

RF Test Data for Bluetooth (Conducted Measurements)

General Description of EUT	
Product Name:	Smart Watch
Test Model:	ColorFit Pro 5
Sample ID:	HC-C-202411-0262-01-01
Environmental Conditions	
Temperature:	24.6℃
Relative Humidity:	48.6%
Test Voltage:	DC 3.8V
Test Engineer:	Rick.Chen
Note: For a more detailed features description, please refer to the report TBR-C-202411-0262-81 The report only show the worst case data.	

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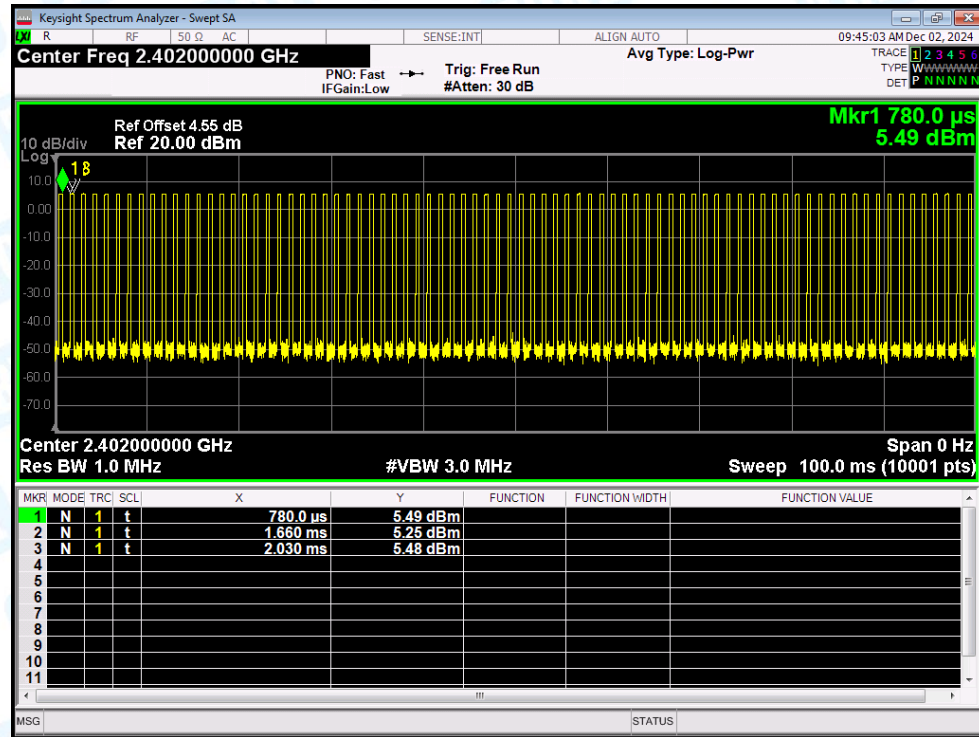
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1. Duty Cycle

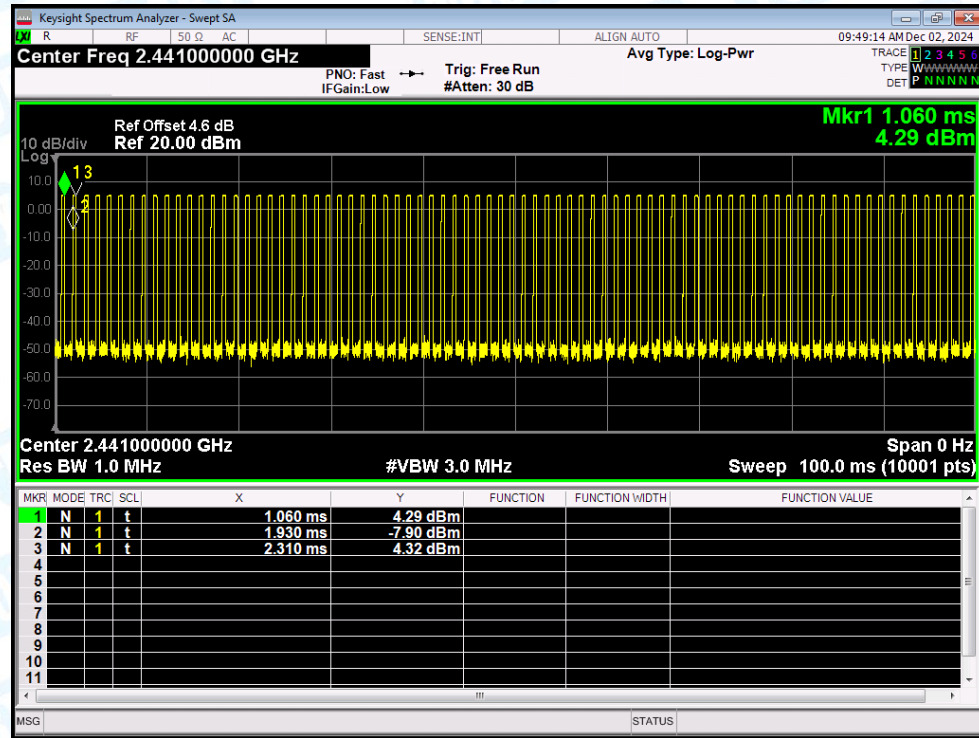
Condition	Mode	Frequency (MHz)	Antenna	Duty Cycle (%)	Correction Factor (dB)	1/T (kHz)
NVNT	1-DH1	2402	Ant1	29.6	5.29	2.7
NVNT	1-DH1	2441	Ant1	30.4	5.17	2.63
NVNT	1-DH1	2480	Ant1	30.4	5.17	2.63
NVNT	2-DH1	2402	Ant1	30.4	5.17	2.63
NVNT	2-DH1	2441	Ant1	30.4	5.17	2.63
NVNT	2-DH1	2480	Ant1	31.2	5.06	2.56
NVNT	3-DH1	2402	Ant1	30.4	5.17	2.63
NVNT	3-DH1	2441	Ant1	30.4	5.17	2.63
NVNT	3-DH1	2480	Ant1	31.2	5.06	2.56

Test Graphs

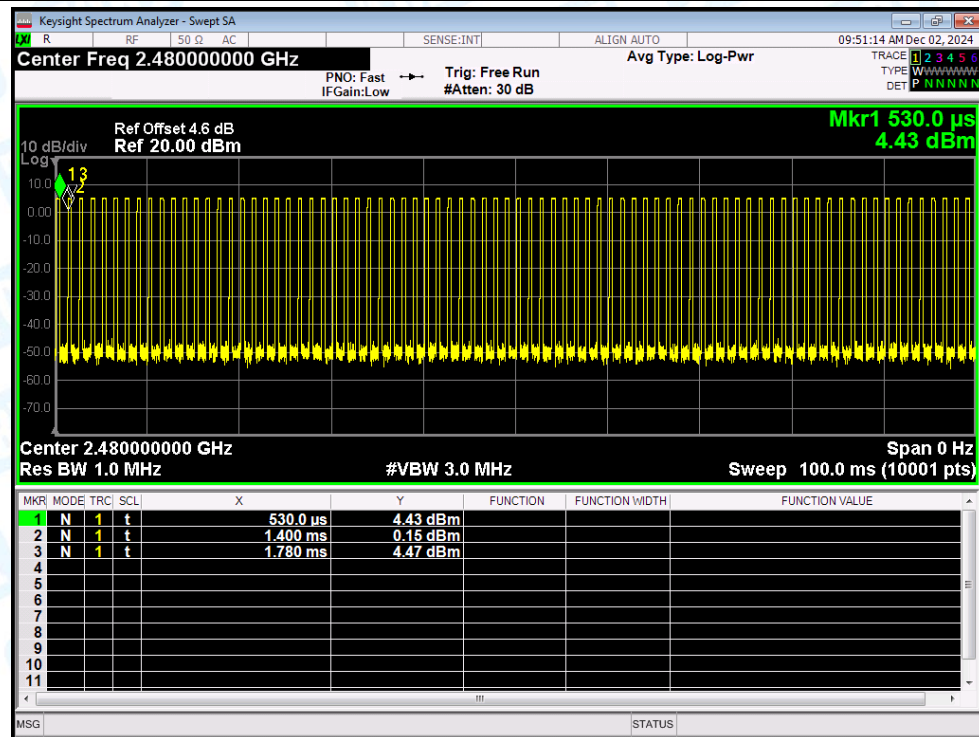
Duty Cycle NVNT 1-DH1 2402MHz Ant1



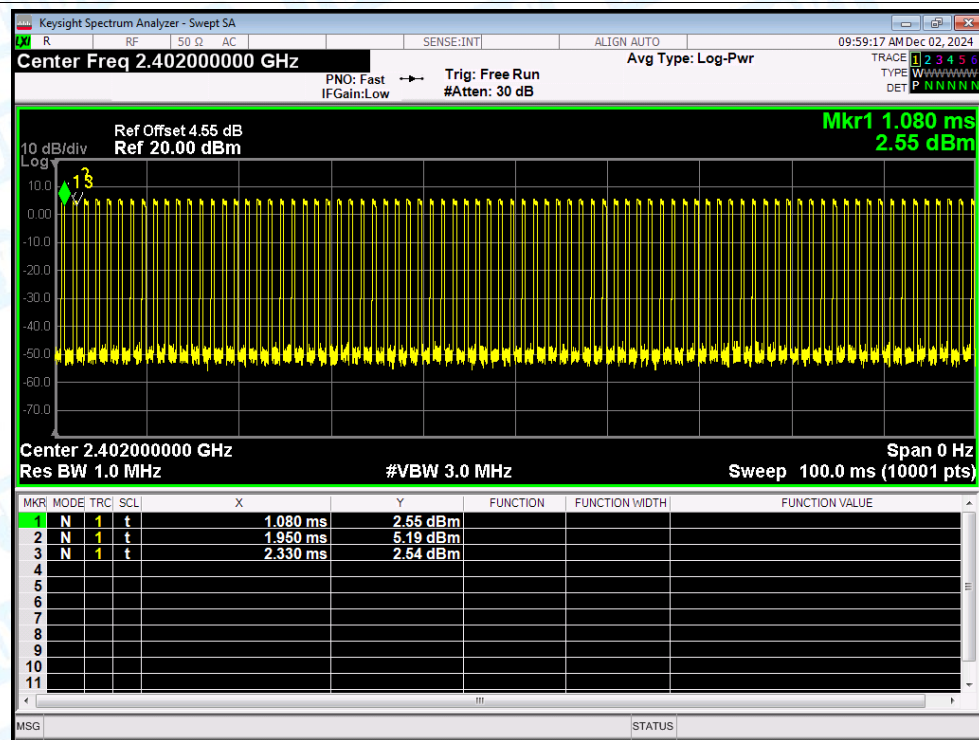
Duty Cycle NVNT 1-DH1 2441MHz Ant1



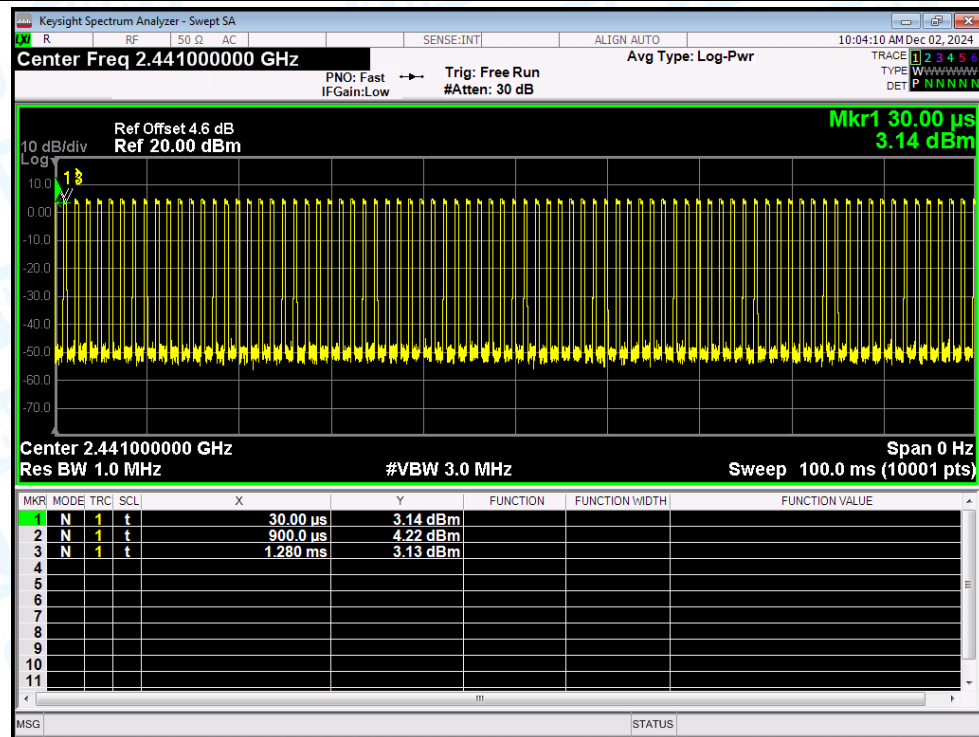
Duty Cycle NVNT 1-DH1 2480MHz Ant1



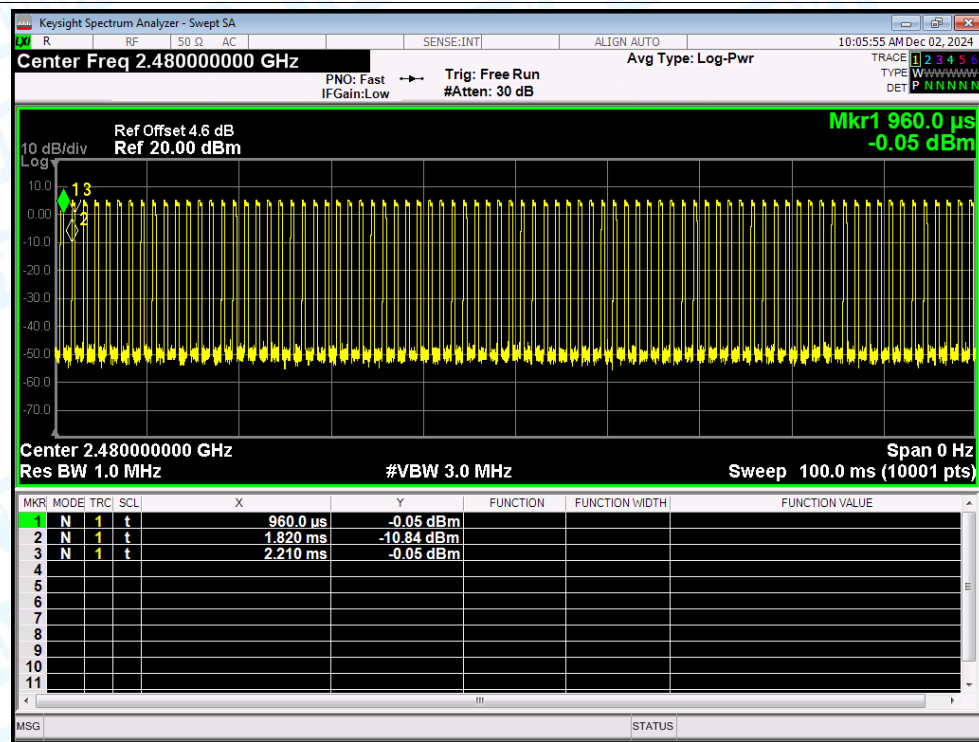
Duty Cycle NVNT 2-DH1 2402MHz Ant1



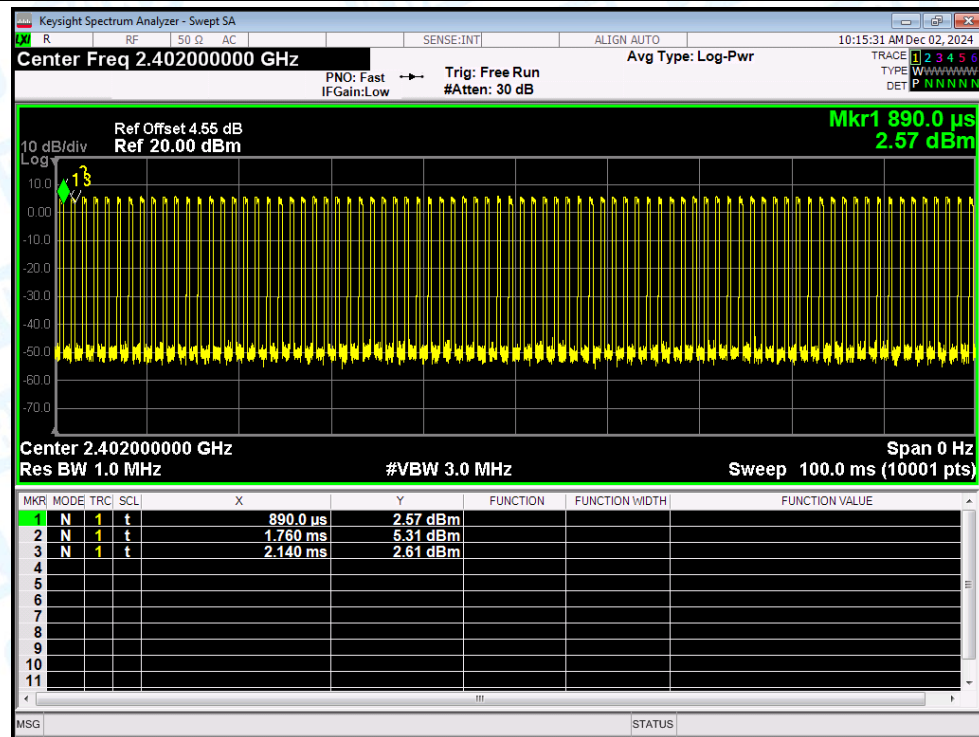
Duty Cycle NVNT 2-DH1 2441MHz Ant1



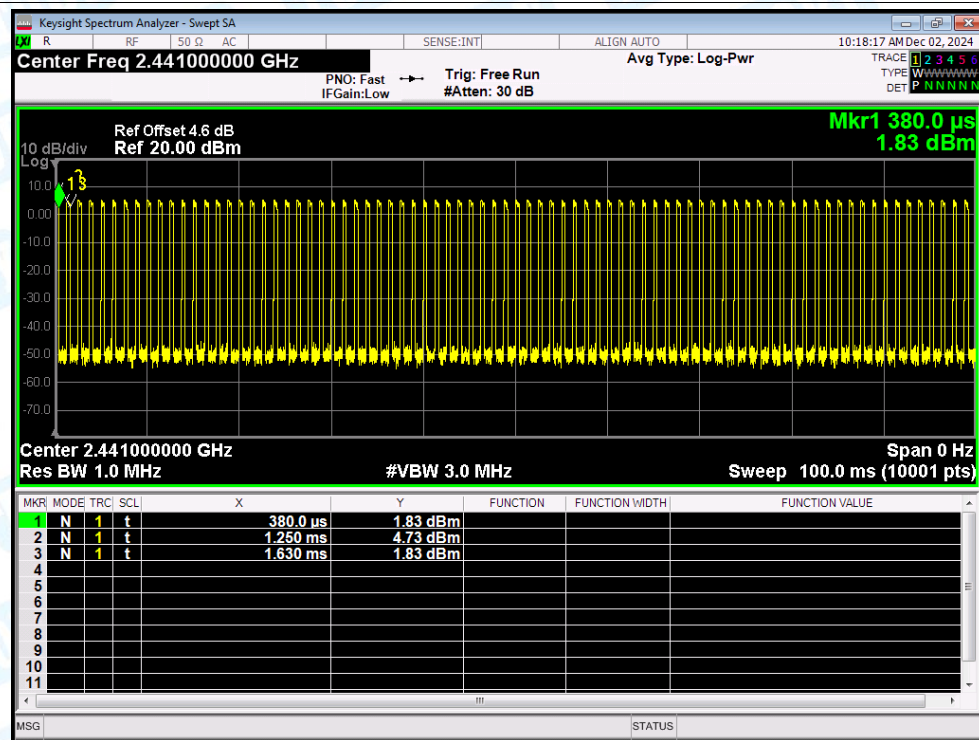
Duty Cycle NVNT 2-DH1 2480MHz Ant1

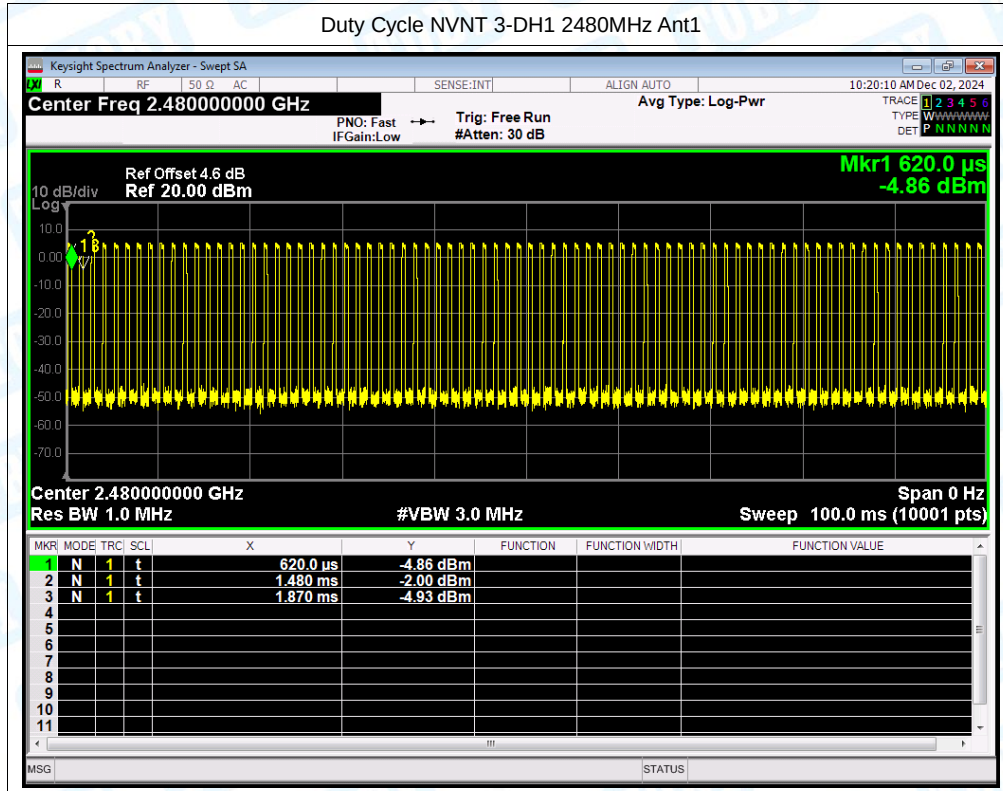


Duty Cycle NVNT 3-DH1 2402MHz Ant1



Duty Cycle NVNT 3-DH1 2441MHz Ant1



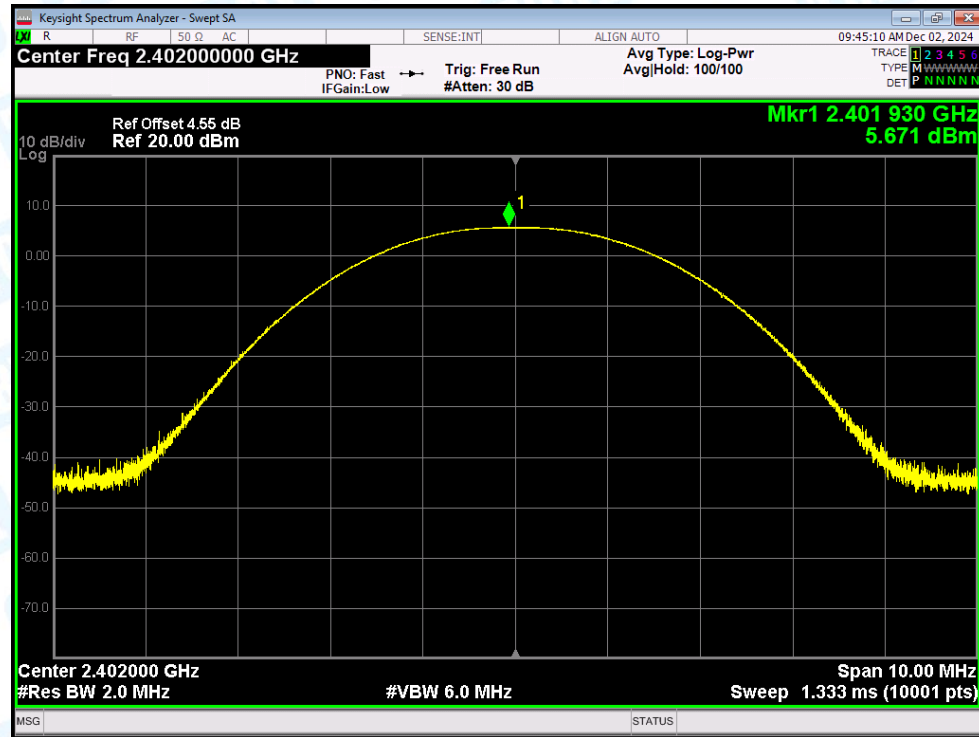


2. Maximum Conducted Output Power

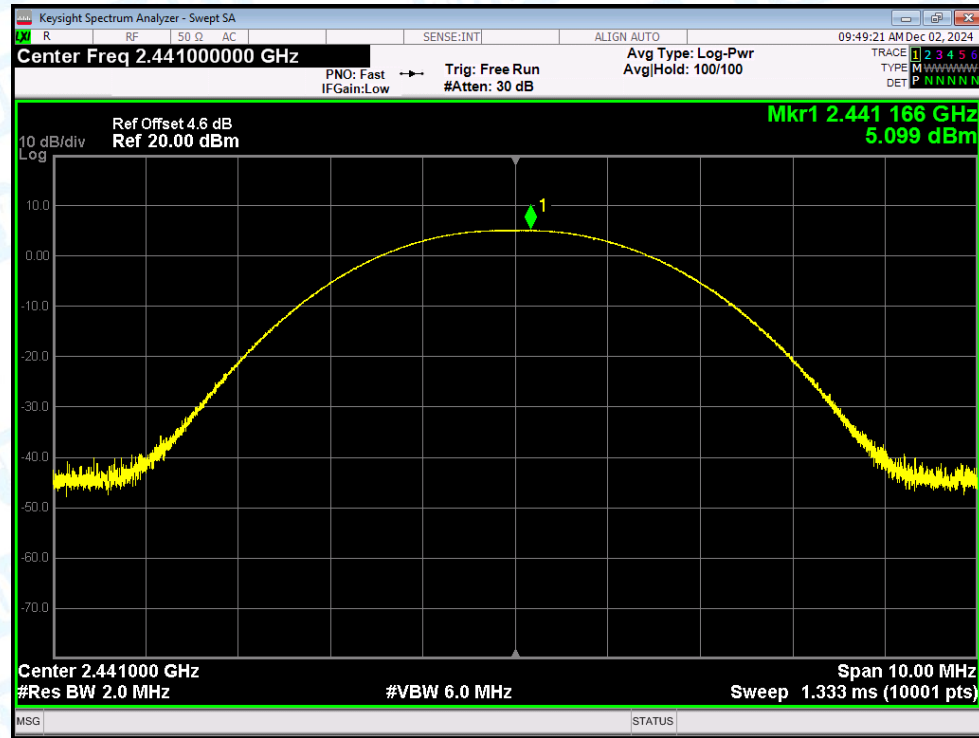
Condition	Mode	Frequency (MHz)	Antenna	Total Power (dBm)	Limit (dBm)	Verdict
NVNT	1-DH1	2402	Ant1	5.671	21	Pass
NVNT	1-DH1	2441	Ant1	5.099	21	Pass
NVNT	1-DH5	2441	Ant1	5.22	21	Pass
NVNT	2-DH1	2402	Ant1	5.592	21	Pass
NVNT	2-DH1	2441	Ant1	5.001	21	Pass
NVNT	2-DH1	2480	Ant1	5.181	21	Pass
NVNT	3-DH1	2402	Ant1	5.797	21	Pass
NVNT	3-DH1	2441	Ant1	5.259	21	Pass
NVNT	3-DH1	2480	Ant1	5.406	21	Pass

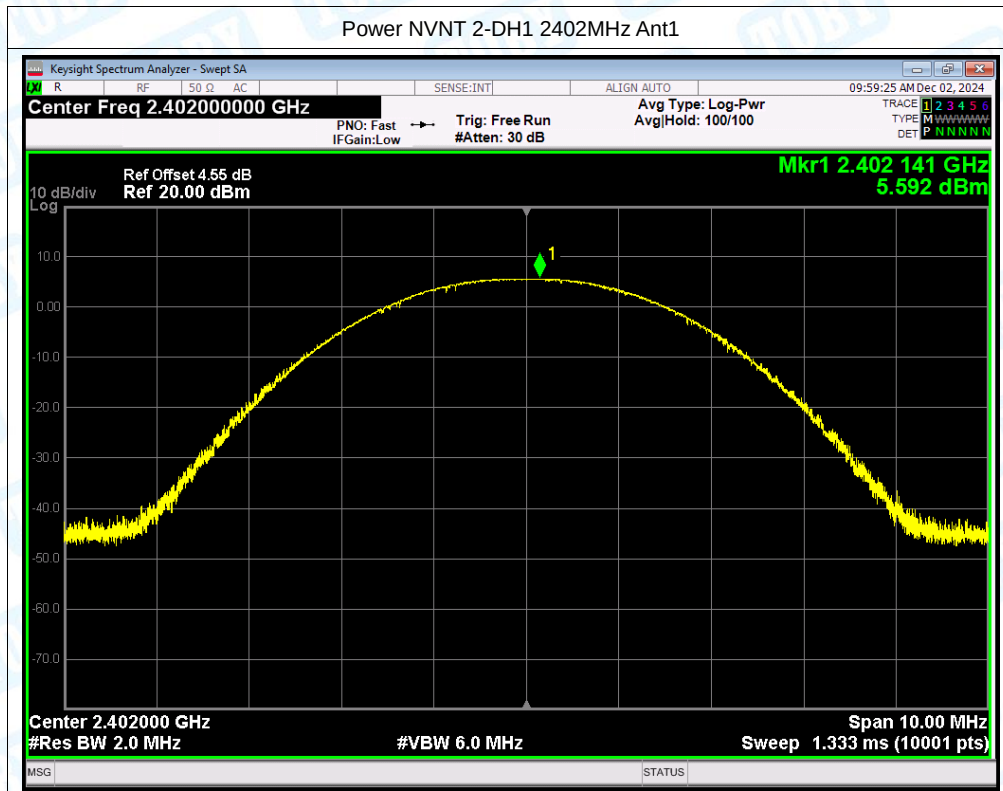
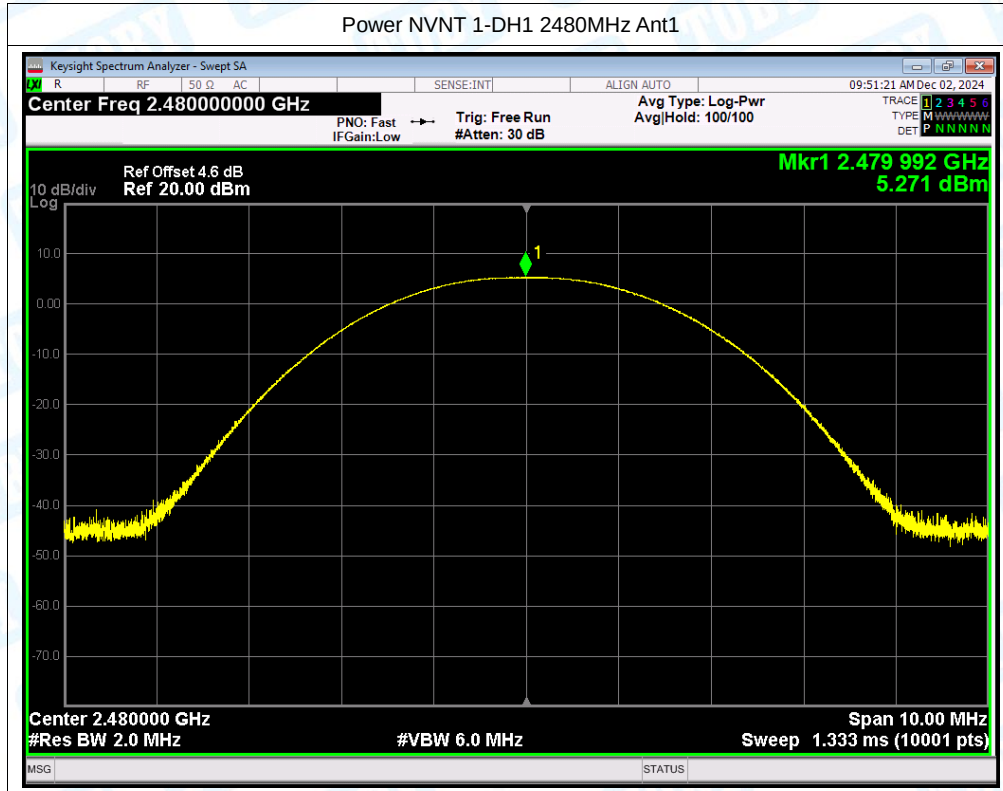
Test Graphs

