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

General Description of EUT	
Product Name:	**Helmet Bluetooth Headset**
Test Model:	**X8**
Sample ID:	**HC-C-202410-0205-03-02#**
Environmental Conditions	
Temperature:	**22.0℃-25℃**
Relative Humidity:	**43%-55%**
Test Voltage:	**DC 3.7V**
Test Engineer:	**Rick Chen**
Note: For a more detailed features description, please refer to the report TBR-C-202410-0205-2 The report only show the worst case data.	

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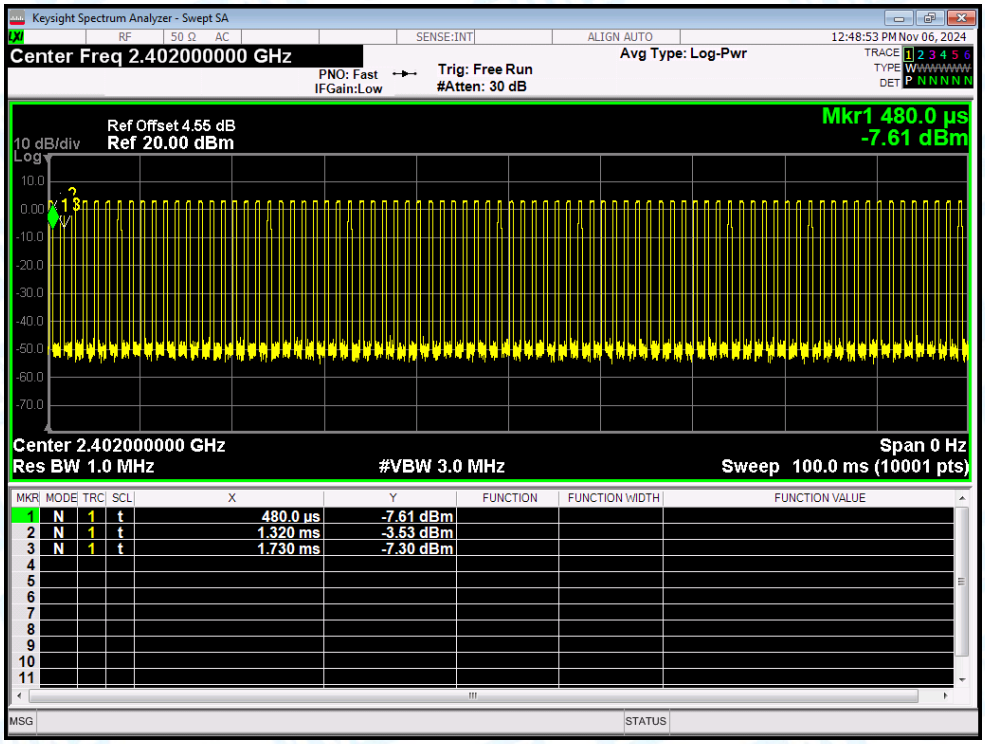
1. Duty Cycle

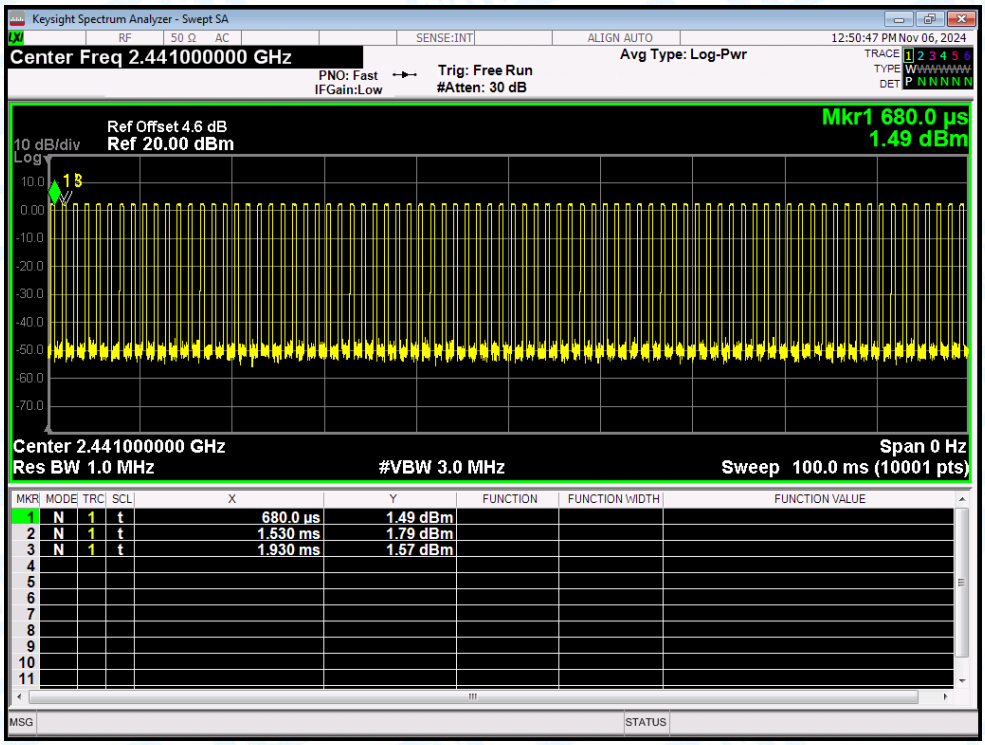
Condition	Mode	Frequency (MHz)	Antenna	Duty Cycle (%)	Correction Factor (dB)	1/T (kHz)
NVNT	1-DH1	2402	Ant1	32.8	4.84	2.44
NVNT	1-DH1	2441	Ant1	32	4.95	2.5
NVNT	1-DH1	2480	Ant1	32	4.95	2.5
NVNT	2-DH1	2402	Ant1	32.8	4.84	2.44
NVNT	2-DH1	2441	Ant1	32.8	4.84	2.44
NVNT	2-DH1	2480	Ant1	32.8	4.84	2.44
NVNT	3-DH1	2402	Ant1	32.8	4.84	2.44
NVNT	3-DH1	2441	Ant1	32.8	4.84	2.44
NVNT	3-DH1	2480	Ant1	33.6	4.74	2.38

Test Graphs

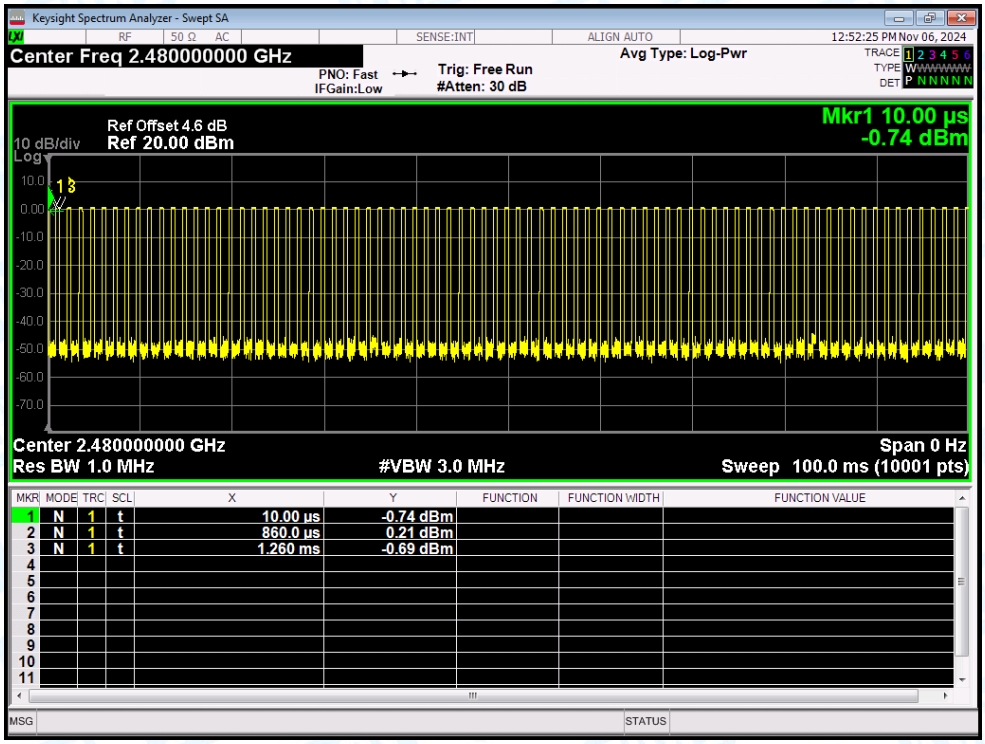
Duty Cycle NVNT 1-DH1 2402MHz Ant1



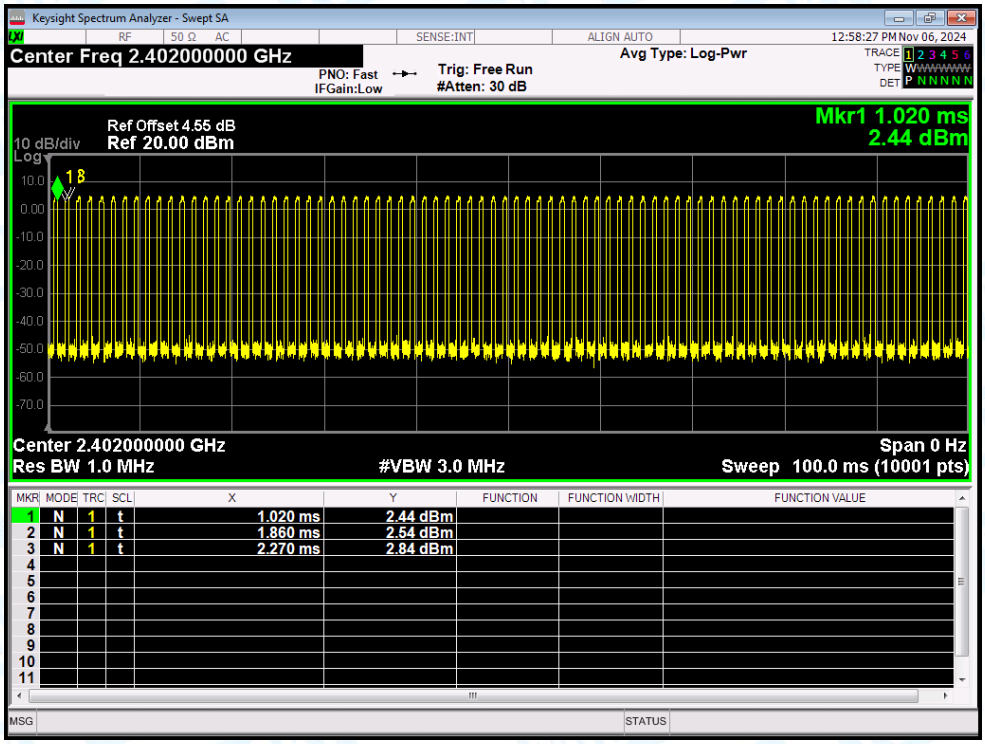
Duty Cycle NVNT 1-DH1 2441MHz Ant1



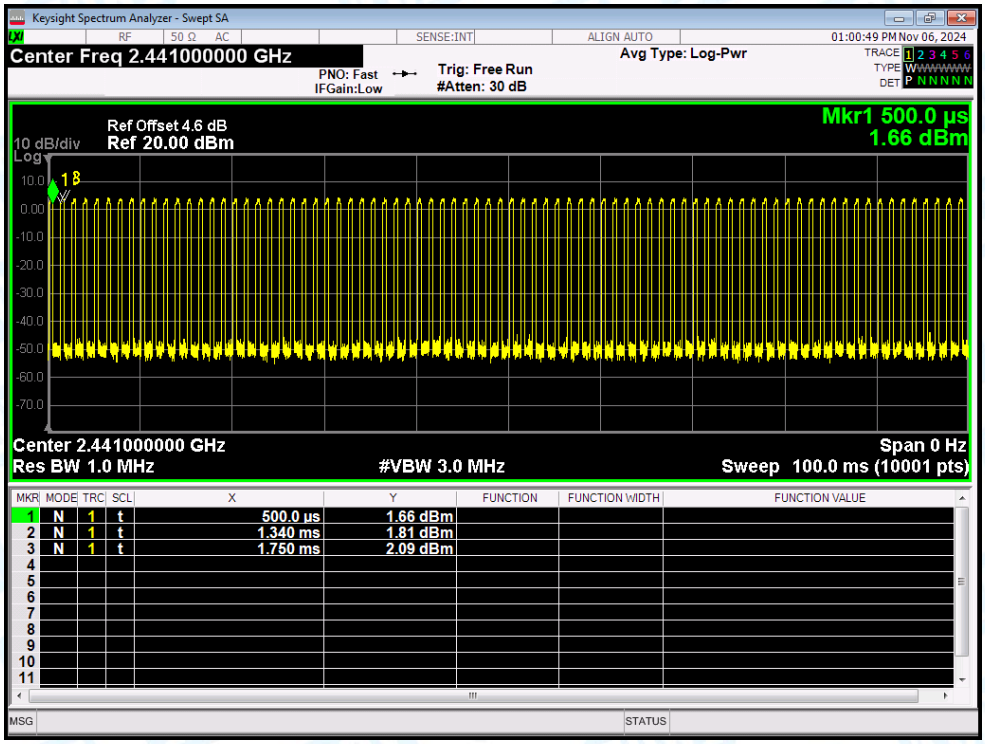
Duty Cycle NVNT 1-DH1 2480MHz Ant1



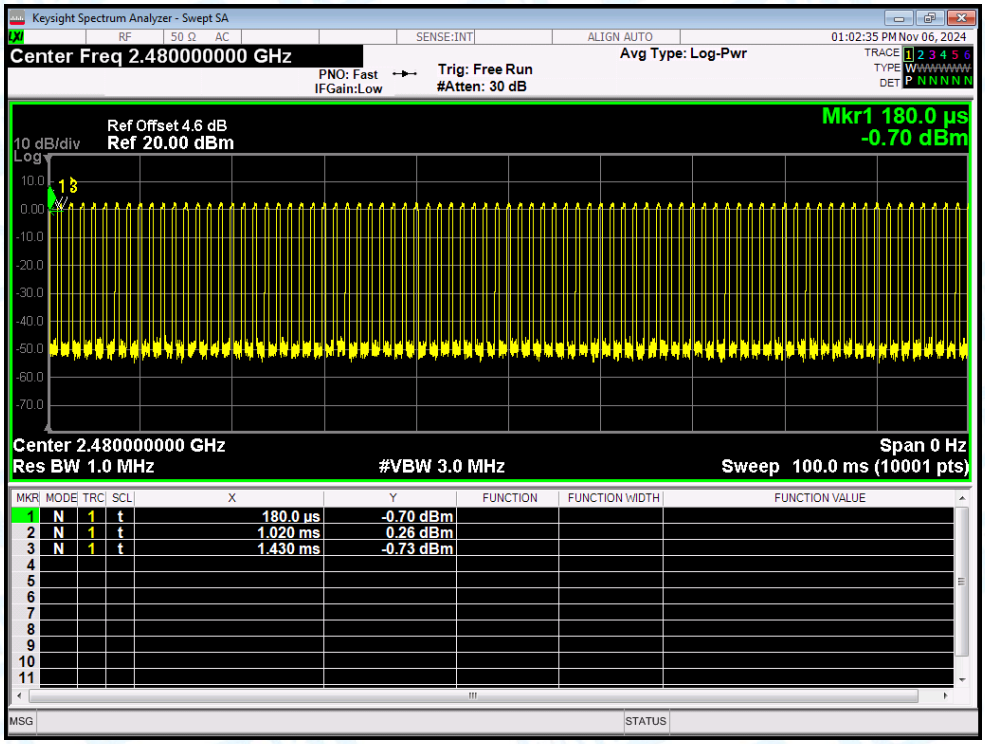
Duty Cycle NVNT 2-DH1 2402MHz Ant1



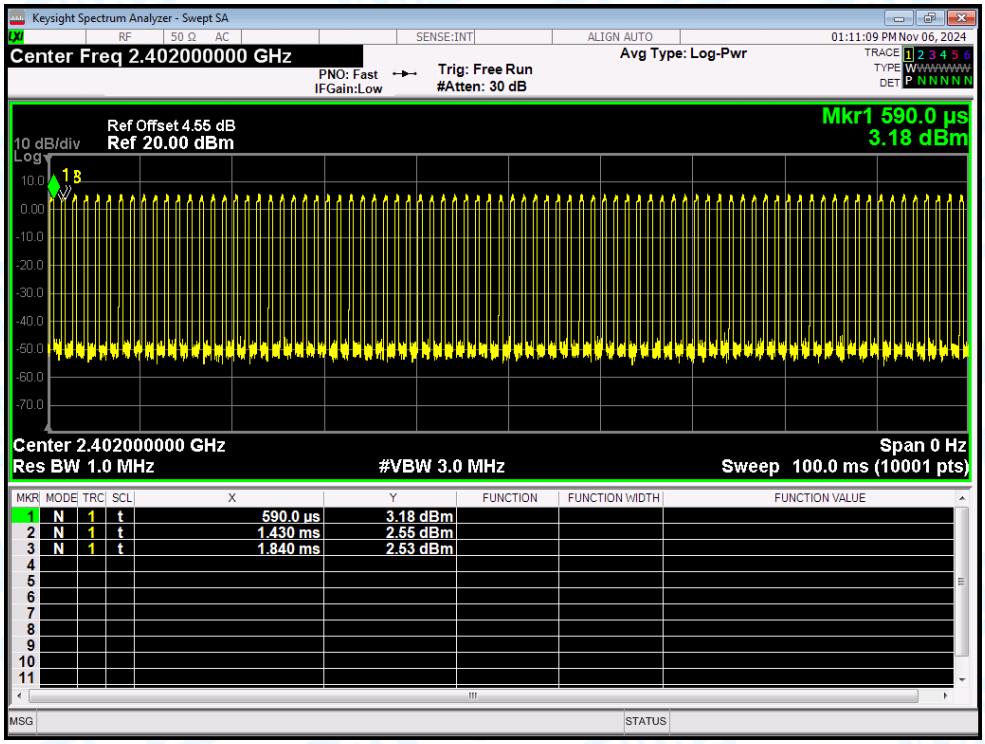
Duty Cycle NVNT 2-DH1 2441MHz Ant1



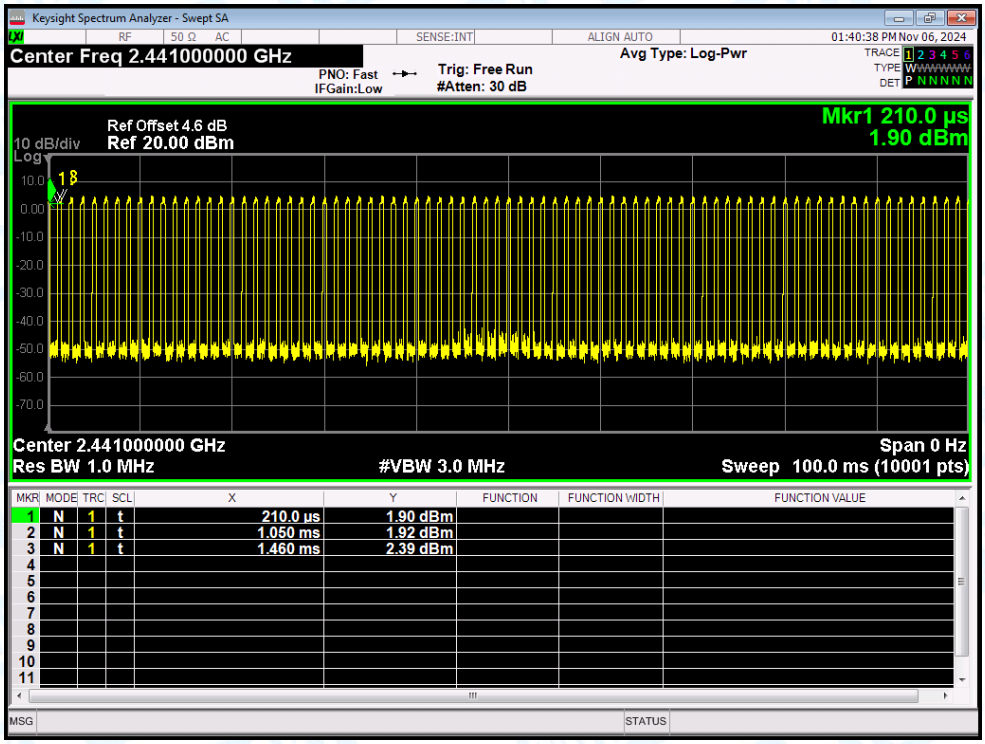
Duty Cycle NVNT 2-DH1 2480MHz Ant1



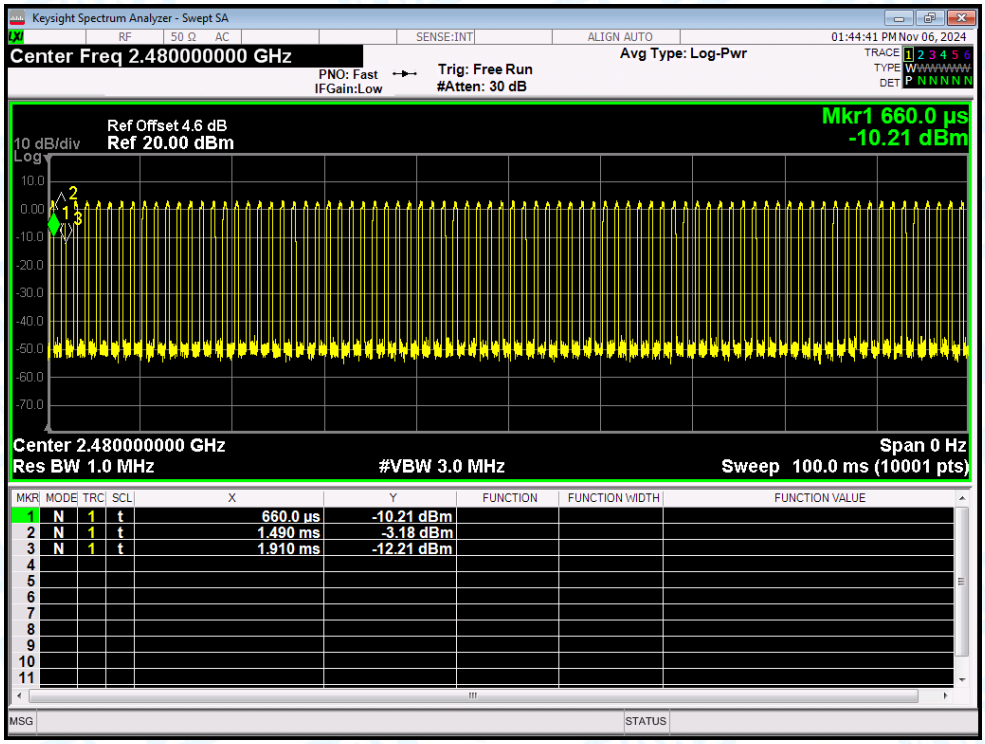
Duty Cycle NVNT 3-DH1 2402MHz Ant1



Duty Cycle NVNT 3-DH1 2441MHz Ant1



Duty Cycle NVNT 3-DH1 2480MHz Ant1

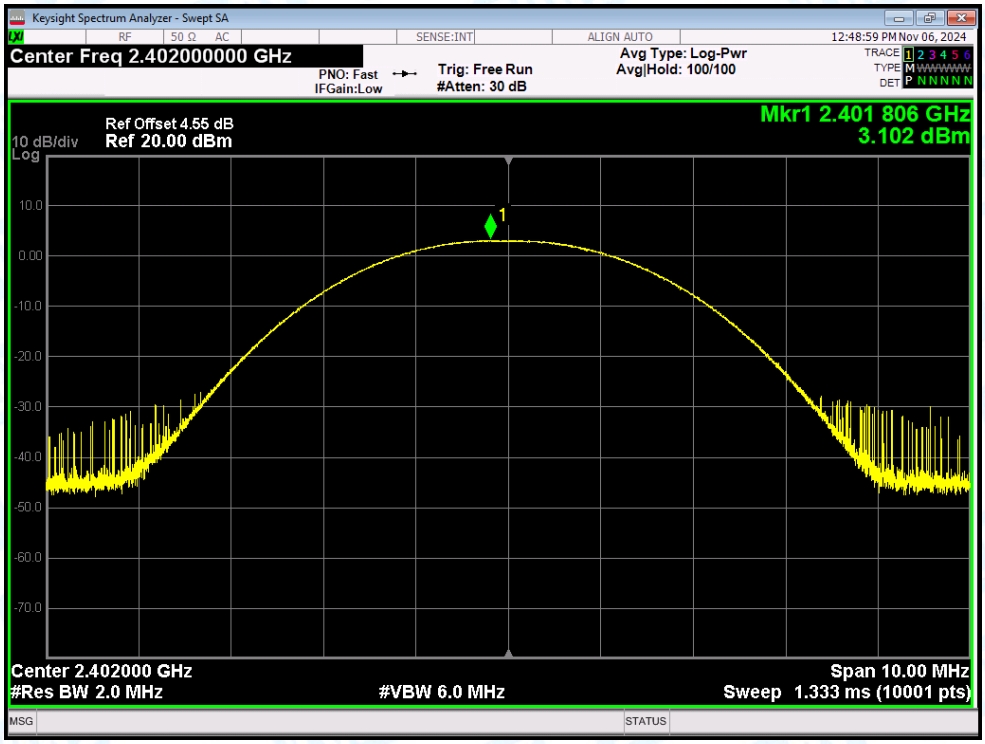


2. Maximum Conducted Output Power

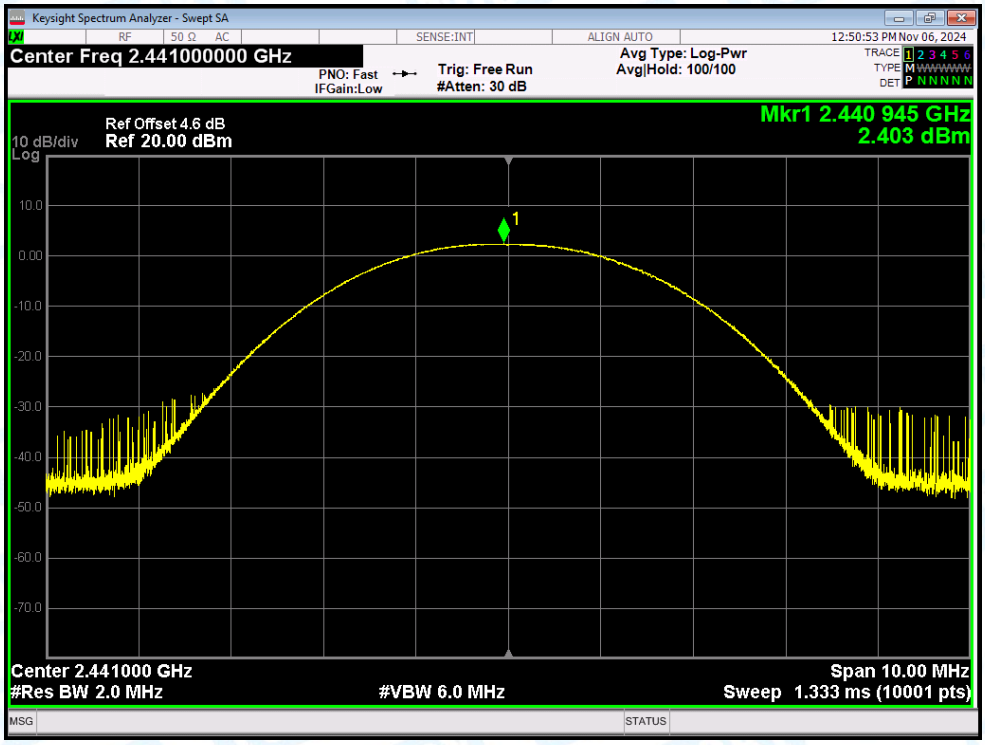
Condition	Mode	Frequency (MHz)	Antenna	Conducted Power (dBm)	Limit (dBm)	Verdict
NVNT	1-DH1	2402	Ant1	3.102	21	Pass
NVNT	1-DH1	2441	Ant1	2.403	21	Pass
NVNT	1-DH1	2480	Ant1	0.783	21	Pass
NVNT	2-DH1	2402	Ant1	5.178	21	Pass
NVNT	2-DH1	2441	Ant1	4.477	21	Pass
NVNT	2-DH1	2480	Ant1	2.857	21	Pass
NVNT	3-DH1	2402	Ant1	5.884	21	Pass
NVNT	3-DH1	2441	Ant1	5.187	21	Pass
NVNT	3-DH1	2480	Ant1	3.651	21	Pass

