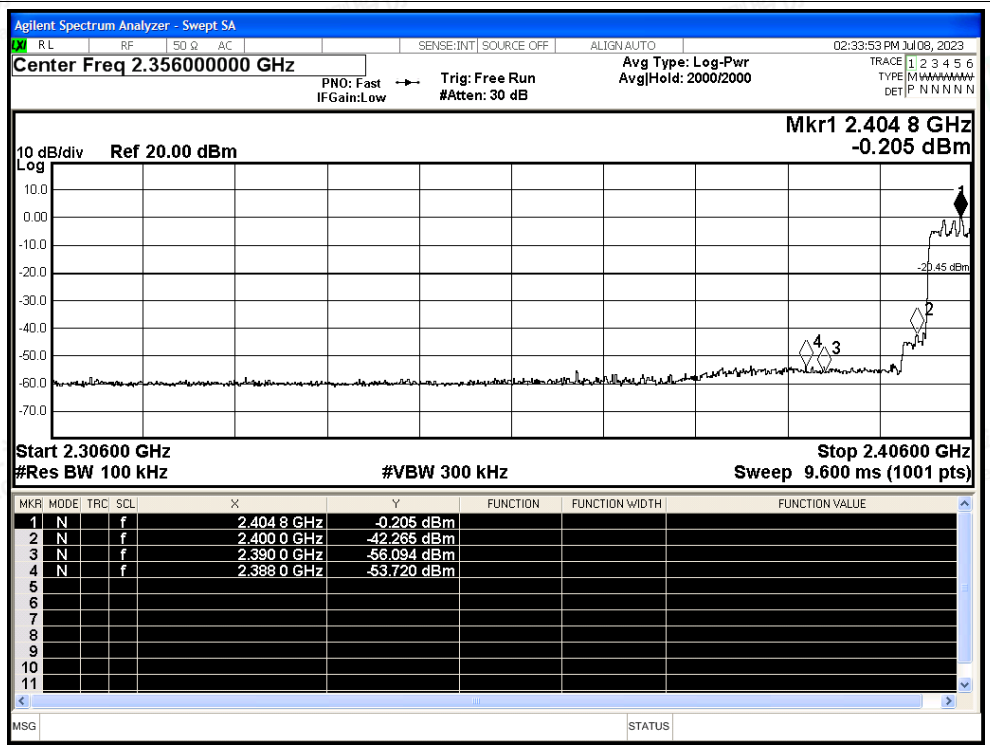




Band Edge(Hopping) NVNT 2-DH5 2402MHz Ant1 Hopping Ref

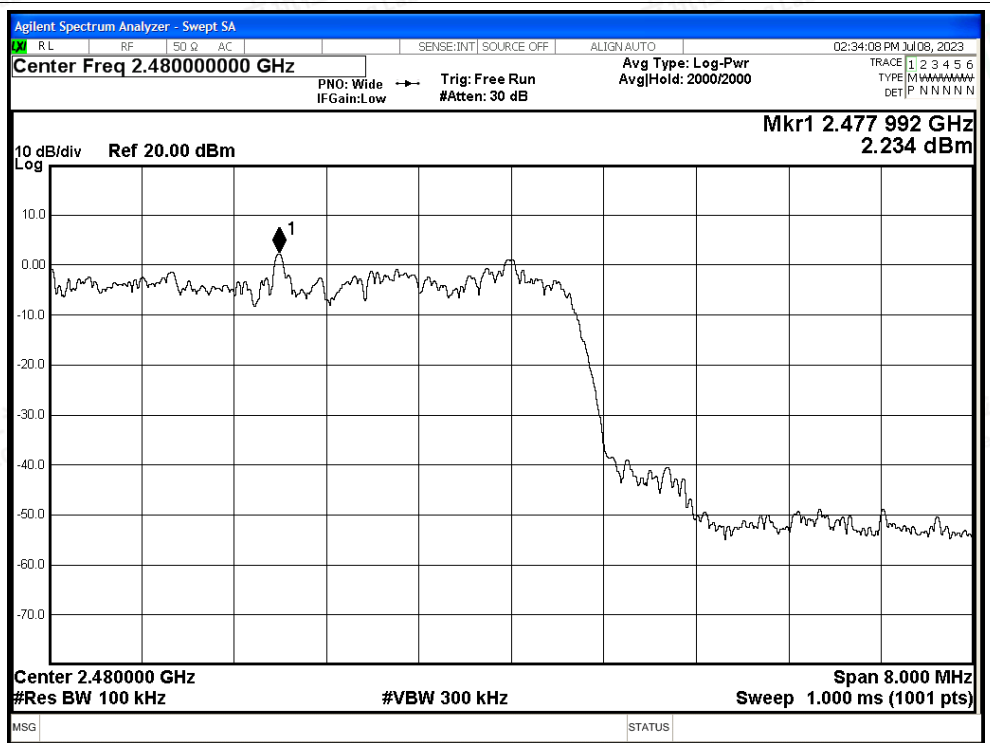


Band Edge(Hopping) NVNT 2-DH5 2402MHz Ant1 Hopping Emission

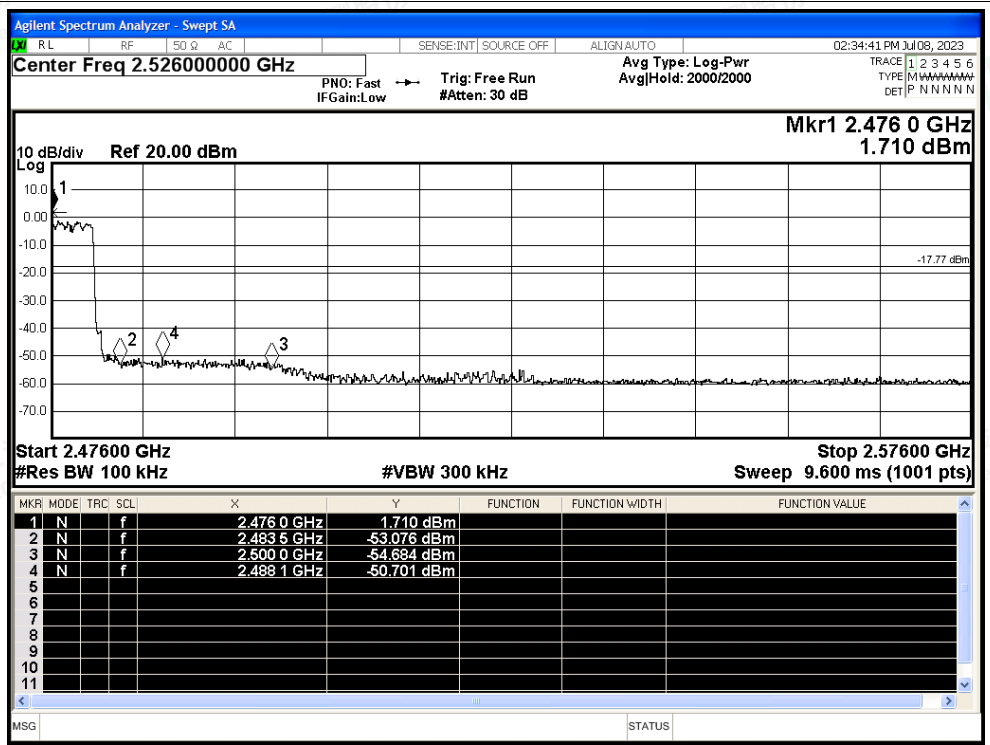




Band Edge(Hopping) NVNT 2-DH5 2480MHz Ant1 Hopping Ref

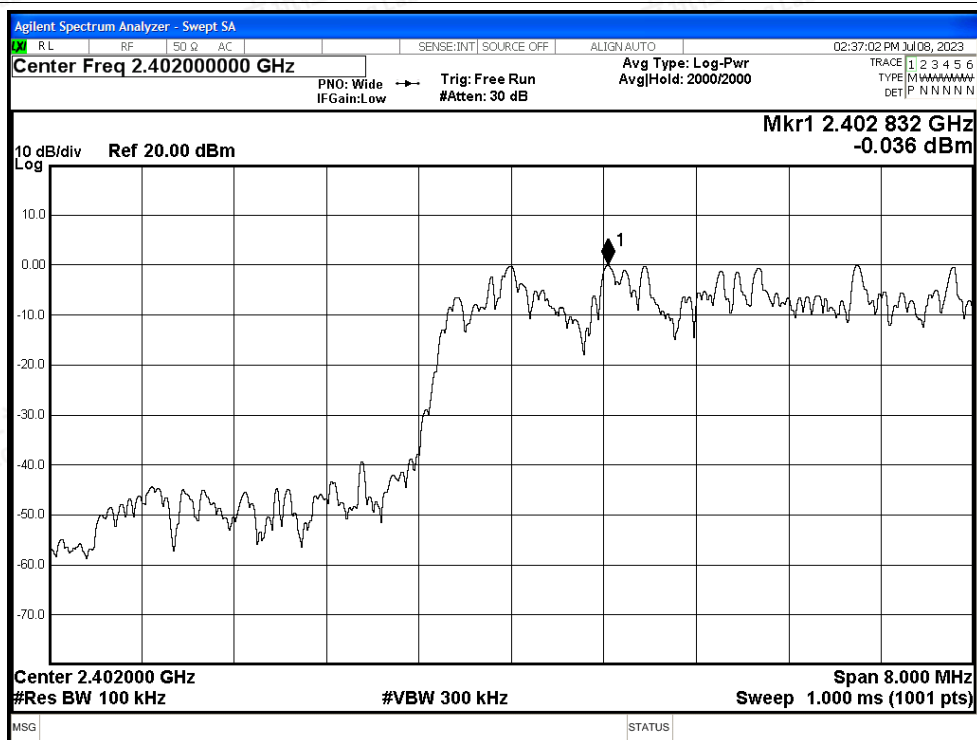


Band Edge(Hopping) NVNT 2-DH5 2480MHz Ant1 Hopping Emission

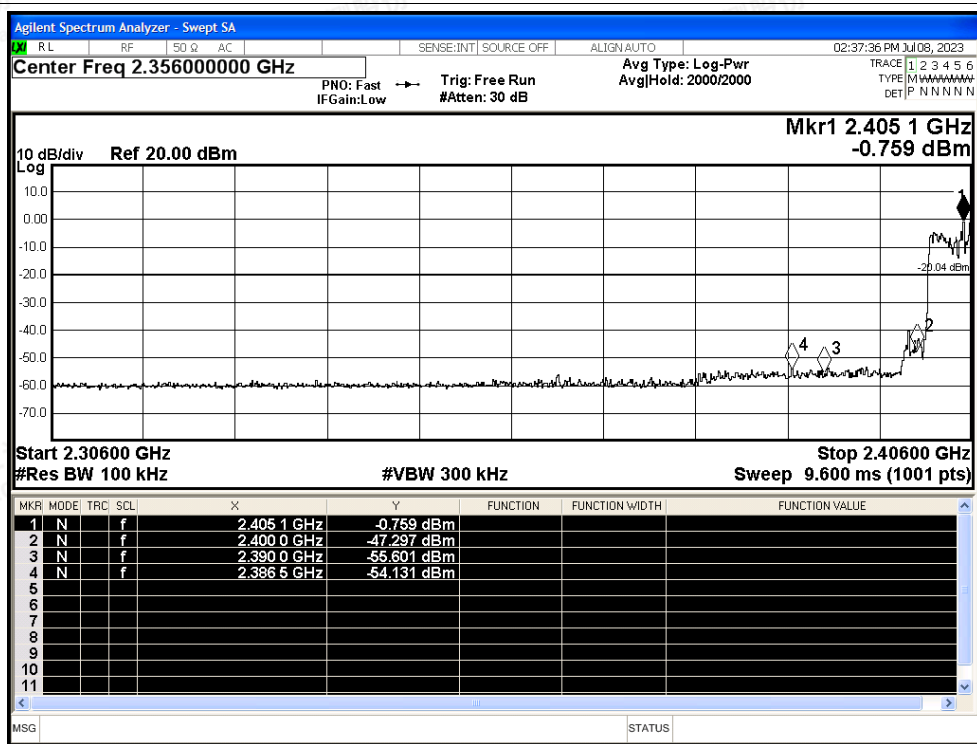




Band Edge(Hopping) NVNT 3-DH5 2402MHz Ant1 Hopping Ref

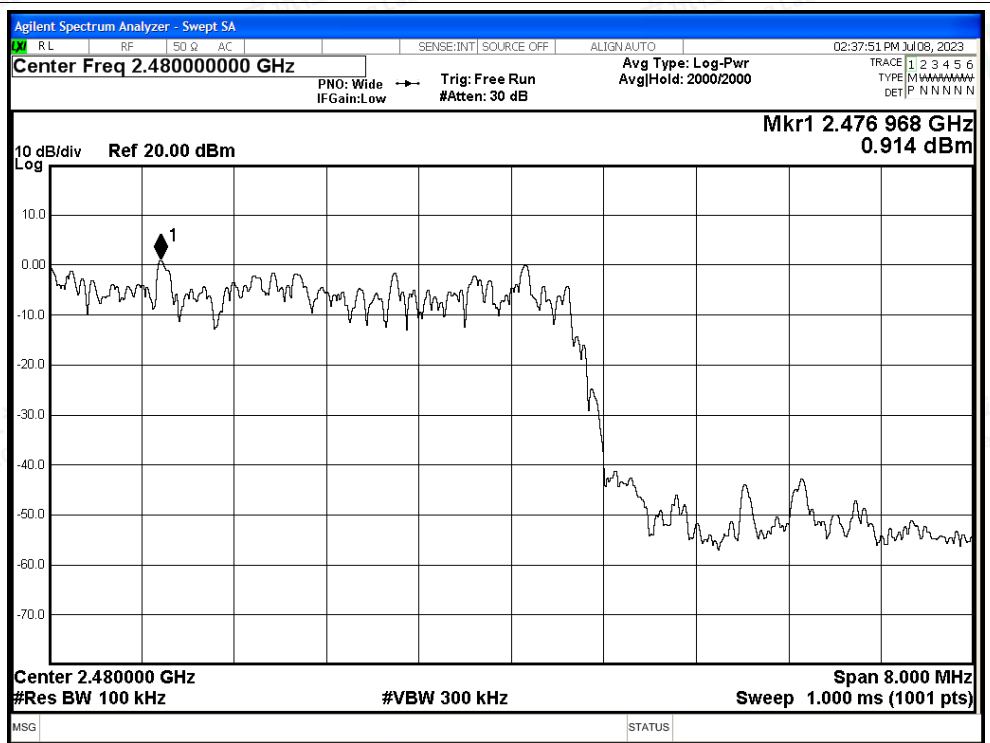


Band Edge(Hopping) NVNT 3-DH5 2402MHz Ant1 Hopping Emission

