Appendix B: Test Results of Bluetooth BR & EDR (Module B)

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Appendix B.1: Test Results of 99% Bandwidth

Condition	Mode	Frequency (MHz)	Antenna	99% OBW (MHz)
NVNT	1-DH5	2402	Ant1	0.81488
NVNT	1-DH5	2441	Ant1	0.81387
NVNT	1-DH5	2480	Ant1	0.83282
NVNT	2-DH5	2402	Ant1	1.1661
NVNT	2-DH5	2441	Ant1	1.1669
NVNT	2-DH5	2480	Ant1	1.1662
NVNT	3-DH5	2402	Ant1	1.1764
NVNT	3-DH5	2441	Ant1	1.1726
NVNT	3-DH5	2480	Ant1	1.1716

Test Graphs

OBW NVNT 1-DH5 2402MHz Ant1

OBW NVNT 1-DH5 2441MHz Ant1

OBW NVNT 1-DH5 2480MHz Ant1

OBW NVNT 2-DH5 2402MHz Ant1

OBW NVNT 2-DH5 2441MHz Ant1

OBW NVNT 2-DH5 2480MHz Ant1

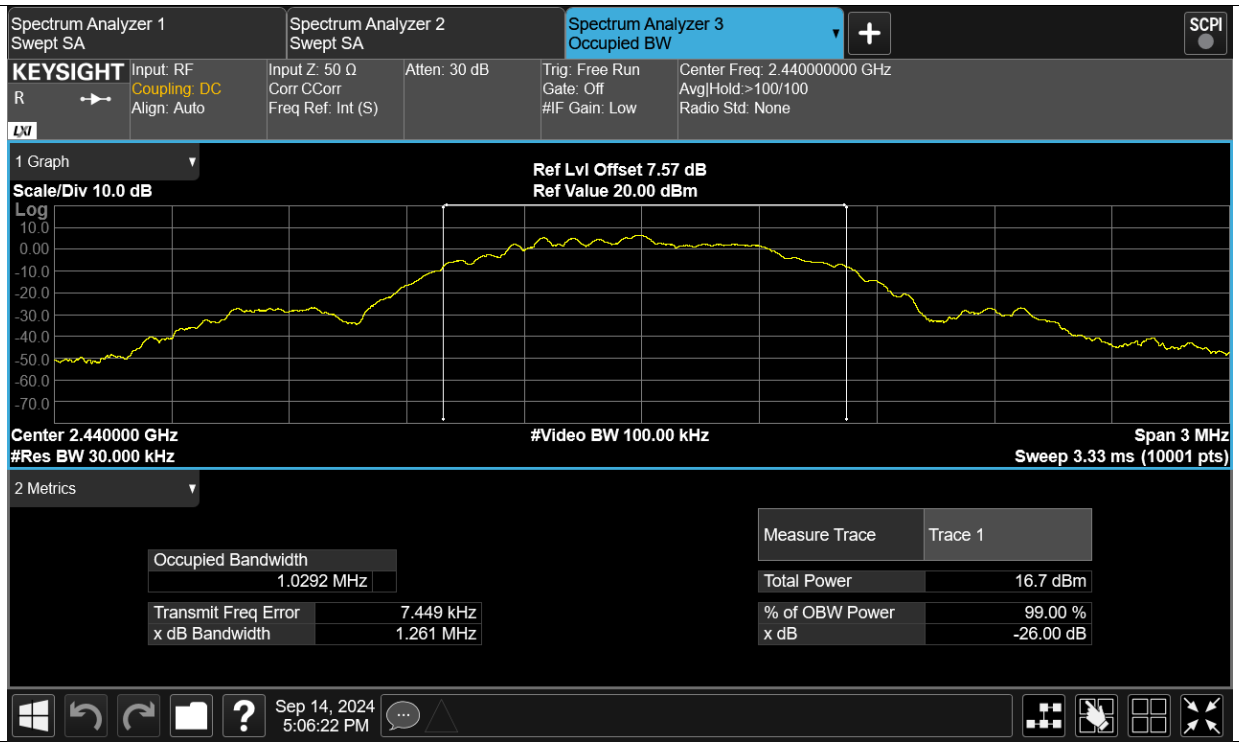
OBW NVNT 3-DH5 2402MHz Ant1

OBW NVNT 3-DH5 2441MHz Ant1

OBW NVNT 3-DH5 2480MHz Ant1

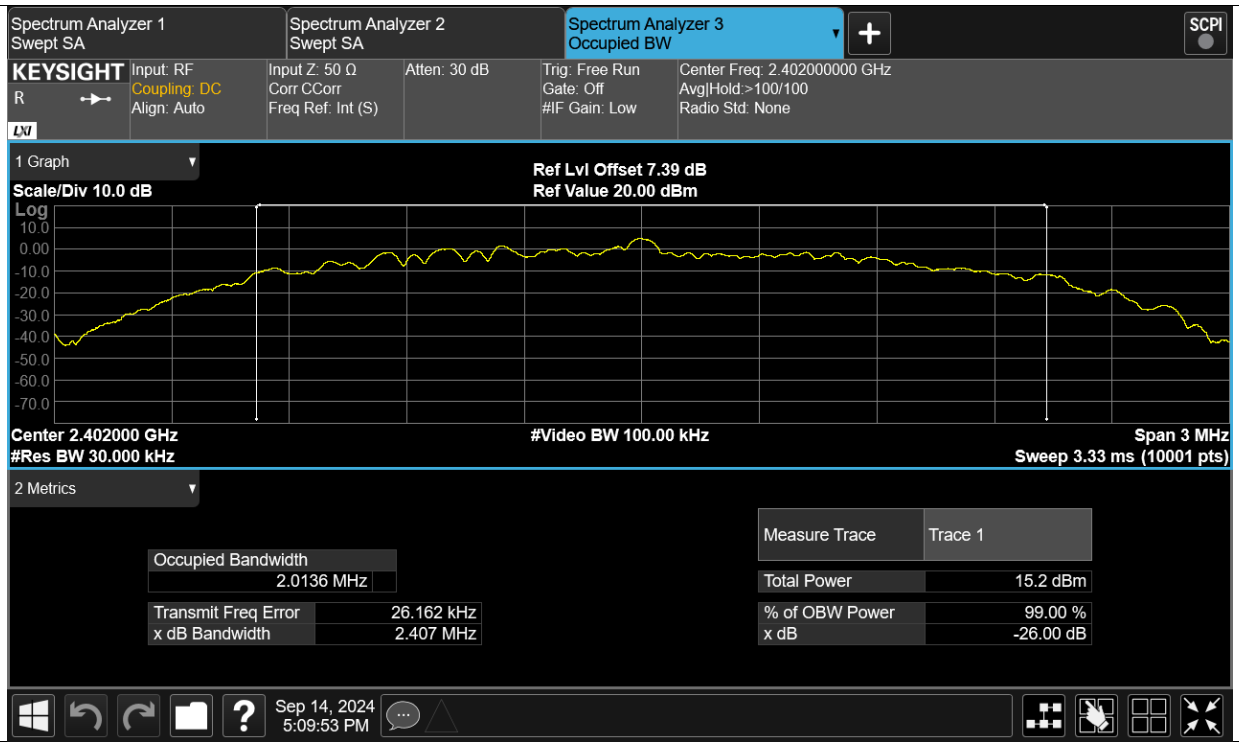
OBW NVNT BLE 1Mbps 2402MHz Ant1

OBW NVNT BLE 1Mbps 2440MHz Ant1

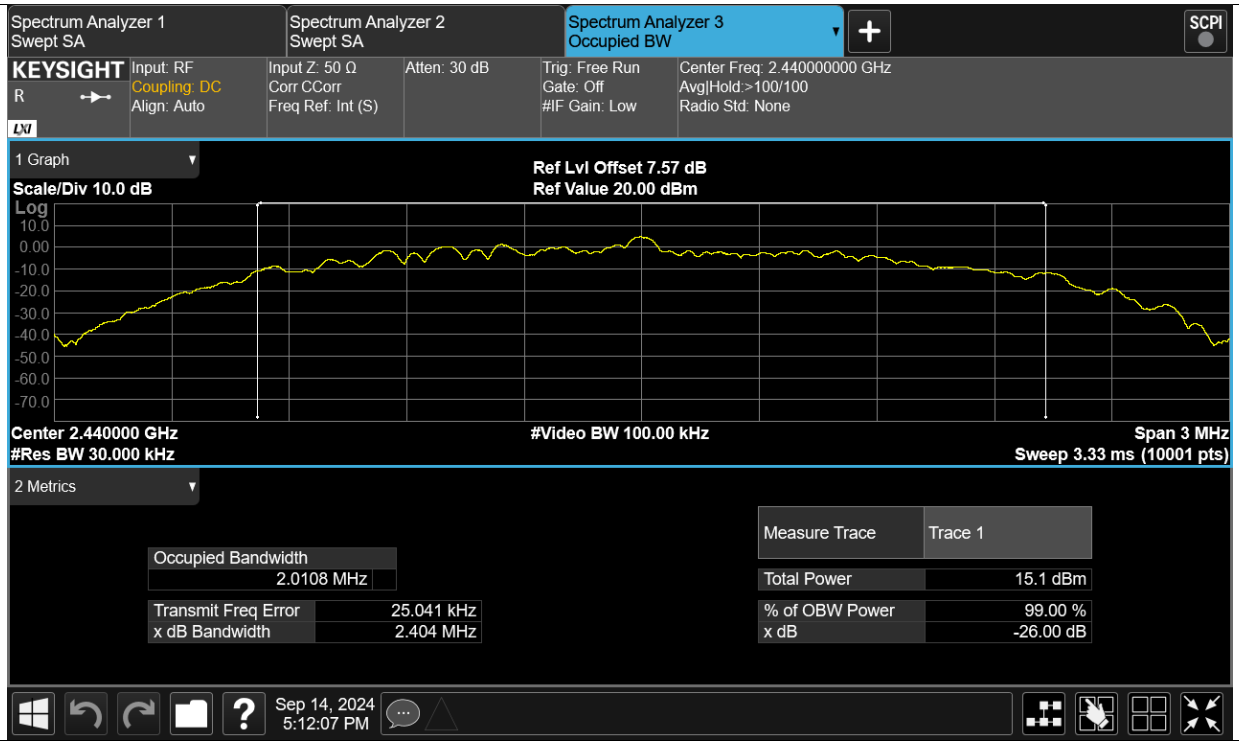


OBW NVNT BLE 1Mbps 2480MHz Ant1

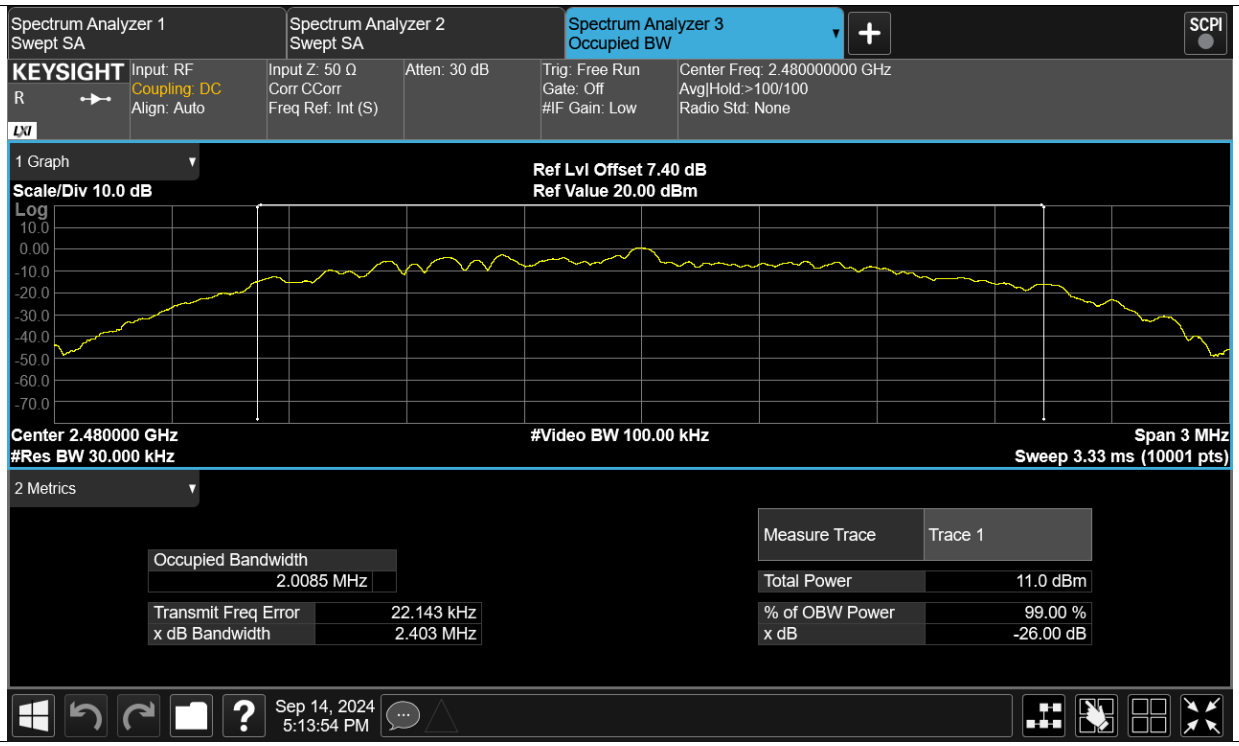
OBW NVNT BLE 2Mbps 2402MHz Ant1



OBW NVNT BLE 2Mbps 2440MHz Ant1



OBW NVNT BLE 2Mbps 2480MHz Ant1



Appendix B.2: Test Results of 20dB Bandwidth

Condition	Mode	Frequency (MHz)	Antenna	-20 dB Bandwidth (MHz)	Limit -20 dB Bandwidth (MHz)	Verdict
NVNT	1-DH5	2402	Ant1	0.922	0	Pass
NVNT	1-DH5	2441	Ant1	0.923	0	Pass
NVNT	1-DH5	2480	Ant1	0.929	0	Pass
NVNT	2-DH5	2402	Ant1	1.283	0	Pass
NVNT	2-DH5	2441	Ant1	1.316	0	Pass
NVNT	2-DH5	2480	Ant1	1.285	0	Pass
NVNT	3-DH5	2402	Ant1	1.291	0	Pass
NVNT	3-DH5	2441	Ant1	1.292	0	Pass
NVNT	3-DH5	2480	Ant1	1.293	0	Pass