Test Graphs

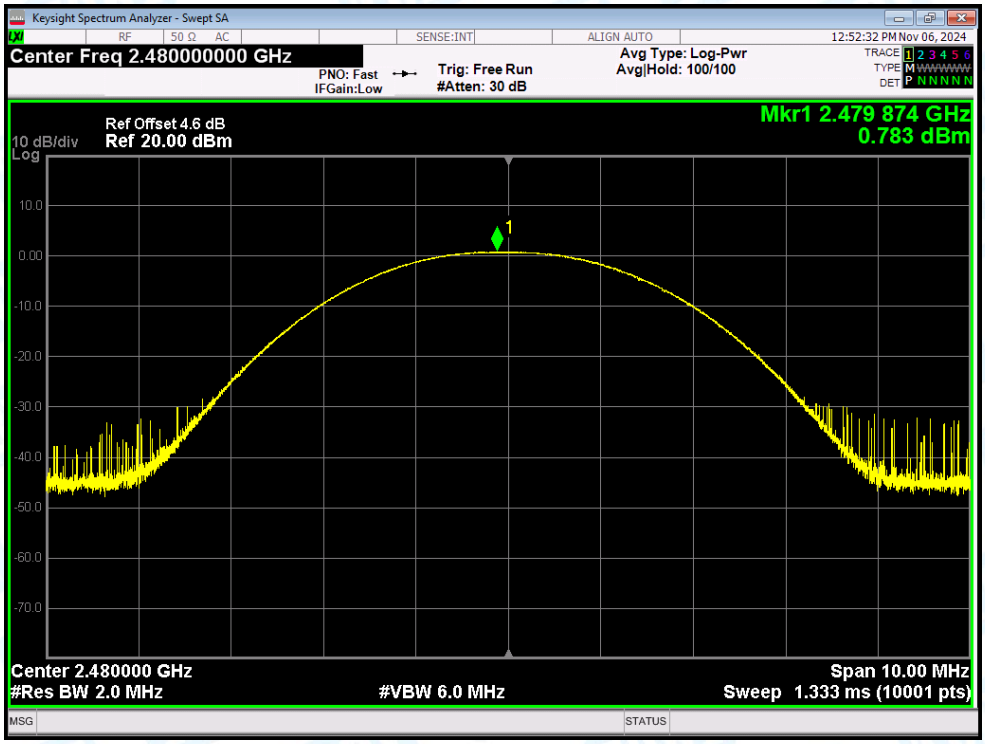
Power NVNT 1-DH1 2402MHz Ant1



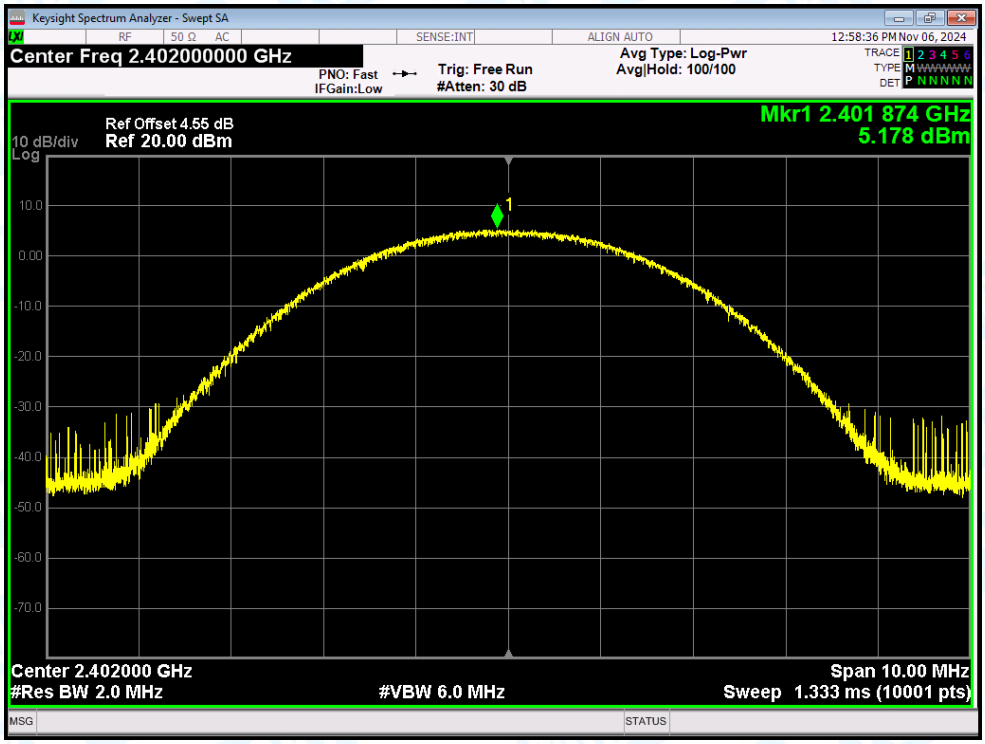
Power NVNT 1-DH1 2441MHz Ant1



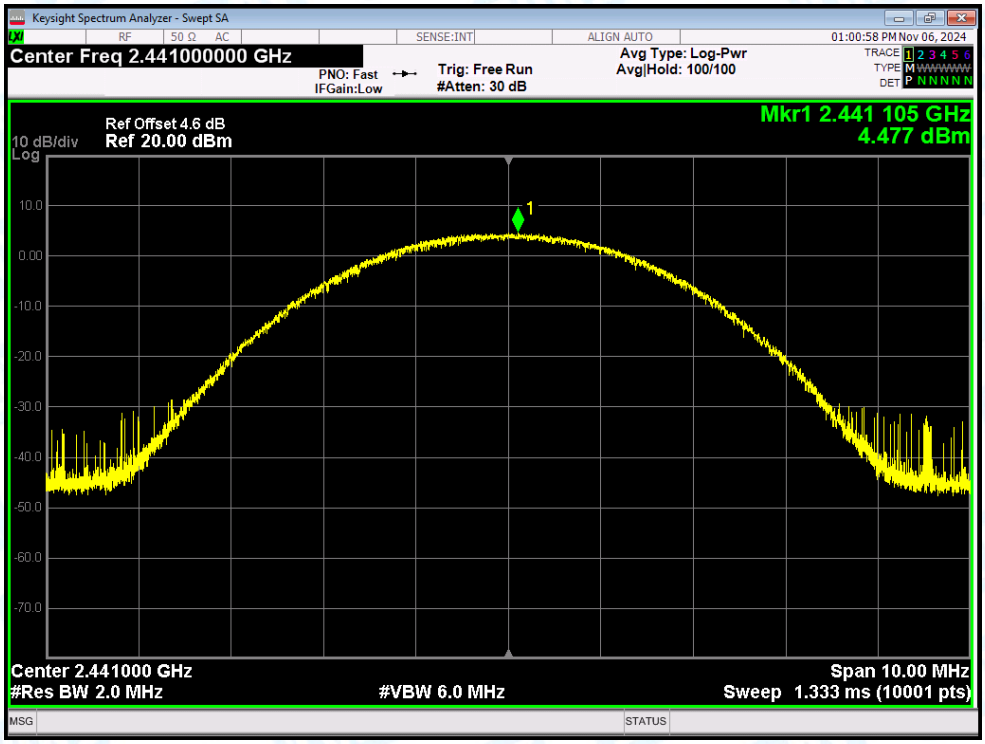
Power NVNT 1-DH1 2480MHz Ant1



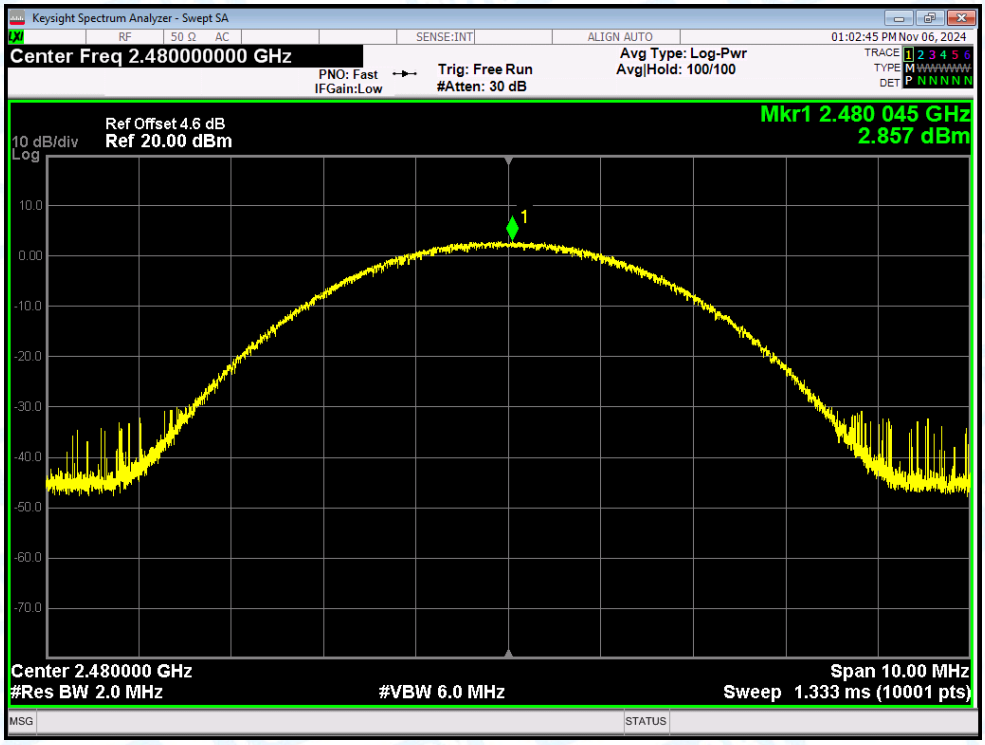
Power NVNT 2-DH1 2402MHz Ant1



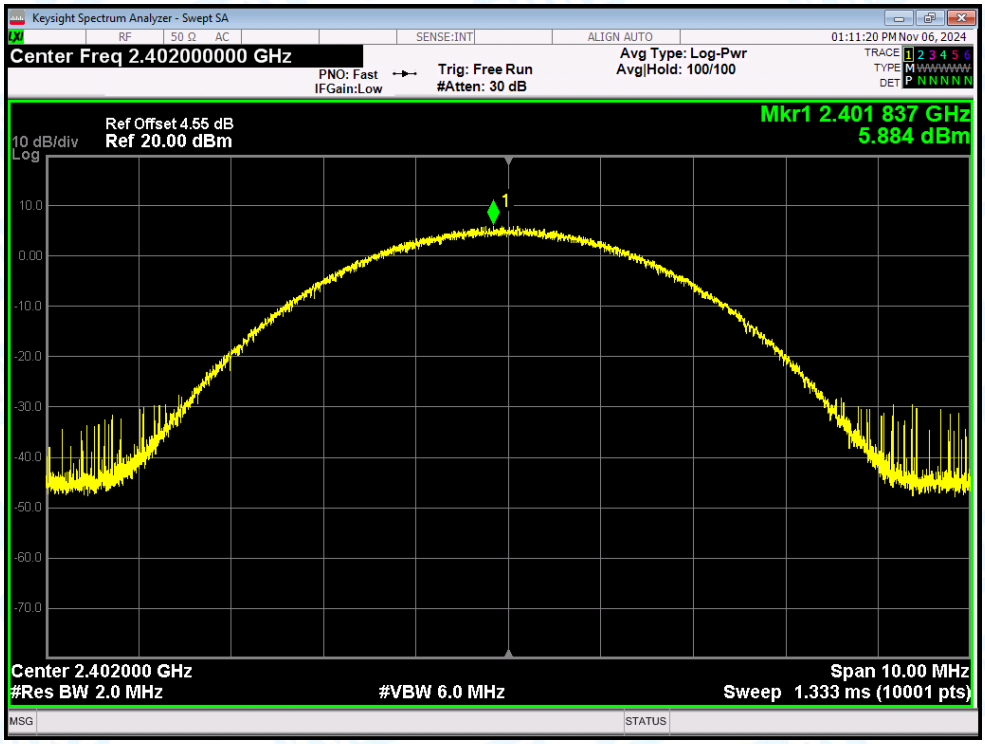
Power NVNT 2-DH1 2441MHz Ant1



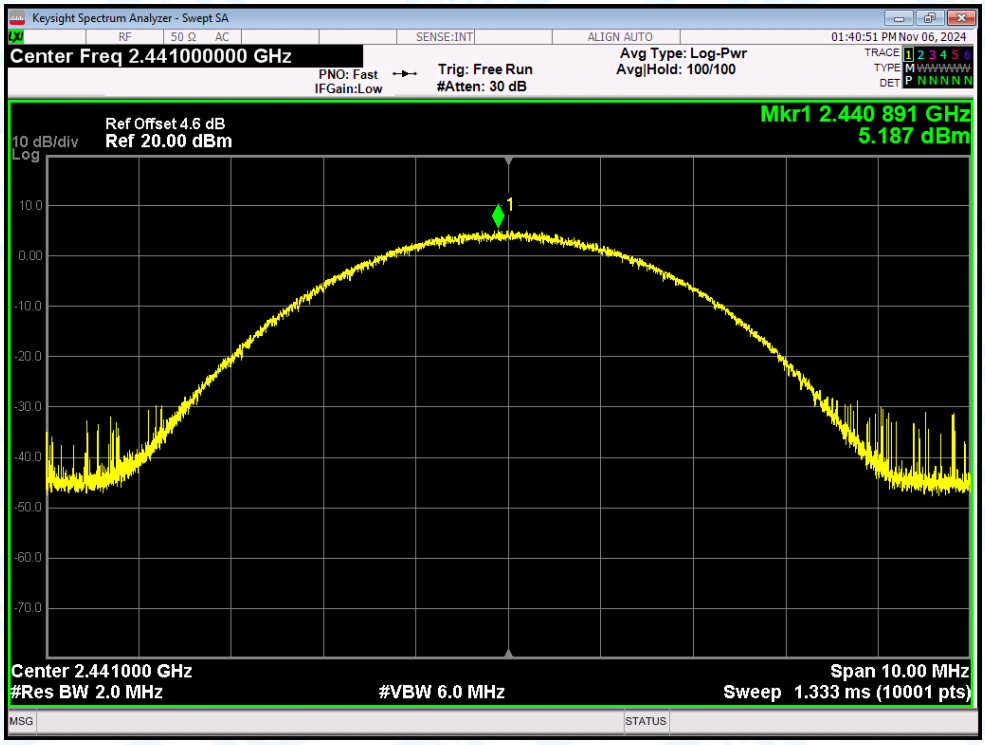
Power NVNT 2-DH1 2480MHz Ant1



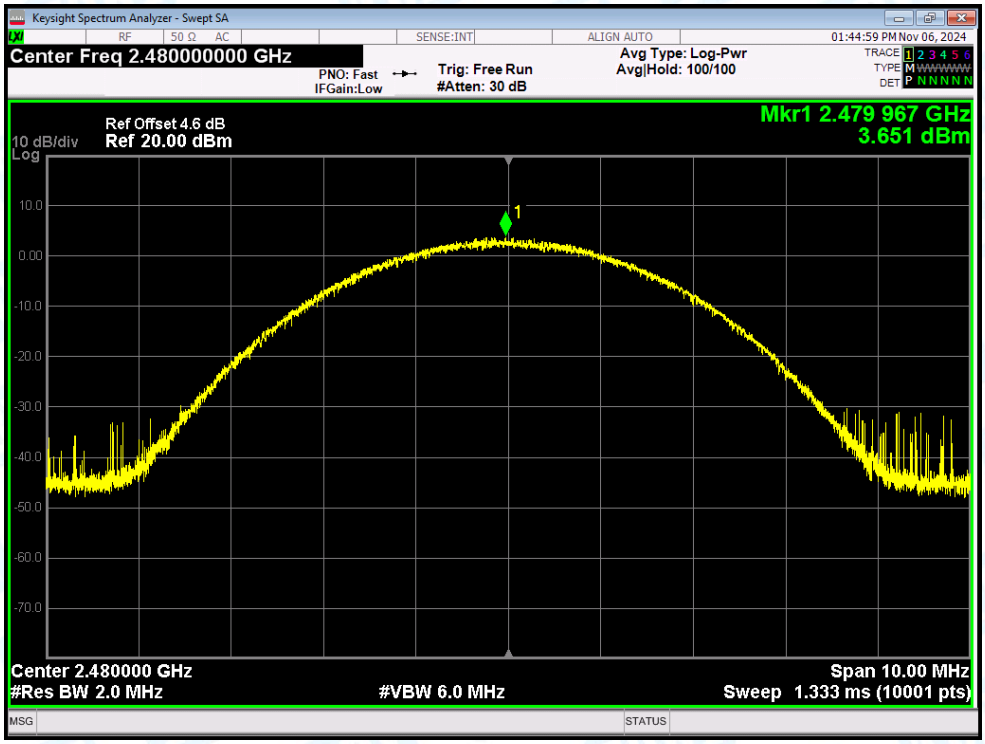
Power NVNT 3-DH1 2402MHz Ant1



Power NVNT 3-DH1 2441MHz Ant1



Power NVNT 3-DH1 2480MHz Ant1

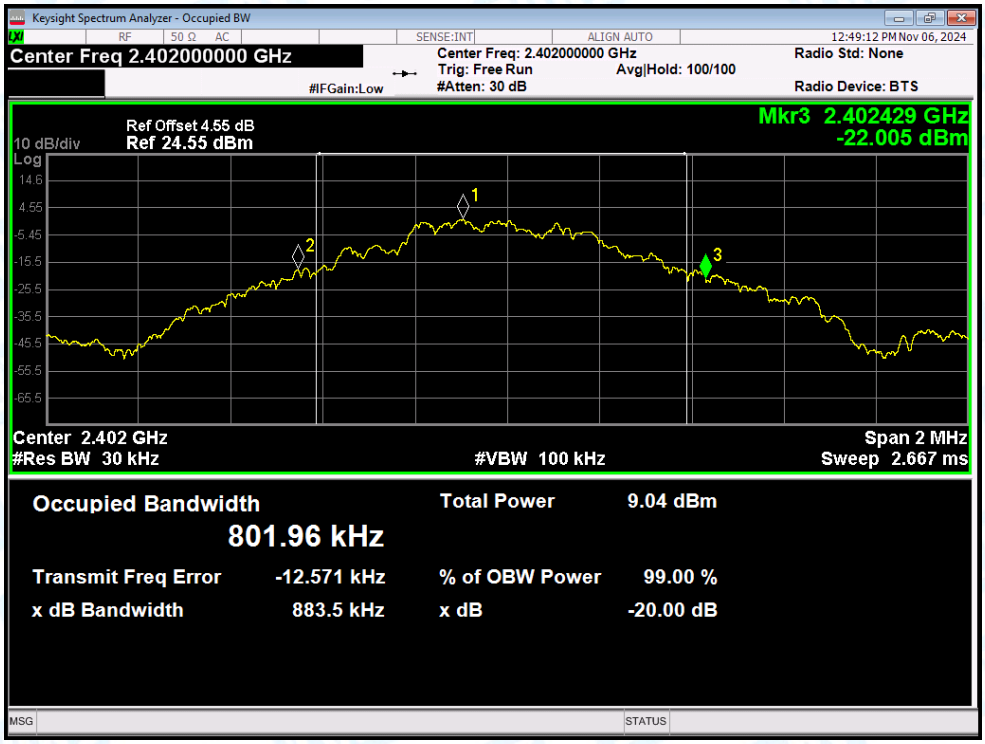


3. -20dB Bandwidth

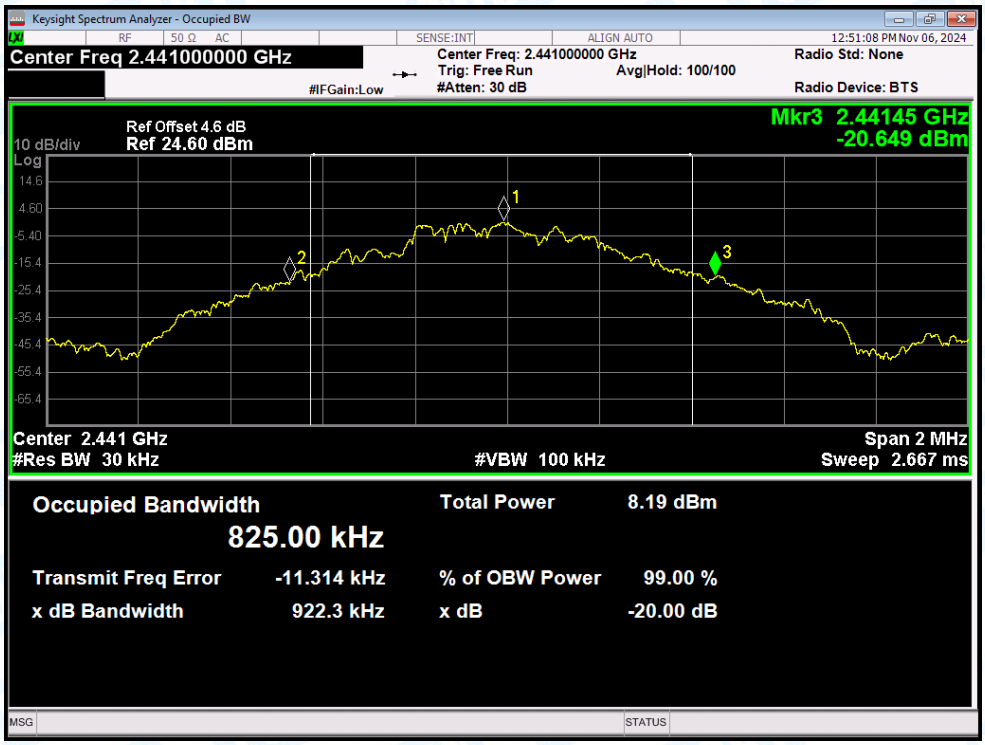
Condition	Mode	Frequency (MHz)	Antenna	-20 dB Bandwidth (MHz)	Limit -20 dB Bandwidth (MHz)	Verdict
NVNT	1-DH1	2402	Ant1	0.88	0	Pass
NVNT	1-DH1	2441	Ant1	0.92	0	Pass
NVNT	1-DH1	2480	Ant1	0.93	0	Pass
NVNT	2-DH1	2402	Ant1	1.25	0	Pass
NVNT	2-DH1	2441	Ant1	1.29	0	Pass
NVNT	2-DH1	2480	Ant1	1.28	0	Pass
NVNT	3-DH1	2402	Ant1	1.24	0	Pass
NVNT	3-DH1	2441	Ant1	1.22	0	Pass
NVNT	3-DH1	2480	Ant1	1.23	0	Pass

