

RF Test Data for Bluetooth (Conducted Measurements)

General Description of EUT	
Product Name:	smart watch
Test Model:	K68
Sample ID:	HC-C-202503-0130-01-01
Environmental Conditions	
Temperature:	25.6℃
Relative Humidity:	52.6%
Test Voltage:	DC 3.8V
Test Engineer:	Lily Zhang
Note: For a more detailed features description, please refer to the report TBR-C-202503-0130-13 The report only show the worst case data.	

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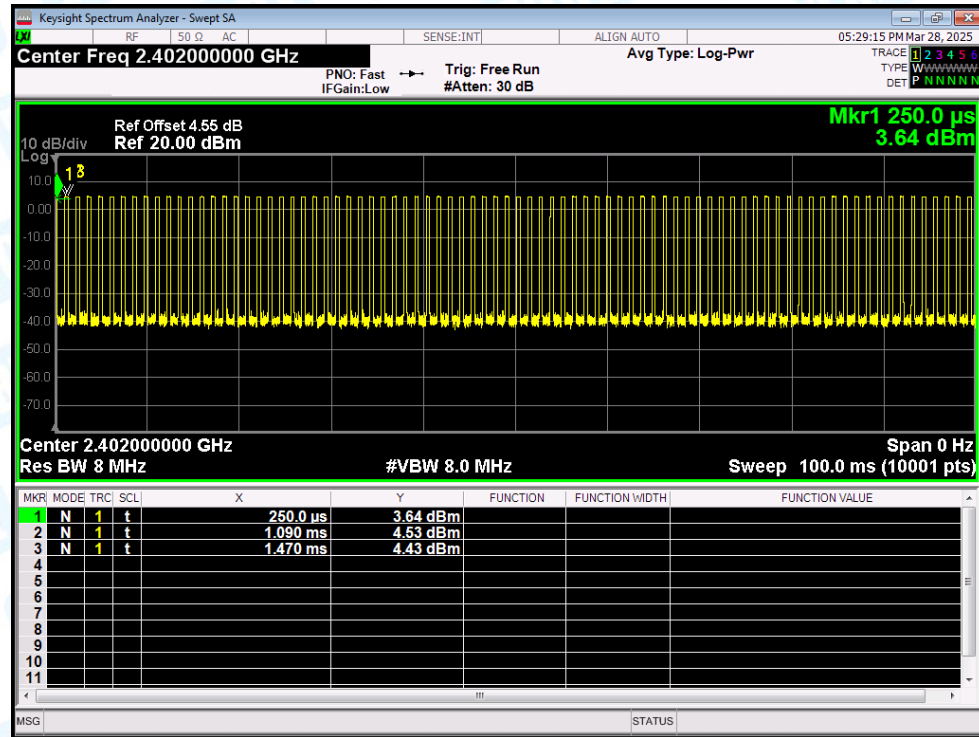
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1. Duty Cycle

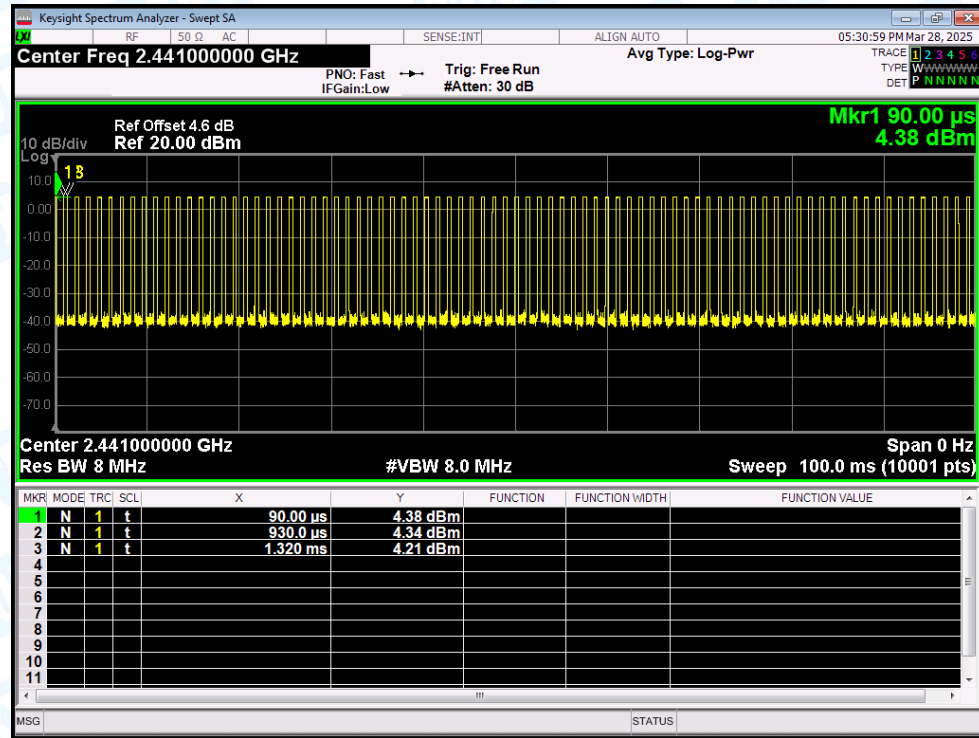
Condition	Mode	Frequency (MHz)	Antenna	Duty Cycle (%)	Correction Factor (dB)	1/T (kHz)
NVNT	1-DH1	2402	Ant1	31.15	5.07	2.63
NVNT	1-DH1	2441	Ant1	31.71	4.99	2.56
NVNT	1-DH1	2480	Ant1	31.71	4.99	2.56
NVNT	2-DH1	2402	Ant1	31.71	4.99	2.56
NVNT	2-DH1	2441	Ant1	31.45	5.02	2.56
NVNT	2-DH1	2480	Ant1	31.45	5.02	2.56
NVNT	3-DH1	2402	Ant1	31.45	5.02	2.56
NVNT	3-DH1	2441	Ant1	32.26	4.91	2.5
NVNT	3-DH1	2480	Ant1	32.26	4.91	2.5

Test Graphs

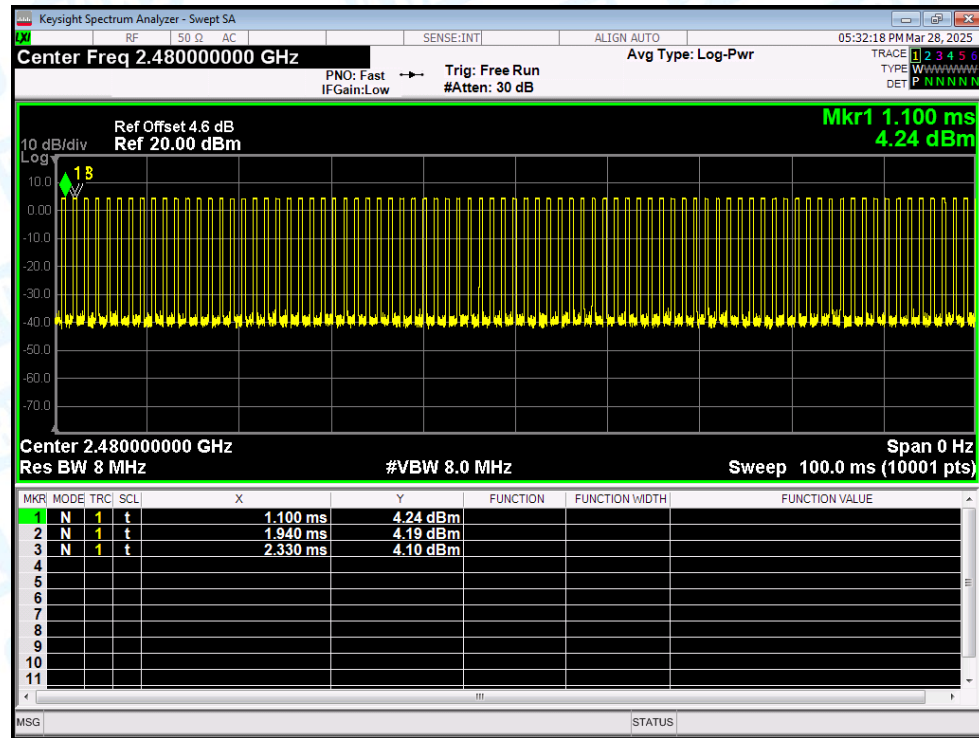
Duty Cycle NVNT 1-DH1 2402MHz Ant1



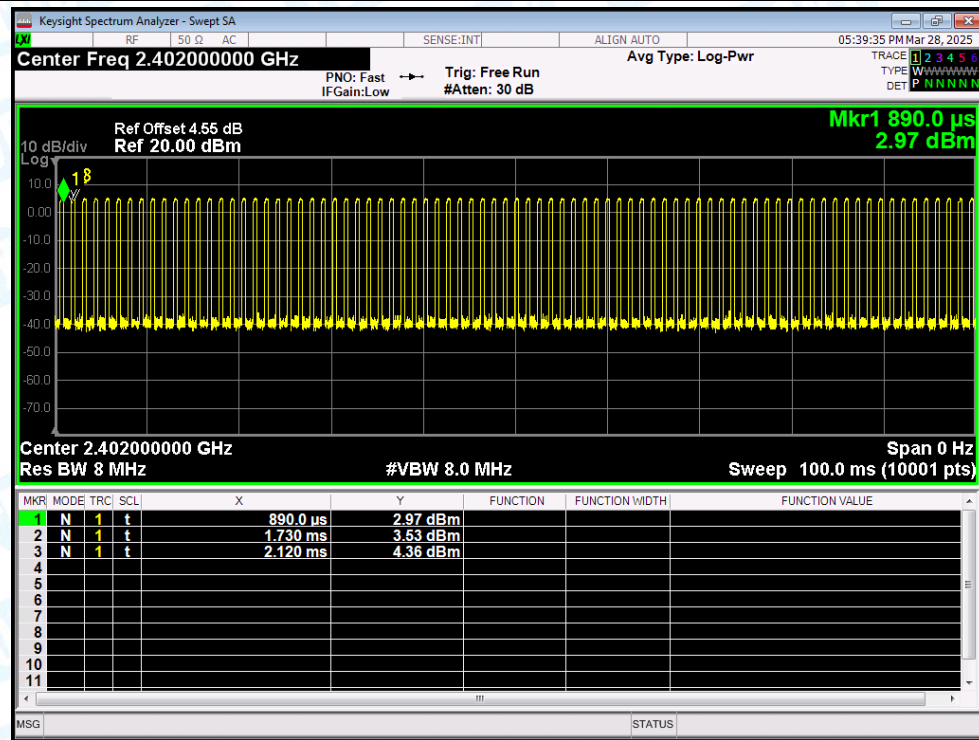
Duty Cycle NVNT 1-DH1 2441MHz Ant1



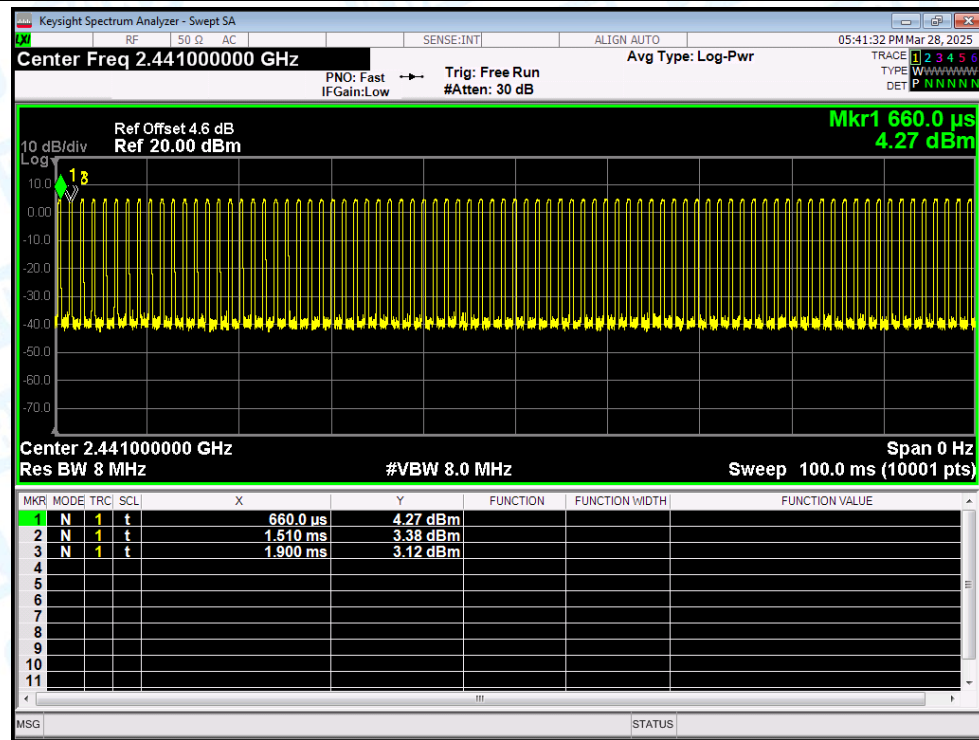
Duty Cycle NVNT 1-DH1 2480MHz Ant1



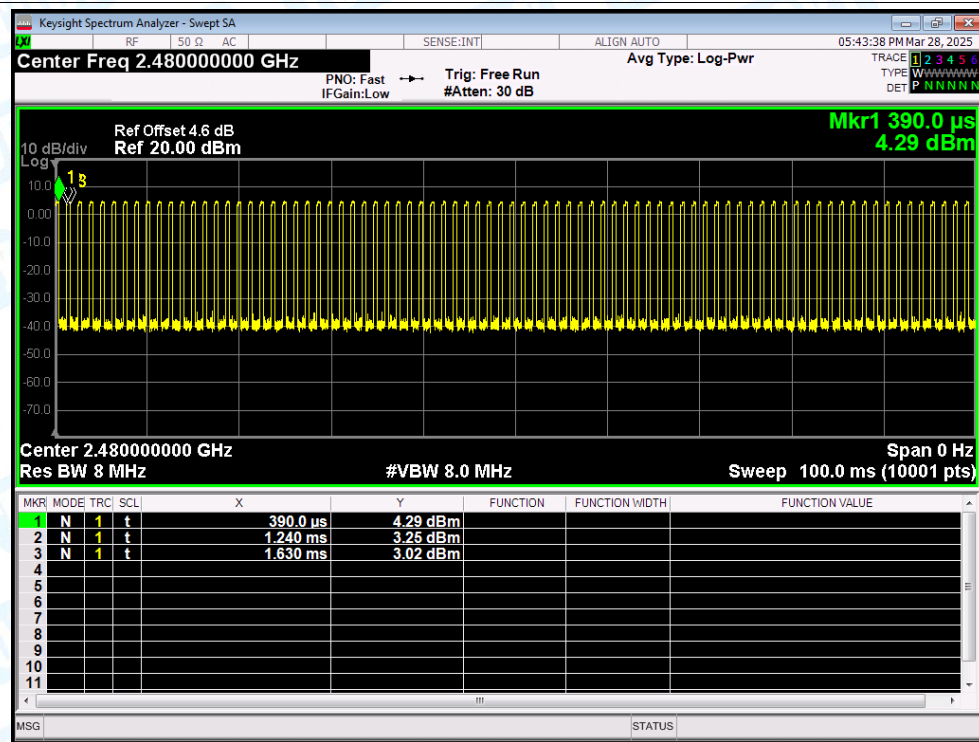
Duty Cycle NVNT 2-DH1 2402MHz Ant1



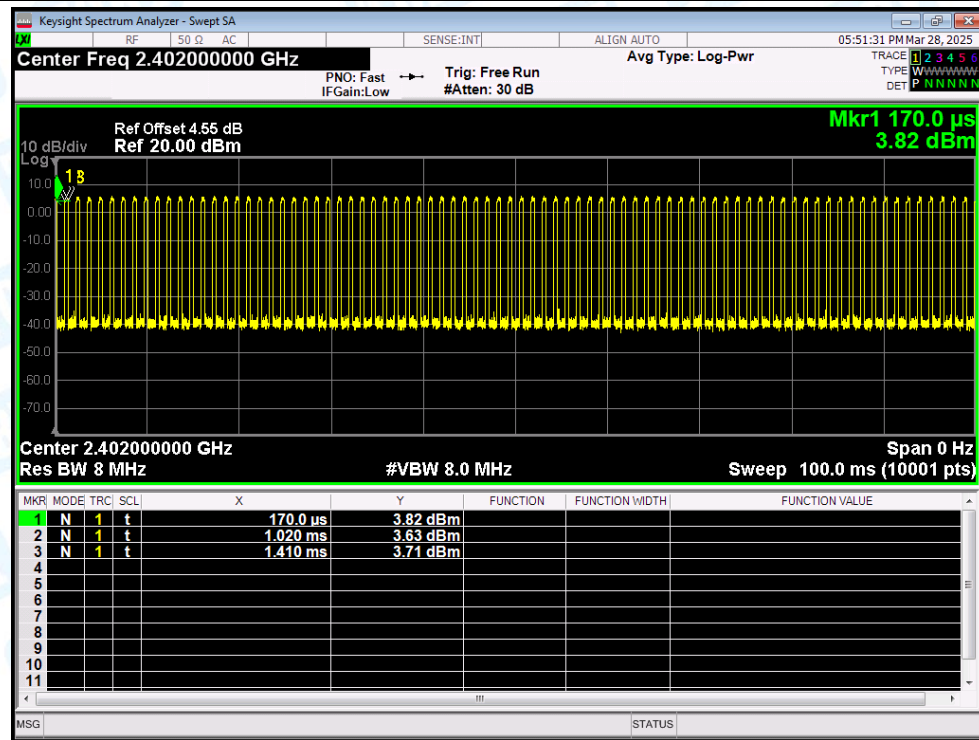
Duty Cycle NVNT 2-DH1 2441MHz Ant1



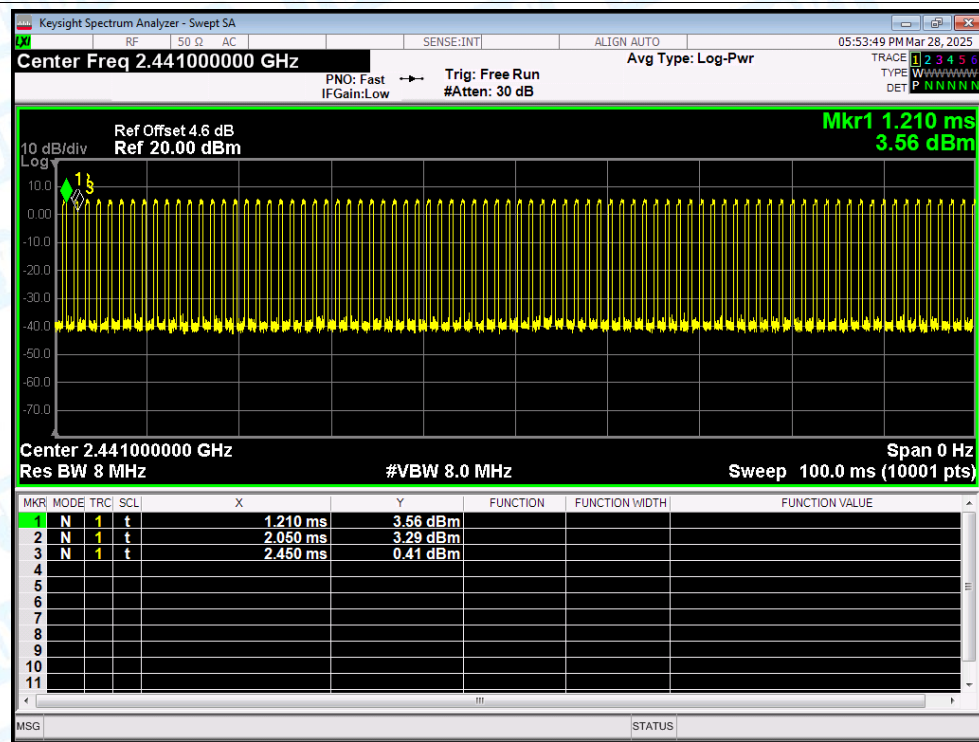
Duty Cycle NVNT 2-DH1 2480MHz Ant1

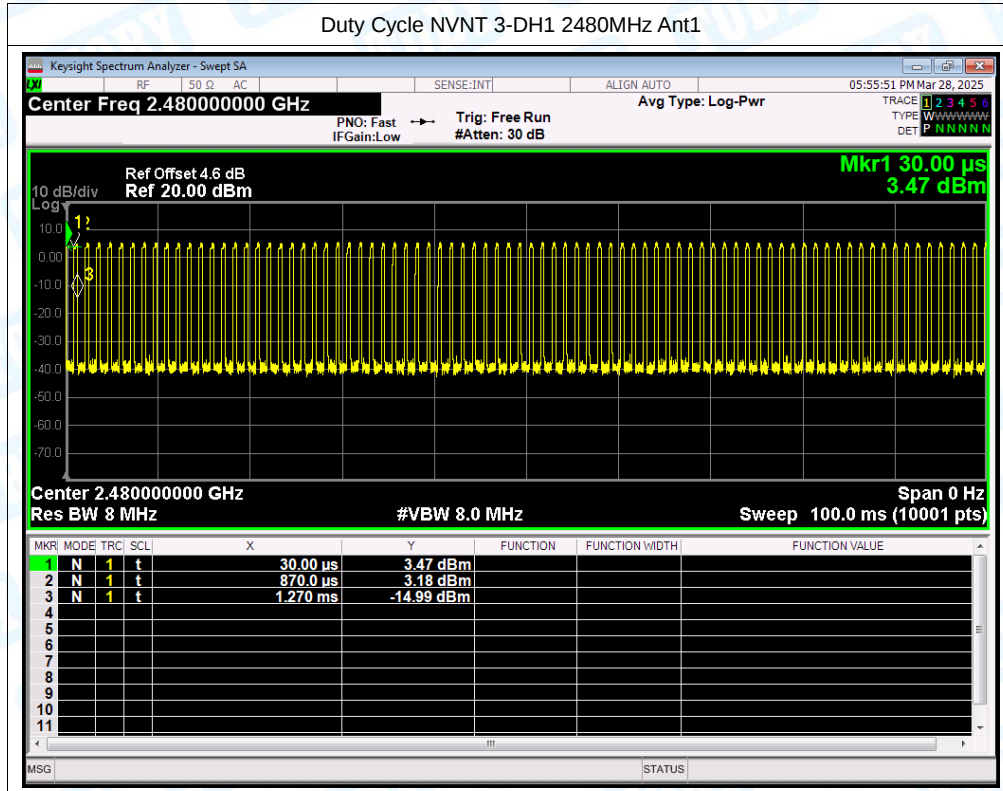


Duty Cycle NVNT 3-DH1 2402MHz Ant1



Duty Cycle NVNT 3-DH1 2441MHz Ant1



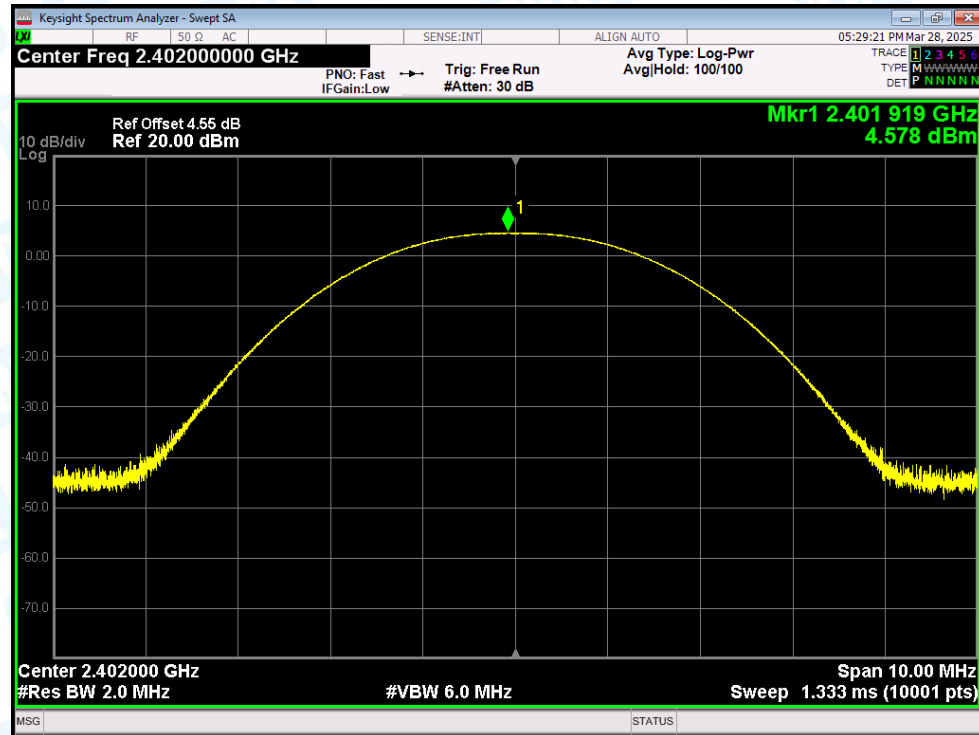


2. Maximum Conducted Output Power

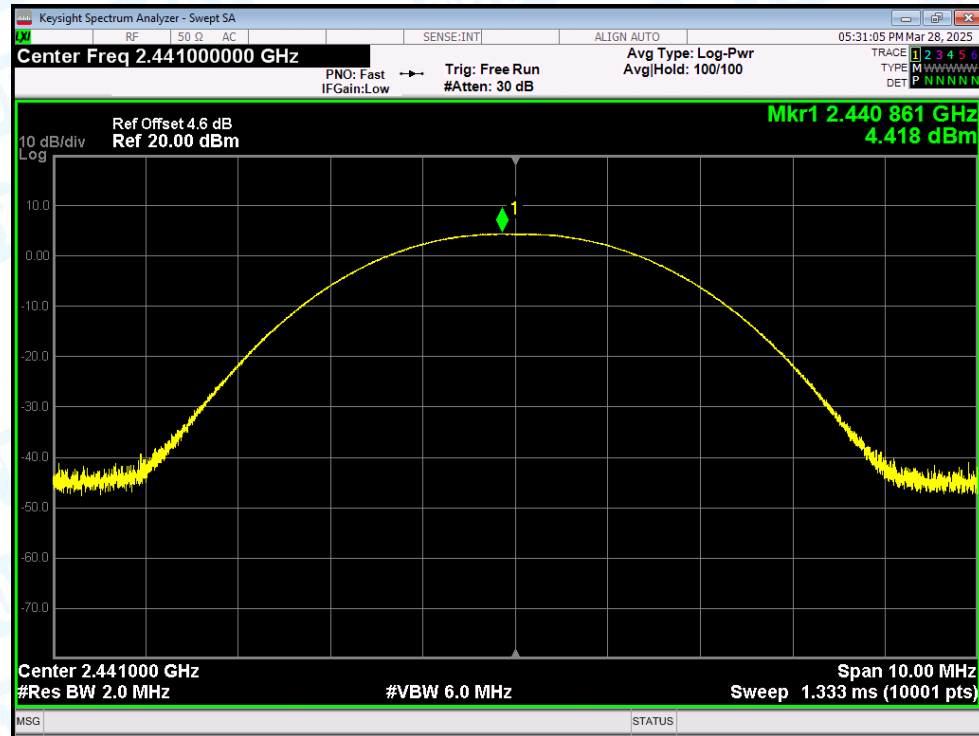
Condition	Mode	Frequency (MHz)	Antenna	Total Power (dBm)	Limit (dBm)	Verdict
NVNT	1-DH1	2402	Ant1	4.578	21	Pass
NVNT	1-DH1	2441	Ant1	4.418	21	Pass
NVNT	1-DH1	2480	Ant1	4.312	21	Pass
NVNT	2-DH1	2402	Ant1	4.862	21	Pass
NVNT	2-DH1	2441	Ant1	4.761	21	Pass
NVNT	2-DH1	2480	Ant1	4.626	21	Pass
NVNT	3-DH1	2402	Ant1	5.502	21	Pass
NVNT	3-DH1	2441	Ant1	5.335	21	Pass
NVNT	3-DH1	2480	Ant1	5.154	21	Pass