Power NVNT 1-DH1 2402MHz Ant1

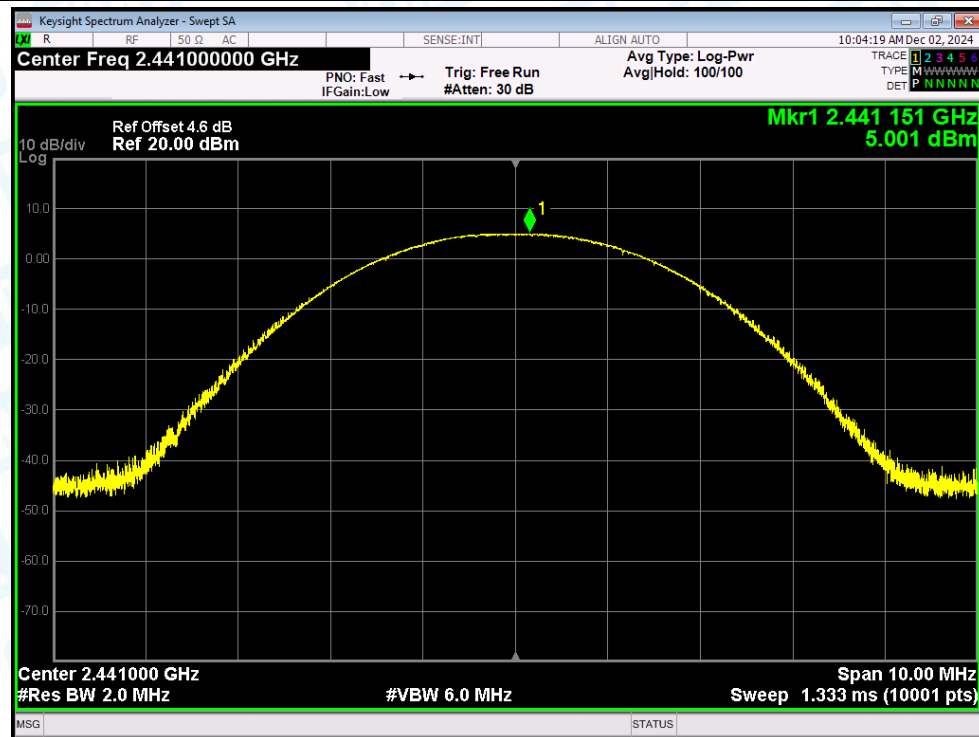


Power NVNT 1-DH1 2441MHz Ant1

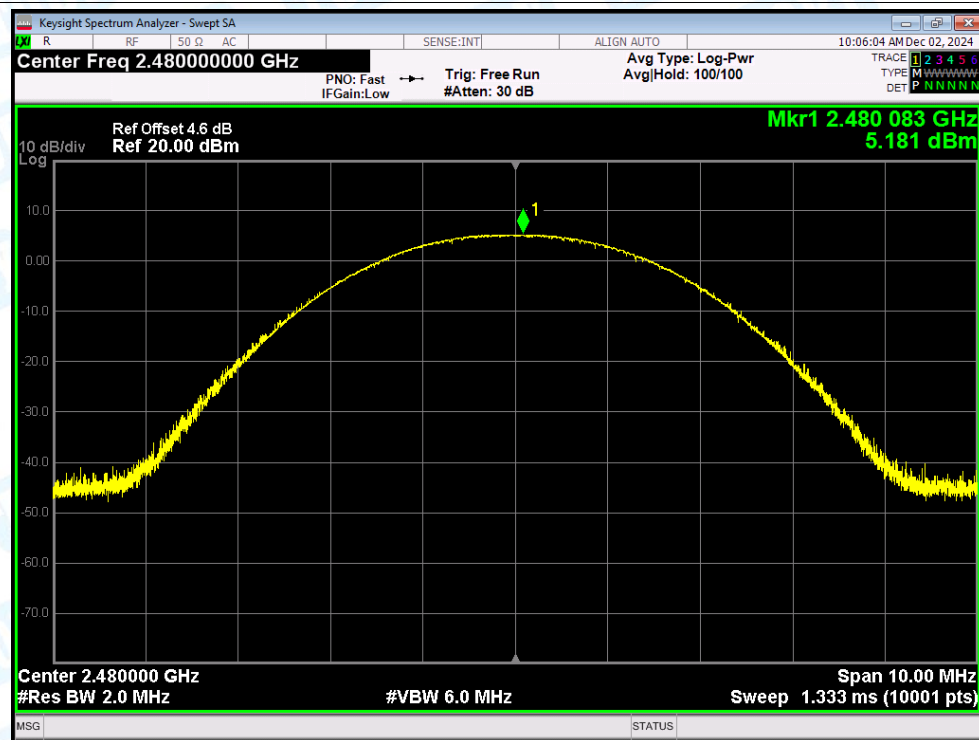




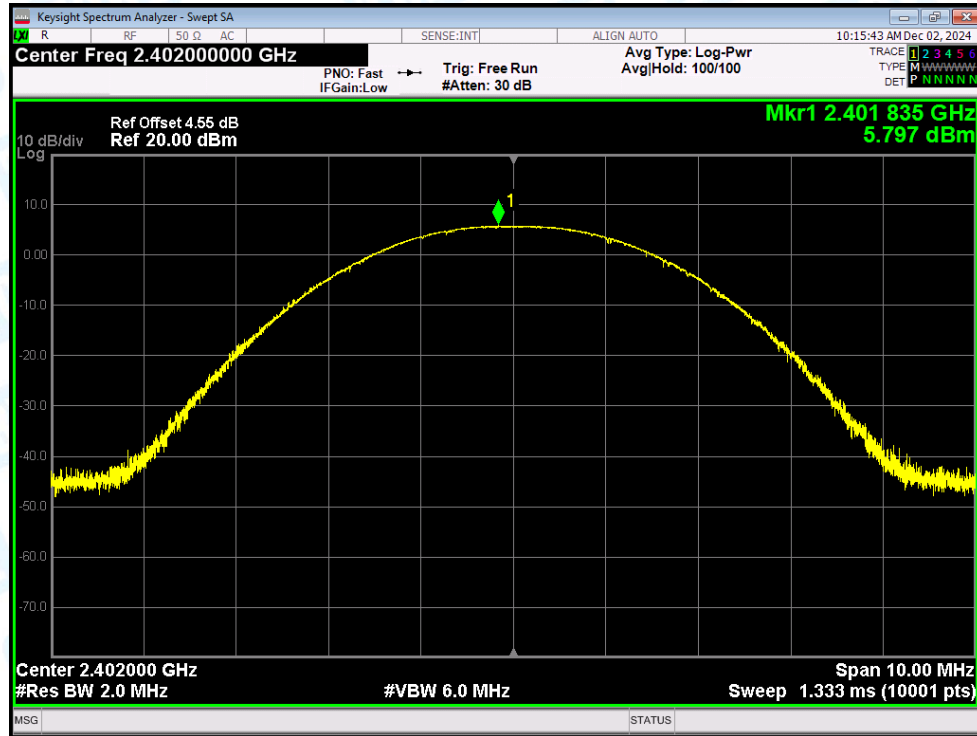
Power NVNT 2-DH1 2441MHz Ant1



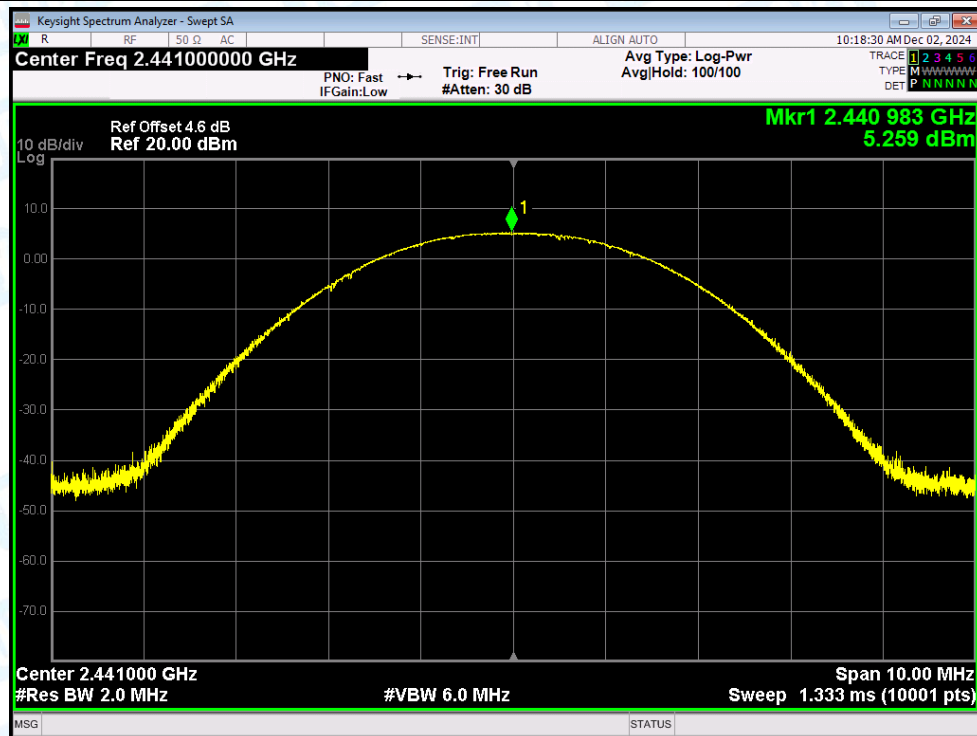
Power NVNT 2-DH1 2480MHz Ant1

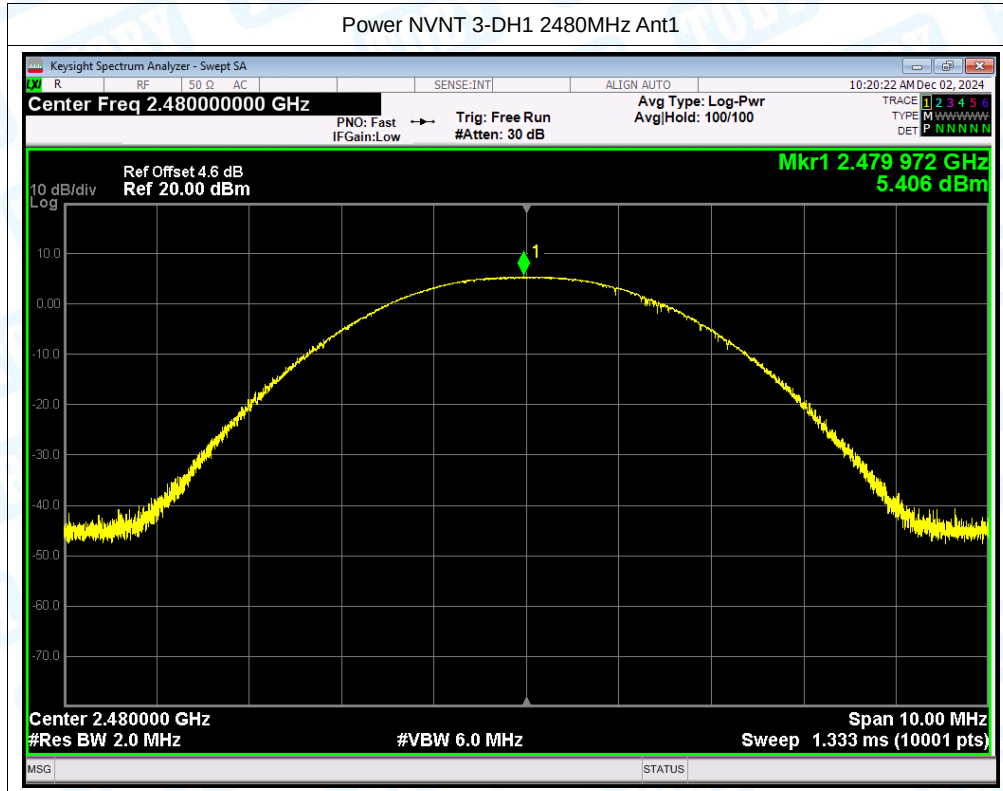


Power NVNT 3-DH1 2402MHz Ant1



Power NVNT 3-DH1 2441MHz Ant1



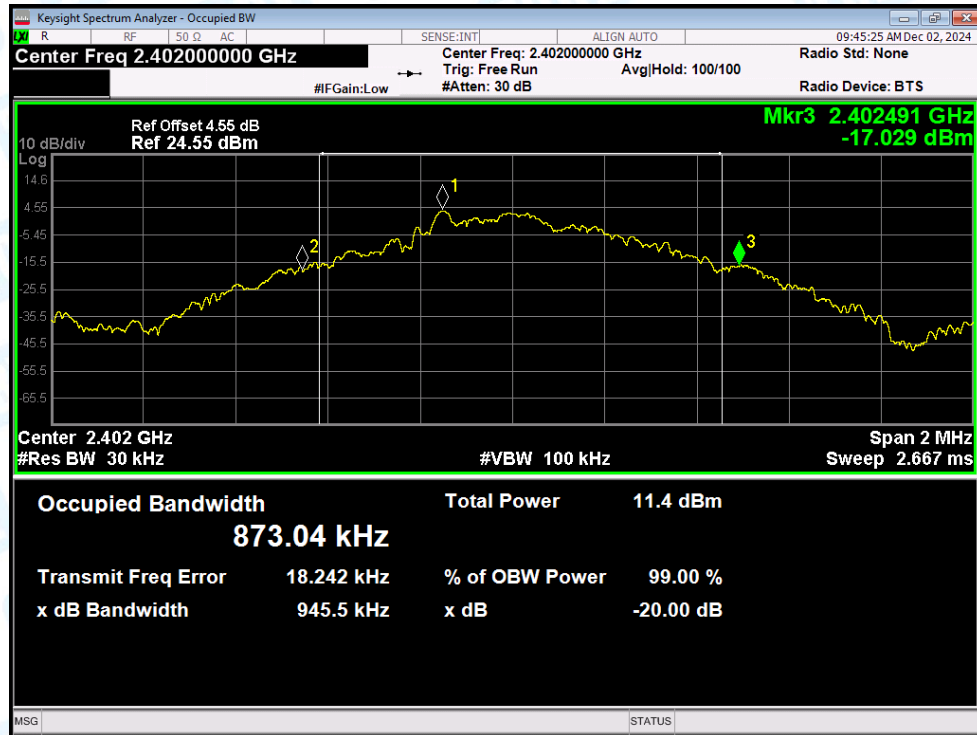


3. -20dB Bandwidth

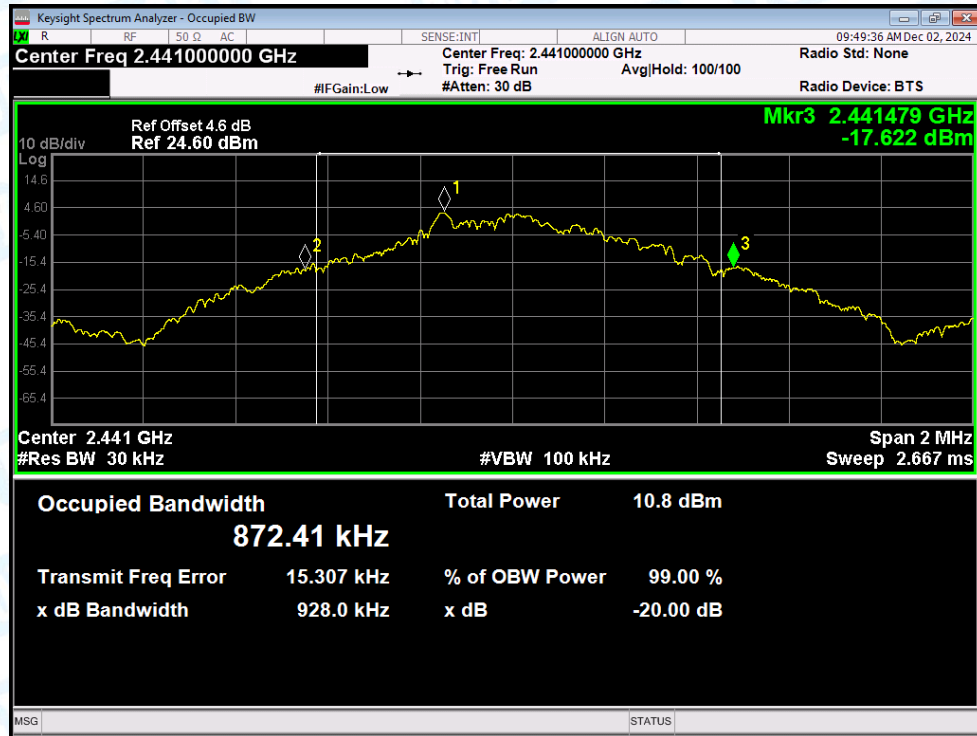
Condition	Mode	Frequency (MHz)	Antenna	-20 dB Bandwidth (MHz)	Limit -20 dB Bandwidth (MHz)	Verdict
NVNT	1-DH1	2402	Ant1	0.95	0	Pass
NVNT	1-DH1	2441	Ant1	0.93	0	Pass
NVNT	1-DH1	2480	Ant1	0.86	0	Pass
NVNT	2-DH1	2402	Ant1	1.21	0	Pass
NVNT	2-DH1	2441	Ant1	1.2	0	Pass
NVNT	2-DH1	2480	Ant1	1.21	0	Pass
NVNT	3-DH1	2402	Ant1	1.21	0	Pass
NVNT	3-DH1	2441	Ant1	1.2	0	Pass
NVNT	3-DH1	2480	Ant1	1.2	0	Pass

