

RF Test Data for Bluetooth (Conducted Measurements)

General Description of EUT	
Product Name:	M-Rex4
Test Model:	M-Rex4
Sample ID:	HC-C-202412-0240-01-01-2#
Environmental Conditions	
Temperature:	23.8℃
Relative Humidity:	48%
Test Voltage:	DC 3.7V
Test Engineer:	Rick. chen
Note: For a more detailed features description, please refer to the report TBR-C-202412-0240-1 The report only show the worst case data.	

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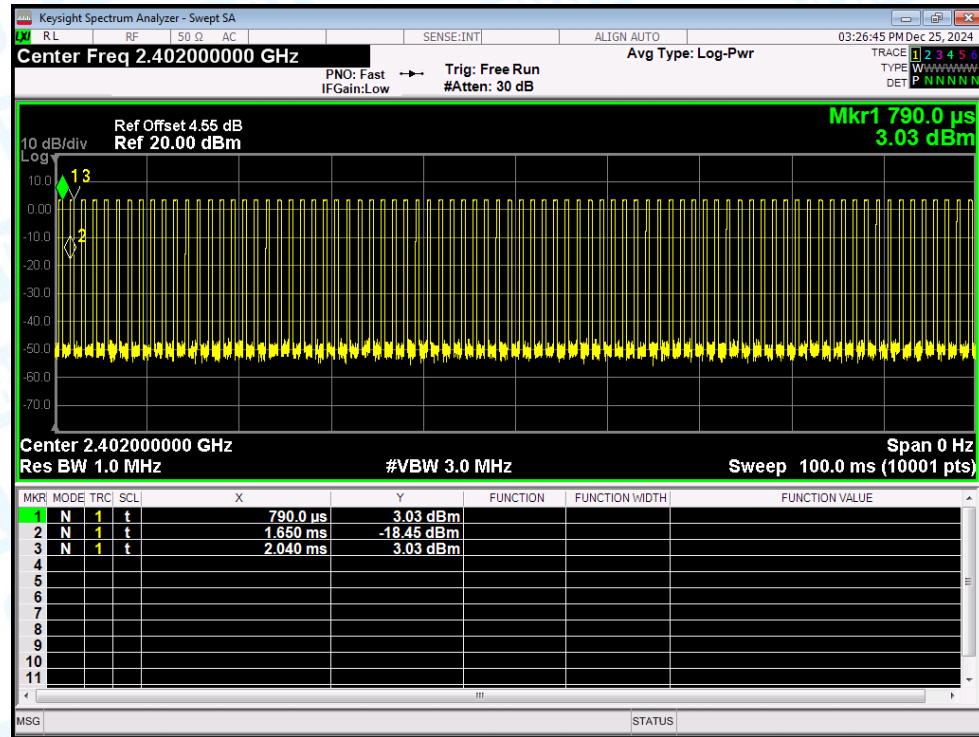
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1. Duty Cycle

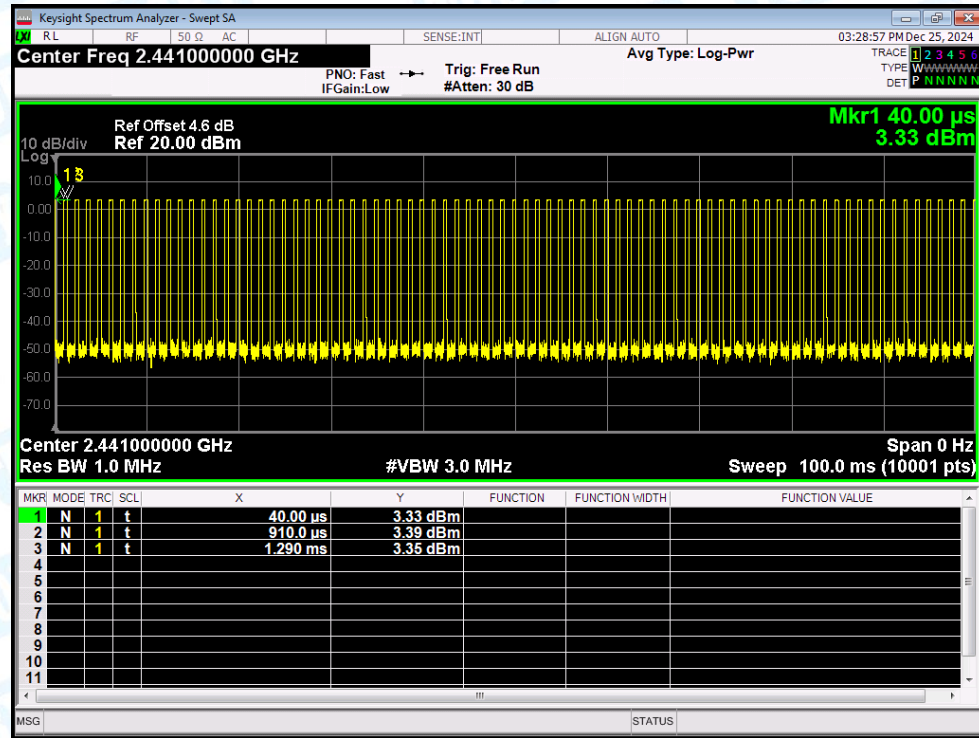
Condition	Mode	Frequency (MHz)	Antenna	Duty Cycle (%)	Correction Factor (dB)	1/T (kHz)
NVNT	1-DH1	2402	Ant1	31.2	5.06	2.56
NVNT	1-DH1	2441	Ant1	30.4	5.17	2.63
NVNT	1-DH1	2480	Ant1	30.4	5.17	2.63
NVNT	2-DH1	2402	Ant1	32	4.95	2.5
NVNT	2-DH1	2441	Ant1	32	4.95	2.5
NVNT	2-DH1	2480	Ant1	31.2	5.06	2.56
NVNT	3-DH1	2402	Ant1	32	4.95	2.5
NVNT	3-DH1	2441	Ant1	31.2	5.06	2.56
NVNT	3-DH1	2480	Ant1	31.2	5.06	2.56

Test Graphs

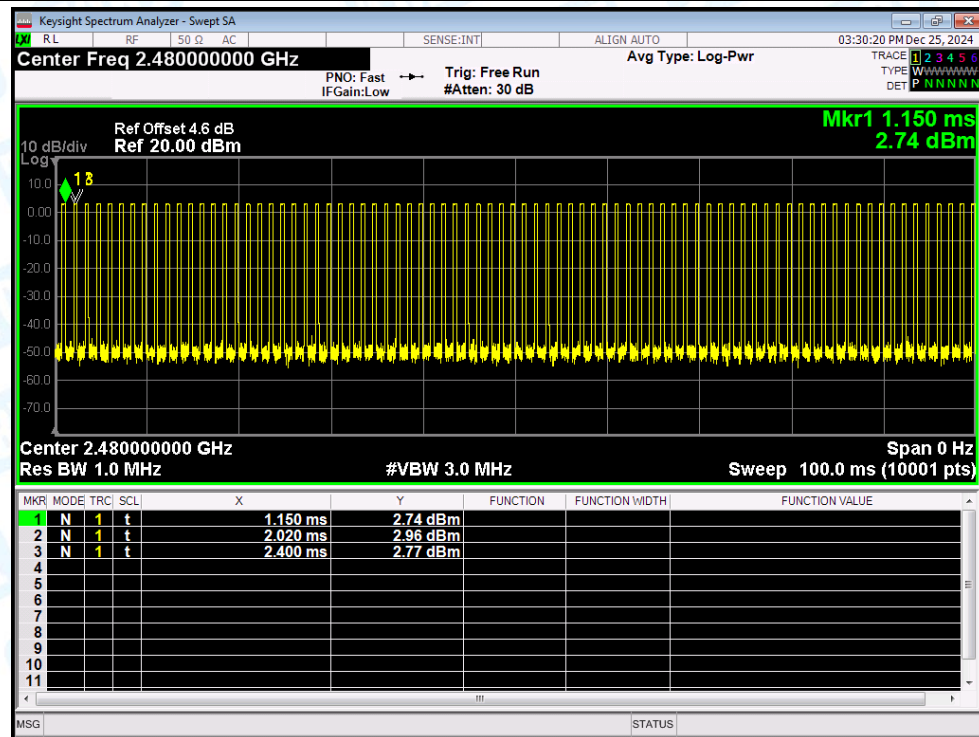
Duty Cycle NVNT 1-DH1 2402MHz Ant1



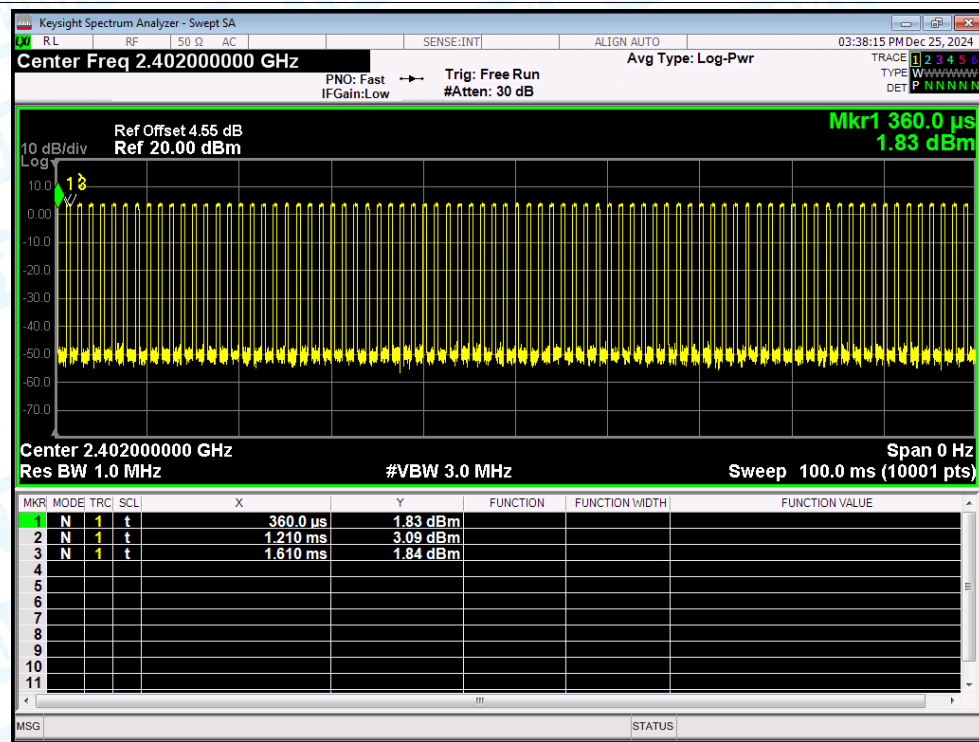
Duty Cycle NVNT 1-DH1 2441MHz Ant1



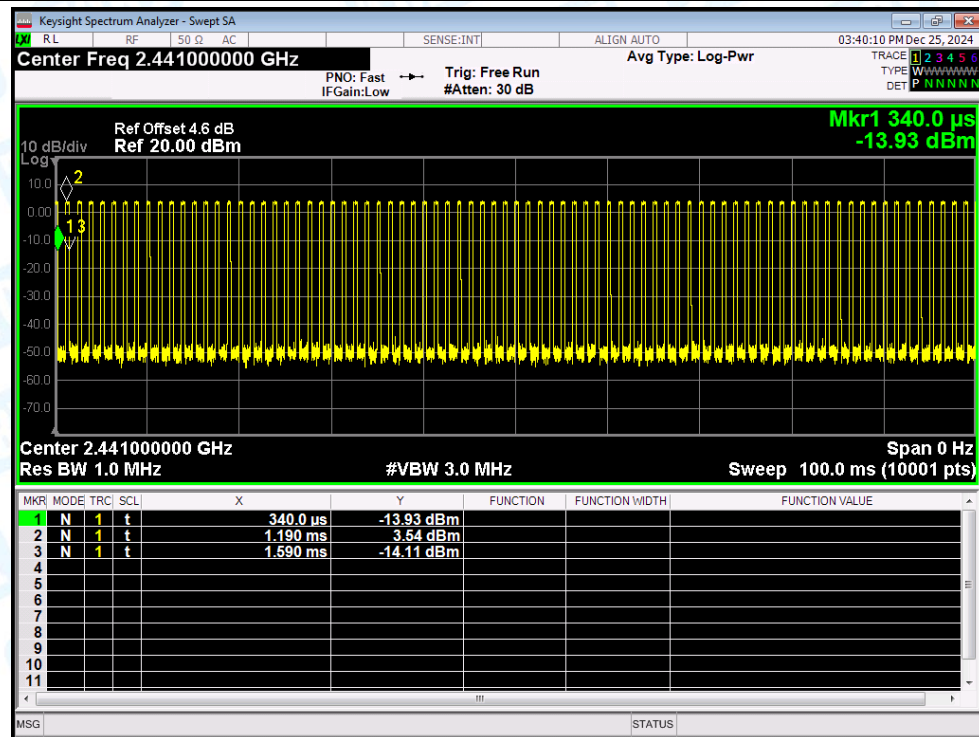
Duty Cycle NVNT 1-DH1 2480MHz Ant1



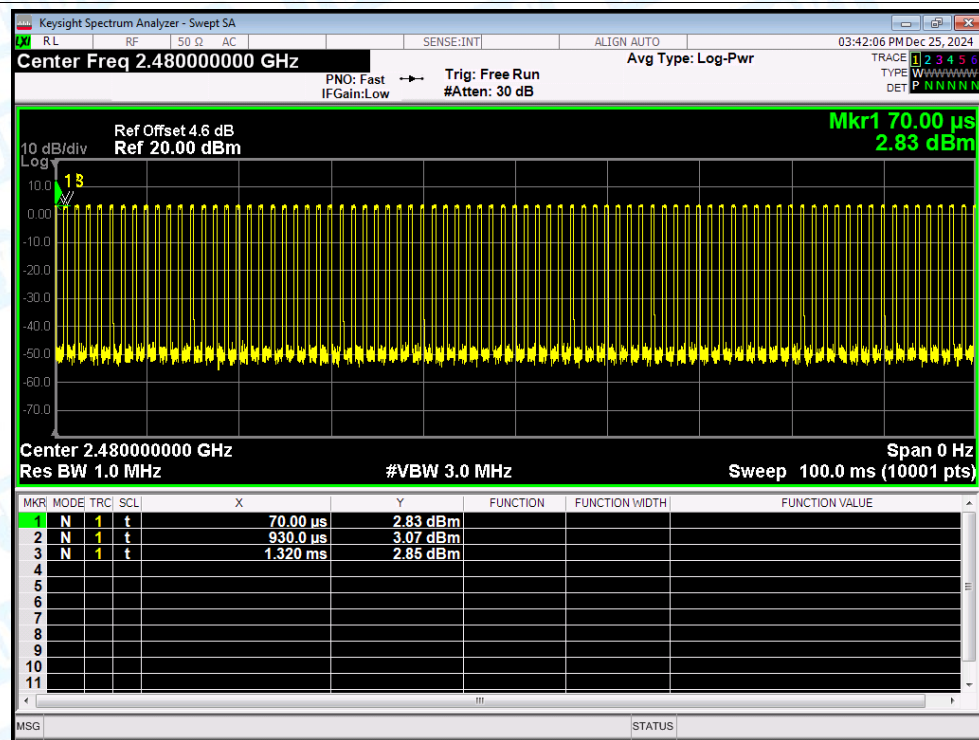
Duty Cycle NVNT 2-DH1 2402MHz Ant1



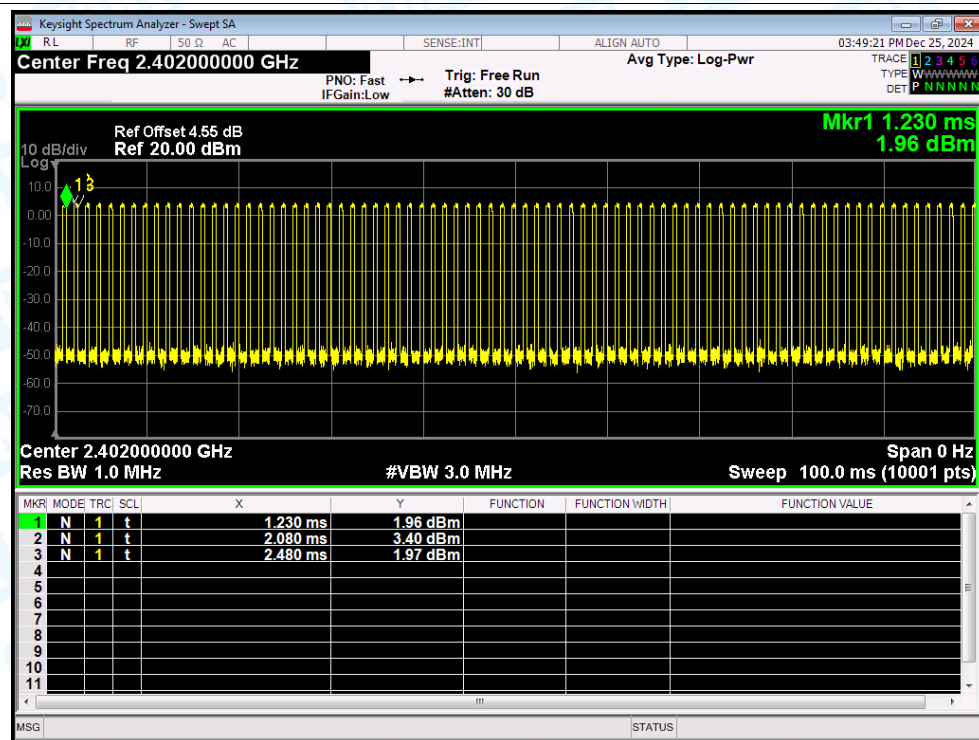
Duty Cycle NVNT 2-DH1 2441MHz Ant1



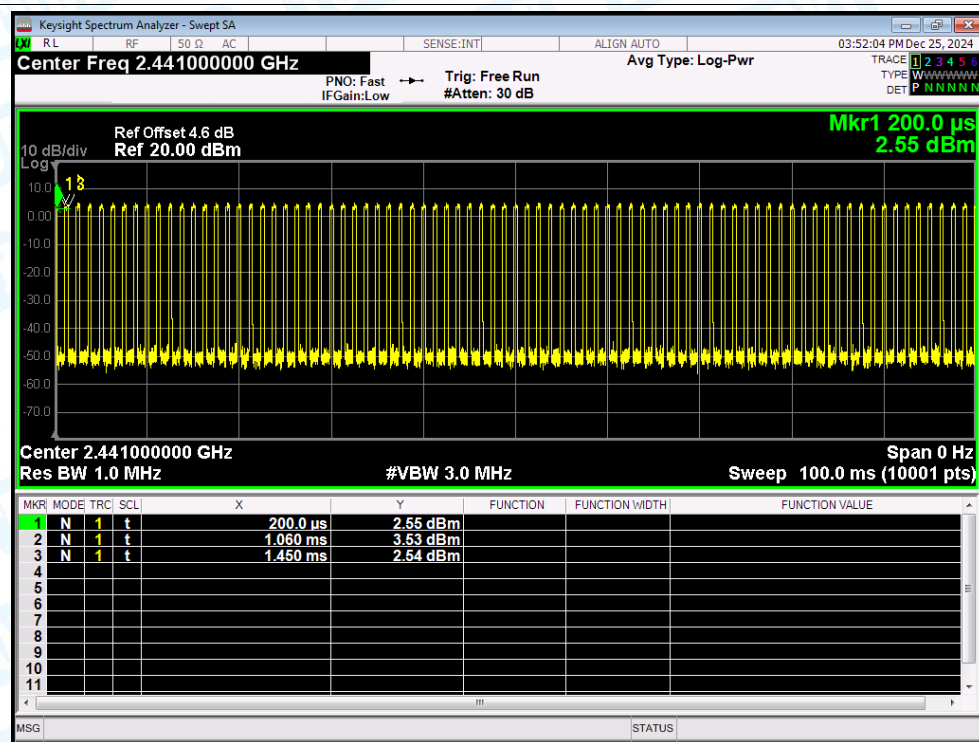
Duty Cycle NVNT 2-DH1 2480MHz Ant1

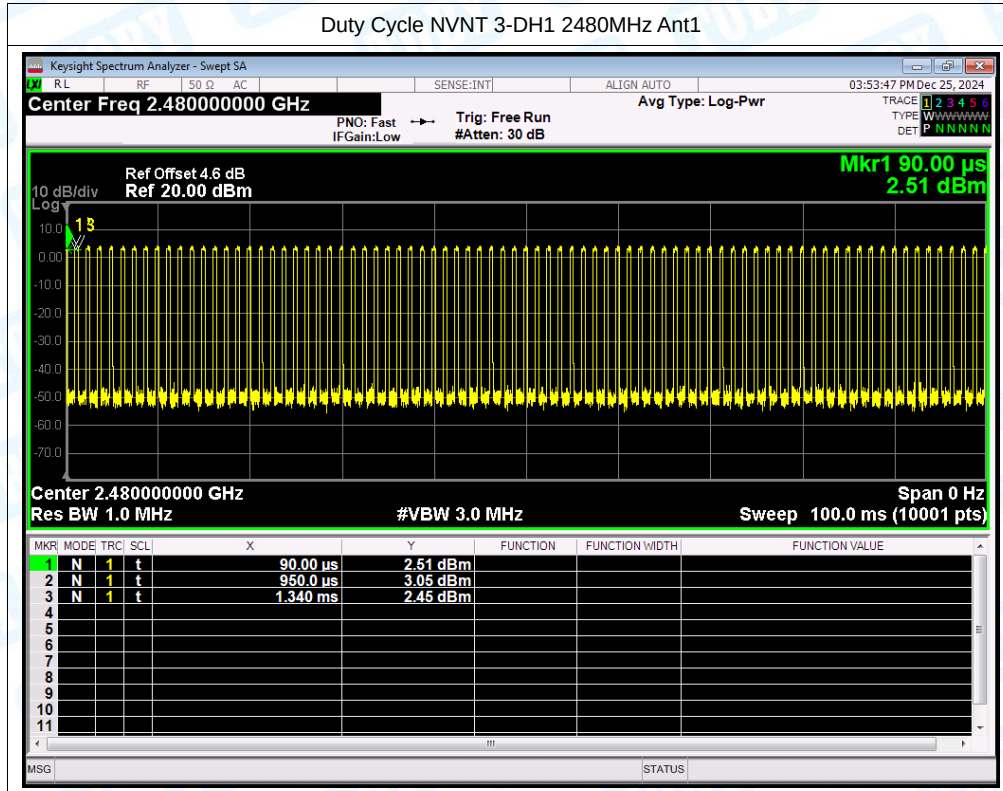


Duty Cycle NVNT 3-DH1 2402MHz Ant1



Duty Cycle NVNT 3-DH1 2441MHz Ant1



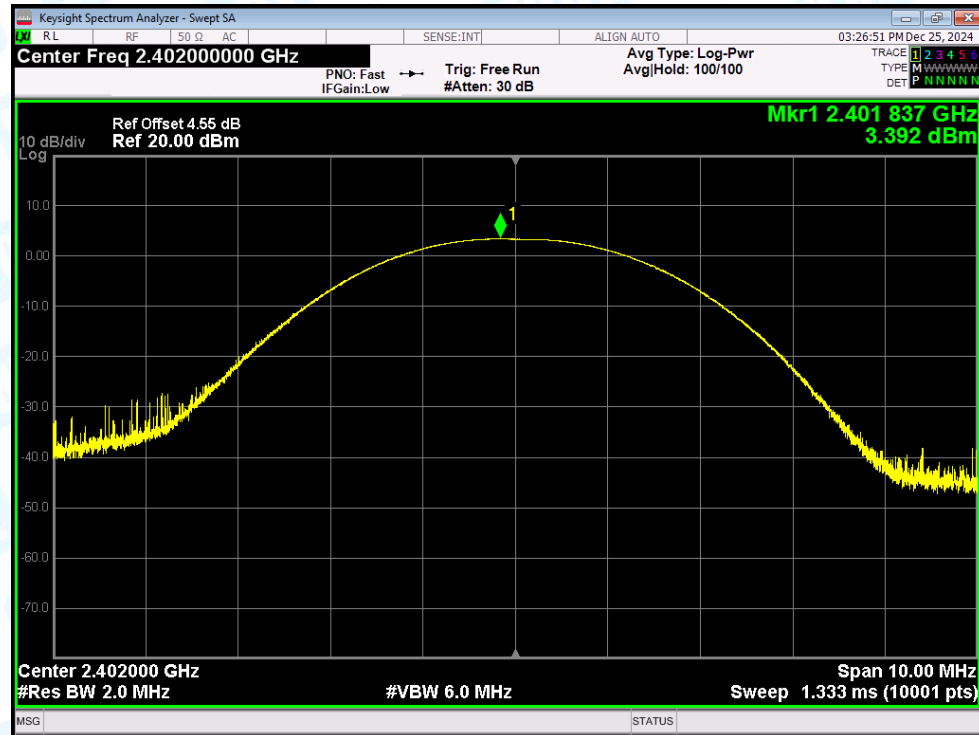


2. Maximum Conducted Peak Output Power

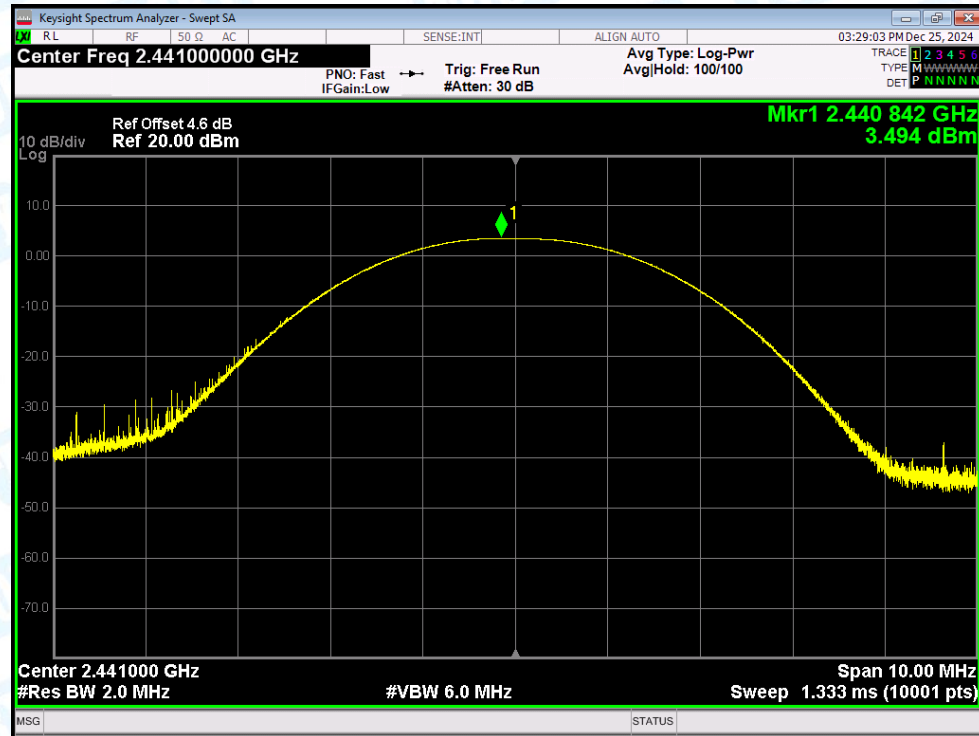
Condition	Mode	Frequency (MHz)	Antenna	Conducted Power (dBm)	Limit (dBm)	Verdict
NVNT	1-DH1	2402	Ant1	3.392	21	Pass
NVNT	1-DH1	2441	Ant1	3.494	21	Pass
NVNT	1-DH1	2480	Ant1	3.055	21	Pass
NVNT	2-DH1	2402	Ant1	4.395	21	Pass
NVNT	2-DH1	2441	Ant1	4.487	21	Pass
NVNT	2-DH1	2480	Ant1	3.986	21	Pass
NVNT	3-DH1	2402	Ant1	4.98	21	Pass
NVNT	3-DH1	2441	Ant1	5.026	21	Pass
NVNT	3-DH1	2480	Ant1	4.572	21	Pass

