

RF Test Data for Bluetooth (Conducted Measurements)

General Description of EUT	
Product Name:	SMART WATCH
Test Model:	K69
Sample ID:	HC-C-202412-0021-01-01
Environmental Conditions	
Temperature:	25.6℃
Relative Humidity:	56.2%
Test Voltage:	DC 3.8V
Test Engineer:	Rick.Chen
Note: For a more detailed features description, please refer to the report TBR-C-202412-0021-16 The report only show the worst case data.	

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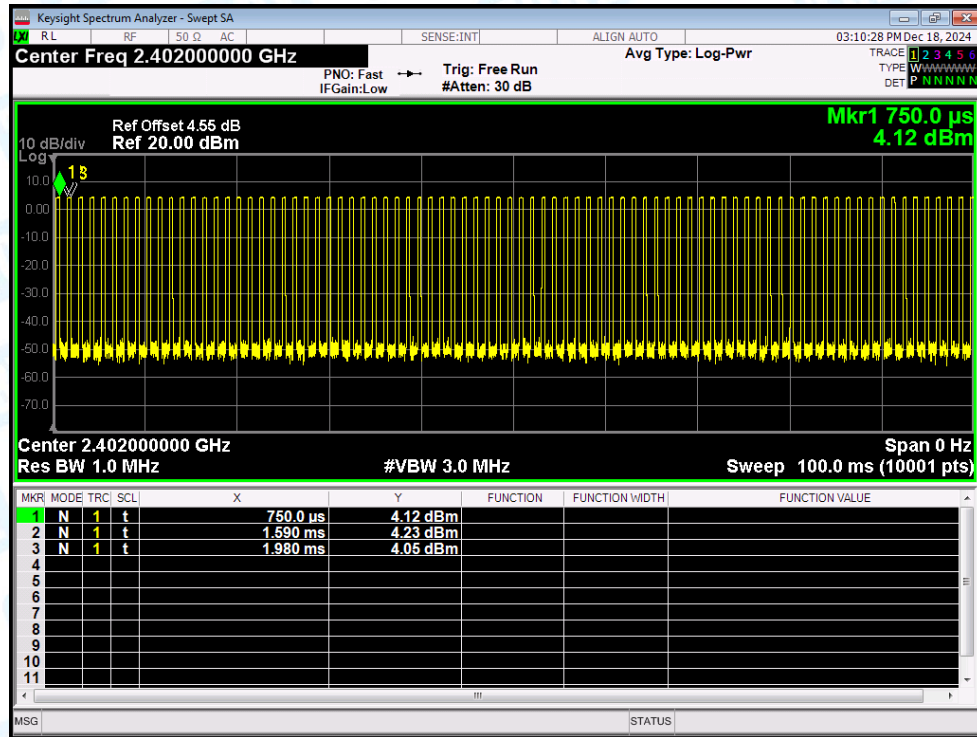
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1. Duty Cycle

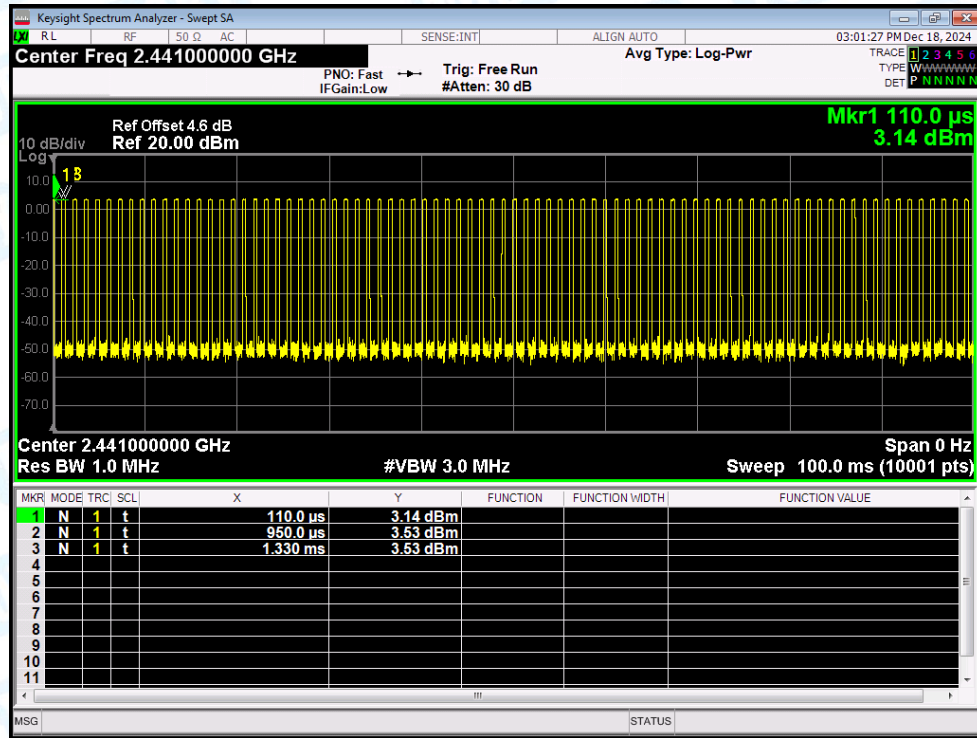
Condition	Mode	Frequency (MHz)	Antenna	Duty Cycle (%)	Correction Factor (dB)	1/T (kHz)
NVNT	1-DH1	2402	Ant1	31.71	4.99	2.56
NVNT	1-DH1	2441	Ant1	31.15	5.07	2.63
NVNT	1-DH1	2480	Ant1	31.71	4.99	2.56
NVNT	2-DH1	2402	Ant1	31.45	5.02	2.56
NVNT	2-DH1	2441	Ant1	31.45	5.02	2.56
NVNT	2-DH1	2480	Ant1	31.71	4.99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

Test Graphs

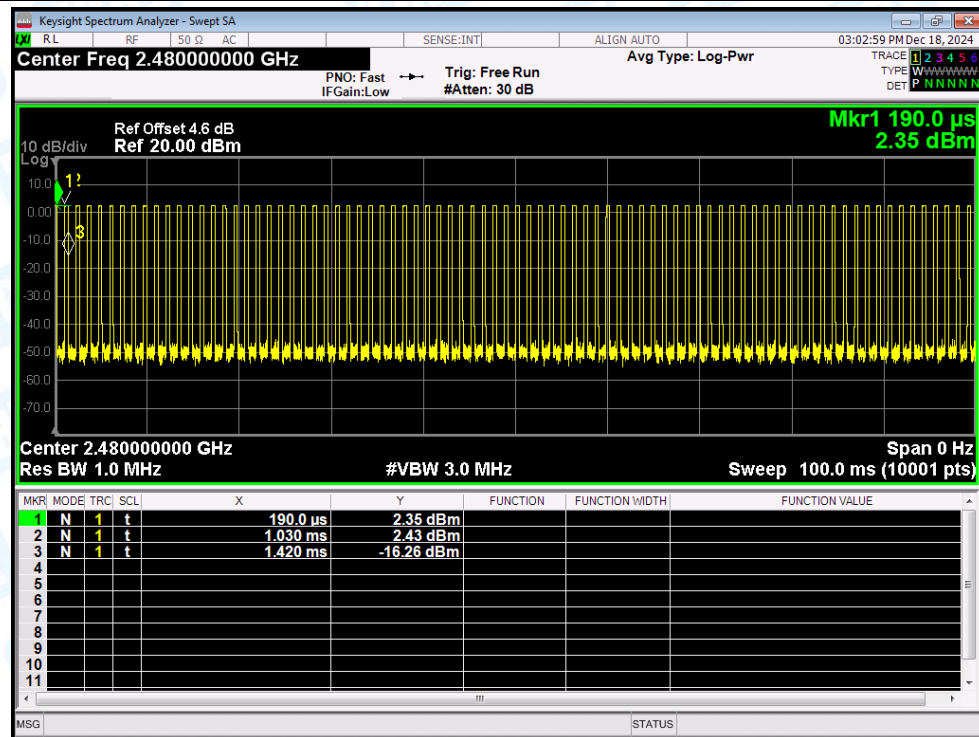
Duty Cycle NVNT 1-DH1 2402MHz Ant1



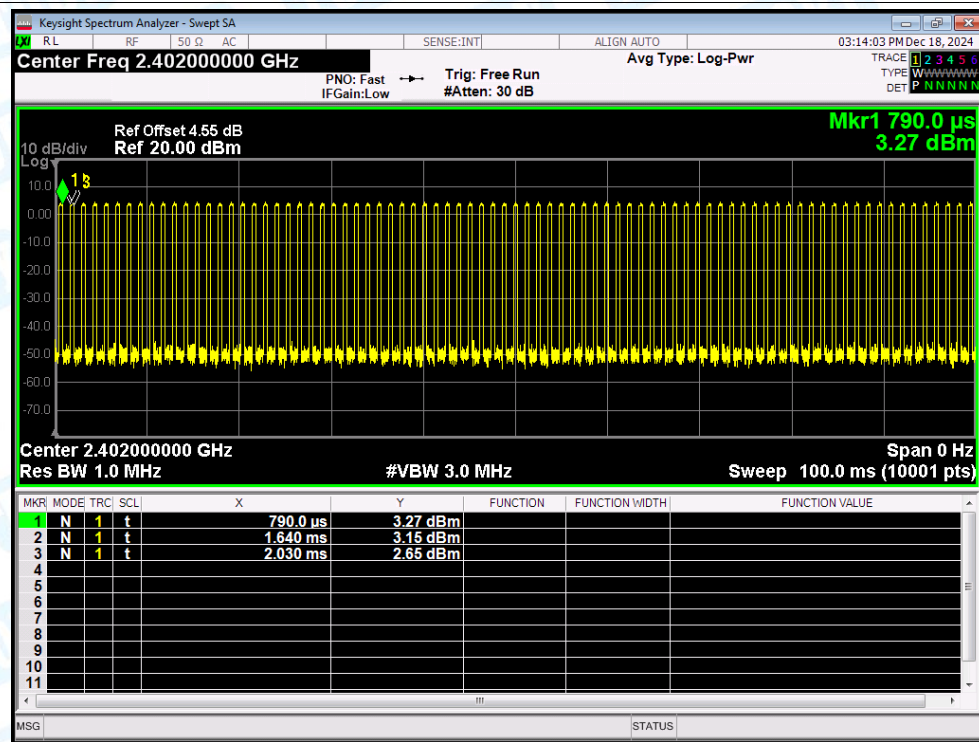
Duty Cycle NVNT 1-DH1 2441MHz Ant1



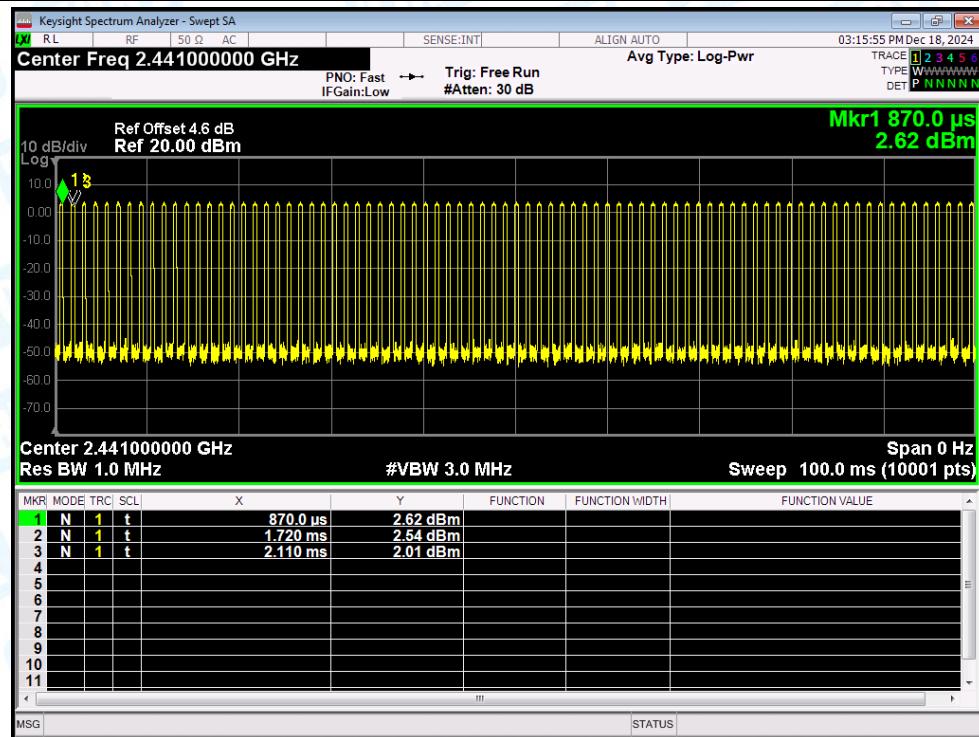
Duty Cycle NVNT 1-DH1 2480MHz Ant1



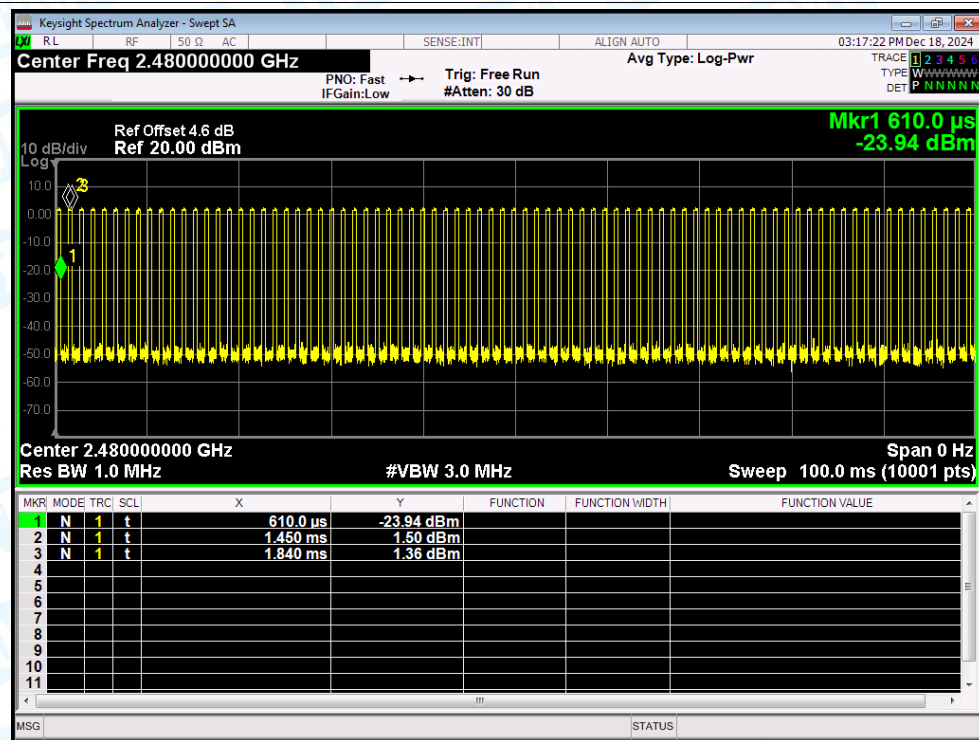
Duty Cycle NVNT 2-DH1 2402MHz Ant1



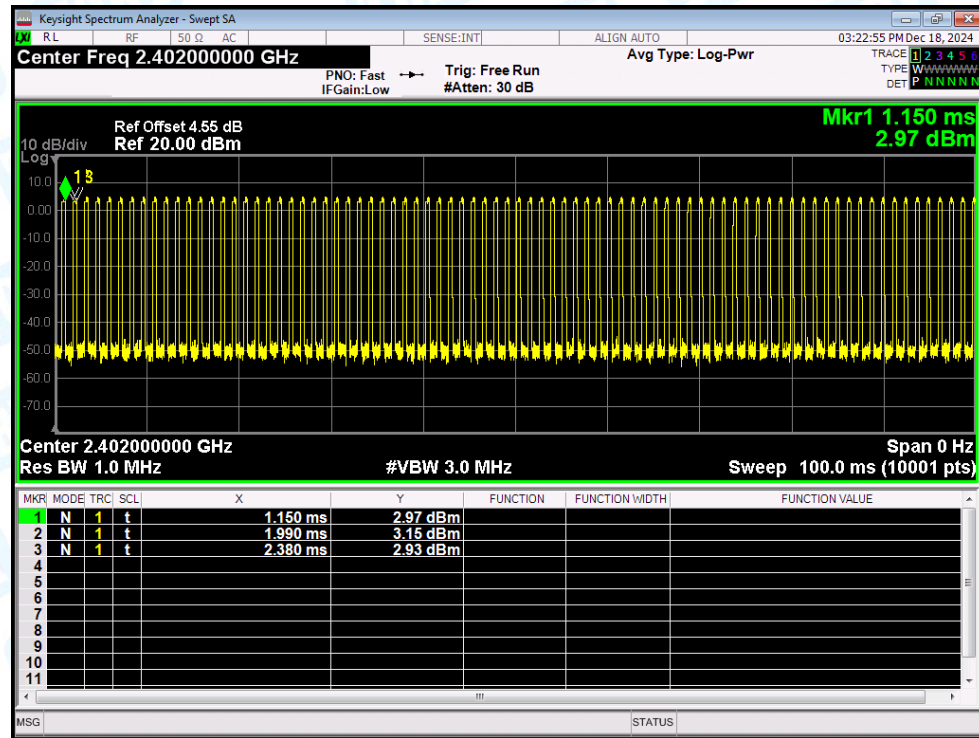
Duty Cycle NVNT 2-DH1 2441MHz Ant1



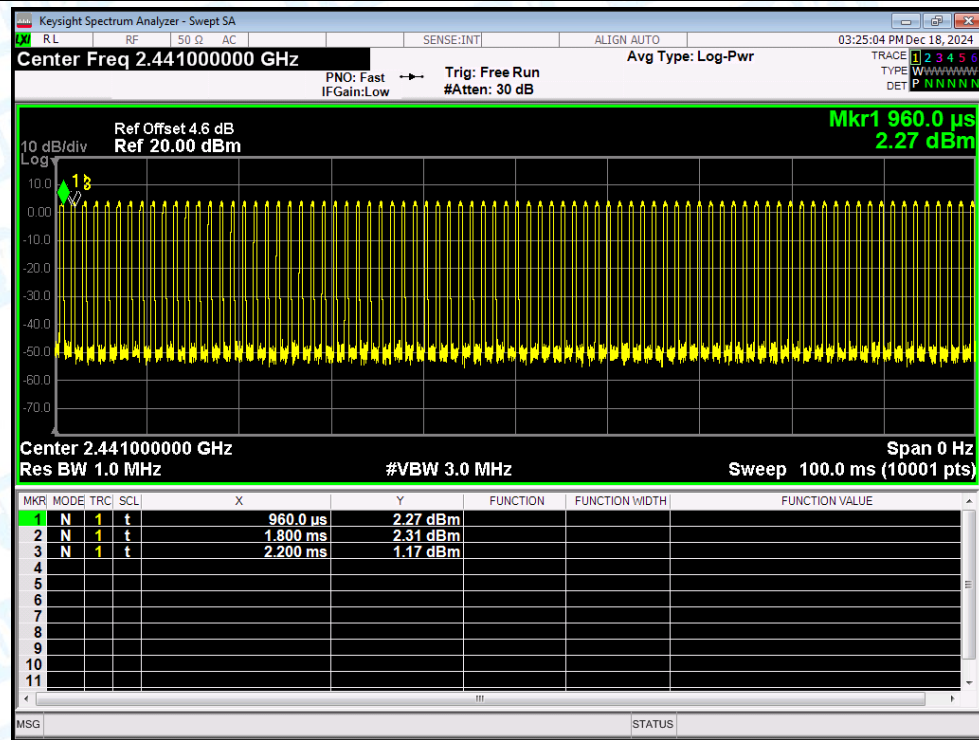
Duty Cycle NVNT 2-DH1 2480MHz Ant1

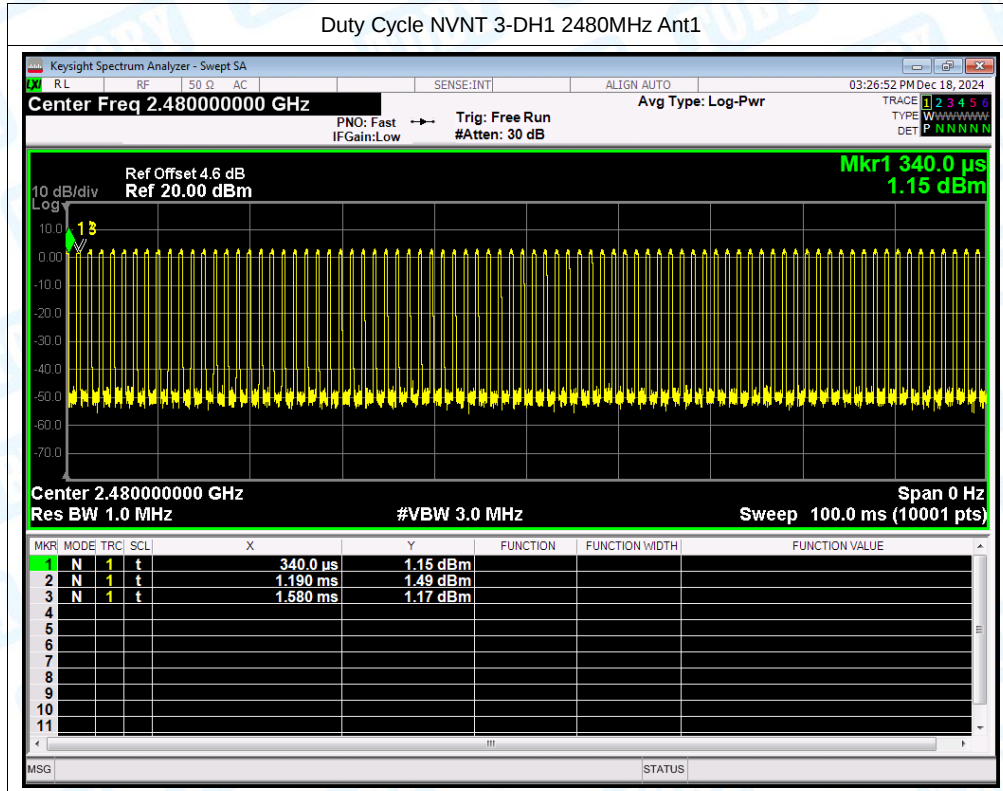


Duty Cycle NVNT 3-DH1 2402MHz Ant1



Duty Cycle NVNT 3-DH1 2441MHz Ant1



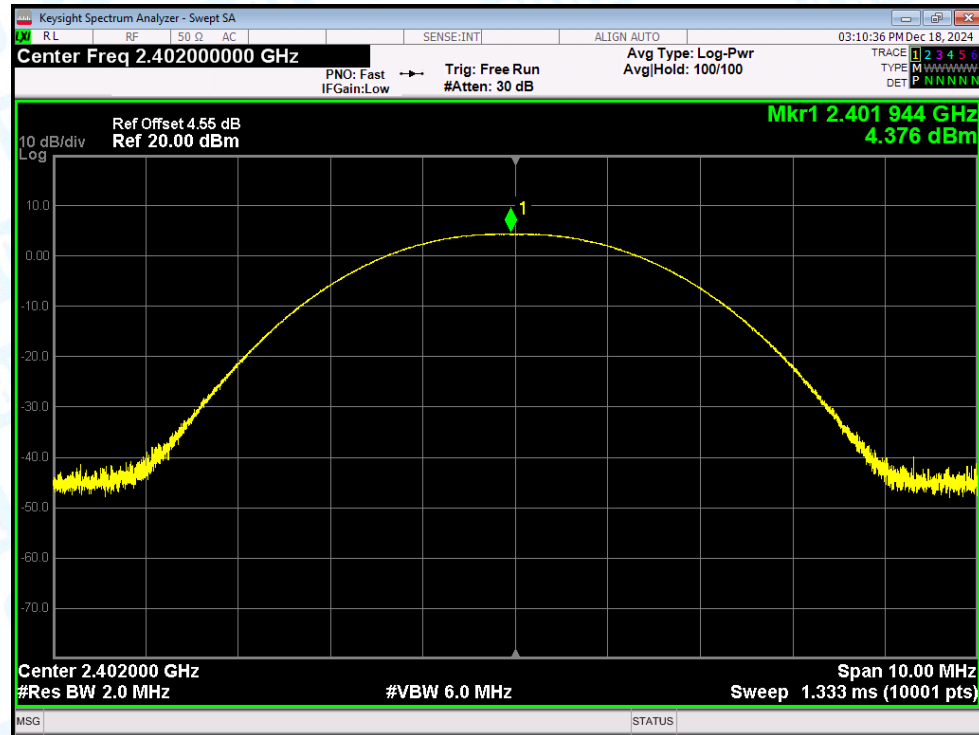


2. Maximum Conducted Output Power

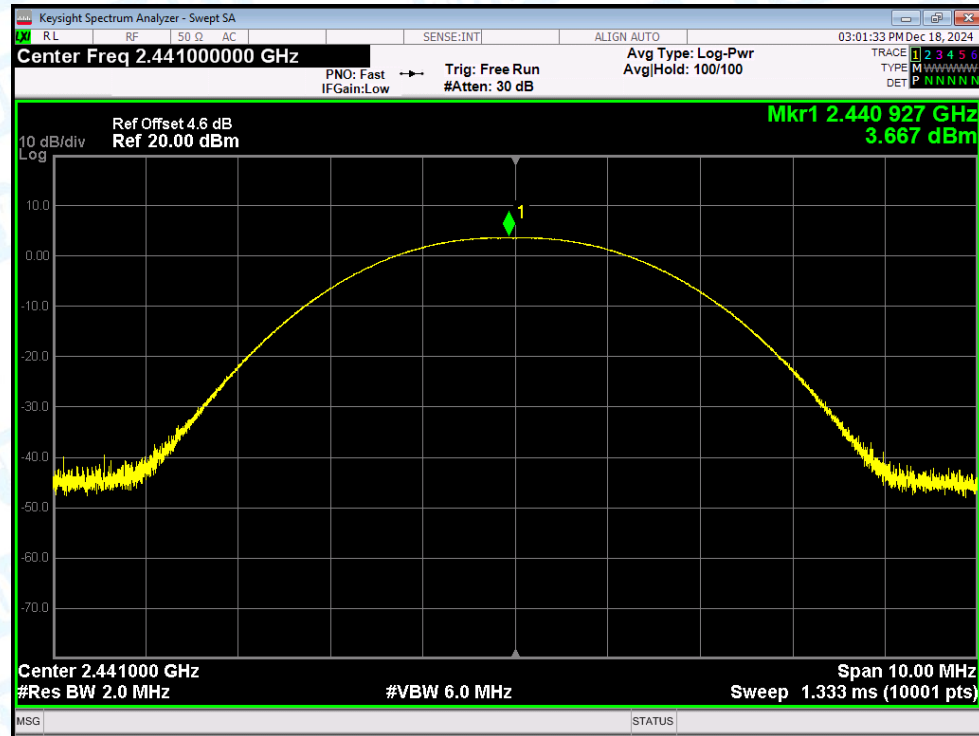
Condition	Mode	Frequency (MHz)	Antenna	Total Power (dBm)	Limit (dBm)	Verdict
NVNT	1-DH1	2402	Ant1	4.376	21	Pass
NVNT	1-DH1	2441	Ant1	3.667	21	Pass
NVNT	1-DH1	2480	Ant1	2.53	21	Pass
NVNT	2-DH1	2402	Ant1	4.71	21	Pass
NVNT	2-DH1	2441	Ant1	4.071	21	Pass
NVNT	2-DH1	2480	Ant1	2.881	21	Pass
NVNT	3-DH1	2402	Ant1	5.13	21	Pass
NVNT	3-DH1	2441	Ant1	4.501	21	Pass
NVNT	3-DH1	2480	Ant1	3.363	21	Pass

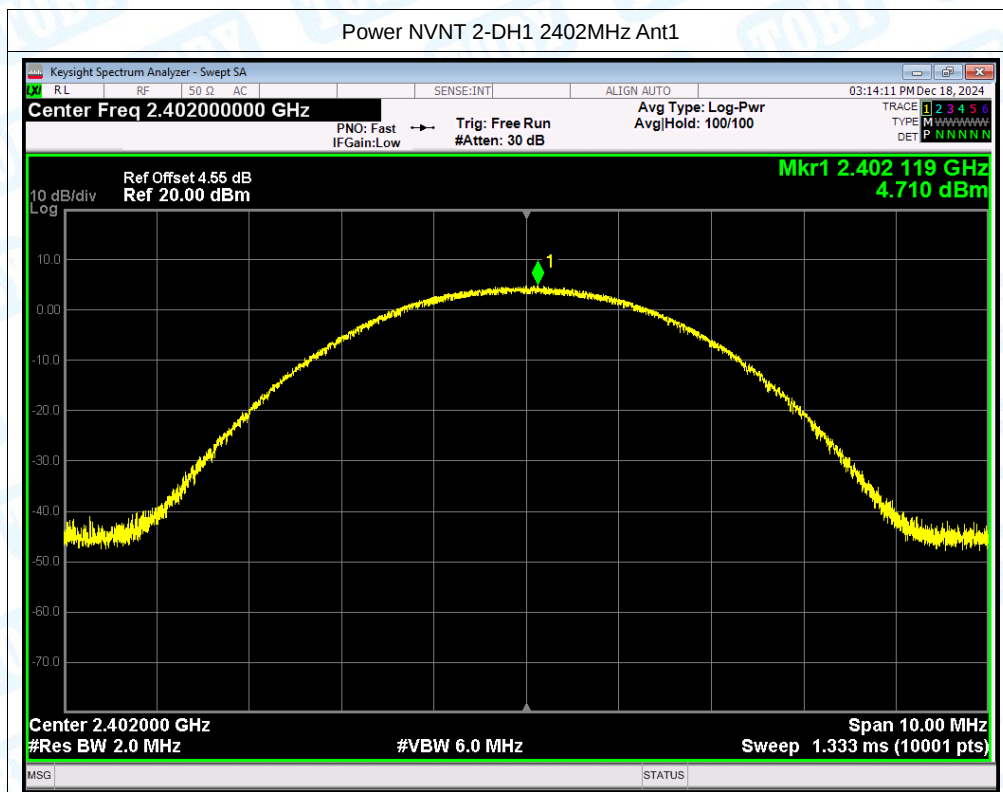
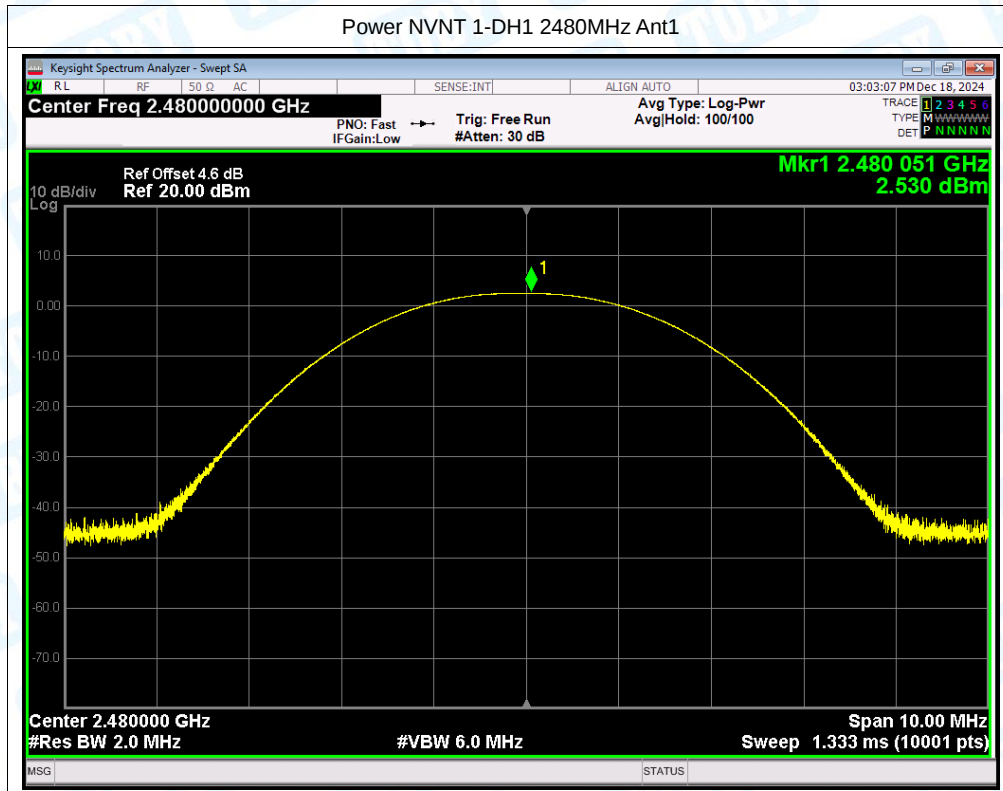
Test Graphs