Test Graphs

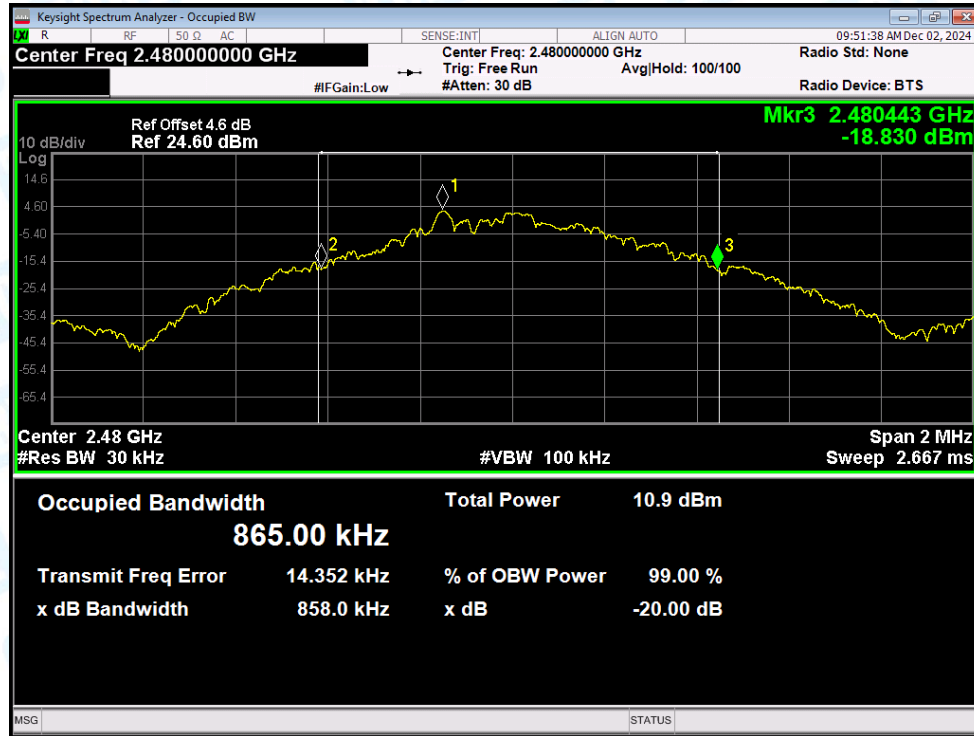
-20dB Bandwidth NVNT 1-DH1 2402MHz Ant1



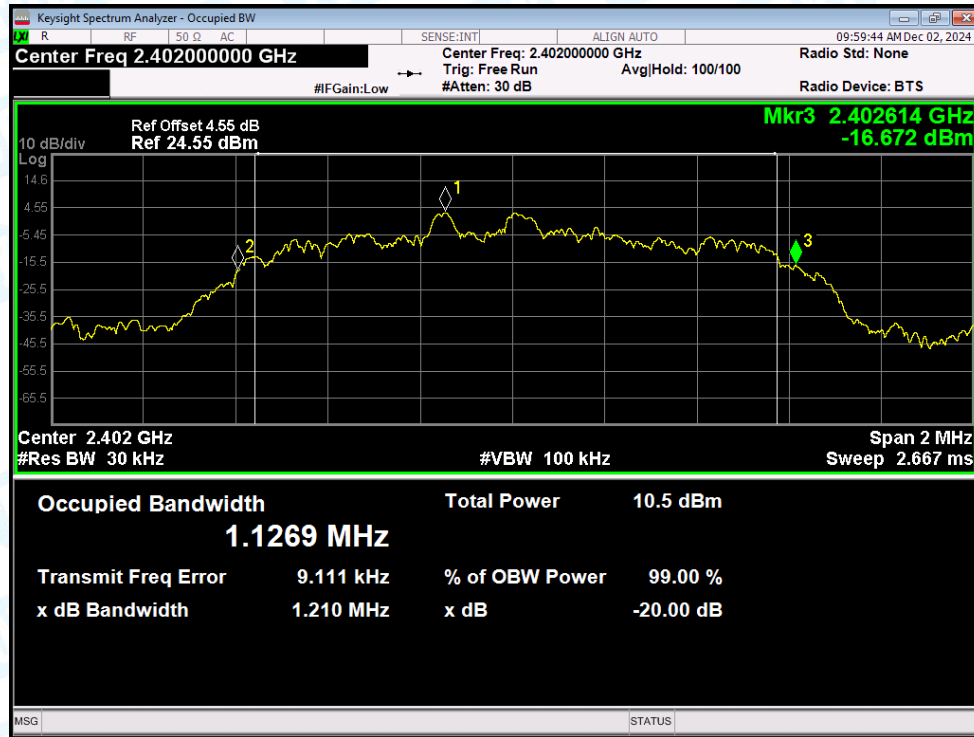
-20dB Bandwidth NVNT 1-DH1 2441MHz Ant1



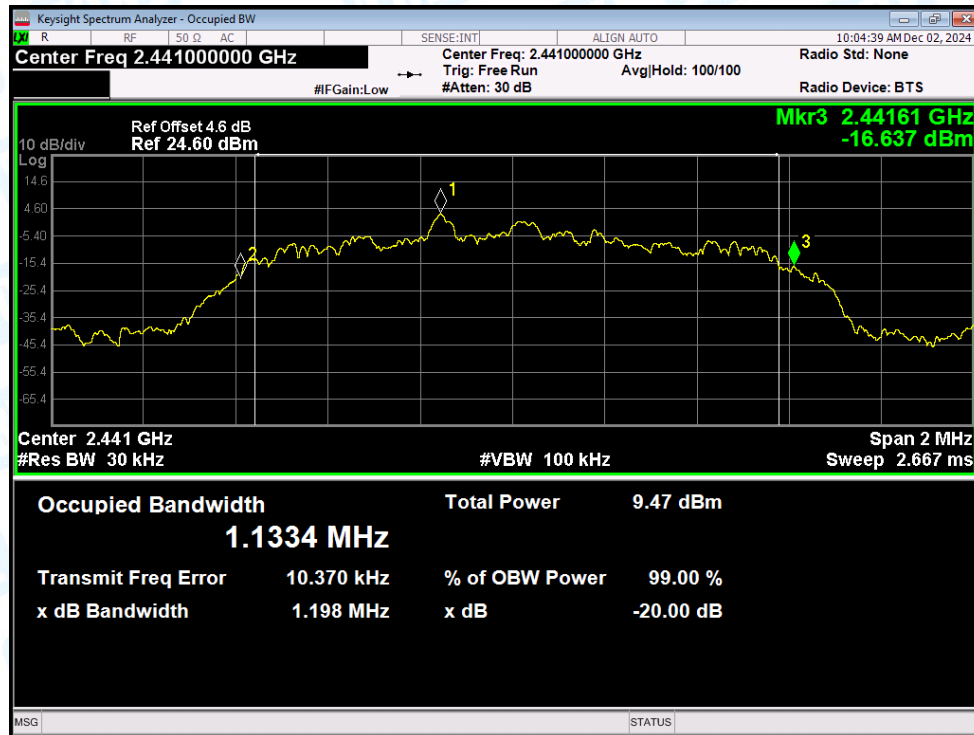
-20dB Bandwidth NVNT 1-DH1 2480MHz Ant1



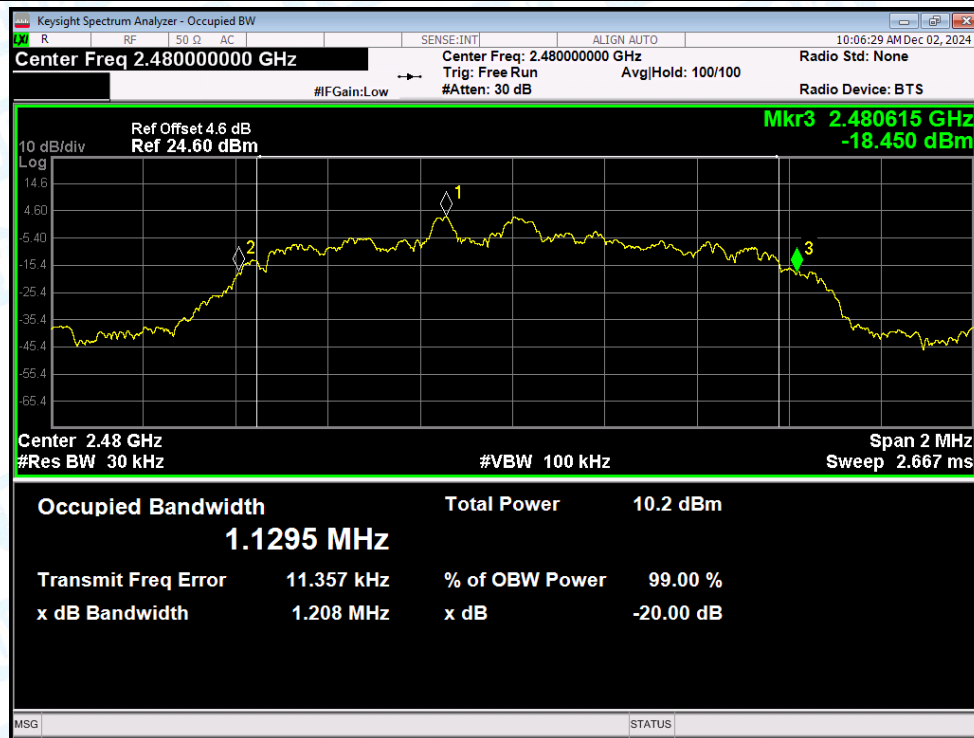
-20dB Bandwidth NVNT 2-DH1 2402MHz Ant1



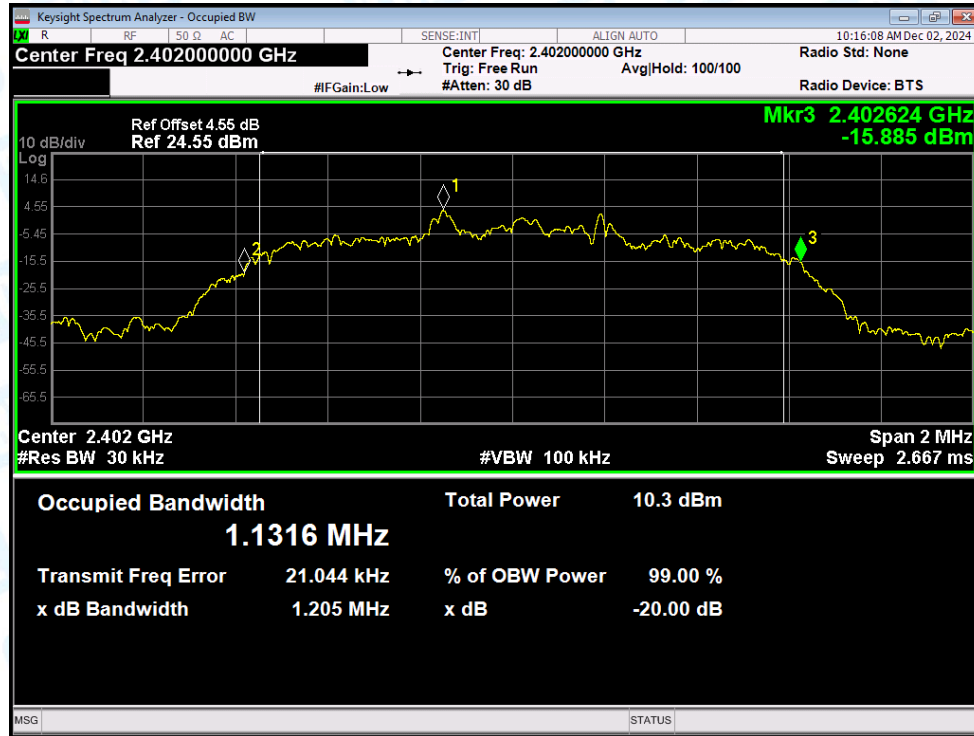
-20dB Bandwidth NVNT 2-DH1 2441MHz Ant1



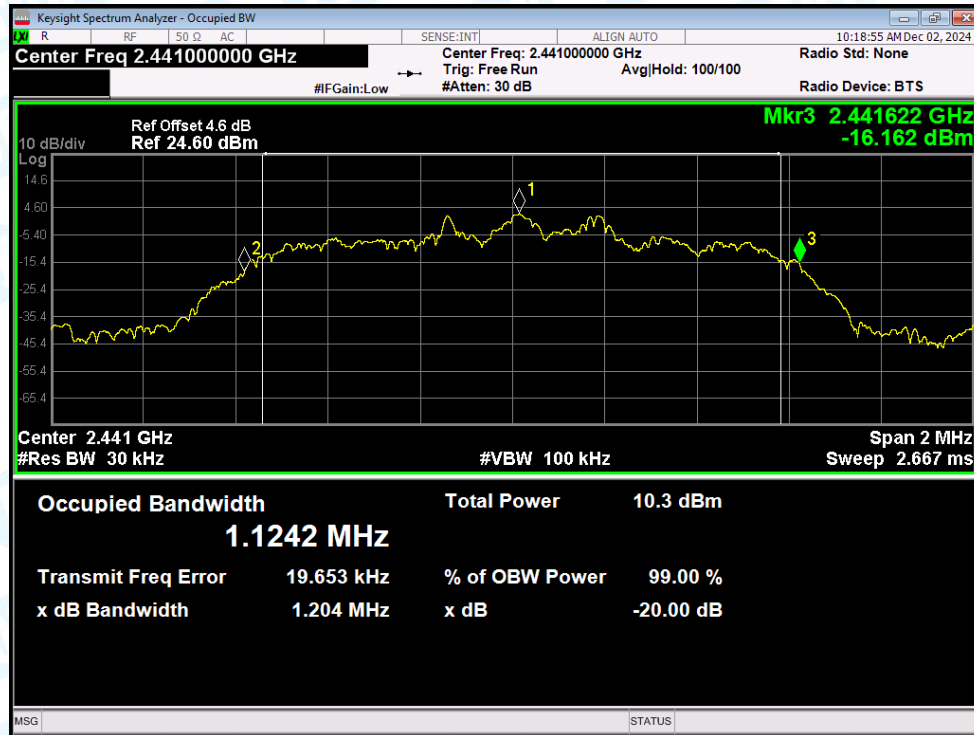
-20dB Bandwidth NVNT 2-DH1 2480MHz Ant1

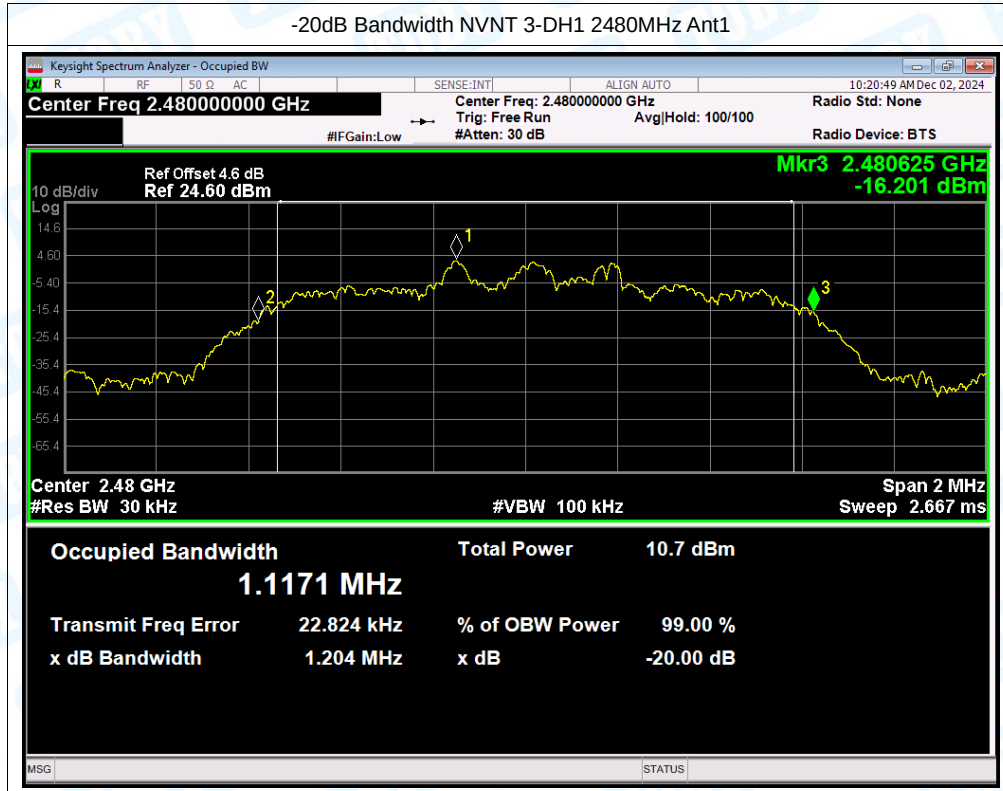


-20dB Bandwidth NVNT 3-DH1 2402MHz Ant1



-20dB Bandwidth NVNT 3-DH1 2441MHz Ant1



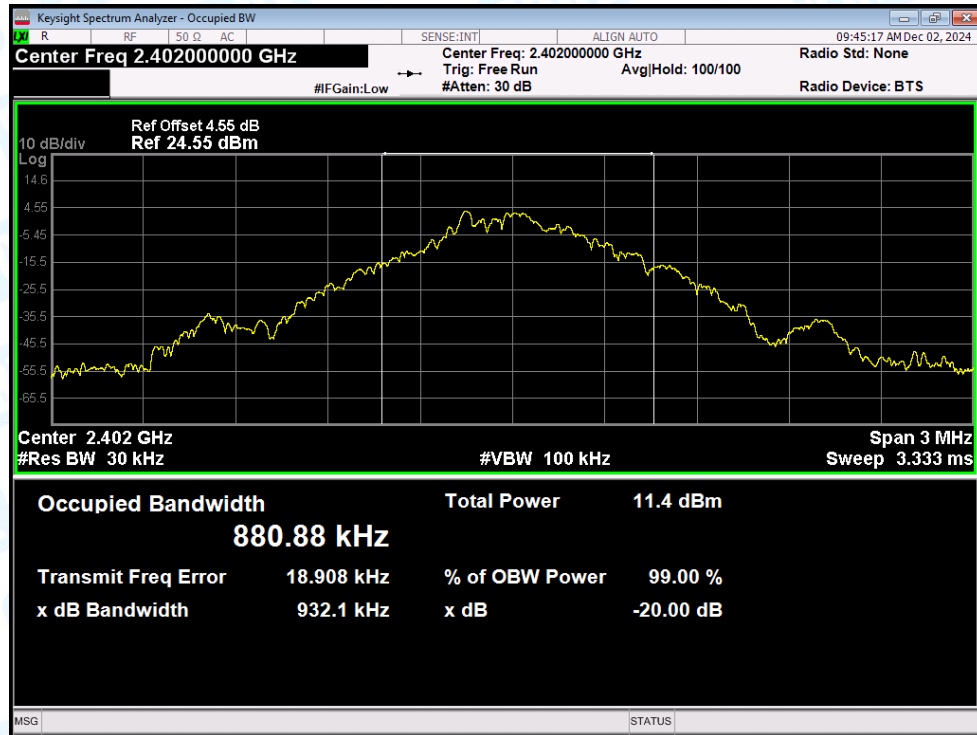


4. Occupied Channel Bandwidth

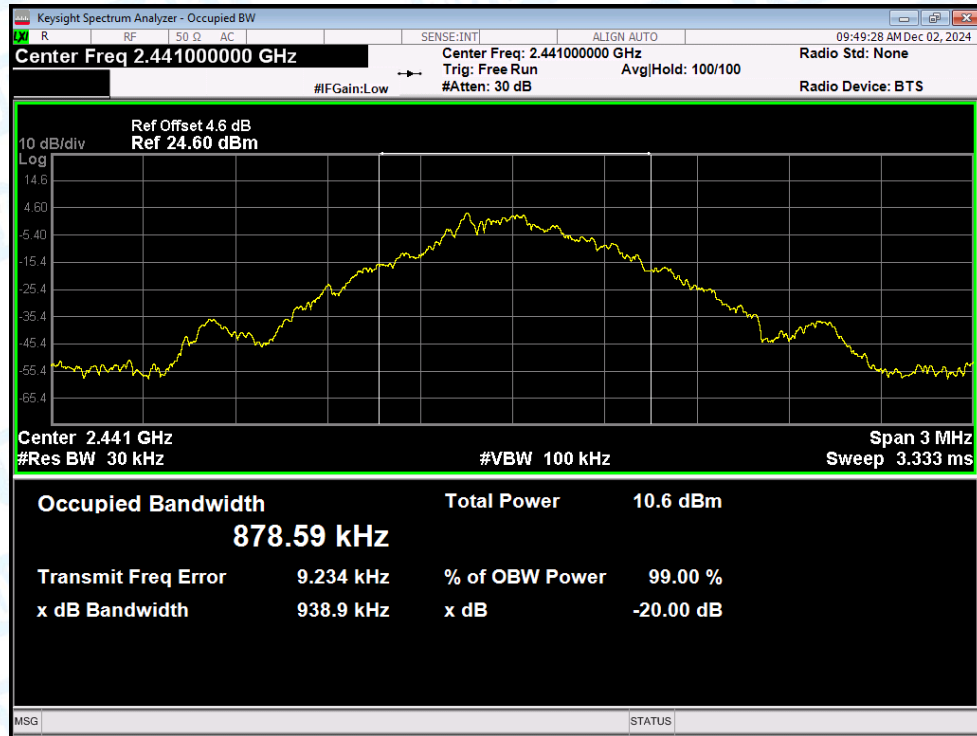
Condition	Mode	Frequency (MHz)	Antenna	99% OBW (MHz)
NVNT	1-DH1	2402	Ant1	0.881
NVNT	1-DH1	2441	Ant1	0.879
NVNT	1-DH1	2480	Ant1	0.858
NVNT	2-DH1	2402	Ant1	1.139
NVNT	2-DH1	2441	Ant1	1.138
NVNT	2-DH1	2480	Ant1	1.127
NVNT	3-DH1	2402	Ant1	1.126
NVNT	3-DH1	2441	Ant1	1.125
NVNT	3-DH1	2480	Ant1	1.131

Test Graphs

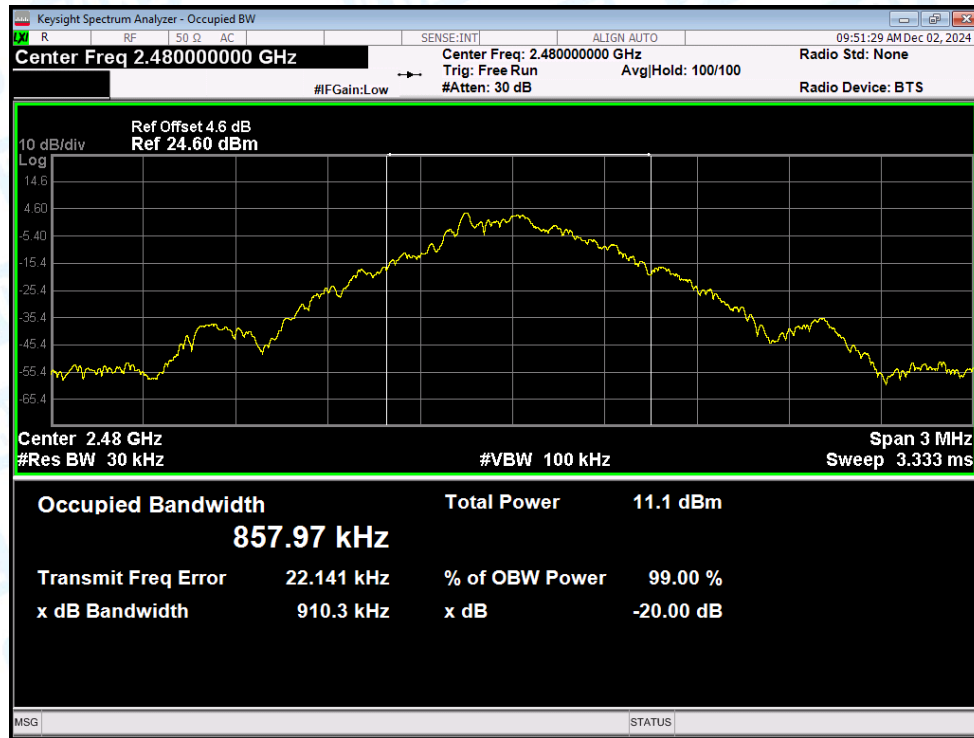
OBW NVNT 1-DH1 2402MHz Ant1



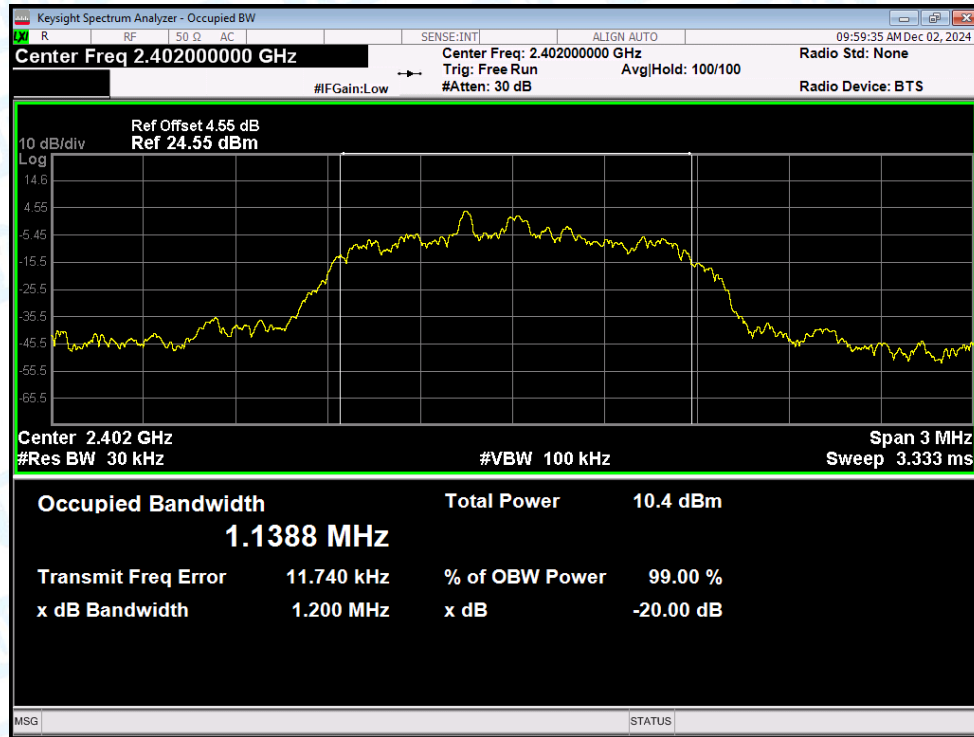
OBW NVNT 1-DH1 2441MHz Ant1



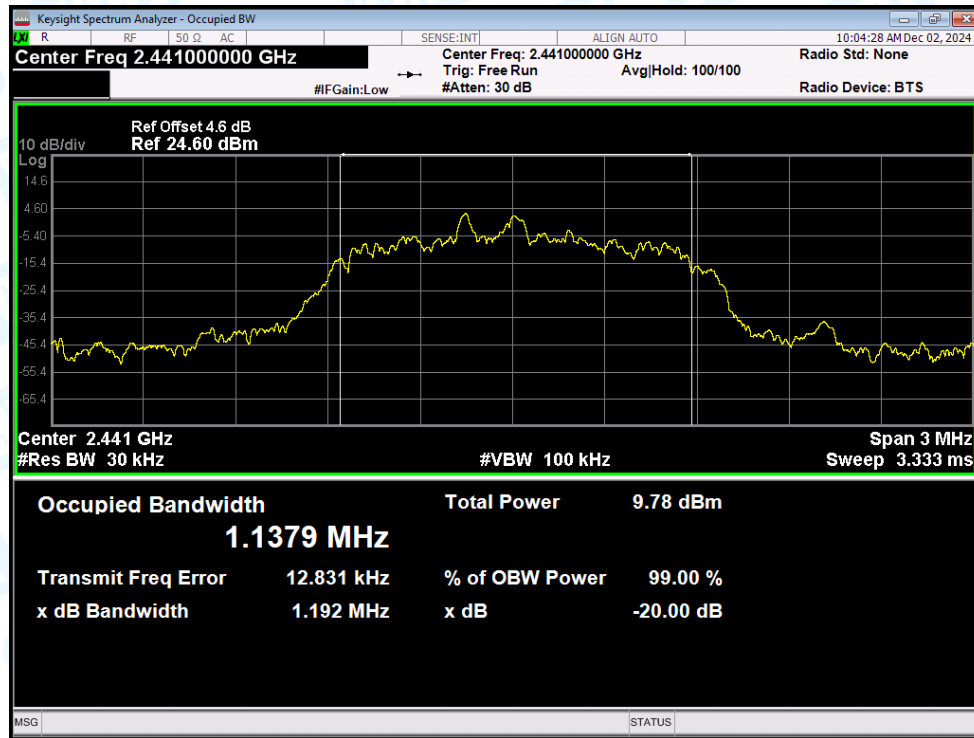
OBW NVNT 1-DH1 2480MHz Ant1



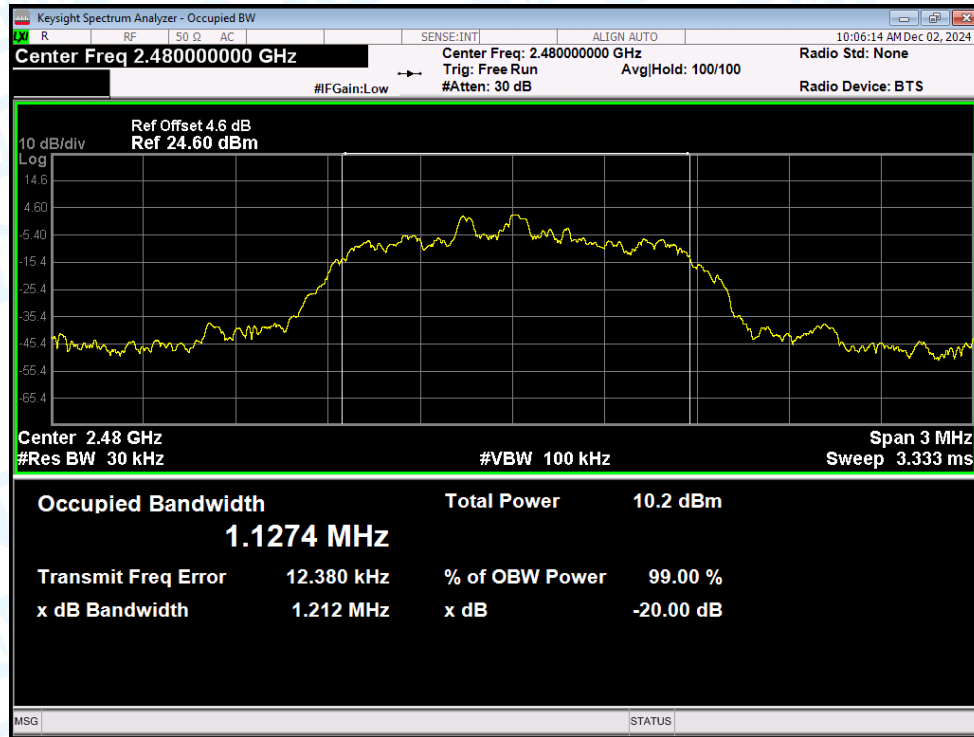
OBW NVNT 2-DH1 2402MHz Ant1



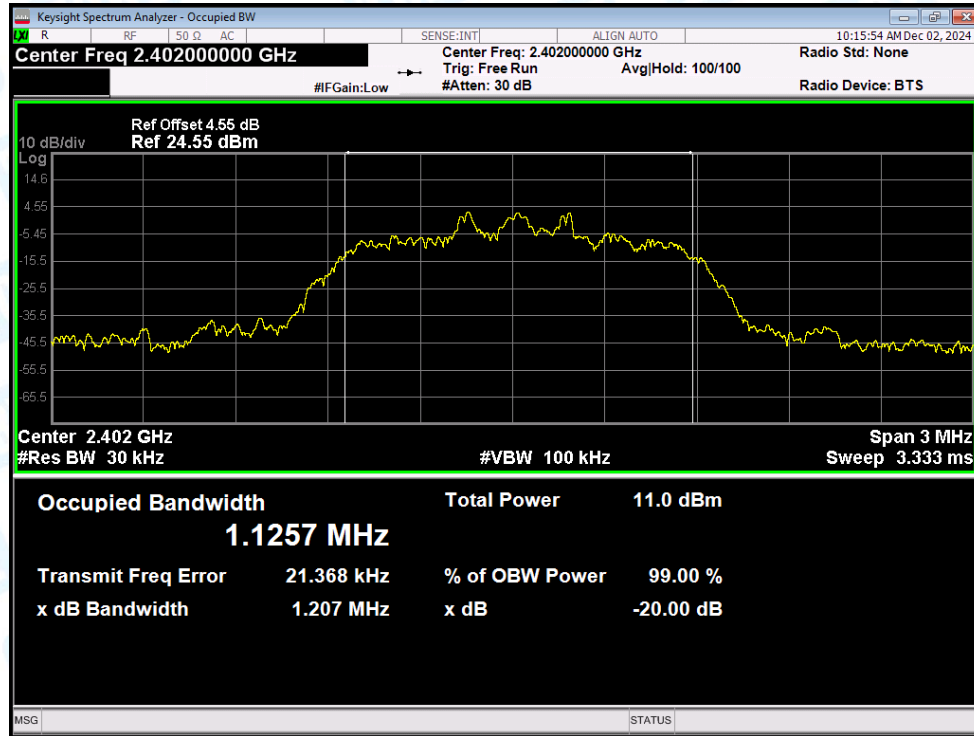
OBW NVNT 2-DH1 2441MHz Ant1



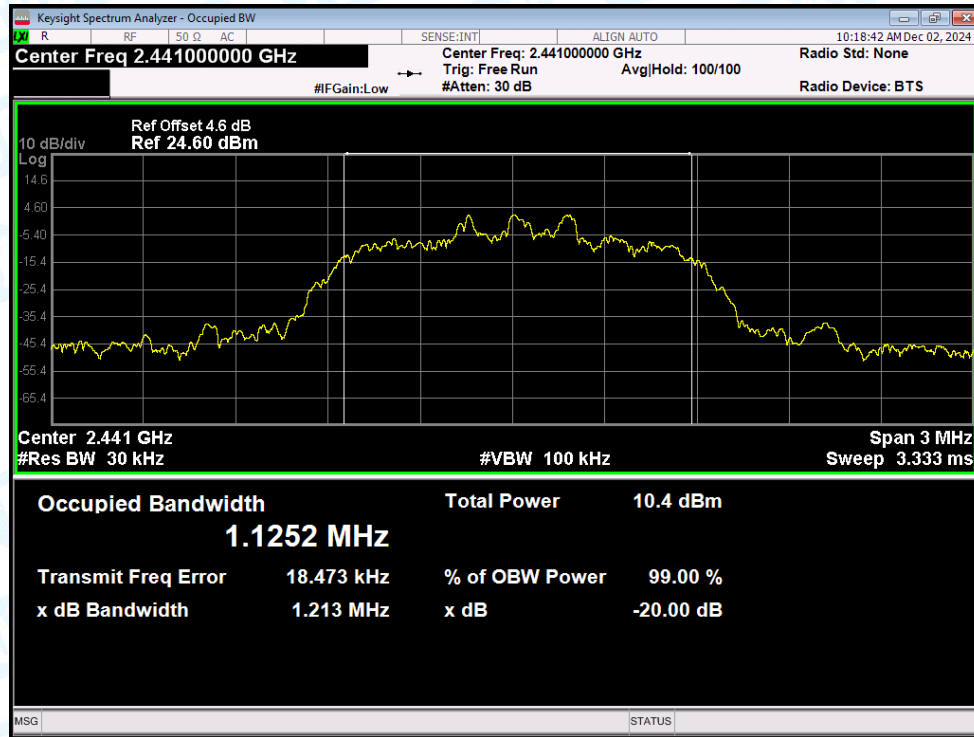
OBW NVNT 2-DH1 2480MHz Ant1

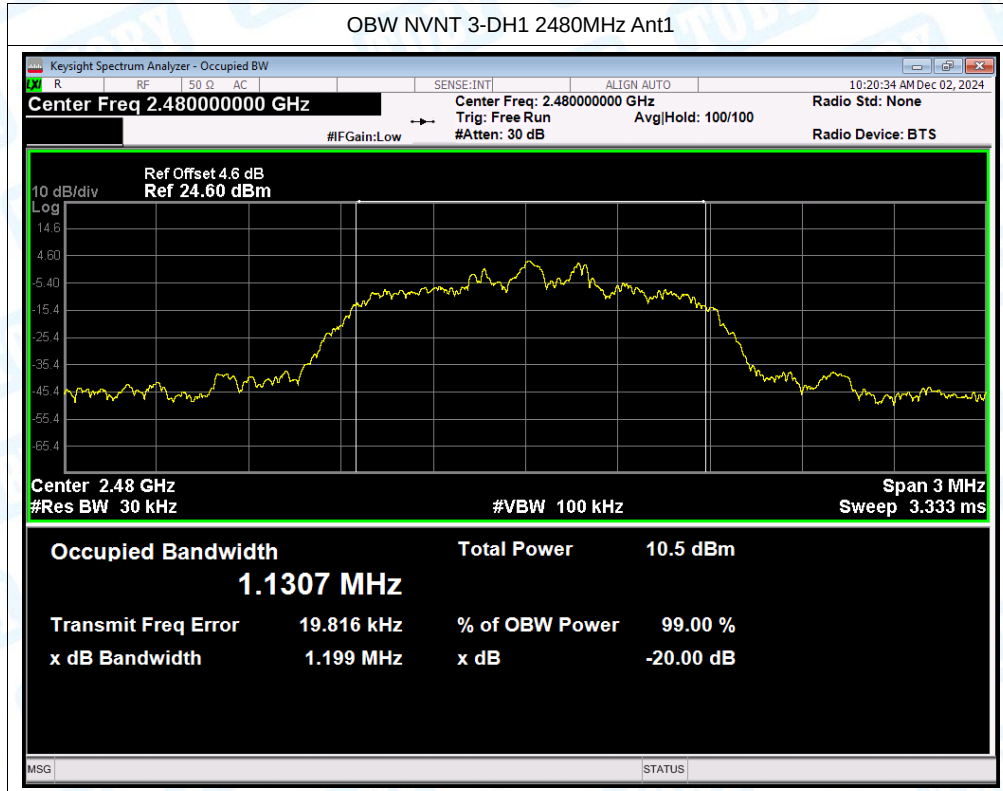


OBW NVNT 3-DH1 2402MHz Ant1



OBW NVNT 3-DH1 2441MHz Ant1



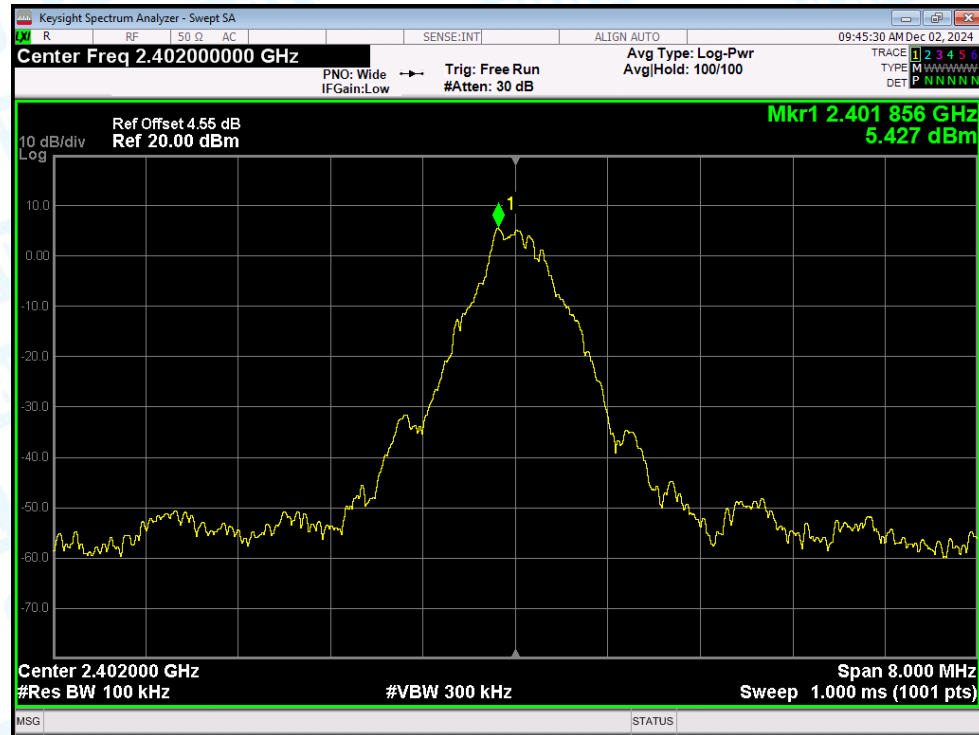


5. Band Edge

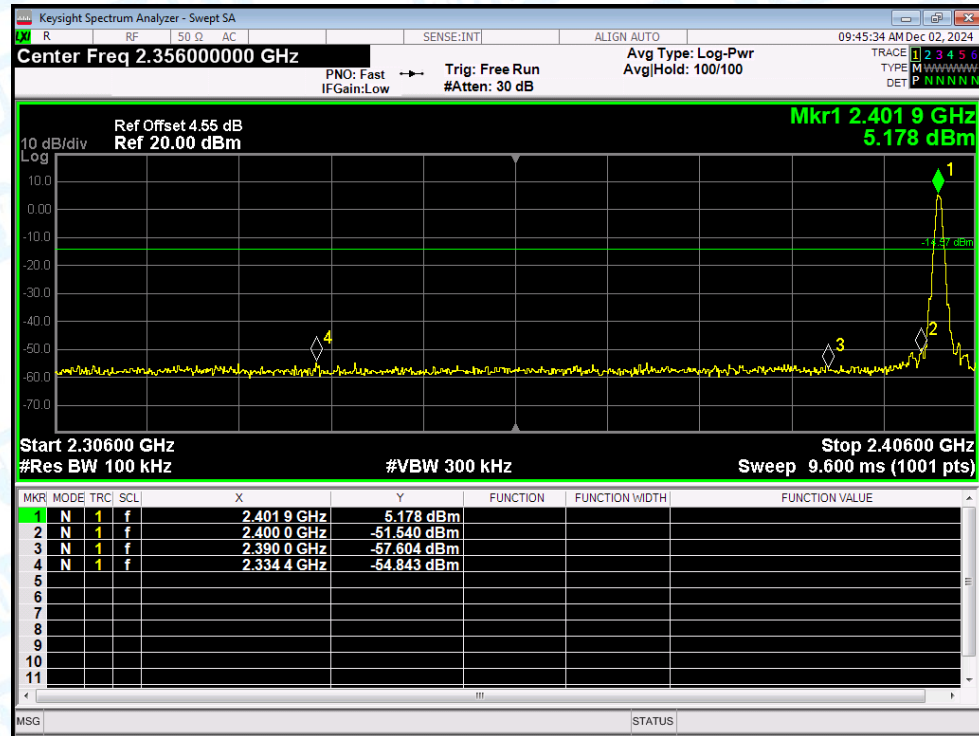
Condition	Mode	Frequency (MHz)	Antenna	Hopping Mode	Max Value (dBc)	Limit (dBc)	Verdict
NVNT	1-DH1	2402	Ant1	No-Hopping	-60.27	-20	Pass
NVNT	1-DH1	2480	Ant1	No-Hopping	-58.63	-20	Pass
NVNT	2-DH1	2402	Ant1	No-Hopping	-59	-20	Pass
NVNT	2-DH1	2480	Ant1	No-Hopping	-59.18	-20	Pass
NVNT	3-DH1	2402	Ant1	No-Hopping	-59.69	-20	Pass
NVNT	3-DH1	2480	Ant1	No-Hopping	-57.69	-20	Pass

