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

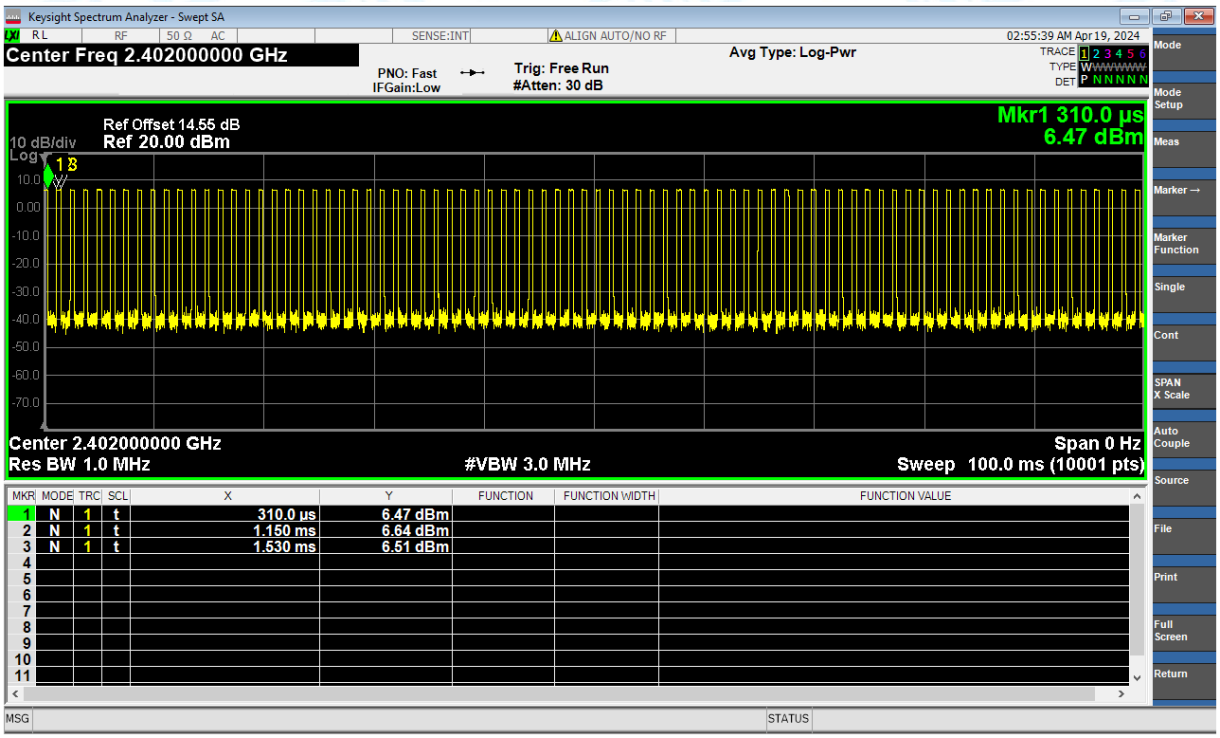
General Description of EUT	
Product Name:	T221
Test Model:	T221
Sample ID:	HC-C-202403-0228-04-01-2#
Environmental Conditions	
Temperature:	23.8℃
Relative Humidity:	48%
Test Voltage:	DC 3.85V
Test Engineer:	Mike Yan
Note: For a more detailed features description, please refer to the report TBR-C-202403-0228-7 The report only show the worst case data.	

1. Duty Cycle

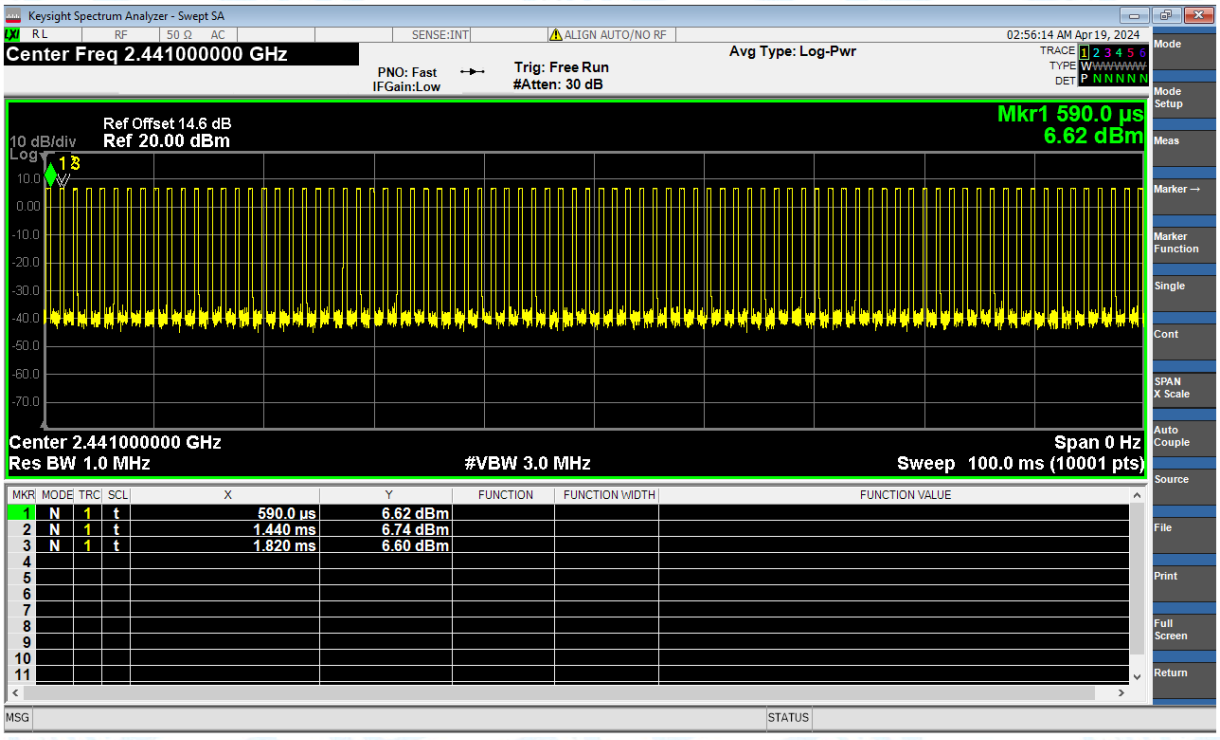
Condition	Mode	Frequency (MHz)	Antenna	Duty Cycle (%)	Correction Factor (dB)	1/T (kHz)
NVNT	1-DH1	2402	Ant1	31.15	5.07	2.63
NVNT	1-DH1	2441	Ant1	30.89	5.1	2.63
NVNT	1-DH1	2480	Ant1	31.15	5.07	2.63
NVNT	2-DH1	2402	Ant1	31.71	4.99	2.56
NVNT	2-DH1	2441	Ant1	31.71	4.99	2.56
NVNT	2-DH1	2480	Ant1	31.71	4.99	2.56
NVNT	3-DH1	2402	Ant1	31.45	5.02	2.56
NVNT	3-DH1	2441	Ant1	31.71	4.99	2.56
NVNT	3-DH1	2480	Ant1	31.71	4.99	2.56

Test Graphs

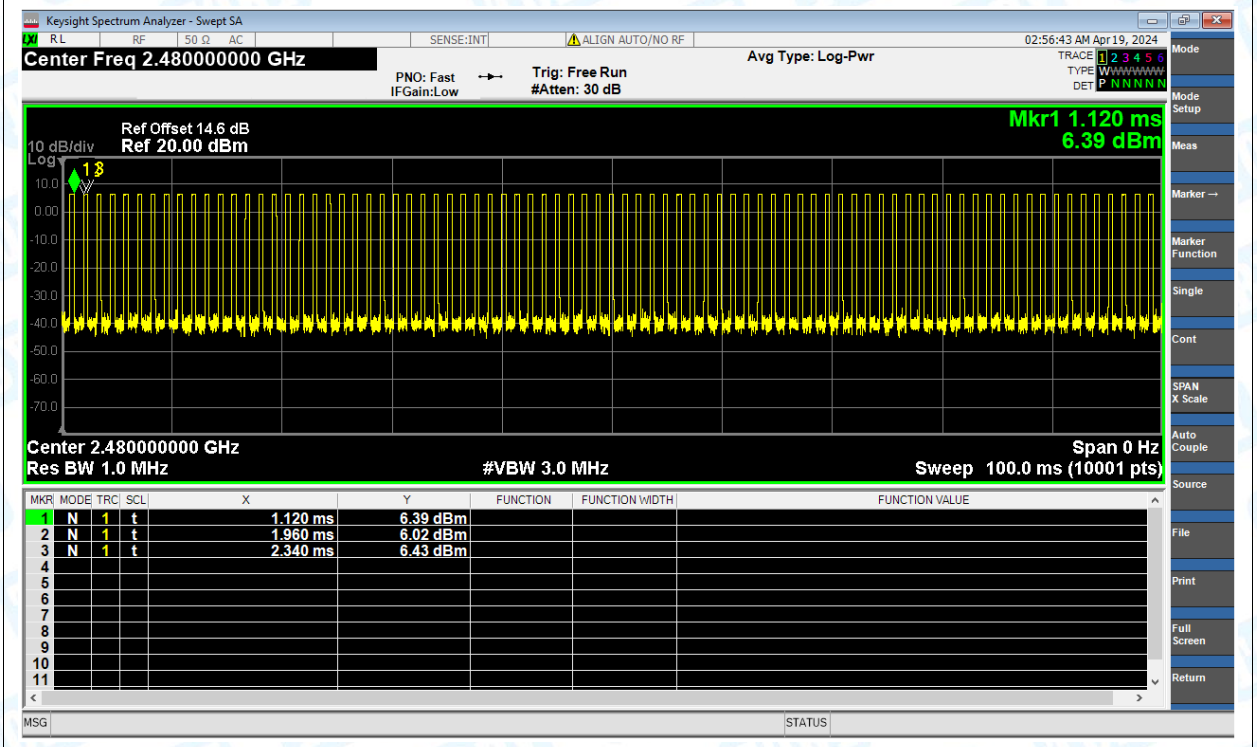
Duty Cycle NVNT 1-DH1 2402MHz Ant1



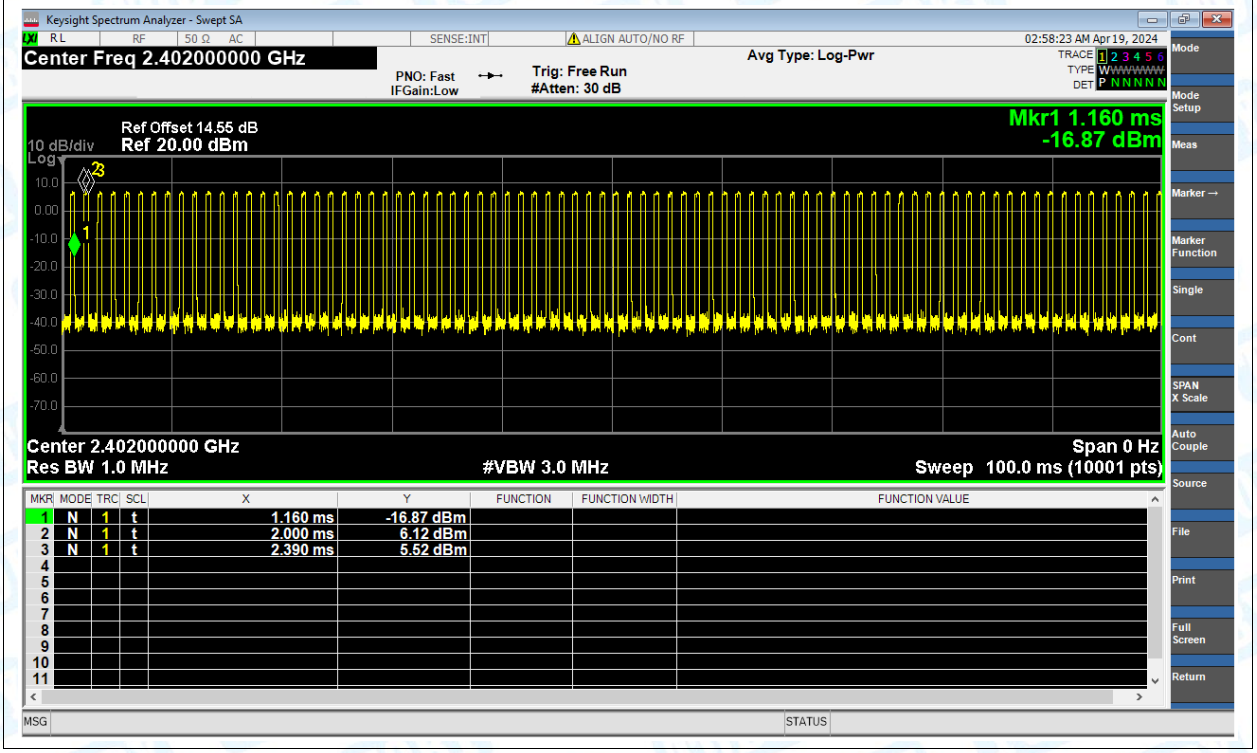
Duty Cycle NVNT 1-DH1 2441MHz Ant1



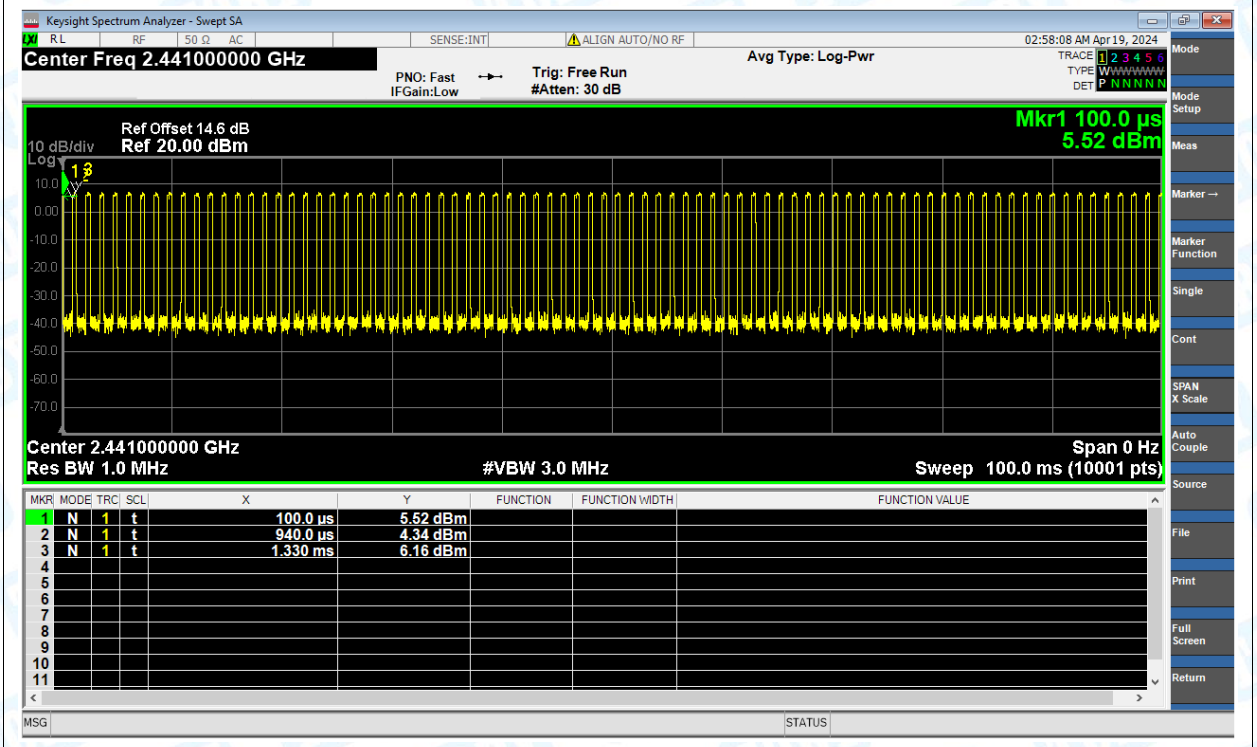
Duty Cycle NVNT 1-DH1 2480MHz Ant1



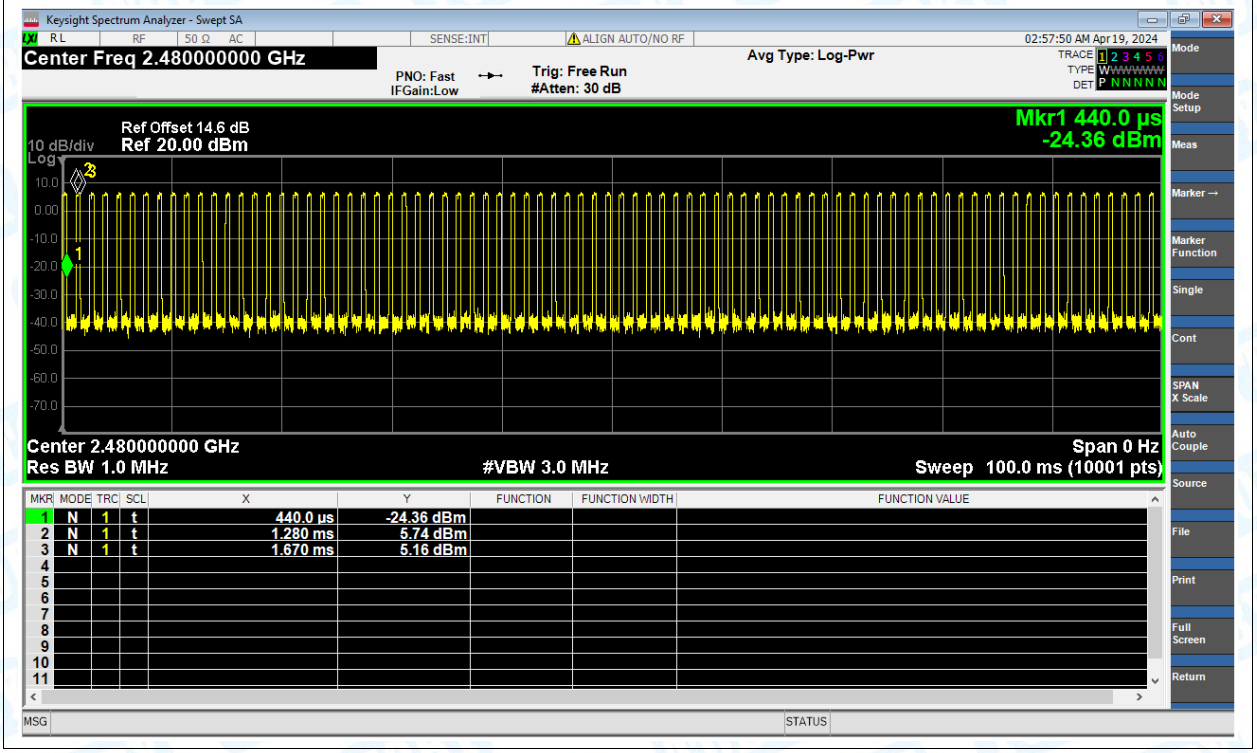
Duty Cycle NVNT 2-DH1 2402MHz Ant1



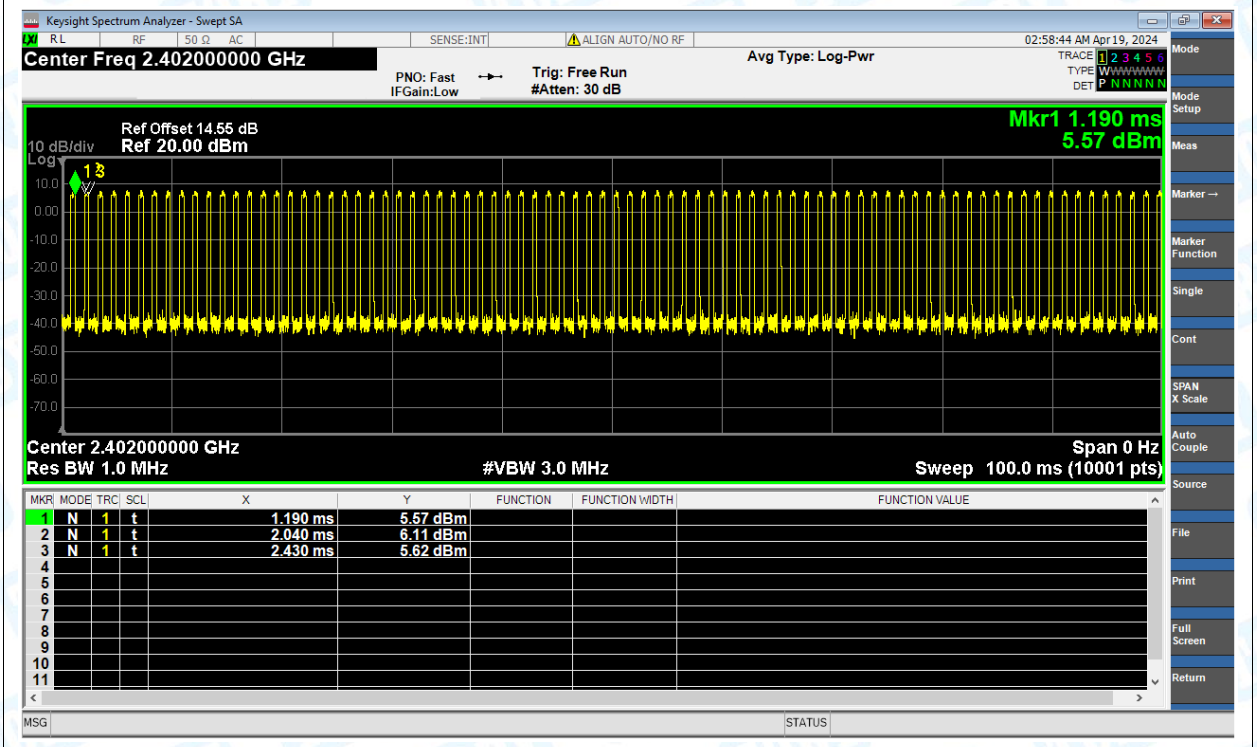
Duty Cycle NVNT 2-DH1 2441MHz Ant1



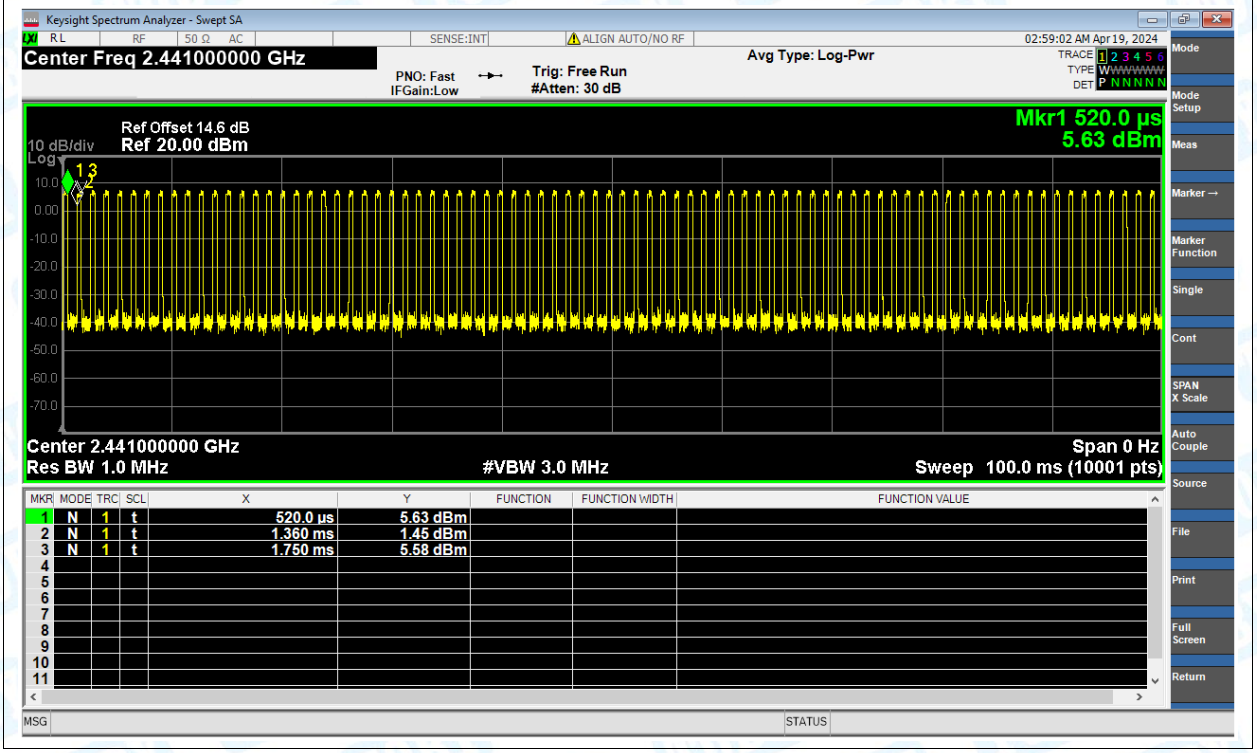
Duty Cycle NVNT 2-DH1 2480MHz Ant1



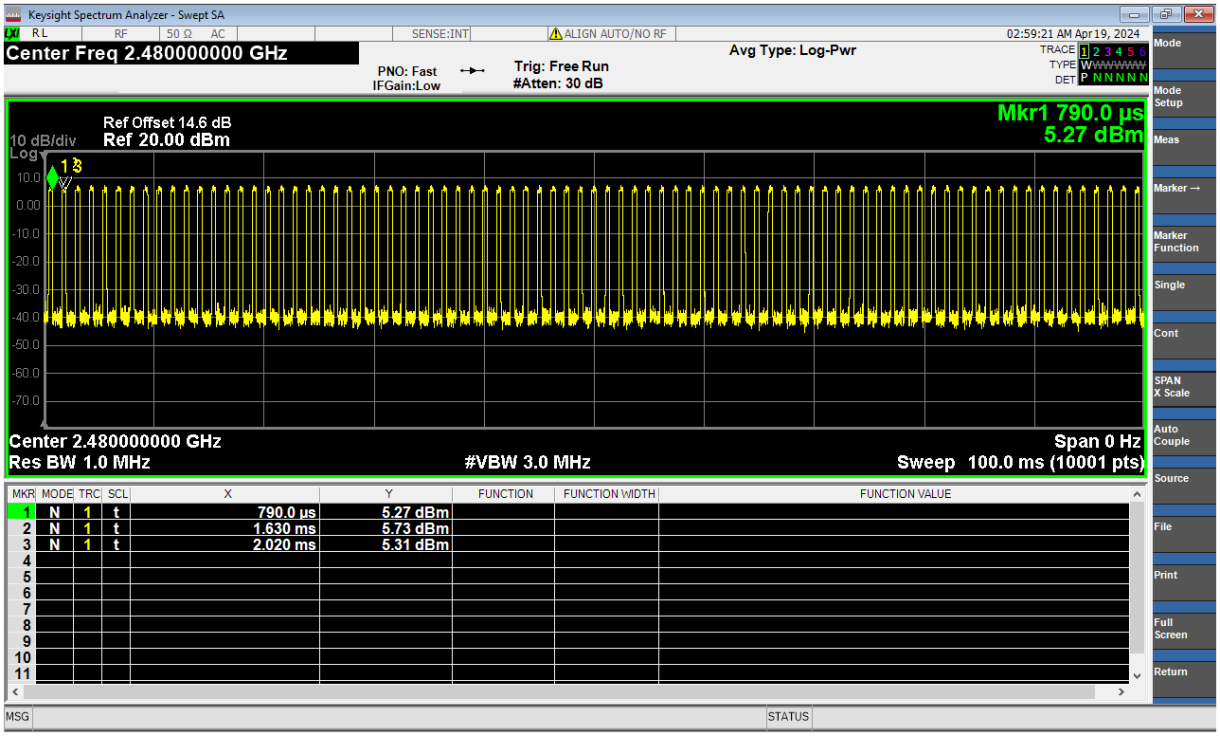
Duty Cycle NVNT 3-DH1 2402MHz Ant1



Duty Cycle NVNT 3-DH1 2441MHz Ant1



Duty Cycle NVNT 3-DH1 2480MHz Ant1

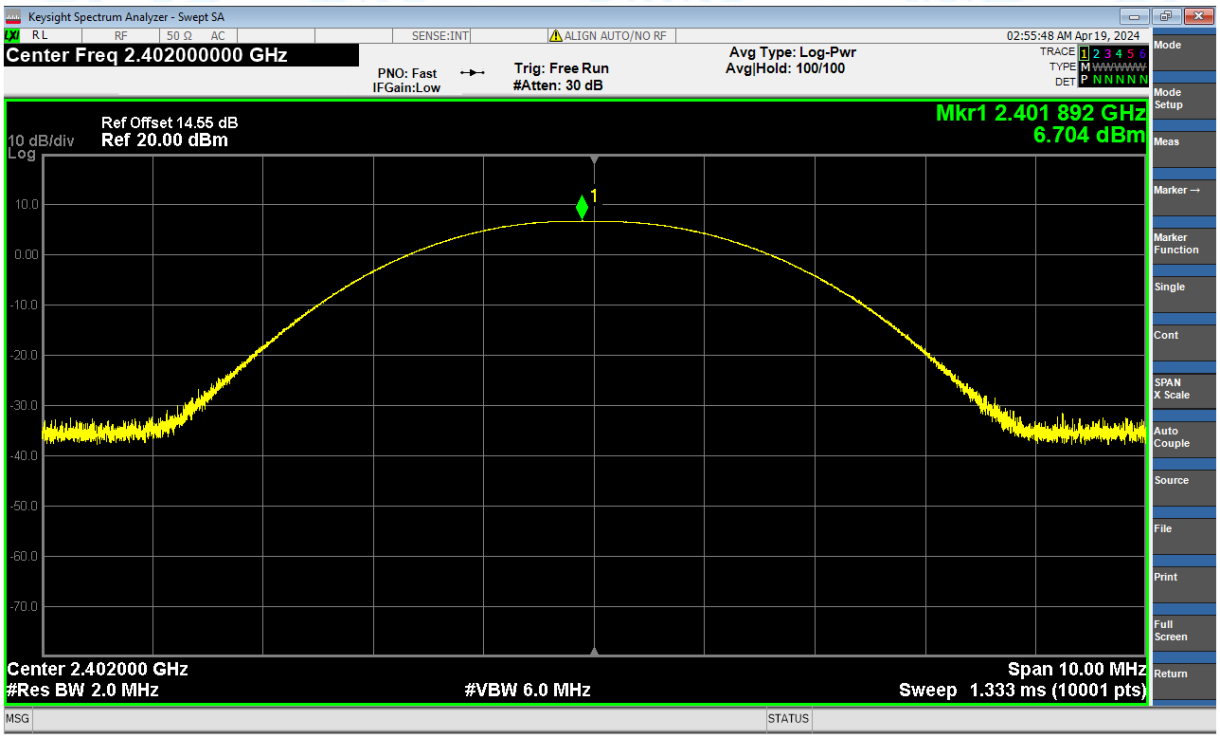


2. Maximum Conducted Output Power

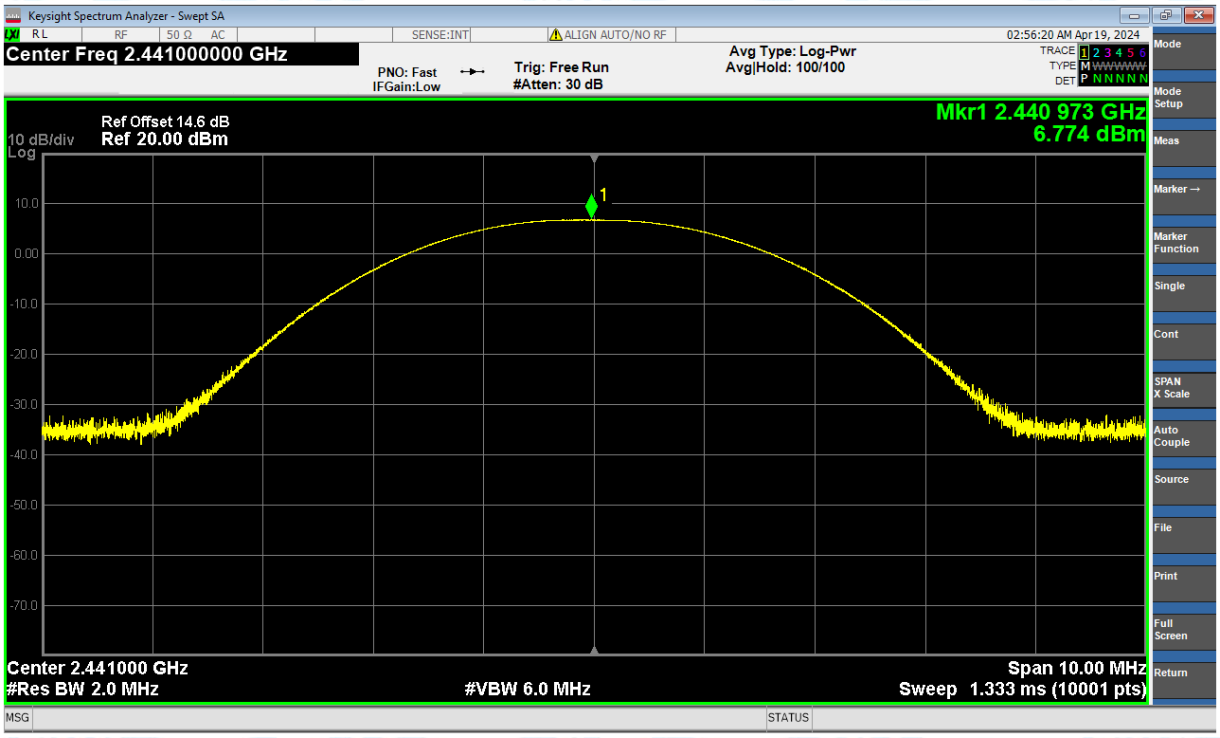
Condition	Mode	Frequency (MHz)	Antenna	Conducted Power (dBm)	Limit (dBm)	Verdict
NVNT	1-DH1	2402	Ant1	6.704	21	Pass
NVNT	1-DH1	2441	Ant1	6.774	21	Pass
NVNT	1-DH1	2480	Ant1	6.562	21	Pass
NVNT	2-DH1	2402	Ant1	7.531	21	Pass
NVNT	2-DH1	2441	Ant1	7.491	21	Pass
NVNT	2-DH1	2480	Ant1	7.177	21	Pass
NVNT	3-DH1	2402	Ant1	7.955	21	Pass
NVNT	3-DH1	2441	Ant1	7.343	21	Pass
NVNT	3-DH1	2480	Ant1	7.745	21	Pass