Power NVNT 1-DH1 2402MHz Ant1

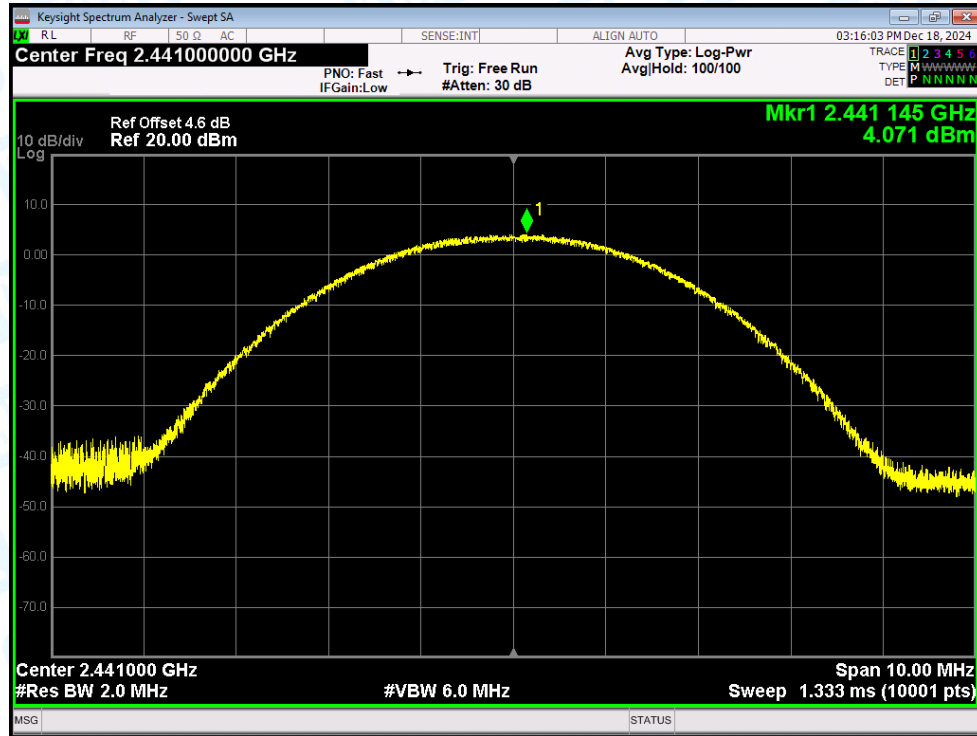


Power NVNT 1-DH1 2441MHz Ant1

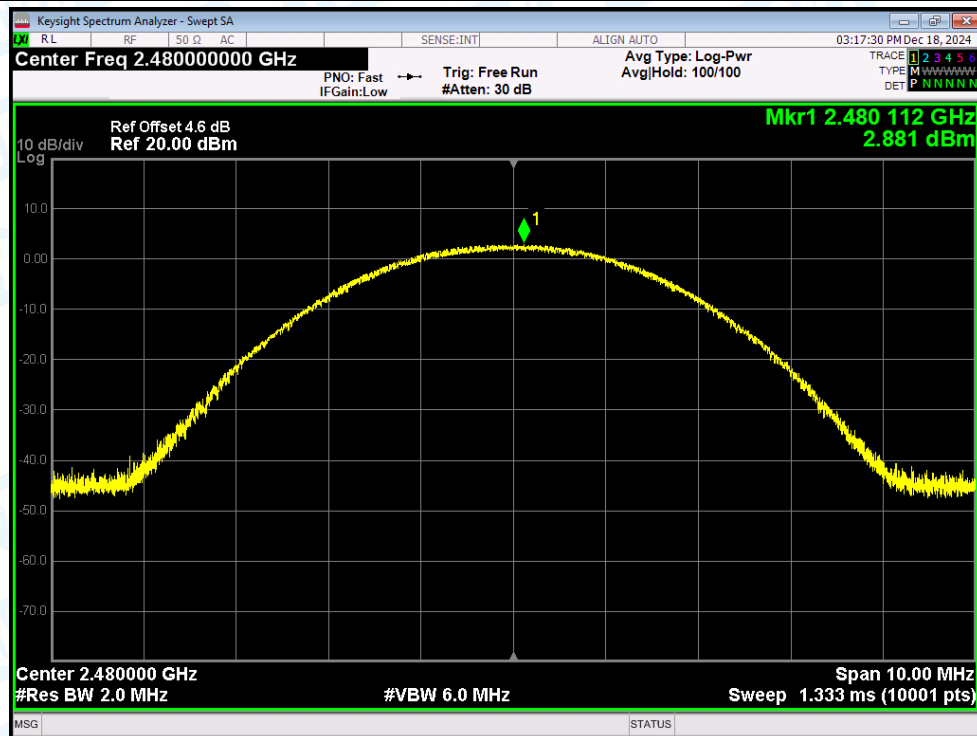




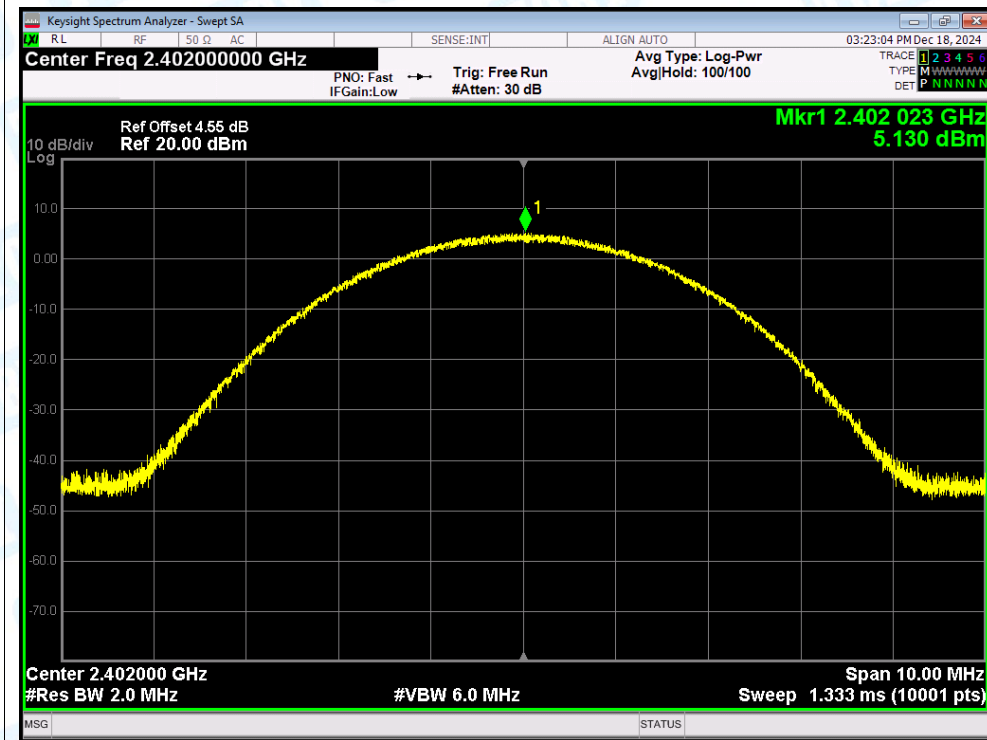
Power NVNT 2-DH1 2441MHz Ant1



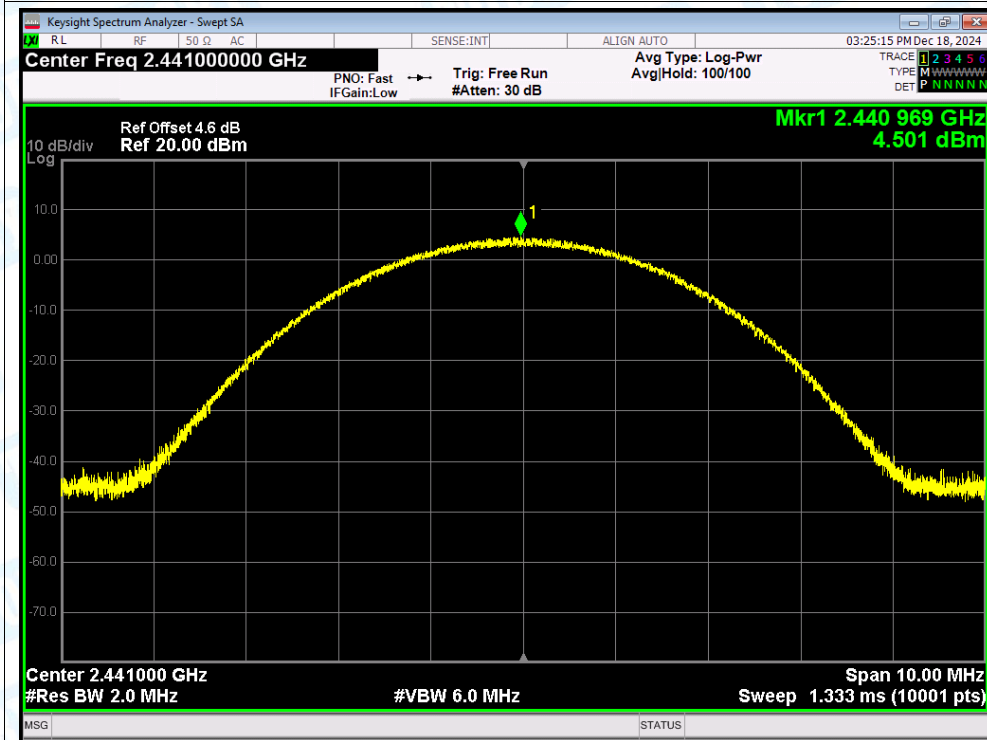
Power NVNT 2-DH1 2480MHz Ant1

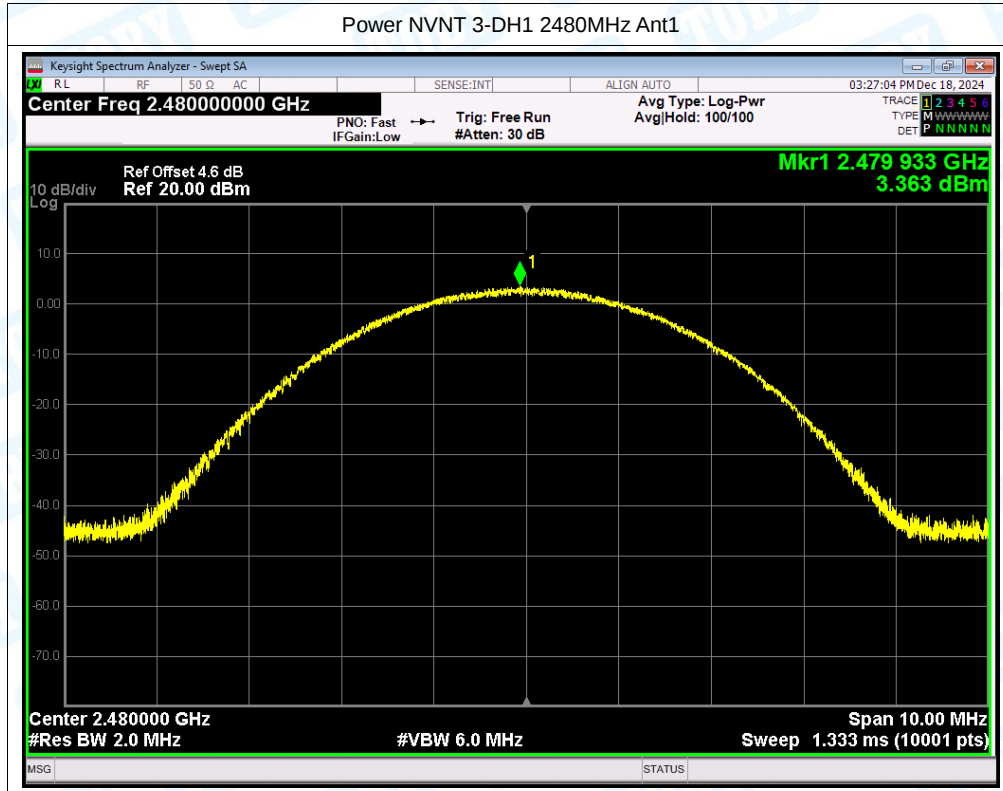


Power NVNT 3-DH1 2402MHz Ant1



Power NVNT 3-DH1 2441MHz Ant1



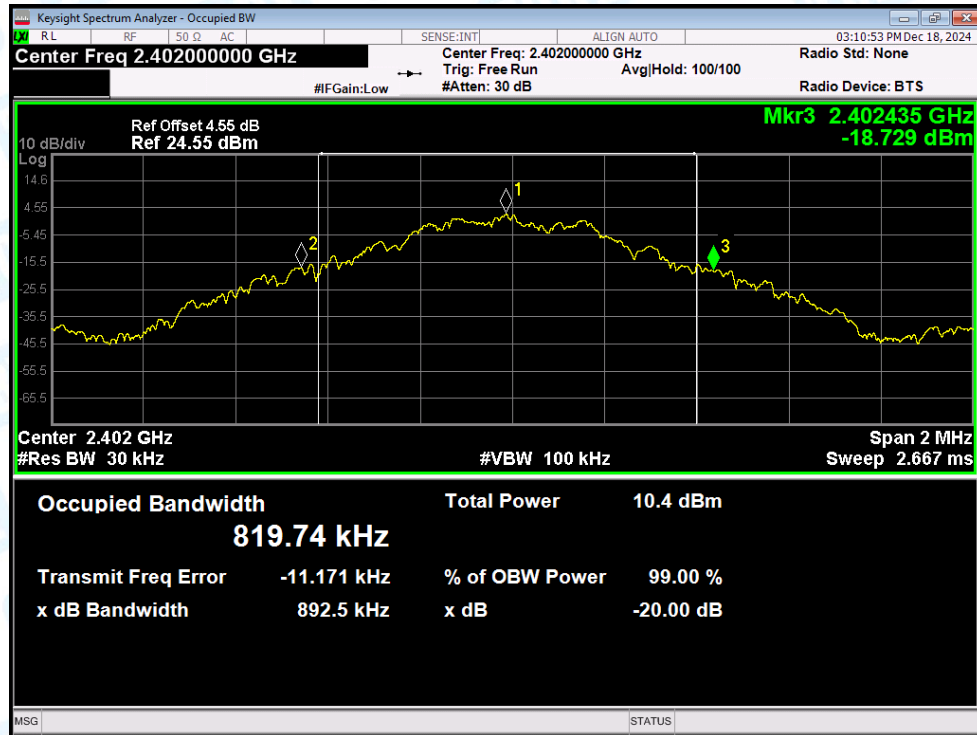


3. -20dB Bandwidth

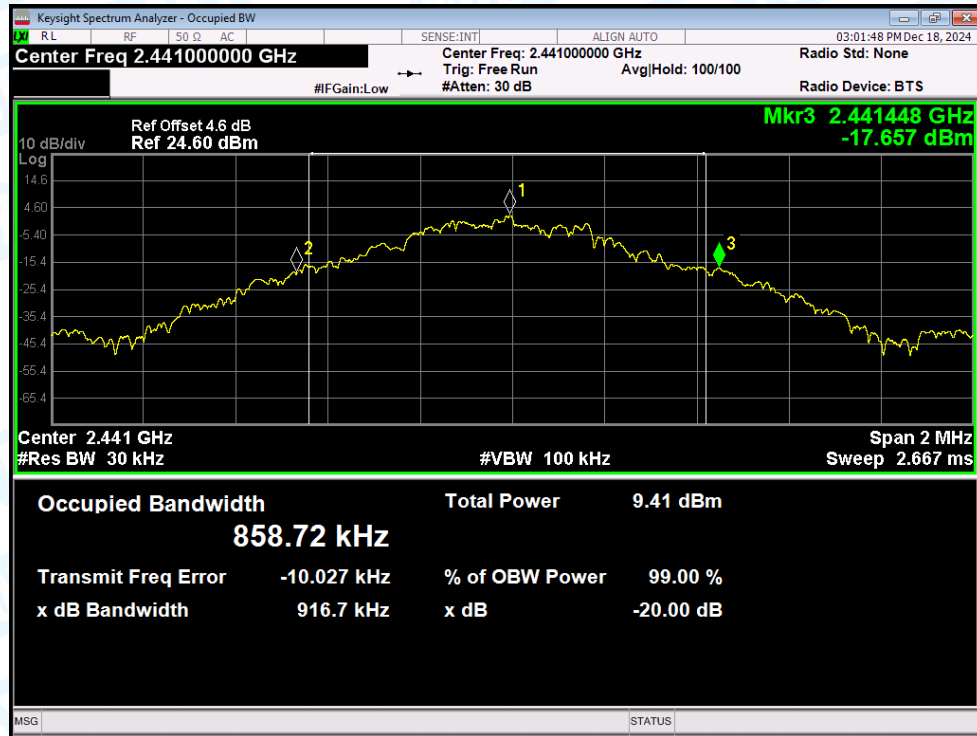
Condition	Mode	Frequency (MHz)	Antenna	-20 dB Bandwidth (MHz)	Limit -20 dB Bandwidth (MHz)	Verdict
NVNT	1-DH1	2402	Ant1	0.89	0	Pass
NVNT	1-DH1	2441	Ant1	0.92	0	Pass
NVNT	1-DH1	2480	Ant1	0.93	0	Pass
NVNT	2-DH1	2402	Ant1	1.24	0	Pass
NVNT	2-DH1	2441	Ant1	1.23	0	Pass
NVNT	2-DH1	2480	Ant1	1.25	0	Pass
NVNT	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

