

RF Test Data for Bluetooth (Conducted Measurements)

General Description of EUT	
Product Name:	Smart Watch
Test Model:	KT89
Sample ID:	HC-C-202507-0241-01-01#
Environmental Conditions	
Temperature:	25℃
Relative Humidity:	55%
Test Voltage:	DC 5V
Test Engineer:	Lily Zhang
Note: For a more detailed features description, please refer to the report TBR-C-202507-0241-101 The report only show the worst case data.	

Contents

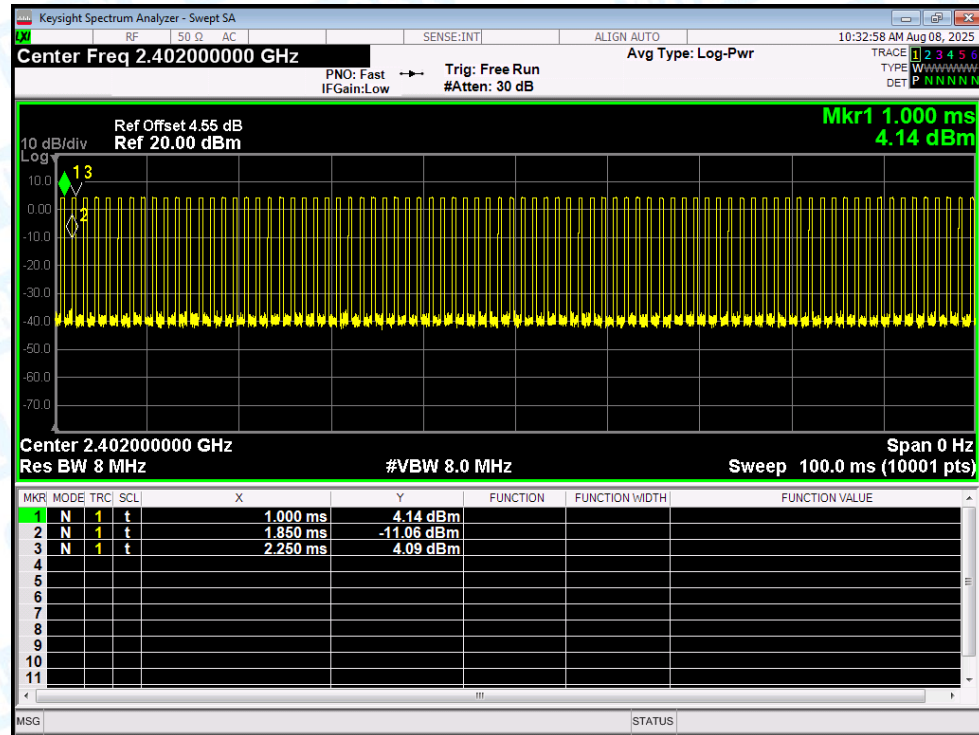
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1.Duty Cycle

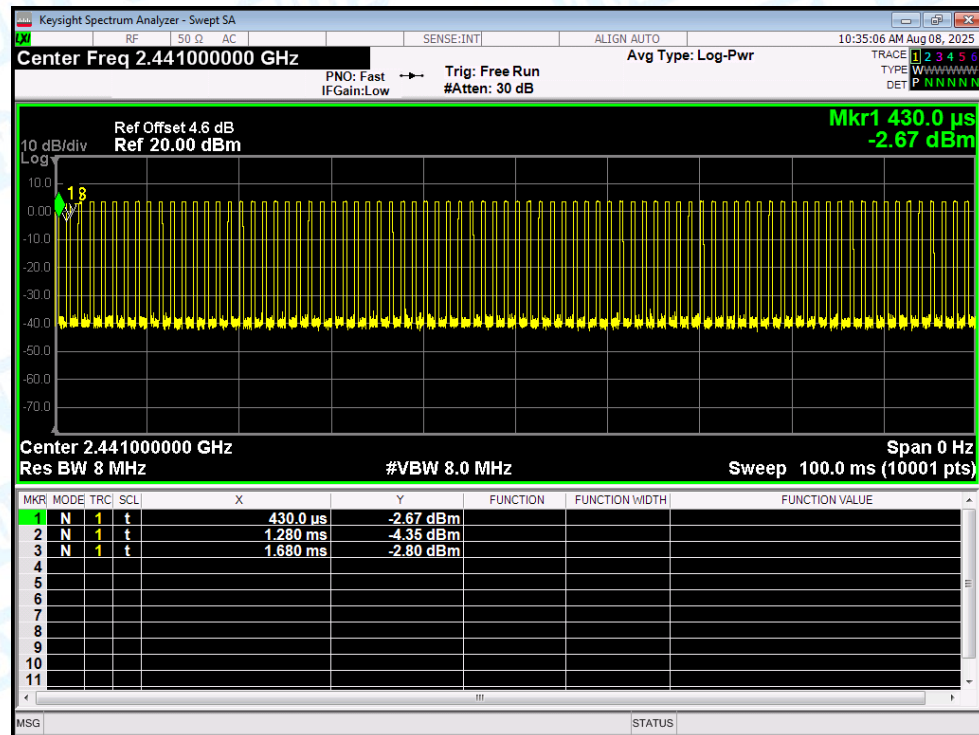
Condition	Mode	Frequency (MHz)	Antenna	Duty Cycle (%)	Correction Factor (dB)	1/T (kHz)
NVNT	1-DH1	2402	Ant1	32	4.95	2.5
NVNT	1-DH1	2441	Ant1	32	4.95	2.5
NVNT	1-DH1	2480	Ant1	32	4.95	2.5
NVNT	2-DH1	2402	Ant1	32.8	4.84	2.44
NVNT	2-DH1	2441	Ant1	32	4.95	2.5
NVNT	2-DH1	2480	Ant1	32.8	4.84	2.44
NVNT	3-DH1	2402	Ant1	32.8	4.84	2.44
NVNT	3-DH1	2441	Ant1	32.8	4.84	2.44
NVNT	3-DH1	2480	Ant1	32.8	4.84	2.44

Test Graphs

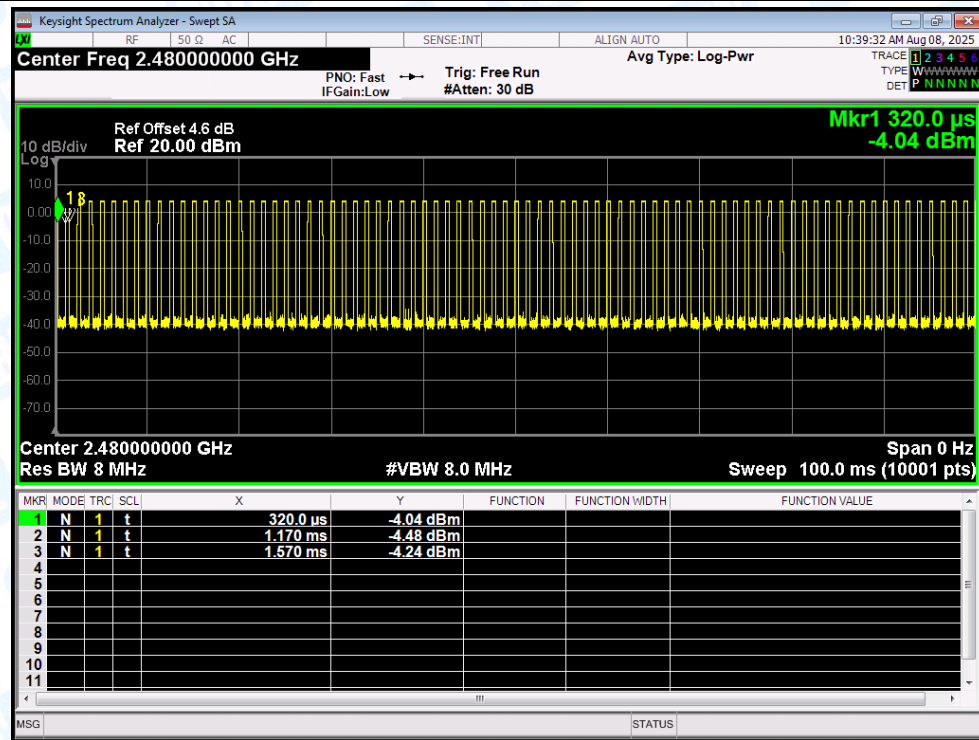
Duty Cycle NVNT 1-DH1 2402MHz Ant1



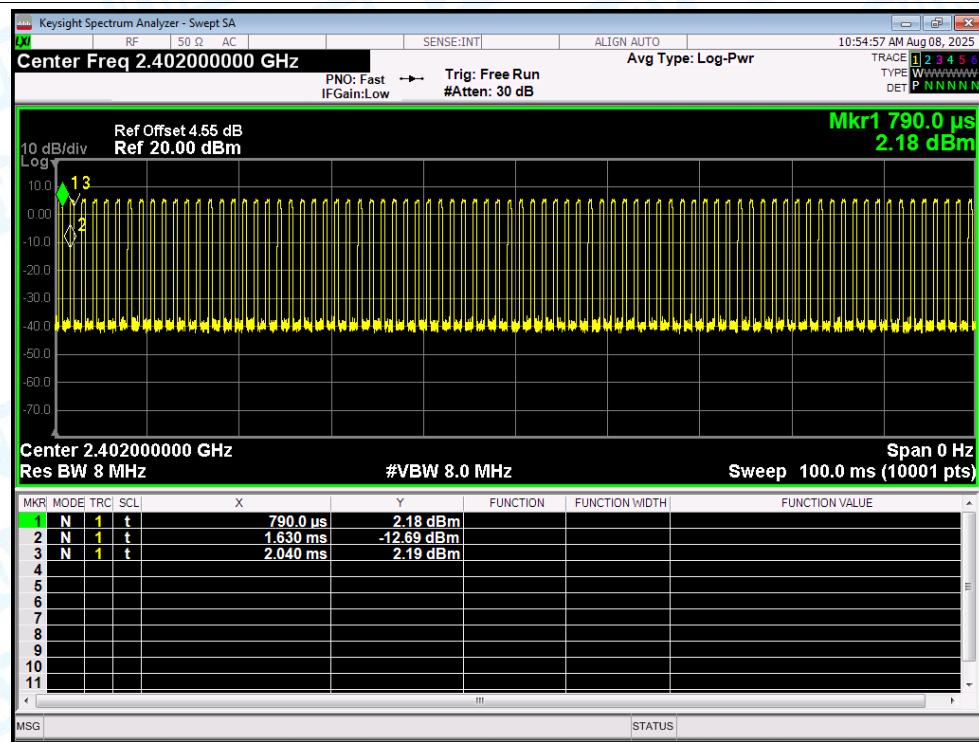
Duty Cycle NVNT 1-DH1 2441MHz Ant1



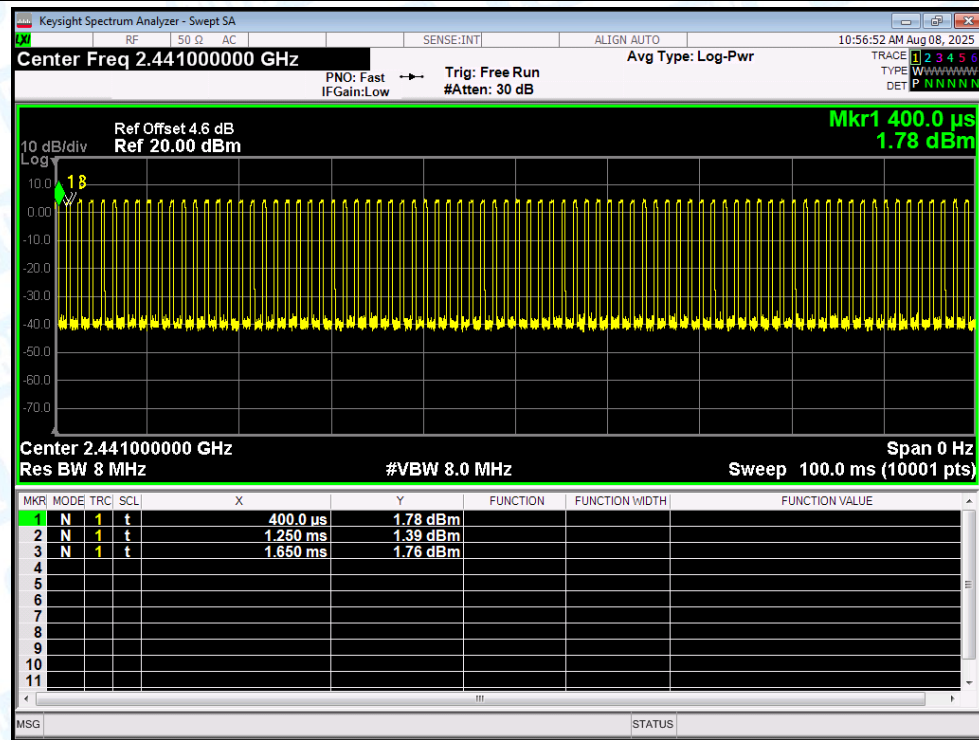
Duty Cycle NVNT 1-DH1 2480MHz Ant1



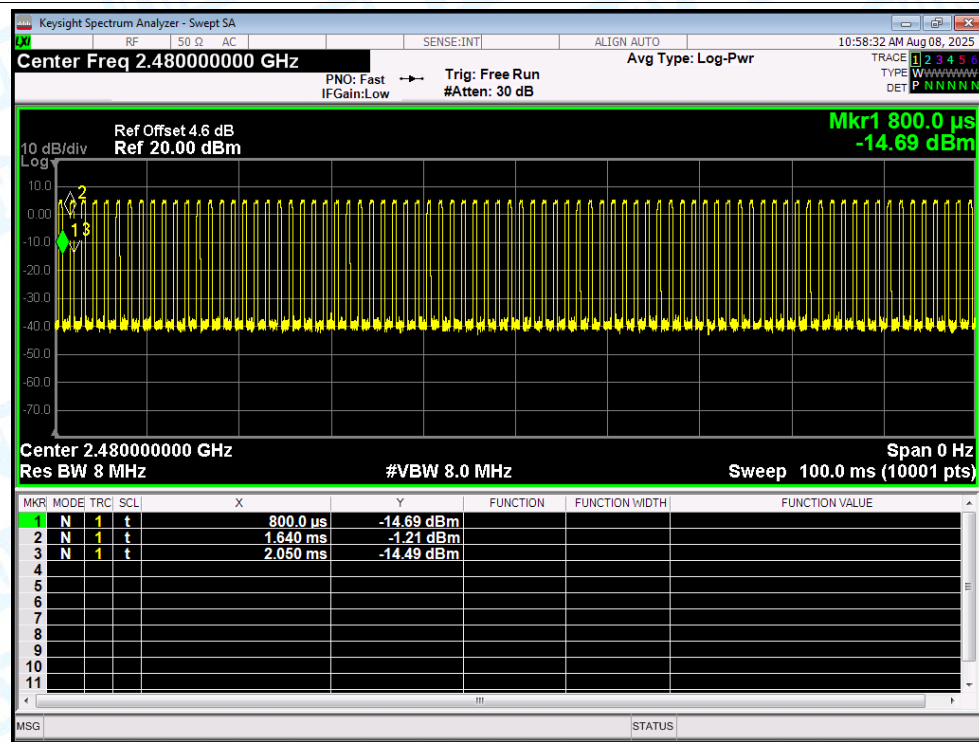
Duty Cycle NVNT 2-DH1 2402MHz Ant1



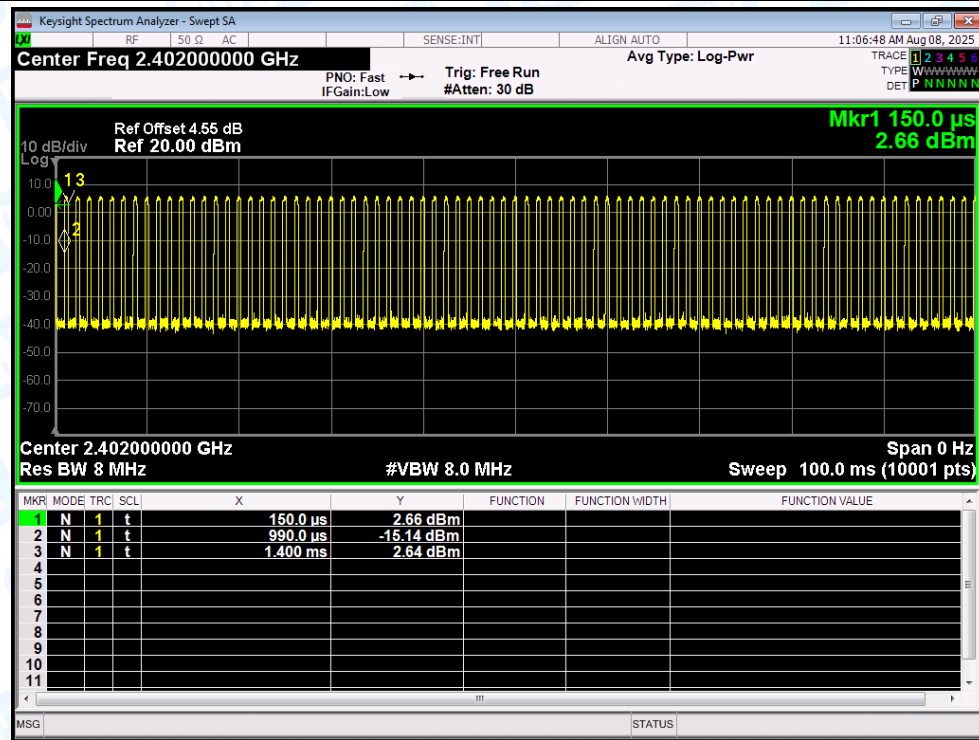
Duty Cycle NVNT 2-DH1 2441MHz Ant1



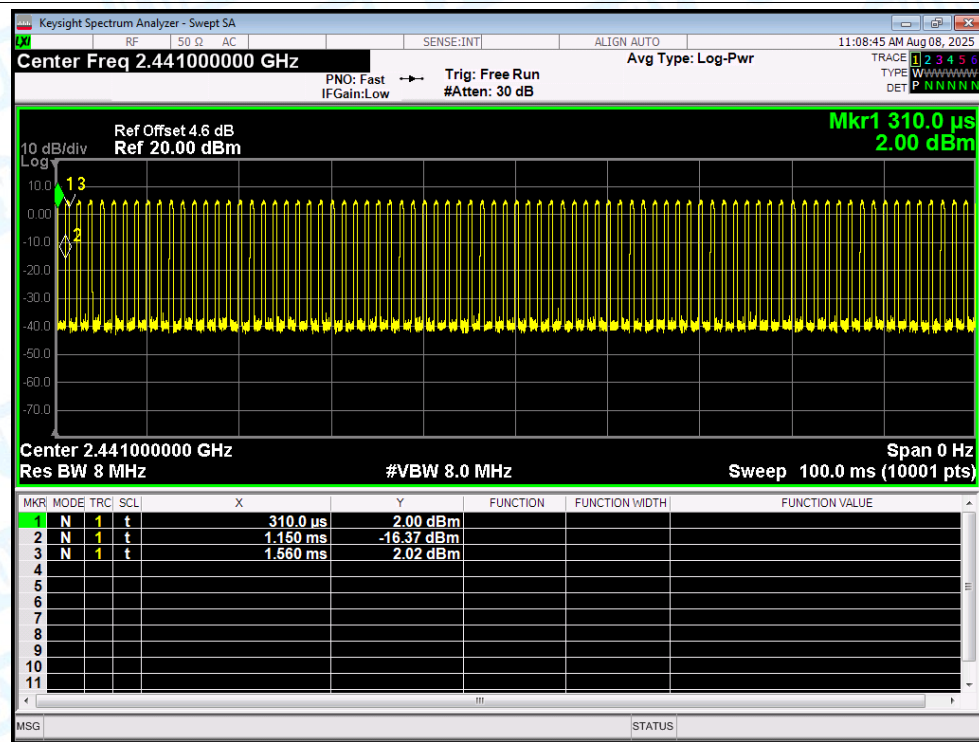
Duty Cycle NVNT 2-DH1 2480MHz Ant1

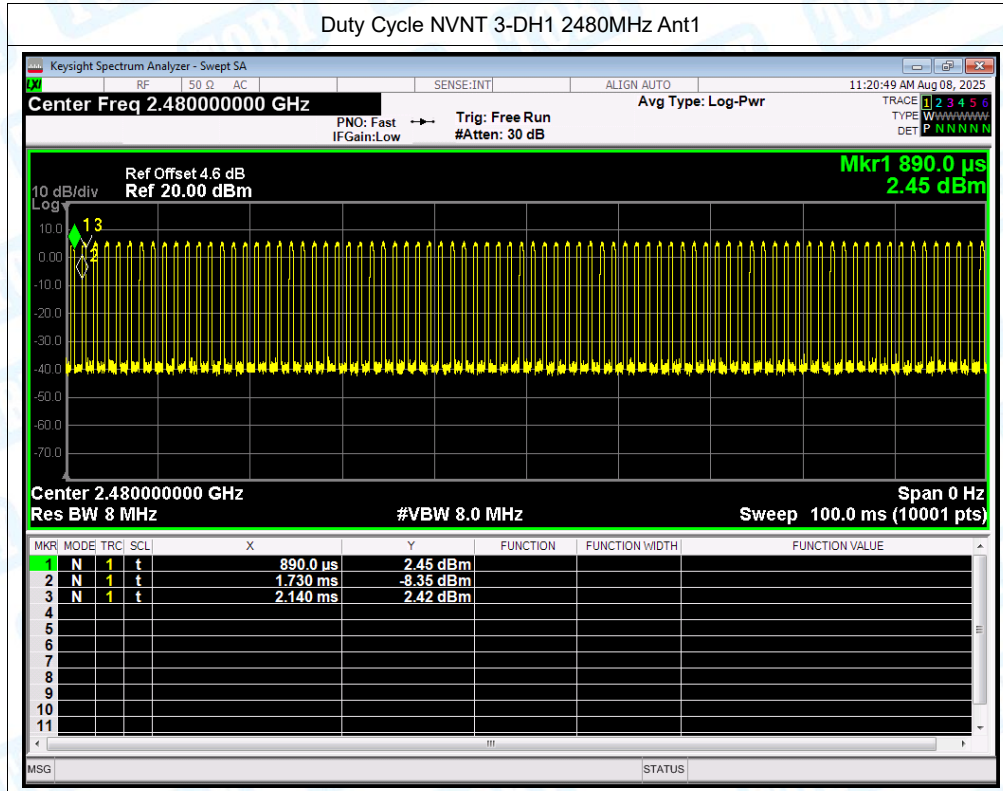


Duty Cycle NVNT 3-DH1 2402MHz Ant1



Duty Cycle NVNT 3-DH1 2441MHz Ant1



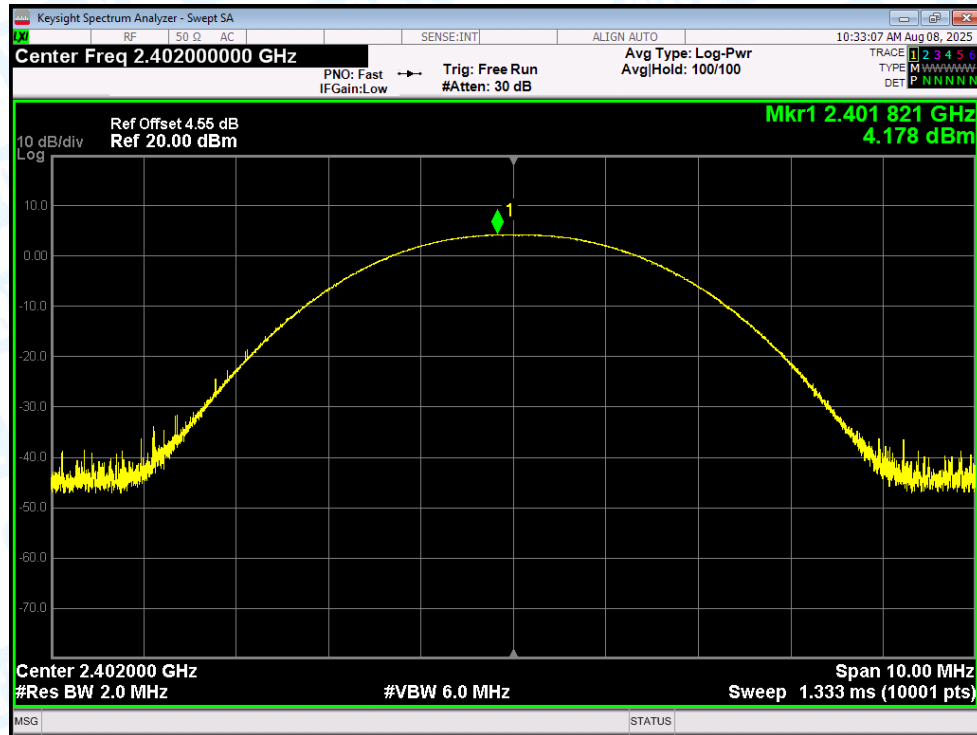


2.Maximum Conducted Output Power

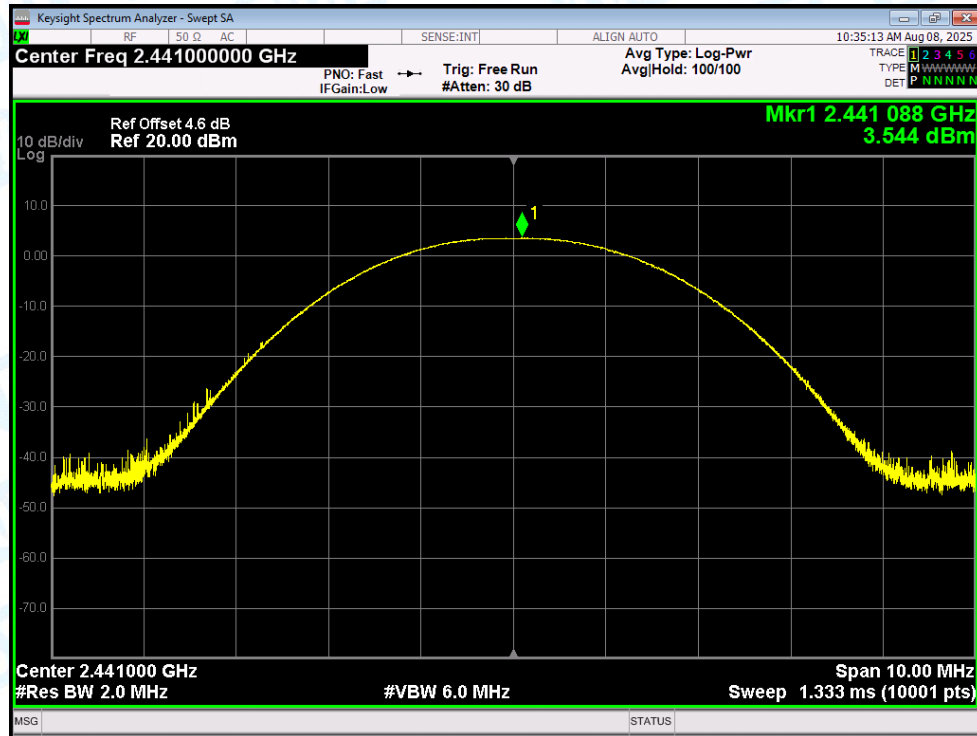
Condition	Mode	Frequency (MHz)	Antenna	Conducted Power (dBm)	Limit (dBm)	Verdict
NVNT	1-DH1	2402	Ant1	4.178	21	Pass
NVNT	1-DH1	2441	Ant1	3.544	21	Pass
NVNT	1-DH1	2480	Ant1	4.048	21	Pass
NVNT	2-DH1	2402	Ant1	4.899	21	Pass
NVNT	2-DH1	2441	Ant1	4.213	21	Pass
NVNT	2-DH1	2480	Ant1	4.75	21	Pass
NVNT	3-DH1	2402	Ant1	5.643	21	Pass
NVNT	3-DH1	2441	Ant1	4.945	21	Pass
NVNT	3-DH1	2480	Ant1	5.5	21	Pass

