

RF Test Data for Bluetooth (Conducted Measurements)

General Description of EUT	
Product Name:	Wearable Wireless speaker
Test Model:	WS16
Sample ID:	HC-C-202411-0278-01-01
Environmental Conditions	
Temperature:	24.6℃
Relative Humidity:	52.3%
Test Voltage:	DC 3.7V
Test Engineer:	Dawson
Note: For a more detailed features description, please refer to the report TBR-C-202411-0278-5 The report only show the worst case data.	

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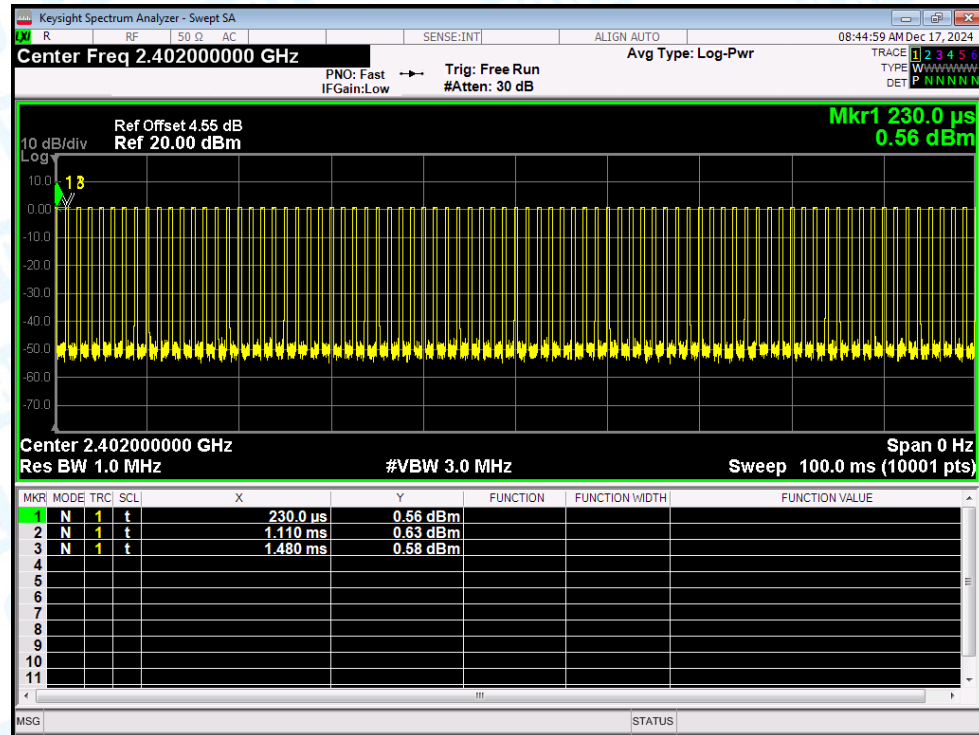
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1. Duty Cycle

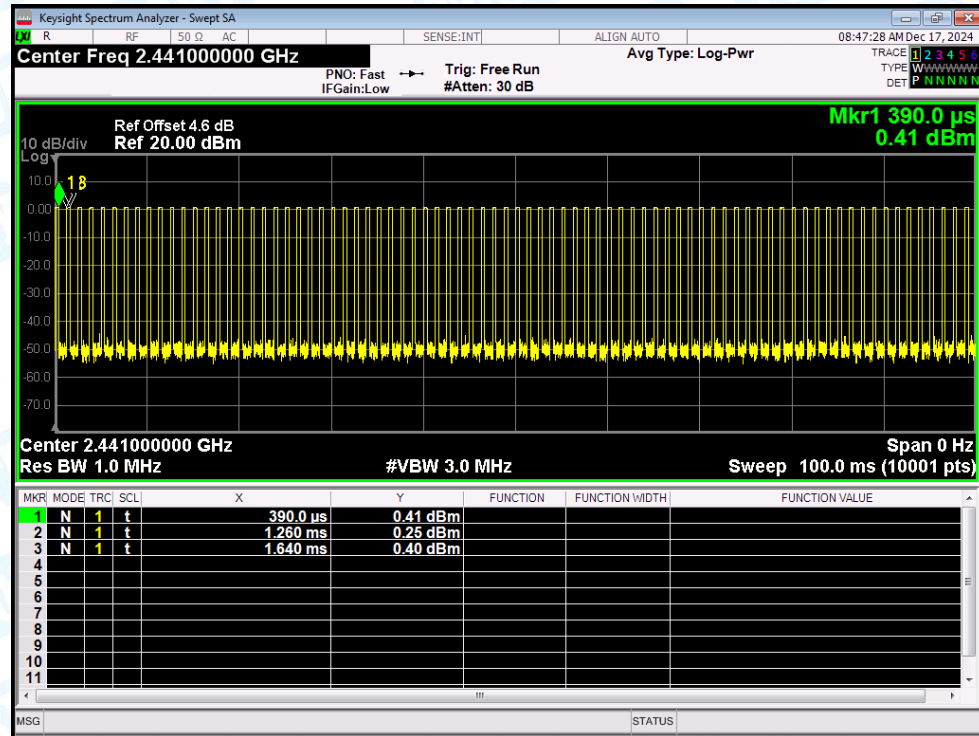
Condition	Mode	Frequency (MHz)	Antenna	Duty Cycle (%)	Correction Factor (dB)	1/T (kHz)
NVNT	1-DH1	2402	Ant1	29.6	5.29	2.7
NVNT	1-DH1	2441	Ant1	30.4	5.17	2.63
NVNT	1-DH1	2480	Ant1	30.4	5.17	2.63
NVNT	2-DH1	2402	Ant1	31.2	5.06	2.56
NVNT	2-DH1	2441	Ant1	31.2	5.06	2.56
NVNT	2-DH1	2480	Ant1	31.2	5.06	2.56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

Test Graphs

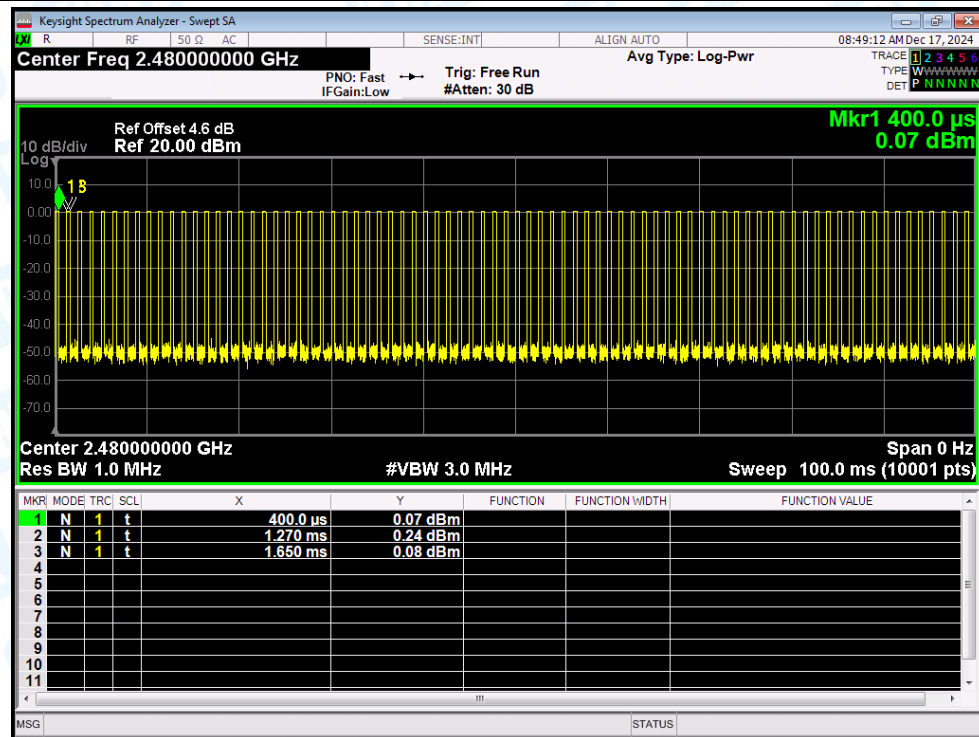
Duty Cycle NVNT 1-DH1 2402MHz Ant1



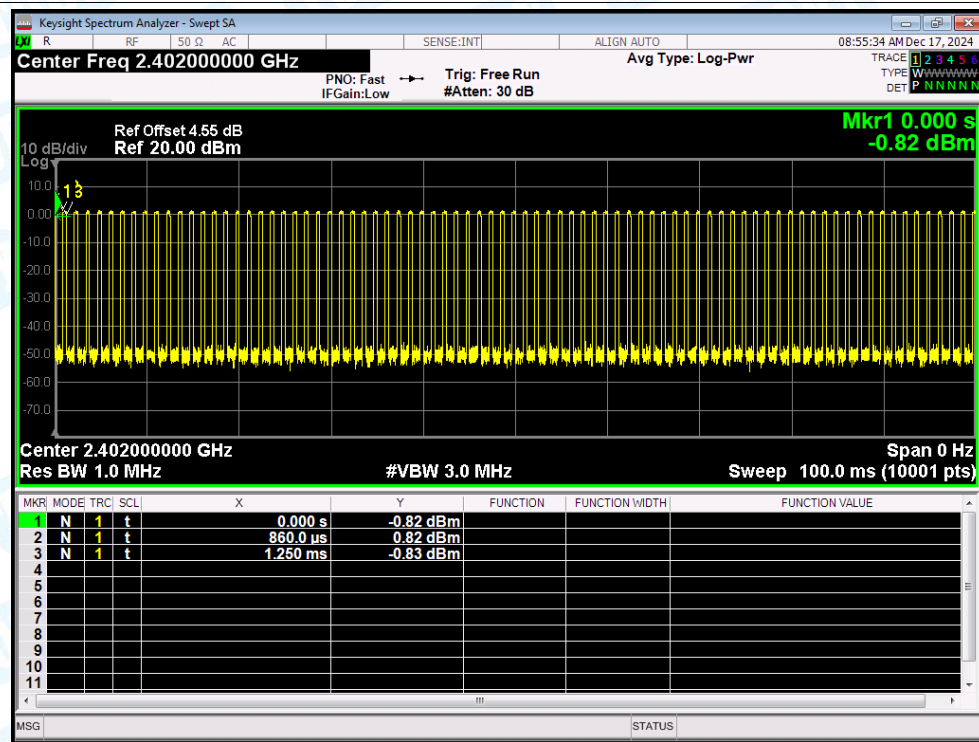
Duty Cycle NVNT 1-DH1 2441MHz Ant1



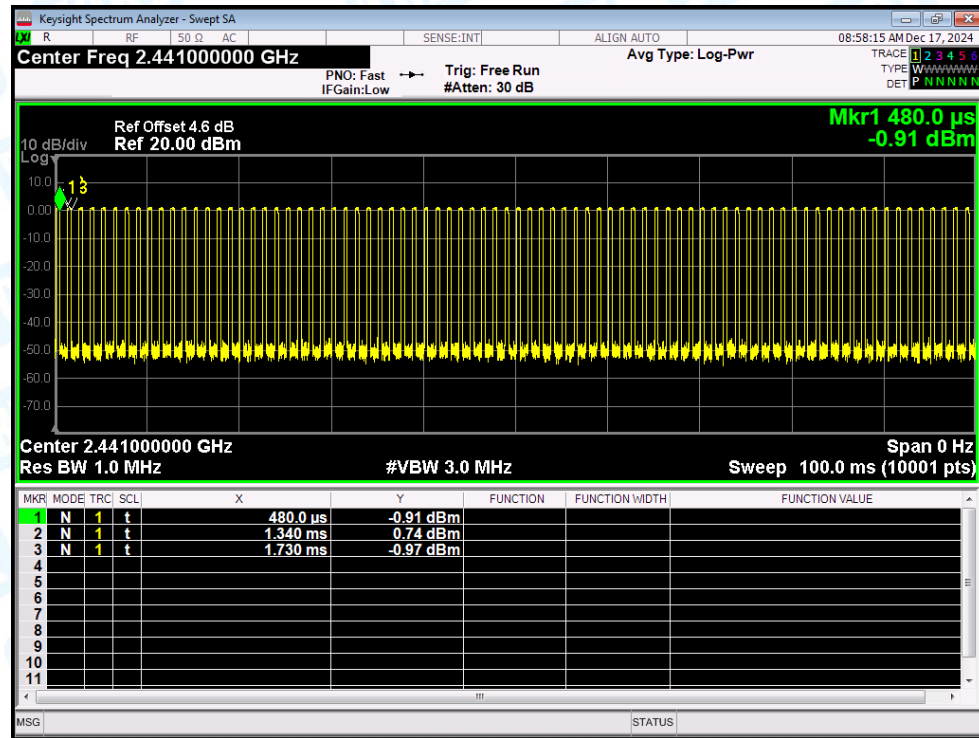
Duty Cycle NVNT 1-DH1 2480MHz Ant1



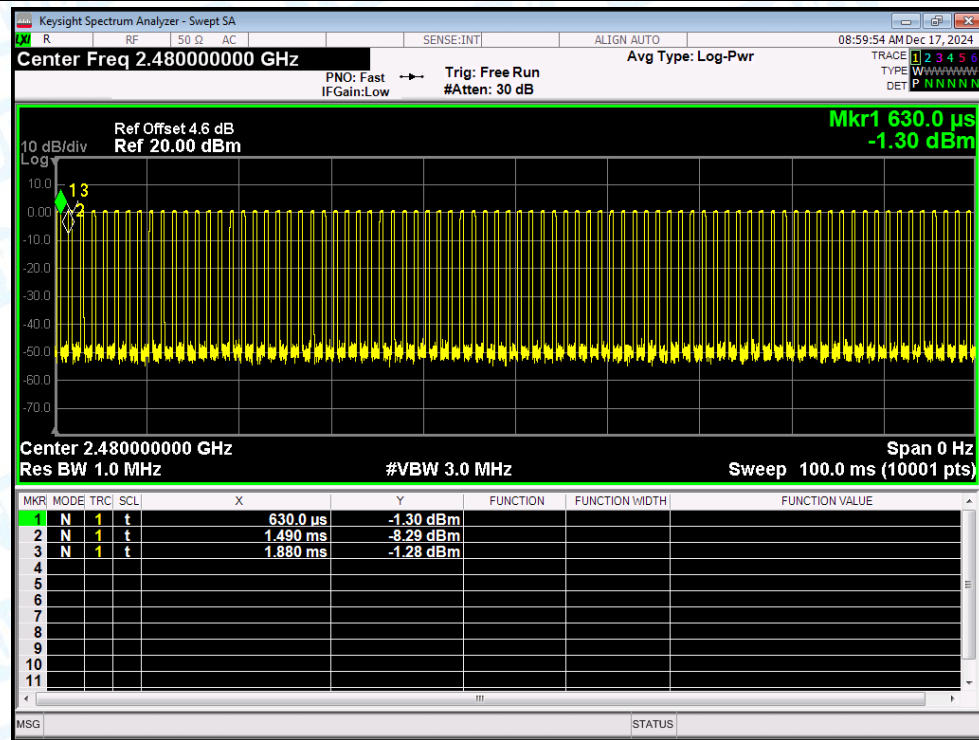
Duty Cycle NVNT 2-DH1 2402MHz Ant1



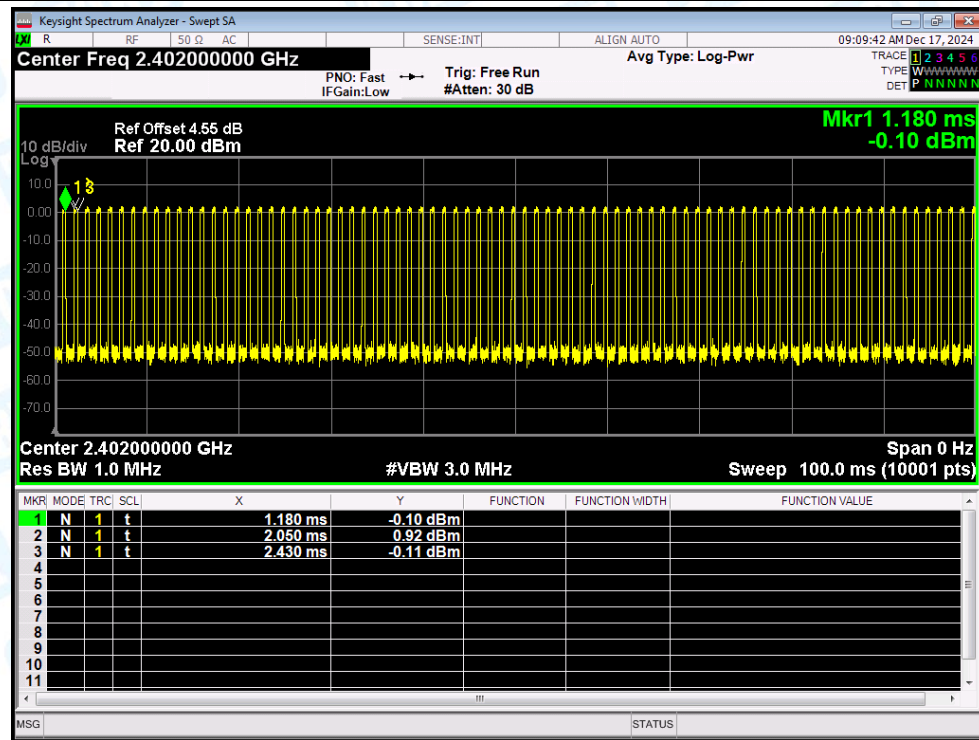
Duty Cycle NVNT 2-DH1 2441MHz Ant1



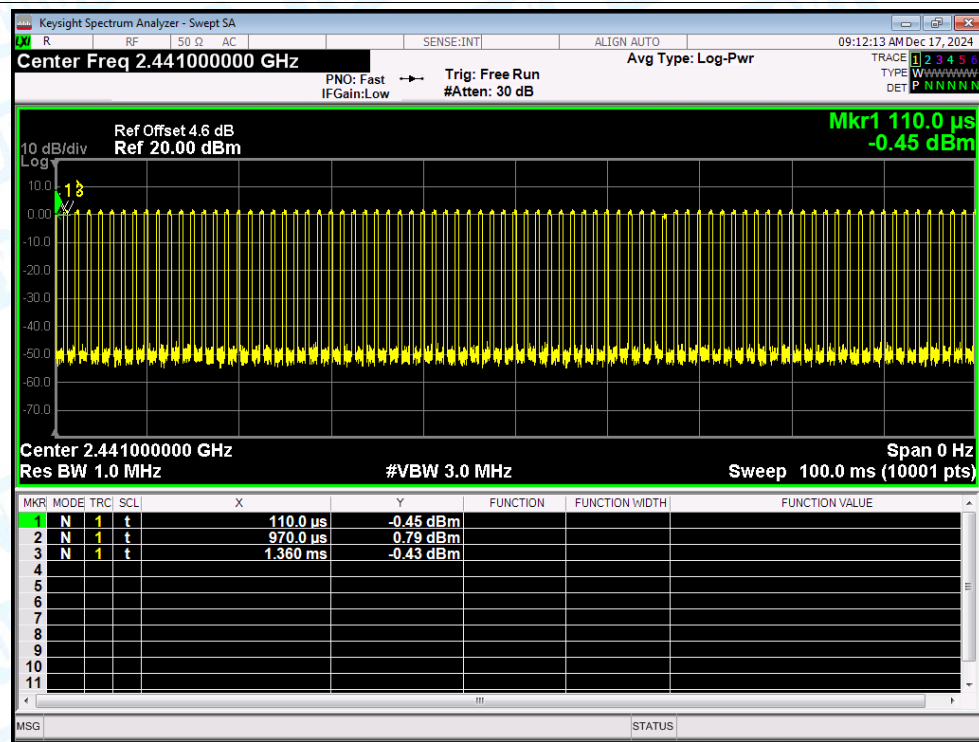
Duty Cycle NVNT 2-DH1 2480MHz Ant1

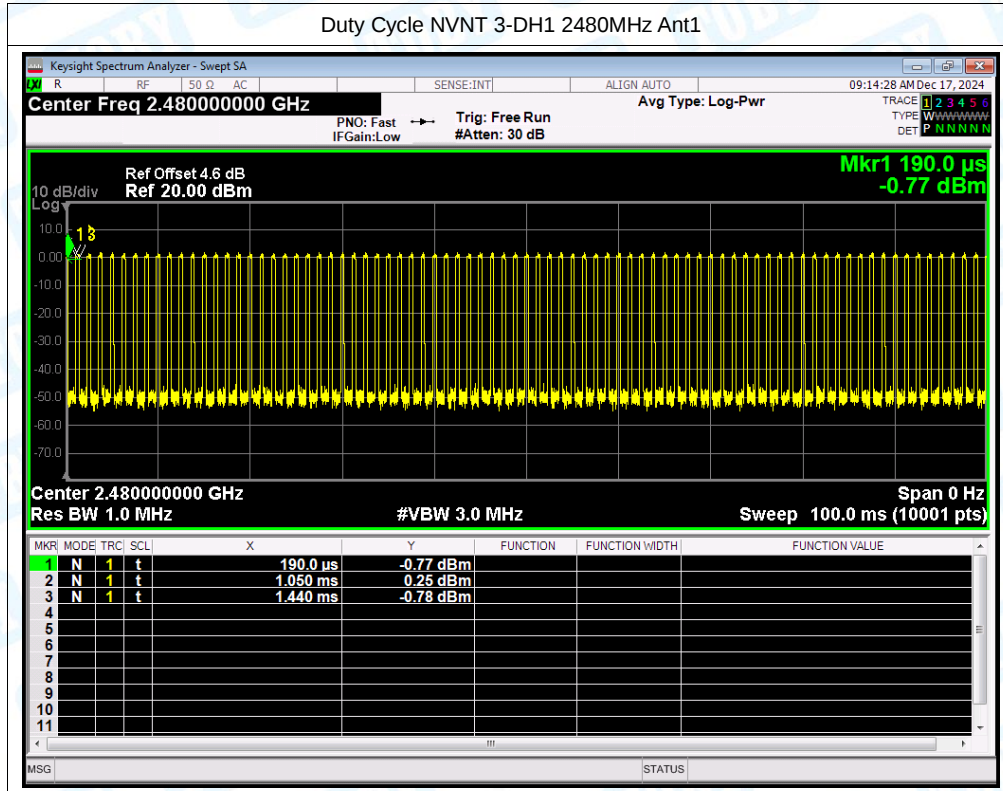


Duty Cycle NVNT 3-DH1 2402MHz Ant1



Duty Cycle NVNT 3-DH1 2441MHz Ant1



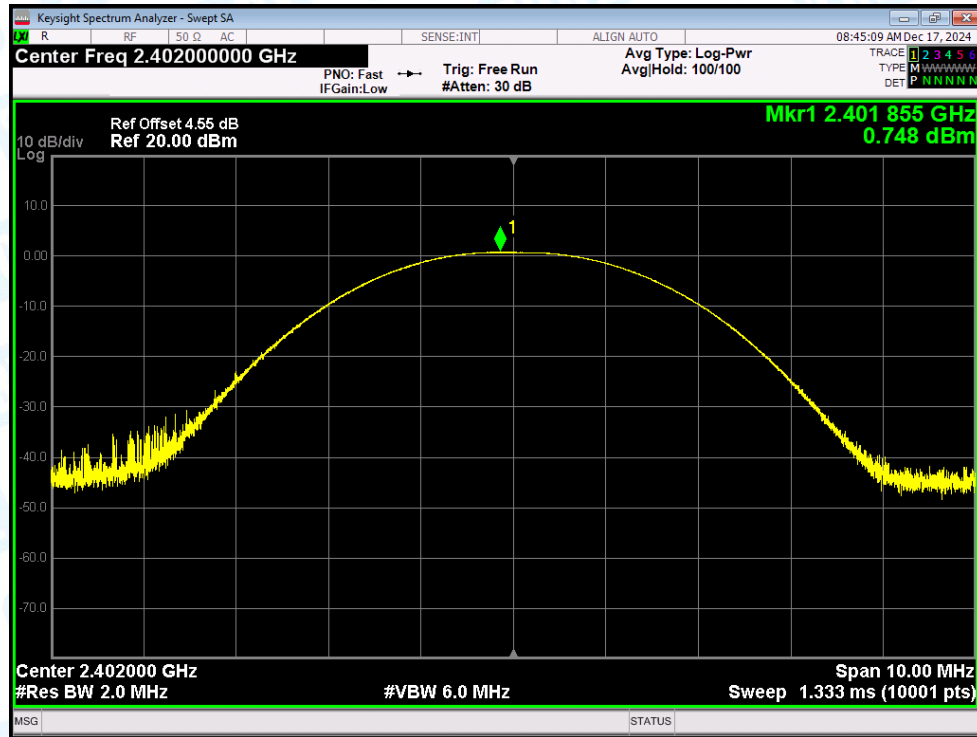


2. Maximum Conducted Output Power

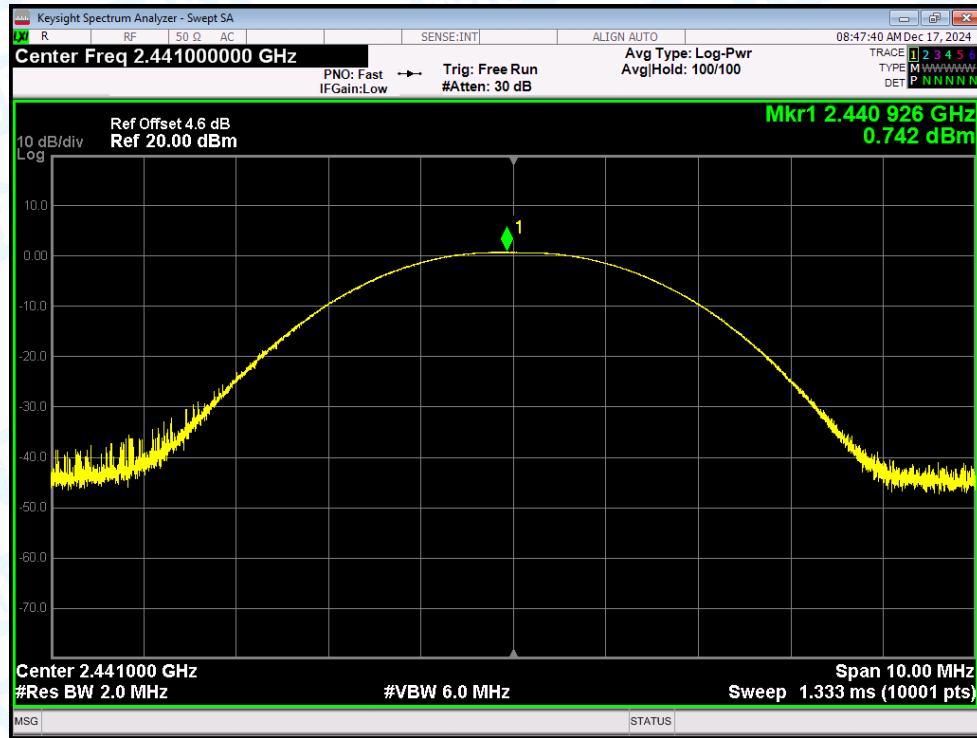
Condition	Mode	Frequency (MHz)	Antenna	Total Power (dBm)	Limit (dBm)	Verdict
NVNT	1-DH1	2402	Ant1	0.748	21	Pass
NVNT	1-DH1	2441	Ant1	0.742	21	Pass
NVNT	1-DH1	2480	Ant1	0.432	21	Pass
NVNT	2-DH1	2402	Ant1	1.74	21	Pass
NVNT	2-DH1	2441	Ant1	1.653	21	Pass
NVNT	2-DH1	2480	Ant1	1.342	21	Pass
NVNT	3-DH1	2402	Ant1	2.37	21	Pass
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NVNT	3-DH1	2480	Ant1	1.956	21	Pass

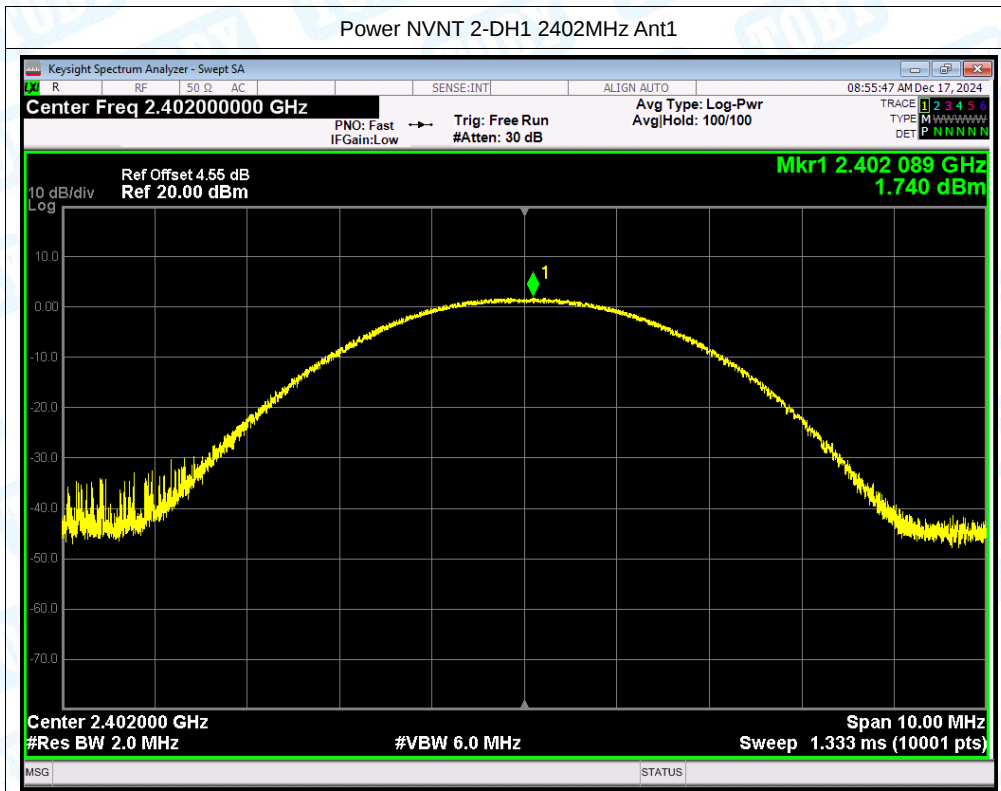
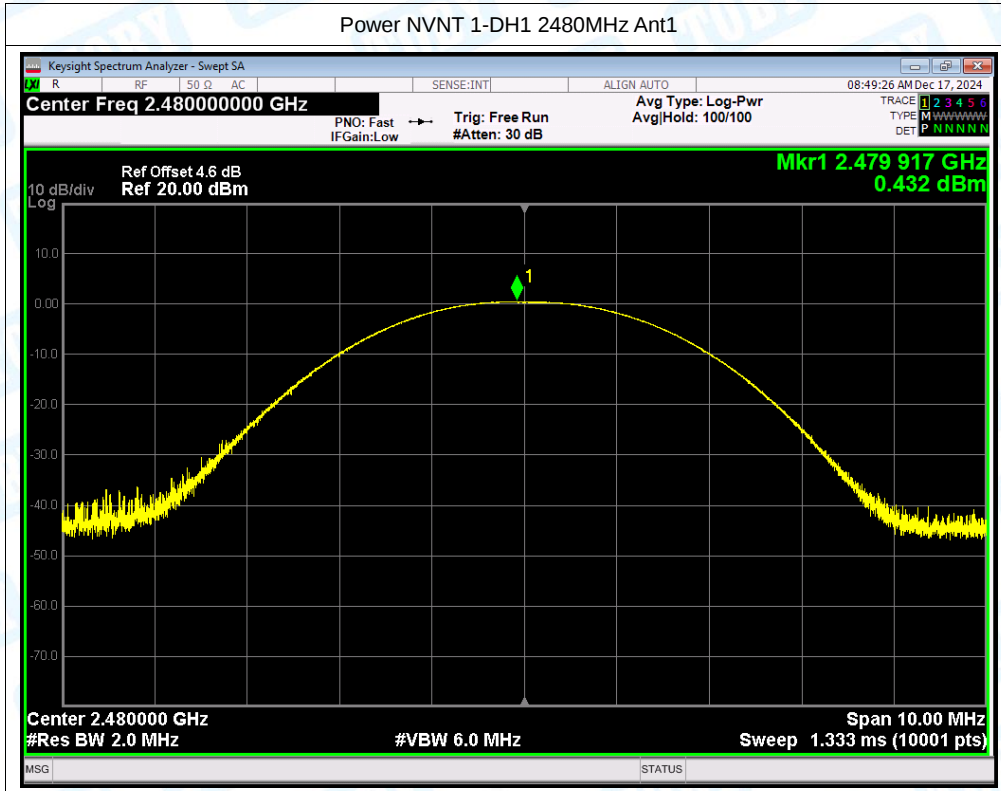
Test Graphs

