

RF Test Data for Bluetooth(BDR+EDR) (Conducted Measurements)

General Description of EUT	
Product Name:	DIGITAL PIANO
Test Model:	DDP-400
Sample ID:	20211201-01_01-2#
Environmental Conditions	
Temperature:	25℃
Relative Humidity:	55%
Test Voltage:	DC 15V
Test Engineer:	Huangjianping
Note: For a more detailed features description, please refer to the report TB-FCC185579	

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1.Maximum Conducted Output Power

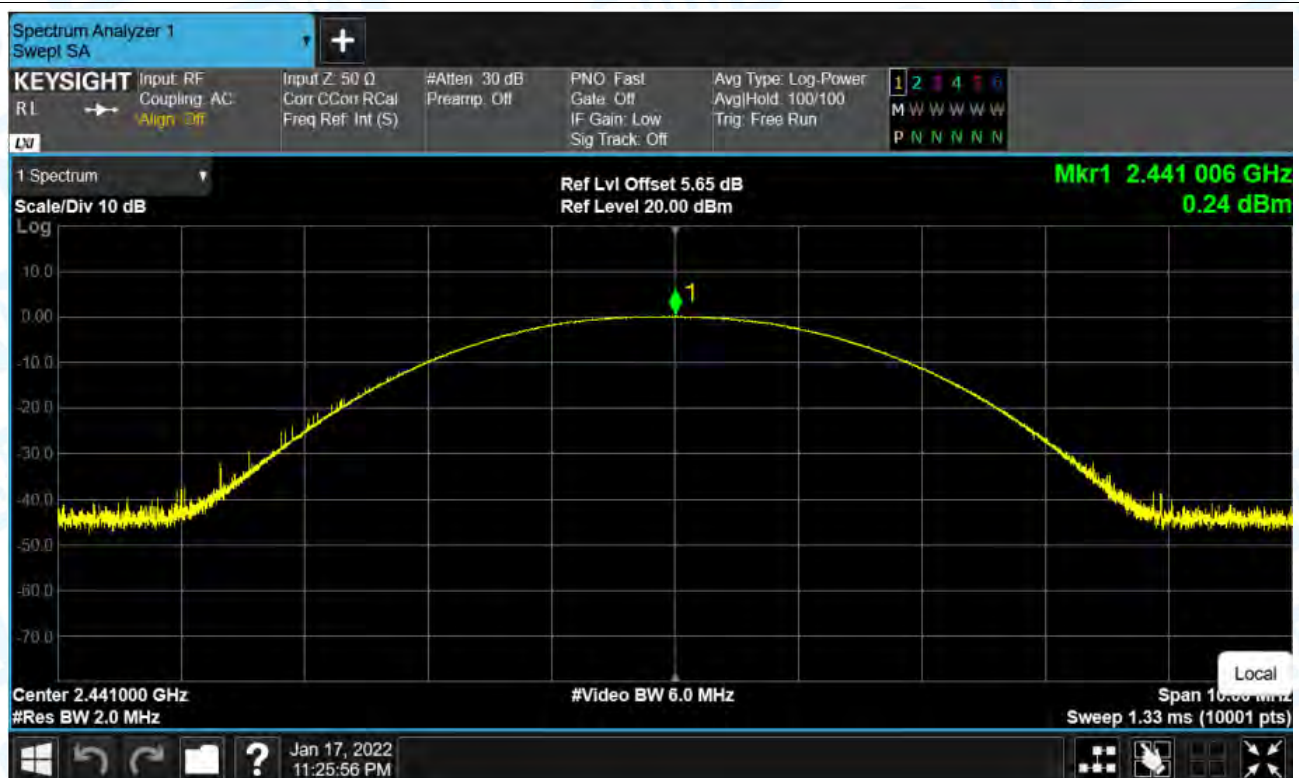
Condition	Mode	Frequency (MHz)	Antenna	Conducted Power (dBm)	Duty Factor (dB)	Total Power (dBm)	Limit (dBm)	Verdict
NVNT	1-DH1	2402	Ant1	0.984	0	0.984	21	Pass
NVNT	1-DH1	2441	Ant1	0.236	0	0.236	21	Pass
NVNT	1-DH1	2480	Ant1	-0.132	0	-0.132	21	Pass
NVNT	2-DH1	2402	Ant1	1.911	0	1.911	21	Pass
NVNT	2-DH1	2441	Ant1	1.577	0	1.577	21	Pass
NVNT	2-DH1	2480	Ant1	1.255	0	1.255	21	Pass
NVNT	3-DH1	2402	Ant1	2.779	0	2.779	21	Pass
NVNT	3-DH1	2441	Ant1	2.118	0	2.118	21	Pass
NVNT	3-DH1	2480	Ant1	1.661	0	1.661	21	Pass

Test Graphs

Power NVNT 1-DH1 2402MHz Ant1



Power NVNT 1-DH1 2441MHz Ant1





Power NVNT 2-DH1 2402MHz Ant1



Power NVNT 2-DH1 2441MHz Ant1





Power NVNT 3-DH1 2402MHz Ant1



Power NVNT 3-DH1 2441MHz Ant1





2.-20dB Bandwidth

Condition	Mode	Frequency (MHz)	Antenna	-20 dB Bandwidth (MHz)	Limit -20 dB Bandwidth (MHz)	Verdict
NVNT	1-DH1	2402	Ant1	0.9	---	Pass
NVNT	1-DH1	2441	Ant1	0.9	---	Pass
NVNT	1-DH1	2480	Ant1	0.91	---	Pass
NVNT	2-DH1	2402	Ant1	1.24	---	Pass
NVNT	2-DH1	2441	Ant1	1.24	---	Pass
NVNT	2-DH1	2480	Ant1	1.21	---	Pass
NVNT	3-DH1	2402	Ant1	1.2	---	Pass
NVNT	3-DH1	2441	Ant1	1.21	---	Pass
NVNT	3-DH1	2480	Ant1	1.2	---	Pass

Test Graphs

-20dB Bandwidth NVNT 1-DH1 2402MHz Ant1



-20dB Bandwidth NVNT 1-DH1 2441MHz Ant1



-20dB Bandwidth NVNT 1-DH1 2480MHz Ant1



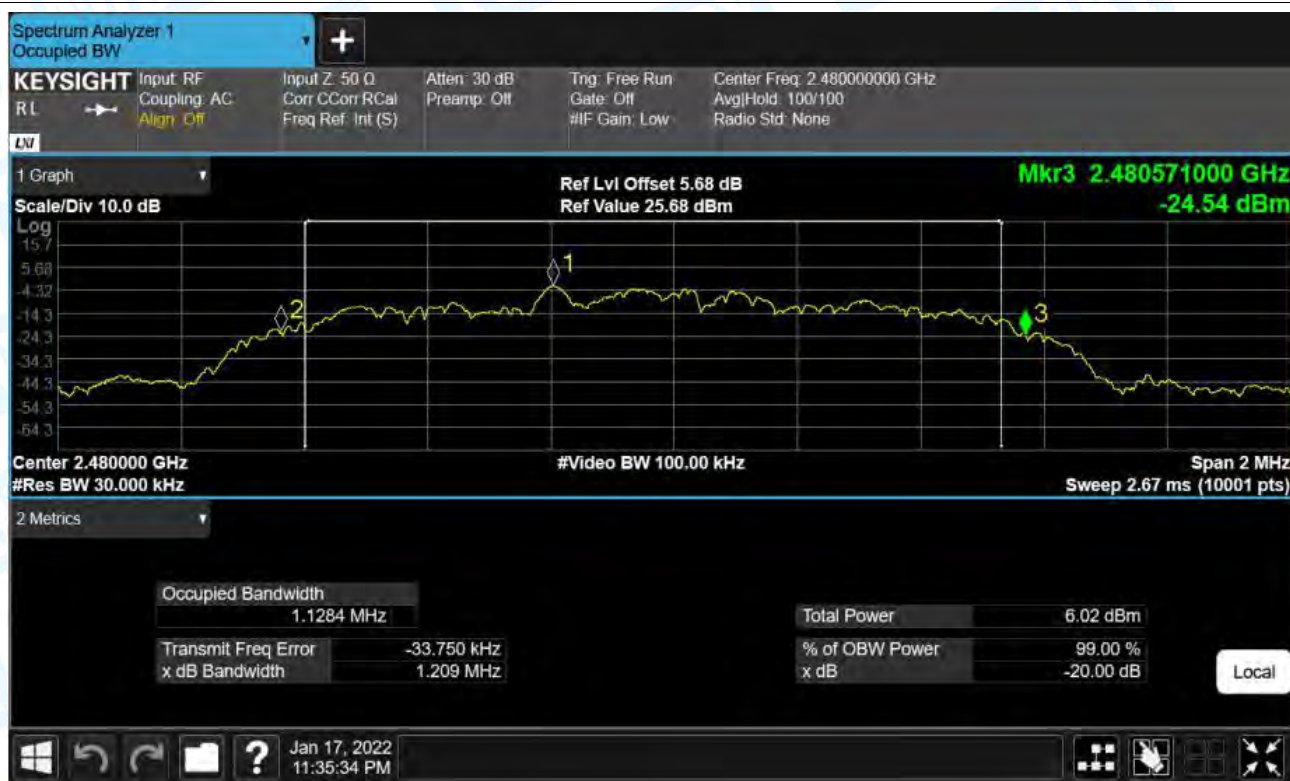
-20dB Bandwidth NVNT 2-DH1 2402MHz Ant1



-20dB Bandwidth NVNT 2-DH1 2441MHz Ant1



-20dB Bandwidth NVNT 2-DH1 2480MHz Ant1



-20dB Bandwidth NVNT 3-DH1 2402MHz Ant1



-20dB Bandwidth NVNT 3-DH1 2441MHz Ant1



-20dB Bandwidth NVNT 3-DH1 2480MHz Ant1

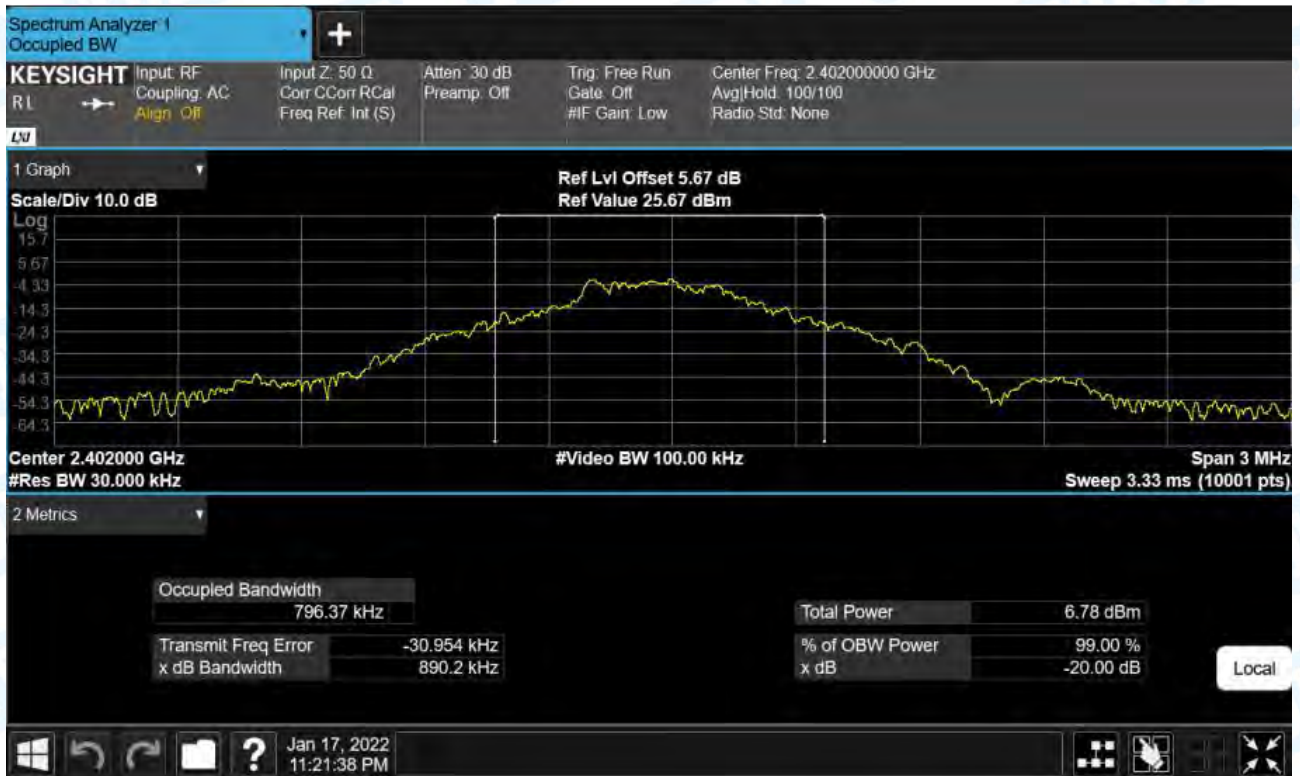


3.Occupied Channel Bandwidth

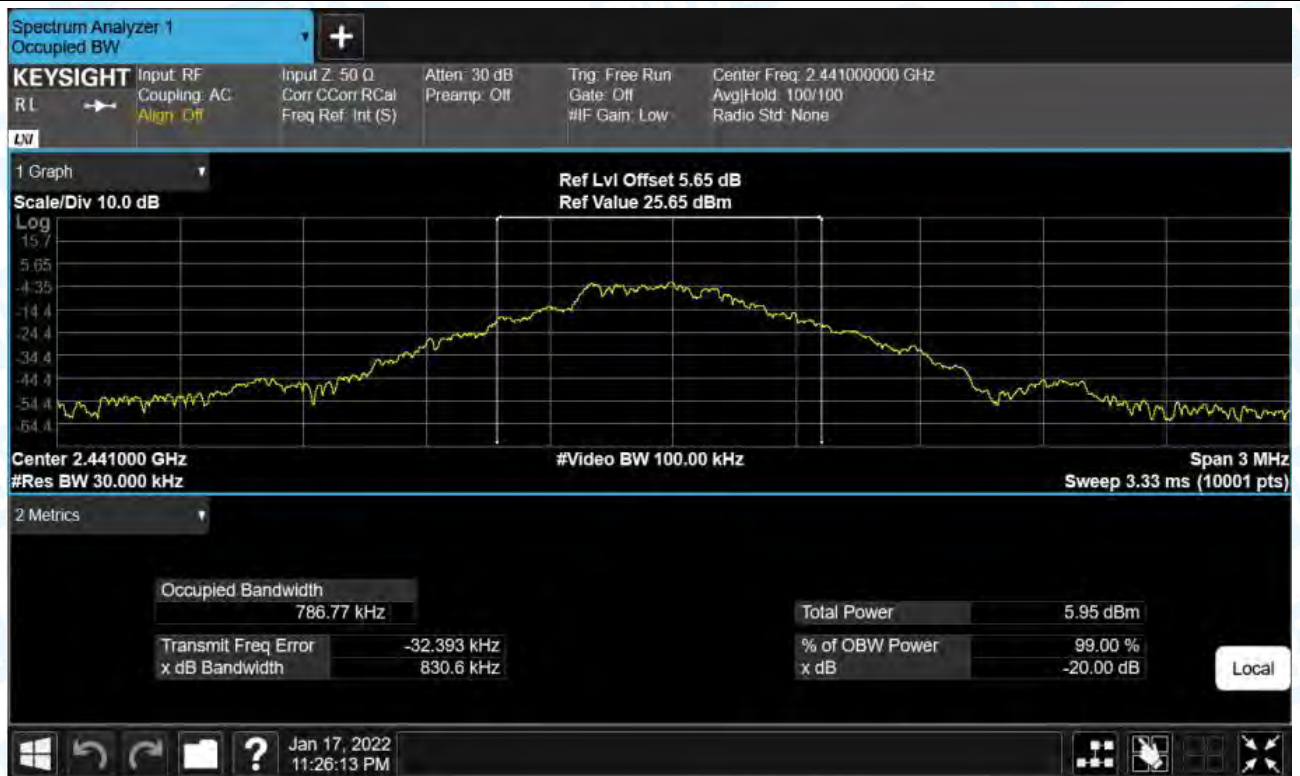
Condition	Mode	Frequency (MHz)	Antenna	99% OBW (MHz)
NVNT	1-DH1	2402	Ant1	0.796
NVNT	1-DH1	2441	Ant1	0.787
NVNT	1-DH1	2480	Ant1	0.796
NVNT	2-DH1	2402	Ant1	1.145
NVNT	2-DH1	2441	Ant1	1.144
NVNT	2-DH1	2480	Ant1	1.143
NVNT	3-DH1	2402	Ant1	1.121
NVNT	3-DH1	2441	Ant1	1.133
NVNT	3-DH1	2480	Ant1	1.12