Test Graphs

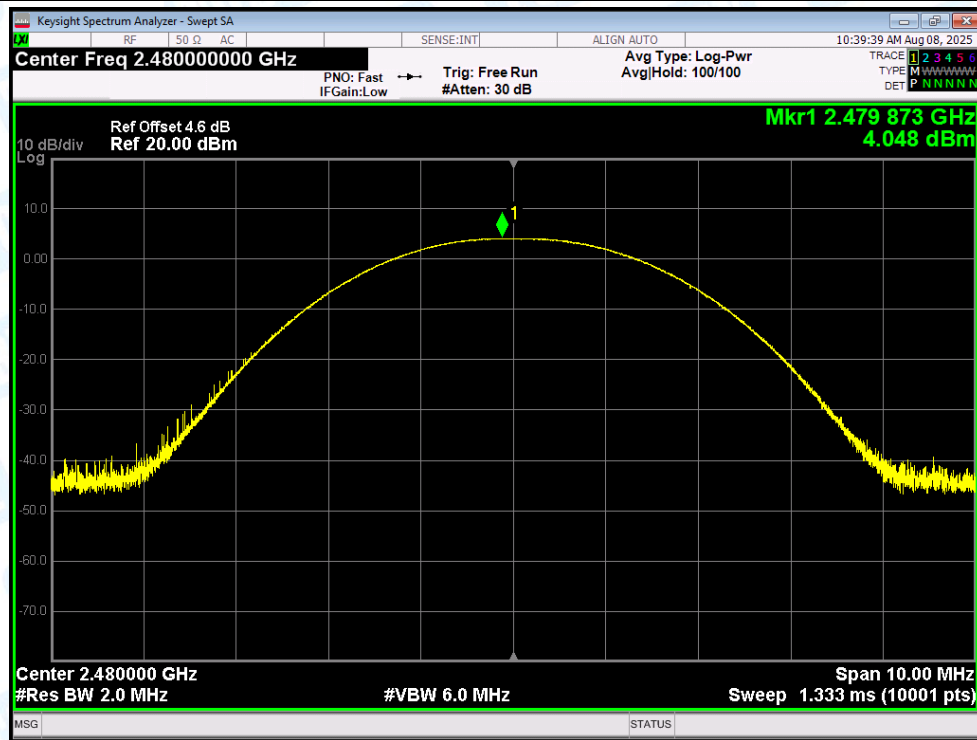
Power NVNT 1-DH1 2402MHz Ant1



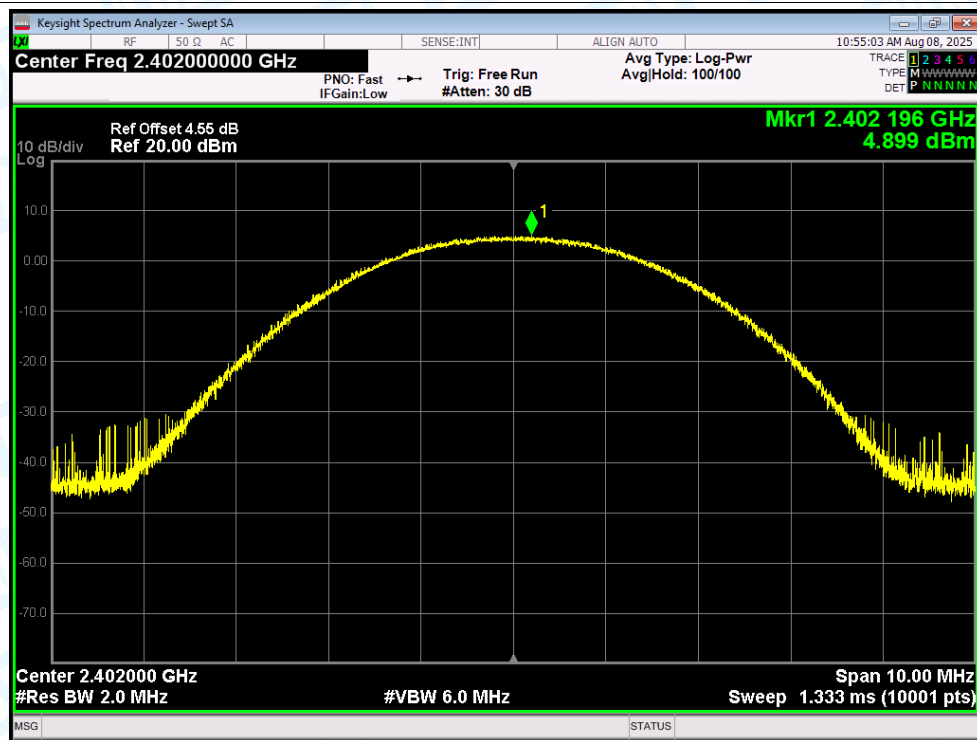
Power NVNT 1-DH1 2441MHz Ant1



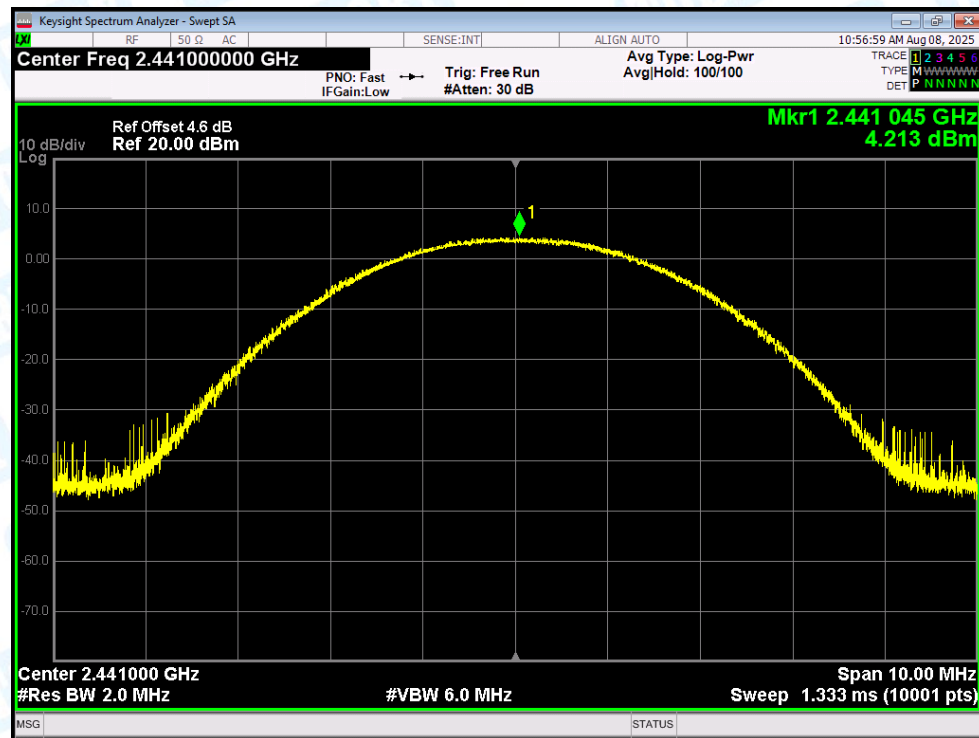
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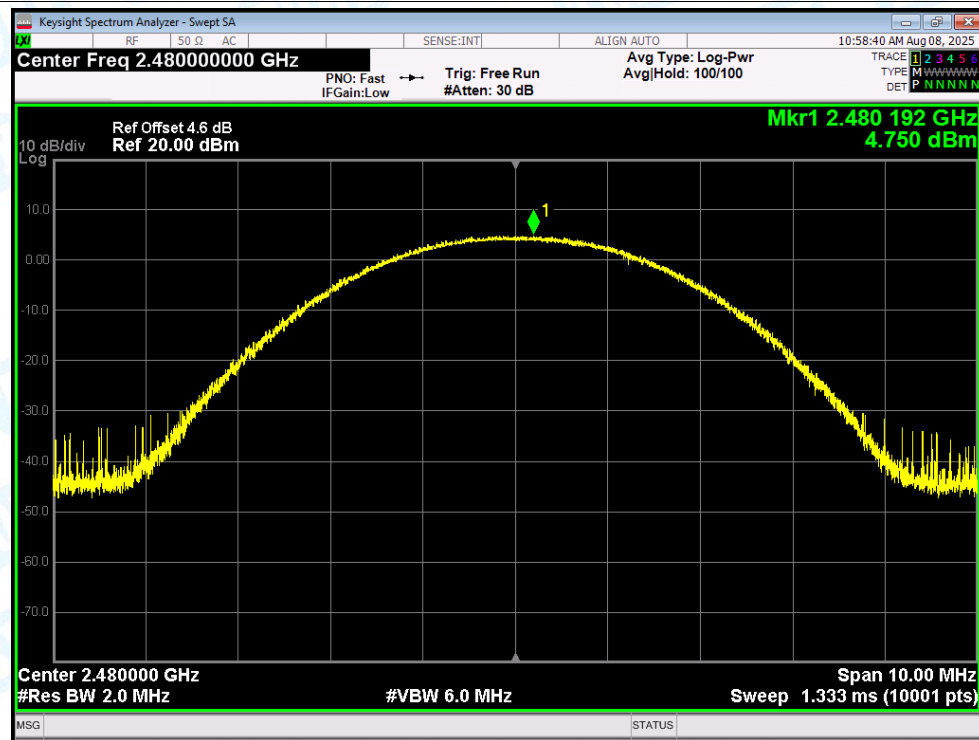
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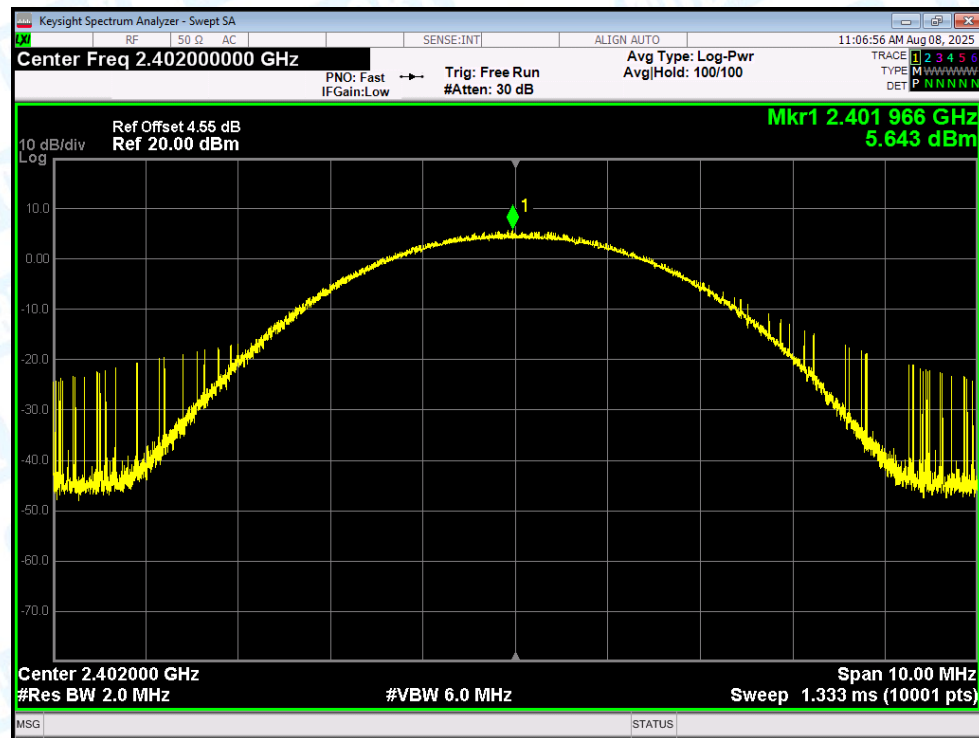
Power NVNT 2-DH1 2441MHz Ant1



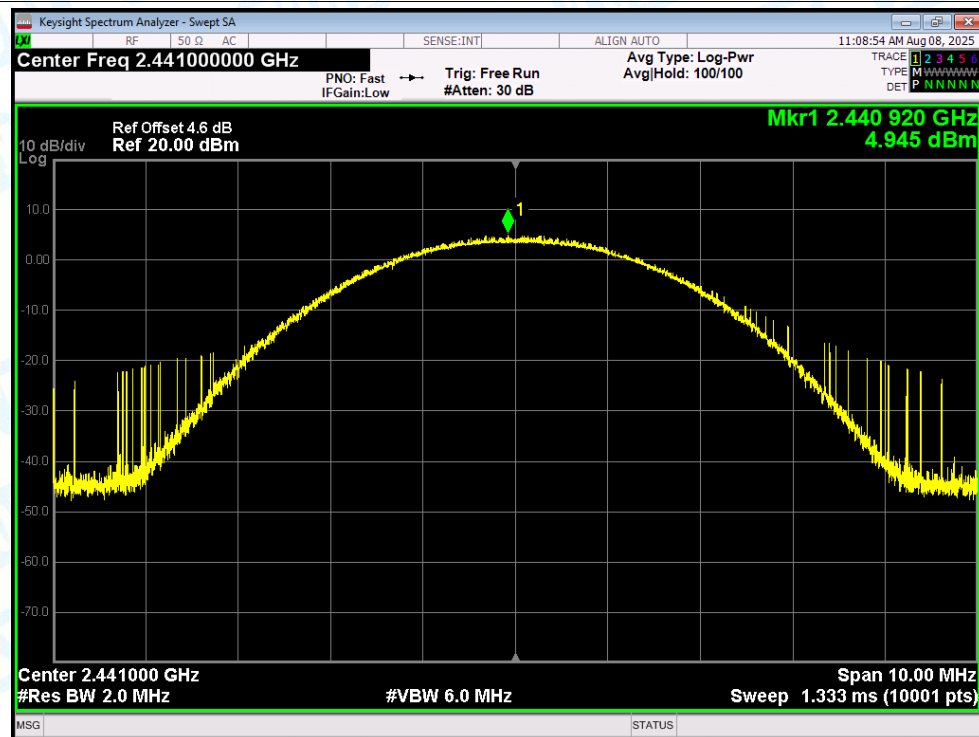
Power NVNT 2-DH1 2480MHz Ant1

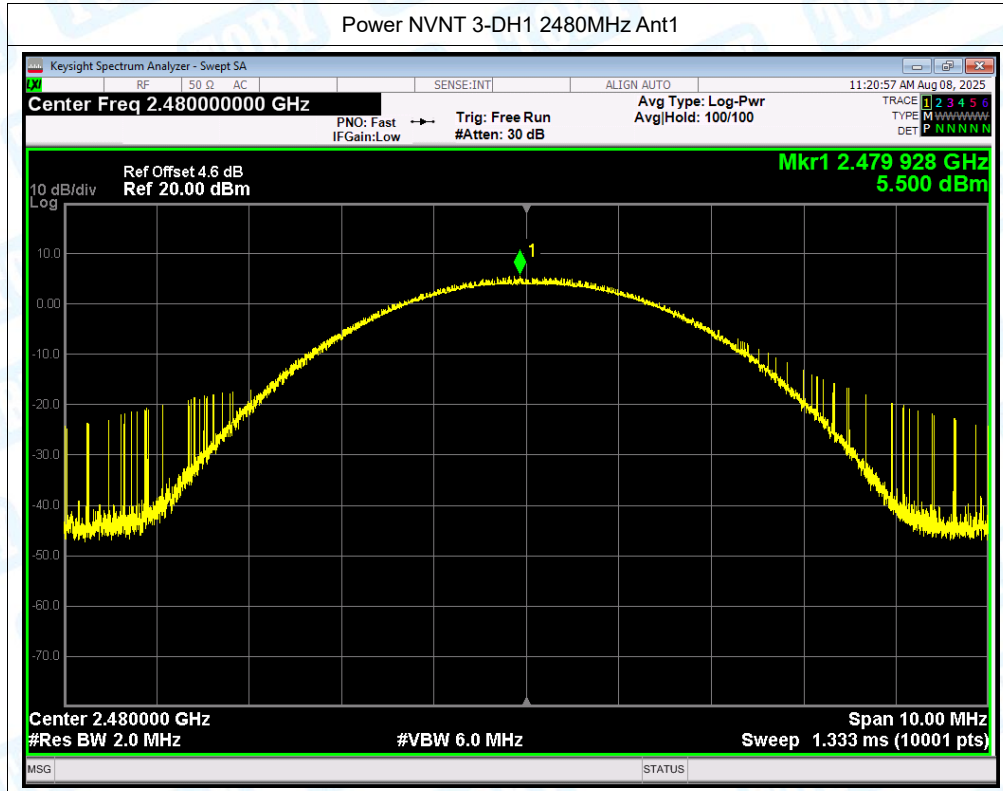


Power NVNT 3-DH1 2402MHz Ant1



Power NVNT 3-DH1 2441MHz Ant1



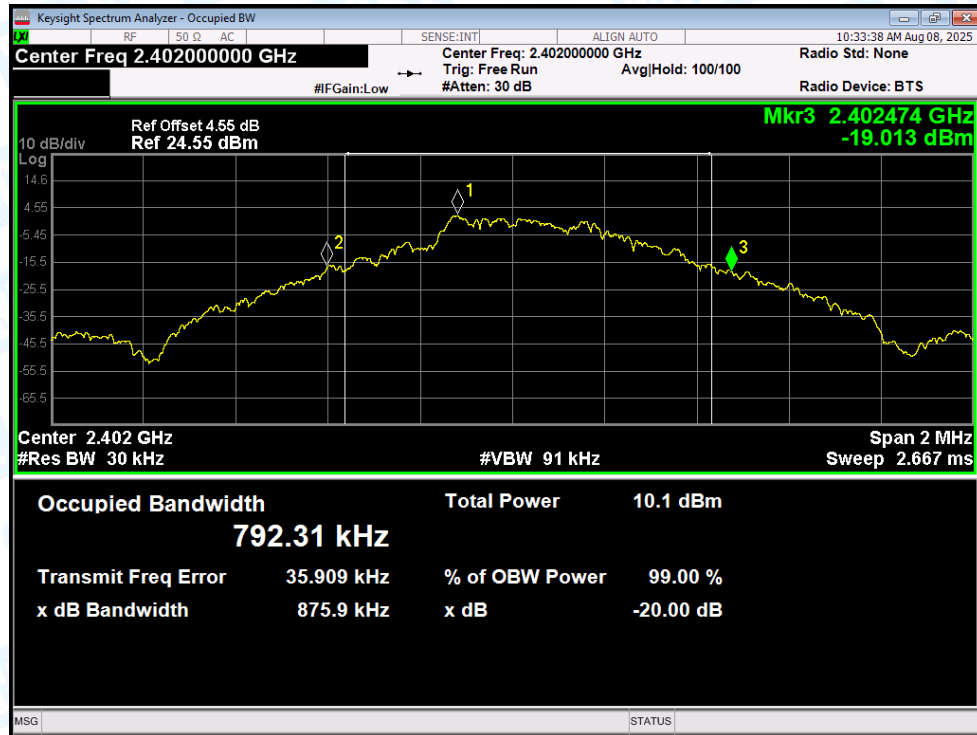


3.-20dB Bandwidth

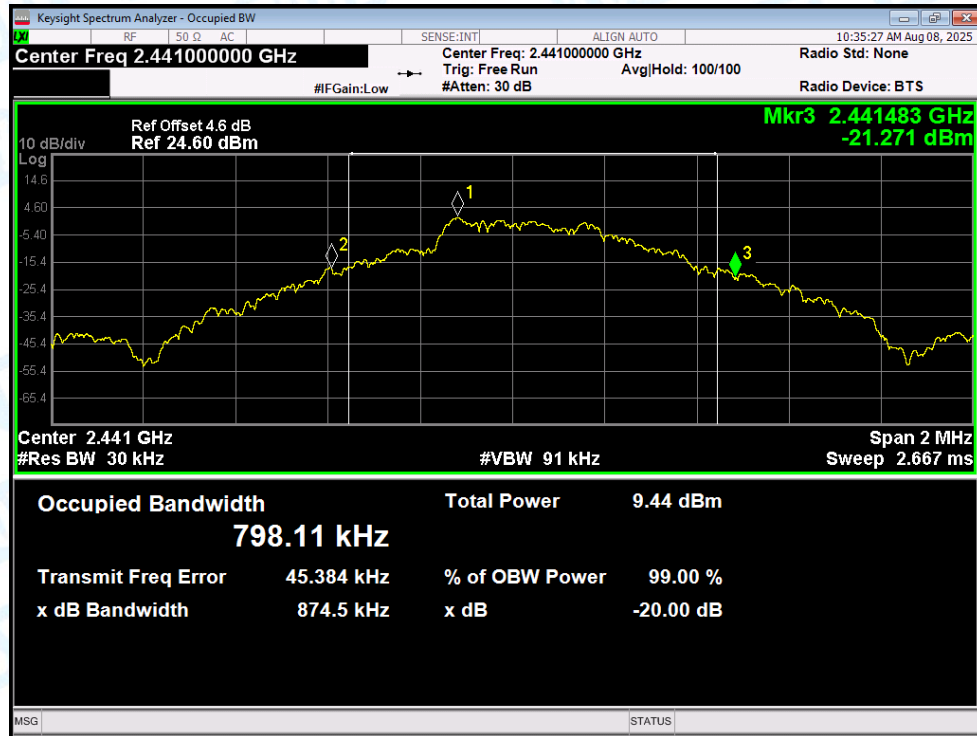
Condition	Mode	Frequency (MHz)	Antenna	-20 dB Bandwidth (MHz)	Limit -20 dB Bandwidth (MHz)	Verdict
NVNT	1-DH1	2402	Ant1	0.88	0	Pass
NVNT	1-DH1	2441	Ant1	0.87	0	Pass
NVNT	1-DH1	2480	Ant1	0.86	0	Pass
NVNT	2-DH1	2402	Ant1	1.25	0	Pass
NVNT	2-DH1	2441	Ant1	1.23	0	Pass
NVNT	2-DH1	2480	Ant1	1.25	0	Pass
NVNT	3-DH1	2402	Ant1	1.22	0	Pass
NVNT	3-DH1	2441	Ant1	1.24	0	Pass
NVNT	3-DH1	2480	Ant1	1.21	0	Pass