Test Graphs

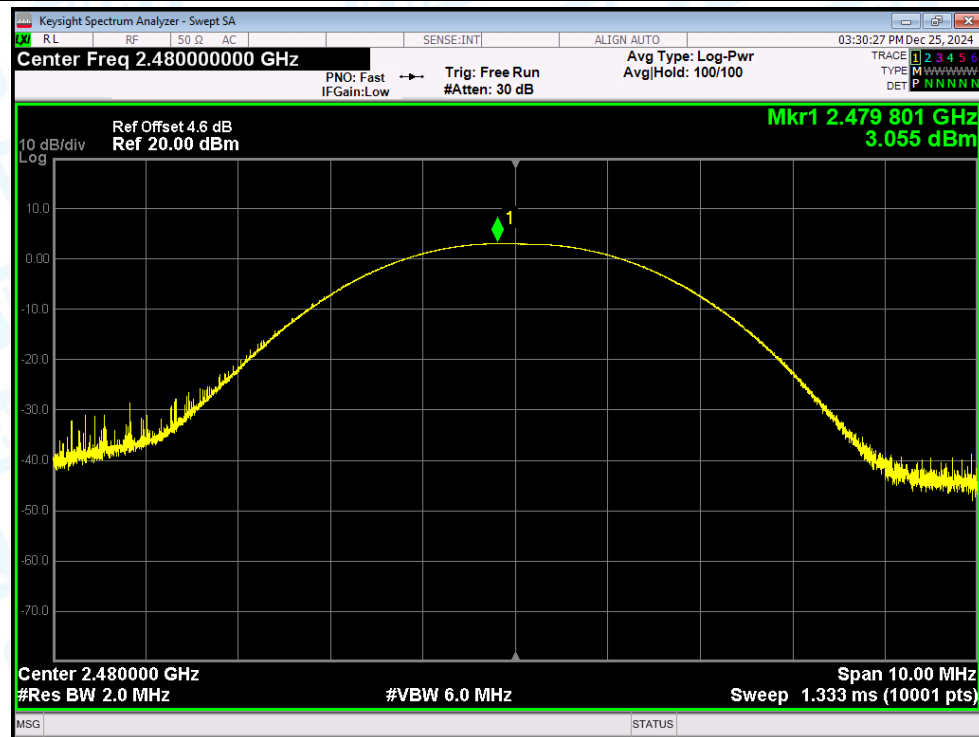
Power NVNT 1-DH1 2402MHz Ant1



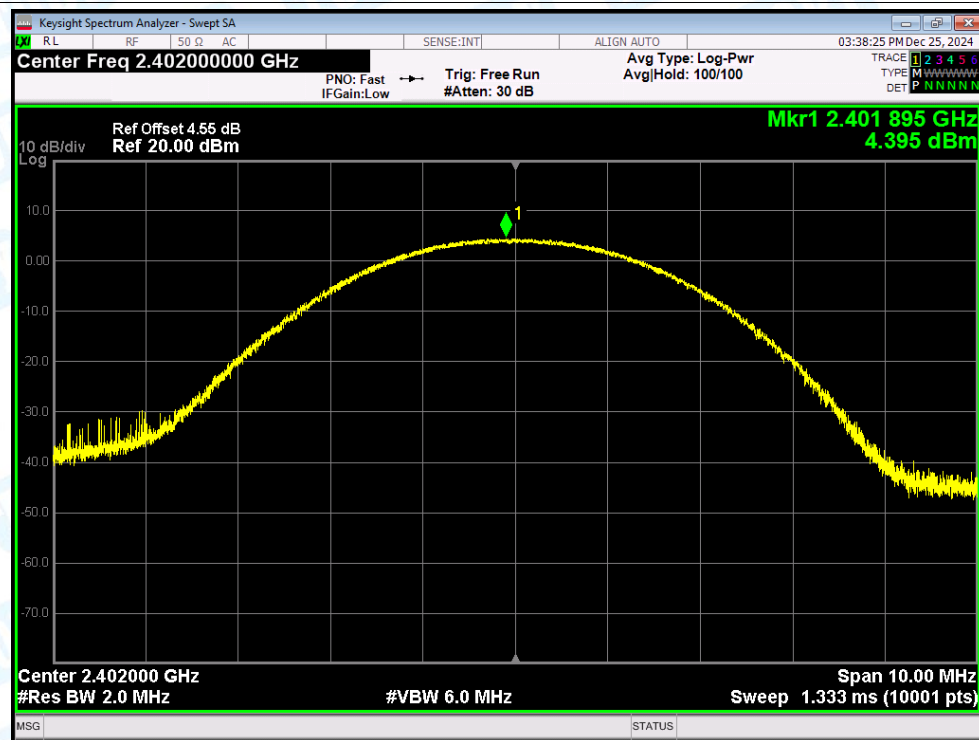
Power NVNT 1-DH1 2441MHz Ant1



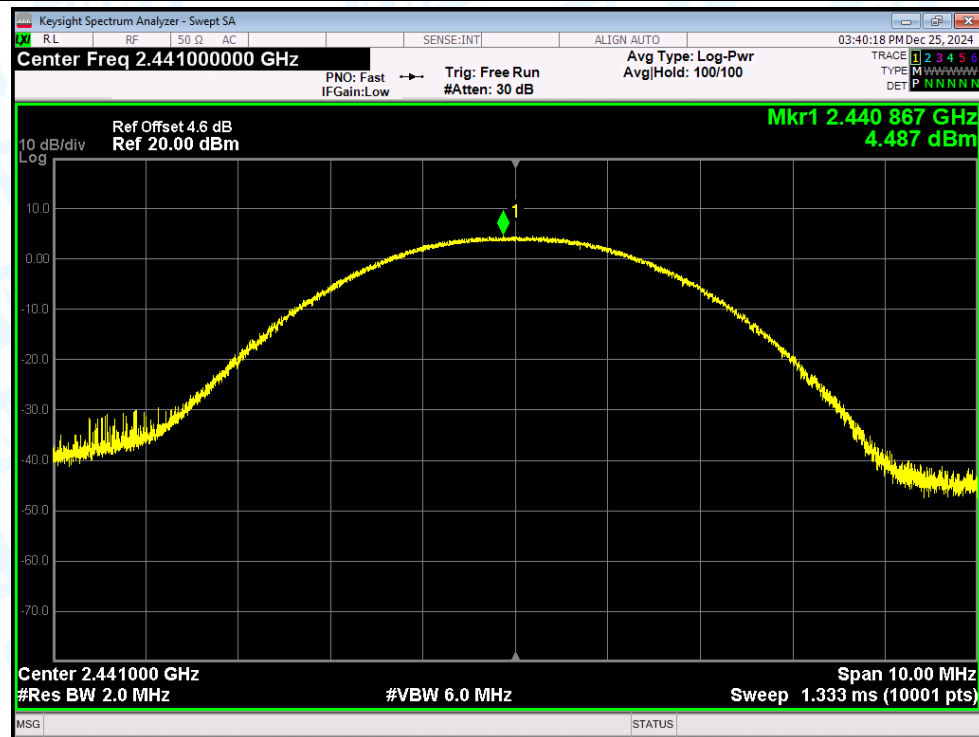
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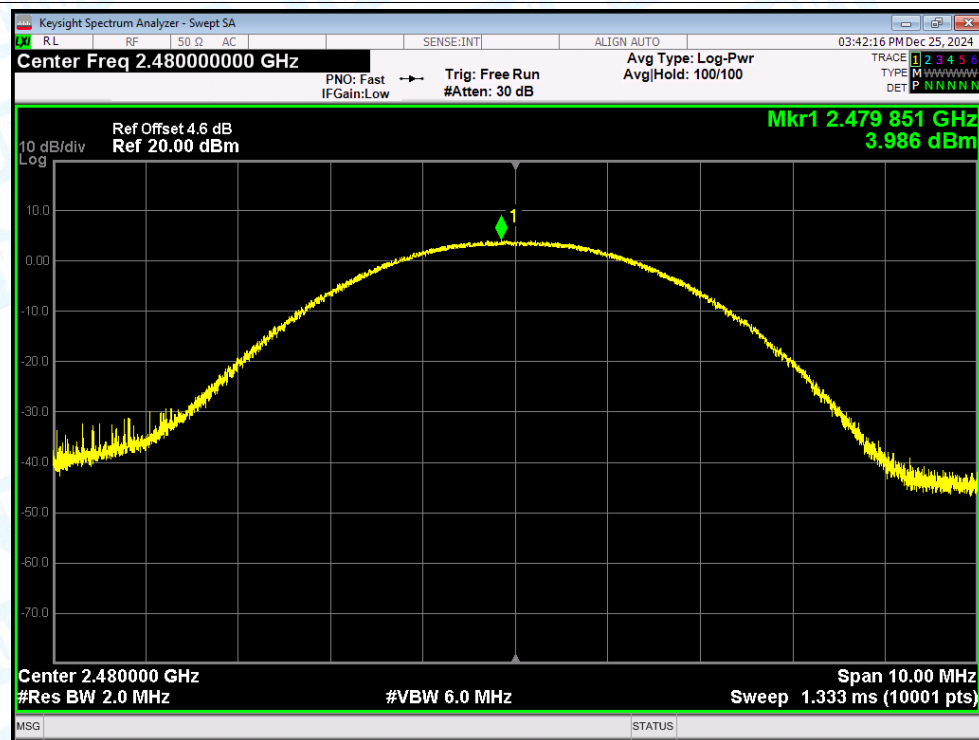
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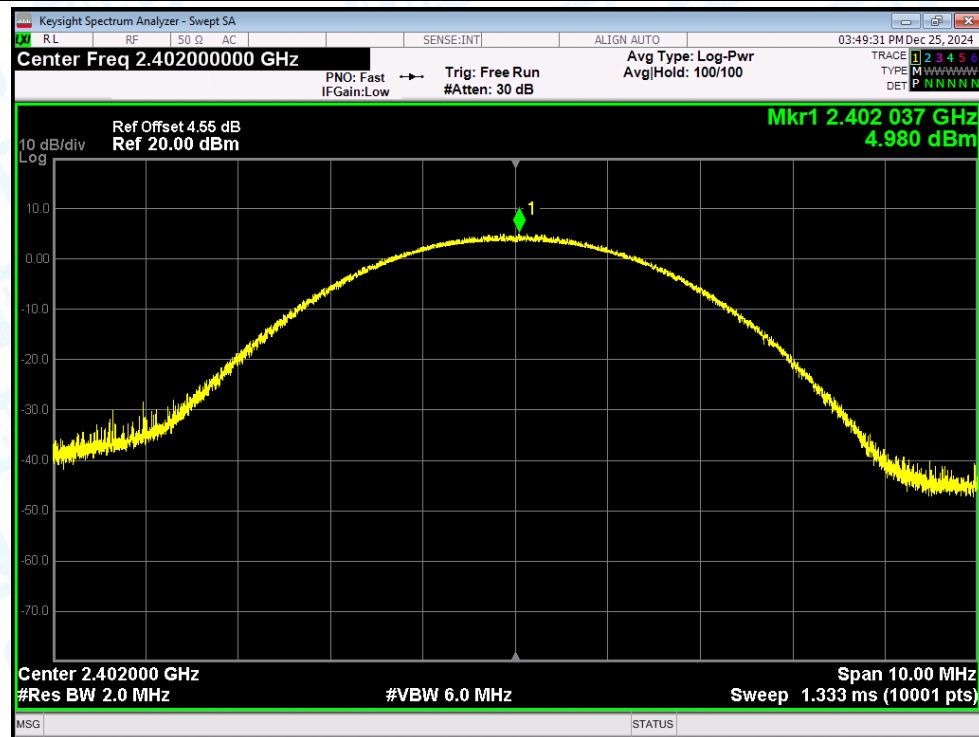
Power NVNT 2-DH1 2441MHz Ant1



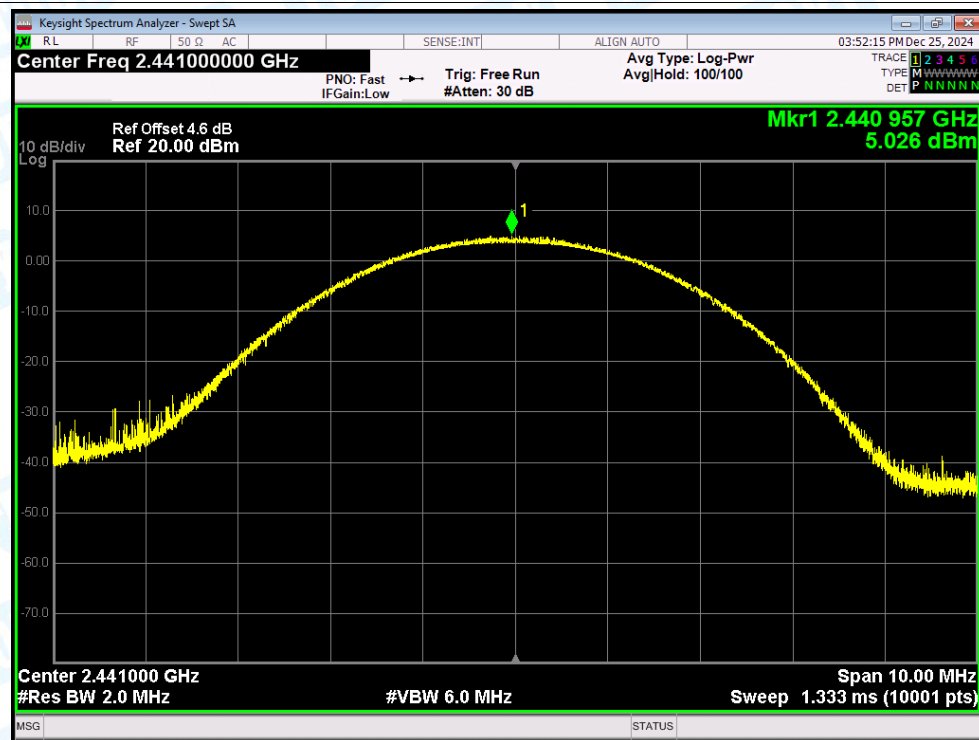
Power NVNT 2-DH1 2480MHz Ant1

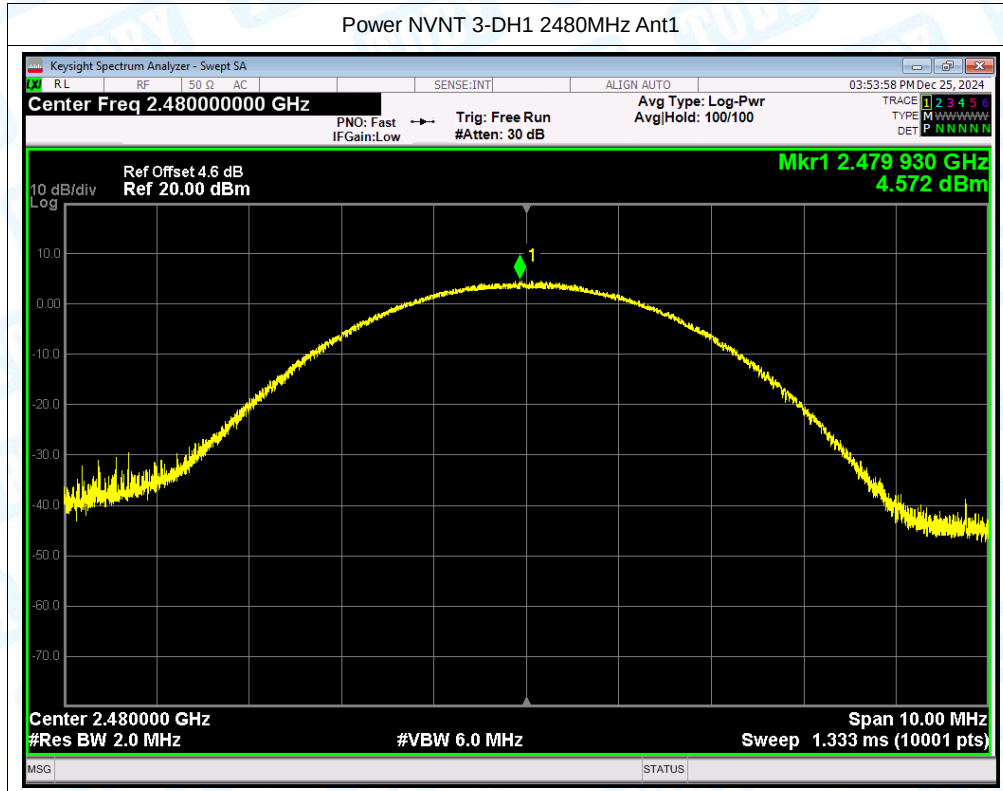


Power NVNT 3-DH1 2402MHz Ant1



Power NVNT 3-DH1 2441MHz Ant1



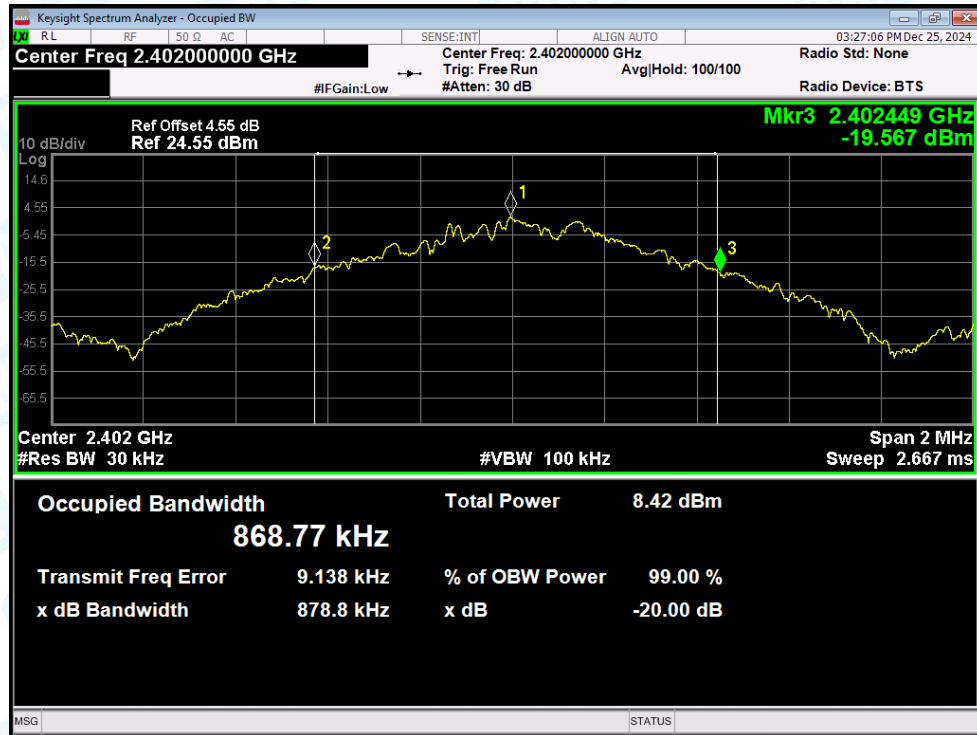


3. -20dB Bandwidth

Condition	Mode	Frequency (MHz)	Antenna	-20 dB Bandwidth (MHz)	Limit -20 dB Bandwidth (MHz)	Verdict
NVNT	1-DH1	2402	Ant1	0.88	----	Pass
NVNT	1-DH1	2441	Ant1	0.85	----	Pass
NVNT	1-DH1	2480	Ant1	0.88	----	Pass
NVNT	2-DH1	2402	Ant1	1.26	----	Pass
NVNT	2-DH1	2441	Ant1	1.23	----	Pass
NVNT	2-DH1	2480	Ant1	1.24	----	Pass
NVNT	3-DH1	2402	Ant1	1.25	----	Pass
NVNT	3-DH1	2441	Ant1	1.25	----	Pass
NVNT	3-DH1	2480	Ant1	1.24	----	Pass