Test Graphs

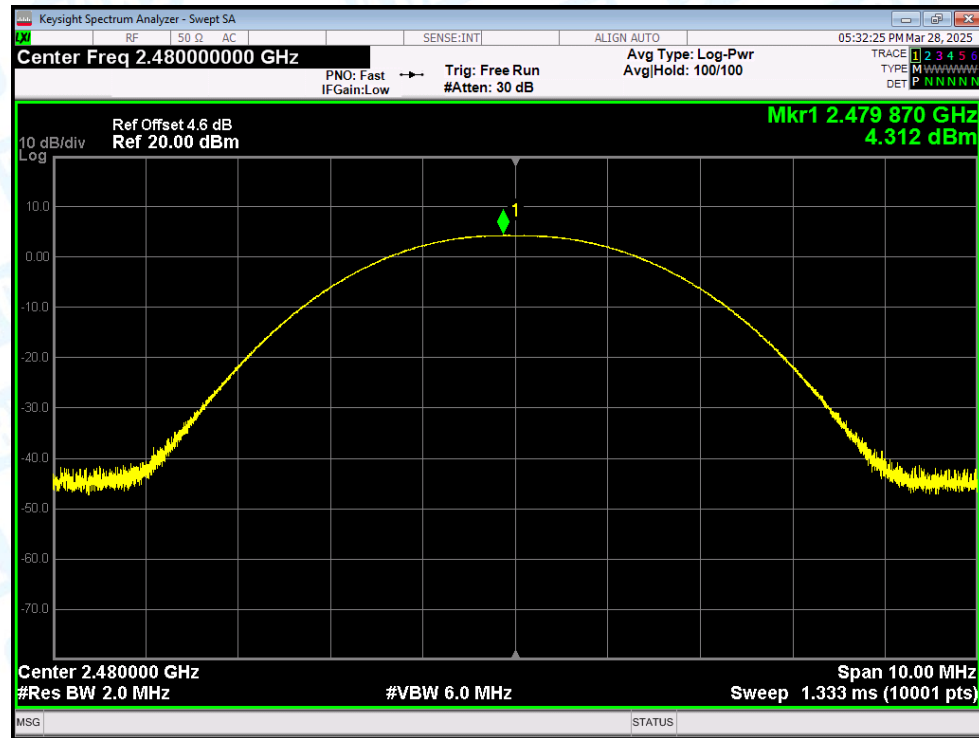
Power NVNT 1-DH1 2402MHz Ant1



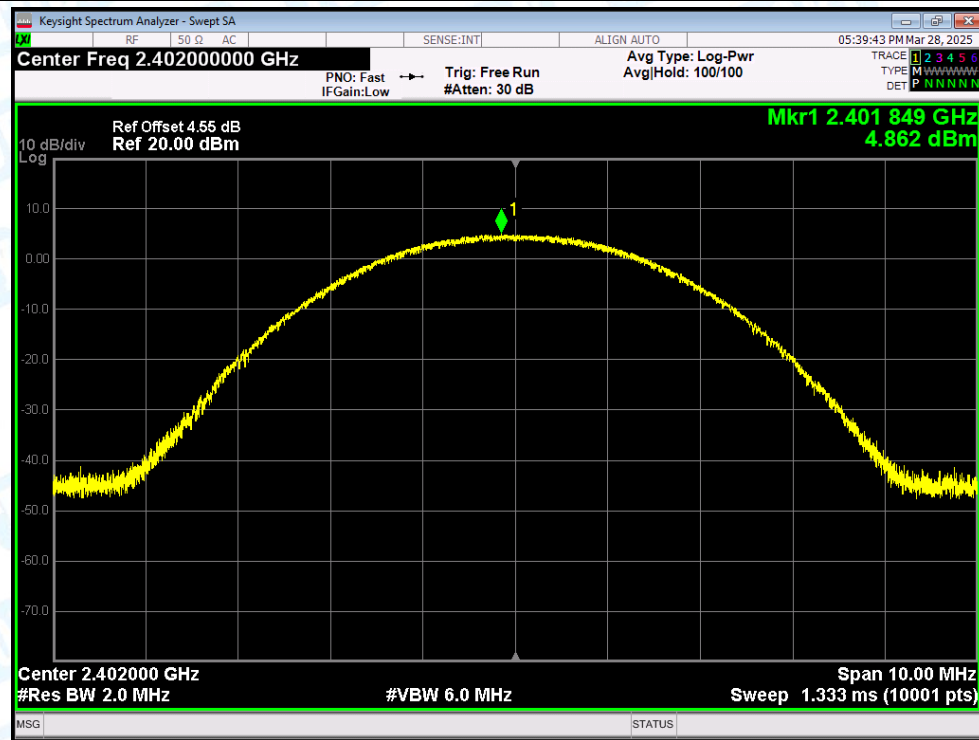
Power NVNT 1-DH1 2441MHz Ant1



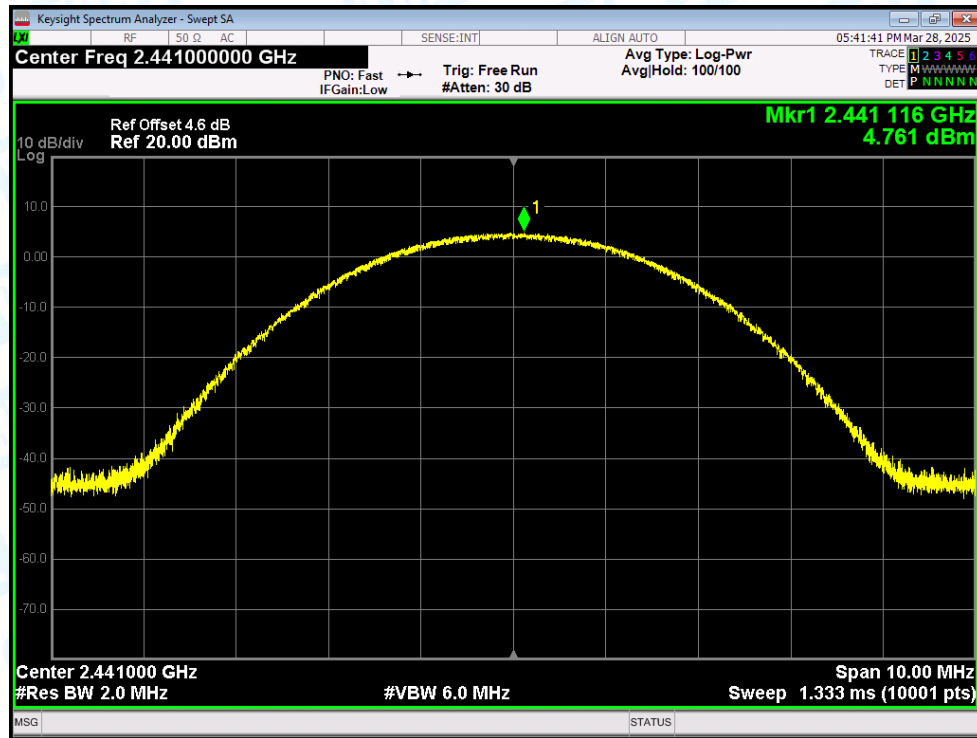
Power NVNT 1-DH1 2480MHz Ant1



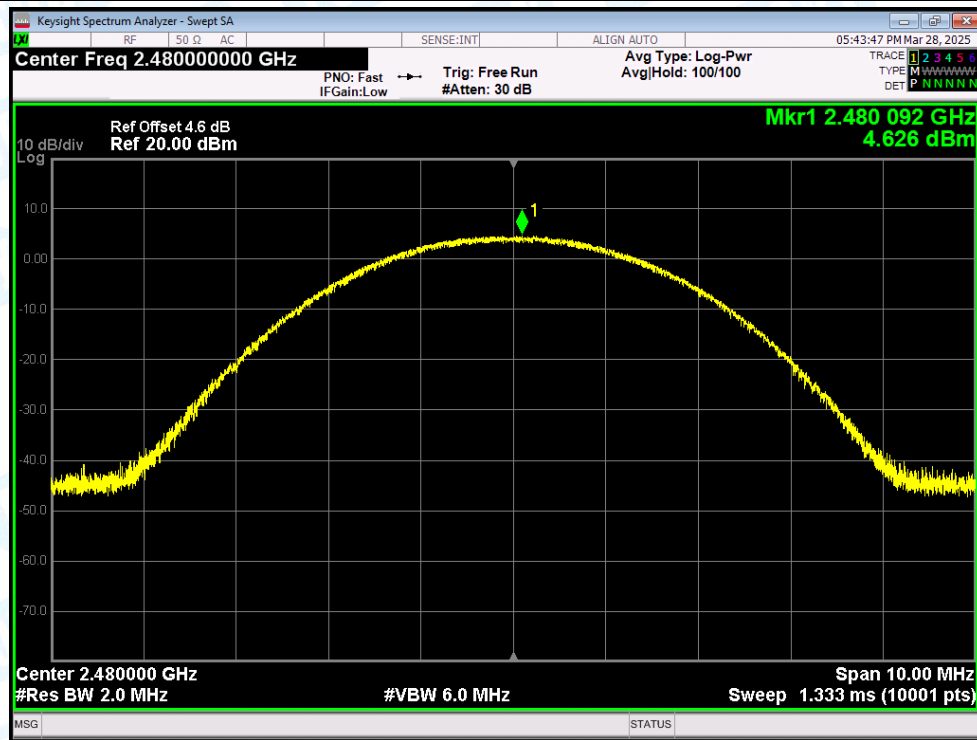
Power NVNT 2-DH1 2402MHz Ant1



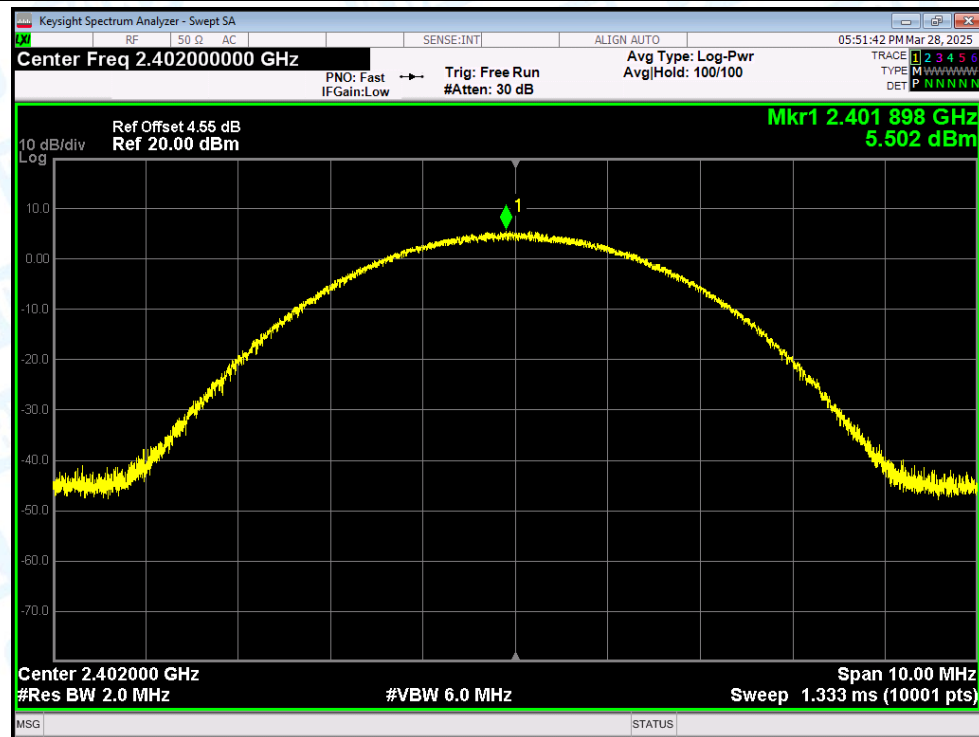
Power NVNT 2-DH1 2441MHz Ant1



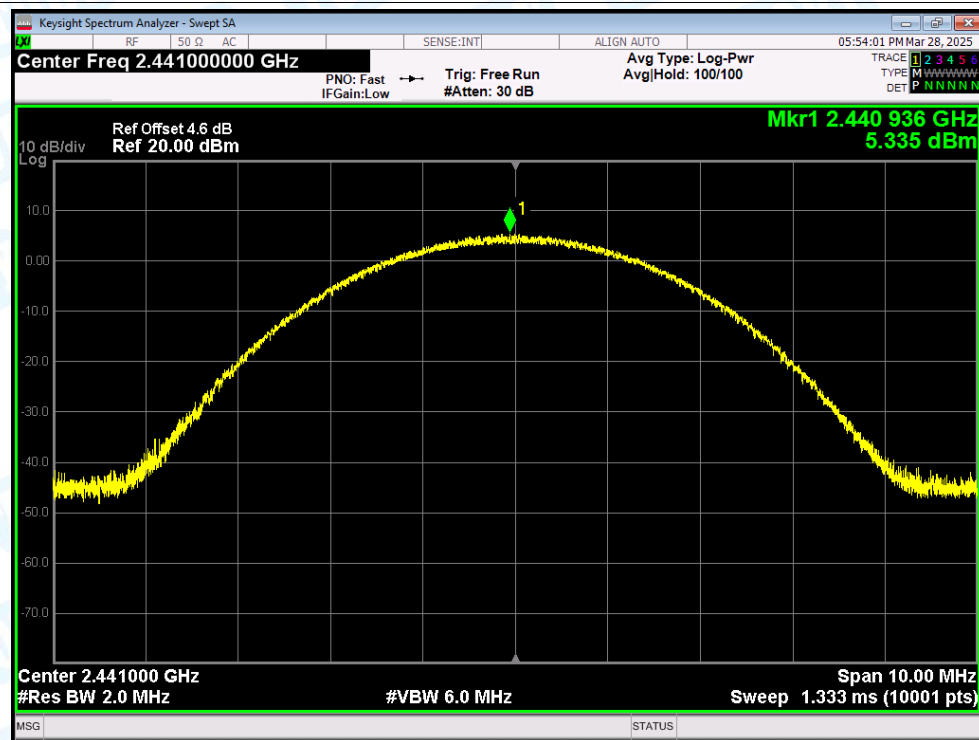
Power NVNT 2-DH1 2480MHz Ant1

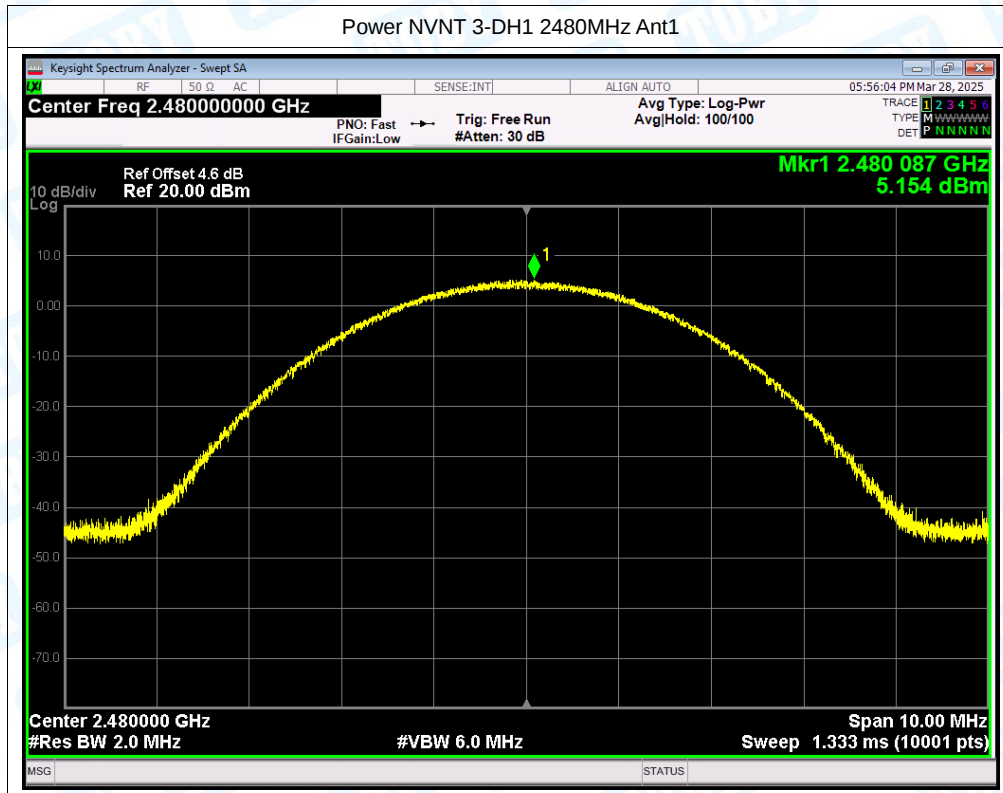


Power NVNT 3-DH1 2402MHz Ant1



Power NVNT 3-DH1 2441MHz Ant1



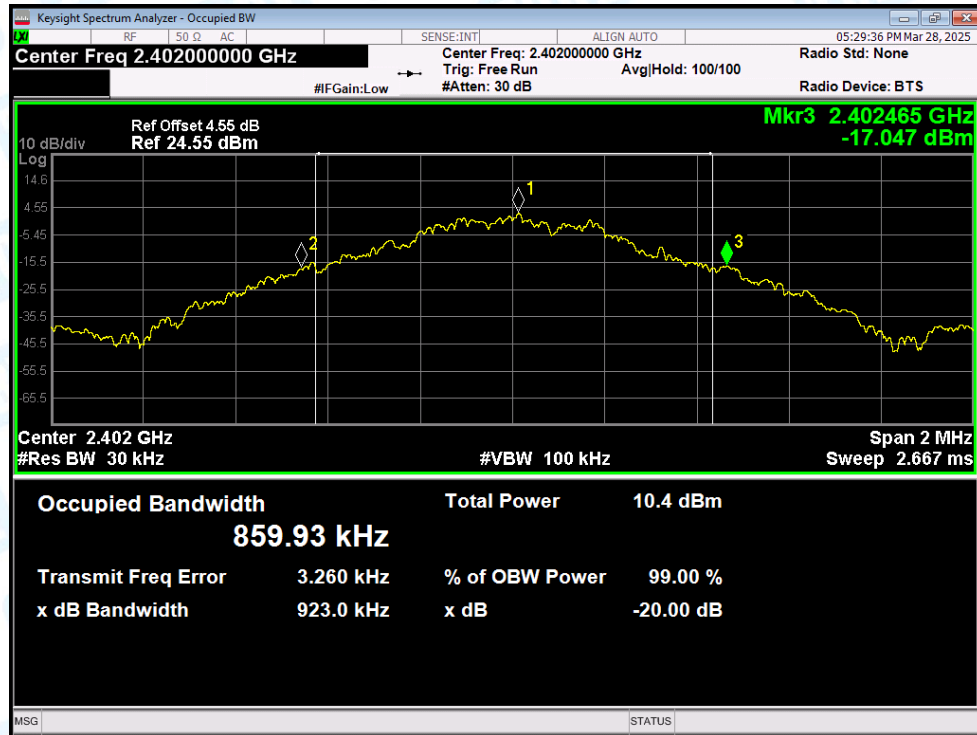


3. -20dB Bandwidth

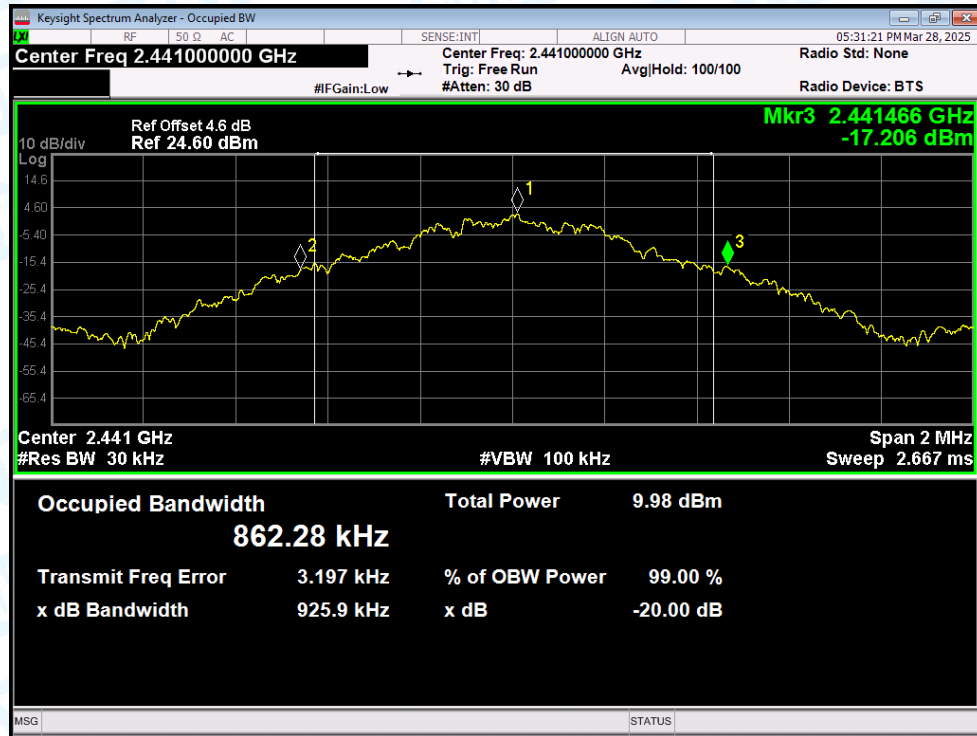
Condition	Mode	Frequency (MHz)	Antenna	-20 dB Bandwidth (MHz)	Limit -20 dB Bandwidth (MHz)	Verdict
NVNT	1-DH1	2402	Ant1	0.92	0	Pass
NVNT	1-DH1	2441	Ant1	0.93	0	Pass
NVNT	1-DH1	2480	Ant1	0.92	0	Pass
NVNT	2-DH1	2402	Ant1	1.2	0	Pass
NVNT	2-DH1	2441	Ant1	1.22	0	Pass
NVNT	2-DH1	2480	Ant1	1.21	0	Pass
NVNT	3-DH1	2402	Ant1	1.21	0	Pass
NVNT	3-DH1	2441	Ant1	1.22	0	Pass
NVNT	3-DH1	2480	Ant1	1.21	0	Pass