Power NVNT 1-DH1 2402MHz Ant1

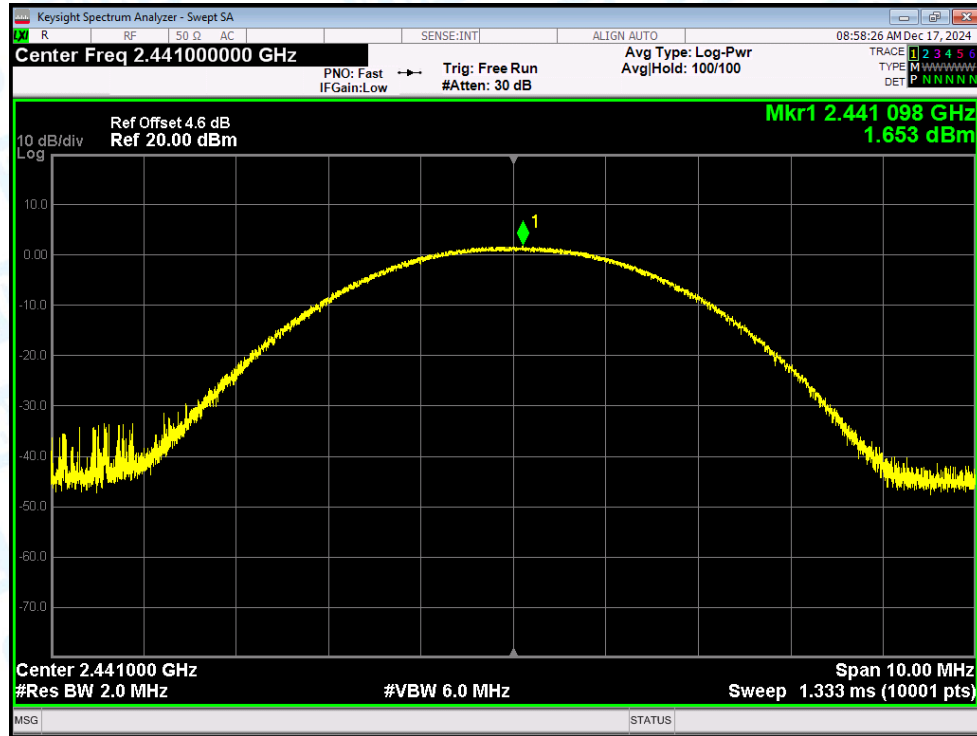


Power NVNT 1-DH1 2441MHz Ant1

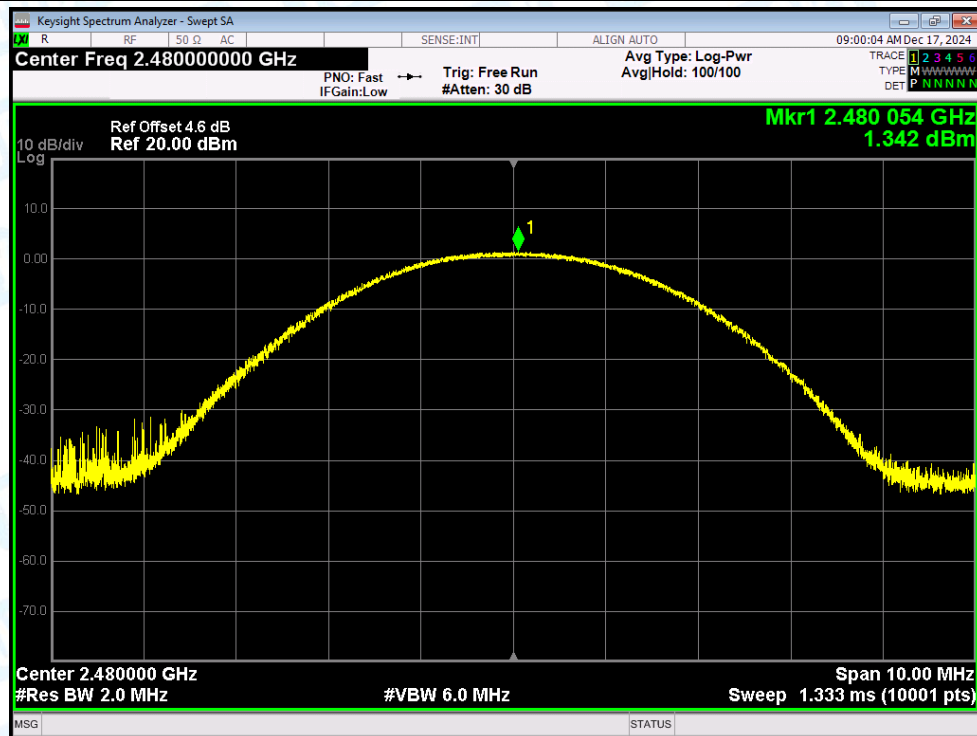




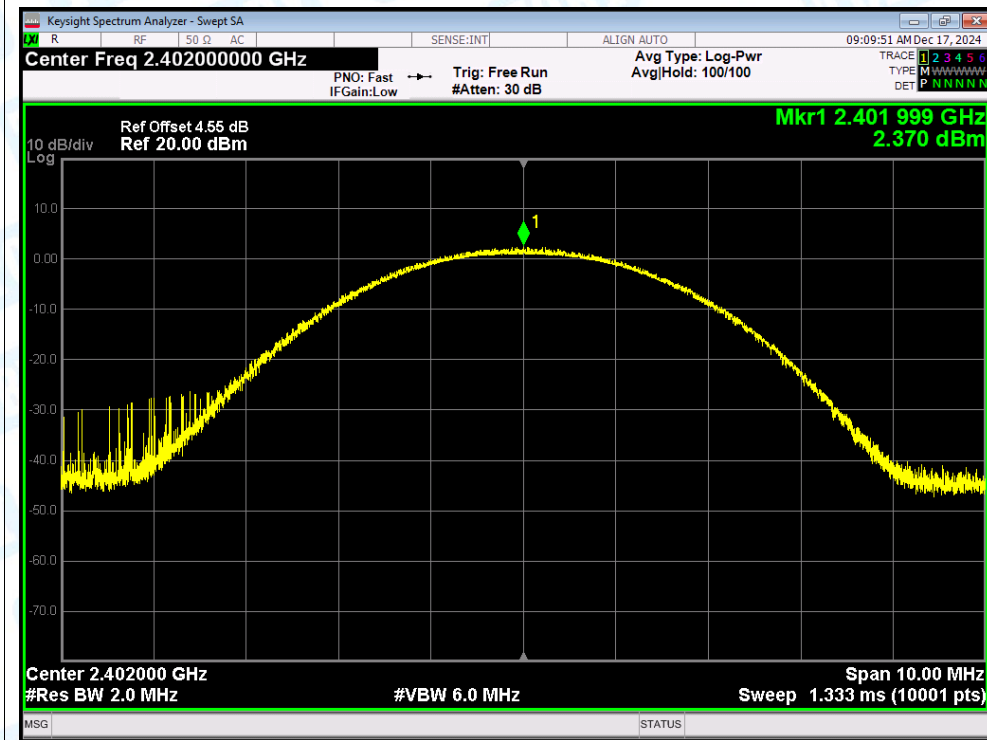
Power NVNT 2-DH1 2441MHz Ant1



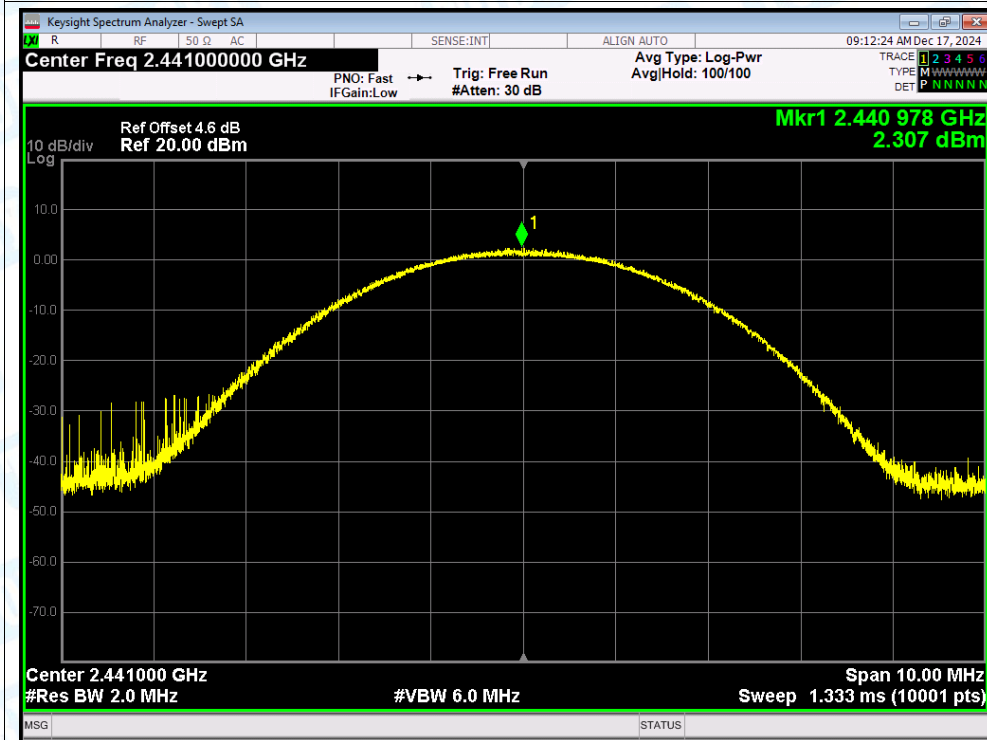
Power NVNT 2-DH1 2480MHz Ant1

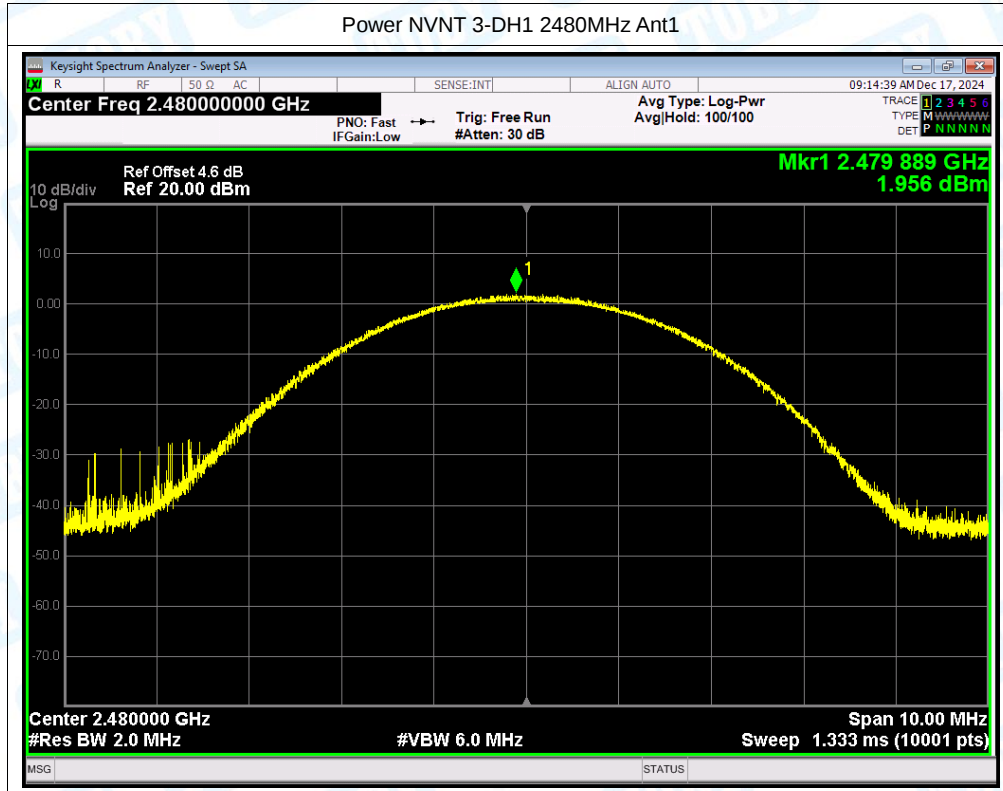


Power NVNT 3-DH1 2402MHz Ant1



Power NVNT 3-DH1 2441MHz Ant1



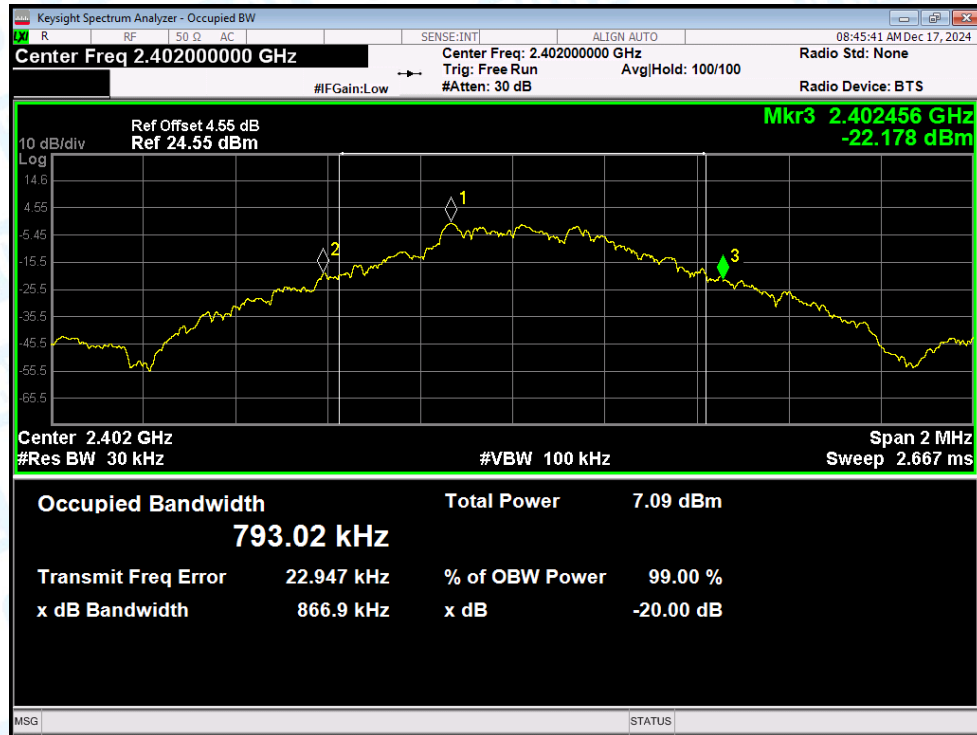


3. -20dB Bandwidth

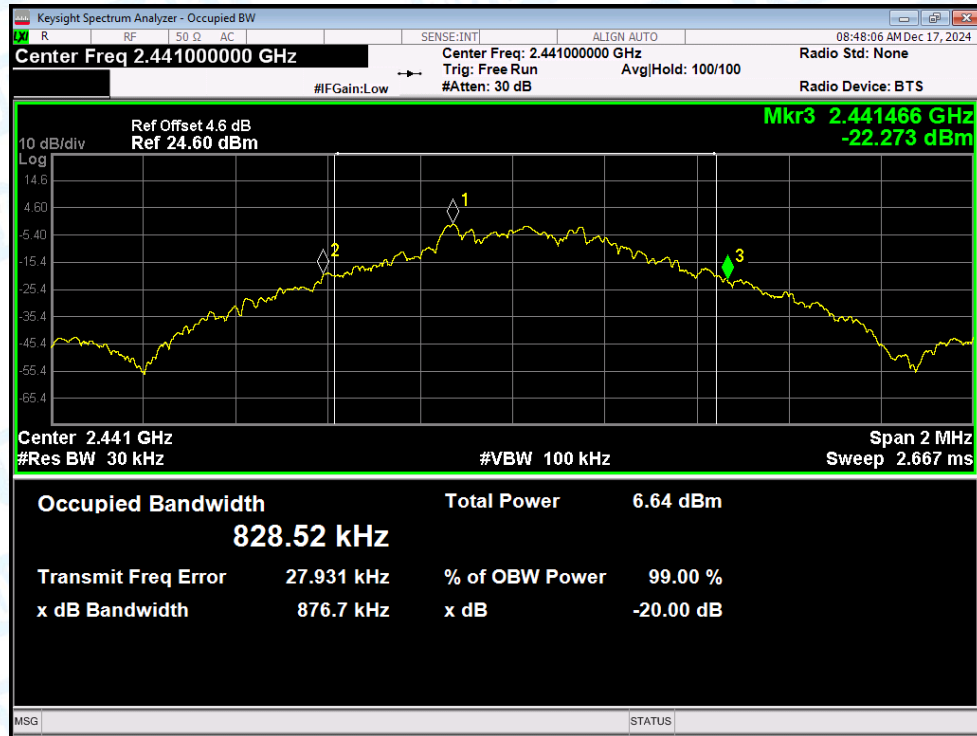
Condition	Mode	Frequency (MHz)	Antenna	-20 dB Bandwidth (MHz)	Limit -20 dB Bandwidth (MHz)	Verdict
NVNT	1-DH1	2402	Ant1	0.87	0	Pass
NVNT	1-DH1	2441	Ant1	0.88	0	Pass
NVNT	1-DH1	2480	Ant1	0.87	0	Pass
NVNT	2-DH1	2402	Ant1	1.21	0	Pass
NVNT	2-DH1	2441	Ant1	1.25	0	Pass
NVNT	2-DH1	2480	Ant1	1.24	0	Pass
NVNT	3-DH1	2402	Ant1	1.22	0	Pass
NVNT	3-DH1	2441	Ant1	1.2	0	Pass
NVNT	3-DH1	2480	Ant1	1.19	0	Pass