Test Graphs

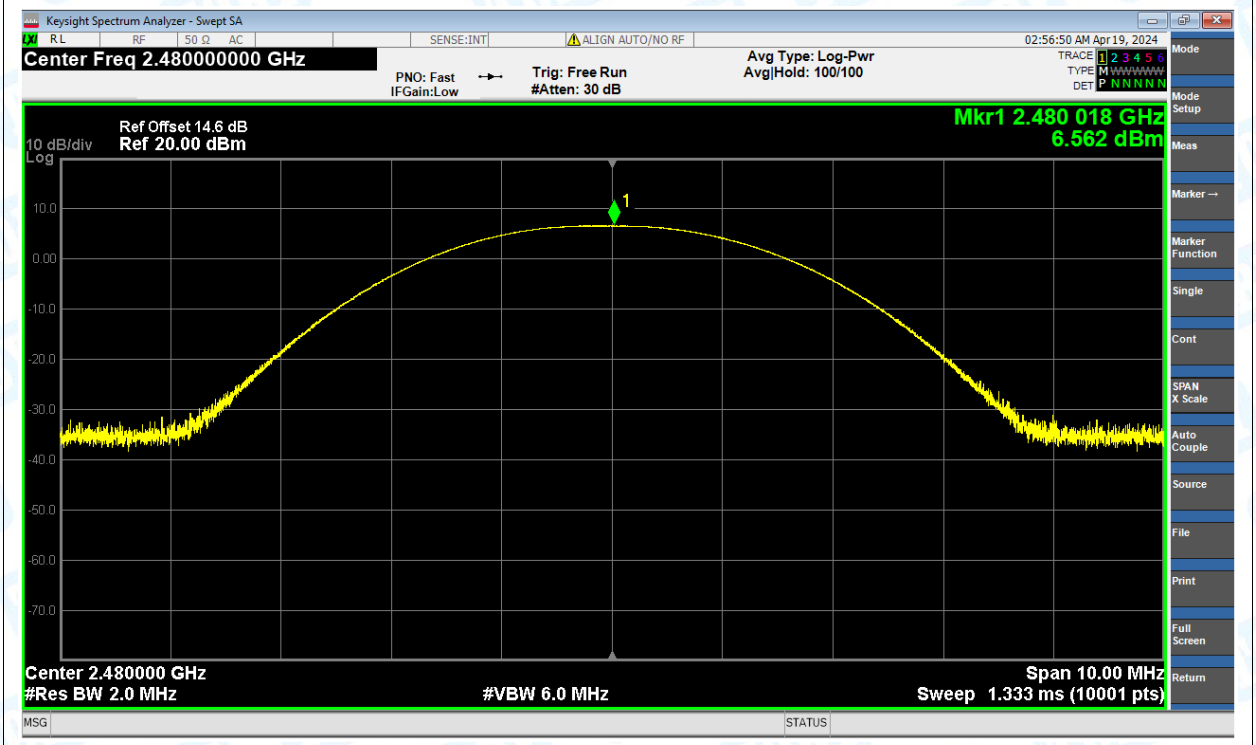
Power NVNT 1-DH1 2402MHz Ant1



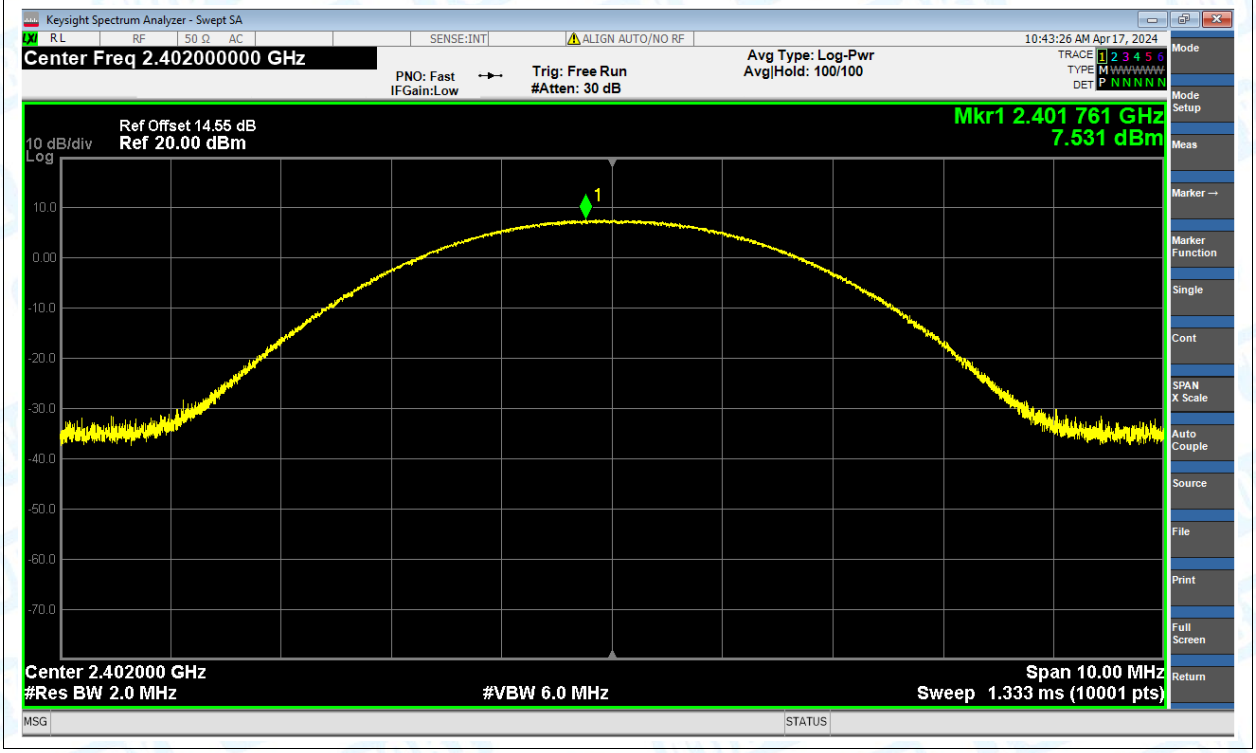
Power NVNT 1-DH1 2441MHz Ant1



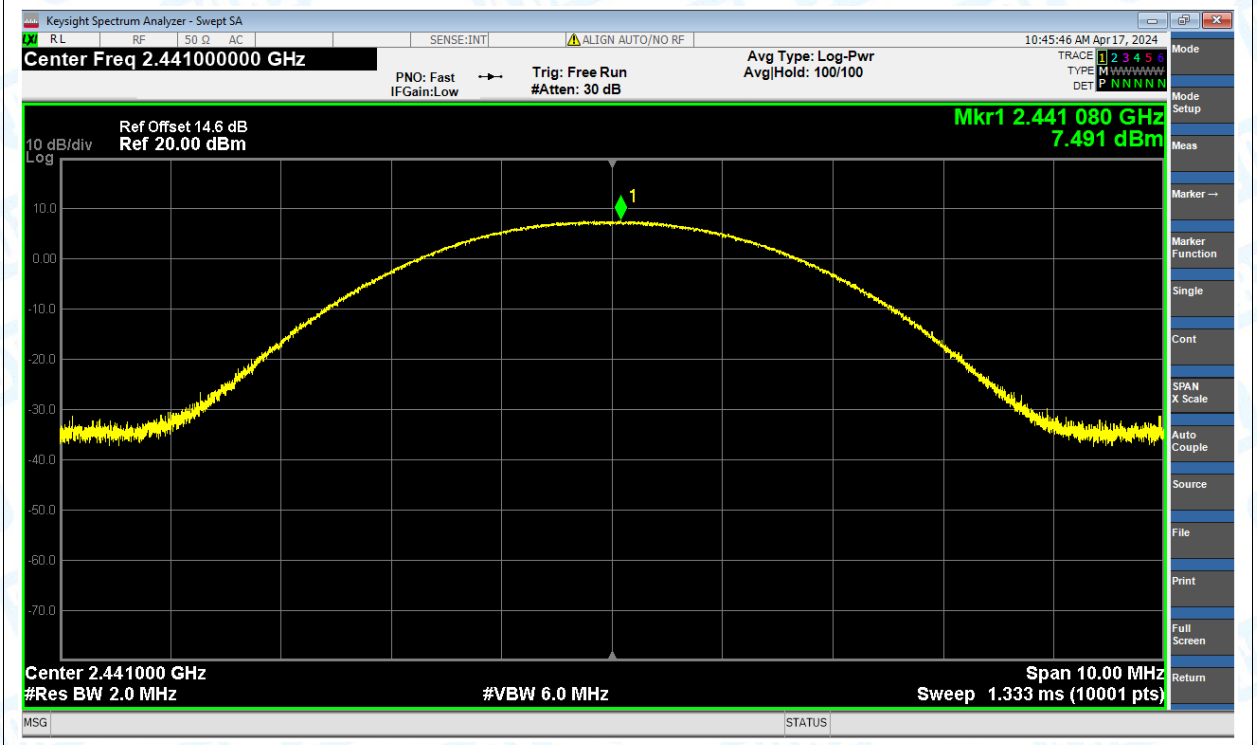
Power NVNT 1-DH1 2480MHz Ant1



Power NVNT 2-DH1 2402MHz Ant1



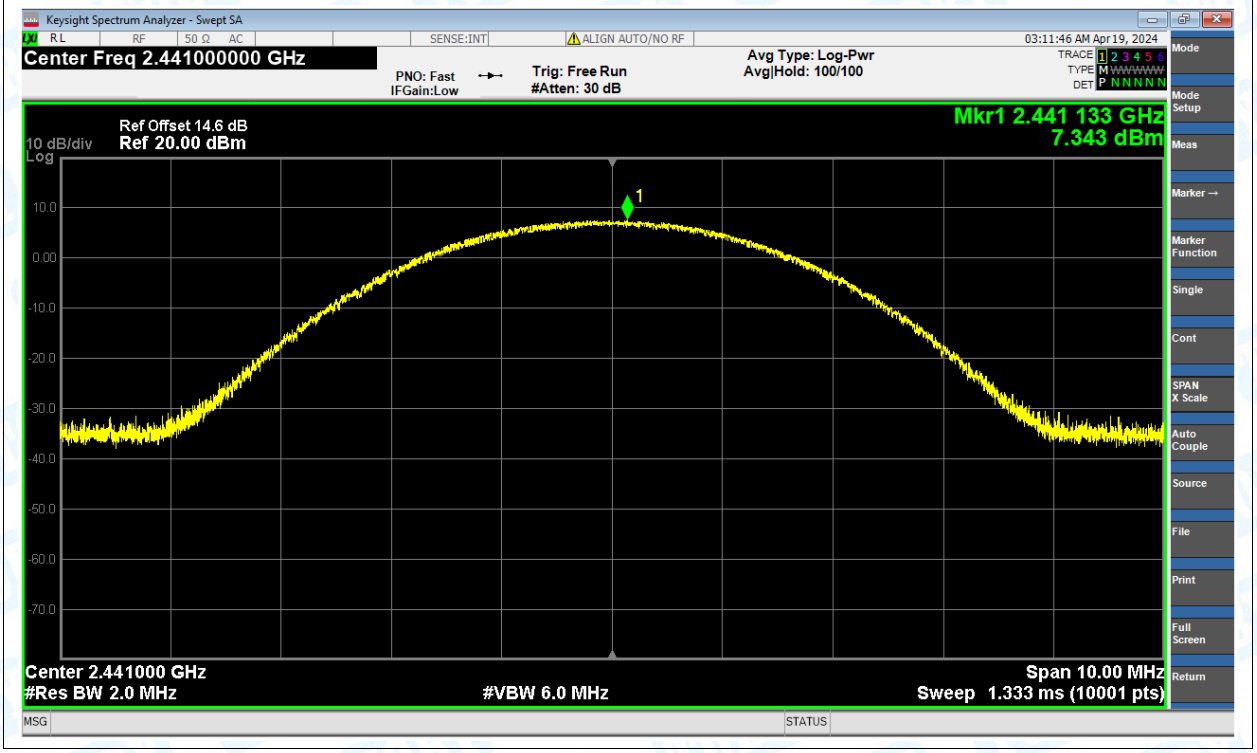
Power NVNT 2-DH1 2441MHz Ant1



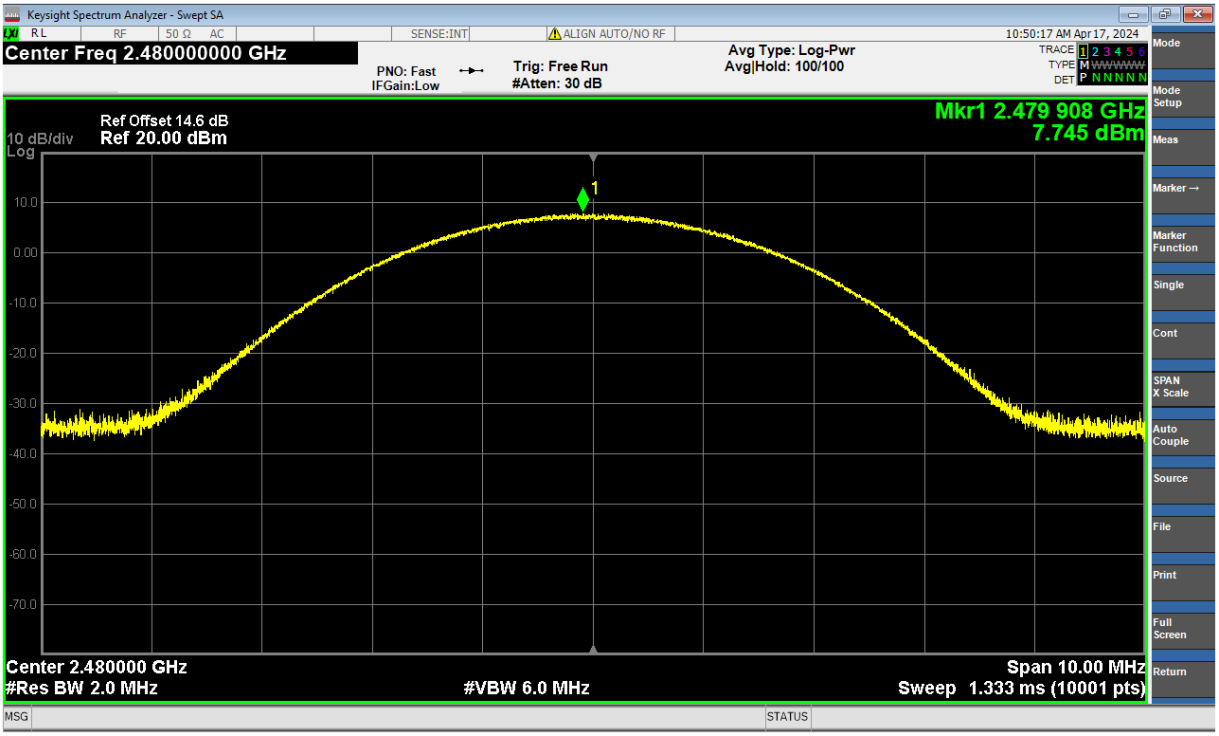
Power NVNT 2-DH1 2480MHz Ant1

Power NVNT 3-DH1 2402MHz Ant1

Power NVNT 3-DH1 2441MHz Ant1



Power NVNT 3-DH1 2480MHz Ant1



3. -20dB Bandwidth

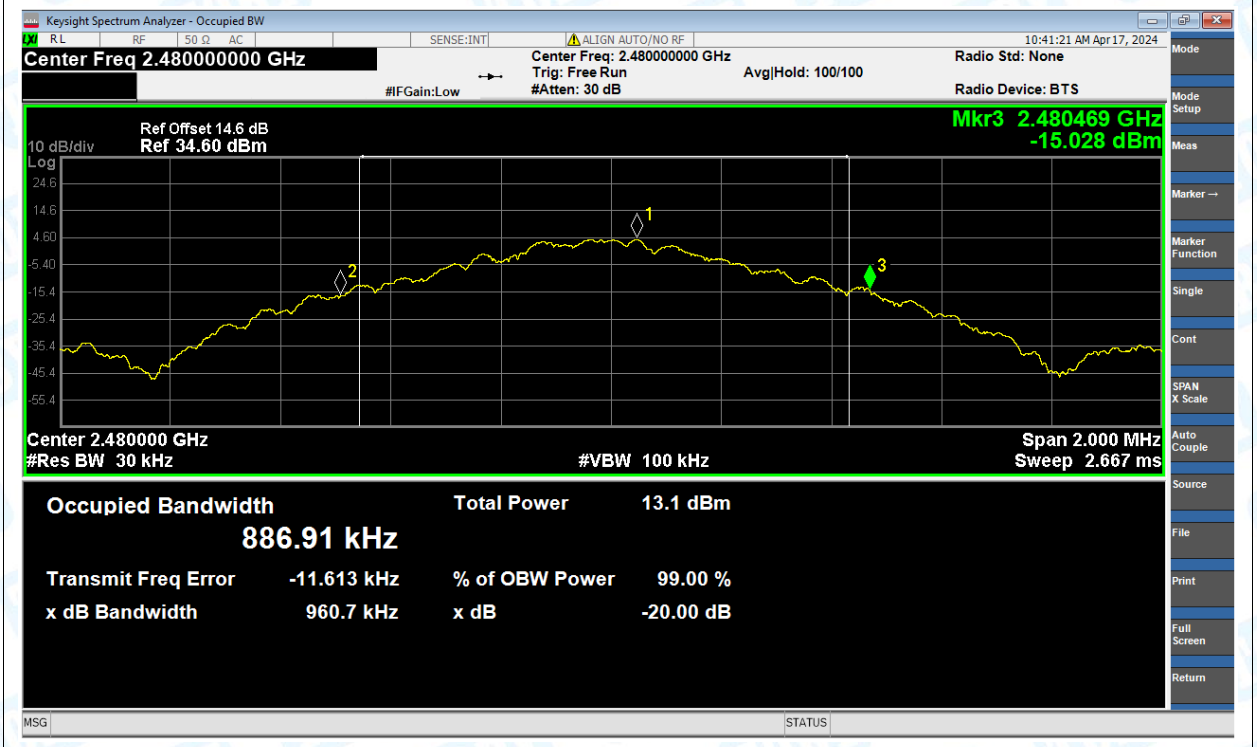
Condition	Mode	Frequency (MHz)	Antenna	-20 dB Bandwidth (MHz)	Limit -20 dB Bandwidth (MHz)	Verdict
NVNT	1-DH1	2402	Ant1	0.96	----	Pass
NVNT	1-DH1	2441	Ant1	0.96	----	Pass
NVNT	1-DH1	2480	Ant1	0.96	----	Pass
NVNT	2-DH1	2402	Ant1	1.36	----	Pass
NVNT	2-DH1	2441	Ant1	1.36	----	Pass
NVNT	2-DH1	2480	Ant1	1.37	----	Pass
NVNT	3-DH1	2402	Ant1	1.35	----	Pass
NVNT	3-DH1	2441	Ant1	1.35	----	Pass
NVNT	3-DH1	2480	Ant1	1.35	----	Pass

Test Graphs

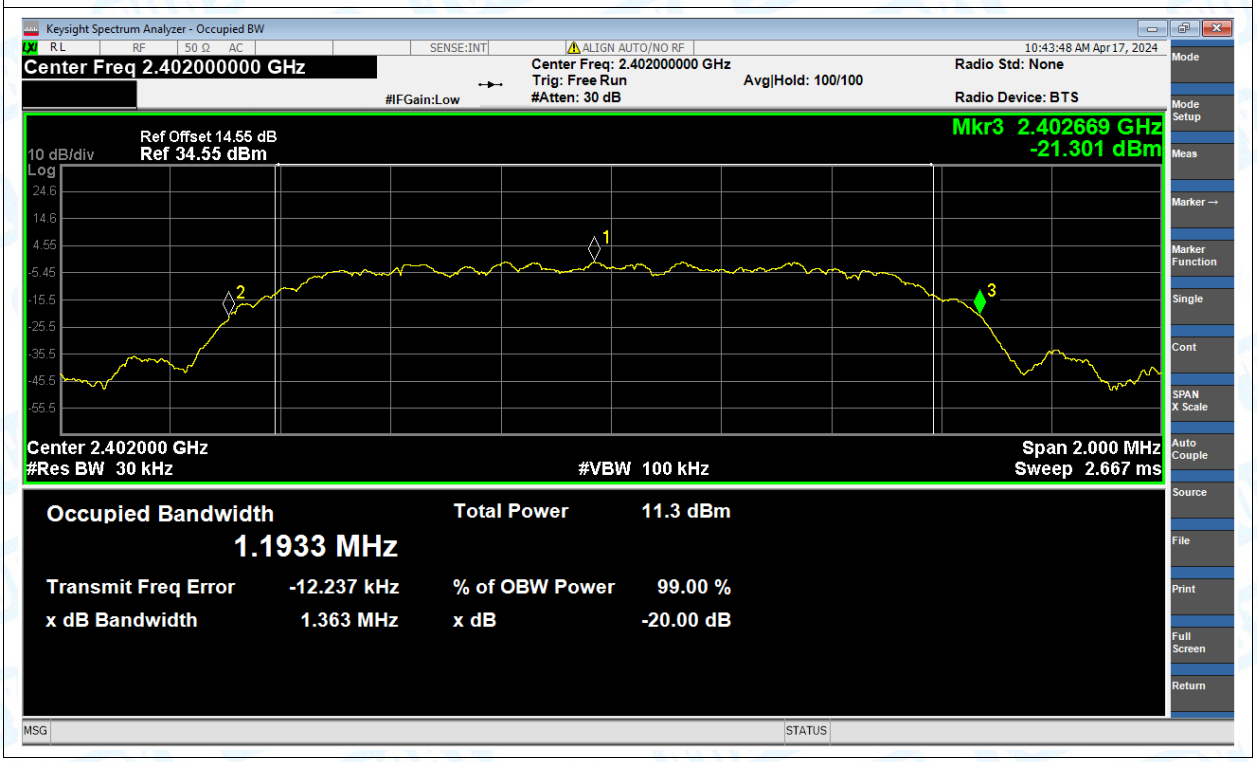
-20dB Bandwidth NVNT 1-DH1 2402MHz Ant1

-20dB Bandwidth NVNT 1-DH1 2441MHz Ant1

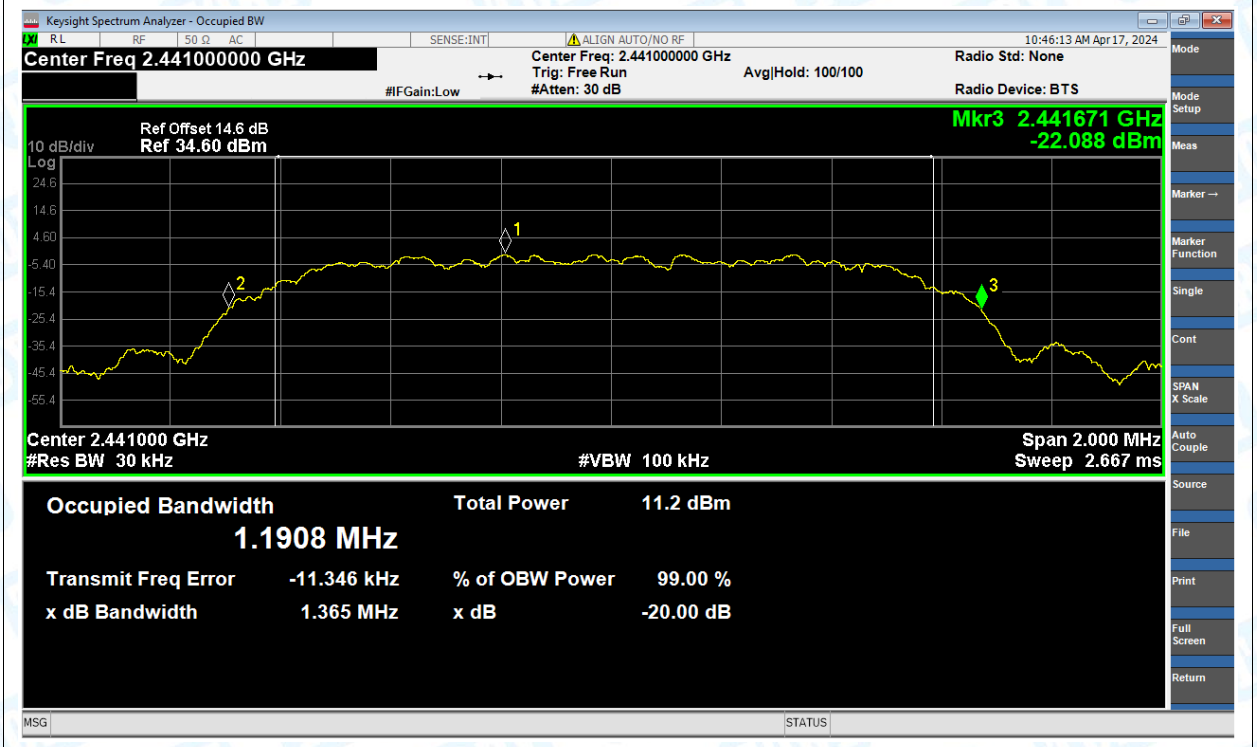
-20dB Bandwidth NVNT 1-DH1 2480MHz Ant1



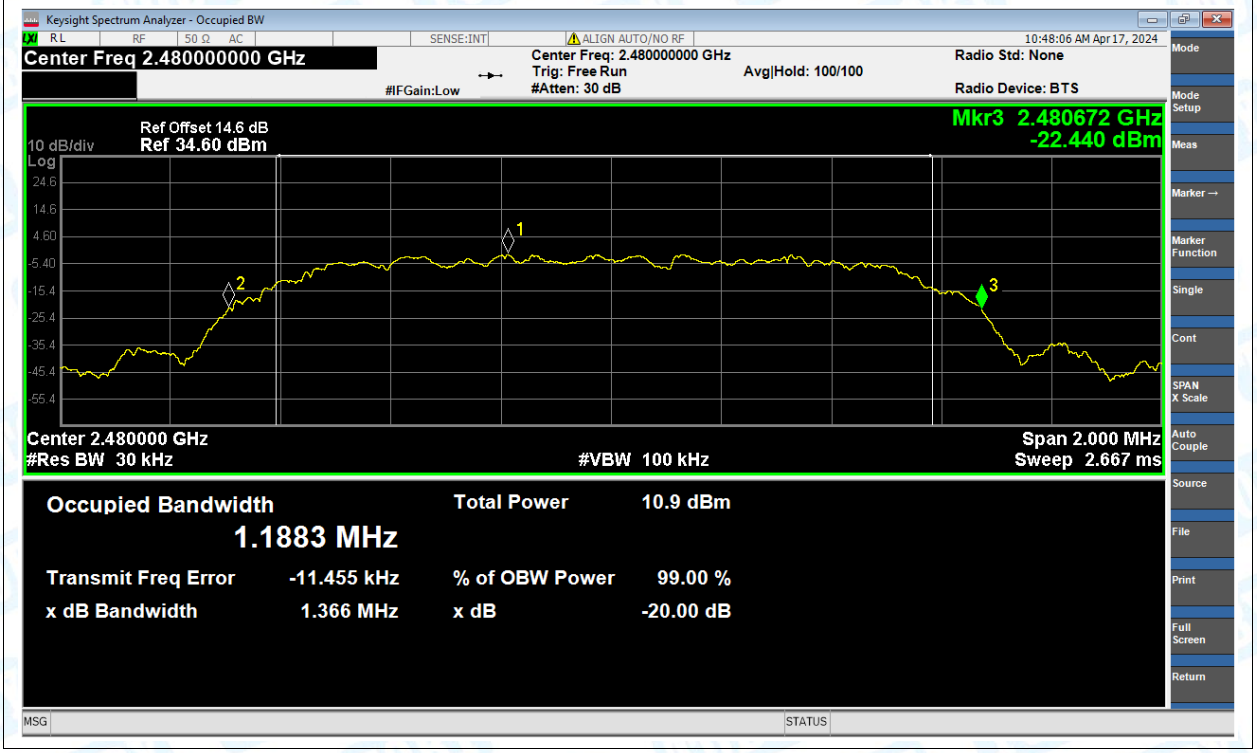
-20dB Bandwidth NVNT 2-DH1 2402MHz Ant1



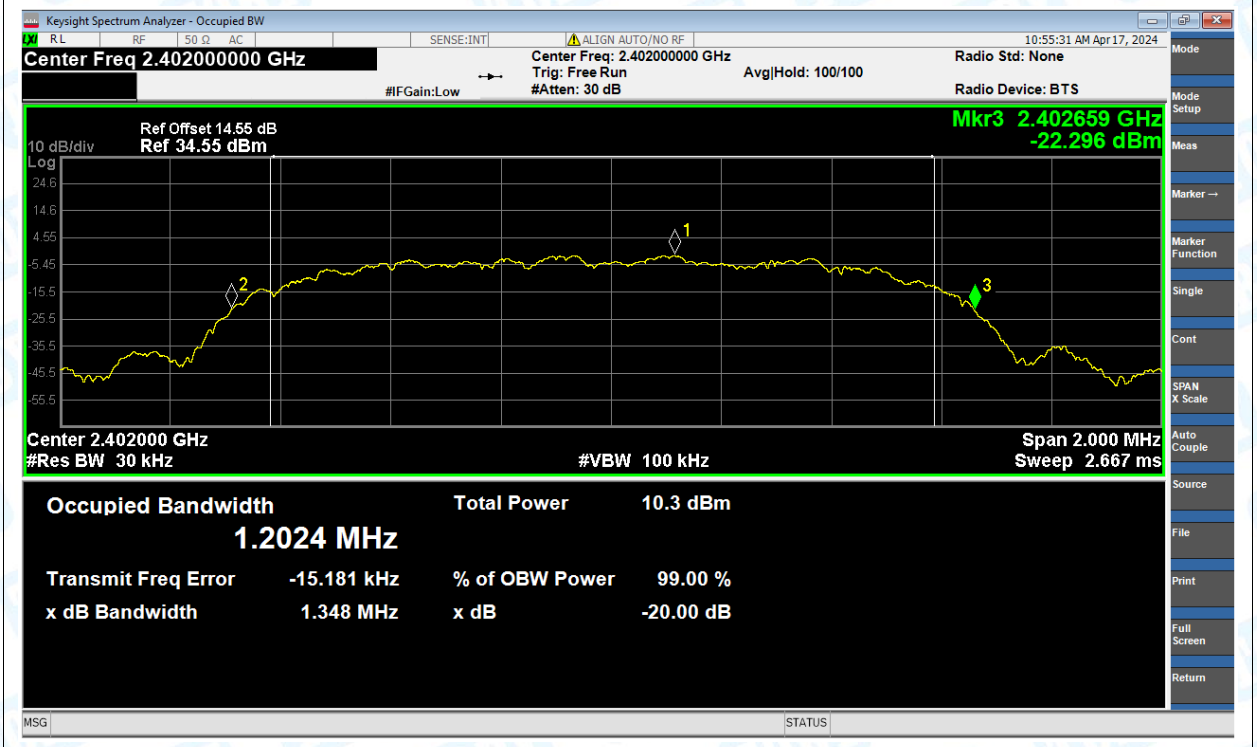
-20dB Bandwidth NVNT 2-DH1 2441MHz Ant1



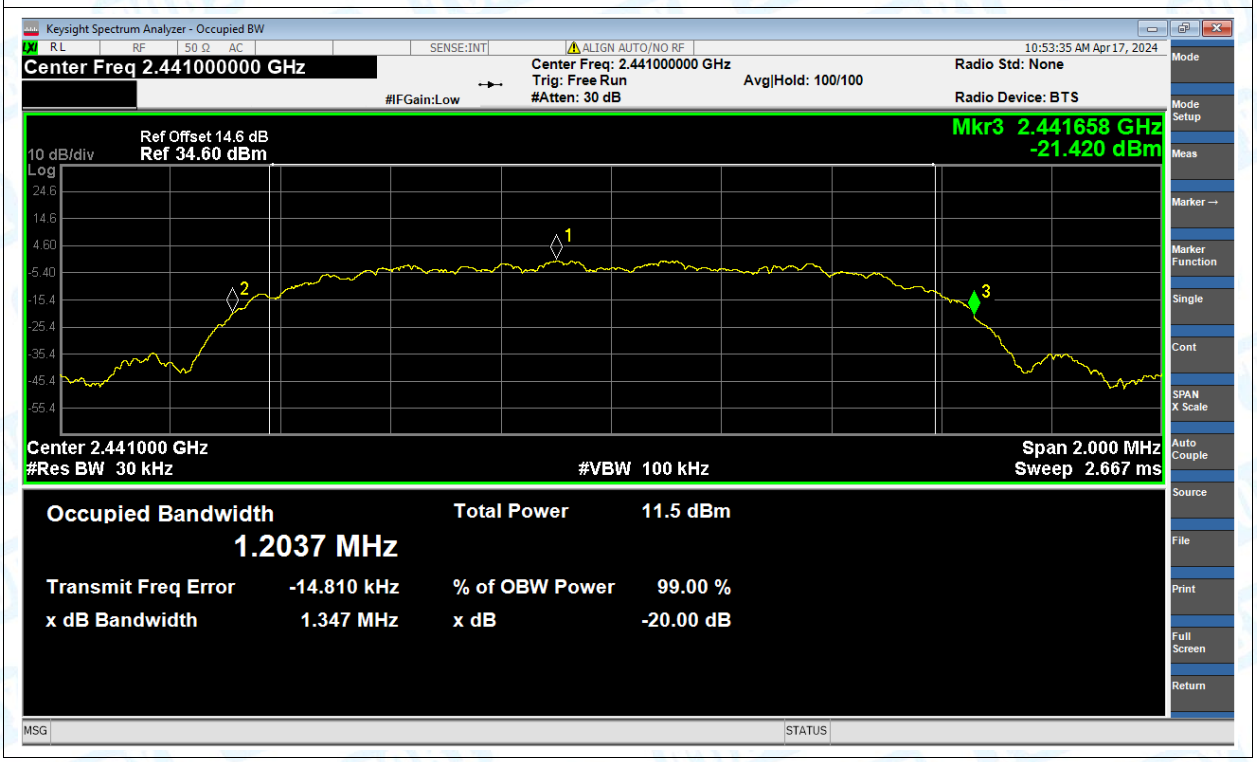
-20dB Bandwidth NVNT 2-DH1 2480MHz Ant1



-20dB Bandwidth NVNT 3-DH1 2402MHz Ant1



-20dB Bandwidth NVNT 3-DH1 2441MHz Ant1



-20dB Bandwidth NVNT 3-DH1 2480MHz Ant1

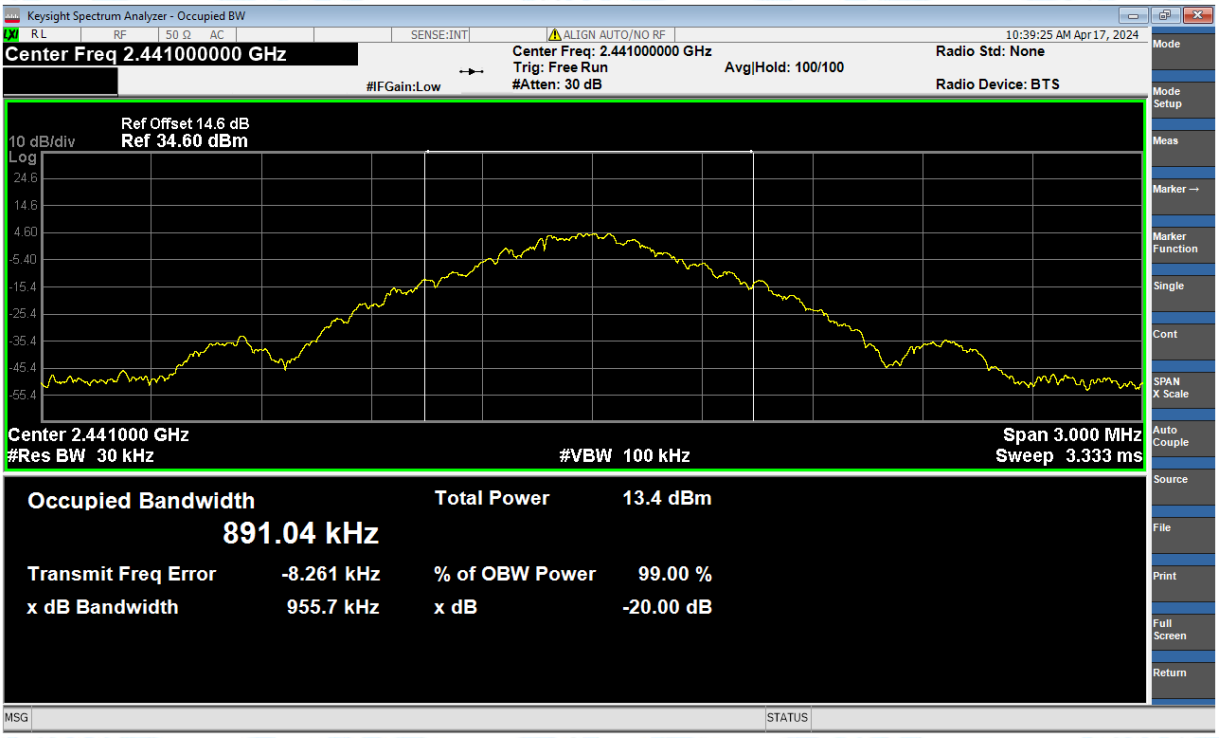
4. Occupied Channel Bandwidth

Condition	Mode	Frequency (MHz)	Antenna	99% OBW (MHz)
NVNT	1-DH1	2402	Ant1	0.890
NVNT	1-DH1	2441	Ant1	0.891
NVNT	1-DH1	2480	Ant1	0.890
NVNT	2-DH1	2402	Ant1	1.193
NVNT	2-DH1	2441	Ant1	1.191
NVNT	2-DH1	2480	Ant1	1.193
NVNT	3-DH1	2402	Ant1	1.202
NVNT	3-DH1	2441	Ant1	1.206
NVNT	3-DH1	2480	Ant1	1.200

