

RF Test Data for Bluetooth (Conducted Measurements)

General Description of EUT	
Product Name:	Helmet Bluetooth Headset
Test Model:	X7
Sample ID:	HC-C-202410-0205-02-01#
Environmental Conditions	
Temperature:	25℃
Relative Humidity:	43%
Test Voltage:	DC 3.7V
Test Engineer:	Rick Chen
Note: For a more detailed features description, please refer to the report TBR-C-202410-0205-19 The report only show the worst case data.	

Contents

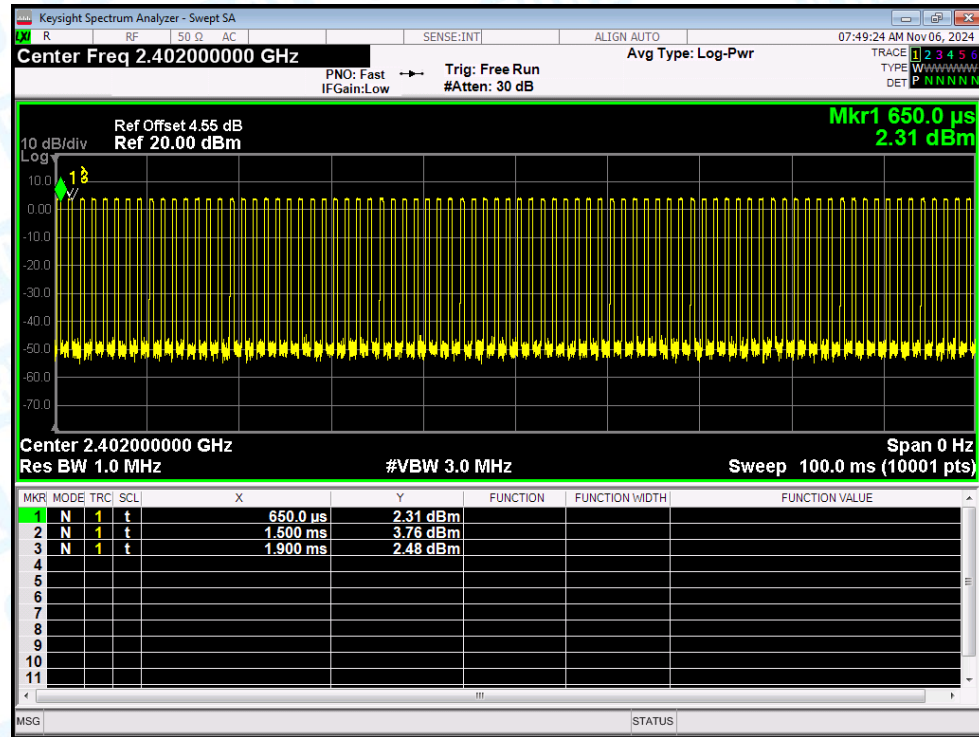
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1.Duty Cycle

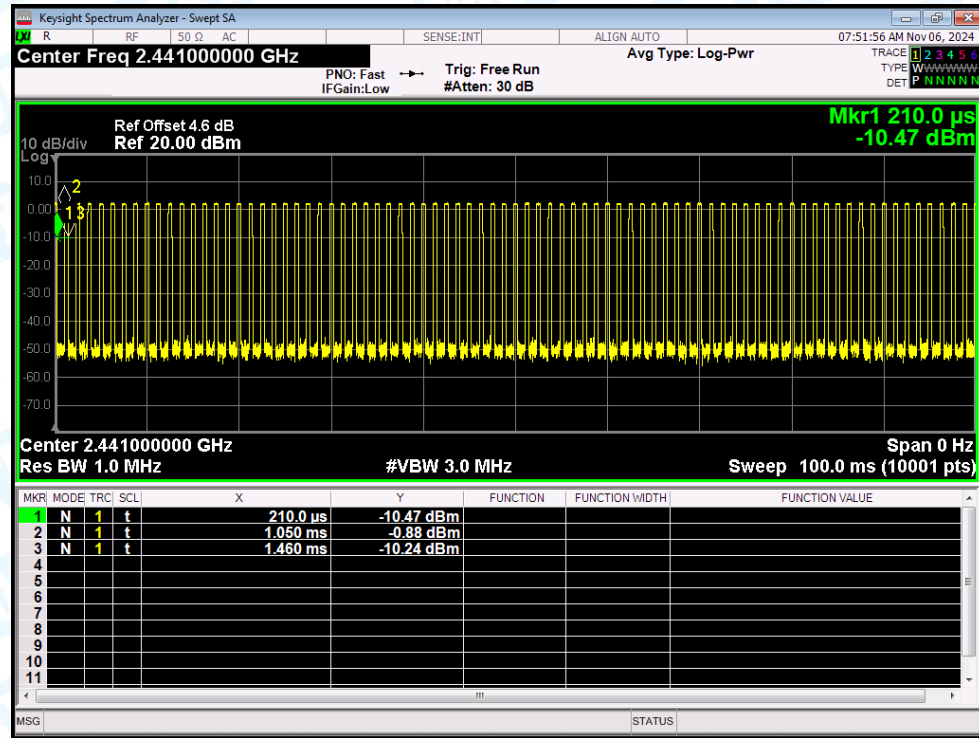
Condition	Mode	Frequency (MHz)	Antenna	Duty Cycle (%)	Correction Factor (dB)	1/T (kHz)
NVNT	1-DH1	2402	Ant1	32	4.95	2.5
NVNT	1-DH1	2441	Ant1	32.8	4.84	2.44
NVNT	1-DH1	2480	Ant1	32	4.95	2.5
NVNT	2-DH1	2402	Ant1	33.6	4.74	2.38
NVNT	2-DH1	2441	Ant1	32.8	4.84	2.44
NVNT	2-DH1	2480	Ant1	33.6	4.74	2.38
NVNT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

Test Graphs

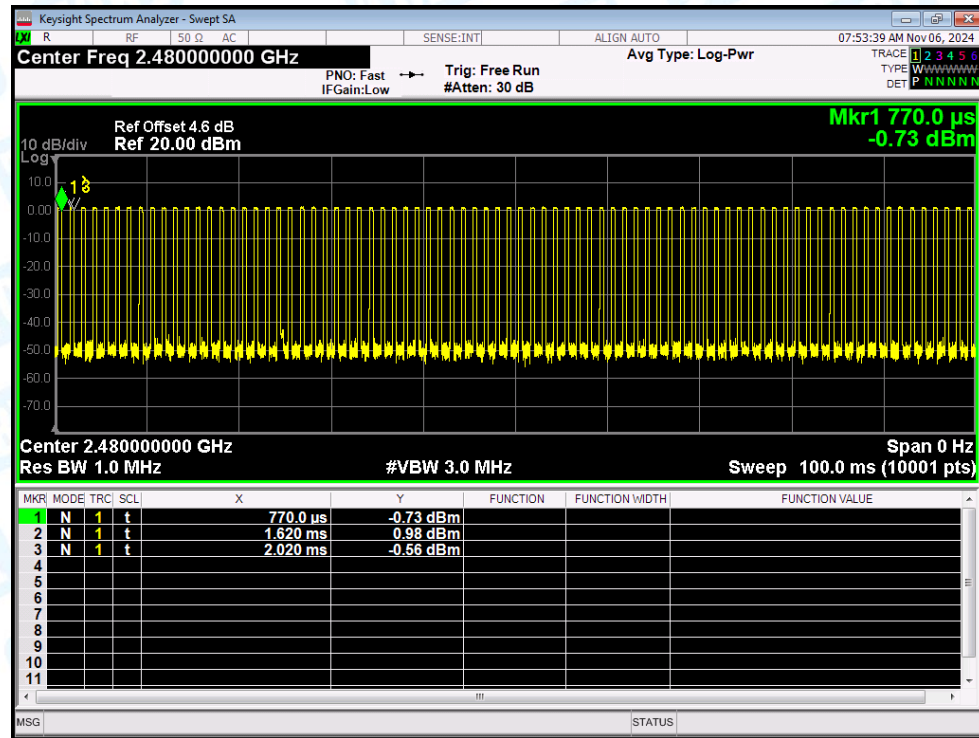
Duty Cycle NVNT 1-DH1 2402MHz Ant1



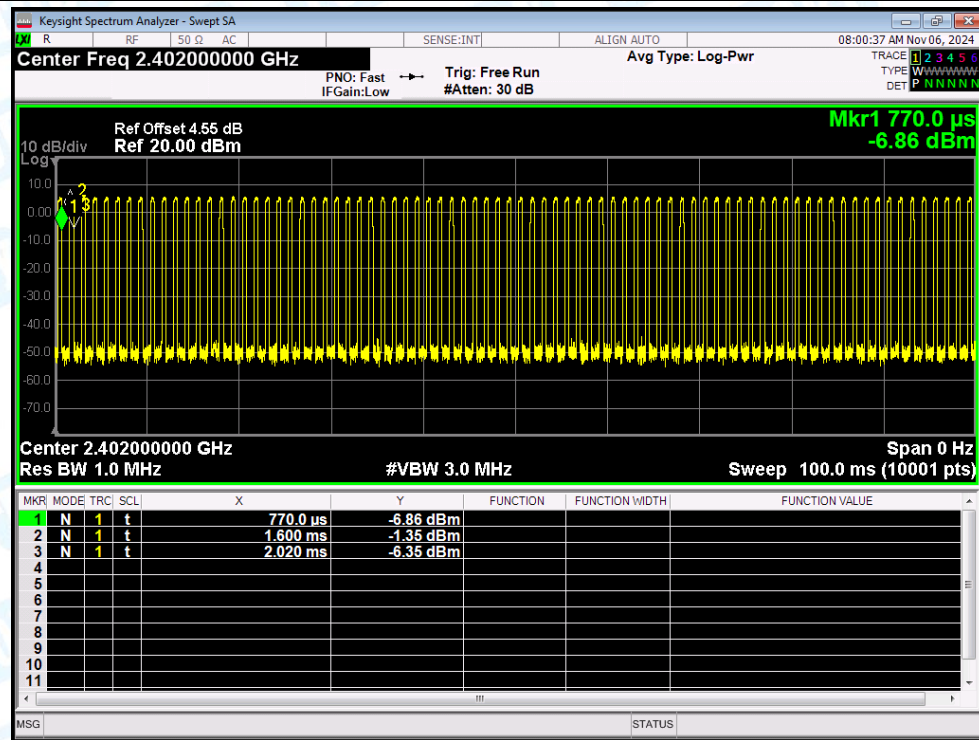
Duty Cycle NVNT 1-DH1 2441MHz Ant1



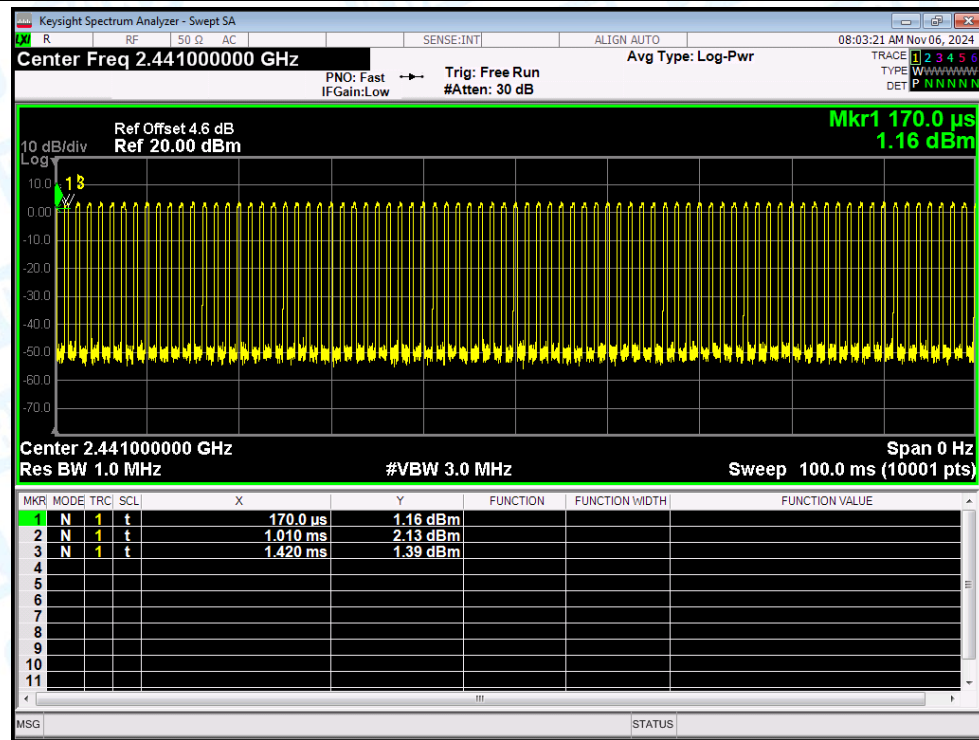
Duty Cycle NVNT 1-DH1 2480MHz Ant1



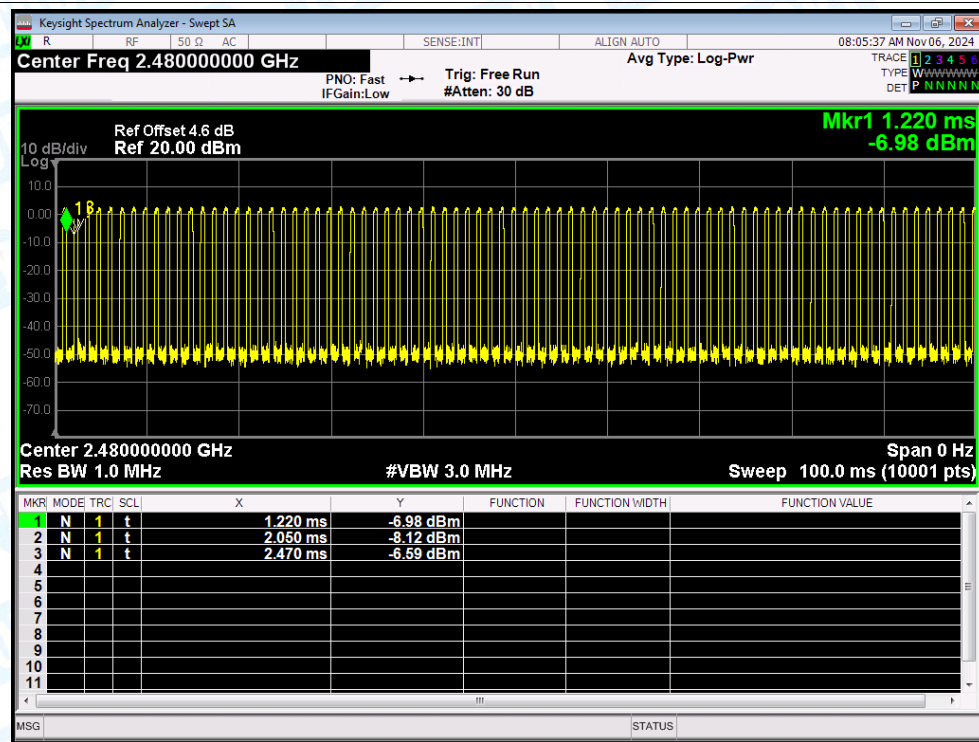
Duty Cycle NVNT 2-DH1 2402MHz Ant1



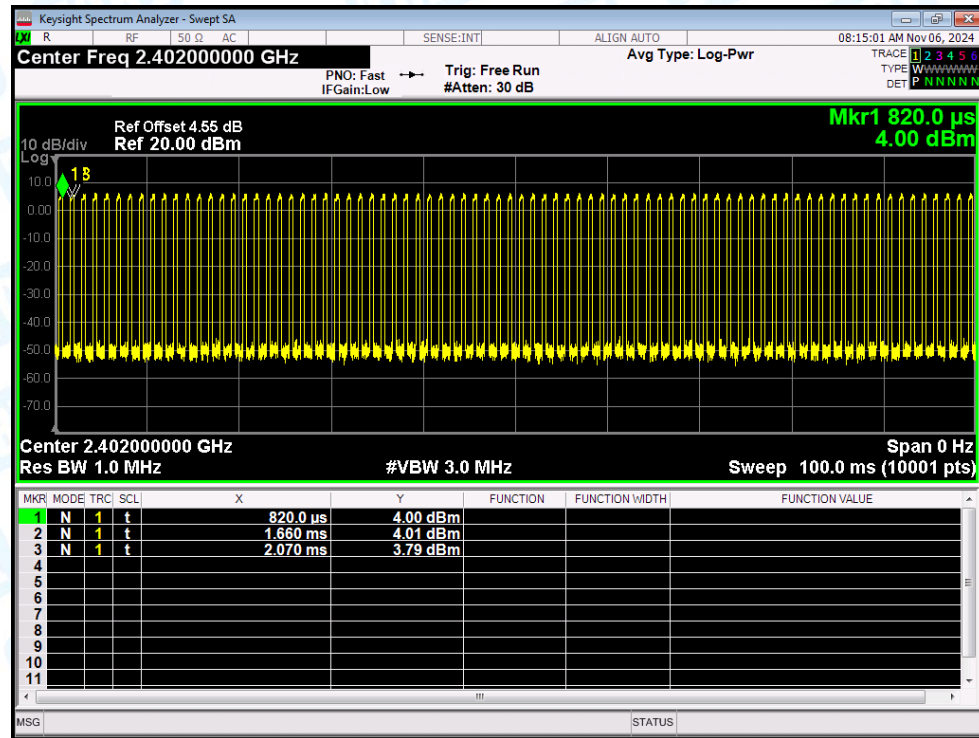
Duty Cycle NVNT 2-DH1 2441MHz Ant1



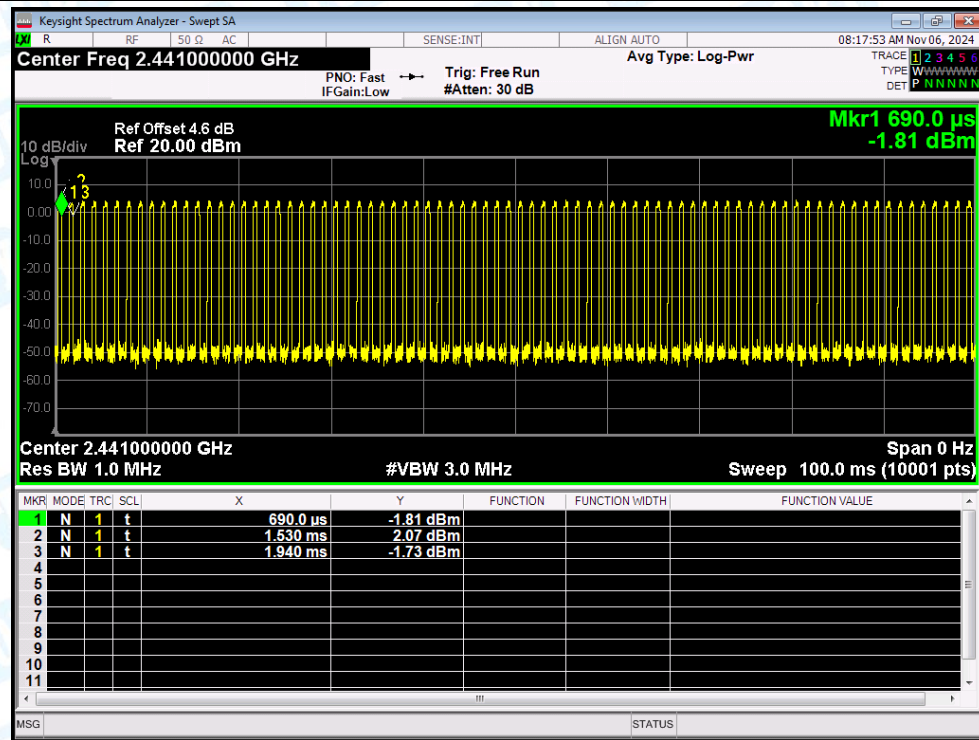
Duty Cycle NVNT 2-DH1 2480MHz Ant1

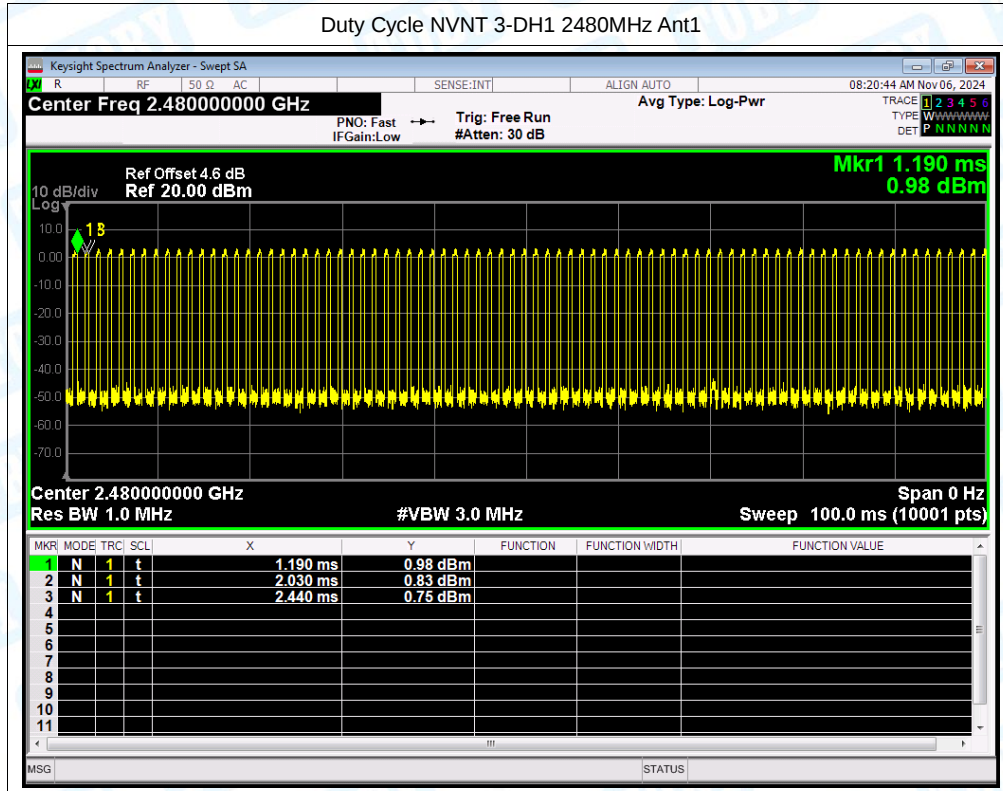


Duty Cycle NVNT 3-DH1 2402MHz Ant1



Duty Cycle NVNT 3-DH1 2441MHz Ant1



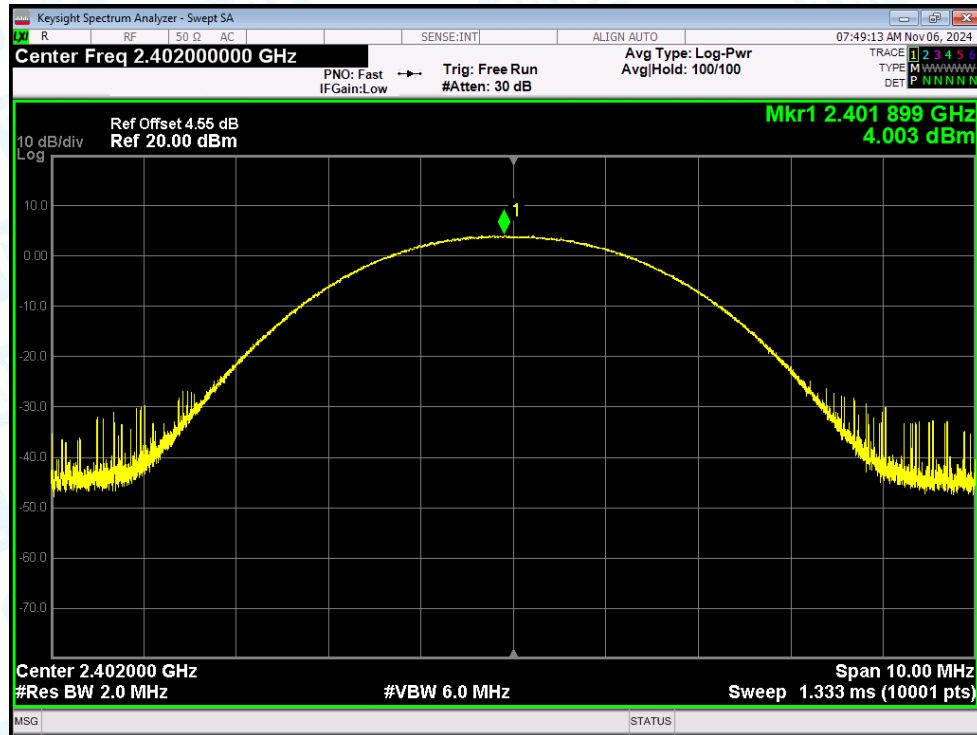


2.Maximum Conducted Output Power

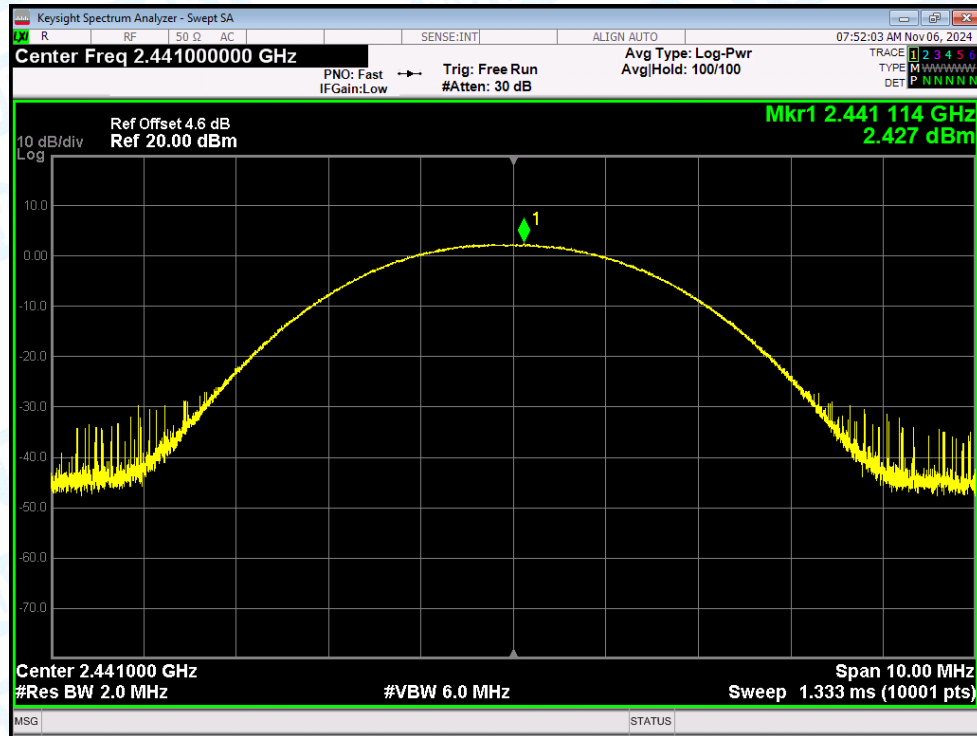
Condition	Mode	Frequency (MHz)	Antenna	Conducted Power (dBm)	Limit (dBm)	Verdict
NVNT	1-DH1	2402	Ant1	4.003	21	Pass
NVNT	1-DH1	2441	Ant1	2.427	21	Pass
NVNT	1-DH1	2480	Ant1	1.24	21	Pass
NVNT	2-DH1	2402	Ant1	5.882	21	Pass
NVNT	2-DH1	2441	Ant1	4.049	21	Pass
NVNT	2-DH1	2480	Ant1	2.994	21	Pass
NVNT	3-DH1	2402	Ant1	6.521	21	Pass
NVNT	3-DH1	2441	Ant1	4.721	21	Pass
NVNT	3-DH1	2480	Ant1	3.499	21	Pass