Test Graphs

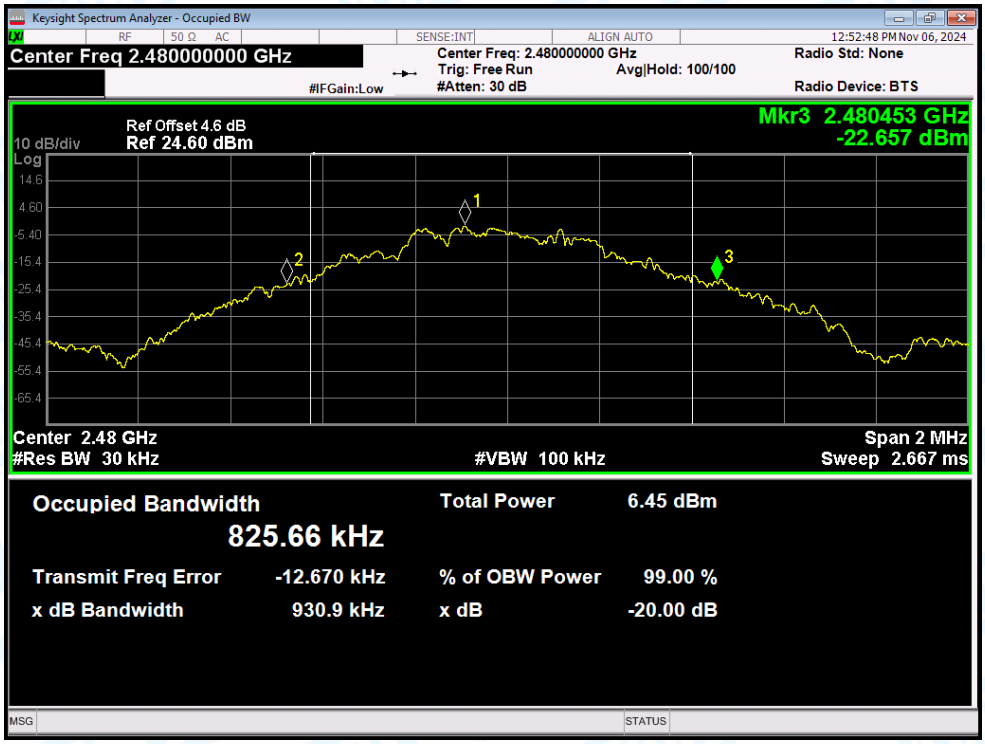
-20dB Bandwidth NVNT 1-DH1 2402MHz Ant1



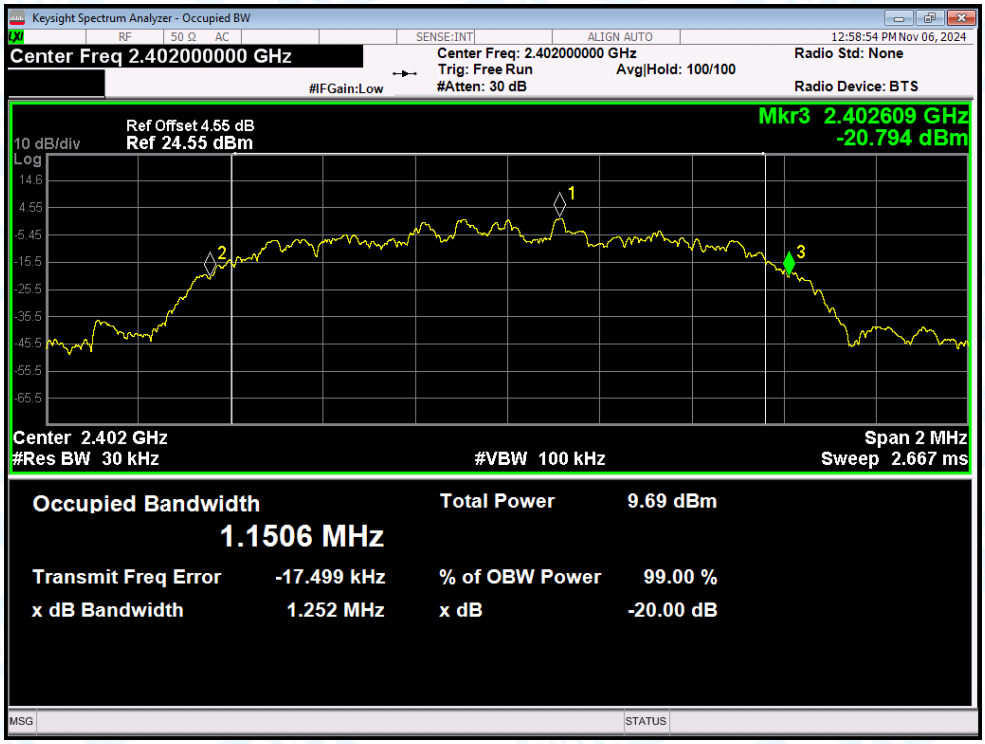
-20dB Bandwidth NVNT 1-DH1 2441MHz Ant1



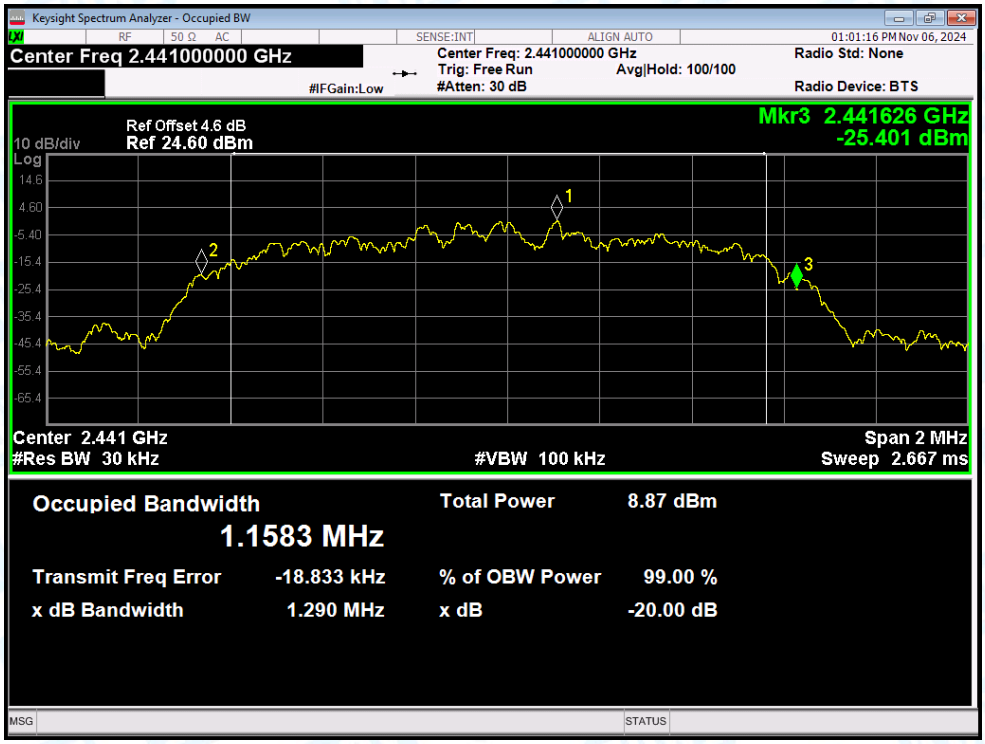
-20dB Bandwidth NVNT 1-DH1 2480MHz Ant1



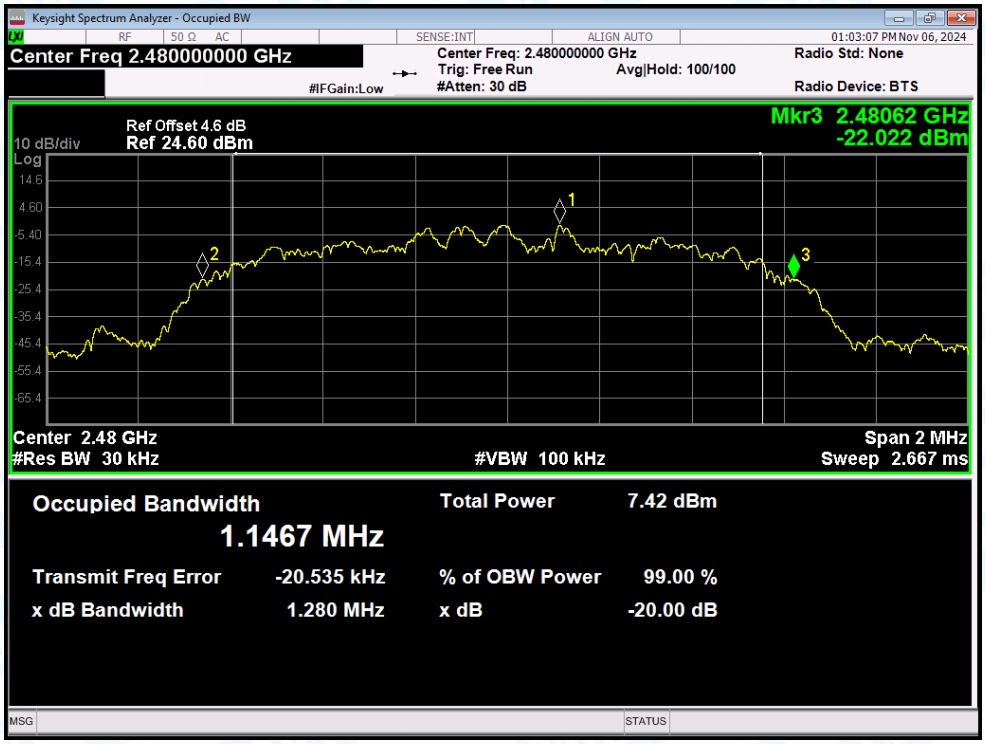
-20dB Bandwidth NVNT 2-DH1 2402MHz Ant1



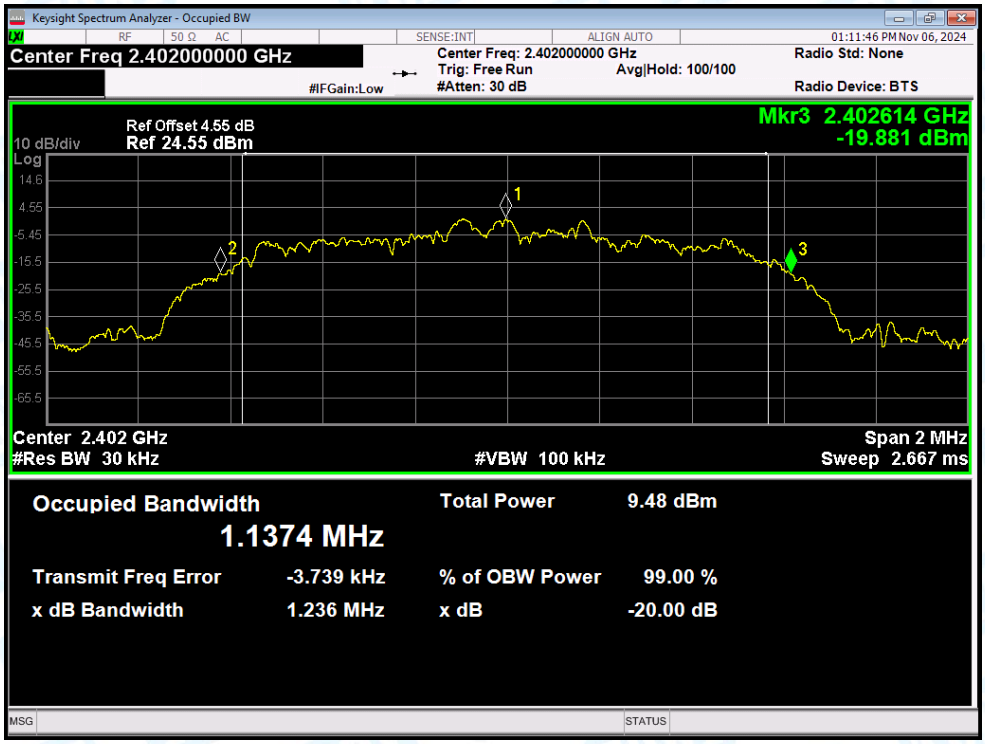
-20dB Bandwidth NVNT 2-DH1 2441MHz Ant1



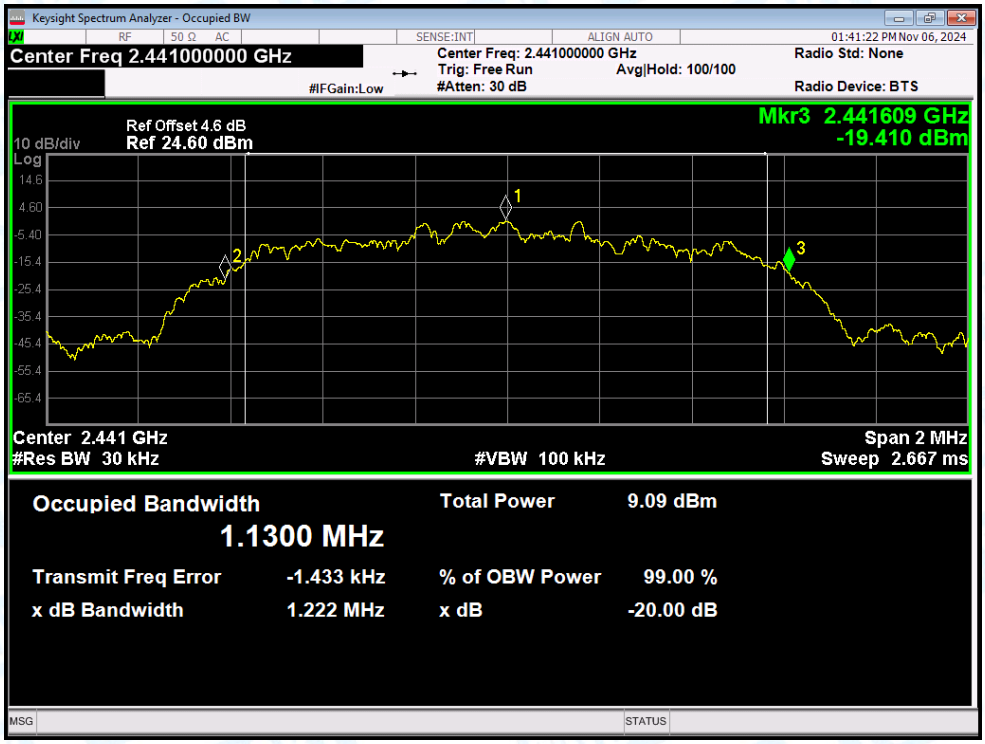
-20dB Bandwidth NVNT 2-DH1 2480MHz Ant1



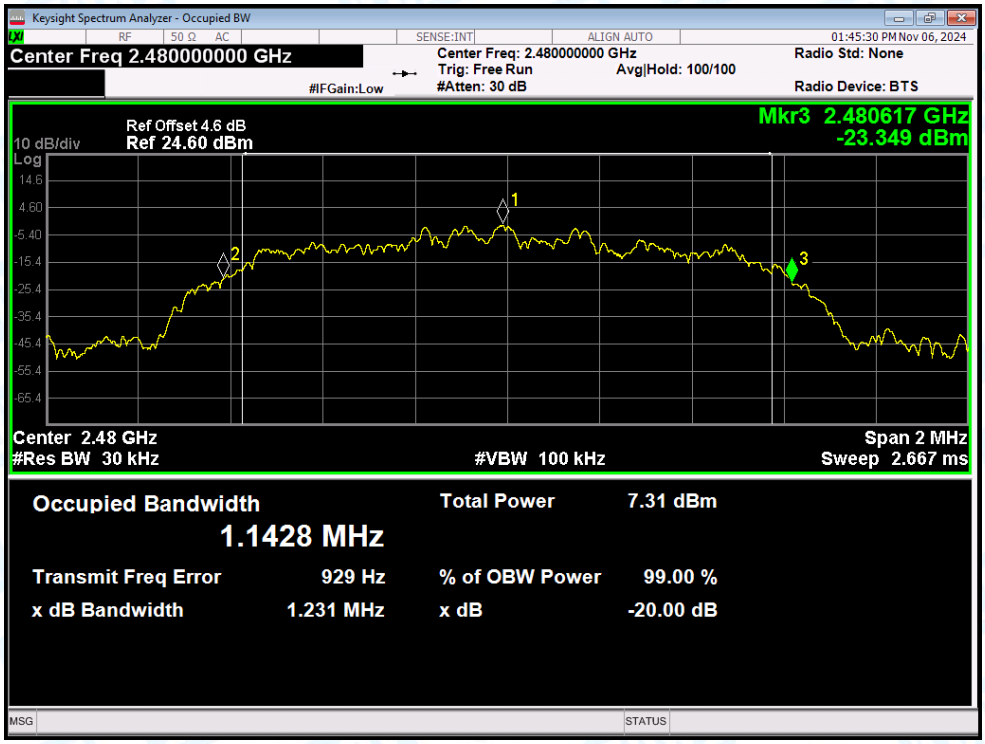
-20dB Bandwidth NVNT 3-DH1 2402MHz Ant1



-20dB Bandwidth NVNT 3-DH1 2441MHz Ant1



-20dB Bandwidth NVNT 3-DH1 2480MHz Ant1

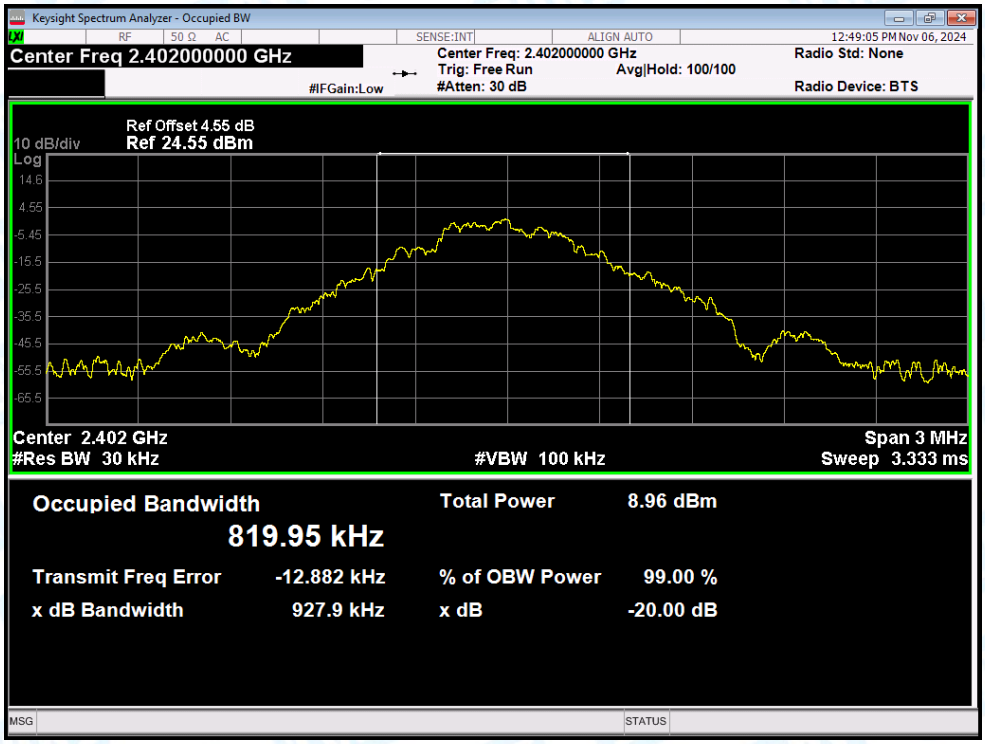


4. Occupied Channel Bandwidth

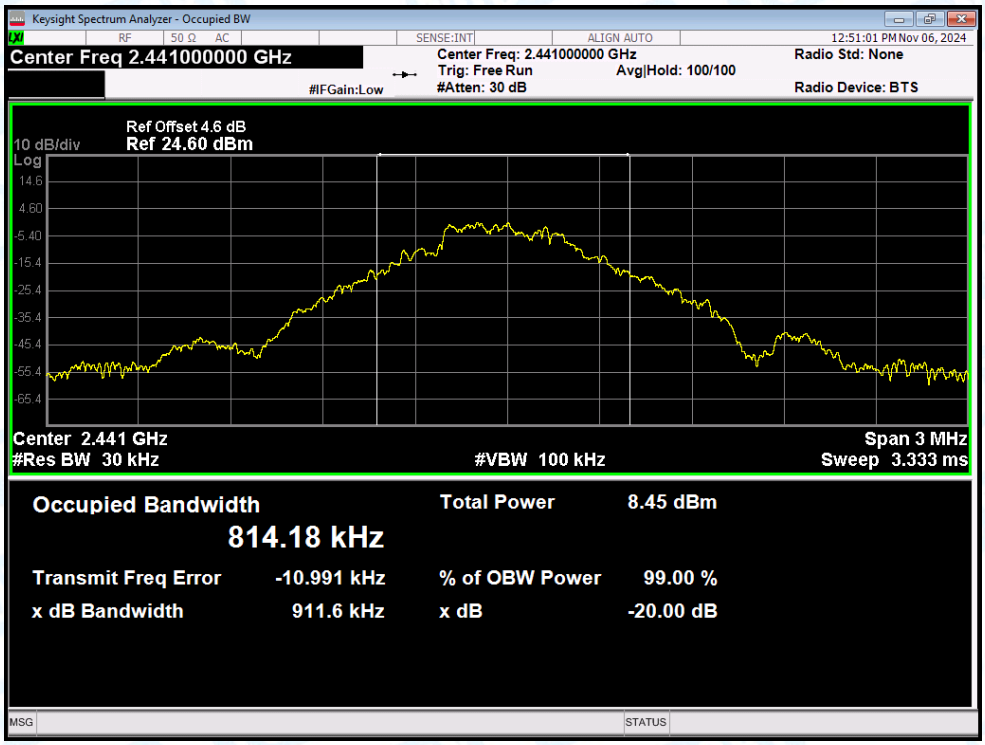
Condition	Mode	Frequency (MHz)	Antenna	99% OBW (MHz)
NVNT	1-DH1	2402	Ant1	0.82
NVNT	1-DH1	2441	Ant1	0.814
NVNT	1-DH1	2480	Ant1	0.799
NVNT	2-DH1	2402	Ant1	1.133
NVNT	2-DH1	2441	Ant1	1.149
NVNT	2-DH1	2480	Ant1	1.164
NVNT	3-DH1	2402	Ant1	1.136
NVNT	3-DH1	2441	Ant1	1.133
NVNT	3-DH1	2480	Ant1	1.136

Test Graphs

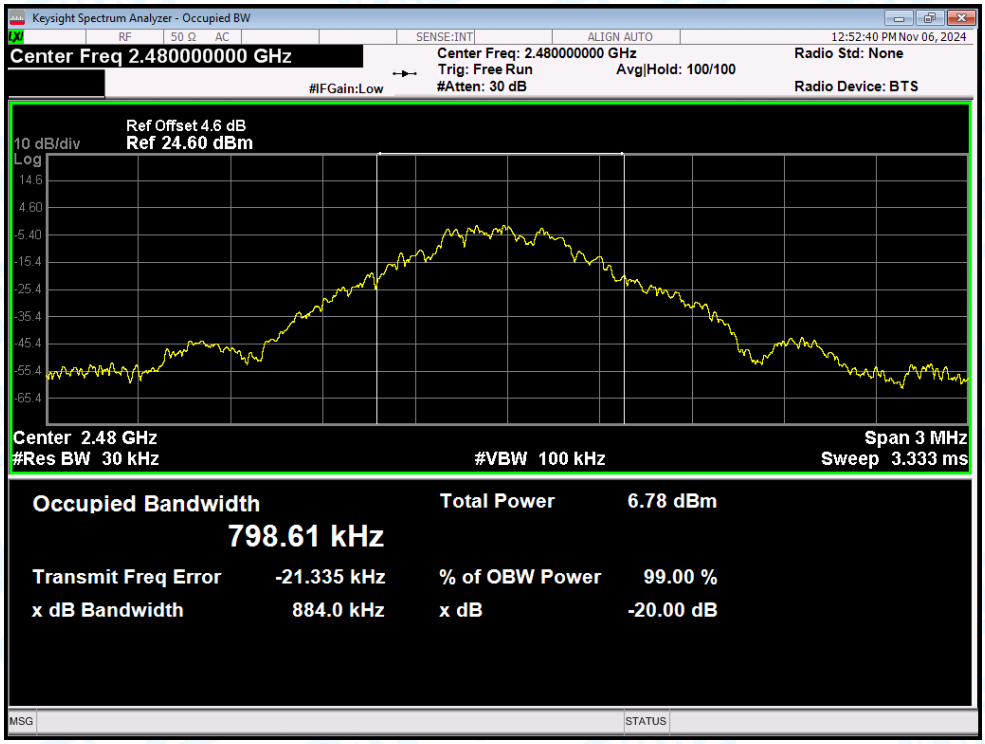
OBW NVNT 1-DH1 2402MHz Ant1



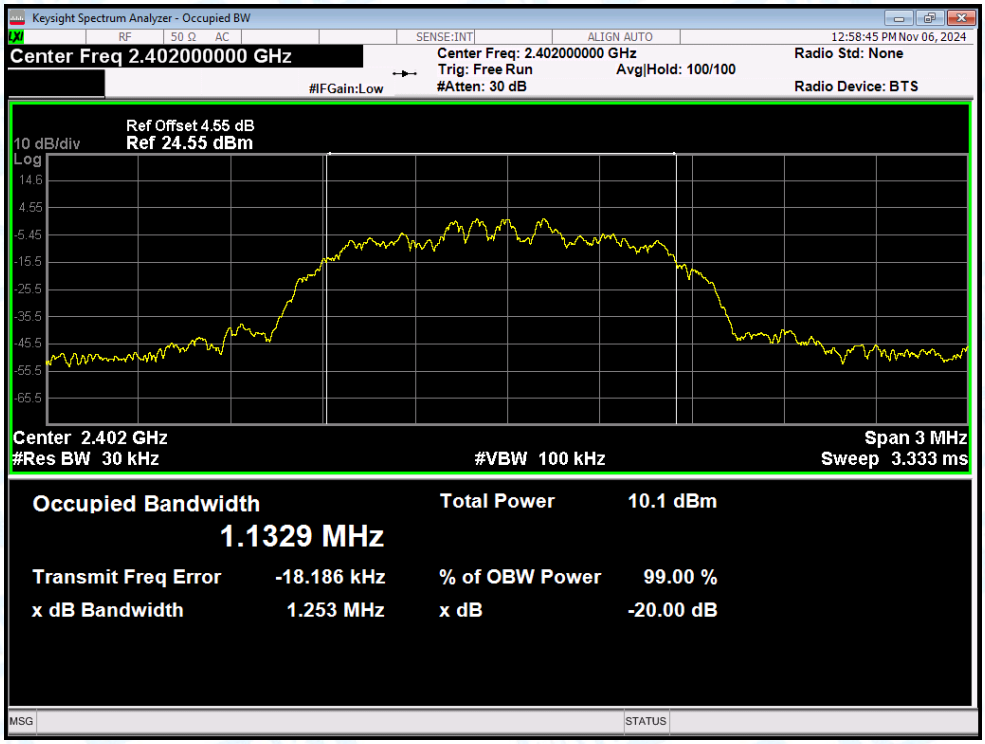
OBW NVNT 1-DH1 2441MHz Ant1



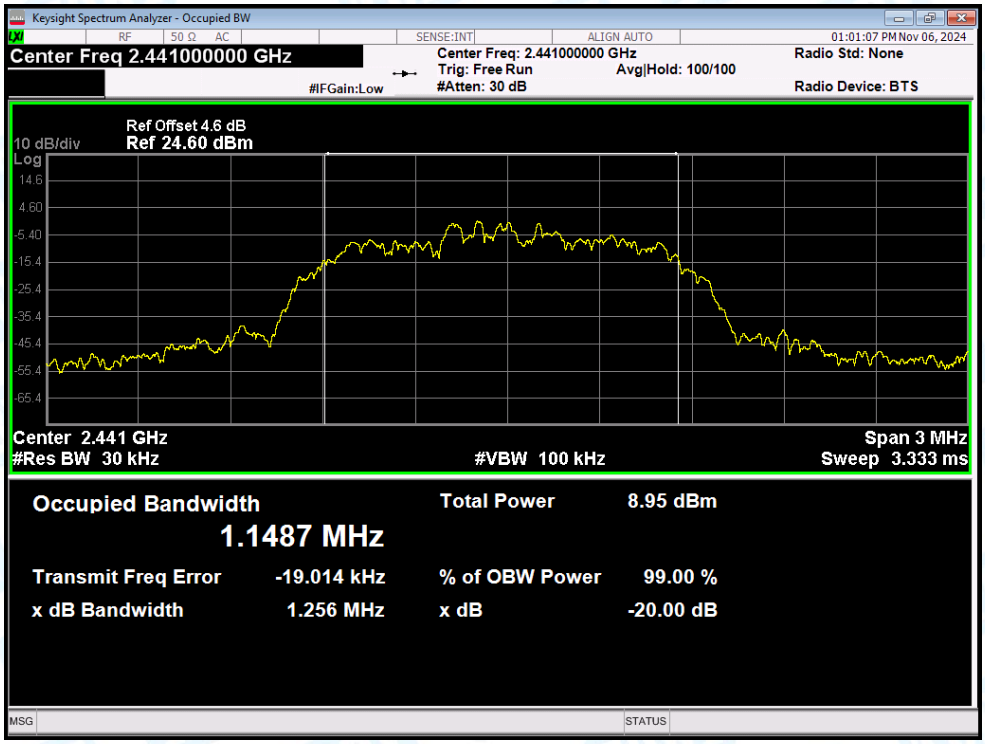
OBW NVNT 1-DH1 2480MHz Ant1



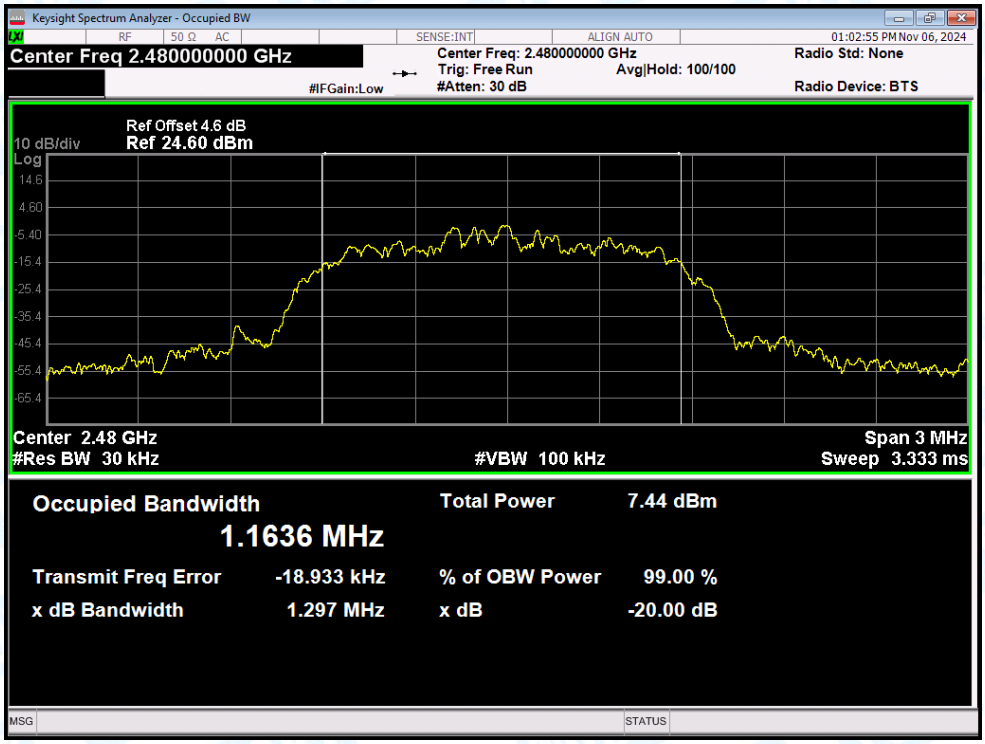
OBW NVNT 2-DH1 2402MHz Ant1



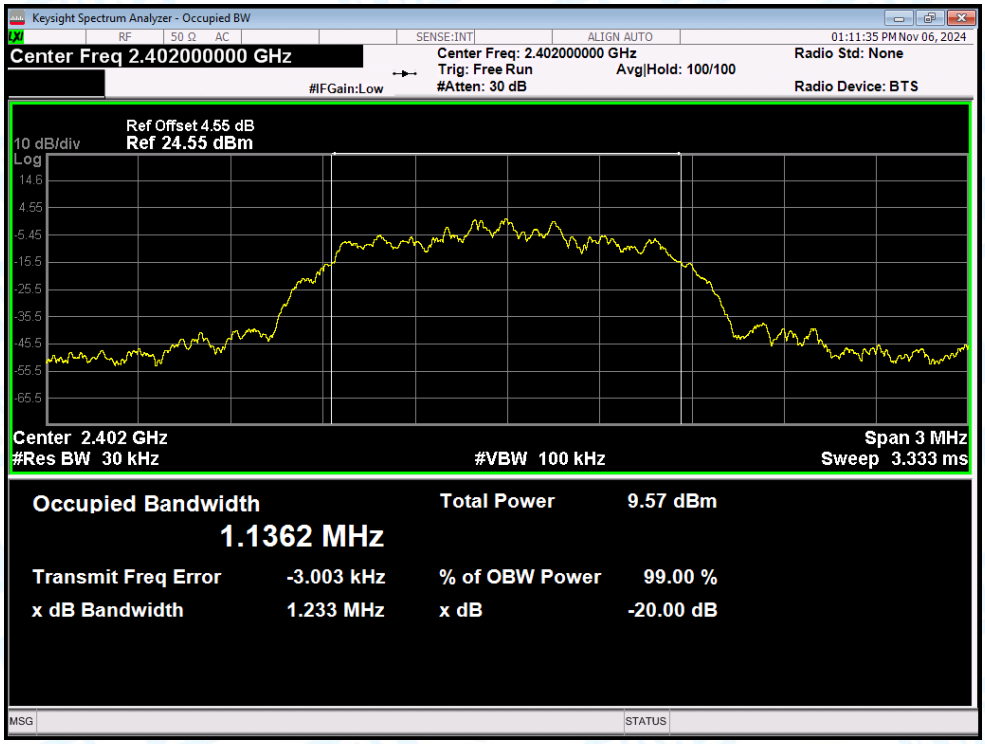
OBW NVNT 2-DH1 2441MHz Ant1



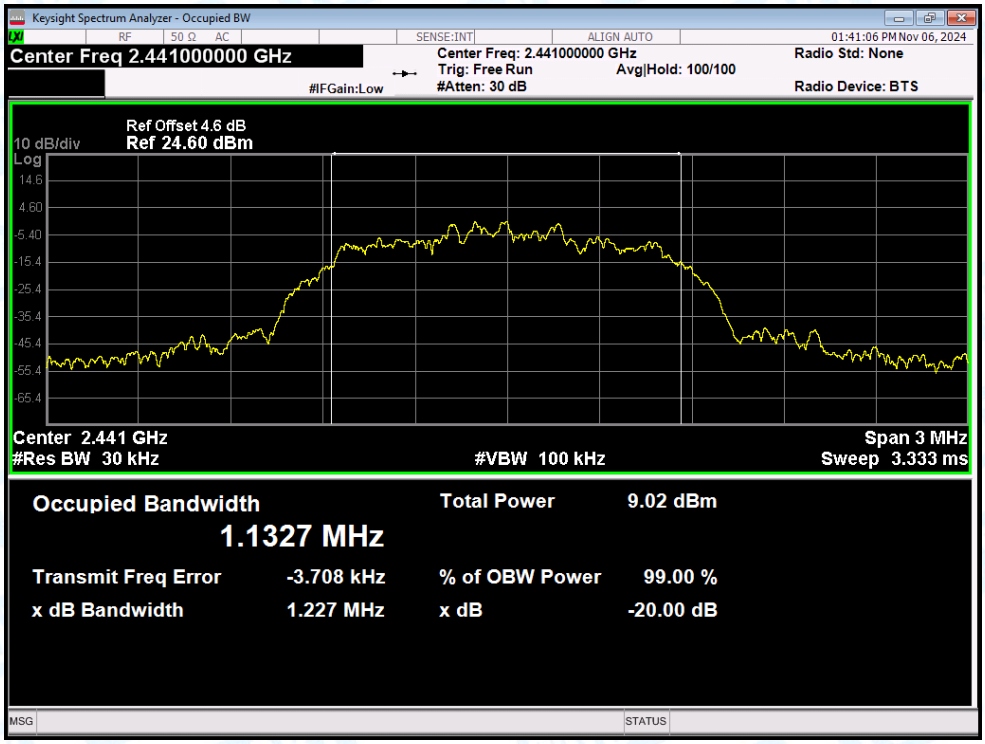
OBW NVNT 2-DH1 2480MHz Ant1



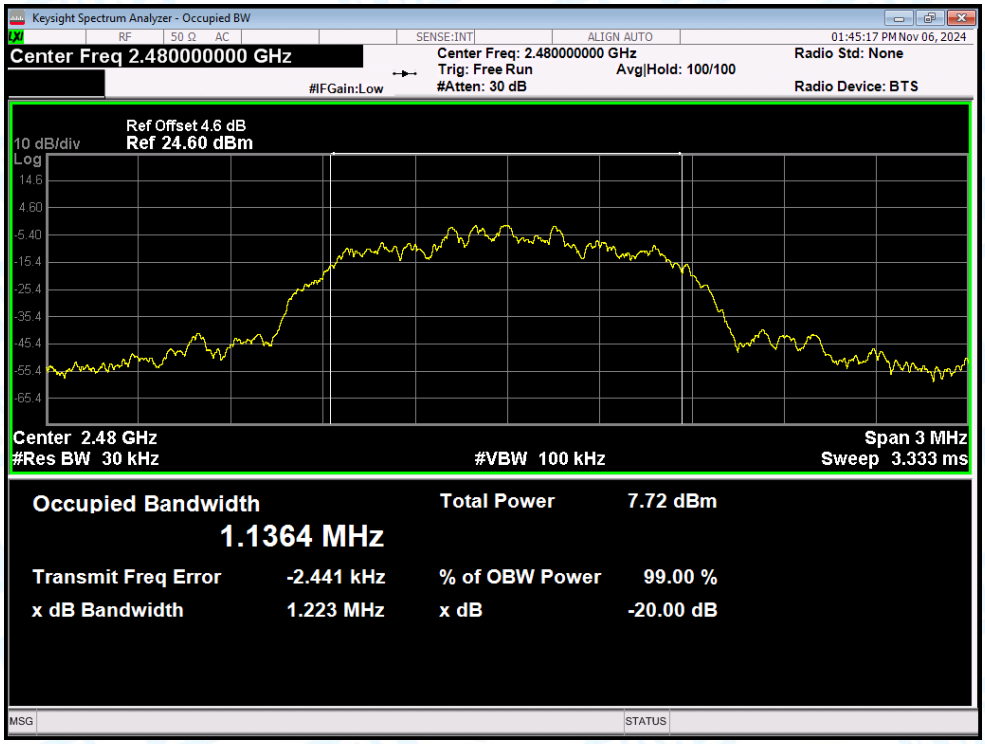
OBW NVNT 3-DH1 2402MHz Ant1



OBW NVNT 3-DH1 2441MHz Ant1



OBW NVNT 3-DH1 2480MHz Ant1

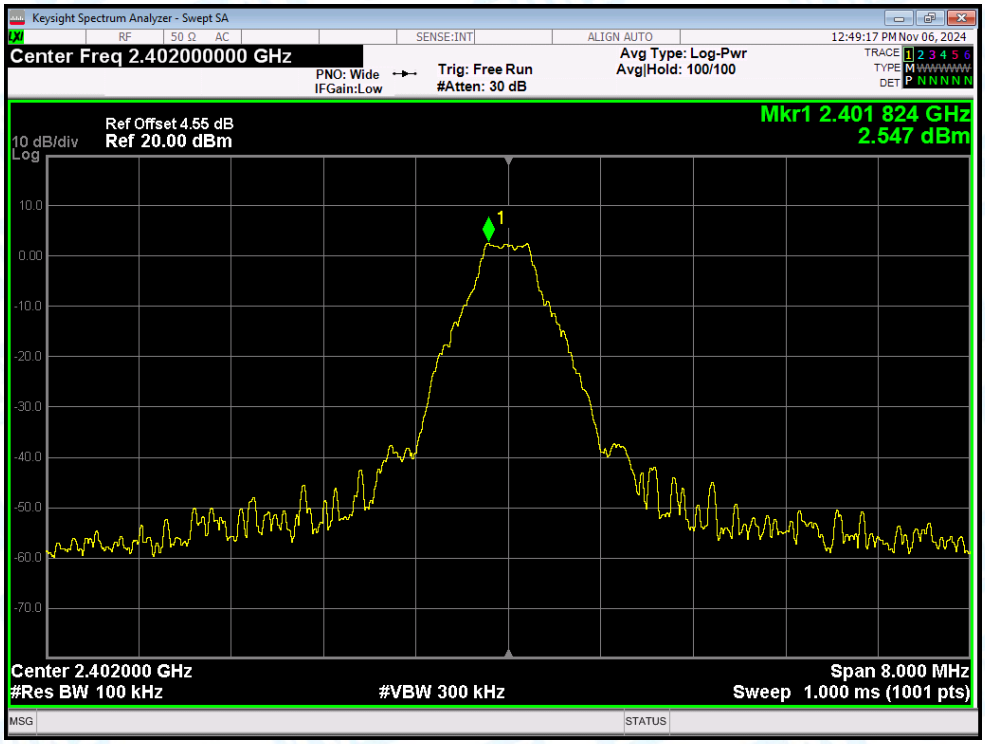


5. Band Edge

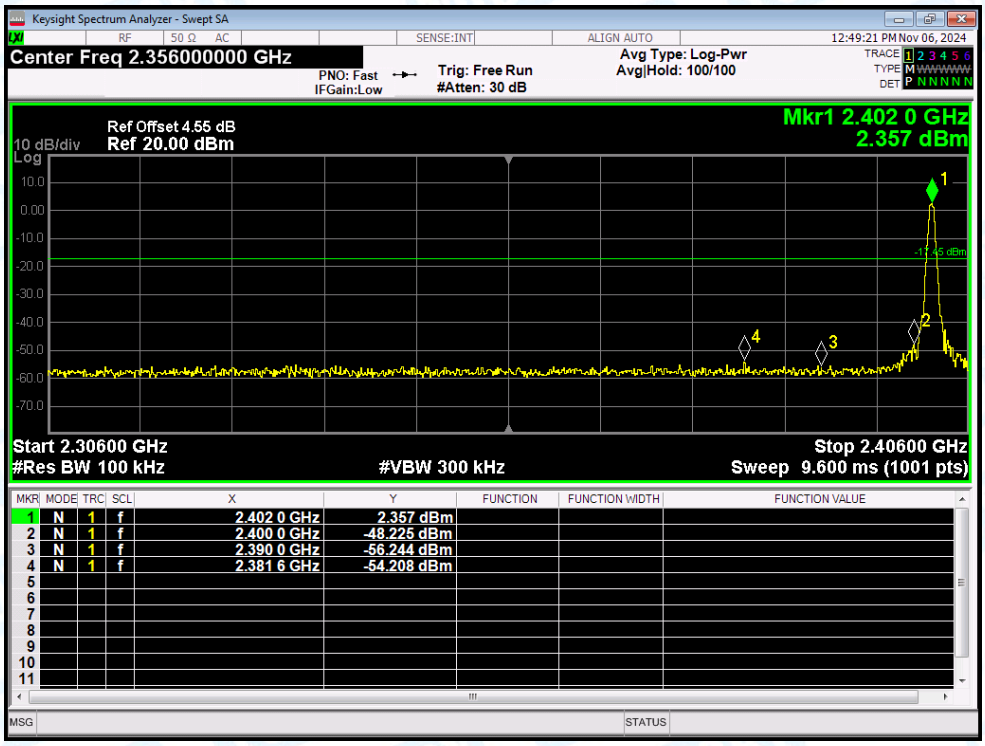
Condition	Mode	Frequency (MHz)	Antenna	Hopping Mode	Max Value (dBc)	Limit (dBc)	Verdict
NVNT	1-DH1	2402	Ant1	No-Hopping	-56.76	-20	Pass
NVNT	1-DH1	2480	Ant1	No-Hopping	-53.88	-20	Pass
NVNT	2-DH1	2402	Ant1	No-Hopping	-57.34	-20	Pass
NVNT	2-DH1	2480	Ant1	No-Hopping	-54.3	-20	Pass
NVNT	3-DH1	2402	Ant1	No-Hopping	-57.34	-20	Pass
NVNT	3-DH1	2480	Ant1	No-Hopping	-53.08	-20	Pass

Test Graphs

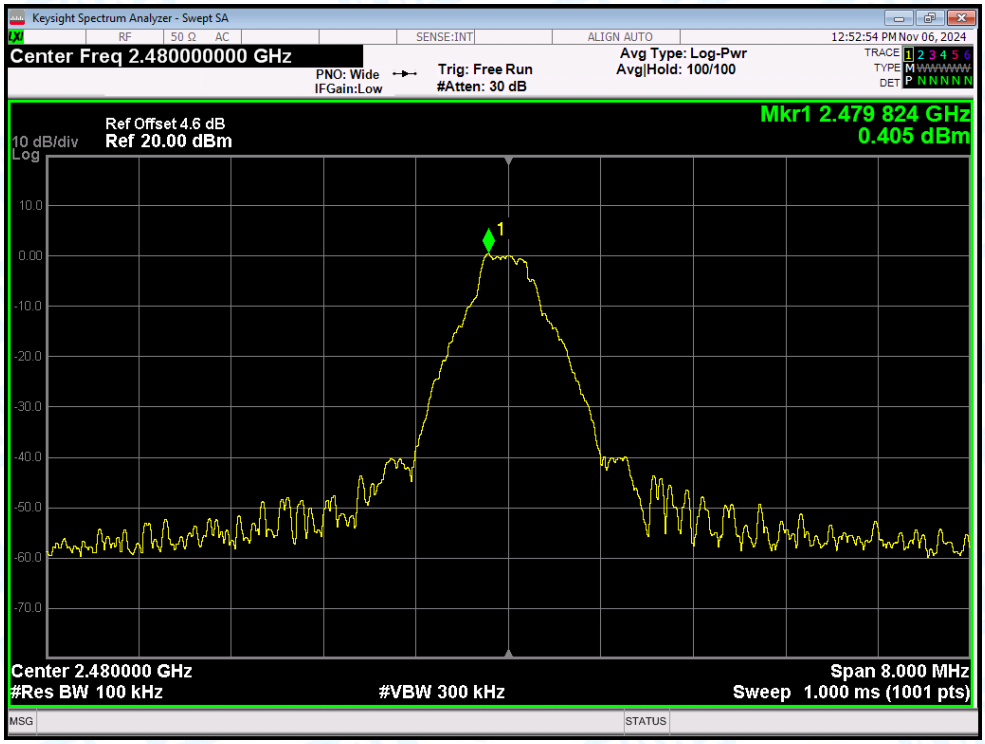
Band Edge NVNT 1-DH1 2402MHz Ant1 No-Hopping Ref