Test Graphs

OBW NVNT 1-DH1 2402MHz Ant1



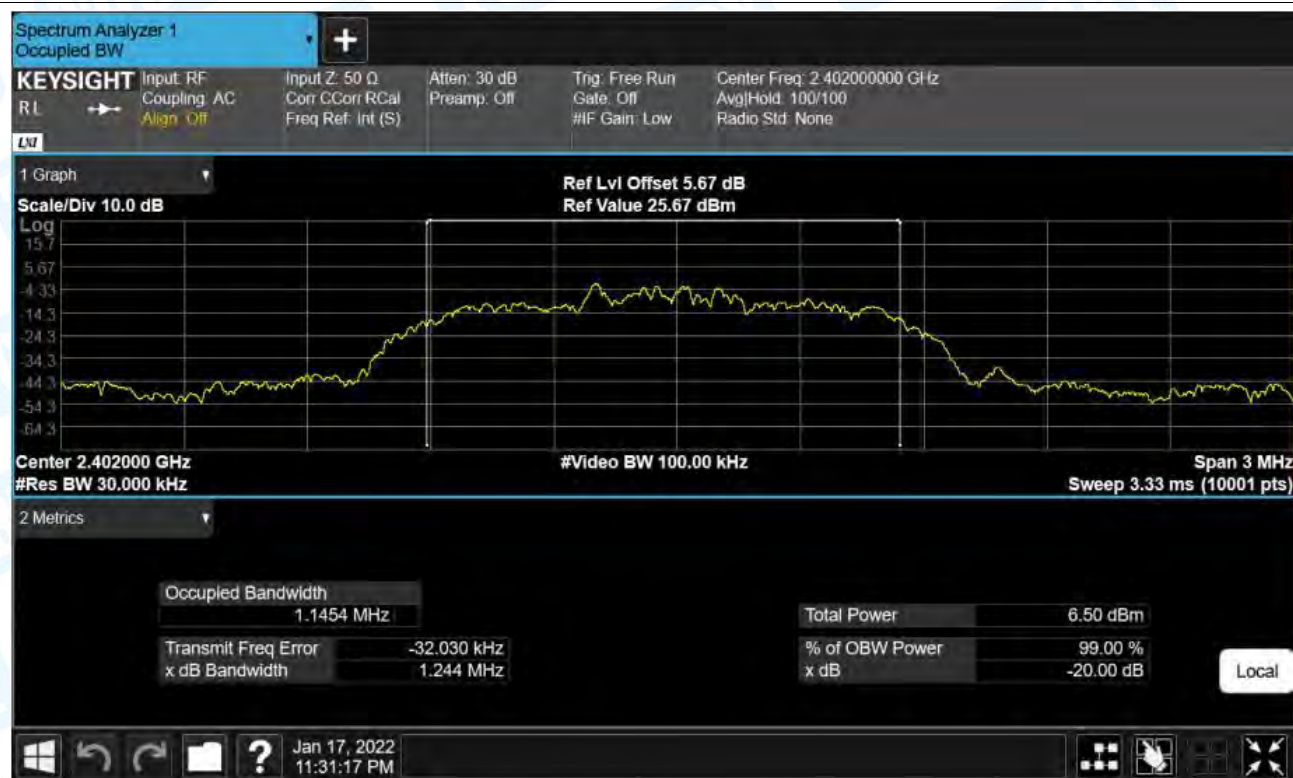
OBW NVNT 1-DH1 2441MHz Ant1



OBW NVNT 1-DH1 2480MHz Ant1



OBW NVNT 2-DH1 2402MHz Ant1



OBW NVNT 2-DH1 2441MHz Ant1



OBW NVNT 2-DH1 2480MHz Ant1



OBW NVNT 3-DH1 2402MHz Ant1



OBW NVNT 3-DH1 2441MHz Ant1



OBW NVNT 3-DH1 2480MHz Ant1



4.Carrier Frequencies Separation

Condition	Mode	Antenna	Hopping Freq1 (MHz)	Hopping Freq2 (MHz)	HFS (MHz)	Limit (MHz)	Verdict
NVNT	1-DH1	Ant1	2402.017	2402.995	0.978	0.6	Pass
NVNT	1-DH1	Ant1	2440.993	2441.992	0.999	0.6	Pass
NVNT	1-DH1	Ant1	2478.99	2479.989	0.999	0.607	Pass
NVNT	2-DH1	Ant1	2401.957	2402.875	0.918	0.827	Pass
NVNT	2-DH1	Ant1	2440.993	2441.995	1.002	0.827	Pass
NVNT	2-DH1	Ant1	2478.99	2480.004	1.014	0.807	Pass
NVNT	3-DH1	Ant1	2401.933	2402.809	0.876	0.8	Pass
NVNT	3-DH1	Ant1	2440.804	2441.797	0.993	0.807	Pass
NVNT	3-DH1	Ant1	2478.804	2479.803	0.999	0.8	Pass