Test Graphs

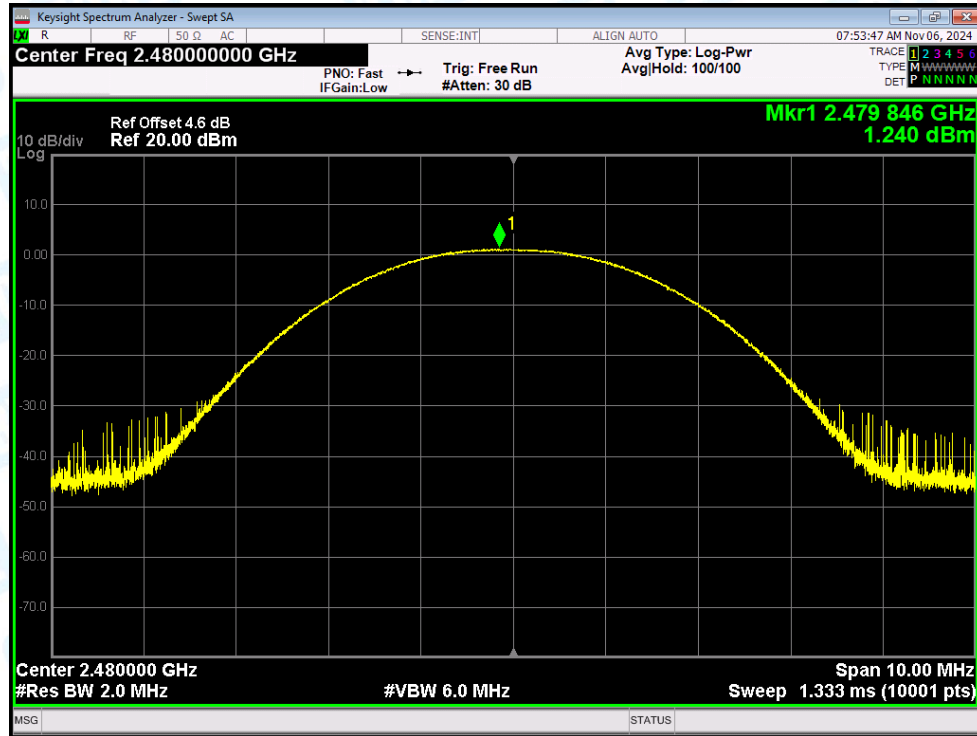
Power NVNT 1-DH1 2402MHz Ant1



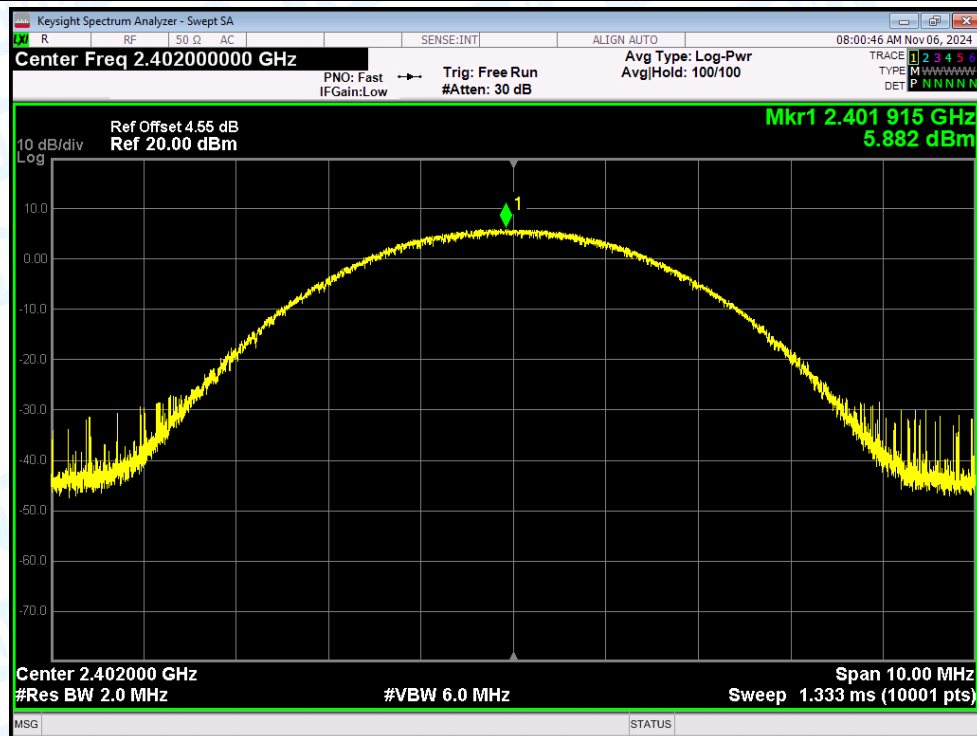
Power NVNT 1-DH1 2441MHz Ant1



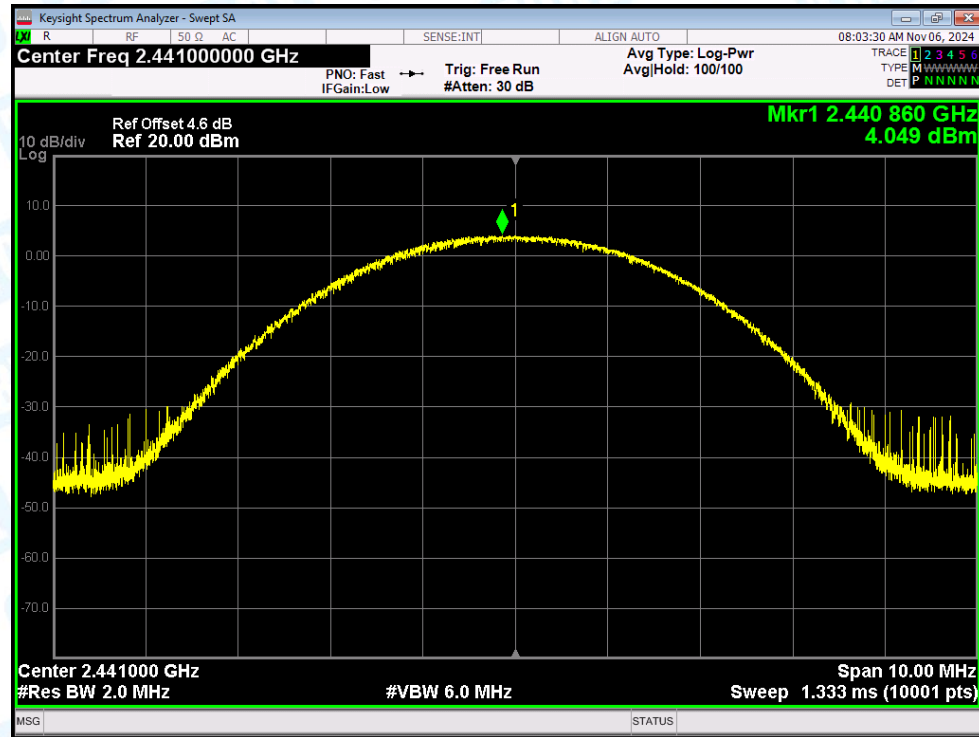
Power NVNT 1-DH1 2480MHz Ant1



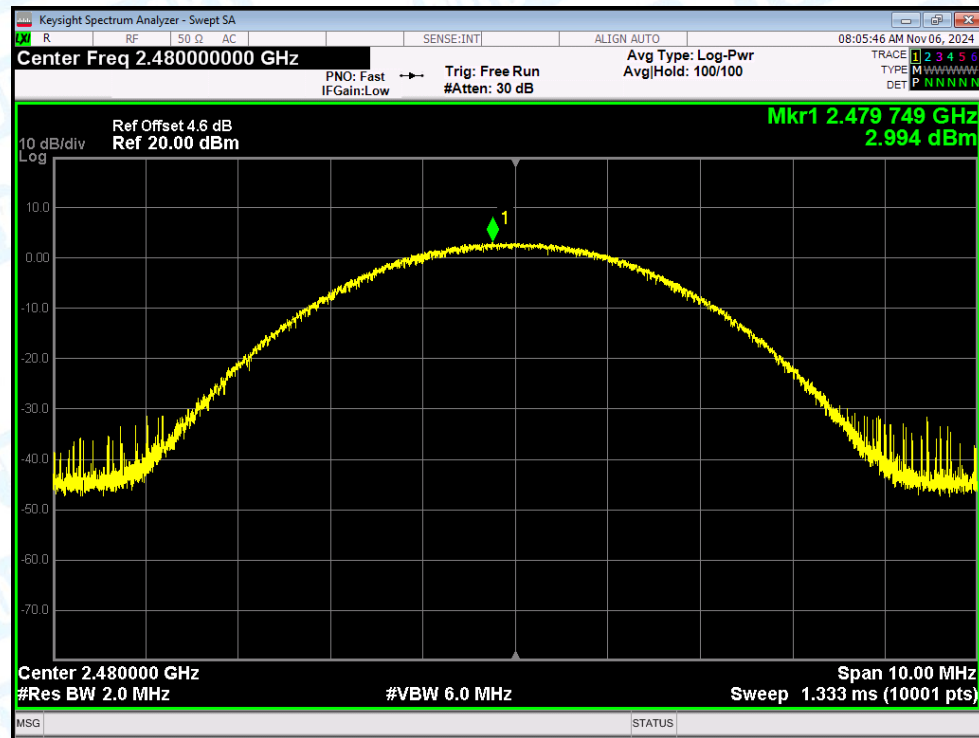
Power NVNT 2-DH1 2402MHz Ant1



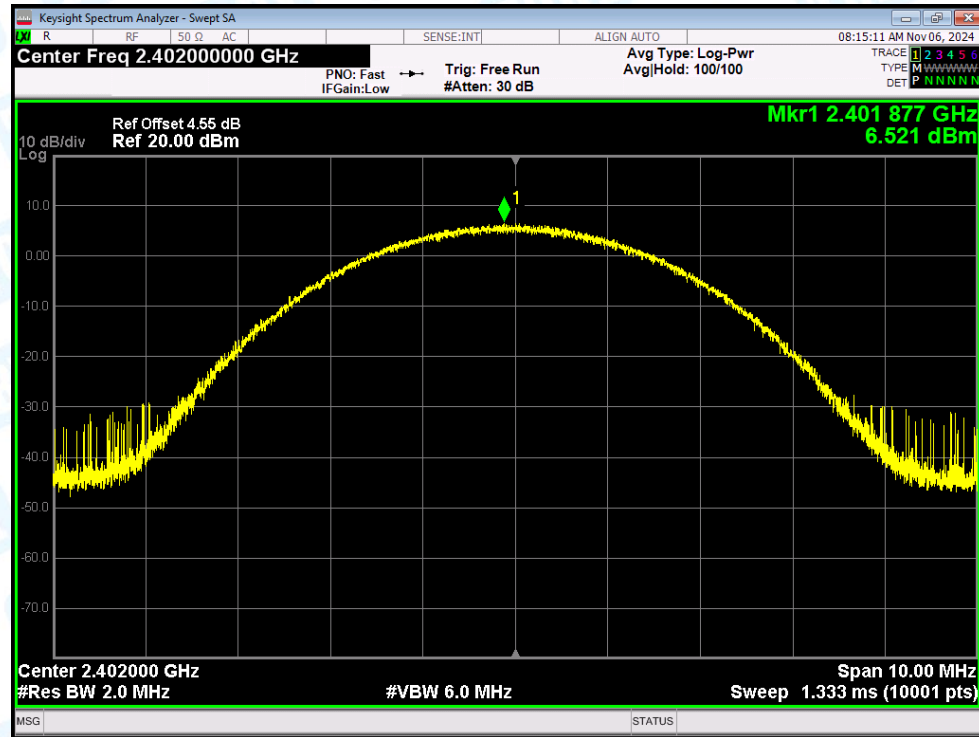
Power NVNT 2-DH1 2441MHz Ant1



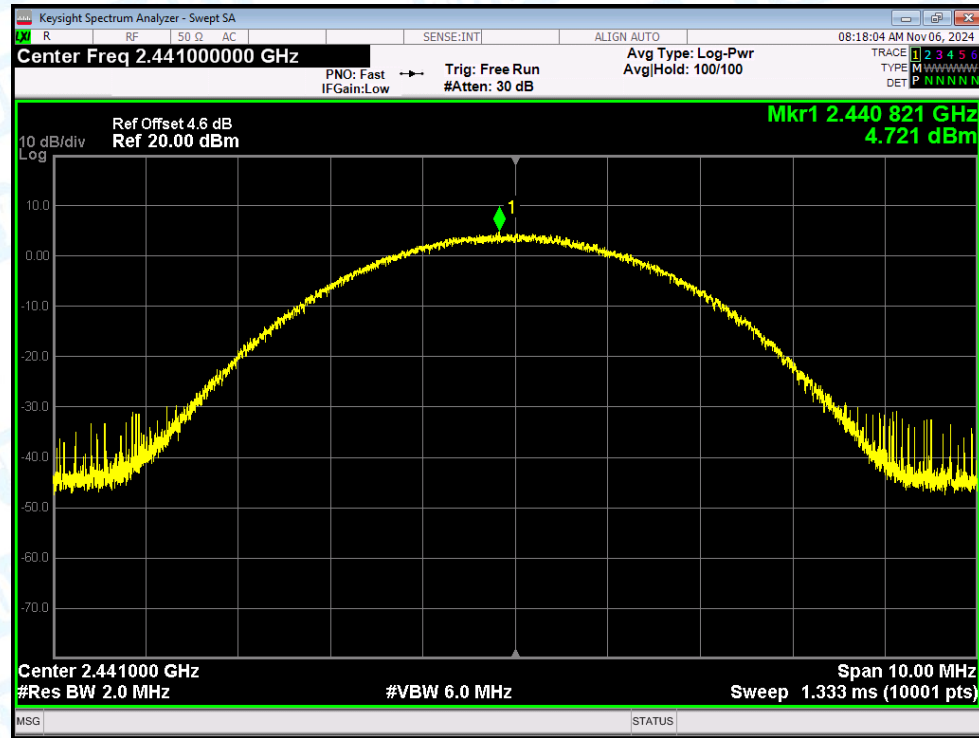
Power NVNT 2-DH1 2480MHz Ant1

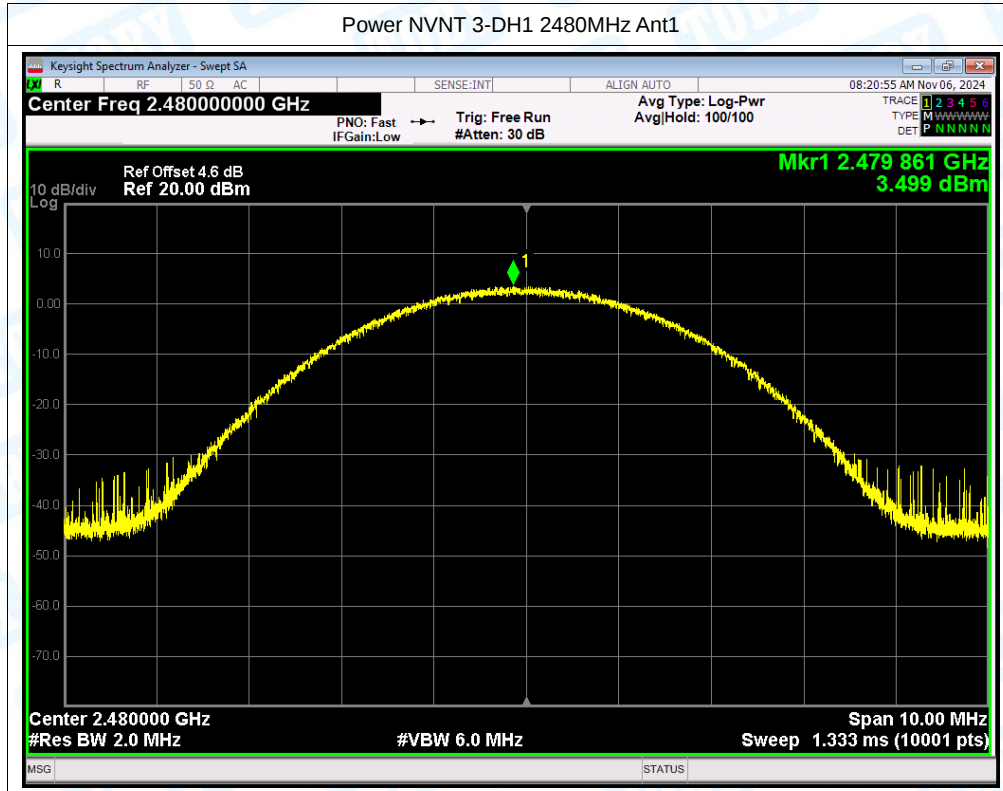


Power NVNT 3-DH1 2402MHz Ant1



Power NVNT 3-DH1 2441MHz Ant1



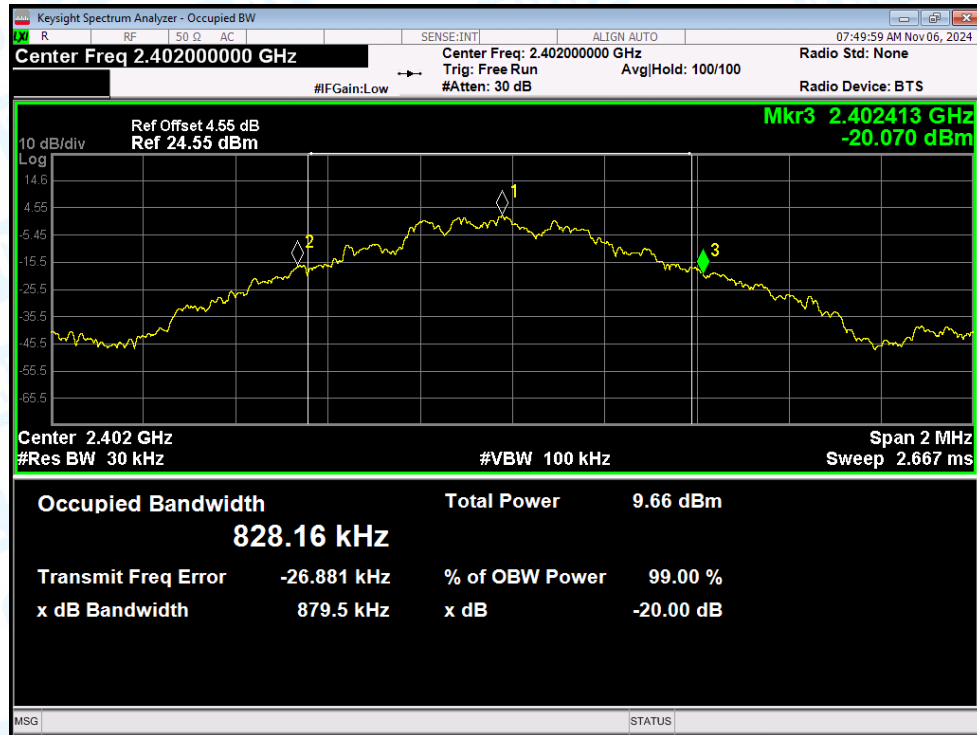


3.-20dB Bandwidth

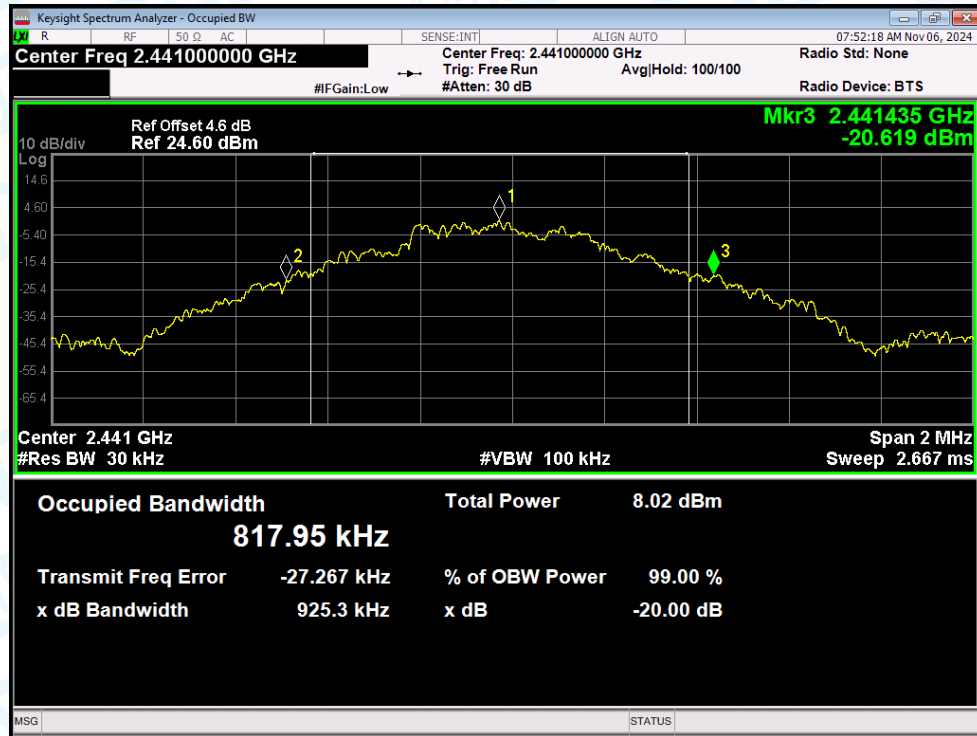
Condition	Mode	Frequency (MHz)	Antenna	-20 dB Bandwidth (MHz)	Limit -20 dB Bandwidth (MHz)	Verdict
NVNT	1-DH1	2402	Ant1	0.88	0	Pass
NVNT	1-DH1	2441	Ant1	0.93	0	Pass
NVNT	1-DH1	2480	Ant1	0.92	0	Pass
NVNT	2-DH1	2402	Ant1	1.25	0	Pass
NVNT	2-DH1	2441	Ant1	1.26	0	Pass
NVNT	2-DH1	2480	Ant1	1.29	0	Pass
NVNT	3-DH1	2402	Ant1	1.22	0	Pass
NVNT	3-DH1	2441	Ant1	1.22	0	Pass
NVNT	3-DH1	2480	Ant1	1.22	0	Pass

