

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

General Description of EUT	
Product Name:	Smart Watch
Test Model:	HD12
Sample ID:	HC-C-202402-0121-01-02#
Environmental Conditions	
Temperature:	25℃
Relative Humidity:	55%
Test Voltage:	DC 5V
Test Engineer:	Jolin Lee
Note: For a more detailed features description, please refer to the report TBR-C-202402-0121-31 The report only show the worst case data.	

Contents

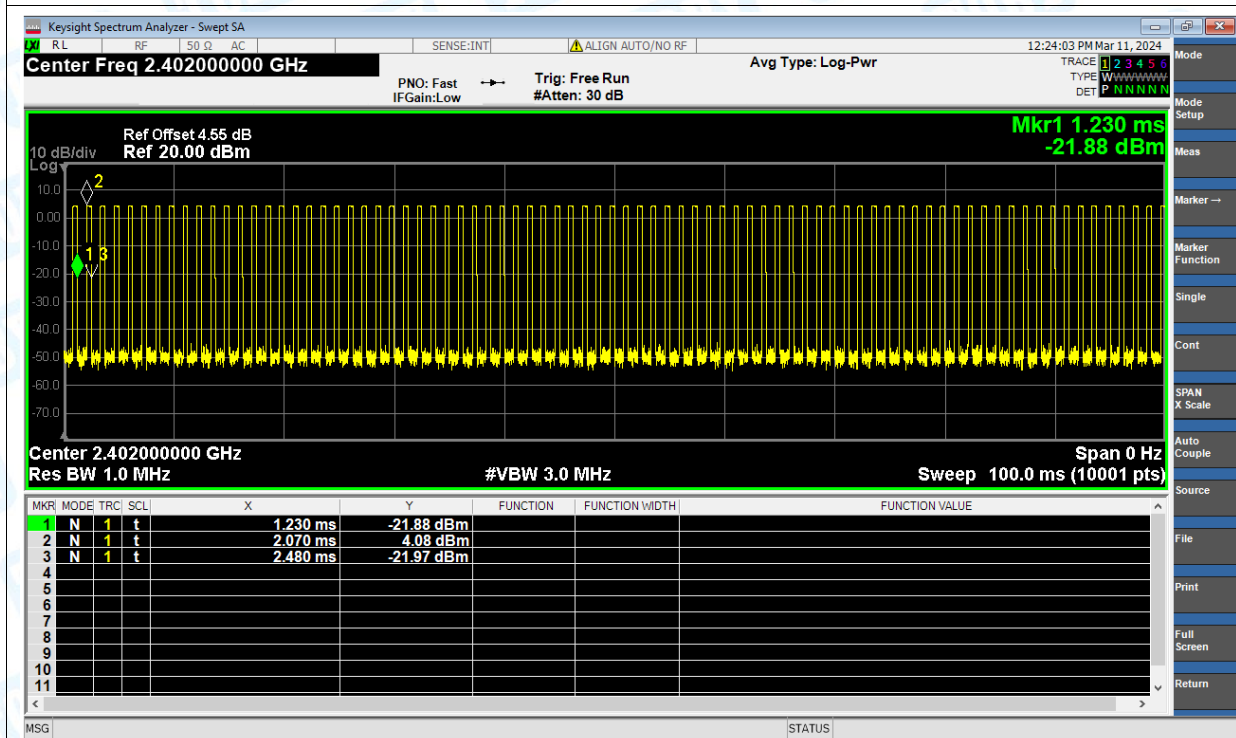
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1.Duty Cycle

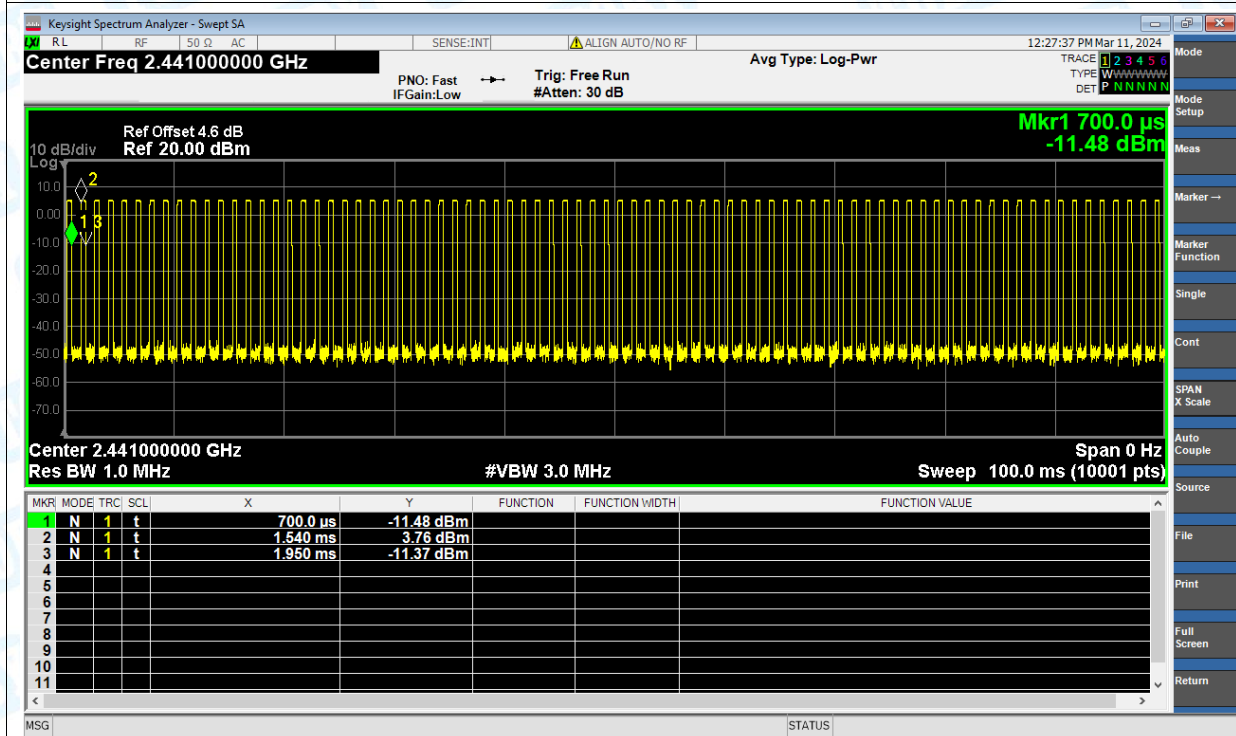
Condition	Mode	Frequency (MHz)	Antenna	Duty Cycle (%)	Correction Factor (dB)	1/T (kHz)
NVNT	1-DH1	2402	Ant1	32.8	4.84	2.44
NVNT	1-DH1	2441	Ant1	32.8	4.84	2.44
NVNT	1-DH1	2480	Ant1	32.8	4.84	2.44
NVNT	2-DH1	2402	Ant1	33.6	4.74	2.38
NVNT	2-DH1	2441	Ant1	34.4	4.63	2.33
NVNT	2-DH1	2480	Ant1	33.6	4.74	2.38
NVNT	3-DH1	2402	Ant1	33.6	4.74	2.38
NVNT	3-DH1	2441	Ant1	33.6	4.74	2.38
NVNT	3-DH1	2480	Ant1	33.6	4.74	2.38

Test Graphs

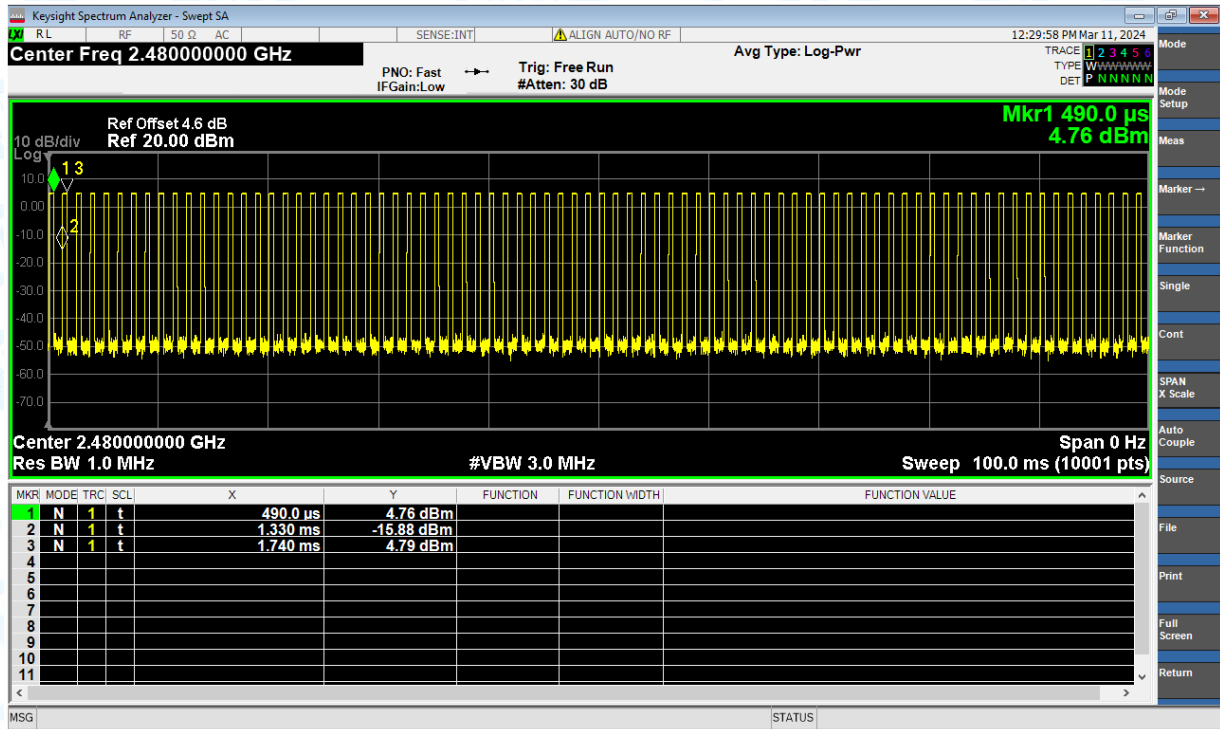
Duty Cycle NVNT 1-DH1 2402MHz Ant1



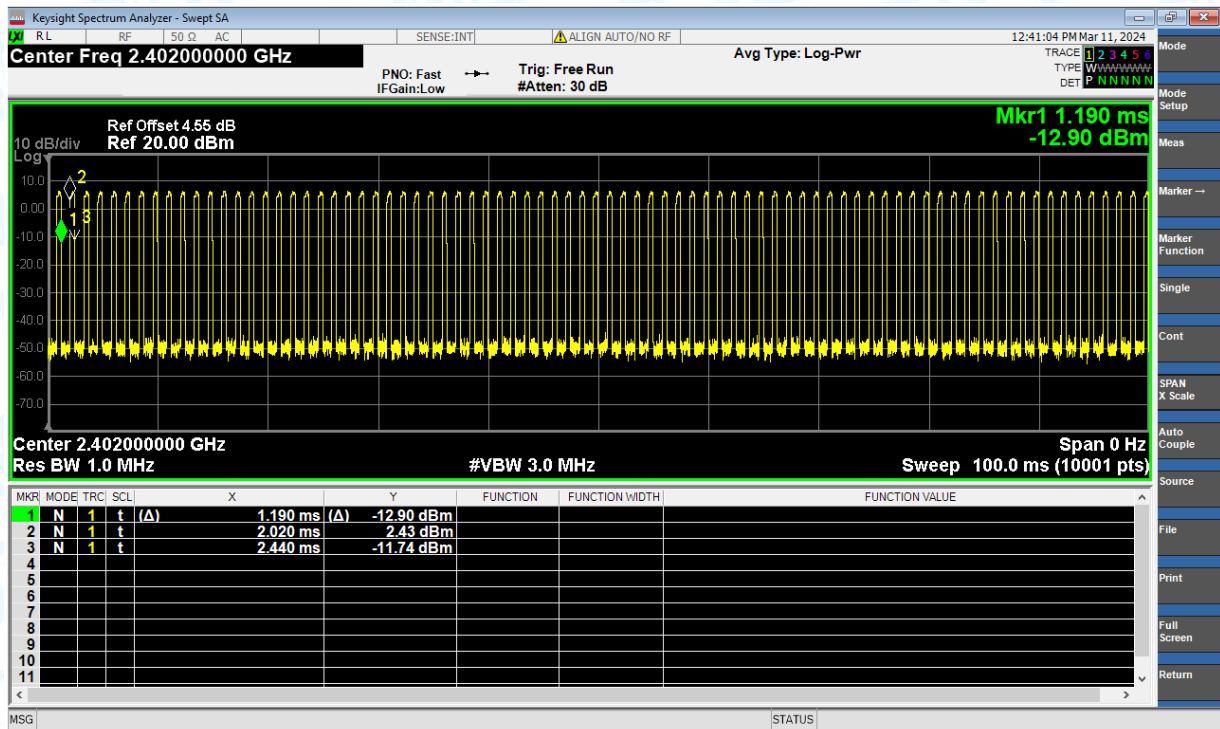
Duty Cycle NVNT 1-DH1 2441MHz Ant1



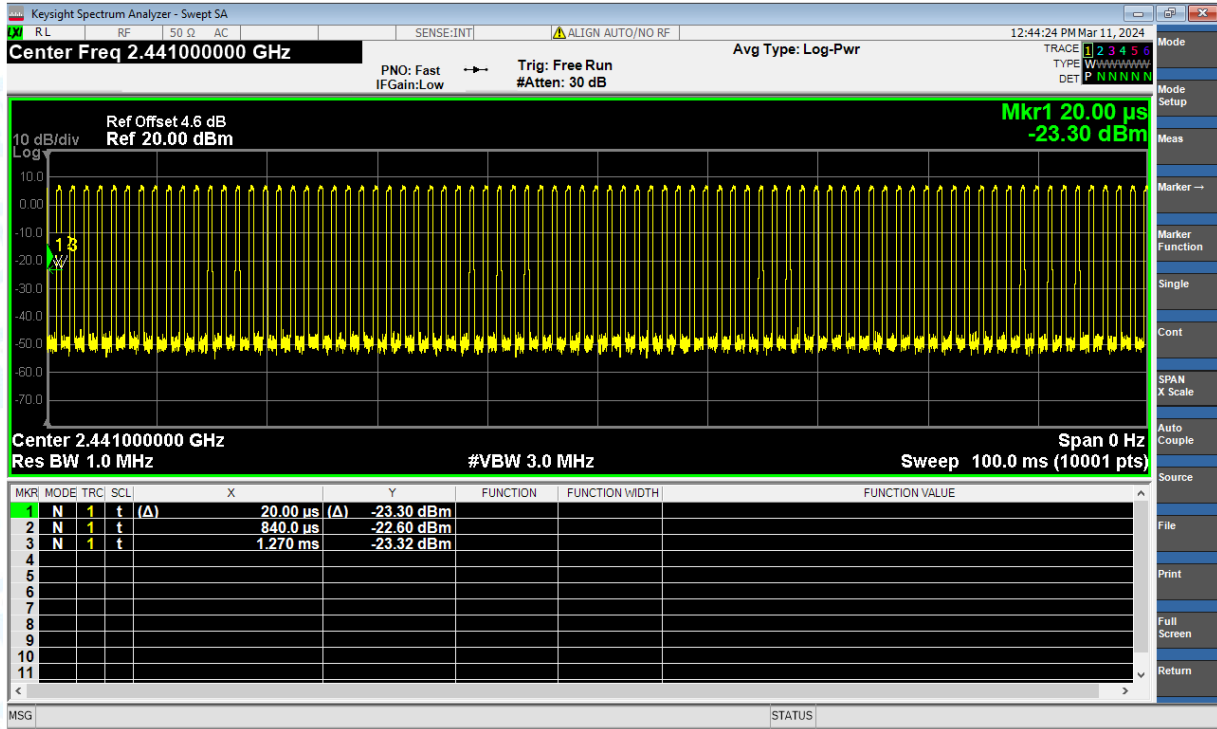
Duty Cycle NVNT 1-DH1 2480MHz Ant1



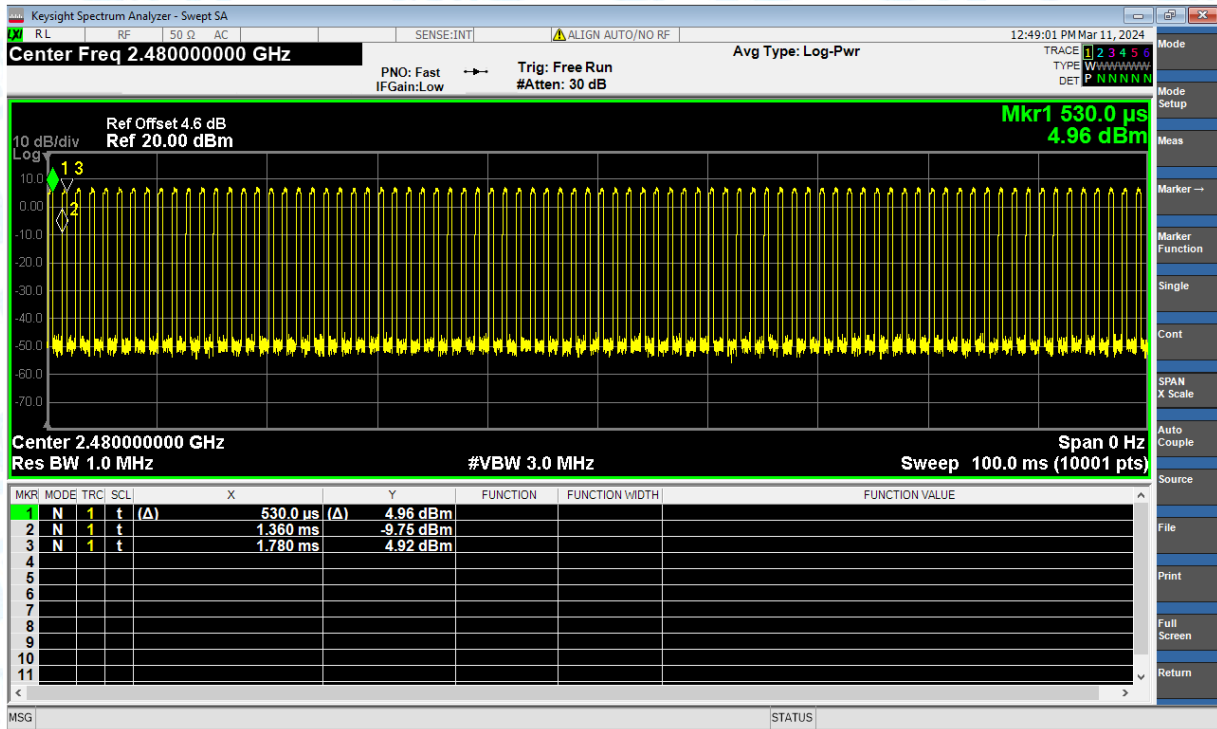
Duty Cycle NVNT 2-DH1 2402MHz Ant1



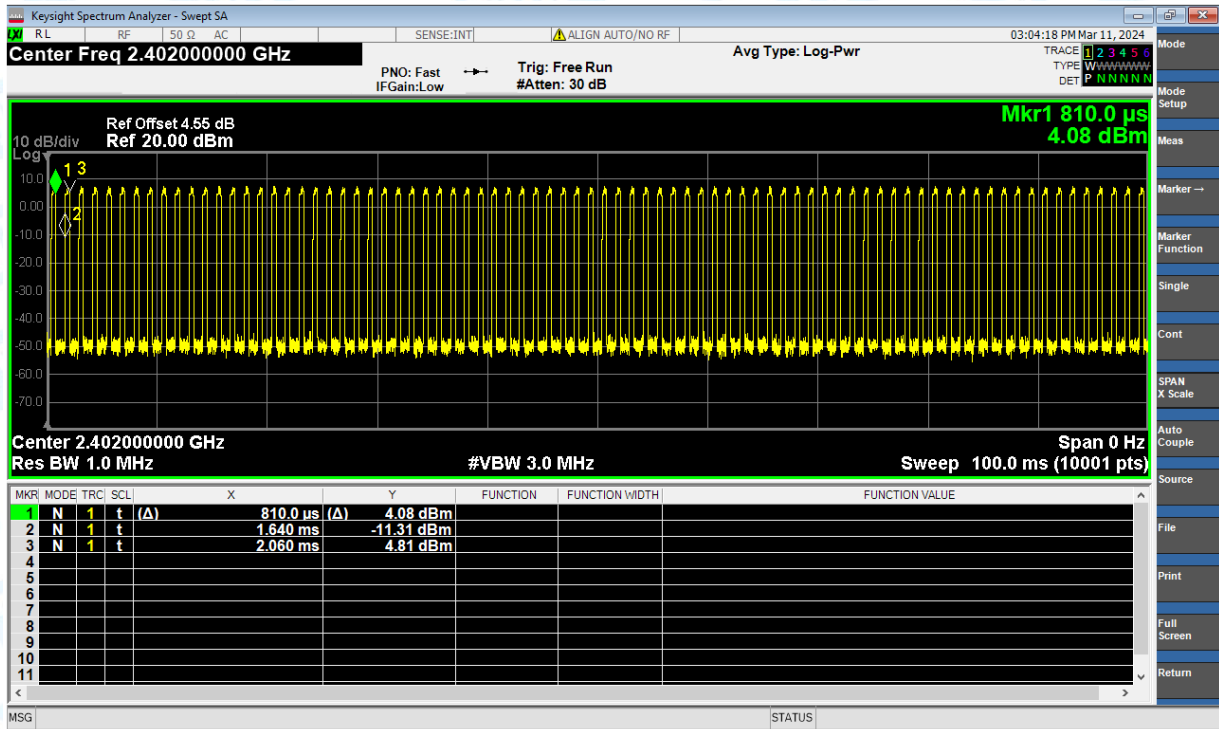
Duty Cycle NVNT 2-DH1 2441MHz Ant1



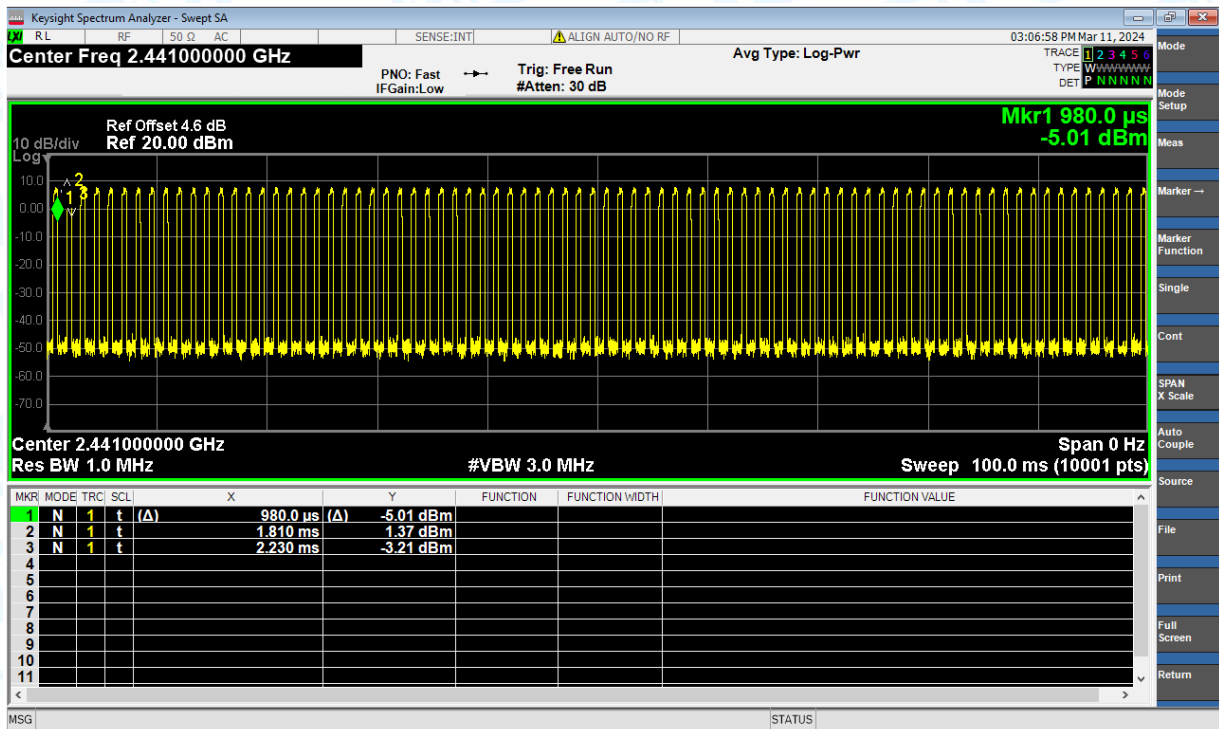
Duty Cycle NVNT 2-DH1 2480MHz Ant1

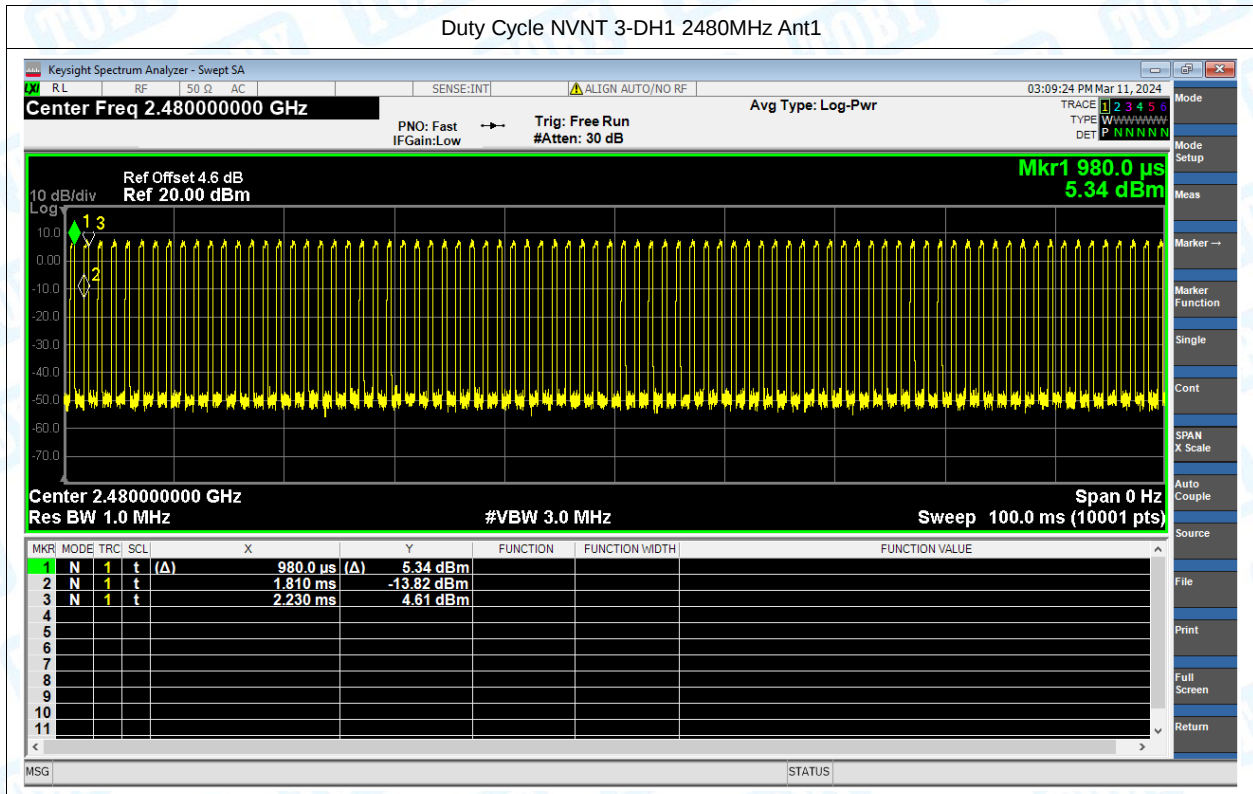


Duty Cycle NVNT 3-DH1 2402MHz Ant1



Duty Cycle NVNT 3-DH1 2441MHz Ant1



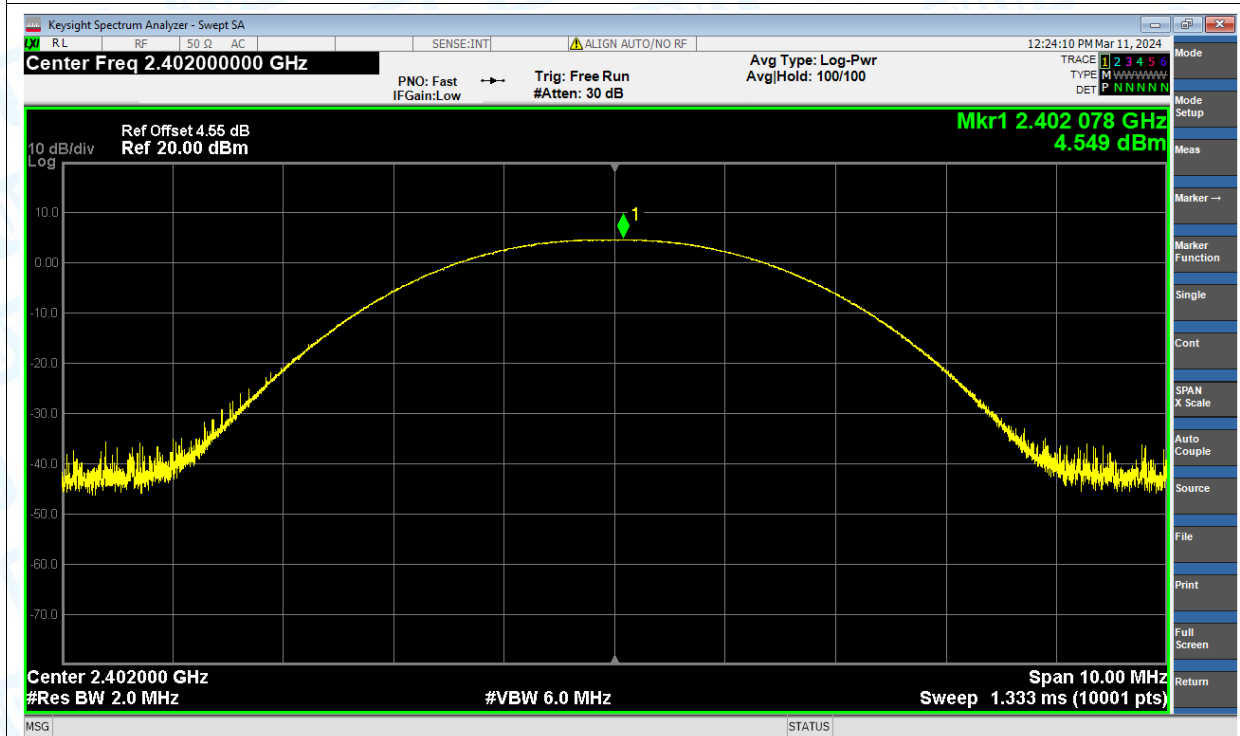


2.Maximum Conducted Output Power

Condition	Mode	Frequency (MHz)	Antenna	Conducted Power (dBm)	Limit (dBm)	Verdict
NVNT	1-DH1	2402	Ant1	4.549	21	Pass
NVNT	1-DH1	2441	Ant1	5.386	21	Pass
NVNT	1-DH1	2480	Ant1	5.215	21	Pass
NVNT	2-DH1	2402	Ant1	6.941	21	Pass
NVNT	2-DH1	2441	Ant1	7.642	21	Pass
NVNT	2-DH1	2480	Ant1	7.465	21	Pass
NVNT	3-DH1	2402	Ant1	7.724	21	Pass
NVNT	3-DH1	2441	Ant1	8.305	21	Pass
NVNT	3-DH1	2480	Ant1	8	21	Pass