Test Graphs

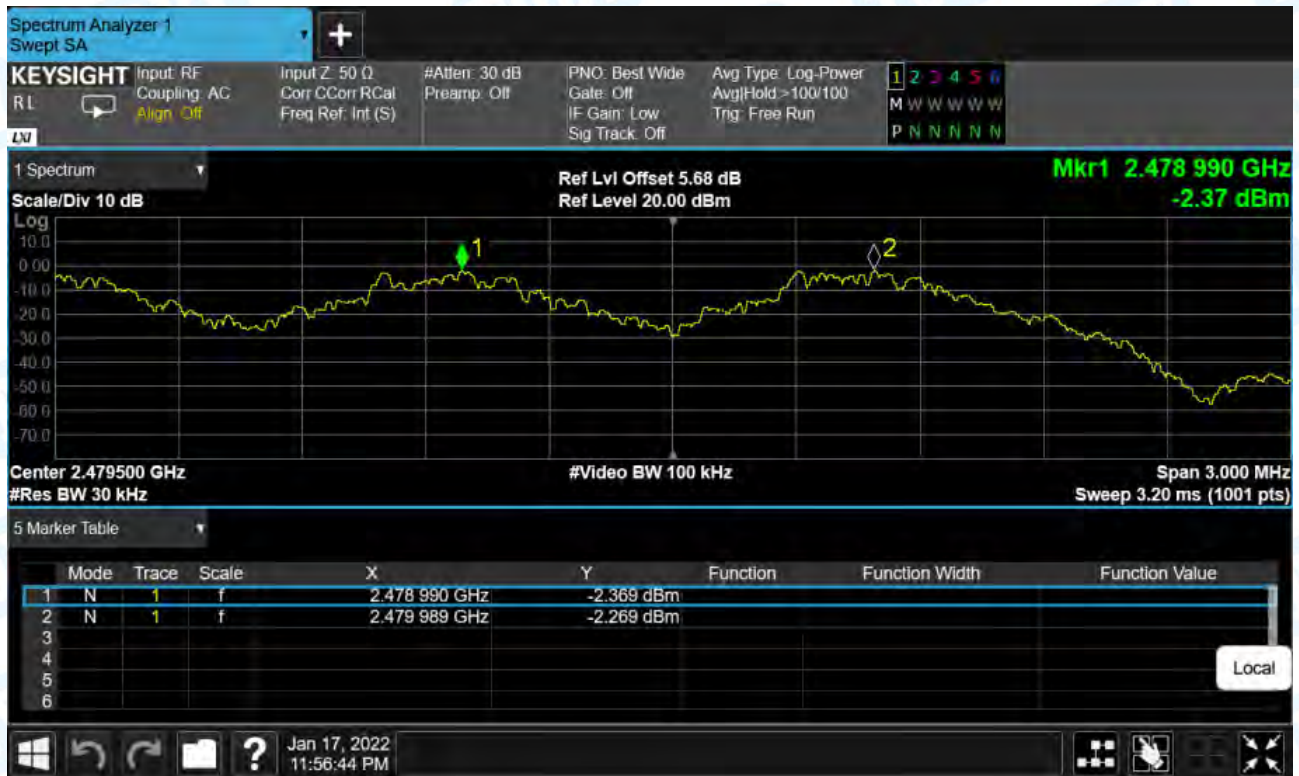
CFS NVNT 1-DH1 2402MHz Ant1



CFS NVNT 1-DH1 2441MHz Ant1



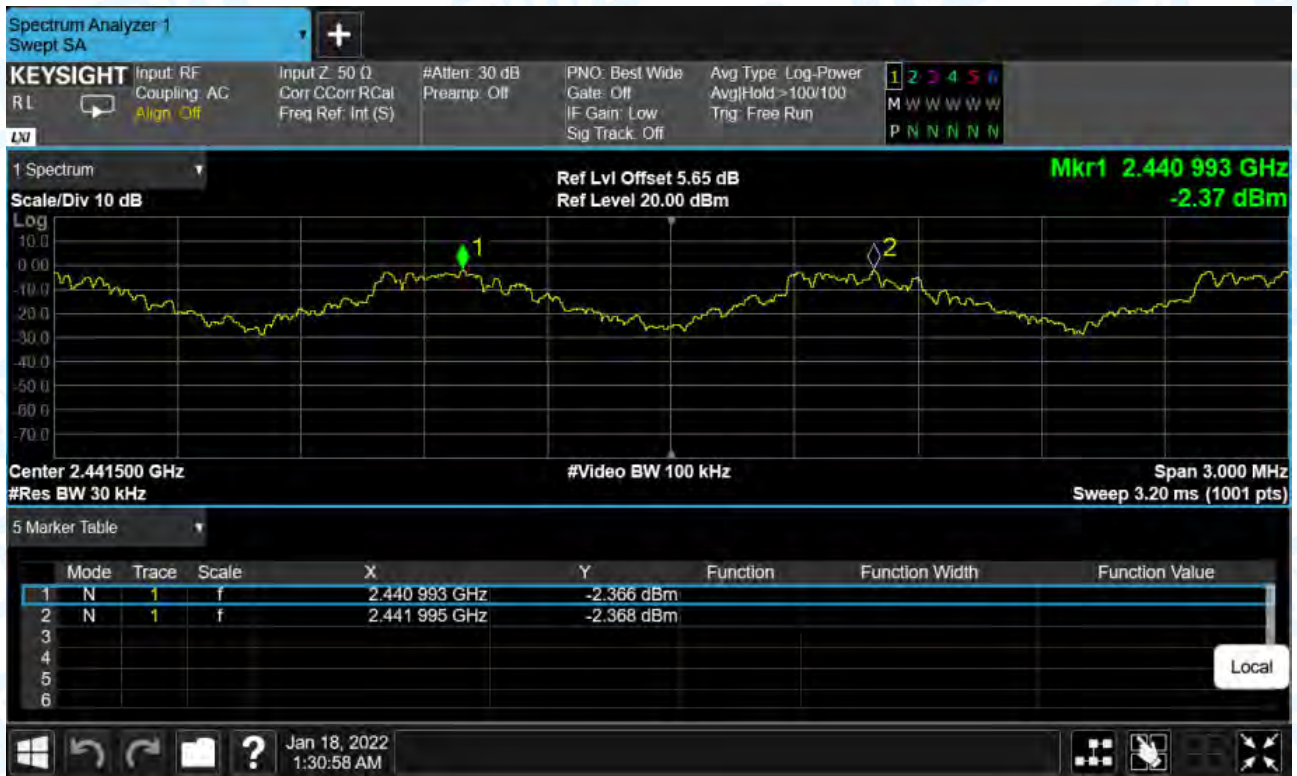
CFS NVNT 1-DH1 2480MHz Ant1



CFS NVNT 2-DH1 2402MHz Ant1



CFS NVNT 2-DH1 2441MHz Ant1



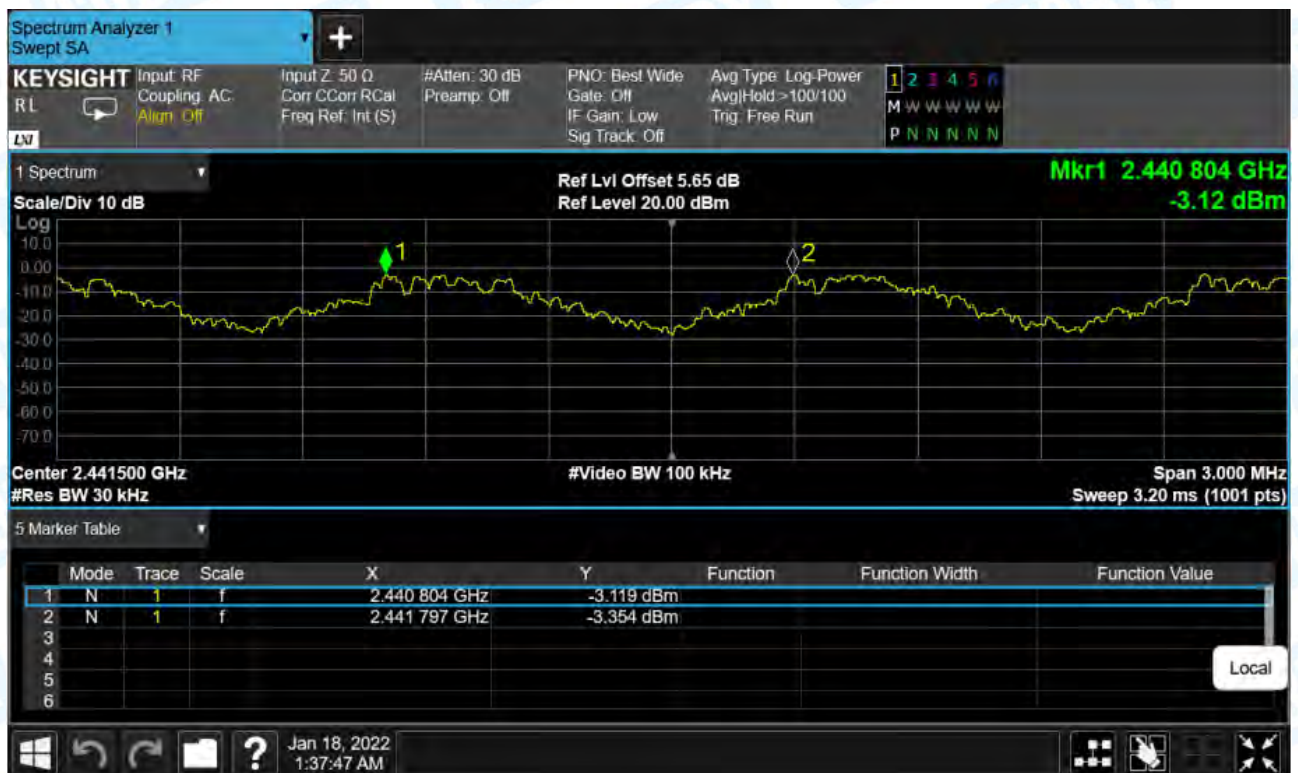
CFS NVNT 2-DH1 2480MHz Ant1



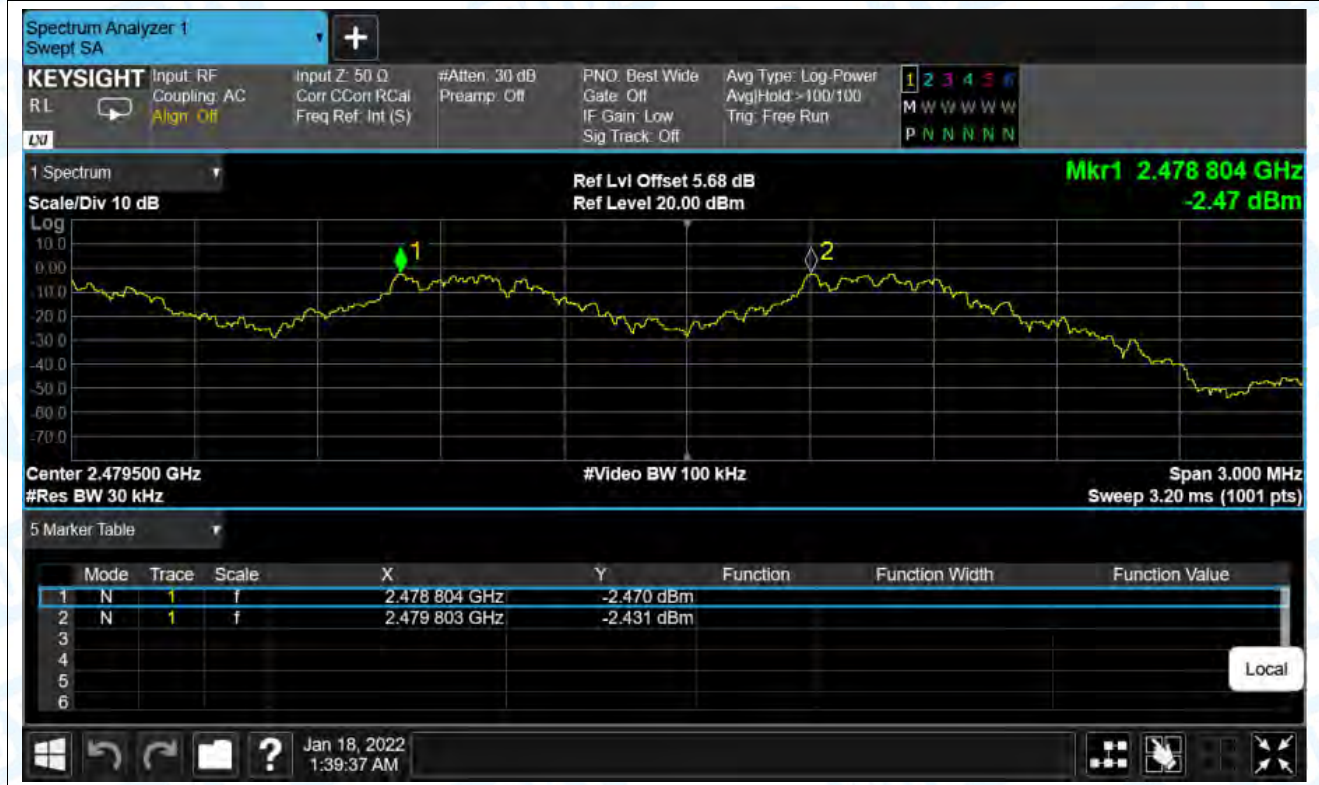
CFS NVNT 3-DH1 2402MHz Ant1



CFS NVNT 3-DH1 2441MHz Ant1



CFS NVNT 3-DH1 2480MHz Ant1

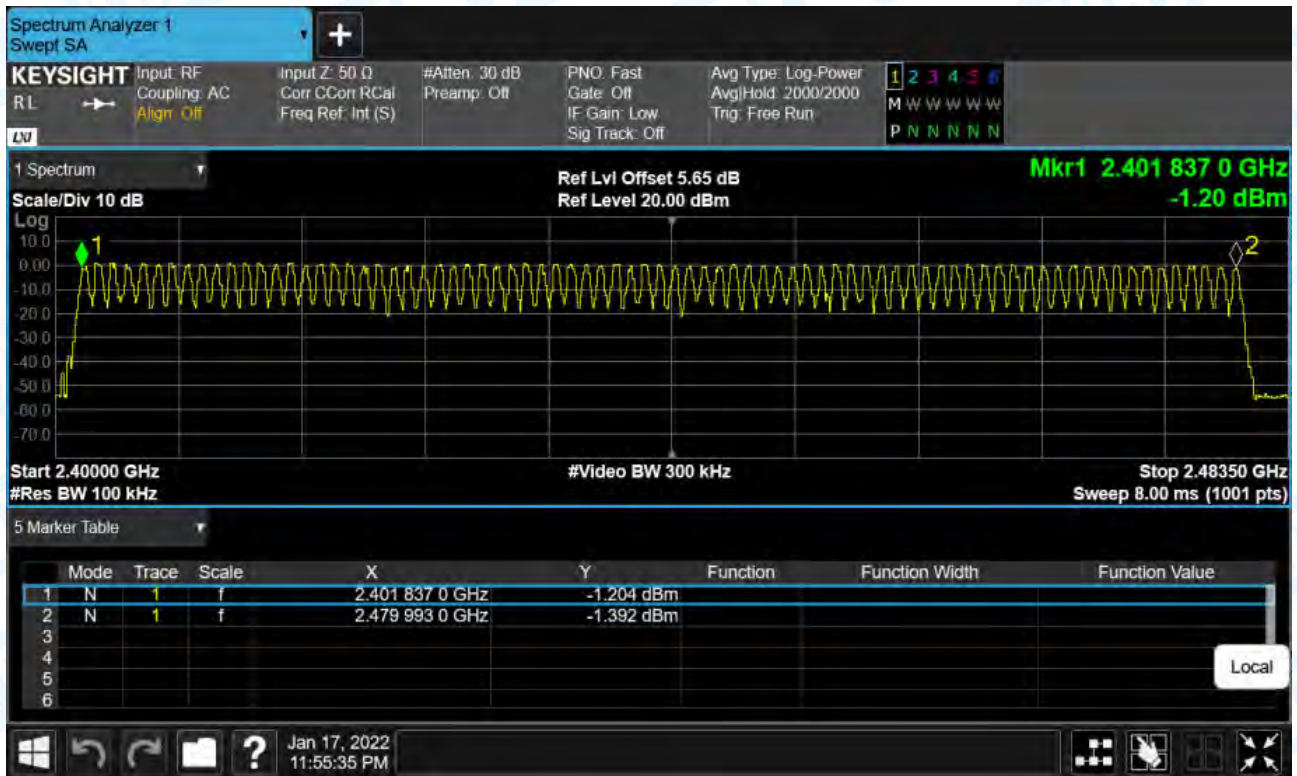


5.Number of Hopping Channel

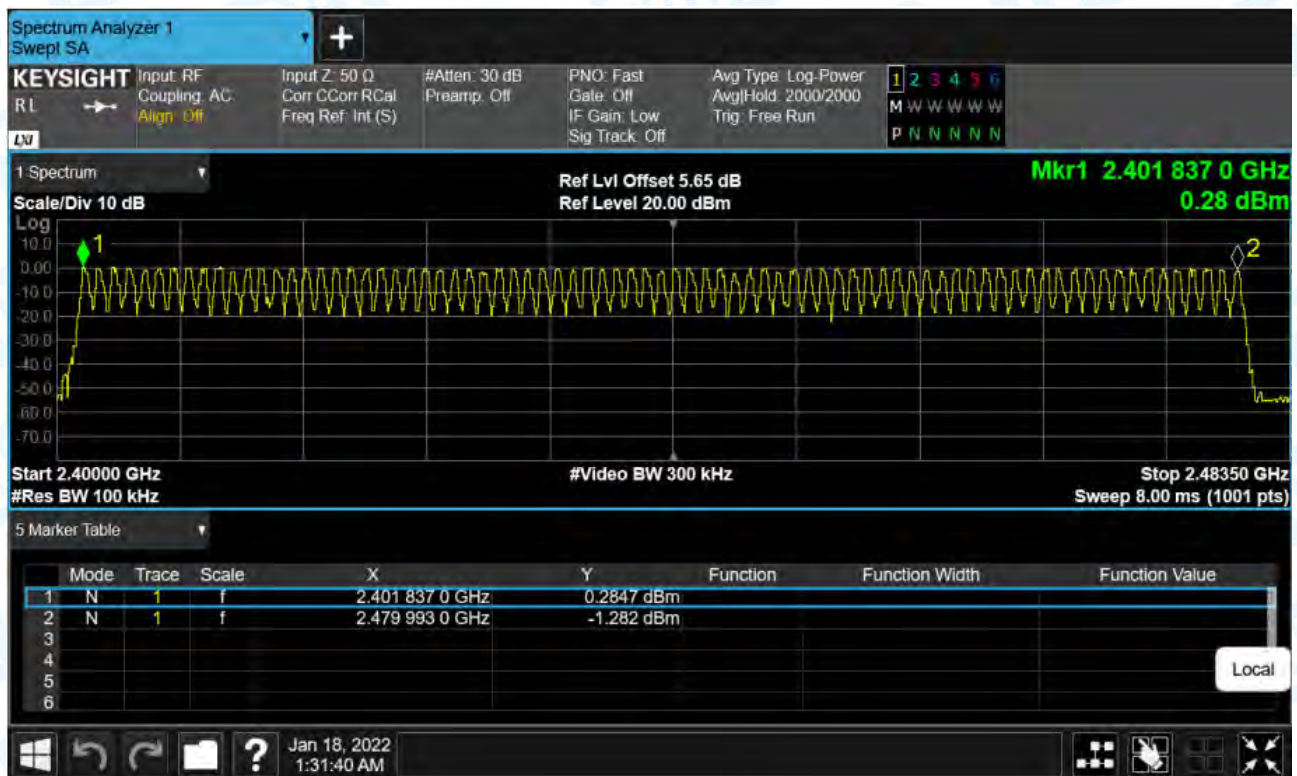
Condition	Mode	Antenna	Hopping Number	Limit	Verdict
NVNT	1-DH1	Ant1	79	15	Pass
NVNT	2-DH1	Ant1	79	15	Pass
NVNT	3-DH1	Ant1	79	15	Pass

Test Graphs

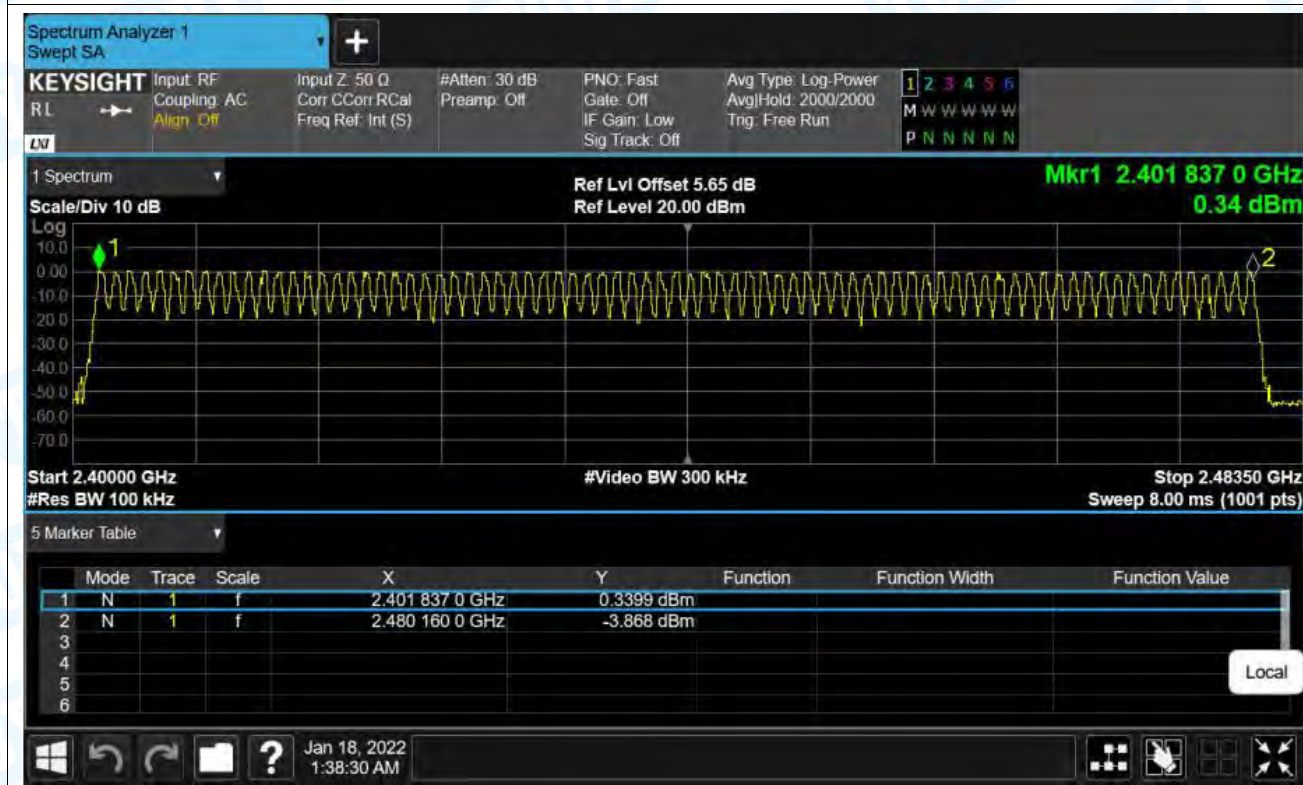
Hopping No. NVNT 1-DH1 2441MHz Ant1



Hopping No. NVNT 2-DH1 2441MHz Ant1



Hopping No. NVNT 3-DH1 2441MHz Ant1

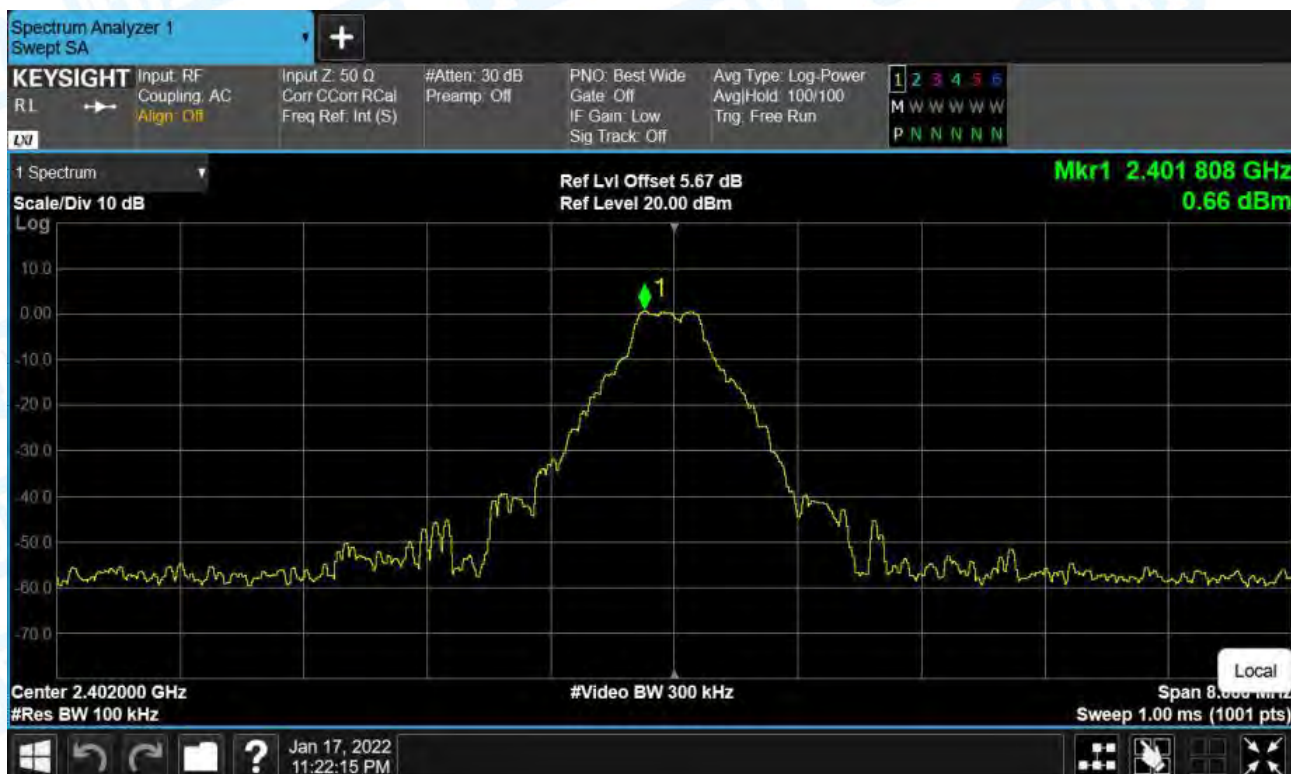


6.Band Edge

Condition	Mode	Frequency (MHz)	Antenna	Hopping Mode	Max Value (dBc)	Limit (dBc)	Verdict
NVNT	1-DH1	2402	Ant1	No-Hopping	-54.13	-20	Pass
NVNT	1-DH1	2480	Ant1	No-Hopping	-53.87	-20	Pass
NVNT	2-DH1	2402	Ant1	No-Hopping	-53.85	-20	Pass
NVNT	2-DH1	2480	Ant1	No-Hopping	-54.14	-20	Pass
NVNT	3-DH1	2402	Ant1	No-Hopping	-54.13	-20	Pass
NVNT	3-DH1	2480	Ant1	No-Hopping	-51.77	-20	Pass

Test Graphs

Band Edge NVNT 1-DH1 2402MHz Ant1 No-Hopping Ref



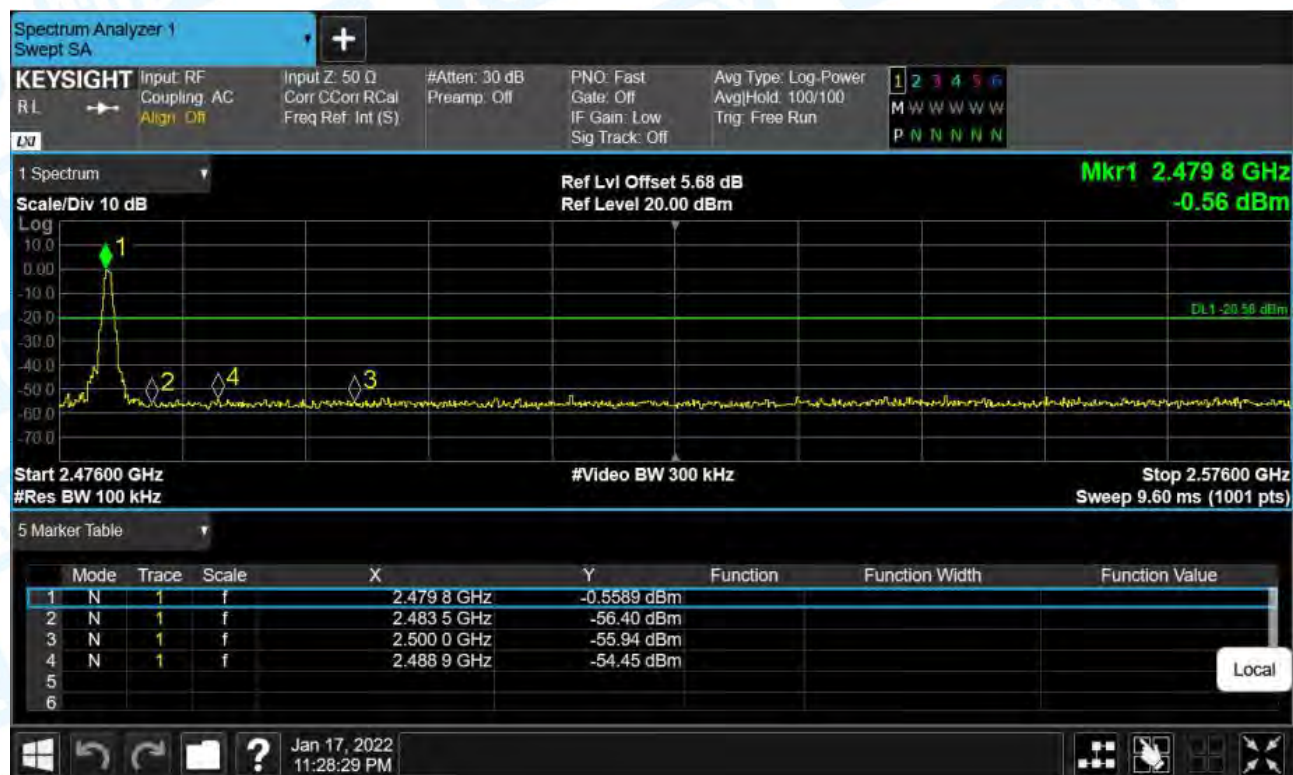
Band Edge NVNT 1-DH1 2402MHz Ant1 No-Hopping Emission