Test Graphs

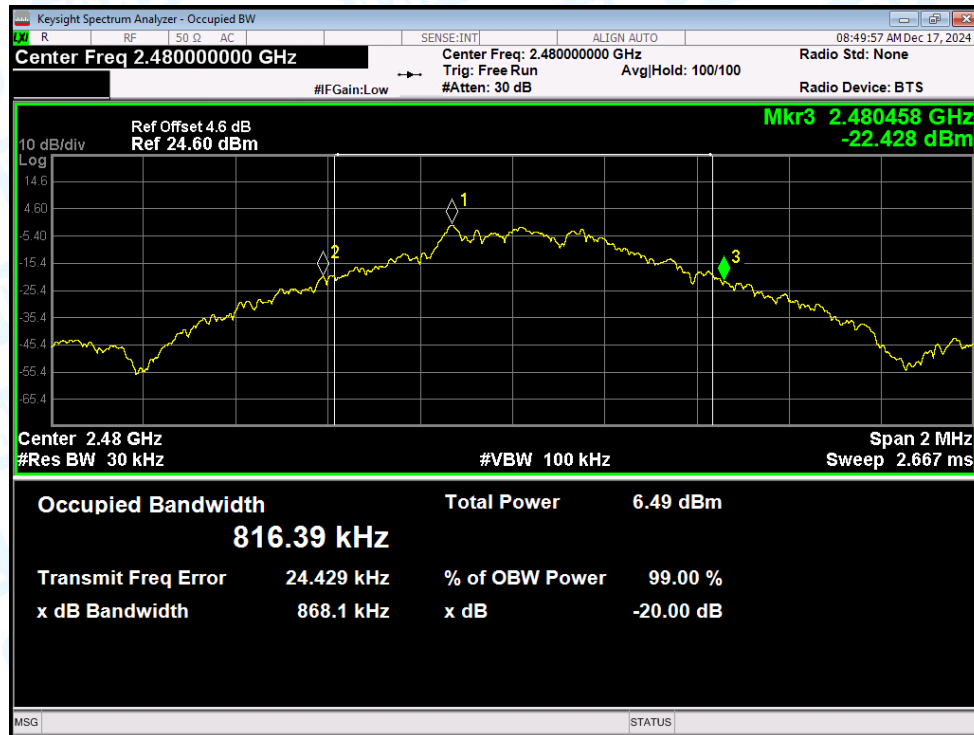
-20dB Bandwidth NVNT 1-DH1 2402MHz Ant1



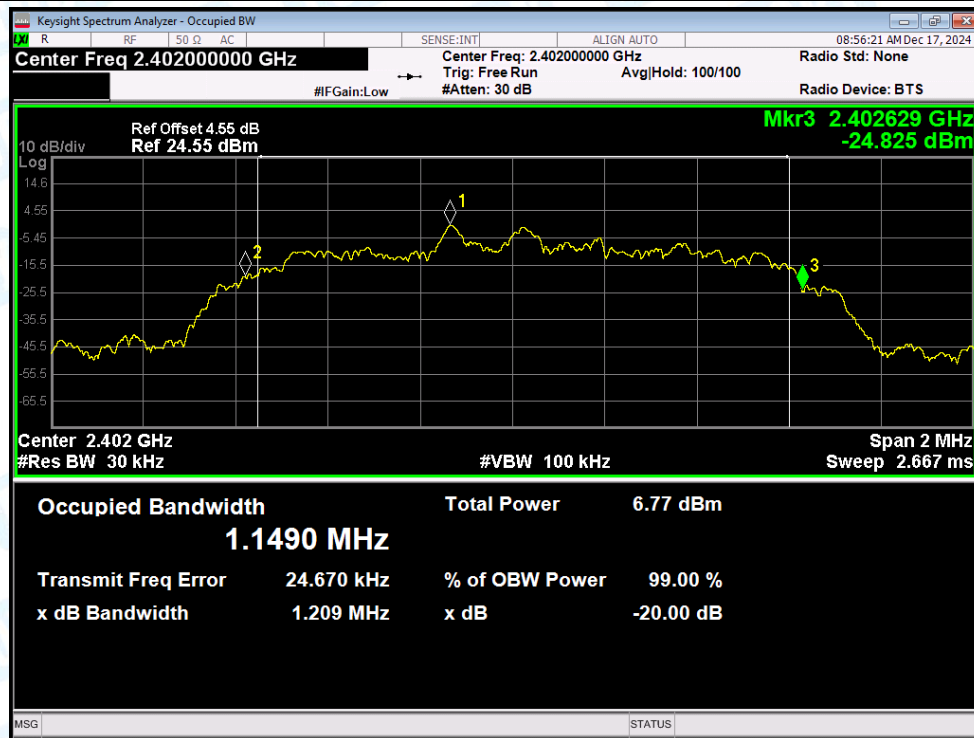
-20dB Bandwidth NVNT 1-DH1 2441MHz Ant1



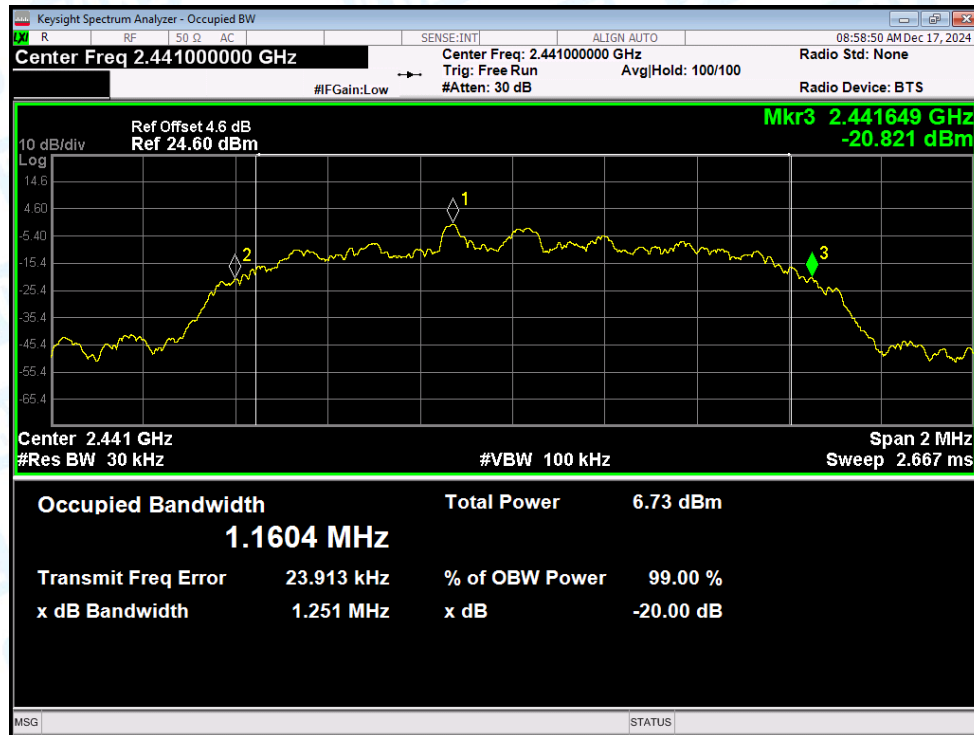
-20dB Bandwidth NVNT 1-DH1 2480MHz Ant1



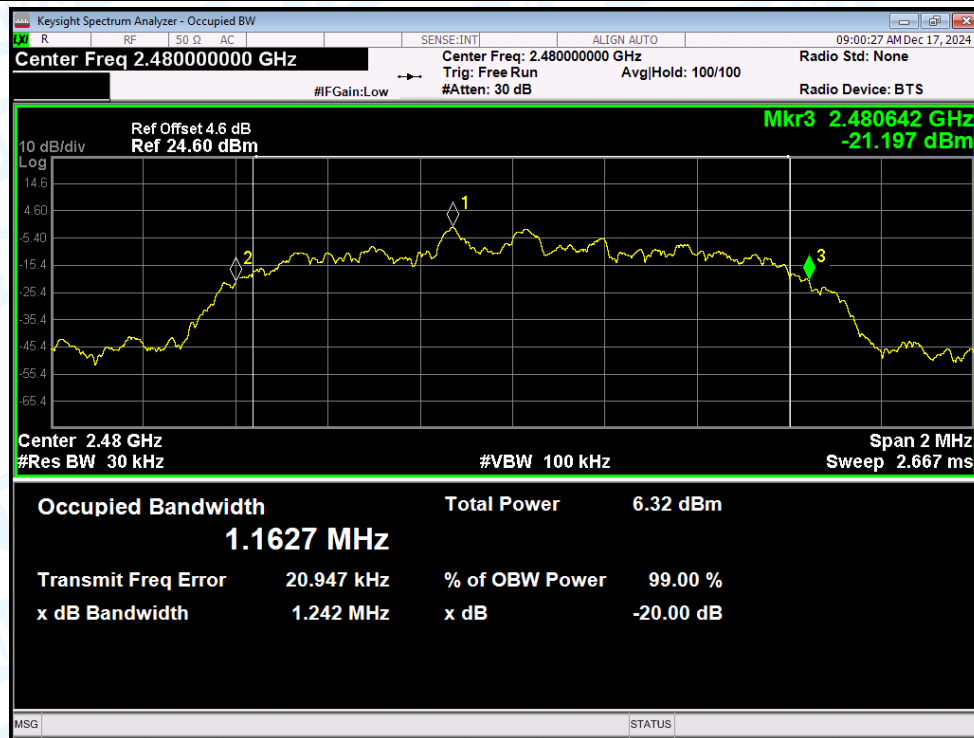
-20dB Bandwidth NVNT 2-DH1 2402MHz Ant1



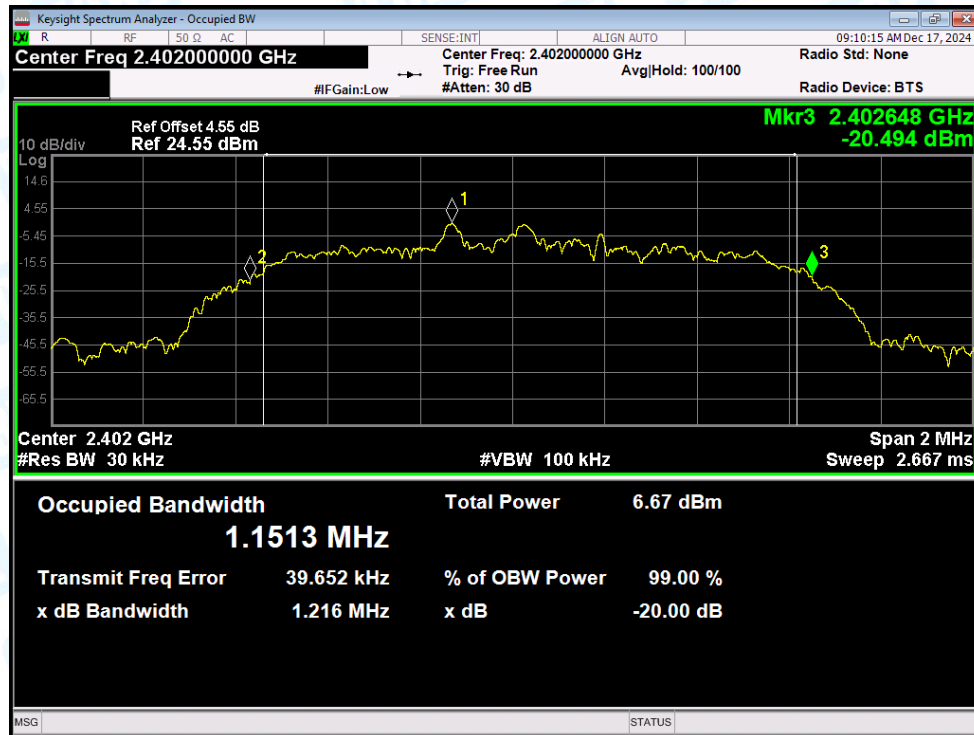
-20dB Bandwidth NVNT 2-DH1 2441MHz Ant1



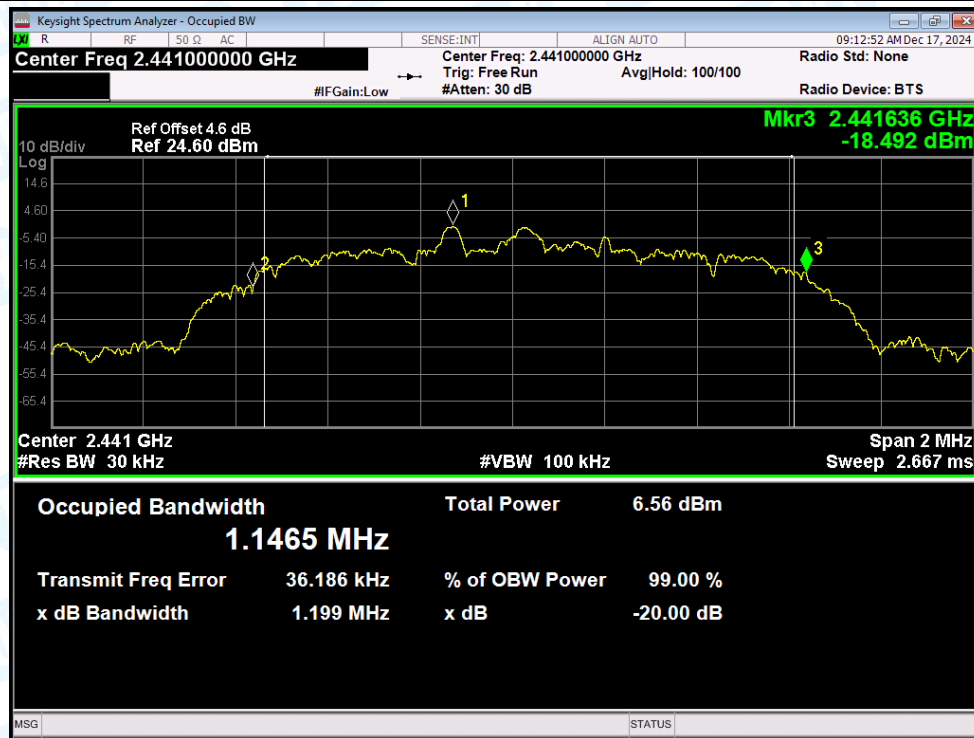
-20dB Bandwidth NVNT 2-DH1 2480MHz Ant1

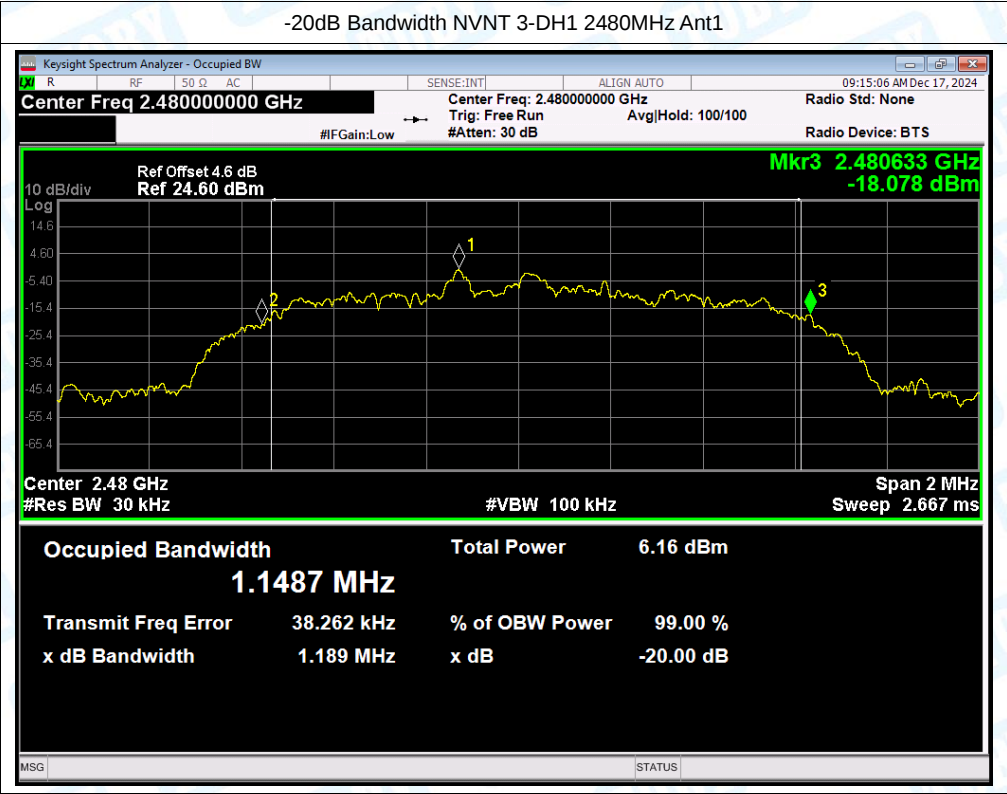


-20dB Bandwidth NVNT 3-DH1 2402MHz Ant1



-20dB Bandwidth NVNT 3-DH1 2441MHz Ant1



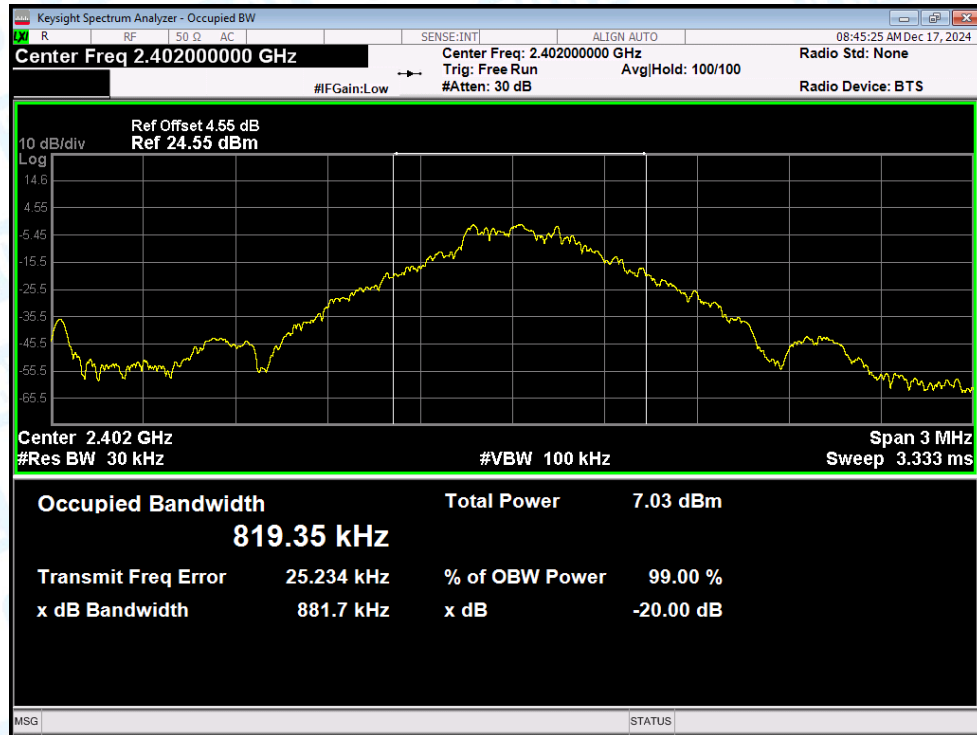


4. Occupied Channel Bandwidth

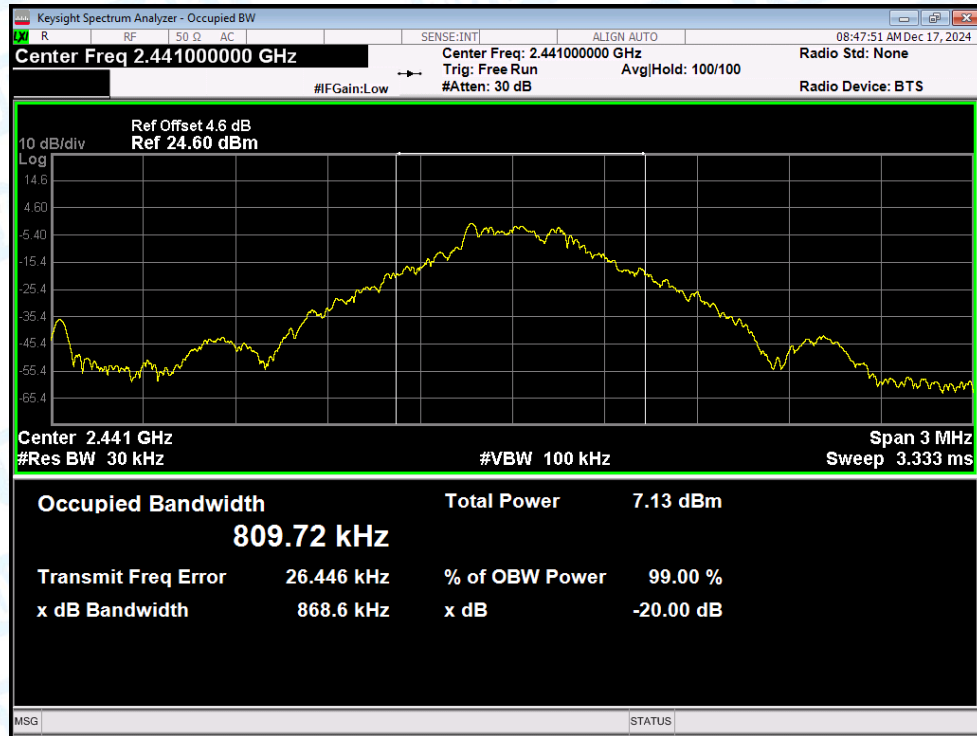
Condition	Mode	Frequency (MHz)	Antenna	99% OBW (MHz)
NVNT	1-DH1	2402	Ant1	0.819
NVNT	1-DH1	2441	Ant1	0.81
NVNT	1-DH1	2480	Ant1	0.825
NVNT	2-DH1	2402	Ant1	1.161
NVNT	2-DH1	2441	Ant1	1.141
NVNT	2-DH1	2480	Ant1	1.165
NVNT	3-DH1	2402	Ant1	1.156
NVNT	3-DH1	2441	Ant1	1.151
NVNT	3-DH1	2480	Ant1	1.163

Test Graphs

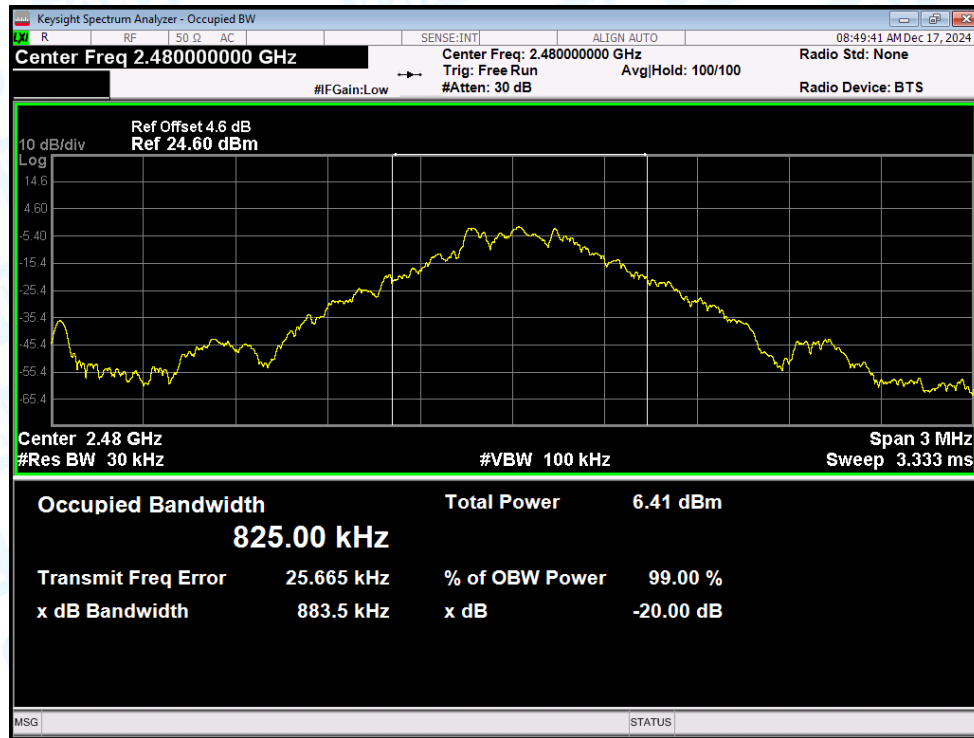
OBW NVNT 1-DH1 2402MHz Ant1



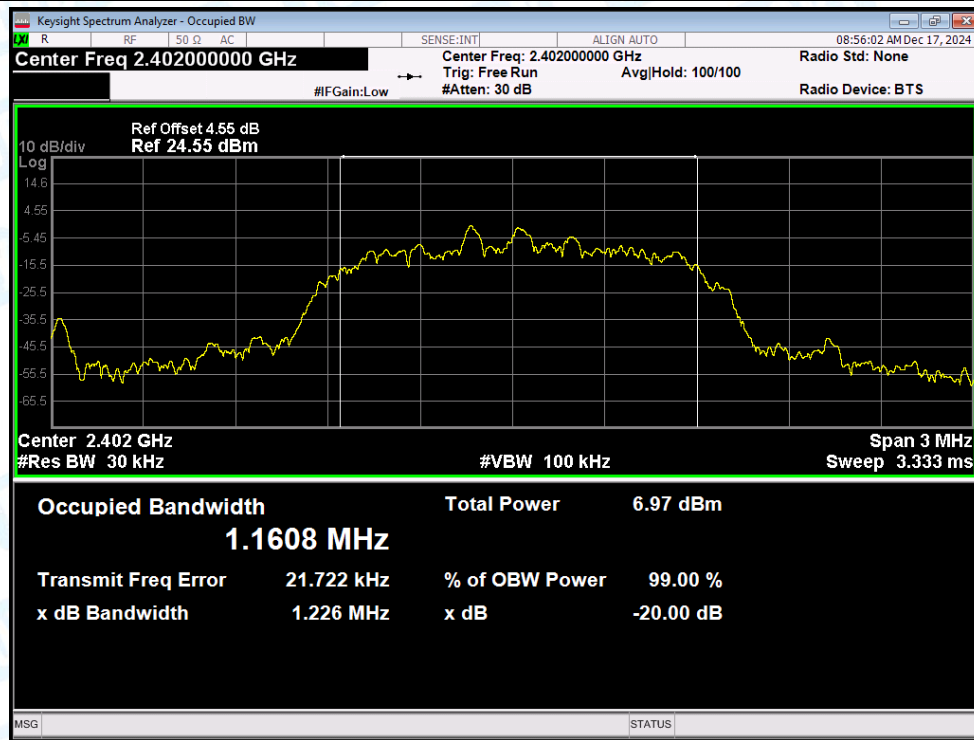
OBW NVNT 1-DH1 2441MHz Ant1



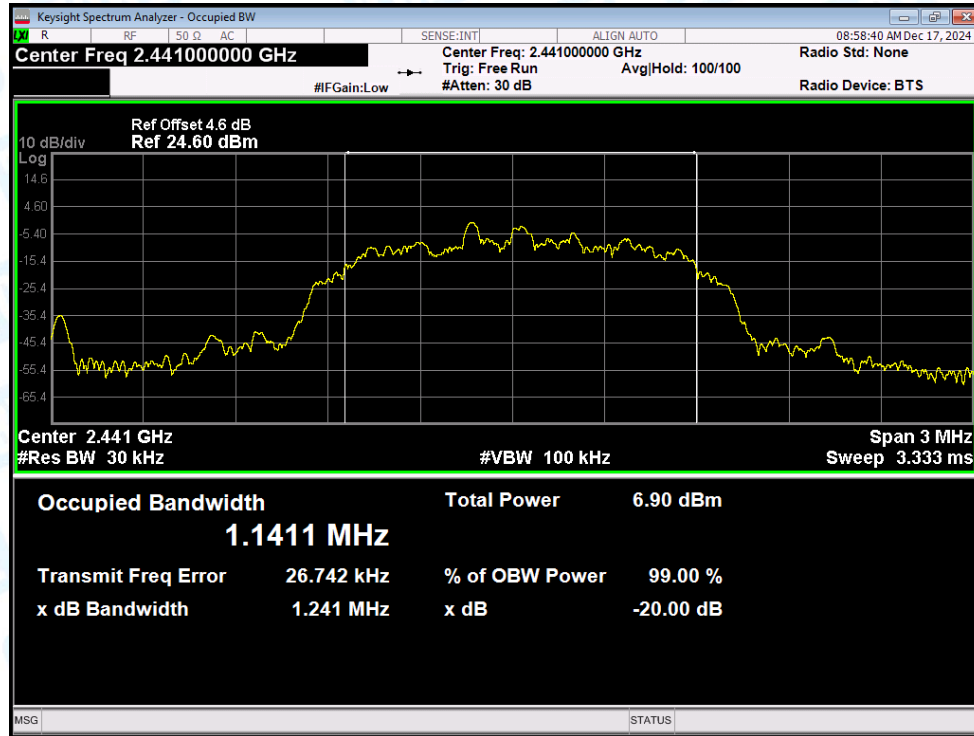
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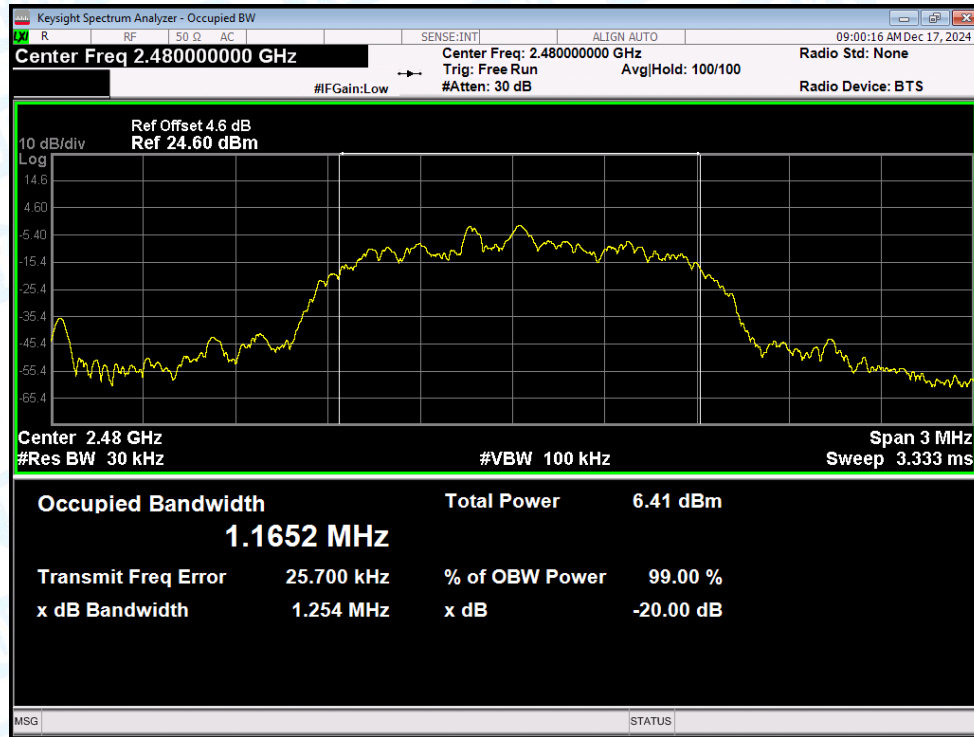
OBW NVNT 2-DH1 2402MHz Ant1



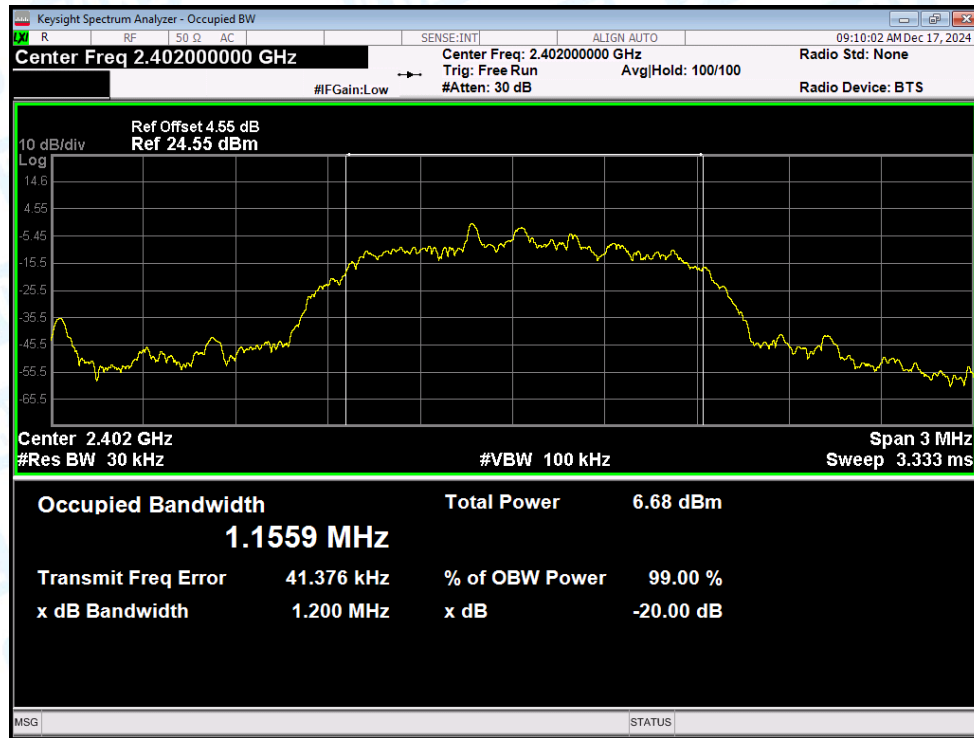
OBW NVNT 2-DH1 2441MHz Ant1



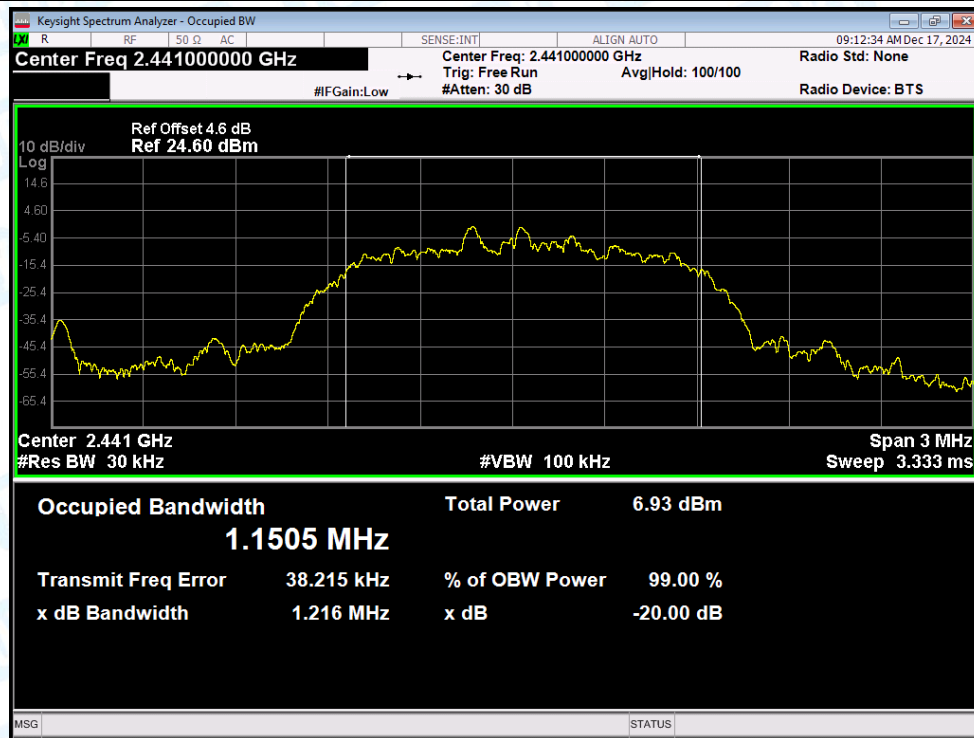
OBW NVNT 2-DH1 2480MHz Ant1



OBW NVNT 3-DH1 2402MHz Ant1



OBW NVNT 3-DH1 2441MHz Ant1



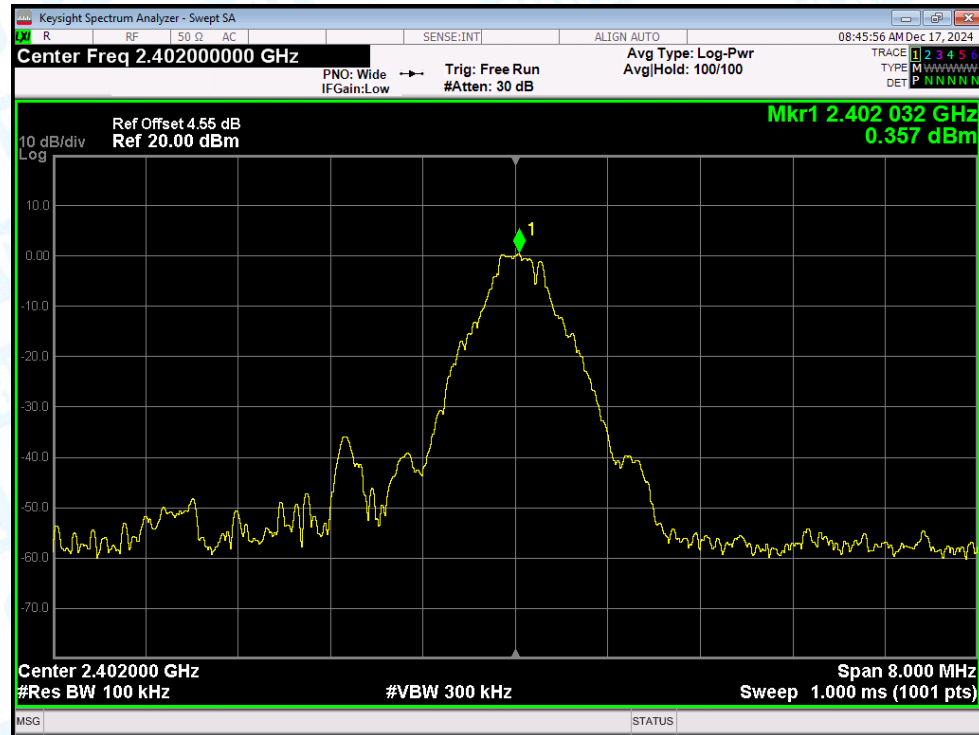


5. Band Edge

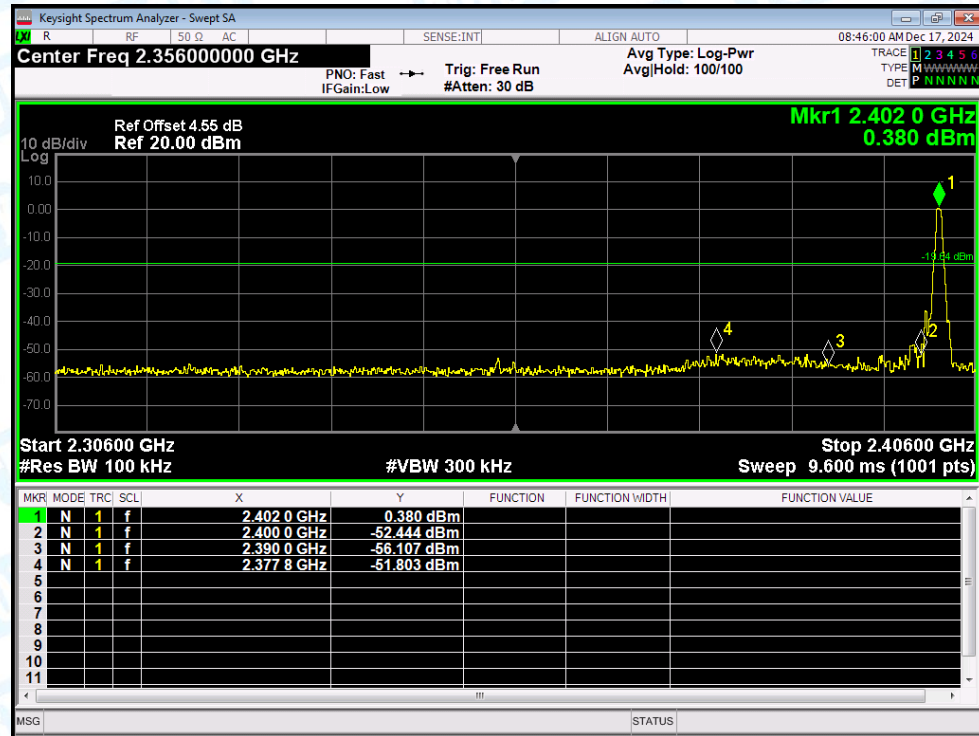
Condition	Mode	Frequency (MHz)	Antenna	Hopping Mode	Max Value (dBc)	Limit (dBc)	Verdict
NVNT	1-DH1	2402	Ant1	No-Hopping	-52.16	-20	Pass
NVNT	1-DH1	2480	Ant1	No-Hopping	-50.47	-20	Pass
NVNT	2-DH1	2402	Ant1	No-Hopping	-52.49	-20	Pass
NVNT	2-DH1	2480	Ant1	No-Hopping	-52	-20	Pass
NVNT	3-DH1	2402	Ant1	No-Hopping	-51.85	-20	Pass
NVNT	3-DH1	2480	Ant1	No-Hopping	-51.76	-20	Pass

