

RF Test Data for Bluetooth (Conducted Measurements)

General Description of EUT	
Product Name:	Smart Watch
Test Model:	HK80
Sample ID:	HC-C-202411-0013-01-01-2#
Environmental Conditions	
Temperature:	23.8℃
Relative Humidity:	48%
Test Voltage:	DC 3.8V
Test Engineer:	ZKN ZHOU
Note: For a more detailed features description, please refer to the report TBR-C-202411-0013-5 The report only show the worst case data.	

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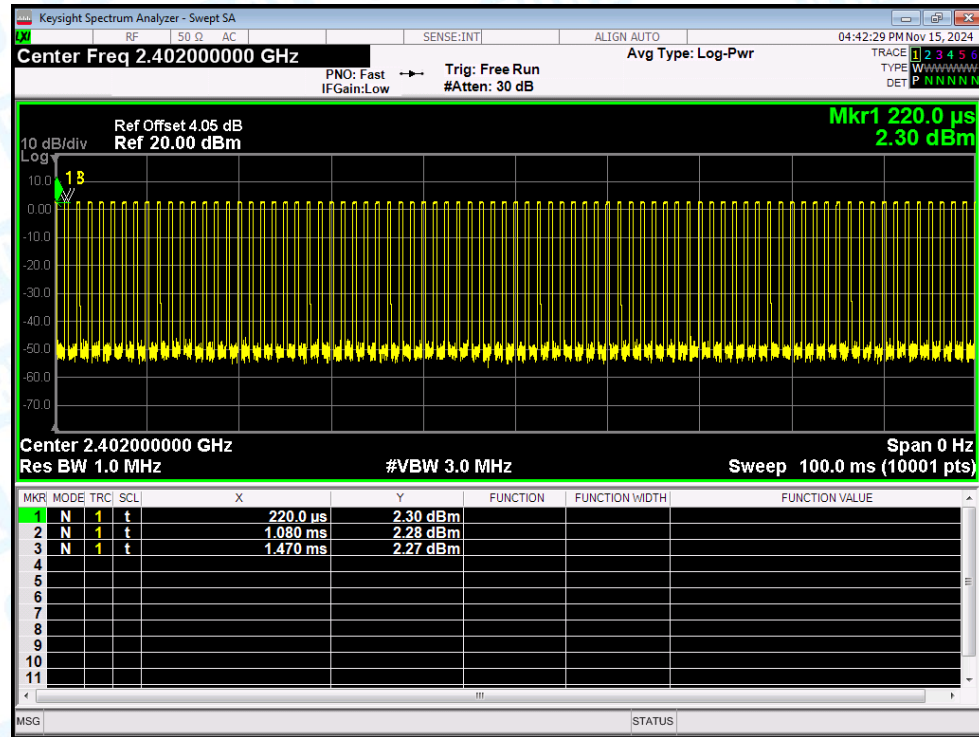
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1. Duty Cycle

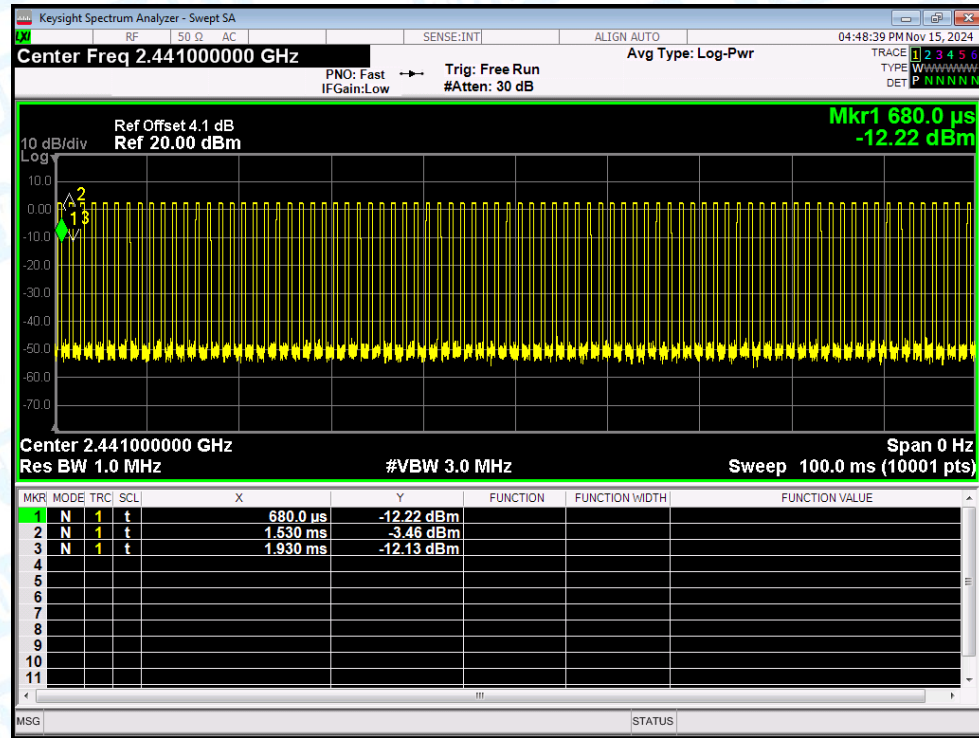
Condition	Mode	Frequency (MHz)	Antenna	Duty Cycle (%)	Correction Factor (dB)	1/T (kHz)
NVNT	1-DH1	2402	Ant1	31.2	5.06	2.56
NVNT	1-DH1	2441	Ant1	32	4.95	2.5
NVNT	1-DH1	2480	Ant1	31.2	5.06	2.56
NVNT	2-DH1	2402	Ant1	32	4.95	2.5
NVNT	2-DH1	2441	Ant1	32.8	4.84	2.44
NVNT	2-DH1	2480	Ant1	32.8	4.84	2.44
NVNT	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