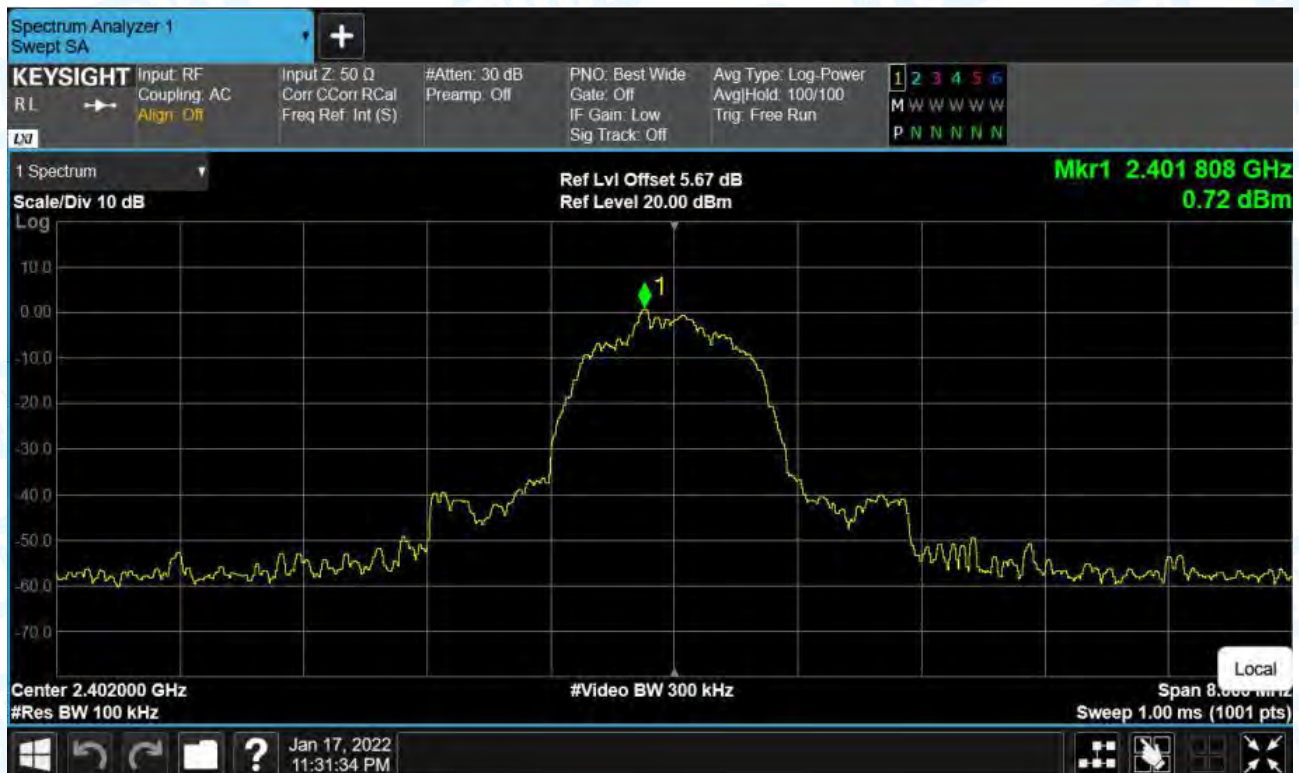
Band Edge NVNT 1-DH1 2480MHz Ant1 No-Hopping Ref



Band Edge NVNT 1-DH1 2480MHz Ant1 No-Hopping Emission



Band Edge NVNT 2-DH1 2402MHz Ant1 No-Hopping Ref



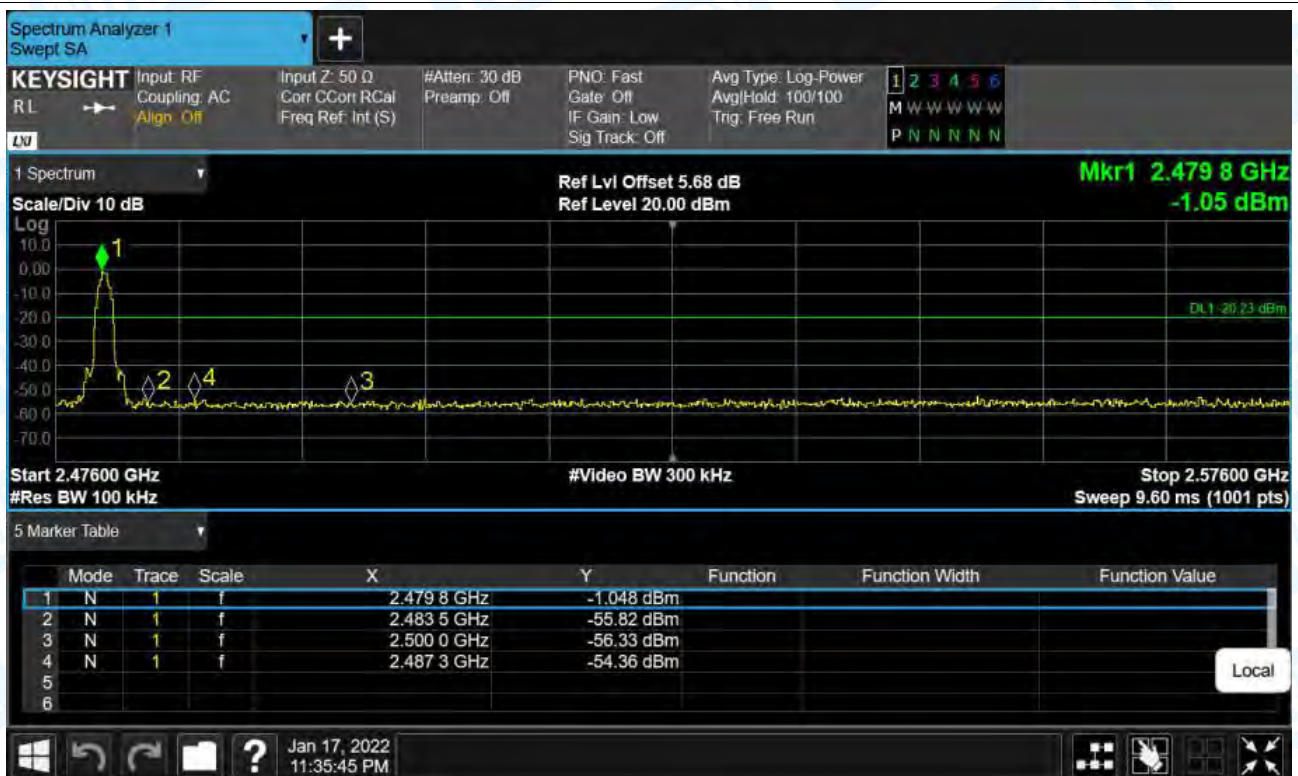
Band Edge NVNT 2-DH1 2402MHz Ant1 No-Hopping Emission



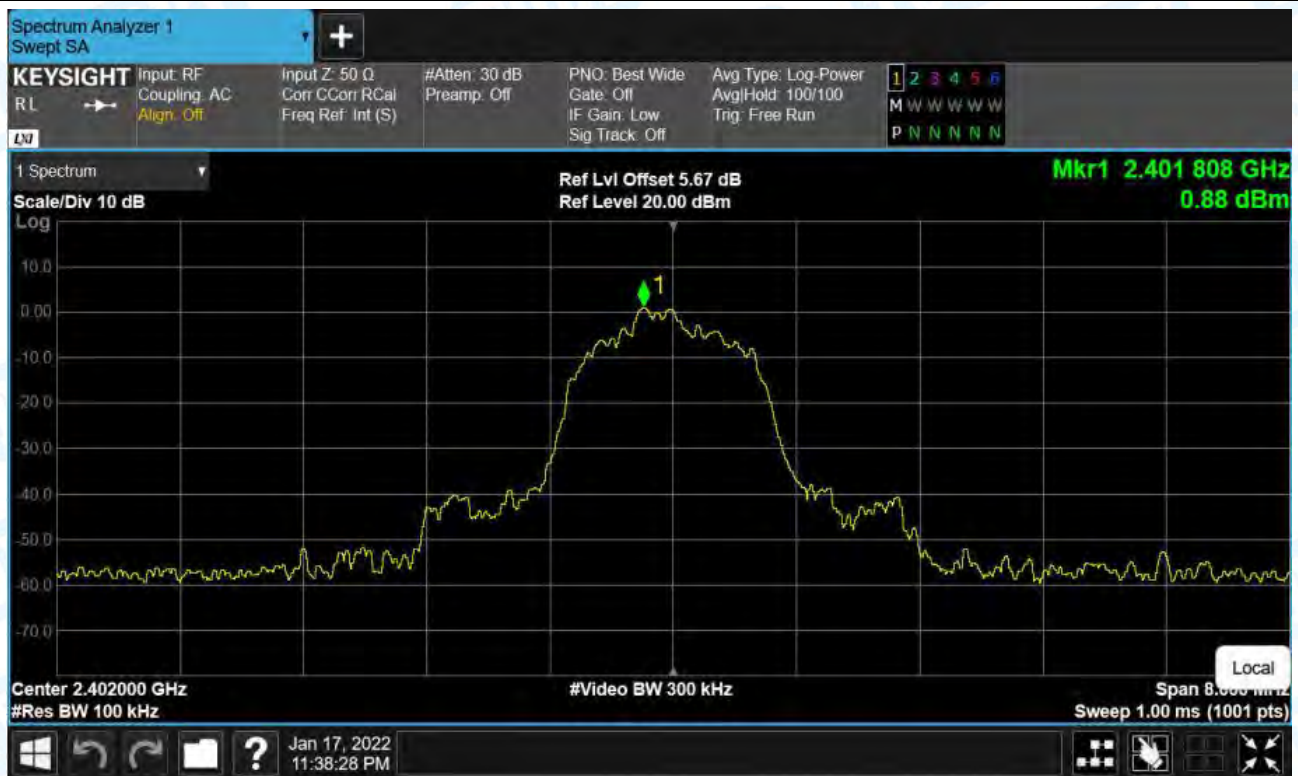
Band Edge NVNT 2-DH1 2480MHz Ant1 No-Hopping Ref



Band Edge NVNT 2-DH1 2480MHz Ant1 No-Hopping Emission



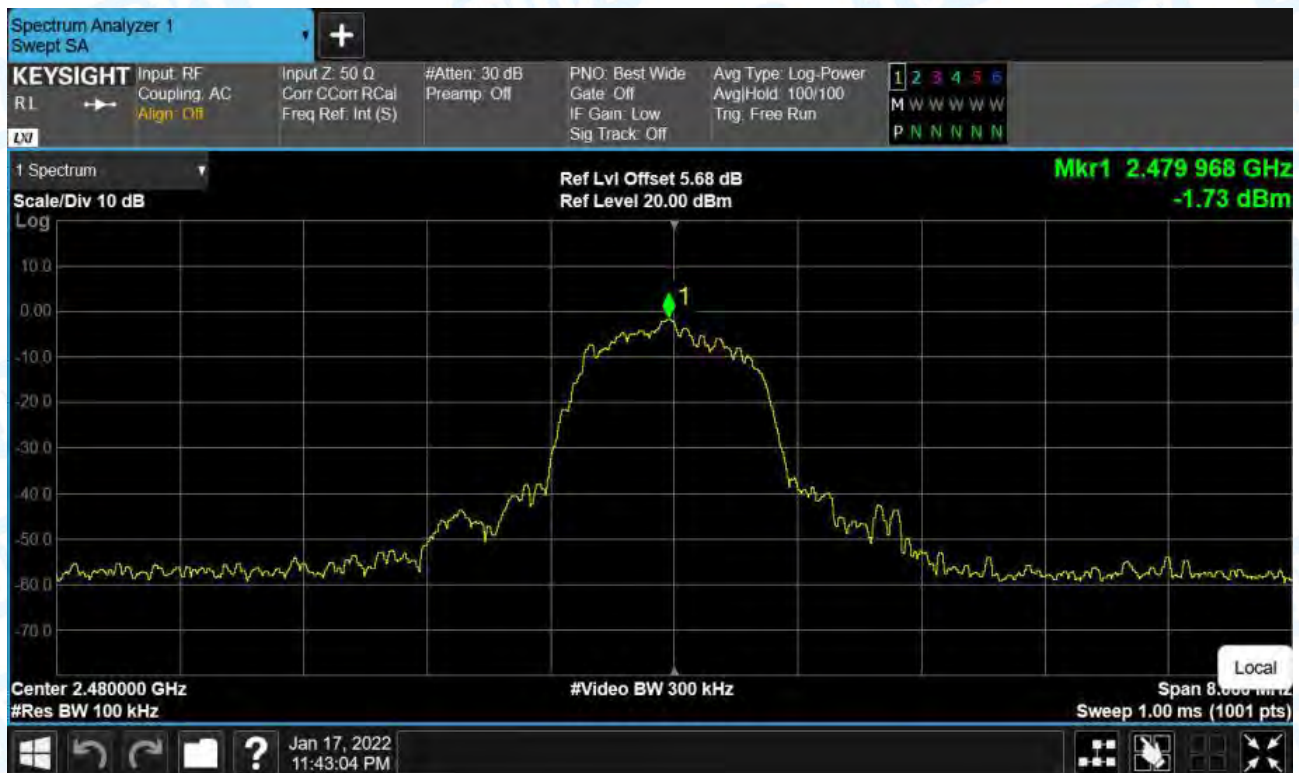
Band Edge NVNT 3-DH1 2402MHz Ant1 No-Hopping Ref



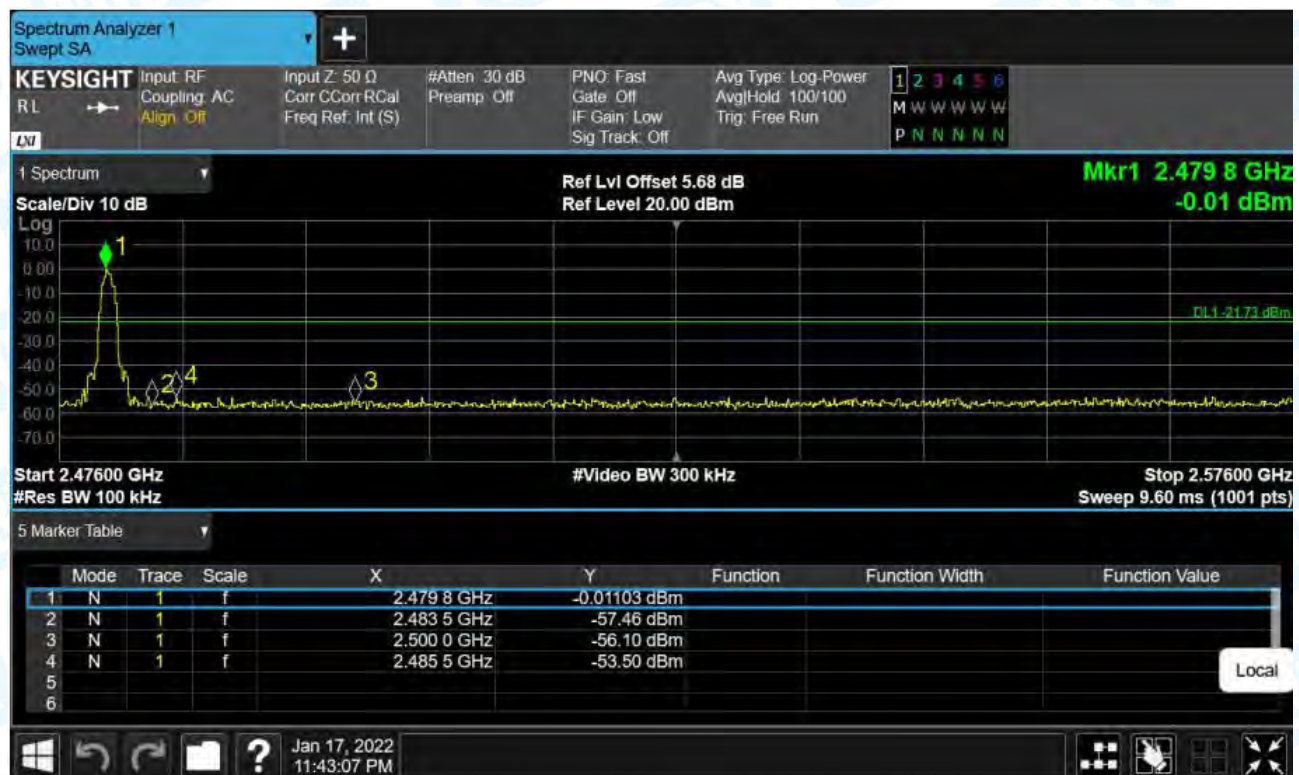
Band Edge NVNT 3-DH1 2402MHz Ant1 No-Hopping Emission