Test Graphs

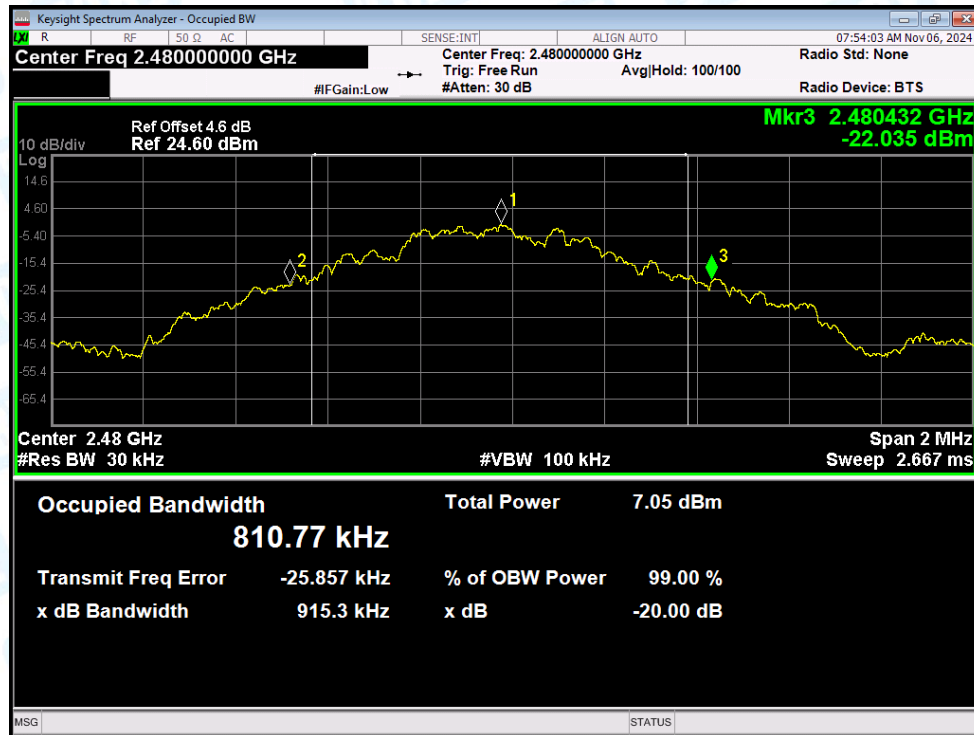
-20dB Bandwidth NVNT 1-DH1 2402MHz Ant1



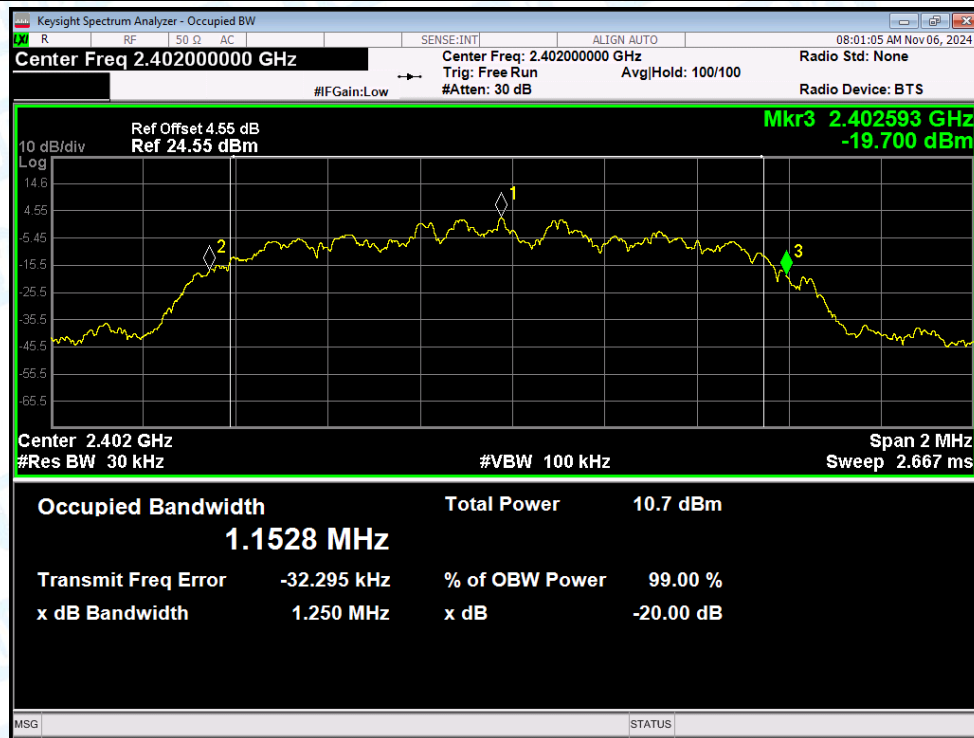
-20dB Bandwidth NVNT 1-DH1 2441MHz Ant1



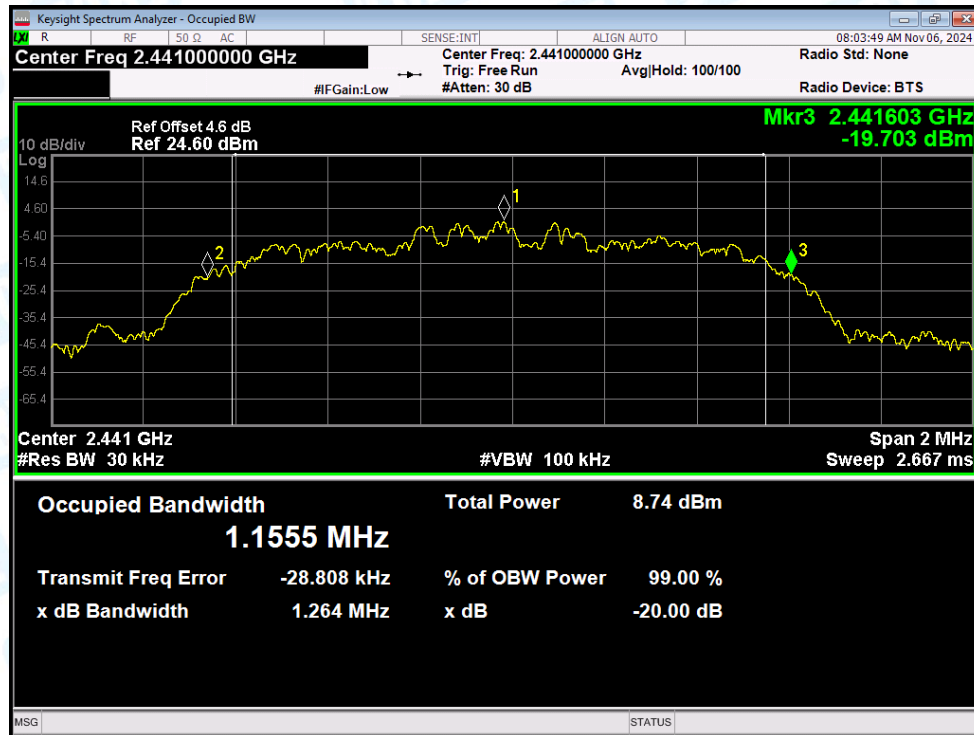
-20dB Bandwidth NVNT 1-DH1 2480MHz Ant1



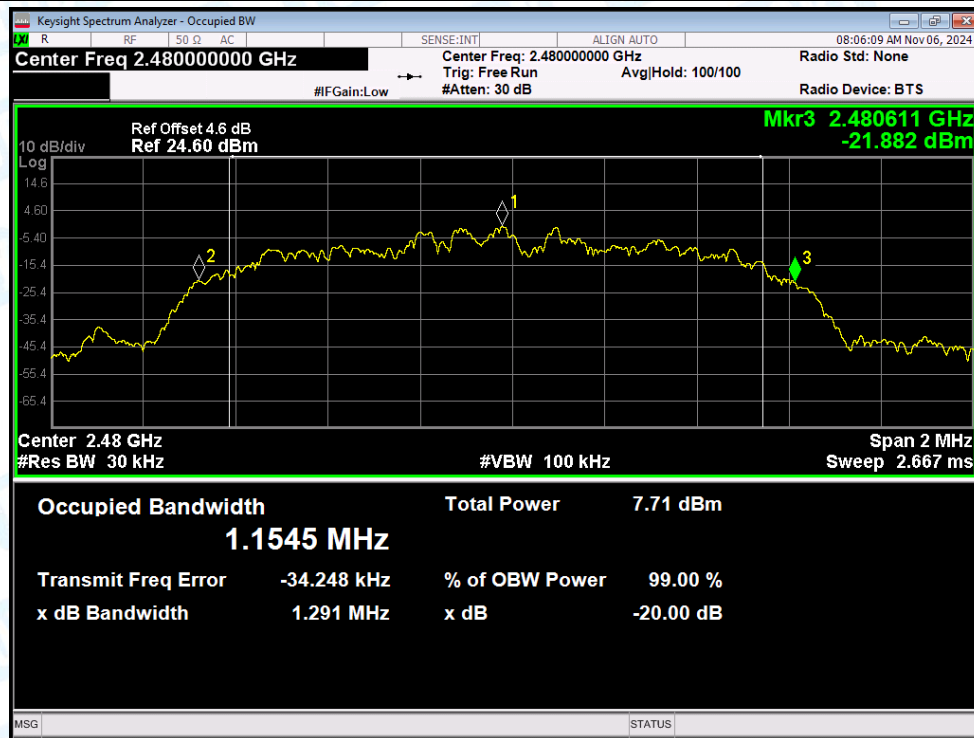
-20dB Bandwidth NVNT 2-DH1 2402MHz Ant1



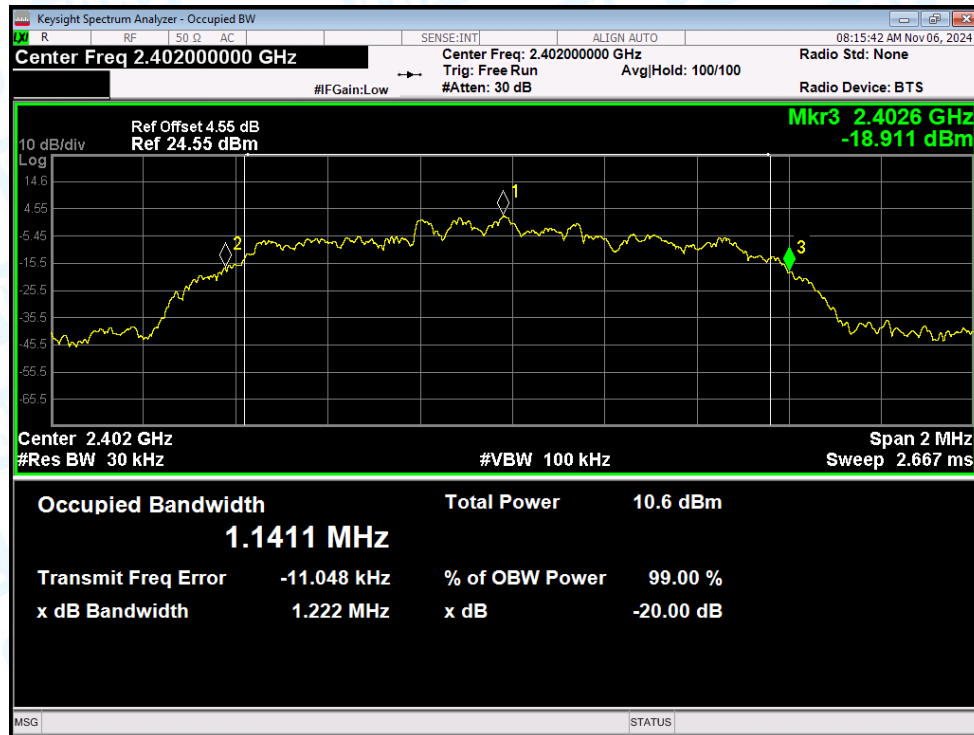
-20dB Bandwidth NVNT 2-DH1 2441MHz Ant1



-20dB Bandwidth NVNT 2-DH1 2480MHz Ant1

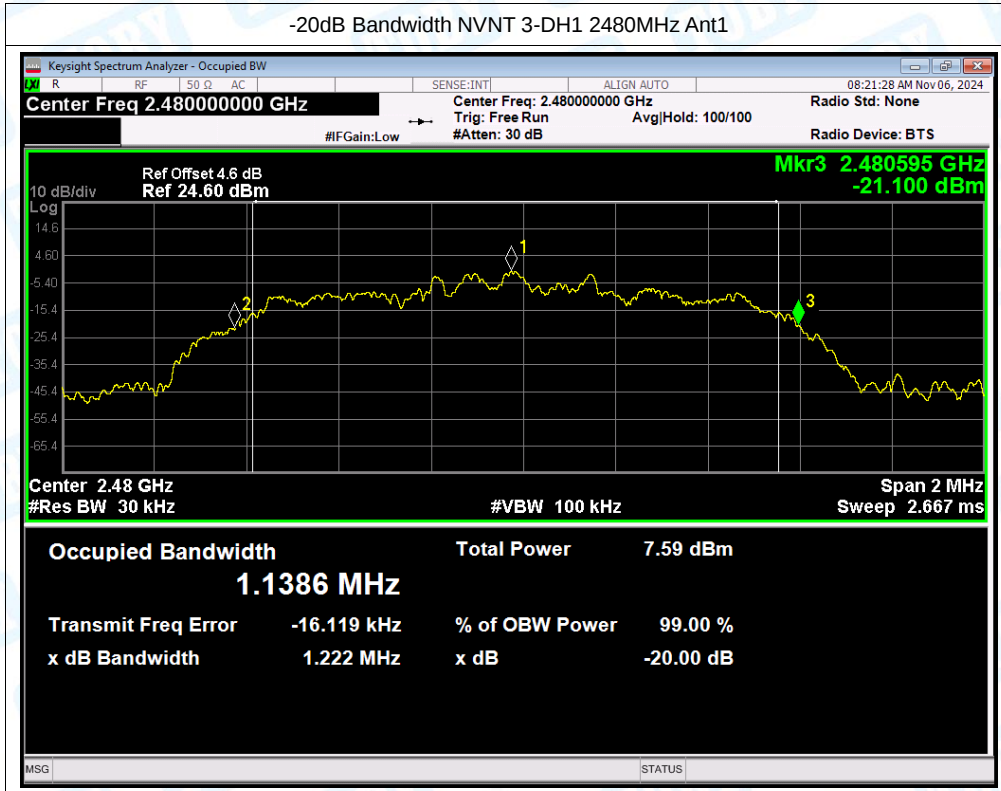


-20dB Bandwidth NVNT 3-DH1 2402MHz Ant1



-20dB Bandwidth NVNT 3-DH1 2441MHz Ant1



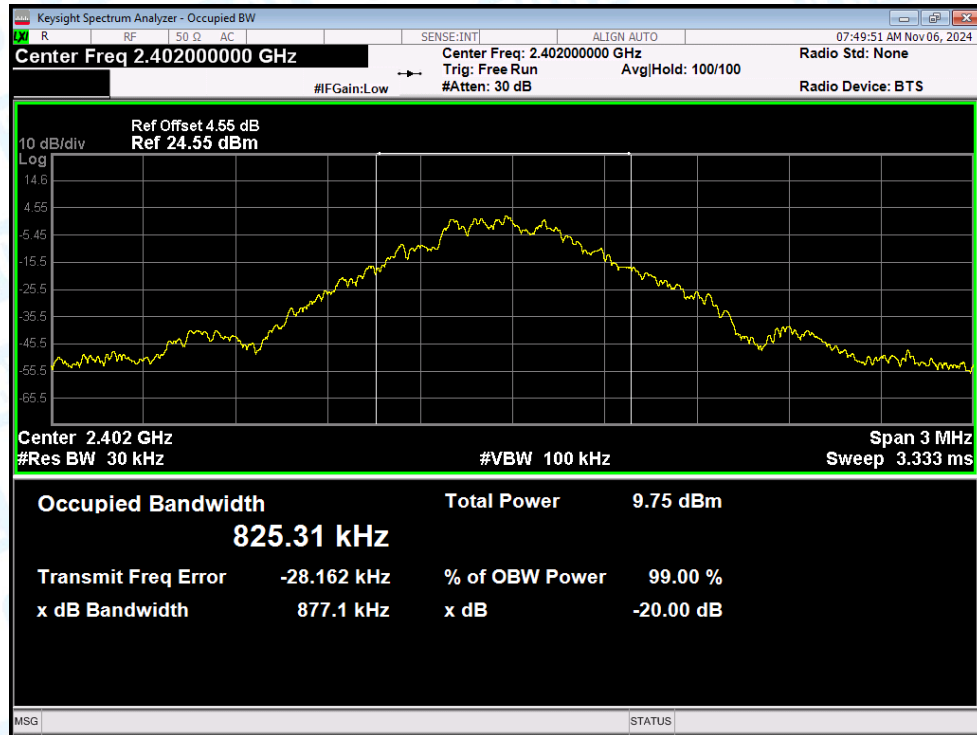


4.Occupied Channel Bandwidth

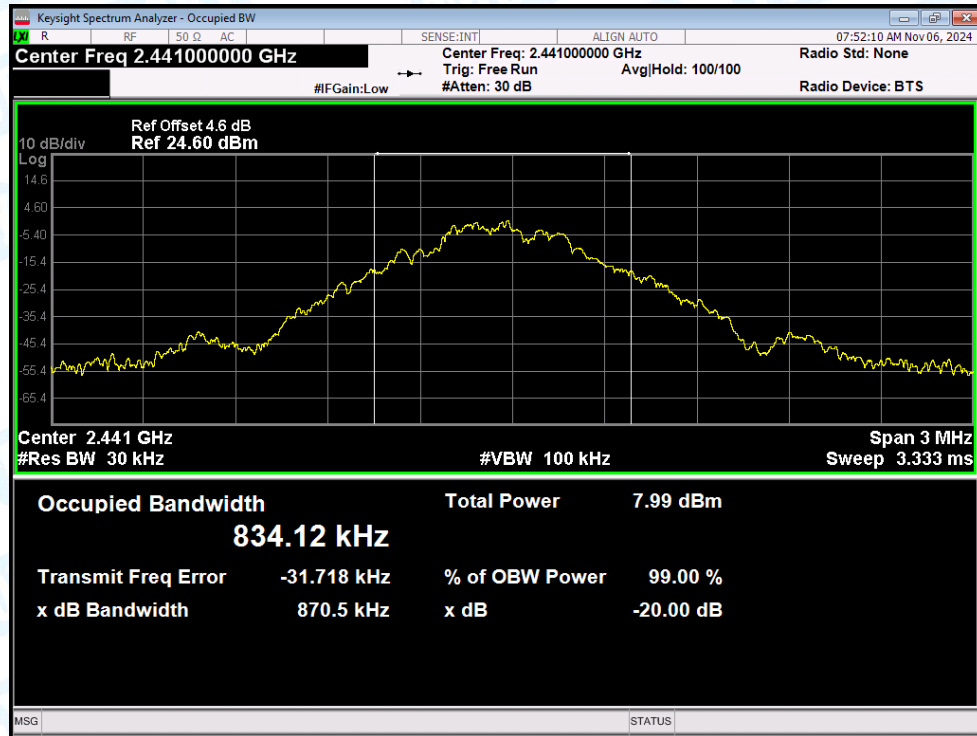
Condition	Mode	Frequency (MHz)	Antenna	99% OBW (MHz)
NVNT	1-DH1	2402	Ant1	0.825
NVNT	1-DH1	2441	Ant1	0.834
NVNT	1-DH1	2480	Ant1	0.82
NVNT	2-DH1	2402	Ant1	1.145
NVNT	2-DH1	2441	Ant1	1.159
NVNT	2-DH1	2480	Ant1	1.168
NVNT	3-DH1	2402	Ant1	1.146
NVNT	3-DH1	2441	Ant1	1.15
NVNT	3-DH1	2480	Ant1	1.143

Test Graphs

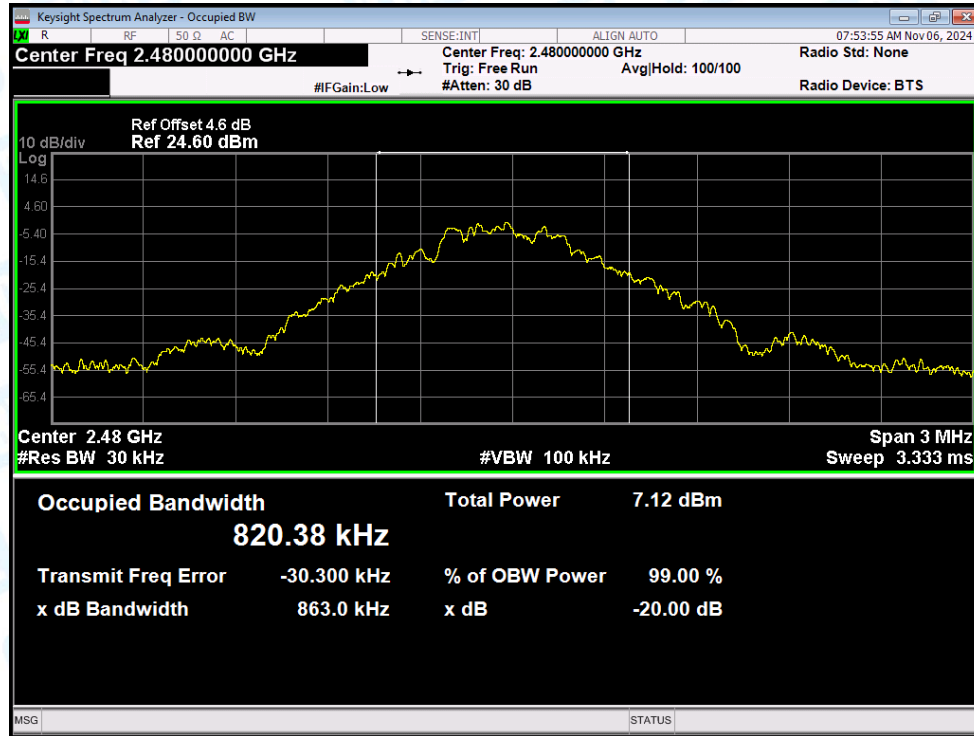
OBW NVNT 1-DH1 2402MHz Ant1



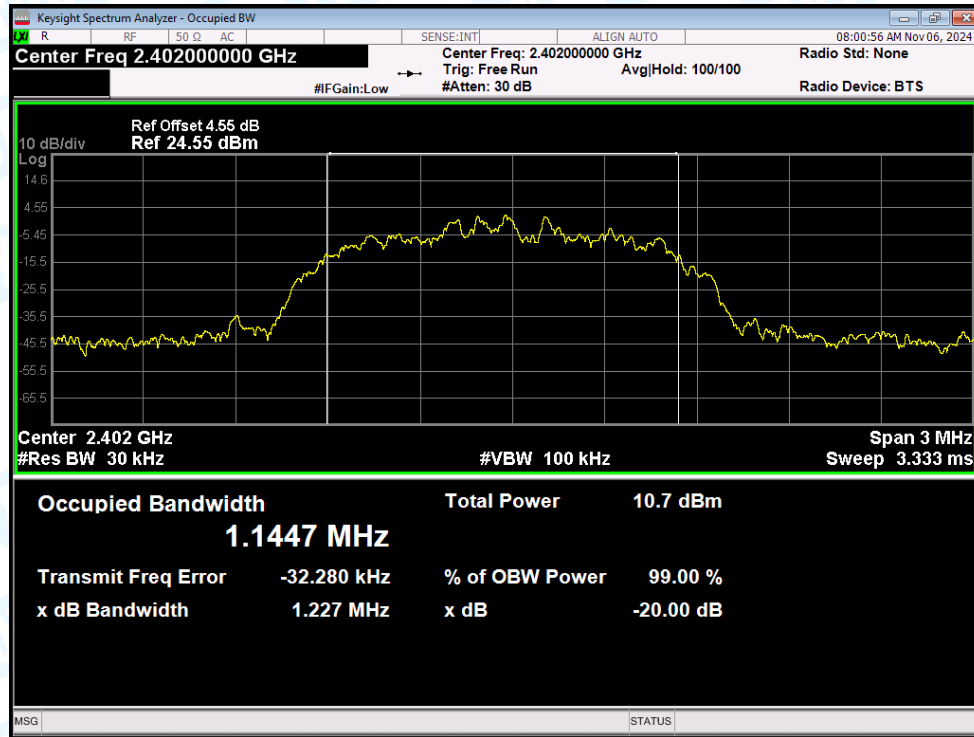
OBW NVNT 1-DH1 2441MHz Ant1



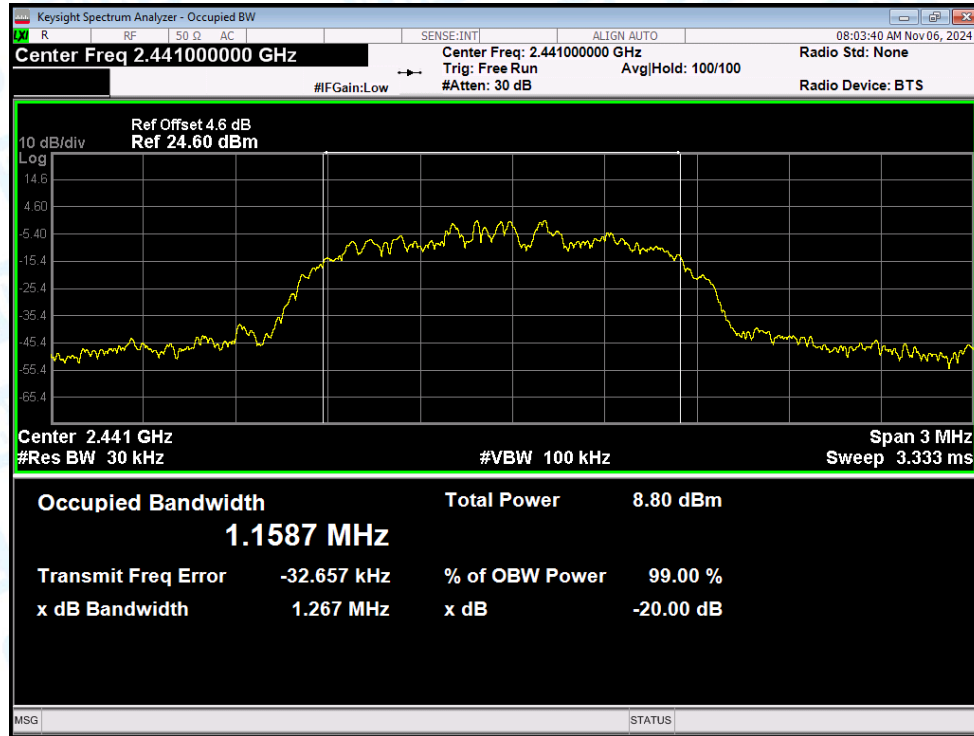
OBW NVNT 1-DH1 2480MHz Ant1



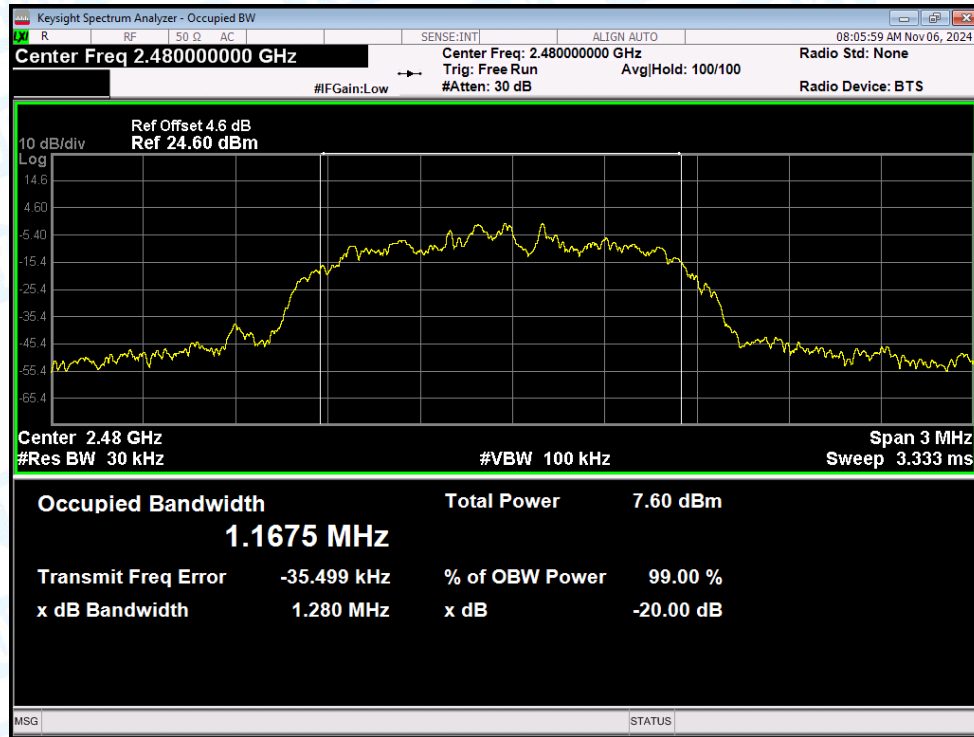
OBW NVNT 2-DH1 2402MHz Ant1



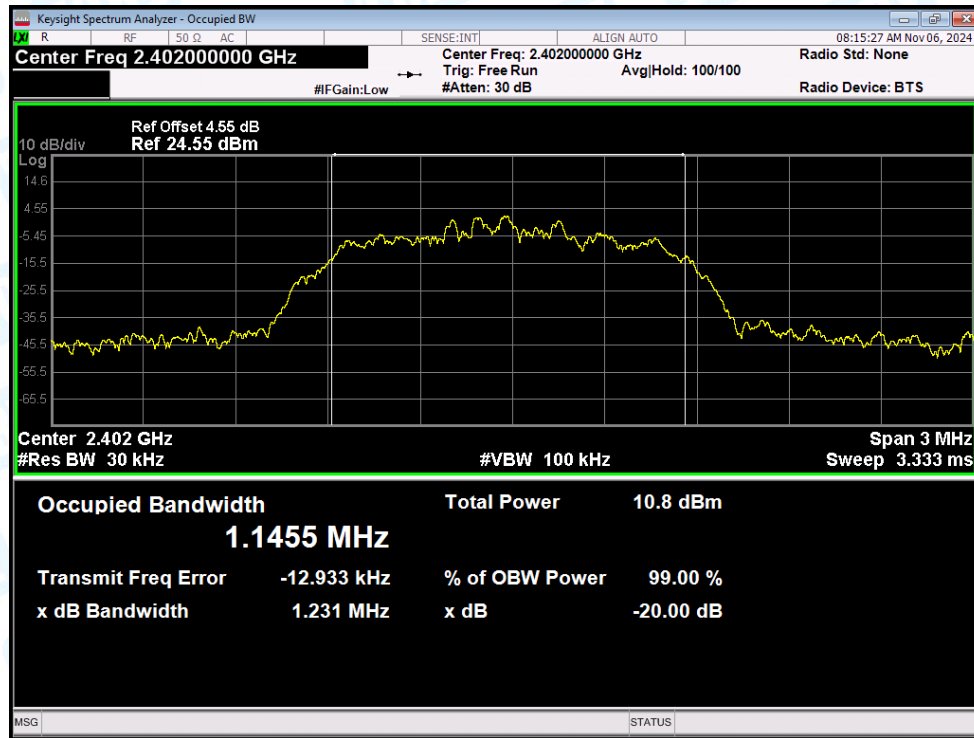
OBW NVNT 2-DH1 2441MHz Ant1



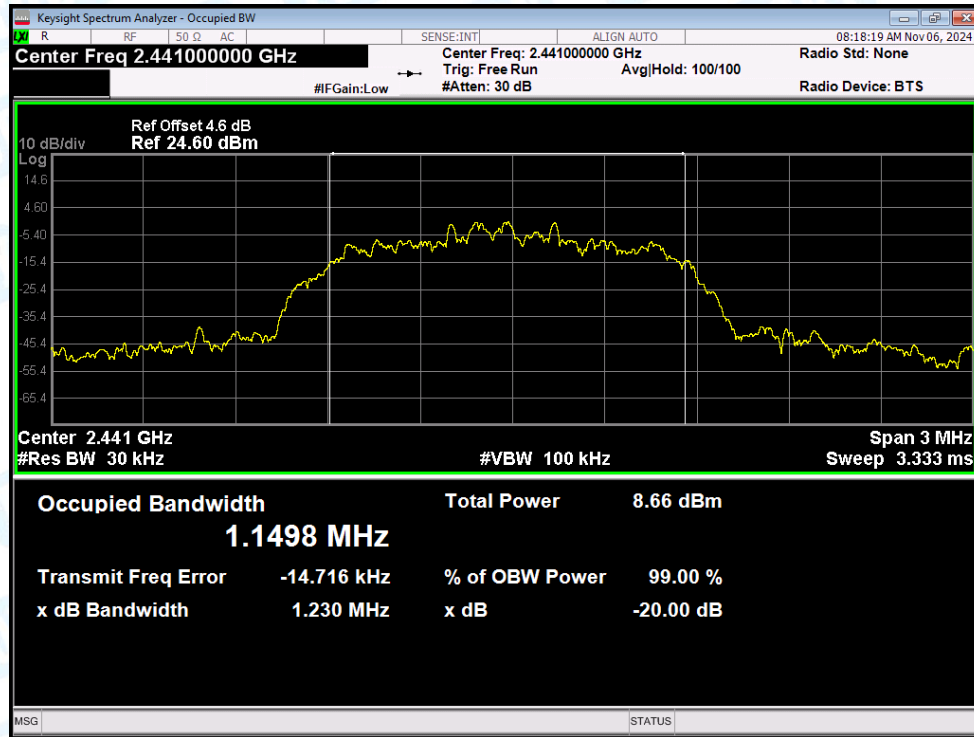
OBW NVNT 2-DH1 2480MHz Ant1

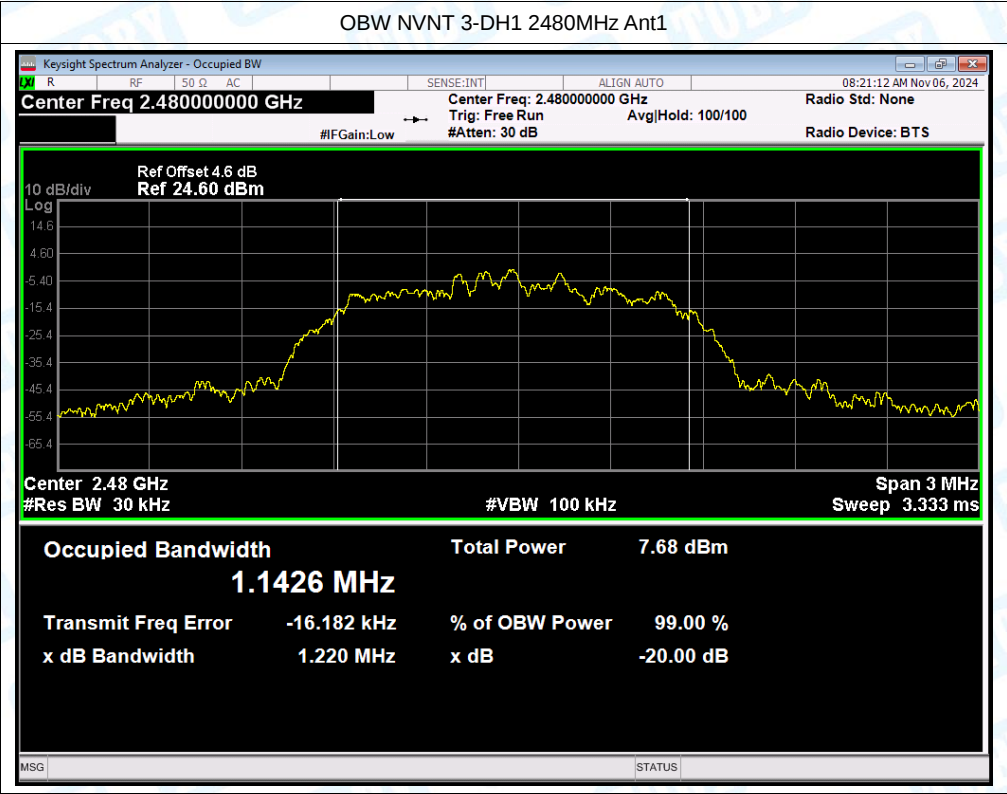


OBW NVNT 3-DH1 2402MHz Ant1



OBW NVNT 3-DH1 2441MHz Ant1



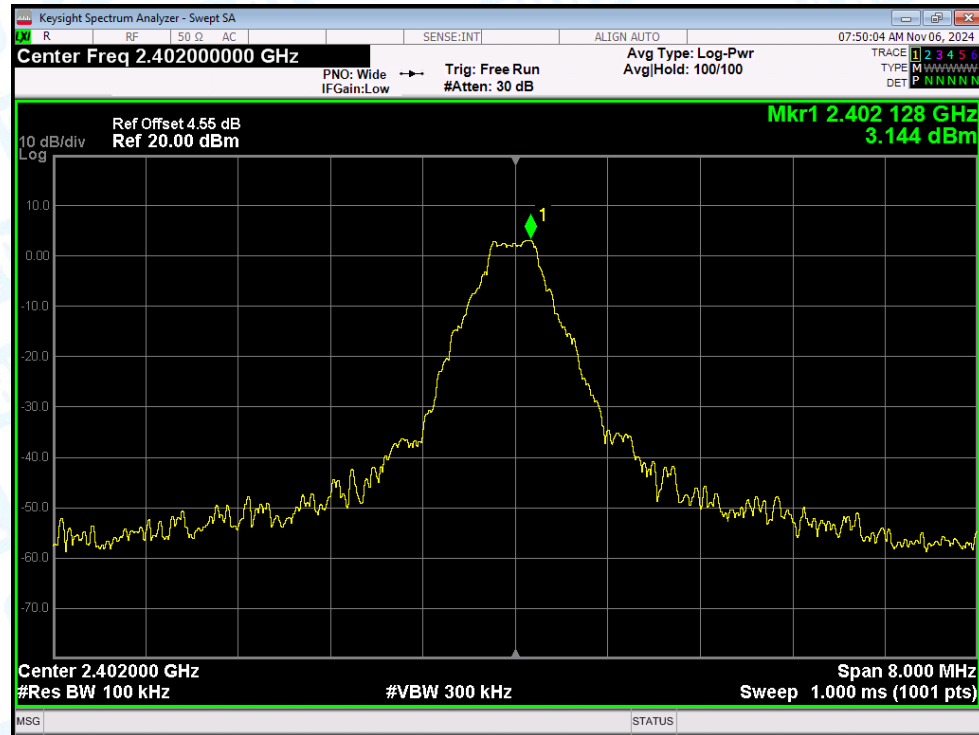


5.Band Edge

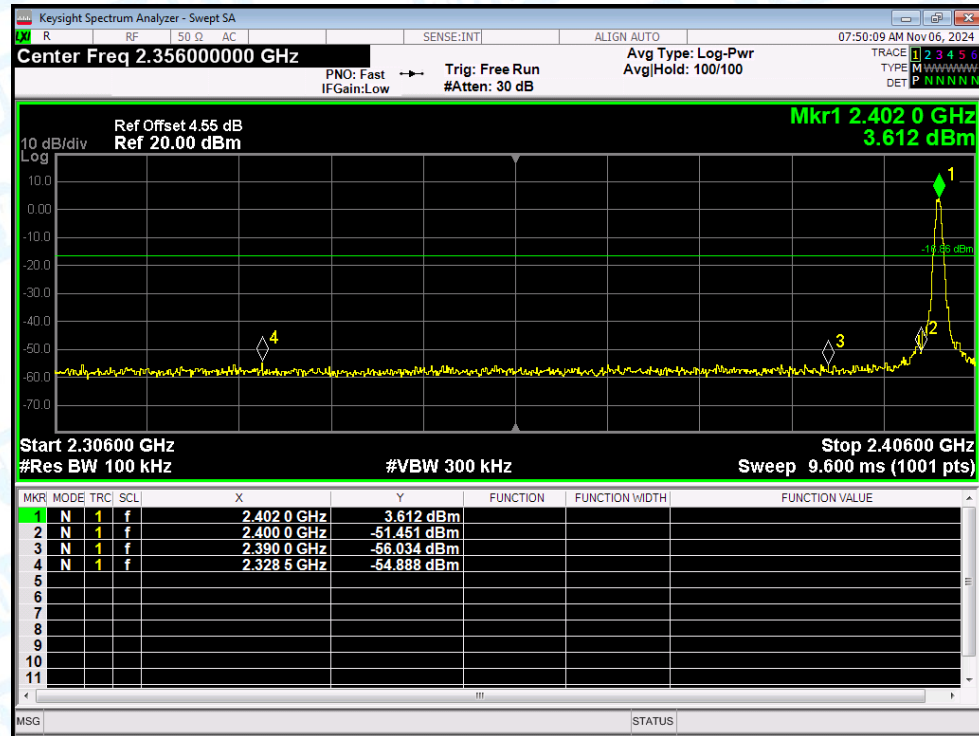
Condition	Mode	Frequency (MHz)	Antenna	Hopping Mode	Max Value (dBc)	Limit (dBc)	Verdict
NVNT	1-DH1	2402	Ant1	No-Hopping	-58.03	-20	Pass
NVNT	1-DH1	2480	Ant1	No-Hopping	-53.95	-20	Pass
NVNT	2-DH1	2402	Ant1	No-Hopping	-58.51	-20	Pass
NVNT	2-DH1	2480	Ant1	No-Hopping	-55.09	-20	Pass
NVNT	3-DH1	2402	Ant1	No-Hopping	-57.65	-20	Pass
NVNT	3-DH1	2480	Ant1	No-Hopping	-54.78	-20	Pass

Test Graphs

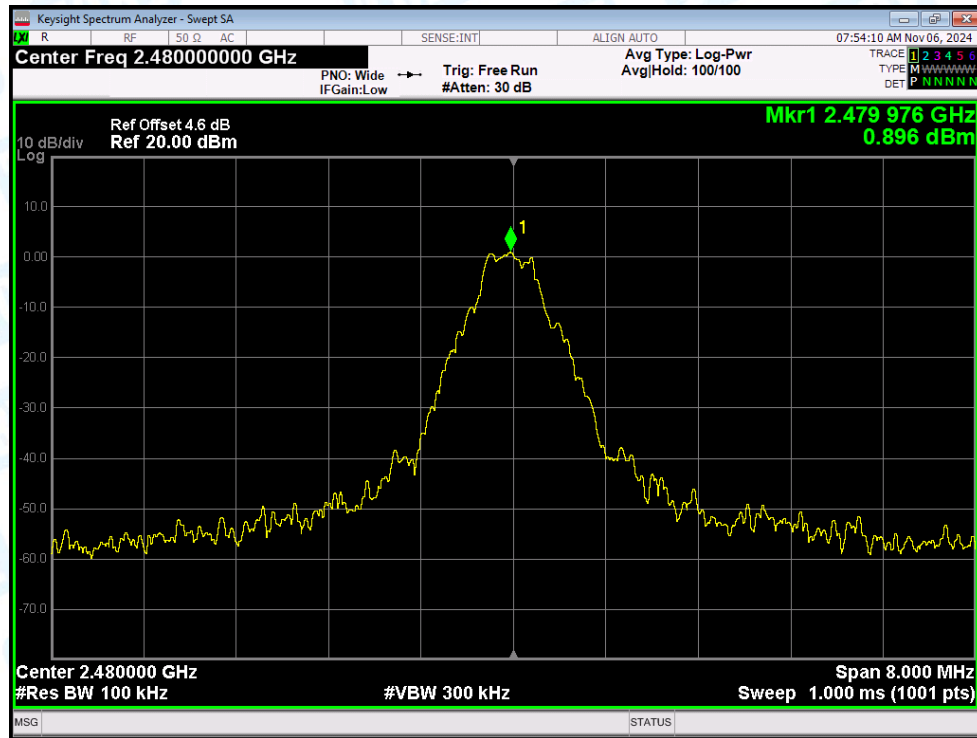
Band Edge NVNT 1-DH1 2402MHz Ant1 No-Hopping Ref



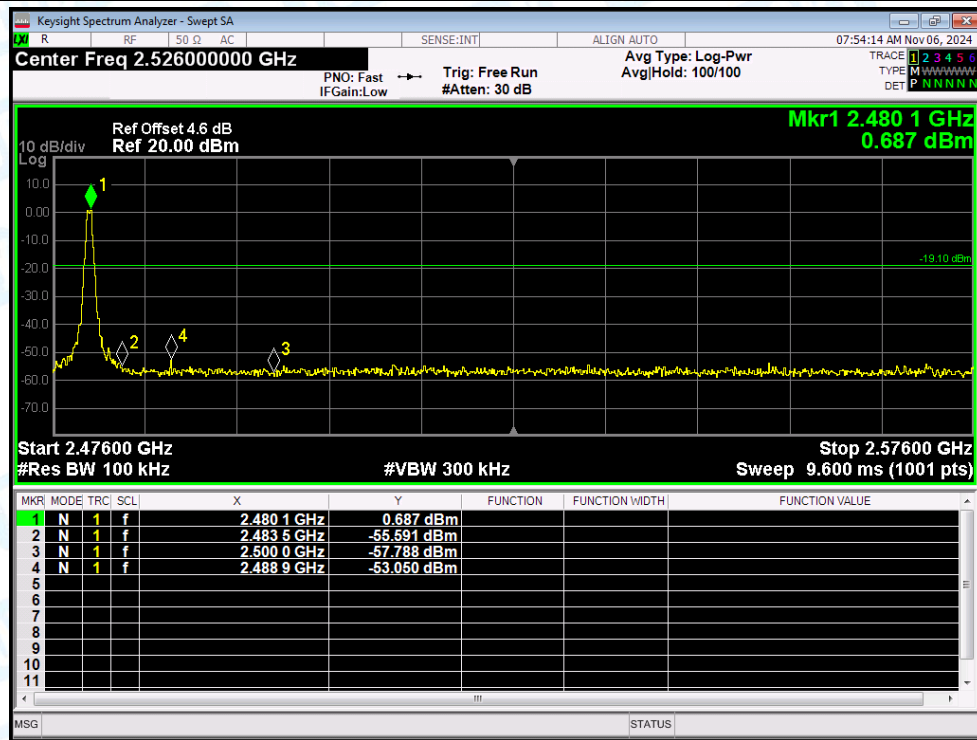
Band Edge NVNT 1-DH1 2402MHz Ant1 No-Hopping Emission