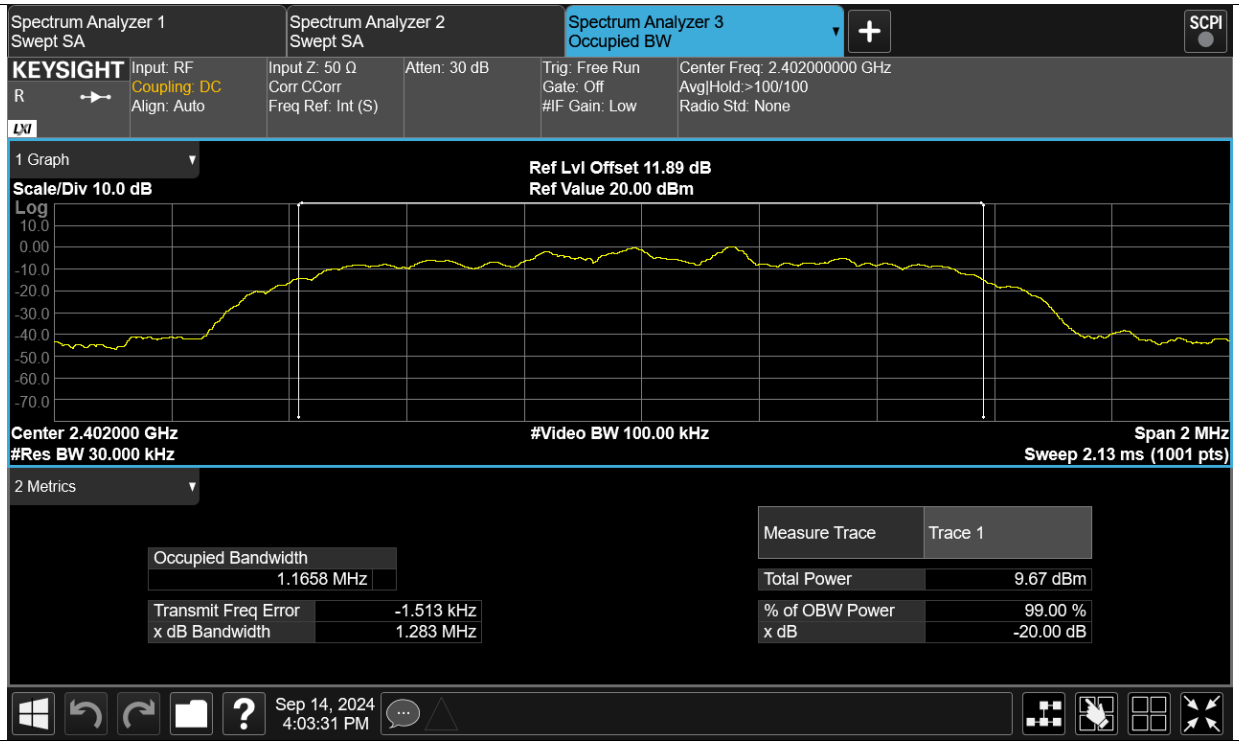
Test Graphs

-20dB Bandwidth NVNT 1-DH5 2402MHz Ant1

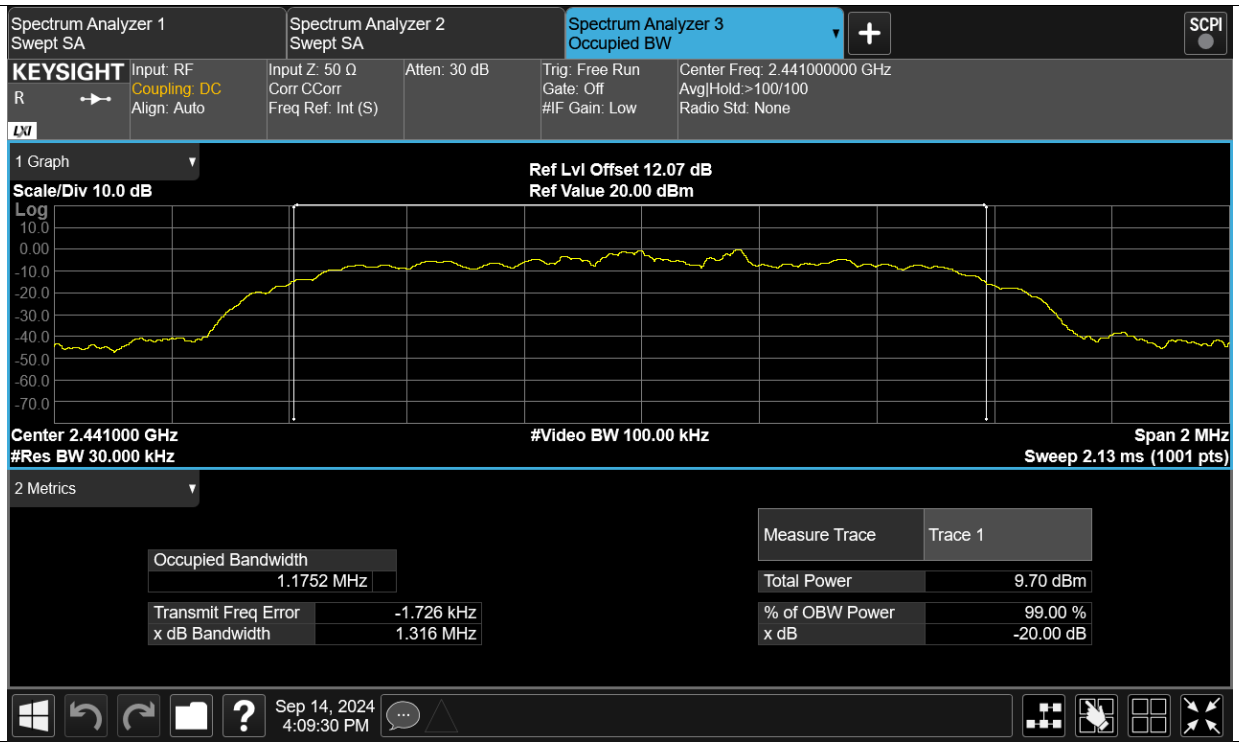
-20dB Bandwidth NVNT 1-DH5 2441MHz Ant1

-20dB Bandwidth NVNT 1-DH5 2480MHz Ant1

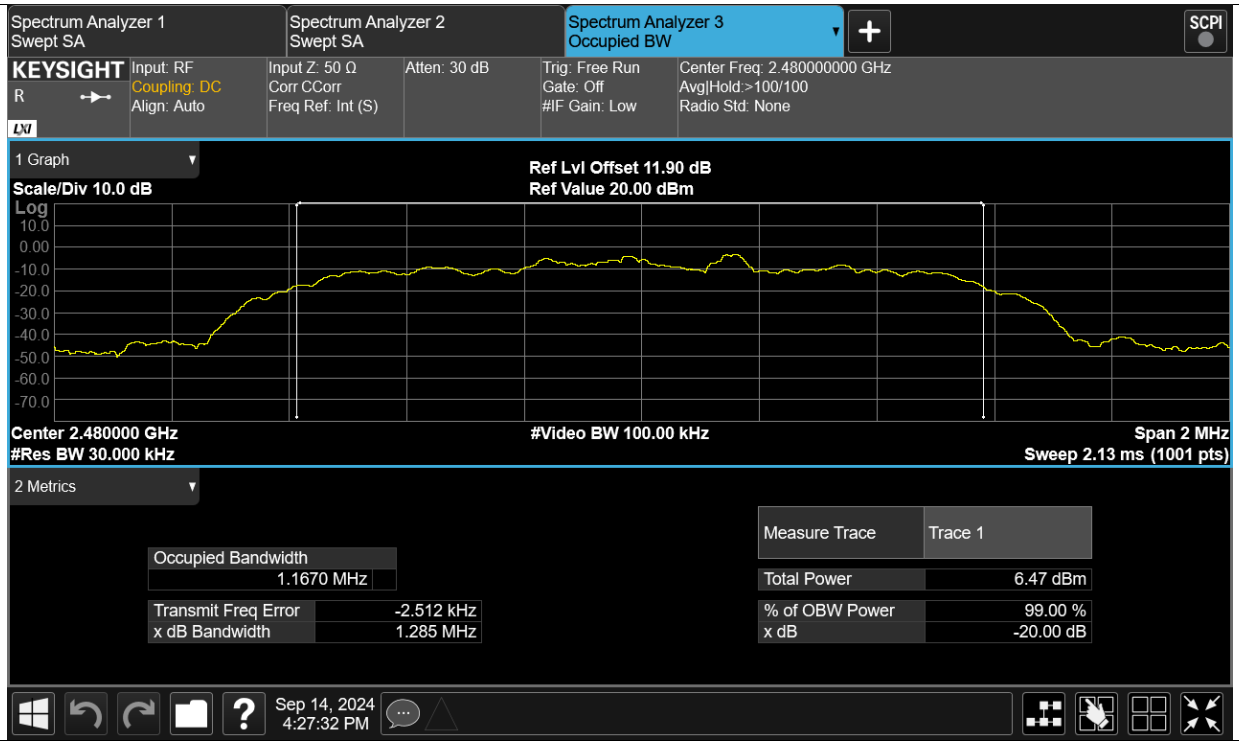
-20dB Bandwidth NVNT 2-DH5 2402MHz Ant1



-20dB Bandwidth NVNT 2-DH5 2441MHz Ant1

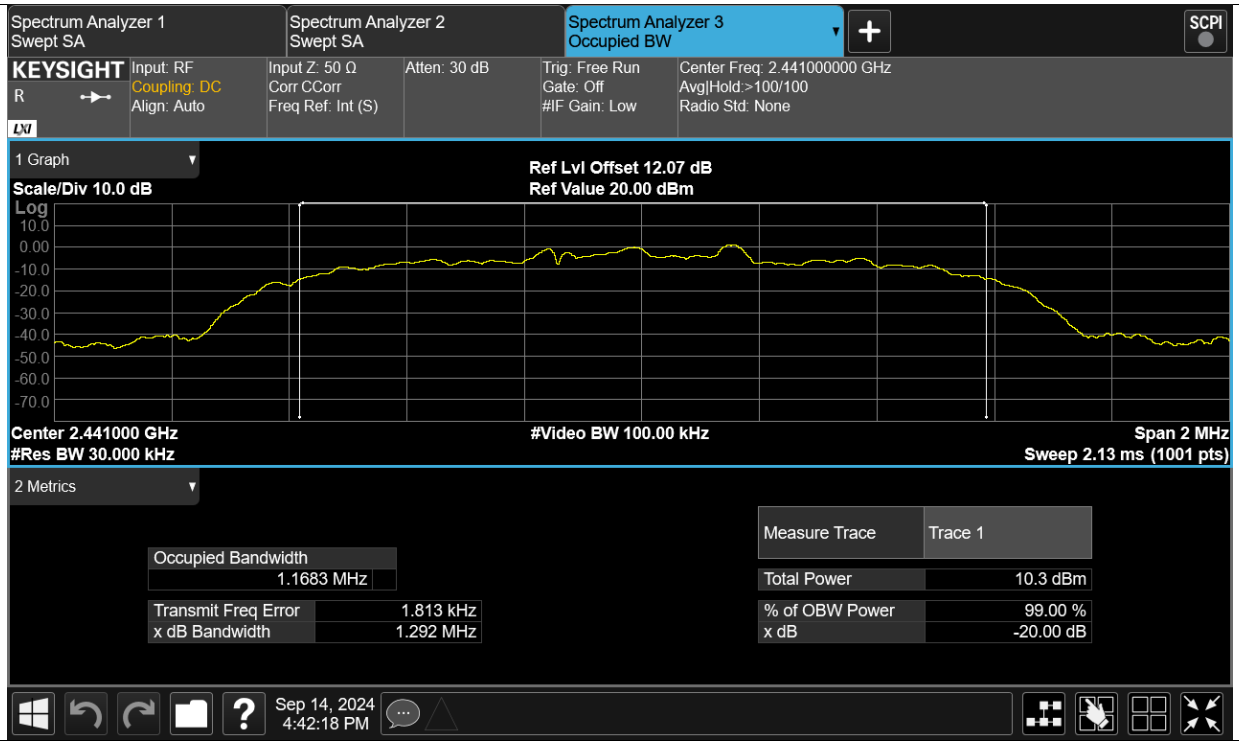


-20dB Bandwidth NVNT 2-DH5 2480MHz Ant1



-20dB Bandwidth NVNT 3-DH5 2402MHz Ant1

-20dB Bandwidth NVNT 3-DH5 2441MHz Ant1



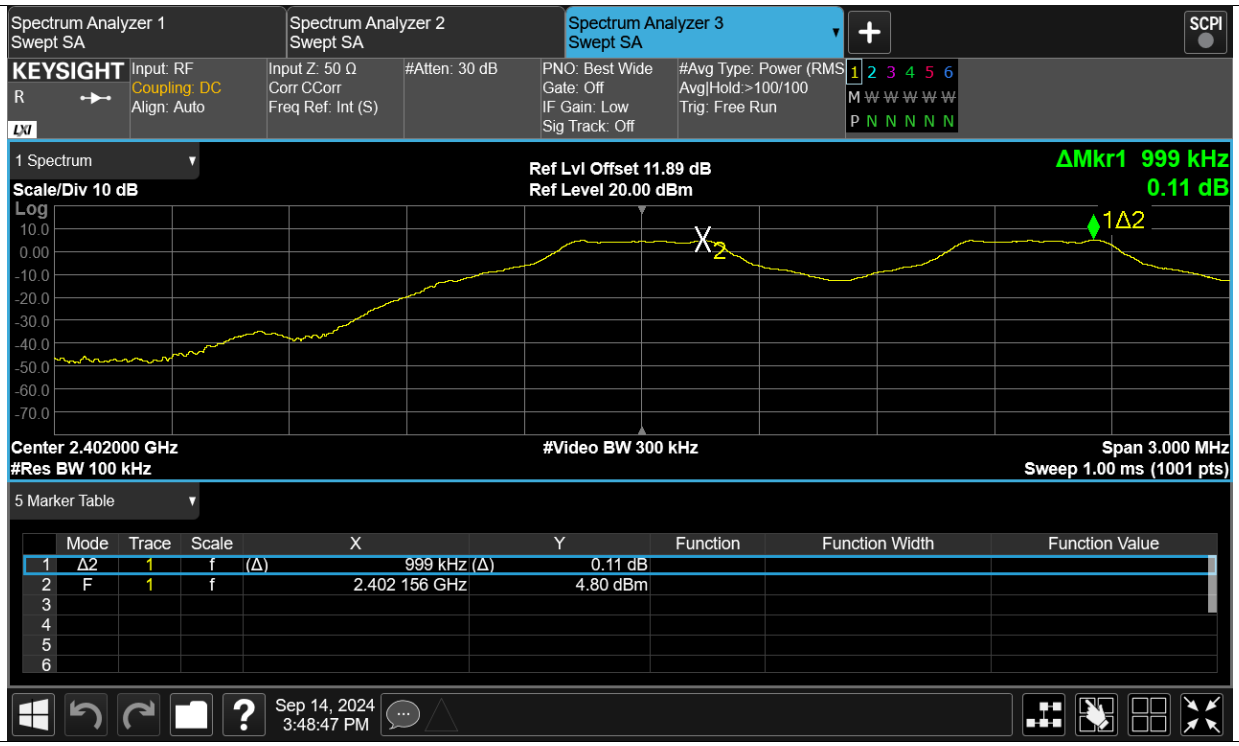
-20dB Bandwidth NVNT 3-DH5 2480MHz Ant1

Appendix B.3: Test Results of Carrier Frequency Separation

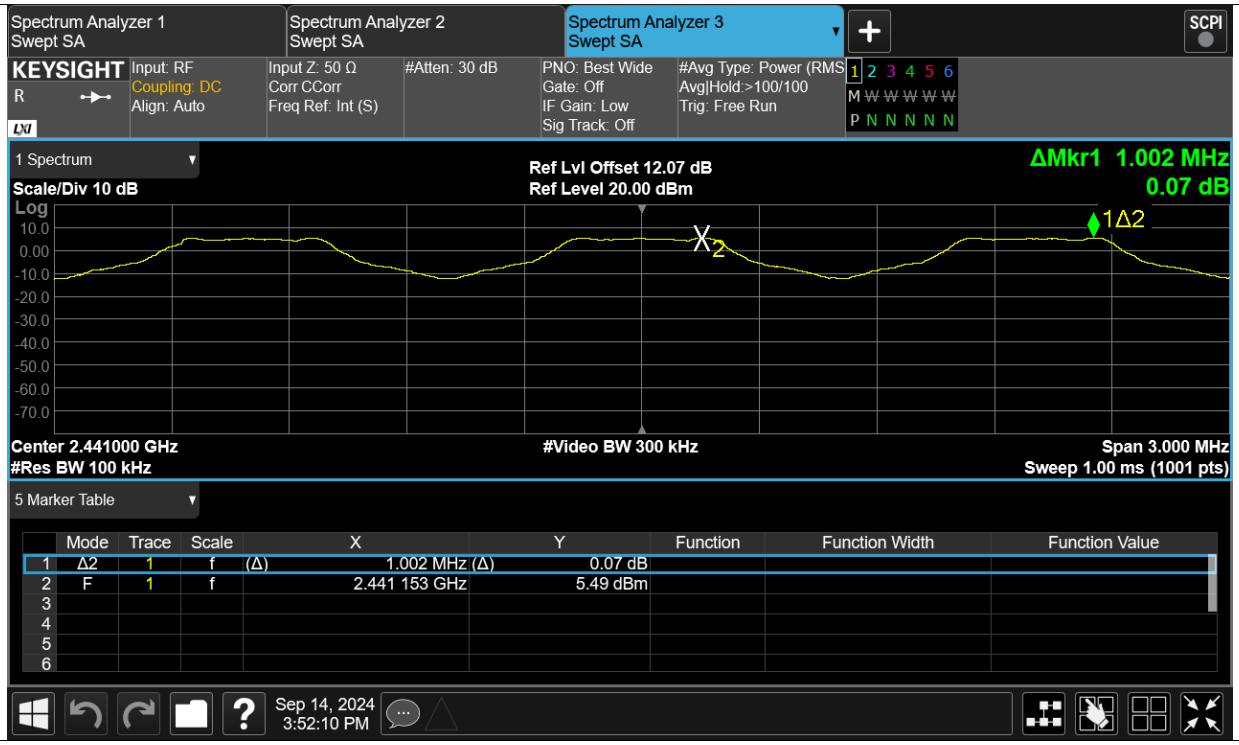
Condition	Mode	Antenna	Hopping Freq1 (MHz)	Hopping Freq2 (MHz)	HFS (MHz)	Limit (MHz)	Verdict
NVNT	1-DH5	Ant1	2402.156	2403.155	0.999	0.615	Pass
NVNT	1-DH5	Ant1	2441.153	2442.155	1.002	0.615	Pass
NVNT	1-DH5	Ant1	2479.154	2480.156	1.002	0.619	Pass
NVNT	2-DH5	Ant1	2402.156	2403.152	0.996	0.855	Pass
NVNT	2-DH5	Ant1	2441.153	2442.155	1.002	0.877	Pass
NVNT	2-DH5	Ant1	2479.154	2480.153	0.999	0.857	Pass
NVNT	3-DH5	Ant1	2402.153	2403.152	0.999	0.861	Pass
NVNT	3-DH5	Ant1	2441.153	2442.152	0.999	0.861	Pass
NVNT	3-DH5	Ant1	2479.154	2480.153	0.999	0.862	Pass

