

RF Test Data for Bluetooth (Conducted Measurements)

General Description of EUT	
Product Name:	Smart Watch
Test Model:	ColorFit Ultra 4
Sample ID:	HC-C-202604-0171-01-01-2#
Environmental Conditions	
Temperature:	23.8°C
Relative Humidity:	48%
Test Voltage:	DC 3.87V
Test Engineer:	Lily. Zhang
Note: For a more detailed features description, please refer to the report TBR-C-202604-0171-2 The report only show the worst case data.	

Contents

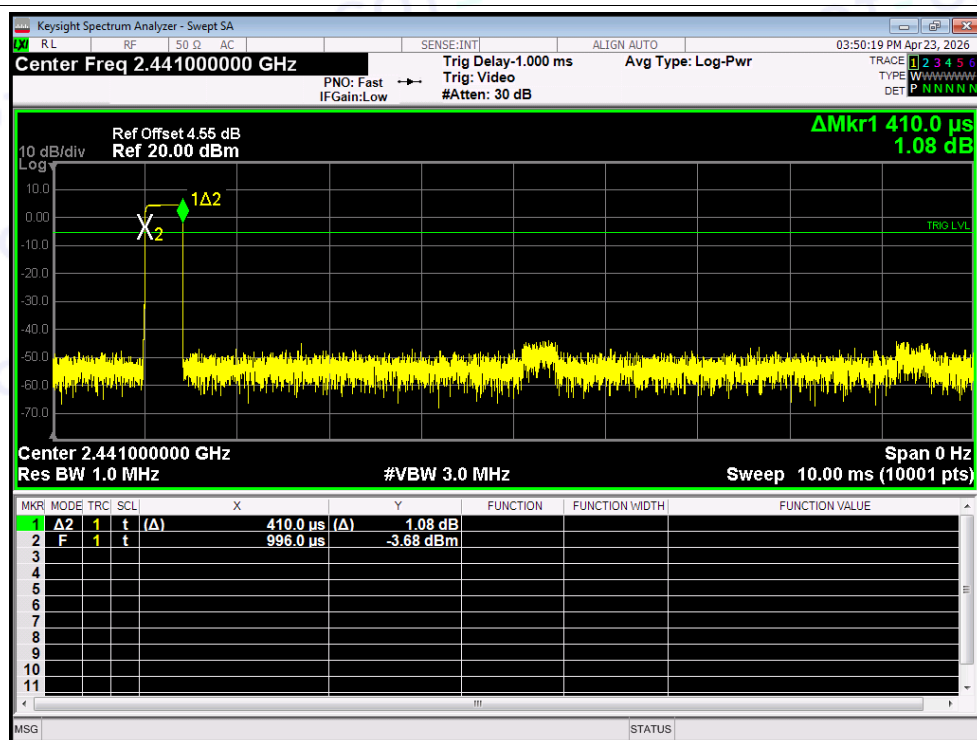
1.	Dwell Time	3
2.	Duty Cycle	9
3.	Maximum Conducted Output Power	15
4.	-20dB Bandwidth	21
5.	Occupied Channel Bandwidth	27
6.	Band Edge	33
7.	Band Edge(Hopping)	40
8.	Conducted RF Spurious Emission	47
9.	Restrict Band	57
10.	Carrier Frequencies Separation	64
11.	Number of Hopping Channel	67

1. Dwell Time

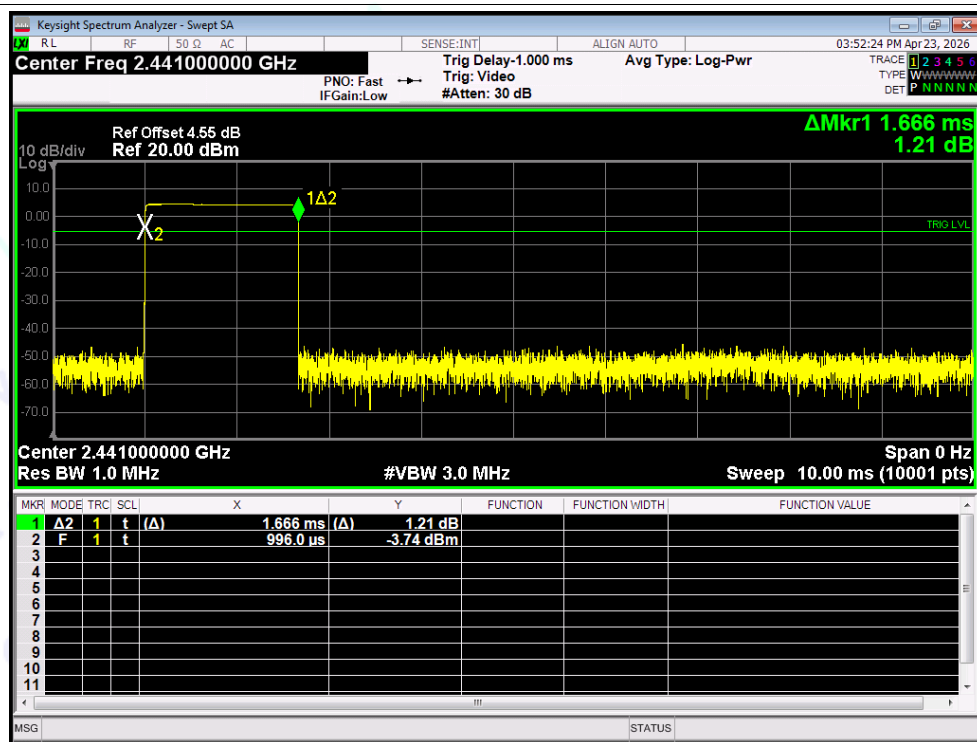
Condition	Mode	Frequency (MHz)	Antenna	Pulse Time (ms)	Total Dwell Time (ms)	Period Time (ms)	Limit (ms)	Verdict
NVNT	1-DH1	2441	Ant1	0.41	131.2	31600	400	Pass
NVNT	1-DH3	2441	Ant1	1.666	266.56	31600	400	Pass
NVNT	1-DH5	2441	Ant1	2.914	310.827	31600	400	Pass
NVNT	2-DH1	2441	Ant1	0.381	121.92	31600	400	Pass
NVNT	2-DH3	2441	Ant1	1.633	261.28	31600	400	Pass
NVNT	2-DH5	2441	Ant1	2.882	307.413	31600	400	Pass
NVNT	3-DH1	2441	Ant1	0.381	121.92	31600	400	Pass
NVNT	3-DH3	2441	Ant1	1.631	260.96	31600	400	Pass
NVNT	3-DH5	2441	Ant1	2.882	307.413	31600	400	Pass

Test Graphs

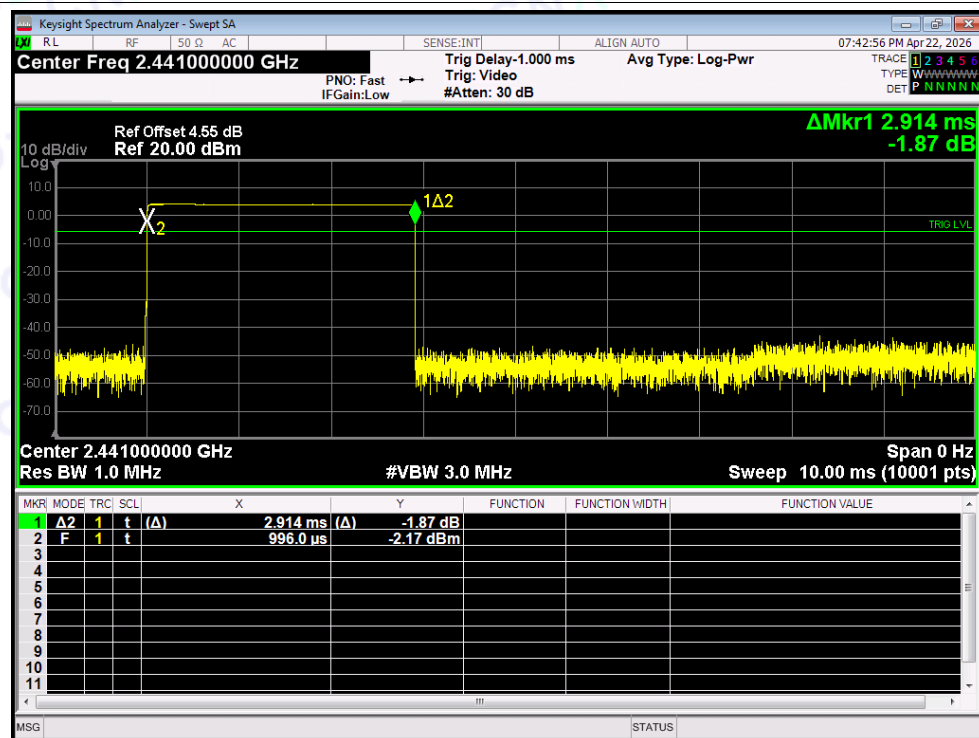
Dwell NVNT 1-DH1 2441MHz Ant1



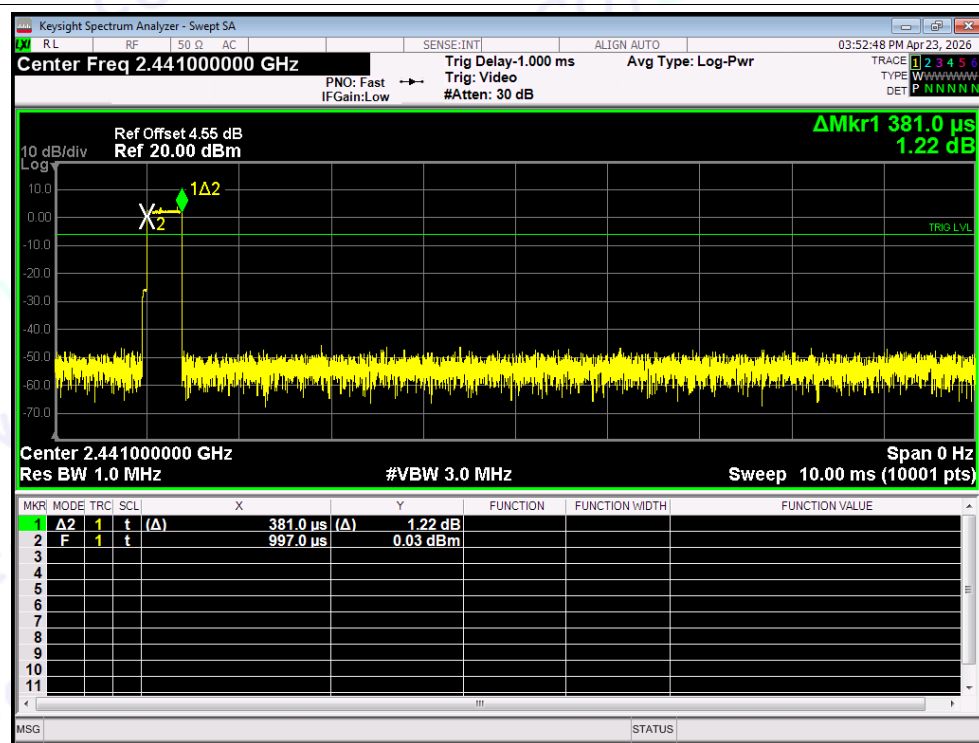
Dwell NVNT 1-DH3 2441MHz Ant1



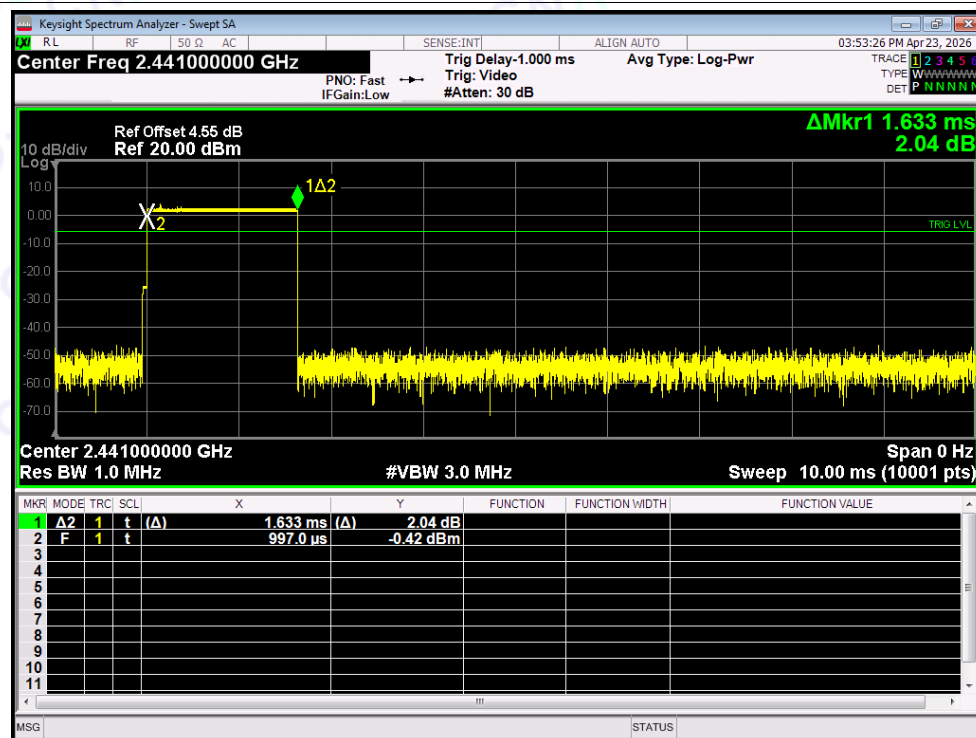
Dwell NVNT 1-DH5 2441MHz Ant1



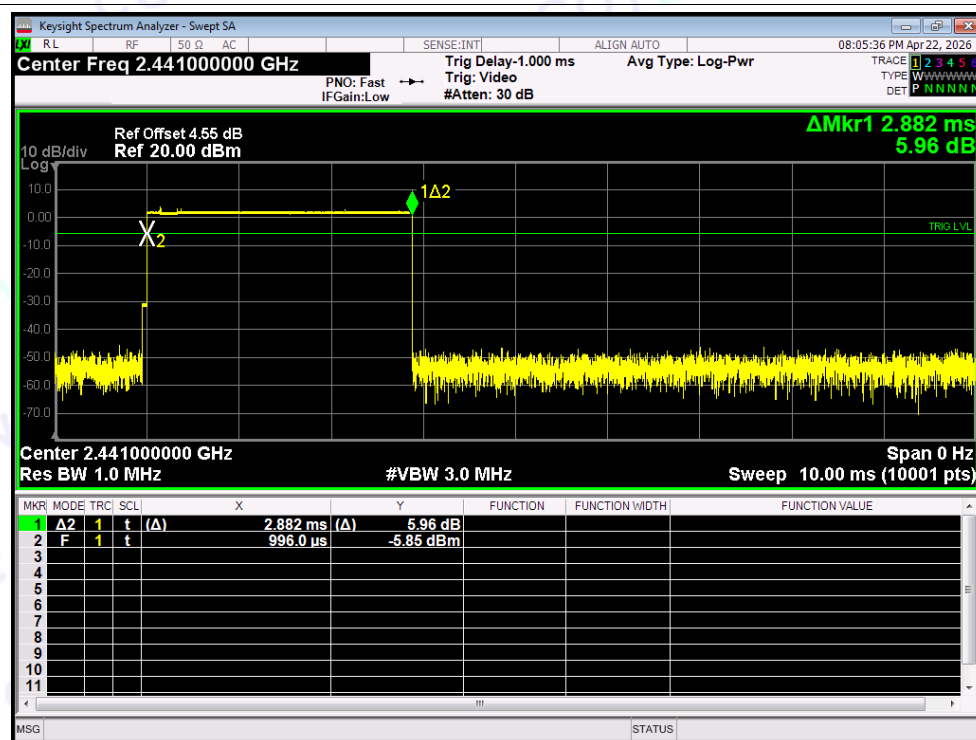
Dwell NVNT 2-DH1 2441MHz Ant1



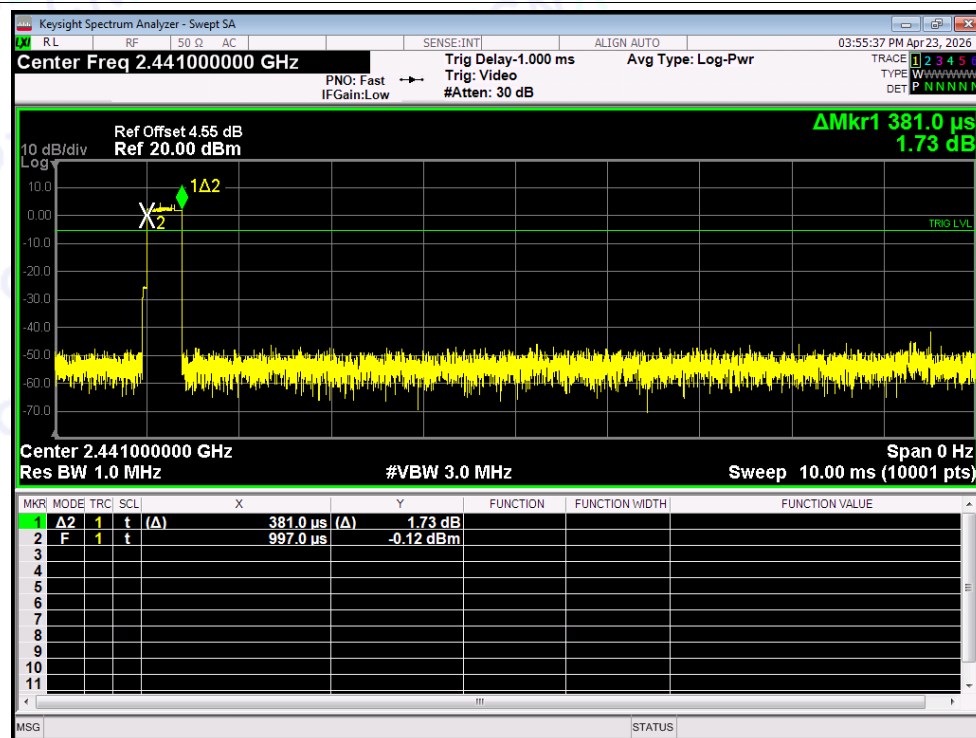
Dwell NVNT 2-DH3 2441MHz Ant1



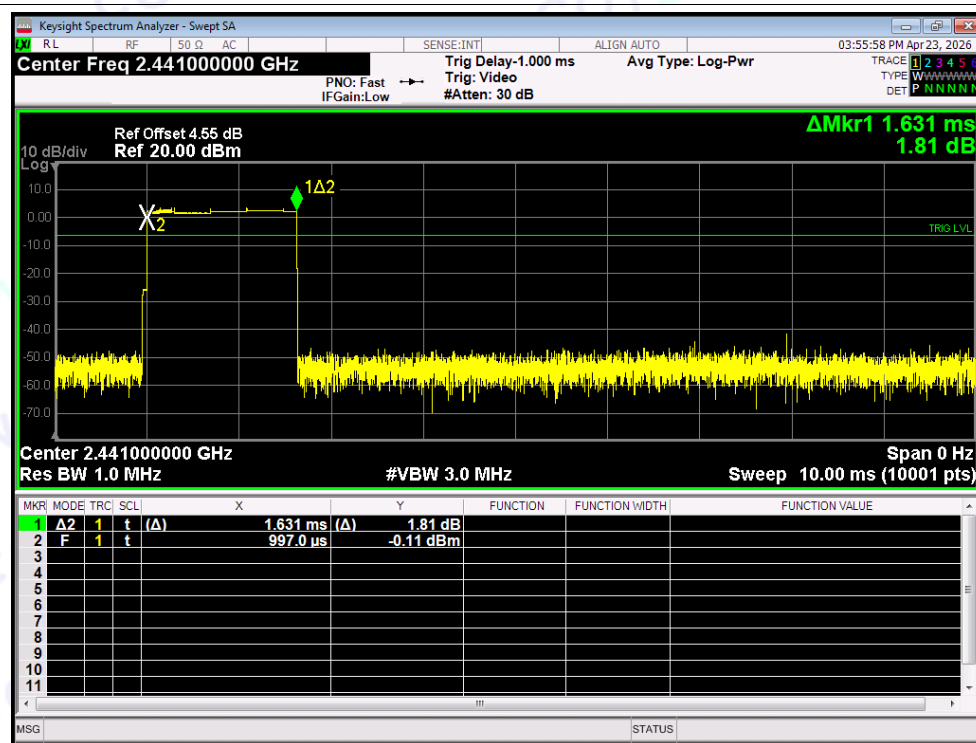
Dwell NVNT 2-DH5 2441MHz Ant1

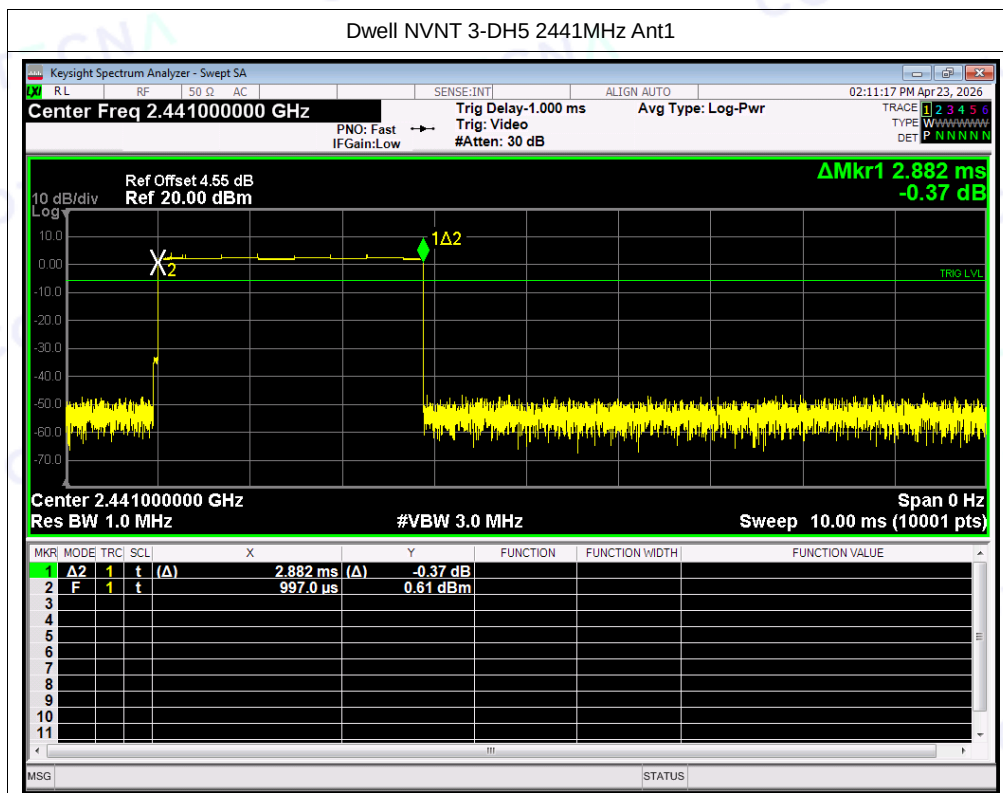


Dwell NVNT 3-DH1 2441MHz Ant1



Dwell NVNT 3-DH3 2441MHz Ant1



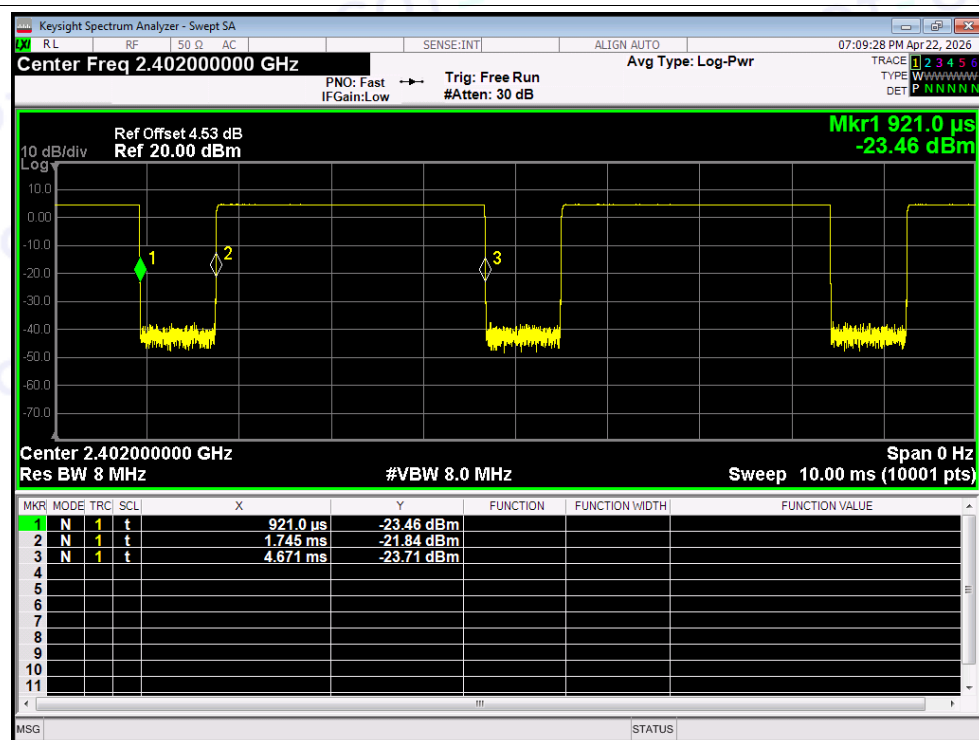


2. Duty Cycle

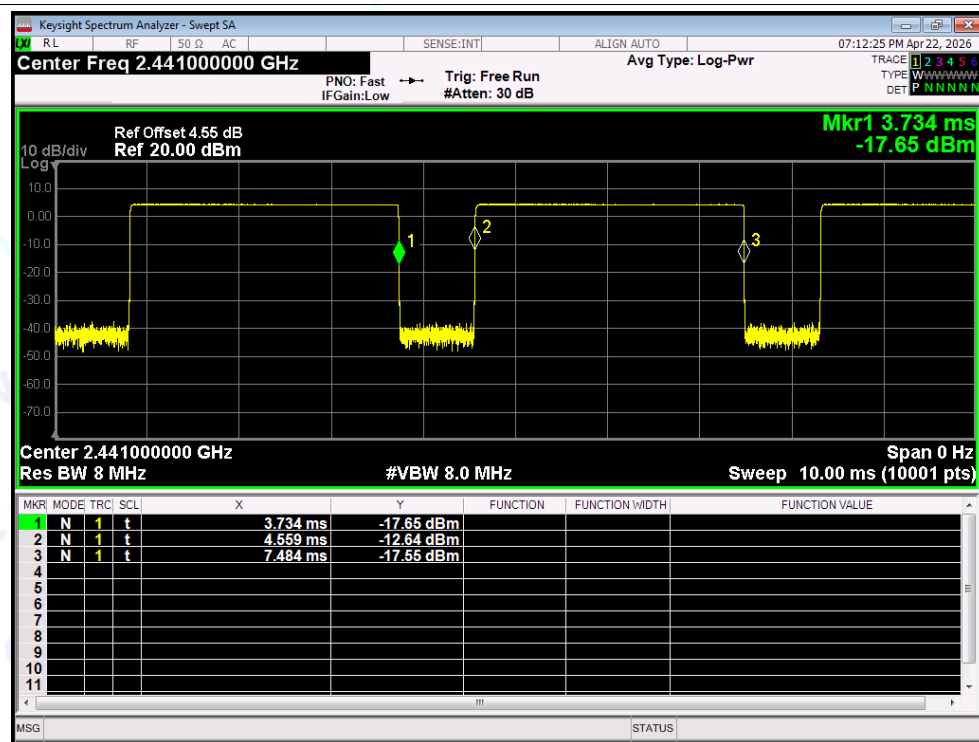
Condition	Mode	Frequency (MHz)	Antenna	Duty Cycle (%)	Correction Factor (dB)	1/T (kHz)
NVNT	1-DH5	2402	Ant1	78.03	1.08	0.34
NVNT	1-DH5	2441	Ant1	78	1.08	0.34
NVNT	1-DH5	2480	Ant1	78	1.08	0.34
NVNT	2-DH5	2402	Ant1	76.91	1.14	0.35
NVNT	2-DH5	2441	Ant1	76.91	1.14	0.35
NVNT	2-DH5	2480	Ant1	76.91	1.14	0.35
NVNT	3-DH5	2402	Ant1	76.91	1.14	0.35
NVNT	3-DH5	2441	Ant1	76.93	1.14	0.35
NVNT	3-DH5	2480	Ant1	76.91	1.14	0.35