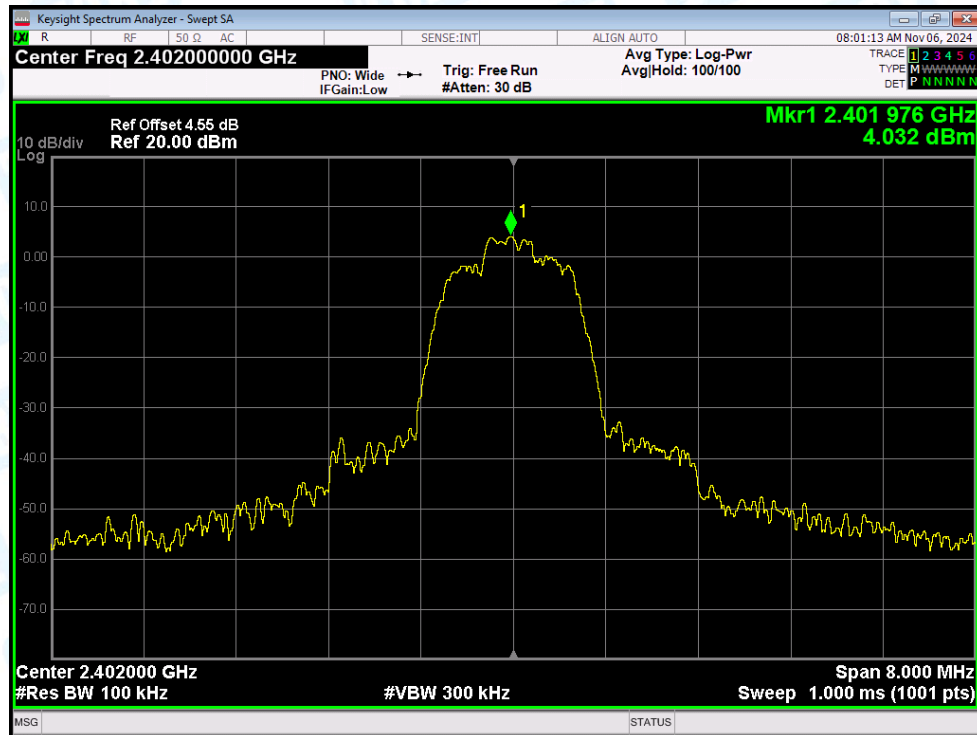
Band Edge NVNT 1-DH1 2480MHz Ant1 No-Hopping Ref



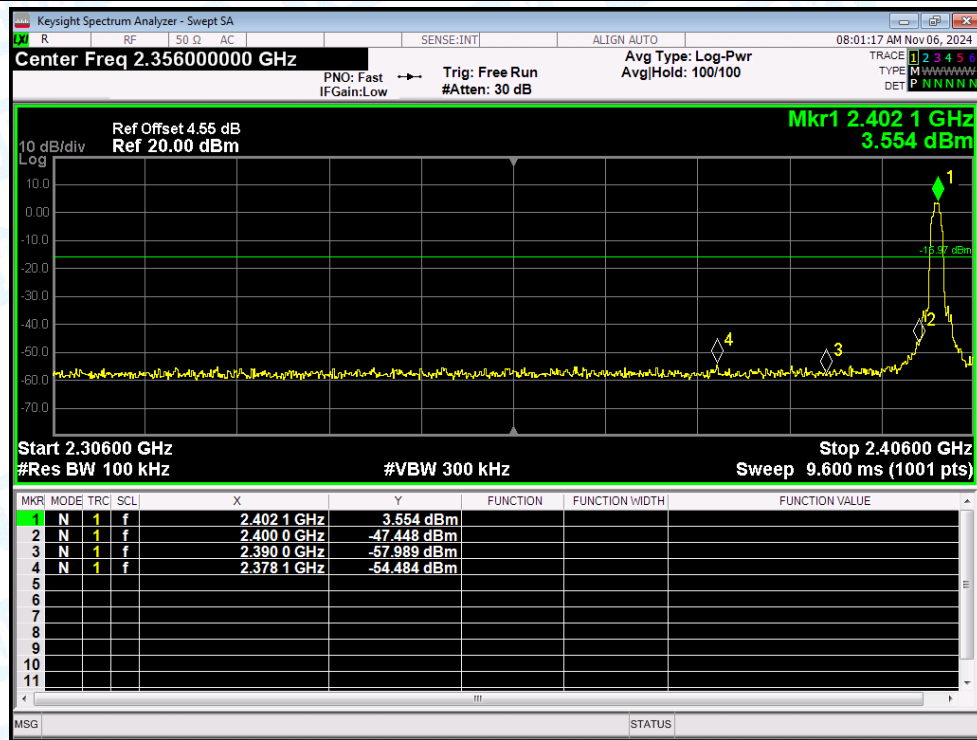
Band Edge NVNT 1-DH1 2480MHz Ant1 No-Hopping Emission



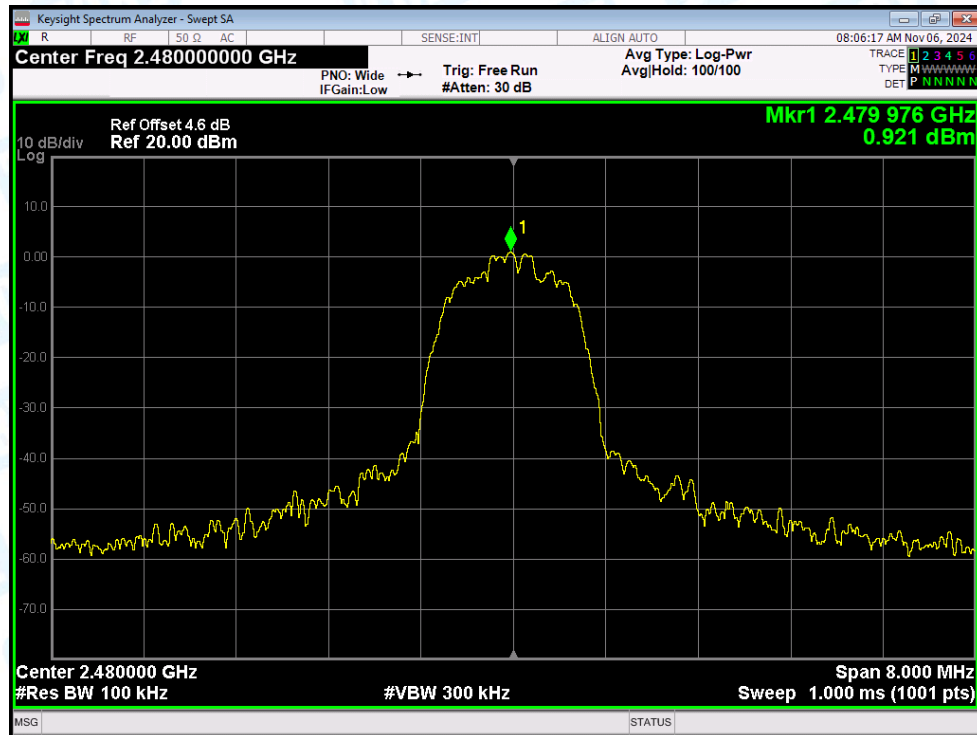
Band Edge NVNT 2-DH1 2402MHz Ant1 No-Hopping Ref



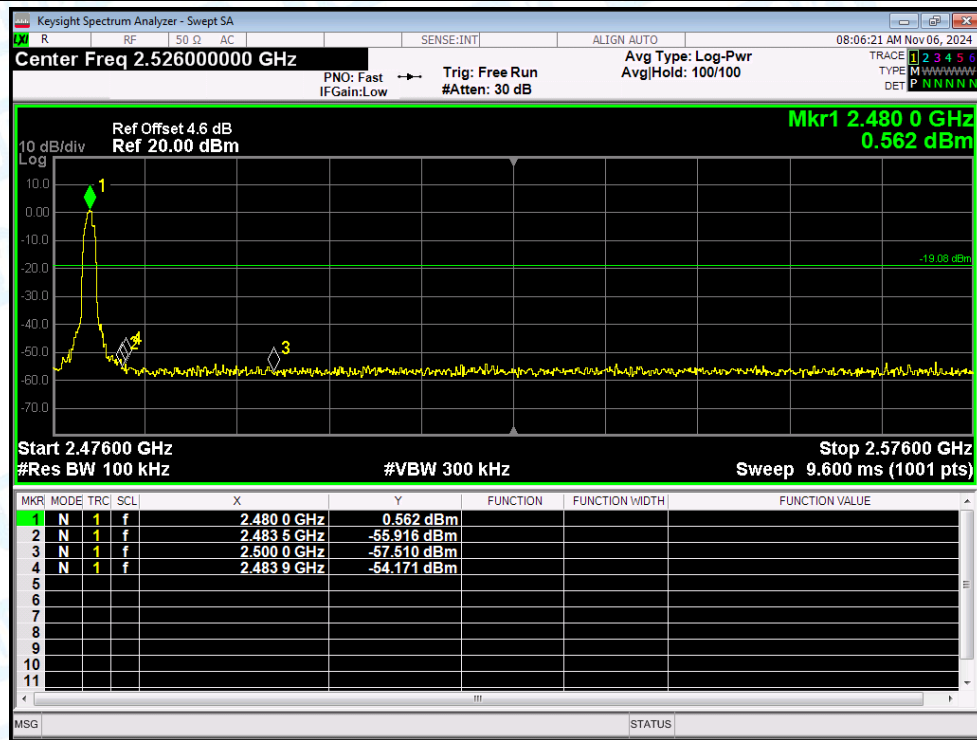
Band Edge NVNT 2-DH1 2402MHz Ant1 No-Hopping Emission



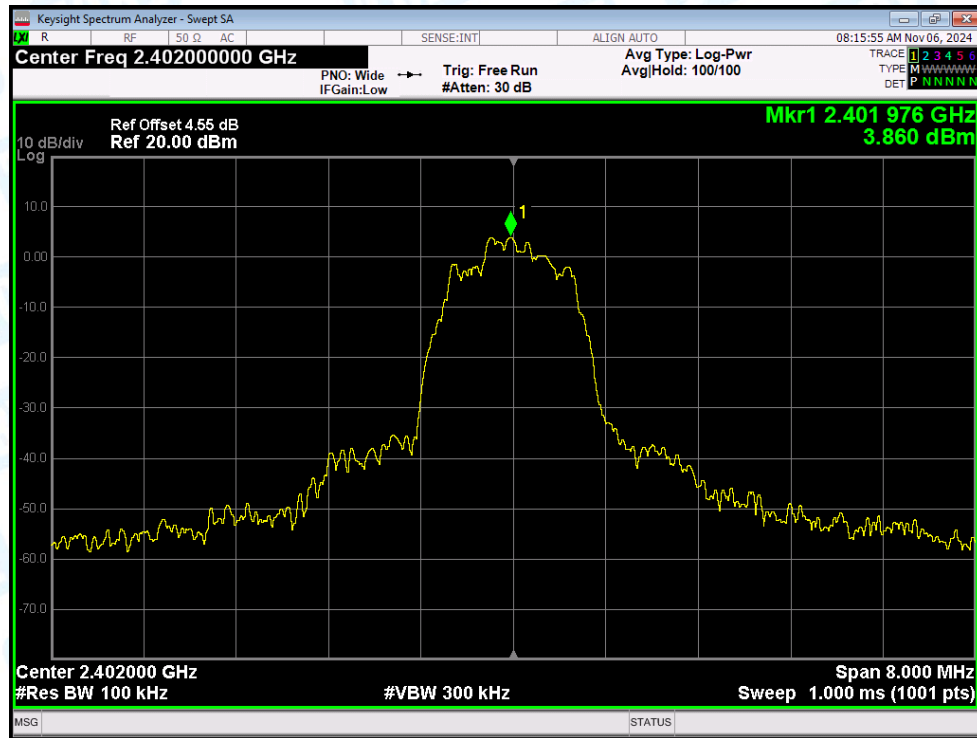
Band Edge NVNT 2-DH1 2480MHz Ant1 No-Hopping Ref



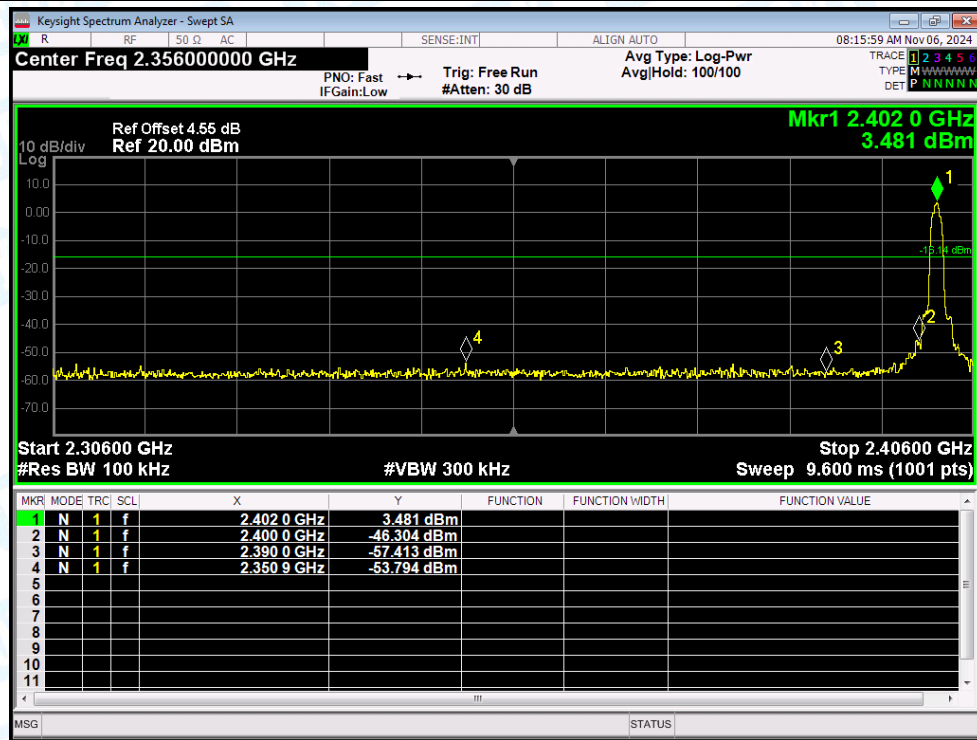
Band Edge NVNT 2-DH1 2480MHz Ant1 No-Hopping Emission



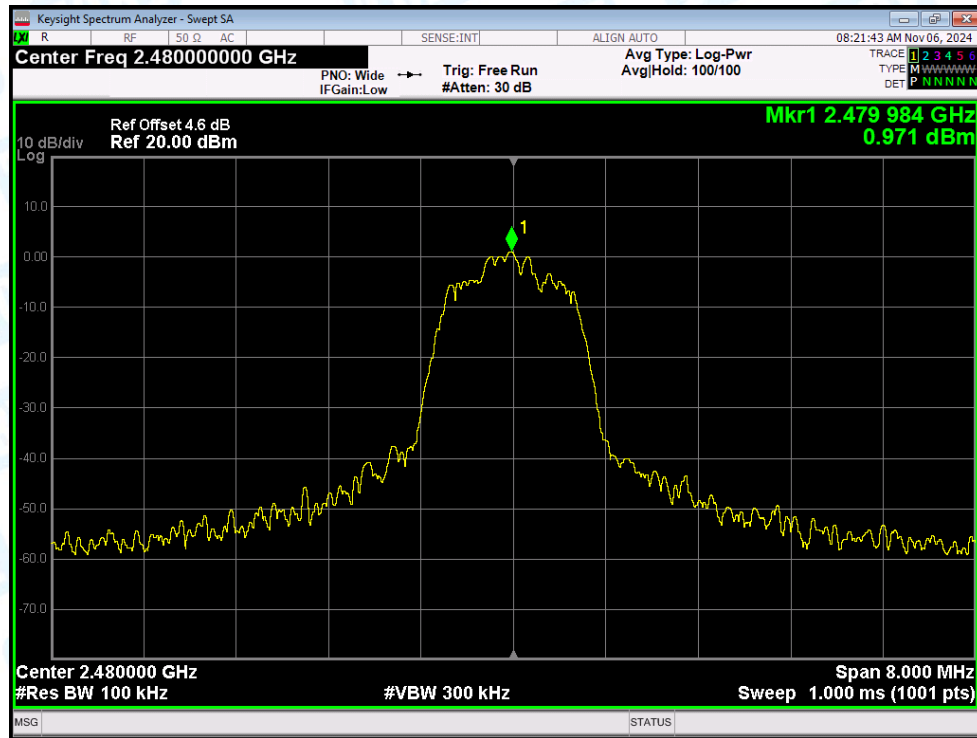
Band Edge NVNT 3-DH1 2402MHz Ant1 No-Hopping Ref



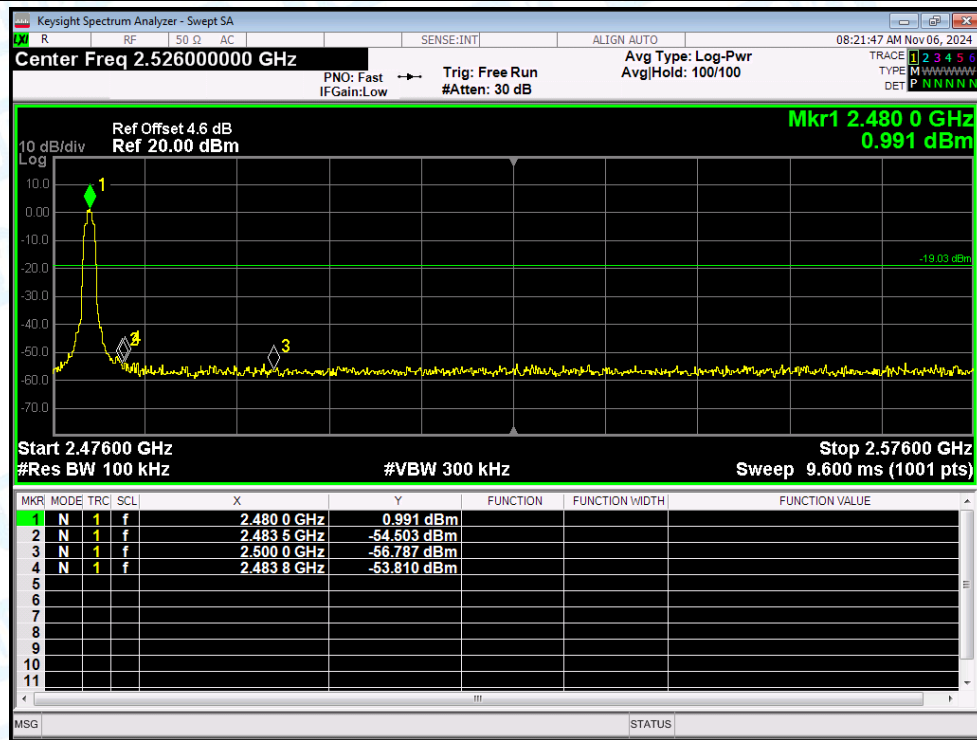
Band Edge NVNT 3-DH1 2402MHz Ant1 No-Hopping Emission



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



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

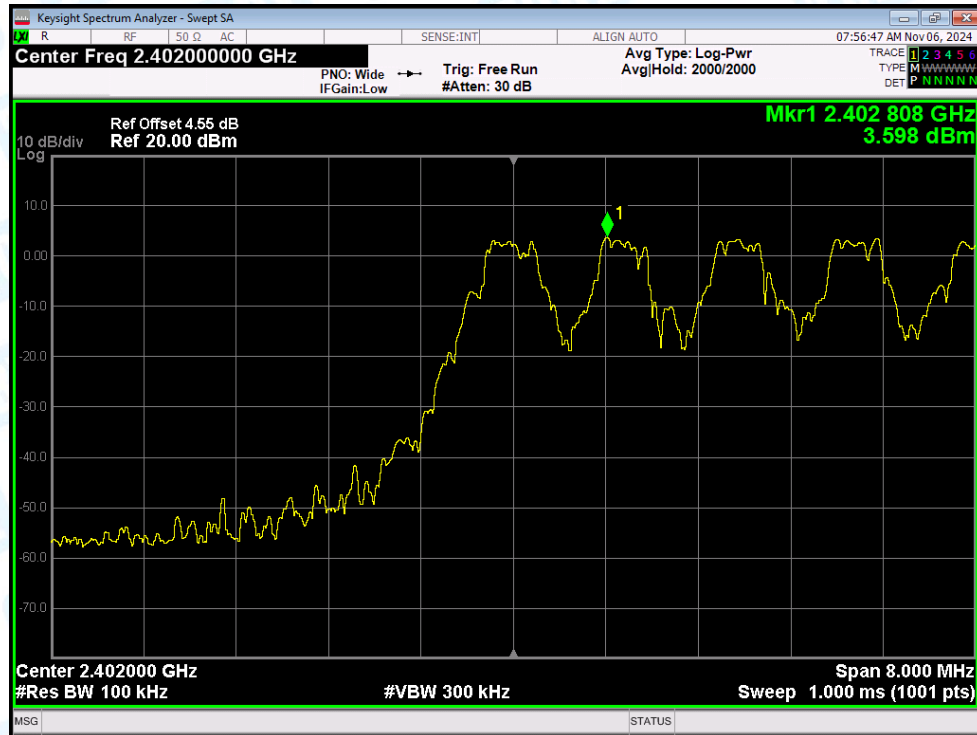


6.Band Edge(Hopping)

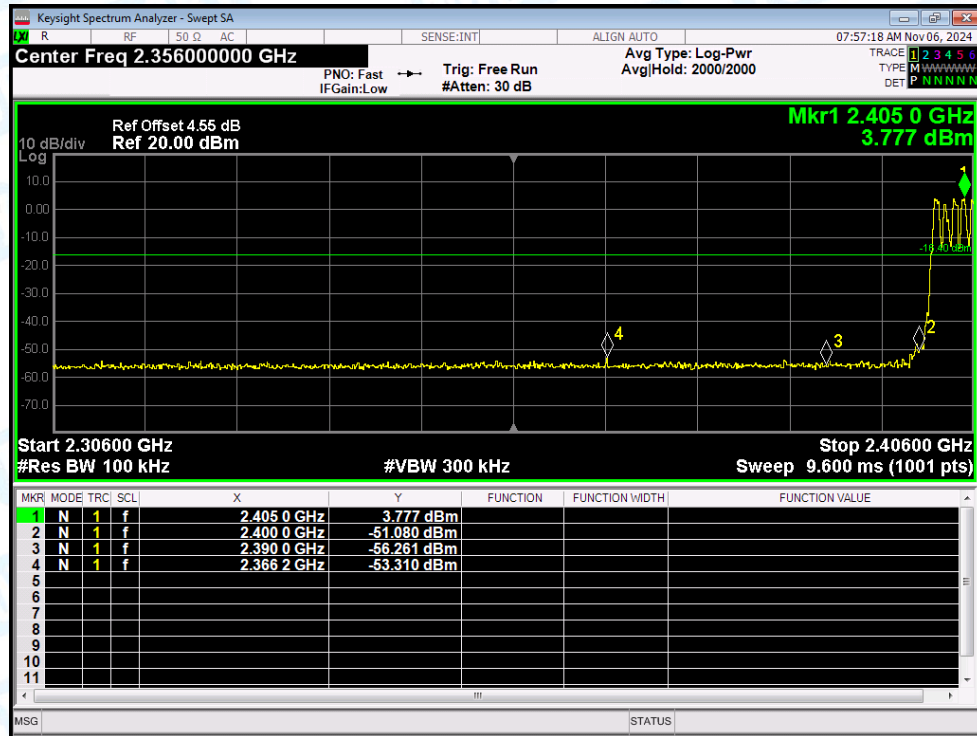
Condition	Mode	Frequency (MHz)	Antenna	Hopping Mode	Max Value (dBc)	Limit (dBc)	Verdict
NVNT	1-DH1	2402	Ant1	Hopping	-56.91	-20	Pass
NVNT	1-DH1	2480	Ant1	Hopping	-54.06	-20	Pass
NVNT	2-DH1	2402	Ant1	Hopping	-58.05	-20	Pass
NVNT	2-DH1	2480	Ant1	Hopping	-53.81	-20	Pass
NVNT	3-DH1	2402	Ant1	Hopping	-57.38	-20	Pass
NVNT	3-DH1	2480	Ant1	Hopping	-53.87	-20	Pass

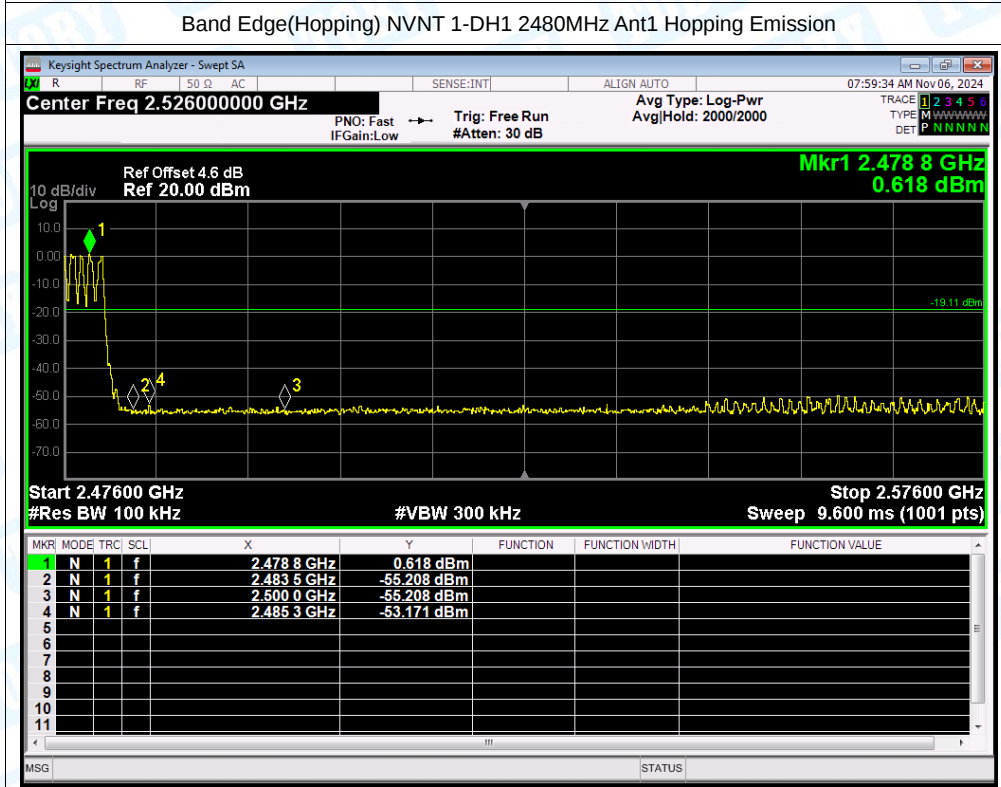
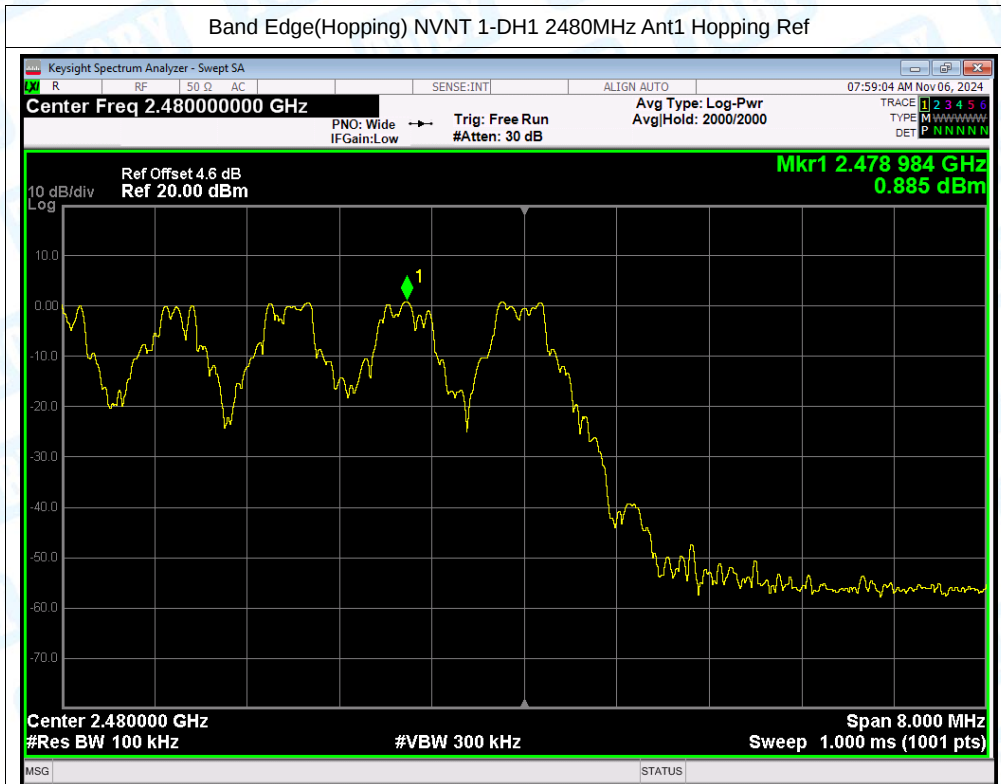
Test Graphs

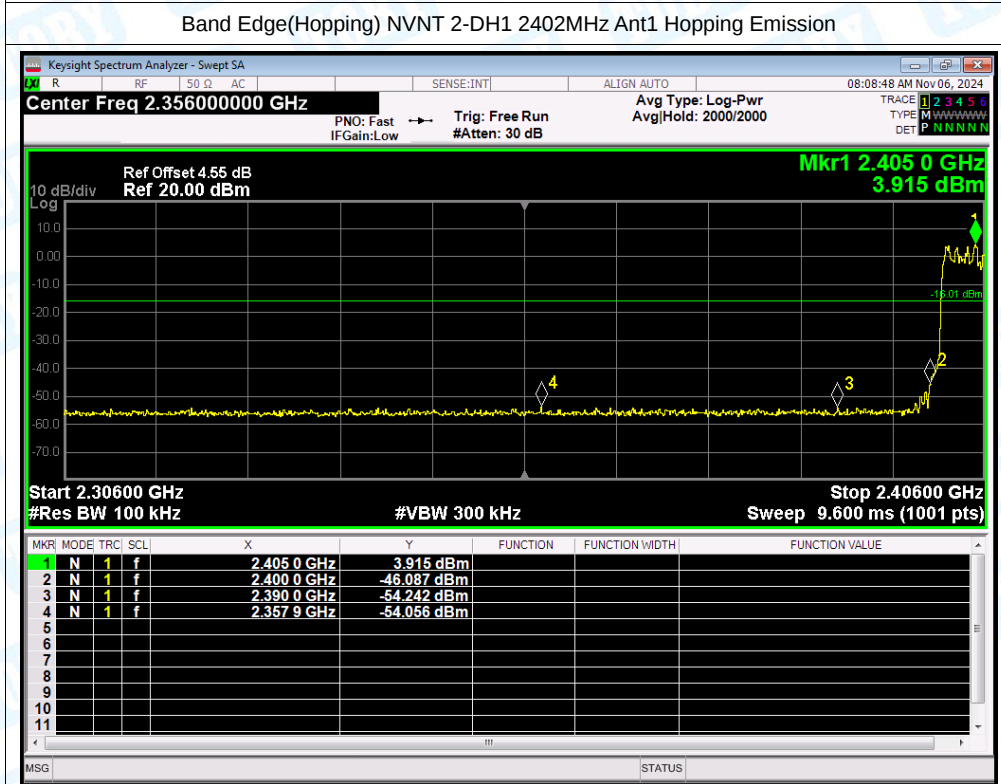
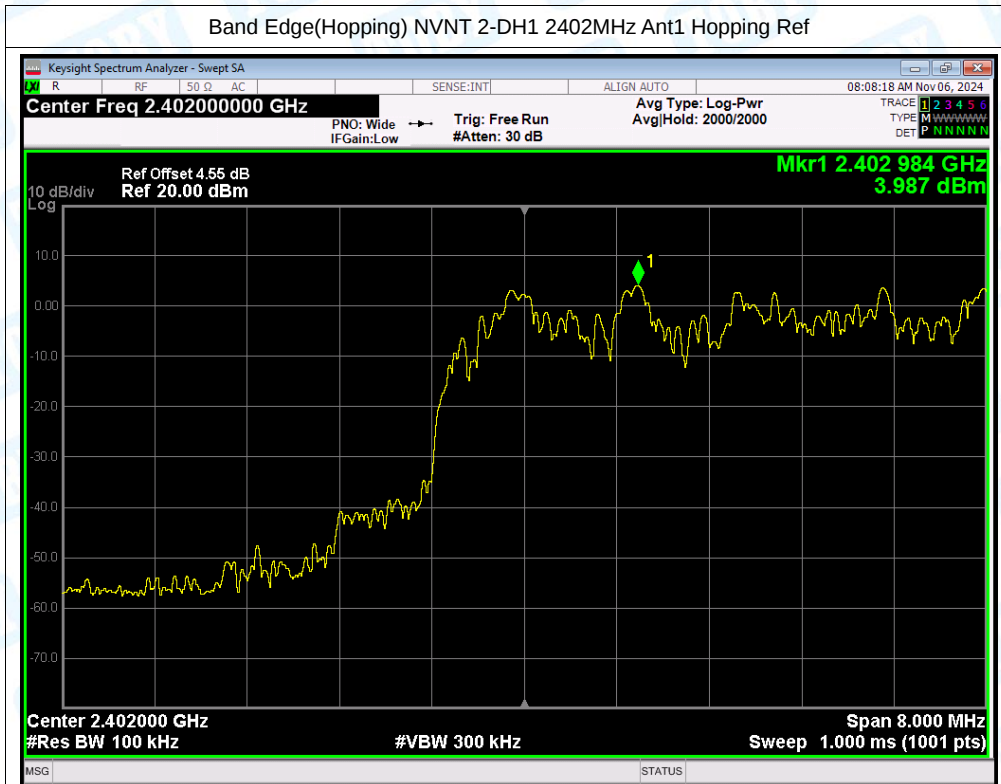
Band Edge(Hopping) NVNT 1-DH1 2402MHz Ant1 Hopping Ref