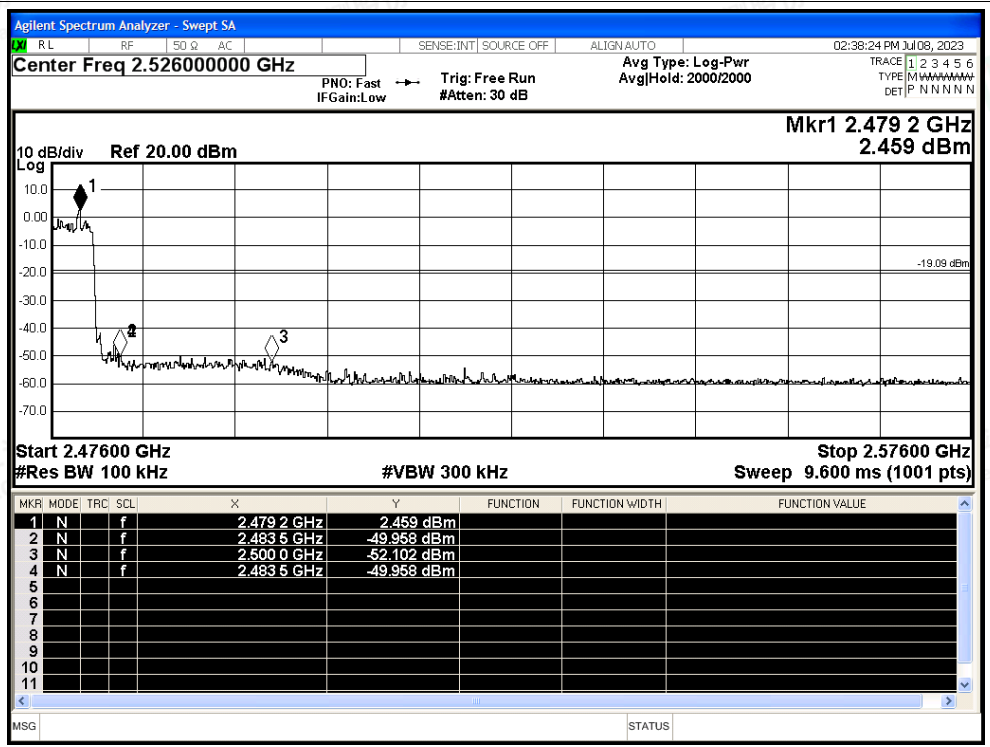




Band Edge(Hopping) NVNT 3-DH5 2480MHz Ant1 Hopping Ref



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	-42.6	-20	Pass
NVNT	1-DH5	2441	Ant1	-43.88	-20	Pass
NVNT	1-DH5	2480	Ant1	-42.86	-20	Pass
NVNT	2-DH5	2402	Ant1	-42.95	-20	Pass
NVNT	2-DH5	2441	Ant1	-43.9	-20	Pass
NVNT	2-DH5	2480	Ant1	-43.26	-20	Pass
NVNT	3-DH5	2402	Ant1	-43.15	-20	Pass
NVNT	3-DH5	2441	Ant1	-43.94	-20	Pass
NVNT	3-DH5	2480	Ant1	-43.52	-20	Pass

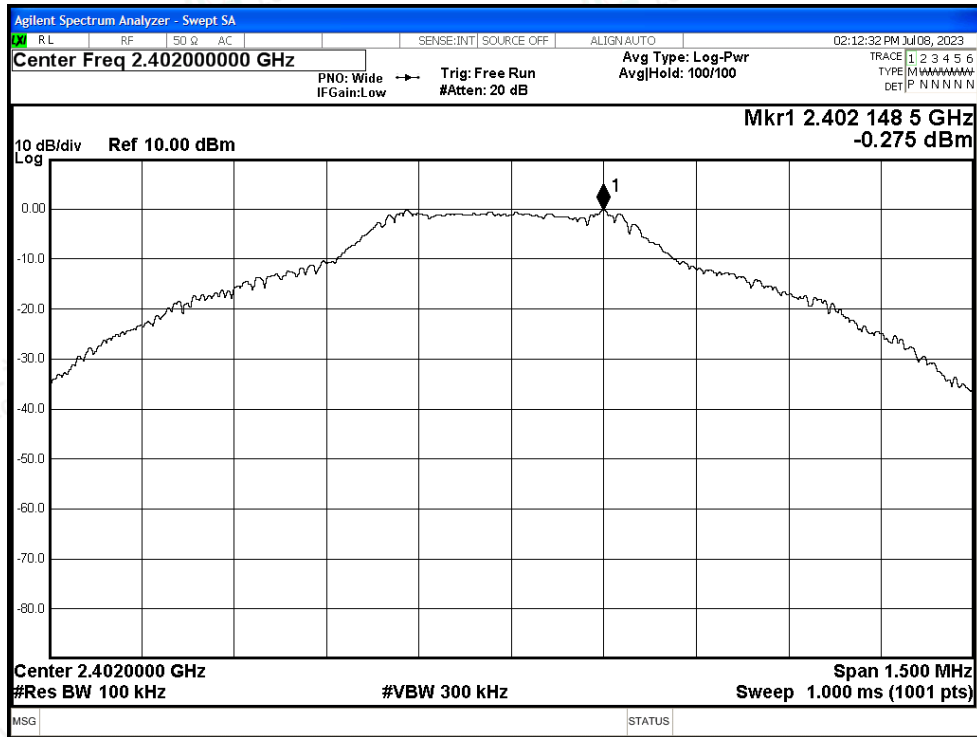


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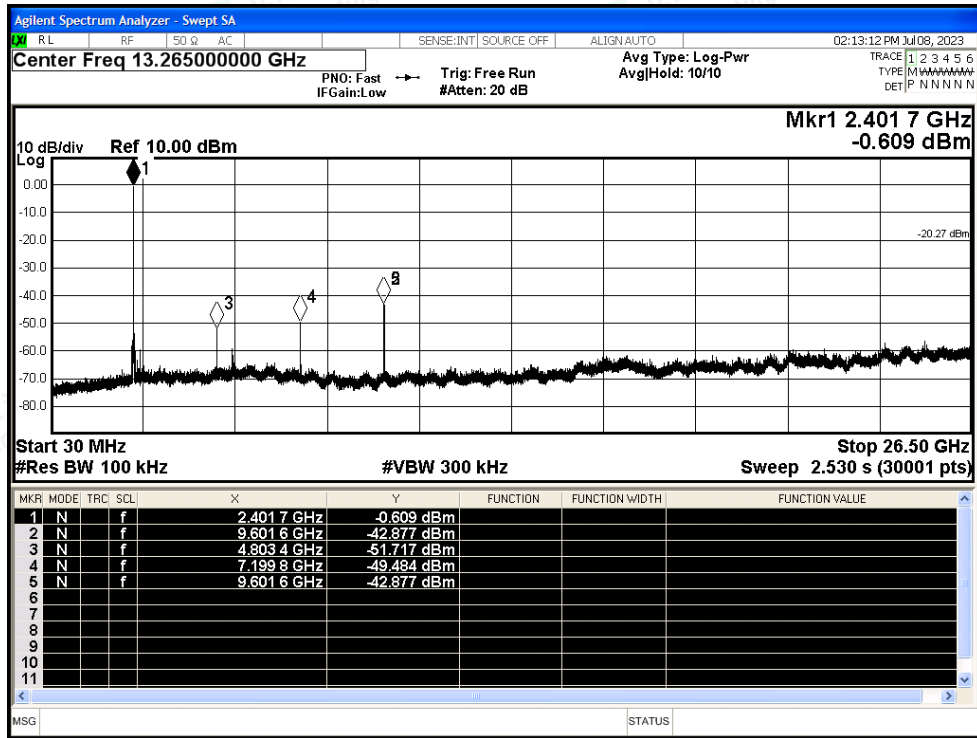