Test Graphs

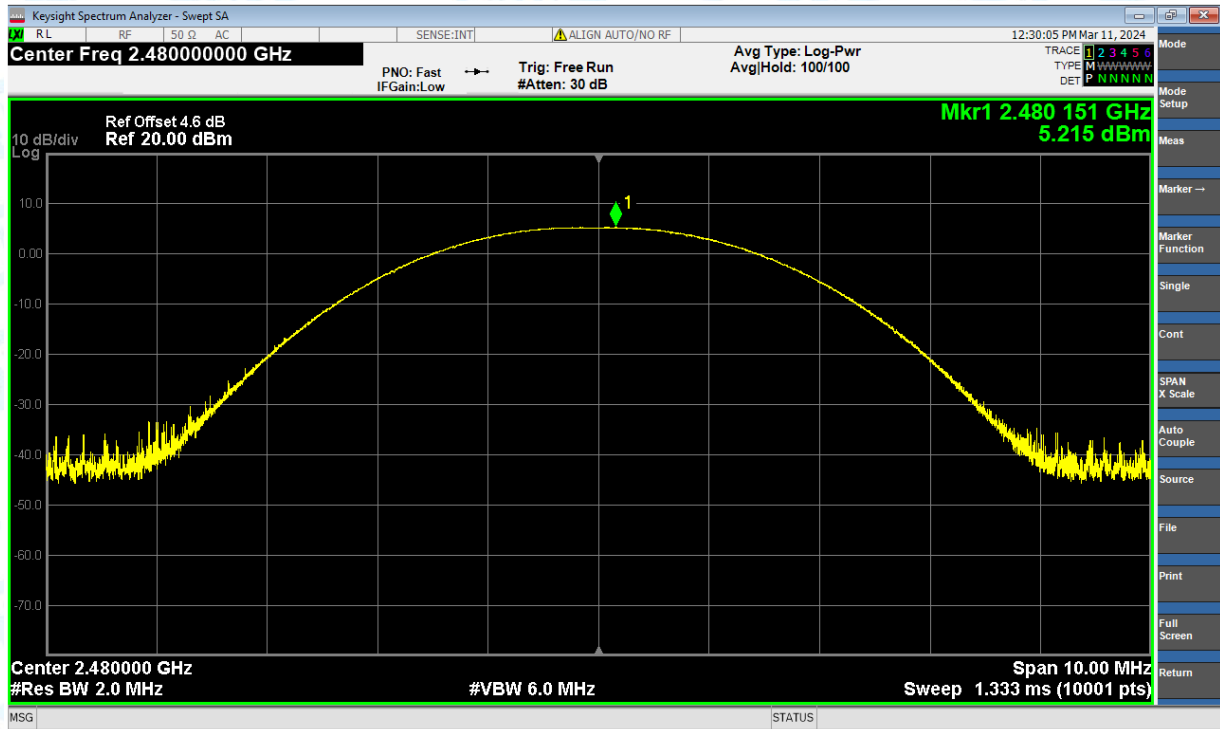
Power NVNT 1-DH1 2402MHz Ant1



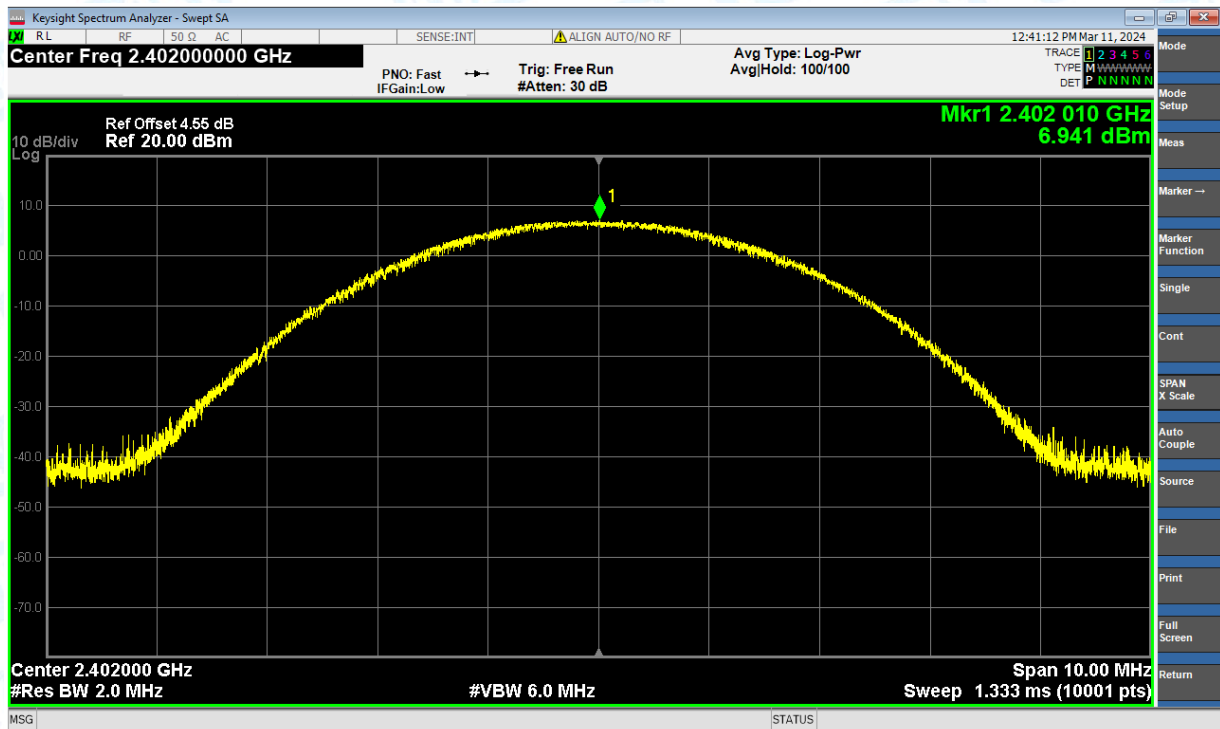
Power NVNT 1-DH1 2441MHz Ant1



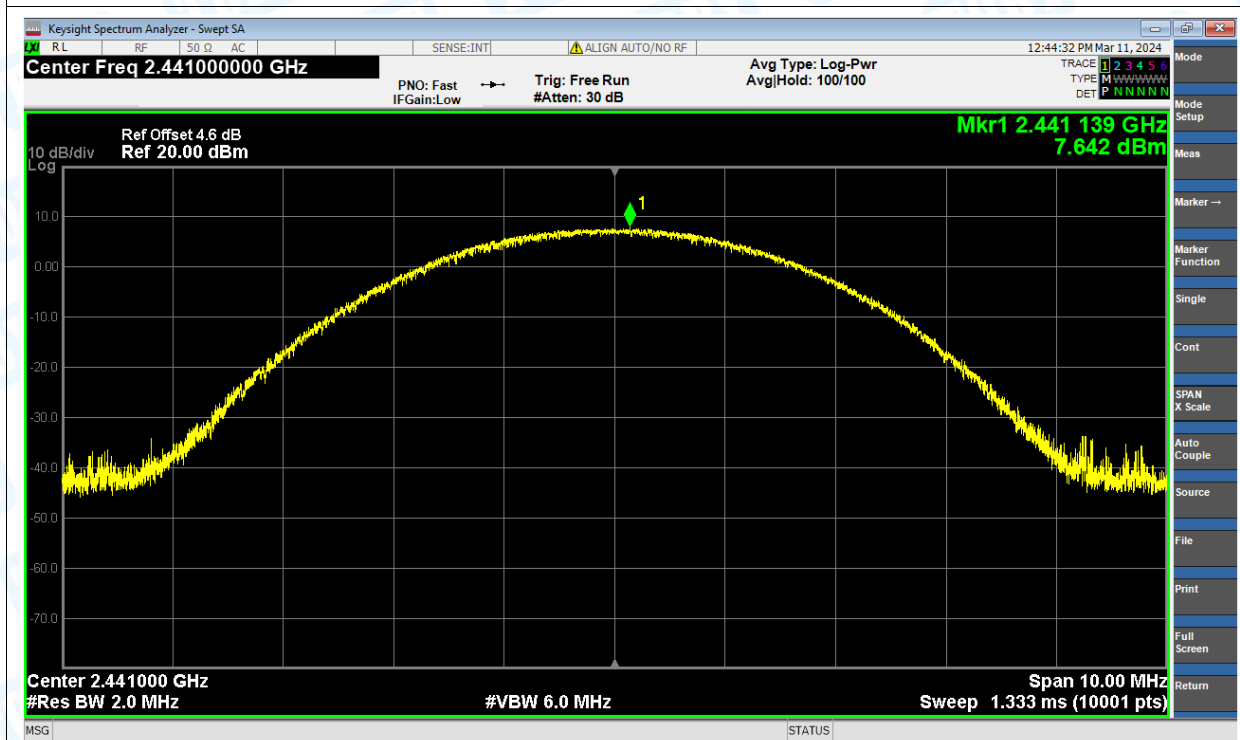
Power NVNT 1-DH1 2480MHz Ant1



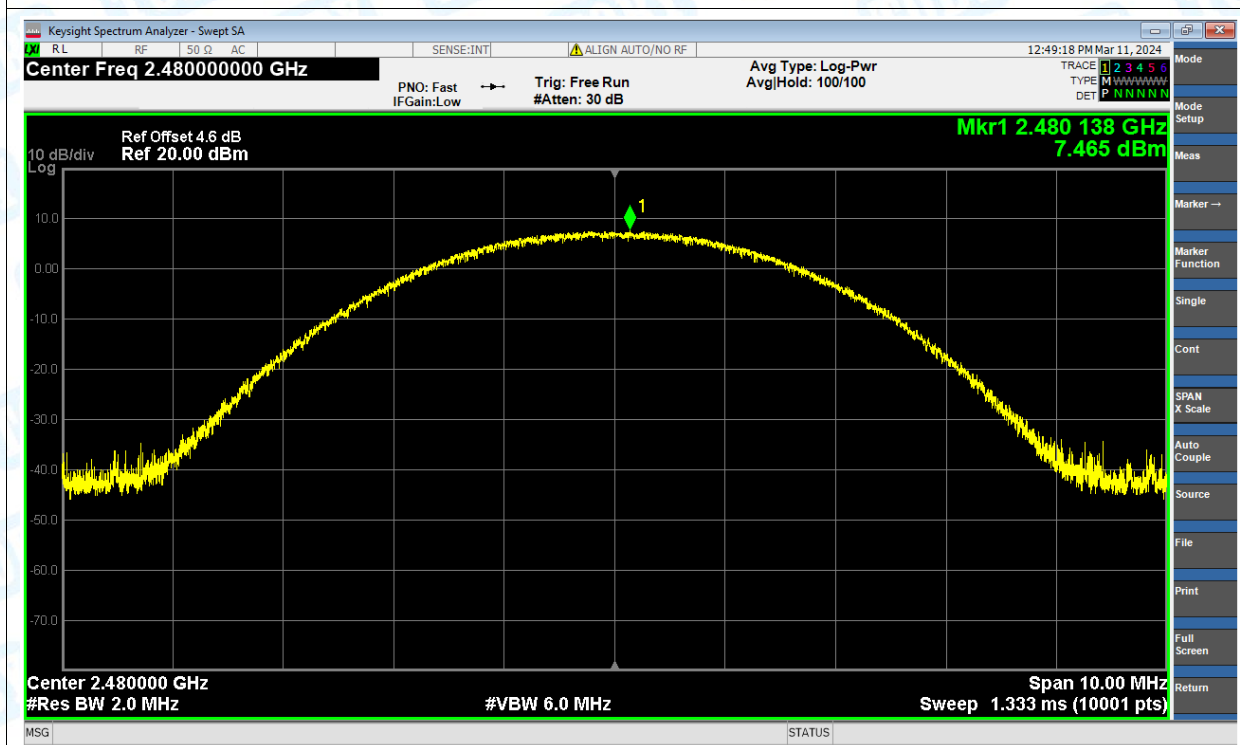
Power NVNT 2-DH1 2402MHz Ant1



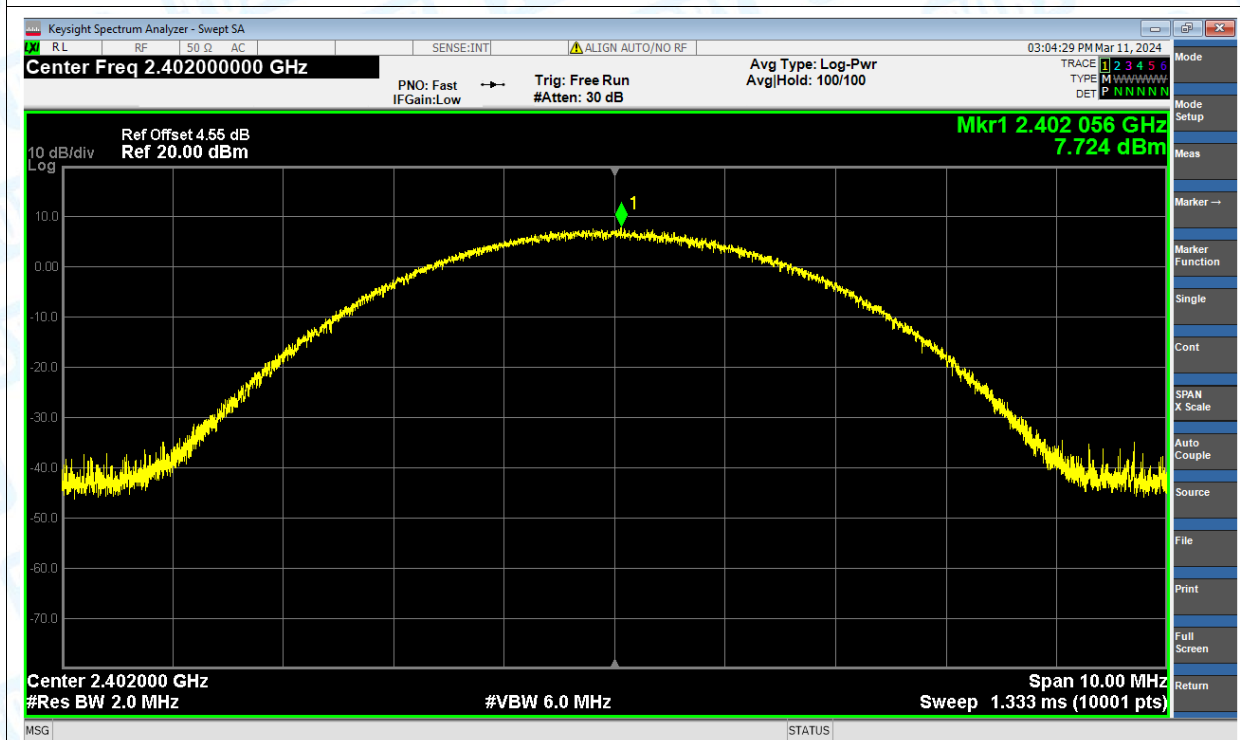
Power NVNT 2-DH1 2441MHz Ant1



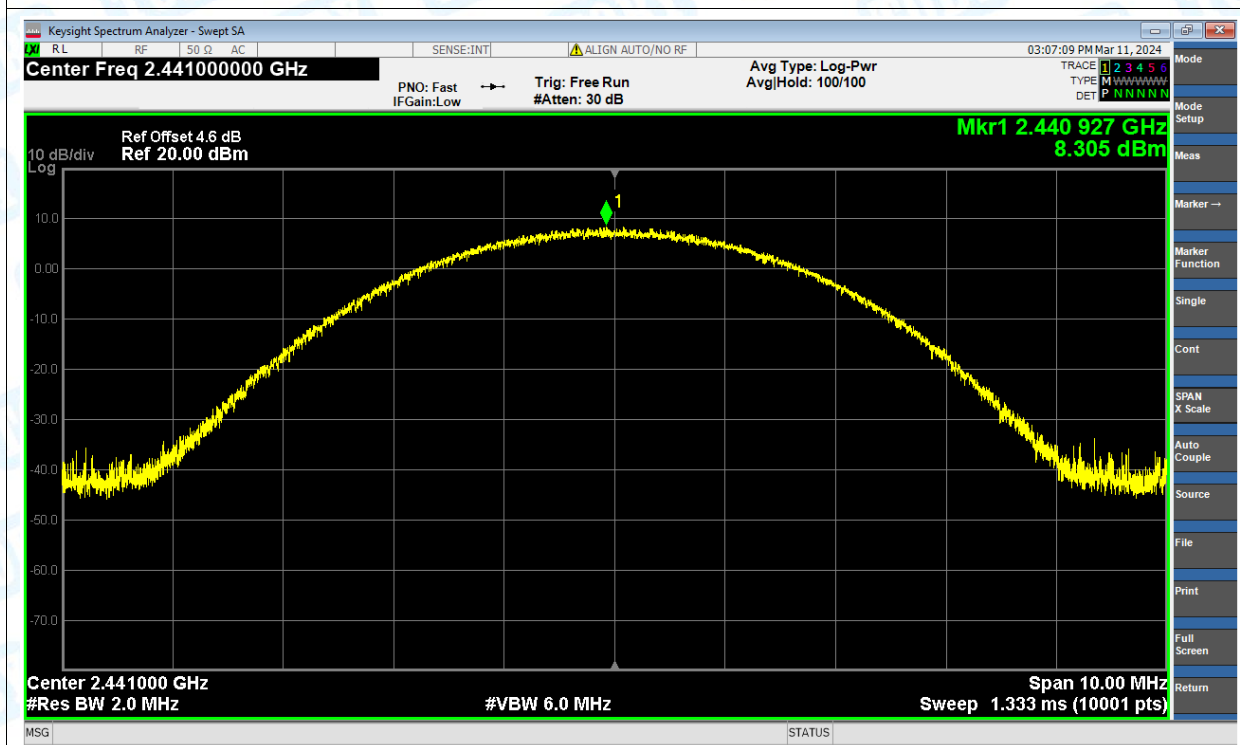
Power NVNT 2-DH1 2480MHz Ant1



Power NVNT 3-DH1 2402MHz Ant1



Power NVNT 3-DH1 2441MHz Ant1



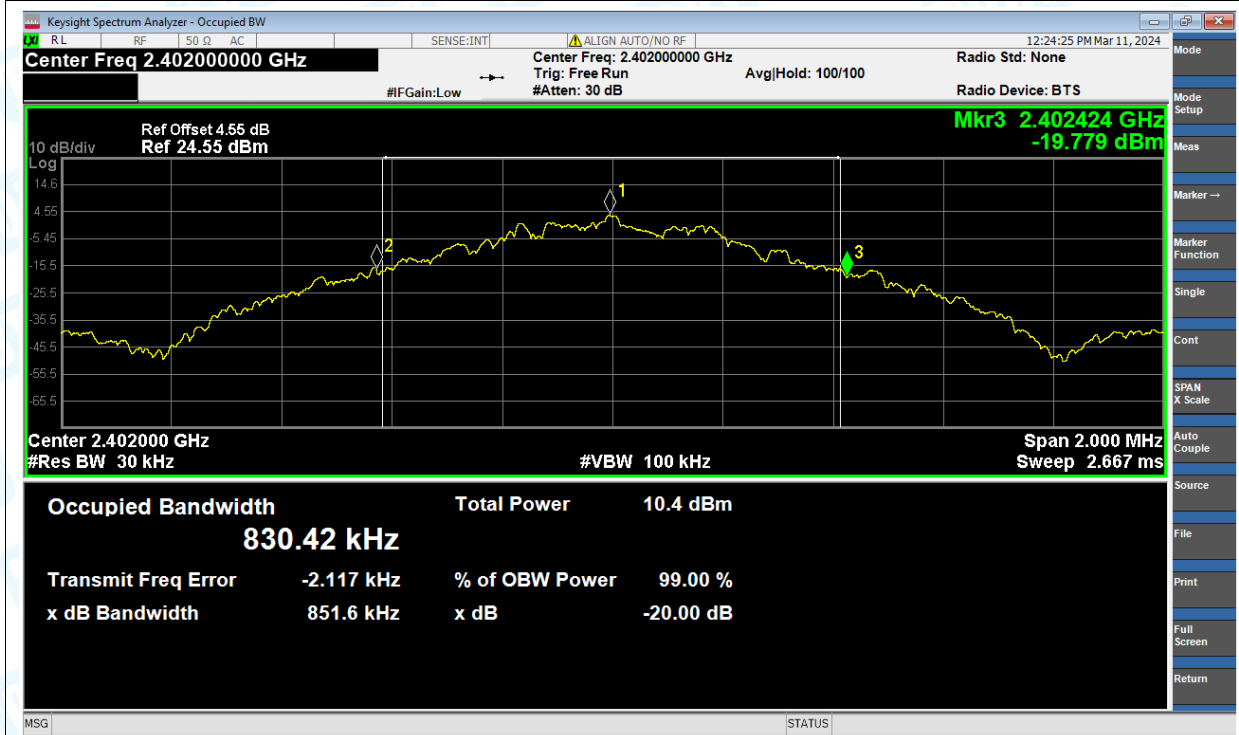


3.-20dB Bandwidth

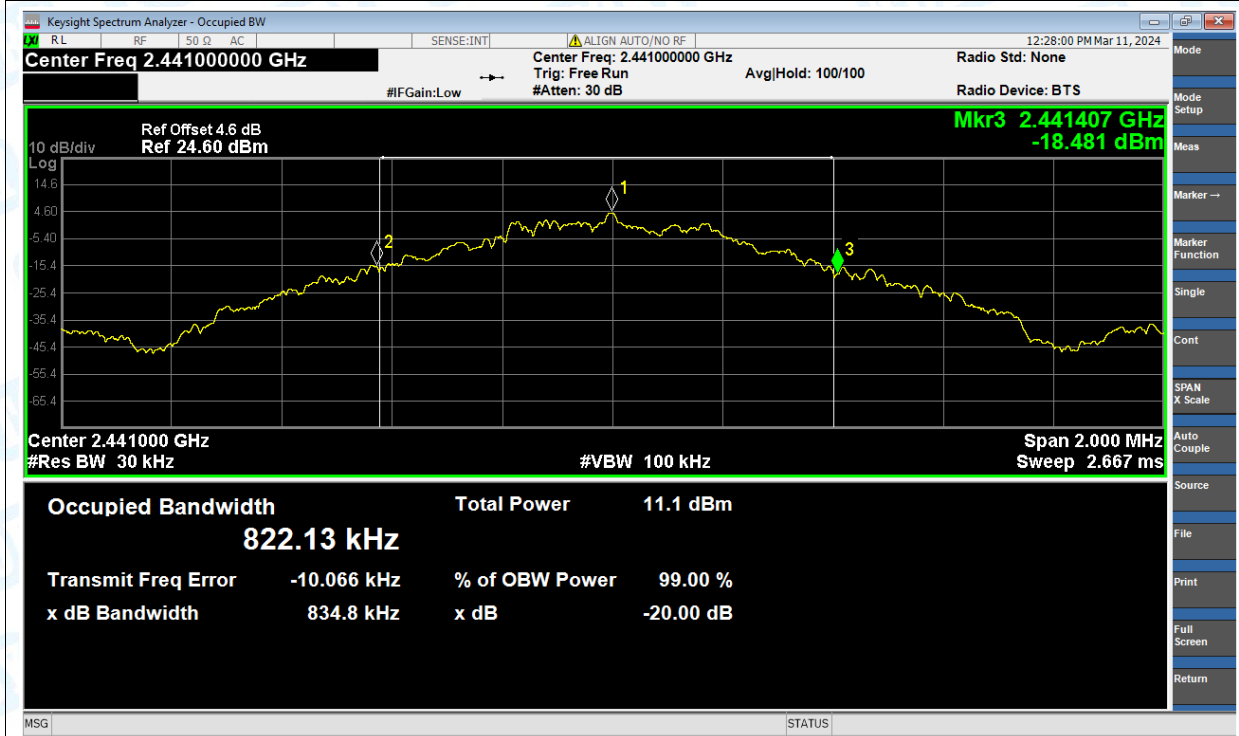
Condition	Mode	Frequency (MHz)	Antenna	-20 dB Bandwidth (MHz)	Limit -20 dB Bandwidth (MHz)	Verdict
NVNT	1-DH1	2402	Ant1	0.85	0	Pass
NVNT	1-DH1	2441	Ant1	0.83	0	Pass
NVNT	1-DH1	2480	Ant1	0.88	0	Pass
NVNT	2-DH1	2402	Ant1	1.26	0	Pass
NVNT	2-DH1	2441	Ant1	1.23	0	Pass
NVNT	2-DH1	2480	Ant1	1.25	0	Pass
NVNT	3-DH1	2402	Ant1	1.23	0	Pass
NVNT	3-DH1	2441	Ant1	1.22	0	Pass
NVNT	3-DH1	2480	Ant1	1.21	0	Pass

