

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

General Description of EUT	
Product Name:	Smart Mattress
Test Model:	1-5
Sample ID:	HC-C-202401-0039-08-02#
Environmental Conditions	
Temperature:	25°C
Relative Humidity:	55%
Test Voltage:	AC 120V
Test Engineer:	Mike Yan
Note: For a more detailed features description, please refer to the report TBR-C-202401-0039-9 The report only show the worst case data.	

Contents

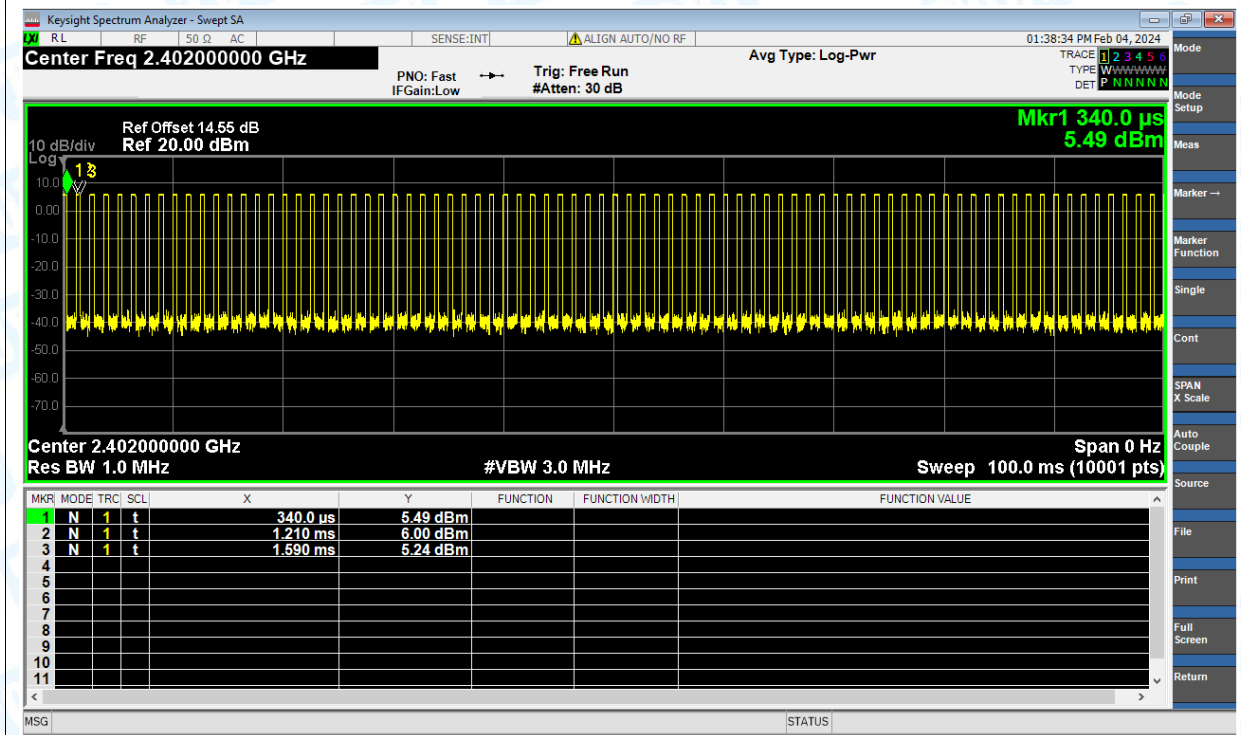
1.Duty Cycle.....	3
2.Maximum Conducted Output Power	9
3.-20dB Bandwidth	15
4.Occupied Channel Bandwidth	21
5.Band Edge	27
6.Band Edge(Hopping).....	34
7.Conducted RF Spurious Emission	41
8.Restrict Band	51
9.Carrier Frequencies Separation	58
10.Number of Hopping Channel	61
11.Dwell Time.....	64

1. Duty Cycle

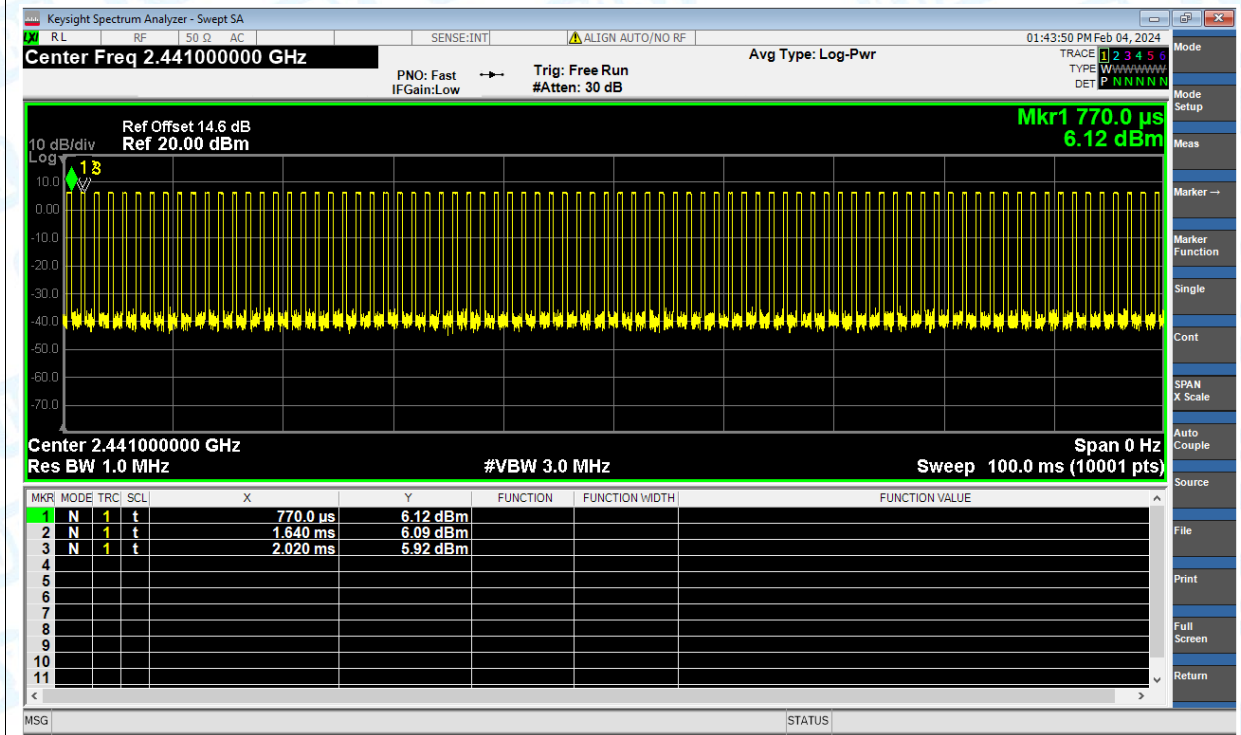
Condition	Mode	Frequency (MHz)	Antenna	Duty Cycle (%)	Correction Factor (dB)	1/T (kHz)
NVNT	1-DH1	2402	Ant1	30.4	5.17	2.63
NVNT	1-DH1	2441	Ant1	30.4	5.17	2.63
NVNT	1-DH1	2480	Ant1	30.16	5.21	2.63
NVNT	2-DH1	2402	Ant1	31.2	5.06	2.56
NVNT	2-DH1	2441	Ant1	31.2	5.06	2.56
NVNT	2-DH1	2480	Ant1	31.2	5.06	2.56
NVNT	3-DH1	2402	Ant1	31.2	5.06	2.56
NVNT	3-DH1	2441	Ant1	31.2	5.06	2.56
NVNT	3-DH1	2480	Ant1	31.2	5.06	2.56

Test Graphs

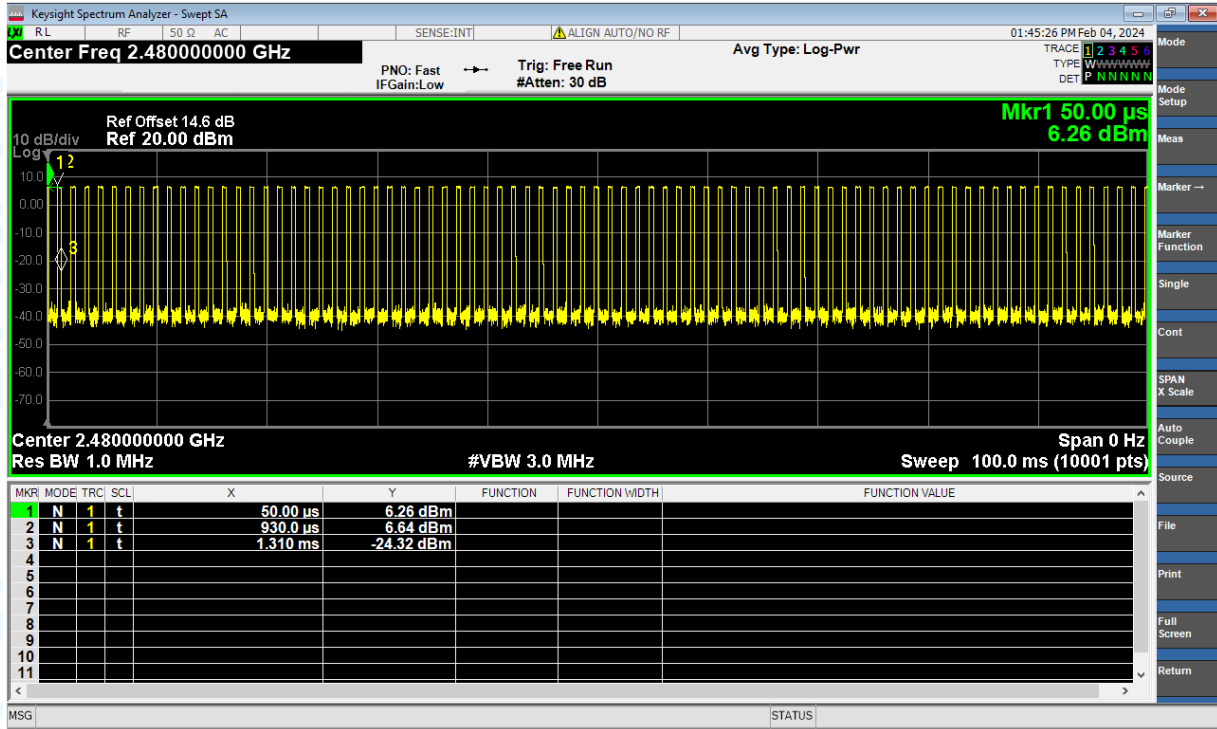
Duty Cycle NVNT 1-DH1 2402MHz Ant1



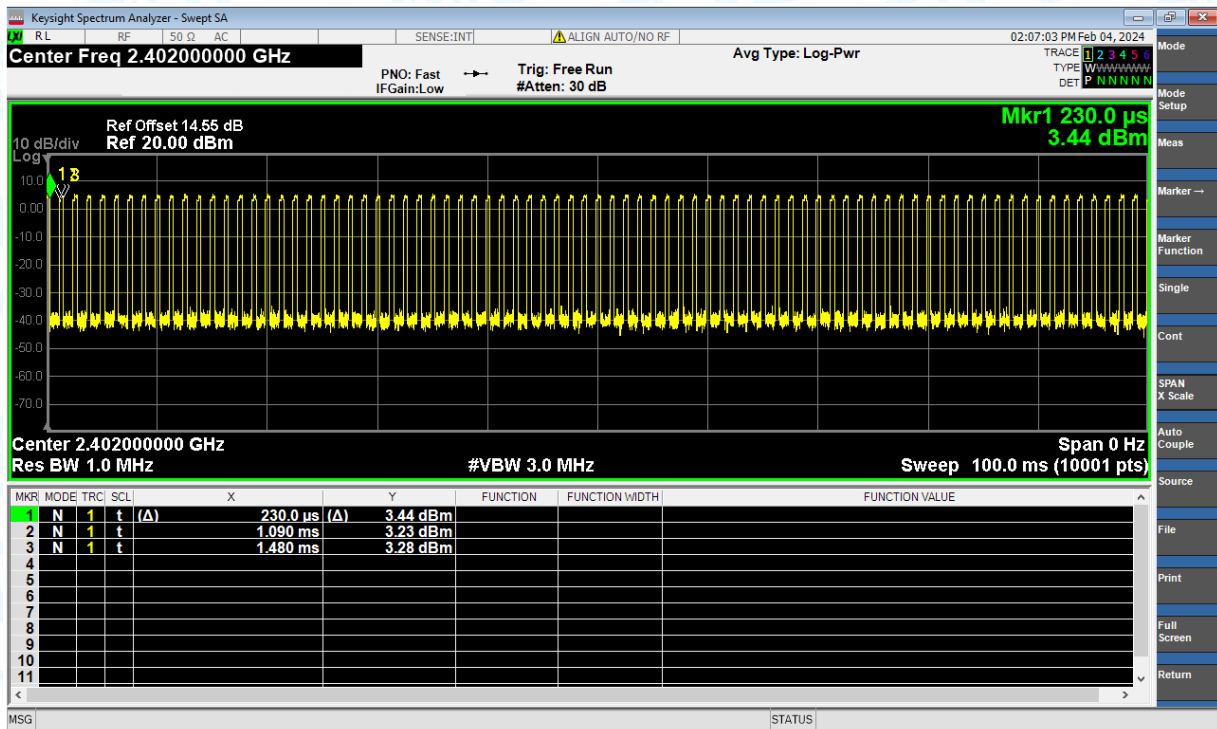
Duty Cycle NVNT 1-DH1 2441MHz Ant1



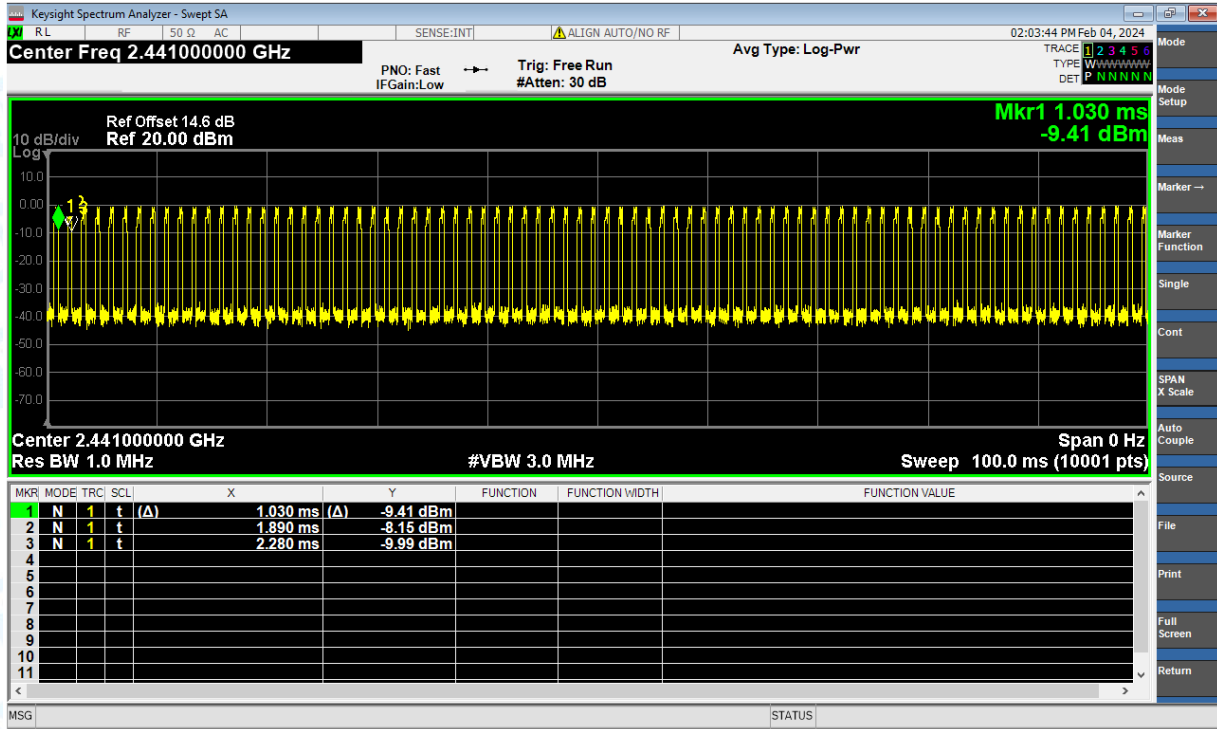
Duty Cycle NVNT 1-DH1 2480MHz Ant1



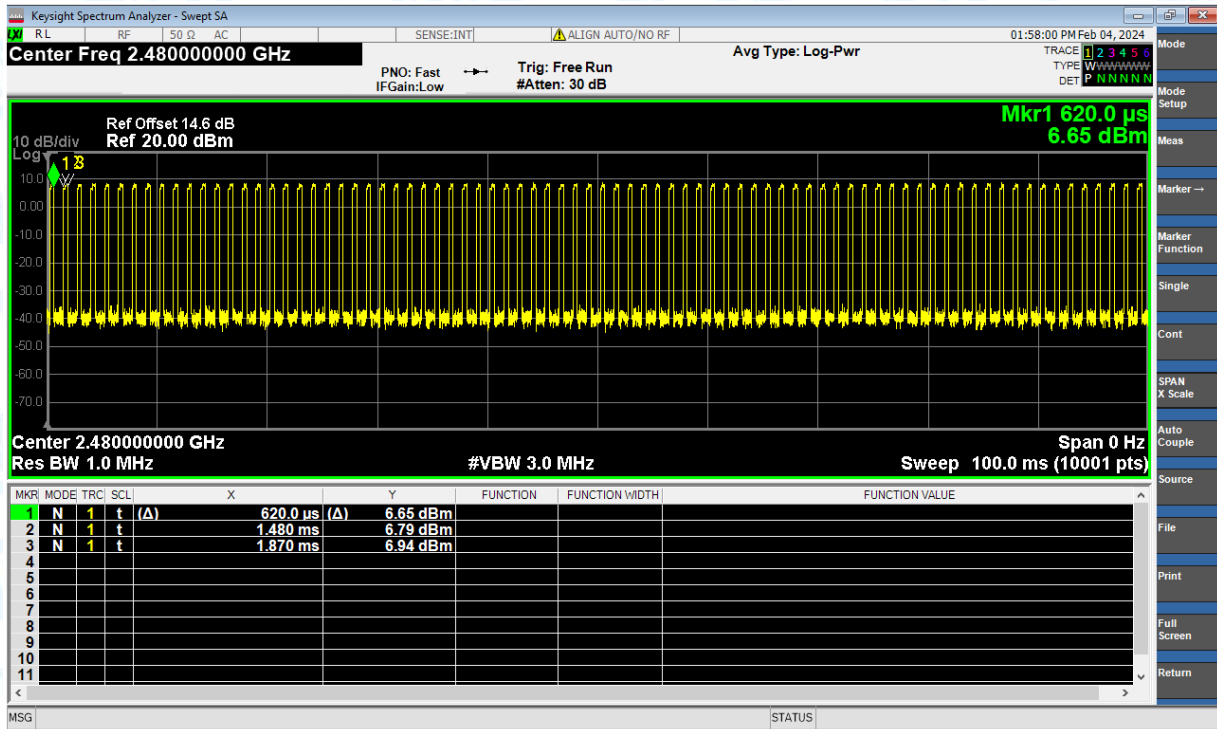
Duty Cycle NVNT 2-DH1 2402MHz Ant1



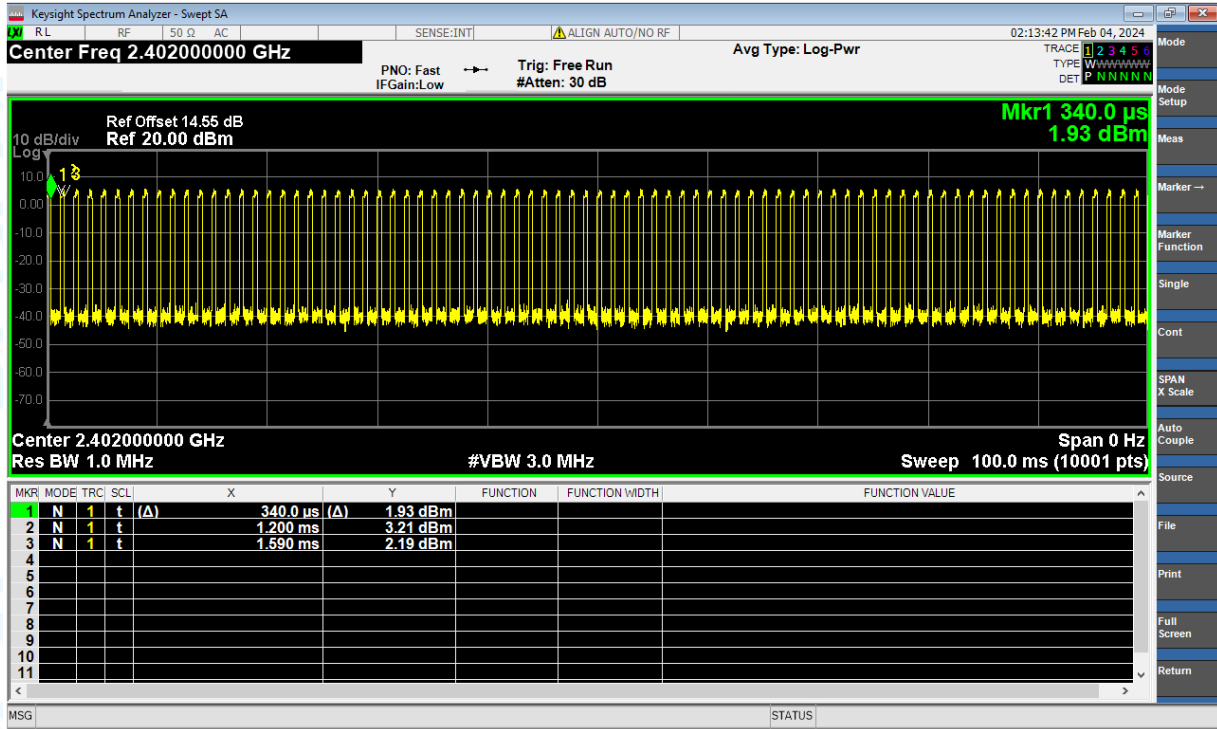
Duty Cycle NVNT 2-DH1 2441MHz Ant1



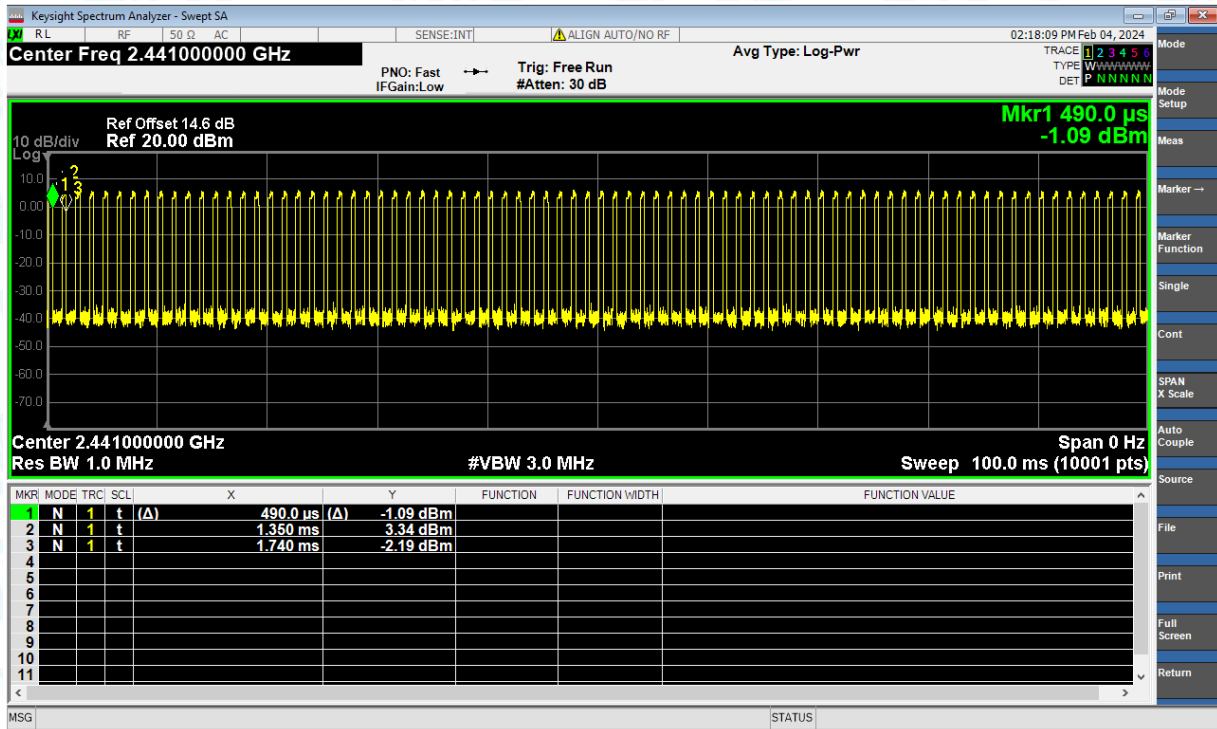
Duty Cycle NVNT 2-DH1 2480MHz Ant1

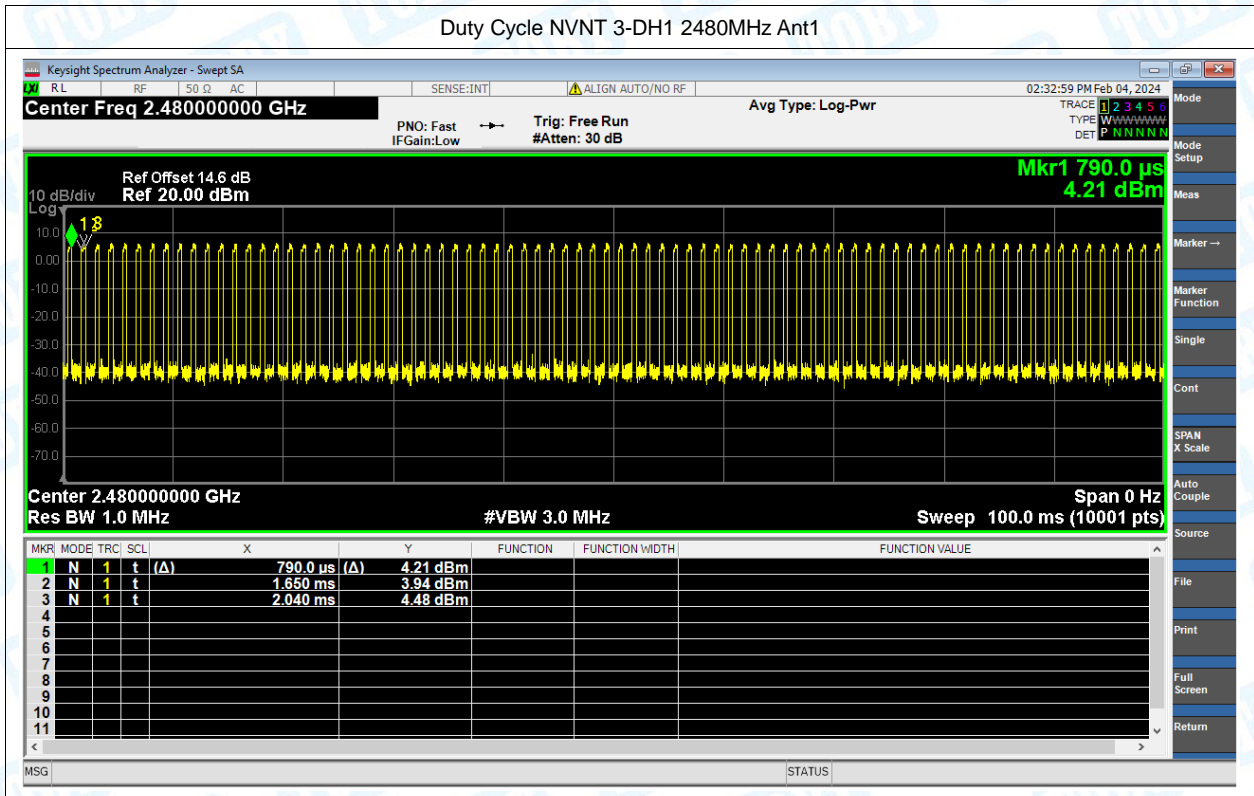


Duty Cycle NVNT 3-DH1 2402MHz Ant1



Duty Cycle NVNT 3-DH1 2441MHz Ant1



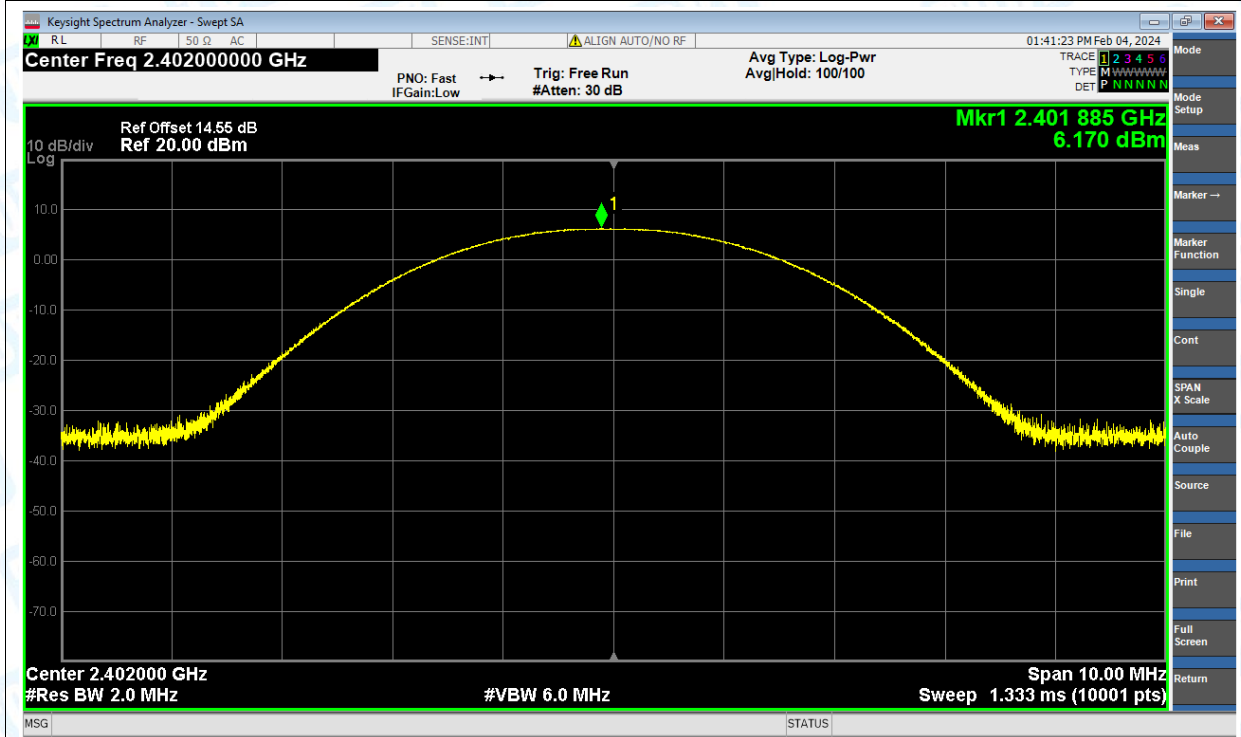


2. Maximum Conducted Output Power

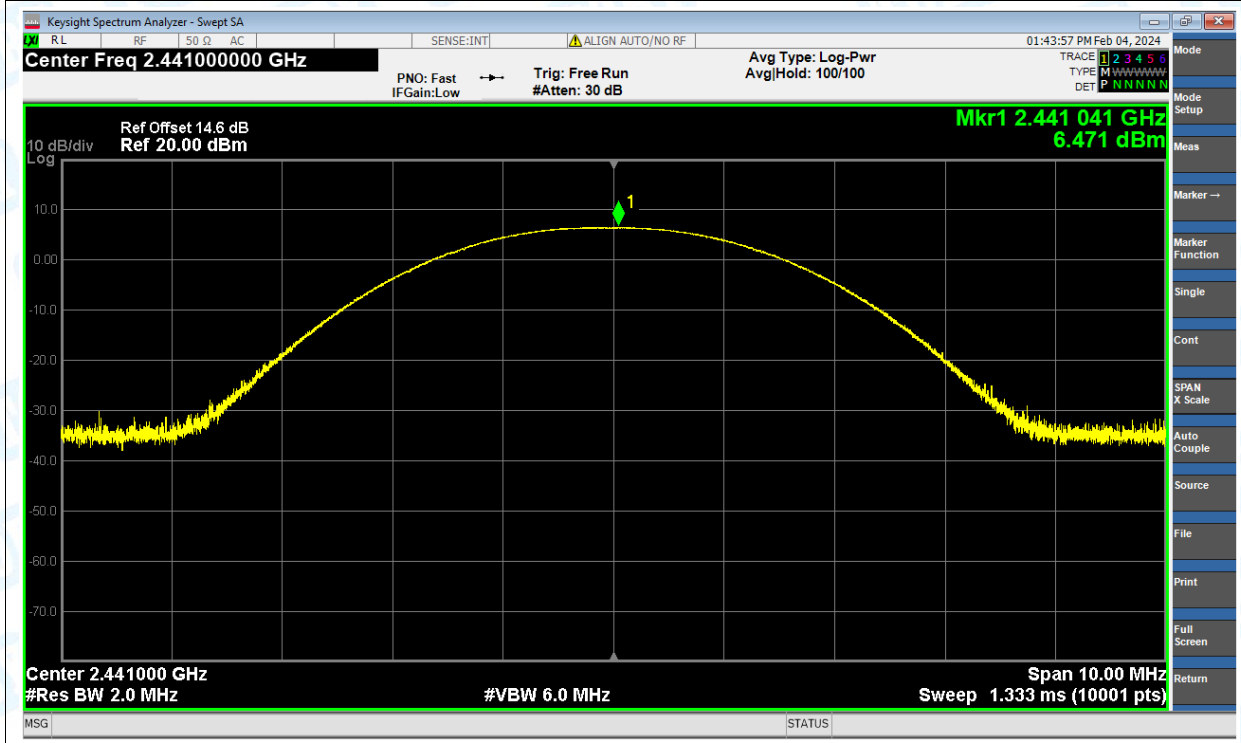
Condition	Mode	Frequency (MHz)	Antenna	Conducted Power (dBm)	Limit (dBm)	Verdict
NVNT	1-DH1	2402	Ant1	6.17	21	Pass
NVNT	1-DH1	2441	Ant1	6.471	21	Pass
NVNT	1-DH1	2480	Ant1	6.713	21	Pass
NVNT	2-DH1	2402	Ant1	5.61	21	Pass
NVNT	2-DH1	2441	Ant1	6.083	21	Pass
NVNT	2-DH1	2480	Ant1	6.303	21	Pass
NVNT	3-DH1	2402	Ant1	6.237	21	Pass
NVNT	3-DH1	2441	Ant1	6.414	21	Pass
NVNT	3-DH1	2480	Ant1	6.783	21	Pass