Test Graphs

Tx. Spurious NVNT 1-DH5 2402MHz Ant1 Ref

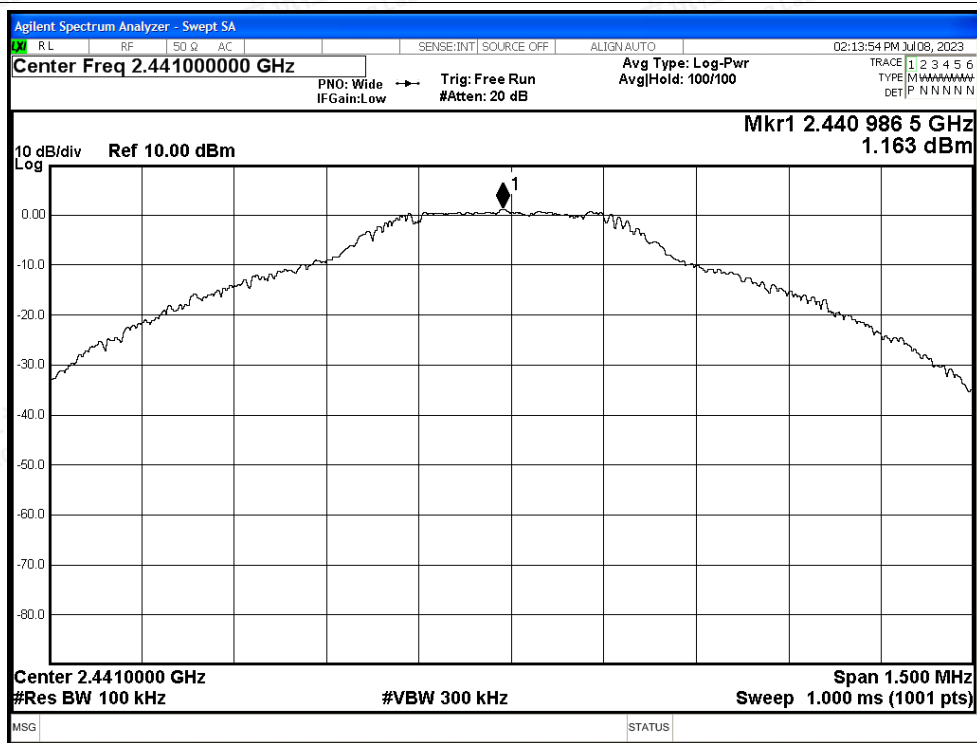


Tx. Spurious NVNT 1-DH5 2402MHz Ant1 Emission

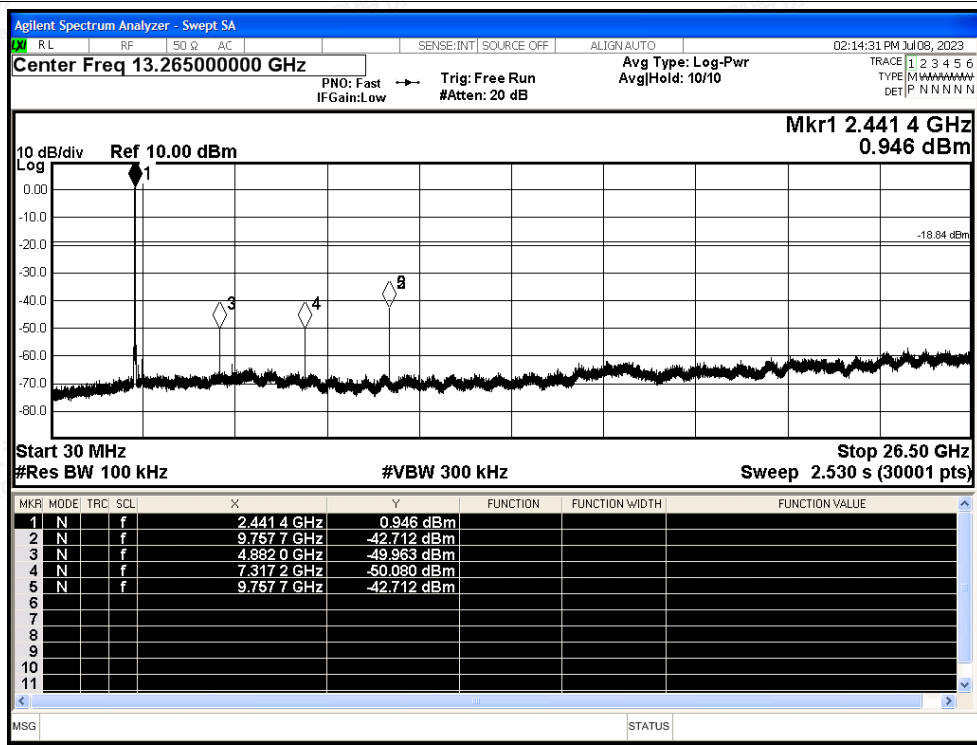




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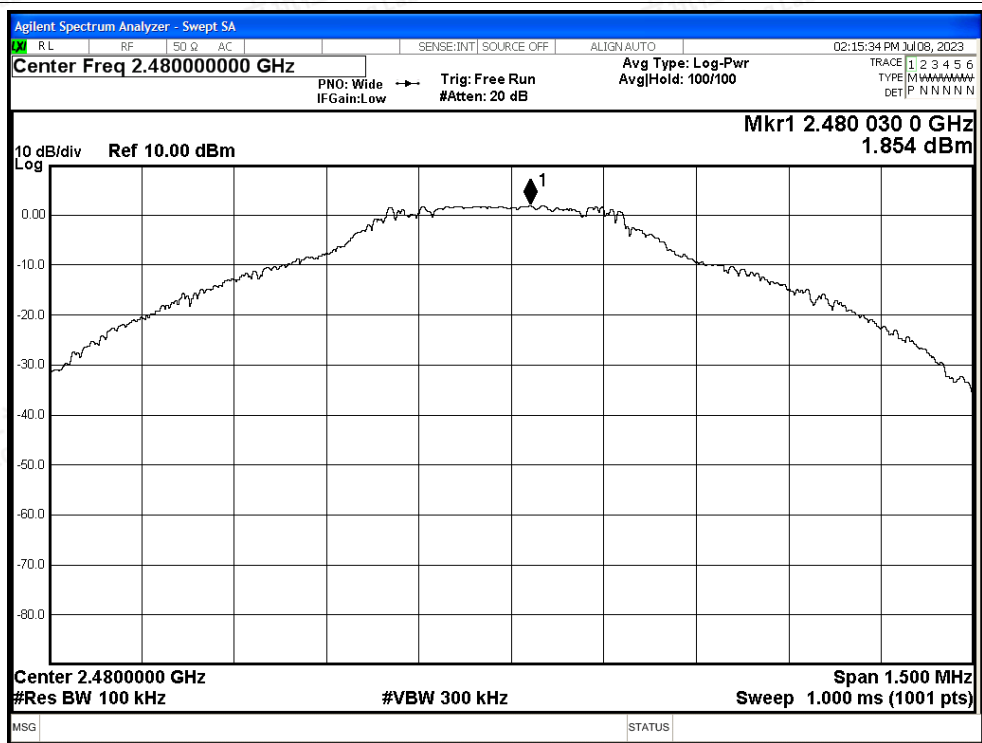


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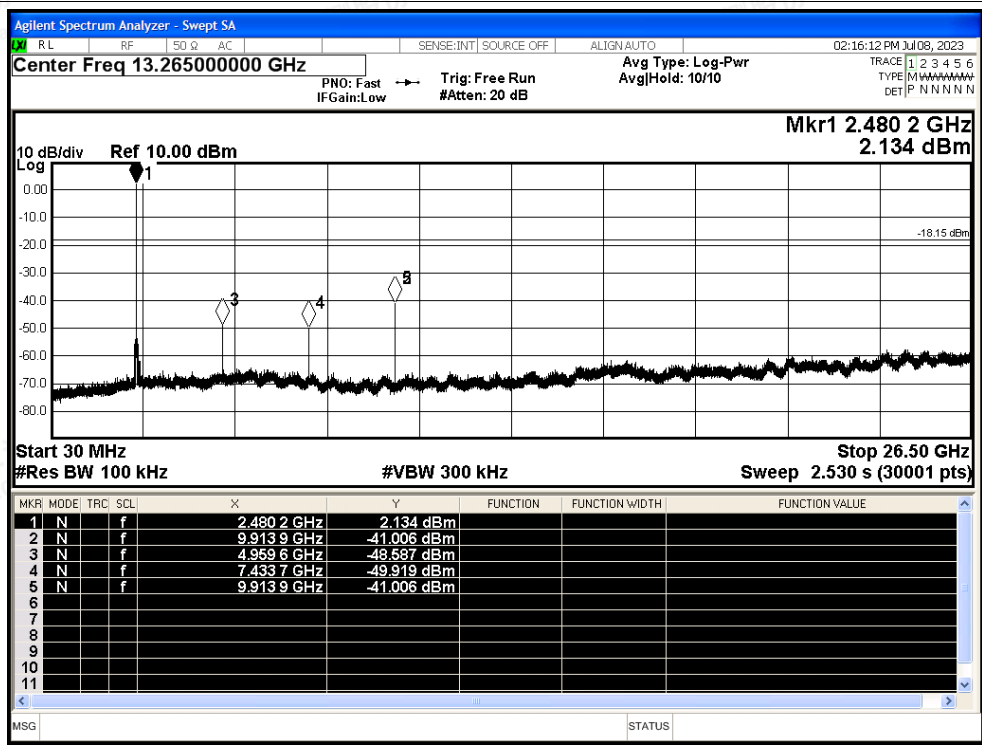




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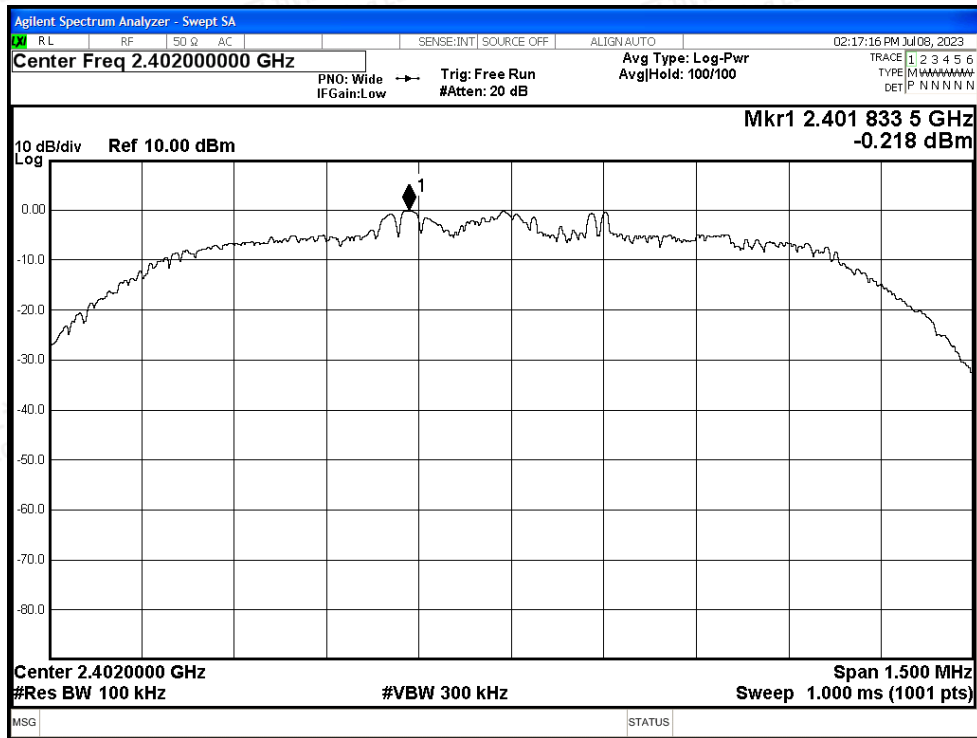