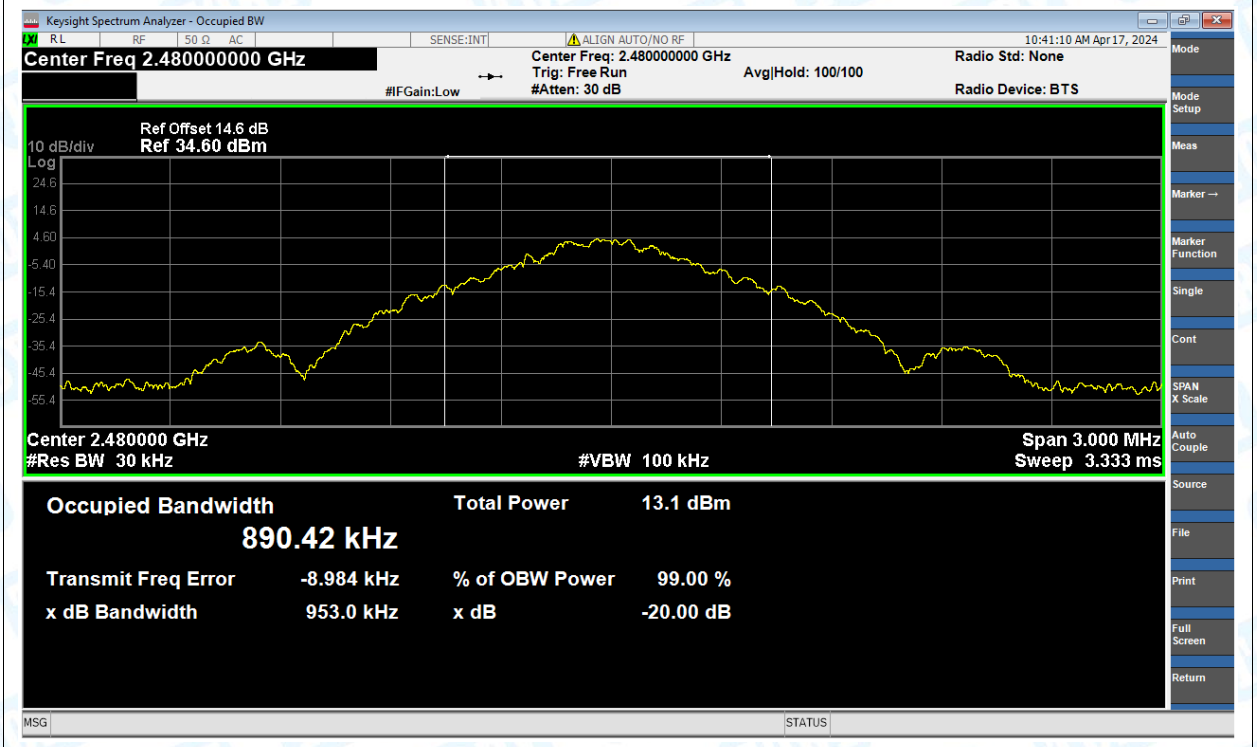
Test Graphs

OBW NVNT 1-DH1 2402MHz Ant1

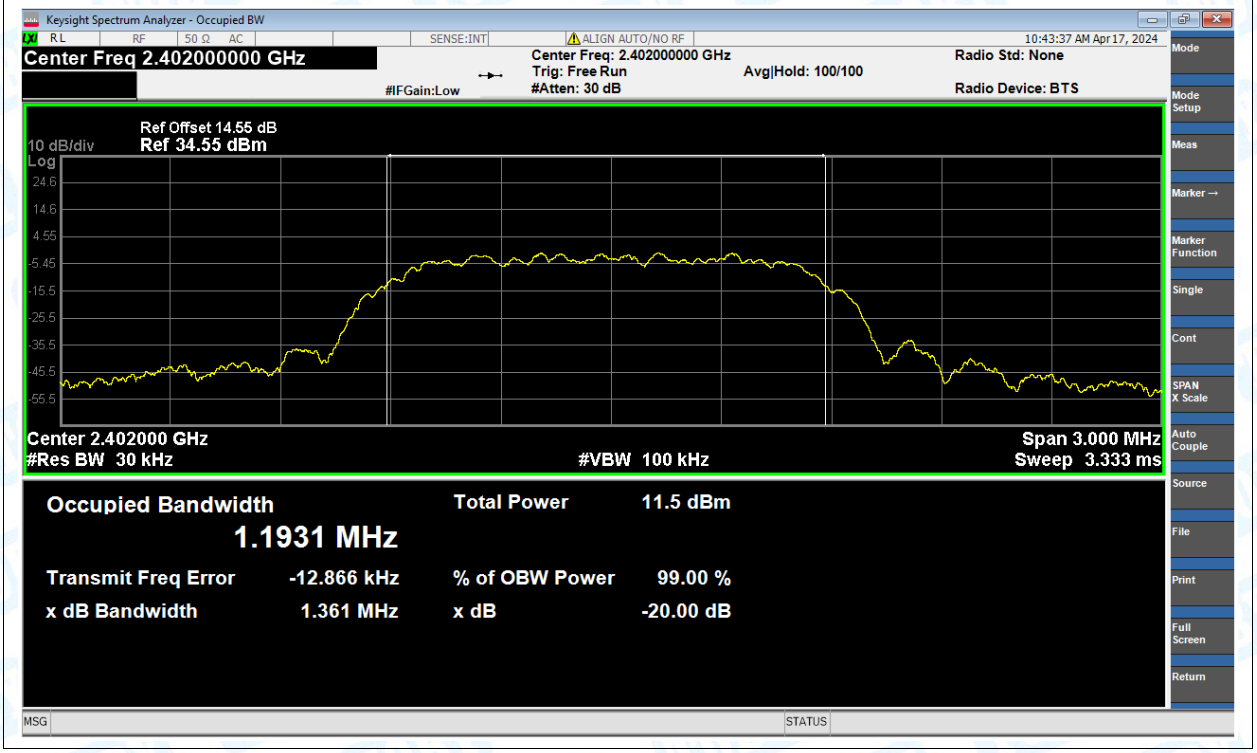
OBW NVNT 1-DH1 2441MHz Ant1



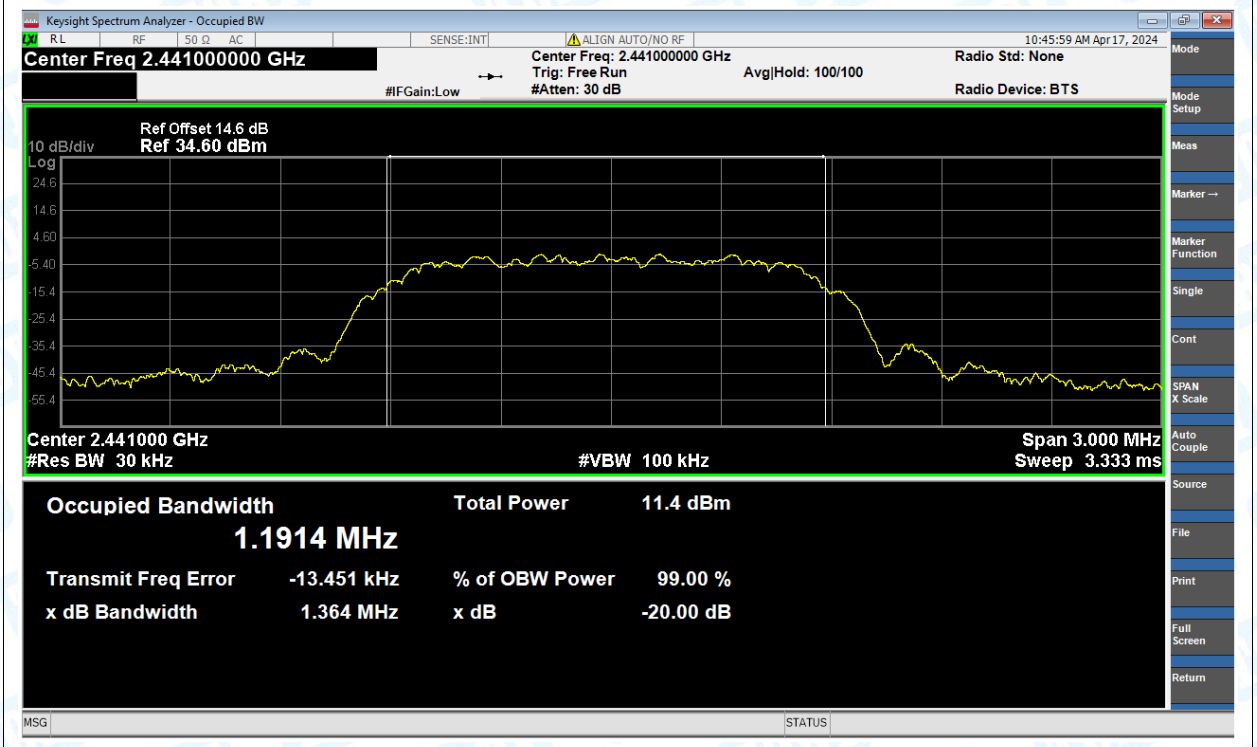
OBW NVNT 1-DH1 2480MHz Ant1



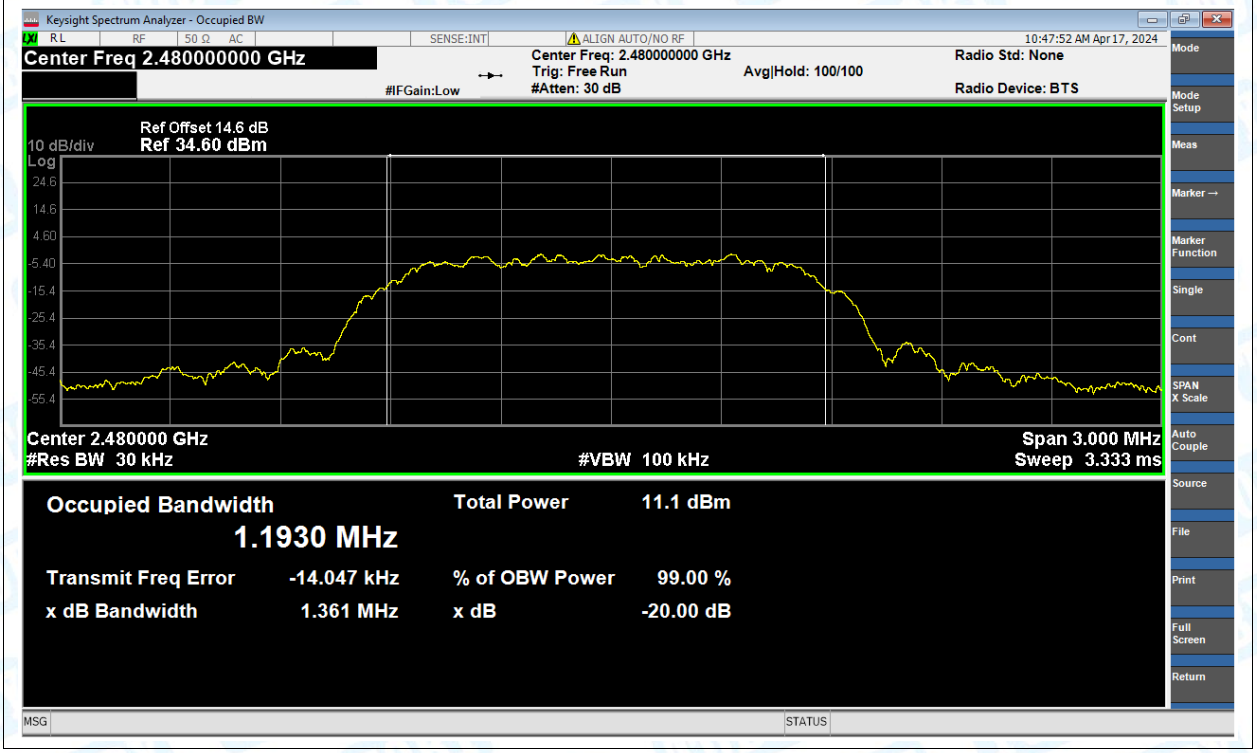
OBW NVNT 2-DH1 2402MHz Ant1



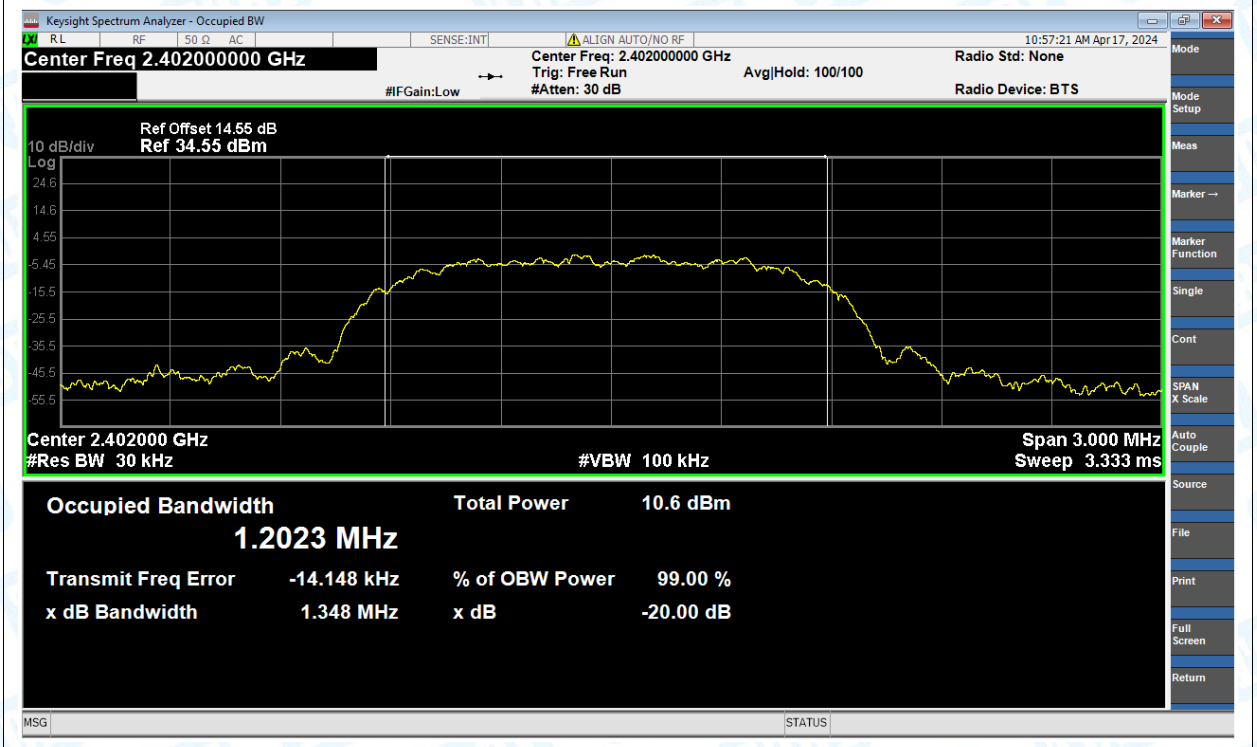
OBW NVNT 2-DH1 2441MHz Ant1



OBW NVNT 2-DH1 2480MHz Ant1

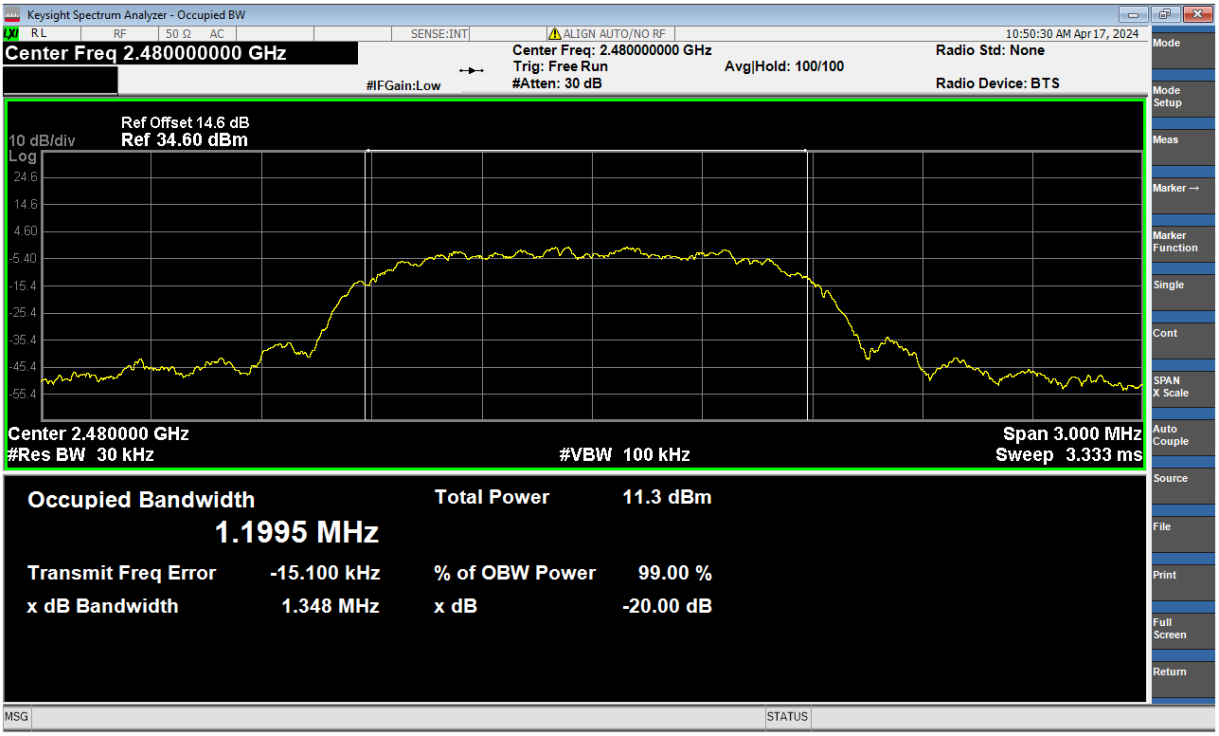


OBW NVNT 3-DH1 2402MHz Ant1



OBW NVNT 3-DH1 2441MHz Ant1

OBW NVNT 3-DH1 2480MHz Ant1

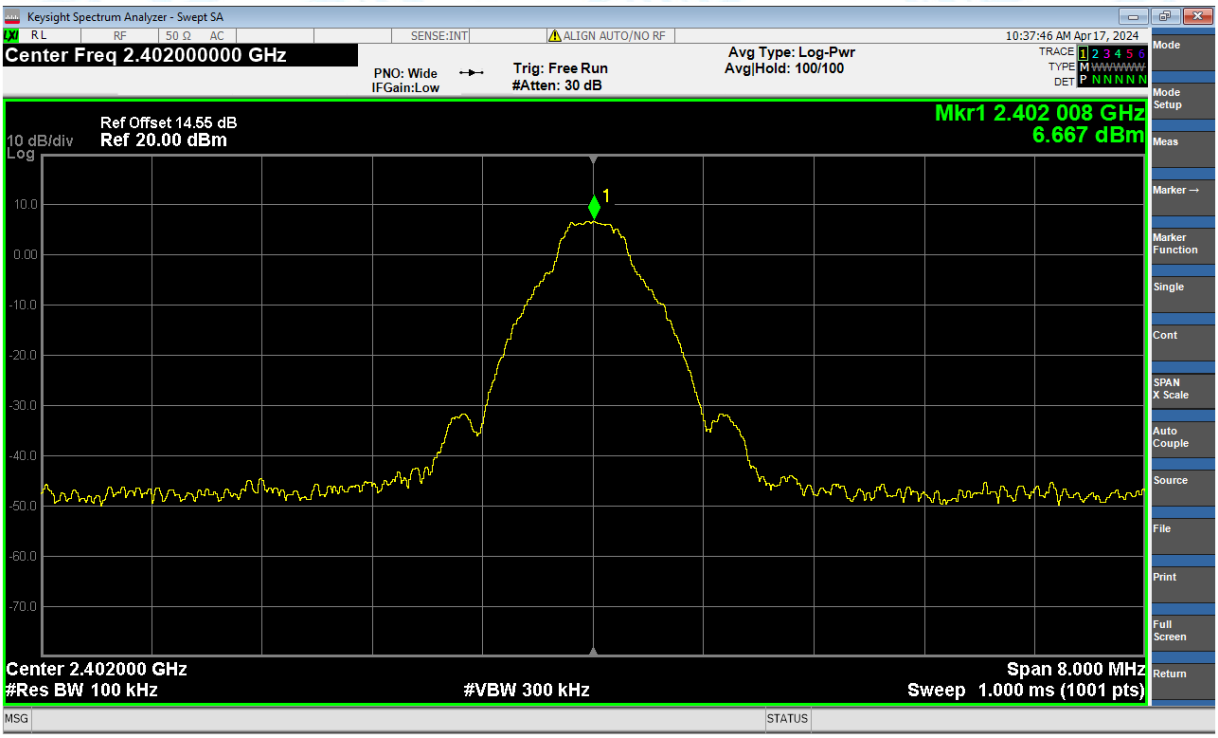


5. Band Edge

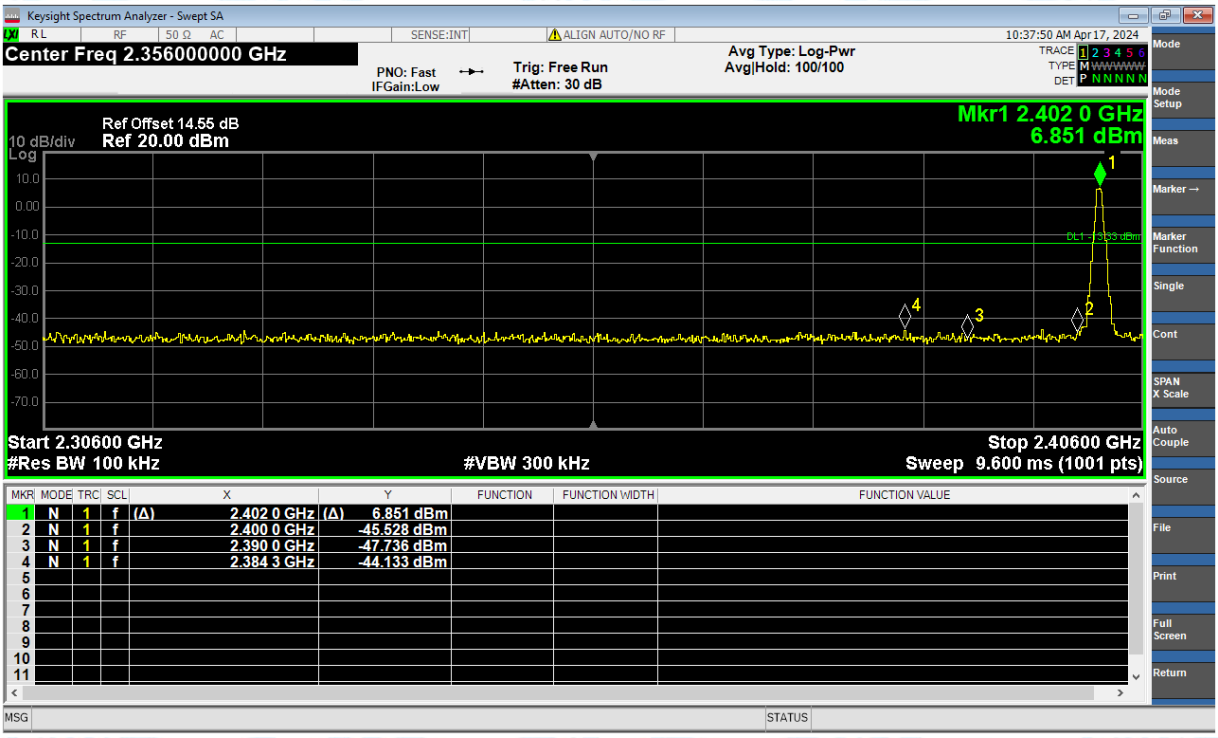
Condition	Mode	Frequency (MHz)	Antenna	Hopping Mode	Max Value (dBc)	Limit (dBc)	Verdict
NVNT	1-DH1	2402	Ant1	No-Hopping	-50.80	-20	Pass
NVNT	1-DH1	2480	Ant1	No-Hopping	-50.56	-20	Pass
NVNT	2-DH1	2402	Ant1	No-Hopping	-47.20	-20	Pass
NVNT	2-DH1	2480	Ant1	No-Hopping	-46.48	-20	Pass
NVNT	3-DH1	2402	Ant1	No-Hopping	-47.20	-20	Pass
NVNT	3-DH1	2480	Ant1	No-Hopping	-47.96	-20	Pass

Test Graphs

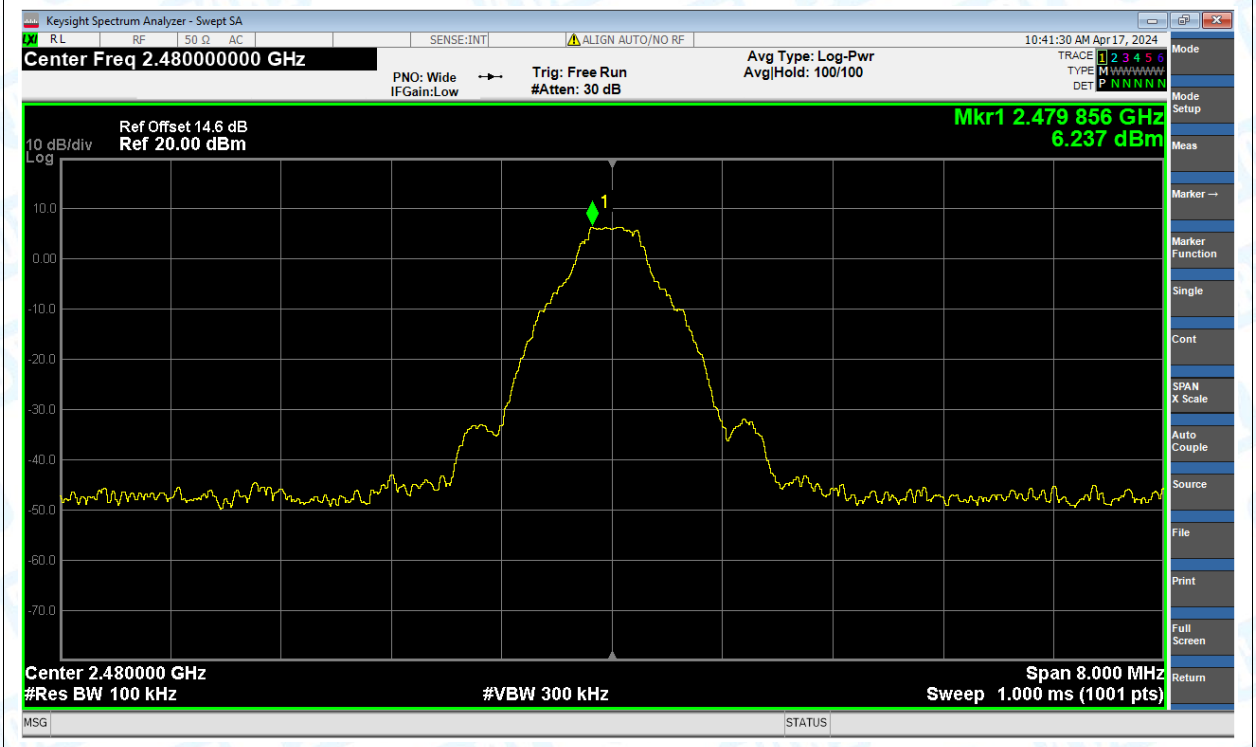
Band Edge NVNT 1-DH1 2402MHz Ant1 No-Hopping Ref



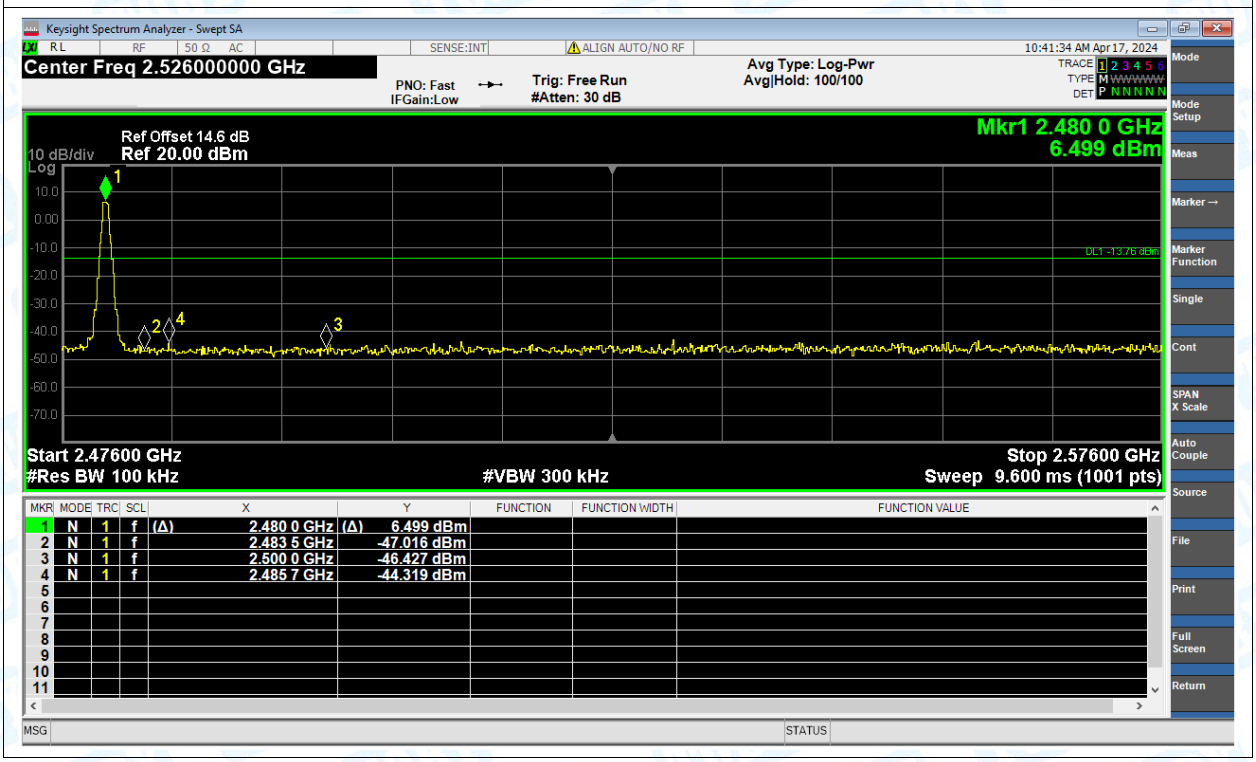
Band Edge NVNT 1-DH1 2402MHz Ant1 No-Hopping Emission



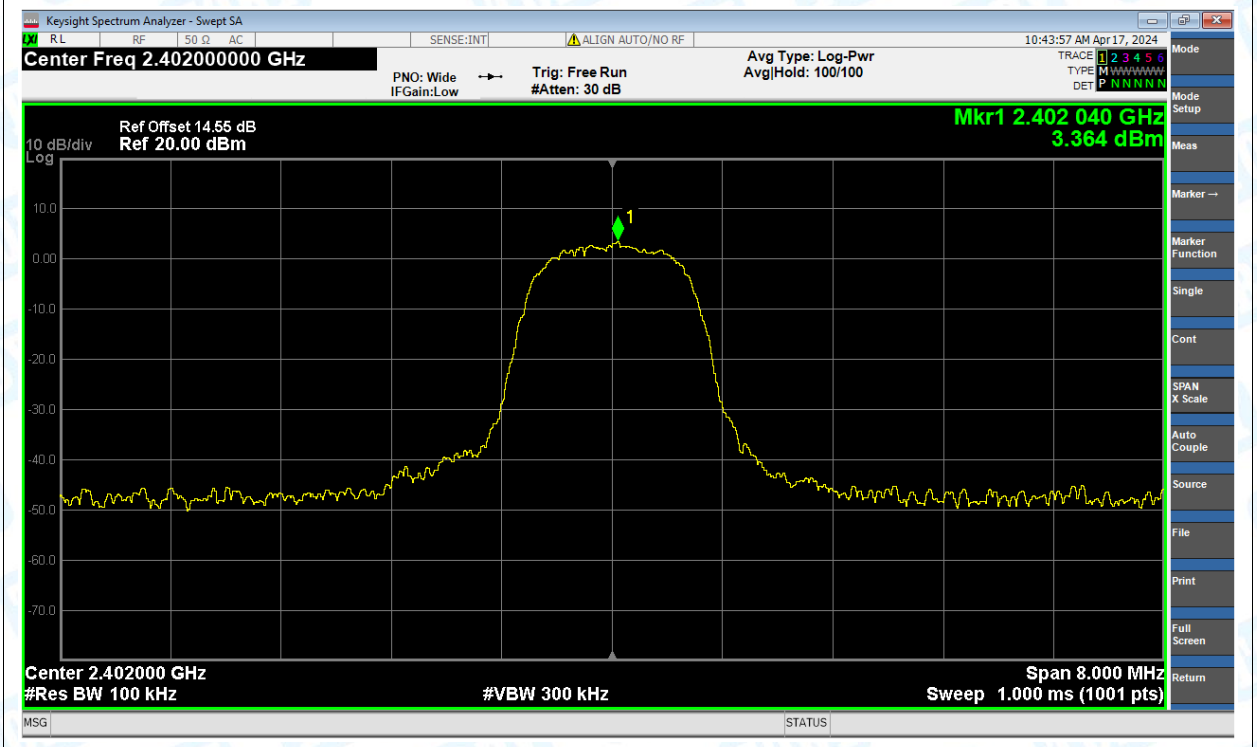
Band Edge NVNT 1-DH1 2480MHz Ant1 No-Hopping Ref



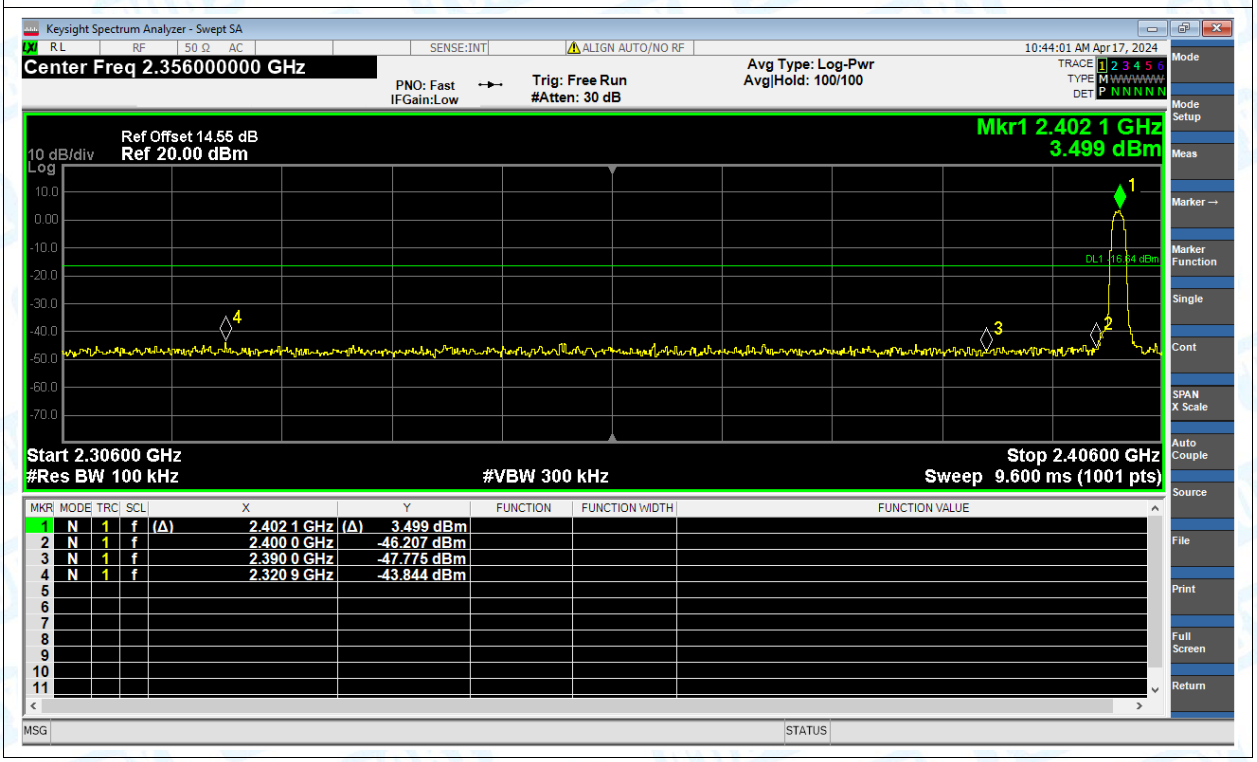
Band Edge NVNT 1-DH1 2480MHz Ant1 No-Hopping Emission



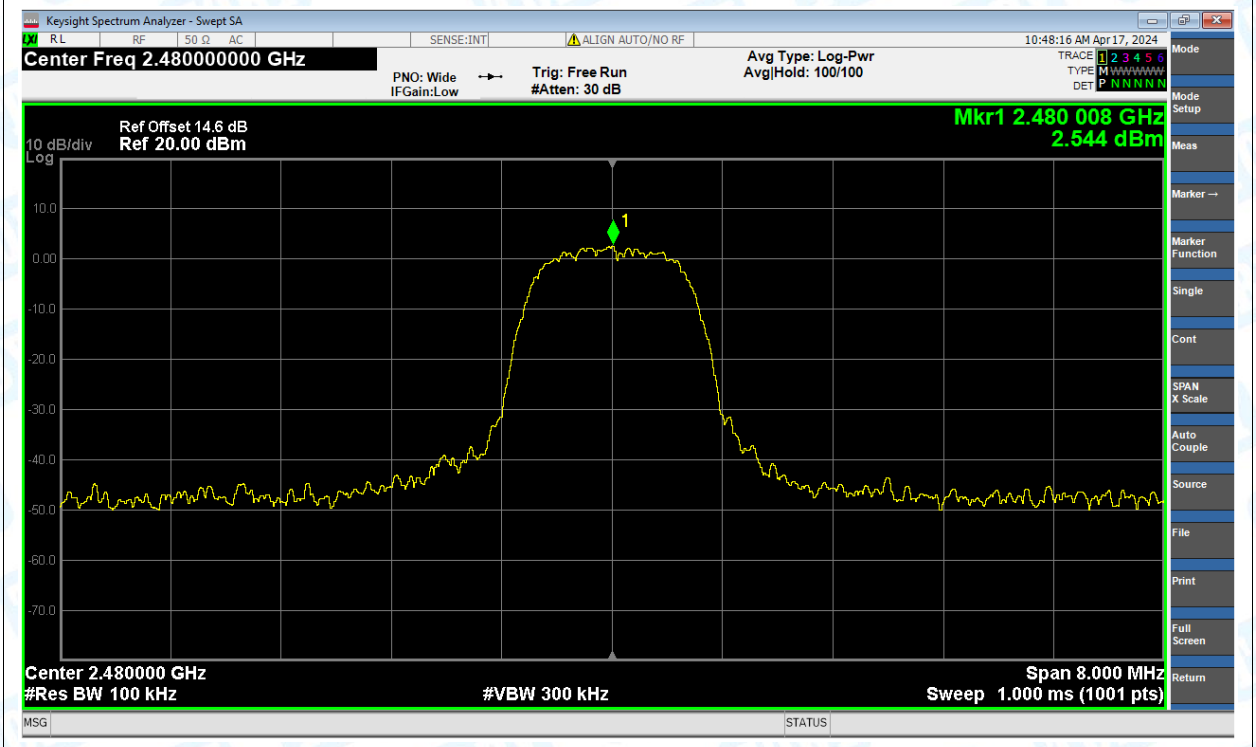
Band Edge NVNT 2-DH1 2402MHz Ant1 No-Hopping Ref



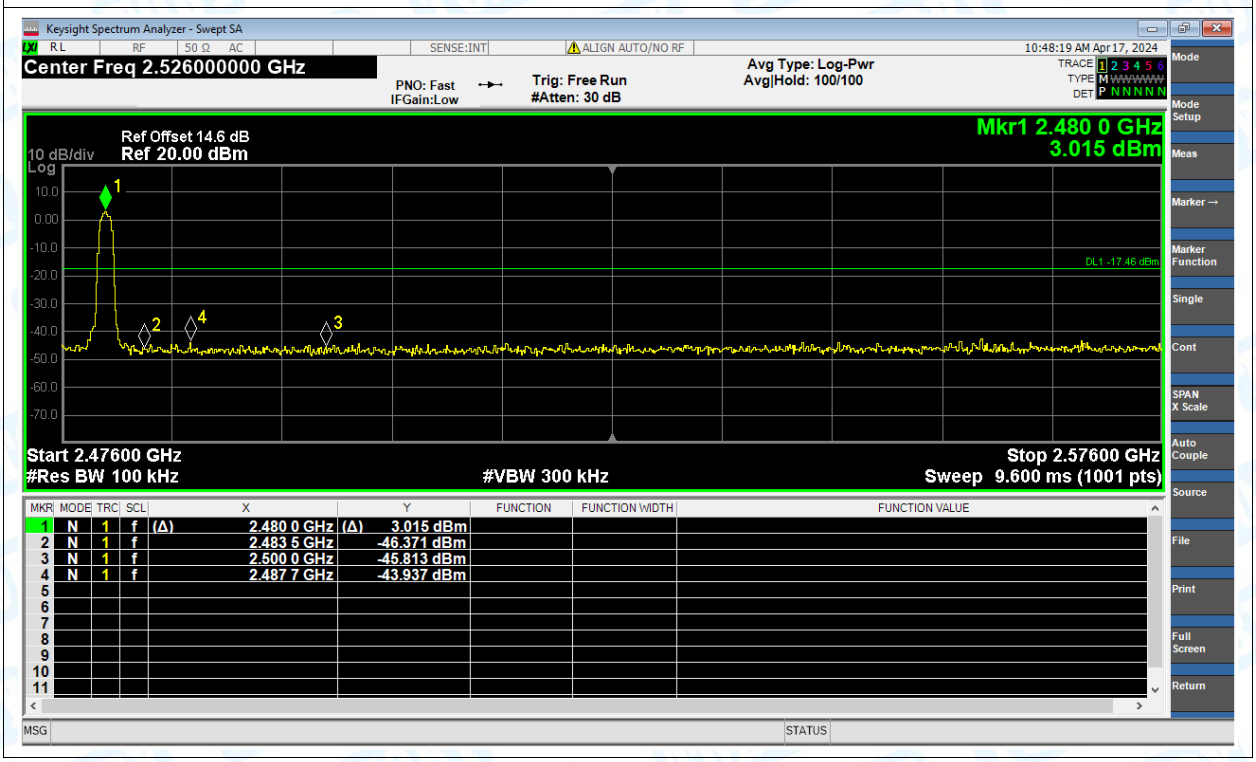
Band Edge NVNT 2-DH1 2402MHz Ant1 No-Hopping Emission