Test Graphs

Power NVNT 1-DH1 2402MHz Ant1



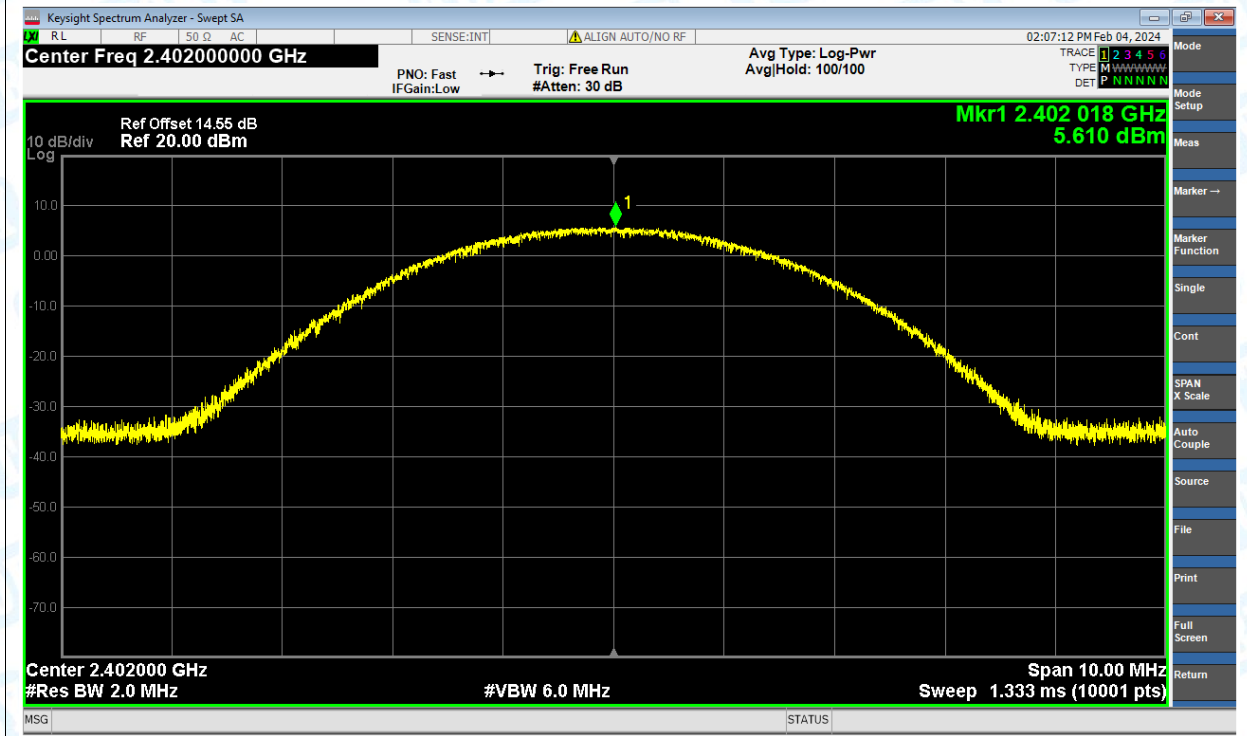
Power NVNT 1-DH1 2441MHz Ant1



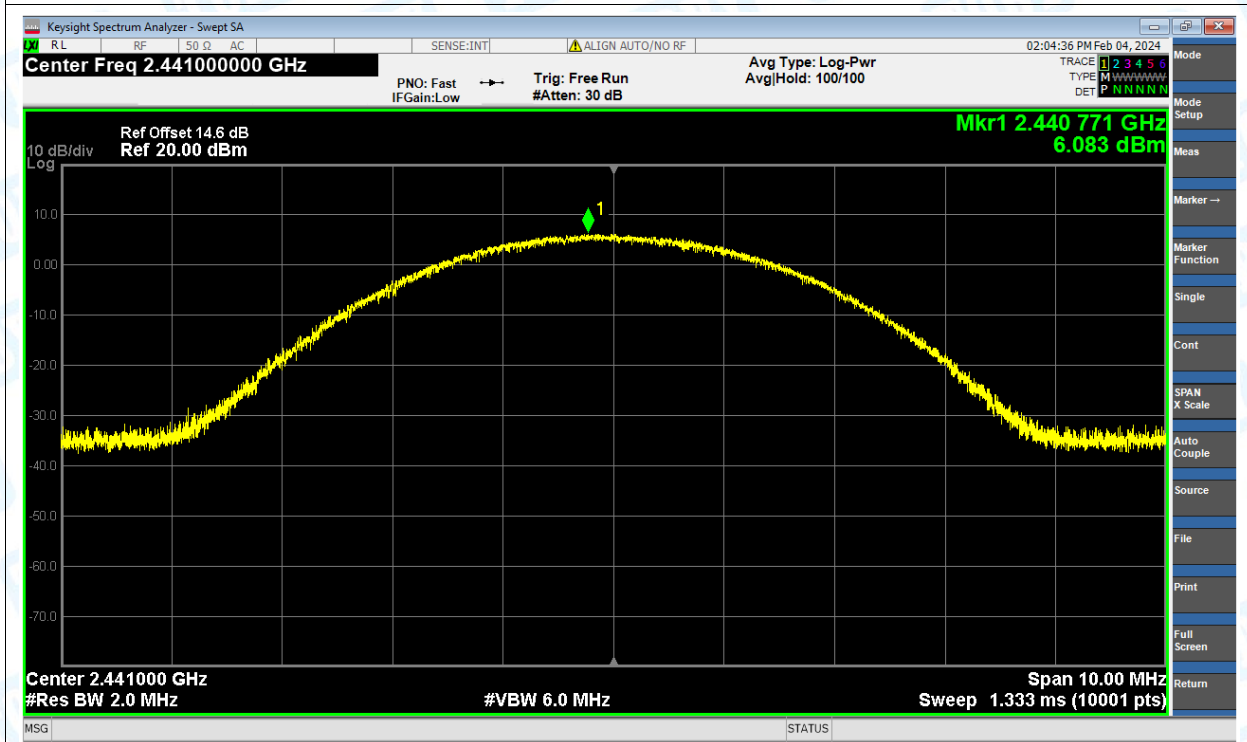
Power NVNT 1-DH1 2480MHz Ant1



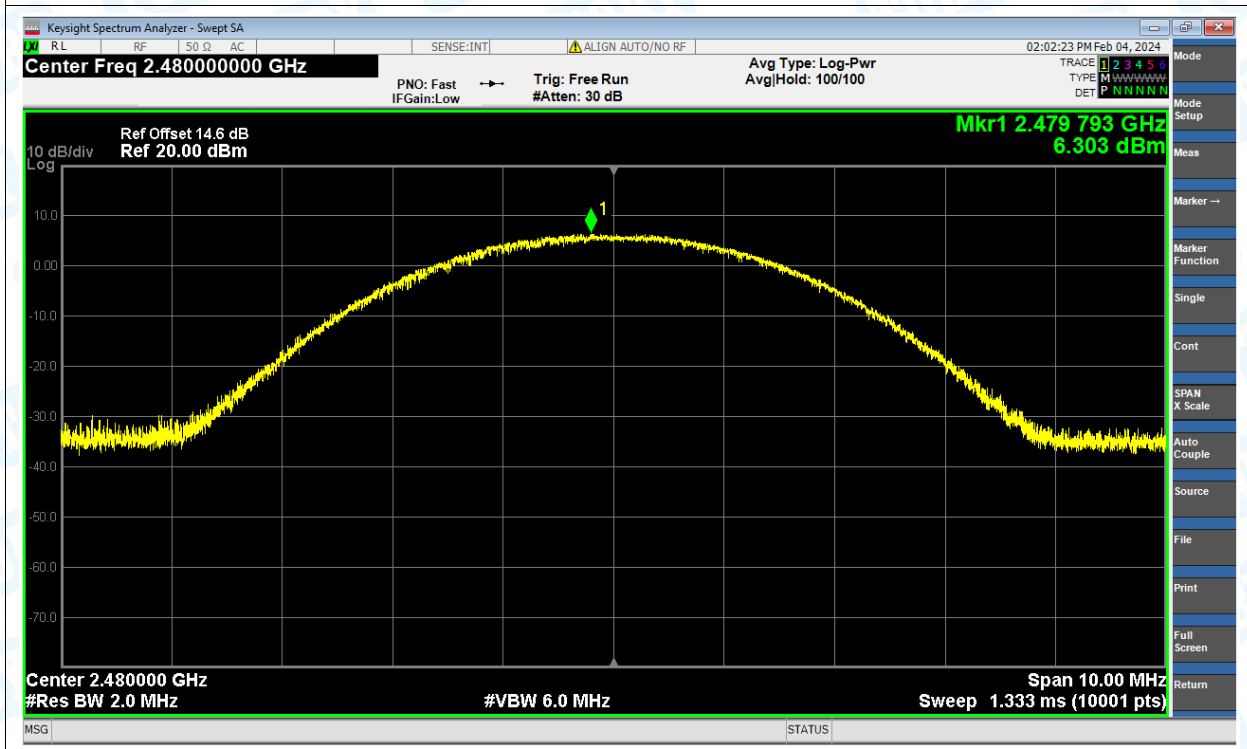
Power NVNT 2-DH1 2402MHz Ant1



Power NVNT 2-DH1 2441MHz Ant1



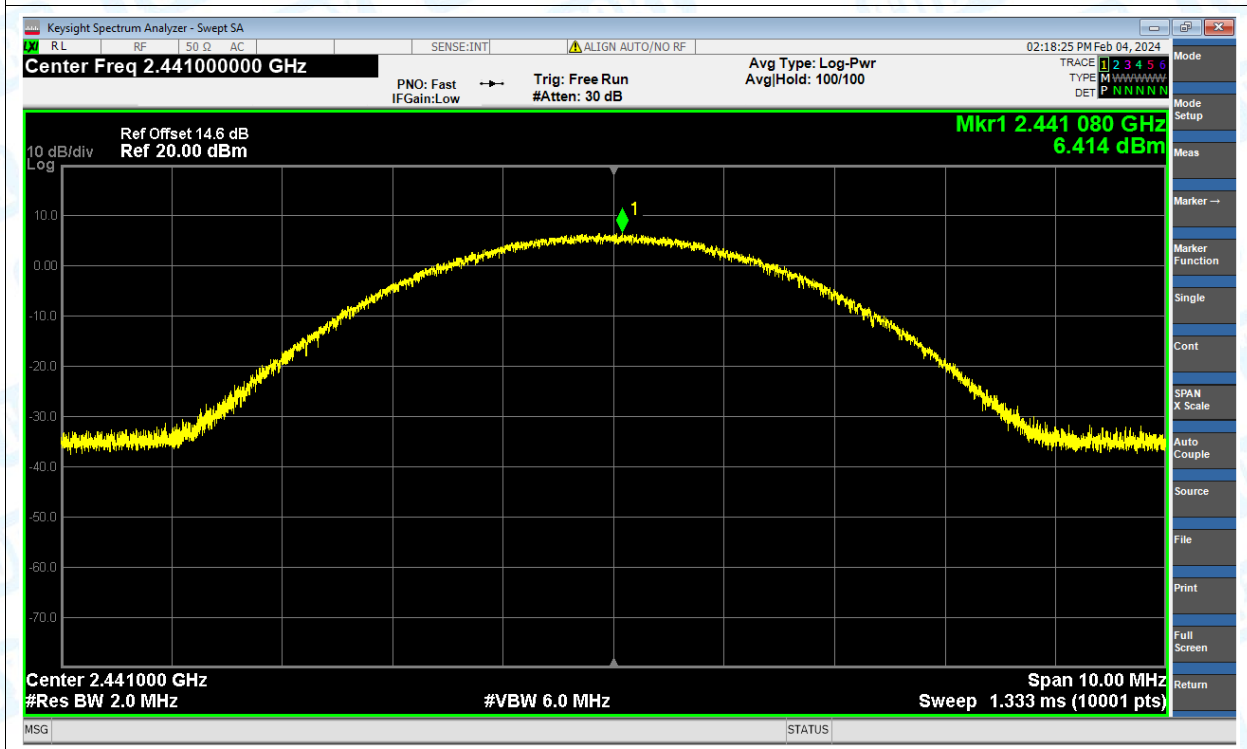
Power NVNT 2-DH1 2480MHz Ant1

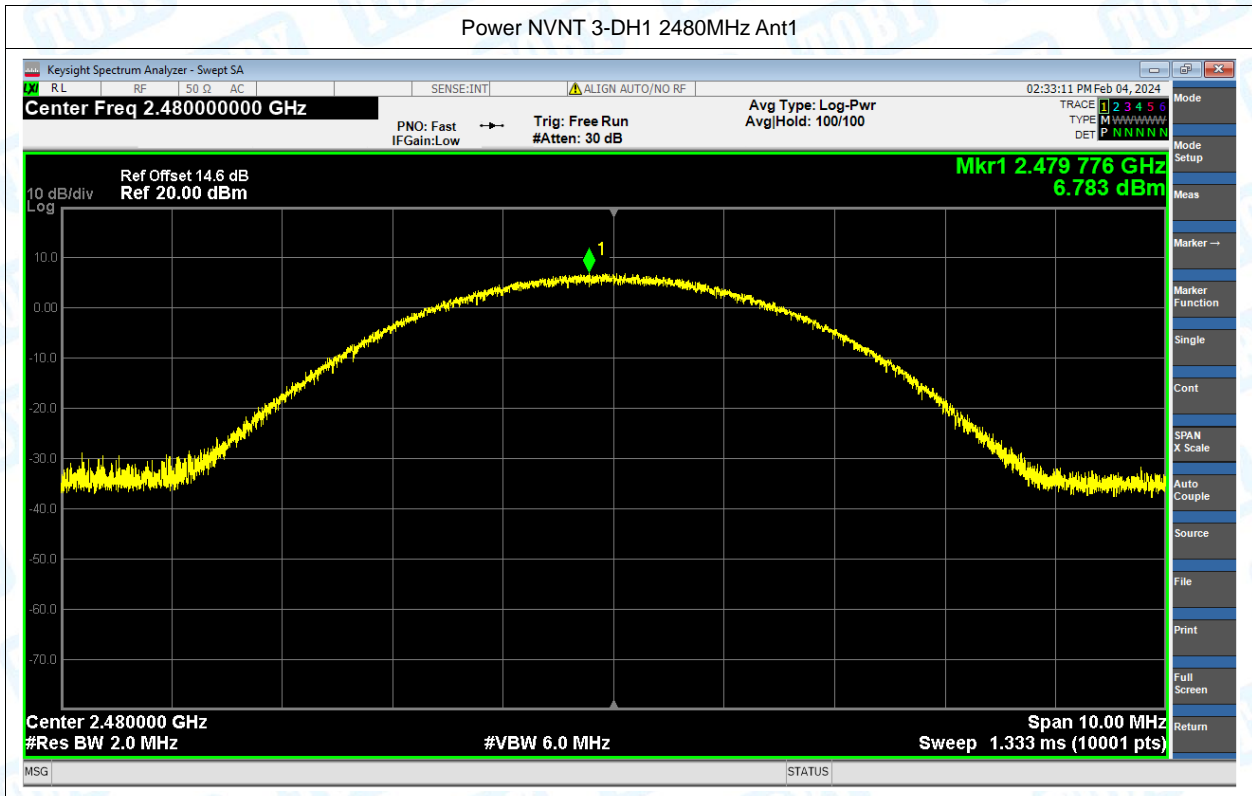


Power NVNT 3-DH1 2402MHz Ant1



Power NVNT 3-DH1 2441MHz Ant1





3.-20dB Bandwidth

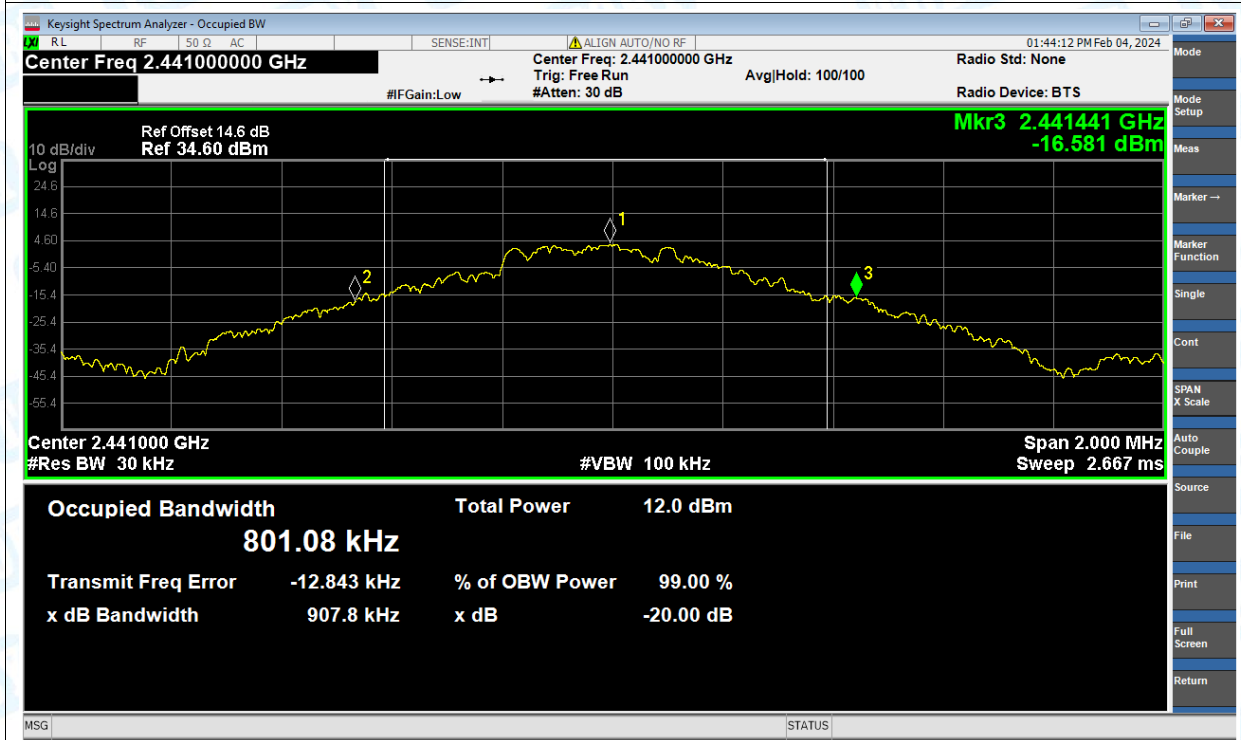
Condition	Mode	Frequency (MHz)	Antenna	-20 dB Bandwidth (MHz)	Limit -20 dB Bandwidth (MHz)	Verdict
NVNT	1-DH1	2402	Ant1	0.89	0	Pass
NVNT	1-DH1	2441	Ant1	0.91	0	Pass
NVNT	1-DH1	2480	Ant1	0.91	0	Pass
NVNT	2-DH1	2402	Ant1	1.29	0	Pass
NVNT	2-DH1	2441	Ant1	1.29	0	Pass
NVNT	2-DH1	2480	Ant1	1.3	0	Pass
NVNT	3-DH1	2402	Ant1	1.26	0	Pass
NVNT	3-DH1	2441	Ant1	1.27	0	Pass
NVNT	3-DH1	2480	Ant1	1.26	0	Pass