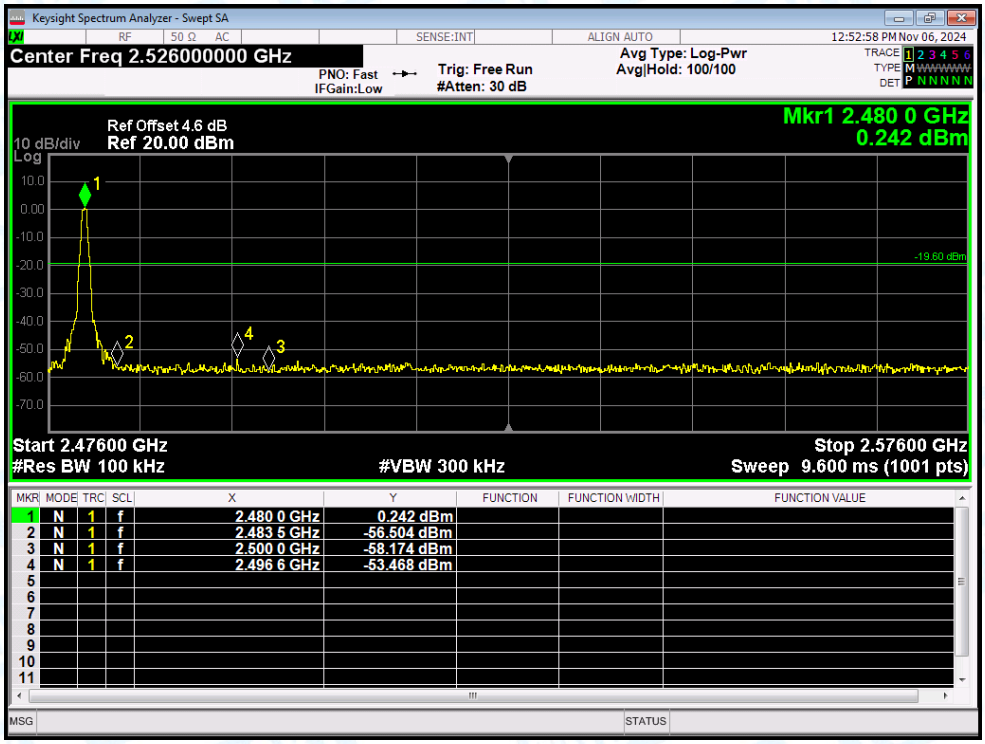
Band Edge NVNT 1-DH1 2402MHz Ant1 No-Hopping Emission



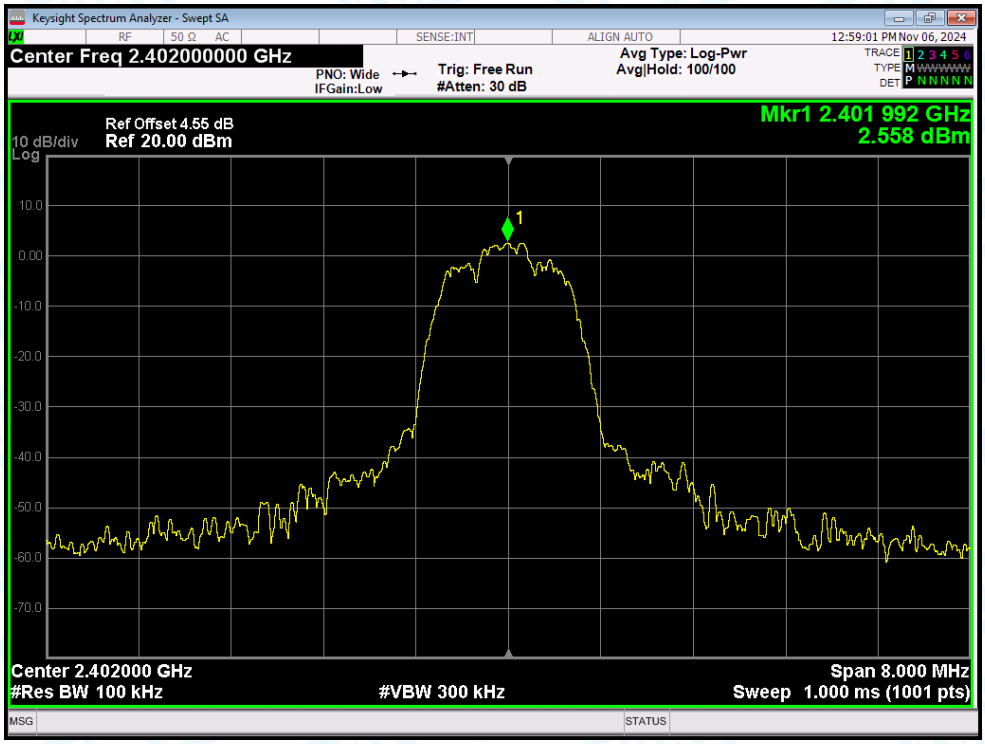
Band Edge NVNT 1-DH1 2480MHz Ant1 No-Hopping Ref



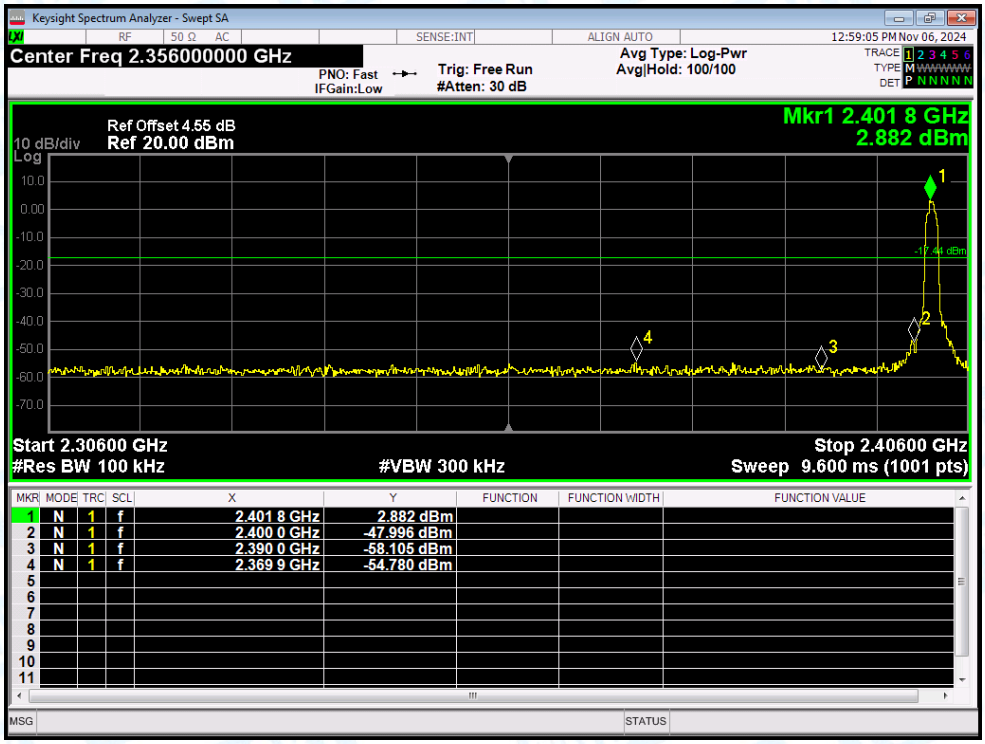
Band Edge NVNT 1-DH1 2480MHz Ant1 No-Hopping Emission



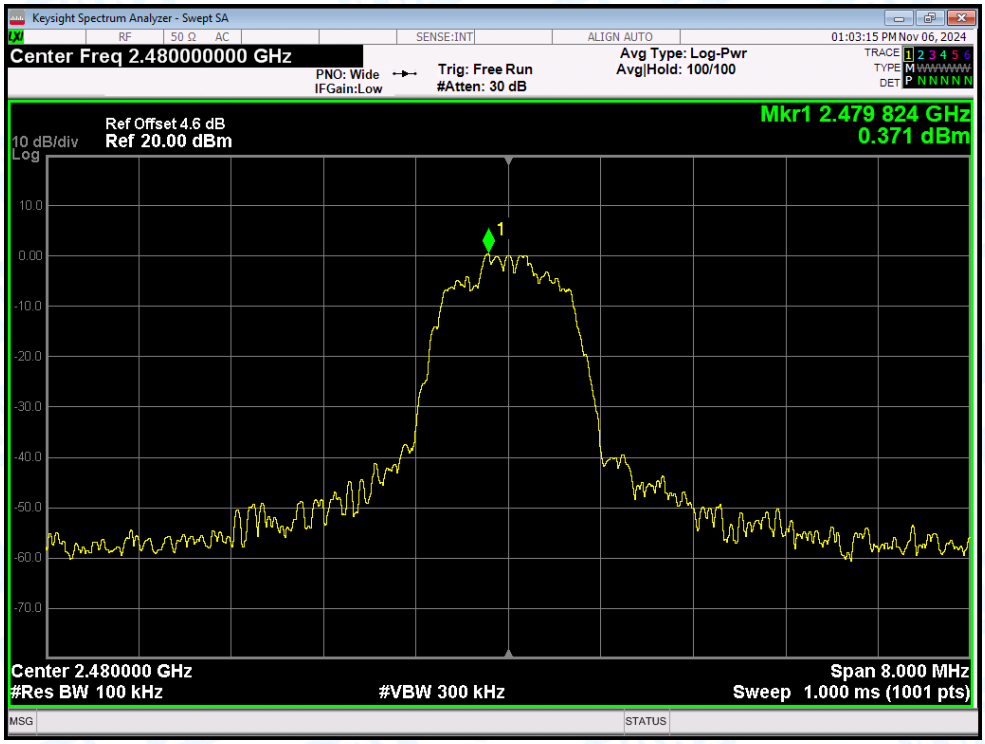
Band Edge NVNT 2-DH1 2402MHz Ant1 No-Hopping Ref



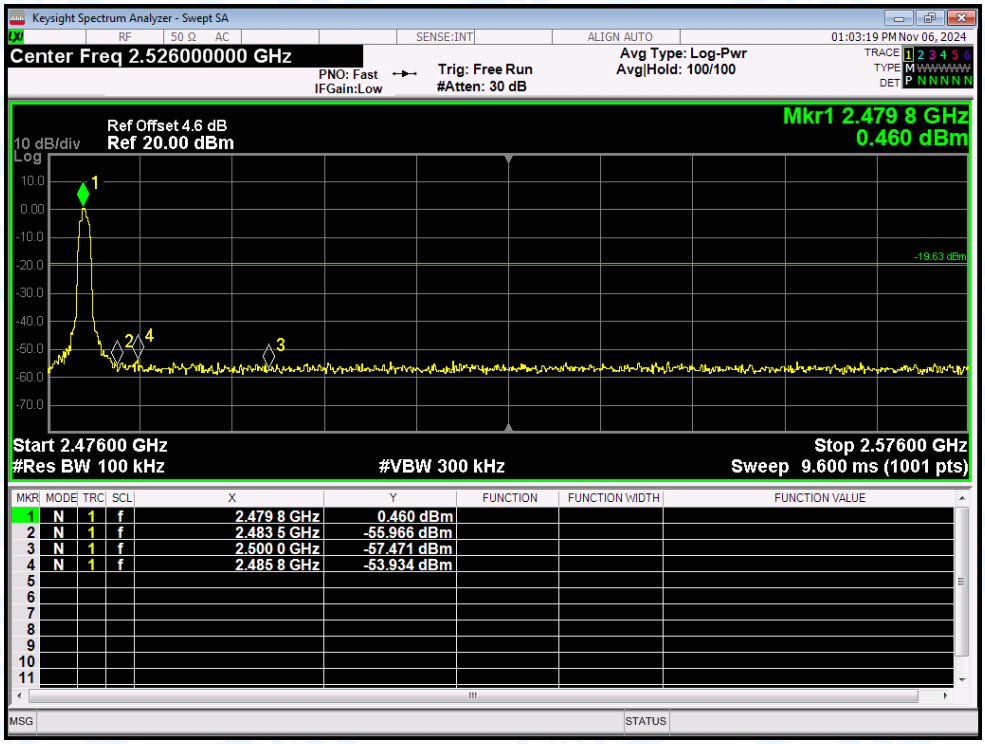
Band Edge NVNT 2-DH1 2402MHz Ant1 No-Hopping Emission



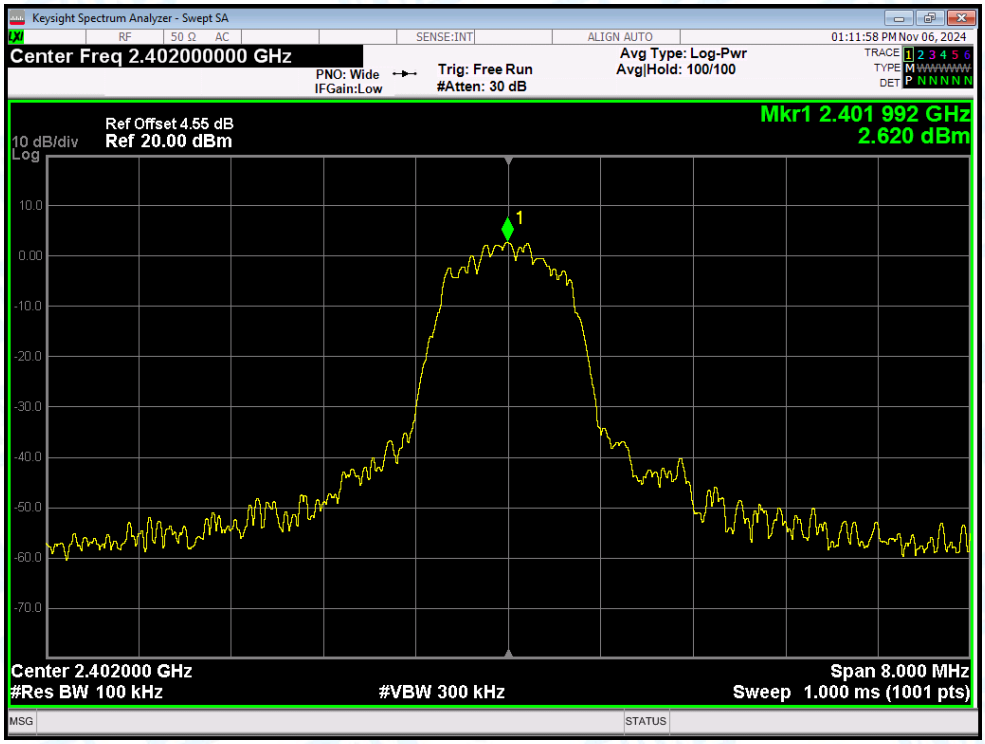
Band Edge NVNT 2-DH1 2480MHz Ant1 No-Hopping Ref



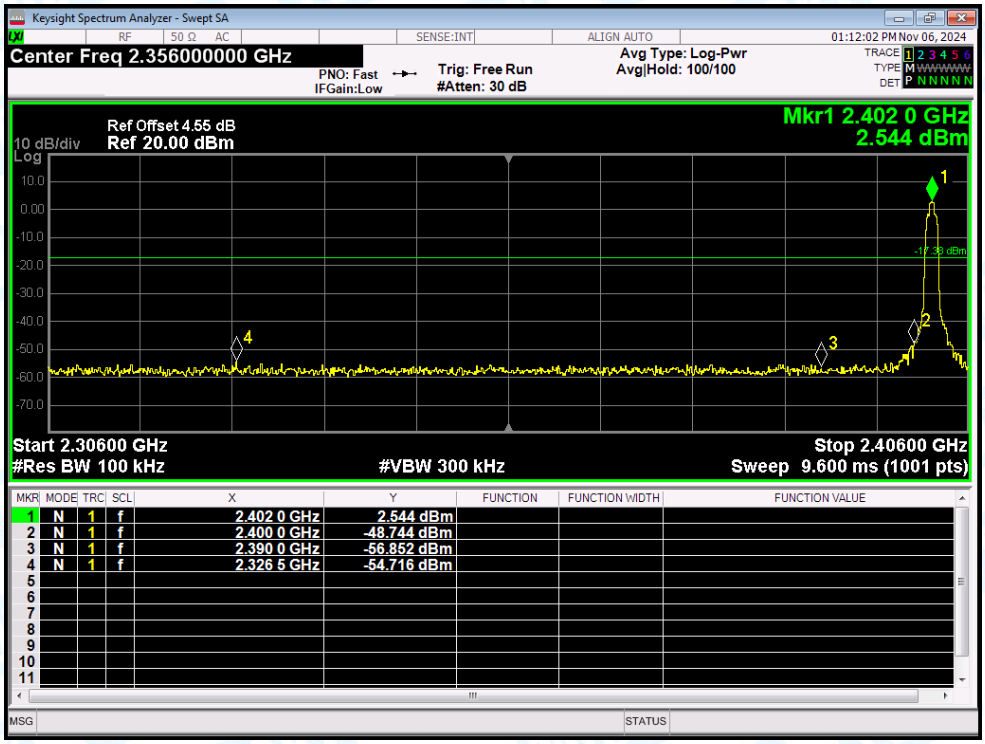
Band Edge NVNT 2-DH1 2480MHz Ant1 No-Hopping Emission



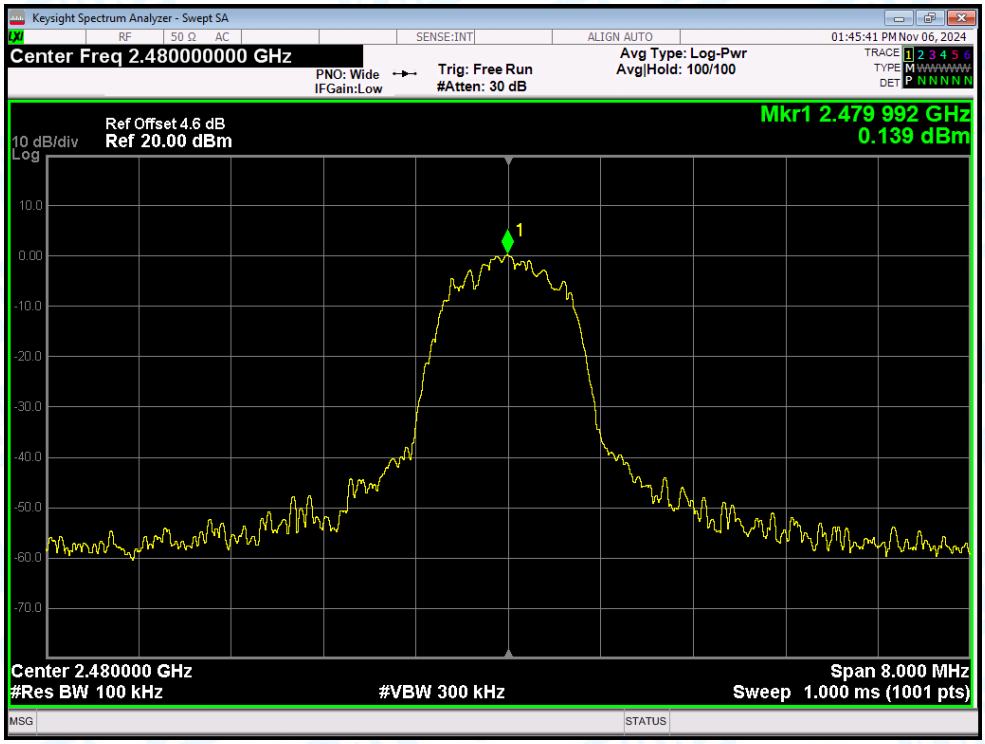
Band Edge NVNT 3-DH1 2402MHz Ant1 No-Hopping Ref



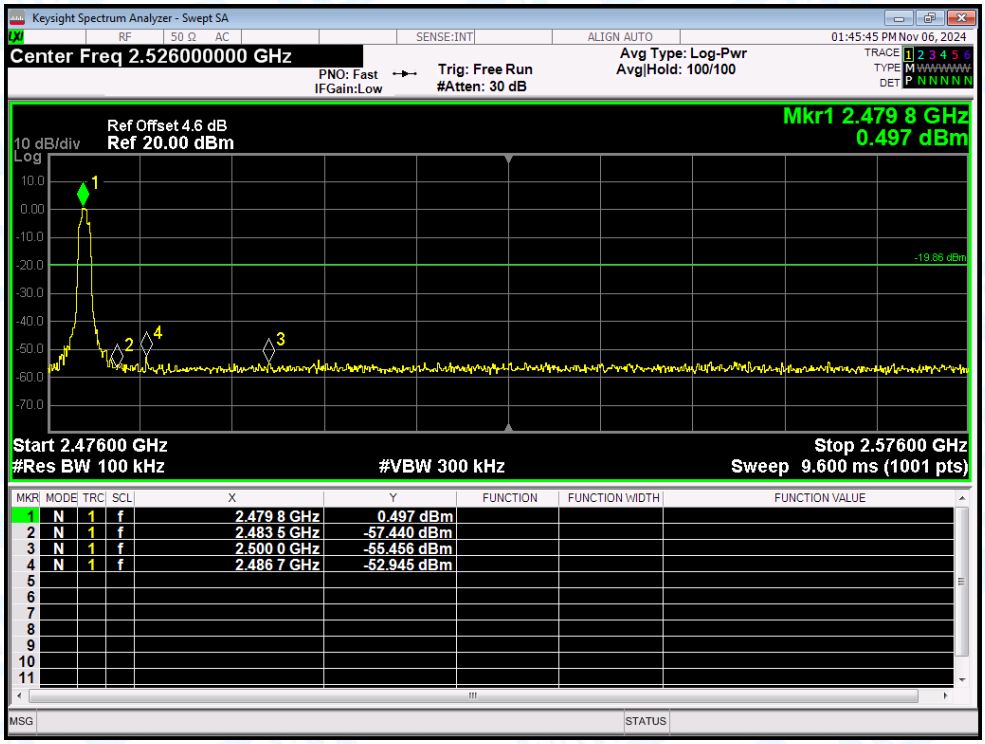
Band Edge NVNT 3-DH1 2402MHz Ant1 No-Hopping Emission



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



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

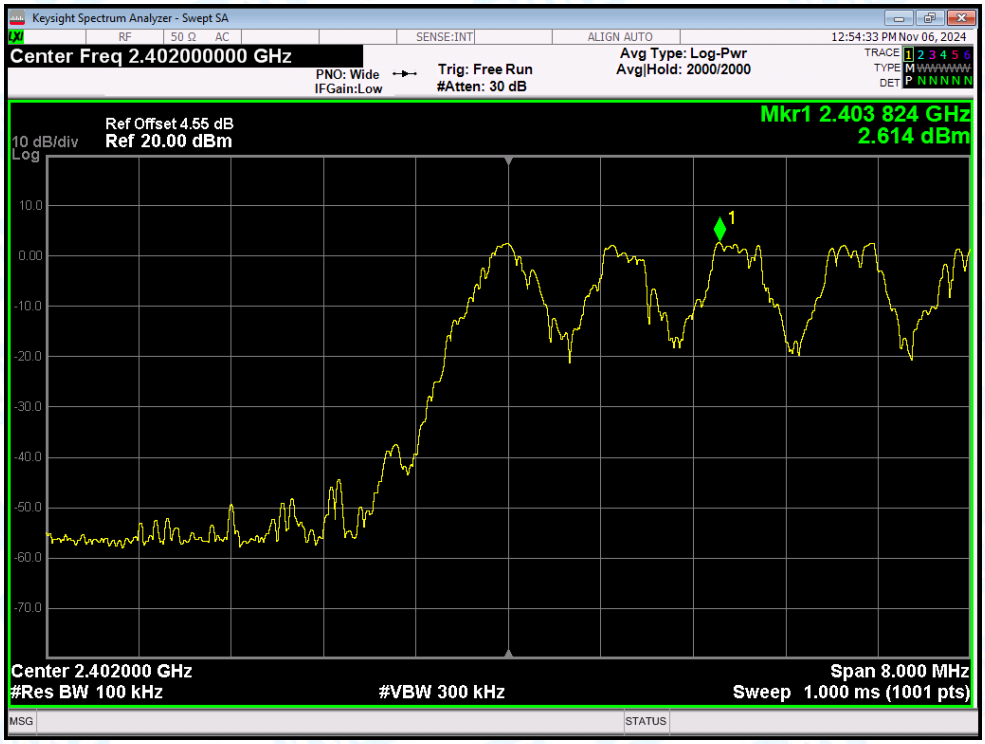


6. Band Edge(Hopping)

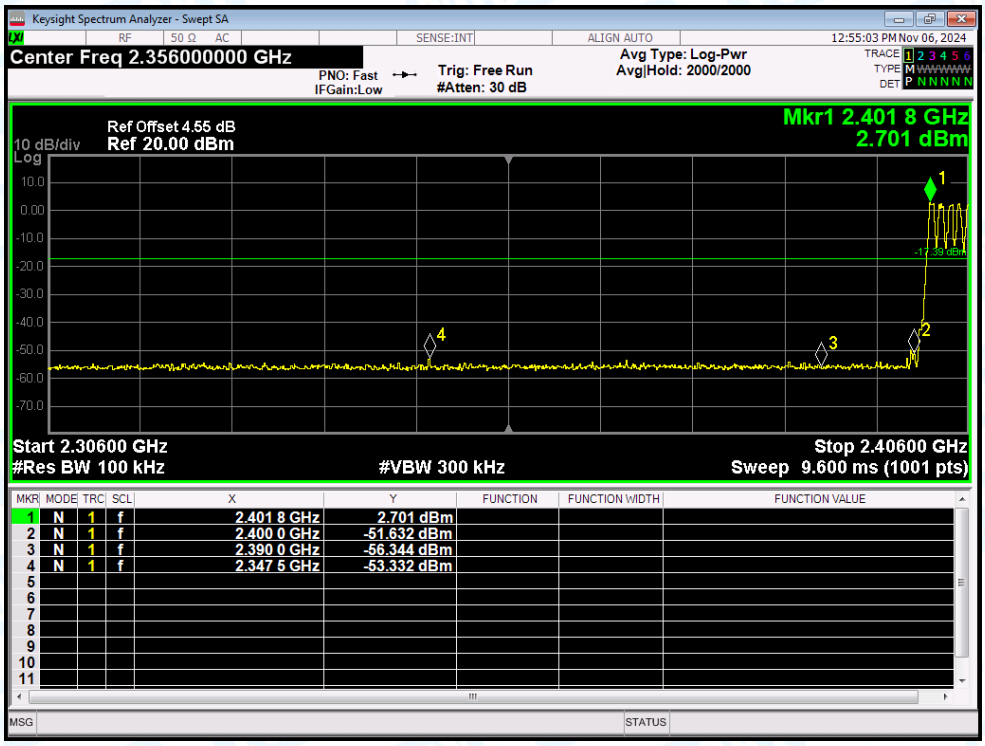
Condition	Mode	Frequency (MHz)	Antenna	Hopping Mode	Max Value (dBc)	Limit (dBc)	Verdict
NVNT	1-DH1	2402	Ant1	Hopping	-55.94	-20	Pass
NVNT	1-DH1	2480	Ant1	Hopping	-54.19	-20	Pass
NVNT	2-DH1	2402	Ant1	Hopping	-56.02	-20	Pass
NVNT	2-DH1	2480	Ant1	Hopping	-53.42	-20	Pass
NVNT	3-DH1	2402	Ant1	Hopping	-56.12	-20	Pass
NVNT	3-DH1	2480	Ant1	Hopping	-53.9	-20	Pass

Test Graphs

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

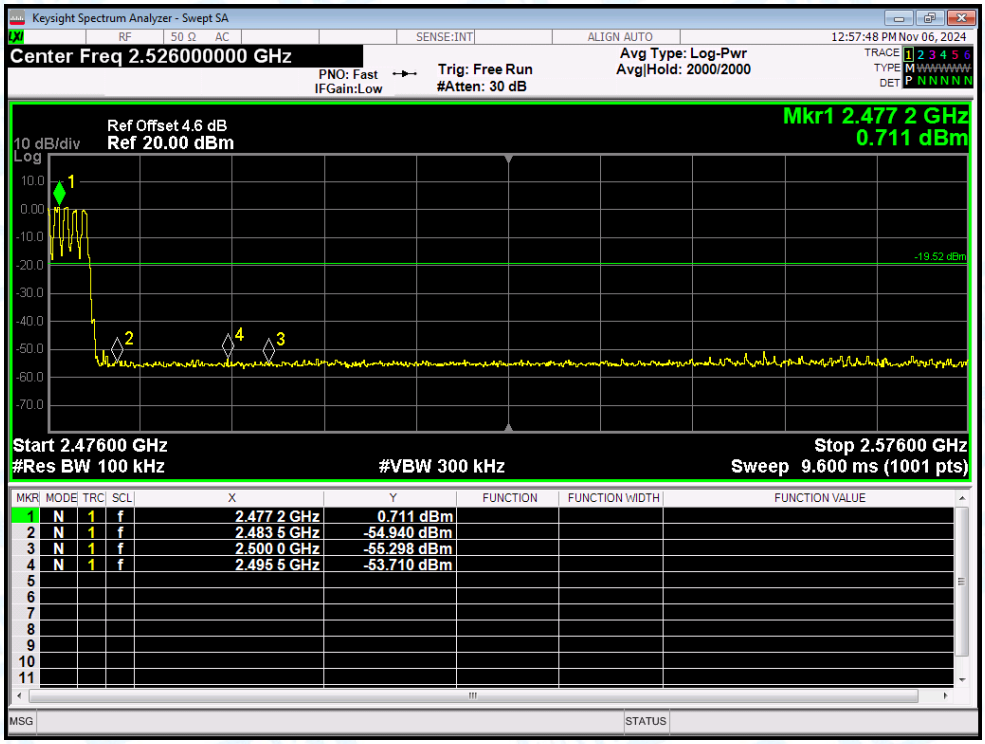


Band Edge(Hopping) NVNT 1-DH1 2402MHz Ant1 Hopping Emission



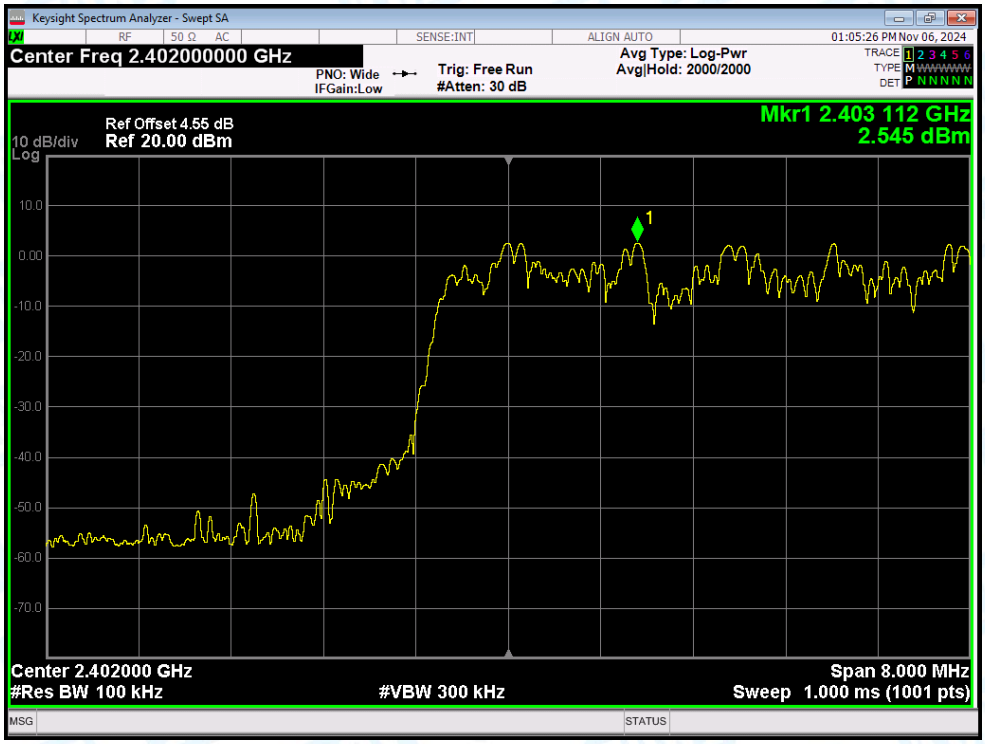
Band Edge(Hopping) NVNT 1-DH1 2480MHz Ant1 Hopping Ref