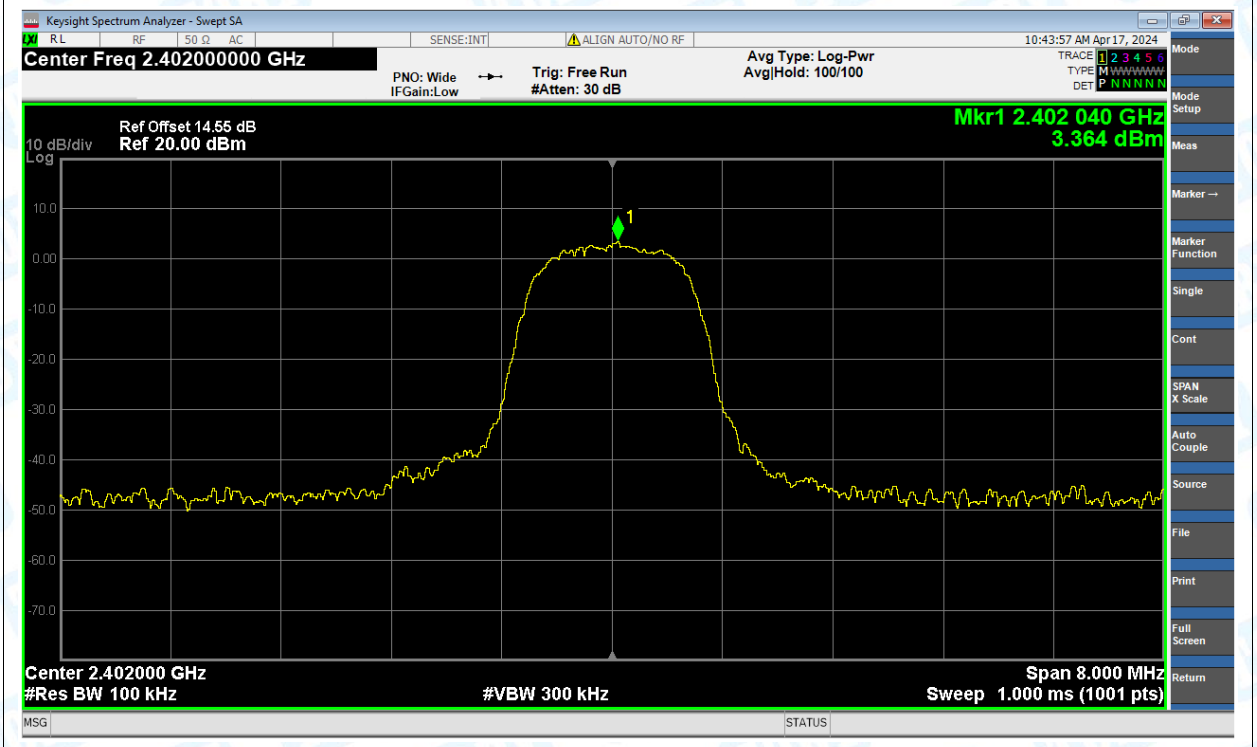
Band Edge NVNT 2-DH1 2480MHz Ant1 No-Hopping Ref



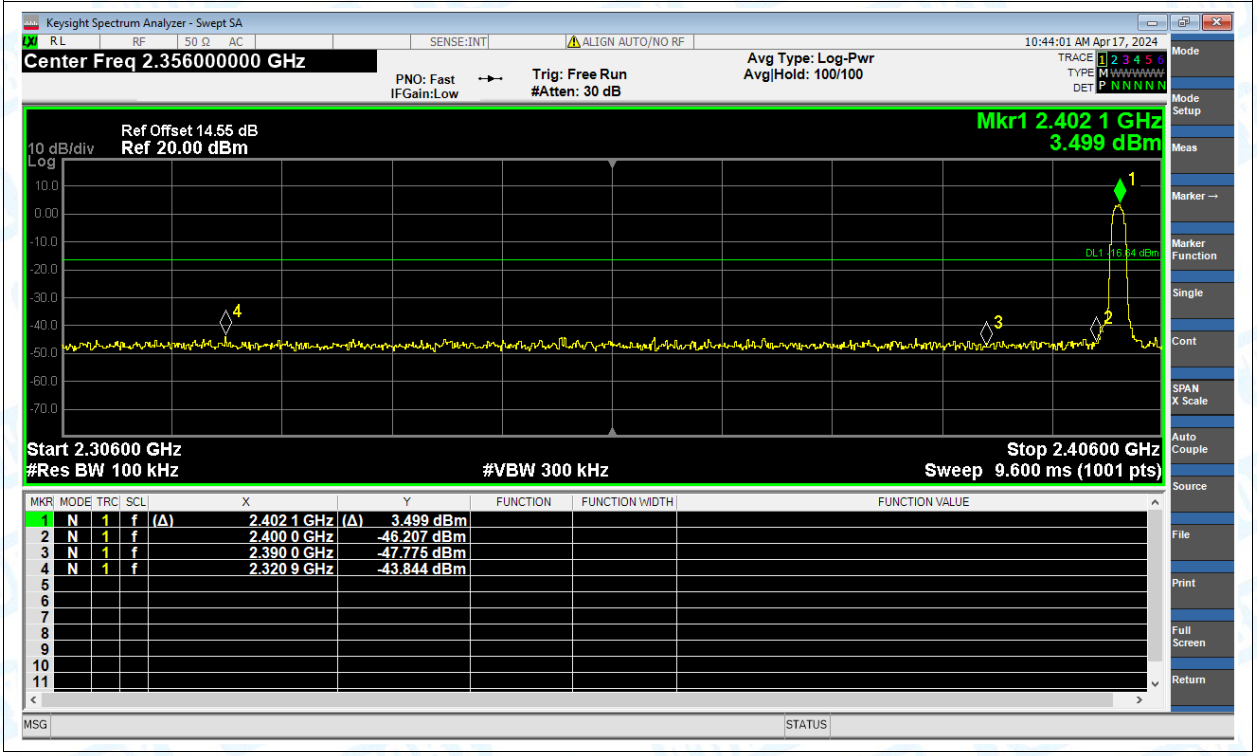
Band Edge NVNT 2-DH1 2480MHz Ant1 No-Hopping Emission



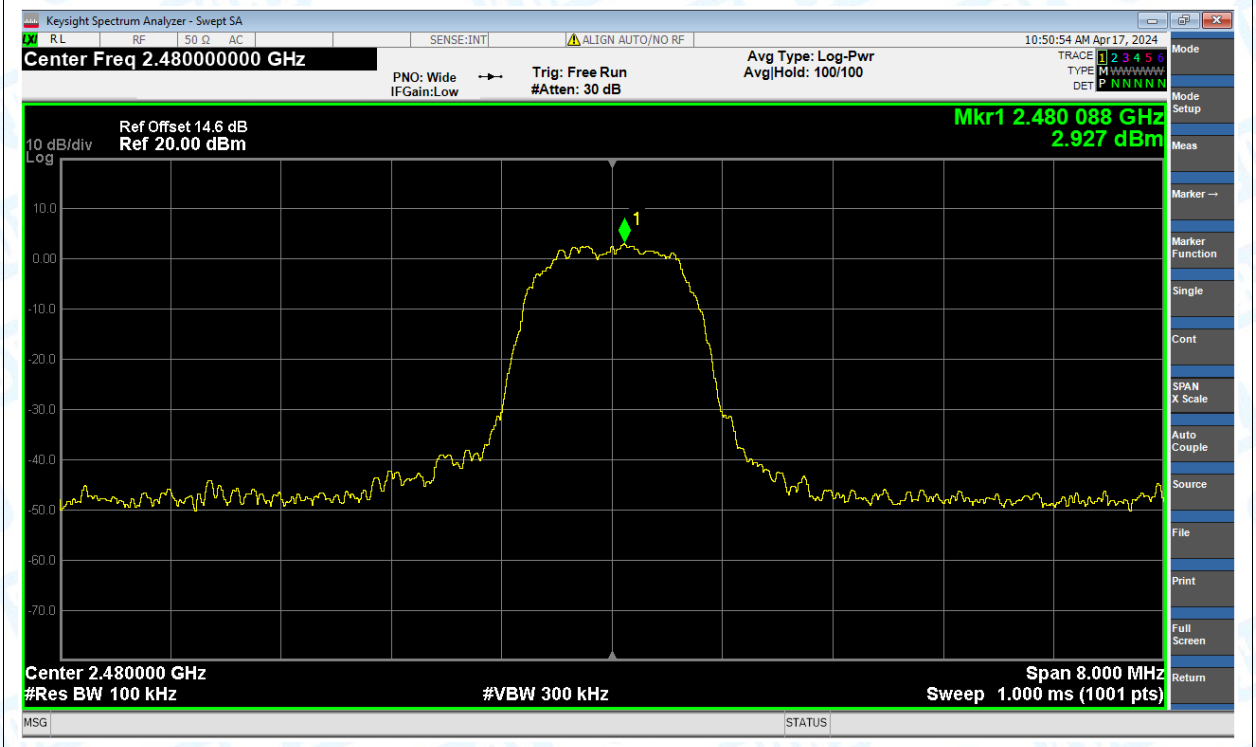
Band Edge NVNT 3-DH1 2402MHz Ant1 No-Hopping Ref



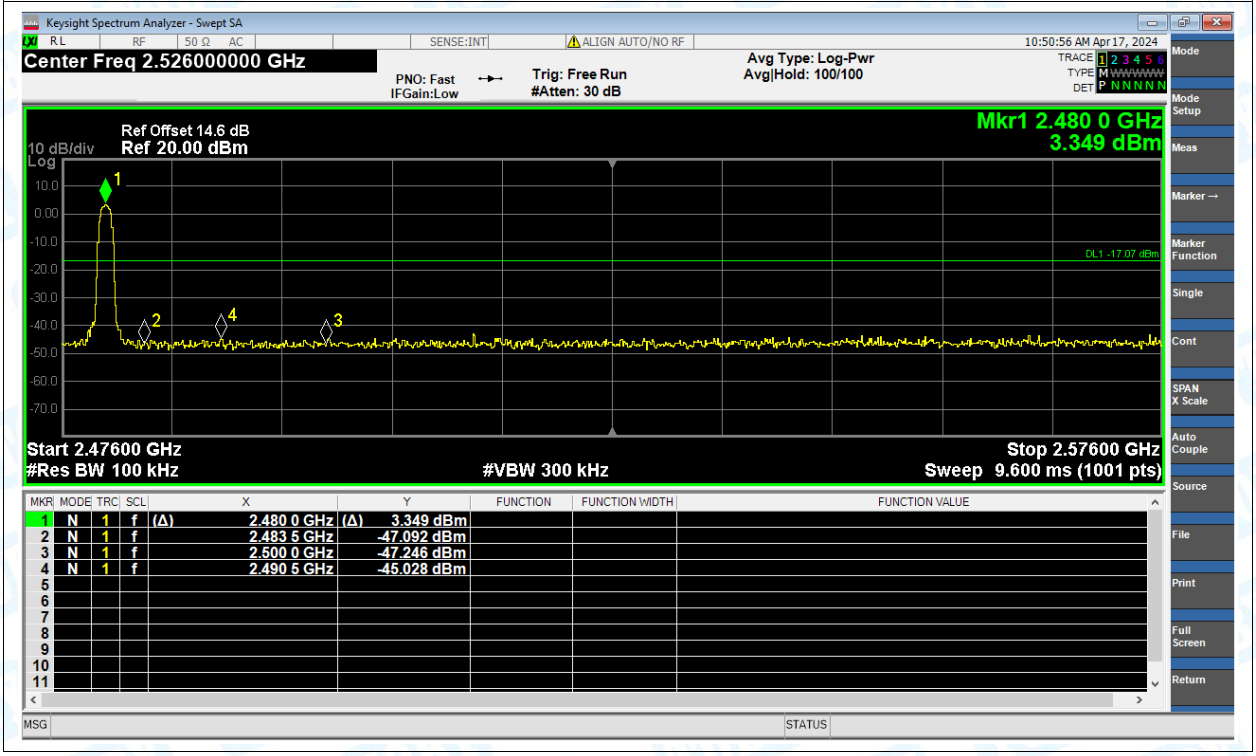
Band Edge NVNT 3-DH1 2402MHz Ant1 No-Hopping Emission



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



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

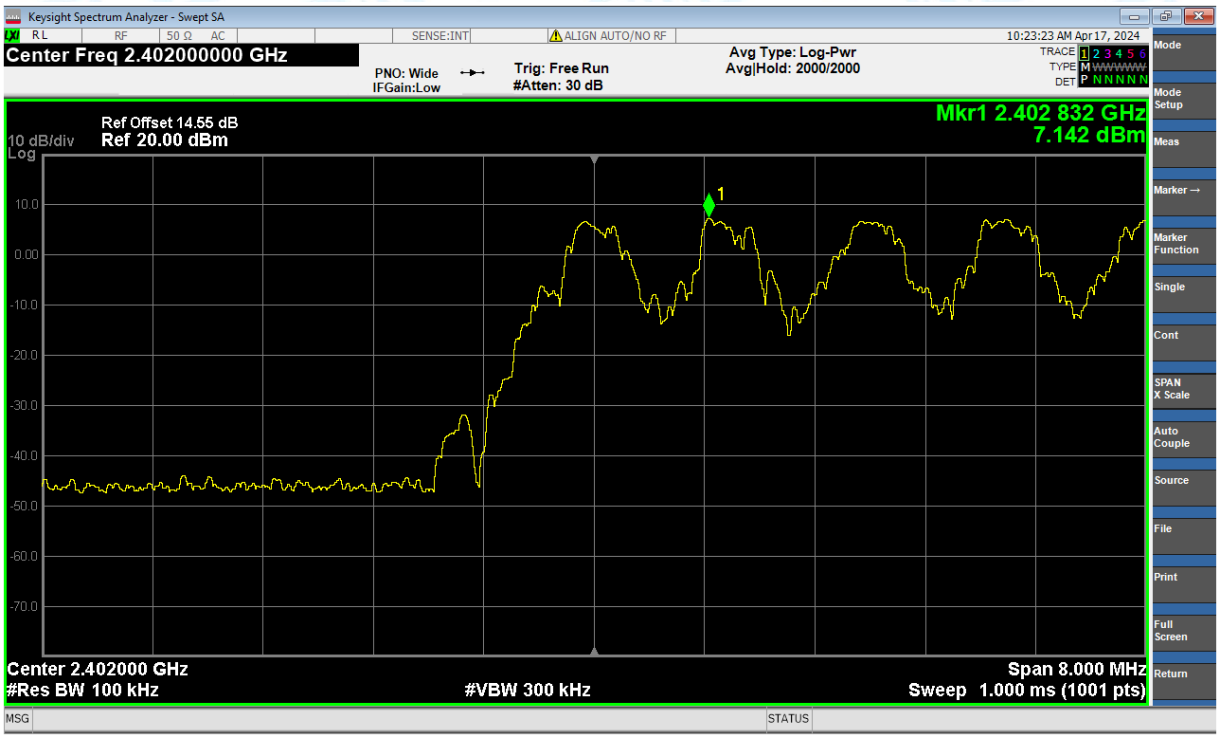


6. Band Edge(Hopping)

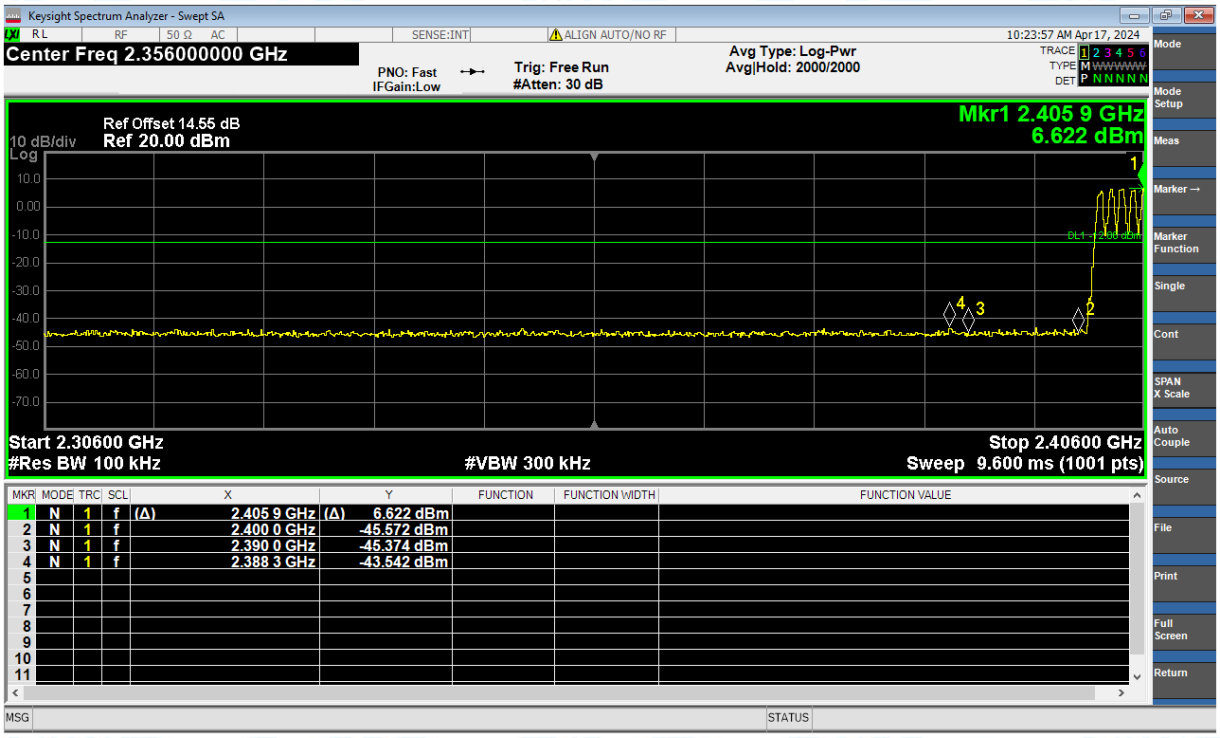
Condition	Mode	Frequency (MHz)	Antenna	Hopping Mode	Max Value (dBc)	Limit (dBc)	Verdict
NVNT	1-DH1	2402	Ant1	Hopping	-50.68	-20	Pass
NVNT	1-DH1	2480	Ant1	Hopping	-49.96	-20	Pass
NVNT	2-DH1	2402	Ant1	Hopping	-49.38	-20	Pass
NVNT	2-DH1	2480	Ant1	Hopping	-48.25	-20	Pass
NVNT	3-DH1	2402	Ant1	Hopping	-49.48	-20	Pass
NVNT	3-DH1	2480	Ant1	Hopping	-49.36	-20	Pass

Test Graphs

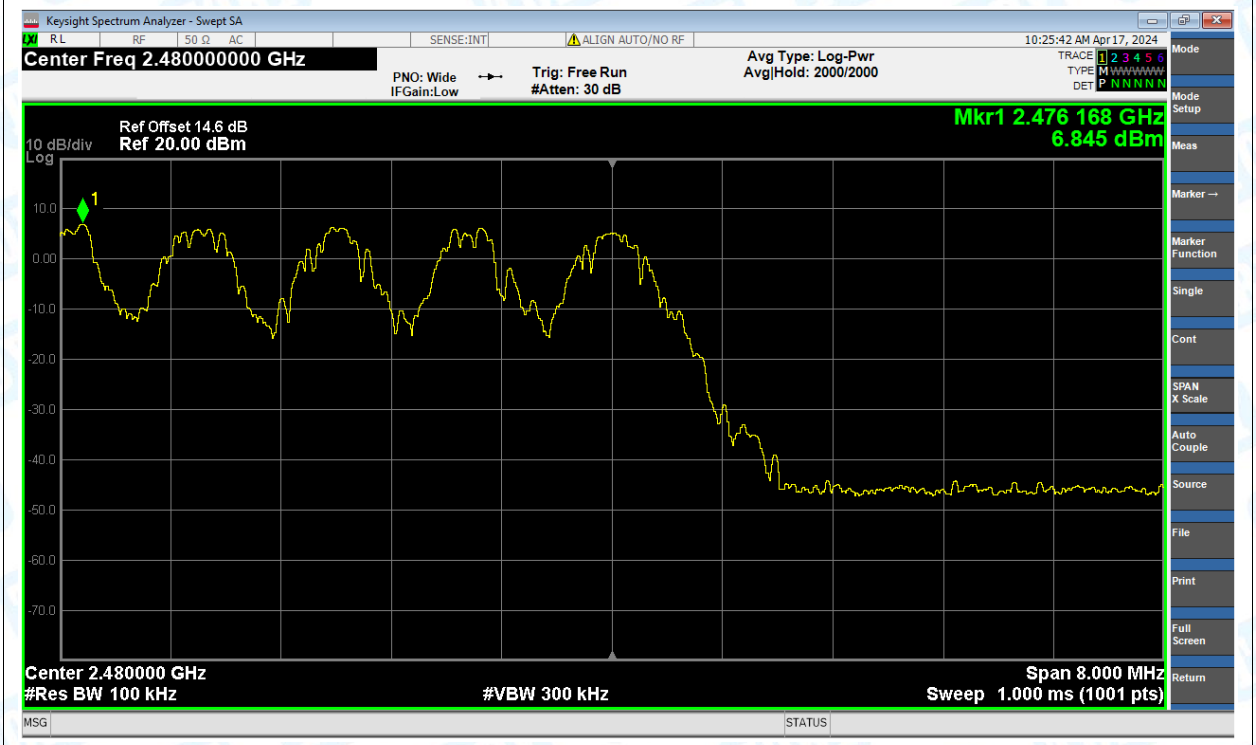
Band Edge(Hopping) NVNT 1-DH1 2402MHz Ant1 Hopping Ref



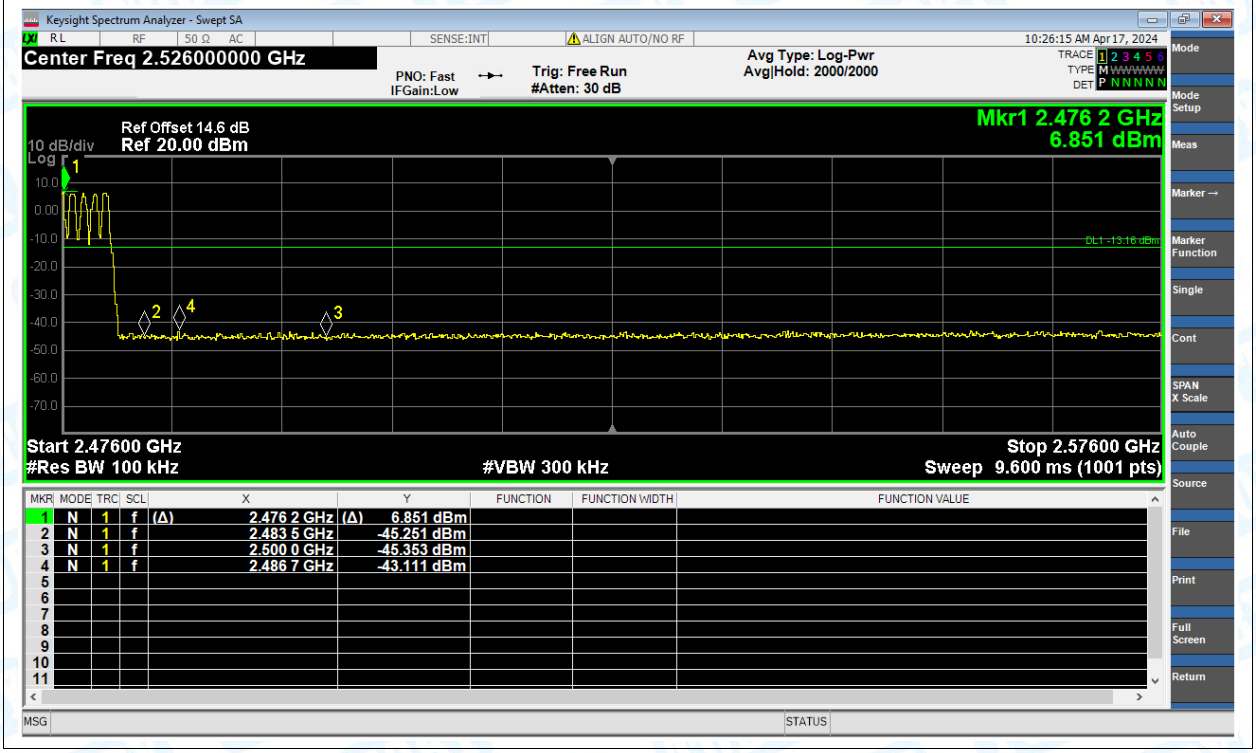
Band Edge(Hopping) NVNT 1-DH1 2402MHz Ant1 Hopping Emission



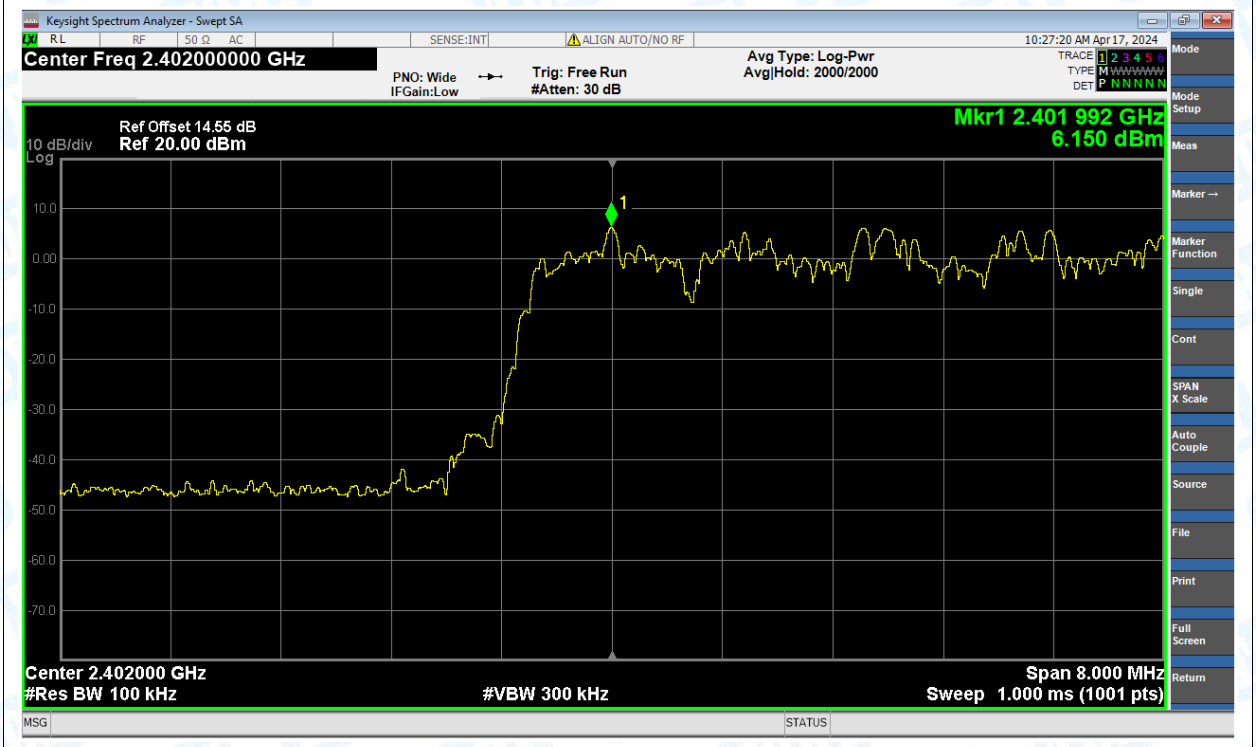
Band Edge(Hopping) NVNT 1-DH1 2480MHz Ant1 Hopping Ref



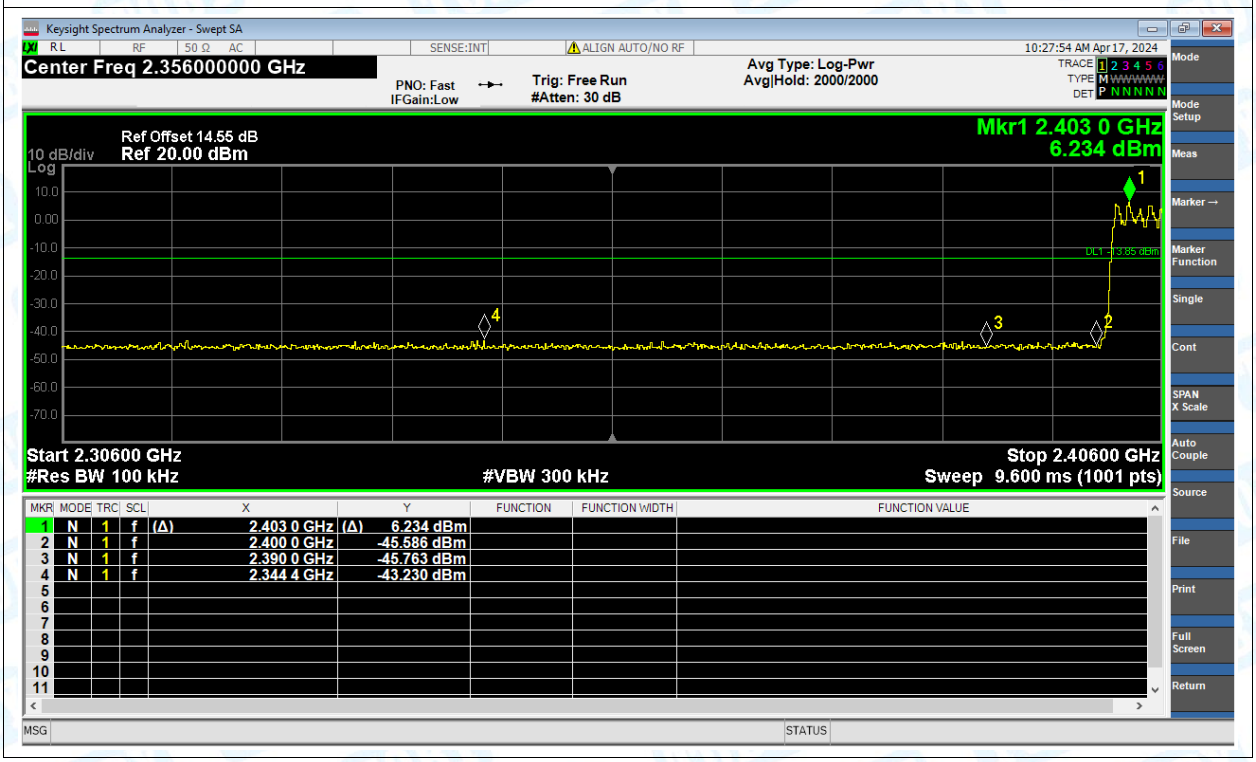
Band Edge(Hopping) NVNT 1-DH1 2480MHz Ant1 Hopping Emission



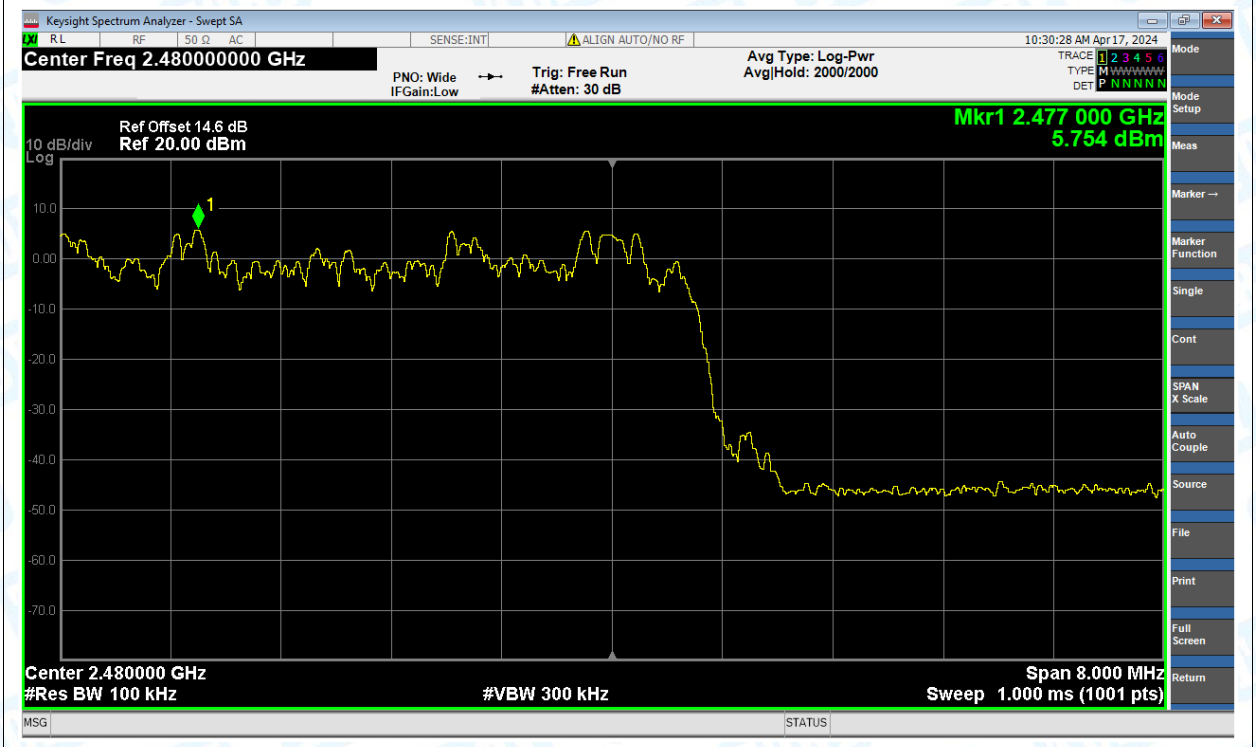
Band Edge(Hopping) NVNT 2-DH1 2402MHz Ant1 Hopping Ref



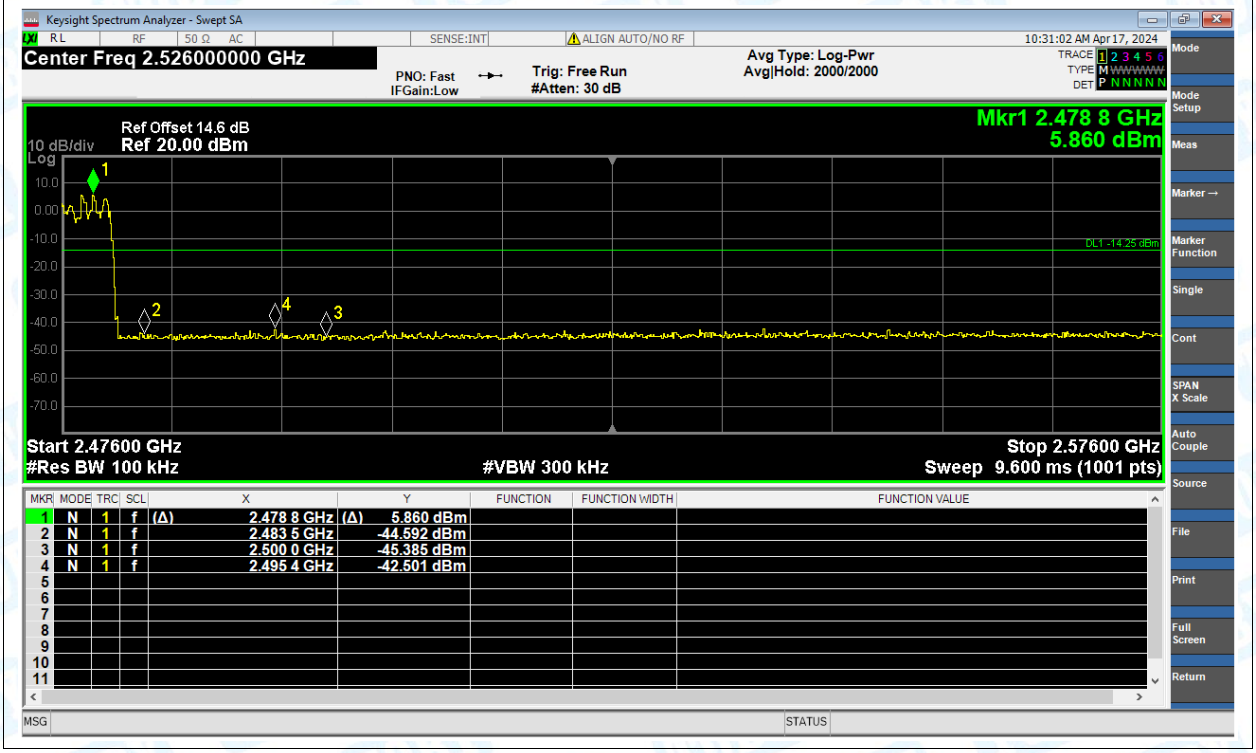
Band Edge(Hopping) NVNT 2-DH1 2402MHz Ant1 Hopping Emission