Test Graphs

-20dB Bandwidth NVNT 1-DH1 2402MHz Ant1



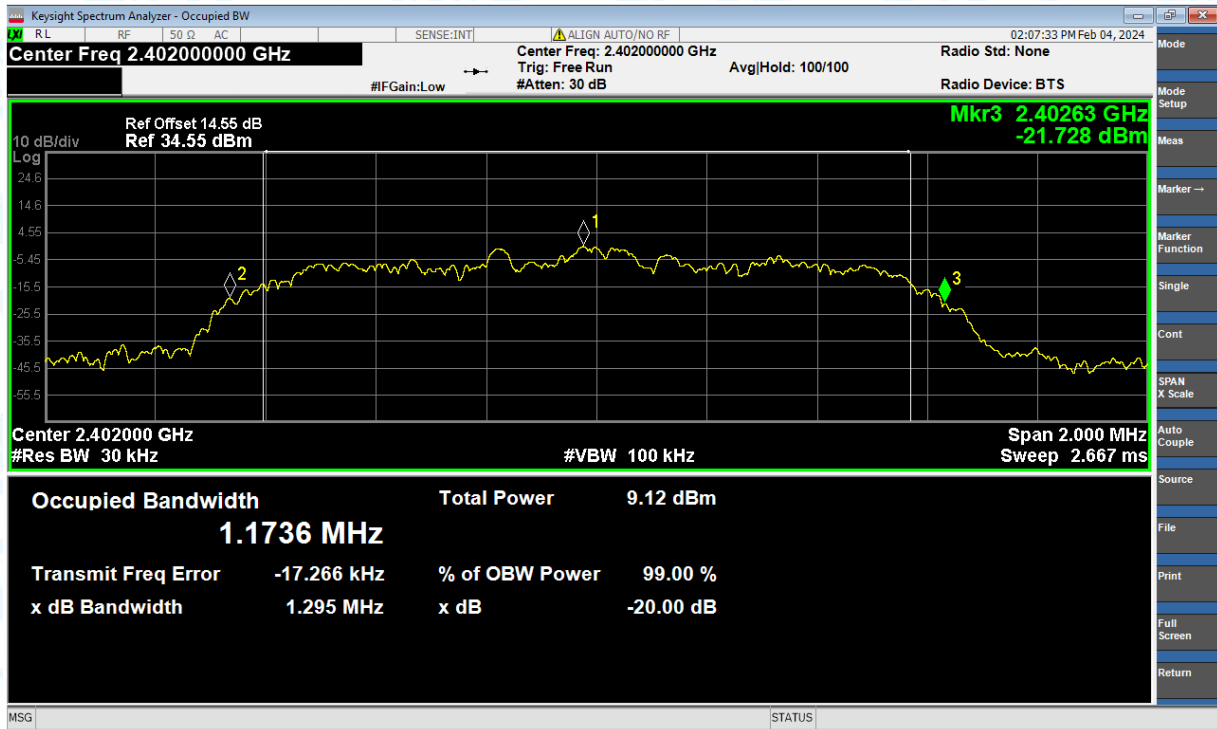
-20dB Bandwidth NVNT 1-DH1 2441MHz Ant1



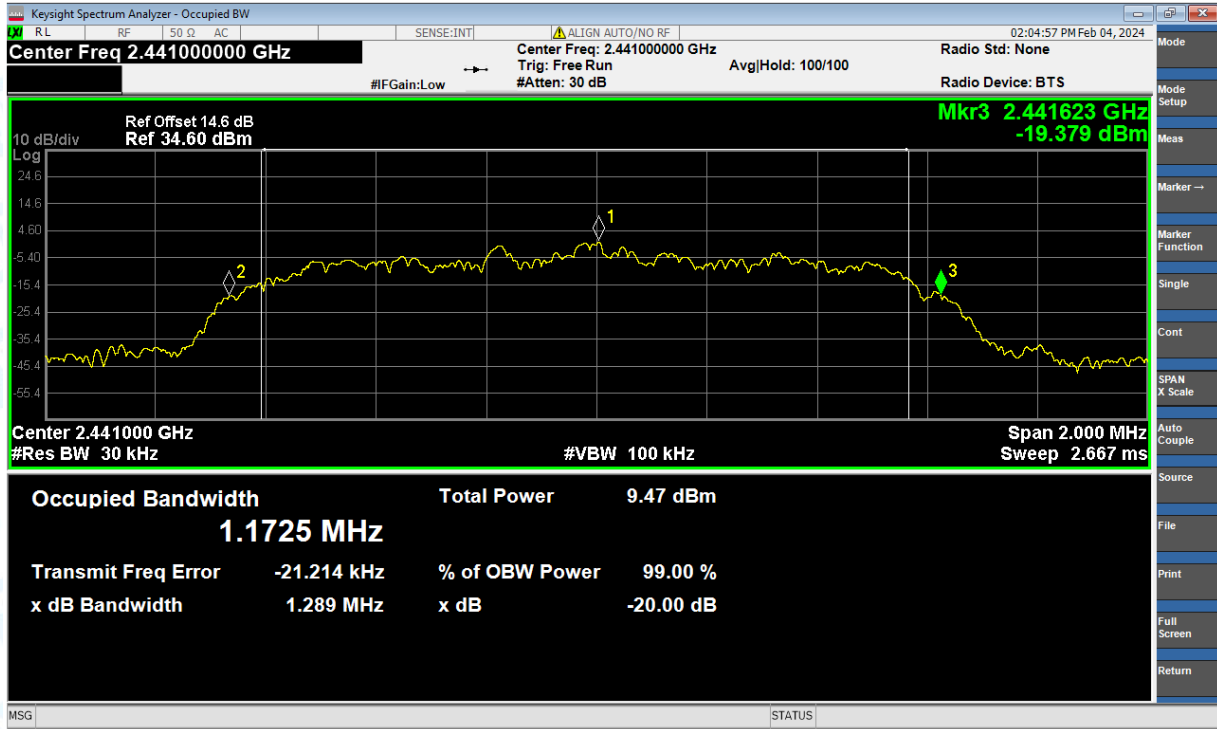
-20dB Bandwidth NVNT 1-DH1 2480MHz Ant1



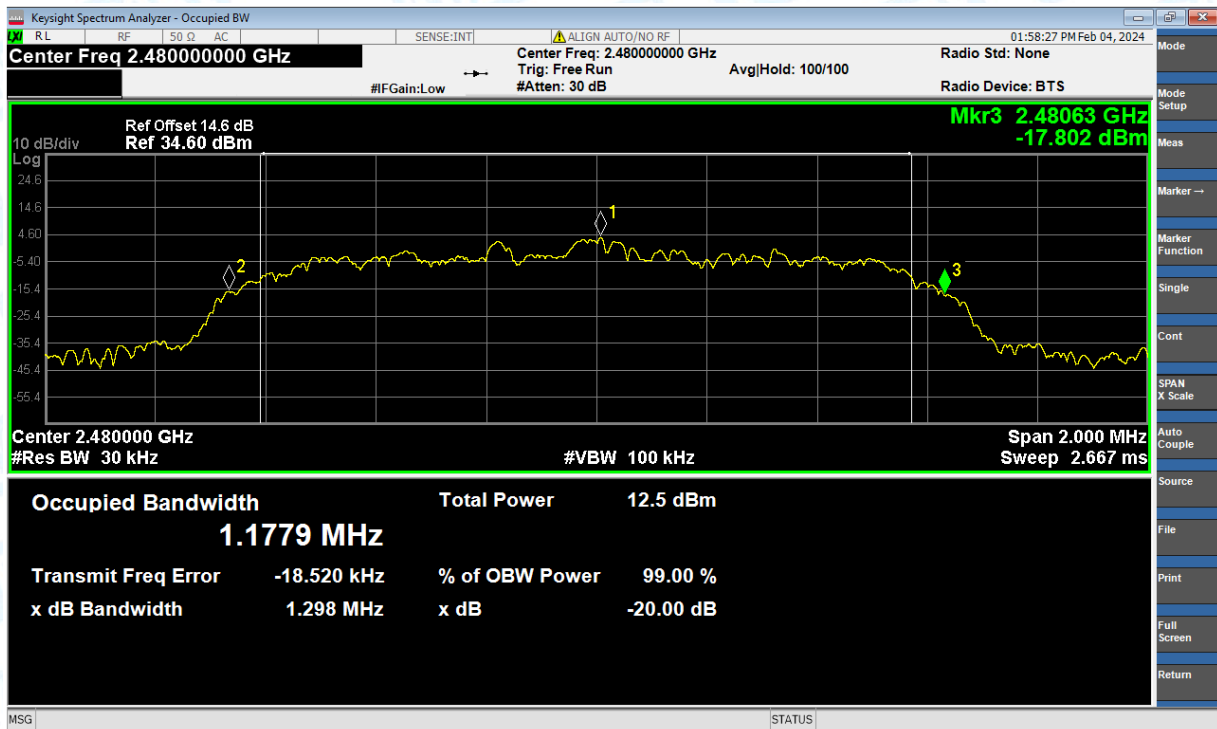
-20dB Bandwidth NVNT 2-DH1 2402MHz Ant1



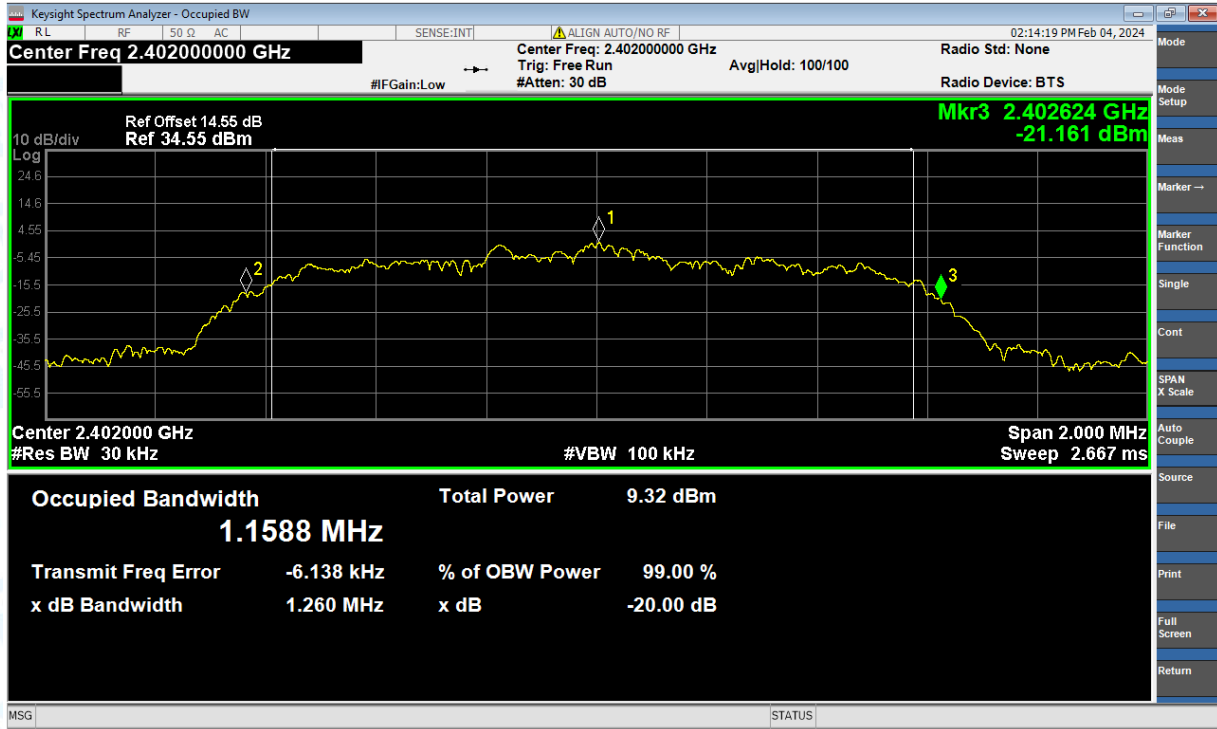
-20dB Bandwidth NVNT 2-DH1 2441MHz Ant1



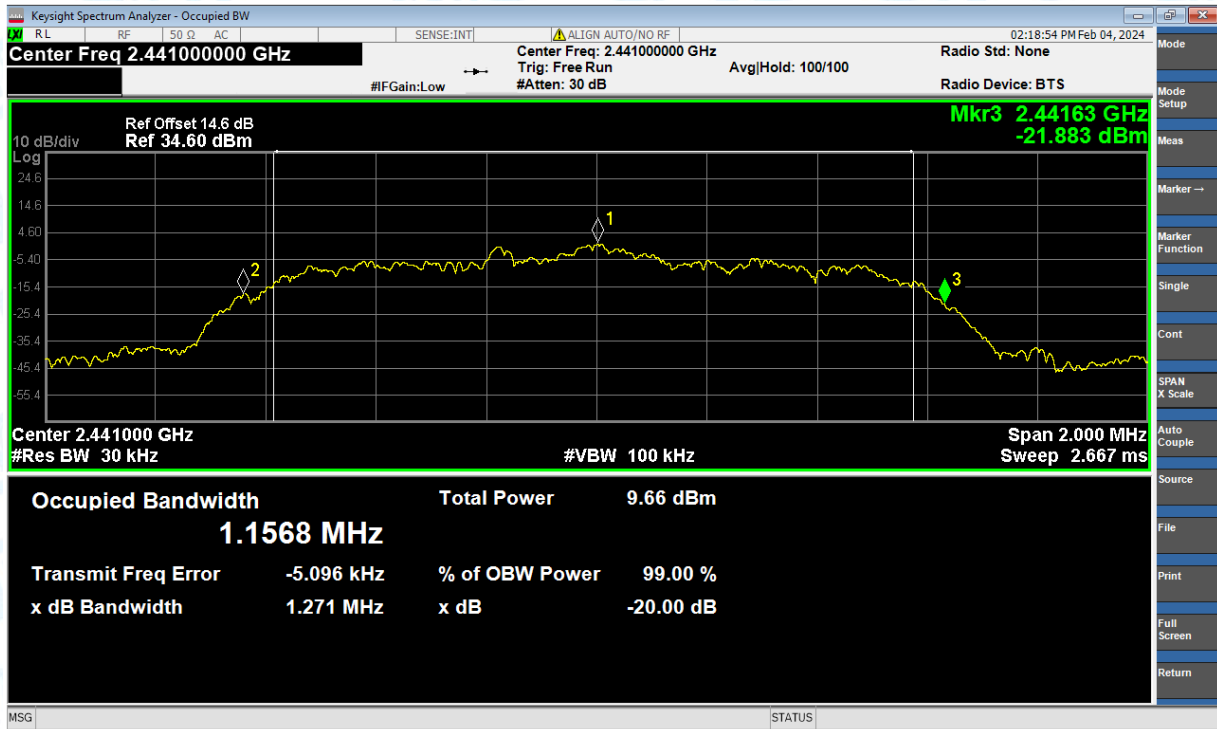
-20dB Bandwidth NVNT 2-DH1 2480MHz Ant1

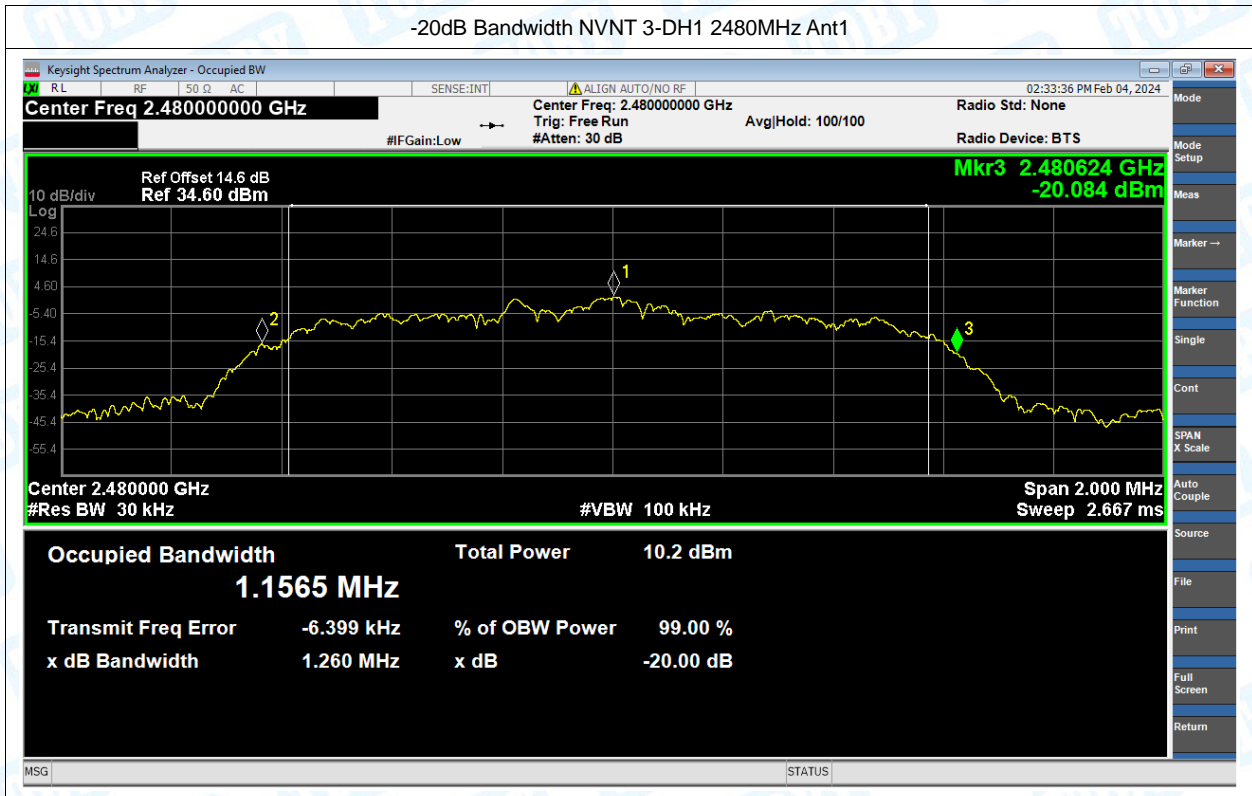


-20dB Bandwidth NVNT 3-DH1 2402MHz Ant1



-20dB Bandwidth NVNT 3-DH1 2441MHz Ant1



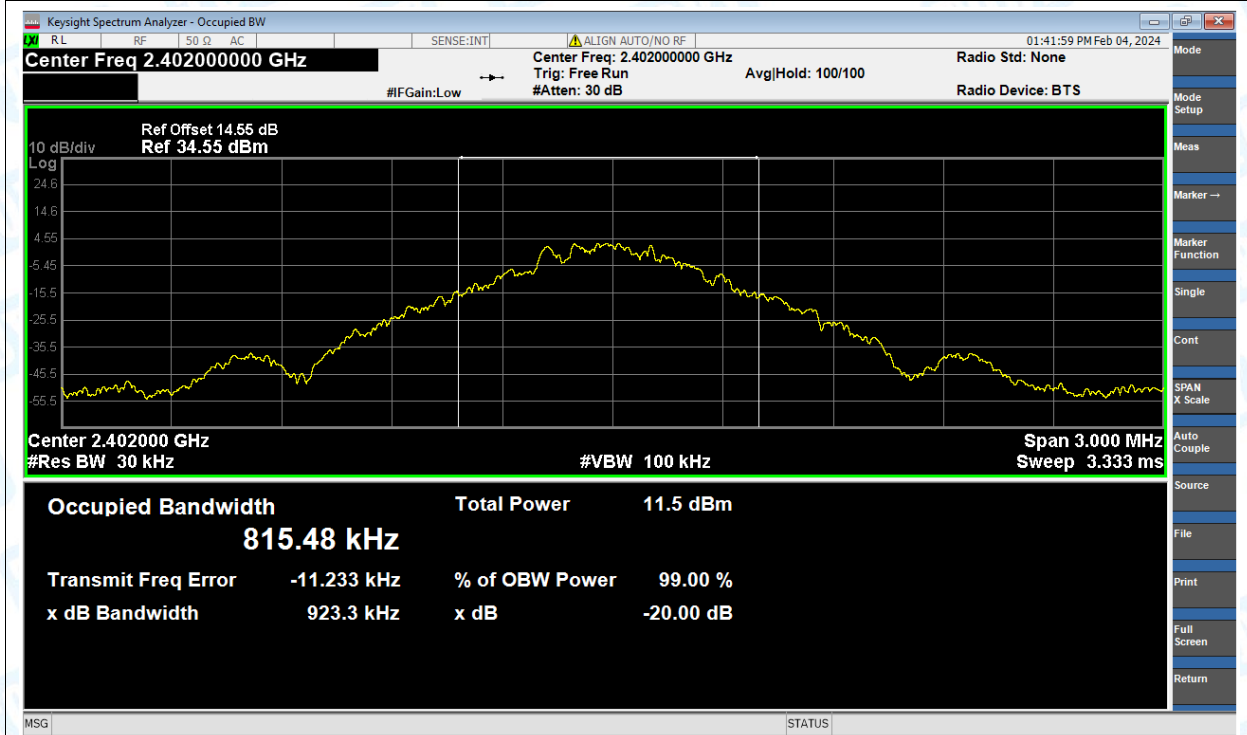


4.Occupied Channel Bandwidth

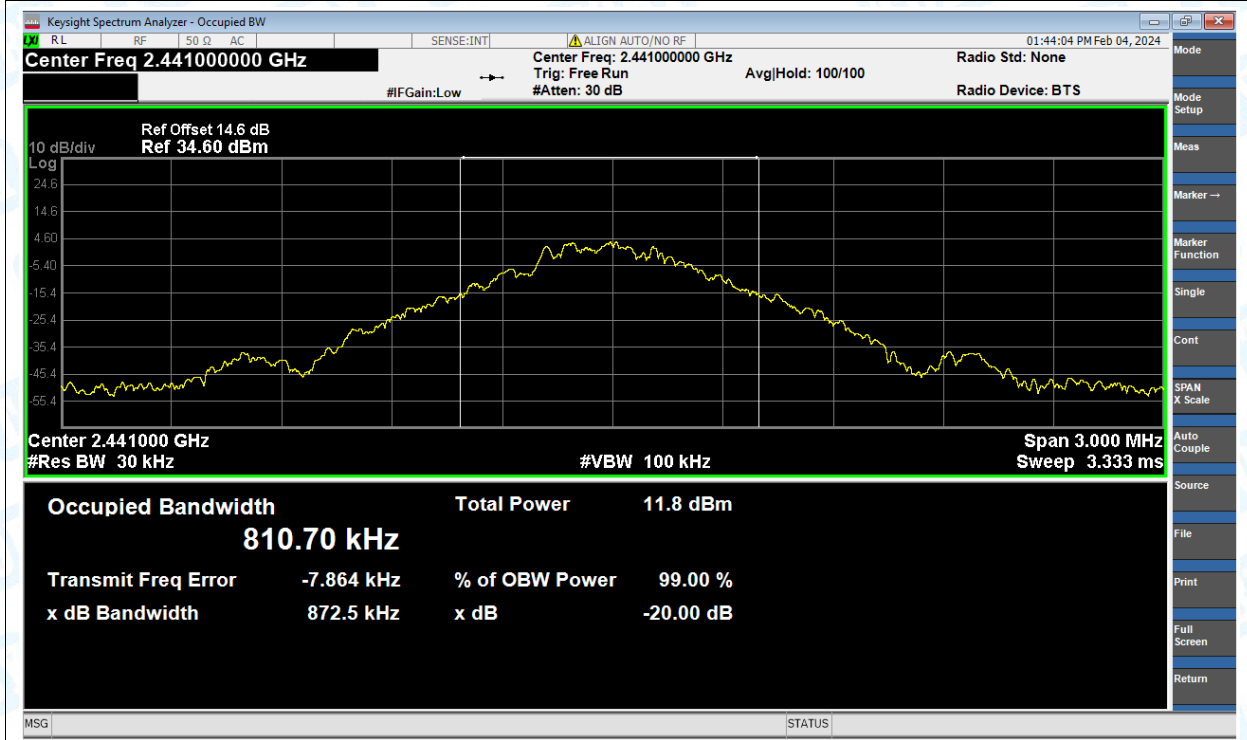
Condition	Mode	Frequency (MHz)	Antenna	99% OBW (MHz)
NVNT	1-DH1	2402	Ant1	0.815
NVNT	1-DH1	2441	Ant1	0.811
NVNT	1-DH1	2480	Ant1	0.814
NVNT	2-DH1	2402	Ant1	1.162
NVNT	2-DH1	2441	Ant1	1.176
NVNT	2-DH1	2480	Ant1	1.154
NVNT	3-DH1	2402	Ant1	1.156
NVNT	3-DH1	2441	Ant1	1.165
NVNT	3-DH1	2480	Ant1	1.158

Test Graphs

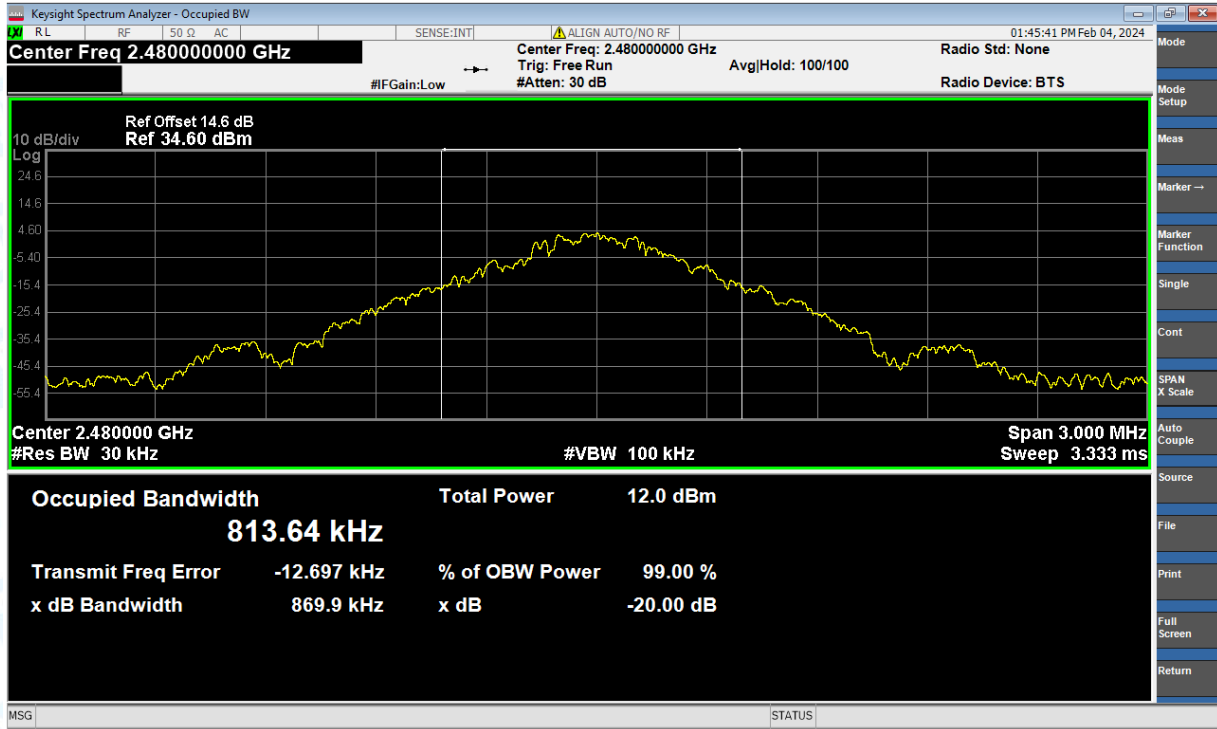
OBW NVNT 1-DH1 2402MHz Ant1



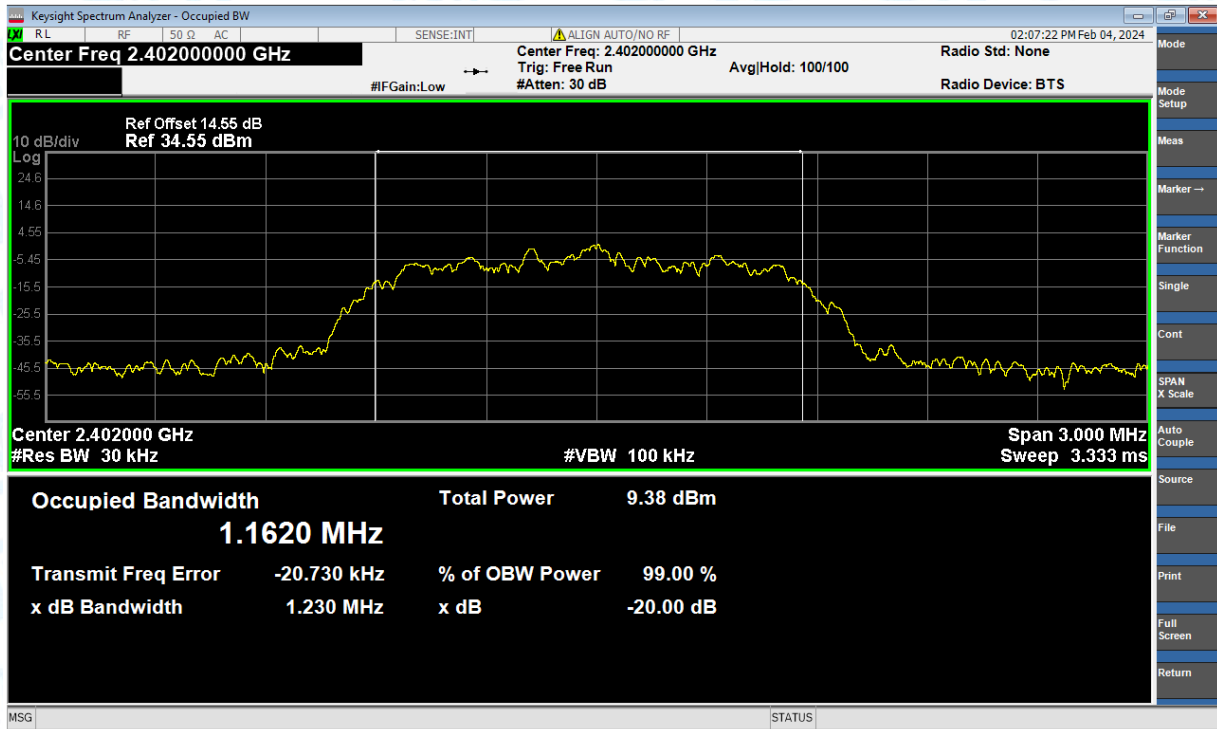
OBW NVNT 1-DH1 2441MHz Ant1



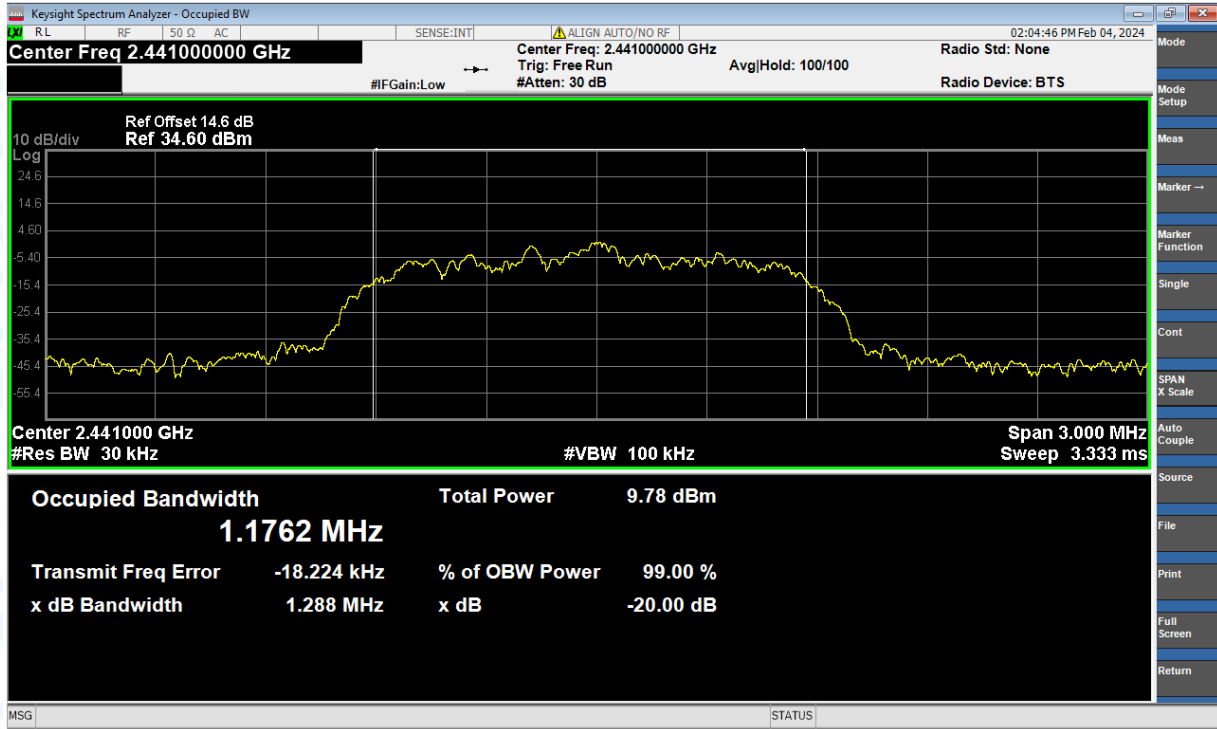
OBW NVNT 1-DH1 2480MHz Ant1



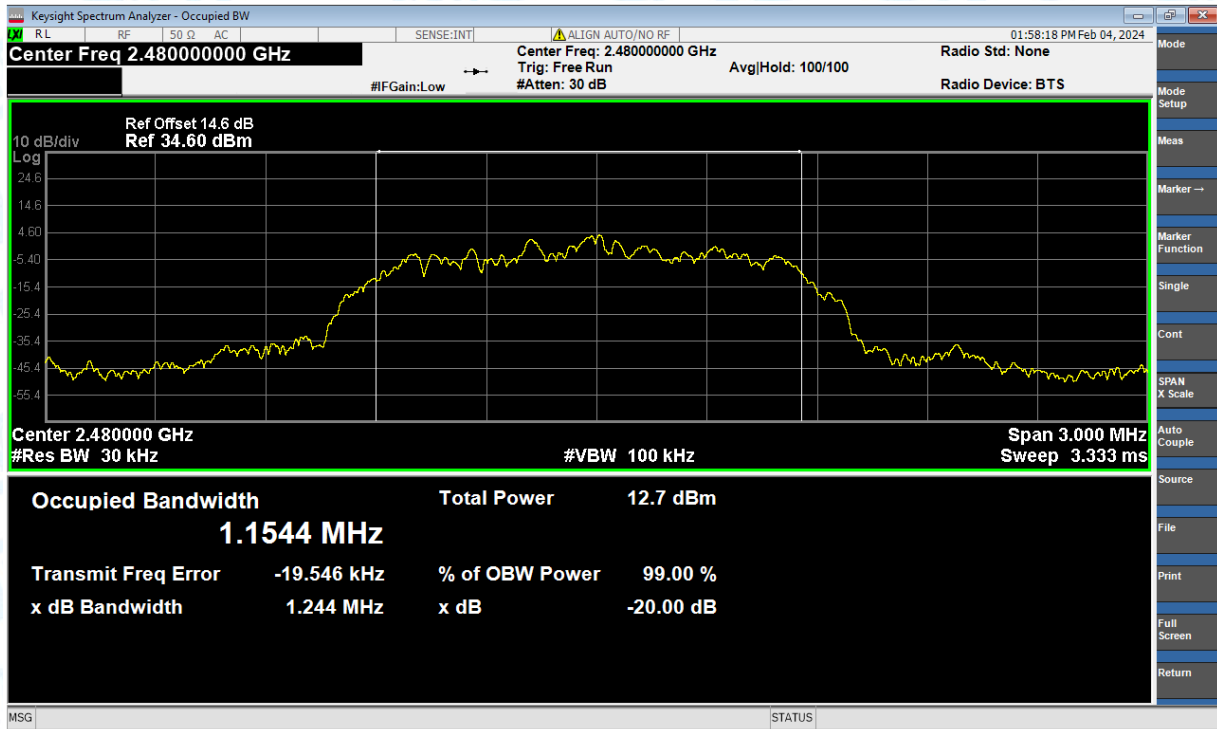
OBW NVNT 2-DH1 2402MHz Ant1



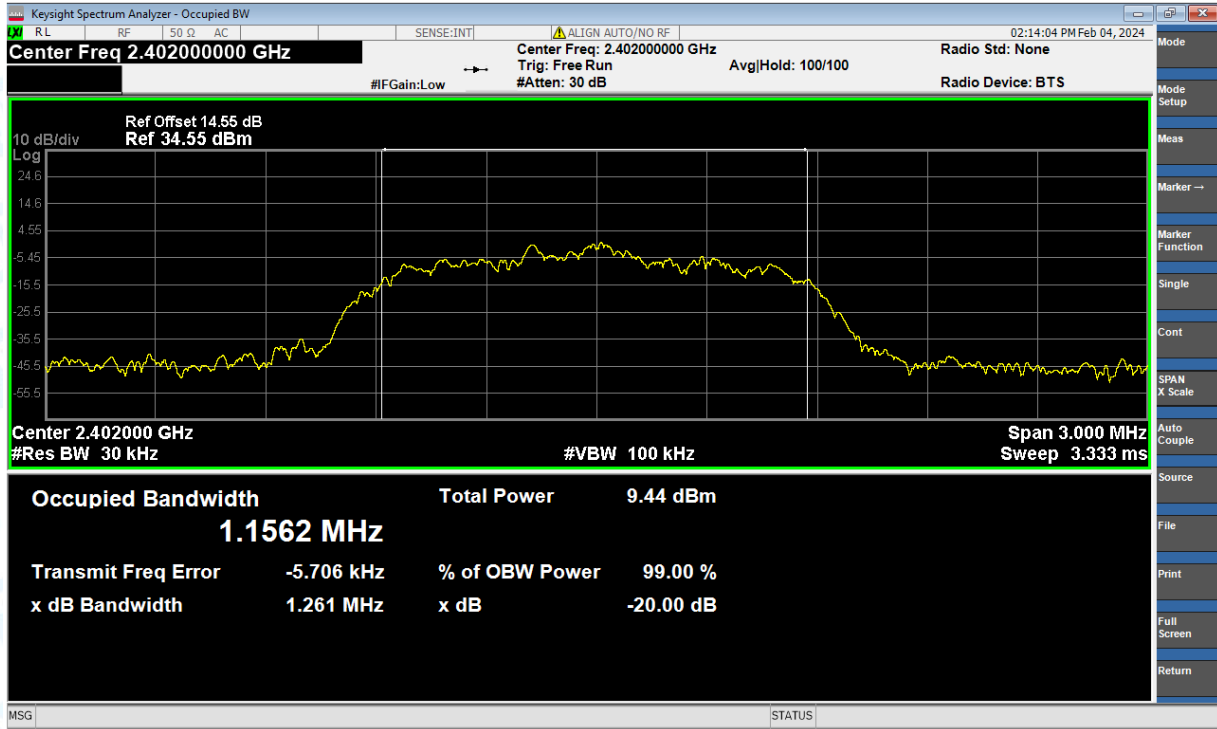
OBW NVNT 2-DH1 2441MHz Ant1



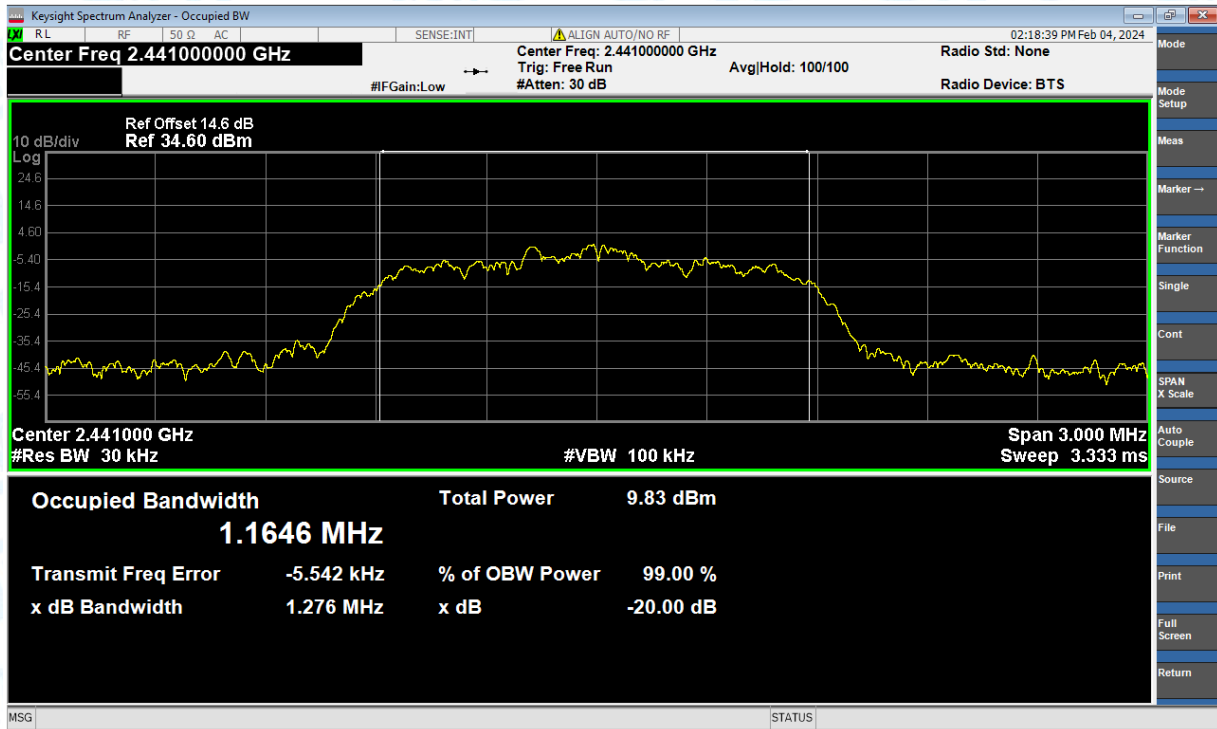
OBW NVNT 2-DH1 2480MHz Ant1

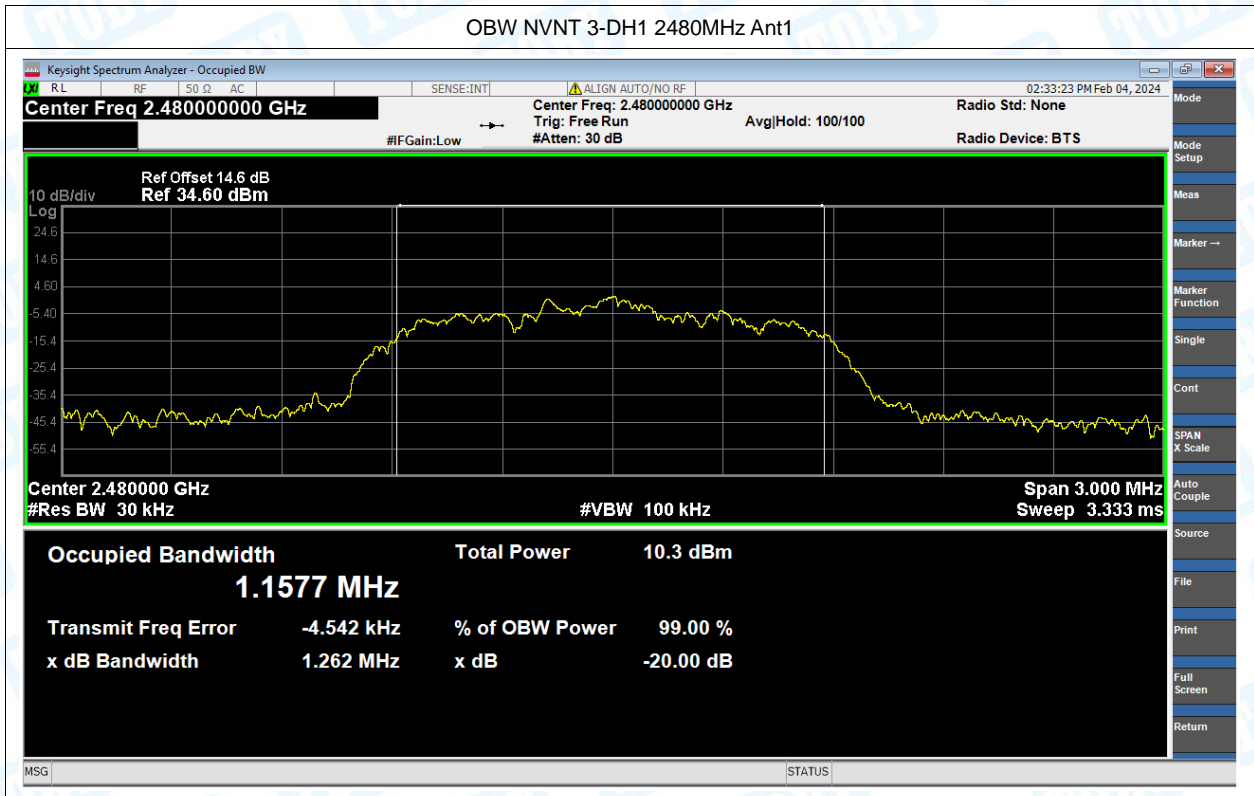


OBW NVNT 3-DH1 2402MHz Ant1



OBW NVNT 3-DH1 2441MHz Ant1



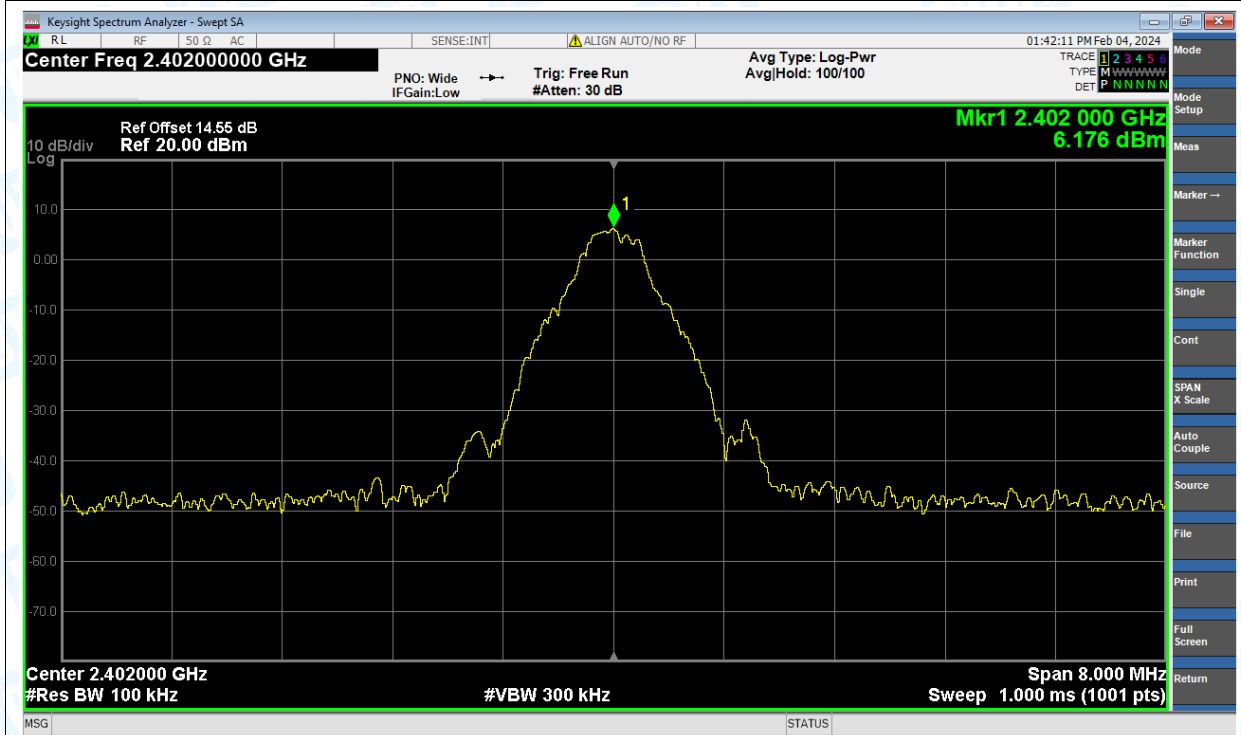


5.Band Edge

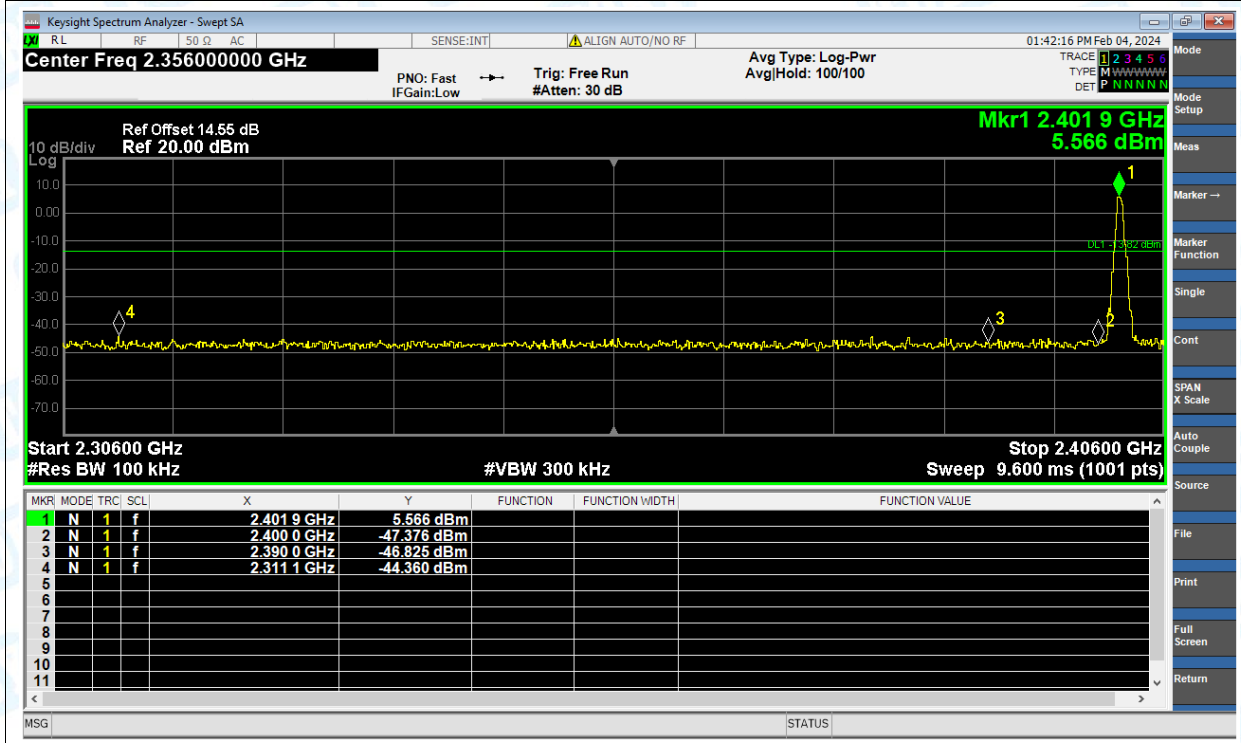
Condition	Mode	Frequency (MHz)	Antenna	Hopping Mode	Max Value (dBc)	Limit (dBc)	Verdict
NVNT	1-DH1	2402	Ant1	No-Hopping	-50.54	-20	Pass
NVNT	1-DH1	2480	Ant1	No-Hopping	-50.49	-20	Pass
NVNT	2-DH1	2402	Ant1	No-Hopping	-47.19	-20	Pass
NVNT	2-DH1	2480	Ant1	No-Hopping	-50.22	-20	Pass
NVNT	3-DH1	2402	Ant1	No-Hopping	-46.24	-20	Pass
NVNT	3-DH1	2480	Ant1	No-Hopping	-48.01	-20	Pass