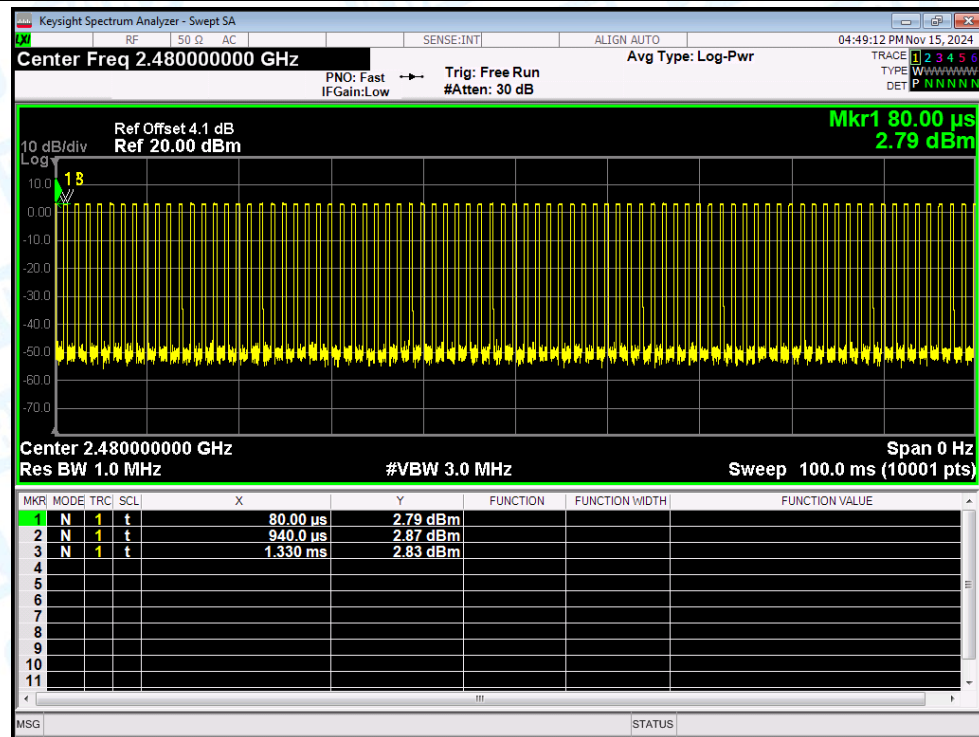
Duty Cycle NVNT 1-DH1 2402MHz Ant1



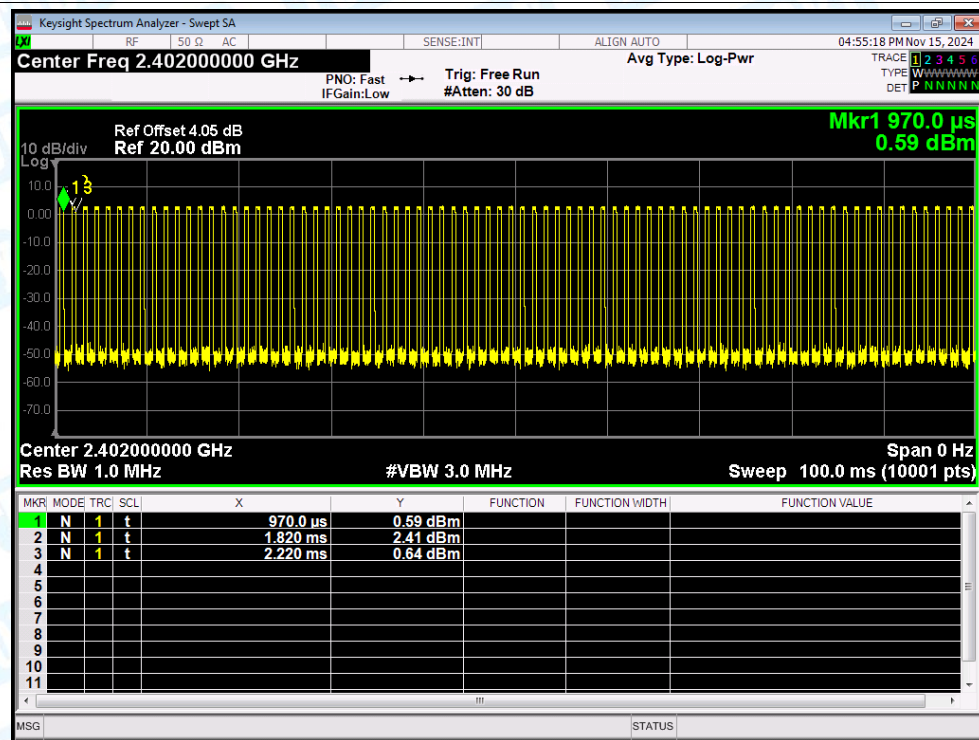
Duty Cycle NVNT 1-DH1 2441MHz Ant1



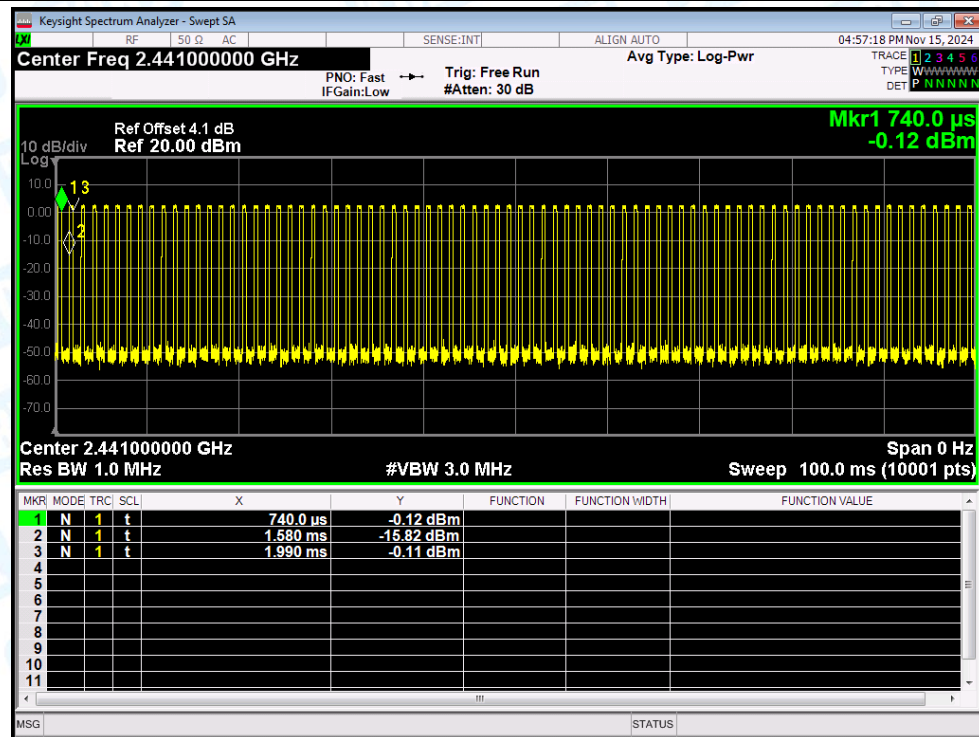
Duty Cycle NVNT 1-DH1 2480MHz Ant1



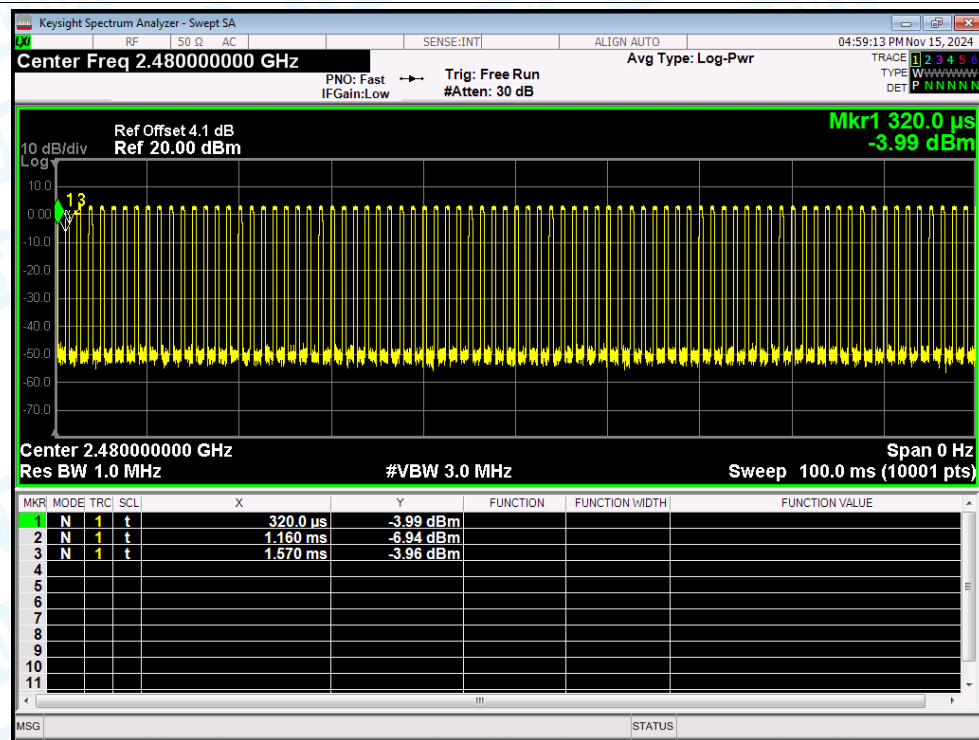
Duty Cycle NVNT 2-DH1 2402MHz Ant1



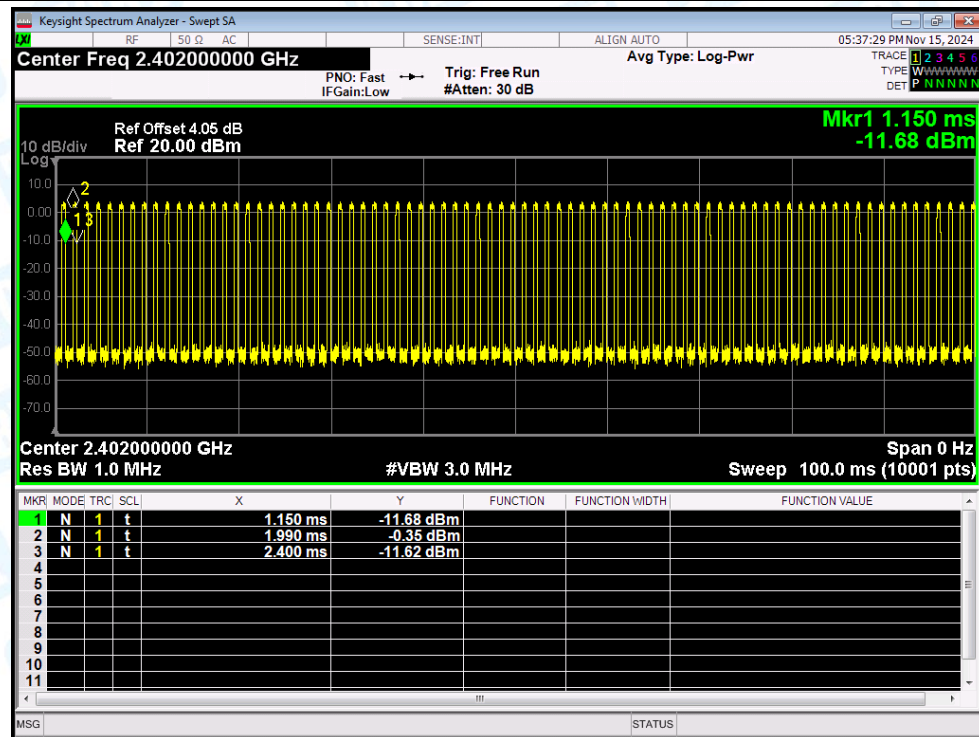
Duty Cycle NVNT 2-DH1 2441MHz Ant1



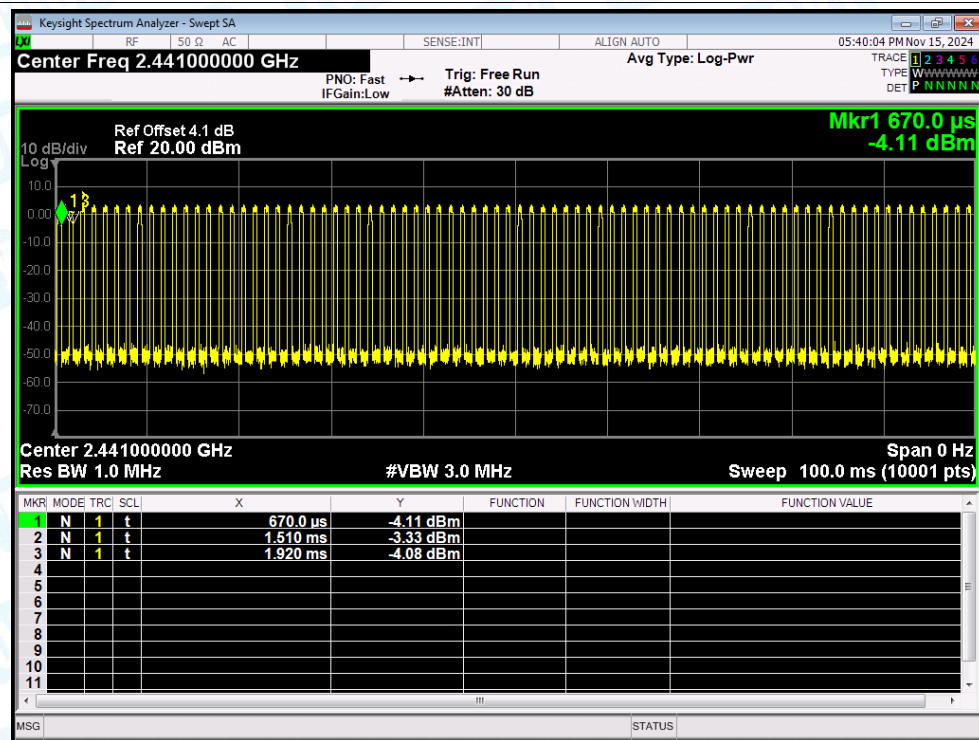
Duty Cycle NVNT 2-DH1 2480MHz Ant1

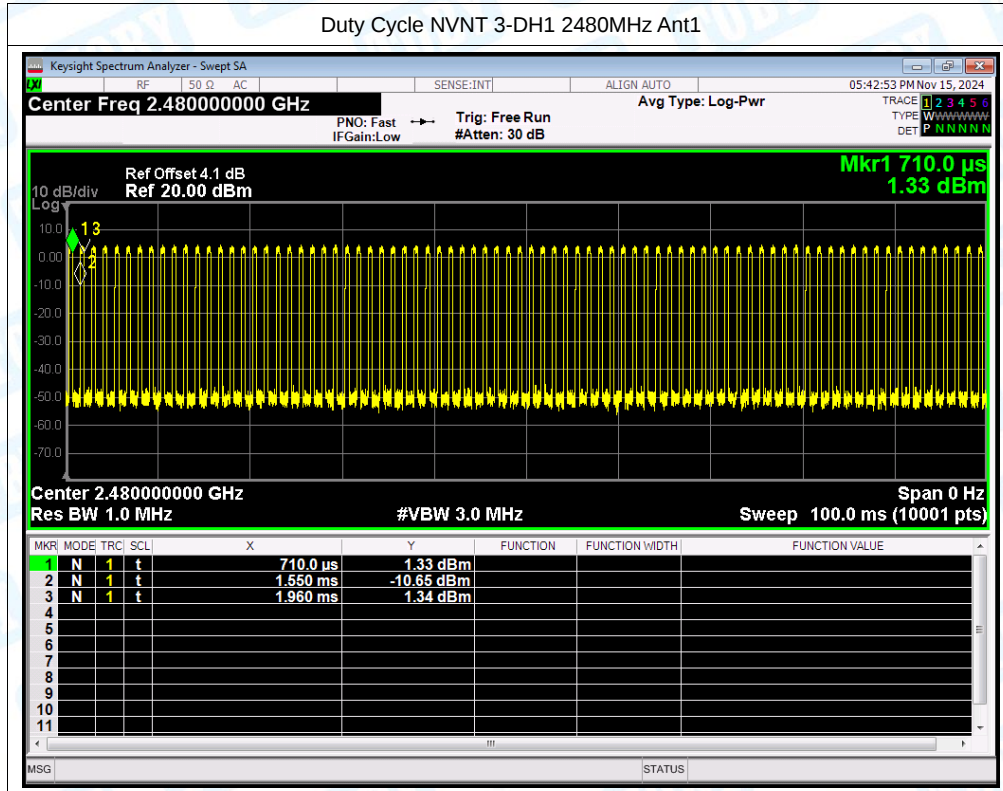


Duty Cycle NVNT 3-DH1 2402MHz Ant1