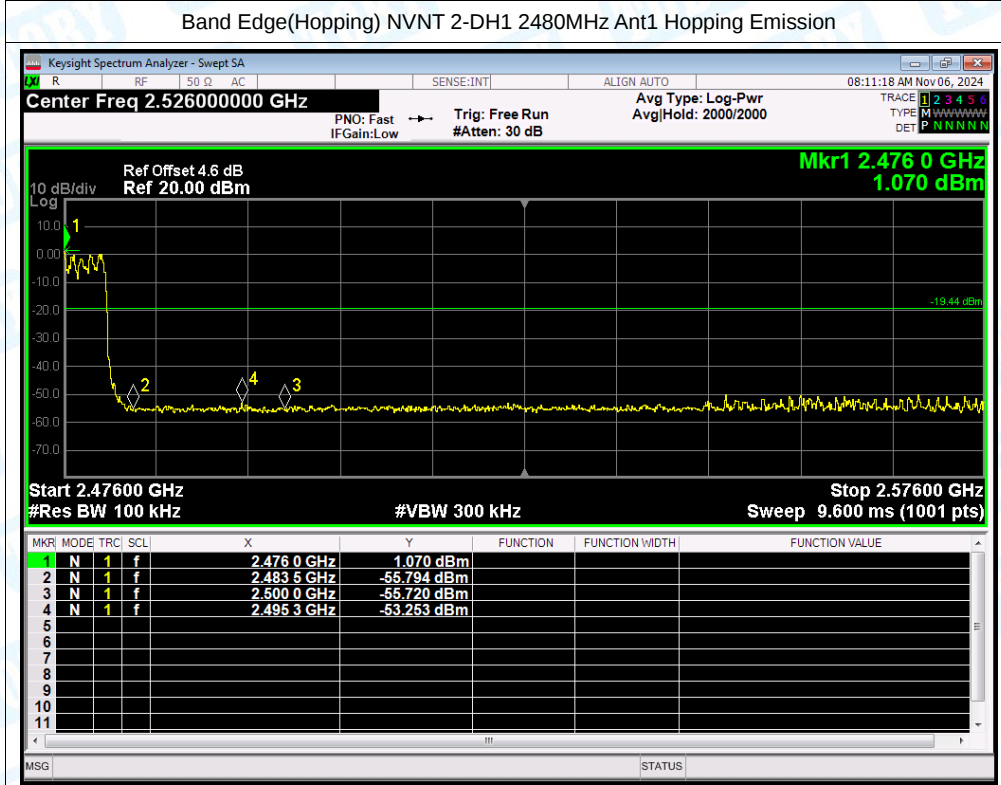


Band Edge(Hopping) NVNT 1-DH1 2402MHz Ant1 Hopping Emission

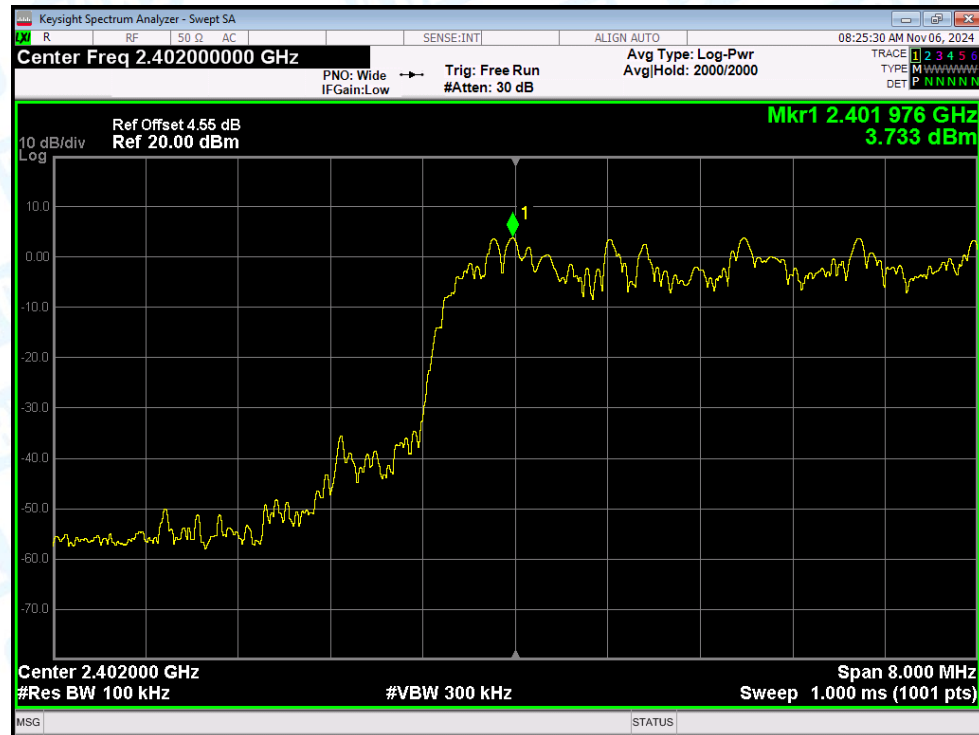




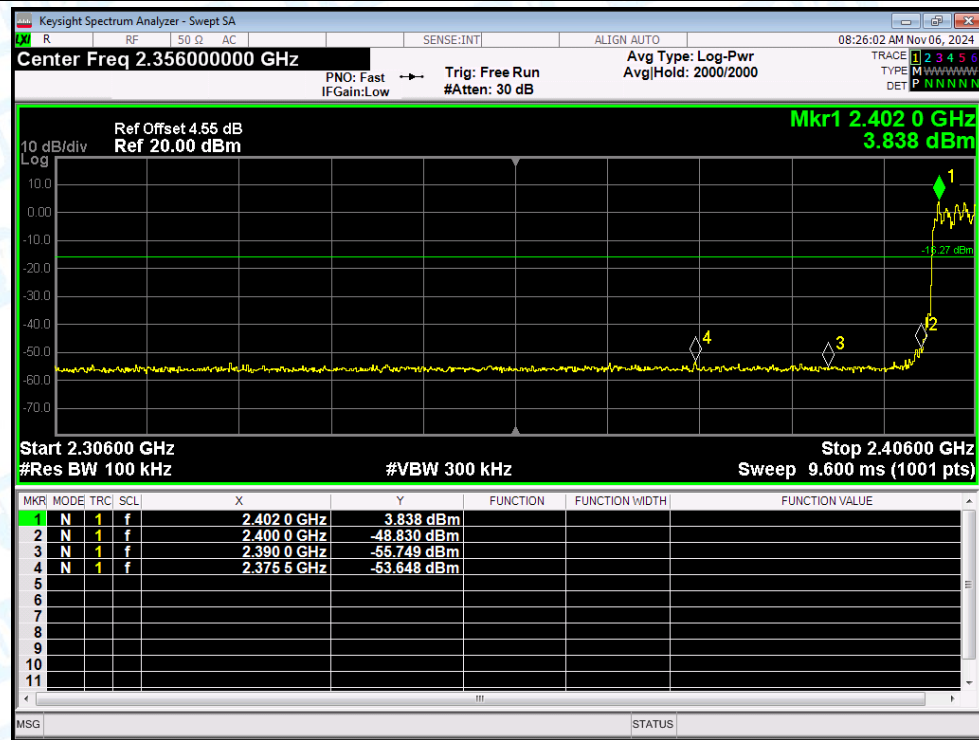


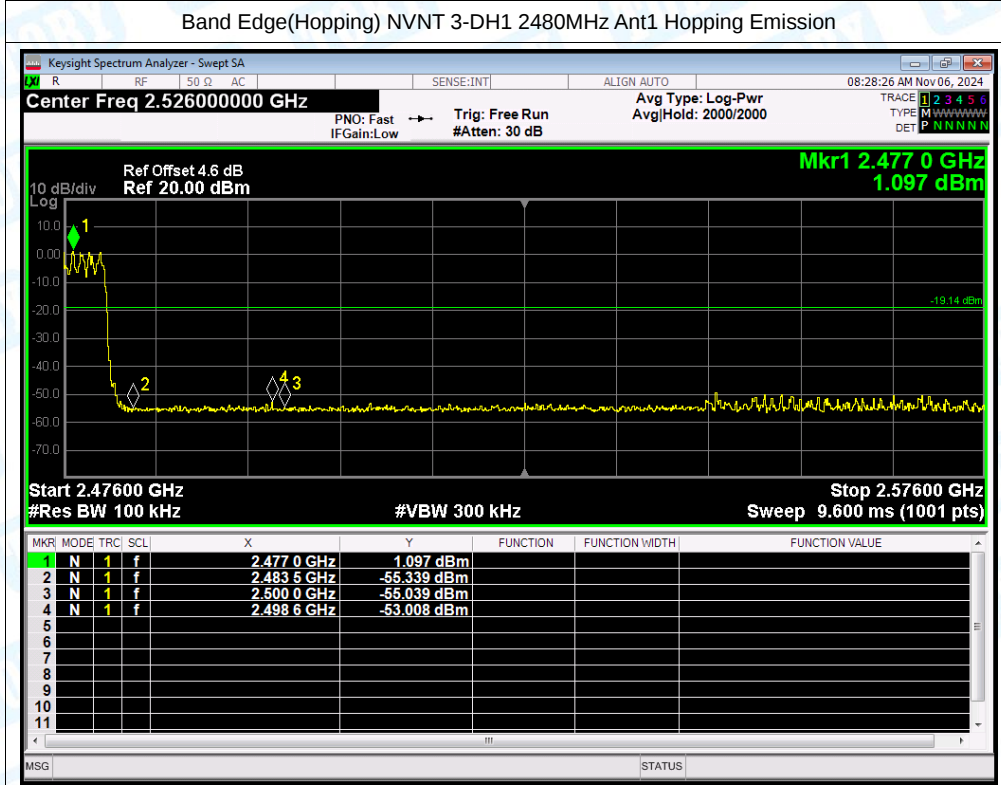
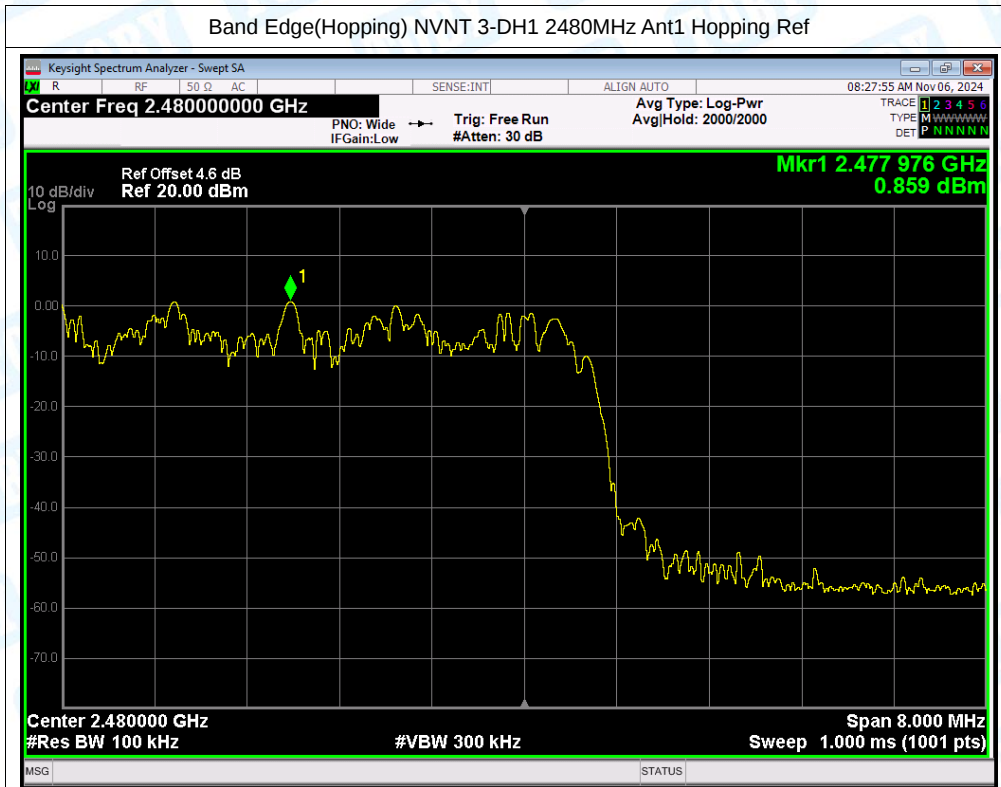


Band Edge(Hopping) NVNT 3-DH1 2402MHz Ant1 Hopping Ref



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



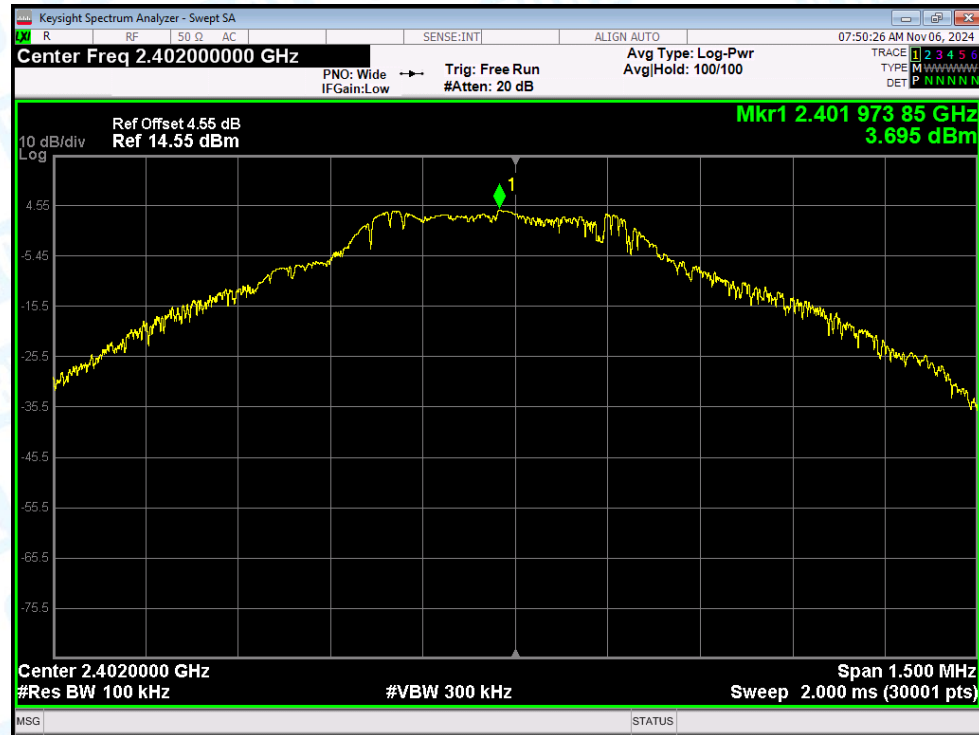


7. Conducted RF Spurious Emission

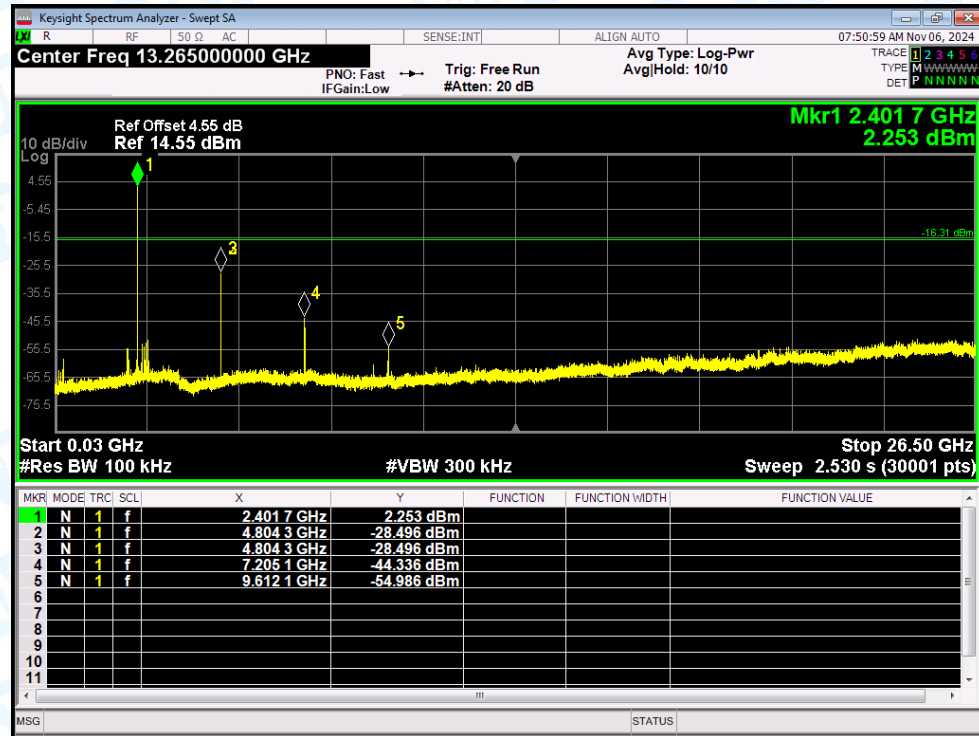
Condition	Mode	Frequency (MHz)	Antenna	Max Value (dBc)	Limit (dBc)	Verdict
NVNT	1-DH1	2402	Ant1	-32.2	-20	Pass
NVNT	1-DH1	2441	Ant1	-27.57	-20	Pass
NVNT	1-DH1	2480	Ant1	-31.64	-20	Pass
NVNT	2-DH1	2402	Ant1	-31	-20	Pass
NVNT	2-DH1	2441	Ant1	-28.86	-20	Pass
NVNT	2-DH1	2480	Ant1	-28.12	-20	Pass
NVNT	3-DH1	2402	Ant1	-31.56	-20	Pass
NVNT	3-DH1	2441	Ant1	-30.55	-20	Pass
NVNT	3-DH1	2480	Ant1	-32.12	-20	Pass

Test Graphs

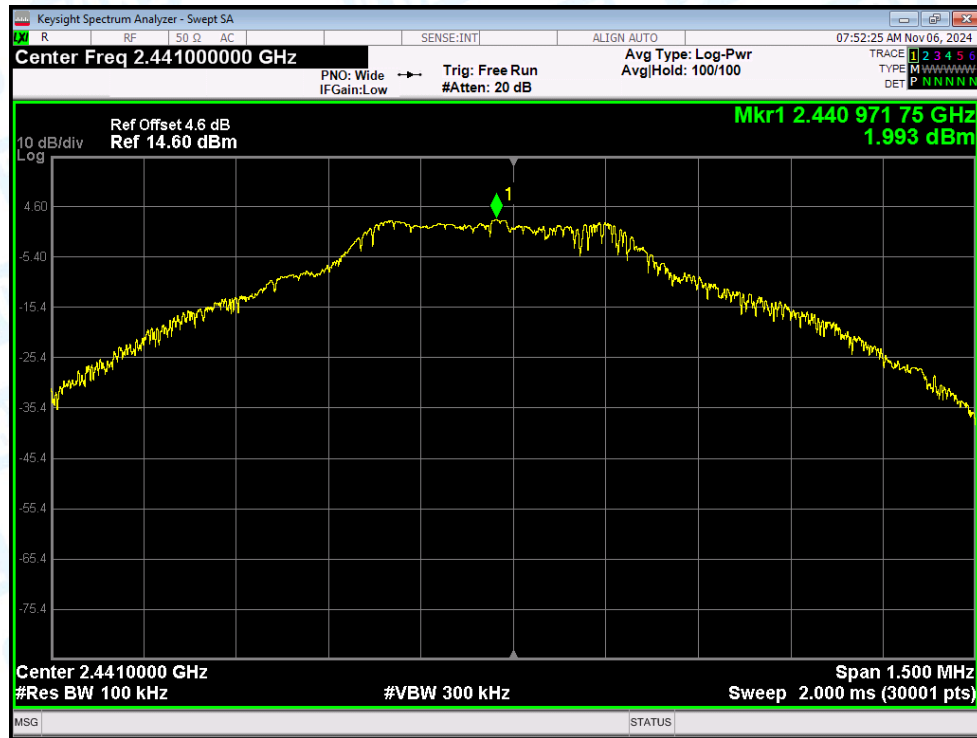
Tx. Spurious NVNT 1-DH1 2402MHz Ant1 Ref



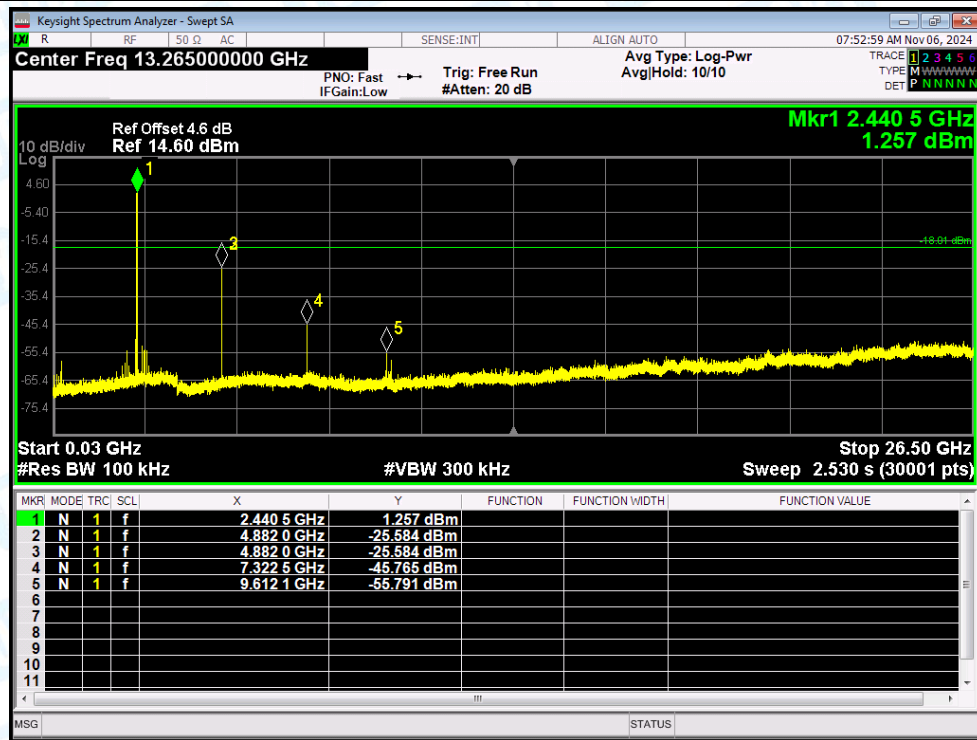
Tx. Spurious NVNT 1-DH1 2402MHz Ant1 Emission



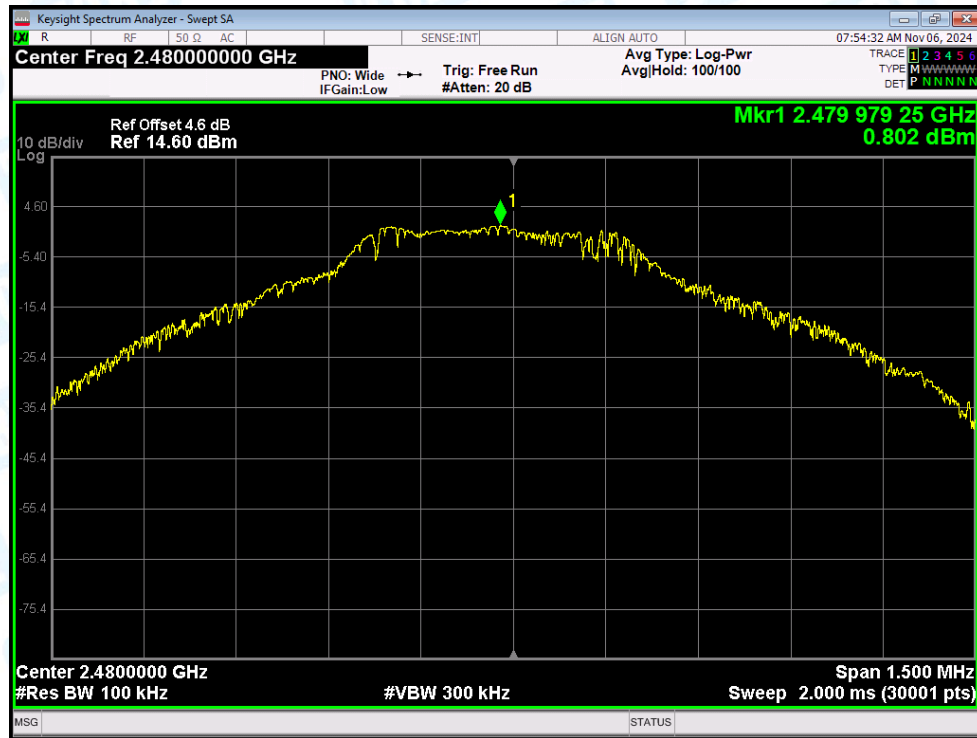
Tx. Spurious NVNT 1-DH1 2441MHz Ant1 Ref



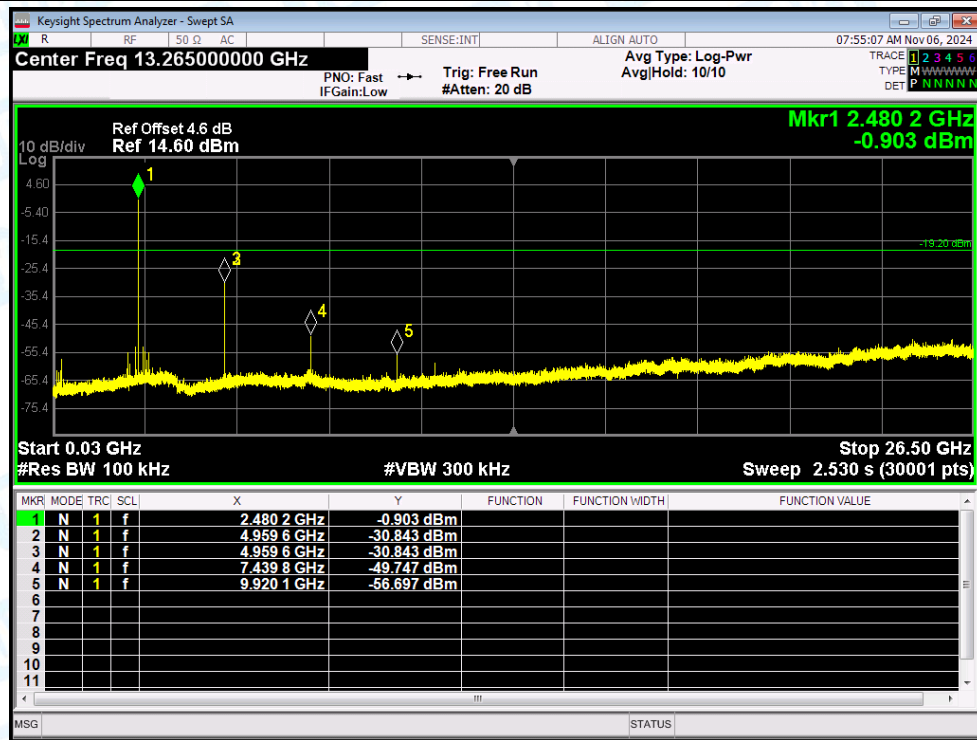
Tx. Spurious NVNT 1-DH1 2441MHz Ant1 Emission



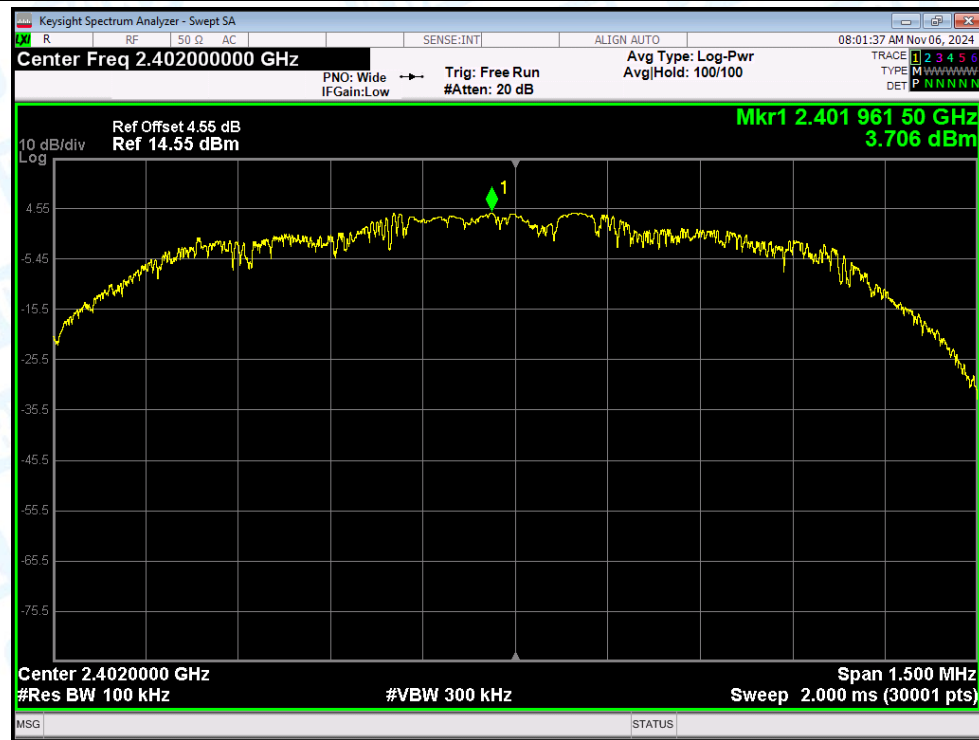
Tx. Spurious NVNT 1-DH1 2480MHz Ant1 Ref