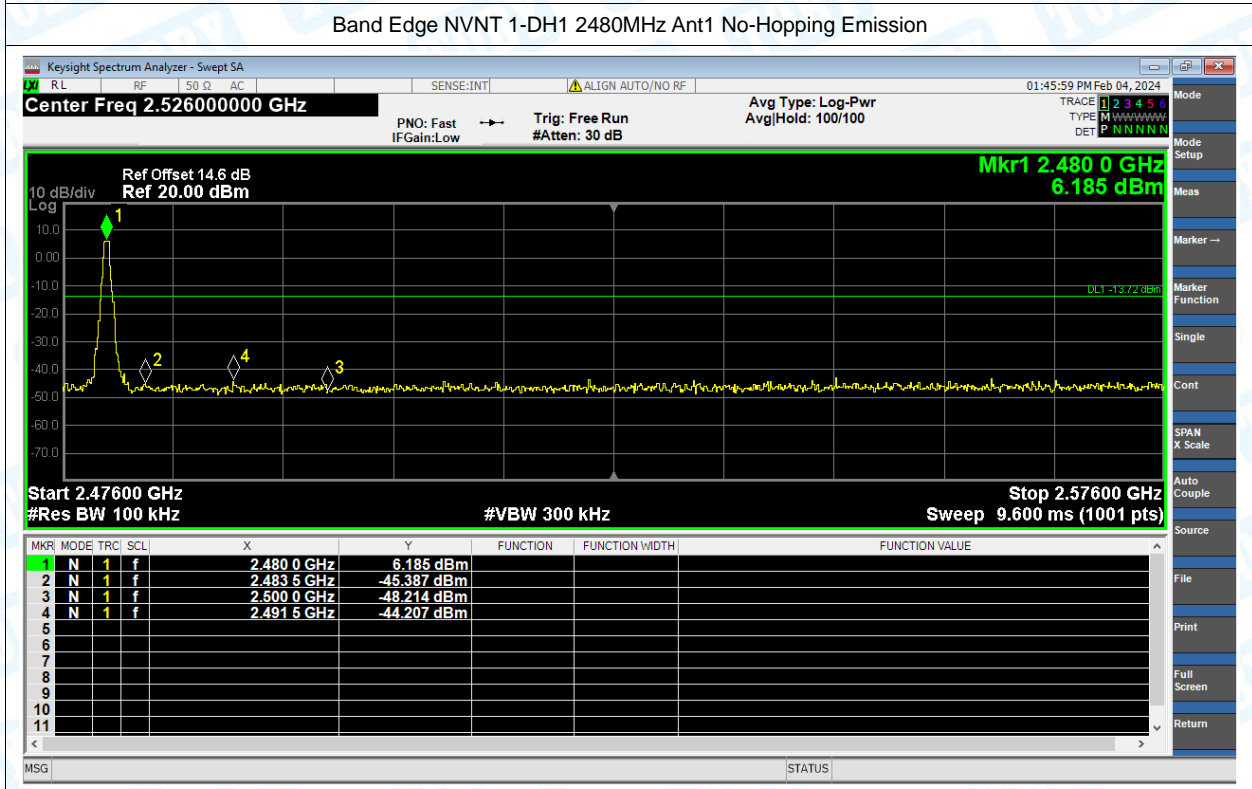
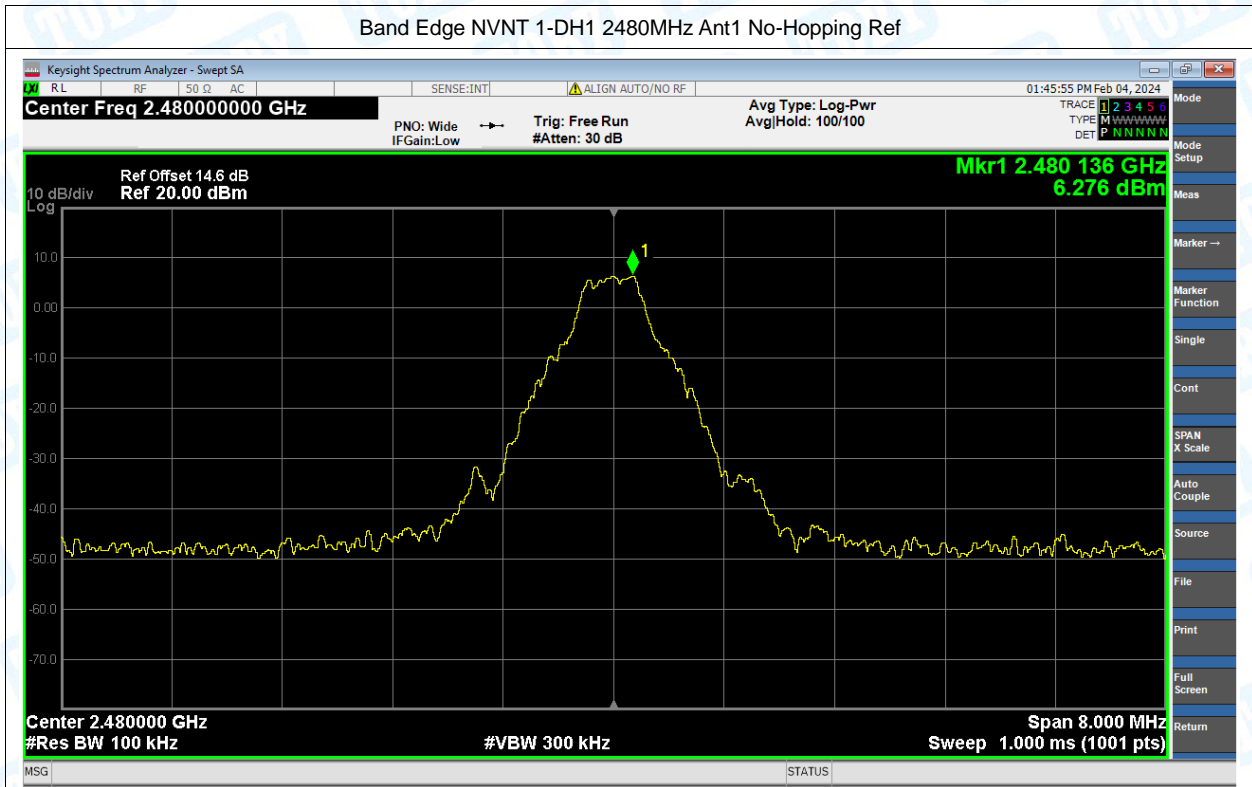
Test Graphs

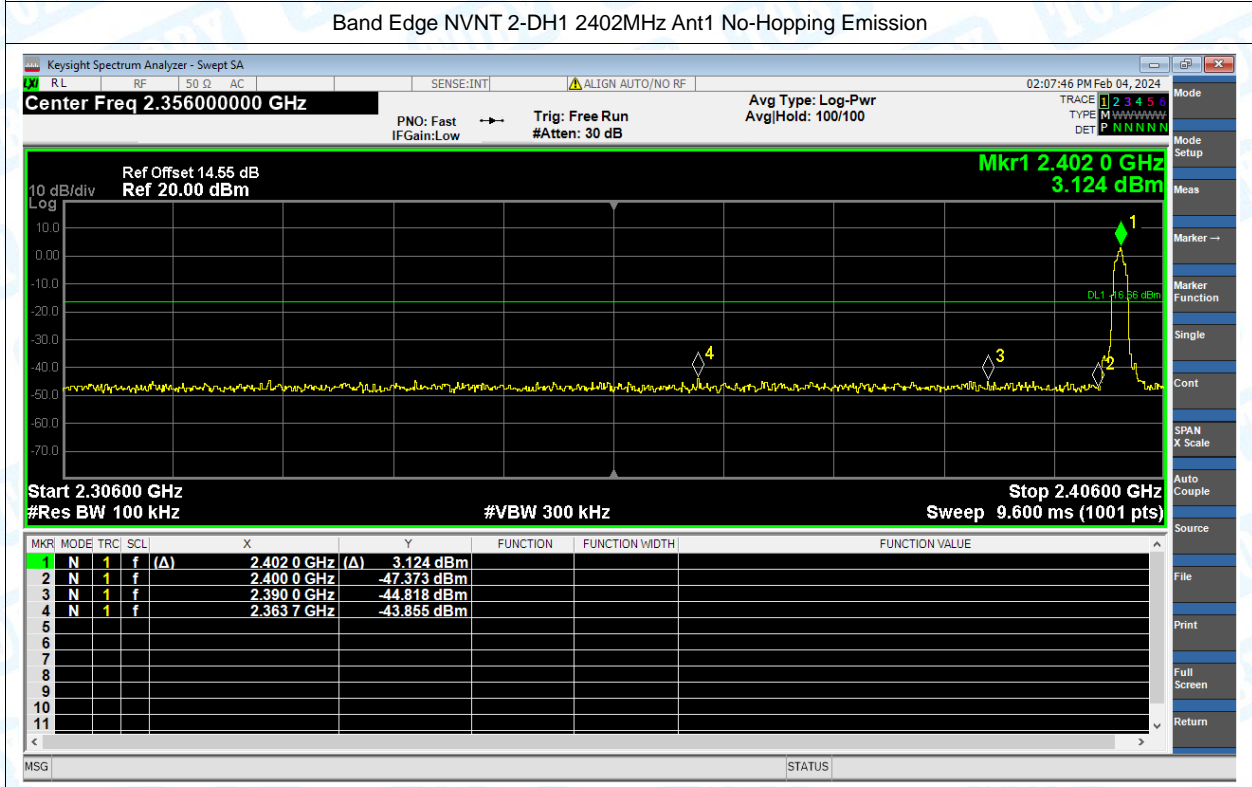
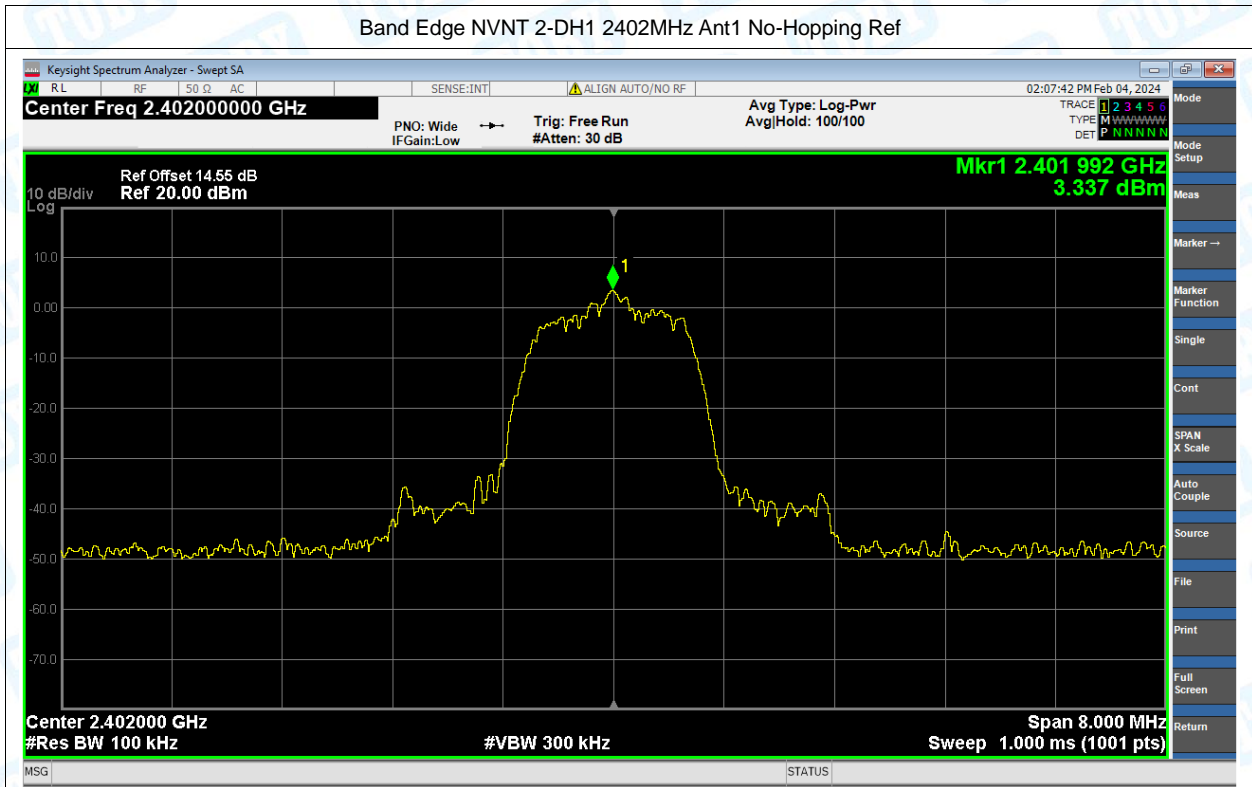
Band Edge NVNT 1-DH1 2402MHz Ant1 No-Hopping Ref

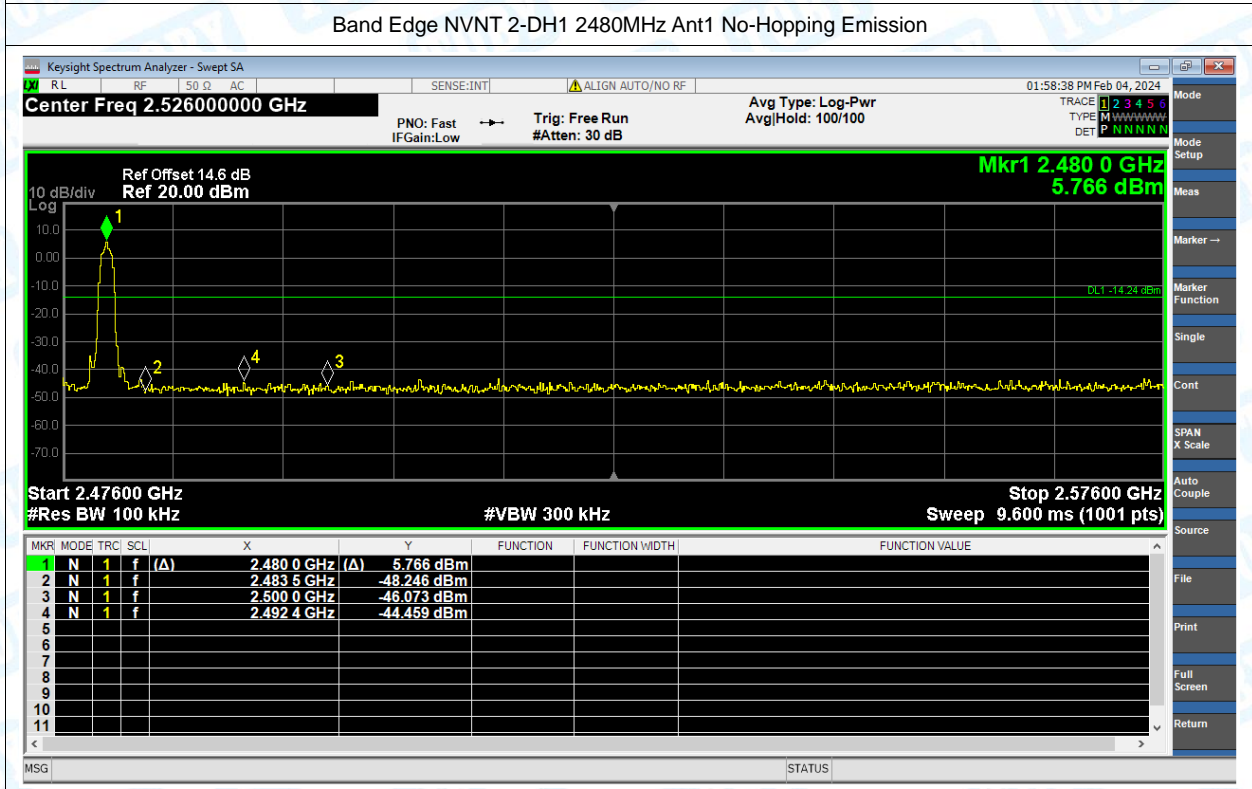
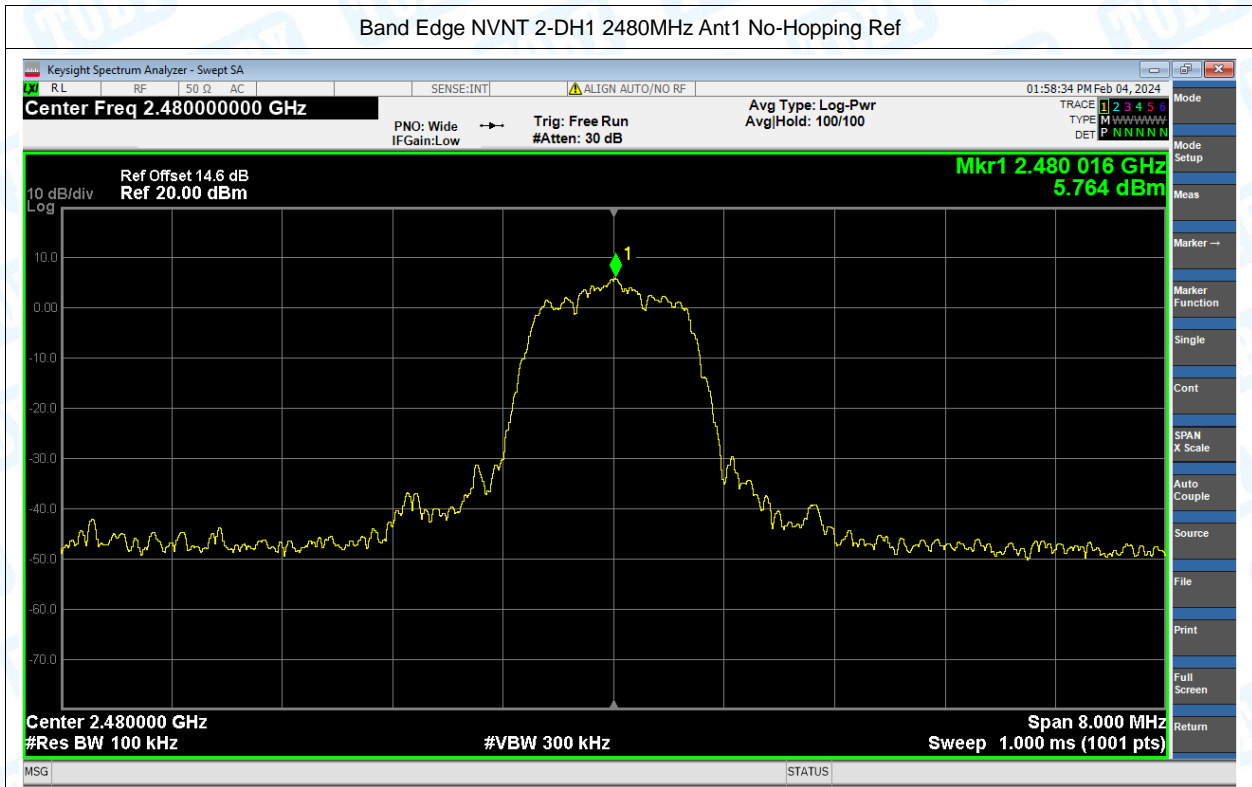


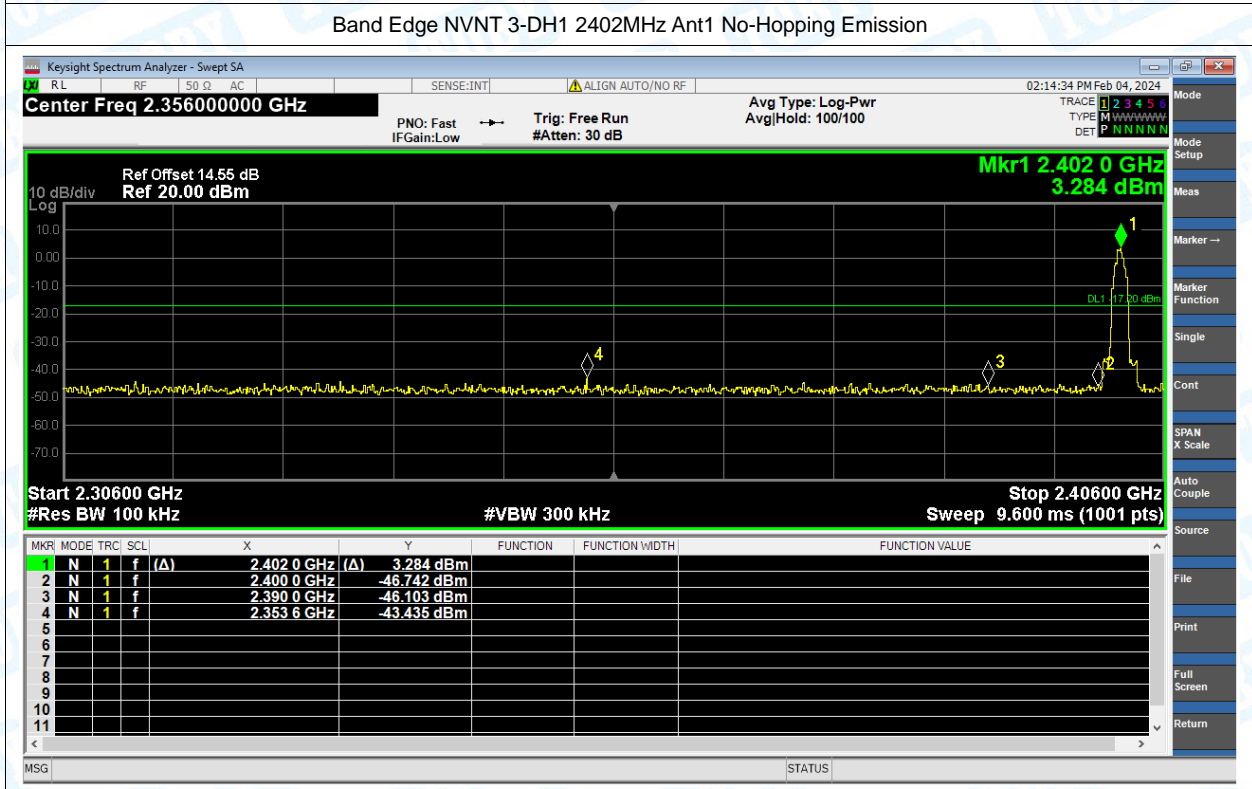
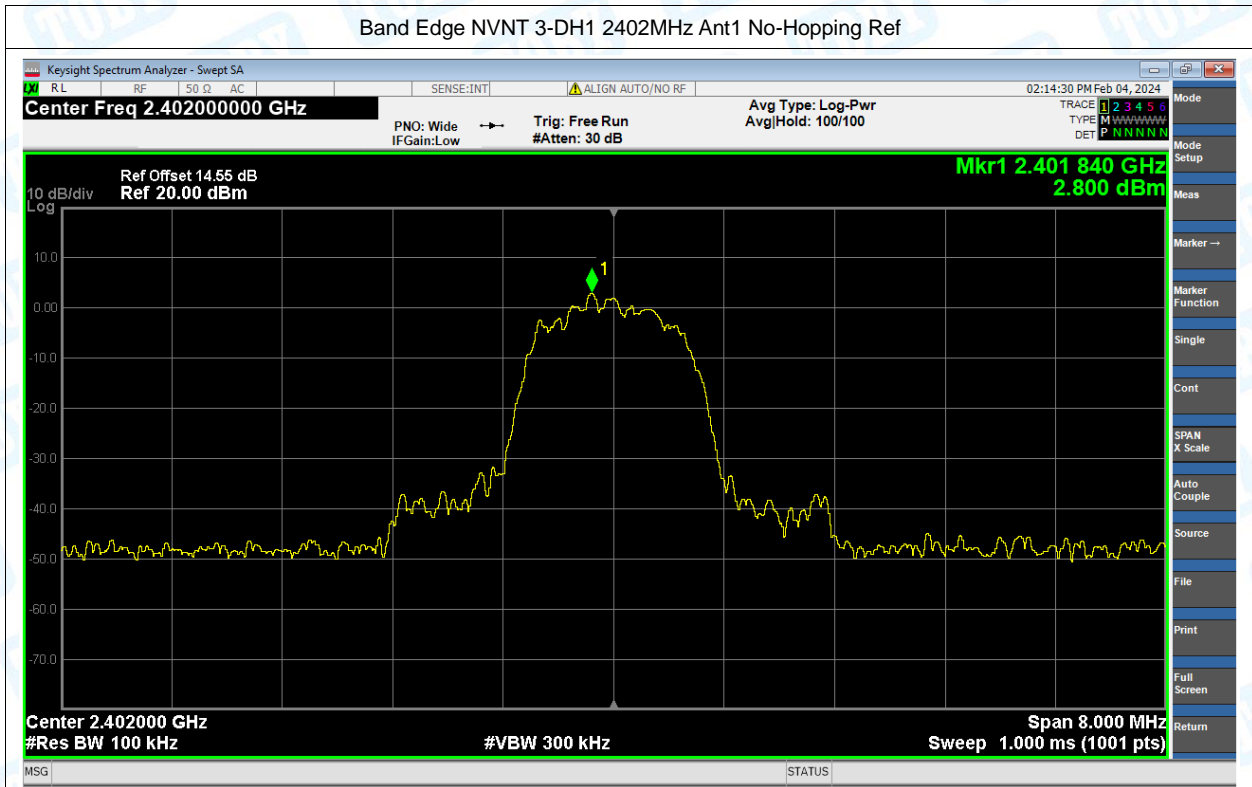
Band Edge NVNT 1-DH1 2402MHz Ant1 No-Hopping Emission

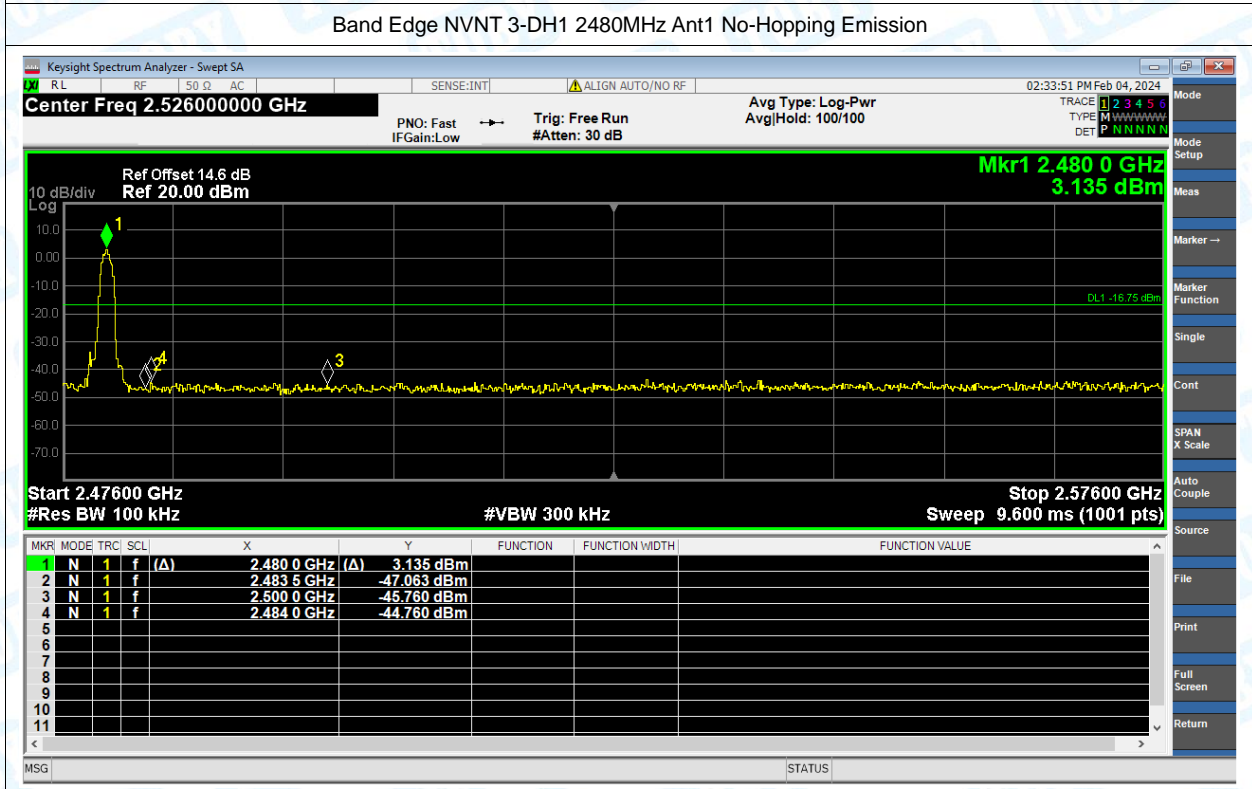
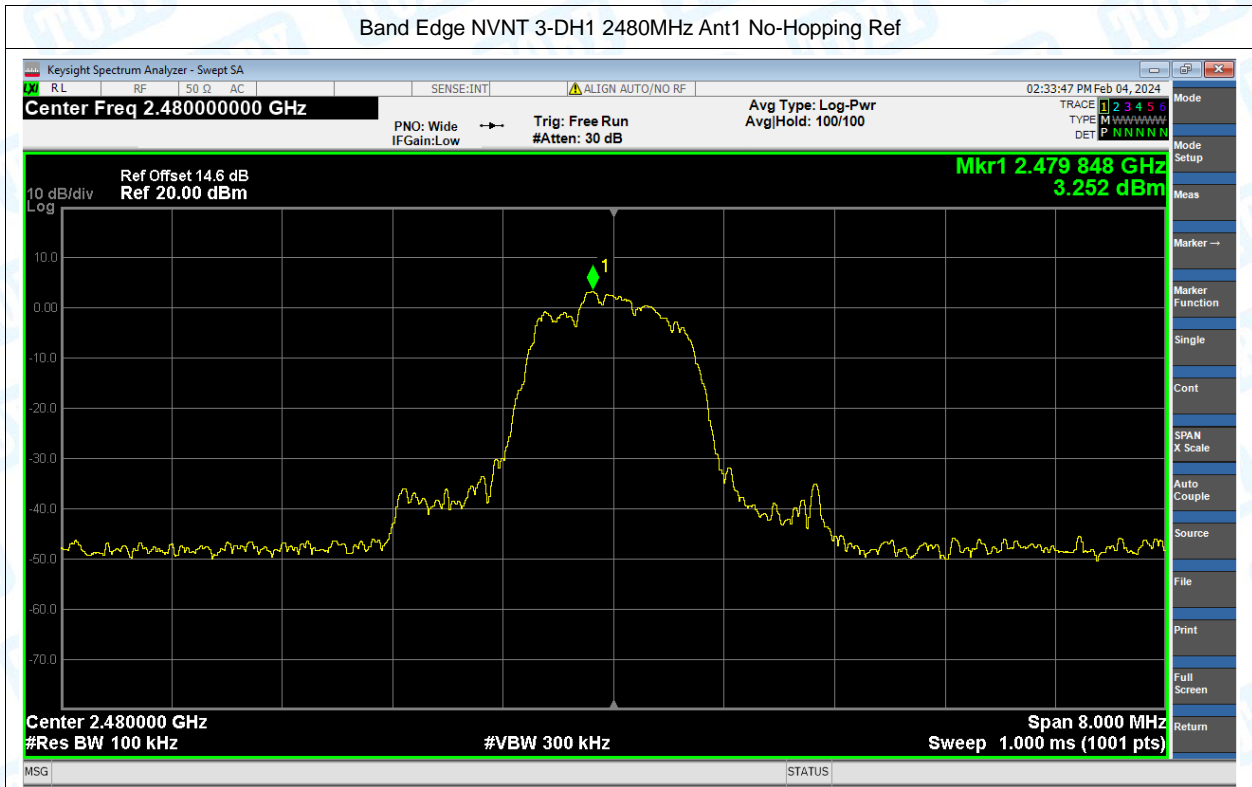












6.Band Edge(Hopping)

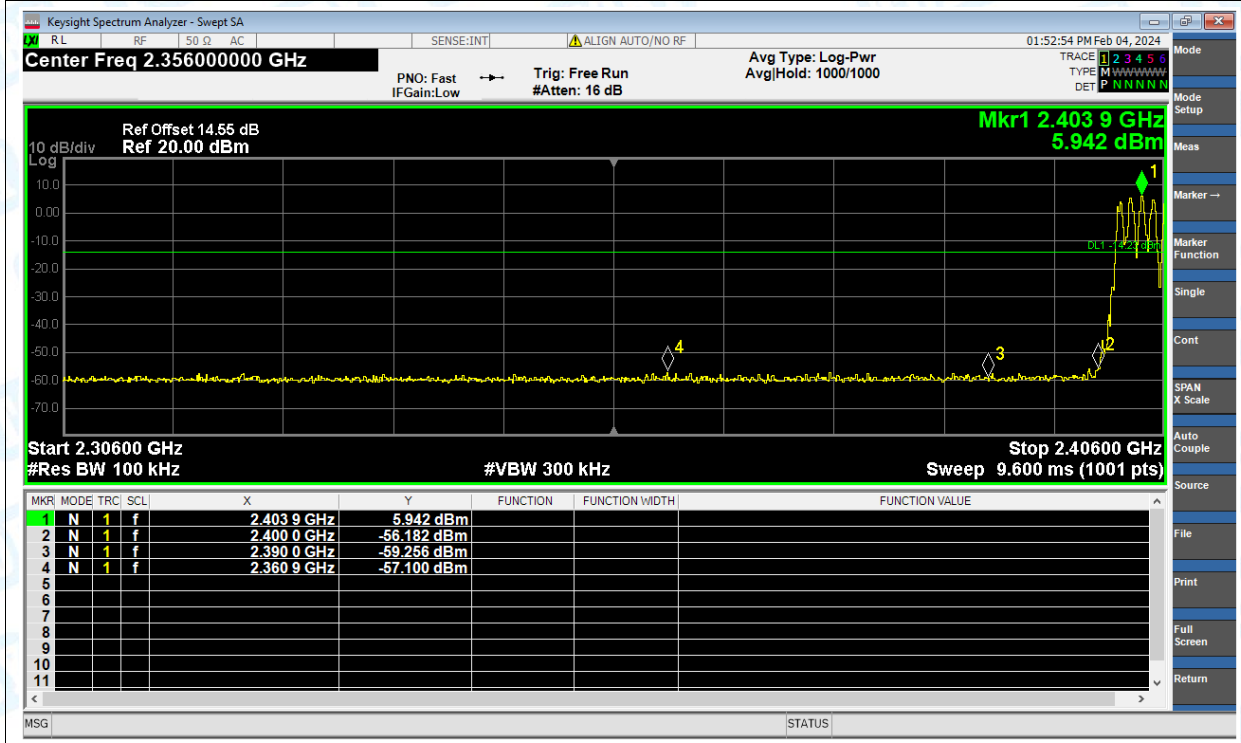
Condition	Mode	Frequency (MHz)	Antenna	Hopping Mode	Max Value (dBc)	Limit (dBc)	Verdict
NVNT	1-DH1	2402	Ant1	Hopping	-62.87	-20	Pass
NVNT	1-DH1	2480	Ant1	Hopping	-50.48	-20	Pass
NVNT	2-DH1	2402	Ant1	Hopping	-46.28	-20	Pass
NVNT	2-DH1	2480	Ant1	Hopping	-46.84	-20	Pass
NVNT	3-DH1	2402	Ant1	Hopping	-46.14	-20	Pass
NVNT	3-DH1	2480	Ant1	Hopping	-46.97	-20	Pass

Test Graphs

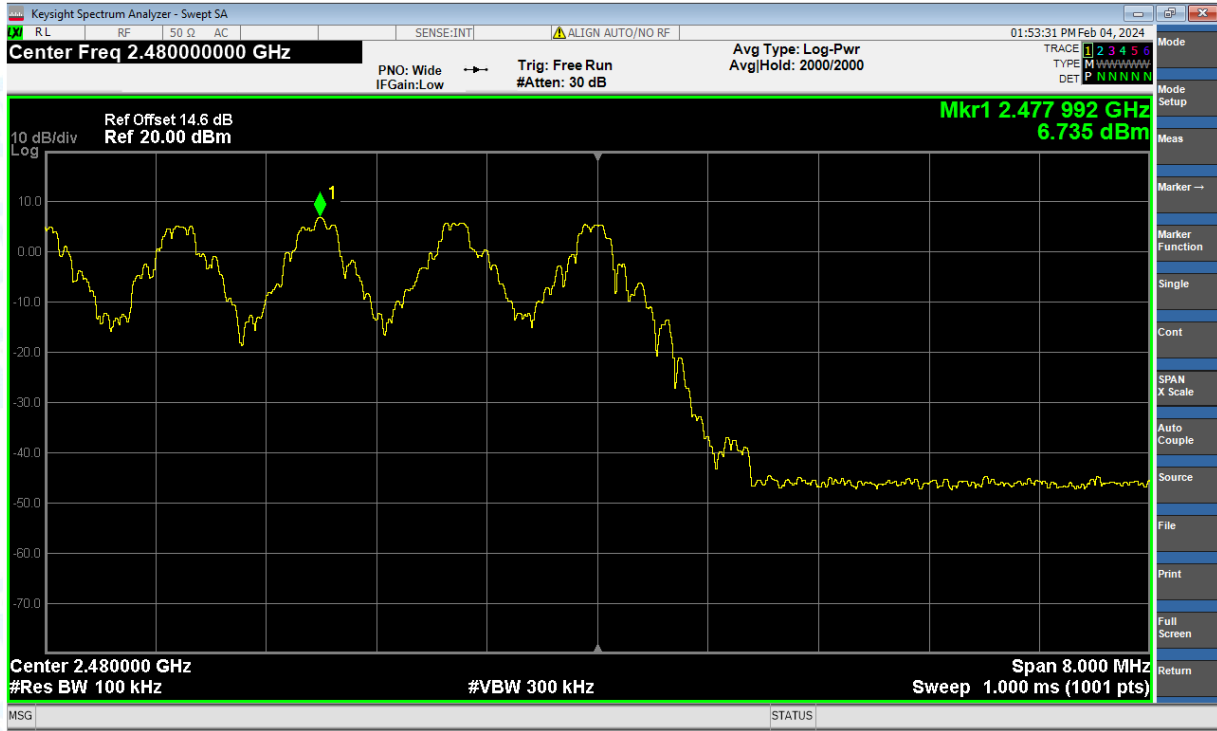
Band Edge(Hopping) NVNT 1-DH1 2402MHz Ant1 Hopping Ref