Test Graphs

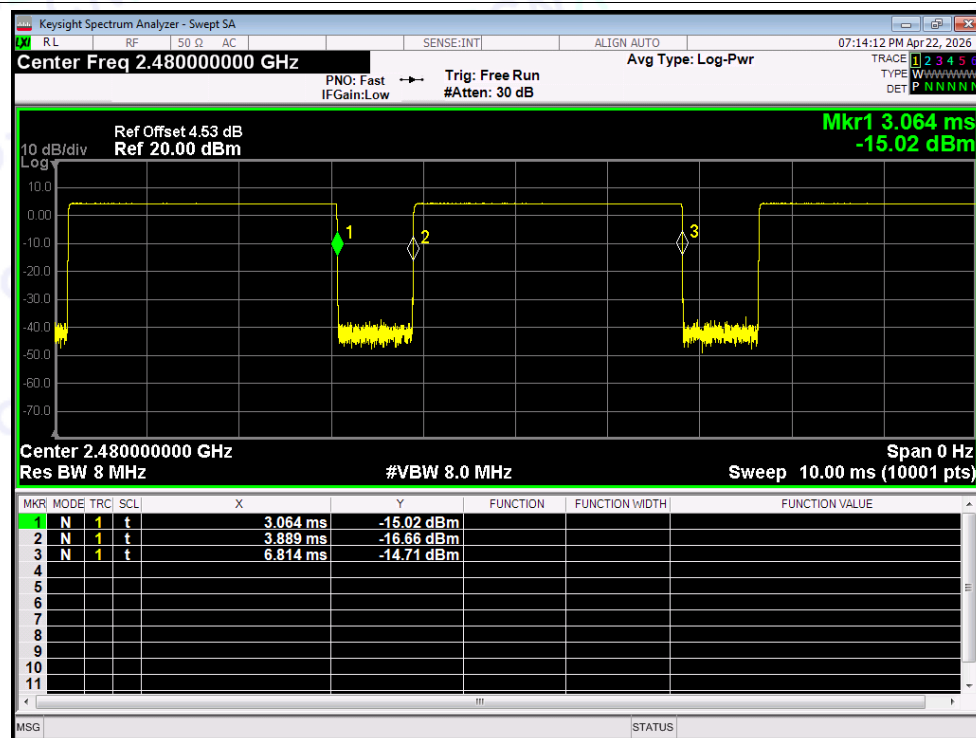
Duty Cycle NVNT 1-DH5 2402MHz Ant1



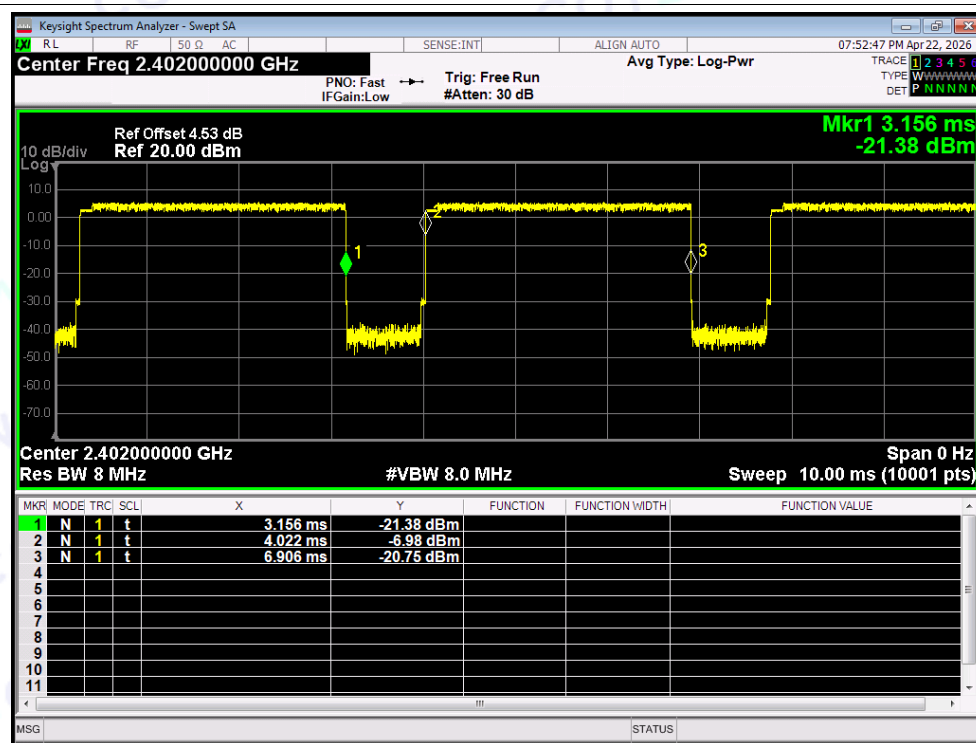
Duty Cycle NVNT 1-DH5 2441MHz Ant1



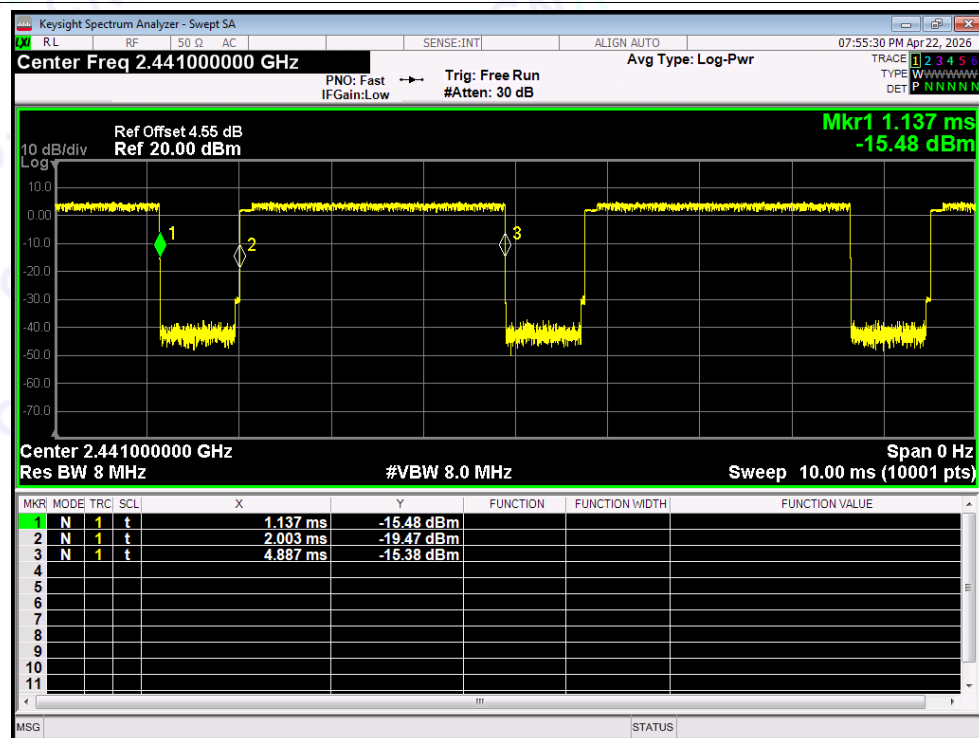
Duty Cycle NVNT 1-DH5 2480MHz Ant1



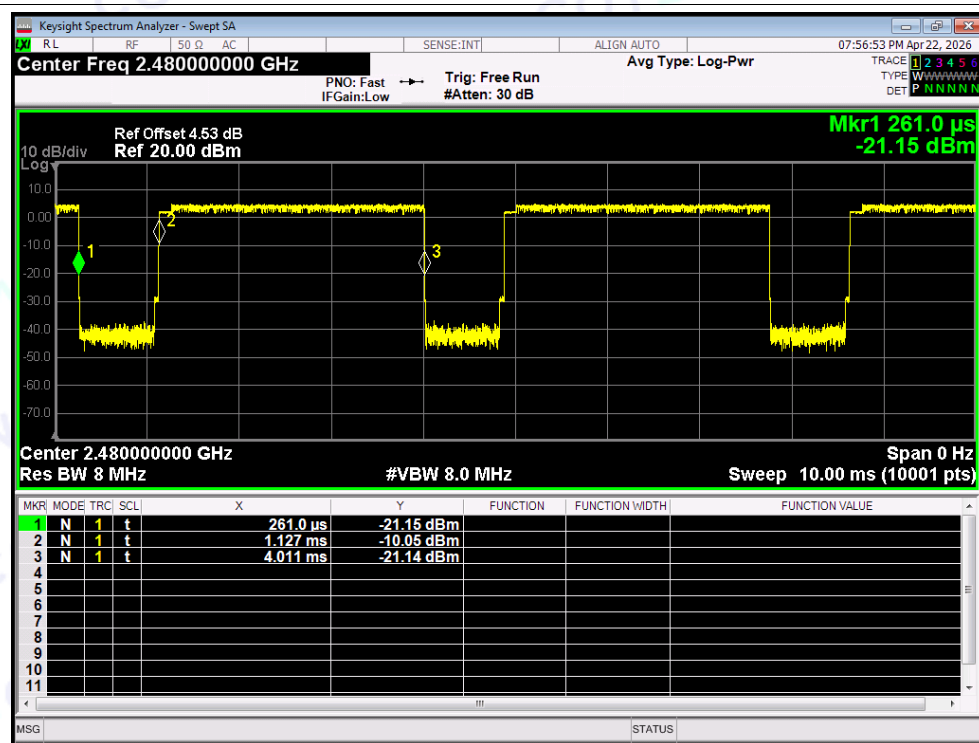
Duty Cycle NVNT 2-DH5 2402MHz Ant1



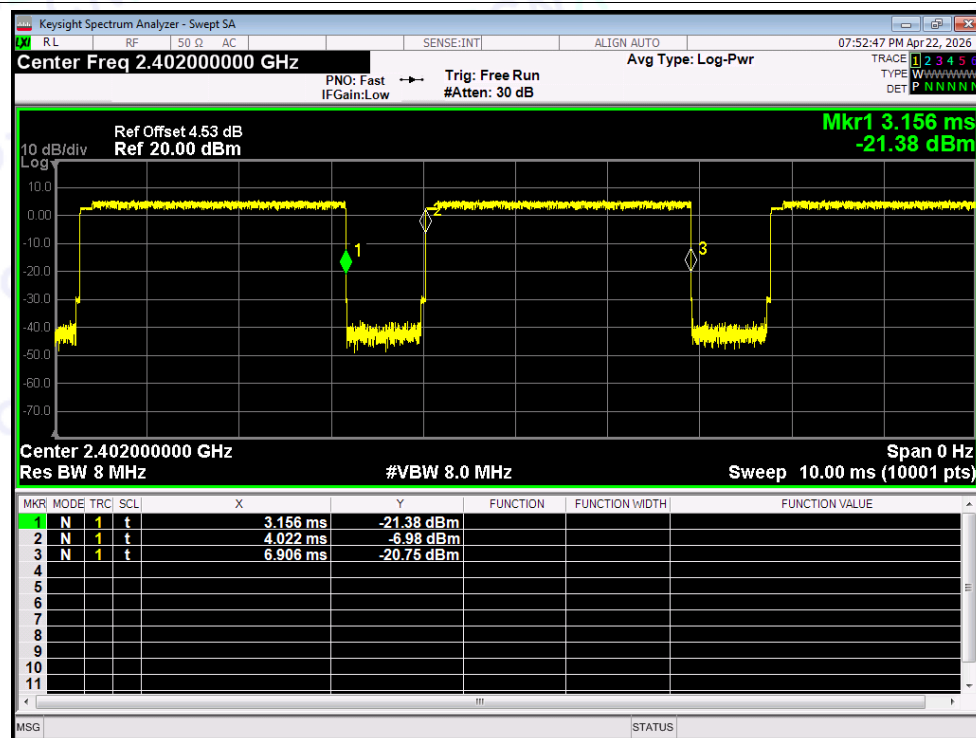
Duty Cycle NVNT 2-DH5 2441MHz Ant1



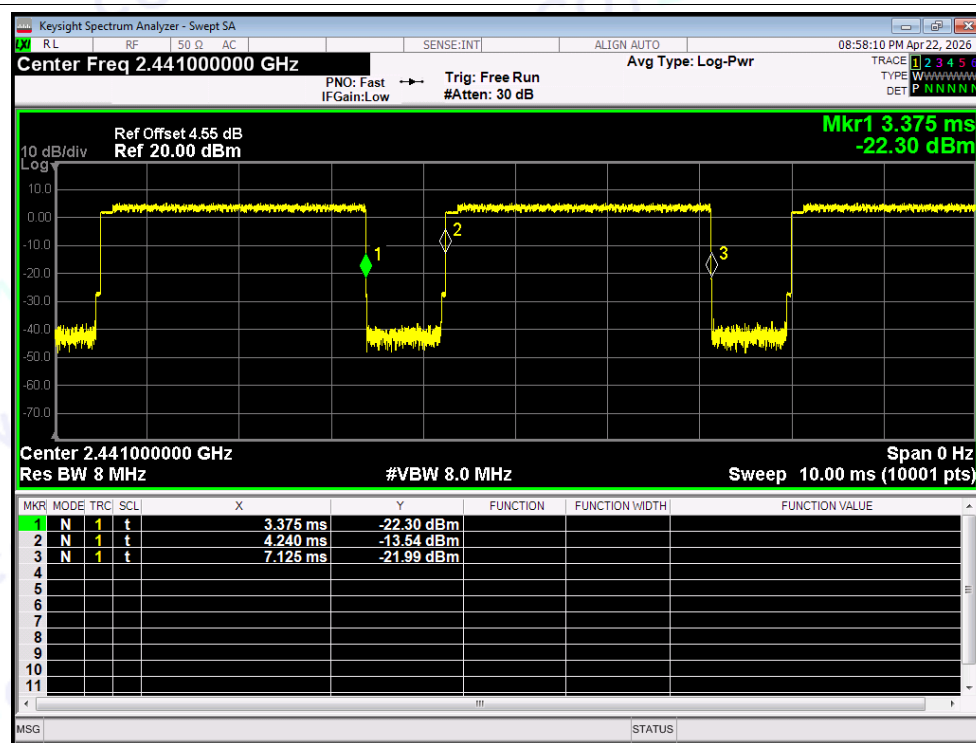
Duty Cycle NVNT 2-DH5 2480MHz Ant1

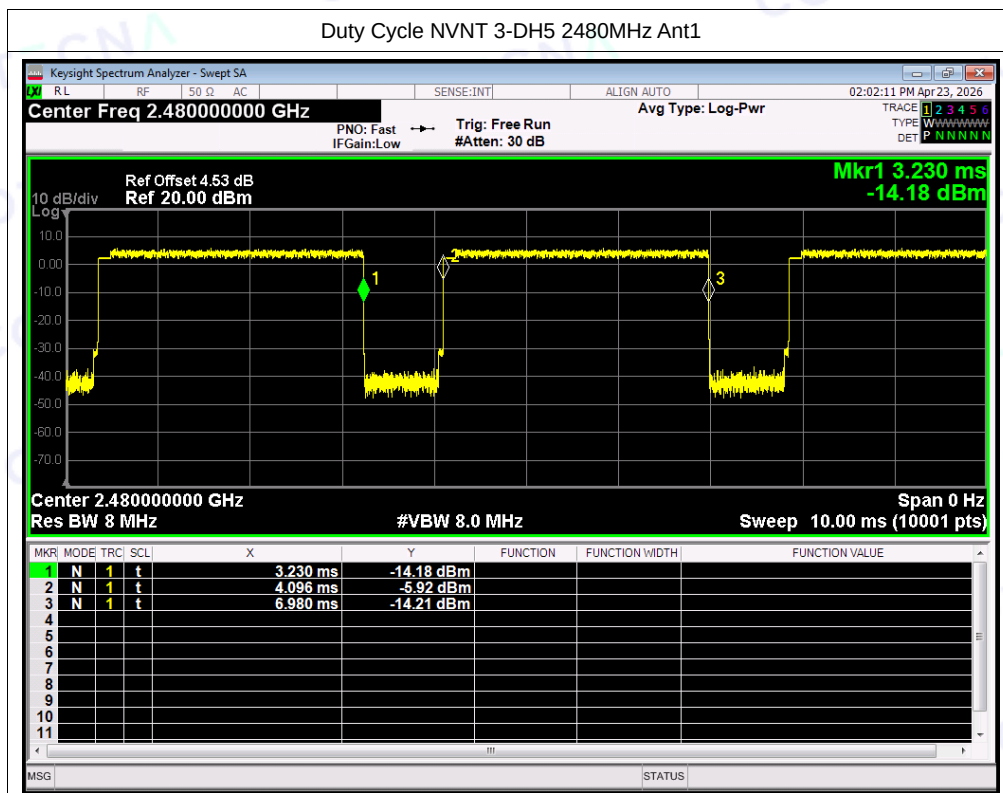


Duty Cycle NVNT 3-DH5 2402MHz Ant1



Duty Cycle NVNT 3-DH5 2441MHz Ant1



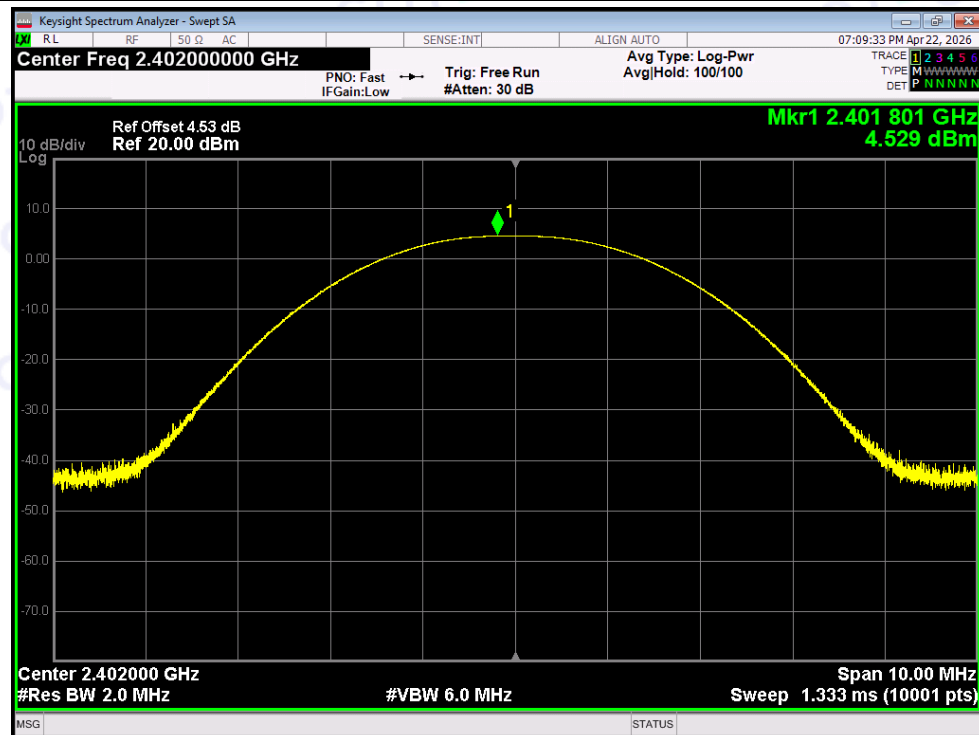


3. Maximum Conducted Output Power

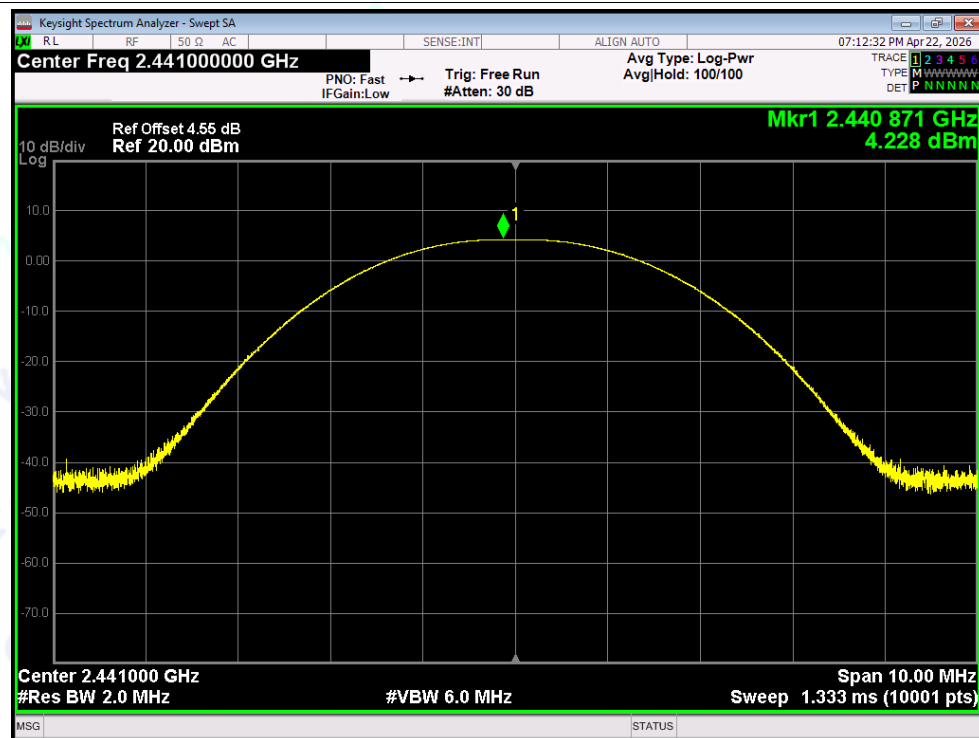
Condition	Mode	Frequency (MHz)	Antenna	Conducted Power (dBm)	Limit (dBm)	Verdict
NVNT	1-DH5	2402	Ant1	4.529	21	Pass
NVNT	1-DH5	2441	Ant1	4.228	21	Pass
NVNT	1-DH5	2480	Ant1	4.203	21	Pass
NVNT	2-DH5	2402	Ant1	4.998	21	Pass
NVNT	2-DH5	2441	Ant1	4.326	21	Pass
NVNT	2-DH5	2480	Ant1	4.535	21	Pass
NVNT	3-DH5	2402	Ant1	5.462	21	Pass
NVNT	3-DH5	2441	Ant1	4.955	21	Pass
NVNT	3-DH5	2480	Ant1	5.446	21	Pass