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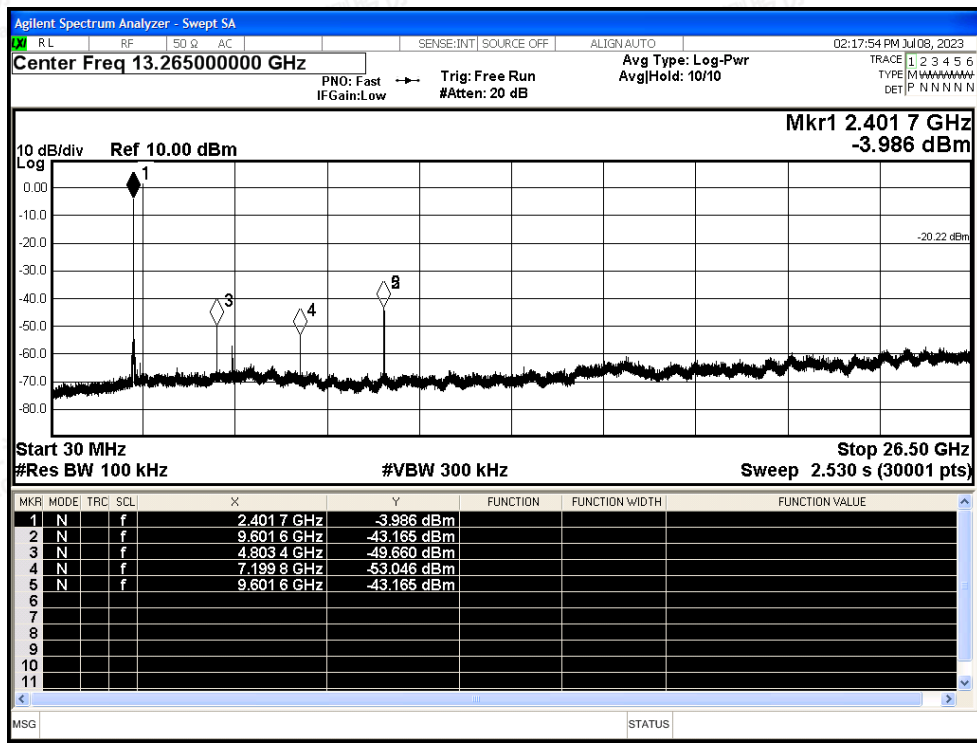




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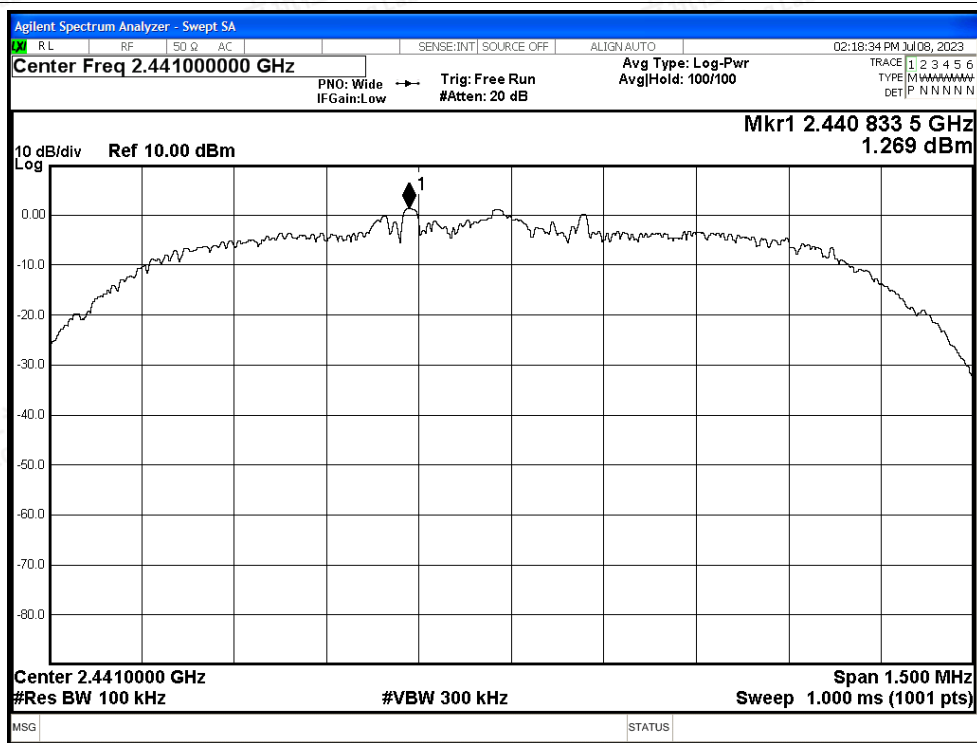


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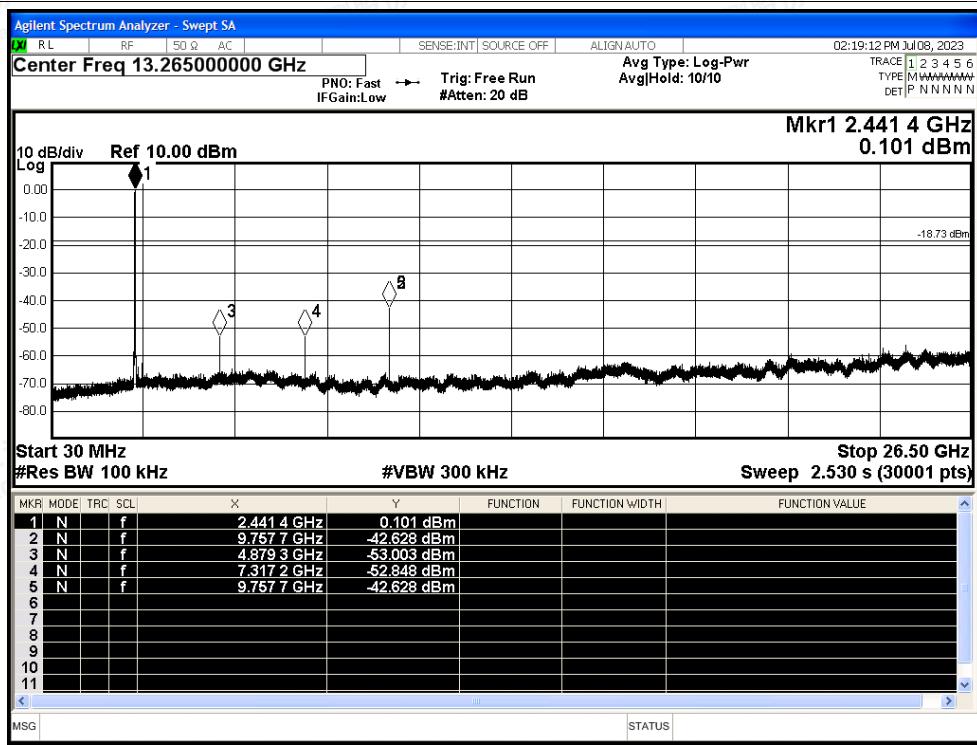




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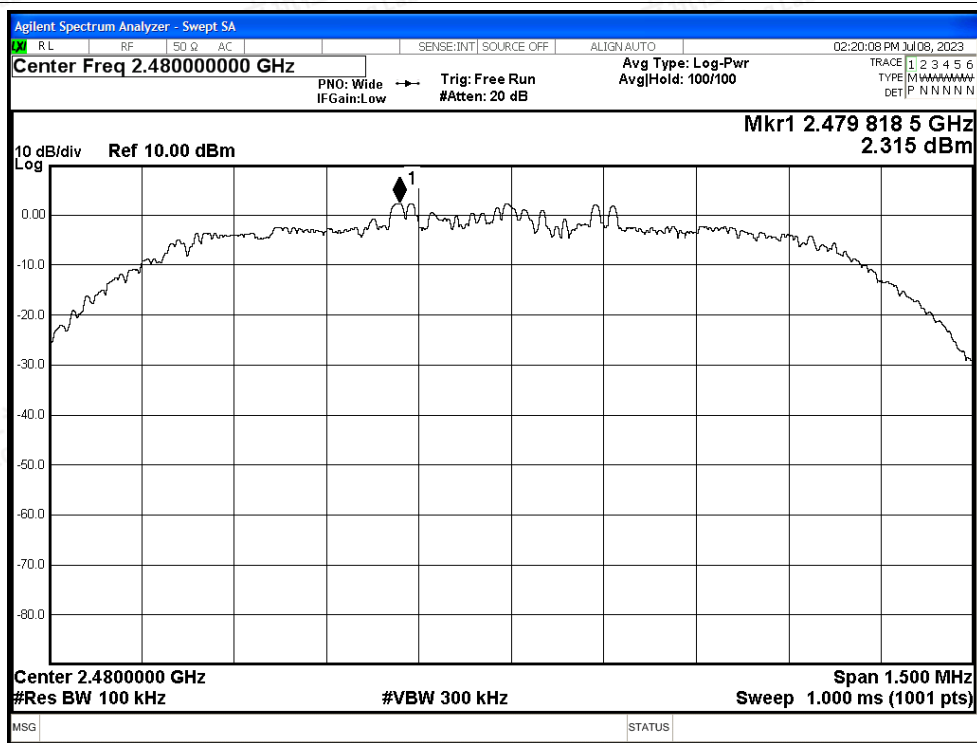


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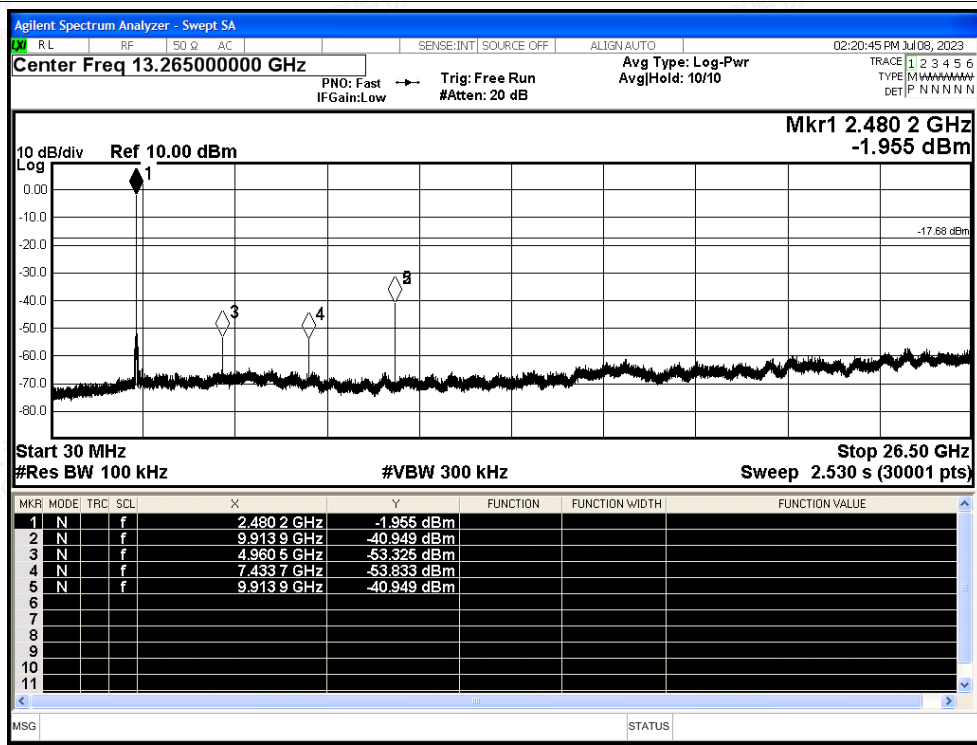