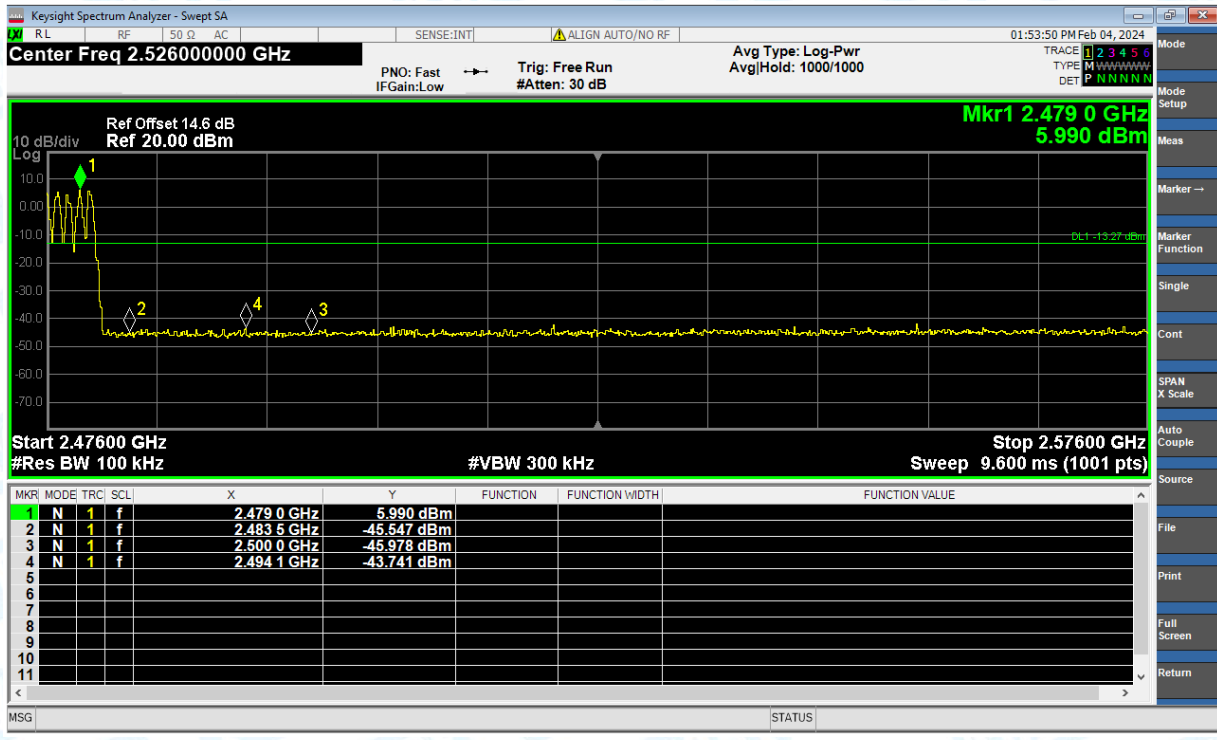
Band Edge(Hopping) NVNT 1-DH1 2402MHz Ant1 Hopping Emission



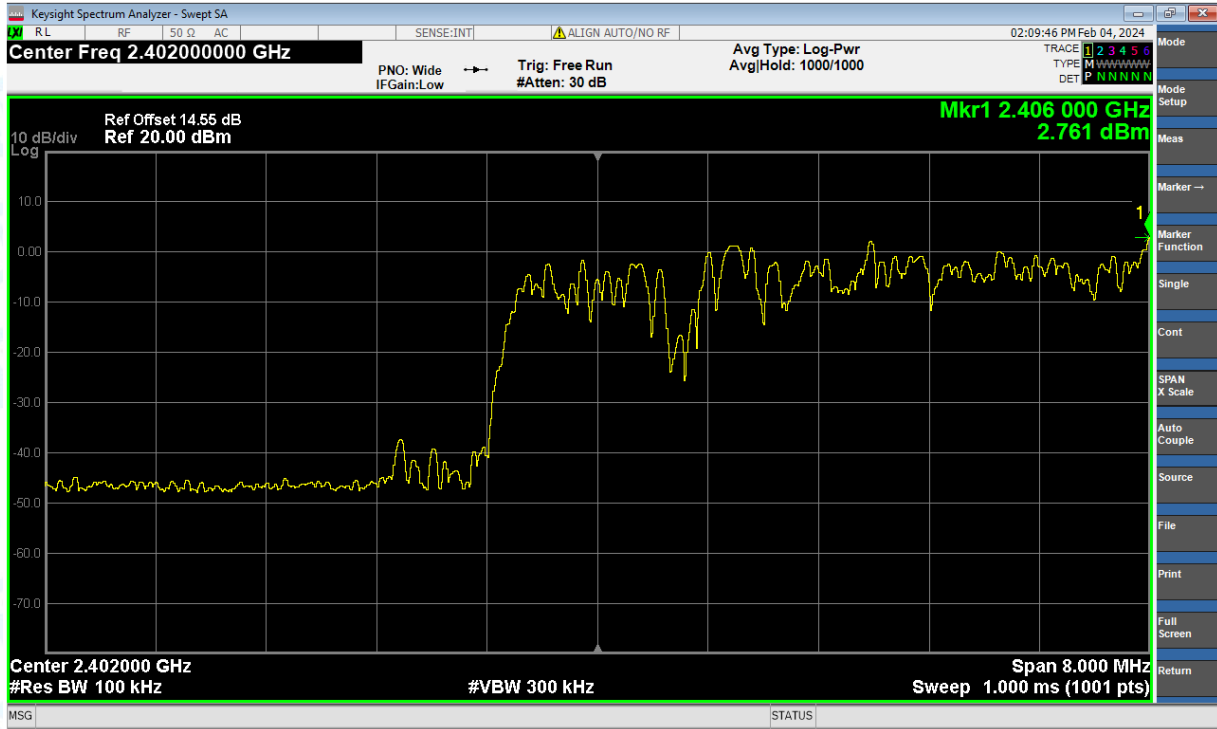
Band Edge(Hopping) NVNT 1-DH1 2480MHz Ant1 Hopping Ref



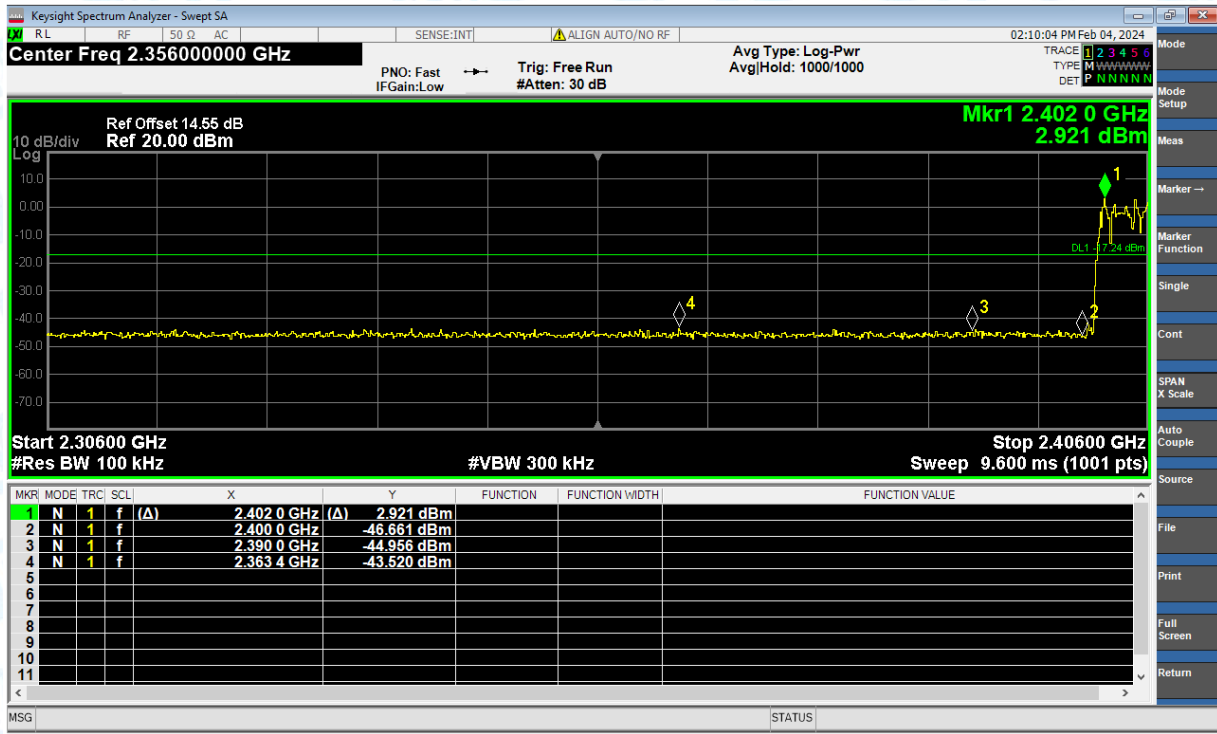
Band Edge(Hopping) NVNT 1-DH1 2480MHz Ant1 Hopping Emission

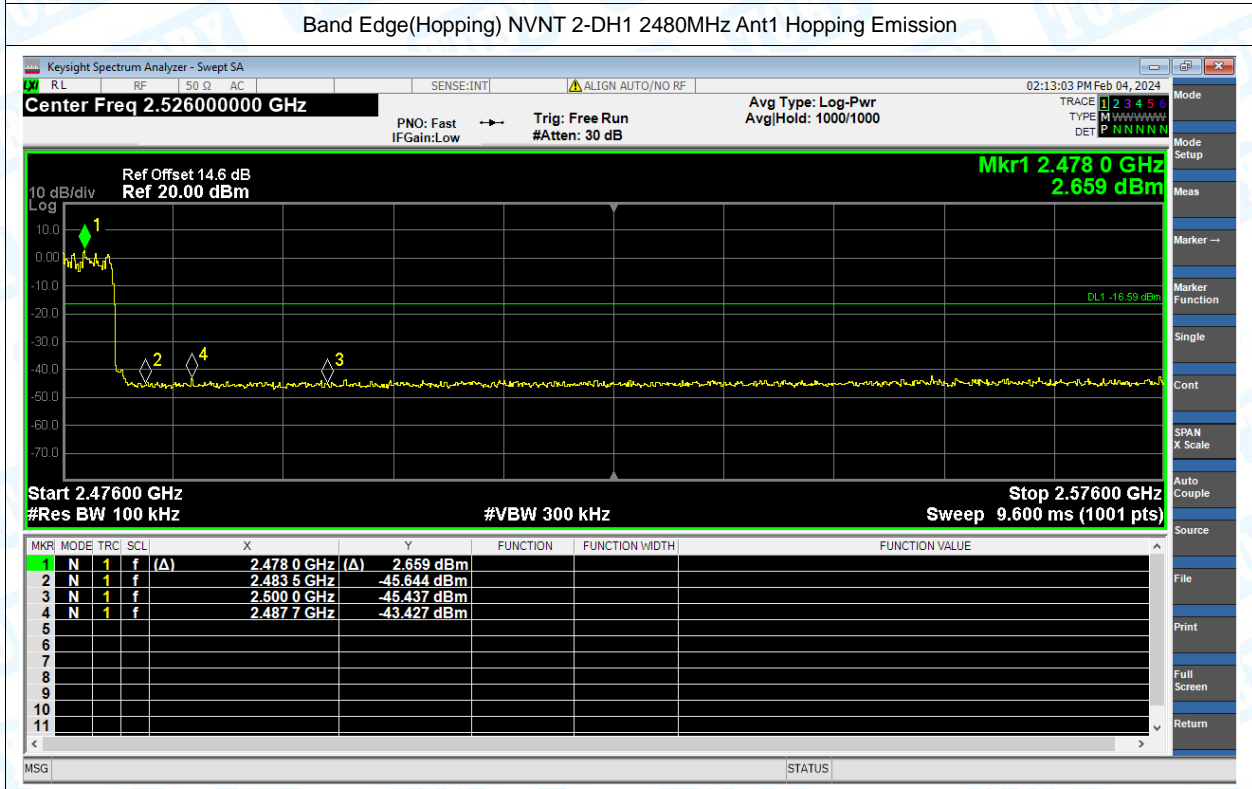


Band Edge(Hopping) NVNT 2-DH1 2402MHz Ant1 Hopping Ref

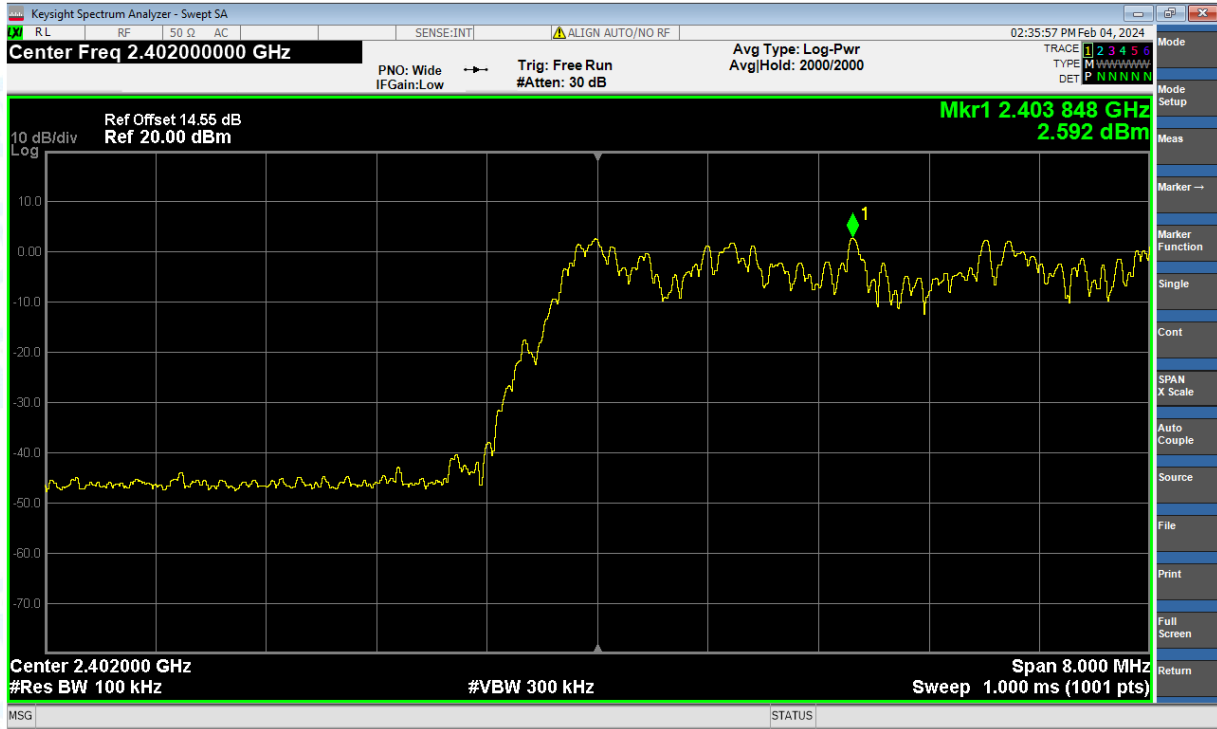


Band Edge(Hopping) NVNT 2-DH1 2402MHz Ant1 Hopping Emission

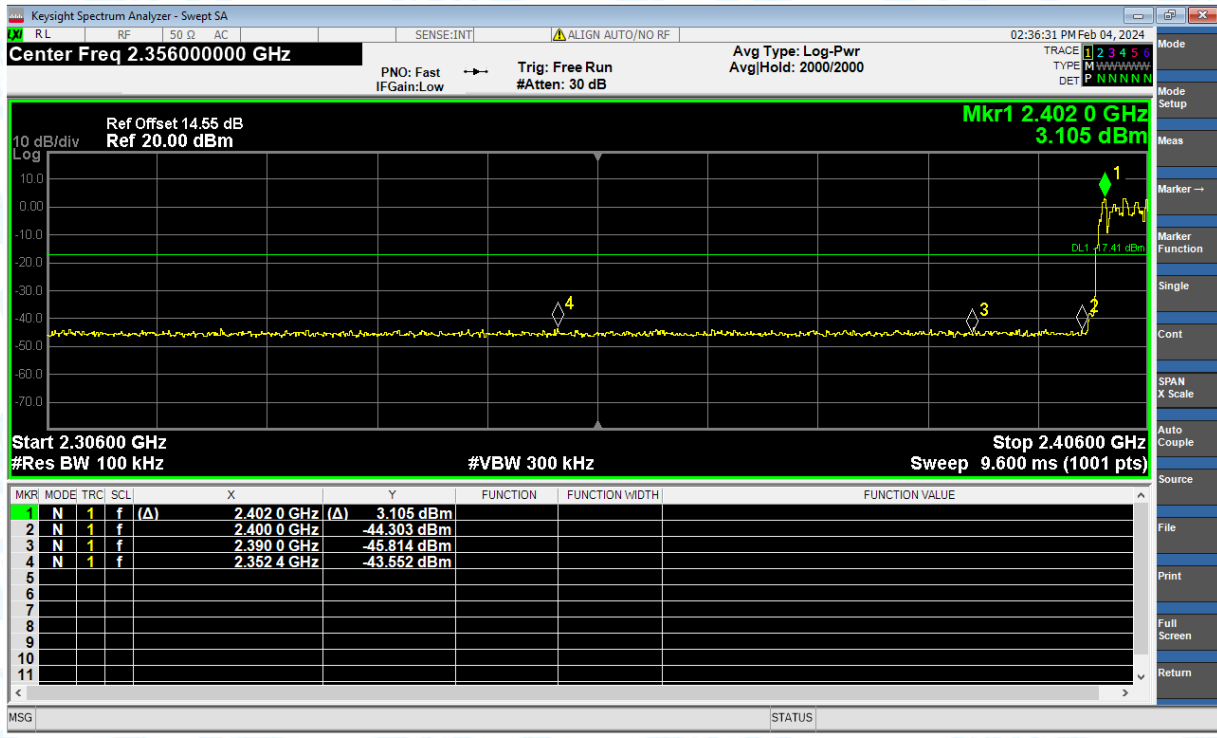


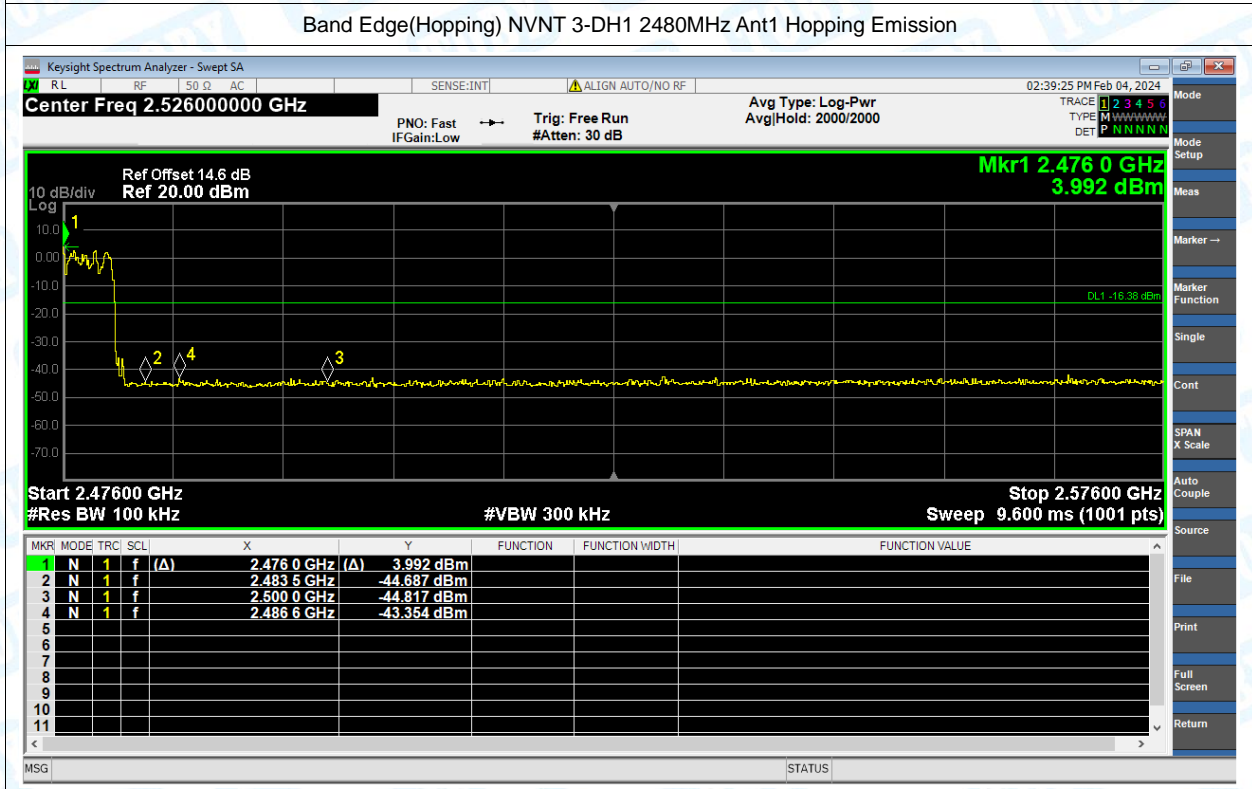


Band Edge(Hopping) NVNT 3-DH1 2402MHz Ant1 Hopping Ref



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



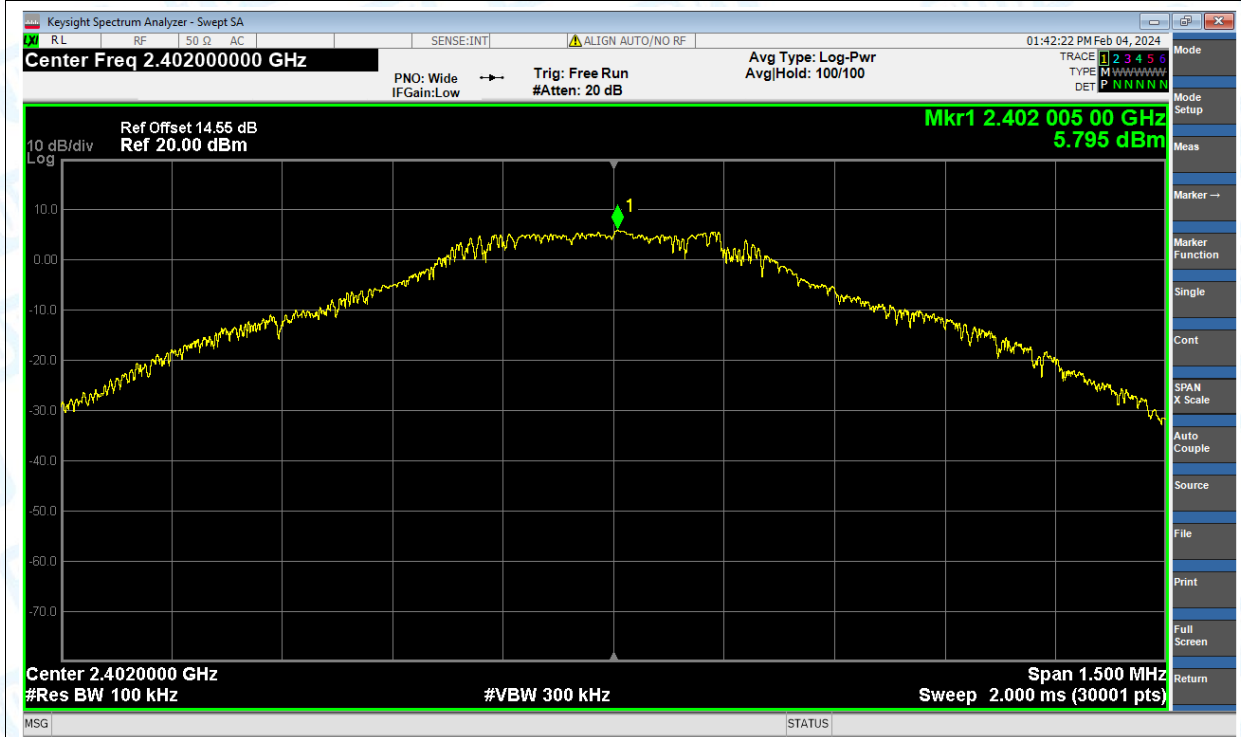


7. Conducted RF Spurious Emission

Condition	Mode	Frequency (MHz)	Antenna	Max Value (dBc)	Limit (dBc)	Verdict
NVNT	1-DH1	2402	Ant1	-45.53	-20	Pass
NVNT	1-DH1	2441	Ant1	-46.88	-20	Pass
NVNT	1-DH1	2480	Ant1	-46.43	-20	Pass
NVNT	2-DH1	2402	Ant1	-42.97	-20	Pass
NVNT	2-DH1	2441	Ant1	-43.01	-20	Pass
NVNT	2-DH1	2480	Ant1	-45.53	-20	Pass
NVNT	3-DH1	2402	Ant1	-42.64	-20	Pass
NVNT	3-DH1	2441	Ant1	-42.93	-20	Pass
NVNT	3-DH1	2480	Ant1	-43.22	-20	Pass

Test Graphs

Tx. Spurious NVNT 1-DH1 2402MHz Ant1 Ref



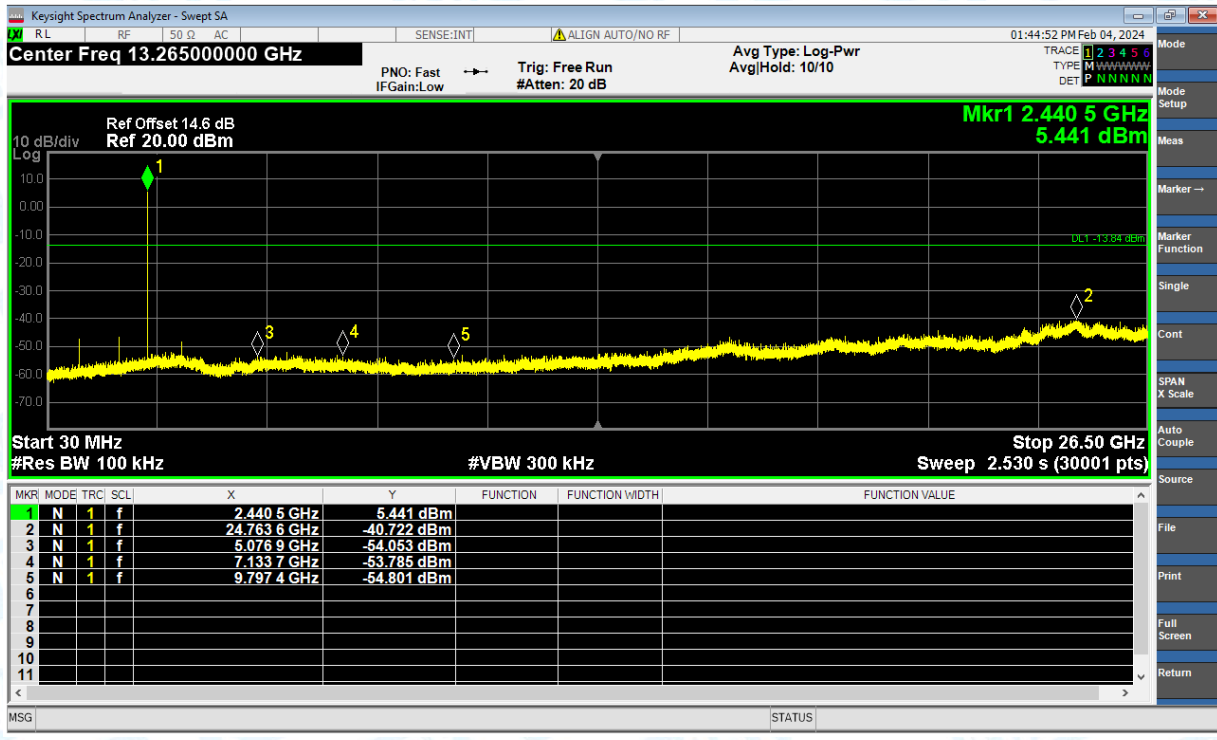
Tx. Spurious NVNT 1-DH1 2402MHz Ant1 Emission



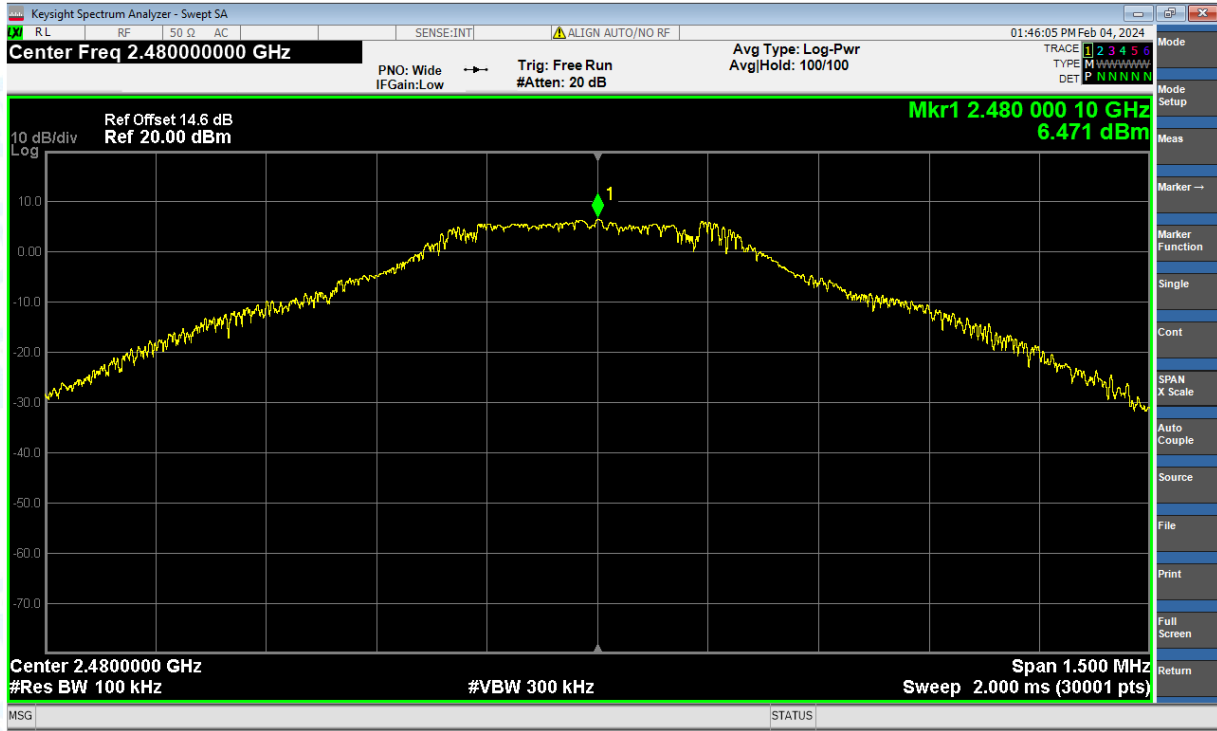
Tx. Spurious NVNT 1-DH1 2441MHz Ant1 Ref



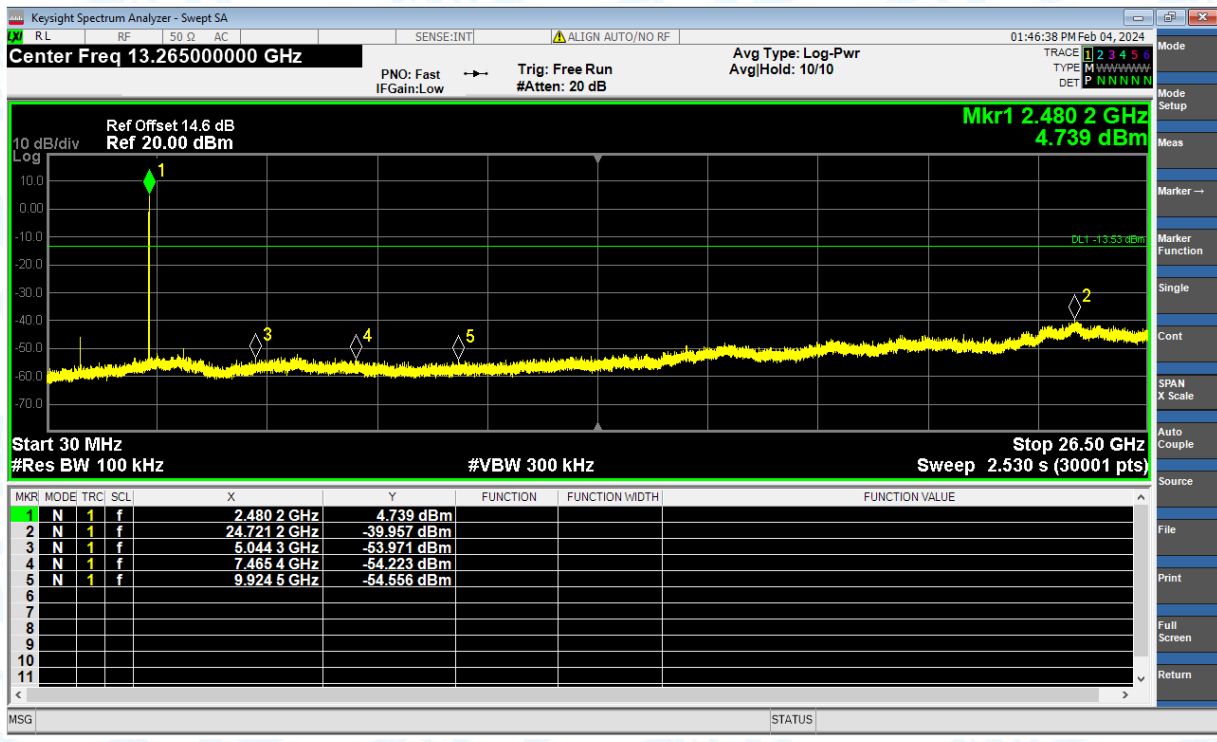
Tx. Spurious NVNT 1-DH1 2441MHz Ant1 Emission