Test Graphs

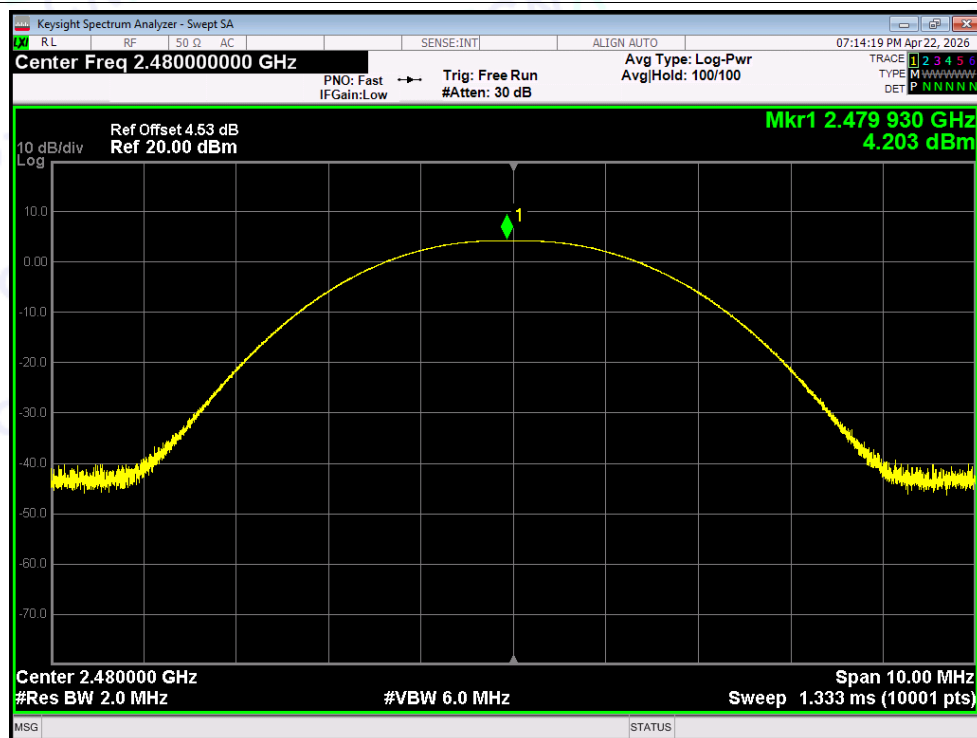
Power NVNT 1-DH5 2402MHz Ant1



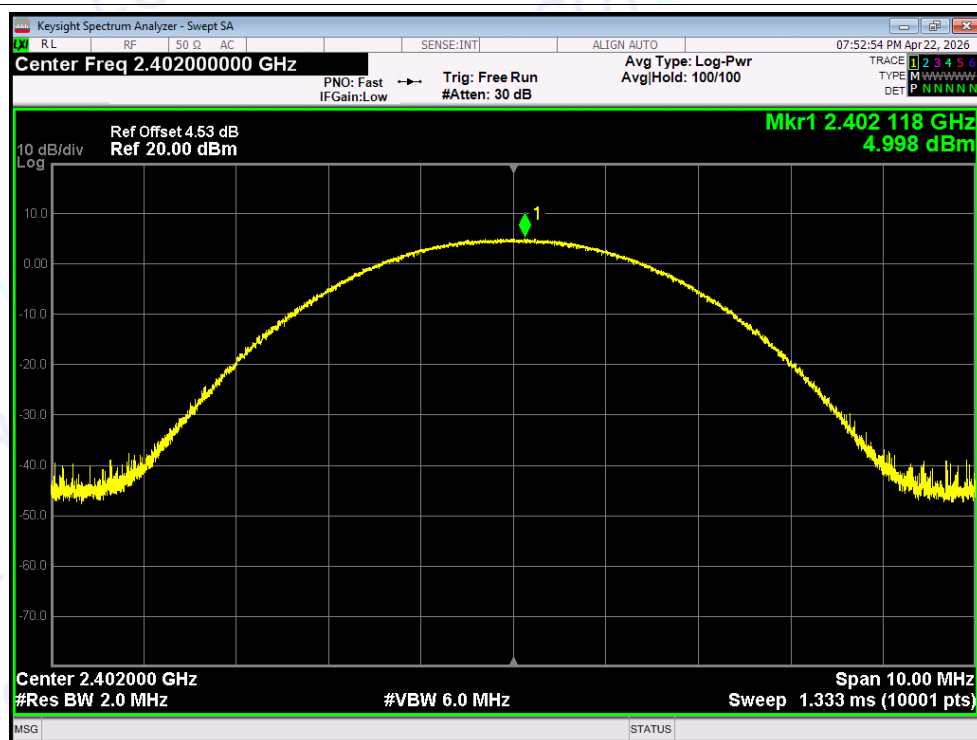
Power NVNT 1-DH5 2441MHz Ant1



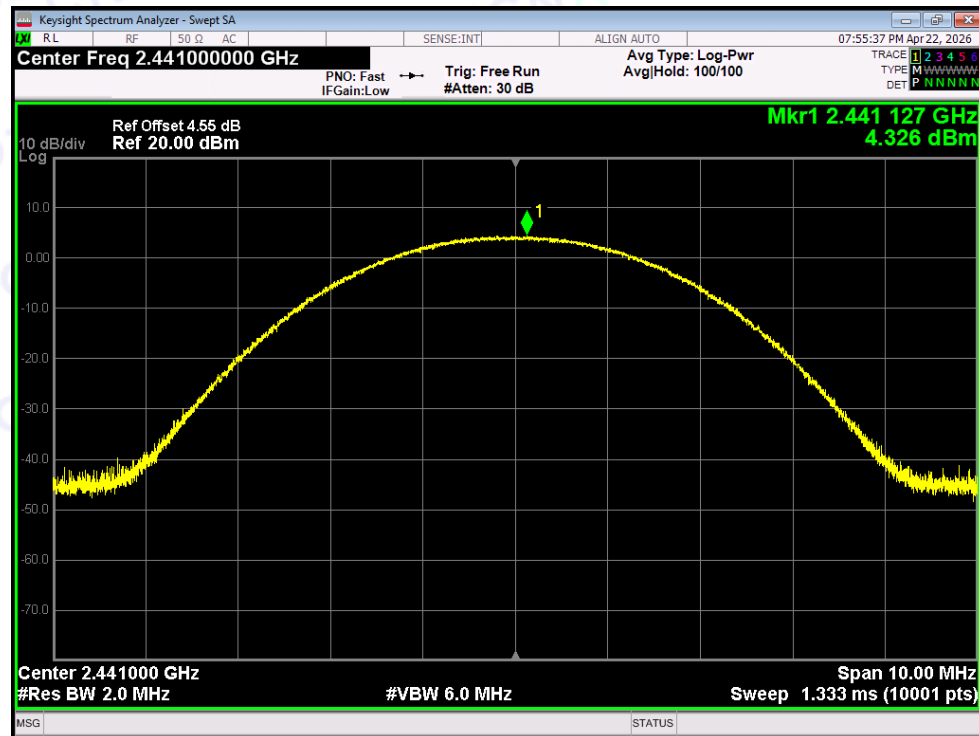
Power NVNT 1-DH5 2480MHz Ant1



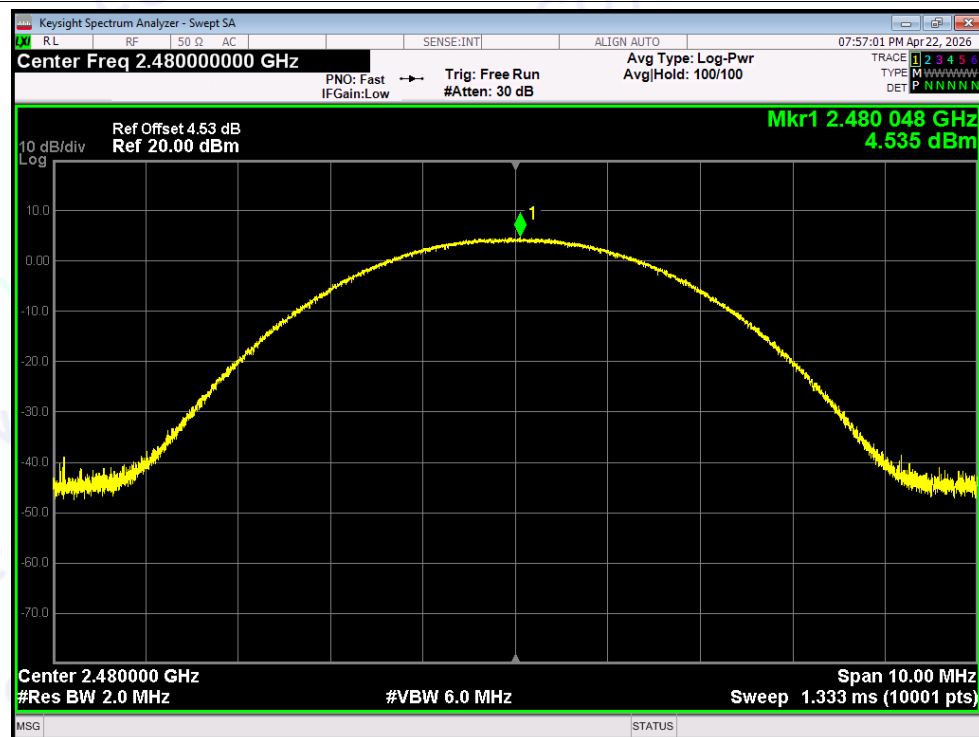
Power NVNT 2-DH5 2402MHz Ant1



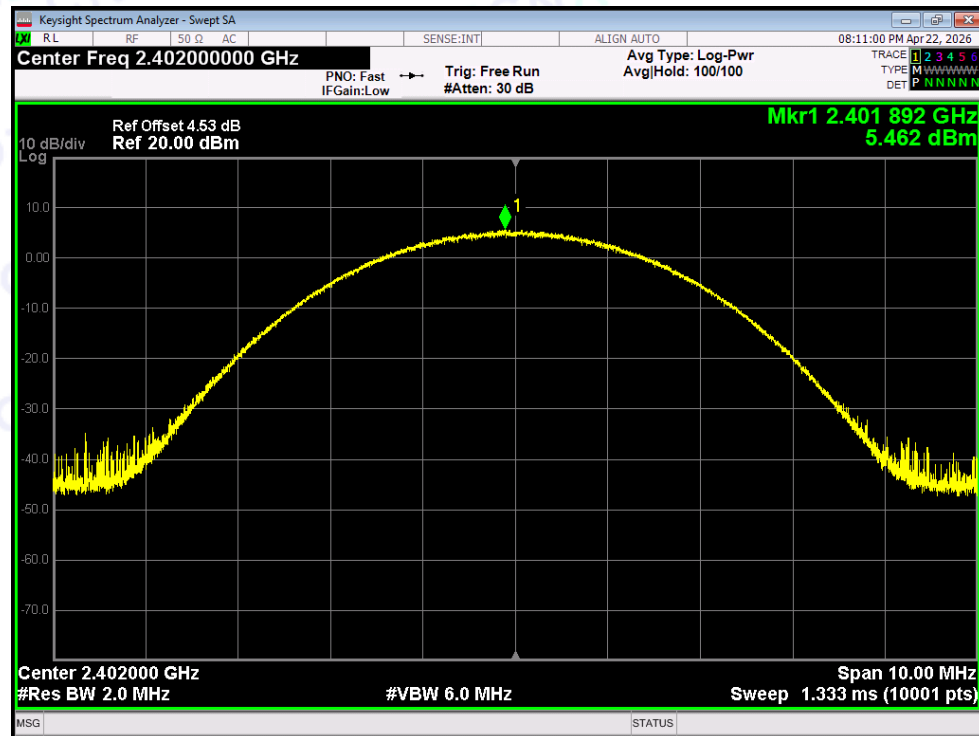
Power NVNT 2-DH5 2441MHz Ant1



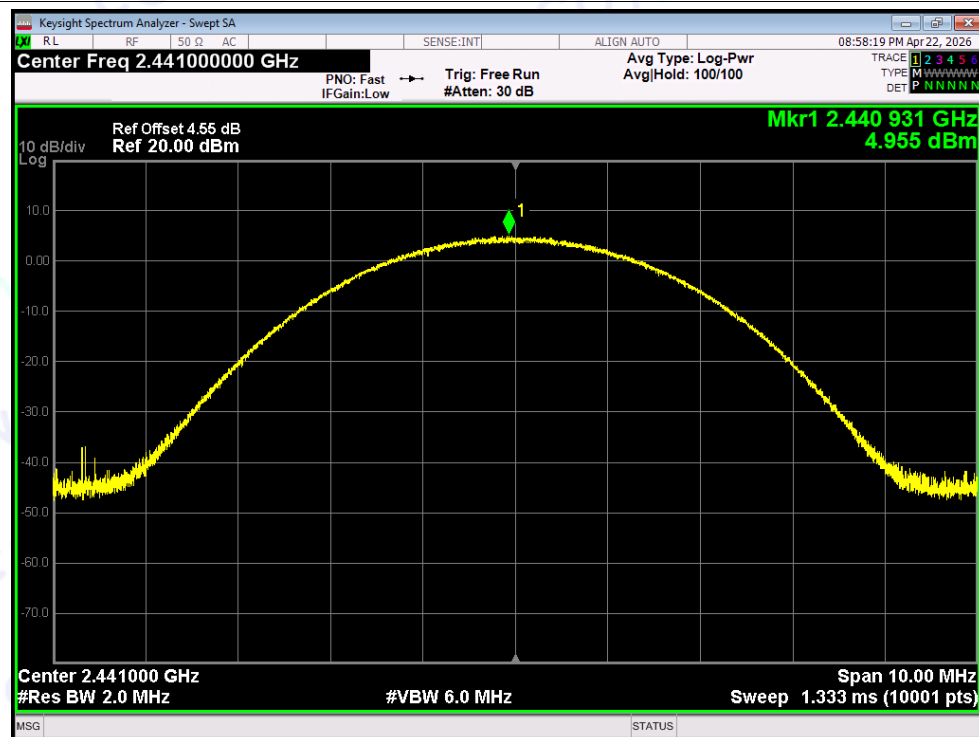
Power NVNT 2-DH5 2480MHz Ant1

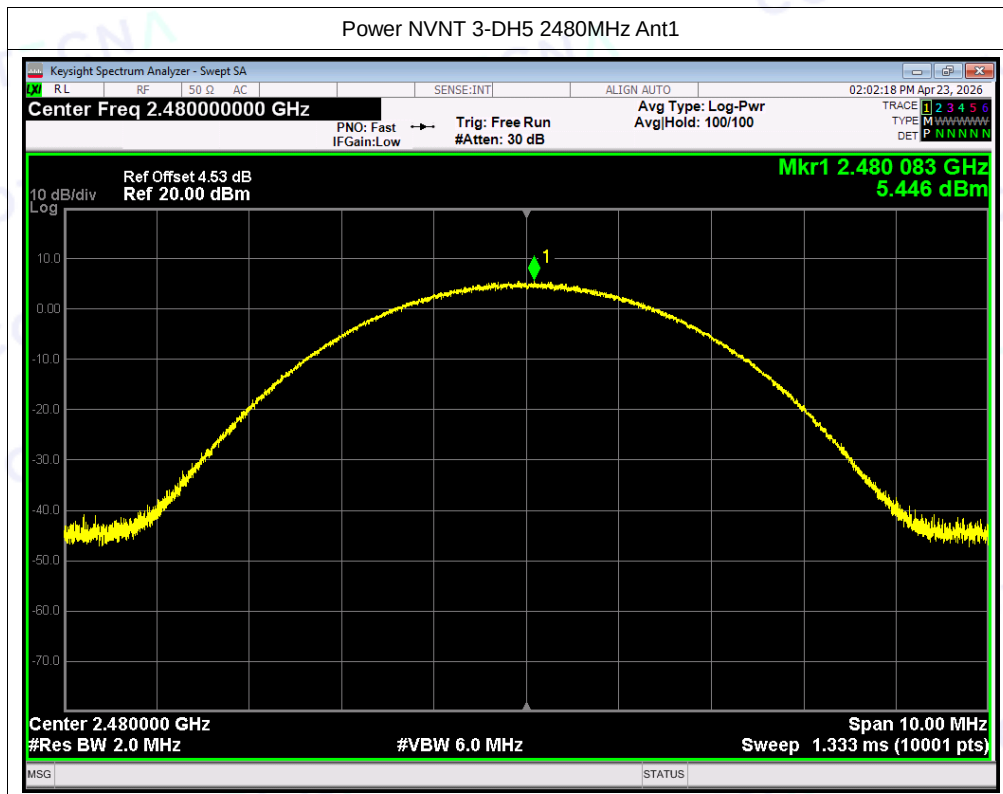


Power NVNT 3-DH5 2402MHz Ant1



Power NVNT 3-DH5 2441MHz Ant1



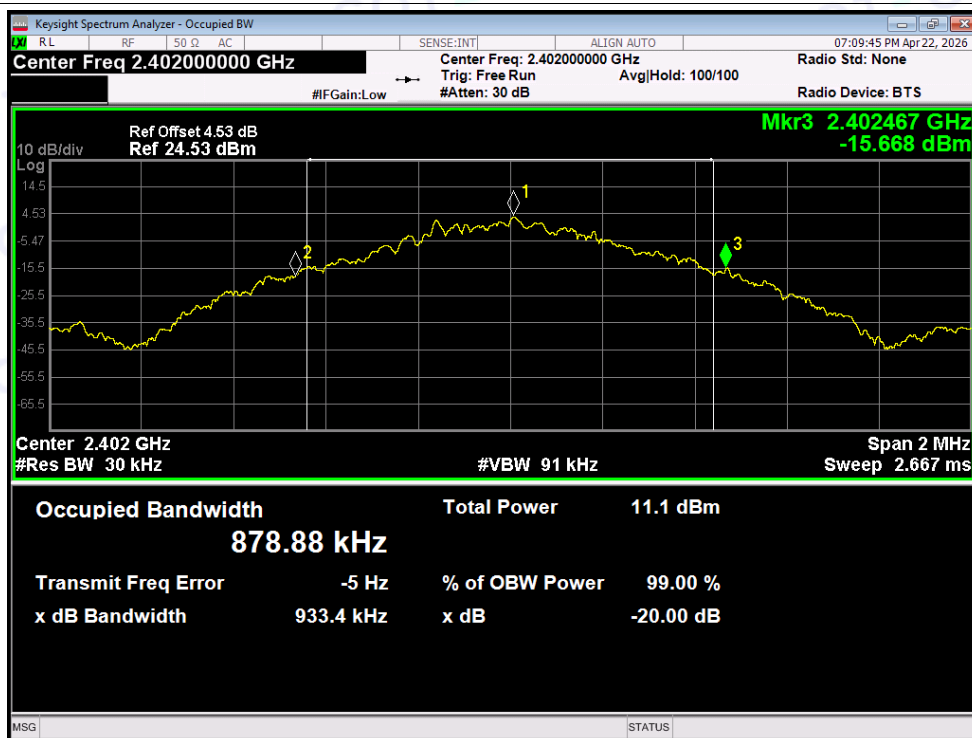


4. -20dB Bandwidth

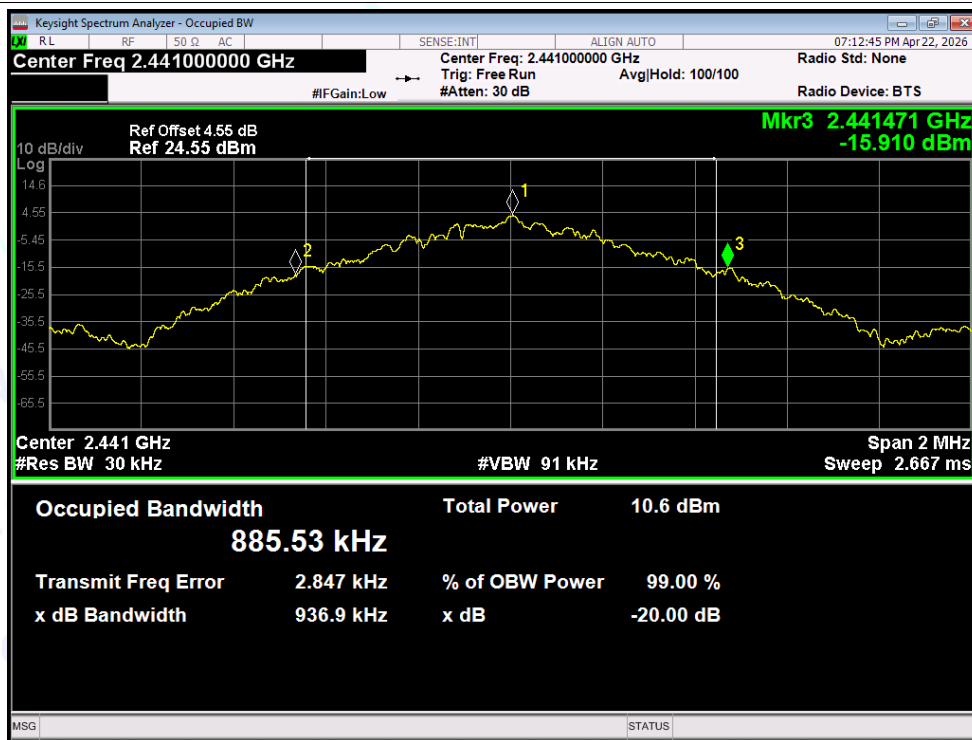
Condition	Mode	Frequency (MHz)	Antenna	-20 dB Bandwidth (MHz)	Limit -20 dB Bandwidth (MHz)	Verdict
NVNT	1-DH5	2402	Ant1	0.93	----	Pass
NVNT	1-DH5	2441	Ant1	0.94	----	Pass
NVNT	1-DH5	2480	Ant1	0.93	----	Pass
NVNT	2-DH5	2402	Ant1	1.36	----	Pass
NVNT	2-DH5	2441	Ant1	1.35	----	Pass
NVNT	2-DH5	2480	Ant1	1.32	----	Pass
NVNT	3-DH5	2402	Ant1	1.31	----	Pass
NVNT	3-DH5	2441	Ant1	1.34	----	Pass
NVNT	3-DH5	2480	Ant1	1.31	----	Pass

Test Graphs

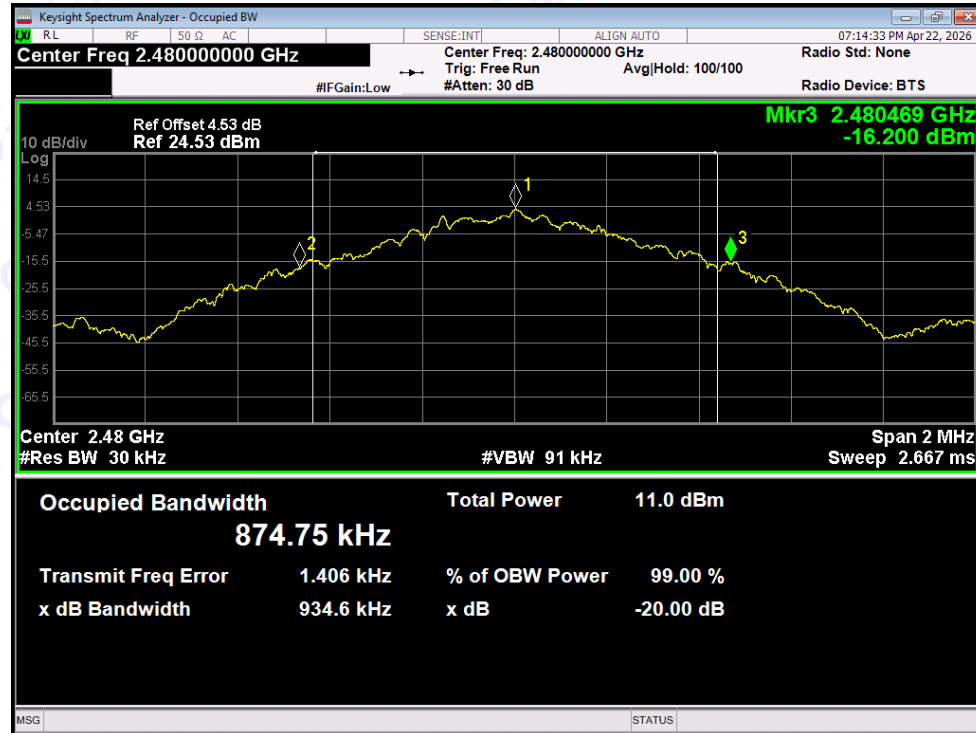
-20dB Bandwidth NVNT 1-DH5 2402MHz Ant1



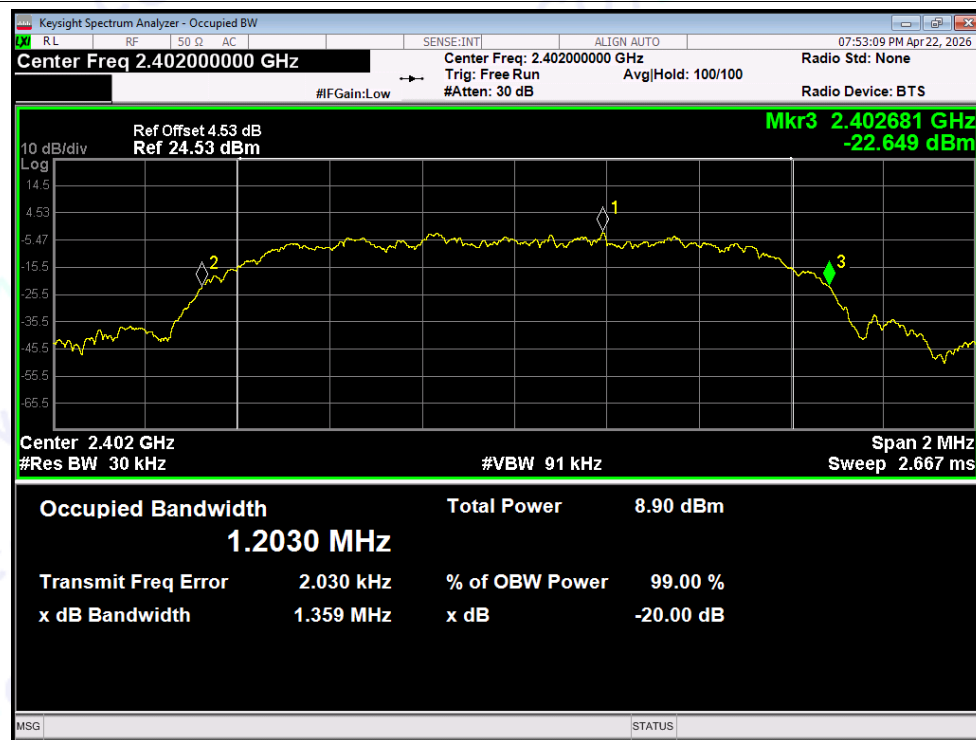
-20dB Bandwidth NVNT 1-DH5 2441MHz Ant1



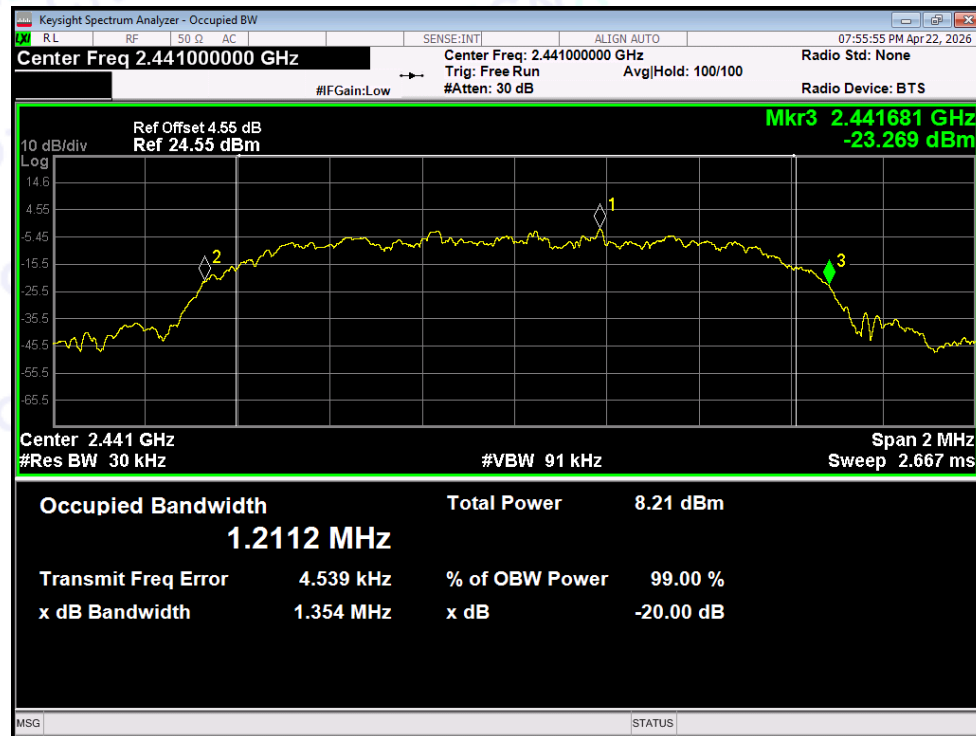
-20dB Bandwidth NVNT 1-DH5 2480MHz Ant1



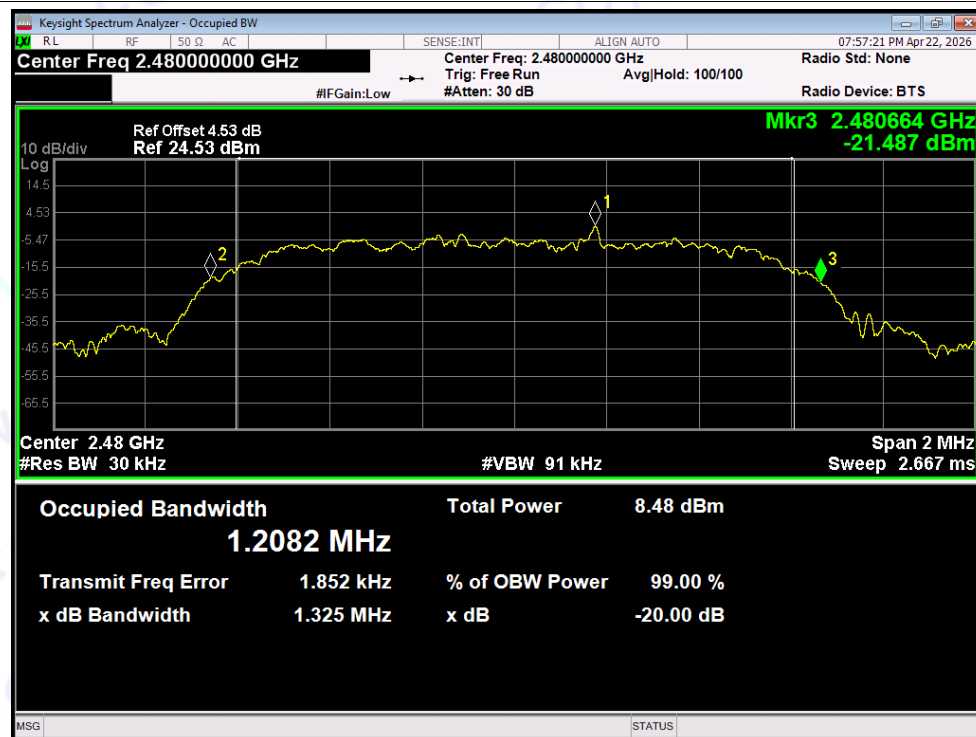
-20dB Bandwidth NVNT 2-DH5 2402MHz Ant1



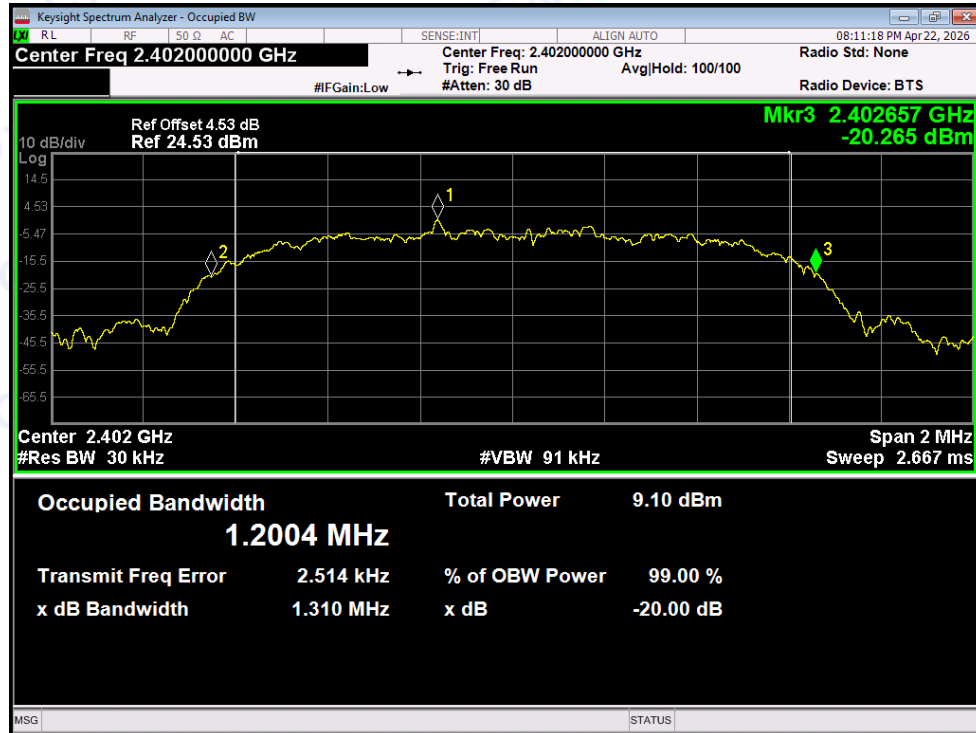
-20dB Bandwidth NVNT 2-DH5 2441MHz Ant1



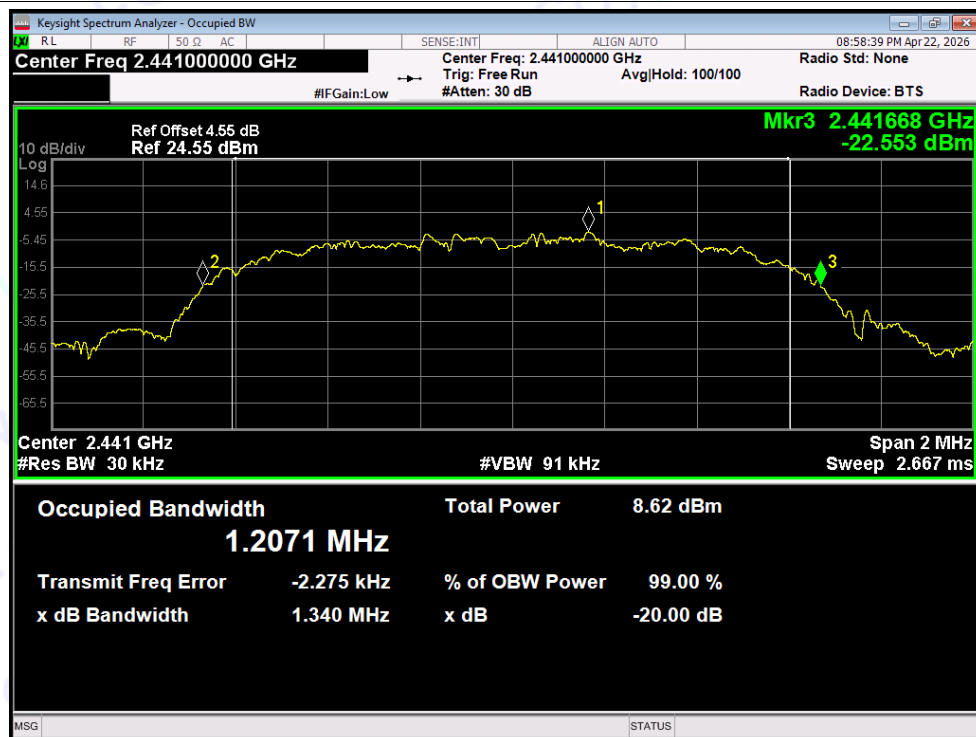
-20dB Bandwidth NVNT 2-DH5 2480MHz Ant1

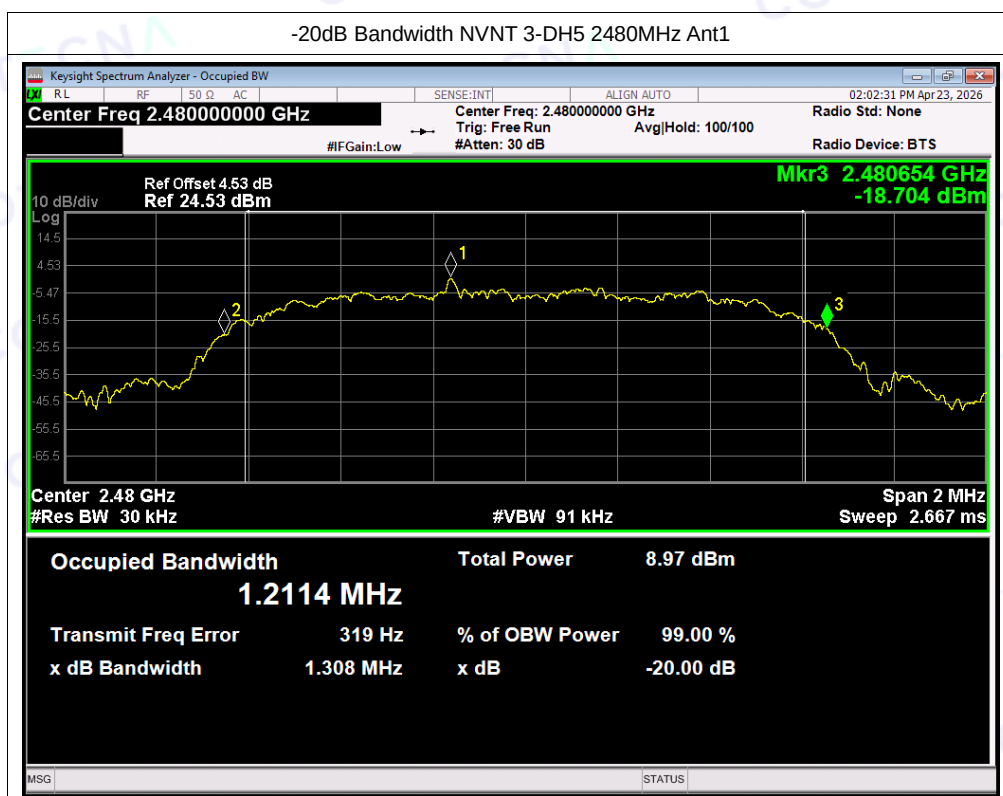


-20dB Bandwidth NVNT 3-DH5 2402MHz Ant1



-20dB Bandwidth NVNT 3-DH5 2441MHz Ant1



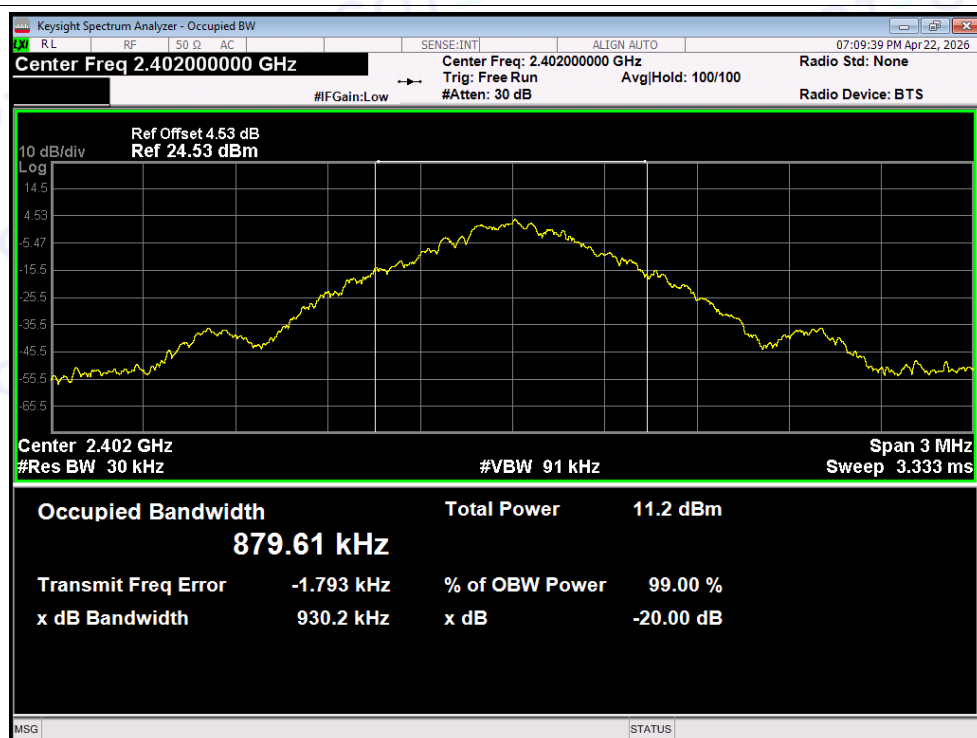


5. Occupied Channel Bandwidth

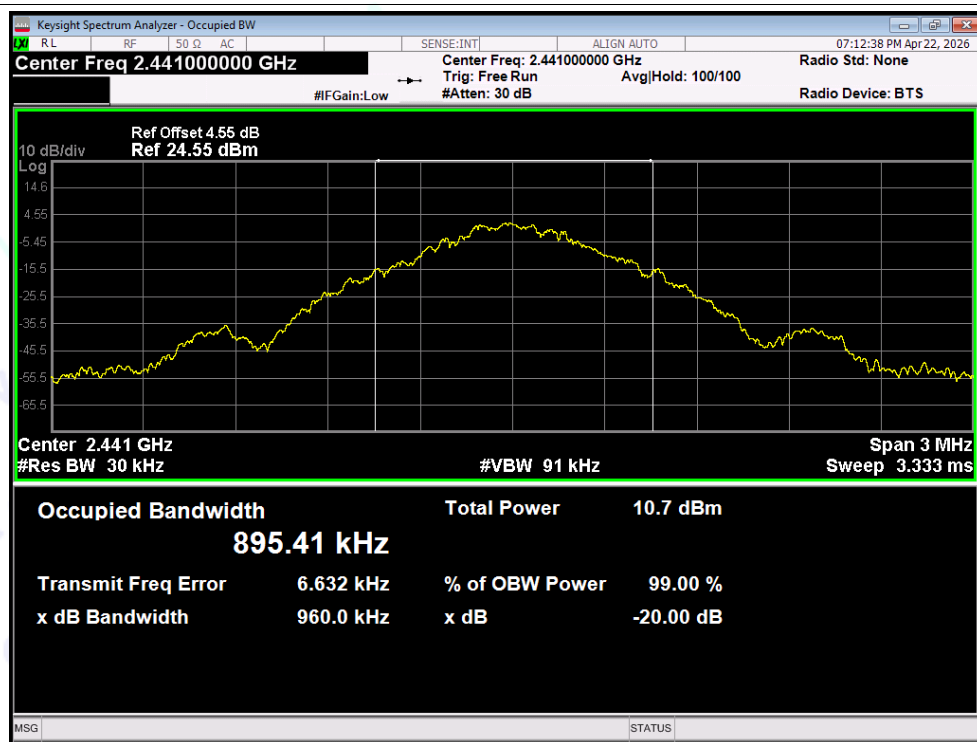
Condition	Mode	Frequency (MHz)	Antenna	99% OBW (MHz)
NVNT	1-DH5	2402	Ant1	0.880
NVNT	1-DH5	2441	Ant1	0.895
NVNT	1-DH5	2480	Ant1	0.887
NVNT	2-DH5	2402	Ant1	1.206
NVNT	2-DH5	2441	Ant1	1.213
NVNT	2-DH5	2480	Ant1	1.202
NVNT	3-DH5	2402	Ant1	1.207
NVNT	3-DH5	2441	Ant1	1.217
NVNT	3-DH5	2480	Ant1	1.218