Test Graphs

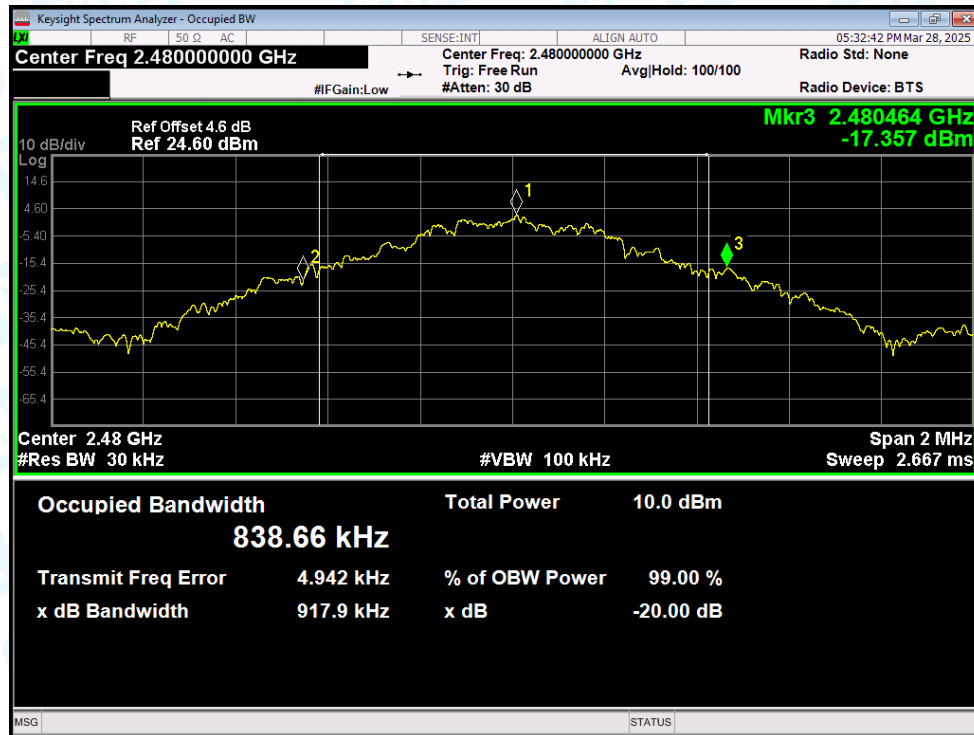
-20dB Bandwidth NVNT 1-DH1 2402MHz Ant1



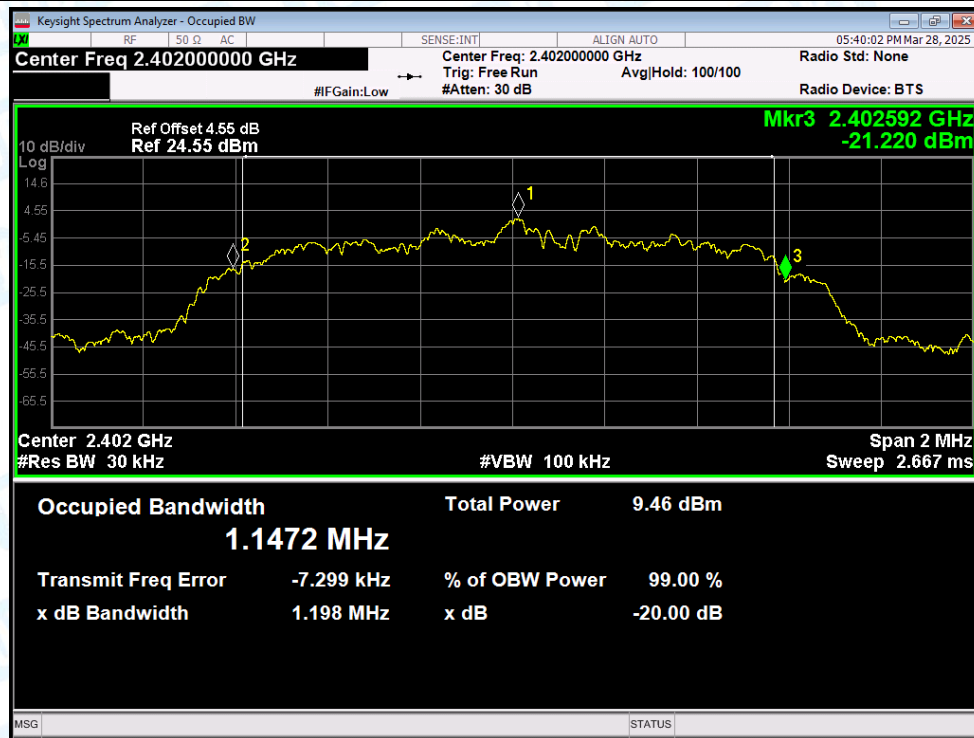
-20dB Bandwidth NVNT 1-DH1 2441MHz Ant1



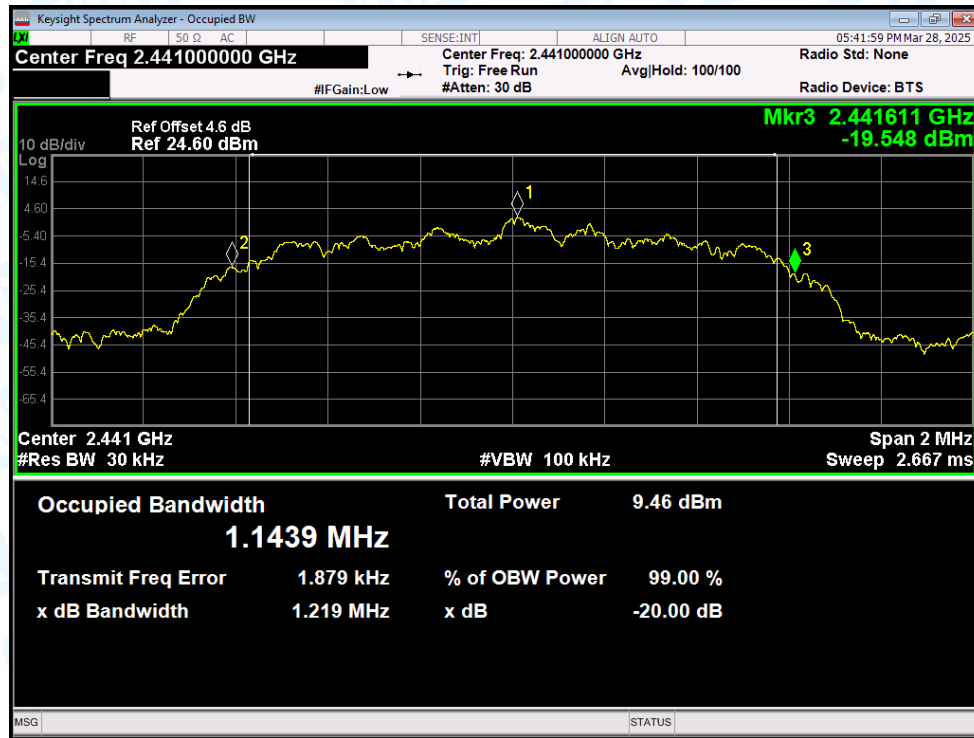
-20dB Bandwidth NVNT 1-DH1 2480MHz Ant1



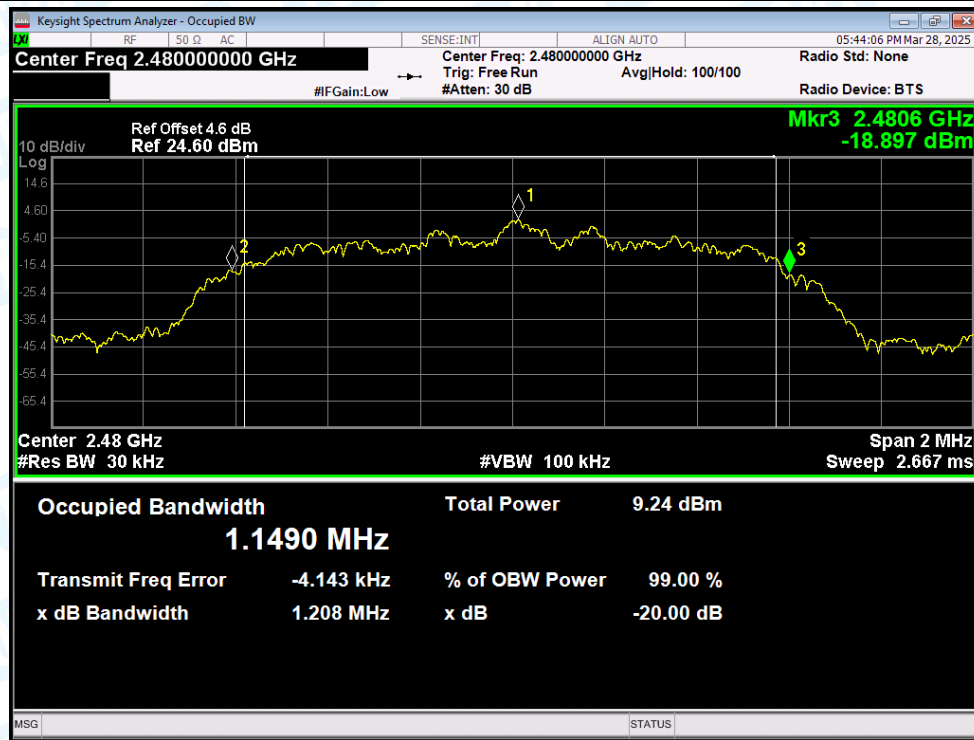
-20dB Bandwidth NVNT 2-DH1 2402MHz Ant1



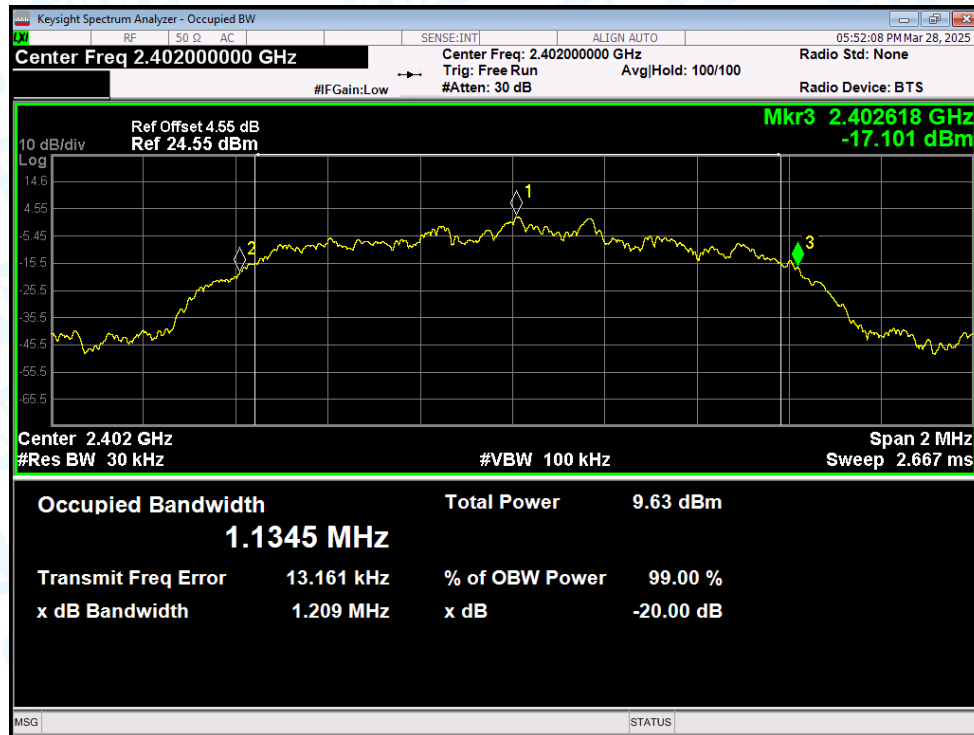
-20dB Bandwidth NVNT 2-DH1 2441MHz Ant1



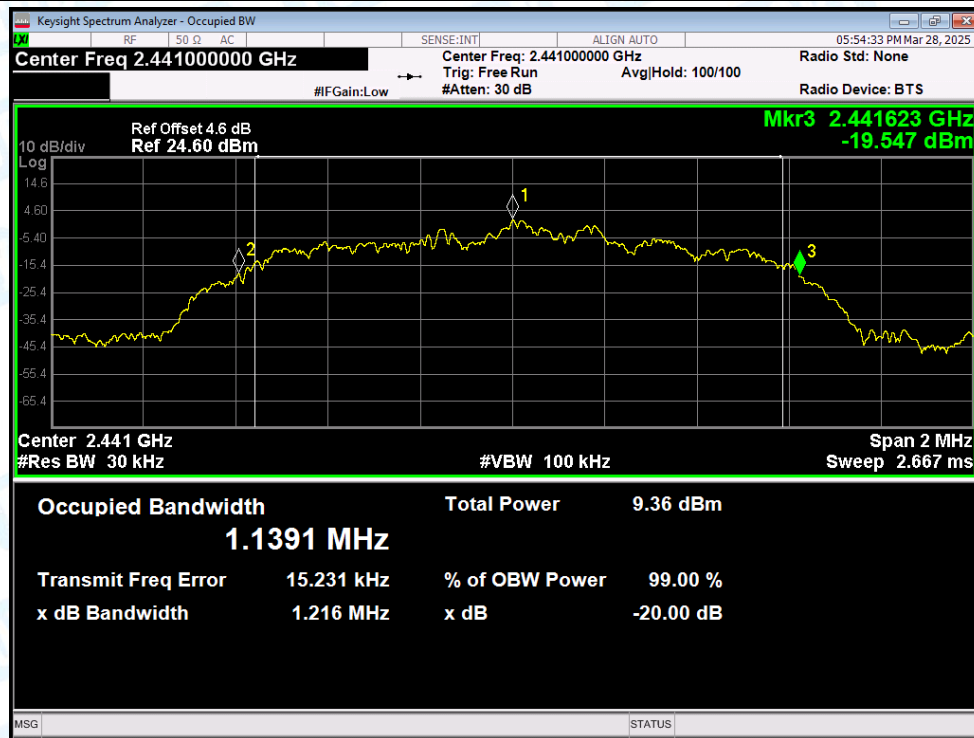
-20dB Bandwidth NVNT 2-DH1 2480MHz Ant1

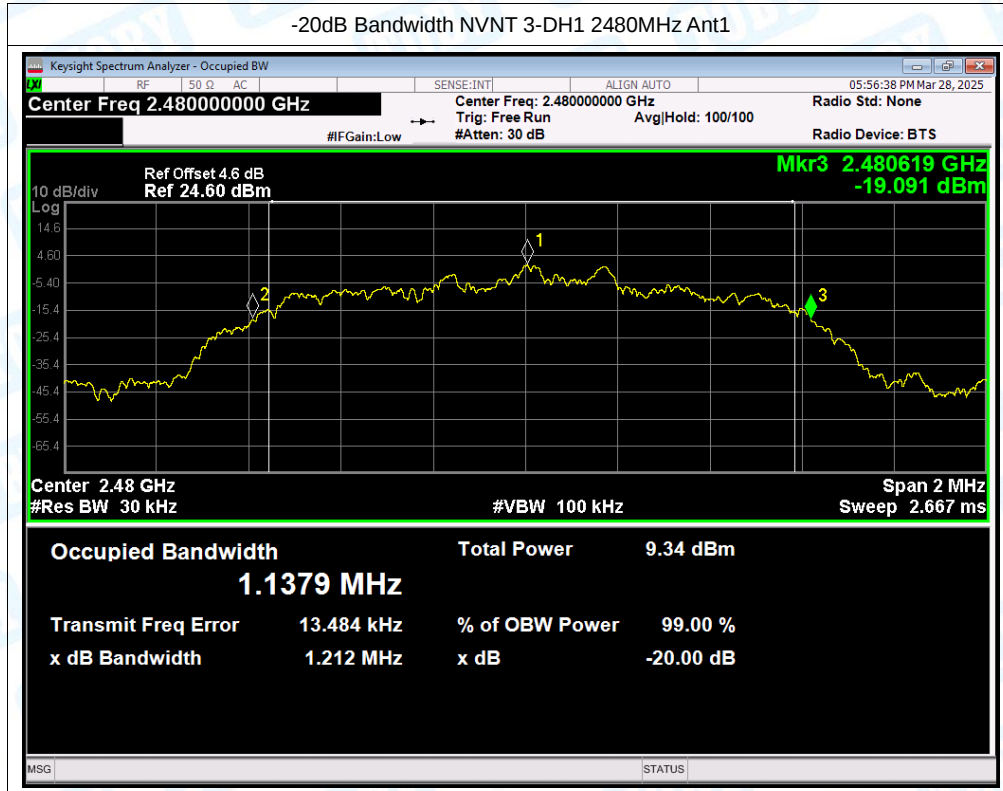


-20dB Bandwidth NVNT 3-DH1 2402MHz Ant1



-20dB Bandwidth NVNT 3-DH1 2441MHz Ant1



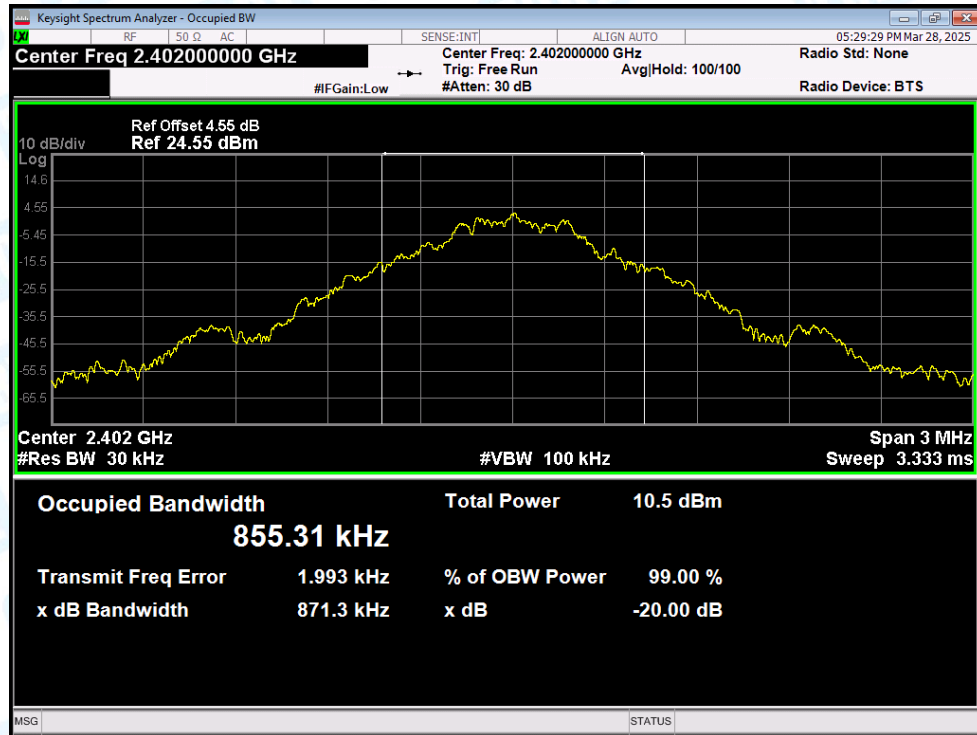


4. Occupied Channel Bandwidth

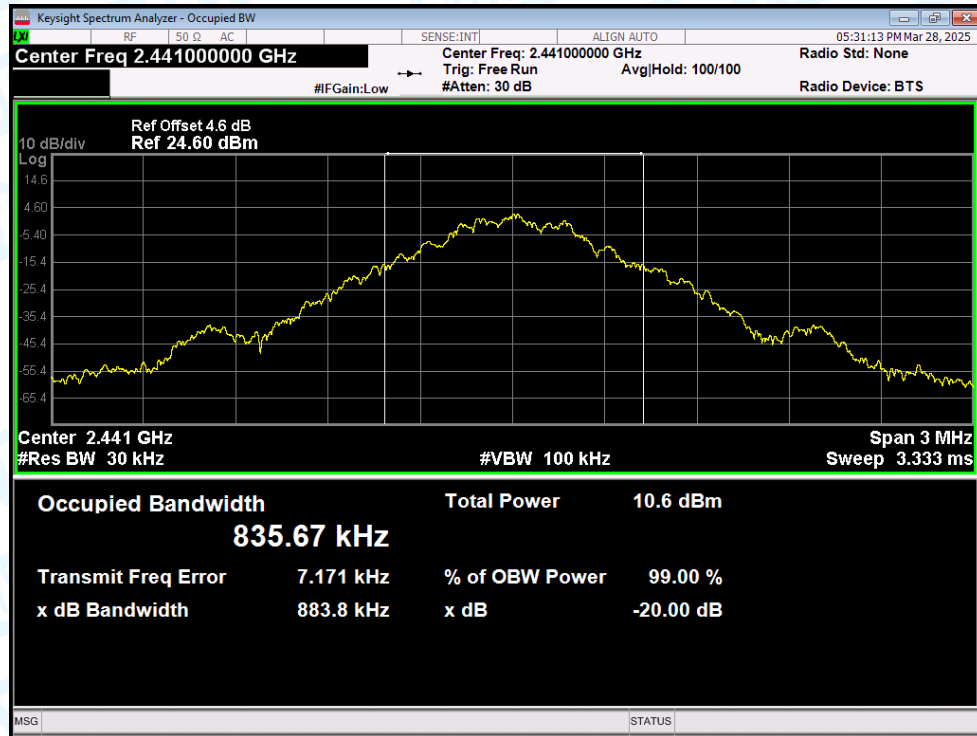
Condition	Mode	Frequency (MHz)	Antenna	99% OBW (MHz)
NVNT	1-DH1	2402	Ant1	0.855
NVNT	1-DH1	2441	Ant1	0.836
NVNT	1-DH1	2480	Ant1	0.854
NVNT	2-DH1	2402	Ant1	1.157
NVNT	2-DH1	2441	Ant1	1.155
NVNT	2-DH1	2480	Ant1	1.161
NVNT	3-DH1	2402	Ant1	1.137
NVNT	3-DH1	2441	Ant1	1.139
NVNT	3-DH1	2480	Ant1	1.14

Test Graphs

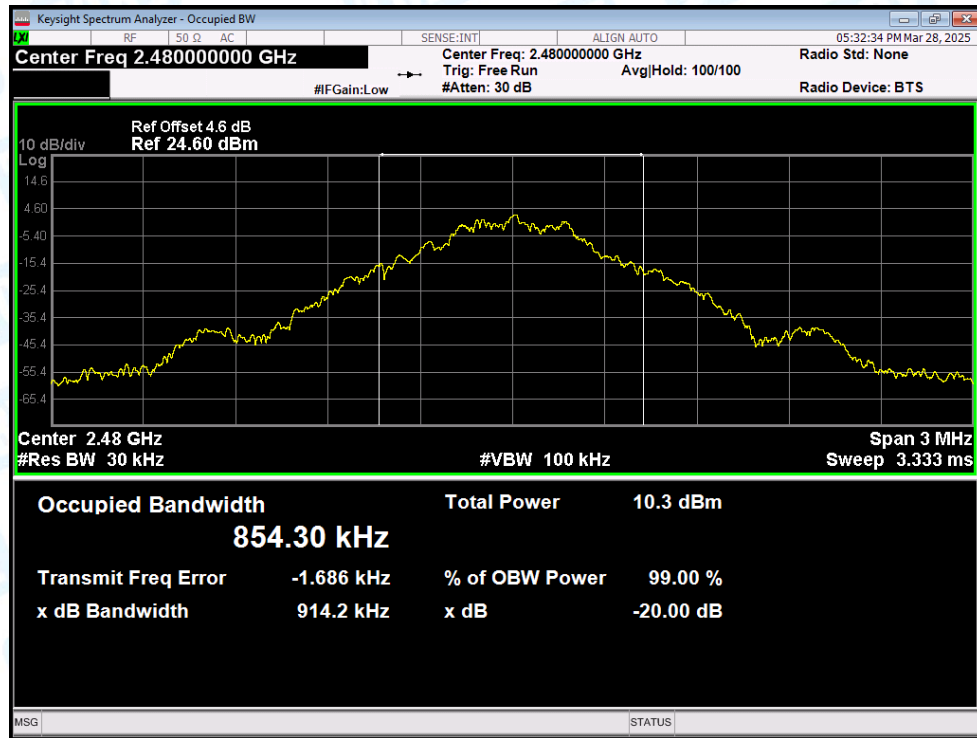
OBW NVNT 1-DH1 2402MHz Ant1



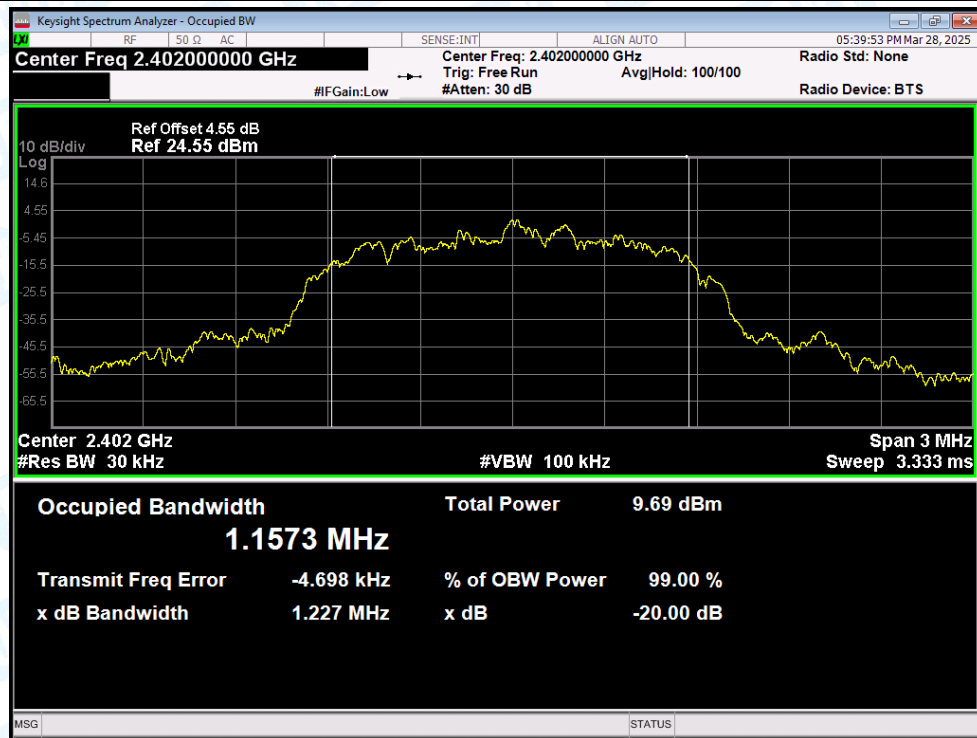
OBW NVNT 1-DH1 2441MHz Ant1



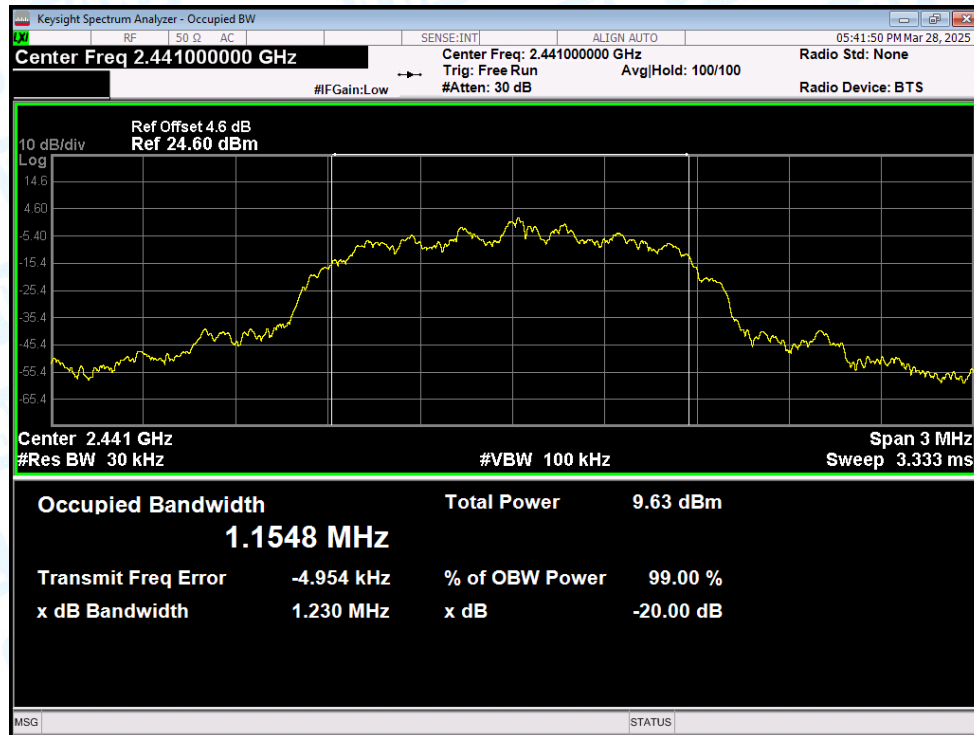
OBW NVNT 1-DH1 2480MHz Ant1



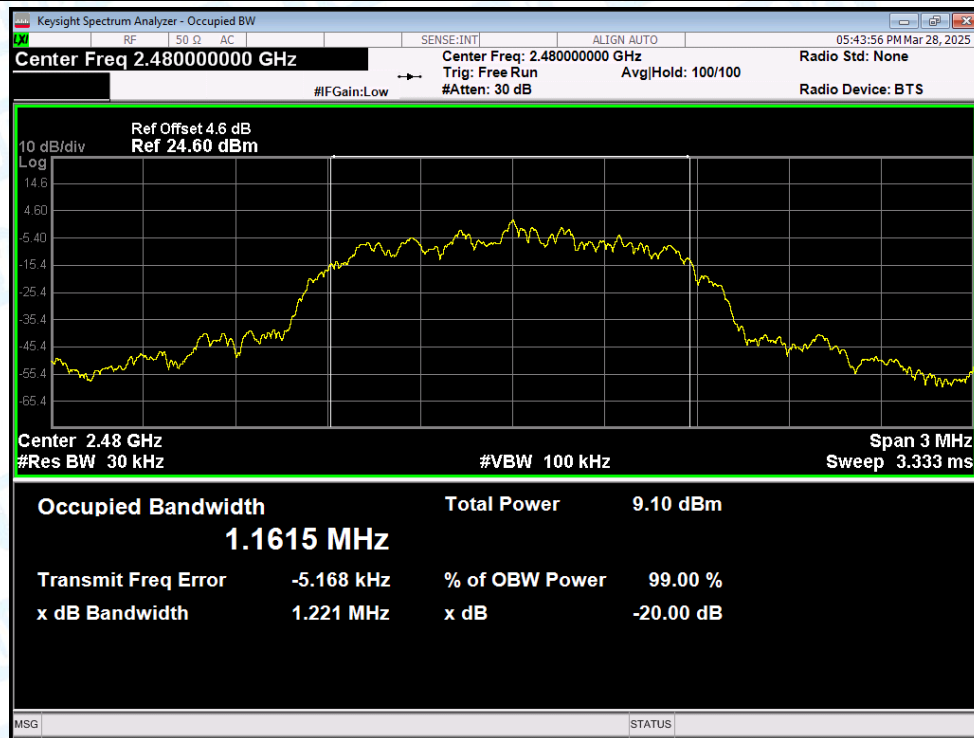
OBW NVNT 2-DH1 2402MHz Ant1



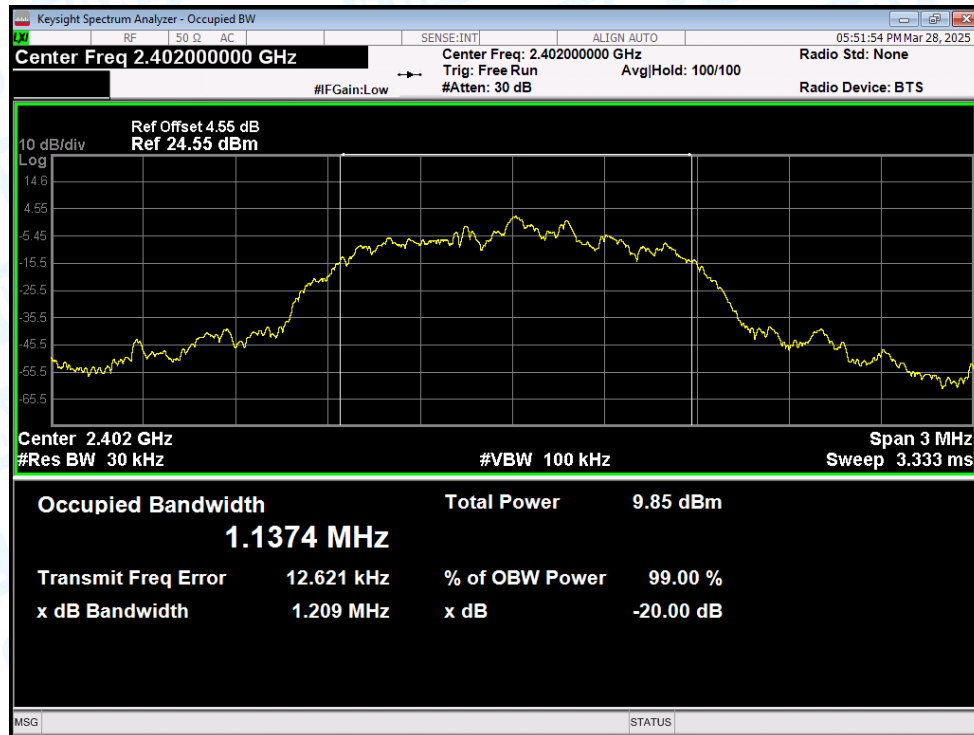
OBW NVNT 2-DH1 2441MHz Ant1



OBW NVNT 2-DH1 2480MHz Ant1



OBW NVNT 3-DH1 2402MHz Ant1



OBW NVNT 3-DH1 2441MHz Ant1



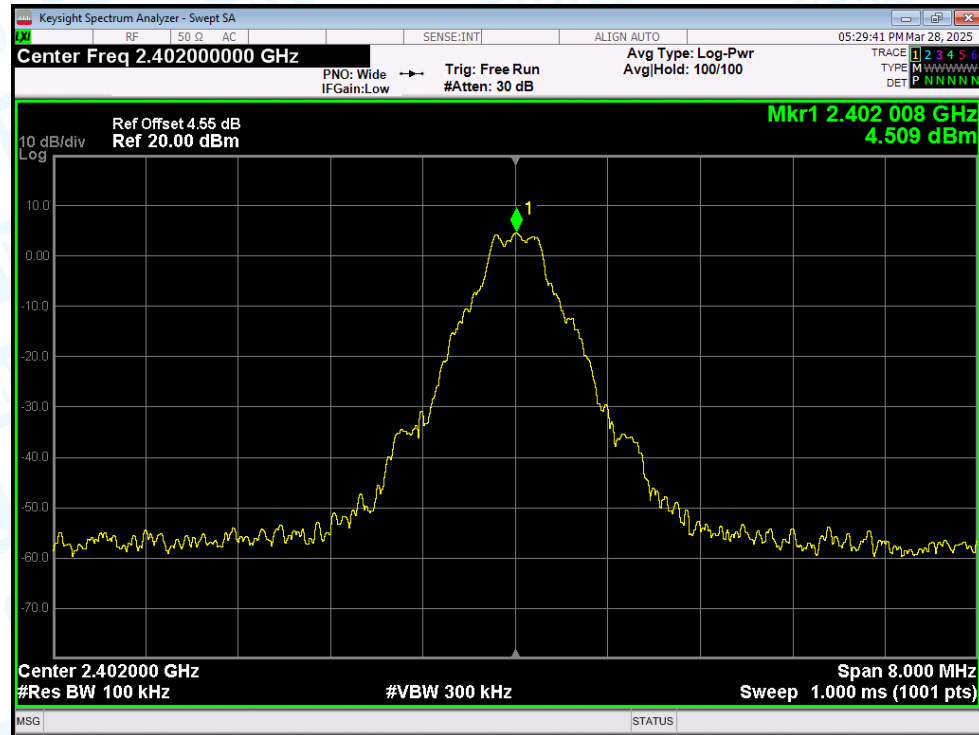


5. Band Edge

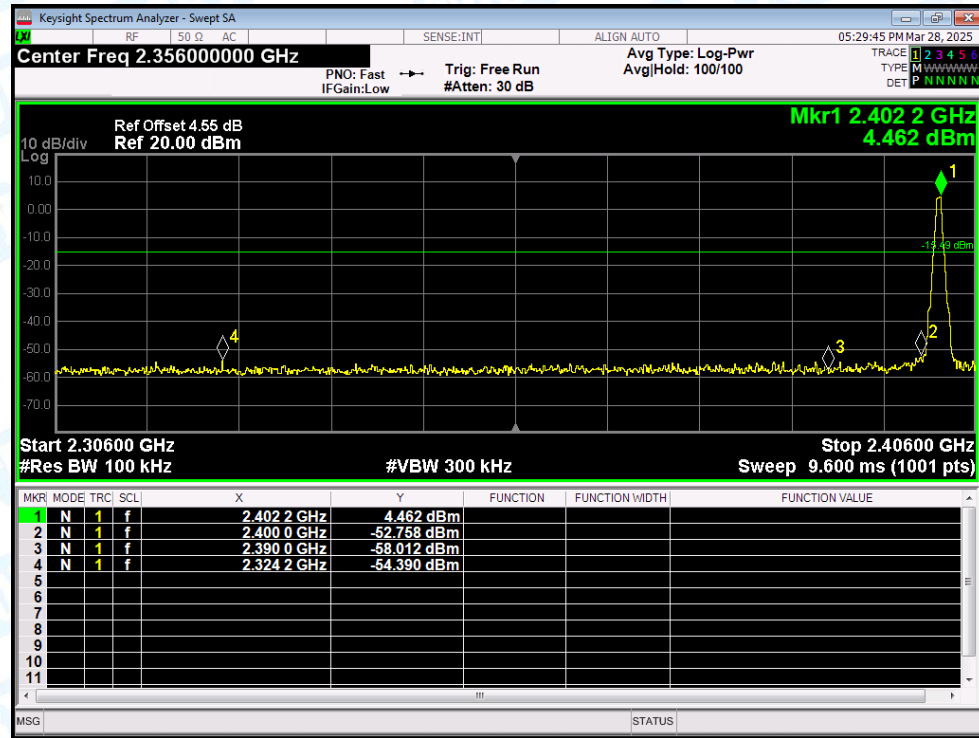
Condition	Mode	Frequency (MHz)	Antenna	Hopping Mode	Max Value (dBc)	Limit (dBc)	Verdict
NVNT	1-DH1	2402	Ant1	No-Hopping	-58.9	-20	Pass
NVNT	1-DH1	2480	Ant1	No-Hopping	-57.97	-20	Pass
NVNT	2-DH1	2402	Ant1	No-Hopping	-57.7	-20	Pass
NVNT	2-DH1	2480	Ant1	No-Hopping	-58.02	-20	Pass
NVNT	3-DH1	2402	Ant1	No-Hopping	-58.31	-20	Pass
NVNT	3-DH1	2480	Ant1	No-Hopping	-57.67	-20	Pass

Test Graphs

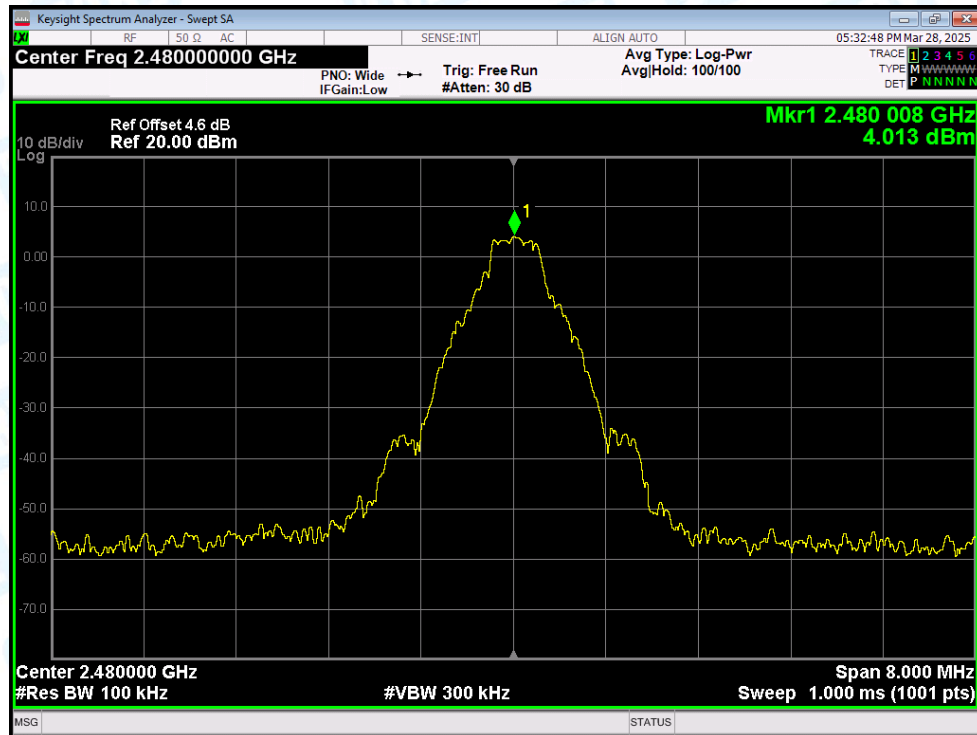
Band Edge NVNT 1-DH1 2402MHz Ant1 No-Hopping Ref