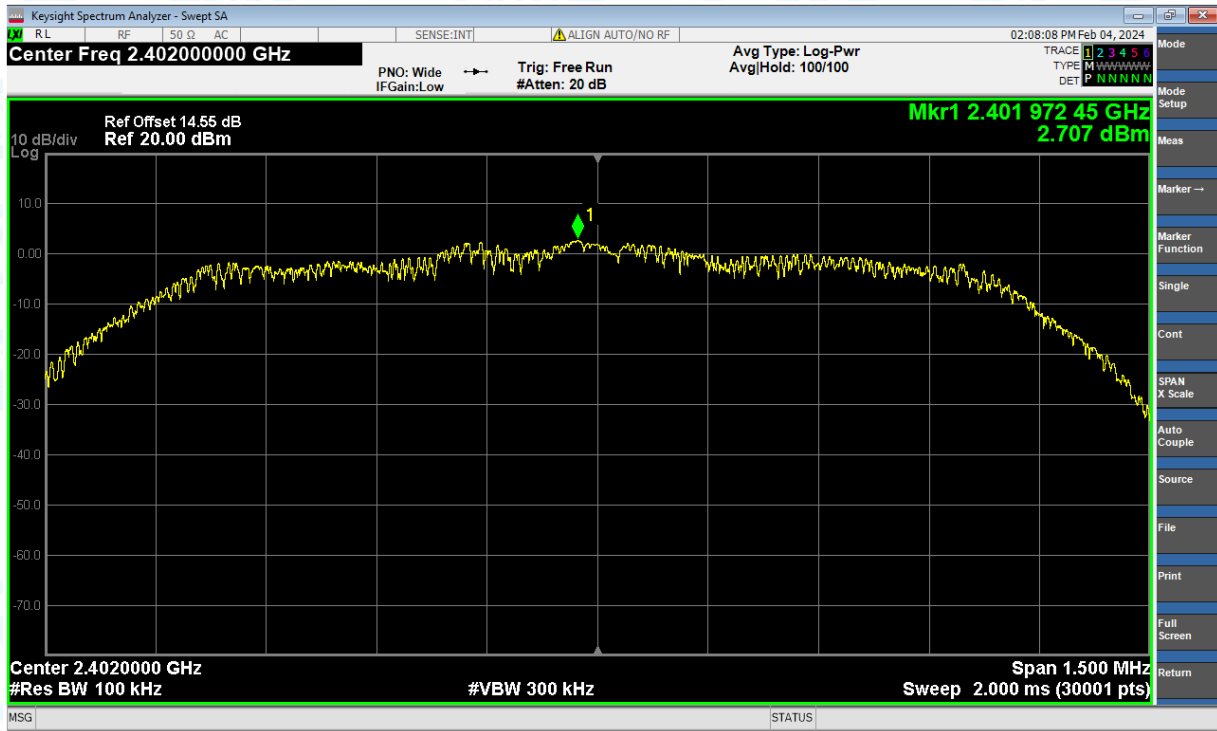
Tx. Spurious NVNT 1-DH1 2480MHz Ant1 Ref



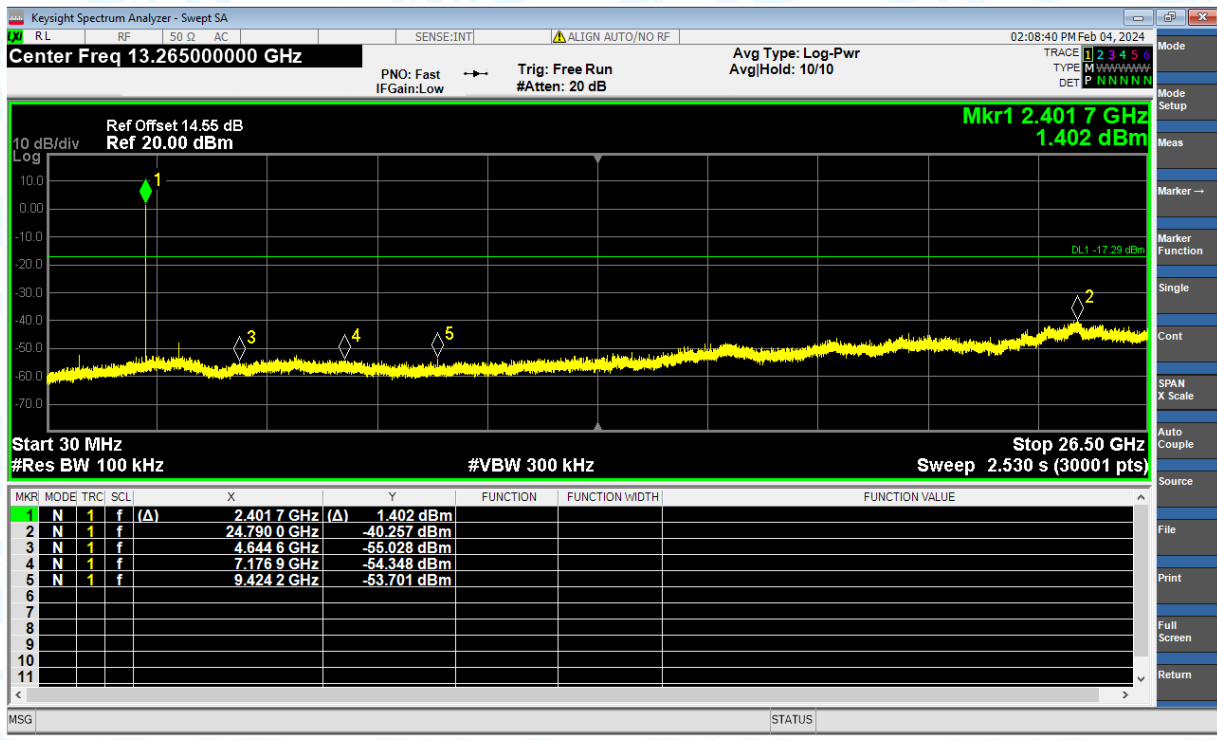
Tx. Spurious NVNT 1-DH1 2480MHz Ant1 Emission



Tx. Spurious NVNT 2-DH1 2402MHz Ant1 Ref



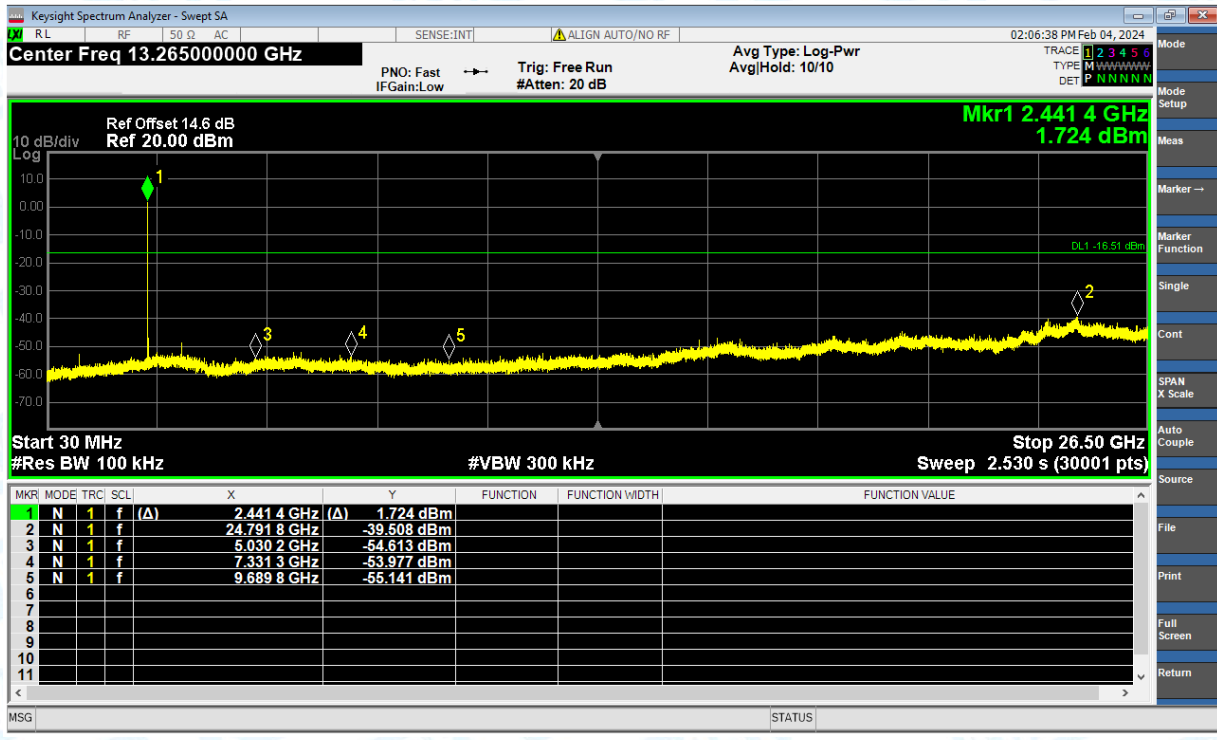
Tx. Spurious NVNT 2-DH1 2402MHz Ant1 Emission



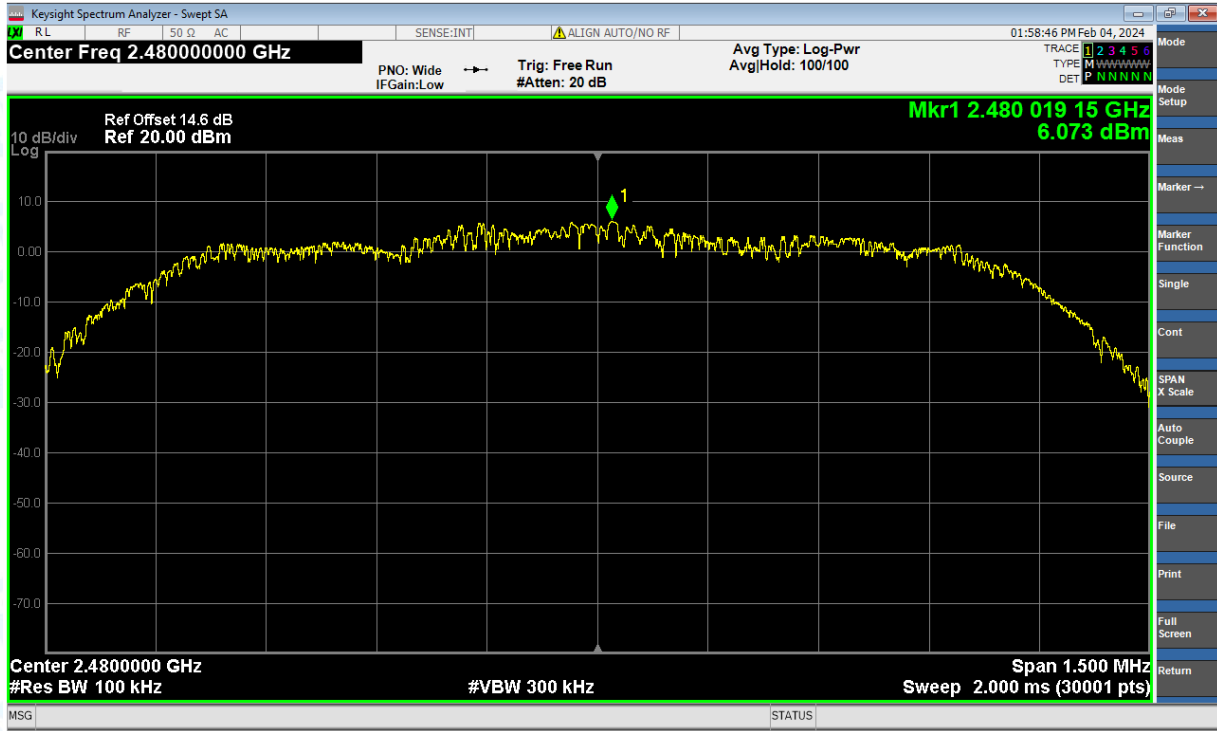
Tx. Spurious NVNT 2-DH1 2441MHz Ant1 Ref



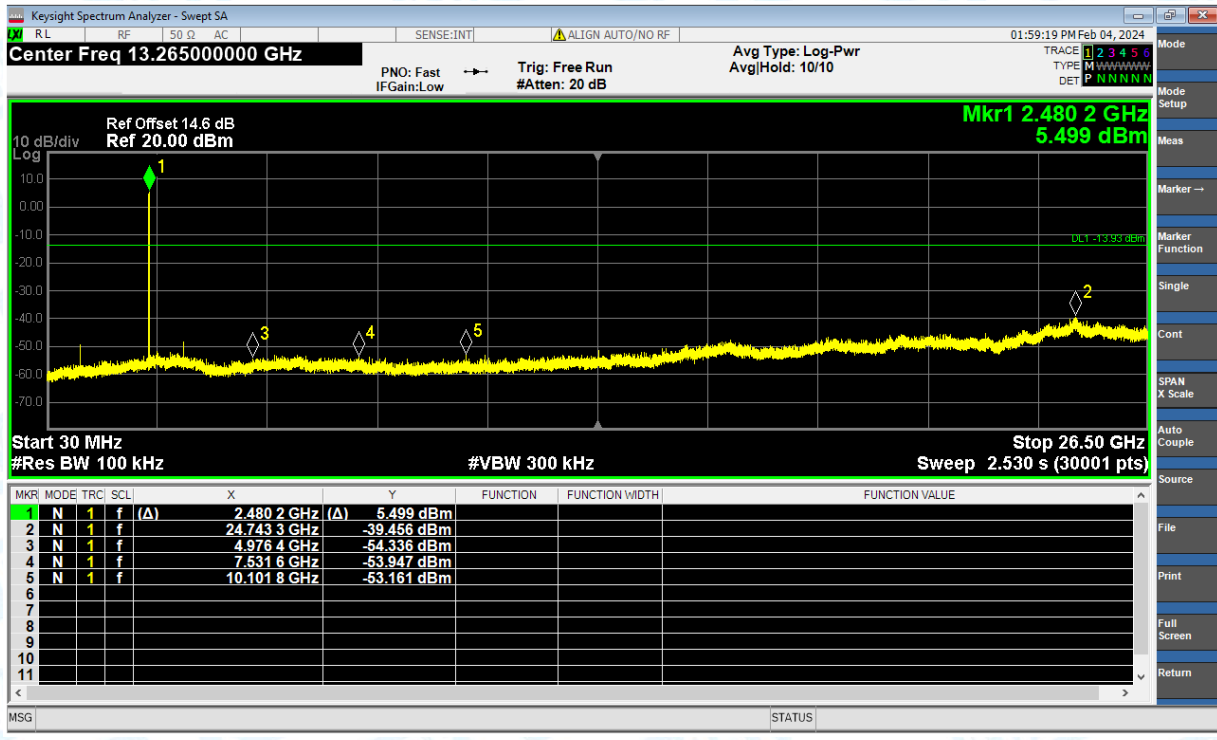
Tx. Spurious NVNT 2-DH1 2441MHz Ant1 Emission



Tx. Spurious NVNT 2-DH1 2480MHz Ant1 Ref



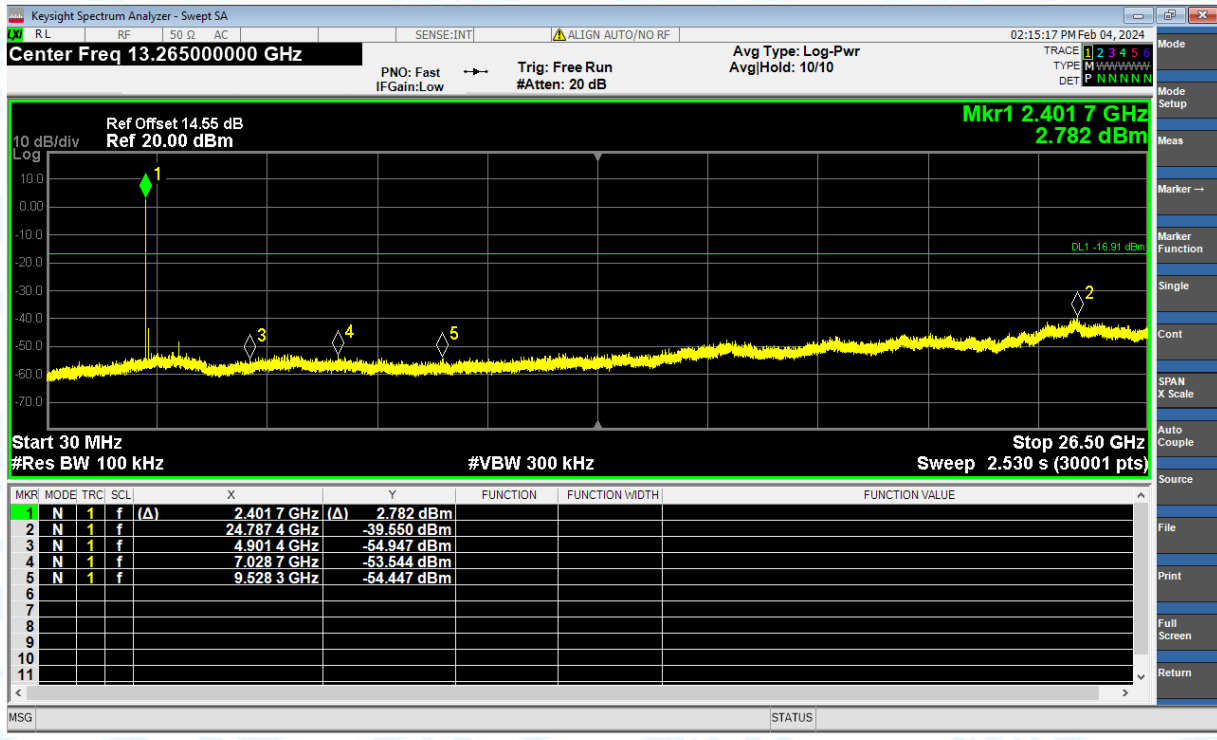
Tx. Spurious NVNT 2-DH1 2480MHz Ant1 Emission



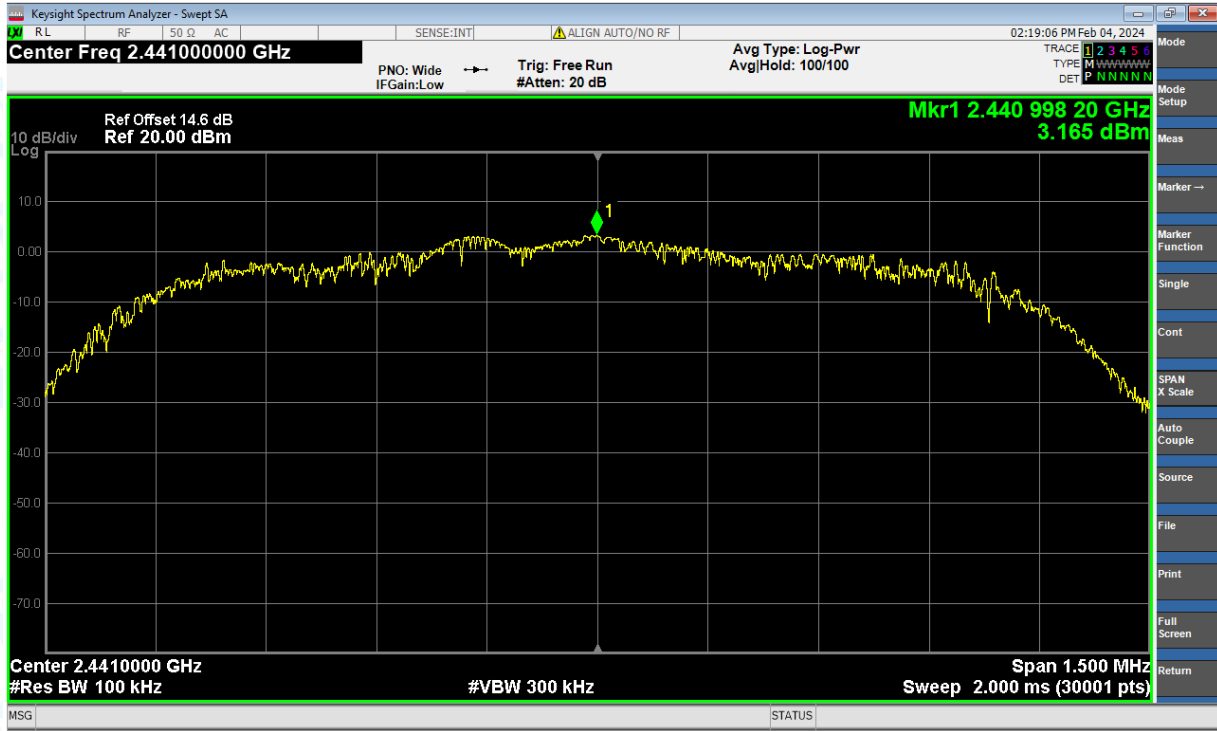
Tx. Spurious NVNT 3-DH1 2402MHz Ant1 Ref



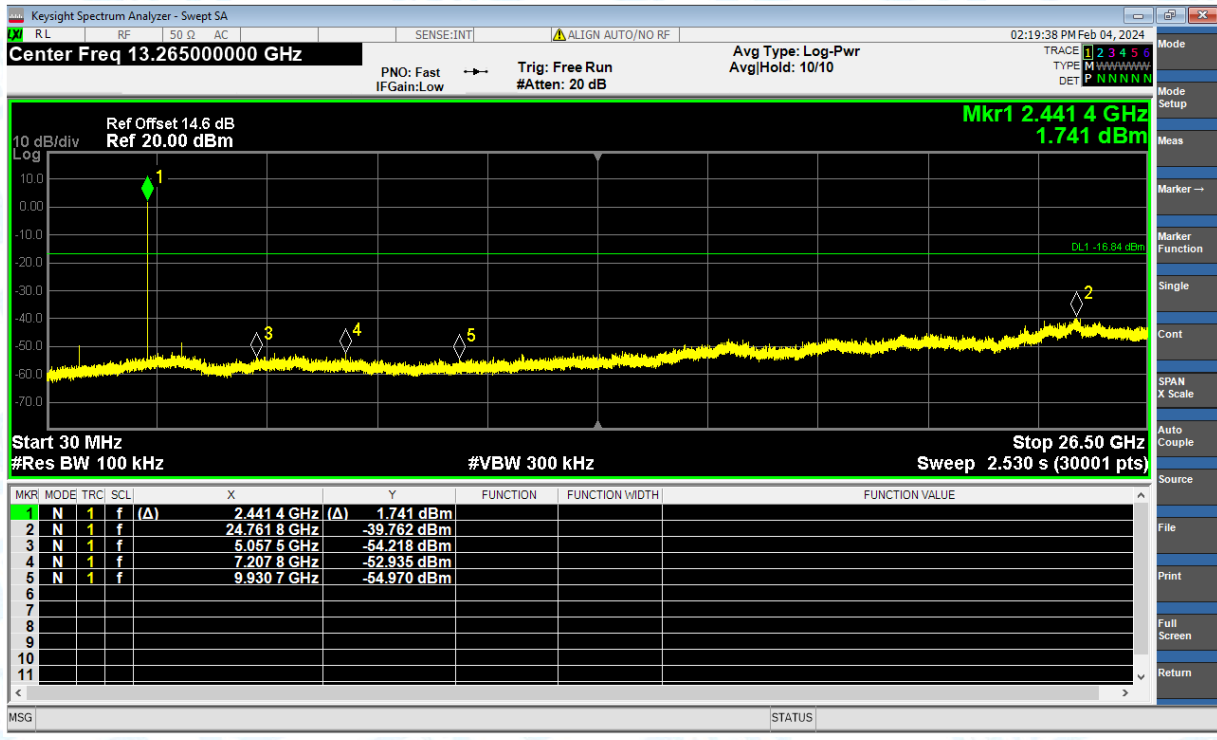
Tx. Spurious NVNT 3-DH1 2402MHz Ant1 Emission



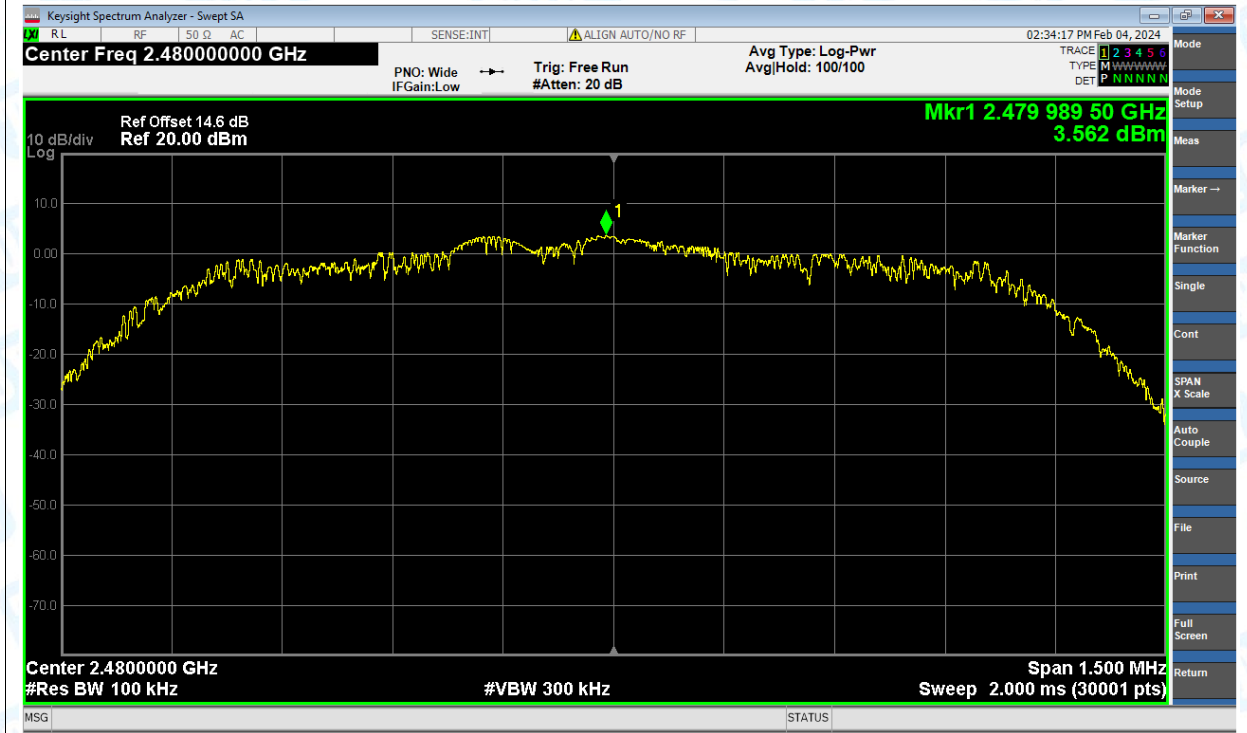
Tx. Spurious NVNT 3-DH1 2441MHz Ant1 Ref



Tx. Spurious NVNT 3-DH1 2441MHz Ant1 Emission



Tx. Spurious NVNT 3-DH1 2480MHz Ant1 Ref



Tx. Spurious NVNT 3-DH1 2480MHz Ant1 Emission

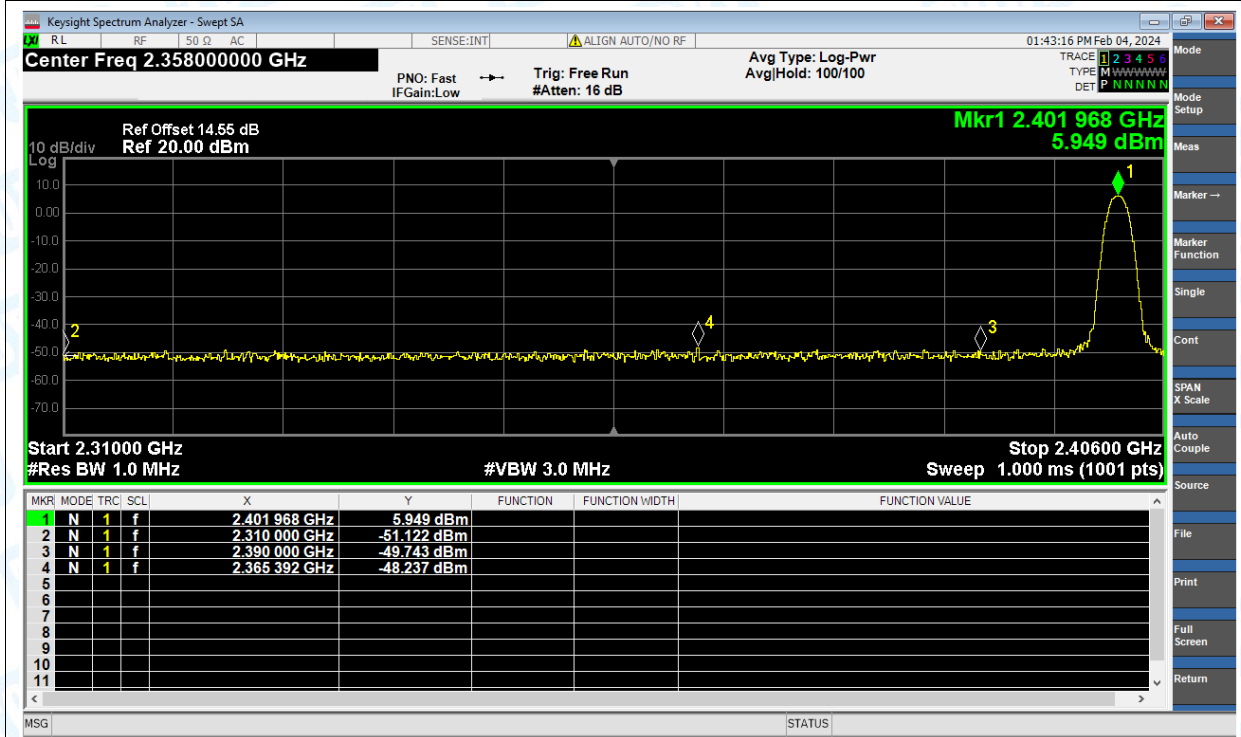


8.Restrict Band

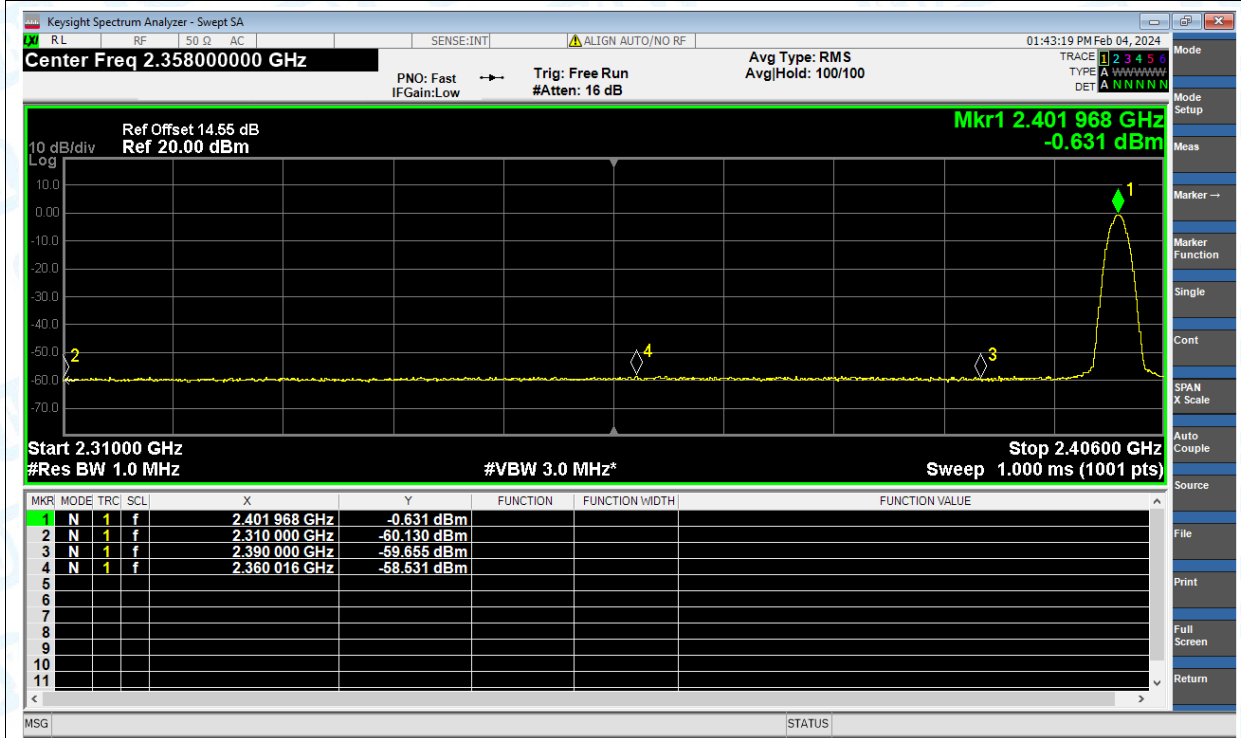
Condition	Mode	Frequency (MHz)	Antenna	Hopping Mode	Spur Freq (MHz)	Power (dBm)	Gain (dBi)	Duty Factor (dB)	E (dBuV/m)	Detector	Limit (dBuV/m)	Verdict
NVNT	1-DH1	2402	Ant1	No-Hopping	2310	-51.12	2	-	46.14	Peak	74	Pass
NVNT	1-DH1	2402	Ant1	No-Hopping	2310	-60.13	2	5.17	42.3	Average	54	Pass
NVNT	1-DH1	2402	Ant1	No-Hopping	2365.392	-48.24	2	-	49.02	Peak	74	Pass
NVNT	1-DH1	2402	Ant1	No-Hopping	2360.016	-58.53	2	5.17	43.9	Average	54	Pass
NVNT	1-DH1	2402	Ant1	No-Hopping	2390	-49.74	2	-	47.52	Peak	74	Pass
NVNT	1-DH1	2402	Ant1	No-Hopping	2390	-59.66	2	5.17	42.77	Average	54	Pass
NVNT	1-DH1	2480	Ant1	No-Hopping	2483.5	-45.05	2	-	52.21	Peak	74	Pass
NVNT	1-DH1	2480	Ant1	No-Hopping	2483.5	-54.66	2	5.21	47.81	Average	54	Pass
NVNT	1-DH1	2480	Ant1	No-Hopping	2483.824	-43.53	2	-	53.73	Peak	74	Pass
NVNT	1-DH1	2480	Ant1	No-Hopping	2483.632	-54.03	2	5.21	48.44	Average	54	Pass
NVNT	1-DH1	2480	Ant1	No-Hopping	2500	-47.2	2	-	50.06	Peak	74	Pass
NVNT	1-DH1	2480	Ant1	No-Hopping	2500	-55.21	2	5.21	47.26	Average	54	Pass
NVNT	2-DH1	2402	Ant1	No-Hopping	2310	-51.46	2	-	45.8	Peak	74	Pass
NVNT	2-DH1	2402	Ant1	No-Hopping	2310	-60.06	2	5.06	42.26	Average	54	Pass
NVNT	2-DH1	2402	Ant1	No-Hopping	2336.208	-48.61	2	-	48.65	Peak	74	Pass
NVNT	2-DH1	2402	Ant1	No-Hopping	2332.464	-58.77	2	5.06	43.55	Average	54	Pass
NVNT	2-DH1	2402	Ant1	No-Hopping	2390	-53.27	2	-	43.99	Peak	74	Pass
NVNT	2-DH1	2402	Ant1	No-Hopping	2390	-59.54	2	5.06	42.78	Average	54	Pass
NVNT	2-DH1	2480	Ant1	No-Hopping	2483.5	-49.07	2	-	48.19	Peak	74	Pass
NVNT	2-DH1	2480	Ant1	No-Hopping	2483.5	-57.51	2	5.06	44.81	Average	54	Pass
NVNT	2-DH1	2480	Ant1	No-Hopping	2484.016	-45.66	2	-	51.6	Peak	74	Pass
NVNT	2-DH1	2480	Ant1	No-Hopping	2483.512	-57.51	2	5.06	44.81	Average	54	Pass
NVNT	2-DH1	2480	Ant1	No-Hopping	2500	-50.83	2	-	46.43	Peak	74	Pass
NVNT	2-DH1	2480	Ant1	No-Hopping	2500	-59.39	2	5.06	42.93	Average	54	Pass
NVNT	3-DH1	2402	Ant1	No-Hopping	2310	-49.21	2	-	48.05	Peak	74	Pass
NVNT	3-DH1	2402	Ant1	No-Hopping	2310	-56.24	2	5.06	46.08	Average	54	Pass
NVNT	3-DH1	2402	Ant1	No-Hopping	2374.608	-44.28	2	-	52.98	Peak	74	Pass
NVNT	3-DH1	2402	Ant1	No-Hopping	2317.776	-54.94	2	5.06	47.38	Average	54	Pass
NVNT	3-DH1	2402	Ant1	No-Hopping	2390	-47.12	2	-	50.14	Peak	74	Pass
NVNT	3-DH1	2402	Ant1	No-Hopping	2390	-55.51	2	5.06	46.81	Average	54	Pass
NVNT	3-DH1	2480	Ant1	No-Hopping	2483.5	-49.56	2	-	47.7	Peak	74	Pass
NVNT	3-DH1	2480	Ant1	No-Hopping	2483.5	-59.48	2	5.06	42.84	Average	54	Pass
NVNT	3-DH1	2480	Ant1	No-Hopping	2484.16	-48.65	2	-	48.61	Peak	74	Pass
NVNT	3-DH1	2480	Ant1	No-Hopping	2483.632	-58.92	2	5.06	43.4	Average	54	Pass
NVNT	3-DH1	2480	Ant1	No-Hopping	2500	-53.58	2	-	43.68	Peak	74	Pass
NVNT	3-DH1	2480	Ant1	No-Hopping	2500	-61.57	2	5.06	40.75	Average	54	Pass