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

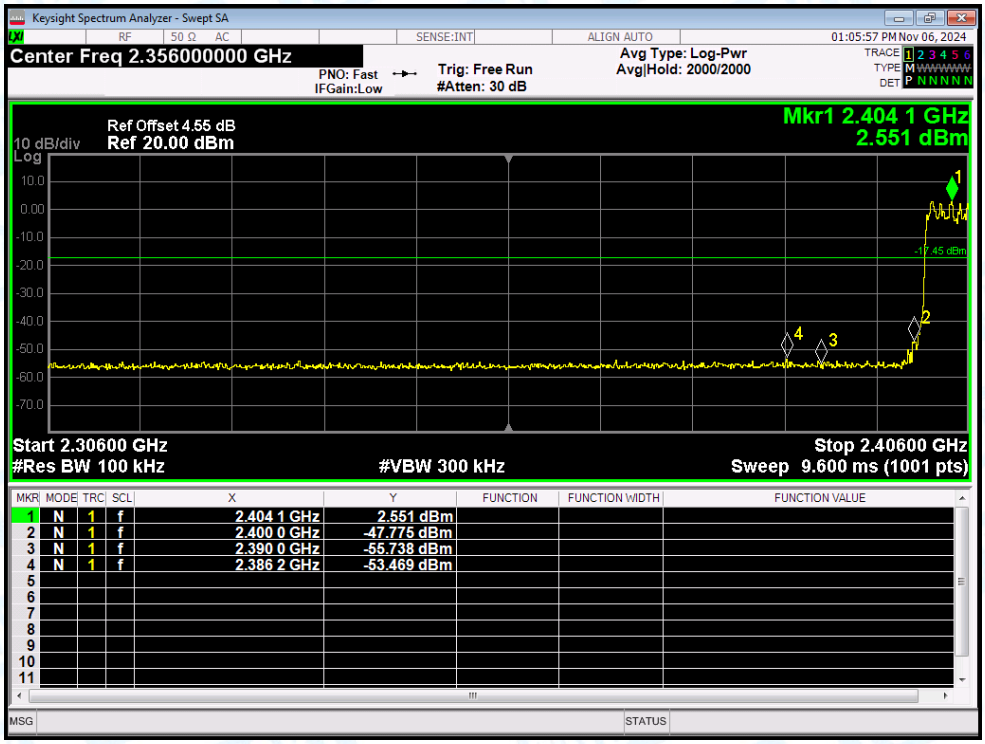


MKR	MODE	TRC	SCL	X	Y	FUNCTION	FUNCTION WIDTH	FUNCTION VALUE
1	N	1	f	2.477 2 GHz	0.711 dBm			
2	N	1	f	2.483 5 GHz	-54.940 dBm			
3	N	1	f	2.500 0 GHz	-55.298 dBm			
4	N	1	f	2.495 5 GHz	-53.710 dBm			
5								
6								
7								
8								
9								
10								
11								

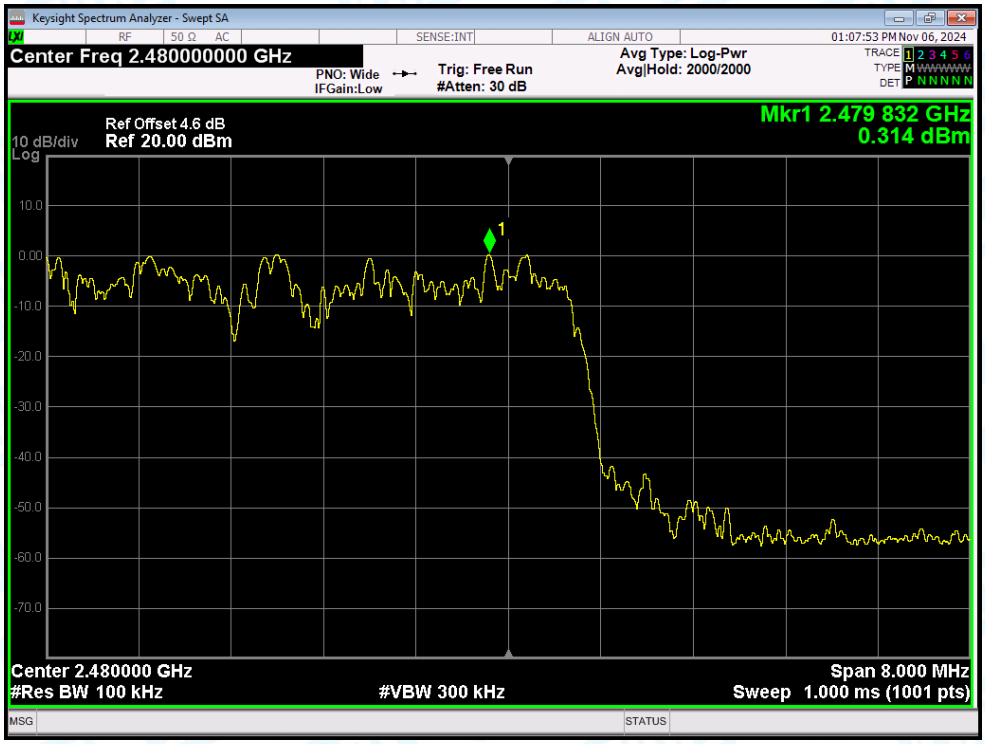
Band Edge(Hopping) NVNT 2-DH1 2402MHz Ant1 Hopping Ref



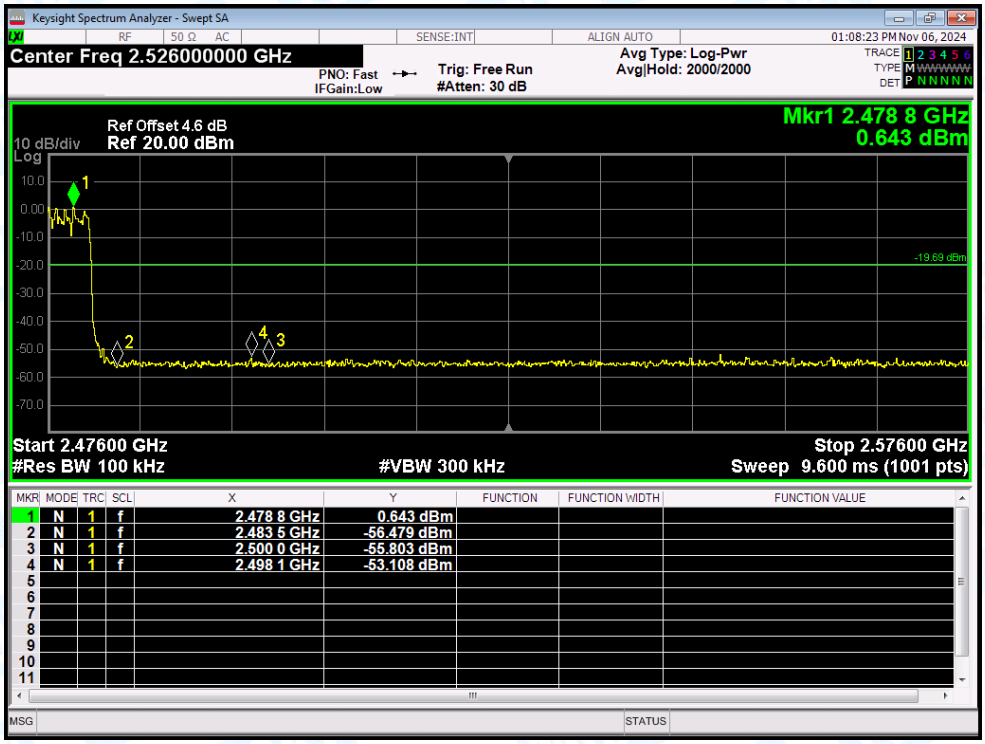
Band Edge(Hopping) NVNT 2-DH1 2402MHz Ant1 Hopping Emission



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



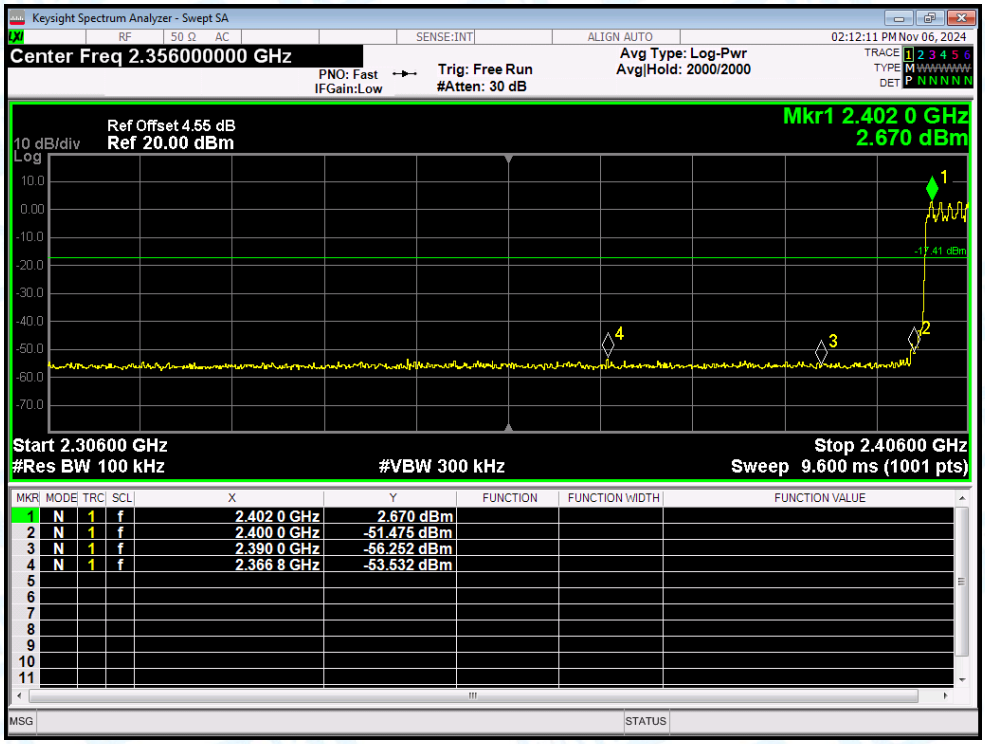
Band Edge(Hopping) NVNT 2-DH1 2480MHz Ant1 Hopping Emission



MKR	MODE	TRC	SCL	X	Y	FUNCTION	FUNCTION WIDTH	FUNCTION VALUE
1	N	1	f	2.478 8 GHz	0.643 dBm			
2	N	1	f	2.483 5 GHz	-56.479 dBm			
3	N	1	f	2.500 0 GHz	-55.803 dBm			
4	N	1	f	2.498 1 GHz	-53.108 dBm			
5								
6								
7								
8								
9								
10								
11								

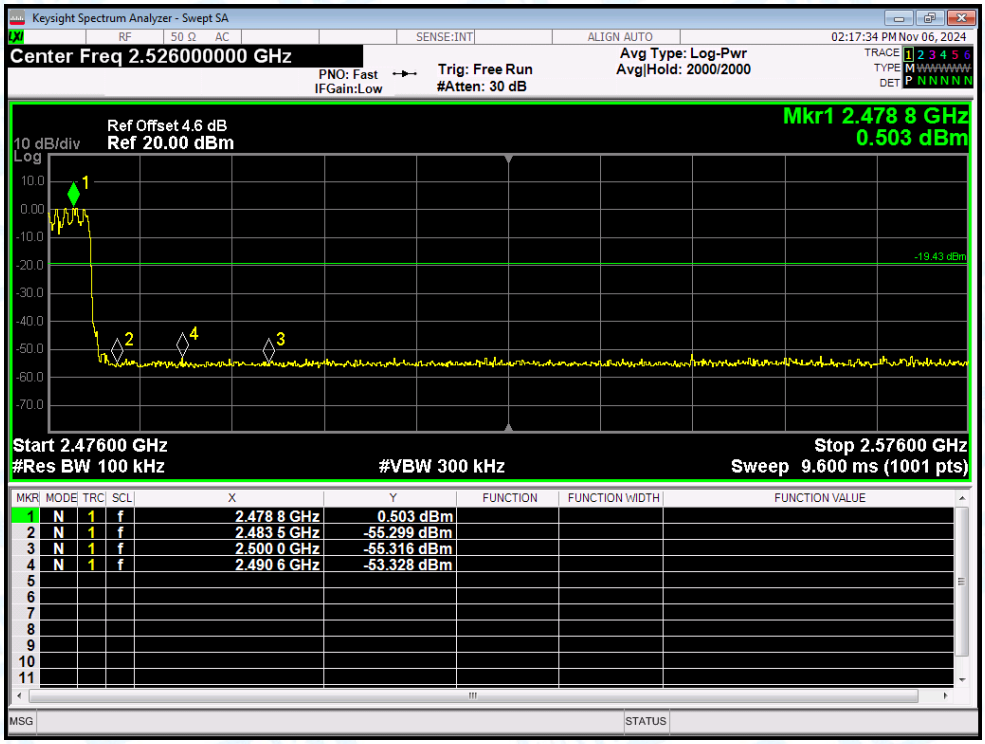
Band Edge(Hopping) NVNT 3-DH1 2402MHz Ant1 Hopping Ref

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



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

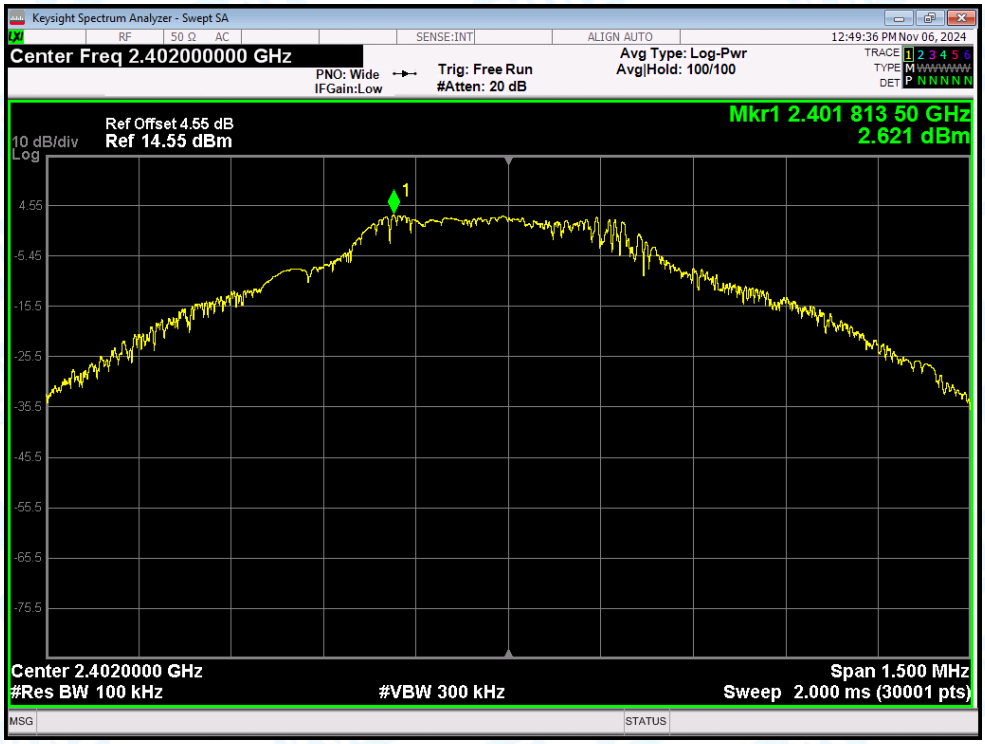
Band Edge(Hopping) NVNT 3-DH1 2480MHz Ant1 Hopping Emission



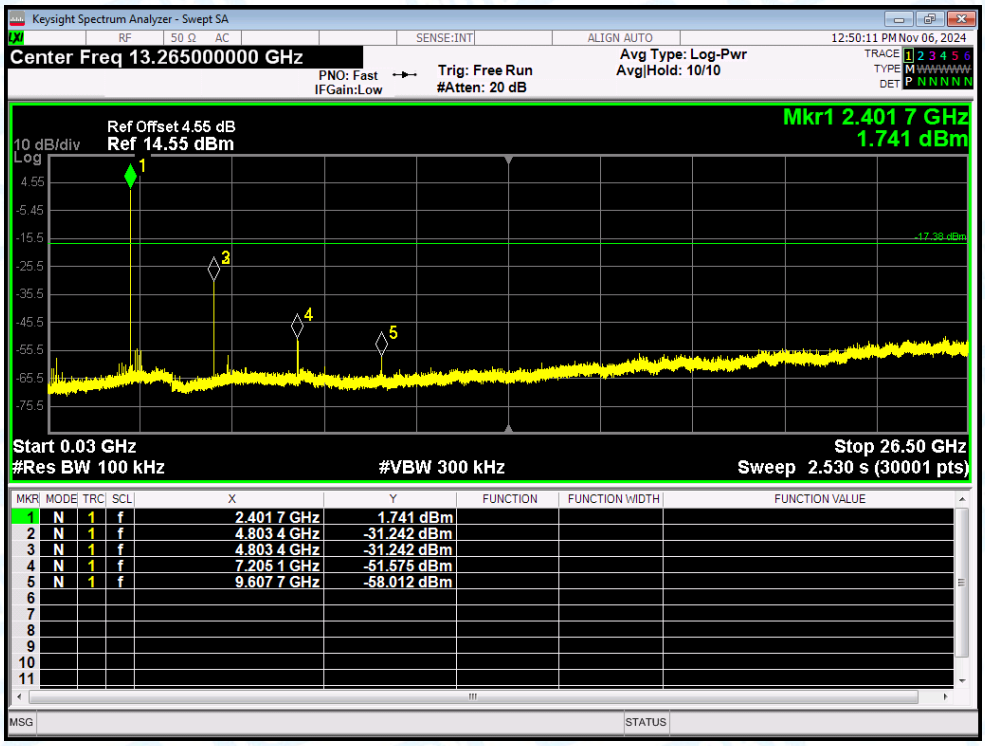
7. Conducted RF Spurious Emission

Condition	Mode	Frequency (MHz)	Antenna	Max Value (dBc)	Limit (dBc)	Verdict
NVNT	1-DH1	2402	Ant1	-33.86	-20	Pass
NVNT	1-DH1	2441	Ant1	-35.42	-20	Pass
NVNT	1-DH1	2480	Ant1	-33.14	-20	Pass
NVNT	2-DH1	2402	Ant1	-34.67	-20	Pass
NVNT	2-DH1	2441	Ant1	-34.04	-20	Pass
NVNT	2-DH1	2480	Ant1	-33.42	-20	Pass
NVNT	3-DH1	2402	Ant1	-30.08	-20	Pass
NVNT	3-DH1	2441	Ant1	-32.22	-20	Pass
NVNT	3-DH1	2480	Ant1	-33.28	-20	Pass

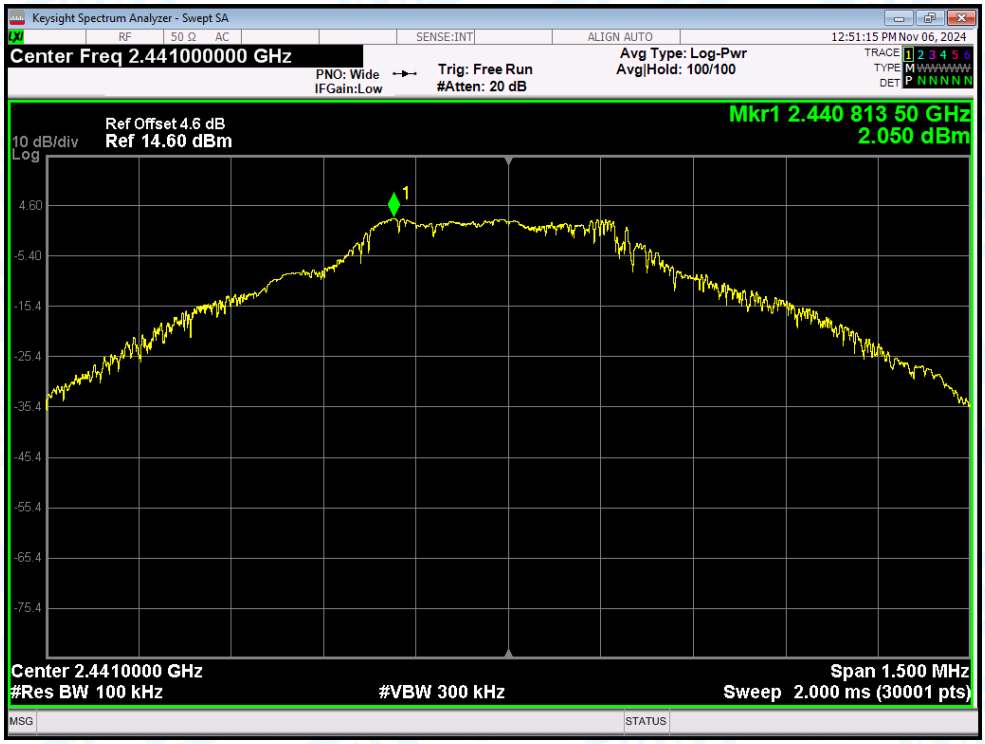
Test Graphs
Tx. Spurious NVNT 1-DH1 2402MHz Ant1 Ref



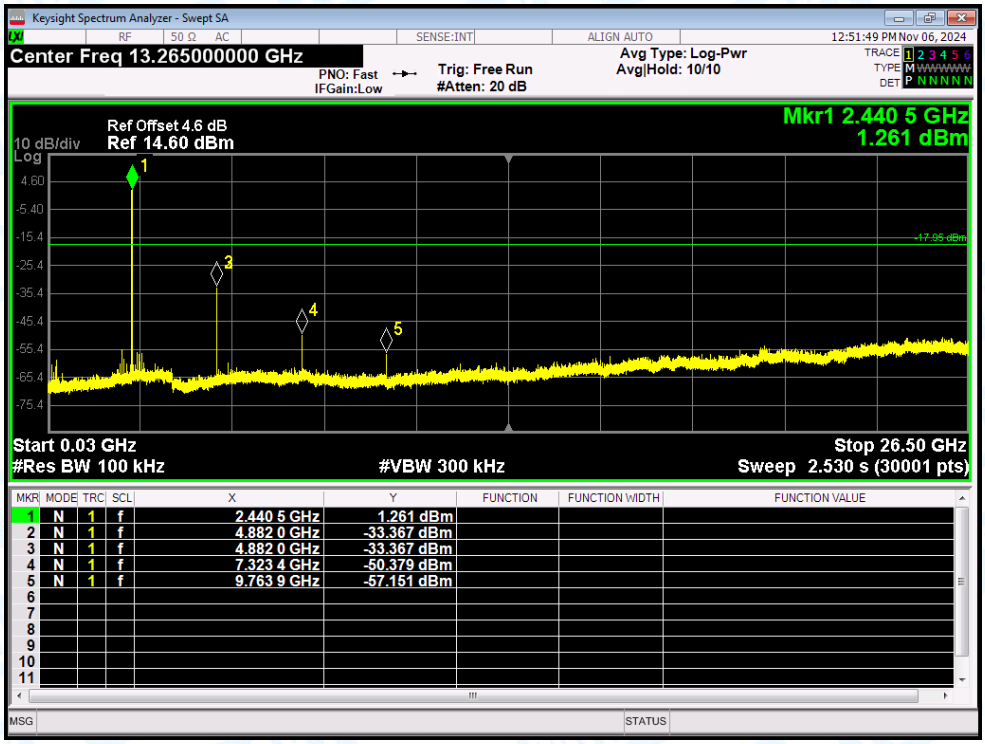
Tx. Spurious NVNT 1-DH1 2402MHz Ant1 Emission



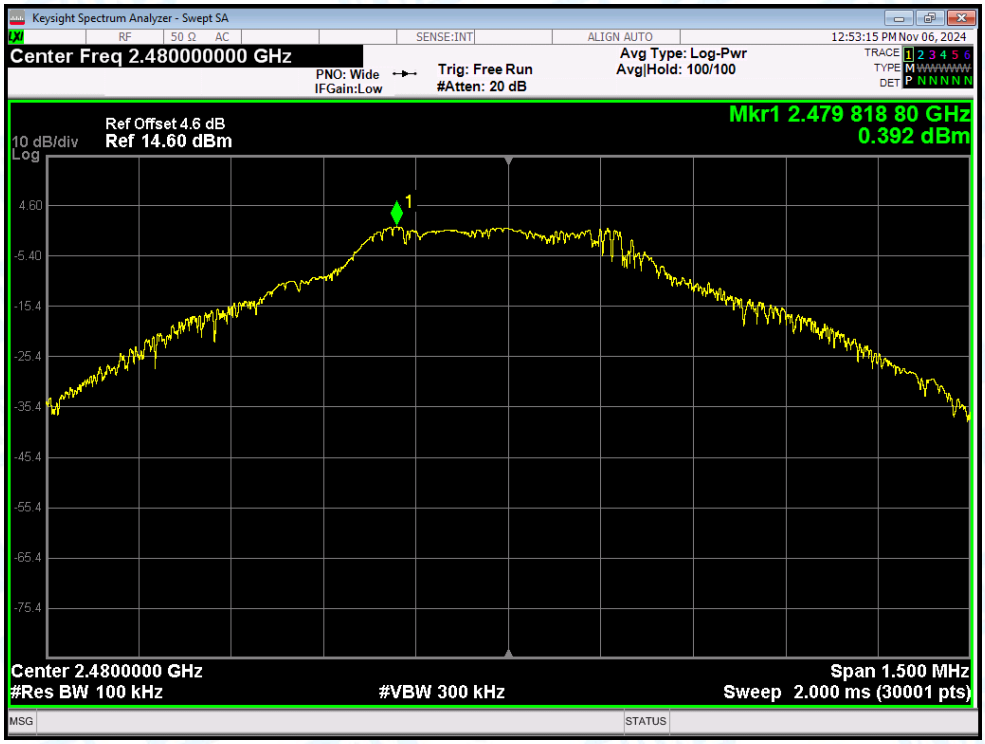
Tx. Spurious NVNT 1-DH1 2441MHz Ant1 Ref



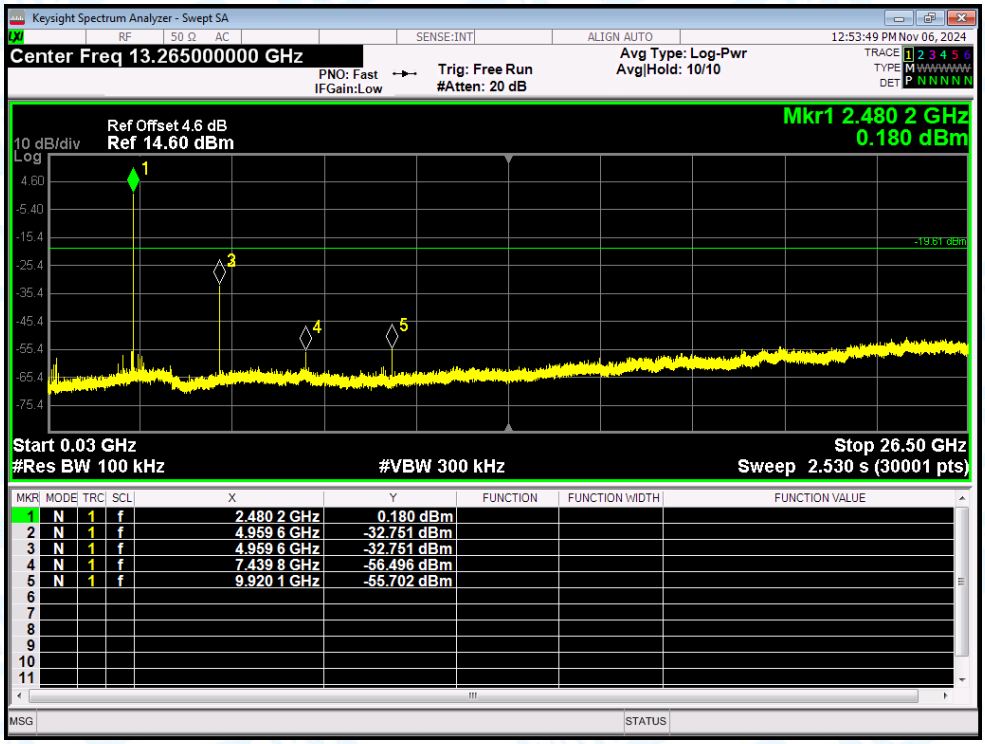
Tx. Spurious NVNT 1-DH1 2441MHz Ant1 Emission



Tx. Spurious NVNT 1-DH1 2480MHz Ant1 Ref



Tx. Spurious NVNT 1-DH1 2480MHz Ant1 Emission



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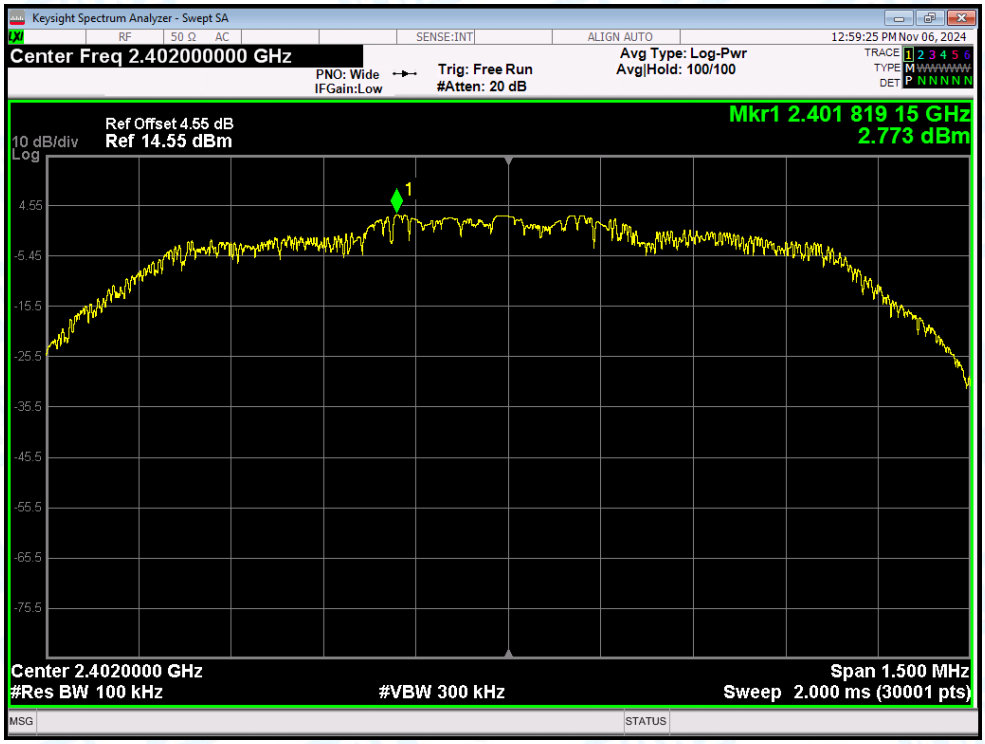
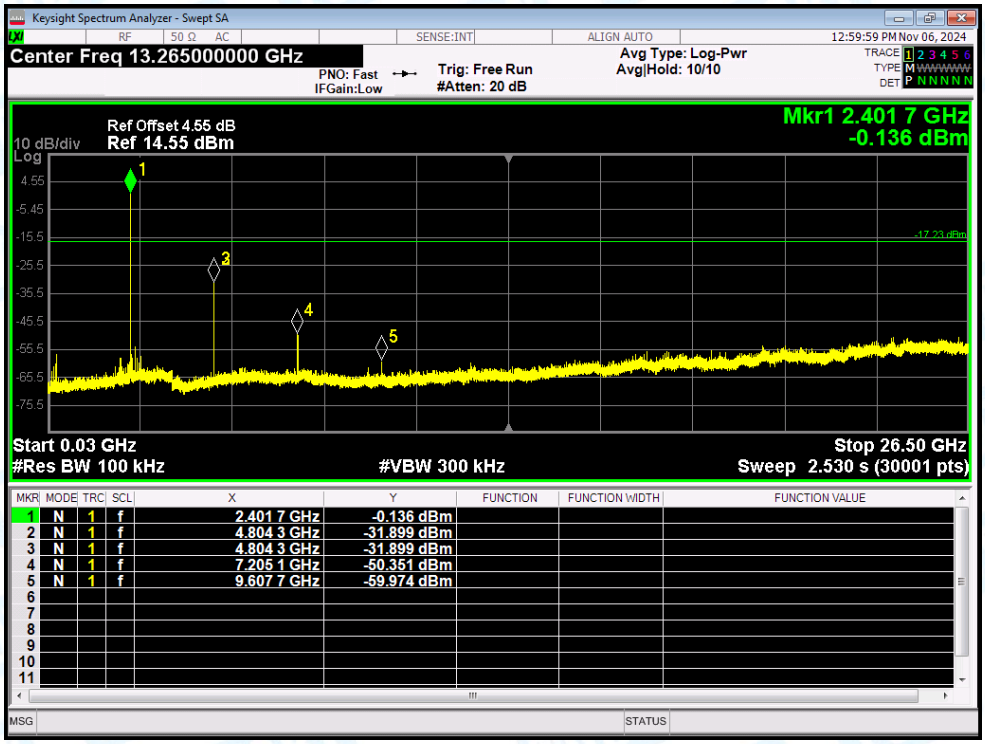
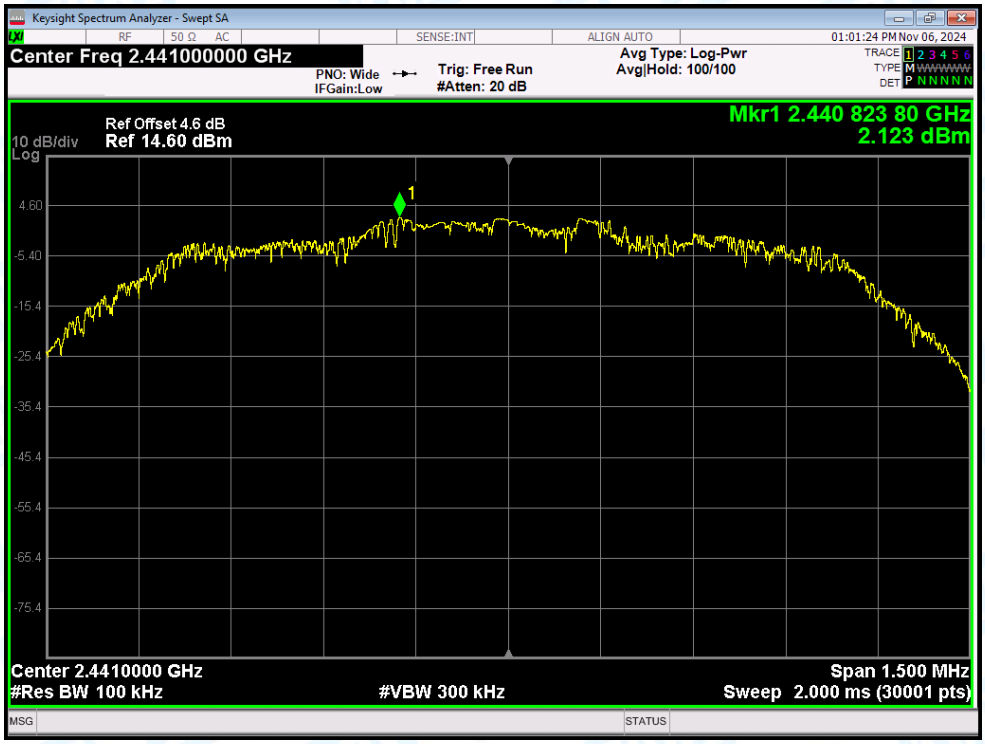