Duty Cycle NVNT 3-DH1 2441MHz Ant1



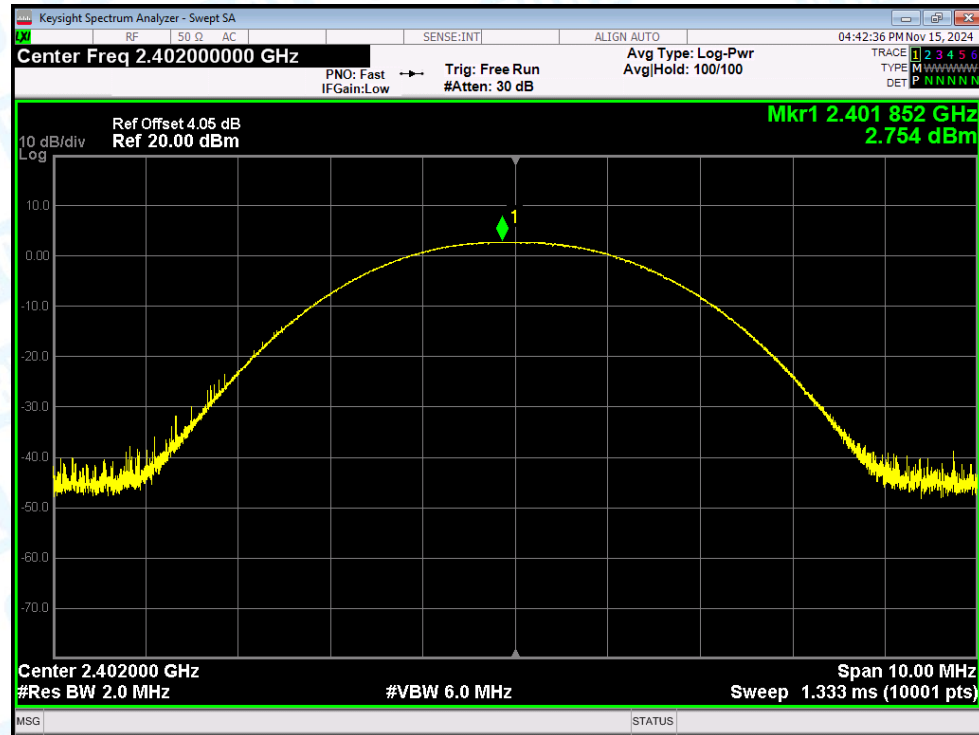


2. Maximum Conducted Peak Output Power

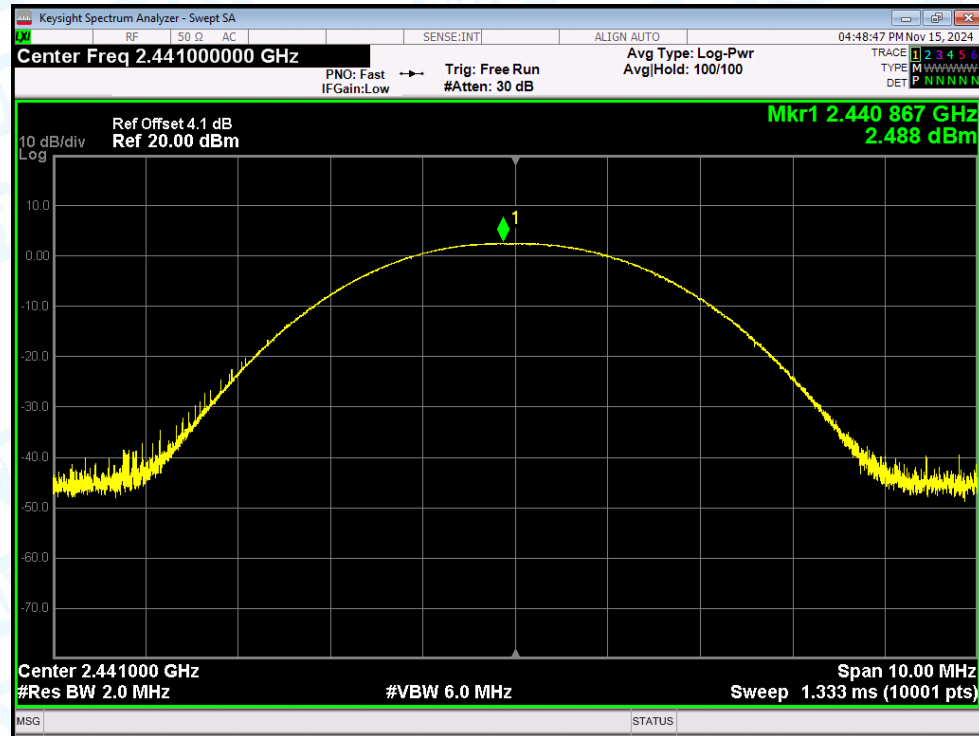
Condition	Mode	Frequency (MHz)	Antenna	Conducted Power (dBm)	Limit (dBm)	Verdict
NVNT	1-DH1	2402	Ant1	2.754	21	Pass
NVNT	1-DH1	2441	Ant1	2.488	21	Pass
NVNT	1-DH1	2480	Ant1	3.286	21	Pass
NVNT	2-DH1	2402	Ant1	3.419	21	Pass
NVNT	2-DH1	2441	Ant1	3.088	21	Pass
NVNT	2-DH1	2480	Ant1	3.491	21	Pass
NVNT	3-DH1	2402	Ant1	4.327	21	Pass
NVNT	3-DH1	2441	Ant1	4.025	21	Pass
NVNT	3-DH1	2480	Ant1	4.859	21	Pass