Test Graphs

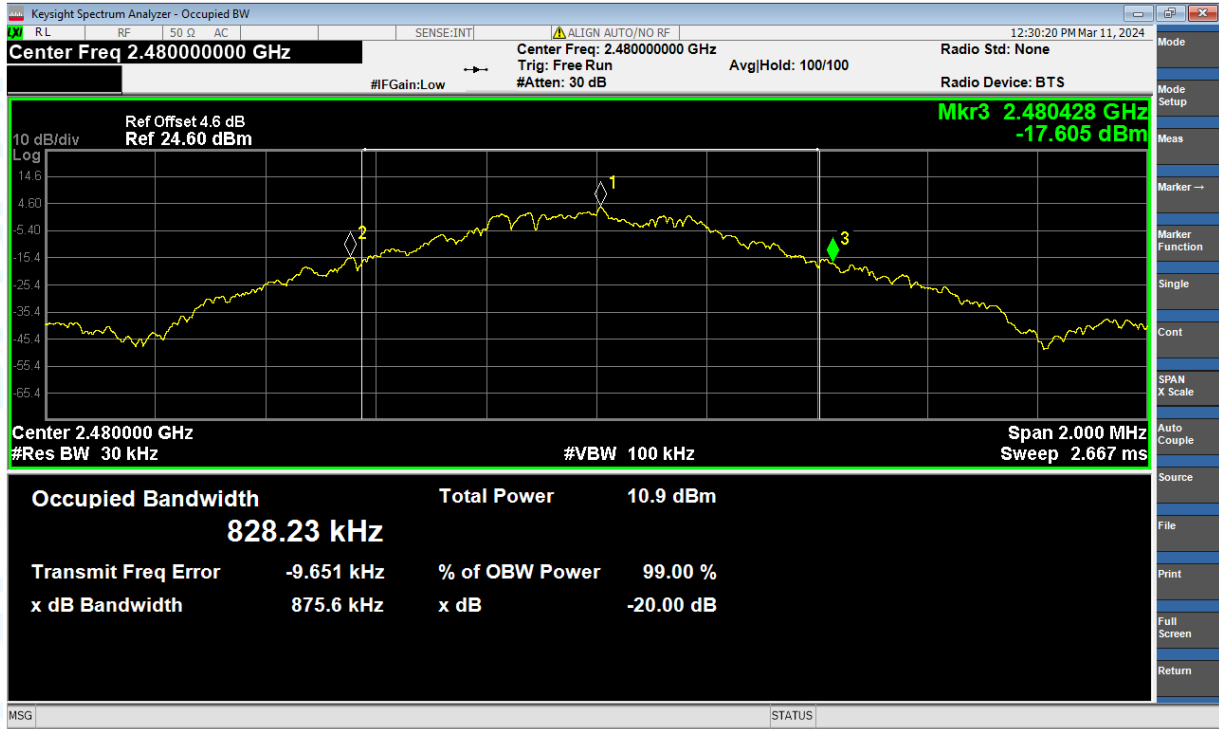
-20dB Bandwidth NVNT 1-DH1 2402MHz Ant1



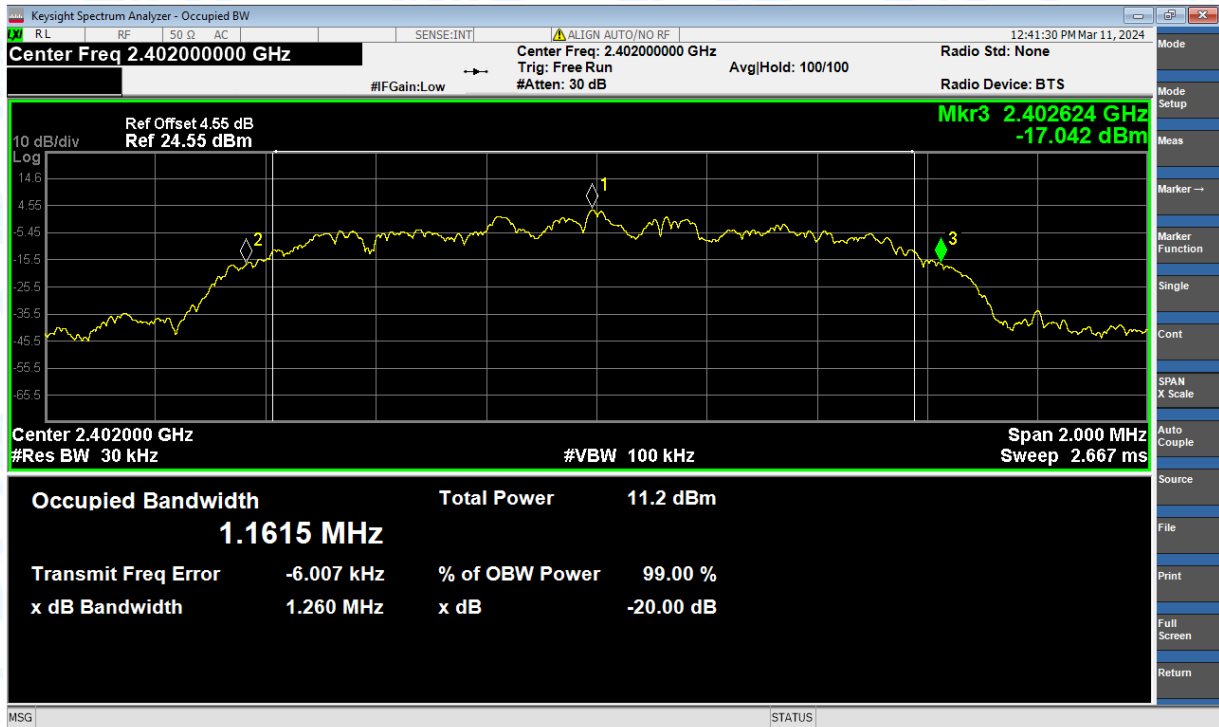
-20dB Bandwidth NVNT 1-DH1 2441MHz Ant1



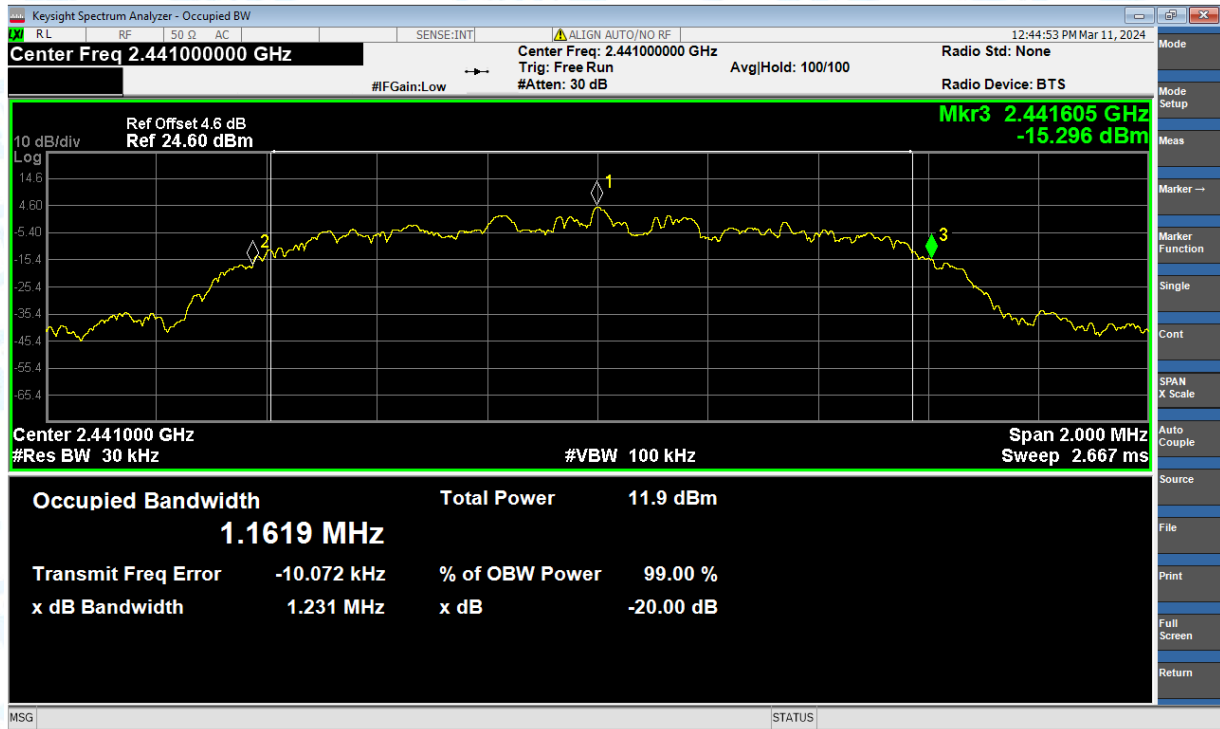
-20dB Bandwidth NVNT 1-DH1 2480MHz Ant1



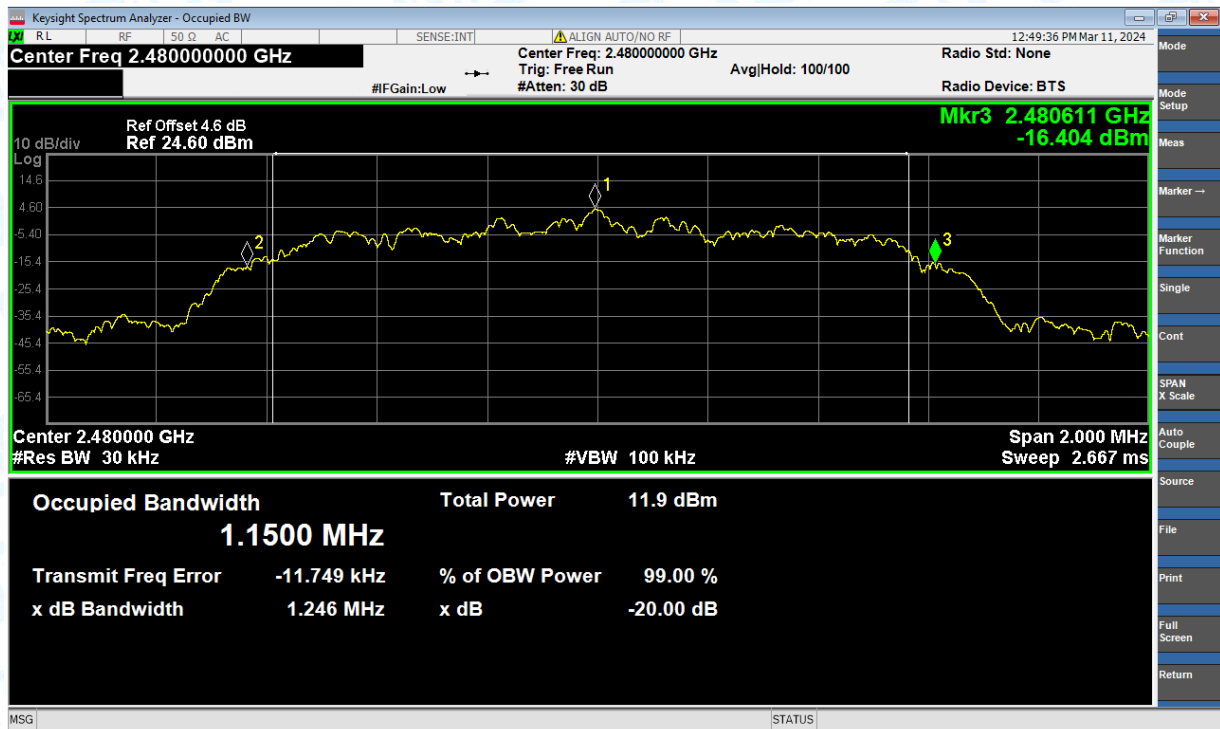
-20dB Bandwidth NVNT 2-DH1 2402MHz Ant1



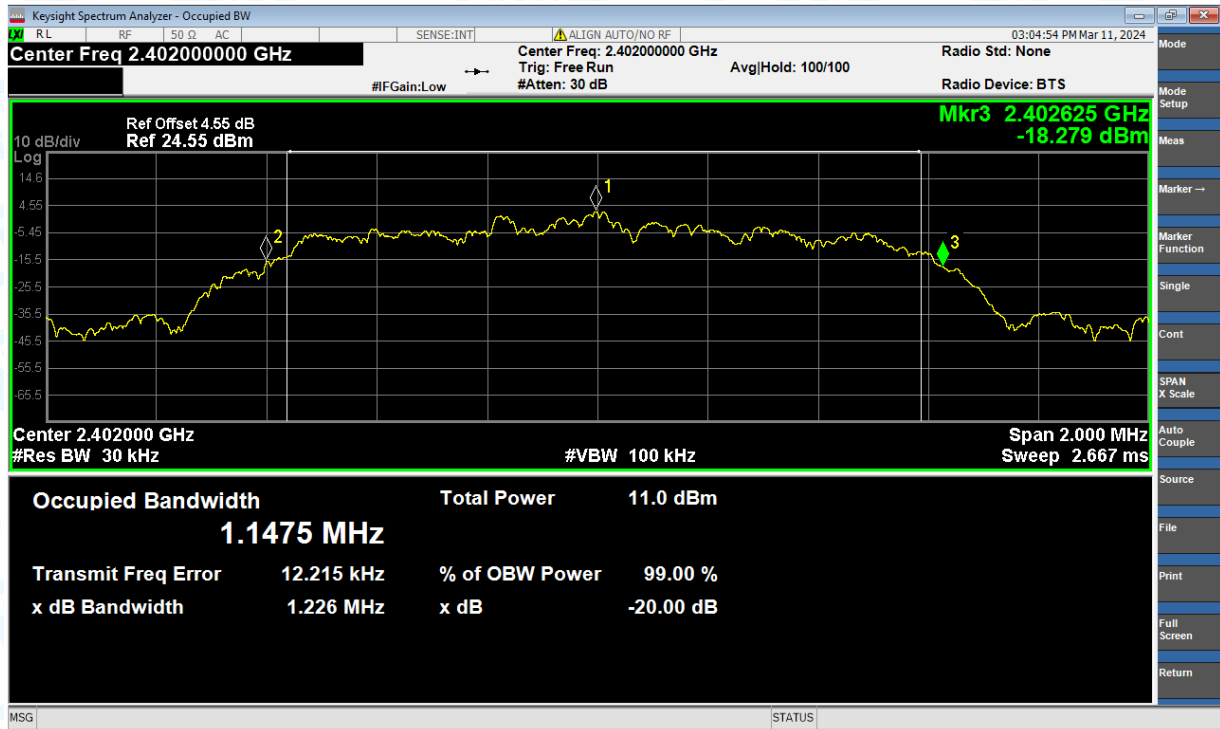
-20dB Bandwidth NVNT 2-DH1 2441MHz Ant1



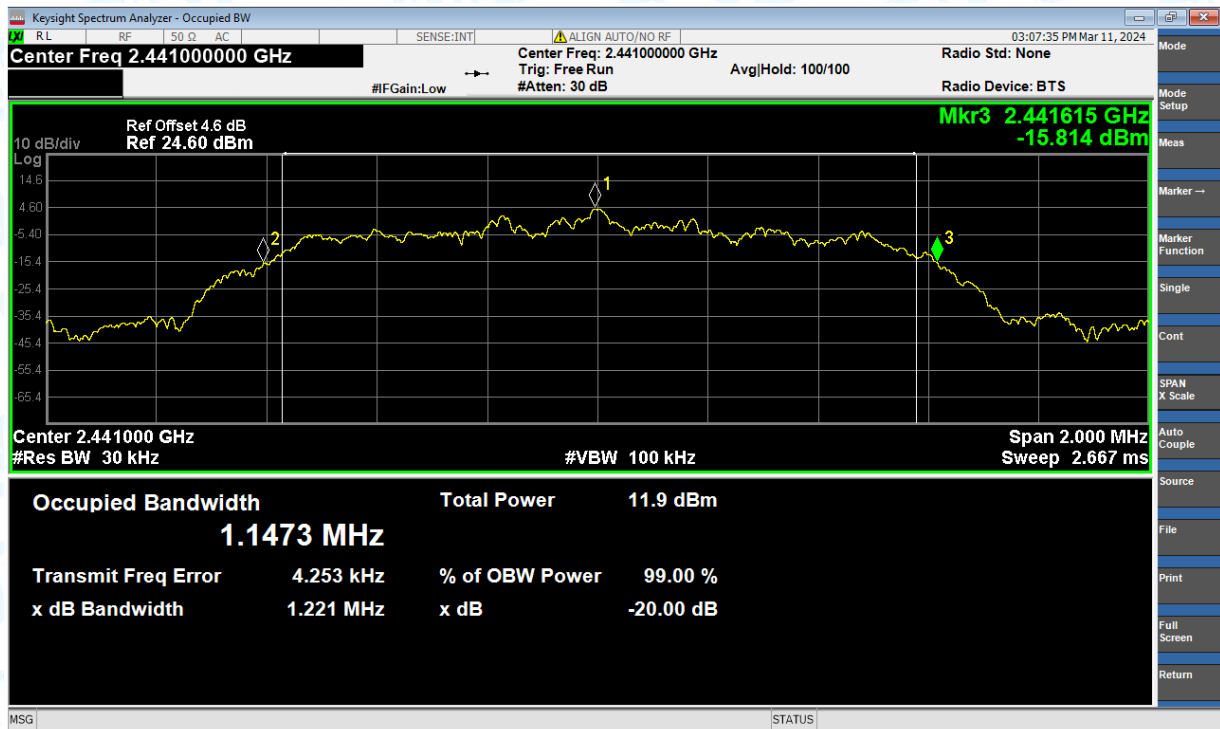
-20dB Bandwidth NVNT 2-DH1 2480MHz Ant1

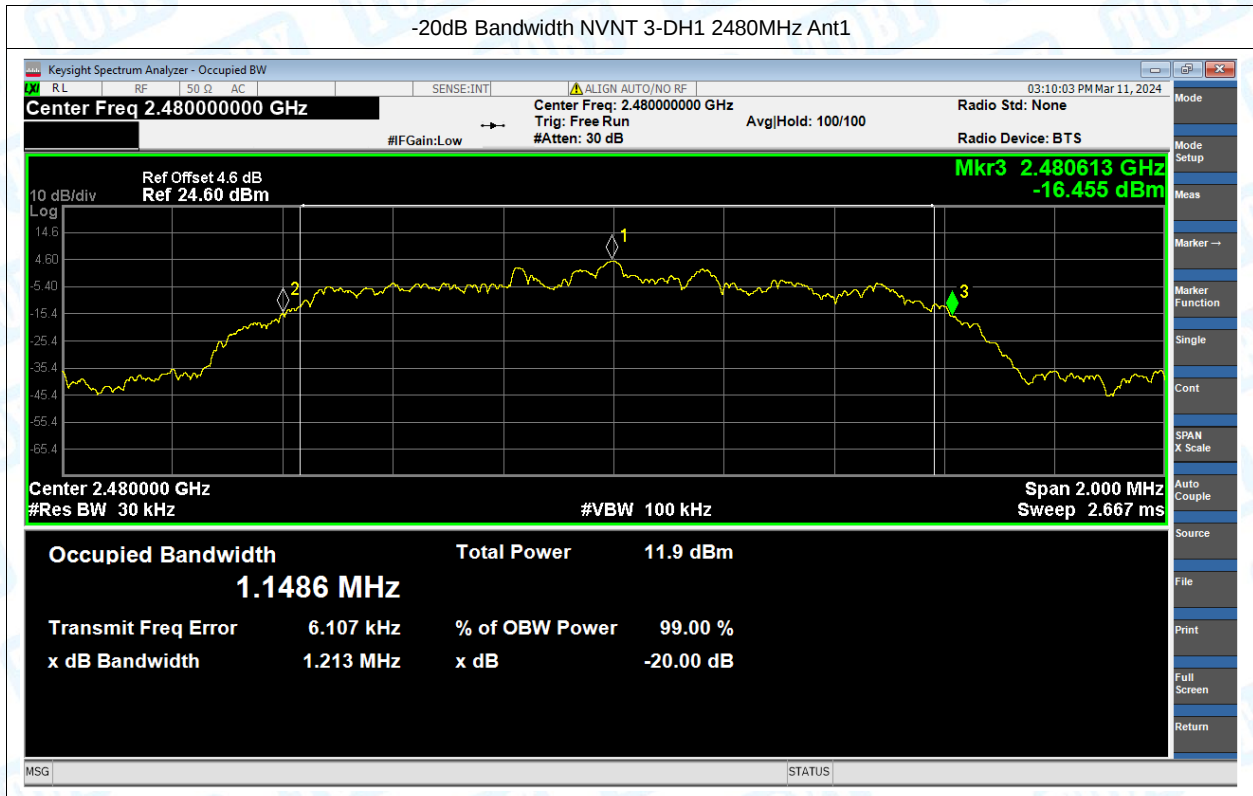


-20dB Bandwidth NVNT 3-DH1 2402MHz Ant1



-20dB Bandwidth NVNT 3-DH1 2441MHz Ant1



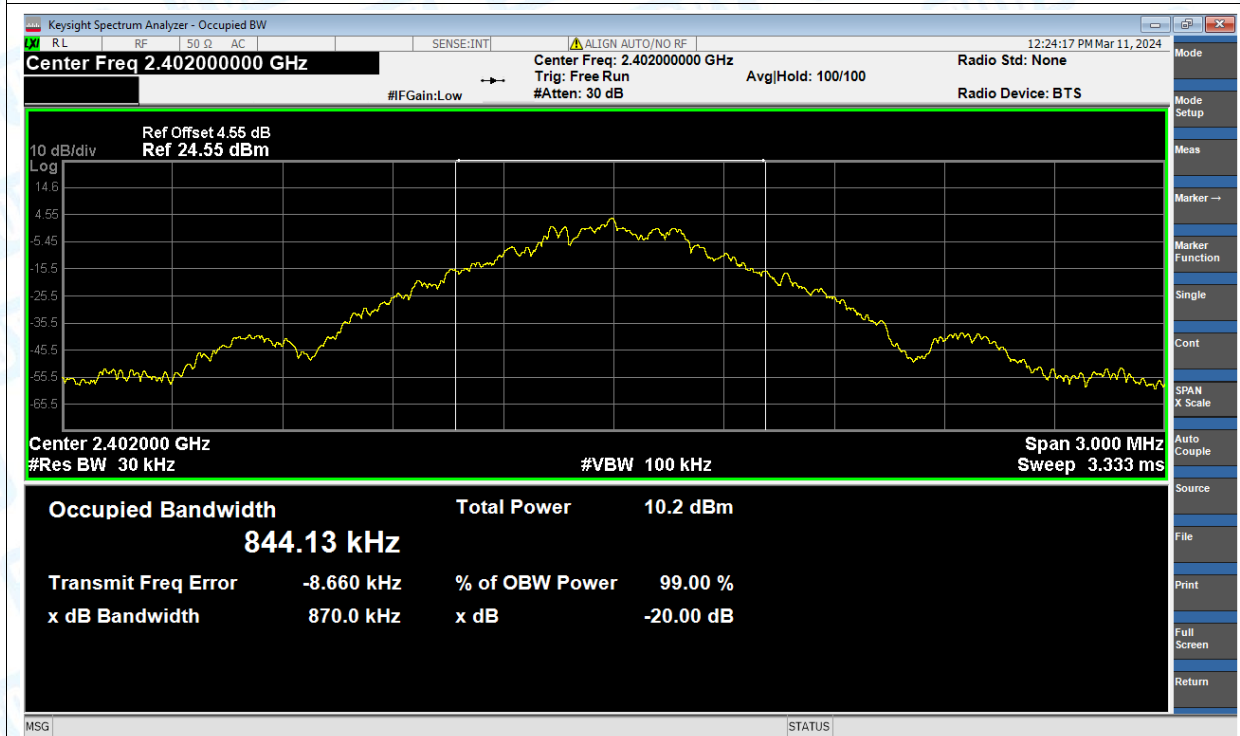


4.Occupied Channel Bandwidth

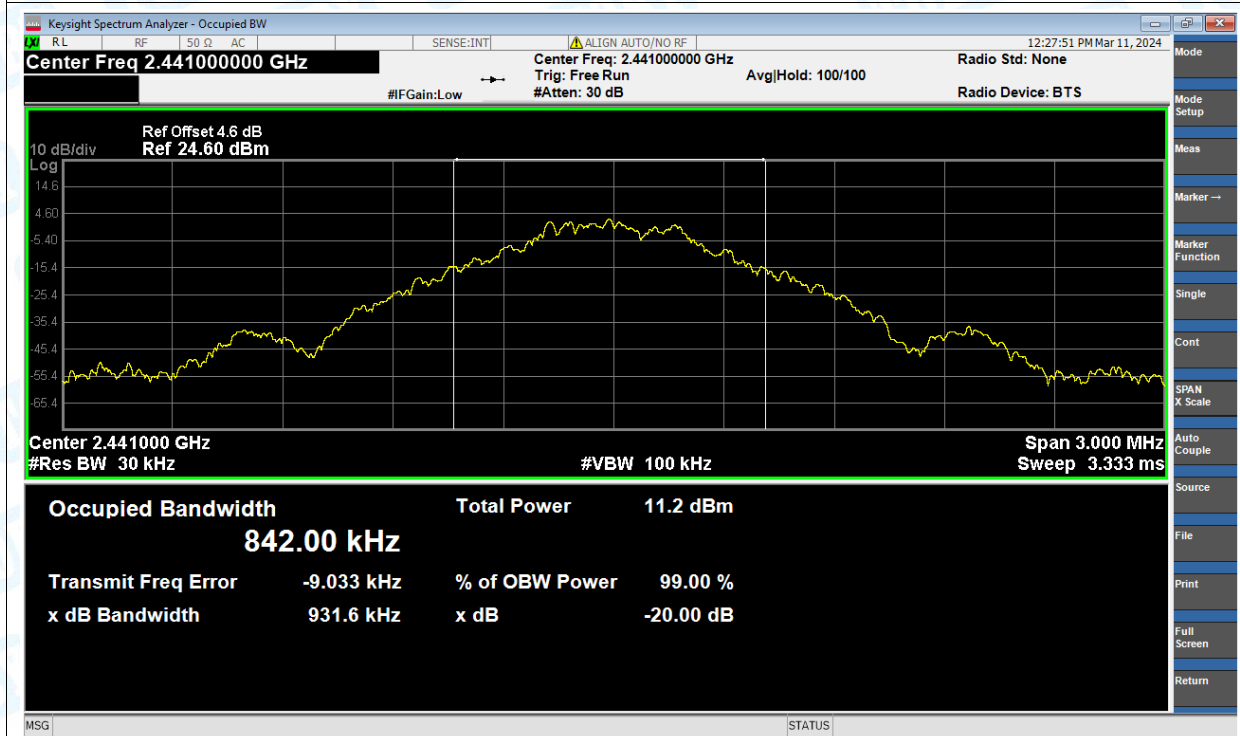
Condition	Mode	Frequency (MHz)	Antenna	99% OBW (MHz)
NVNT	1-DH1	2402	Ant1	0.844
NVNT	1-DH1	2441	Ant1	0.842
NVNT	1-DH1	2480	Ant1	0.829
NVNT	2-DH1	2402	Ant1	1.159
NVNT	2-DH1	2441	Ant1	1.167
NVNT	2-DH1	2480	Ant1	1.164
NVNT	3-DH1	2402	Ant1	1.153
NVNT	3-DH1	2441	Ant1	1.142
NVNT	3-DH1	2480	Ant1	1.155

Test Graphs

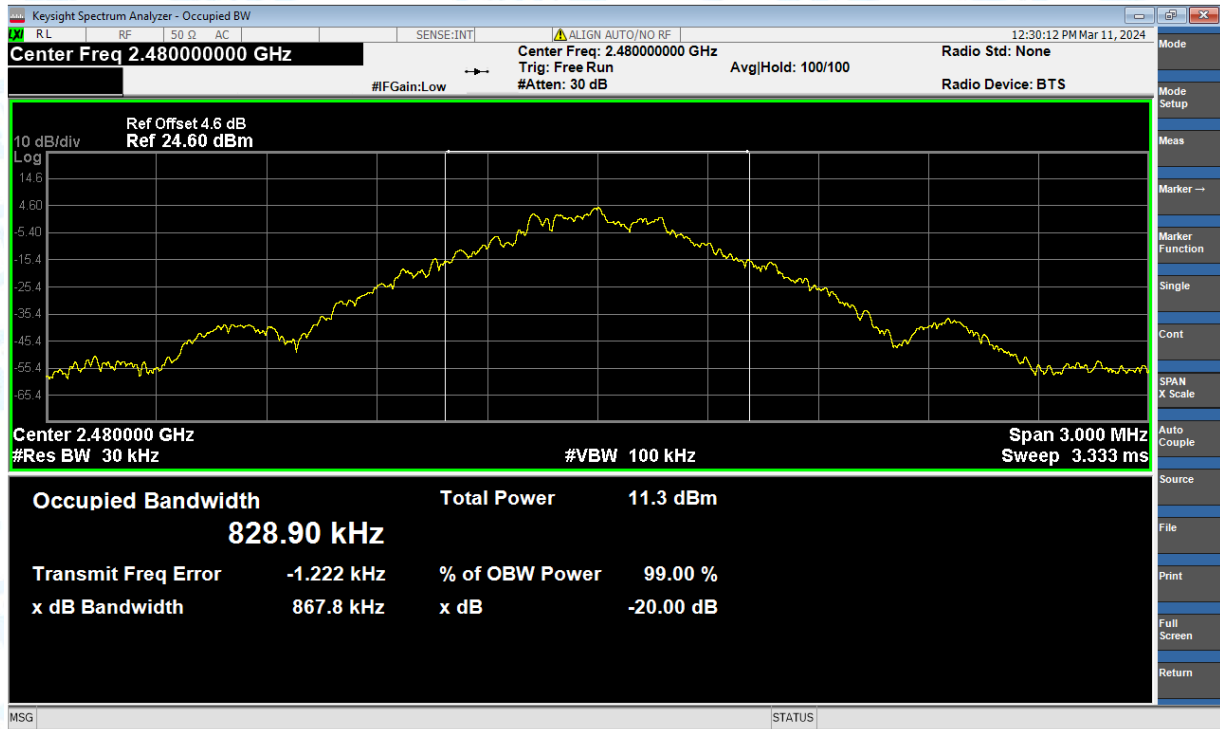
OBW NVNT 1-DH1 2402MHz Ant1



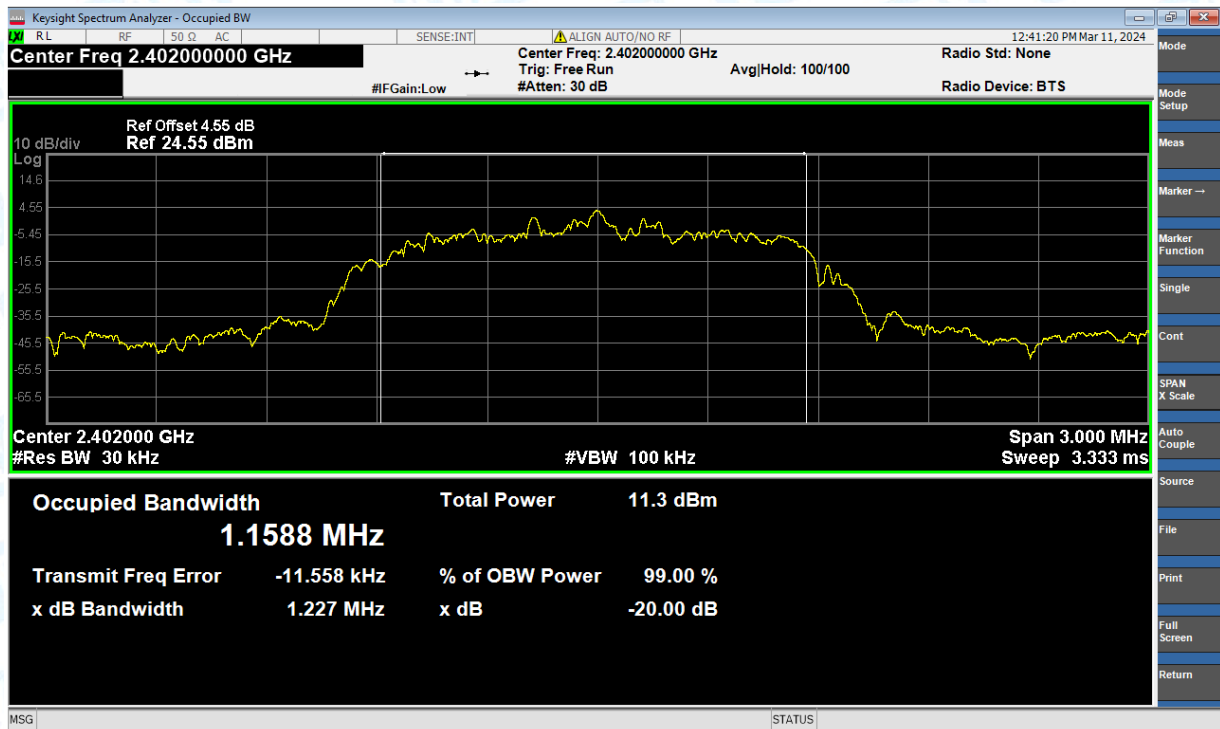
OBW NVNT 1-DH1 2441MHz Ant1



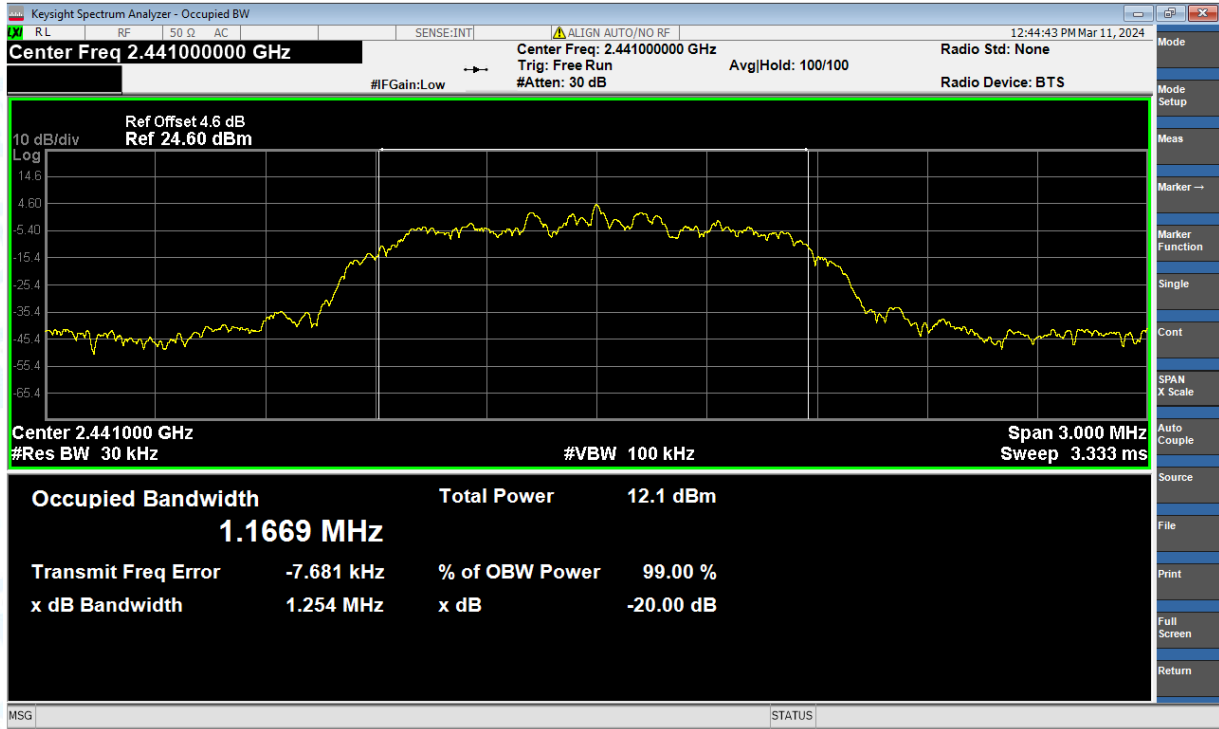
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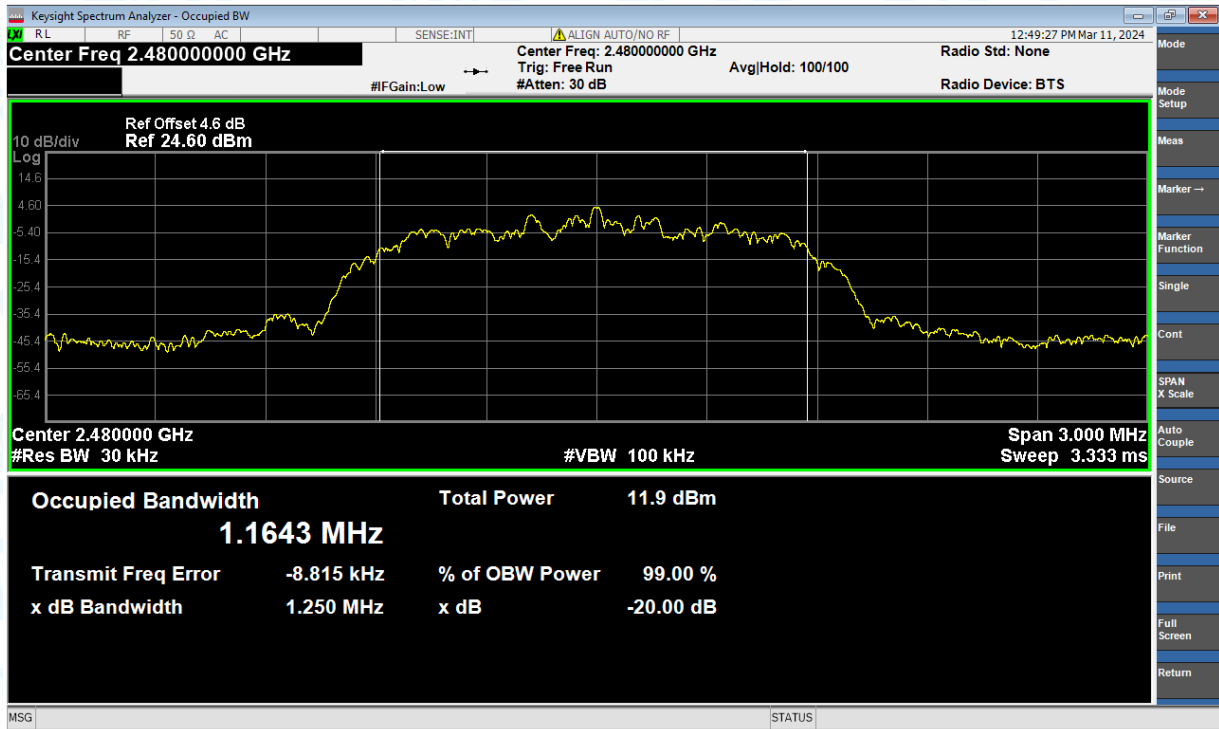
OBW NVNT 2-DH1 2402MHz Ant1



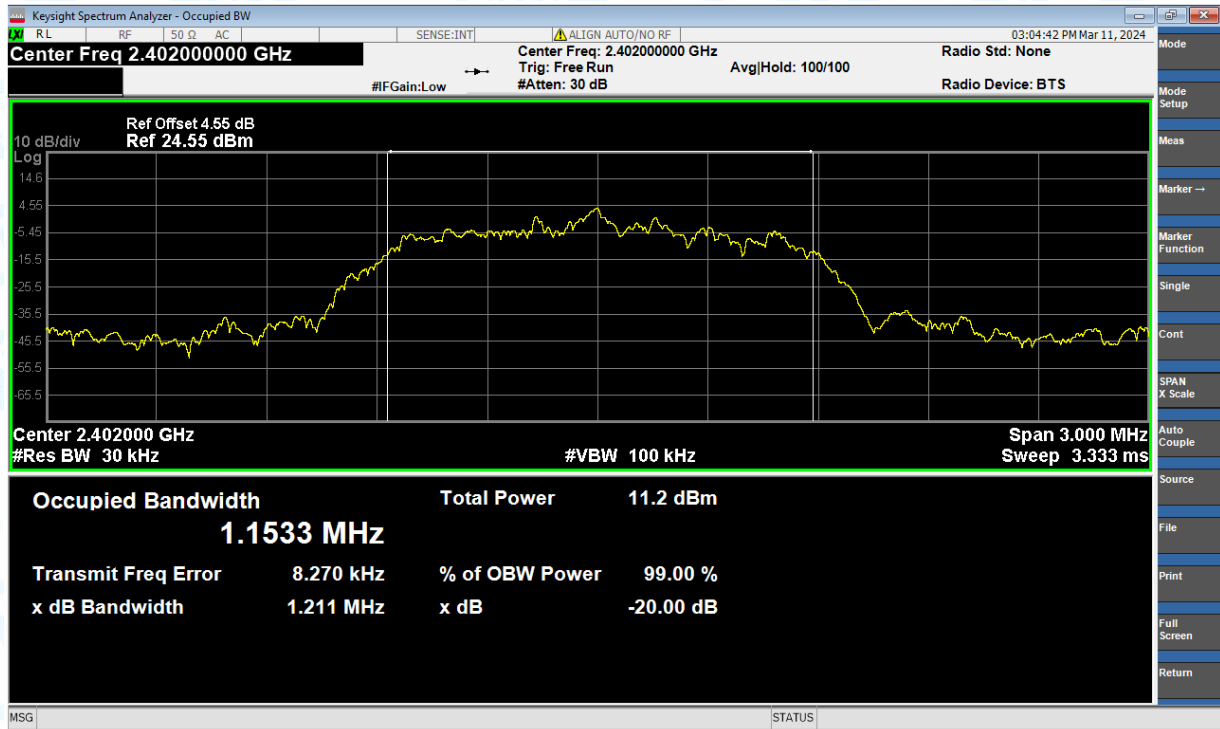
OBW NVNT 2-DH1 2441MHz Ant1



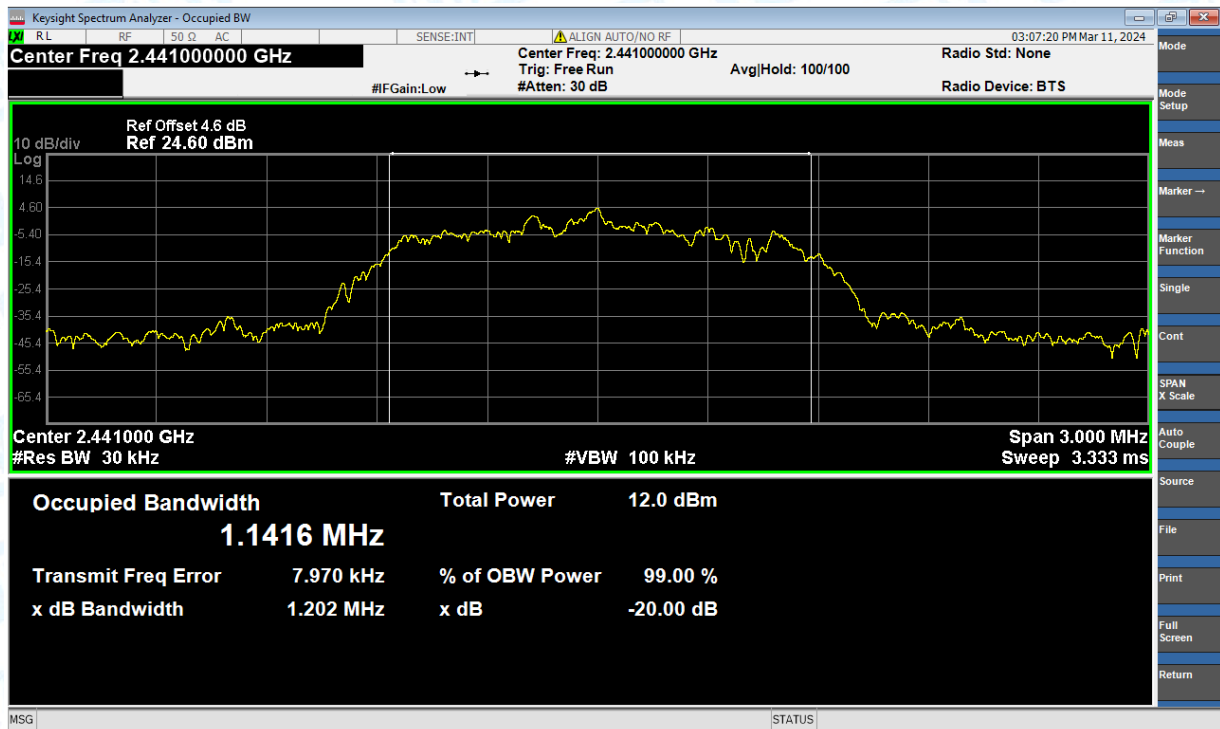
OBW NVNT 2-DH1 2480MHz Ant1

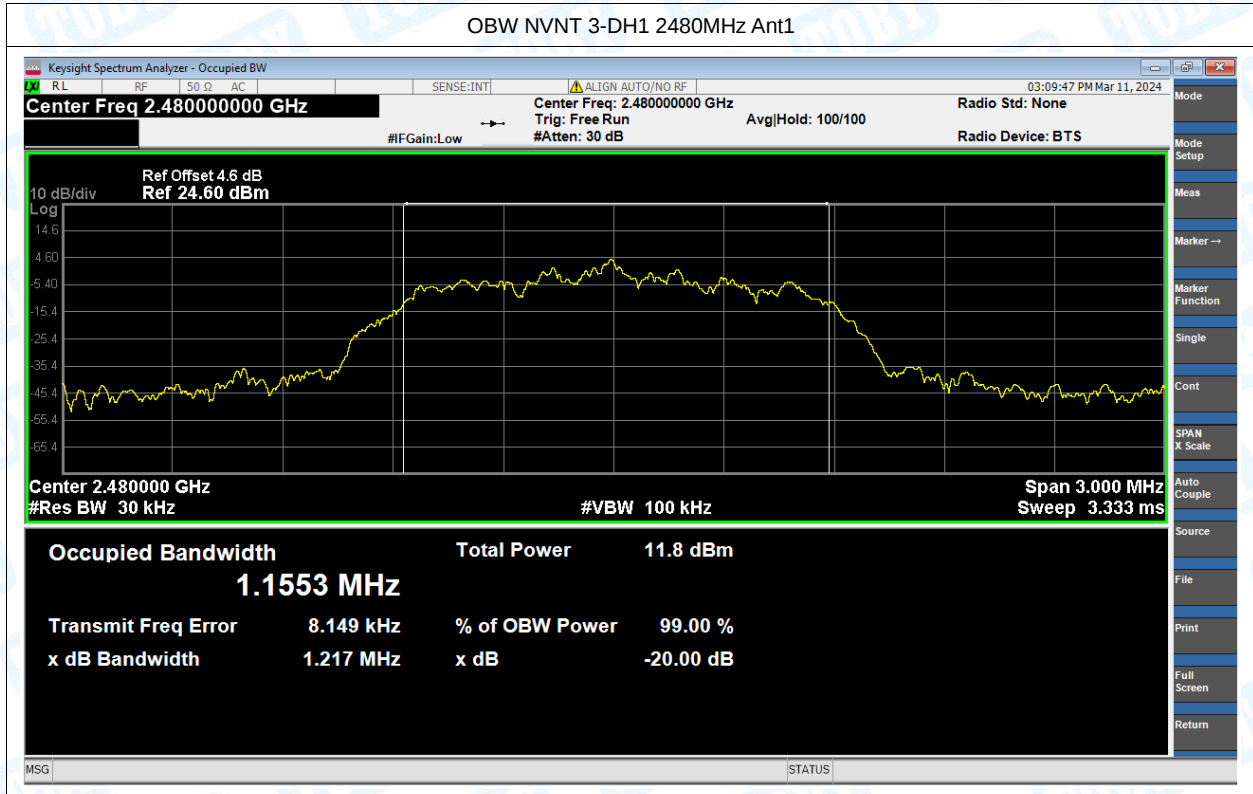


OBW NVNT 3-DH1 2402MHz Ant1



OBW NVNT 3-DH1 2441MHz Ant1



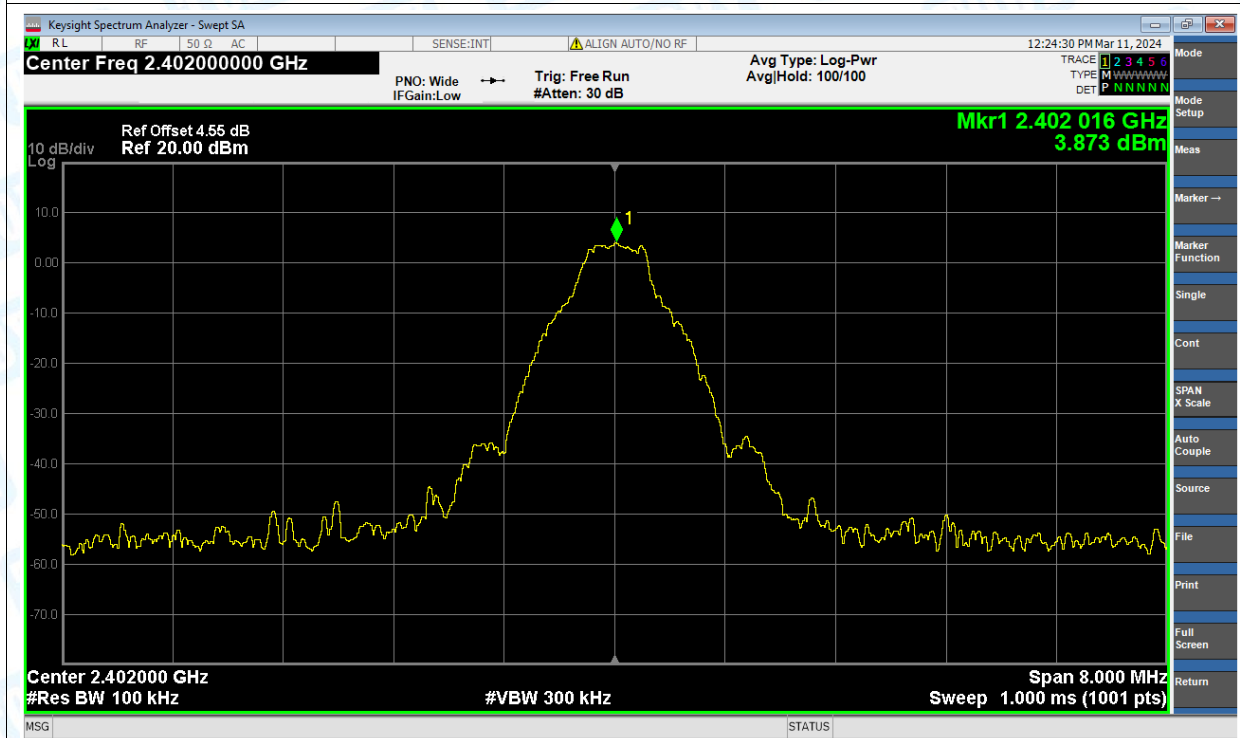


5.Band Edge

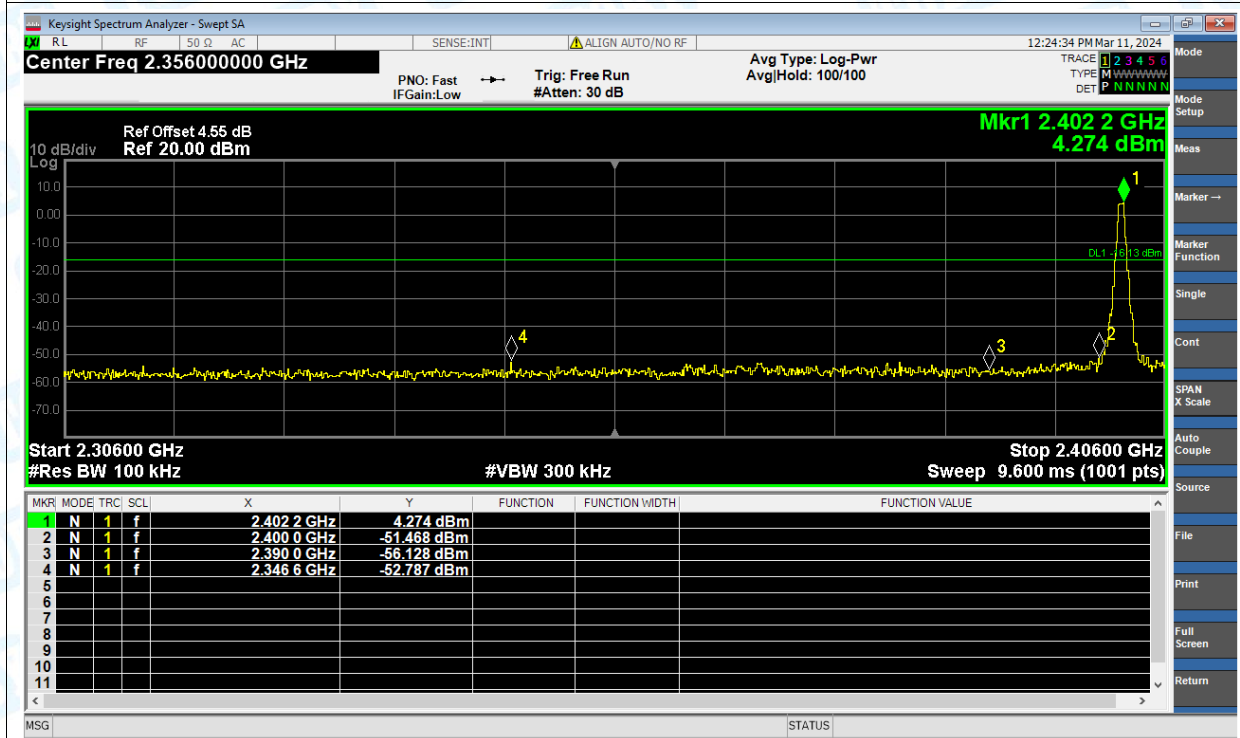
Condition	Mode	Frequency (MHz)	Antenna	Hopping Mode	Max Value (dBc)	Limit (dBc)	Verdict
NVNT	1-DH1	2402	Ant1	No-Hopping	-56.66	-20	Pass
NVNT	1-DH1	2480	Ant1	No-Hopping	-53.77	-20	Pass
NVNT	2-DH1	2402	Ant1	No-Hopping	-56.52	-20	Pass
NVNT	2-DH1	2480	Ant1	No-Hopping	-50.88	-20	Pass
NVNT	3-DH1	2402	Ant1	No-Hopping	-57.48	-20	Pass
NVNT	3-DH1	2480	Ant1	No-Hopping	-51.77	-20	Pass

Test Graphs

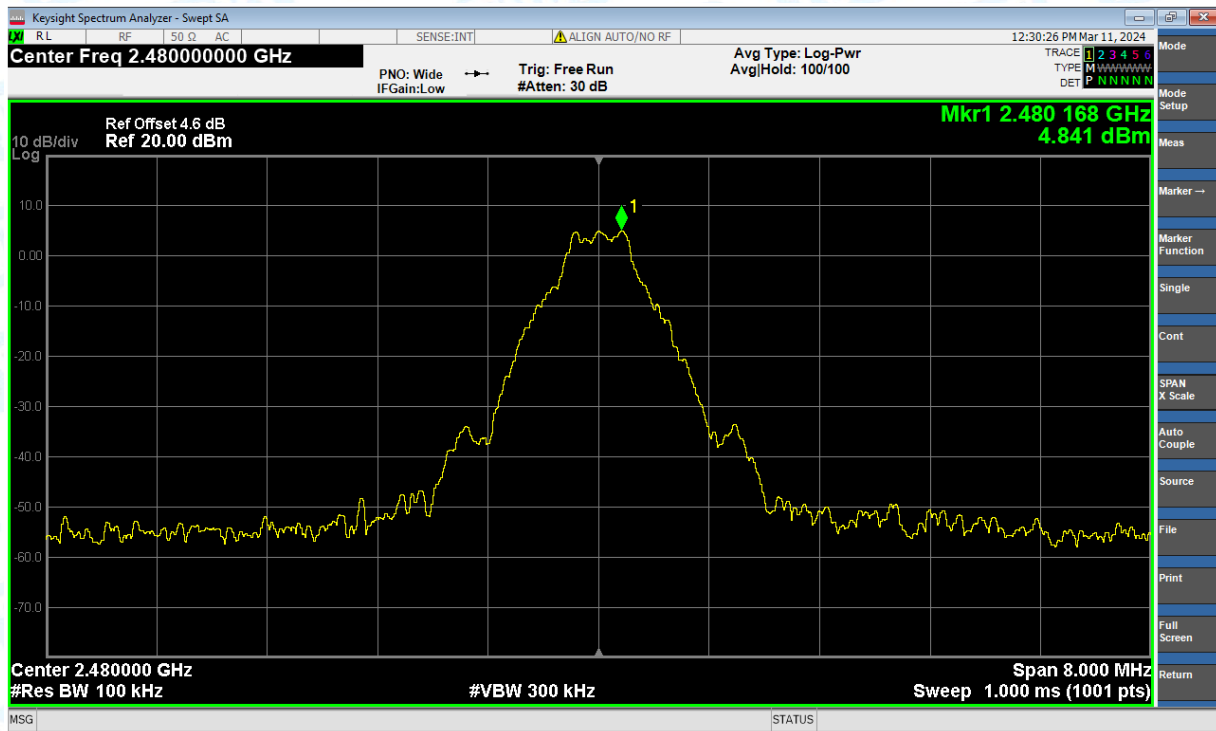
Band Edge NVNT 1-DH1 2402MHz Ant1 No-Hopping Ref