Test Graphs

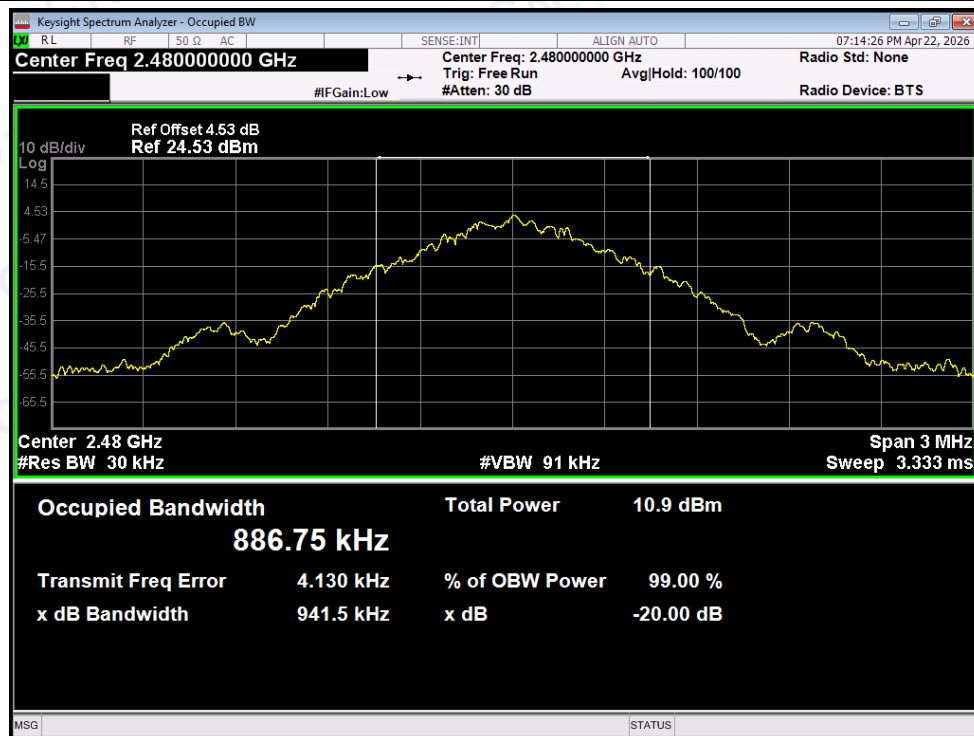
OBW NVNT 1-DH5 2402MHz Ant1



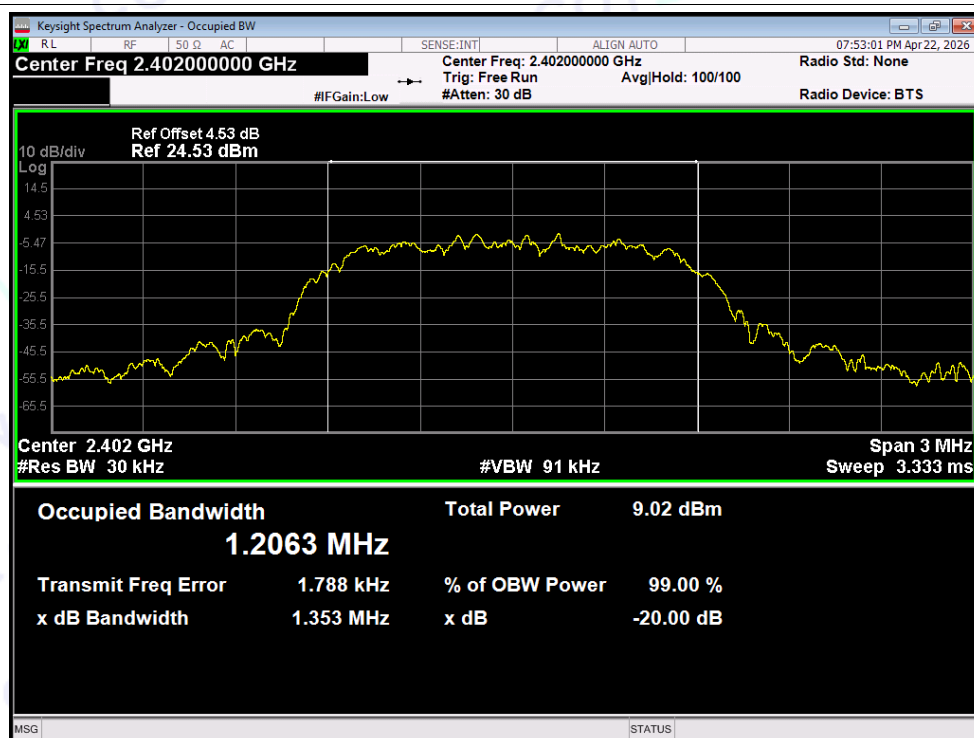
OBW NVNT 1-DH5 2441MHz Ant1



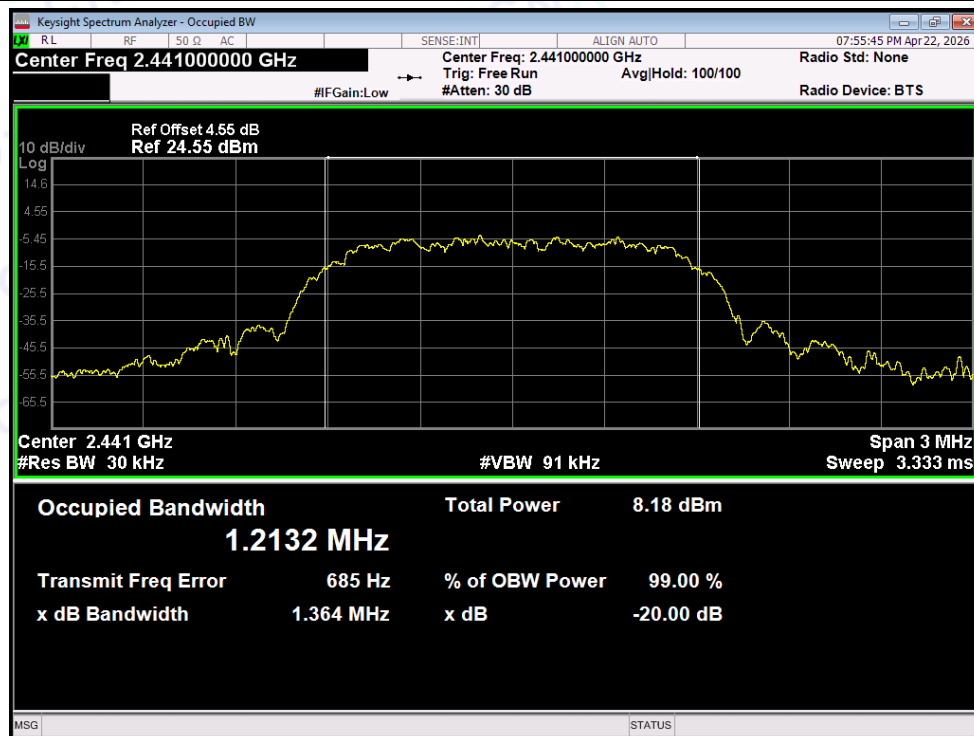
OBW NVNT 1-DH5 2480MHz Ant1



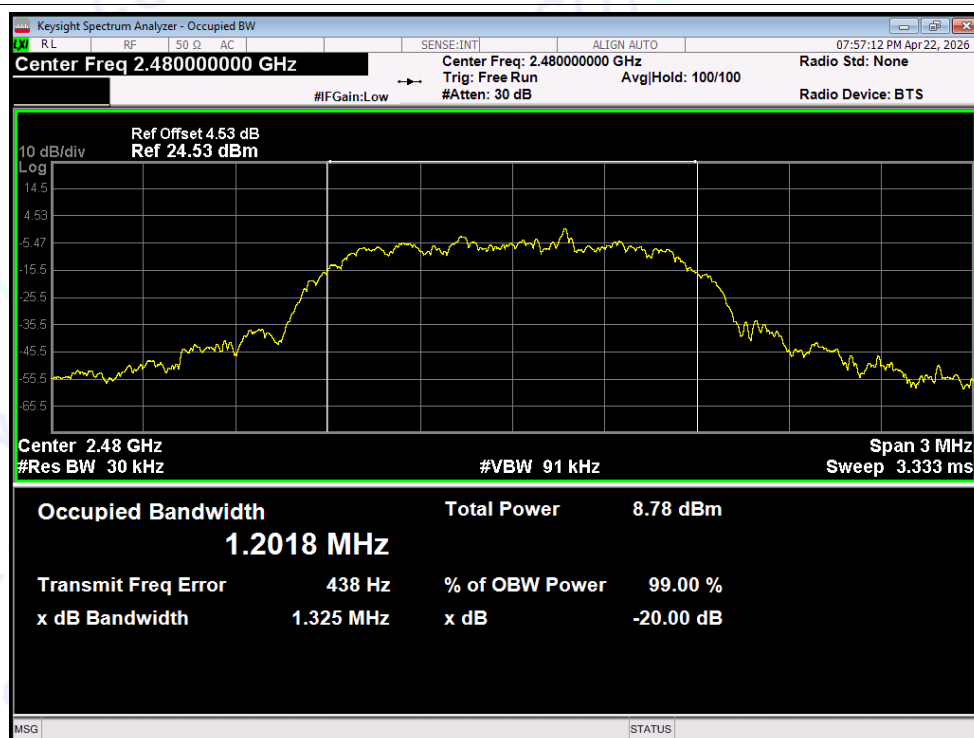
OBW NVNT 2-DH5 2402MHz Ant1



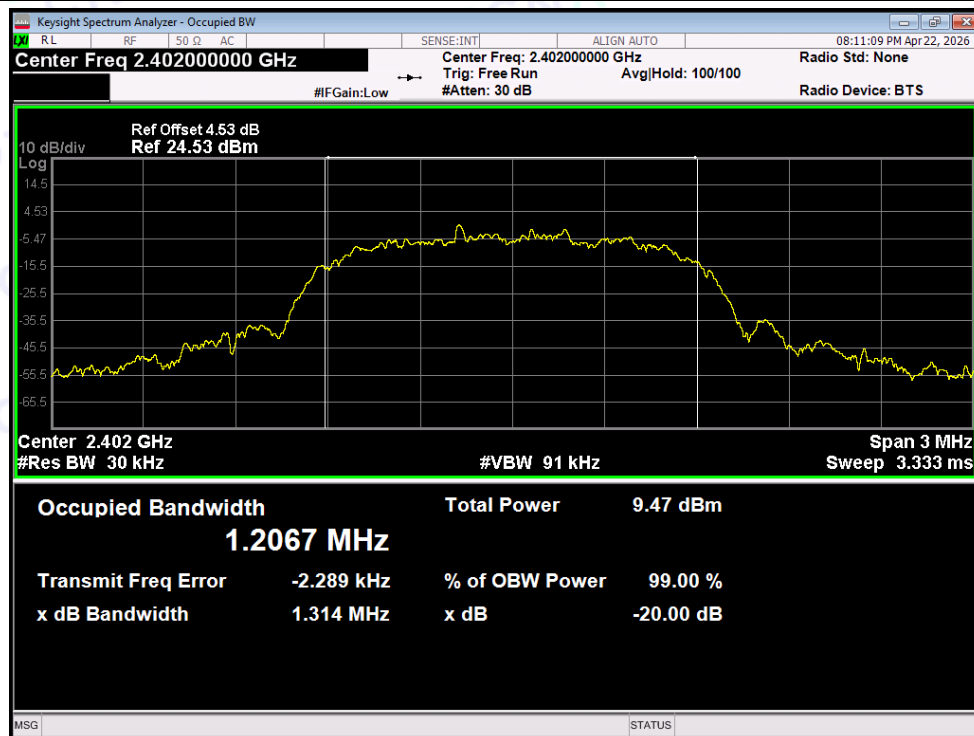
OBW NVNT 2-DH5 2441MHz Ant1



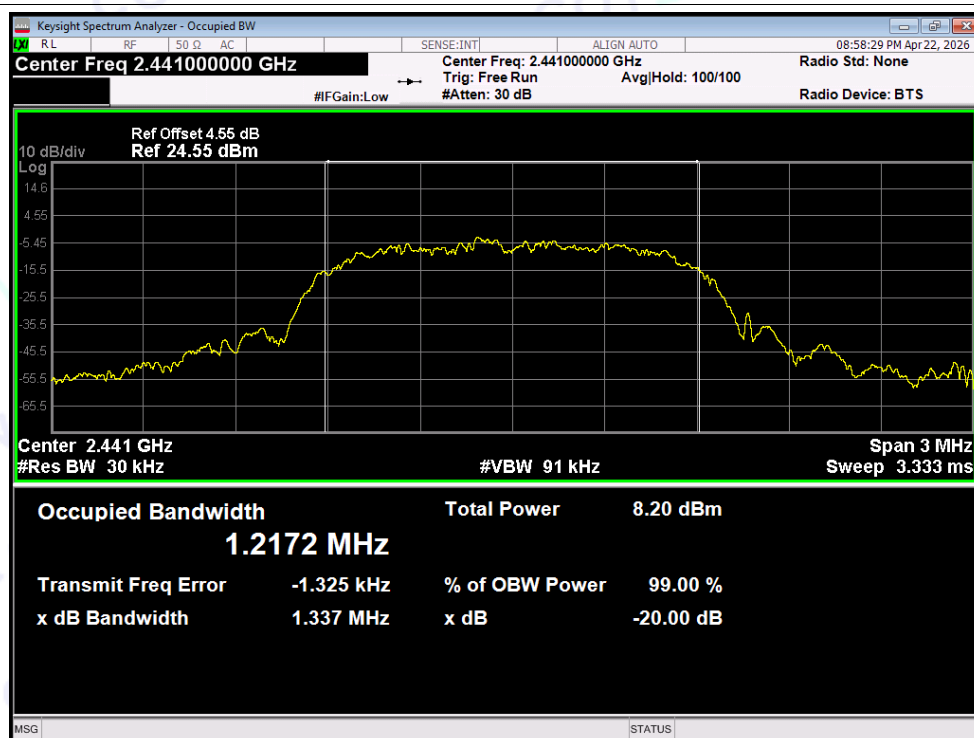
OBW NVNT 2-DH5 2480MHz Ant1

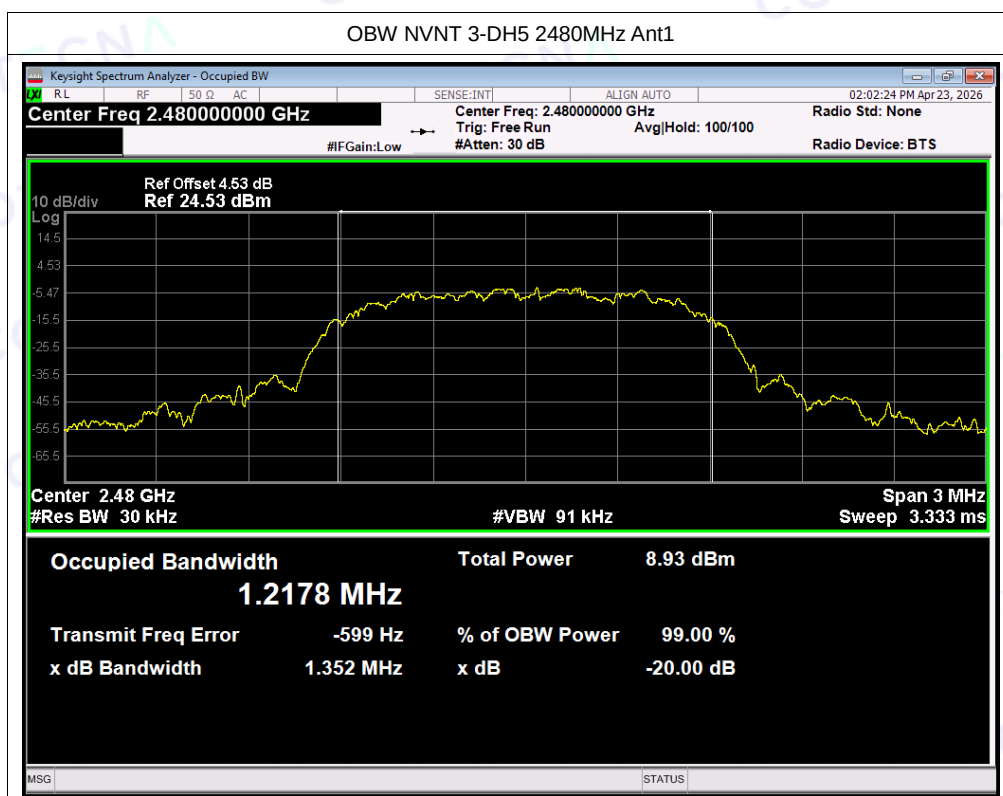


OBW NVNT 3-DH5 2402MHz Ant1



OBW NVNT 3-DH5 2441MHz Ant1





6. Band Edge

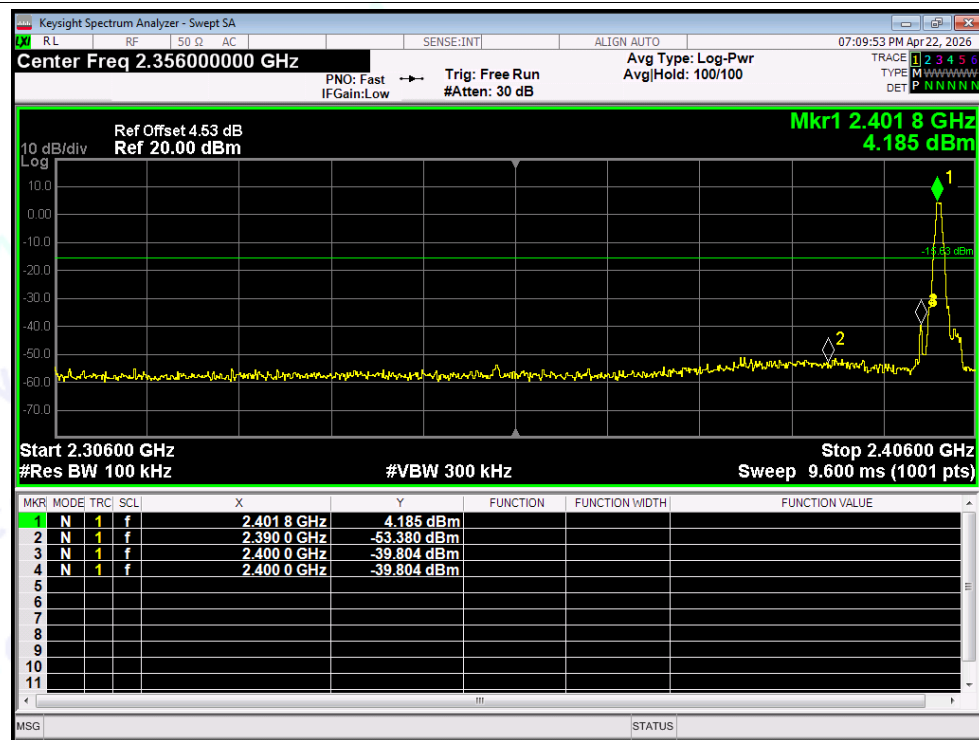
Condition	Mode	Frequency (MHz)	Antenna	Hopping Mode	Max Value (dBc)	Limit (dBc)	Verdict
NVNT	1-DH5	2402	Ant1	No-Hopping	-44.17	-20	Pass
NVNT	1-DH5	2480	Ant1	No-Hopping	-54.57	-20	Pass
NVNT	2-DH5	2402	Ant1	No-Hopping	-50.44	-20	Pass
NVNT	2-DH5	2480	Ant1	No-Hopping	-57.02	-20	Pass
NVNT	3-DH5	2402	Ant1	No-Hopping	-48.83	-20	Pass
NVNT	3-DH5	2480	Ant1	No-Hopping	-56.2	-20	Pass

Test Graphs

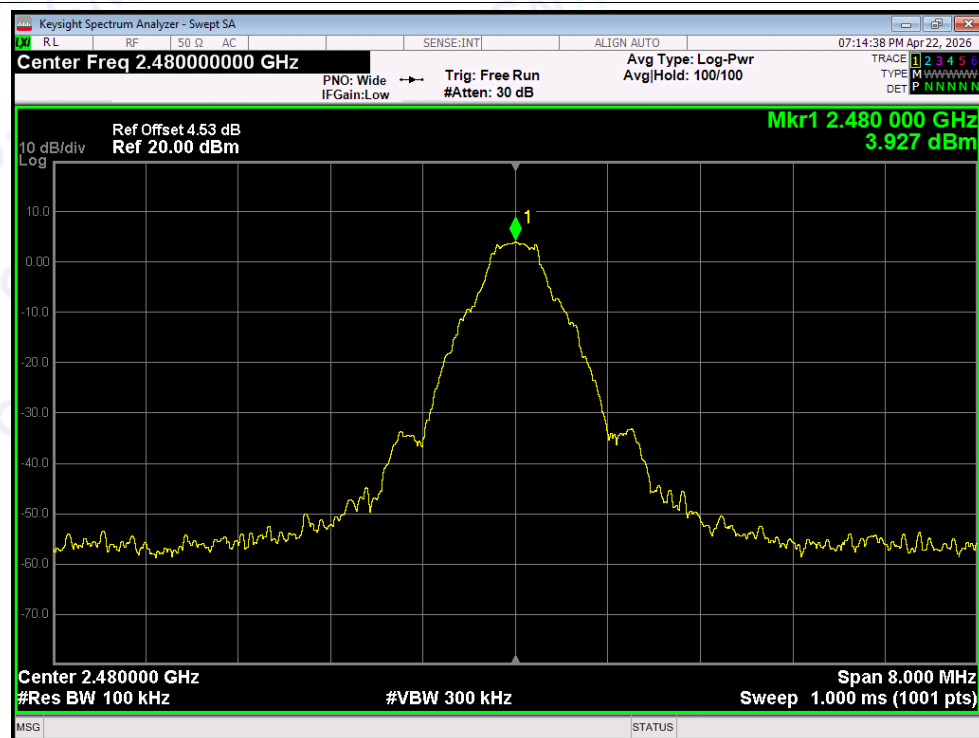
Band Edge NVNT 1-DH5 2402MHz Ant1 No-Hopping Ref



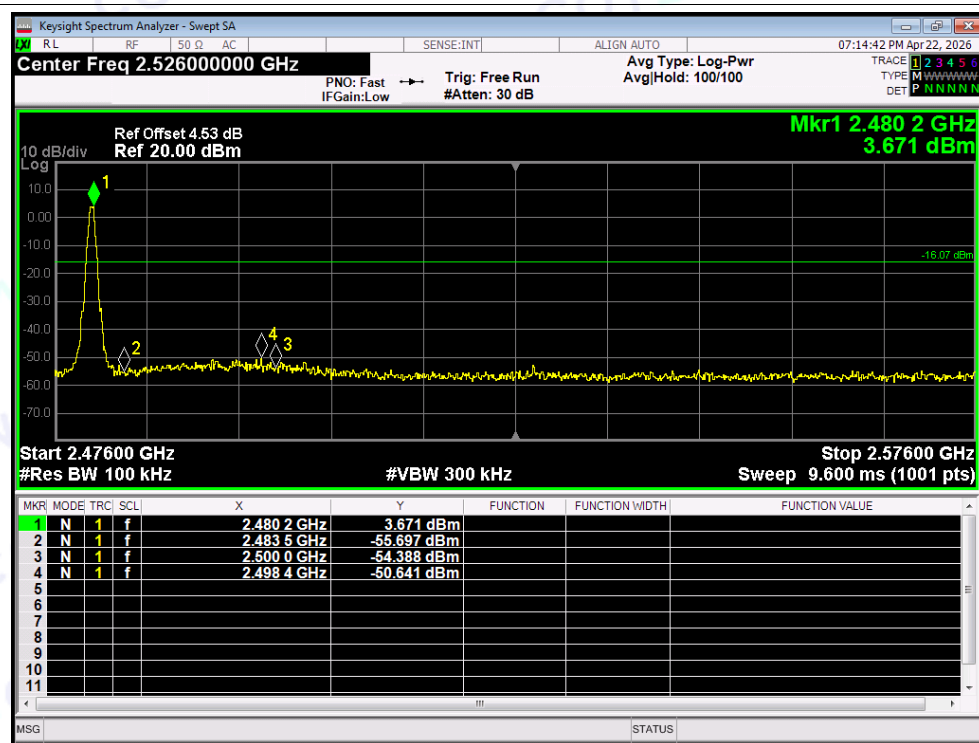
Band Edge NVNT 1-DH5 2402MHz Ant1 No-Hopping Emission



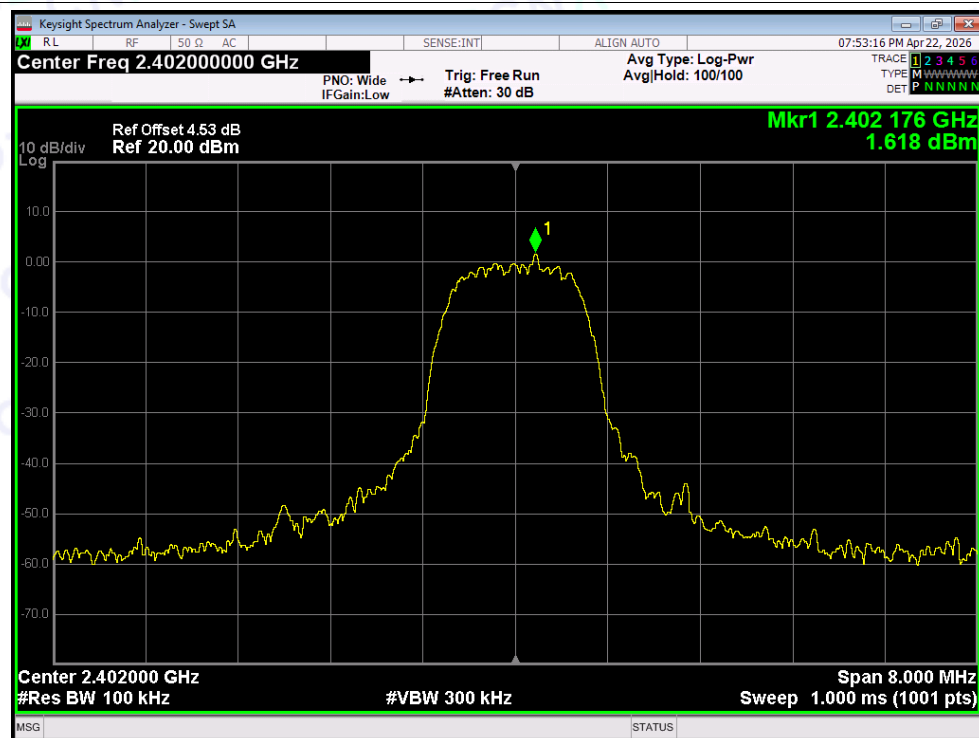
Band Edge NVNT 1-DH5 2480MHz Ant1 No-Hopping Ref



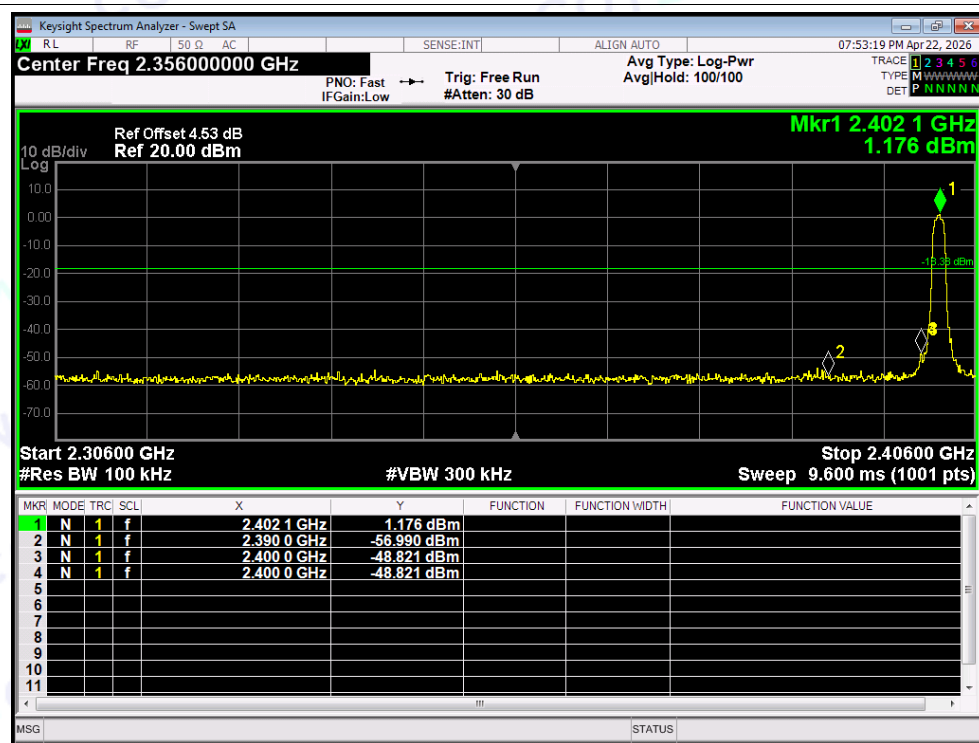
Band Edge NVNT 1-DH5 2480MHz Ant1 No-Hopping Emission



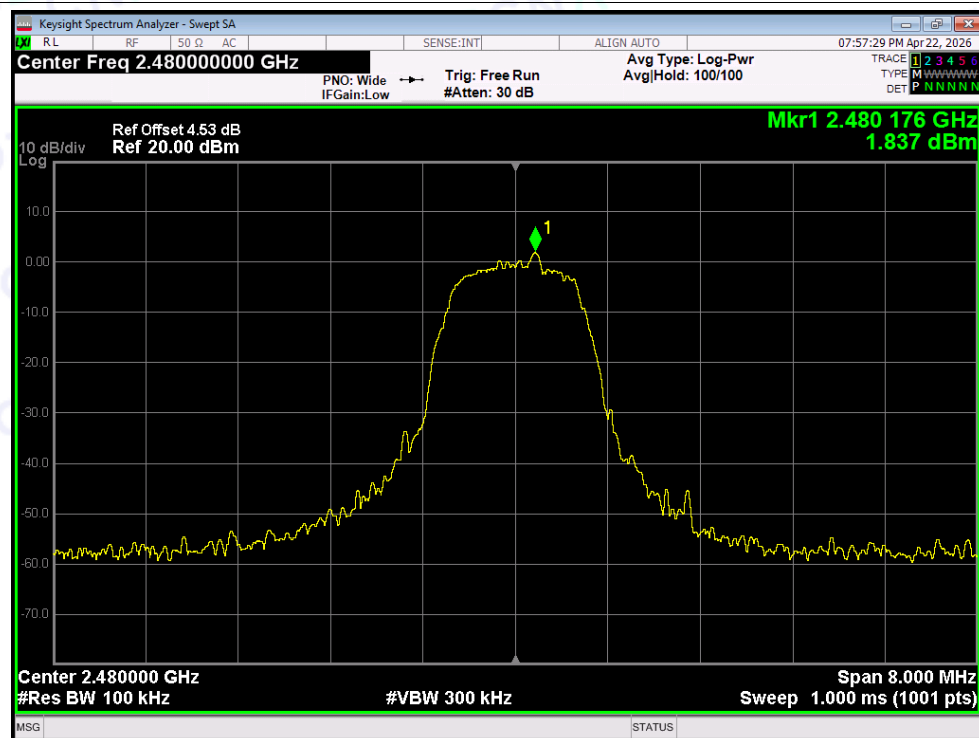
Band Edge NVNT 2-DH5 2402MHz Ant1 No-Hopping Ref