Test Graphs

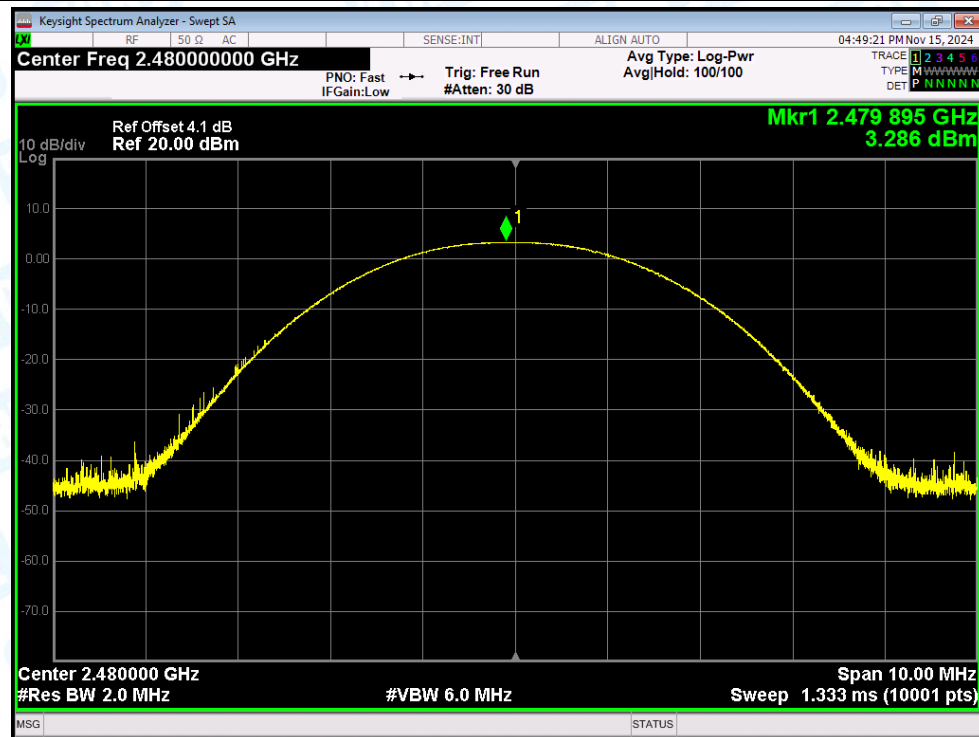
Power NVNT 1-DH1 2402MHz Ant1



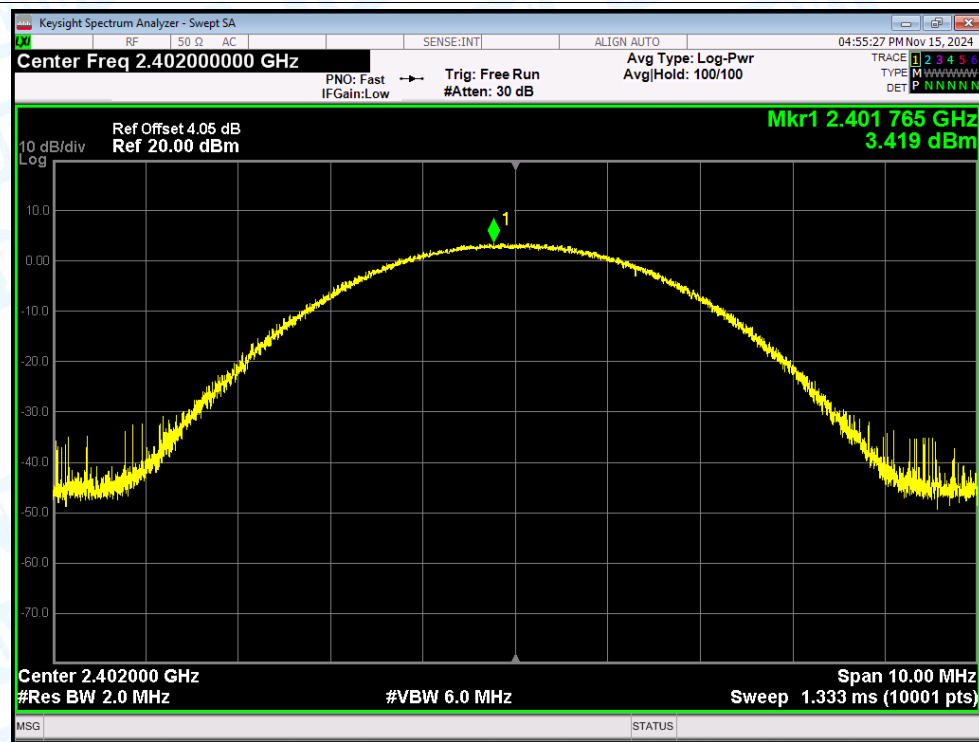
Power NVNT 1-DH1 2441MHz Ant1



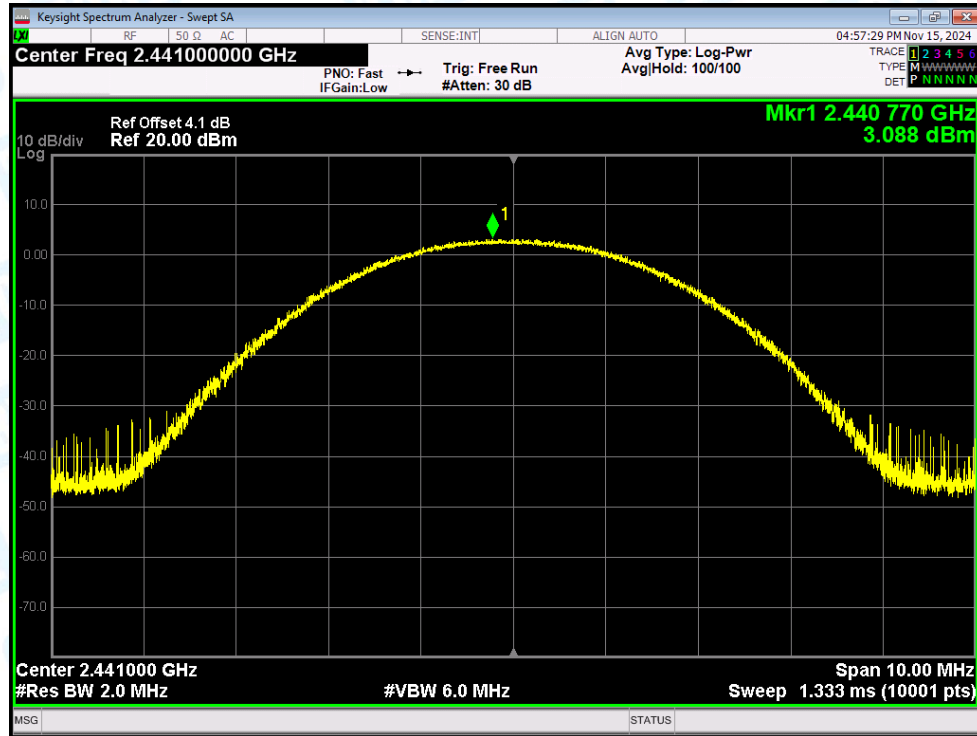
Power NVNT 1-DH1 2480MHz Ant1



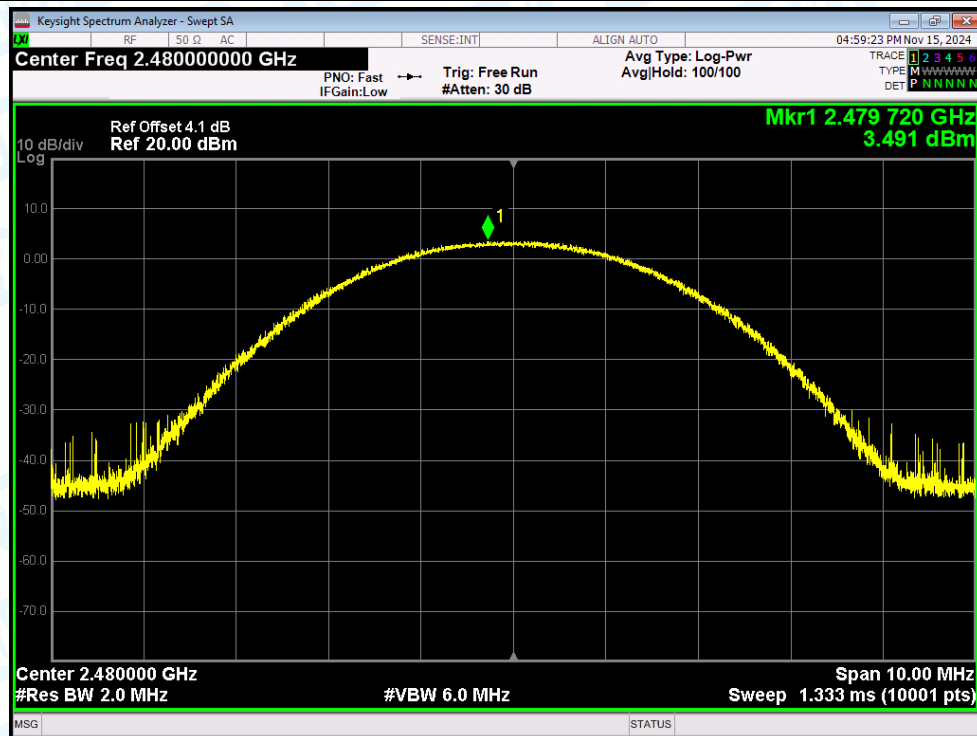
Power NVNT 2-DH1 2402MHz Ant1



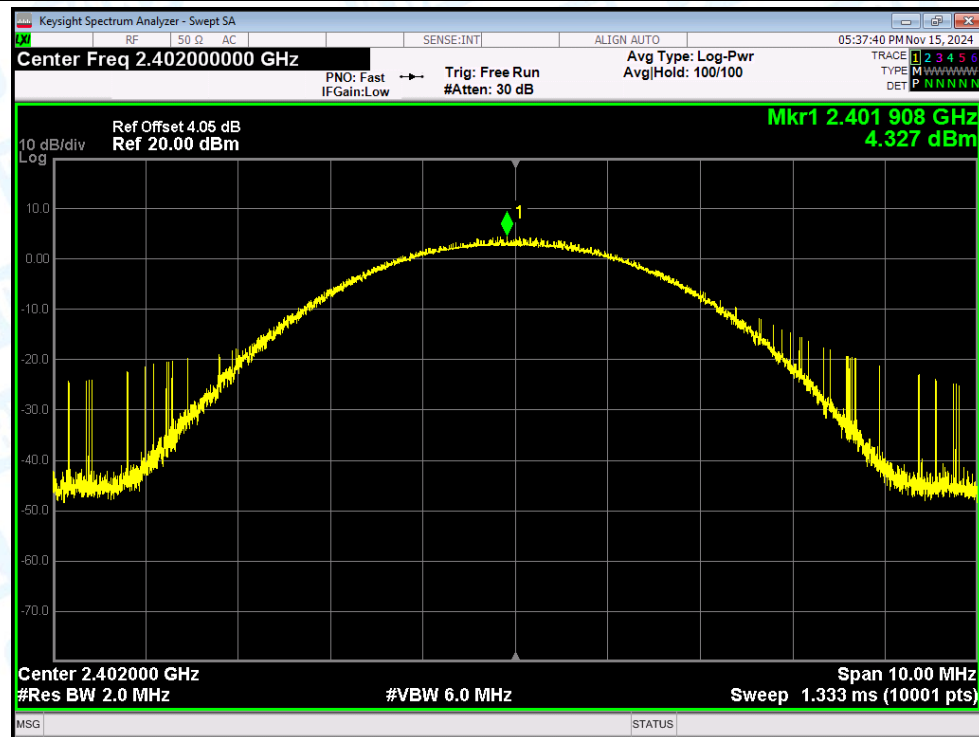
Power NVNT 2-DH1 2441MHz Ant1



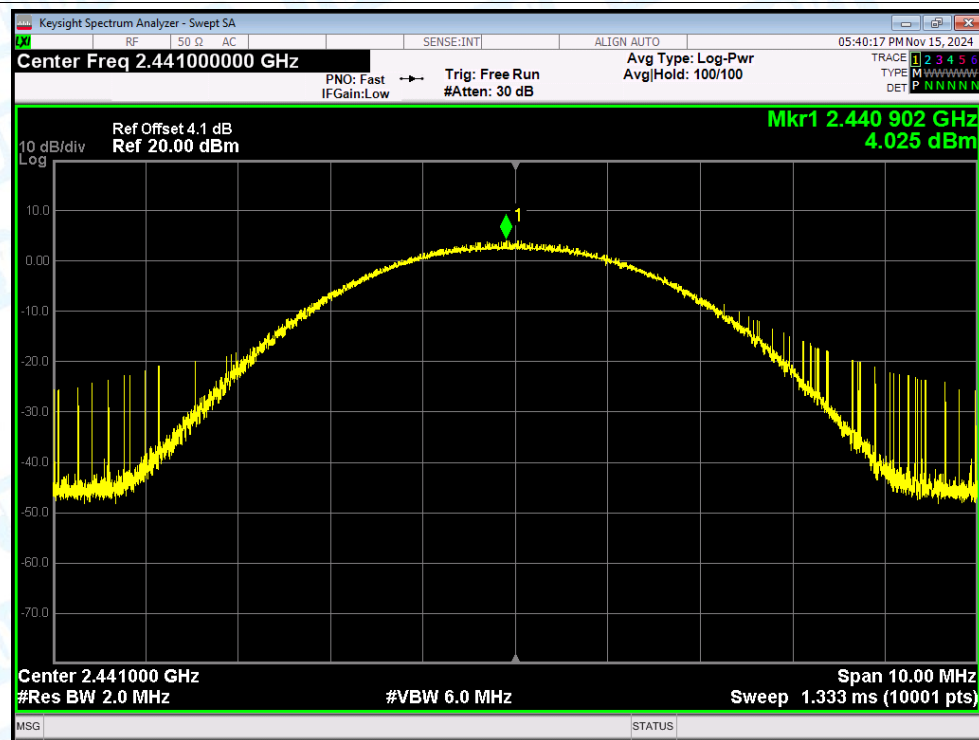
Power NVNT 2-DH1 2480MHz Ant1

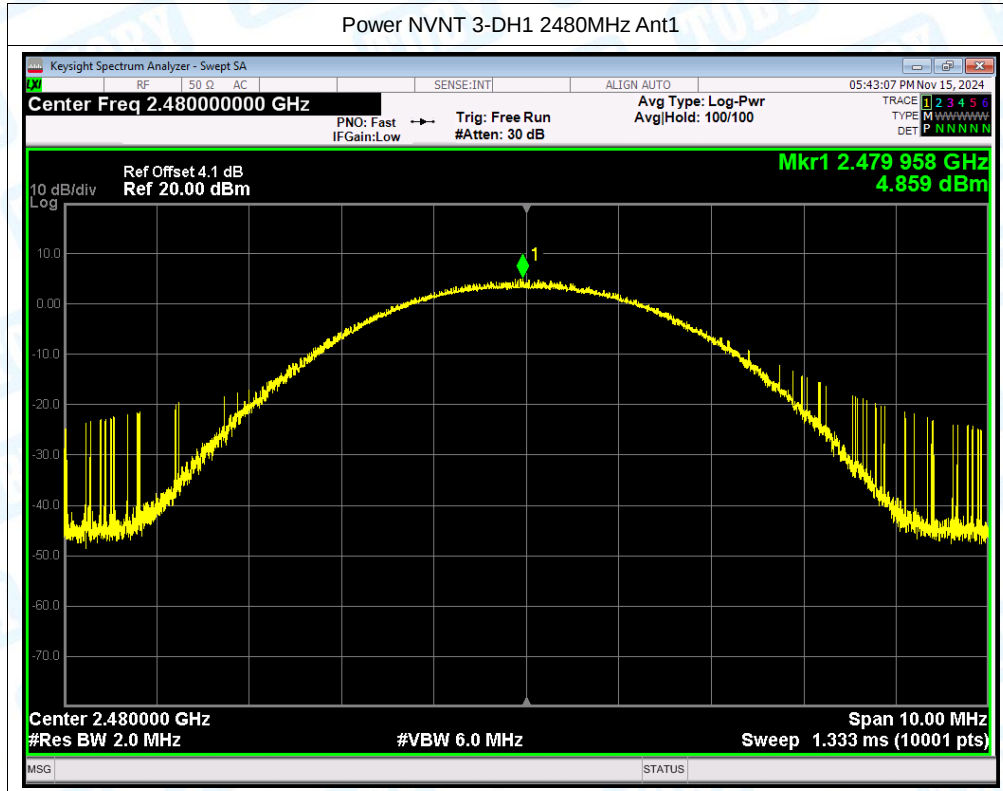