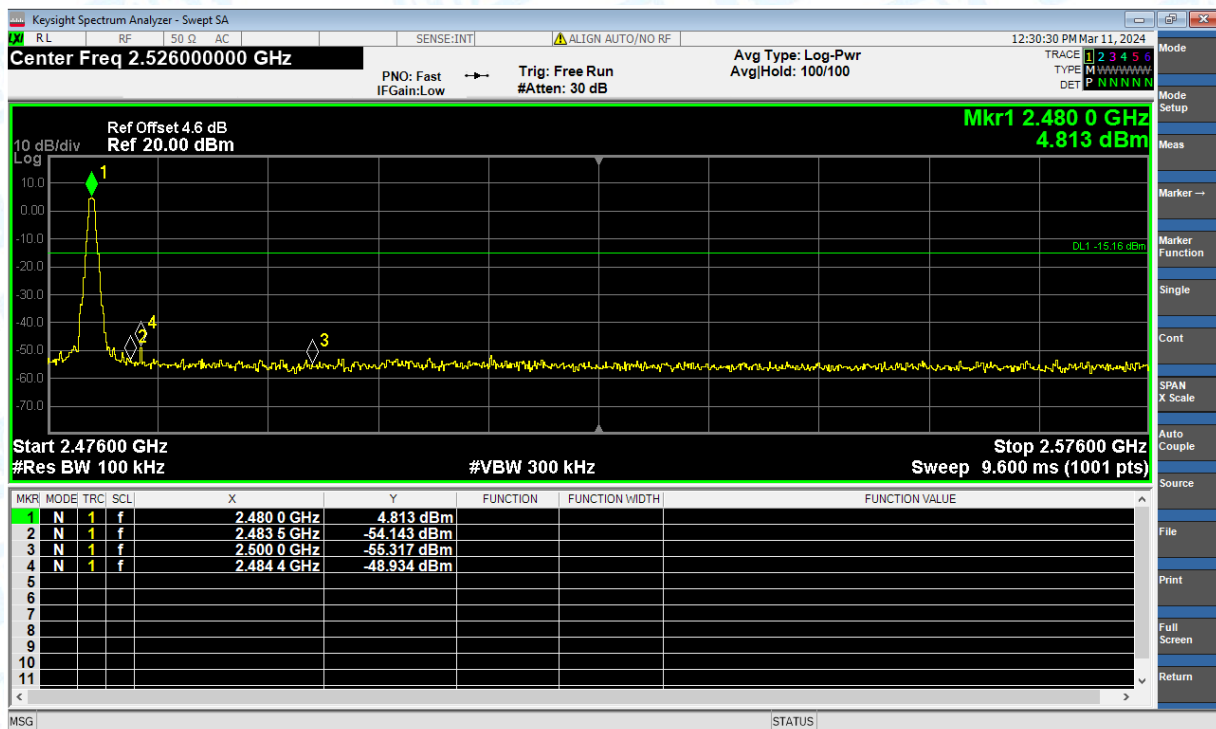
Band Edge NVNT 1-DH1 2402MHz Ant1 No-Hopping Emission



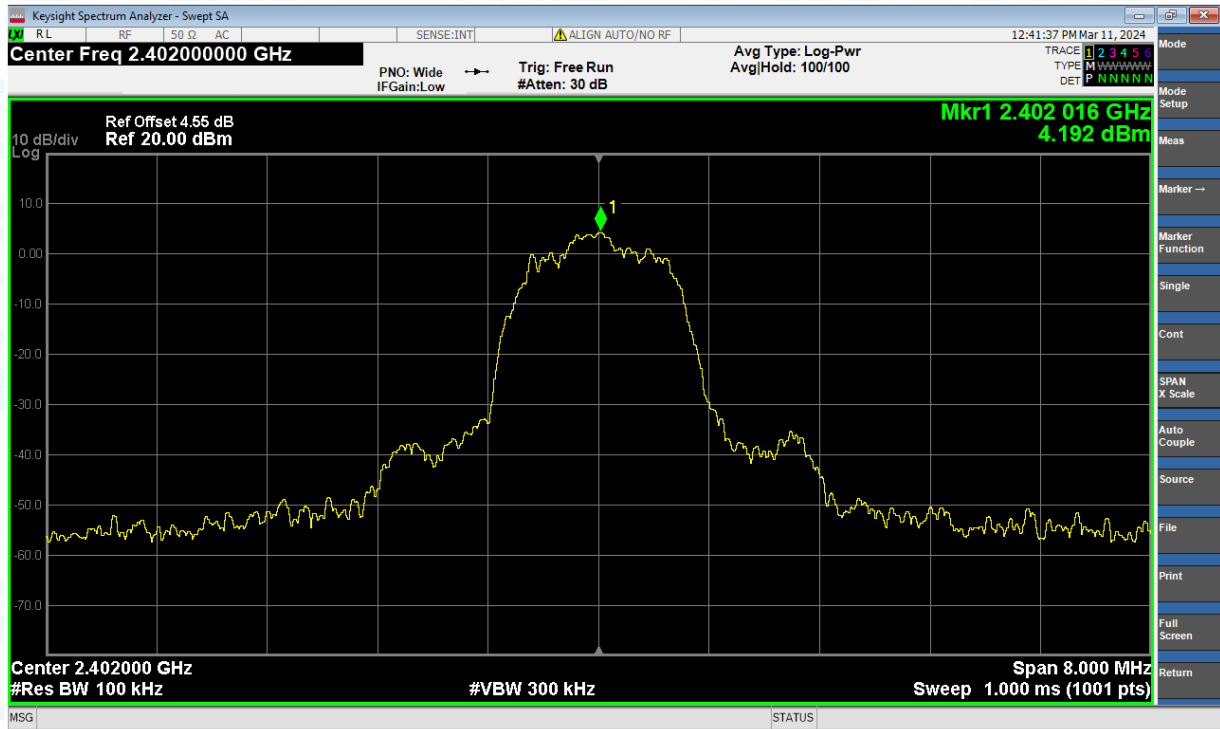
Band Edge NVNT 1-DH1 2480MHz Ant1 No-Hopping Ref



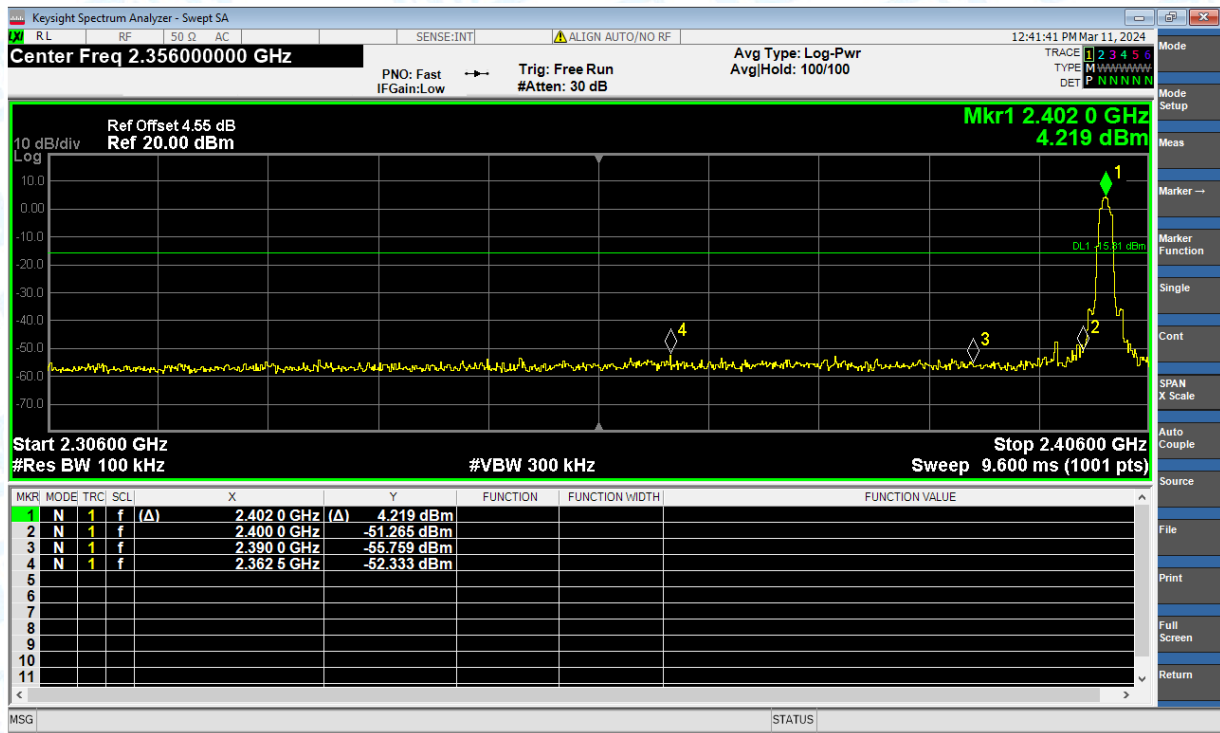
Band Edge NVNT 1-DH1 2480MHz Ant1 No-Hopping Emission



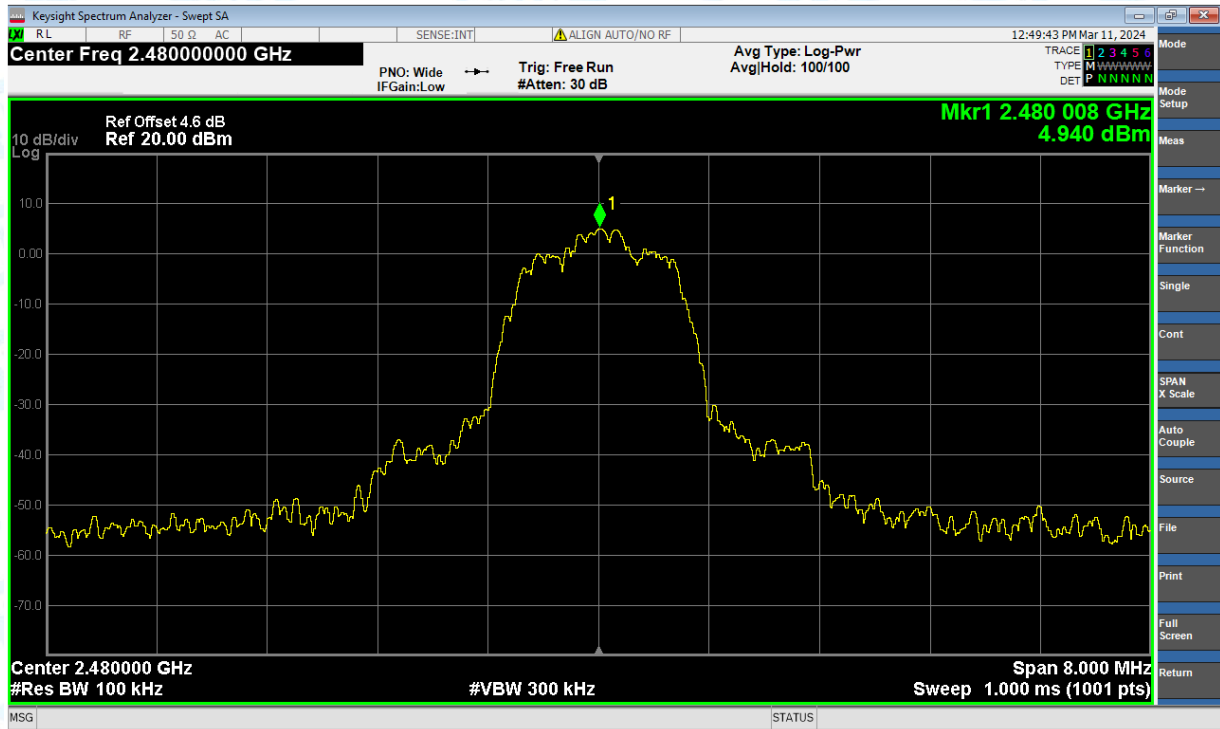
Band Edge NVNT 2-DH1 2402MHz Ant1 No-Hopping Ref



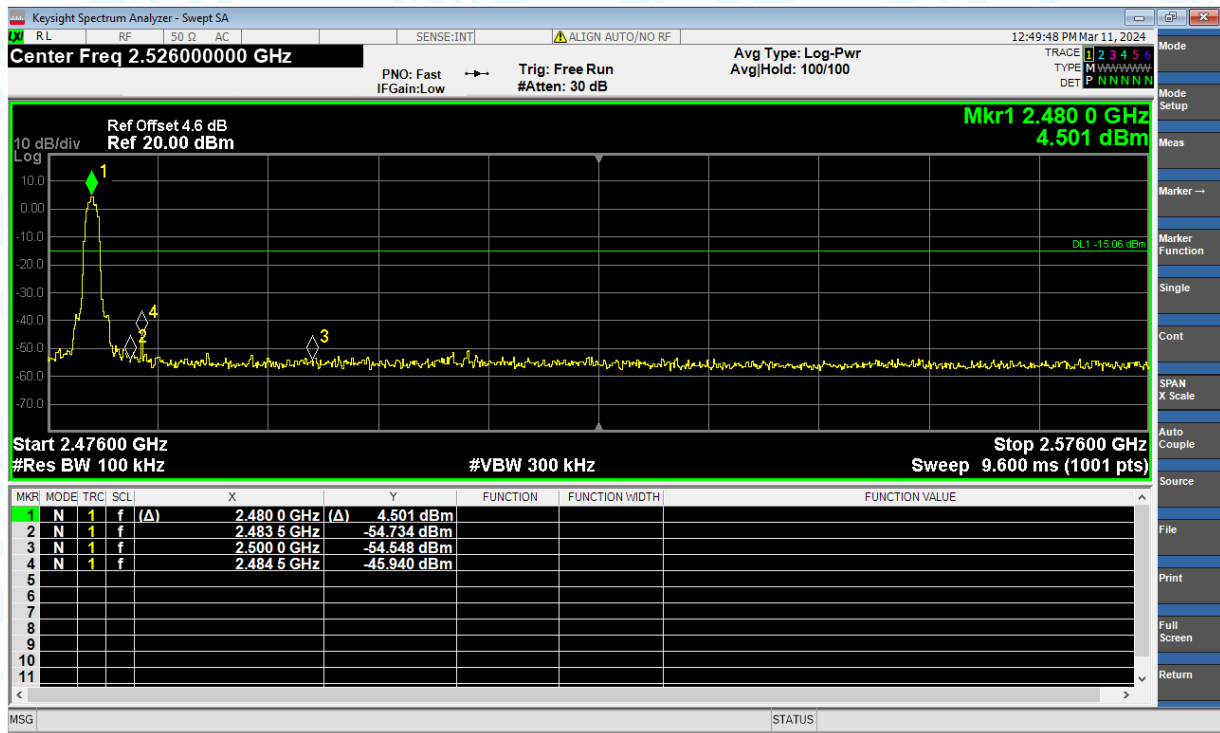
Band Edge NVNT 2-DH1 2402MHz Ant1 No-Hopping Emission



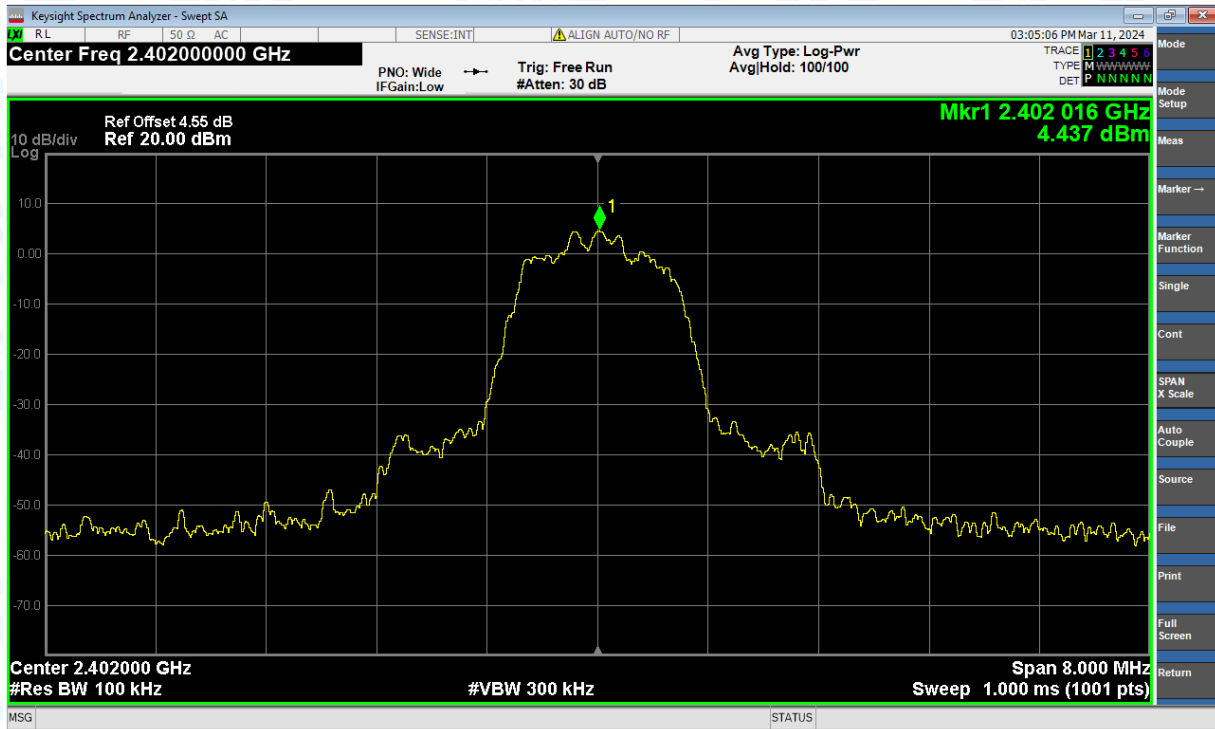
Band Edge NVNT 2-DH1 2480MHz Ant1 No-Hopping Ref



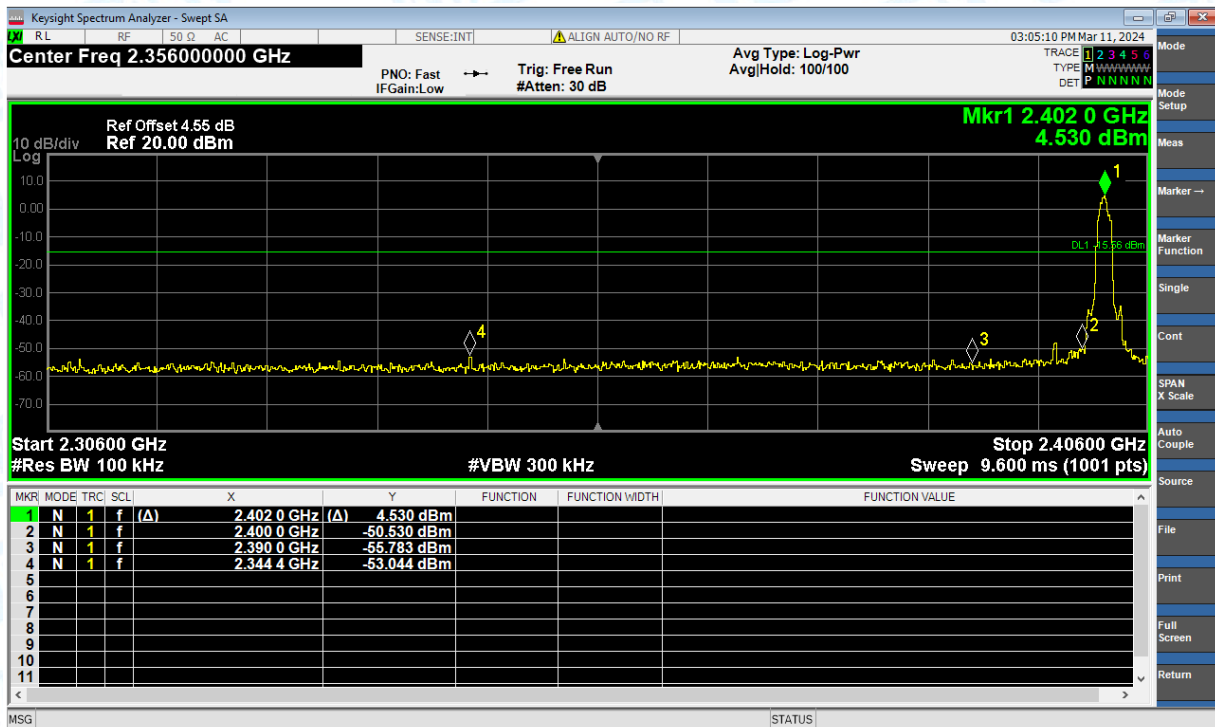
Band Edge NVNT 2-DH1 2480MHz Ant1 No-Hopping Emission



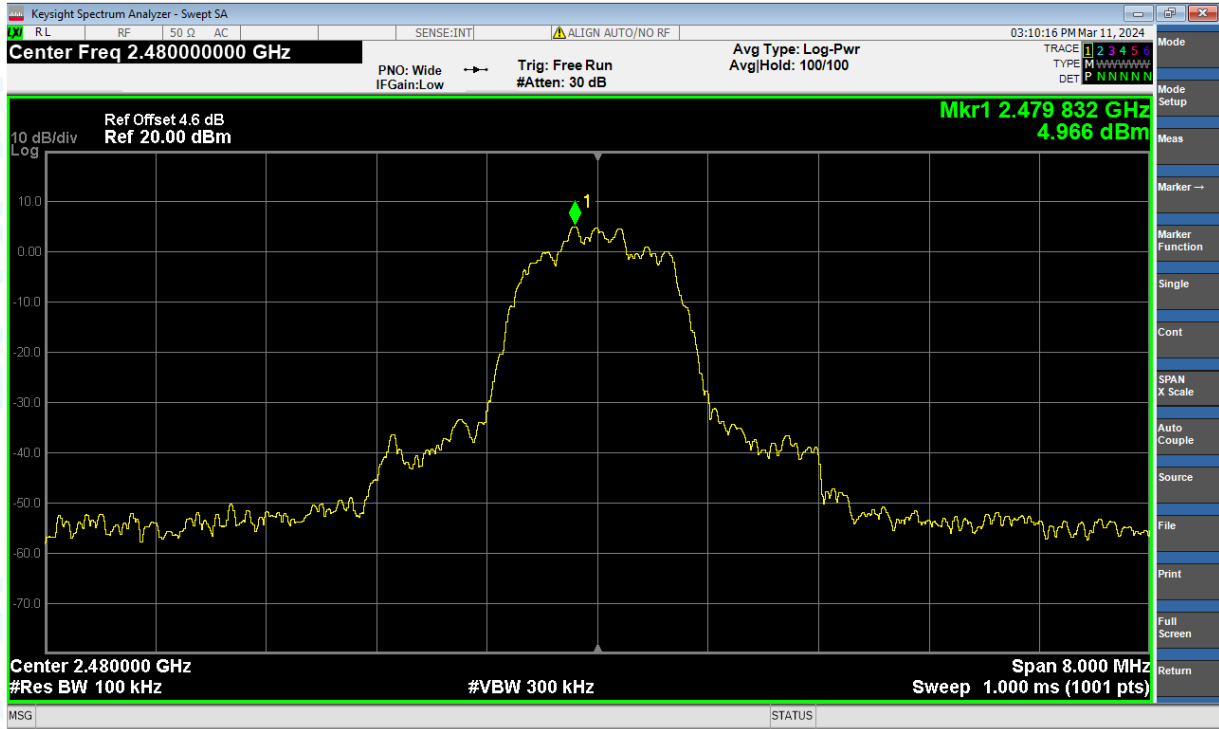
Band Edge NVNT 3-DH1 2402MHz Ant1 No-Hopping Ref



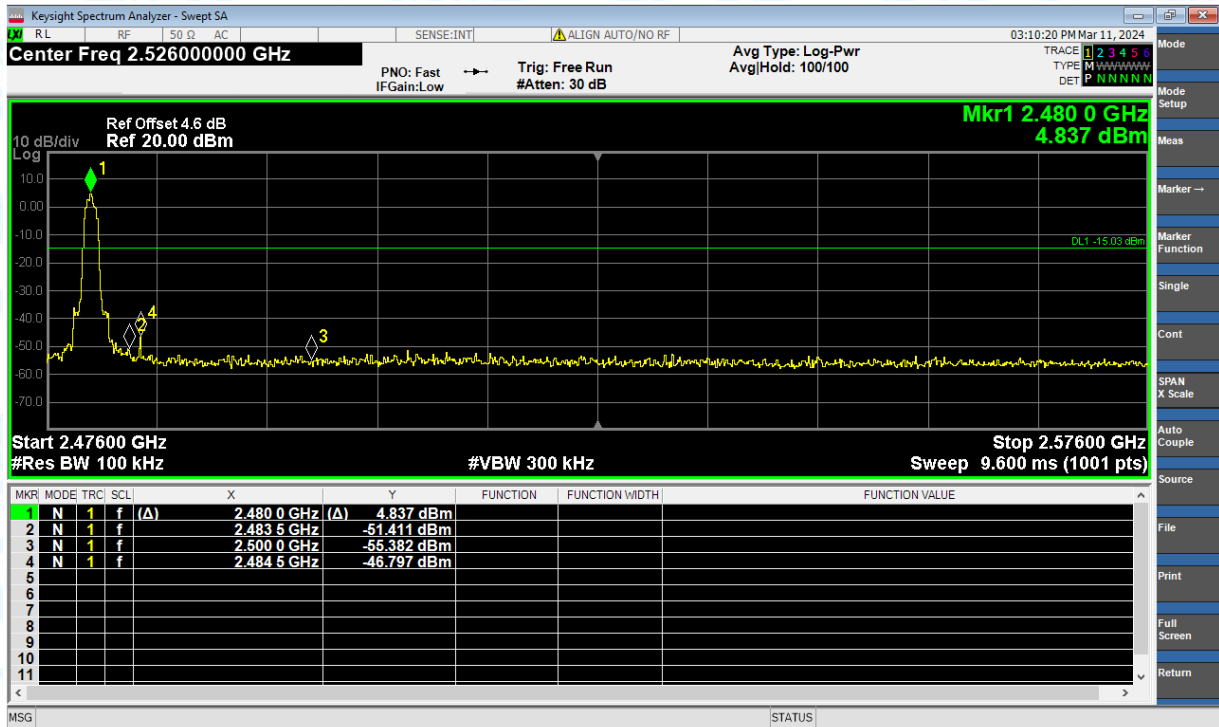
Band Edge NVNT 3-DH1 2402MHz Ant1 No-Hopping Emission



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



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

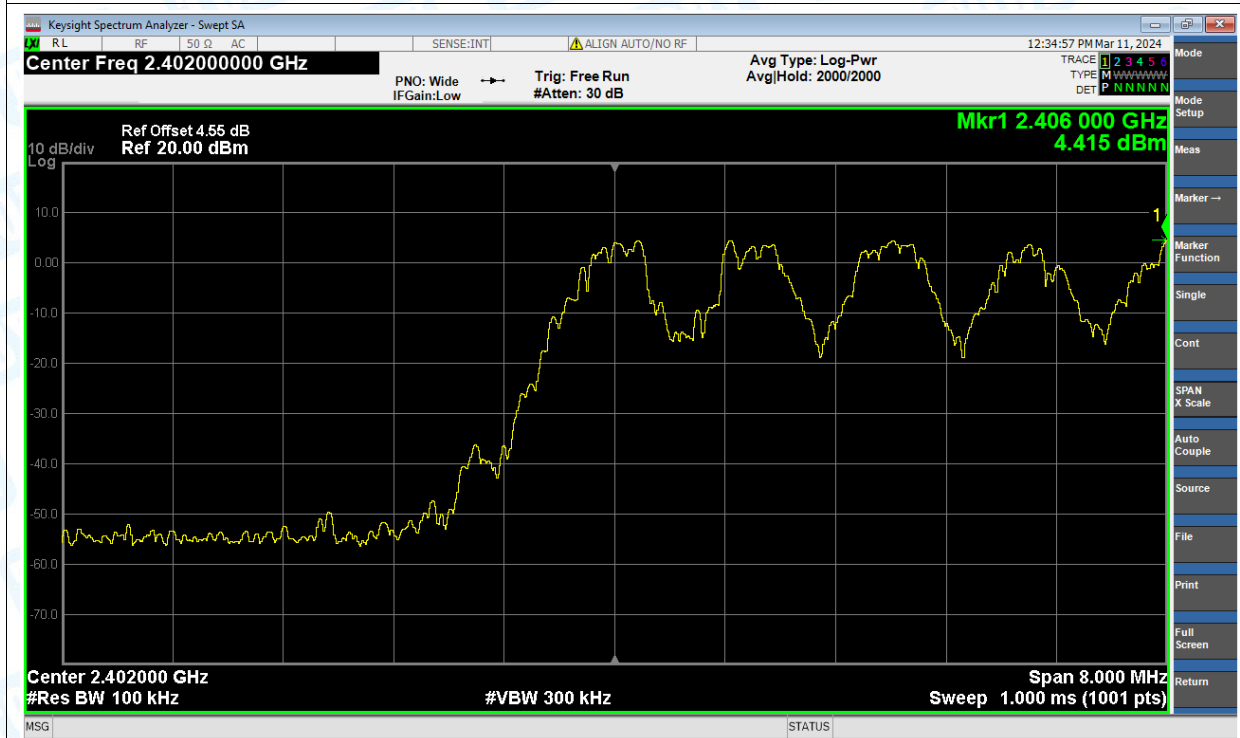


6.Band Edge(Hopping)

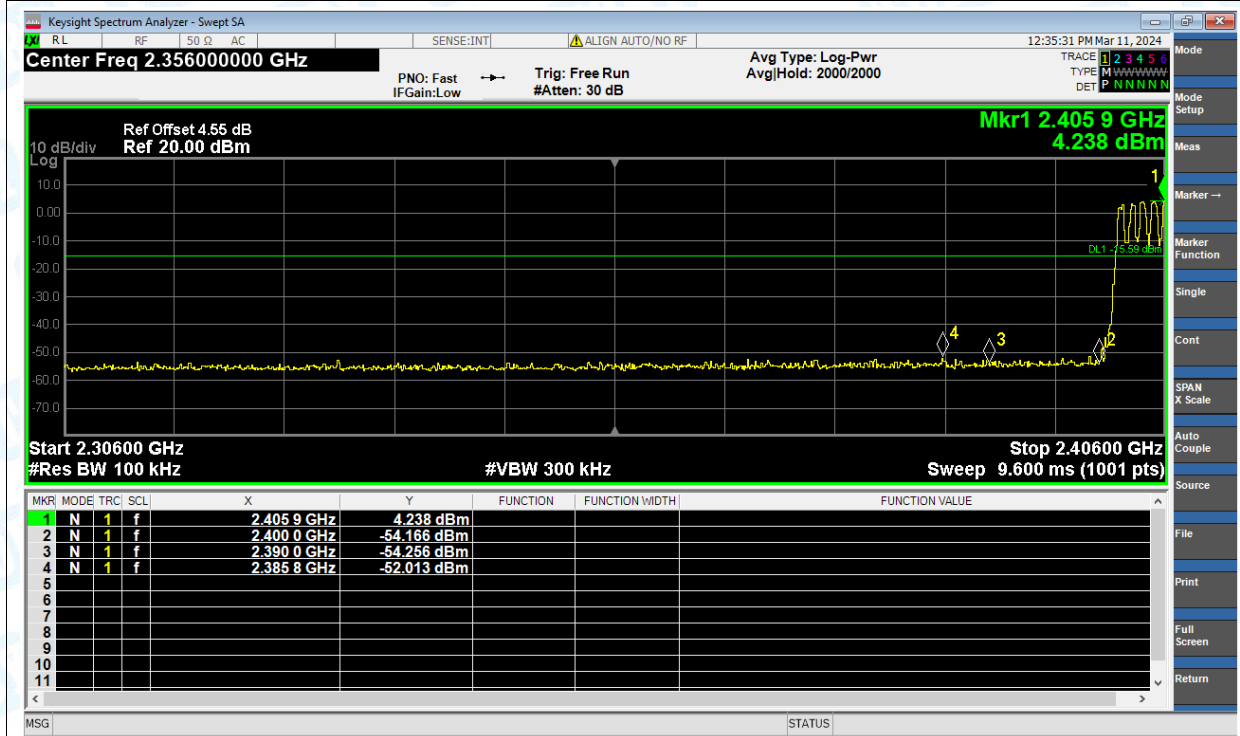
Condition	Mode	Frequency (MHz)	Antenna	Hopping Mode	Max Value (dBc)	Limit (dBc)	Verdict
NVNT	1-DH1	2402	Ant1	Hopping	-56.43	-20	Pass
NVNT	1-DH1	2480	Ant1	Hopping	-52.92	-20	Pass
NVNT	2-DH1	2402	Ant1	Hopping	-57.38	-20	Pass
NVNT	2-DH1	2480	Ant1	Hopping	-52.64	-20	Pass
NVNT	3-DH1	2402	Ant1	Hopping	-56.81	-20	Pass
NVNT	3-DH1	2480	Ant1	Hopping	-51.47	-20	Pass

Test Graphs

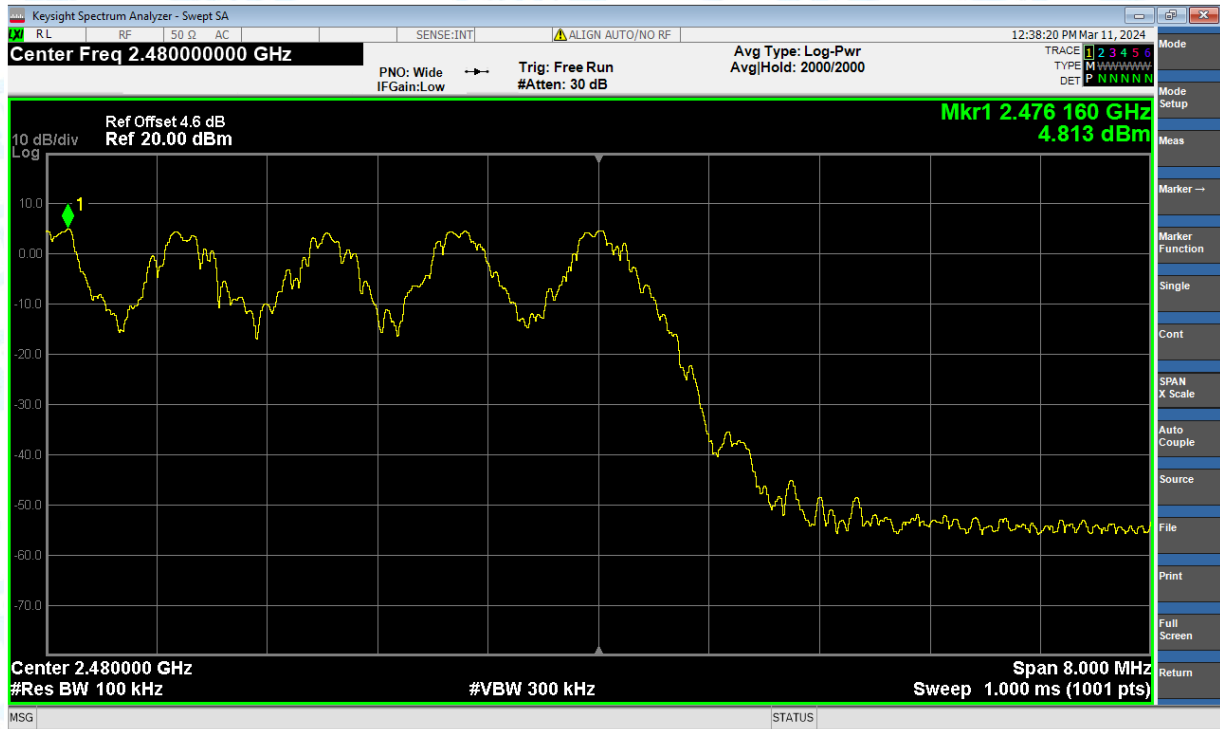
Band Edge(Hopping) NVNT 1-DH1 2402MHz Ant1 Hopping Ref