Test Graphs

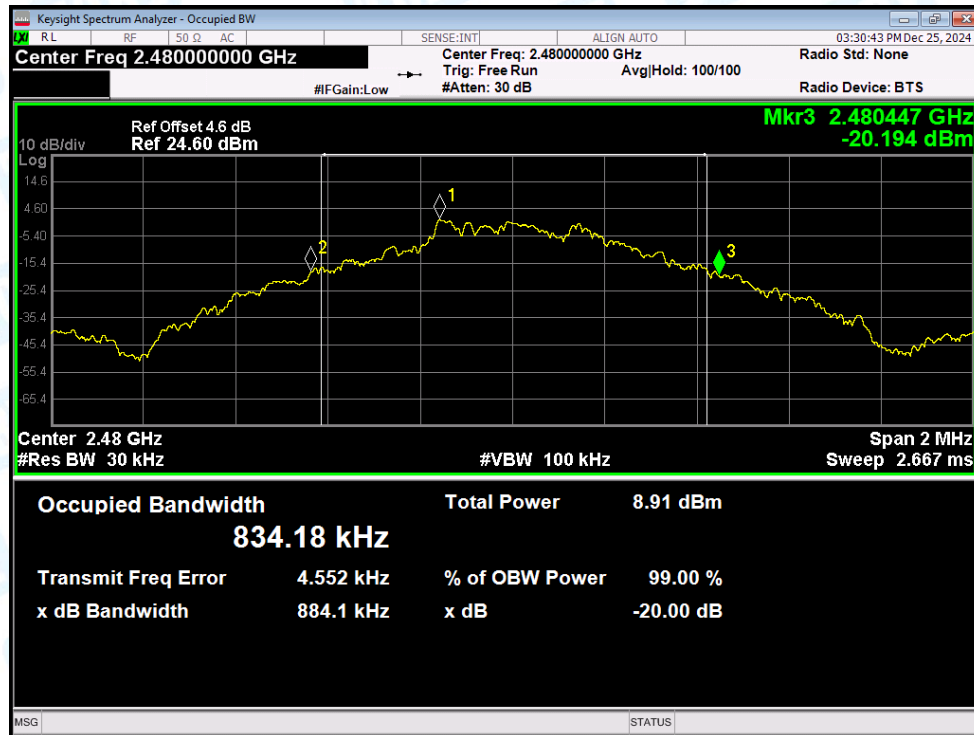
-20dB Bandwidth NVNT 1-DH1 2402MHz Ant1



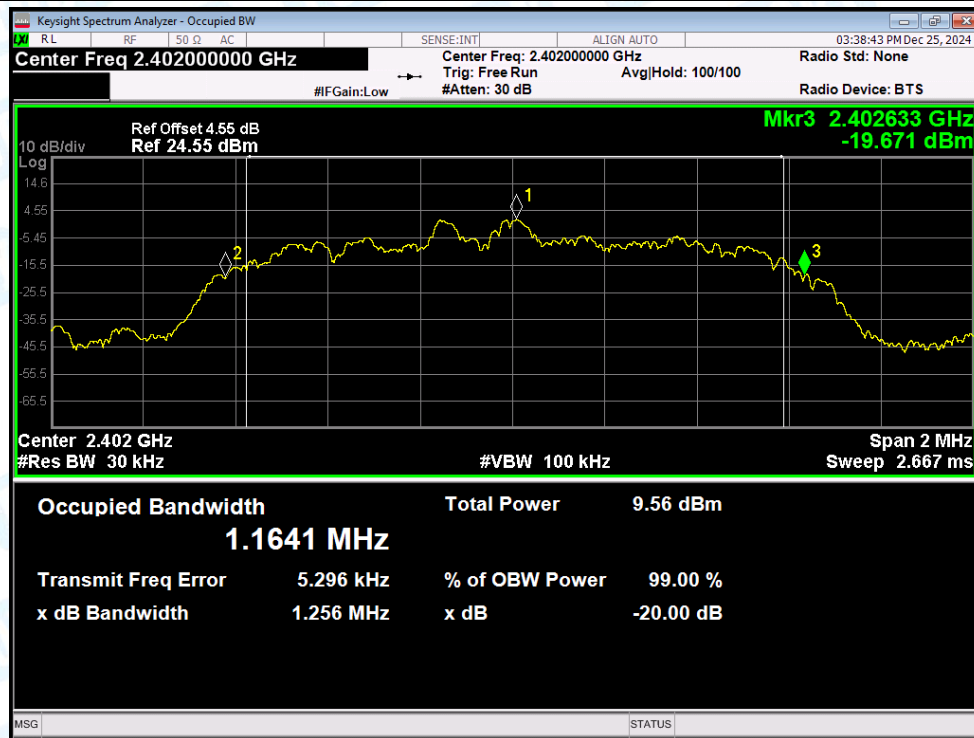
-20dB Bandwidth NVNT 1-DH1 2441MHz Ant1



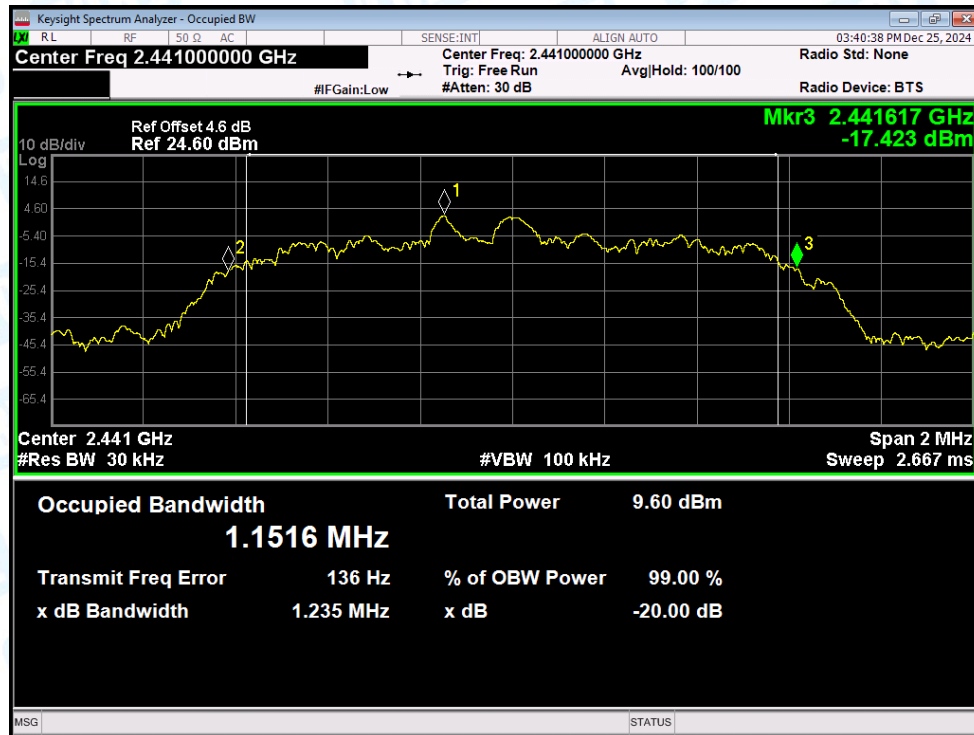
-20dB Bandwidth NVNT 1-DH1 2480MHz Ant1



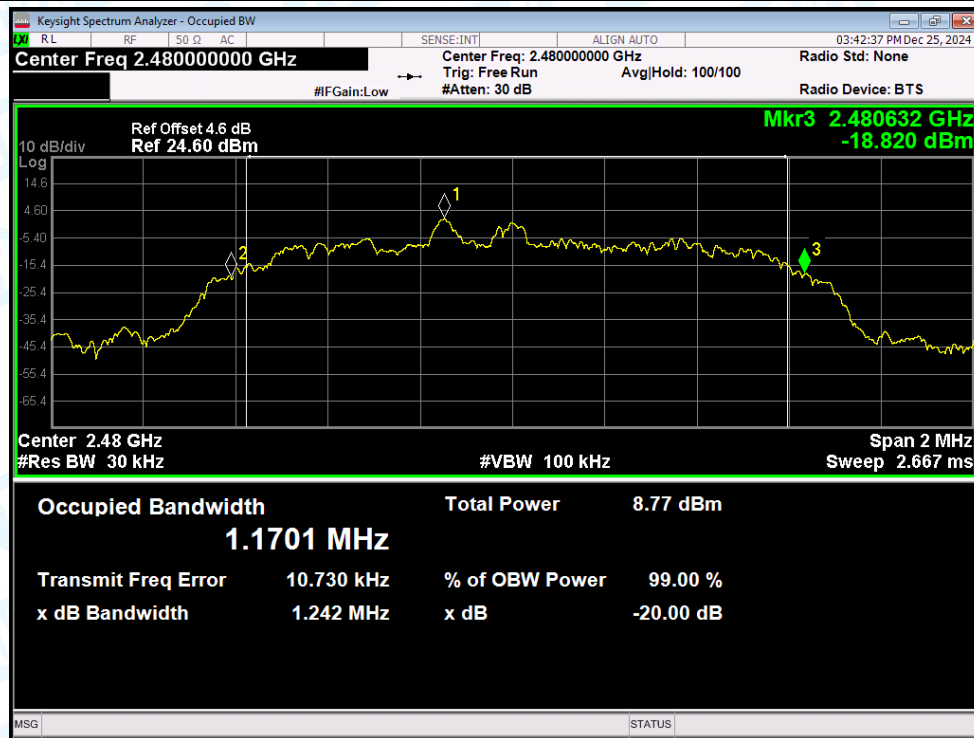
-20dB Bandwidth NVNT 2-DH1 2402MHz Ant1



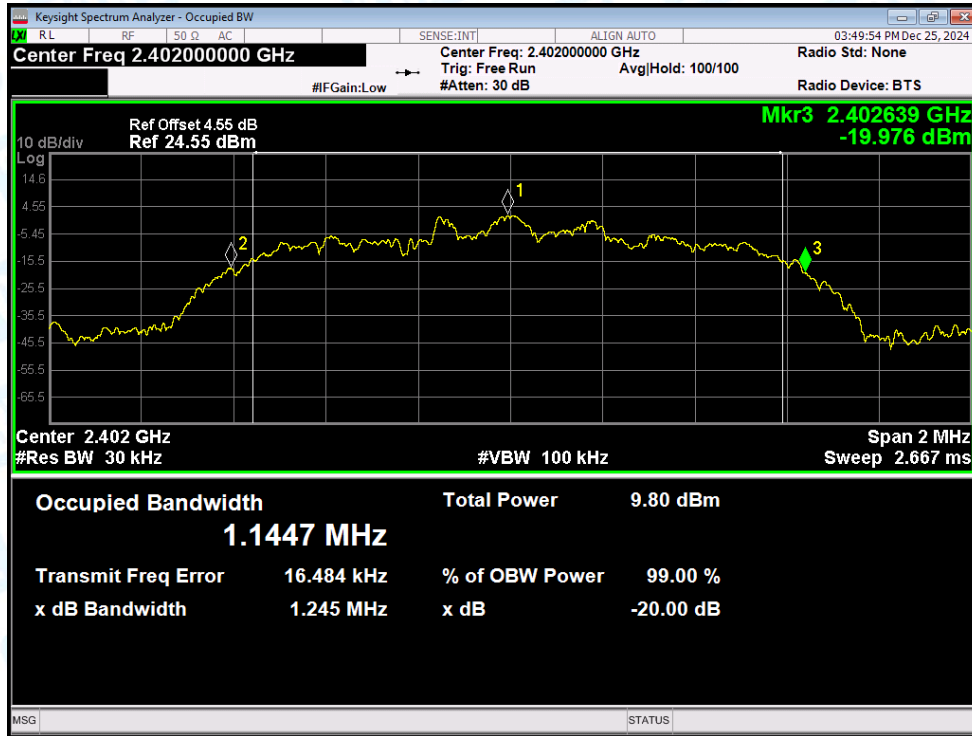
-20dB Bandwidth NVNT 2-DH1 2441MHz Ant1



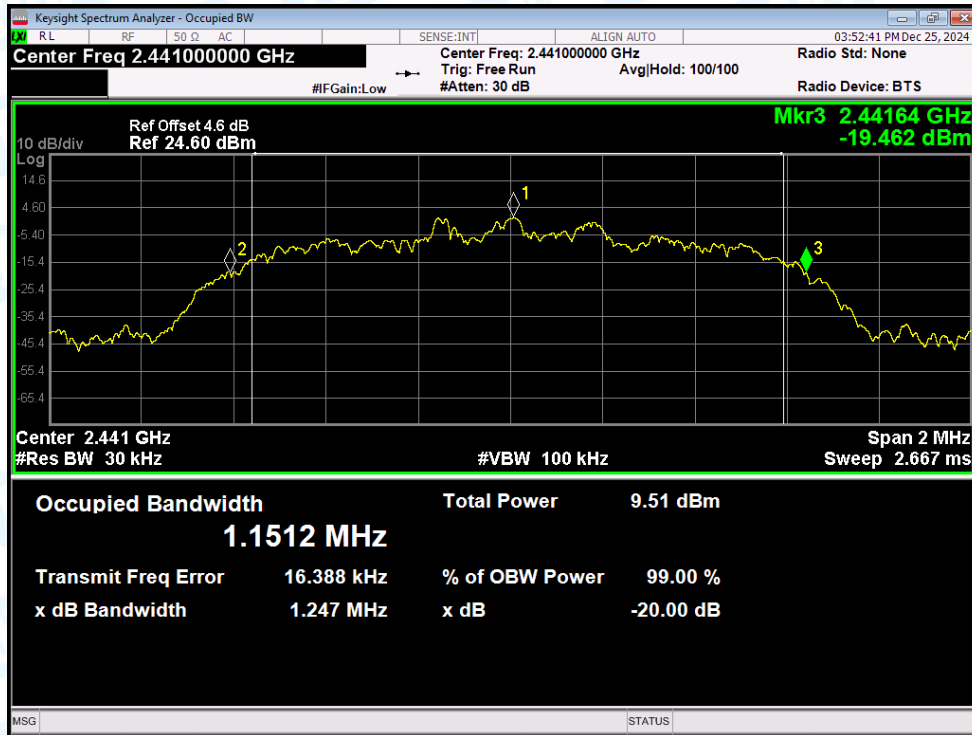
-20dB Bandwidth NVNT 2-DH1 2480MHz Ant1

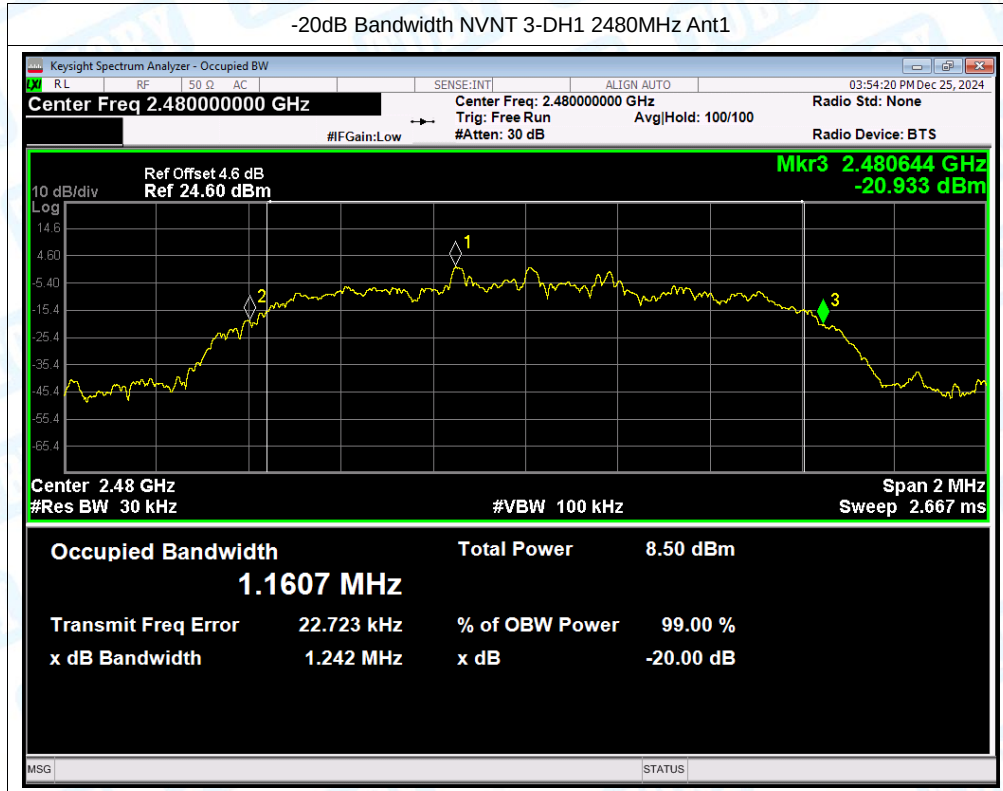


-20dB Bandwidth NVNT 3-DH1 2402MHz Ant1



-20dB Bandwidth NVNT 3-DH1 2441MHz Ant1



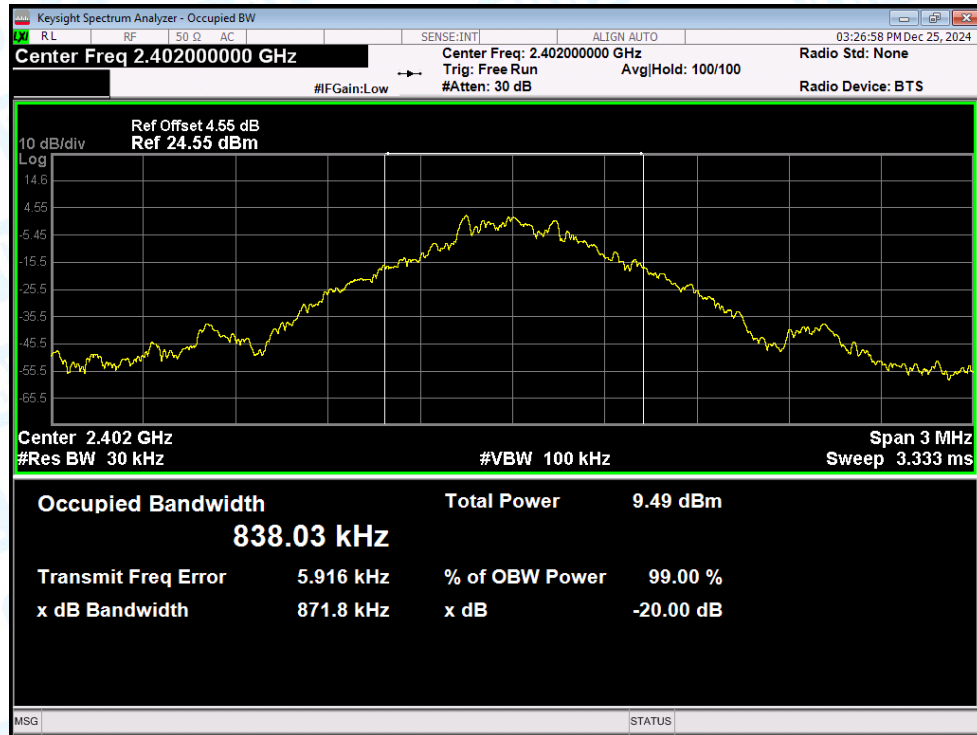


4. Occupied Channel Bandwidth

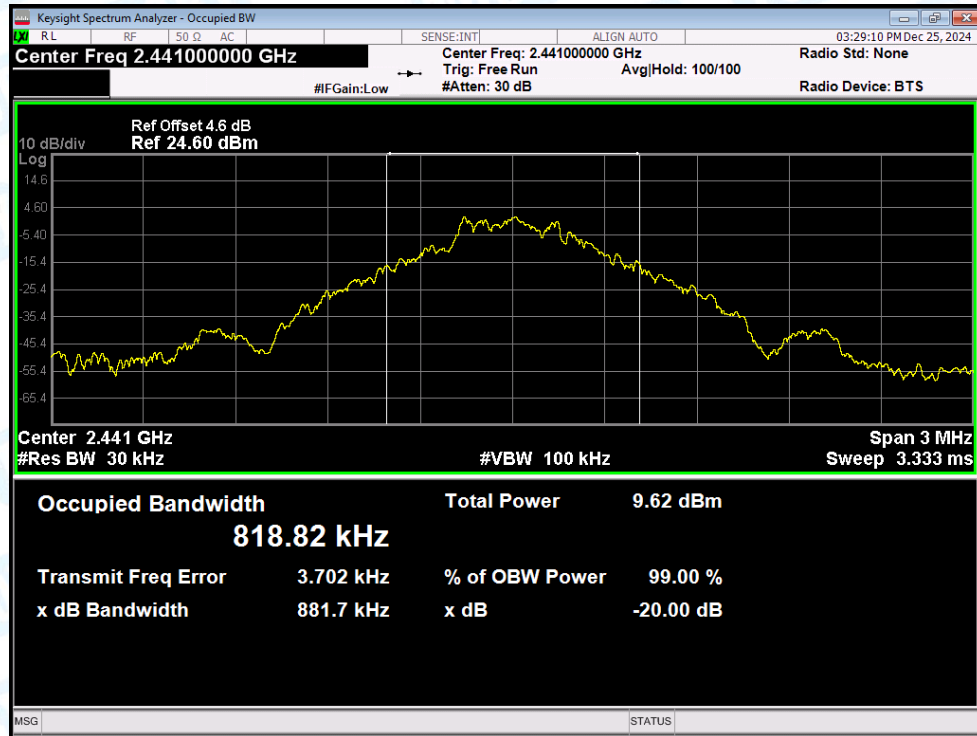
Condition	Mode	Frequency (MHz)	Antenna	99% OBW (MHz)
NVNT	1-DH1	2402	Ant1	0.838
NVNT	1-DH1	2441	Ant1	0.819
NVNT	1-DH1	2480	Ant1	0.816
NVNT	2-DH1	2402	Ant1	1.168
NVNT	2-DH1	2441	Ant1	1.158
NVNT	2-DH1	2480	Ant1	1.166
NVNT	3-DH1	2402	Ant1	1.157
NVNT	3-DH1	2441	Ant1	1.149
NVNT	3-DH1	2480	Ant1	1.136

Test Graphs

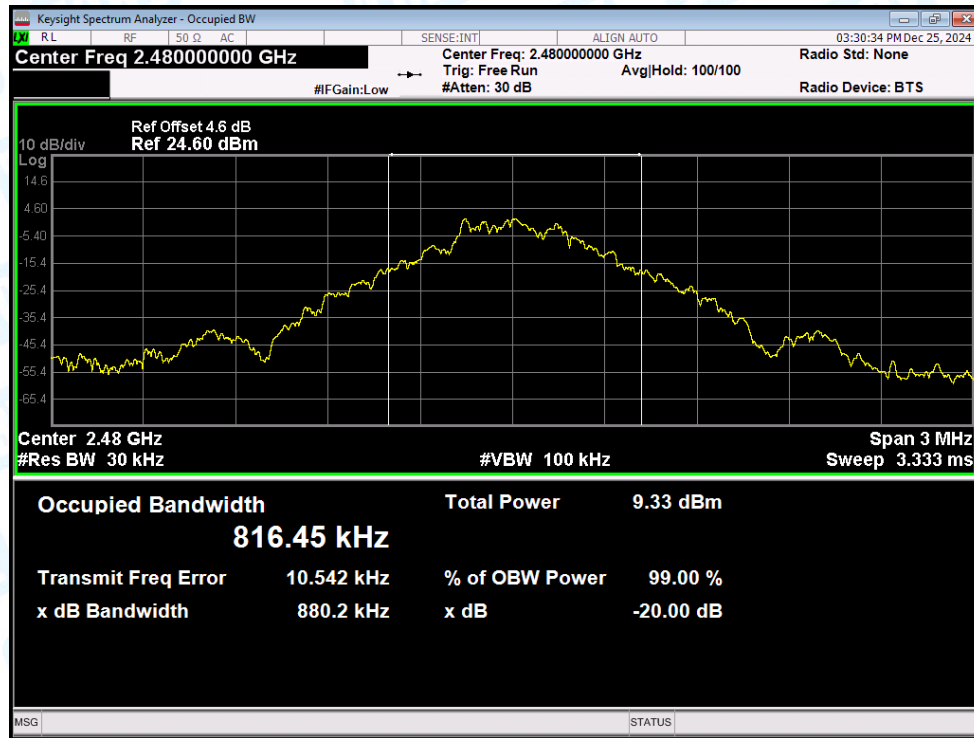
OBW NVNT 1-DH1 2402MHz Ant1



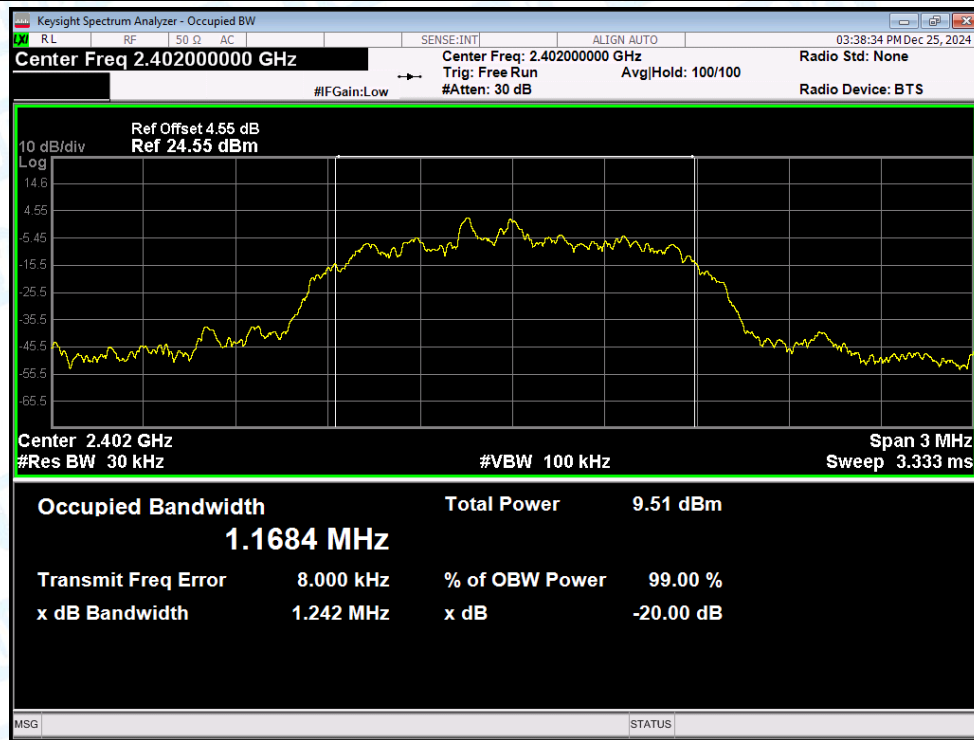
OBW NVNT 1-DH1 2441MHz Ant1



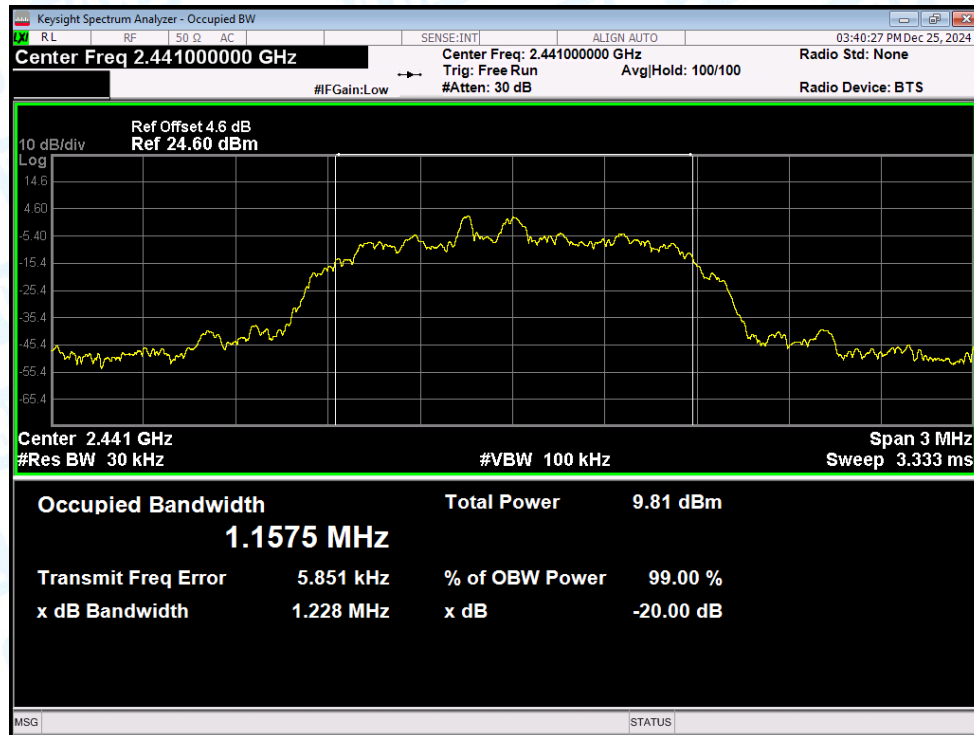
OBW NVNT 1-DH1 2480MHz Ant1



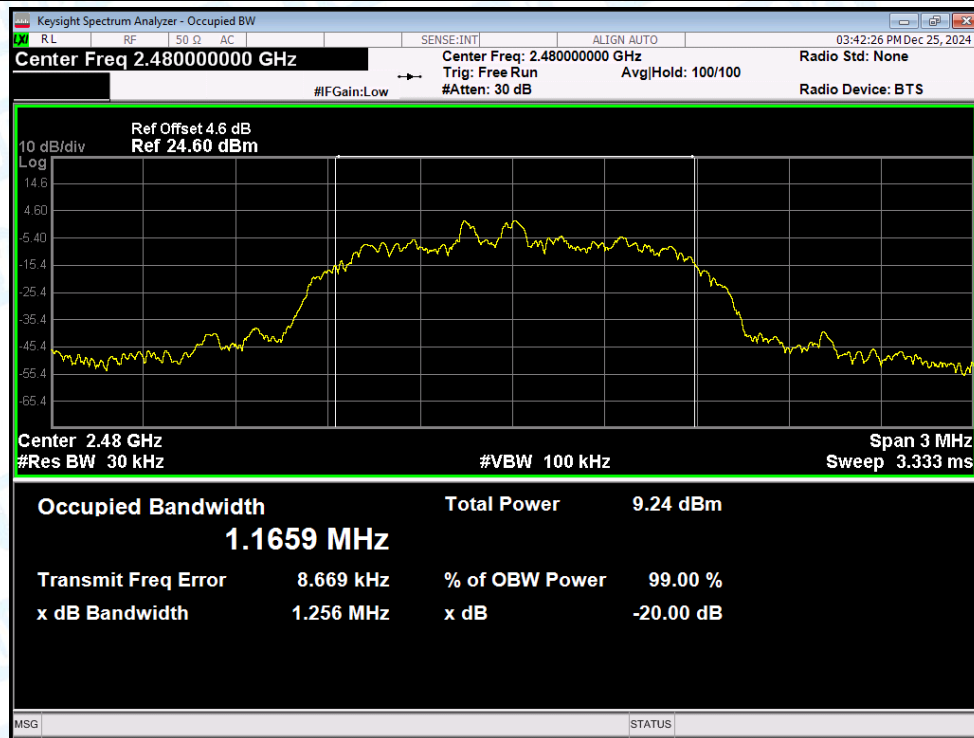
OBW NVNT 2-DH1 2402MHz Ant1



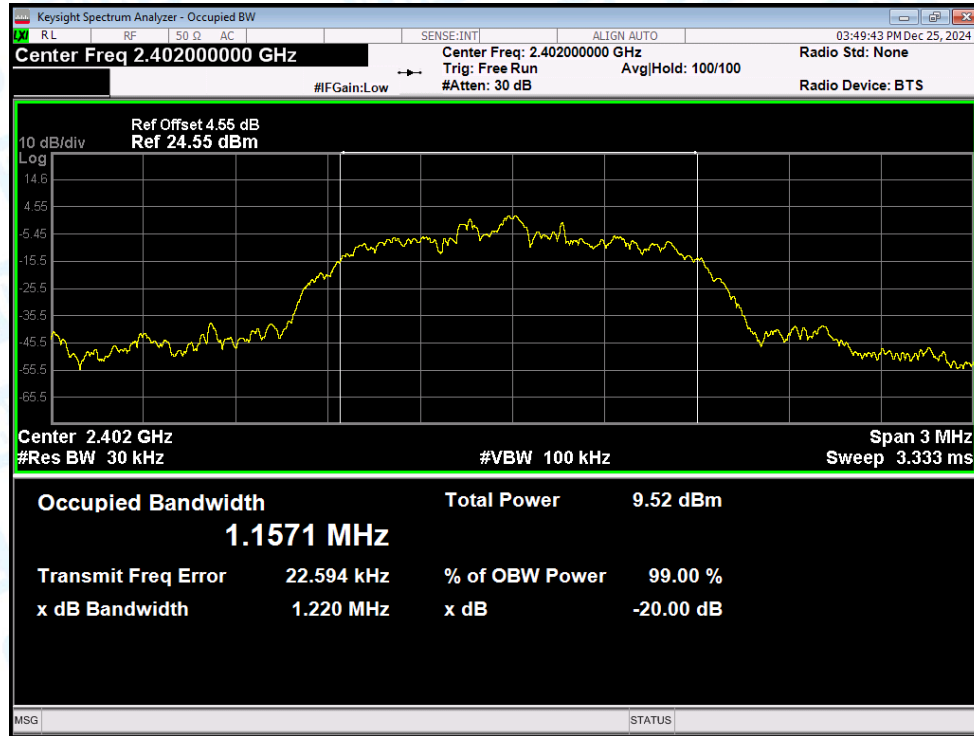
OBW NVNT 2-DH1 2441MHz Ant1



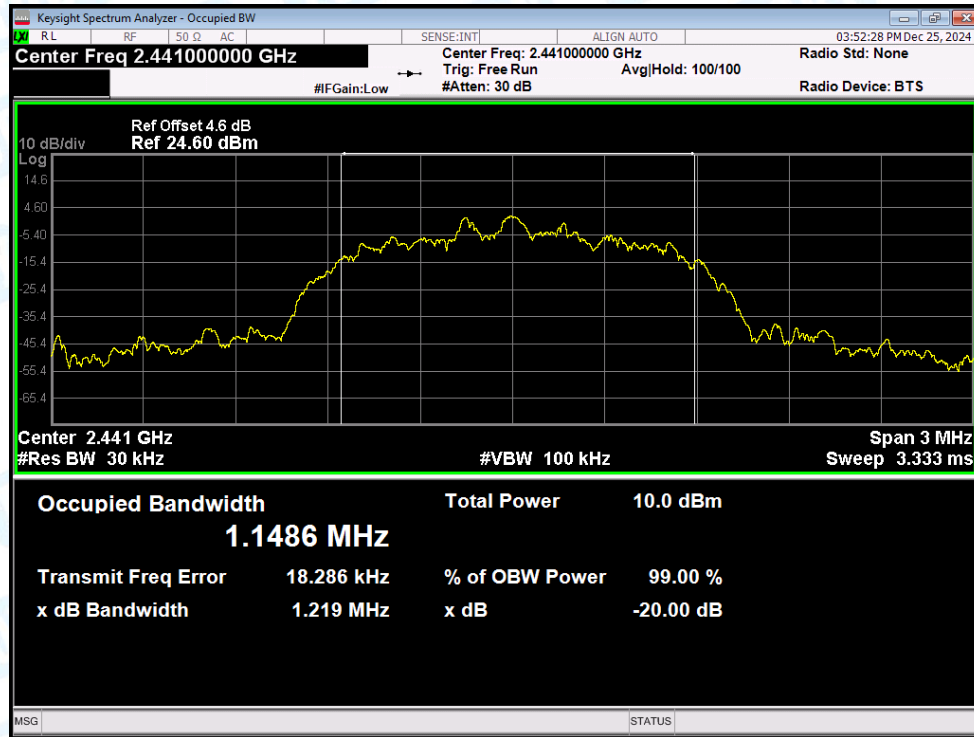
OBW NVNT 2-DH1 2480MHz Ant1

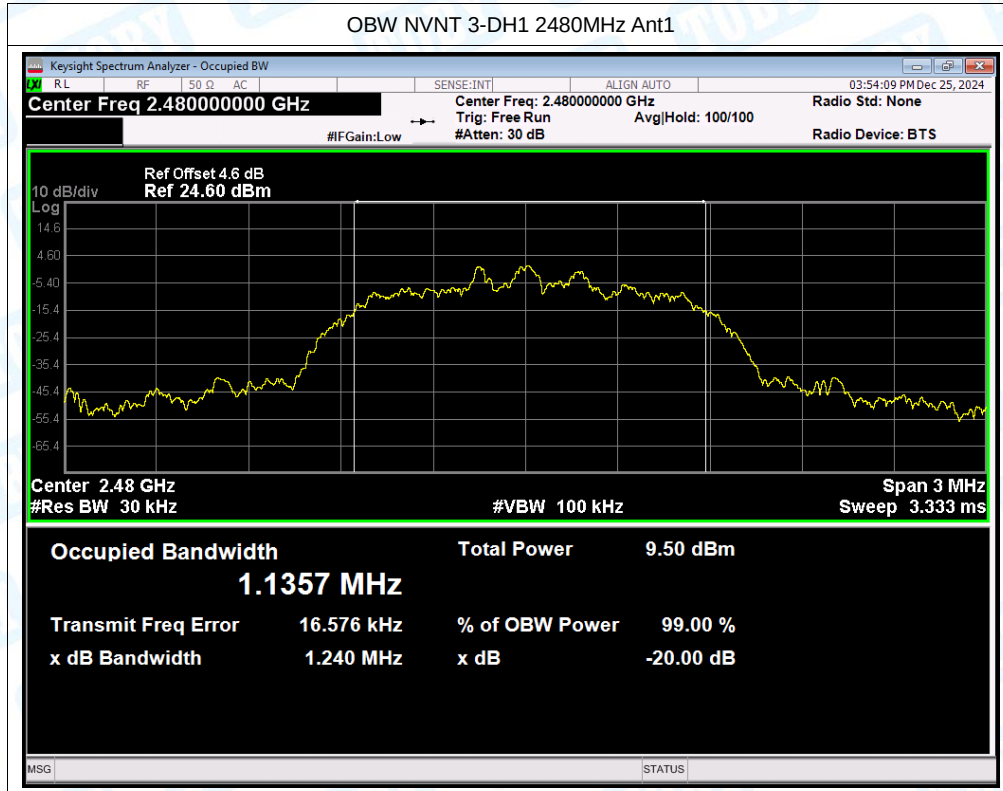


OBW NVNT 3-DH1 2402MHz Ant1



OBW NVNT 3-DH1 2441MHz Ant1



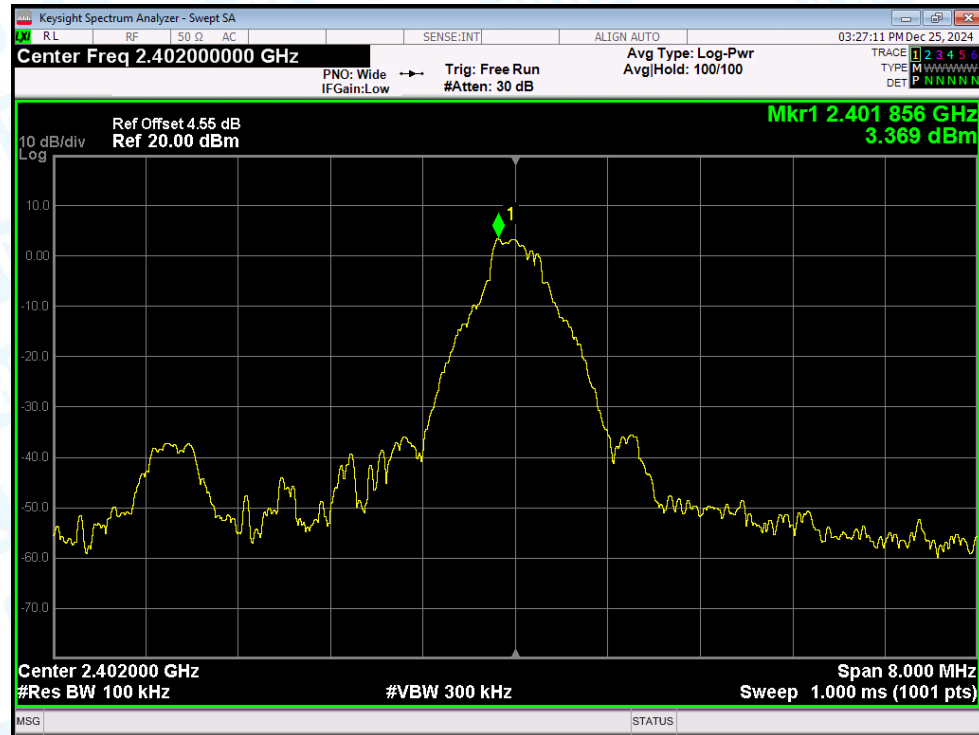


5. Band Edge

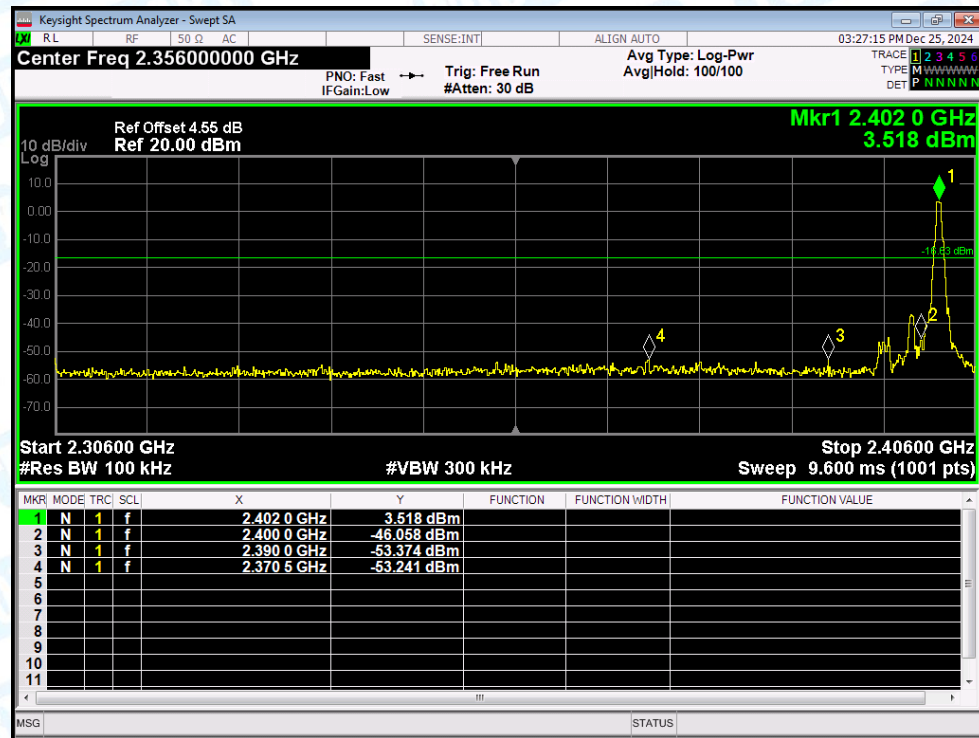
Condition	Mode	Frequency (MHz)	Antenna	Hopping Mode	Max Value (dBc)	Limit (dBc)	Verdict
NVNT	1-DH1	2402	Ant1	No-Hopping	-56.61	-20	Pass
NVNT	1-DH1	2480	Ant1	No-Hopping	-55.46	-20	Pass
NVNT	2-DH1	2402	Ant1	No-Hopping	-57.22	-20	Pass
NVNT	2-DH1	2480	Ant1	No-Hopping	-54.36	-20	Pass
NVNT	3-DH1	2402	Ant1	No-Hopping	-55.33	-20	Pass
NVNT	3-DH1	2480	Ant1	No-Hopping	-54.57	-20	Pass