Test Graphs

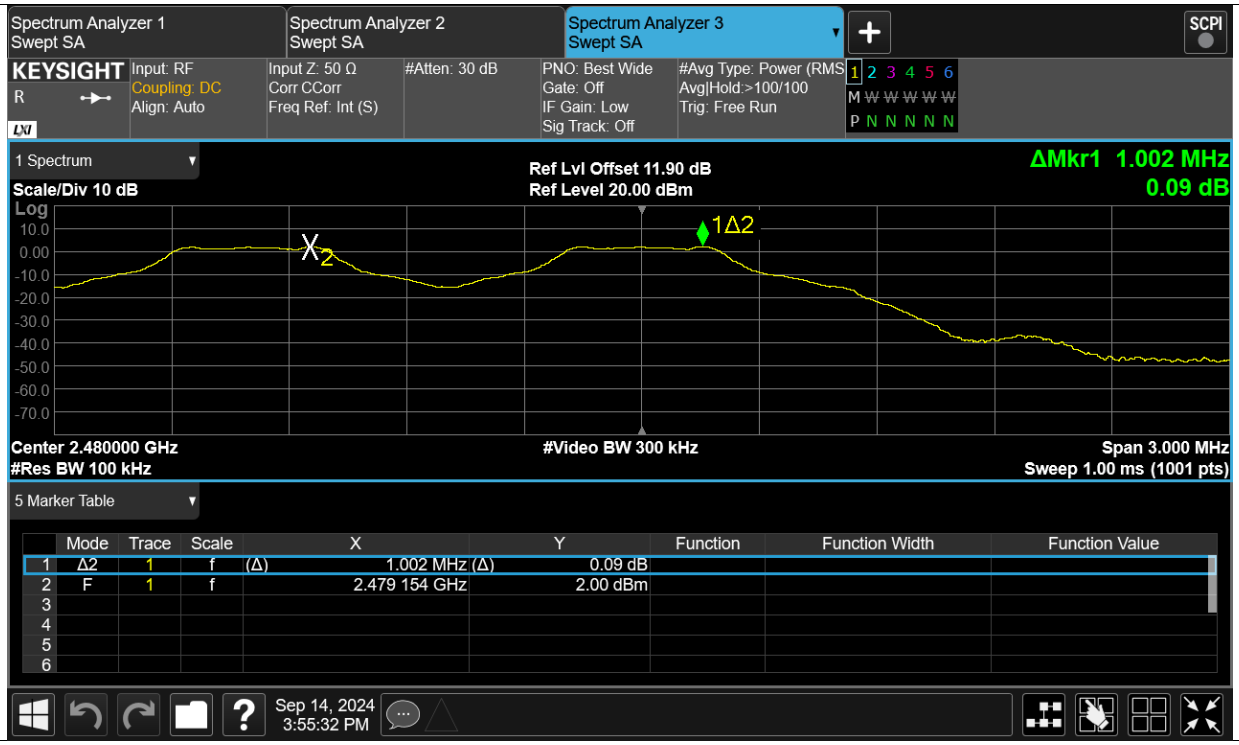
CFS NVNT 1-DH5 2402MHz Ant1



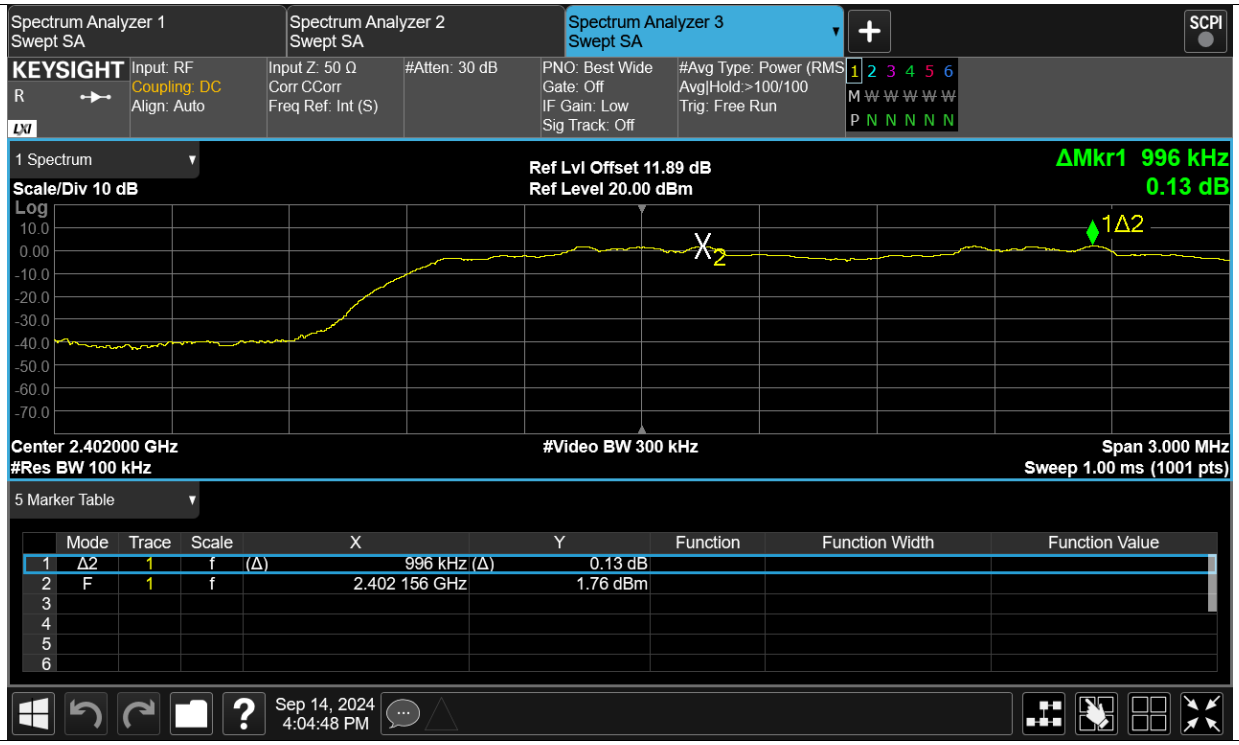
CFS NVNT 1-DH5 2441MHz Ant1



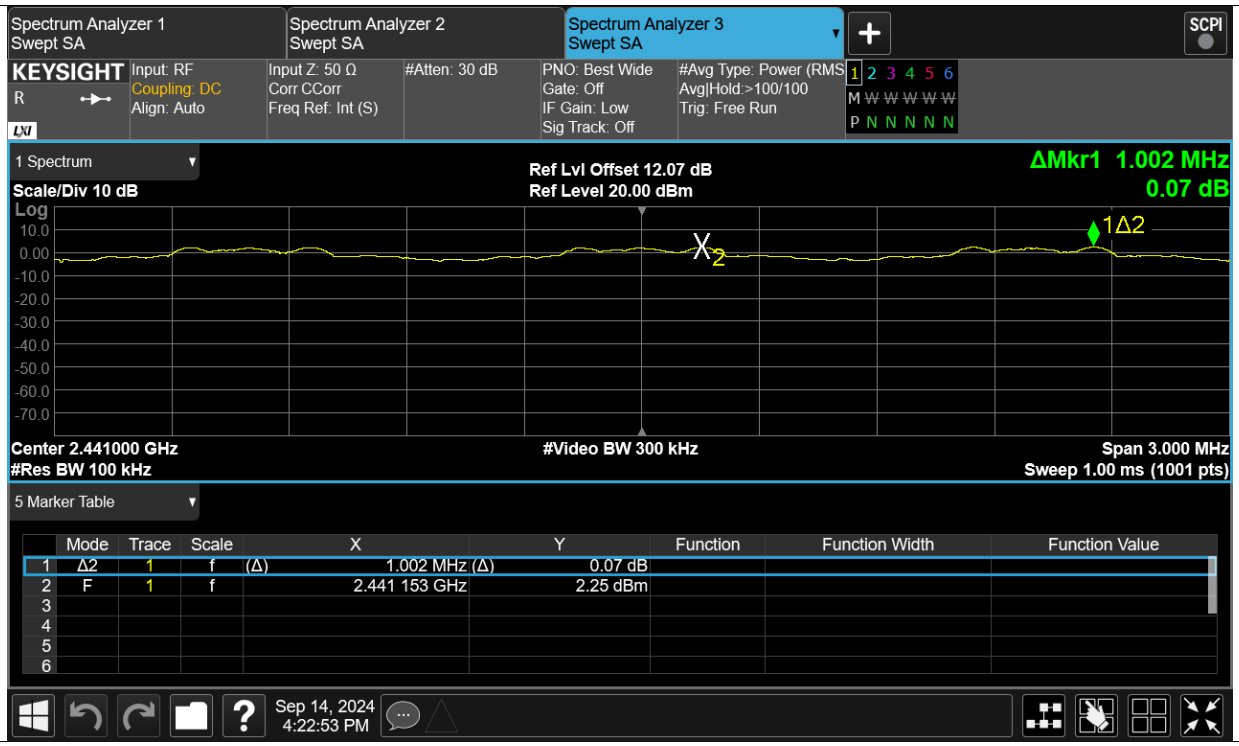
CFS NVNT 1-DH5 2480MHz Ant1



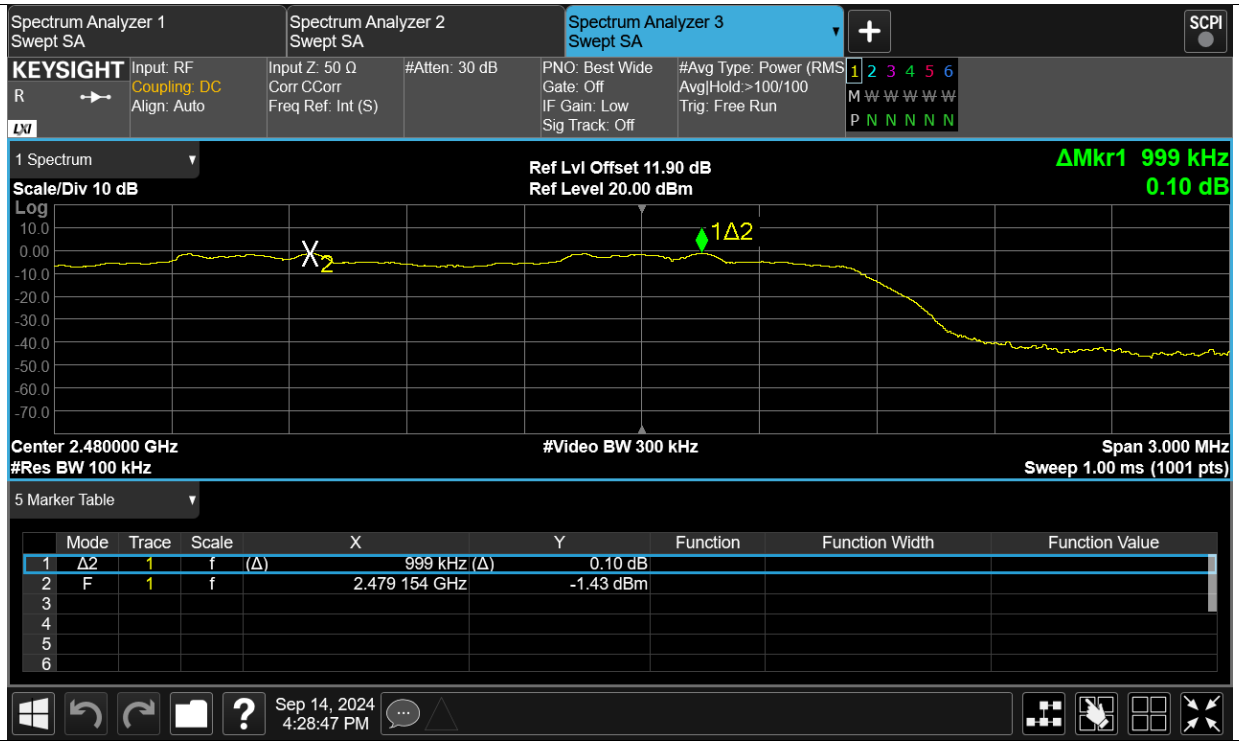
CFS NVNT 2-DH5 2402MHz Ant1



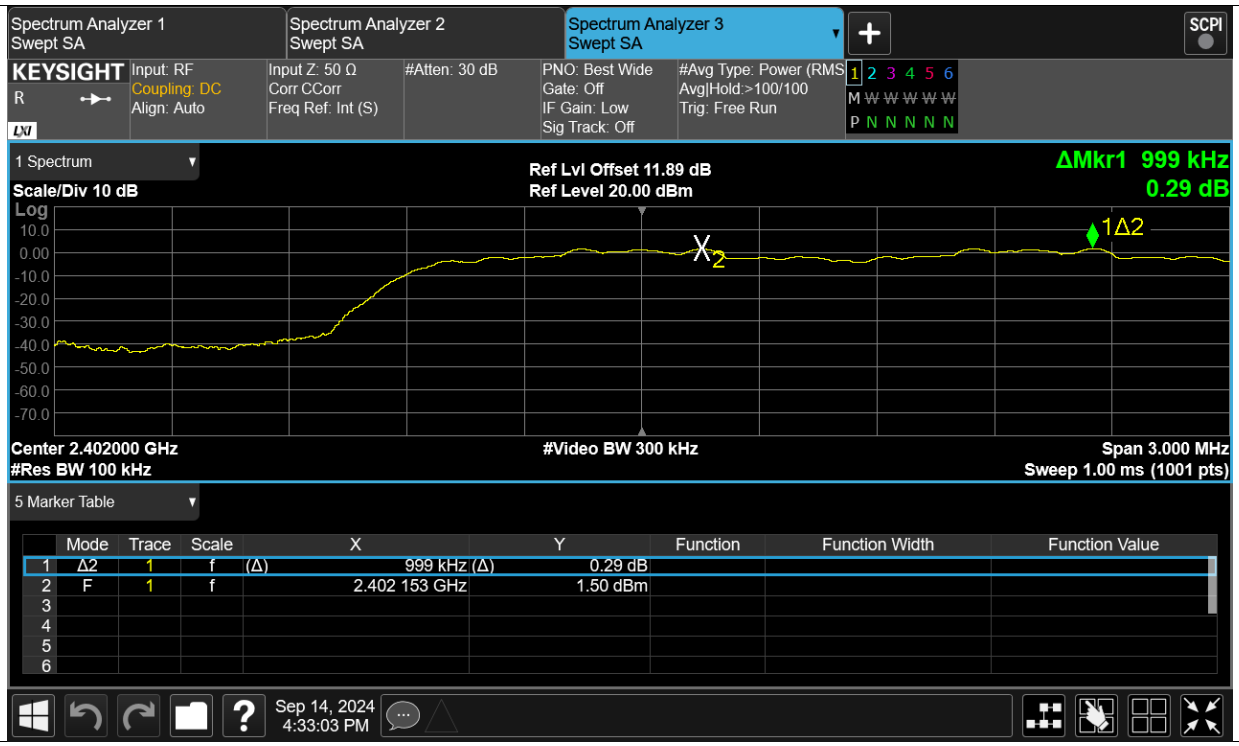
CFS NVNT 2-DH5 2441MHz Ant1



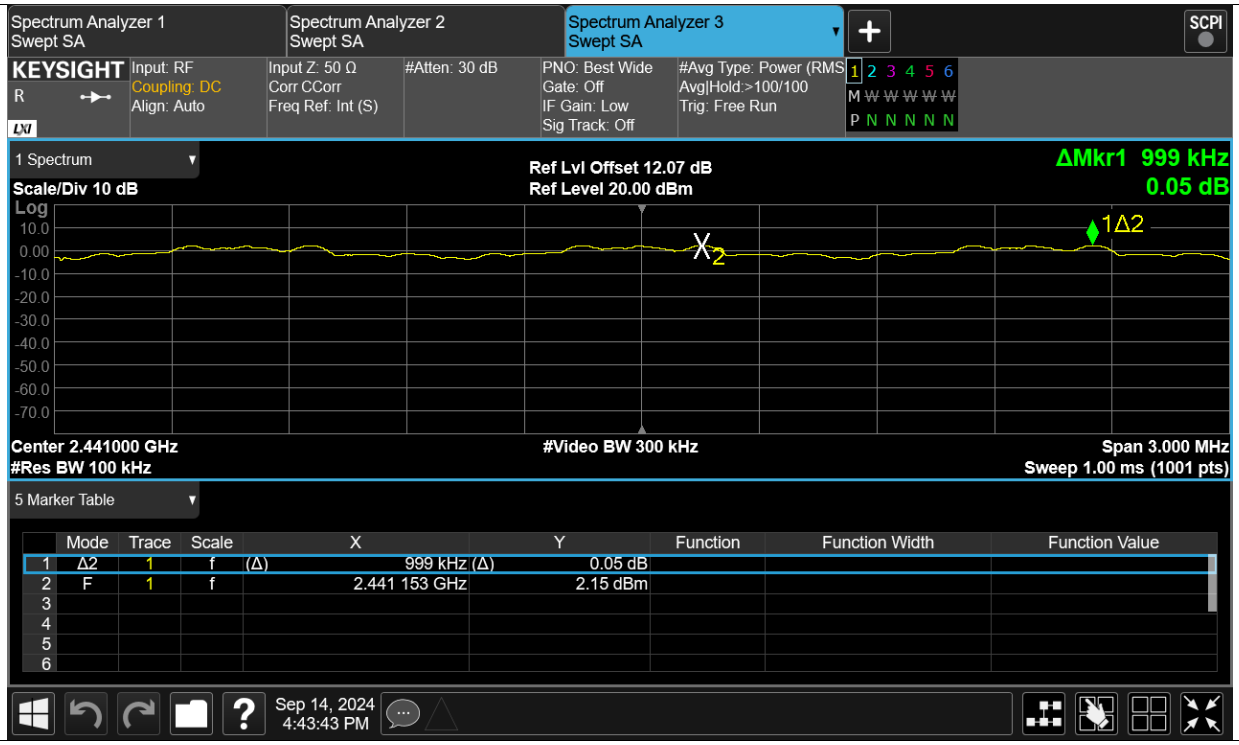
CFS NVNT 2-DH5 2480MHz Ant1



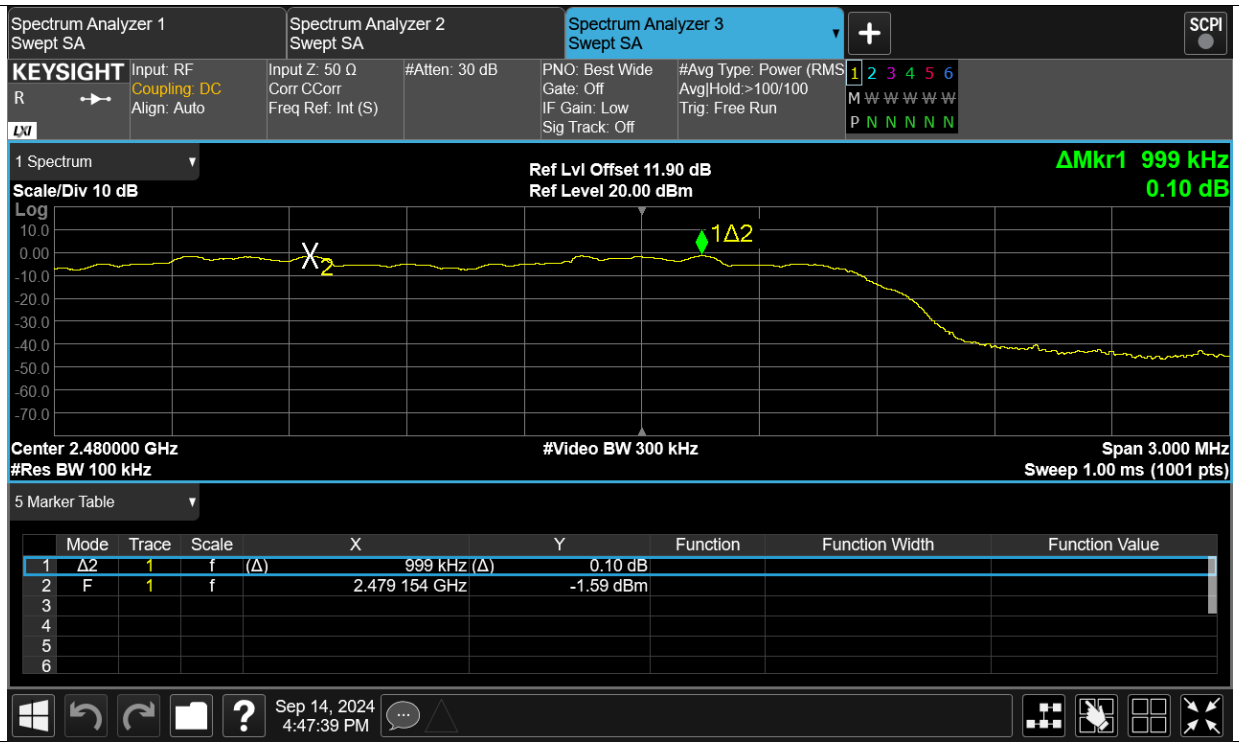
CFS NVNT 3-DH5 2402MHz Ant1



CFS NVNT 3-DH5 2441MHz Ant1



CFS NVNT 3-DH5 2480MHz Ant1

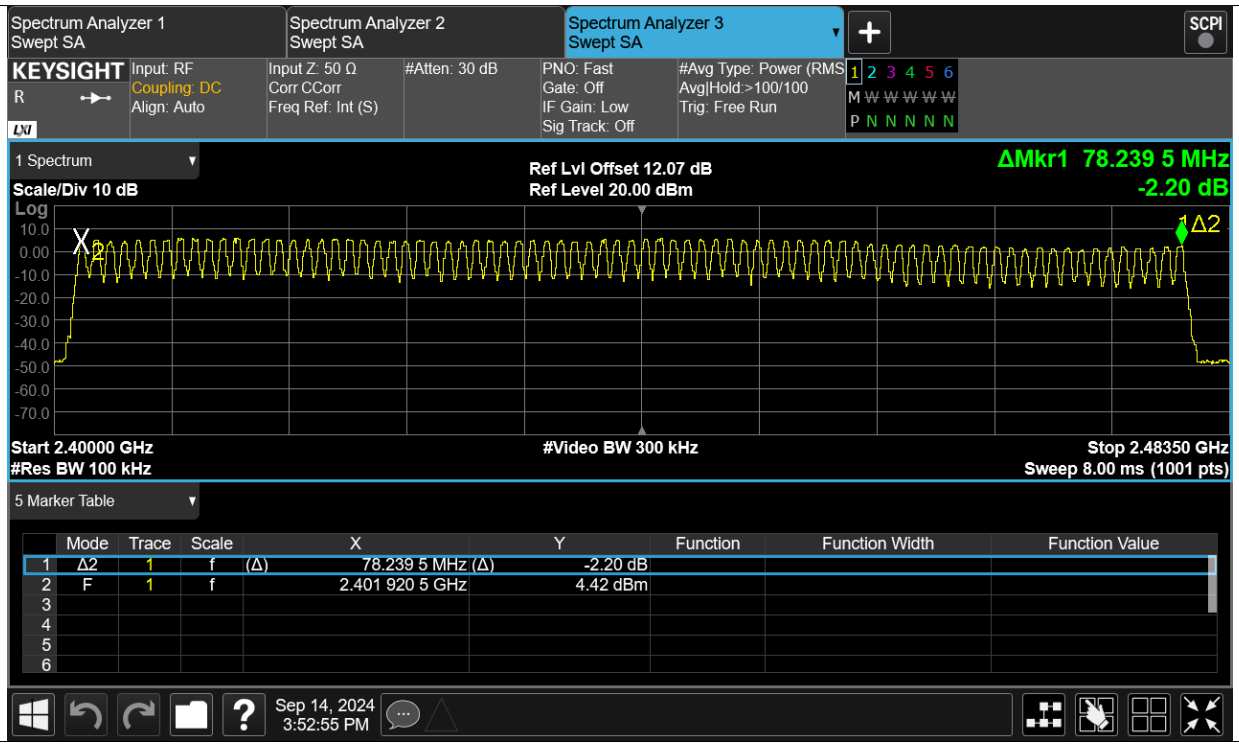


Appendix B.4: Test Results of Number of Hopping Frequency

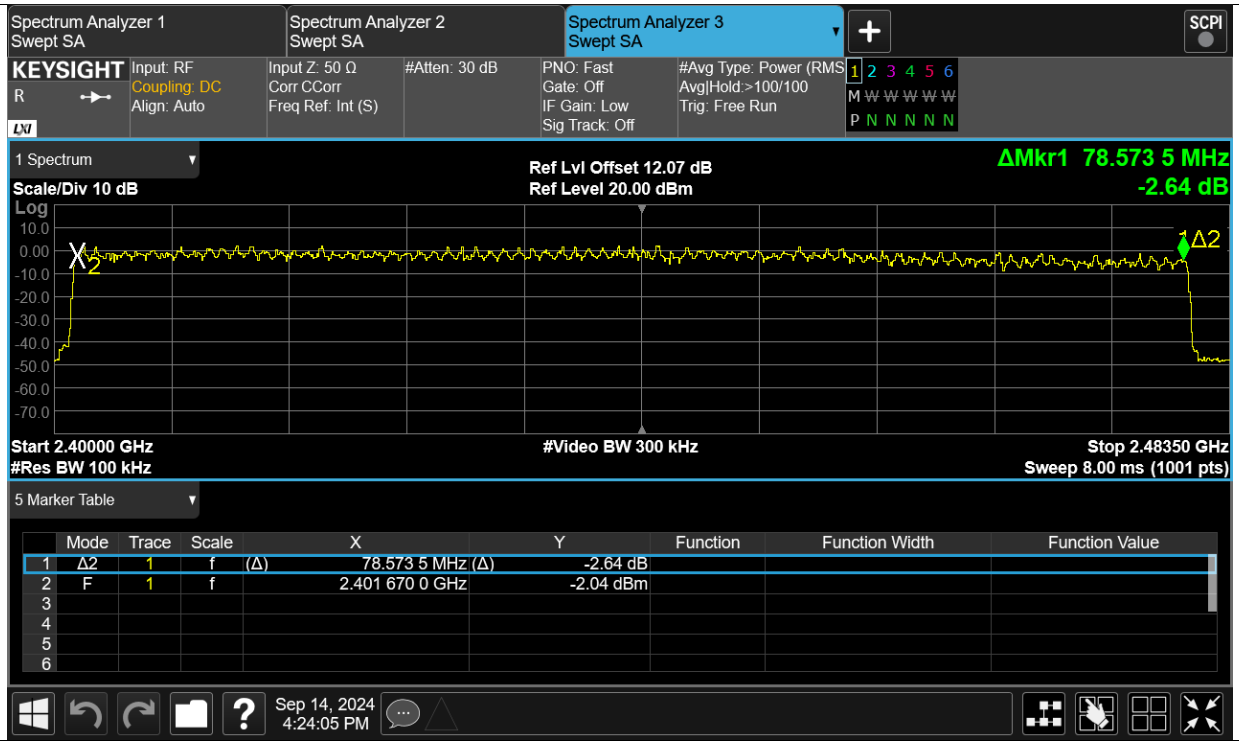
Condition	Mode	Antenna	Hopping Number	Limit	Verdict
NVNT	1-DH5	Ant1	79	15	Pass
NVNT	2-DH5	Ant1	79	15	Pass
NVNT	3-DH5	Ant1	79	15	Pass

Test Graphs

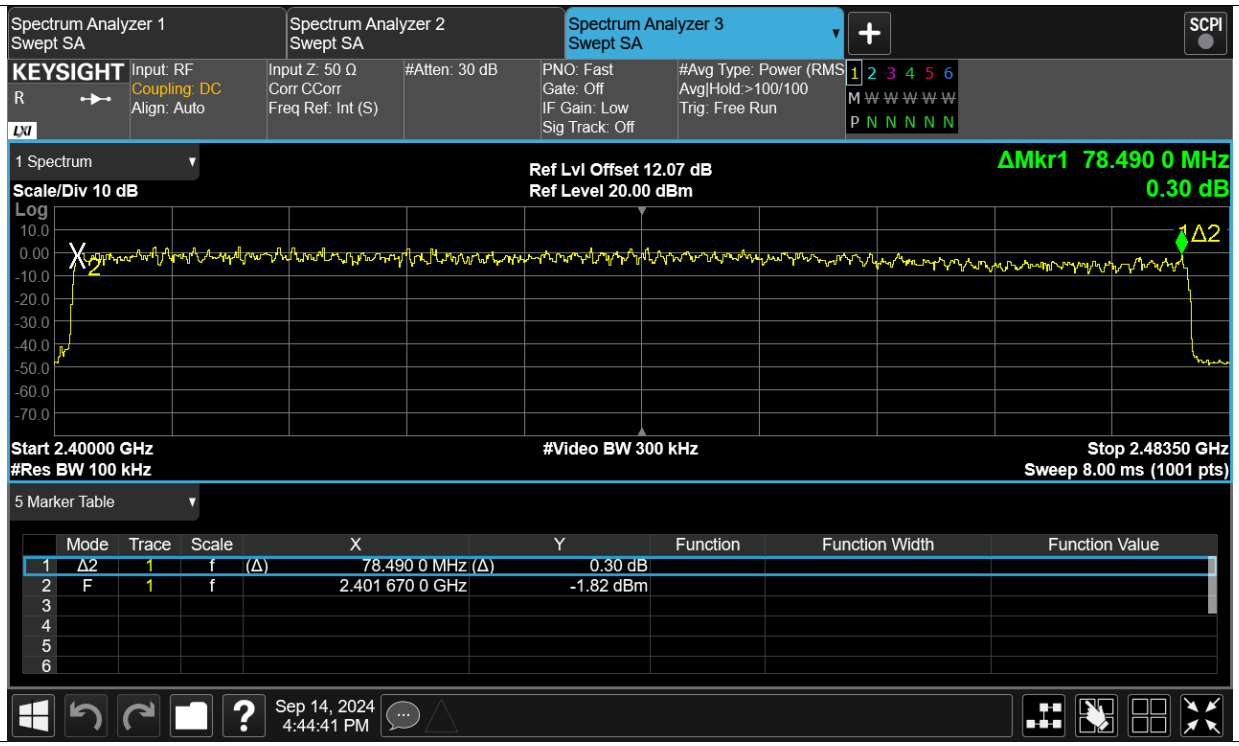
Hopping No. NVNT 1-DH5 2441MHz Ant1



Hopping No. NVNT 2-DH5 2441MHz Ant1



Hopping No. NVNT 3-DH5 2441MHz Ant1

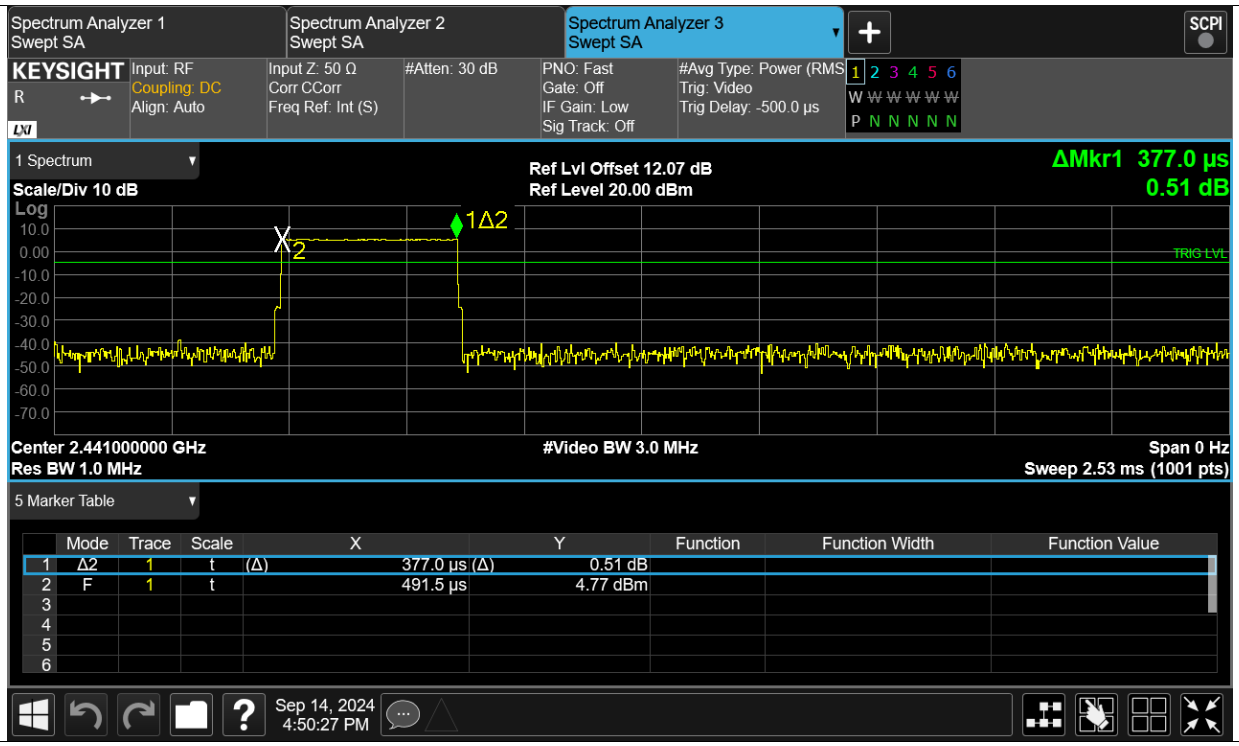


Appendix B.5: Test Results of Time of Occupancy

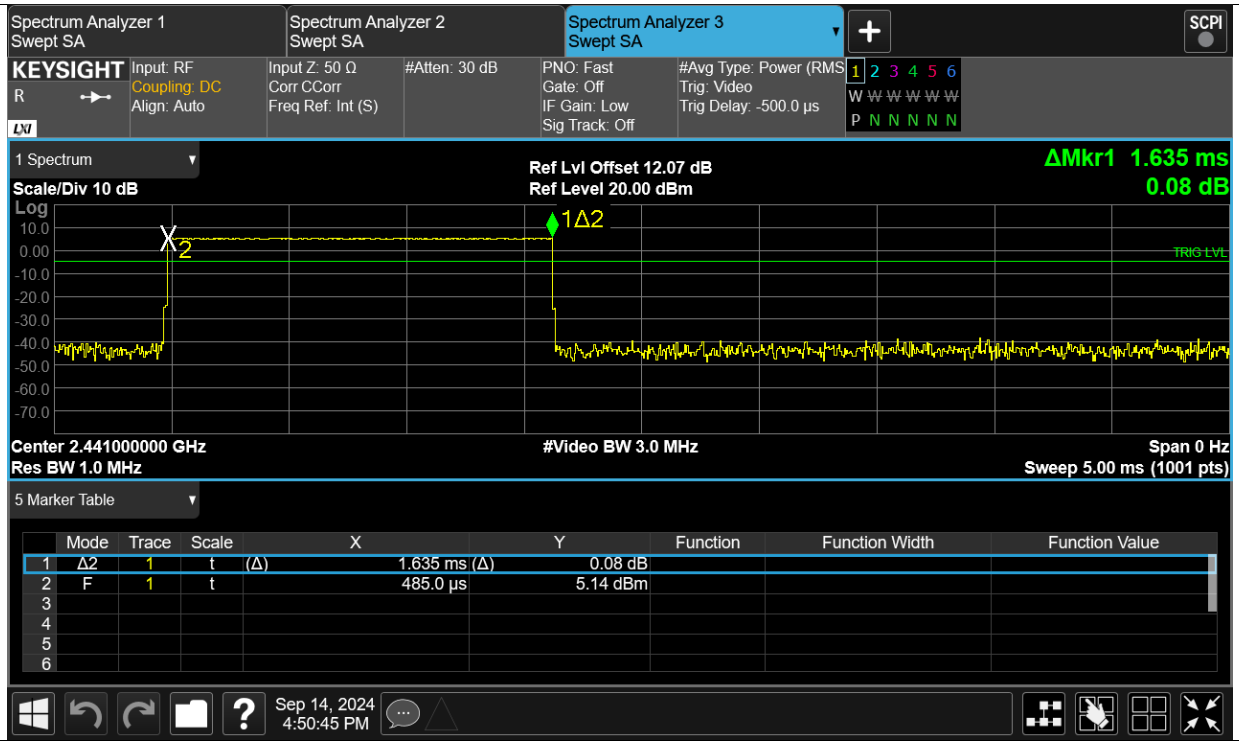
Condition	Mode	Frequency (MHz)	Antenna	Pulse Time (ms)	Total Dwell Time (ms)	Period Time (ms)	Limit (ms)	Verdict
NVNT	1-DH1	2441	Ant1	0.377	120.64	31600	400	Pass
NVNT	1-DH3	2441	Ant1	1.635	261.6	31600	400	Pass
NVNT	1-DH5	2441	Ant1	2.878	306.987	31600	400	Pass
NVNT	2-DH1	2441	Ant1	0.385	123.2	31600	400	Pass
NVNT	2-DH3	2441	Ant1	1.635	261.6	31600	400	Pass
NVNT	2-DH5	2441	Ant1	2.885	307.733	31600	400	Pass
NVNT	3-DH1	2441	Ant1	0.383	122.56	31600	400	Pass
NVNT	3-DH3	2441	Ant1	1.635	261.6	31600	400	Pass
NVNT	3-DH5	2441	Ant1	2.885	307.733	31600	400	Pass