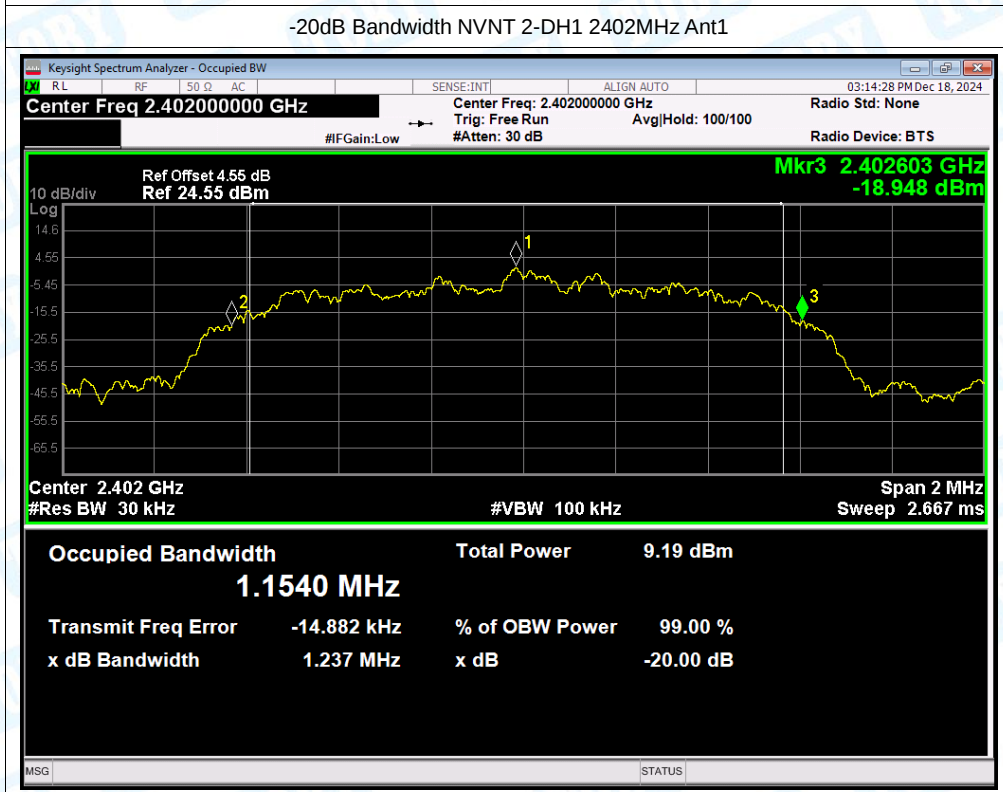
Test Graphs

-20dB Bandwidth NVNT 1-DH1 2402MHz Ant1

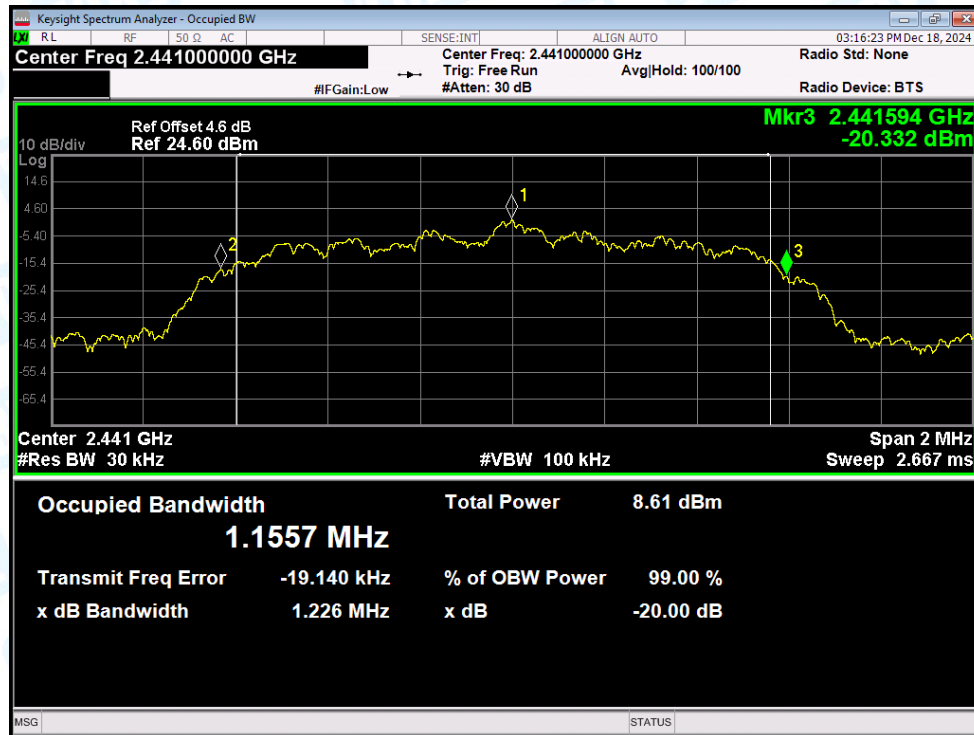


-20dB Bandwidth NVNT 1-DH1 2441MHz Ant1

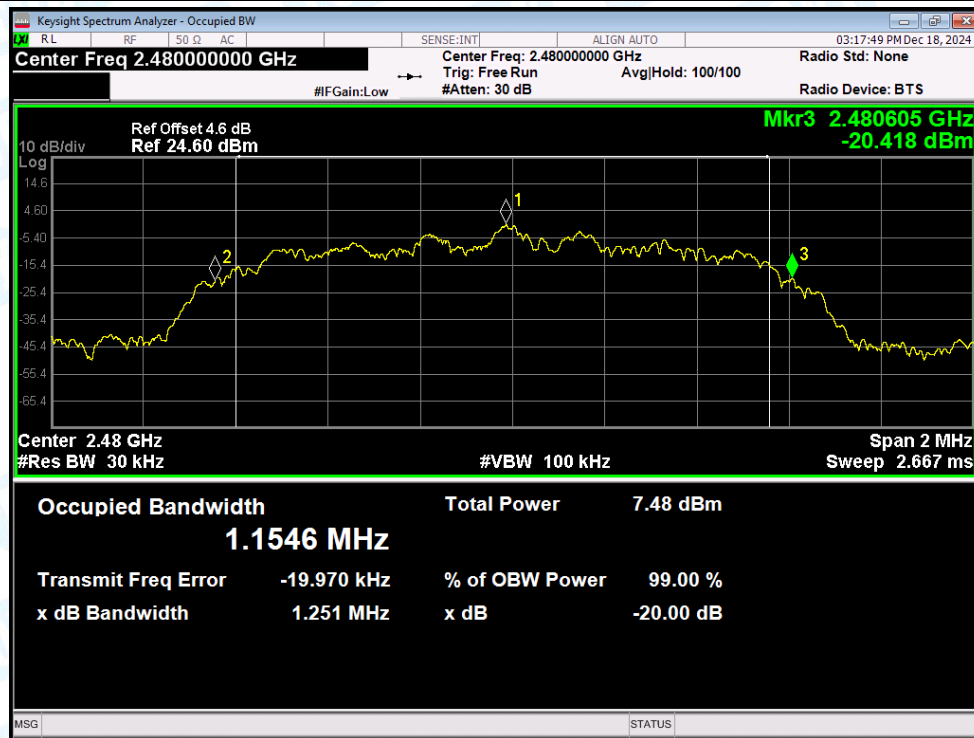




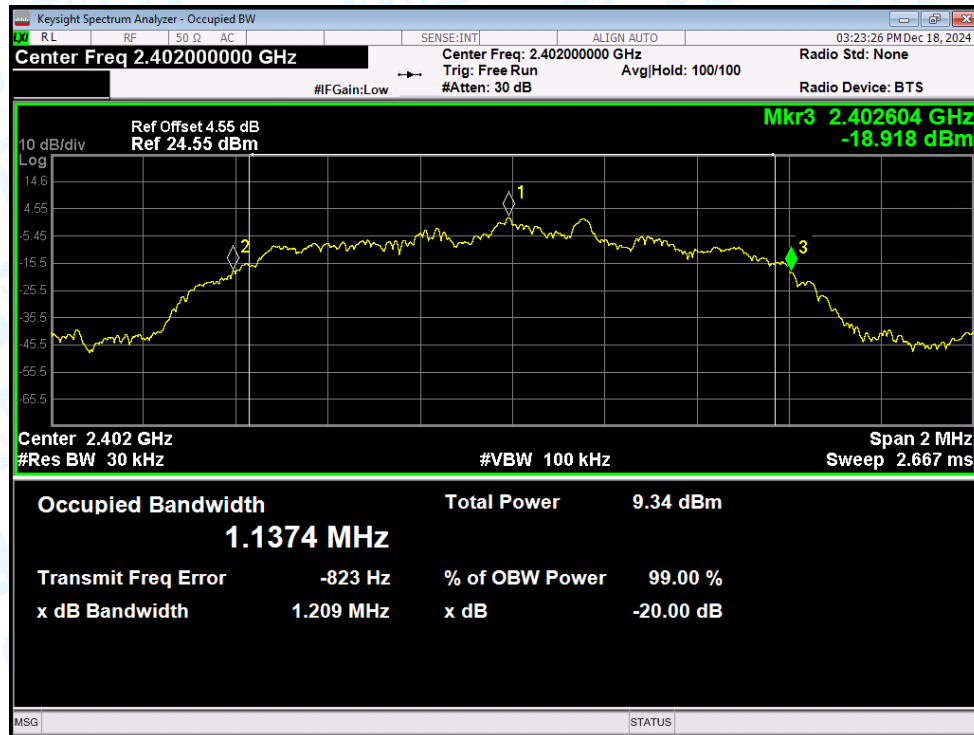
-20dB Bandwidth NVNT 2-DH1 2441MHz Ant1



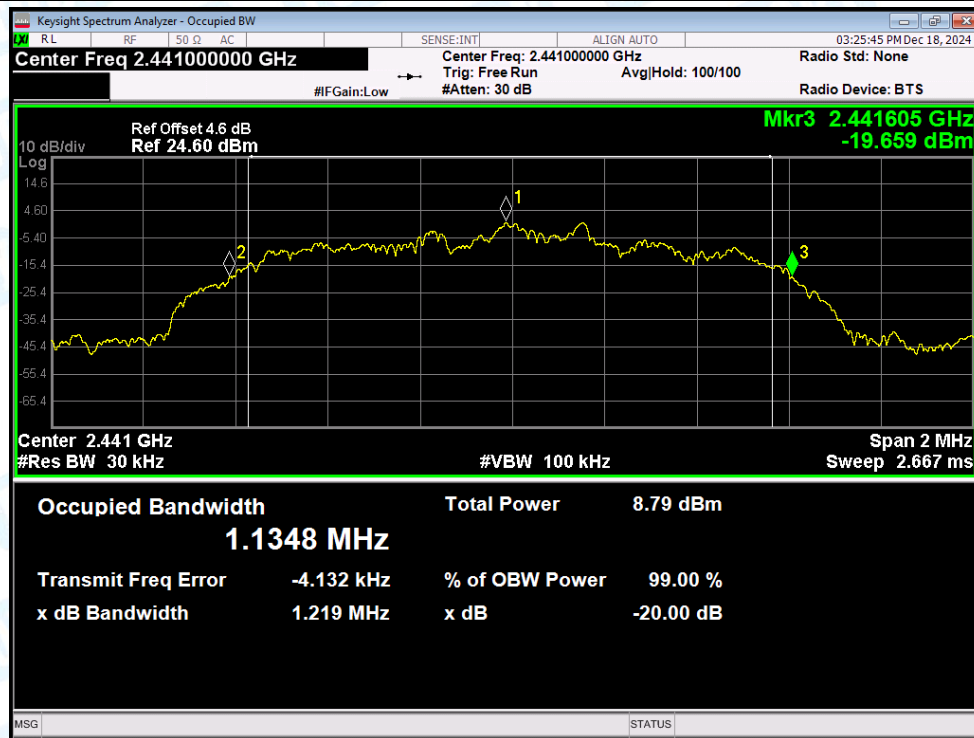
-20dB Bandwidth NVNT 2-DH1 2480MHz Ant1

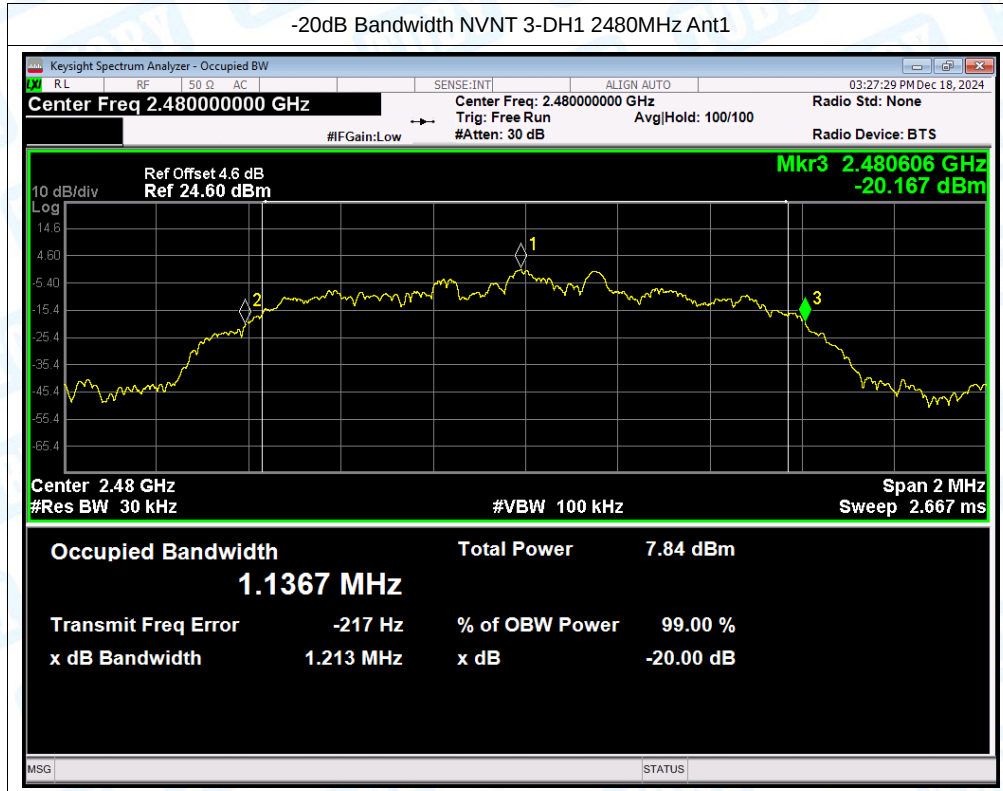


-20dB Bandwidth NVNT 3-DH1 2402MHz Ant1



-20dB Bandwidth NVNT 3-DH1 2441MHz Ant1



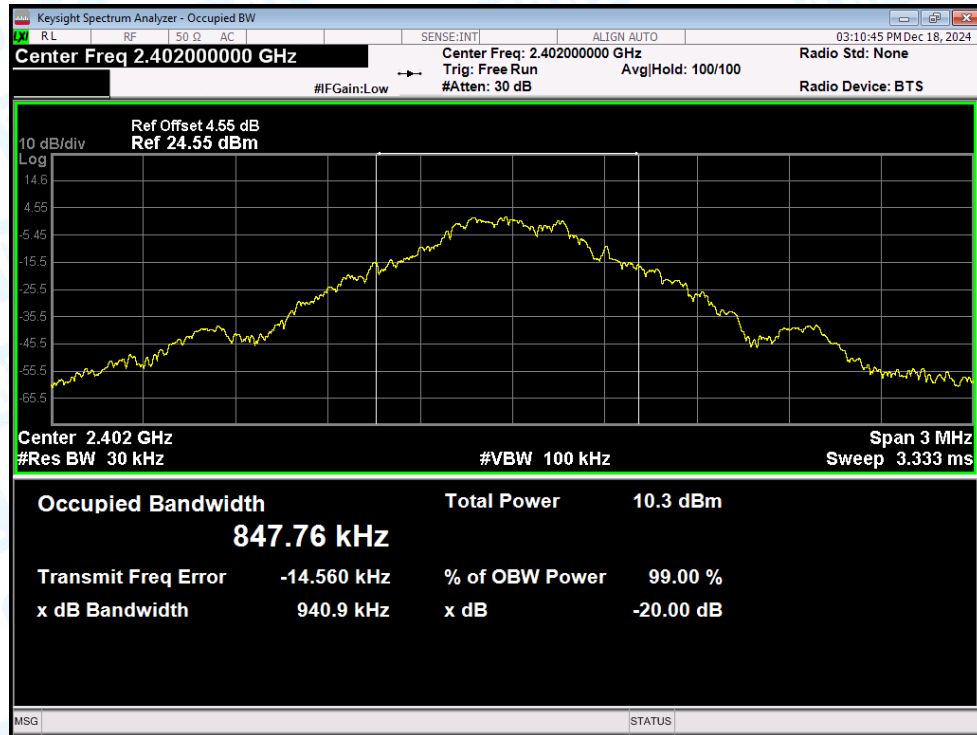


4. Occupied Channel Bandwidth

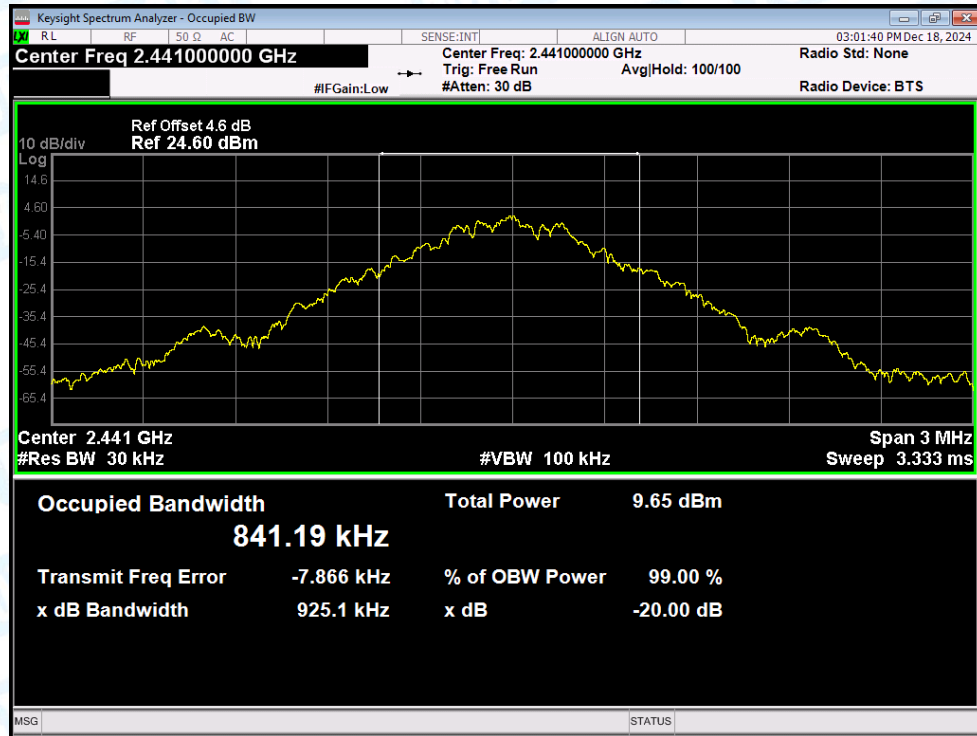
Condition	Mode	Frequency (MHz)	Antenna	99% OBW (MHz)
NVNT	1-DH1	2402	Ant1	0.848
NVNT	1-DH1	2441	Ant1	0.841
NVNT	1-DH1	2480	Ant1	0.84
NVNT	2-DH1	2402	Ant1	1.156
NVNT	2-DH1	2441	Ant1	1.169
NVNT	2-DH1	2480	Ant1	1.157
NVNT	3-DH1	2402	Ant1	1.142
NVNT	3-DH1	2441	Ant1	1.135
NVNT	3-DH1	2480	Ant1	1.142

Test Graphs

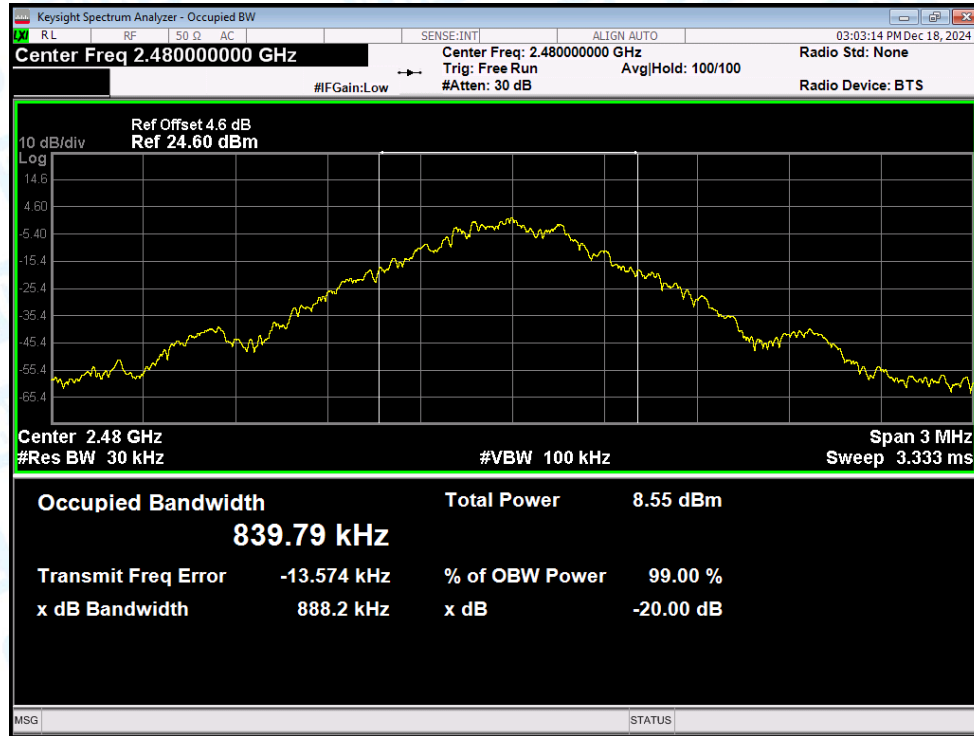
OBW NVNT 1-DH1 2402MHz Ant1



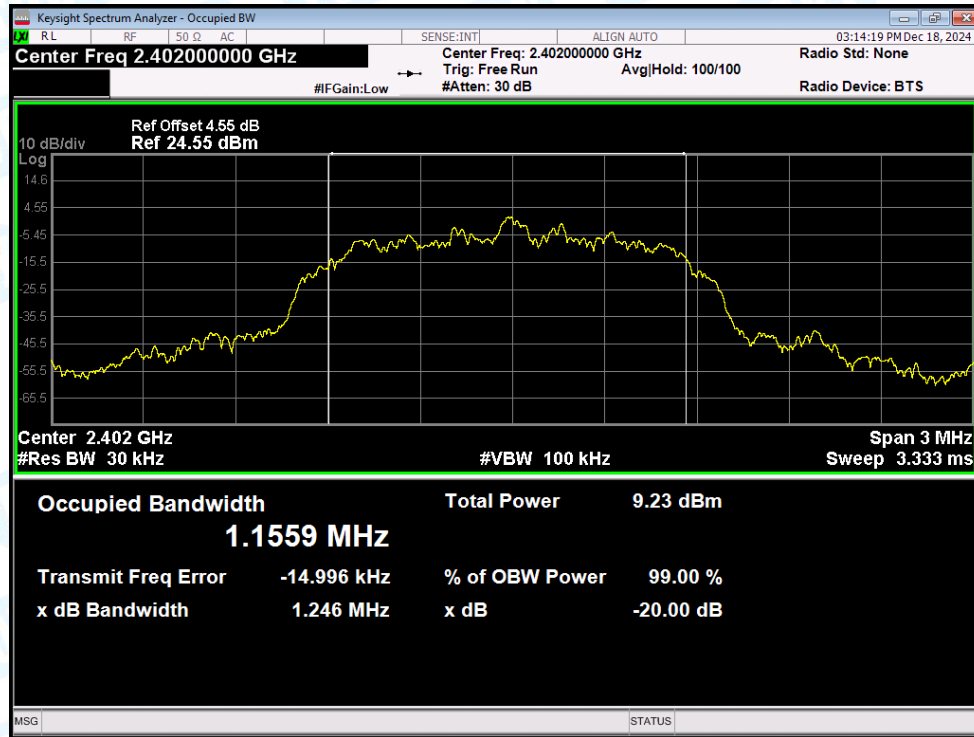
OBW NVNT 1-DH1 2441MHz Ant1



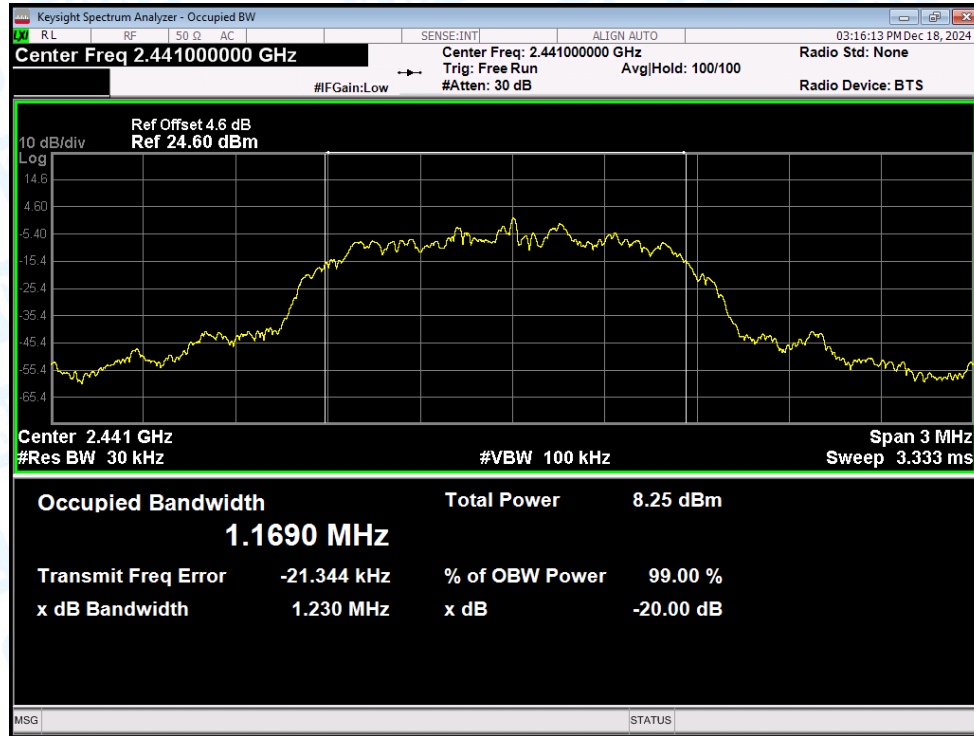
OBW NVNT 1-DH1 2480MHz Ant1



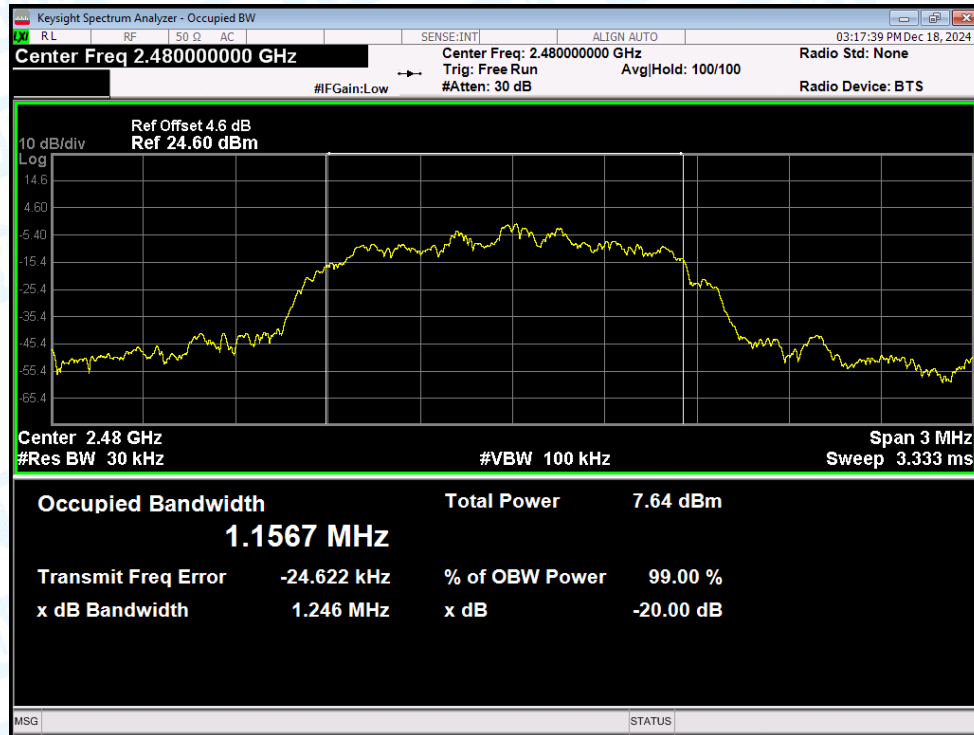
OBW NVNT 2-DH1 2402MHz Ant1



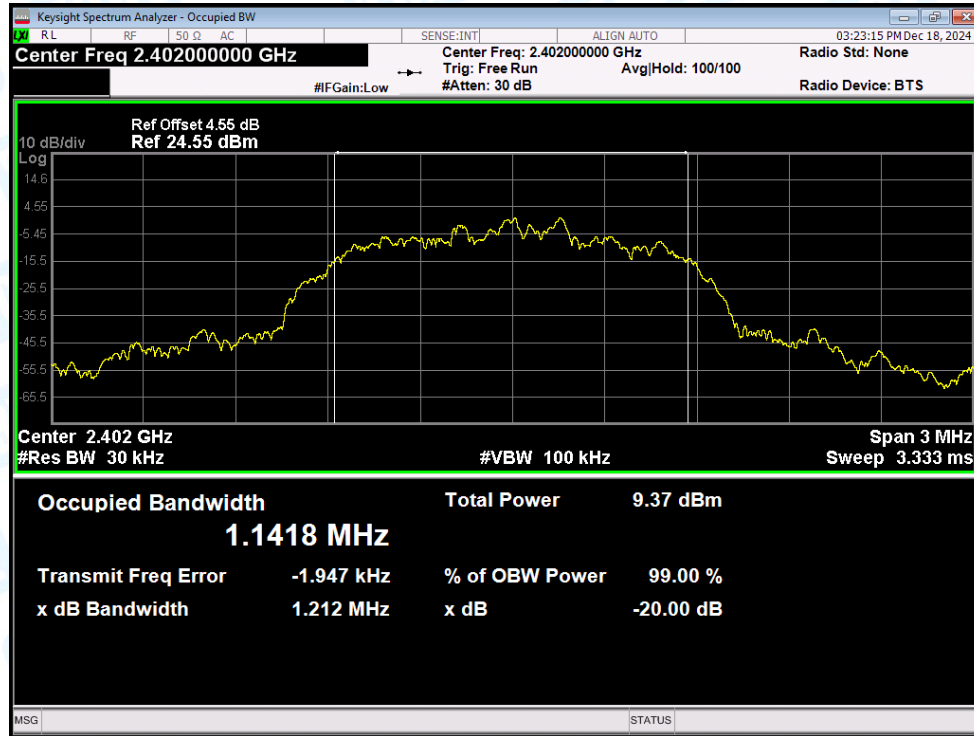
OBW NVNT 2-DH1 2441MHz Ant1



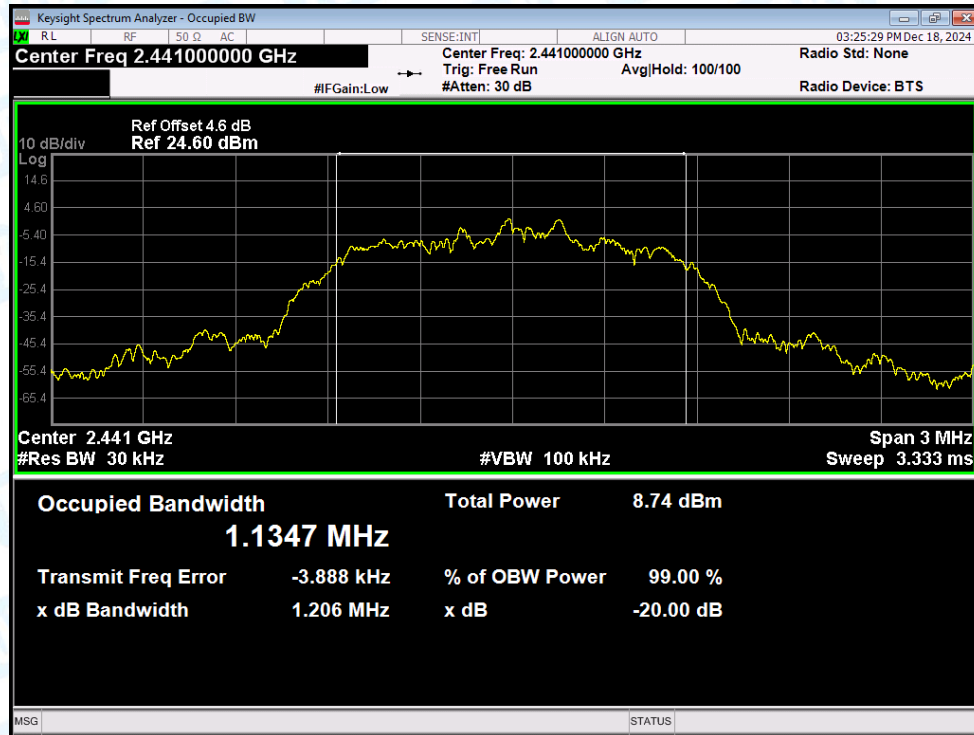
OBW NVNT 2-DH1 2480MHz Ant1

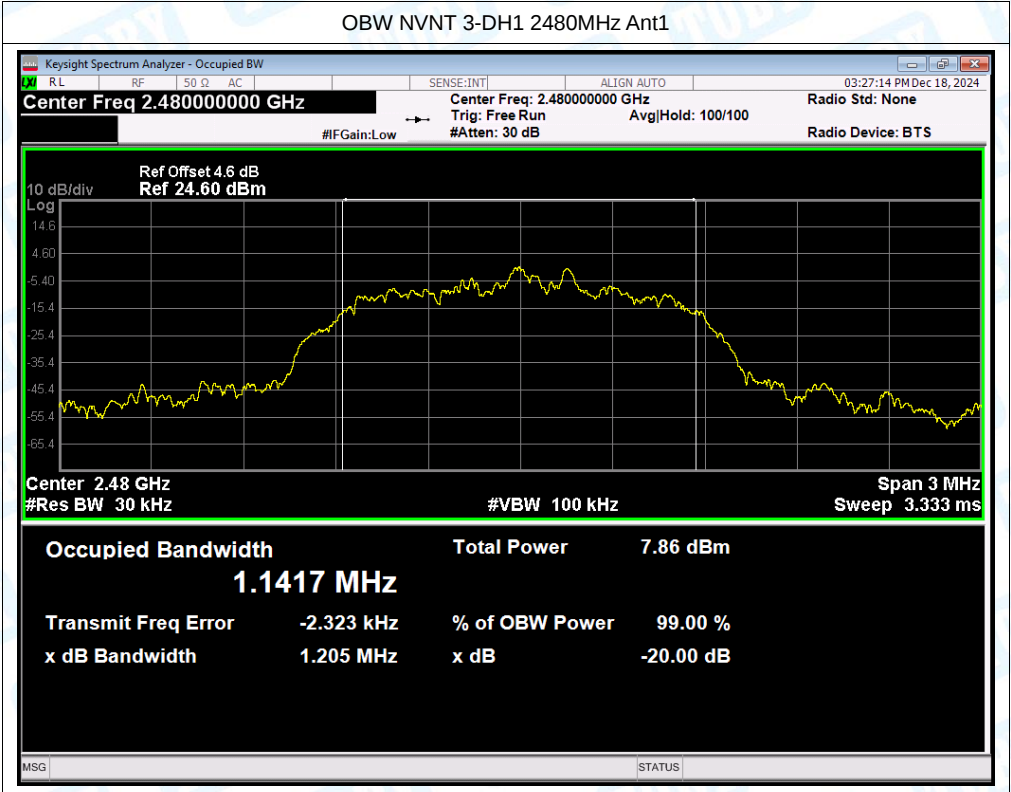


OBW NVNT 3-DH1 2402MHz Ant1



OBW NVNT 3-DH1 2441MHz Ant1



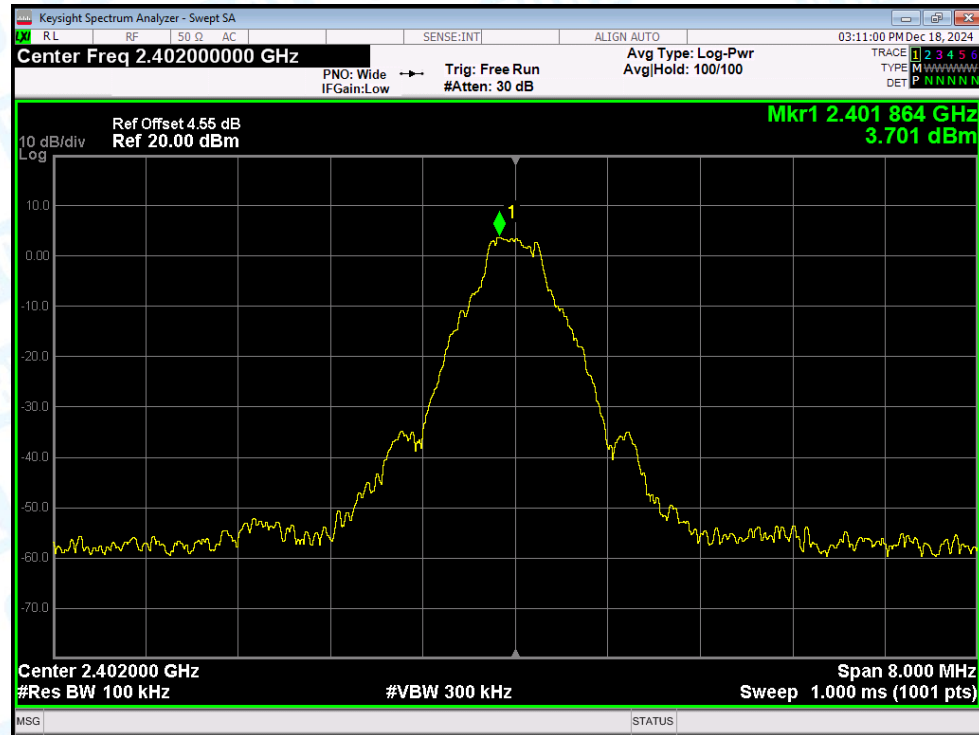


5. Band Edge

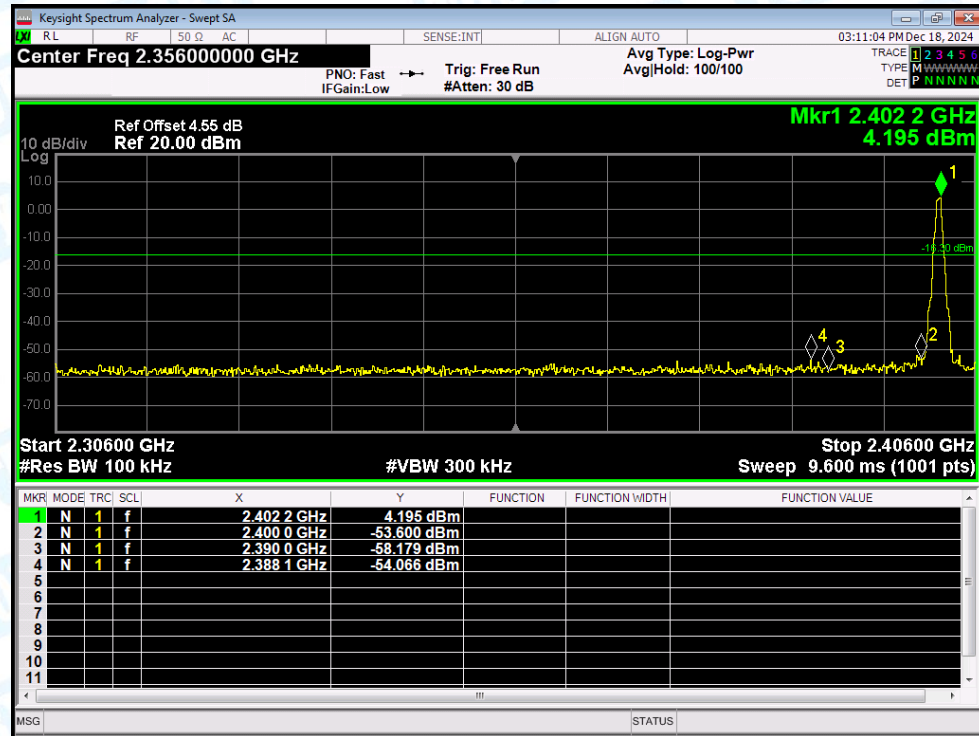
Condition	Mode	Frequency (MHz)	Antenna	Hopping Mode	Max Value (dBc)	Limit (dBc)	Verdict
NVNT	1-DH1	2402	Ant1	No-Hopping	-57.77	-20	Pass
NVNT	1-DH1	2480	Ant1	No-Hopping	-56.34	-20	Pass
NVNT	2-DH1	2402	Ant1	No-Hopping	-57.5	-20	Pass
NVNT	2-DH1	2480	Ant1	No-Hopping	-54.82	-20	Pass
NVNT	3-DH1	2402	Ant1	No-Hopping	-57.86	-20	Pass
NVNT	3-DH1	2480	Ant1	No-Hopping	-53.9	-20	Pass

Test Graphs

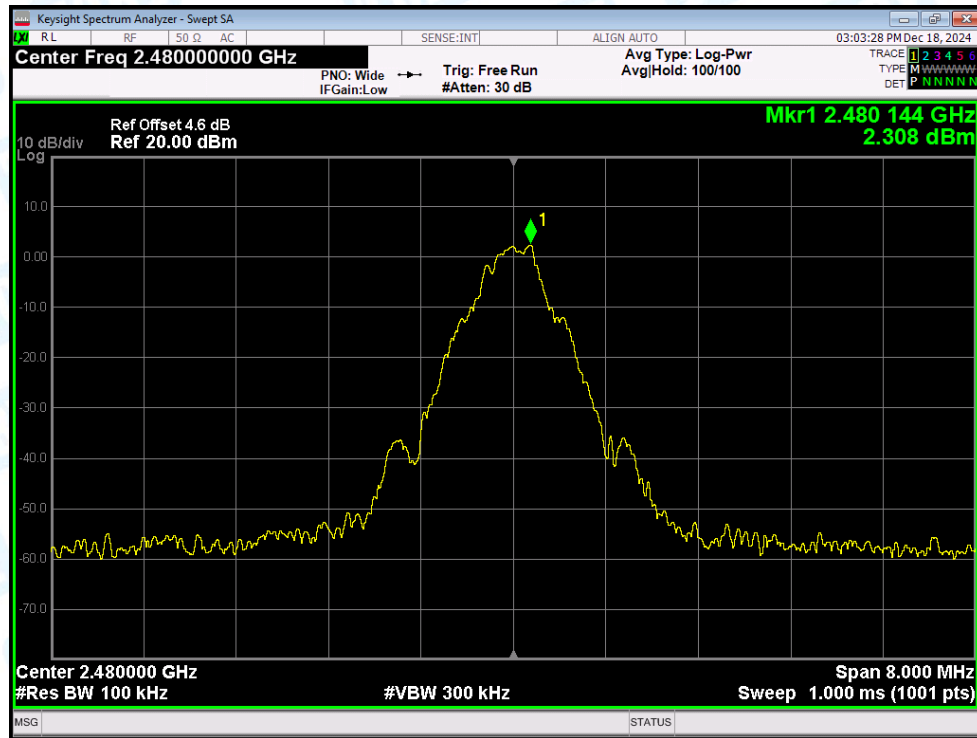
Band Edge NVNT 1-DH1 2402MHz Ant1 No-Hopping Ref