Test Graphs

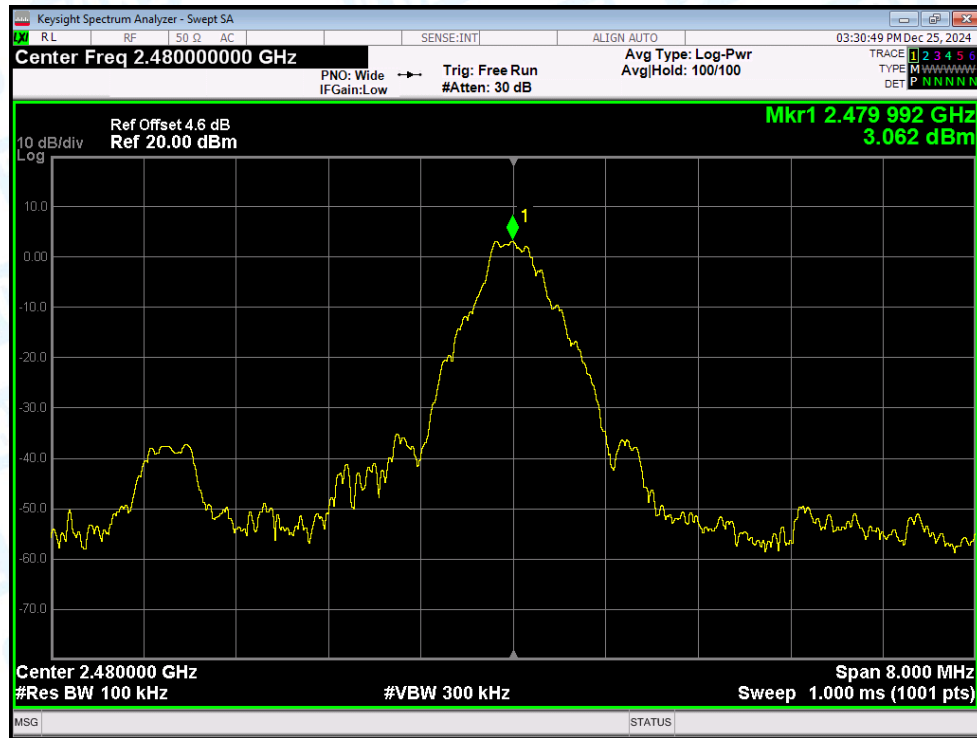
Band Edge NVNT 1-DH1 2402MHz Ant1 No-Hopping Ref



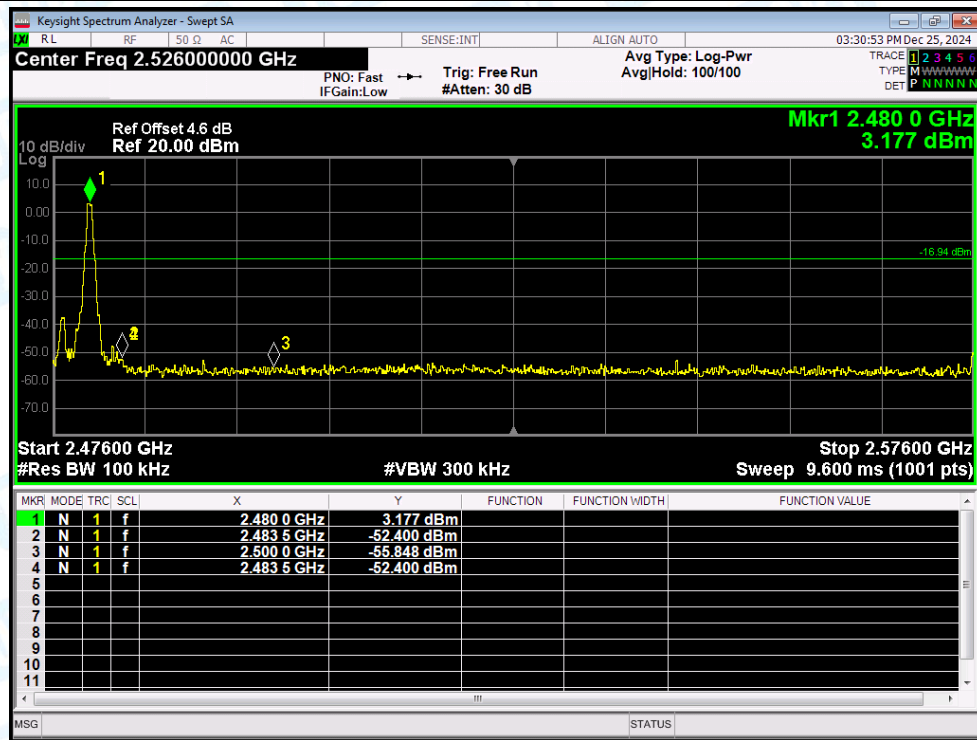
Band Edge NVNT 1-DH1 2402MHz Ant1 No-Hopping Emission



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



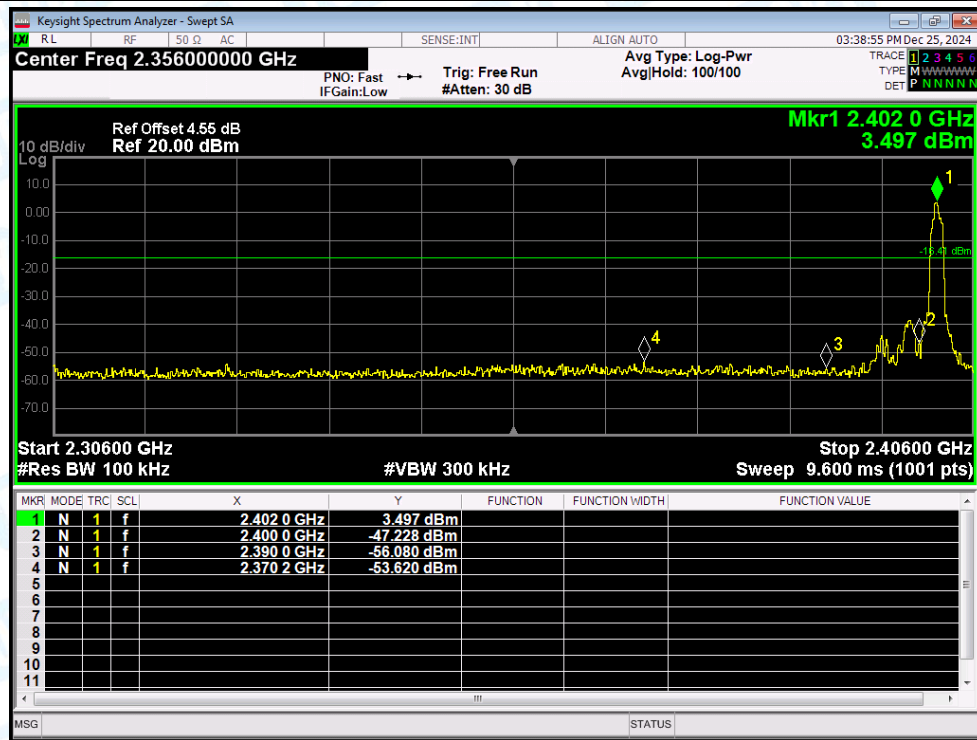
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Band Edge NVNT 2-DH1 2402MHz Ant1 No-Hopping Ref



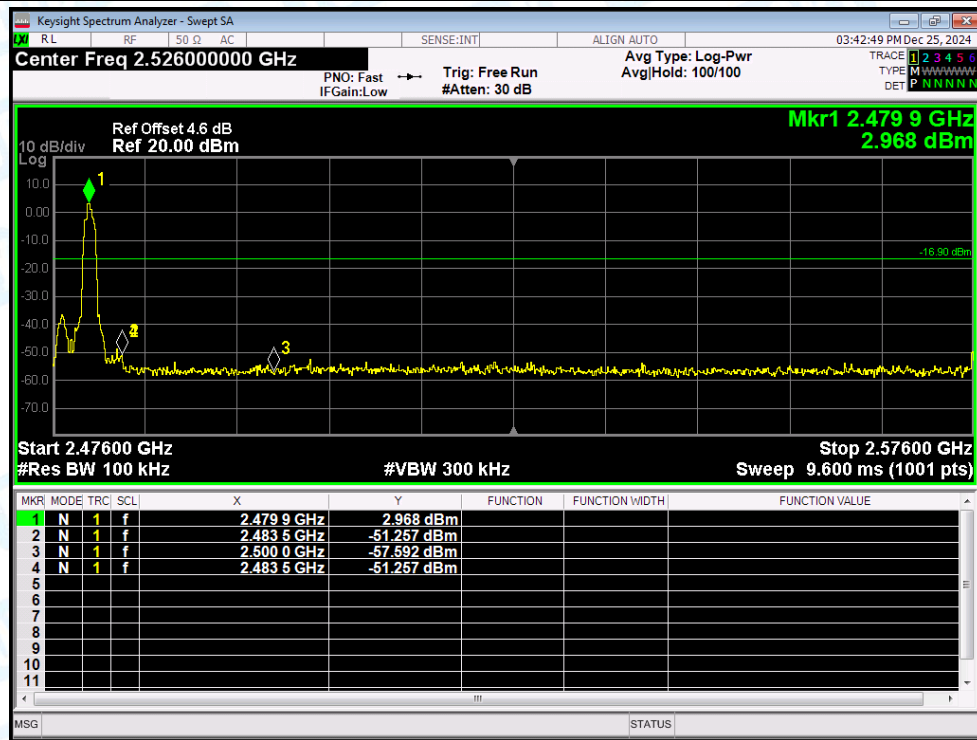
Band Edge NVNT 2-DH1 2402MHz Ant1 No-Hopping Emission



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



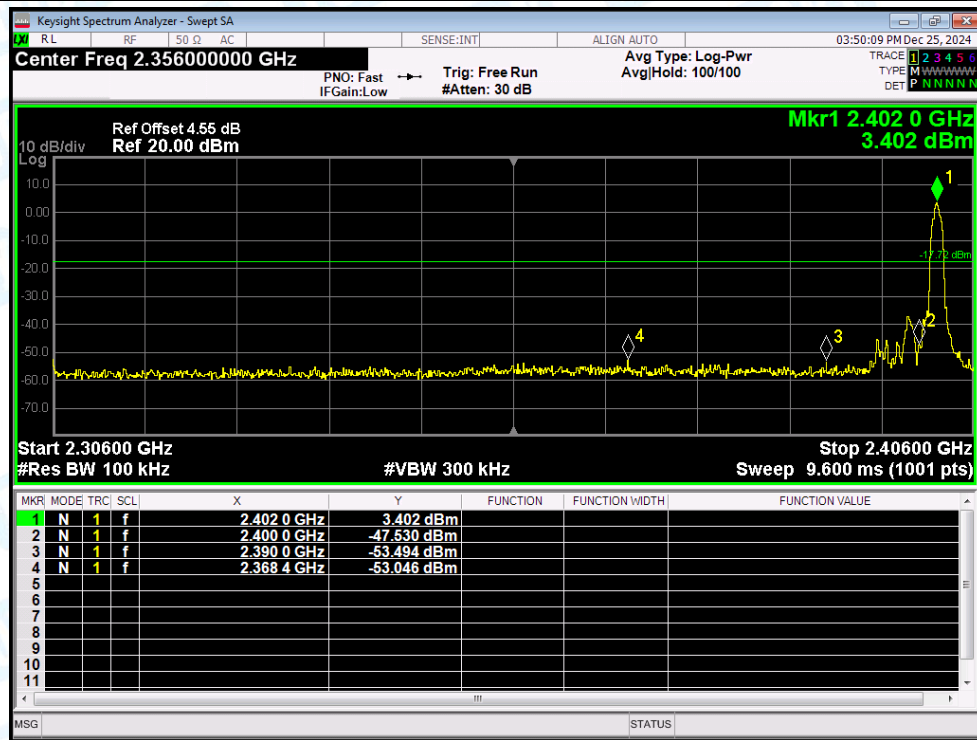
Band Edge NVNT 2-DH1 2480MHz Ant1 No-Hopping Emission



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



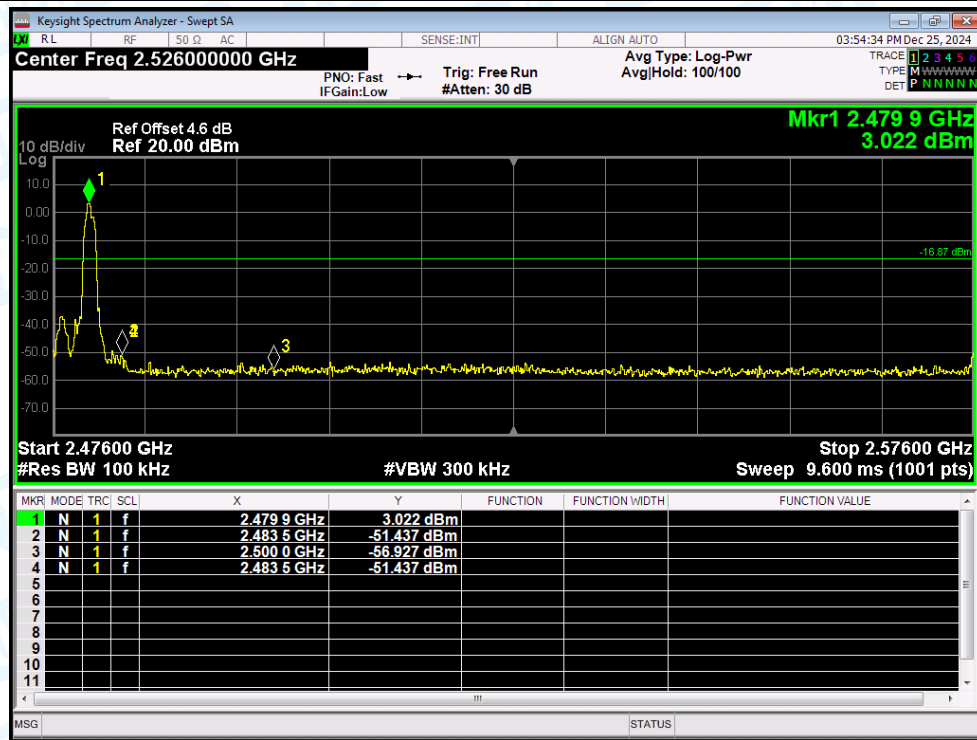
Band Edge NVNT 3-DH1 2402MHz Ant1 No-Hopping Emission



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



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

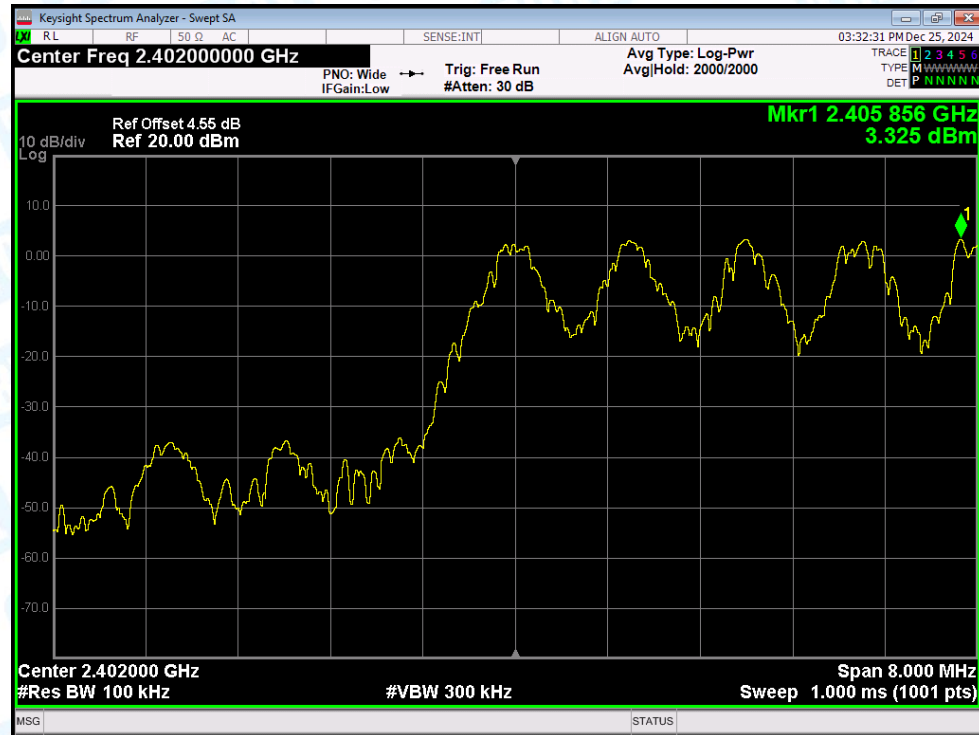


6. Band Edge(Hopping)

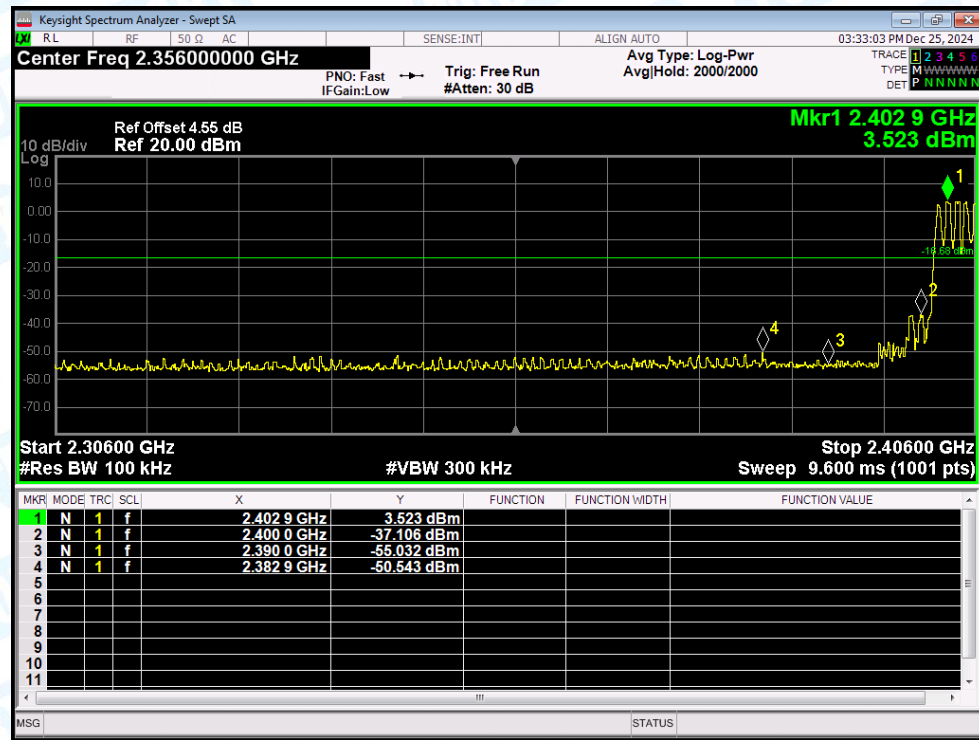
Condition	Mode	Frequency (MHz)	Antenna	Hopping Mode	Max Value (dBc)	Limit (dBc)	Verdict
NVNT	1-DH1	2402	Ant1	Hopping	-53.87	-20	Pass
NVNT	1-DH1	2480	Ant1	Hopping	-51.1	-20	Pass
NVNT	2-DH1	2402	Ant1	Hopping	-54.54	-20	Pass
NVNT	2-DH1	2480	Ant1	Hopping	-51.8	-20	Pass
NVNT	3-DH1	2402	Ant1	Hopping	-54.28	-20	Pass
NVNT	3-DH1	2480	Ant1	Hopping	-51.19	-20	Pass

Test Graphs

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



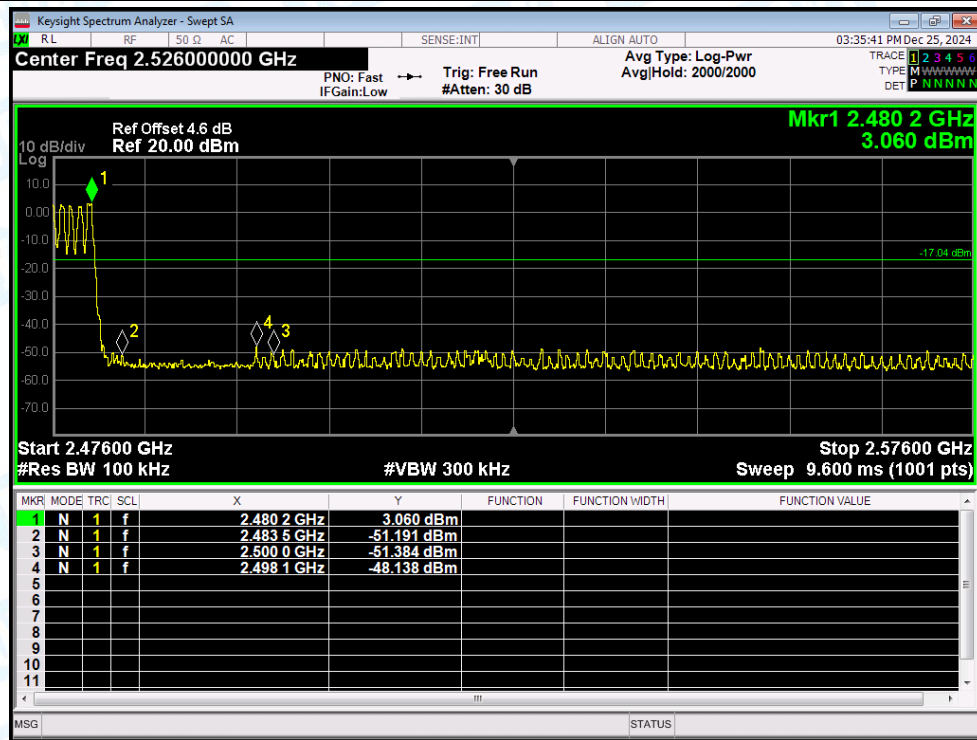
Band Edge(Hopping) NVNT 1-DH1 2402MHz Ant1 Hopping Emission



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



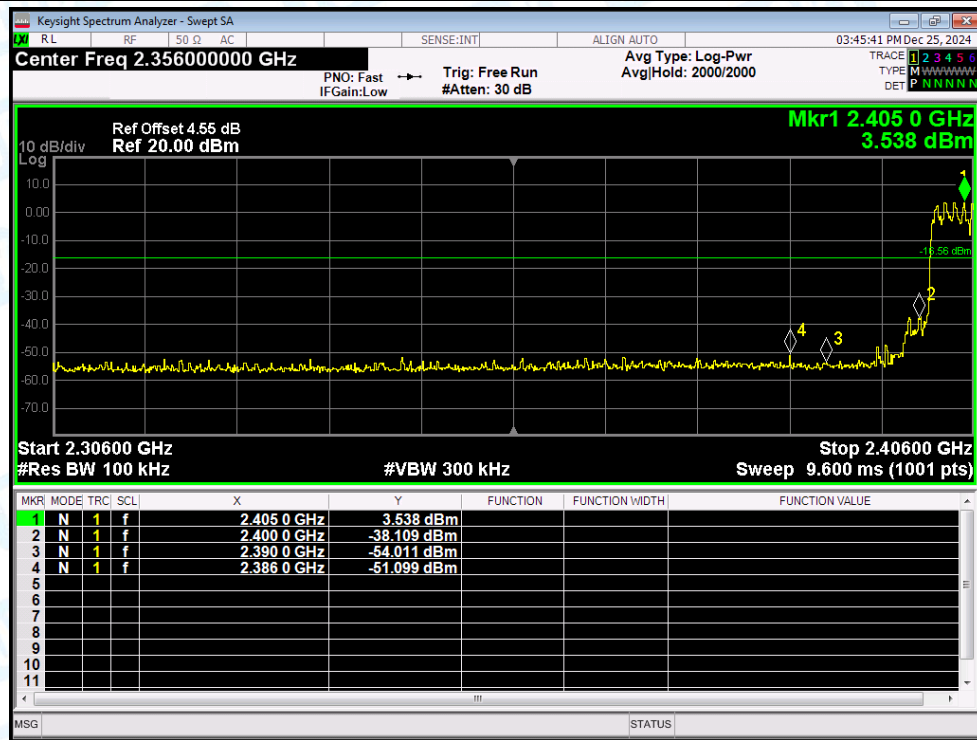
Band Edge(Hopping) NVNT 1-DH1 2480MHz Ant1 Hopping Emission