Band Edge NVNT 3-DH1 2480MHz Ant1 No-Hopping Ref



Band Edge NVNT 3-DH1 2480MHz Ant1 No-Hopping Emission



7.Band Edge(Hopping)

Condition	Mode	Frequency (MHz)	Antenna	Hopping Mode	Max Value (dBc)	Limit (dBc)	Verdict
NVNT	1-DH1	2402	Ant1	Hopping	-53.67	-20	Pass
NVNT	1-DH1	2480	Ant1	Hopping	-53.46	-20	Pass
NVNT	2-DH1	2402	Ant1	Hopping	-53.66	-20	Pass
NVNT	2-DH1	2480	Ant1	Hopping	-52.73	-20	Pass
NVNT	3-DH1	2402	Ant1	Hopping	-52.77	-20	Pass
NVNT	3-DH1	2480	Ant1	Hopping	-52.62	-20	Pass

Test Graphs

Band Edge(Hopping) NVNT 1-DH1 2402MHz Ant1 Hopping Ref



Band Edge(Hopping) NVNT 1-DH1 2402MHz Ant1 Hopping Emission



Band Edge(Hopping) NVNT 1-DH1 2480MHz Ant1 Hopping Ref



Band Edge(Hopping) NVNT 1-DH1 2480MHz Ant1 Hopping Emission



Band Edge(Hopping) NVNT 2-DH1 2402MHz Ant1 Hopping Ref



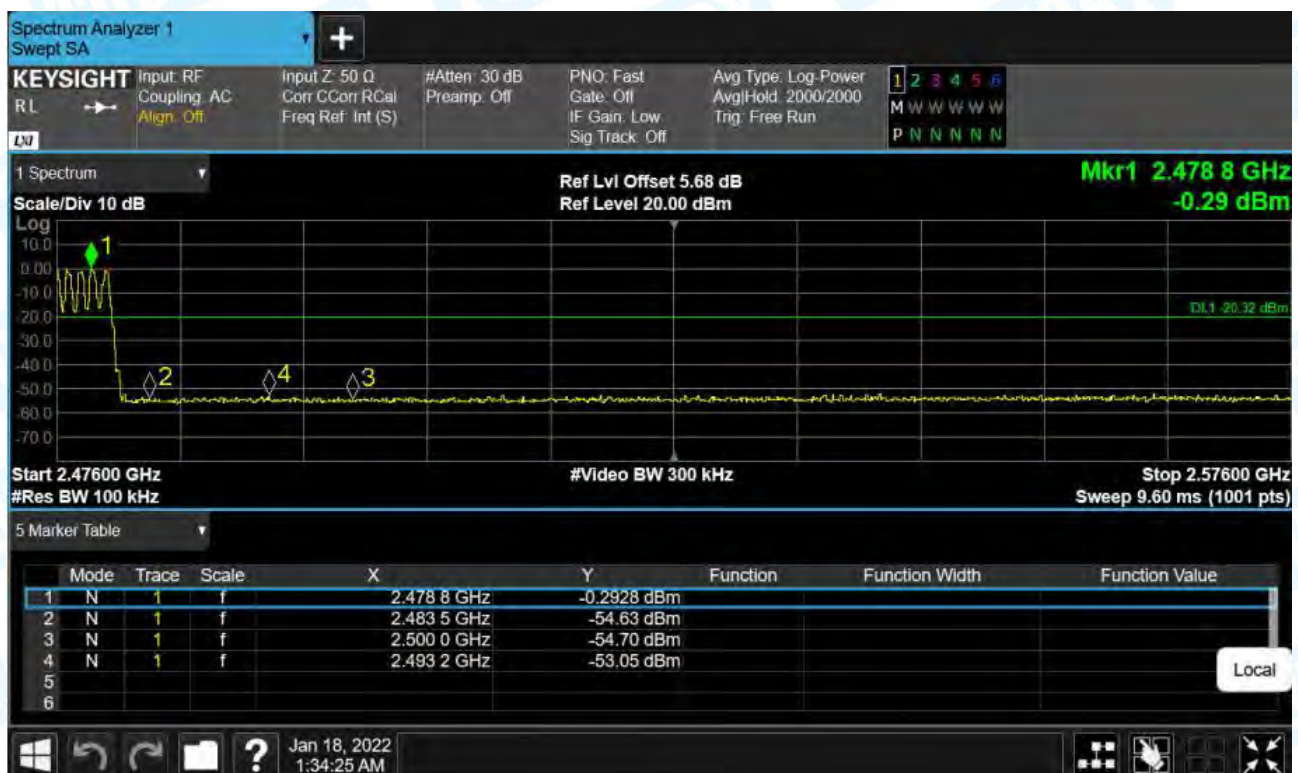
Band Edge(Hopping) NVNT 2-DH1 2402MHz Ant1 Hopping Emission



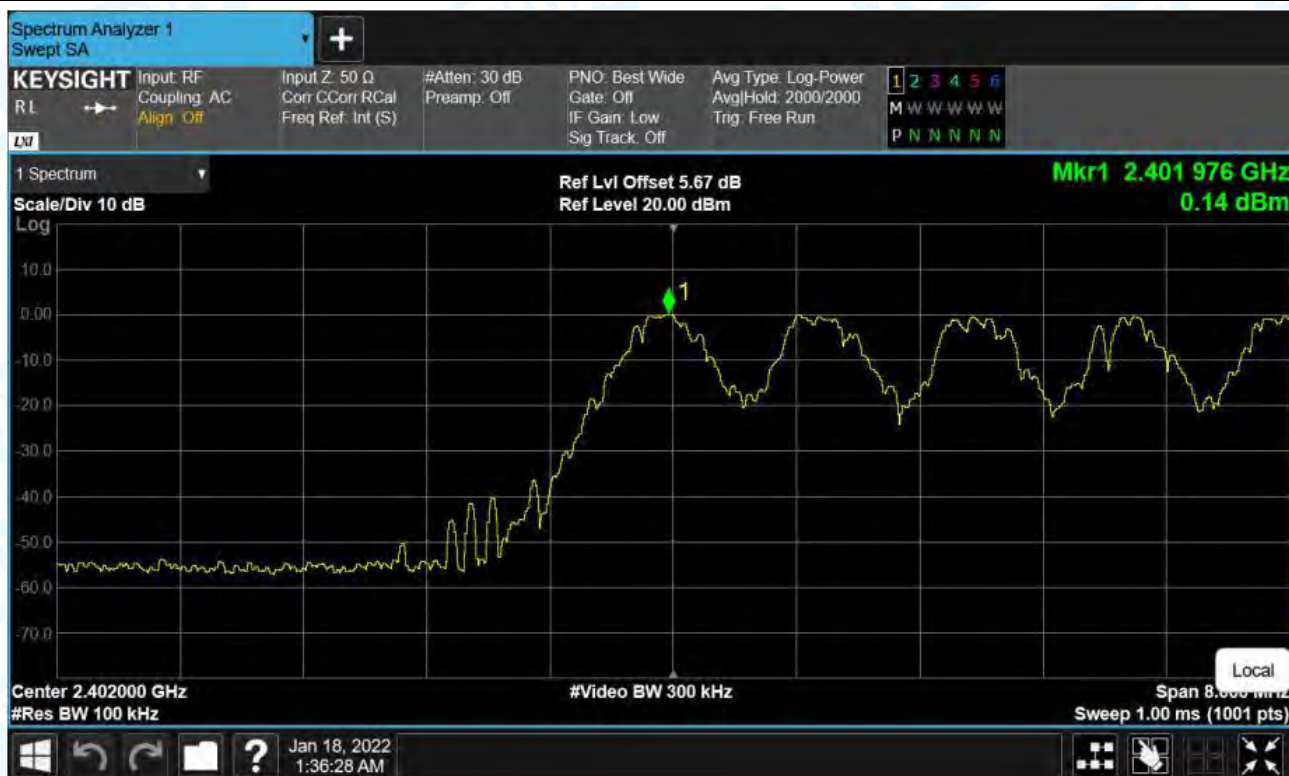
Band Edge(Hopping) NVNT 2-DH1 2480MHz Ant1 Hopping Ref



Band Edge(Hopping) NVNT 2-DH1 2480MHz Ant1 Hopping Emission



Band Edge(Hopping) NVNT 3-DH1 2402MHz Ant1 Hopping Ref



Band Edge(Hopping) NVNT 3-DH1 2402MHz Ant1 Hopping Emission



Band Edge(Hopping) NVNT 3-DH1 2480MHz Ant1 Hopping Ref



Band Edge(Hopping) NVNT 3-DH1 2480MHz Ant1 Hopping Emission

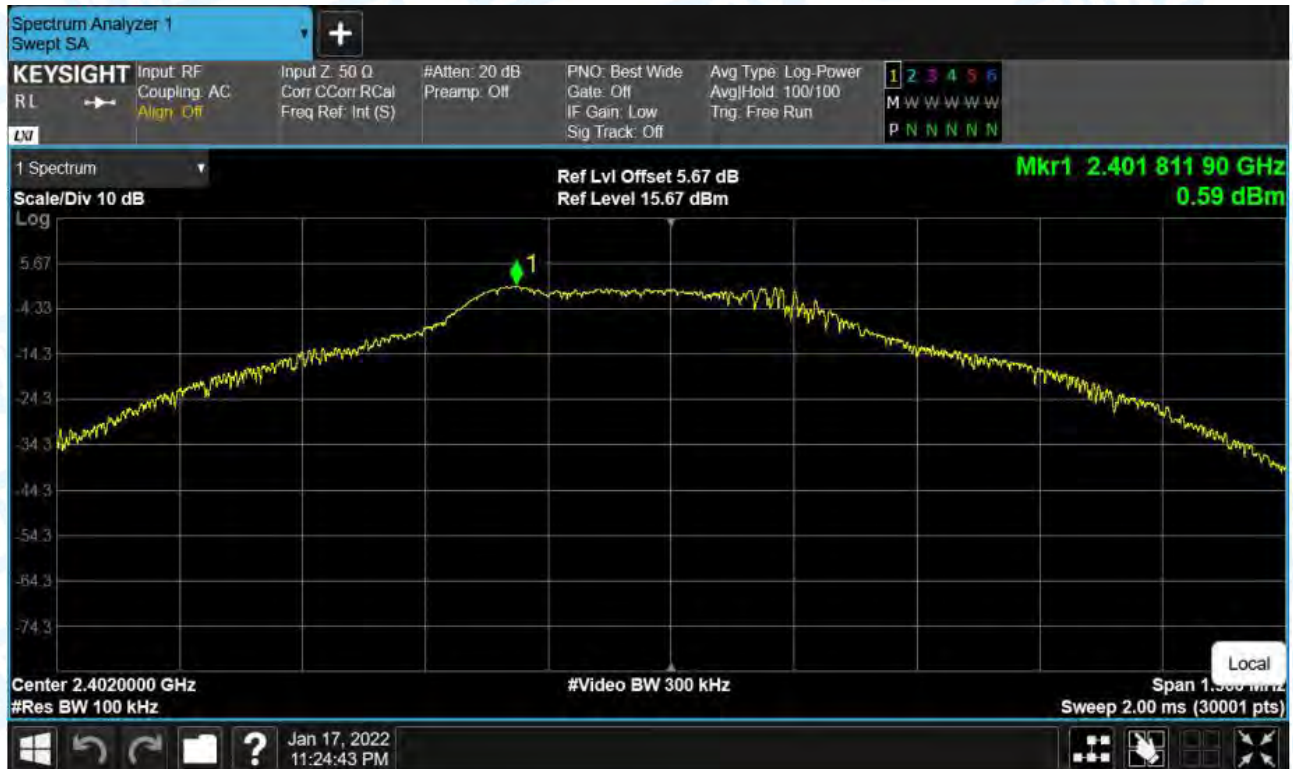


8. Conducted RF Spurious Emission

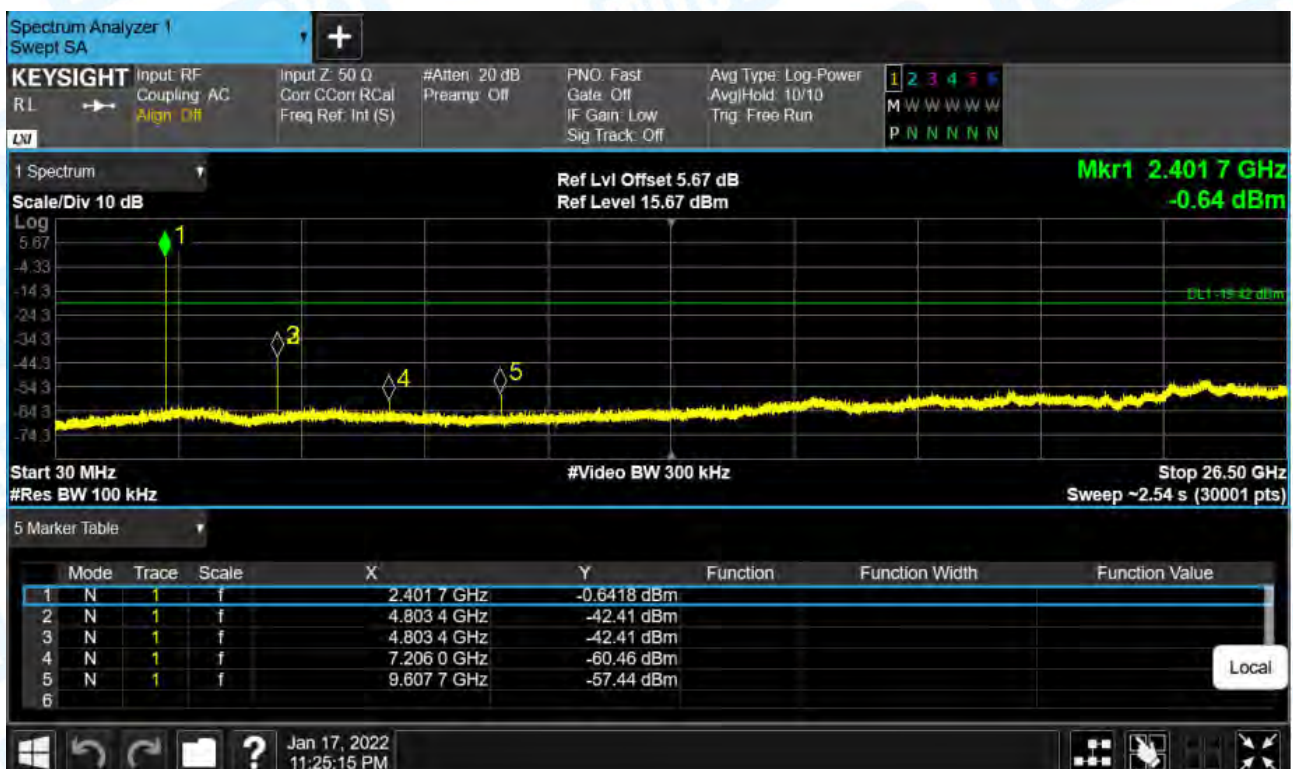
Condition	Mode	Frequency (MHz)	Antenna	Max Value (dBc)	Limit (dBc)	Verdict
NVNT	1-DH1	2402	Ant1	-43	-20	Pass
NVNT	1-DH1	2441	Ant1	-42.82	-20	Pass
NVNT	1-DH1	2480	Ant1	-42.75	-20	Pass
NVNT	2-DH1	2402	Ant1	-41.9	-20	Pass
NVNT	2-DH1	2441	Ant1	-44.96	-20	Pass
NVNT	2-DH1	2480	Ant1	-49.72	-20	Pass
NVNT	3-DH1	2402	Ant1	-45.41	-20	Pass
NVNT	3-DH1	2441	Ant1	-51.28	-20	Pass
NVNT	3-DH1	2480	Ant1	-47.77	-20	Pass