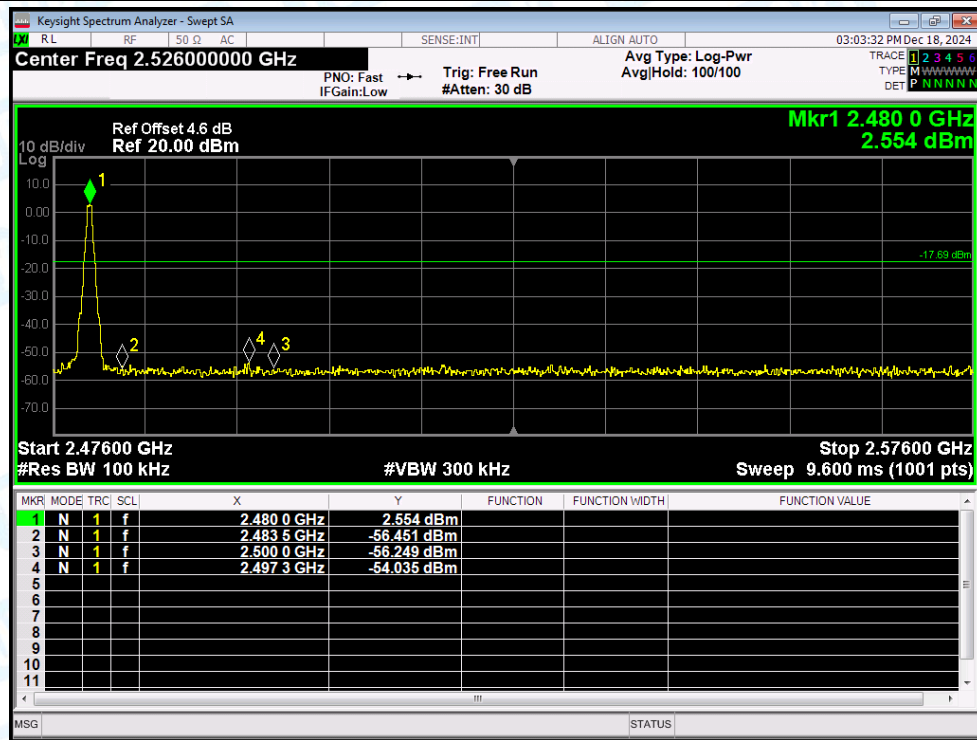
Band Edge NVNT 1-DH1 2402MHz Ant1 No-Hopping Emission



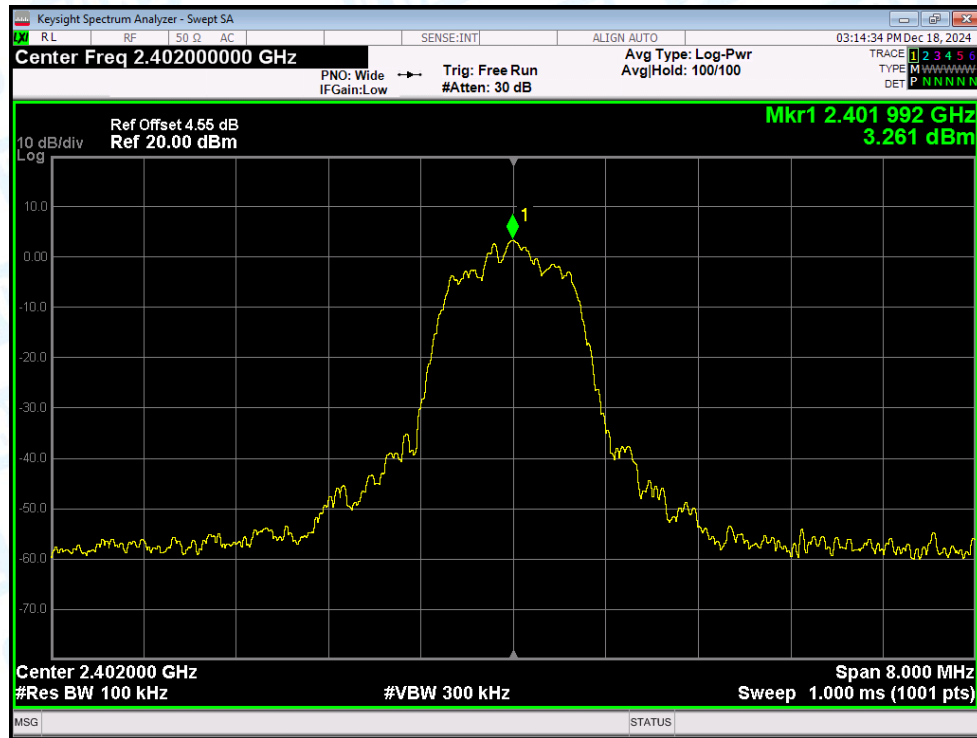
Band Edge NVNT 1-DH1 2480MHz Ant1 No-Hopping Ref



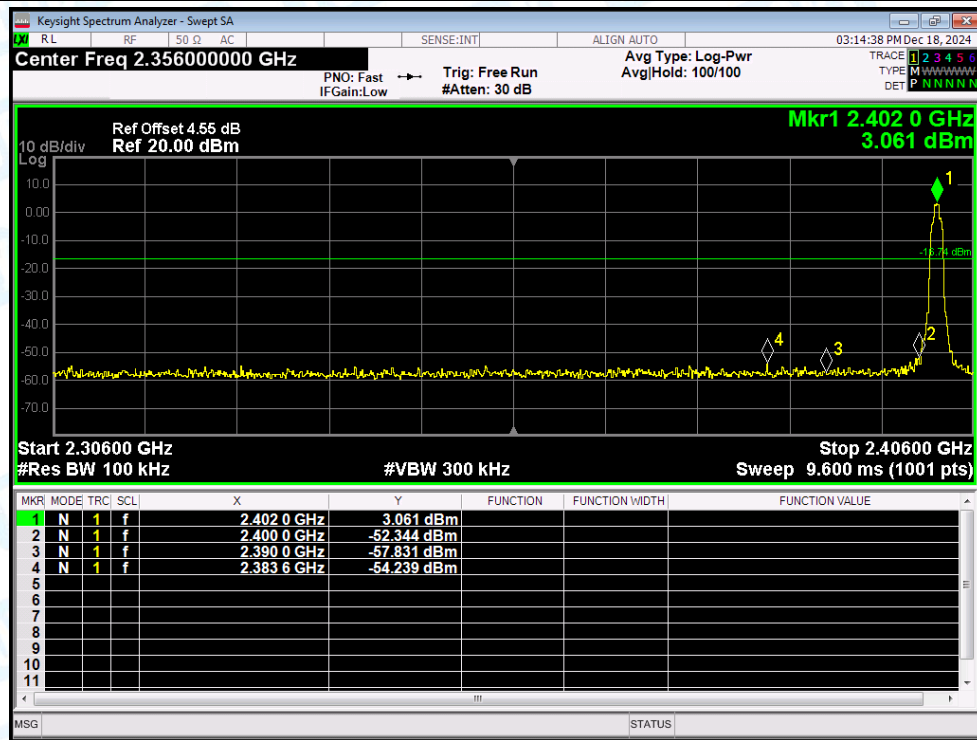
Band Edge NVNT 1-DH1 2480MHz Ant1 No-Hopping Emission



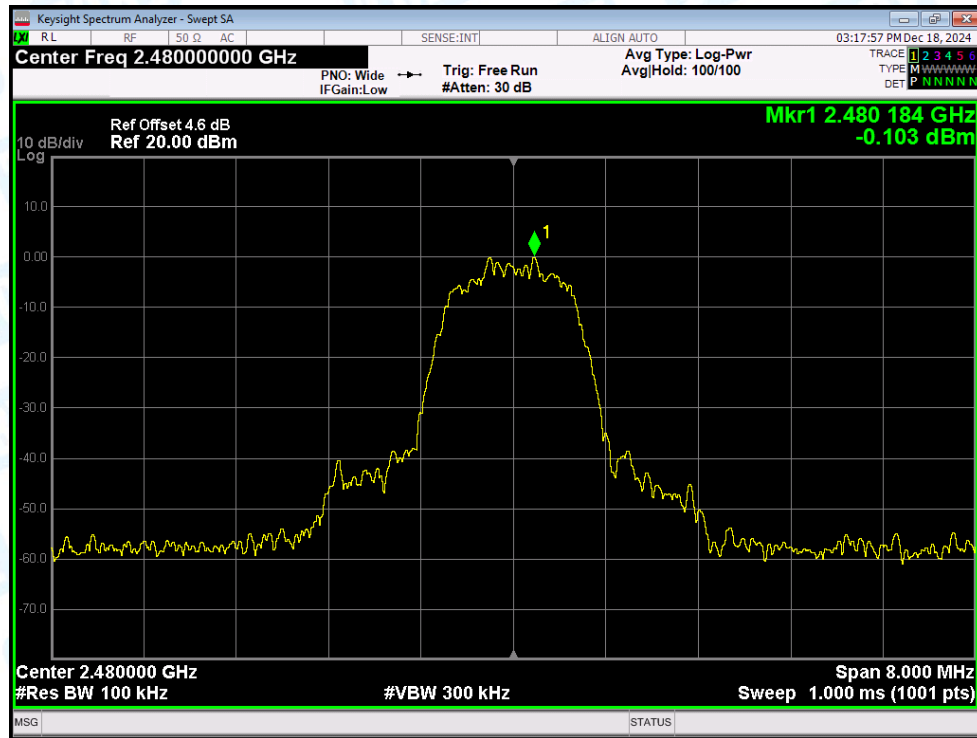
Band Edge NVNT 2-DH1 2402MHz Ant1 No-Hopping Ref



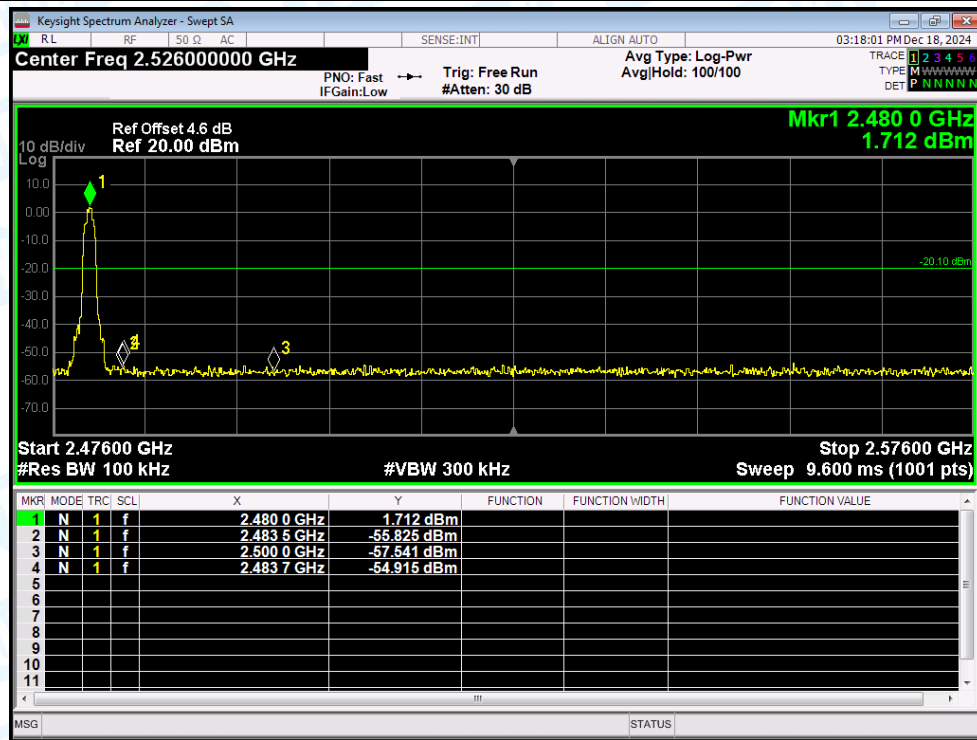
Band Edge NVNT 2-DH1 2402MHz Ant1 No-Hopping Emission



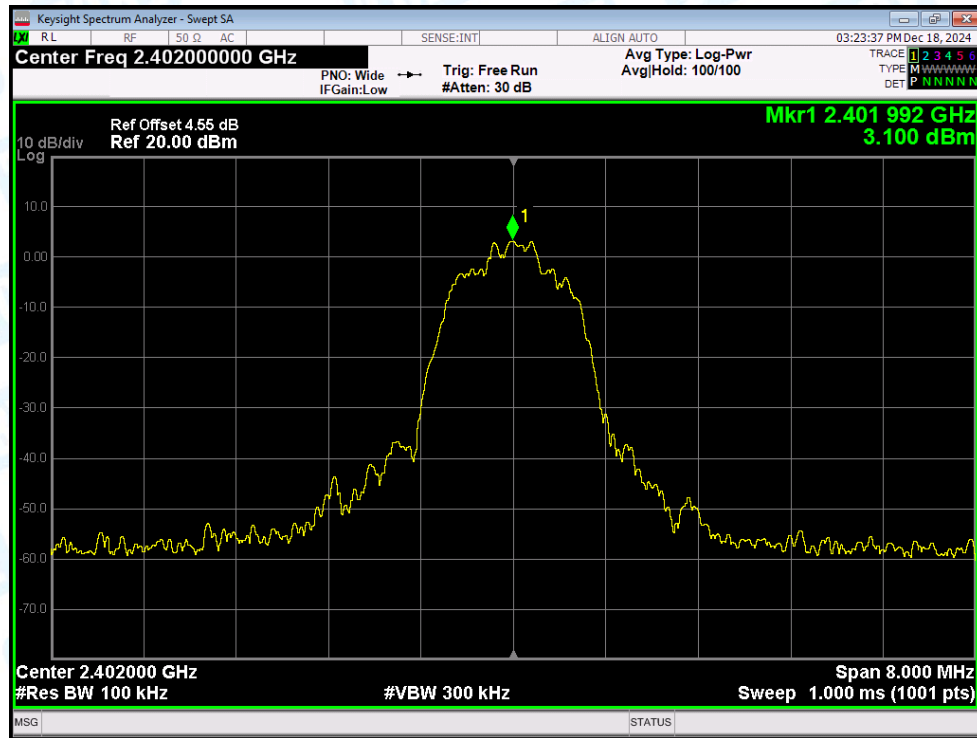
Band Edge NVNT 2-DH1 2480MHz Ant1 No-Hopping Ref



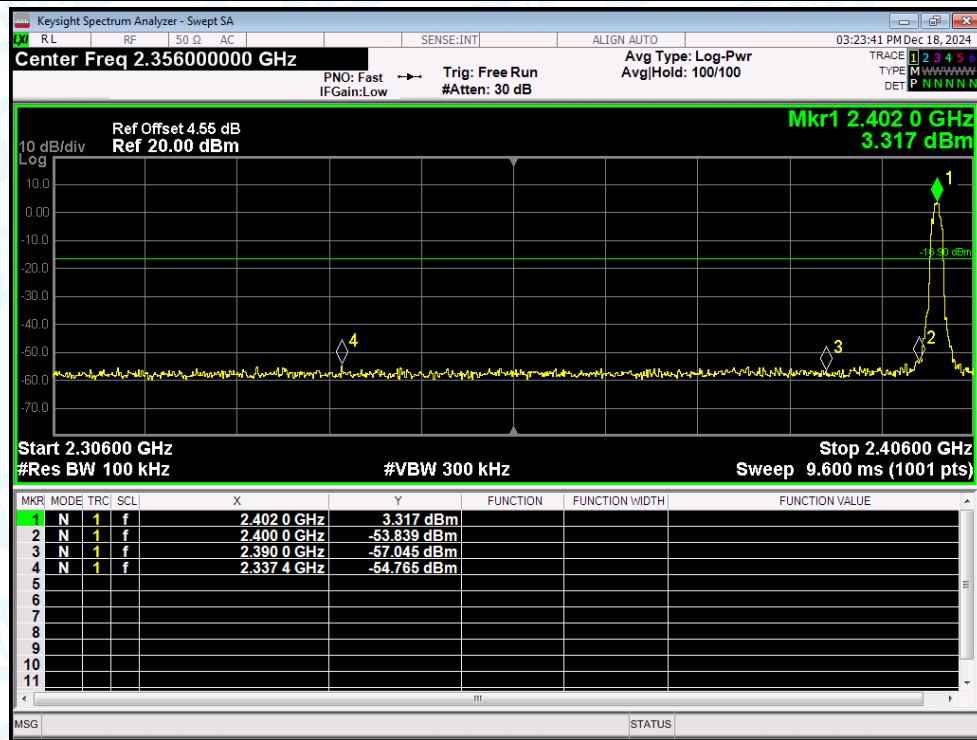
Band Edge NVNT 2-DH1 2480MHz Ant1 No-Hopping Emission



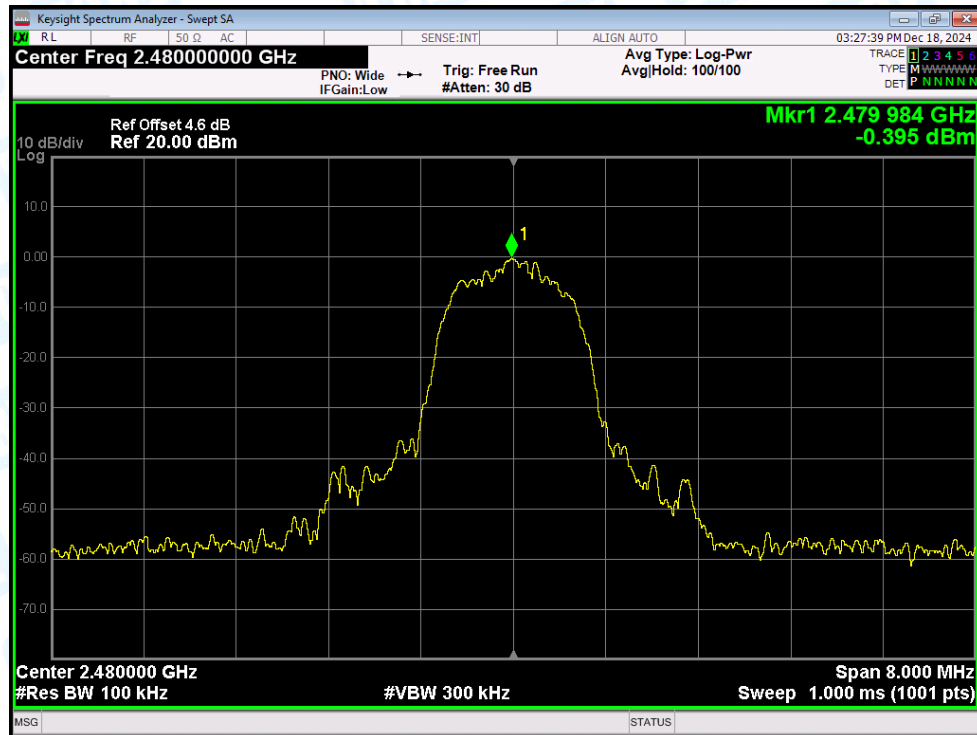
Band Edge NVNT 3-DH1 2402MHz Ant1 No-Hopping Ref



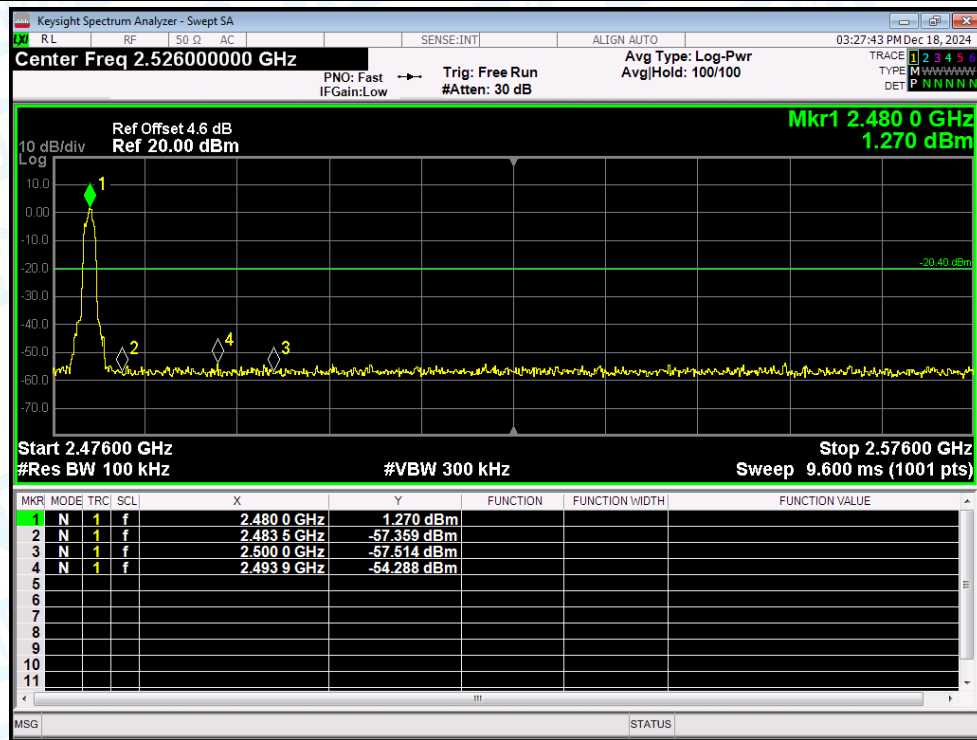
Band Edge NVNT 3-DH1 2402MHz Ant1 No-Hopping Emission



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



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

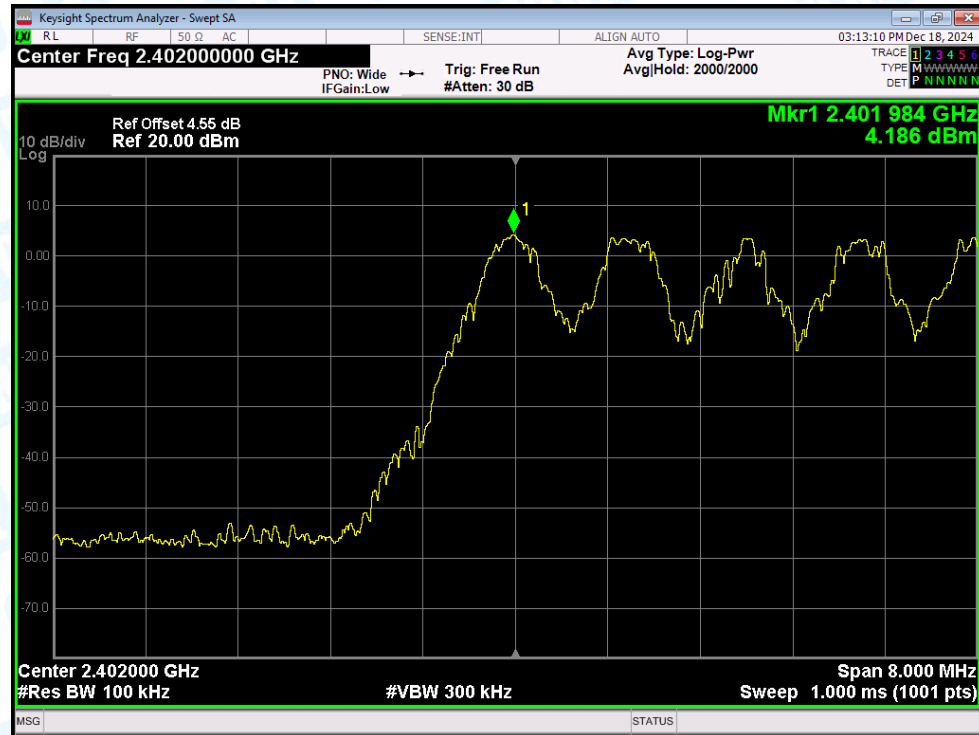


6. Band Edge(Hopping)

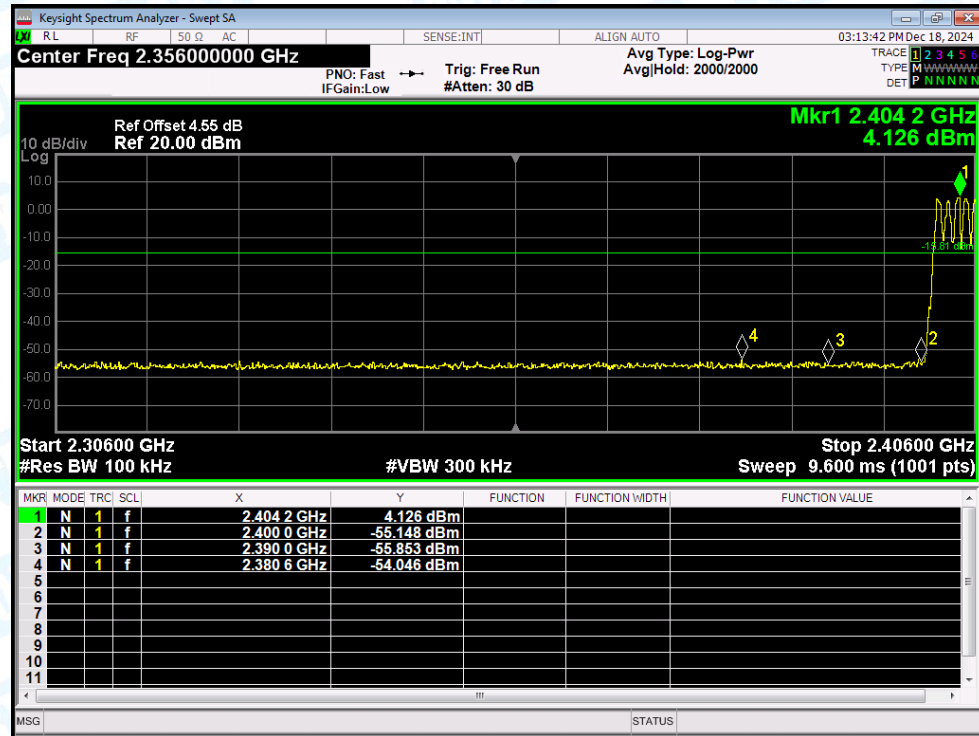
Condition	Mode	Frequency (MHz)	Antenna	Hopping Mode	Max Value (dBc)	Limit (dBc)	Verdict
NVNT	1-DH1	2402	Ant1	Hopping	-58.24	-20	Pass
NVNT	1-DH1	2480	Ant1	Hopping	-55.95	-20	Pass
NVNT	2-DH1	2402	Ant1	Hopping	-56.56	-20	Pass
NVNT	2-DH1	2480	Ant1	Hopping	-54.73	-20	Pass
NVNT	3-DH1	2402	Ant1	Hopping	-56.98	-20	Pass
NVNT	3-DH1	2480	Ant1	Hopping	-54.57	-20	Pass

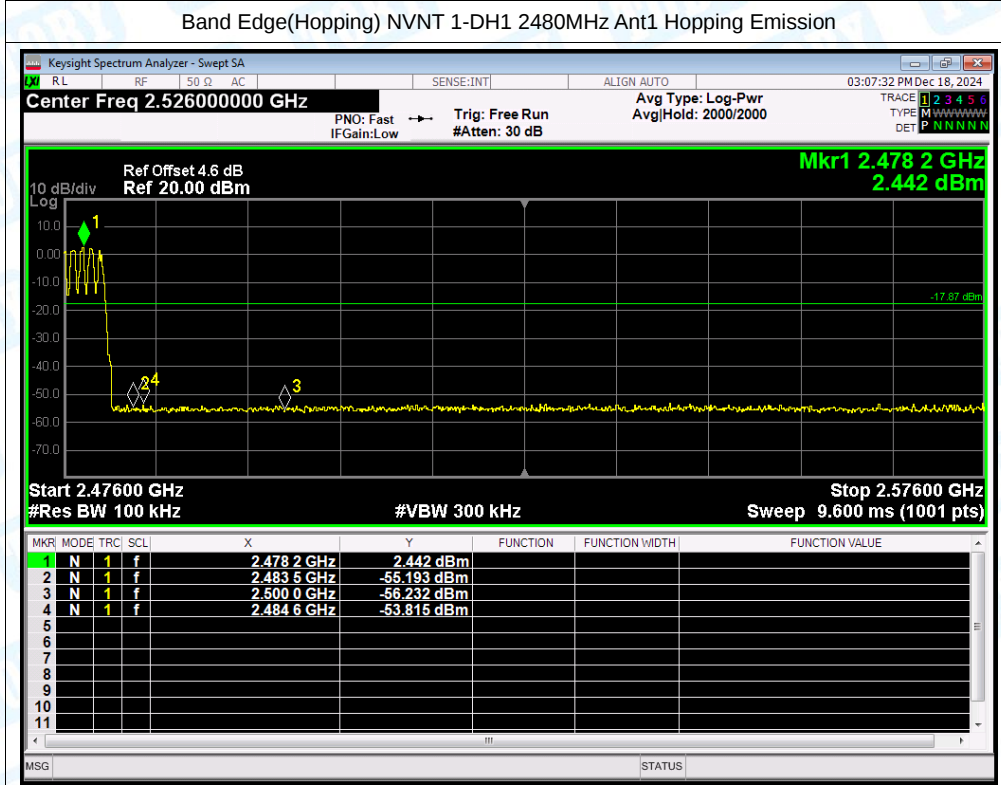
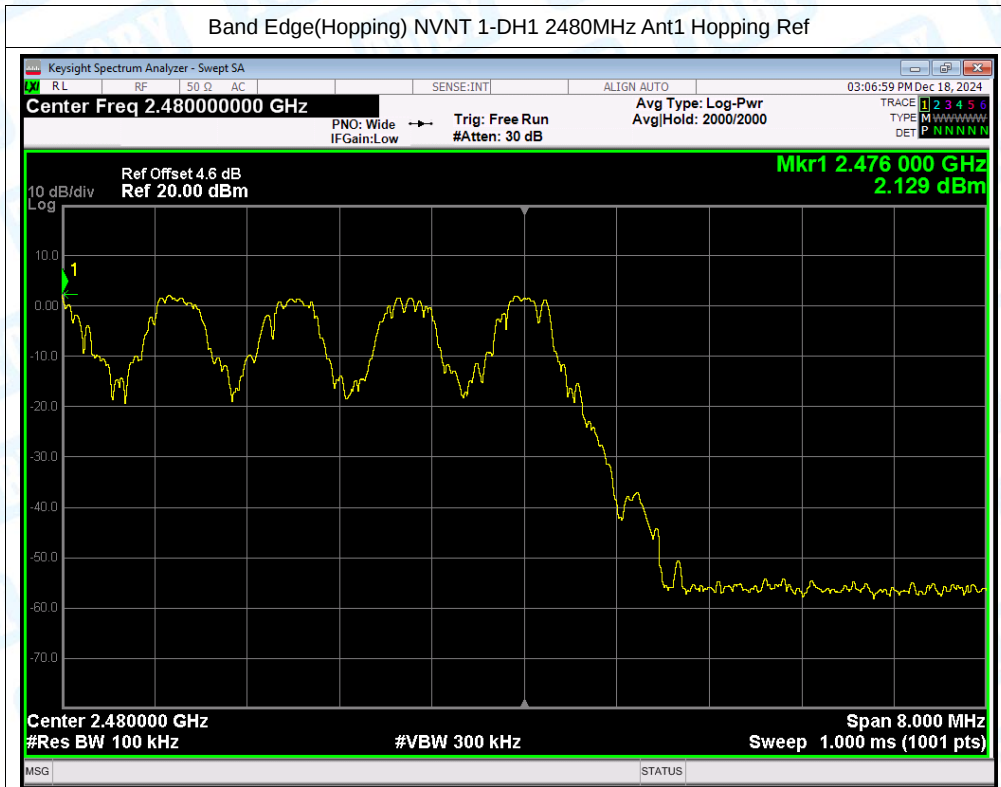
Test Graphs