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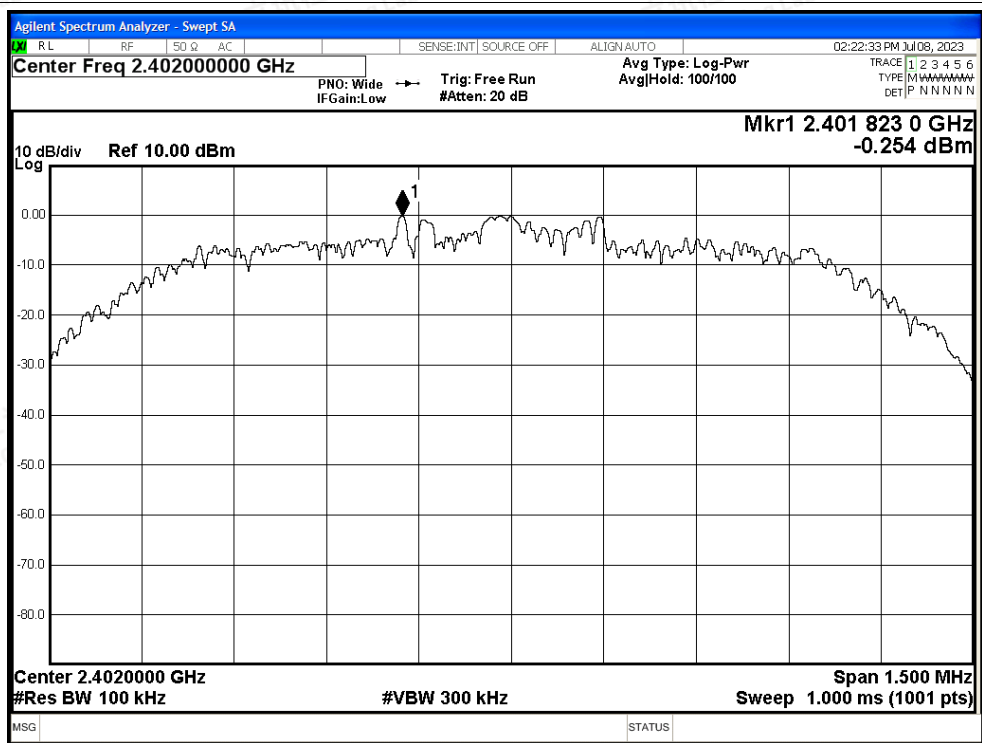


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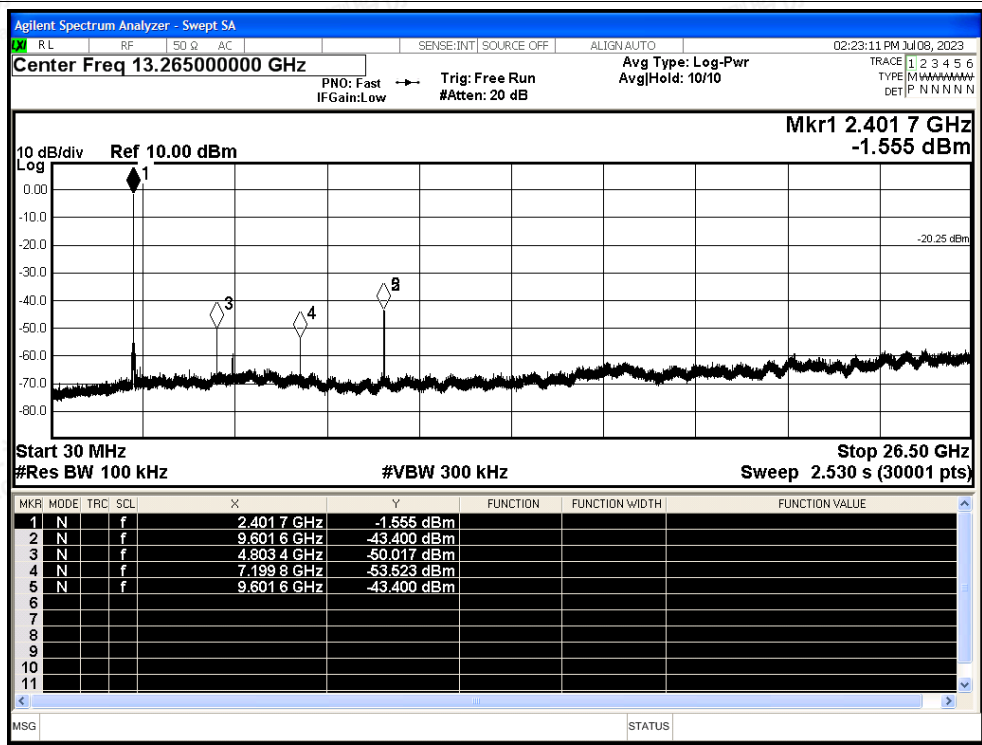




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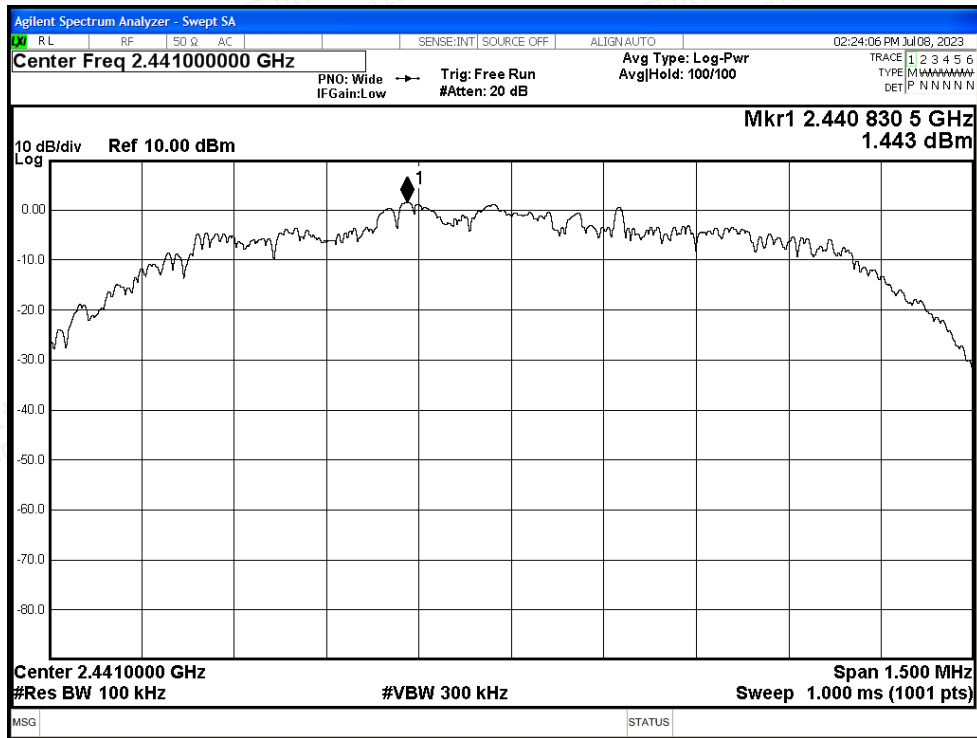


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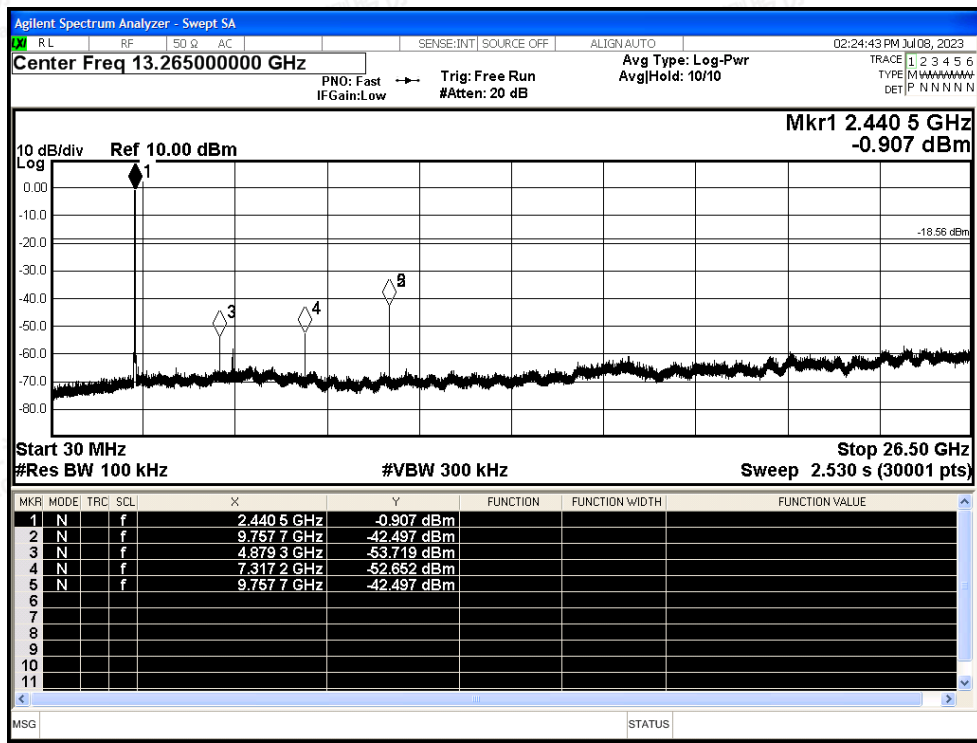




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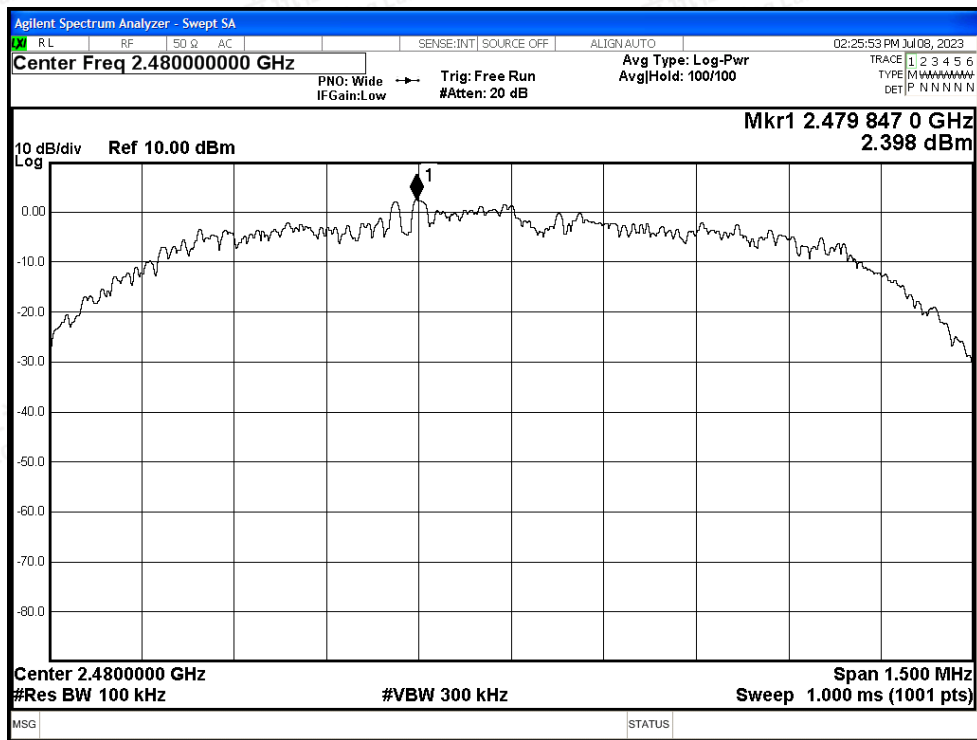