Test Graphs

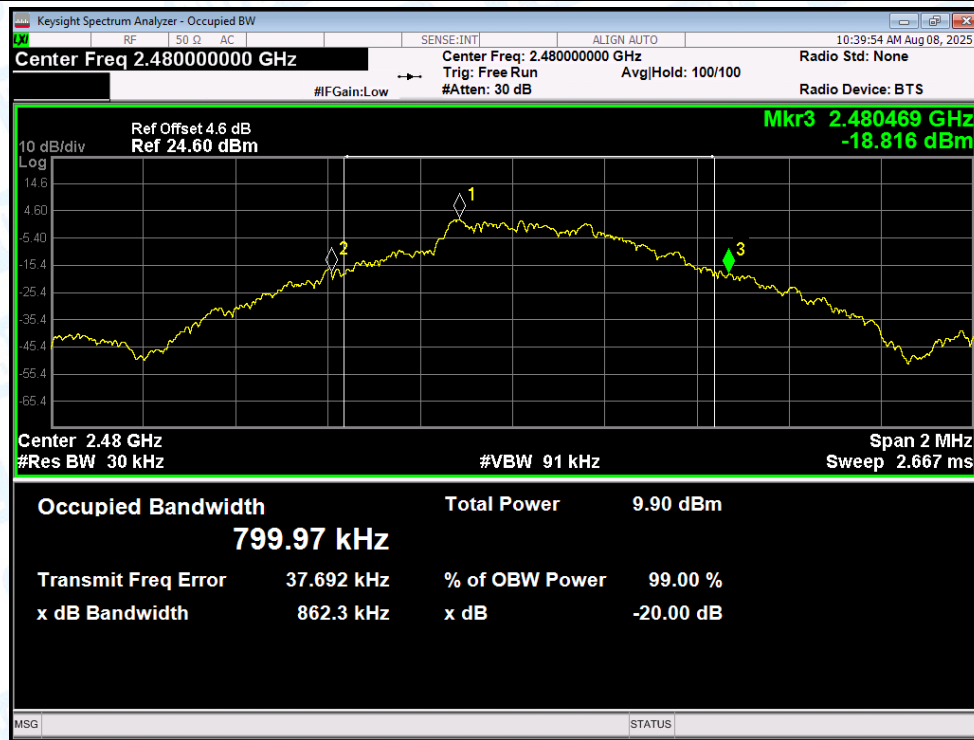
-20dB Bandwidth NVNT 1-DH1 2402MHz Ant1



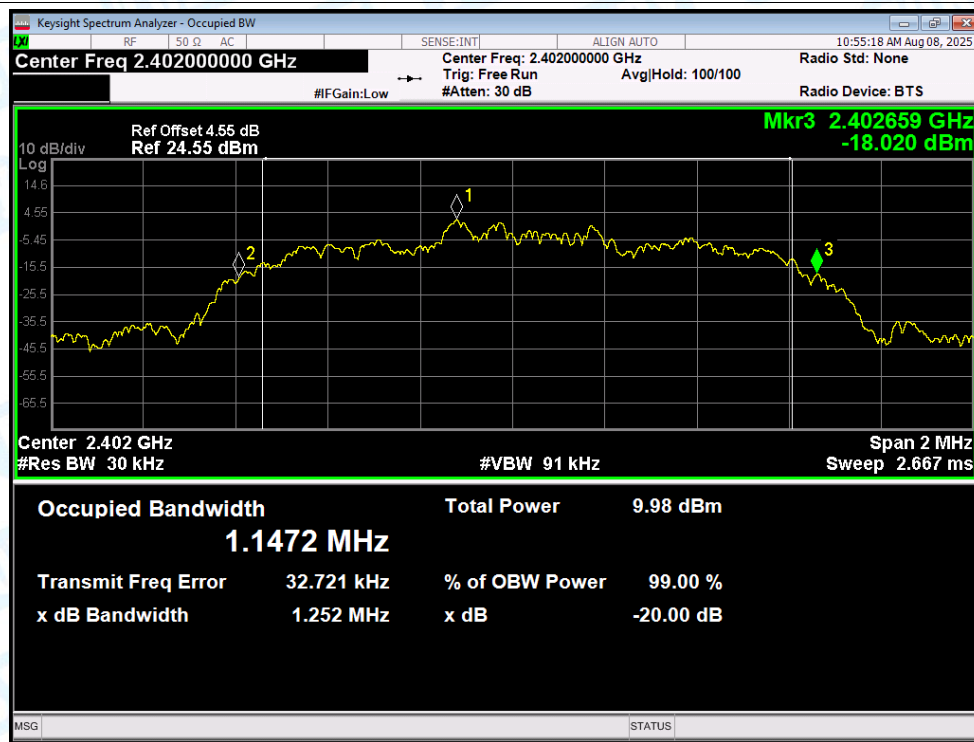
-20dB Bandwidth NVNT 1-DH1 2441MHz Ant1



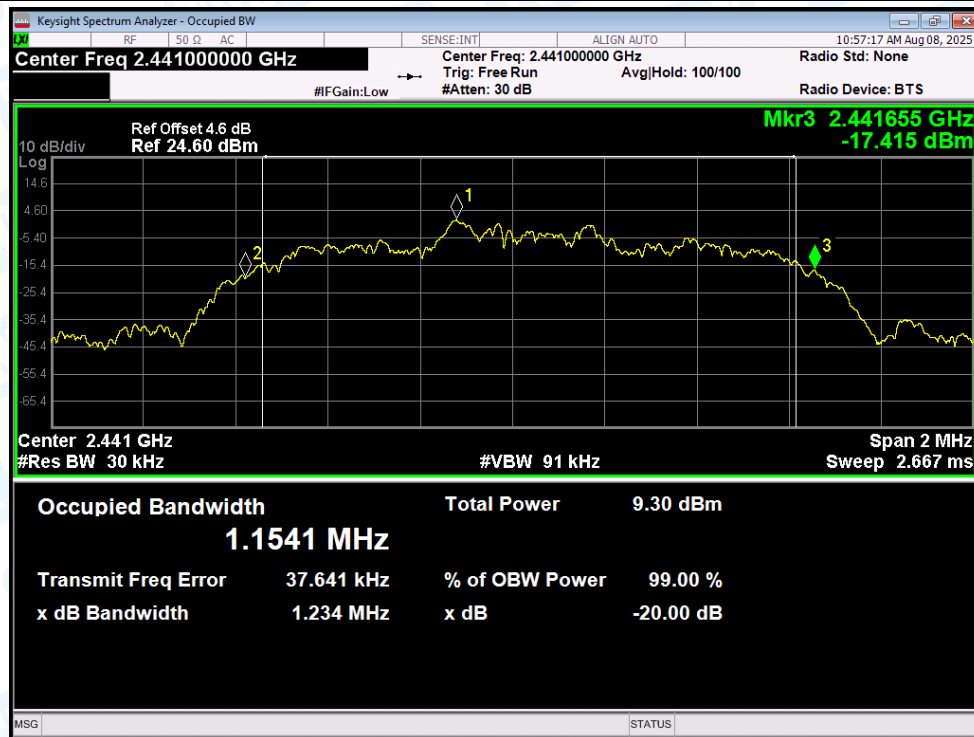
-20dB Bandwidth NVNT 1-DH1 2480MHz Ant1



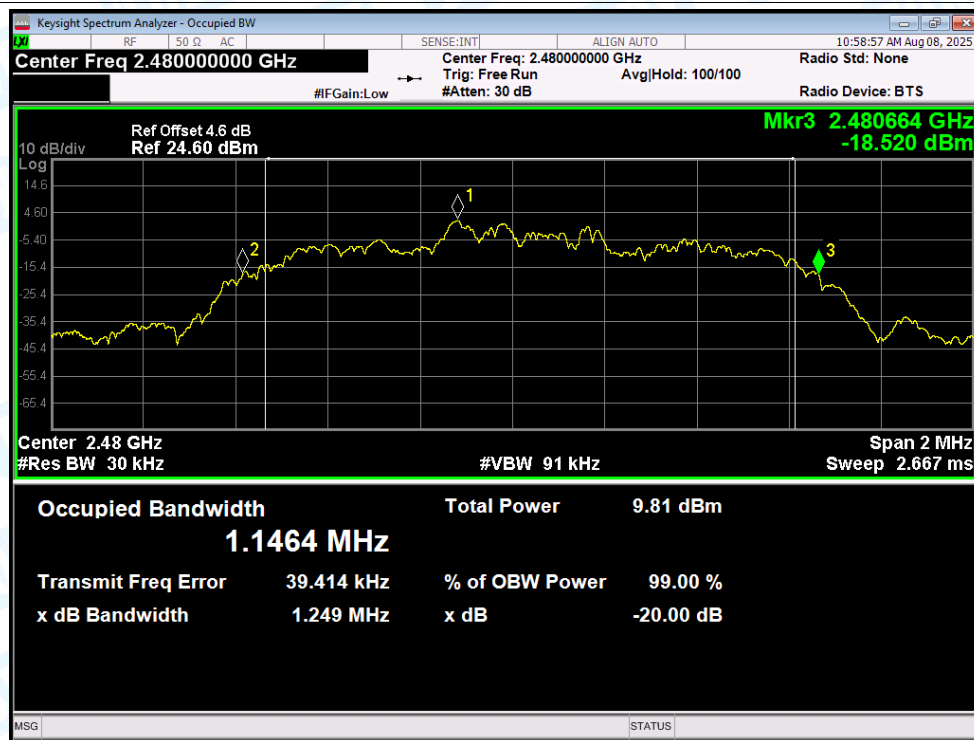
-20dB Bandwidth NVNT 2-DH1 2402MHz Ant1



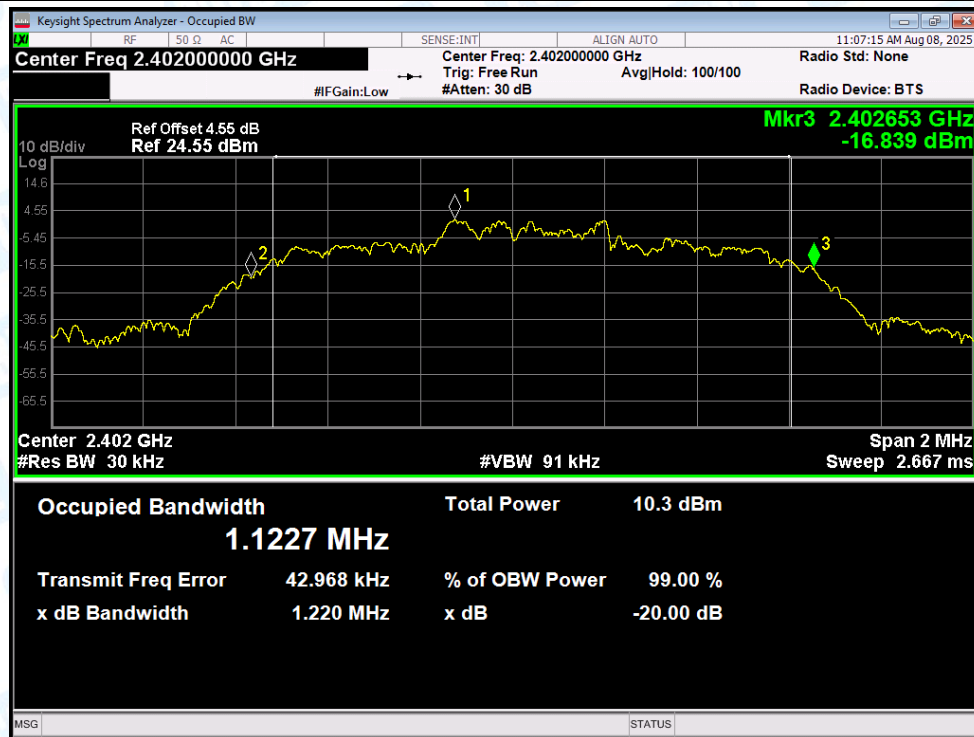
-20dB Bandwidth NVNT 2-DH1 2441MHz Ant1



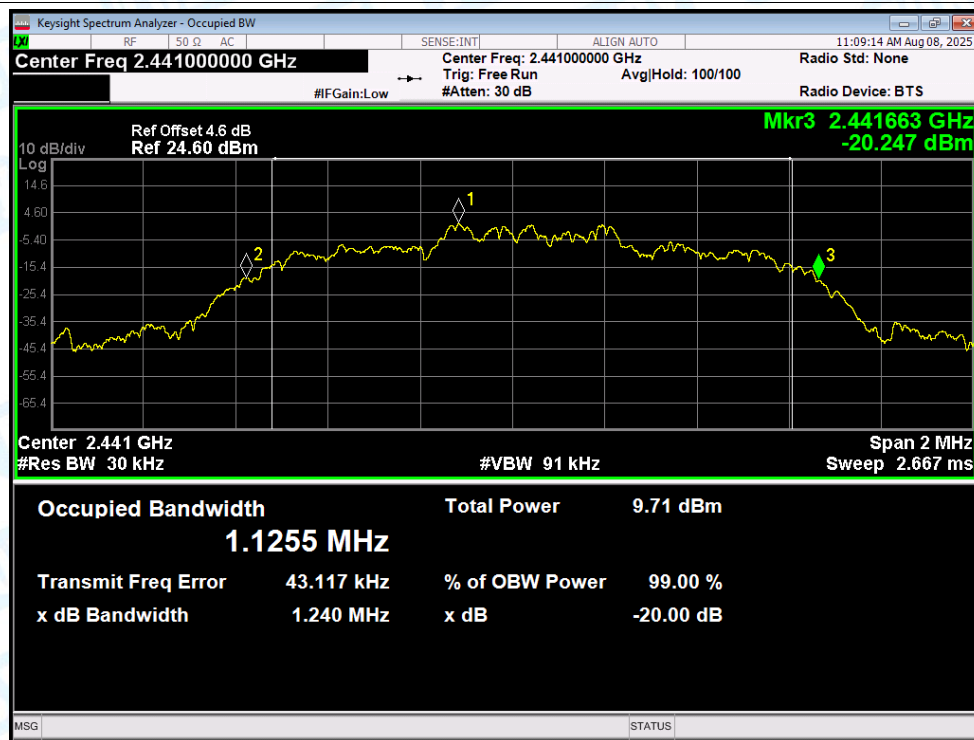
-20dB Bandwidth NVNT 2-DH1 2480MHz Ant1

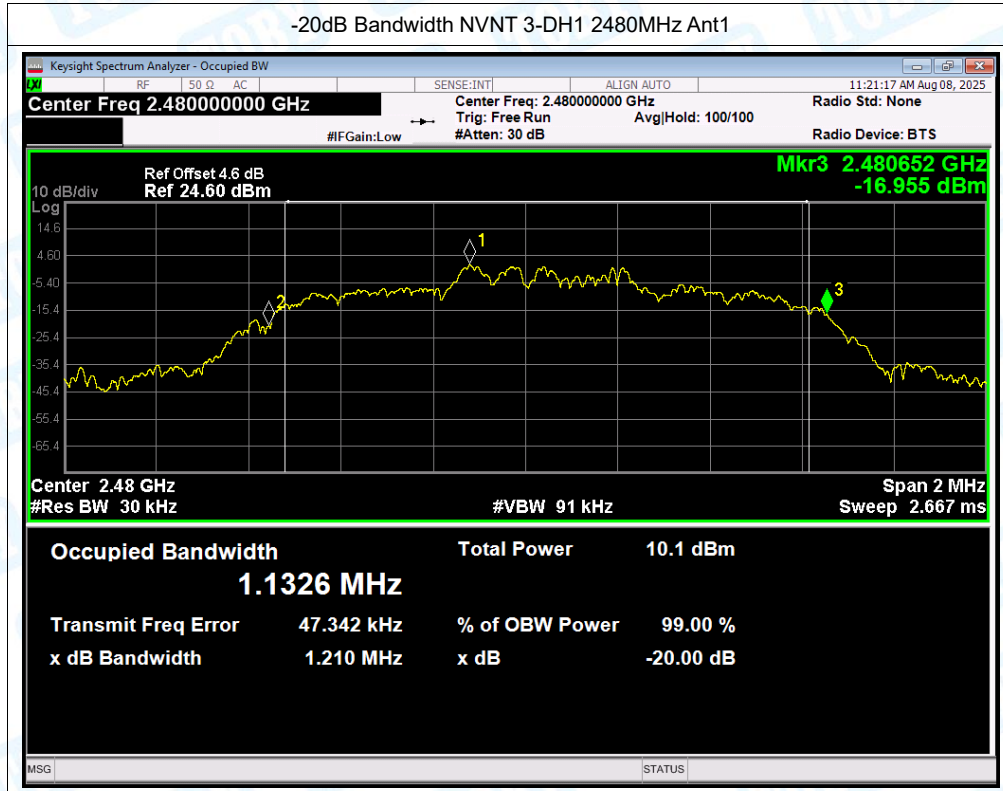


-20dB Bandwidth NVNT 3-DH1 2402MHz Ant1



-20dB Bandwidth NVNT 3-DH1 2441MHz Ant1



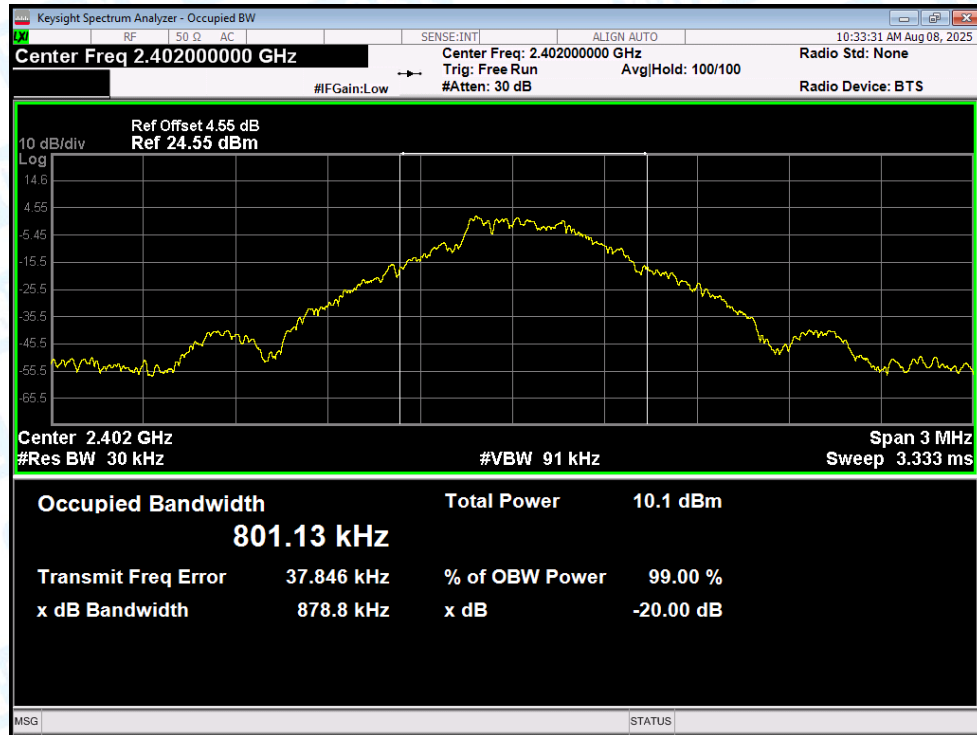


4.Occupied Channel Bandwidth

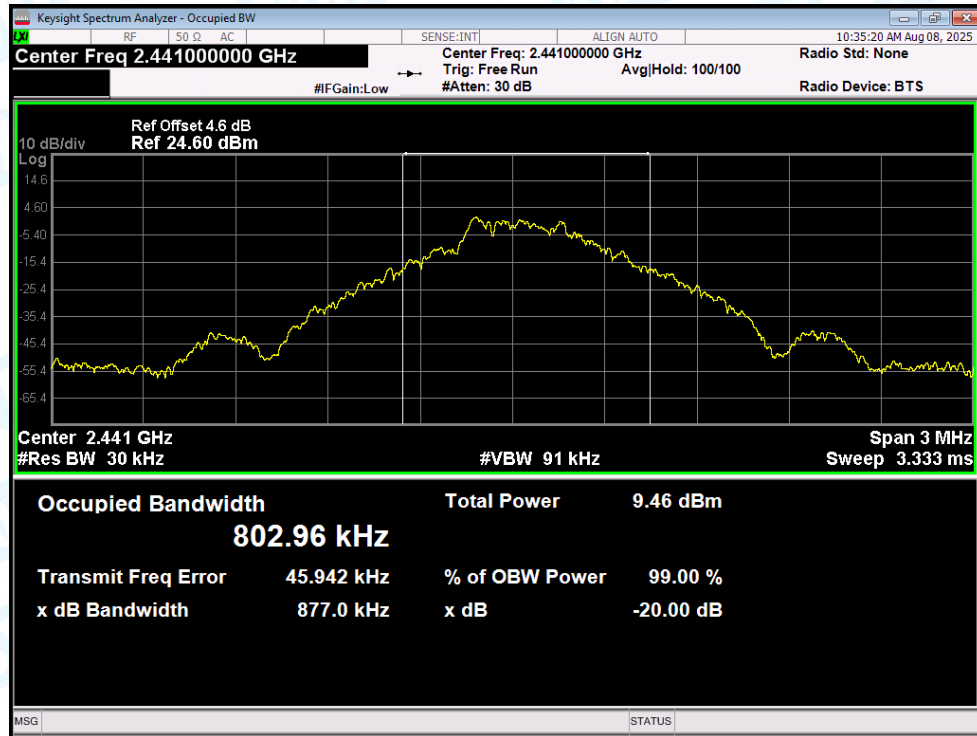
Condition	Mode	Frequency (MHz)	Antenna	99% OBW (MHz)
NVNT	1-DH1	2402	Ant1	0.801
NVNT	1-DH1	2441	Ant1	0.803
NVNT	1-DH1	2480	Ant1	0.803
NVNT	2-DH1	2402	Ant1	1.148
NVNT	2-DH1	2441	Ant1	1.145
NVNT	2-DH1	2480	Ant1	1.15
NVNT	3-DH1	2402	Ant1	1.14
NVNT	3-DH1	2441	Ant1	1.122
NVNT	3-DH1	2480	Ant1	1.132

Test Graphs

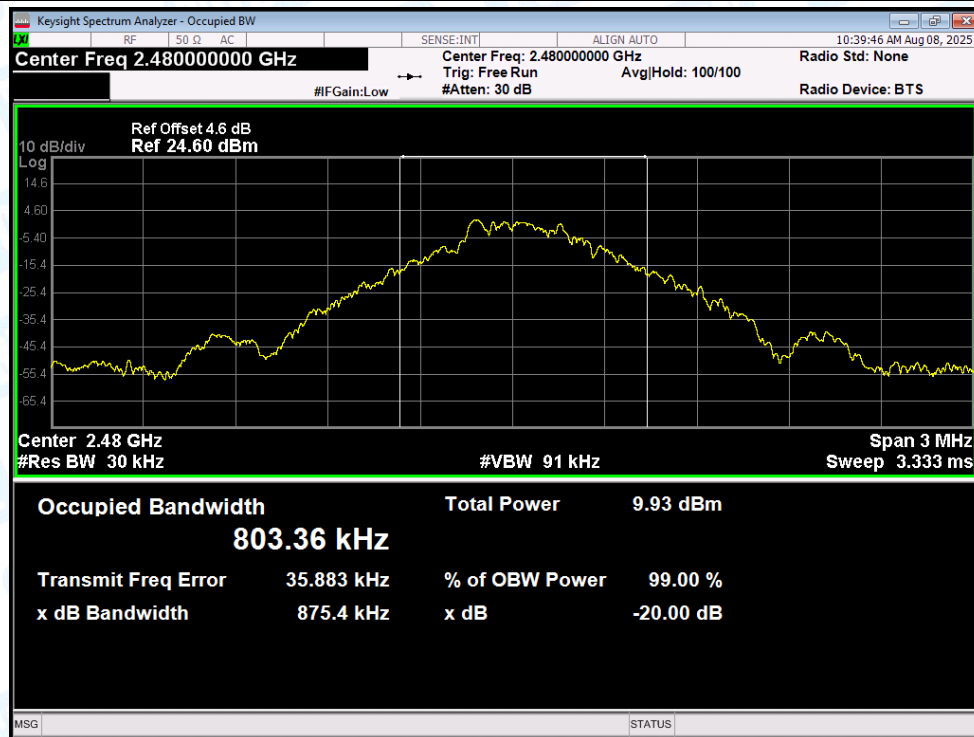
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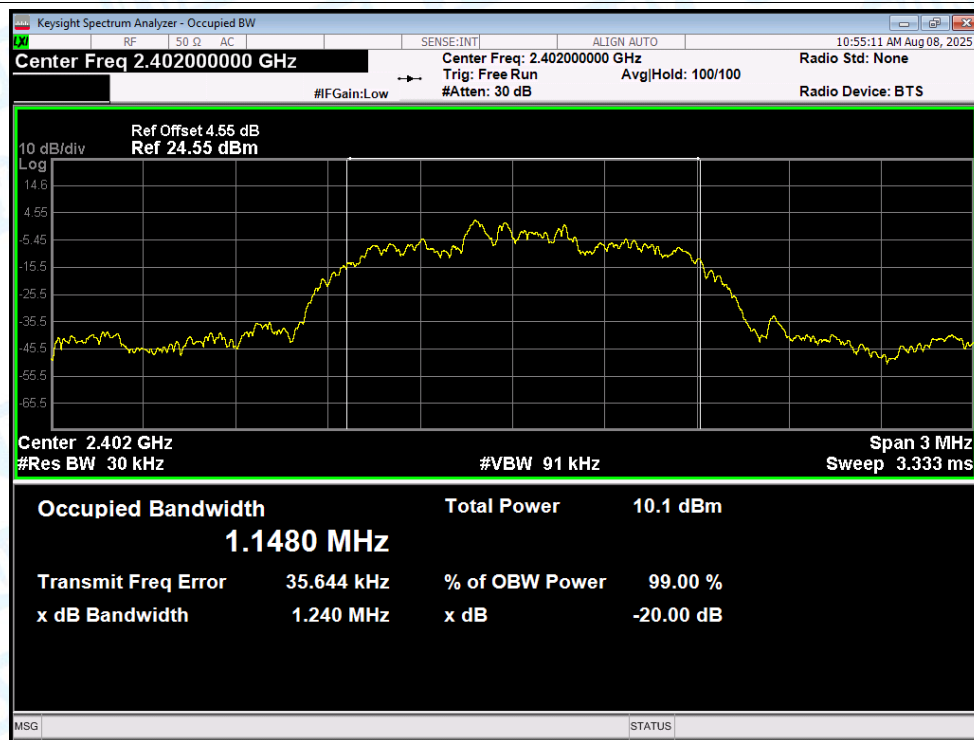
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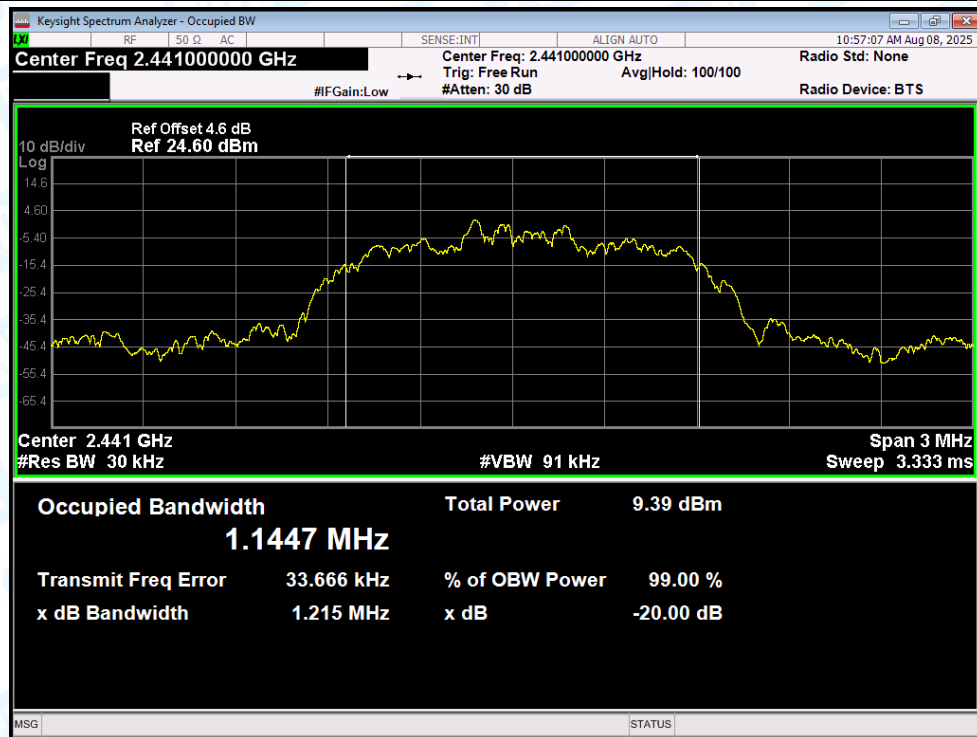
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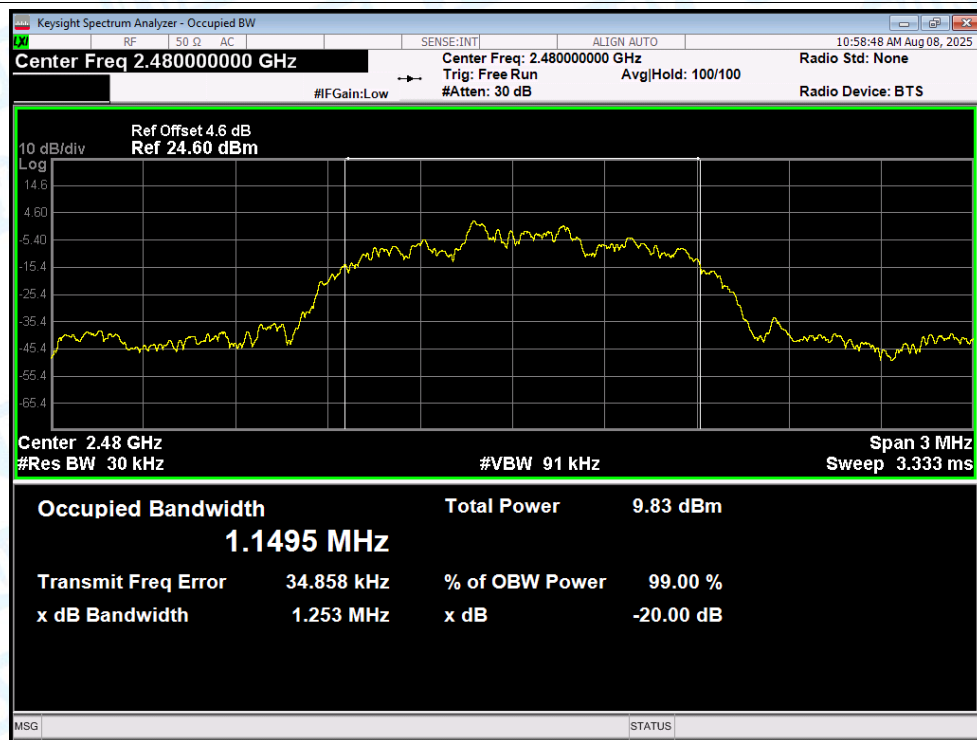
OBW NVNT 2-DH1 2402MHz Ant1



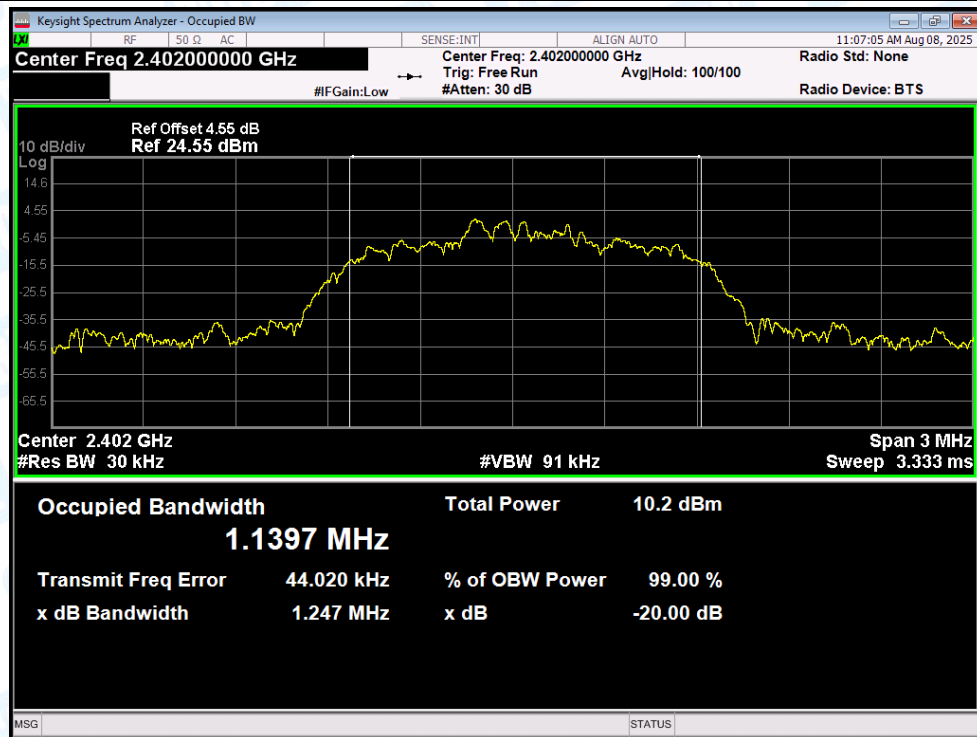
OBW NVNT 2-DH1 2441MHz Ant1



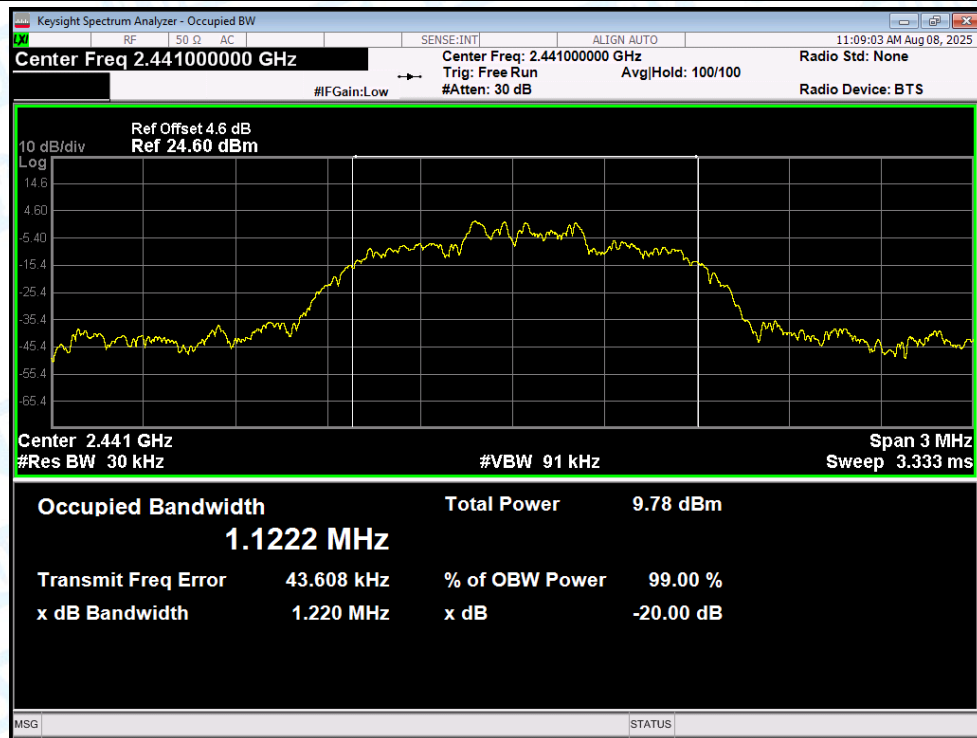
OBW NVNT 2-DH1 2480MHz Ant1



OBW NVNT 3-DH1 2402MHz Ant1



OBW NVNT 3-DH1 2441MHz Ant1



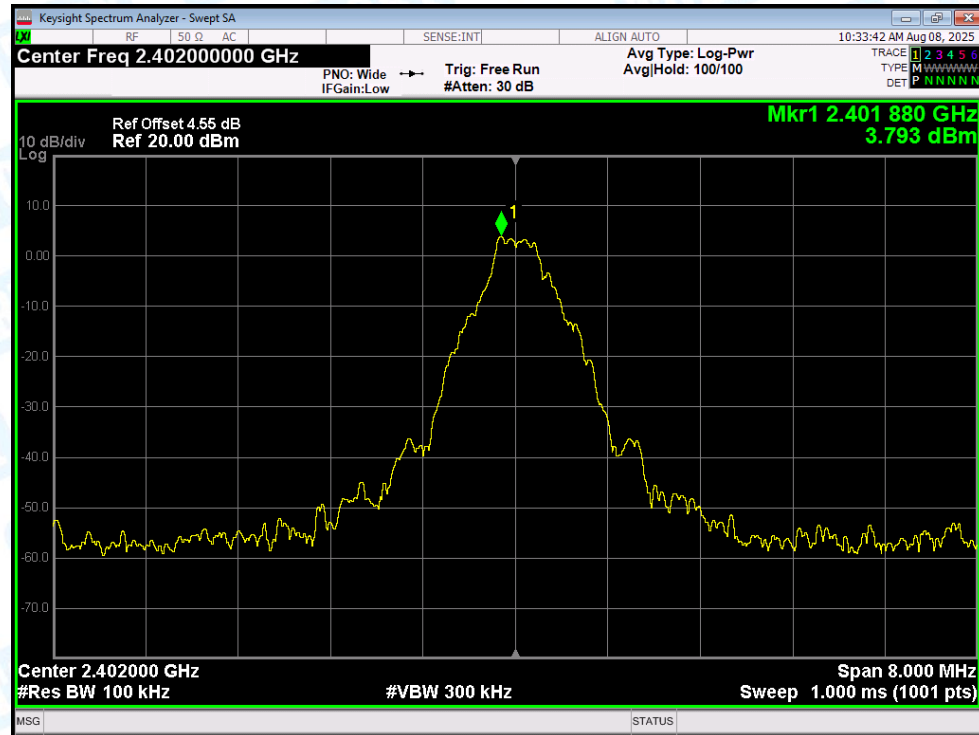


5.Band Edge

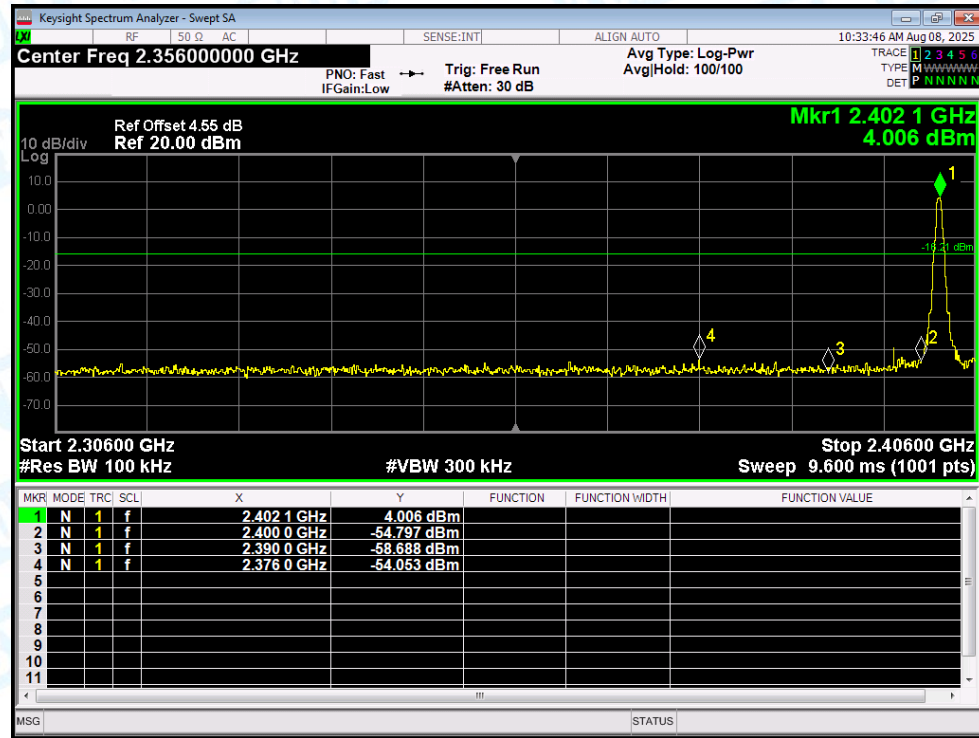
Condition	Mode	Frequency (MHz)	Antenna	Hopping Mode	Max Value (dBc)	Limit (dBc)	Verdict
NVNT	1-DH1	2402	Ant1	No-Hopping	-57.84	-20	Pass
NVNT	1-DH1	2480	Ant1	No-Hopping	-53.88	-20	Pass
NVNT	2-DH1	2402	Ant1	No-Hopping	-58.82	-20	Pass
NVNT	2-DH1	2480	Ant1	No-Hopping	-55.14	-20	Pass
NVNT	3-DH1	2402	Ant1	No-Hopping	-57.88	-20	Pass
NVNT	3-DH1	2480	Ant1	No-Hopping	-48.06	-20	Pass