Test Graphs

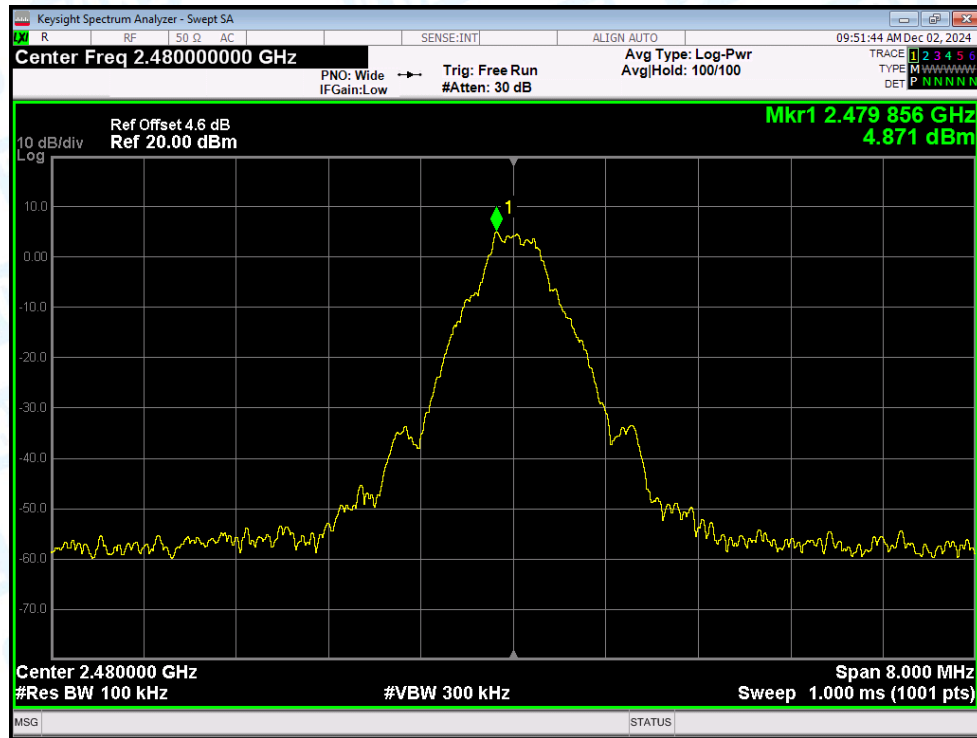
Band Edge NVNT 1-DH1 2402MHz Ant1 No-Hopping Ref



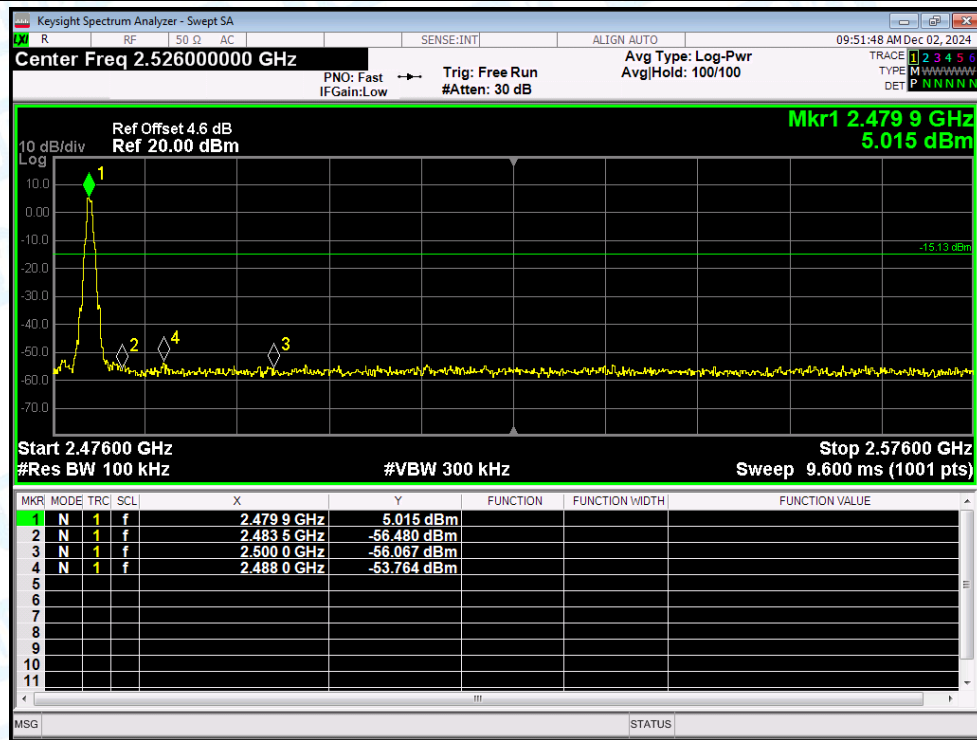
Band Edge NVNT 1-DH1 2402MHz Ant1 No-Hopping Emission



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



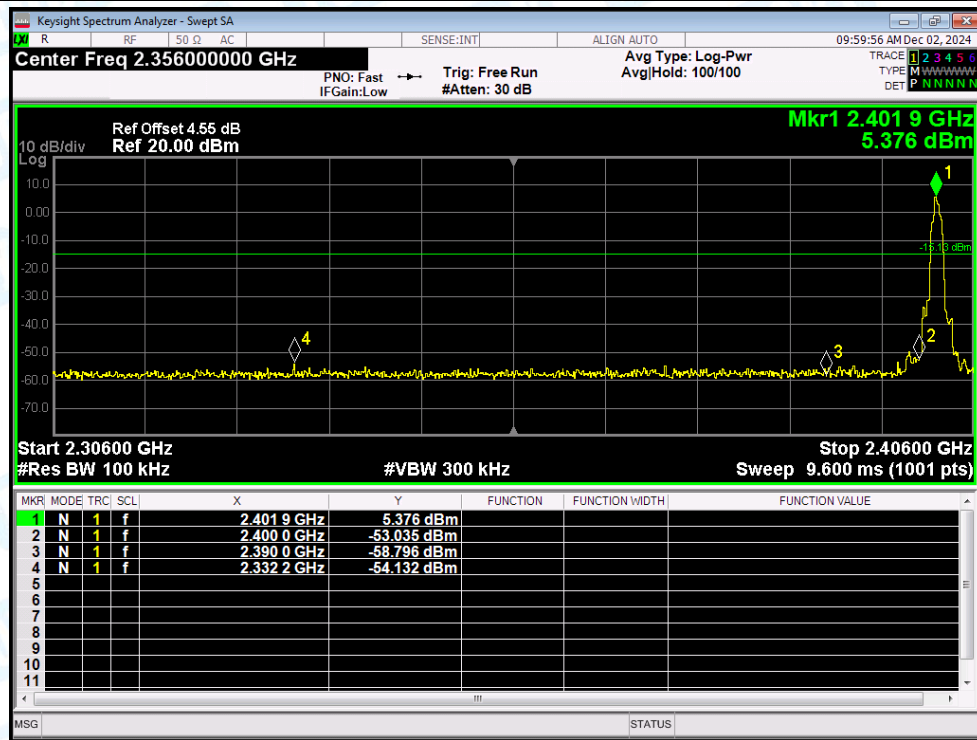
Band Edge NVNT 1-DH1 2480MHz Ant1 No-Hopping Emission



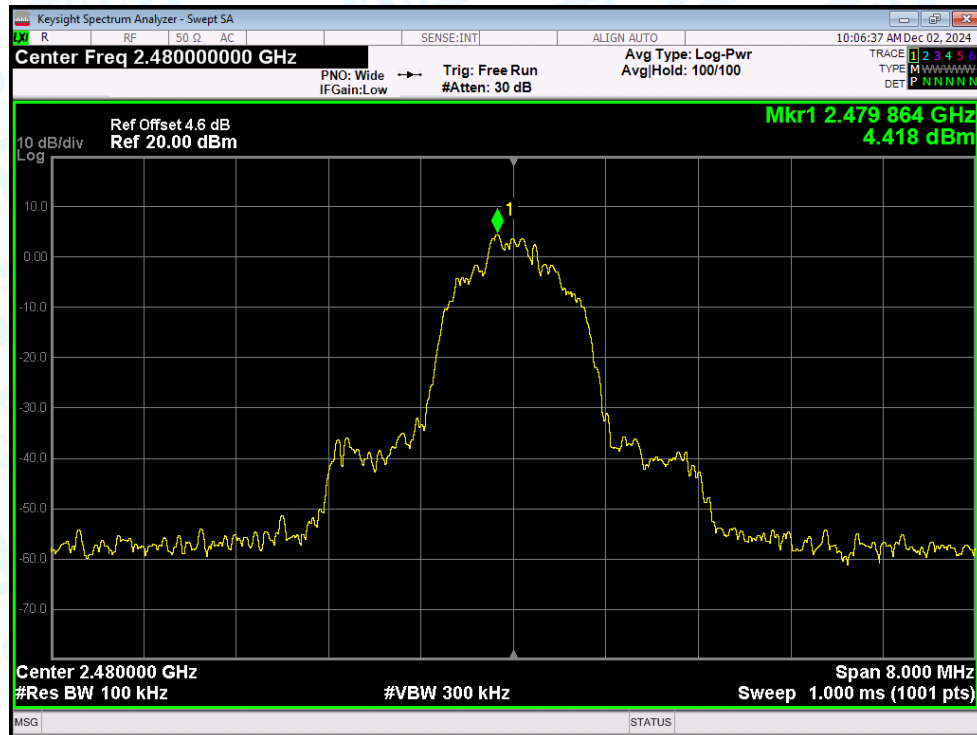
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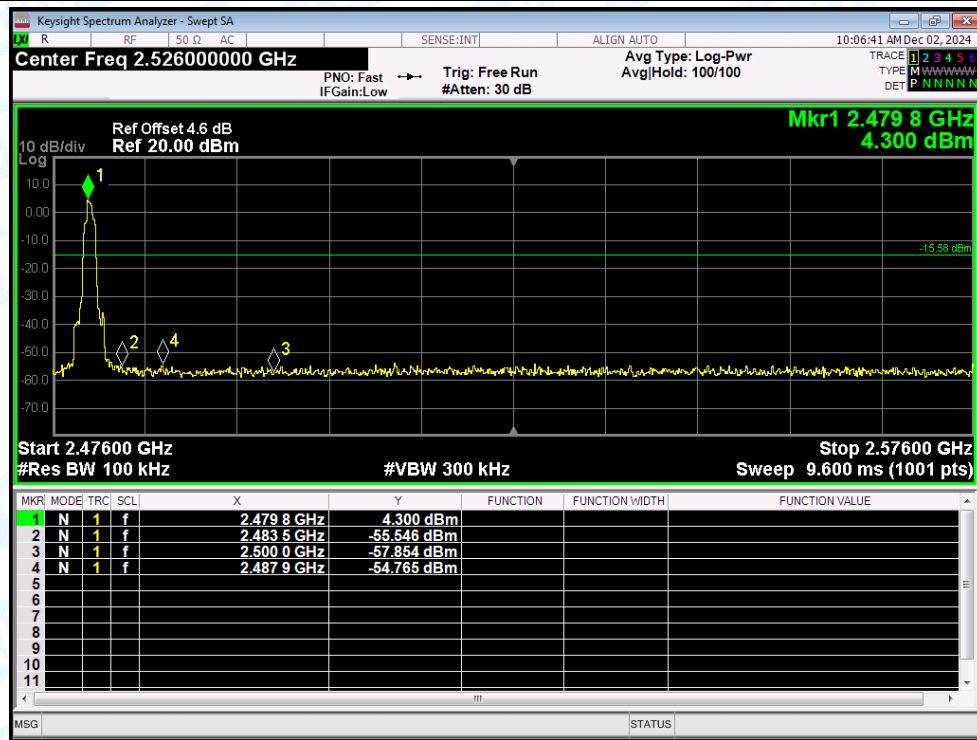
Band Edge NVNT 2-DH1 2402MHz Ant1 No-Hopping Emission



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



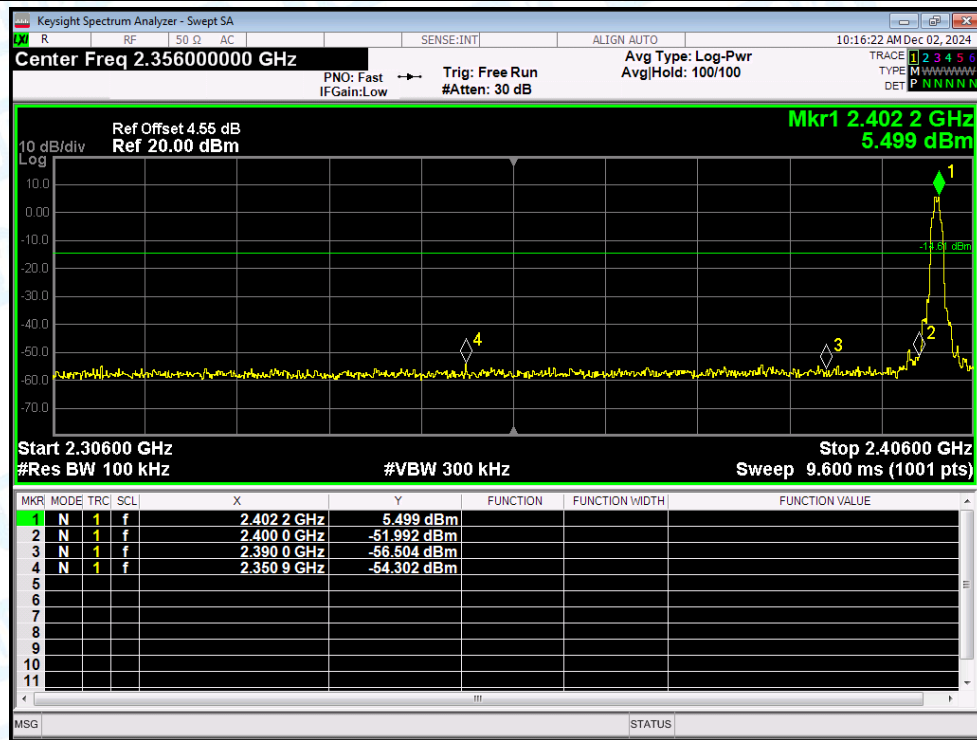
Band Edge NVNT 2-DH1 2480MHz Ant1 No-Hopping Emission



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



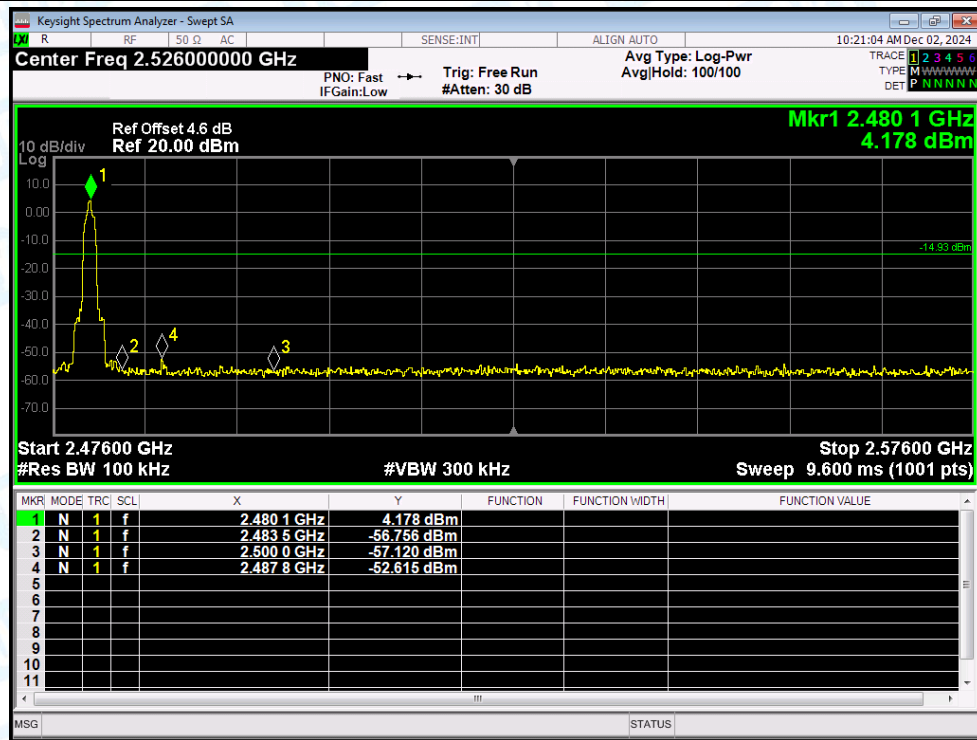
Band Edge NVNT 3-DH1 2402MHz Ant1 No-Hopping Emission



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



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

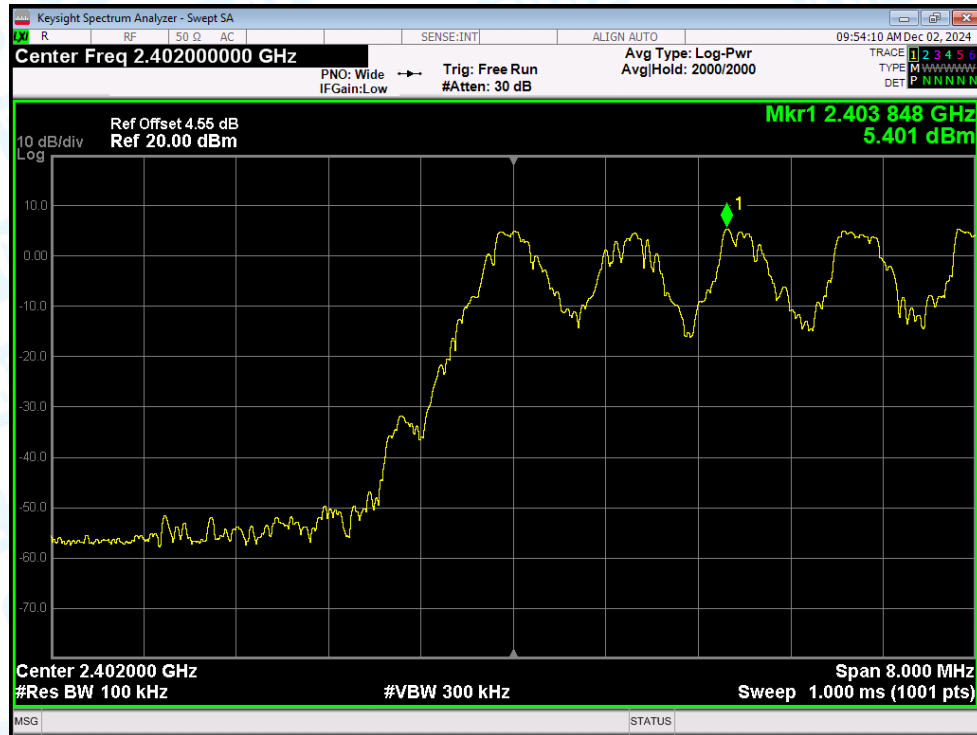


6. Band Edge(Hopping)

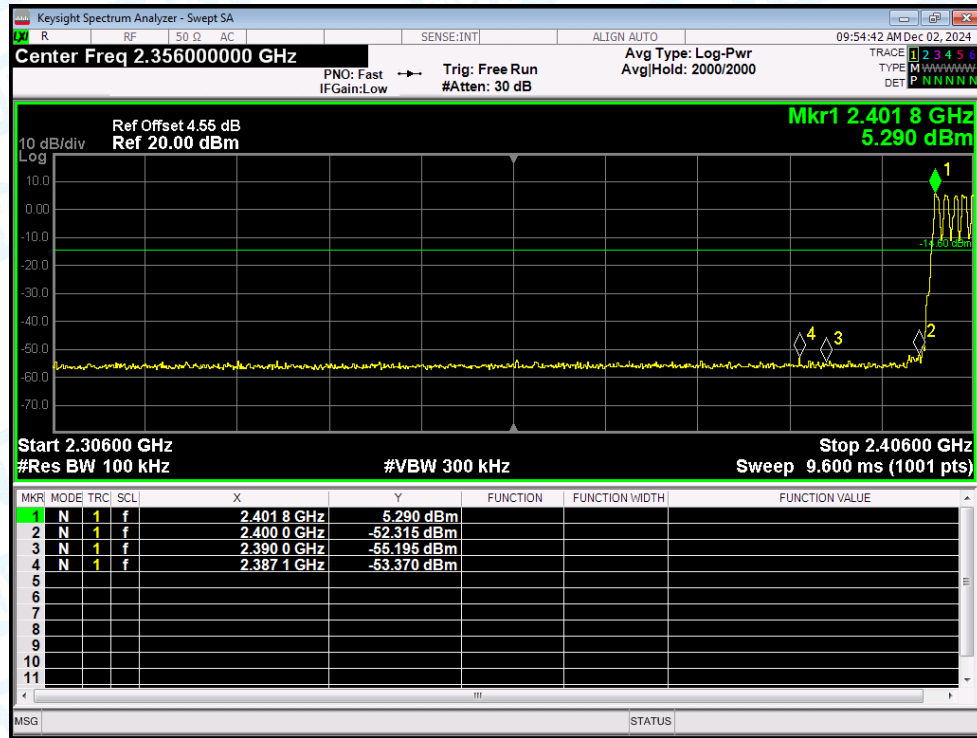
Condition	Mode	Frequency (MHz)	Antenna	Hopping Mode	Max Value (dBc)	Limit (dBc)	Verdict
NVNT	1-DH1	2402	Ant1	Hopping	-58.77	-20	Pass
NVNT	1-DH1	2480	Ant1	Hopping	-58.34	-20	Pass
NVNT	2-DH1	2402	Ant1	Hopping	-58.41	-20	Pass
NVNT	2-DH1	2480	Ant1	Hopping	-57.69	-20	Pass
NVNT	3-DH1	2402	Ant1	Hopping	-59.03	-20	Pass
NVNT	3-DH1	2480	Ant1	Hopping	-58.74	-20	Pass