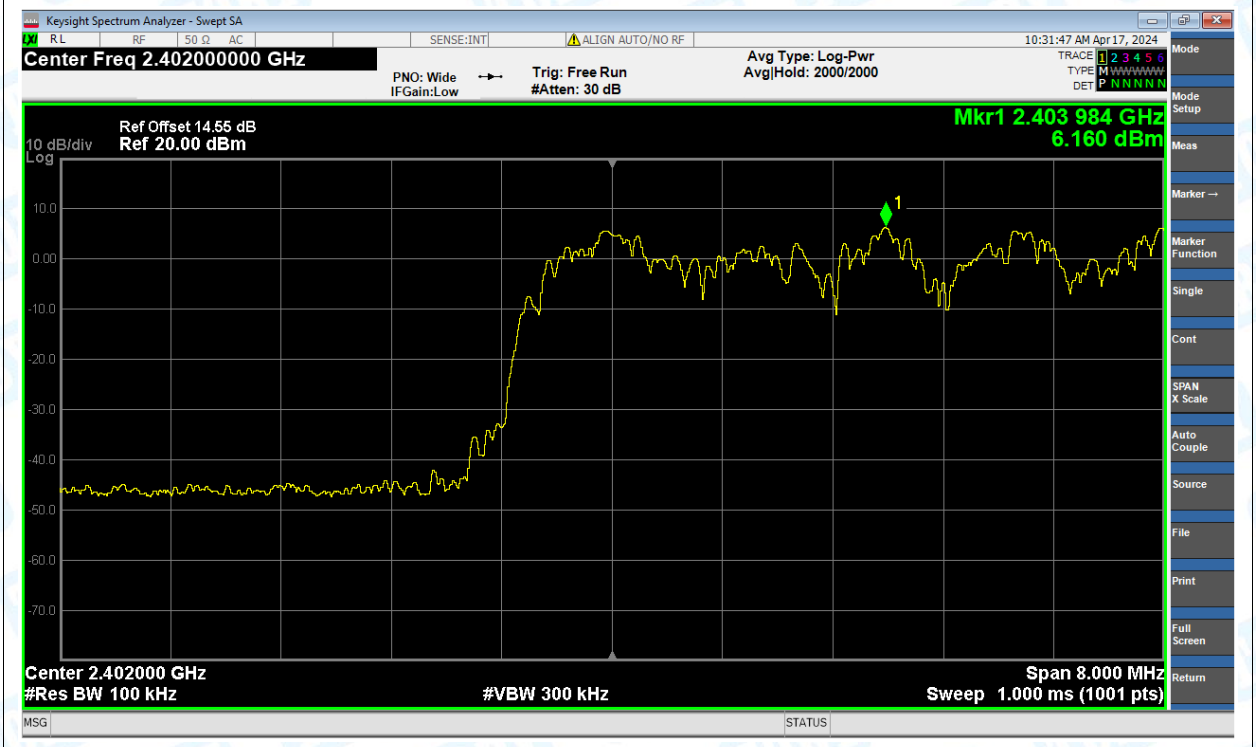
Band Edge(Hopping) NVNT 2-DH1 2480MHz Ant1 Hopping Ref



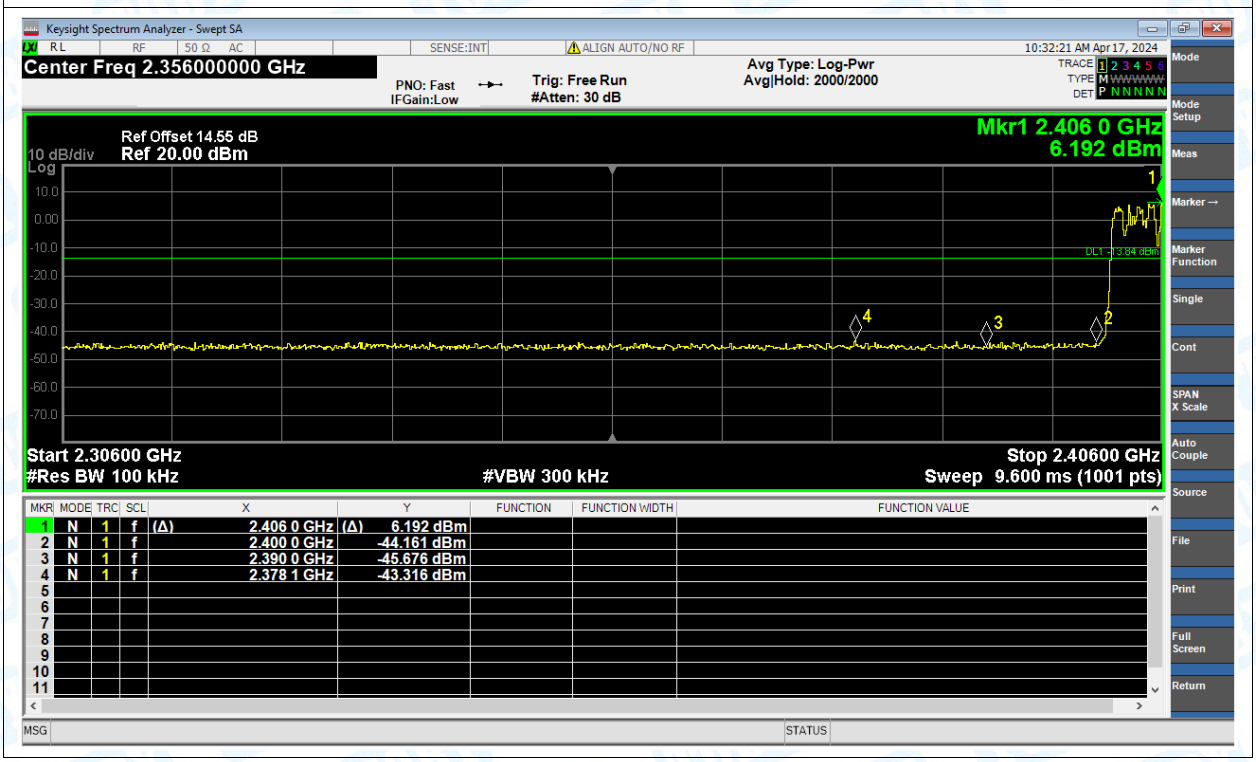
Band Edge(Hopping) NVNT 2-DH1 2480MHz Ant1 Hopping Emission



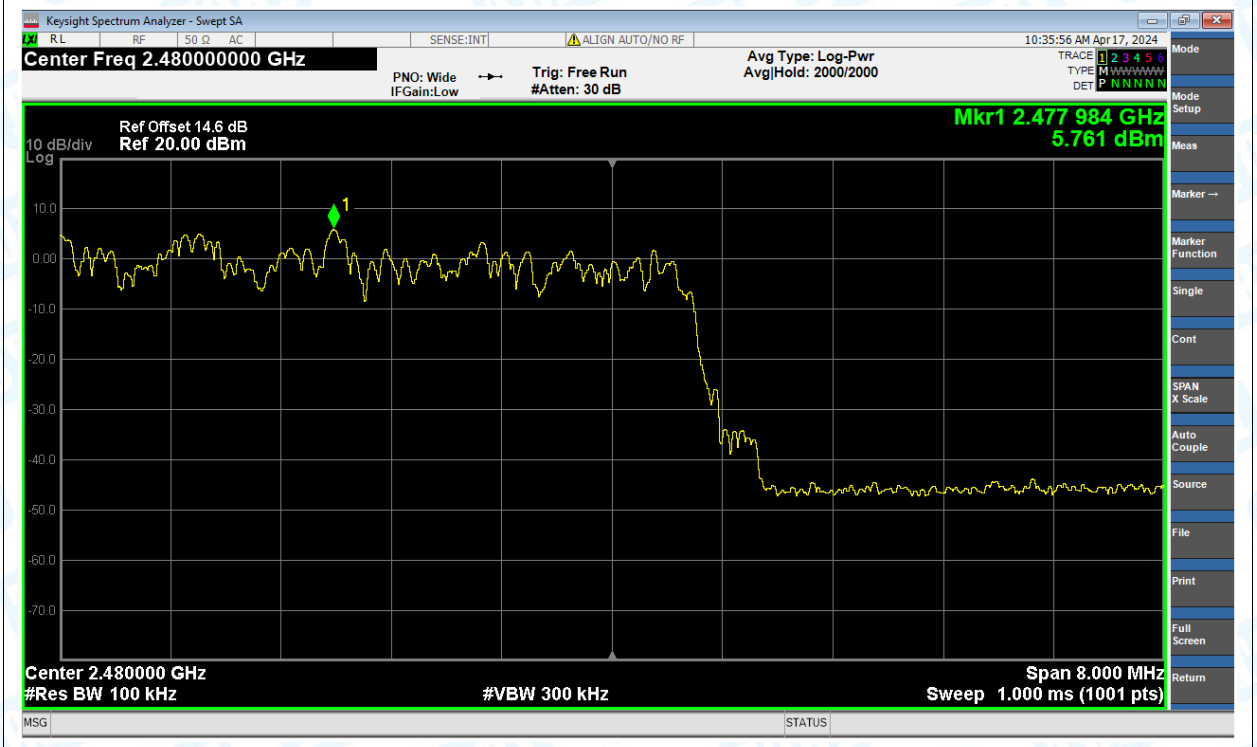
Band Edge(Hopping) NVNT 3-DH1 2402MHz Ant1 Hopping Ref



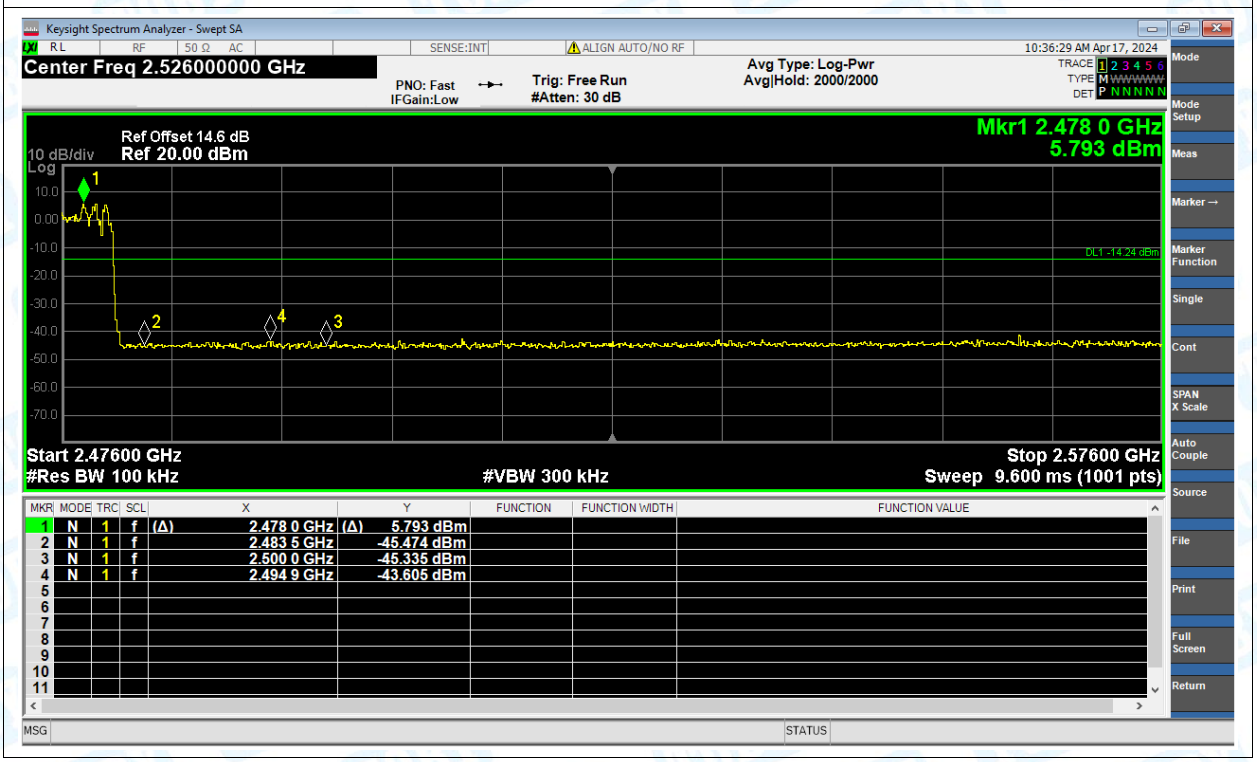
Band Edge(Hopping) NVNT 3-DH1 2402MHz Ant1 Hopping Emission



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



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

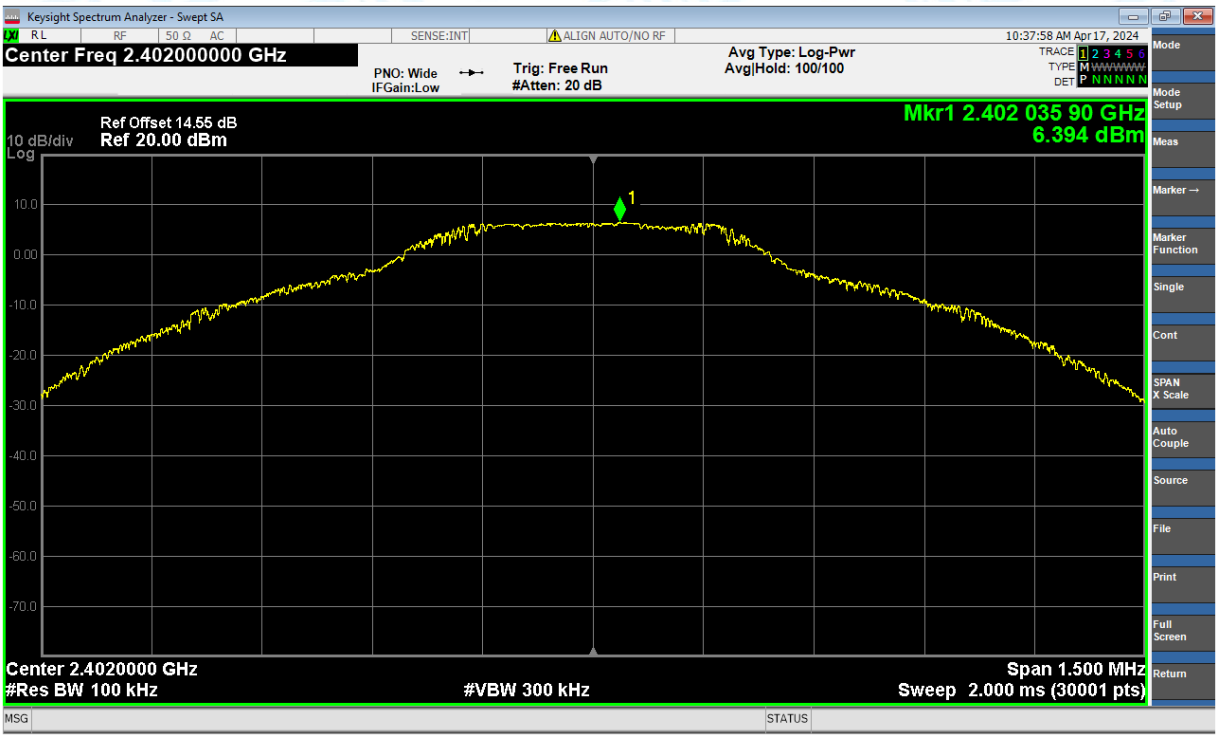


7. Conducted RF Spurious Emission

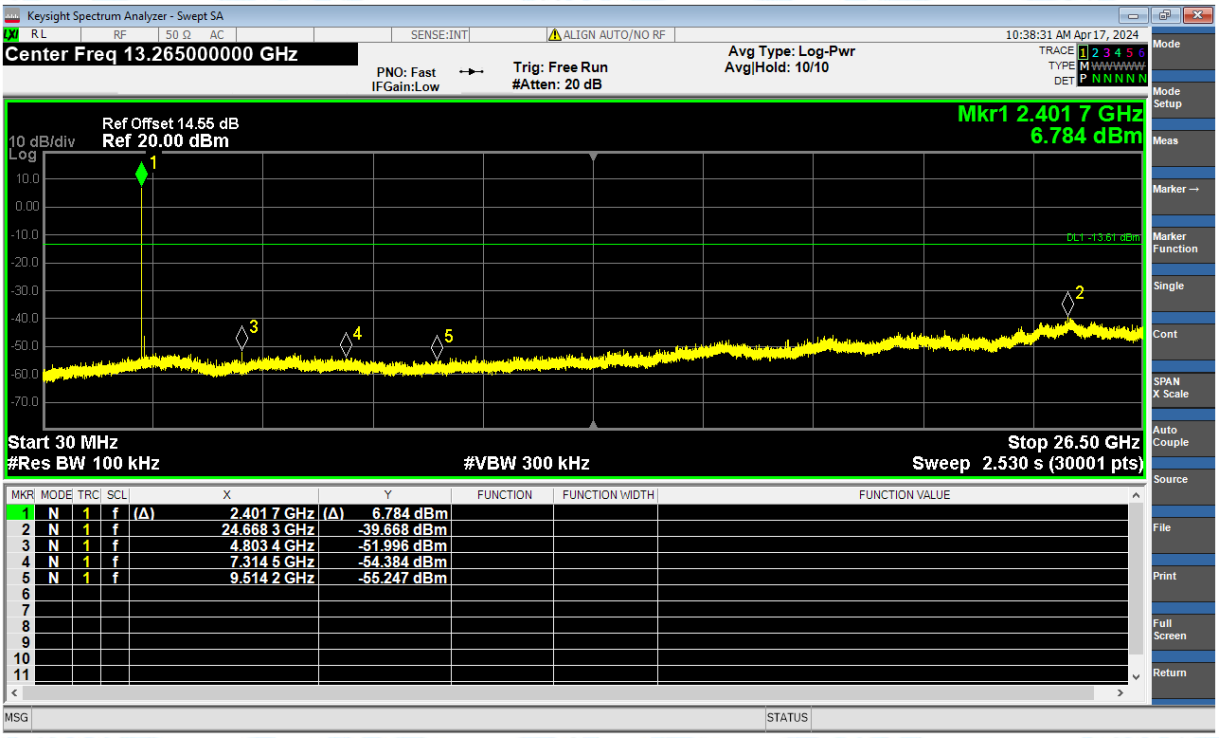
Condition	Mode	Frequency (MHz)	Antenna	Max Value (dBc)	Limit (dBc)	Verdict
NVNT	1-DH1	2402	Ant1	-46.06	-20	Pass
NVNT	1-DH1	2441	Ant1	-45.24	-20	Pass
NVNT	1-DH1	2480	Ant1	-45.46	-20	Pass
NVNT	2-DH1	2402	Ant1	-41.85	-20	Pass
NVNT	2-DH1	2441	Ant1	-42.34	-20	Pass
NVNT	2-DH1	2480	Ant1	-42.27	-20	Pass
NVNT	3-DH1	2402	Ant1	-42.04	-20	Pass
NVNT	3-DH1	2441	Ant1	-42.70	-20	Pass
NVNT	3-DH1	2480	Ant1	-42.60	-20	Pass

Test Graphs

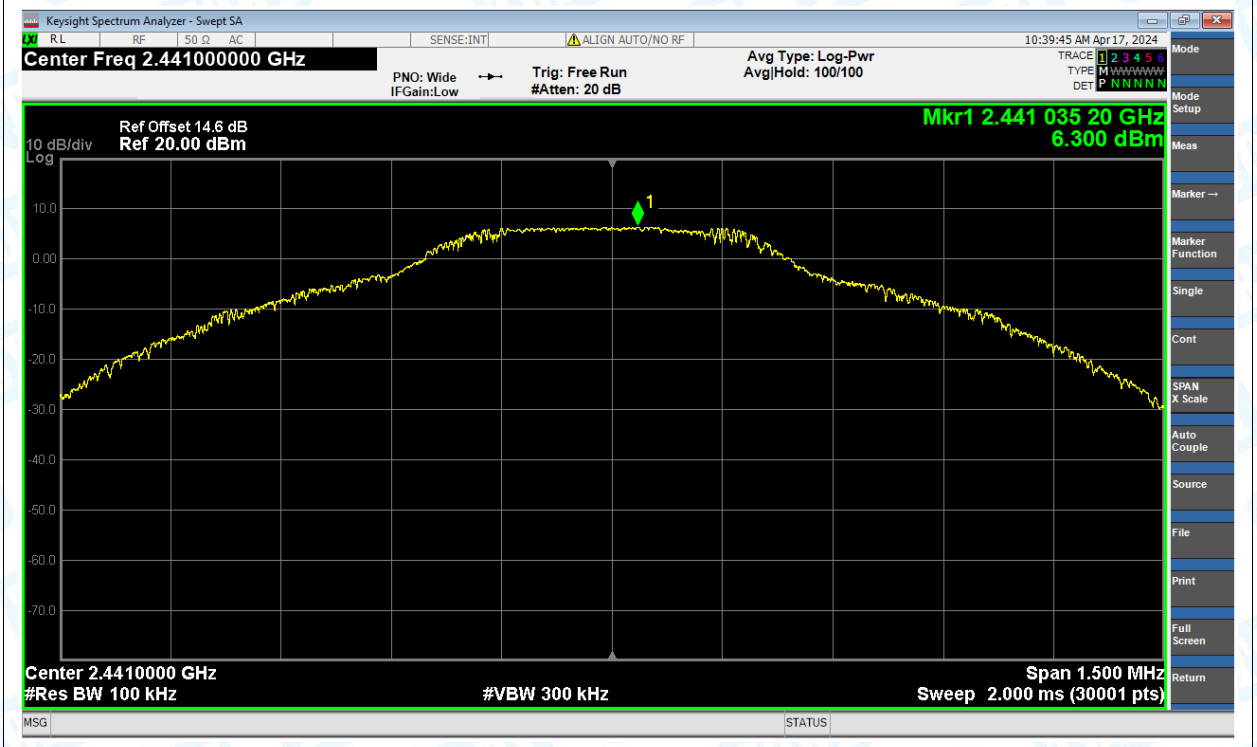
Tx. Spurious NVNT 1-DH1 2402MHz Ant1 Ref



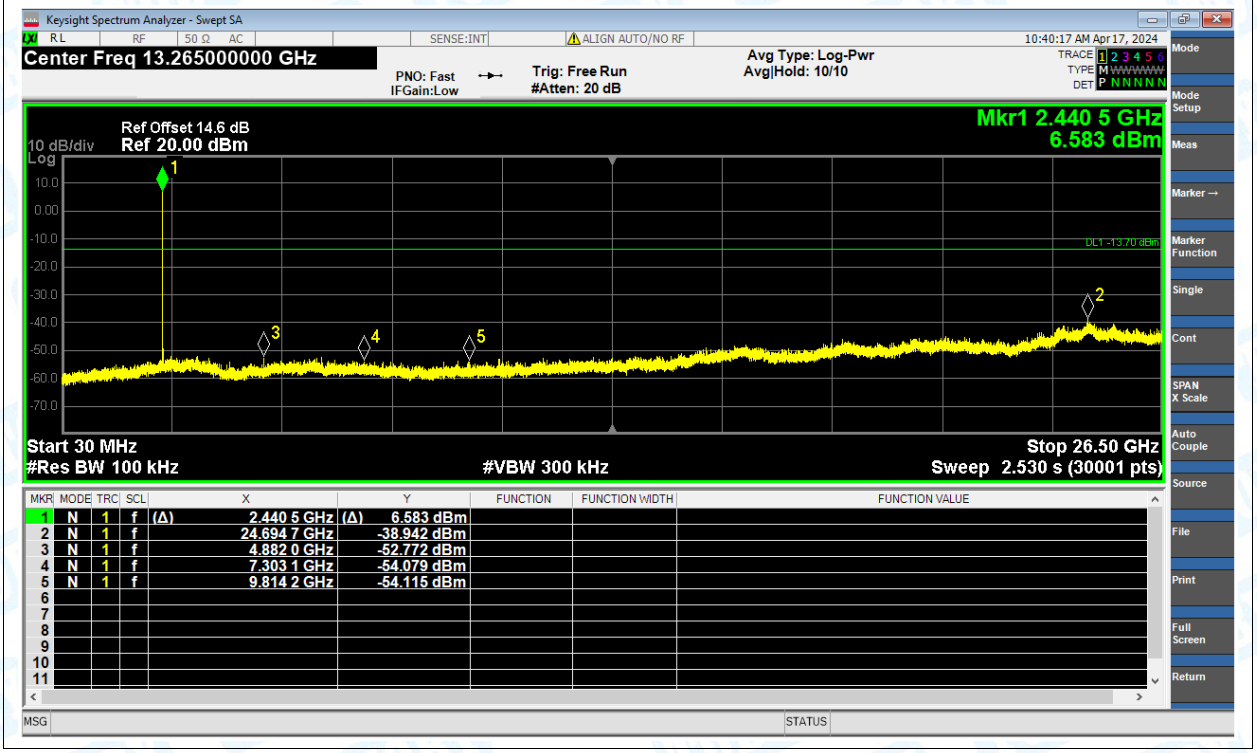
Tx. Spurious NVNT 1-DH1 2402MHz Ant1 Emission



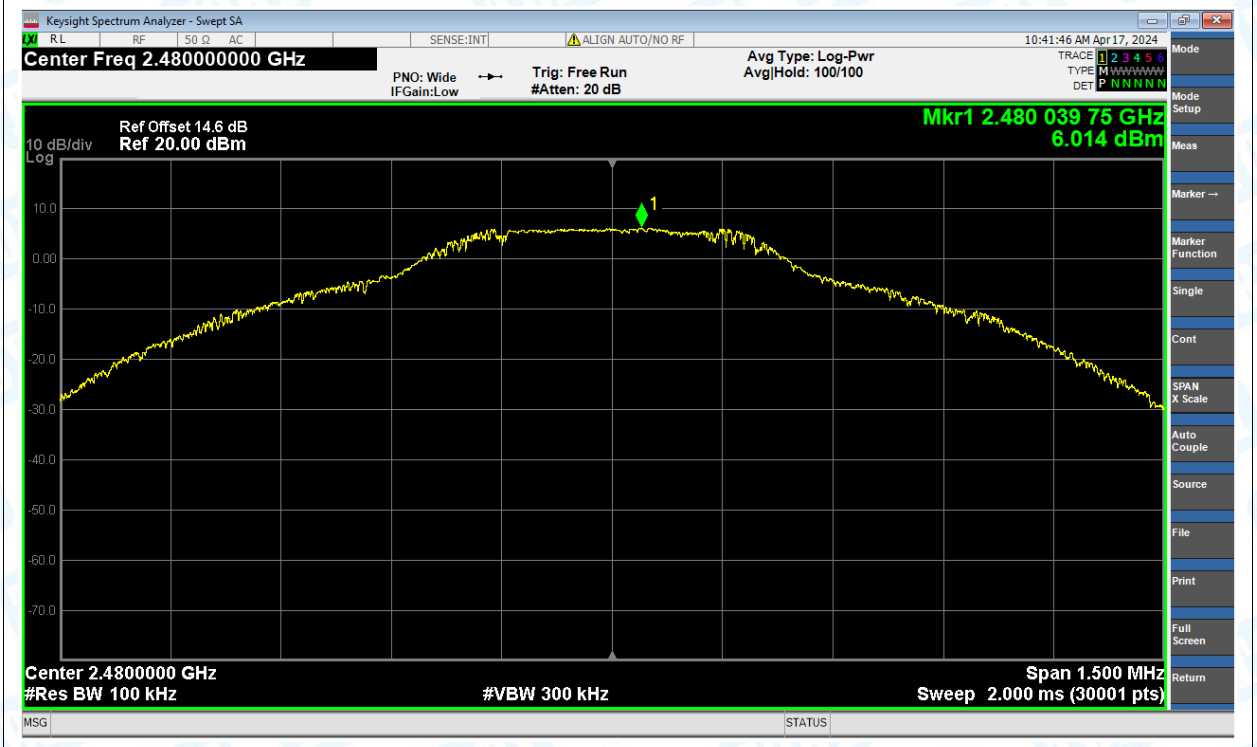
Tx. Spurious NVNT 1-DH1 2441MHz Ant1 Ref



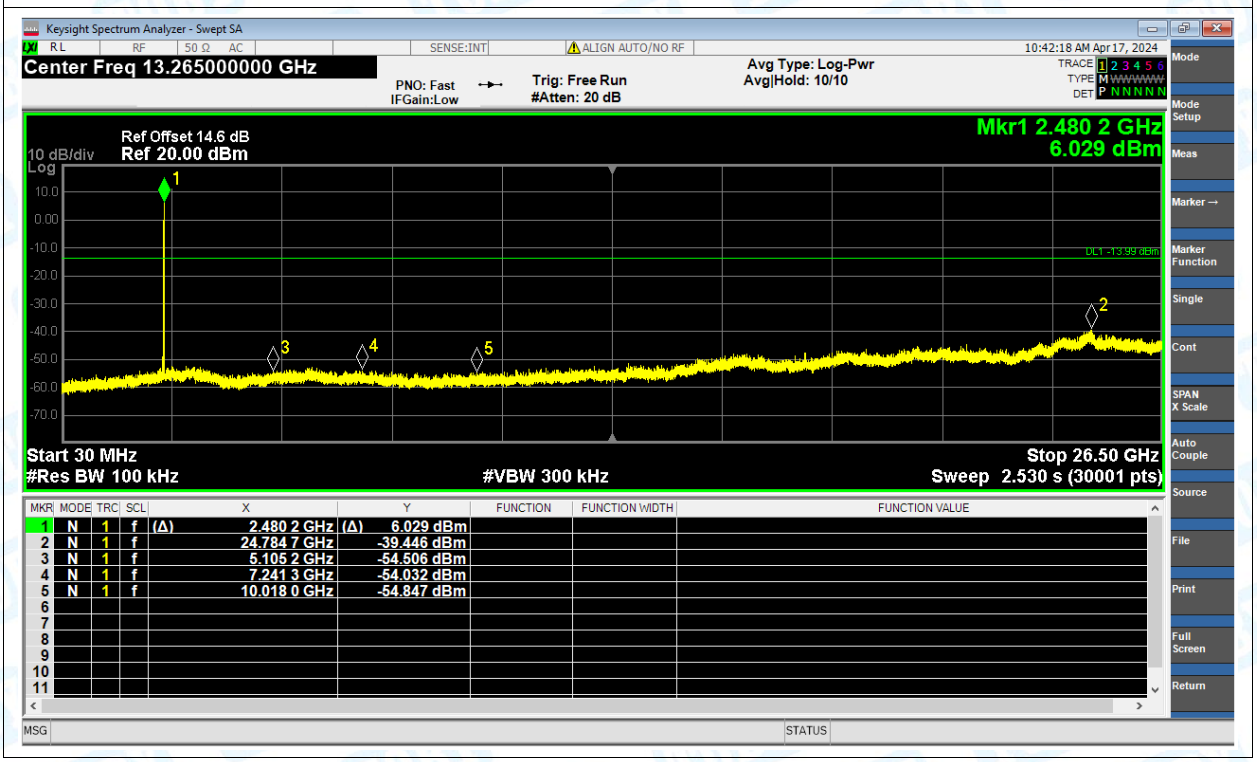
Tx. Spurious NVNT 1-DH1 2441MHz Ant1 Emission



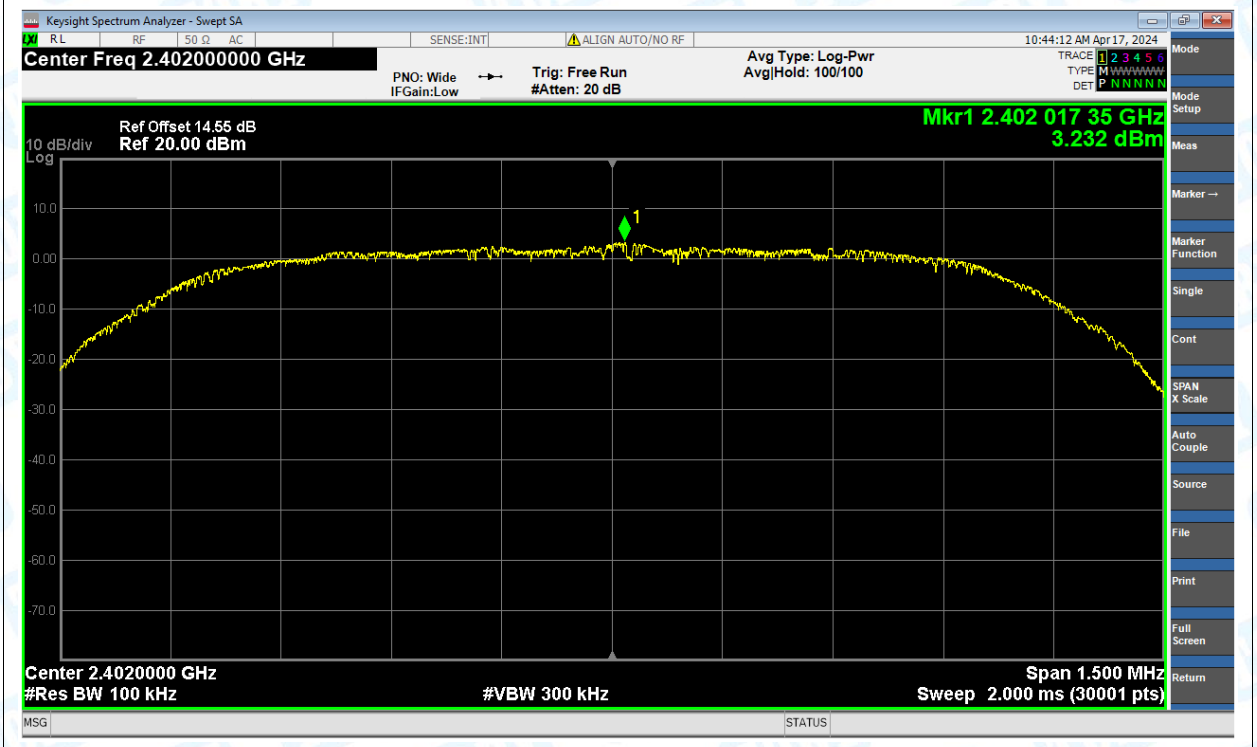
Tx. Spurious NVNT 1-DH1 2480MHz Ant1 Ref



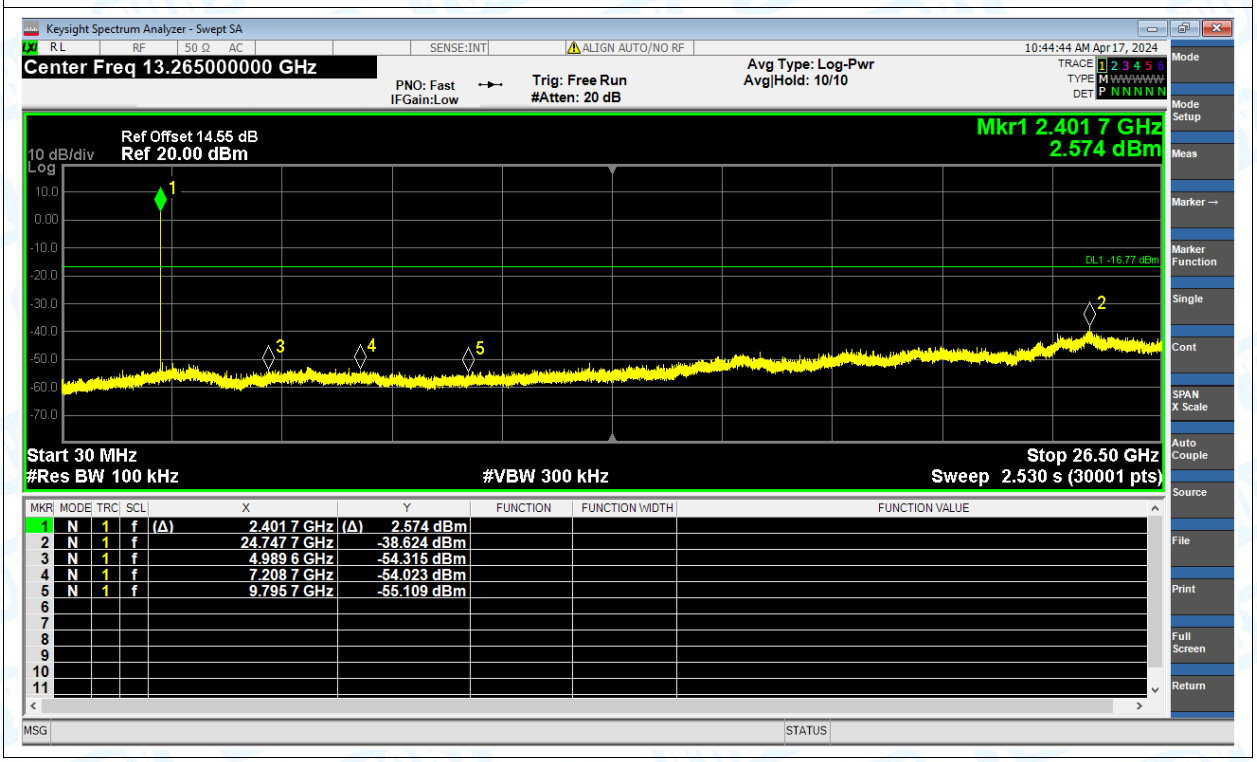
Tx. Spurious NVNT 1-DH1 2480MHz Ant1 Emission



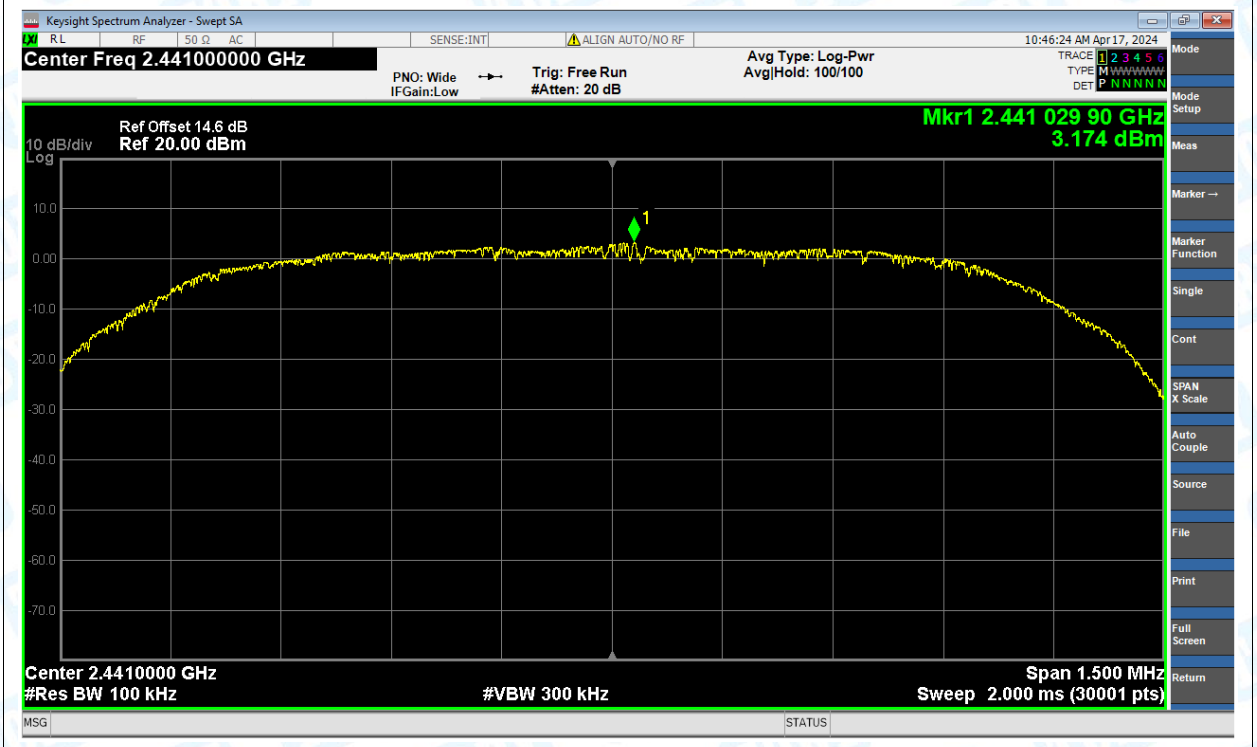
Tx. Spurious NVNT 2-DH1 2402MHz Ant1 Ref