Test Graphs

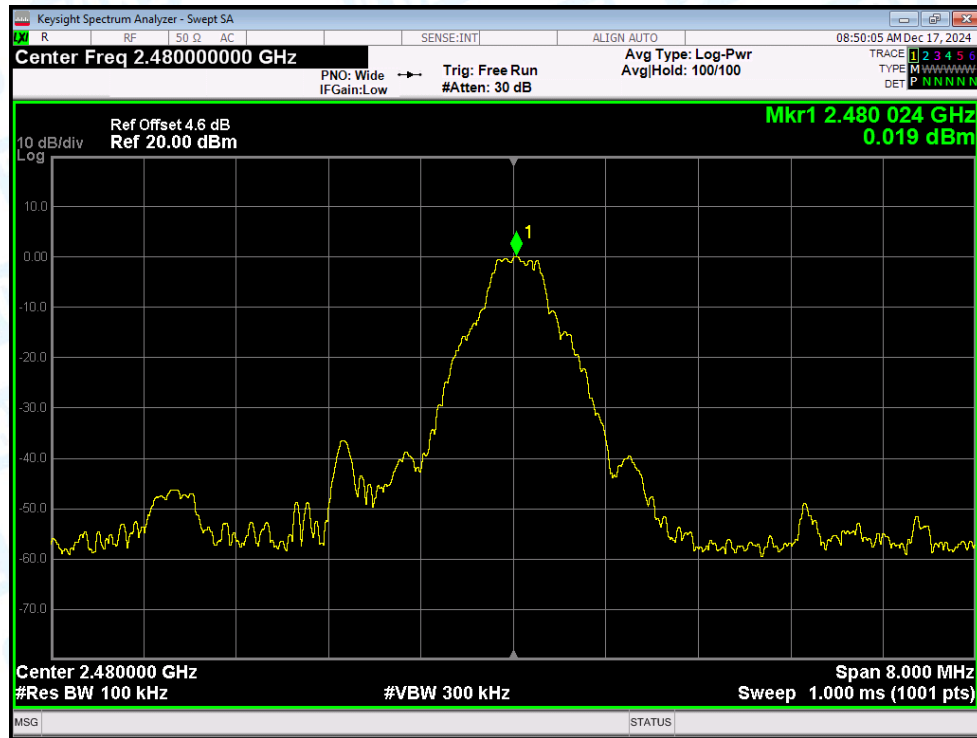
Band Edge NVNT 1-DH1 2402MHz Ant1 No-Hopping Ref



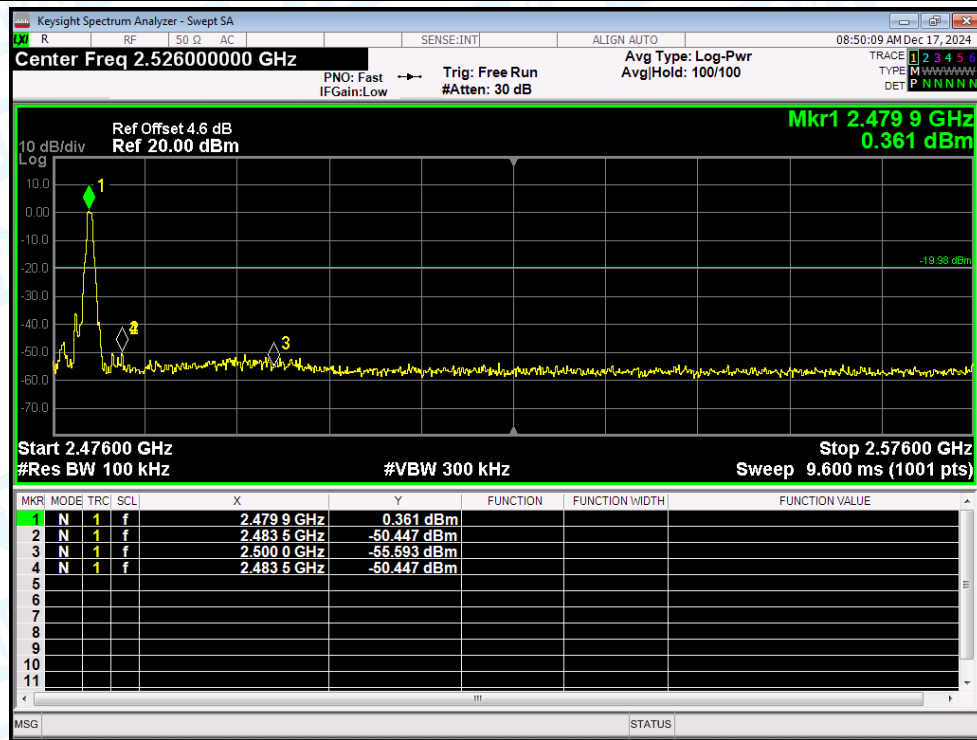
Band Edge NVNT 1-DH1 2402MHz Ant1 No-Hopping Emission



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



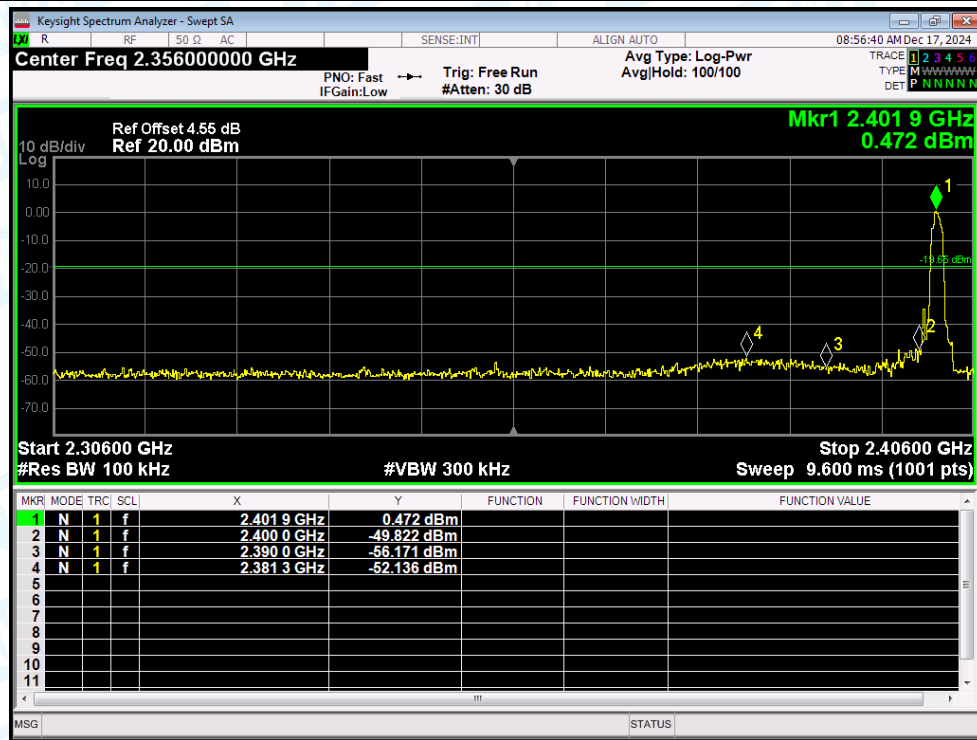
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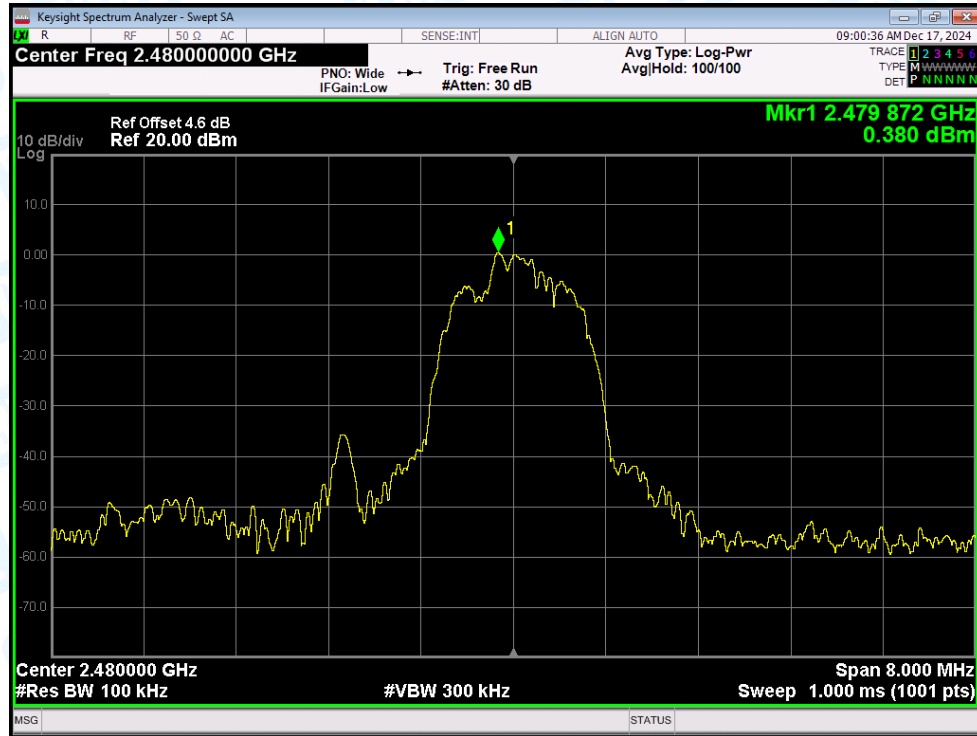
Band Edge NVNT 2-DH1 2402MHz Ant1 No-Hopping Ref



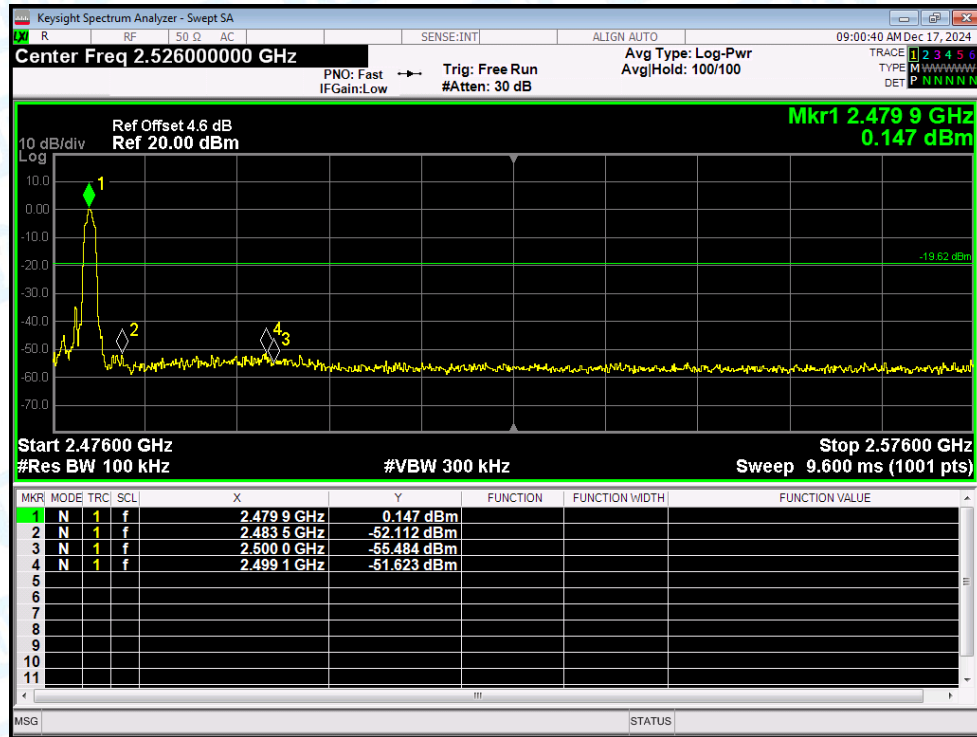
Band Edge NVNT 2-DH1 2402MHz Ant1 No-Hopping Emission



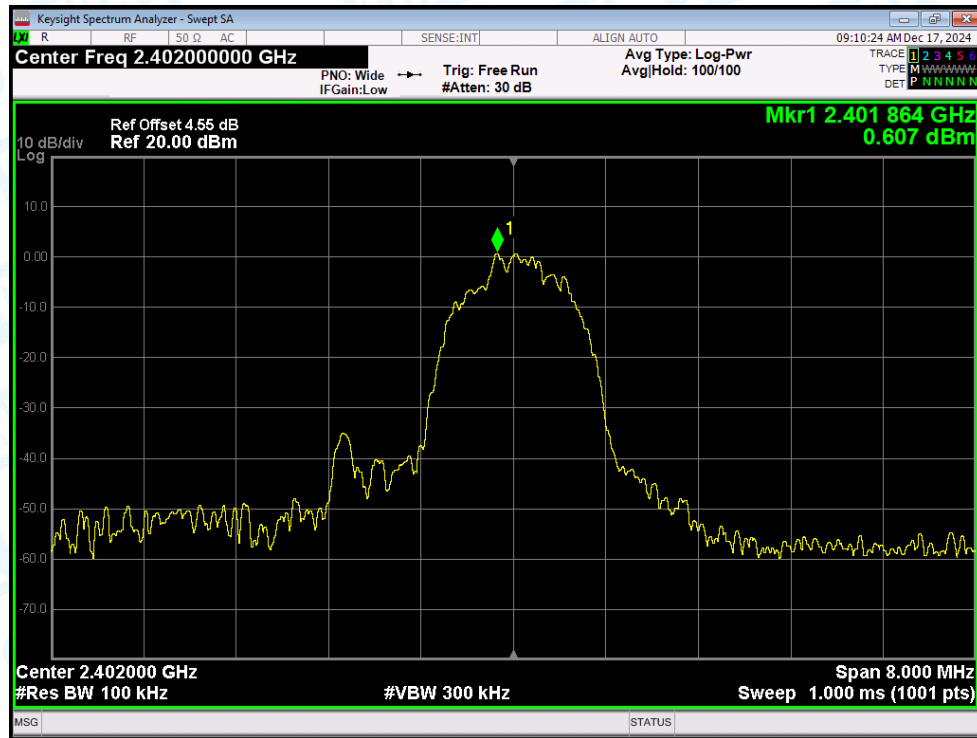
Band Edge NVNT 2-DH1 2480MHz Ant1 No-Hopping Ref



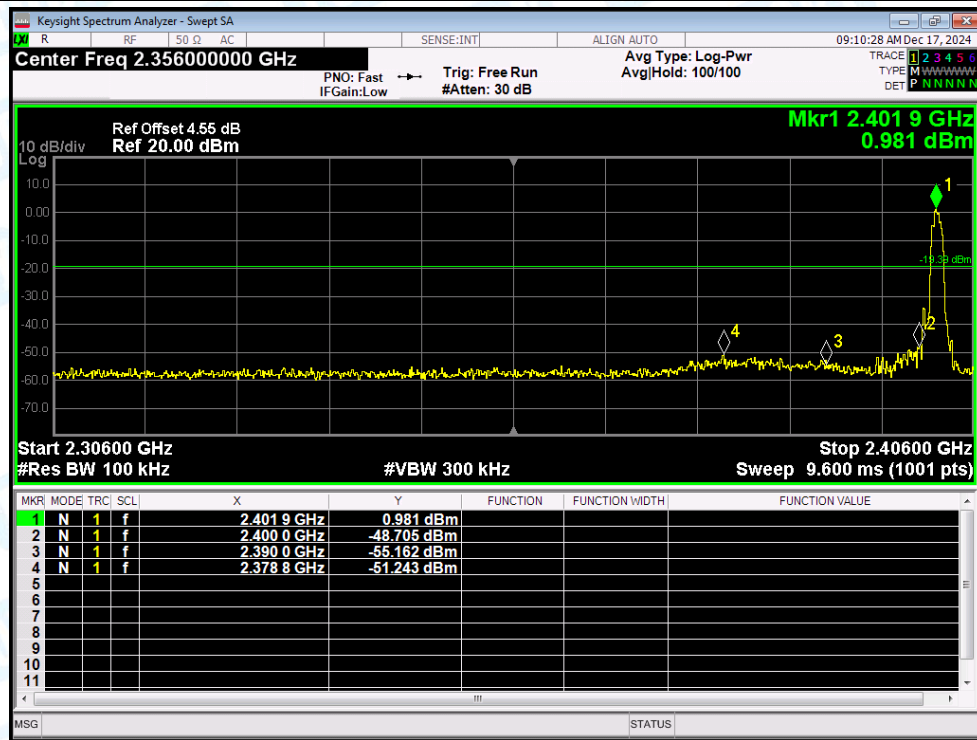
Band Edge NVNT 2-DH1 2480MHz Ant1 No-Hopping Emission



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



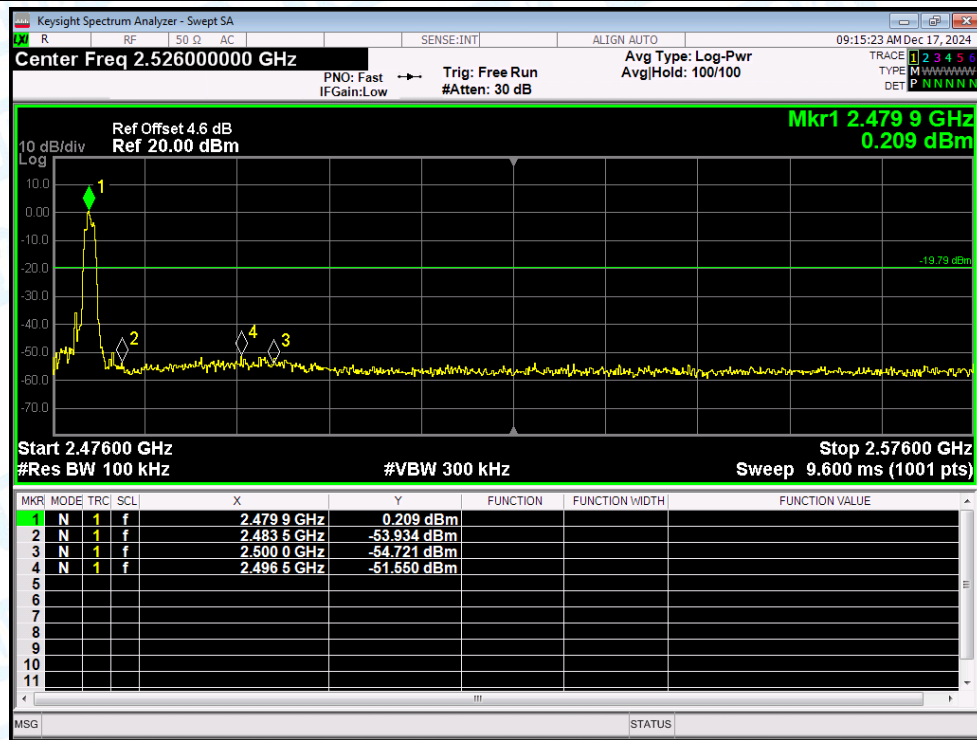
Band Edge NVNT 3-DH1 2402MHz Ant1 No-Hopping Emission



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



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

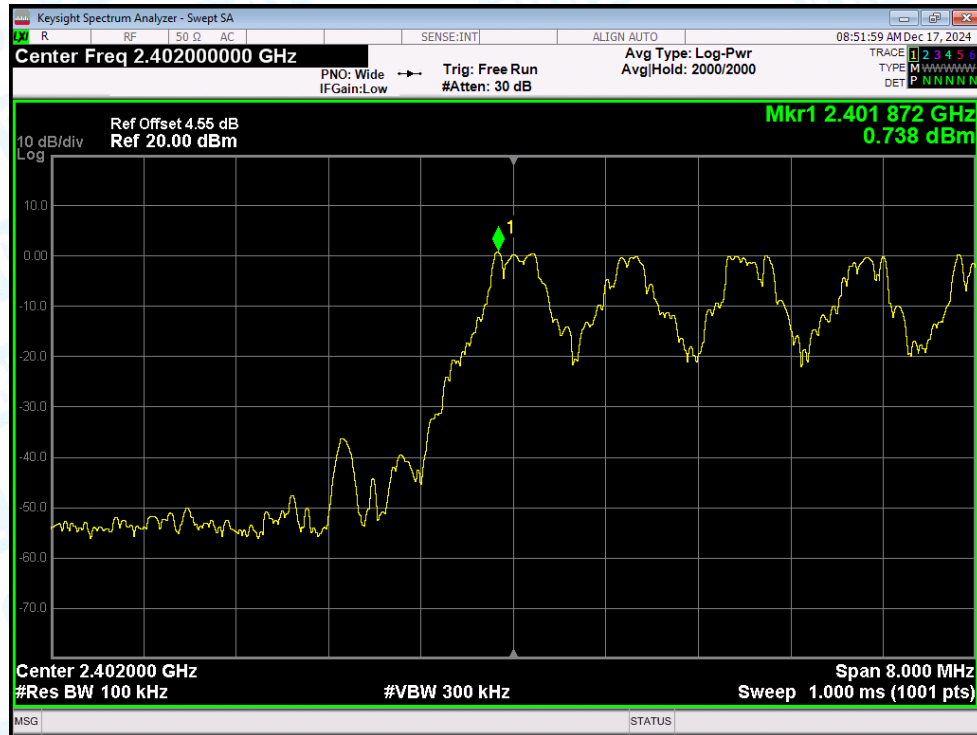


6. Band Edge(Hopping)

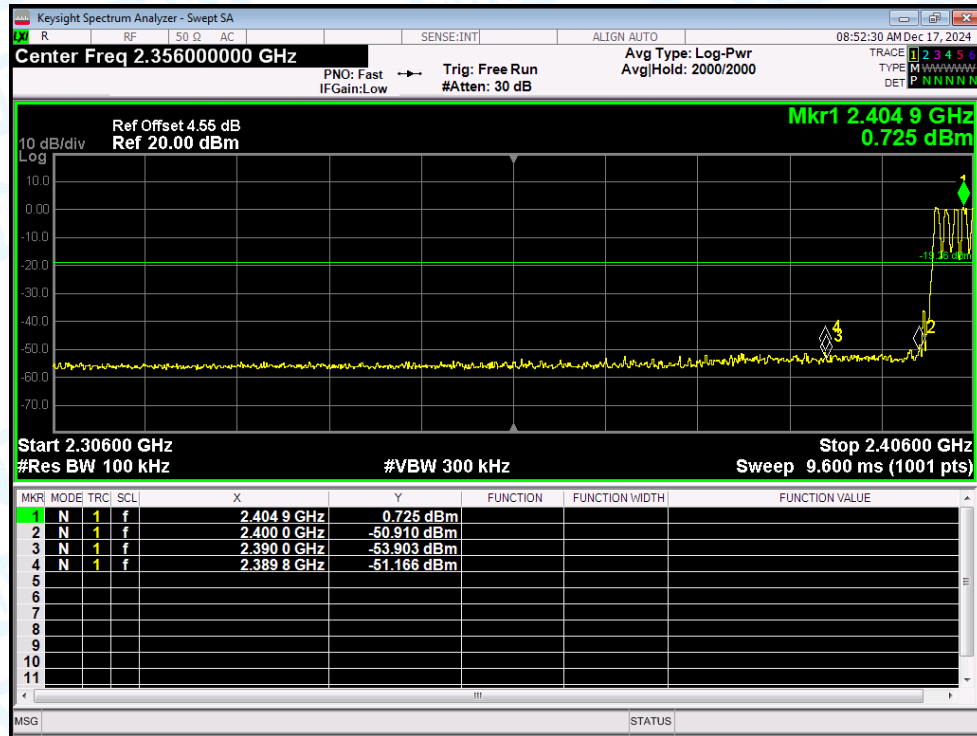
Condition	Mode	Frequency (MHz)	Antenna	Hopping Mode	Max Value (dBc)	Limit (dBc)	Verdict
NVNT	1-DH1	2402	Ant1	Hopping	-51.91	-20	Pass
NVNT	1-DH1	2480	Ant1	Hopping	-50.89	-20	Pass
NVNT	2-DH1	2402	Ant1	Hopping	-52	-20	Pass
NVNT	2-DH1	2480	Ant1	Hopping	-50.97	-20	Pass
NVNT	3-DH1	2402	Ant1	Hopping	-52.41	-20	Pass
NVNT	3-DH1	2480	Ant1	Hopping	-51.89	-20	Pass

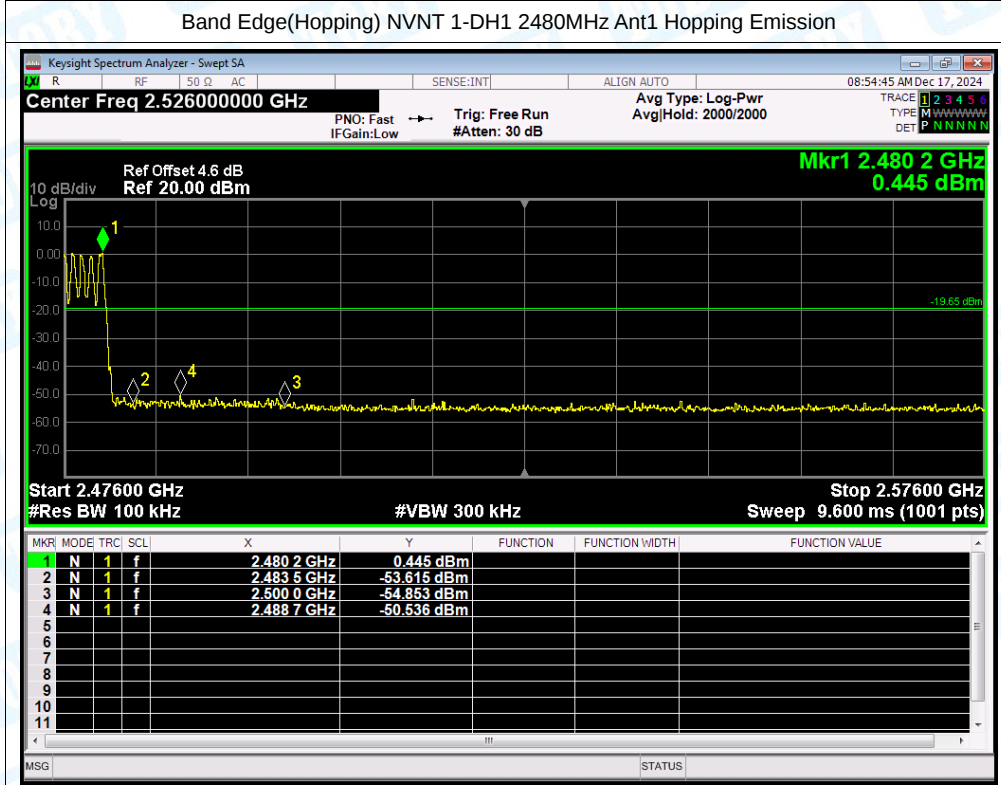
Test Graphs

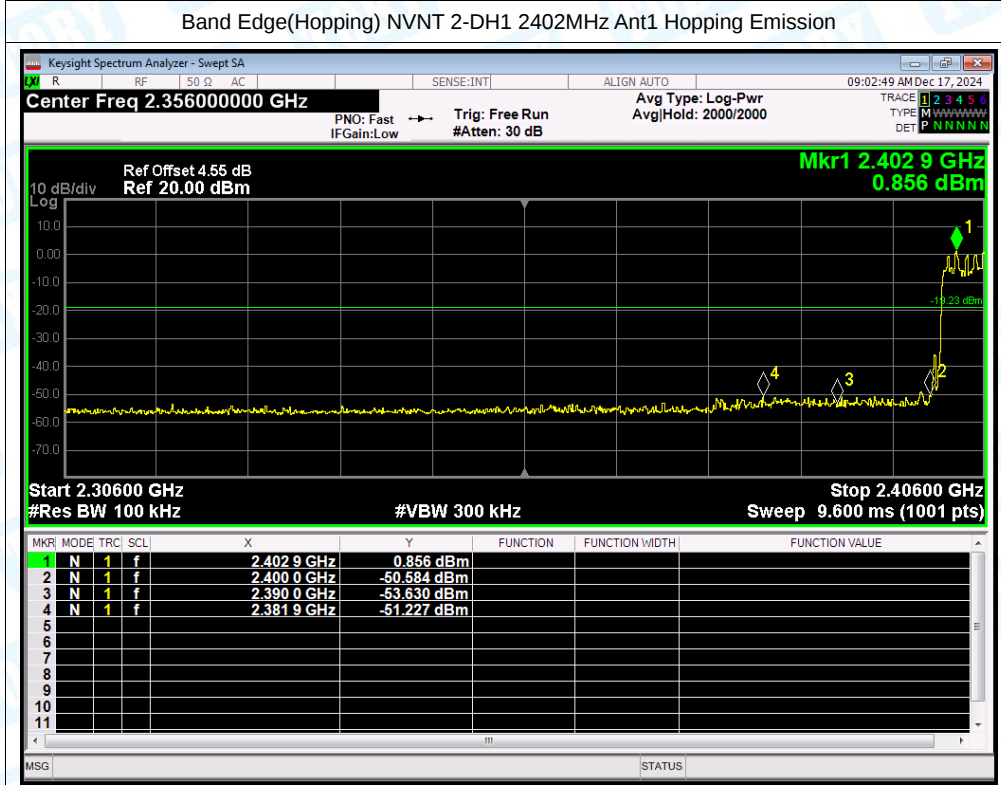
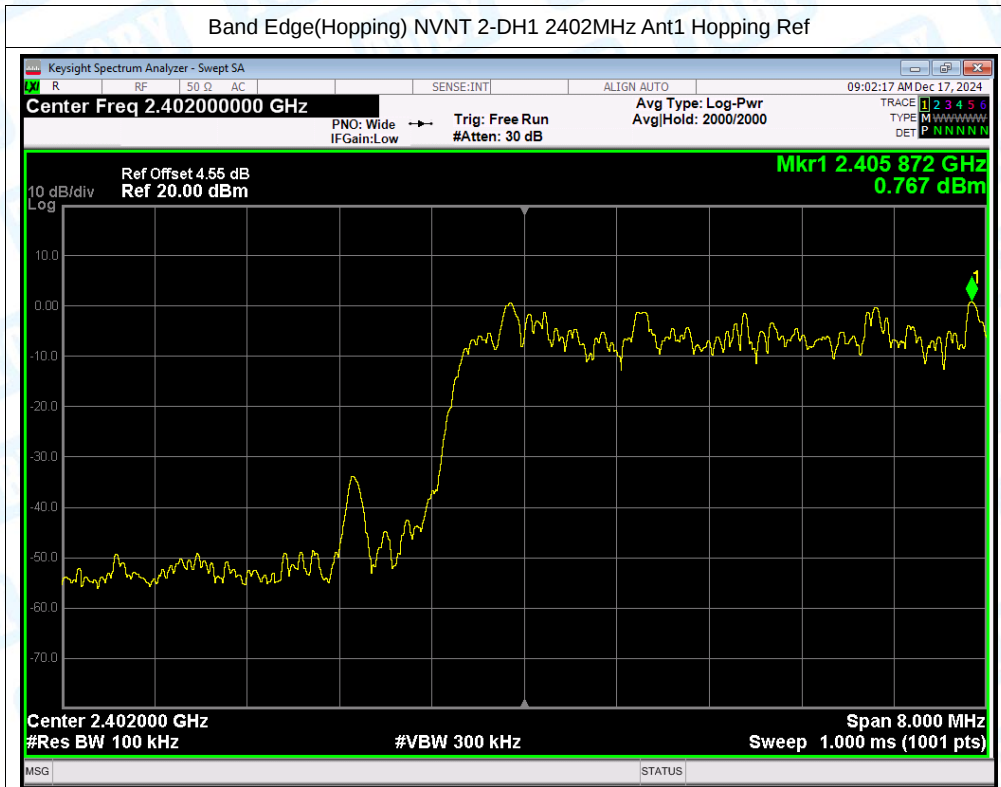
Band Edge(Hopping) NVNT 1-DH1 2402MHz Ant1 Hopping Ref