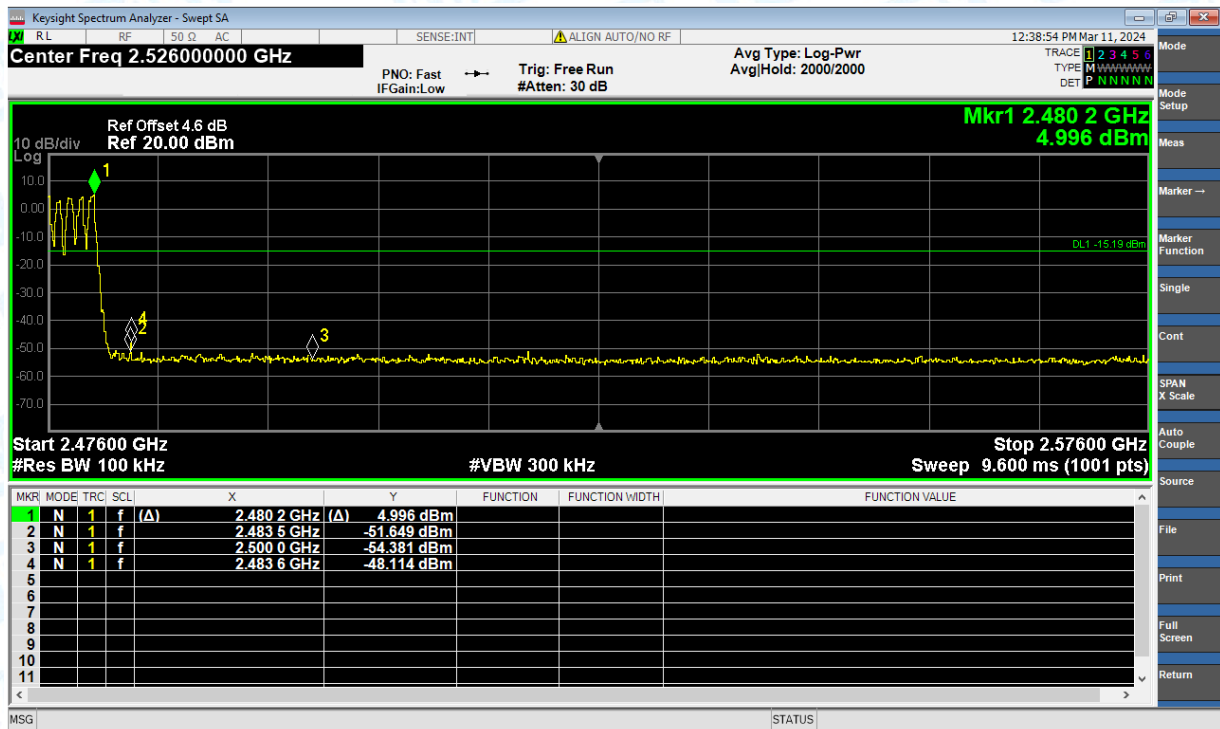
Band Edge(Hopping) NVNT 1-DH1 2402MHz Ant1 Hopping Emission



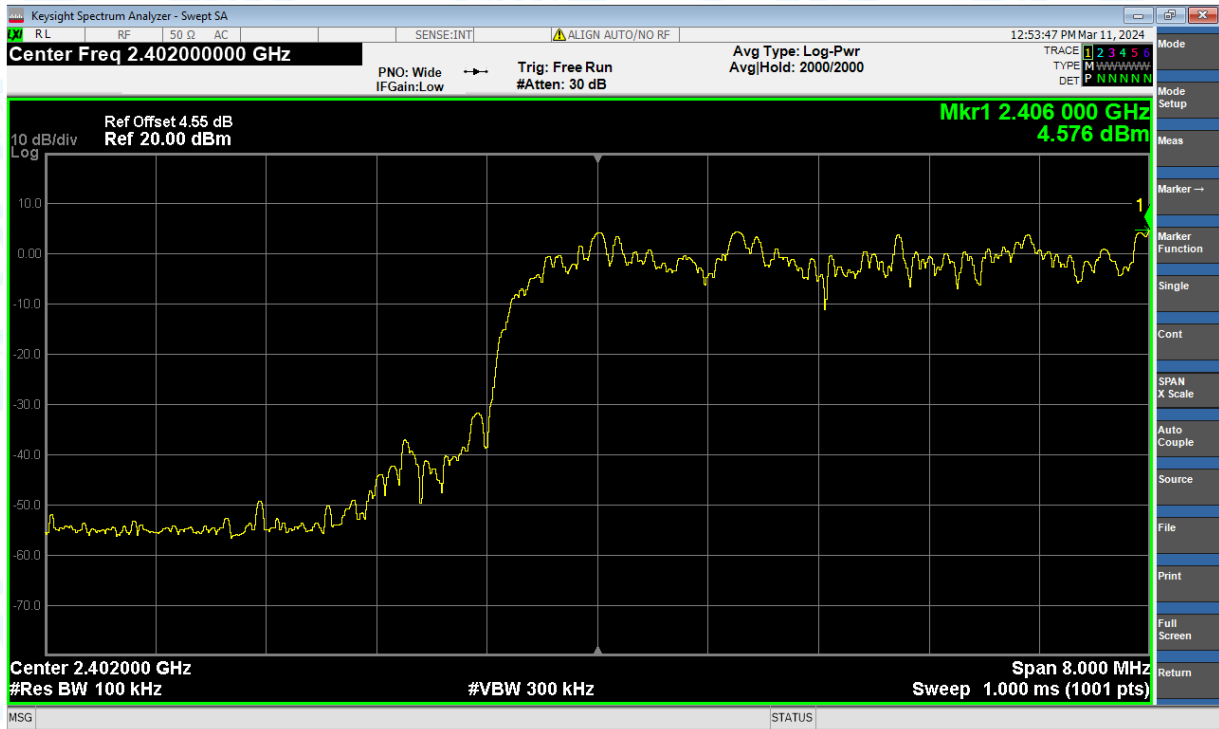
Band Edge(Hopping) NVNT 1-DH1 2480MHz Ant1 Hopping Ref



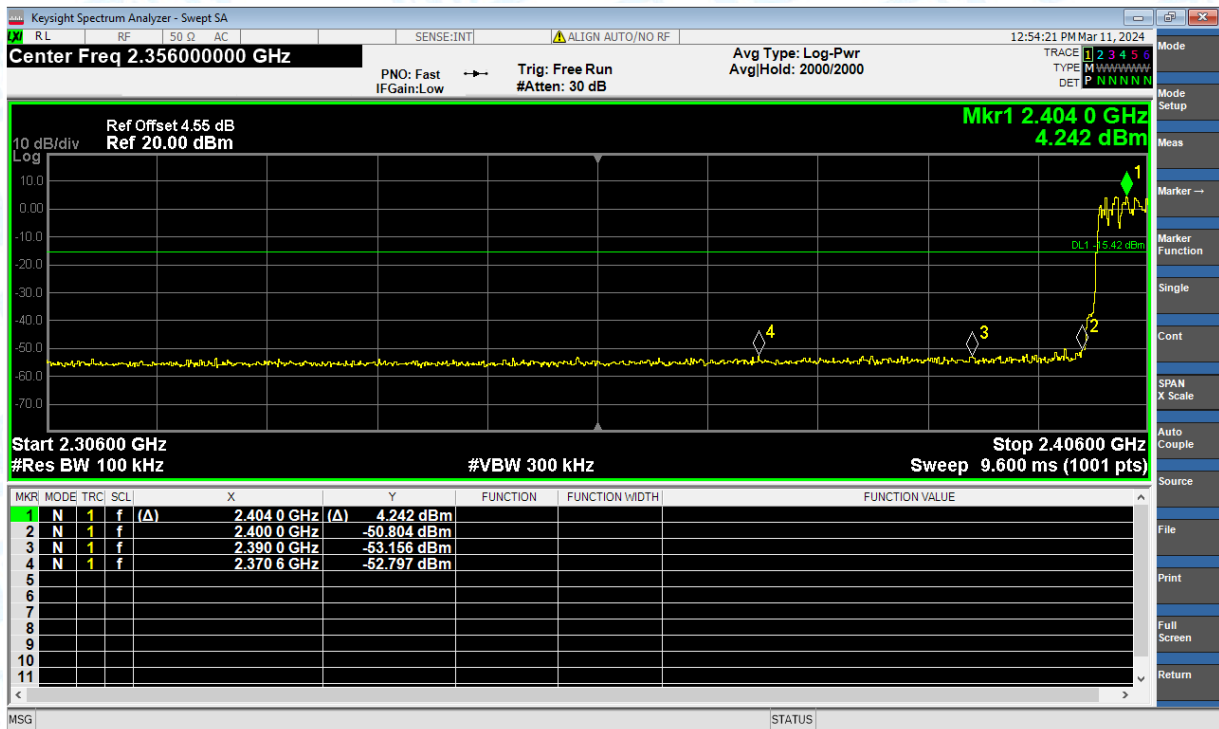
Band Edge(Hopping) NVNT 1-DH1 2480MHz Ant1 Hopping Emission



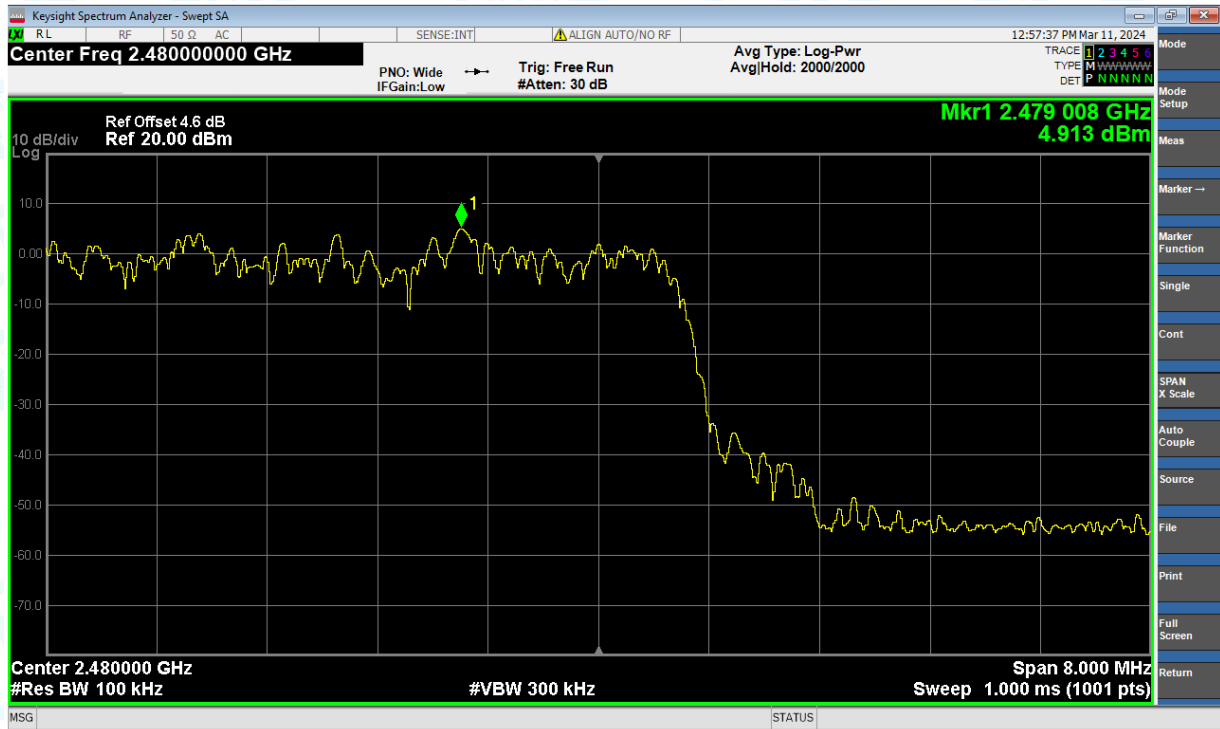
Band Edge(Hopping) NVNT 2-DH1 2402MHz Ant1 Hopping Ref



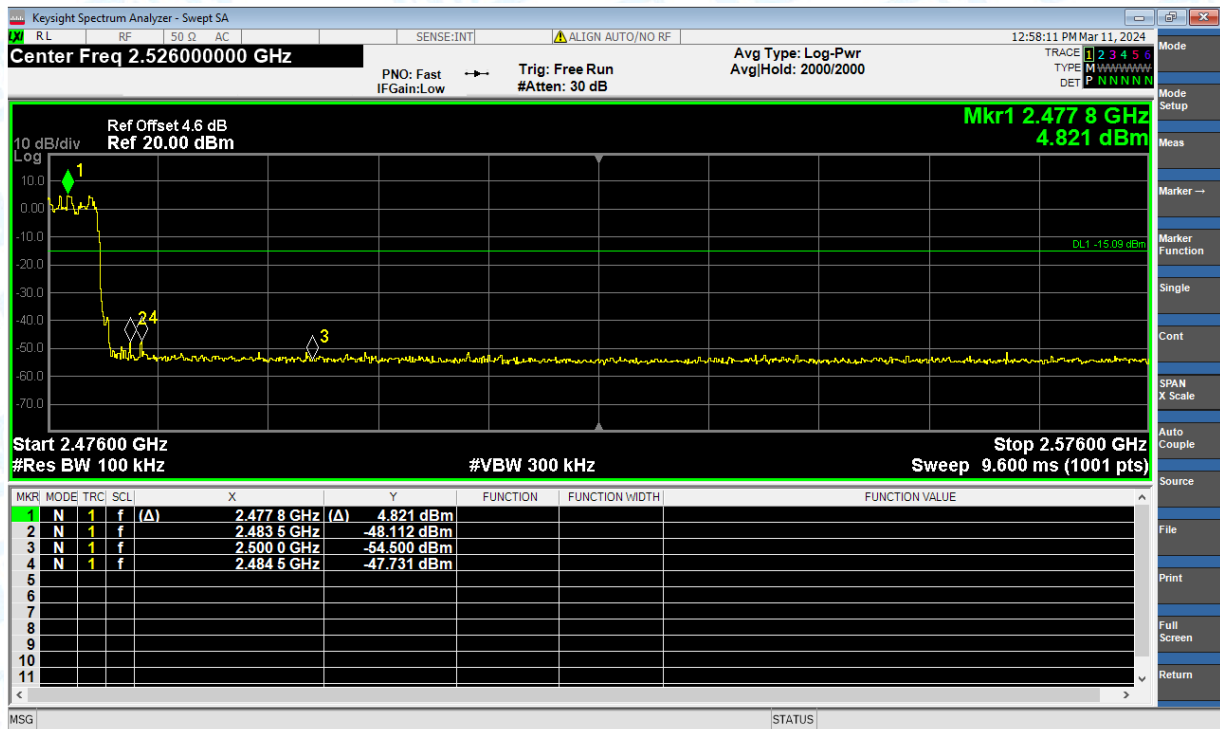
Band Edge(Hopping) NVNT 2-DH1 2402MHz Ant1 Hopping Emission



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



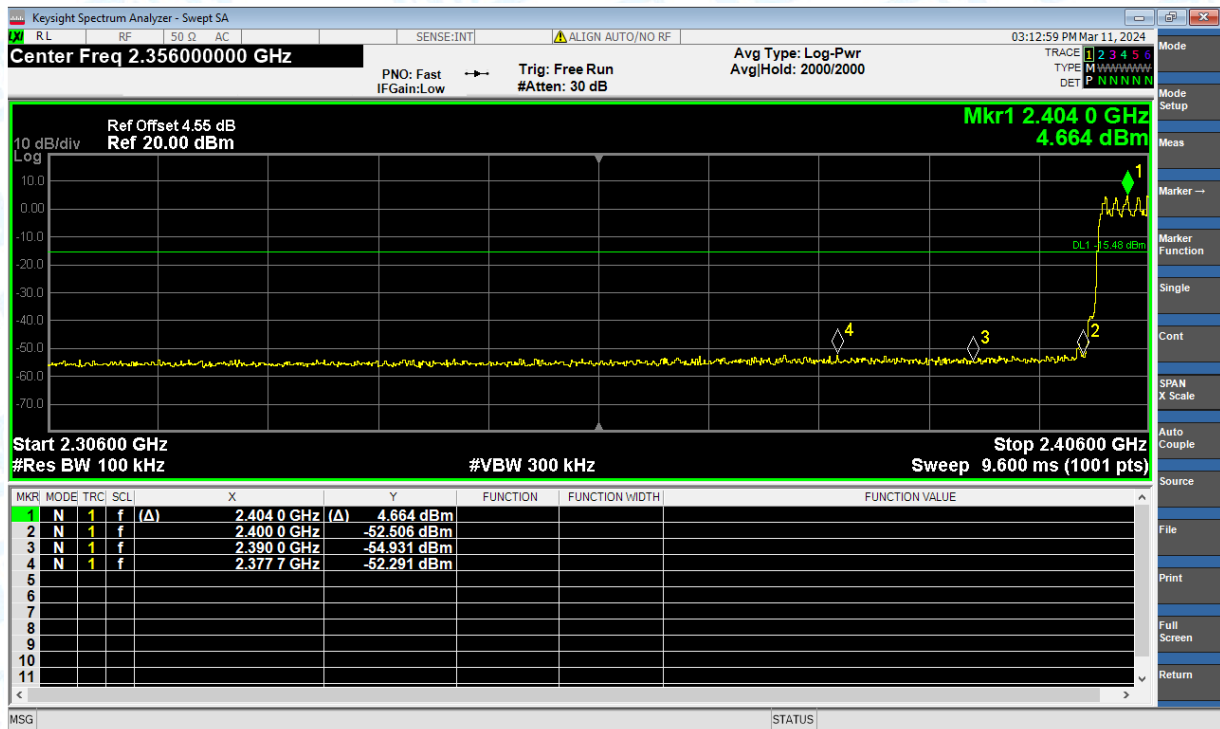
Band Edge(Hopping) NVNT 2-DH1 2480MHz Ant1 Hopping Emission



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



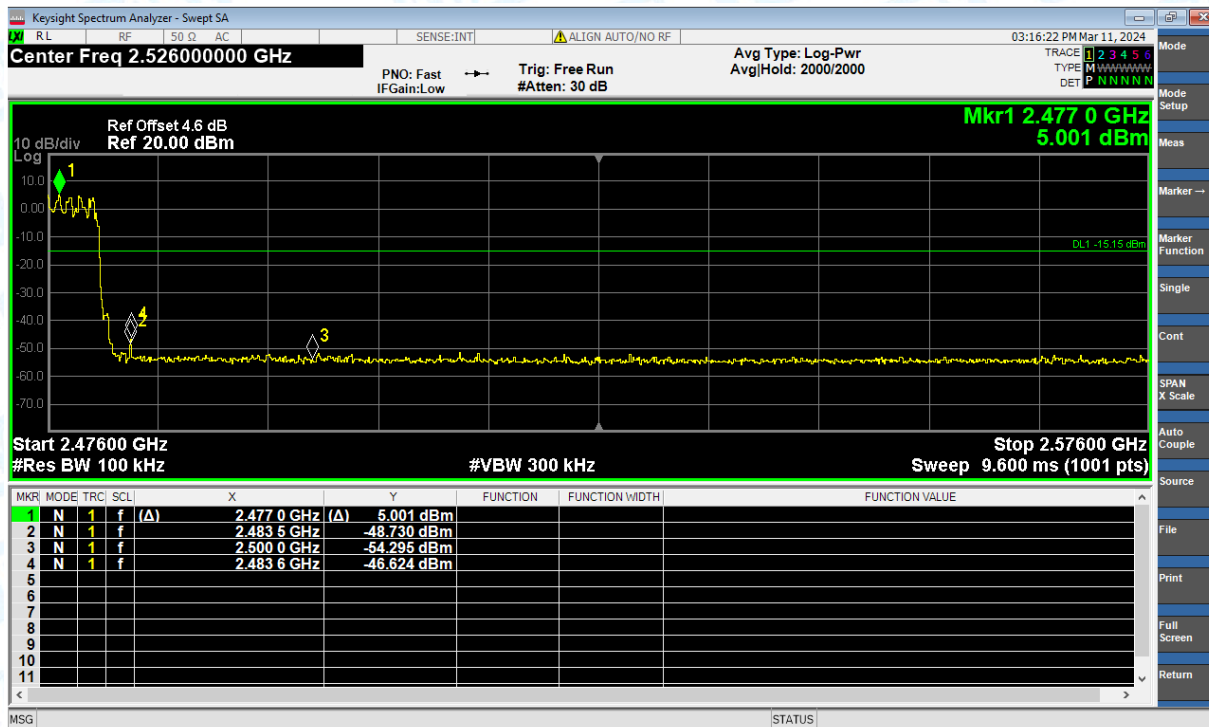
Band Edge(Hopping) NVNT 3-DH1 2402MHz Ant1 Hopping Emission



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



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

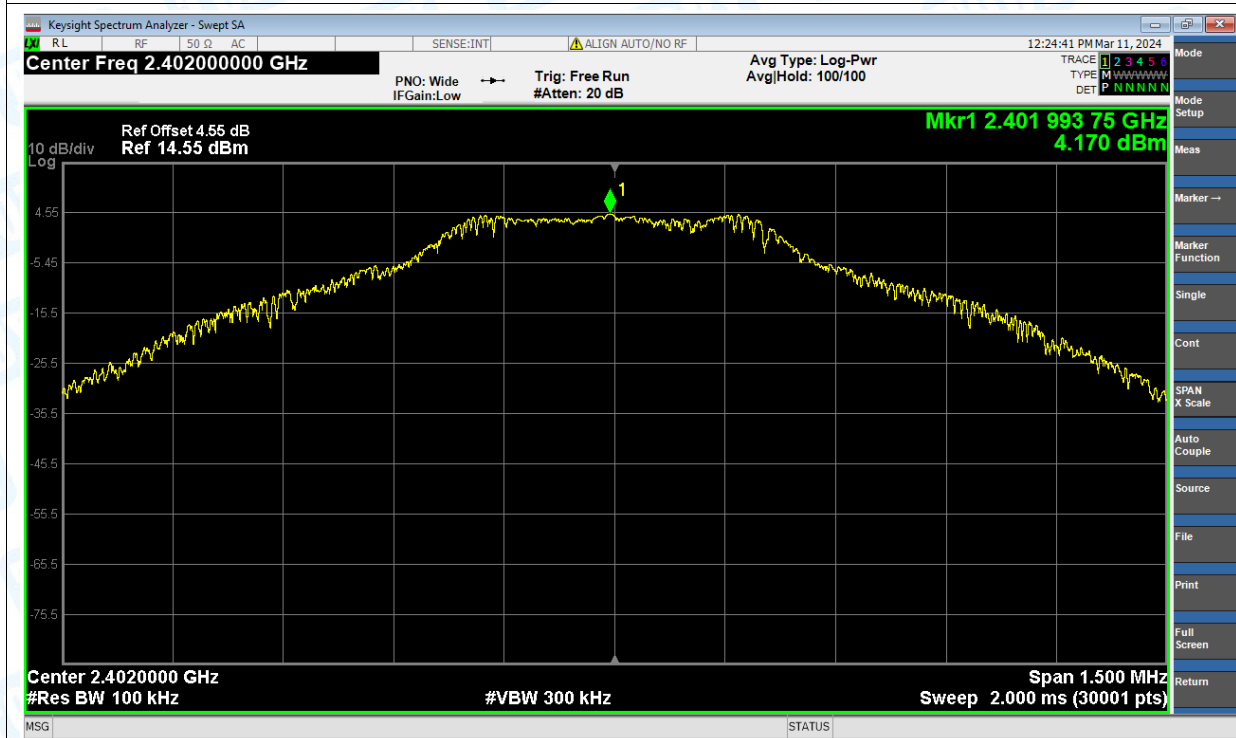


7. Conducted RF Spurious Emission

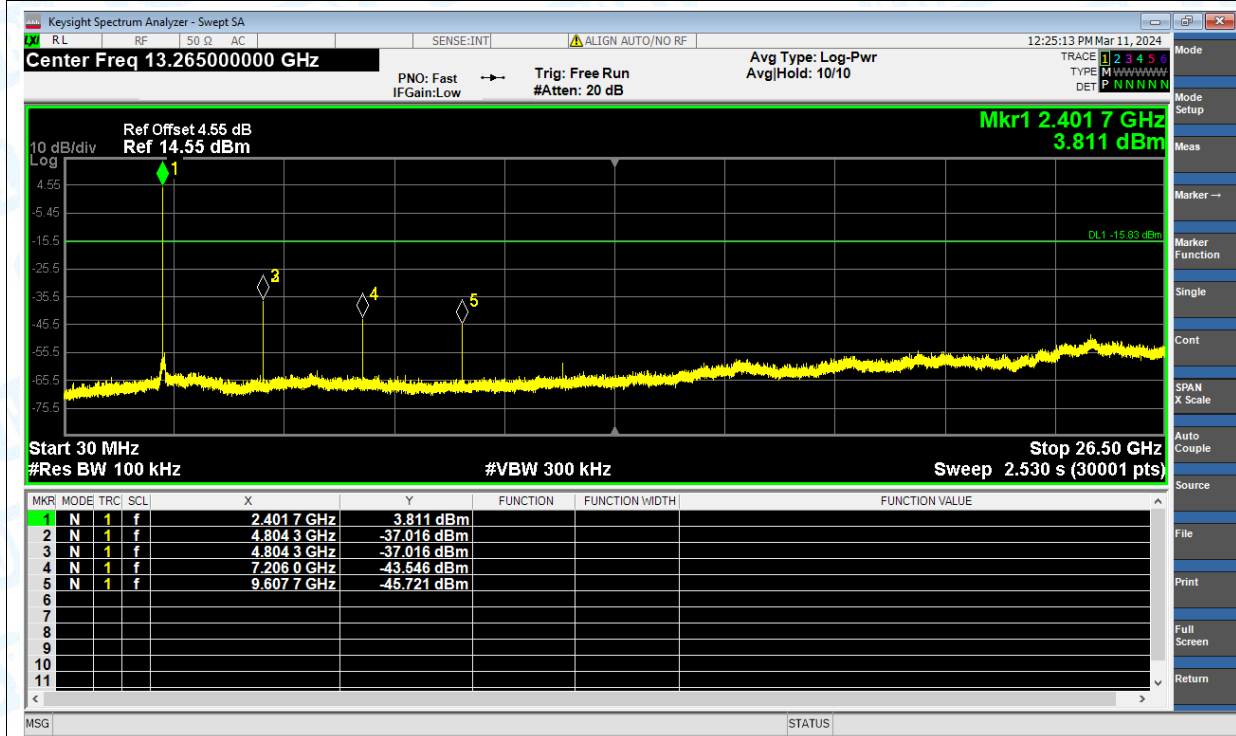
Condition	Mode	Frequency (MHz)	Antenna	Max Value (dBc)	Limit (dBc)	Verdict
NVNT	1-DH1	2402	Ant1	-41.19	-20	Pass
NVNT	1-DH1	2441	Ant1	-41.12	-20	Pass
NVNT	1-DH1	2480	Ant1	-43.88	-20	Pass
NVNT	2-DH1	2402	Ant1	-43.97	-20	Pass
NVNT	2-DH1	2441	Ant1	-41.81	-20	Pass
NVNT	2-DH1	2480	Ant1	-40.71	-20	Pass
NVNT	3-DH1	2402	Ant1	-41.6	-20	Pass
NVNT	3-DH1	2441	Ant1	-45.05	-20	Pass
NVNT	3-DH1	2480	Ant1	-41.41	-20	Pass

Test Graphs

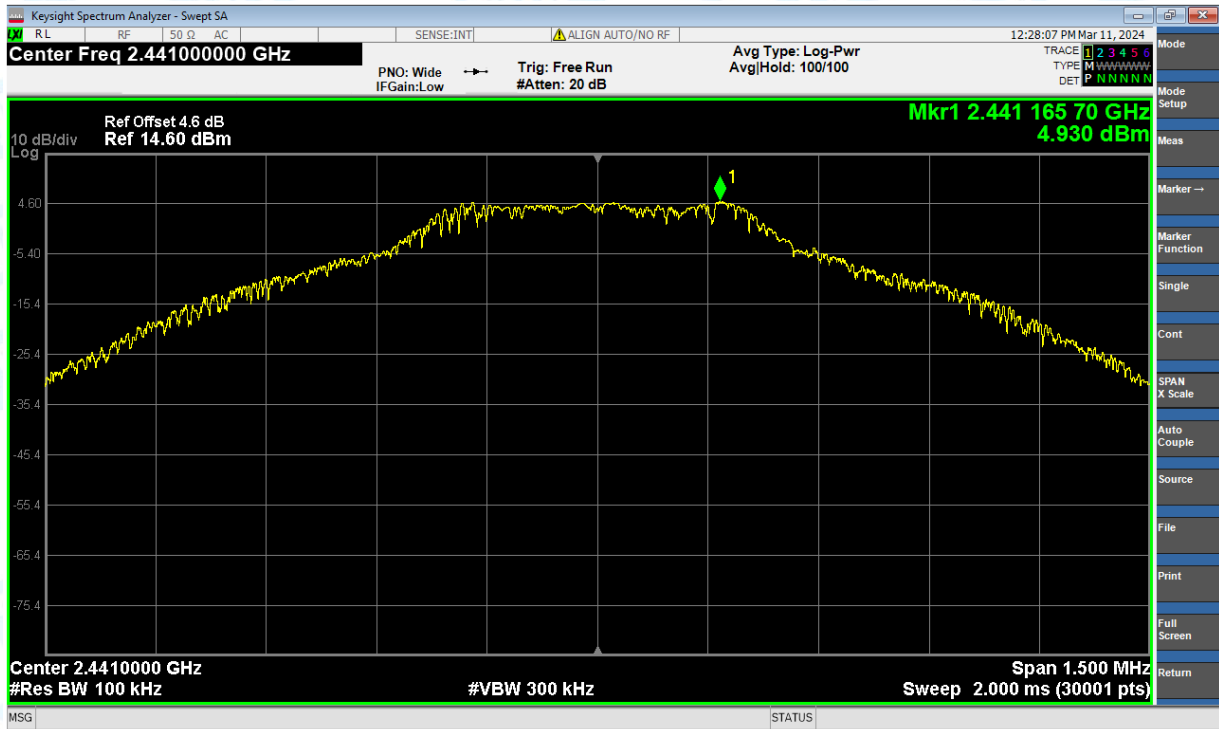
Tx. Spurious NVNT 1-DH1 2402MHz Ant1 Ref



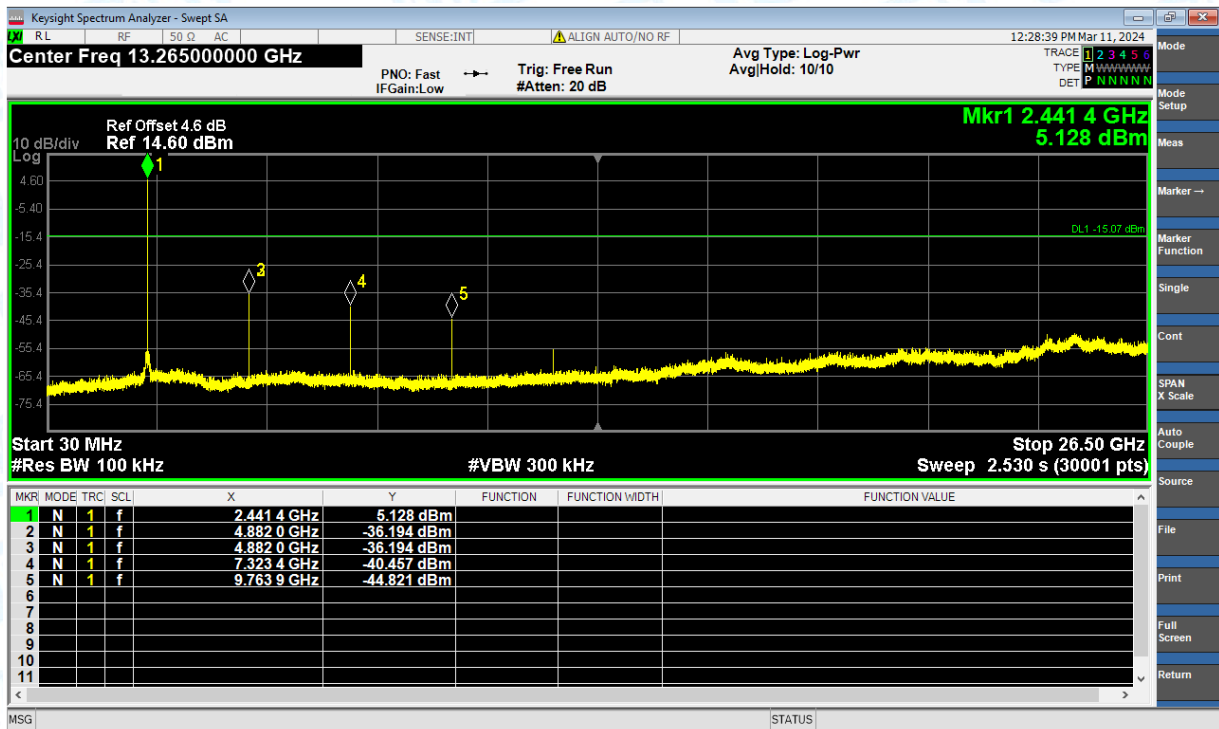
Tx. Spurious NVNT 1-DH1 2402MHz Ant1 Emission



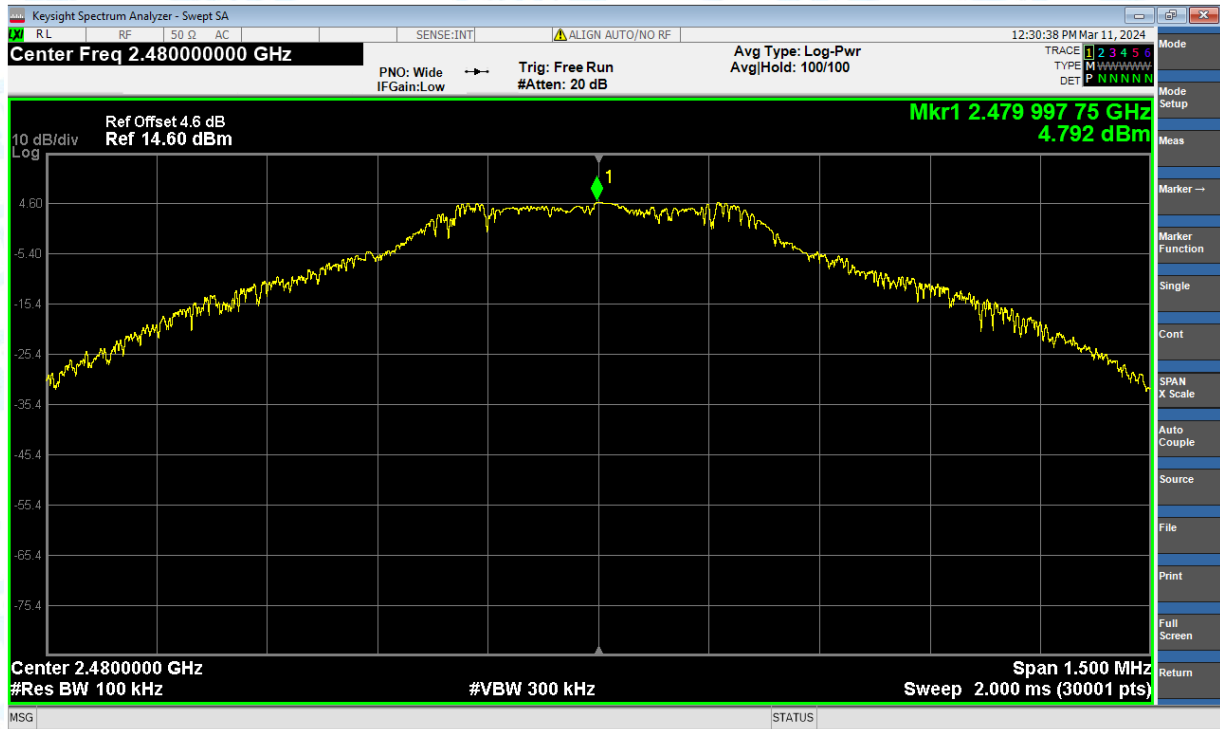
Tx. Spurious NVNT 1-DH1 2441MHz Ant1 Ref



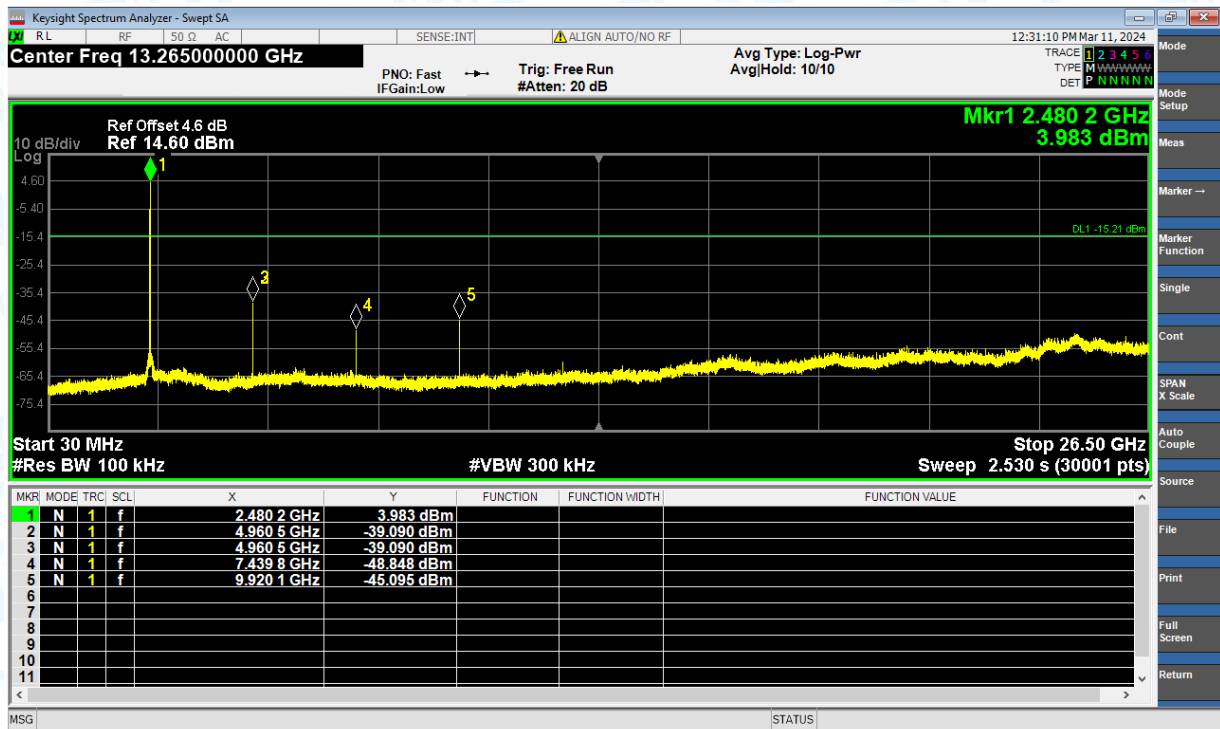
Tx. Spurious NVNT 1-DH1 2441MHz Ant1 Emission