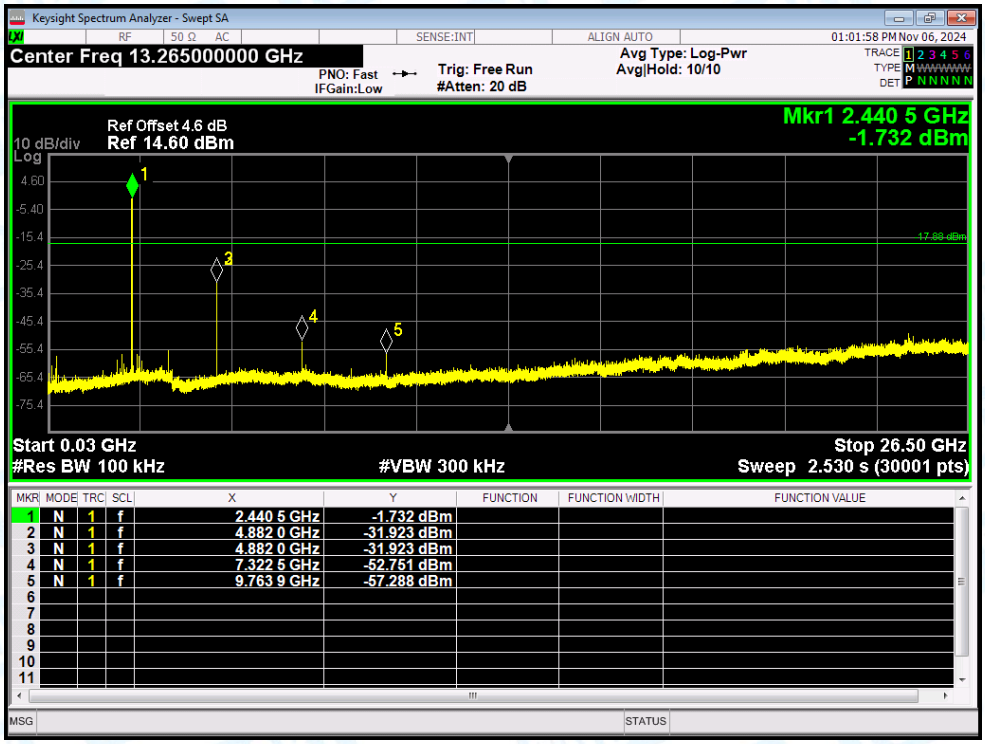
Tx. Spurious NVNT 2-DH1 2402MHz Ant1 Emission



Tx. Spurious NVNT 2-DH1 2441MHz Ant1 Ref

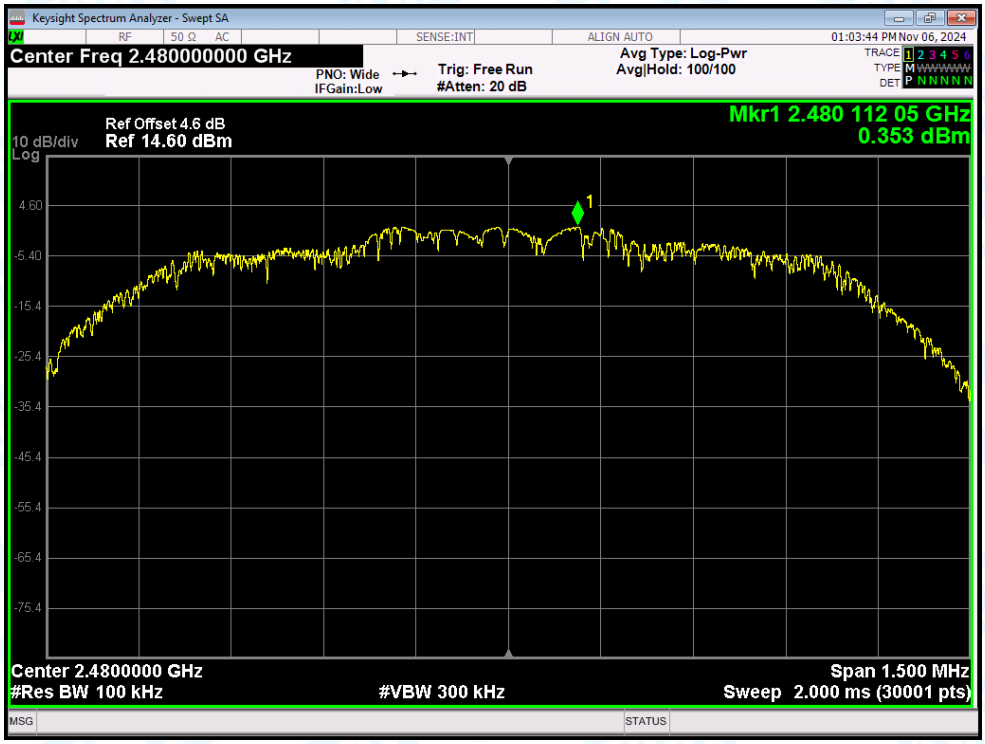


Tx. Spurious NVNT 2-DH1 2441MHz Ant1 Emission

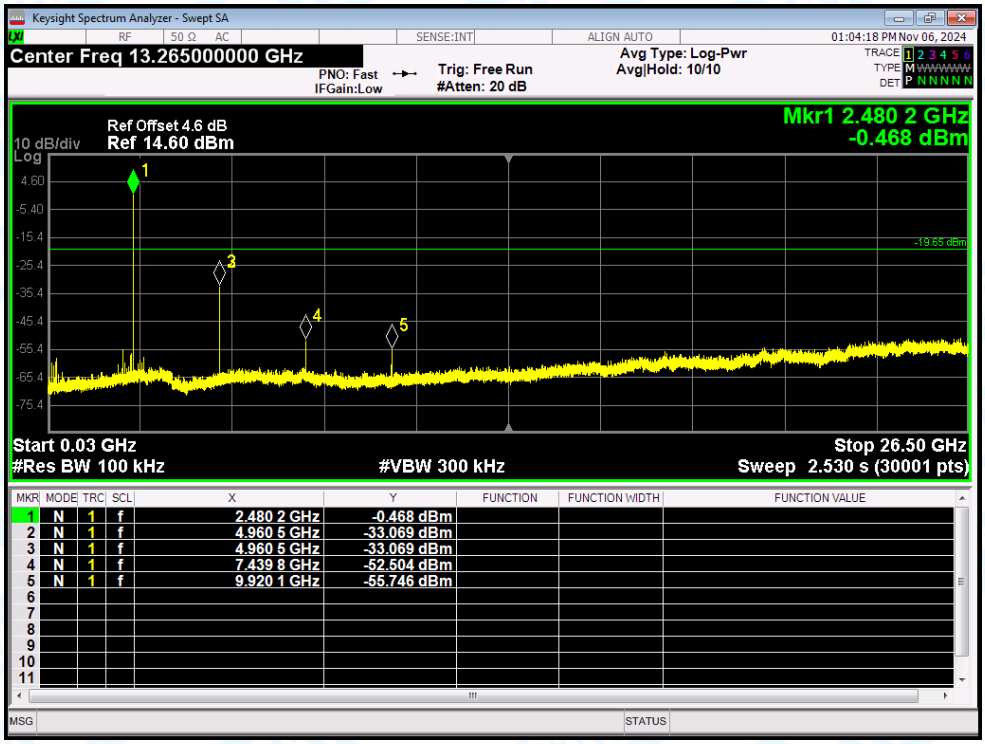


MKR	MODE	TRC	SCL	X	Y	FUNCTION	FUNCTION WIDTH	FUNCTION VALUE
1	N	1	f	2.440 5 GHz	-1.732 dBm			
2	N	1	f	4.882 0 GHz	-31.923 dBm			
3	N	1	f	4.882 0 GHz	-31.923 dBm			
4	N	1	f	7.322 5 GHz	-52.751 dBm			
5	N	1	f	9.763 9 GHz	-57.288 dBm			
6								
7								
8								
9								
10								
11								

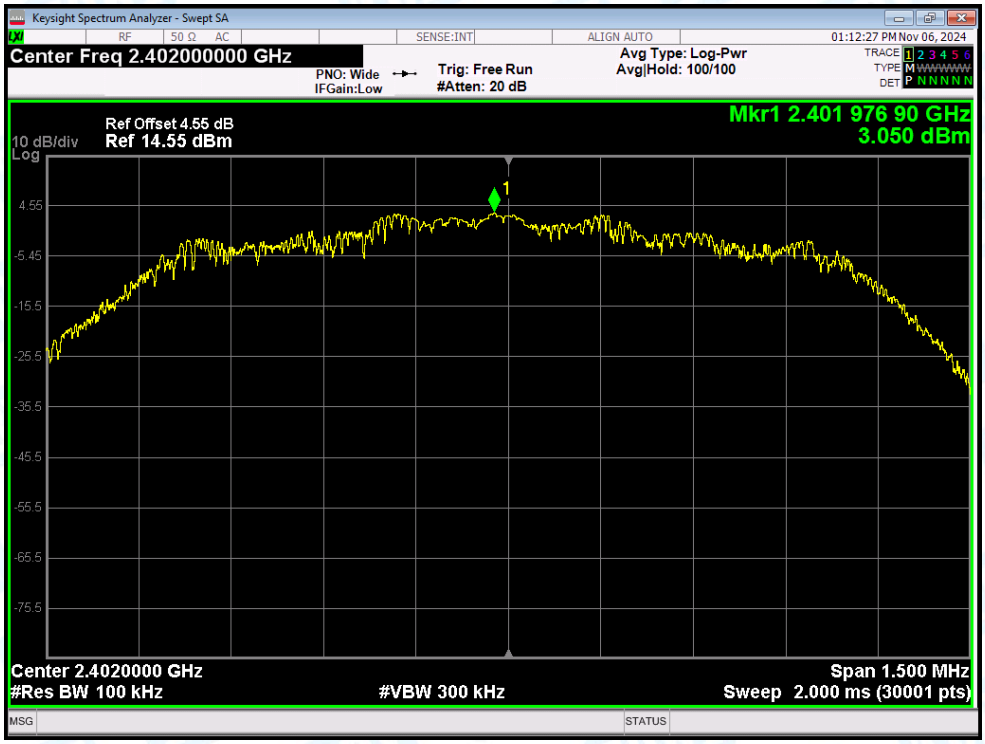
Tx. Spurious NVNT 2-DH1 2480MHz Ant1 Ref



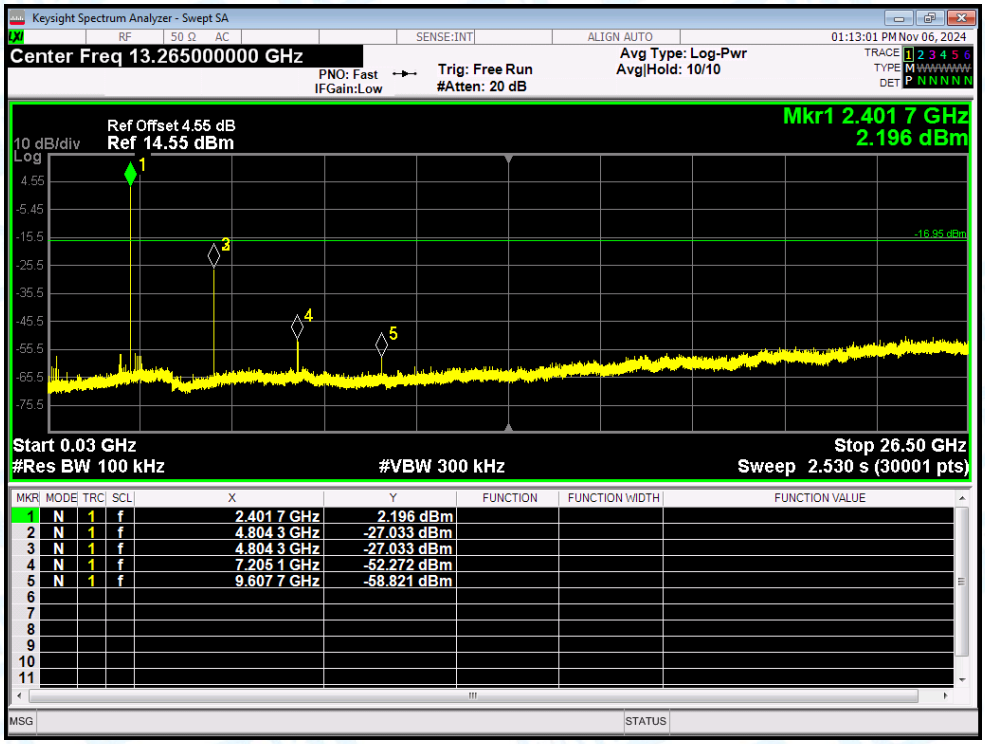
Tx. Spurious NVNT 2-DH1 2480MHz Ant1 Emission



Tx. Spurious NVNT 3-DH1 2402MHz Ant1 Ref

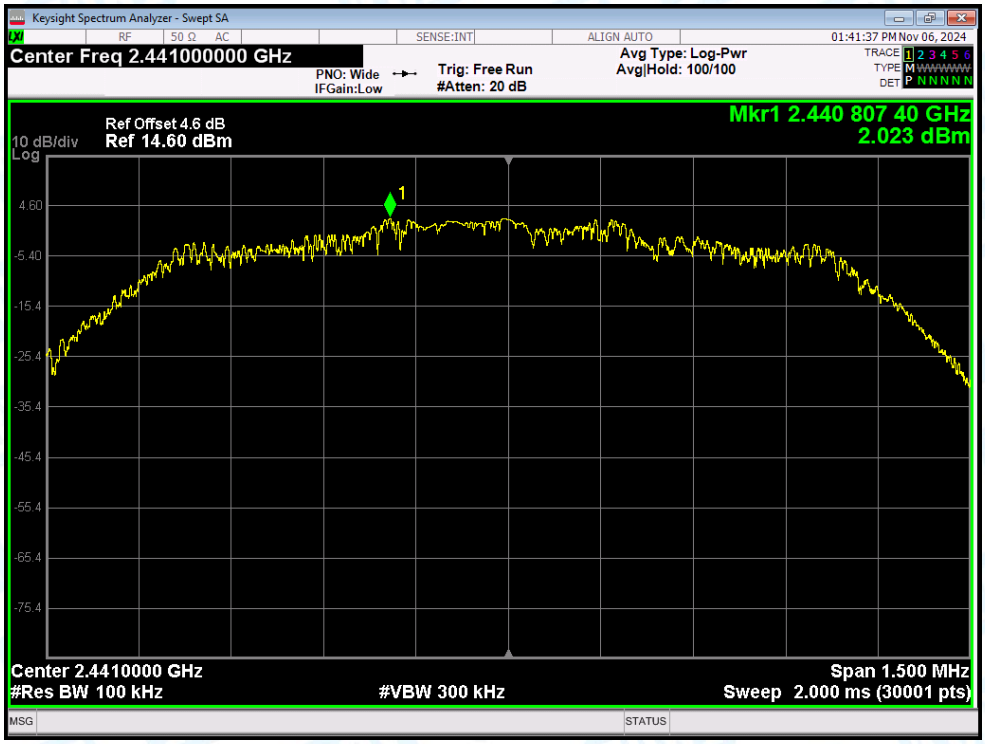


Tx. Spurious NVNT 3-DH1 2402MHz Ant1 Emission

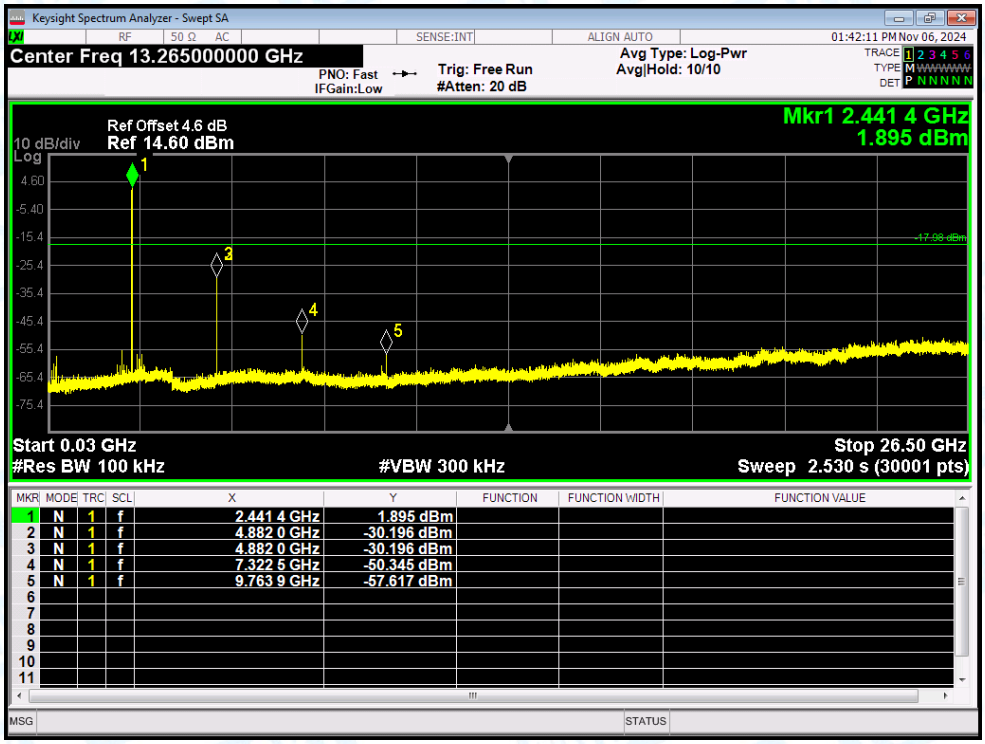


MKR	MODE	TRC	SCL	X	Y	FUNCTION	FUNCTION WIDTH	FUNCTION VALUE
1	N	1	f	2.401 7 GHz	2.196 dBm			
2	N	1	f	4.804 3 GHz	-27.033 dBm			
3	N	1	f	4.804 3 GHz	-27.033 dBm			
4	N	1	f	7.205 1 GHz	-52.272 dBm			
5	N	1	f	9.607 7 GHz	-58.821 dBm			
6								
7								
8								
9								
10								
11								

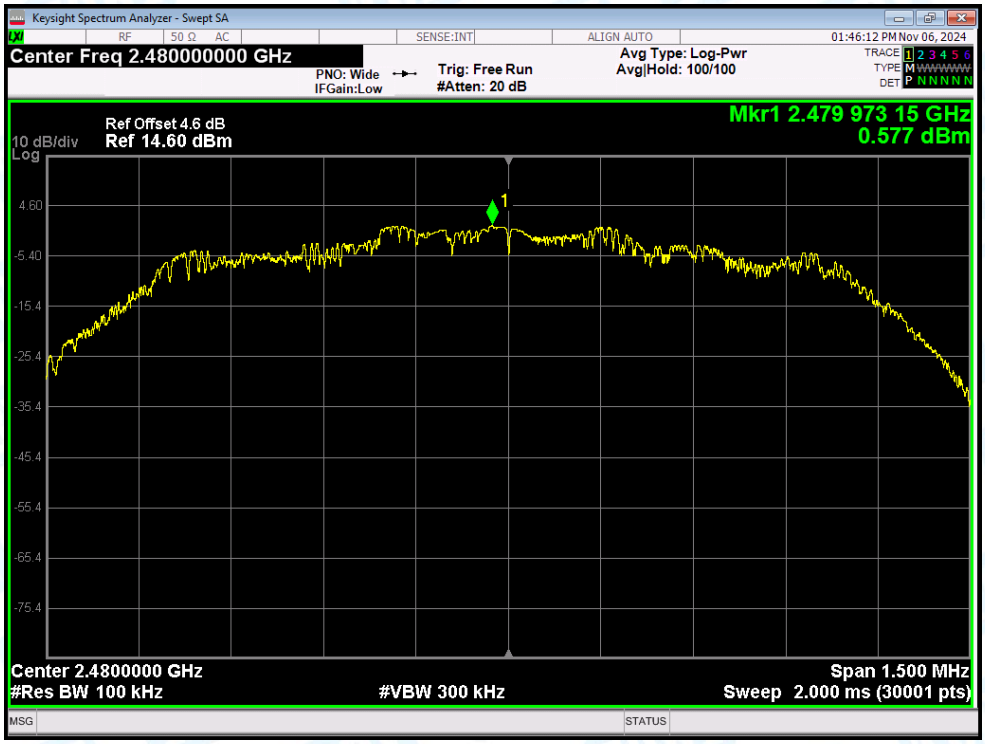
Tx. Spurious NVNT 3-DH1 2441MHz Ant1 Ref



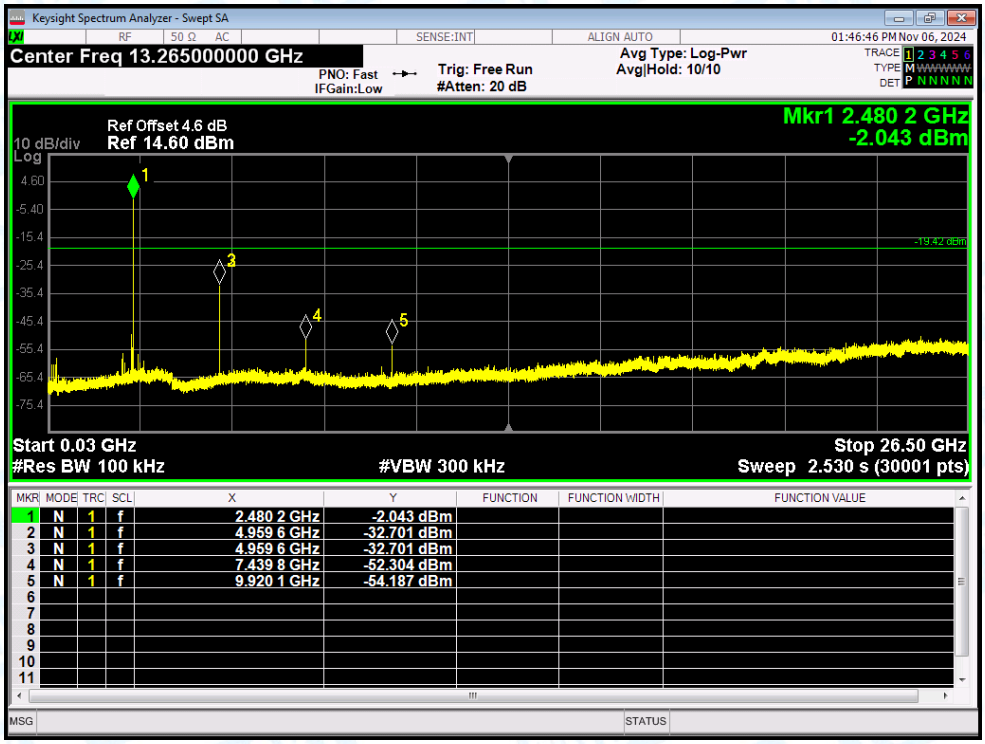
Tx. Spurious NVNT 3-DH1 2441MHz Ant1 Emission



Tx. Spurious NVNT 3-DH1 2480MHz Ant1 Ref



Tx. Spurious NVNT 3-DH1 2480MHz Ant1 Emission

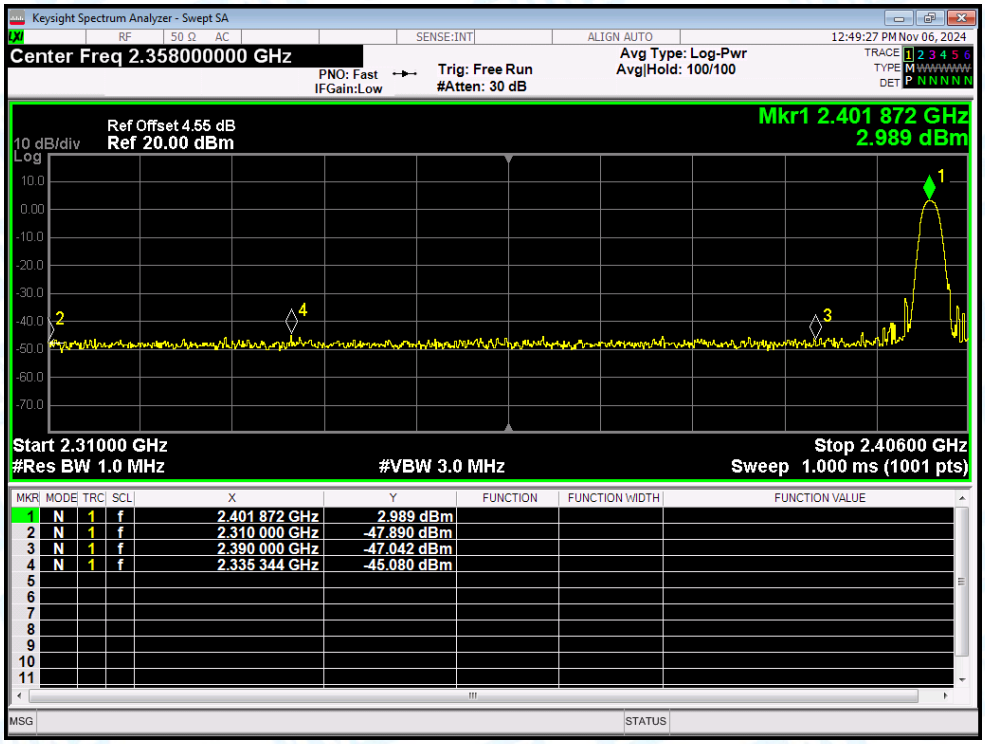


8. Restrict Band

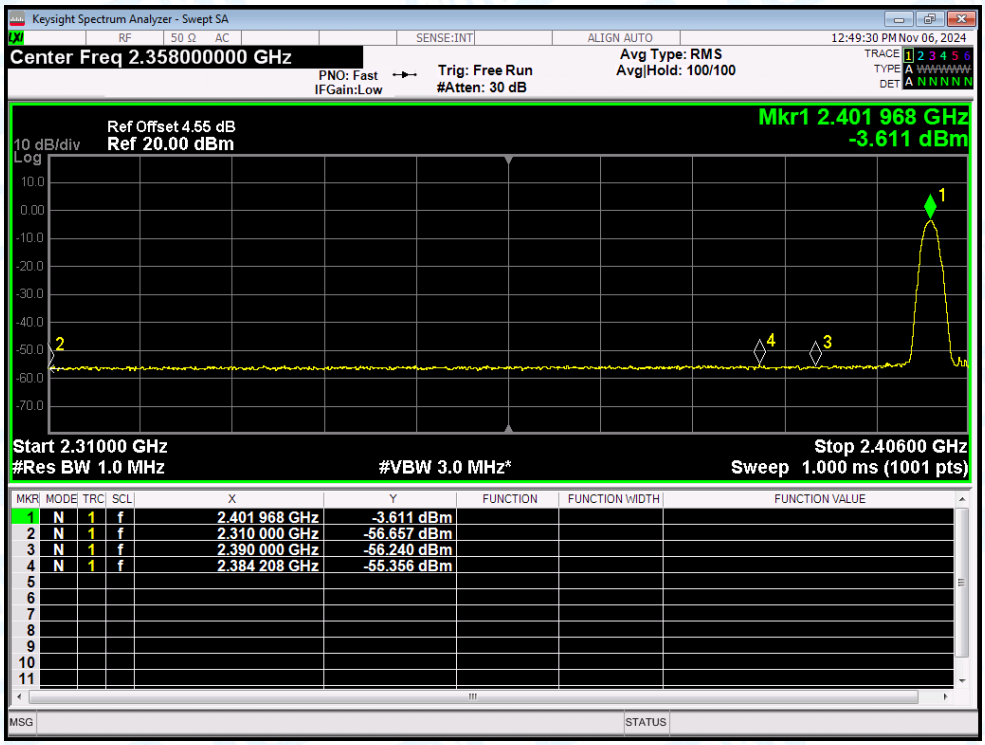
Condition	Mode	Frequency (MHz)	Antenna	Hopping Mode	Spur Freq (MHz)	Power (dBm)	Gain (dBi)	Duty Factor (dB)	E (dBuV/m)	Detector	Limit (dBuV/m)	Verdict
NVNT	1-DH1	2402	Ant1	No-Hopping	2310	-47.89	2	-	49.37	Peak	74	Pass
NVNT	1-DH1	2402	Ant1	No-Hopping	2310	-56.66	2	4.84	45.44	Average	54	Pass
NVNT	1-DH1	2402	Ant1	No-Hopping	2335.344	-45.08	2	-	52.18	Peak	74	Pass
NVNT	1-DH1	2402	Ant1	No-Hopping	2384.208	-55.36	2	4.84	46.74	Average	54	Pass
NVNT	1-DH1	2402	Ant1	No-Hopping	2390	-47.04	2	-	50.22	Peak	74	Pass
NVNT	1-DH1	2402	Ant1	No-Hopping	2390	-56.24	2	4.84	45.86	Average	54	Pass
NVNT	1-DH1	2480	Ant1	No-Hopping	2483.5	-47.35	2	-	49.91	Peak	74	Pass
NVNT	1-DH1	2480	Ant1	No-Hopping	2483.5	-55.45	2	4.95	46.76	Average	54	Pass
NVNT	1-DH1	2480	Ant1	No-Hopping	2483.752	-37.99	2	-	59.27	Peak	74	Pass
NVNT	1-DH1	2480	Ant1	No-Hopping	2483.752	-54.47	2	4.95	47.74	Average	54	Pass
NVNT	1-DH1	2480	Ant1	No-Hopping	2500	-44.9	2	-	52.36	Peak	74	Pass
NVNT	1-DH1	2480	Ant1	No-Hopping	2500	-54.92	2	4.95	47.29	Average	54	Pass
NVNT	2-DH1	2402	Ant1	No-Hopping	2310	-48.91	2	-	48.35	Peak	74	Pass
NVNT	2-DH1	2402	Ant1	No-Hopping	2310	-56.31	2	4.84	45.79	Average	54	Pass
NVNT	2-DH1	2402	Ant1	No-Hopping	2342.928	-44.9	2	-	52.36	Peak	74	Pass
NVNT	2-DH1	2402	Ant1	No-Hopping	2383.248	-55.35	2	4.84	46.75	Average	54	Pass
NVNT	2-DH1	2402	Ant1	No-Hopping	2390	-48.33	2	-	48.93	Peak	74	Pass
NVNT	2-DH1	2402	Ant1	No-Hopping	2390	-55.56	2	4.84	46.54	Average	54	Pass
NVNT	2-DH1	2480	Ant1	No-Hopping	2483.5	-47.46	2	-	49.8	Peak	74	Pass
NVNT	2-DH1	2480	Ant1	No-Hopping	2483.5	-55.45	2	4.84	46.65	Average	54	Pass
NVNT	2-DH1	2480	Ant1	No-Hopping	2483.8	-37.86	2	-	59.4	Peak	74	Pass
NVNT	2-DH1	2480	Ant1	No-Hopping	2483.776	-54.02	2	4.84	48.08	Average	54	Pass
NVNT	2-DH1	2480	Ant1	No-Hopping	2500	-47.88	2	-	49.38	Peak	74	Pass
NVNT	2-DH1	2480	Ant1	No-Hopping	2500	-55.5	2	4.84	46.6	Average	54	Pass
NVNT	3-DH1	2402	Ant1	No-Hopping	2310	-48.63	2	-	48.63	Peak	74	Pass
NVNT	3-DH1	2402	Ant1	No-Hopping	2310	-56.3	2	4.84	45.8	Average	54	Pass
NVNT	3-DH1	2402	Ant1	No-Hopping	2322.192	-45.38	2	-	51.88	Peak	74	Pass
NVNT	3-DH1	2402	Ant1	No-Hopping	2378.448	-55.15	2	4.84	46.95	Average	54	Pass
NVNT	3-DH1	2402	Ant1	No-Hopping	2390	-48.07	2	-	49.19	Peak	74	Pass
NVNT	3-DH1	2402	Ant1	No-Hopping	2390	-56.56	2	4.84	45.54	Average	54	Pass
NVNT	3-DH1	2480	Ant1	No-Hopping	2483.5	-47.09	2	-	50.17	Peak	74	Pass
NVNT	3-DH1	2480	Ant1	No-Hopping	2483.5	-55.59	2	4.74	46.41	Average	54	Pass
NVNT	3-DH1	2480	Ant1	No-Hopping	2483.56	-36.37	2	-	60.89	Peak	74	Pass
NVNT	3-DH1	2480	Ant1	No-Hopping	2483.968	-54.42	2	4.74	47.58	Average	54	Pass
NVNT	3-DH1	2480	Ant1	No-Hopping	2500	-47.84	2	-	49.42	Peak	74	Pass
NVNT	3-DH1	2480	Ant1	No-Hopping	2500	-55.61	2	4.74	46.39	Average	54	Pass