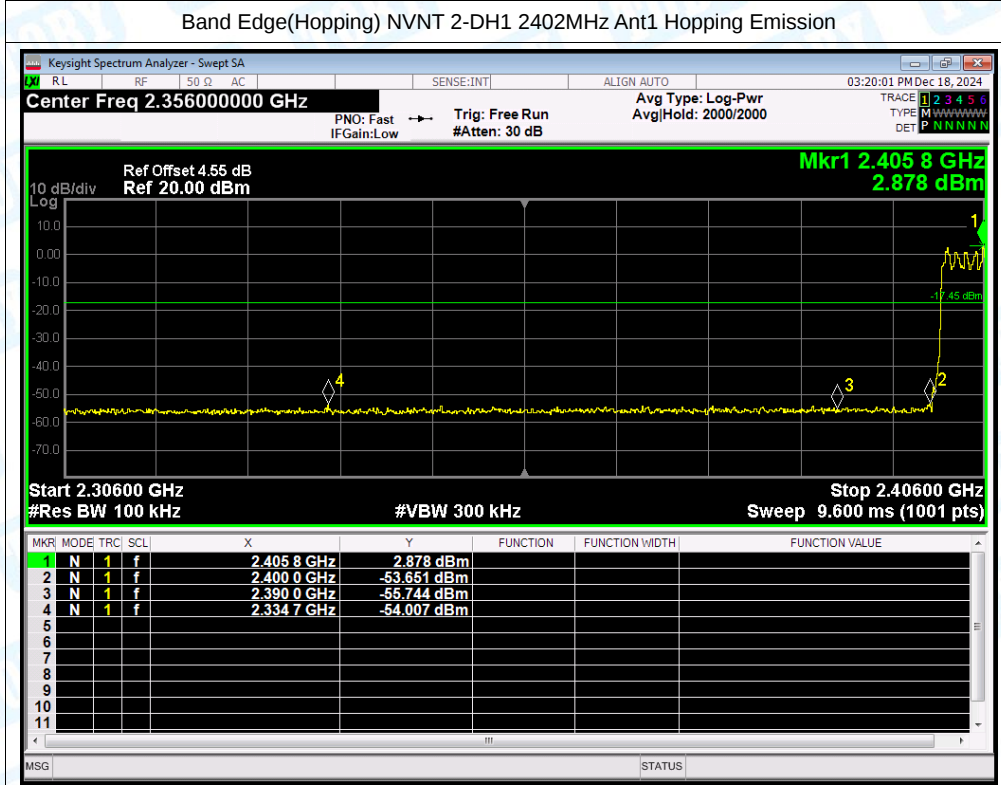
Band Edge(Hopping) NVNT 1-DH1 2402MHz Ant1 Hopping Ref



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



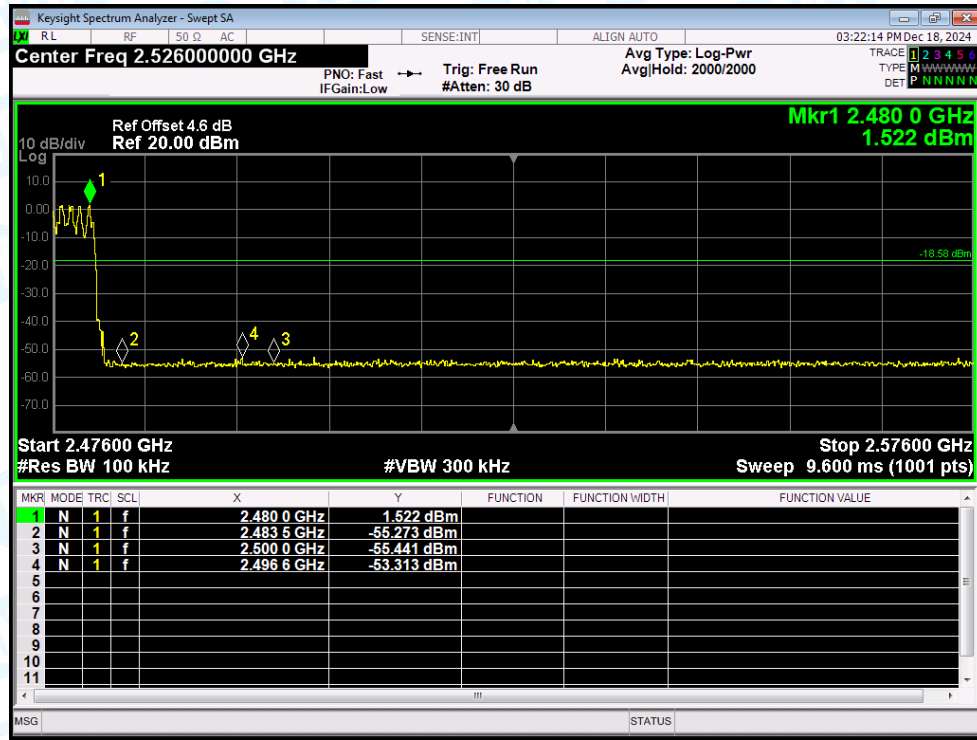


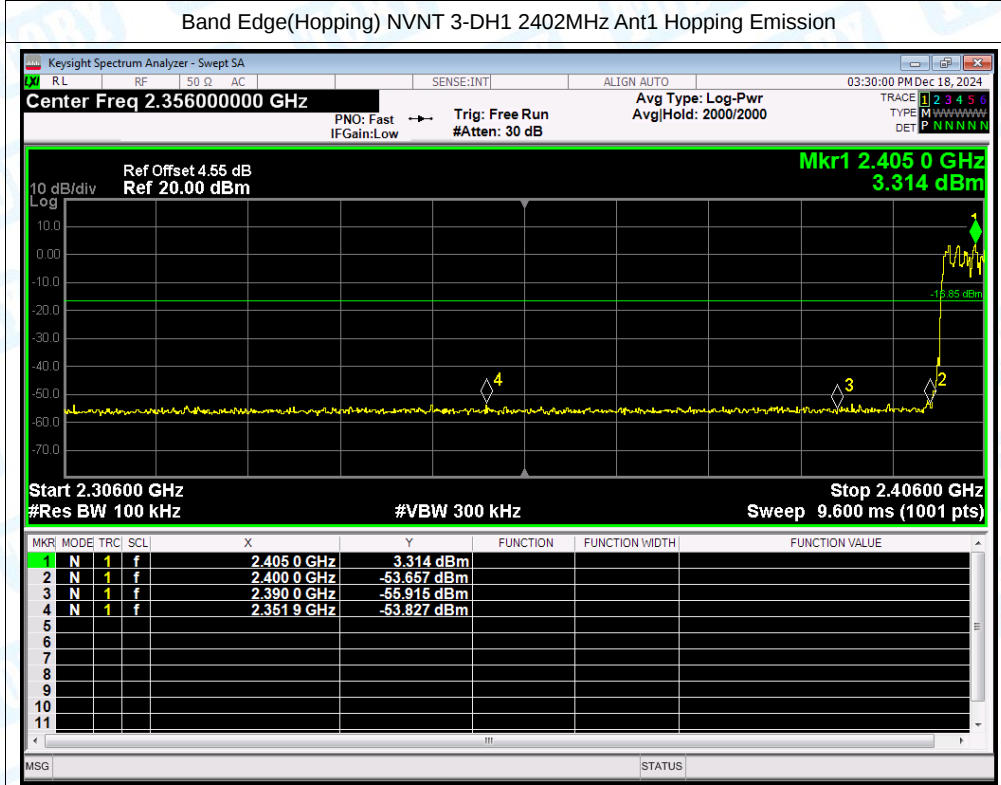
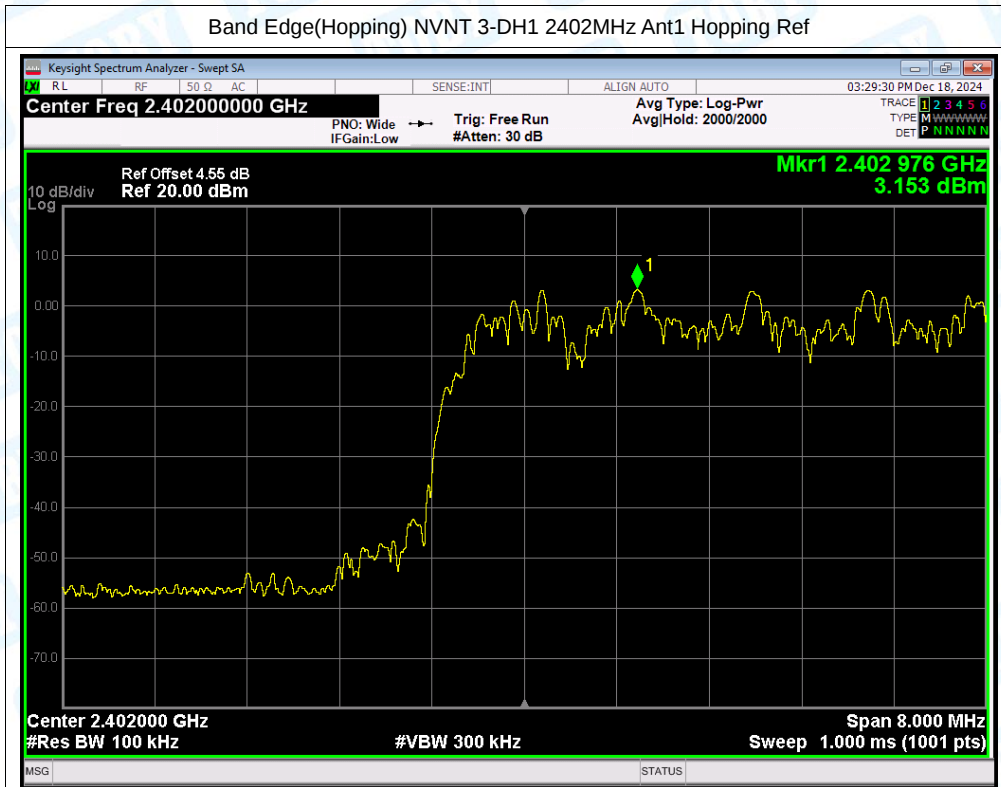


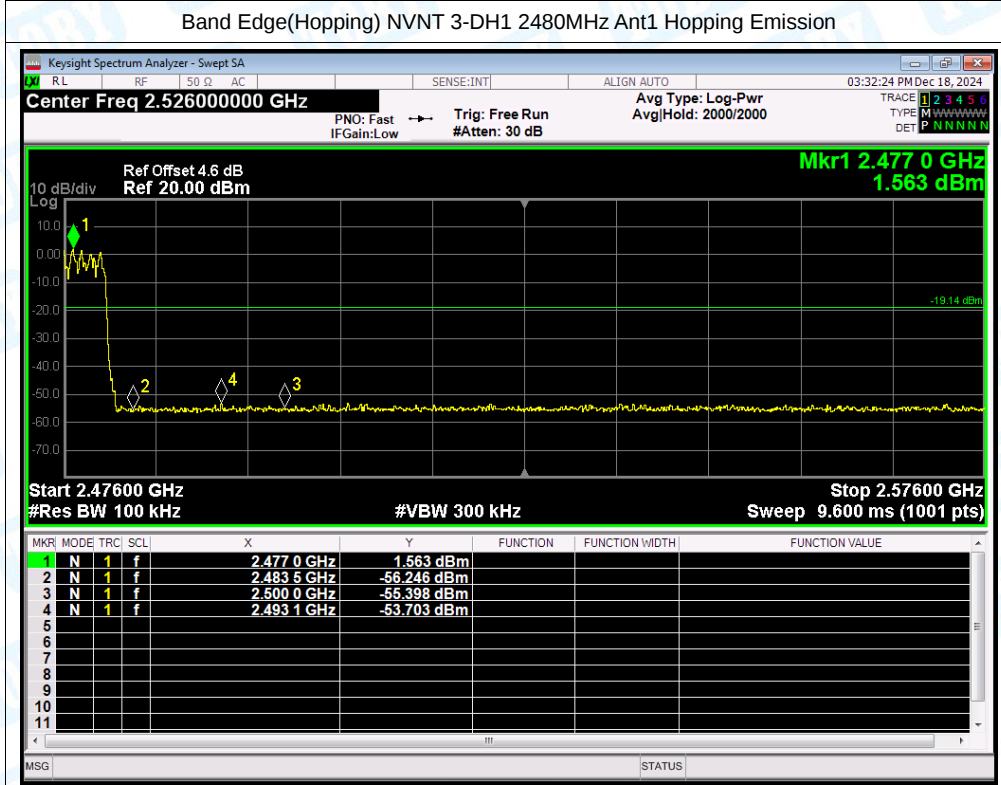
Band Edge(Hopping) NVNT 2-DH1 2480MHz Ant1 Hopping Ref



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





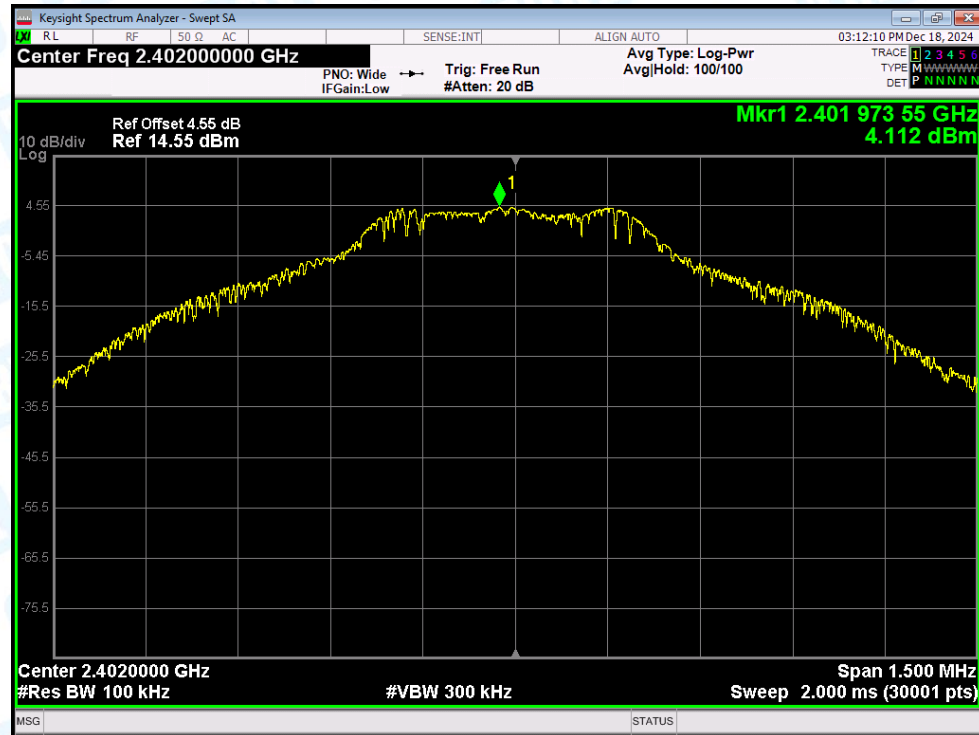


7. Conducted RF Spurious Emission

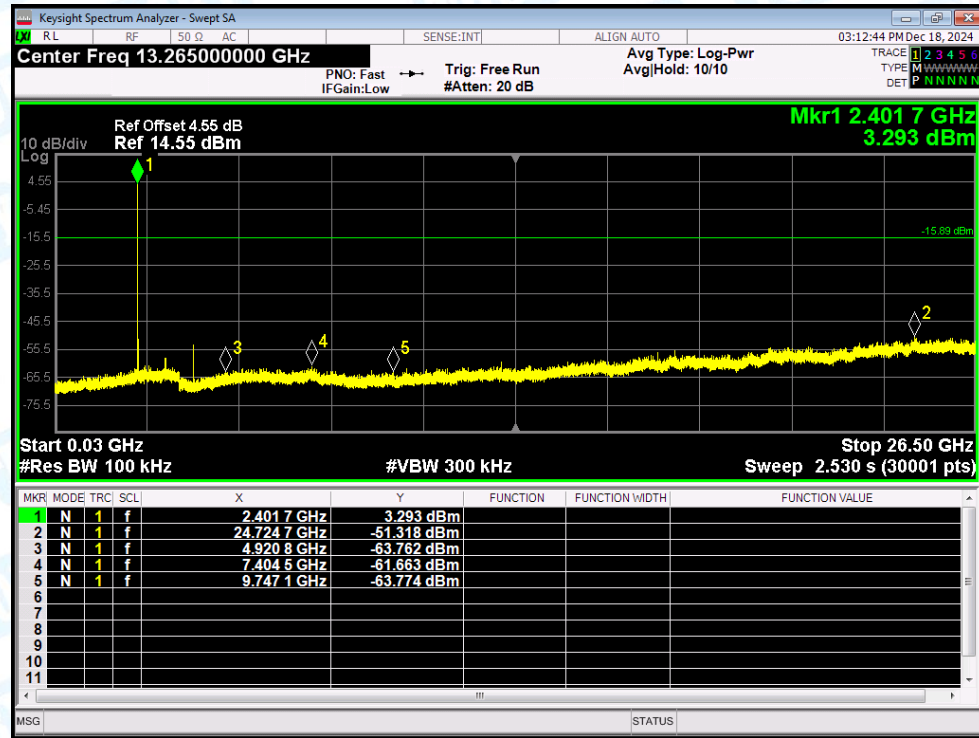
Condition	Mode	Frequency (MHz)	Antenna	Max Value (dBc)	Limit (dBc)	Verdict
NVNT	1-DH1	2402	Ant1	-55.43	-20	Pass
NVNT	1-DH1	2441	Ant1	-50.12	-20	Pass
NVNT	1-DH1	2480	Ant1	-53.61	-20	Pass
NVNT	2-DH1	2402	Ant1	-54.82	-20	Pass
NVNT	2-DH1	2441	Ant1	-54.03	-20	Pass
NVNT	2-DH1	2480	Ant1	-51.55	-20	Pass
NVNT	3-DH1	2402	Ant1	-54.62	-20	Pass
NVNT	3-DH1	2441	Ant1	-53.65	-20	Pass
NVNT	3-DH1	2480	Ant1	-52.82	-20	Pass

Test Graphs

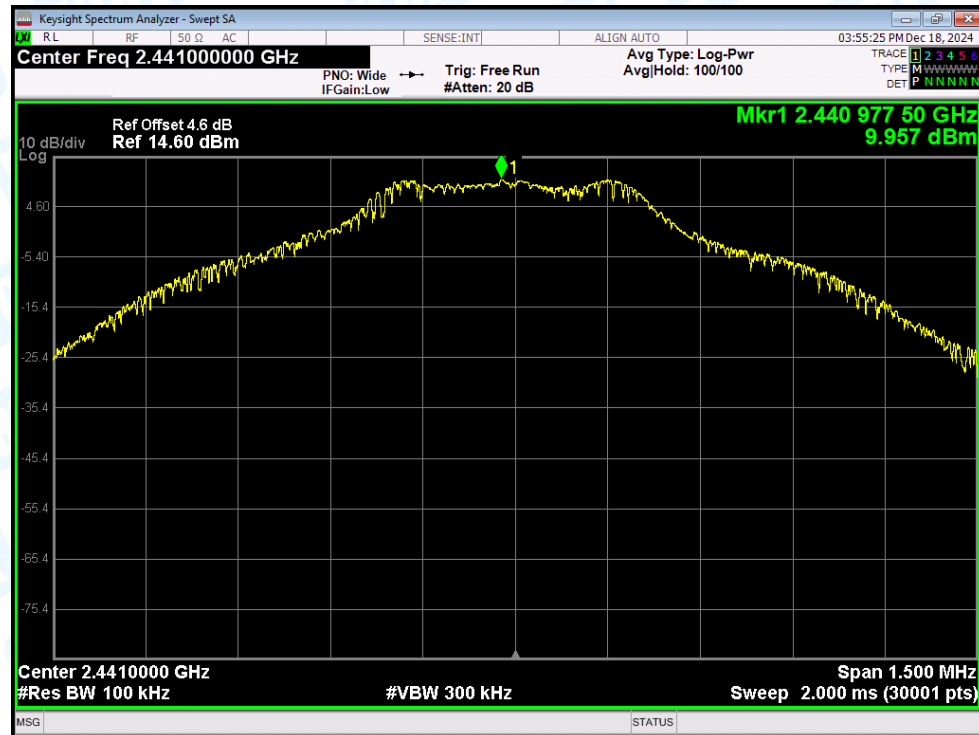
Tx. Spurious NVNT 1-DH1 2402MHz Ant1 Ref



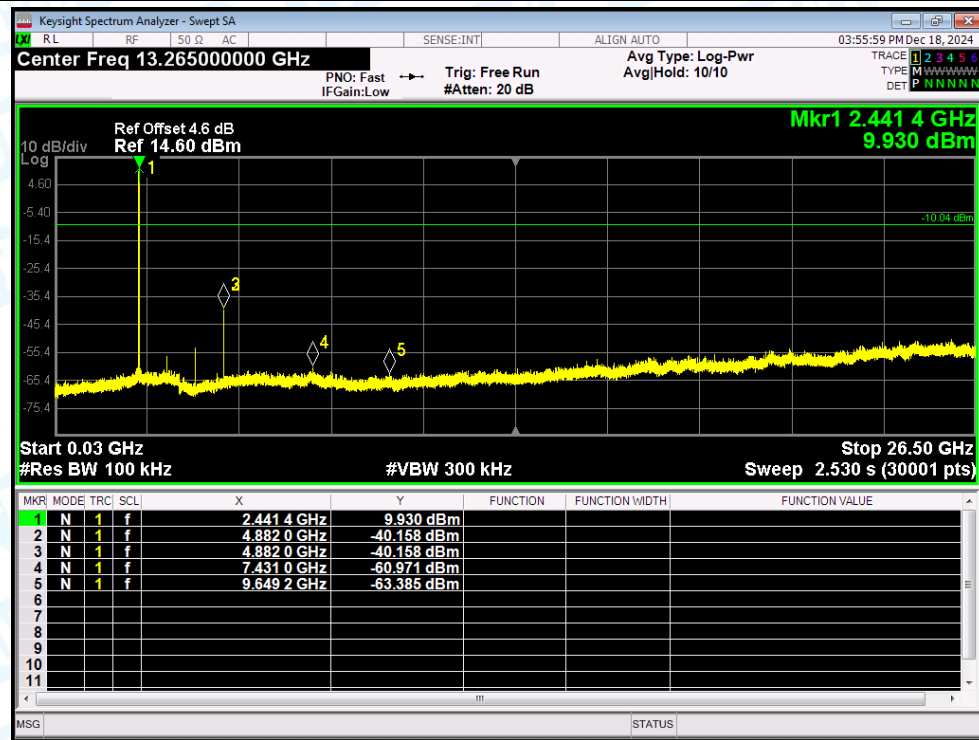
Tx. Spurious NVNT 1-DH1 2402MHz Ant1 Emission



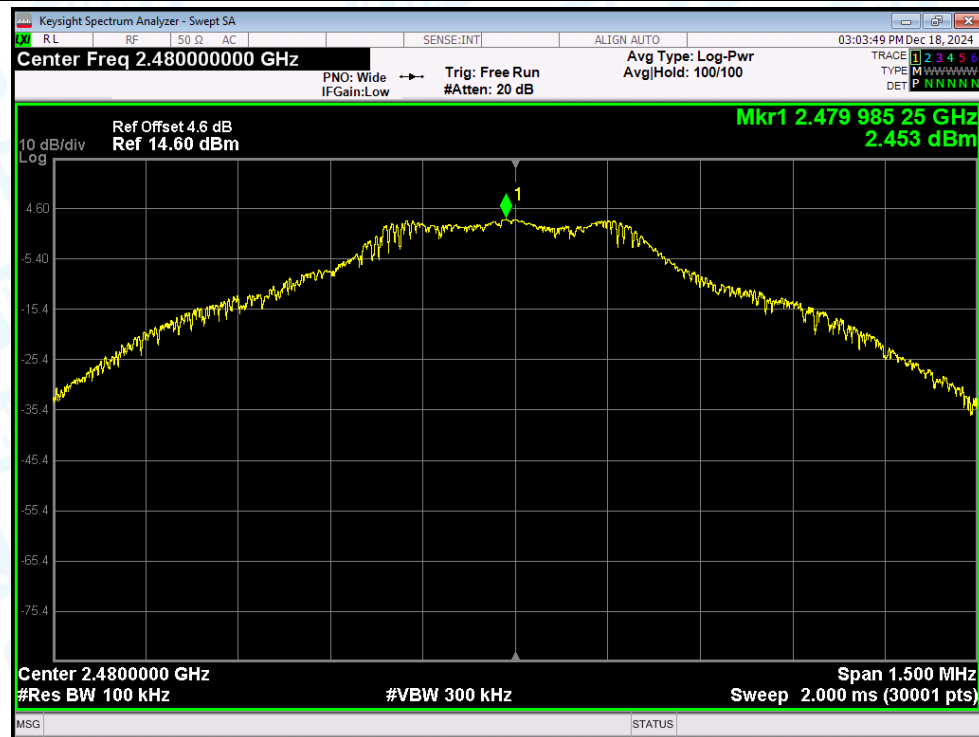
Tx. Spurious NVNT 1-DH1 2441MHz Ant1 Ref



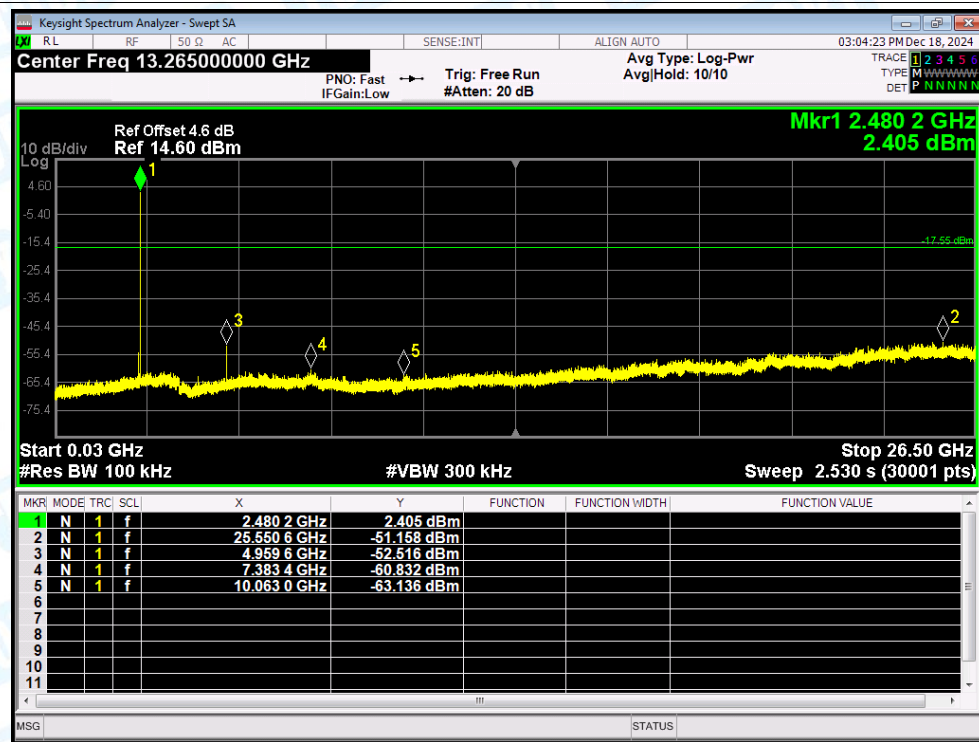
Tx. Spurious NVNT 1-DH1 2441MHz Ant1 Emission



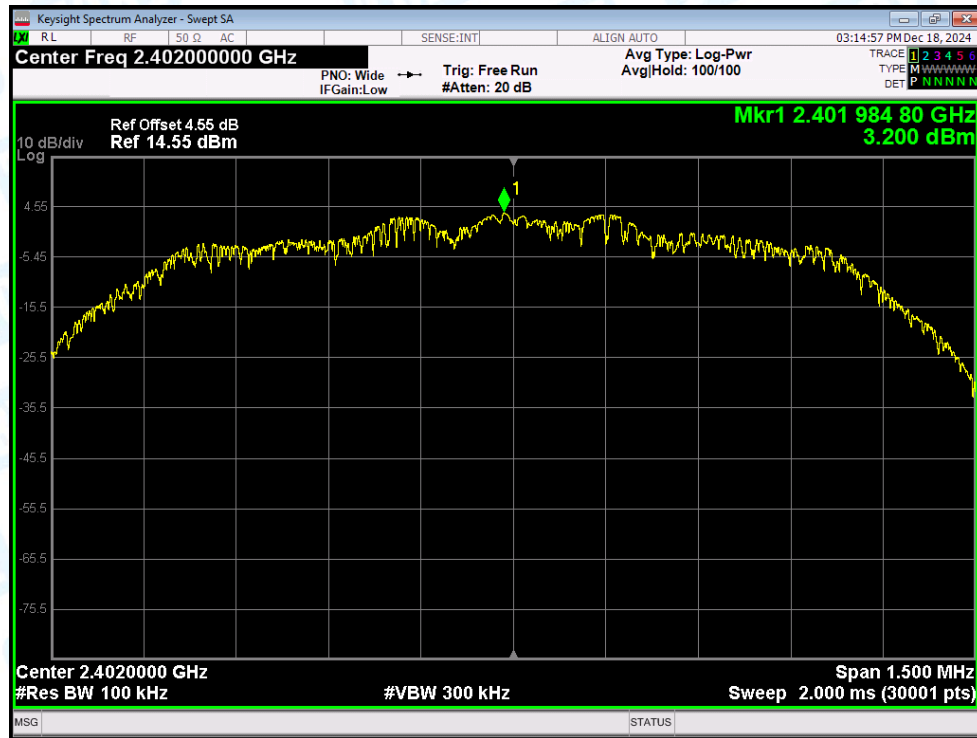
Tx. Spurious NVNT 1-DH1 2480MHz Ant1 Ref