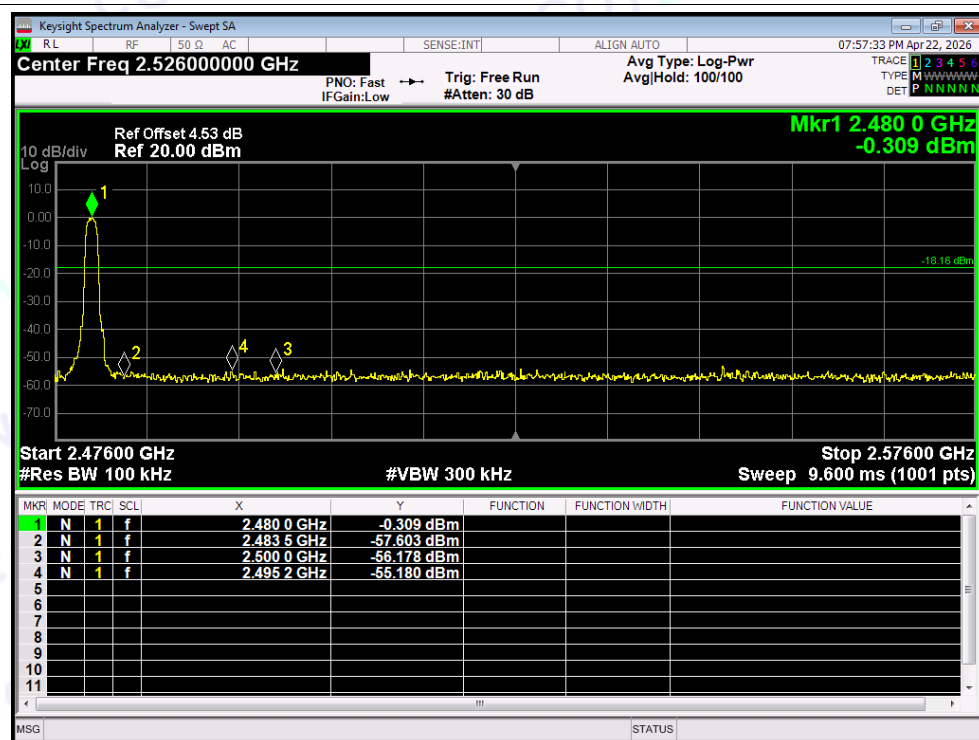
Band Edge NVNT 2-DH5 2402MHz Ant1 No-Hopping Emission



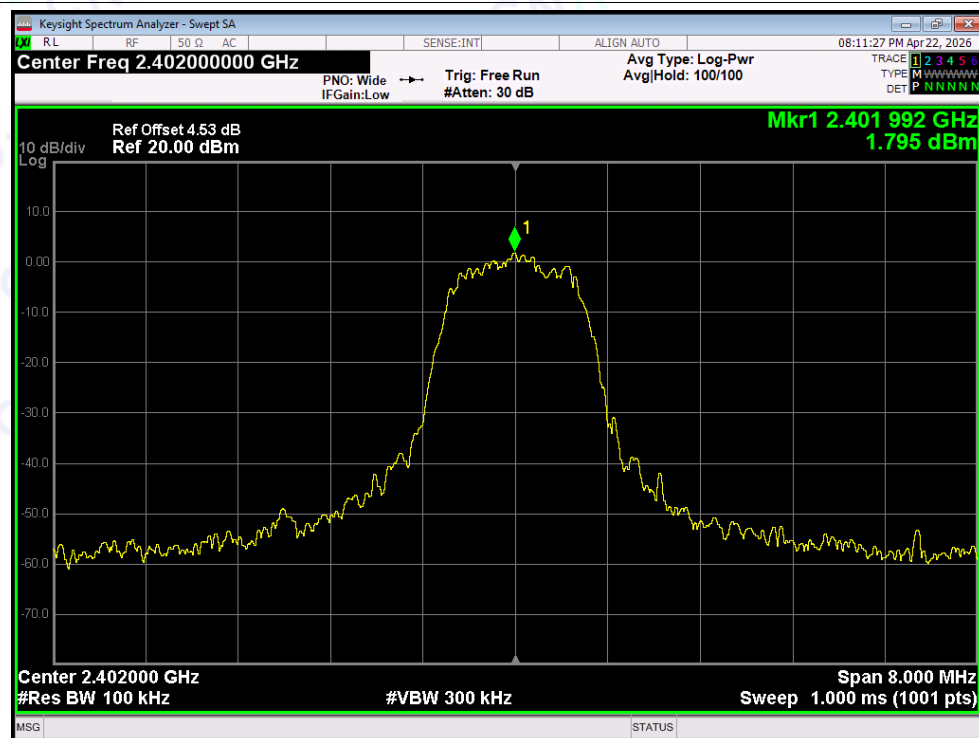
Band Edge NVNT 2-DH5 2480MHz Ant1 No-Hopping Ref



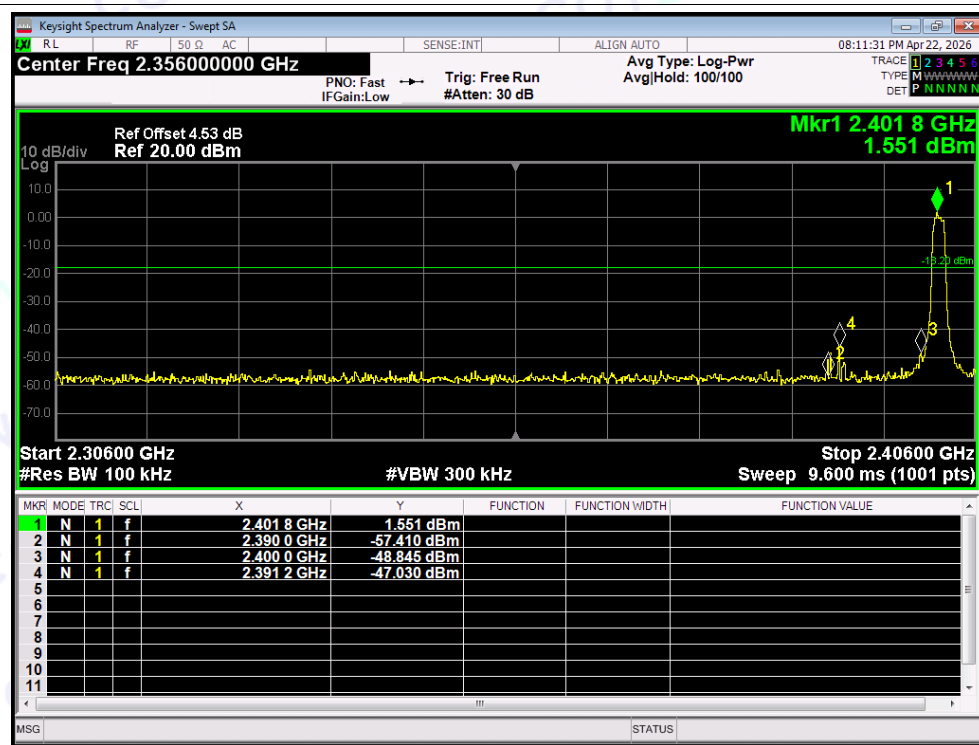
Band Edge NVNT 2-DH5 2480MHz Ant1 No-Hopping Emission



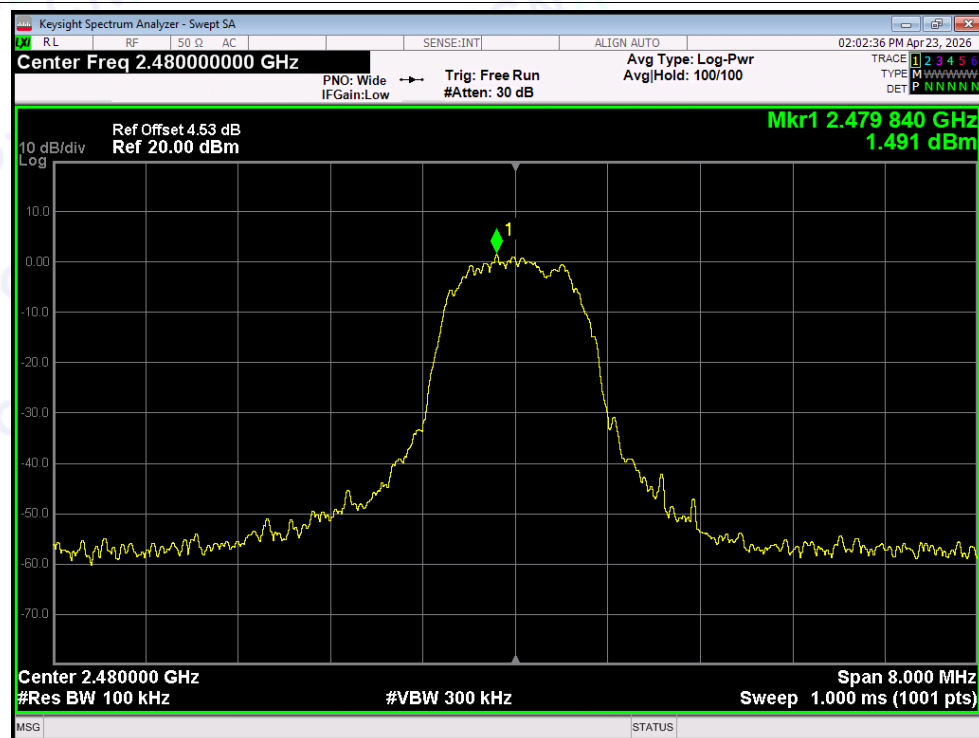
Band Edge NVNT 3-DH5 2402MHz Ant1 No-Hopping Ref



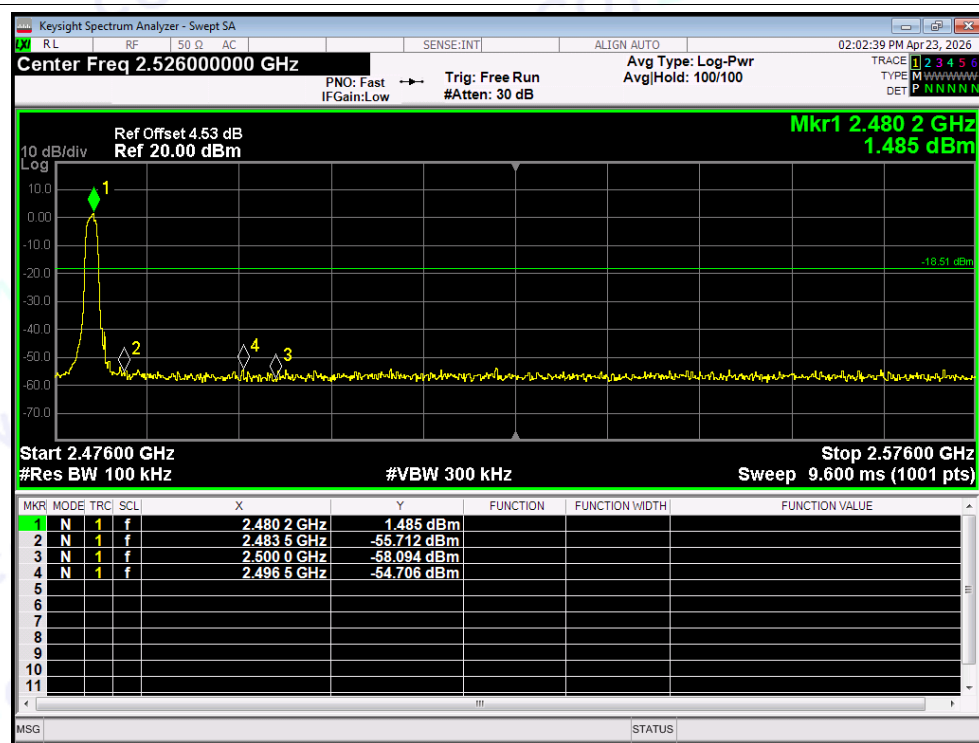
Band Edge NVNT 3-DH5 2402MHz Ant1 No-Hopping Emission



Band Edge NVNT 3-DH5 2480MHz Ant1 No-Hopping Ref



Band Edge NVNT 3-DH5 2480MHz Ant1 No-Hopping Emission



7. Band Edge(Hopping)

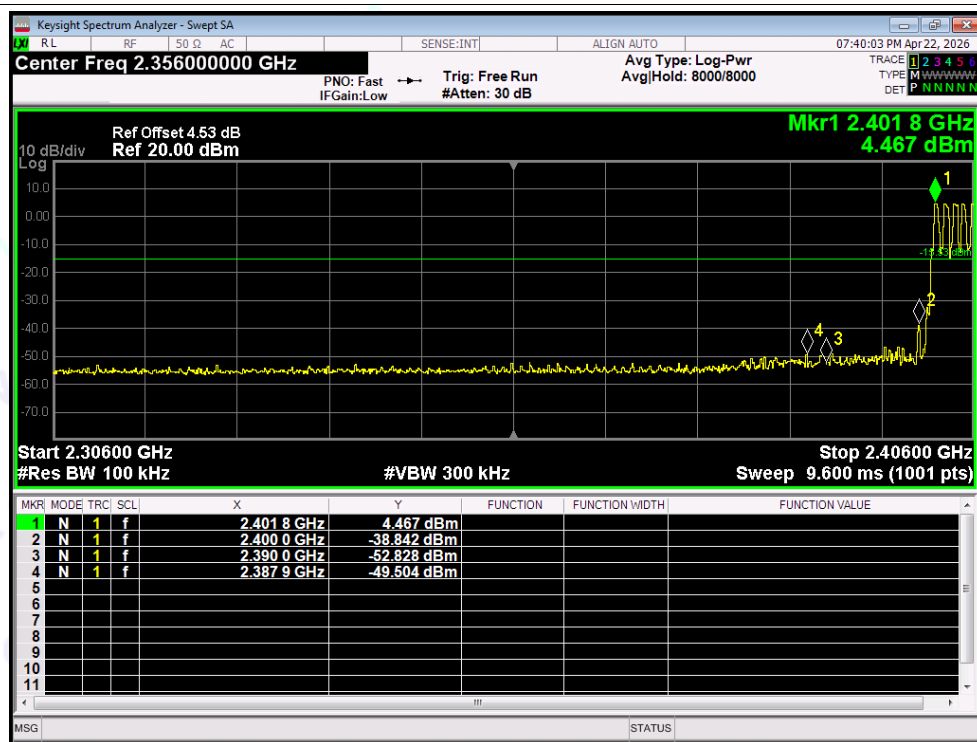
Condition	Mode	Frequency (MHz)	Antenna	Hopping Mode	Max Value (dBc)	Limit (dBc)	Verdict
NVNT	1-DH5	2402	Ant1	Hopping	-53.97	-20	Pass
NVNT	1-DH5	2480	Ant1	Hopping	-50.92	-20	Pass
NVNT	2-DH5	2402	Ant1	Hopping	-55.91	-20	Pass
NVNT	2-DH5	2480	Ant1	Hopping	-55.70	-20	Pass
NVNT	3-DH5	2402	Ant1	Hopping	-56.38	-20	Pass
NVNT	3-DH5	2480	Ant1	Hopping	-56.25	-20	Pass

Test Graphs

Band Edge(Hopping) NVNT 1-DH5 2402MHz Ant1 Hopping Ref



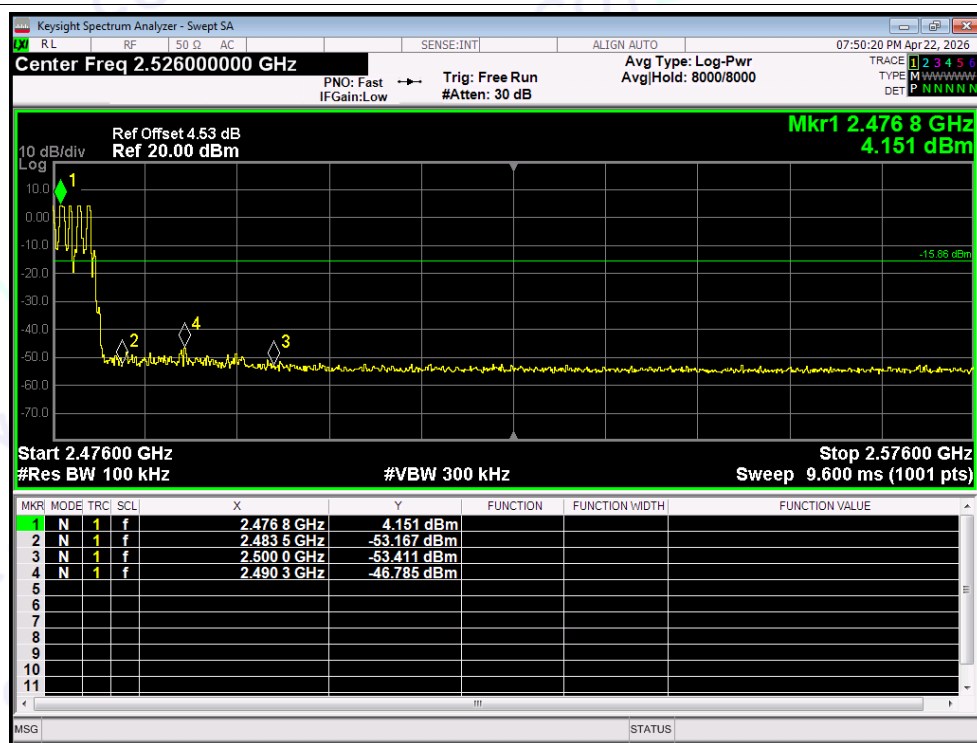
Band Edge(Hopping) NVNT 1-DH5 2402MHz Ant1 Hopping Emission



Band Edge(Hopping) NVNT 1-DH5 2480MHz Ant1 Hopping Ref



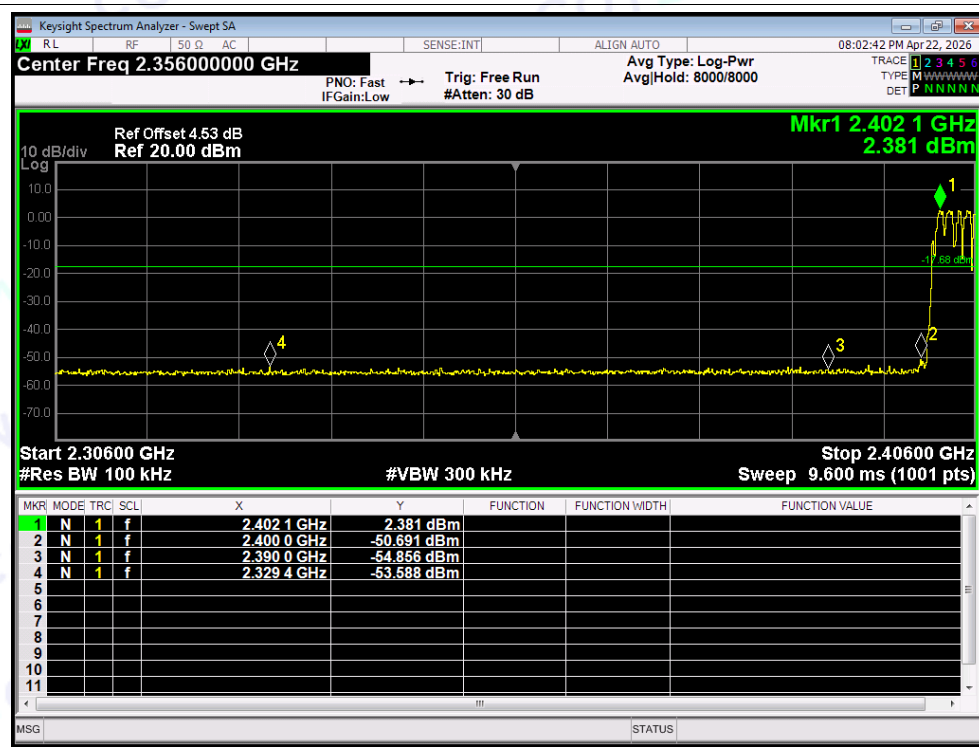
Band Edge(Hopping) NVNT 1-DH5 2480MHz Ant1 Hopping Emission



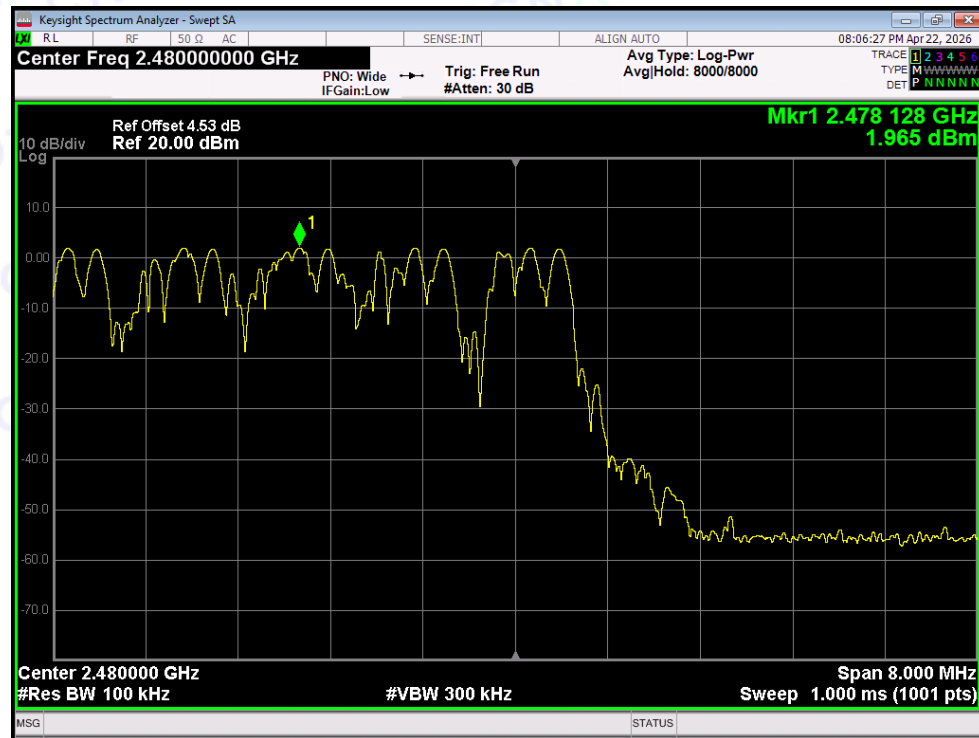
Band Edge(Hopping) NVNT 2-DH5 2402MHz Ant1 Hopping Ref



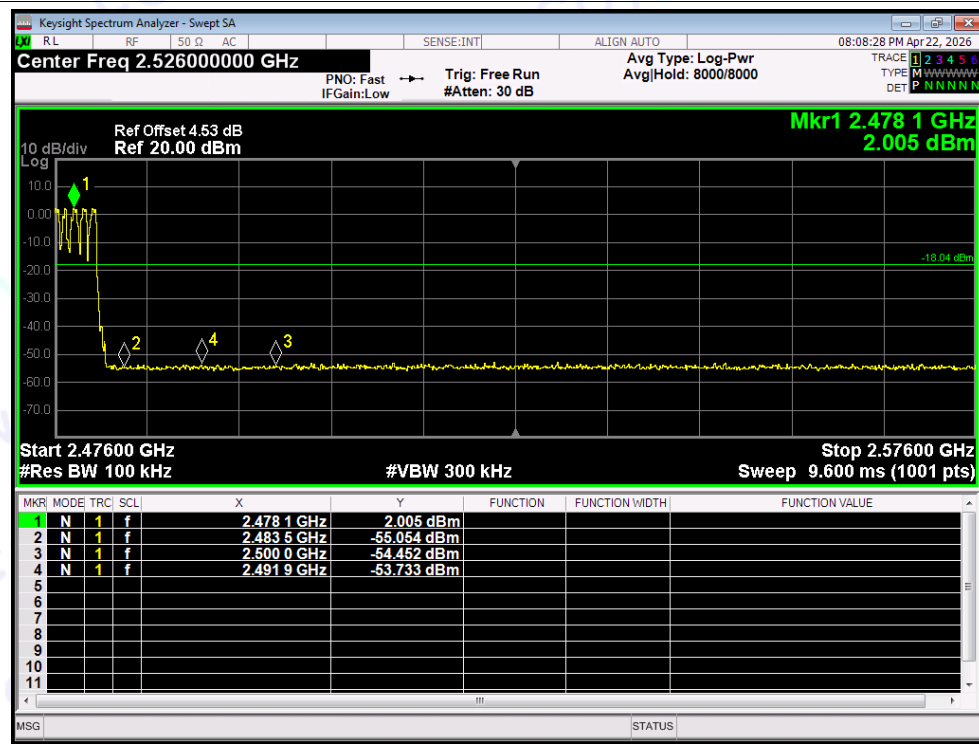
Band Edge(Hopping) NVNT 2-DH5 2402MHz Ant1 Hopping Emission



Band Edge(Hopping) NVNT 2-DH5 2480MHz Ant1 Hopping Ref



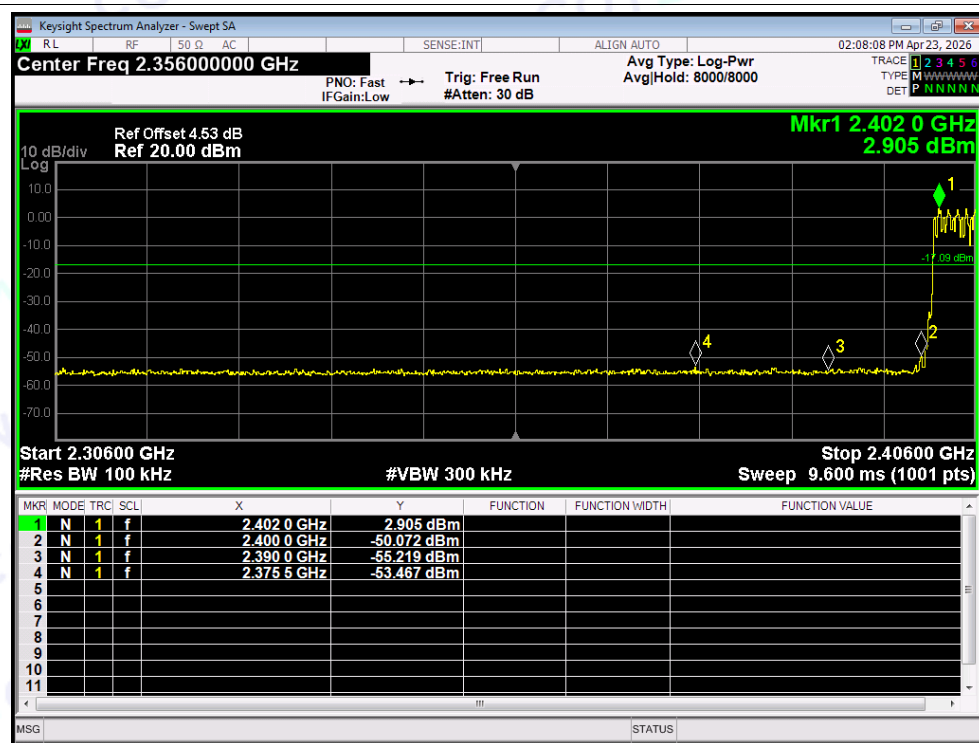
Band Edge(Hopping) NVNT 2-DH5 2480MHz Ant1 Hopping Emission



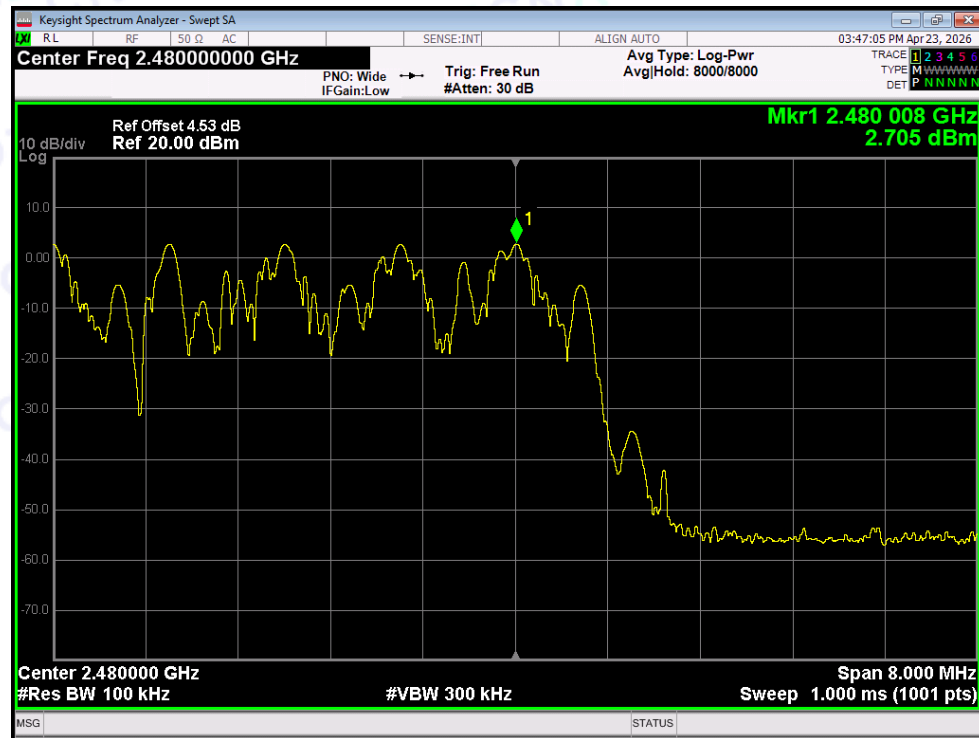
Band Edge(Hopping) NVNT 3-DH5 2402MHz Ant1 Hopping Ref