Test Graphs

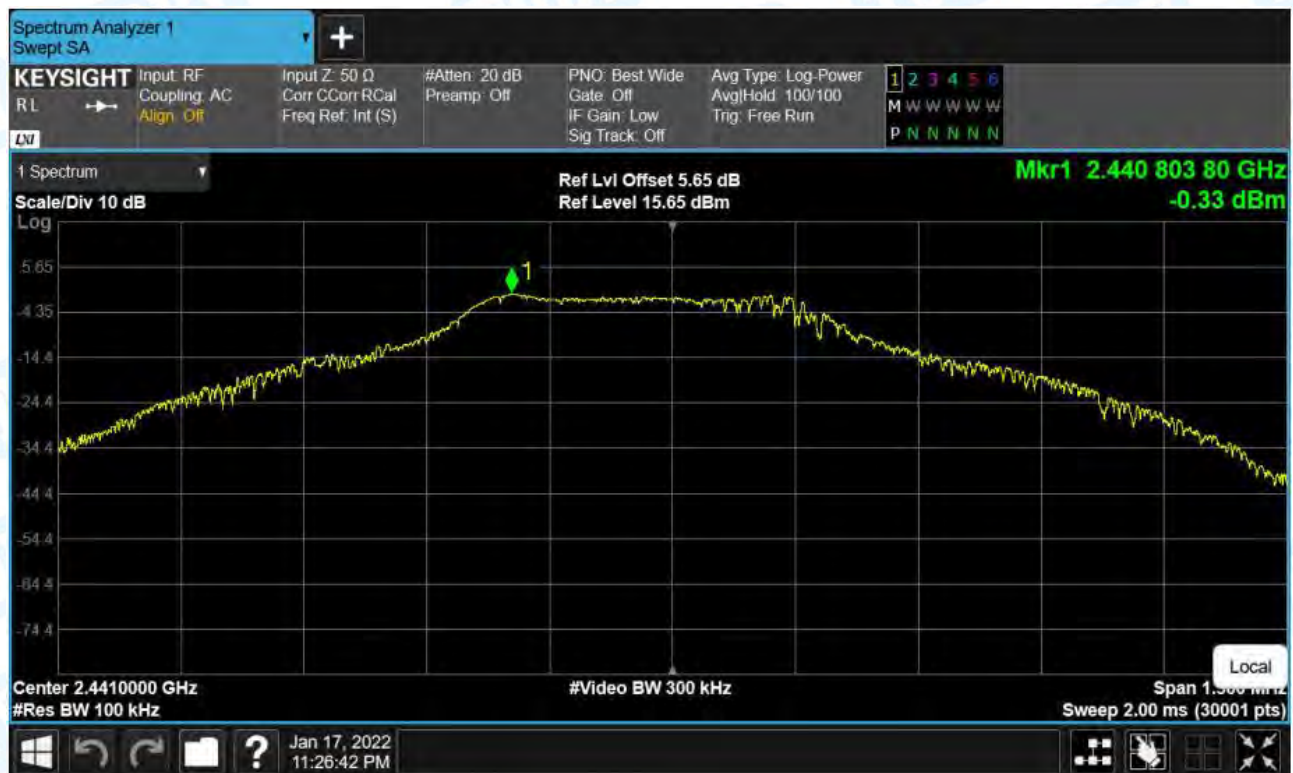
Tx. Spurious NVNT 1-DH1 2402MHz Ant1 Ref



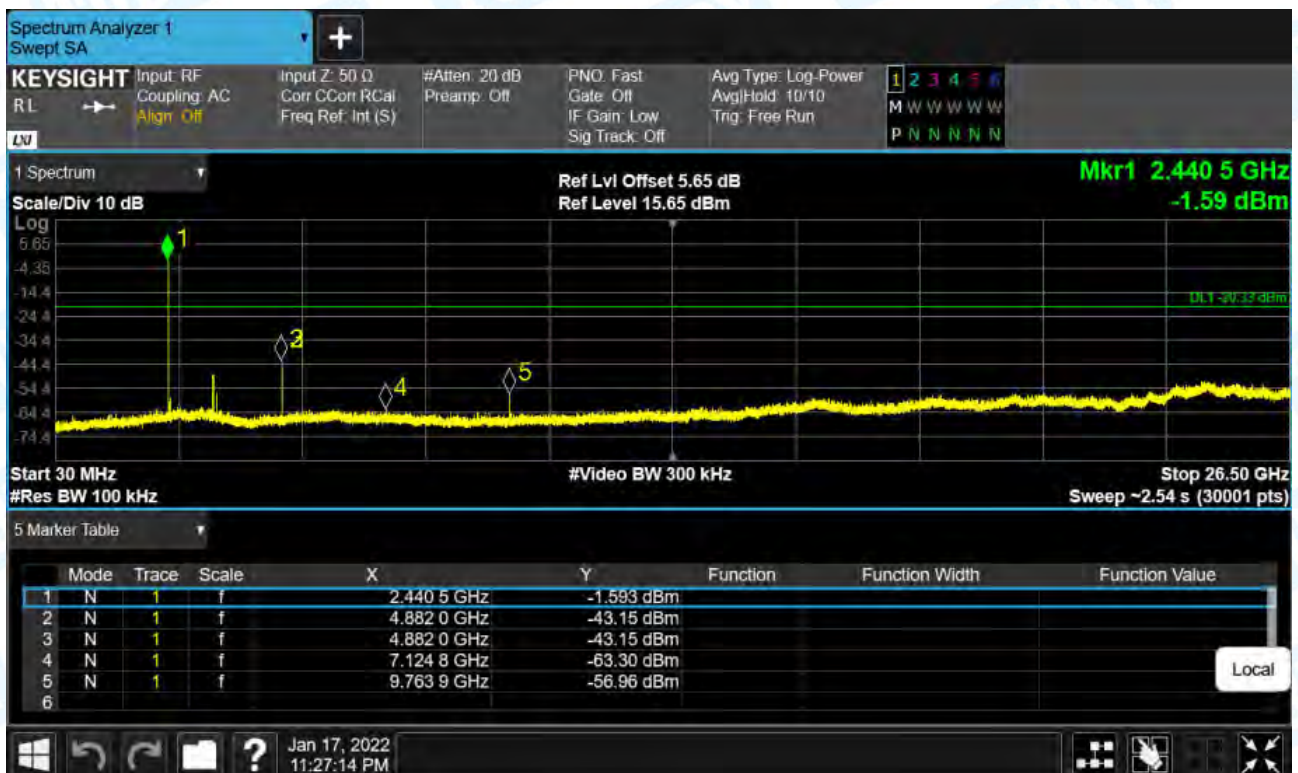
Tx. Spurious NVNT 1-DH1 2402MHz Ant1 Emission



Tx. Spurious NVNT 1-DH1 2441MHz Ant1 Ref



Tx. Spurious NVNT 1-DH1 2441MHz Ant1 Emission



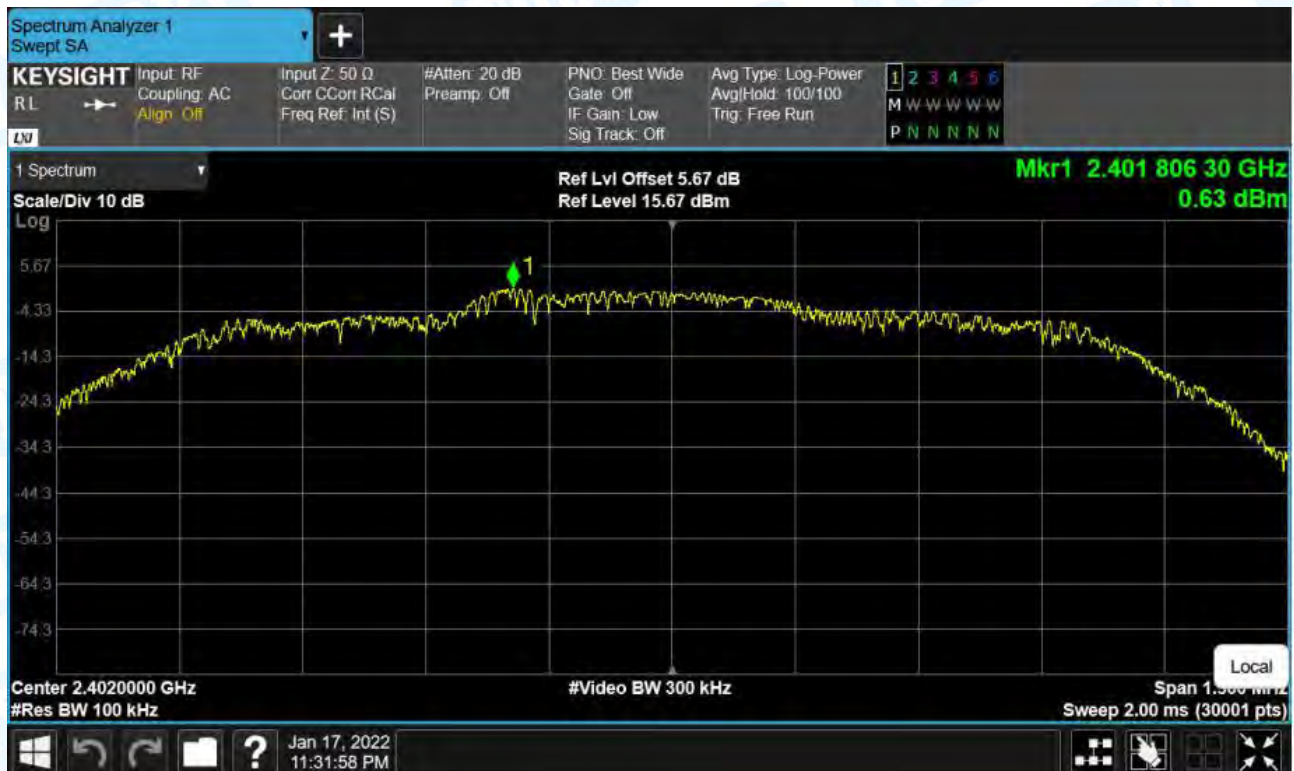
Tx. Spurious NVNT 1-DH1 2480MHz Ant1 Ref



Tx. Spurious NVNT 1-DH1 2480MHz Ant1 Emission



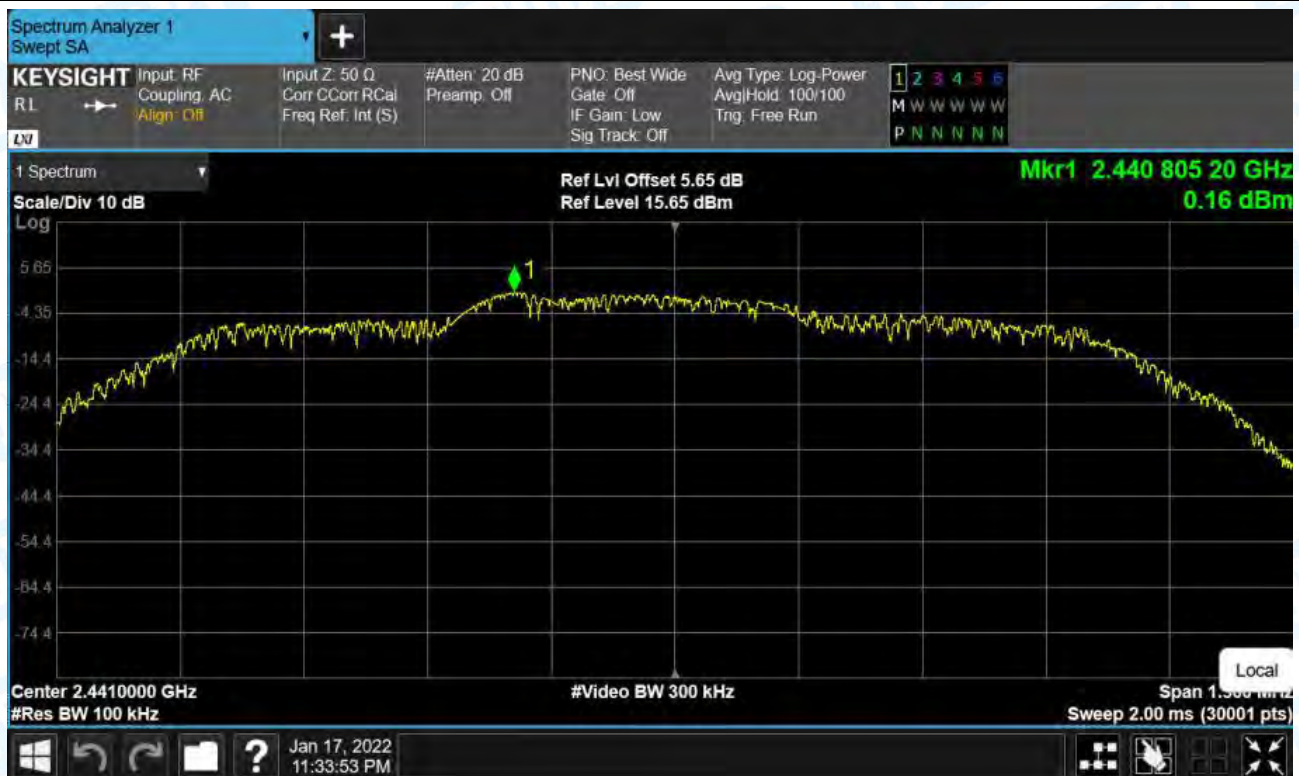
Tx. Spurious NVNT 2-DH1 2402MHz Ant1 Ref



Tx. Spurious NVNT 2-DH1 2402MHz Ant1 Emission



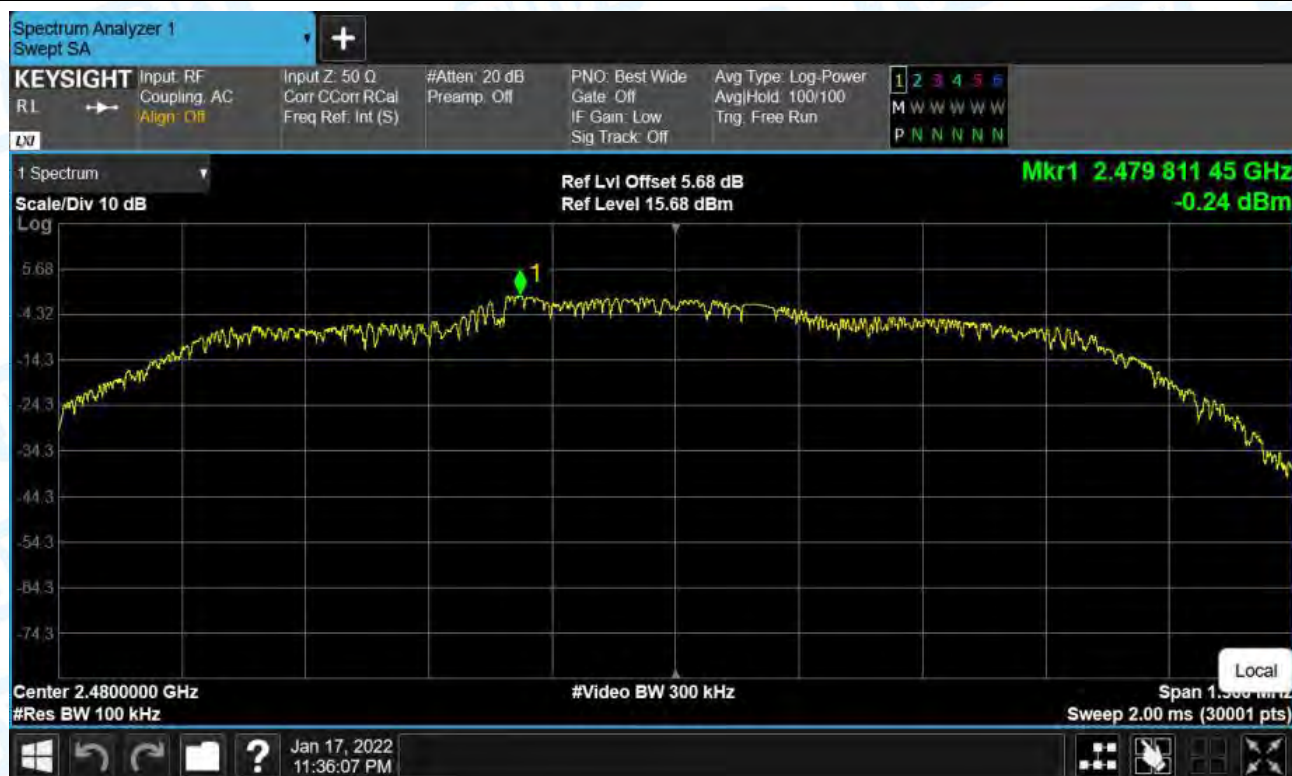
Tx. Spurious NVNT 2-DH1 2441MHz Ant1 Ref



Tx. Spurious NVNT 2-DH1 2441MHz Ant1 Emission



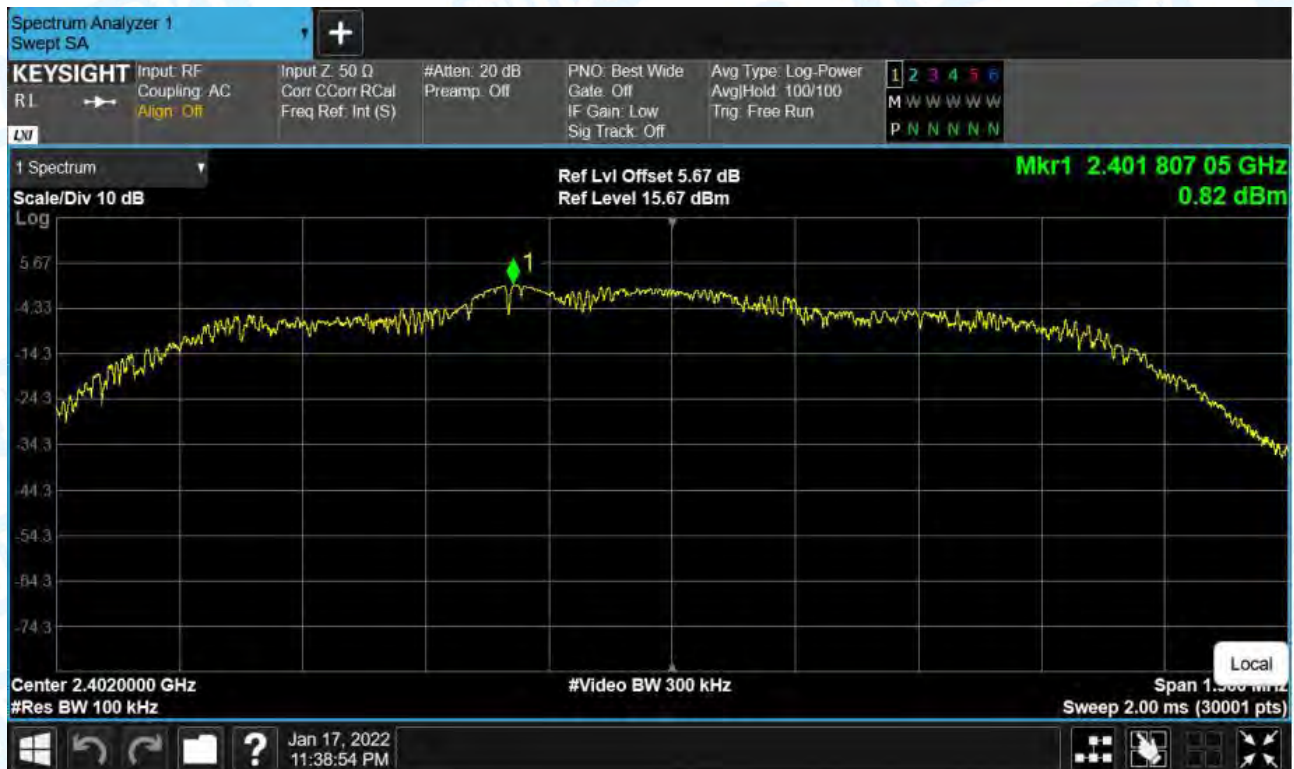
Tx. Spurious NVNT 2-DH1 2480MHz Ant1 Ref