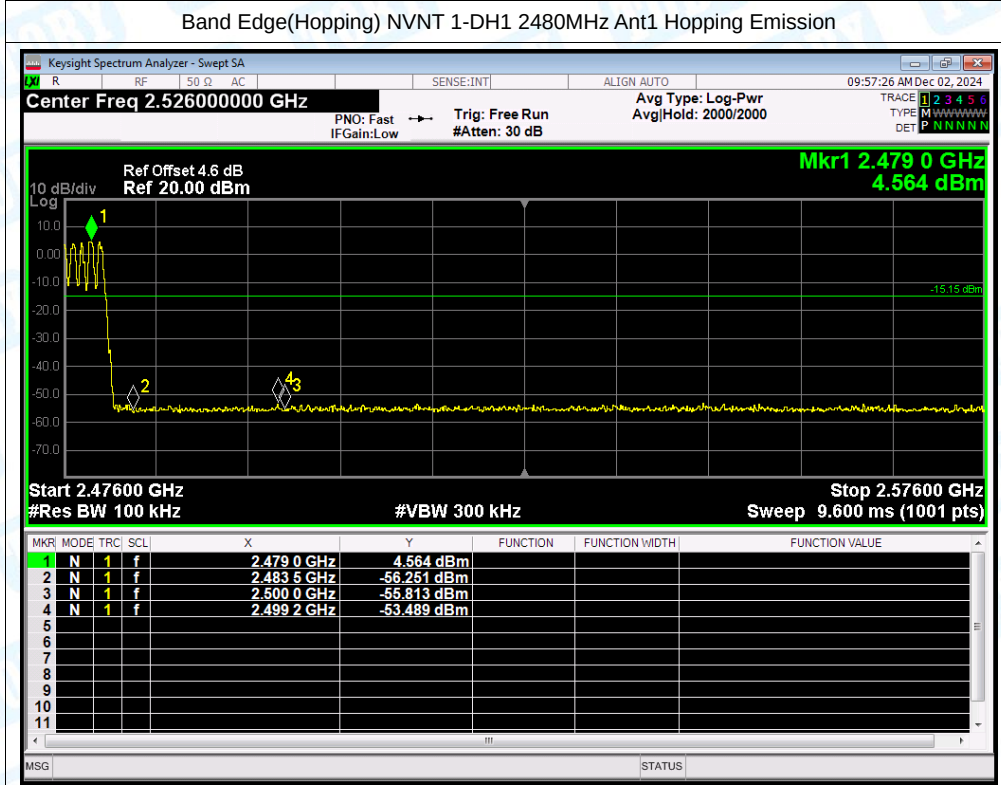
Test Graphs

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

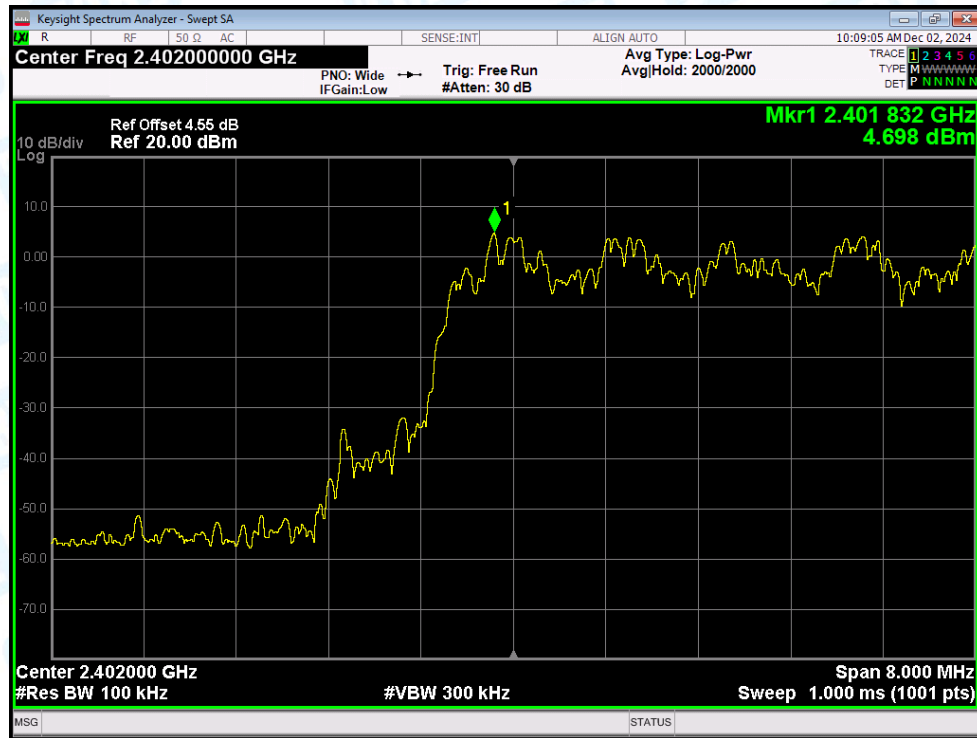


Band Edge(Hopping) NVNT 1-DH1 2402MHz Ant1 Hopping Emission

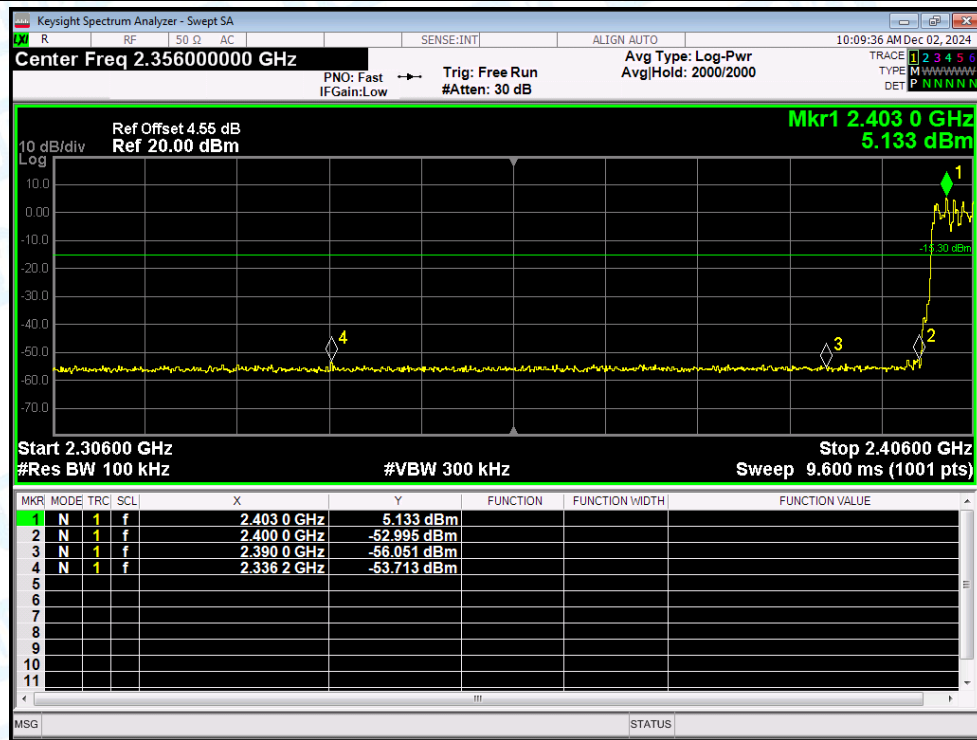


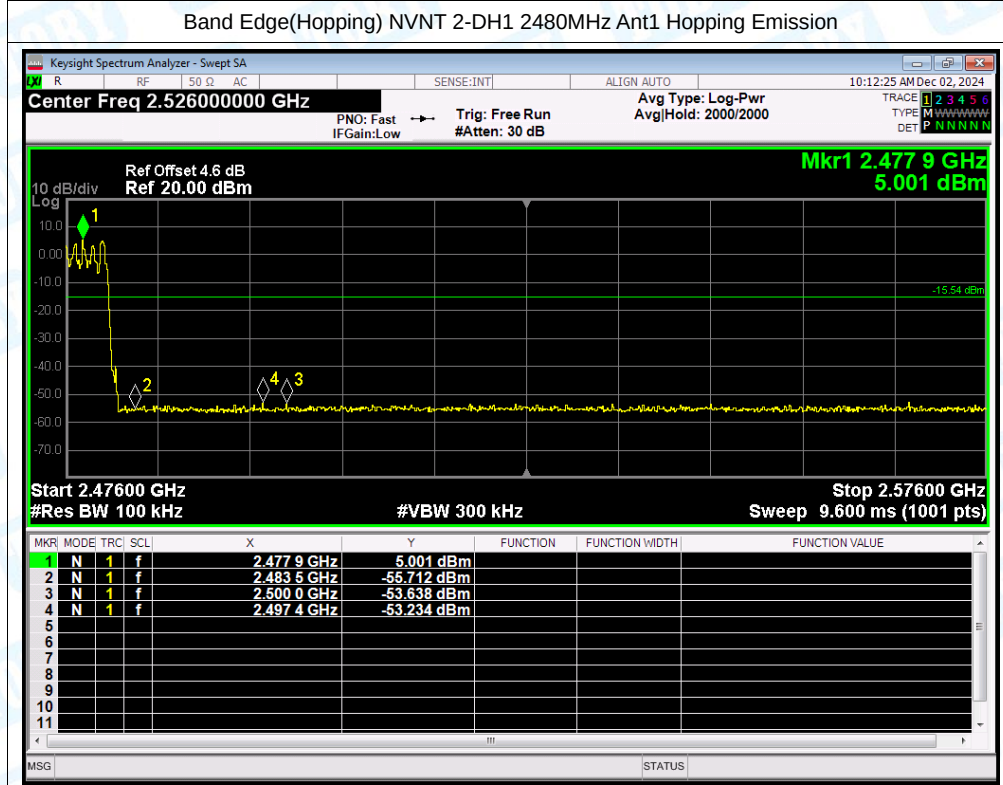


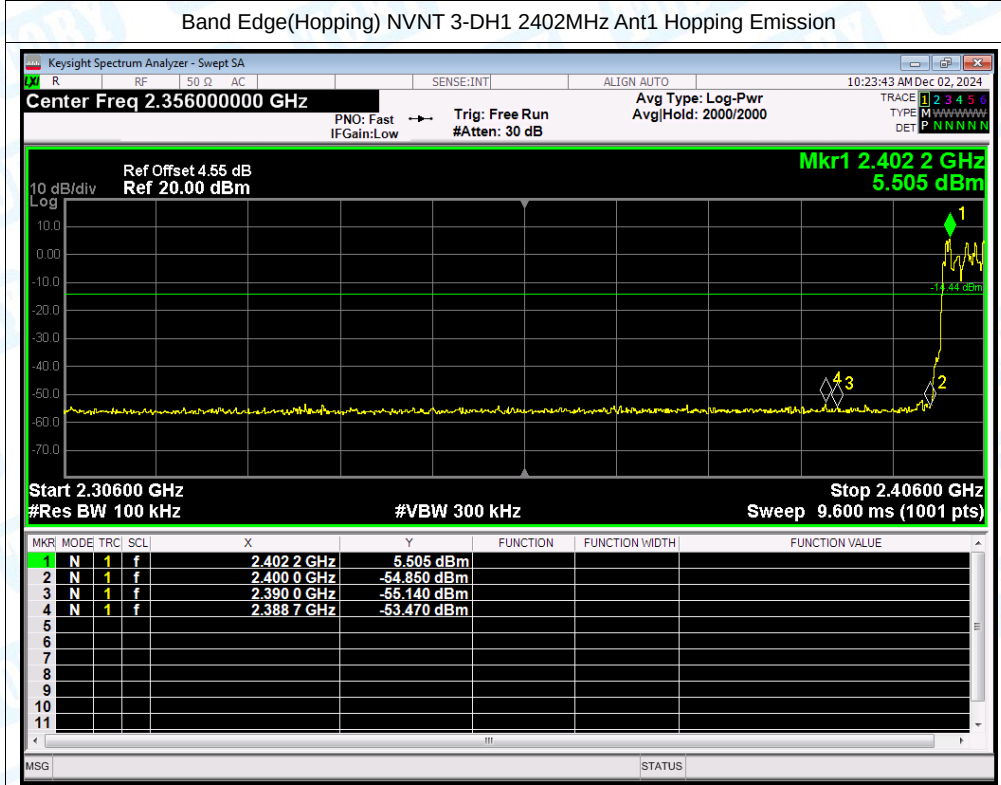
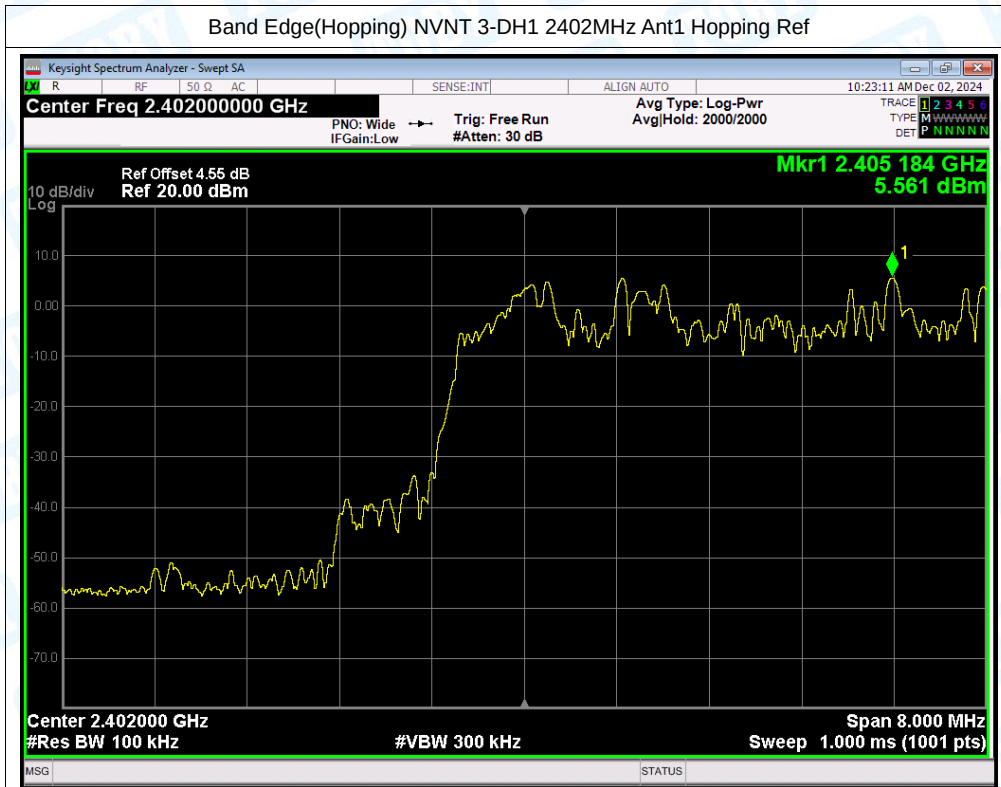
Band Edge(Hopping) NVNT 2-DH1 2402MHz Ant1 Hopping Ref

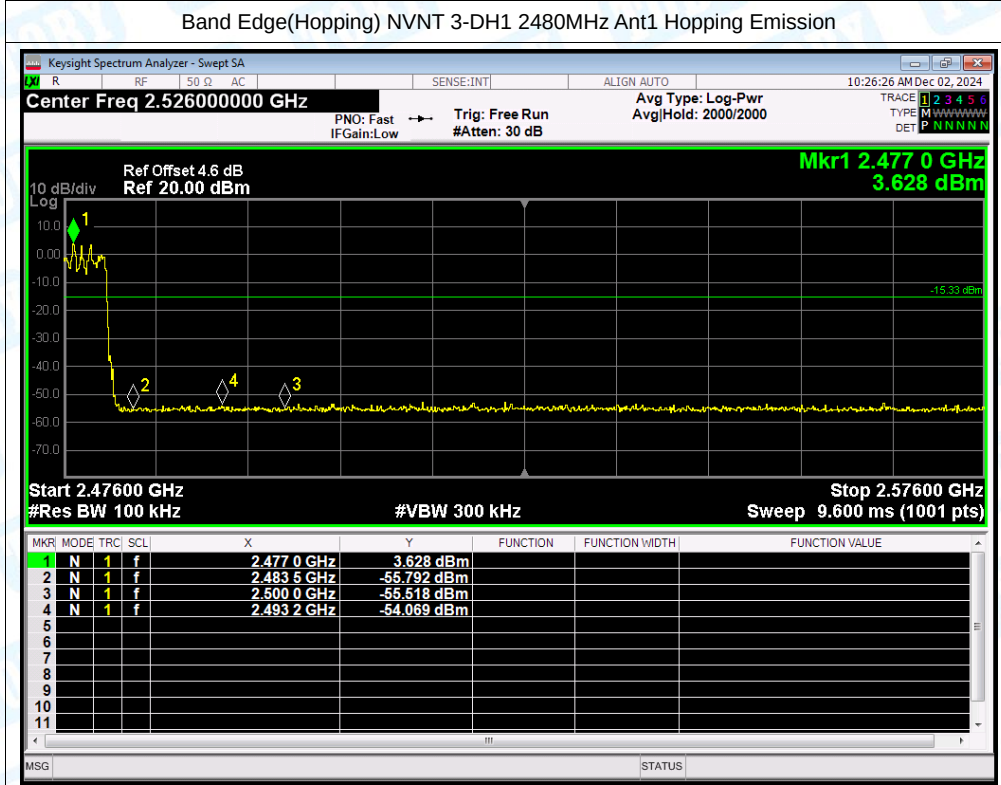


Band Edge(Hopping) NVNT 2-DH1 2402MHz Ant1 Hopping Emission







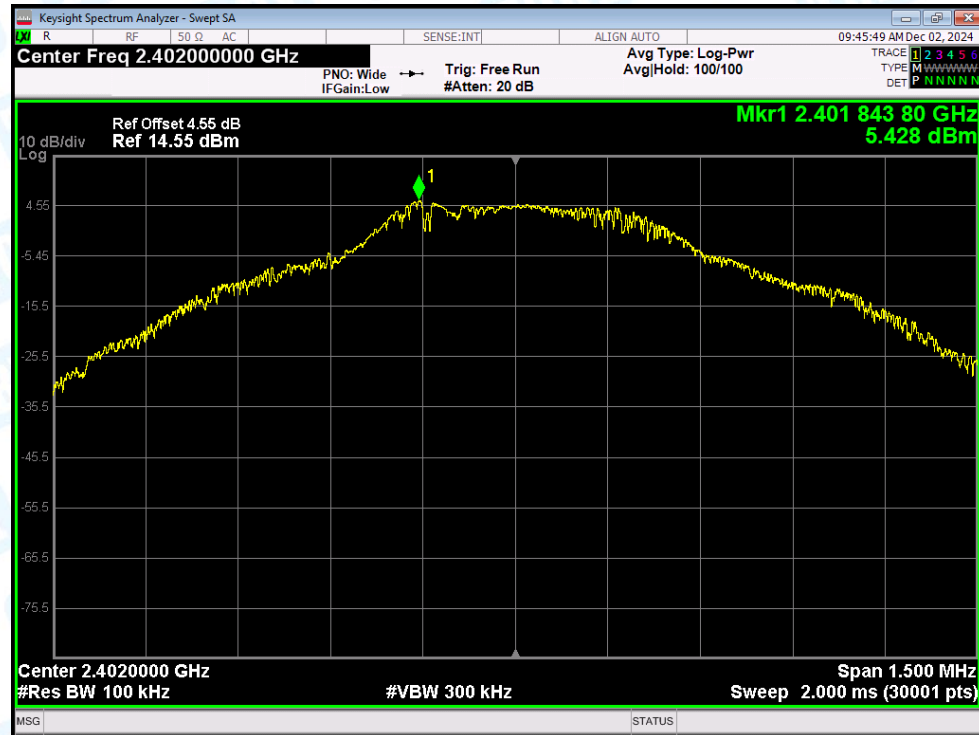


7. Conducted RF Spurious Emission

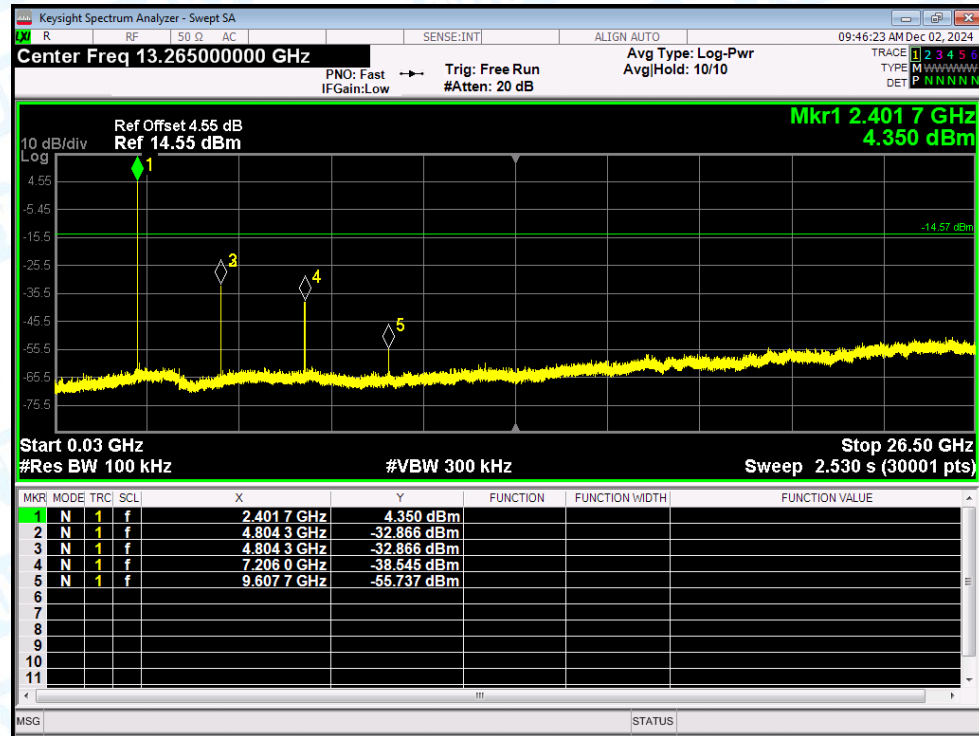
Condition	Mode	Frequency (MHz)	Antenna	Max Value (dBc)	Limit (dBc)	Verdict
NVNT	1-DH1	2402	Ant1	-38.3	-20	Pass
NVNT	1-DH1	2441	Ant1	-38.32	-20	Pass
NVNT	1-DH1	2480	Ant1	-38.41	-20	Pass
NVNT	2-DH1	2402	Ant1	-37.9	-20	Pass
NVNT	2-DH1	2441	Ant1	-41.2	-20	Pass
NVNT	2-DH1	2480	Ant1	-41.73	-20	Pass
NVNT	3-DH1	2402	Ant1	-36.76	-20	Pass
NVNT	3-DH1	2441	Ant1	-39.18	-20	Pass
NVNT	3-DH1	2480	Ant1	-36.41	-20	Pass

Test Graphs

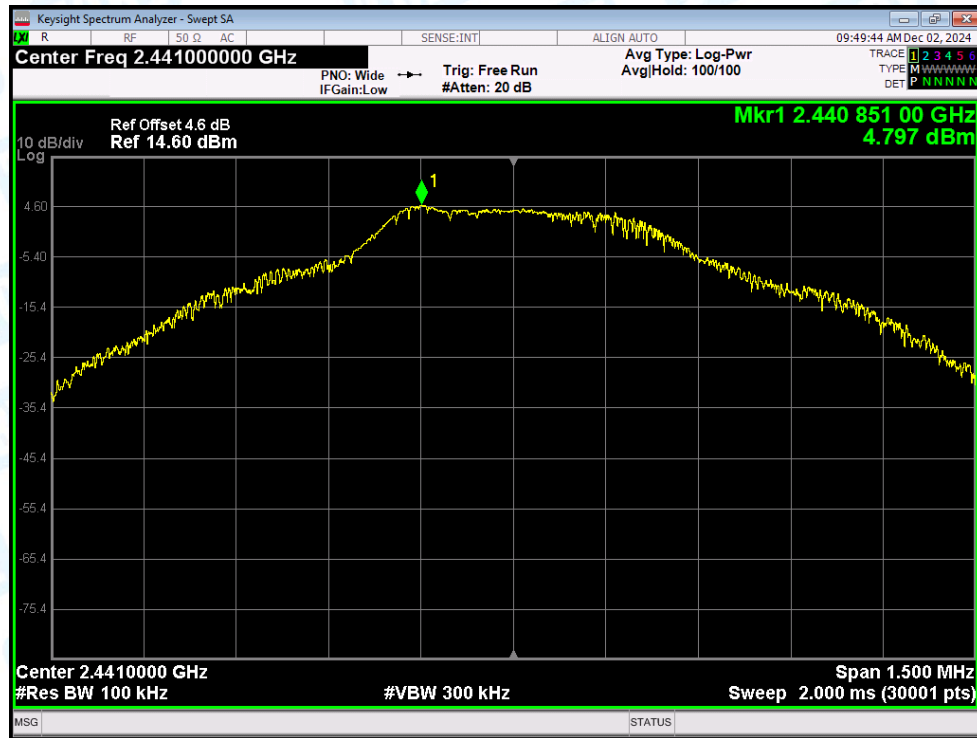
Tx. Spurious NVNT 1-DH1 2402MHz Ant1 Ref



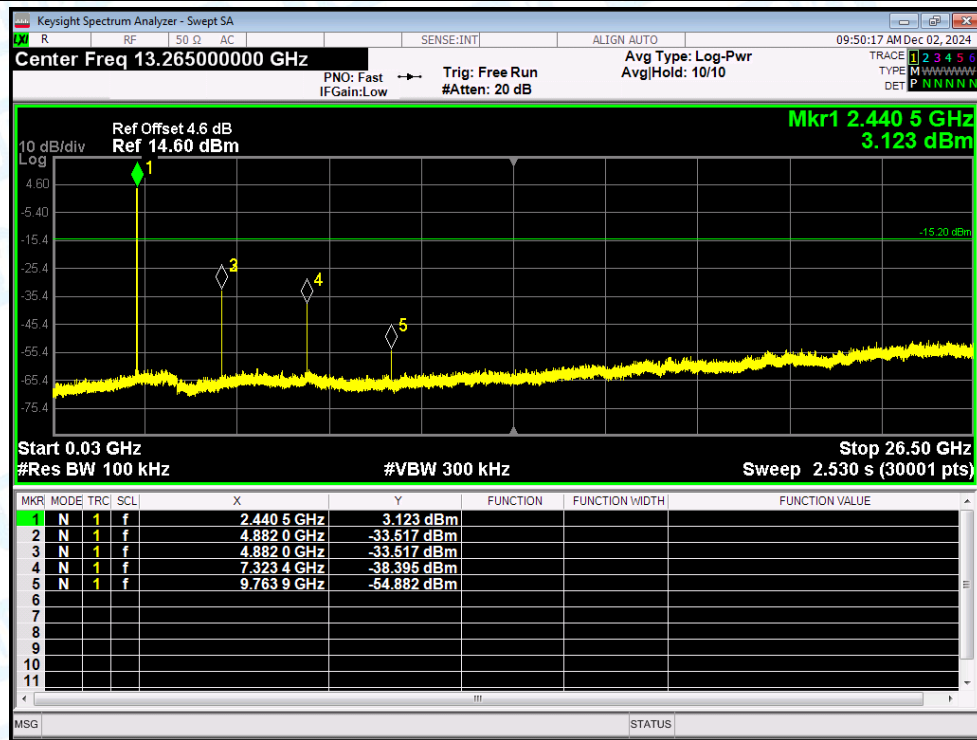
Tx. Spurious NVNT 1-DH1 2402MHz Ant1 Emission



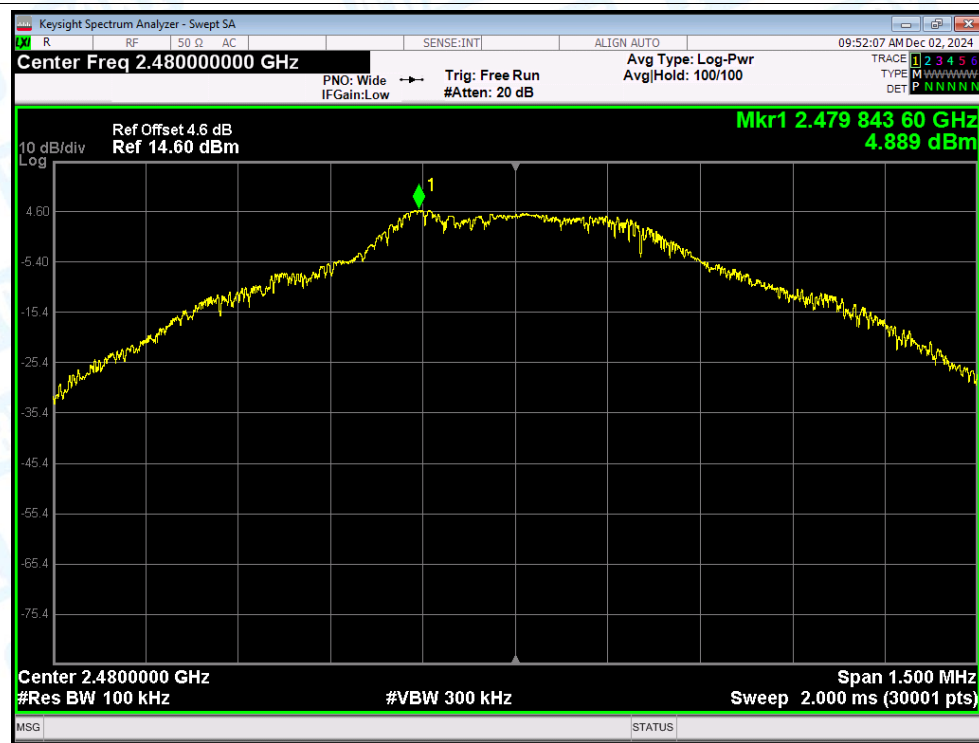
Tx. Spurious NVNT 1-DH1 2441MHz Ant1 Ref



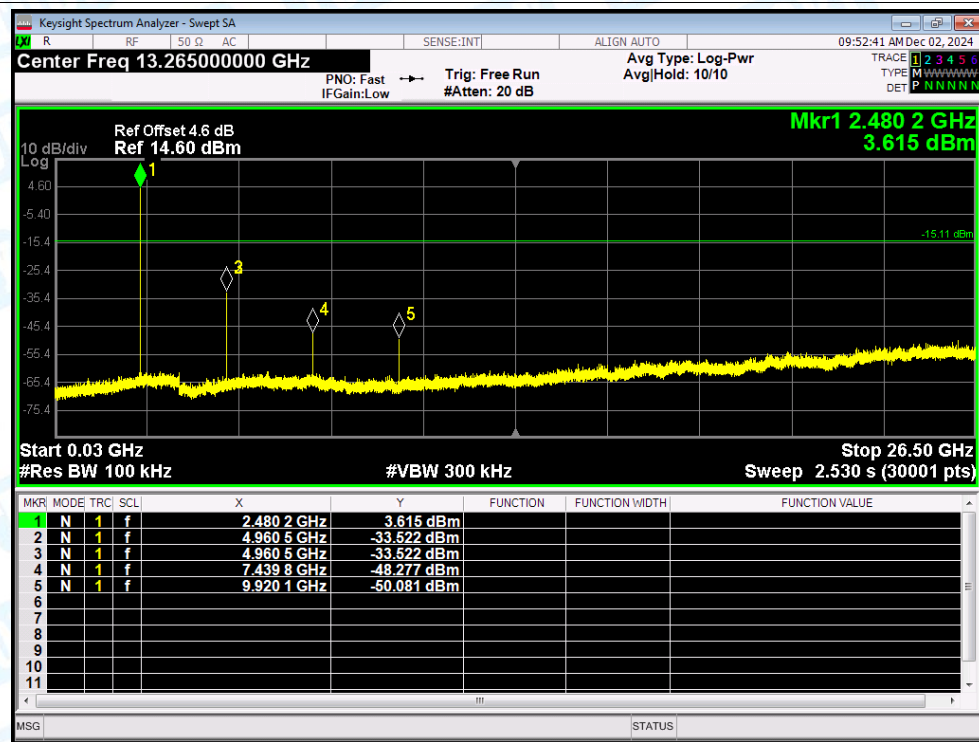
Tx. Spurious NVNT 1-DH1 2441MHz Ant1 Emission



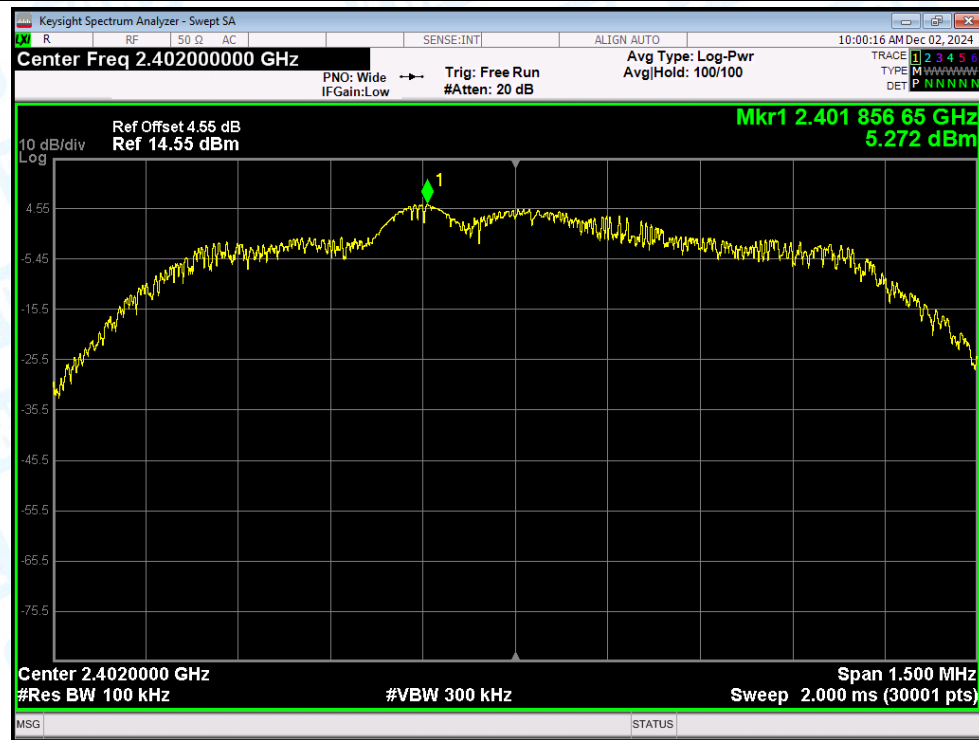
Tx. Spurious NVNT 1-DH1 2480MHz Ant1 Ref



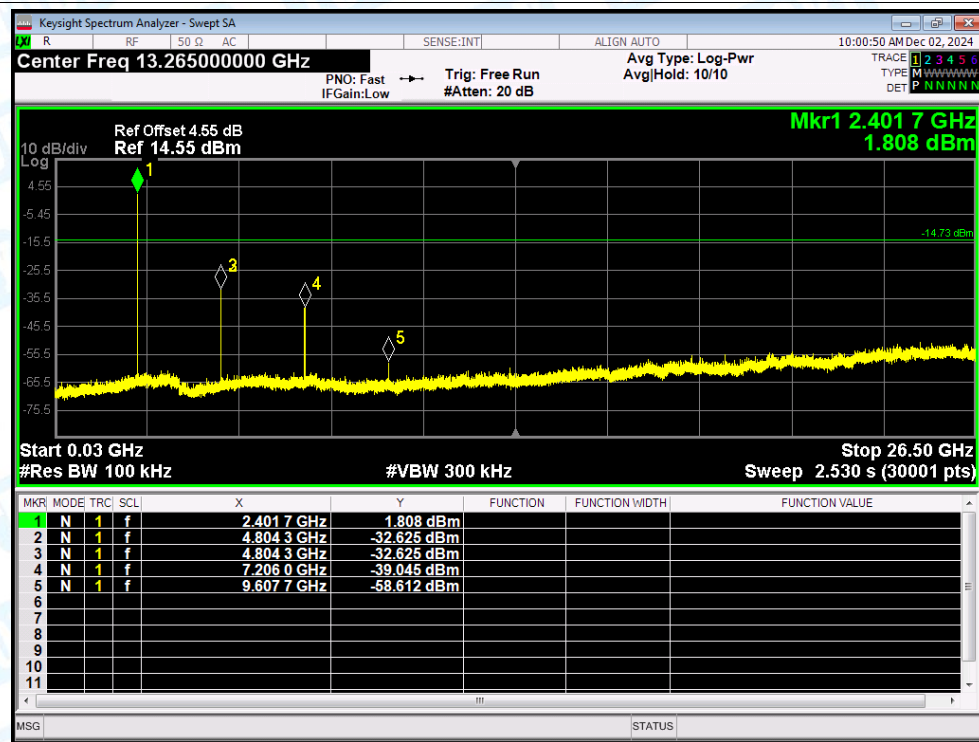
Tx. Spurious NVNT 1-DH1 2480MHz Ant1 Emission



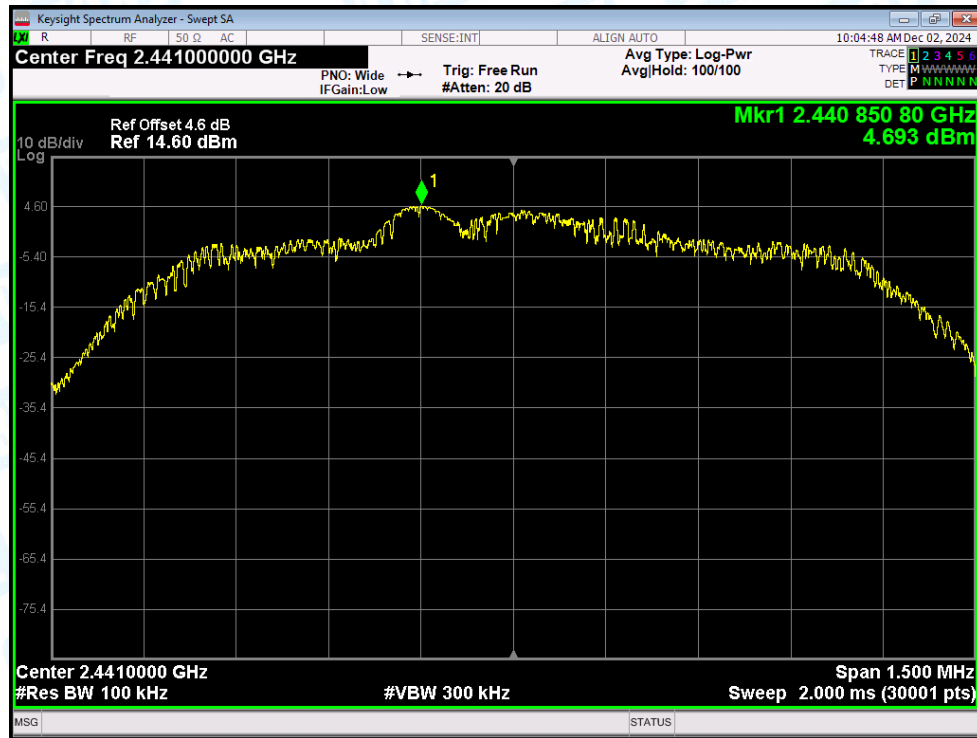
Tx. Spurious NVNT 2-DH1 2402MHz Ant1 Ref