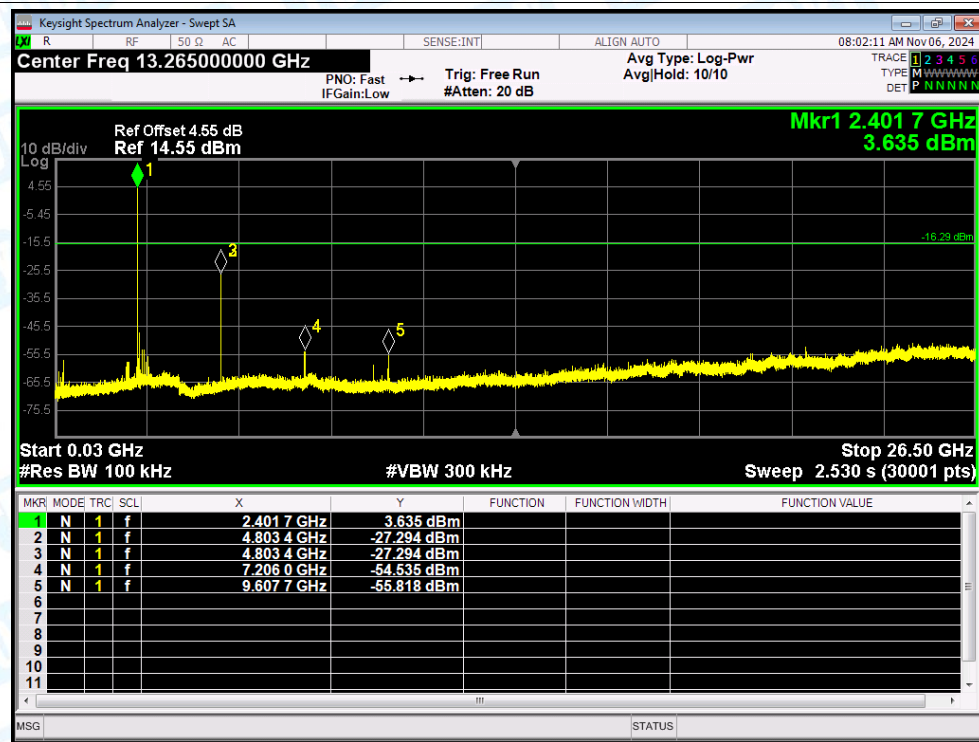
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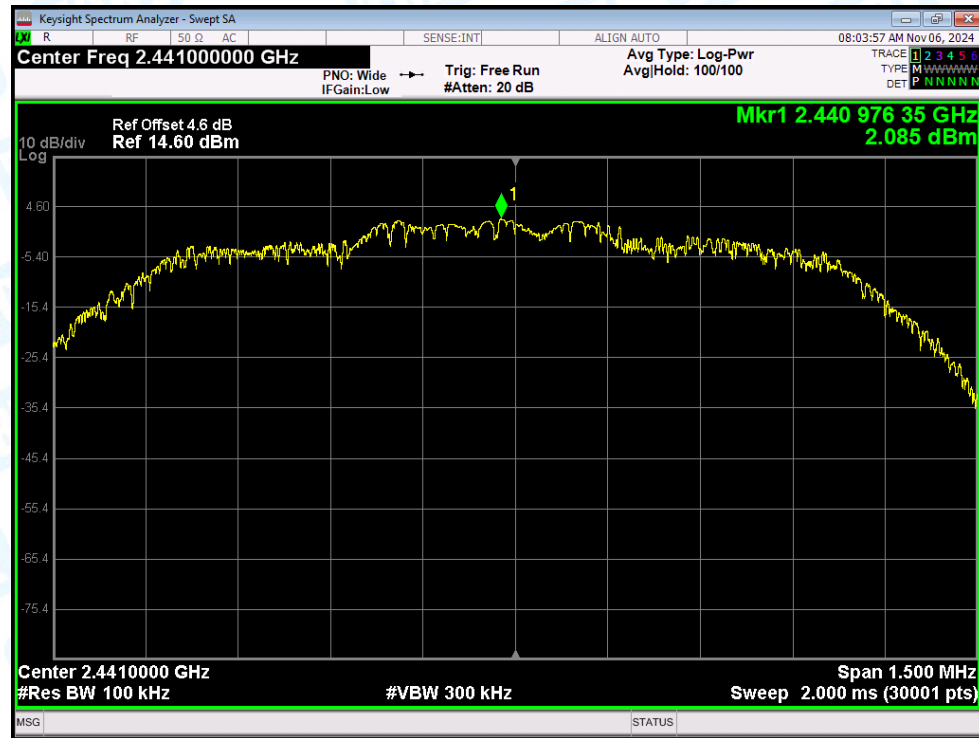
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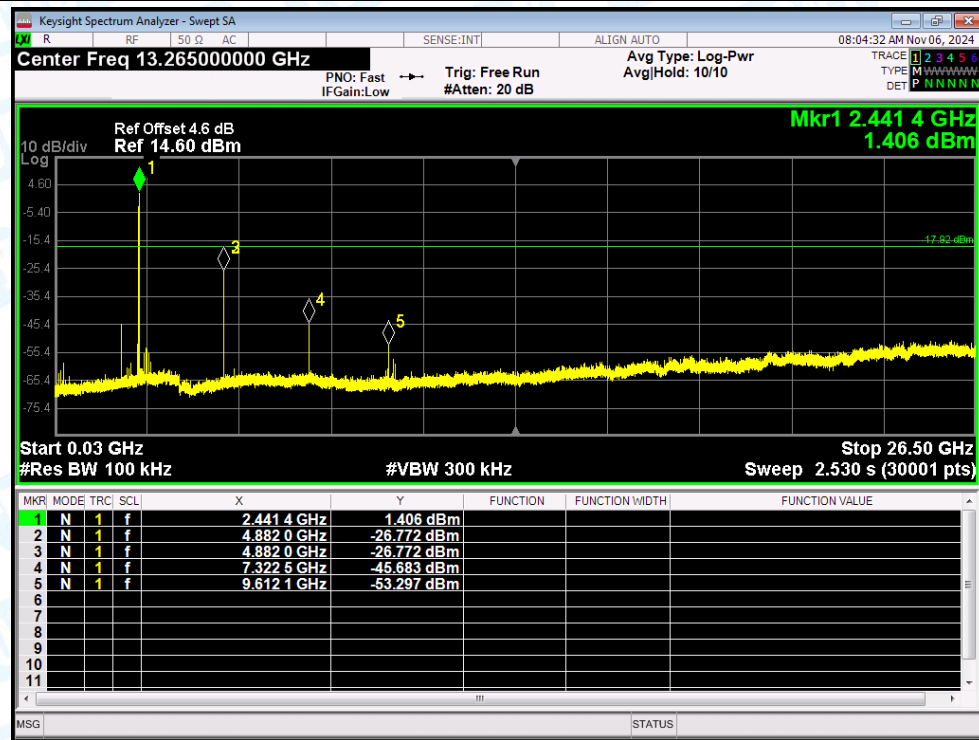
Tx. Spurious NVNT 2-DH1 2402MHz Ant1 Emission



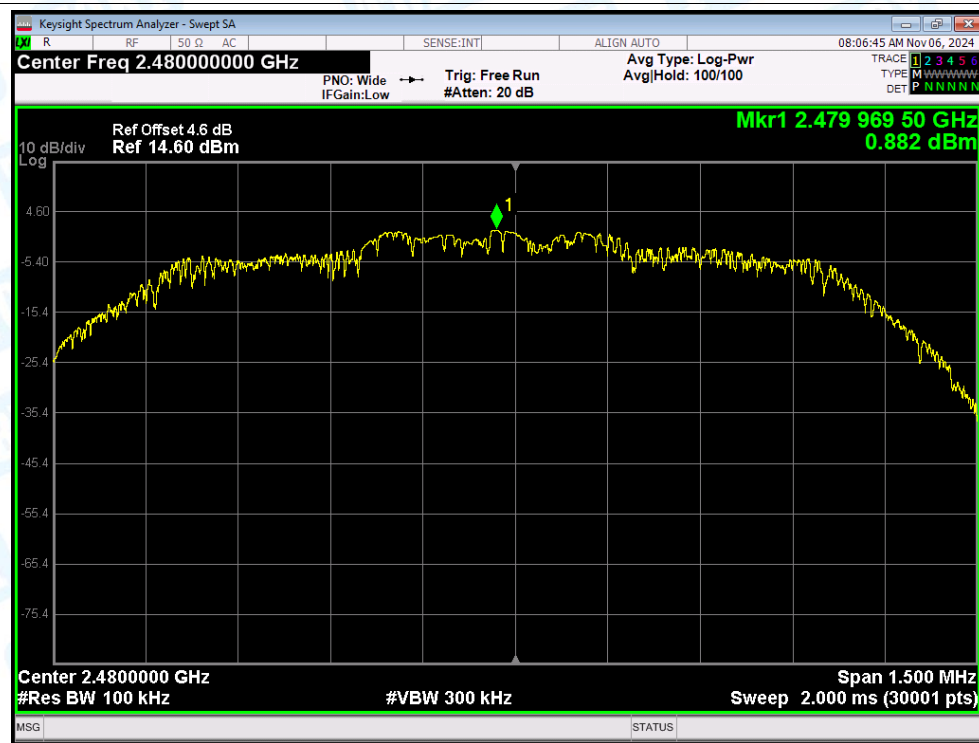
Tx. Spurious NVNT 2-DH1 2441MHz Ant1 Ref



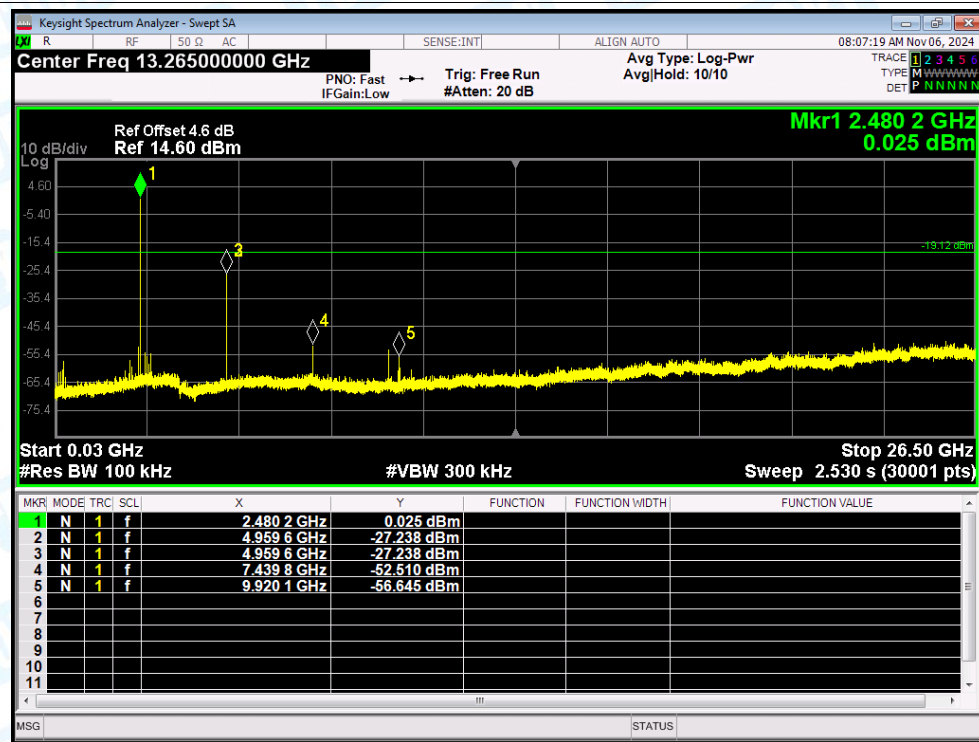
Tx. Spurious NVNT 2-DH1 2441MHz Ant1 Emission



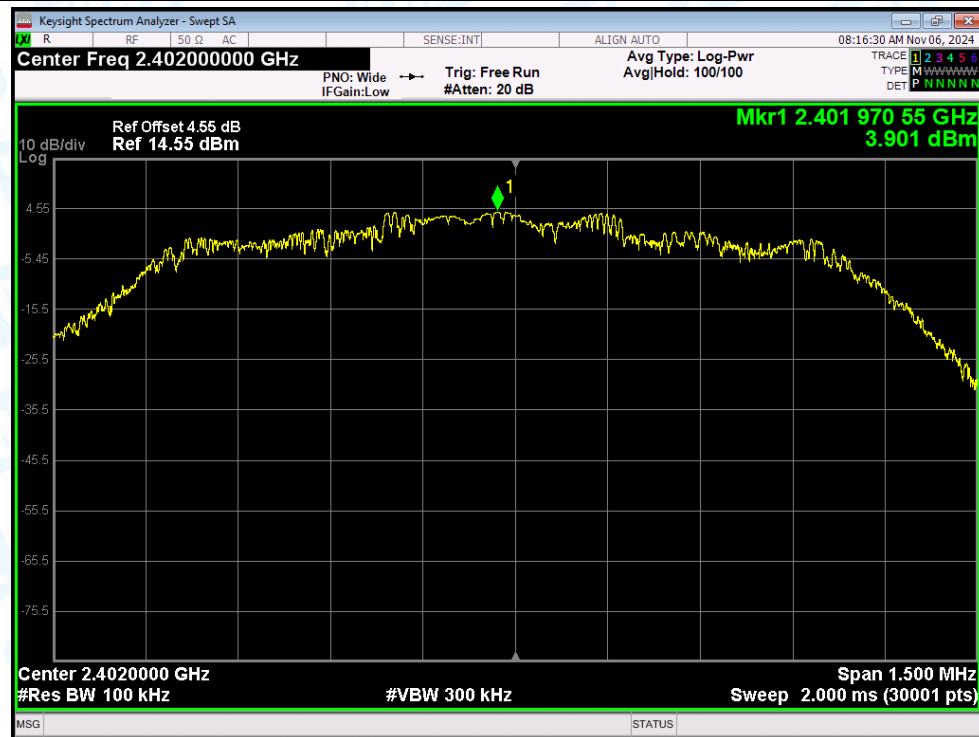
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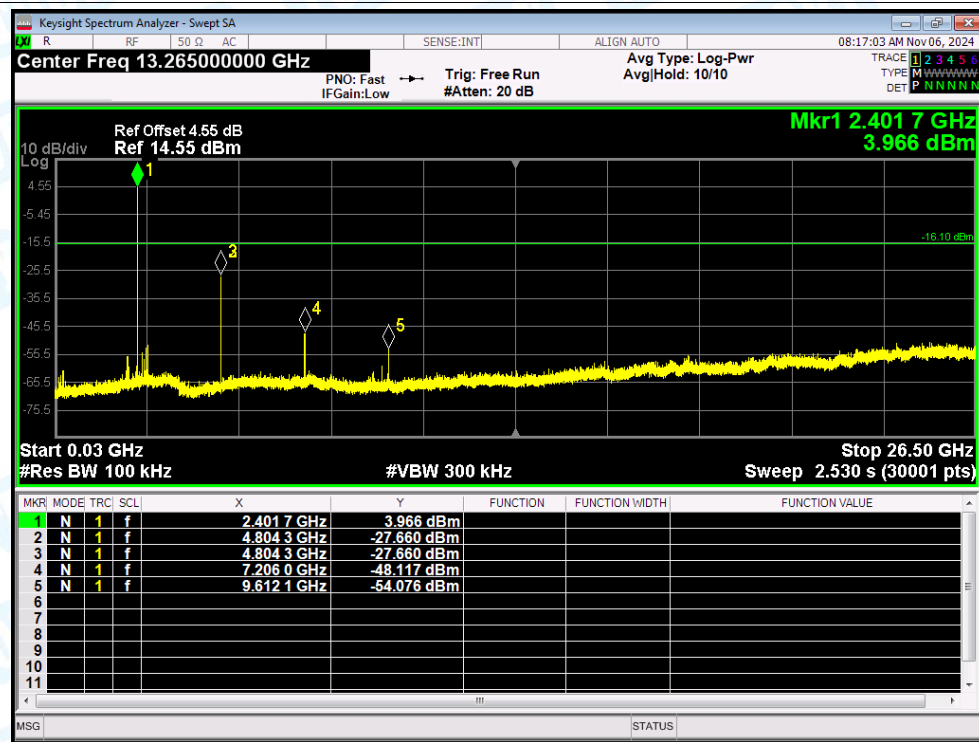
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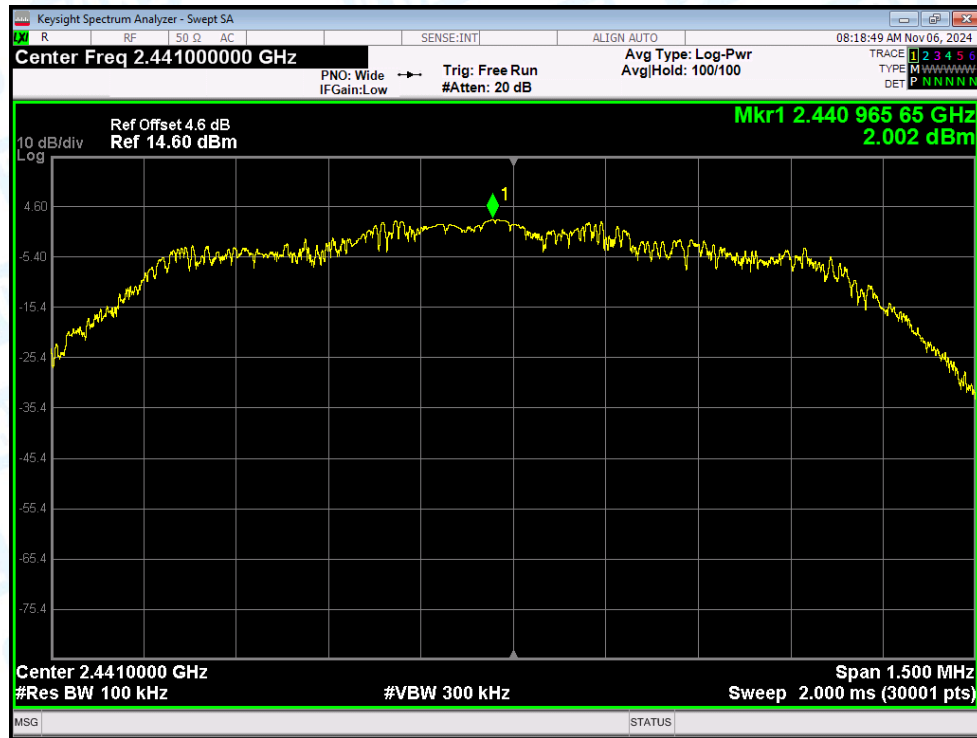
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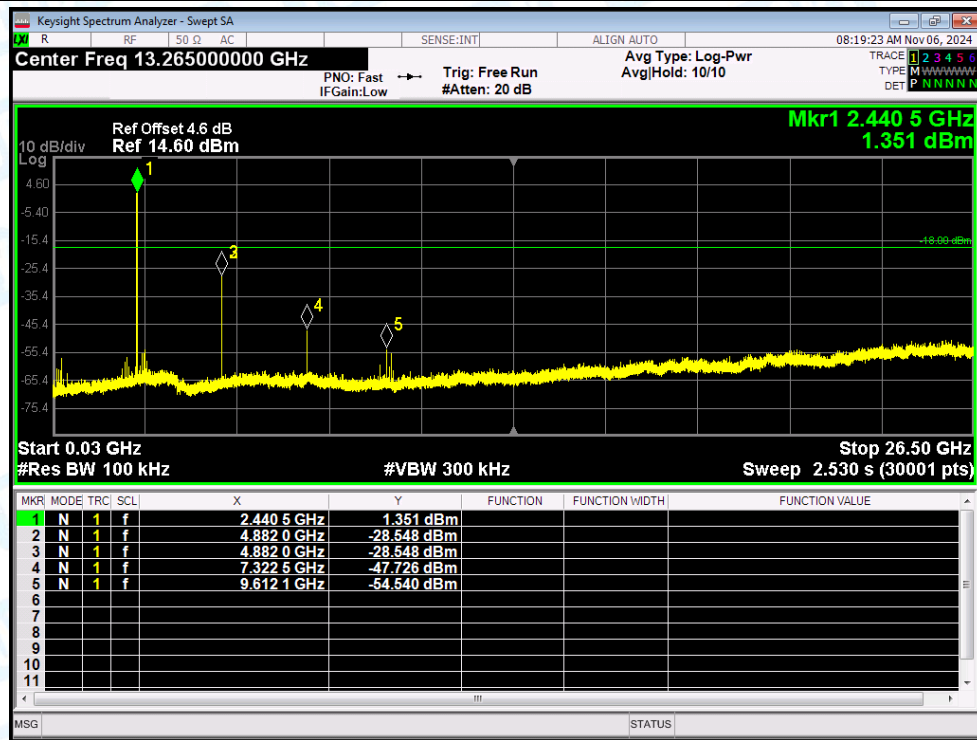
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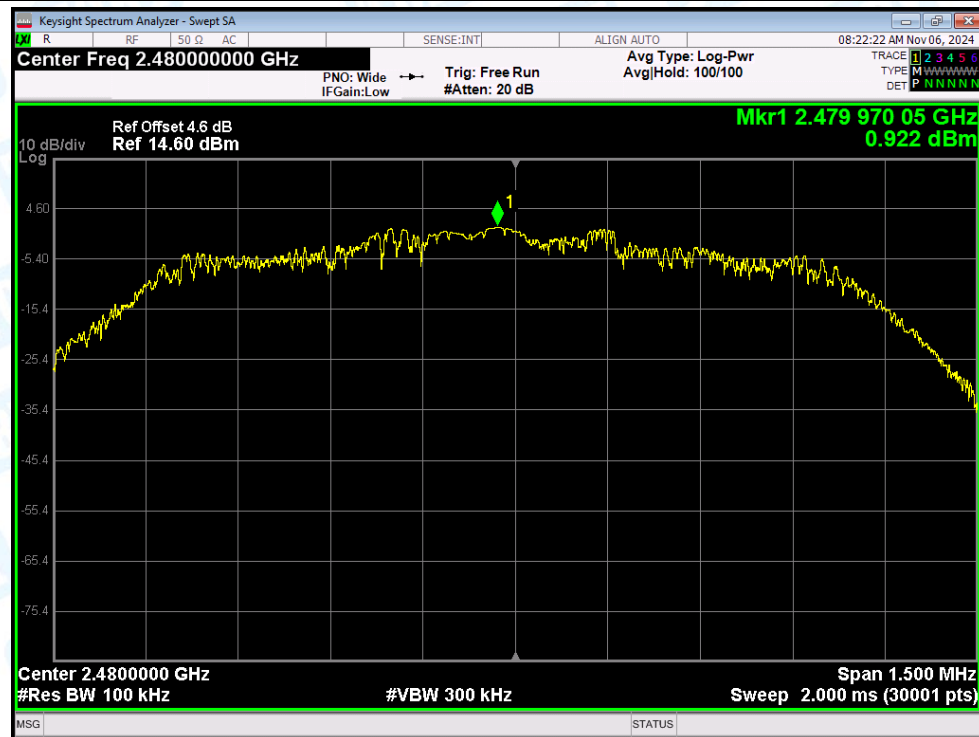
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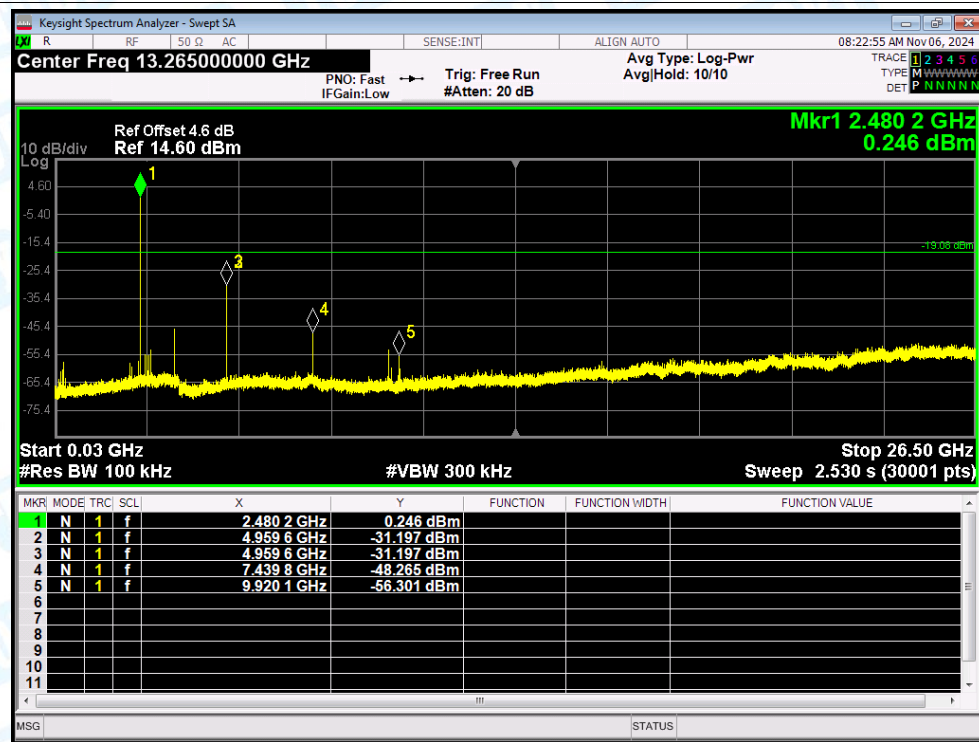
Tx. Spurious NVNT 3-DH1 2441MHz Ant1 Emission



Tx. Spurious NVNT 3-DH1 2480MHz Ant1 Ref



Tx. Spurious NVNT 3-DH1 2480MHz Ant1 Emission

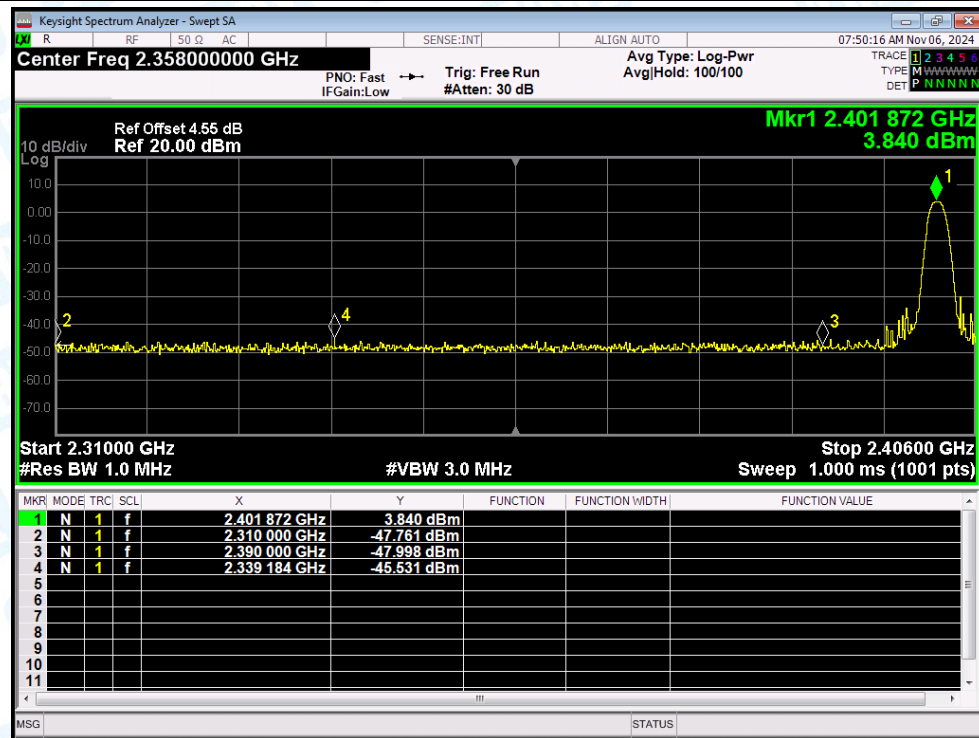


8.Restrict Band

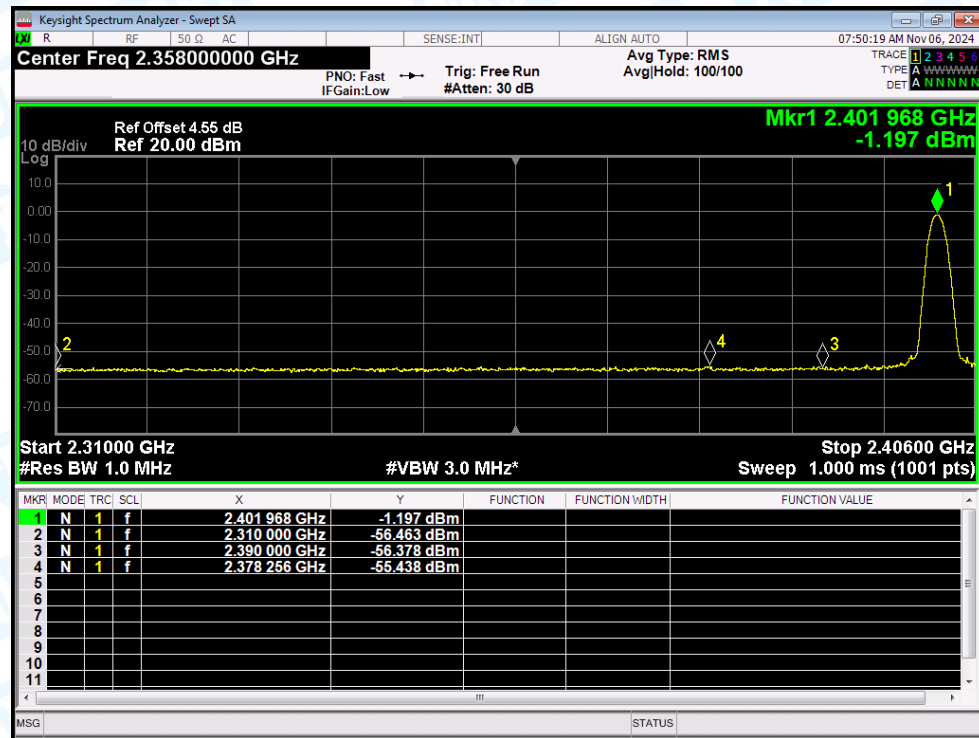
Condition	Mode	Frequency (MHz)	Antenna	Hopping Mode	Spur Freq (MHz)	Power (dBm)	Gain (dBi)	Duty Factor (dB)	E (dBuV/m)	Detector	Limit (dBuV/m)	Verdict
NVNT	1-DH1	2402	Ant1	No-Hopping	2310	-47.76	2	-	49.5	Peak	74	Pass
NVNT	1-DH1	2402	Ant1	No-Hopping	2310	-56.46	2	4.95	45.75	Average	54	Pass
NVNT	1-DH1	2402	Ant1	No-Hopping	2339.184	-45.53	2	-	51.73	Peak	74	Pass
NVNT	1-DH1	2402	Ant1	No-Hopping	2378.256	-55.44	2	4.95	46.77	Average	54	Pass
NVNT	1-DH1	2402	Ant1	No-Hopping	2390	-48	2	-	49.26	Peak	74	Pass
NVNT	1-DH1	2402	Ant1	No-Hopping	2390	-56.38	2	4.95	45.83	Average	54	Pass
NVNT	1-DH1	2480	Ant1	No-Hopping	2483.5	-40.93	2	-	56.33	Peak	74	Pass
NVNT	1-DH1	2480	Ant1	No-Hopping	2483.5	-54.19	2	4.95	48.02	Average	54	Pass
NVNT	1-DH1	2480	Ant1	No-Hopping	2483.656	-38.48	2	-	58.78	Peak	74	Pass
NVNT	1-DH1	2480	Ant1	No-Hopping	2483.584	-54.08	2	4.95	48.13	Average	54	Pass
NVNT	1-DH1	2480	Ant1	No-Hopping	2500	-46.52	2	-	50.74	Peak	74	Pass
NVNT	1-DH1	2480	Ant1	No-Hopping	2500	-55.81	2	4.95	46.4	Average	54	Pass
NVNT	2-DH1	2402	Ant1	No-Hopping	2310	-46.29	2	-	50.97	Peak	74	Pass
NVNT	2-DH1	2402	Ant1	No-Hopping	2310	-56.31	2	4.74	45.69	Average	54	Pass
NVNT	2-DH1	2402	Ant1	No-Hopping	2353.2	-45.12	2	-	52.14	Peak	74	Pass
NVNT	2-DH1	2402	Ant1	No-Hopping	2378.544	-55.2	2	4.74	46.8	Average	54	Pass
NVNT	2-DH1	2402	Ant1	No-Hopping	2390	-48.23	2	-	49.03	Peak	74	Pass
NVNT	2-DH1	2402	Ant1	No-Hopping	2390	-55.93	2	4.74	46.07	Average	54	Pass
NVNT	2-DH1	2480	Ant1	No-Hopping	2483.5	-38.96	2	-	58.3	Peak	74	Pass
NVNT	2-DH1	2480	Ant1	No-Hopping	2483.5	-55.03	2	4.74	46.97	Average	54	Pass
NVNT	2-DH1	2480	Ant1	No-Hopping	2483.512	-38.96	2	-	58.3	Peak	74	Pass
NVNT	2-DH1	2480	Ant1	No-Hopping	2483.656	-54.46	2	4.74	47.54	Average	54	Pass
NVNT	2-DH1	2480	Ant1	No-Hopping	2500	-47.48	2	-	49.78	Peak	74	Pass
NVNT	2-DH1	2480	Ant1	No-Hopping	2500	-55.62	2	4.74	46.38	Average	54	Pass
NVNT	3-DH1	2402	Ant1	No-Hopping	2310	-49.86	2	-	47.4	Peak	74	Pass
NVNT	3-DH1	2402	Ant1	No-Hopping	2310	-56.02	2	4.84	46.08	Average	54	Pass
NVNT	3-DH1	2402	Ant1	No-Hopping	2388.432	-45.09	2	-	52.17	Peak	74	Pass
NVNT	3-DH1	2402	Ant1	No-Hopping	2377.392	-55.32	2	4.84	46.78	Average	54	Pass
NVNT	3-DH1	2402	Ant1	No-Hopping	2390	-47.63	2	-	49.63	Peak	74	Pass
NVNT	3-DH1	2402	Ant1	No-Hopping	2390	-55.35	2	4.84	46.75	Average	54	Pass
NVNT	3-DH1	2480	Ant1	No-Hopping	2483.5	-37.97	2	-	59.29	Peak	74	Pass
NVNT	3-DH1	2480	Ant1	No-Hopping	2483.5	-55.06	2	4.84	47.04	Average	54	Pass
NVNT	3-DH1	2480	Ant1	No-Hopping	2483.512	-37.97	2	-	59.29	Peak	74	Pass
NVNT	3-DH1	2480	Ant1	No-Hopping	2484.328	-54.32	2	4.84	47.78	Average	54	Pass
NVNT	3-DH1	2480	Ant1	No-Hopping	2500	-47.89	2	-	49.37	Peak	74	Pass
NVNT	3-DH1	2480	Ant1	No-Hopping	2500	-55.68	2	4.84	46.42	Average	54	Pass