Test Graphs

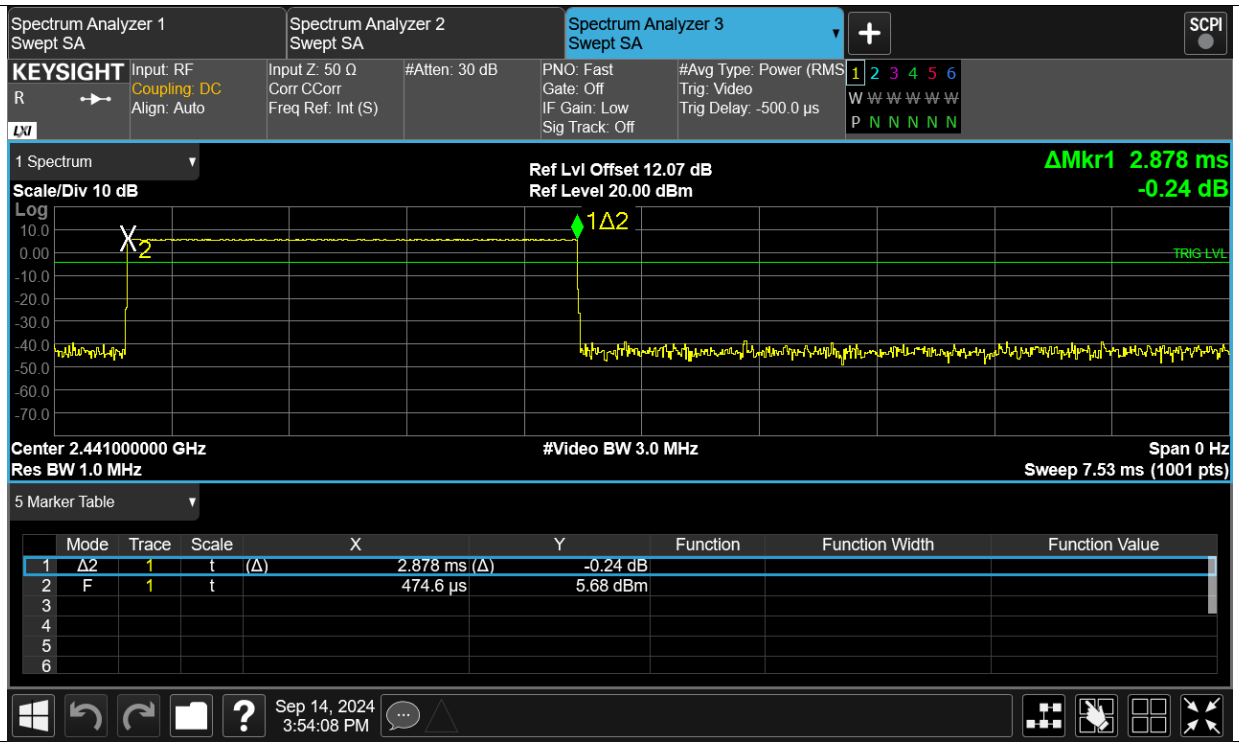
Dwell NVNT 1-DH1 2441MHz Ant1



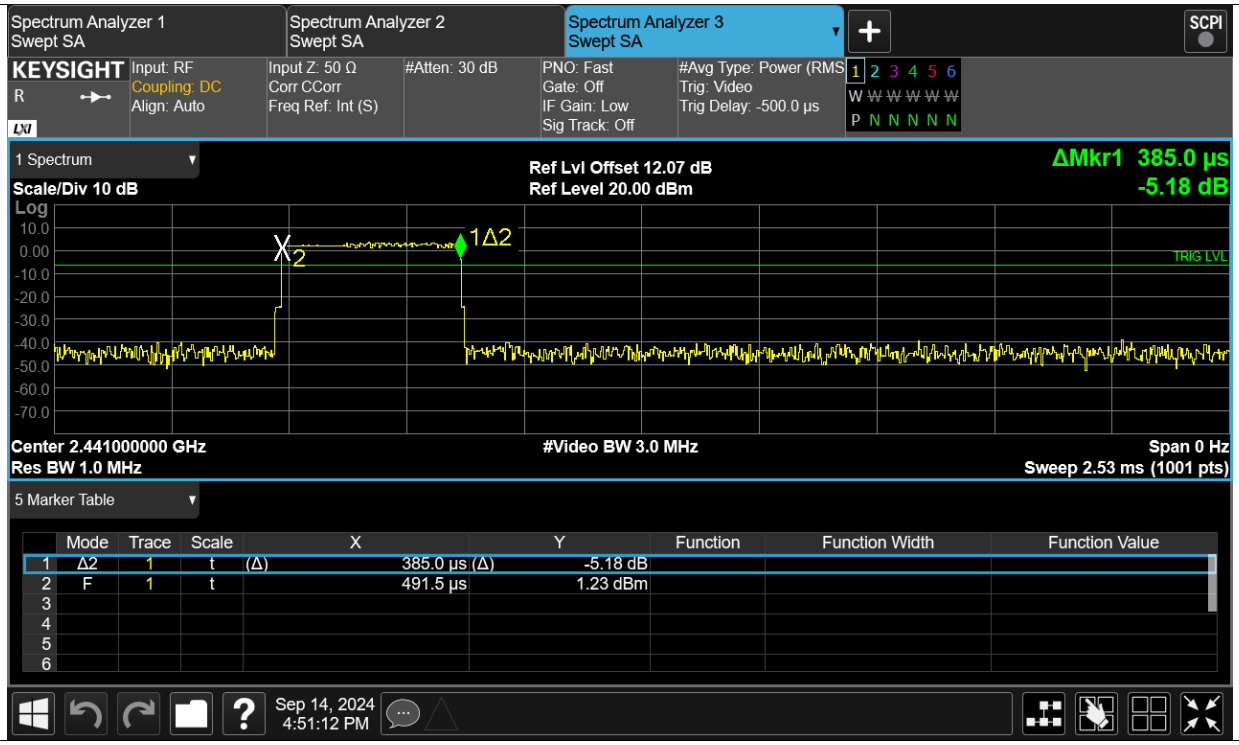
Dwell NVNT 1-DH3 2441MHz Ant1



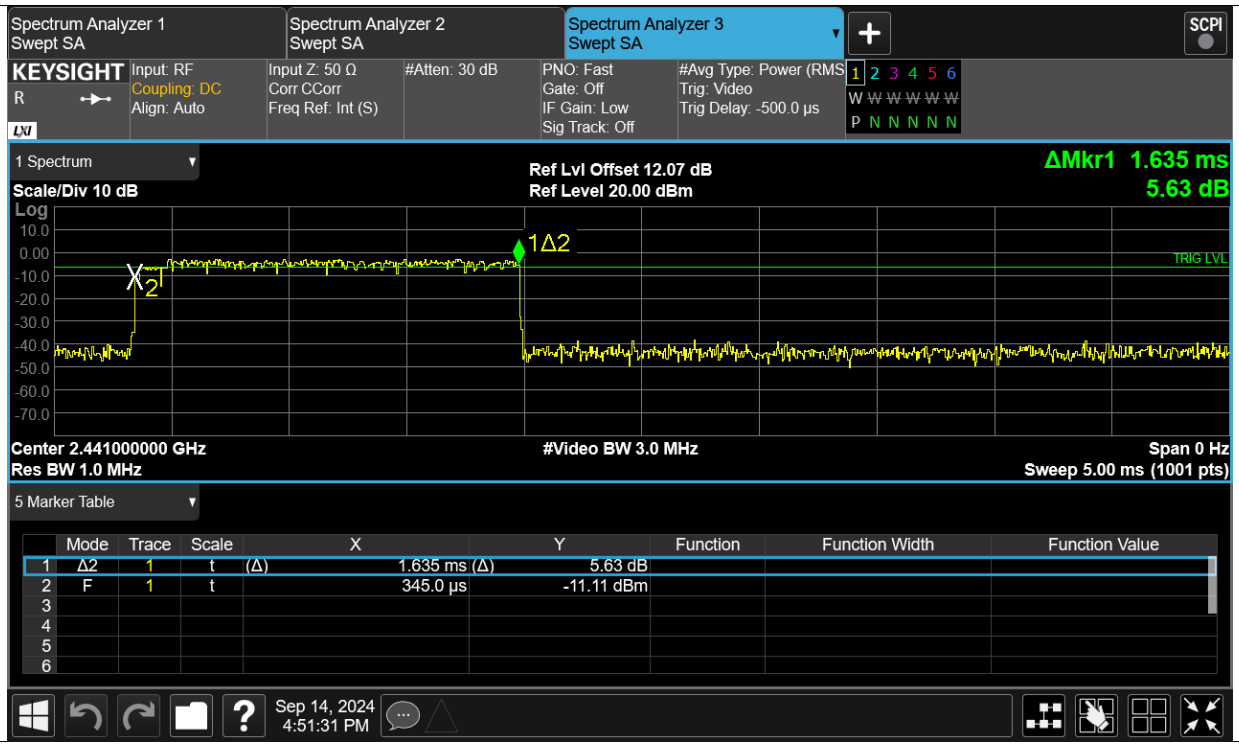
Dwell NVNT 1-DH5 2441MHz Ant1



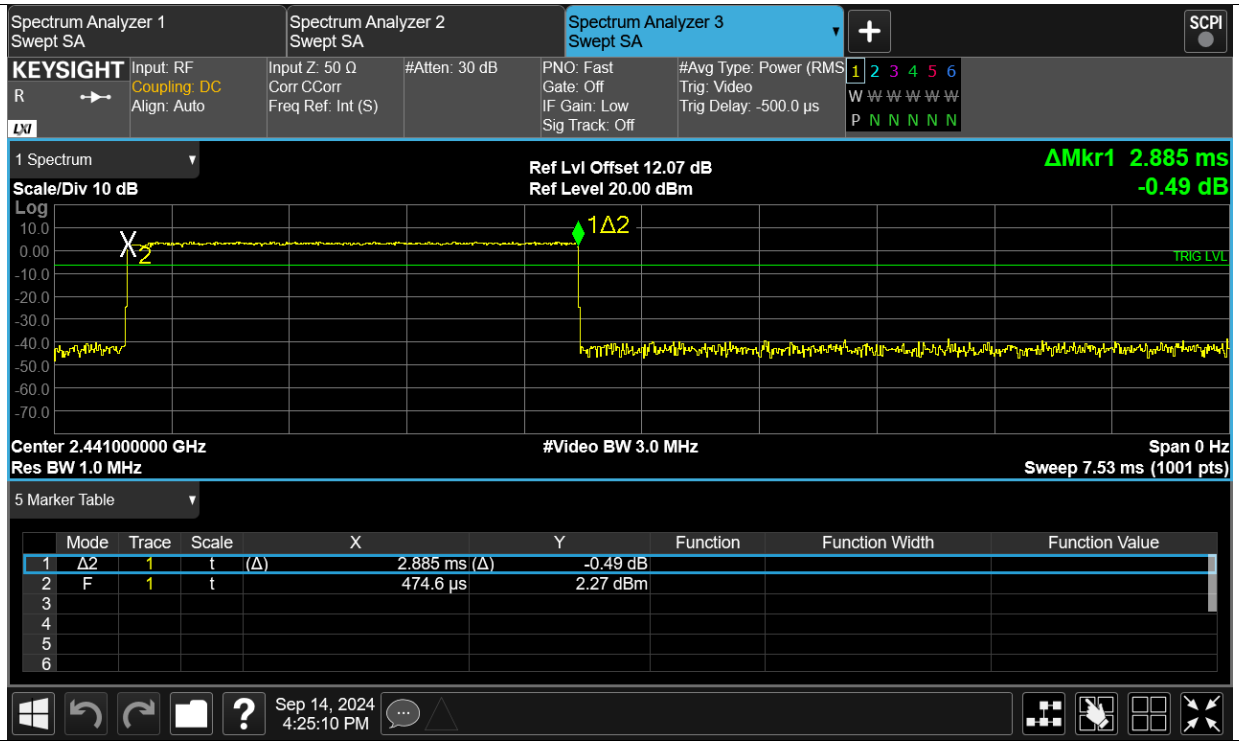
Dwell NVNT 2-DH1 2441MHz Ant1



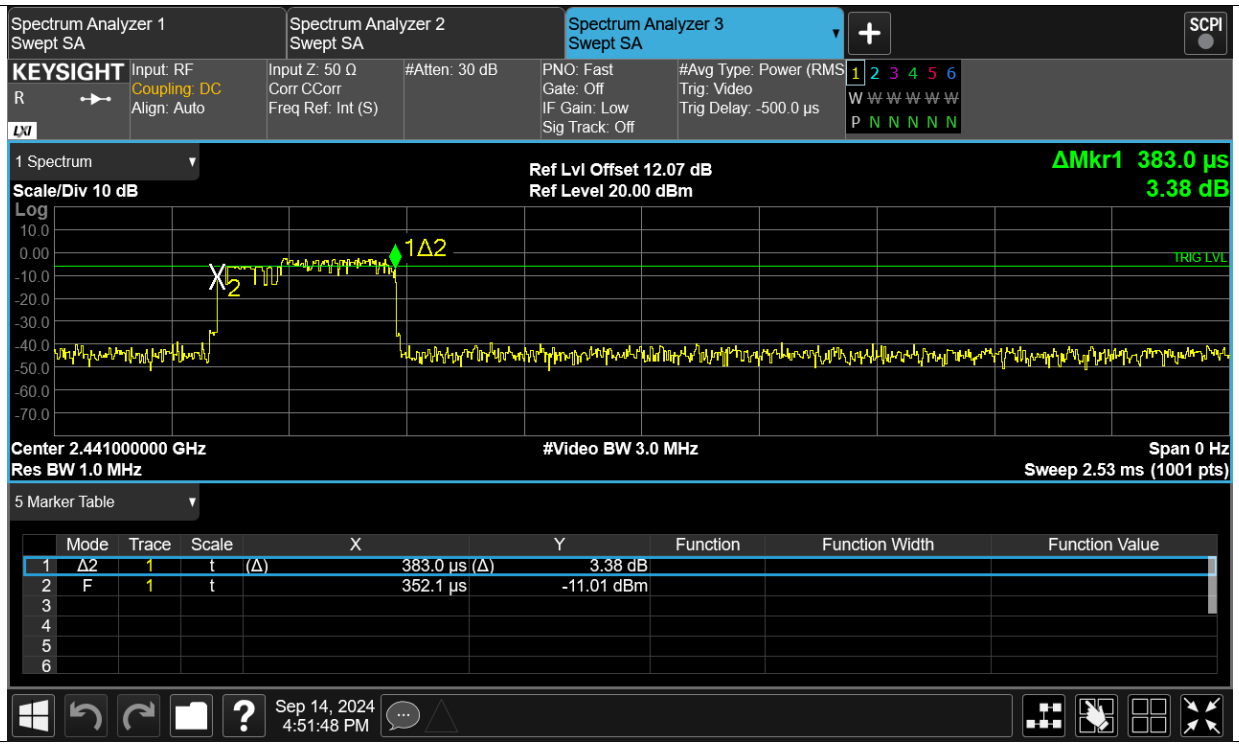
Dwell NVNT 2-DH3 2441MHz Ant1



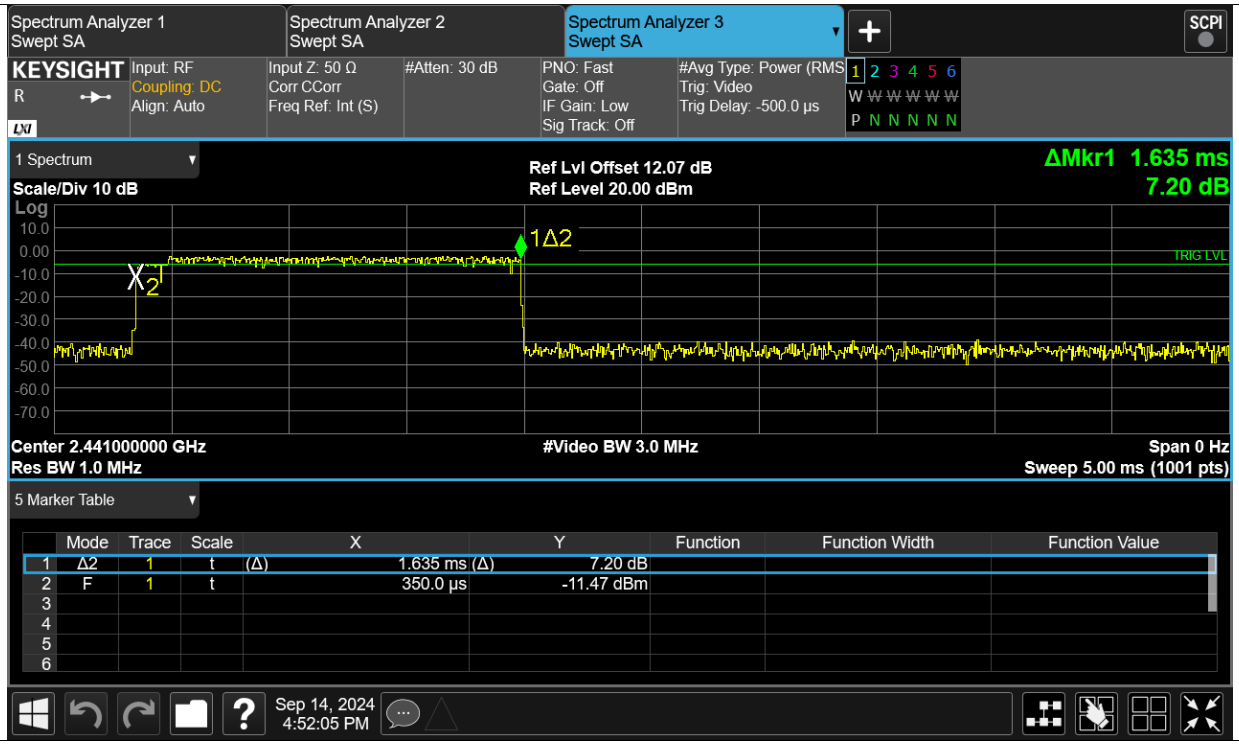
Dwell NVNT 2-DH5 2441MHz Ant1



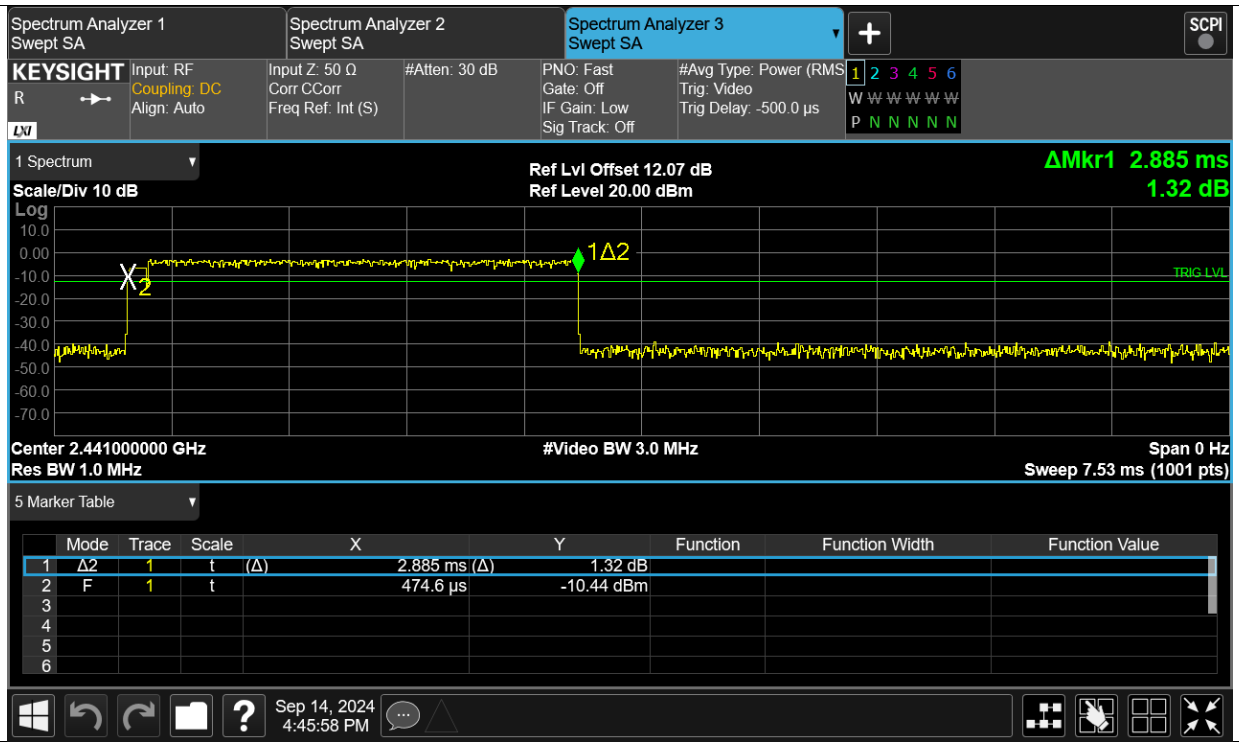
Dwell NVNT 3-DH1 2441MHz Ant1



Dwell NVNT 3-DH3 2441MHz Ant1



Dwell NVNT 3-DH5 2441MHz Ant1



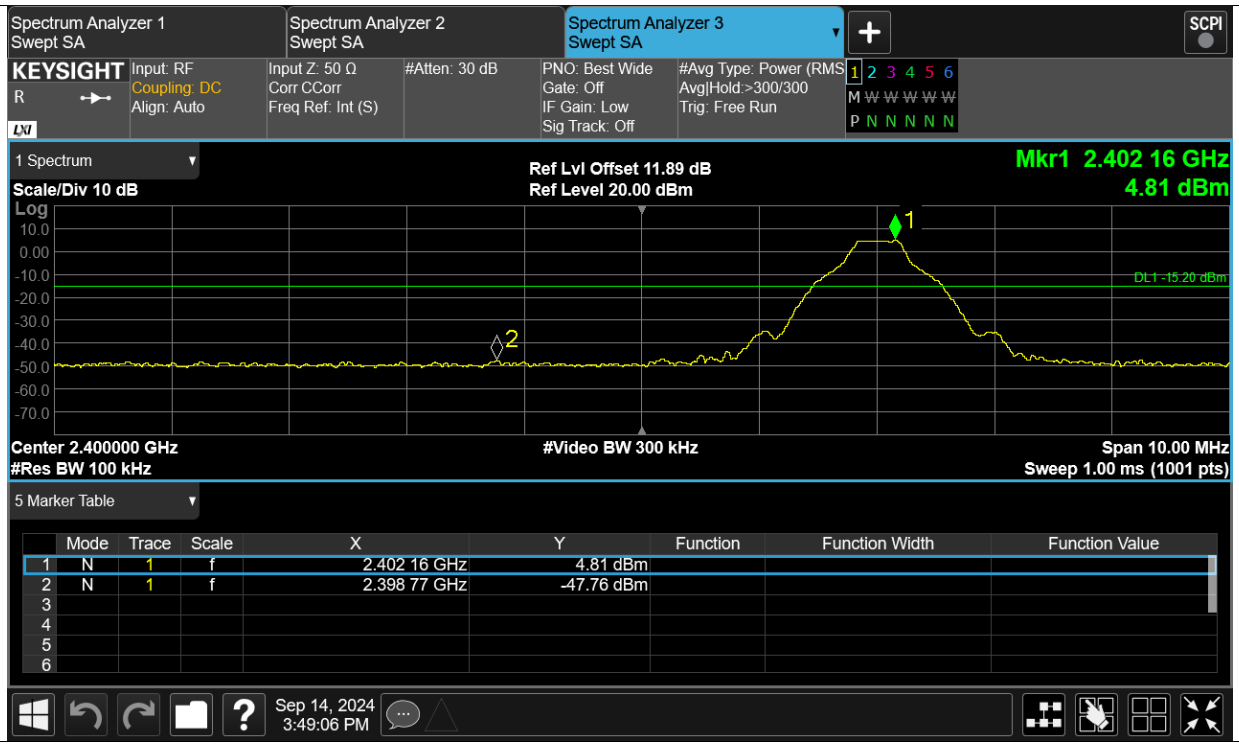
Appendix B.6: Test Results of Conducted Spurious Emissions Measured in 100 kHz Bandwidth