Power NVNT 3-DH1 2402MHz Ant1



Power NVNT 3-DH1 2441MHz Ant1



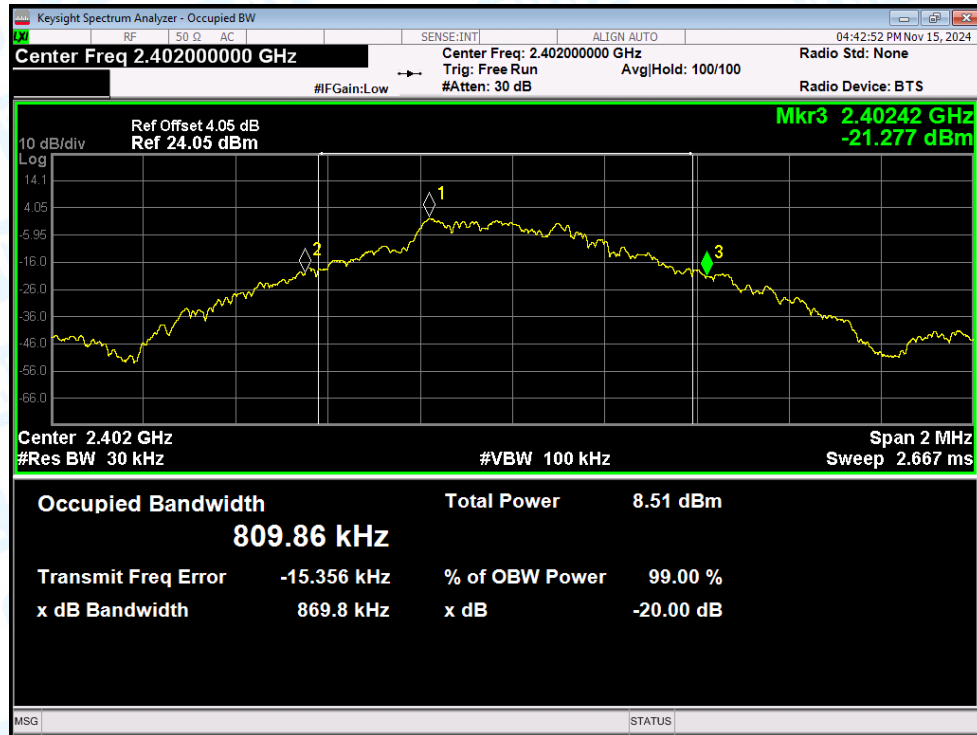


3. -20dB Bandwidth

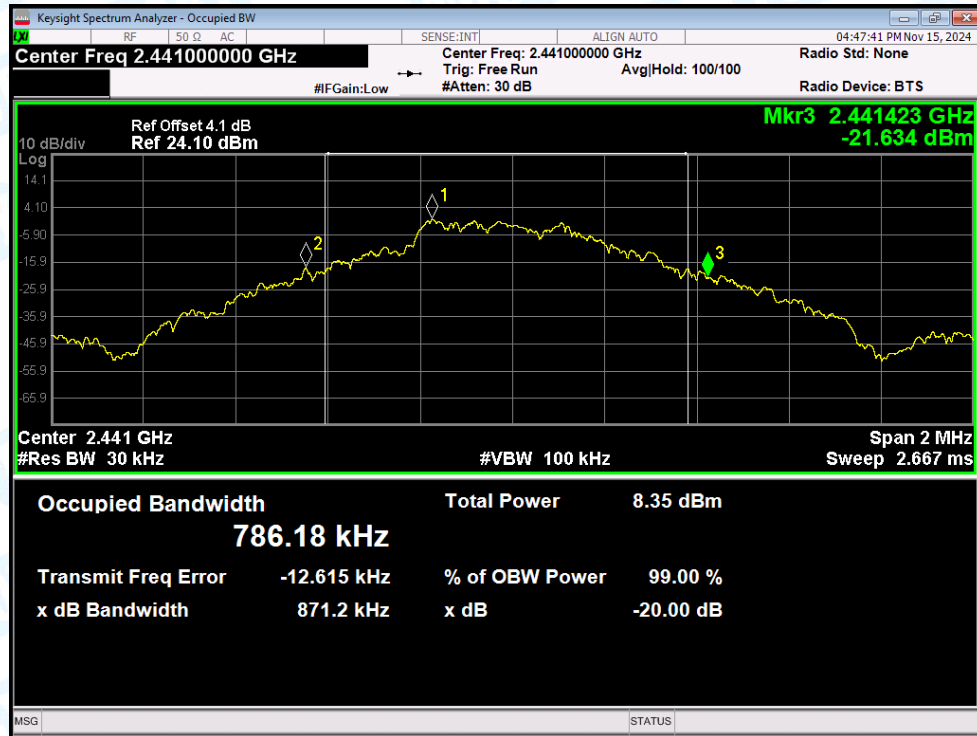
Condition	Mode	Frequency (MHz)	Antenna	-20 dB Bandwidth (MHz)	Limit -20 dB Bandwidth (MHz)	Verdict
NVNT	1-DH1	2402	Ant1	0.87	----	Pass
NVNT	1-DH1	2441	Ant1	0.87	----	Pass
NVNT	1-DH1	2480	Ant1	0.87	----	Pass
NVNT	2-DH1	2402	Ant1	1.25	----	Pass
NVNT	2-DH1	2441	Ant1	1.24	----	Pass
NVNT	2-DH1	2480	Ant1	1.24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