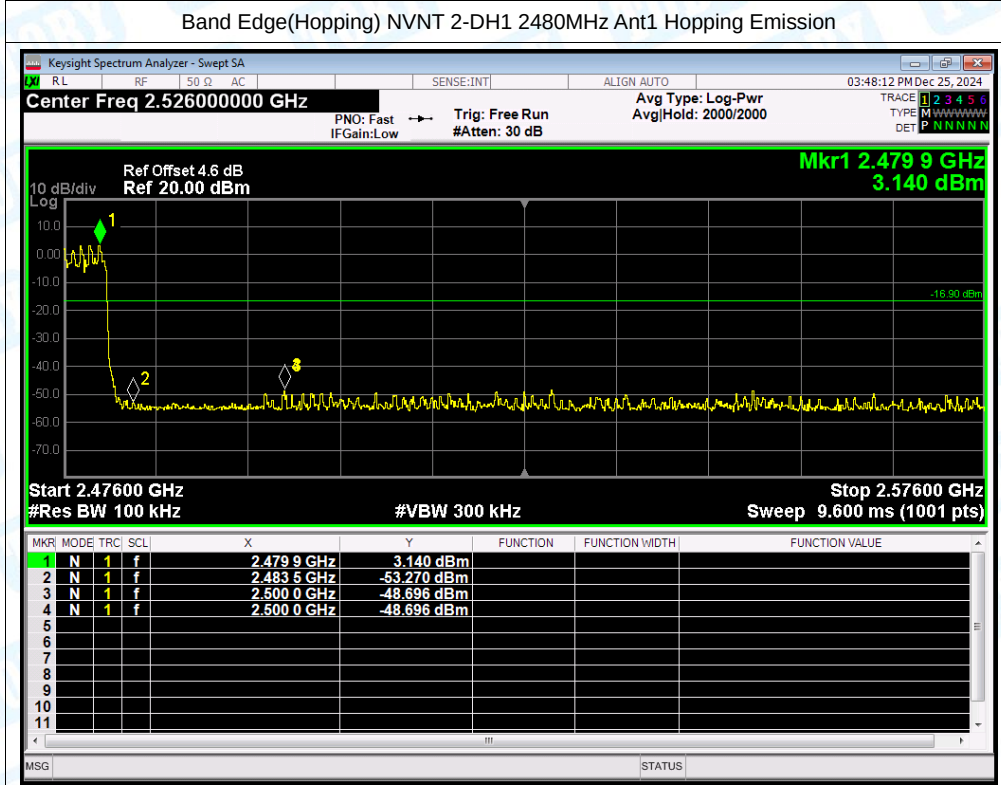


Band Edge(Hopping) NVNT 2-DH1 2402MHz Ant1 Hopping Ref

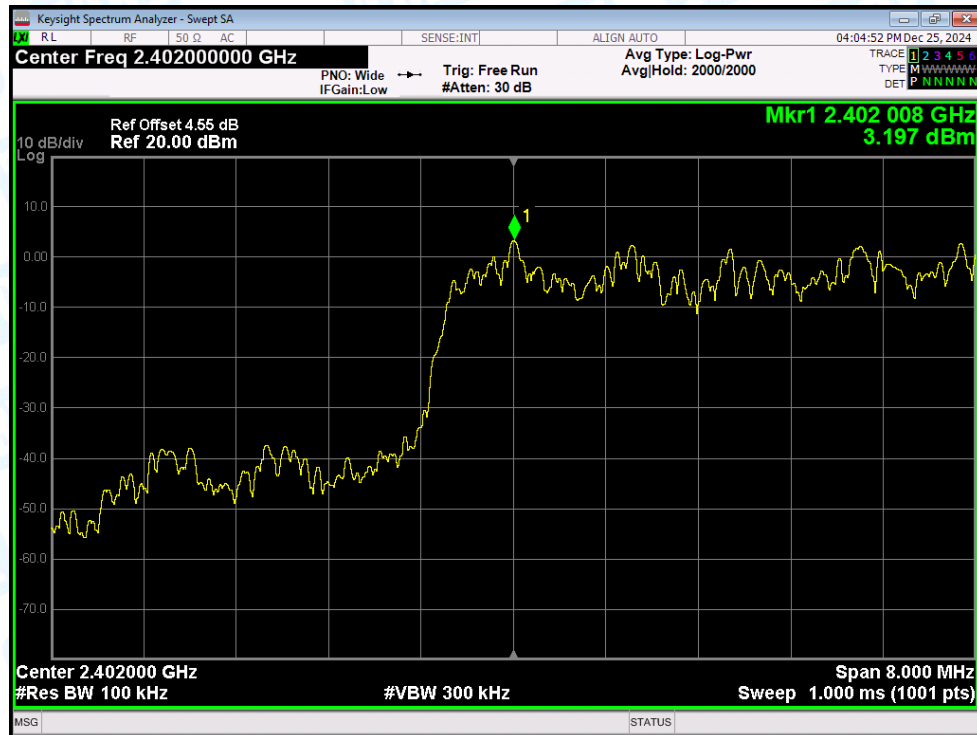


Band Edge(Hopping) NVNT 2-DH1 2402MHz Ant1 Hopping Emission

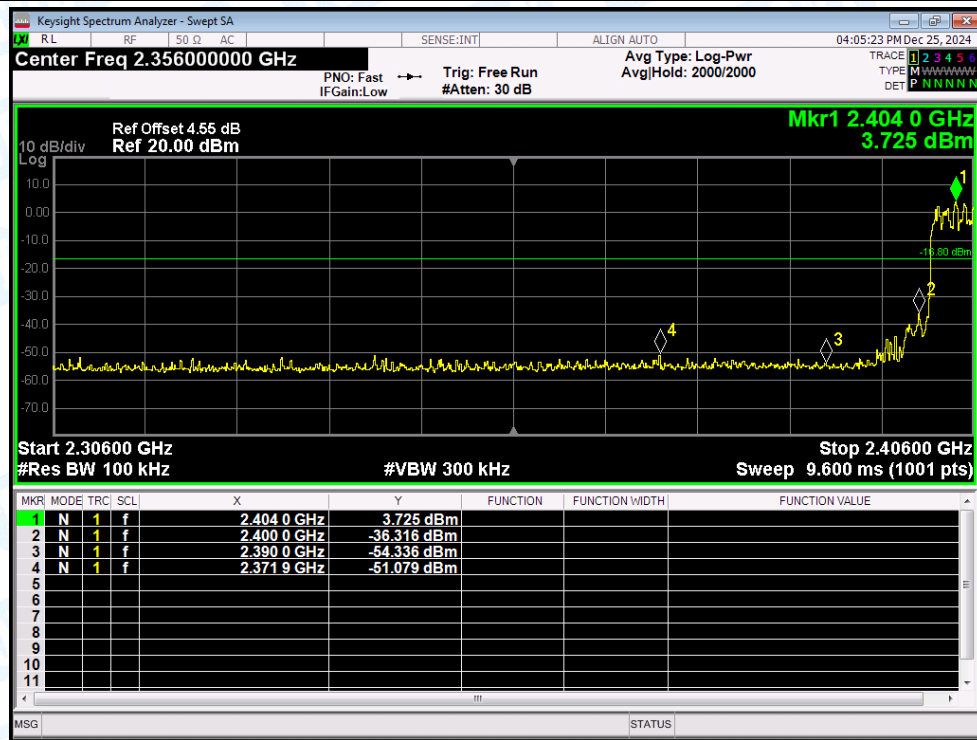


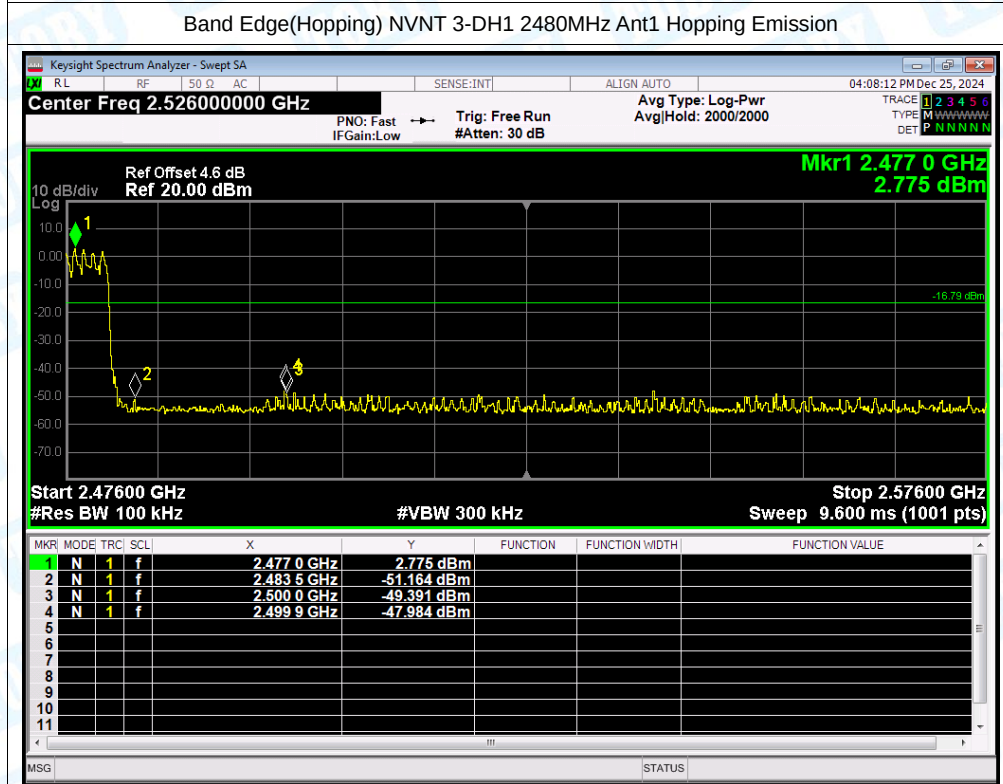
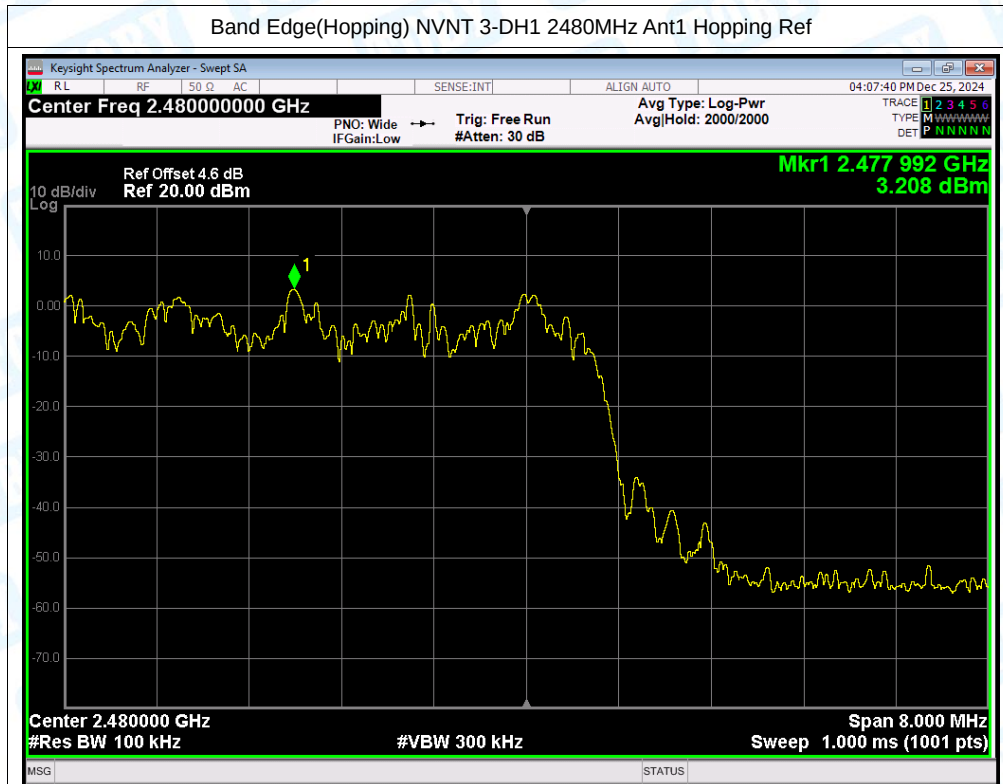


Band Edge(Hopping) NVNT 3-DH1 2402MHz Ant1 Hopping Ref



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



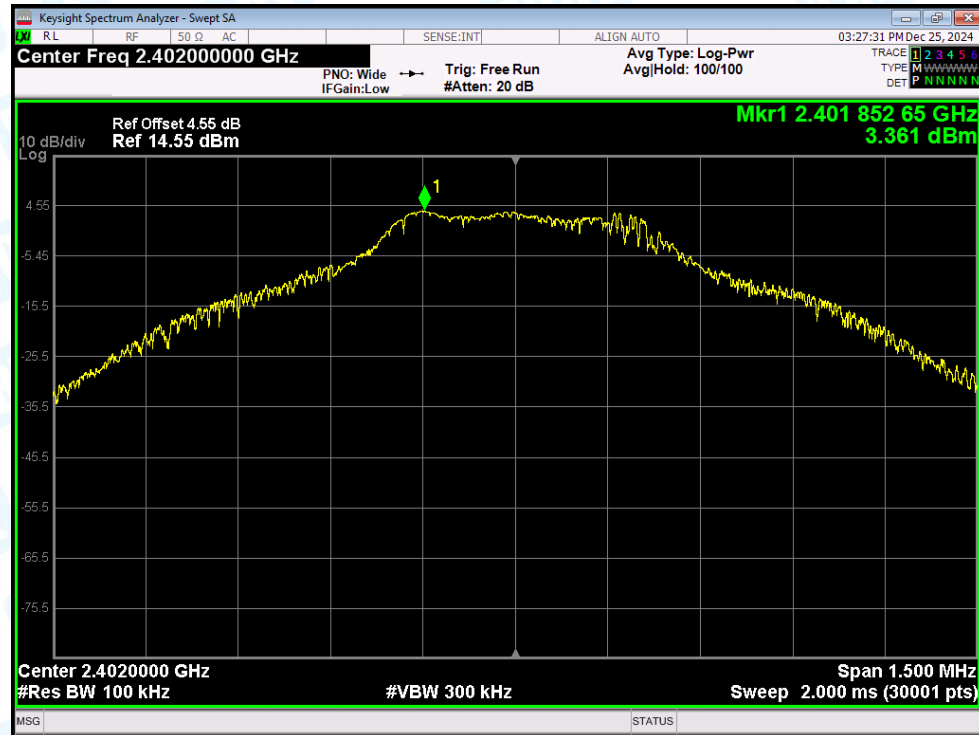


7. Conducted RF Spurious Emission

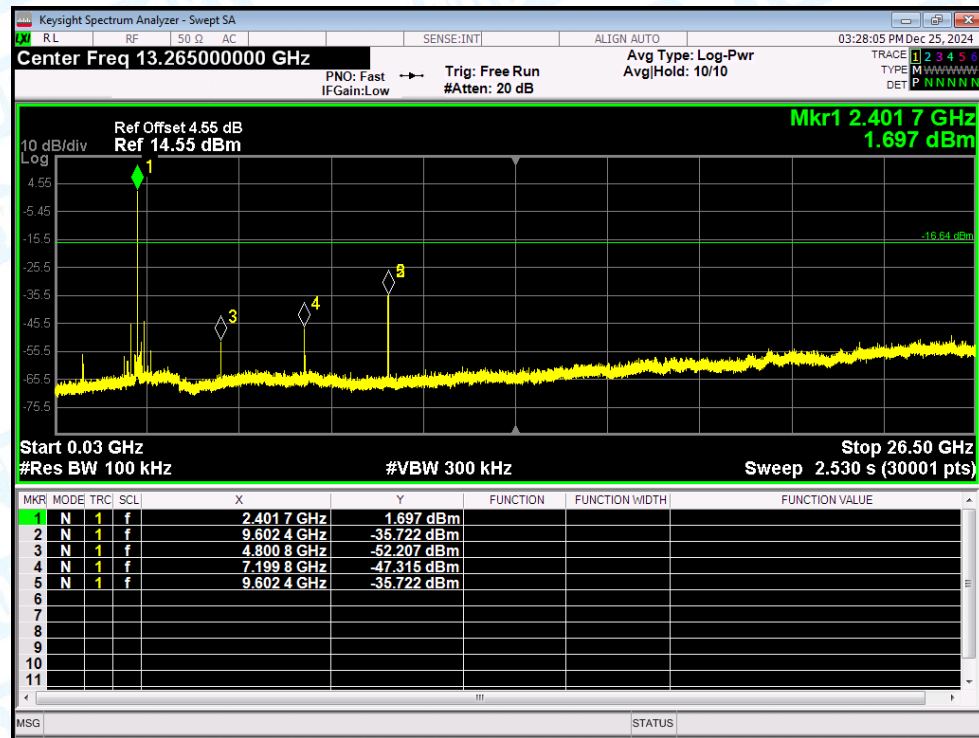
Condition	Mode	Frequency (MHz)	Antenna	Max Value (dBc)	Limit (dBc)	Verdict
NVNT	1-DH1	2402	Ant1	-39.08	-20	Pass
NVNT	1-DH1	2441	Ant1	-39.27	-20	Pass
NVNT	1-DH1	2480	Ant1	-38.41	-20	Pass
NVNT	2-DH1	2402	Ant1	-39.07	-20	Pass
NVNT	2-DH1	2441	Ant1	-39.02	-20	Pass
NVNT	2-DH1	2480	Ant1	-38.17	-20	Pass
NVNT	3-DH1	2402	Ant1	-38.82	-20	Pass
NVNT	3-DH1	2441	Ant1	-38.91	-20	Pass
NVNT	3-DH1	2480	Ant1	-38.01	-20	Pass

Test Graphs

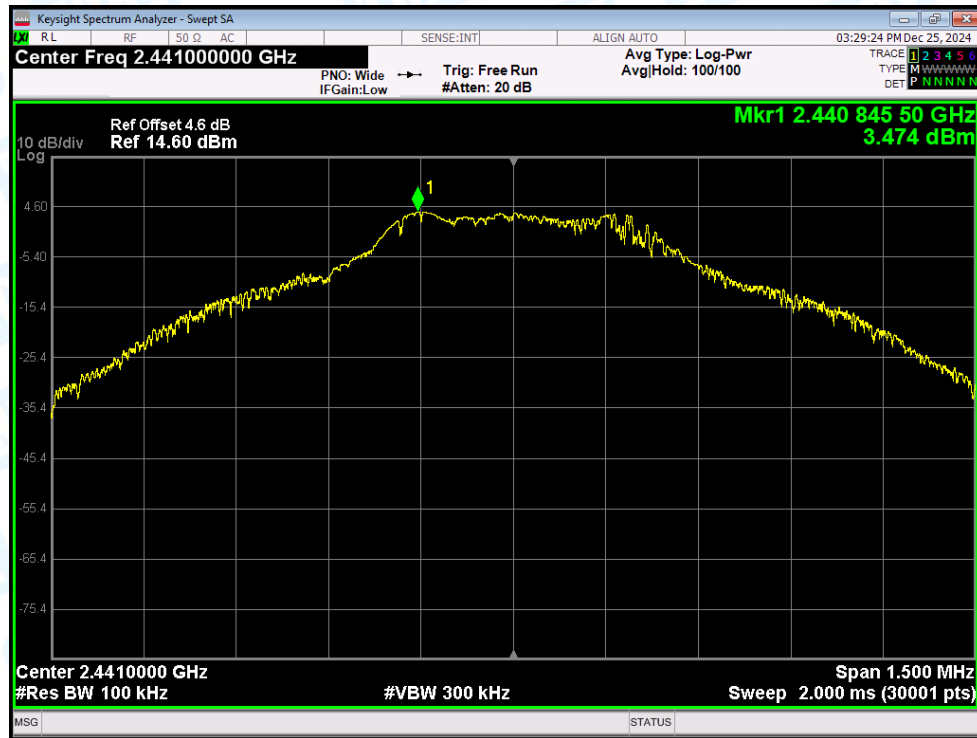
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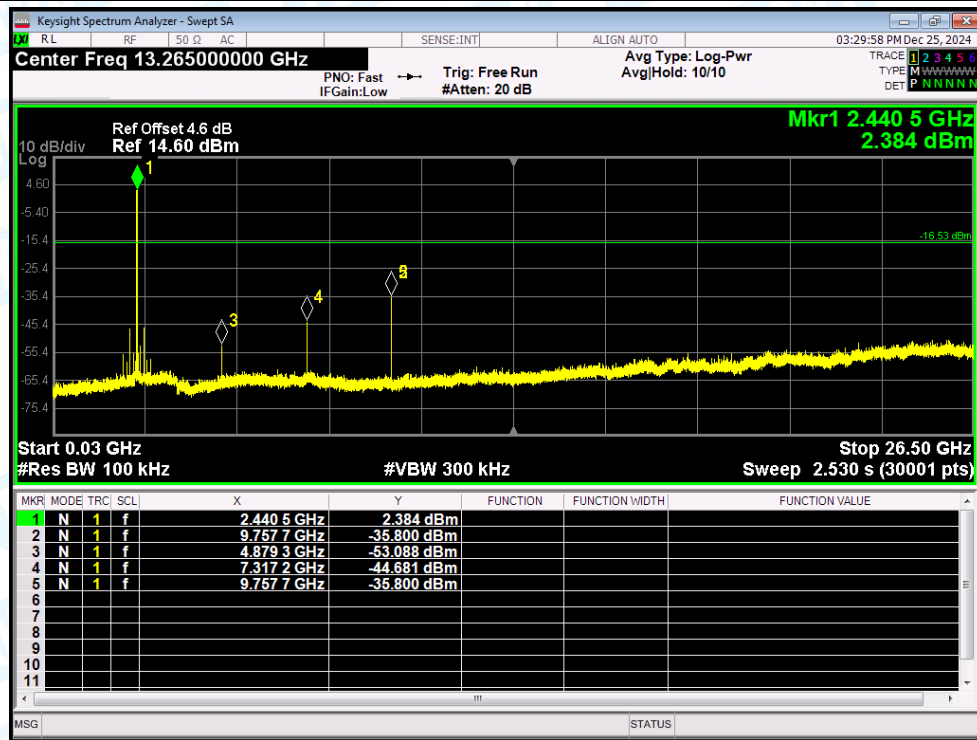
Tx. Spurious NVNT 1-DH1 2402MHz Ant1 Emission



Tx. Spurious NVNT 1-DH1 2441MHz Ant1 Ref



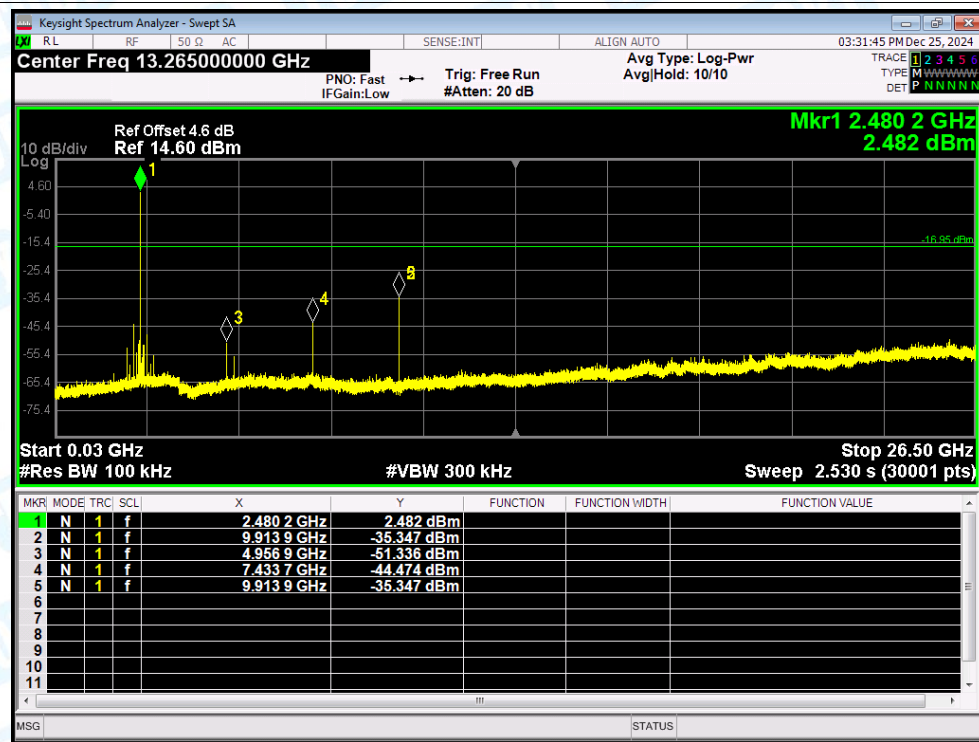
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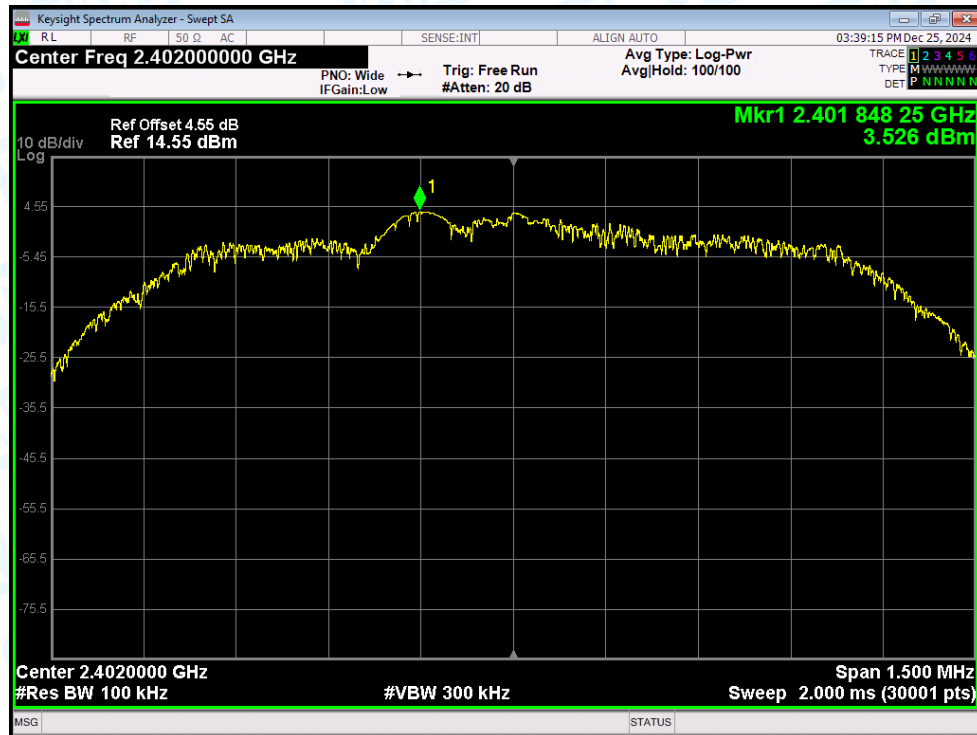
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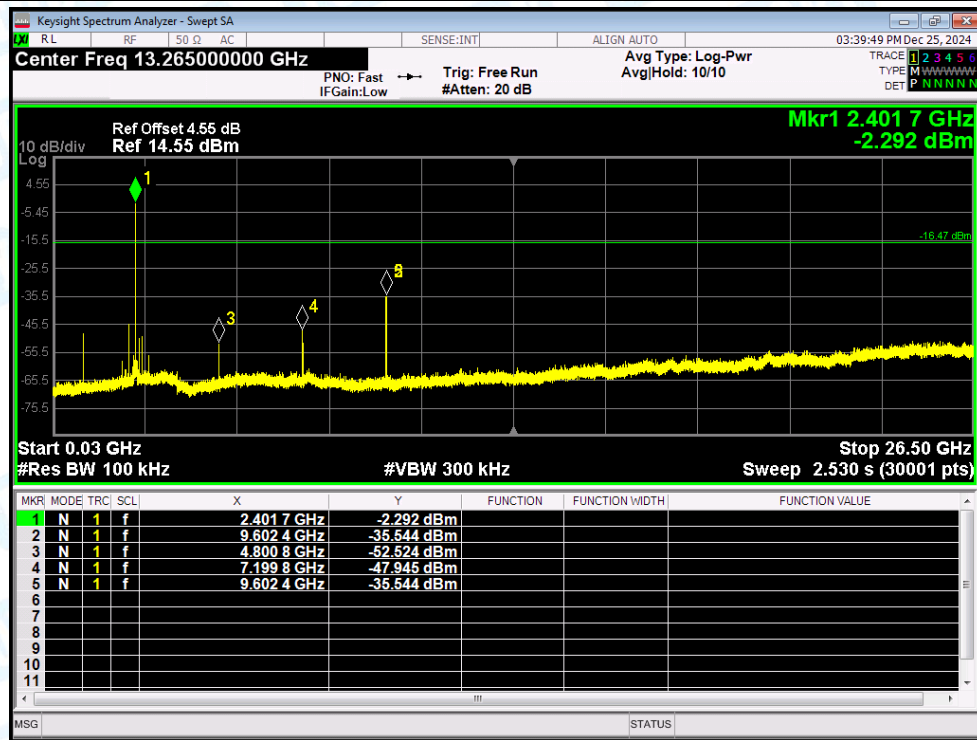
Tx. Spurious NVNT 1-DH1 2480MHz Ant1 Emission



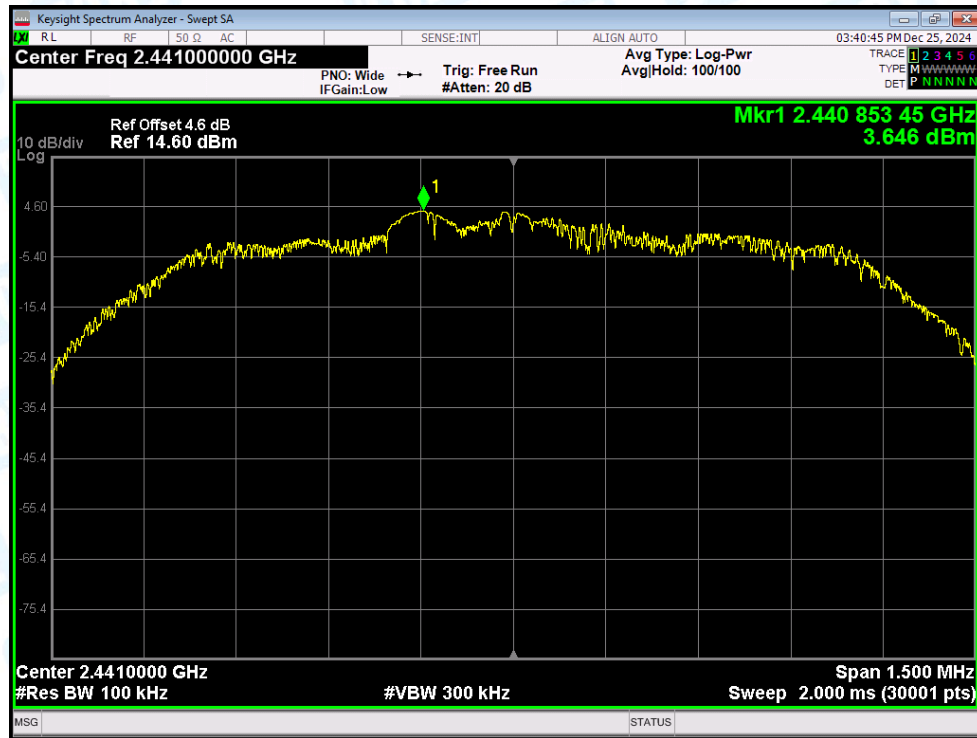
Tx. Spurious NVNT 2-DH1 2402MHz Ant1 Ref