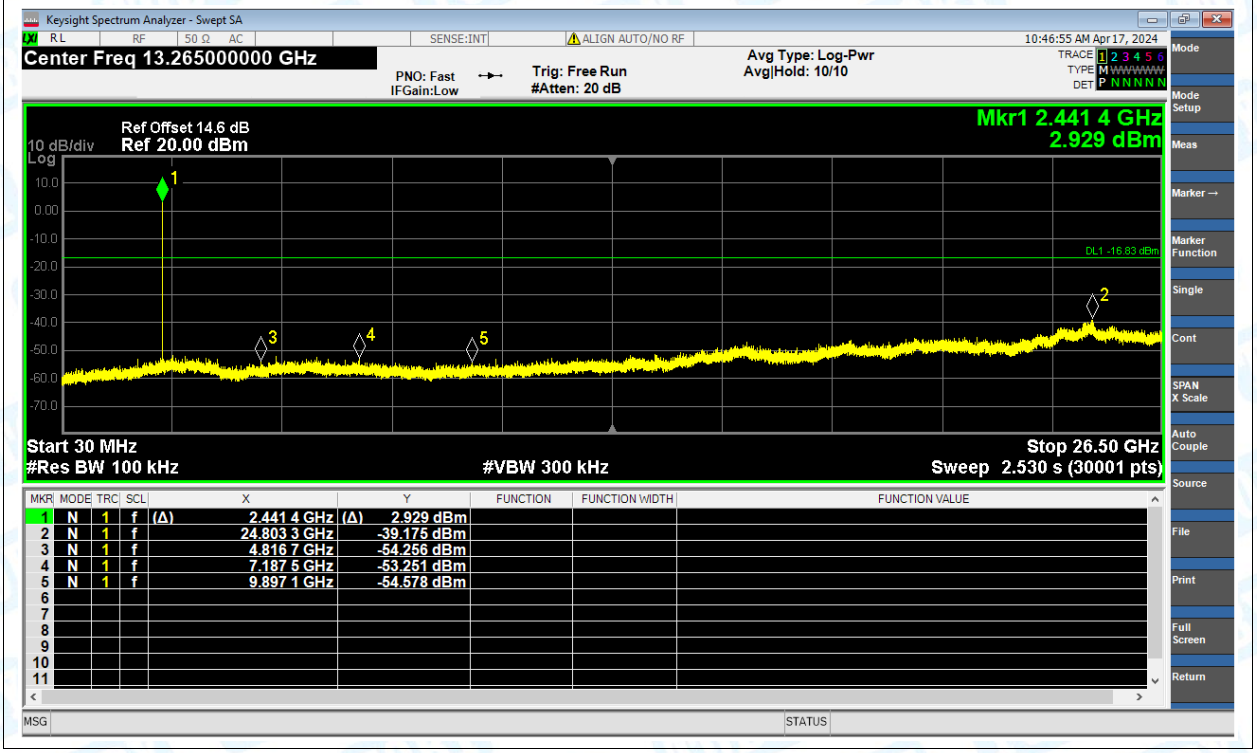
Tx. Spurious NVNT 2-DH1 2402MHz Ant1 Emission



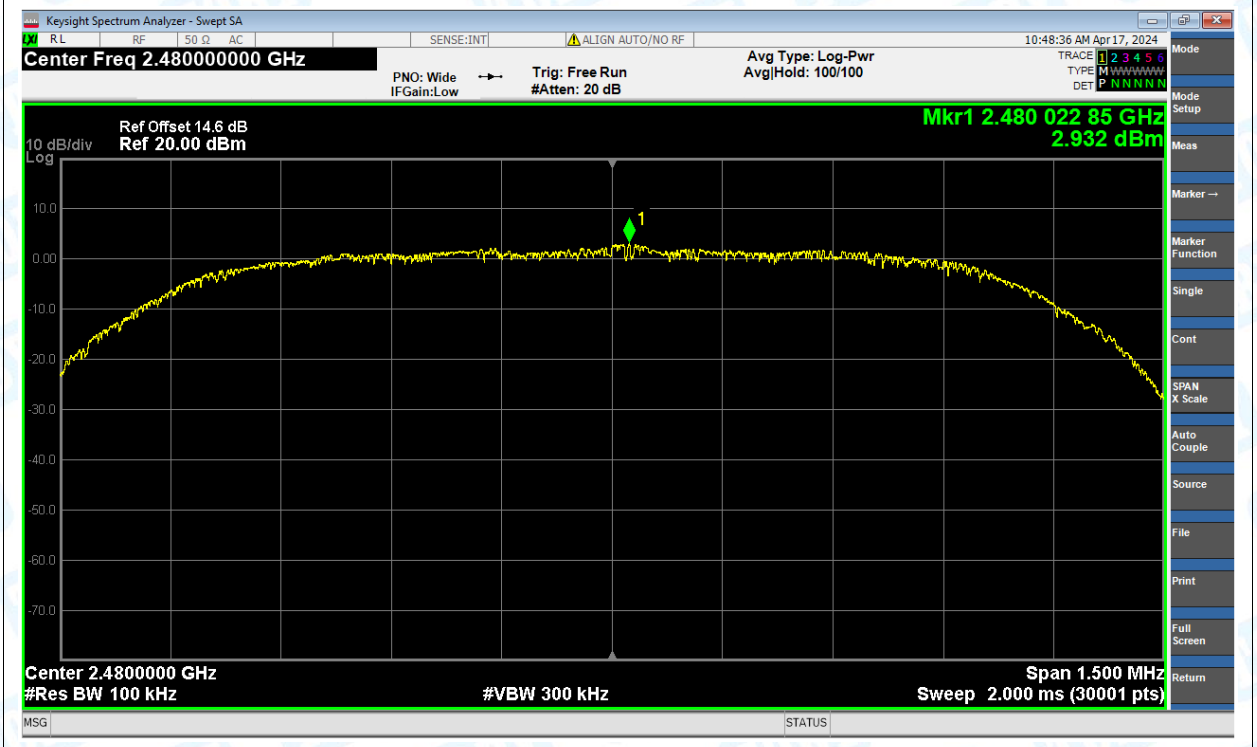
Tx. Spurious NVNT 2-DH1 2441MHz Ant1 Ref



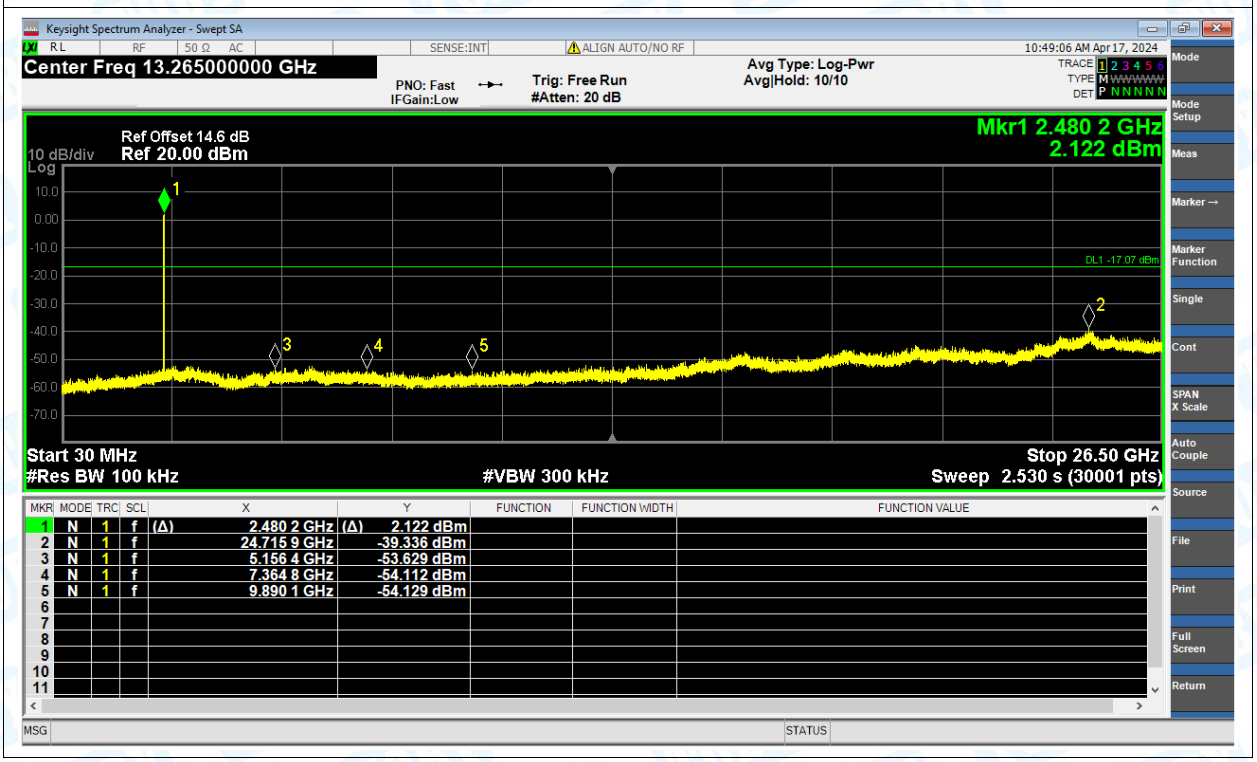
Tx. Spurious NVNT 2-DH1 2441MHz Ant1 Emission



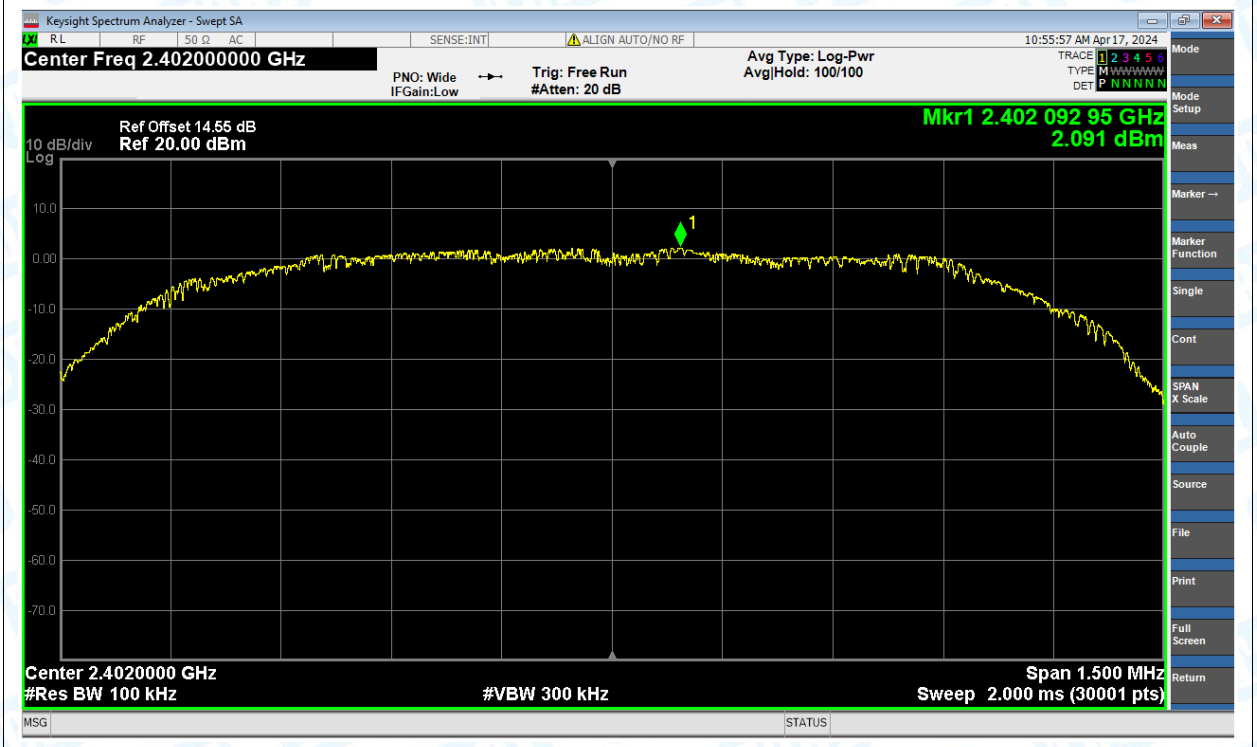
Tx. Spurious NVNT 2-DH1 2480MHz Ant1 Ref



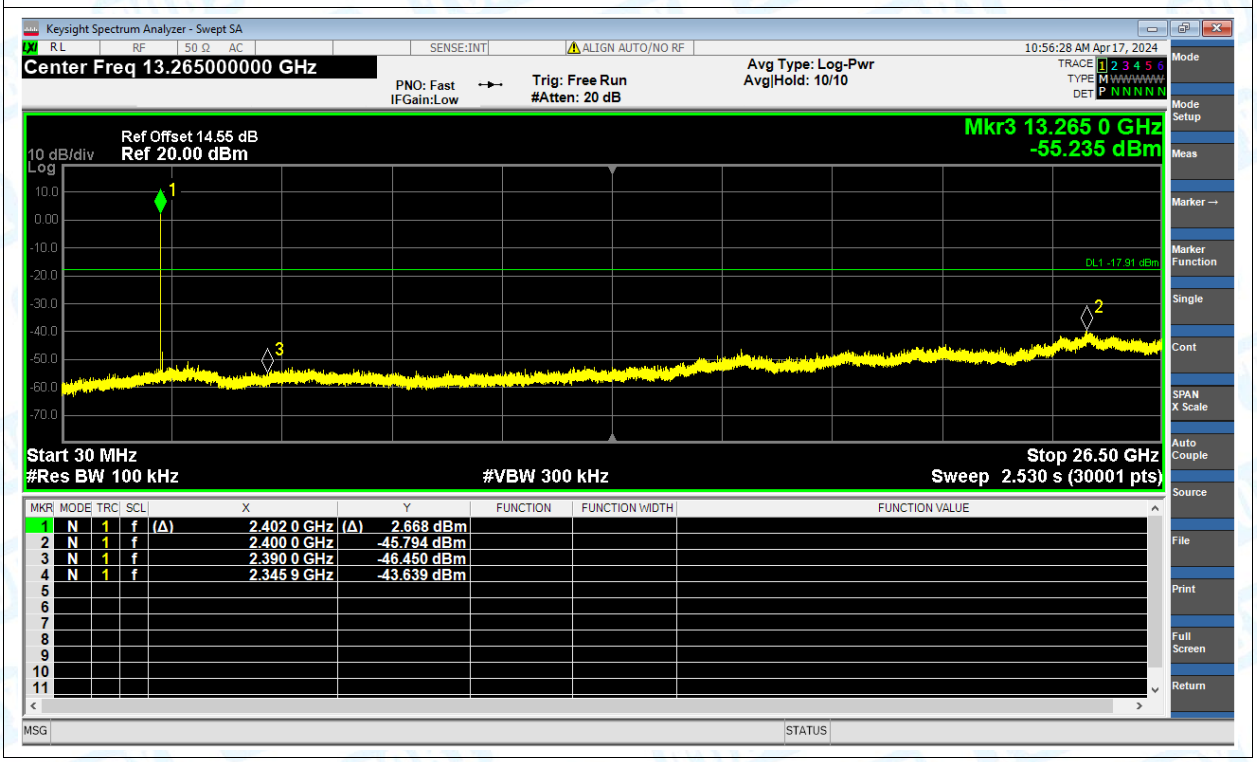
Tx. Spurious NVNT 2-DH1 2480MHz Ant1 Emission



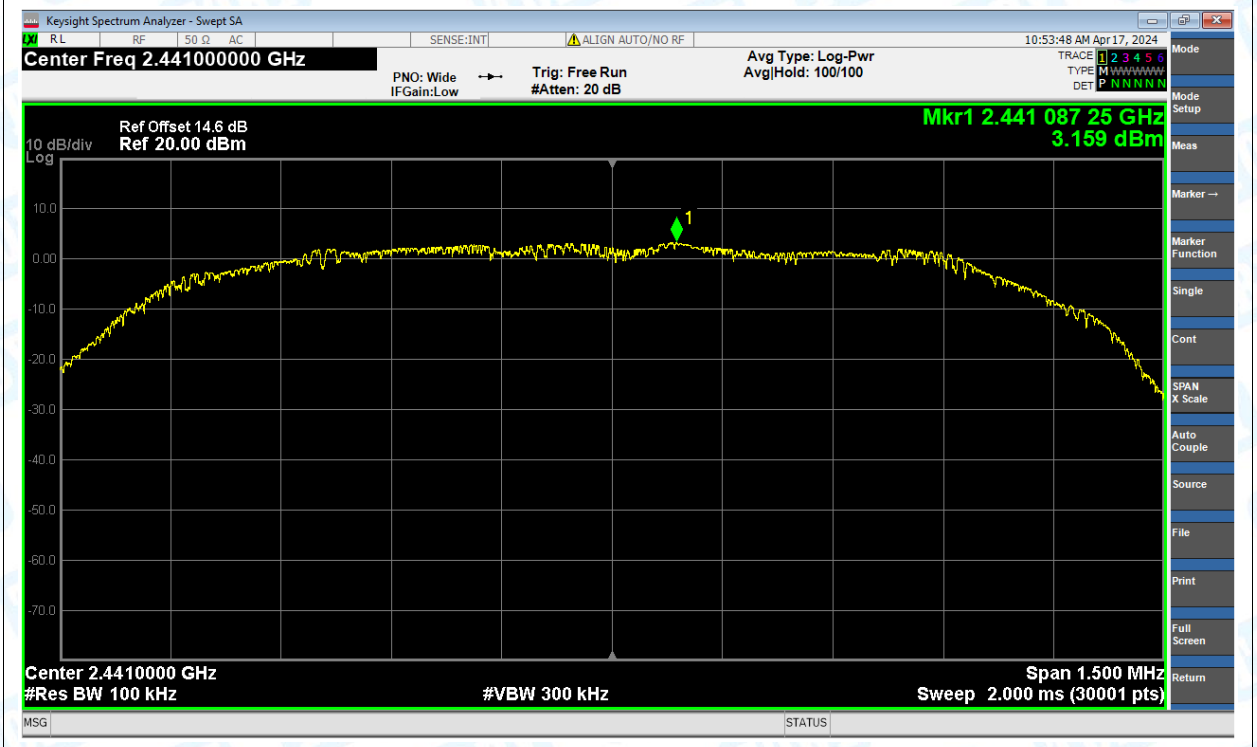
Tx. Spurious NVNT 3-DH1 2402MHz Ant1 Ref



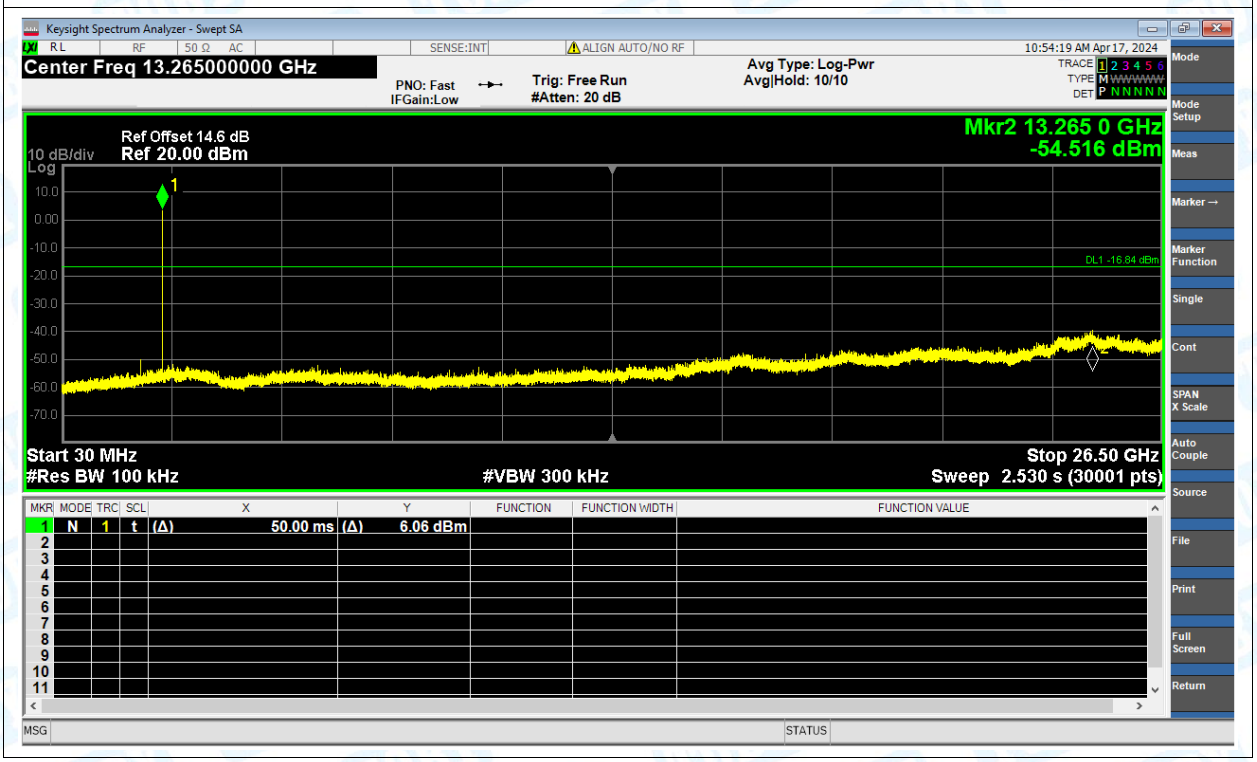
Tx. Spurious NVNT 3-DH1 2402MHz Ant1 Emission



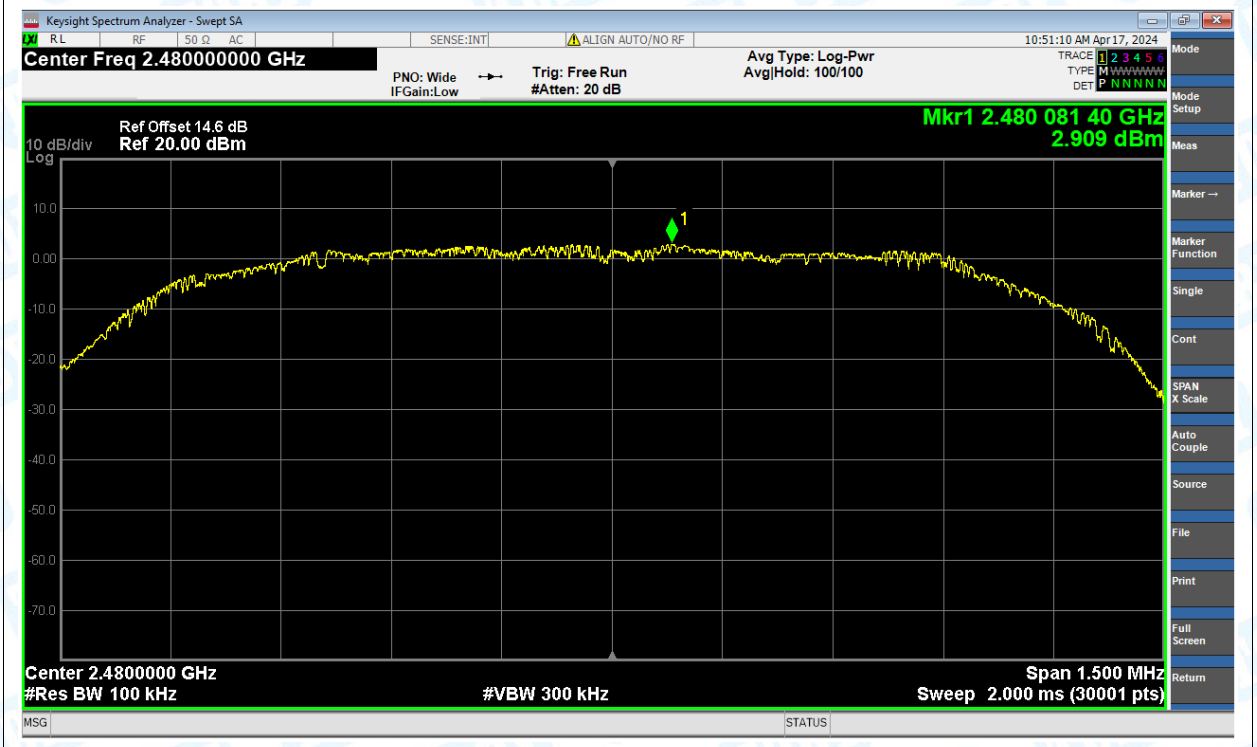
Tx. Spurious NVNT 3-DH1 2441MHz Ant1 Ref



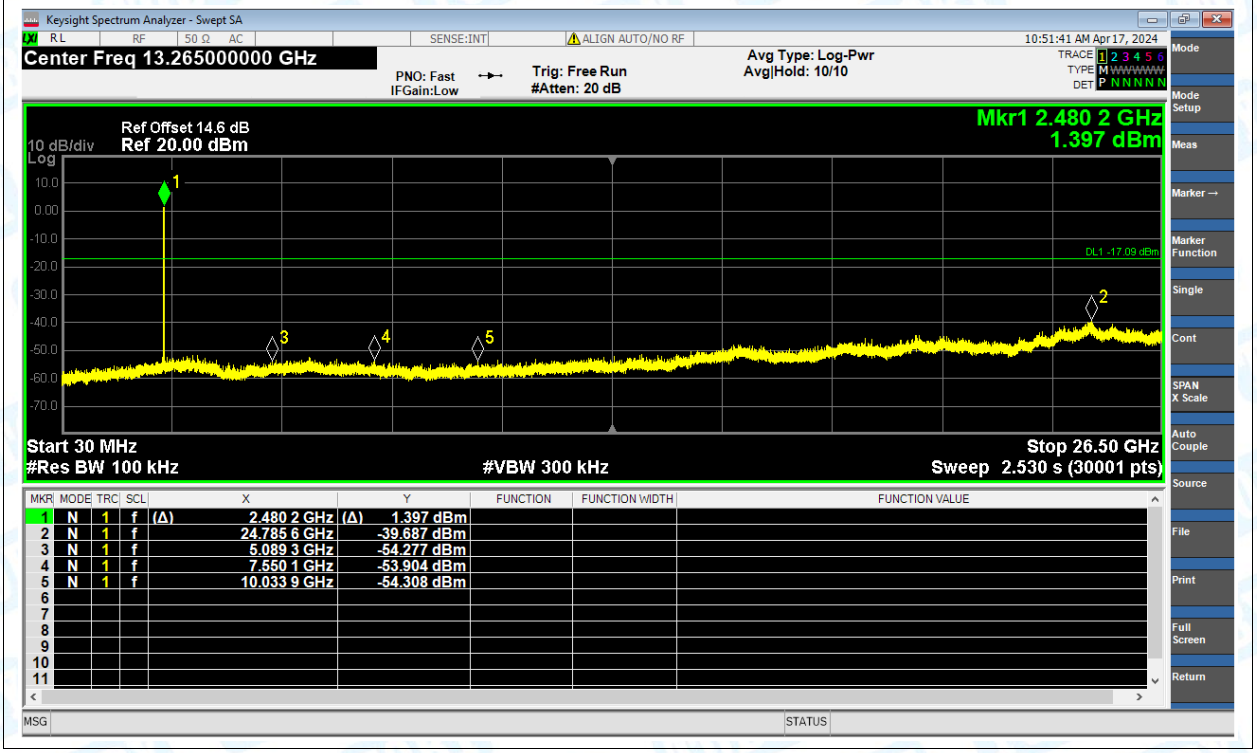
Tx. Spurious NVNT 3-DH1 2441MHz Ant1 Emission



Tx. Spurious NVNT 3-DH1 2480MHz Ant1 Ref



Tx. Spurious NVNT 3-DH1 2480MHz Ant1 Emission

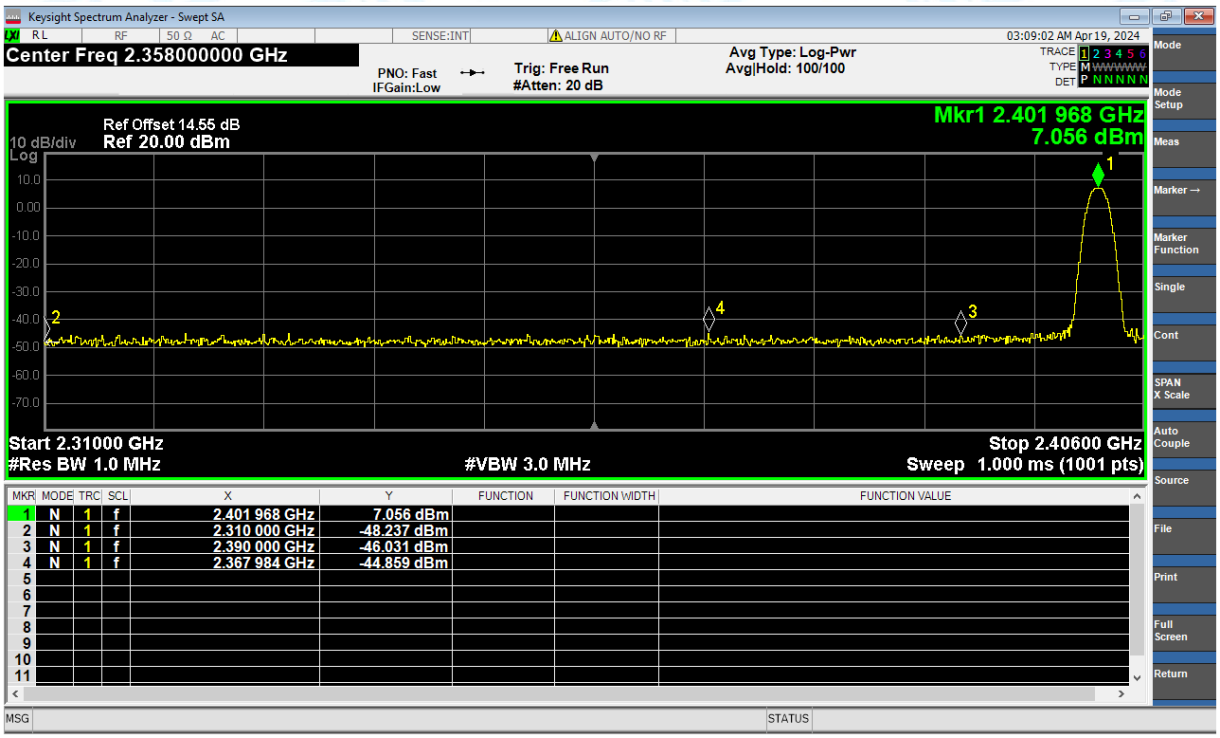


8. Restrict Band

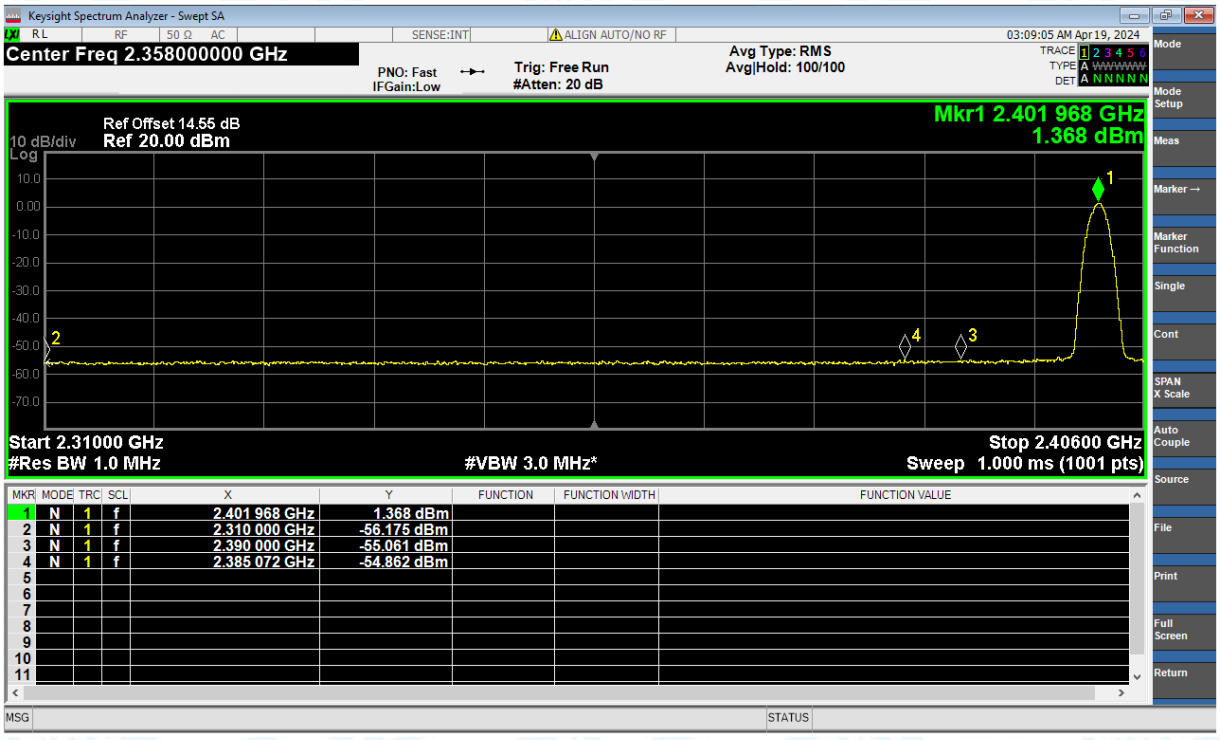
Condition	Mode	Frequency (MHz)	Antenna	Hopping Mode	Spur Freq (MHz)	Power (dBm)	Gain (dBi)	Duty Factor (dB)	E (dBuV/m)	Detector	Limit (dBuV/m)	Verdict
NVNT	1-DH1	2402	Ant1	No-Hopping	2310	-48.24	2	-	49.02	Peak	74	Pass
NVNT	1-DH1	2402	Ant1	No-Hopping	2310	-56.18	2	5.07	46.15	Average	54	Pass
NVNT	1-DH1	2402	Ant1	No-Hopping	2367.984	-44.86	2	-	52.4	Peak	74	Pass
NVNT	1-DH1	2402	Ant1	No-Hopping	2385.072	-54.86	2	5.07	47.47	Average	54	Pass
NVNT	1-DH1	2402	Ant1	No-Hopping	2390	-46.03	2	-	51.23	Peak	74	Pass
NVNT	1-DH1	2402	Ant1	No-Hopping	2390	-55.06	2	5.07	47.27	Average	54	Pass
NVNT	1-DH1	2480	Ant1	No-Hopping	2483.5	-45.45	2	-	51.81	Peak	74	Pass
NVNT	1-DH1	2480	Ant1	No-Hopping	2483.5	-55.13	2	5.07	47.2	Average	54	Pass
NVNT	1-DH1	2480	Ant1	No-Hopping	2484.136	-43.45	2	-	53.81	Peak	74	Pass
NVNT	1-DH1	2480	Ant1	No-Hopping	2483.92	-54.37	2	5.07	47.96	Average	54	Pass
NVNT	1-DH1	2480	Ant1	No-Hopping	2500	-47.21	2	-	50.05	Peak	74	Pass
NVNT	1-DH1	2480	Ant1	No-Hopping	2500	-55.01	2	5.07	47.32	Average	54	Pass
NVNT	2-DH1	2402	Ant1	No-Hopping	2310	-47.3	2	-	49.96	Peak	74	Pass
NVNT	2-DH1	2402	Ant1	No-Hopping	2310	-56.03	2	4.99	46.22	Average	54	Pass
NVNT	2-DH1	2402	Ant1	No-Hopping	2377.008	-44.77	2	-	52.49	Peak	74	Pass
NVNT	2-DH1	2402	Ant1	No-Hopping	2383.728	-54.88	2	4.99	47.37	Average	54	Pass
NVNT	2-DH1	2402	Ant1	No-Hopping	2390	-48.27	2	-	48.99	Peak	74	Pass
NVNT	2-DH1	2402	Ant1	No-Hopping	2390	-55.23	2	4.99	47.02	Average	54	Pass
NVNT	2-DH1	2480	Ant1	No-Hopping	2483.5	-45.42	2	-	51.84	Peak	74	Pass
NVNT	2-DH1	2480	Ant1	No-Hopping	2483.5	-55.7	2	4.99	46.55	Average	54	Pass
NVNT	2-DH1	2480	Ant1	No-Hopping	2484.64	-43.19	2	-	54.07	Peak	74	Pass
NVNT	2-DH1	2480	Ant1	No-Hopping	2483.872	-54.41	2	4.99	47.84	Average	54	Pass
NVNT	2-DH1	2480	Ant1	No-Hopping	2500	-48.38	2	-	48.88	Peak	74	Pass
NVNT	2-DH1	2480	Ant1	No-Hopping	2500	-55.75	2	4.99	46.5	Average	54	Pass
NVNT	3-DH1	2402	Ant1	No-Hopping	2310	-48.26	2	-	49	Peak	74	Pass
NVNT	3-DH1	2402	Ant1	No-Hopping	2310	-56.06	2	5.02	46.22	Average	54	Pass
NVNT	3-DH1	2402	Ant1	No-Hopping	2374.224	-45.1	2	-	52.16	Peak	74	Pass
NVNT	3-DH1	2402	Ant1	No-Hopping	2385.168	-54.69	2	5.02	47.59	Average	54	Pass
NVNT	3-DH1	2402	Ant1	No-Hopping	2390	-46.73	2	-	50.53	Peak	74	Pass
NVNT	3-DH1	2402	Ant1	No-Hopping	2390	-55.81	2	5.02	46.47	Average	54	Pass
NVNT	3-DH1	2480	Ant1	No-Hopping	2483.5	-46.37	2	-	50.89	Peak	74	Pass
NVNT	3-DH1	2480	Ant1	No-Hopping	2483.5	-55.03	2	4.99	47.22	Average	54	Pass
NVNT	3-DH1	2480	Ant1	No-Hopping	2483.68	-43.51	2	-	53.75	Peak	74	Pass
NVNT	3-DH1	2480	Ant1	No-Hopping	2485.024	-54.69	2	4.99	47.56	Average	54	Pass
NVNT	3-DH1	2480	Ant1	No-Hopping	2500	-46.83	2	-	50.43	Peak	74	Pass
NVNT	3-DH1	2480	Ant1	No-Hopping	2500	-55.42	2	4.99	46.83	Average	54	Pass