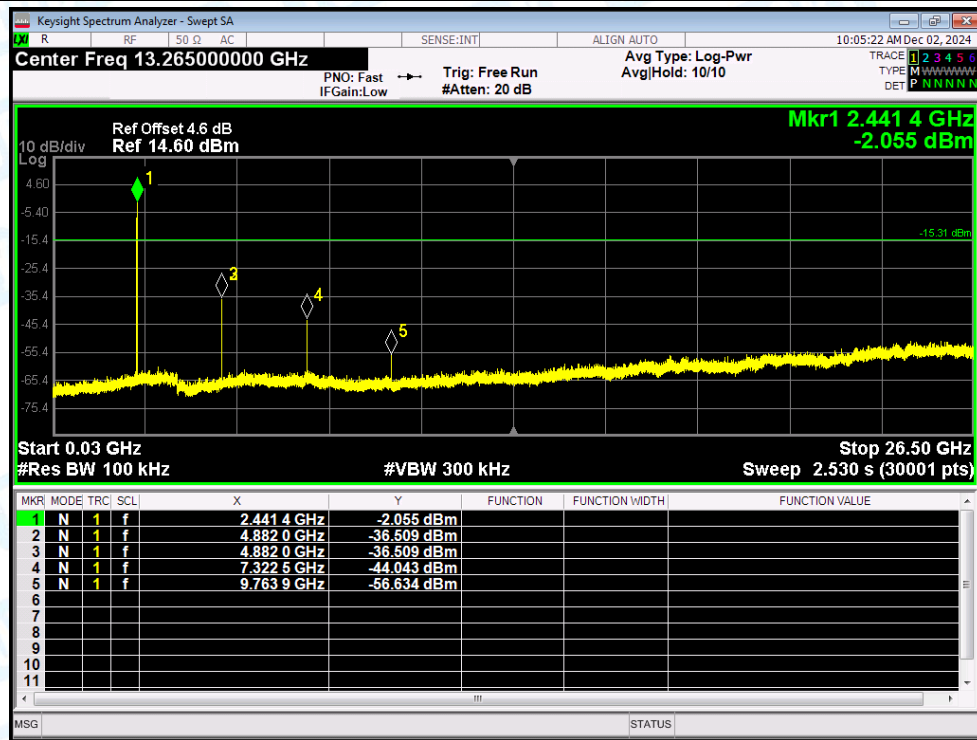
Tx. Spurious NVNT 2-DH1 2402MHz Ant1 Emission



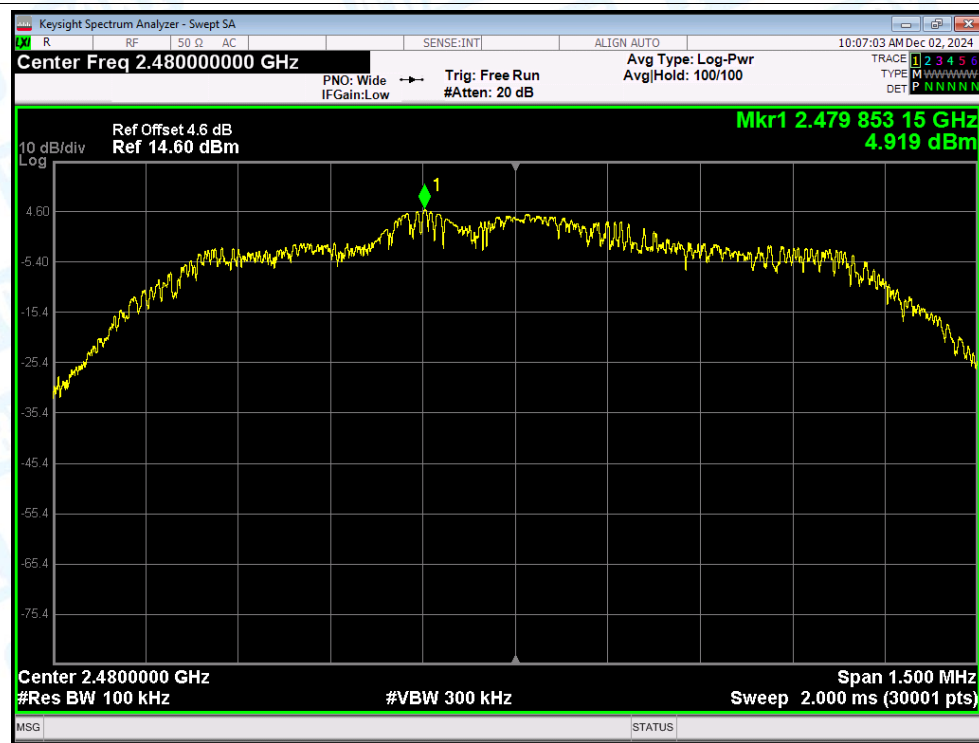
Tx. Spurious NVNT 2-DH1 2441MHz Ant1 Ref



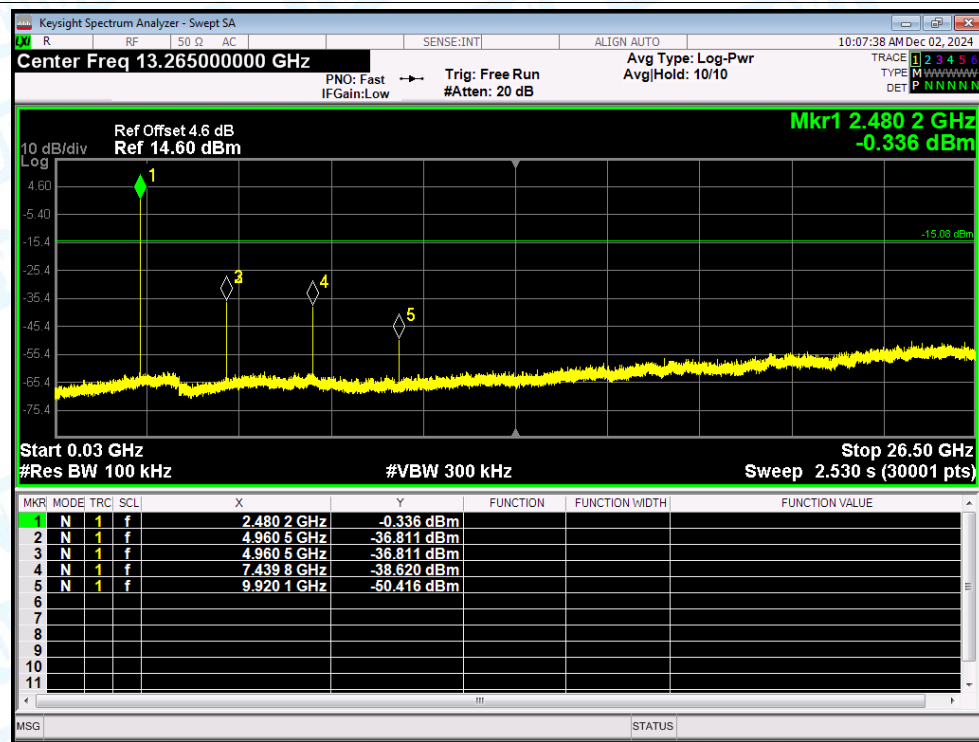
Tx. Spurious NVNT 2-DH1 2441MHz Ant1 Emission



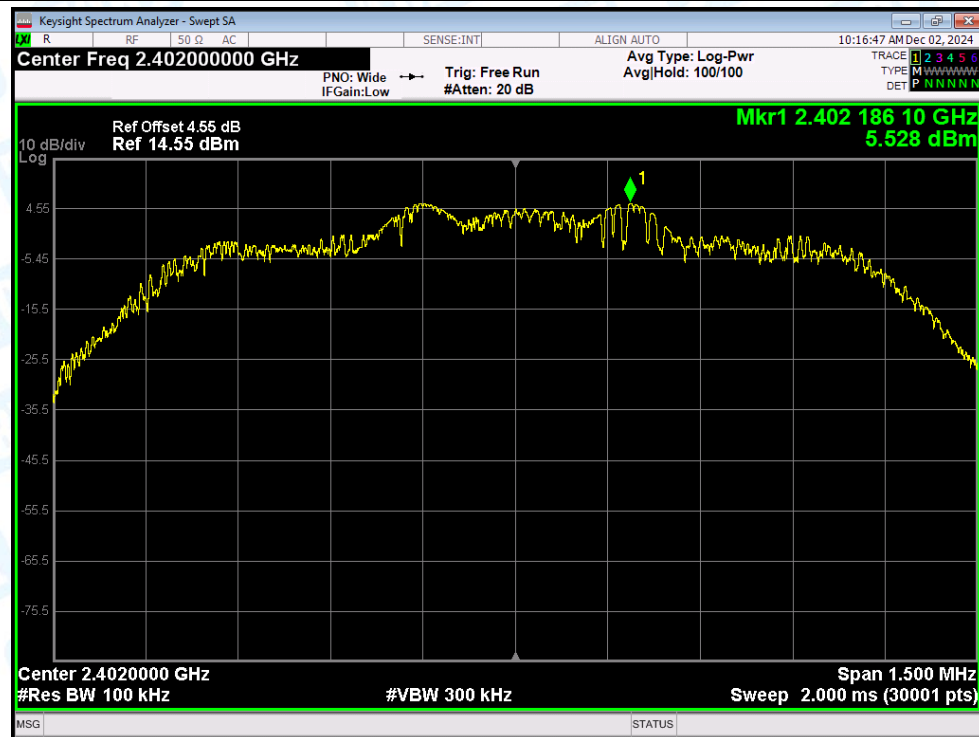
Tx. Spurious NVNT 2-DH1 2480MHz Ant1 Ref



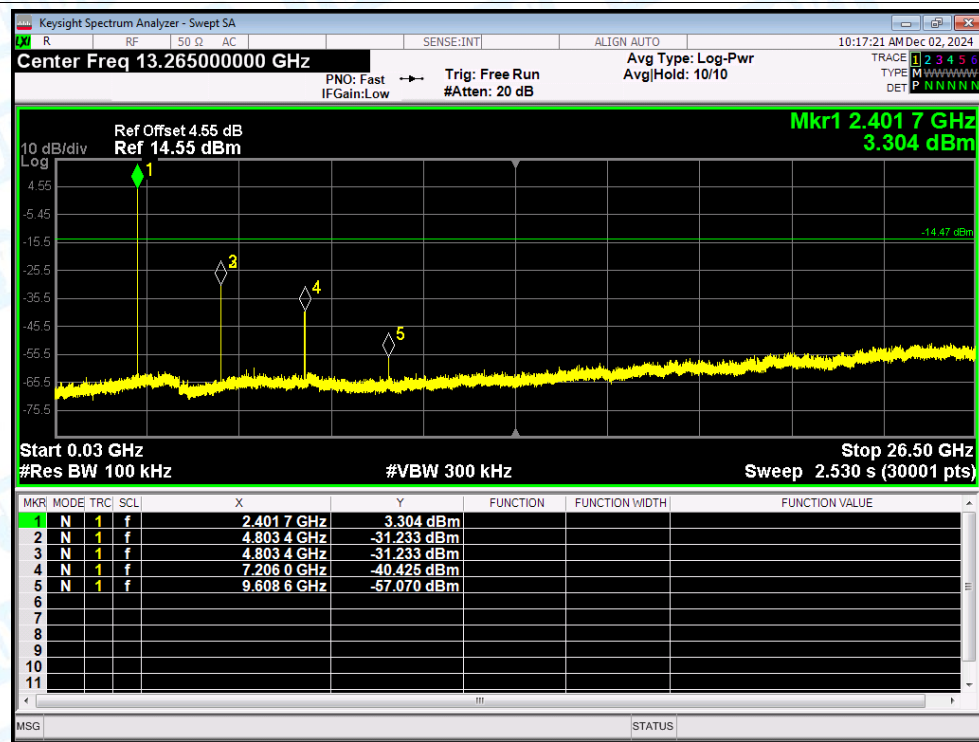
Tx. Spurious NVNT 2-DH1 2480MHz Ant1 Emission



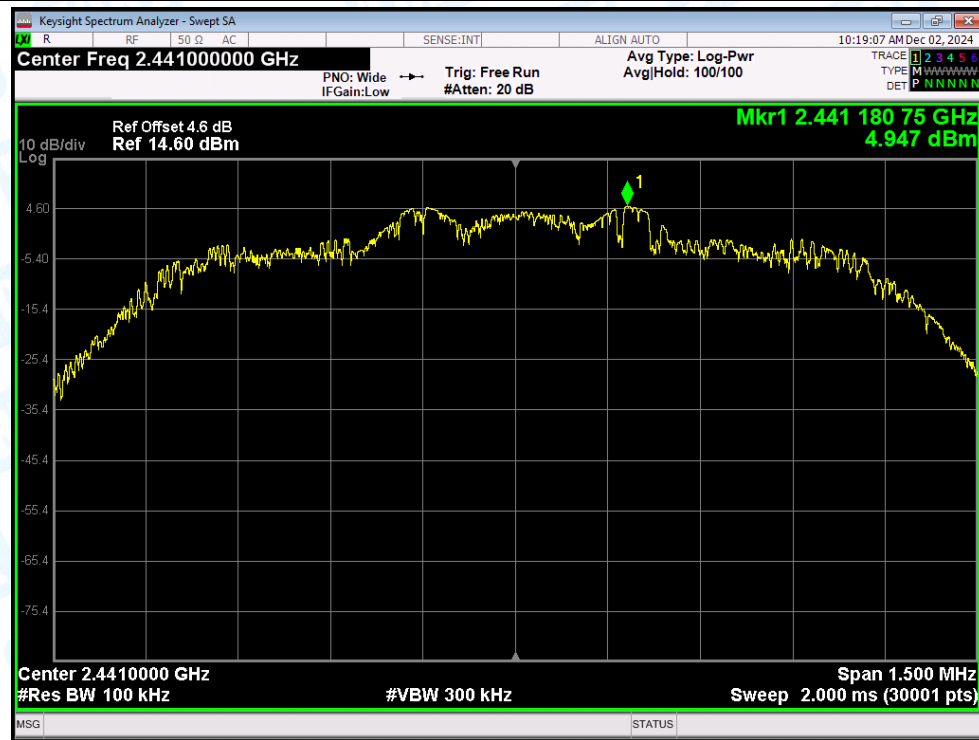
Tx. Spurious NVNT 3-DH1 2402MHz Ant1 Ref



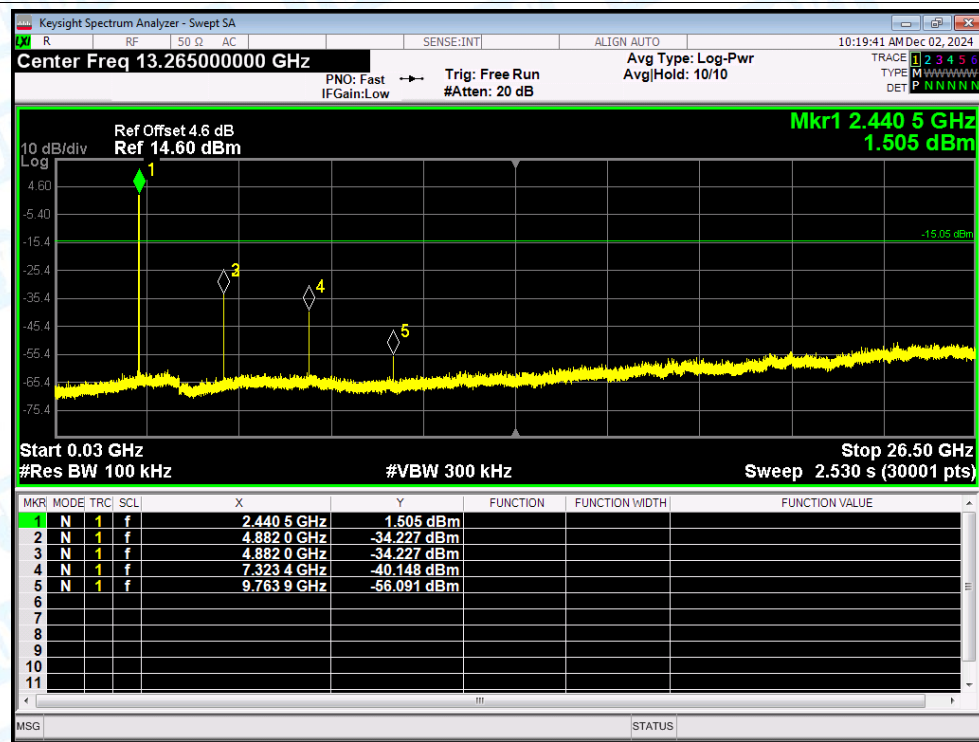
Tx. Spurious NVNT 3-DH1 2402MHz Ant1 Emission



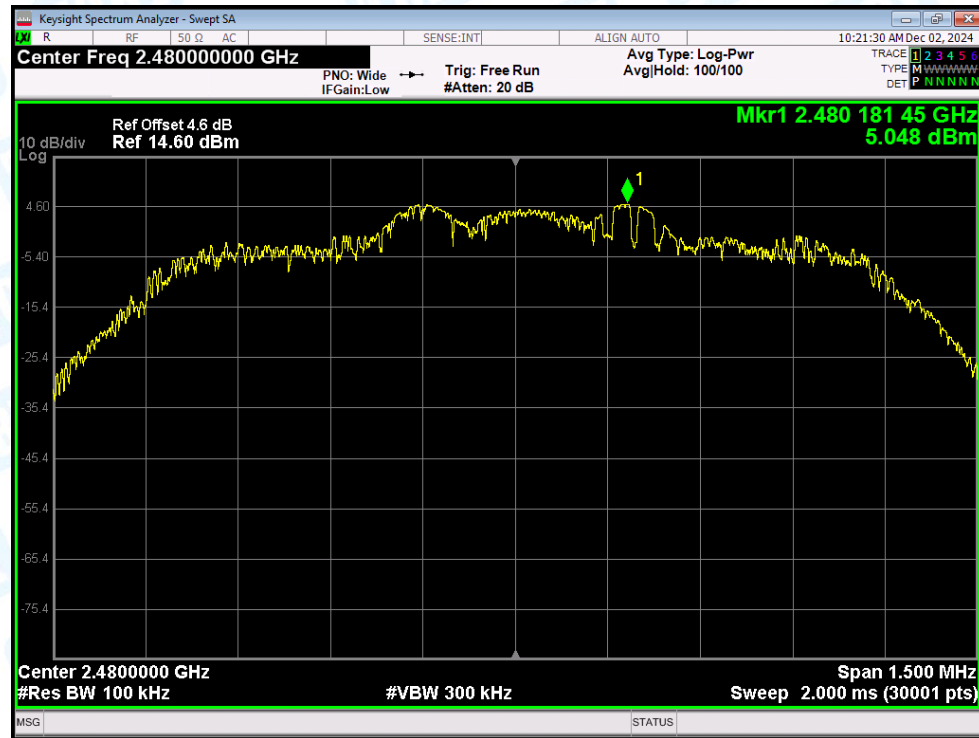
Tx. Spurious NVNT 3-DH1 2441MHz Ant1 Ref



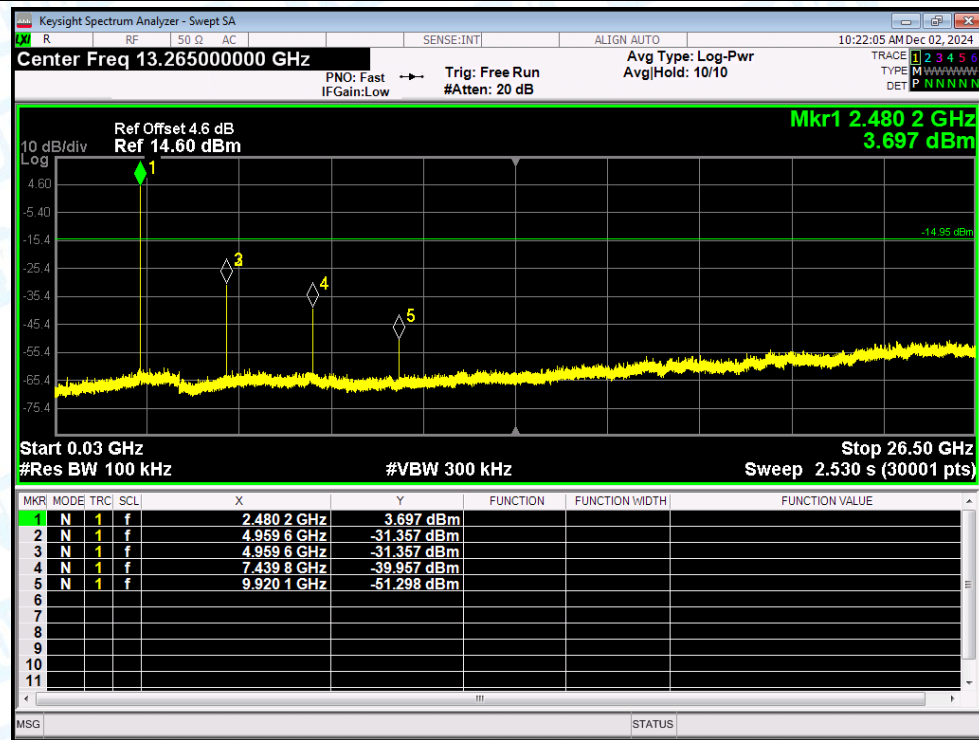
Tx. Spurious NVNT 3-DH1 2441MHz Ant1 Emission



Tx. Spurious NVNT 3-DH1 2480MHz Ant1 Ref



Tx. Spurious NVNT 3-DH1 2480MHz Ant1 Emission

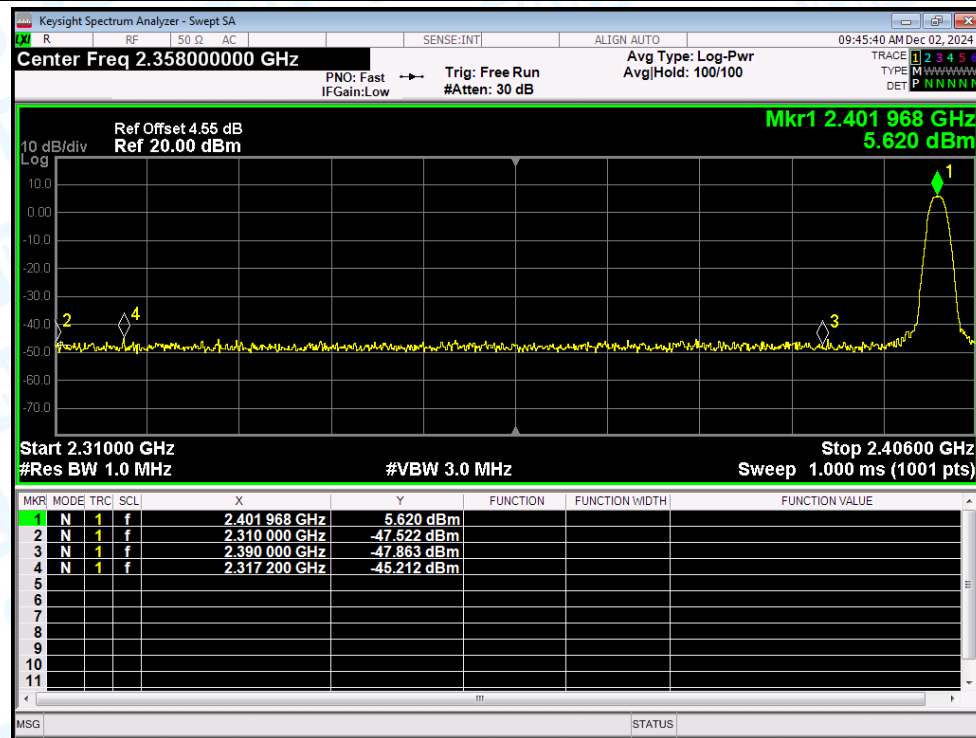


8. Restrict Band

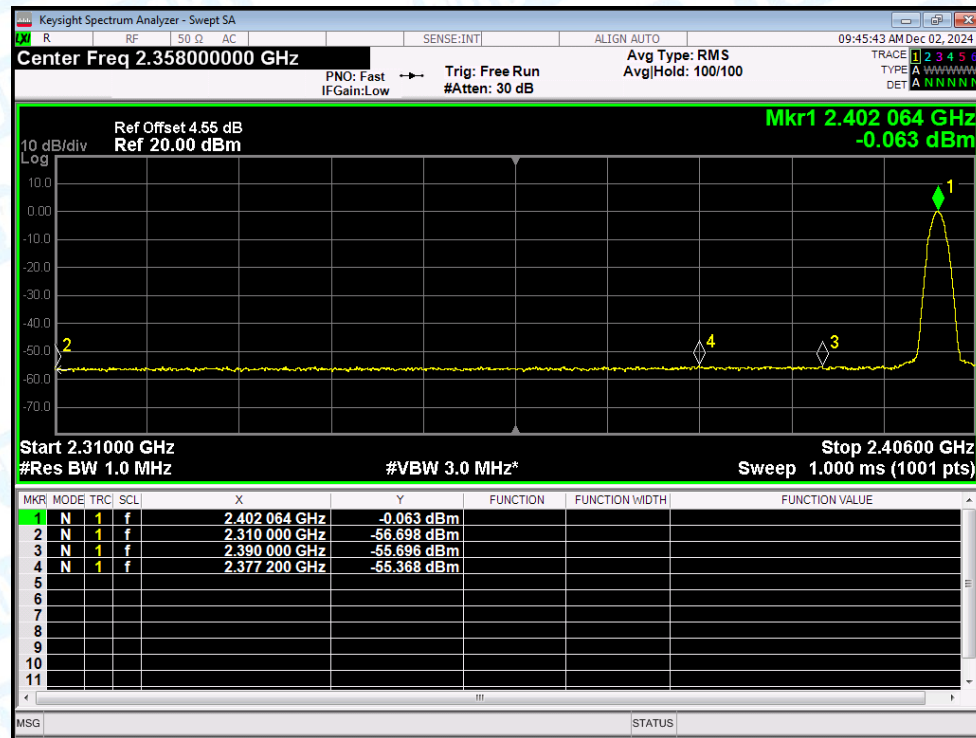
Condition	Mode	Frequency (MHz)	Antenna	Hopping Mode	Spur Freq (MHz)	Power (dBm)	Gain (dBi)	Duty Factor (dB)	E (dBuV/m)	Detector	Limit (dBuV/m)	Verdict
NVNT	1-DH1	2402	Ant1	No-Hopping	2310	-47.52	2	-	49.74	Peak	74	Pass
NVNT	1-DH1	2402	Ant1	No-Hopping	2310	-56.7	2	5.29	45.85	Average	54	Pass
NVNT	1-DH1	2402	Ant1	No-Hopping	2317.2	-45.21	2	-	52.05	Peak	74	Pass
NVNT	1-DH1	2402	Ant1	No-Hopping	2377.2	-55.37	2	5.29	47.18	Average	54	Pass
NVNT	1-DH1	2402	Ant1	No-Hopping	2390	-47.86	2	-	49.4	Peak	74	Pass
NVNT	1-DH1	2402	Ant1	No-Hopping	2390	-55.7	2	5.29	46.85	Average	54	Pass
NVNT	1-DH1	2480	Ant1	No-Hopping	2483.5	-45.75	2	-	51.51	Peak	74	Pass
NVNT	1-DH1	2480	Ant1	No-Hopping	2483.5	-55.22	2	5.17	47.21	Average	54	Pass
NVNT	1-DH1	2480	Ant1	No-Hopping	2498.8	-43.81	2	-	53.45	Peak	74	Pass
NVNT	1-DH1	2480	Ant1	No-Hopping	2488.36	-54.74	2	5.17	47.69	Average	54	Pass
NVNT	1-DH1	2480	Ant1	No-Hopping	2500	-47.25	2	-	50.01	Peak	74	Pass
NVNT	1-DH1	2480	Ant1	No-Hopping	2500	-55.69	2	5.17	46.74	Average	54	Pass
NVNT	2-DH1	2402	Ant1	No-Hopping	2310	-49.41	2	-	47.85	Peak	74	Pass
NVNT	2-DH1	2402	Ant1	No-Hopping	2310	-56.53	2	5.17	45.9	Average	54	Pass
NVNT	2-DH1	2402	Ant1	No-Hopping	2366.16	-44.78	2	-	52.48	Peak	74	Pass
NVNT	2-DH1	2402	Ant1	No-Hopping	2344.272	-55.41	2	5.17	47.02	Average	54	Pass
NVNT	2-DH1	2402	Ant1	No-Hopping	2390	-48.93	2	-	48.33	Peak	74	Pass
NVNT	2-DH1	2402	Ant1	No-Hopping	2390	-55.67	2	5.17	46.76	Average	54	Pass
NVNT	2-DH1	2480	Ant1	No-Hopping	2483.5	-47.16	2	-	50.1	Peak	74	Pass
NVNT	2-DH1	2480	Ant1	No-Hopping	2483.5	-54.92	2	5.06	47.4	Average	54	Pass
NVNT	2-DH1	2480	Ant1	No-Hopping	2483.632	-44.03	2	-	53.23	Peak	74	Pass
NVNT	2-DH1	2480	Ant1	No-Hopping	2484.256	-54.63	2	5.06	47.69	Average	54	Pass
NVNT	2-DH1	2480	Ant1	No-Hopping	2500	-48.02	2	-	49.24	Peak	74	Pass
NVNT	2-DH1	2480	Ant1	No-Hopping	2500	-55.59	2	5.06	46.73	Average	54	Pass
NVNT	3-DH1	2402	Ant1	No-Hopping	2310	-49.47	2	-	47.79	Peak	74	Pass
NVNT	3-DH1	2402	Ant1	No-Hopping	2310	-56.52	2	5.17	45.91	Average	54	Pass
NVNT	3-DH1	2402	Ant1	No-Hopping	2385.264	-44.73	2	-	52.53	Peak	74	Pass
NVNT	3-DH1	2402	Ant1	No-Hopping	2373.744	-55.37	2	5.17	47.06	Average	54	Pass
NVNT	3-DH1	2402	Ant1	No-Hopping	2390	-47.95	2	-	49.31	Peak	74	Pass
NVNT	3-DH1	2402	Ant1	No-Hopping	2390	-55.82	2	5.17	46.61	Average	54	Pass
NVNT	3-DH1	2480	Ant1	No-Hopping	2483.5	-46.74	2	-	50.52	Peak	74	Pass
NVNT	3-DH1	2480	Ant1	No-Hopping	2483.5	-55.05	2	5.06	47.27	Average	54	Pass
NVNT	3-DH1	2480	Ant1	No-Hopping	2491.888	-43.91	2	-	53.35	Peak	74	Pass
NVNT	3-DH1	2480	Ant1	No-Hopping	2497.6	-54.65	2	5.06	47.67	Average	54	Pass
NVNT	3-DH1	2480	Ant1	No-Hopping	2500	-45.89	2	-	51.37	Peak	74	Pass
NVNT	3-DH1	2480	Ant1	No-Hopping	2500	-55.4	2	5.06	46.92	Average	54	Pass