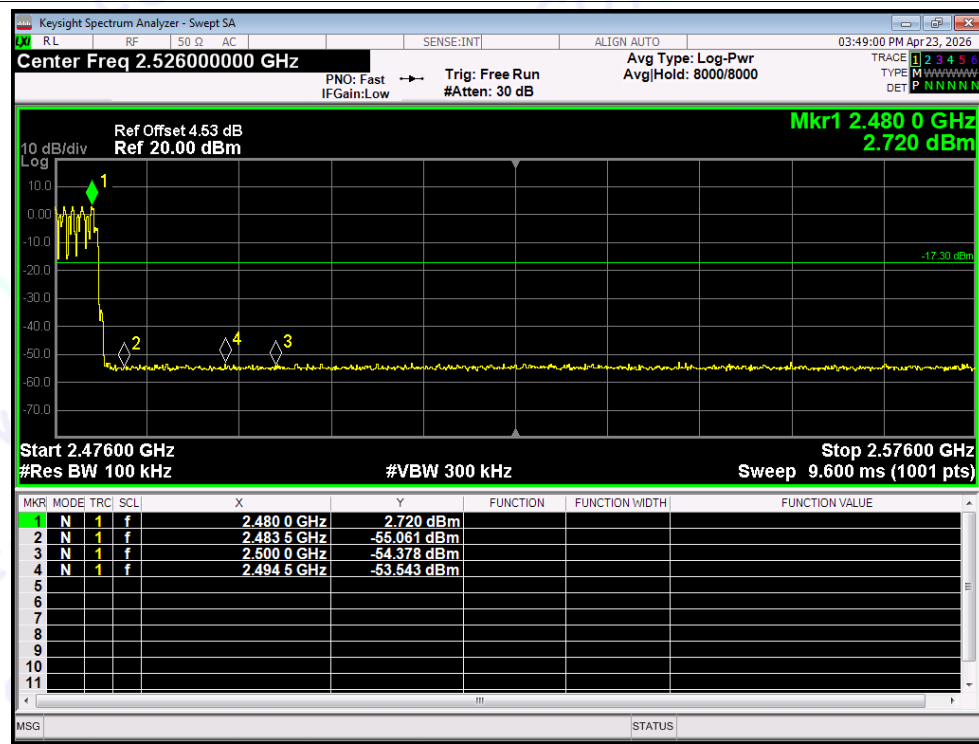
Band Edge(Hopping) NVNT 3-DH5 2402MHz Ant1 Hopping Emission



Band Edge(Hopping) NVNT 3-DH5 2480MHz Ant1 Hopping Ref



Band Edge(Hopping) NVNT 3-DH5 2480MHz Ant1 Hopping Emission

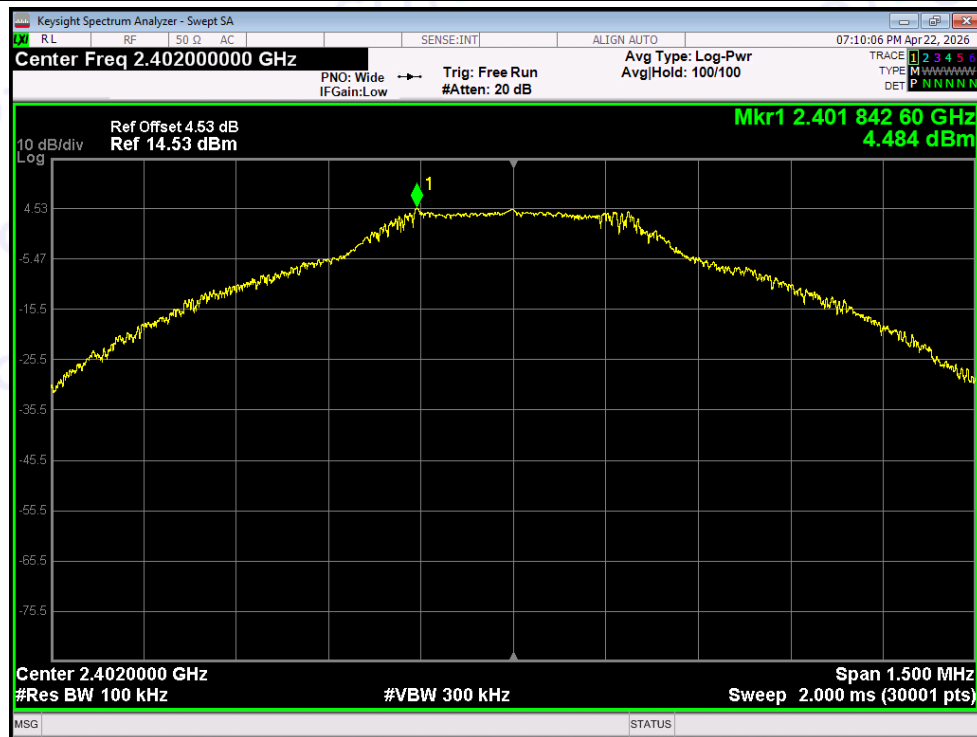


8. Conducted RF Spurious Emission

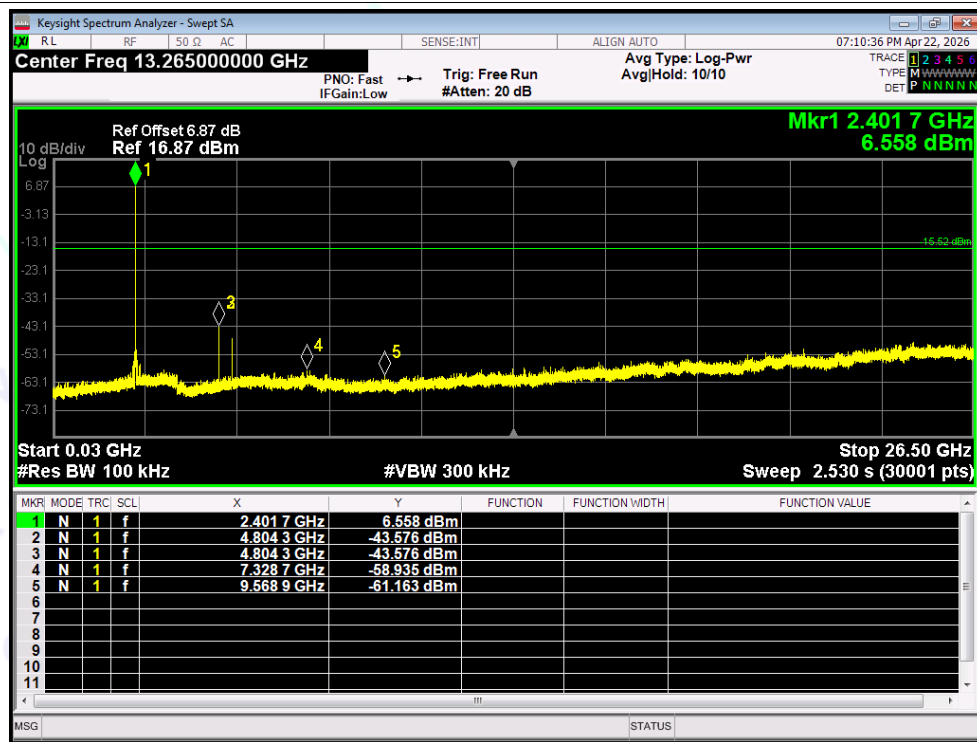
Condition	Mode	Frequency (MHz)	Antenna	Max Value (dBc)	Limit (dBc)	Verdict
NVNT	1-DH5	2402	Ant1	-48.06	-20	Pass
NVNT	1-DH5	2441	Ant1	-49.98	-20	Pass
NVNT	1-DH5	2480	Ant1	-51.87	-20	Pass
NVNT	2-DH5	2402	Ant1	-51.15	-20	Pass
NVNT	2-DH5	2441	Ant1	-50.92	-20	Pass
NVNT	2-DH5	2480	Ant1	-49.73	-20	Pass
NVNT	3-DH5	2402	Ant1	-50.92	-20	Pass
NVNT	3-DH5	2441	Ant1	-49.91	-20	Pass
NVNT	3-DH5	2480	Ant1	-51.03	-20	Pass

Test Graphs

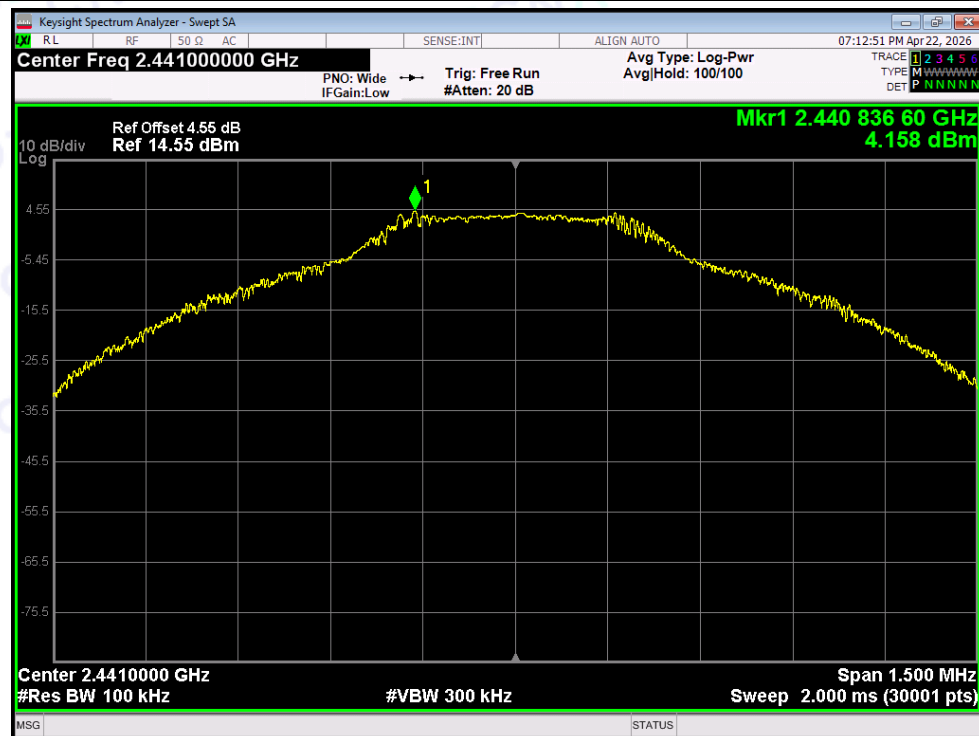
Tx. Spurious NVNT 1-DH5 2402MHz Ant1 Ref



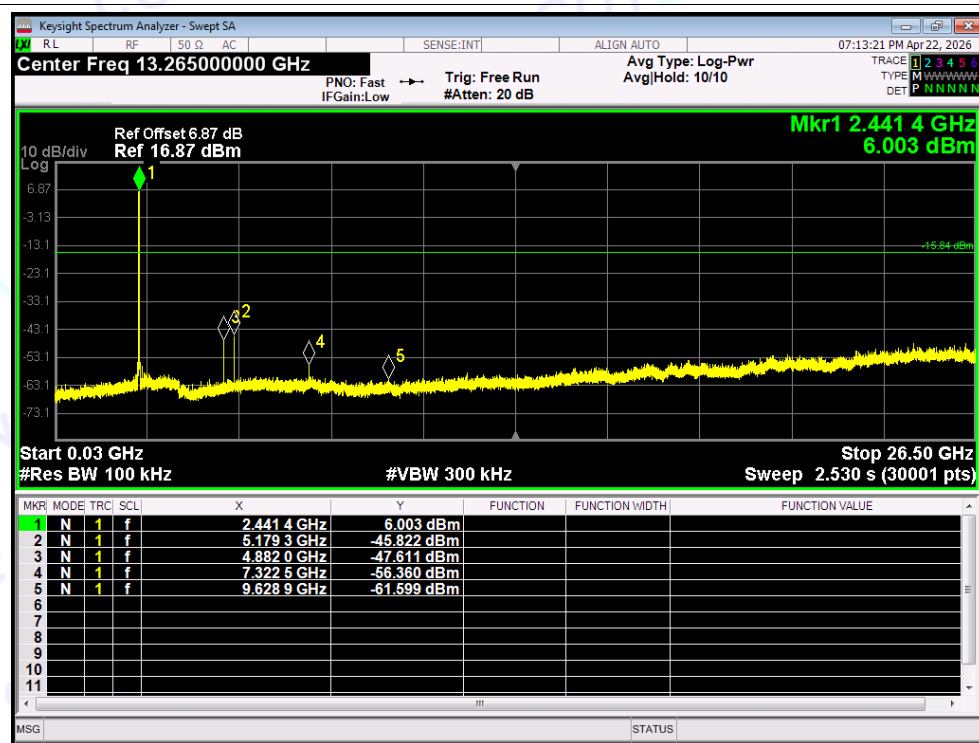
Tx. Spurious NVNT 1-DH5 2402MHz Ant1 Emission



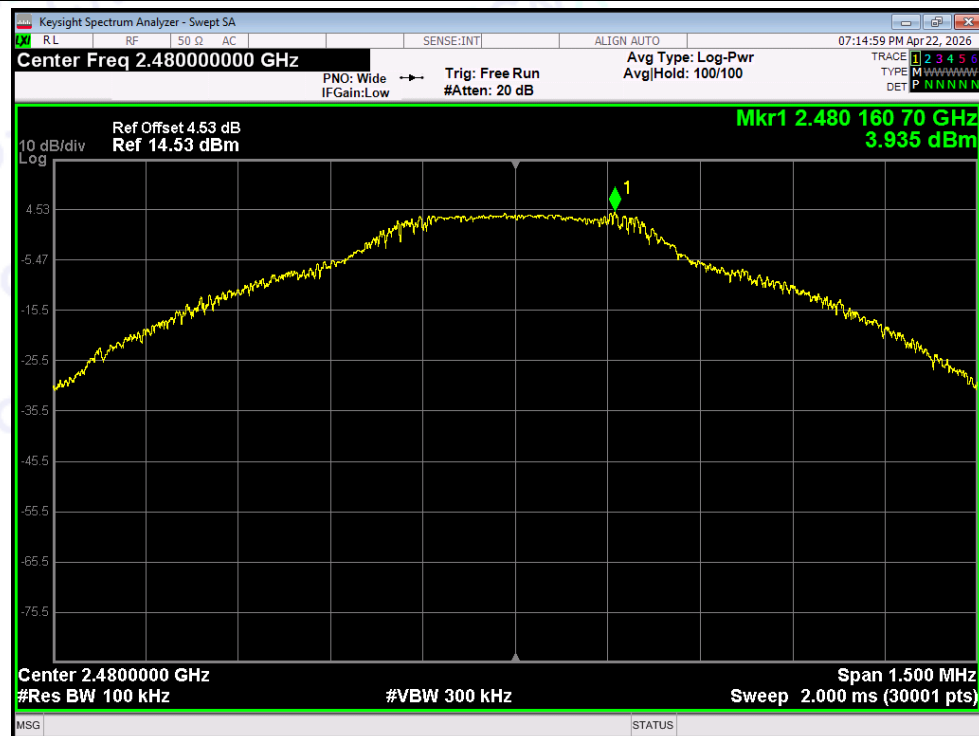
Tx. Spurious NVNT 1-DH5 2441MHz Ant1 Ref



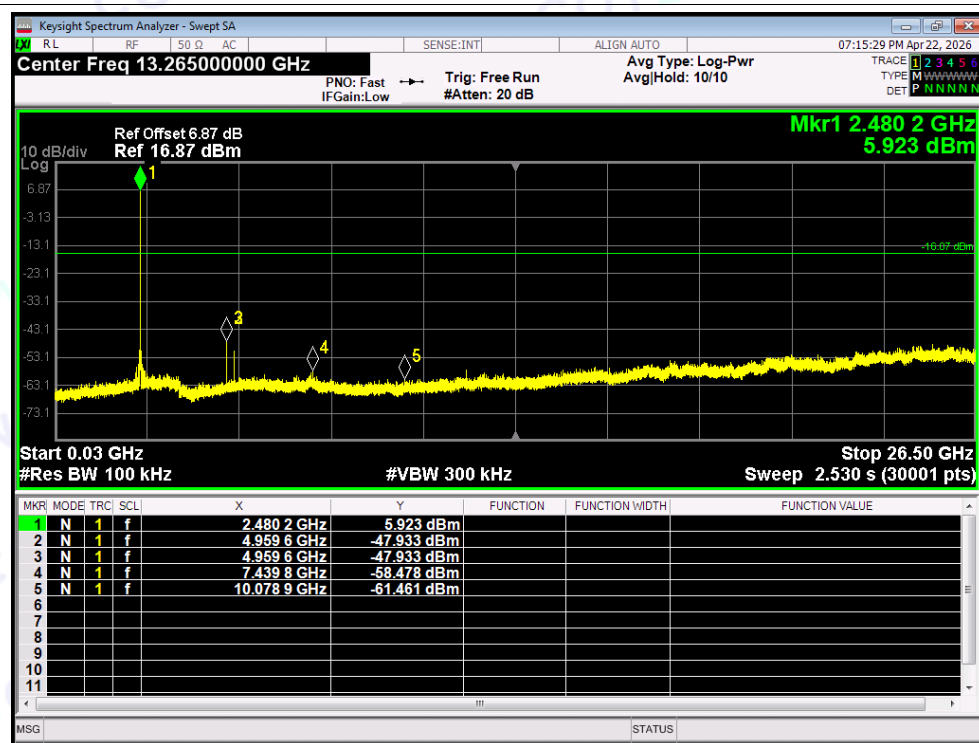
Tx. Spurious NVNT 1-DH5 2441MHz Ant1 Emission



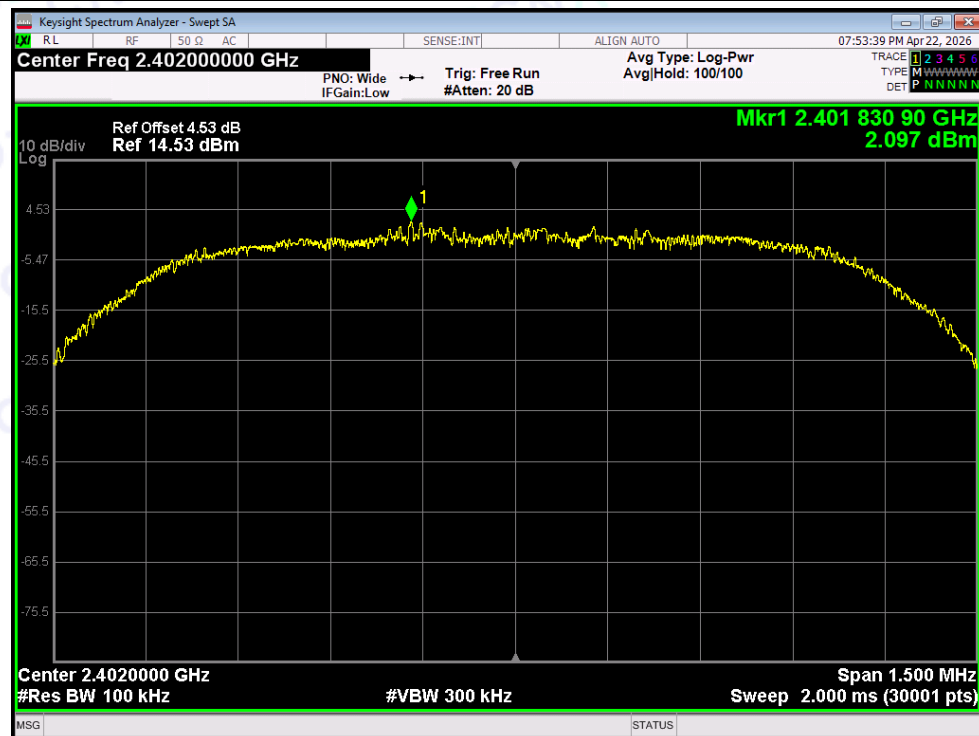
Tx. Spurious NVNT 1-DH5 2480MHz Ant1 Ref



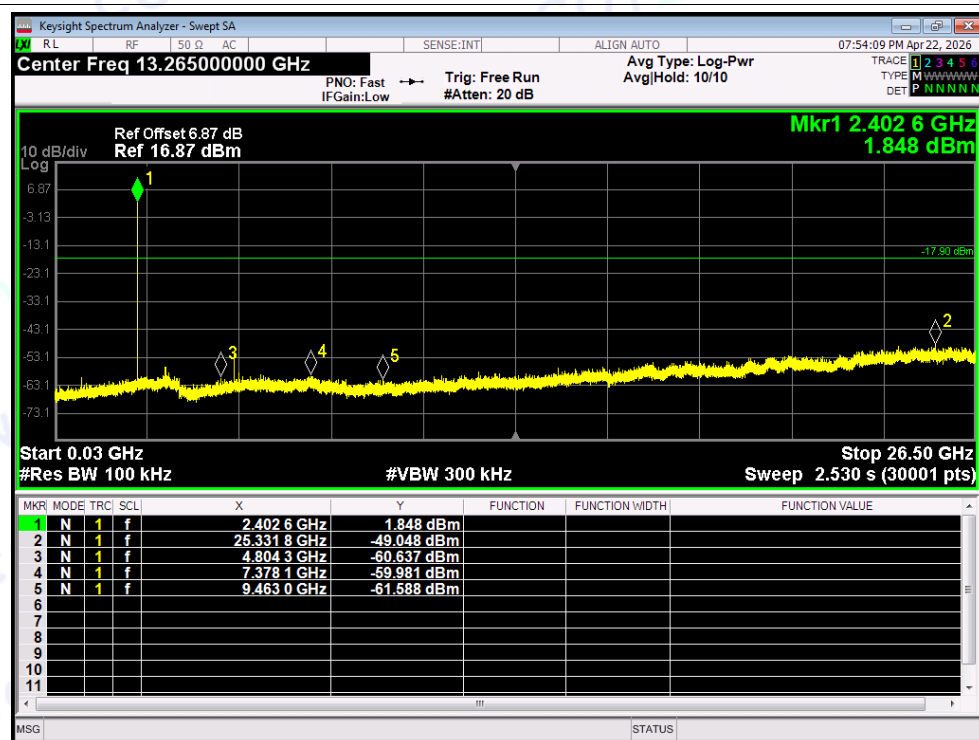
Tx. Spurious NVNT 1-DH5 2480MHz Ant1 Emission



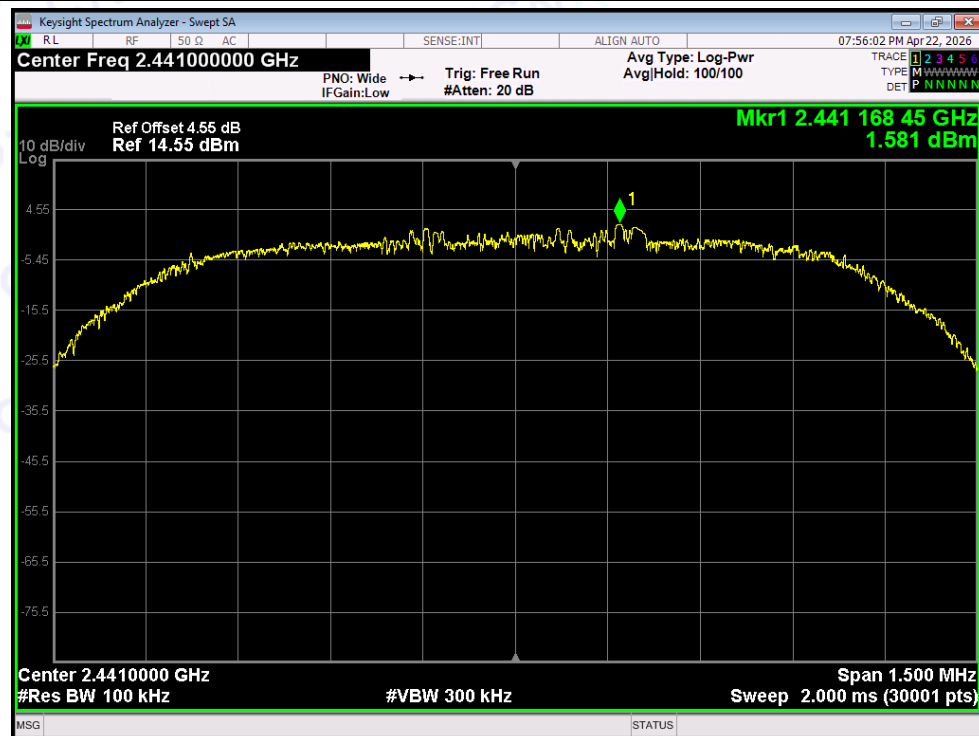
Tx. Spurious NVNT 2-DH5 2402MHz Ant1 Ref



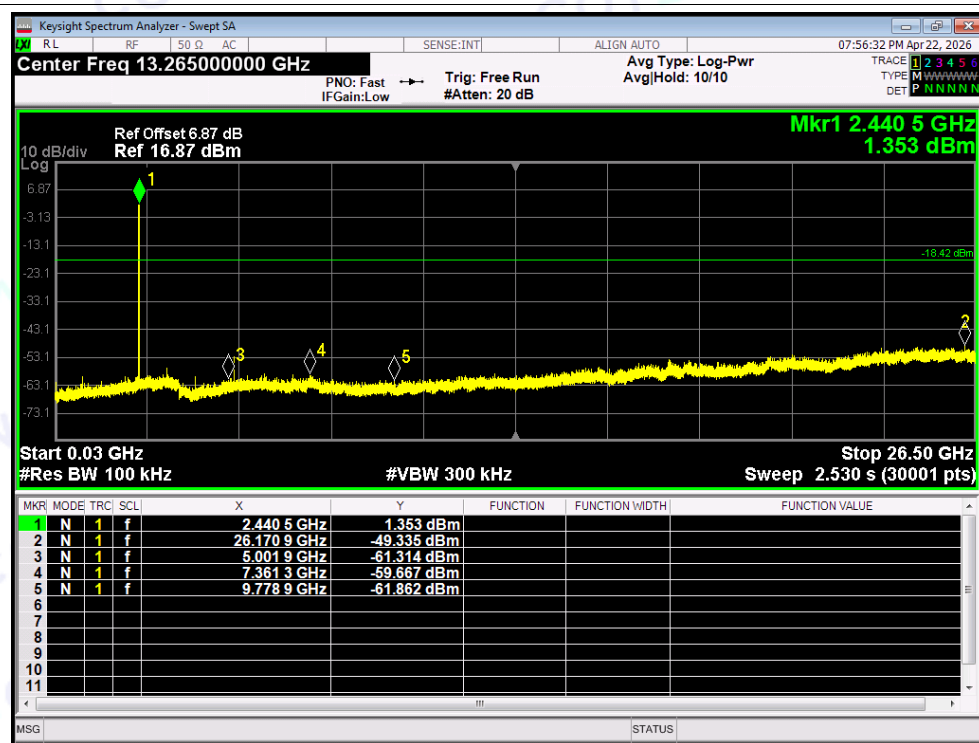
Tx. Spurious NVNT 2-DH5 2402MHz Ant1 Emission



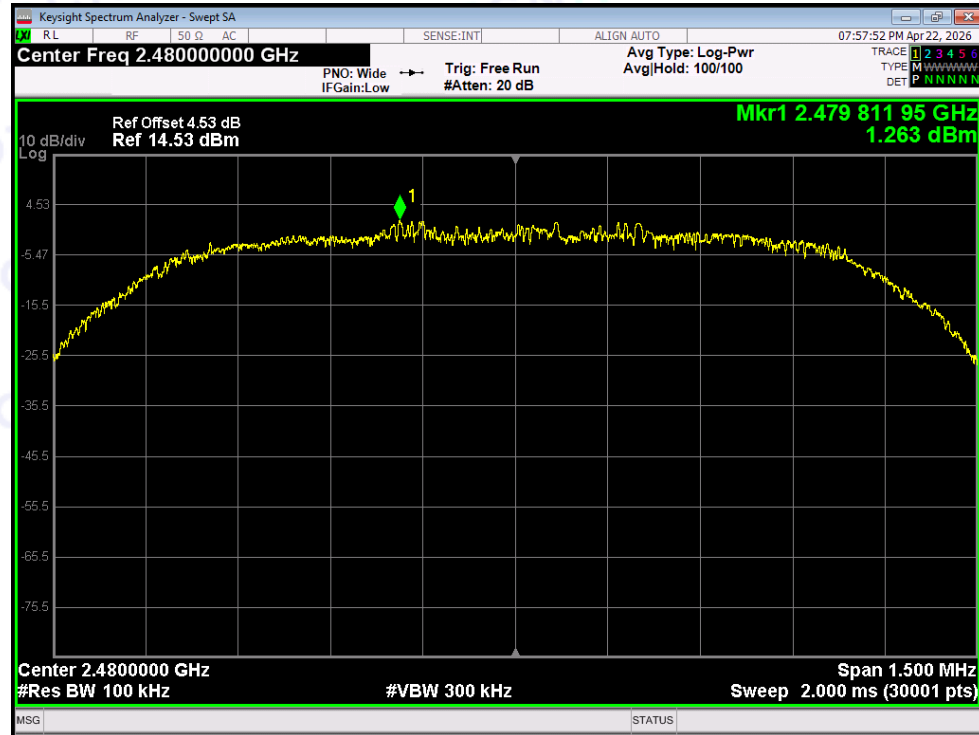
Tx. Spurious NVNT 2-DH5 2441MHz Ant1 Ref



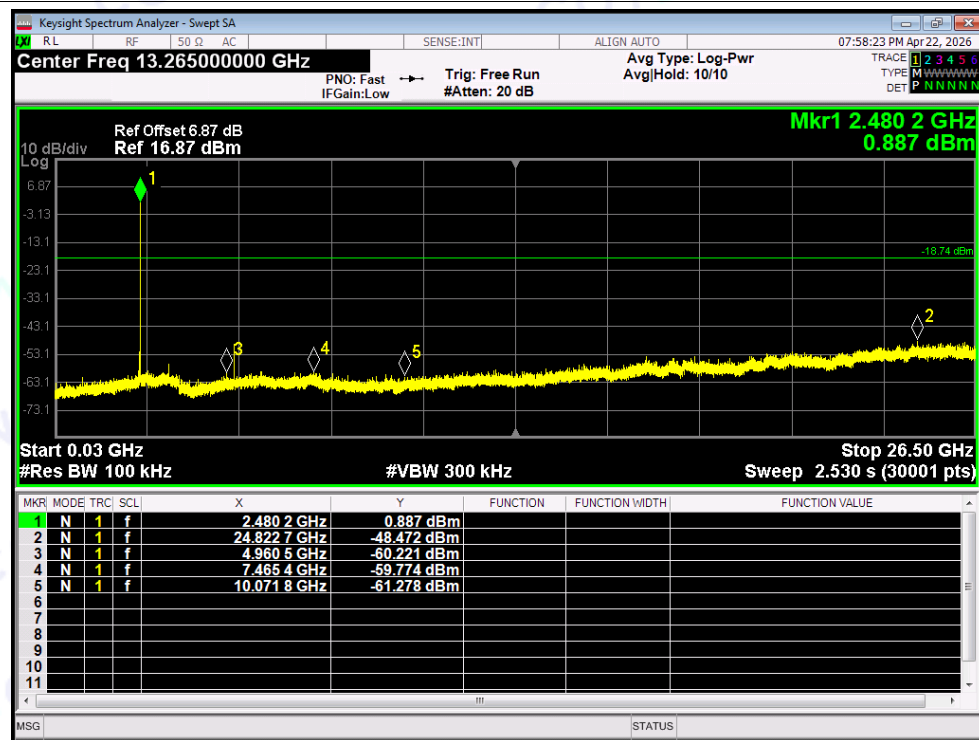
Tx. Spurious NVNT 2-DH5 2441MHz Ant1 Emission