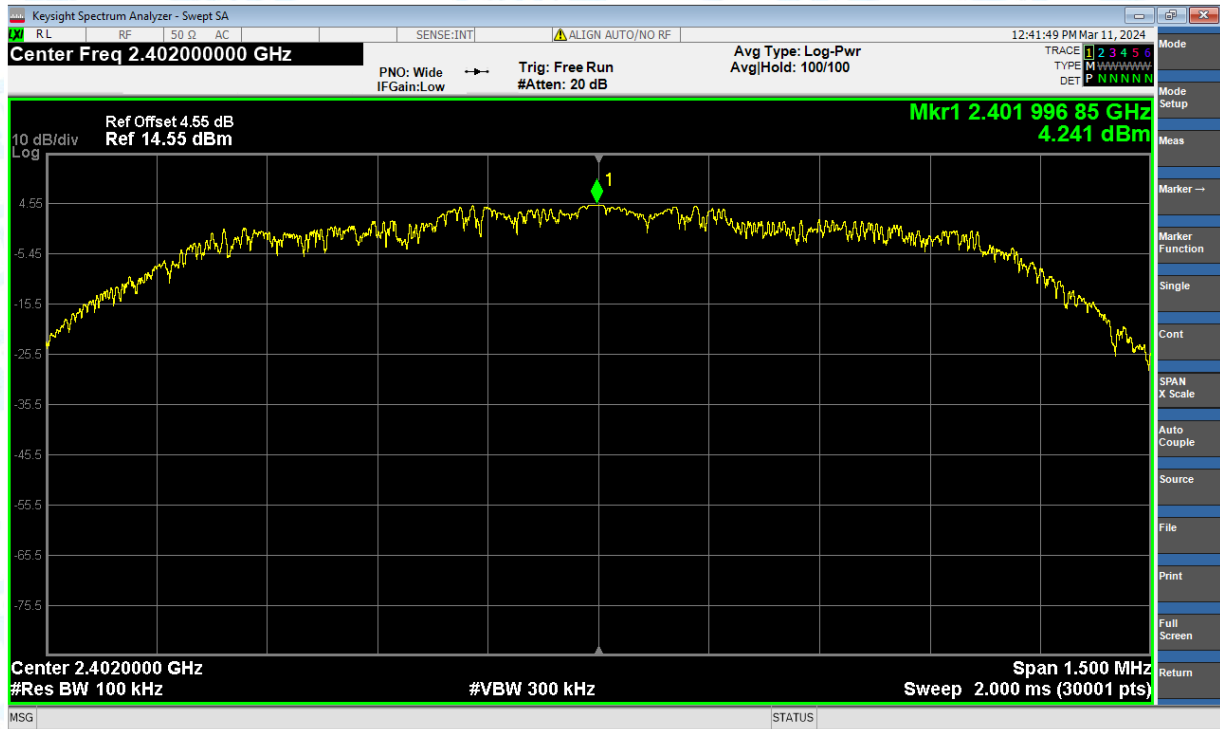
Tx. Spurious NVNT 1-DH1 2480MHz Ant1 Ref



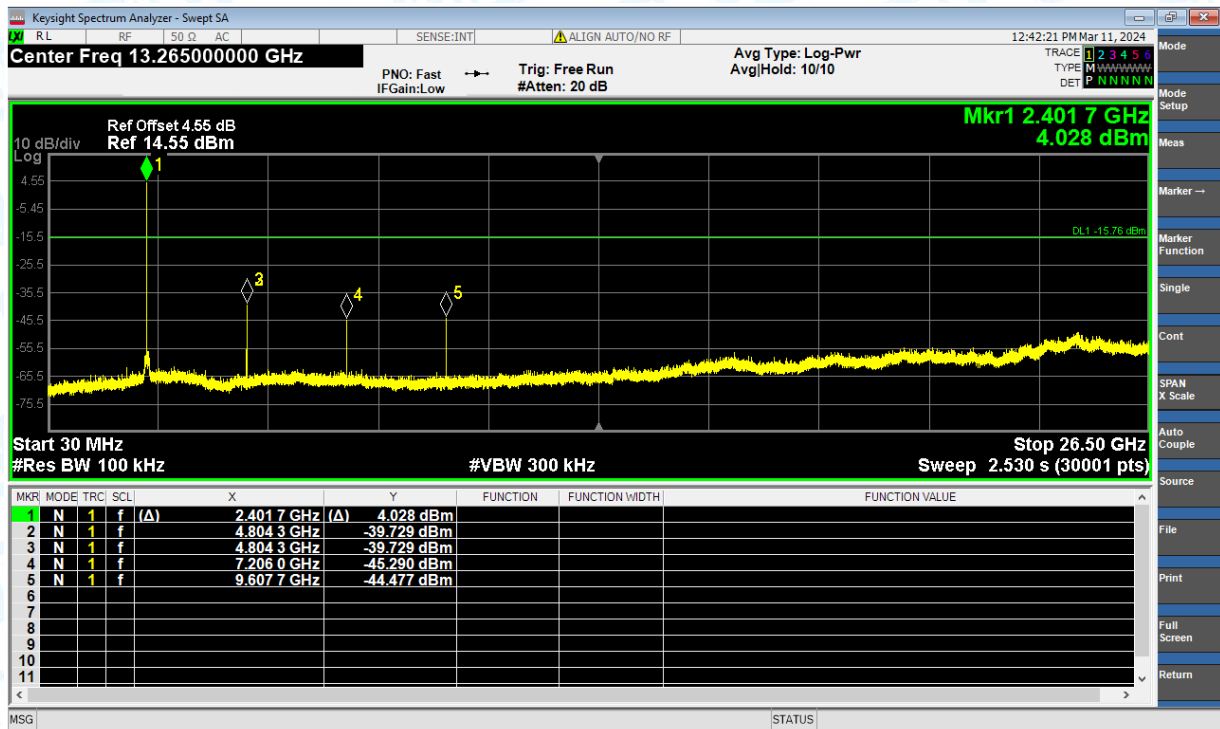
Tx. Spurious NVNT 1-DH1 2480MHz Ant1 Emission



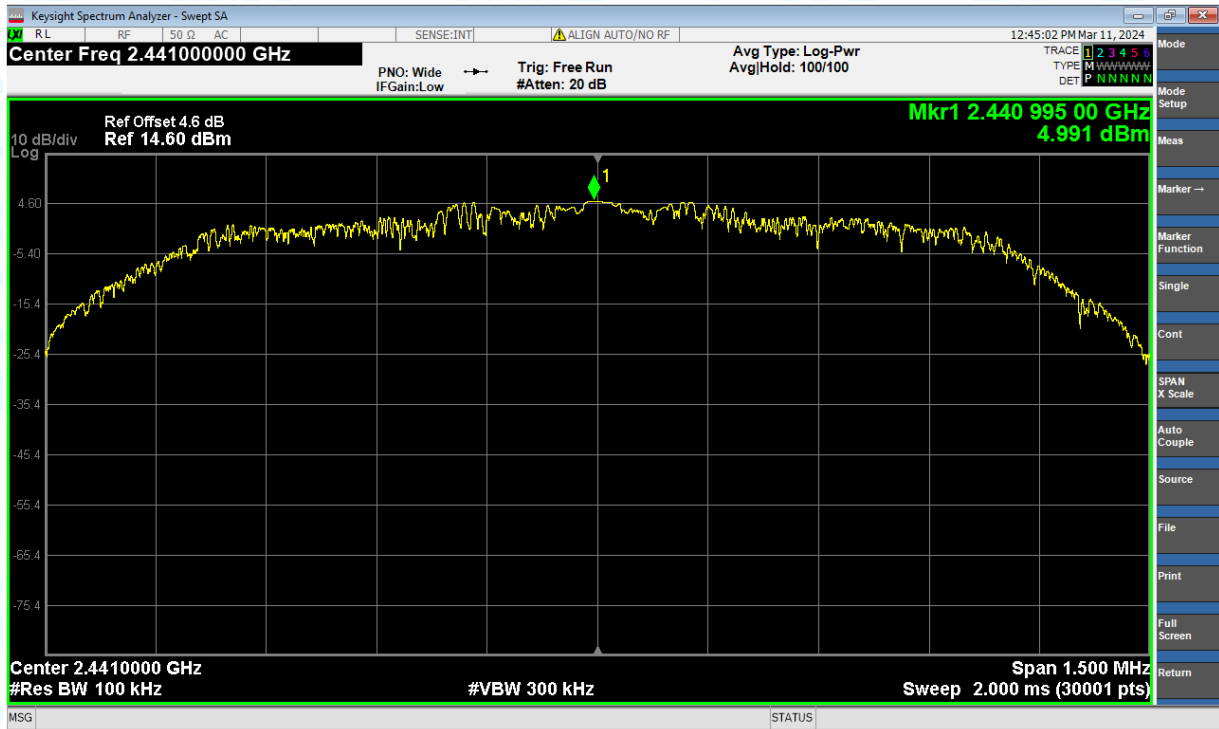
Tx. Spurious NVNT 2-DH1 2402MHz Ant1 Ref



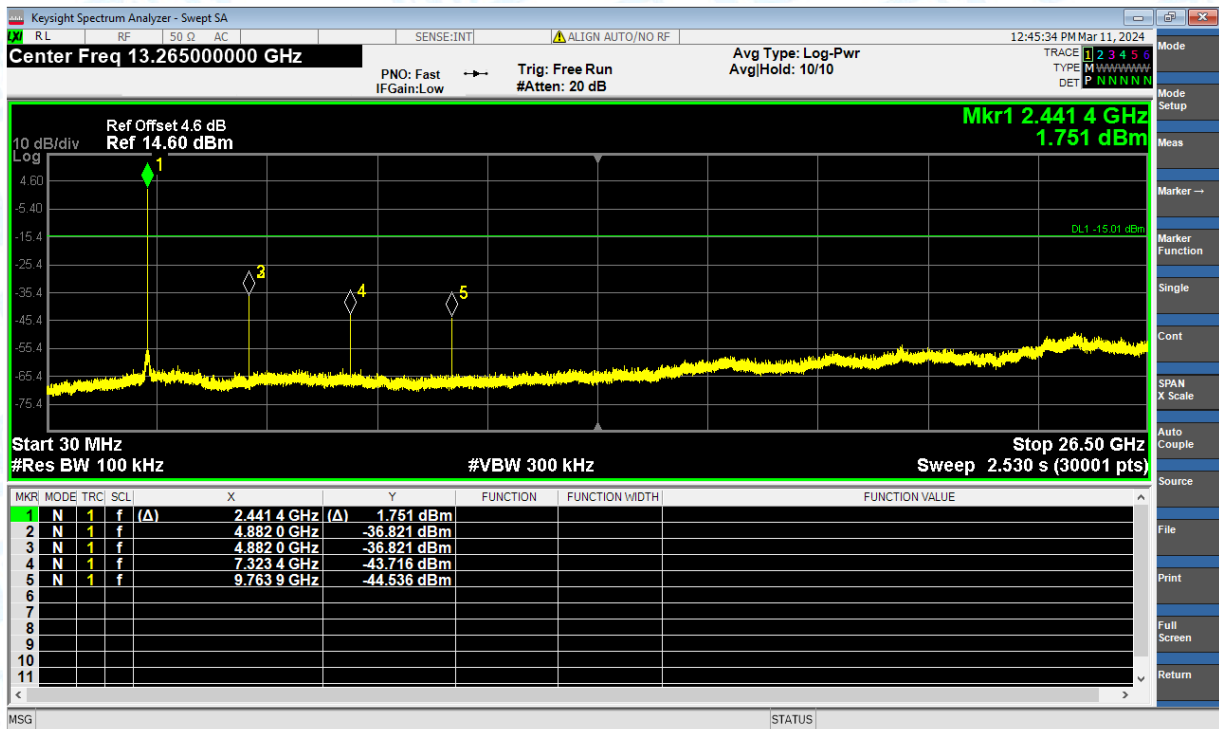
Tx. Spurious NVNT 2-DH1 2402MHz Ant1 Emission



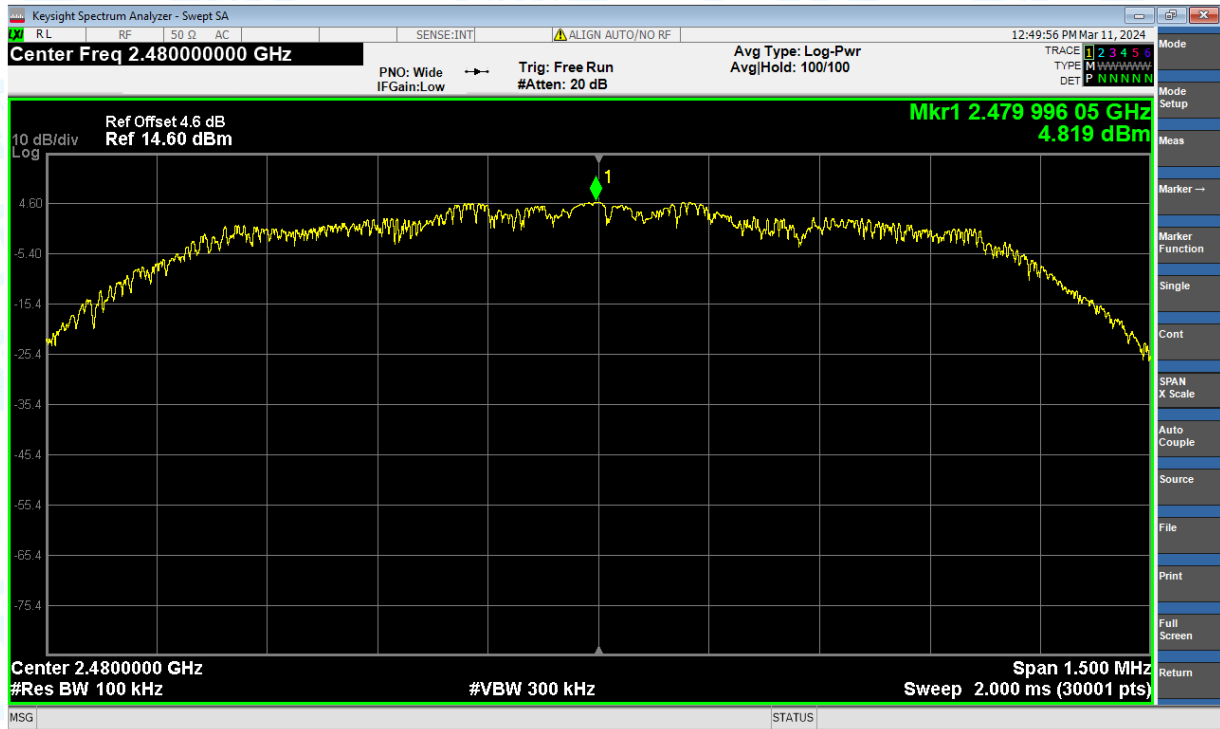
Tx. Spurious NVNT 2-DH1 2441MHz Ant1 Ref



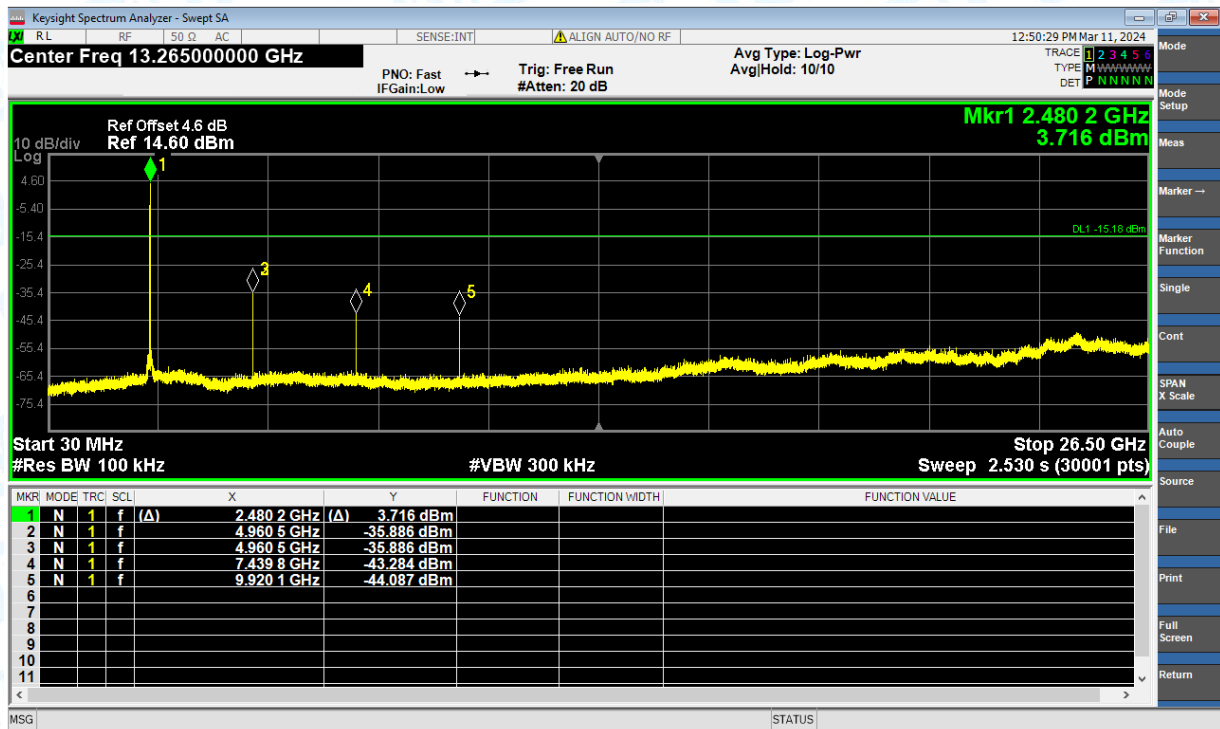
Tx. Spurious NVNT 2-DH1 2441MHz Ant1 Emission



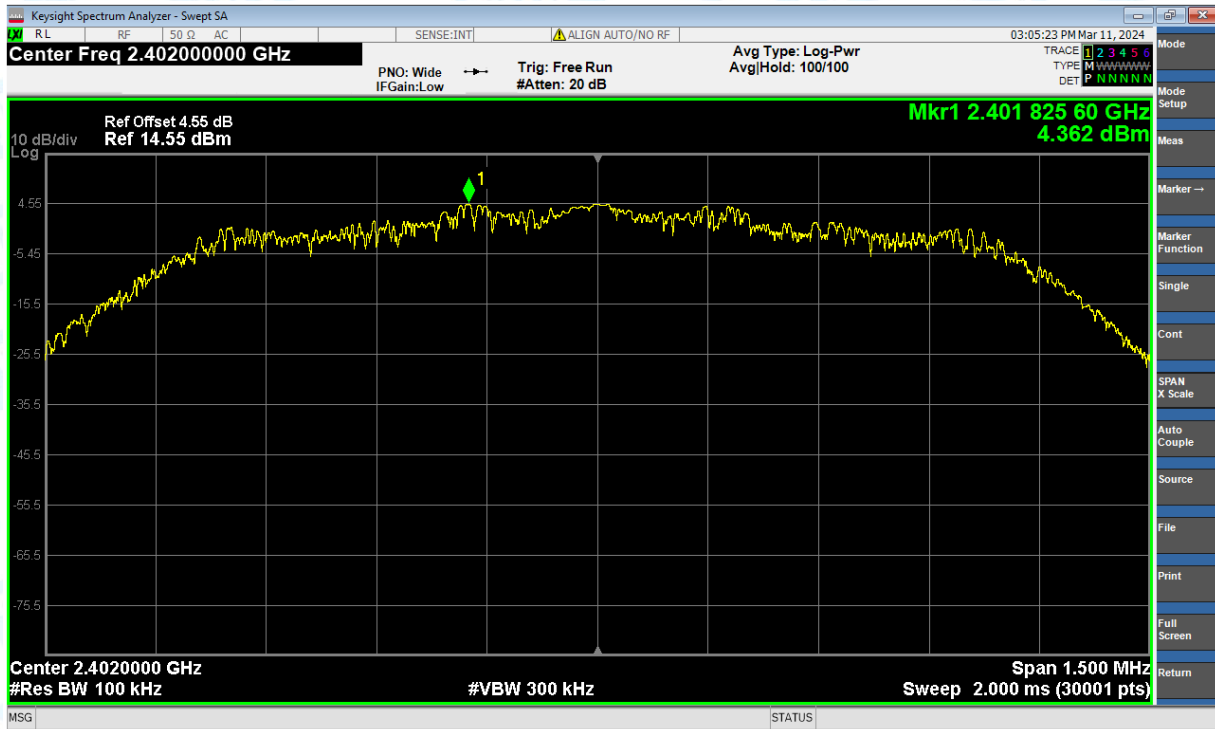
Tx. Spurious NVNT 2-DH1 2480MHz Ant1 Ref



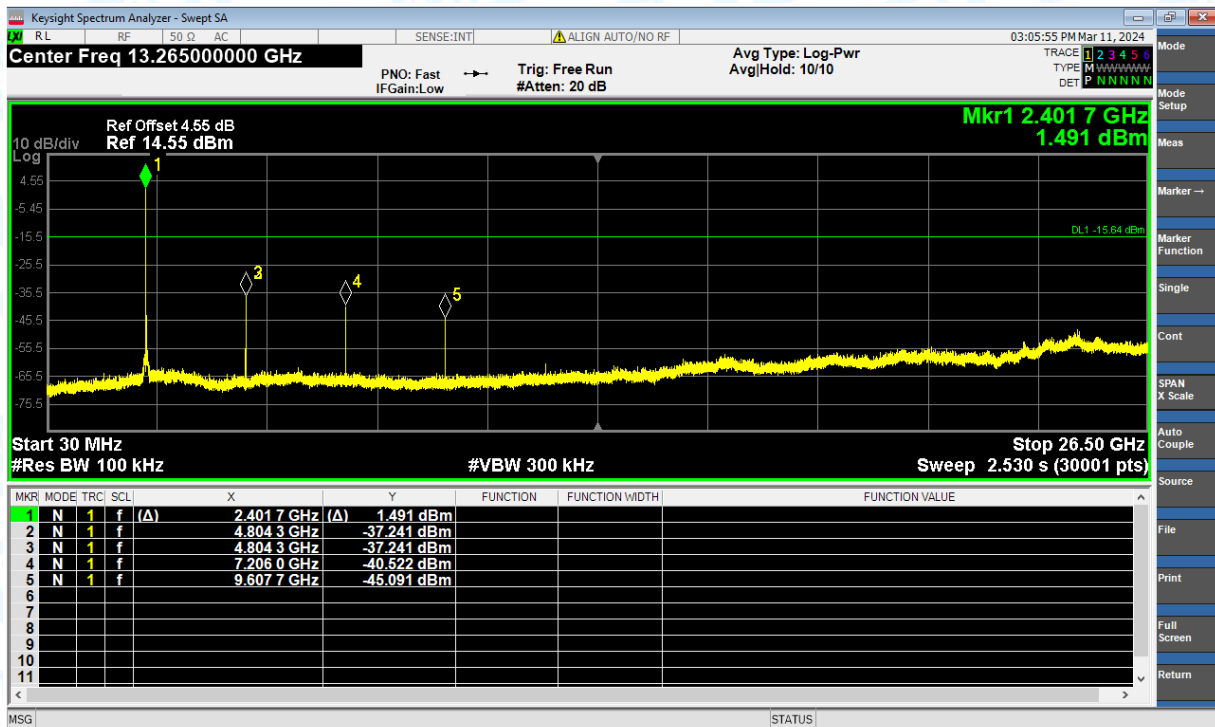
Tx. Spurious NVNT 2-DH1 2480MHz Ant1 Emission



Tx. Spurious NVNT 3-DH1 2402MHz Ant1 Ref



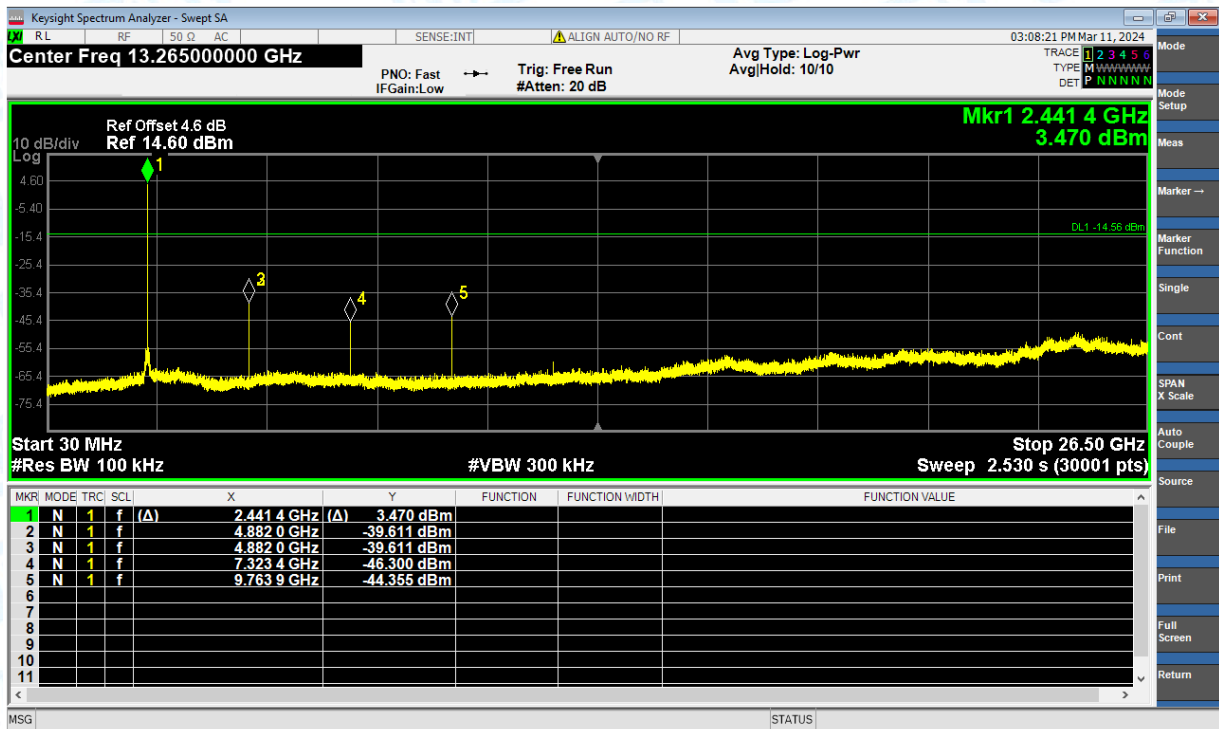
Tx. Spurious NVNT 3-DH1 2402MHz Ant1 Emission



Tx. Spurious NVNT 3-DH1 2441MHz Ant1 Ref



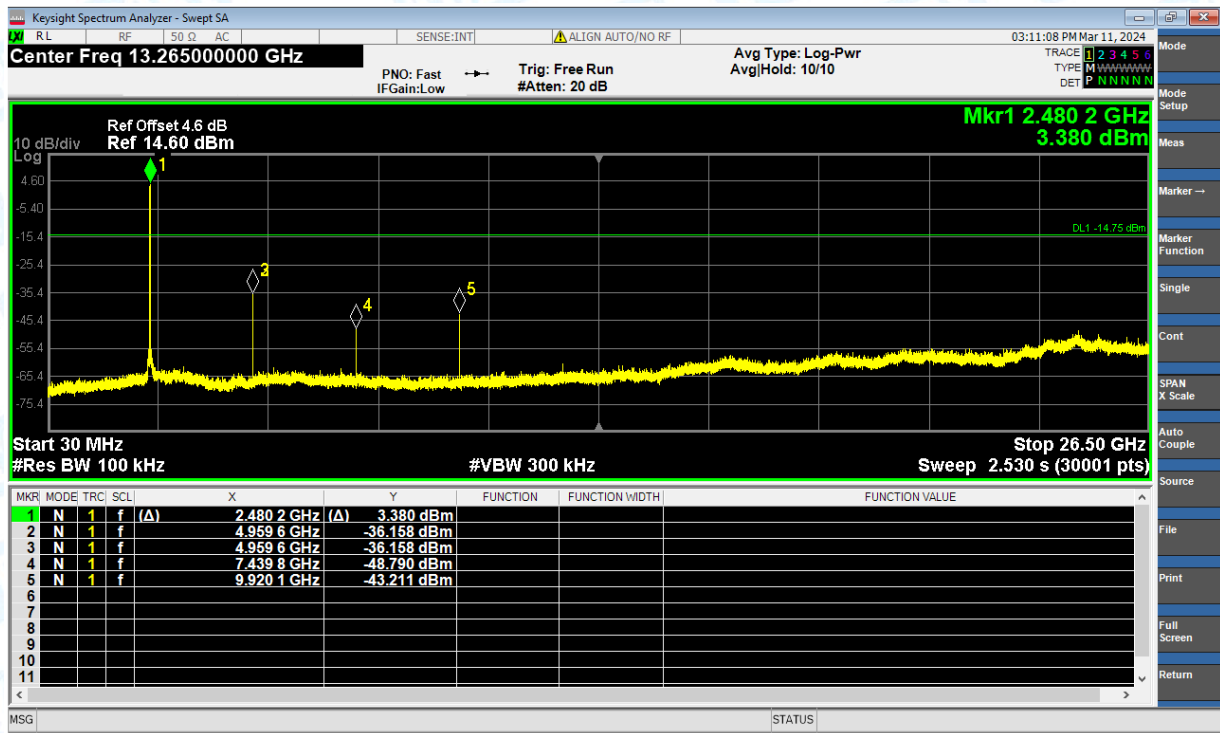
Tx. Spurious NVNT 3-DH1 2441MHz Ant1 Emission



Tx. Spurious NVNT 3-DH1 2480MHz Ant1 Ref



Tx. Spurious NVNT 3-DH1 2480MHz Ant1 Emission

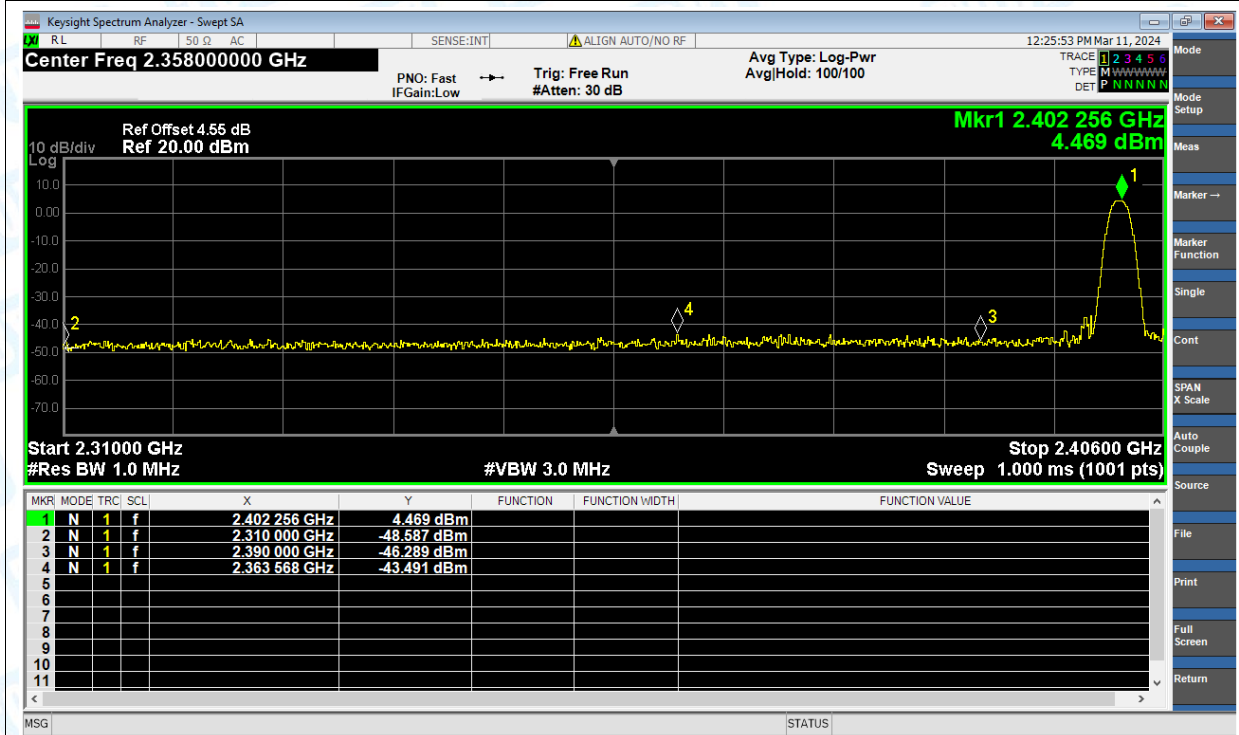


8.Restrict Band

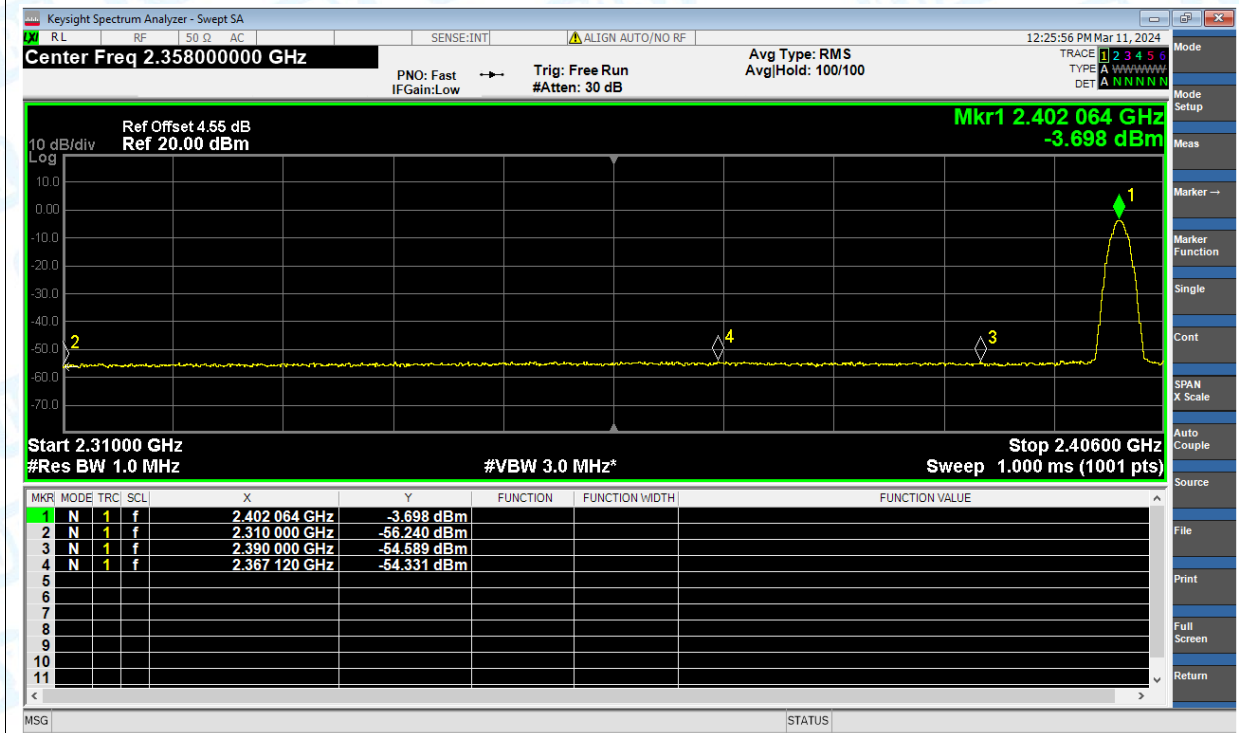
Condition	Mode	Frequency (MHz)	Antenna	Hopping Mode	Spur Freq (MHz)	Power (dBm)	Gain (dBi)	Duty Factor (dB)	E (dBuV/m)	Detector	Limit (dBuV/m)	Verdict
NVNT	1-DH1	2402	Ant1	No-Hopping	2310	-48.59	2	-	48.67	Peak	74	Pass
NVNT	1-DH1	2402	Ant1	No-Hopping	2310	-56.24	2	4.84	45.86	Average	54	Pass
NVNT	1-DH1	2402	Ant1	No-Hopping	2363.568	-43.49	2	-	53.77	Peak	74	Pass
NVNT	1-DH1	2402	Ant1	No-Hopping	2367.12	-54.33	2	4.84	47.77	Average	54	Pass
NVNT	1-DH1	2402	Ant1	No-Hopping	2390	-46.29	2	-	50.97	Peak	74	Pass
NVNT	1-DH1	2402	Ant1	No-Hopping	2390	-54.59	2	4.84	47.51	Average	54	Pass
NVNT	1-DH1	2480	Ant1	No-Hopping	2483.5	-42.92	2	-	54.34	Peak	74	Pass
NVNT	1-DH1	2480	Ant1	No-Hopping	2483.5	-53.32	2	4.84	48.78	Average	54	Pass
NVNT	1-DH1	2480	Ant1	No-Hopping	2484.448	-39.02	2	-	58.24	Peak	74	Pass
NVNT	1-DH1	2480	Ant1	No-Hopping	2484.304	-52.34	2	4.84	49.76	Average	54	Pass
NVNT	1-DH1	2480	Ant1	No-Hopping	2500	-44.66	2	-	52.6	Peak	74	Pass
NVNT	1-DH1	2480	Ant1	No-Hopping	2500	-54.45	2	4.84	47.65	Average	54	Pass
NVNT	2-DH1	2402	Ant1	No-Hopping	2310	-47.47	2	-	49.79	Peak	74	Pass
NVNT	2-DH1	2402	Ant1	No-Hopping	2310	-56.04	2	4.74	45.96	Average	54	Pass
NVNT	2-DH1	2402	Ant1	No-Hopping	2369.52	-42.89	2	-	54.37	Peak	74	Pass
NVNT	2-DH1	2402	Ant1	No-Hopping	2373.744	-53.87	2	4.74	48.13	Average	54	Pass
NVNT	2-DH1	2402	Ant1	No-Hopping	2390	-46.43	2	-	50.83	Peak	74	Pass
NVNT	2-DH1	2402	Ant1	No-Hopping	2390	-55.25	2	4.74	46.75	Average	54	Pass
NVNT	2-DH1	2480	Ant1	No-Hopping	2483.5	-42.89	2	-	54.37	Peak	74	Pass
NVNT	2-DH1	2480	Ant1	No-Hopping	2483.5	-53.29	2	4.74	48.71	Average	54	Pass
NVNT	2-DH1	2480	Ant1	No-Hopping	2484.328	-38.33	2	-	58.93	Peak	74	Pass
NVNT	2-DH1	2480	Ant1	No-Hopping	2484.472	-52.09	2	4.74	49.91	Average	54	Pass
NVNT	2-DH1	2480	Ant1	No-Hopping	2500	-45.26	2	-	52	Peak	74	Pass
NVNT	2-DH1	2480	Ant1	No-Hopping	2500	-54.54	2	4.74	47.46	Average	54	Pass
NVNT	3-DH1	2402	Ant1	No-Hopping	2310	-47.99	2	-	49.27	Peak	74	Pass
NVNT	3-DH1	2402	Ant1	No-Hopping	2310	-55.58	2	4.74	46.42	Average	54	Pass
NVNT	3-DH1	2402	Ant1	No-Hopping	2366.064	-43.78	2	-	53.48	Peak	74	Pass
NVNT	3-DH1	2402	Ant1	No-Hopping	2375.184	-54.13	2	4.74	47.87	Average	54	Pass
NVNT	3-DH1	2402	Ant1	No-Hopping	2390	-47.29	2	-	49.97	Peak	74	Pass
NVNT	3-DH1	2402	Ant1	No-Hopping	2390	-54.78	2	4.74	47.22	Average	54	Pass
NVNT	3-DH1	2480	Ant1	No-Hopping	2483.5	-43.88	2	-	53.38	Peak	74	Pass
NVNT	3-DH1	2480	Ant1	No-Hopping	2483.5	-53.68	2	4.74	48.32	Average	54	Pass
NVNT	3-DH1	2480	Ant1	No-Hopping	2484.832	-37.94	2	-	59.32	Peak	74	Pass
NVNT	3-DH1	2480	Ant1	No-Hopping	2483.632	-52.91	2	4.74	49.09	Average	54	Pass
NVNT	3-DH1	2480	Ant1	No-Hopping	2500	-45.32	2	-	51.94	Peak	74	Pass
NVNT	3-DH1	2480	Ant1	No-Hopping	2500	-54.53	2	4.74	47.47	Average	54	Pass