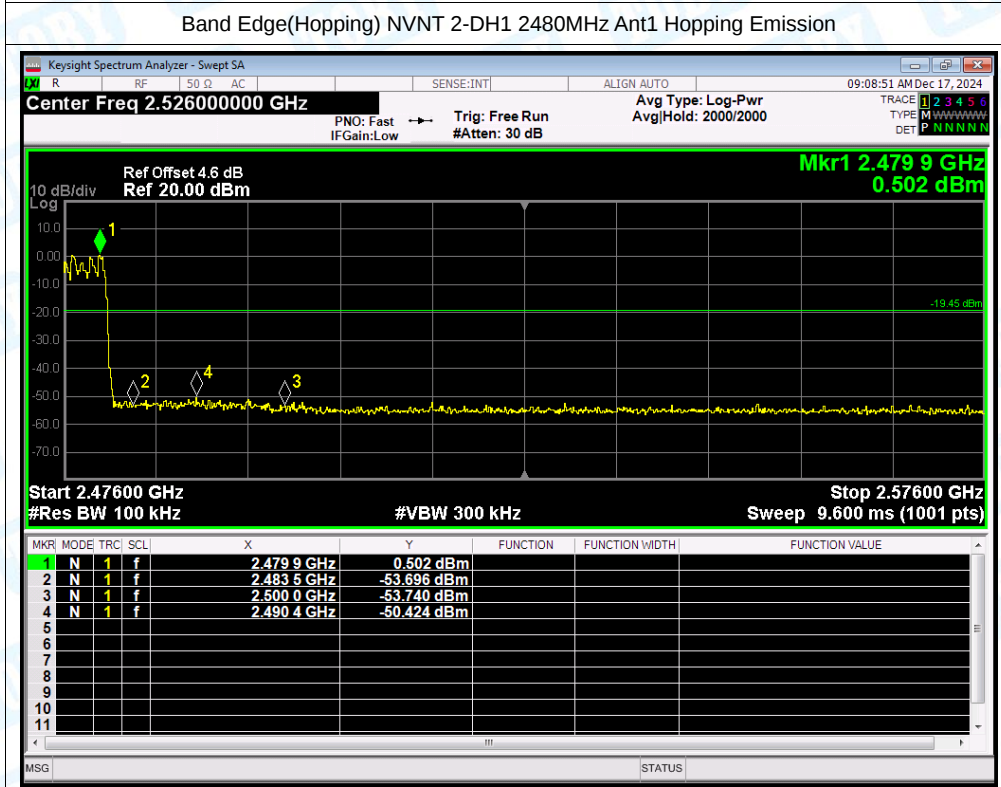
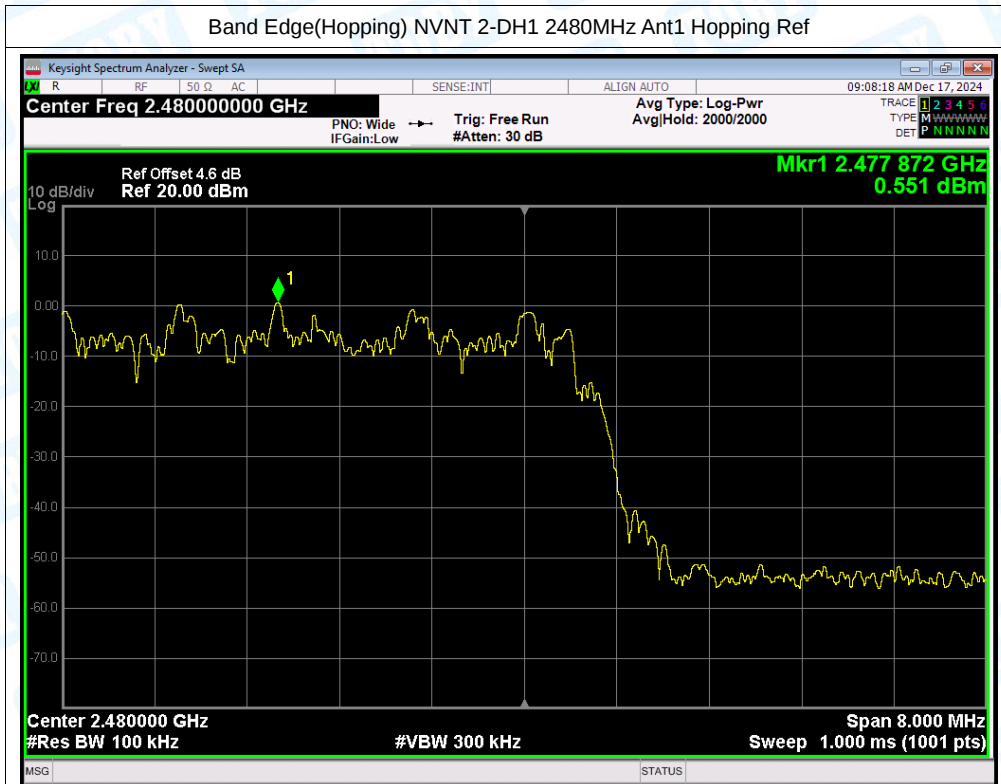


Band Edge(Hopping) NVNT 1-DH1 2402MHz Ant1 Hopping Emission

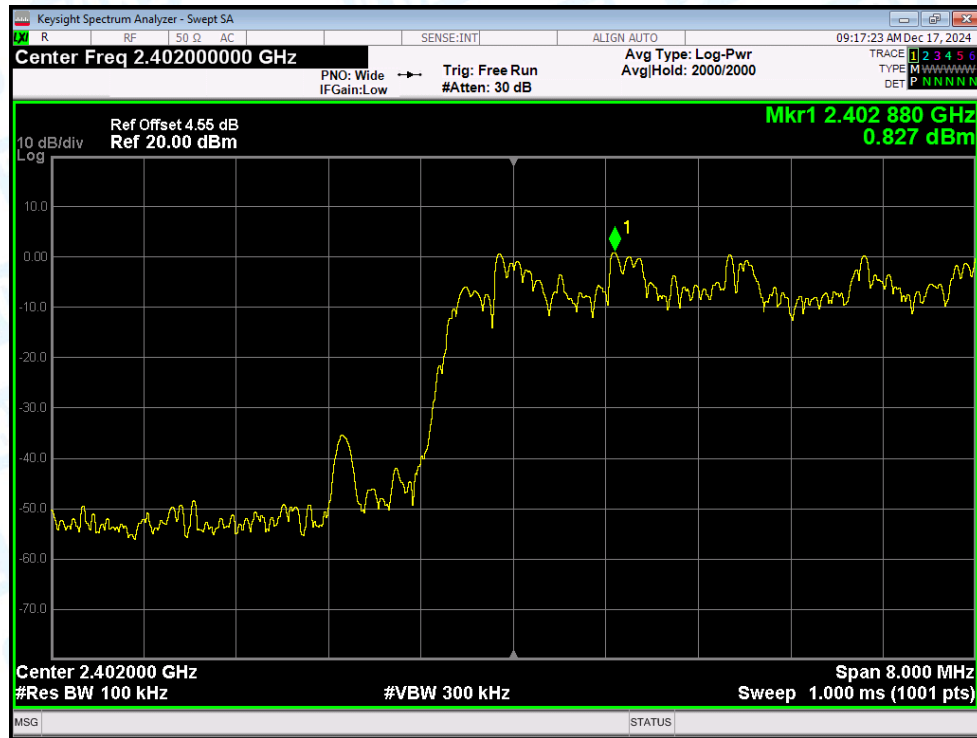




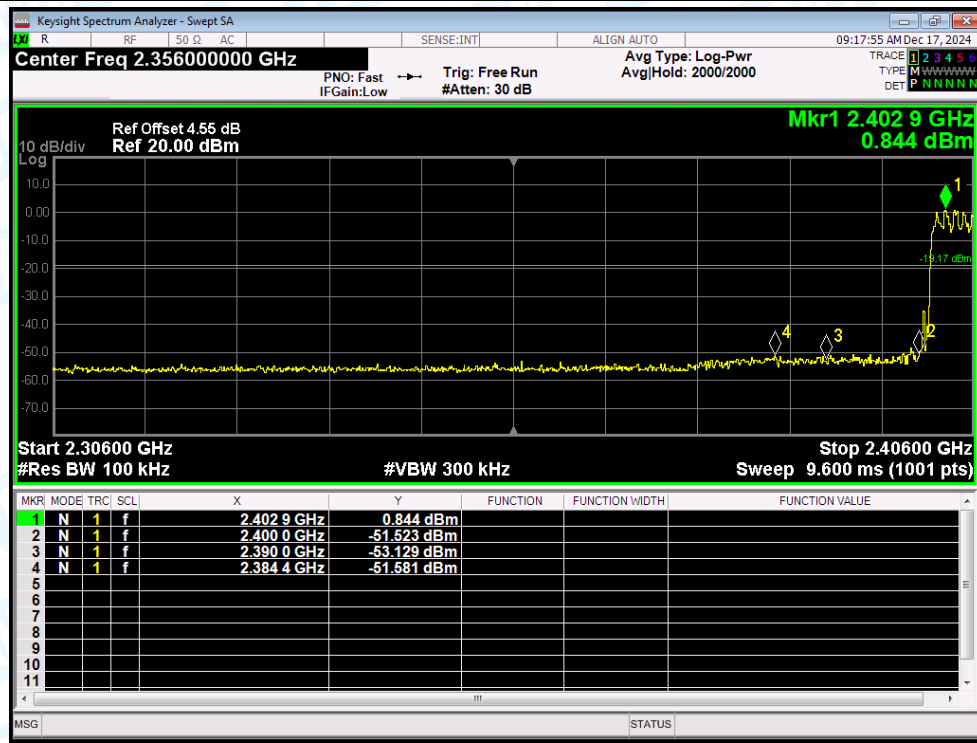


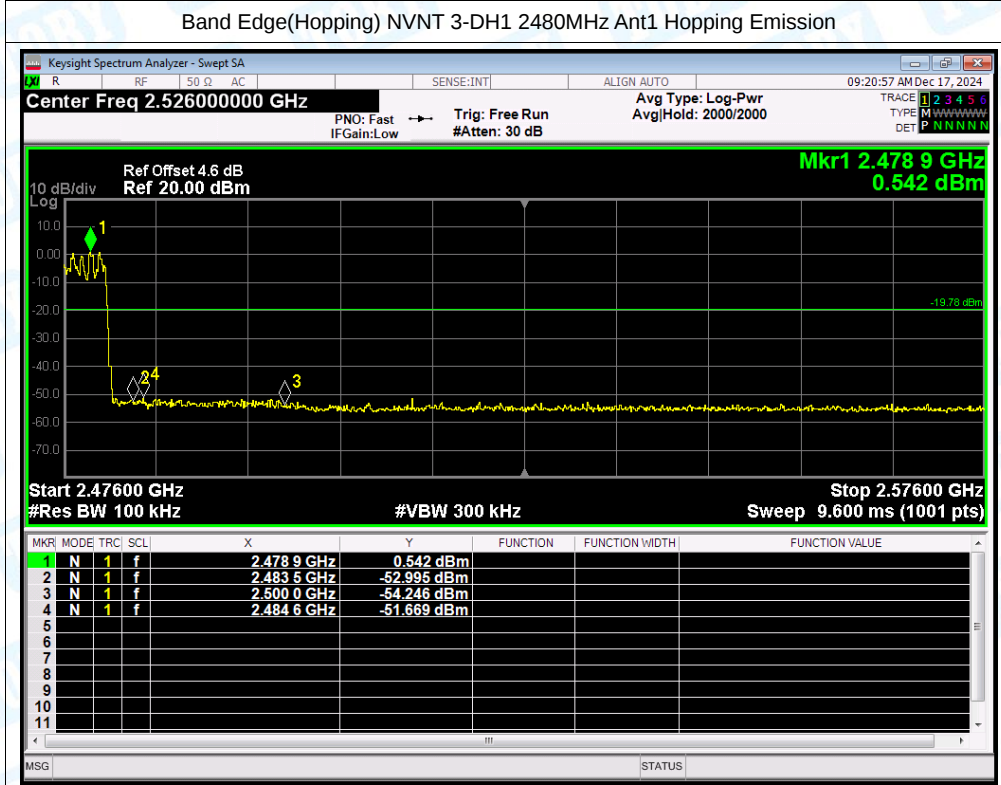


Band Edge(Hopping) NVNT 3-DH1 2402MHz Ant1 Hopping Ref



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



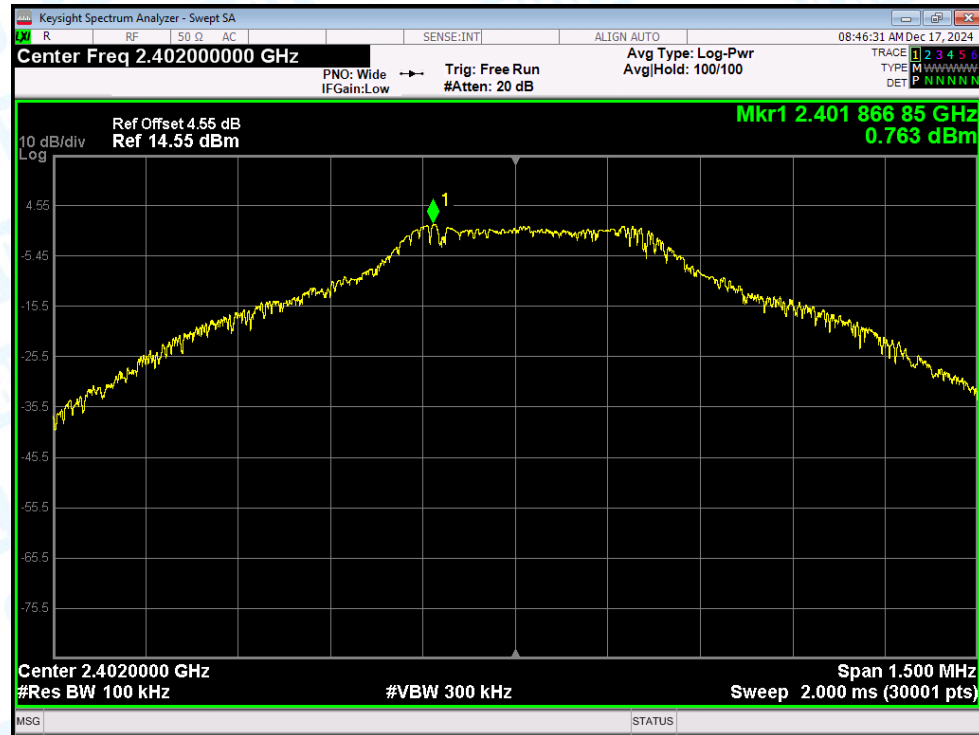


7. Conducted RF Spurious Emission

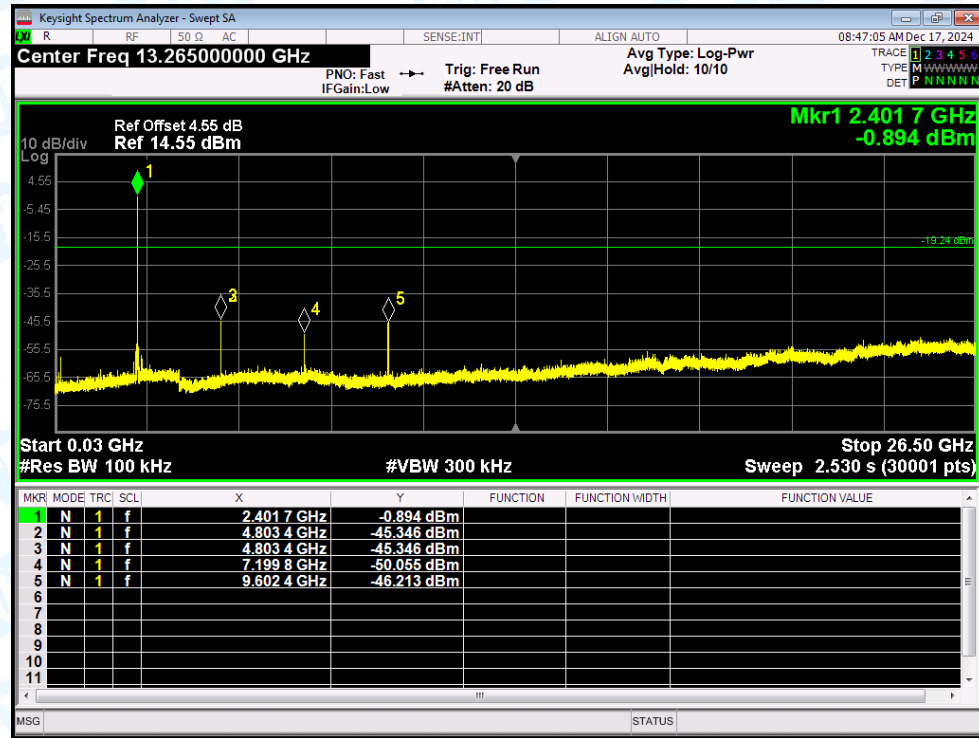
Condition	Mode	Frequency (MHz)	Antenna	Max Value (dBc)	Limit (dBc)	Verdict
NVNT	1-DH1	2402	Ant1	-46.11	-20	Pass
NVNT	1-DH1	2441	Ant1	-45.7	-20	Pass
NVNT	1-DH1	2480	Ant1	-45.97	-20	Pass
NVNT	2-DH1	2402	Ant1	-47.37	-20	Pass
NVNT	2-DH1	2441	Ant1	-46.5	-20	Pass
NVNT	2-DH1	2480	Ant1	-46.15	-20	Pass
NVNT	3-DH1	2402	Ant1	-45.94	-20	Pass
NVNT	3-DH1	2441	Ant1	-45.91	-20	Pass
NVNT	3-DH1	2480	Ant1	-45.66	-20	Pass

Test Graphs

Tx. Spurious NVNT 1-DH1 2402MHz Ant1 Ref



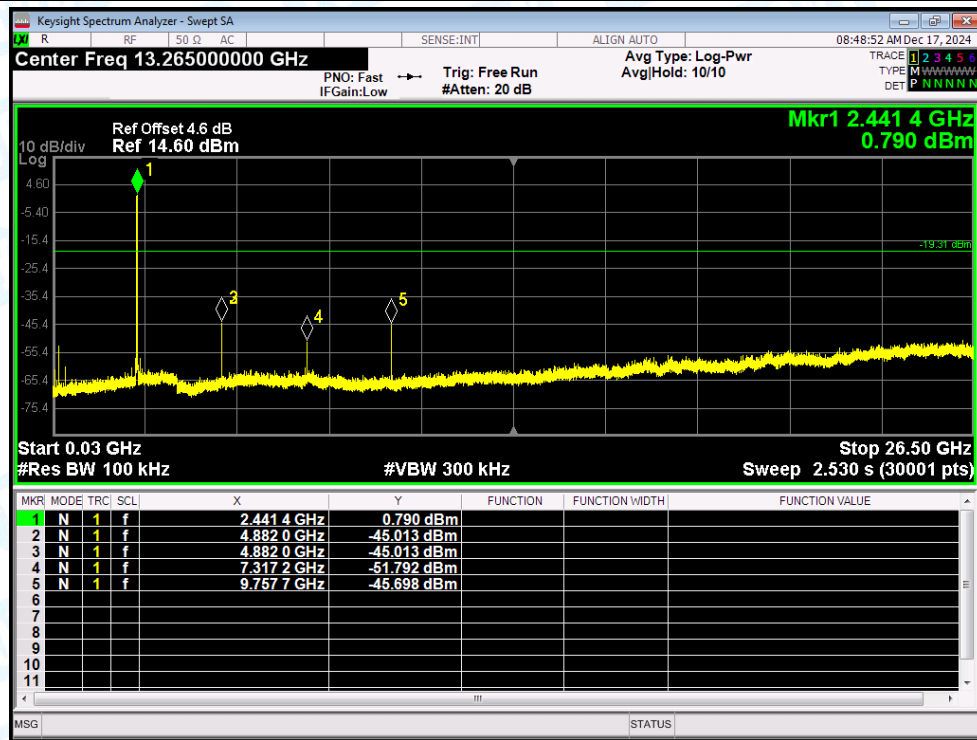
Tx. Spurious NVNT 1-DH1 2402MHz Ant1 Emission



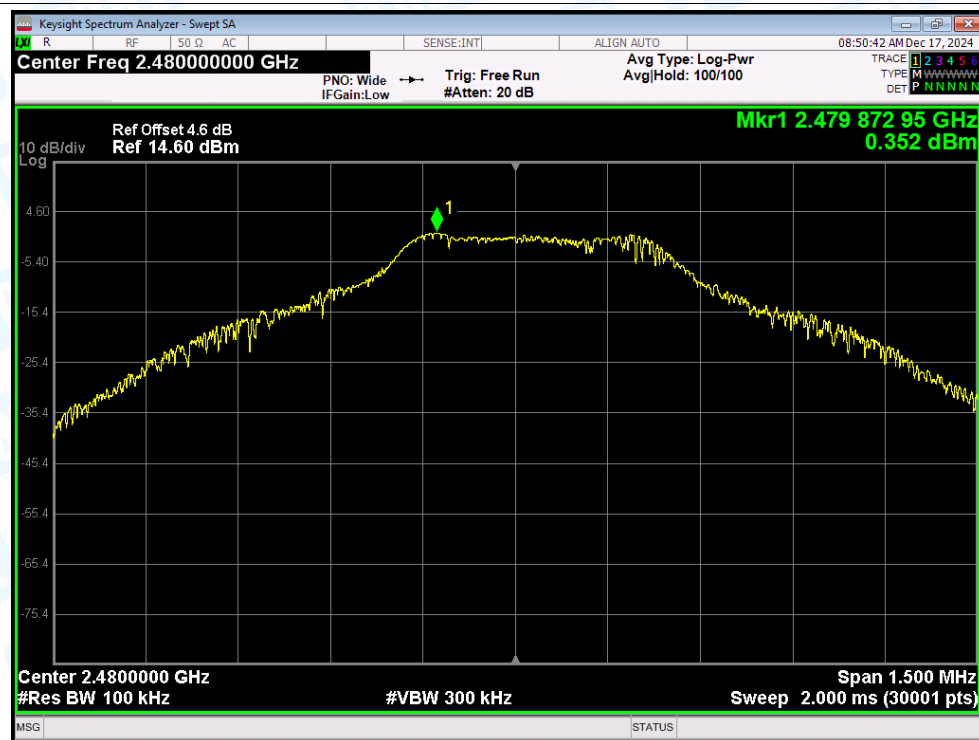
Tx. Spurious NVNT 1-DH1 2441MHz Ant1 Ref



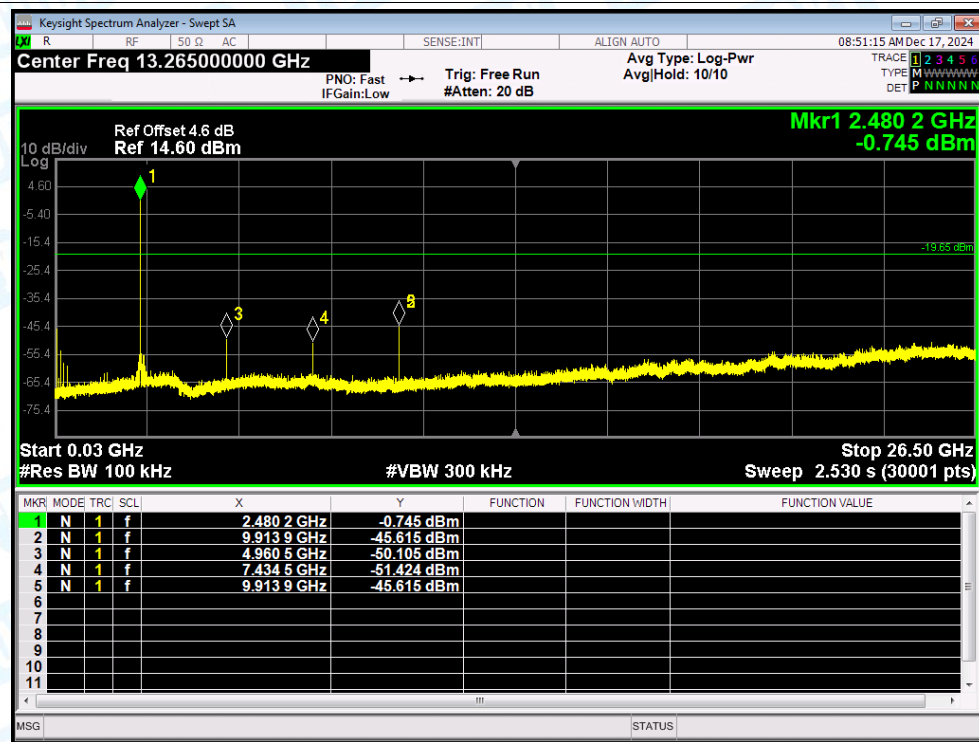
Tx. Spurious NVNT 1-DH1 2441MHz Ant1 Emission



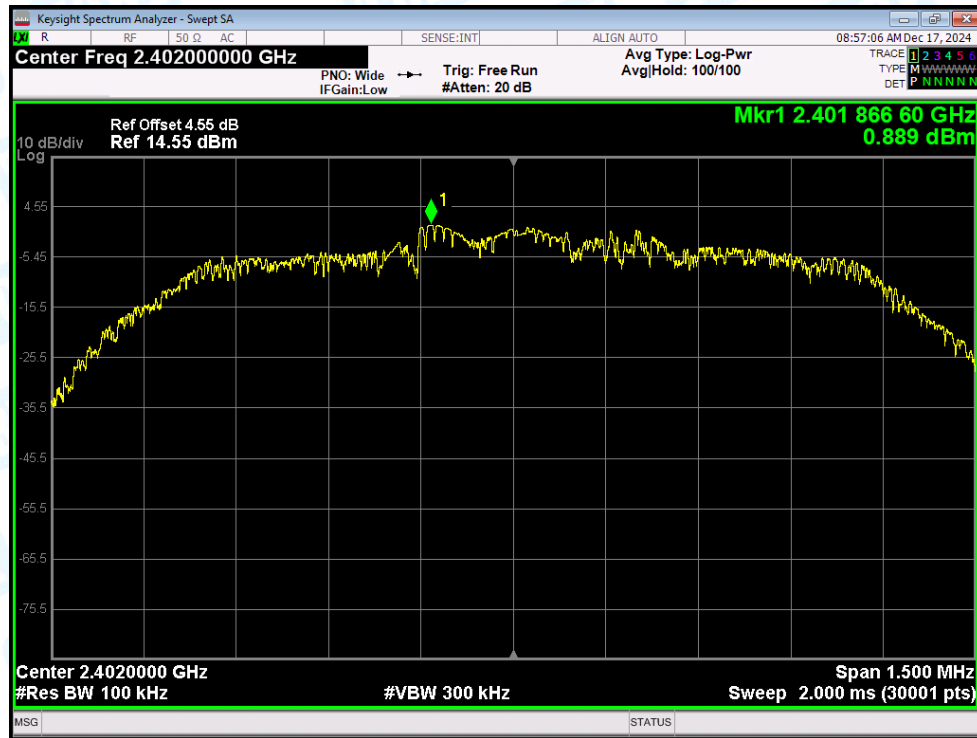
Tx. Spurious NVNT 1-DH1 2480MHz Ant1 Ref



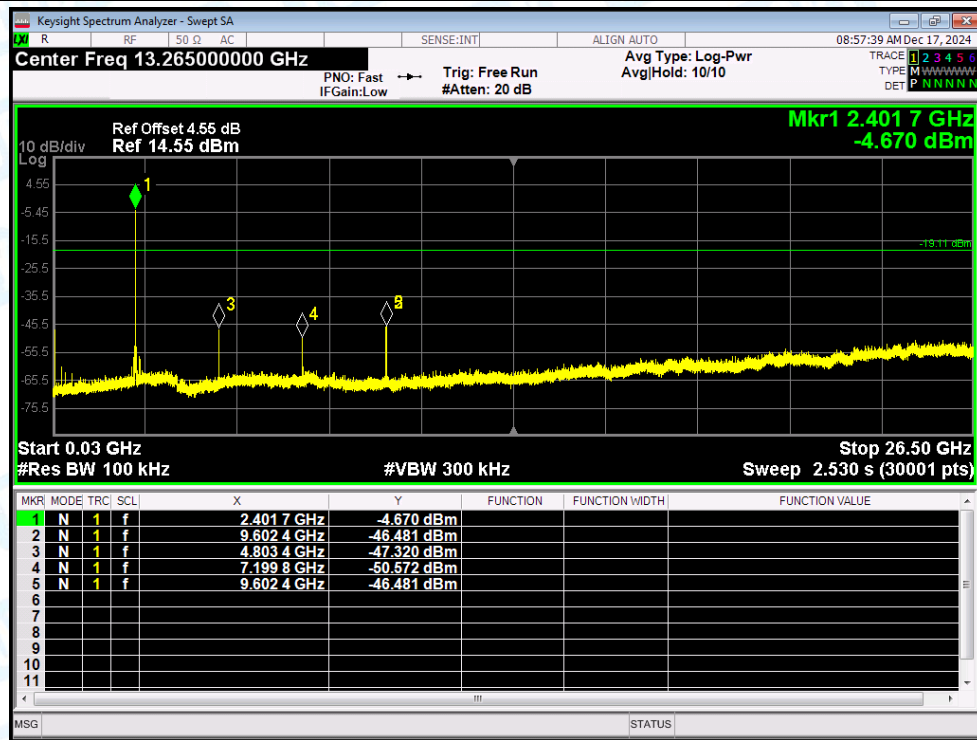
Tx. Spurious NVNT 1-DH1 2480MHz Ant1 Emission



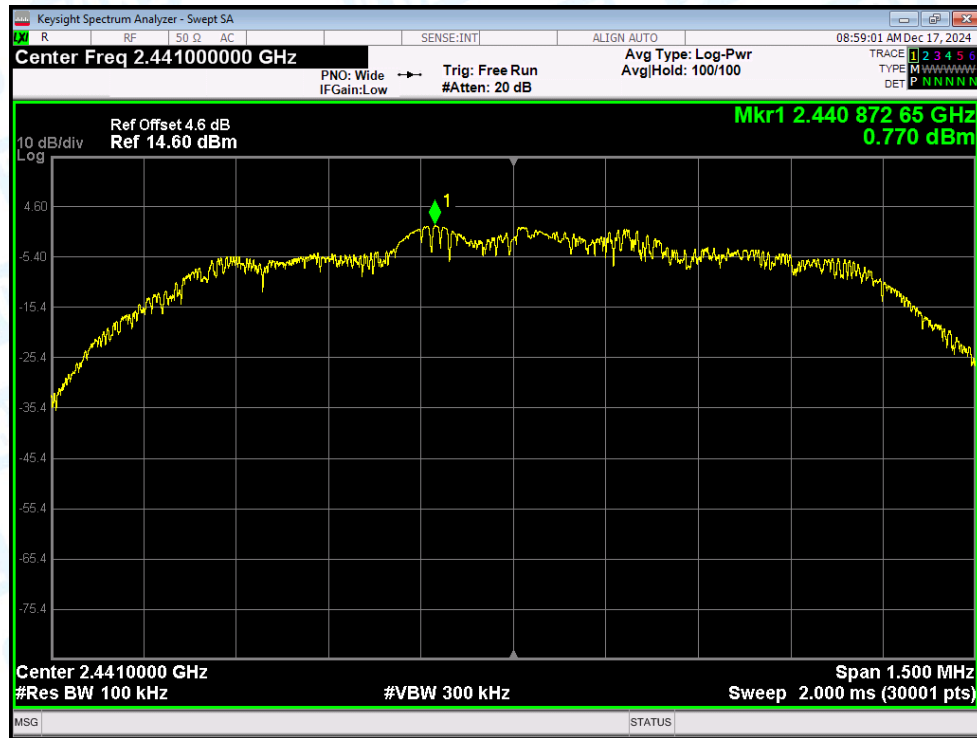
Tx. Spurious NVNT 2-DH1 2402MHz Ant1 Ref