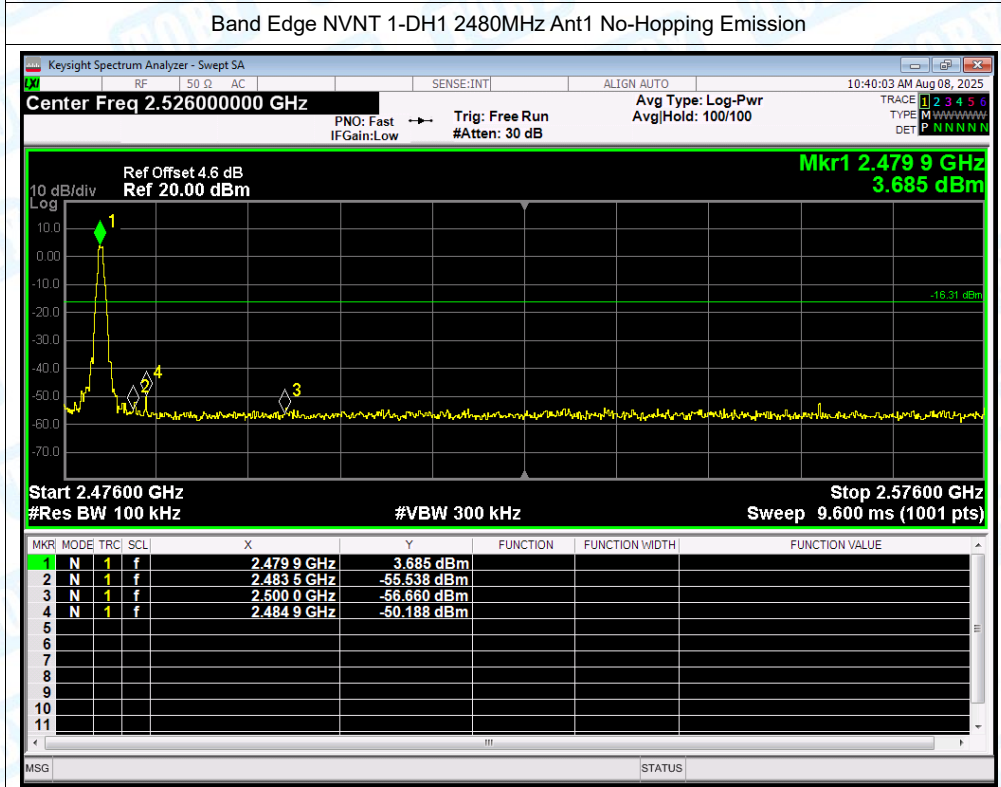
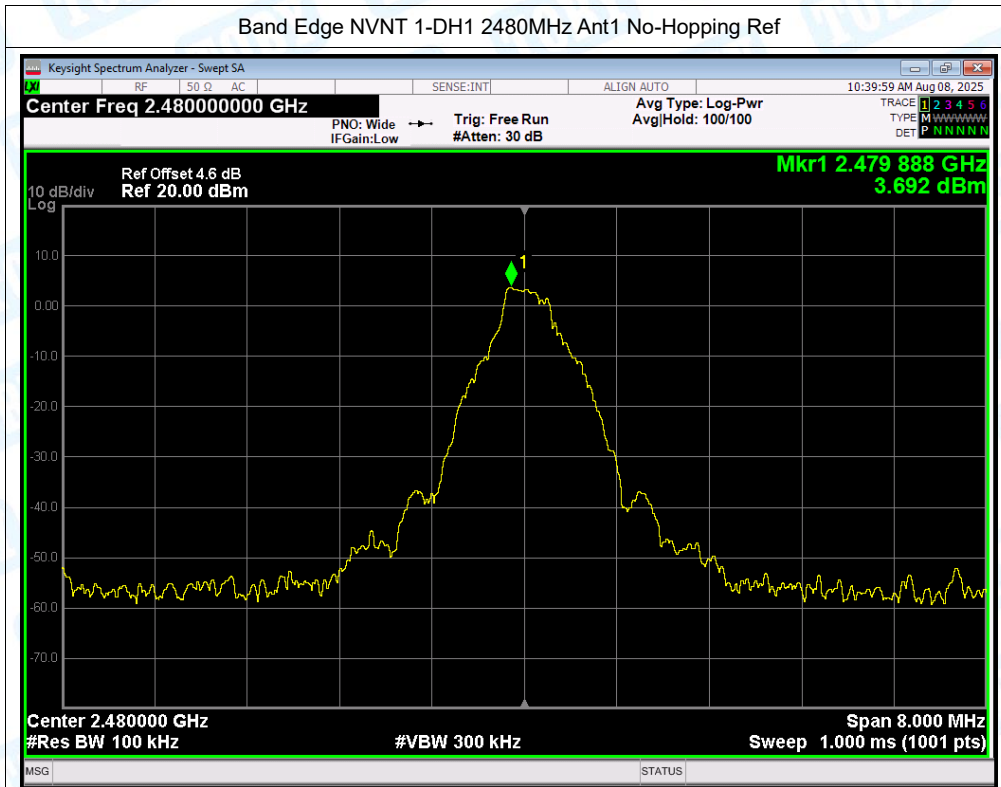
Test Graphs

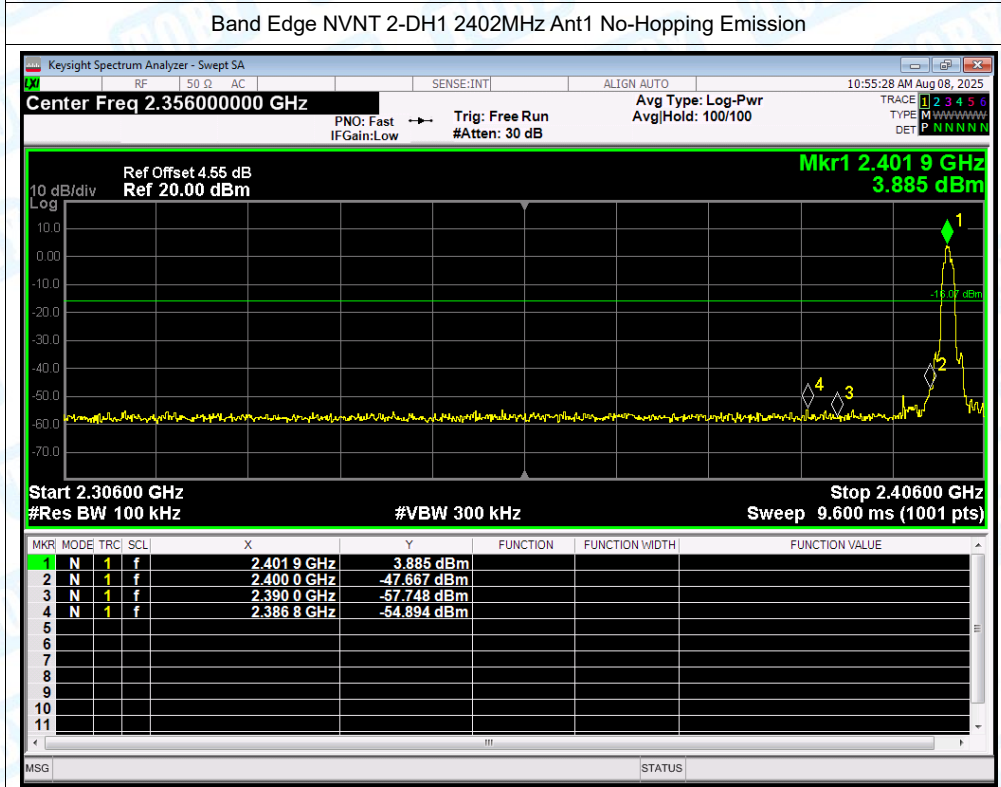
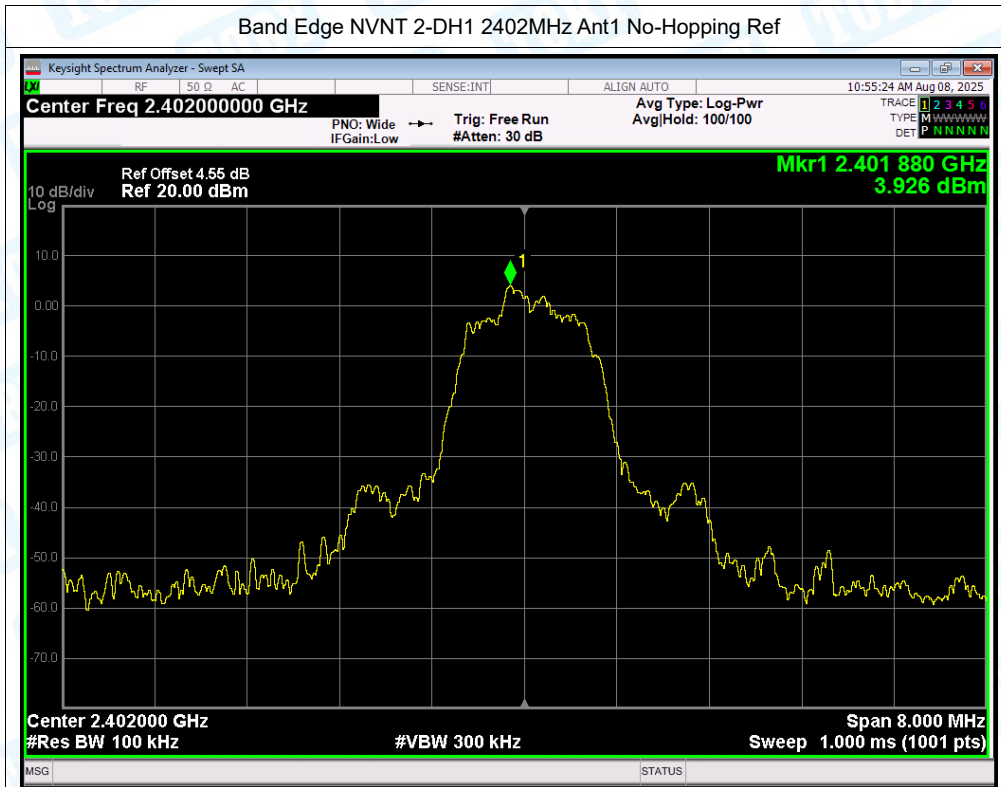
Band Edge NVNT 1-DH1 2402MHz Ant1 No-Hopping Ref

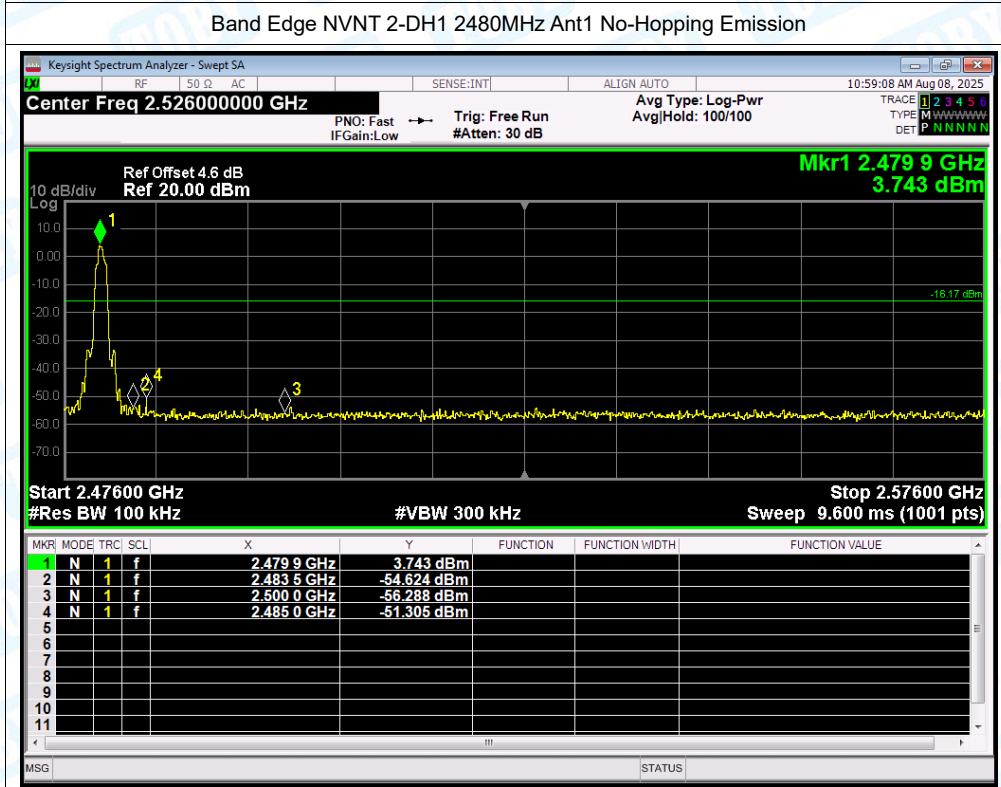
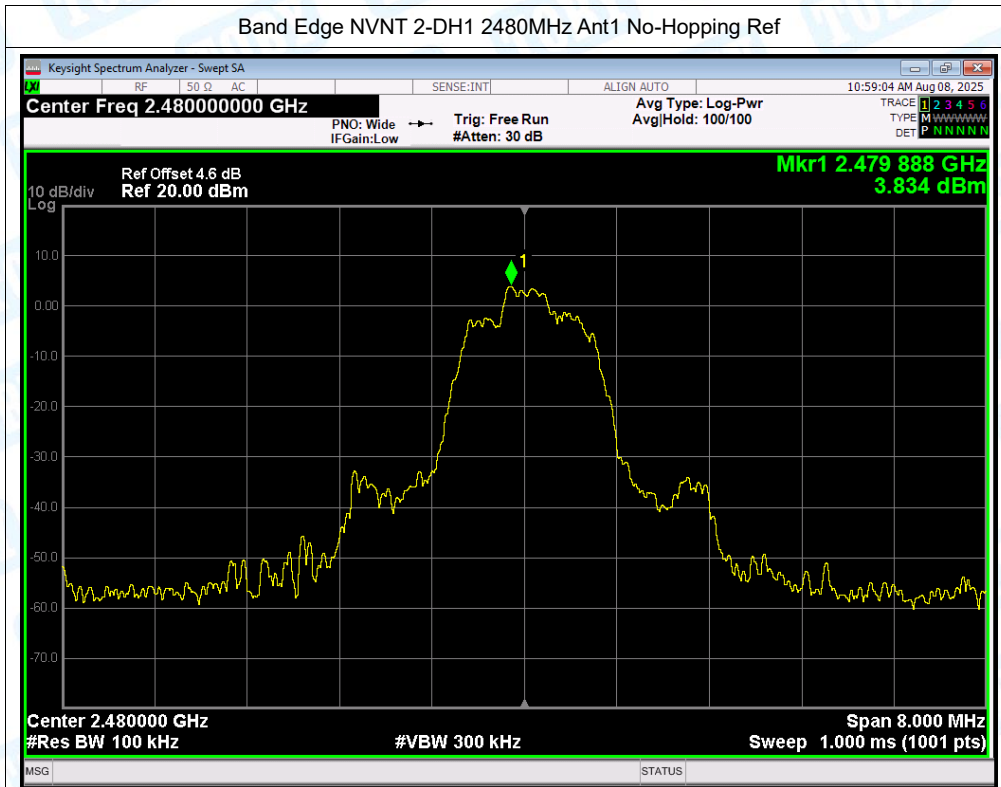


Band Edge NVNT 1-DH1 2402MHz Ant1 No-Hopping Emission





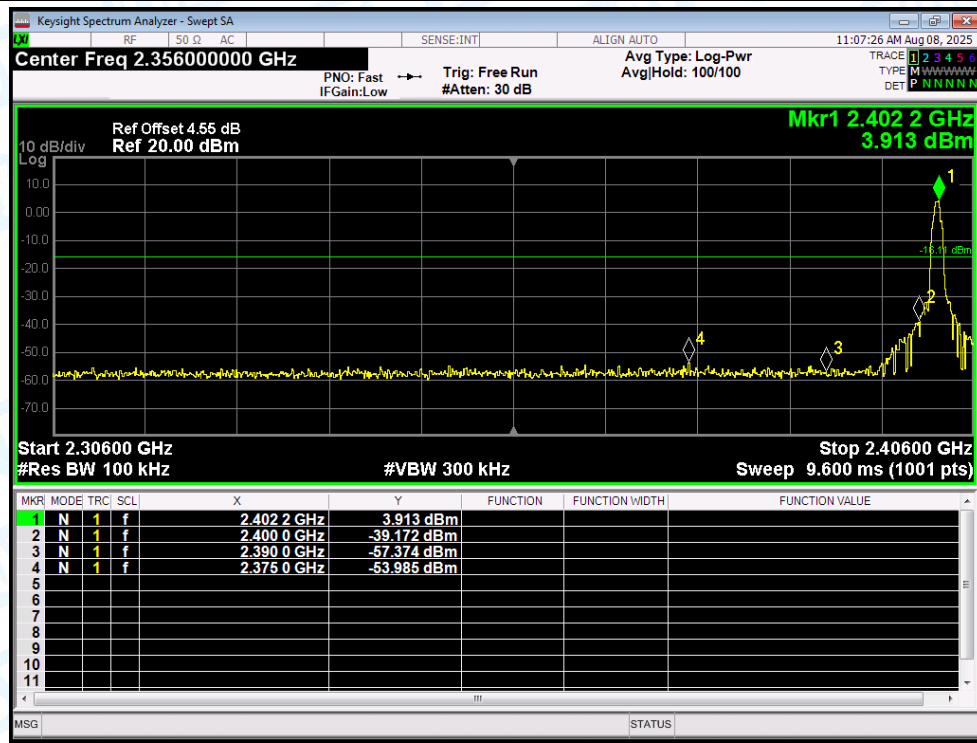




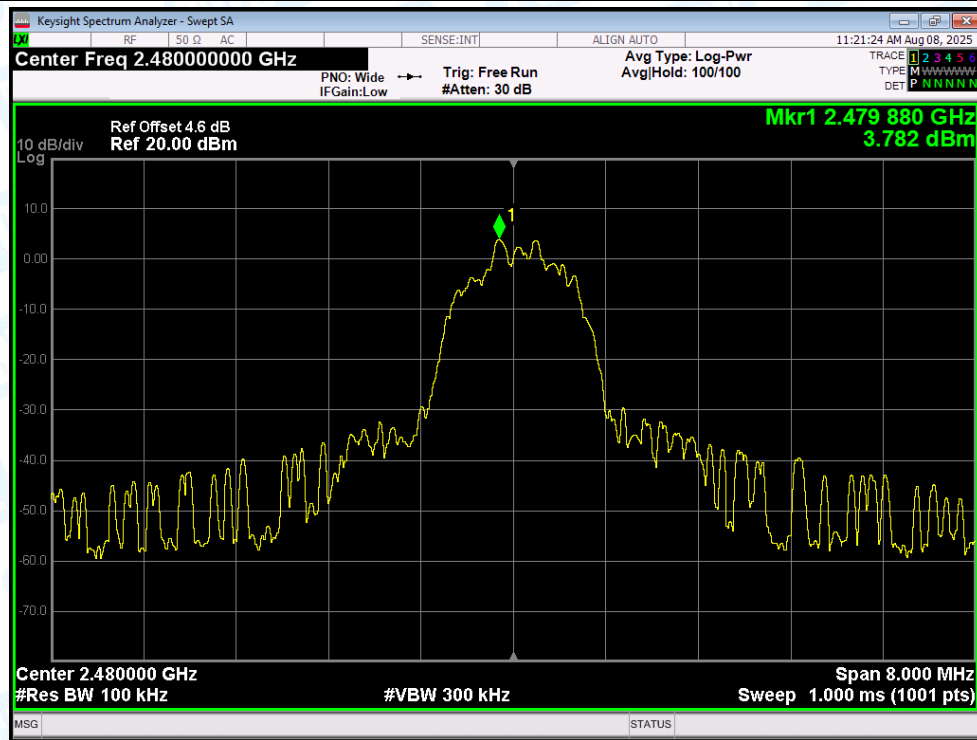
Band Edge NVNT 3-DH1 2402MHz Ant1 No-Hopping Ref



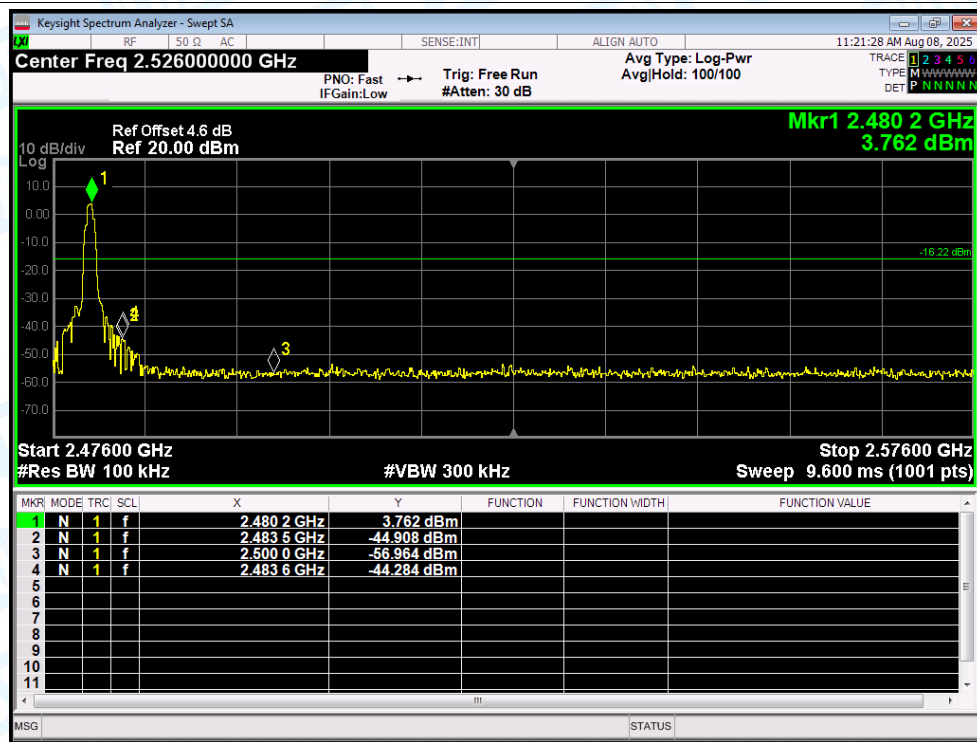
Band Edge NVNT 3-DH1 2402MHz Ant1 No-Hopping Emission



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



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



6. Band Edge(Hopping)

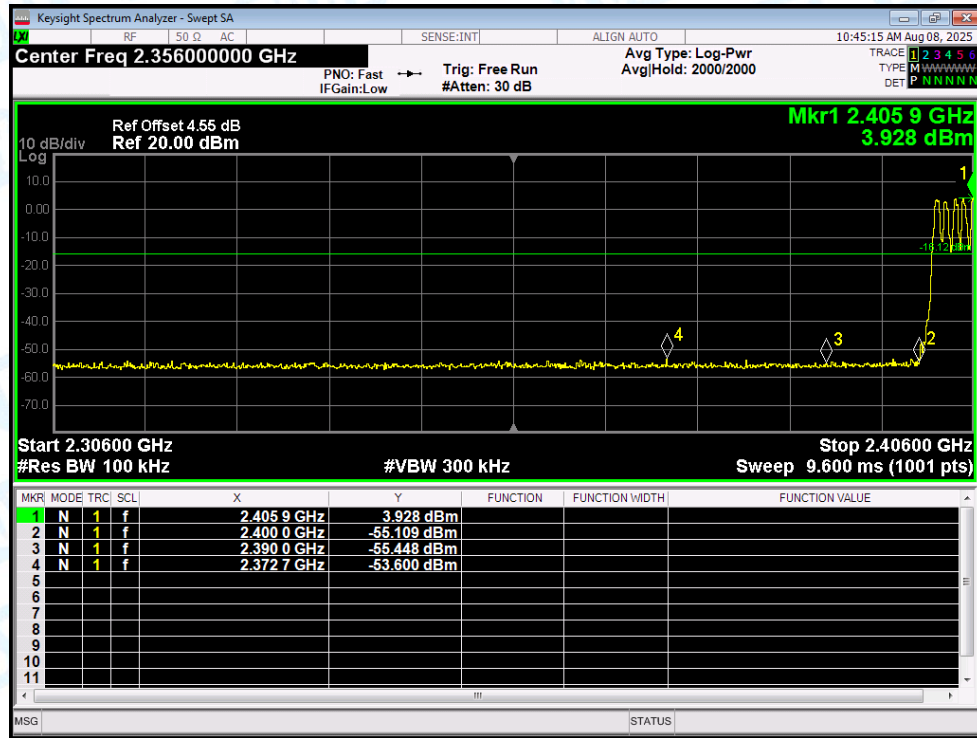
Condition	Mode	Frequency (MHz)	Antenna	Hopping Mode	Max Value (dBc)	Limit (dBc)	Verdict
NVNT	1-DH1	2402	Ant1	Hopping	-57.48	-20	Pass
NVNT	1-DH1	2480	Ant1	Hopping	-57.58	-20	Pass
NVNT	2-DH1	2402	Ant1	Hopping	-57.77	-20	Pass
NVNT	2-DH1	2480	Ant1	Hopping	-56.84	-20	Pass
NVNT	3-DH1	2402	Ant1	Hopping	-57.51	-20	Pass
NVNT	3-DH1	2480	Ant1	Hopping	-51.33	-20	Pass

Test Graphs

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



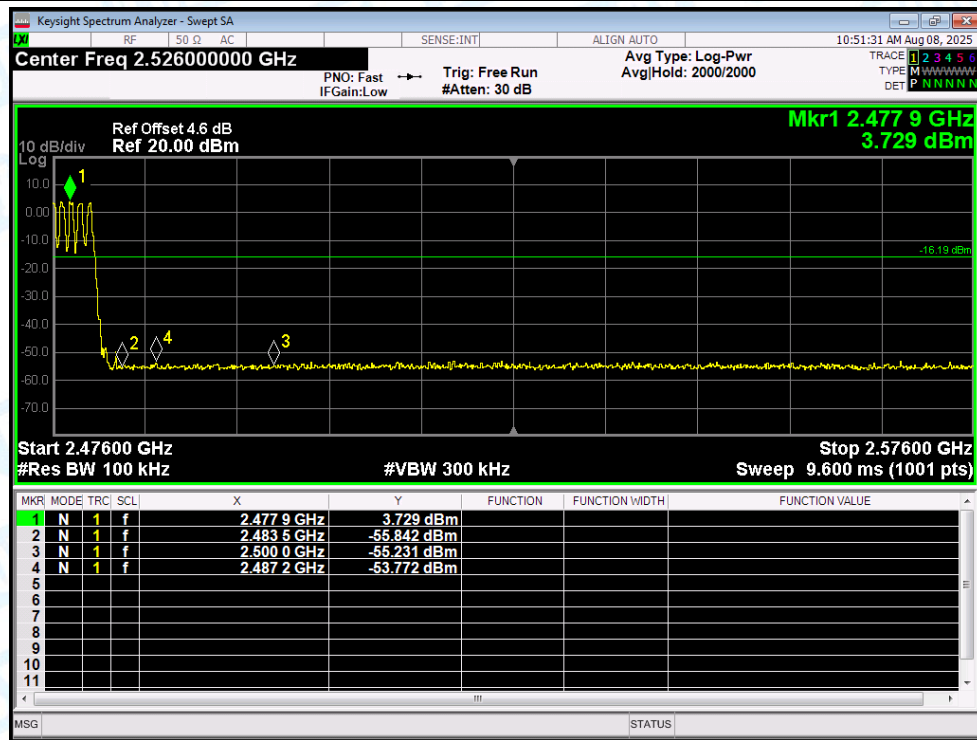
Band Edge(Hopping) NVNT 1-DH1 2402MHz Ant1 Hopping Emission

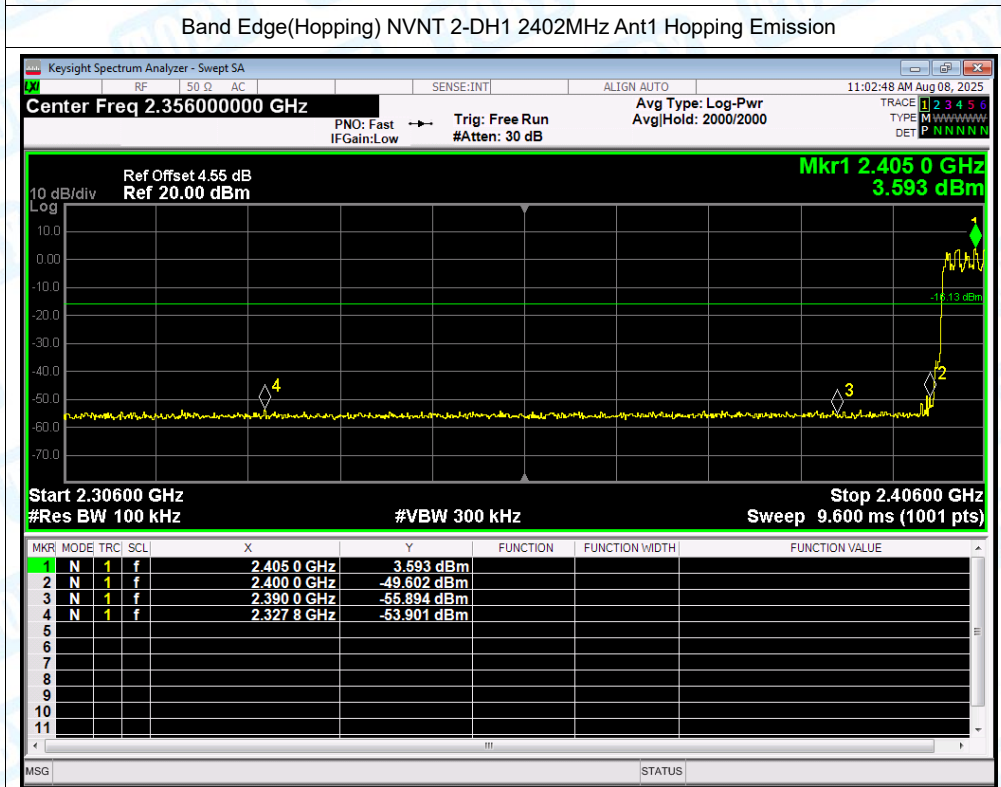
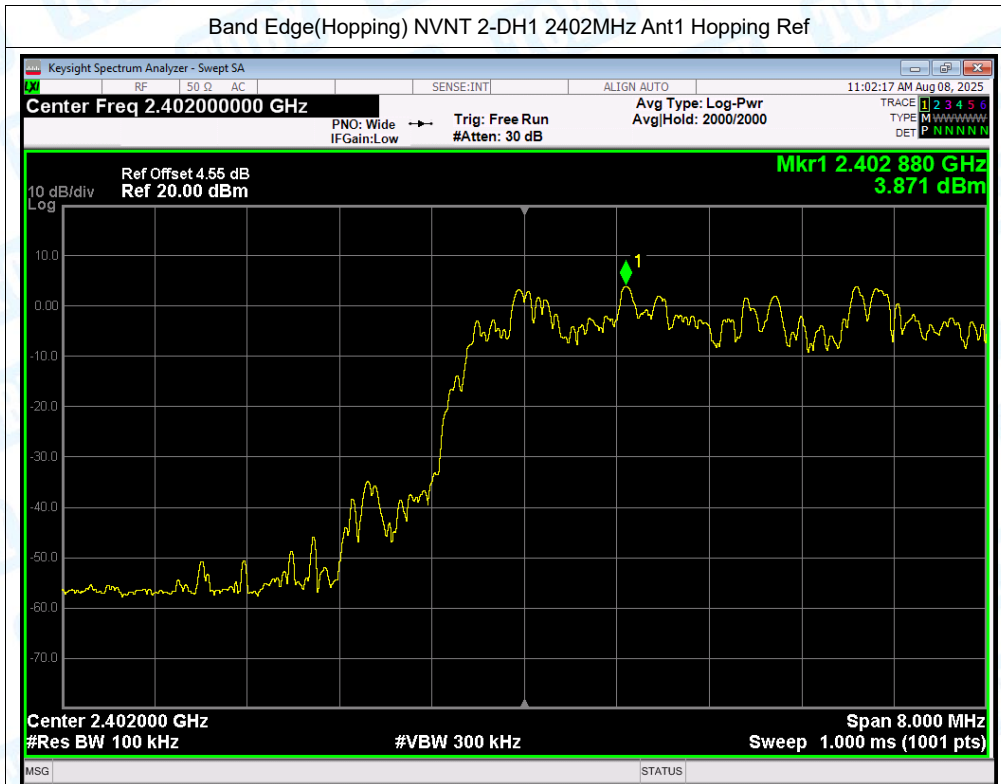