Band Edge (Fixed mode)

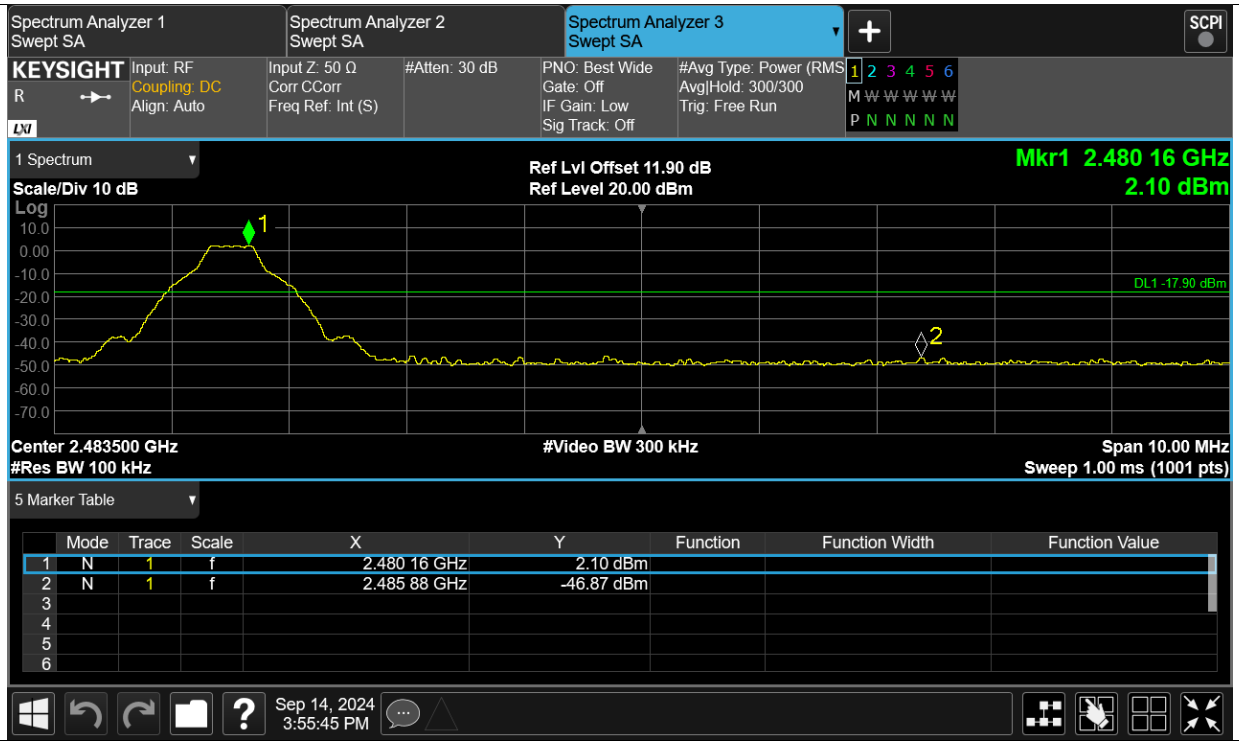
Condition	Mode	Frequency (MHz)	Antenna	Max Value (dBc)	Limit (dBc)	Verdict
NVNT	1-DH5	2402	Ant1	-52.57	-20	Pass
NVNT	1-DH5	2480	Ant1	-48.97	-20	Pass
NVNT	2-DH5	2402	Ant1	-48.8	-20	Pass
NVNT	2-DH5	2480	Ant1	-45.44	-20	Pass
NVNT	3-DH5	2402	Ant1	-48.2	-20	Pass
NVNT	3-DH5	2480	Ant1	-45.5	-20	Pass

Test Graphs

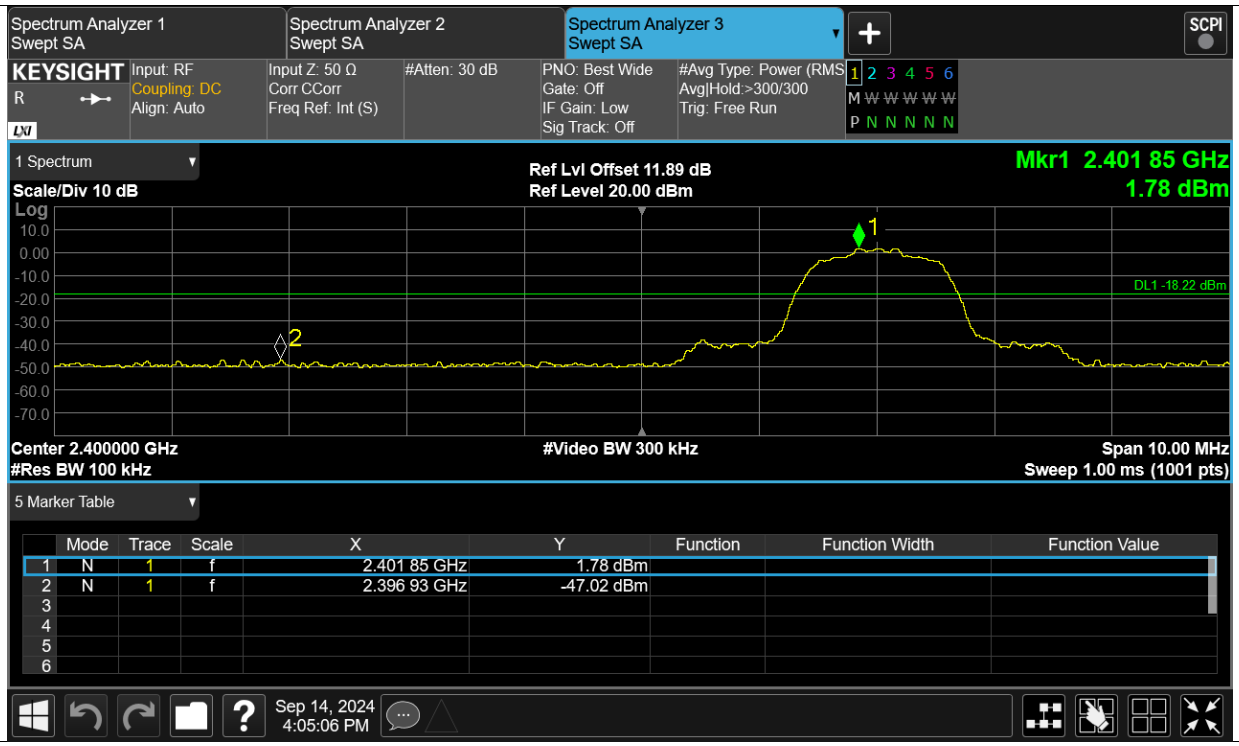
Band Edge NVNT 1-DH5 2402MHz Ant1 Emission



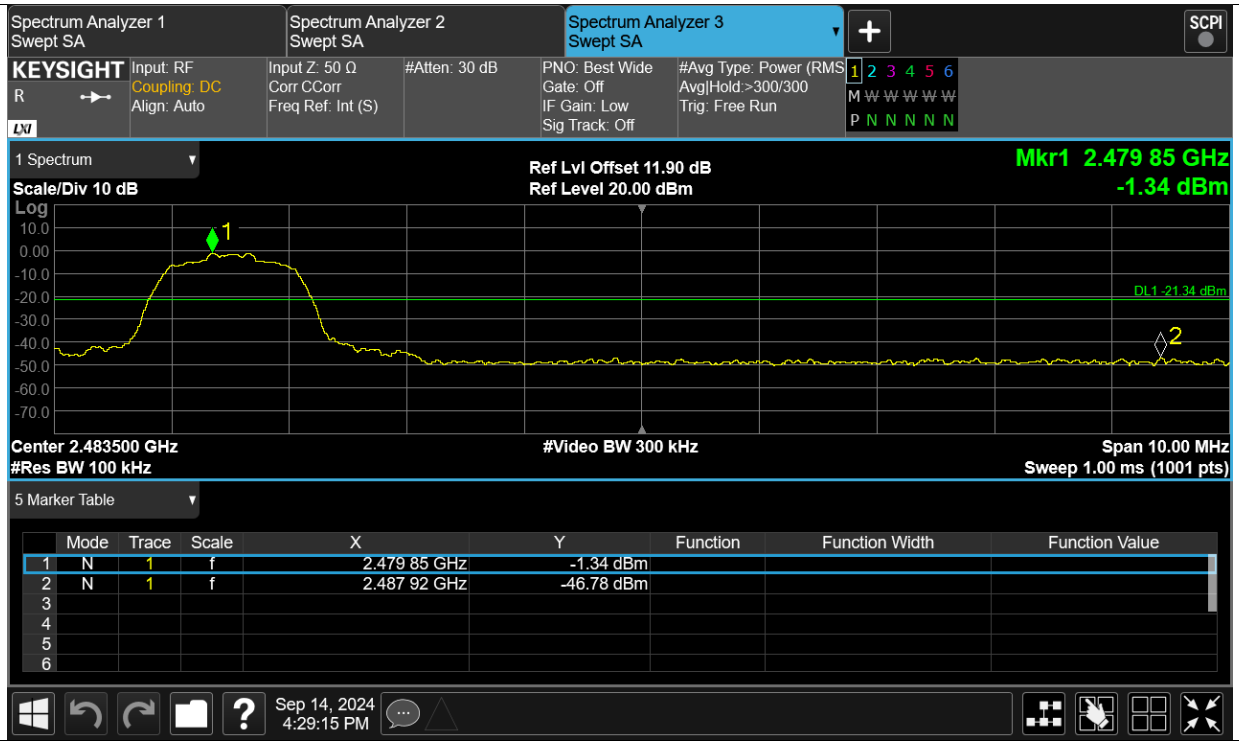
Band Edge NVNT 1-DH5 2480MHz Ant1 Emission



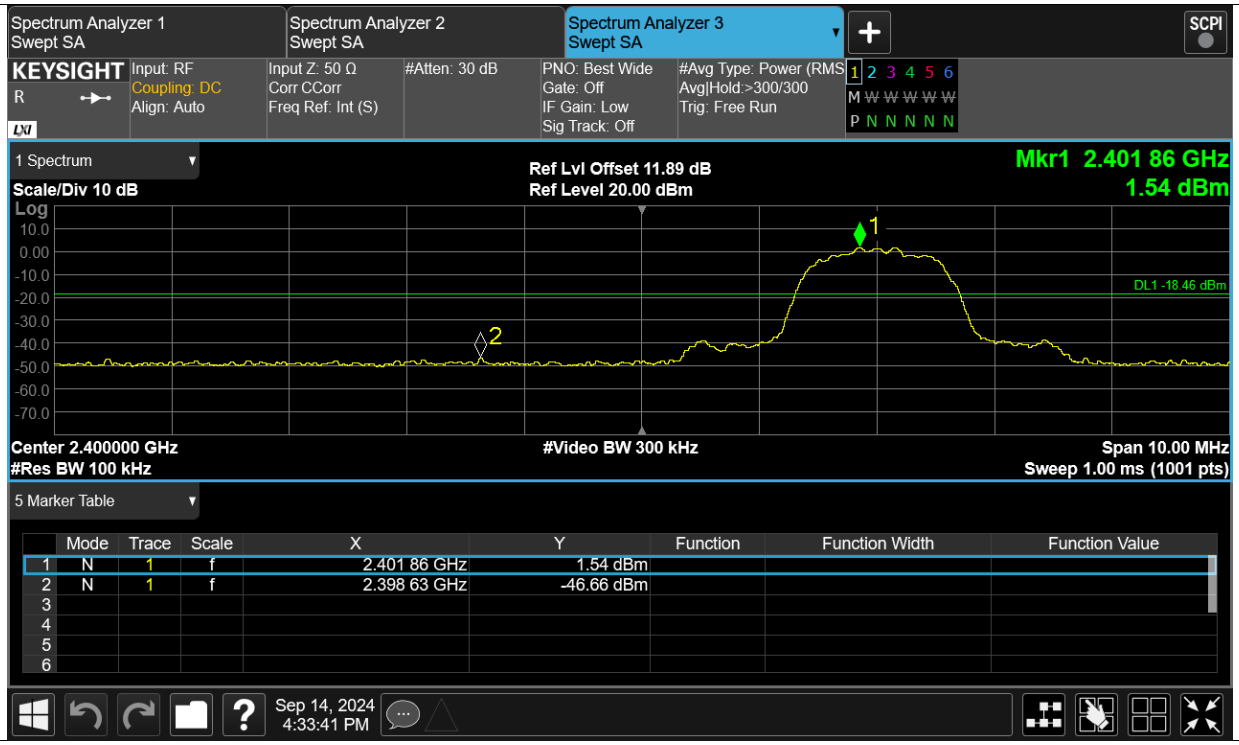
Band Edge NVNT 2-DH5 2402MHz Ant1 Emission



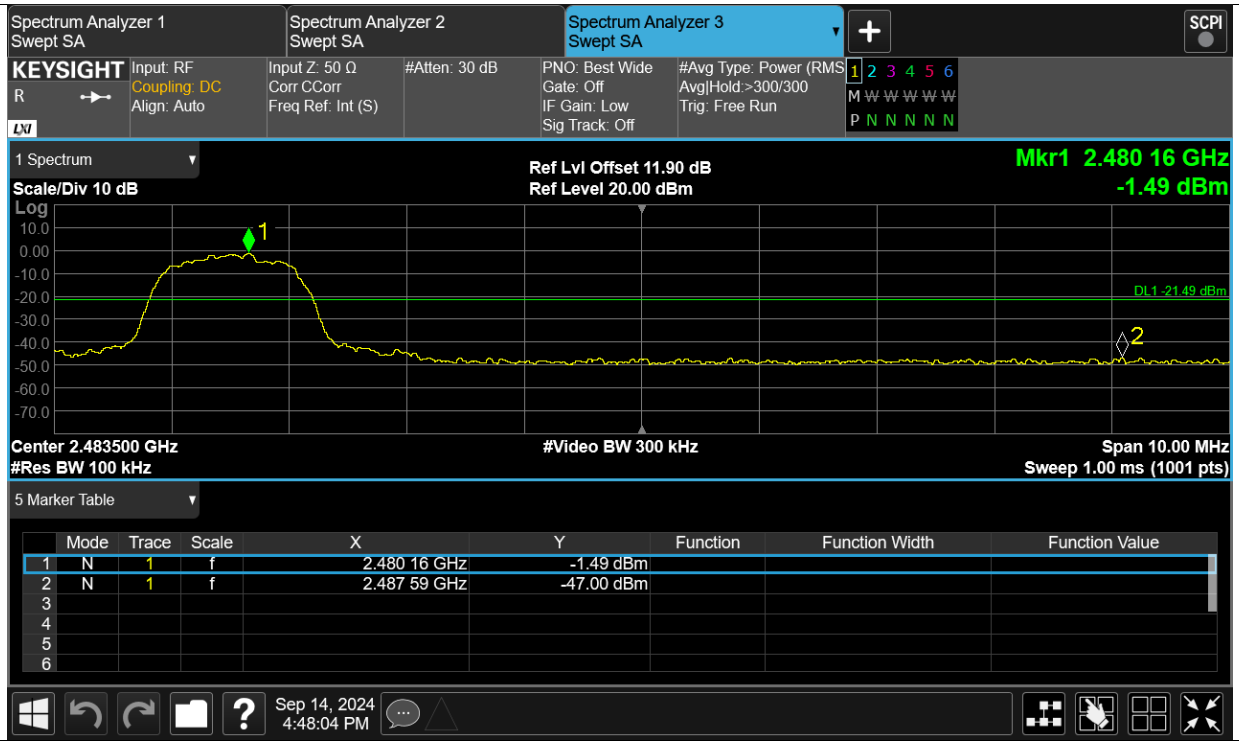
Band Edge NVNT 2-DH5 2480MHz Ant1 Emission



Band Edge NVNT 3-DH5 2402MHz Ant1 Emission



Band Edge NVNT 3-DH5 2480MHz Ant1 Emission

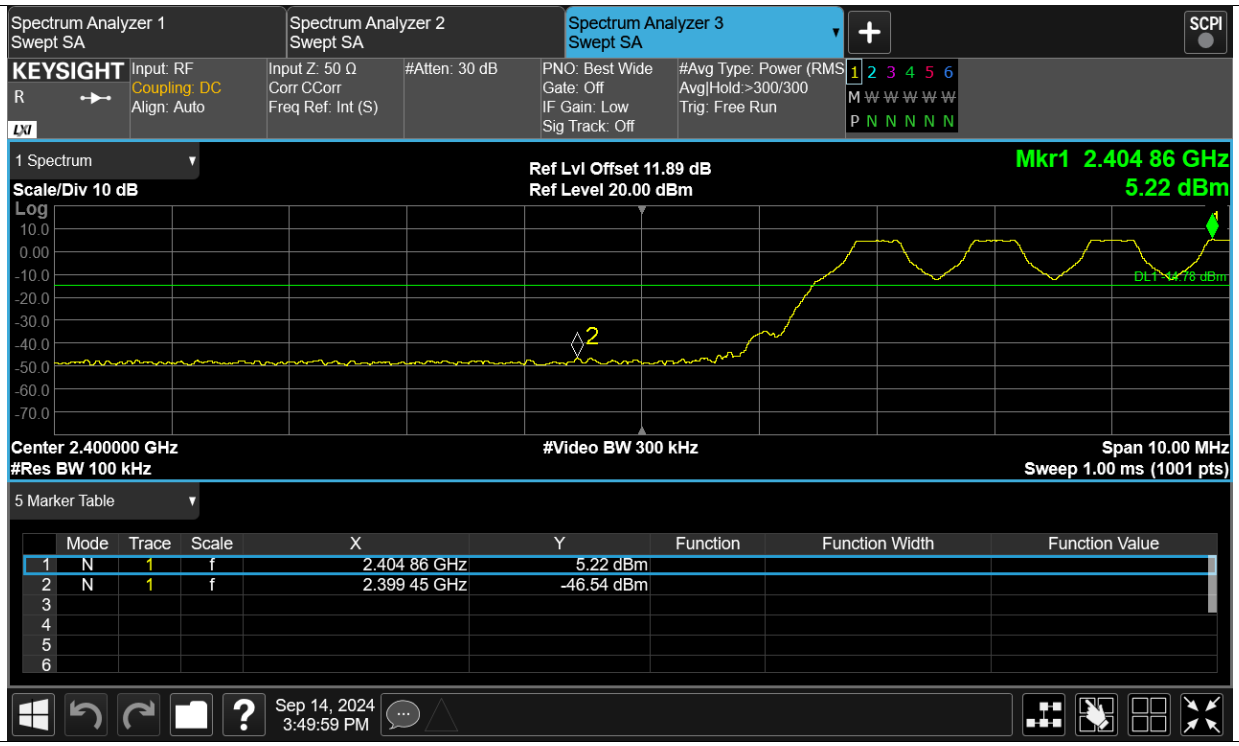


Band Edge (Hopping mode)

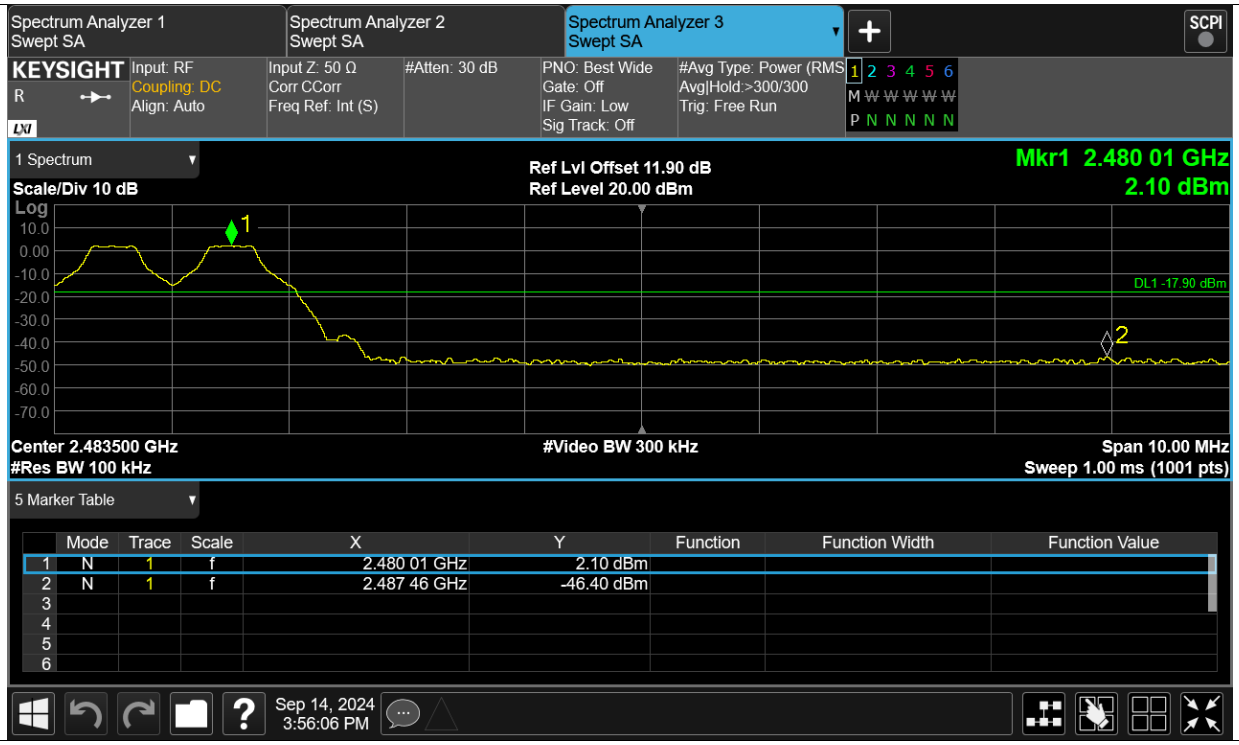
Condition	Mode	Frequency (MHz)	Antenna	Max Value (dBc)	Limit (dBc)	Verdict
NVNT	1-DH5	2402	Ant1	-51.75	-20	Pass
NVNT	1-DH5	2480	Ant1	-48.5	-20	Pass
NVNT	2-DH5	2402	Ant1	-48.98	-20	Pass
NVNT	2-DH5	2480	Ant1	-44.98	-20	Pass
NVNT	3-DH5	2402	Ant1	-48.51	-20	Pass
NVNT	3-DH5	2480	Ant1	-44.9	-20	Pass