Test Graphs

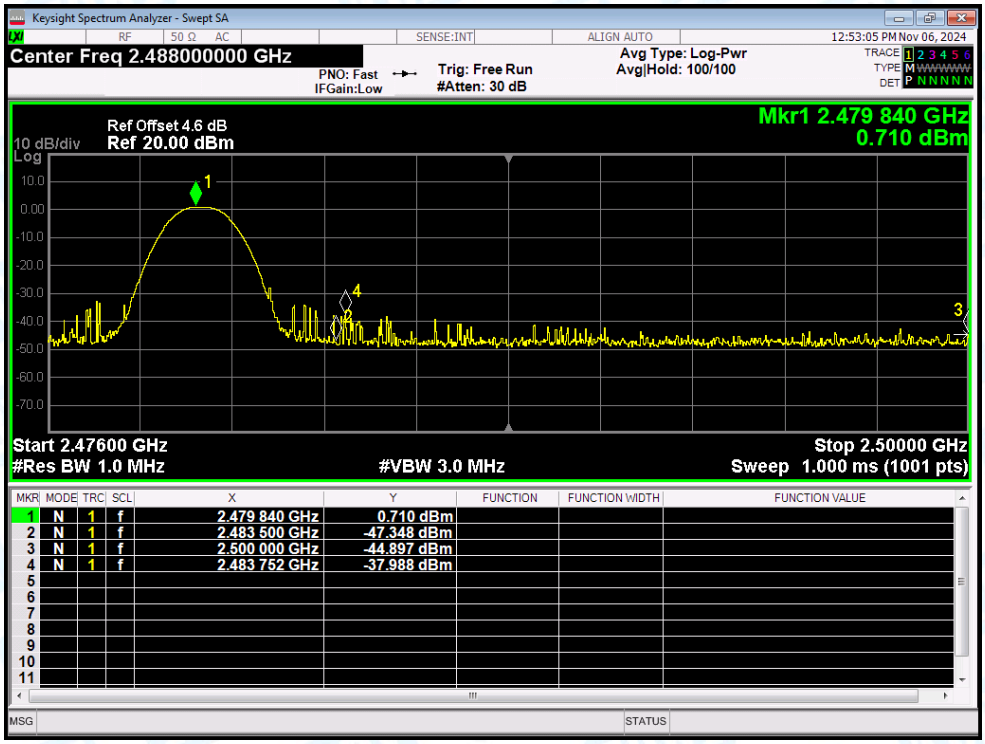
Restrict Band NVNT 1-DH1 2402MHz Ant1 No-Hopping Peak



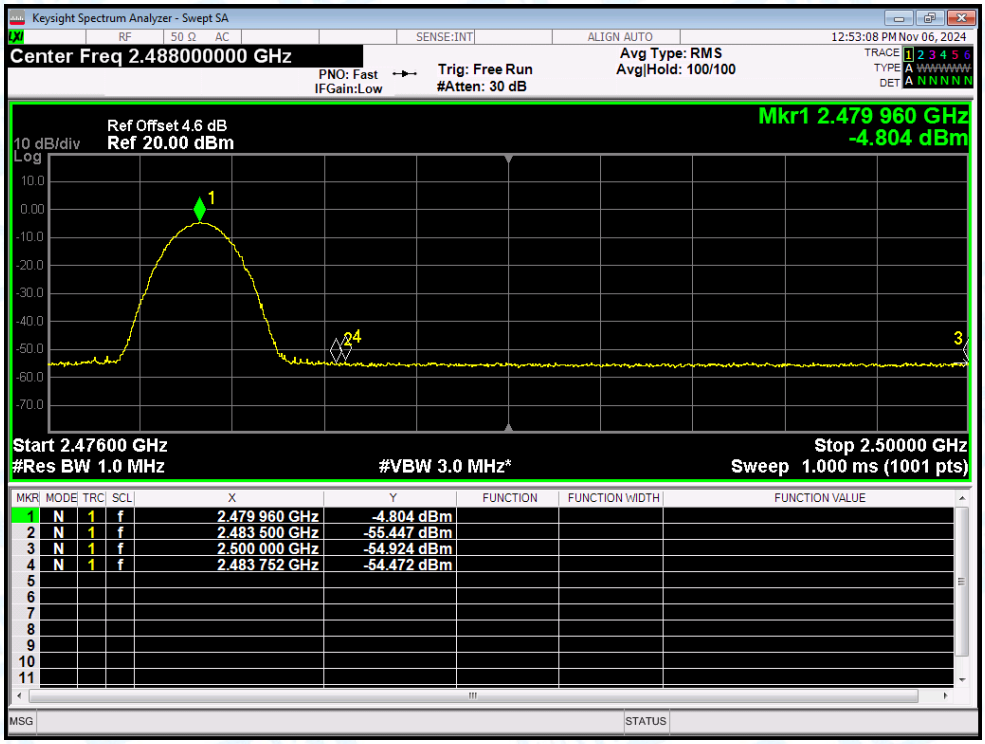
Restrict Band NVNT 1-DH1 2402MHz Ant1 No-Hopping Average



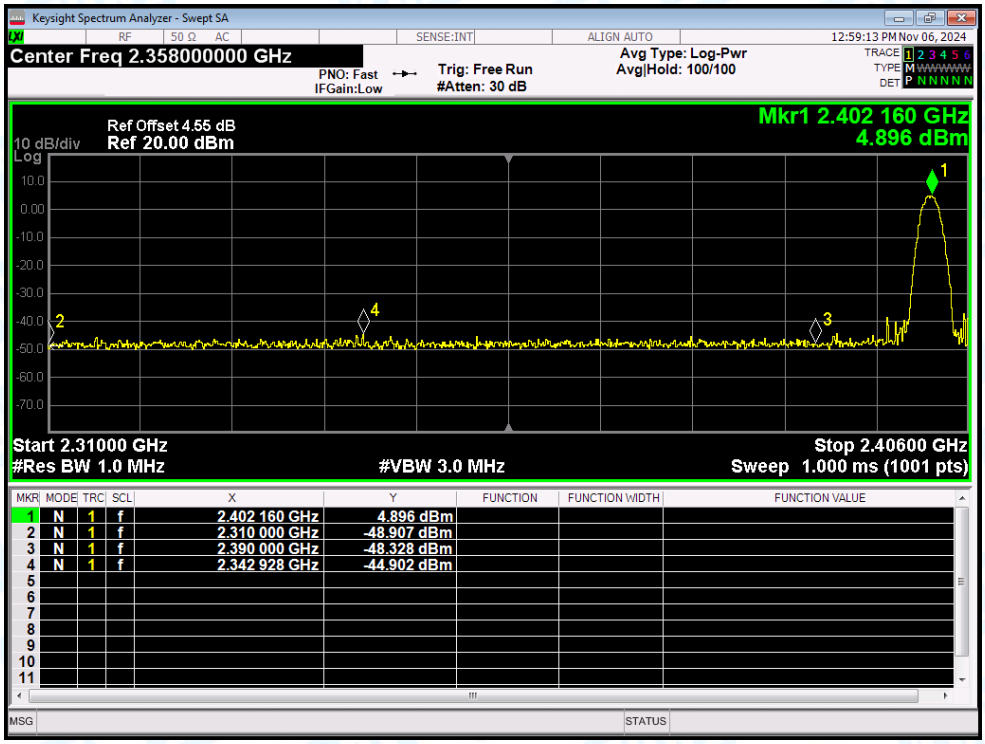
Restrict Band NVNT 1-DH1 2480MHz Ant1 No-Hopping Peak



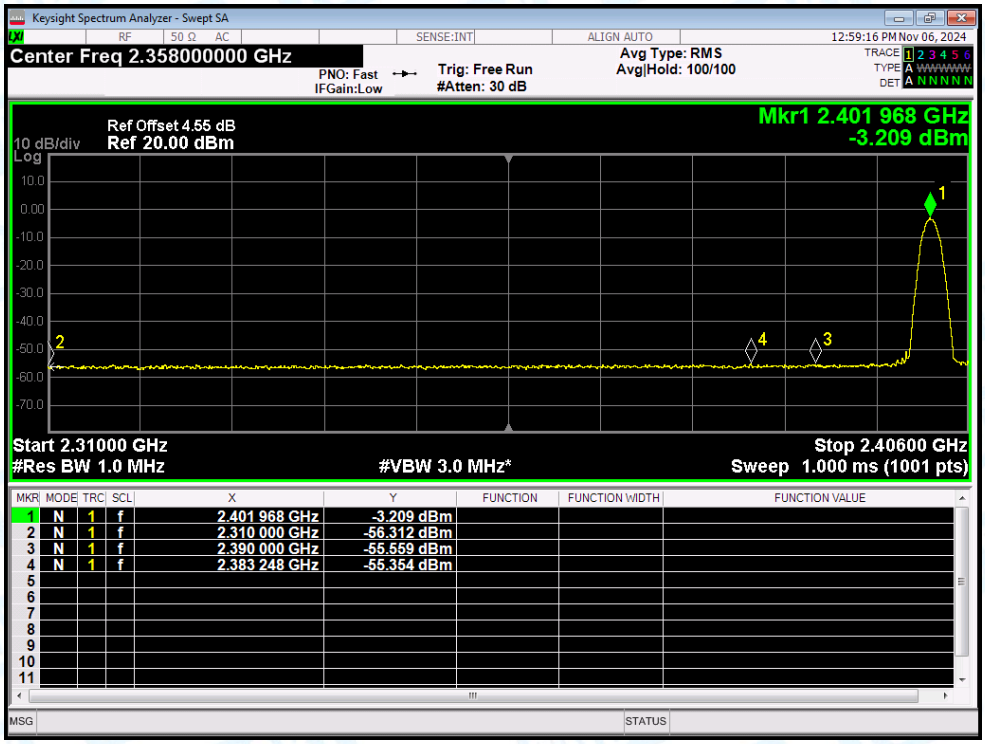
Restrict Band NVNT 1-DH1 2480MHz Ant1 No-Hopping Average



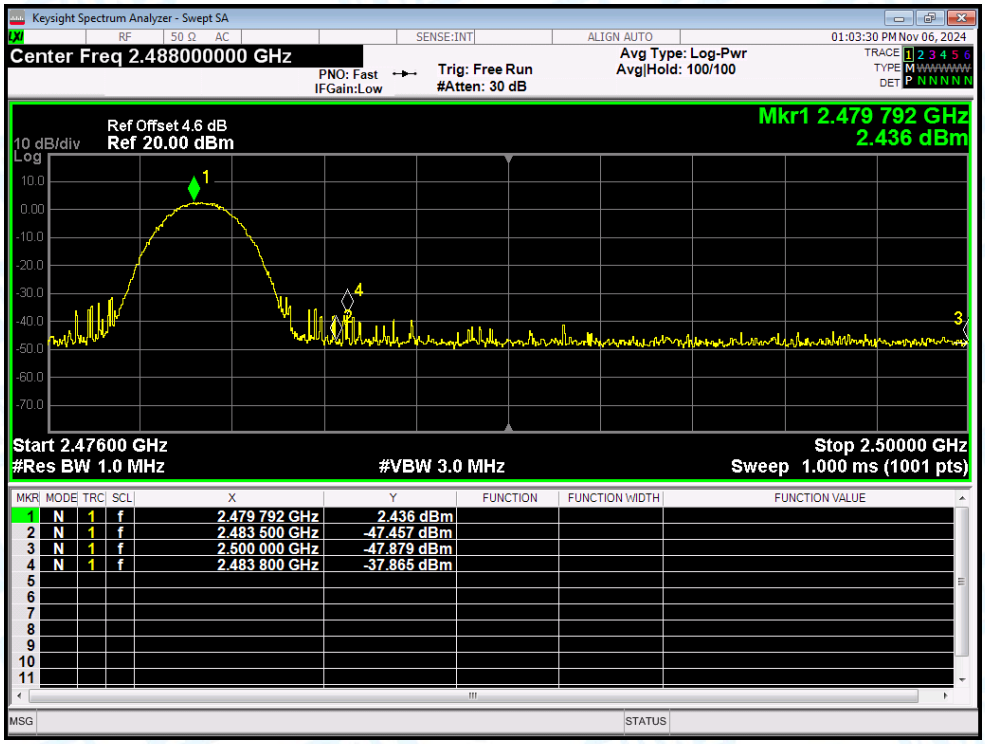
Restrict Band NVNT 2-DH1 2402MHz Ant1 No-Hopping Peak



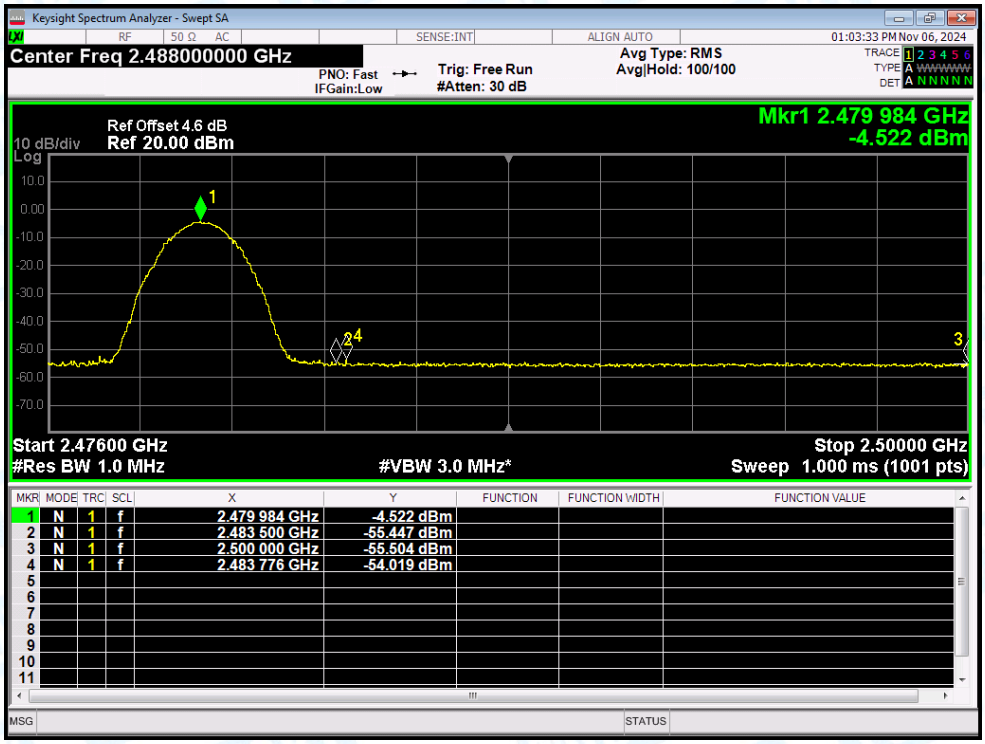
Restrict Band NVNT 2-DH1 2402MHz Ant1 No-Hopping Average



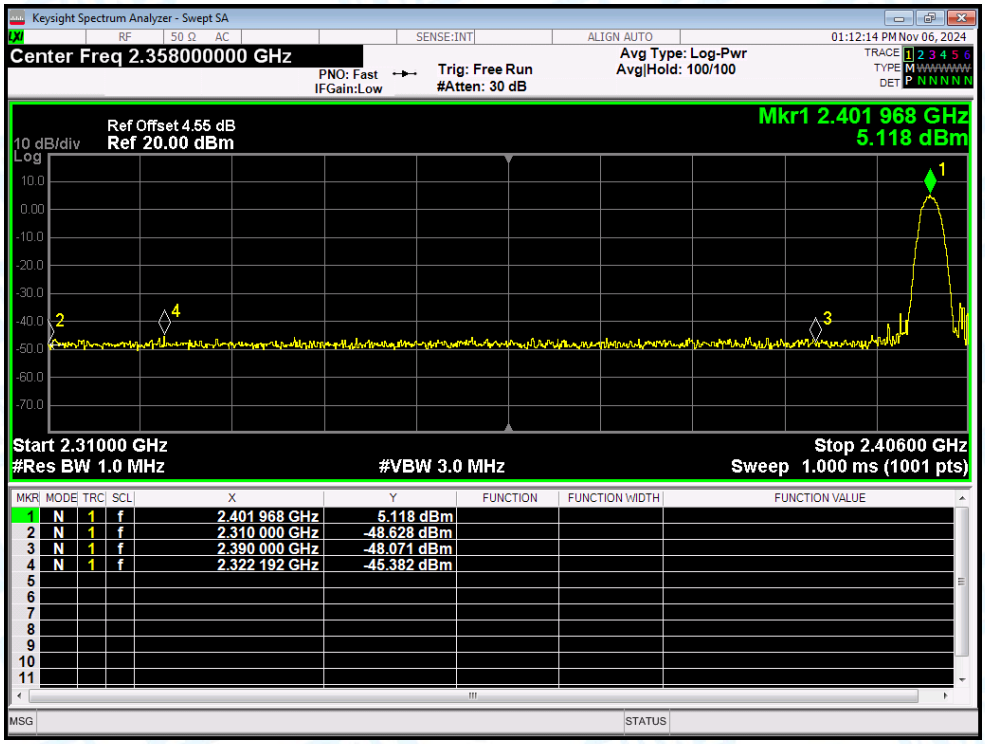
Restrict Band NVNT 2-DH1 2480MHz Ant1 No-Hopping Peak



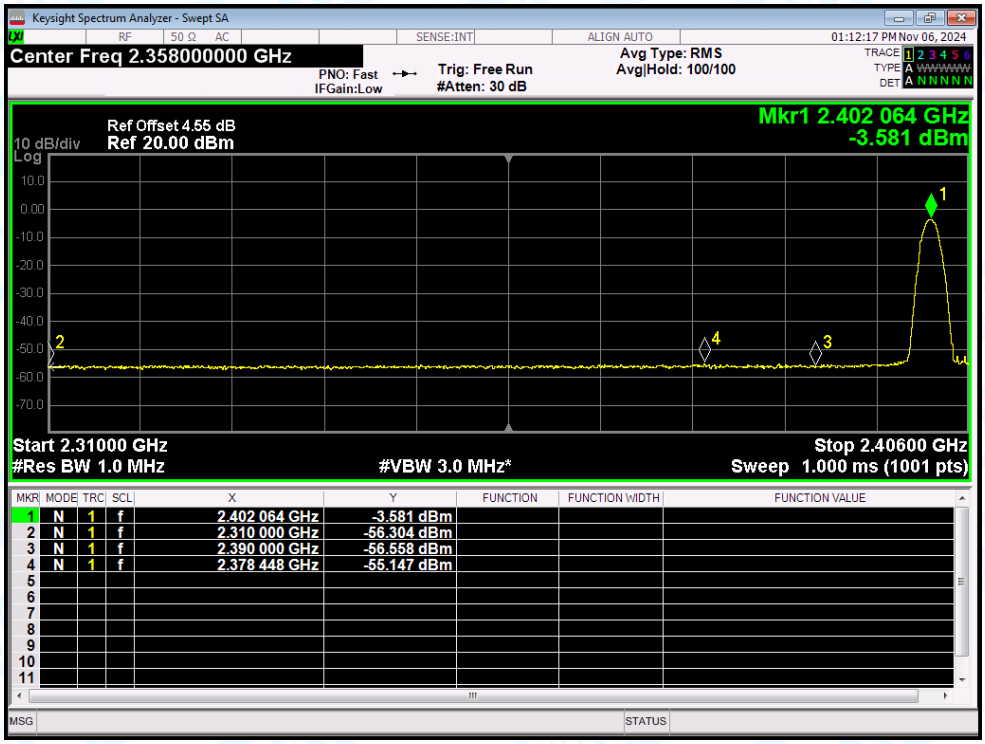
Restrict Band NVNT 2-DH1 2480MHz Ant1 No-Hopping Average



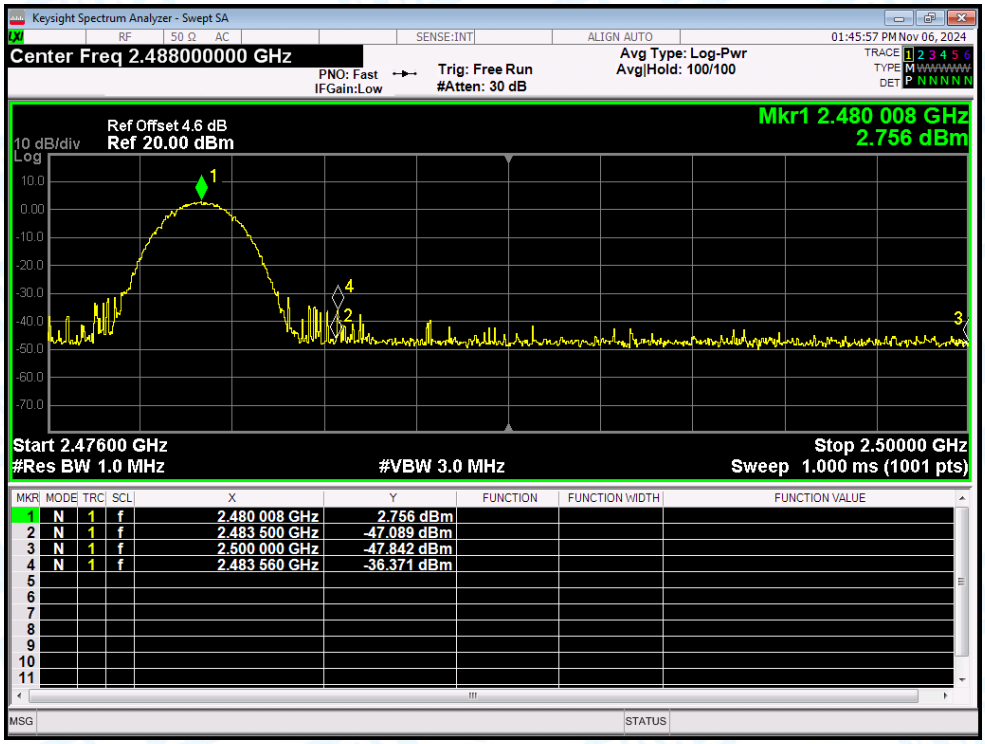
Restrict Band NVNT 3-DH1 2402MHz Ant1 No-Hopping Peak



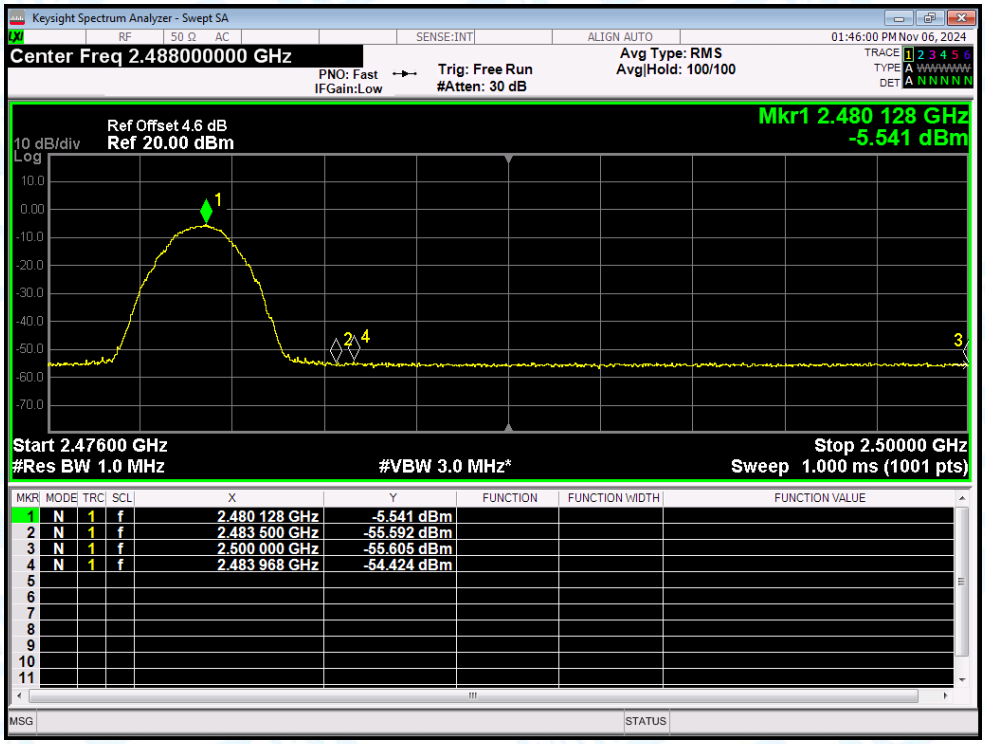
Restrict Band NVNT 3-DH1 2402MHz Ant1 No-Hopping Average



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



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

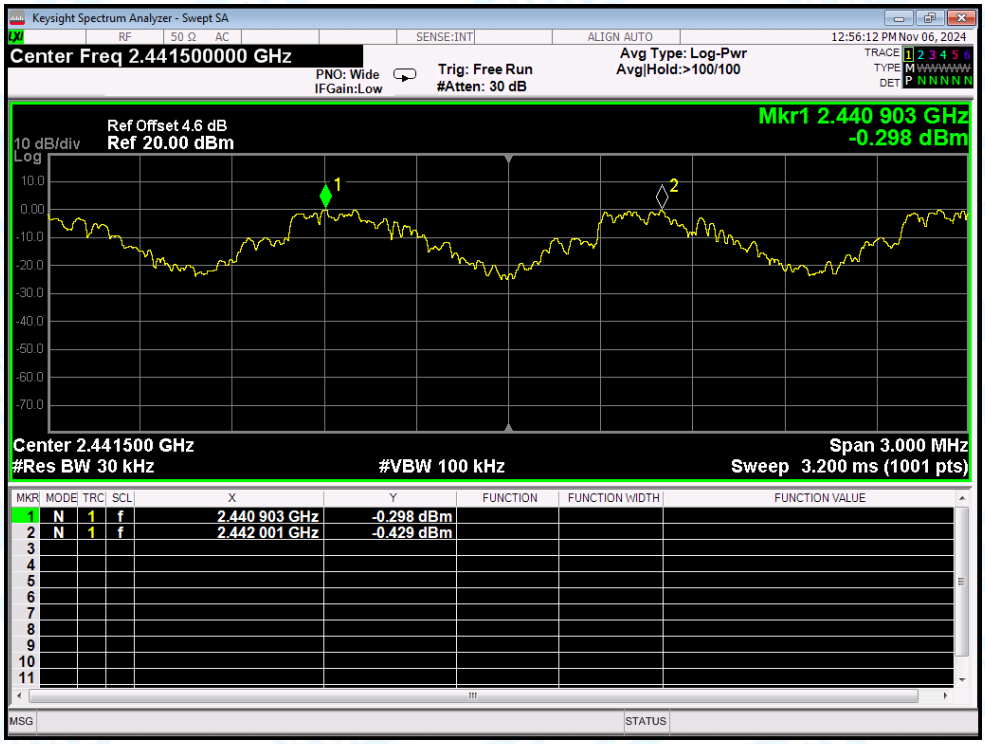


9. Carrier Frequencies Separation

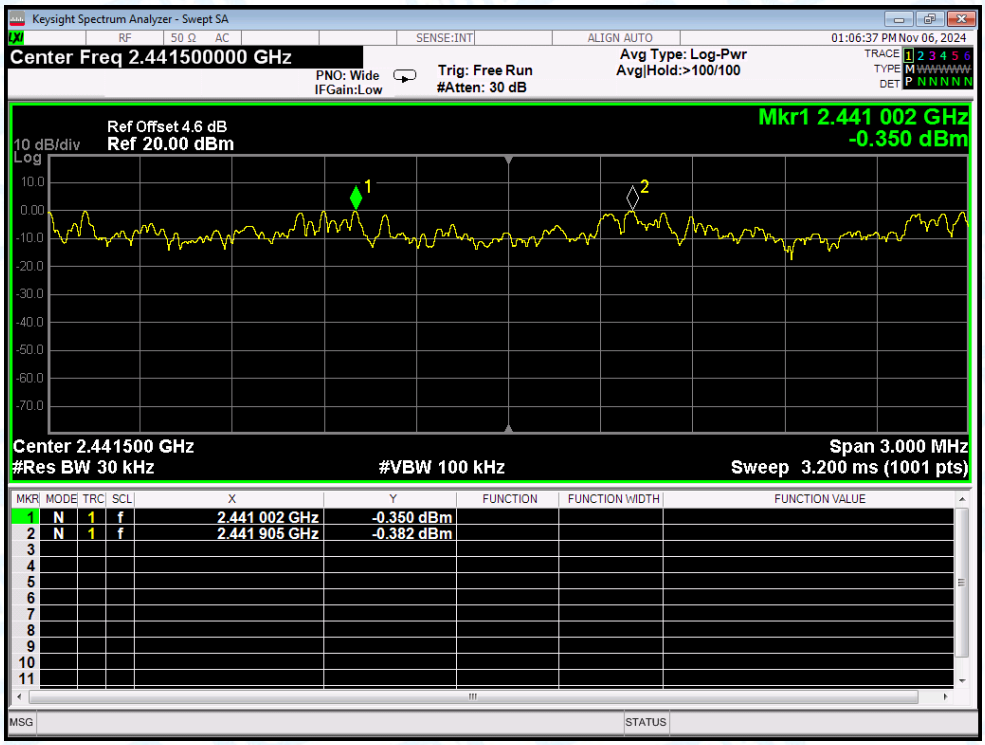
Condition	Mode	Antenna	Hopping Freq1 (MHz)	Hopping Freq2 (MHz)	HFS (MHz)	Limit (MHz)	Verdict
NVNT	1-DH1	Ant1	2440.903	2442.001	1.098	0.613	Pass
NVNT	2-DH1	Ant1	2441.002	2441.905	0.903	0.86	Pass
NVNT	3-DH1	Ant1	2440.996	2441.908	0.912	0.813	Pass