Band Edge(Hopping) NVNT 1-DH1 2480MHz Ant1 Hopping Ref



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

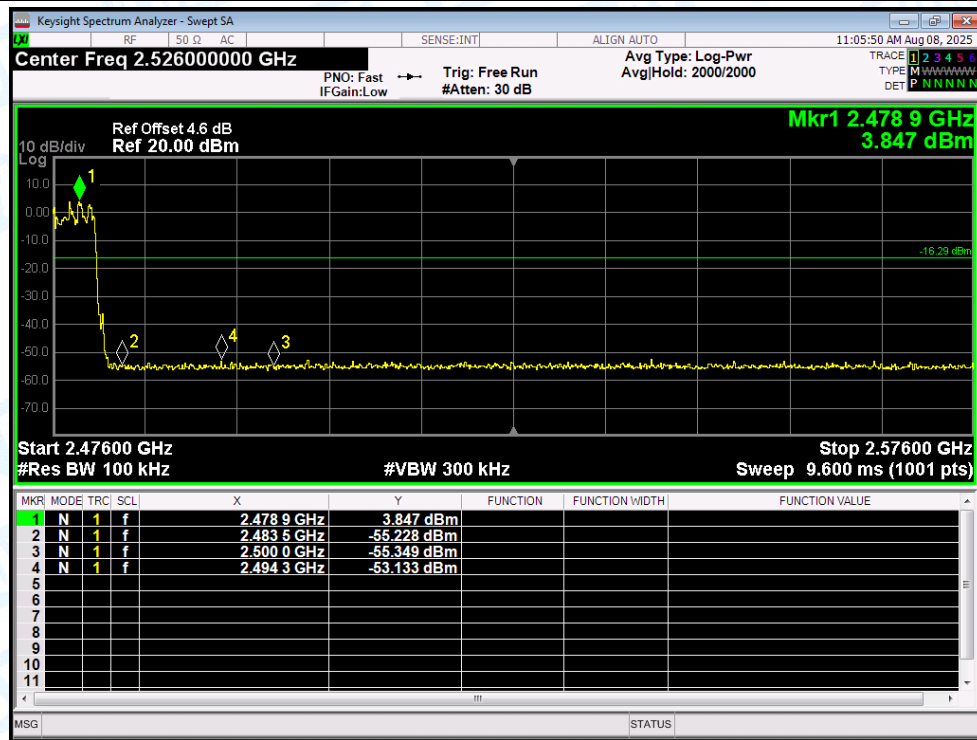




Band Edge(Hopping) NVNT 2-DH1 2480MHz Ant1 Hopping Ref



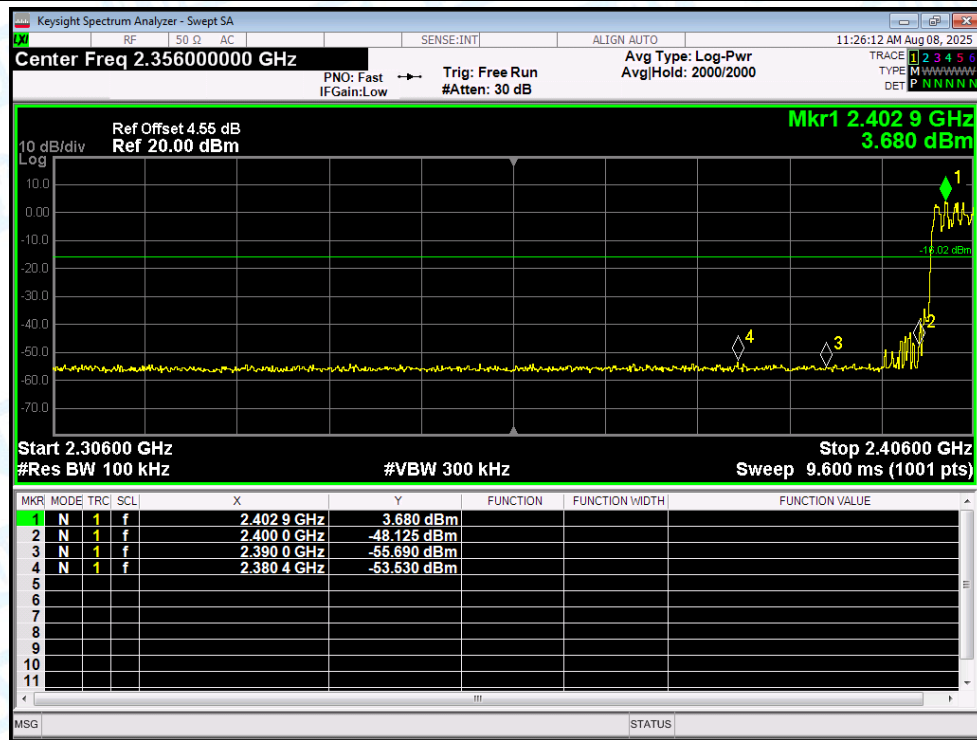
Band Edge(Hopping) NVNT 2-DH1 2480MHz Ant1 Hopping Emission



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



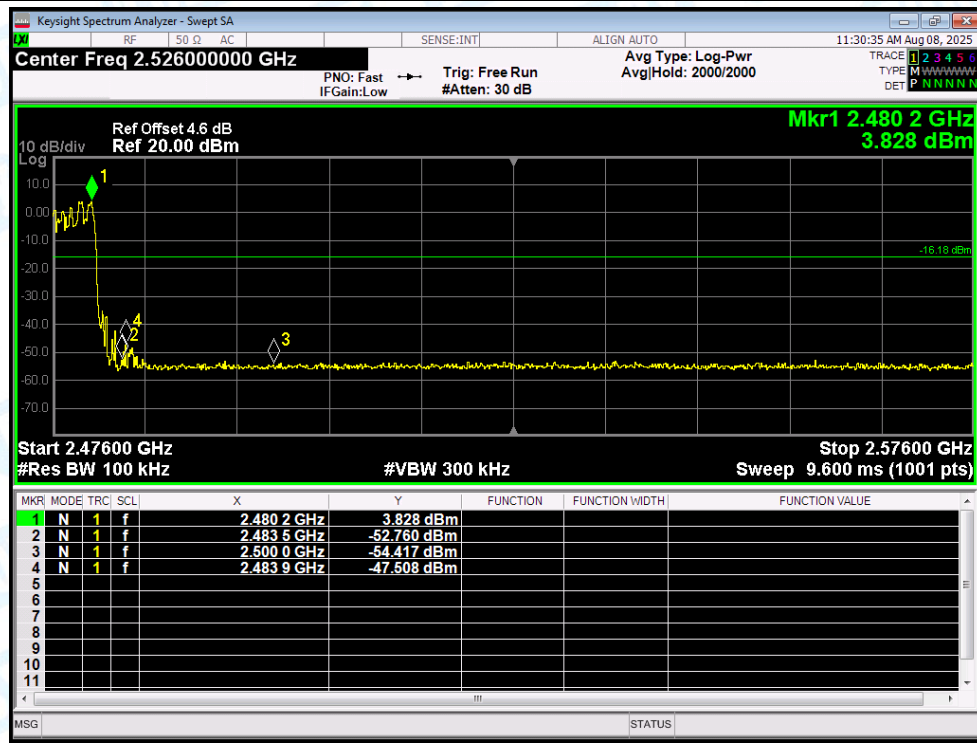
Band Edge(Hopping) NVNT 3-DH1 2402MHz Ant1 Hopping Emission



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



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

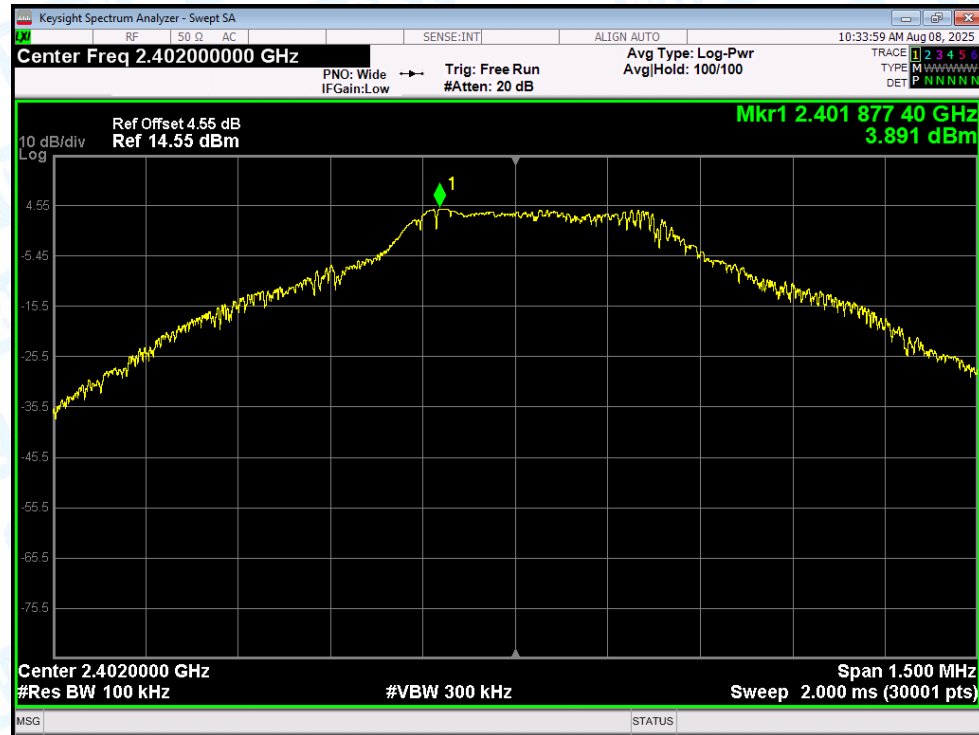


7. Conducted RF Spurious Emission

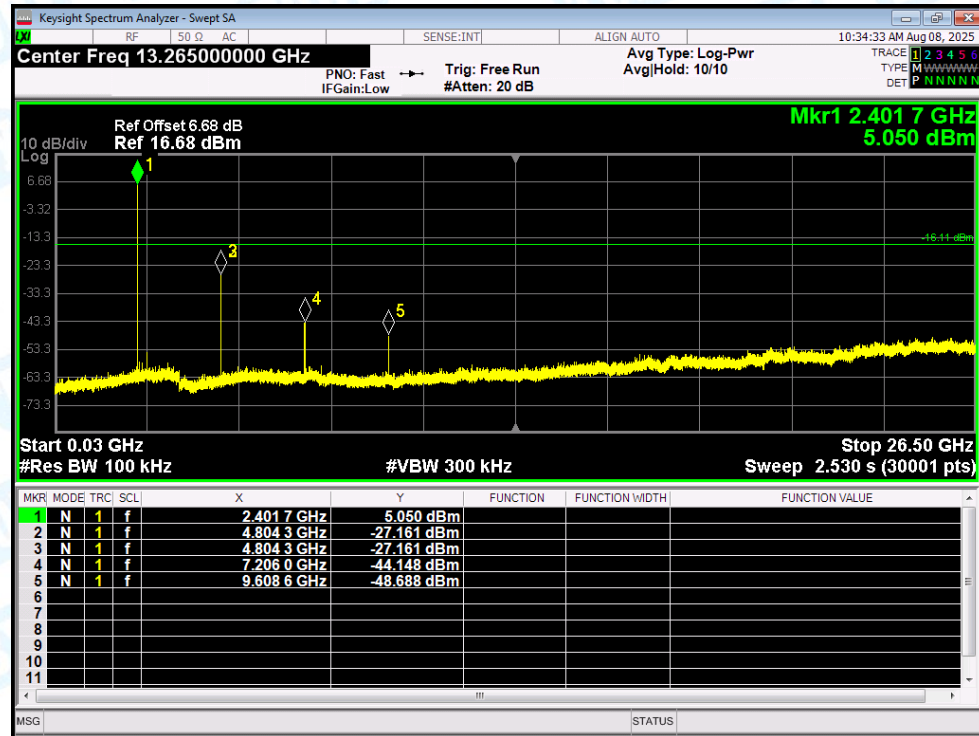
Condition	Mode	Frequency (MHz)	Antenna	Max Value (dBc)	Limit (dBc)	Verdict
NVNT	1-DH1	2402	Ant1	-31.05	-20	Pass
NVNT	1-DH1	2441	Ant1	-21.01	-20	Pass
NVNT	1-DH1	2480	Ant1	-22.76	-20	Pass
NVNT	2-DH1	2402	Ant1	-27.47	-20	Pass
NVNT	2-DH1	2441	Ant1	-21.48	-20	Pass
NVNT	2-DH1	2480	Ant1	-20.55	-20	Pass
NVNT	3-DH1	2402	Ant1	-25.89	-20	Pass
NVNT	3-DH1	2441	Ant1	-23.25	-20	Pass
NVNT	3-DH1	2480	Ant1	-23.57	-20	Pass

Test Graphs

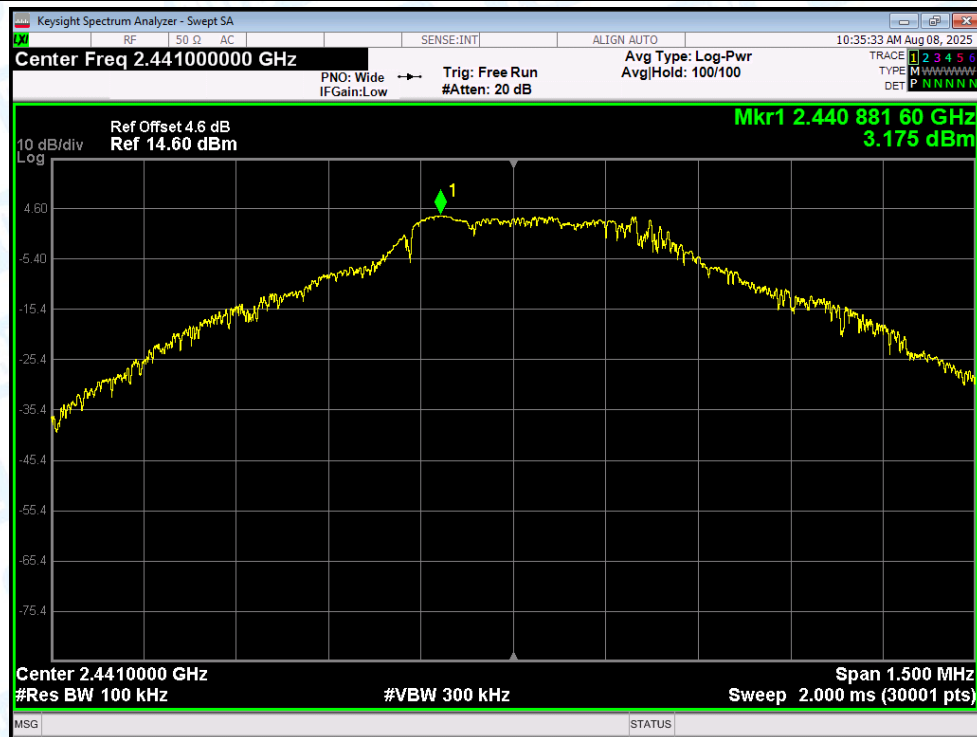
Tx. Spurious NVNT 1-DH1 2402MHz Ant1 Ref



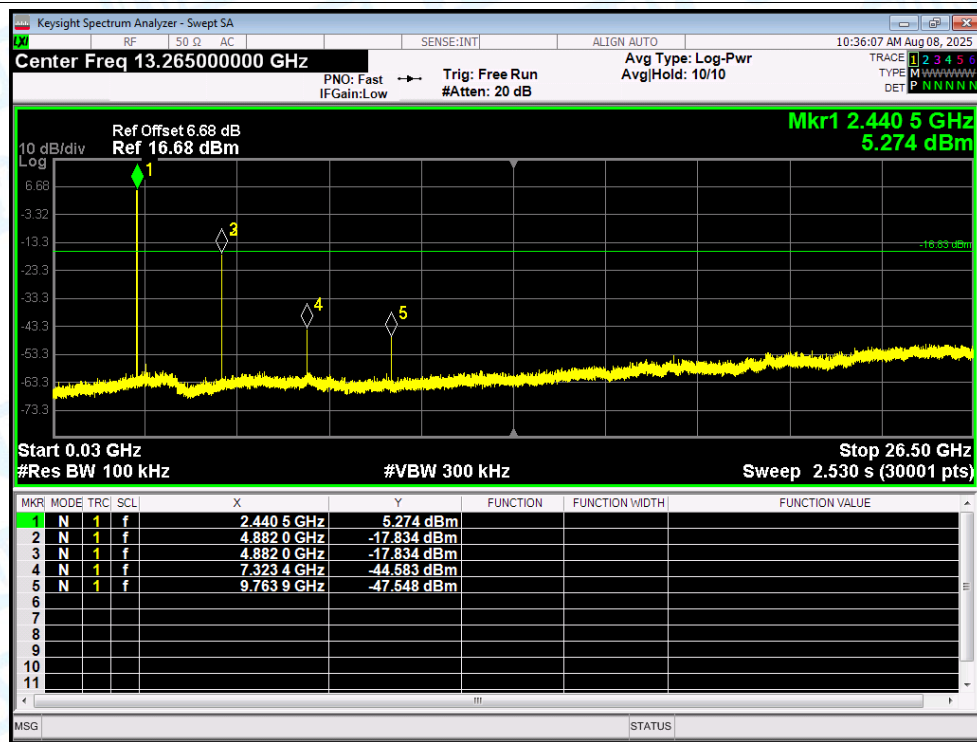
Tx. Spurious NVNT 1-DH1 2402MHz Ant1 Emission



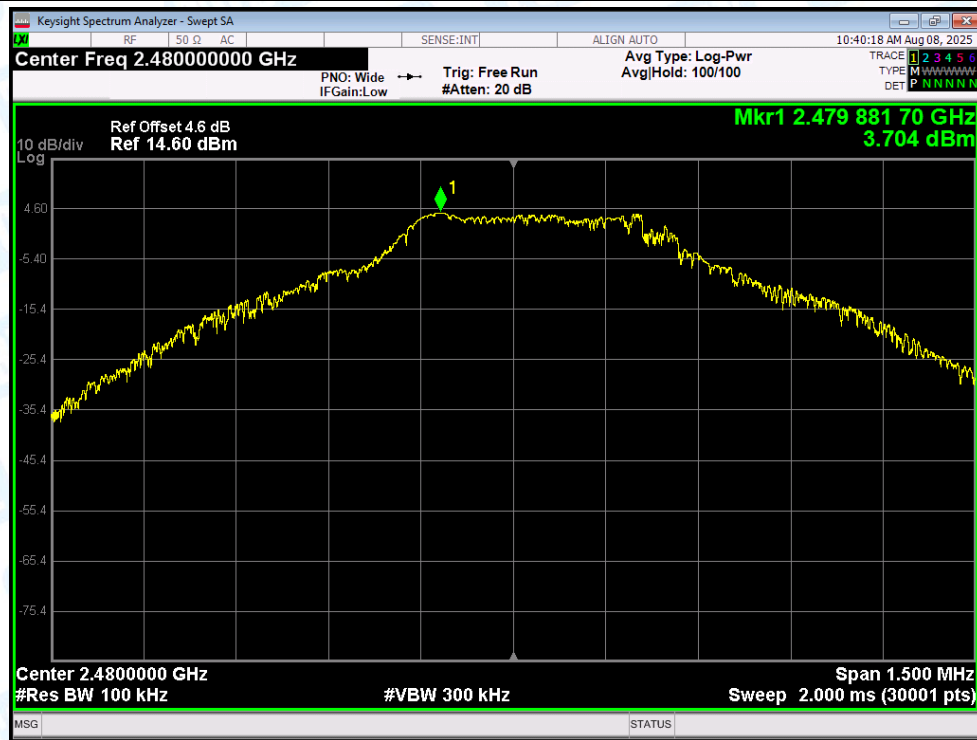
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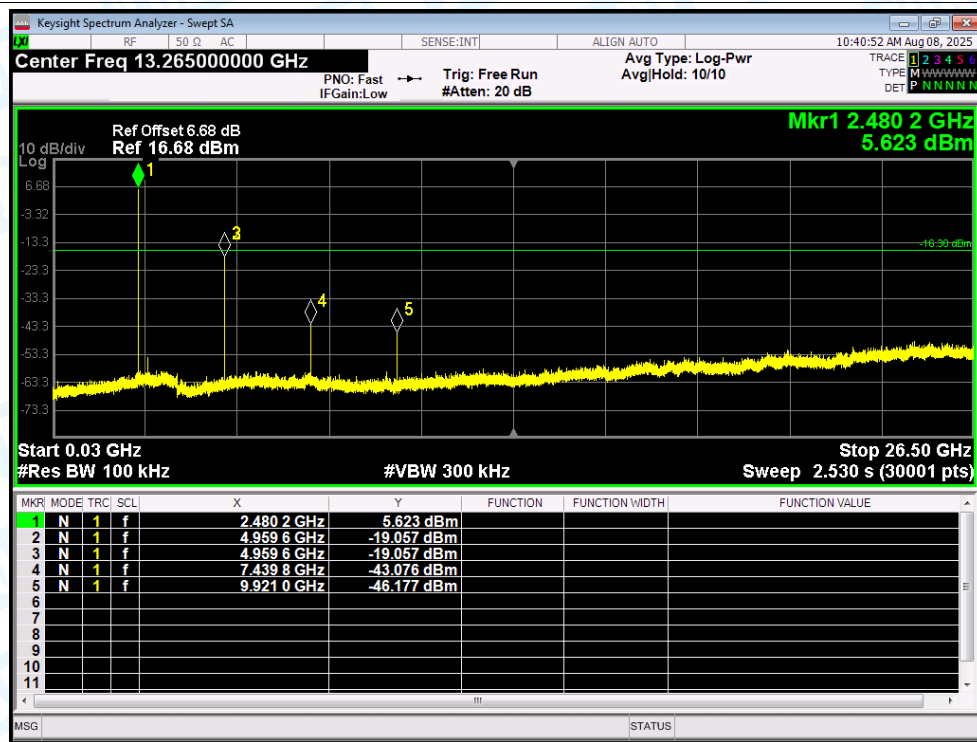
Tx. Spurious NVNT 1-DH1 2441MHz Ant1 Emission



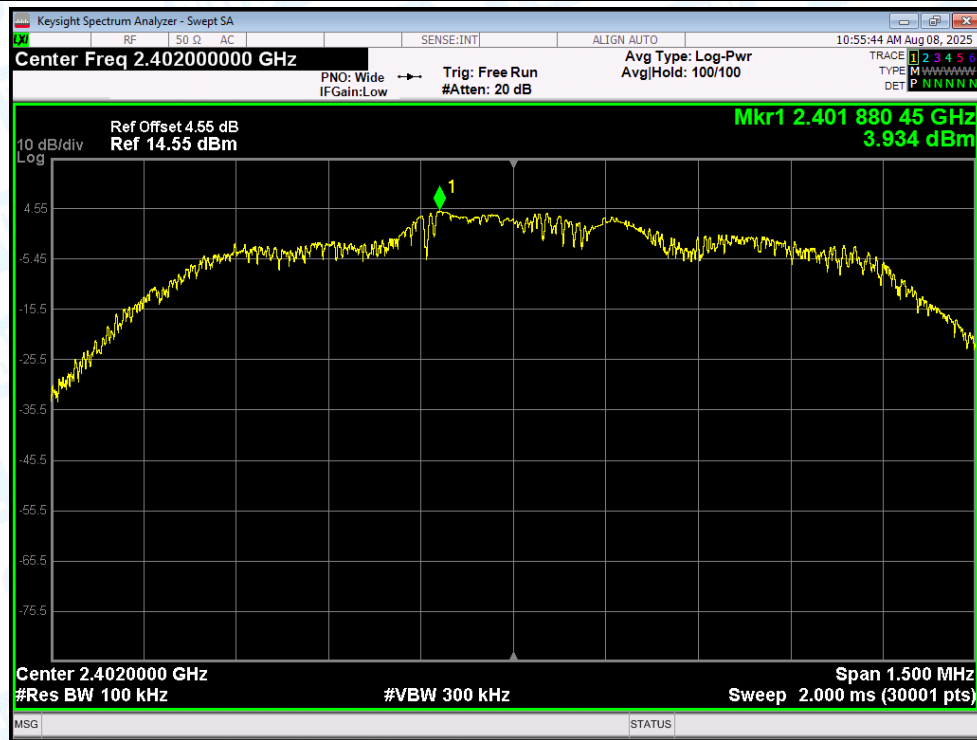
Tx. Spurious NVNT 1-DH1 2480MHz Ant1 Ref



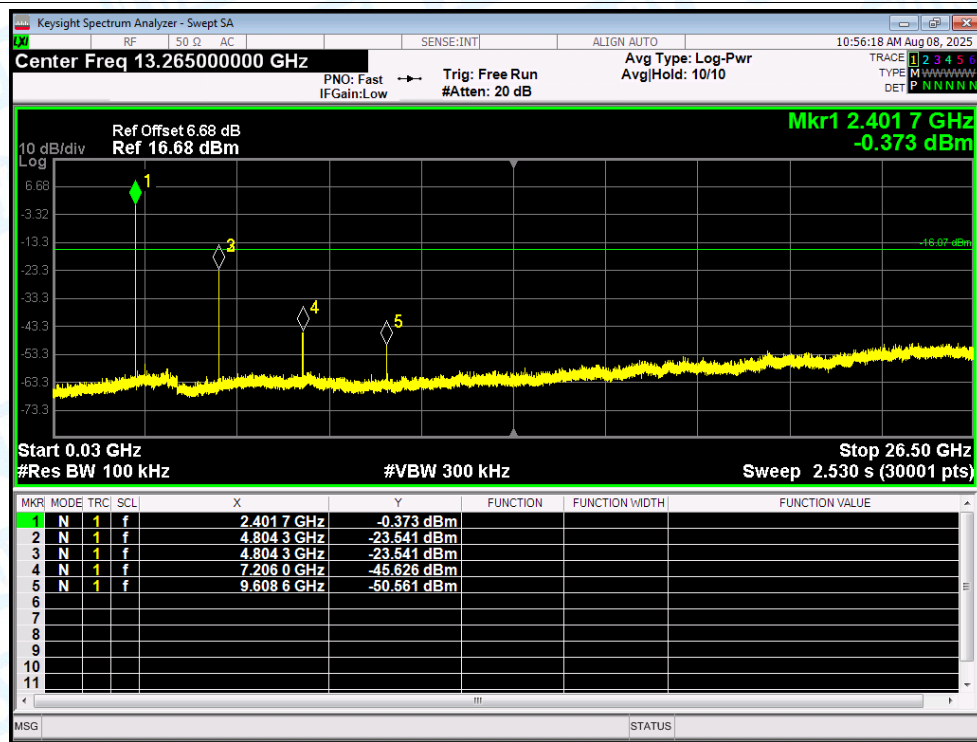
Tx. Spurious NVNT 1-DH1 2480MHz Ant1 Emission



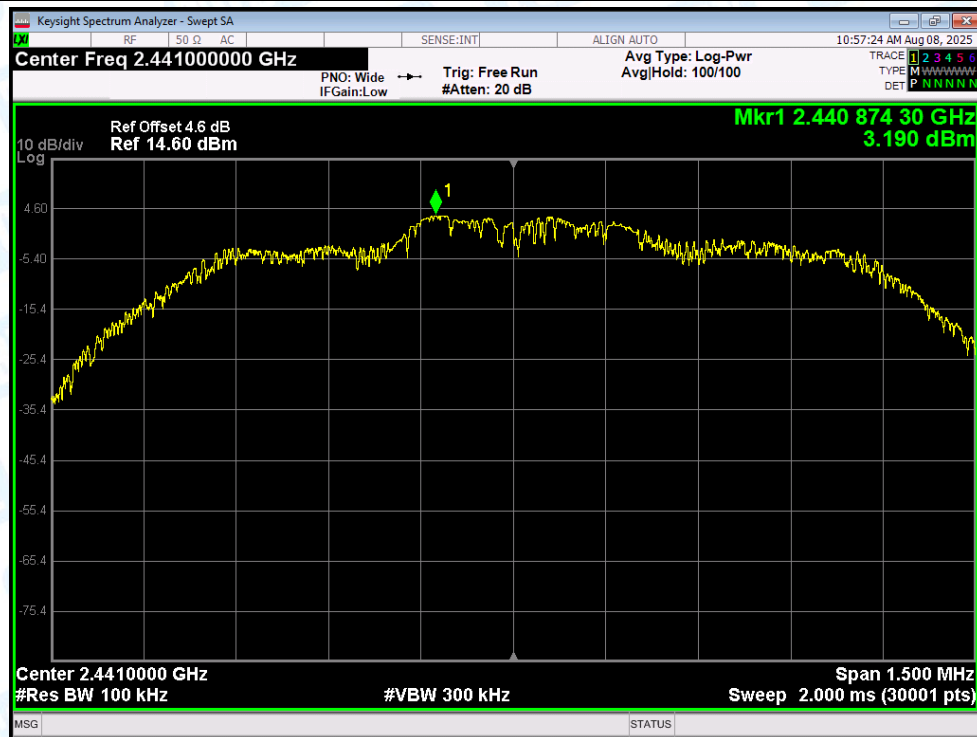
Tx. Spurious NVNT 2-DH1 2402MHz Ant1 Ref