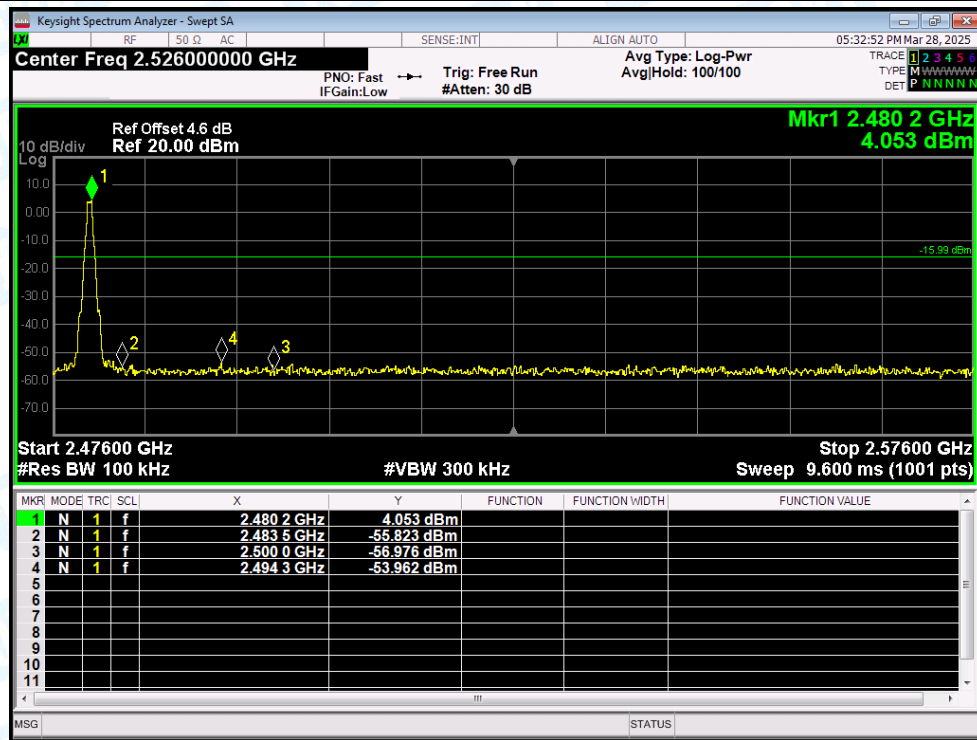
Band Edge NVNT 1-DH1 2402MHz Ant1 No-Hopping Emission



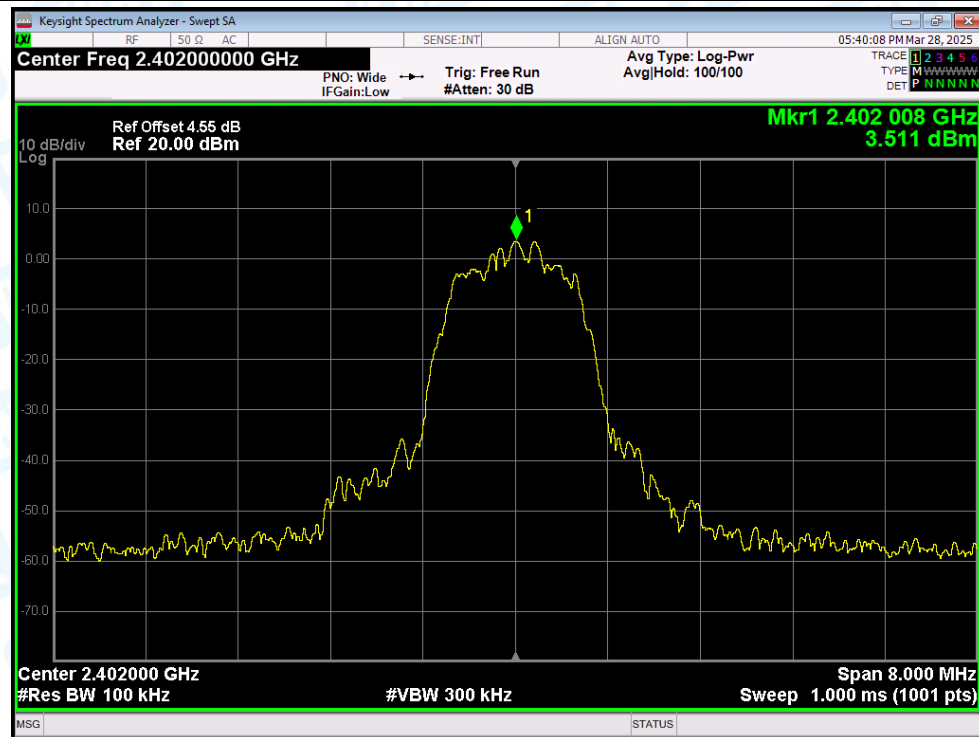
Band Edge NVNT 1-DH1 2480MHz Ant1 No-Hopping Ref



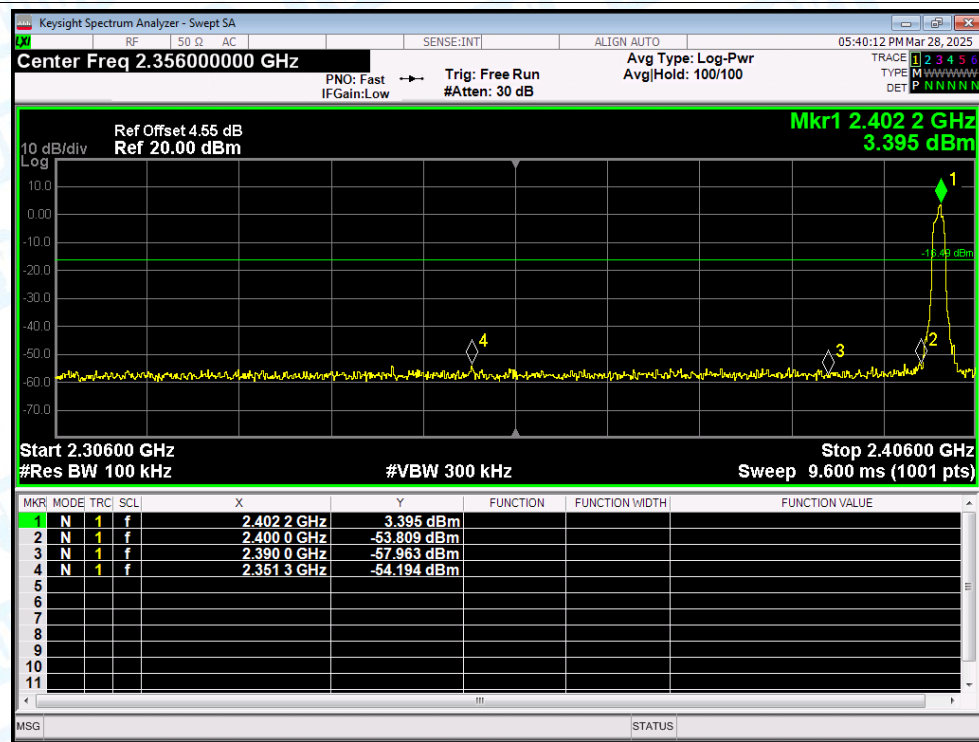
Band Edge NVNT 1-DH1 2480MHz Ant1 No-Hopping Emission



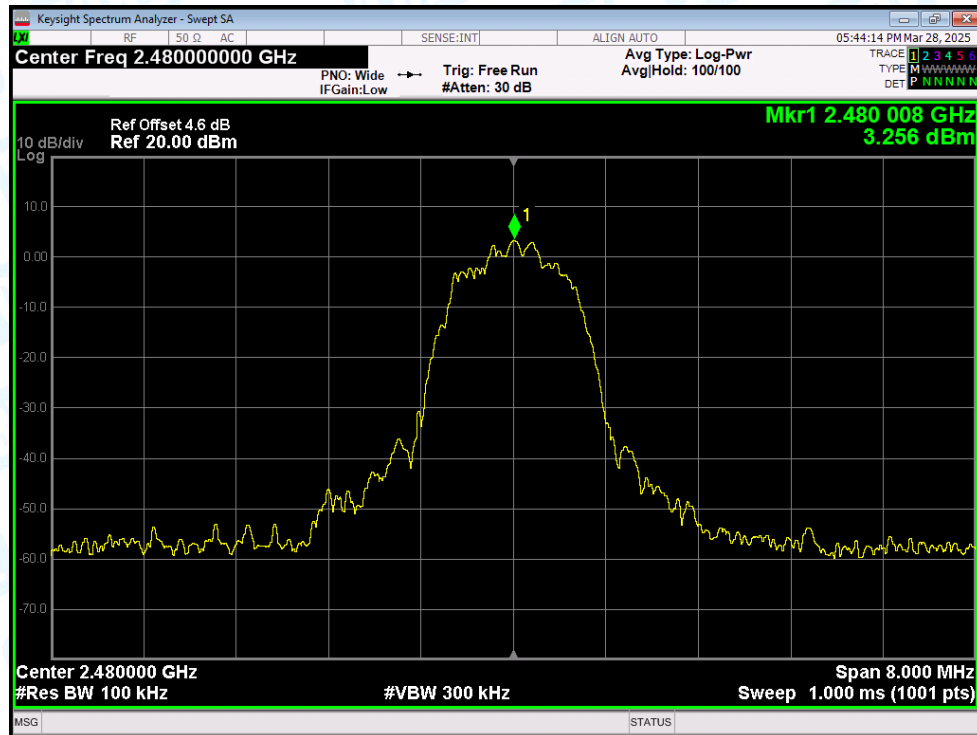
Band Edge NVNT 2-DH1 2402MHz Ant1 No-Hopping Ref



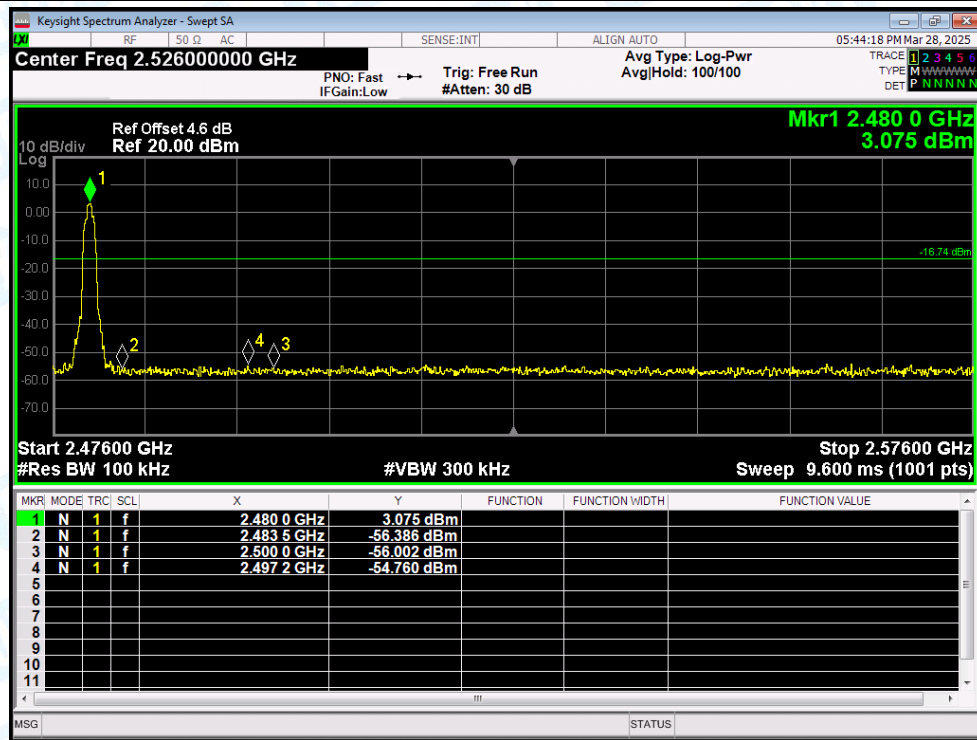
Band Edge NVNT 2-DH1 2402MHz Ant1 No-Hopping Emission



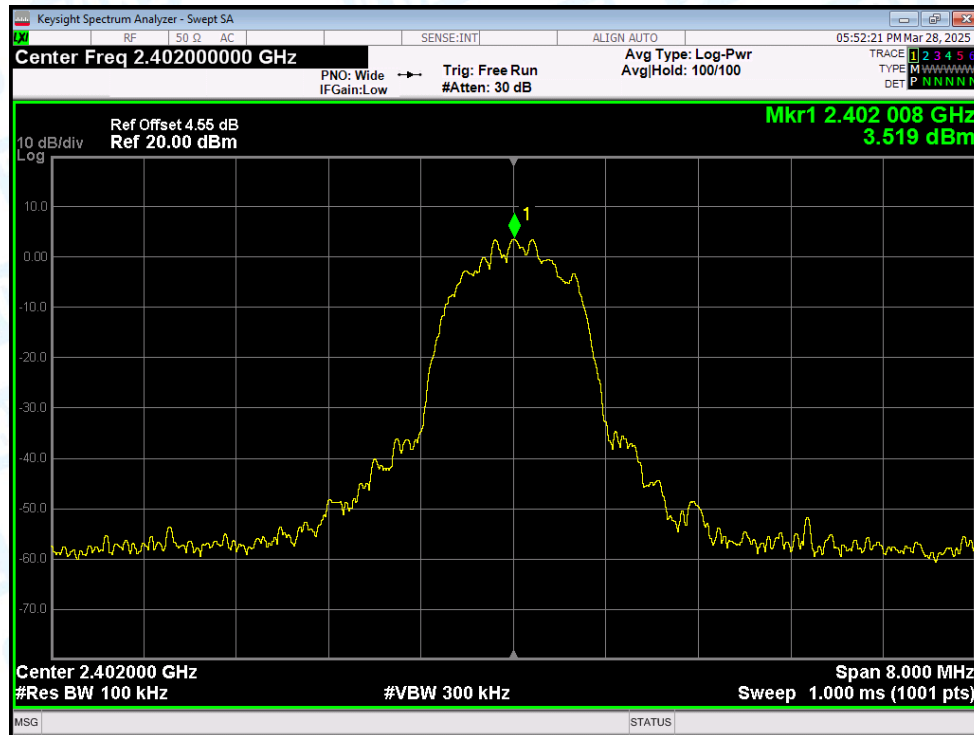
Band Edge NVNT 2-DH1 2480MHz Ant1 No-Hopping Ref



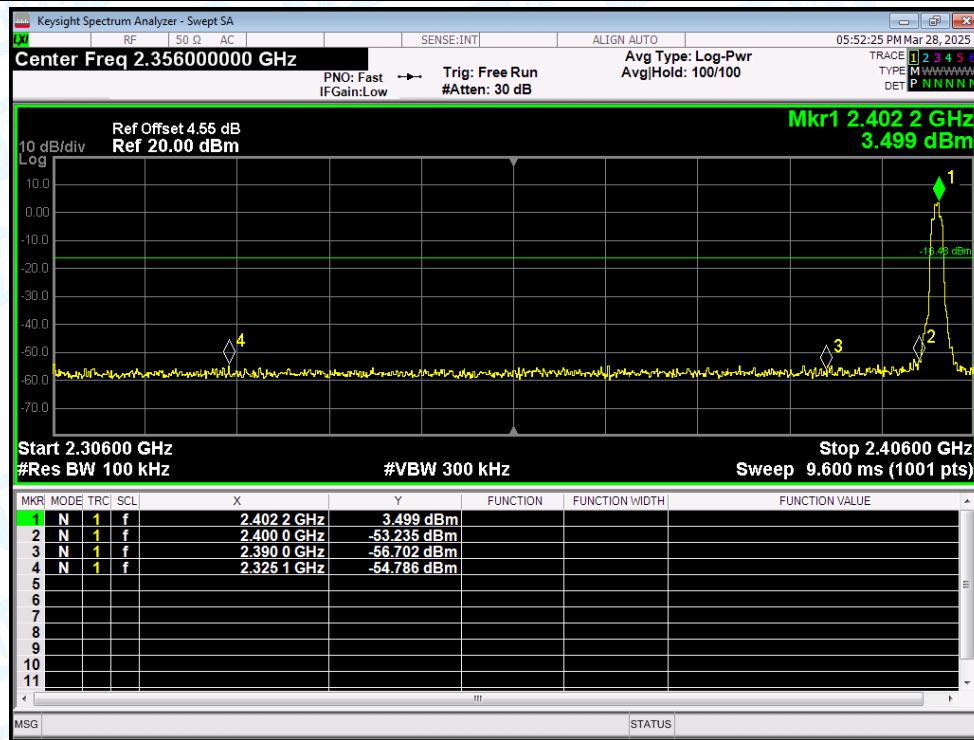
Band Edge NVNT 2-DH1 2480MHz Ant1 No-Hopping Emission



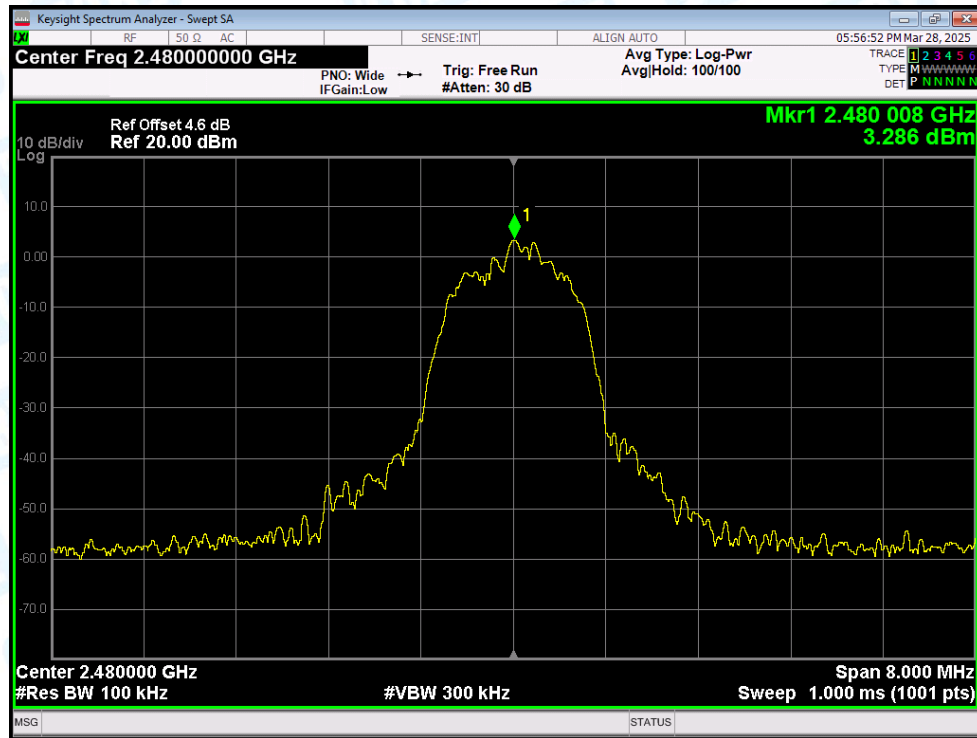
Band Edge NVNT 3-DH1 2402MHz Ant1 No-Hopping Ref



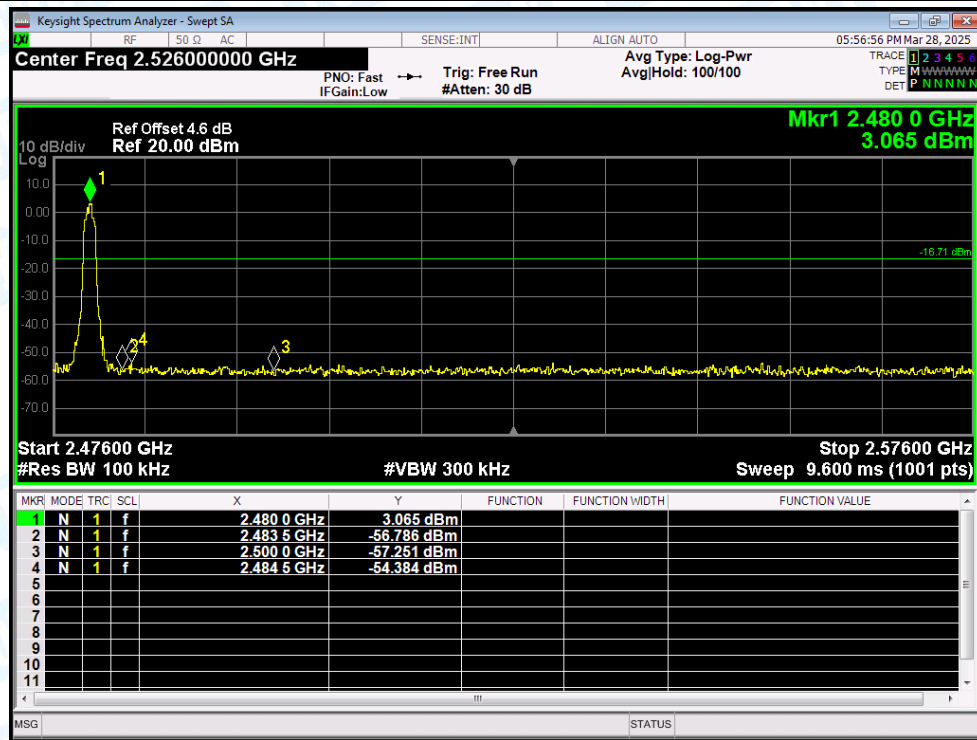
Band Edge NVNT 3-DH1 2402MHz Ant1 No-Hopping Emission



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



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

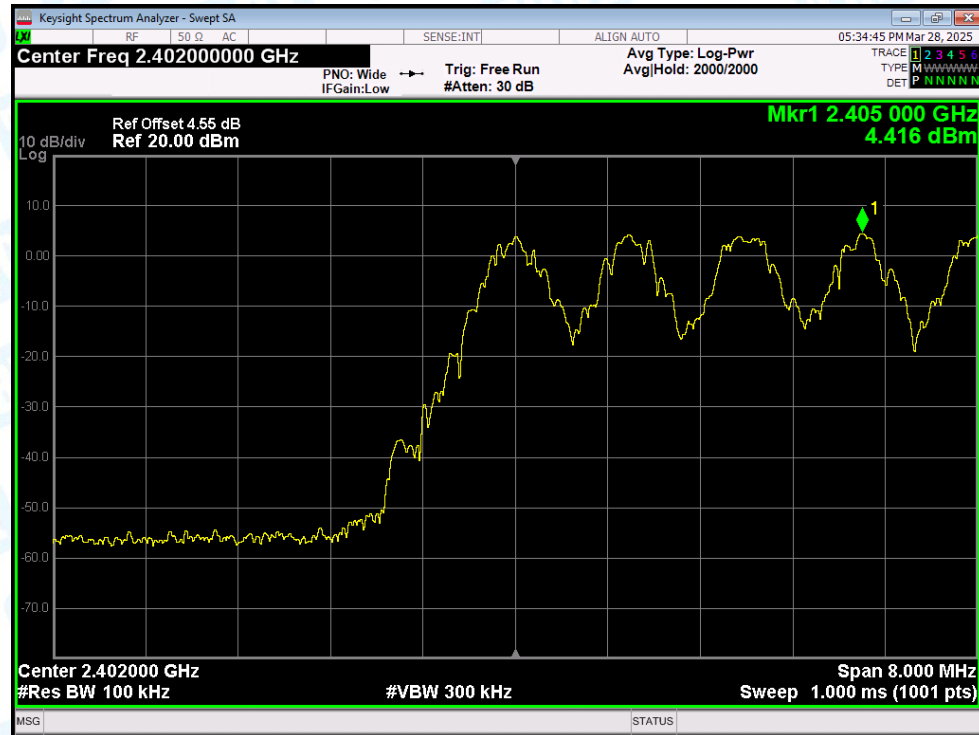


6. Band Edge(Hopping)

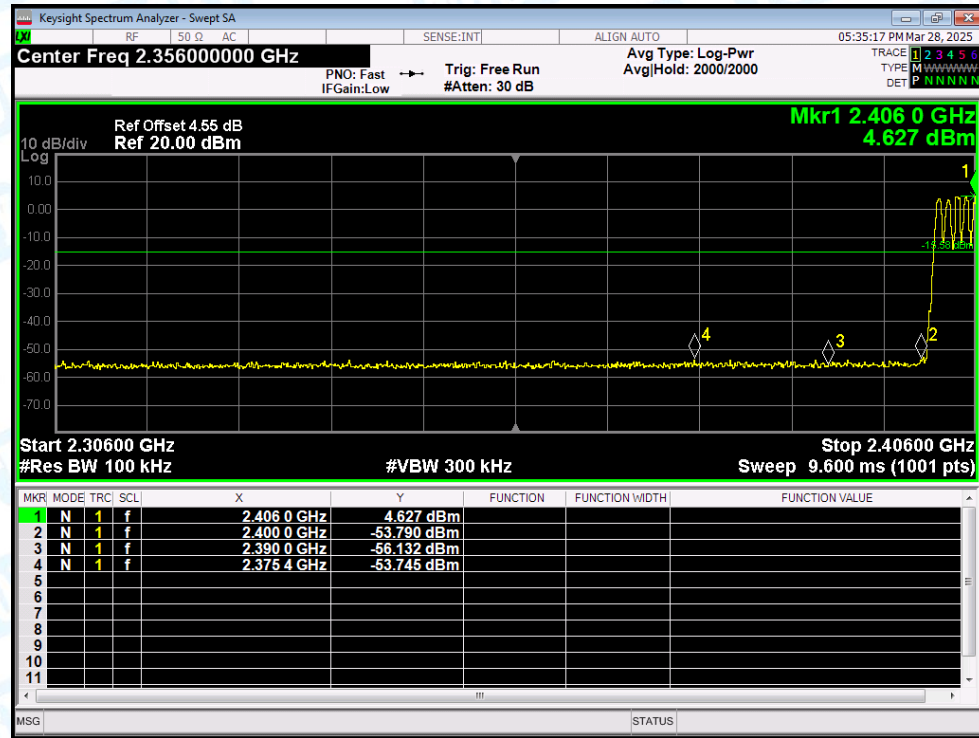
Condition	Mode	Frequency (MHz)	Antenna	Hopping Mode	Max Value (dBc)	Limit (dBc)	Verdict
NVNT	1-DH1	2402	Ant1	Hopping	-58.17	-20	Pass
NVNT	1-DH1	2480	Ant1	Hopping	-57.18	-20	Pass
NVNT	2-DH1	2402	Ant1	Hopping	-56.61	-20	Pass
NVNT	2-DH1	2480	Ant1	Hopping	-55.7	-20	Pass
NVNT	3-DH1	2402	Ant1	Hopping	-56.86	-20	Pass
NVNT	3-DH1	2480	Ant1	Hopping	-56.72	-20	Pass

Test Graphs

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



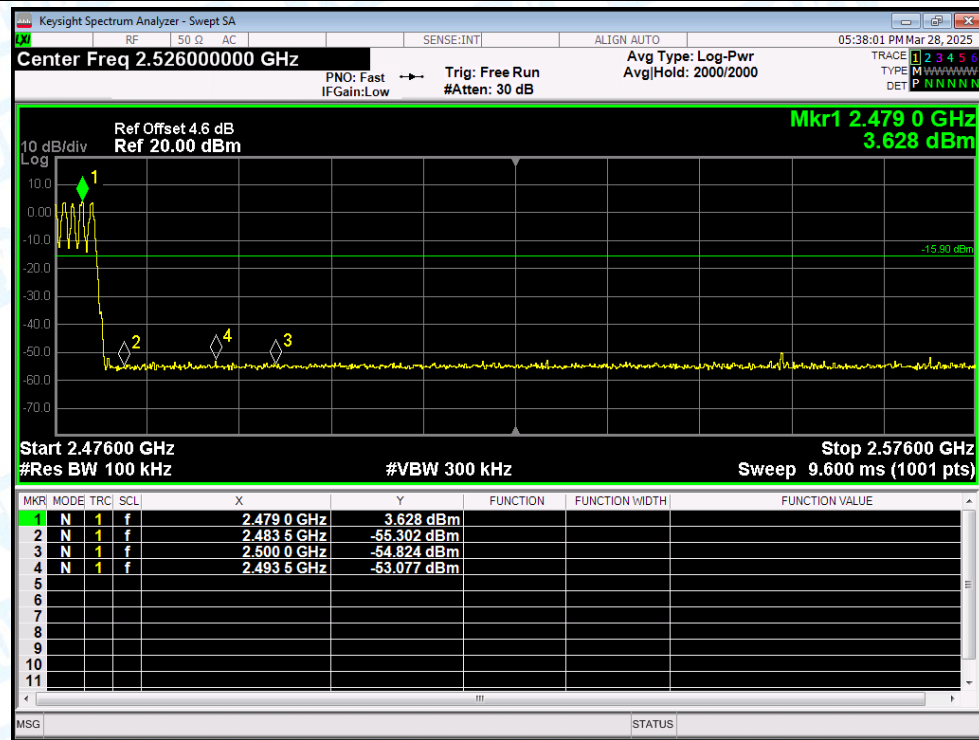
Band Edge(Hopping) NVNT 1-DH1 2402MHz Ant1 Hopping Emission



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



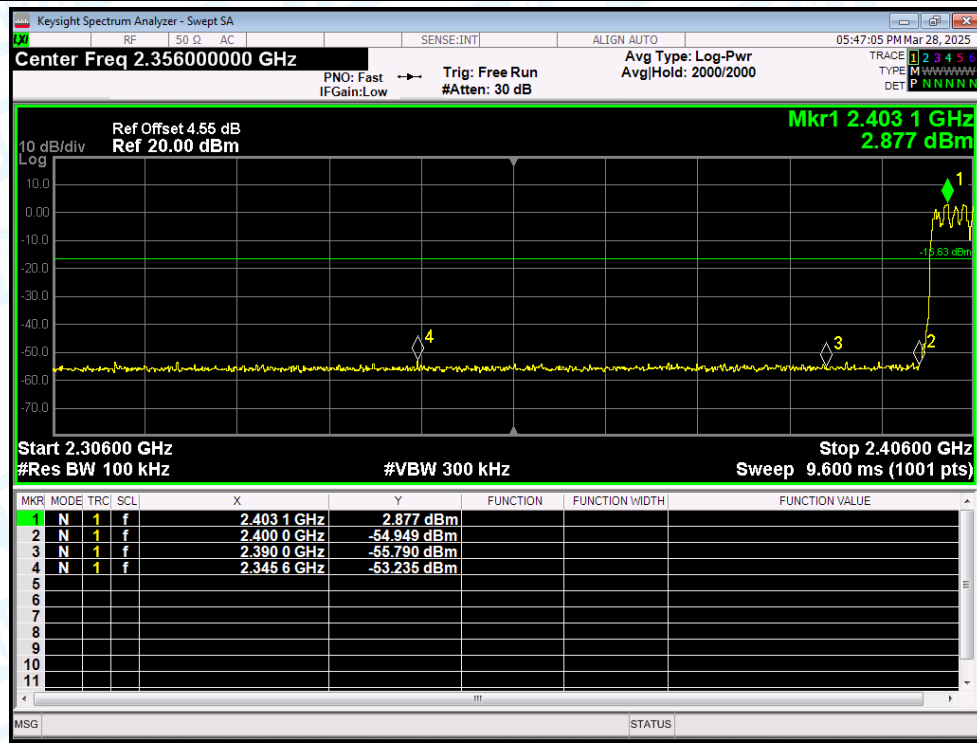
Band Edge(Hopping) NVNT 1-DH1 2480MHz Ant1 Hopping Emission