Test Graphs

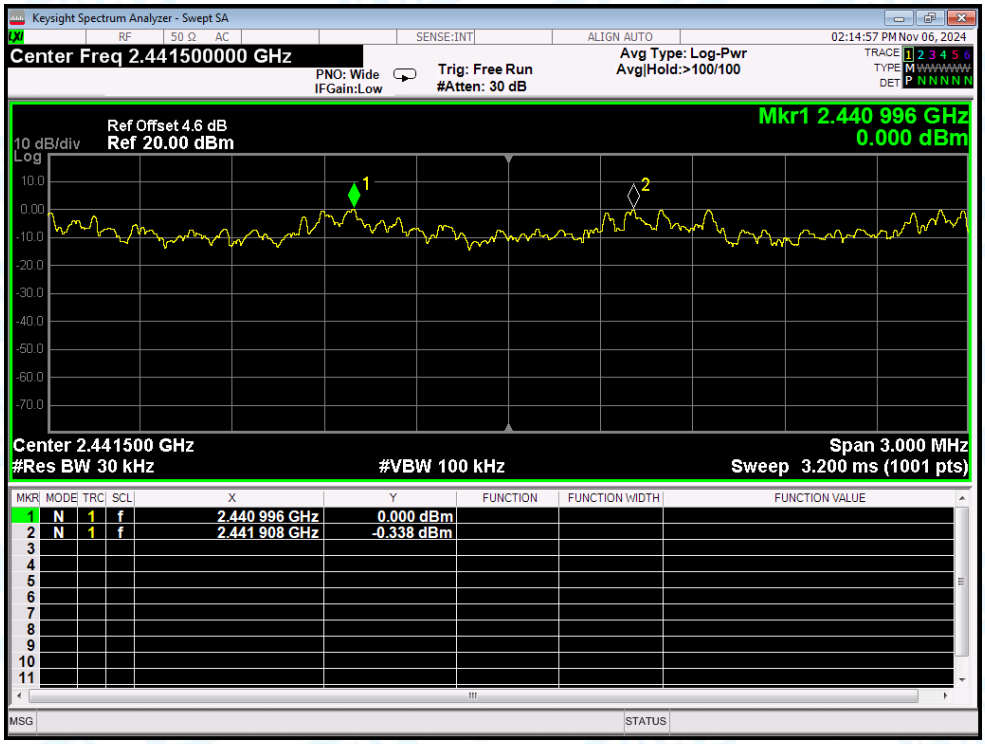
CFS NVNT 1-DH1 2441MHz Ant1



CFS NVNT 2-DH1 2441MHz Ant1



CFS NVNT 3-DH1 2441MHz Ant1

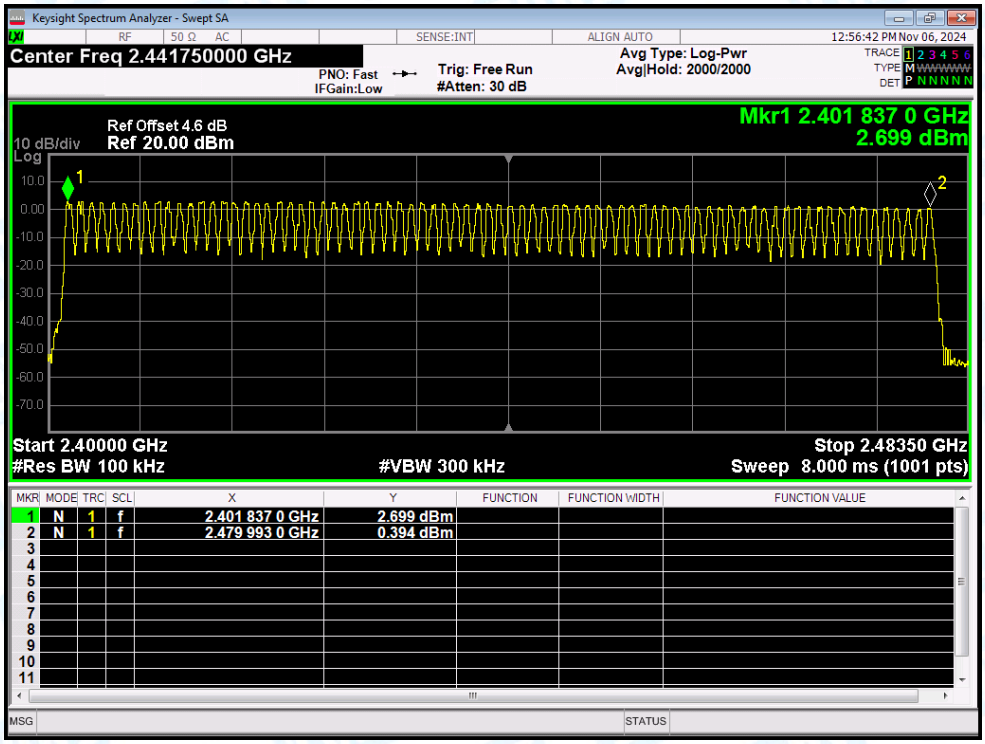


10. Number of Hopping Channel

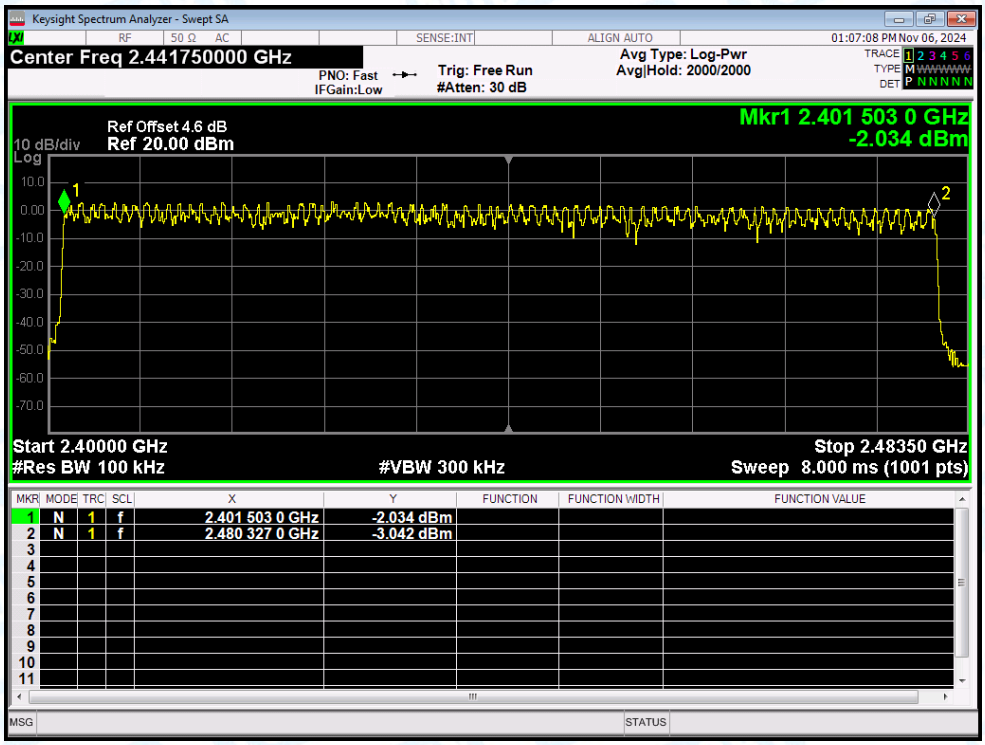
Condition	Mode	Antenna	Hopping Number	Limit	Verdict
NVNT	1-DH1	Ant1	79	15	Pass
NVNT	2-DH1	Ant1	79	15	Pass
NVNT	3-DH1	Ant1	79	15	Pass

Test Graphs

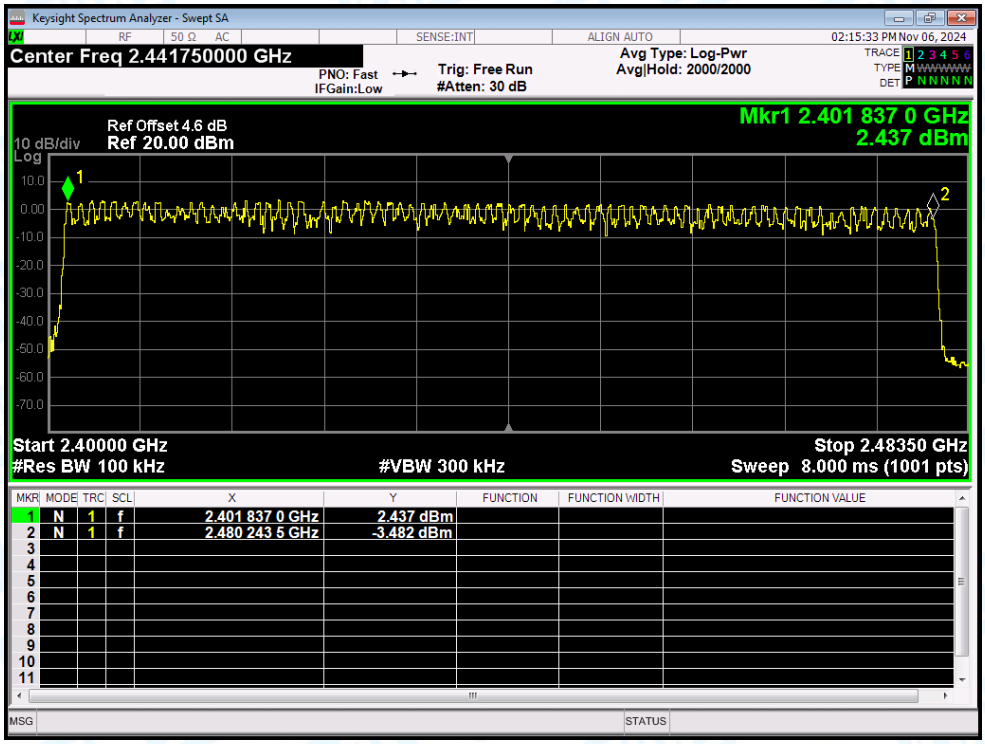
Hopping No. NVNT 1-DH1 2441MHz Ant1



Hopping No. NVNT 2-DH1 2441MHz Ant1



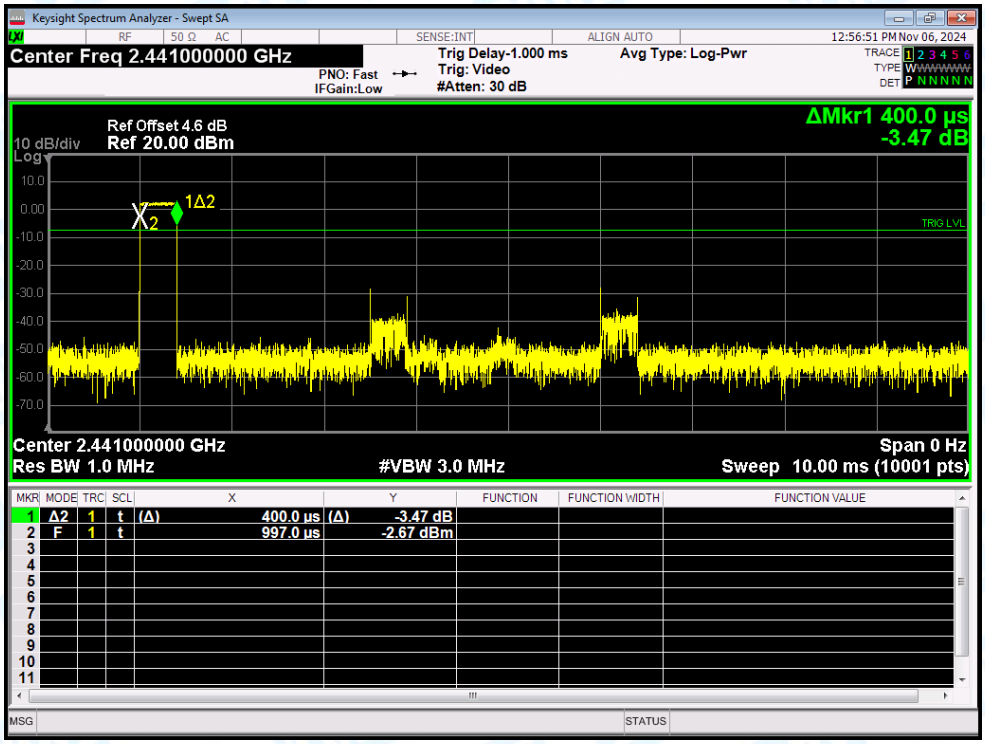
Hopping No. NVNT 3-DH1 2441MHz Ant1



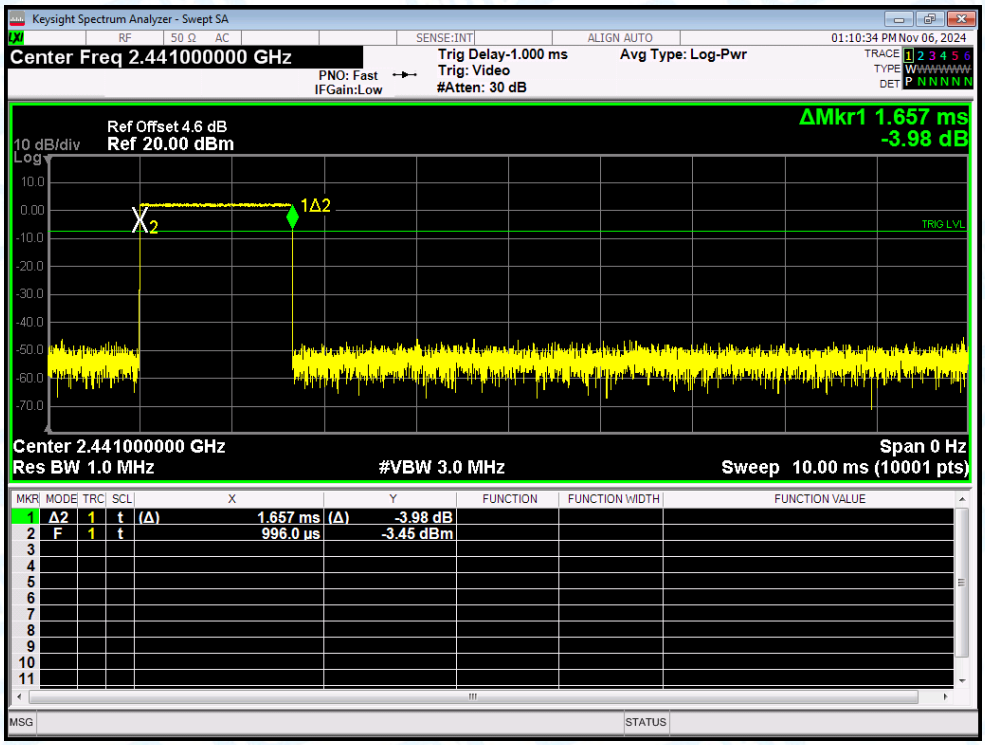
11. Dwell Time

Condition	Mode	Frequency (MHz)	Antenna	Pulse Time (ms)	Total Dwell Time (ms)	Period Time (ms)	Limit (ms)	Verdict
NVNT	1-DH1	2441	Ant1	0.4	128	31600	400	Pass
NVNT	1-DH3	2441	Ant1	1.657	265.12	31600	400	Pass
NVNT	1-DH5	2441	Ant1	2.904	309.76	31600	400	Pass
NVNT	2-DH1	2441	Ant1	0.409	130.88	31600	400	Pass
NVNT	2-DH3	2441	Ant1	1.661	265.76	31600	400	Pass
NVNT	2-DH5	2441	Ant1	2.91	310.4	31600	400	Pass
NVNT	3-DH1	2441	Ant1	0.41	131.2	31600	400	Pass
NVNT	3-DH3	2441	Ant1	1.66	265.6	31600	400	Pass
NVNT	3-DH5	2441	Ant1	2.911	310.507	31600	400	Pass

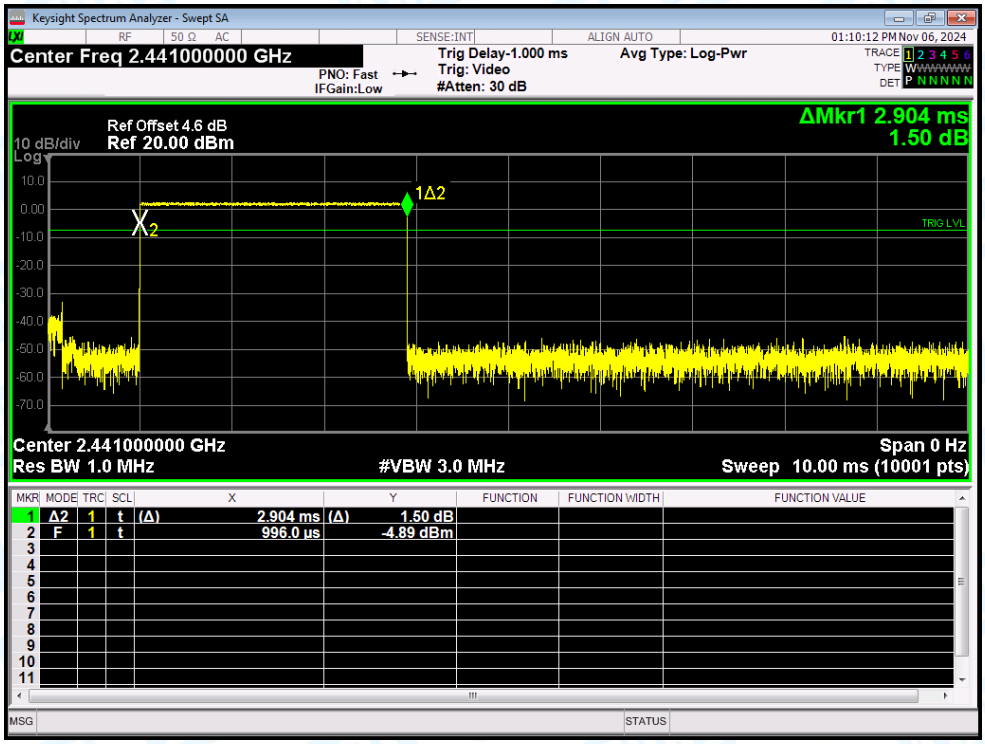
Test Graphs
Dwell NVNT 1-DH1 2441MHz Ant1



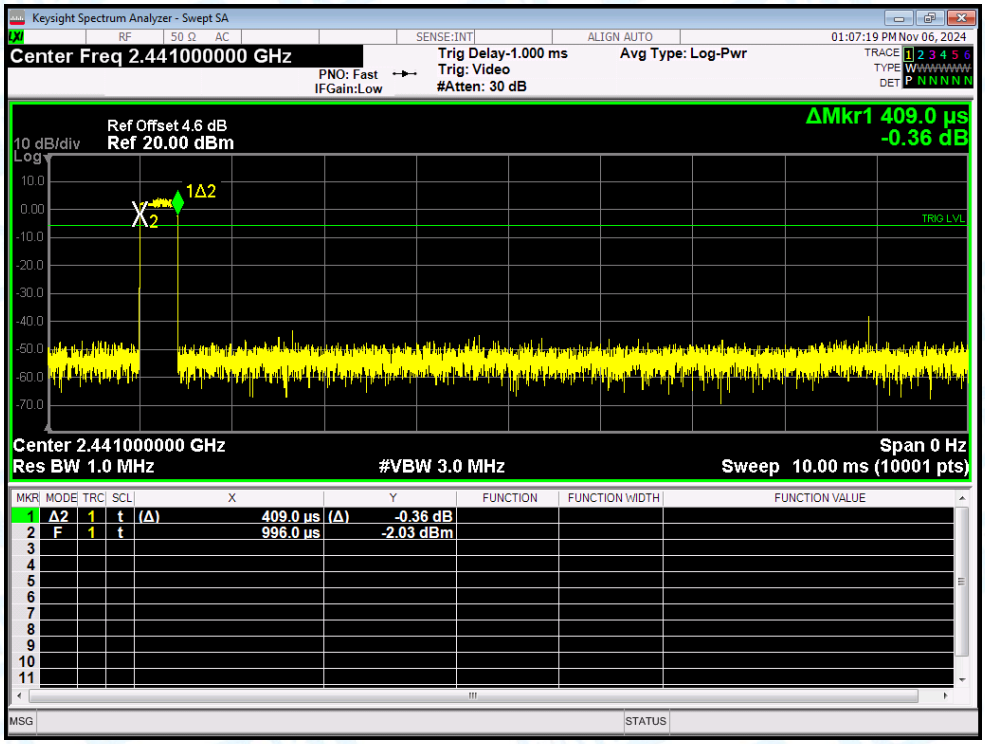
Dwell NVNT 1-DH3 2441MHz Ant1



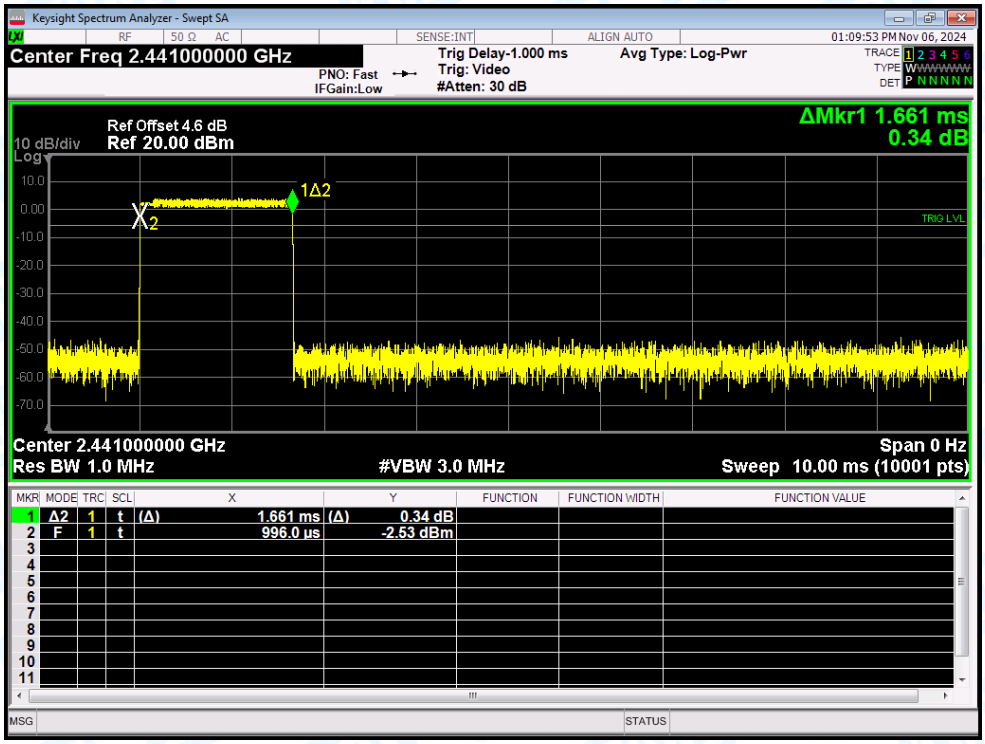
Dwell NVNT 1-DH5 2441MHz Ant1



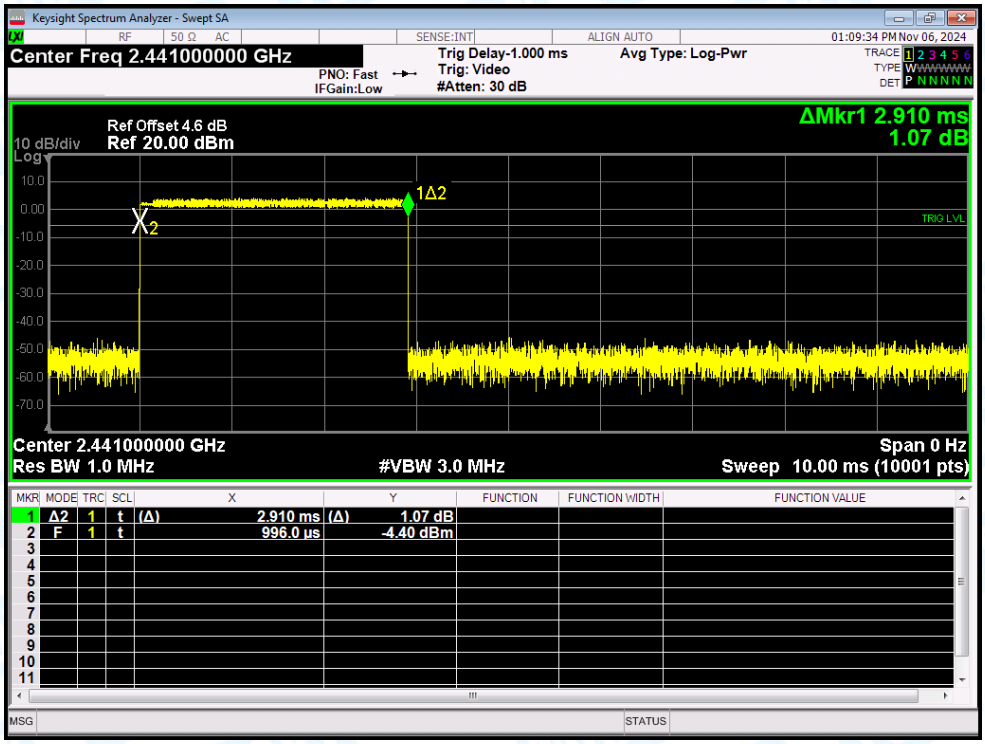
Dwell NVNT 2-DH1 2441MHz Ant1



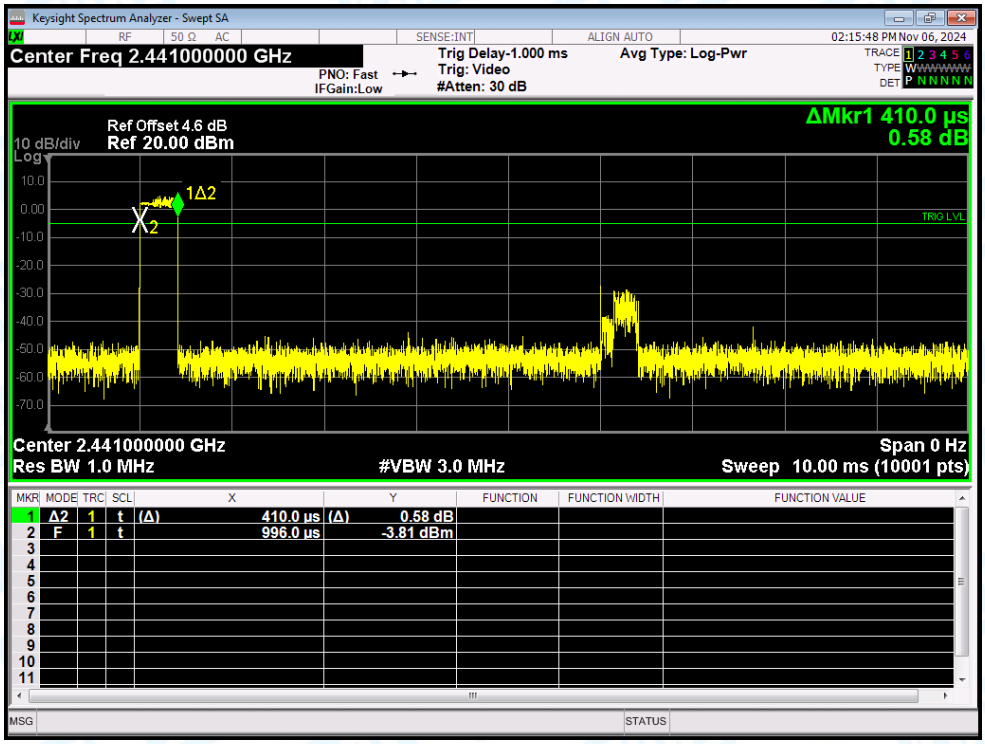
Dwell NVNT 2-DH3 2441MHz Ant1



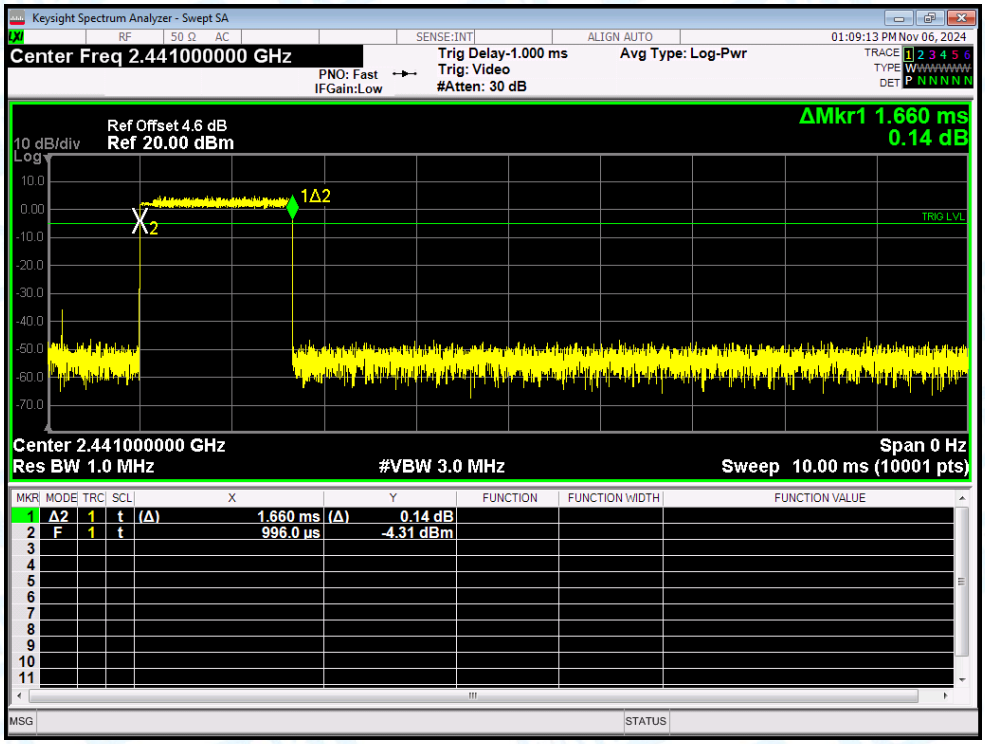
Dwell NVNT 2-DH5 2441MHz Ant1



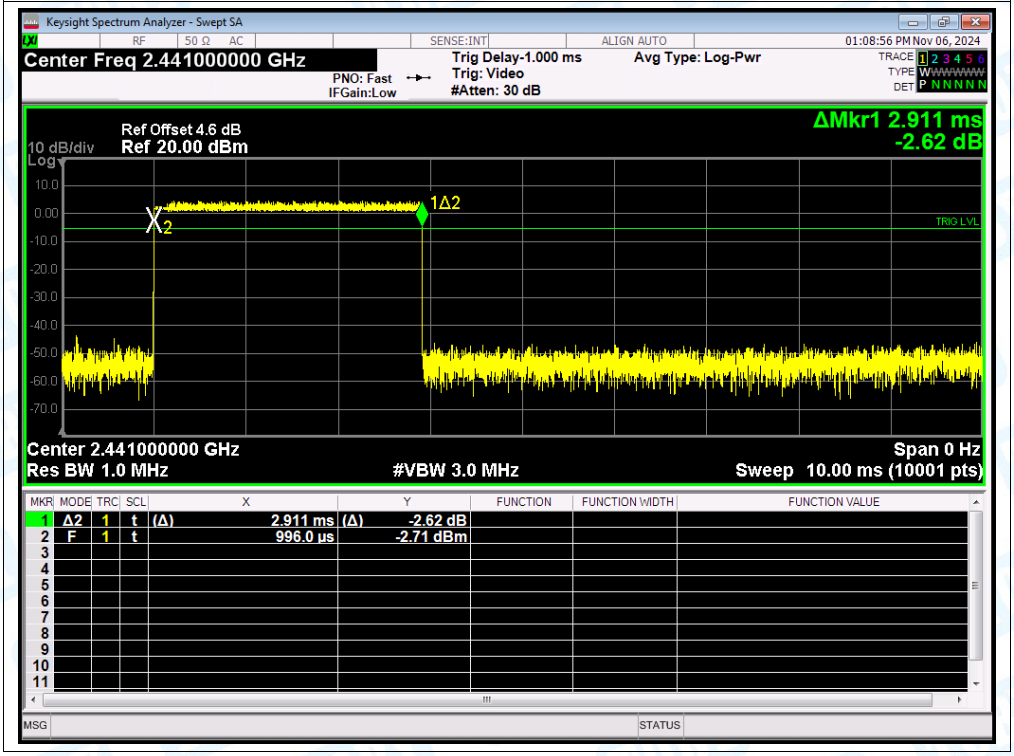
Dwell NVNT 3-DH1 2441MHz Ant1



Dwell NVNT 3-DH3 2441MHz Ant1



Dwell NVNT 3-DH5 2441MHz Ant1



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