Test Graphs

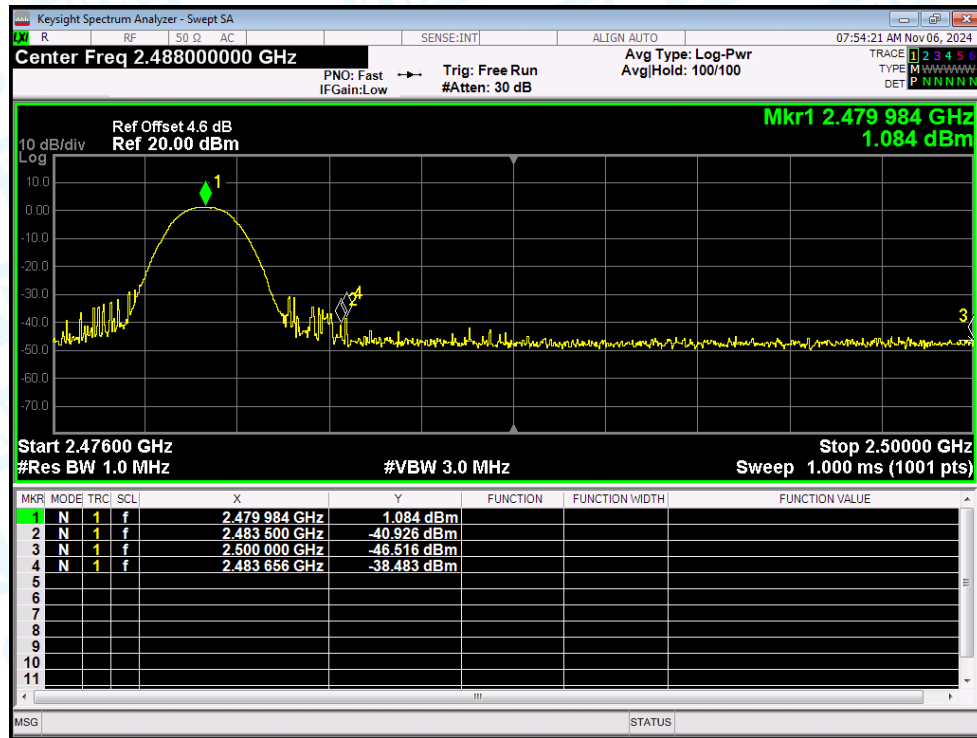
Restrict Band NVNT 1-DH1 2402MHz Ant1 No-Hopping Peak



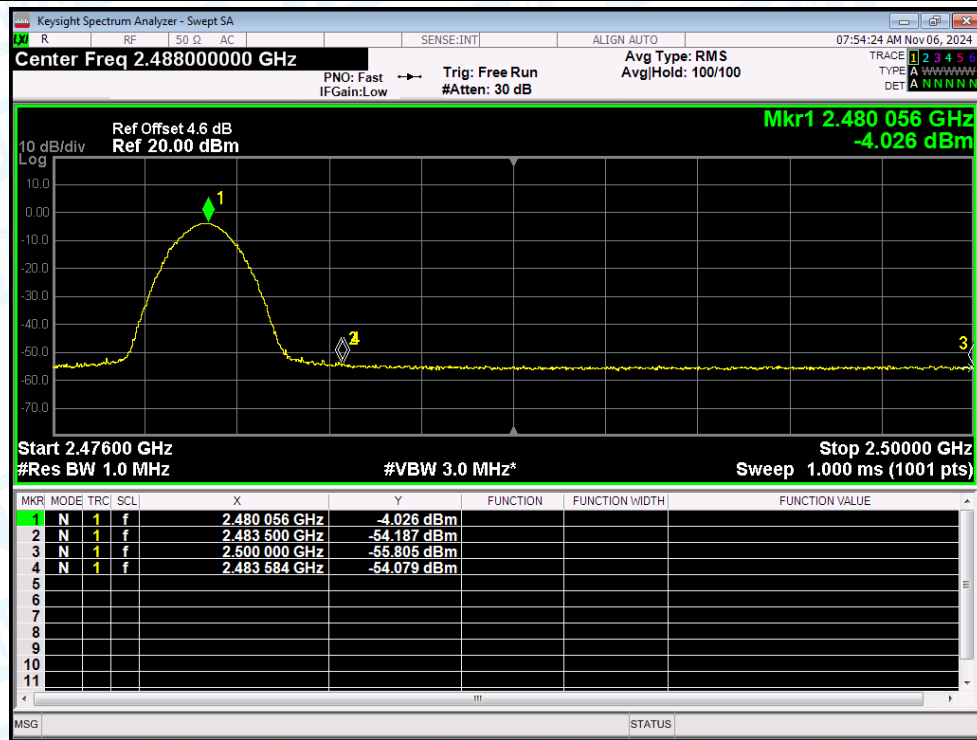
Restrict Band NVNT 1-DH1 2402MHz Ant1 No-Hopping Average



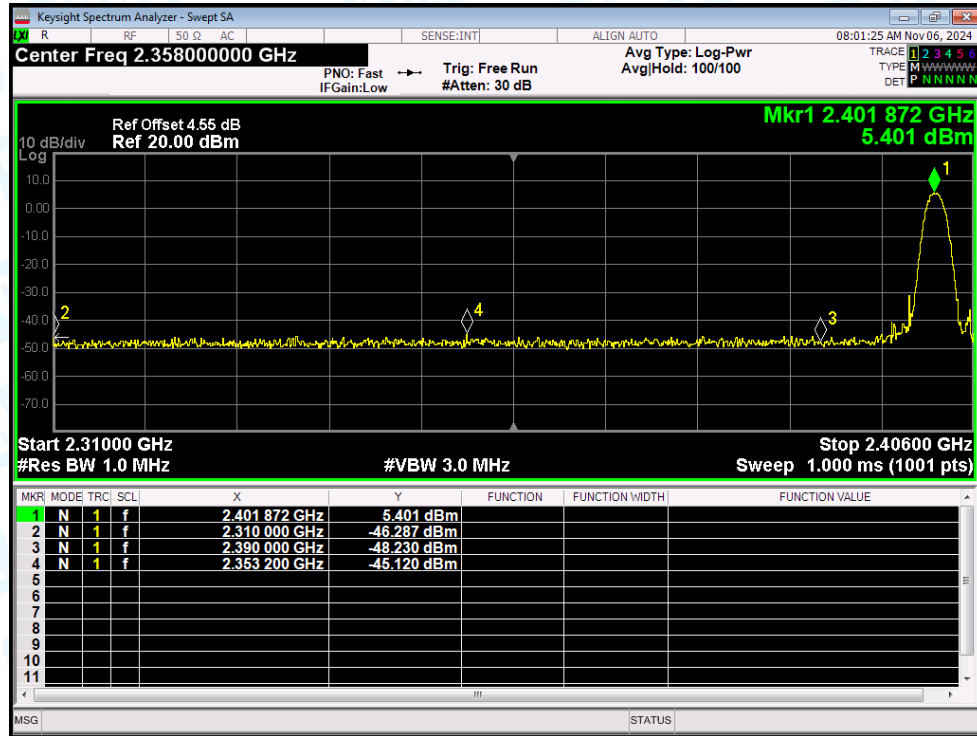
Restrict Band NVNT 1-DH1 2480MHz Ant1 No-Hopping Peak



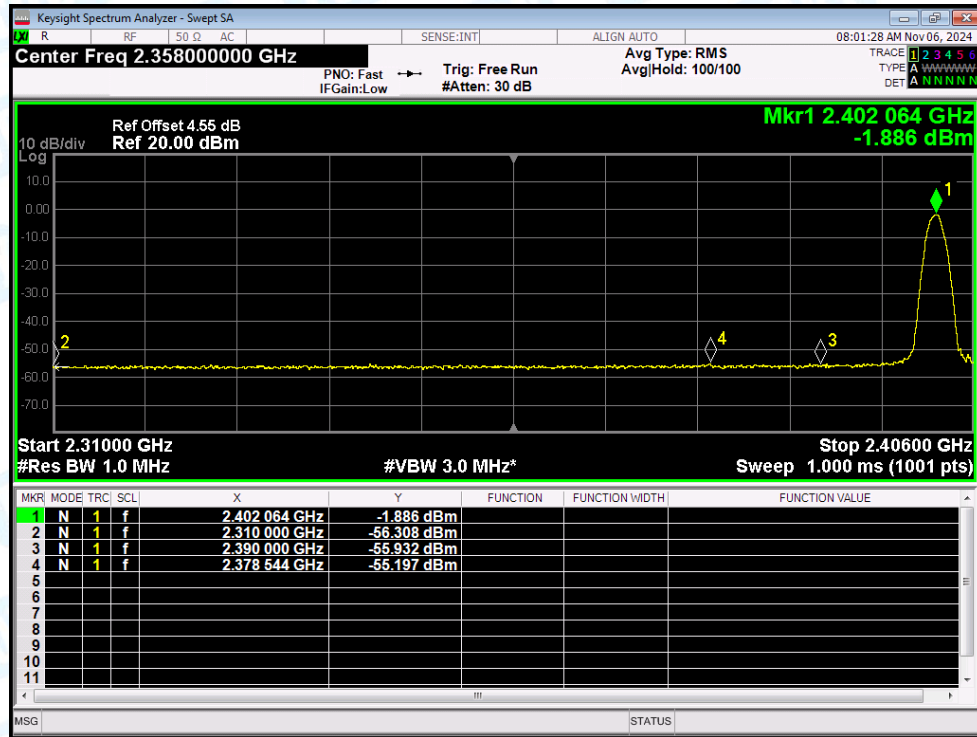
Restrict Band NVNT 1-DH1 2480MHz Ant1 No-Hopping Average



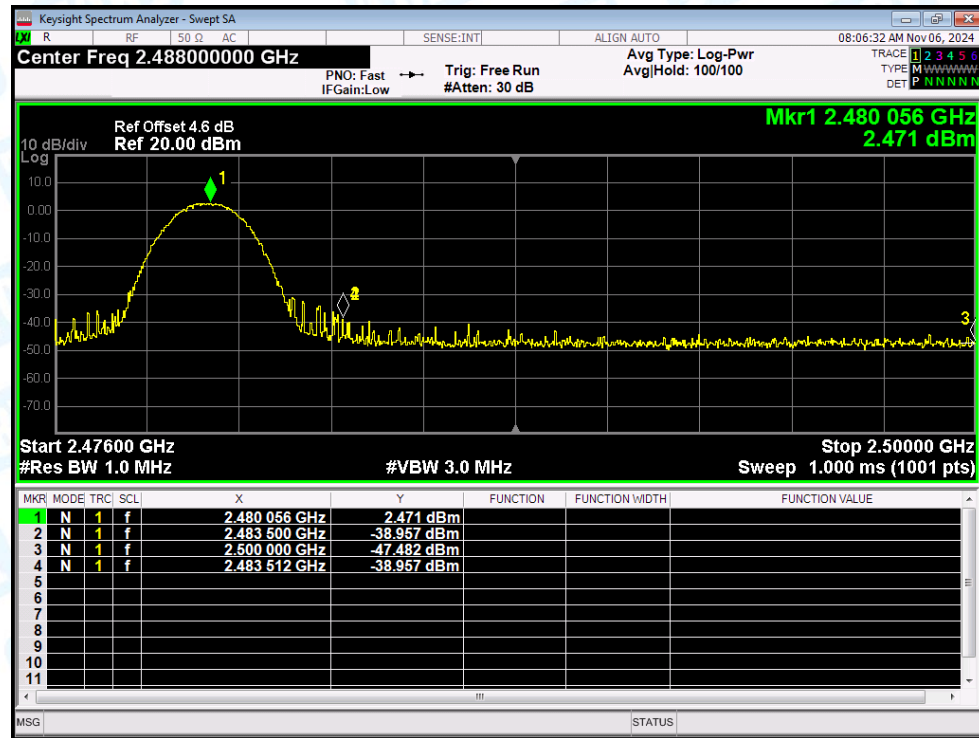
Restrict Band NVNT 2-DH1 2402MHz Ant1 No-Hopping Peak



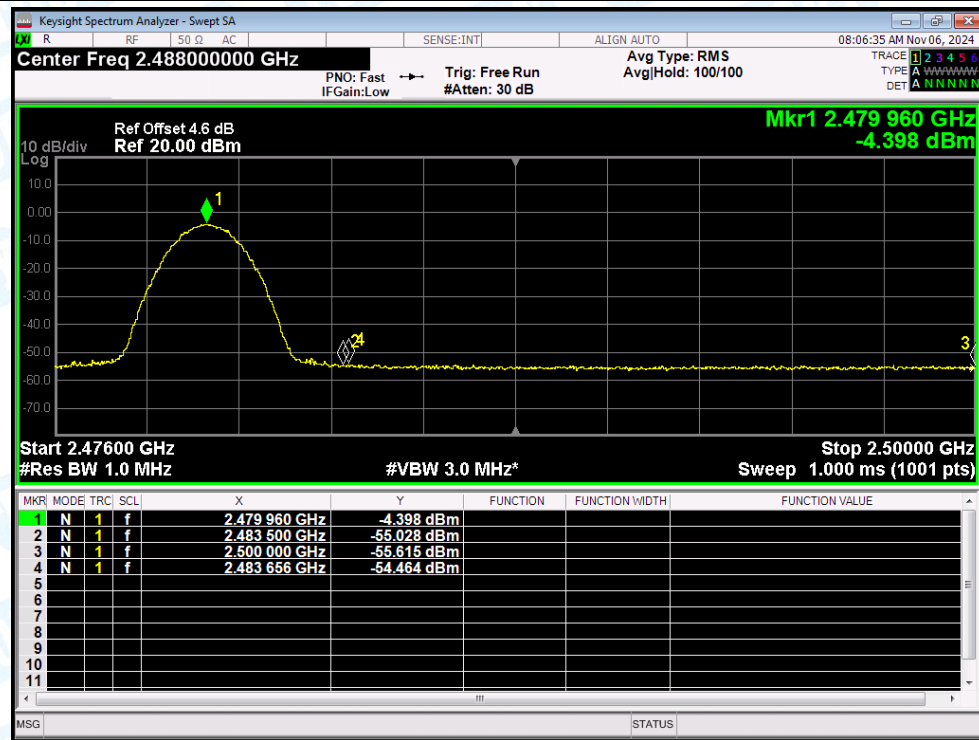
Restrict Band NVNT 2-DH1 2402MHz Ant1 No-Hopping Average



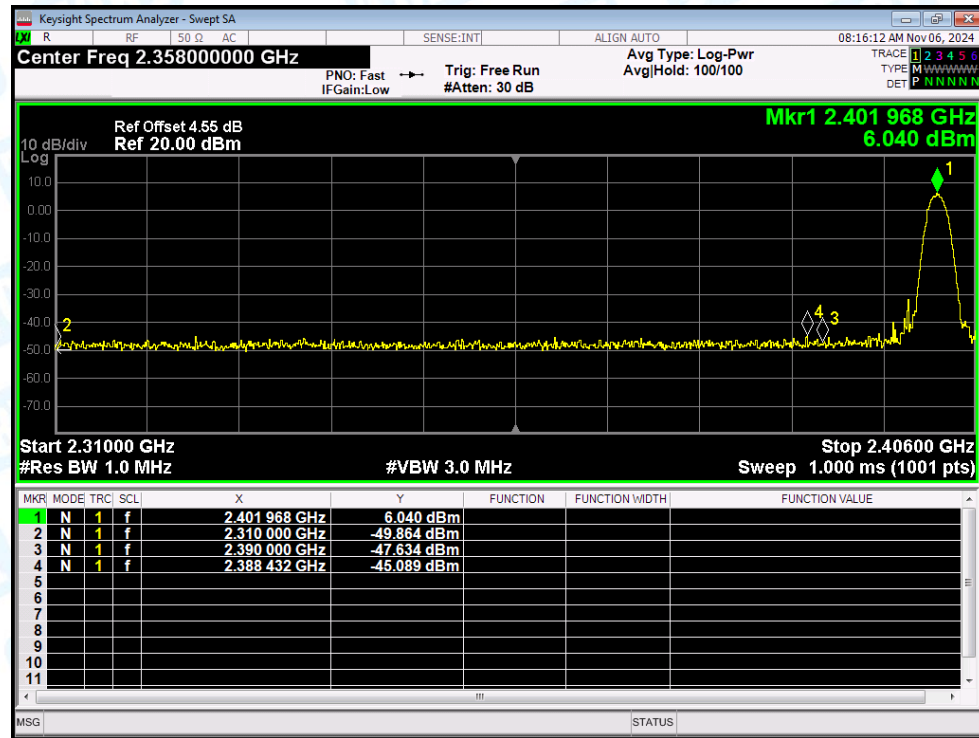
Restrict Band NVNT 2-DH1 2480MHz Ant1 No-Hopping Peak



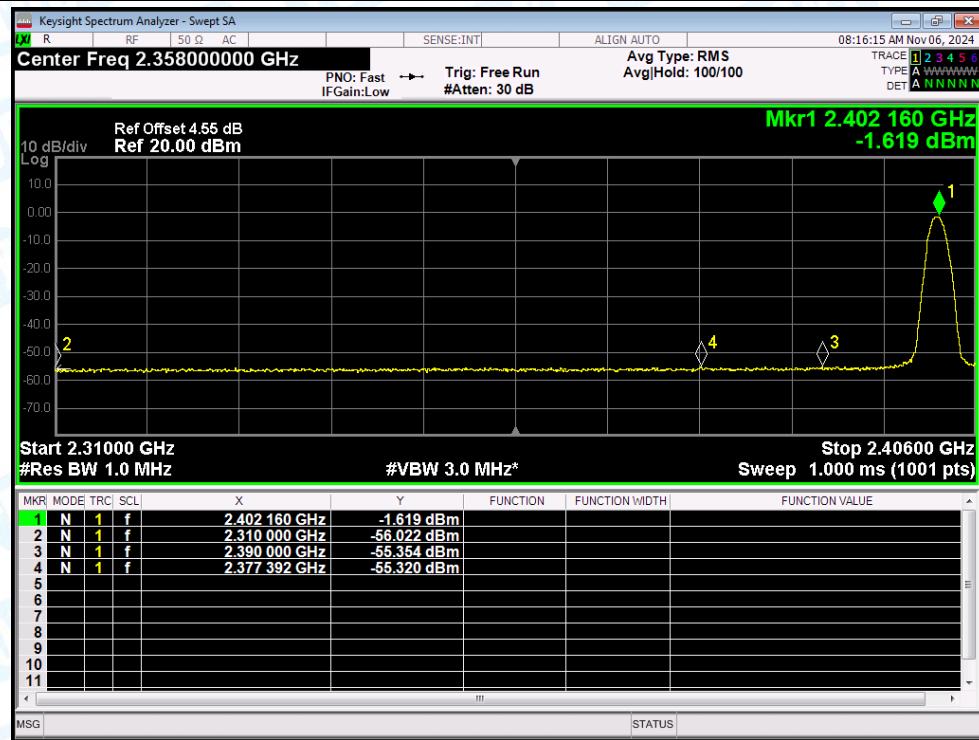
Restrict Band NVNT 2-DH1 2480MHz Ant1 No-Hopping Average



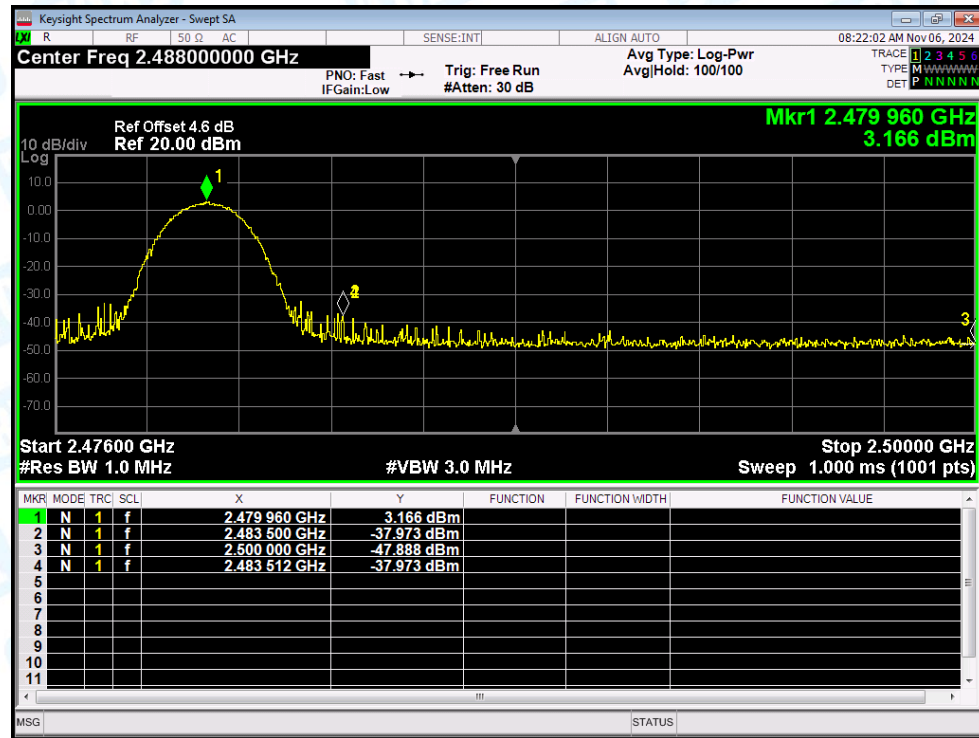
Restrict Band NVNT 3-DH1 2402MHz Ant1 No-Hopping Peak



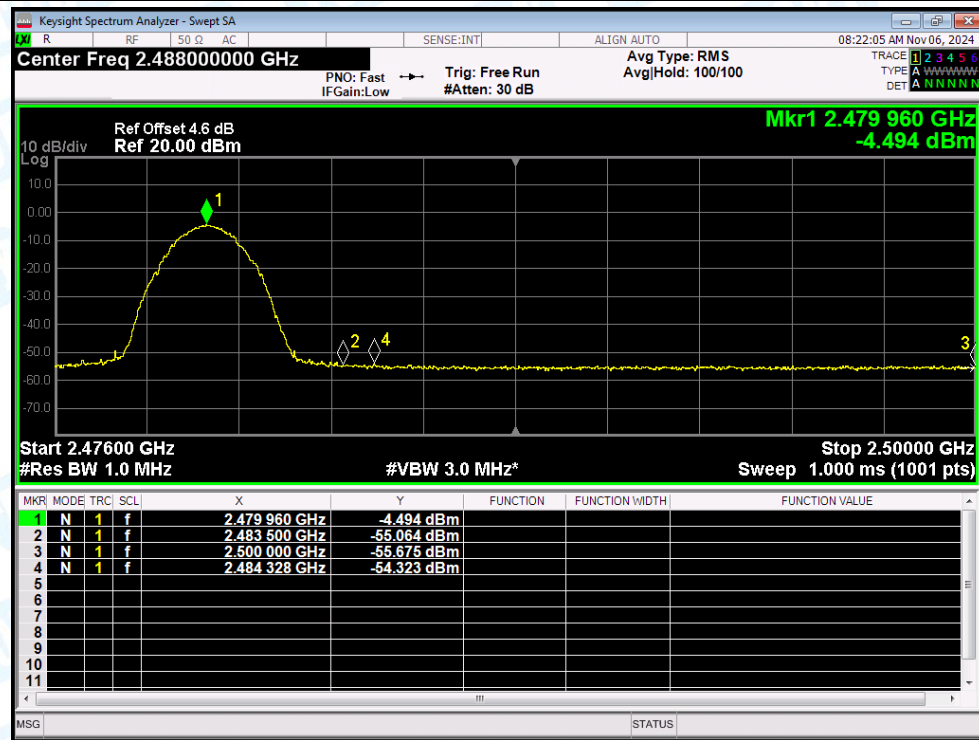
Restrict Band NVNT 3-DH1 2402MHz Ant1 No-Hopping Average



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



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

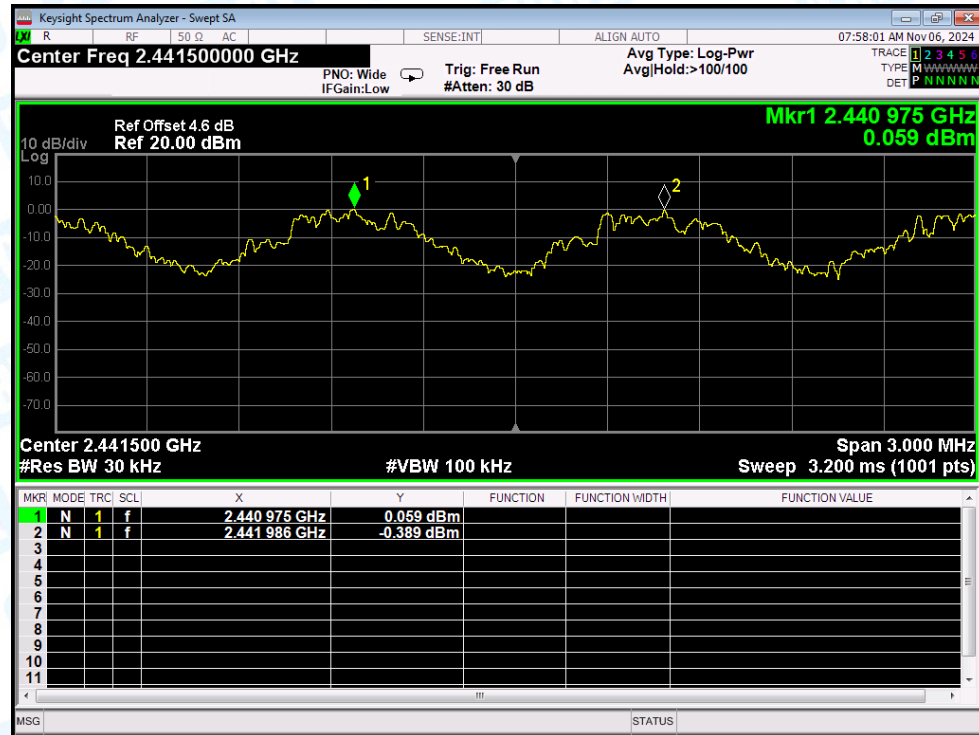


9.Carrier Frequencies Separation

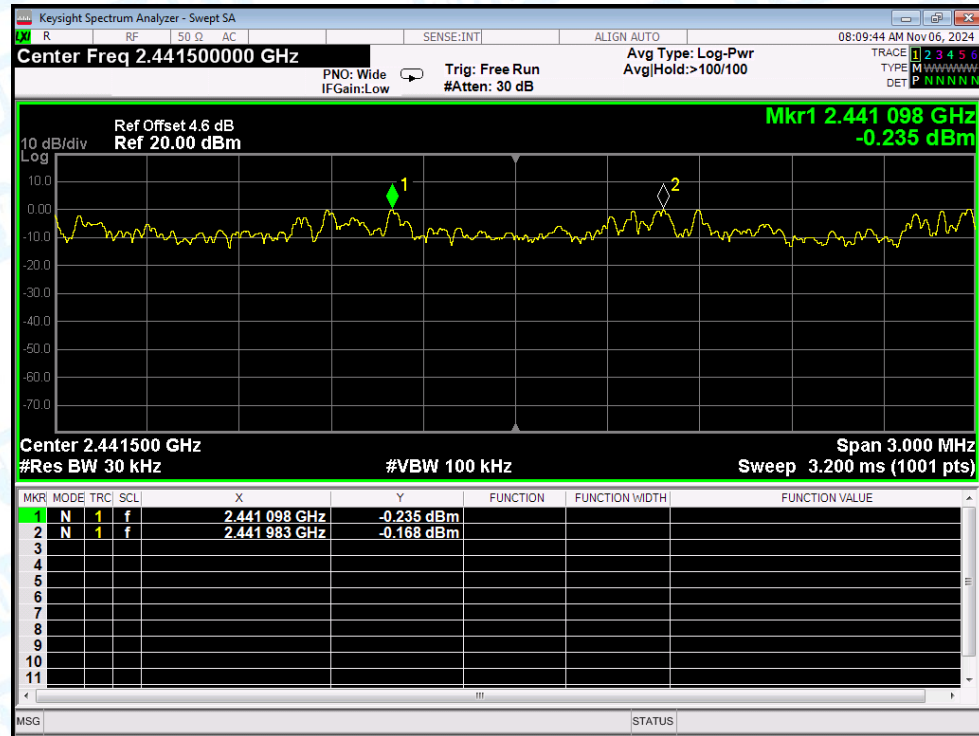
Condition	Mode	Antenna	Hopping Freq1 (MHz)	Hopping Freq2 (MHz)	HFS (MHz)	Limit (MHz)	Verdict
NVNT	1-DH1	Ant1	2440.975	2441.986	1.011	0.62	Pass
NVNT	2-DH1	Ant1	2441.098	2441.983	0.885	0.84	Pass
NVNT	3-DH1	Ant1	2440.975	2441.977	1.002	0.813	Pass