Tx. Spurious NVNT 2-DH1 2480MHz Ant1 Emission



Tx. Spurious NVNT 3-DH1 2402MHz Ant1 Ref



Tx. Spurious NVNT 3-DH1 2402MHz Ant1 Emission



Tx. Spurious NVNT 3-DH1 2441MHz Ant1 Ref



Tx. Spurious NVNT 3-DH1 2441MHz Ant1 Emission



Tx. Spurious NVNT 3-DH1 2480MHz Ant1 Ref



Tx. Spurious NVNT 3-DH1 2480MHz Ant1 Emission

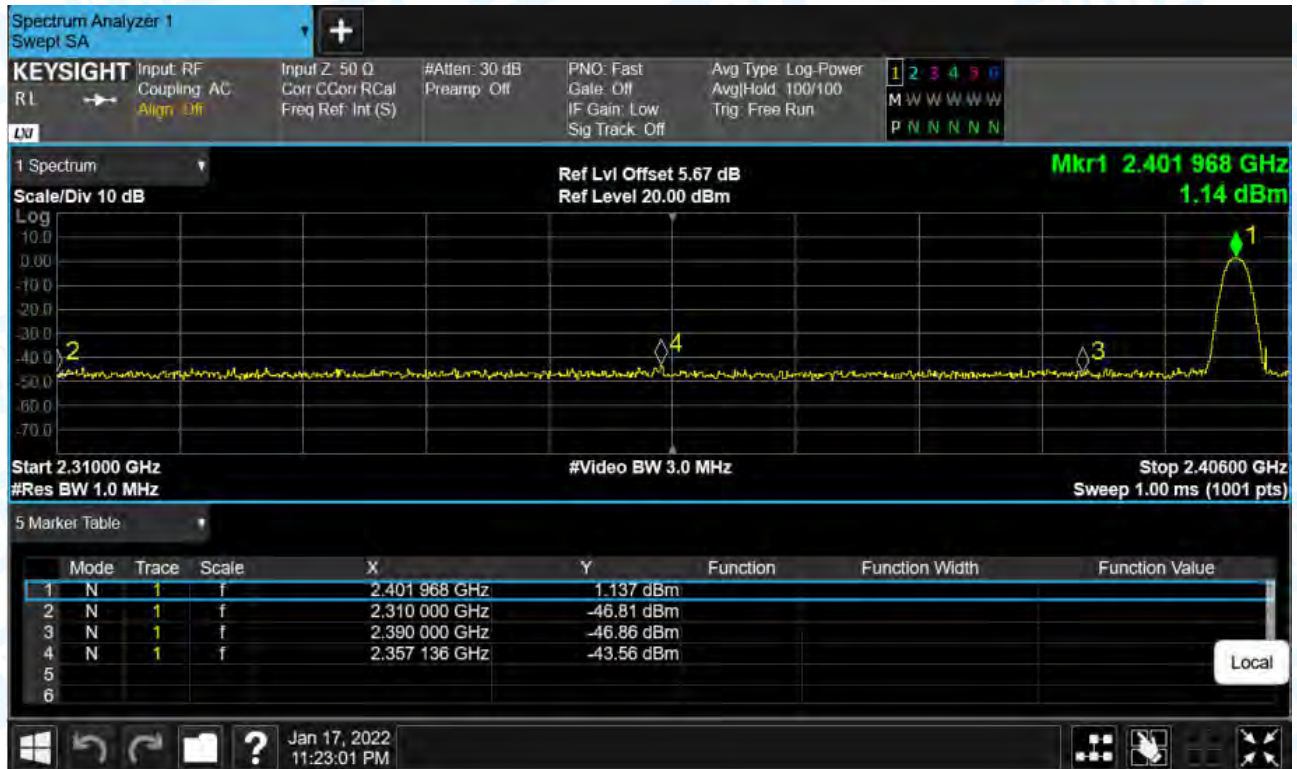


9.Restrict Band

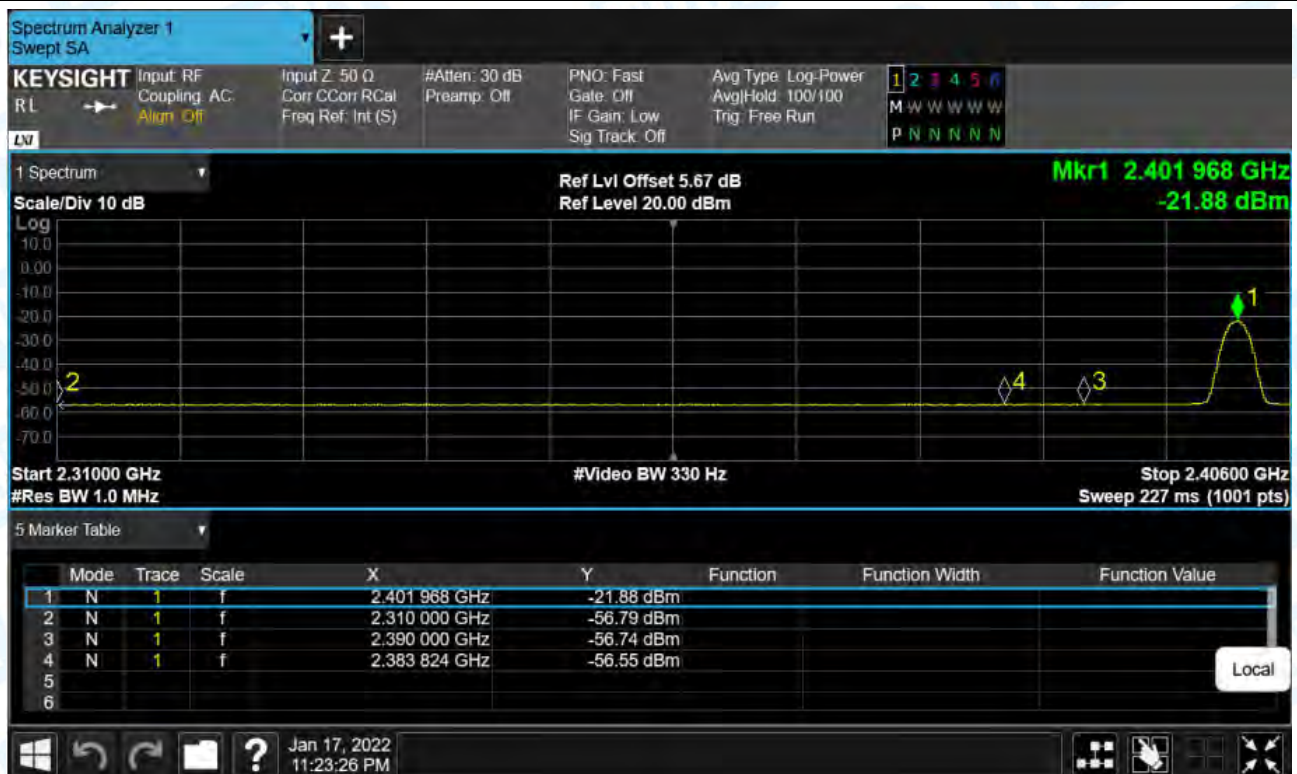
Condition	Mode	Frequency (MHz)	Antenna	Hopping Mode	Spur Freq (MHz)	Power (dBm)	Gain (dBi)	E (dBuV/m)	Detector	Limit (dBuV/m)	Verdict
NVNT	1-DH1	2402	Ant1	No-Hopping	2310	-46.81	2	50.45	Peak	74	Pass
NVNT	1-DH1	2402	Ant1	No-Hopping	2310	-56.79	2	40.47	Average	54	Pass
NVNT	1-DH1	2402	Ant1	No-Hopping	2357.136	-43.56	2	53.7	Peak	74	Pass
NVNT	1-DH1	2402	Ant1	No-Hopping	2383.824	-56.55	2	40.71	Average	54	Pass
NVNT	1-DH1	2402	Ant1	No-Hopping	2390	-47.47	2	49.79	Peak	74	Pass
NVNT	1-DH1	2402	Ant1	No-Hopping	2390	-56.67	2	40.59	Average	54	Pass
NVNT	1-DH1	2480	Ant1	No-Hopping	2483.5	-47.56	2	49.7	Peak	74	Pass
NVNT	1-DH1	2480	Ant1	No-Hopping	2483.5	-56.44	2	40.82	Average	54	Pass
NVNT	1-DH1	2480	Ant1	No-Hopping	2483.944	-44.03	2	53.23	Peak	74	Pass
NVNT	1-DH1	2480	Ant1	No-Hopping	2497.552	-56.35	2	40.91	Average	54	Pass
NVNT	1-DH1	2480	Ant1	No-Hopping	2500	-47.78	2	49.48	Peak	74	Pass
NVNT	1-DH1	2480	Ant1	No-Hopping	2500	-56.59	2	40.67	Average	54	Pass
NVNT	2-DH1	2402	Ant1	No-Hopping	2310	-47.57	2	49.69	Peak	74	Pass
NVNT	2-DH1	2402	Ant1	No-Hopping	2310	-57.09	2	40.17	Average	54	Pass
NVNT	2-DH1	2402	Ant1	No-Hopping	2344.464	-44.1	2	53.16	Peak	74	Pass
NVNT	2-DH1	2402	Ant1	No-Hopping	2332.56	-56.55	2	40.71	Average	54	Pass
NVNT	2-DH1	2402	Ant1	No-Hopping	2390	-46.95	2	50.31	Peak	74	Pass
NVNT	2-DH1	2402	Ant1	No-Hopping	2390	-56.81	2	40.45	Average	54	Pass
NVNT	2-DH1	2480	Ant1	No-Hopping	2483.5	-44.6	2	52.66	Peak	74	Pass
NVNT	2-DH1	2480	Ant1	No-Hopping	2483.5	-55.76	2	41.5	Average	54	Pass
NVNT	2-DH1	2480	Ant1	No-Hopping	2496.184	-43.75	2	53.51	Peak	74	Pass
NVNT	2-DH1	2480	Ant1	No-Hopping	2490.184	-55.45	2	41.81	Average	54	Pass
NVNT	2-DH1	2480	Ant1	No-Hopping	2500	-45.99	2	51.27	Peak	74	Pass
NVNT	2-DH1	2480	Ant1	No-Hopping	2500	-55.48	2	41.78	Average	54	Pass
NVNT	3-DH1	2402	Ant1	No-Hopping	2310	-46.96	2	50.3	Peak	74	Pass
NVNT	3-DH1	2402	Ant1	No-Hopping	2310	-57.06	2	40.2	Average	54	Pass
NVNT	3-DH1	2402	Ant1	No-Hopping	2364.624	-43.82	2	53.44	Peak	74	Pass
NVNT	3-DH1	2402	Ant1	No-Hopping	2344.272	-56.69	2	40.57	Average	54	Pass
NVNT	3-DH1	2402	Ant1	No-Hopping	2390	-47.55	2	49.71	Peak	74	Pass
NVNT	3-DH1	2402	Ant1	No-Hopping	2390	-56.87	2	40.39	Average	54	Pass
NVNT	3-DH1	2480	Ant1	No-Hopping	2483.5	-45.27	2	51.99	Peak	74	Pass
NVNT	3-DH1	2480	Ant1	No-Hopping	2483.5	-56.49	2	40.77	Average	54	Pass
NVNT	3-DH1	2480	Ant1	No-Hopping	2493.304	-43.51	2	53.75	Peak	74	Pass
NVNT	3-DH1	2480	Ant1	No-Hopping	2483.968	-56.36	2	40.9	Average	54	Pass
NVNT	3-DH1	2480	Ant1	No-Hopping	2500	-46.58	2	50.68	Peak	74	Pass
NVNT	3-DH1	2480	Ant1	No-Hopping	2500	-56.62	2	40.64	Average	54	Pass

Test Graphs

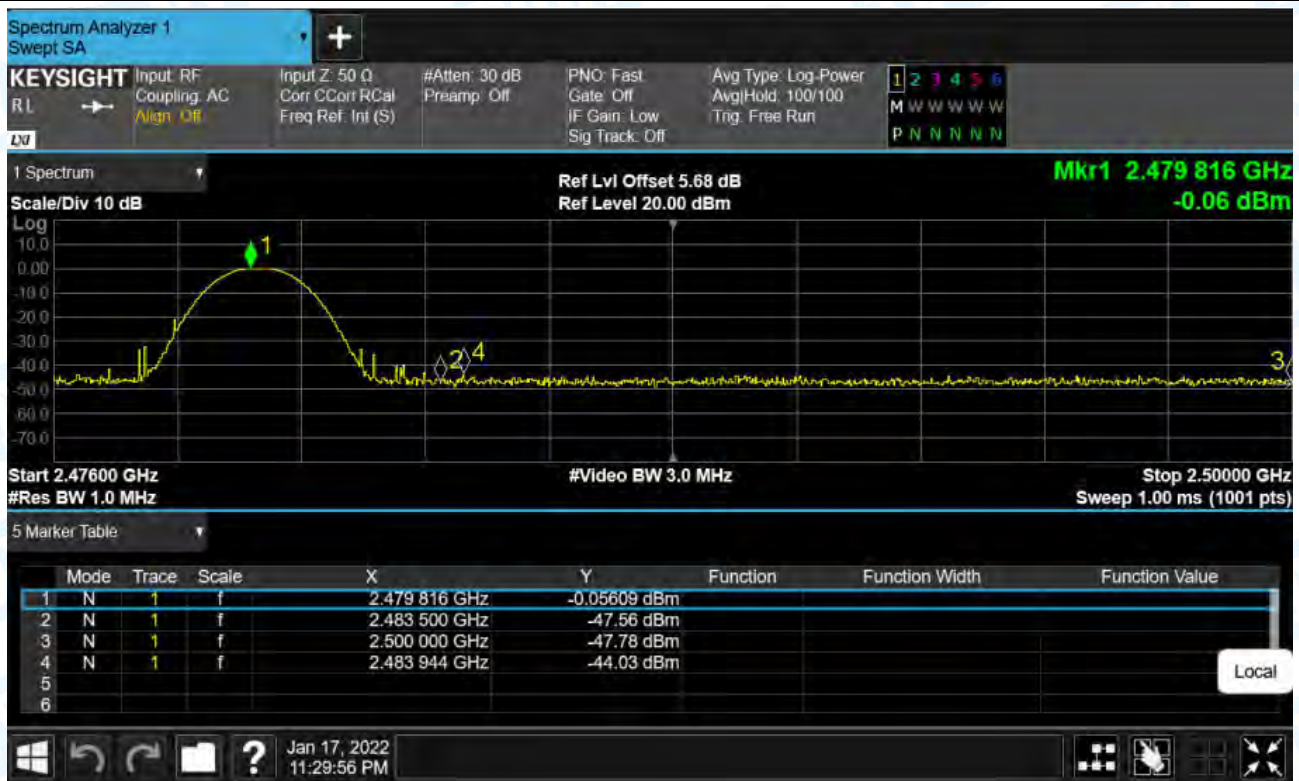
Restrict Band NVNT 1-DH1 2402MHz Ant1 No-Hopping Peak