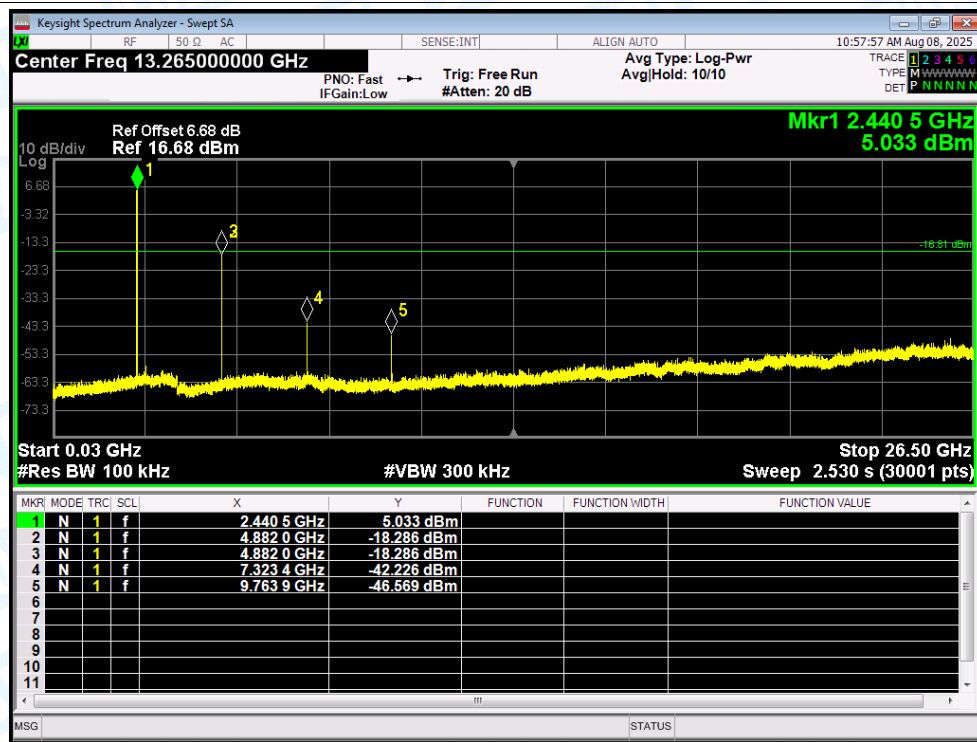
Tx. Spurious NVNT 2-DH1 2402MHz Ant1 Emission



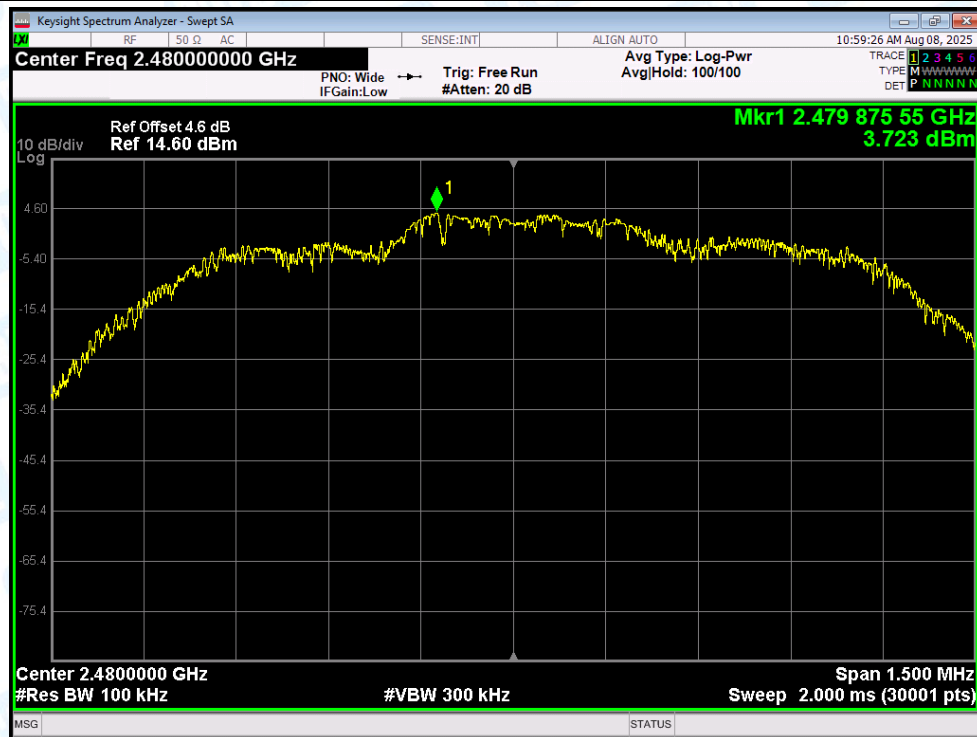
Tx. Spurious NVNT 2-DH1 2441MHz Ant1 Ref



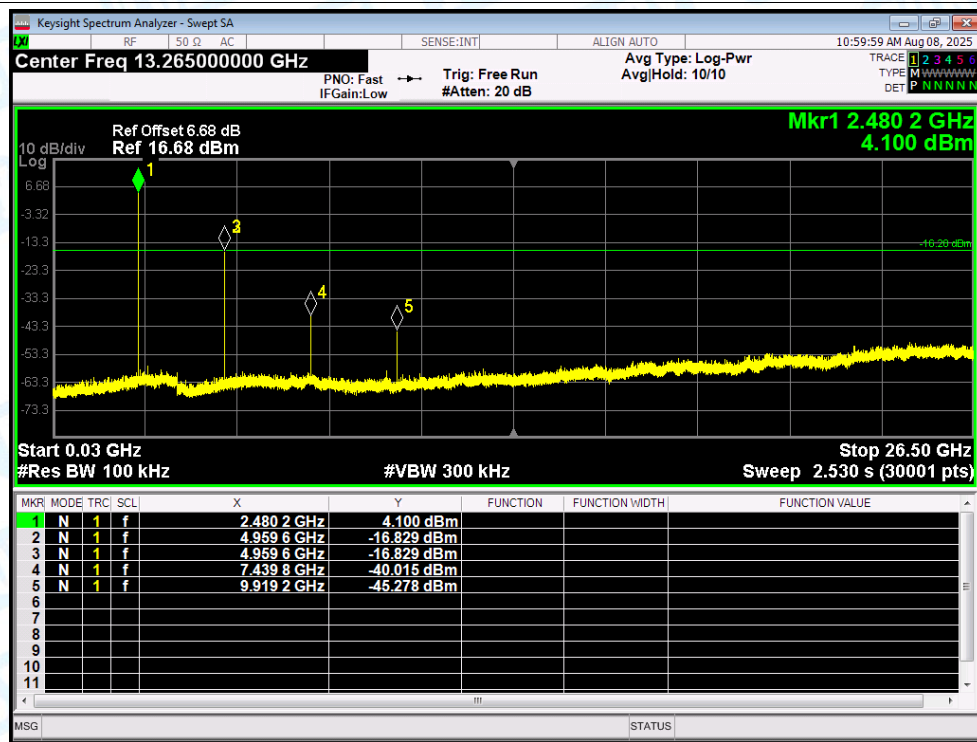
Tx. Spurious NVNT 2-DH1 2441MHz Ant1 Emission



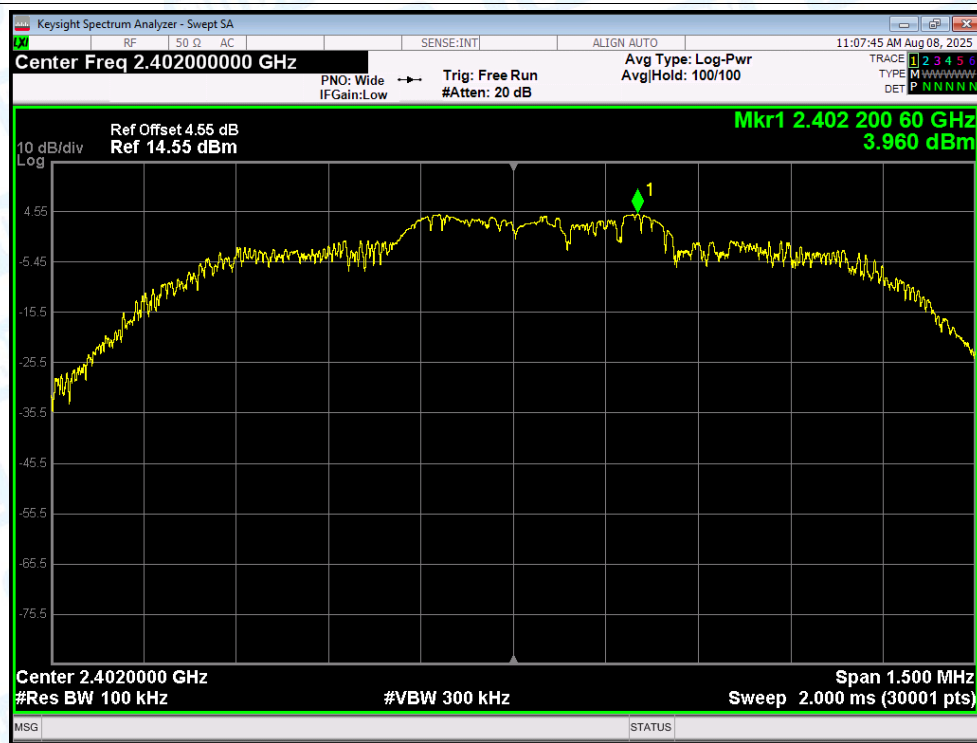
Tx. Spurious NVNT 2-DH1 2480MHz Ant1 Ref



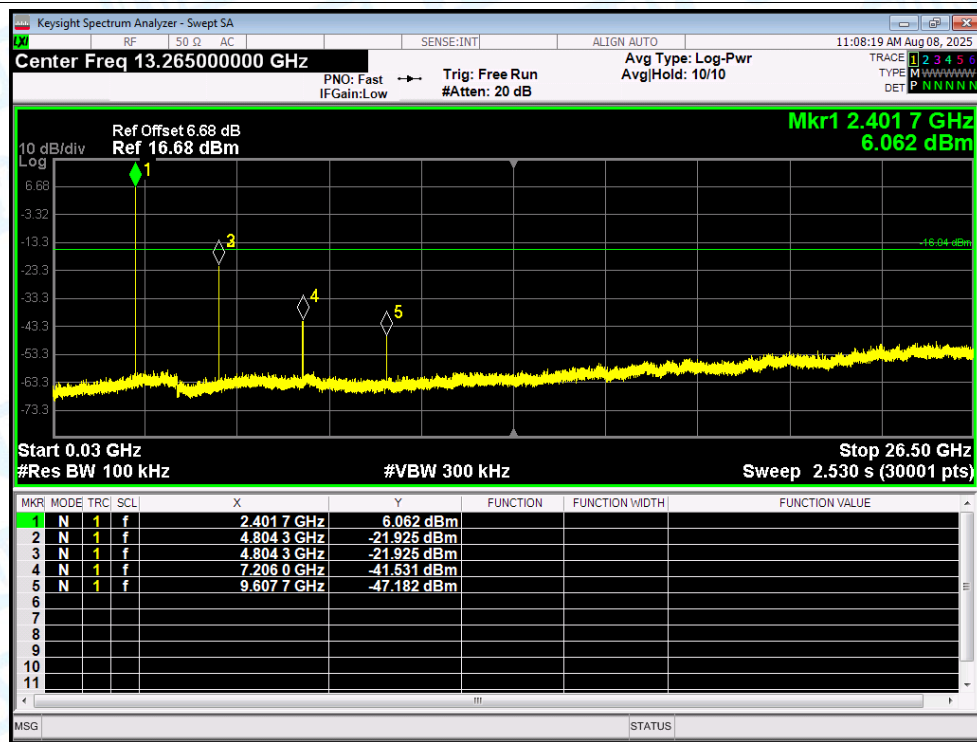
Tx. Spurious NVNT 2-DH1 2480MHz Ant1 Emission



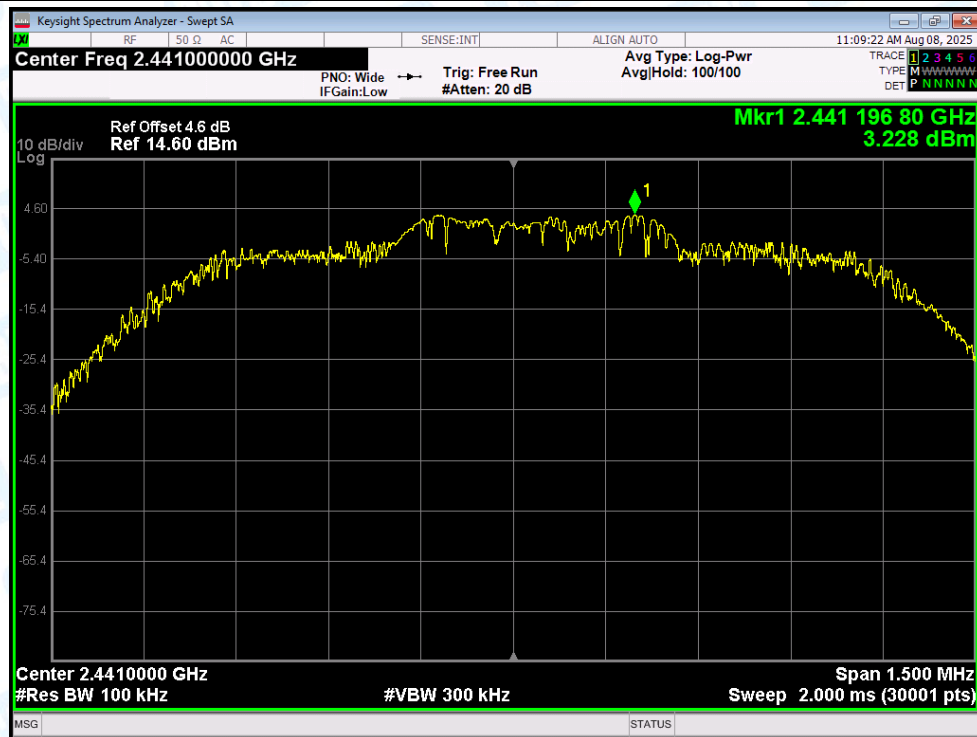
Tx. Spurious NVNT 3-DH1 2402MHz Ant1 Ref



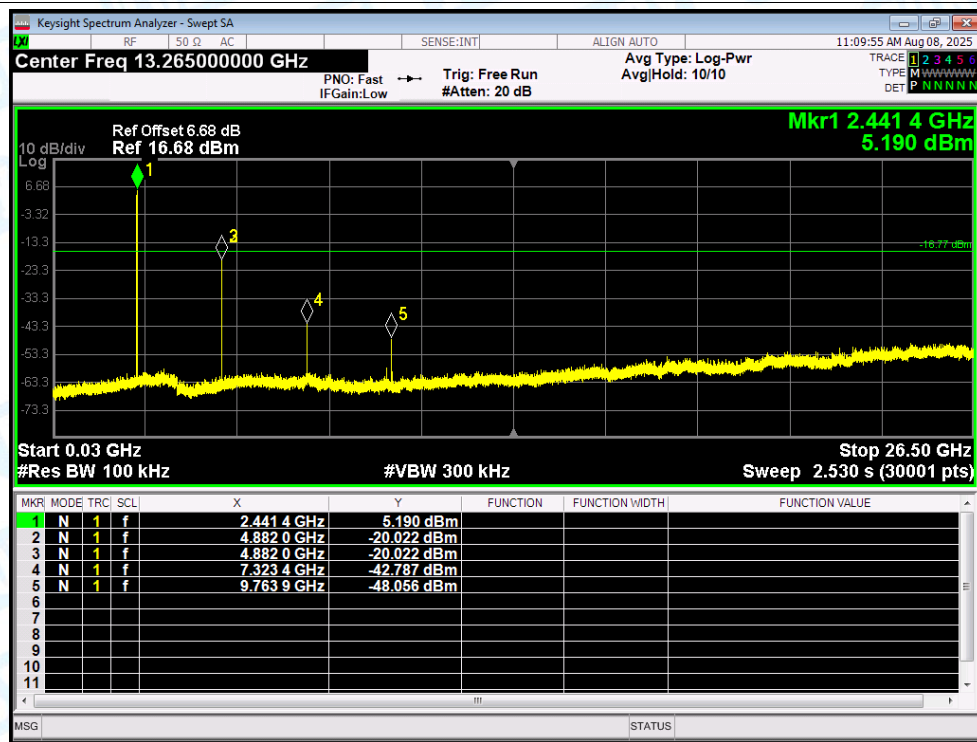
Tx. Spurious NVNT 3-DH1 2402MHz Ant1 Emission



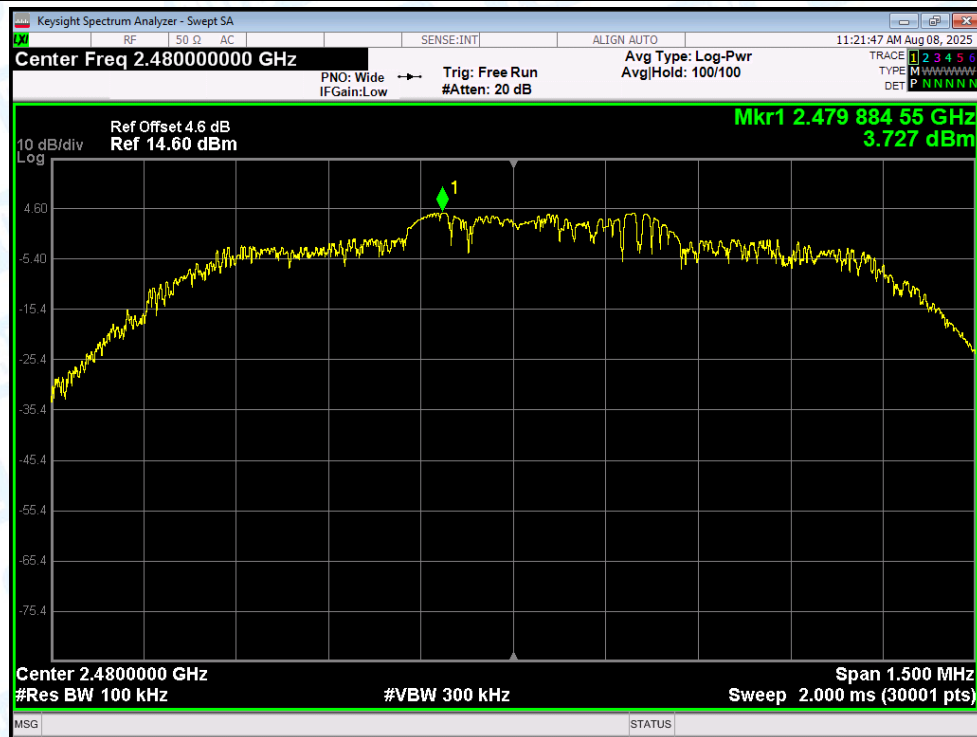
Tx. Spurious NVNT 3-DH1 2441MHz Ant1 Ref



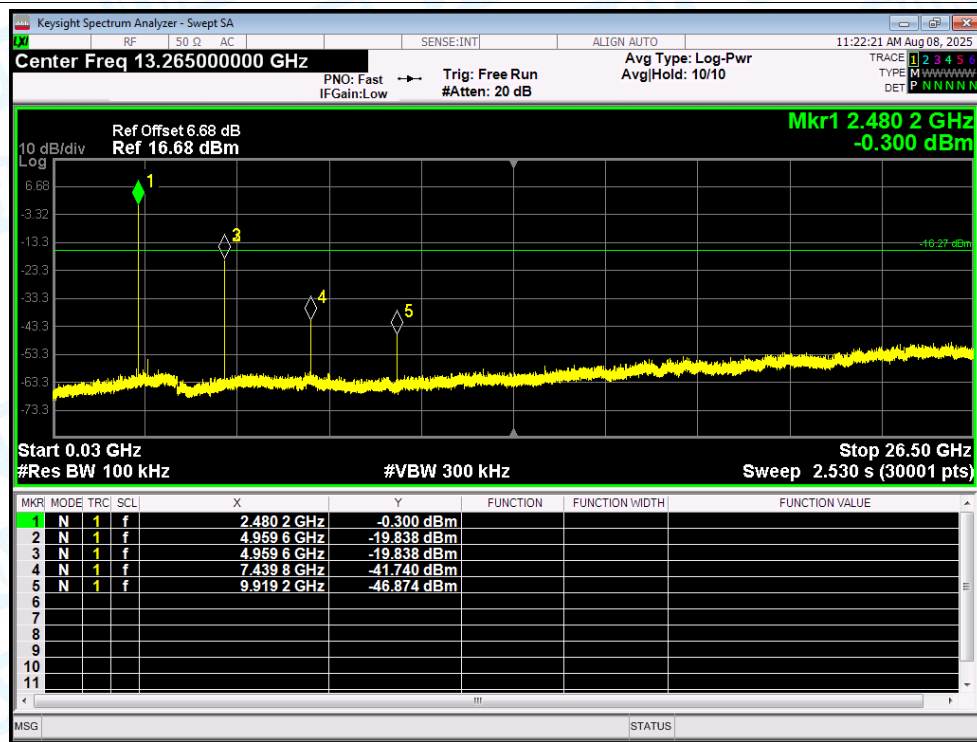
Tx. Spurious NVNT 3-DH1 2441MHz Ant1 Emission



Tx. Spurious NVNT 3-DH1 2480MHz Ant1 Ref



Tx. Spurious NVNT 3-DH1 2480MHz Ant1 Emission

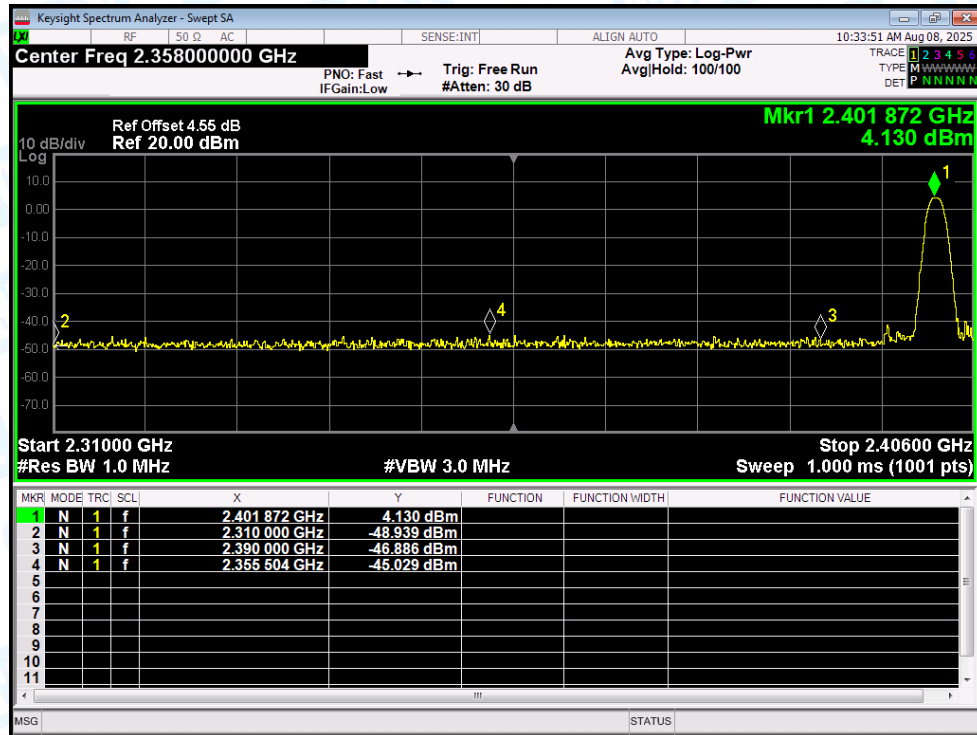


8.Restrict Band

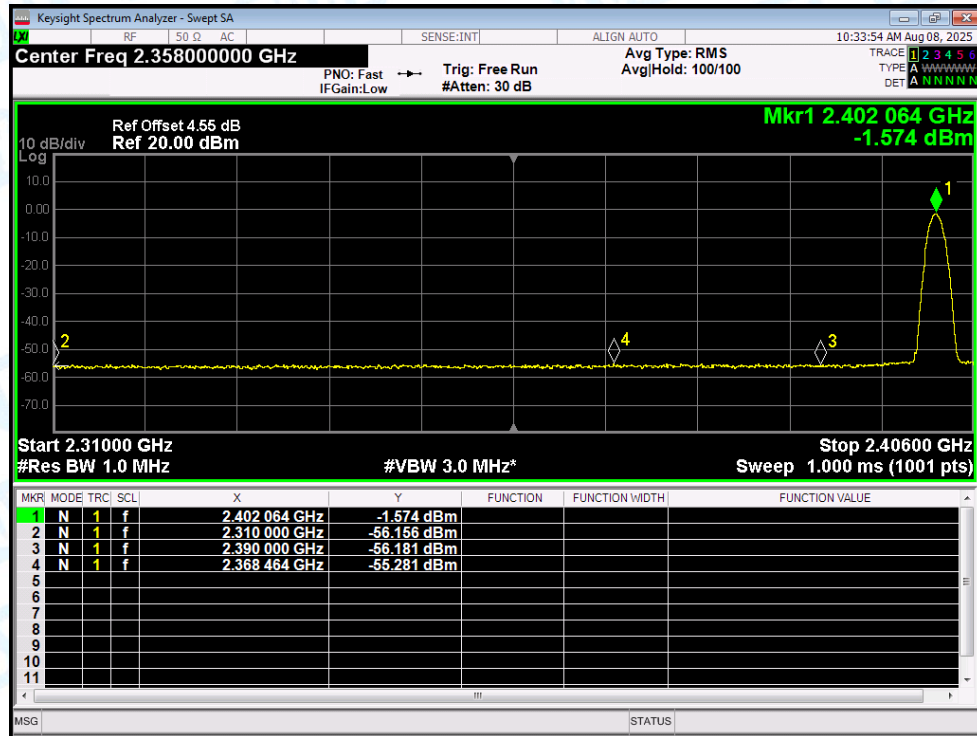
Condition	Mode	Frequency (MHz)	Antenna	Hopping Mode	Spur Freq (MHz)	Power (dBm)	Gain (dBi)	Duty Factor (dB)	E (dBuV/m)	Detector	Limit (dBuV/m)	Verdict
NVNT	1-DH1	2402	Ant1	No-Hopping	2310	-48.94	2	-	48.32	Peak	74	Pass
NVNT	1-DH1	2402	Ant1	No-Hopping	2310	-56.16	2	4.95	46.05	Average	54	Pass
NVNT	1-DH1	2402	Ant1	No-Hopping	2355.504	-45.03	2	-	52.23	Peak	74	Pass
NVNT	1-DH1	2402	Ant1	No-Hopping	2368.464	-55.28	2	4.95	46.93	Average	54	Pass
NVNT	1-DH1	2402	Ant1	No-Hopping	2390	-46.89	2	-	50.37	Peak	74	Pass
NVNT	1-DH1	2402	Ant1	No-Hopping	2390	-56.18	2	4.95	46.03	Average	54	Pass
NVNT	1-DH1	2480	Ant1	No-Hopping	2483.5	-45.99	2	-	51.27	Peak	74	Pass
NVNT	1-DH1	2480	Ant1	No-Hopping	2483.5	-54.41	2	4.95	47.8	Average	54	Pass
NVNT	1-DH1	2480	Ant1	No-Hopping	2484.712	-41.43	2	-	55.83	Peak	74	Pass
NVNT	1-DH1	2480	Ant1	No-Hopping	2483.992	-53.88	2	4.95	48.33	Average	54	Pass
NVNT	1-DH1	2480	Ant1	No-Hopping	2500	-48.02	2	-	49.24	Peak	74	Pass
NVNT	1-DH1	2480	Ant1	No-Hopping	2500	-56.04	2	4.95	46.17	Average	54	Pass
NVNT	2-DH1	2402	Ant1	No-Hopping	2310	-47.85	2	-	49.41	Peak	74	Pass
NVNT	2-DH1	2402	Ant1	No-Hopping	2310	-56.19	2	4.84	45.91	Average	54	Pass
NVNT	2-DH1	2402	Ant1	No-Hopping	2371.536	-44.77	2	-	52.49	Peak	74	Pass
NVNT	2-DH1	2402	Ant1	No-Hopping	2377.392	-55.08	2	4.84	47.02	Average	54	Pass
NVNT	2-DH1	2402	Ant1	No-Hopping	2390	-46.23	2	-	51.03	Peak	74	Pass
NVNT	2-DH1	2402	Ant1	No-Hopping	2390	-56.02	2	4.84	46.08	Average	54	Pass
NVNT	2-DH1	2480	Ant1	No-Hopping	2483.5	-45.6	2	-	51.66	Peak	74	Pass
NVNT	2-DH1	2480	Ant1	No-Hopping	2483.5	-55.08	2	4.84	47.02	Average	54	Pass
NVNT	2-DH1	2480	Ant1	No-Hopping	2483.848	-37.99	2	-	59.27	Peak	74	Pass
NVNT	2-DH1	2480	Ant1	No-Hopping	2483.728	-54.24	2	4.84	47.86	Average	54	Pass
NVNT	2-DH1	2480	Ant1	No-Hopping	2500	-48.38	2	-	48.88	Peak	74	Pass
NVNT	2-DH1	2480	Ant1	No-Hopping	2500	-54.88	2	4.84	47.22	Average	54	Pass
NVNT	3-DH1	2402	Ant1	No-Hopping	2310	-48.31	2	-	48.95	Peak	74	Pass
NVNT	3-DH1	2402	Ant1	No-Hopping	2310	-56.17	2	4.84	45.93	Average	54	Pass
NVNT	3-DH1	2402	Ant1	No-Hopping	2370	-45.28	2	-	51.98	Peak	74	Pass
NVNT	3-DH1	2402	Ant1	No-Hopping	2375.664	-55.1	2	4.84	47	Average	54	Pass
NVNT	3-DH1	2402	Ant1	No-Hopping	2390	-47.39	2	-	49.87	Peak	74	Pass
NVNT	3-DH1	2402	Ant1	No-Hopping	2390	-55.94	2	4.84	46.16	Average	54	Pass
NVNT	3-DH1	2480	Ant1	No-Hopping	2483.5	-46.04	2	-	51.22	Peak	74	Pass
NVNT	3-DH1	2480	Ant1	No-Hopping	2483.5	-54.53	2	4.84	47.57	Average	54	Pass
NVNT	3-DH1	2480	Ant1	No-Hopping	2483.776	-26.78	2	-	70.48	Peak	74	Pass
NVNT	3-DH1	2480	Ant1	No-Hopping	2483.944	-49.38	2	4.84	52.72	Average	54	Pass
NVNT	3-DH1	2480	Ant1	No-Hopping	2500	-46.43	2	-	50.83	Peak	74	Pass
NVNT	3-DH1	2480	Ant1	No-Hopping	2500	-55.44	2	4.84	46.66	Average	54	Pass