Test Graphs

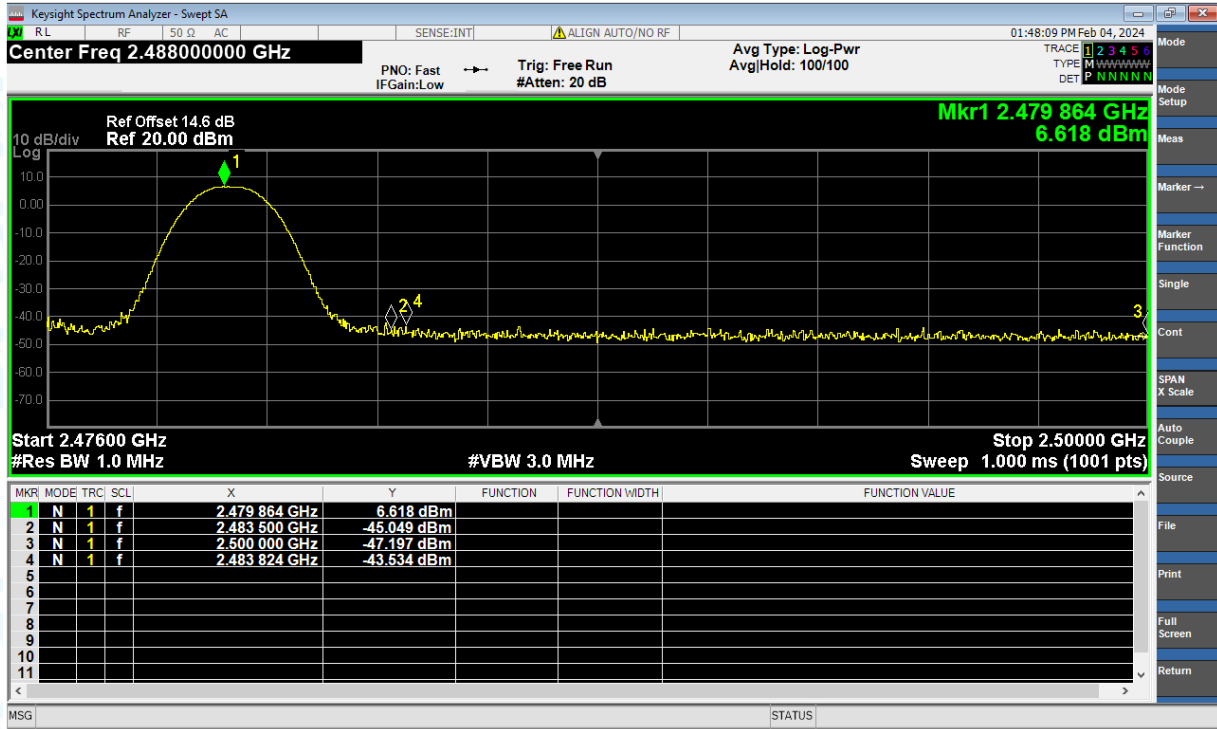
Restrict Band NVNT 1-DH1 2402MHz Ant1 No-Hopping Peak



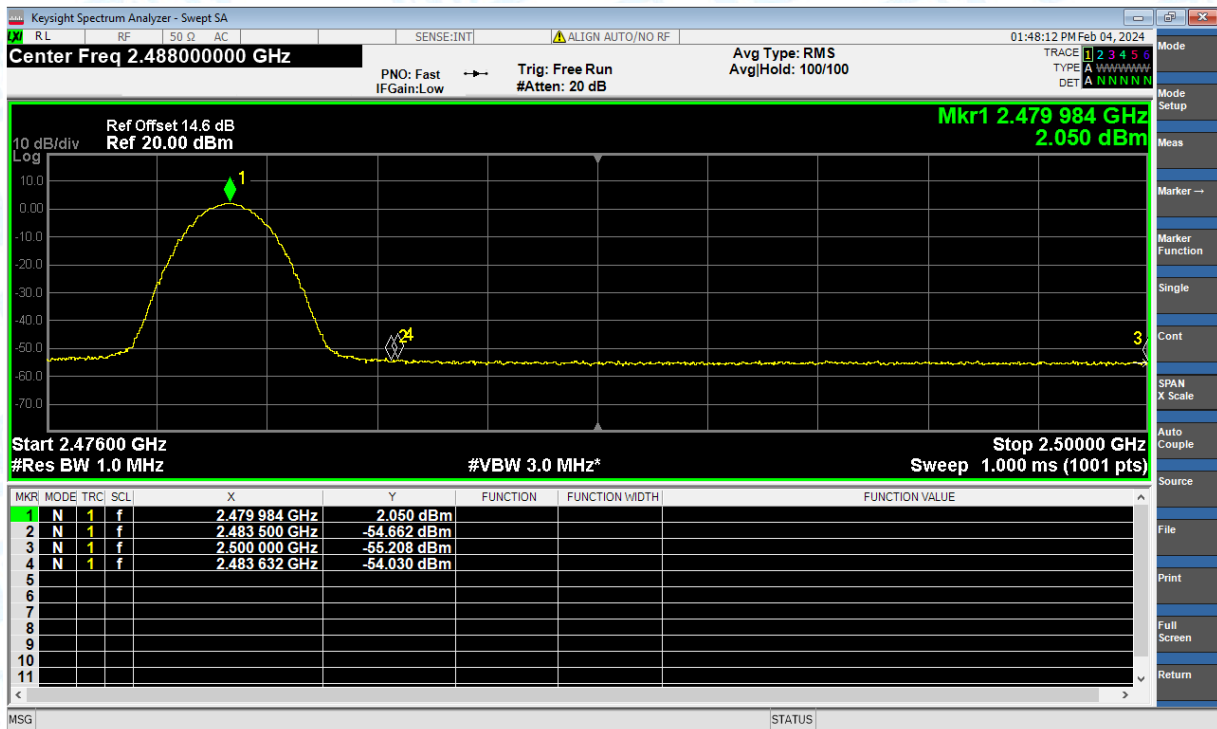
Restrict Band NVNT 1-DH1 2402MHz Ant1 No-Hopping Average



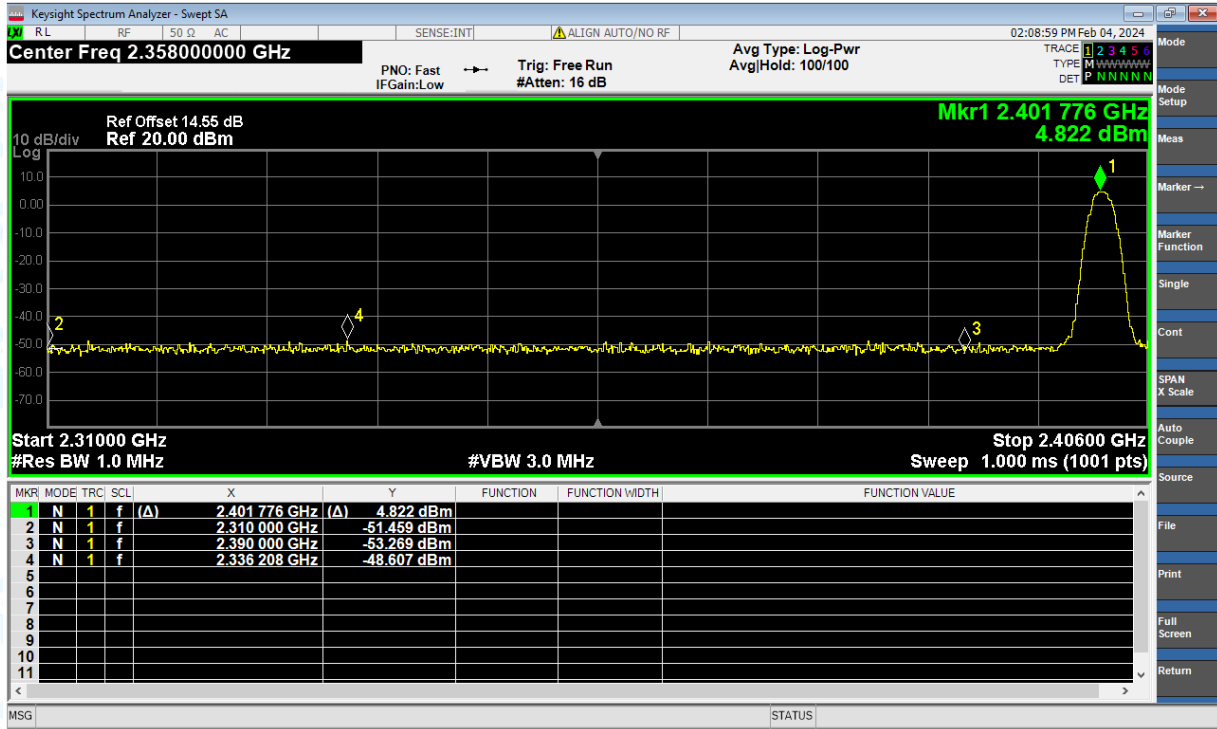
Restrict Band NVNT 1-DH1 2480MHz Ant1 No-Hopping Peak



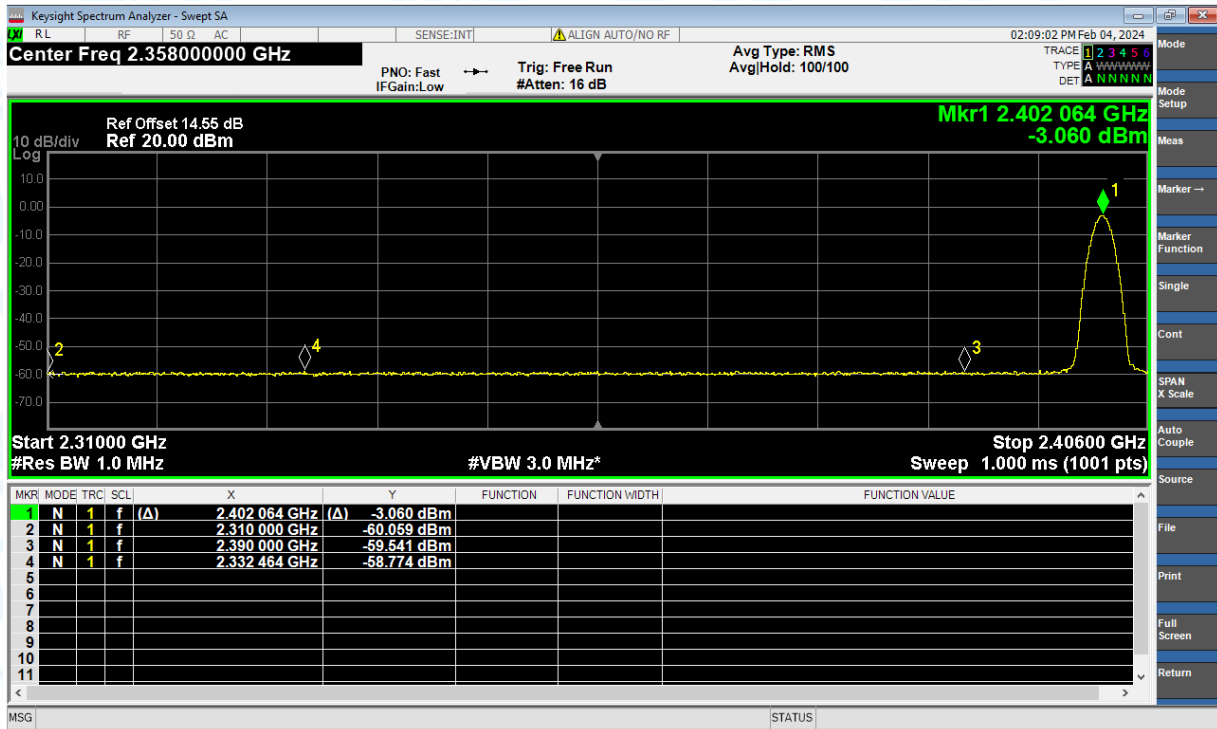
Restrict Band NVNT 1-DH1 2480MHz Ant1 No-Hopping Average



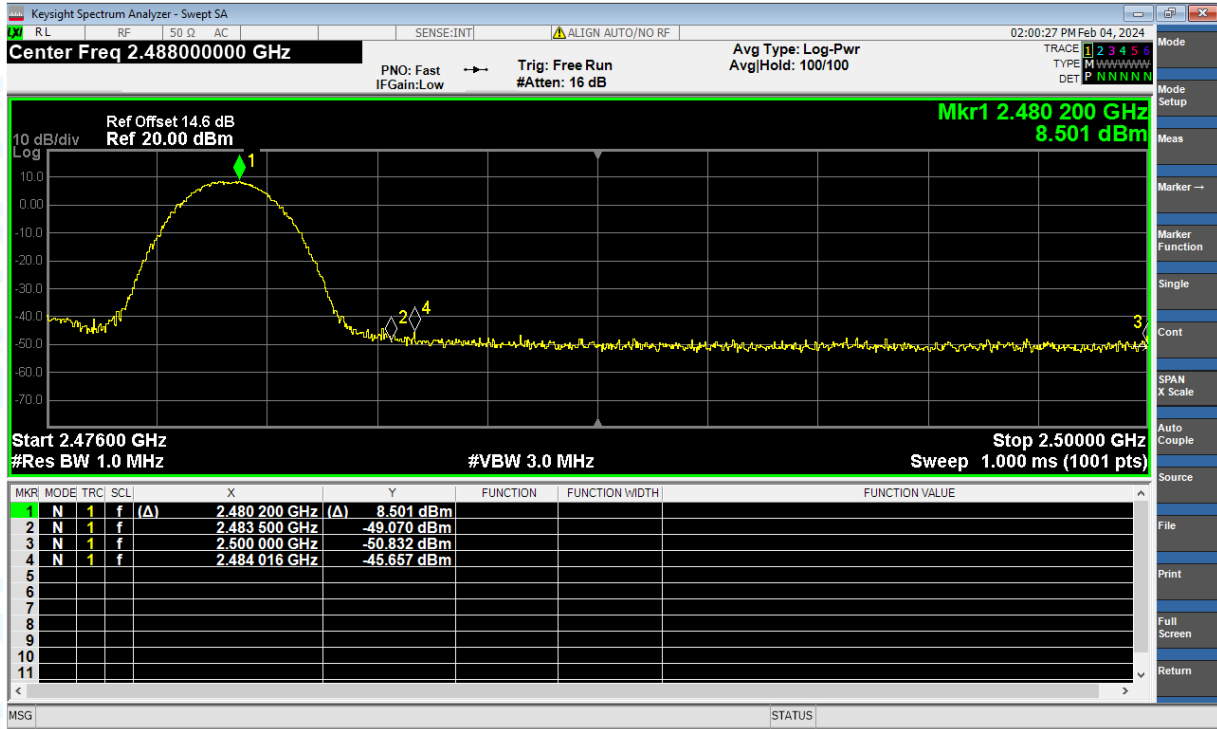
Restrict Band NVNT 2-DH1 2402MHz Ant1 No-Hopping Peak



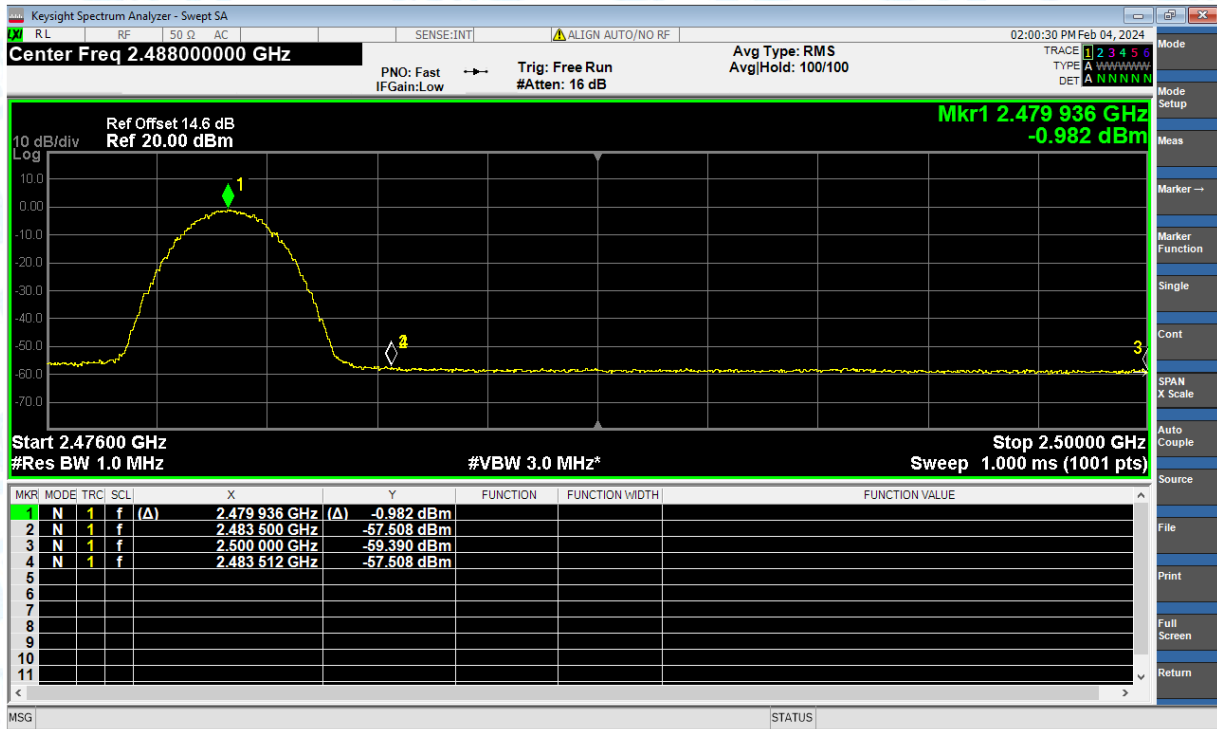
Restrict Band NVNT 2-DH1 2402MHz Ant1 No-Hopping Average



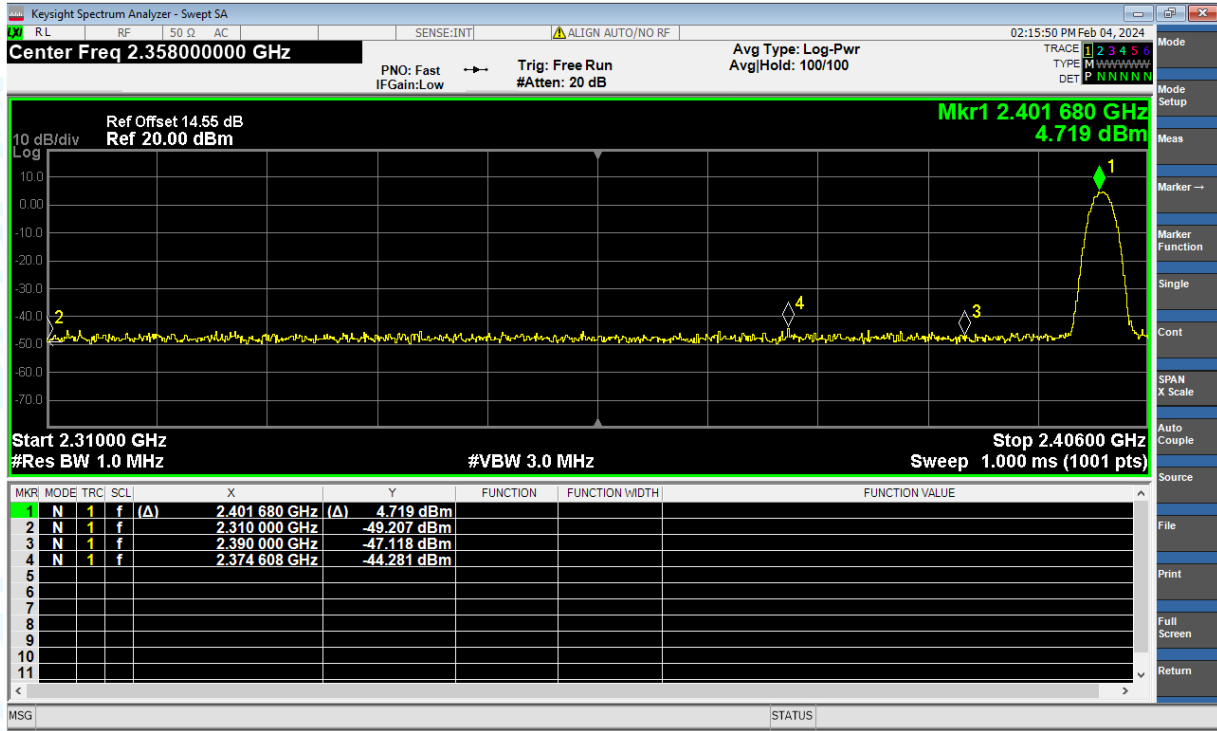
Restrict Band NVNT 2-DH1 2480MHz Ant1 No-Hopping Peak



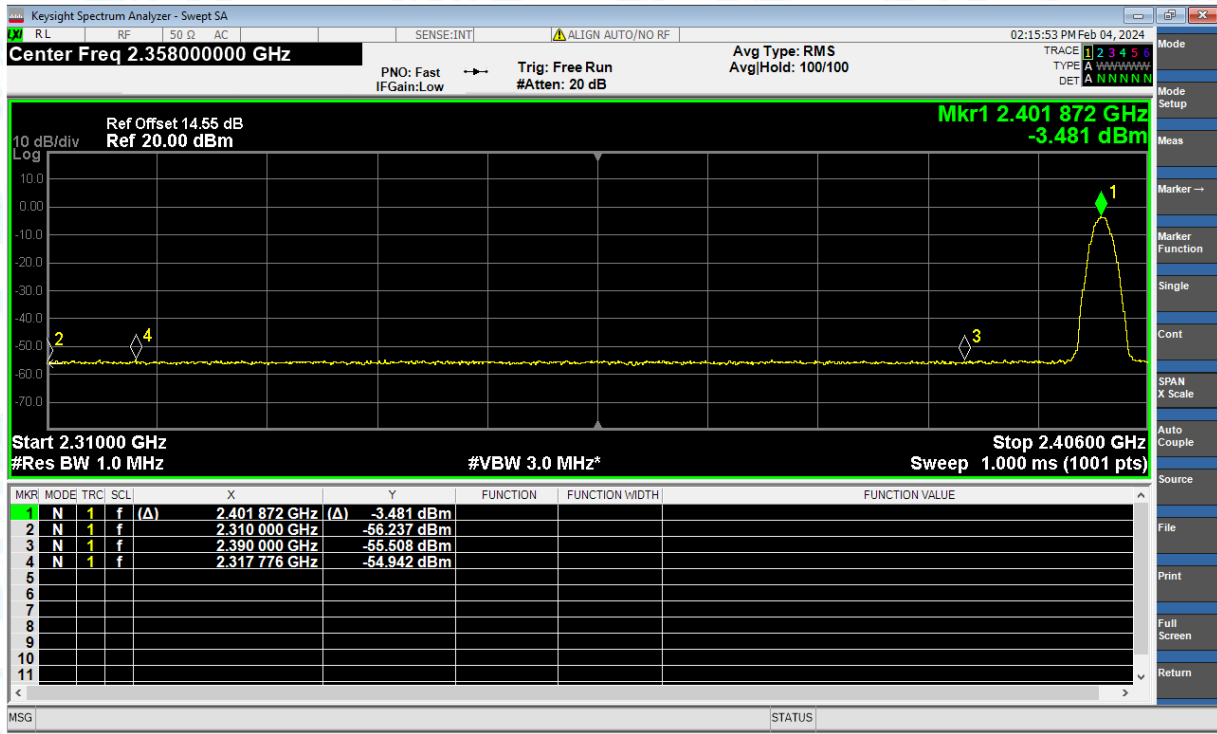
Restrict Band NVNT 2-DH1 2480MHz Ant1 No-Hopping Average



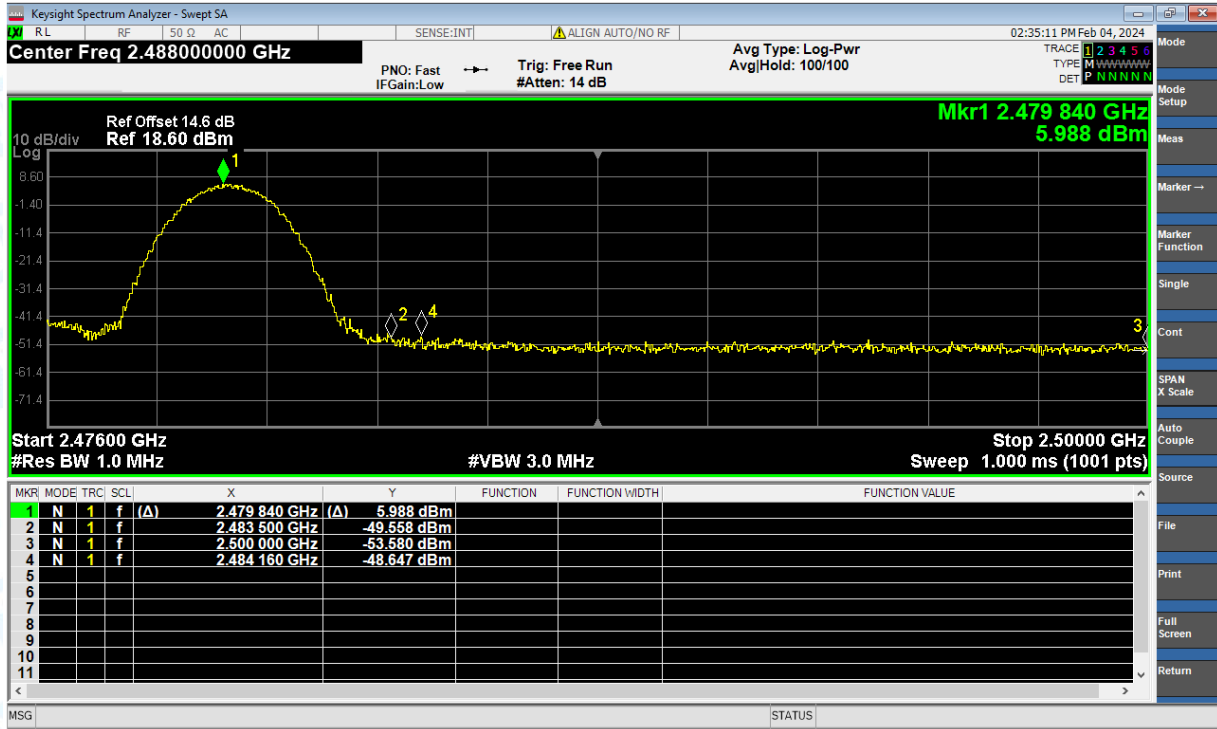
Restrict Band NVNT 3-DH1 2402MHz Ant1 No-Hopping Peak



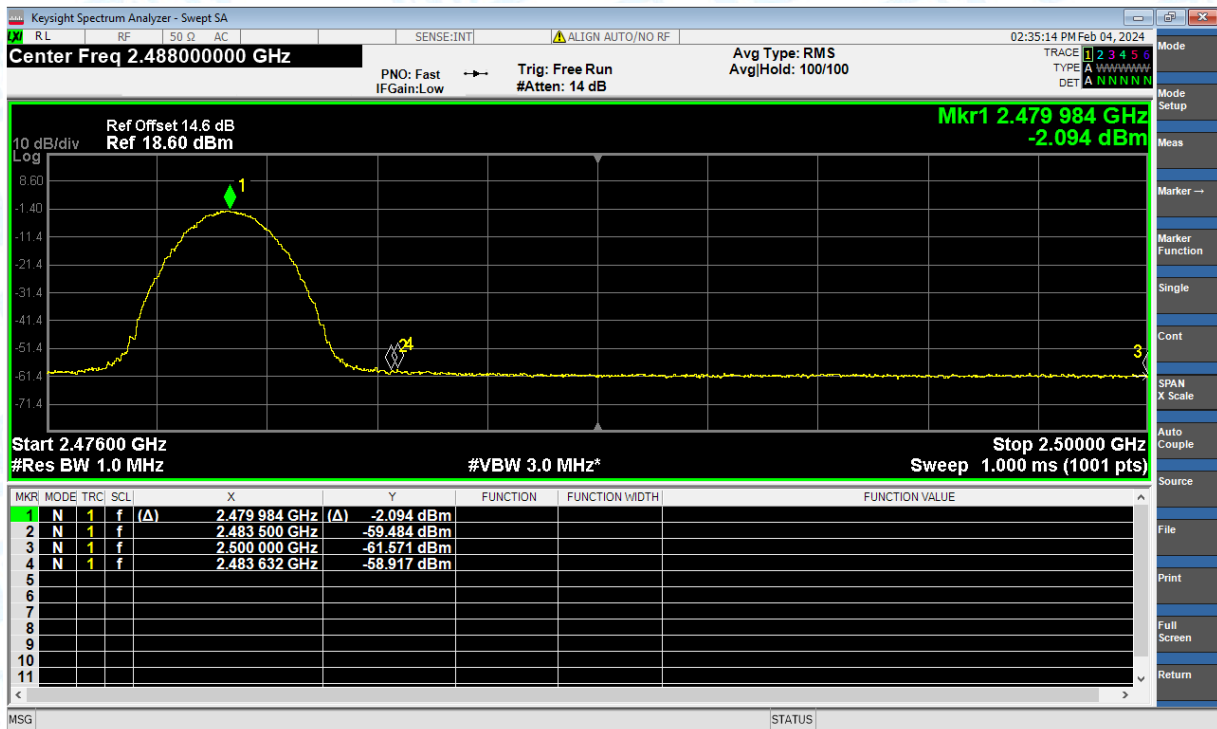
Restrict Band NVNT 3-DH1 2402MHz Ant1 No-Hopping Average



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



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

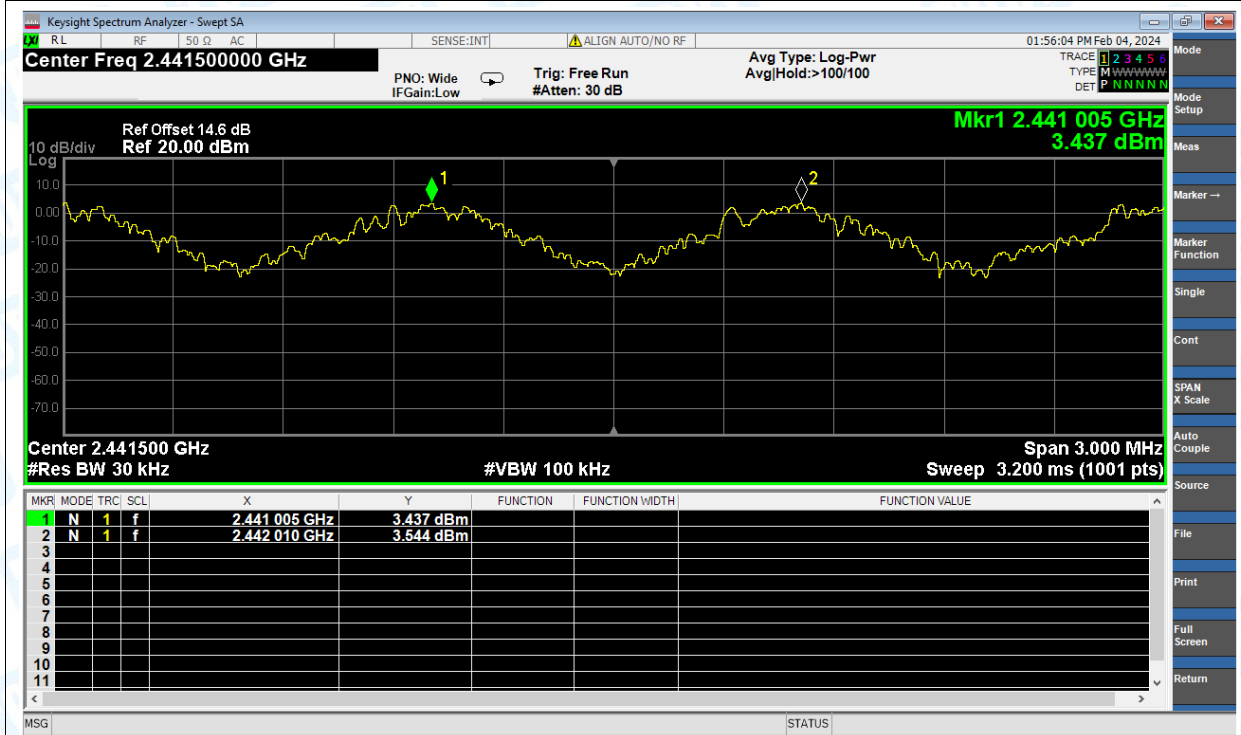


9. Carrier Frequencies Separation

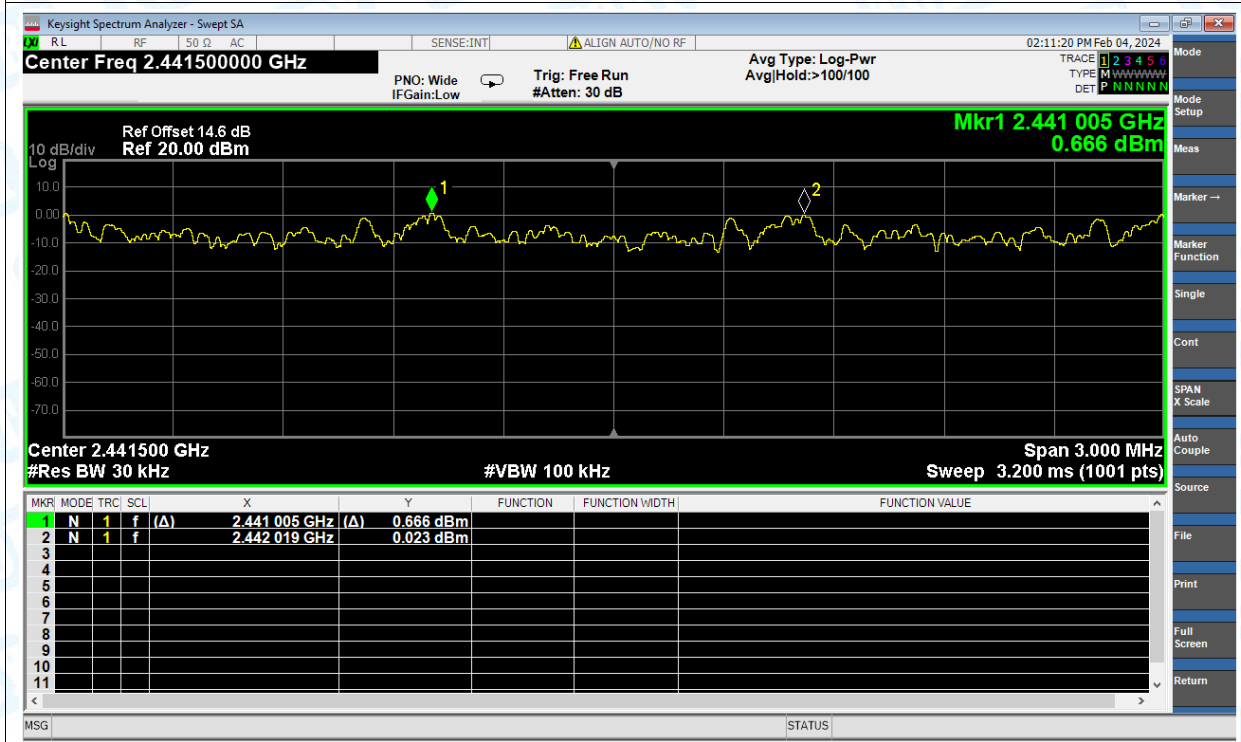
Condition	Mode	Antenna	Hopping Freq1 (MHz)	Hopping Freq2 (MHz)	HFS (MHz)	Limit (MHz)	Verdict
NVNT	1-DH1	Ant1	2441.005	2442.01	1.005	0.607	Pass
NVNT	2-DH1	Ant1	2441.005	2442.019	1.014	0.86	Pass
NVNT	3-DH1	Ant1	2440.972	2441.986	1.014	0.847	Pass