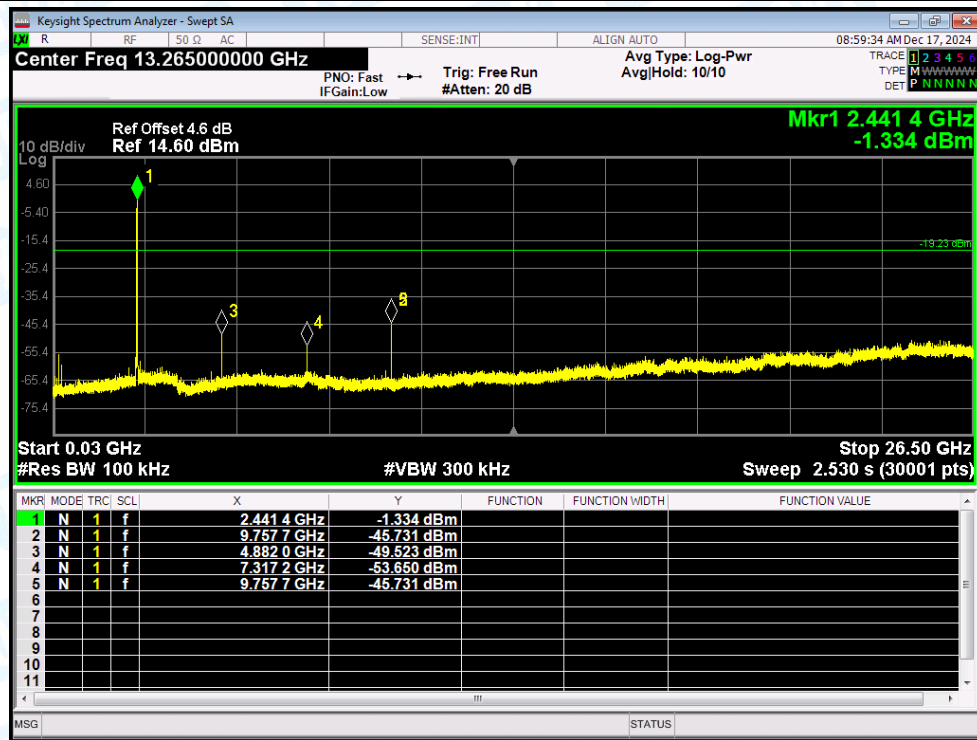
Tx. Spurious NVNT 2-DH1 2402MHz Ant1 Emission



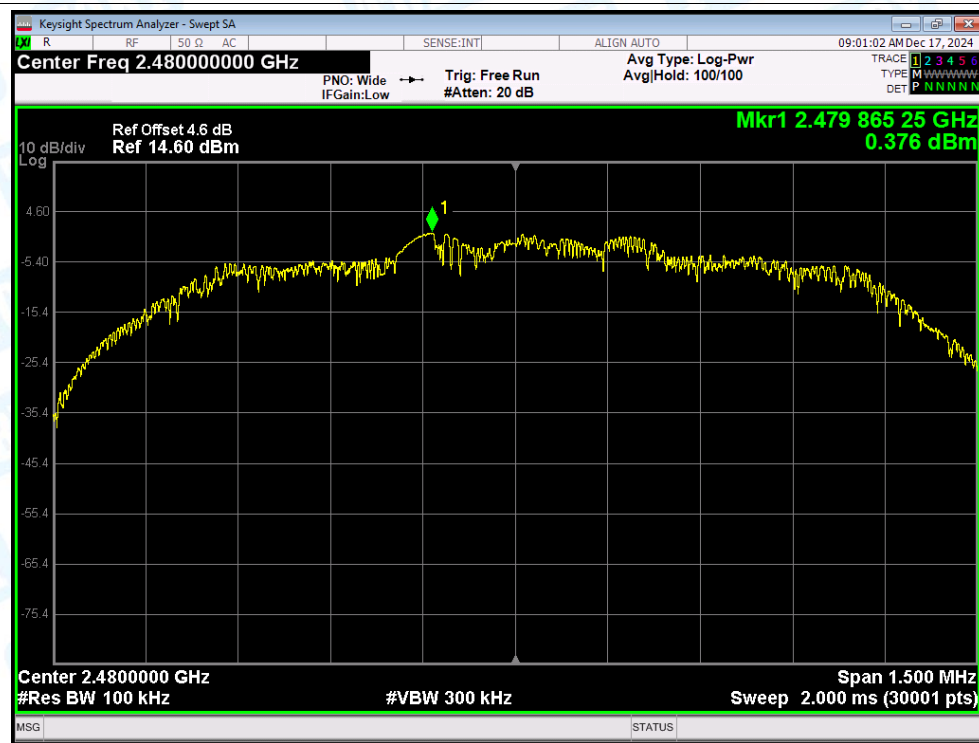
Tx. Spurious NVNT 2-DH1 2441MHz Ant1 Ref



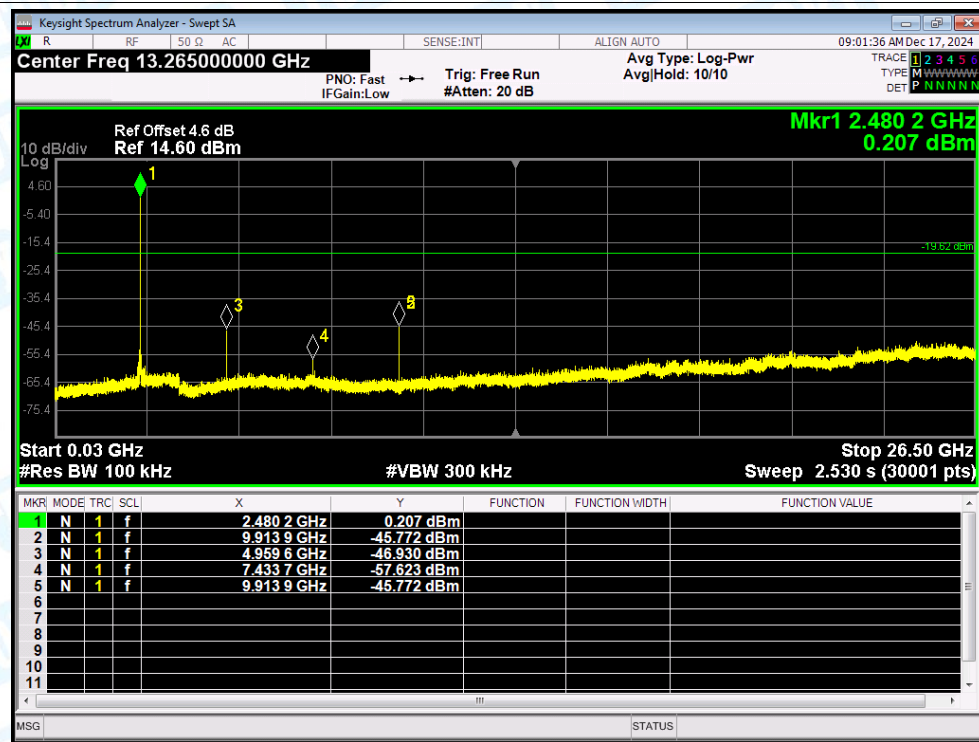
Tx. Spurious NVNT 2-DH1 2441MHz Ant1 Emission



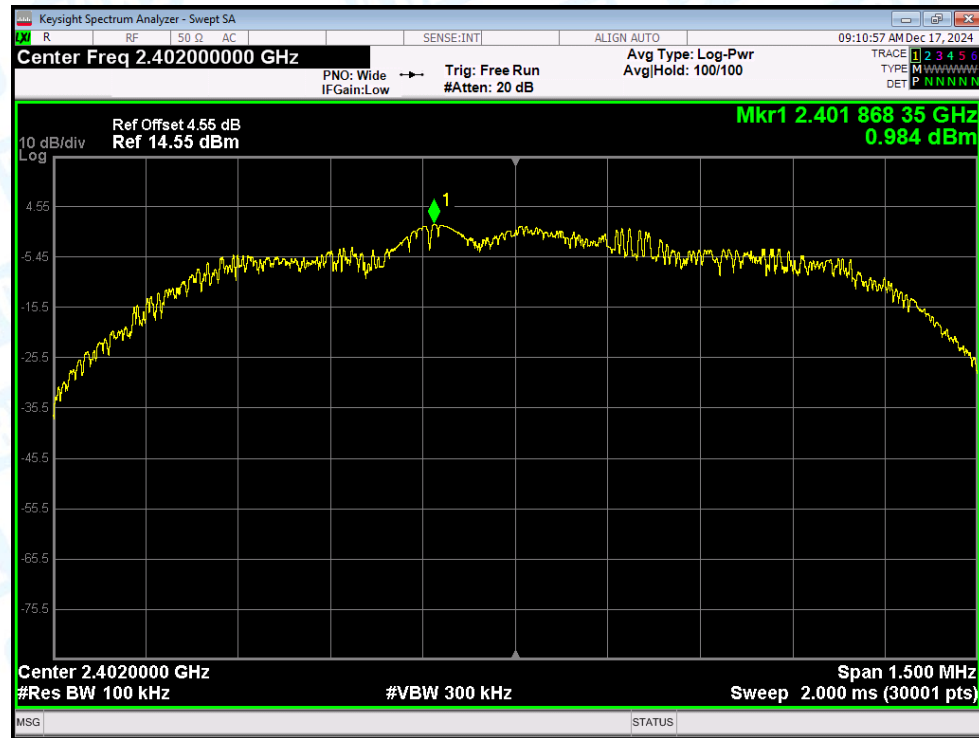
Tx. Spurious NVNT 2-DH1 2480MHz Ant1 Ref



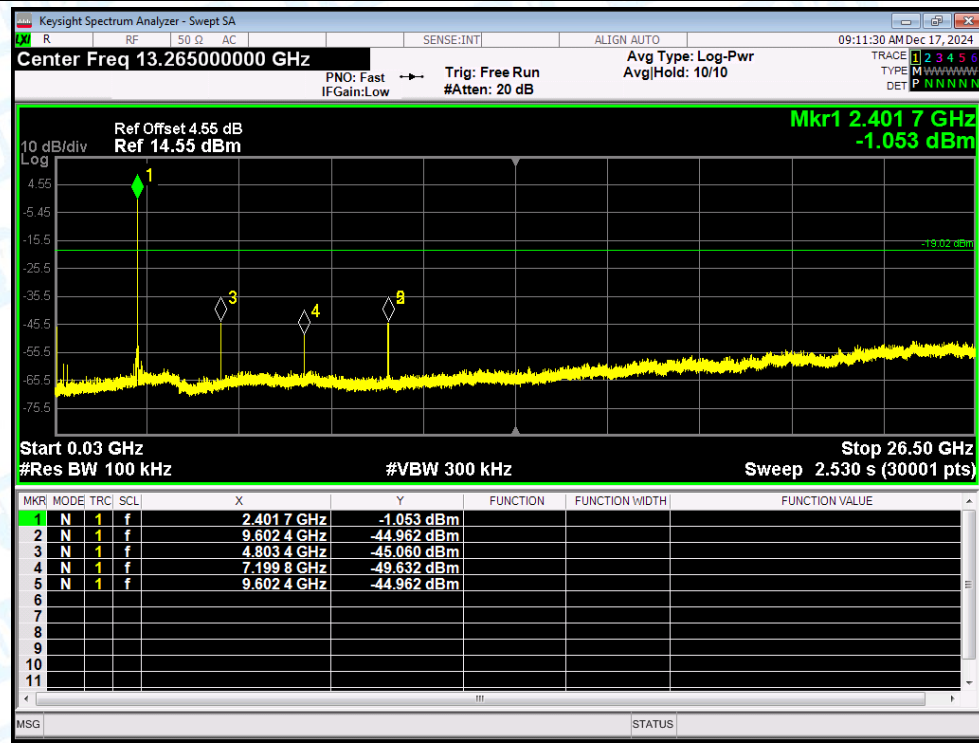
Tx. Spurious NVNT 2-DH1 2480MHz Ant1 Emission



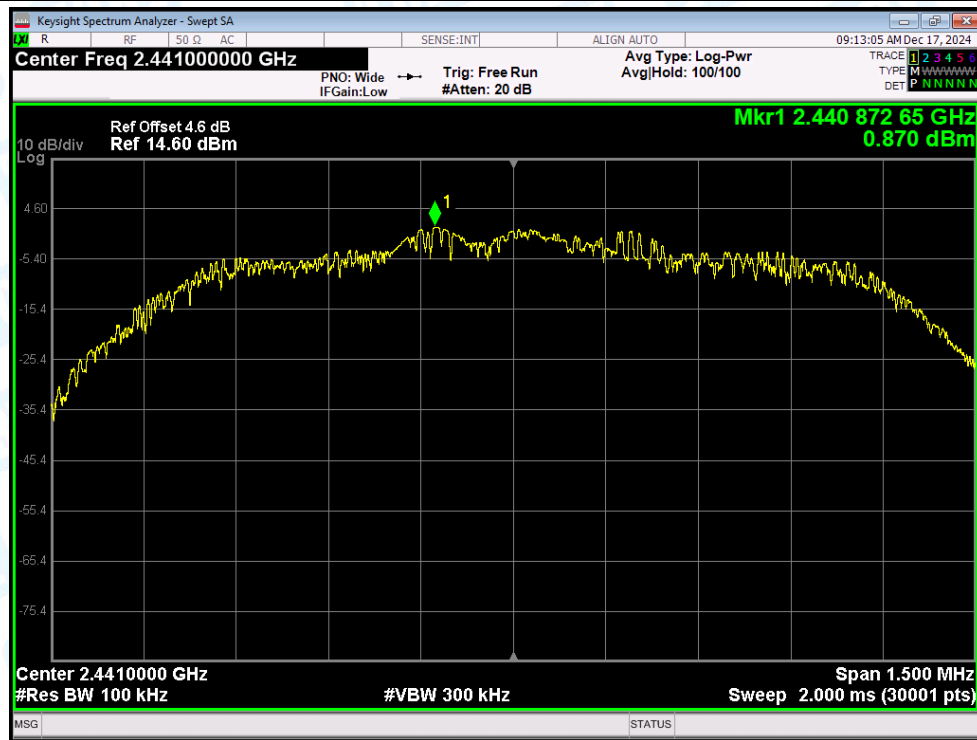
Tx. Spurious NVNT 3-DH1 2402MHz Ant1 Ref



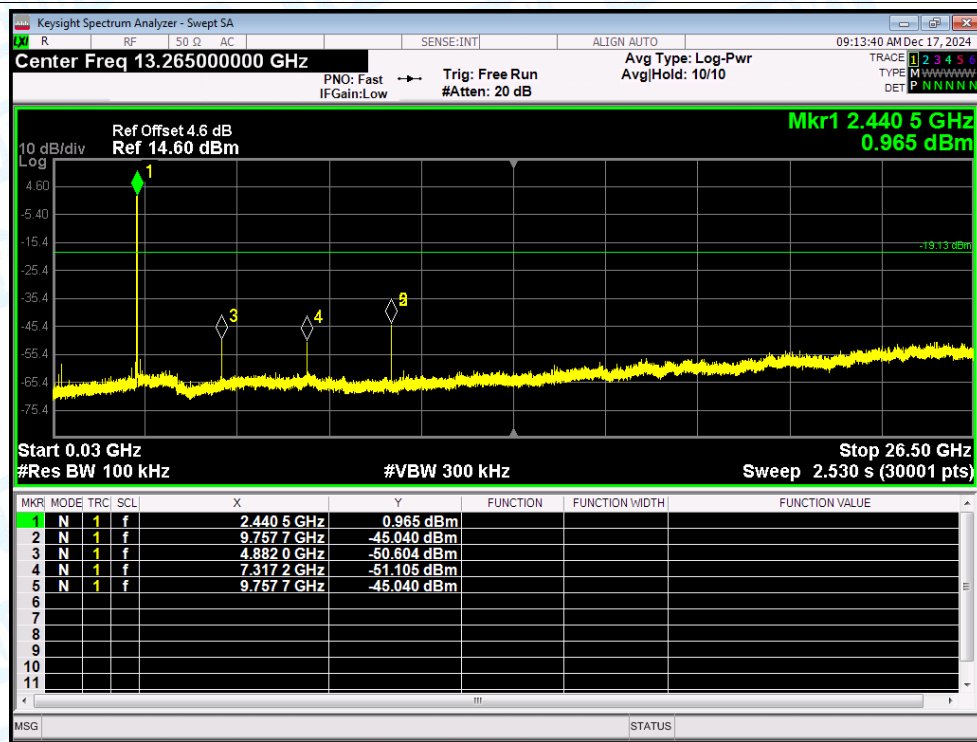
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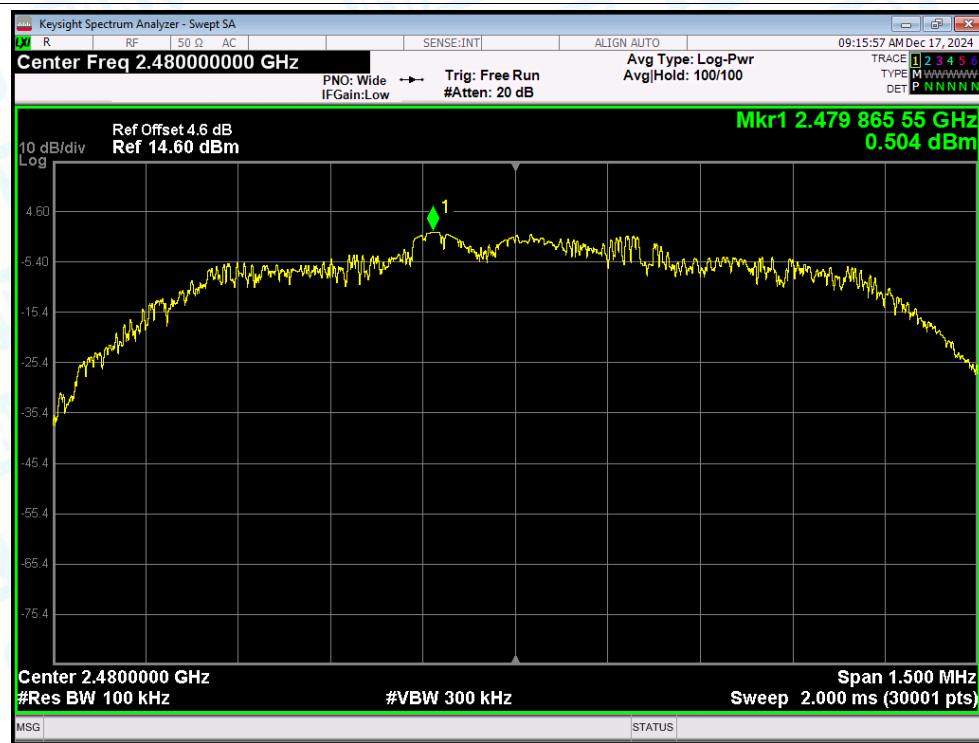
Tx. Spurious NVNT 3-DH1 2441MHz Ant1 Ref



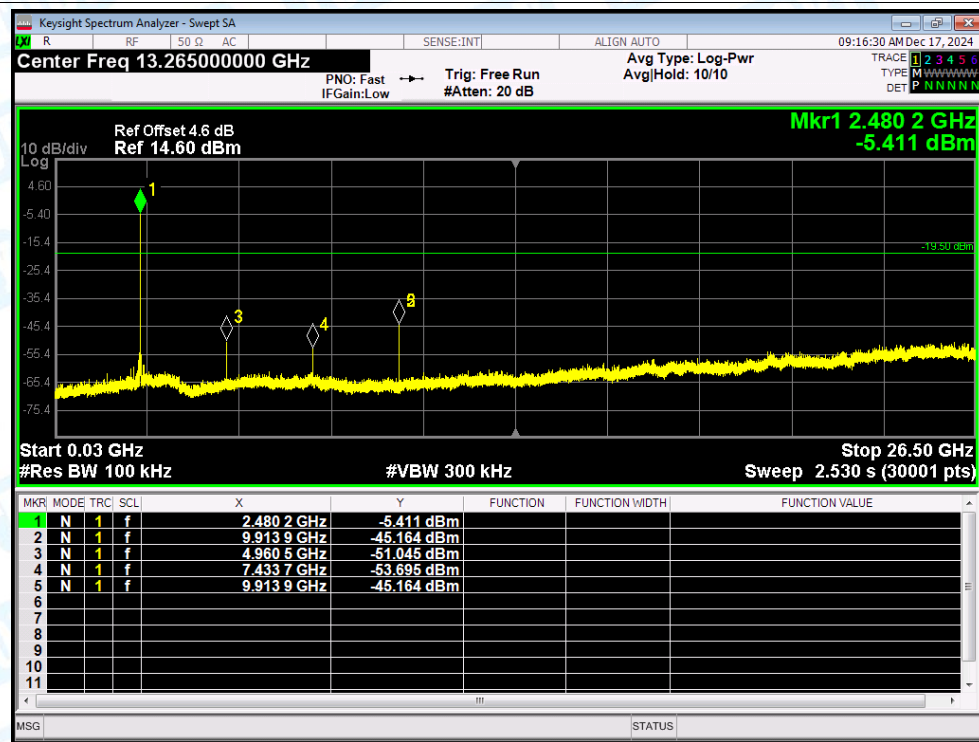
Tx. Spurious NVNT 3-DH1 2441MHz Ant1 Emission



Tx. Spurious NVNT 3-DH1 2480MHz Ant1 Ref



Tx. Spurious NVNT 3-DH1 2480MHz Ant1 Emission

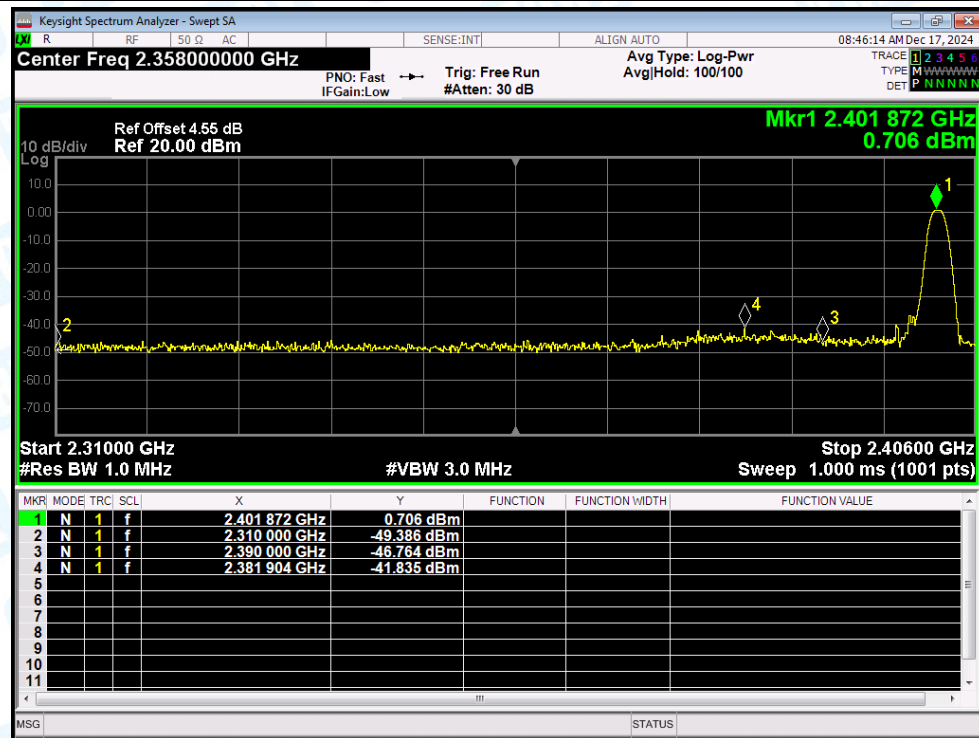


8. Restrict Band

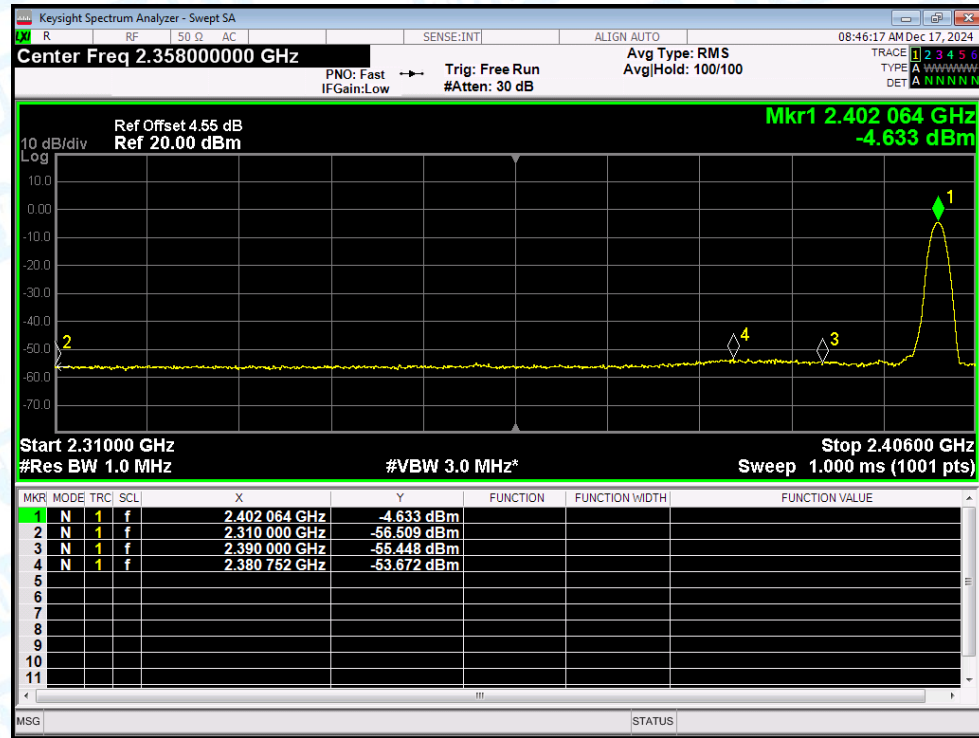
Condition	Mode	Frequency (MHz)	Antenna	Hopping Mode	Spur Freq (MHz)	Power (dBm)	Gain (dBi)	Duty Factor (dB)	E (dBuV/m)	Detector	Limit (dBuV/m)	Verdict
NVNT	1-DH1	2402	Ant1	No-Hopping	2310	-49.39	2	-	47.87	Peak	74	Pass
NVNT	1-DH1	2402	Ant1	No-Hopping	2310	-56.51	2	5.29	46.04	Average	54	Pass
NVNT	1-DH1	2402	Ant1	No-Hopping	2381.904	-41.84	2	-	55.42	Peak	74	Pass
NVNT	1-DH1	2402	Ant1	No-Hopping	2380.752	-53.67	2	5.29	48.88	Average	54	Pass
NVNT	1-DH1	2402	Ant1	No-Hopping	2390	-46.76	2	-	50.5	Peak	74	Pass
NVNT	1-DH1	2402	Ant1	No-Hopping	2390	-55.45	2	5.29	47.1	Average	54	Pass
NVNT	1-DH1	2480	Ant1	No-Hopping	2483.5	-45.42	2	-	51.84	Peak	74	Pass
NVNT	1-DH1	2480	Ant1	No-Hopping	2483.5	-54.52	2	5.17	47.91	Average	54	Pass
NVNT	1-DH1	2480	Ant1	No-Hopping	2497.408	-41.66	2	-	55.6	Peak	74	Pass
NVNT	1-DH1	2480	Ant1	No-Hopping	2496.616	-52.88	2	5.17	49.55	Average	54	Pass
NVNT	1-DH1	2480	Ant1	No-Hopping	2500	-45.31	2	-	51.95	Peak	74	Pass
NVNT	1-DH1	2480	Ant1	No-Hopping	2500	-54.73	2	5.17	47.7	Average	54	Pass
NVNT	2-DH1	2402	Ant1	No-Hopping	2310	-48.04	2	-	49.22	Peak	74	Pass
NVNT	2-DH1	2402	Ant1	No-Hopping	2310	-56.91	2	5.06	45.41	Average	54	Pass
NVNT	2-DH1	2402	Ant1	No-Hopping	2380.176	-40.55	2	-	56.71	Peak	74	Pass
NVNT	2-DH1	2402	Ant1	No-Hopping	2386.896	-53.78	2	5.06	48.54	Average	54	Pass
NVNT	2-DH1	2402	Ant1	No-Hopping	2390	-45.97	2	-	51.29	Peak	74	Pass
NVNT	2-DH1	2402	Ant1	No-Hopping	2390	-54.77	2	5.06	47.55	Average	54	Pass
NVNT	2-DH1	2480	Ant1	No-Hopping	2483.5	-45.2	2	-	52.06	Peak	74	Pass
NVNT	2-DH1	2480	Ant1	No-Hopping	2483.5	-53.96	2	5.06	48.36	Average	54	Pass
NVNT	2-DH1	2480	Ant1	No-Hopping	2499.976	-42.05	2	-	55.21	Peak	74	Pass
NVNT	2-DH1	2480	Ant1	No-Hopping	2497.504	-53.06	2	5.06	49.26	Average	54	Pass
NVNT	2-DH1	2480	Ant1	No-Hopping	2500	-43.6	2	-	53.66	Peak	74	Pass
NVNT	2-DH1	2480	Ant1	No-Hopping	2500	-54.21	2	5.06	48.11	Average	54	Pass
NVNT	3-DH1	2402	Ant1	No-Hopping	2310	-47.79	2	-	49.47	Peak	74	Pass
NVNT	3-DH1	2402	Ant1	No-Hopping	2310	-56.4	2	5.17	46.03	Average	54	Pass
NVNT	3-DH1	2402	Ant1	No-Hopping	2384.592	-41.96	2	-	55.3	Peak	74	Pass
NVNT	3-DH1	2402	Ant1	No-Hopping	2383.824	-53	2	5.17	49.43	Average	54	Pass
NVNT	3-DH1	2402	Ant1	No-Hopping	2390	-46.7	2	-	50.56	Peak	74	Pass
NVNT	3-DH1	2402	Ant1	No-Hopping	2390	-54.29	2	5.17	48.14	Average	54	Pass
NVNT	3-DH1	2480	Ant1	No-Hopping	2483.5	-45.35	2	-	51.91	Peak	74	Pass
NVNT	3-DH1	2480	Ant1	No-Hopping	2483.5	-54.56	2	5.06	47.76	Average	54	Pass
NVNT	3-DH1	2480	Ant1	No-Hopping	2496.784	-40.97	2	-	56.29	Peak	74	Pass
NVNT	3-DH1	2480	Ant1	No-Hopping	2495.992	-53.02	2	5.06	49.3	Average	54	Pass
NVNT	3-DH1	2480	Ant1	No-Hopping	2500	-44.96	2	-	52.3	Peak	74	Pass
NVNT	3-DH1	2480	Ant1	No-Hopping	2500	-53.89	2	5.06	48.43	Average	54	Pass