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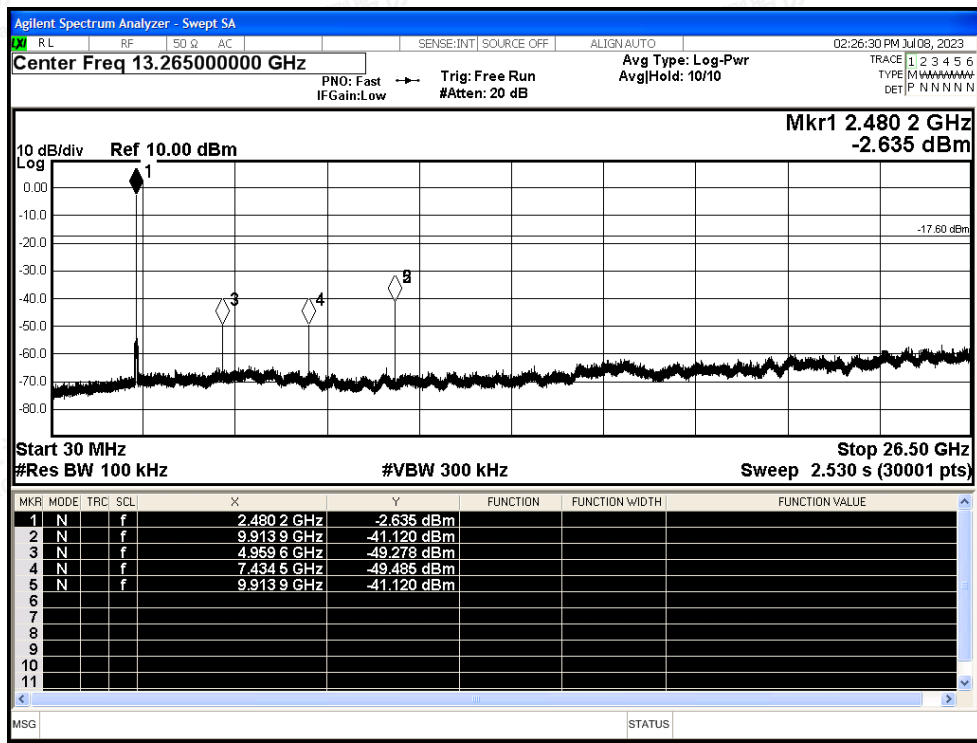




Tx. Spurious NVNT 3-DH5 2480MHz Ant1 Ref



Tx. Spurious NVNT 3-DH5 2480MHz Ant1 Emission





A.8 Restrict Band

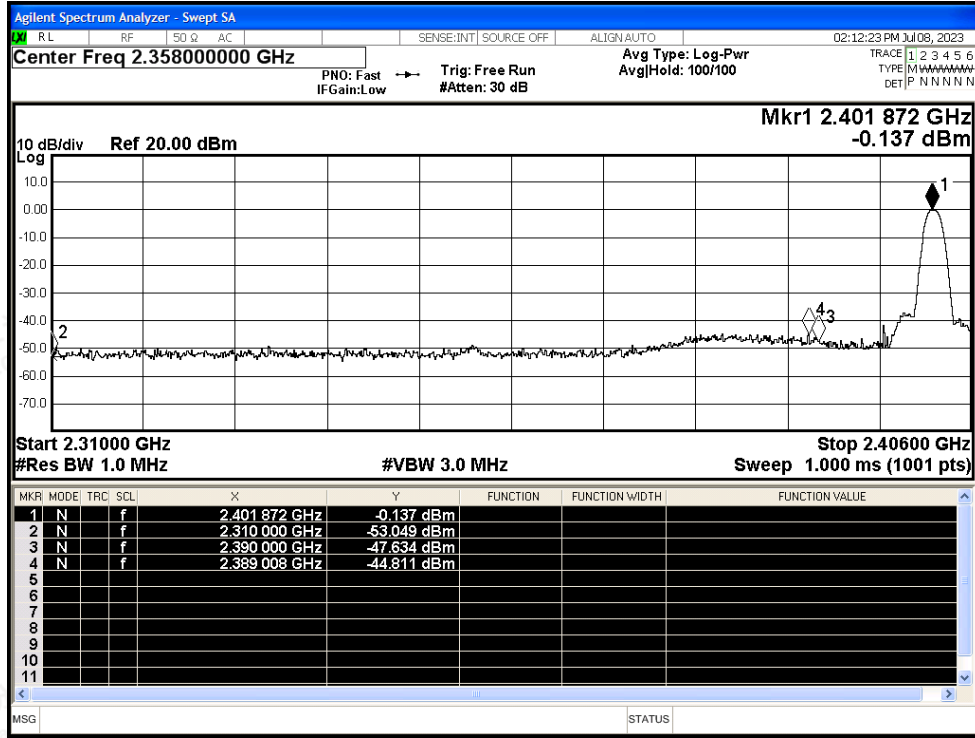
Condition	Mode	Frequency (MHz)	Antenna	Hopping Mode	Spur Freq (MHz)	Power (dBm)	Gain (dBi)	E (dBuV/m)	Detector	Limit (dBuV/m)	Verdict
NVNT	1-DH5	2402	Ant1	No-Hopping	2310	-53.05	3.0	45.21	Peak	74	Pass
NVNT	1-DH5	2402	Ant1	No-Hopping	2310	-62.04	3.0	36.22	Average	54	Pass
NVNT	1-DH5	2402	Ant1	No-Hopping	2389.008	-44.81	3.0	53.45	Peak	74	Pass
NVNT	1-DH5	2402	Ant1	No-Hopping	2380.56	-55.89	3.0	42.37	Average	54	Pass
NVNT	1-DH5	2402	Ant1	No-Hopping	2390	-47.63	3.0	50.63	Peak	74	Pass
NVNT	1-DH5	2402	Ant1	No-Hopping	2390	-57.61	3.0	40.65	Average	54	Pass
NVNT	1-DH5	2480	Ant1	No-Hopping	2483.5	-40.55	3.0	57.71	Peak	74	Pass
NVNT	1-DH5	2480	Ant1	No-Hopping	2483.5	-48.83	3.0	49.43	Average	54	Pass
NVNT	1-DH5	2480	Ant1	No-Hopping	2483.512	-40.55	3.0	57.71	Peak	74	Pass
NVNT	1-DH5	2480	Ant1	No-Hopping	2483.512	-48.83	3.0	49.43	Average	54	Pass
NVNT	1-DH5	2480	Ant1	No-Hopping	2500	-44.67	3.0	53.59	Peak	74	Pass
NVNT	1-DH5	2480	Ant1	No-Hopping	2500	-53.49	3.0	44.77	Average	54	Pass
NVNT	2-DH5	2402	Ant1	No-Hopping	2310	-51.9	3.0	46.36	Peak	74	Pass
NVNT	2-DH5	2402	Ant1	No-Hopping	2310	-62.09	3.0	36.17	Average	54	Pass
NVNT	2-DH5	2402	Ant1	No-Hopping	2377.296	-43.58	3.0	54.68	Peak	74	Pass
NVNT	2-DH5	2402	Ant1	No-Hopping	2381.232	-55.92	3.0	42.34	Average	54	Pass
NVNT	2-DH5	2402	Ant1	No-Hopping	2390	-48	3.0	50.26	Peak	74	Pass
NVNT	2-DH5	2402	Ant1	No-Hopping	2390	-57.65	3.0	40.61	Average	54	Pass
NVNT	2-DH5	2480	Ant1	No-Hopping	2483.5	-41.88	3.0	56.38	Peak	74	Pass
NVNT	2-DH5	2480	Ant1	No-Hopping	2483.5	-51.51	3.0	46.75	Average	54	Pass
NVNT	2-DH5	2480	Ant1	No-Hopping	2498.056	-40.3	3.0	57.96	Peak	74	Pass
NVNT	2-DH5	2480	Ant1	No-Hopping	2483.512	-51.51	3.0	46.75	Average	54	Pass
NVNT	2-DH5	2480	Ant1	No-Hopping	2500	-42.37	3.0	55.89	Peak	74	Pass
NVNT	2-DH5	2480	Ant1	No-Hopping	2500	-53.38	3.0	44.88	Average	54	Pass
NVNT	3-DH5	2402	Ant1	No-Hopping	2310	-51.86	3.0	46.40	Peak	74	Pass
NVNT	3-DH5	2402	Ant1	No-Hopping	2310	-62.03	3.0	36.23	Average	54	Pass
NVNT	3-DH5	2402	Ant1	No-Hopping	2382	-44.02	3.0	54.24	Peak	74	Pass
NVNT	3-DH5	2402	Ant1	No-Hopping	2381.04	-56.81	3.0	41.45	Average	54	Pass
NVNT	3-DH5	2402	Ant1	No-Hopping	2390	-48.74	3.0	49.52	Peak	74	Pass
NVNT	3-DH5	2402	Ant1	No-Hopping	2390	-58.62	3.0	39.64	Average	54	Pass
NVNT	3-DH5	2480	Ant1	No-Hopping	2483.5	-41.11	3.0	57.15	Peak	74	Pass
NVNT	3-DH5	2480	Ant1	No-Hopping	2483.5	-55.7	3.0	42.56	Average	54	Pass
NVNT	3-DH5	2480	Ant1	No-Hopping	2483.824	-40.61	3.0	57.65	Peak	74	Pass
NVNT	3-DH5	2480	Ant1	No-Hopping	2499.688	-54.26	3.0	44.00	Average	54	Pass
NVNT	3-DH5	2480	Ant1	No-Hopping	2500	-44.63	3.0	53.63	Peak	74	Pass
NVNT	3-DH5	2480	Ant1	No-Hopping	2500	-56.37	3.0	41.89	Average	54	Pass