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



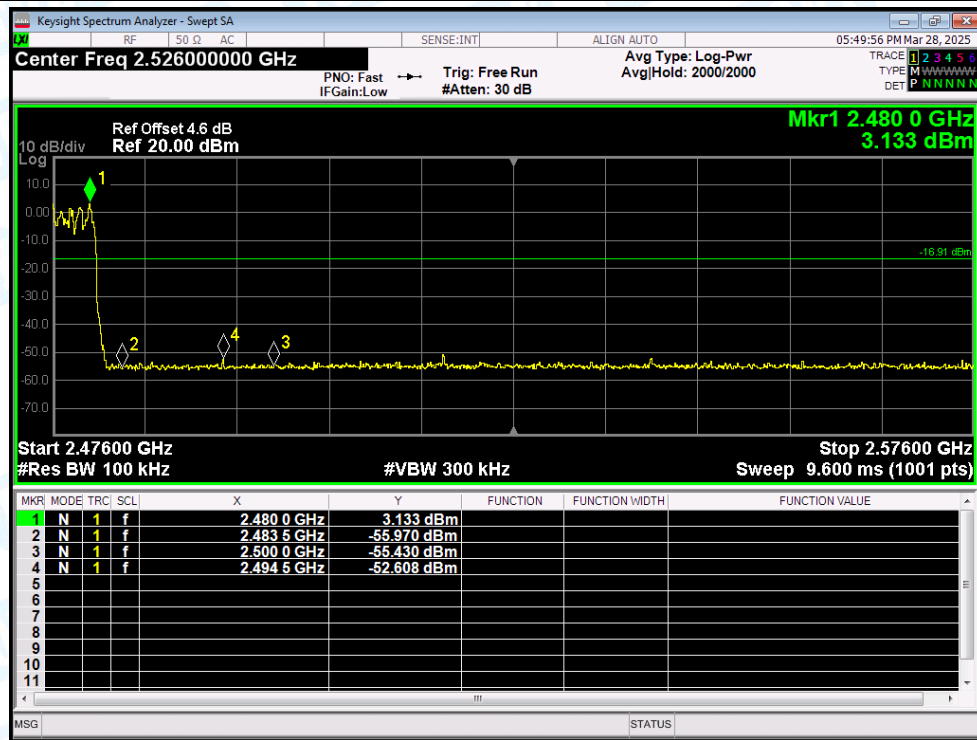
Band Edge(Hopping) NVNT 2-DH1 2402MHz Ant1 Hopping Emission



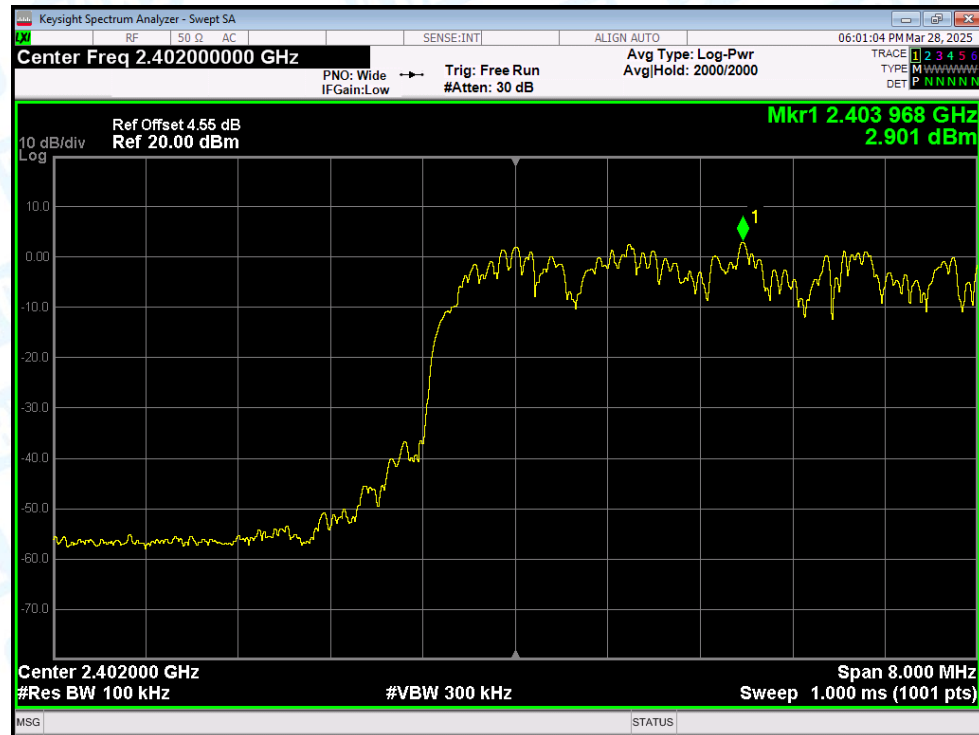
Band Edge(Hopping) NVNT 2-DH1 2480MHz Ant1 Hopping Ref



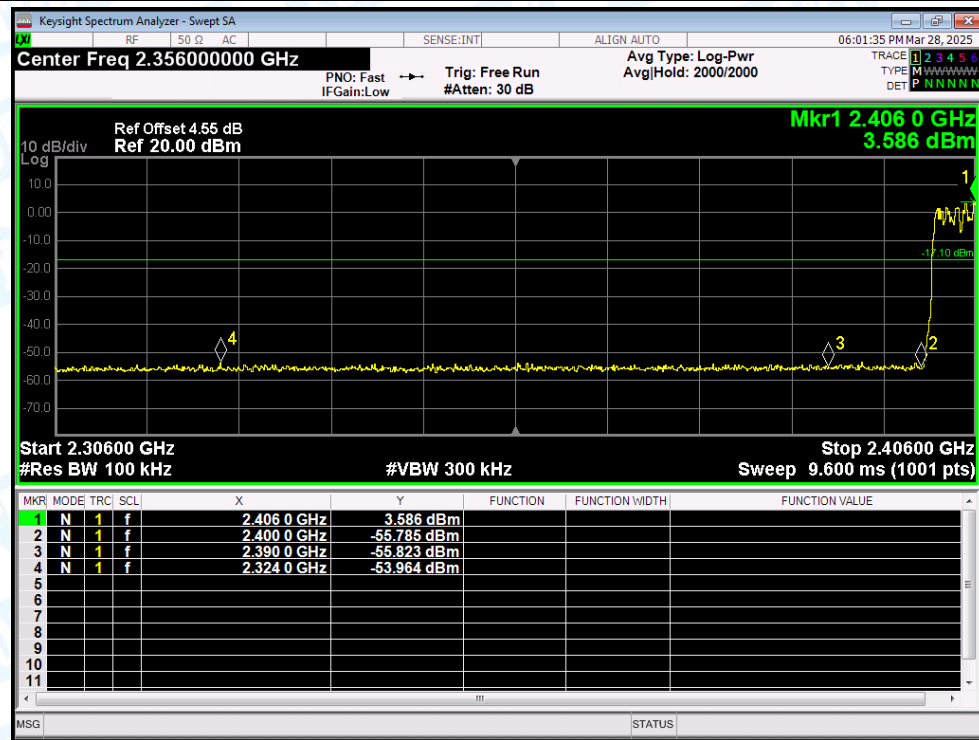
Band Edge(Hopping) NVNT 2-DH1 2480MHz Ant1 Hopping Emission



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



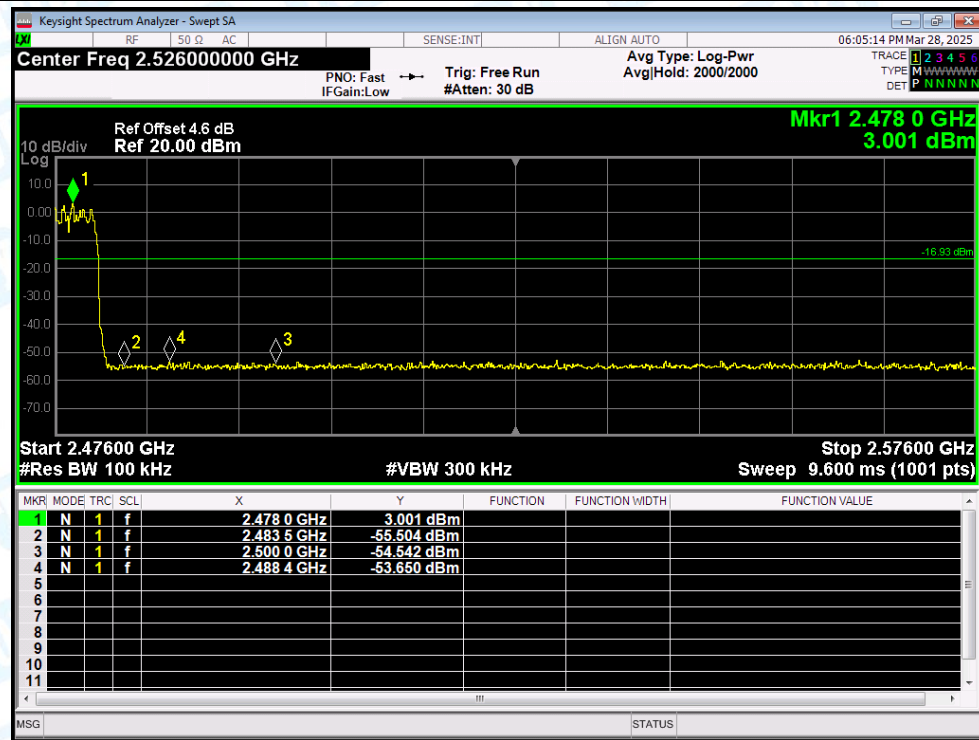
Band Edge(Hopping) NVNT 3-DH1 2402MHz Ant1 Hopping Emission



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



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

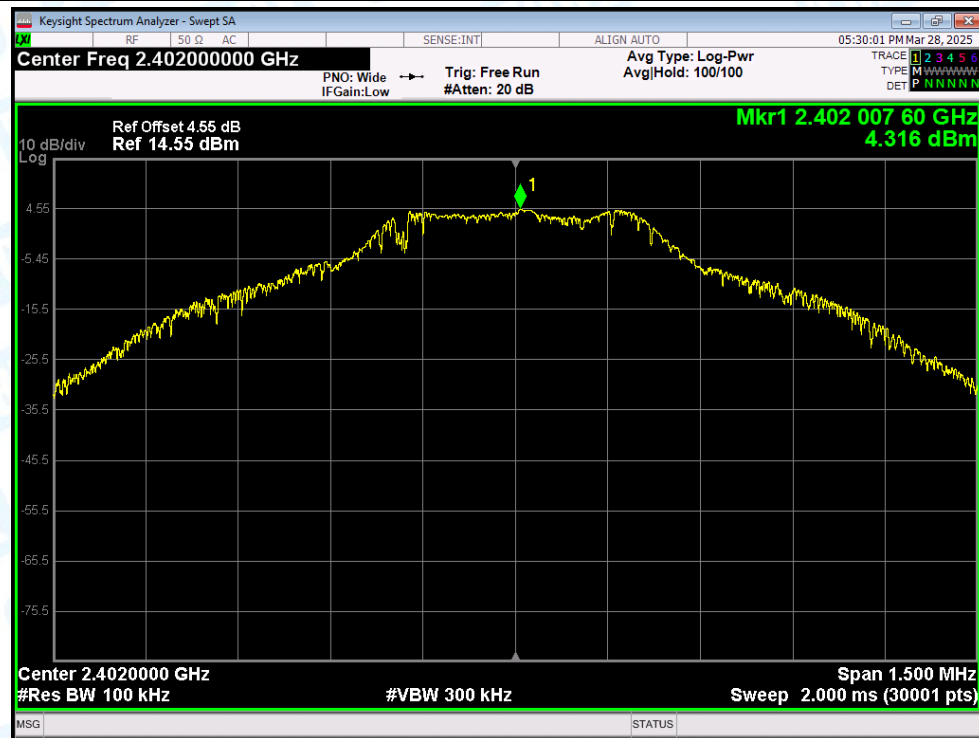


7. Conducted RF Spurious Emission

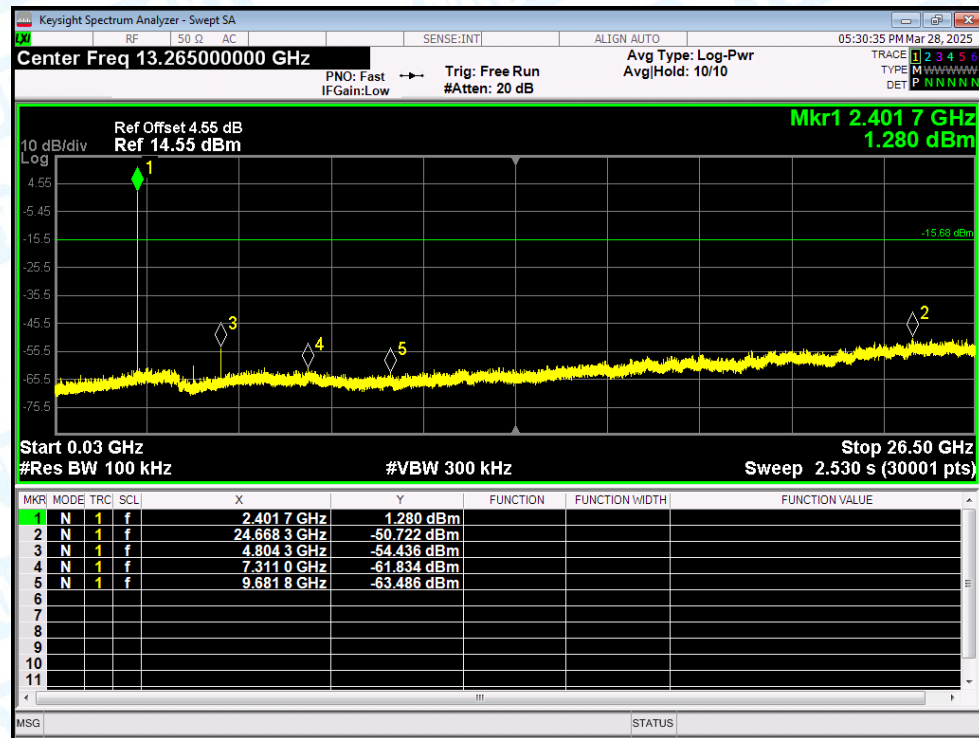
Condition	Mode	Frequency (MHz)	Antenna	Max Value (dBc)	Limit (dBc)	Verdict
NVNT	1-DH1	2402	Ant1	-55.04	-20	Pass
NVNT	1-DH1	2441	Ant1	-55	-20	Pass
NVNT	1-DH1	2480	Ant1	-55.24	-20	Pass
NVNT	2-DH1	2402	Ant1	-54.13	-20	Pass
NVNT	2-DH1	2441	Ant1	-54.65	-20	Pass
NVNT	2-DH1	2480	Ant1	-53.77	-20	Pass
NVNT	3-DH1	2402	Ant1	-55.27	-20	Pass
NVNT	3-DH1	2441	Ant1	-54.45	-20	Pass
NVNT	3-DH1	2480	Ant1	-53.96	-20	Pass

Test Graphs

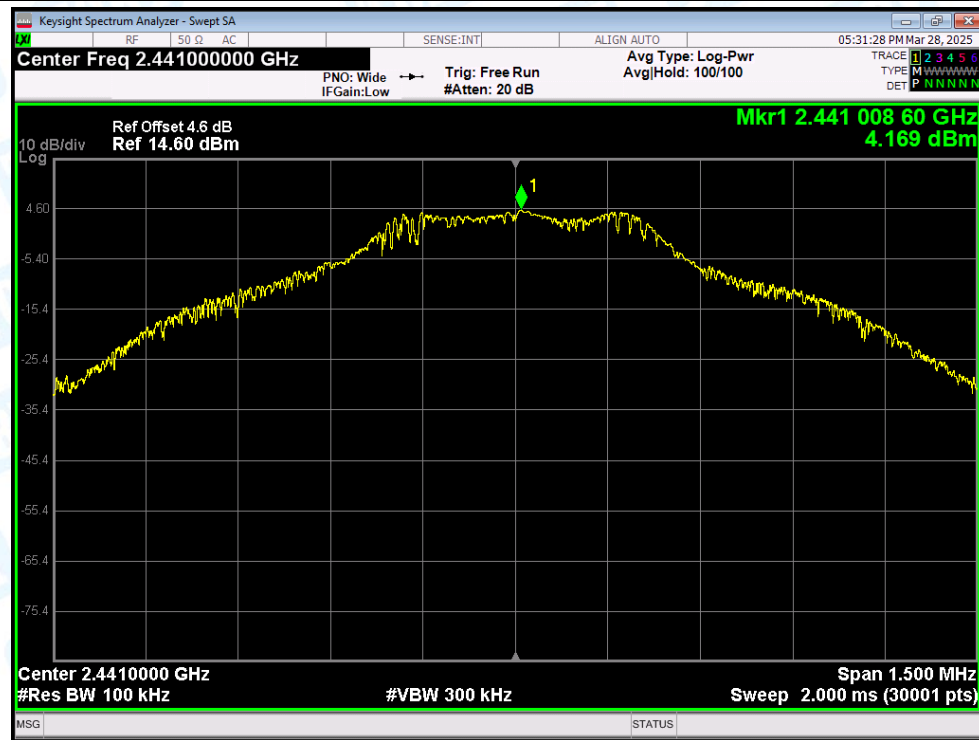
Tx. Spurious NVNT 1-DH1 2402MHz Ant1 Ref



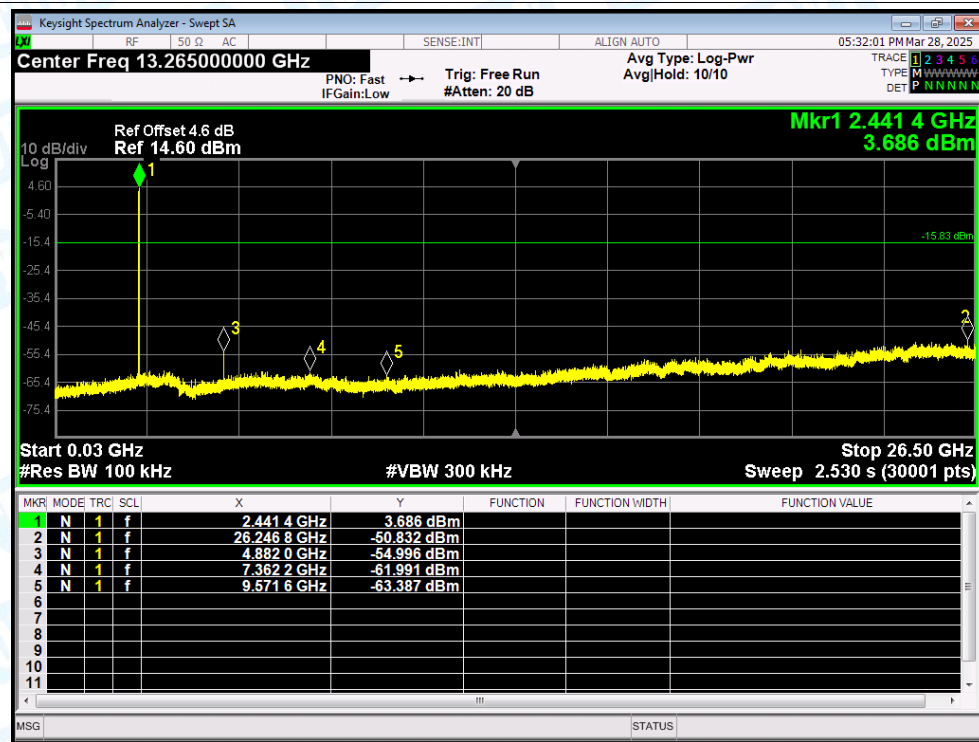
Tx. Spurious NVNT 1-DH1 2402MHz Ant1 Emission



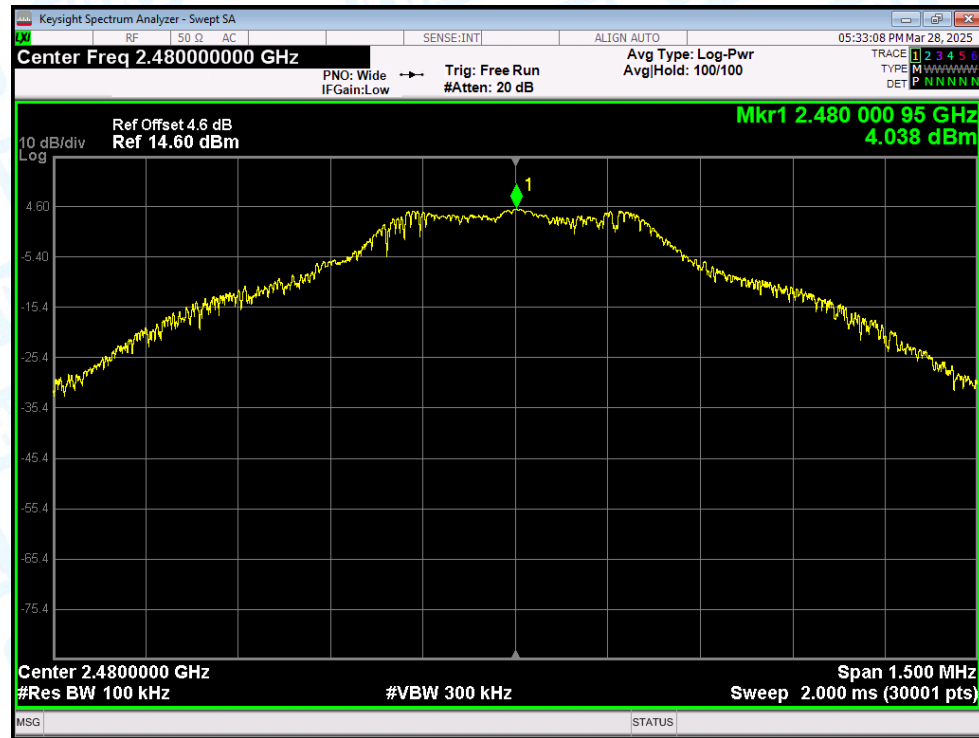
Tx. Spurious NVNT 1-DH1 2441MHz Ant1 Ref



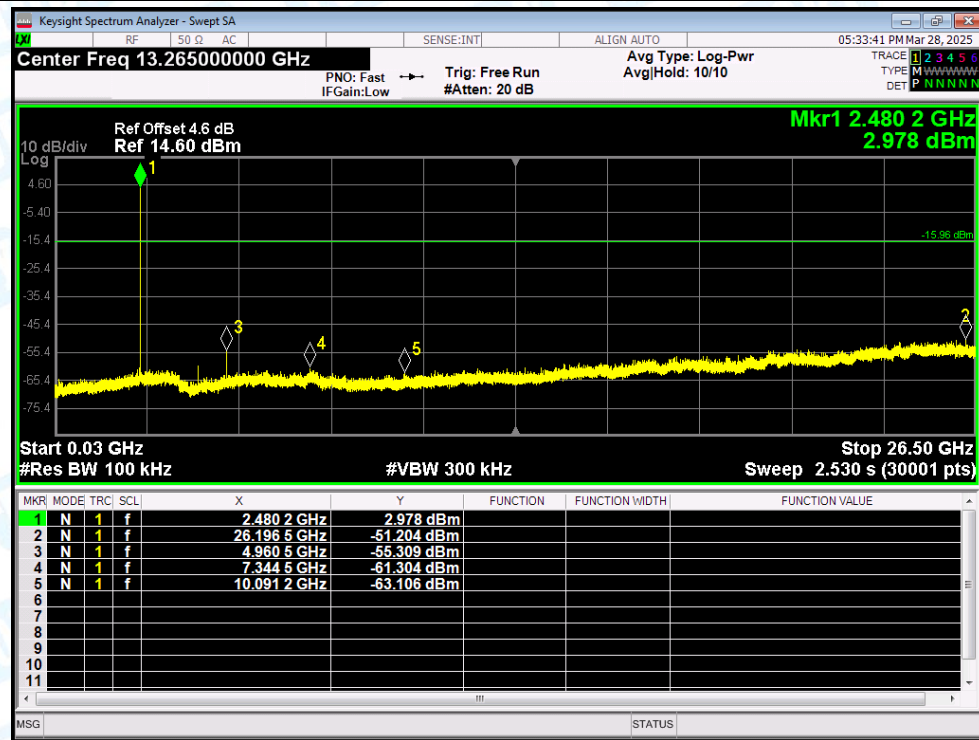
Tx. Spurious NVNT 1-DH1 2441MHz Ant1 Emission



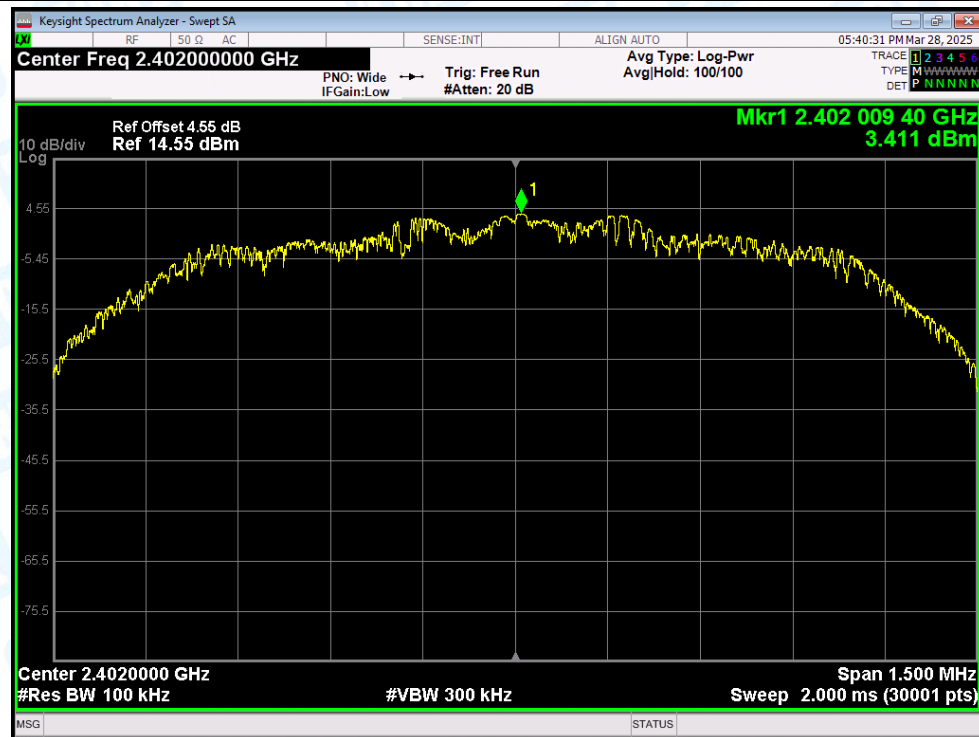
Tx. Spurious NVNT 1-DH1 2480MHz Ant1 Ref



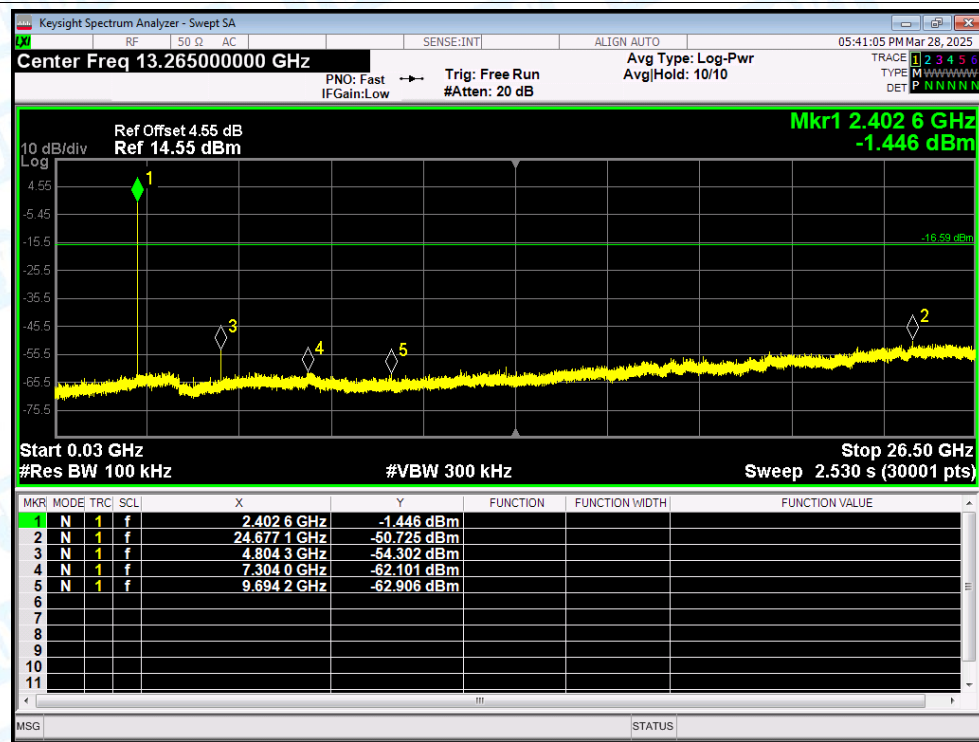
Tx. Spurious NVNT 1-DH1 2480MHz Ant1 Emission