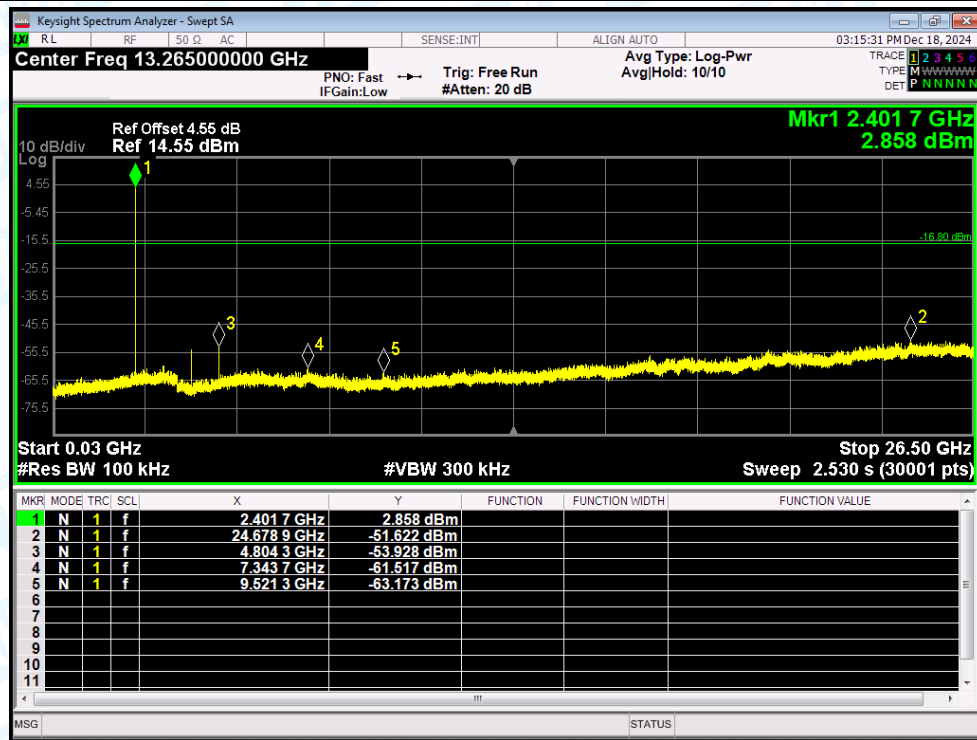
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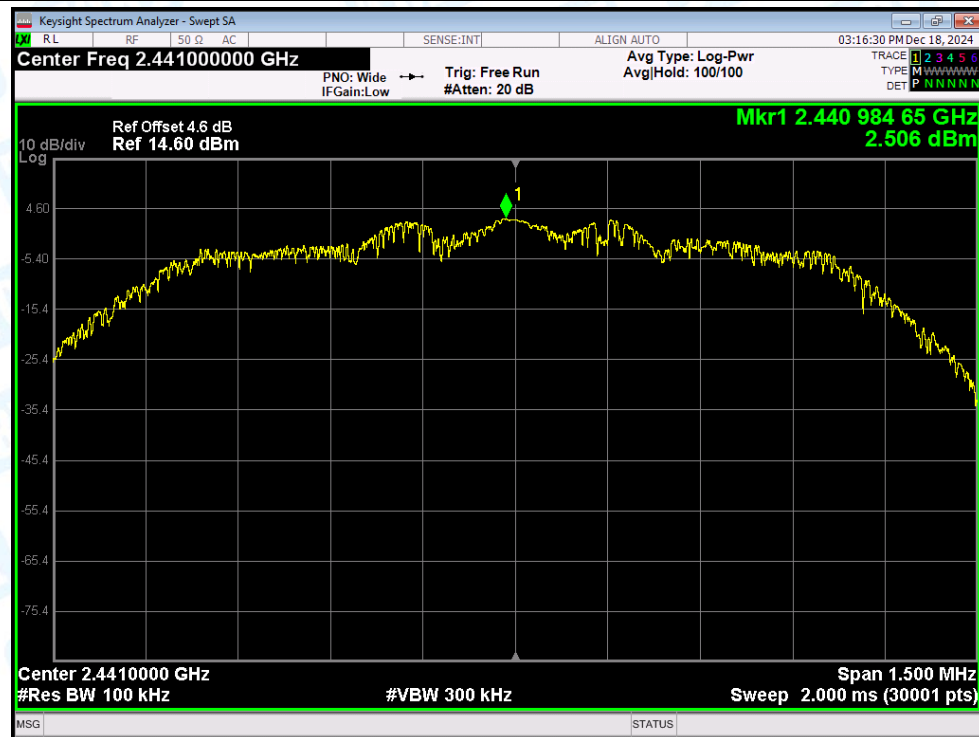
Tx. Spurious NVNT 2-DH1 2402MHz Ant1 Ref



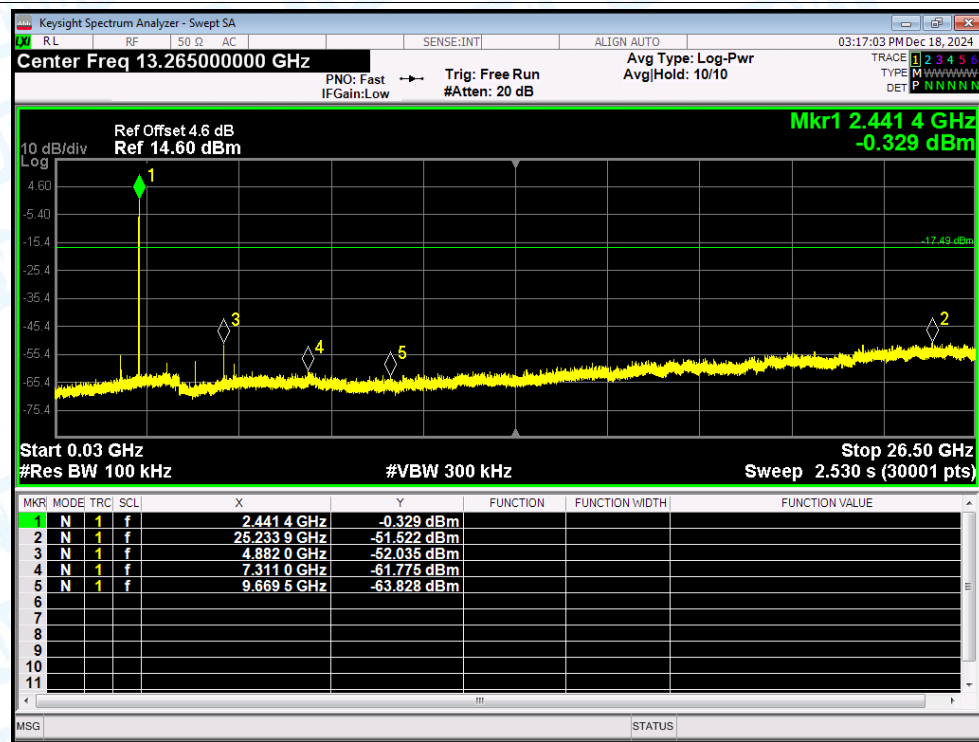
Tx. Spurious NVNT 2-DH1 2402MHz Ant1 Emission



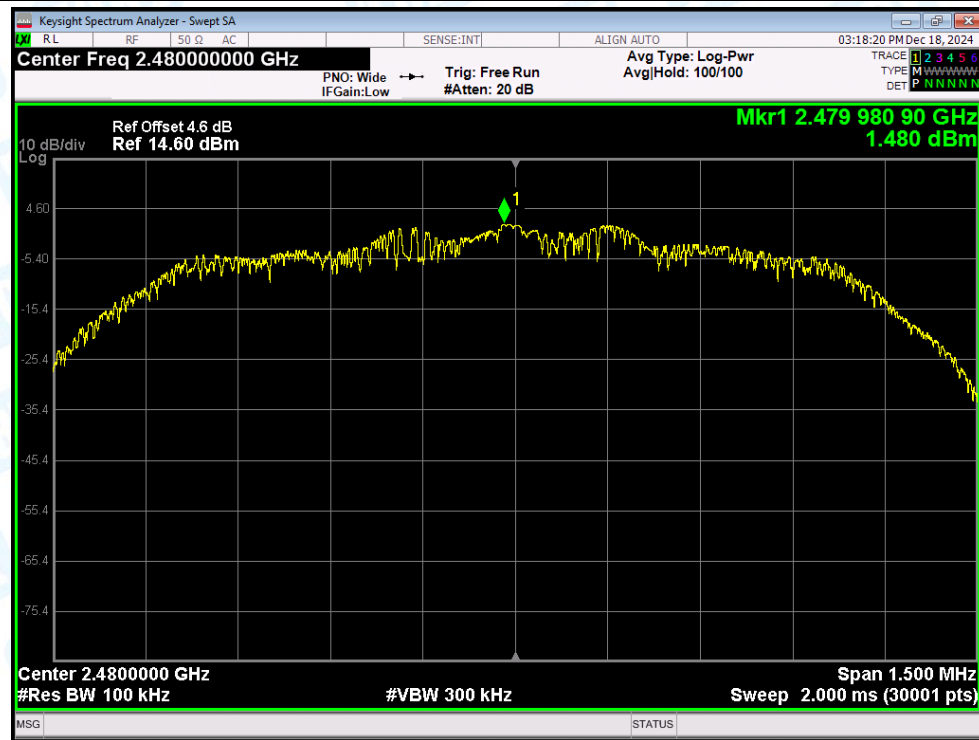
Tx. Spurious NVNT 2-DH1 2441MHz Ant1 Ref



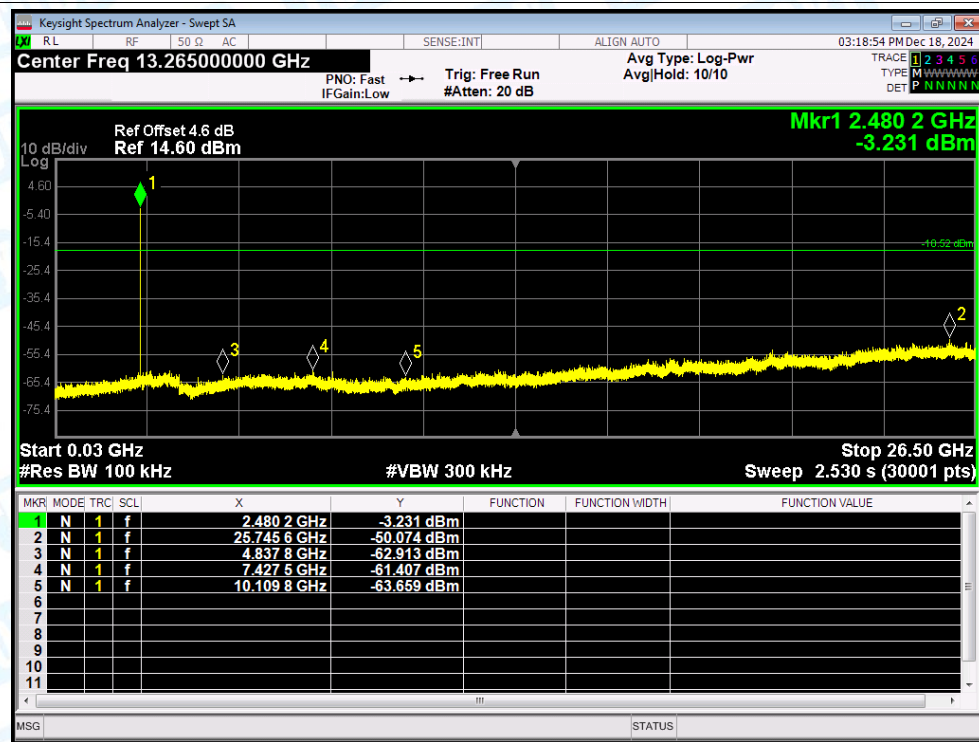
Tx. Spurious NVNT 2-DH1 2441MHz Ant1 Emission



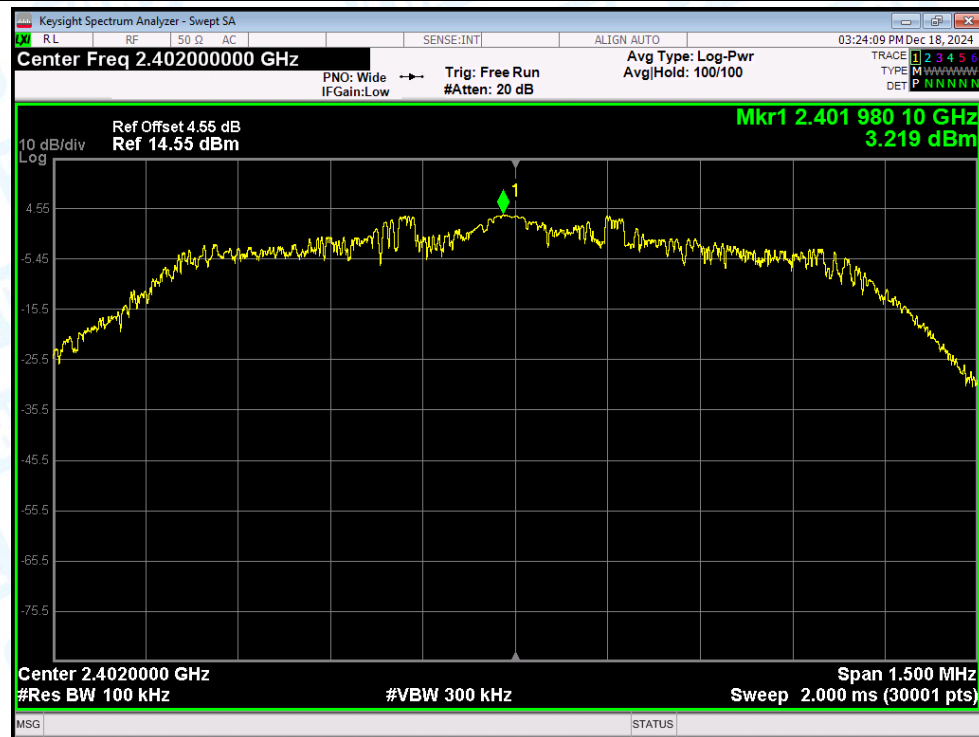
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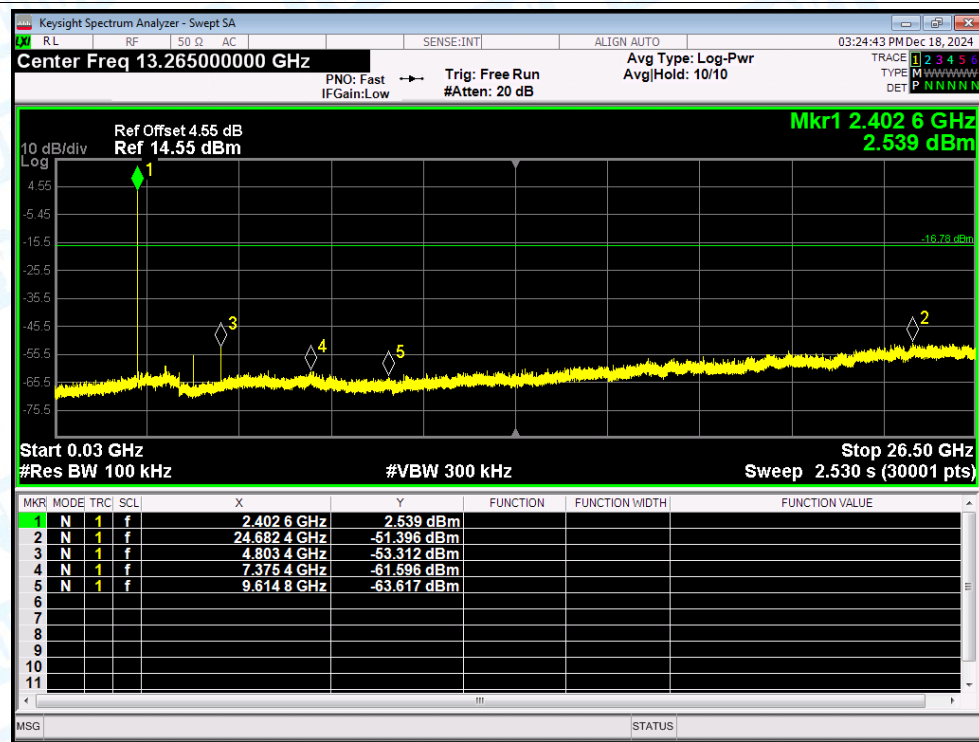
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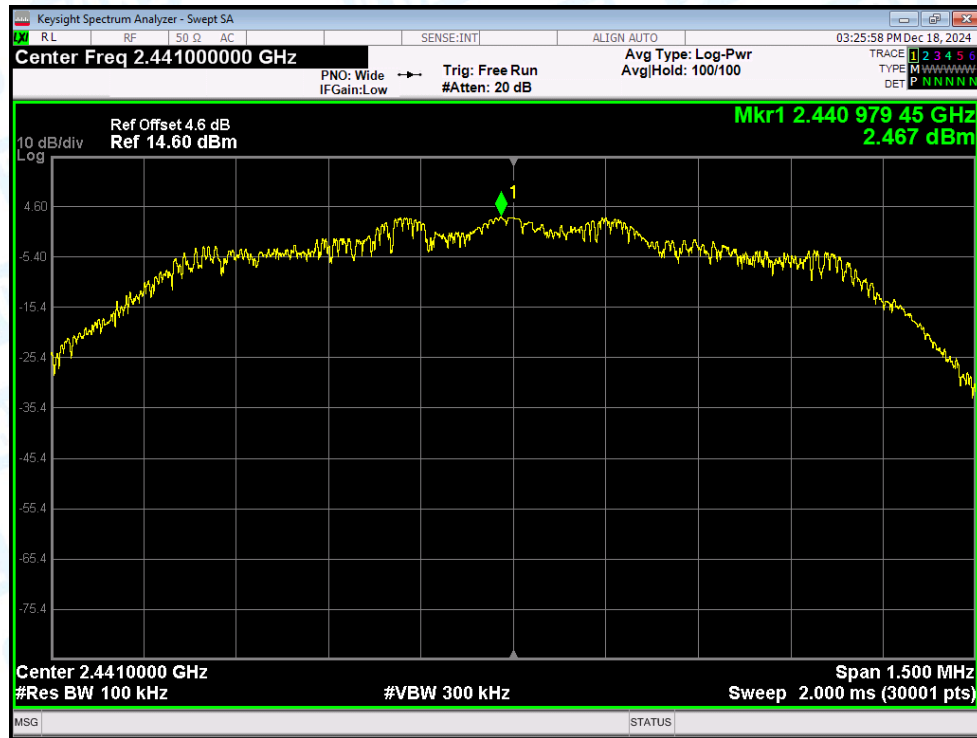
Tx. Spurious NVNT 3-DH1 2402MHz Ant1 Ref



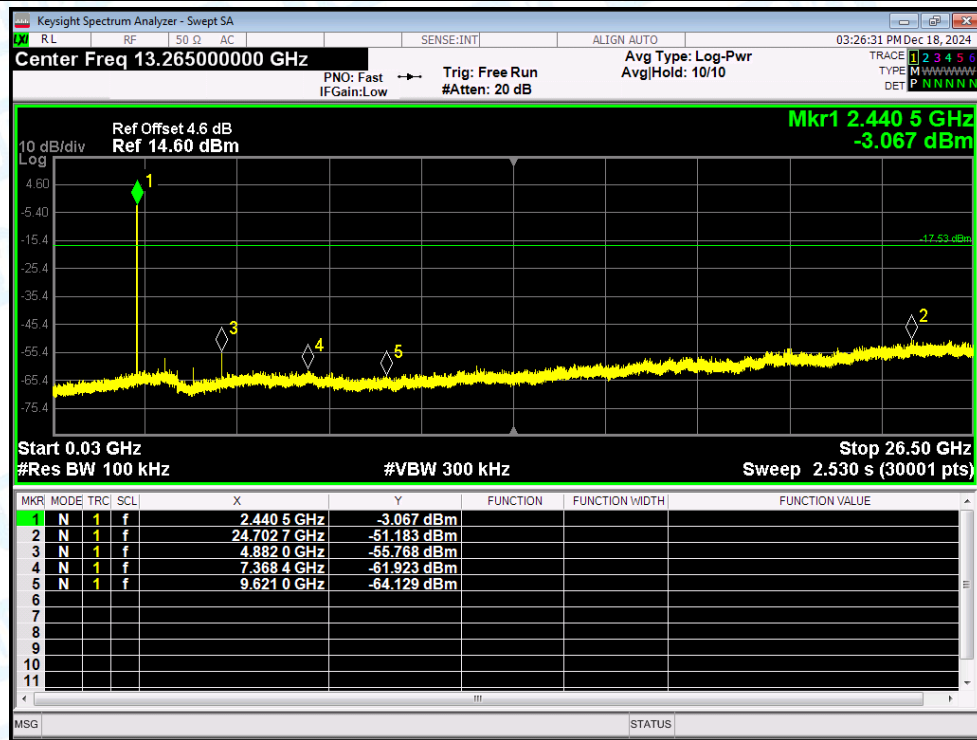
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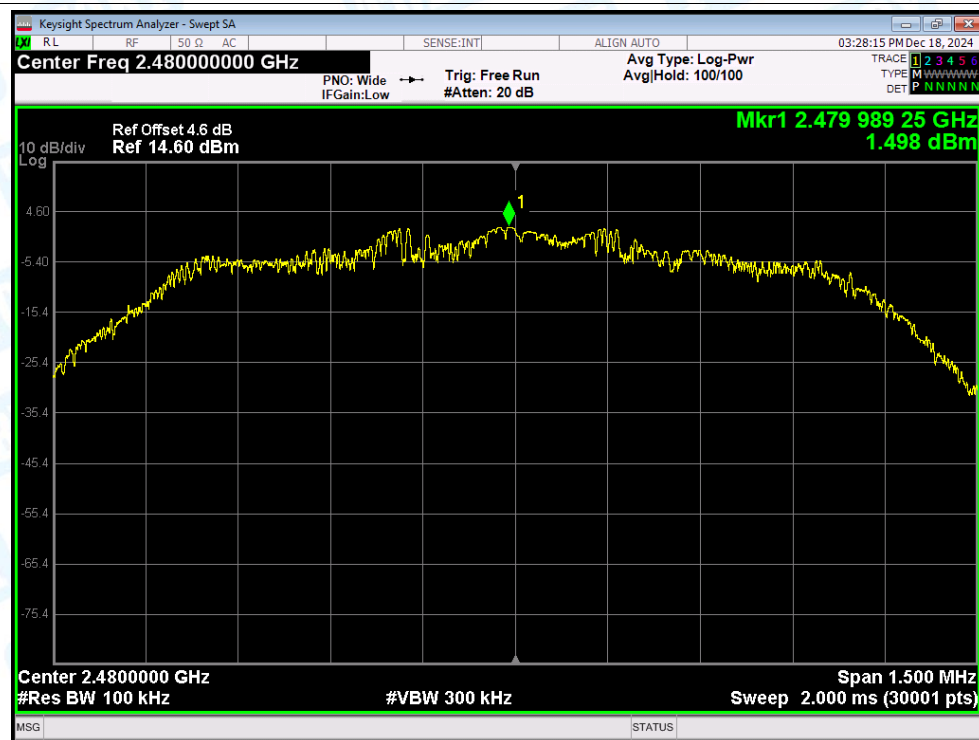
Tx. Spurious NVNT 3-DH1 2441MHz Ant1 Ref



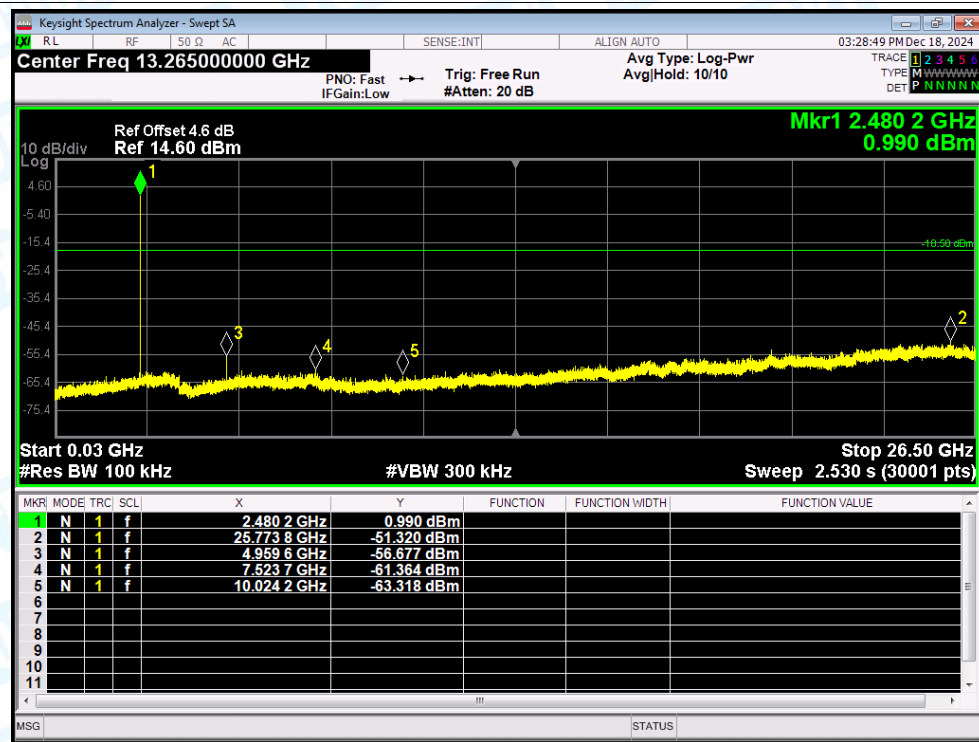
Tx. Spurious NVNT 3-DH1 2441MHz Ant1 Emission



Tx. Spurious NVNT 3-DH1 2480MHz Ant1 Ref



Tx. Spurious NVNT 3-DH1 2480MHz Ant1 Emission

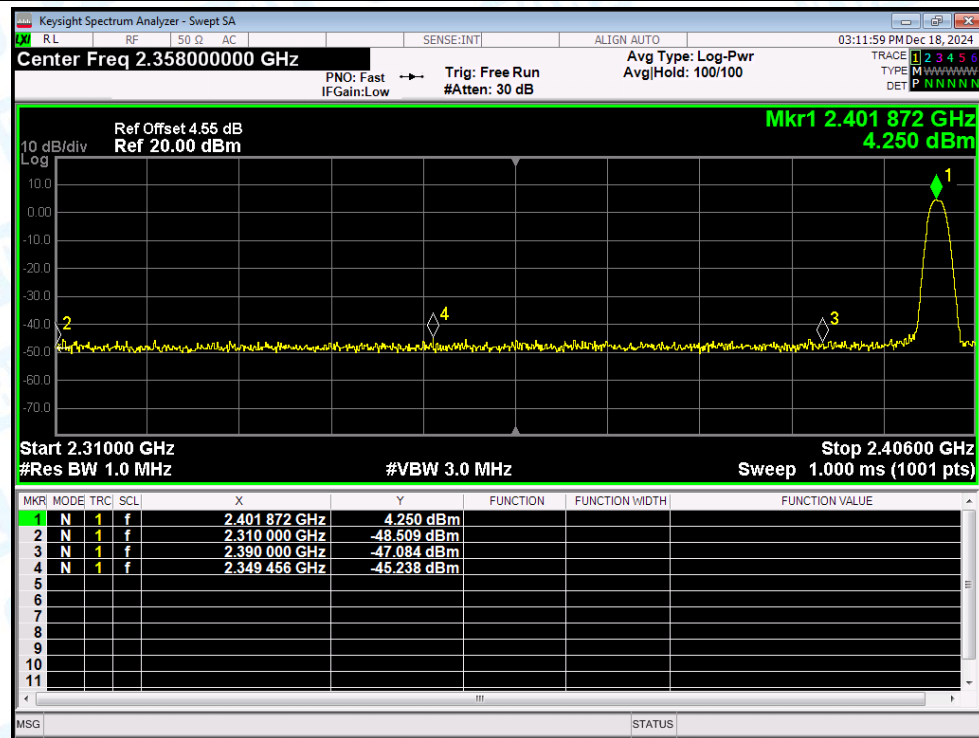


8. Restrict Band

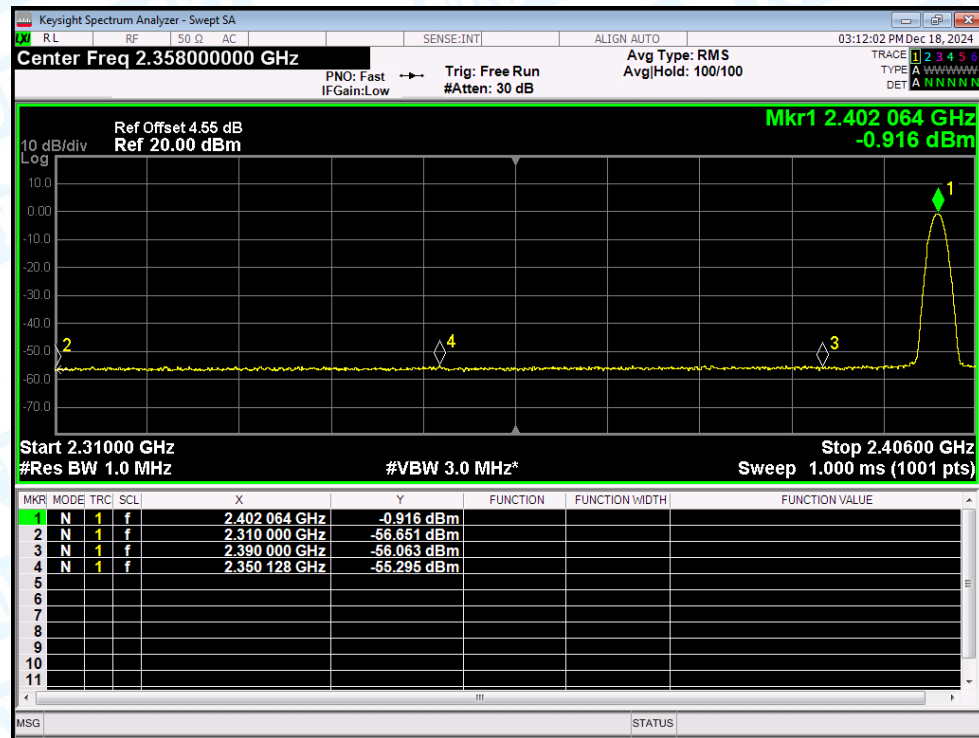
Condition	Mode	Frequency (MHz)	Antenna	Hopping Mode	Spur Freq (MHz)	Power (dBm)	Gain (dBi)	Duty Factor (dB)	E (dBuV/m)	Detector	Limit (dBuV/m)	Verdict
NVNT	1-DH1	2402	Ant1	No-Hopping	2310	-48.51	2	-	48.75	Peak	74	Pass
NVNT	1-DH1	2402	Ant1	No-Hopping	2310	-56.65	2	4.99	45.6	Average	54	Pass
NVNT	1-DH1	2402	Ant1	No-Hopping	2349.456	-45.24	2	-	52.02	Peak	74	Pass
NVNT	1-DH1	2402	Ant1	No-Hopping	2350.128	-55.29	2	4.99	46.96	Average	54	Pass
NVNT	1-DH1	2402	Ant1	No-Hopping	2390	-47.08	2	-	50.18	Peak	74	Pass
NVNT	1-DH1	2402	Ant1	No-Hopping	2390	-56.06	2	4.99	46.19	Average	54	Pass
NVNT	1-DH1	2480	Ant1	No-Hopping	2483.5	-46.86	2	-	50.4	Peak	74	Pass
NVNT	1-DH1	2480	Ant1	No-Hopping	2483.5	-55.21	2	4.99	47.04	Average	54	Pass
NVNT	1-DH1	2480	Ant1	No-Hopping	2483.728	-44.75	2	-	52.51	Peak	74	Pass
NVNT	1-DH1	2480	Ant1	No-Hopping	2483.536	-54.7	2	4.99	47.55	Average	54	Pass
NVNT	1-DH1	2480	Ant1	No-Hopping	2500	-48.03	2	-	49.23	Peak	74	Pass
NVNT	1-DH1	2480	Ant1	No-Hopping	2500	-55.75	2	4.99	46.5	Average	54	Pass
NVNT	2-DH1	2402	Ant1	No-Hopping	2310	-47.55	2	-	49.71	Peak	74	Pass
NVNT	2-DH1	2402	Ant1	No-Hopping	2310	-55.87	2	5.02	46.41	Average	54	Pass
NVNT	2-DH1	2402	Ant1	No-Hopping	2389.488	-45.57	2	-	51.69	Peak	74	Pass
NVNT	2-DH1	2402	Ant1	No-Hopping	2388.816	-55.36	2	5.02	46.92	Average	54	Pass
NVNT	2-DH1	2402	Ant1	No-Hopping	2390	-48.13	2	-	49.13	Peak	74	Pass
NVNT	2-DH1	2402	Ant1	No-Hopping	2390	-56.06	2	5.02	46.22	Average	54	Pass
NVNT	2-DH1	2480	Ant1	No-Hopping	2483.5	-45.66	2	-	51.6	Peak	74	Pass
NVNT	2-DH1	2480	Ant1	No-Hopping	2483.5	-55.11	2	4.99	47.14	Average	54	Pass
NVNT	2-DH1	2480	Ant1	No-Hopping	2486.488	-44.81	2	-	52.45	Peak	74	Pass
NVNT	2-DH1	2480	Ant1	No-Hopping	2499.016	-54.72	2	4.99	47.53	Average	54	Pass
NVNT	2-DH1	2480	Ant1	No-Hopping	2500	-48.13	2	-	49.13	Peak	74	Pass
NVNT	2-DH1	2480	Ant1	No-Hopping	2500	-55.68	2	4.99	46.57	Average	54	Pass
NVNT	3-DH1	2402	Ant1	No-Hopping	2310	-48.11	2	-	49.15	Peak	74	Pass
NVNT	3-DH1	2402	Ant1	No-Hopping	2310	-56.26	2	4.99	45.99	Average	54	Pass
NVNT	3-DH1	2402	Ant1	No-Hopping	2380.272	-45.17	2	-	52.09	Peak	74	Pass
NVNT	3-DH1	2402	Ant1	No-Hopping	2384.592	-55.25	2	4.99	47	Average	54	Pass
NVNT	3-DH1	2402	Ant1	No-Hopping	2390	-47.59	2	-	49.67	Peak	74	Pass
NVNT	3-DH1	2402	Ant1	No-Hopping	2390	-55.72	2	4.99	46.53	Average	54	Pass
NVNT	3-DH1	2480	Ant1	No-Hopping	2483.5	-47.74	2	-	49.52	Peak	74	Pass
NVNT	3-DH1	2480	Ant1	No-Hopping	2483.5	-55.08	2	5.02	47.2	Average	54	Pass
NVNT	3-DH1	2480	Ant1	No-Hopping	2496.04	-44.84	2	-	52.42	Peak	74	Pass
NVNT	3-DH1	2480	Ant1	No-Hopping	2494.408	-54.75	2	5.02	47.53	Average	54	Pass
NVNT	3-DH1	2480	Ant1	No-Hopping	2500	-47.92	2	-	49.34	Peak	74	Pass
NVNT	3-DH1	2480	Ant1	No-Hopping	2500	-55.45	2	5.02	46.83	Average	54	Pass