Test Graphs

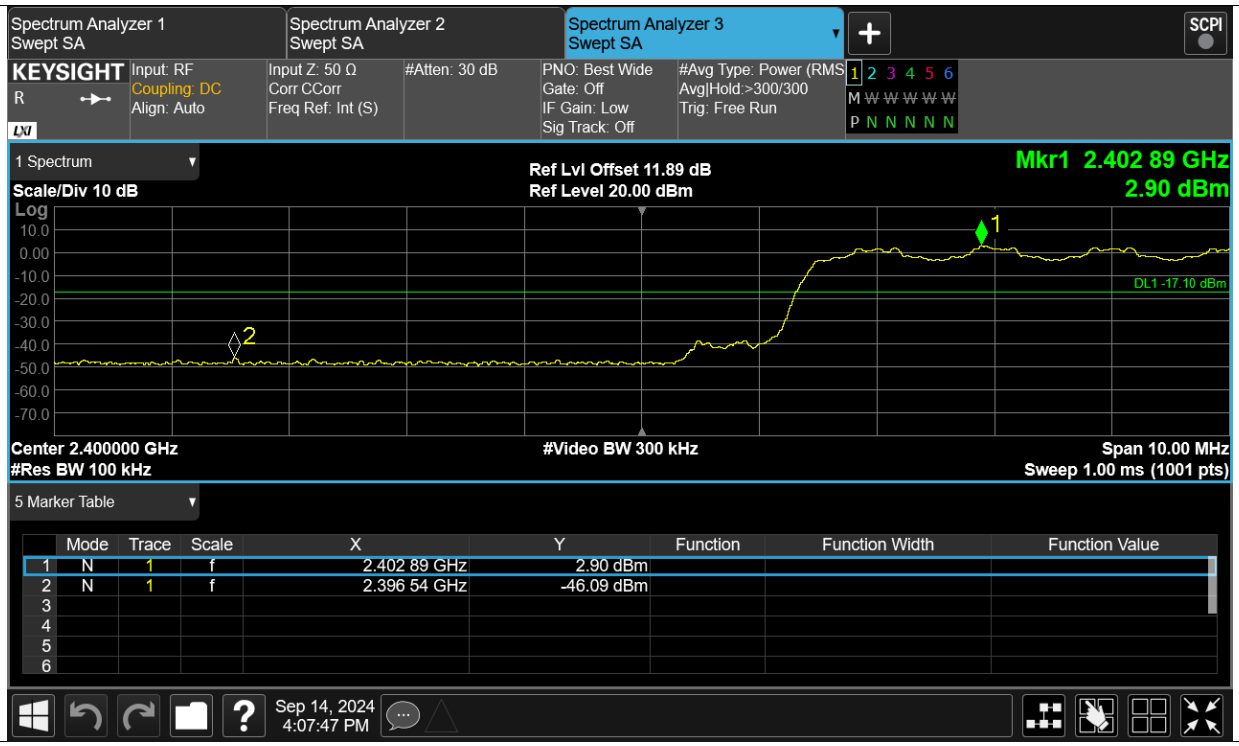
Band Edge(Hopping) NVNT 1-DH5 2402MHz Ant1 Emission



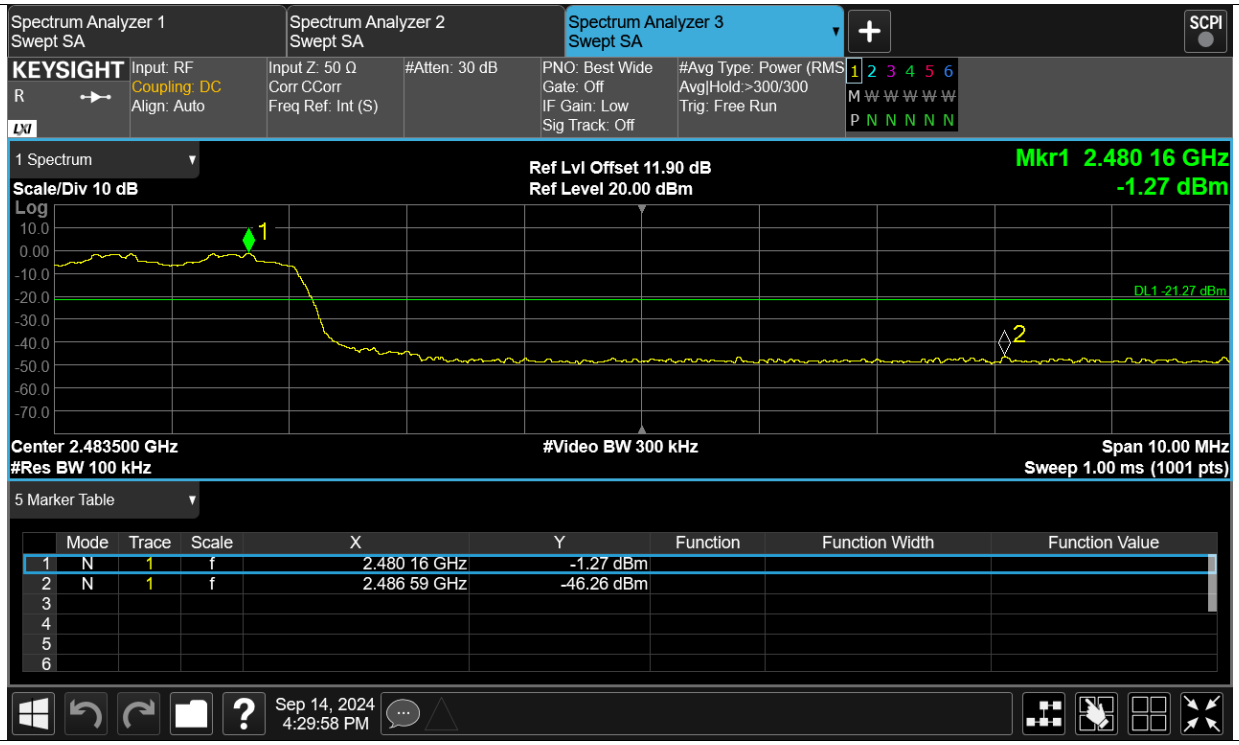
Band Edge(Hopping) NVNT 1-DH5 2480MHz Ant1 Emission



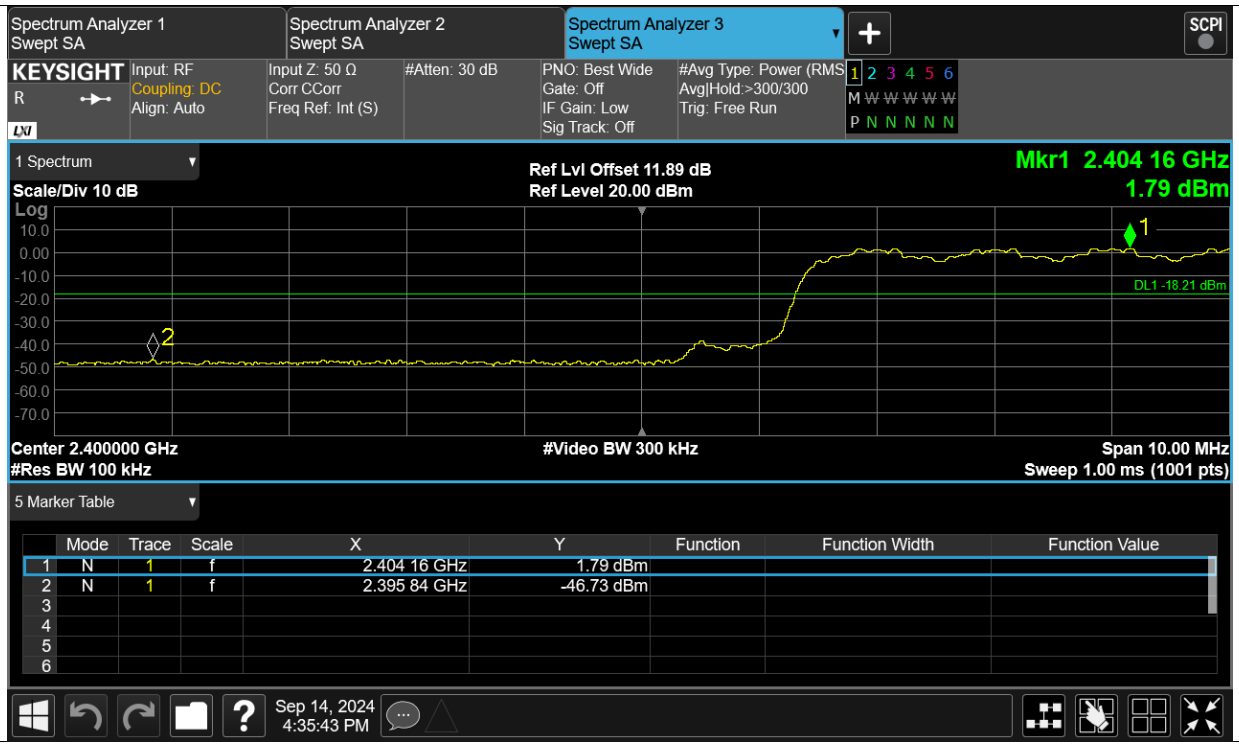
Band Edge(Hopping) NVNT 2-DH5 2402MHz Ant1 Emission



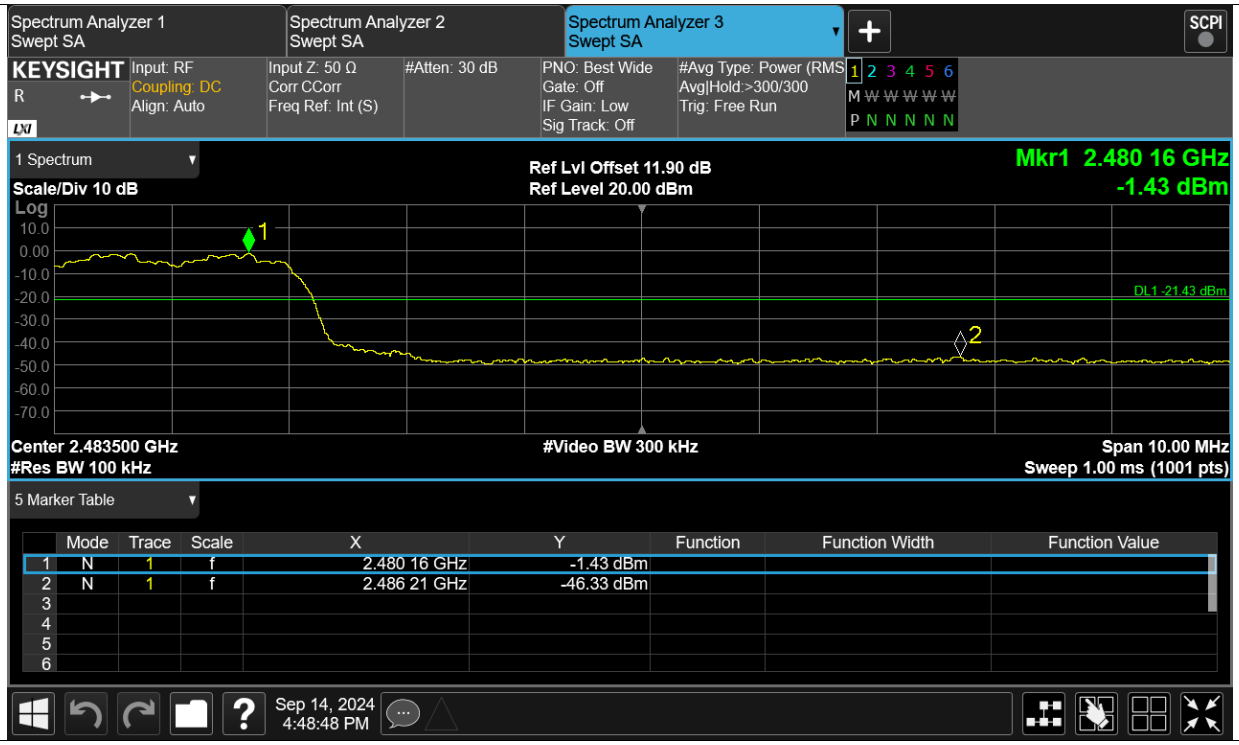
Band Edge(Hopping) NVNT 2-DH5 2480MHz Ant1 Emission



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



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

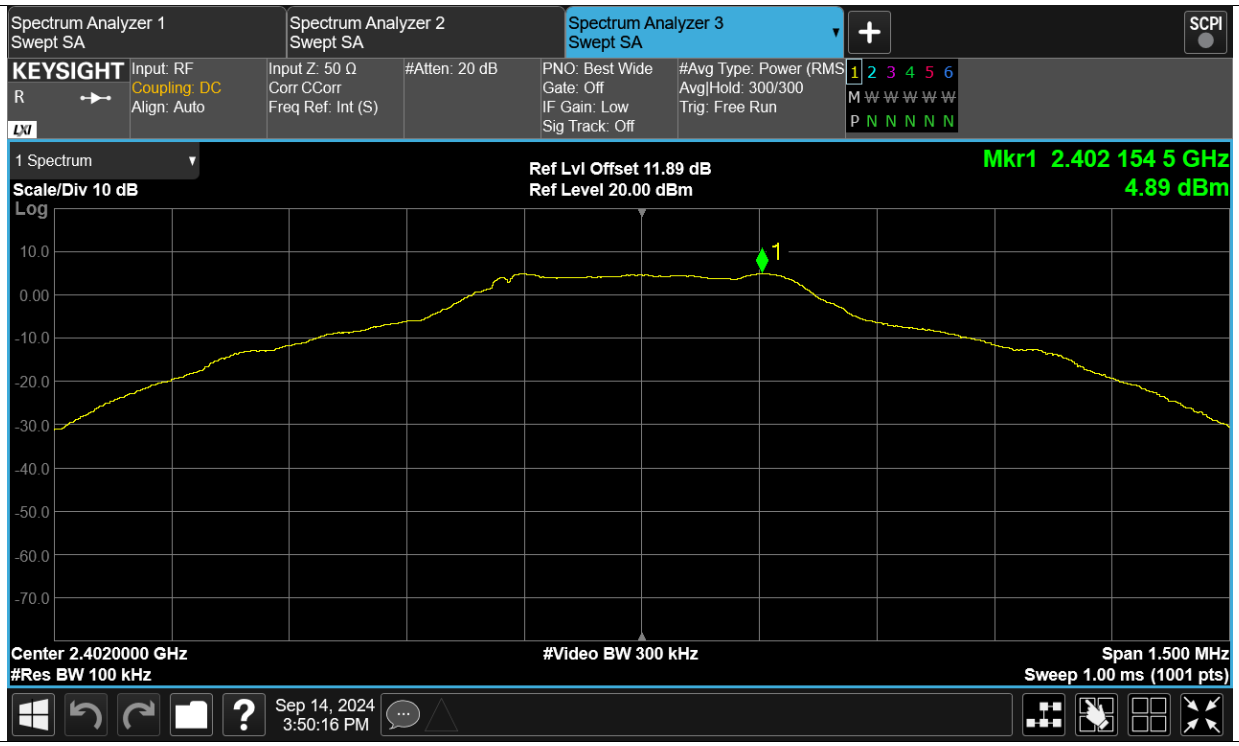


Conducted Spurious Emission

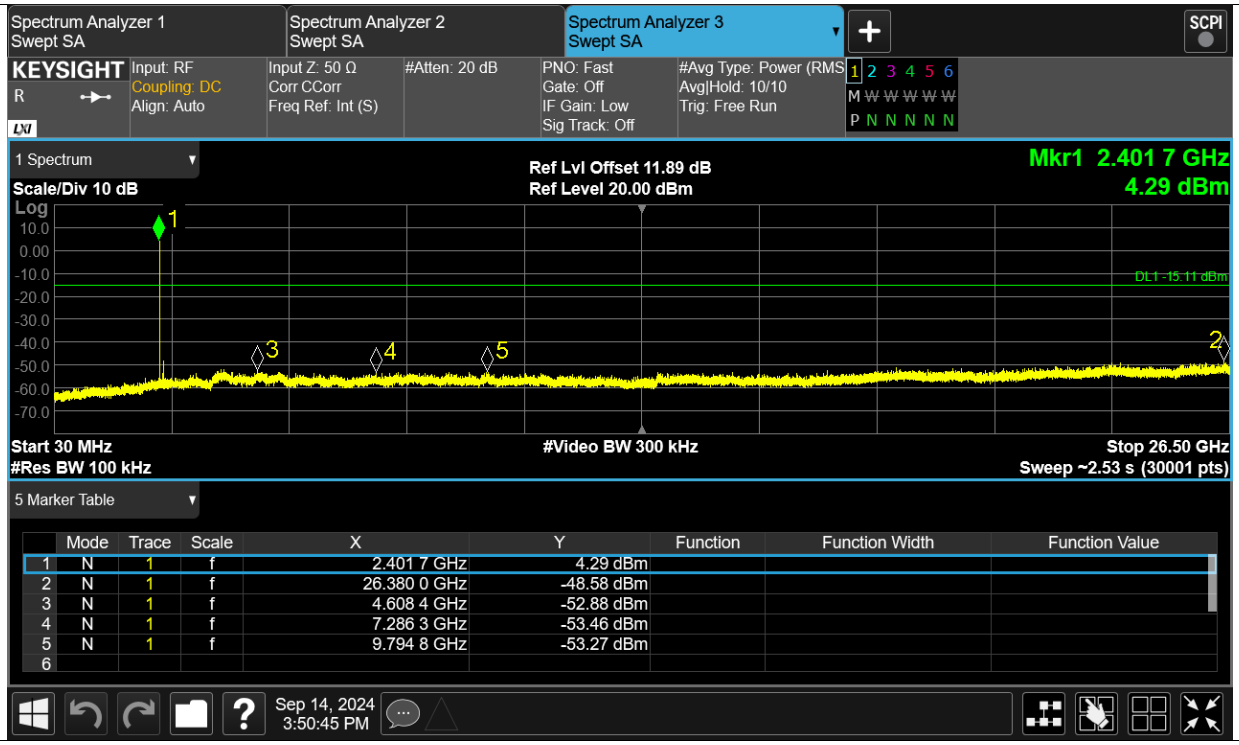
Condition	Mode	Frequency (MHz)	Antenna	Max Value (dBc)	Limit (dBc)	Verdict
NVNT	1-DH5	2402	Ant1	-53.46	-20	Pass
NVNT	1-DH5	2441	Ant1	-54.56	-20	Pass
NVNT	1-DH5	2480	Ant1	-50.93	-20	Pass
NVNT	2-DH5	2402	Ant1	-50.14	-20	Pass
NVNT	2-DH5	2441	Ant1	-50.13	-20	Pass
NVNT	2-DH5	2480	Ant1	-46.97	-20	Pass
NVNT	3-DH5	2402	Ant1	-49.93	-20	Pass
NVNT	3-DH5	2441	Ant1	-50.6	-20	Pass
NVNT	3-DH5	2480	Ant1	-47.66	-20	Pass

Test Graphs

Tx. Spurious NVNT 1-DH5 2402MHz Ant1 Ref

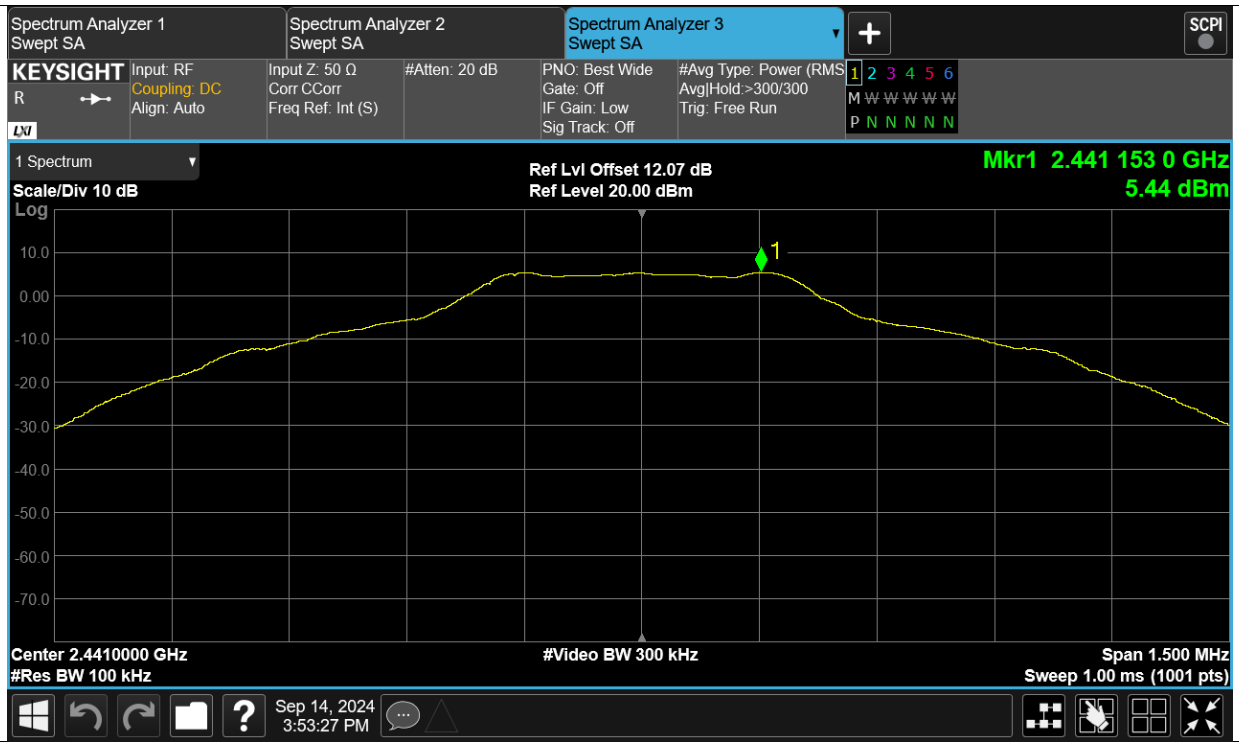


Tx. Spurious NVNT 1-DH5 2402MHz Ant1 Emission

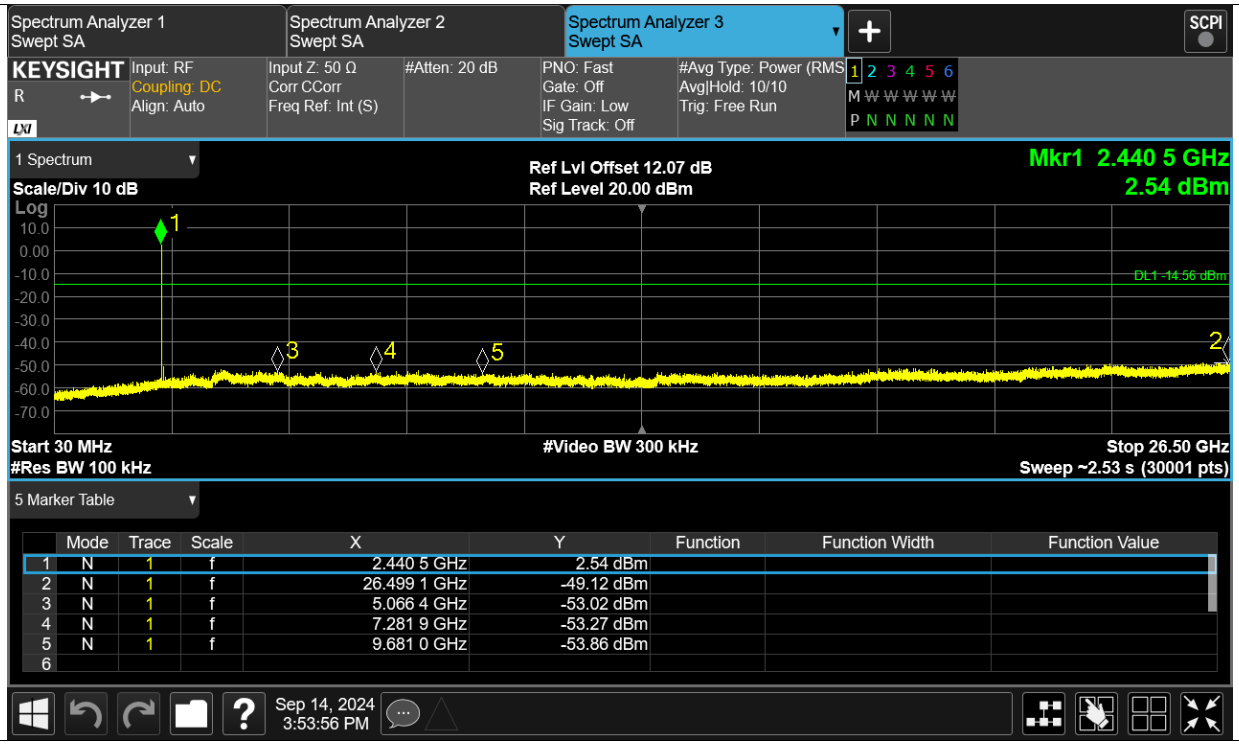


	Mode	Trace	Scale	X	Y	Function	Function Width	Function Value
1	N	1	f	2.401 7 GHz	4.29 dBm			
2	N	1	f	26.380 0 GHz	-48.58 dBm			
3	N	1	f	4.608 4 GHz	-52.88 dBm			
4	N	1	f	7.286 3 GHz	-53.46 dBm			
5	N	1	f	9.794 8 GHz	-53.27 dBm			
6								