Test Graphs

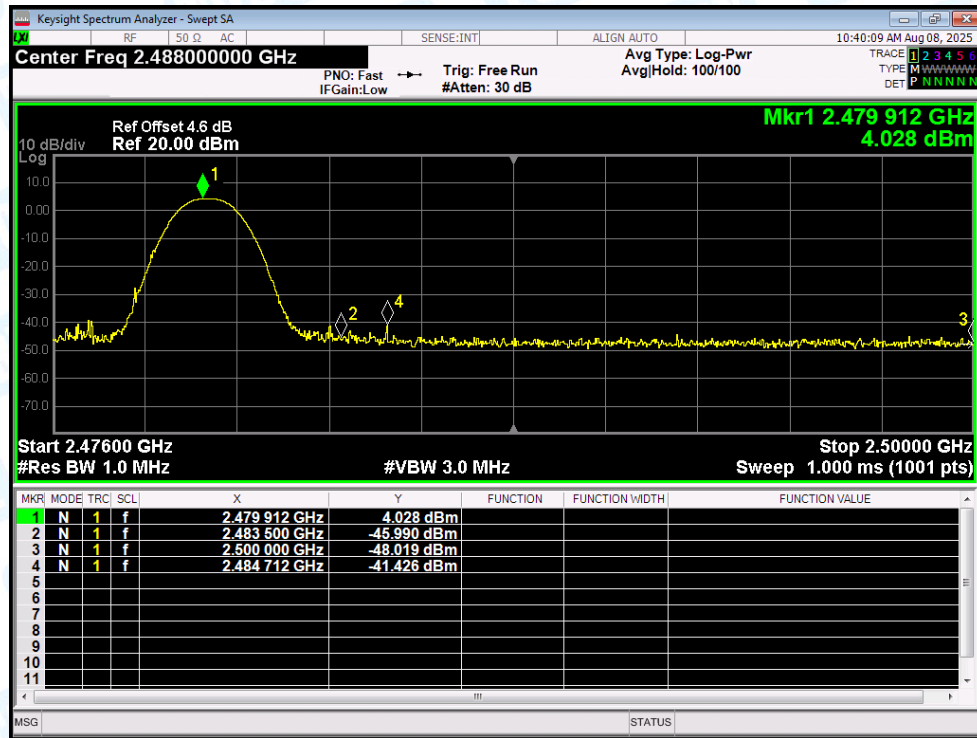
Restrict Band NVNT 1-DH1 2402MHz Ant1 No-Hopping Peak



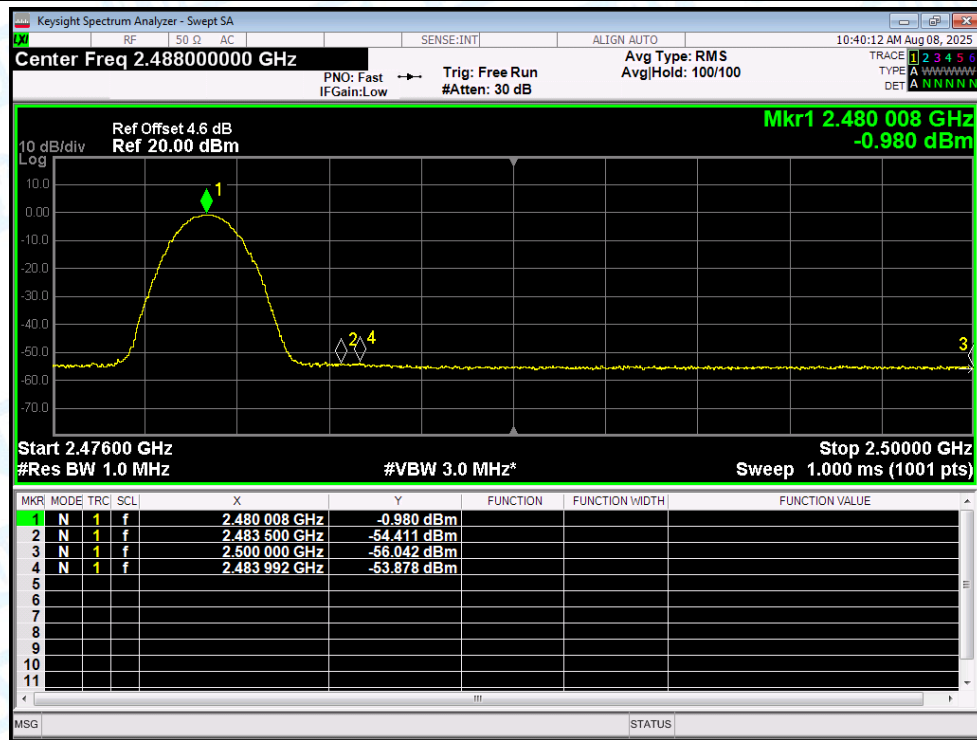
Restrict Band NVNT 1-DH1 2402MHz Ant1 No-Hopping Average



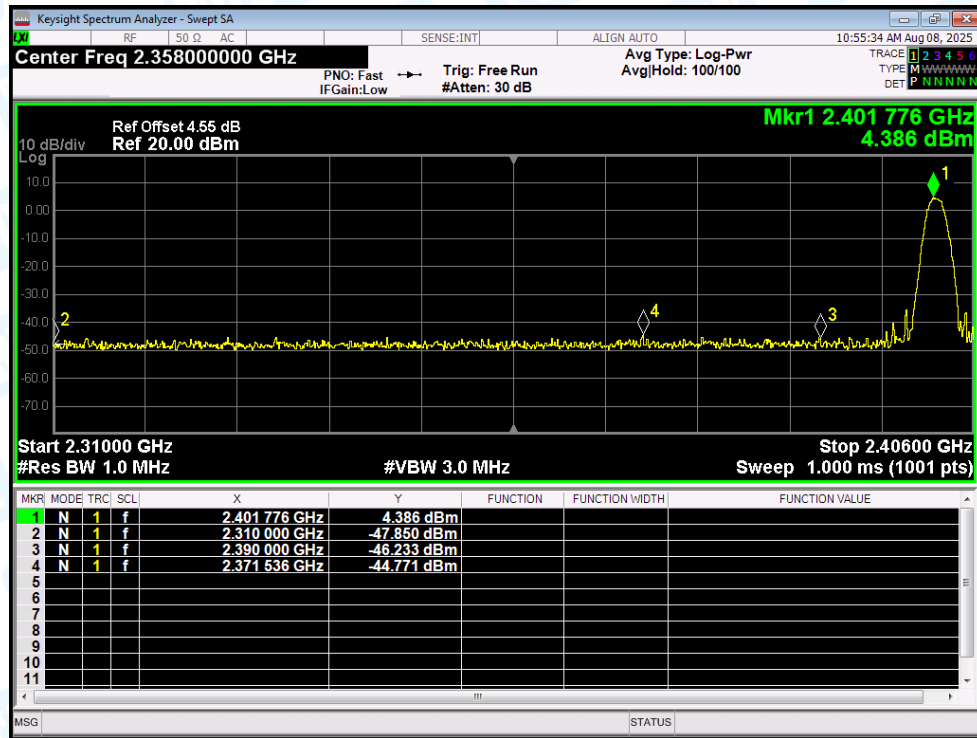
Restrict Band NVNT 1-DH1 2480MHz Ant1 No-Hopping Peak



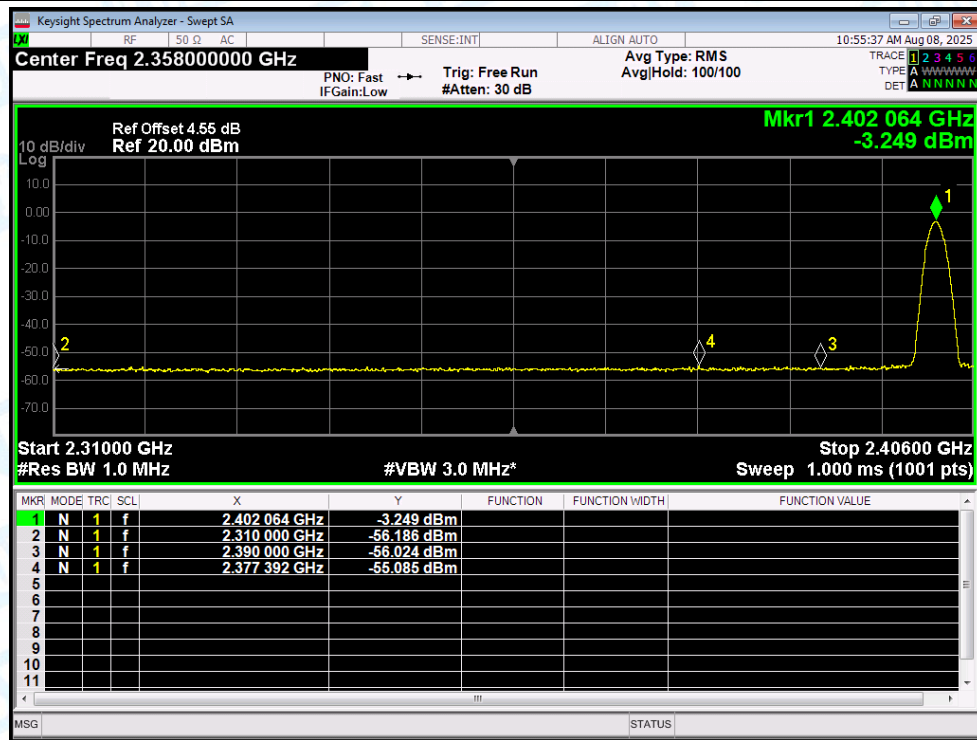
Restrict Band NVNT 1-DH1 2480MHz Ant1 No-Hopping Average



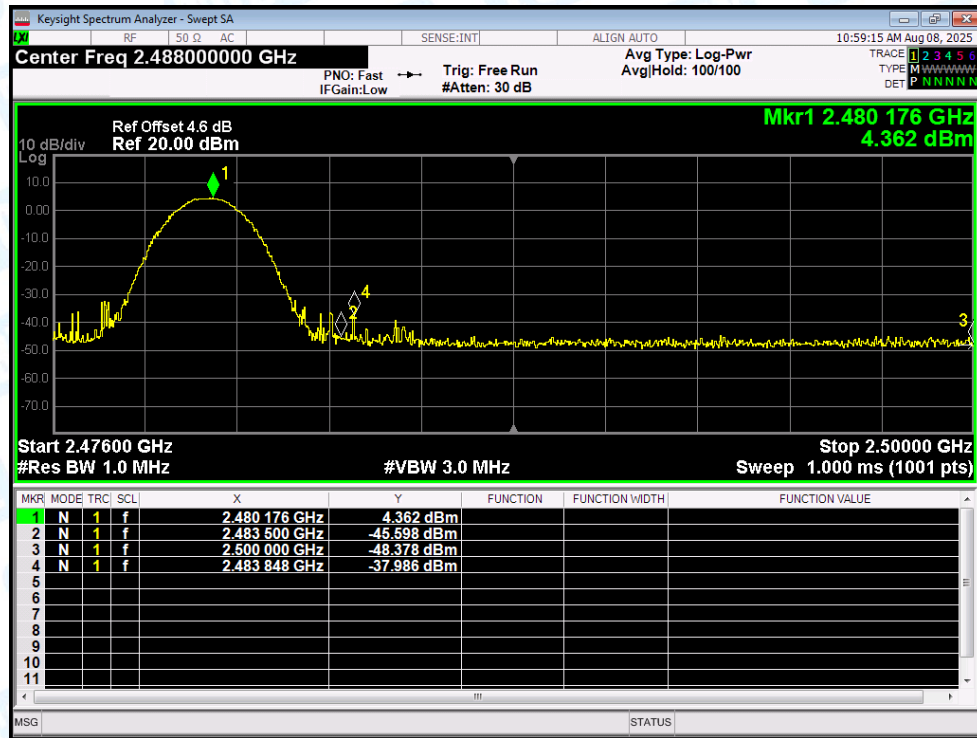
Restrict Band NVNT 2-DH1 2402MHz Ant1 No-Hopping Peak



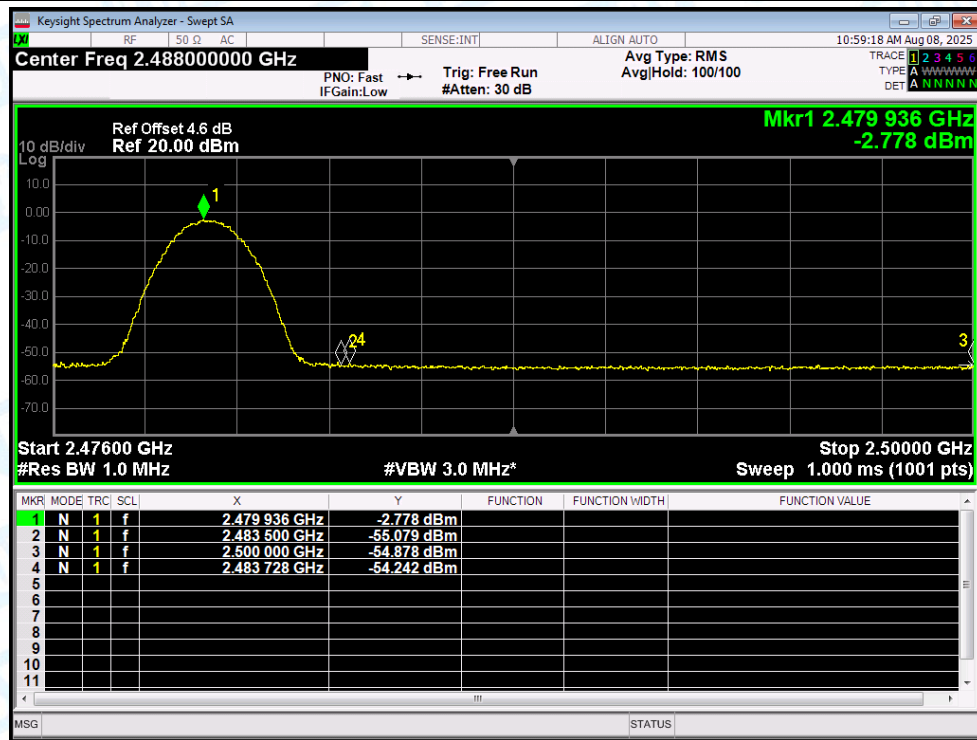
Restrict Band NVNT 2-DH1 2402MHz Ant1 No-Hopping Average



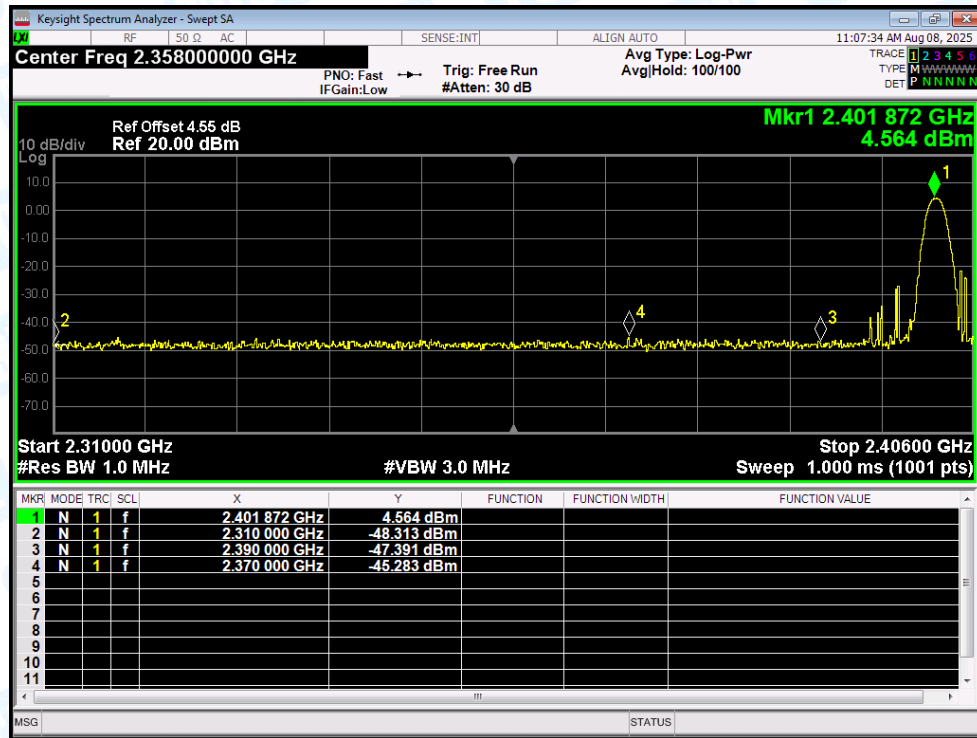
Restrict Band NVNT 2-DH1 2480MHz Ant1 No-Hopping Peak



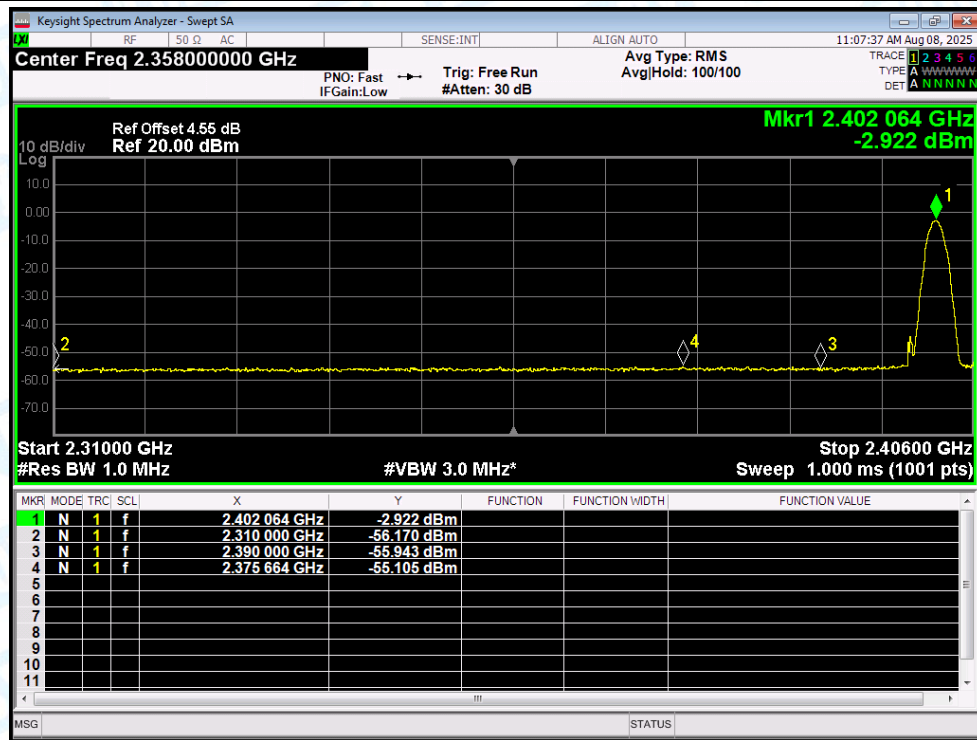
Restrict Band NVNT 2-DH1 2480MHz Ant1 No-Hopping Average



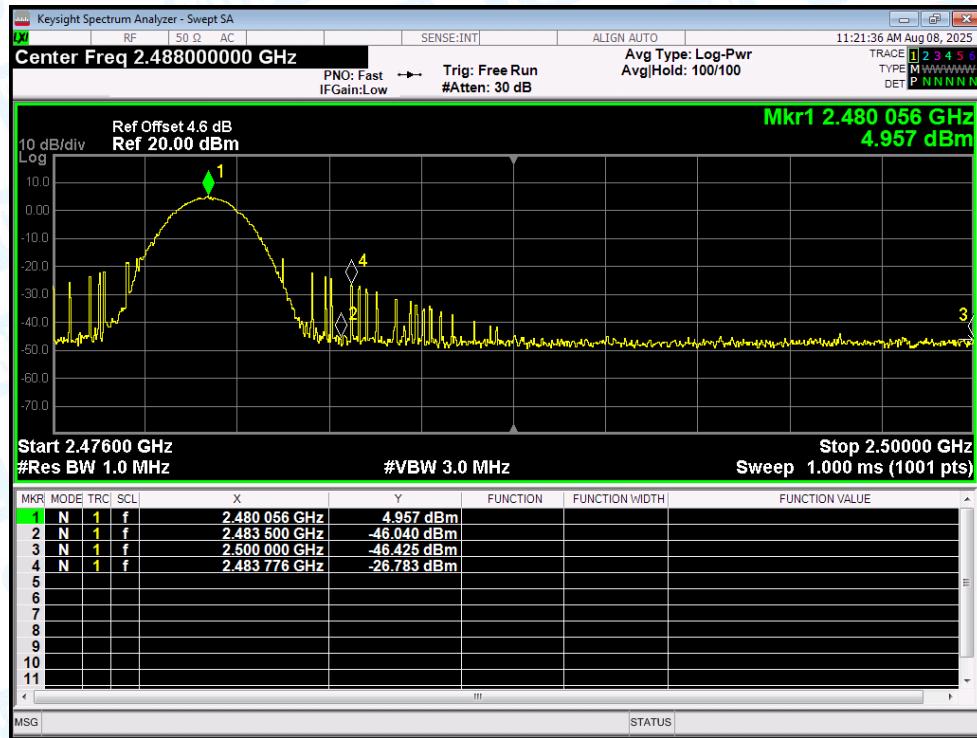
Restrict Band NVNT 3-DH1 2402MHz Ant1 No-Hopping Peak



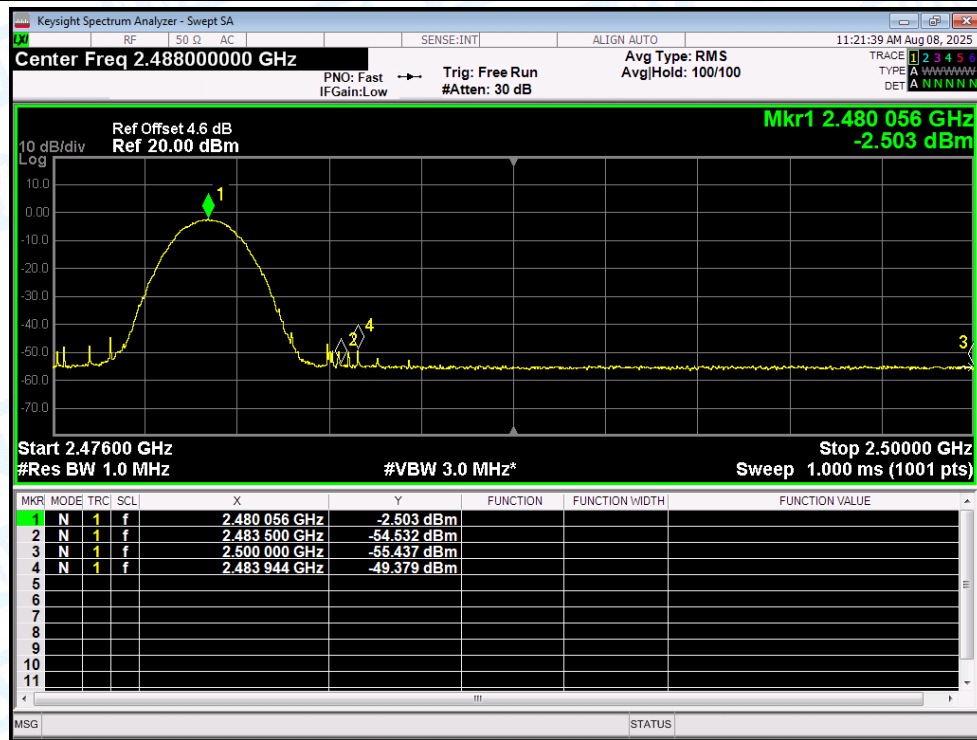
Restrict Band NVNT 3-DH1 2402MHz Ant1 No-Hopping Average



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



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



9. Carrier Frequencies Separation

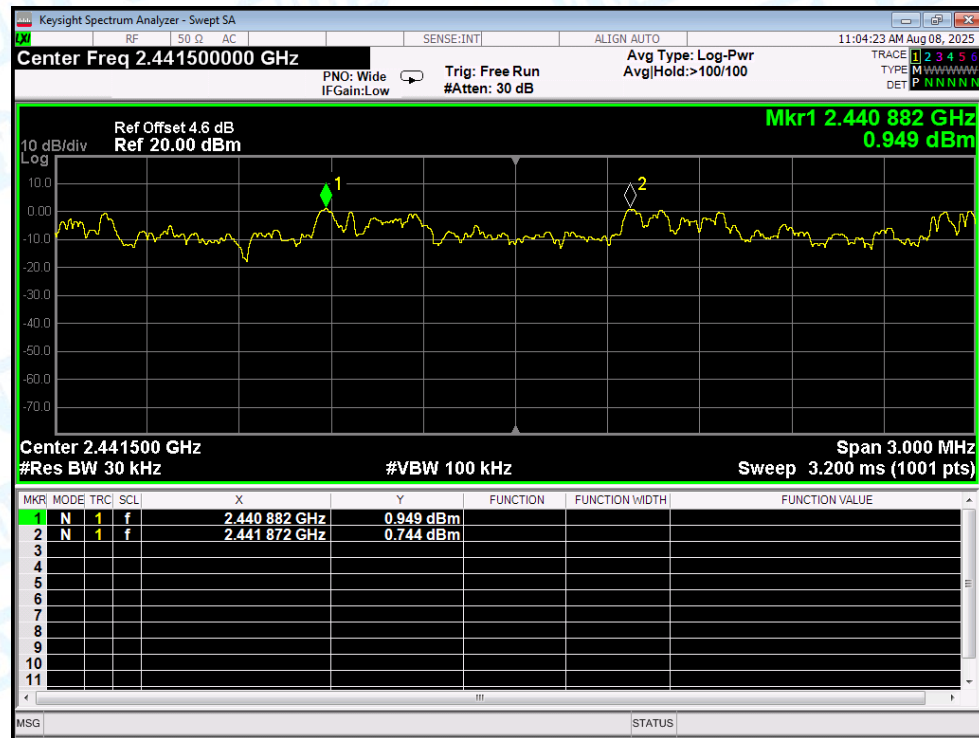
Condition	Mode	Antenna	Hopping Freq1 (MHz)	Hopping Freq2 (MHz)	HFS (MHz)	Limit (MHz)	Verdict
NVNT	1-DH1	Ant1	2440.879	2441.881	1.002	0.58	Pass
NVNT	2-DH1	Ant1	2440.882	2441.872	0.99	0.82	Pass
NVNT	3-DH1	Ant1	2440.879	2442.196	1.317	0.827	Pass