Tx. Spurious NVNT 2-DH1 2402MHz Ant1 Ref



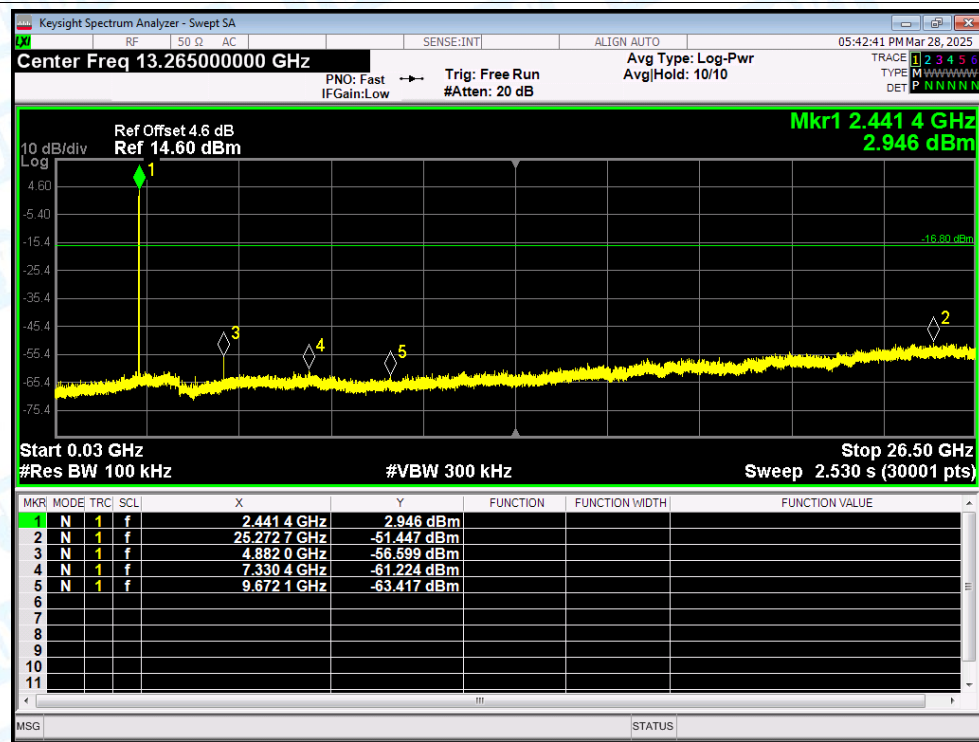
Tx. Spurious NVNT 2-DH1 2402MHz Ant1 Emission



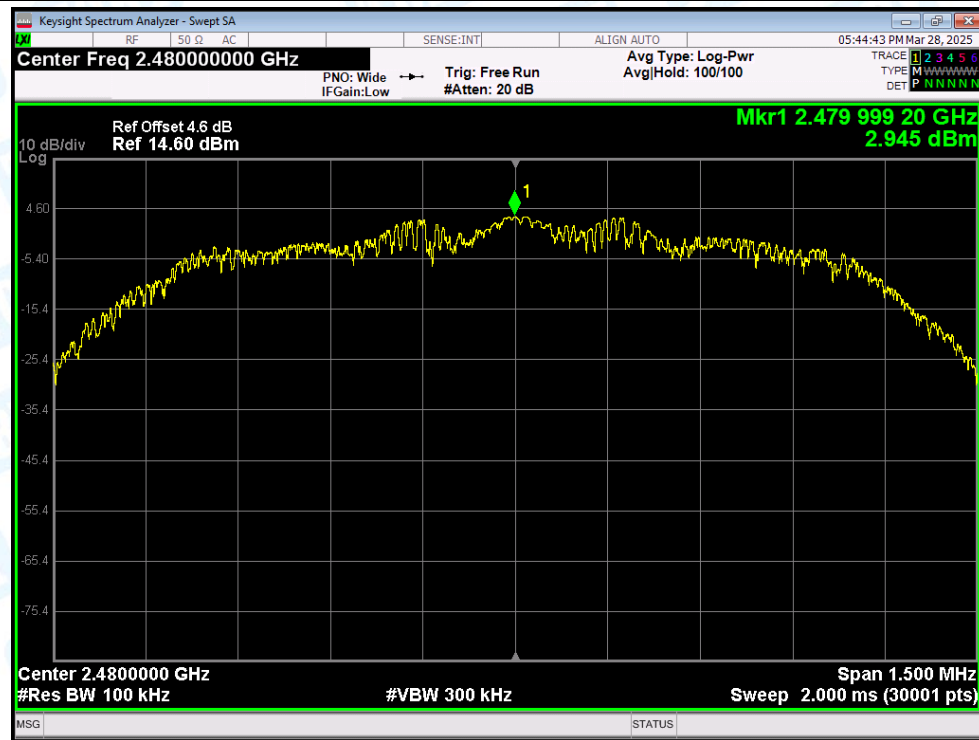
Tx. Spurious NVNT 2-DH1 2441MHz Ant1 Ref



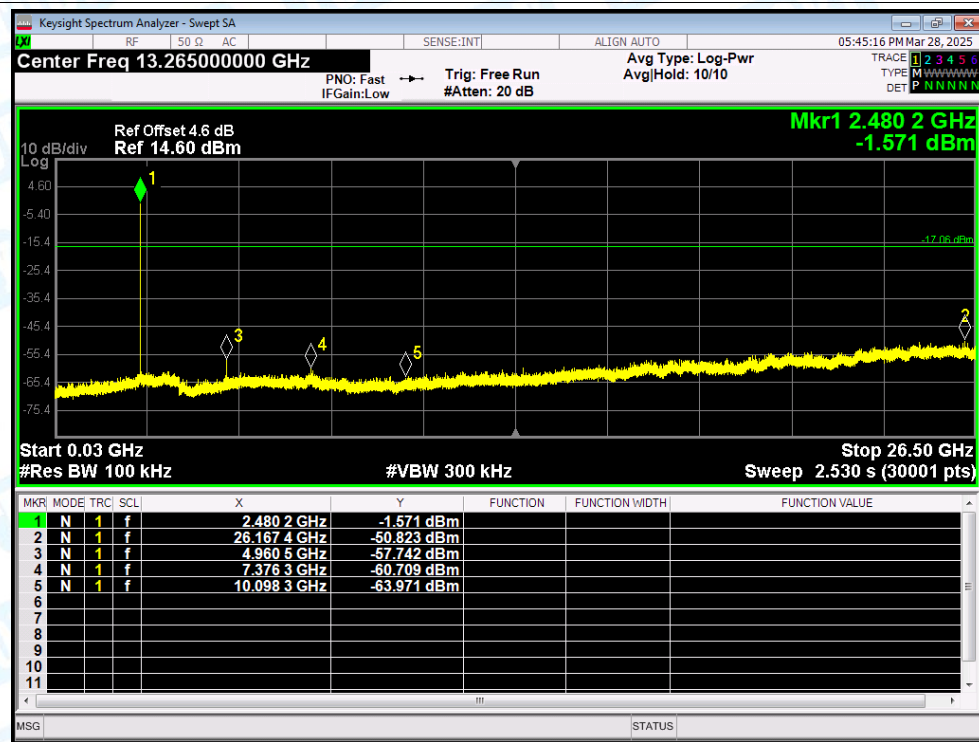
Tx. Spurious NVNT 2-DH1 2441MHz Ant1 Emission



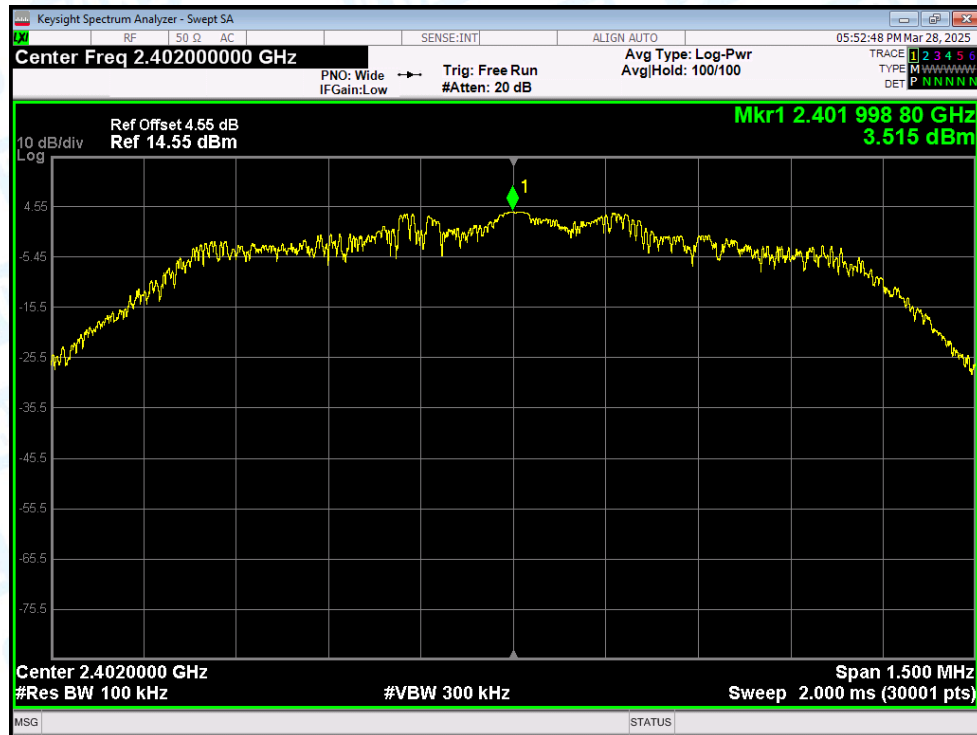
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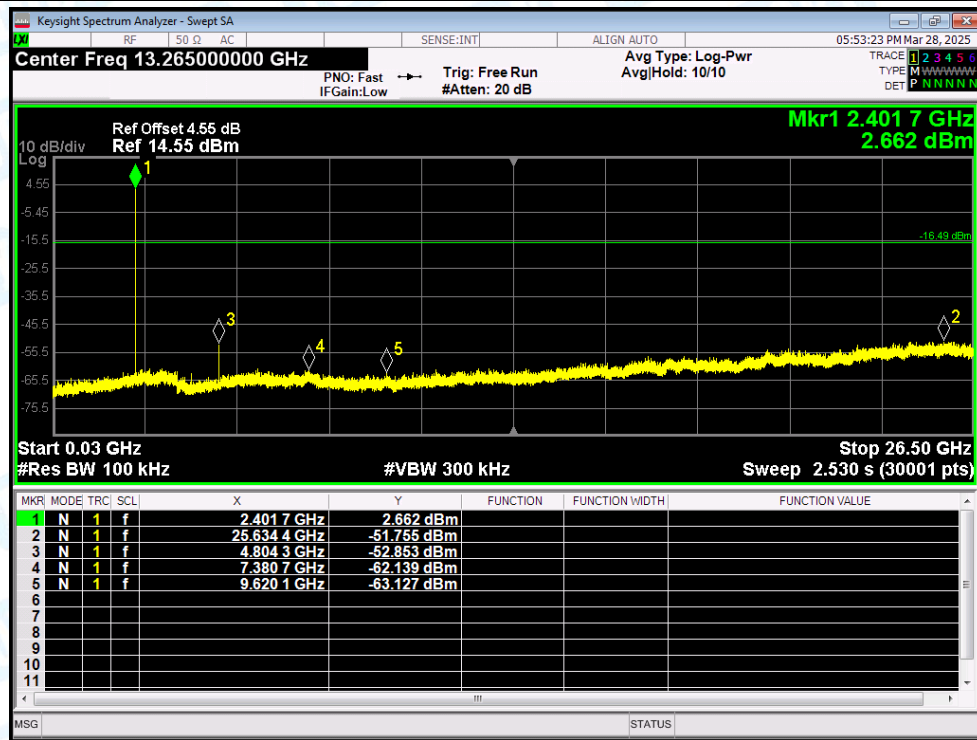
Tx. Spurious NVNT 2-DH1 2480MHz Ant1 Emission



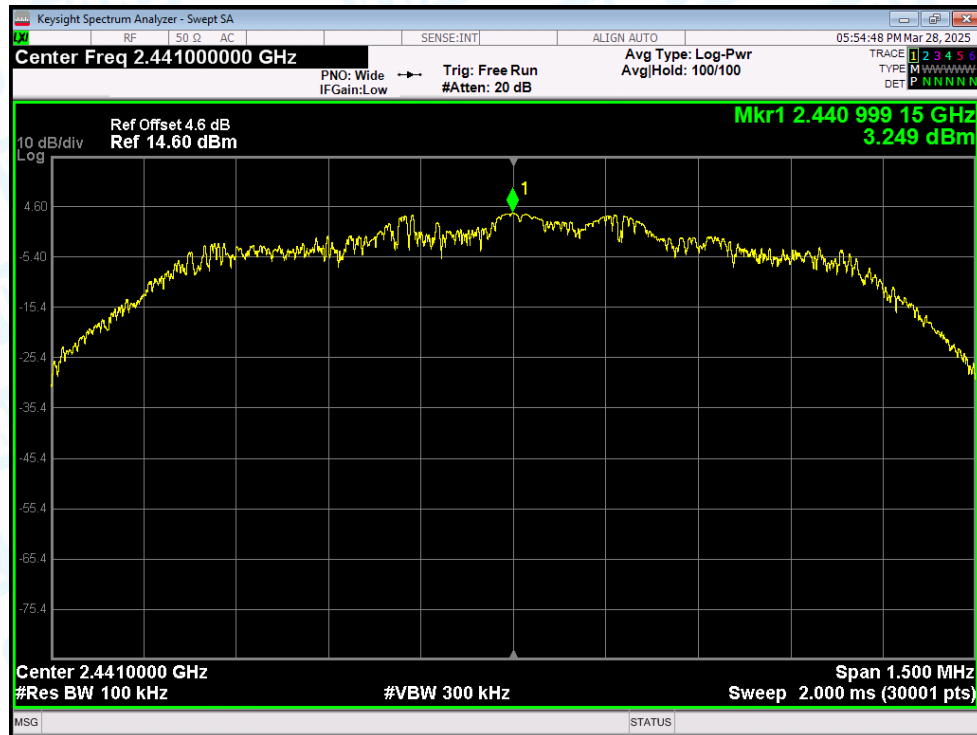
Tx. Spurious NVNT 3-DH1 2402MHz Ant1 Ref



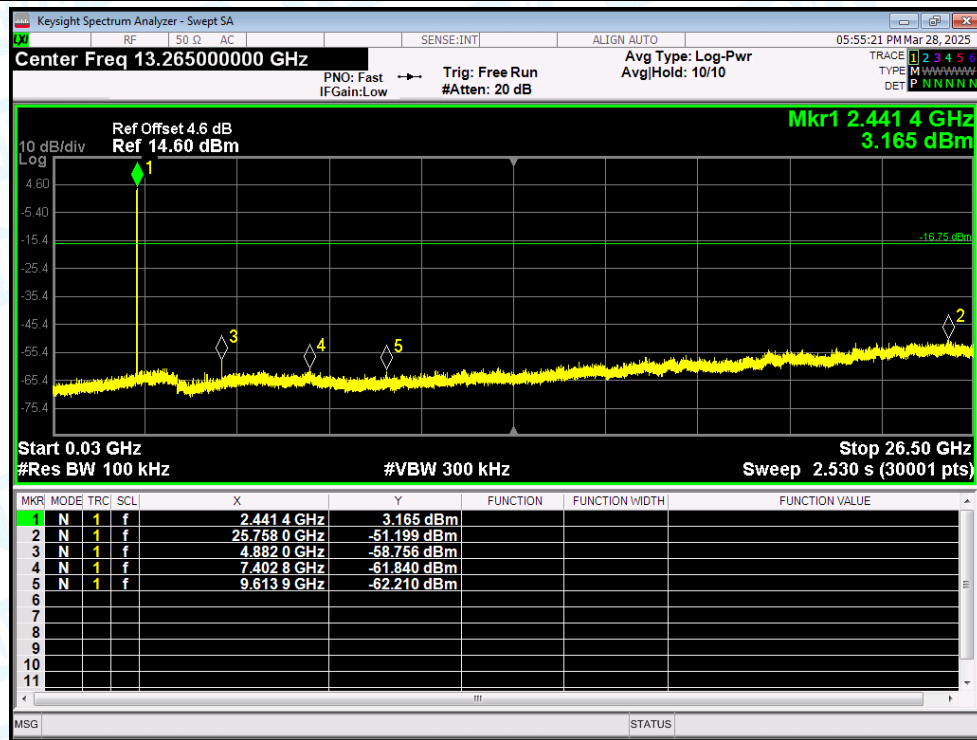
Tx. Spurious NVNT 3-DH1 2402MHz Ant1 Emission



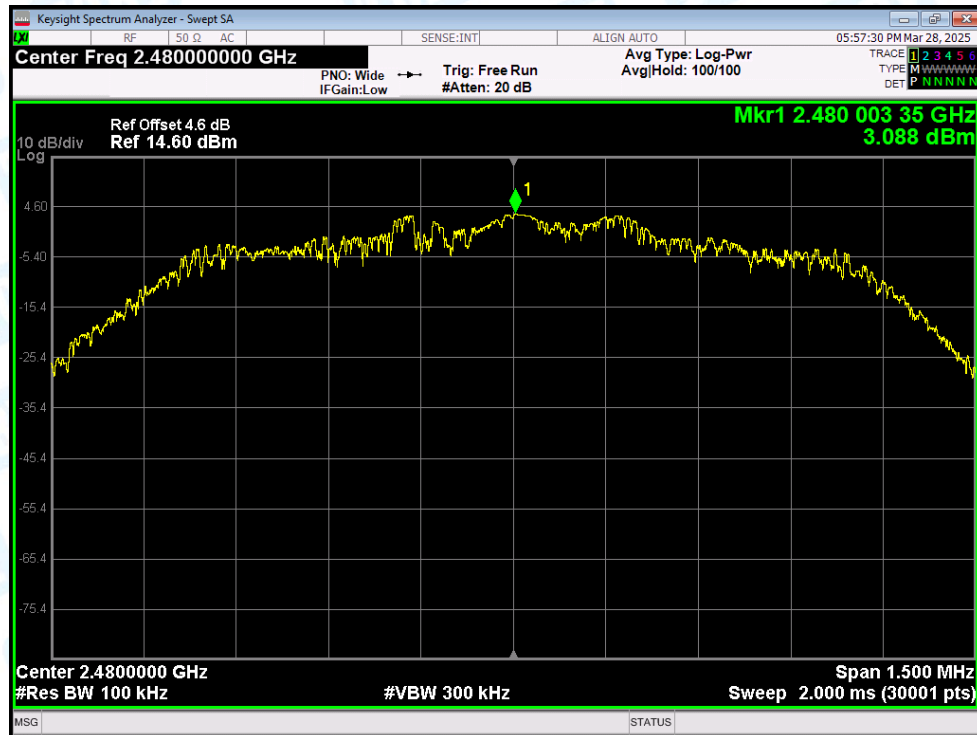
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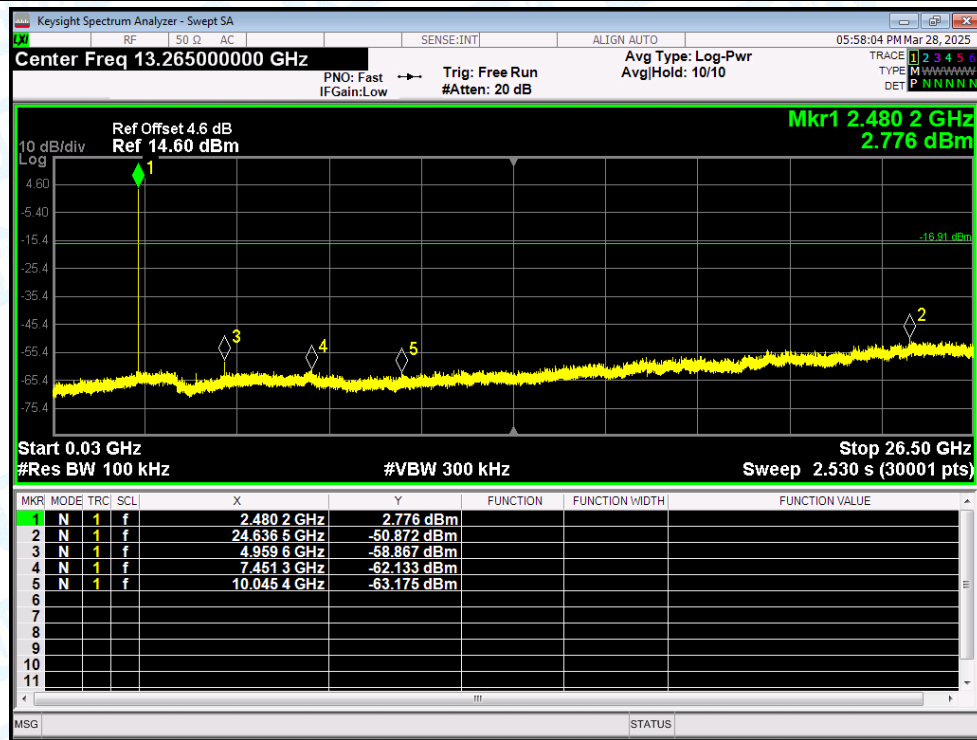
Tx. Spurious NVNT 3-DH1 2441MHz Ant1 Emission



Tx. Spurious NVNT 3-DH1 2480MHz Ant1 Ref



Tx. Spurious NVNT 3-DH1 2480MHz Ant1 Emission

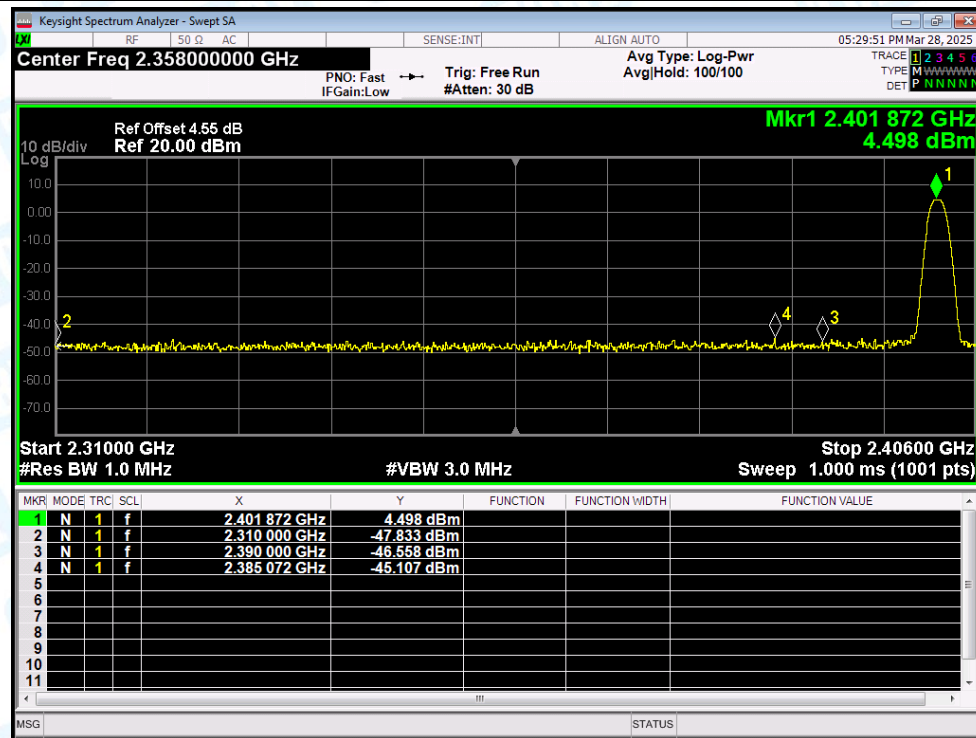


8. Restrict Band

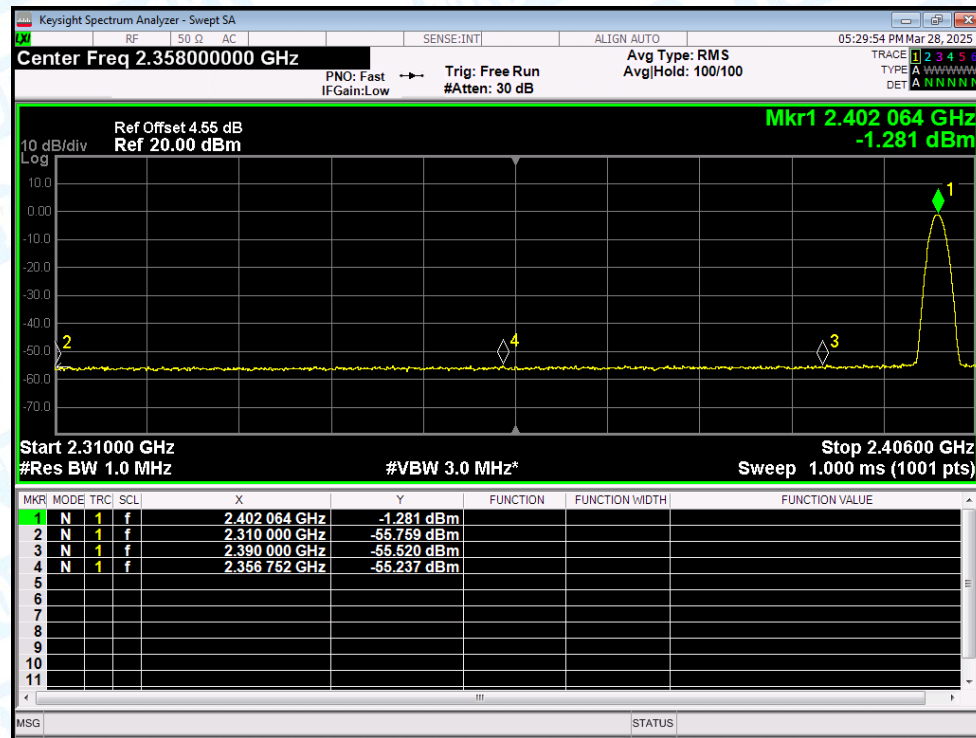
Condition	Mode	Frequency (MHz)	Antenna	Hopping Mode	Spur Freq (MHz)	Power (dBm)	Gain (dBi)	Duty Factor (dB)	E (dBuV/m)	Detector	Limit (dBuV/m)	Verdict
NVNT	1-DH1	2402	Ant1	No-Hopping	2310	-47.83	2	-	49.43	Peak	74	Pass
NVNT	1-DH1	2402	Ant1	No-Hopping	2310	-55.76	2	5.07	46.57	Average	54	Pass
NVNT	1-DH1	2402	Ant1	No-Hopping	2385.072	-45.11	2	-	52.15	Peak	74	Pass
NVNT	1-DH1	2402	Ant1	No-Hopping	2356.752	-55.24	2	5.07	47.09	Average	54	Pass
NVNT	1-DH1	2402	Ant1	No-Hopping	2390	-46.56	2	-	50.7	Peak	74	Pass
NVNT	1-DH1	2402	Ant1	No-Hopping	2390	-55.52	2	5.07	46.81	Average	54	Pass
NVNT	1-DH1	2480	Ant1	No-Hopping	2483.5	-45.79	2	-	51.47	Peak	74	Pass
NVNT	1-DH1	2480	Ant1	No-Hopping	2483.5	-54.94	2	4.99	47.31	Average	54	Pass
NVNT	1-DH1	2480	Ant1	No-Hopping	2485.6	-44.21	2	-	53.05	Peak	74	Pass
NVNT	1-DH1	2480	Ant1	No-Hopping	2498.584	-54.53	2	4.99	47.72	Average	54	Pass
NVNT	1-DH1	2480	Ant1	No-Hopping	2500	-47.83	2	-	49.43	Peak	74	Pass
NVNT	1-DH1	2480	Ant1	No-Hopping	2500	-55.23	2	4.99	47.02	Average	54	Pass
NVNT	2-DH1	2402	Ant1	No-Hopping	2310	-47.4	2	-	49.86	Peak	74	Pass
NVNT	2-DH1	2402	Ant1	No-Hopping	2310	-56.25	2	4.99	46	Average	54	Pass
NVNT	2-DH1	2402	Ant1	No-Hopping	2365.2	-44.73	2	-	52.53	Peak	74	Pass
NVNT	2-DH1	2402	Ant1	No-Hopping	2380.56	-55.07	2	4.99	47.18	Average	54	Pass
NVNT	2-DH1	2402	Ant1	No-Hopping	2390	-48.63	2	-	48.63	Peak	74	Pass
NVNT	2-DH1	2402	Ant1	No-Hopping	2390	-55.81	2	4.99	46.44	Average	54	Pass
NVNT	2-DH1	2480	Ant1	No-Hopping	2483.5	-46.49	2	-	50.77	Peak	74	Pass
NVNT	2-DH1	2480	Ant1	No-Hopping	2483.5	-55.05	2	5.02	47.23	Average	54	Pass
NVNT	2-DH1	2480	Ant1	No-Hopping	2499.64	-43.78	2	-	53.48	Peak	74	Pass
NVNT	2-DH1	2480	Ant1	No-Hopping	2495.752	-54.2	2	5.02	48.08	Average	54	Pass
NVNT	2-DH1	2480	Ant1	No-Hopping	2500	-47.71	2	-	49.55	Peak	74	Pass
NVNT	2-DH1	2480	Ant1	No-Hopping	2500	-55.14	2	5.02	47.14	Average	54	Pass
NVNT	3-DH1	2402	Ant1	No-Hopping	2310	-49.91	2	-	47.35	Peak	74	Pass
NVNT	3-DH1	2402	Ant1	No-Hopping	2310	-55.92	2	5.02	46.36	Average	54	Pass
NVNT	3-DH1	2402	Ant1	No-Hopping	2368.56	-45.06	2	-	52.2	Peak	74	Pass
NVNT	3-DH1	2402	Ant1	No-Hopping	2331.792	-54.95	2	5.02	47.33	Average	54	Pass
NVNT	3-DH1	2402	Ant1	No-Hopping	2390	-48.84	2	-	48.42	Peak	74	Pass
NVNT	3-DH1	2402	Ant1	No-Hopping	2390	-55.78	2	5.02	46.5	Average	54	Pass
NVNT	3-DH1	2480	Ant1	No-Hopping	2483.5	-47.45	2	-	49.81	Peak	74	Pass
NVNT	3-DH1	2480	Ant1	No-Hopping	2483.5	-55.11	2	4.91	47.06	Average	54	Pass
NVNT	3-DH1	2480	Ant1	No-Hopping	2495.608	-44.59	2	-	52.67	Peak	74	Pass
NVNT	3-DH1	2480	Ant1	No-Hopping	2491.48	-54.54	2	4.91	47.63	Average	54	Pass
NVNT	3-DH1	2480	Ant1	No-Hopping	2500	-45.96	2	-	51.3	Peak	74	Pass
NVNT	3-DH1	2480	Ant1	No-Hopping	2500	-54.95	2	4.91	47.22	Average	54	Pass