Test Graphs

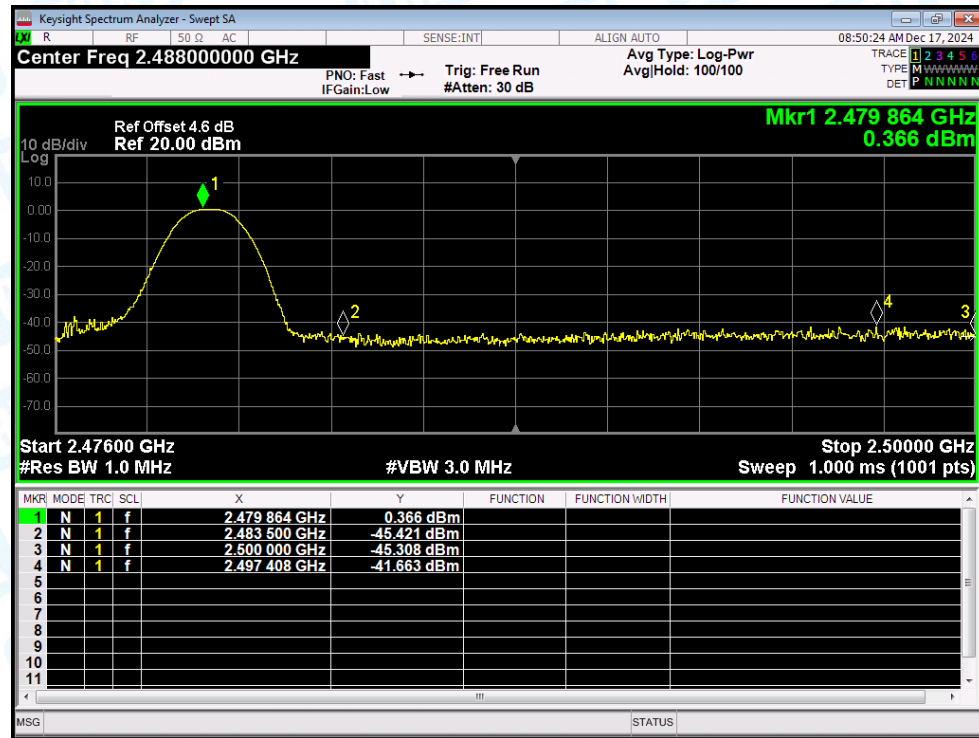
Restrict Band NVNT 1-DH1 2402MHz Ant1 No-Hopping Peak



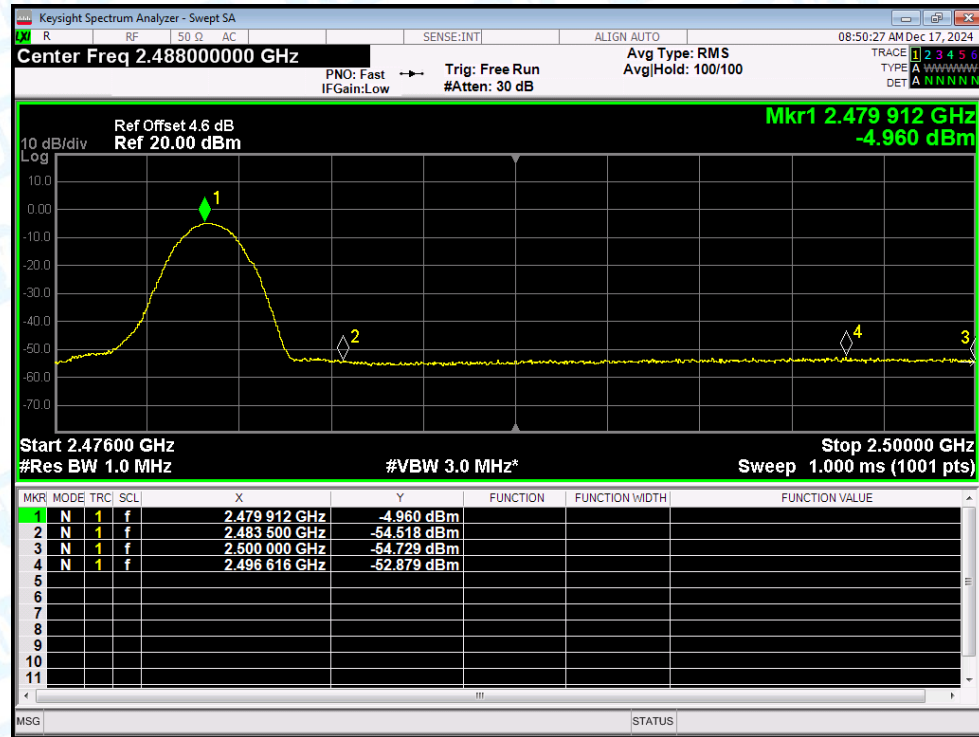
Restrict Band NVNT 1-DH1 2402MHz Ant1 No-Hopping Average



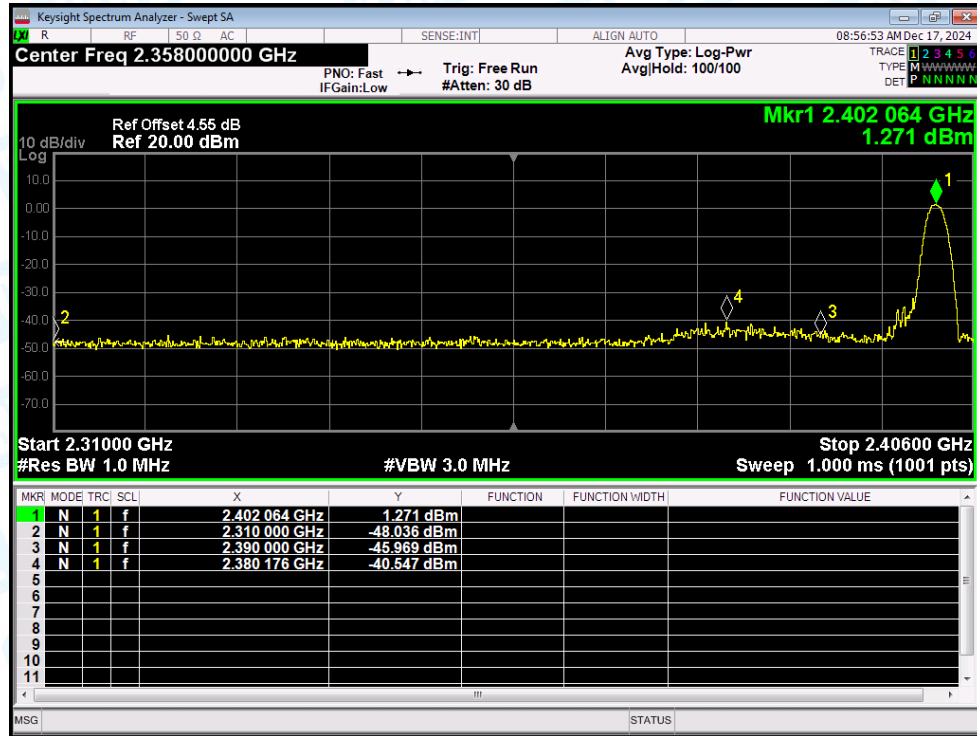
Restrict Band NVNT 1-DH1 2480MHz Ant1 No-Hopping Peak



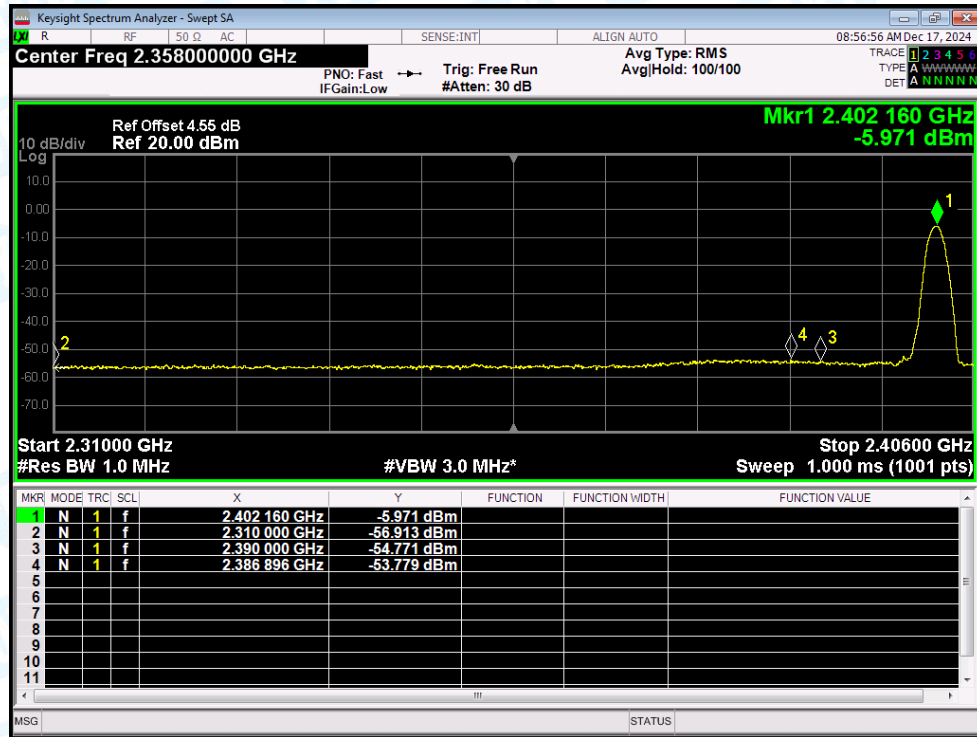
Restrict Band NVNT 1-DH1 2480MHz Ant1 No-Hopping Average



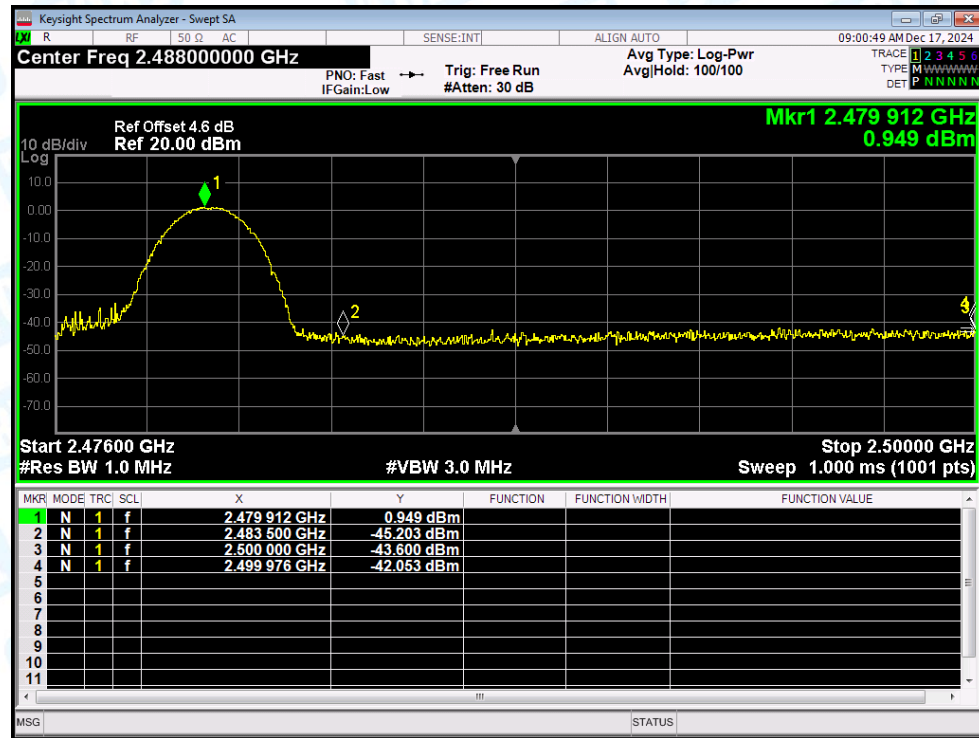
Restrict Band NVNT 2-DH1 2402MHz Ant1 No-Hopping Peak



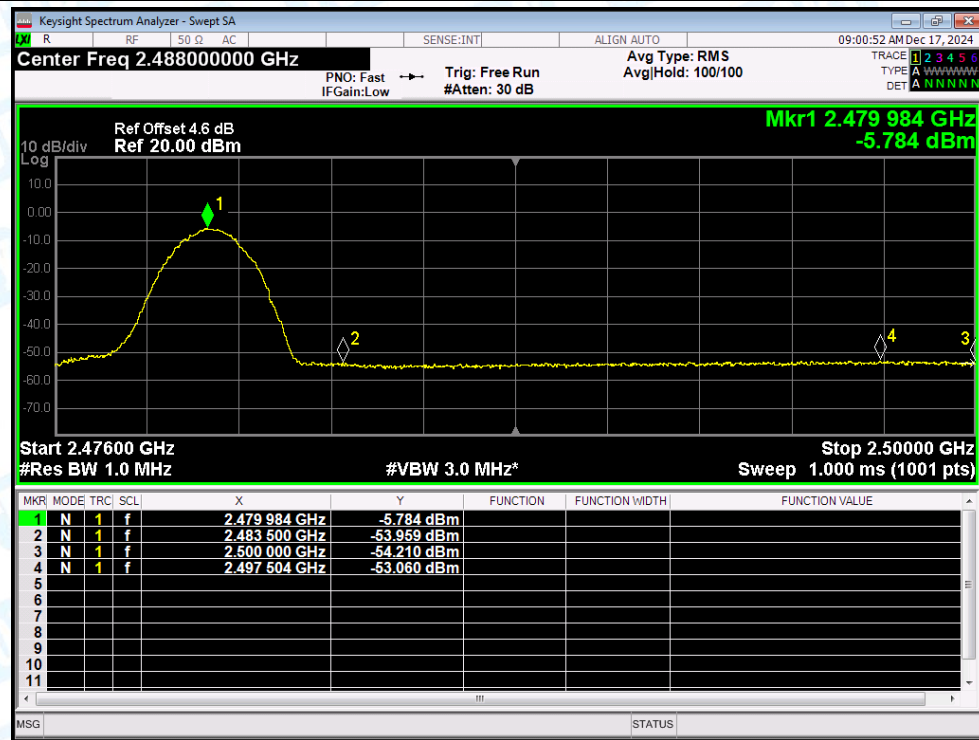
Restrict Band NVNT 2-DH1 2402MHz Ant1 No-Hopping Average



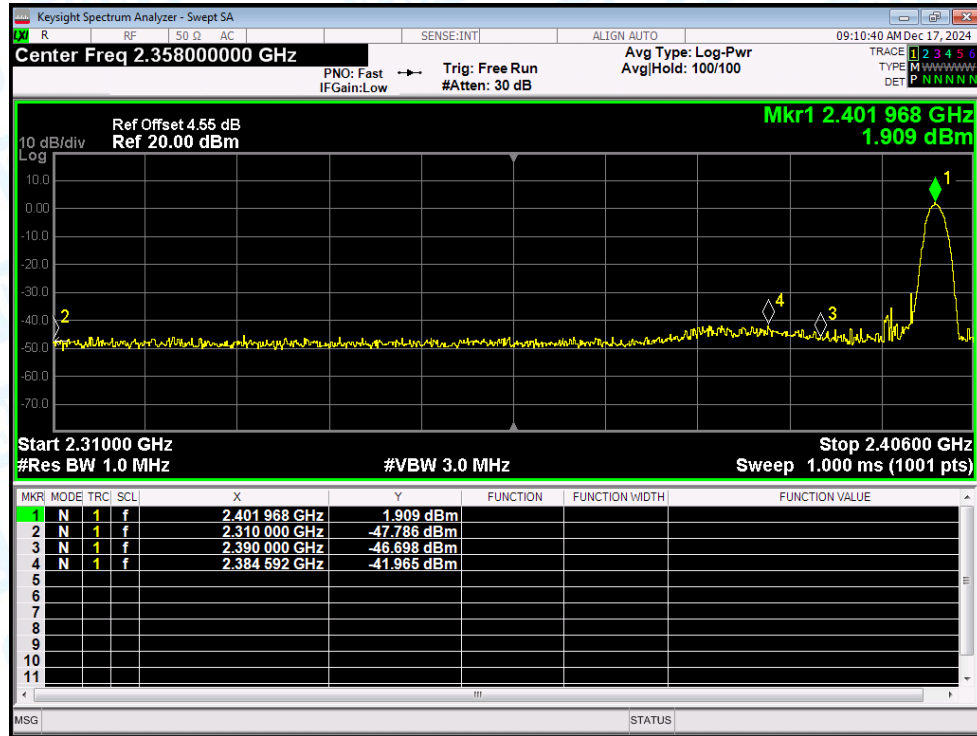
Restrict Band NVNT 2-DH1 2480MHz Ant1 No-Hopping Peak



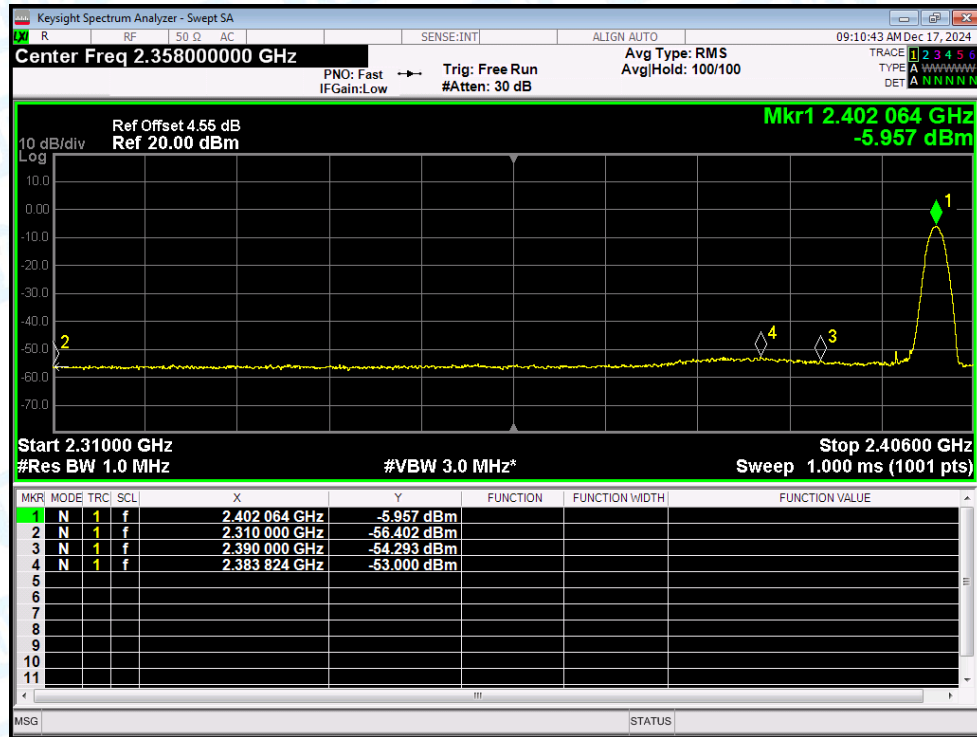
Restrict Band NVNT 2-DH1 2480MHz Ant1 No-Hopping Average



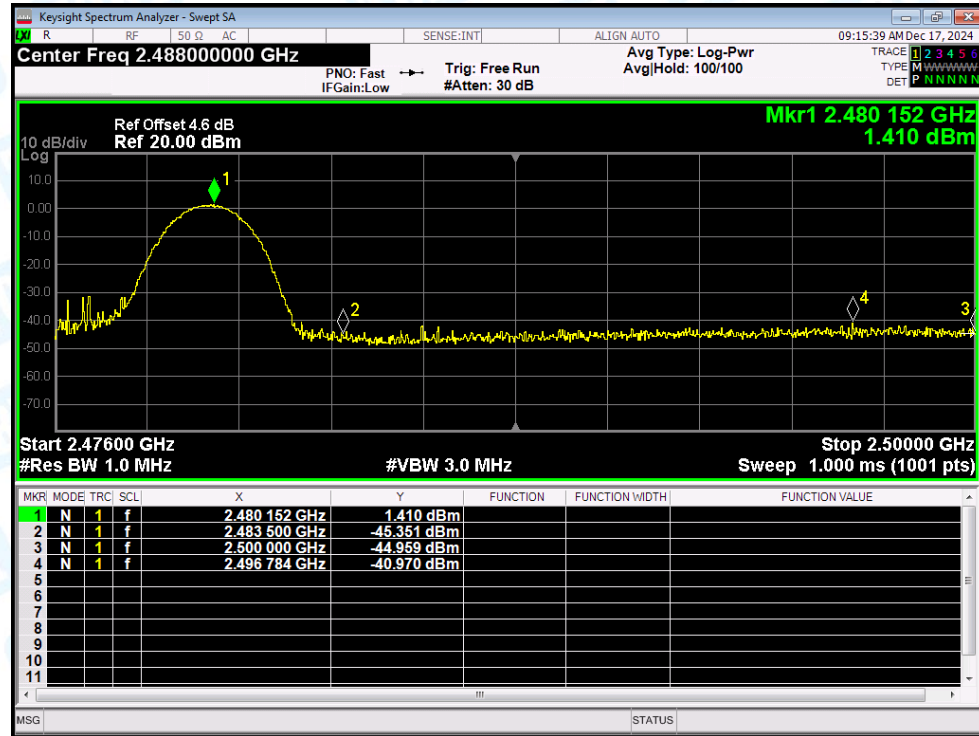
Restrict Band NVNT 3-DH1 2402MHz Ant1 No-Hopping Peak



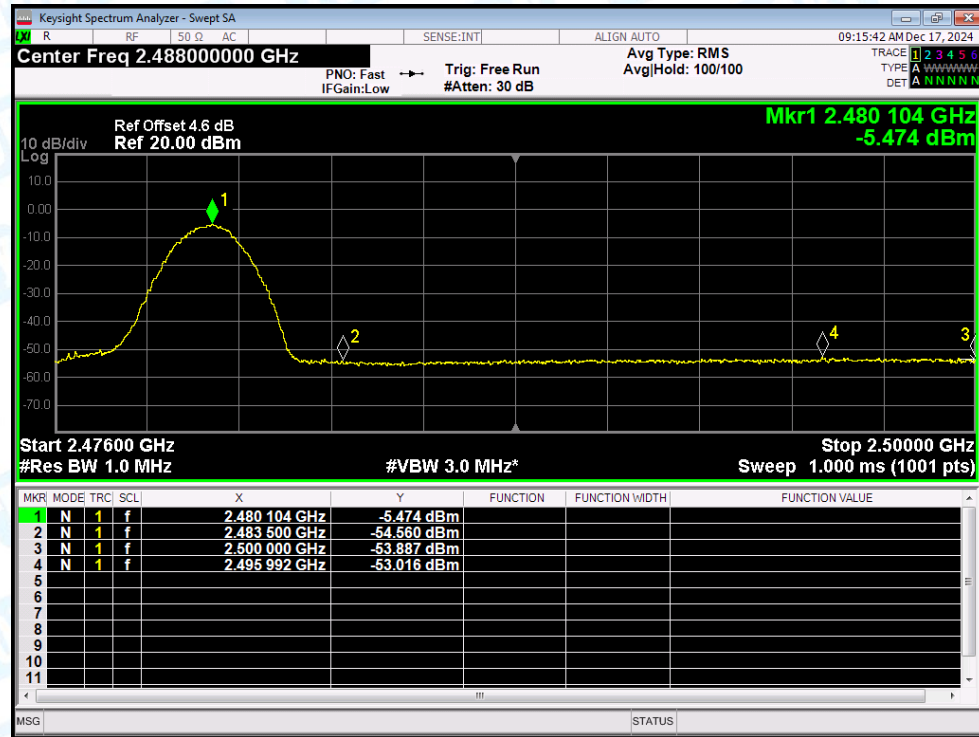
Restrict Band NVNT 3-DH1 2402MHz Ant1 No-Hopping Average



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



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

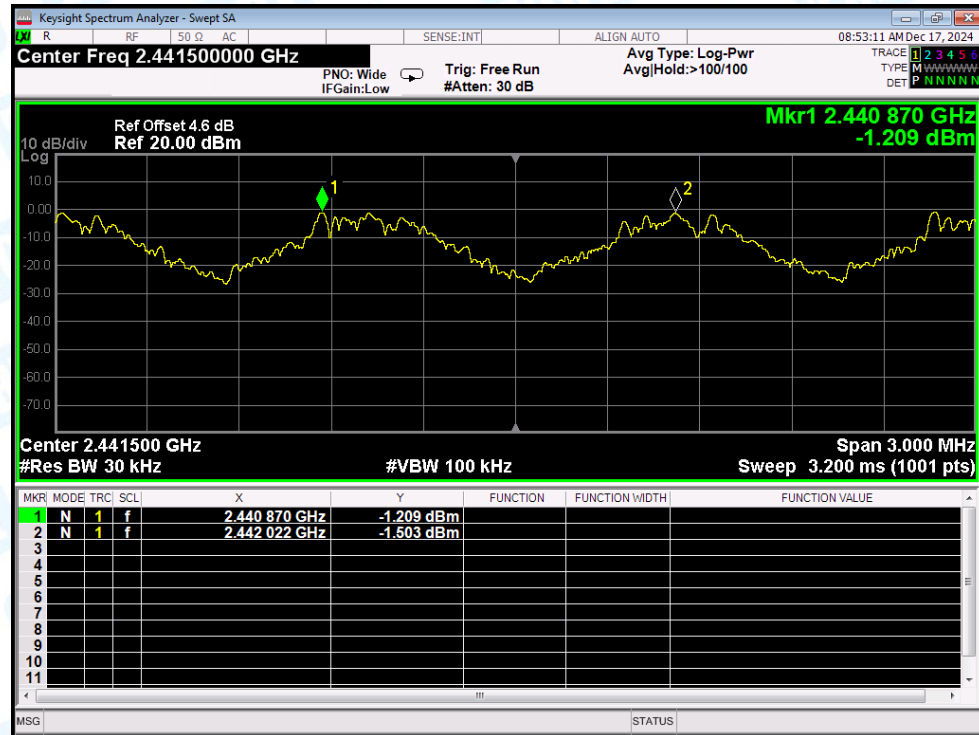


9. Carrier Frequencies Separation

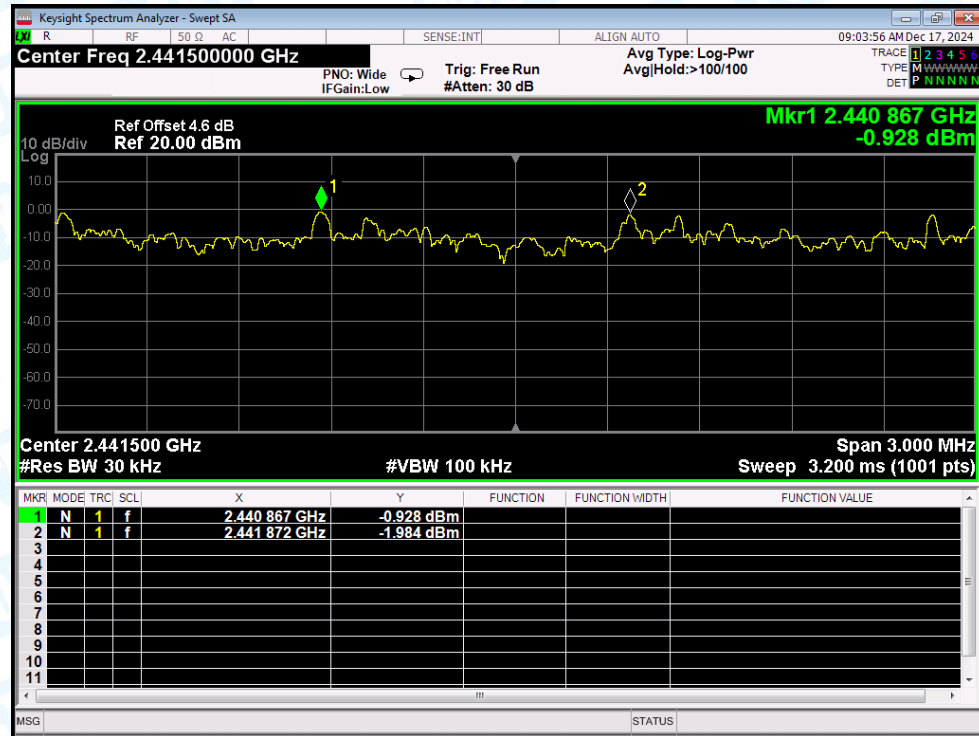
Condition	Mode	Antenna	Hopping Freq1 (MHz)	Hopping Freq2 (MHz)	HFS (MHz)	Limit (MHz)	Verdict
NVNT	1-DH1	Ant1	2440.87	2442.022	1.152	0.587	Pass
NVNT	2-DH1	Ant1	2440.867	2441.872	1.005	0.833	Pass
NVNT	3-DH1	Ant1	2441.02	2442.028	1.008	0.8	Pass