Test Graphs

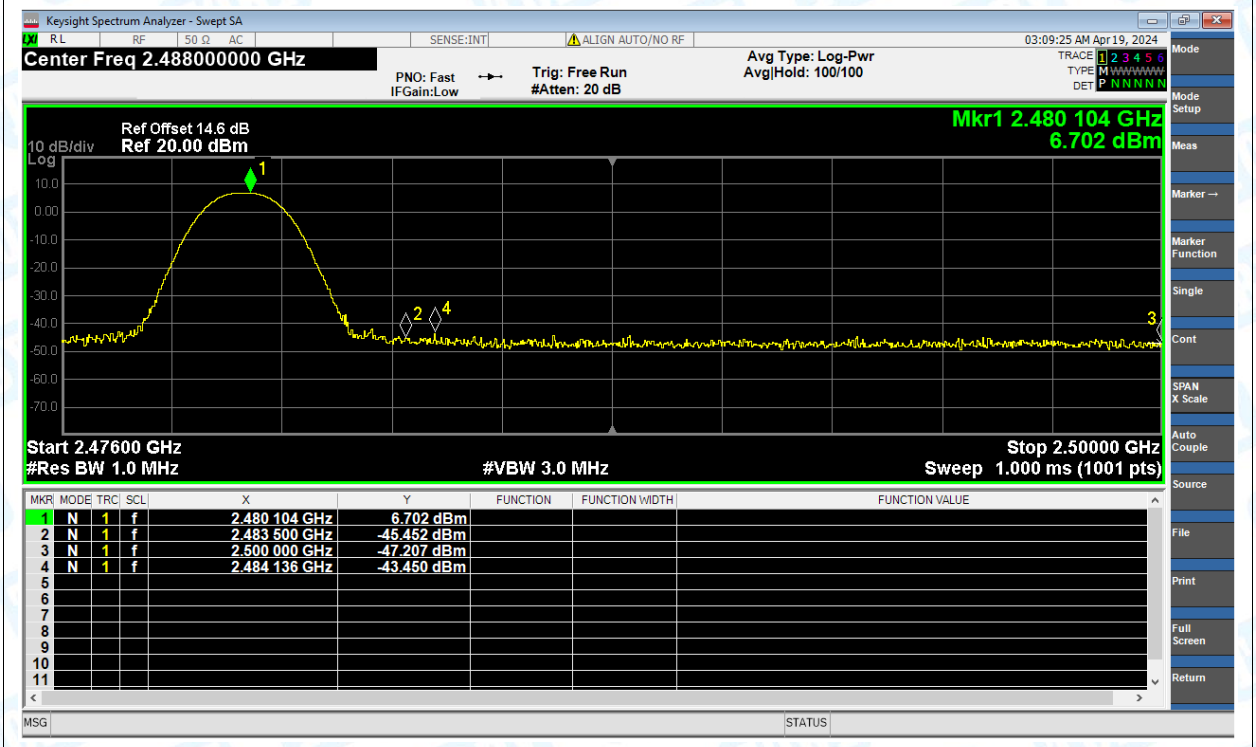
Restrict Band NVNT 1-DH1 2402MHz Ant1 No-Hopping Peak



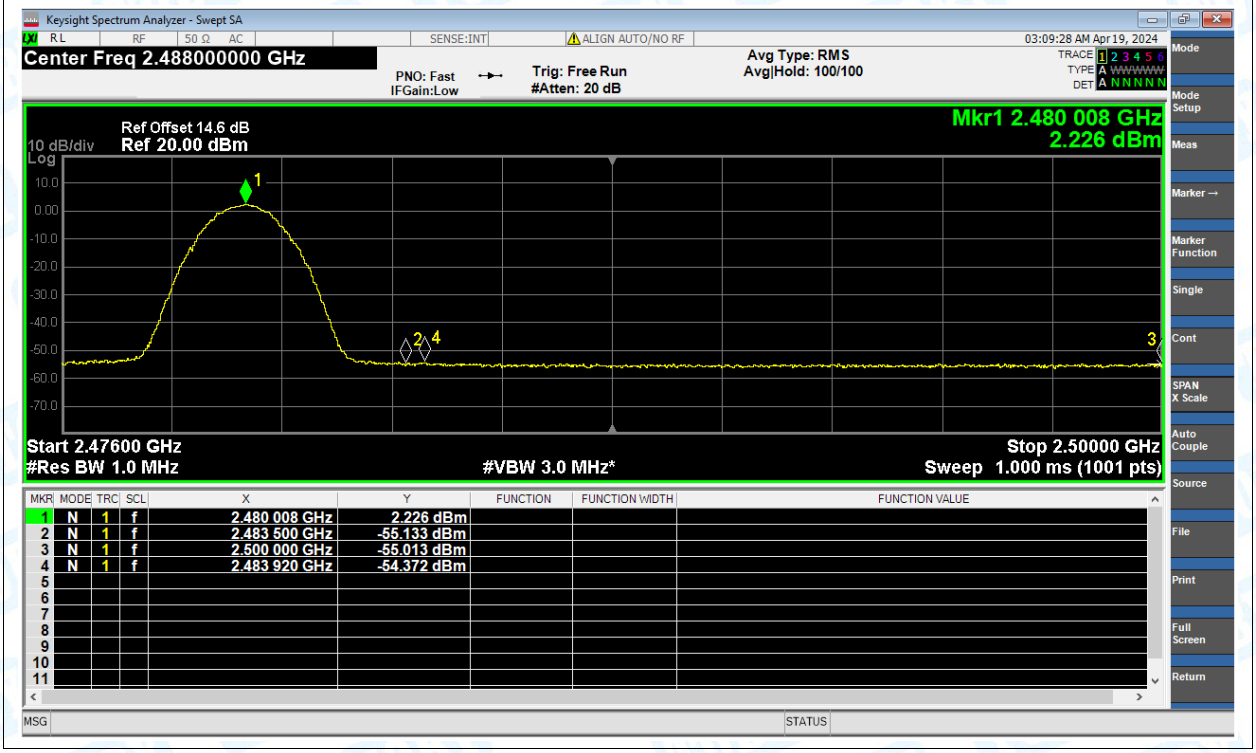
Restrict Band NVNT 1-DH1 2402MHz Ant1 No-Hopping Average



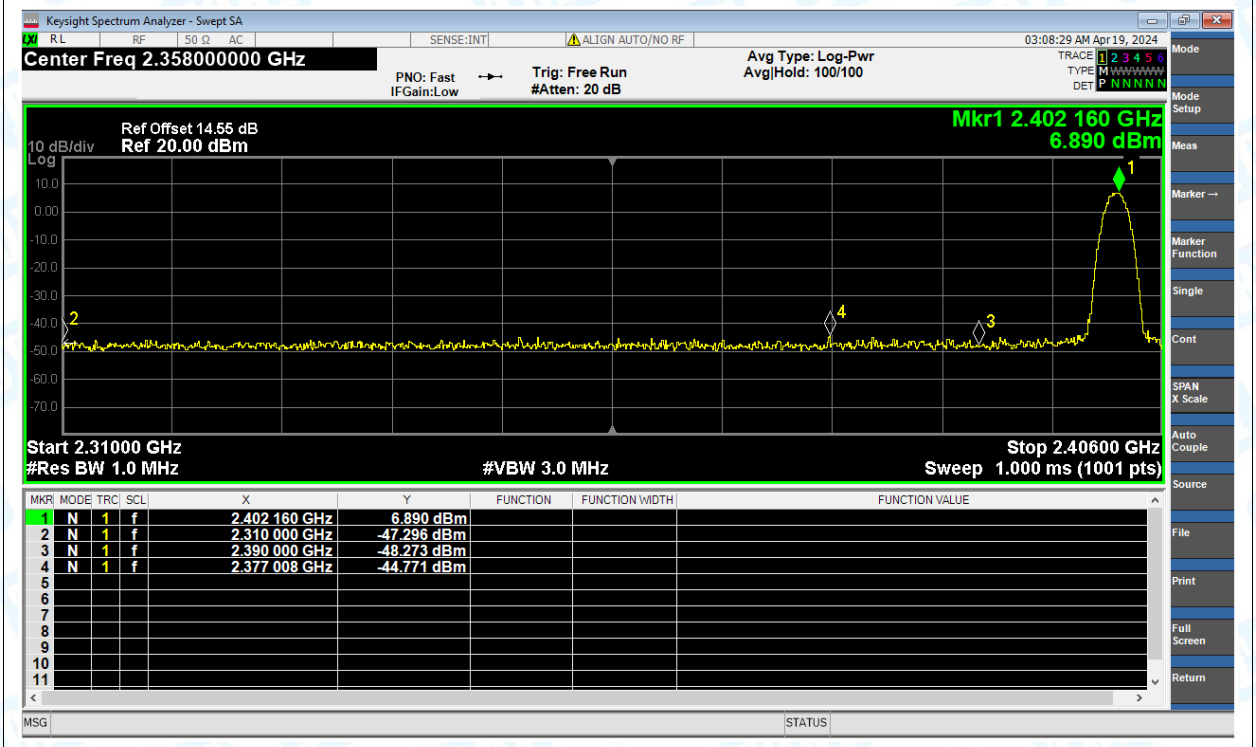
Restrict Band NVNT 1-DH1 2480MHz Ant1 No-Hopping Peak



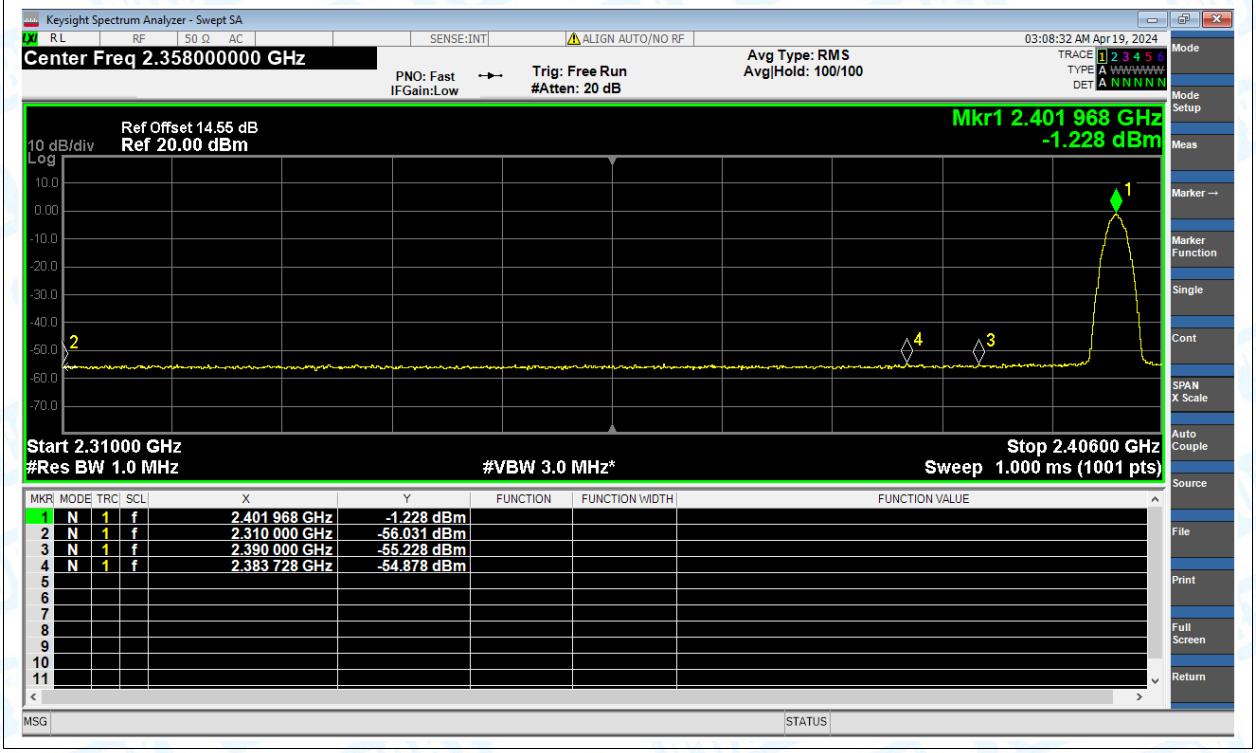
Restrict Band NVNT 1-DH1 2480MHz Ant1 No-Hopping Average



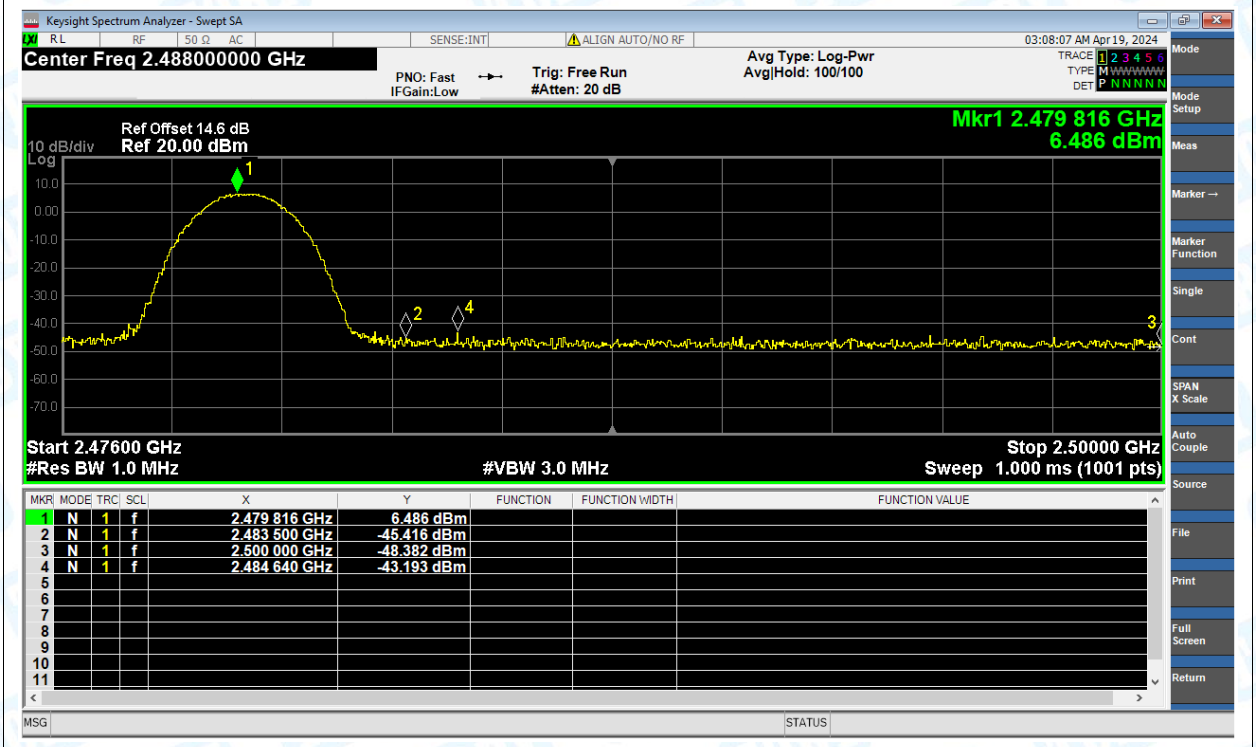
Restrict Band NVNT 2-DH1 2402MHz Ant1 No-Hopping Peak



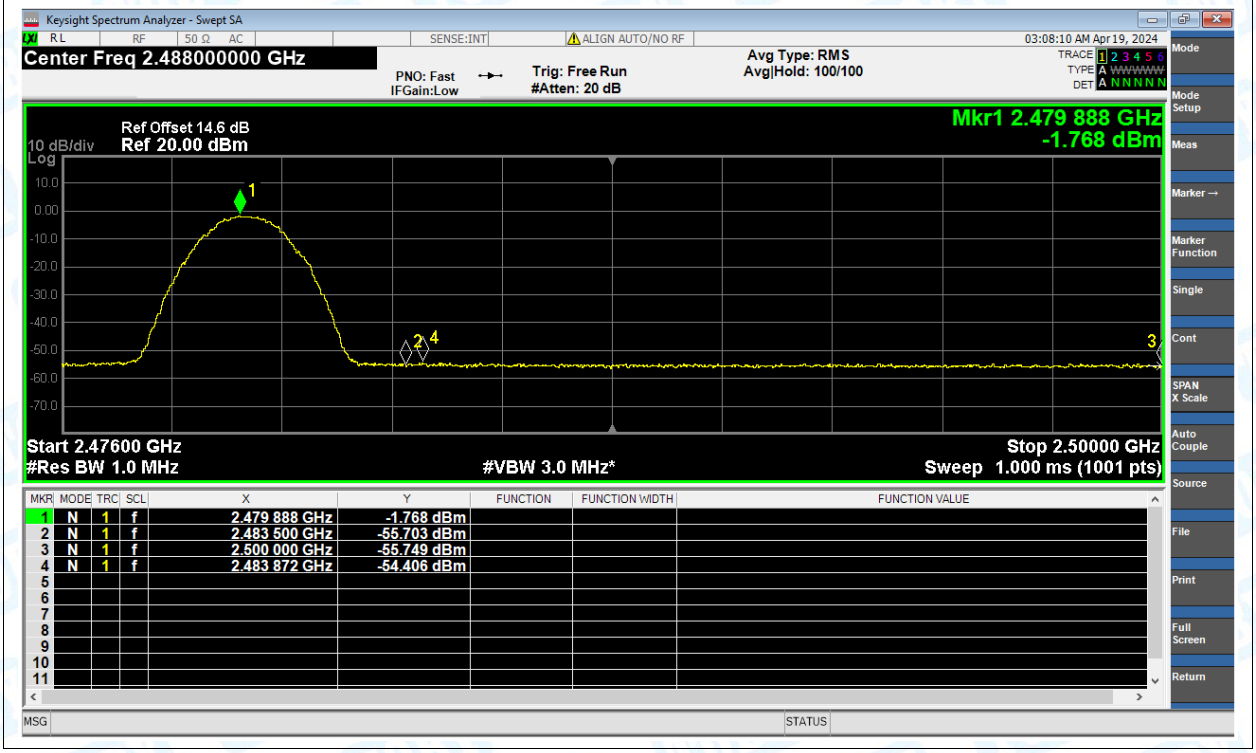
Restrict Band NVNT 2-DH1 2402MHz Ant1 No-Hopping Average



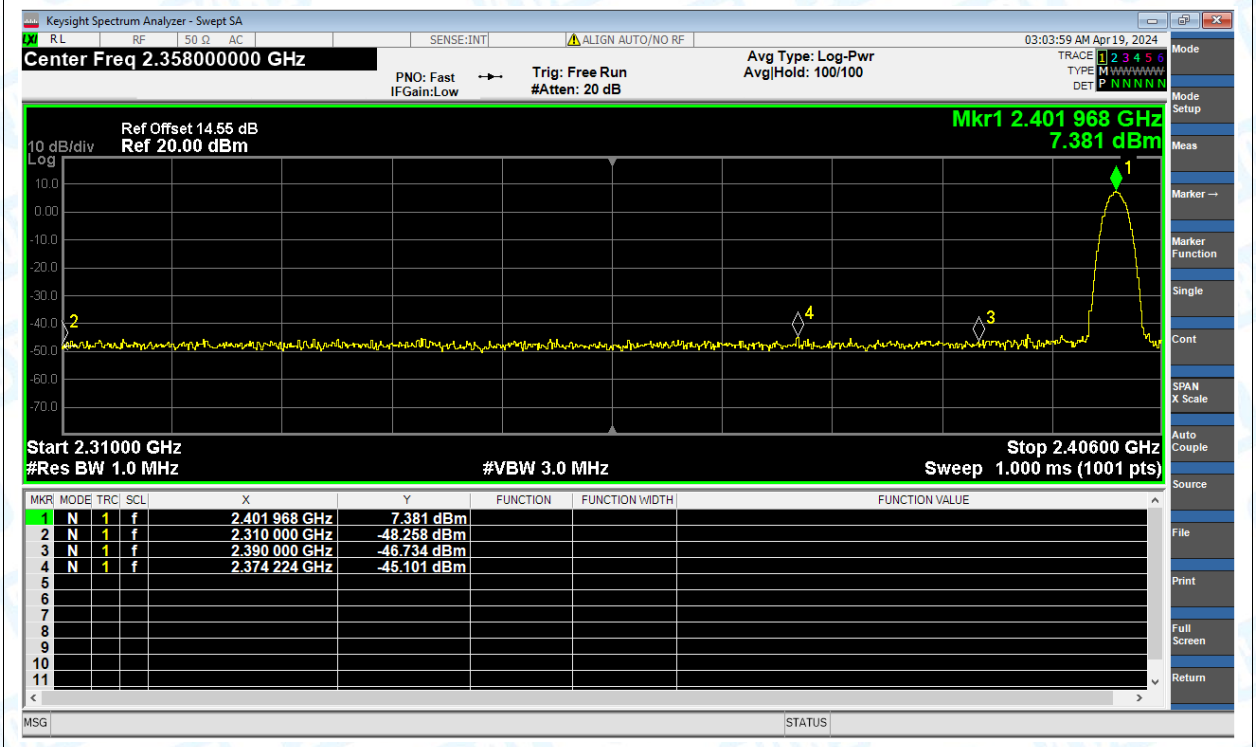
Restrict Band NVNT 2-DH1 2480MHz Ant1 No-Hopping Peak



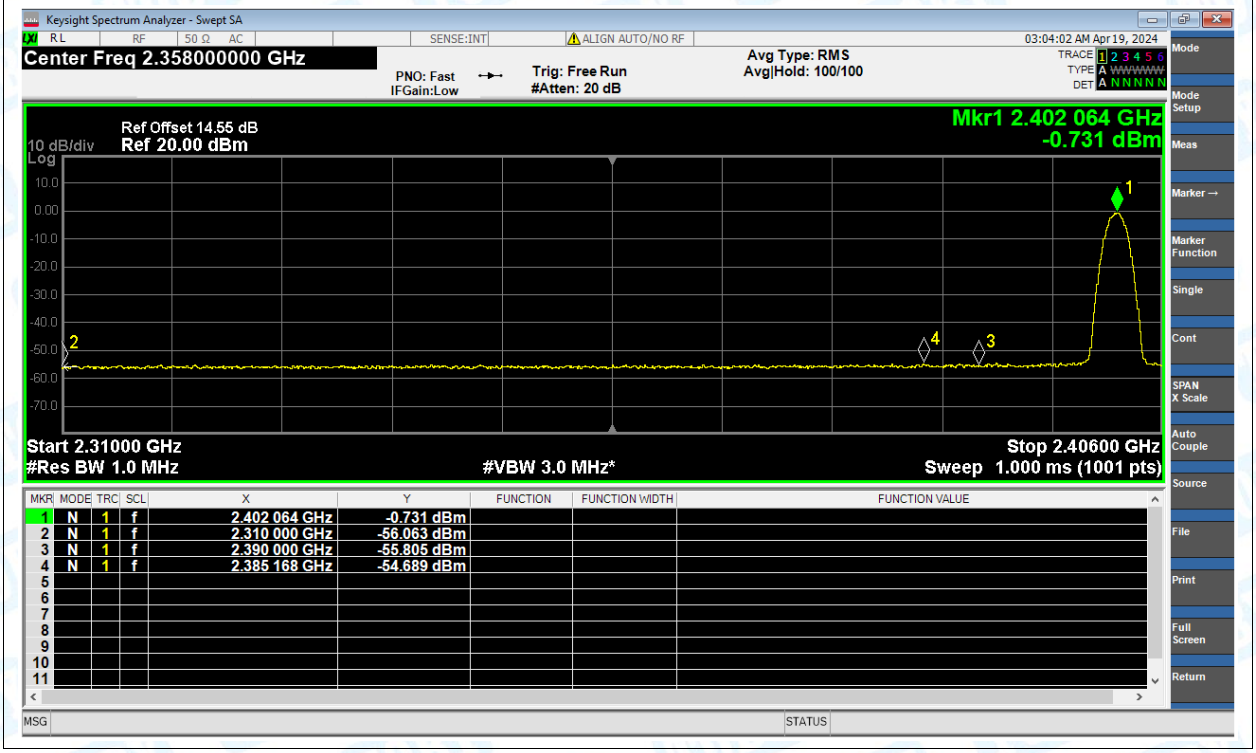
Restrict Band NVNT 2-DH1 2480MHz Ant1 No-Hopping Average



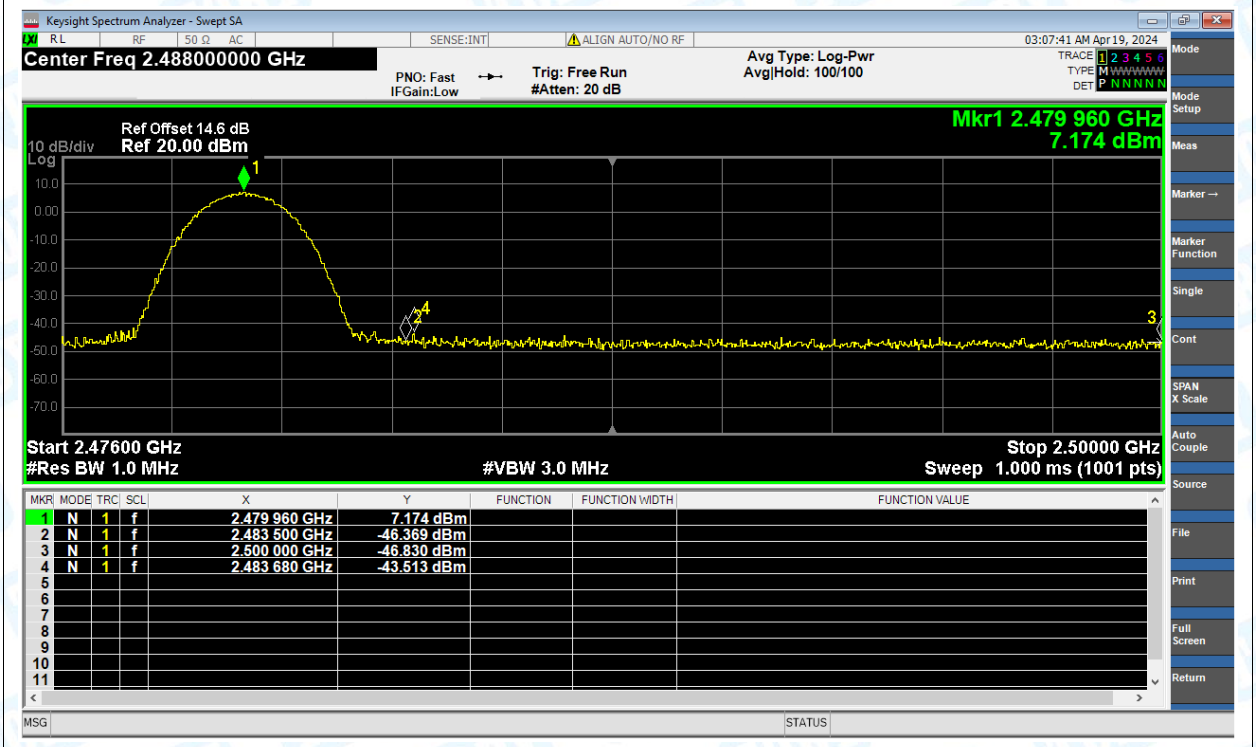
Restrict Band NVNT 3-DH1 2402MHz Ant1 No-Hopping Peak



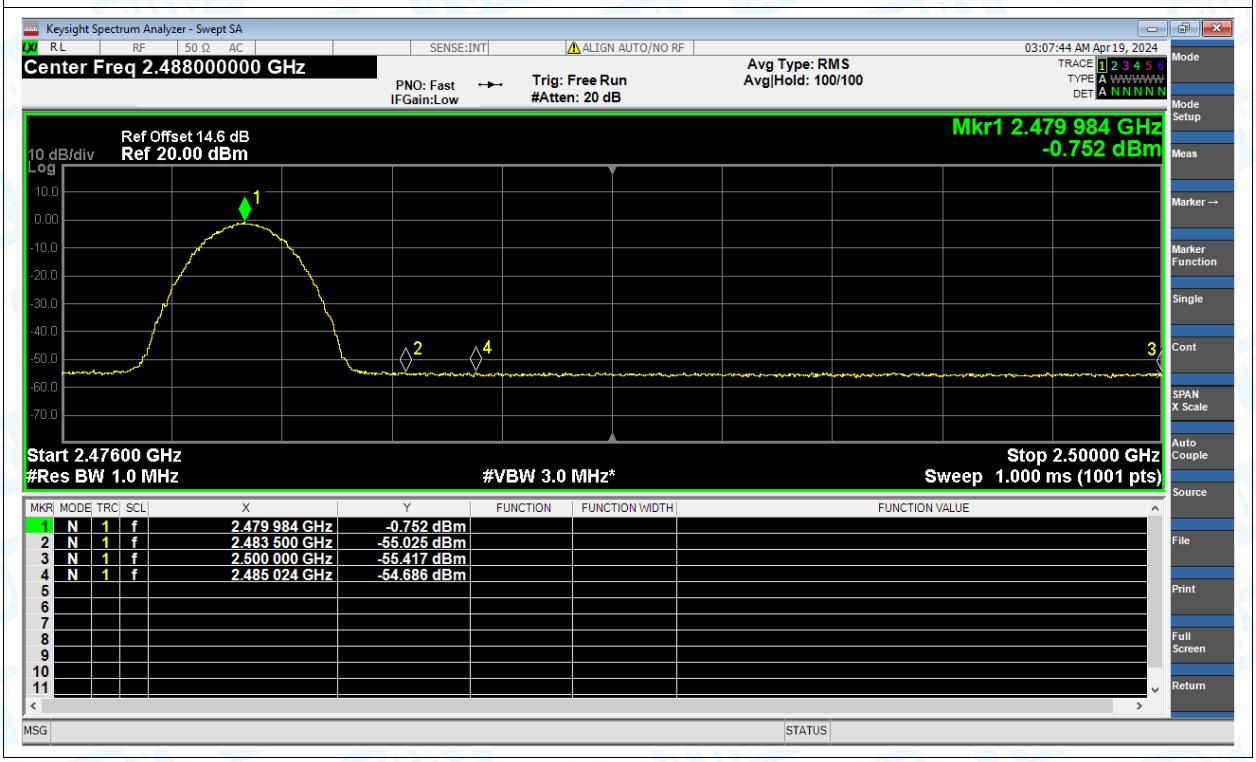
Restrict Band NVNT 3-DH1 2402MHz Ant1 No-Hopping Average



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



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

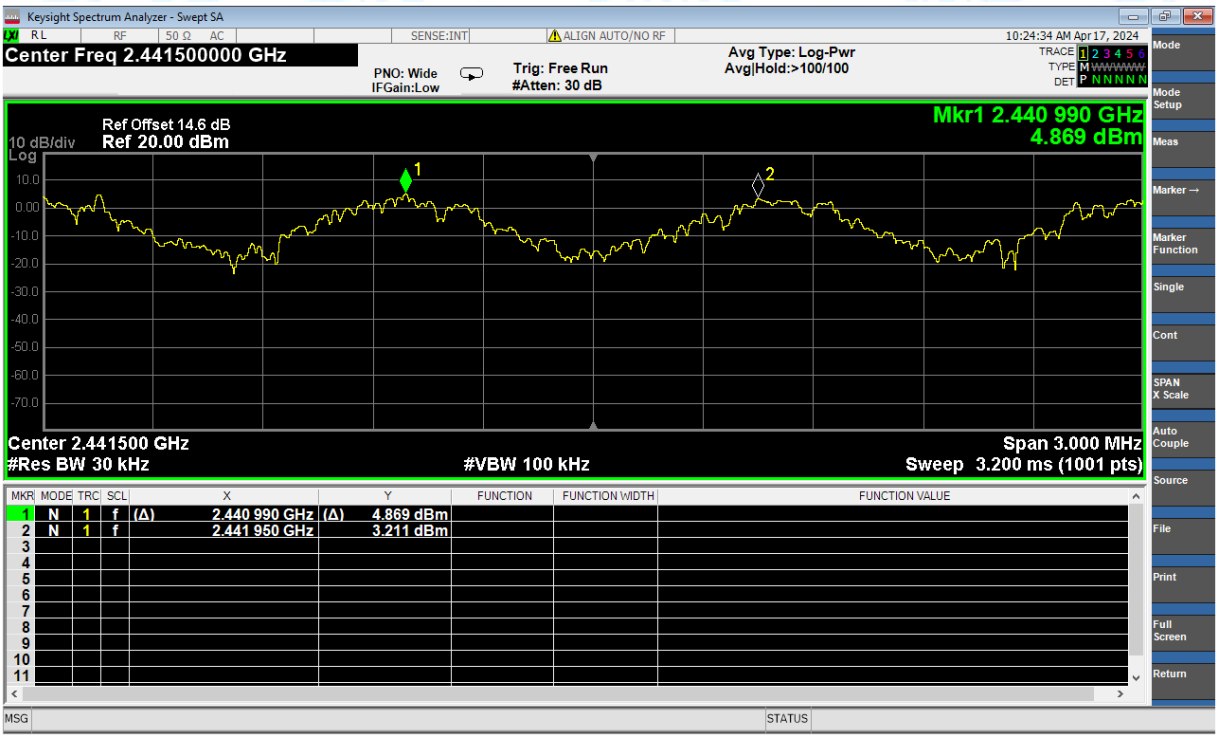


9. Carrier Frequencies Separation

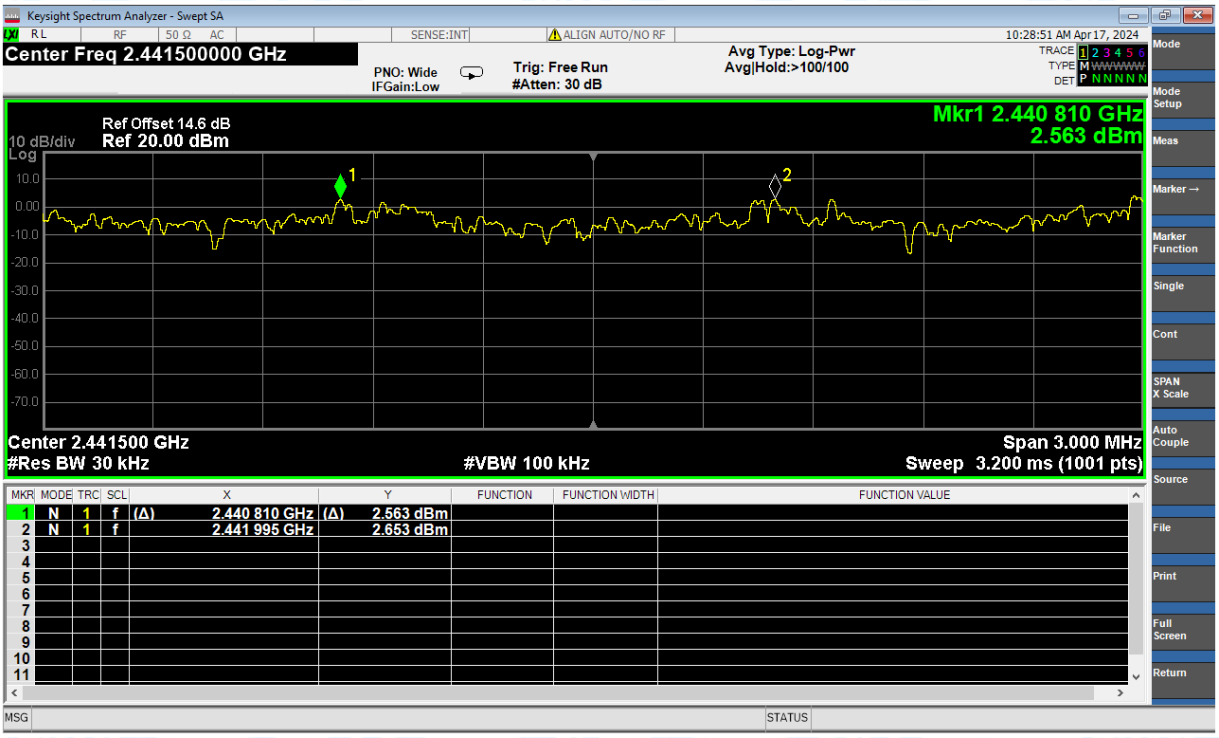
Condition	Mode	Antenna	Hopping Freq1 (MHz)	Hopping Freq2 (MHz)	HFS (MHz)	Limit (MHz)	Verdict
NVNT	1-DH1	Ant1	2440.99	2441.95	0.960	0.640	Pass
NVNT	2-DH1	Ant1	2440.81	2441.995	1.185	0.913	Pass
NVNT	3-DH1	Ant1	2440.813	2441.809	0.996	0.900	Pass