Test Graphs

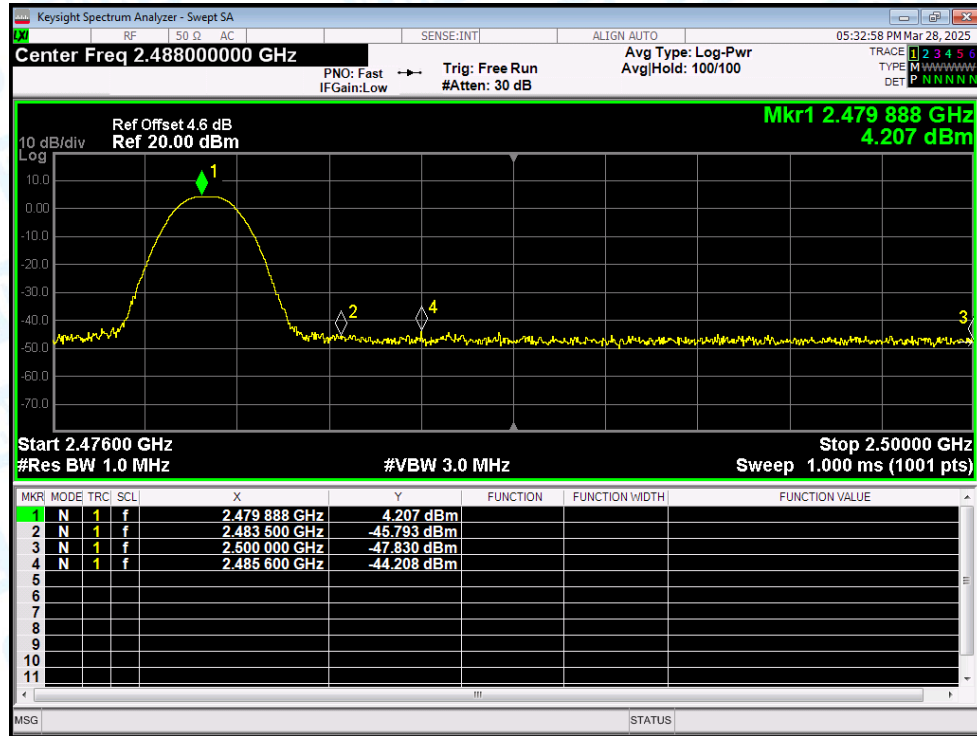
Restrict Band NVNT 1-DH1 2402MHz Ant1 No-Hopping Peak



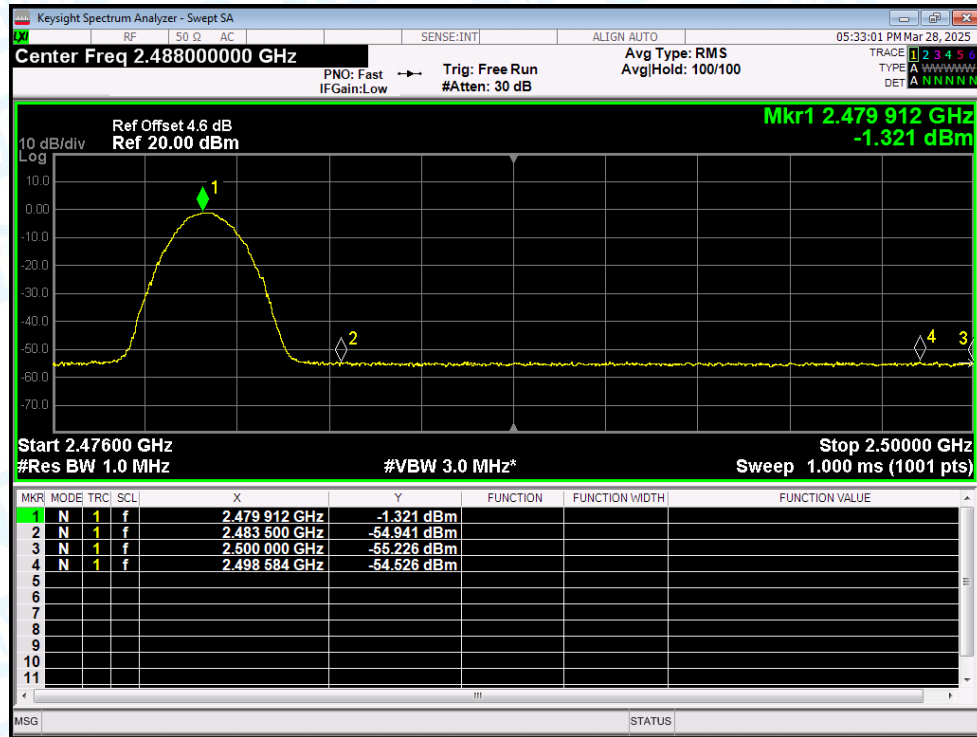
Restrict Band NVNT 1-DH1 2402MHz Ant1 No-Hopping Average



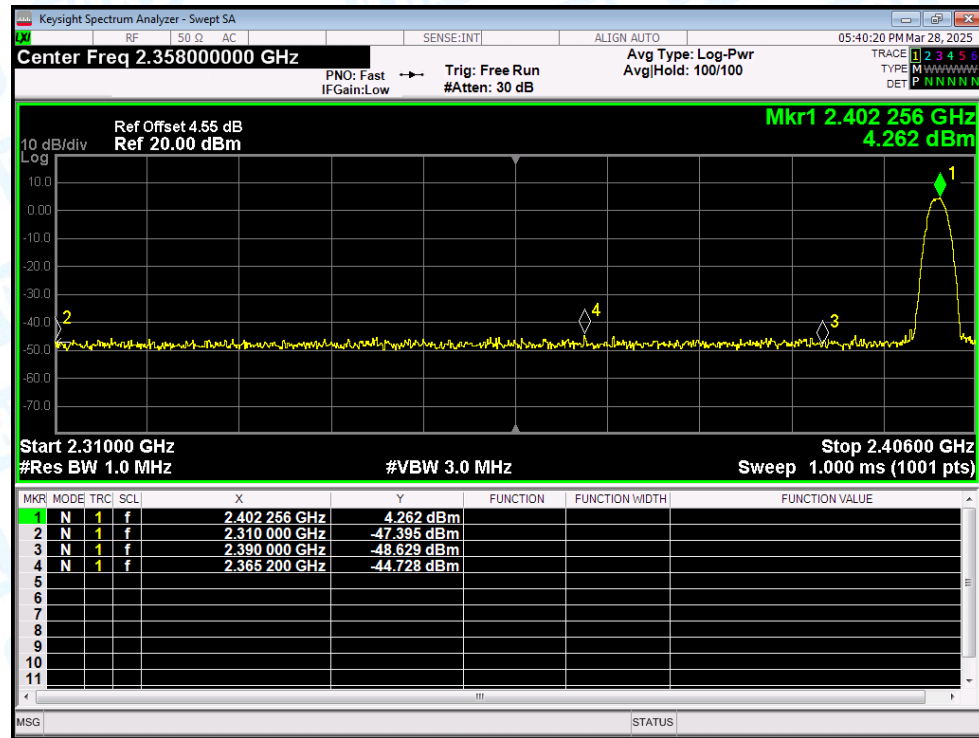
Restrict Band NVNT 1-DH1 2480MHz Ant1 No-Hopping Peak



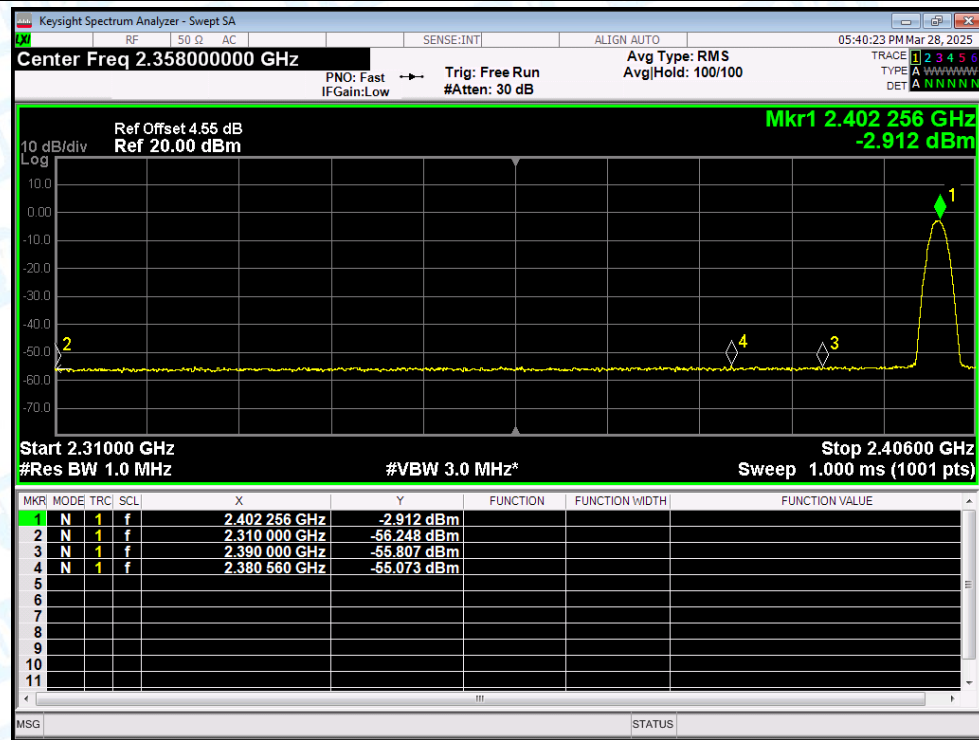
Restrict Band NVNT 1-DH1 2480MHz Ant1 No-Hopping Average



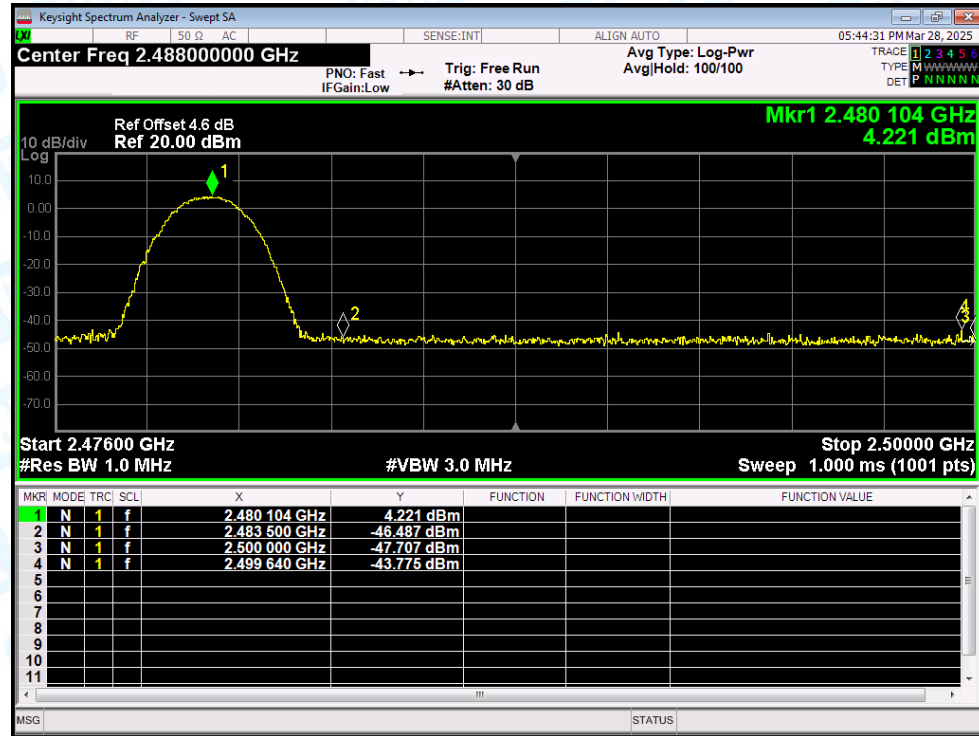
Restrict Band NVNT 2-DH1 2402MHz Ant1 No-Hopping Peak



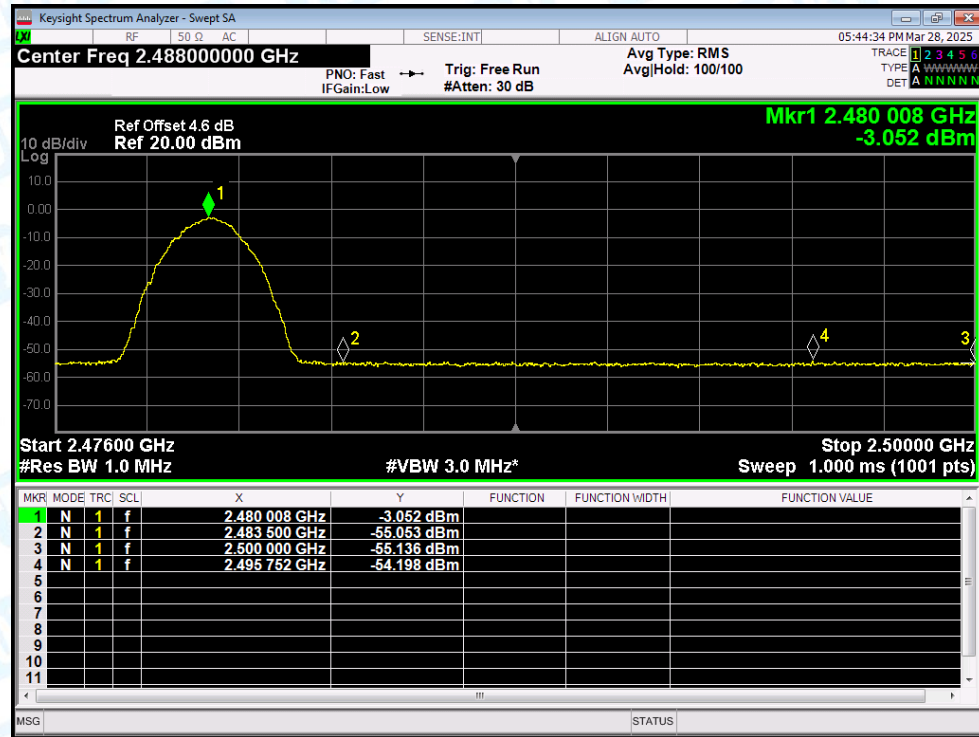
Restrict Band NVNT 2-DH1 2402MHz Ant1 No-Hopping Average



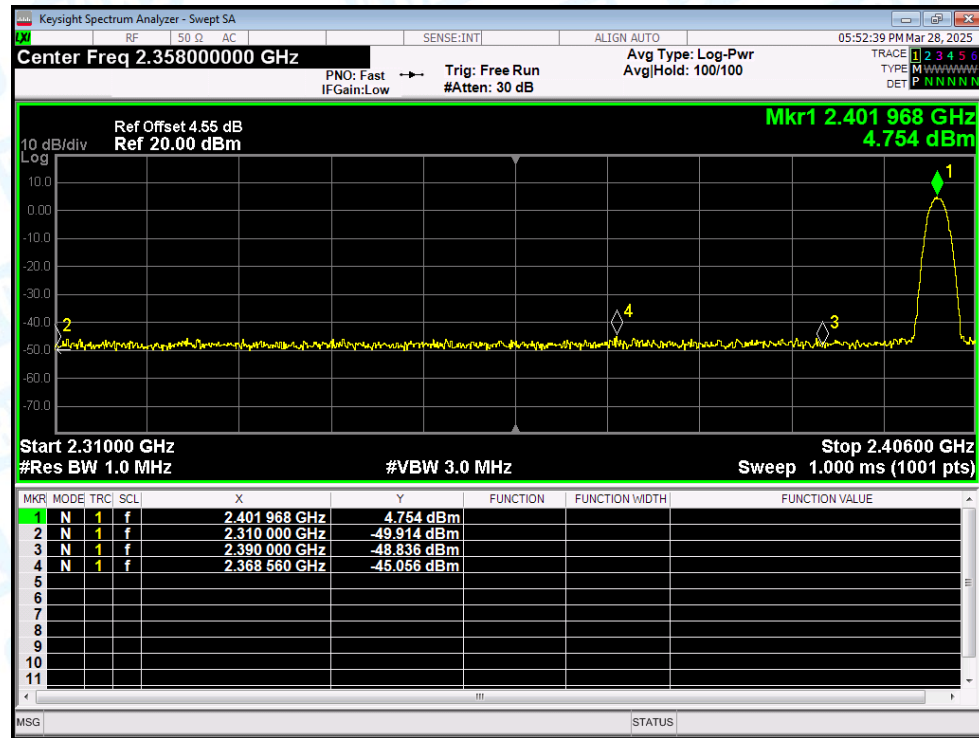
Restrict Band NVNT 2-DH1 2480MHz Ant1 No-Hopping Peak



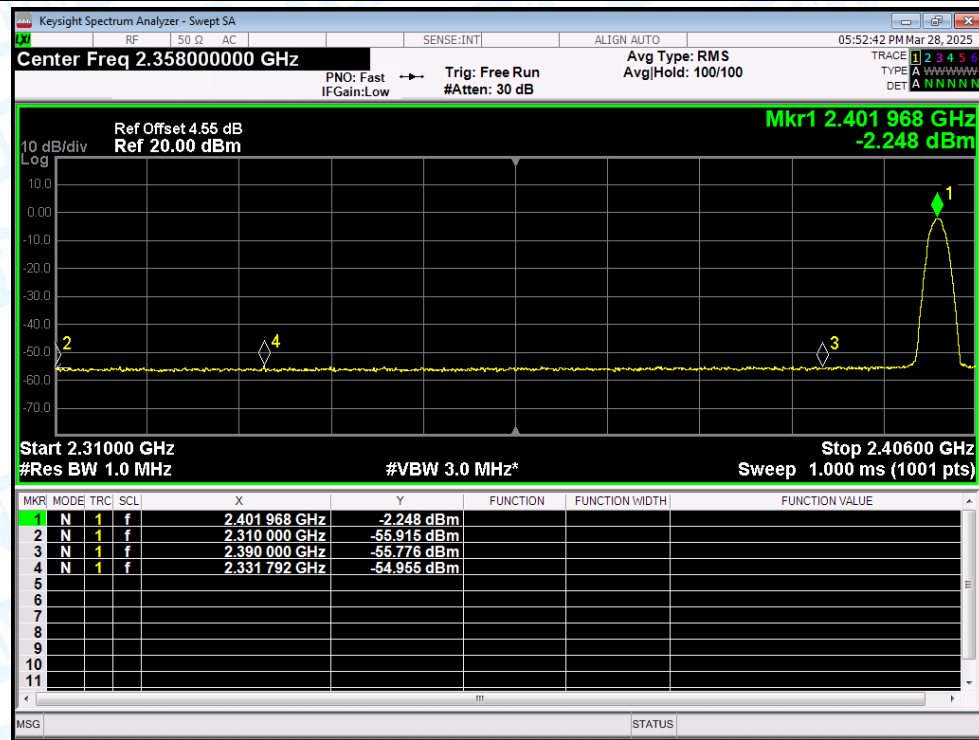
Restrict Band NVNT 2-DH1 2480MHz Ant1 No-Hopping Average



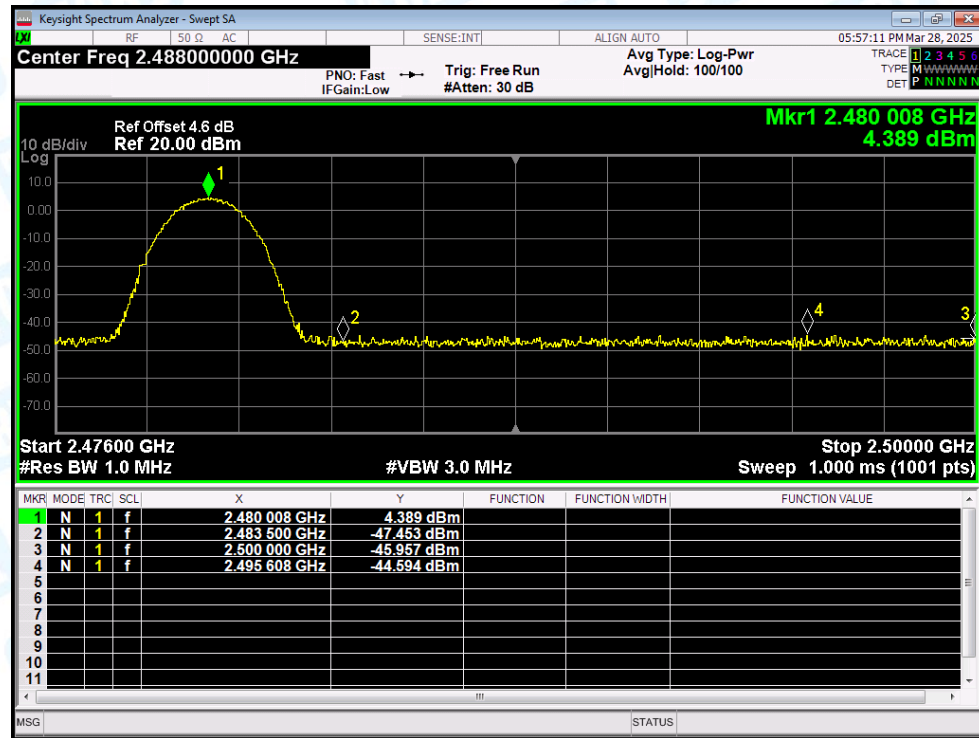
Restrict Band NVNT 3-DH1 2402MHz Ant1 No-Hopping Peak



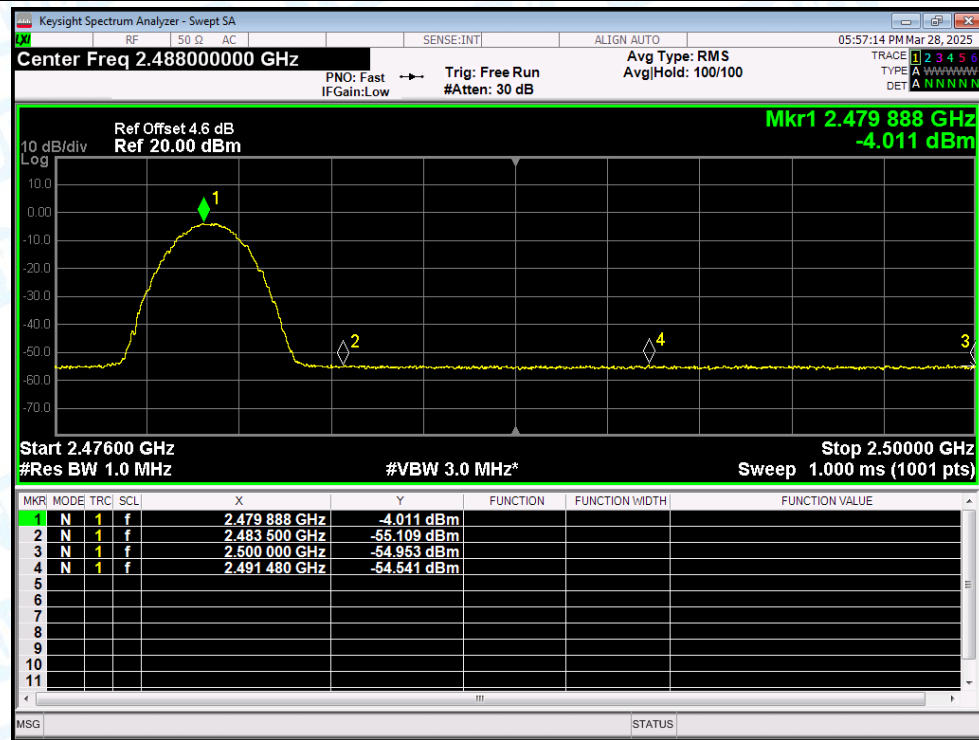
Restrict Band NVNT 3-DH1 2402MHz Ant1 No-Hopping Average



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



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

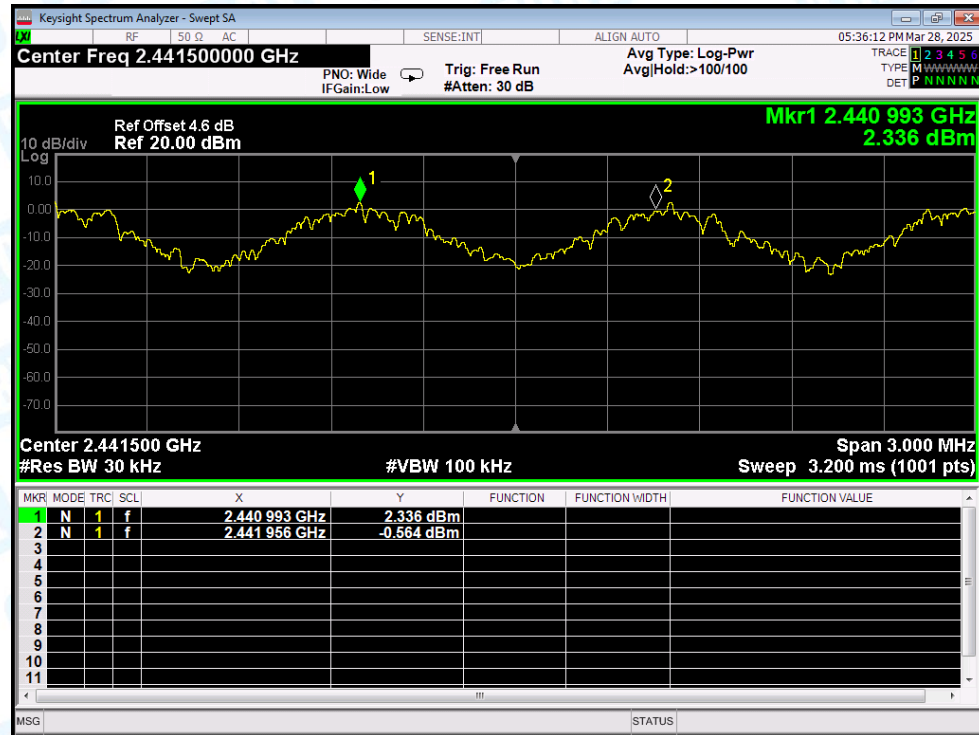


9. Carrier Frequencies Separation

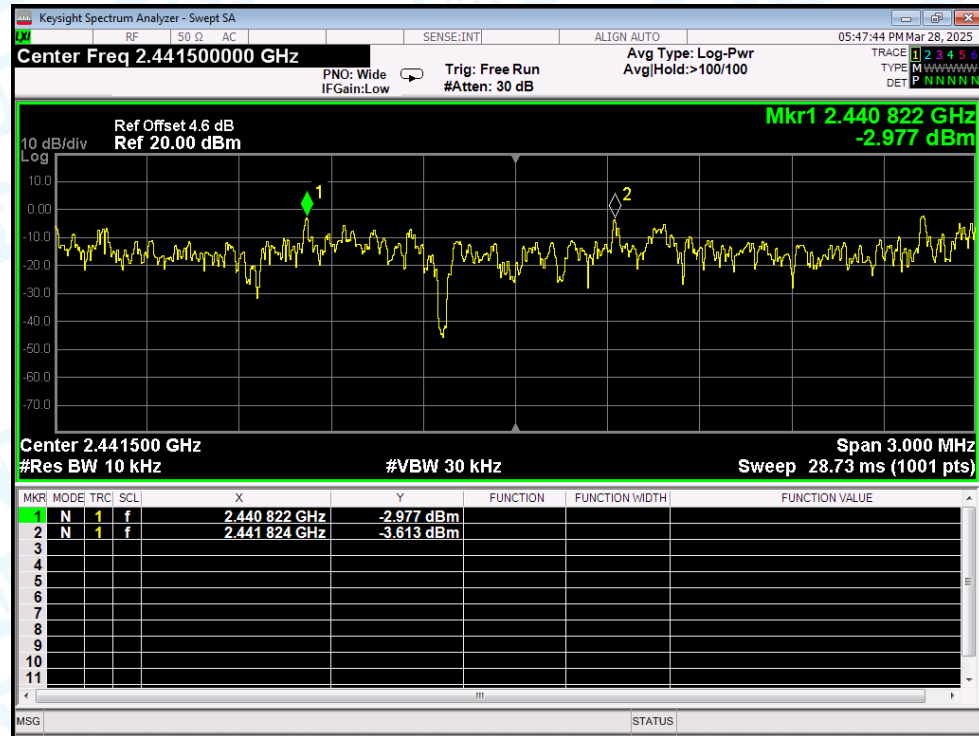
Condition	Mode	Antenna	Hopping Freq1 (MHz)	Hopping Freq2 (MHz)	HFS (MHz)	Limit (MHz)	Verdict
NVNT	1-DH1	Ant1	2440.993	2441.956	0.963	0.62	Pass
NVNT	2-DH1	Ant1	2440.822	2441.824	1.002	0.813	Pass
NVNT	3-DH1	Ant1	2440.945	2442.154	1.209	0.813	Pass