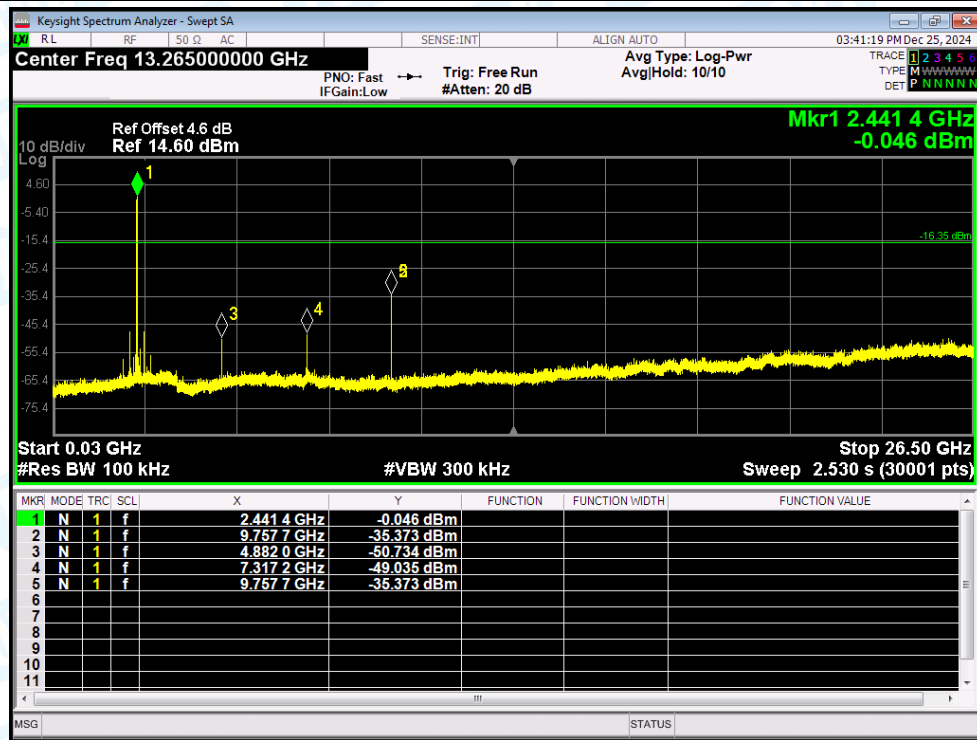
Tx. Spurious NVNT 2-DH1 2402MHz Ant1 Emission



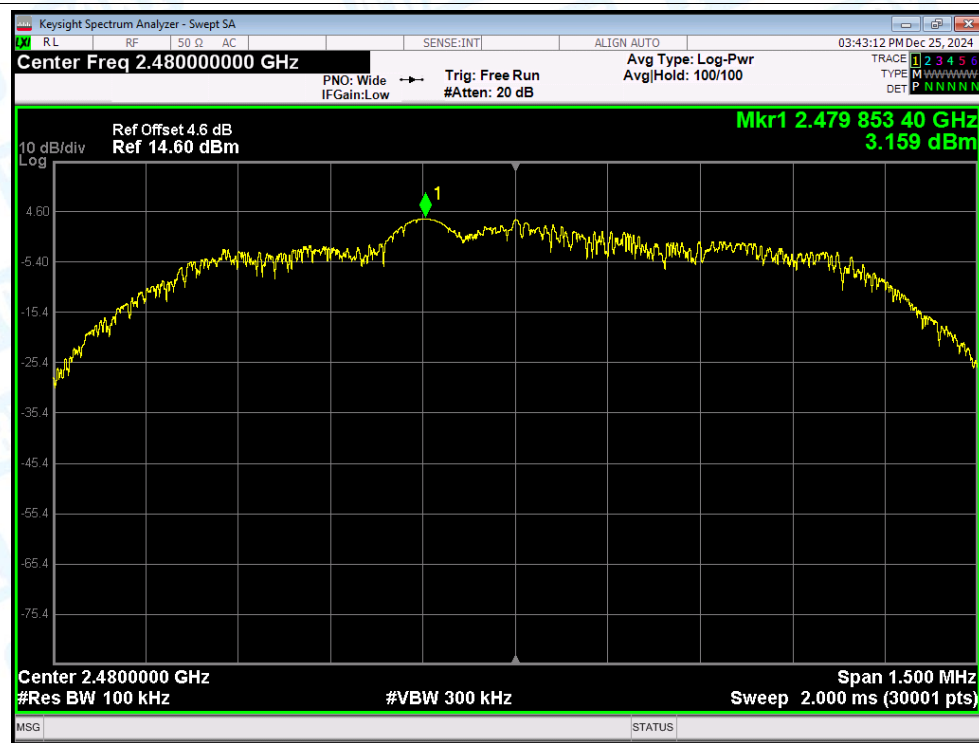
Tx. Spurious NVNT 2-DH1 2441MHz Ant1 Ref



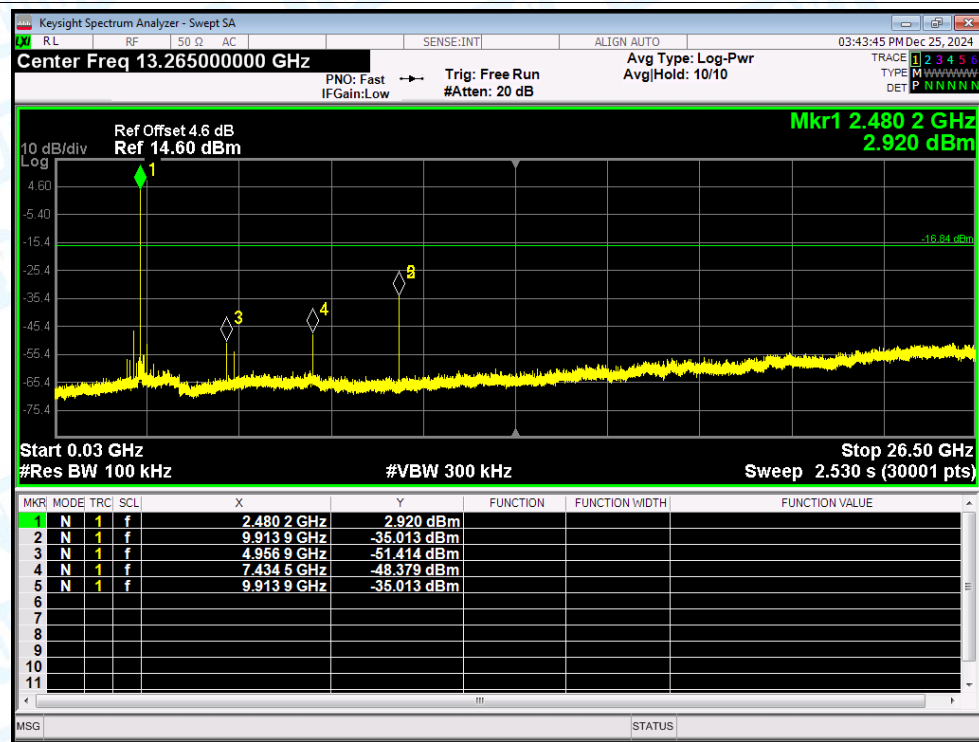
Tx. Spurious NVNT 2-DH1 2441MHz Ant1 Emission



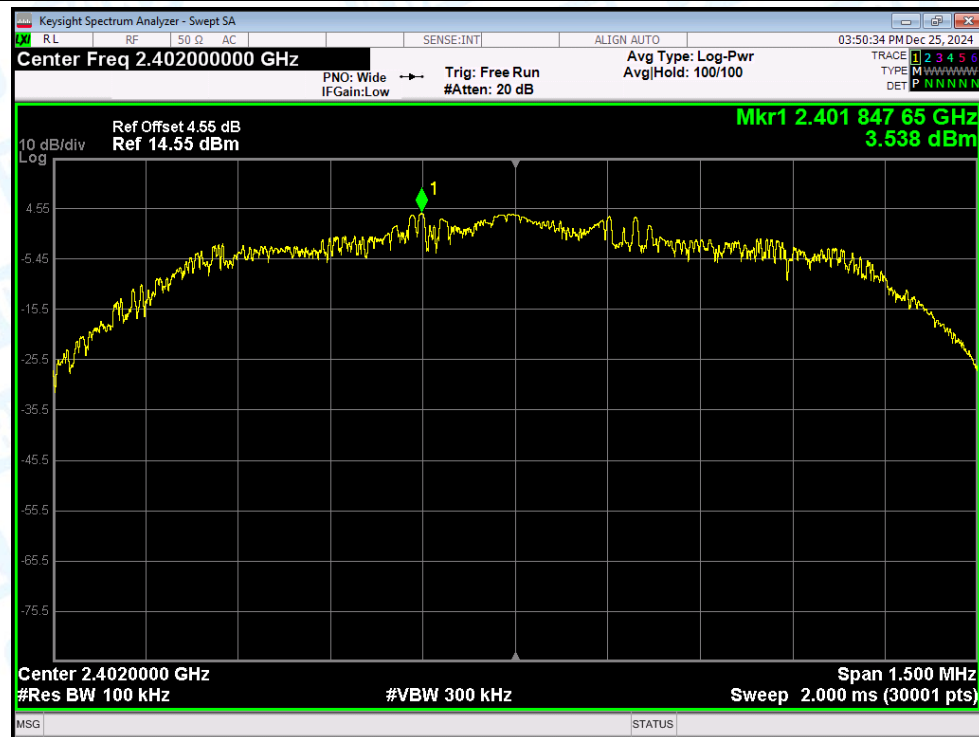
Tx. Spurious NVNT 2-DH1 2480MHz Ant1 Ref



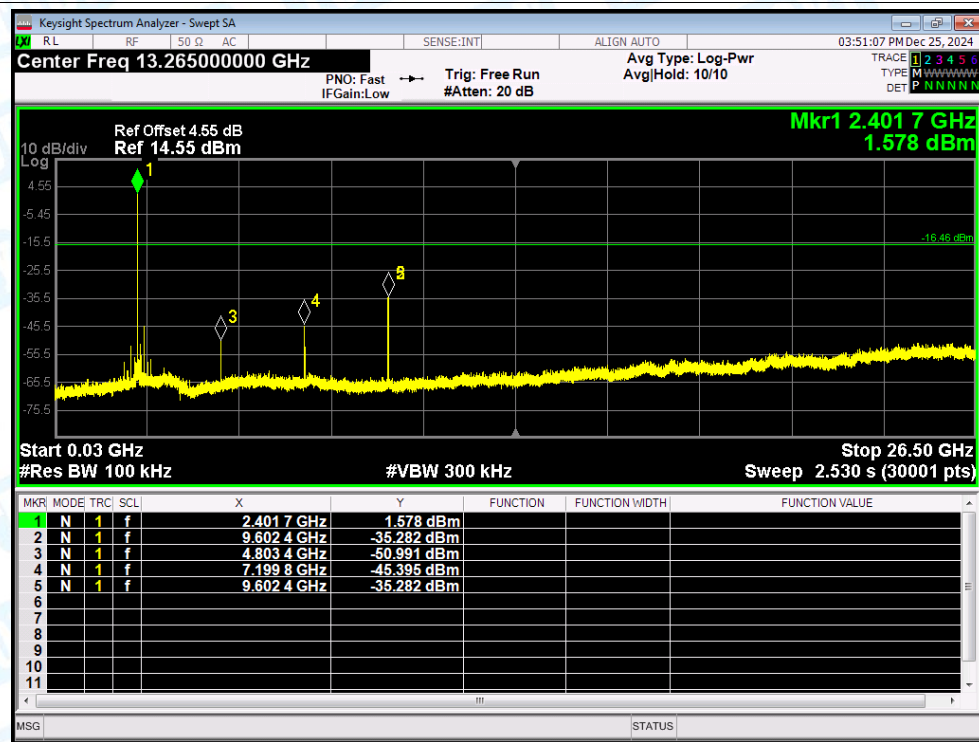
Tx. Spurious NVNT 2-DH1 2480MHz Ant1 Emission



Tx. Spurious NVNT 3-DH1 2402MHz Ant1 Ref



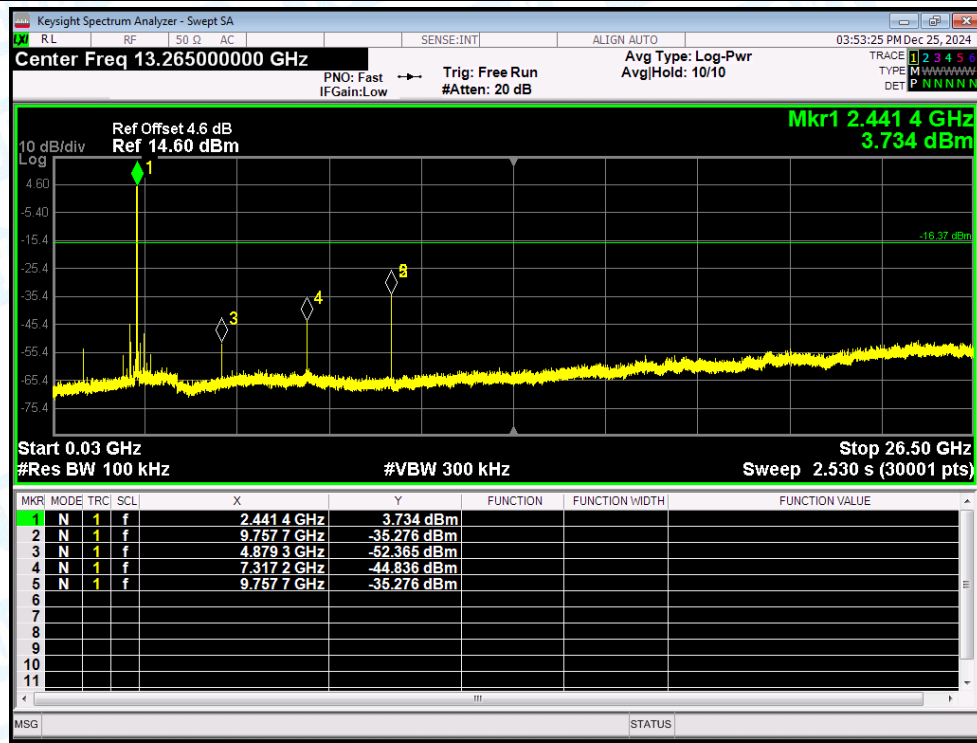
Tx. Spurious NVNT 3-DH1 2402MHz Ant1 Emission



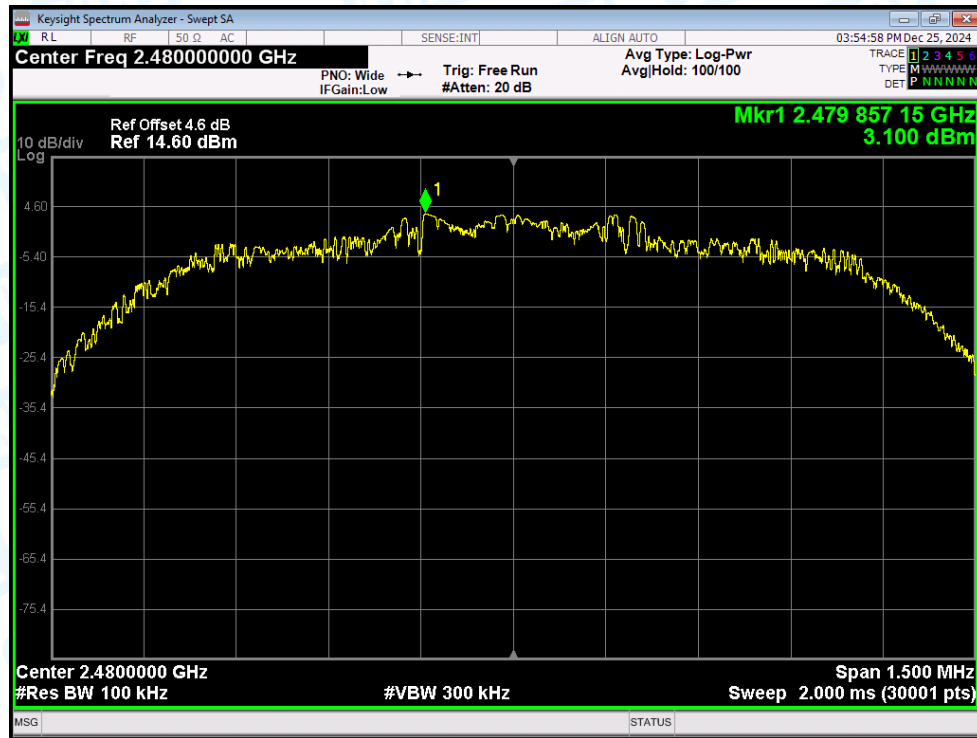
Tx. Spurious NVNT 3-DH1 2441MHz Ant1 Ref



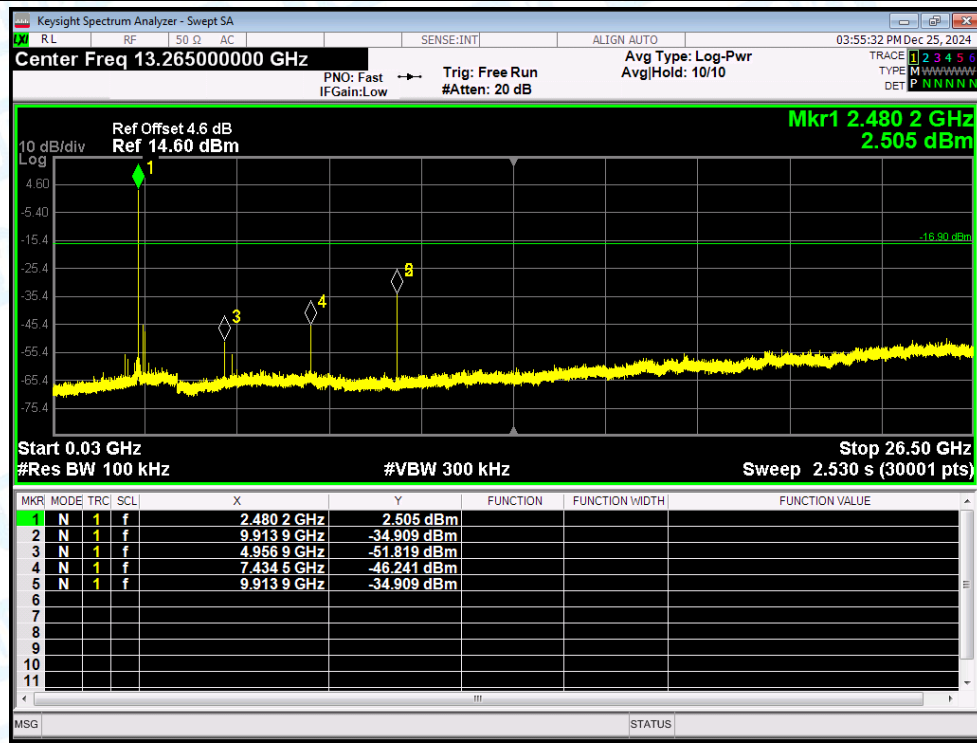
Tx. Spurious NVNT 3-DH1 2441MHz Ant1 Emission



Tx. Spurious NVNT 3-DH1 2480MHz Ant1 Ref



Tx. Spurious NVNT 3-DH1 2480MHz Ant1 Emission

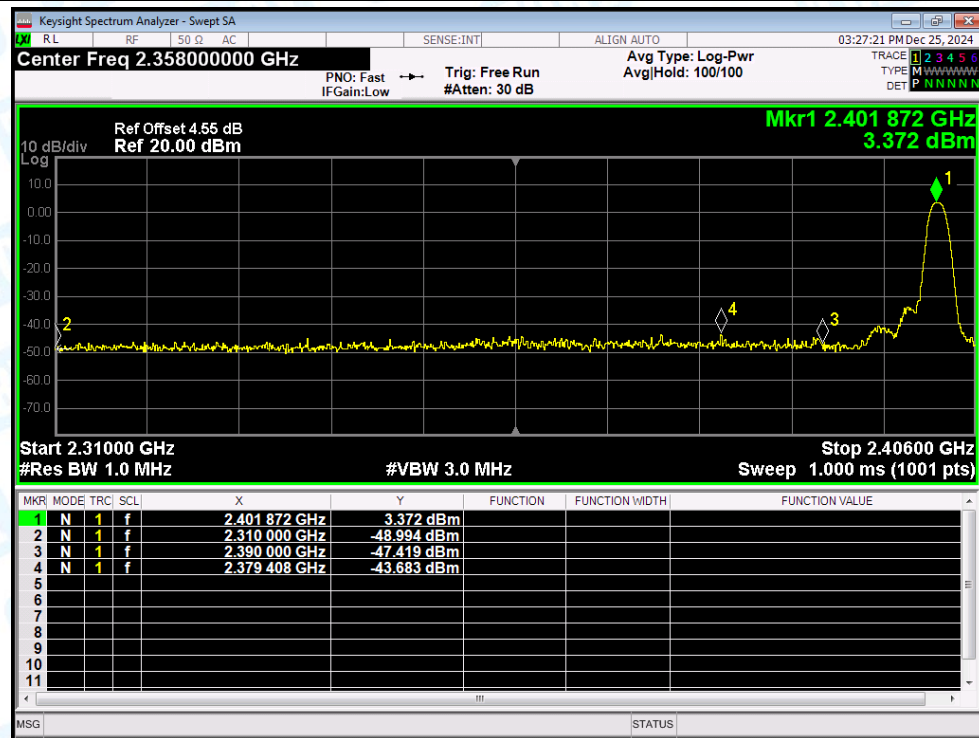


8. Restrict Band

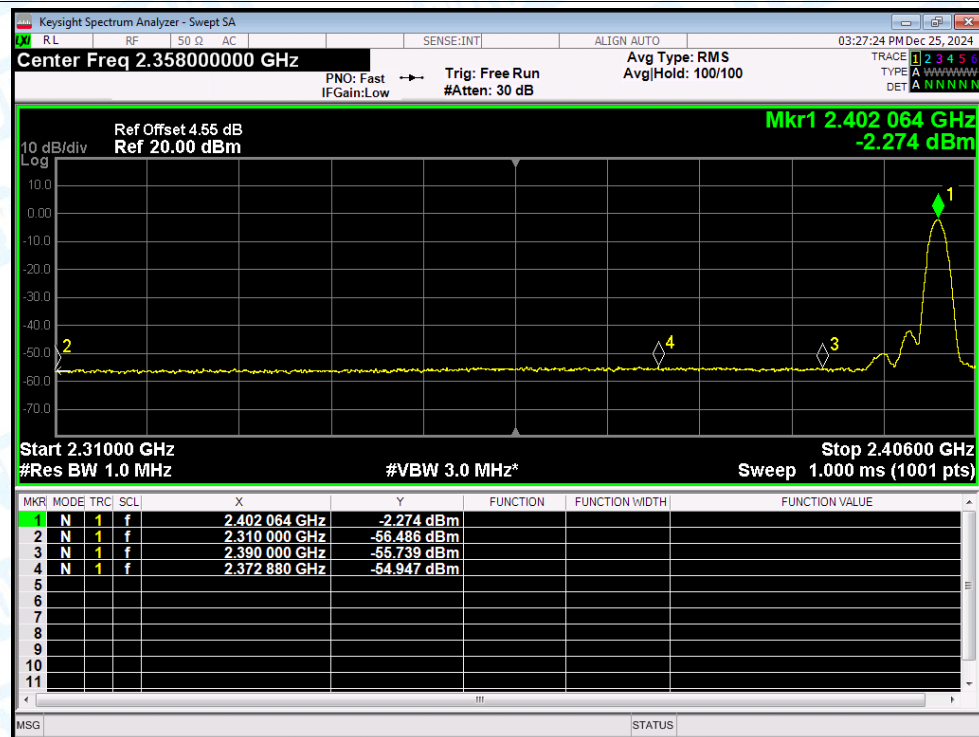
Condition	Mode	Frequency (MHz)	Antenna	Hopping Mode	Spur Freq (MHz)	Power (dBm)	Gain (dBi)	Duty Factor (dB)	E (dBuV/m)	Detector	Limit (dBuV/m)	Verdict
NVNT	1-DH1	2402	Ant1	No-Hopping	2310	-48.99	2	-	48.27	Peak	74	Pass
NVNT	1-DH1	2402	Ant1	No-Hopping	2310	-56.49	2	5.06	45.83	Average	54	Pass
NVNT	1-DH1	2402	Ant1	No-Hopping	2379.408	-43.68	2	-	53.58	Peak	74	Pass
NVNT	1-DH1	2402	Ant1	No-Hopping	2372.88	-54.95	2	5.06	47.37	Average	54	Pass
NVNT	1-DH1	2402	Ant1	No-Hopping	2390	-47.42	2	-	49.84	Peak	74	Pass
NVNT	1-DH1	2402	Ant1	No-Hopping	2390	-55.74	2	5.06	46.58	Average	54	Pass
NVNT	1-DH1	2480	Ant1	No-Hopping	2483.5	-42.81	2	-	54.45	Peak	74	Pass
NVNT	1-DH1	2480	Ant1	No-Hopping	2483.5	-52.73	2	5.17	49.7	Average	54	Pass
NVNT	1-DH1	2480	Ant1	No-Hopping	2483.512	-42.81	2	-	54.45	Peak	74	Pass
NVNT	1-DH1	2480	Ant1	No-Hopping	2483.512	-52.72	2	5.17	49.71	Average	54	Pass
NVNT	1-DH1	2480	Ant1	No-Hopping	2500	-46.71	2	-	50.55	Peak	74	Pass
NVNT	1-DH1	2480	Ant1	No-Hopping	2500	-55.44	2	5.17	46.99	Average	54	Pass
NVNT	2-DH1	2402	Ant1	No-Hopping	2310	-48.73	2	-	48.53	Peak	74	Pass
NVNT	2-DH1	2402	Ant1	No-Hopping	2310	-56.86	2	4.95	45.35	Average	54	Pass
NVNT	2-DH1	2402	Ant1	No-Hopping	2363.184	-43.82	2	-	53.44	Peak	74	Pass
NVNT	2-DH1	2402	Ant1	No-Hopping	2364.048	-54.82	2	4.95	47.39	Average	54	Pass
NVNT	2-DH1	2402	Ant1	No-Hopping	2390	-48.15	2	-	49.11	Peak	74	Pass
NVNT	2-DH1	2402	Ant1	No-Hopping	2390	-55.67	2	4.95	46.54	Average	54	Pass
NVNT	2-DH1	2480	Ant1	No-Hopping	2483.5	-45.4	2	-	51.86	Peak	74	Pass
NVNT	2-DH1	2480	Ant1	No-Hopping	2483.5	-54.32	2	5.06	48	Average	54	Pass
NVNT	2-DH1	2480	Ant1	No-Hopping	2483.752	-42.06	2	-	55.2	Peak	74	Pass
NVNT	2-DH1	2480	Ant1	No-Hopping	2483.632	-53.73	2	5.06	48.59	Average	54	Pass
NVNT	2-DH1	2480	Ant1	No-Hopping	2500	-47.63	2	-	49.63	Peak	74	Pass
NVNT	2-DH1	2480	Ant1	No-Hopping	2500	-55.74	2	5.06	46.58	Average	54	Pass
NVNT	3-DH1	2402	Ant1	No-Hopping	2310	-48.42	2	-	48.84	Peak	74	Pass
NVNT	3-DH1	2402	Ant1	No-Hopping	2310	-56.61	2	4.95	45.6	Average	54	Pass
NVNT	3-DH1	2402	Ant1	No-Hopping	2354.064	-44.23	2	-	53.03	Peak	74	Pass
NVNT	3-DH1	2402	Ant1	No-Hopping	2354.16	-54.29	2	4.95	47.92	Average	54	Pass
NVNT	3-DH1	2402	Ant1	No-Hopping	2390	-47.53	2	-	49.73	Peak	74	Pass
NVNT	3-DH1	2402	Ant1	No-Hopping	2390	-55.57	2	4.95	46.64	Average	54	Pass
NVNT	3-DH1	2480	Ant1	No-Hopping	2483.5	-46.29	2	-	50.97	Peak	74	Pass
NVNT	3-DH1	2480	Ant1	No-Hopping	2483.5	-54.13	2	5.06	48.19	Average	54	Pass
NVNT	3-DH1	2480	Ant1	No-Hopping	2484.328	-41	2	-	56.26	Peak	74	Pass
NVNT	3-DH1	2480	Ant1	No-Hopping	2483.824	-54.02	2	5.06	48.3	Average	54	Pass
NVNT	3-DH1	2480	Ant1	No-Hopping	2500	-45.36	2	-	51.9	Peak	74	Pass
NVNT	3-DH1	2480	Ant1	No-Hopping	2500	-55.16	2	5.06	47.16	Average	54	Pass

Test Graphs

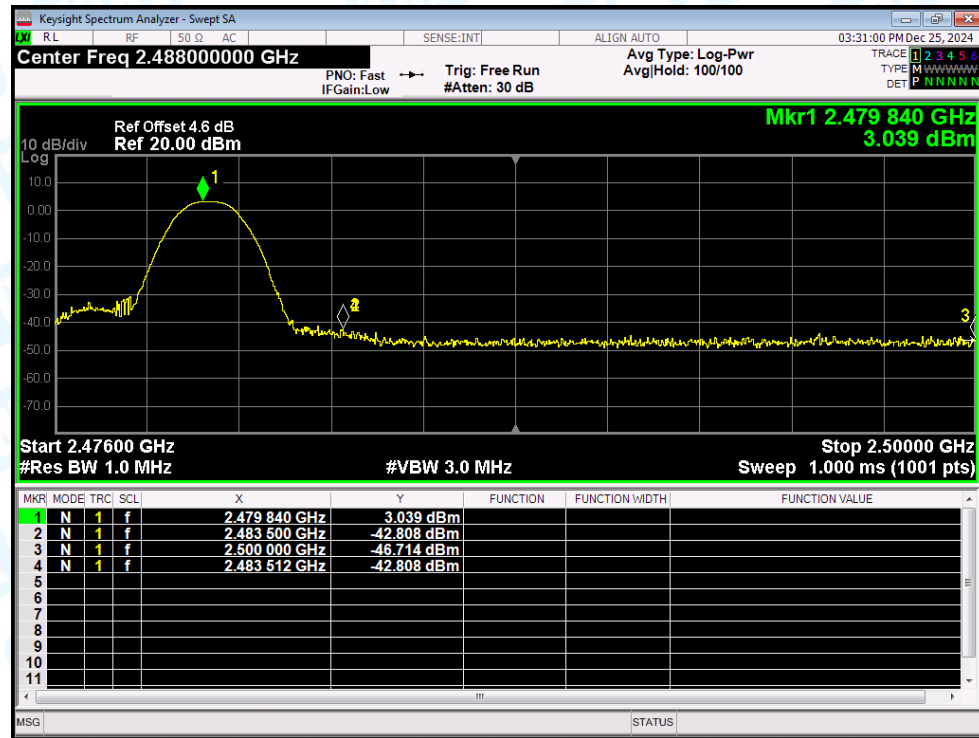
Restrict Band NVNT 1-DH1 2402MHz Ant1 No-Hopping Peak