Test Graphs

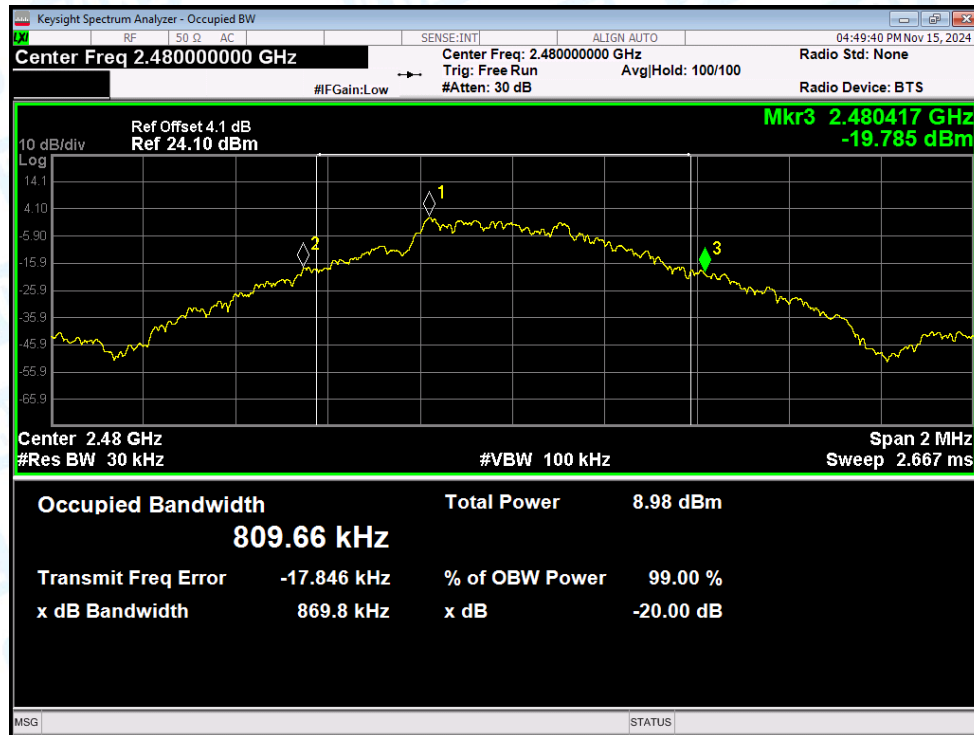
-20dB Bandwidth NVNT 1-DH1 2402MHz Ant1



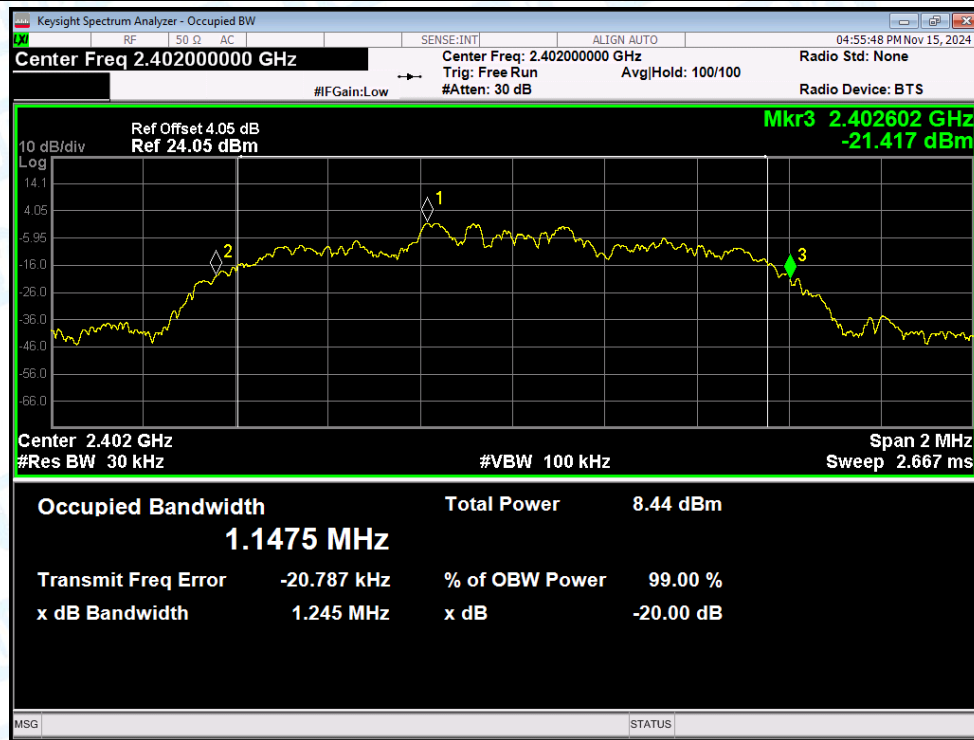
-20dB Bandwidth NVNT 1-DH1 2441MHz Ant1



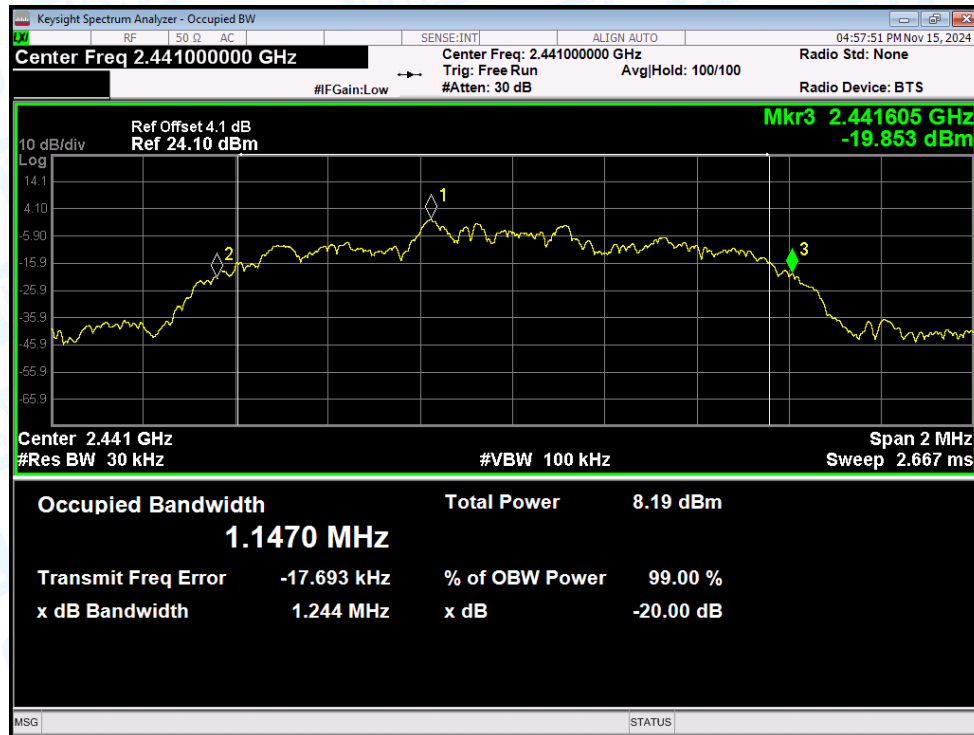
-20dB Bandwidth NVNT 1-DH1 2480MHz Ant1



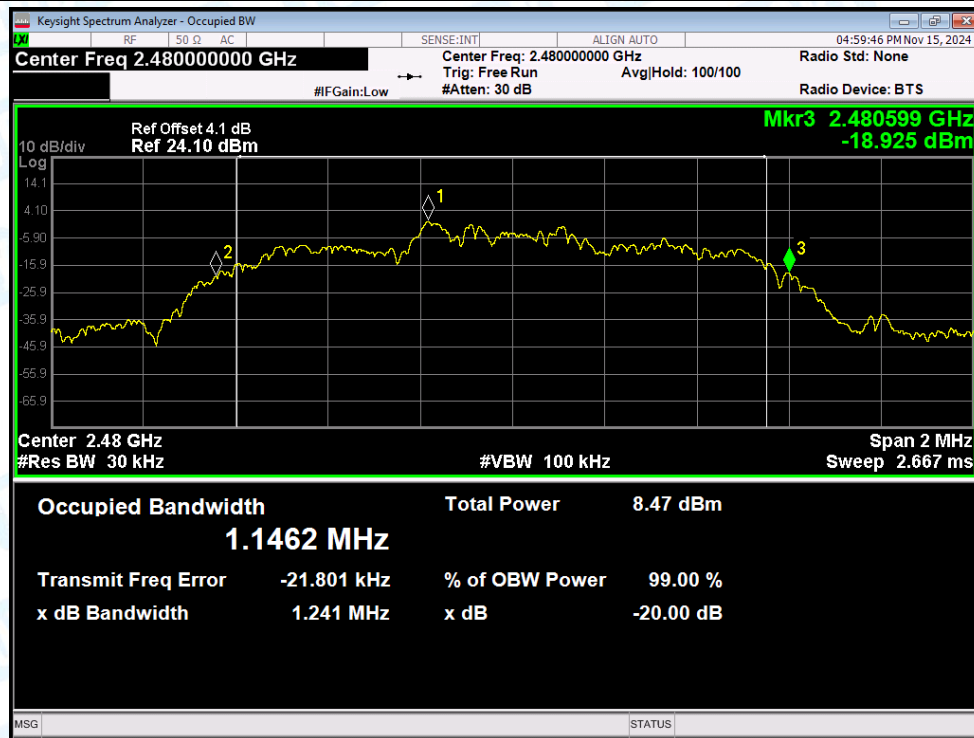
-20dB Bandwidth NVNT 2-DH1 2402MHz Ant1



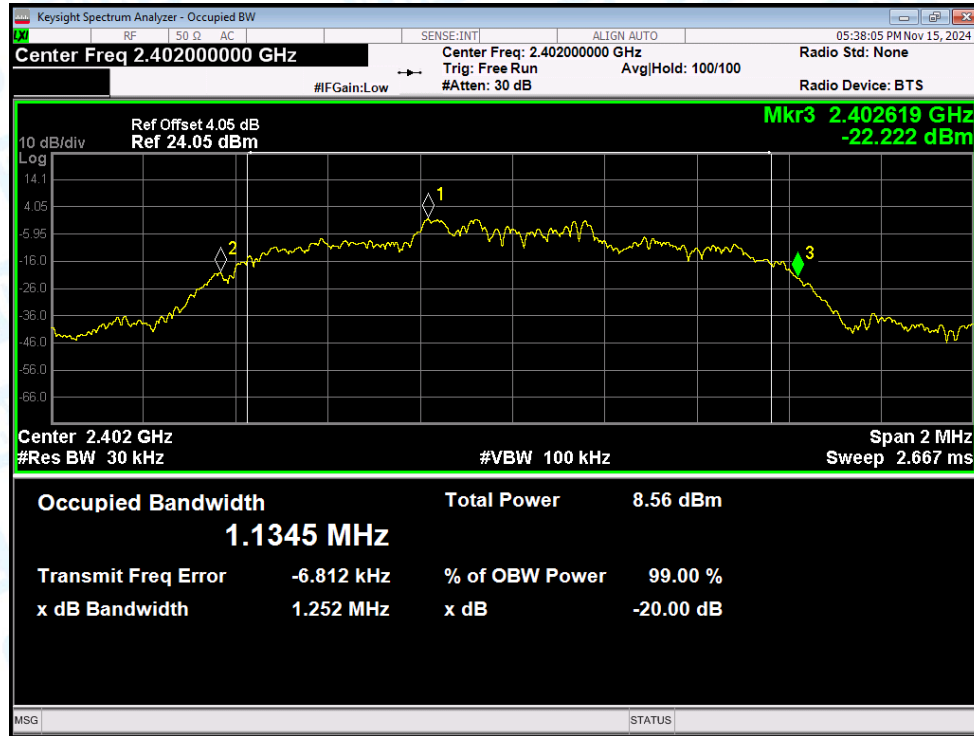
-20dB Bandwidth NVNT 2-DH1 2441MHz Ant1



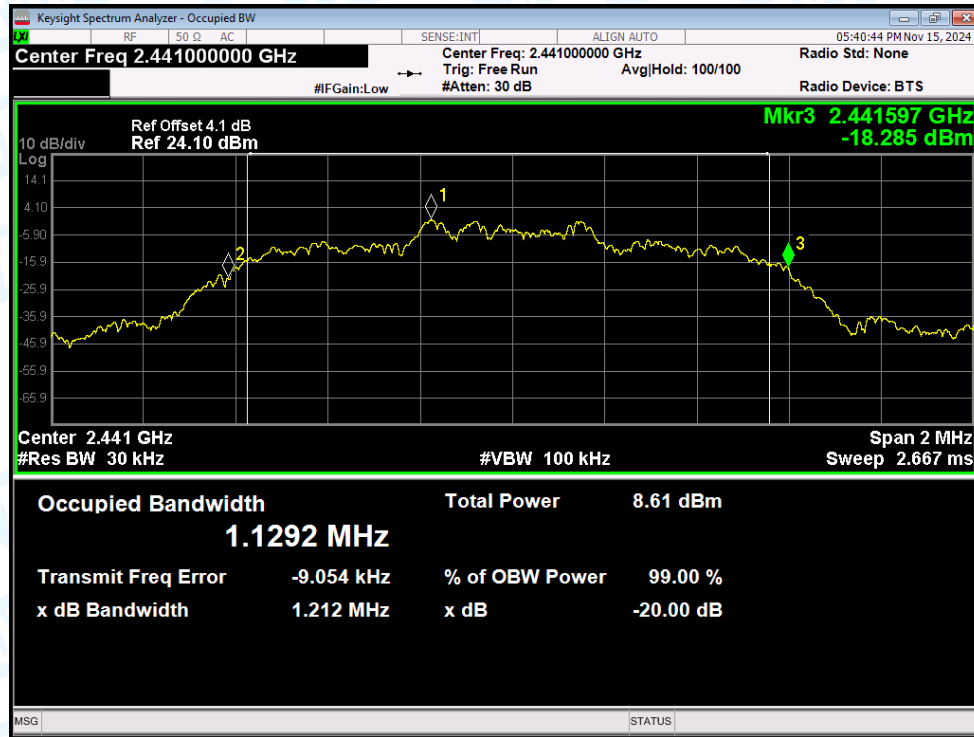
-20dB Bandwidth NVNT 2-DH1 2480MHz Ant1