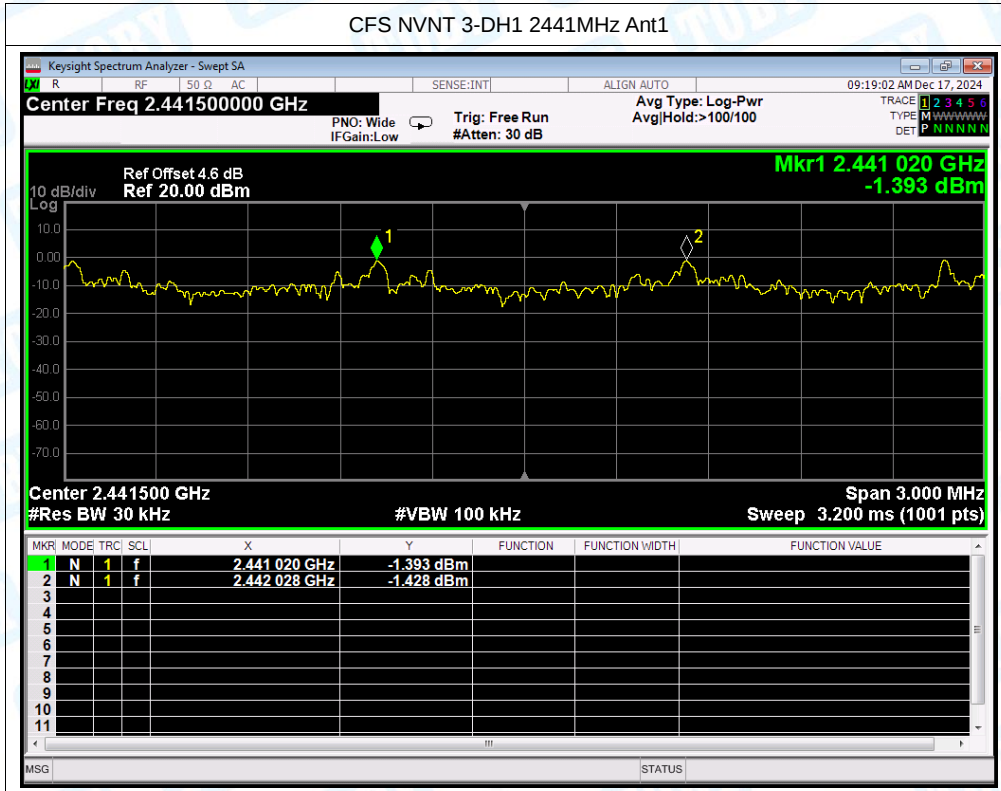
Test Graphs

CFS NVNT 1-DH1 2441MHz Ant1



CFS NVNT 2-DH1 2441MHz Ant1



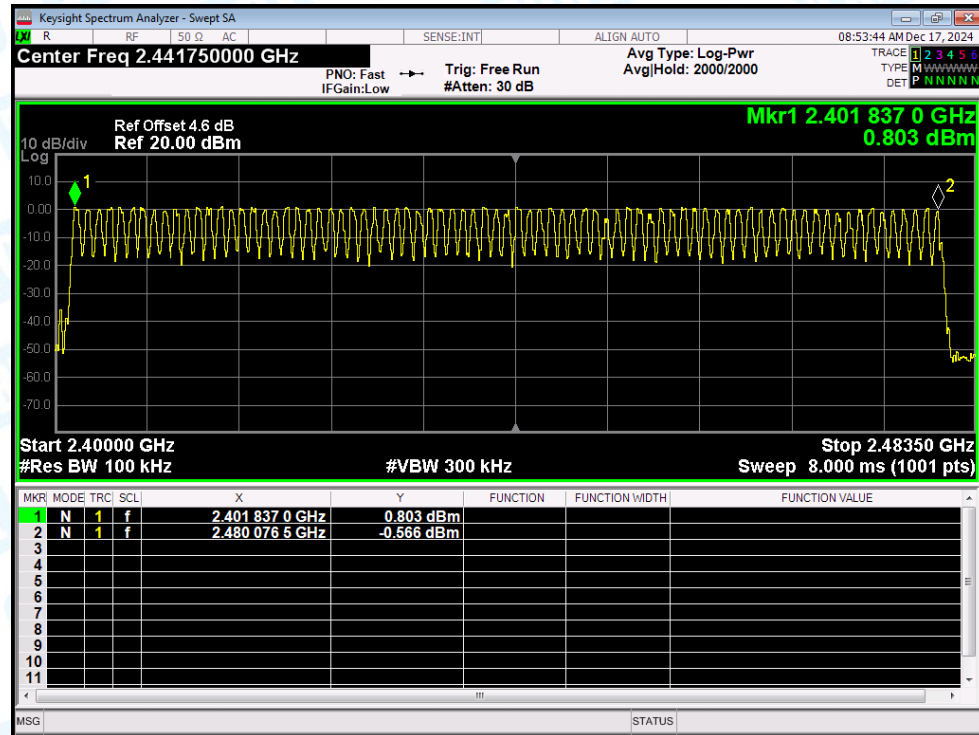


10. Number of Hopping Channel

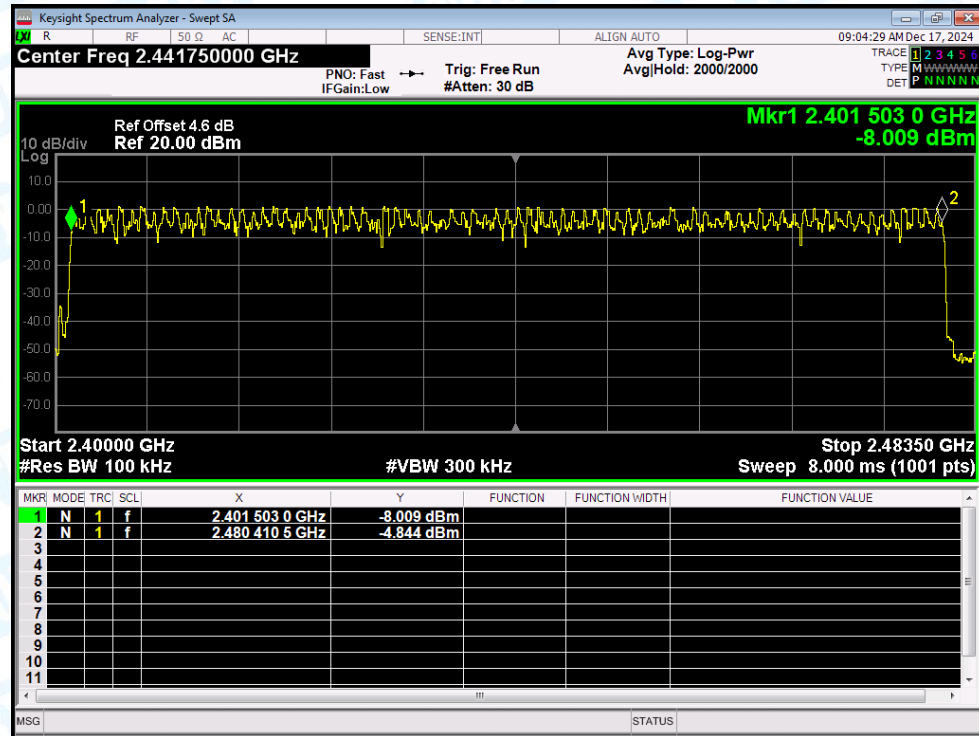
Condition	Mode	Antenna	Hopping Number	Limit	Verdict
NVNT	1-DH1	Ant1	79	15	Pass
NVNT	2-DH1	Ant1	79	15	Pass
NVNT	3-DH1	Ant1	79	15	Pass

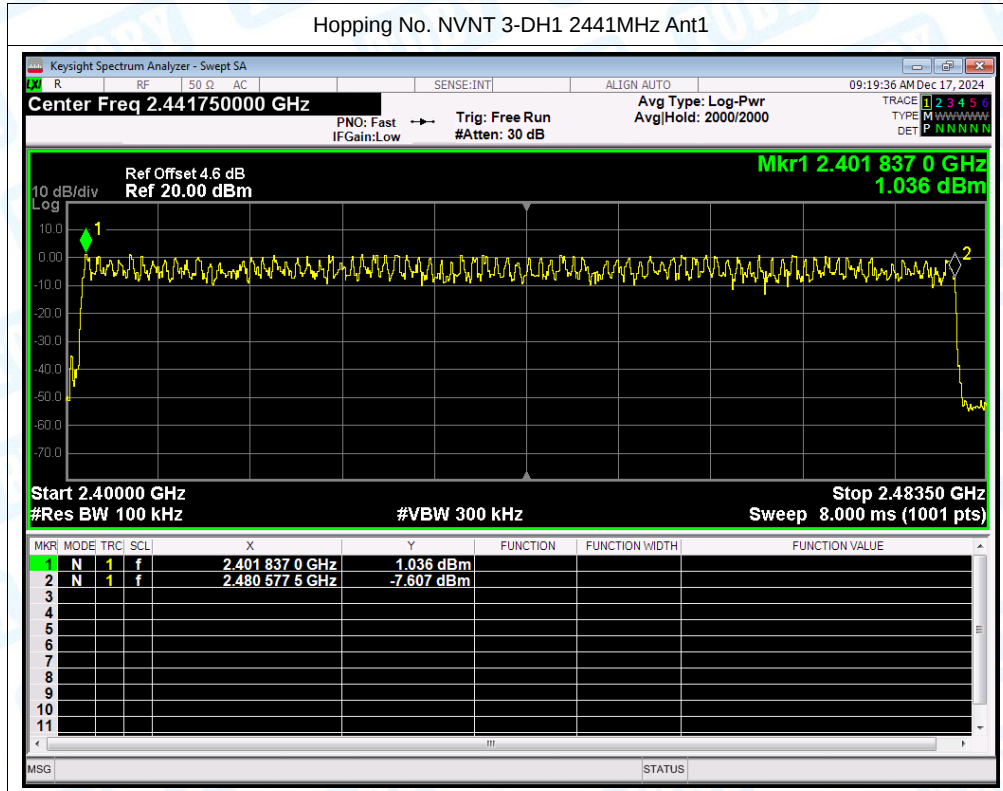
Test Graphs

Hopping No. NVNT 1-DH1 2441MHz Ant1



Hopping No. NVNT 2-DH1 2441MHz Ant1



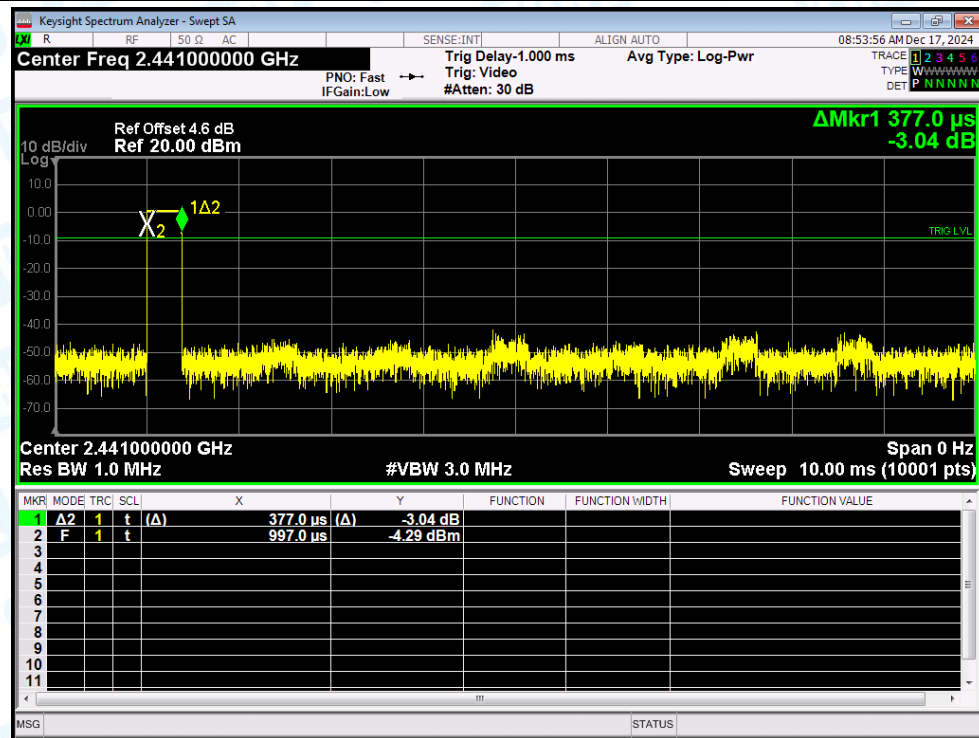


11. Dwell Time

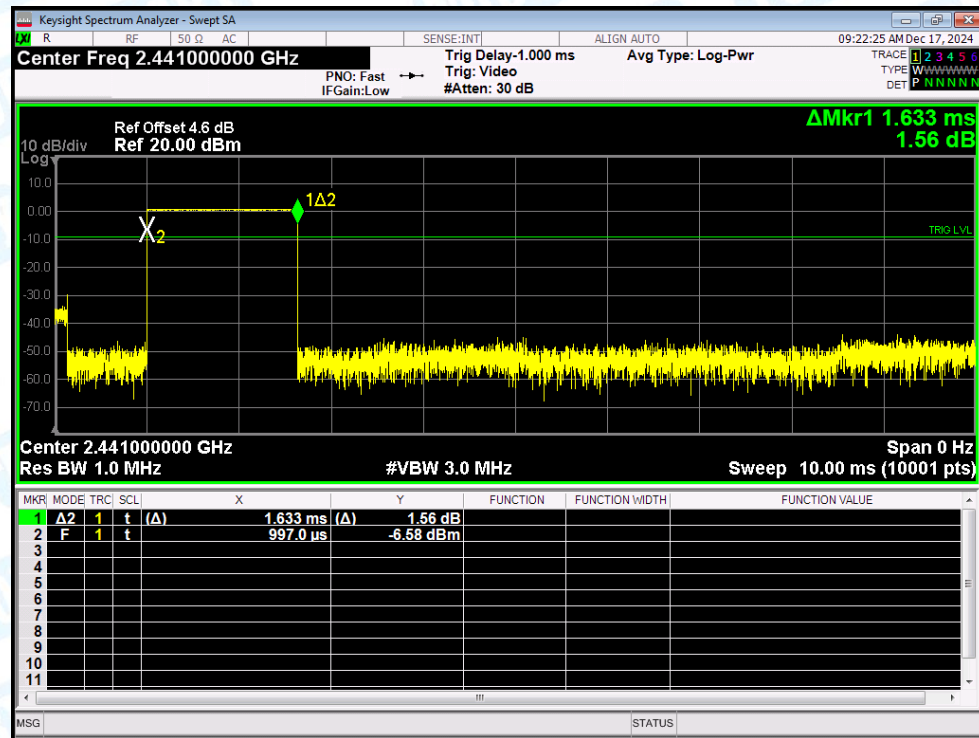
Condition	Mode	Frequency (MHz)	Antenna	Pulse Time (ms)	Total Dwell Time (ms)	Period Time (ms)	Limit (ms)	Verdict
NVNT	1-DH1	2441	Ant1	0.377	120.64	31600	400	Pass
NVNT	1-DH3	2441	Ant1	1.633	261.28	31600	400	Pass
NVNT	1-DH5	2441	Ant1	2.881	307.307	31600	400	Pass
NVNT	2-DH1	2441	Ant1	0.386	123.52	31600	400	Pass
NVNT	2-DH3	2441	Ant1	1.638	262.08	31600	400	Pass
NVNT	2-DH5	2441	Ant1	2.887	307.947	31600	400	Pass
NVNT	3-DH1	2441	Ant1	0.388	124.16	31600	400	Pass
NVNT	3-DH3	2441	Ant1	1.637	261.92	31600	400	Pass
NVNT	3-DH5	2441	Ant1	2.888	308.053	31600	400	Pass

Test Graphs

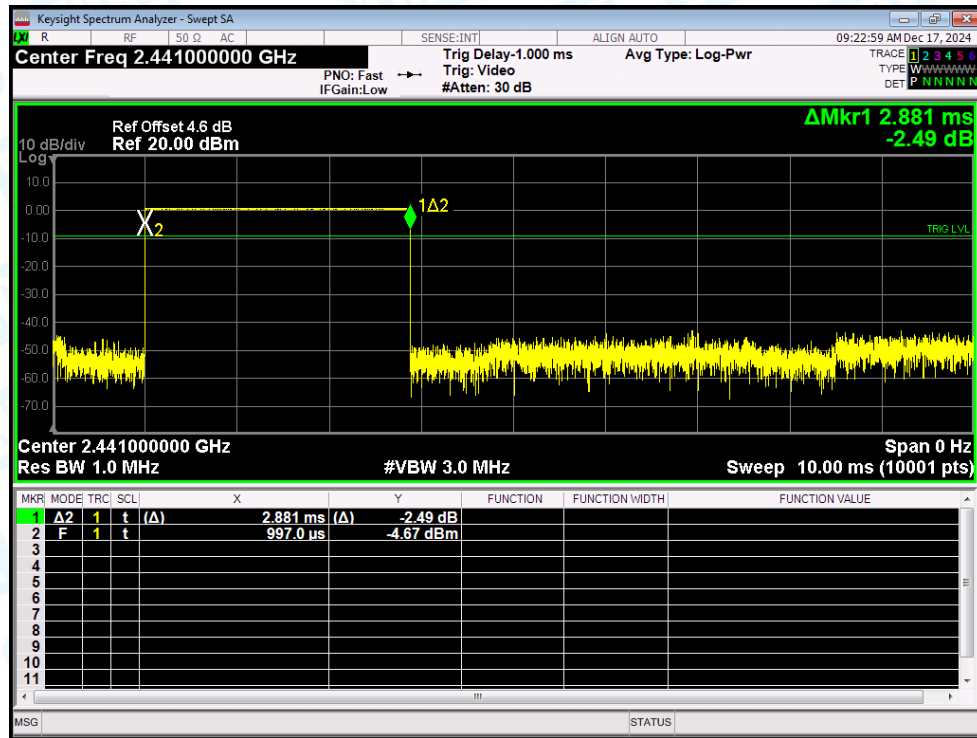
Dwell NVNT 1-DH1 2441MHz Ant1



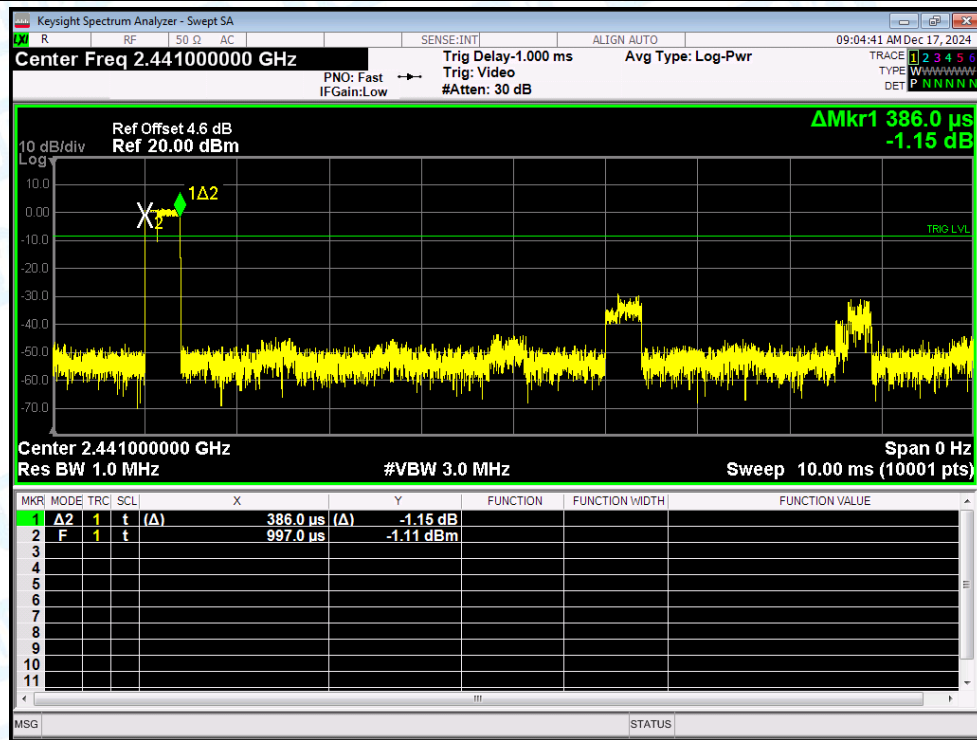
Dwell NVNT 1-DH3 2441MHz Ant1



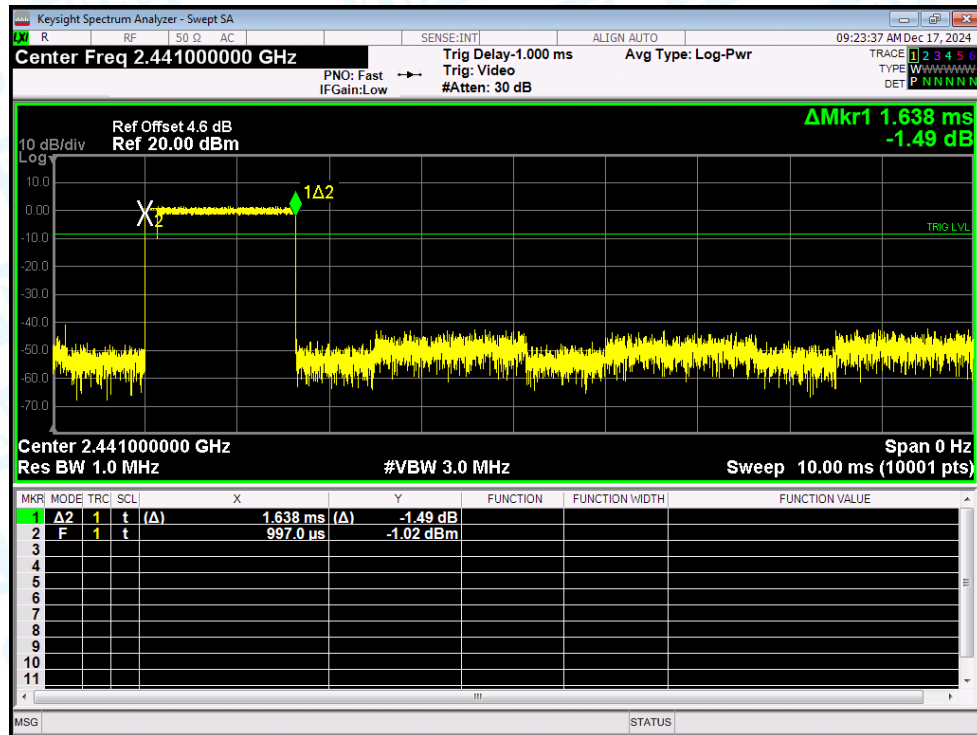
Dwell NVNT 1-DH5 2441MHz Ant1



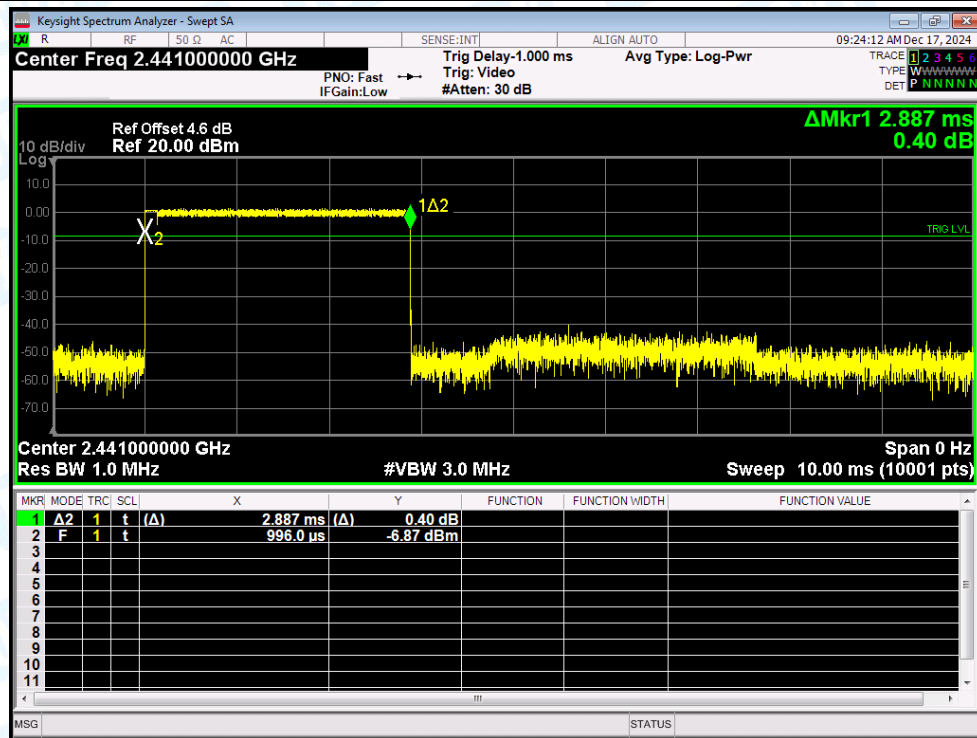
Dwell NVNT 2-DH1 2441MHz Ant1



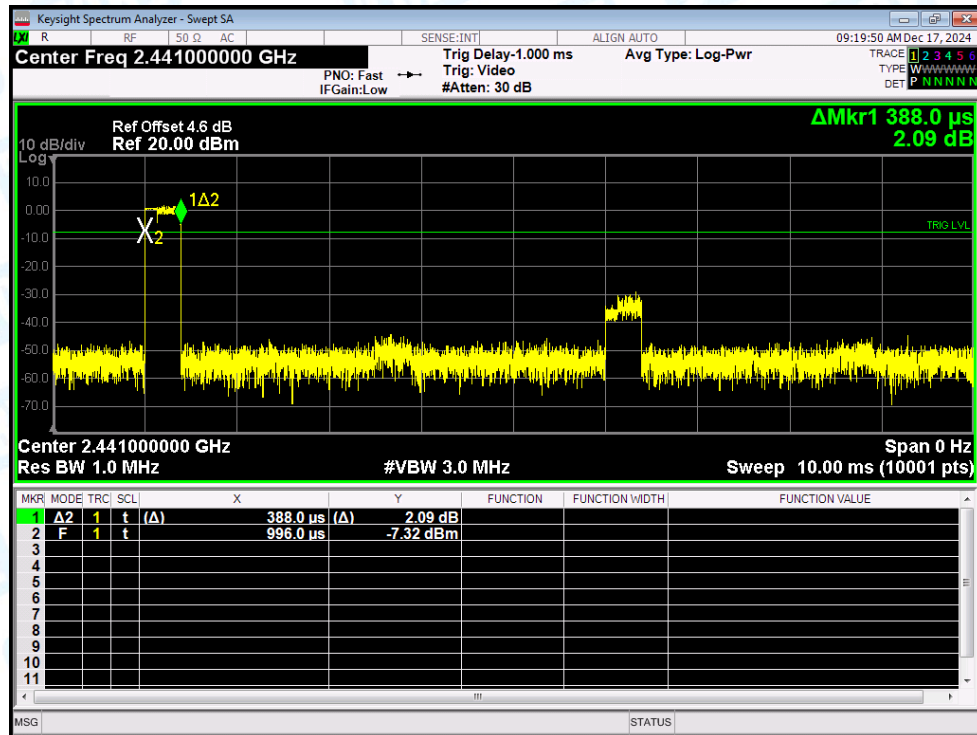
Dwell NVNT 2-DH3 2441MHz Ant1



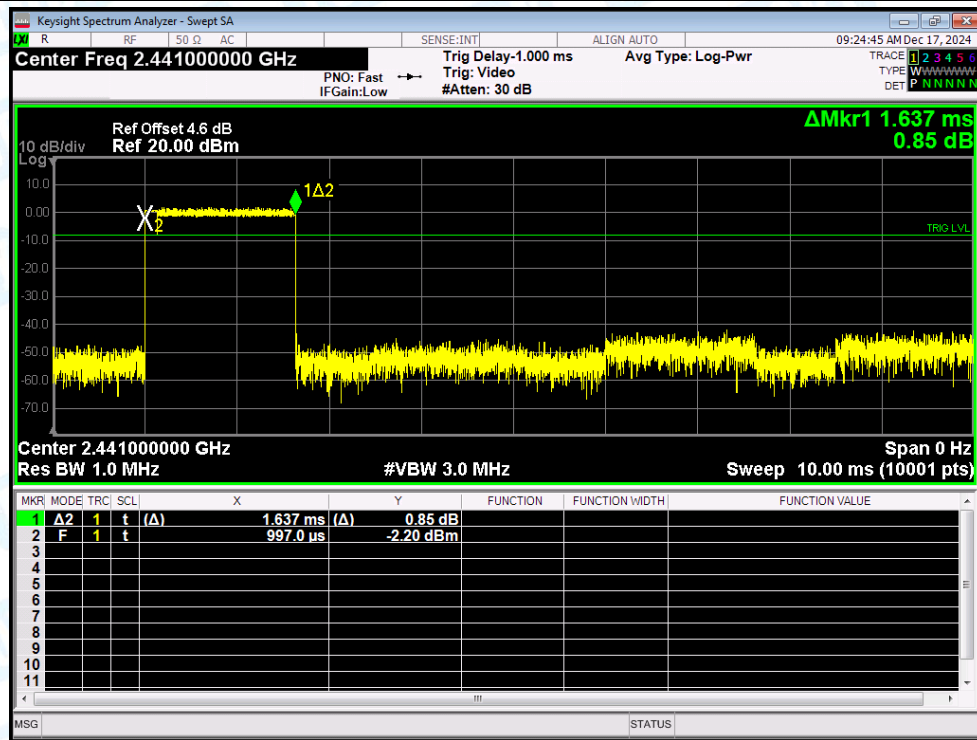
Dwell NVNT 2-DH5 2441MHz Ant1

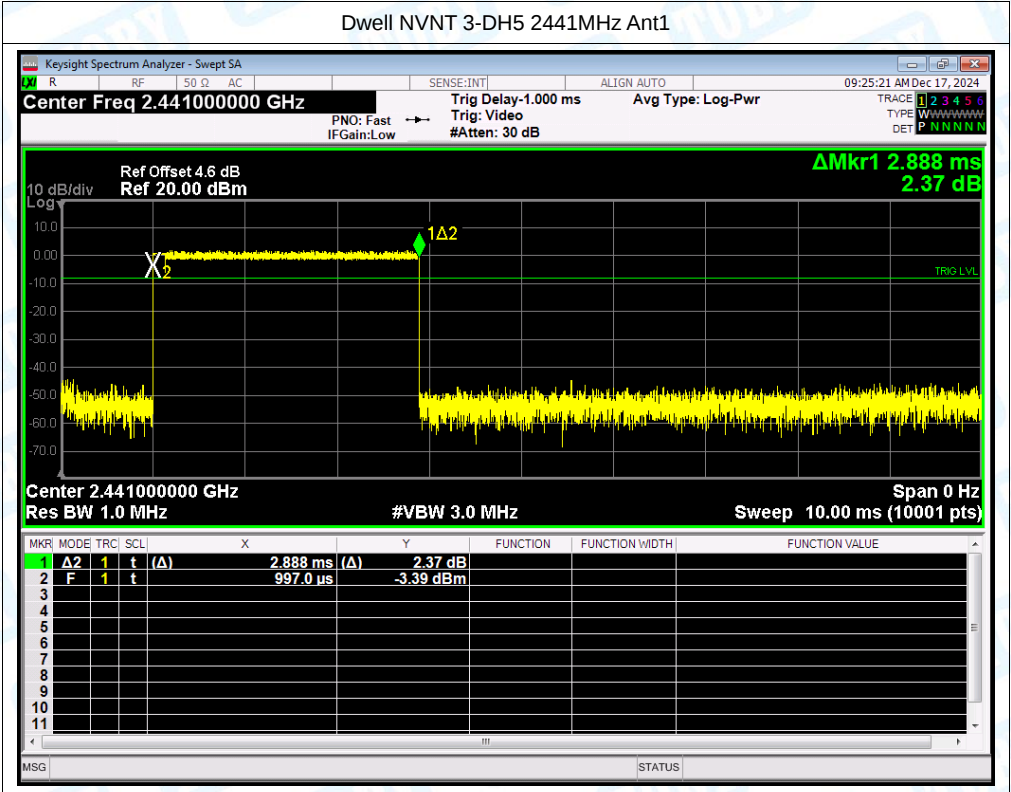


Dwell NVNT 3-DH1 2441MHz Ant1



Dwell NVNT 3-DH3 2441MHz Ant1





--- END OF REPORT ---