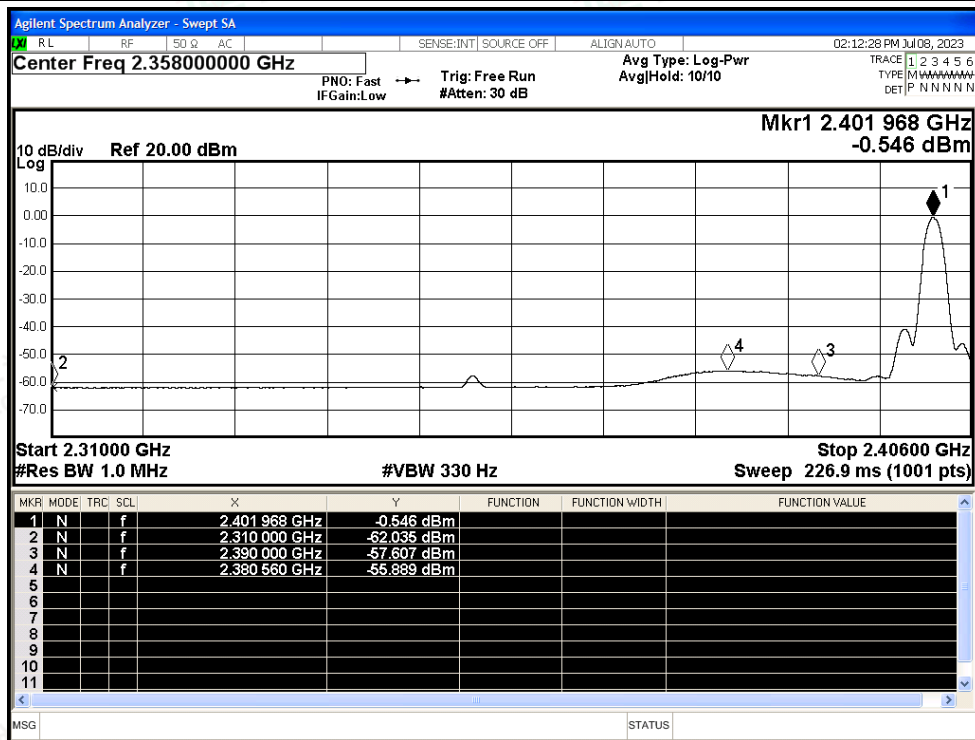


Test Graphs

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

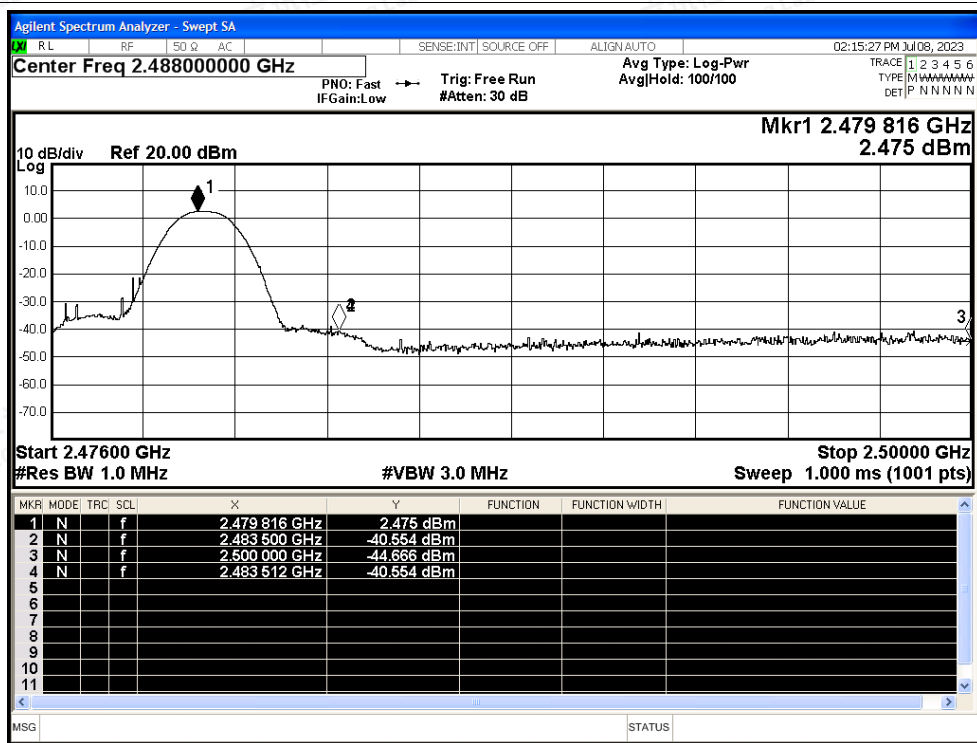


Restrict Band NVNT 1-DH5 2402MHz Ant1 No-Hopping Average

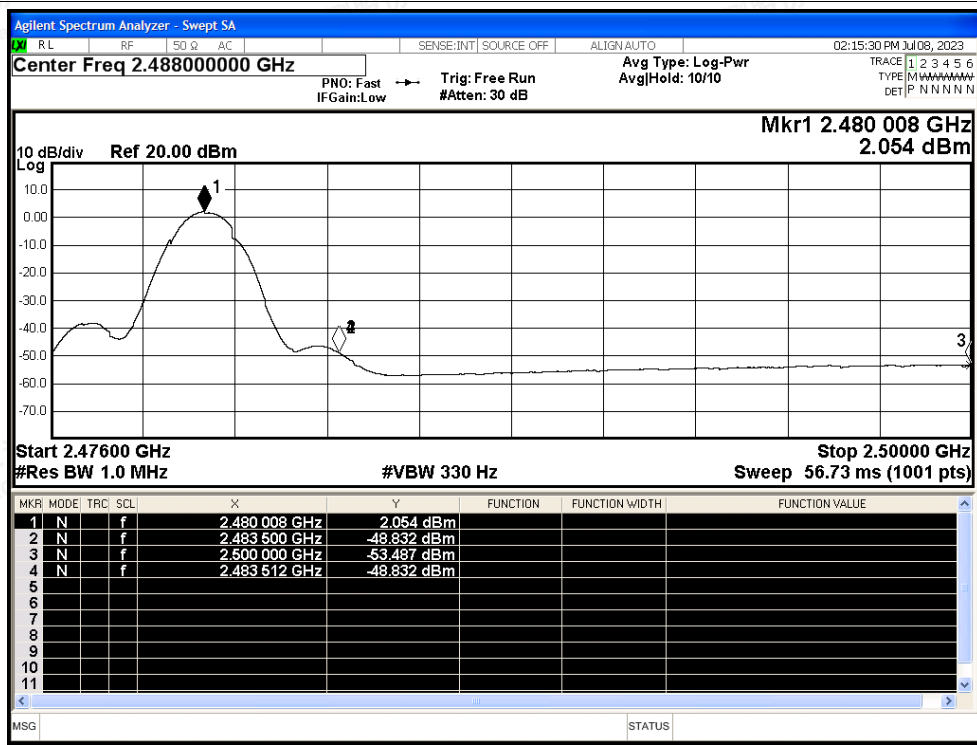




Restrict Band NVNT 1-DH5 2480MHz Ant1 No-Hopping Peak

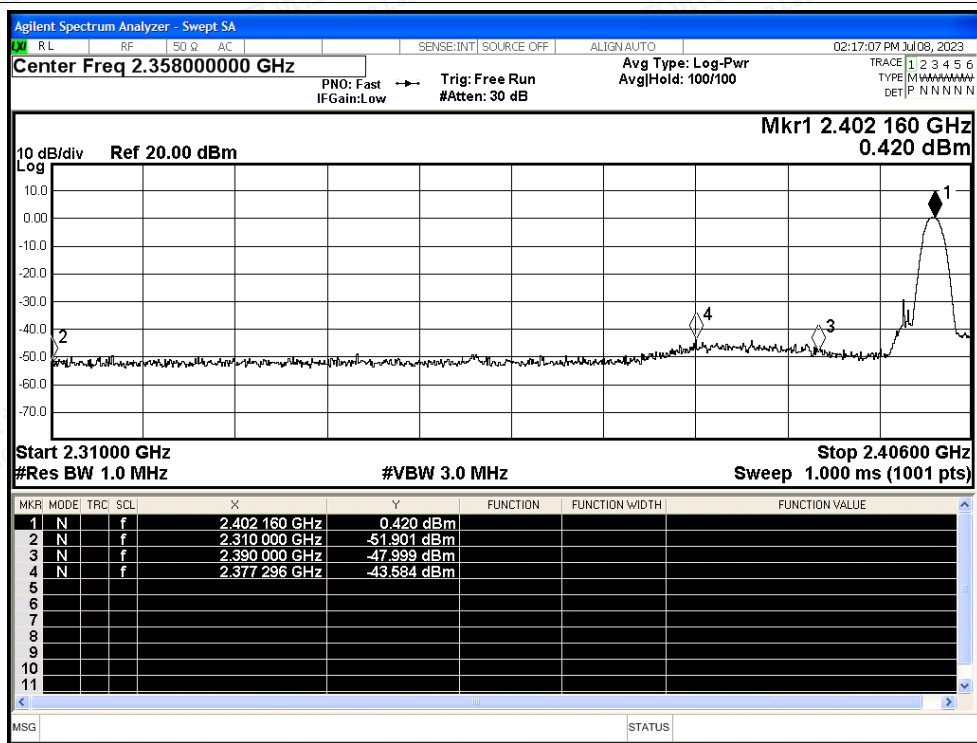


Restrict Band NVNT 1-DH5 2480MHz Ant1 No-Hopping Average

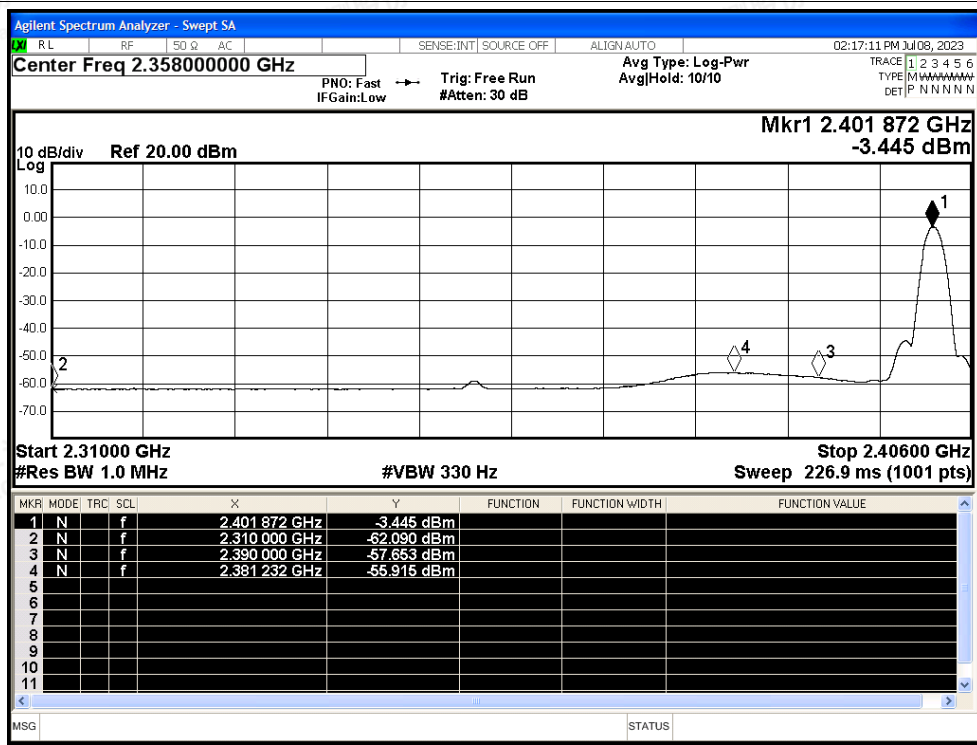




Restrict Band NVNT 2-DH5 2402MHz Ant1 No-Hopping Peak

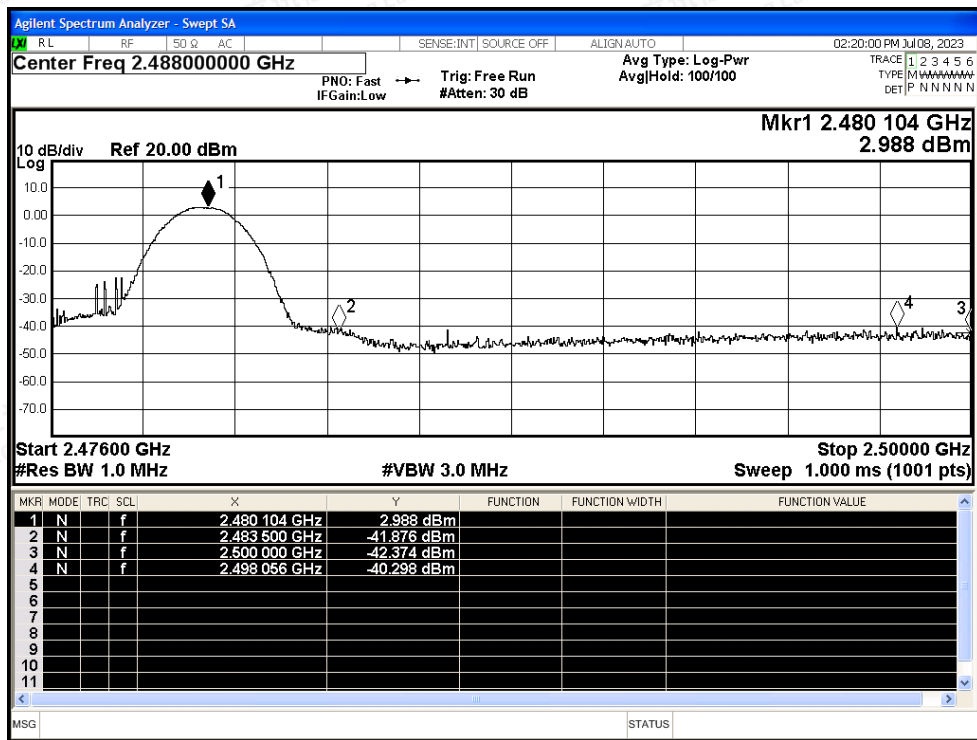