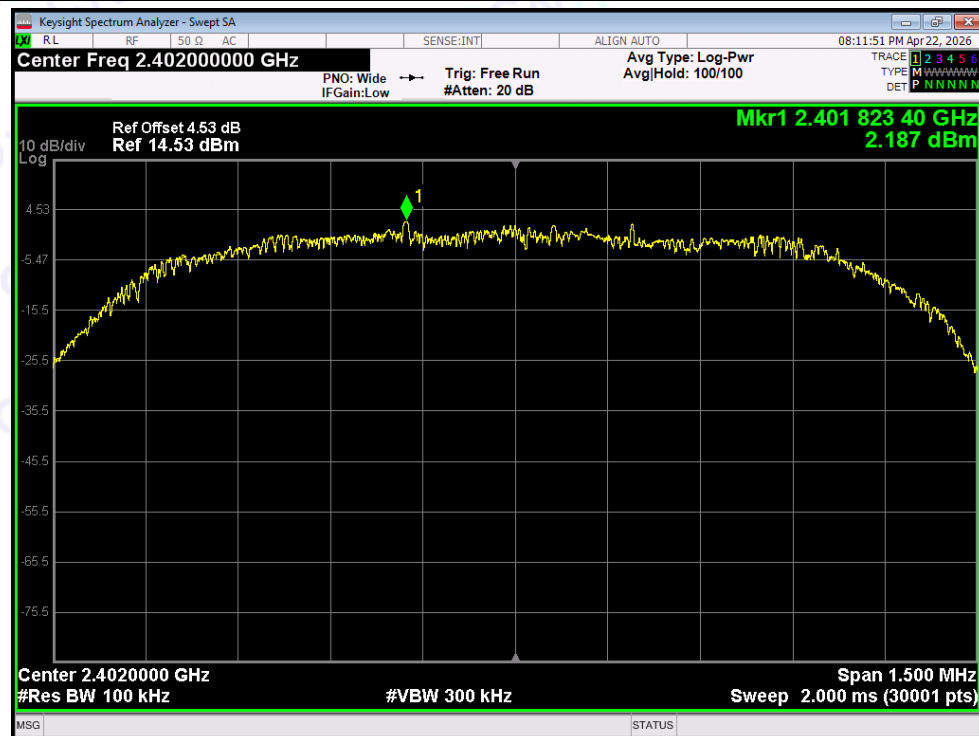
Tx. Spurious NVNT 2-DH5 2480MHz Ant1 Ref



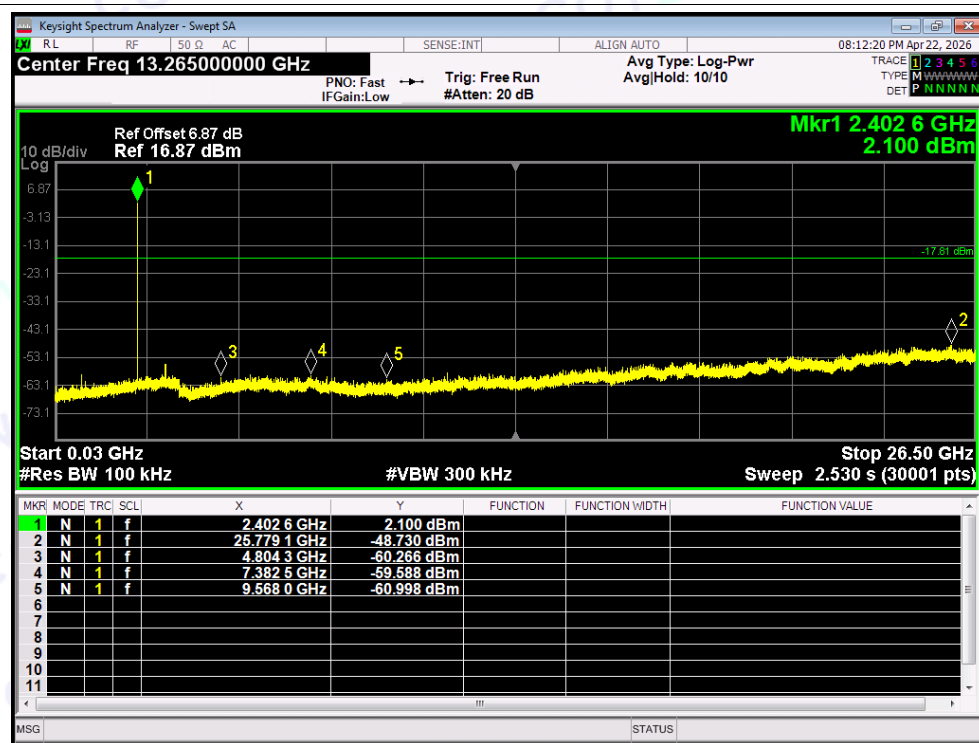
Tx. Spurious NVNT 2-DH5 2480MHz Ant1 Emission



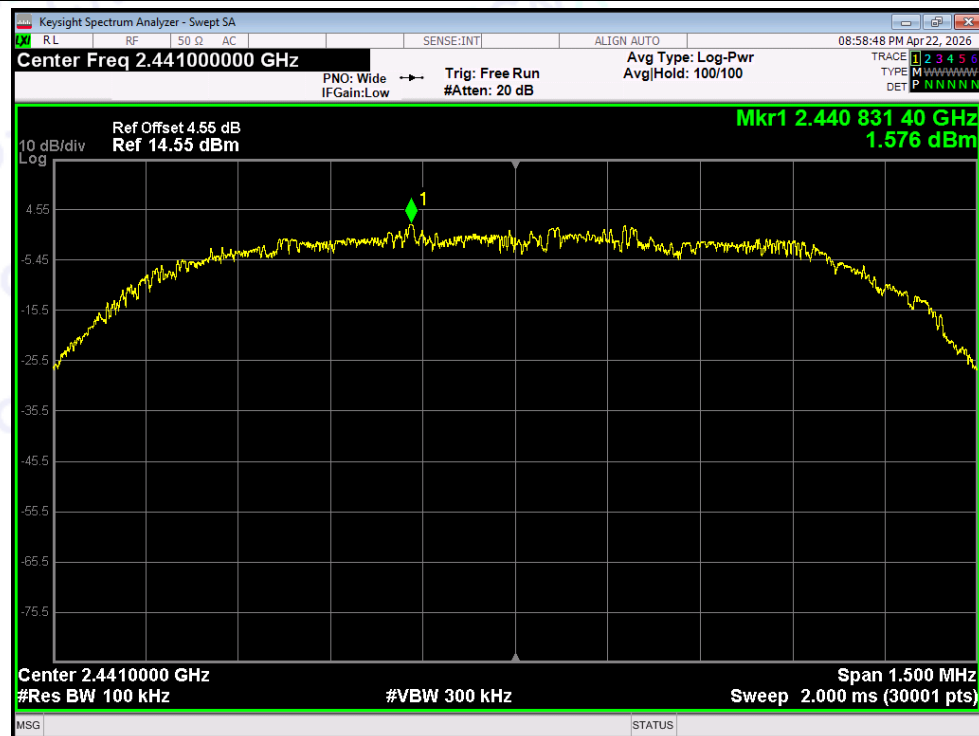
Tx. Spurious NVNT 3-DH5 2402MHz Ant1 Ref



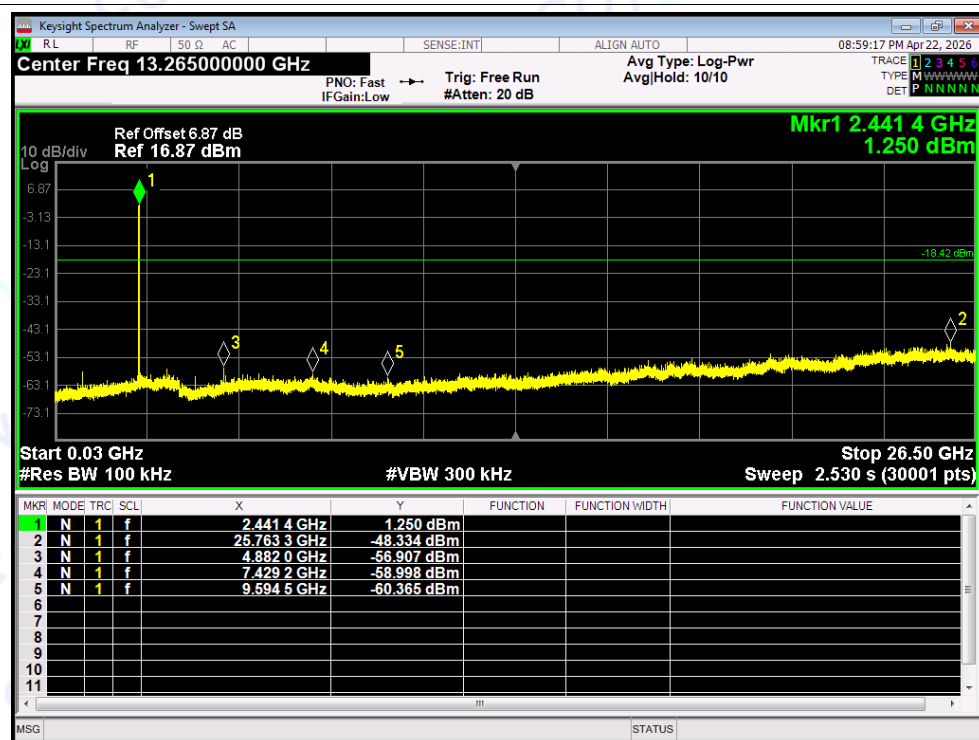
Tx. Spurious NVNT 3-DH5 2402MHz Ant1 Emission



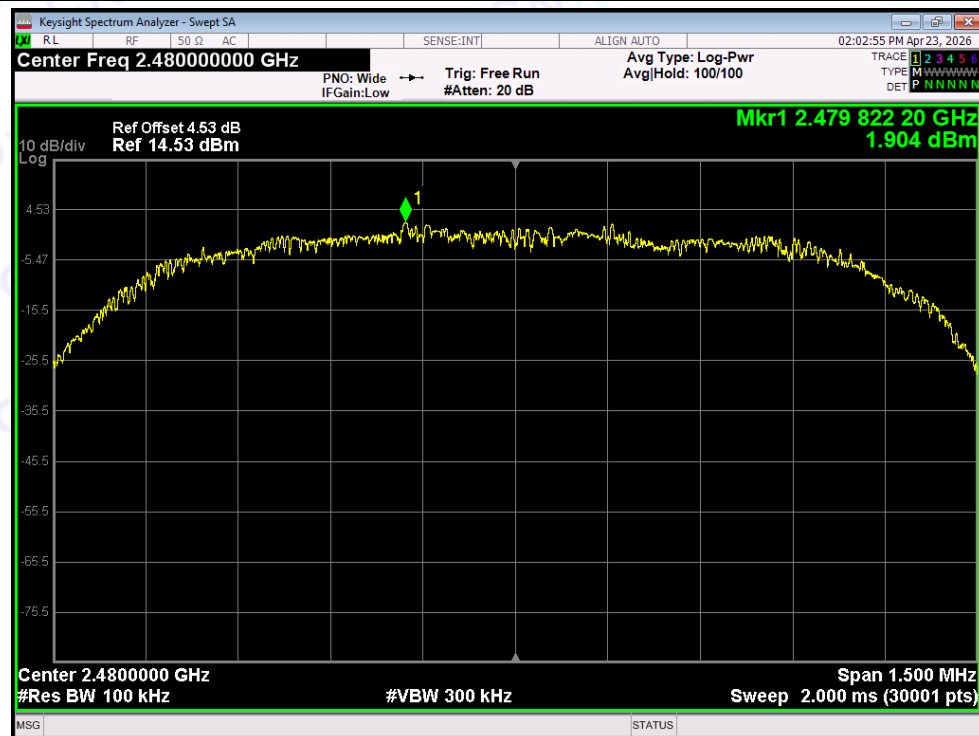
Tx. Spurious NVNT 3-DH5 2441MHz Ant1 Ref



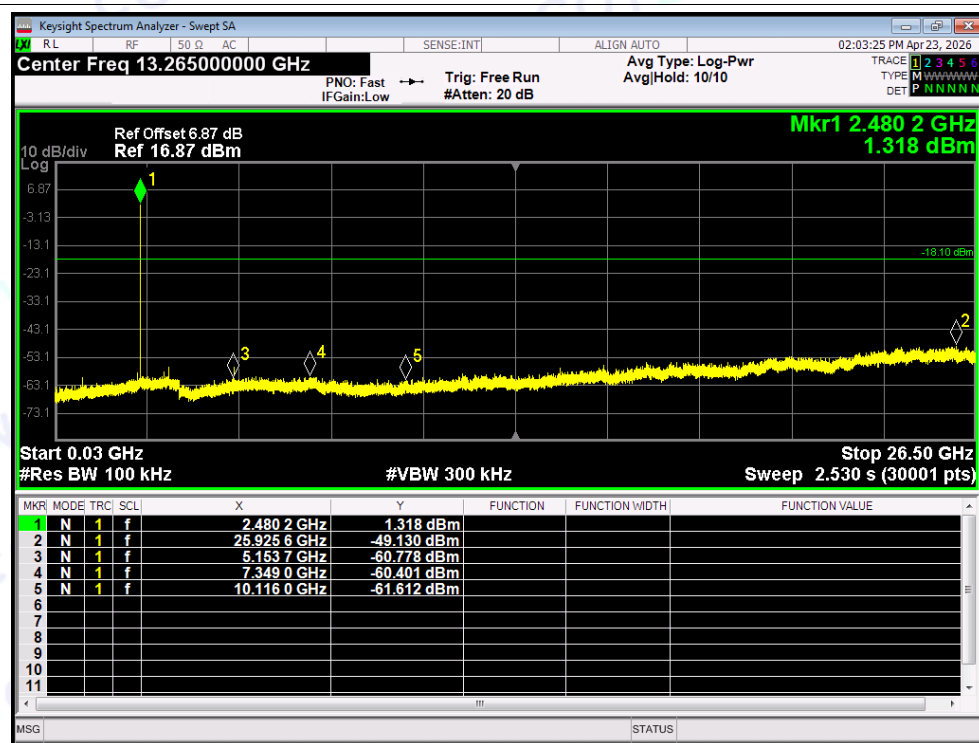
Tx. Spurious NVNT 3-DH5 2441MHz Ant1 Emission



Tx. Spurious NVNT 3-DH5 2480MHz Ant1 Ref



Tx. Spurious NVNT 3-DH5 2480MHz Ant1 Emission

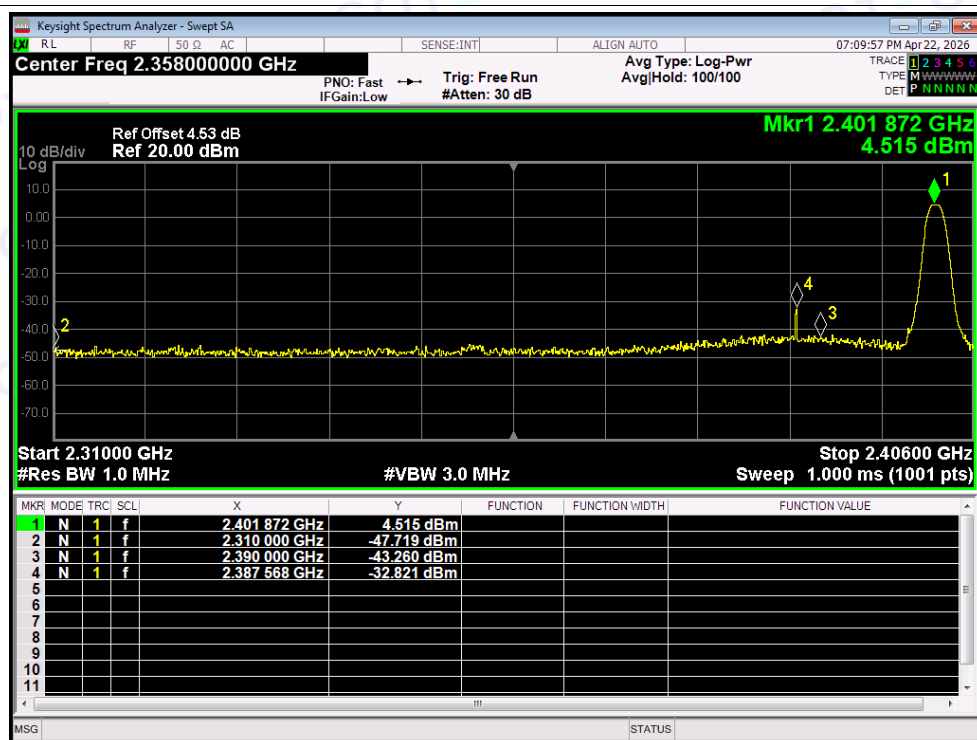


9. Restrict Band

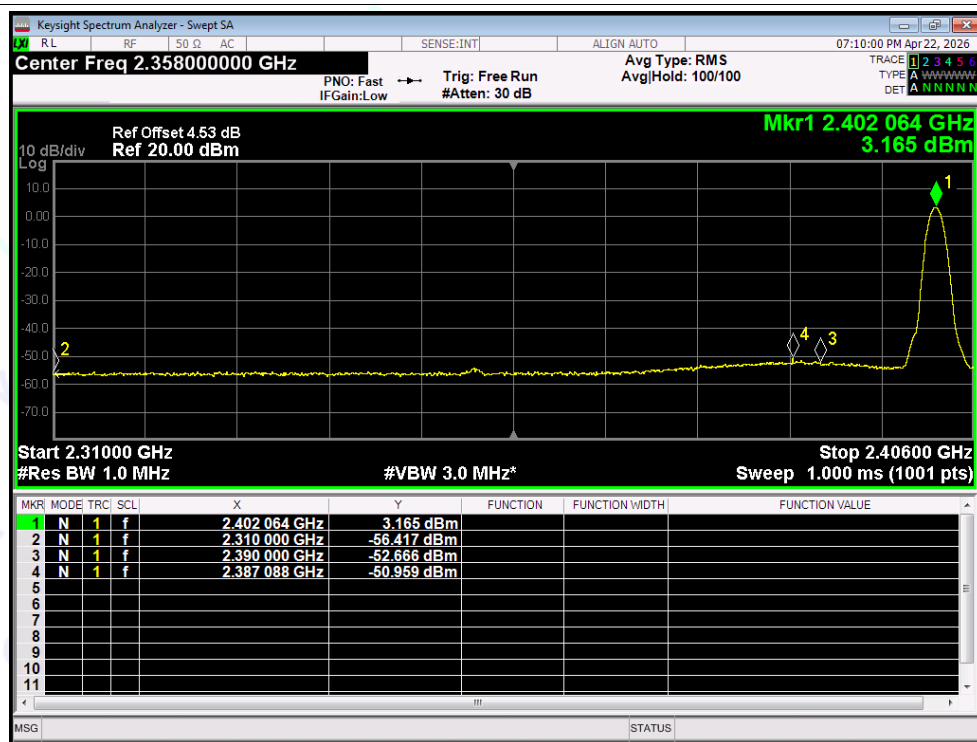
Condition	Mode	Frequency (MHz)	Antenna	Hopping Mode	Spur Freq (MHz)	Power (dBm)	Gain (dBi)	Duty Factor (dB)	E (dBuV/m)	Detector	Limit (dBuV/m)	Verdict
NVNT	1-DH5	2402	Ant1	No-Hopping	2310	-47.72	2	-	49.54	Peak	74	Pass
NVNT	1-DH5	2402	Ant1	No-Hopping	2310	-56.42	2	1.08	41.92	Average	54	Pass
NVNT	1-DH5	2402	Ant1	No-Hopping	2387.568	-32.82	2	-	64.44	Peak	74	Pass
NVNT	1-DH5	2402	Ant1	No-Hopping	2387.088	-50.96	2	1.08	47.38	Average	54	Pass
NVNT	1-DH5	2402	Ant1	No-Hopping	2390	-43.26	2	-	54	Peak	74	Pass
NVNT	1-DH5	2402	Ant1	No-Hopping	2390	-52.67	2	1.08	45.67	Average	54	Pass
NVNT	1-DH5	2480	Ant1	No-Hopping	2483.5	-46.41	2	-	50.85	Peak	74	Pass
NVNT	1-DH5	2480	Ant1	No-Hopping	2483.5	-54.15	2	1.08	44.19	Average	54	Pass
NVNT	1-DH5	2480	Ant1	No-Hopping	2496.976	-41.22	2	-	56.04	Peak	74	Pass
NVNT	1-DH5	2480	Ant1	No-Hopping	2493.376	-51.04	2	1.08	47.3	Average	54	Pass
NVNT	1-DH5	2480	Ant1	No-Hopping	2500	-43.41	2	-	53.85	Peak	74	Pass
NVNT	1-DH5	2480	Ant1	No-Hopping	2500	-52.58	2	1.08	45.76	Average	54	Pass
NVNT	2-DH5	2402	Ant1	No-Hopping	2310	-49.28	2	-	47.98	Peak	74	Pass
NVNT	2-DH5	2402	Ant1	No-Hopping	2310	-56.83	2	1.14	41.57	Average	54	Pass
NVNT	2-DH5	2402	Ant1	No-Hopping	2387.472	-43.95	2	-	53.31	Peak	74	Pass
NVNT	2-DH5	2402	Ant1	No-Hopping	2388.816	-55.22	2	1.14	43.18	Average	54	Pass
NVNT	2-DH5	2402	Ant1	No-Hopping	2390	-47.06	2	-	50.2	Peak	74	Pass
NVNT	2-DH5	2402	Ant1	No-Hopping	2390	-56.02	2	1.14	42.38	Average	54	Pass
NVNT	2-DH5	2480	Ant1	No-Hopping	2483.5	-46.74	2	-	50.52	Peak	74	Pass
NVNT	2-DH5	2480	Ant1	No-Hopping	2483.5	-54.68	2	1.14	43.72	Average	54	Pass
NVNT	2-DH5	2480	Ant1	No-Hopping	2485.864	-44.16	2	-	53.1	Peak	74	Pass
NVNT	2-DH5	2480	Ant1	No-Hopping	2483.944	-54.39	2	1.14	44.01	Average	54	Pass
NVNT	2-DH5	2480	Ant1	No-Hopping	2500	-47.35	2	-	49.91	Peak	74	Pass
NVNT	2-DH5	2480	Ant1	No-Hopping	2500	-55.71	2	1.14	42.69	Average	54	Pass
NVNT	3-DH5	2402	Ant1	No-Hopping	2310	-48.64	2	-	48.62	Peak	74	Pass
NVNT	3-DH5	2402	Ant1	No-Hopping	2310	-56.51	2	1.14	41.89	Average	54	Pass
NVNT	3-DH5	2402	Ant1	No-Hopping	2333.52	-45.37	2	-	51.89	Peak	74	Pass
NVNT	3-DH5	2402	Ant1	No-Hopping	2389.776	-52.52	2	1.14	45.88	Average	54	Pass
NVNT	3-DH5	2402	Ant1	No-Hopping	2390	-47.91	2	-	49.35	Peak	74	Pass
NVNT	3-DH5	2402	Ant1	No-Hopping	2390	-55.56	2	1.14	42.84	Average	54	Pass
NVNT	3-DH5	2480	Ant1	No-Hopping	2483.5	-46.07	2	-	51.19	Peak	74	Pass
NVNT	3-DH5	2480	Ant1	No-Hopping	2483.5	-55.46	2	1.14	42.94	Average	54	Pass
NVNT	3-DH5	2480	Ant1	No-Hopping	2483.752	-43.72	2	-	53.54	Peak	74	Pass
NVNT	3-DH5	2480	Ant1	No-Hopping	2483.584	-54.28	2	1.14	44.12	Average	54	Pass
NVNT	3-DH5	2480	Ant1	No-Hopping	2500	-47.15	2	-	50.11	Peak	74	Pass
NVNT	3-DH5	2480	Ant1	No-Hopping	2500	-55.29	2	1.14	43.11	Average	54	Pass

Test Graphs

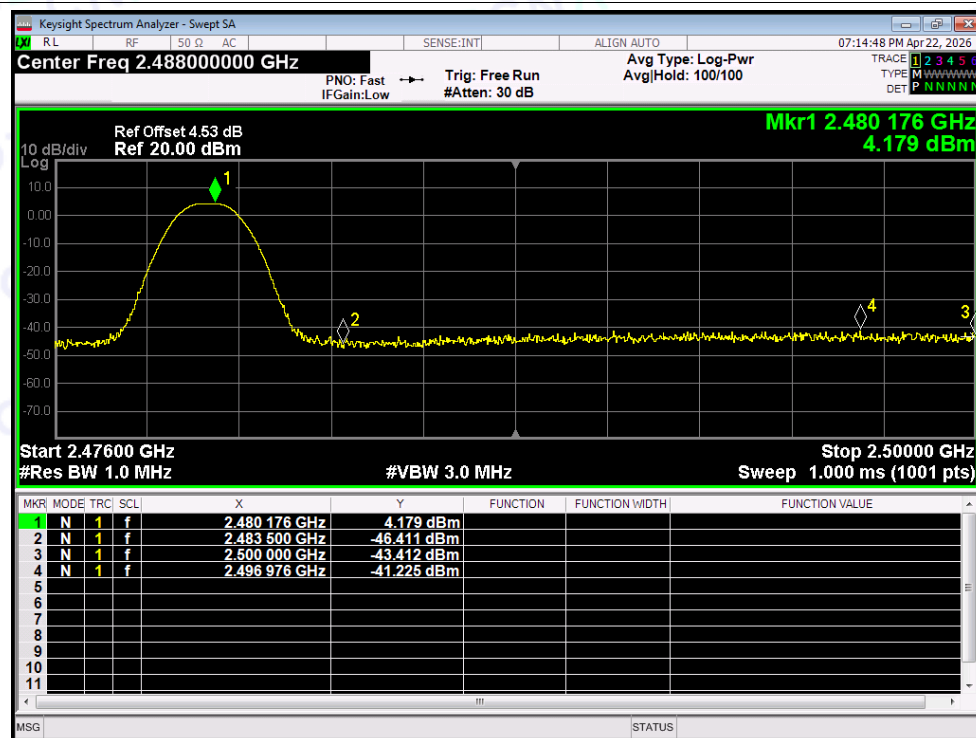
Restrict Band NVNT 1-DH5 2402MHz Ant1 No-Hopping Peak



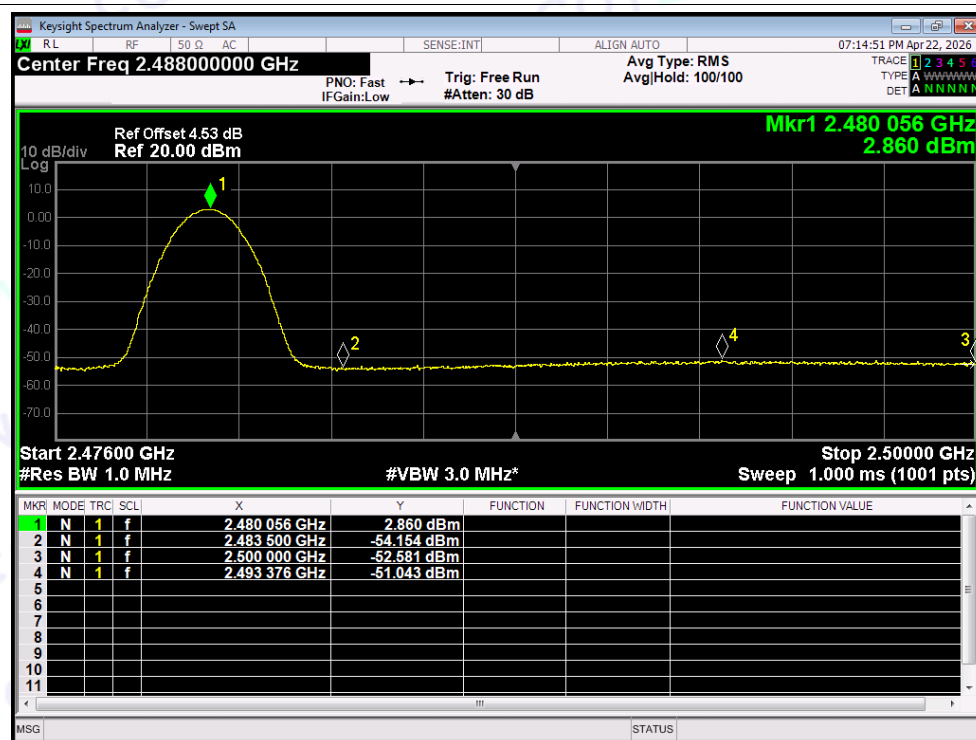
Restrict Band NVNT 1-DH5 2402MHz Ant1 No-Hopping Average



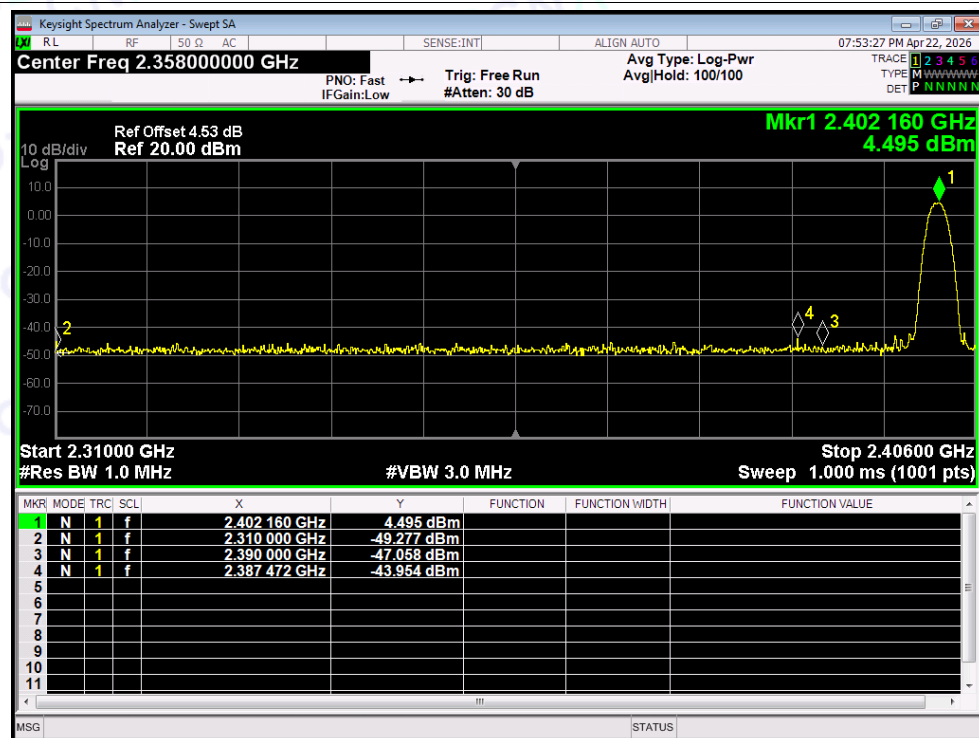
Restrict Band NVNT 1-DH5 2480MHz Ant1 No-Hopping Peak