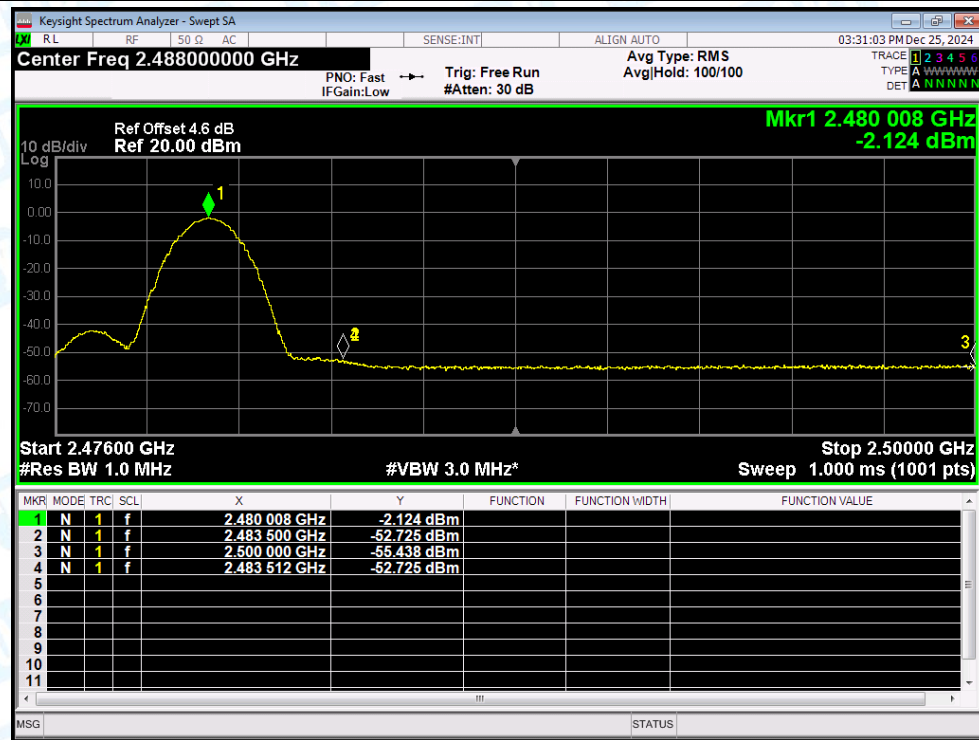
Restrict Band NVNT 1-DH1 2402MHz Ant1 No-Hopping Average



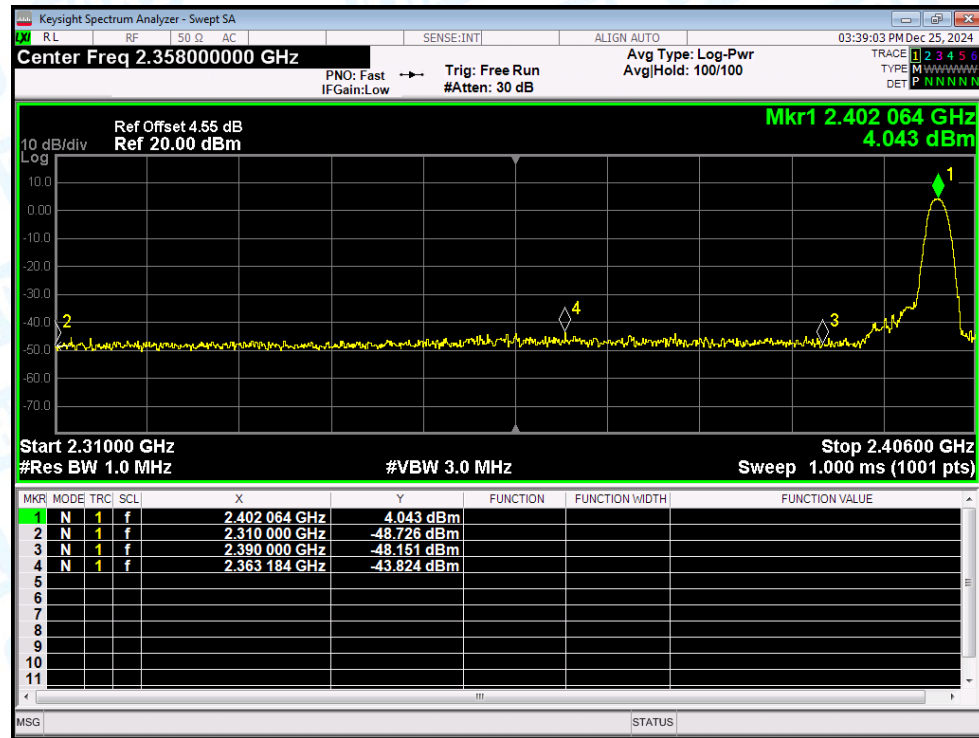
Restrict Band NVNT 1-DH1 2480MHz Ant1 No-Hopping Peak



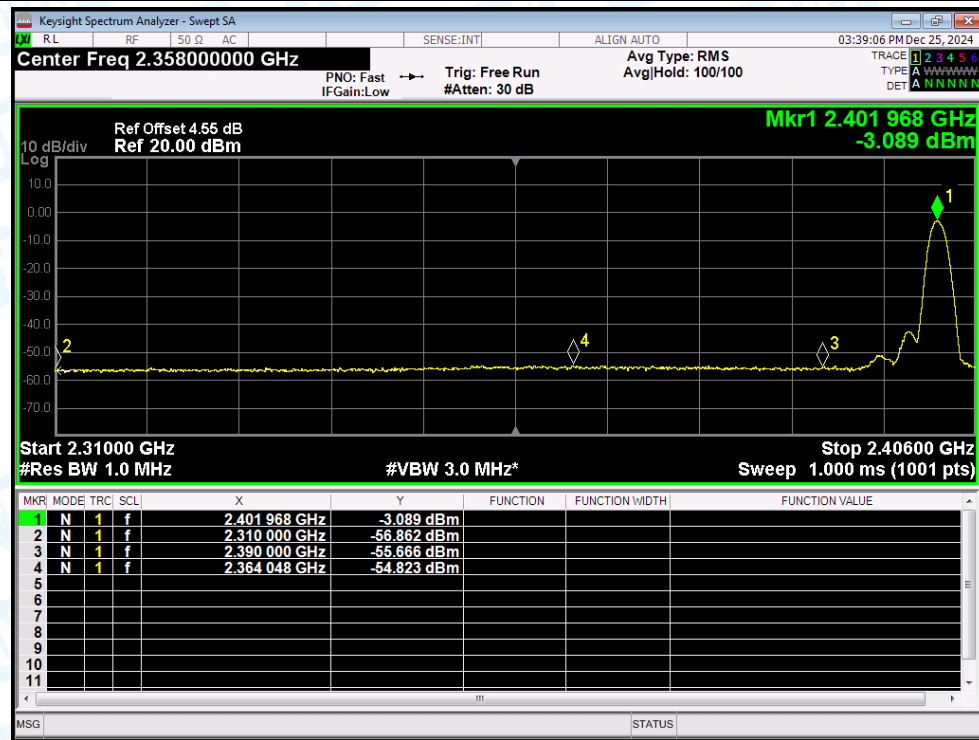
Restrict Band NVNT 1-DH1 2480MHz Ant1 No-Hopping Average



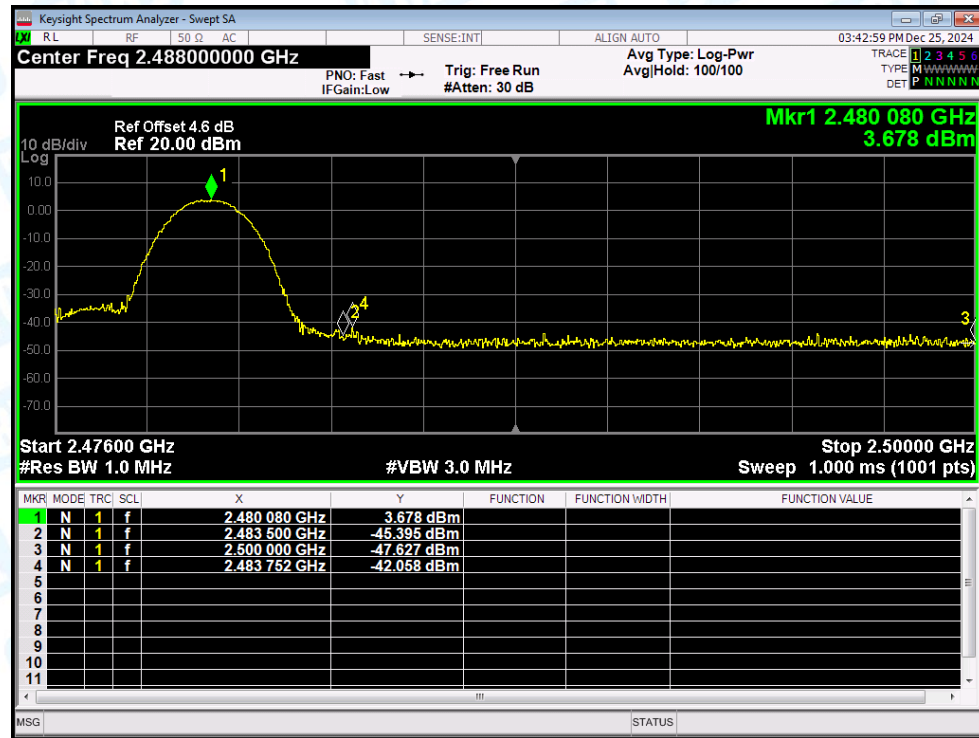
Restrict Band NVNT 2-DH1 2402MHz Ant1 No-Hopping Peak



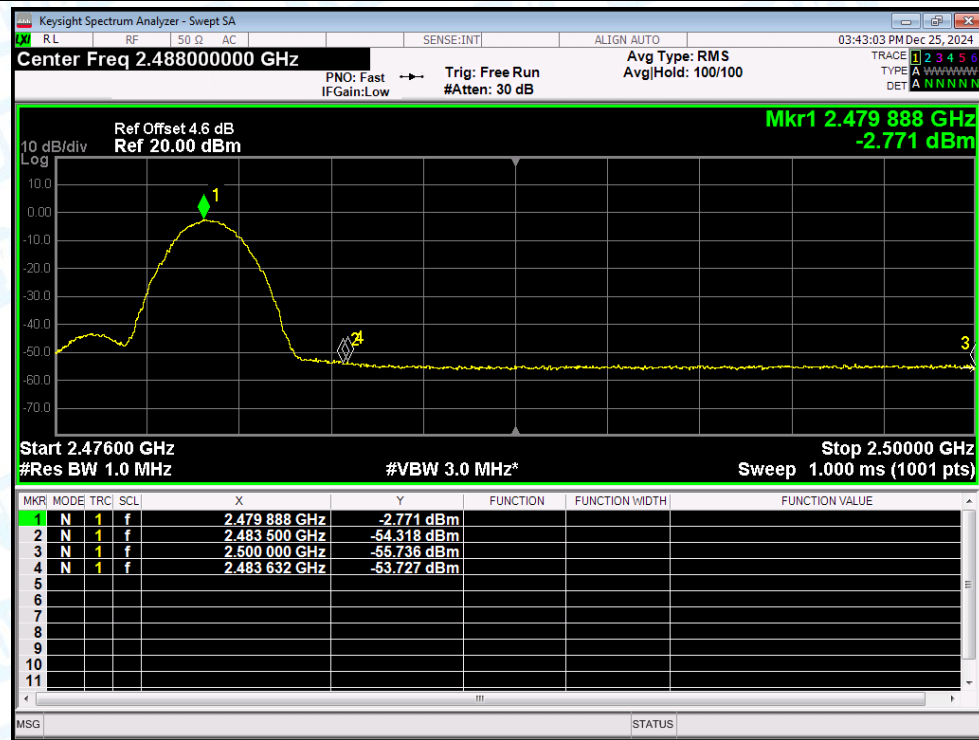
Restrict Band NVNT 2-DH1 2402MHz Ant1 No-Hopping Average



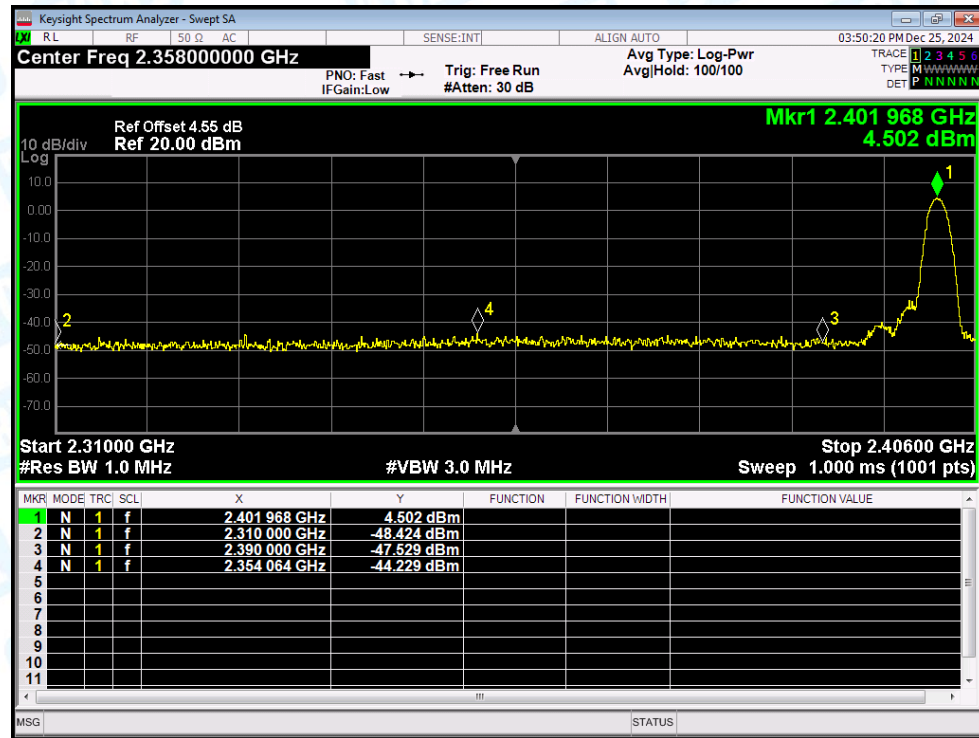
Restrict Band NVNT 2-DH1 2480MHz Ant1 No-Hopping Peak



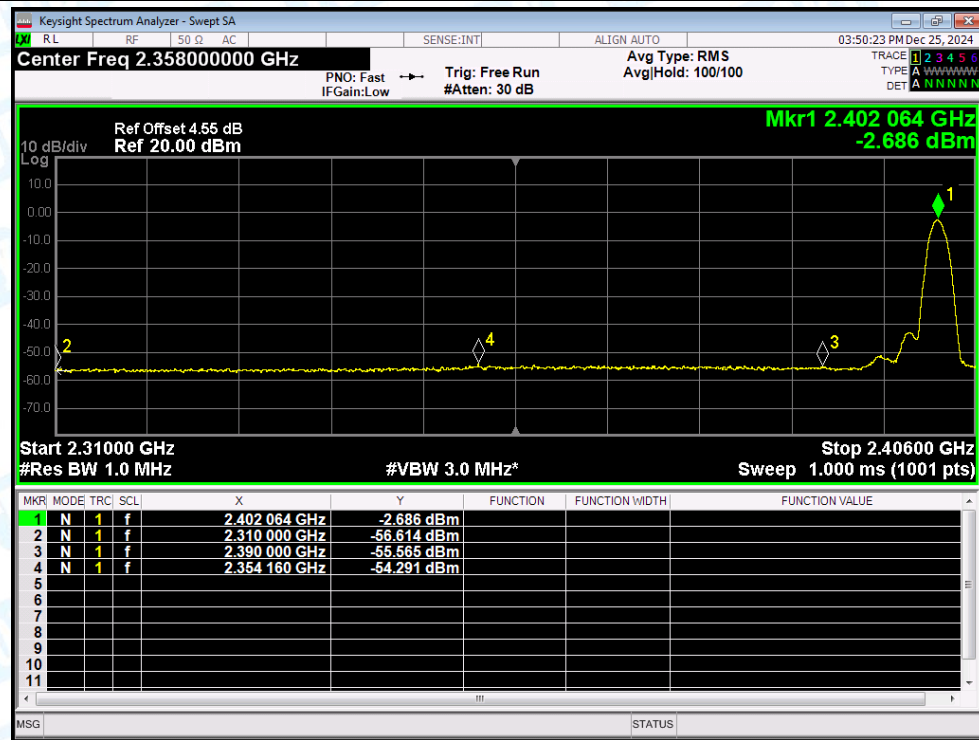
Restrict Band NVNT 2-DH1 2480MHz Ant1 No-Hopping Average



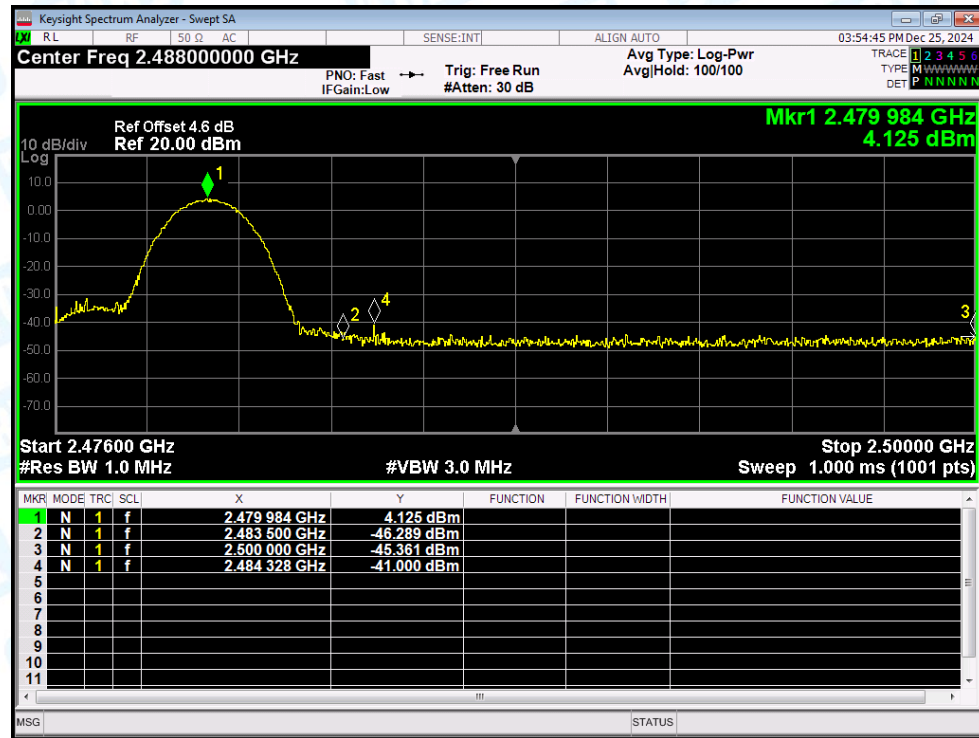
Restrict Band NVNT 3-DH1 2402MHz Ant1 No-Hopping Peak



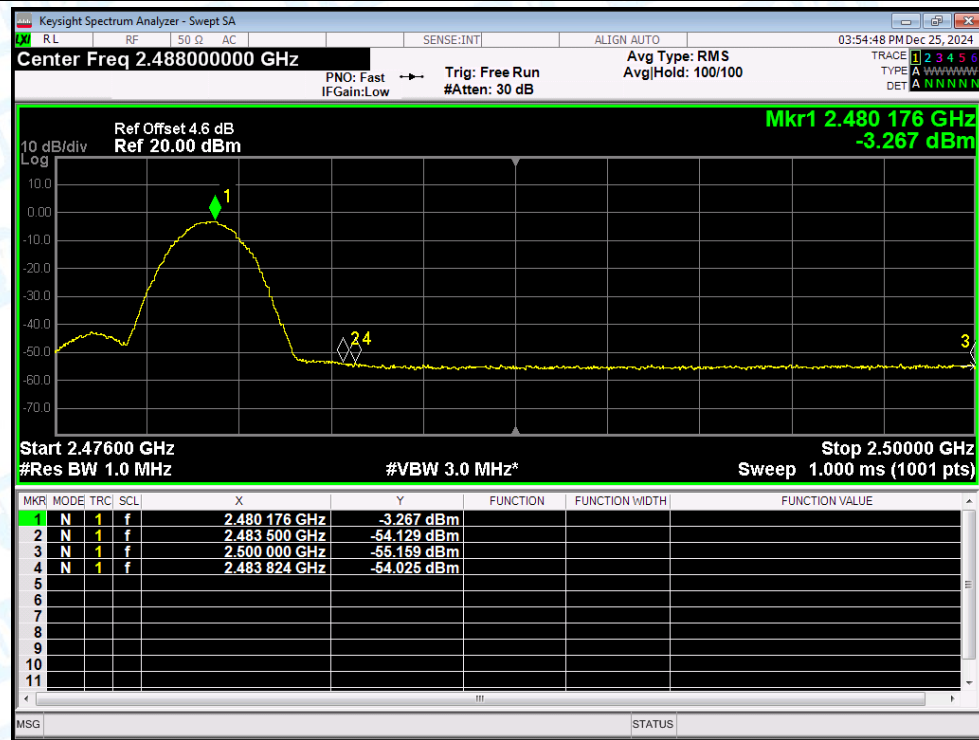
Restrict Band NVNT 3-DH1 2402MHz Ant1 No-Hopping Average



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



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

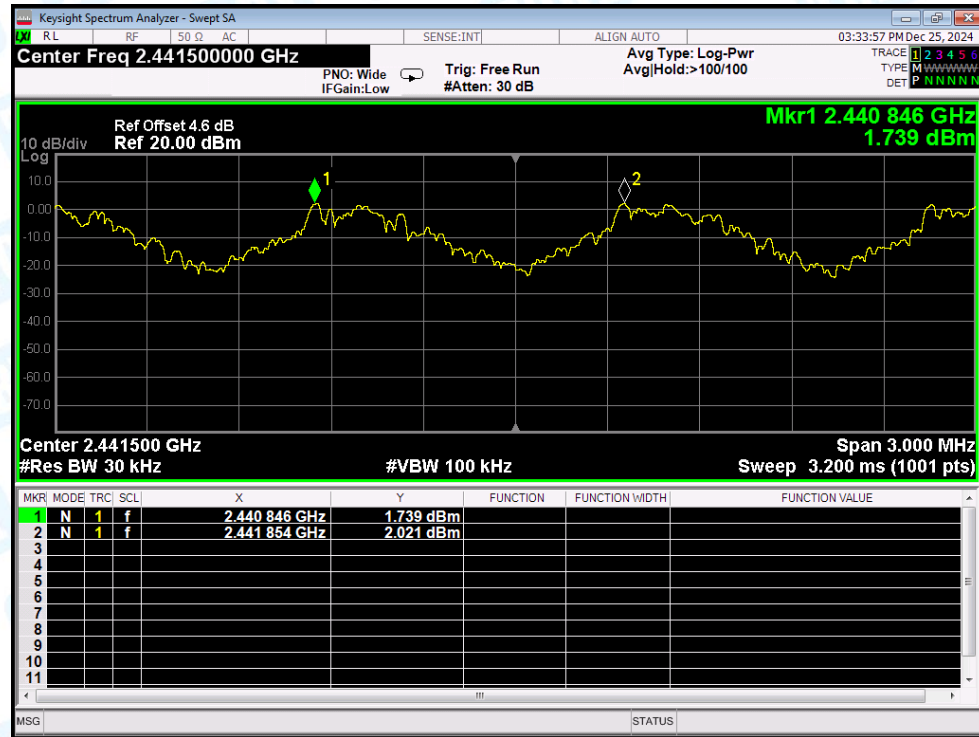


9. Carrier Frequencies Separation

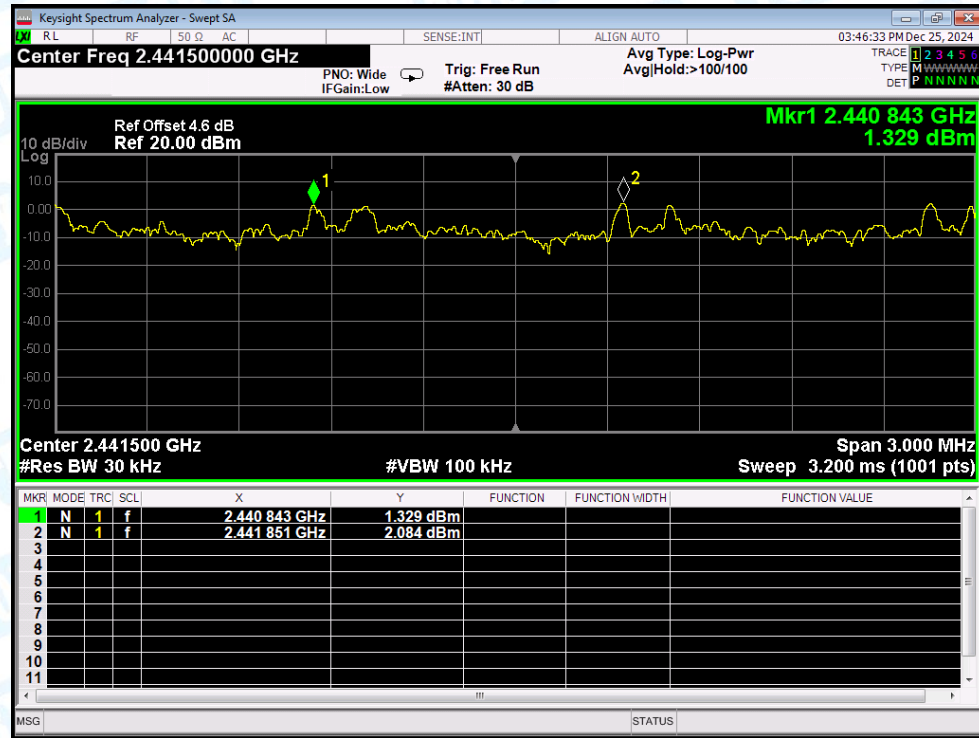
Condition	Mode	Antenna	Hopping Freq1 (MHz)	Hopping Freq2 (MHz)	HFS (MHz)	Limit (MHz)	Verdict
NVNT	1-DH1	Ant1	2440.846	2441.854	1.008	0.567	Pass
NVNT	2-DH1	Ant1	2440.843	2441.851	1.008	0.84	Pass
NVNT	3-DH1	Ant1	2441.011	2441.989	0.978	0.833	Pass