Restrict Band NVNT 1-DH1 2402MHz Ant1 No-Hopping Average



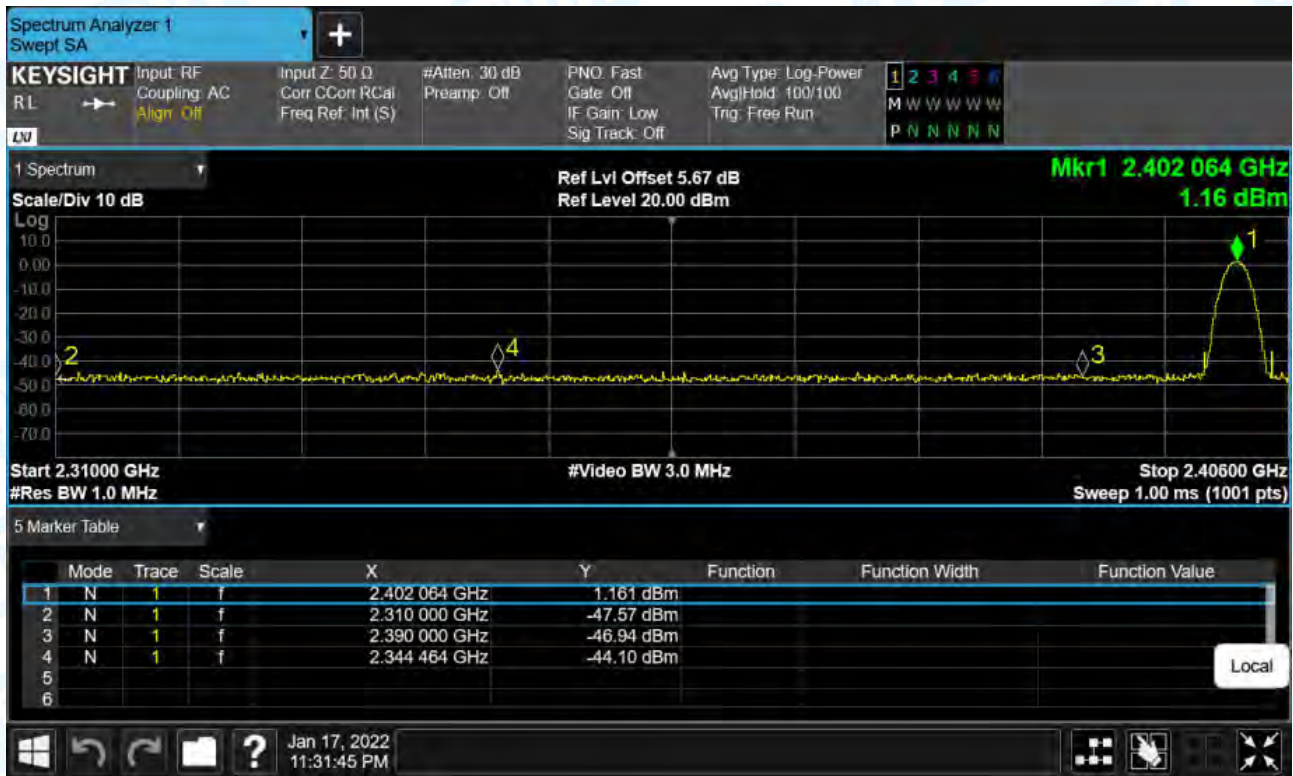
Restrict Band NVNT 1-DH1 2480MHz Ant1 No-Hopping Peak



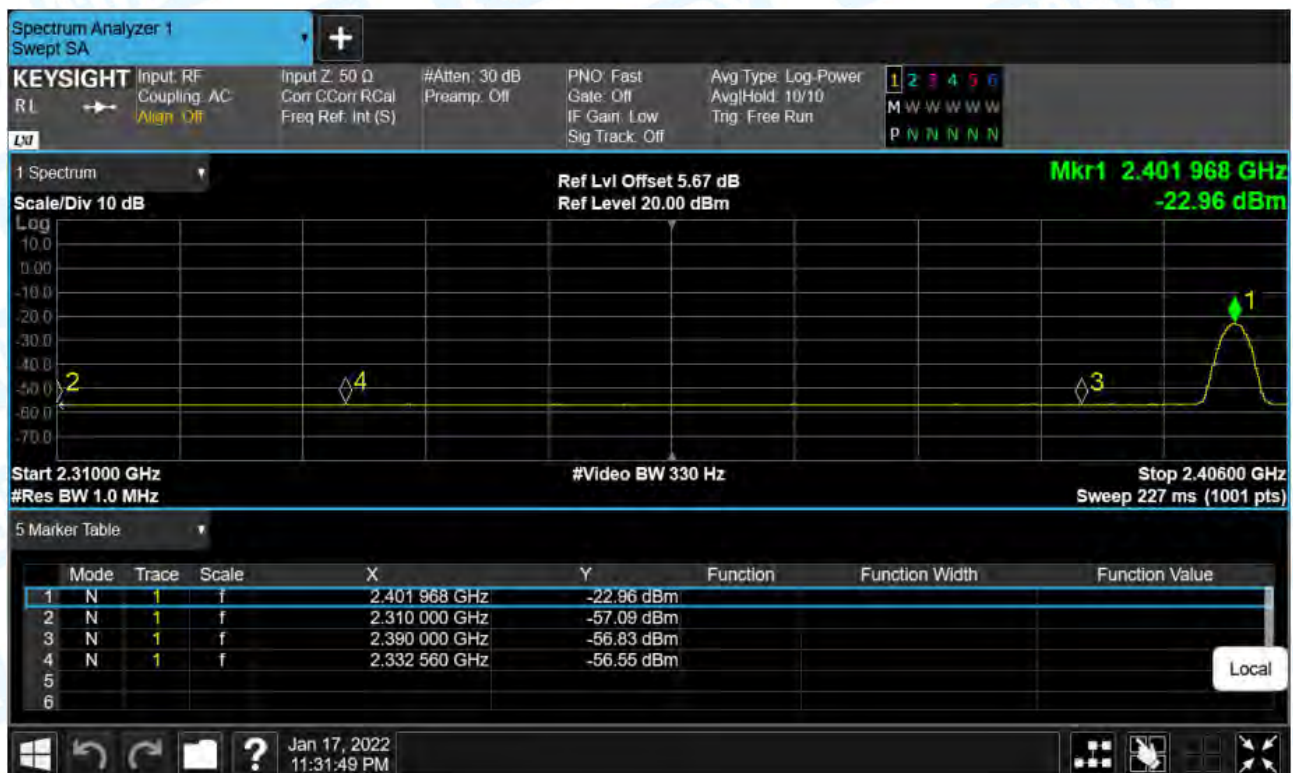
Restrict Band NVNT 1-DH1 2480MHz Ant1 No-Hopping Average



Restrict Band NVNT 2-DH1 2402MHz Ant1 No-Hopping Peak



Restrict Band NVNT 2-DH1 2402MHz Ant1 No-Hopping Average



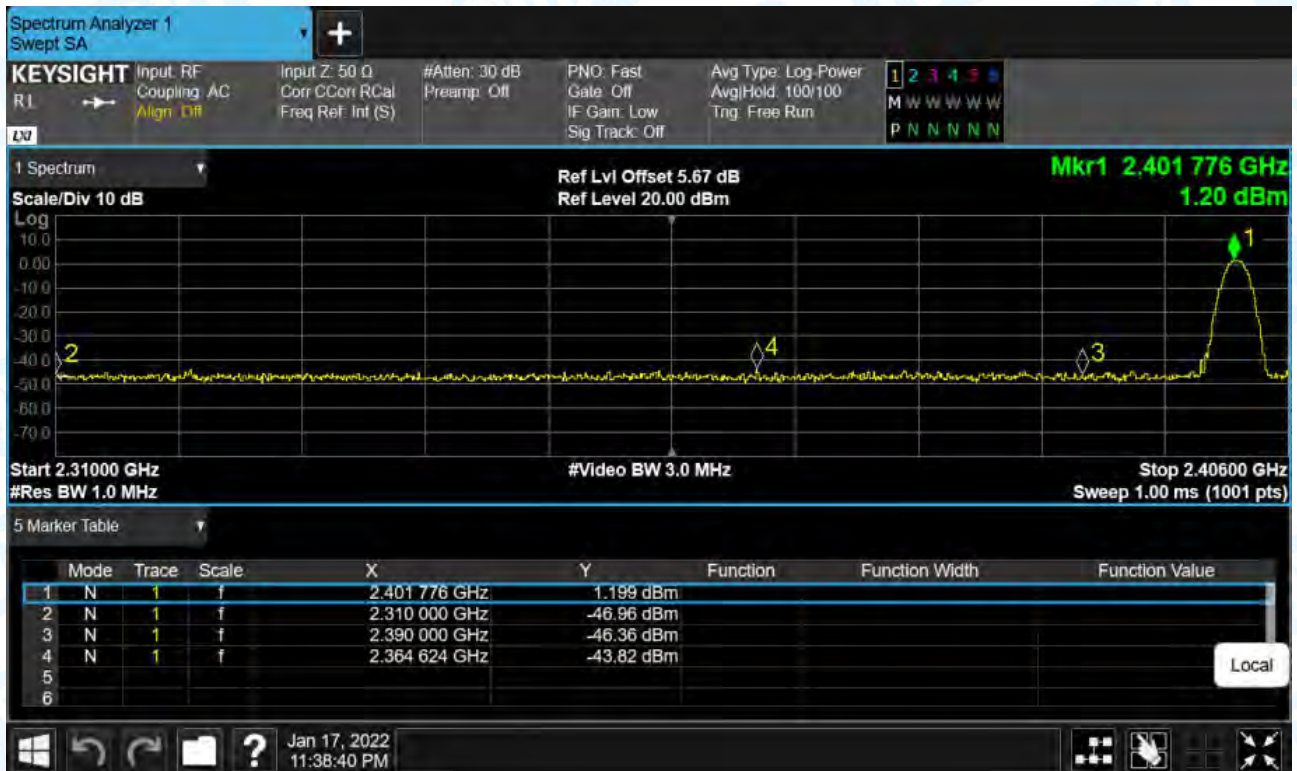
Restrict Band NVNT 2-DH1 2480MHz Ant1 No-Hopping Peak



Restrict Band NVNT 2-DH1 2480MHz Ant1 No-Hopping Average



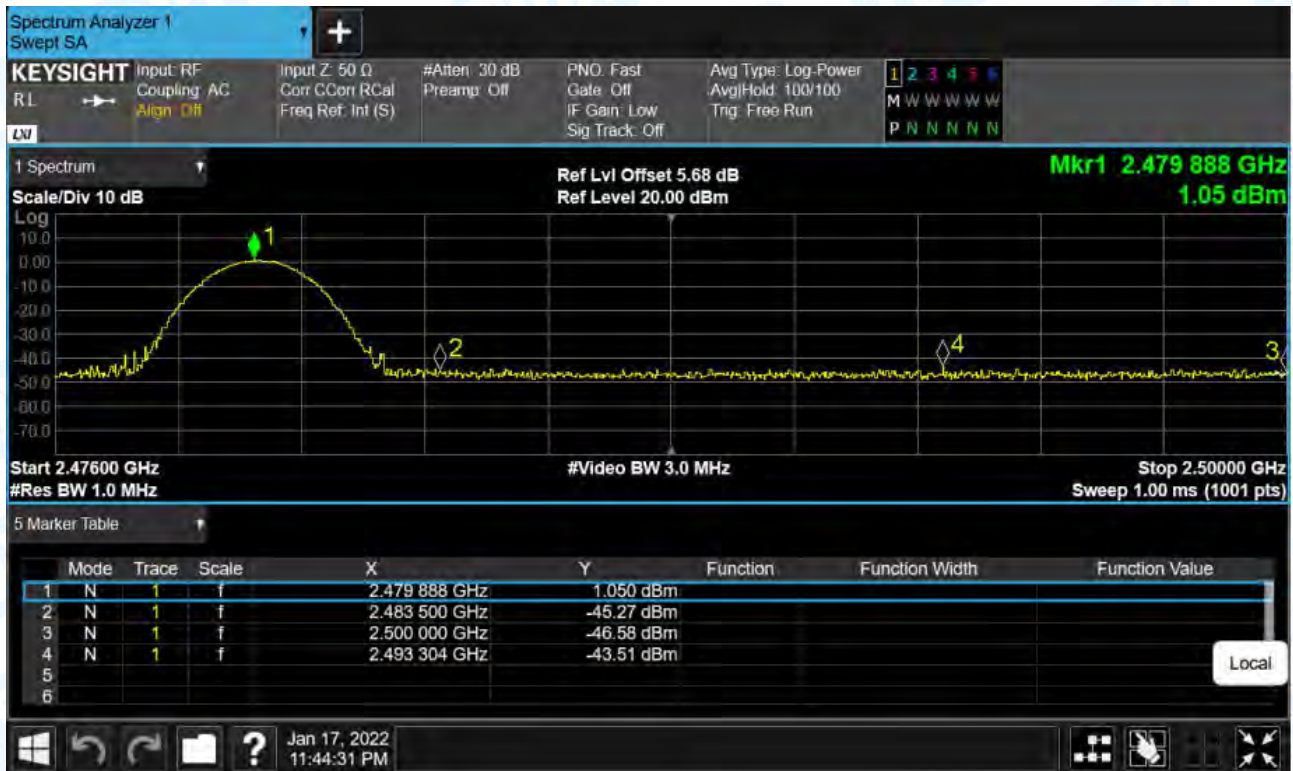
Restrict Band NVNT 3-DH1 2402MHz Ant1 No-Hopping Peak



Restrict Band NVNT 3-DH1 2402MHz Ant1 No-Hopping Average



Restrict Band NVNT 3-DH1 2480MHz Ant1 No-Hopping Peak



Restrict Band NVNT 3-DH1 2480MHz Ant1 No-Hopping Average



10.Dwell Time

Condition	Mode	Frequency (MHz)	Antenna	Pulse Time (ms)	Total Dwell Time (ms)	Period Time (ms)	Limit (ms)	Verdict
NVNT	1-DH1	2441	Ant1	0.388	124.16	31600	400	Pass
NVNT	1-DH3	2441	Ant1	1.644	263.04	31600	400	Pass
NVNT	1-DH5	2441	Ant1	2.89	308.267	31600	400	Pass
NVNT	2-DH1	2441	Ant1	0.389	124.48	31600	400	Pass
NVNT	2-DH3	2441	Ant1	1.647	263.52	31600	400	Pass
NVNT	2-DH5	2441	Ant1	2.899	309.227	31600	400	Pass
NVNT	3-DH1	2441	Ant1	0.386	123.52	31600	400	Pass
NVNT	3-DH3	2441	Ant1	1.647	263.52	31600	400	Pass
NVNT	3-DH5	2441	Ant1	2.898	309.12	31600	400	Pass

Test Graphs

Dwell NVNT 1-DH1 2441MHz Ant1



Dwell NVNT 1-DH3 2441MHz Ant1



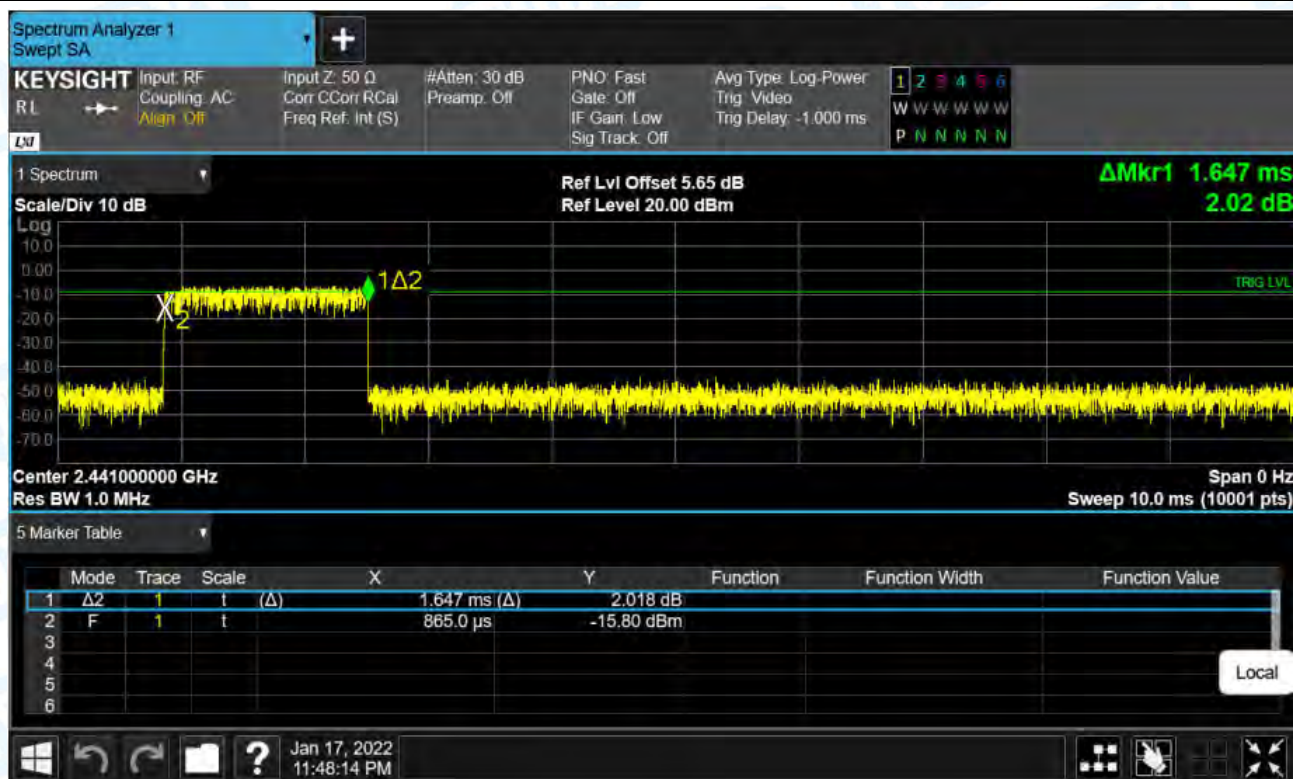
Dwell NVNT 1-DH5 2441MHz Ant1



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