Test Graphs

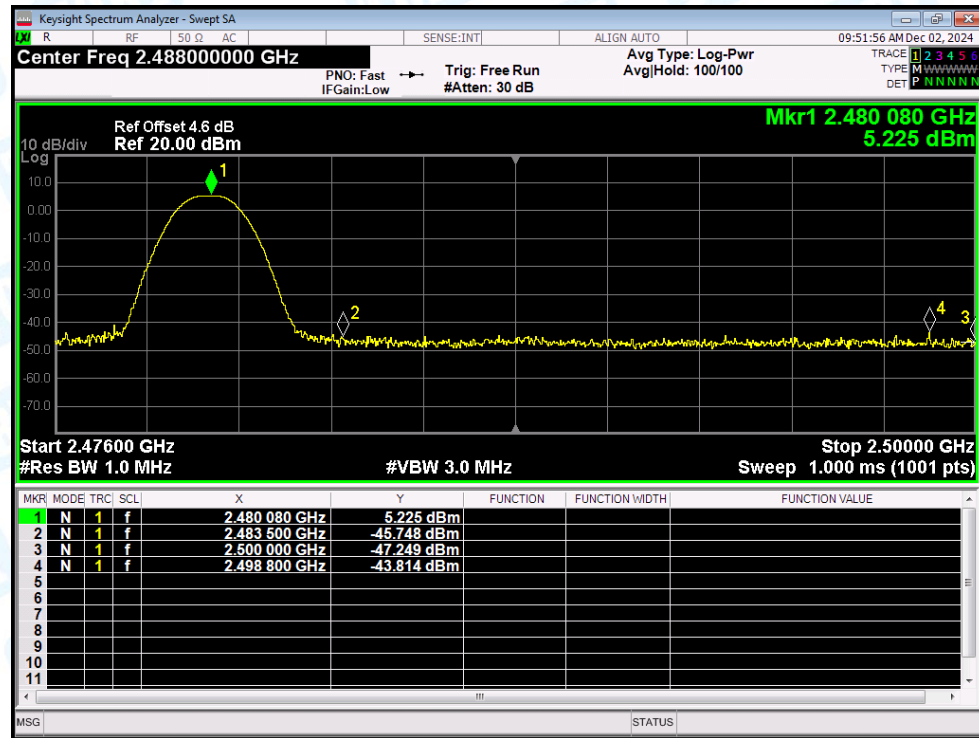
Restrict Band NVNT 1-DH1 2402MHz Ant1 No-Hopping Peak



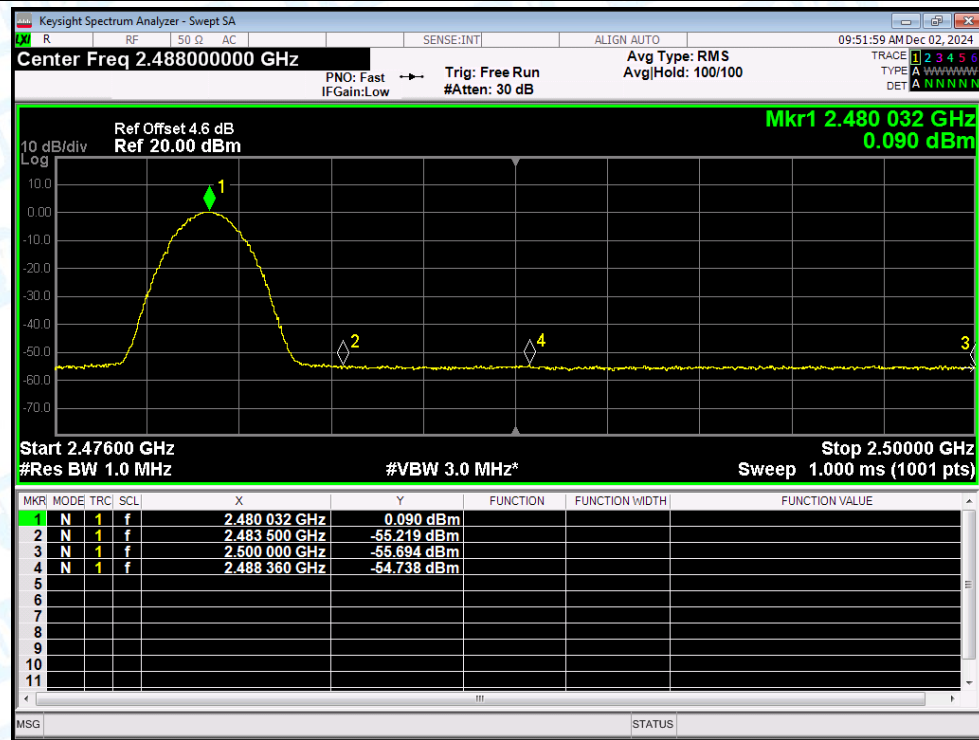
Restrict Band NVNT 1-DH1 2402MHz Ant1 No-Hopping Average



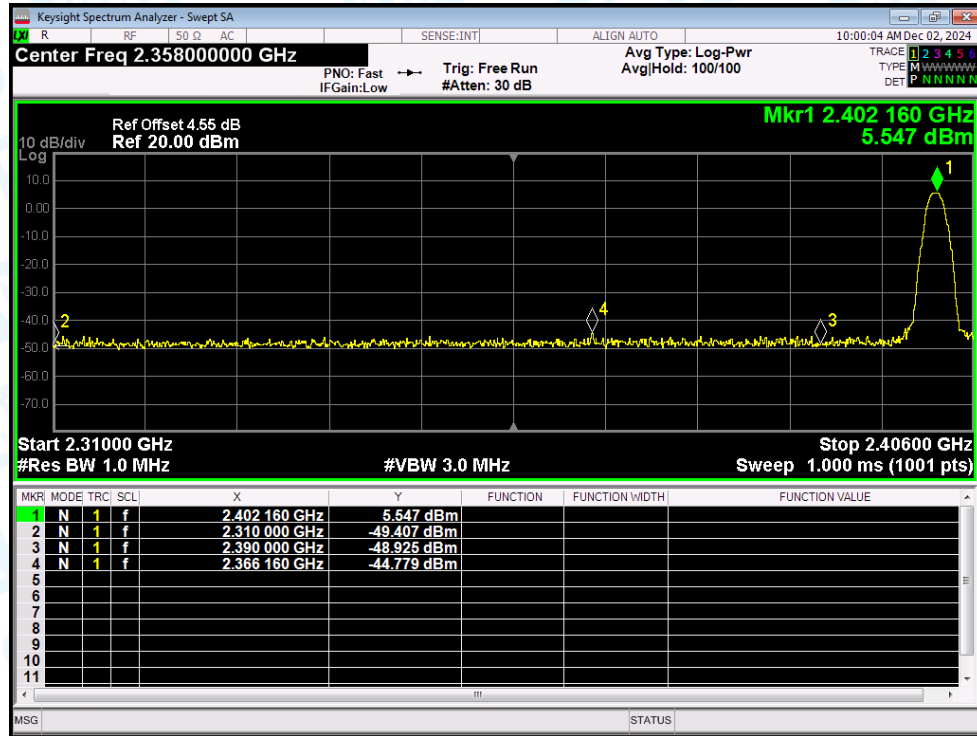
Restrict Band NVNT 1-DH1 2480MHz Ant1 No-Hopping Peak



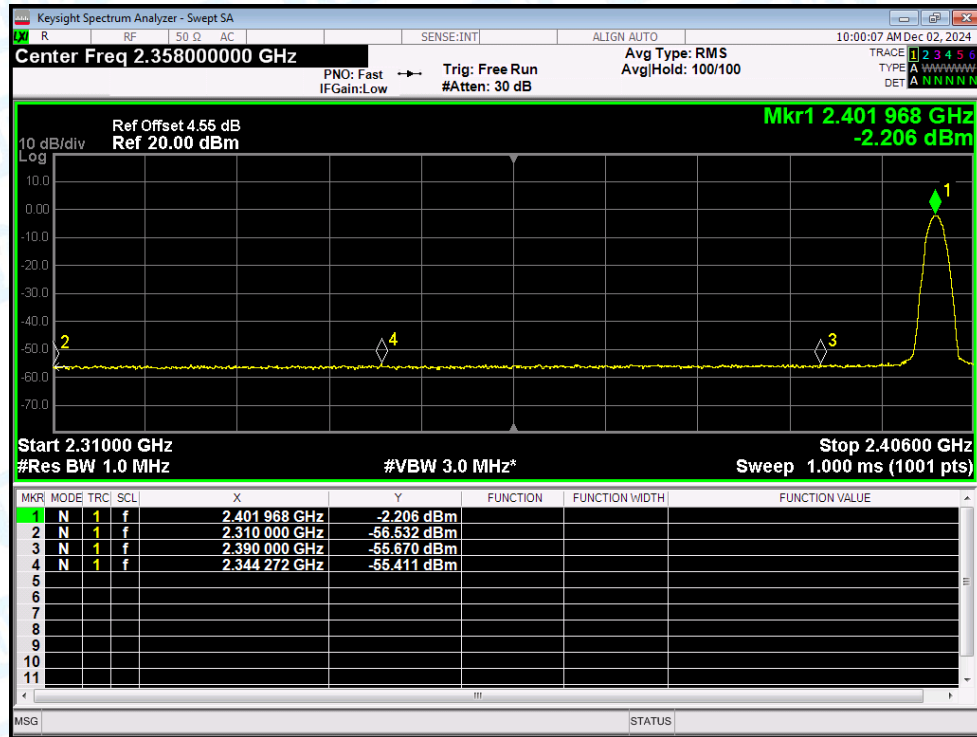
Restrict Band NVNT 1-DH1 2480MHz Ant1 No-Hopping Average



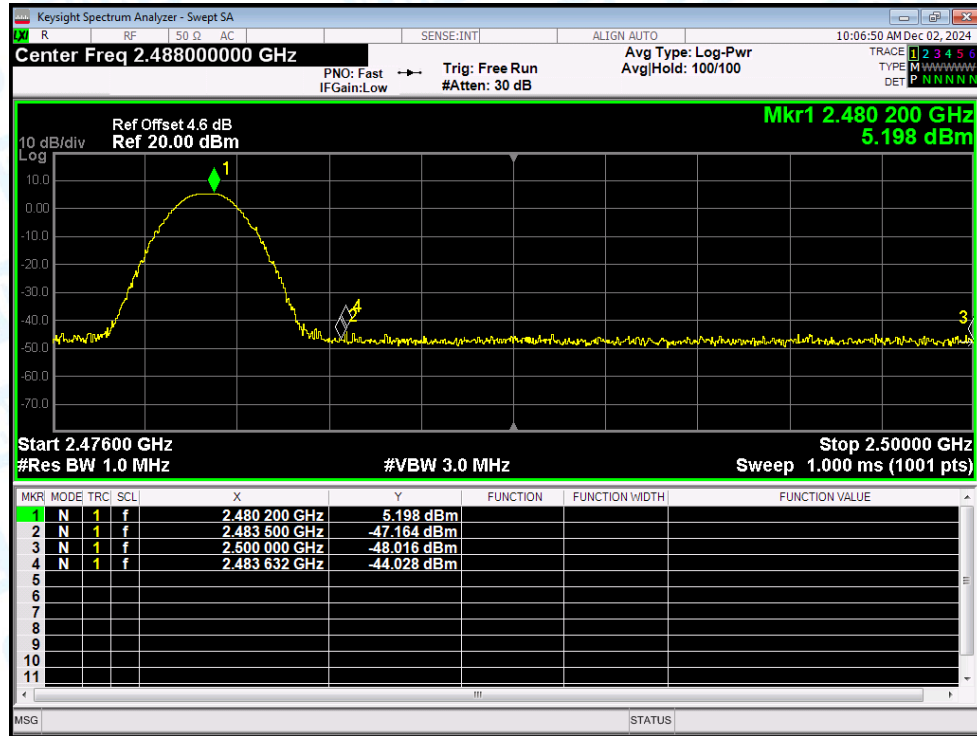
Restrict Band NVNT 2-DH1 2402MHz Ant1 No-Hopping Peak



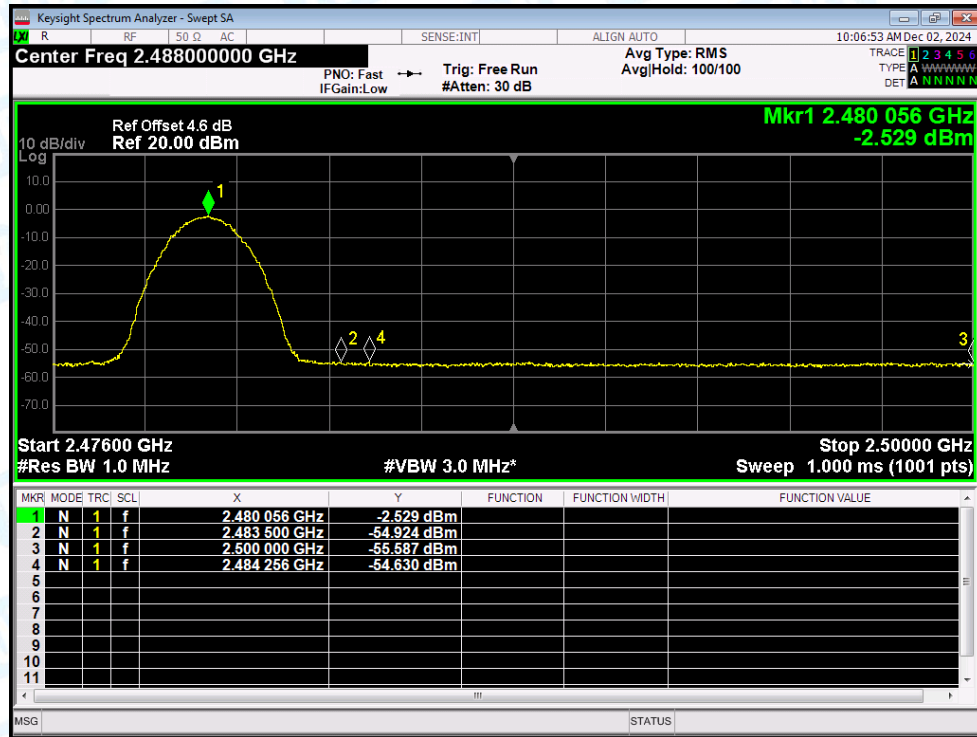
Restrict Band NVNT 2-DH1 2402MHz Ant1 No-Hopping Average



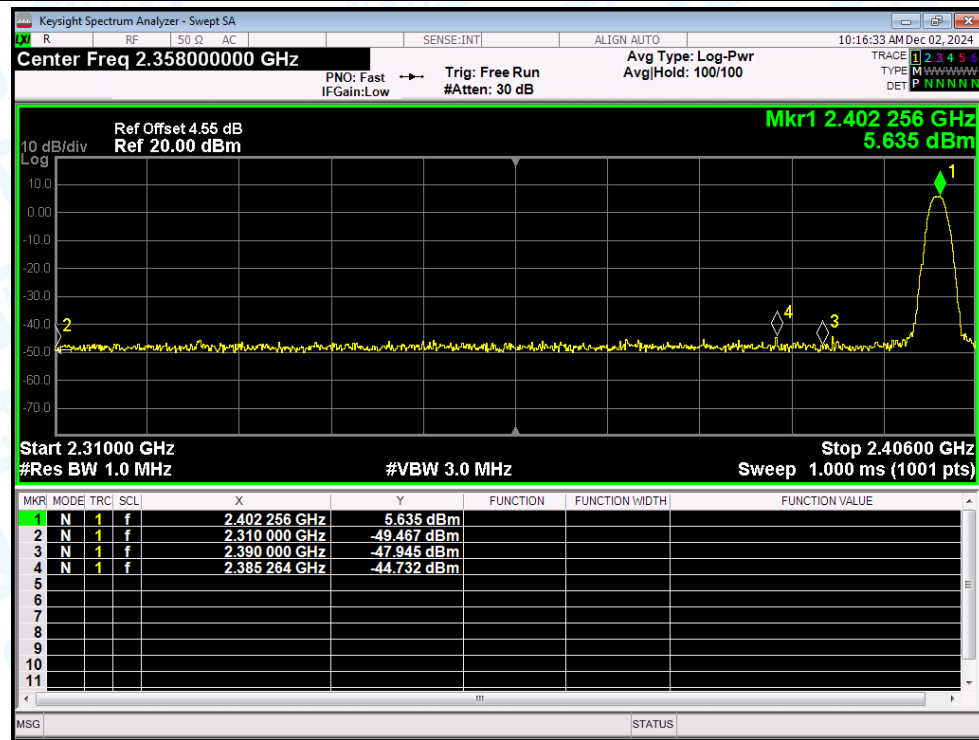
Restrict Band NVNT 2-DH1 2480MHz Ant1 No-Hopping Peak



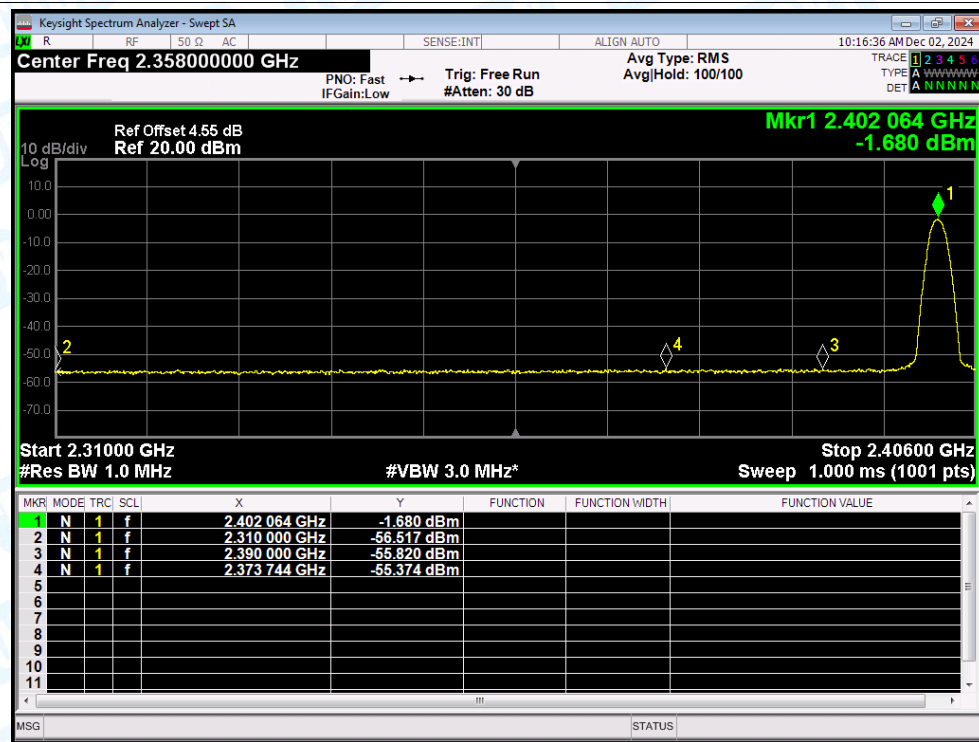
Restrict Band NVNT 2-DH1 2480MHz Ant1 No-Hopping Average



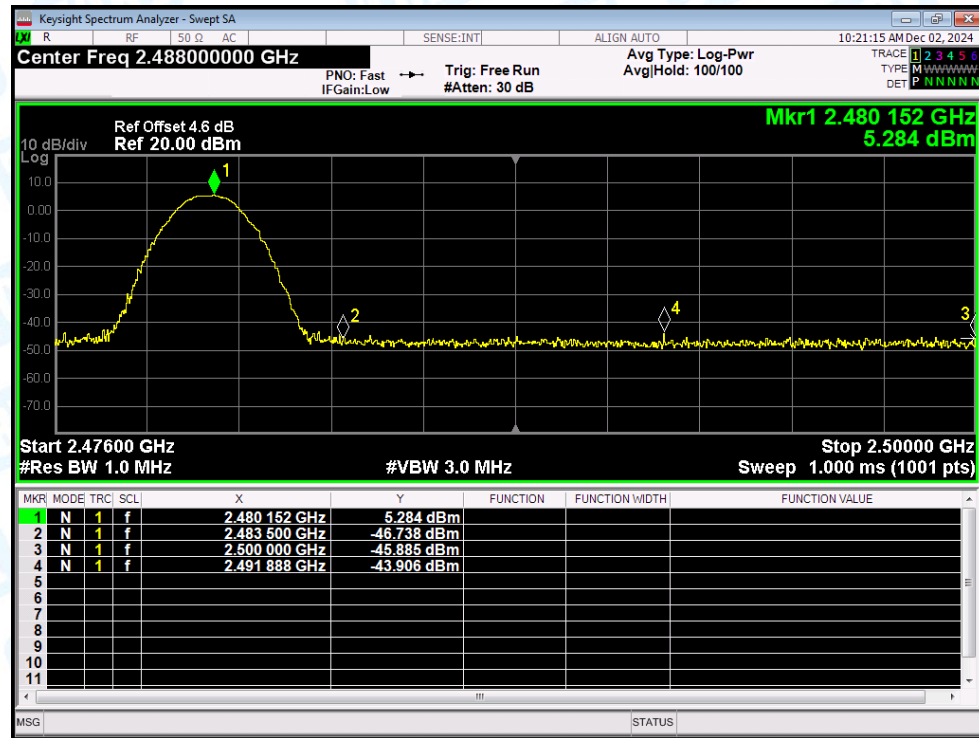
Restrict Band NVNT 3-DH1 2402MHz Ant1 No-Hopping Peak



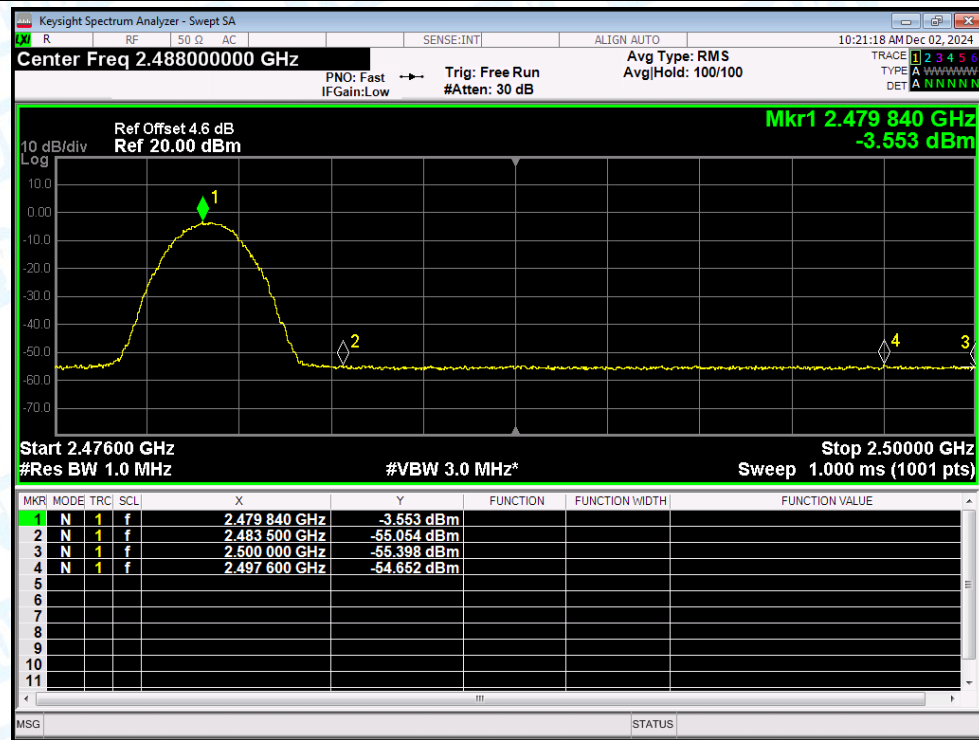
Restrict Band NVNT 3-DH1 2402MHz Ant1 No-Hopping Average



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



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

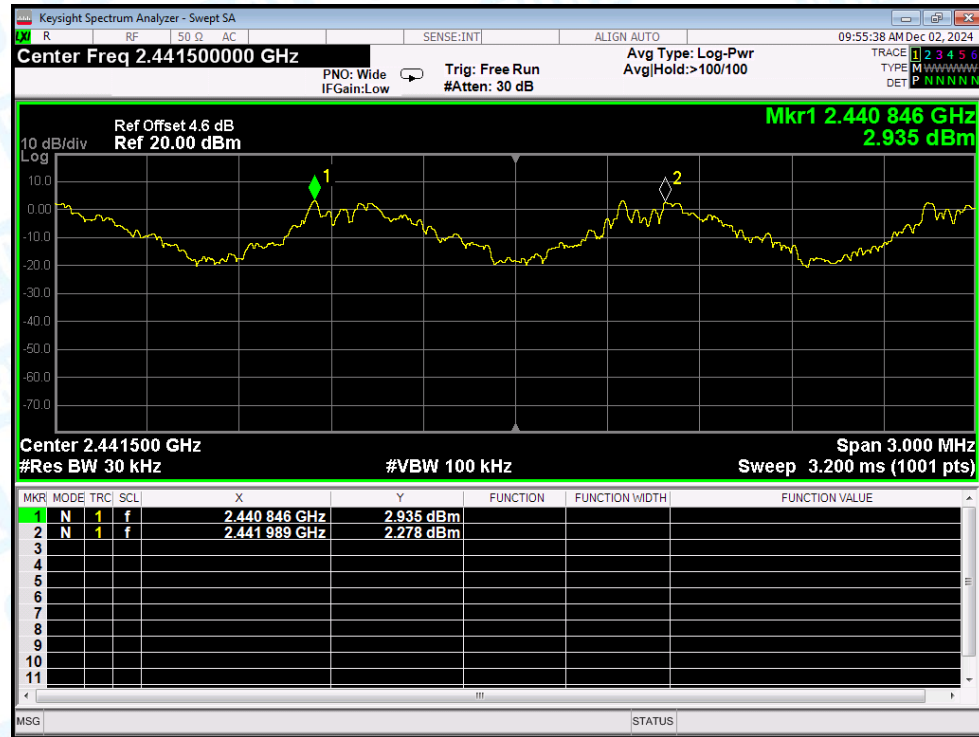


9. Carrier Frequencies Separation

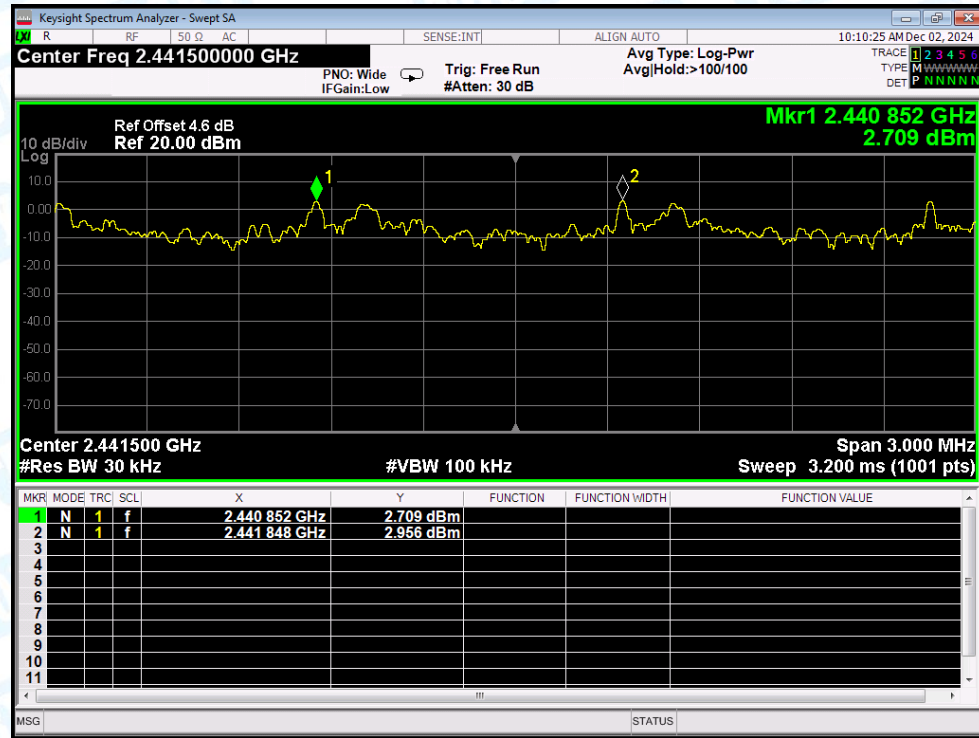
Condition	Mode	Antenna	Hopping Freq1 (MHz)	Hopping Freq2 (MHz)	HFS (MHz)	Limit (MHz)	Verdict
NVNT	1-DH1	Ant1	2440.846	2441.989	1.143	0.62	Pass
NVNT	2-DH1	Ant1	2440.852	2441.848	0.996	0.8	Pass
NVNT	3-DH1	Ant1	2440.849	2441.848	0.999	0.8	Pass