Test Graphs

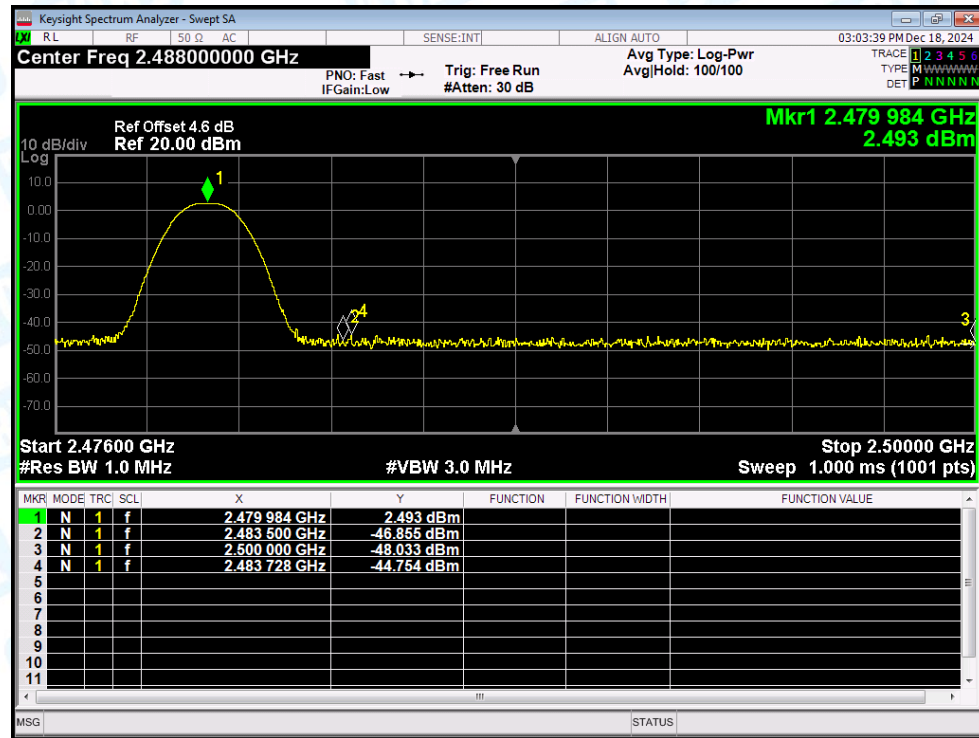
Restrict Band NVNT 1-DH1 2402MHz Ant1 No-Hopping Peak



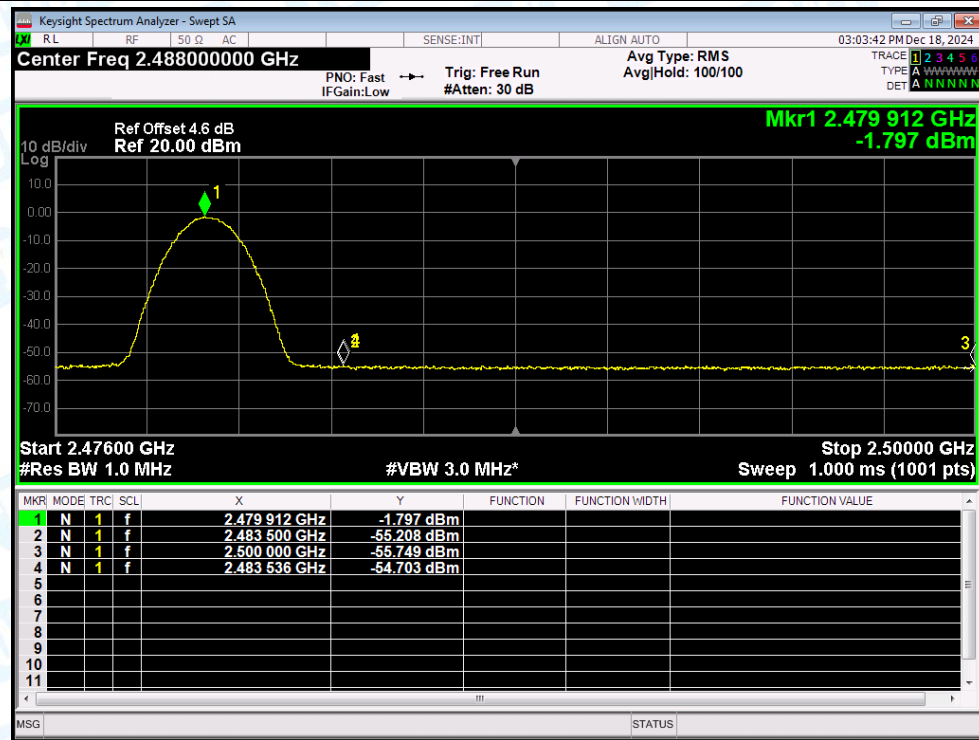
Restrict Band NVNT 1-DH1 2402MHz Ant1 No-Hopping Average



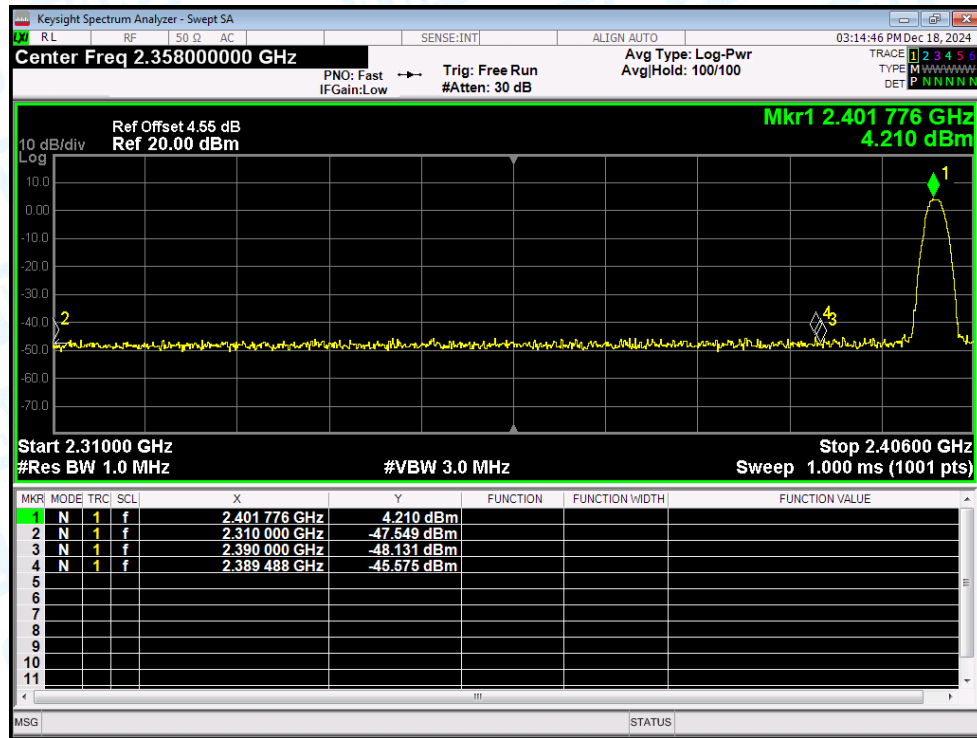
Restrict Band NVNT 1-DH1 2480MHz Ant1 No-Hopping Peak



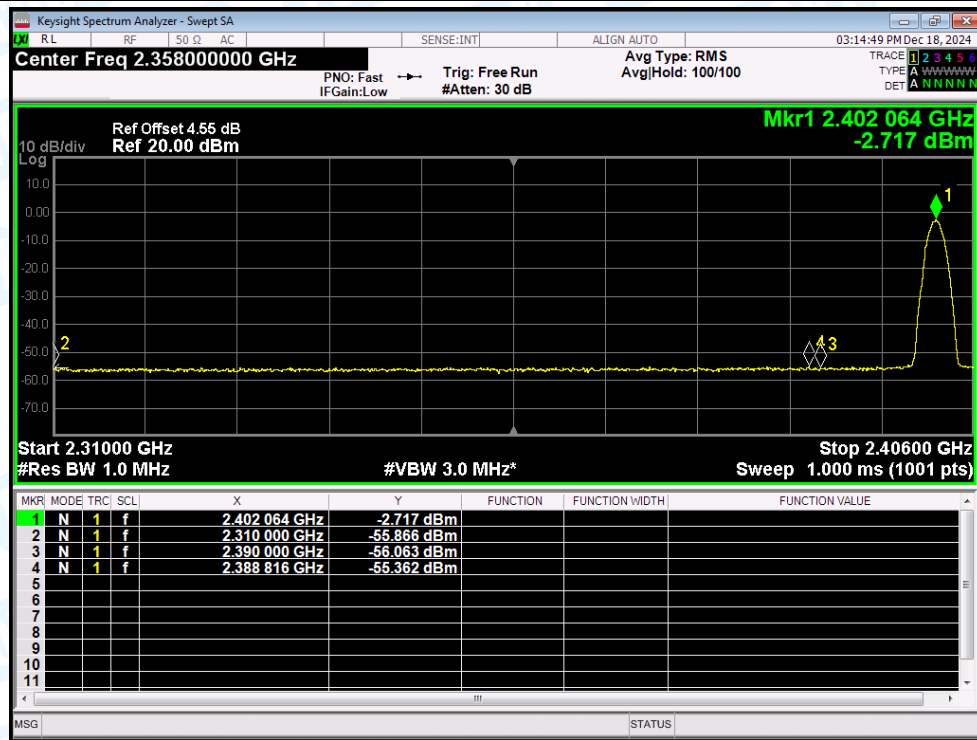
Restrict Band NVNT 1-DH1 2480MHz Ant1 No-Hopping Average



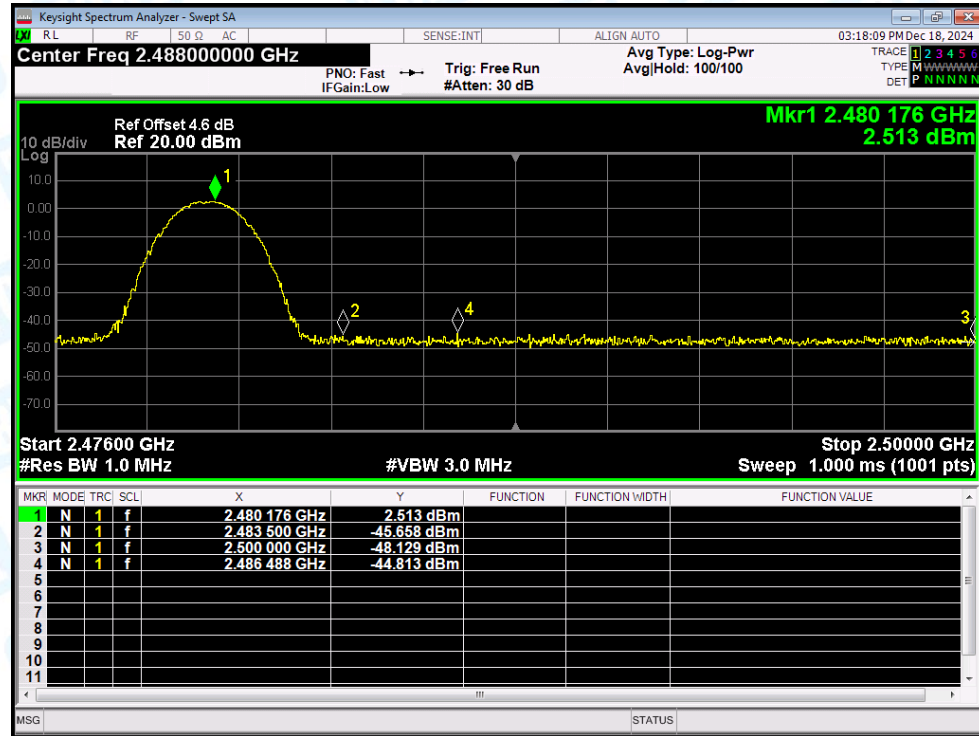
Restrict Band NVNT 2-DH1 2402MHz Ant1 No-Hopping Peak



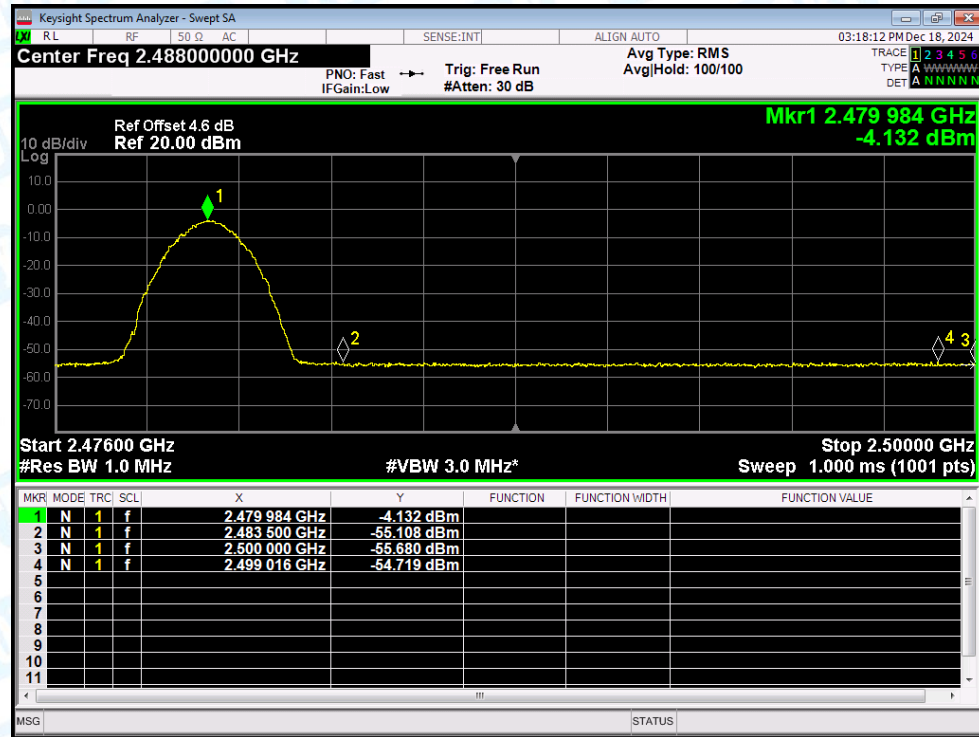
Restrict Band NVNT 2-DH1 2402MHz Ant1 No-Hopping Average



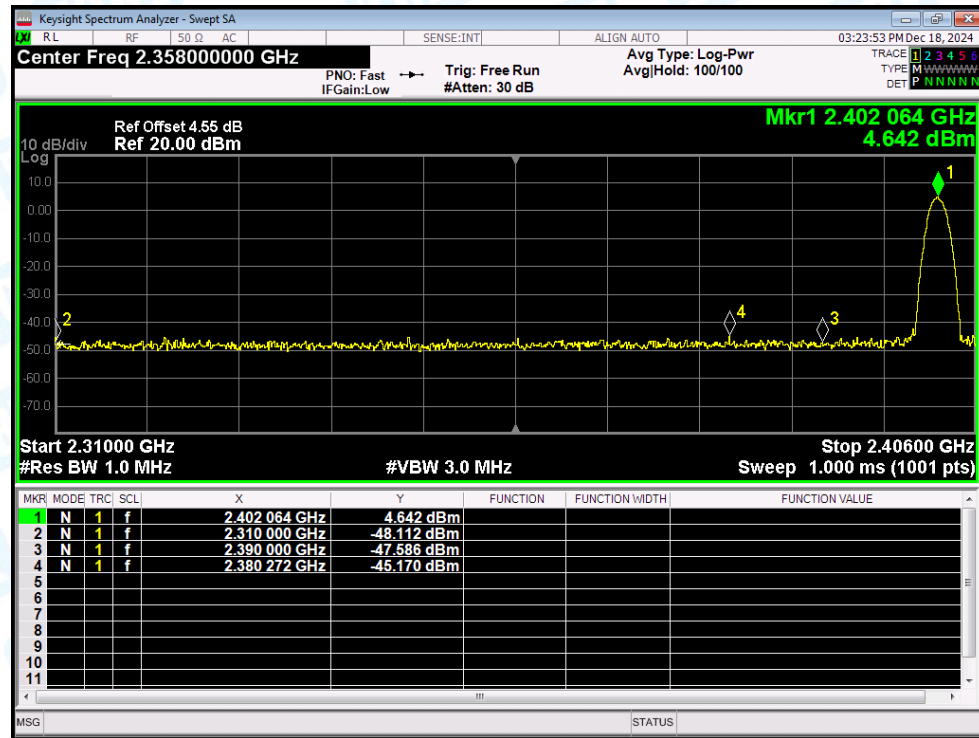
Restrict Band NVNT 2-DH1 2480MHz Ant1 No-Hopping Peak



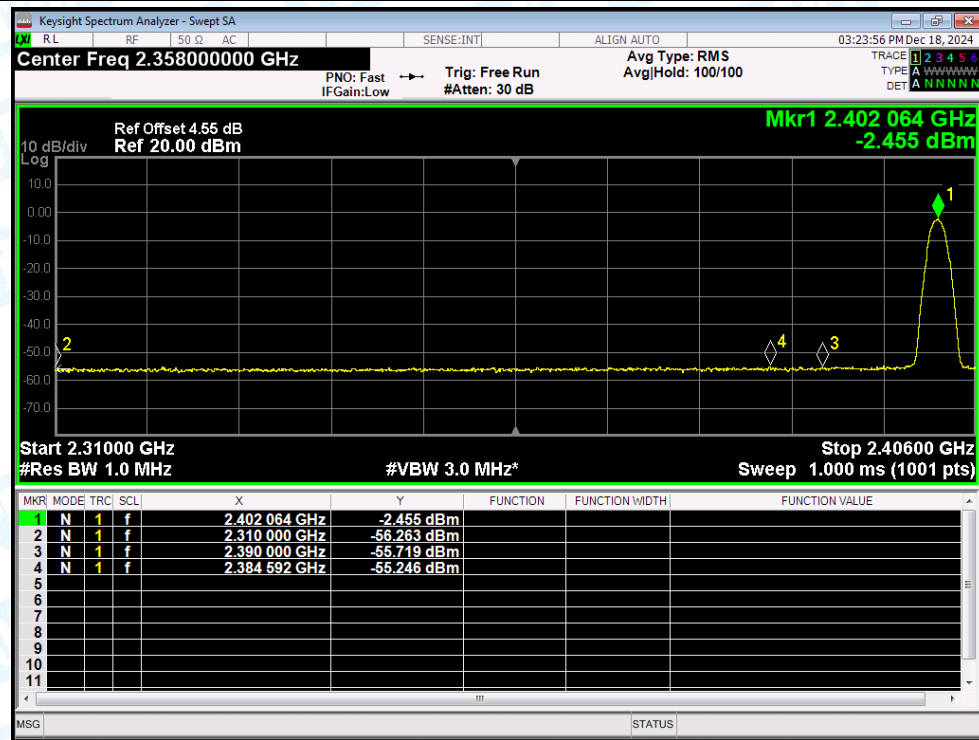
Restrict Band NVNT 2-DH1 2480MHz Ant1 No-Hopping Average



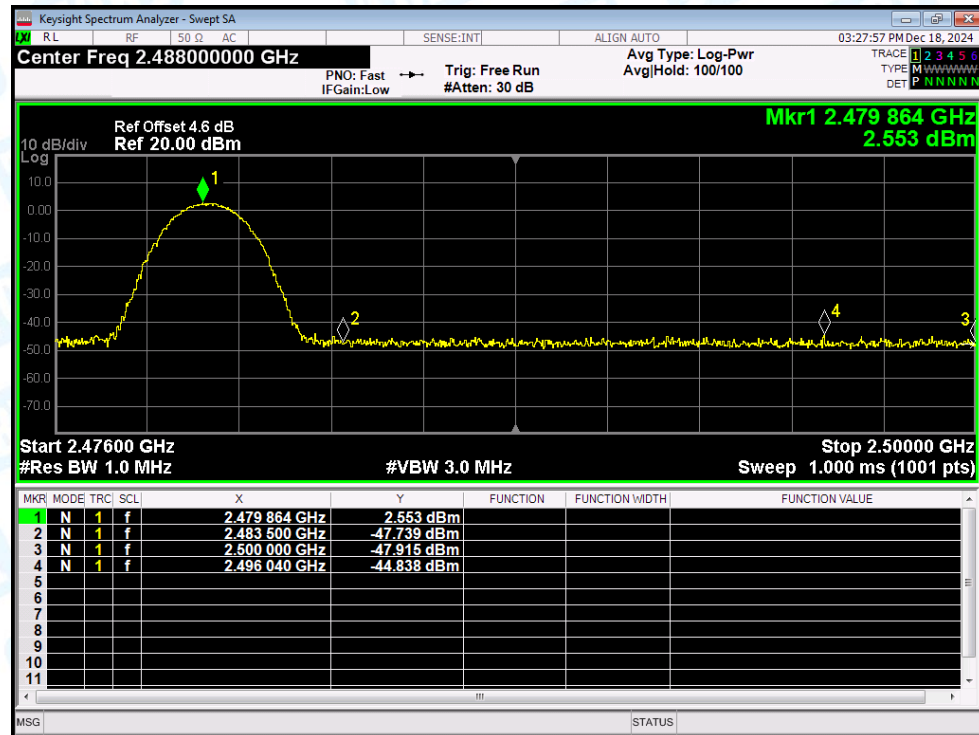
Restrict Band NVNT 3-DH1 2402MHz Ant1 No-Hopping Peak



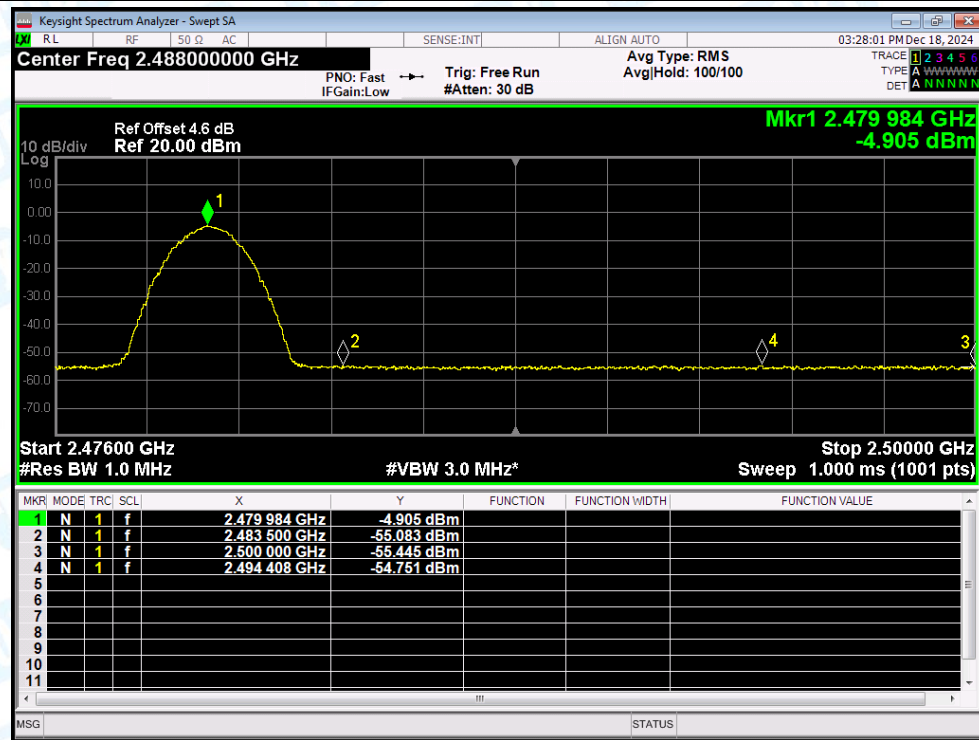
Restrict Band NVNT 3-DH1 2402MHz Ant1 No-Hopping Average



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



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

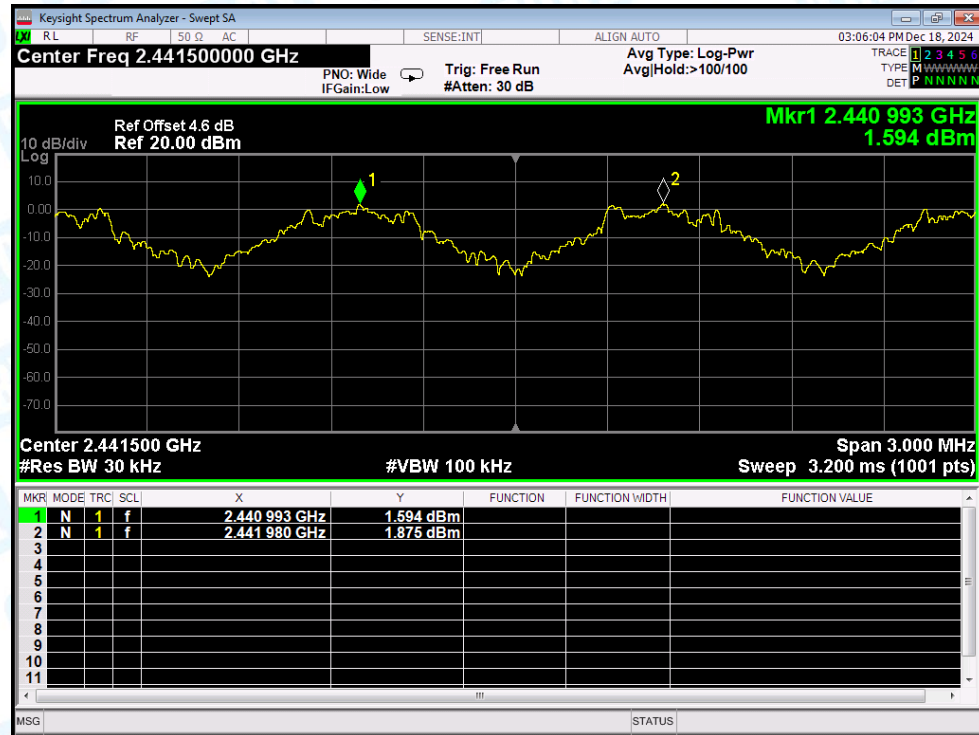


9. Carrier Frequencies Separation

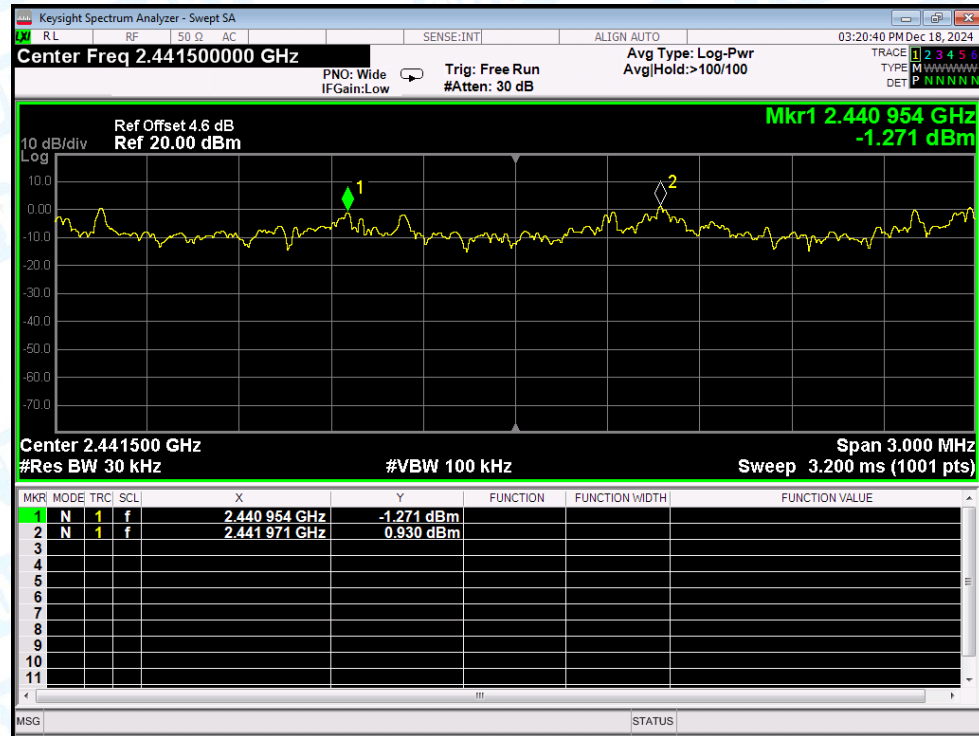
Condition	Mode	Antenna	Hopping Freq1 (MHz)	Hopping Freq2 (MHz)	HFS (MHz)	Limit (MHz)	Verdict
NVNT	1-DH1	Ant1	2440.993	2441.98	0.987	0.613	Pass
NVNT	2-DH1	Ant1	2440.954	2441.971	1.017	0.82	Pass
NVNT	3-DH1	Ant1	2440.969	2441.971	1.002	0.813	Pass