Tx. Spurious NVNT 1-DH5 2441MHz Ant1 Ref

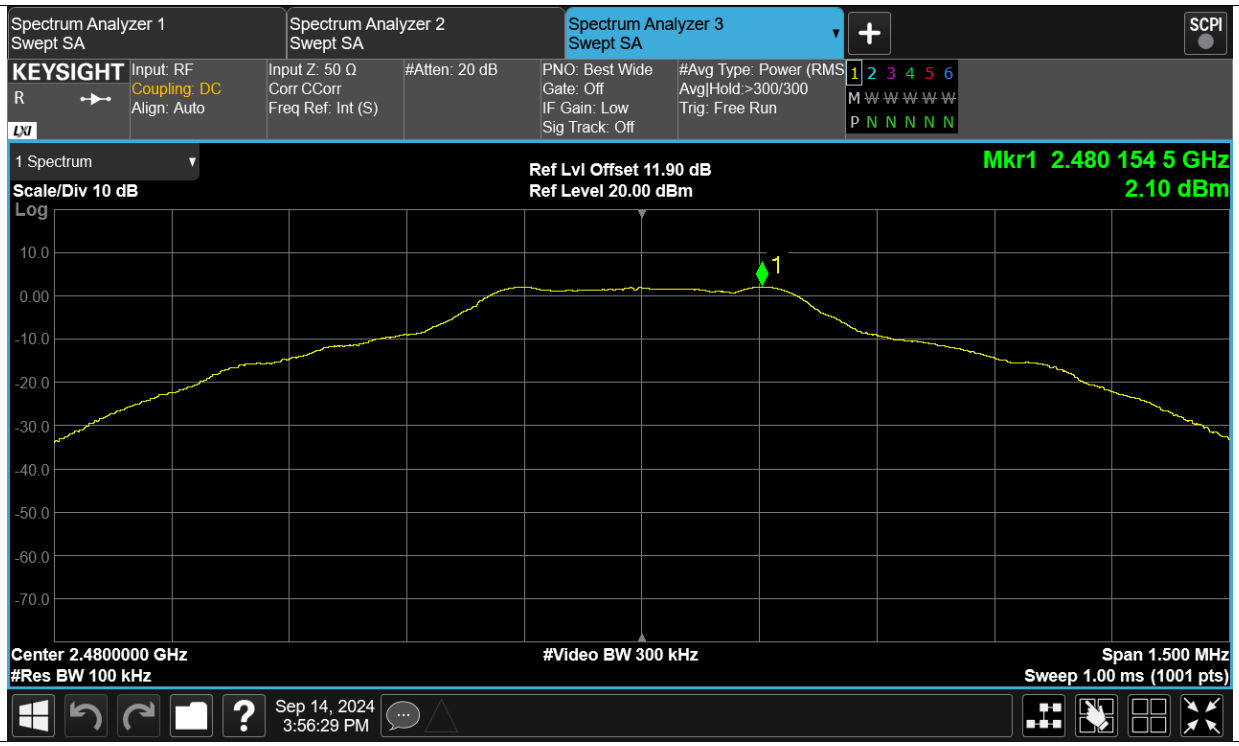


Tx. Spurious NVNT 1-DH5 2441MHz Ant1 Emission

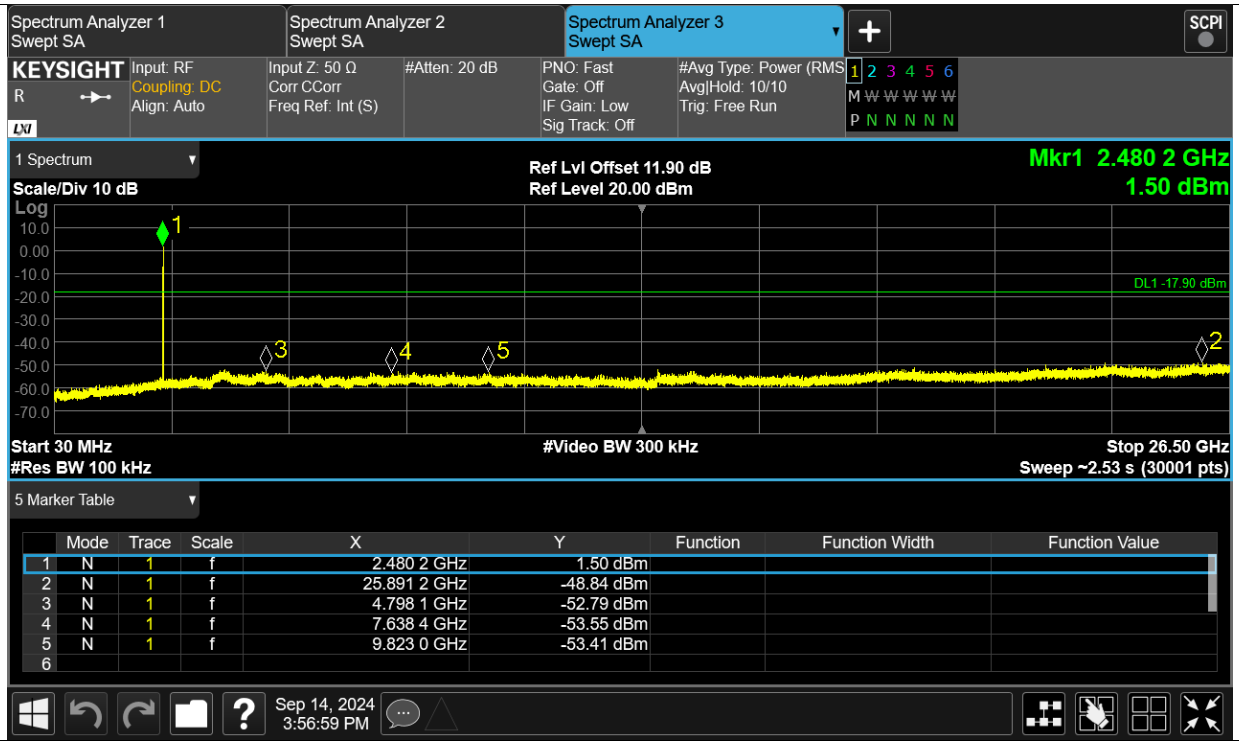


	Mode	Trace	Scale	X	Y	Function	Function Width	Function Value
1	N	1	f	2.440 5 GHz	2.54 dBm			
2	N	1	f	26.499 1 GHz	-49.12 dBm			
3	N	1	f	5.066 4 GHz	-53.02 dBm			
4	N	1	f	7.281 9 GHz	-53.27 dBm			
5	N	1	f	9.681 0 GHz	-53.86 dBm			
6								

Tx. Spurious NVNT 1-DH5 2480MHz Ant1 Ref

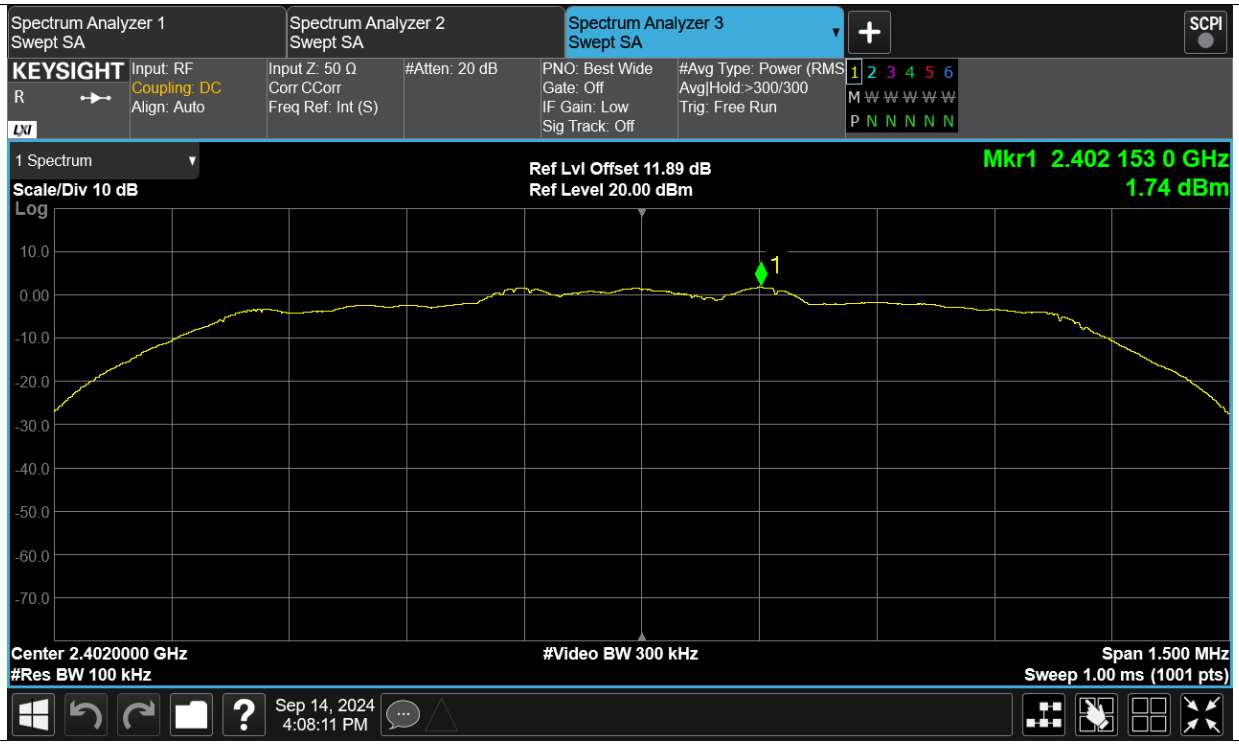


Tx. Spurious NVNT 1-DH5 2480MHz Ant1 Emission

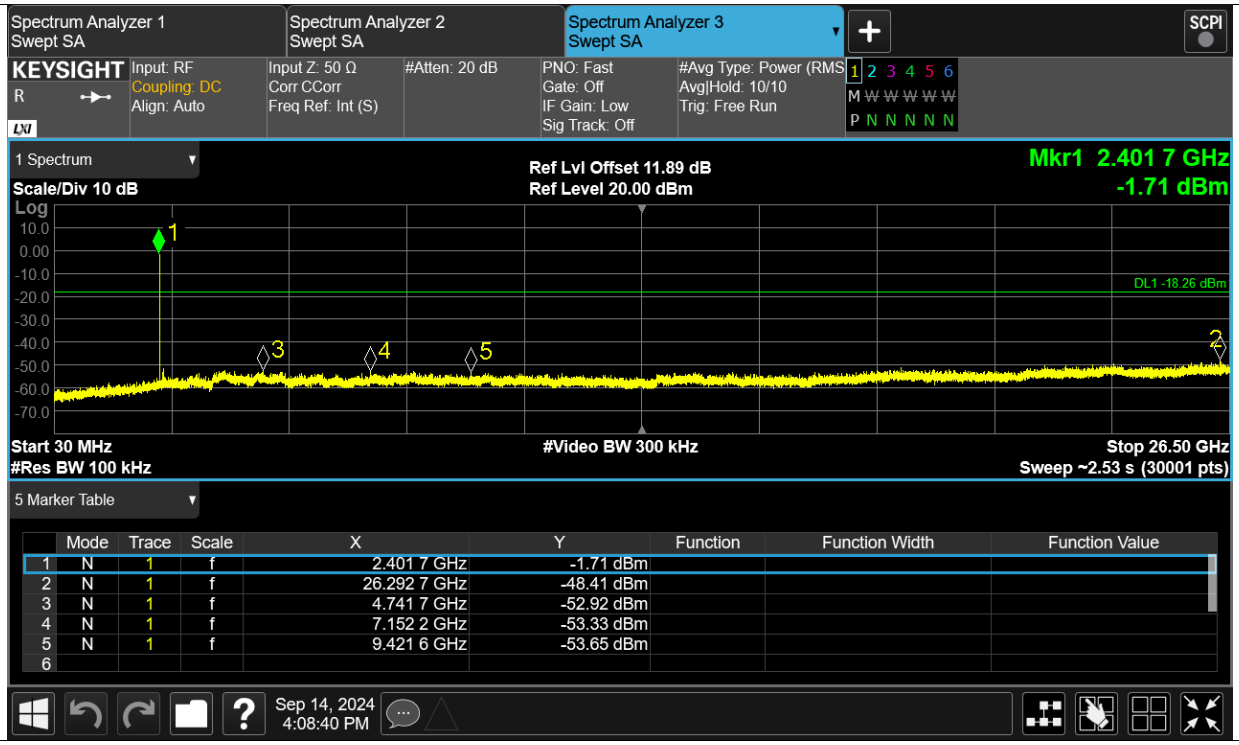


	Mode	Trace	Scale	X	Y	Function	Function Width	Function Value
1	N	1	f	2.480 2 GHz	1.50 dBm			
2	N	1	f	25.891 2 GHz	-48.84 dBm			
3	N	1	f	4.798 1 GHz	-52.79 dBm			
4	N	1	f	7.638 4 GHz	-53.55 dBm			
5	N	1	f	9.823 0 GHz	-53.41 dBm			
6								

Tx. Spurious NVNT 2-DH5 2402MHz Ant1 Ref

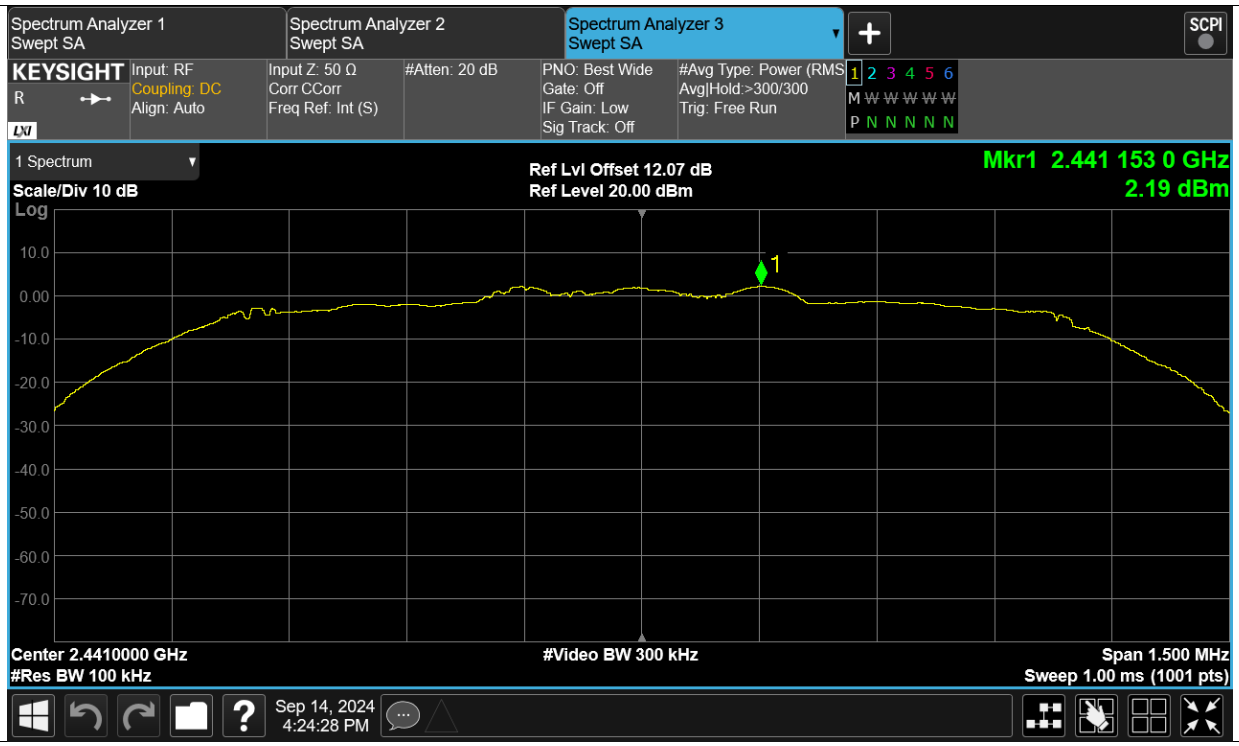


Tx. Spurious NVNT 2-DH5 2402MHz Ant1 Emission

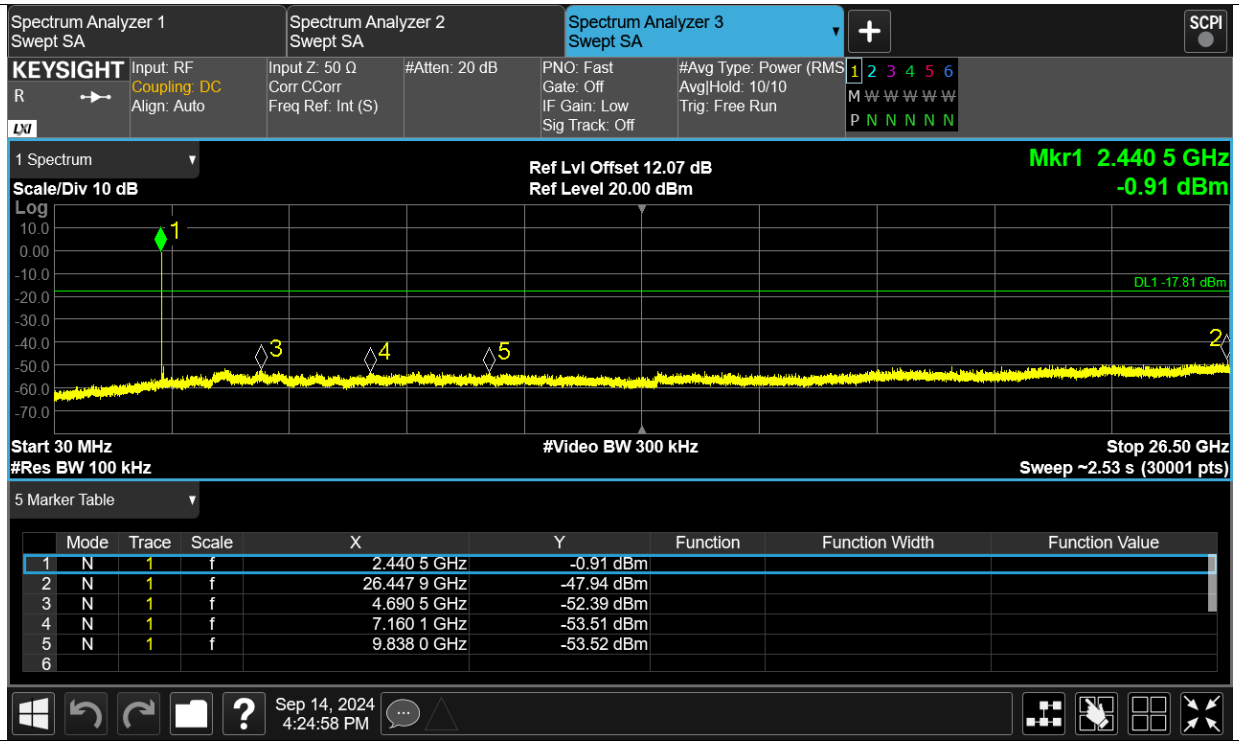


	Mode	Trace	Scale	X	Y	Function	Function Width	Function Value
1	N	1	f	2.401 7 GHz	-1.71 dBm			
2	N	1	f	26.292 7 GHz	-48.41 dBm			
3	N	1	f	4.741 7 GHz	-52.92 dBm			
4	N	1	f	7.152 2 GHz	-53.33 dBm			
5	N	1	f	9.421 6 GHz	-53.65 dBm			
6								