Test Graphs

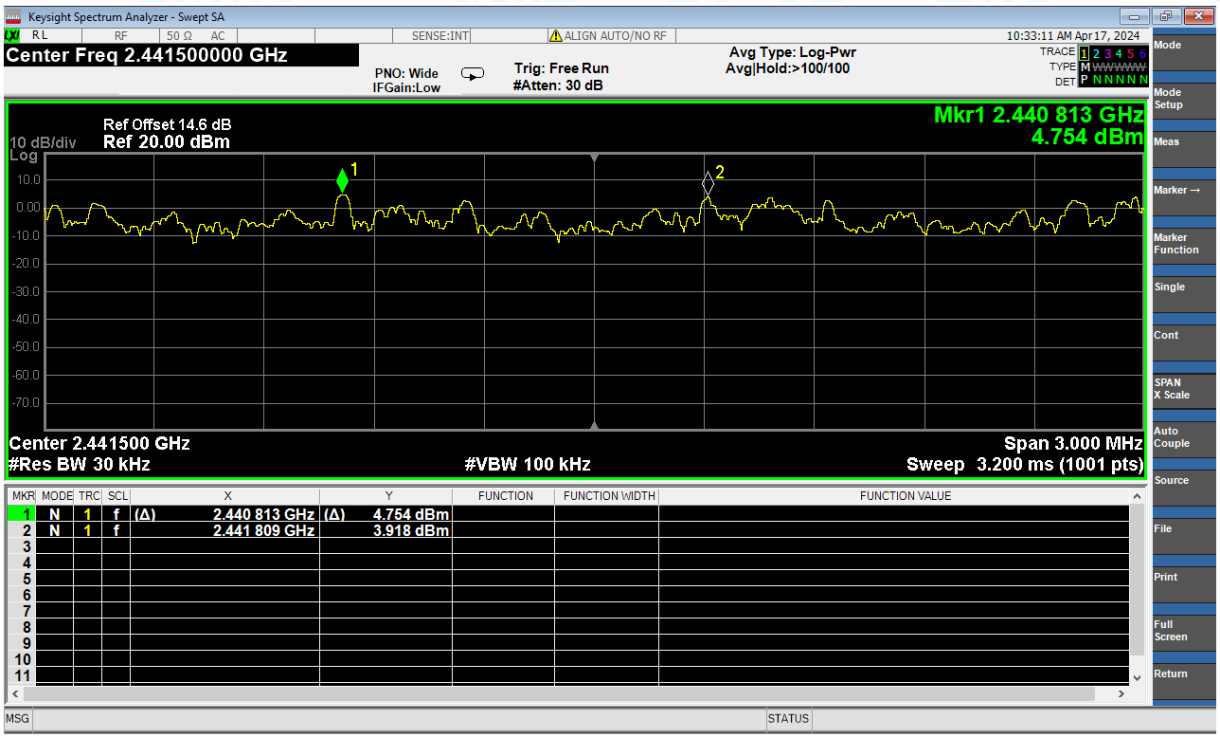
CFS NVNT 1-DH1 2441MHz Ant1



CFS NVNT 2-DH1 2441MHz Ant1



CFS NVNT 3-DH1 2441MHz Ant1

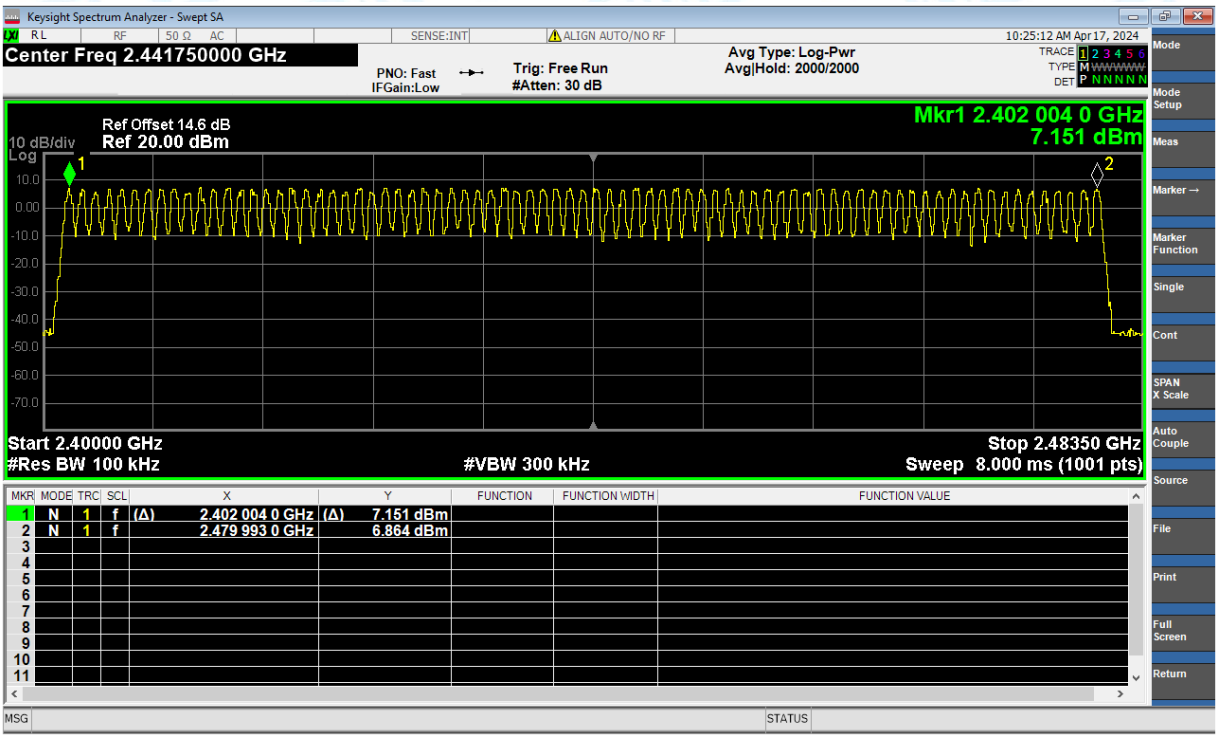


10. Number of Hopping Channel

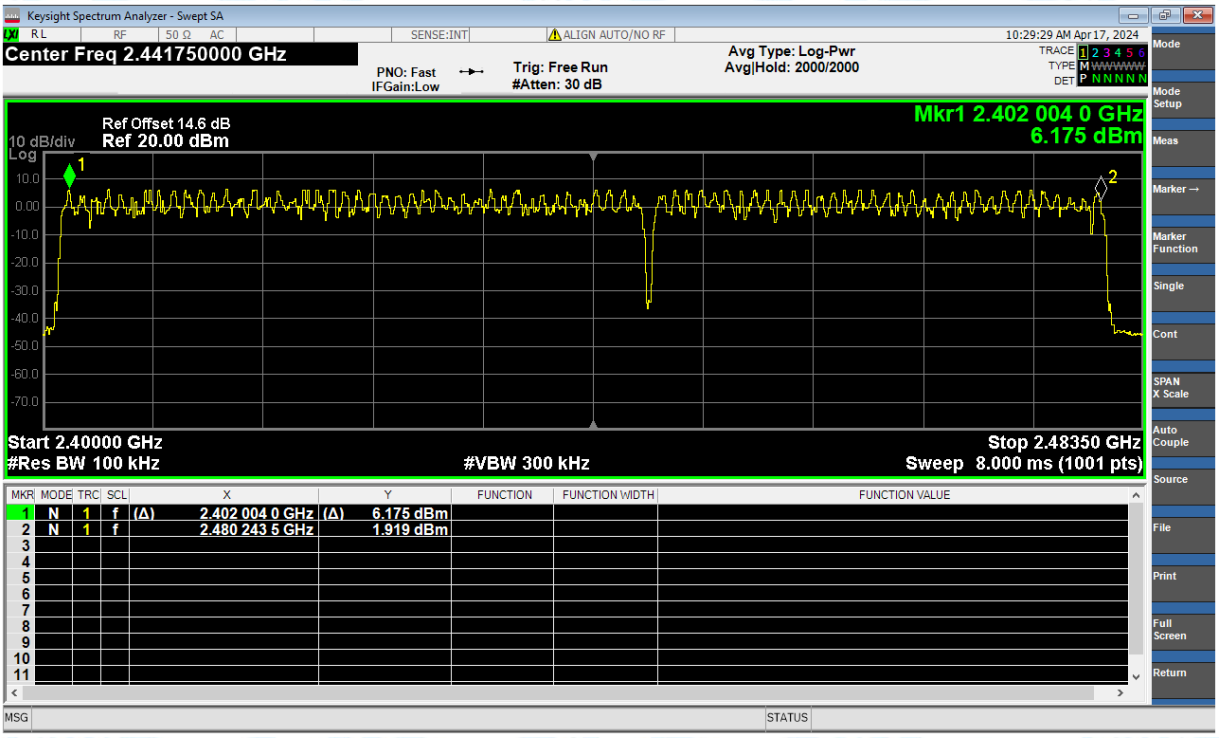
Condition	Mode	Antenna	Hopping Number	Limit	Verdict
NVNT	1-DH1	Ant1	79	15	Pass
NVNT	2-DH1	Ant1	79	15	Pass
NVNT	3-DH1	Ant1	79	15	Pass

Test Graphs

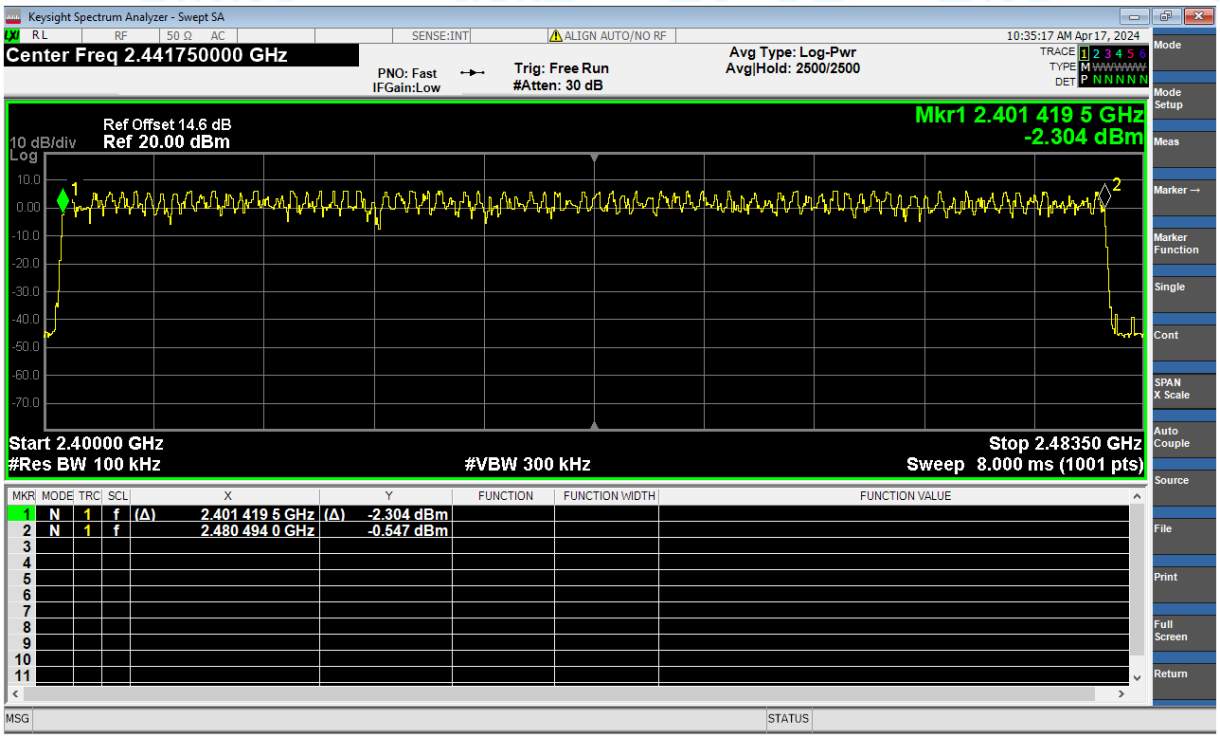
Hopping No. NVNT 1-DH1 2441MHz Ant1



Hopping No. NVNT 2-DH1 2441MHz Ant1



Hopping No. NVNT 3-DH1 2441MHz Ant1

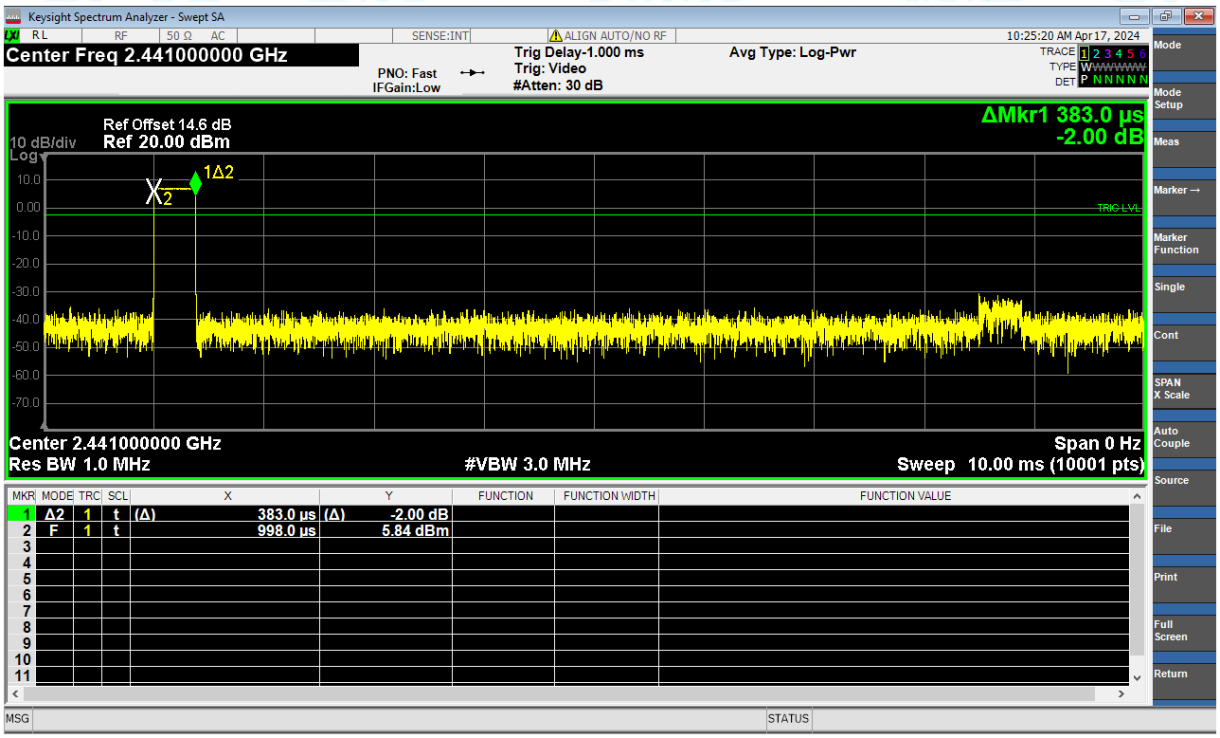


11. Dwell Time

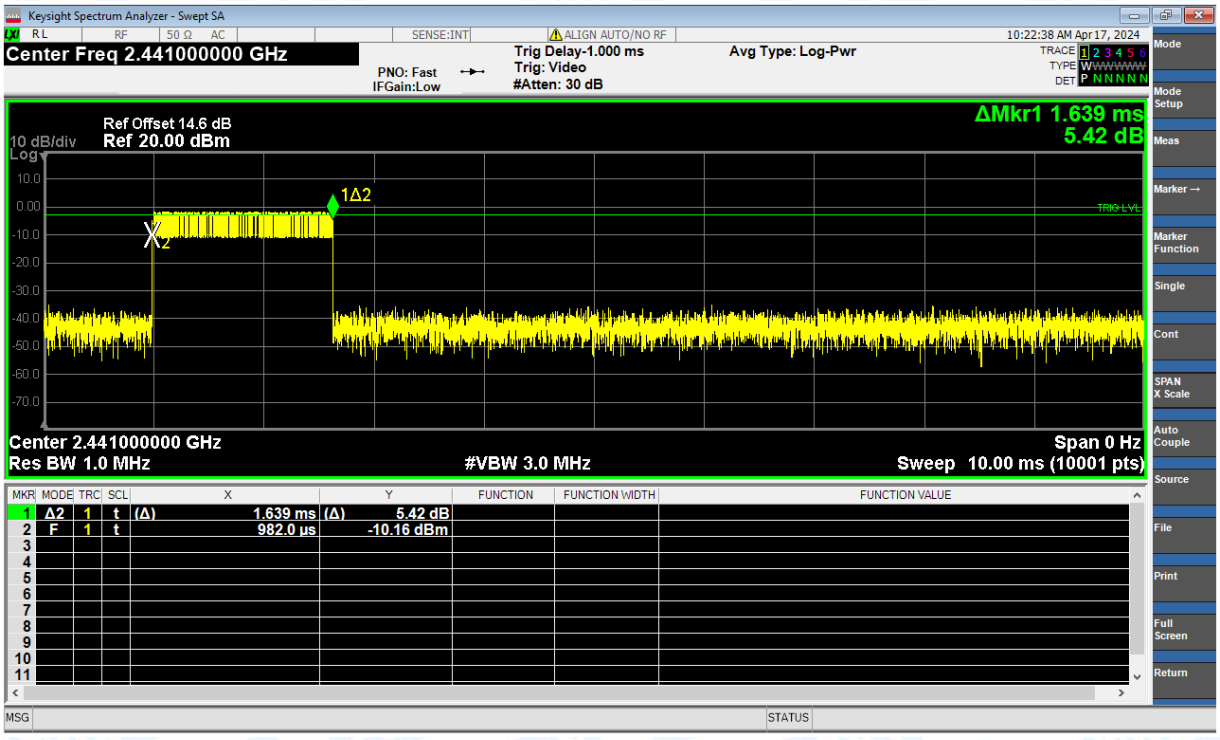
Condition	Mode	Frequency (MHz)	Antenna	Pulse Time (ms)	Total Dwell Time (ms)	Period Time (ms)	Limit (ms)	Verdict
NVNT	1-DH1	2441	Ant1	0.383	122.56	31600	400	Pass
NVNT	1-DH3	2441	Ant1	1.639	262.24	31600	400	Pass
NVNT	1-DH5	2441	Ant1	2.887	307.947	31600	400	Pass
NVNT	2-DH1	2441	Ant1	0.391	125.12	31600	400	Pass
NVNT	2-DH3	2441	Ant1	1.643	262.88	31600	400	Pass
NVNT	2-DH5	2441	Ant1	2.891	308.373	31600	400	Pass
NVNT	3-DH1	2441	Ant1	0.391	125.12	31600	400	Pass
NVNT	3-DH3	2441	Ant1	1.642	262.72	31600	400	Pass
NVNT	3-DH5	2441	Ant1	2.894	308.693	31600	400	Pass

Test Graphs

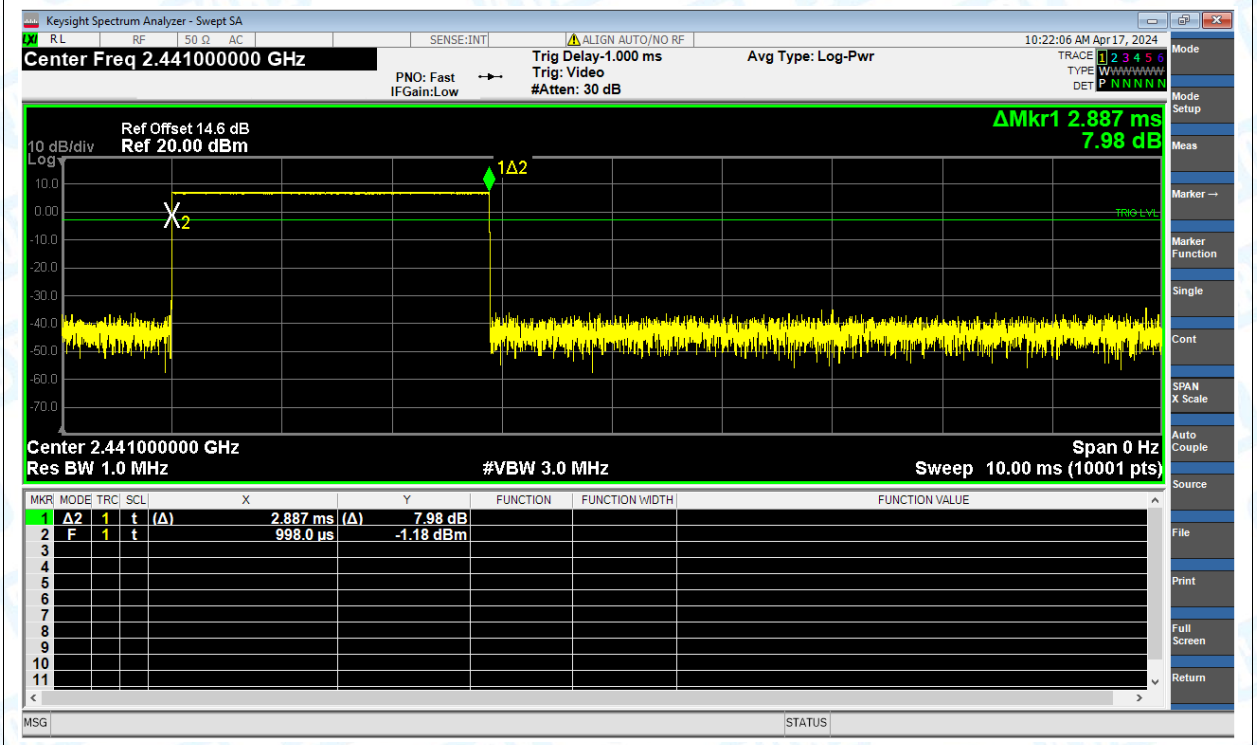
Dwell NVNT 1-DH1 2441MHz Ant1



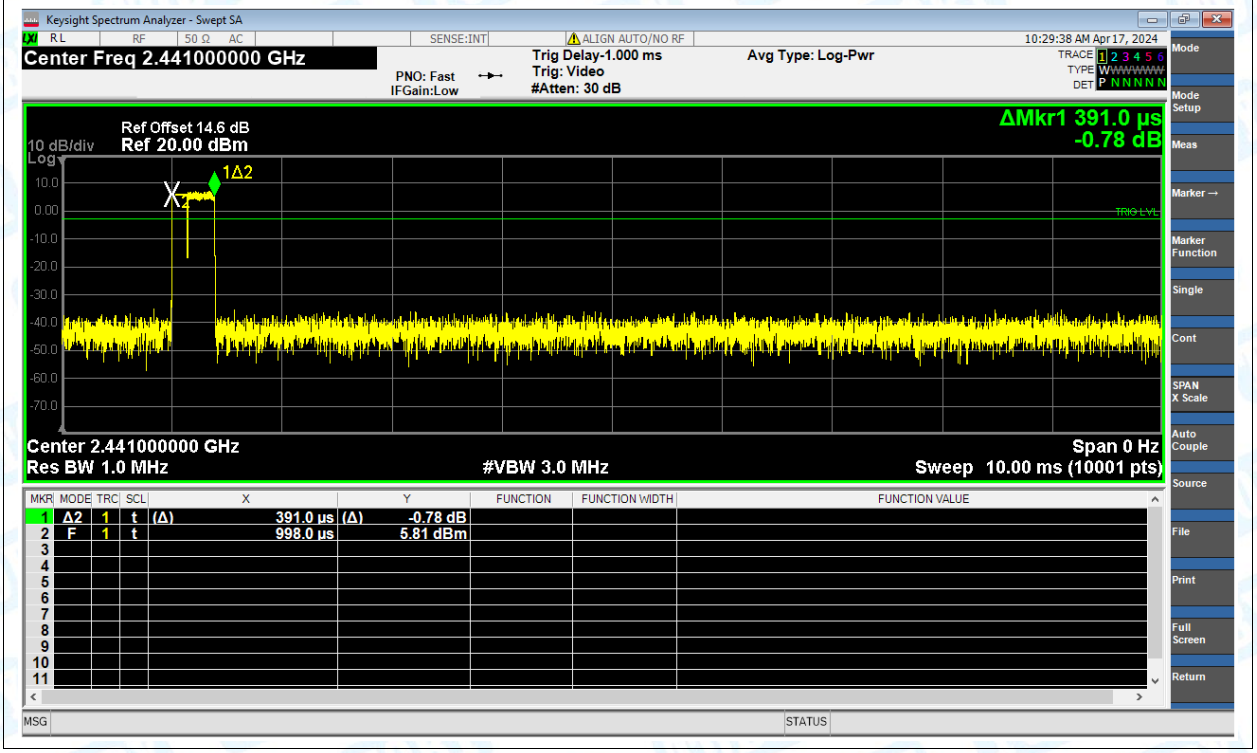
Dwell NVNT 1-DH3 2441MHz Ant1



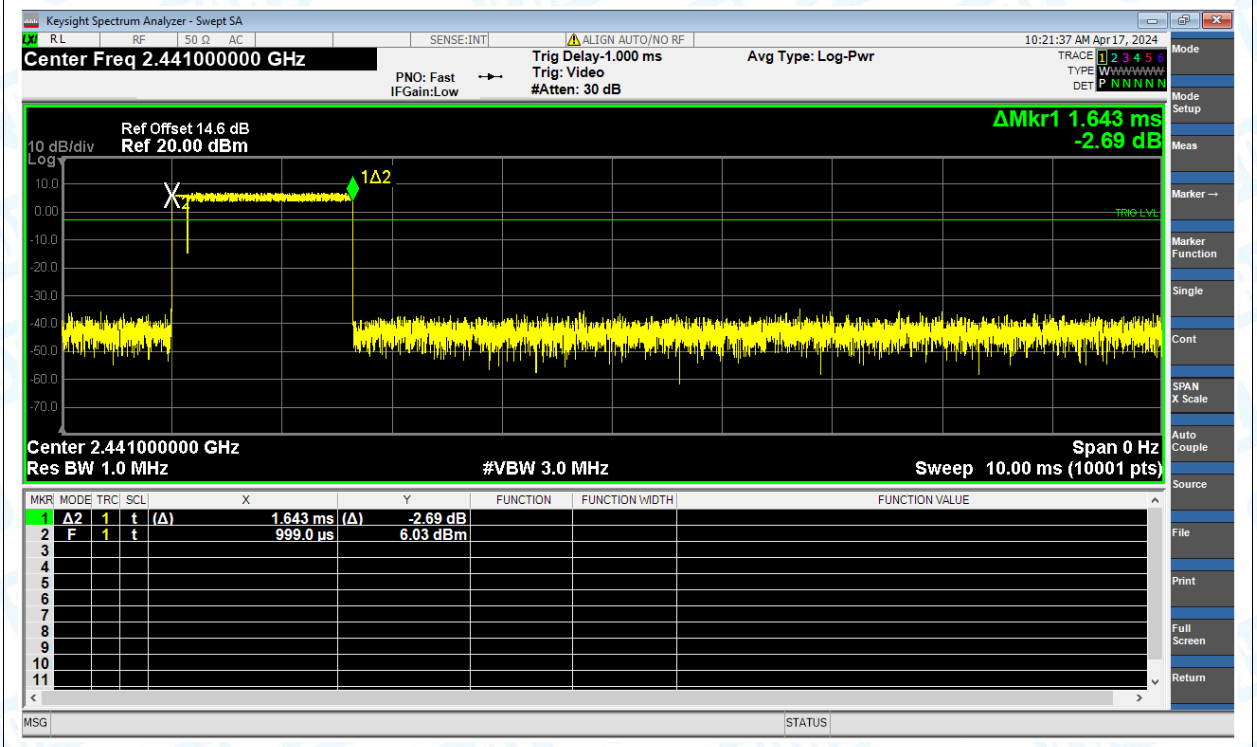
Dwell NVNT 1-DH5 2441MHz Ant1



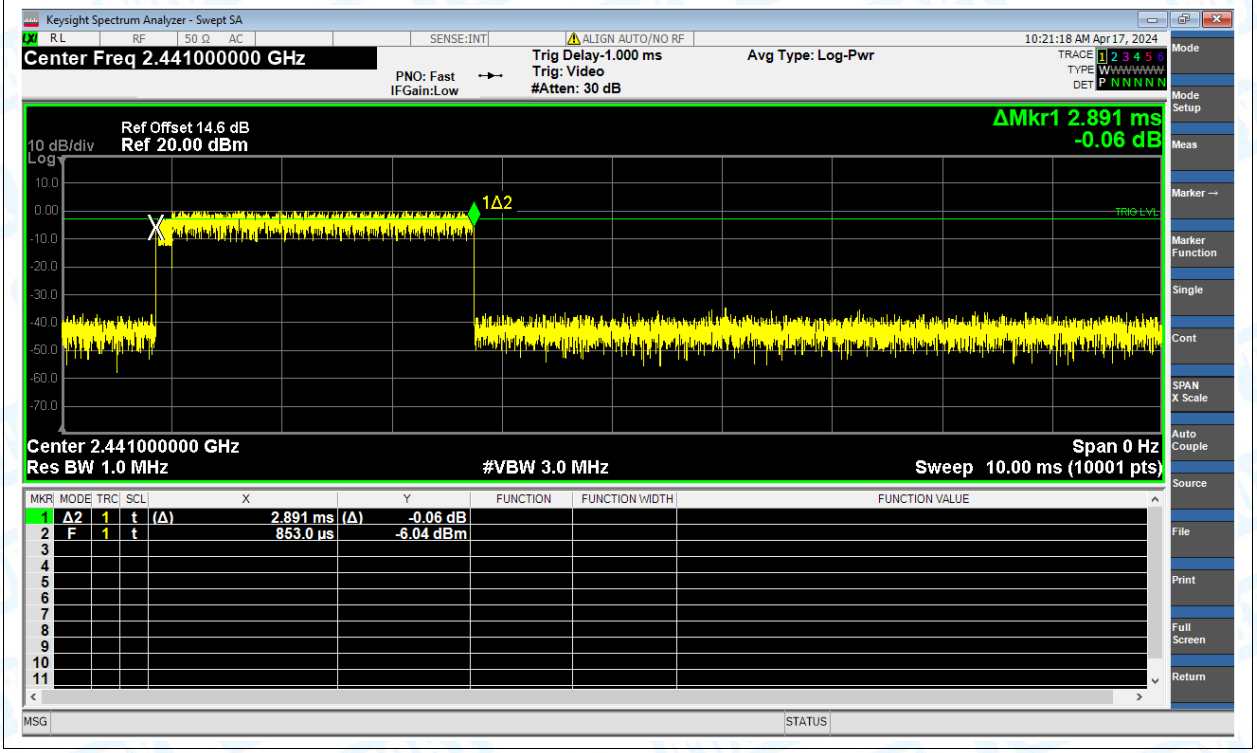
Dwell NVNT 2-DH1 2441MHz Ant1



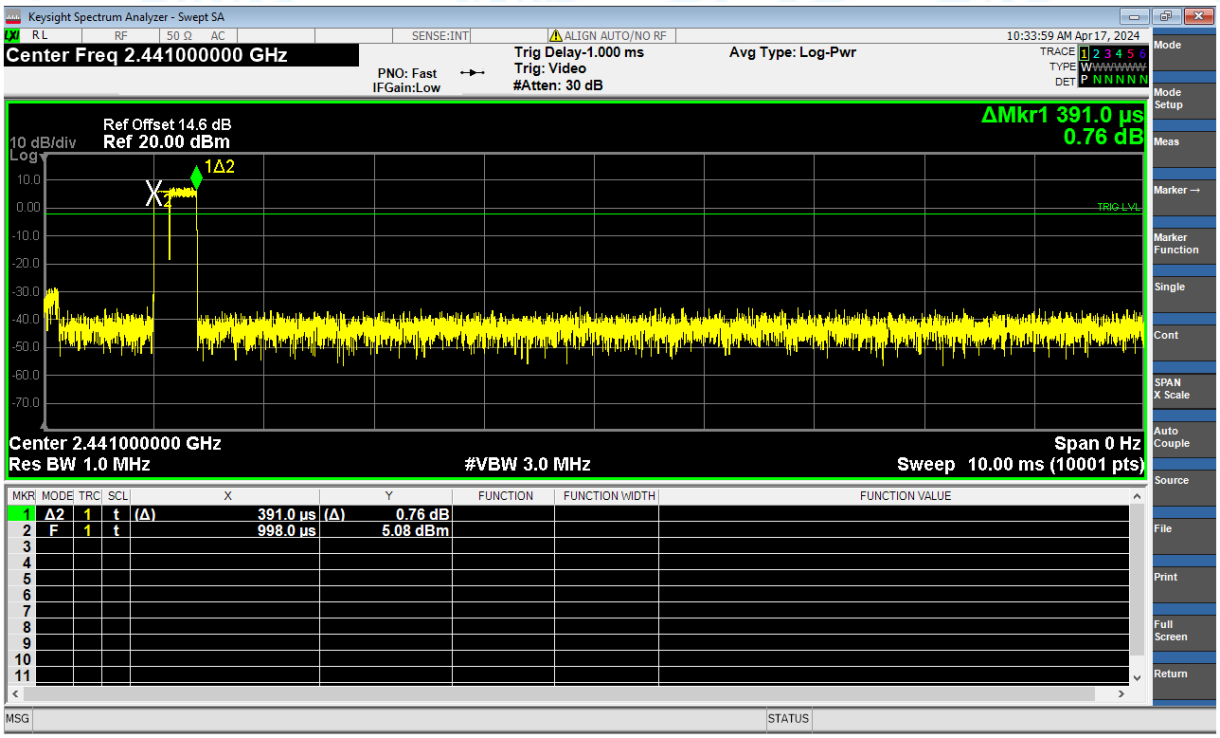
Dwell NVNT 2-DH3 2441MHz Ant1



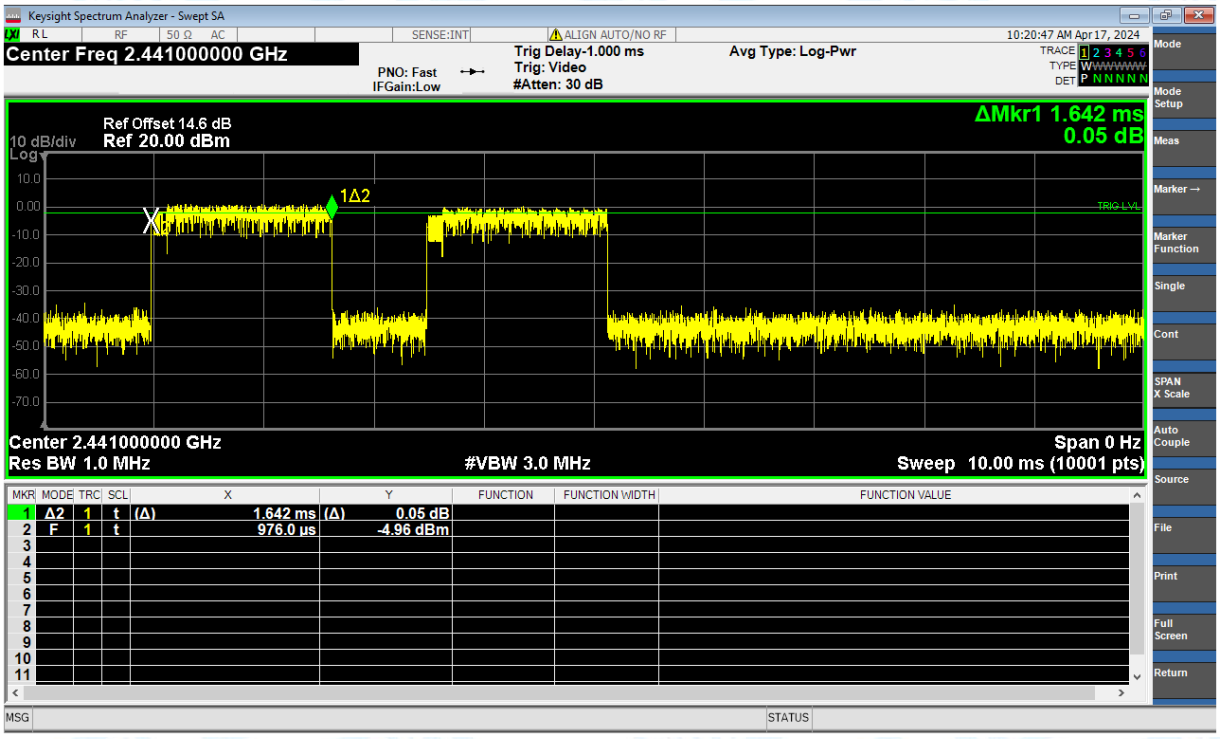
Dwell NVNT 2-DH5 2441MHz Ant1



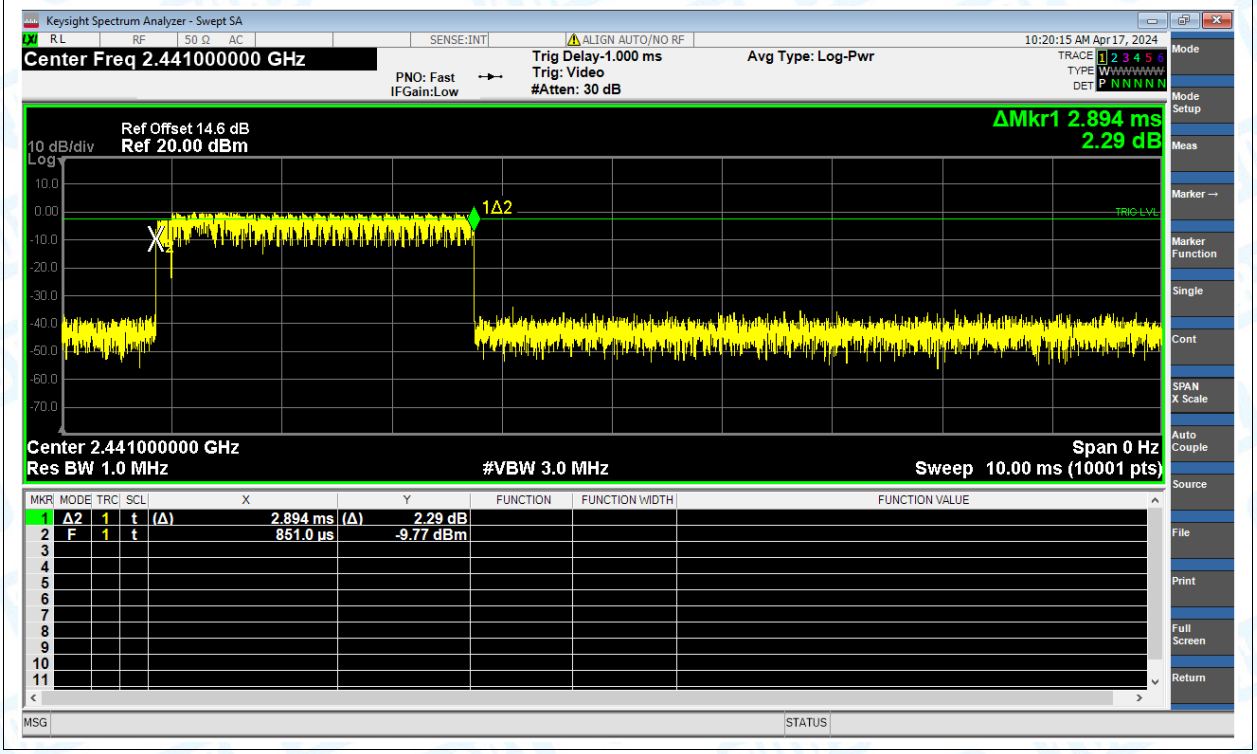
Dwell NVNT 3-DH1 2441MHz Ant1



Dwell NVNT 3-DH3 2441MHz Ant1



Dwell NVNT 3-DH5 2441MHz Ant1



-----END OF THE REPORT-----