Test Graphs

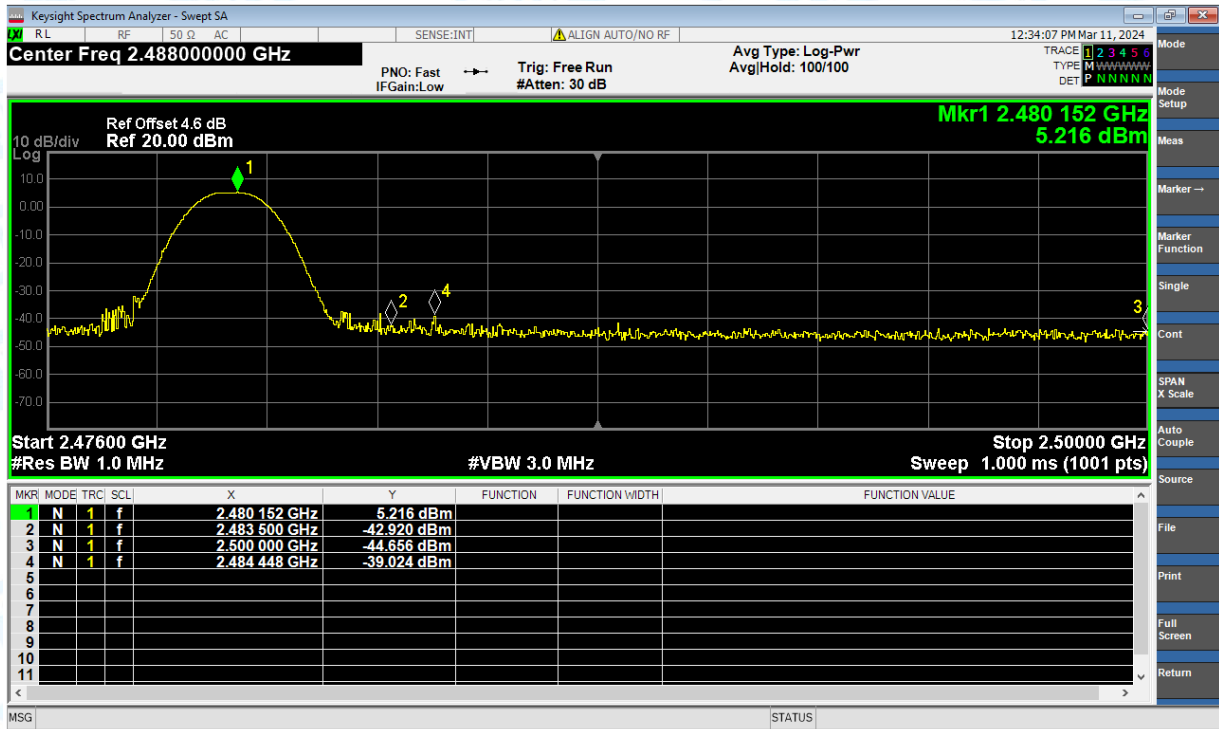
Restrict Band NVNT 1-DH1 2402MHz Ant1 No-Hopping Peak



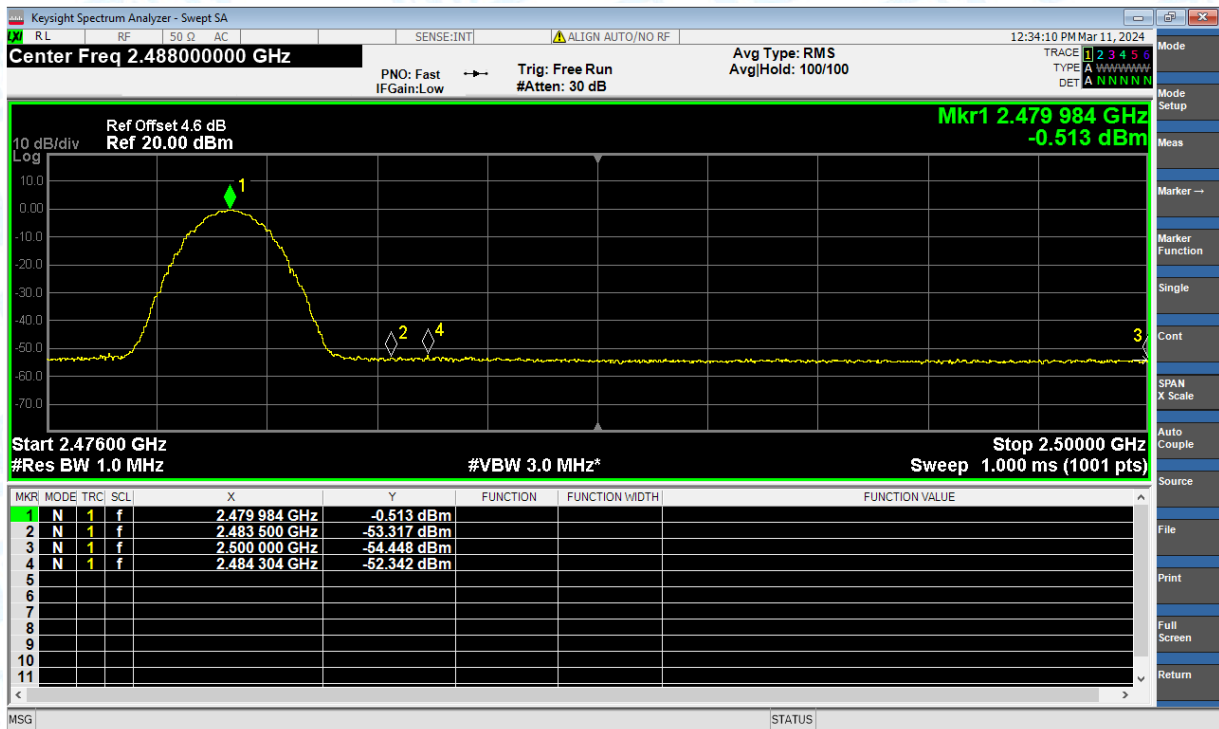
Restrict Band NVNT 1-DH1 2402MHz Ant1 No-Hopping Average



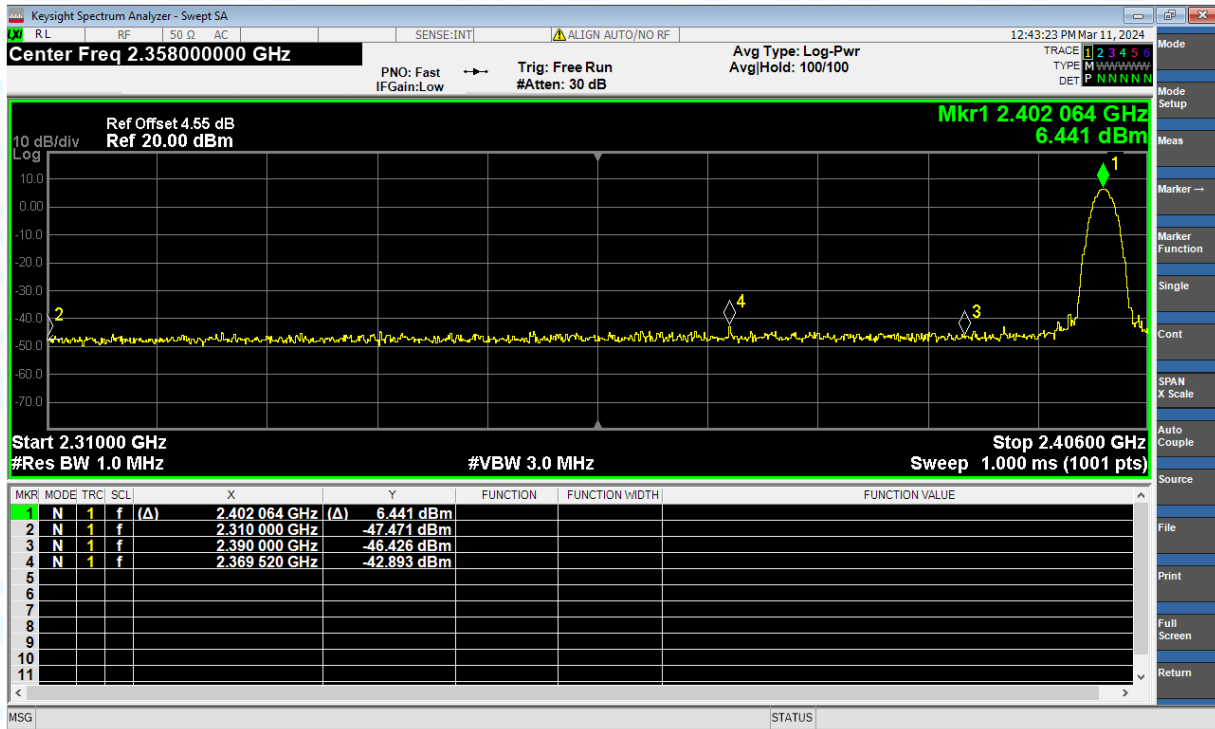
Restrict Band NVNT 1-DH1 2480MHz Ant1 No-Hopping Peak



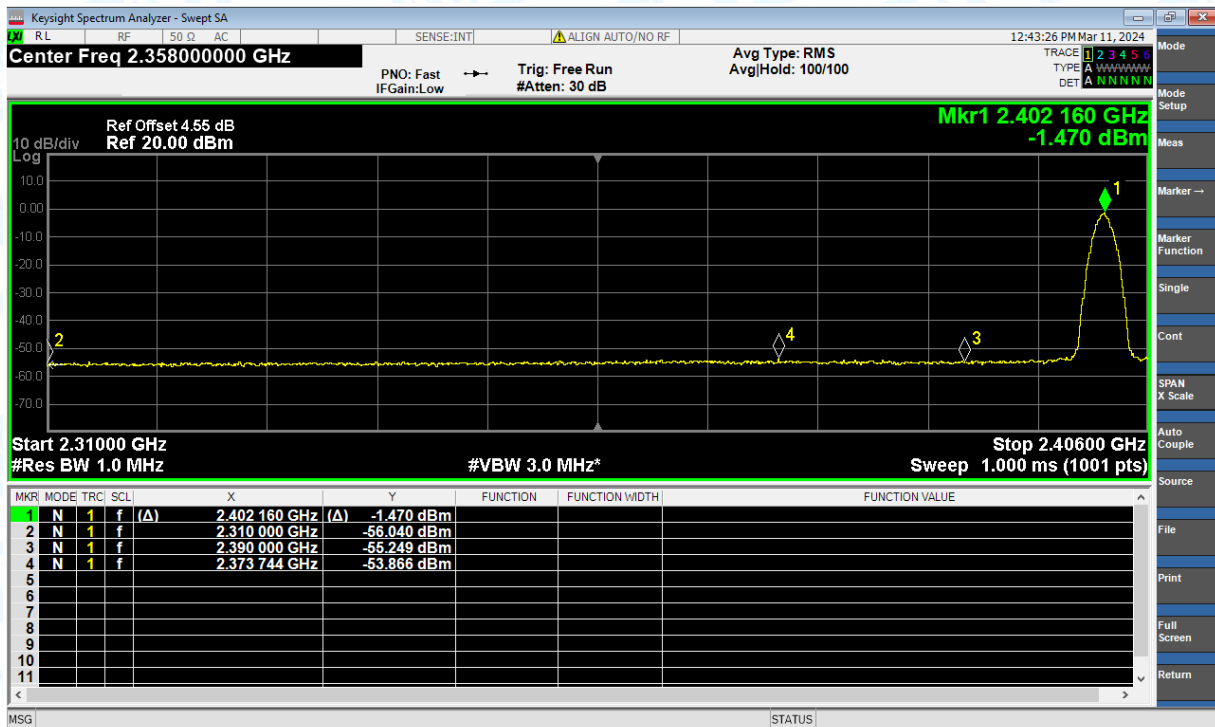
Restrict Band NVNT 1-DH1 2480MHz Ant1 No-Hopping Average



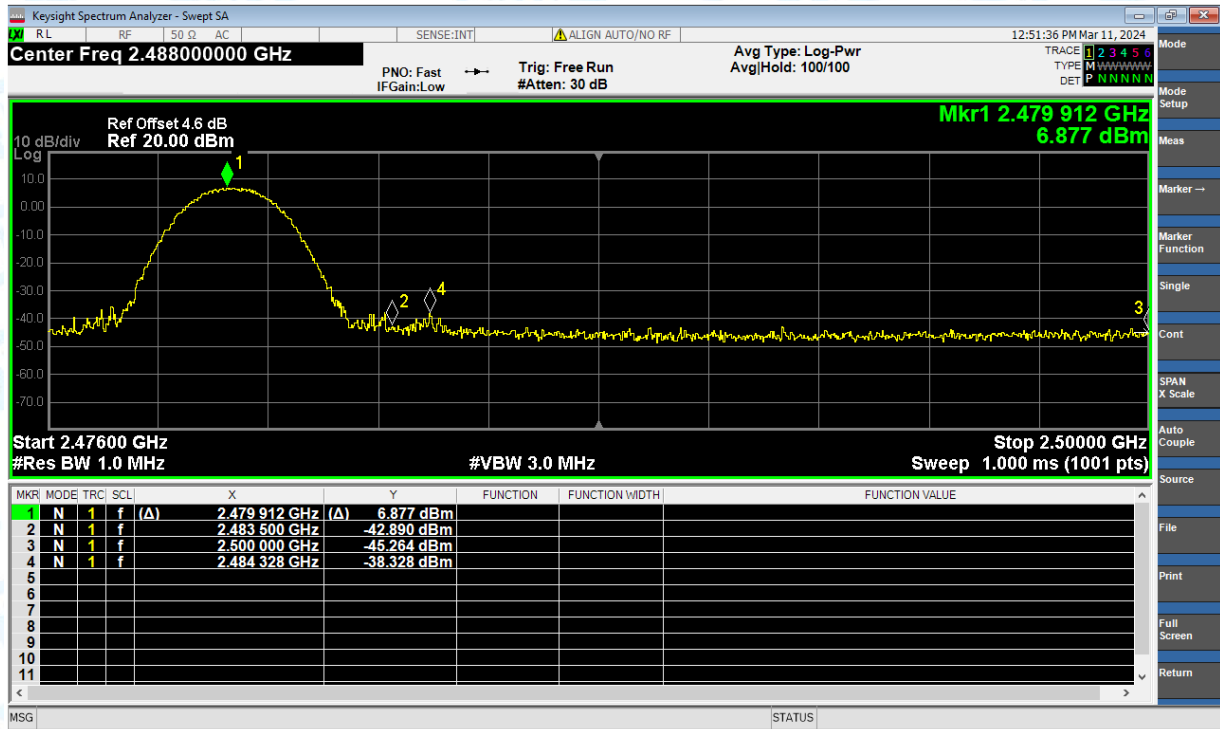
Restrict Band NVNT 2-DH1 2402MHz Ant1 No-Hopping Peak



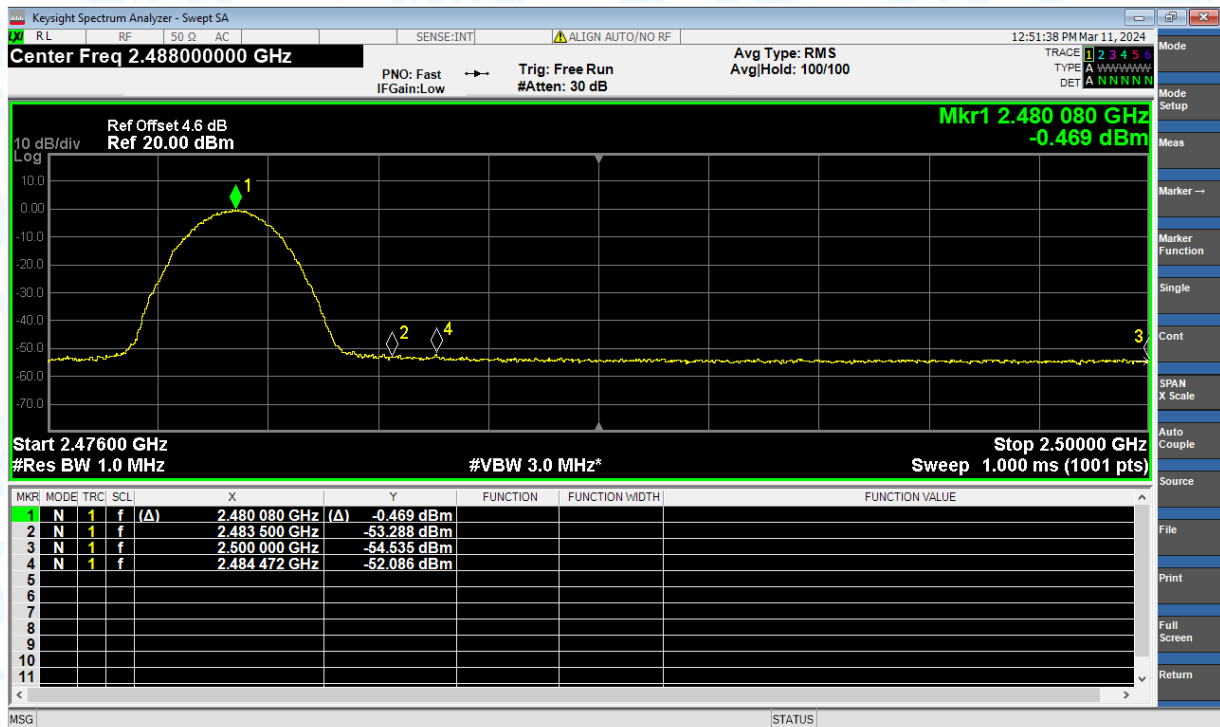
Restrict Band NVNT 2-DH1 2402MHz Ant1 No-Hopping Average



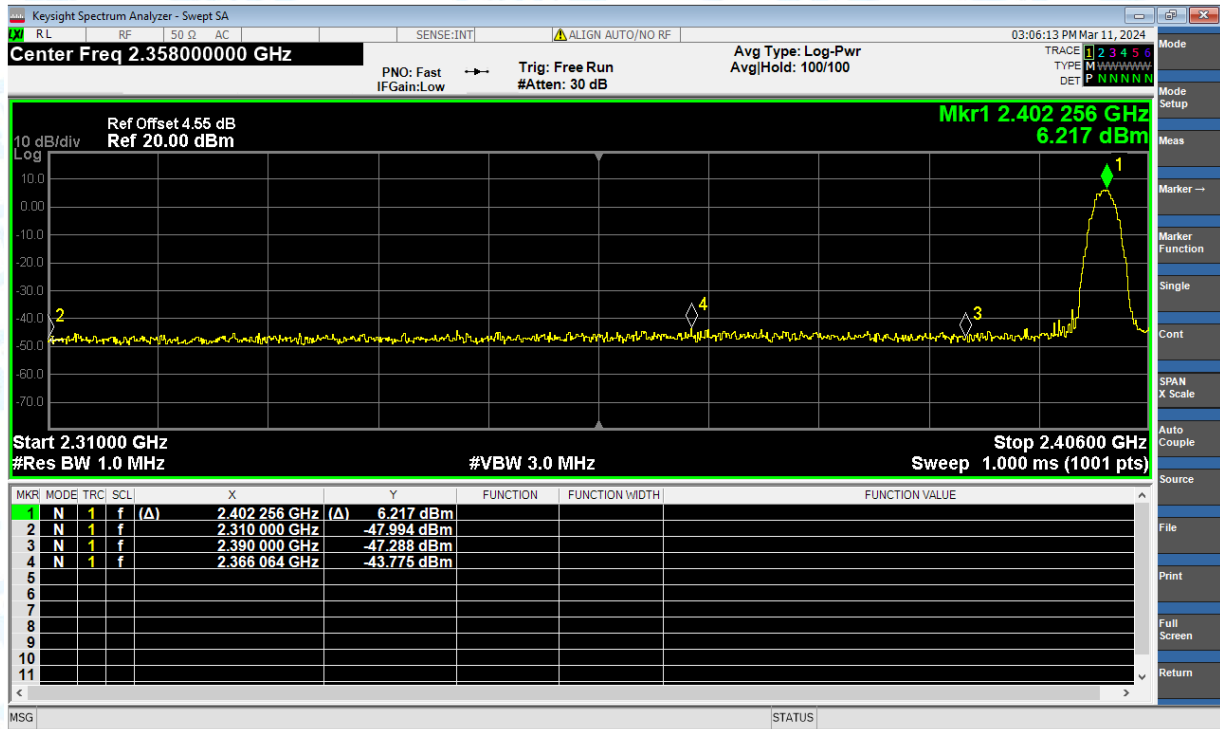
Restrict Band NVNT 2-DH1 2480MHz Ant1 No-Hopping Peak



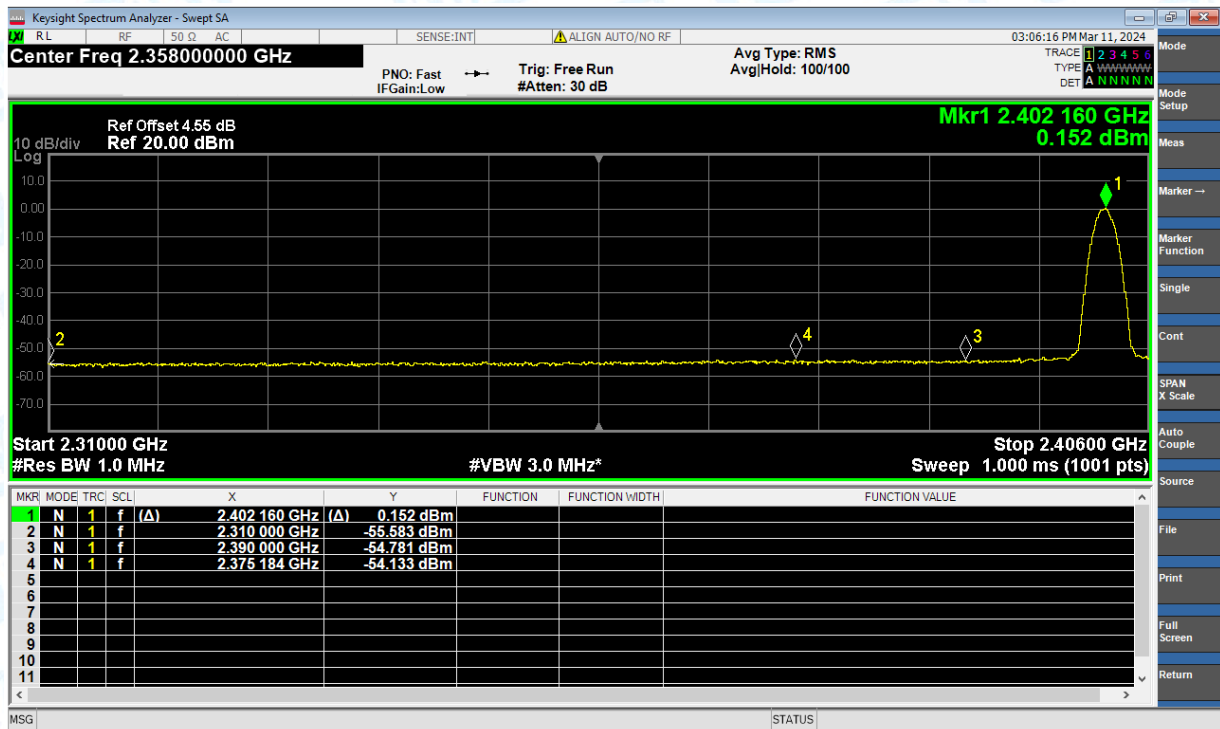
Restrict Band NVNT 2-DH1 2480MHz Ant1 No-Hopping Average



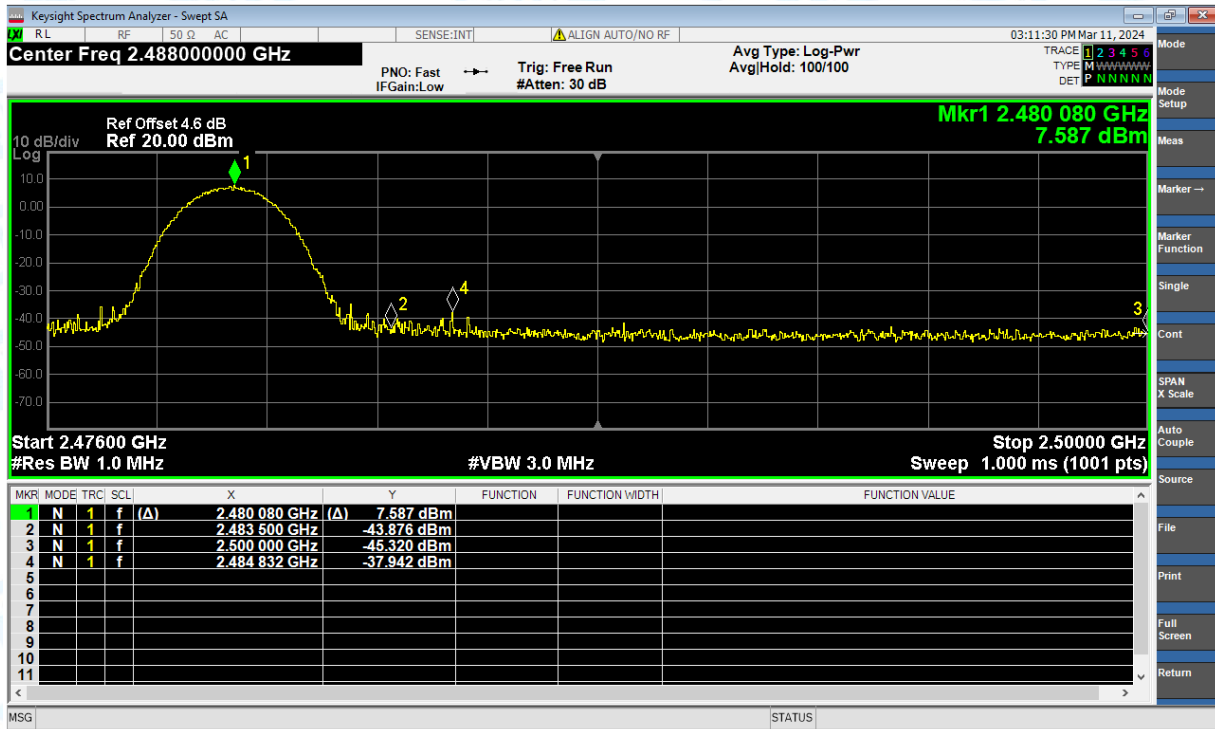
Restrict Band NVNT 3-DH1 2402MHz Ant1 No-Hopping Peak



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

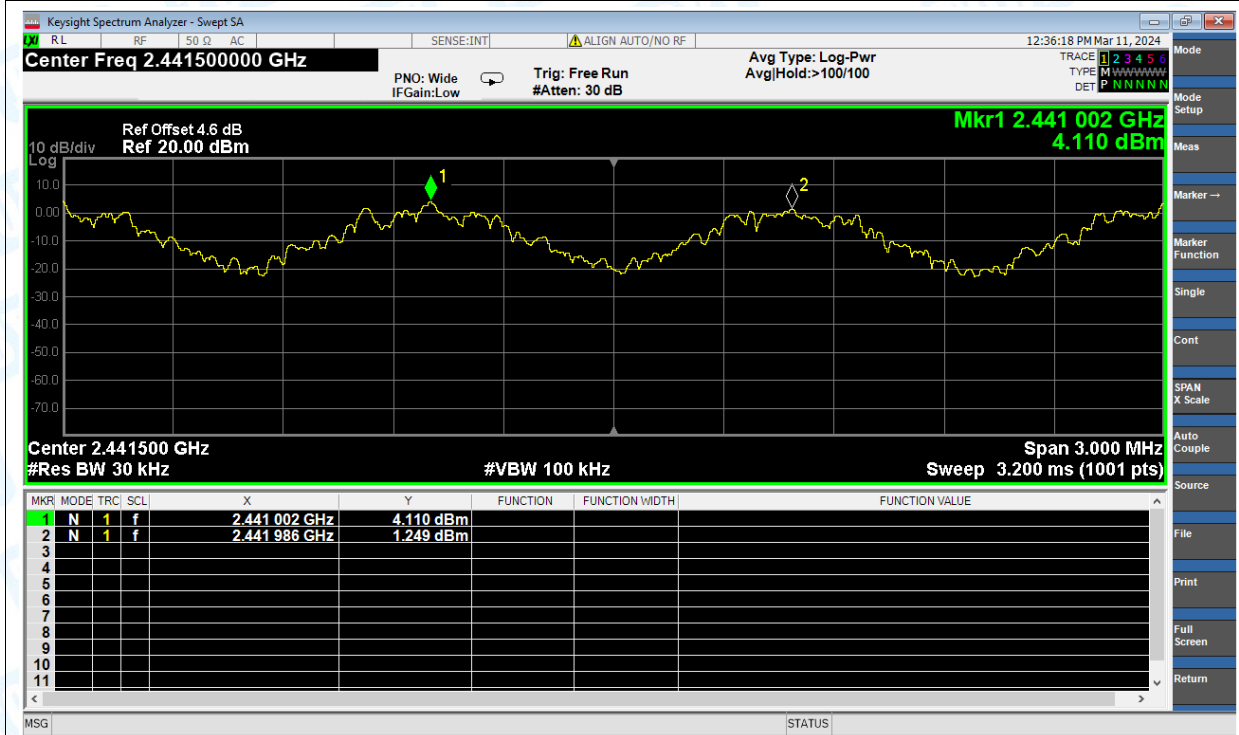


9.Carrier Frequencies Separation

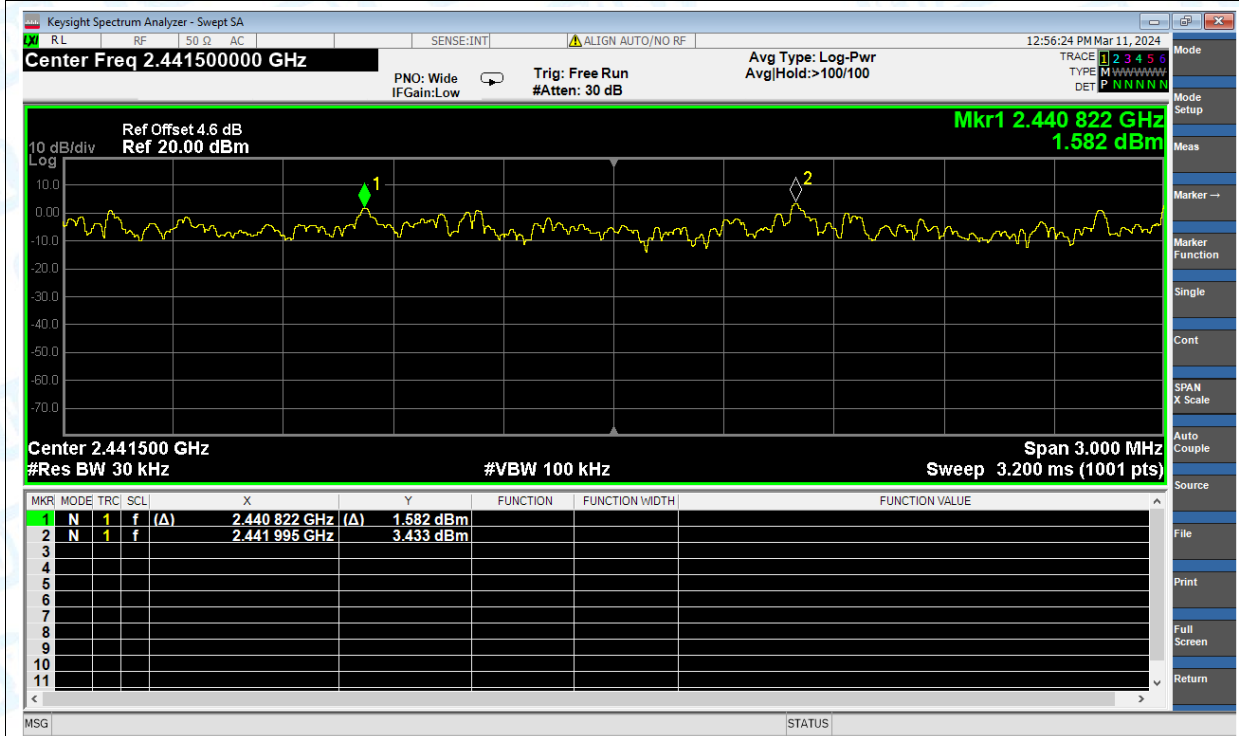
Condition	Mode	Antenna	Hopping Freq1 (MHz)	Hopping Freq2 (MHz)	HFS (MHz)	Limit (MHz)	Verdict
NVNT	1-DH1	Ant1	2441.002	2441.986	0.984	0.553	Pass
NVNT	2-DH1	Ant1	2440.822	2441.995	1.173	0.82	Pass
NVNT	3-DH1	Ant1	2440.984	2441.998	1.014	0.813	Pass