Tx. Spurious NVNT 2-DH5 2441MHz Ant1 Ref

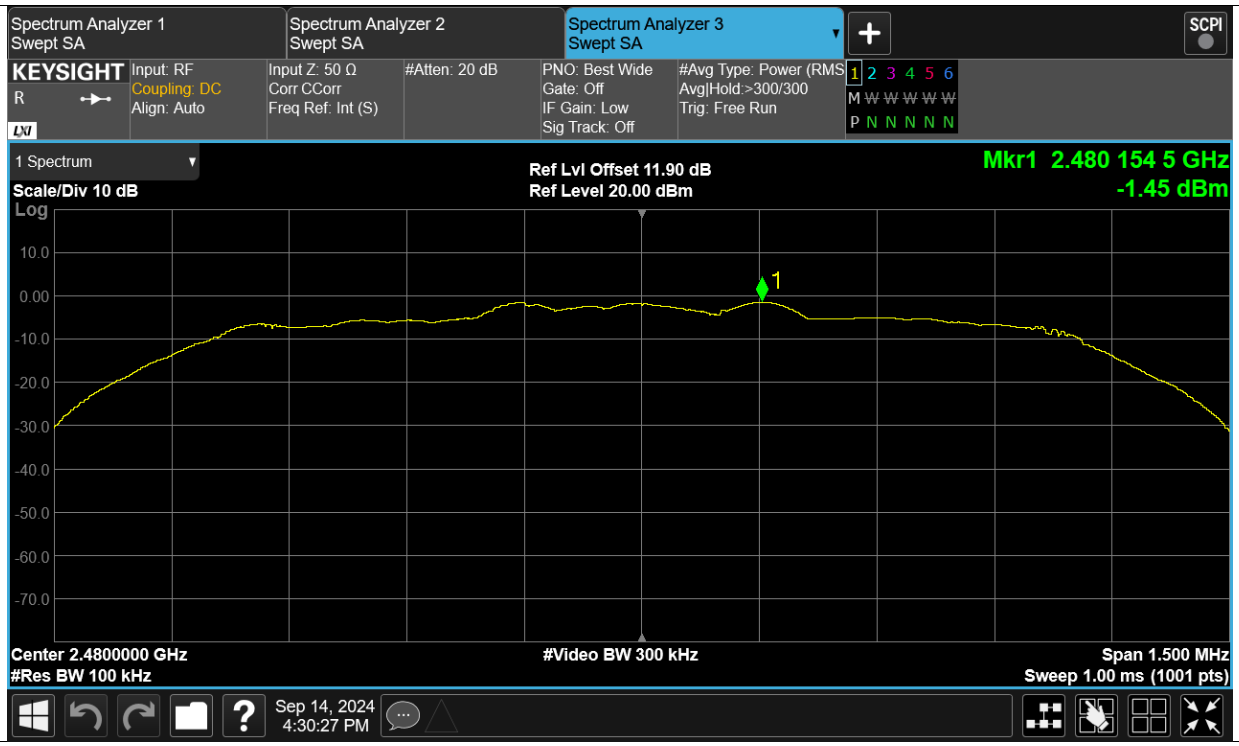


Tx. Spurious NVNT 2-DH5 2441MHz Ant1 Emission

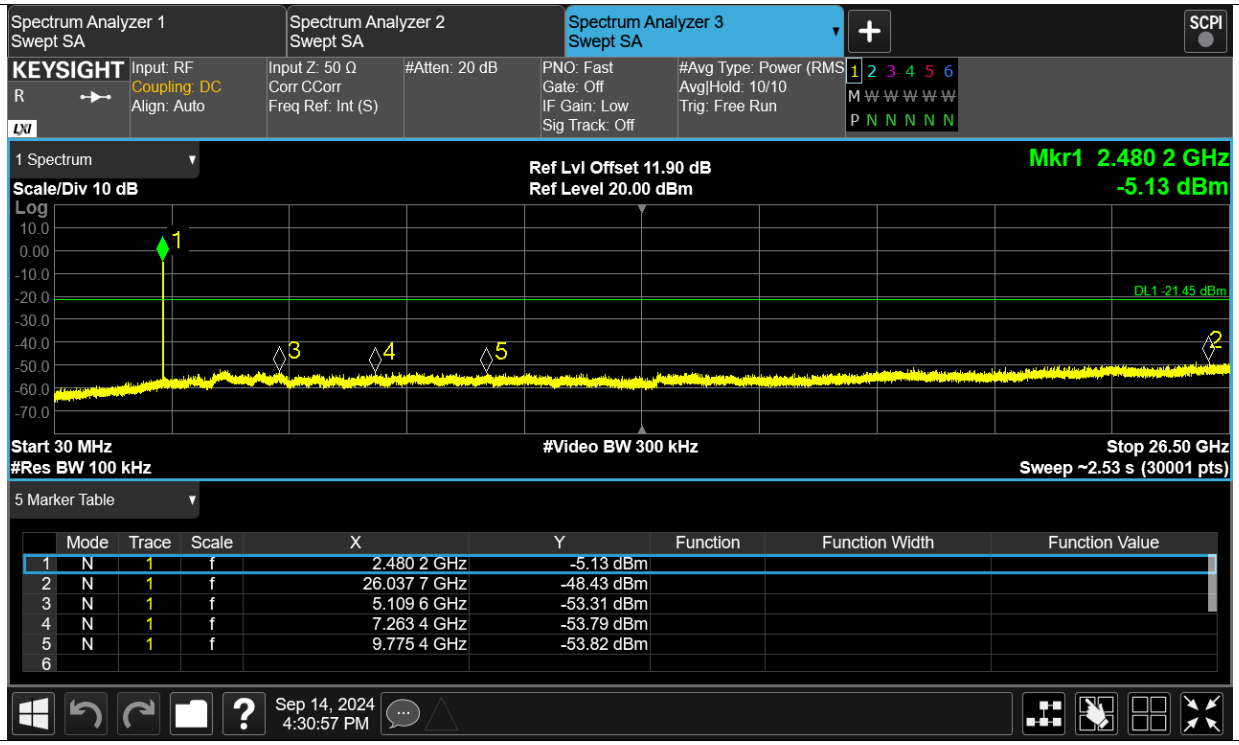


	Mode	Trace	Scale	X	Y	Function	Function Width	Function Value
1	N	1	f	2.440 5 GHz	-0.91 dBm			
2	N	1	f	26.447 9 GHz	-47.94 dBm			
3	N	1	f	4.690 5 GHz	-52.39 dBm			
4	N	1	f	7.160 1 GHz	-53.51 dBm			
5	N	1	f	9.838 0 GHz	-53.52 dBm			
6								

Tx. Spurious NVNT 2-DH5 2480MHz Ant1 Ref

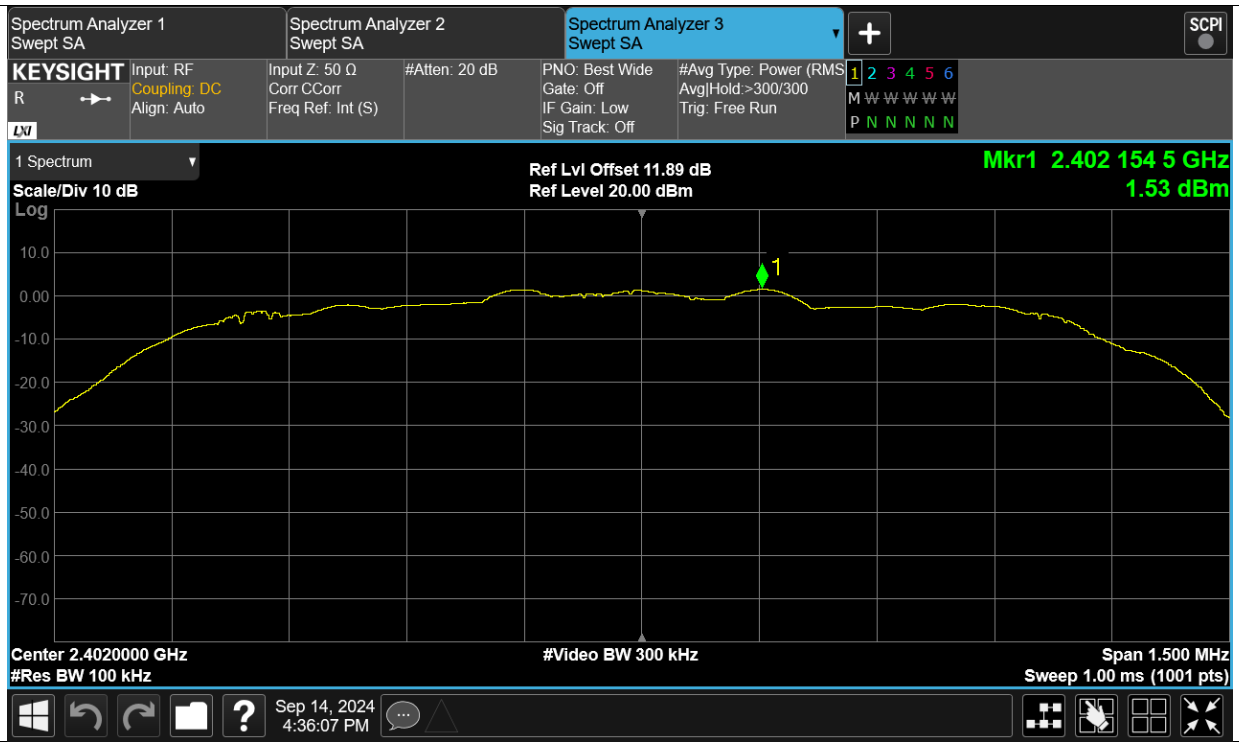


Tx. Spurious NVNT 2-DH5 2480MHz Ant1 Emission

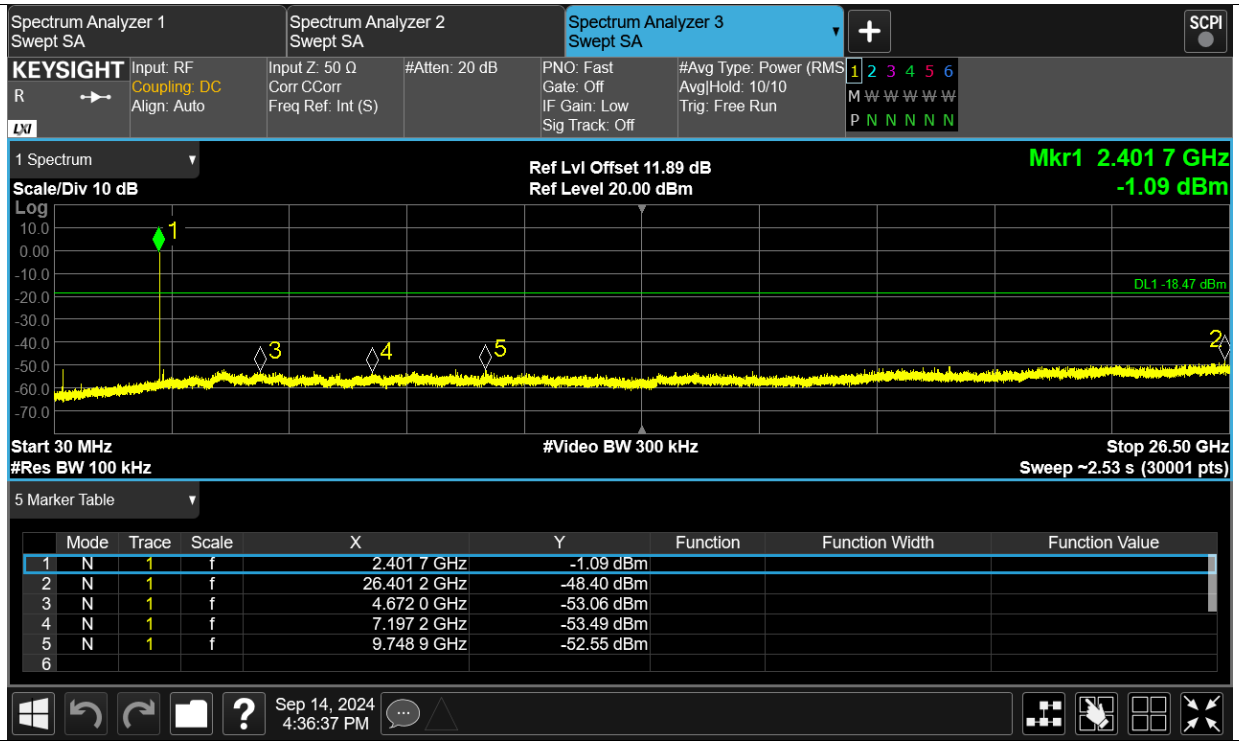


	Mode	Trace	Scale	X	Y	Function	Function Width	Function Value
1	N	1	f	2.480 2 GHz	-5.13 dBm			
2	N	1	f	26.037 7 GHz	-48.43 dBm			
3	N	1	f	5.109 6 GHz	-53.31 dBm			
4	N	1	f	7.263 4 GHz	-53.79 dBm			
5	N	1	f	9.775 4 GHz	-53.82 dBm			
6								

Tx. Spurious NVNT 3-DH5 2402MHz Ant1 Ref

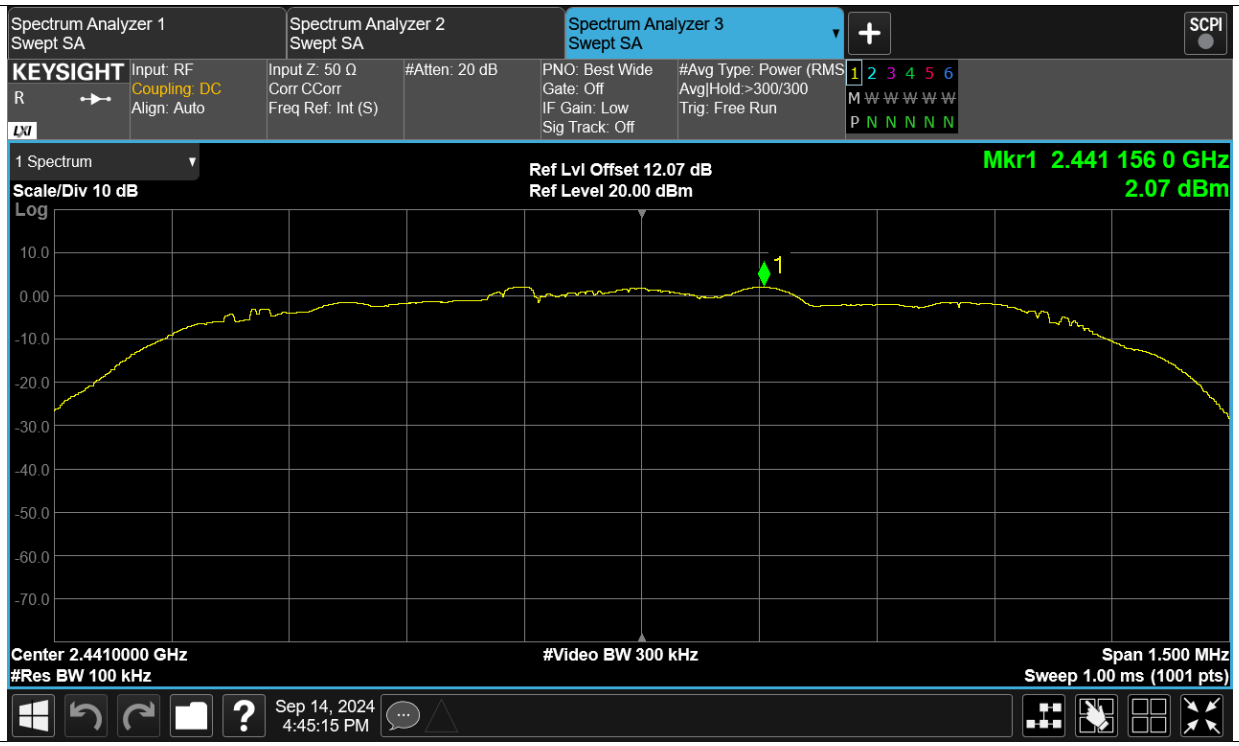


Tx. Spurious NVNT 3-DH5 2402MHz Ant1 Emission

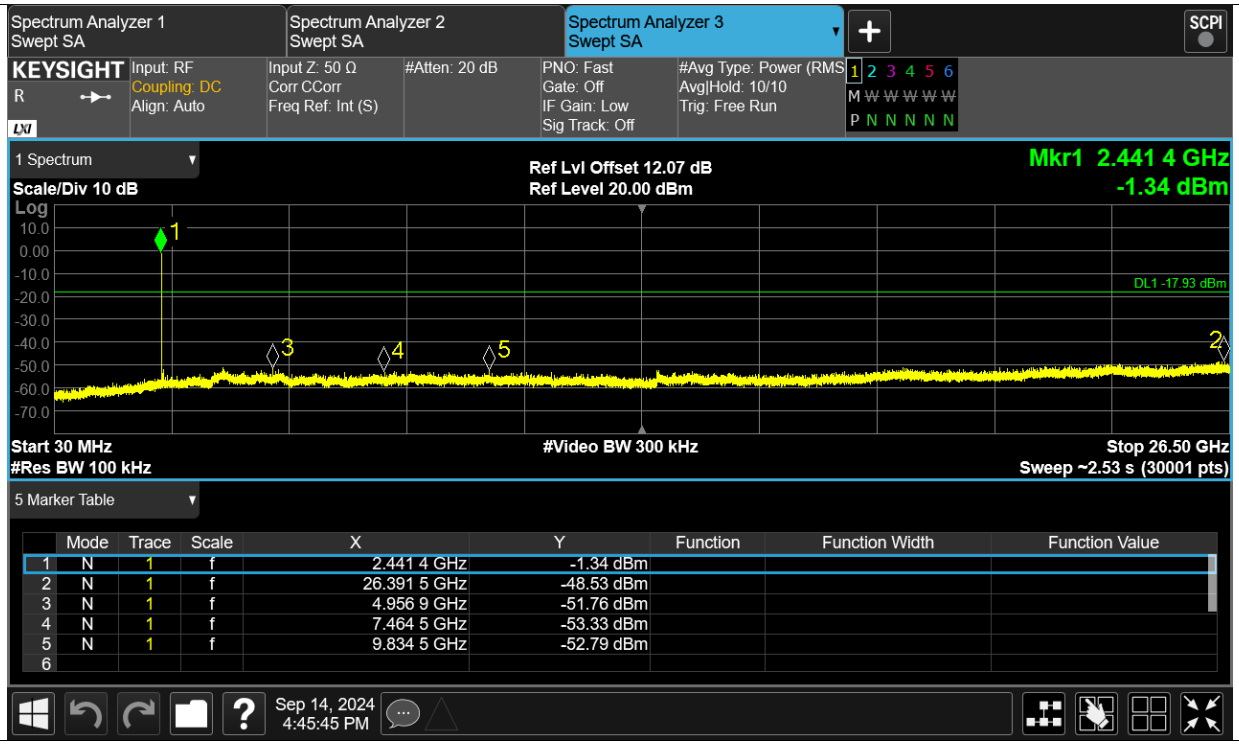


	Mode	Trace	Scale	X	Y	Function	Function Width	Function Value
1	N	1	f	2.401 7 GHz	-1.09 dBm			
2	N	1	f	26.401 2 GHz	-48.40 dBm			
3	N	1	f	4.672 0 GHz	-53.06 dBm			
4	N	1	f	7.197 2 GHz	-53.49 dBm			
5	N	1	f	9.748 9 GHz	-52.55 dBm			
6								

Tx. Spurious NVNT 3-DH5 2441MHz Ant1 Ref

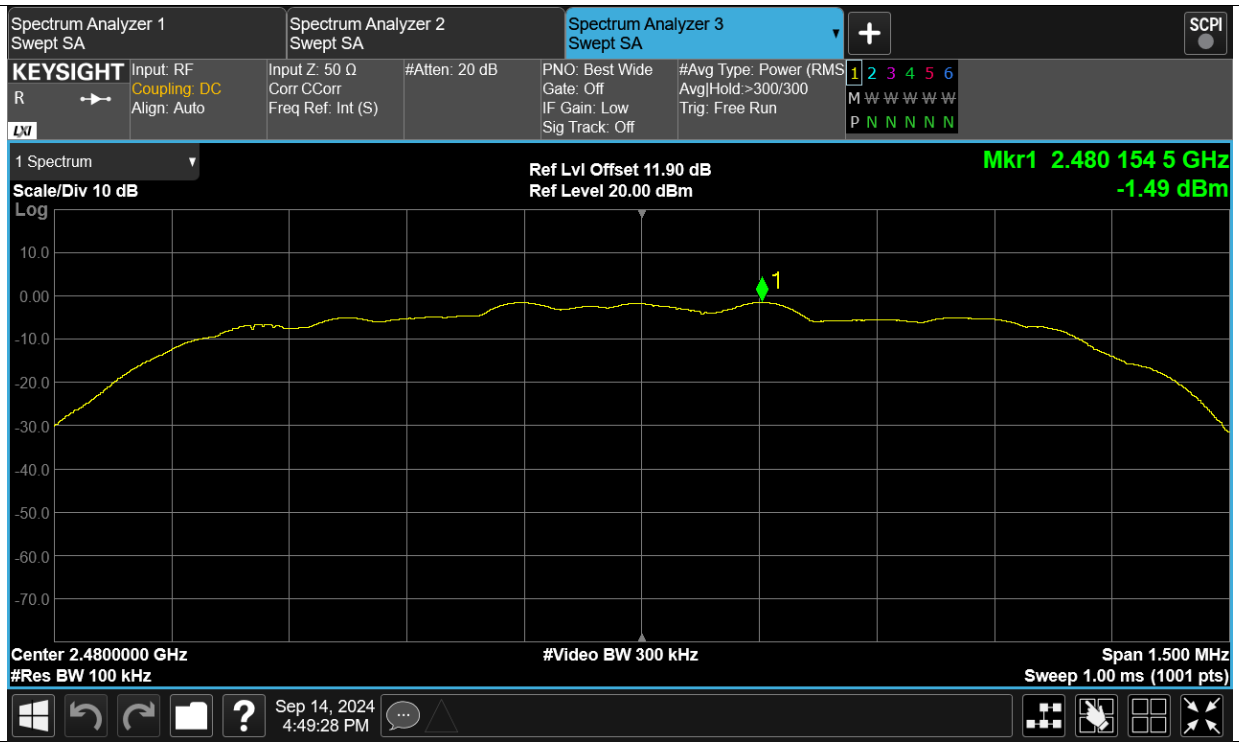


Tx. Spurious NVNT 3-DH5 2441MHz Ant1 Emission

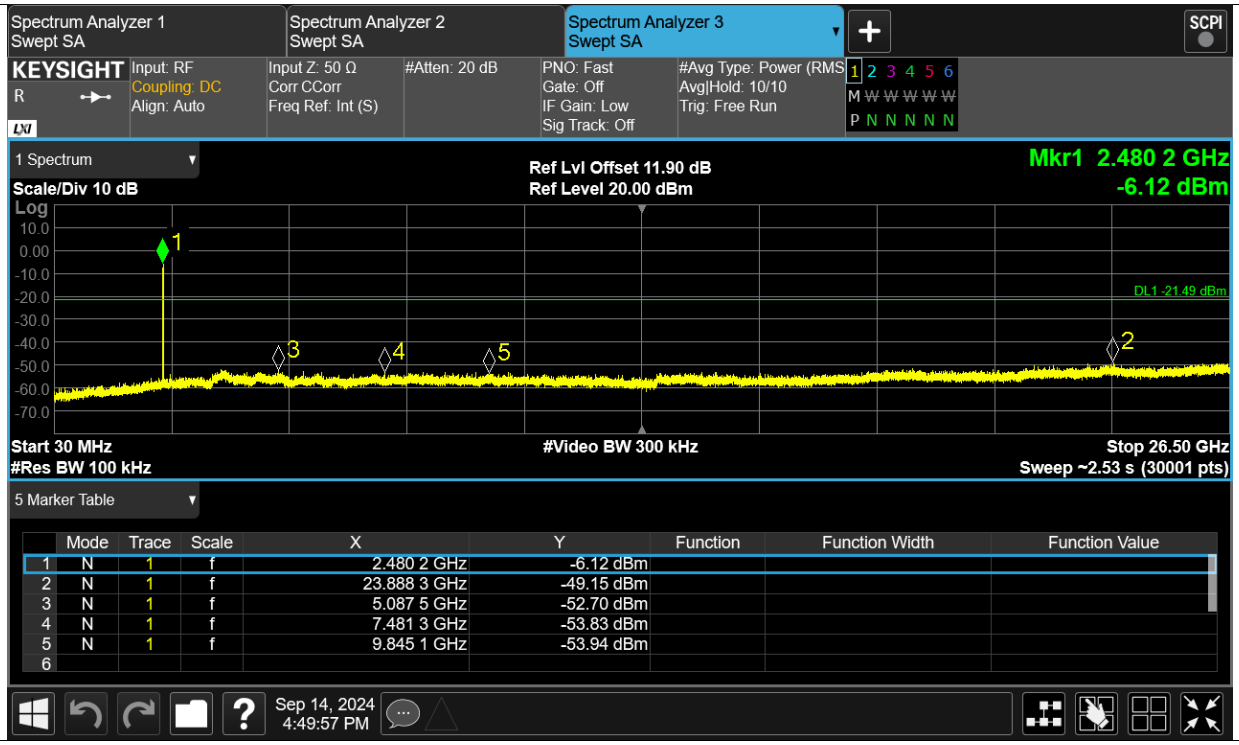


	Mode	Trace	Scale	X	Y	Function	Function Width	Function Value
1	N	1	f	2.441 4 GHz	-1.34 dBm			
2	N	1	f	26.391 5 GHz	-48.53 dBm			
3	N	1	f	4.956 9 GHz	-51.76 dBm			
4	N	1	f	7.464 5 GHz	-53.33 dBm			
5	N	1	f	9.834 5 GHz	-52.79 dBm			
6								

Tx. Spurious NVNT 3-DH5 2480MHz Ant1 Ref



Tx. Spurious NVNT 3-DH5 2480MHz Ant1 Emission



	Mode	Trace	Scale	X	Y	Function	Function Width	Function Value
1	N	1	f	2.480 2 GHz	-6.12 dBm			
2	N	1	f	23.888 3 GHz	-49.15 dBm			
3	N	1	f	5.087 5 GHz	-52.70 dBm			
4	N	1	f	7.481 3 GHz	-53.83 dBm			
5	N	1	f	9.845 1 GHz	-53.94 dBm			
6								