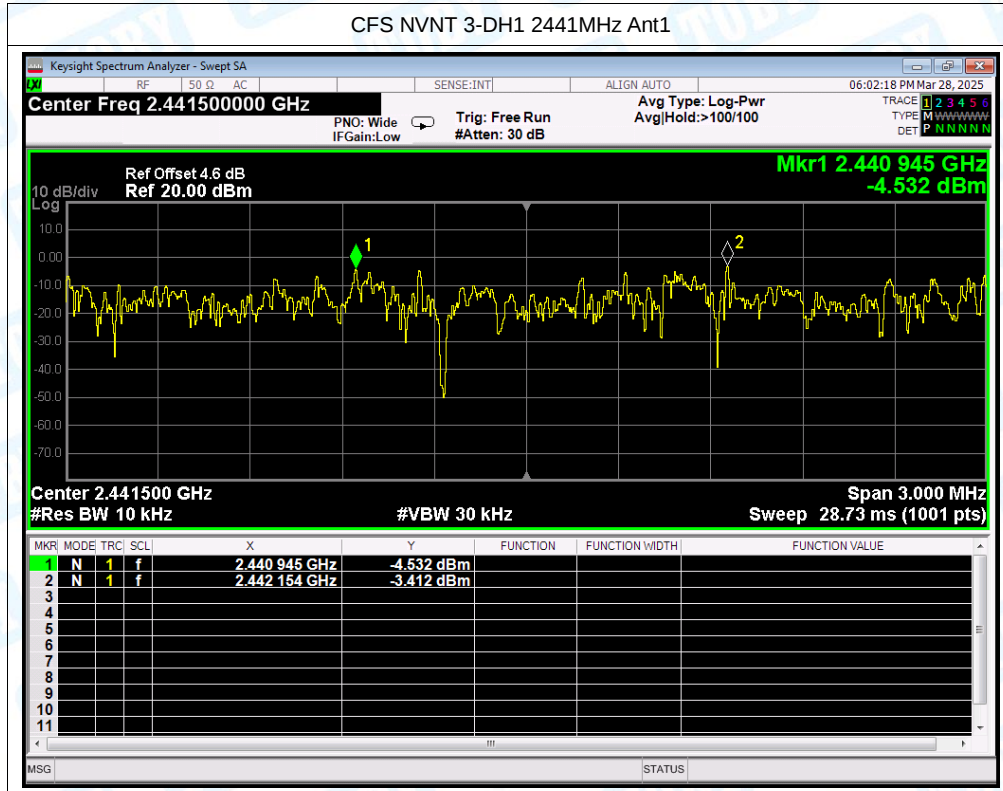
Test Graphs

CFS NVNT 1-DH1 2441MHz Ant1



CFS NVNT 2-DH1 2441MHz Ant1



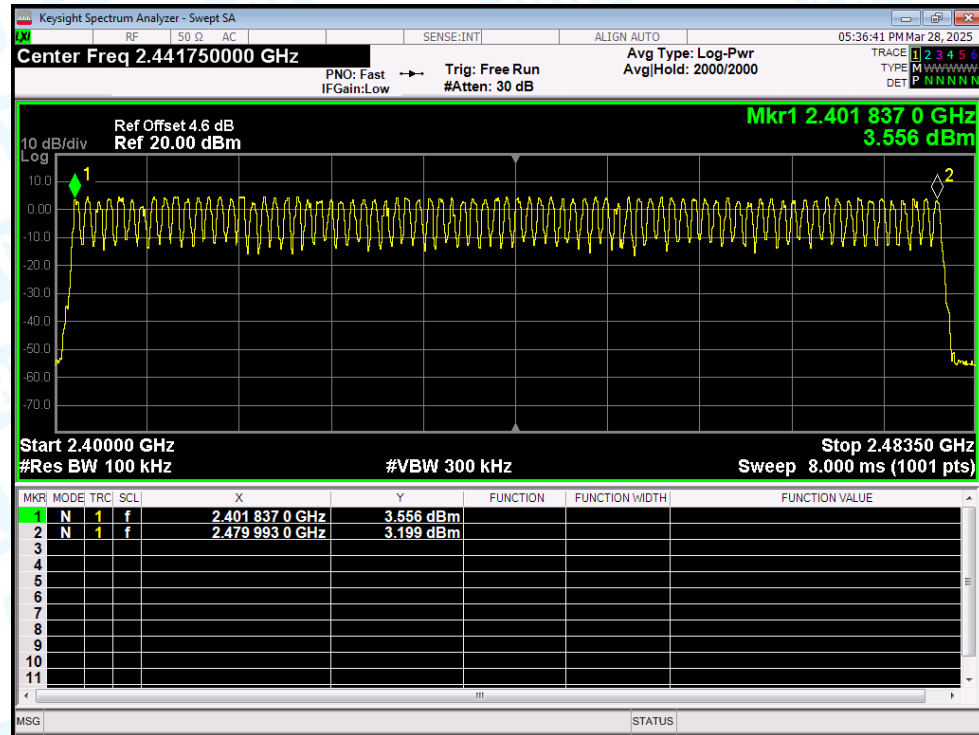


10. Number of Hopping Channel

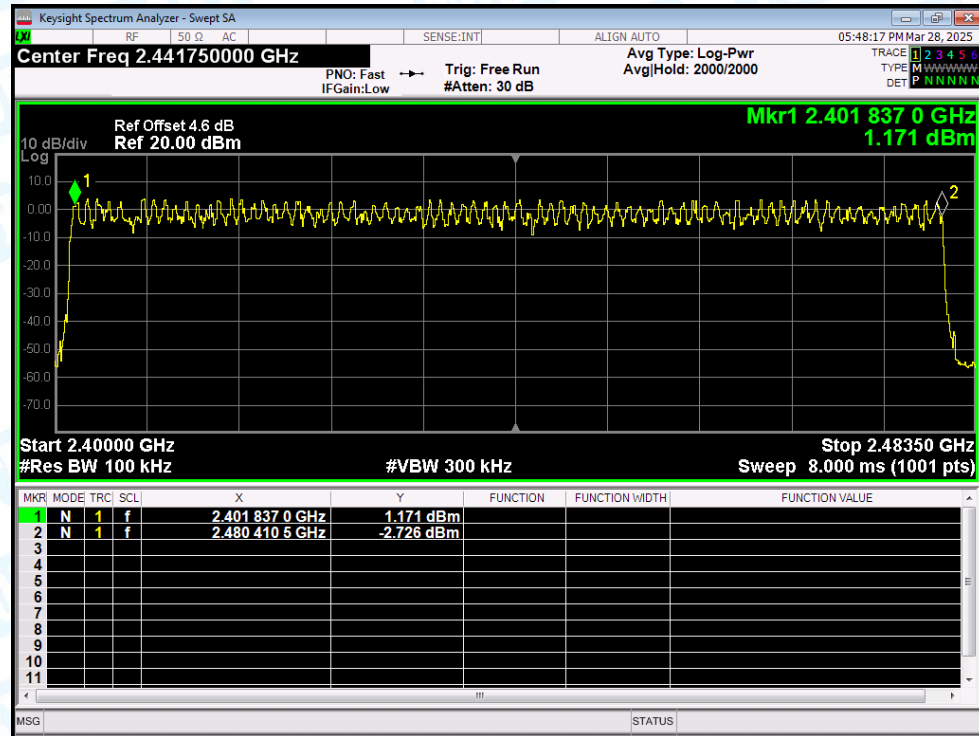
Condition	Mode	Antenna	Hopping Number	Limit	Verdict
NVNT	1-DH1	Ant1	79	15	Pass
NVNT	2-DH1	Ant1	79	15	Pass
NVNT	3-DH1	Ant1	79	15	Pass

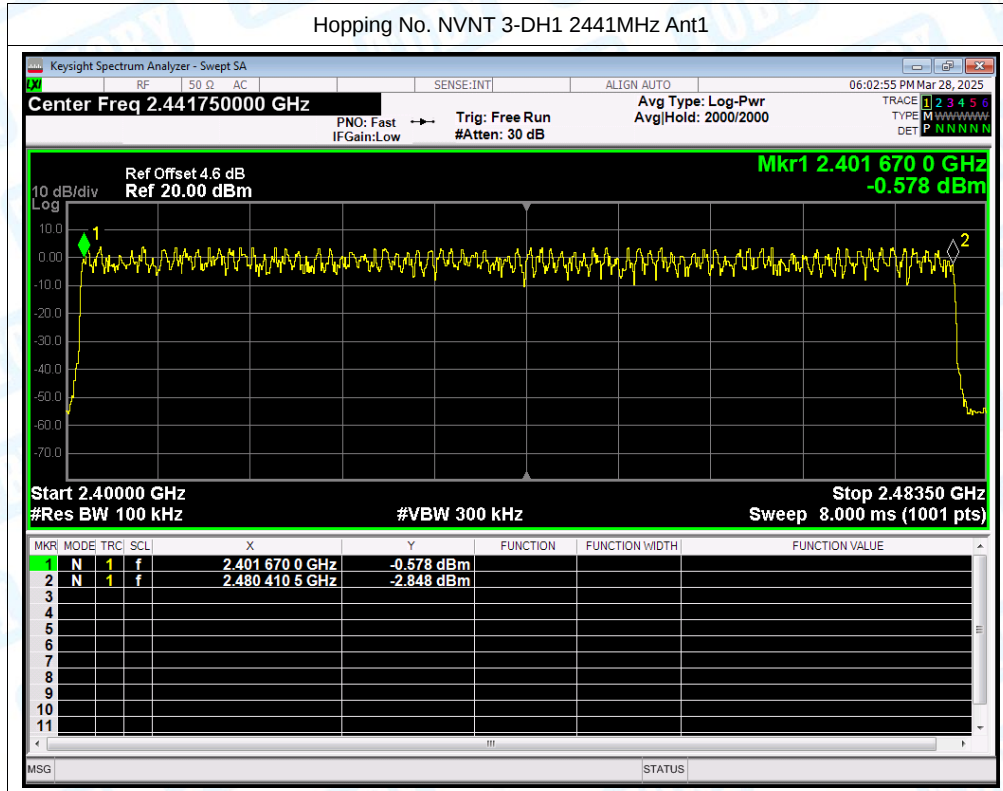
Test Graphs

Hopping No. NVNT 1-DH1 2441MHz Ant1



Hopping No. NVNT 2-DH1 2441MHz Ant1



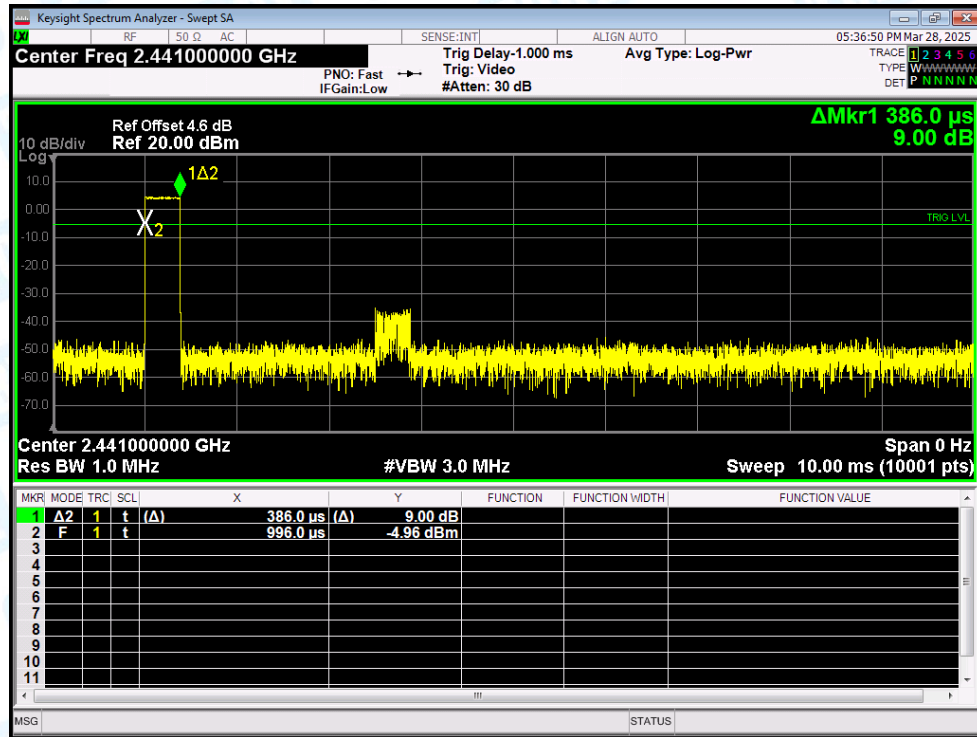


11. Dwell Time

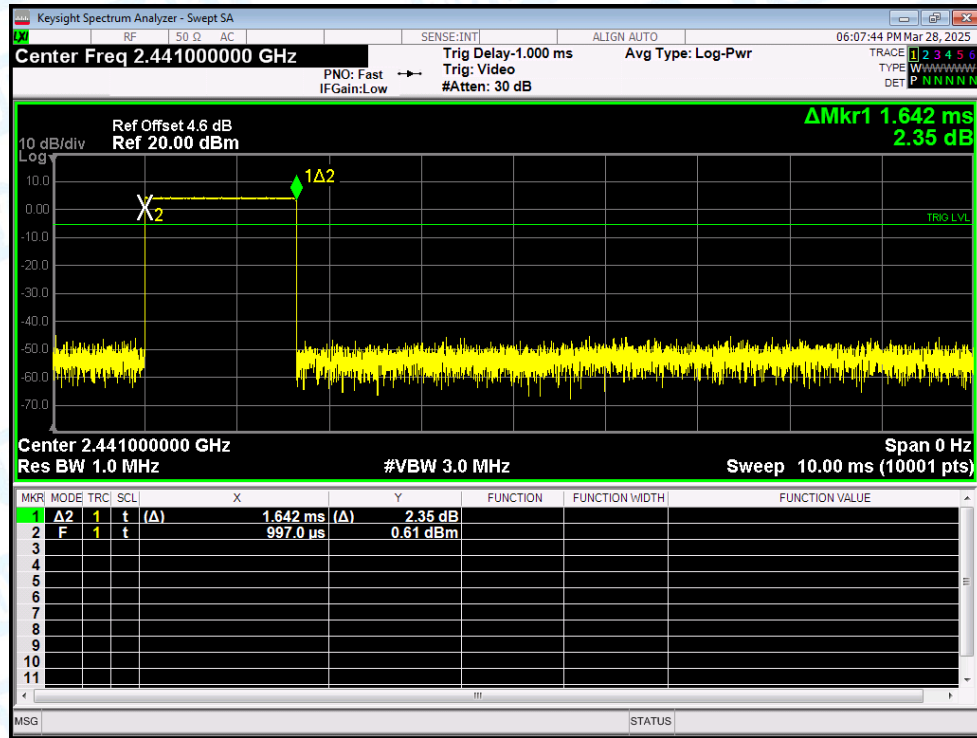
Condition	Mode	Frequency (MHz)	Antenna	Pulse Time (ms)	Total Dwell Time (ms)	Period Time (ms)	Limit (ms)	Verdict
NVNT	1-DH1	2441	Ant1	0.386	123.52	31600	400	Pass
NVNT	1-DH3	2441	Ant1	1.642	262.72	31600	400	Pass
NVNT	1-DH5	2441	Ant1	2.89	308.267	31600	400	Pass
NVNT	2-DH1	2441	Ant1	0.395	126.4	31600	400	Pass
NVNT	2-DH3	2441	Ant1	1.646	263.36	31600	400	Pass
NVNT	2-DH5	2441	Ant1	2.895	308.8	31600	400	Pass
NVNT	3-DH1	2441	Ant1	0.394	126.08	31600	400	Pass
NVNT	3-DH3	2441	Ant1	1.646	263.36	31600	400	Pass
NVNT	3-DH5	2441	Ant1	2.896	308.907	31600	400	Pass

Test Graphs

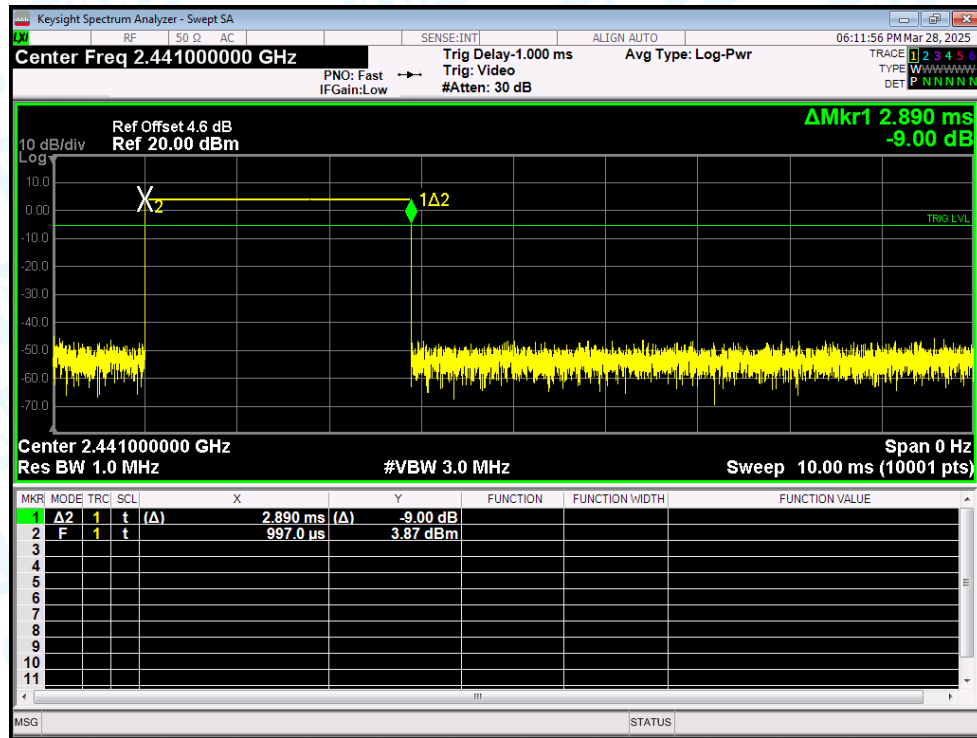
Dwell NVNT 1-DH1 2441MHz Ant1



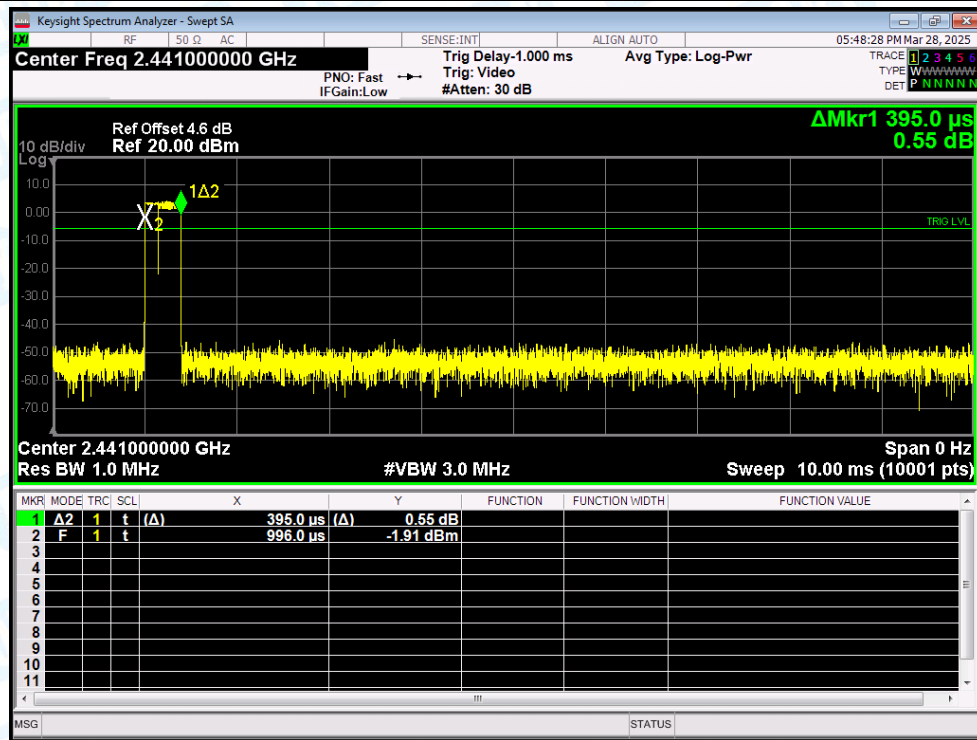
Dwell NVNT 1-DH3 2441MHz Ant1



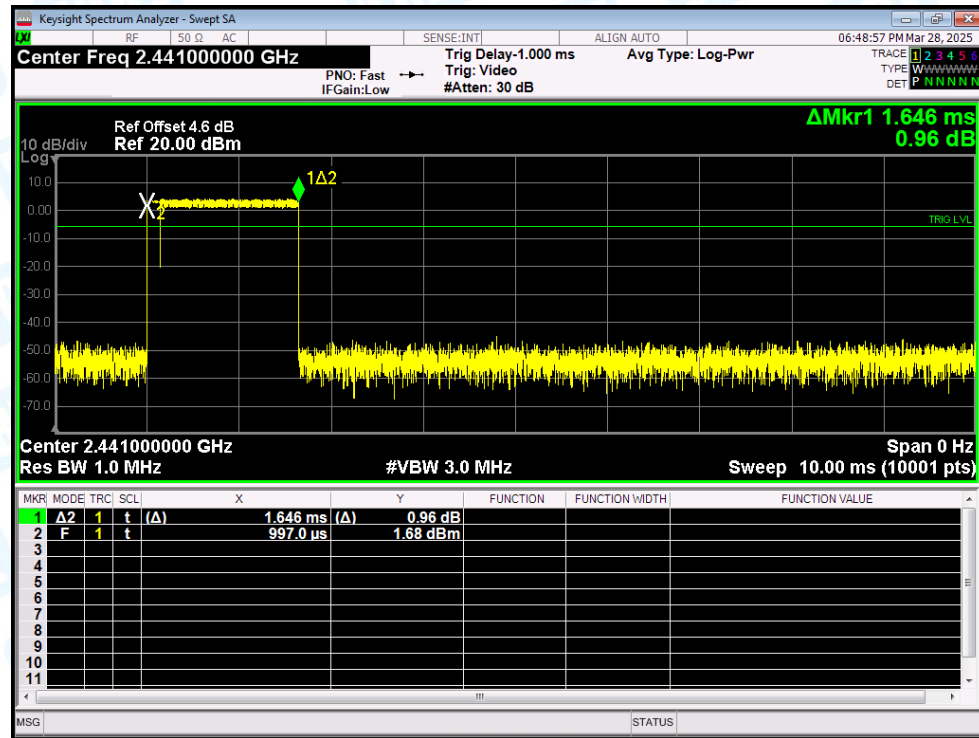
Dwell NVNT 1-DH5 2441MHz Ant1



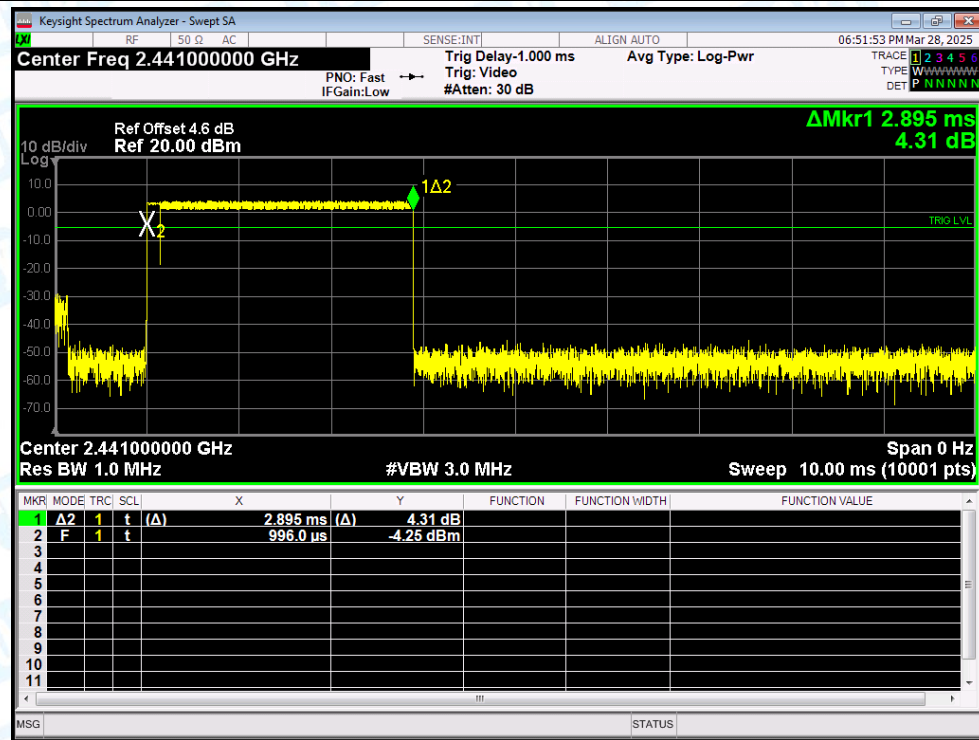
Dwell NVNT 2-DH1 2441MHz Ant1



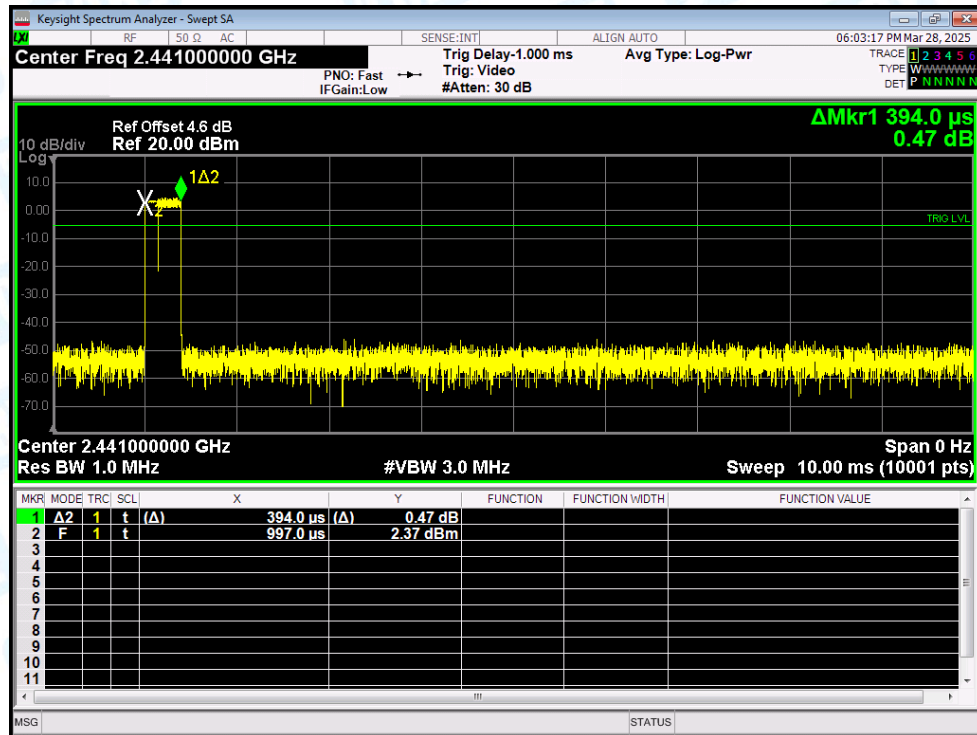
Dwell NVNT 2-DH3 2441MHz Ant1



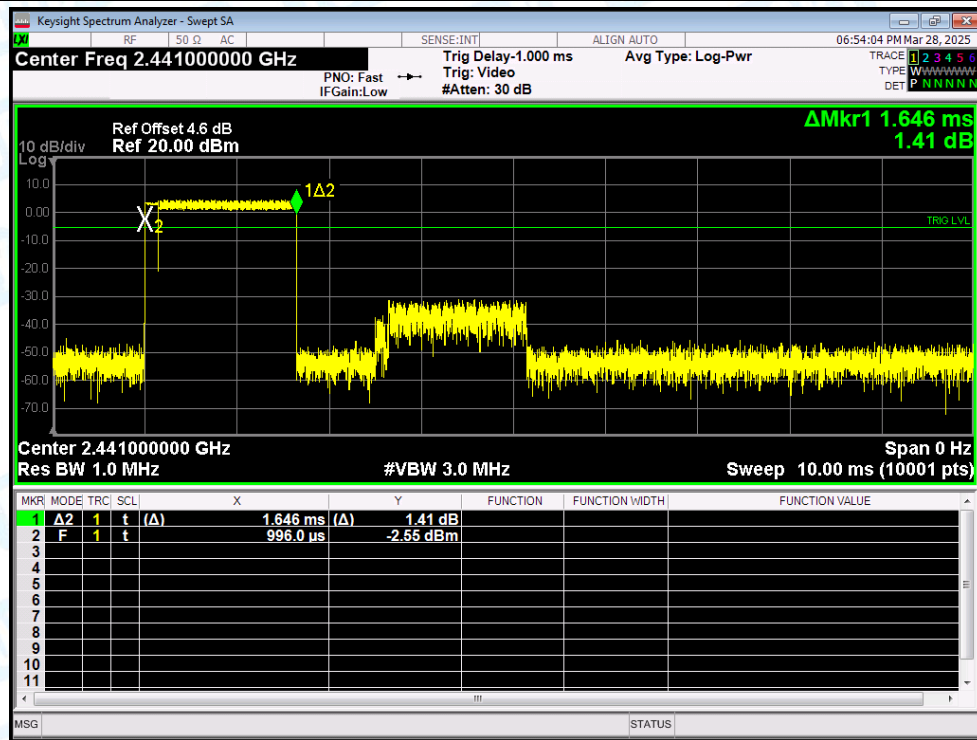
Dwell NVNT 2-DH5 2441MHz Ant1

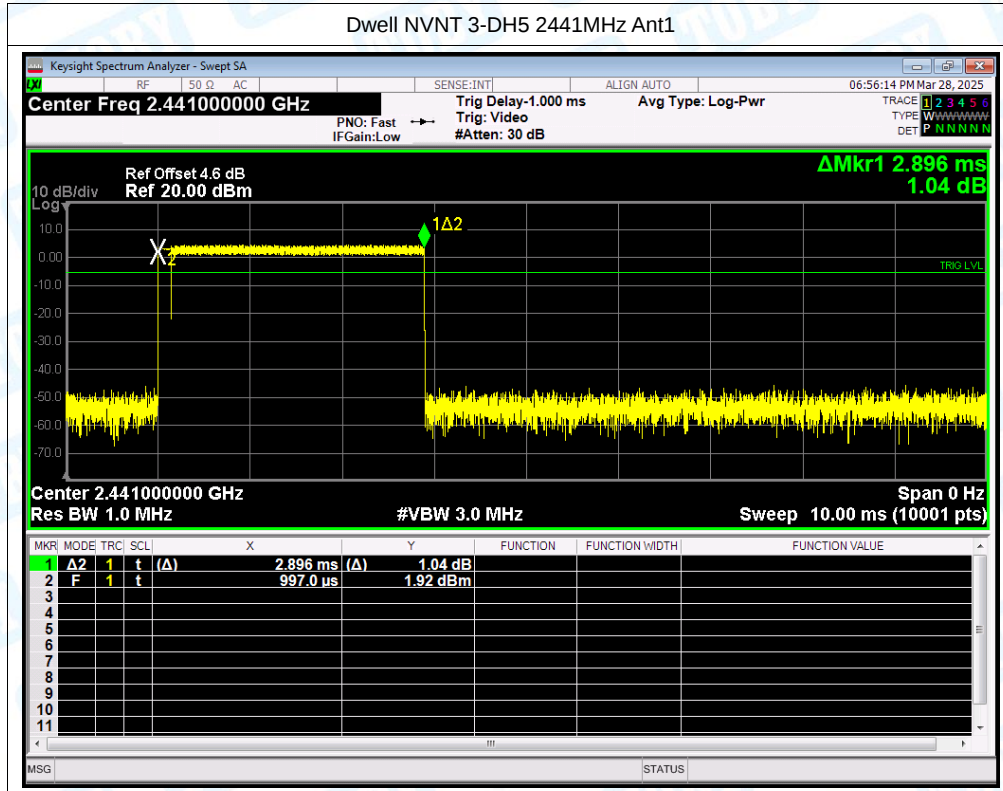


Dwell NVNT 3-DH1 2441MHz Ant1



Dwell NVNT 3-DH3 2441MHz Ant1





--- END OF REPORT ---