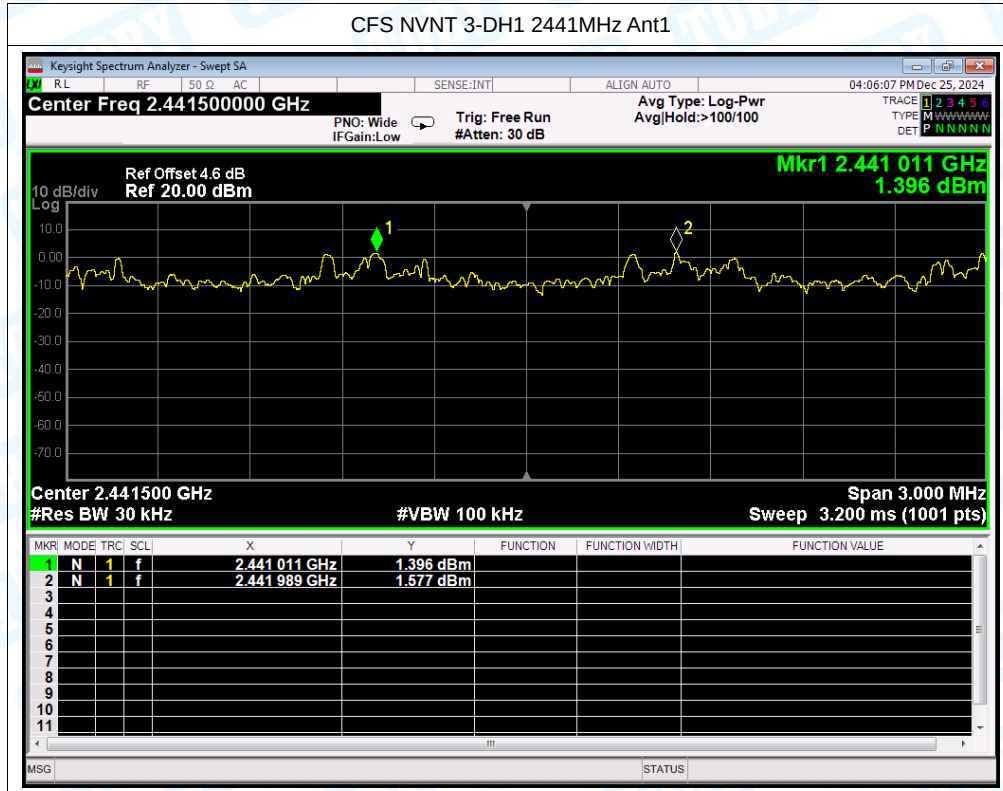
Test Graphs

CFS NVNT 1-DH1 2441MHz Ant1



CFS NVNT 2-DH1 2441MHz Ant1



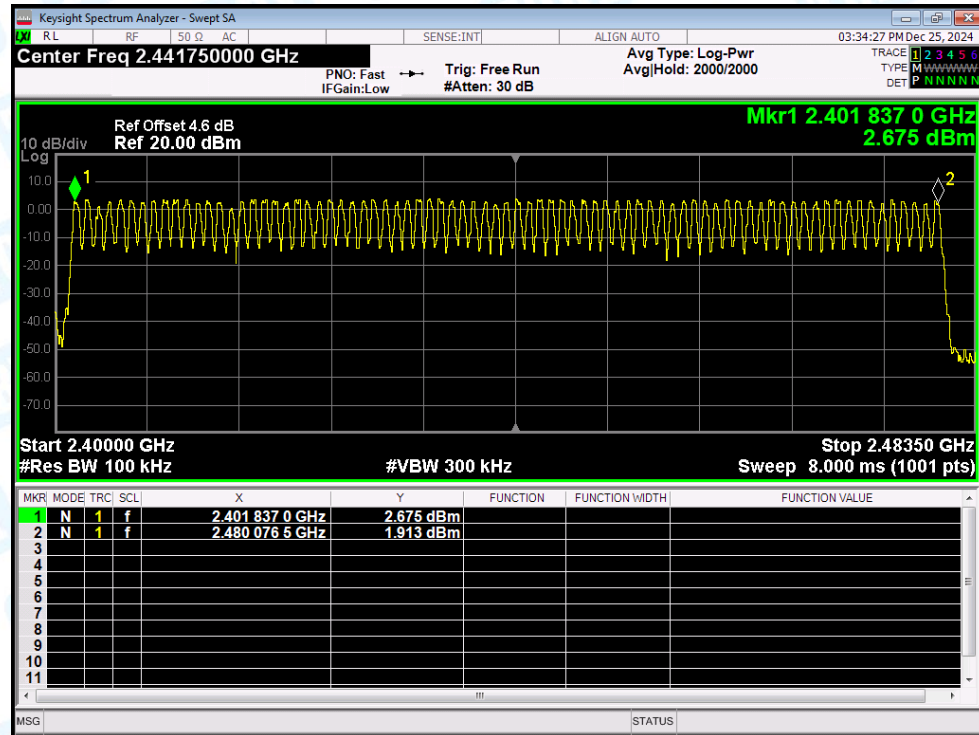


10. Number of Hopping Channel

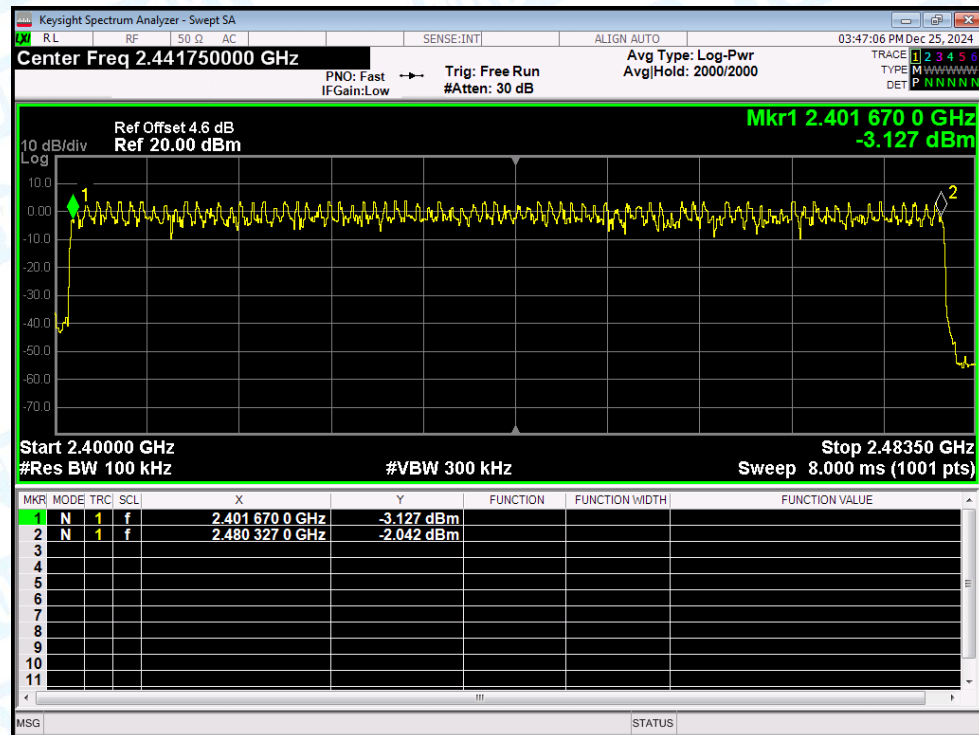
Condition	Mode	Antenna	Hopping Number	Limit	Verdict
NVNT	1-DH1	Ant1	79	15	Pass
NVNT	2-DH1	Ant1	79	15	Pass
NVNT	3-DH1	Ant1	79	15	Pass

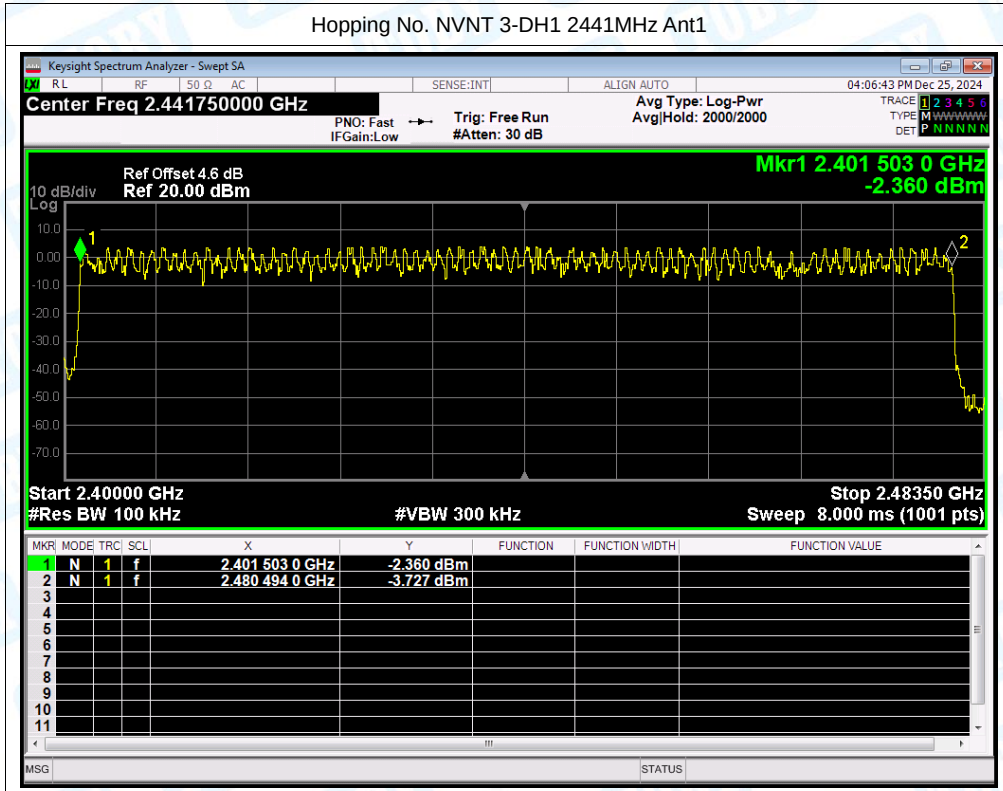
Test Graphs

Hopping No. NVNT 1-DH1 2441MHz Ant1



Hopping No. NVNT 2-DH1 2441MHz Ant1



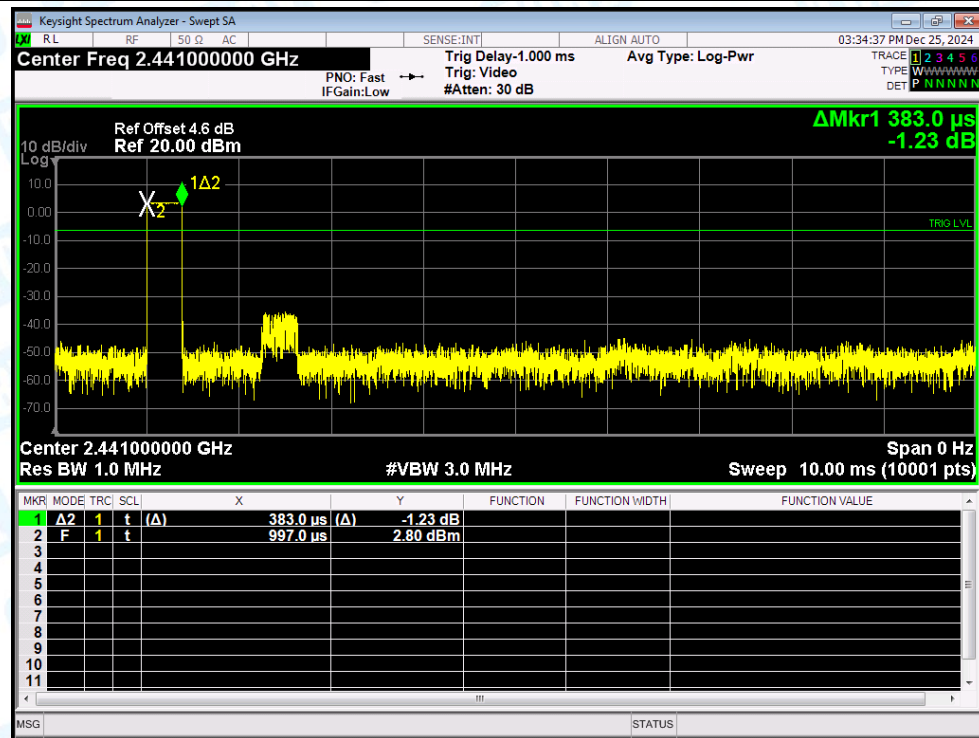


11. Dwell Time

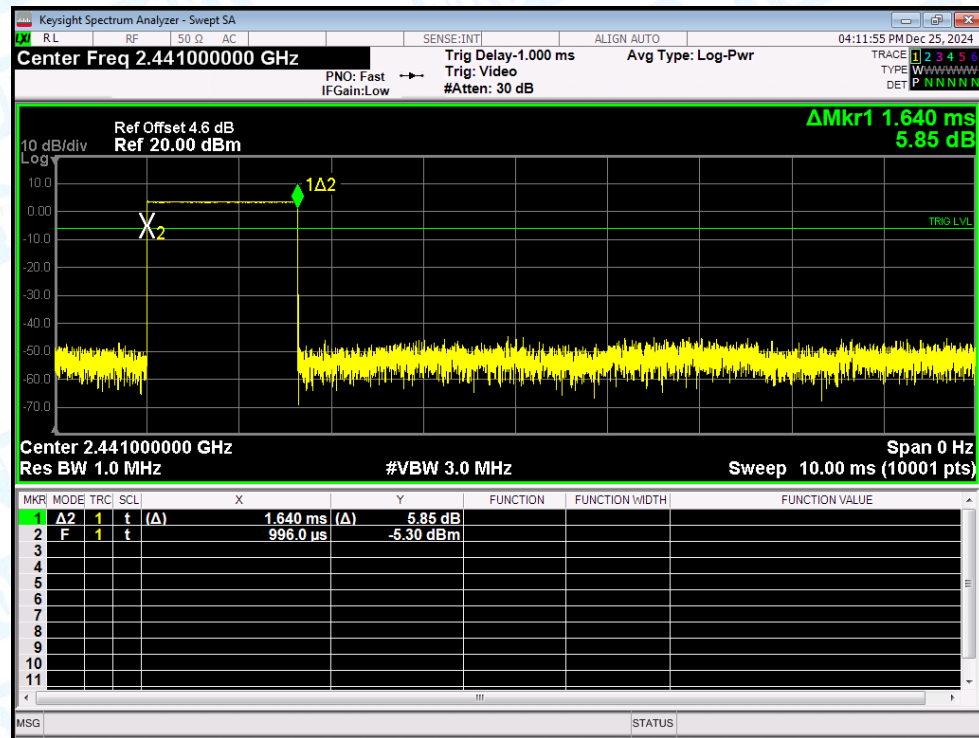
Condition	Mode	Frequency (MHz)	Antenna	Pulse Time (ms)	Total Dwell Time (ms)	Period Time (ms)	Limit (ms)	Verdict
NVNT	1-DH1	2441	Ant1	0.383	122.56	31600	400	Pass
NVNT	1-DH3	2441	Ant1	1.64	262.4	31600	400	Pass
NVNT	1-DH5	2441	Ant1	2.887	307.947	31600	400	Pass
NVNT	2-DH1	2441	Ant1	0.392	125.44	31600	400	Pass
NVNT	2-DH3	2441	Ant1	1.645	263.2	31600	400	Pass
NVNT	2-DH5	2441	Ant1	2.892	308.48	31600	400	Pass
NVNT	3-DH1	2441	Ant1	0.392	125.44	31600	400	Pass
NVNT	3-DH3	2441	Ant1	1.643	262.88	31600	400	Pass
NVNT	3-DH5	2441	Ant1	2.894	308.693	31600	400	Pass

Test Graphs

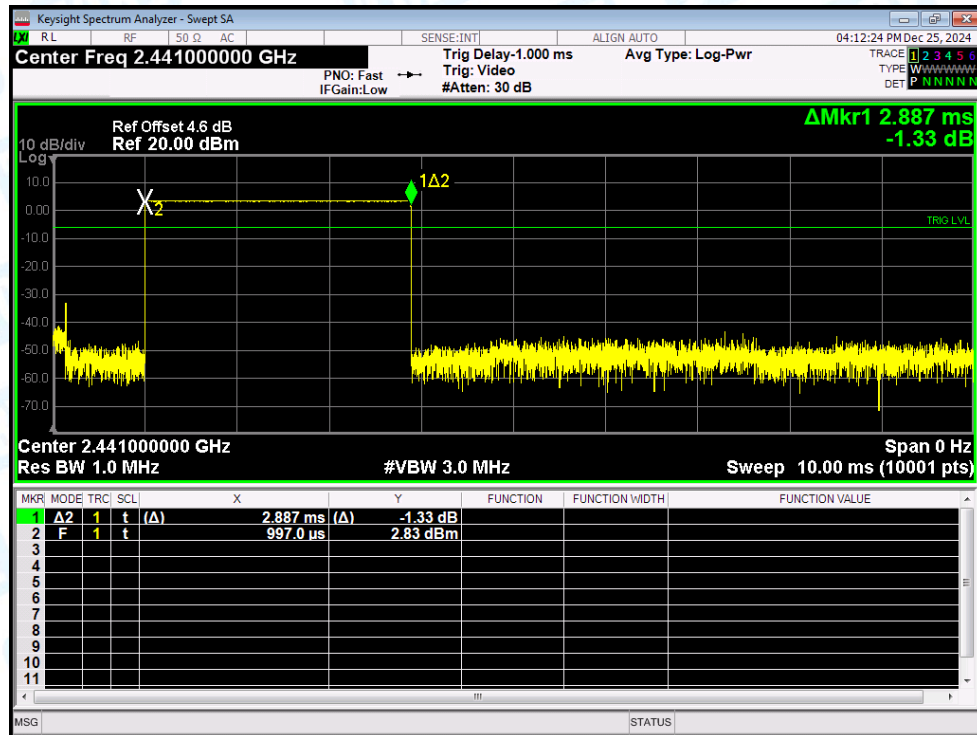
Dwell NVNT 1-DH1 2441MHz Ant1



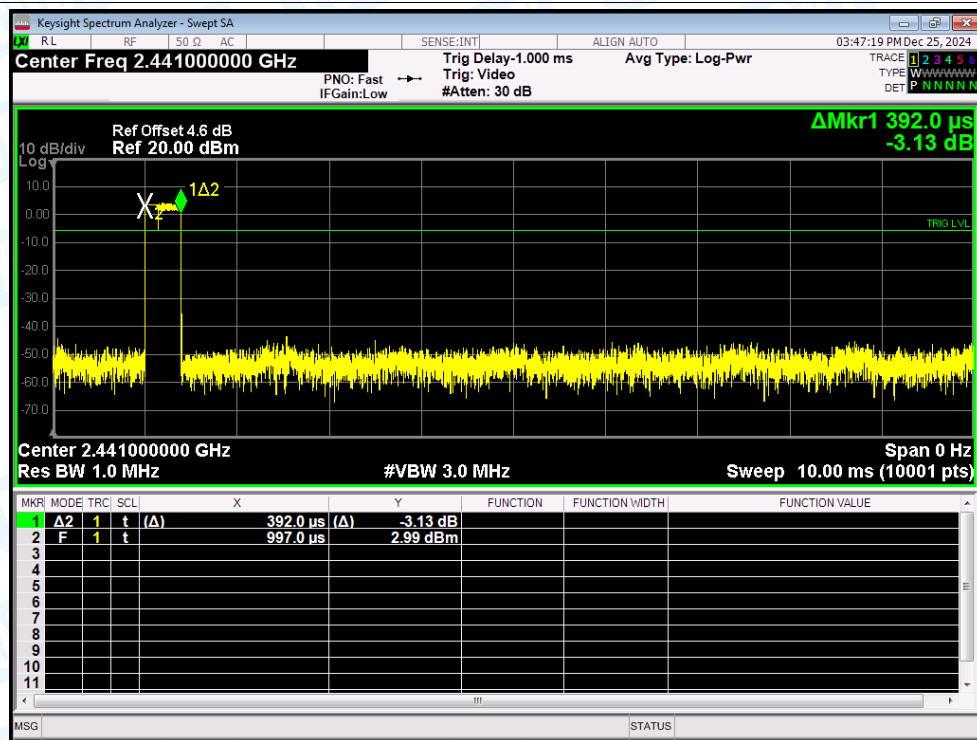
Dwell NVNT 1-DH3 2441MHz Ant1



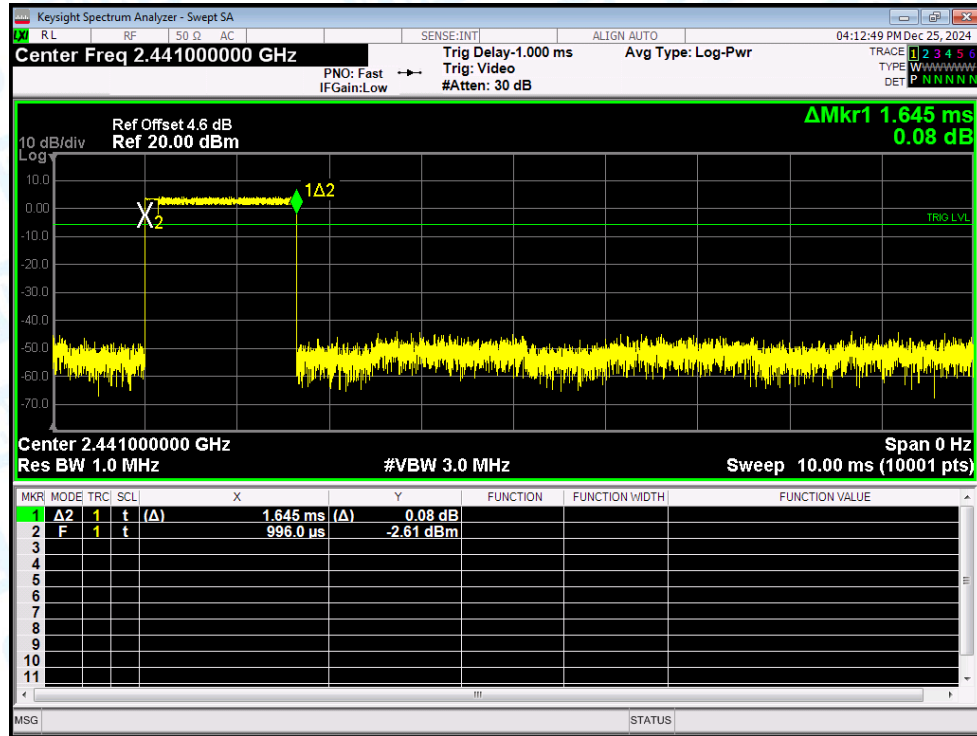
Dwell NVNT 1-DH5 2441MHz Ant1



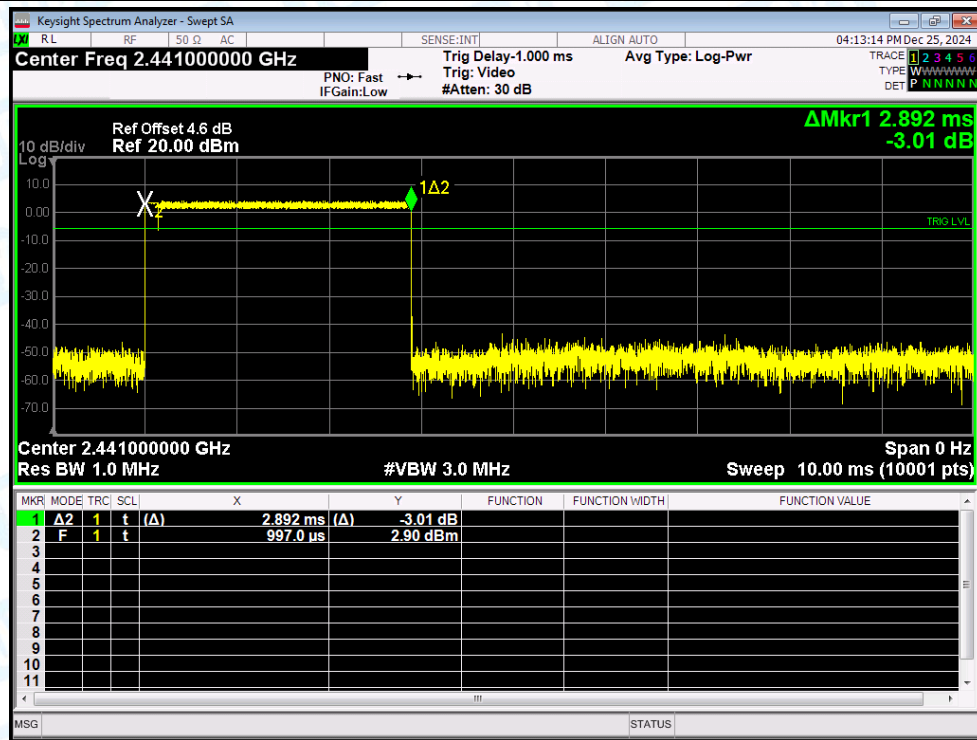
Dwell NVNT 2-DH1 2441MHz Ant1



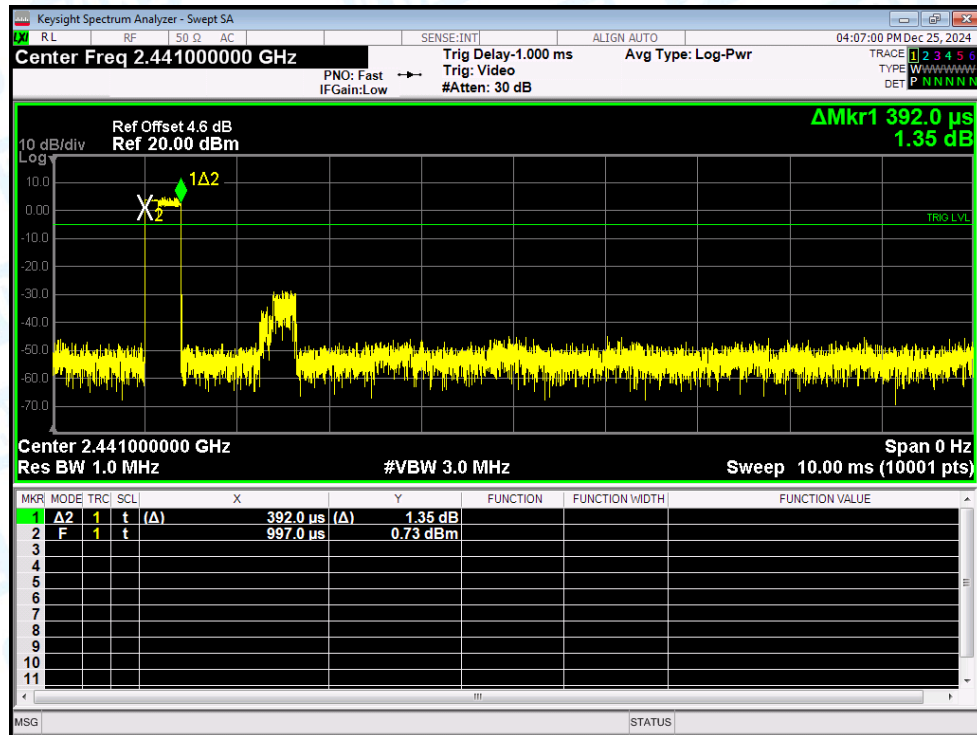
Dwell NVNT 2-DH3 2441MHz Ant1



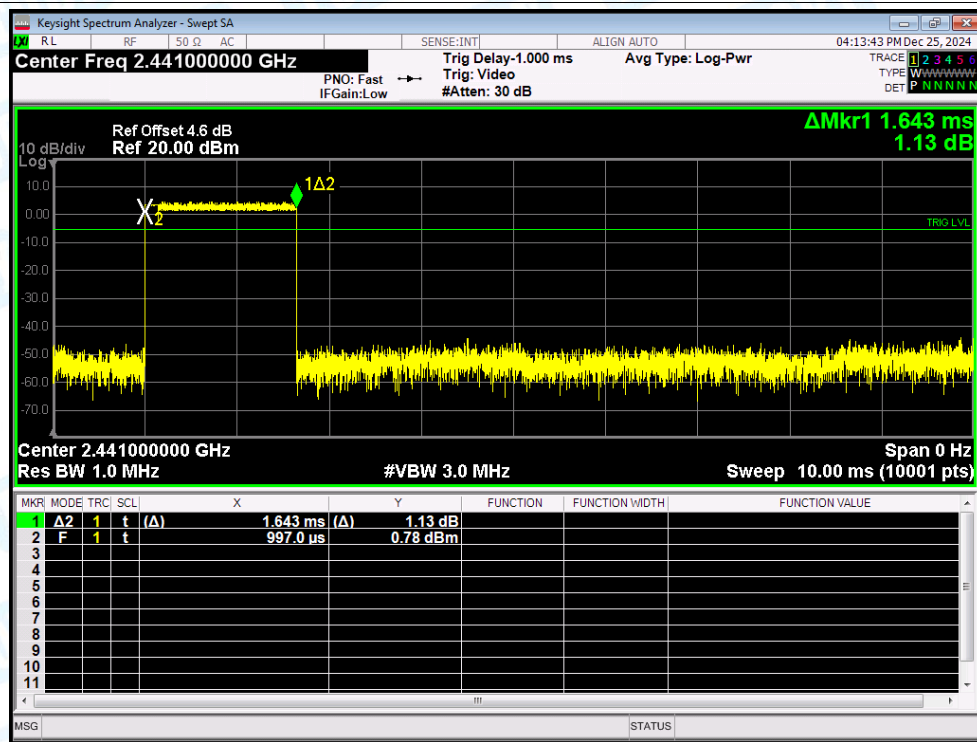
Dwell NVNT 2-DH5 2441MHz Ant1

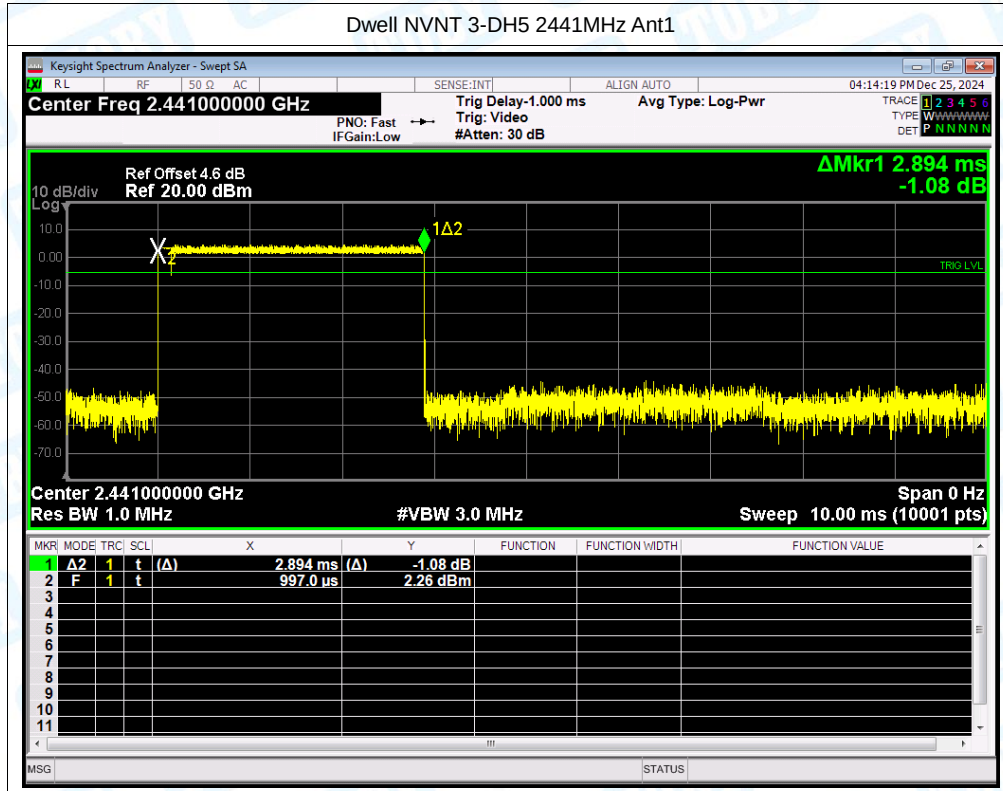


Dwell NVNT 3-DH1 2441MHz Ant1



Dwell NVNT 3-DH3 2441MHz Ant1





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