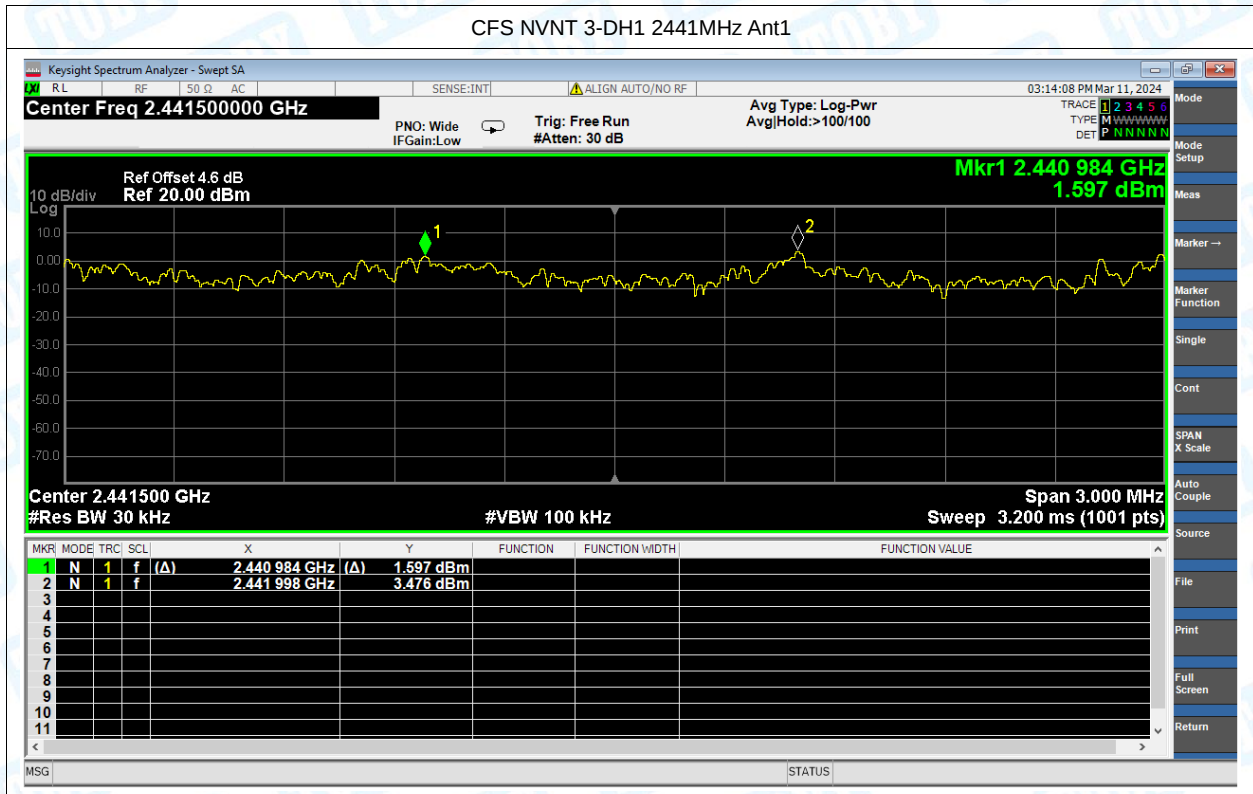
Test Graphs

CFS NVNT 1-DH1 2441MHz Ant1



CFS NVNT 2-DH1 2441MHz Ant1



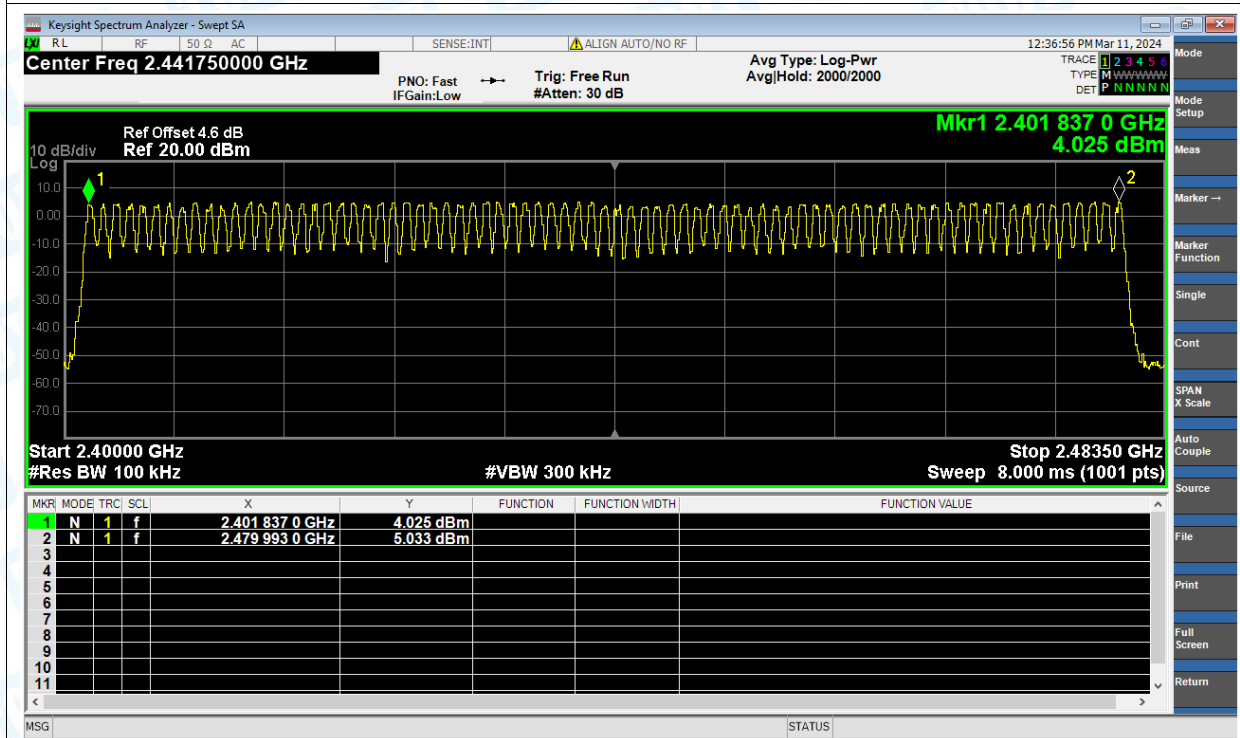


10.Number of Hopping Channel

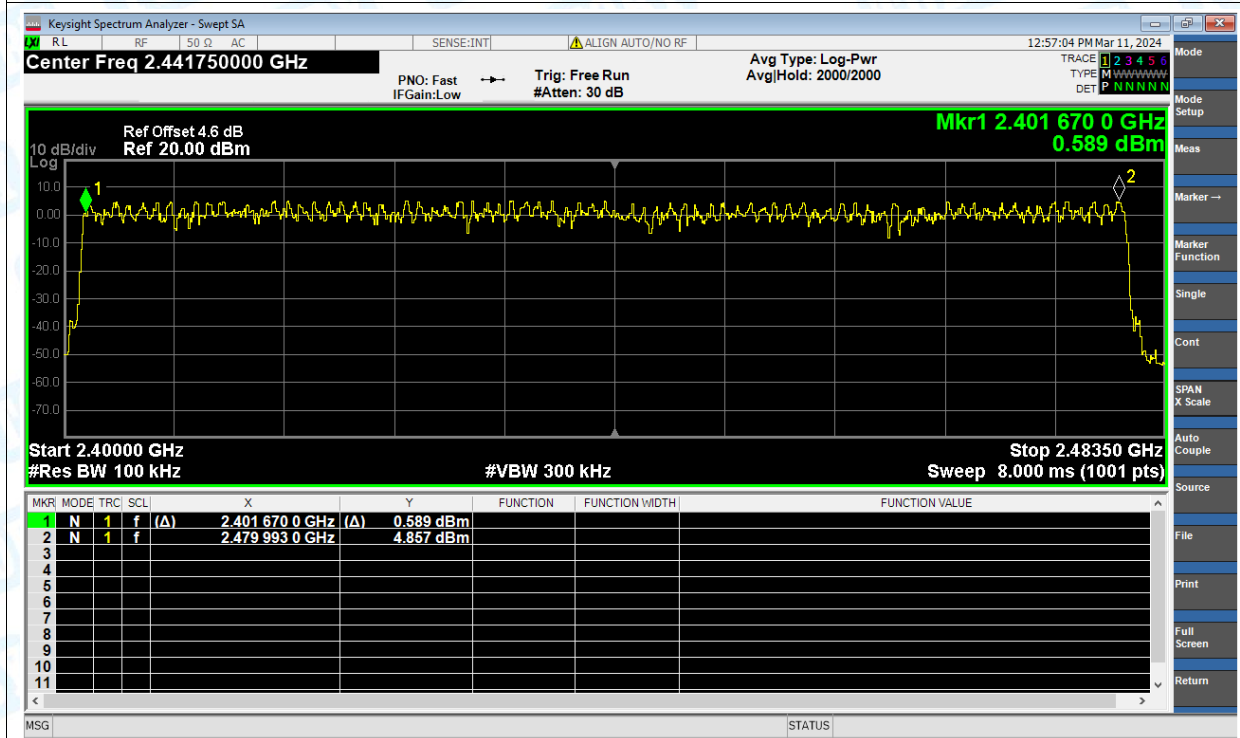
Condition	Mode	Antenna	Hopping Number	Limit	Verdict
NVNT	1-DH1	Ant1	79	15	Pass
NVNT	2-DH1	Ant1	79	15	Pass
NVNT	3-DH1	Ant1	79	15	Pass

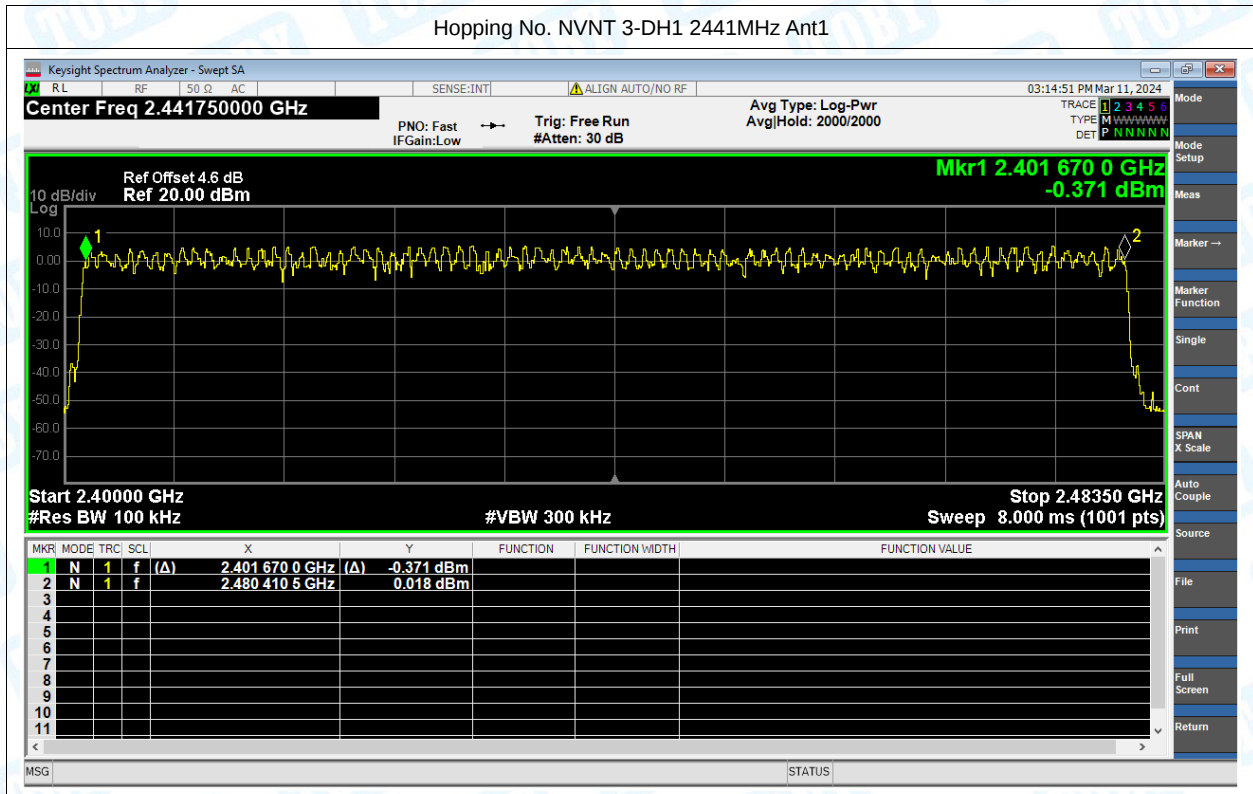
Test Graphs

Hopping No. NVNT 1-DH1 2441MHz Ant1



Hopping No. NVNT 2-DH1 2441MHz Ant1



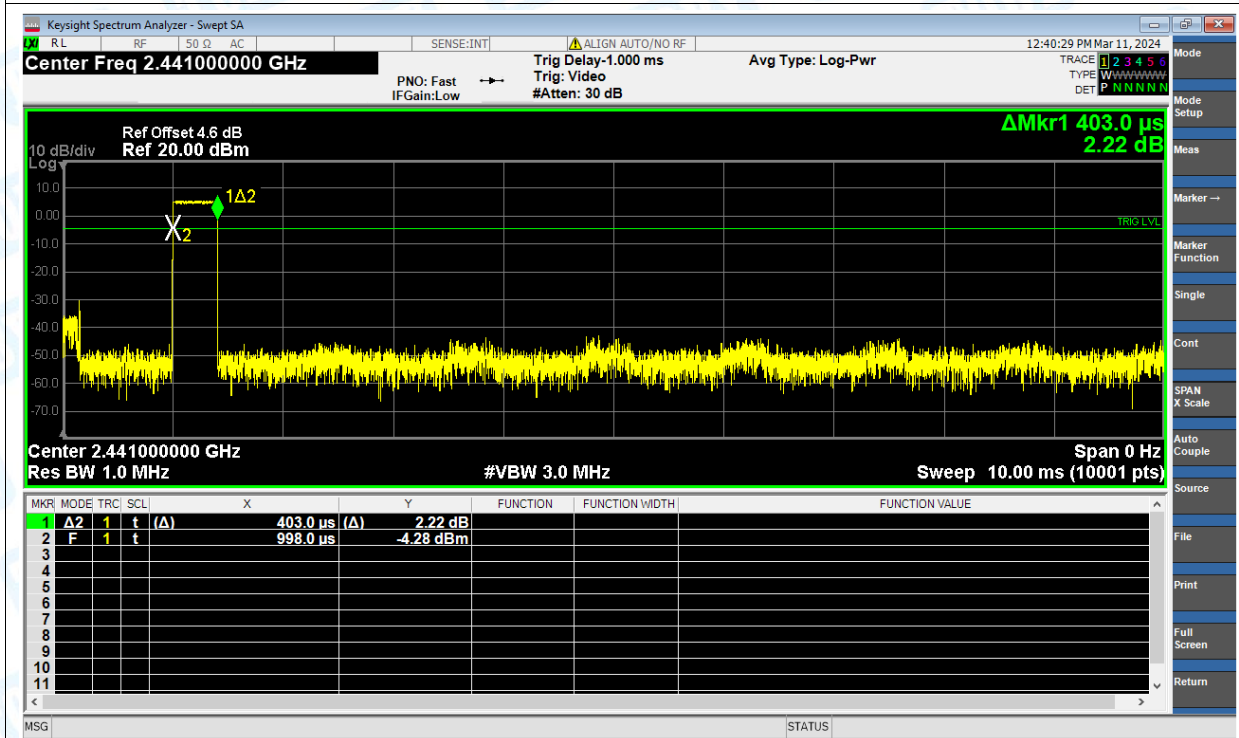


11.Dwell Time

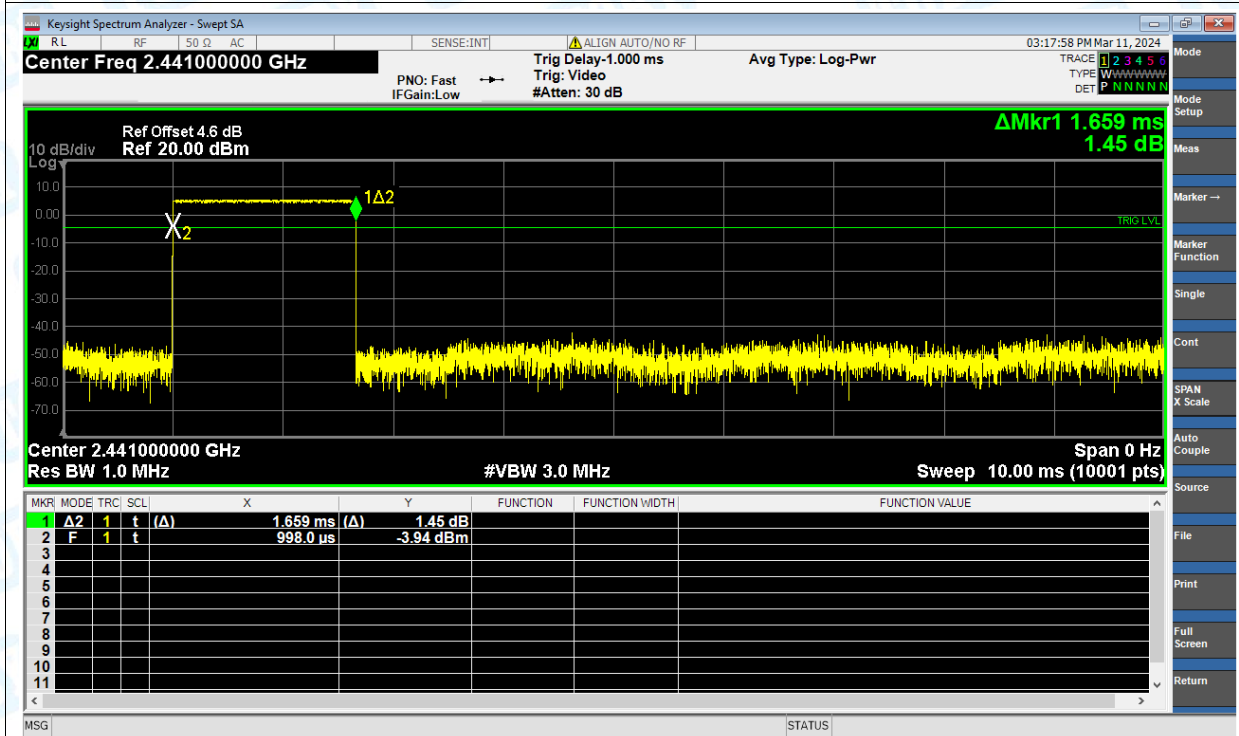
Condition	Mode	Frequency (MHz)	Antenna	Pulse Time (ms)	Total Dwell Time (ms)	Period Time (ms)	Limit (ms)	Verdict
NVNT	1-DH1	2441	Ant1	0.403	128.96	31600	400	Pass
NVNT	1-DH3	2441	Ant1	1.659	265.44	31600	400	Pass
NVNT	1-DH5	2441	Ant1	2.907	310.08	31600	400	Pass
NVNT	2-DH1	2441	Ant1	0.412	131.84	31600	400	Pass
NVNT	2-DH3	2441	Ant1	1.664	266.24	31600	400	Pass
NVNT	2-DH5	2441	Ant1	2.912	310.613	31600	400	Pass
NVNT	3-DH1	2441	Ant1	0.409	130.88	31600	400	Pass
NVNT	3-DH3	2441	Ant1	1.662	265.92	31600	400	Pass
NVNT	3-DH5	2441	Ant1	2.911	310.507	31600	400	Pass

Test Graphs

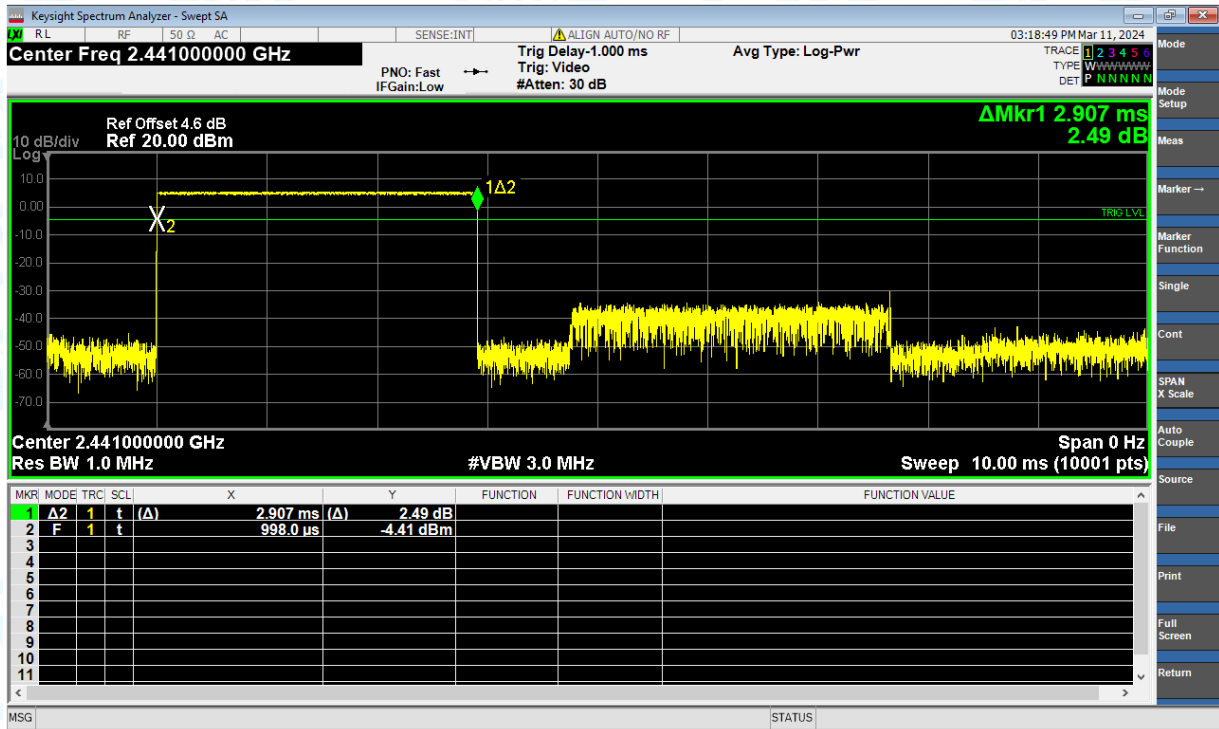
Dwell NVNT 1-DH1 2441MHz Ant1



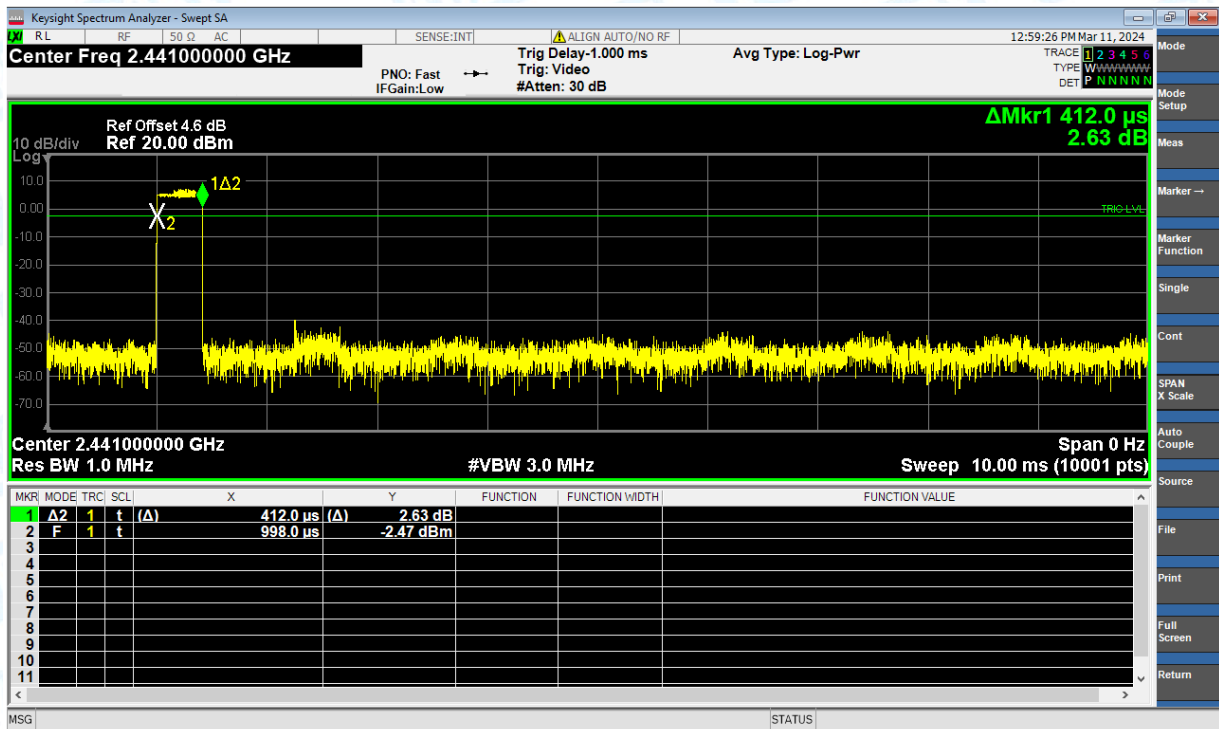
Dwell NVNT 1-DH3 2441MHz Ant1



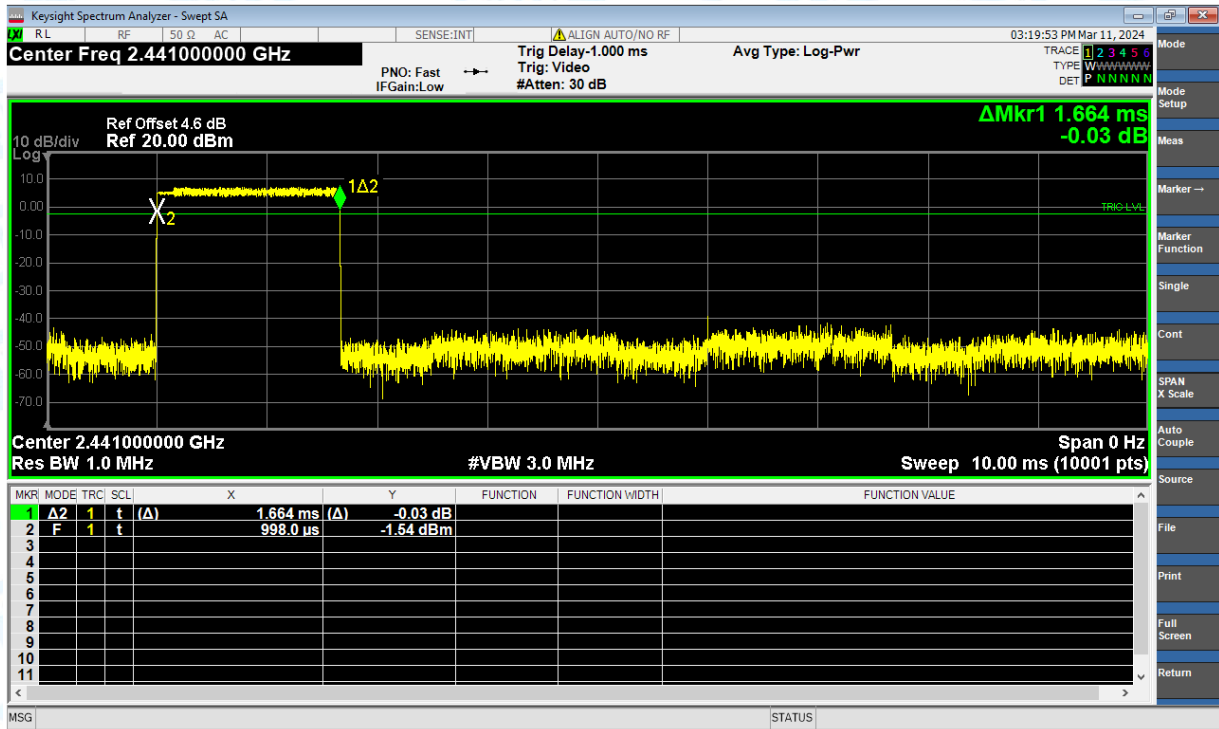
Dwell NVNT 1-DH5 2441MHz Ant1



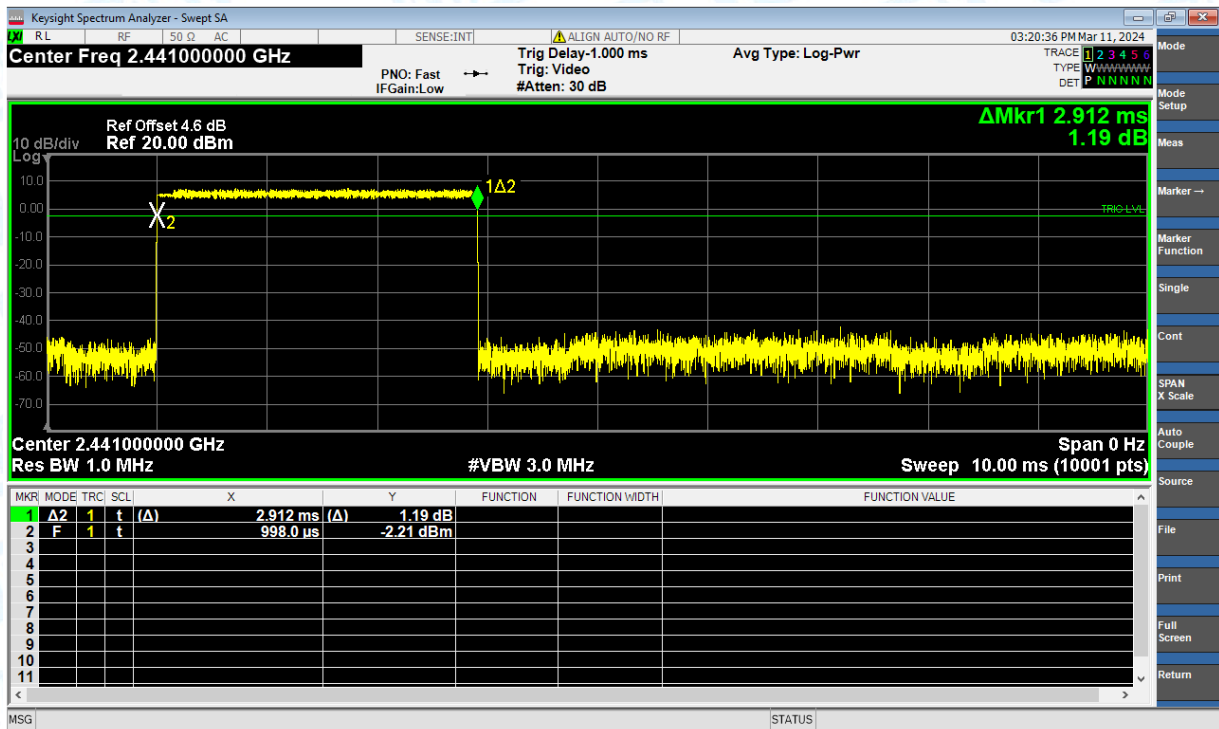
Dwell NVNT 2-DH1 2441MHz Ant1



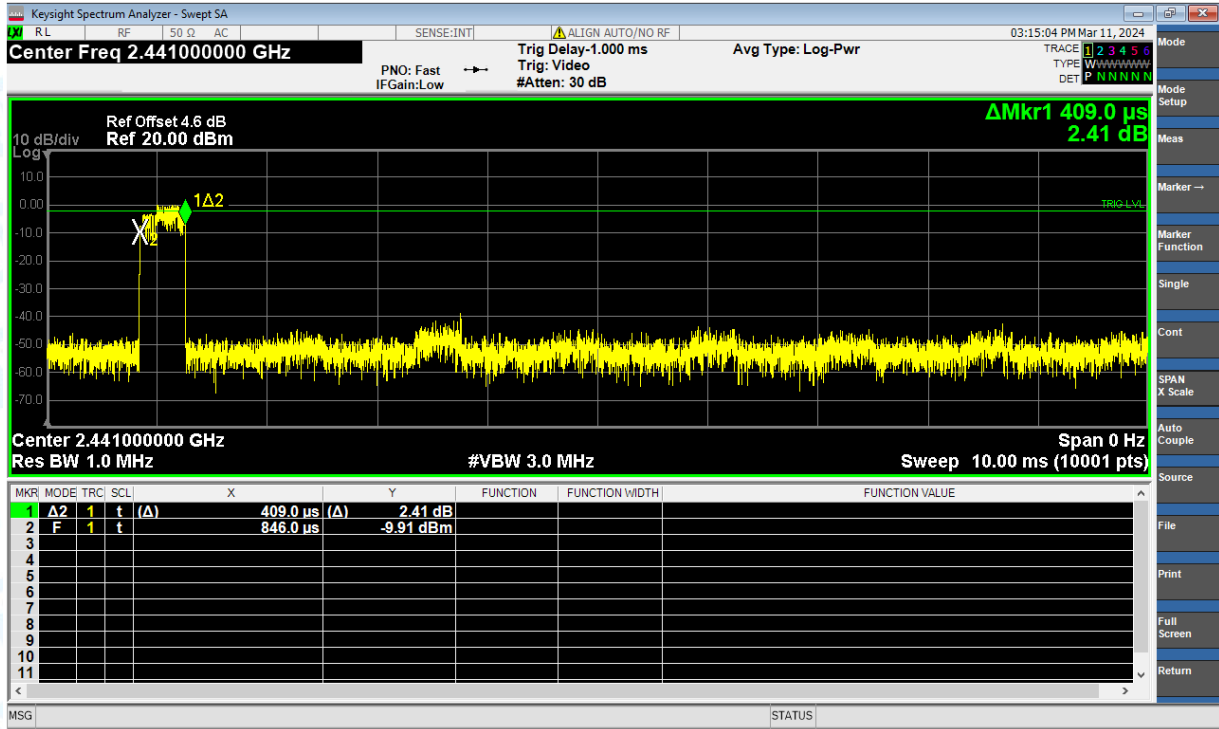
Dwell NVNT 2-DH3 2441MHz Ant1



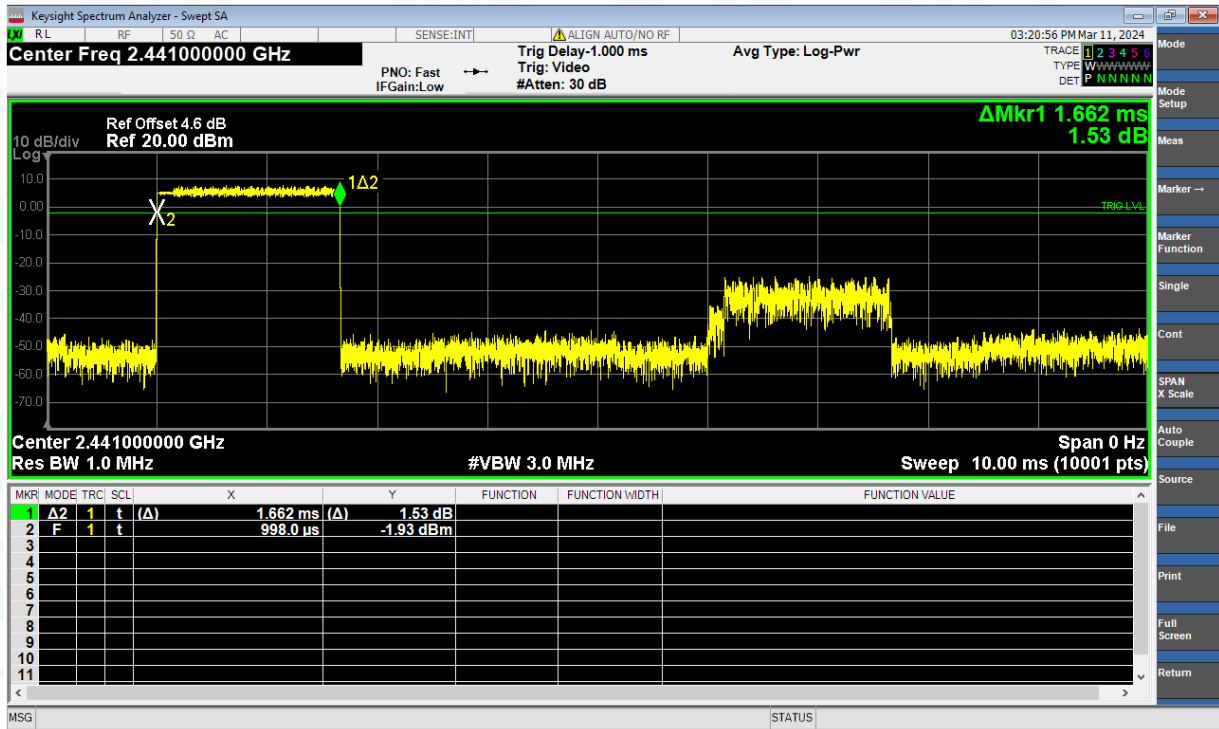
Dwell NVNT 2-DH5 2441MHz Ant1

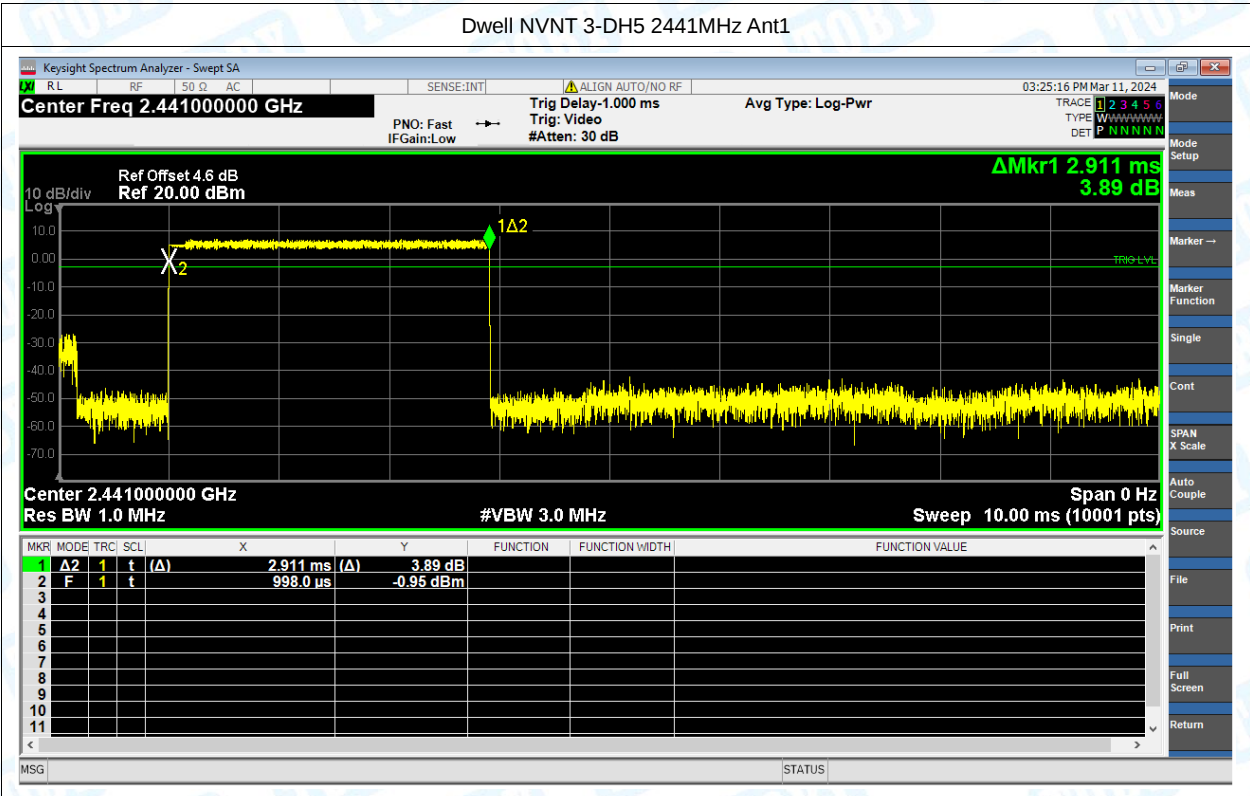


Dwell NVNT 3-DH1 2441MHz Ant1



Dwell NVNT 3-DH3 2441MHz Ant1





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