Restrict Band NVNT 2-DH5 2402MHz Ant1 No-Hopping Average

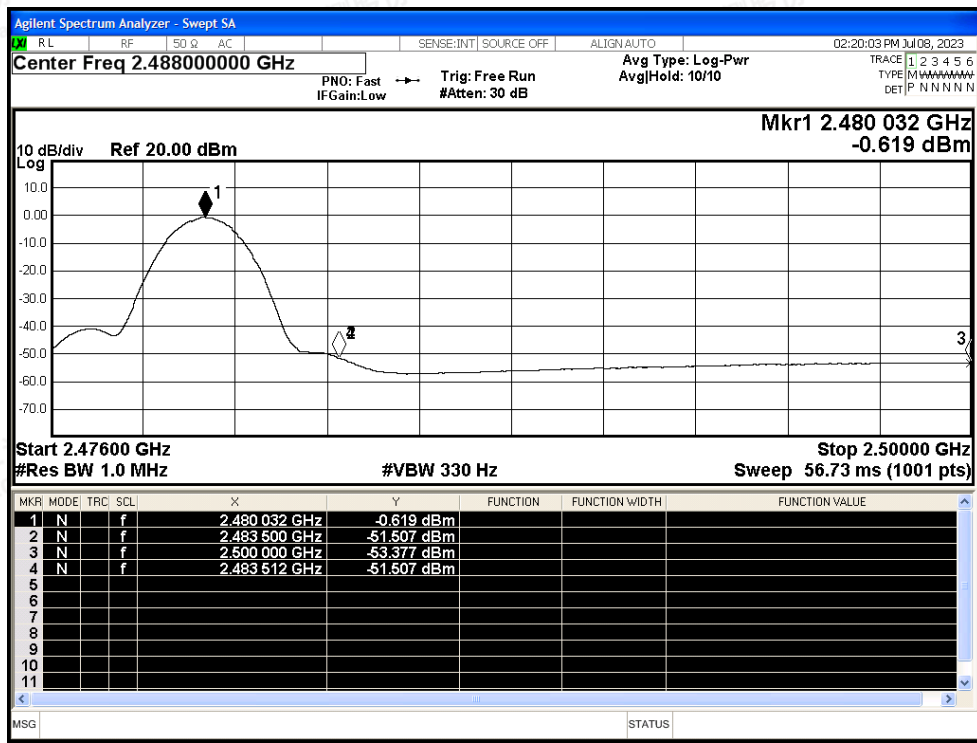




Restrict Band NVNT 2-DH5 2480MHz Ant1 No-Hopping Peak

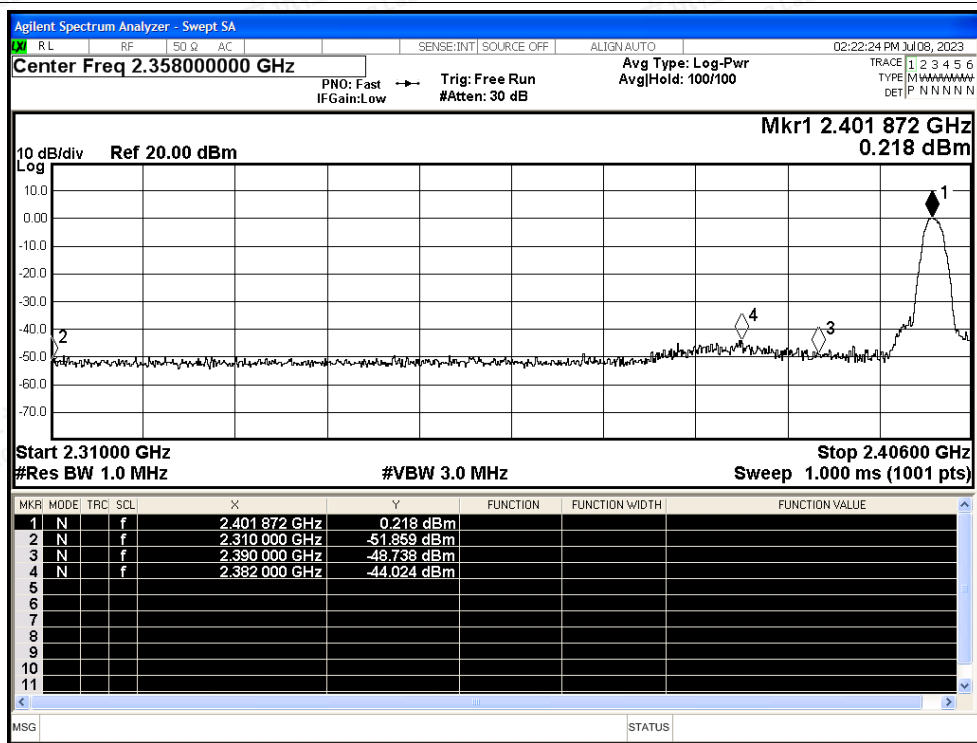


Restrict Band NVNT 2-DH5 2480MHz Ant1 No-Hopping Average

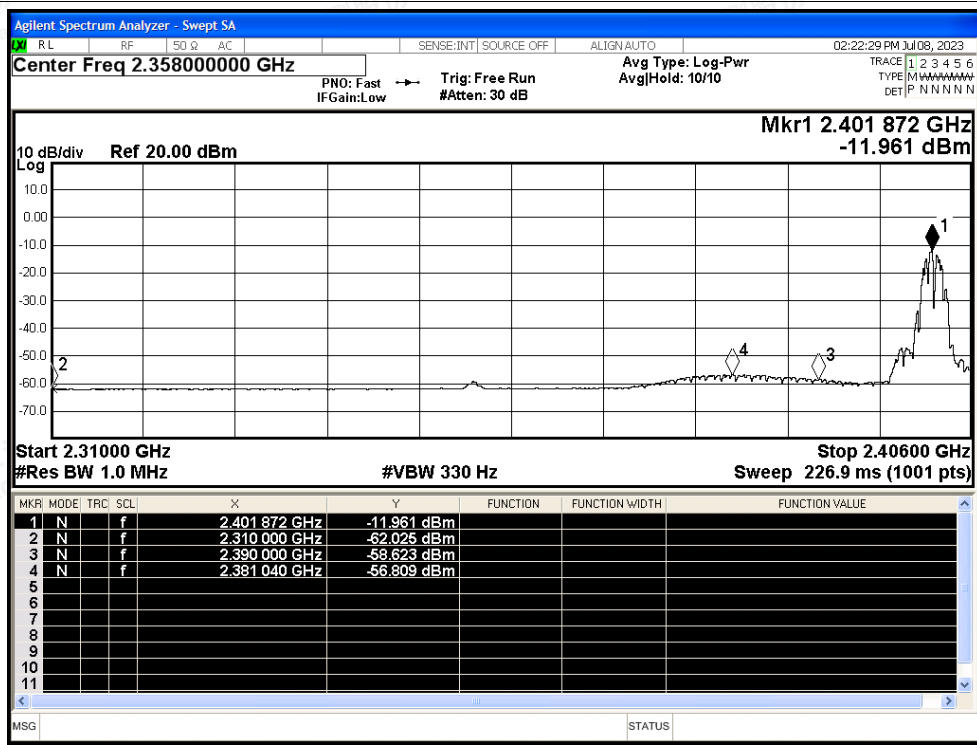




Restrict Band NVNT 3-DH5 2402MHz Ant1 No-Hopping Peak

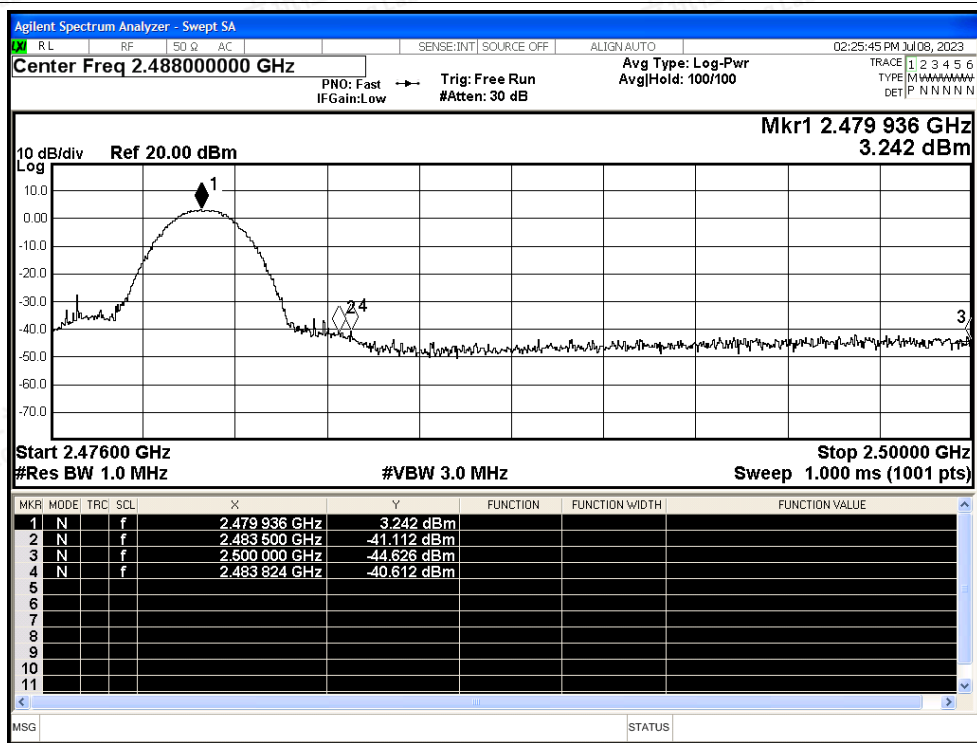


Restrict Band NVNT 3-DH5 2402MHz Ant1 No-Hopping Average





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



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