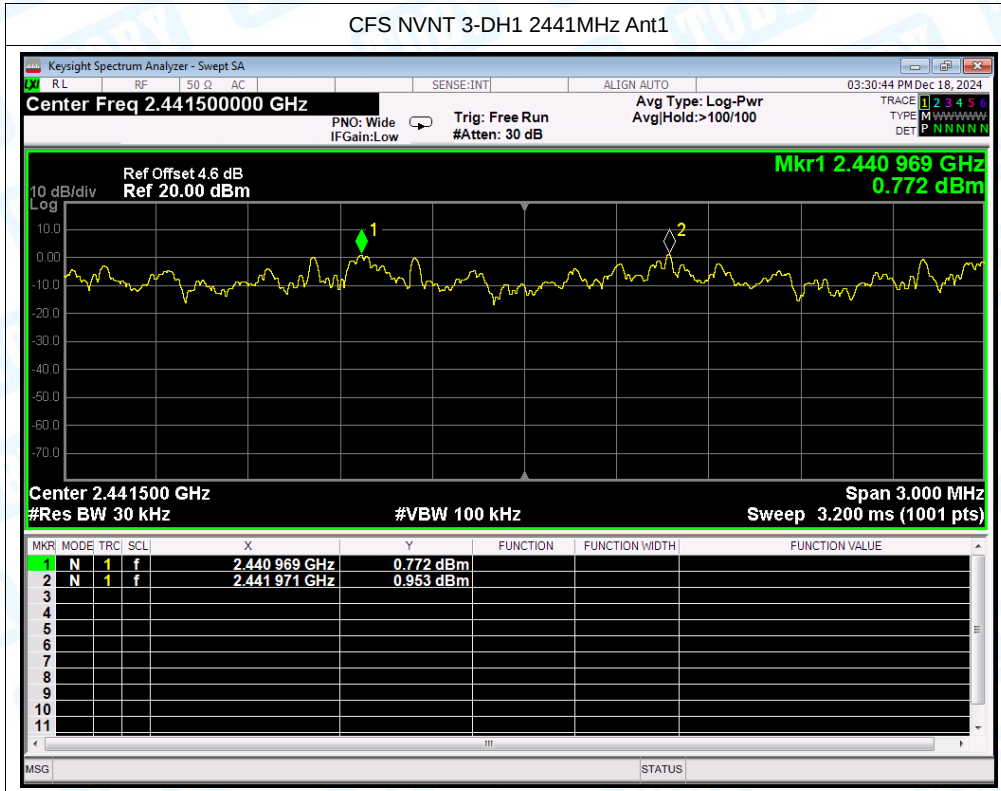
Test Graphs

CFS NVNT 1-DH1 2441MHz Ant1



CFS NVNT 2-DH1 2441MHz Ant1



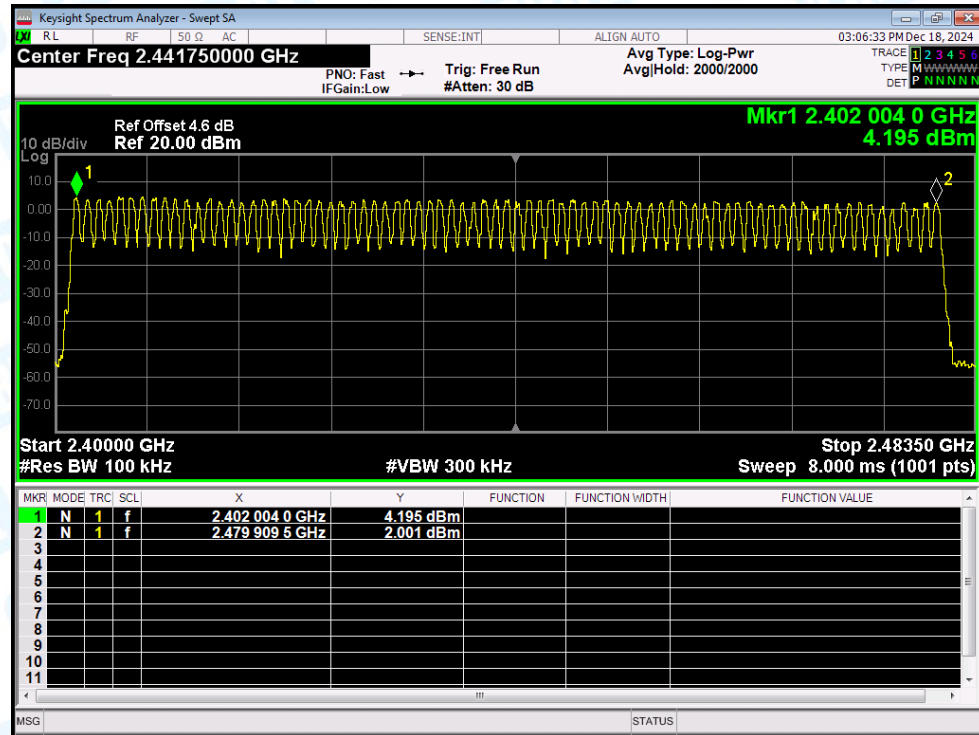


10. Number of Hopping Channel

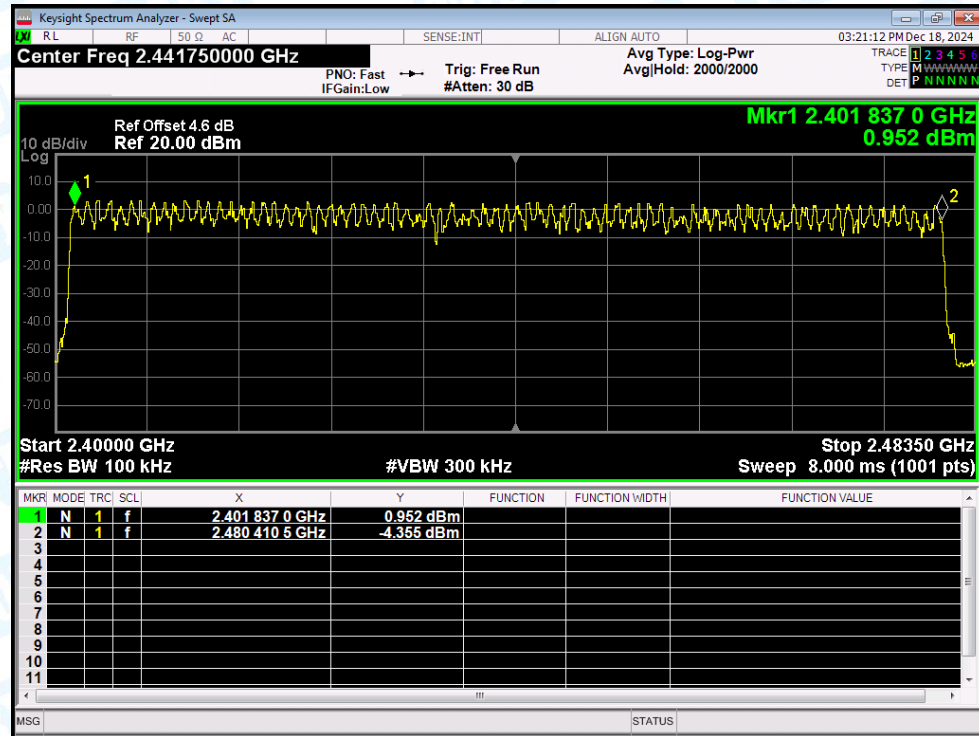
Condition	Mode	Antenna	Hopping Number	Limit	Verdict
NVNT	1-DH1	Ant1	79	15	Pass
NVNT	2-DH1	Ant1	79	15	Pass
NVNT	3-DH1	Ant1	79	15	Pass

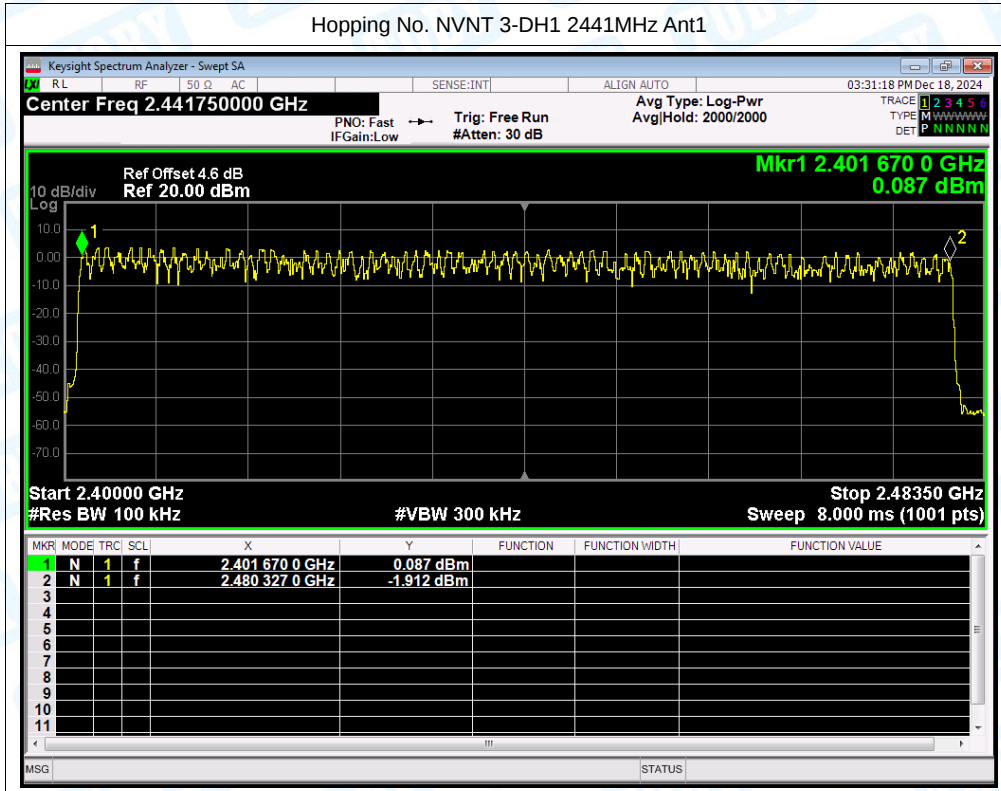
Test Graphs

Hopping No. NVNT 1-DH1 2441MHz Ant1



Hopping No. NVNT 2-DH1 2441MHz Ant1



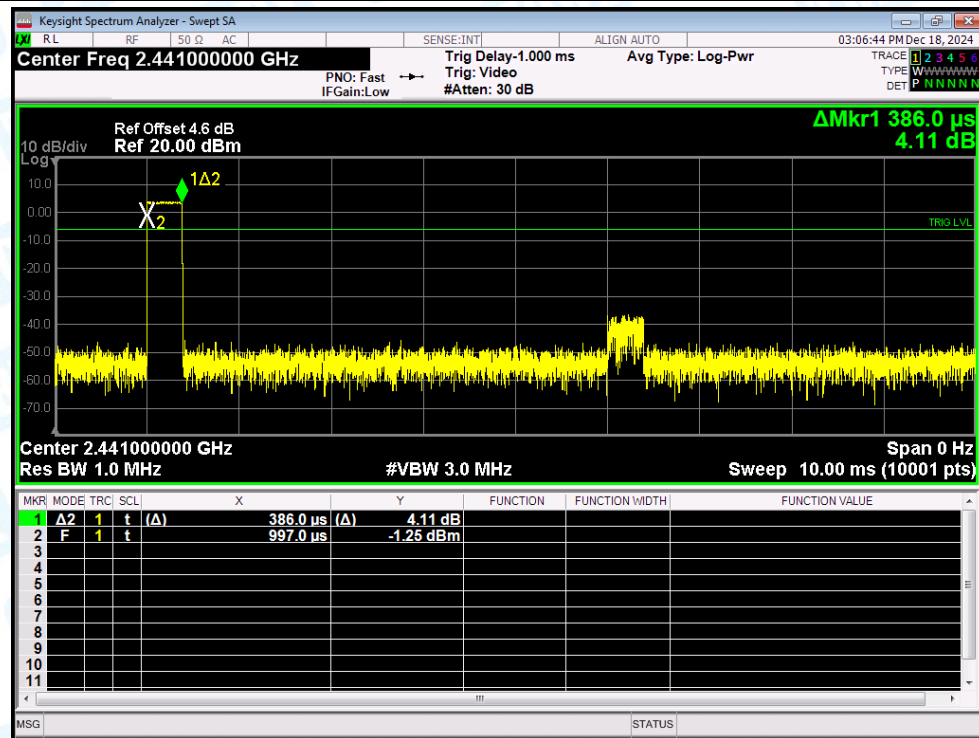


11. Dwell Time

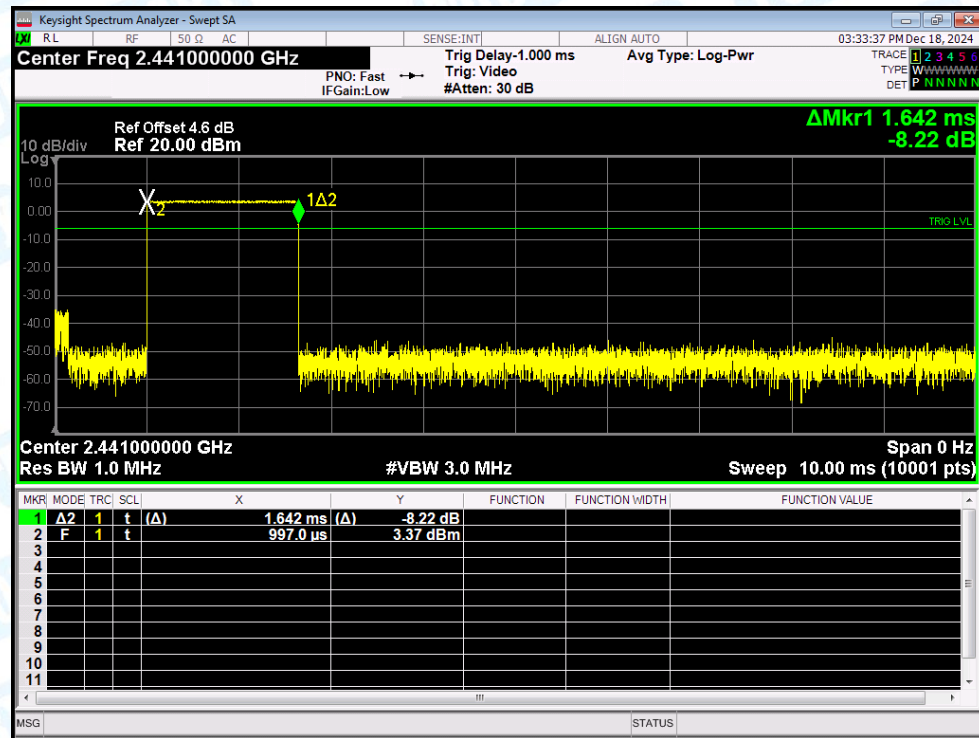
Condition	Mode	Frequency (MHz)	Antenna	Pulse Time (ms)	Total Dwell Time (ms)	Period Time (ms)	Limit (ms)	Verdict
NVNT	1-DH1	2441	Ant1	0.386	123.52	31600	400	Pass
NVNT	1-DH3	2441	Ant1	1.642	262.72	31600	400	Pass
NVNT	1-DH5	2441	Ant1	2.889	308.16	31600	400	Pass
NVNT	2-DH1	2441	Ant1	0.395	126.4	31600	400	Pass
NVNT	2-DH3	2441	Ant1	1.647	263.52	31600	400	Pass
NVNT	2-DH5	2441	Ant1	2.894	308.693	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

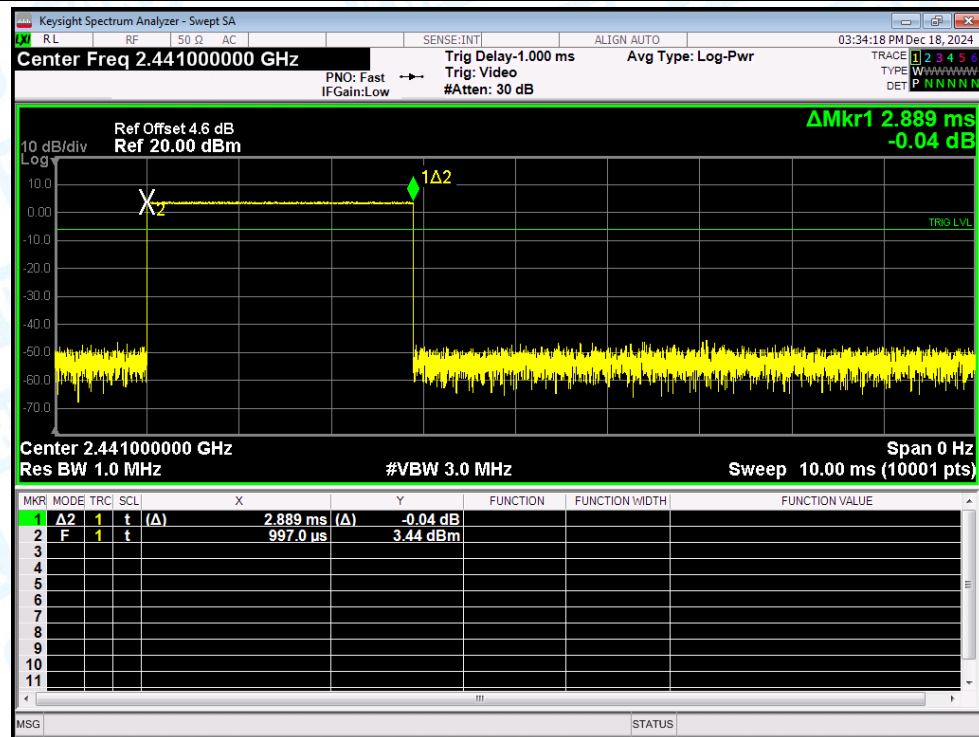
Dwell NVNT 1-DH1 2441MHz Ant1



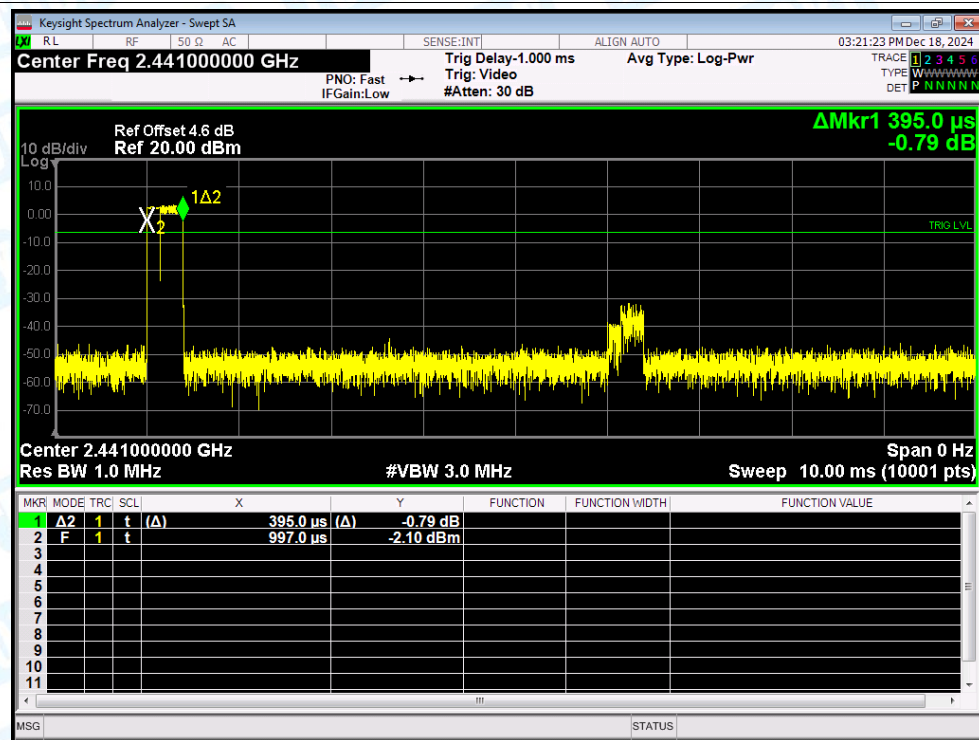
Dwell NVNT 1-DH3 2441MHz Ant1



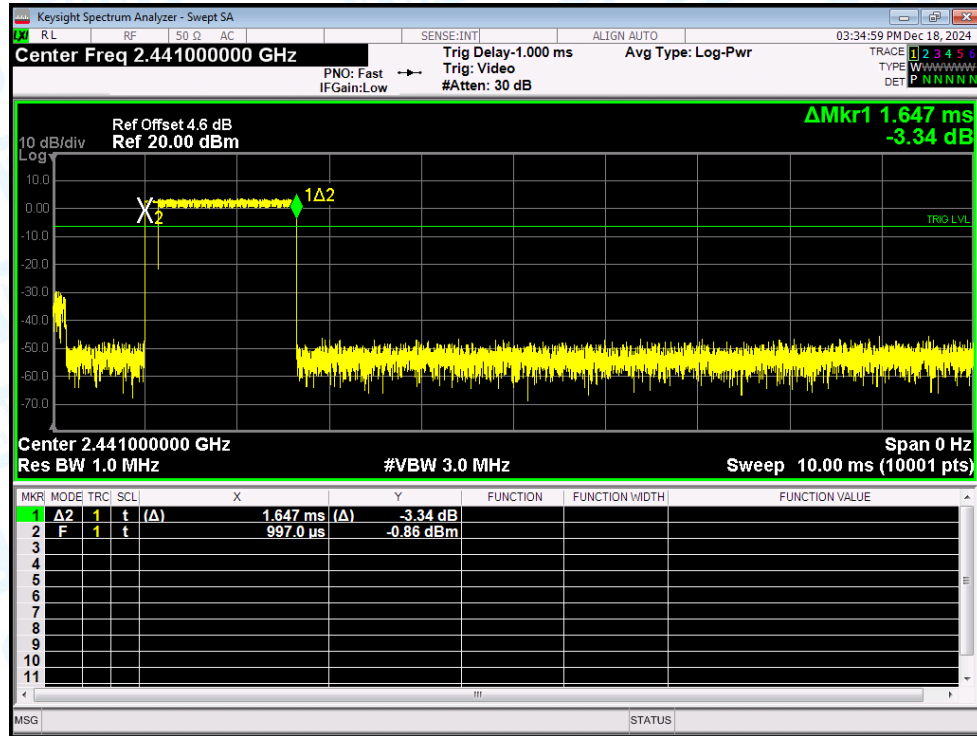
Dwell NVNT 1-DH5 2441MHz Ant1



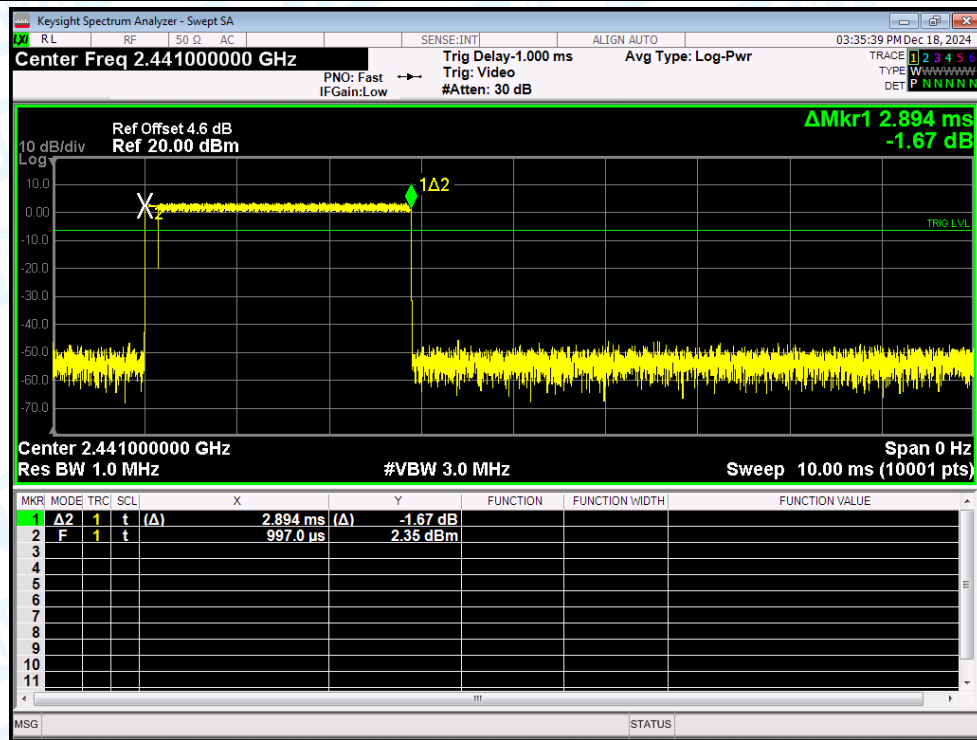
Dwell NVNT 2-DH1 2441MHz Ant1



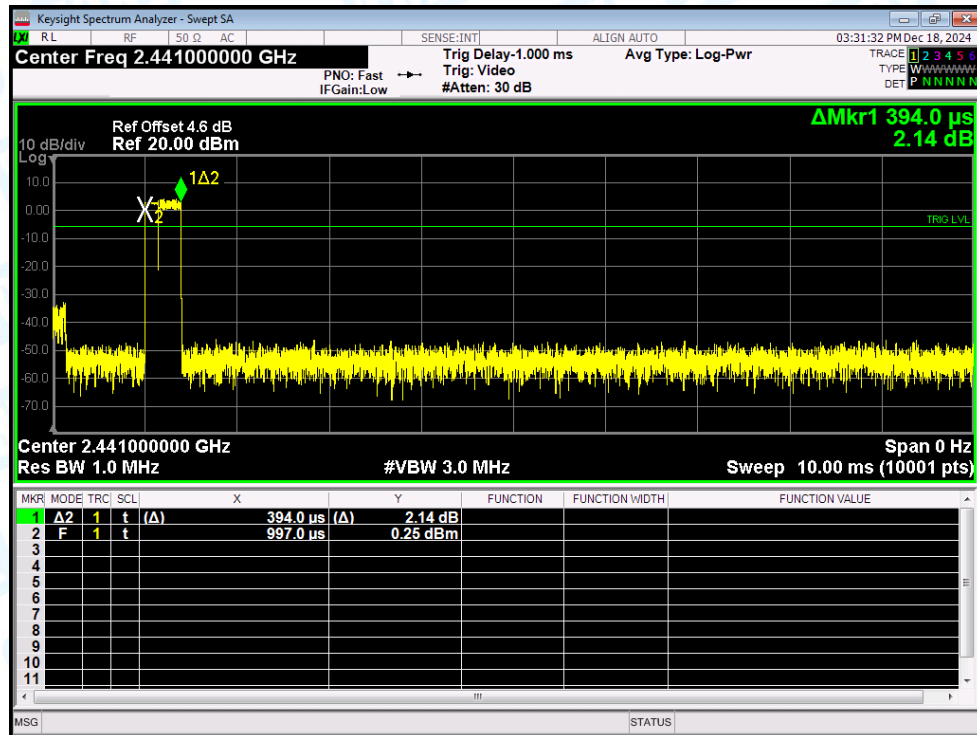
Dwell NVNT 2-DH3 2441MHz Ant1



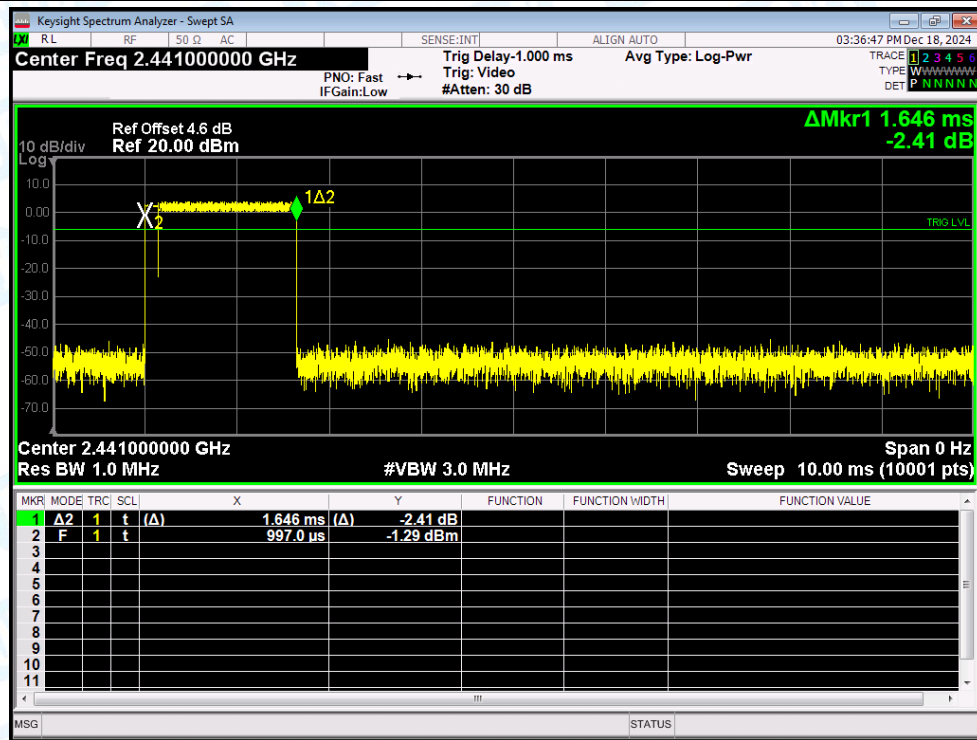
Dwell NVNT 2-DH5 2441MHz Ant1

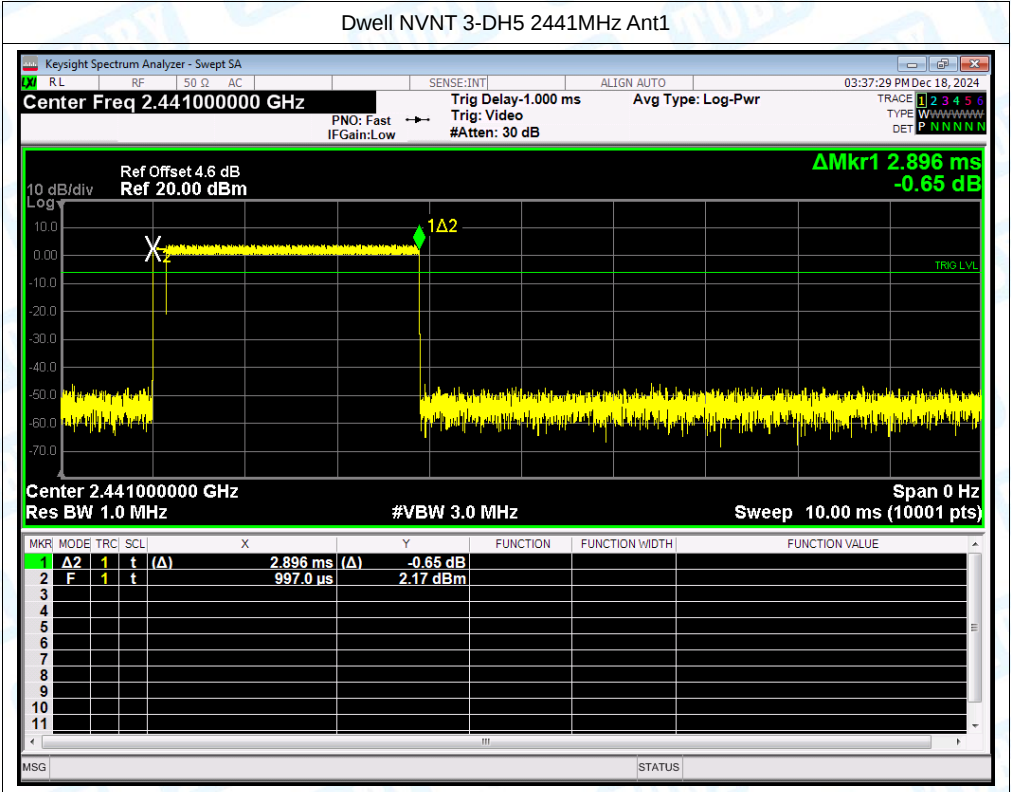


Dwell NVNT 3-DH1 2441MHz Ant1



Dwell NVNT 3-DH3 2441MHz Ant1





--- END OF REPORT ---