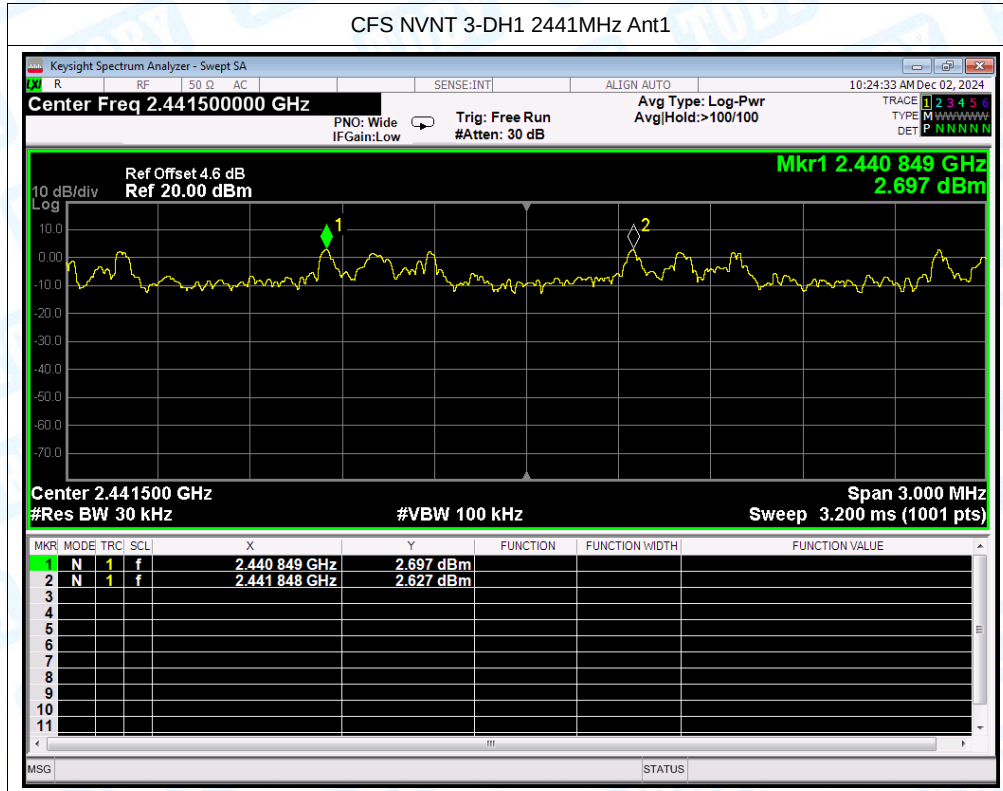
Test Graphs

CFS NVNT 1-DH1 2441MHz Ant1



CFS NVNT 2-DH1 2441MHz Ant1



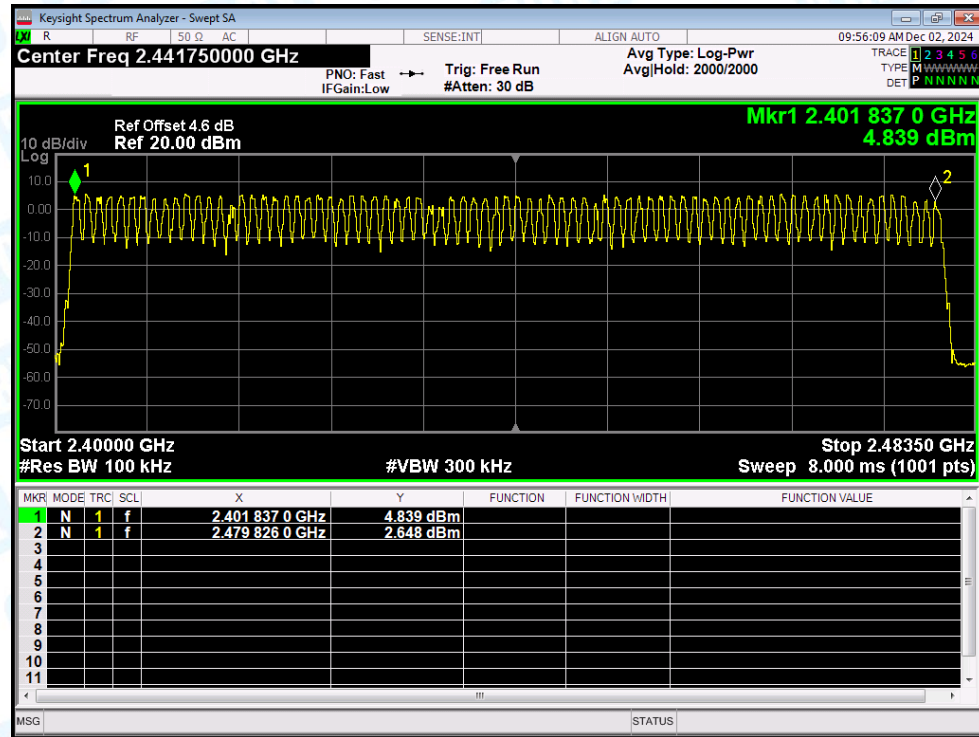


10. Number of Hopping Channel

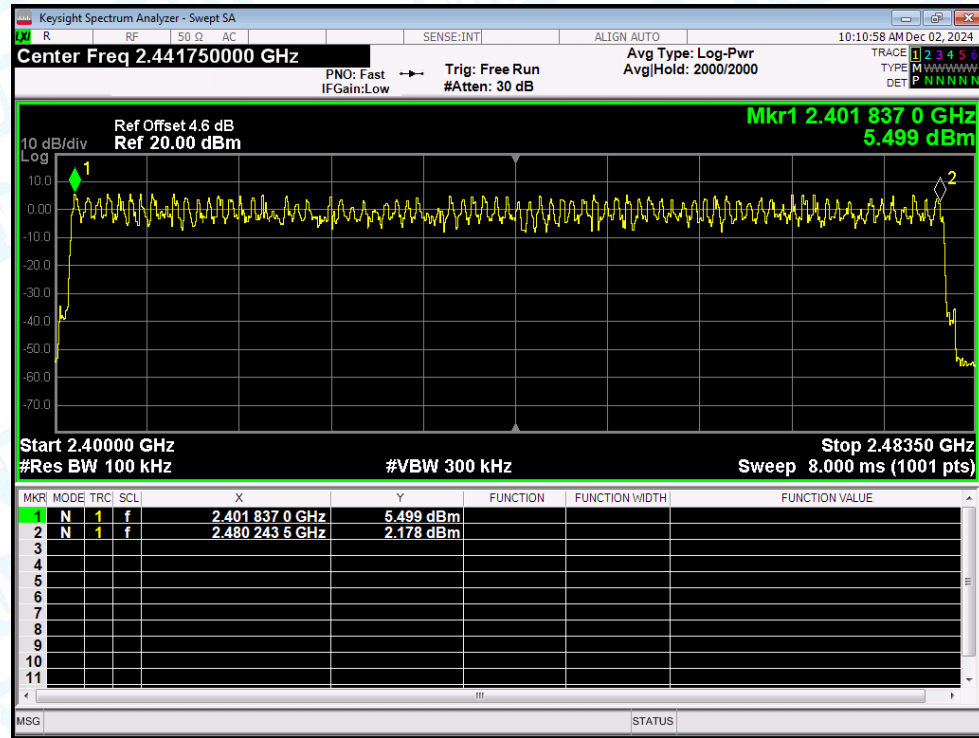
Condition	Mode	Antenna	Hopping Number	Limit	Verdict
NVNT	1-DH1	Ant1	79	15	Pass
NVNT	2-DH1	Ant1	79	15	Pass
NVNT	3-DH1	Ant1	79	15	Pass

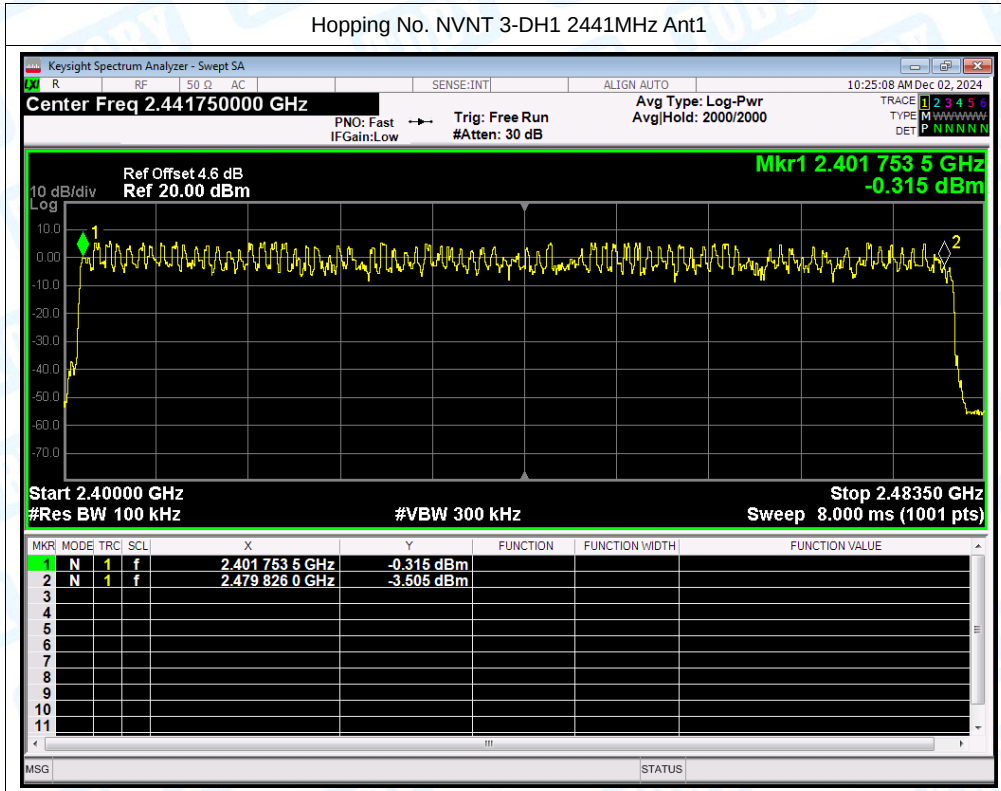
Test Graphs

Hopping No. NVNT 1-DH1 2441MHz Ant1



Hopping No. NVNT 2-DH1 2441MHz Ant1



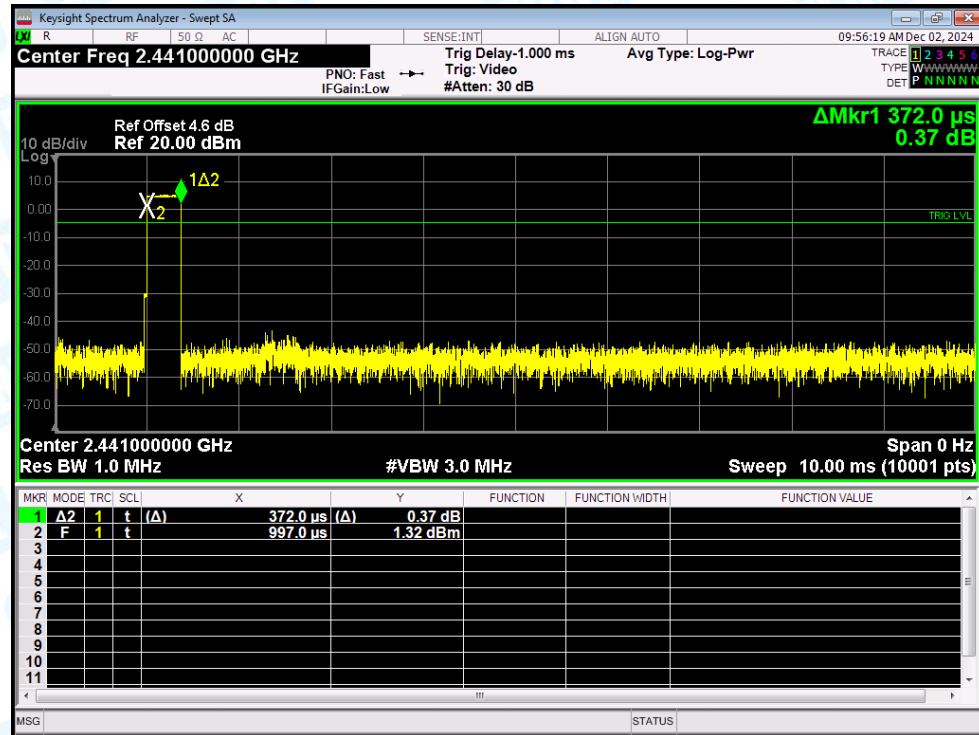


11. Dwell Time

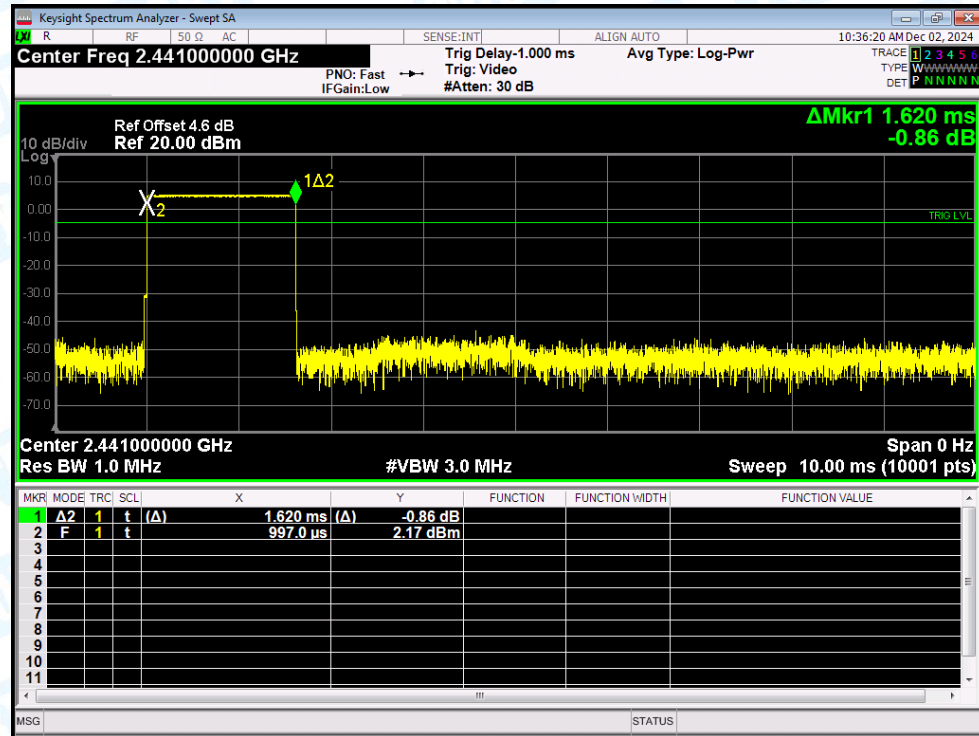
Condition	Mode	Frequency (MHz)	Antenna	Pulse Time (ms)	Total Dwell Time (ms)	Period Time (ms)	Limit (ms)	Verdict
NVNT	1-DH1	2441	Ant1	0.372	119.04	31600	400	Pass
NVNT	1-DH3	2441	Ant1	1.62	259.2	31600	400	Pass
NVNT	1-DH5	2441	Ant1	2.868	305.92	31600	400	Pass
NVNT	2-DH1	2441	Ant1	0.38	121.6	31600	400	Pass
NVNT	2-DH3	2441	Ant1	1.632	261.12	31600	400	Pass
NVNT	2-DH5	2441	Ant1	2.88	307.2	31600	400	Pass
NVNT	3-DH1	2441	Ant1	0.381	121.92	31600	400	Pass
NVNT	3-DH3	2441	Ant1	1.631	260.96	31600	400	Pass
NVNT	3-DH5	2441	Ant1	2.881	307.307	31600	400	Pass

Test Graphs

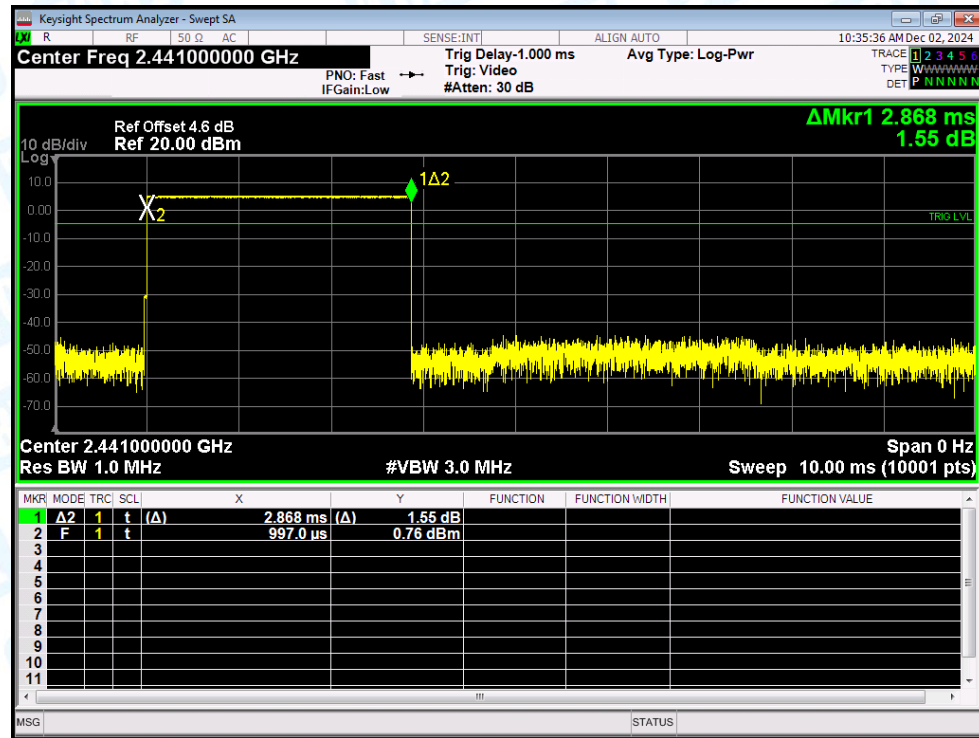
Dwell NVNT 1-DH1 2441MHz Ant1



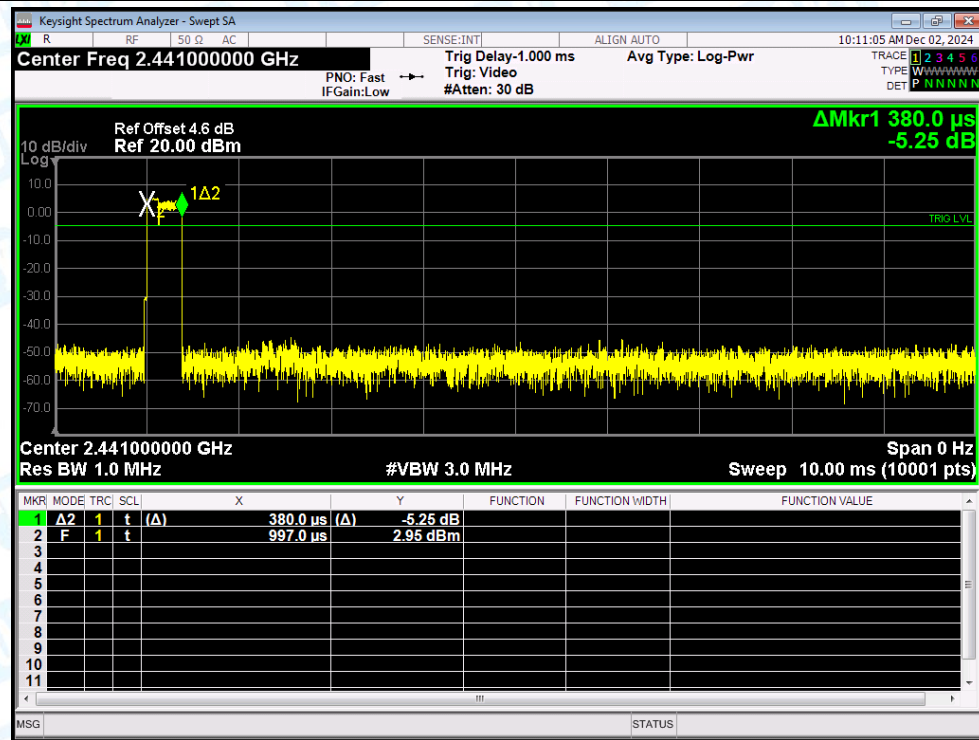
Dwell NVNT 1-DH3 2441MHz Ant1



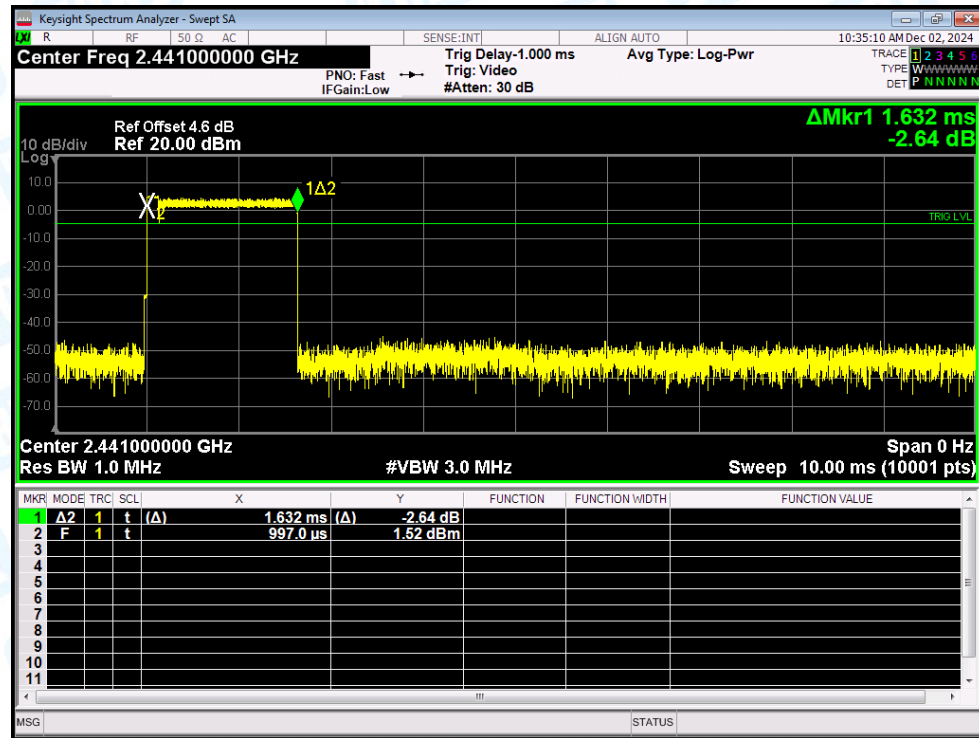
Dwell NVNT 1-DH5 2441MHz Ant1



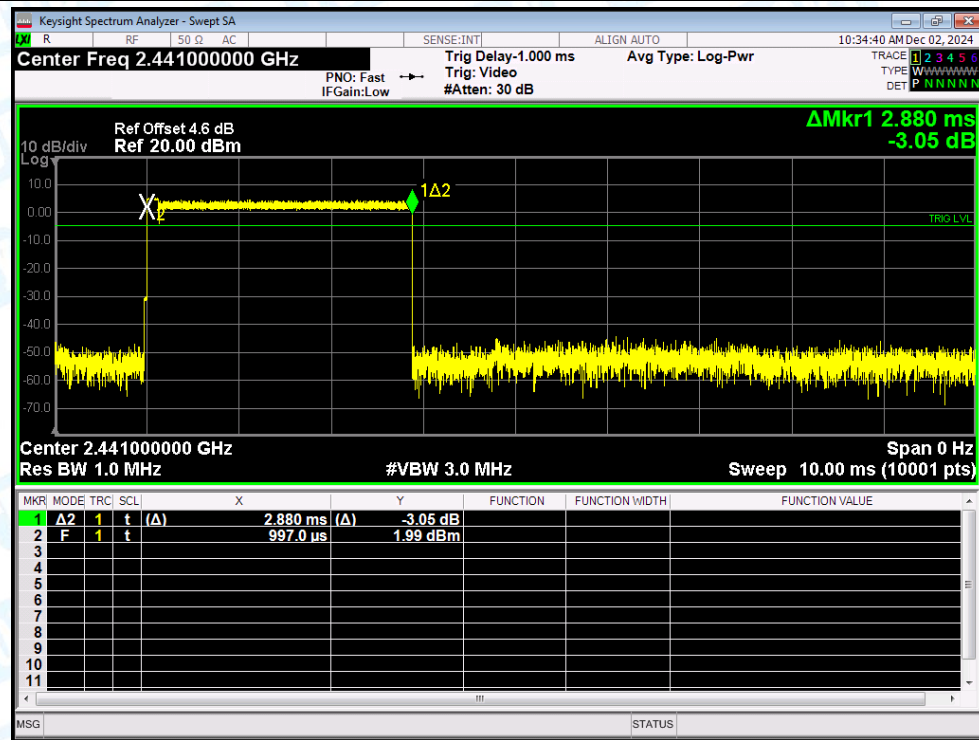
Dwell NVNT 2-DH1 2441MHz Ant1



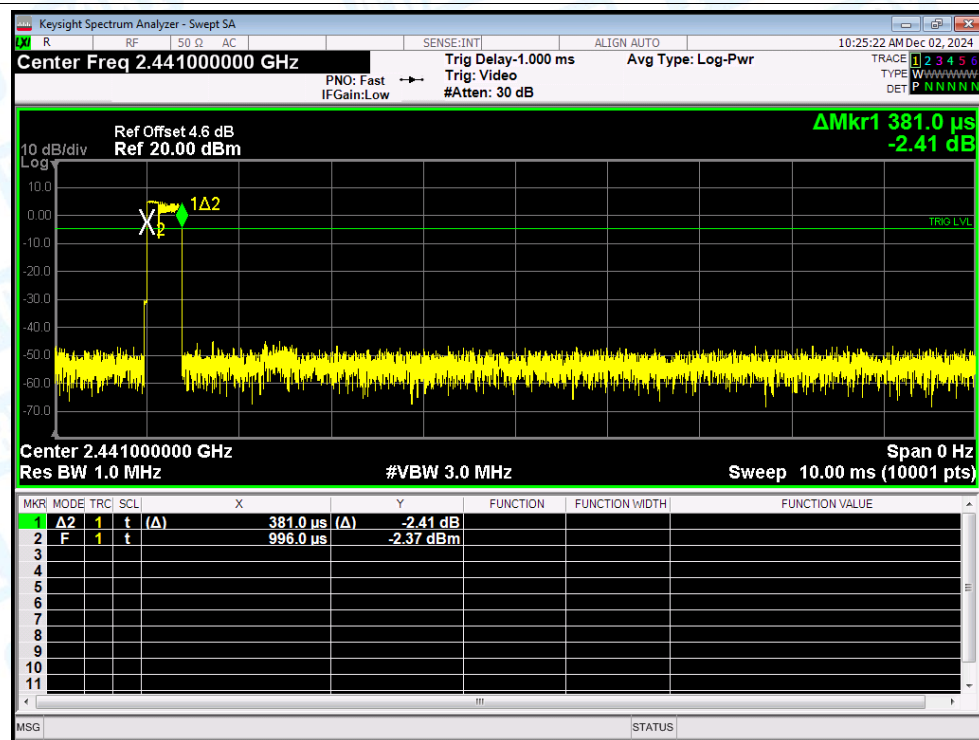
Dwell NVNT 2-DH3 2441MHz Ant1



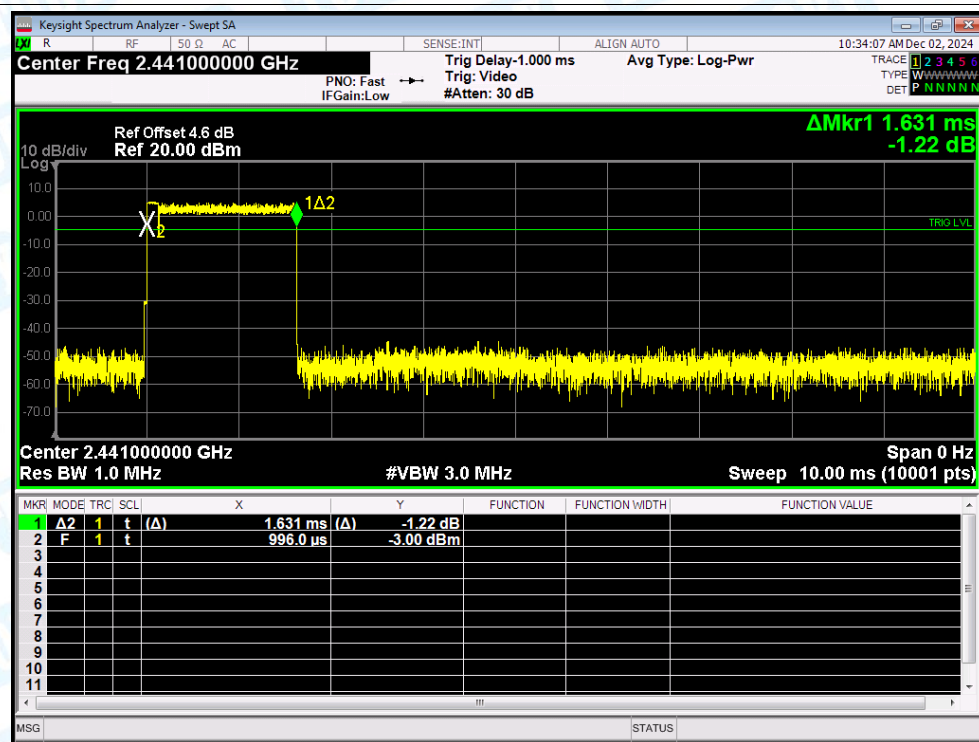
Dwell NVNT 2-DH5 2441MHz Ant1

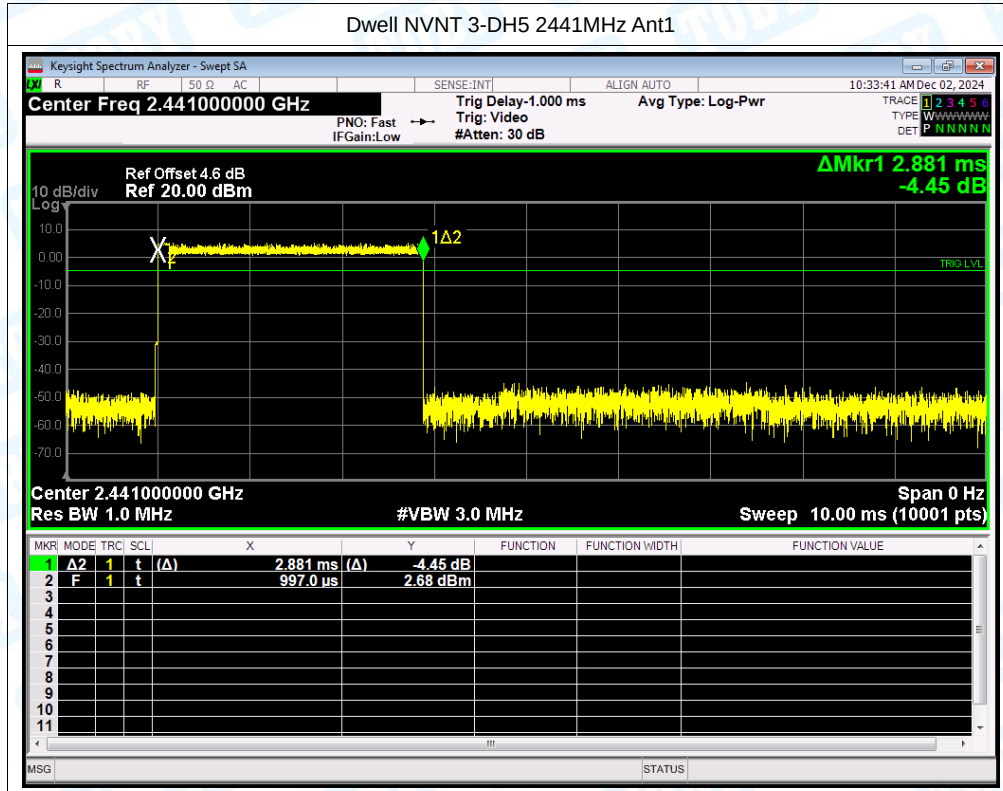


Dwell NVNT 3-DH1 2441MHz Ant1



Dwell NVNT 3-DH3 2441MHz Ant1





--- END OF REPORT---