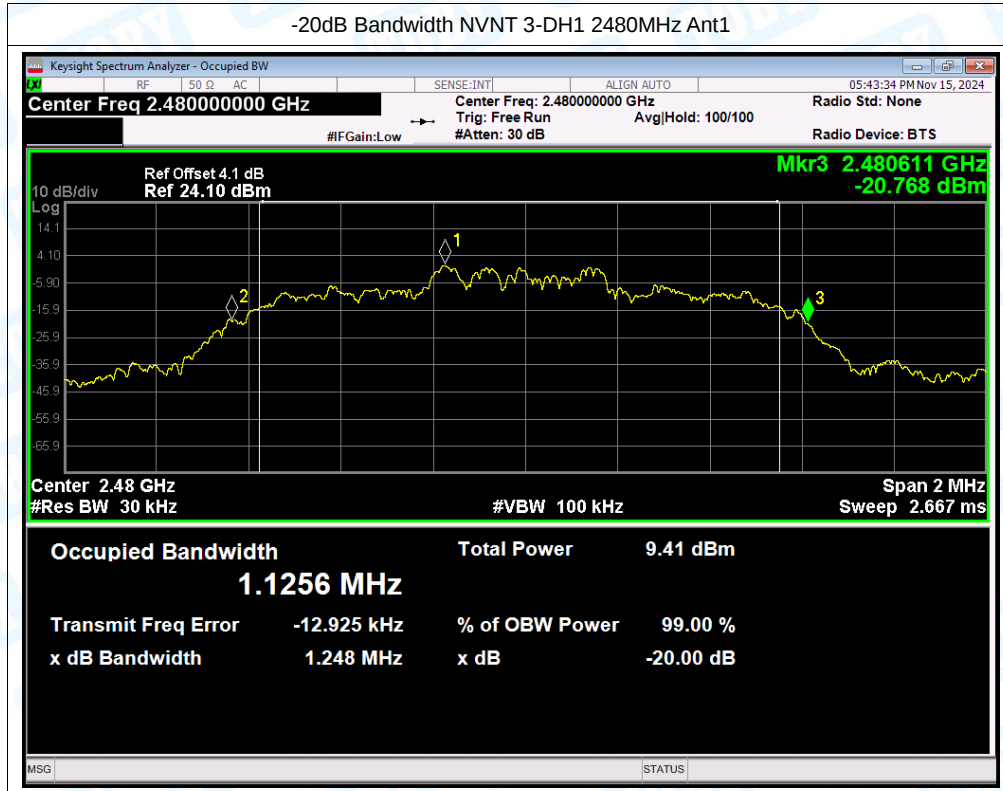


-20dB Bandwidth NVNT 3-DH1 2402MHz Ant1



-20dB Bandwidth NVNT 3-DH1 2441MHz Ant1



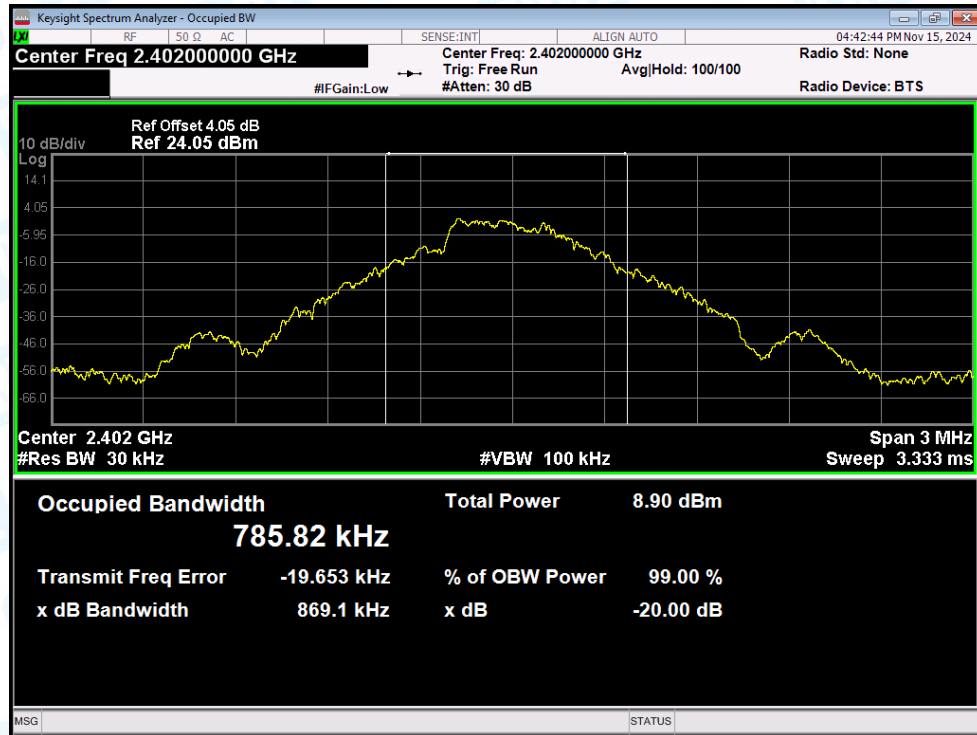


4. Occupied Channel Bandwidth

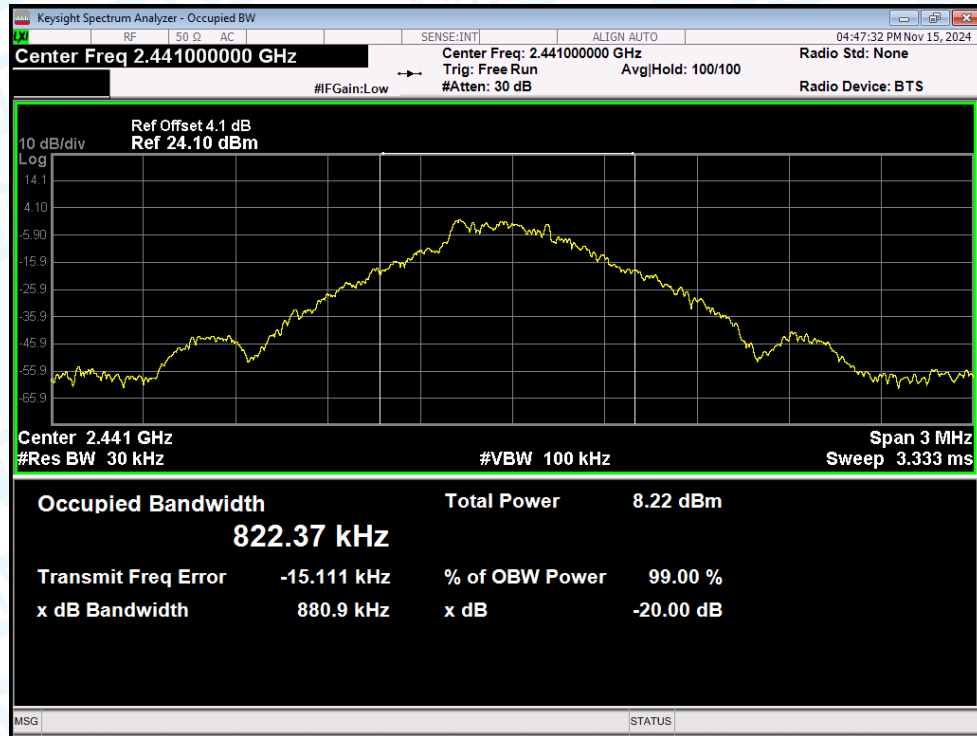
Condition	Mode	Frequency (MHz)	Antenna	99% OBW (MHz)
NVNT	1-DH1	2402	Ant1	0.786
NVNT	1-DH1	2441	Ant1	0.822
NVNT	1-DH1	2480	Ant1	0.793
NVNT	2-DH1	2402	Ant1	1.151
NVNT	2-DH1	2441	Ant1	1.157
NVNT	2-DH1	2480	Ant1	1.152
NVNT	3-DH1	2402	Ant1	1.134
NVNT	3-DH1	2441	Ant1	1.131
NVNT	3-DH1	2480	Ant1	1.141