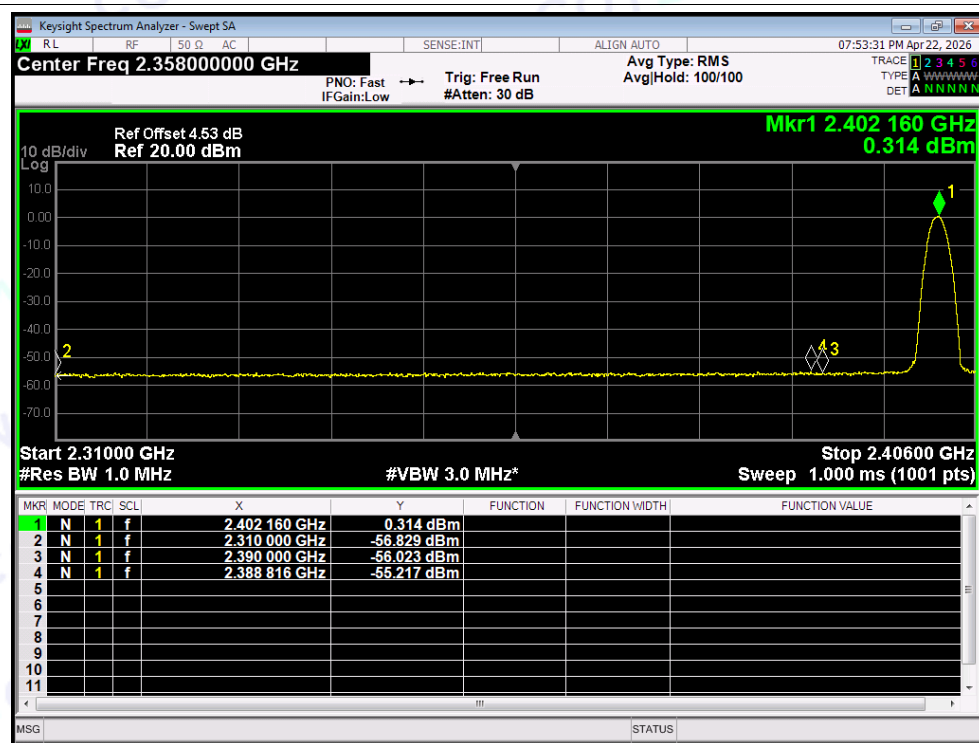
Restrict Band NVNT 1-DH5 2480MHz Ant1 No-Hopping Average



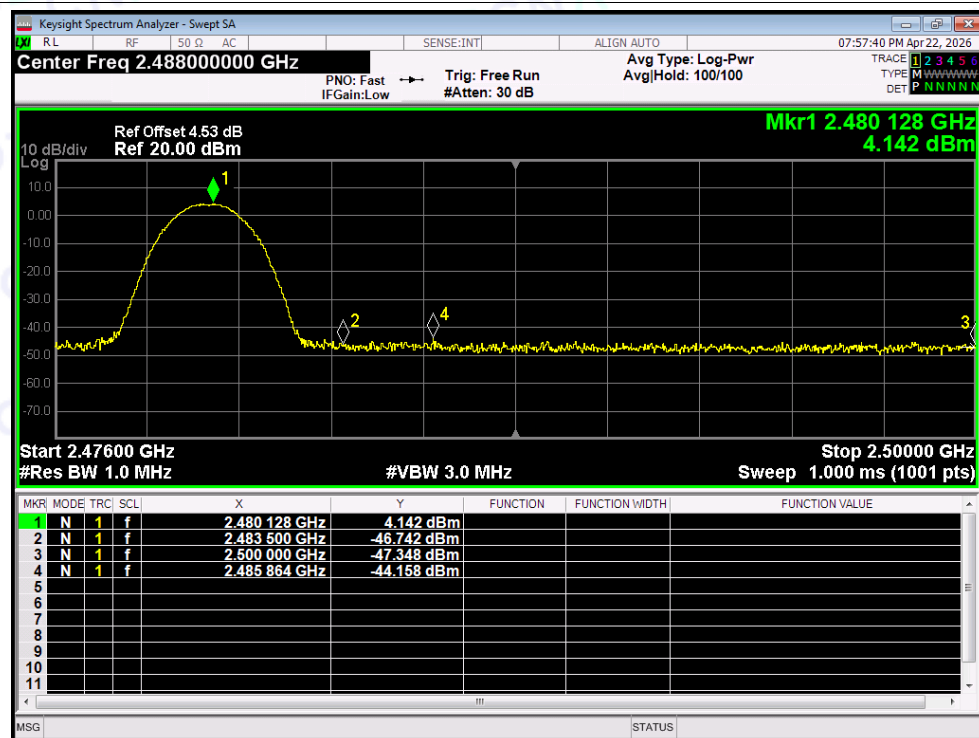
Restrict Band NVNT 2-DH5 2402MHz Ant1 No-Hopping Peak



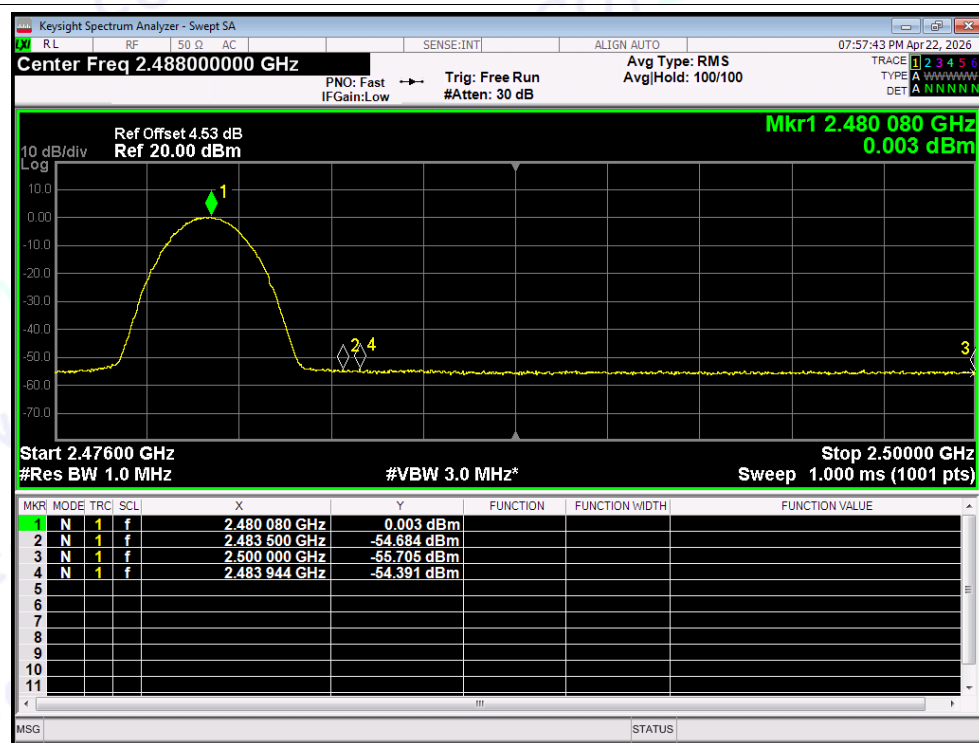
Restrict Band NVNT 2-DH5 2402MHz Ant1 No-Hopping Average



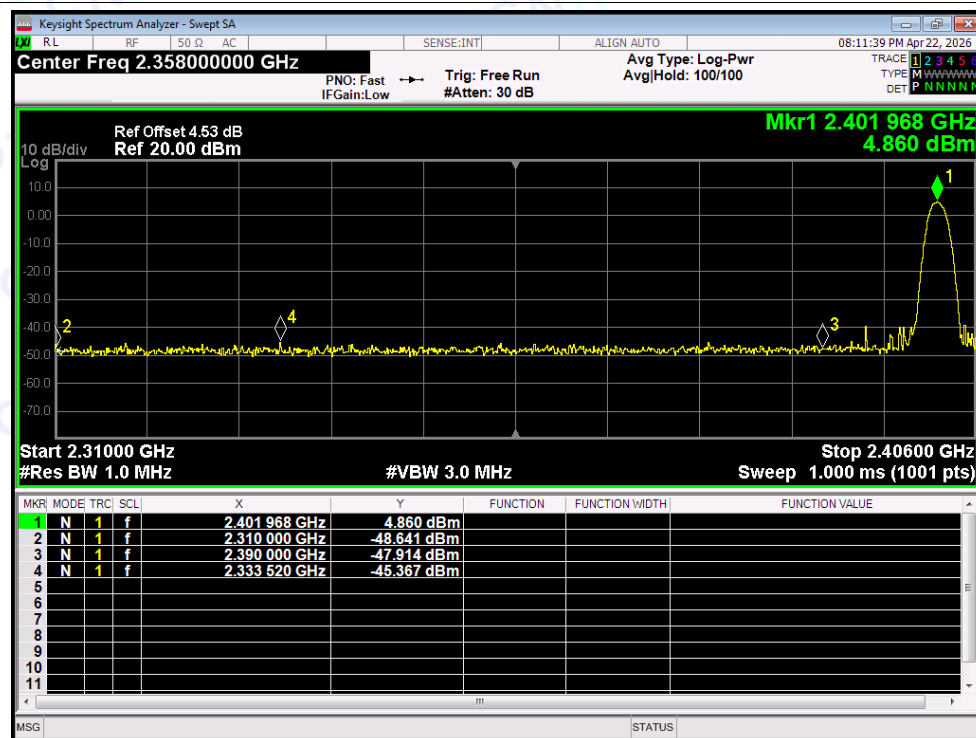
Restrict Band NVNT 2-DH5 2480MHz Ant1 No-Hopping Peak



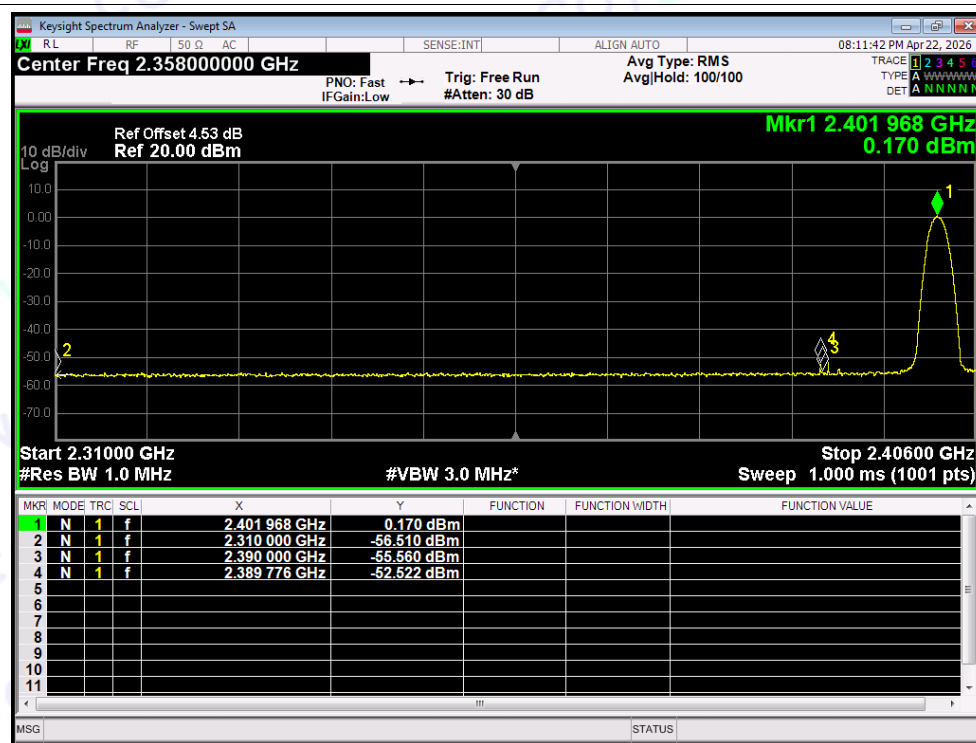
Restrict Band NVNT 2-DH5 2480MHz Ant1 No-Hopping Average



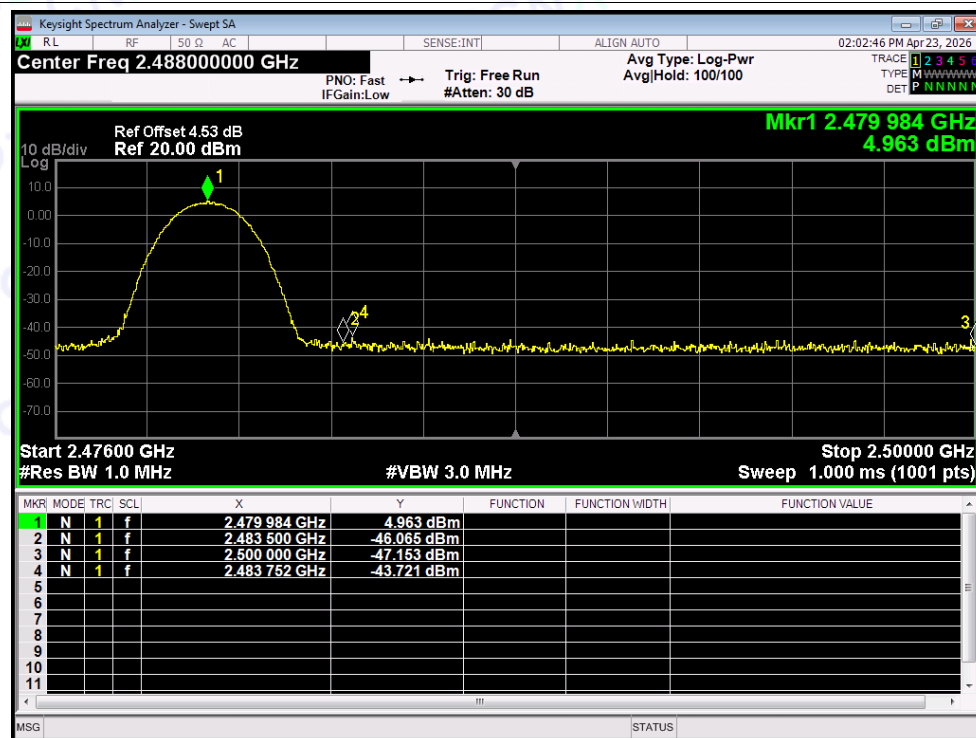
Restrict Band NVNT 3-DH5 2402MHz Ant1 No-Hopping Peak



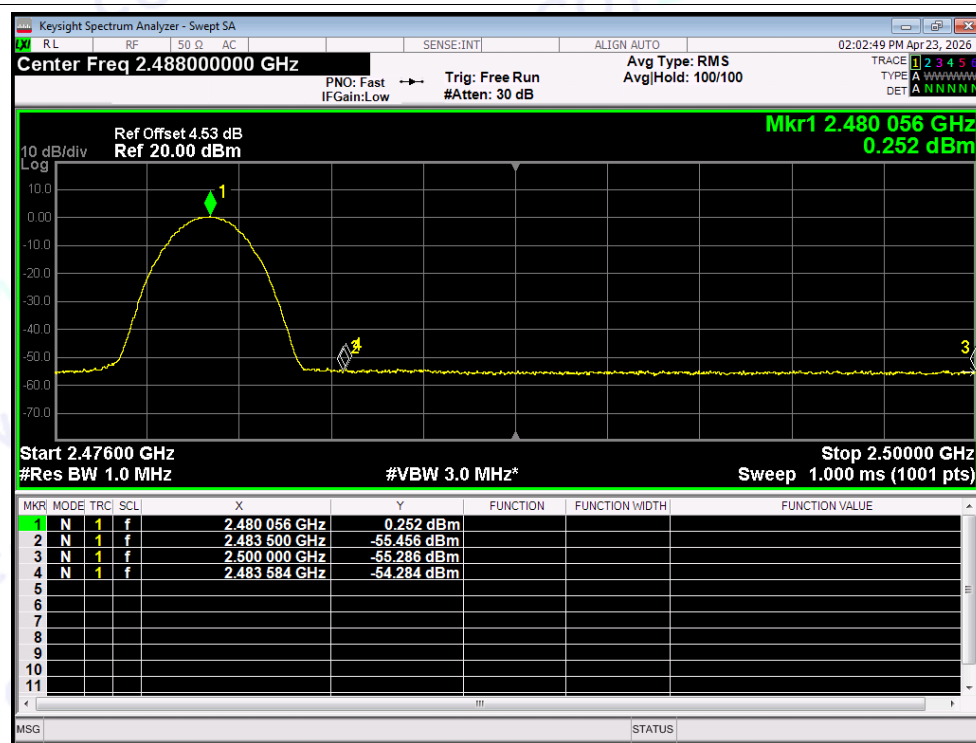
Restrict Band NVNT 3-DH5 2402MHz Ant1 No-Hopping Average



Restrict Band NVNT 3-DH5 2480MHz Ant1 No-Hopping Peak



Restrict Band NVNT 3-DH5 2480MHz Ant1 No-Hopping Average

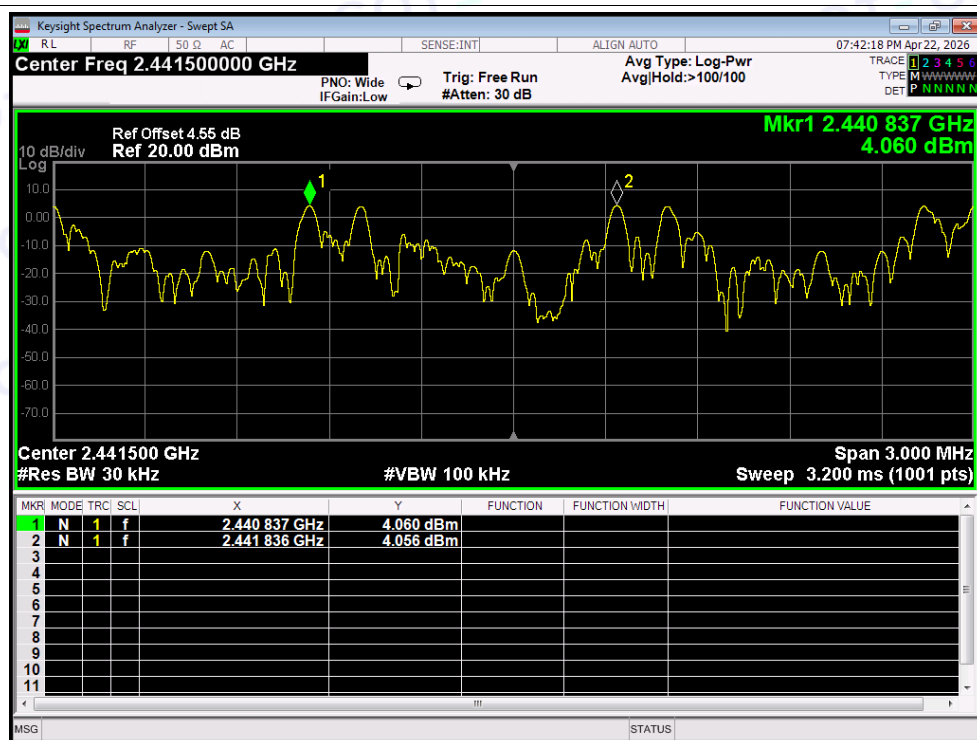


10. Carrier Frequencies Separation

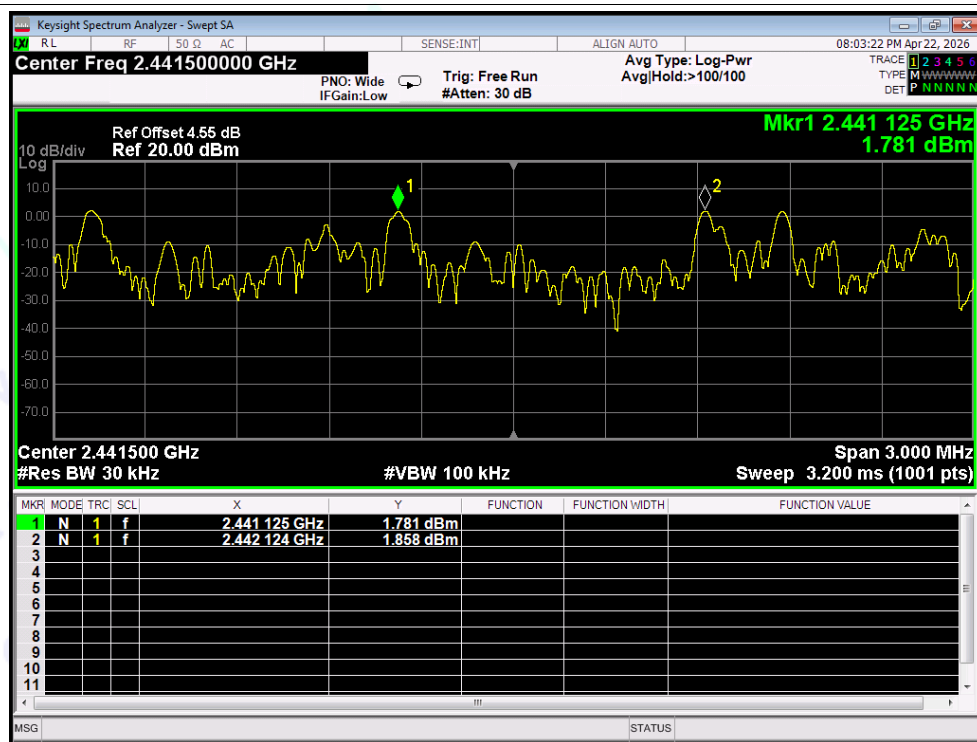
Condition	Mode	Antenna	Hopping Freq1 (MHz)	Hopping Freq2 (MHz)	HFS (MHz)	Limit (MHz)	Verdict
NVNT	1-DH5	Ant1	2440.837	2441.836	0.999	0.627	Pass
NVNT	2-DH5	Ant1	2441.125	2442.124	0.999	0.907	Pass
NVNT	3-DH5	Ant1	2441.002	2442.001	0.999	0.893	Pass

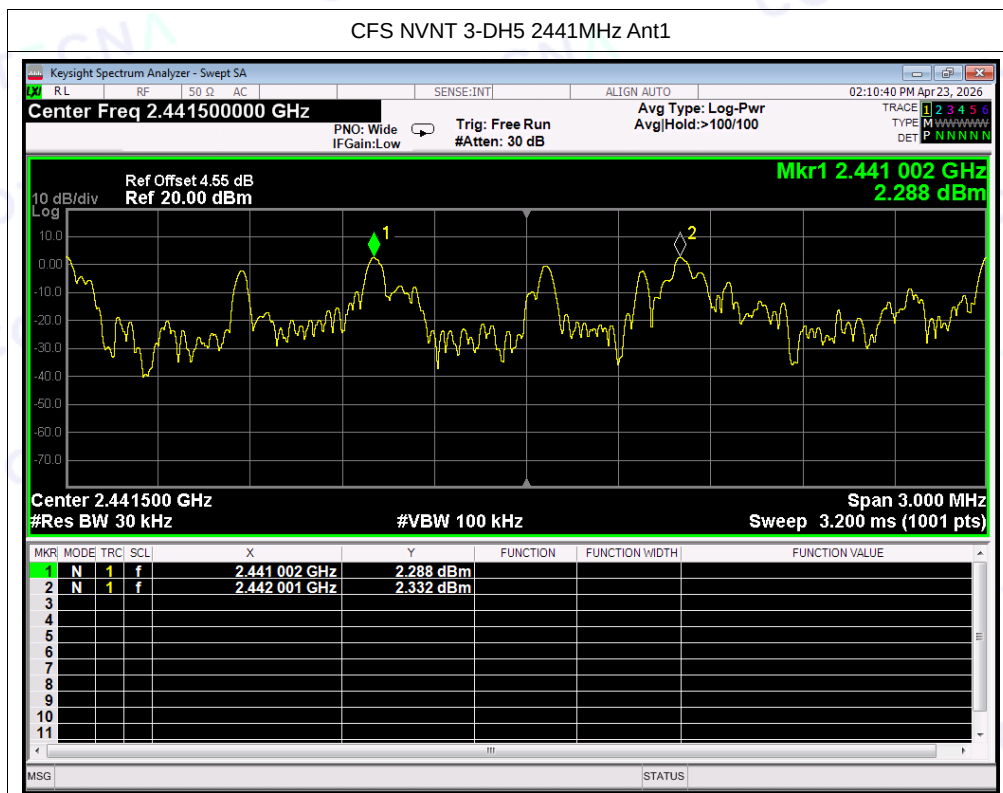
Test Graphs

CFS NVNT 1-DH5 2441MHz Ant1



CFS NVNT 2-DH5 2441MHz Ant1



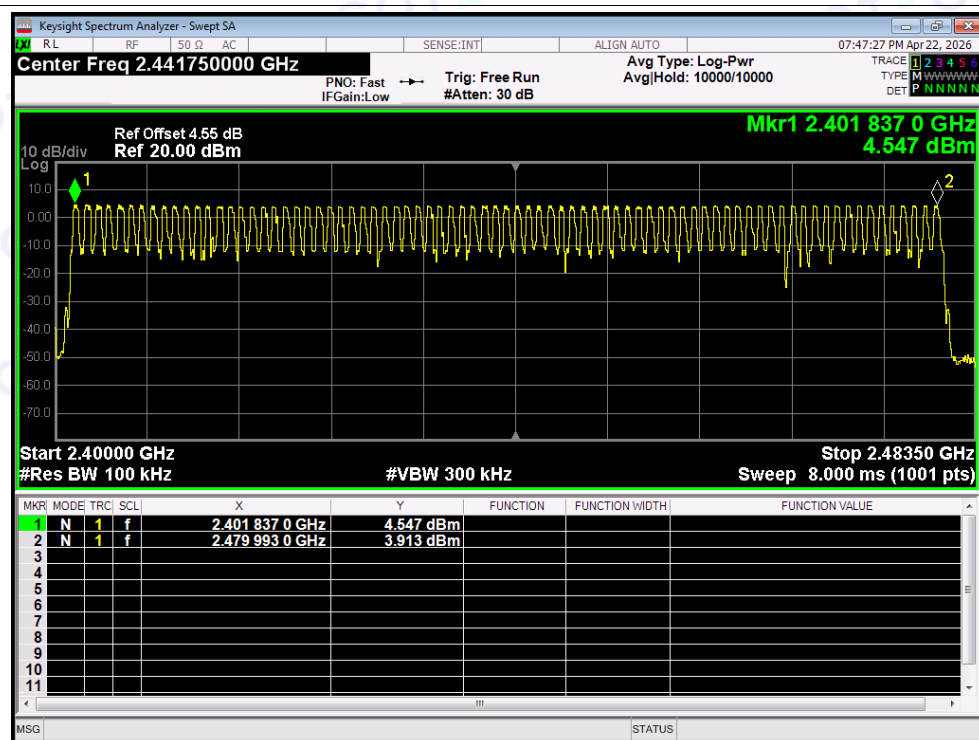


11. Number of Hopping Channel

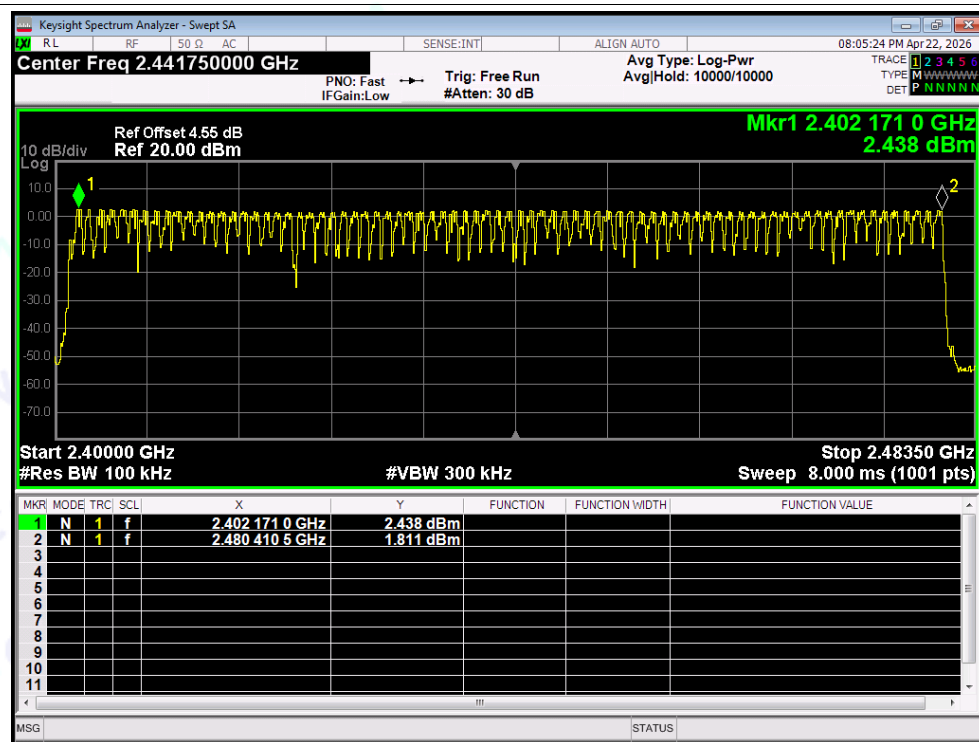
Condition	Mode	Antenna	Hopping Number	Limit	Verdict
NVNT	1-DH5	Ant1	79	15	Pass
NVNT	2-DH5	Ant1	79	15	Pass
NVNT	3-DH5	Ant1	79	15	Pass

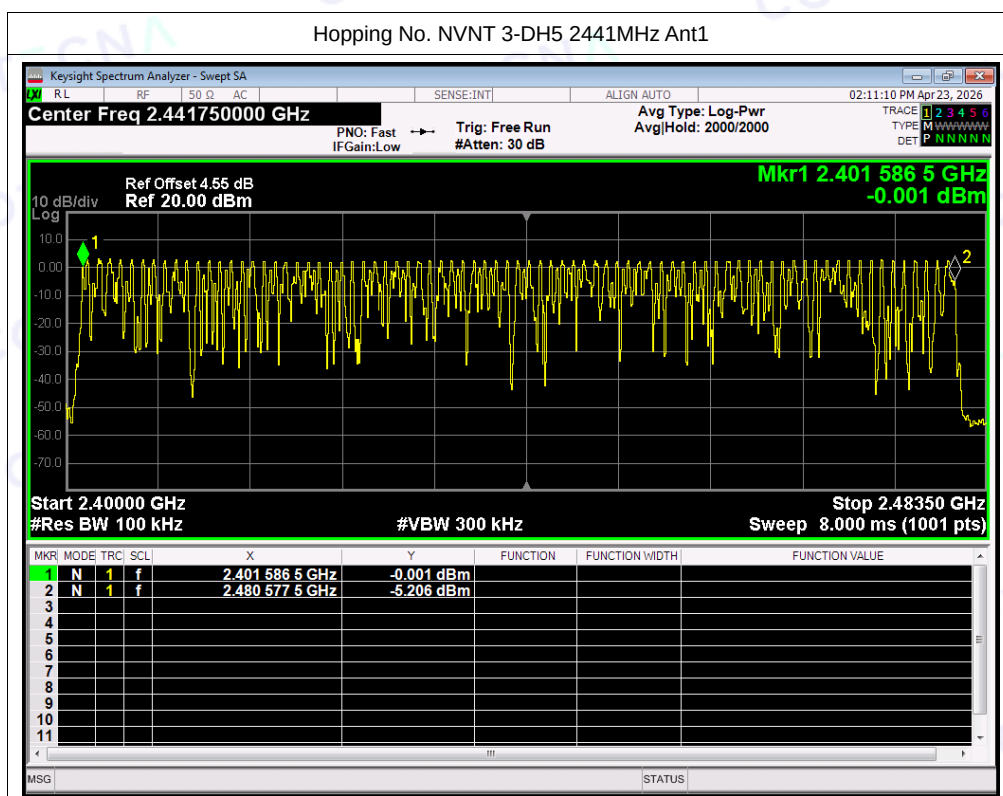
Test Graphs

Hopping No. NVNT 1-DH5 2441MHz Ant1



Hopping No. NVNT 2-DH5 2441MHz Ant1





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