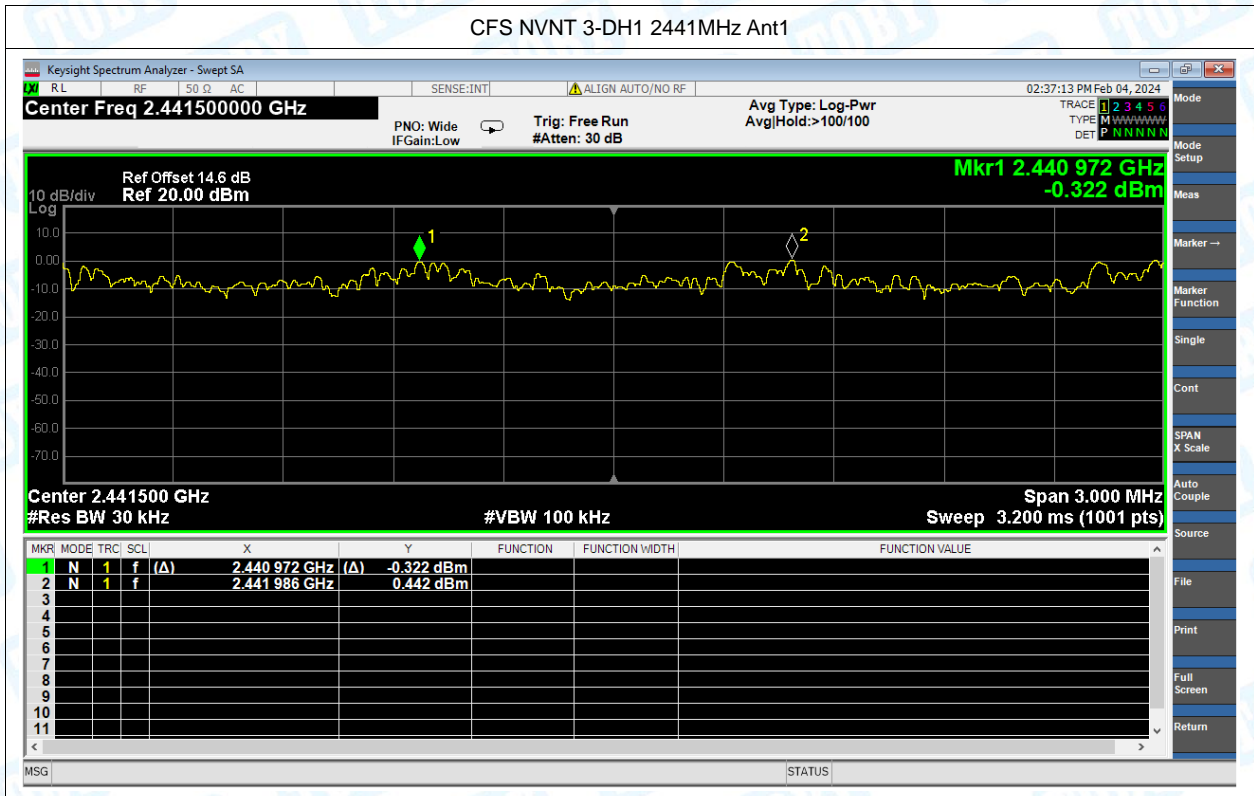
Test Graphs

CFS NVNT 1-DH1 2441MHz Ant1



CFS NVNT 2-DH1 2441MHz Ant1



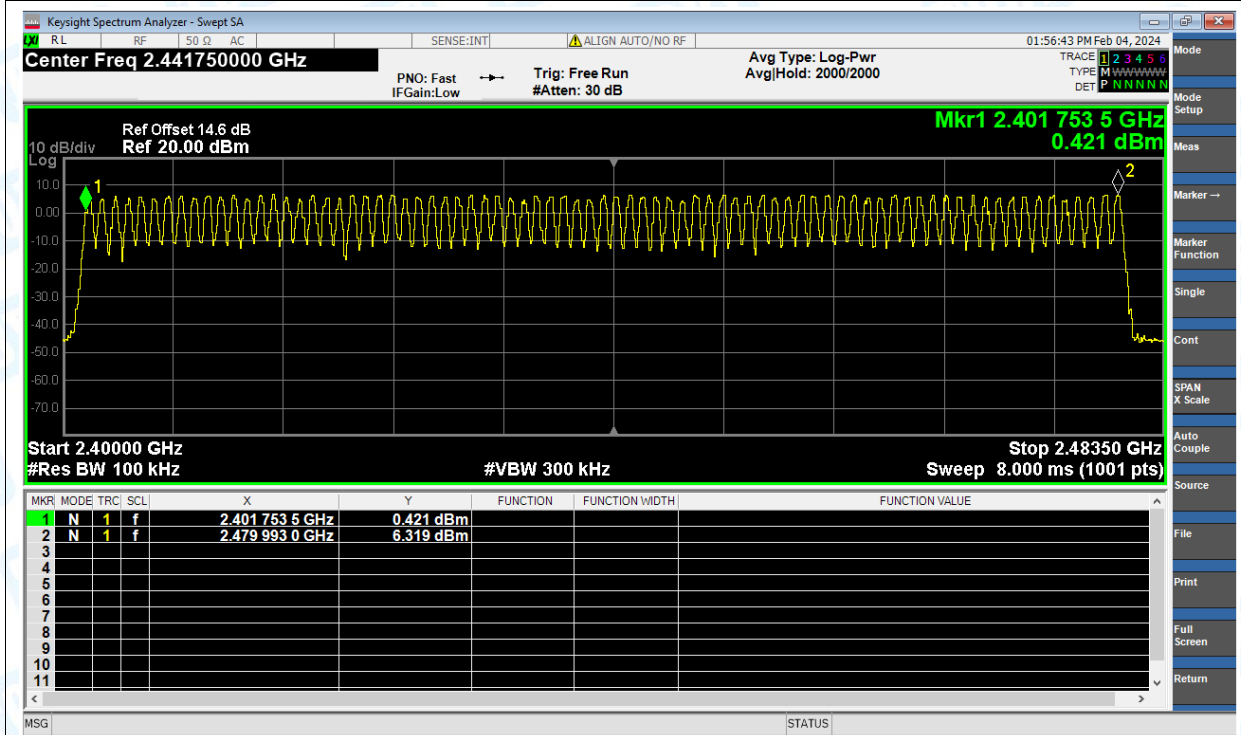


10.Number of Hopping Channel

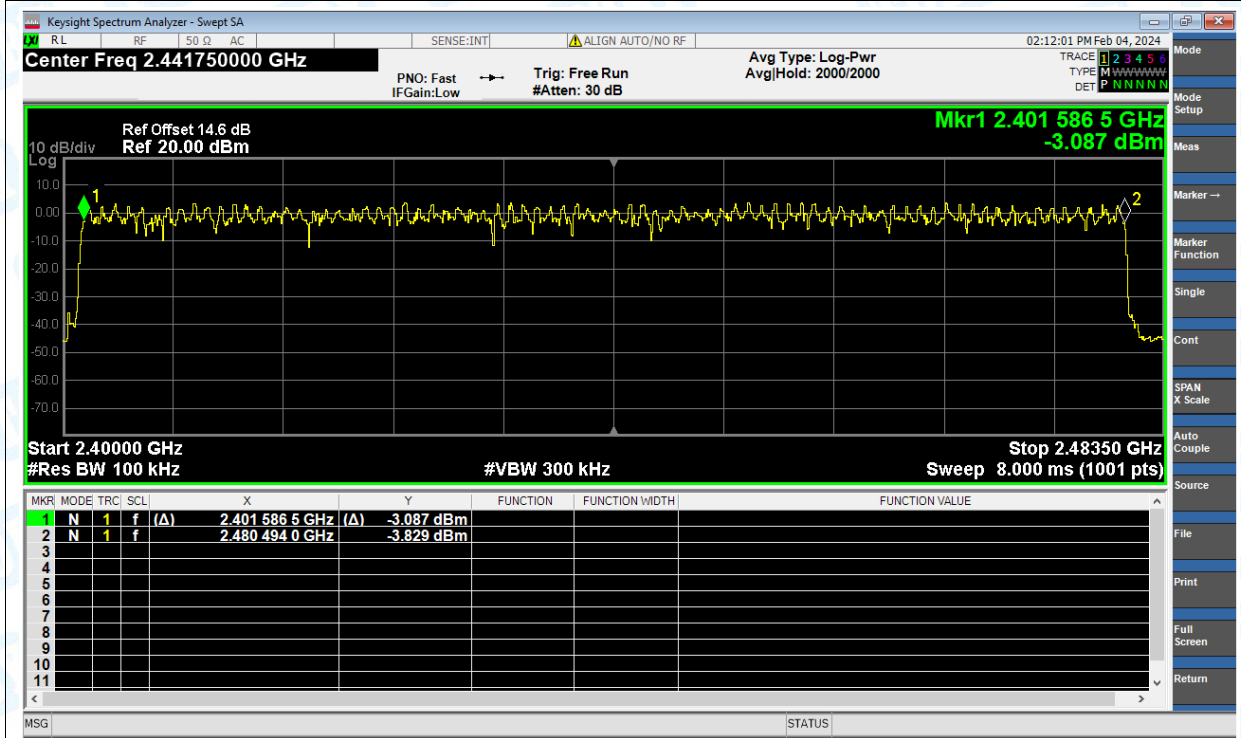
Condition	Mode	Antenna	Hopping Number	Limit	Verdict
NVNT	1-DH1	Ant1	79	15	Pass
NVNT	2-DH1	Ant1	79	15	Pass
NVNT	3-DH1	Ant1	79	15	Pass

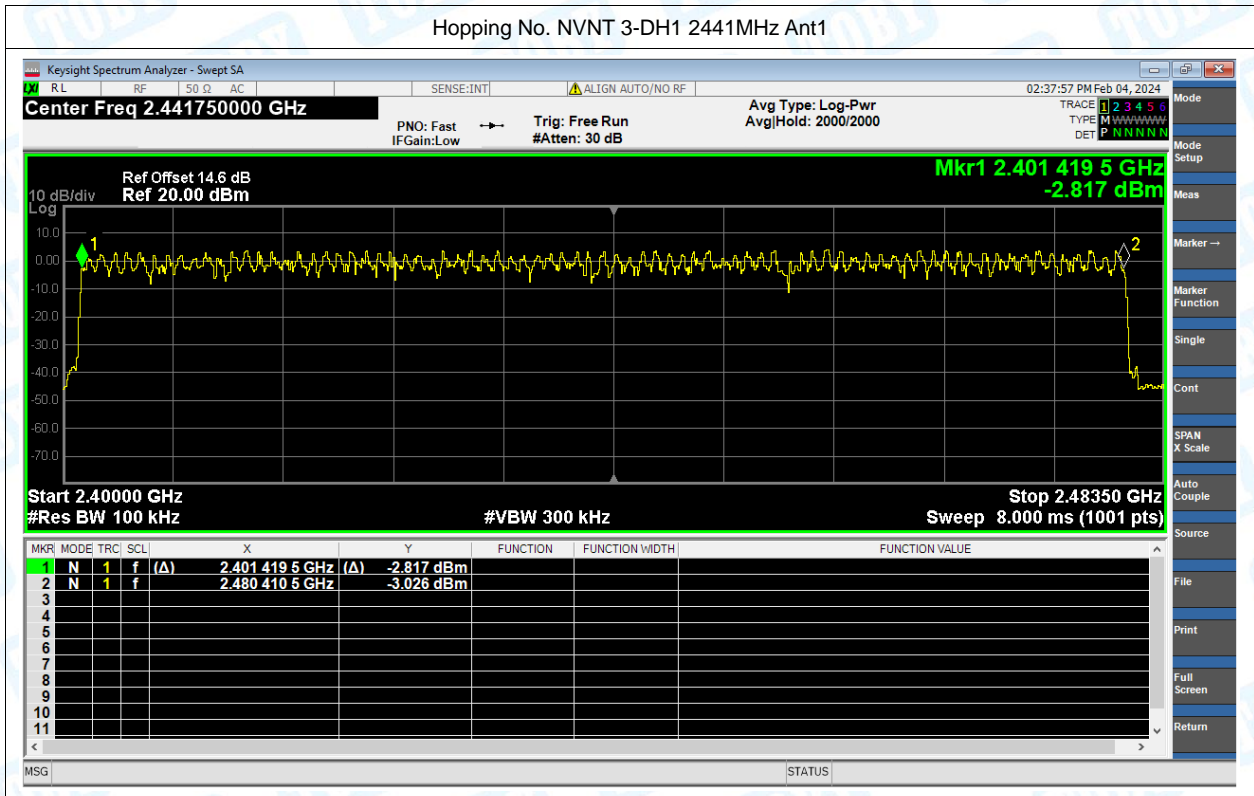
Test Graphs

Hopping No. NVNT 1-DH1 2441MHz Ant1



Hopping No. NVNT 2-DH1 2441MHz Ant1



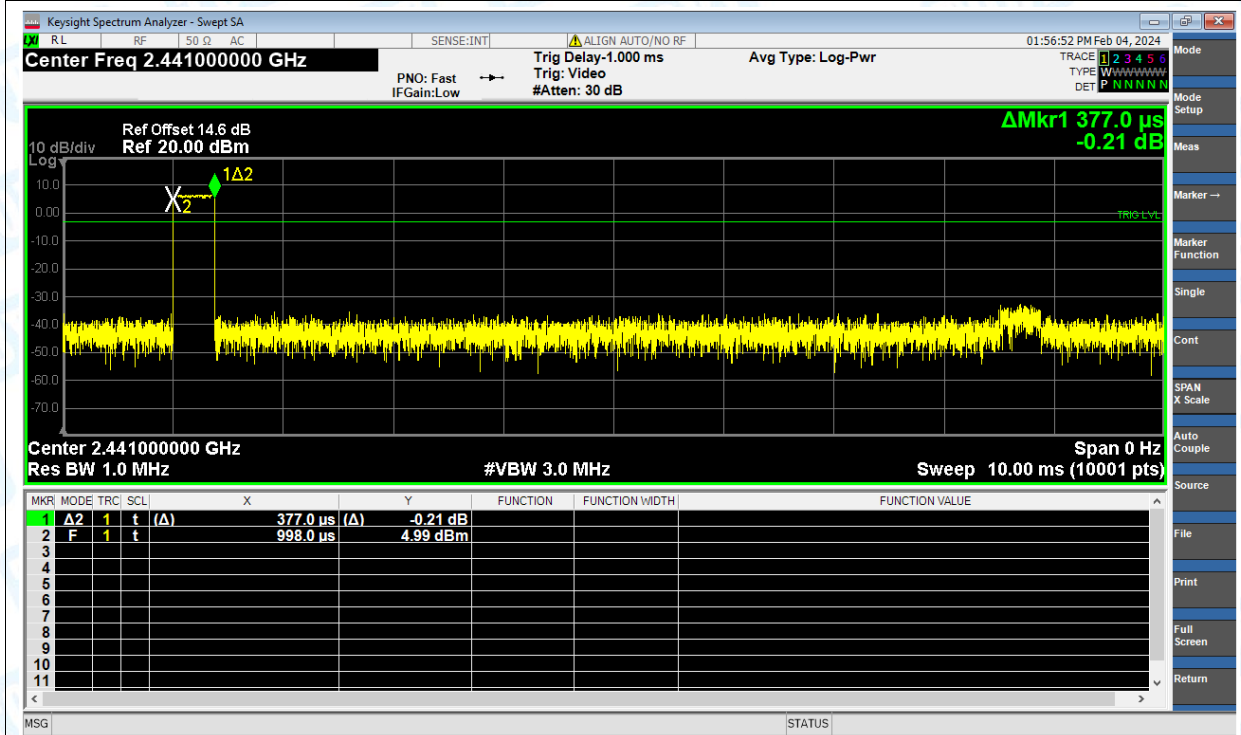


11.Dwell Time

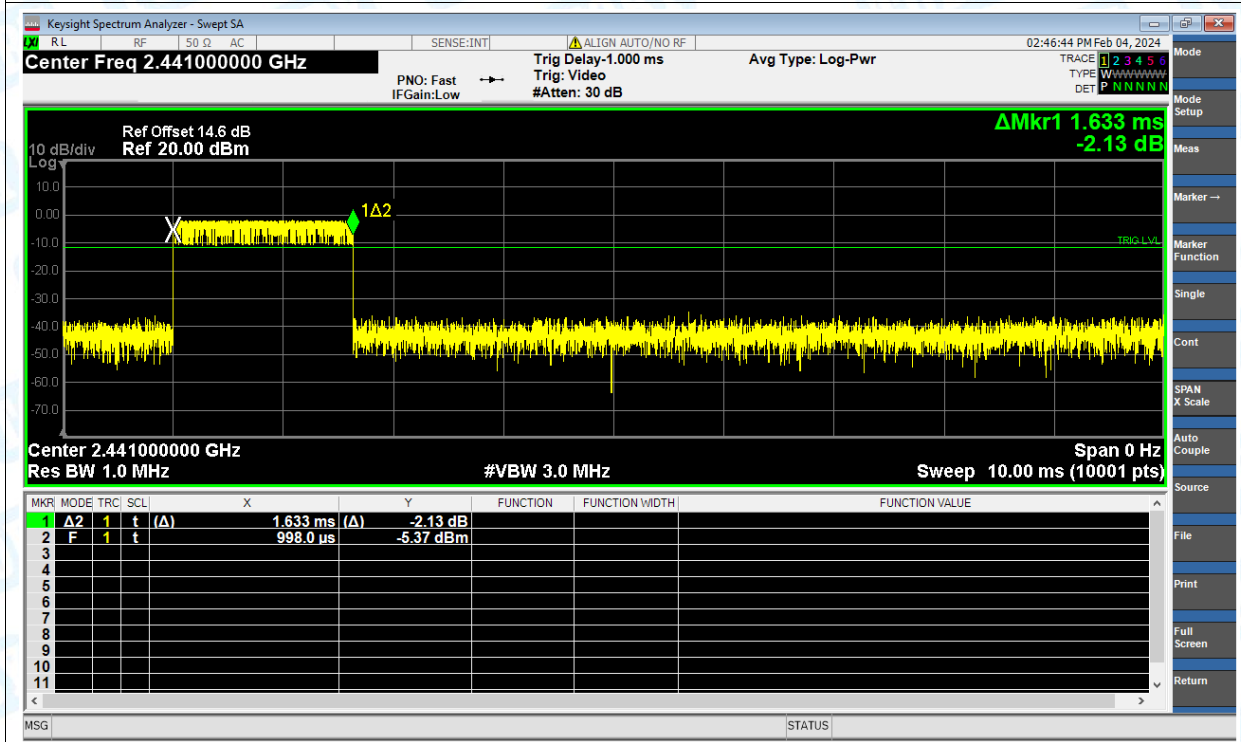
Condition	Mode	Frequency (MHz)	Antenna	Pulse Time (ms)	Total Dwell Time (ms)	Period Time (ms)	Limit (ms)	Verdict
NVNT	1-DH1	2441	Ant1	0.377	120.64	31600	400	Pass
NVNT	1-DH3	2441	Ant1	1.633	261.28	31600	400	Pass
NVNT	1-DH5	2441	Ant1	2.881	307.307	31600	400	Pass
NVNT	2-DH1	2441	Ant1	0.389	124.48	31600	400	Pass
NVNT	2-DH3	2441	Ant1	1.641	262.56	31600	400	Pass
NVNT	2-DH5	2441	Ant1	2.889	308.16	31600	400	Pass
NVNT	3-DH1	2441	Ant1	0.388	124.16	31600	400	Pass
NVNT	3-DH3	2441	Ant1	1.639	262.24	31600	400	Pass
NVNT	3-DH5	2441	Ant1	2.891	308.373	31600	400	Pass

Test Graphs

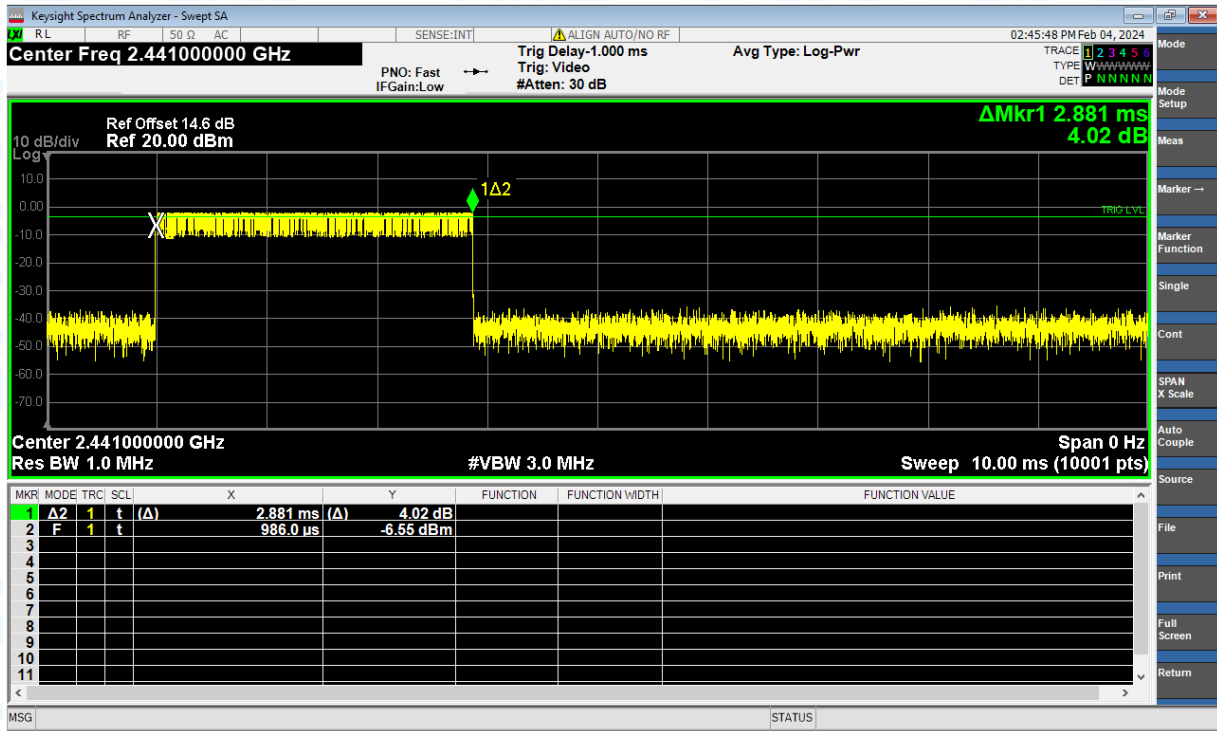
Dwell NVNT 1-DH1 2441MHz Ant1



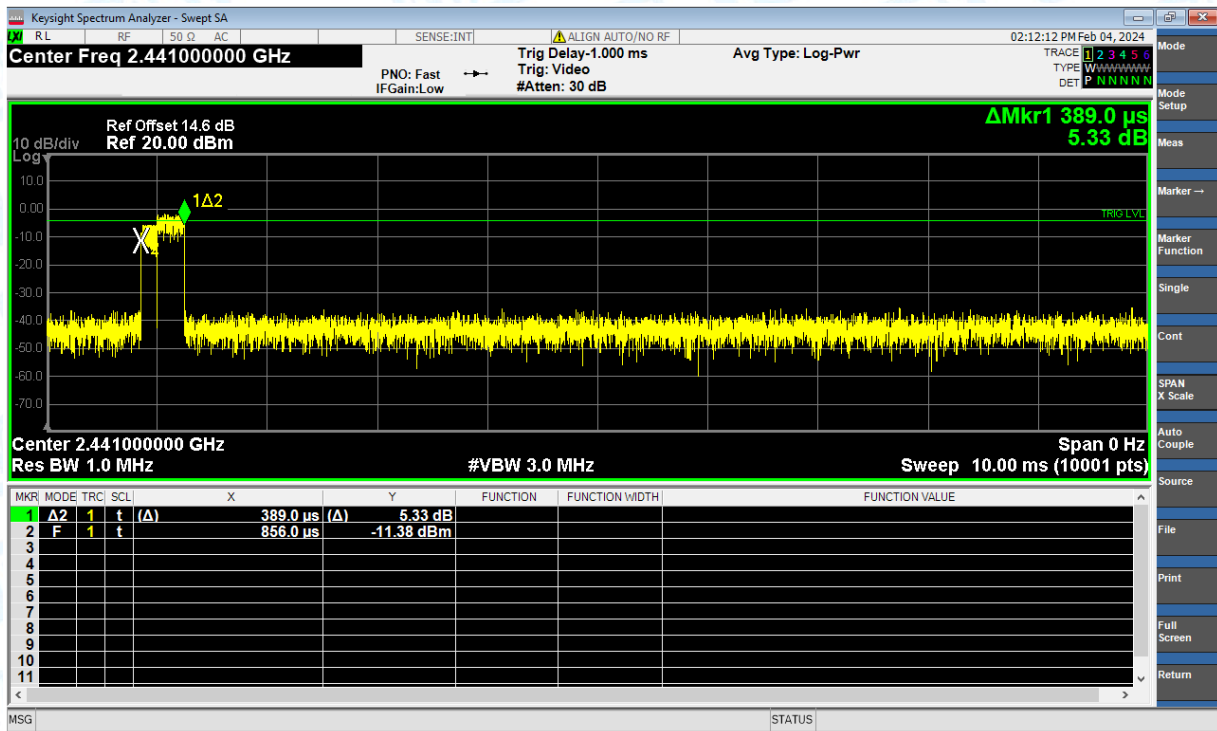
Dwell NVNT 1-DH3 2441MHz Ant1



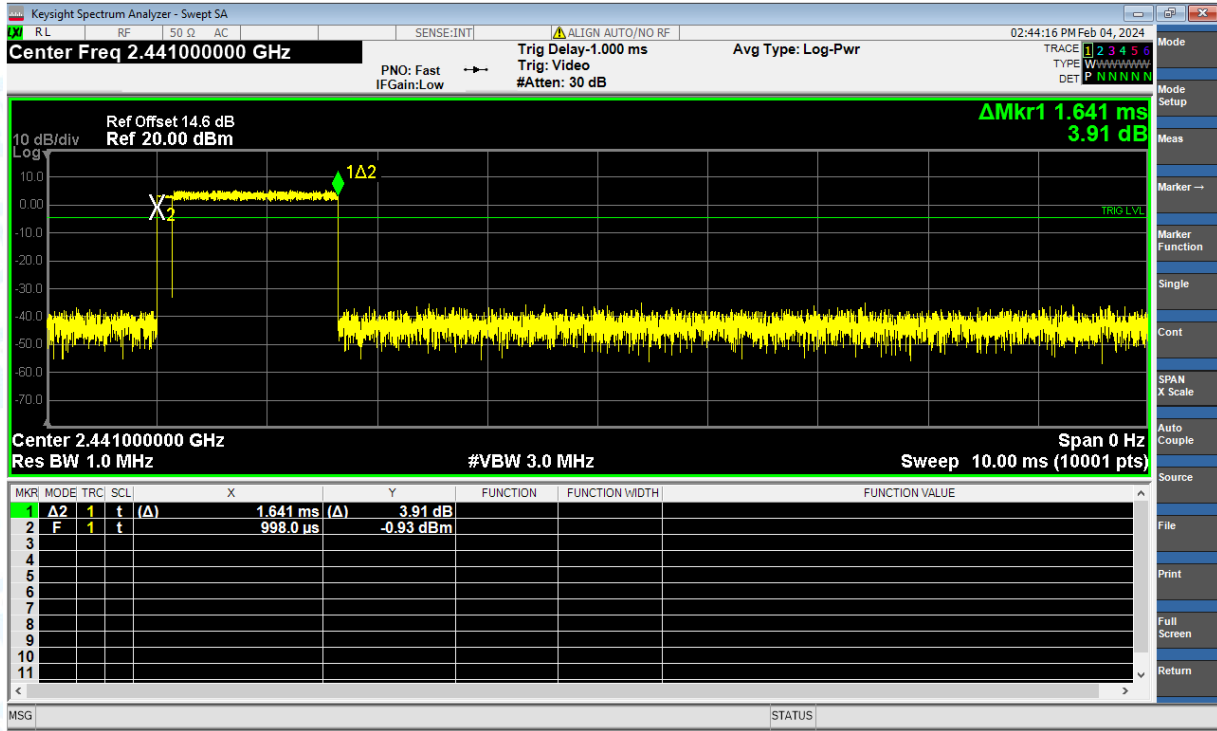
Dwell NVNT 1-DH5 2441MHz Ant1



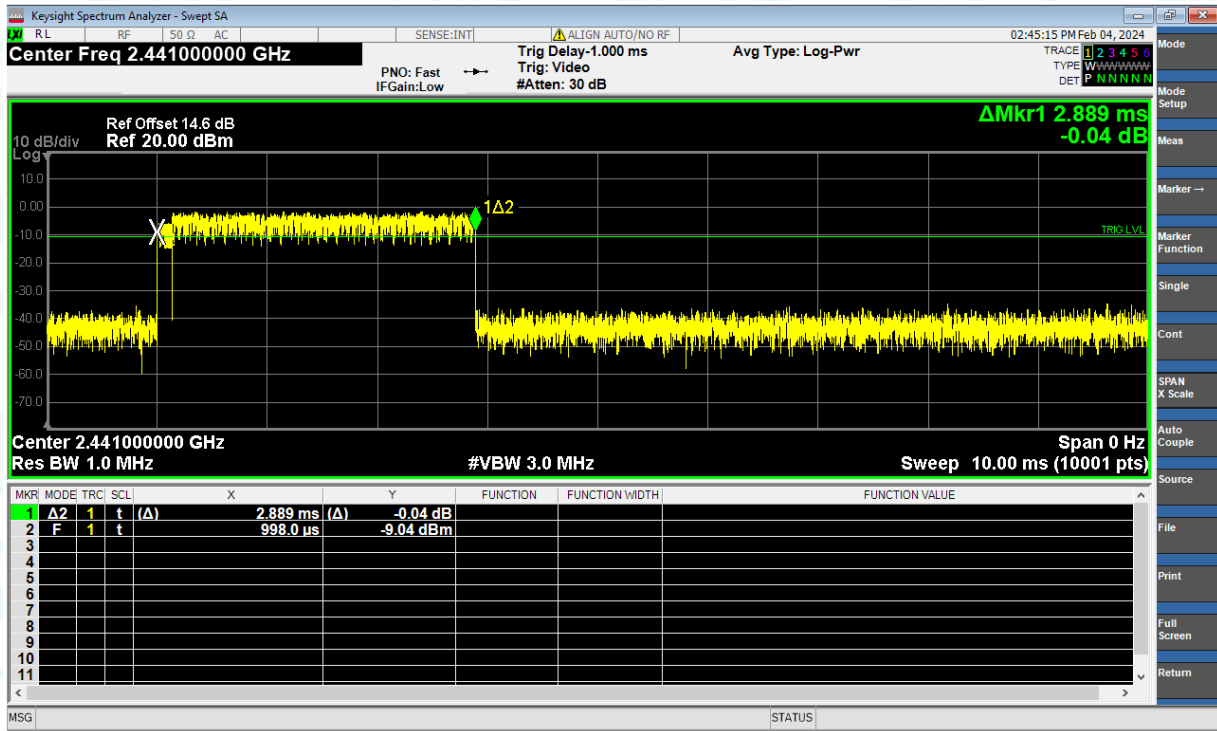
Dwell NVNT 2-DH1 2441MHz Ant1



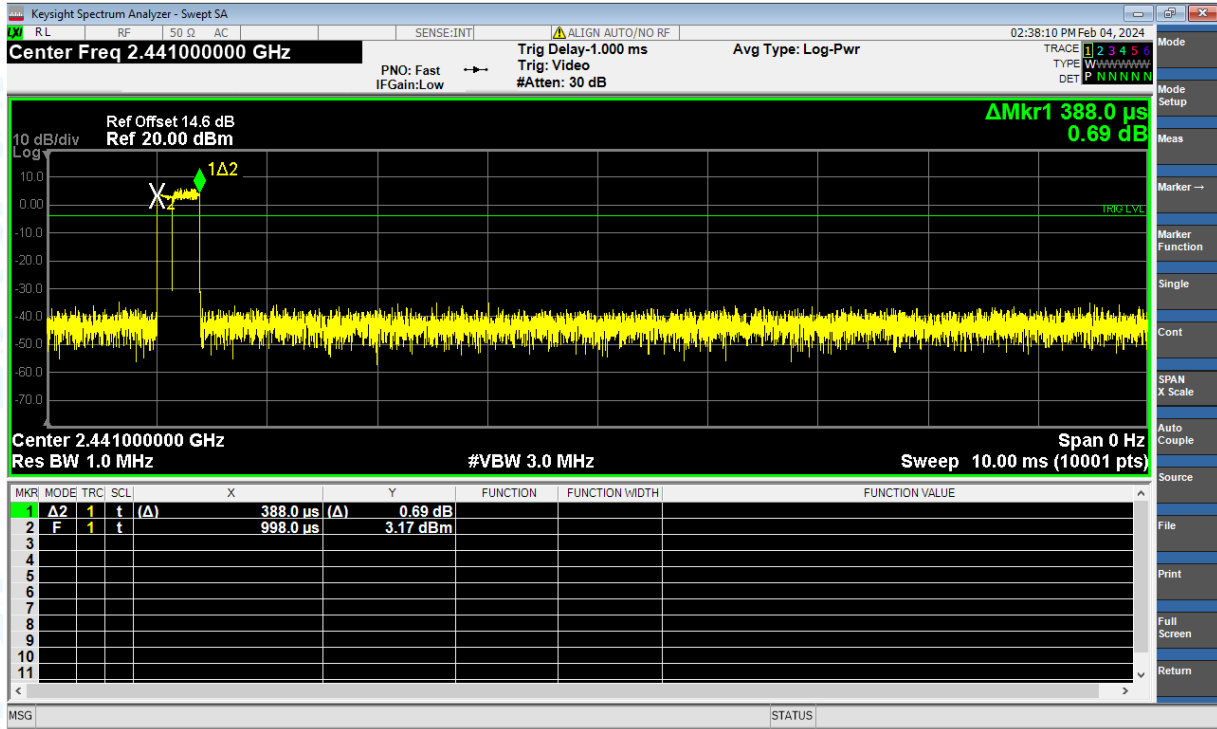
Dwell NVNT 2-DH3 2441MHz Ant1



Dwell NVNT 2-DH5 2441MHz Ant1



Dwell NVNT 3-DH1 2441MHz Ant1



Dwell NVNT 3-DH3 2441MHz Ant1