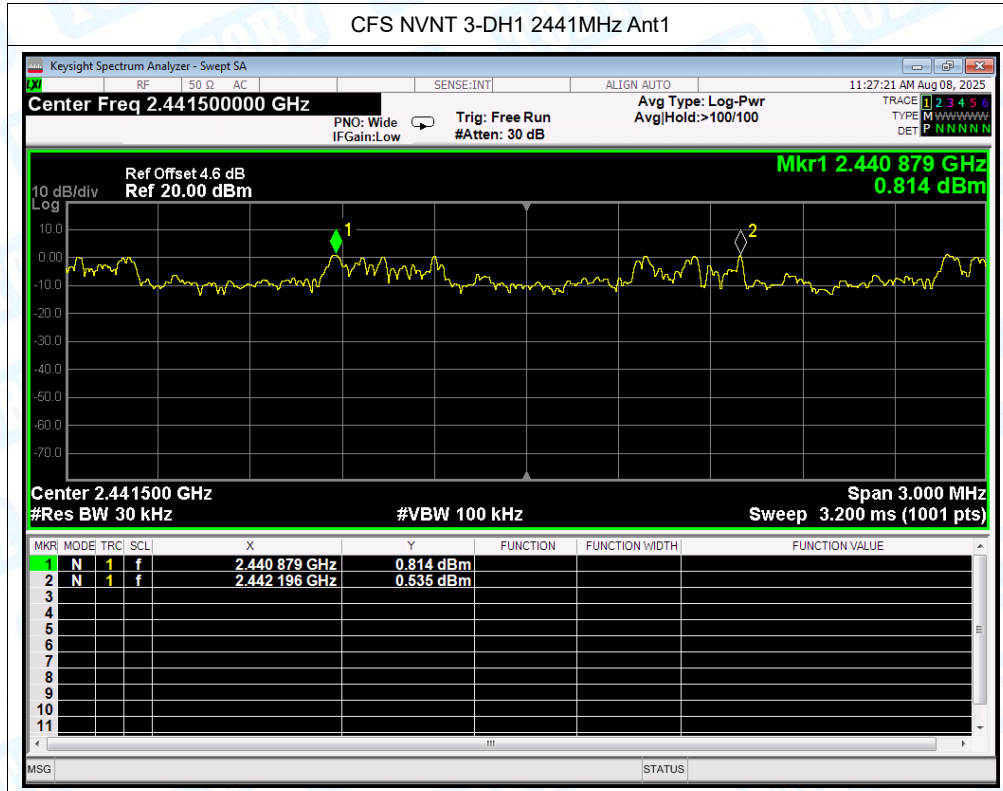
Test Graphs

CFS NVNT 1-DH1 2441MHz Ant1



CFS NVNT 2-DH1 2441MHz Ant1



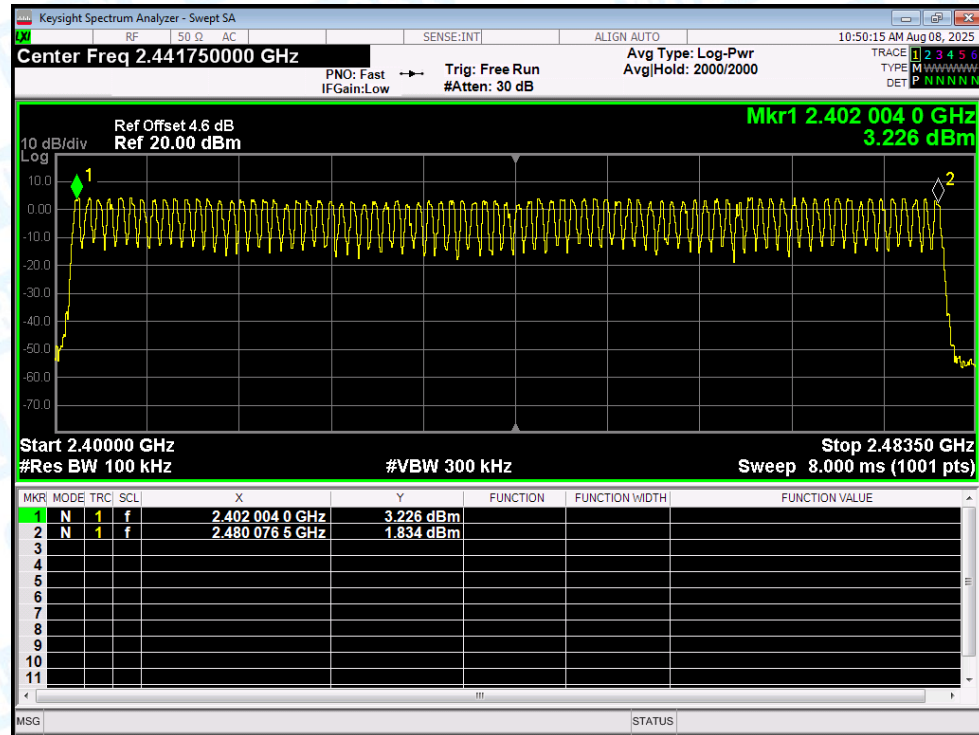


10.Number of Hopping Channel

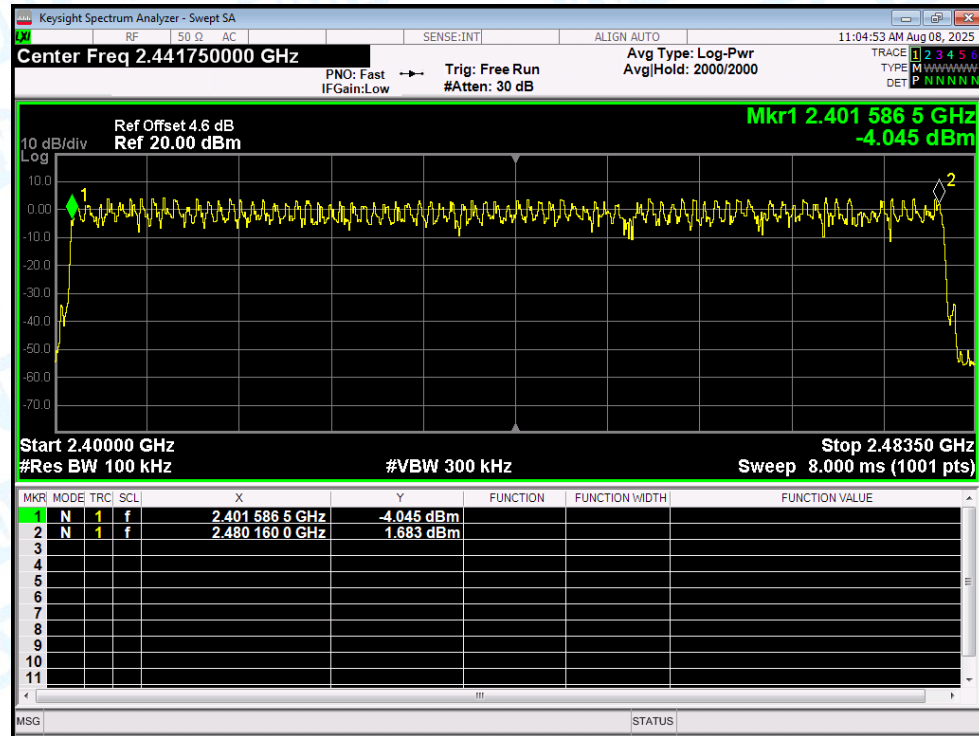
Condition	Mode	Antenna	Hopping Number	Limit	Verdict
NVNT	1-DH1	Ant1	79	15	Pass
NVNT	2-DH1	Ant1	79	15	Pass
NVNT	3-DH1	Ant1	79	15	Pass

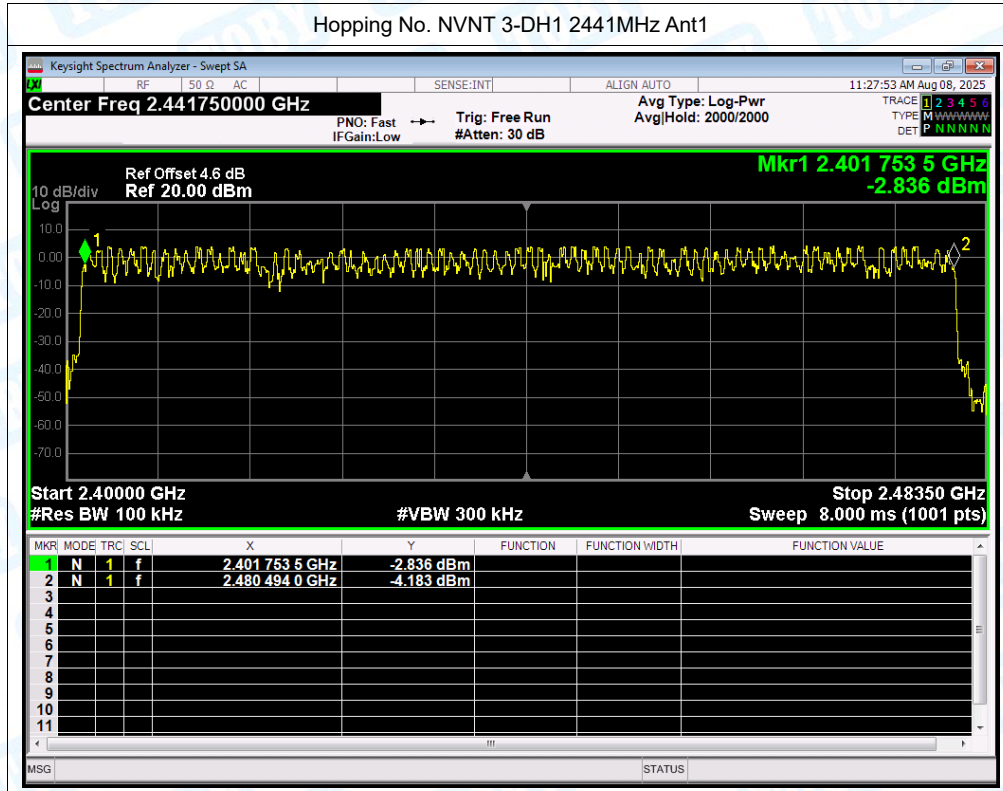
Test Graphs

Hopping No. NVNT 1-DH1 2441MHz Ant1



Hopping No. NVNT 2-DH1 2441MHz Ant1



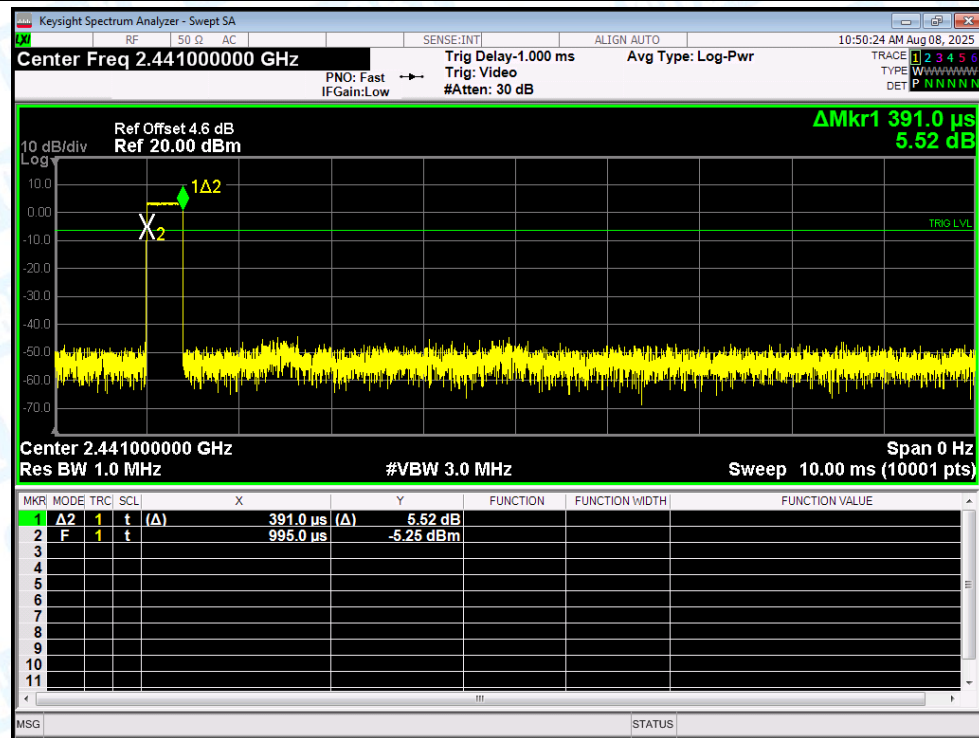


11.Dwell Time

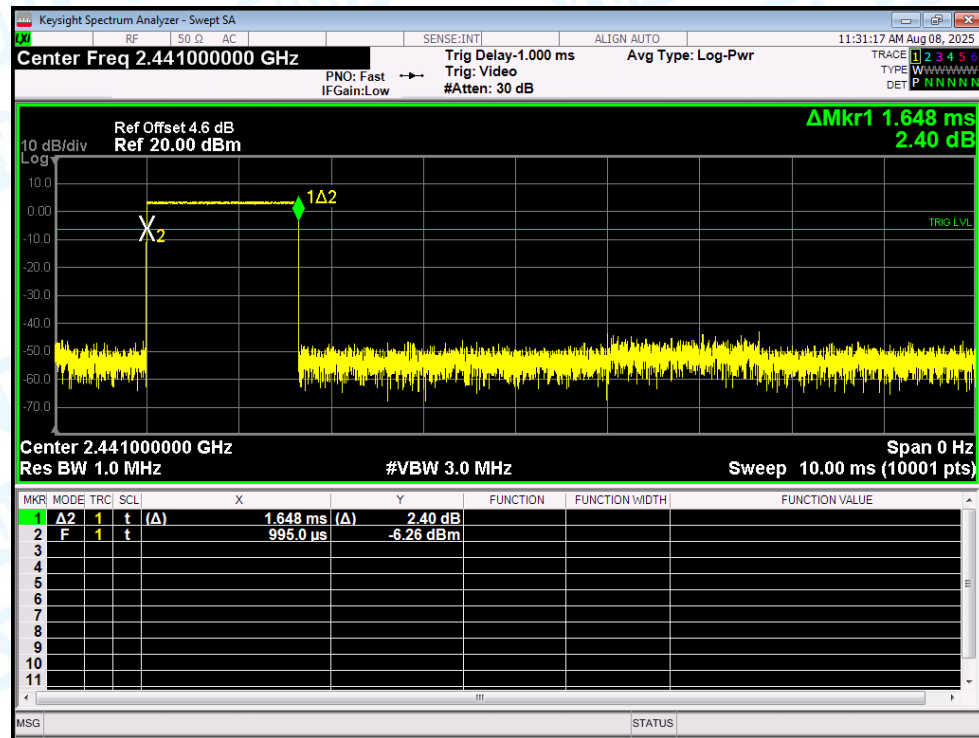
Condition	Mode	Frequency (MHz)	Antenna	Pulse Time (ms)	Total Dwell Time (ms)	Period Time (ms)	Limit (ms)	Verdict
NVNT	1-DH1	2441	Ant1	0.391	125.12	31600	400	Pass
NVNT	1-DH3	2441	Ant1	1.648	263.68	31600	400	Pass
NVNT	1-DH5	2441	Ant1	2.895	308.8	31600	400	Pass
NVNT	2-DH1	2441	Ant1	0.401	128.32	31600	400	Pass
NVNT	2-DH3	2441	Ant1	1.653	264.48	31600	400	Pass
NVNT	2-DH5	2441	Ant1	2.901	309.44	31600	400	Pass
NVNT	3-DH1	2441	Ant1	0.402	128.64	31600	400	Pass
NVNT	3-DH3	2441	Ant1	1.651	264.16	31600	400	Pass
NVNT	3-DH5	2441	Ant1	2.902	309.547	31600	400	Pass

Test Graphs

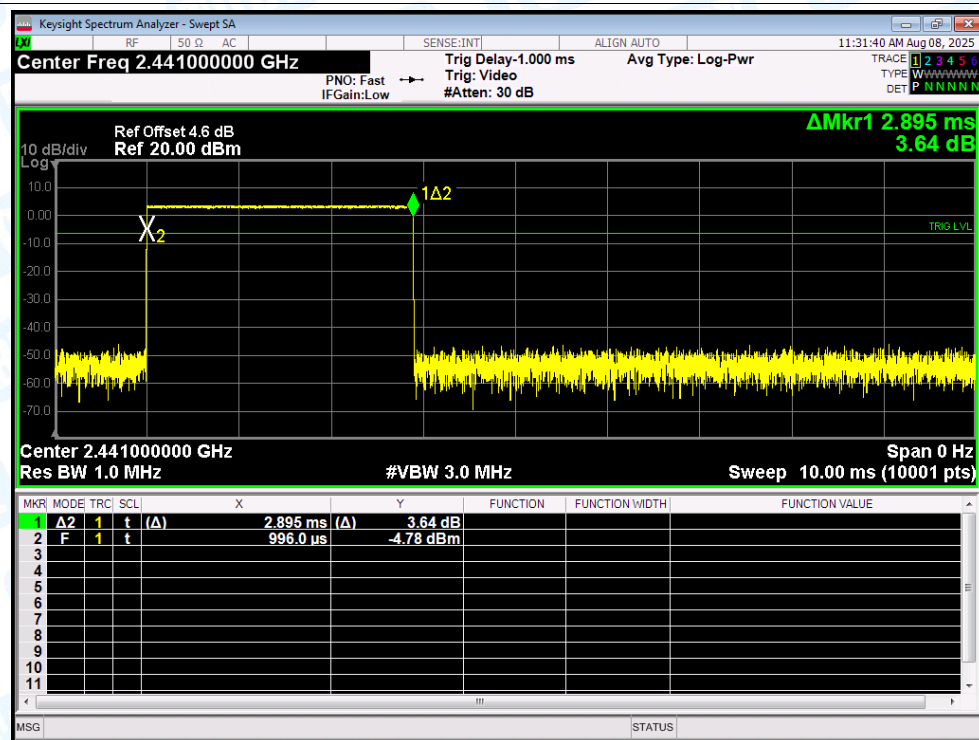
Dwell NVNT 1-DH1 2441MHz Ant1



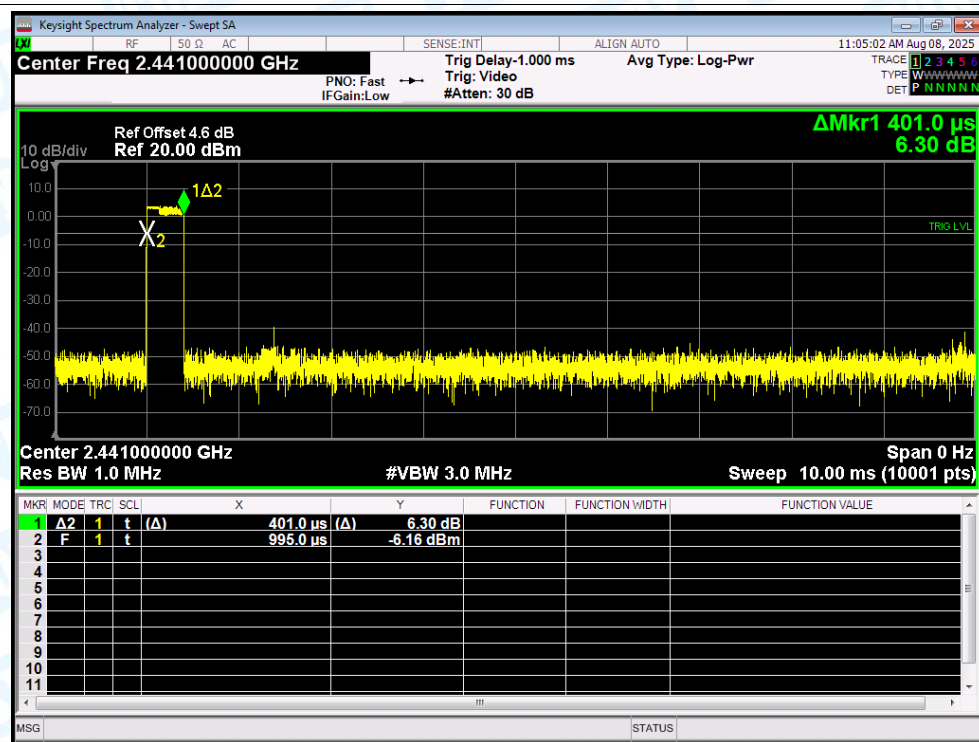
Dwell NVNT 1-DH3 2441MHz Ant1

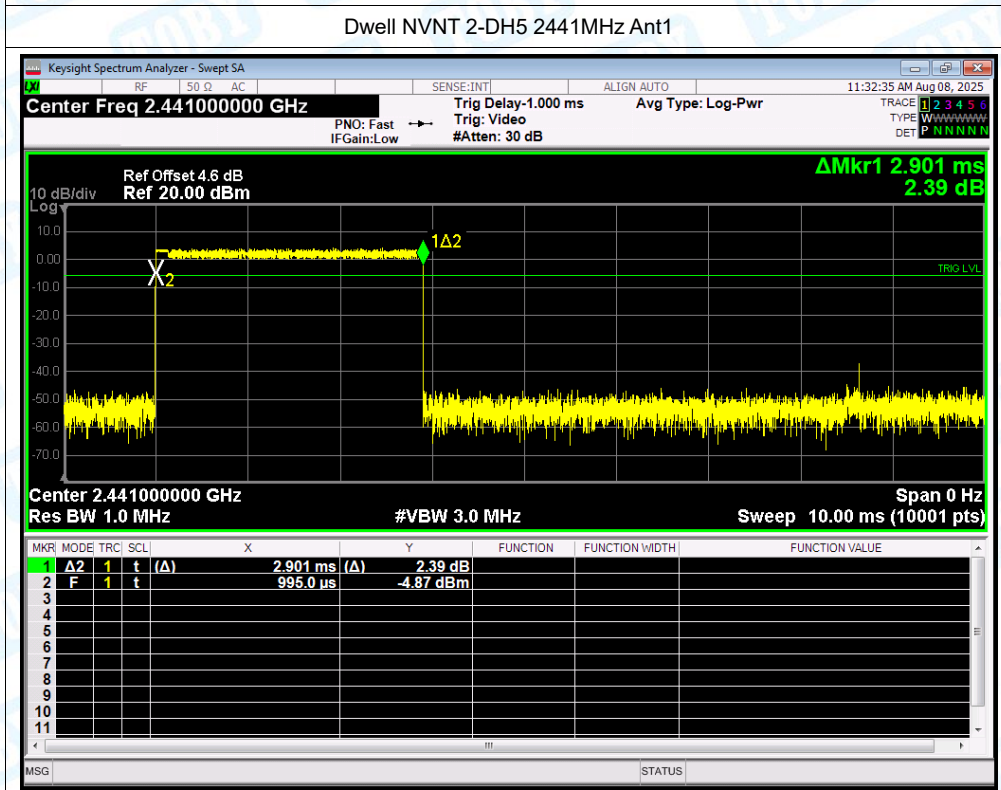
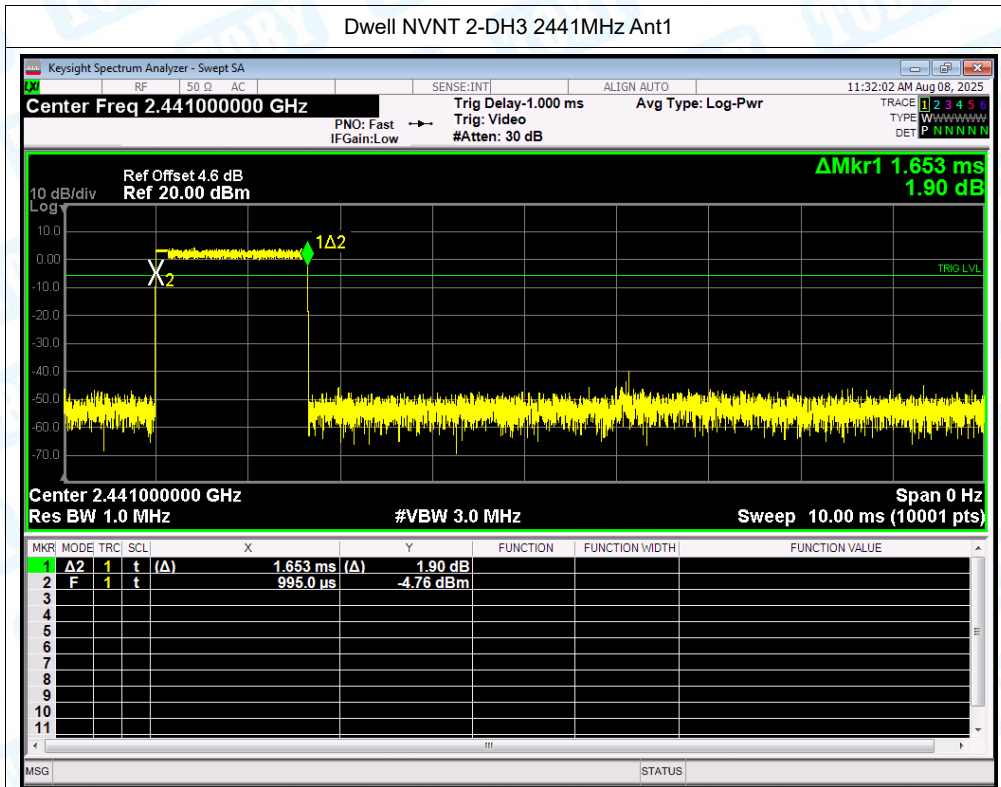


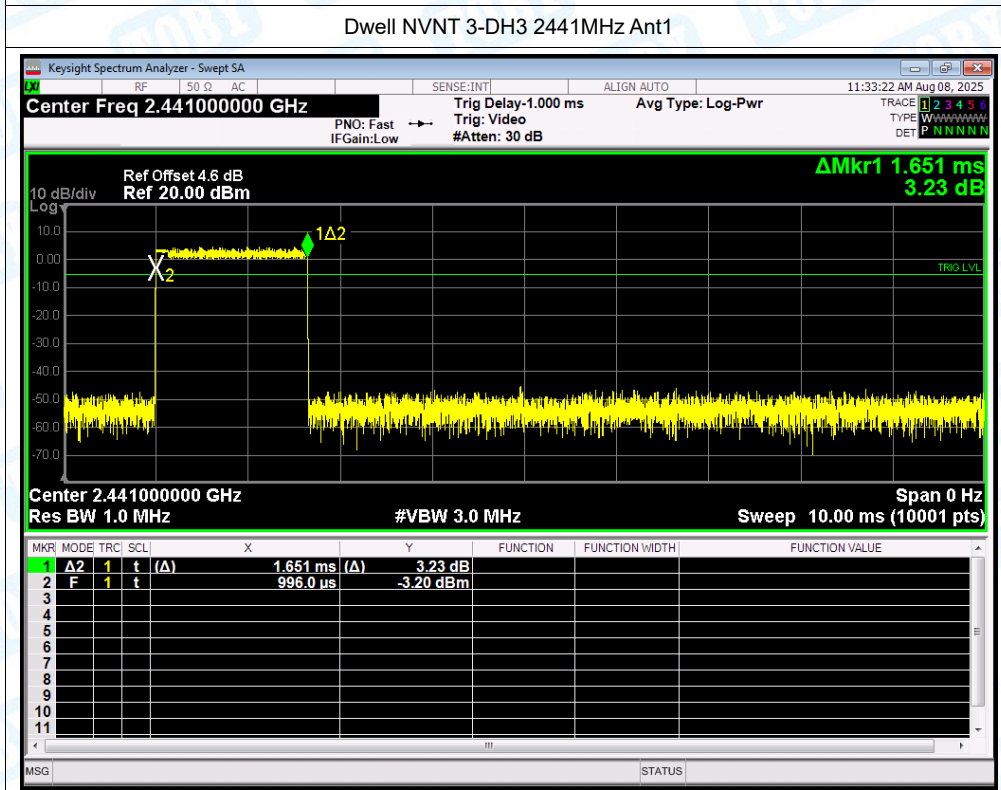
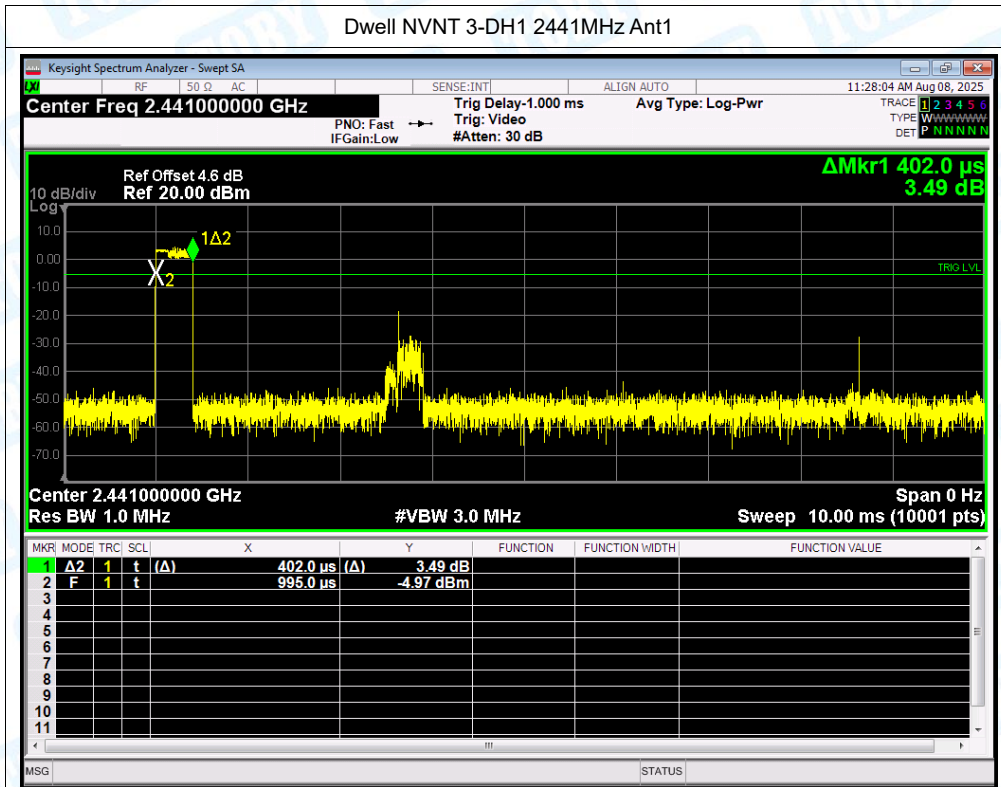
Dwell NVNT 1-DH5 2441MHz Ant1

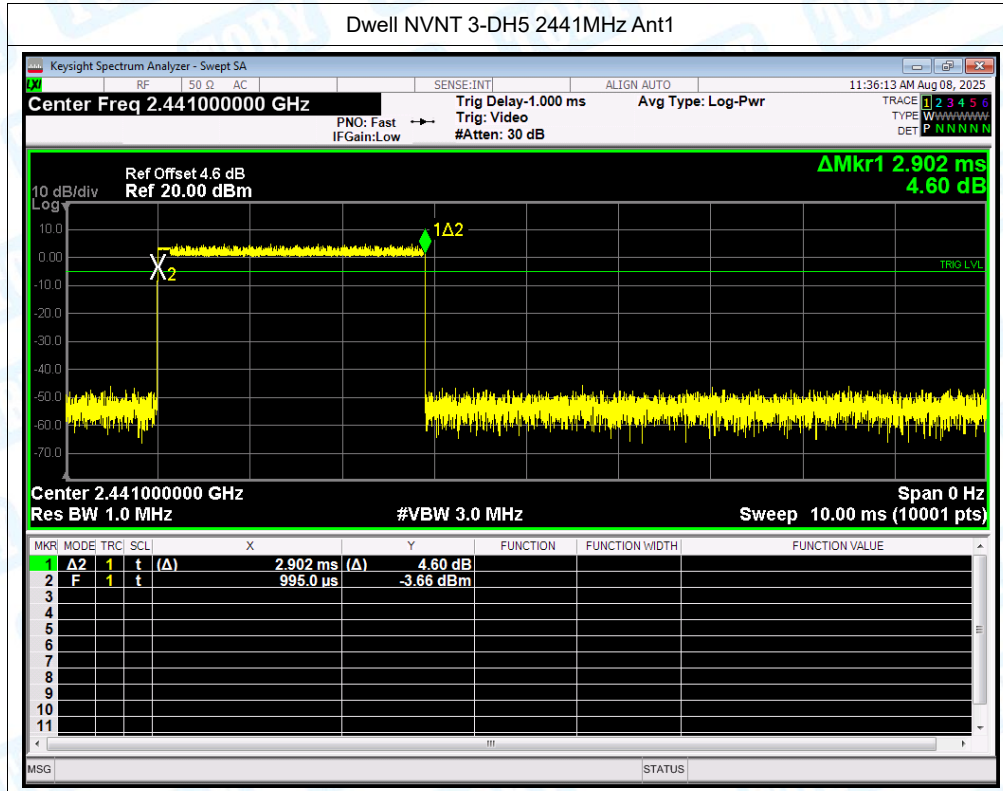


Dwell NVNT 2-DH1 2441MHz Ant1









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