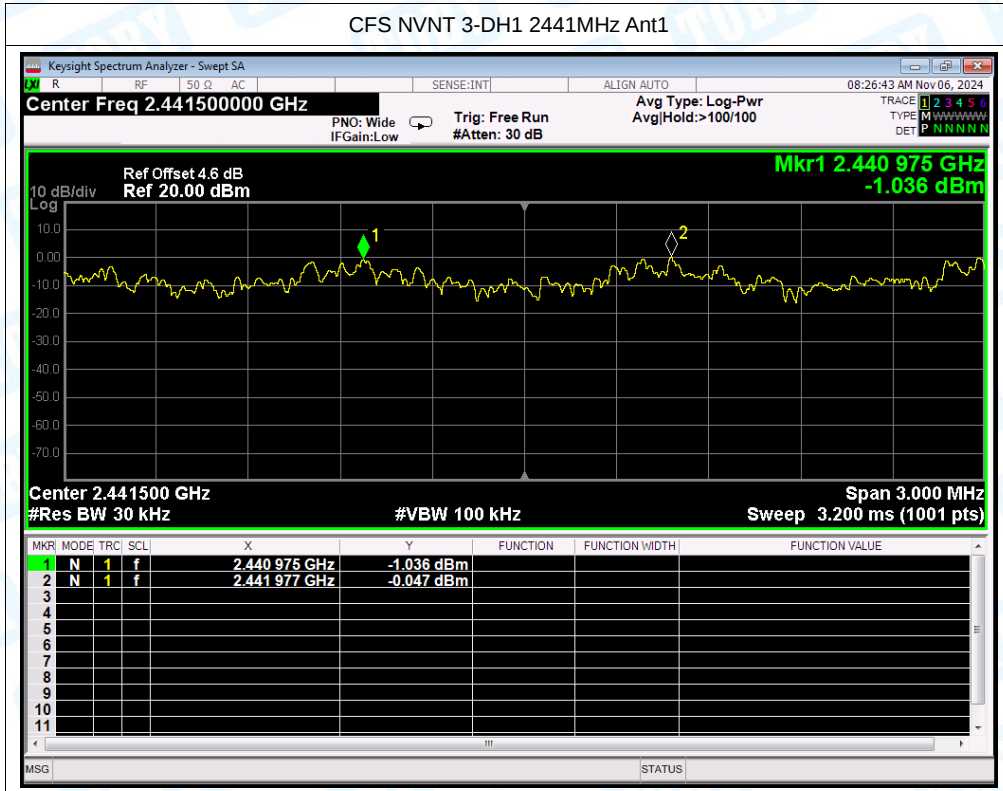
Test Graphs

CFS NVNT 1-DH1 2441MHz Ant1



CFS NVNT 2-DH1 2441MHz Ant1



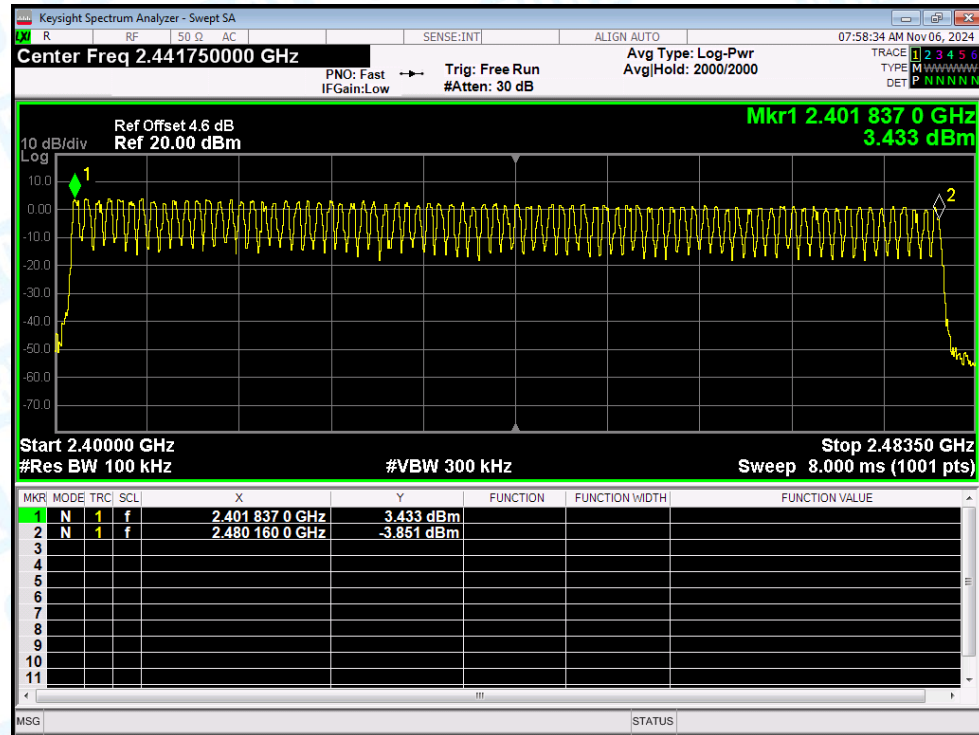


10.Number of Hopping Channel

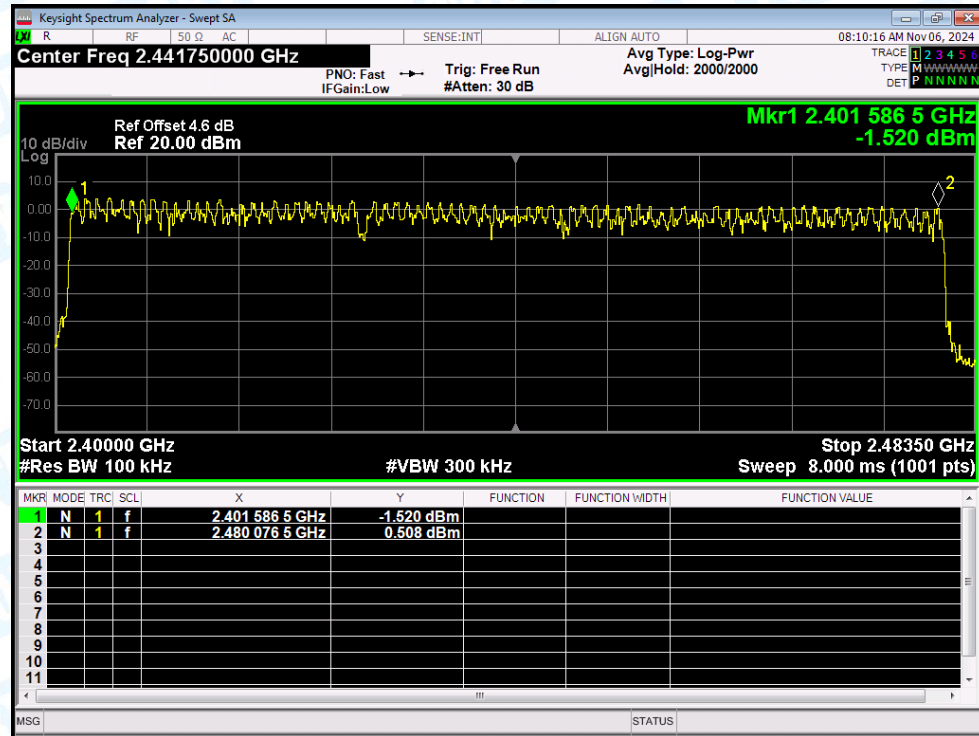
Condition	Mode	Antenna	Hopping Number	Limit	Verdict
NVNT	1-DH1	Ant1	79	15	Pass
NVNT	2-DH1	Ant1	79	15	Pass
NVNT	3-DH1	Ant1	79	15	Pass

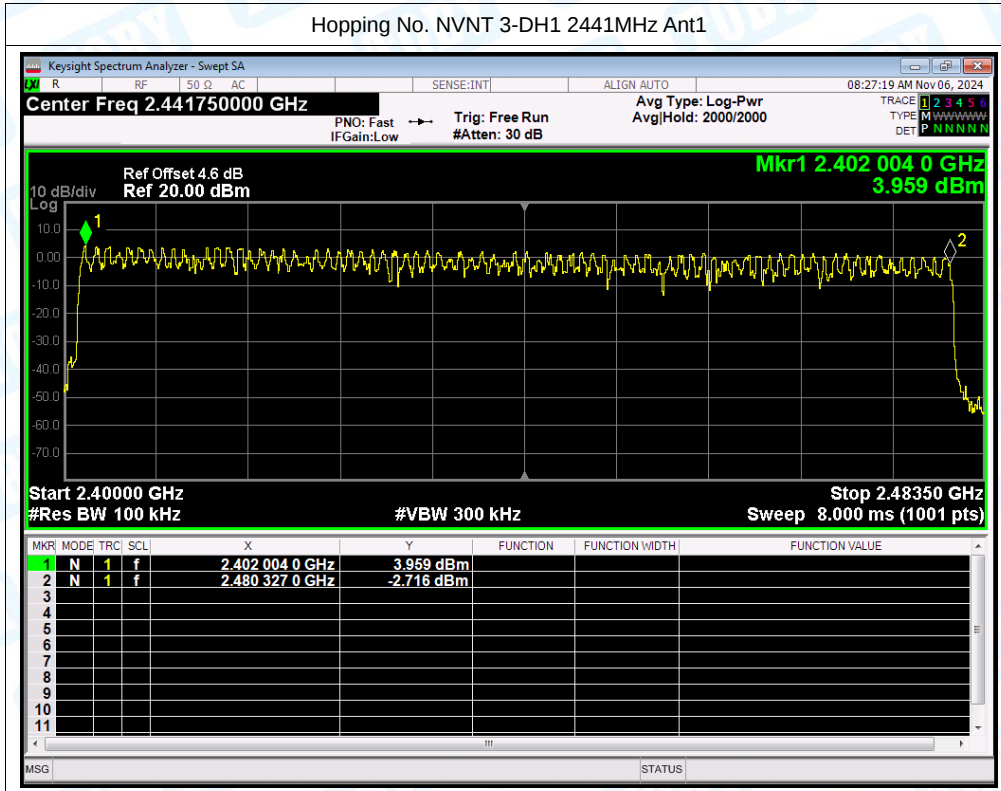
Test Graphs

Hopping No. NVNT 1-DH1 2441MHz Ant1



Hopping No. NVNT 2-DH1 2441MHz Ant1



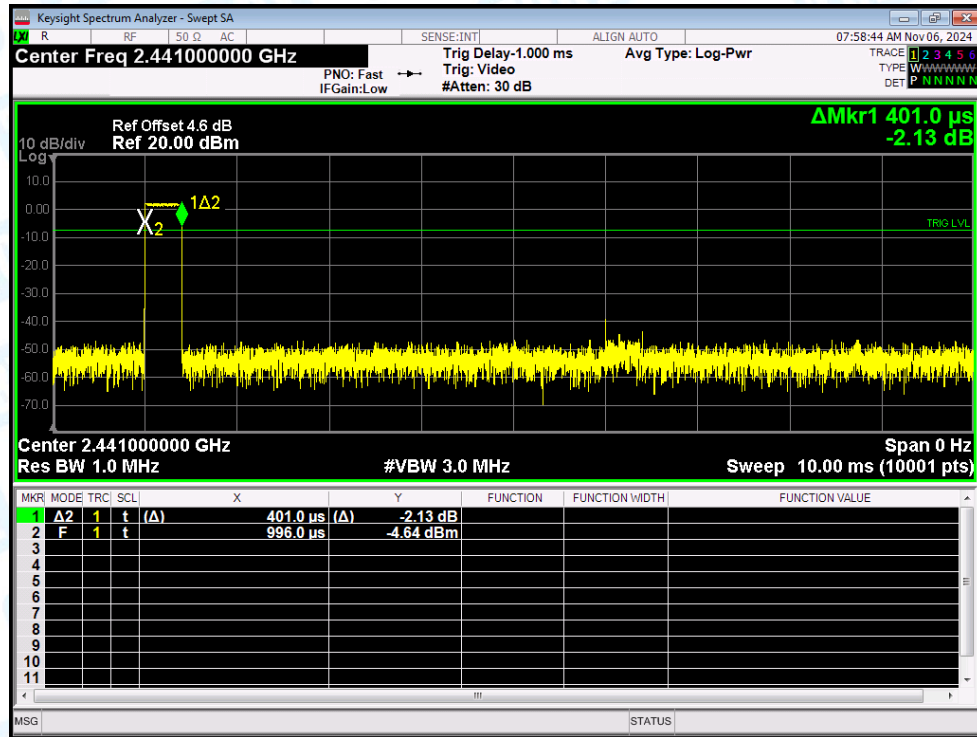


11.Dwell Time

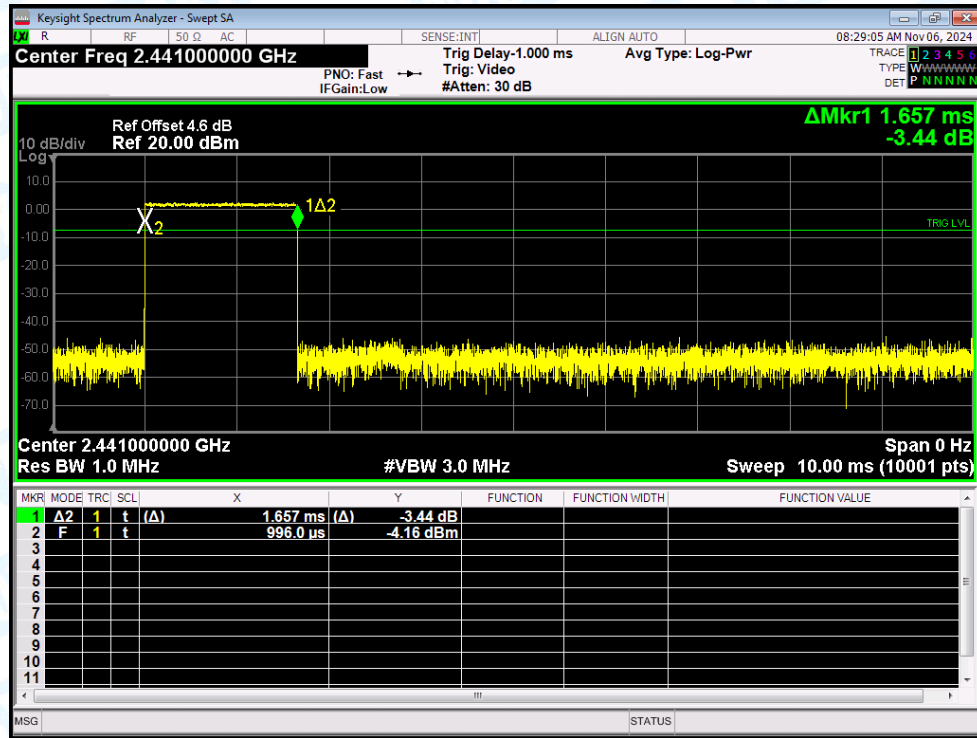
Condition	Mode	Frequency (MHz)	Antenna	Pulse Time (ms)	Total Dwell Time (ms)	Period Time (ms)	Limit (ms)	Verdict
NVNT	1-DH1	2441	Ant1	0.401	128.32	31600	400	Pass
NVNT	1-DH3	2441	Ant1	1.657	265.12	31600	400	Pass
NVNT	1-DH5	2441	Ant1	2.904	309.76	31600	400	Pass
NVNT	2-DH1	2441	Ant1	0.41	131.2	31600	400	Pass
NVNT	2-DH3	2441	Ant1	1.662	265.92	31600	400	Pass
NVNT	2-DH5	2441	Ant1	2.911	310.507	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

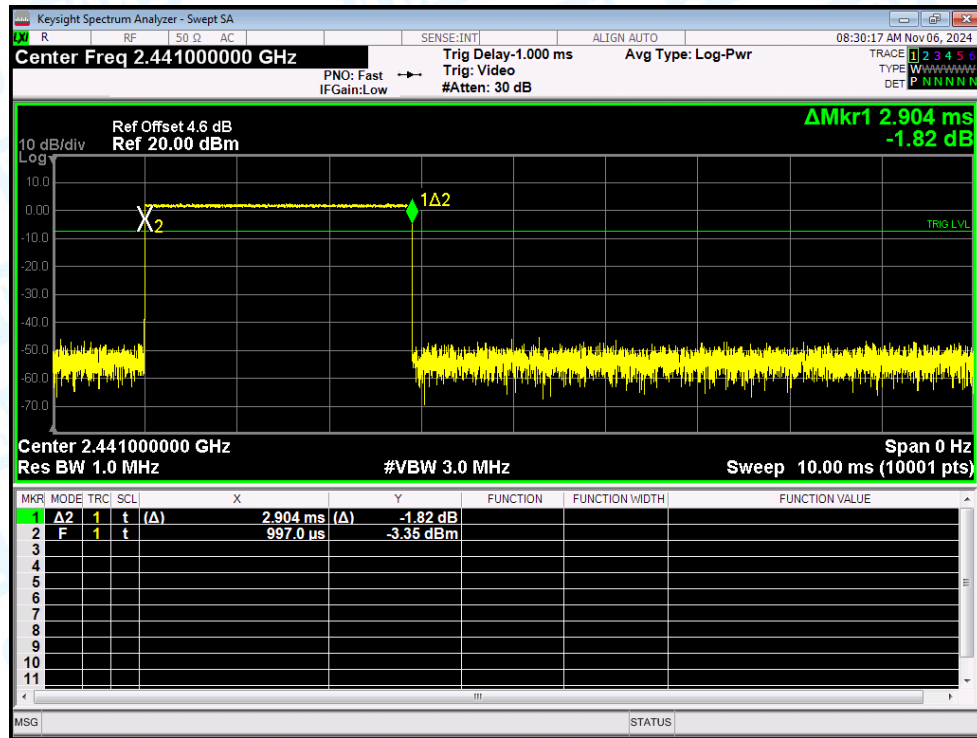
Dwell NVNT 1-DH1 2441MHz Ant1



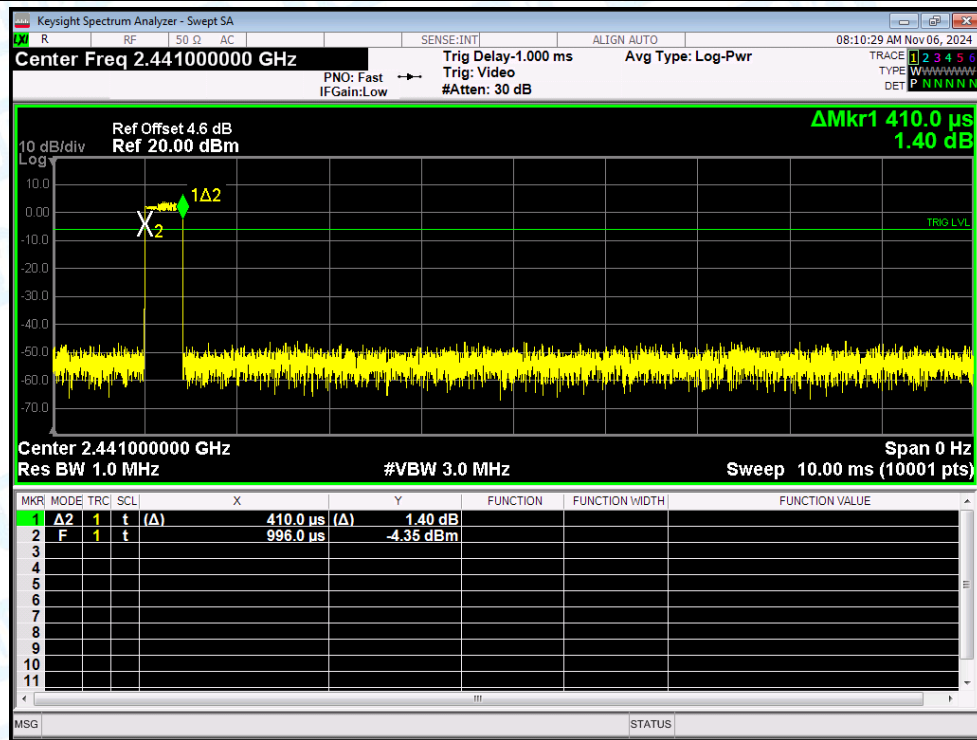
Dwell NVNT 1-DH3 2441MHz Ant1



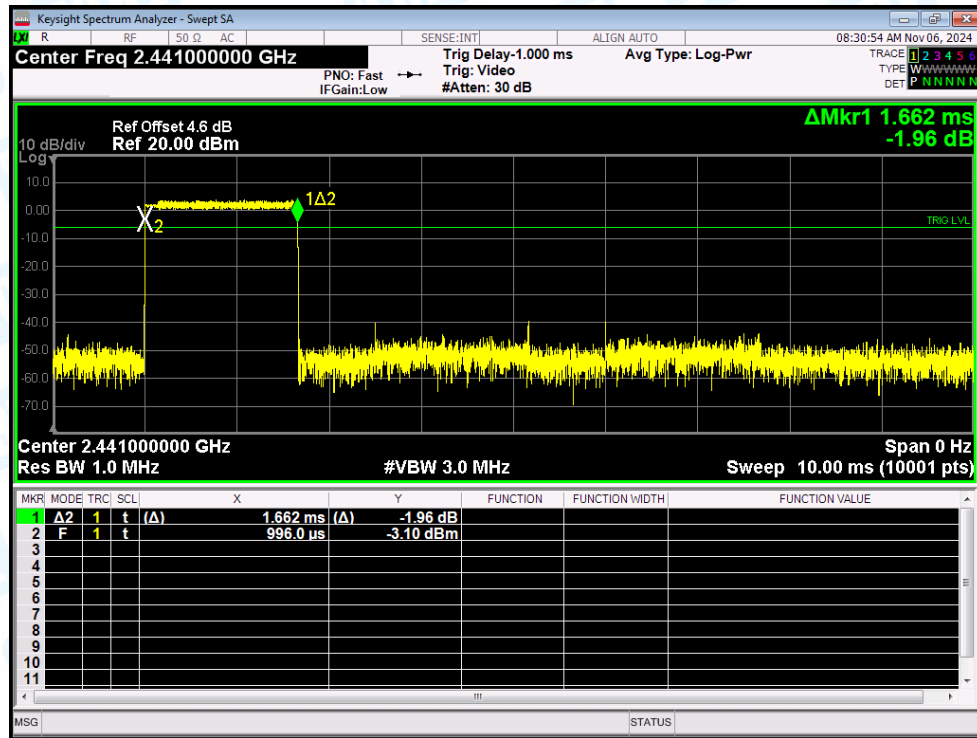
Dwell NVNT 1-DH5 2441MHz Ant1



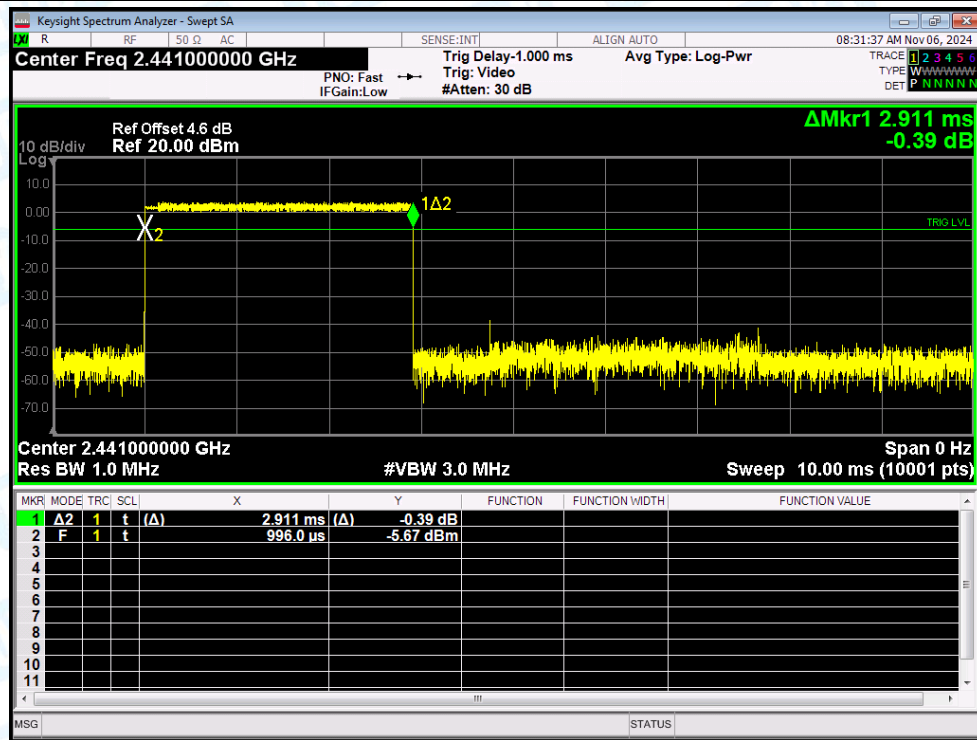
Dwell NVNT 2-DH1 2441MHz Ant1



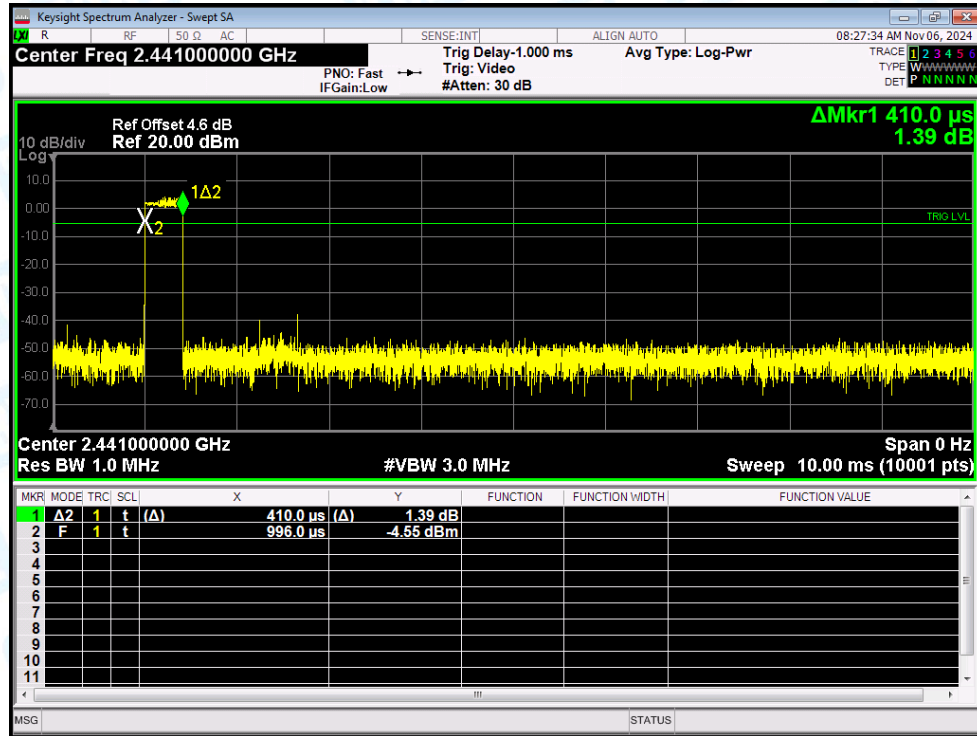
Dwell NVNT 2-DH3 2441MHz Ant1



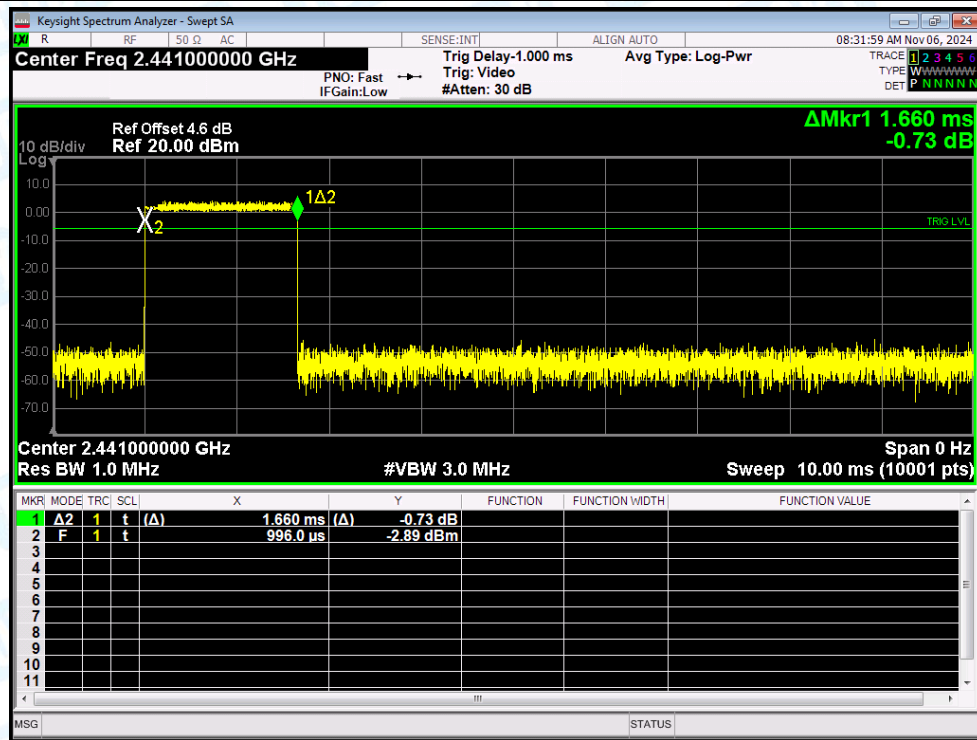
Dwell NVNT 2-DH5 2441MHz Ant1

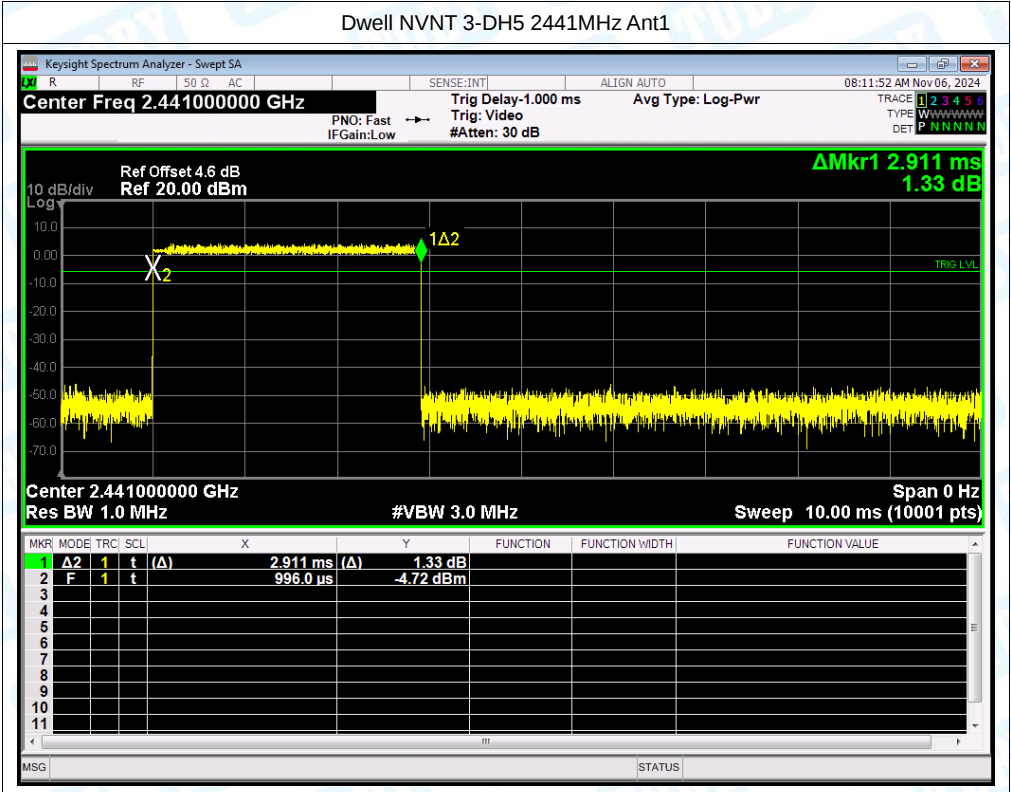


Dwell NVNT 3-DH1 2441MHz Ant1



Dwell NVNT 3-DH3 2441MHz Ant1





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