Test Graphs

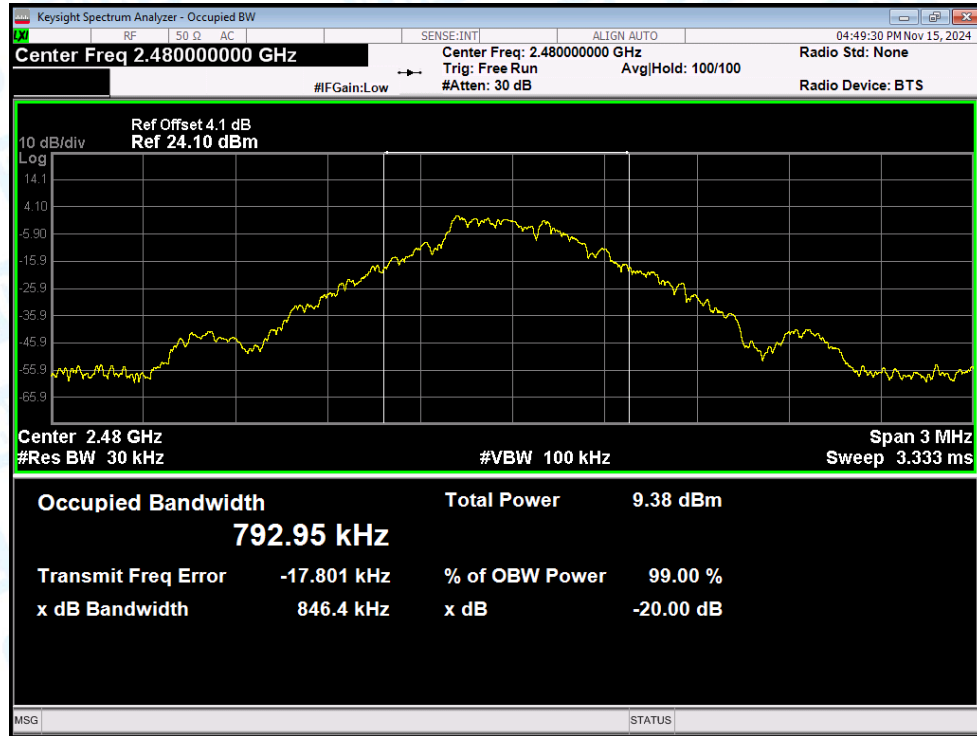
OBW NVNT 1-DH1 2402MHz Ant1



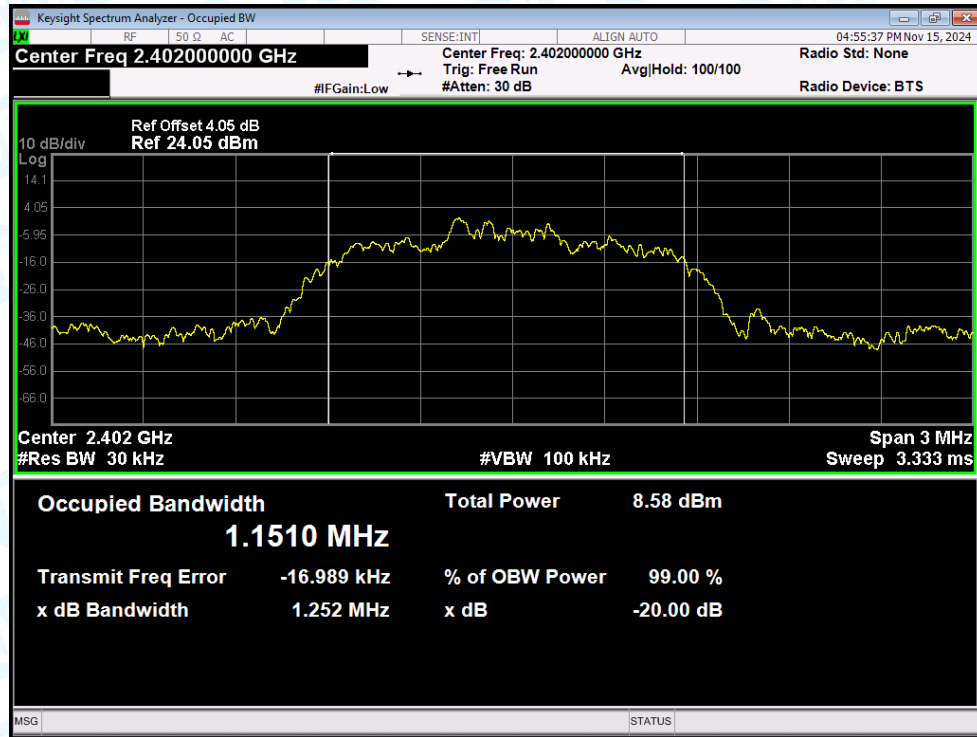
OBW NVNT 1-DH1 2441MHz Ant1



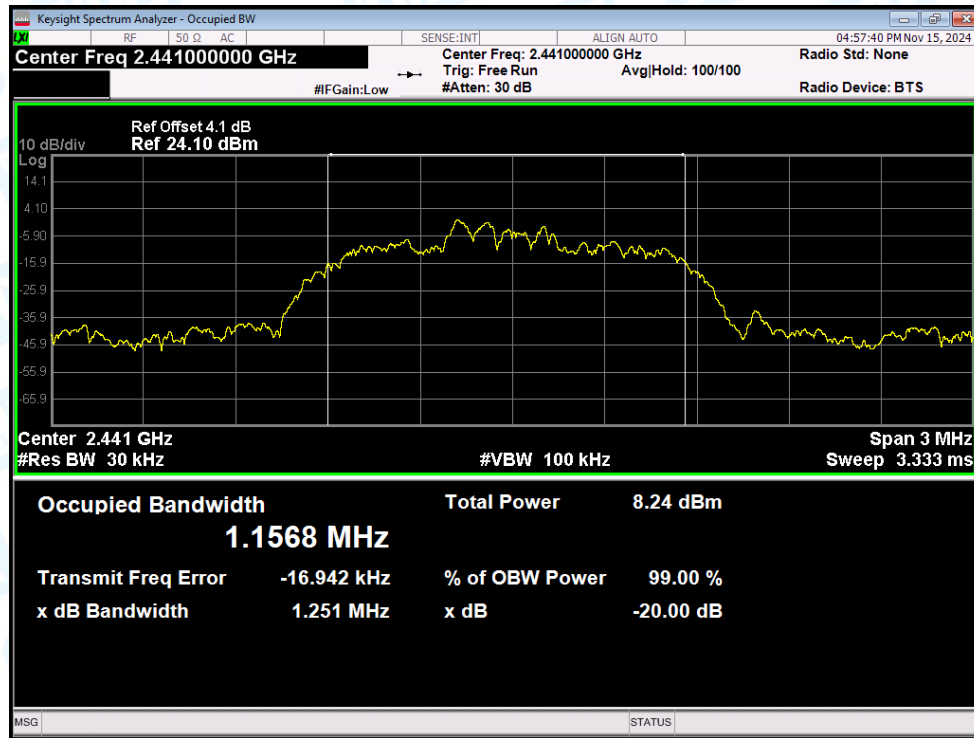
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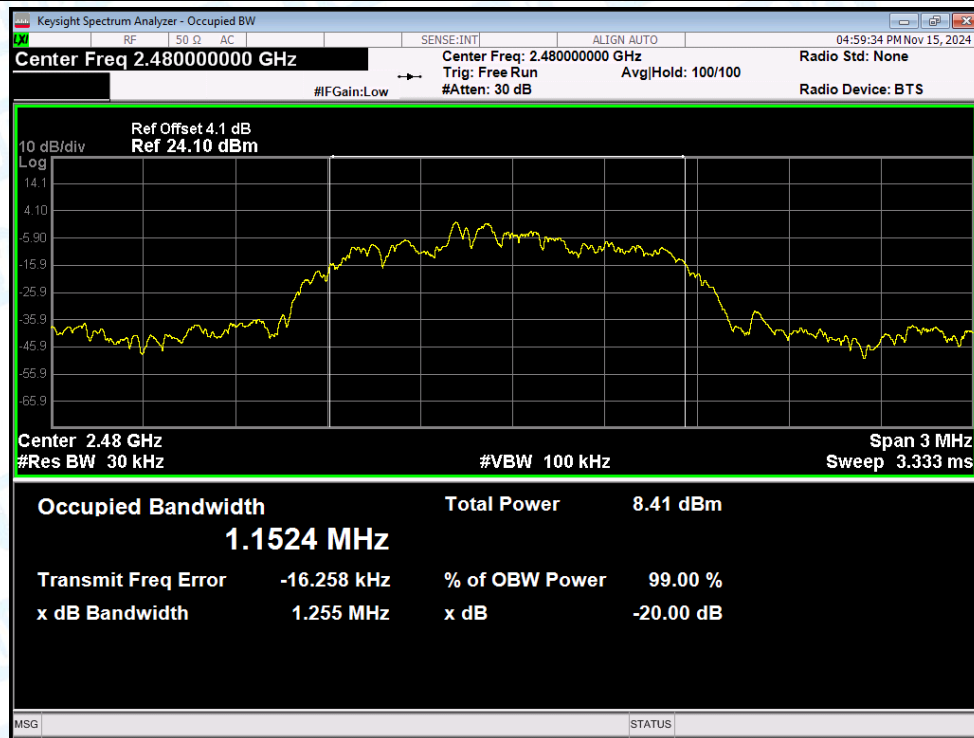
OBW NVNT 2-DH1 2402MHz Ant1



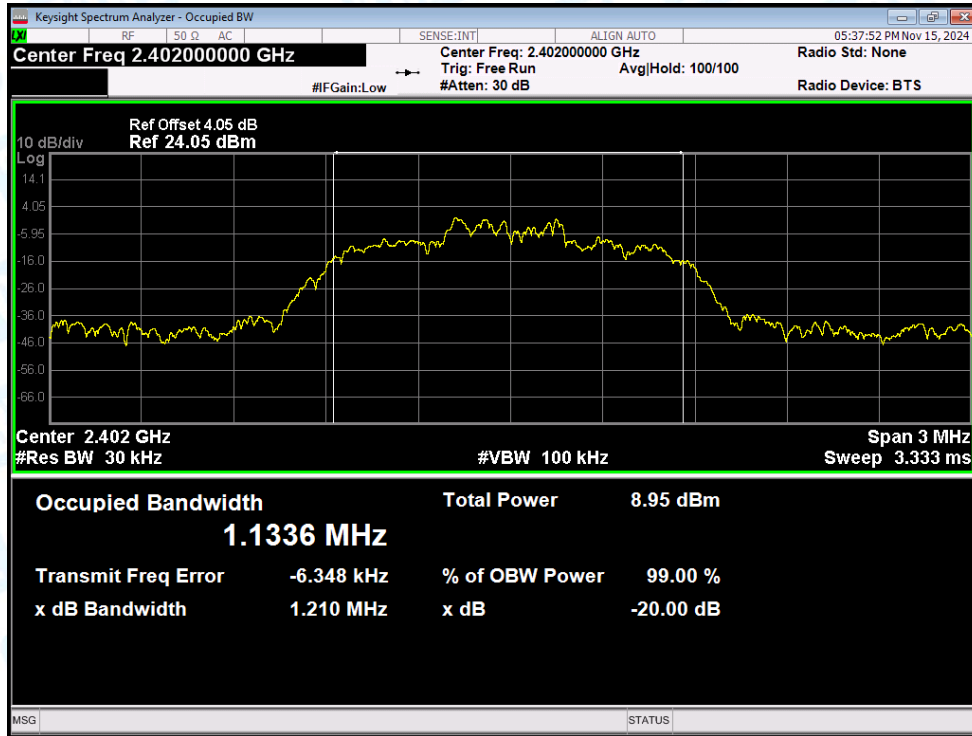
OBW NVNT 2-DH1 2441MHz Ant1



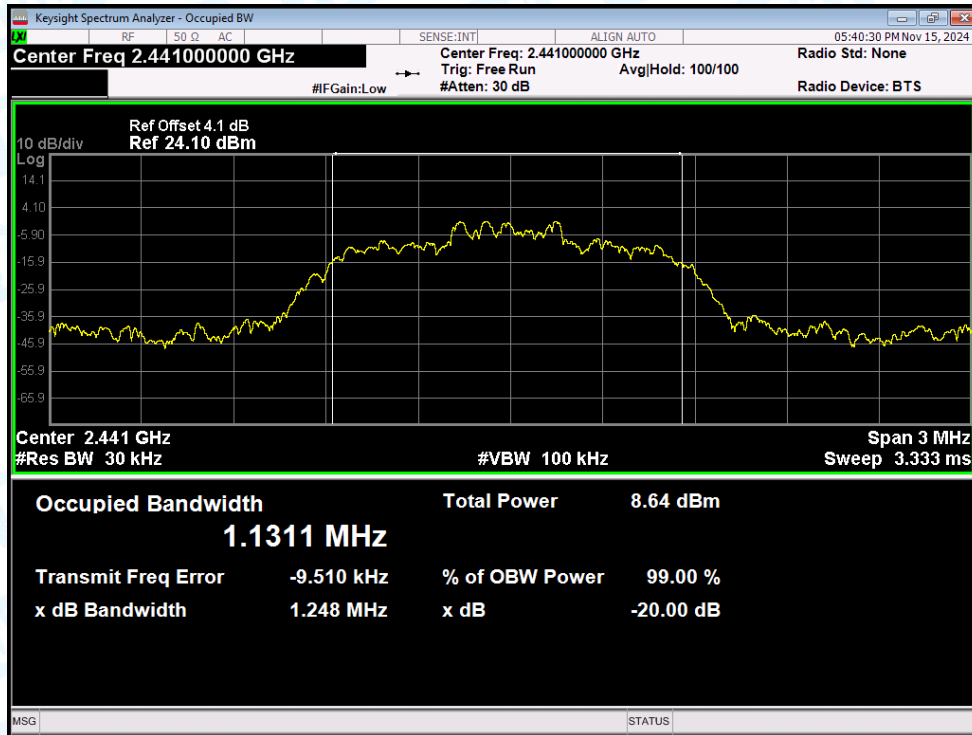
OBW NVNT 2-DH1 2480MHz Ant1

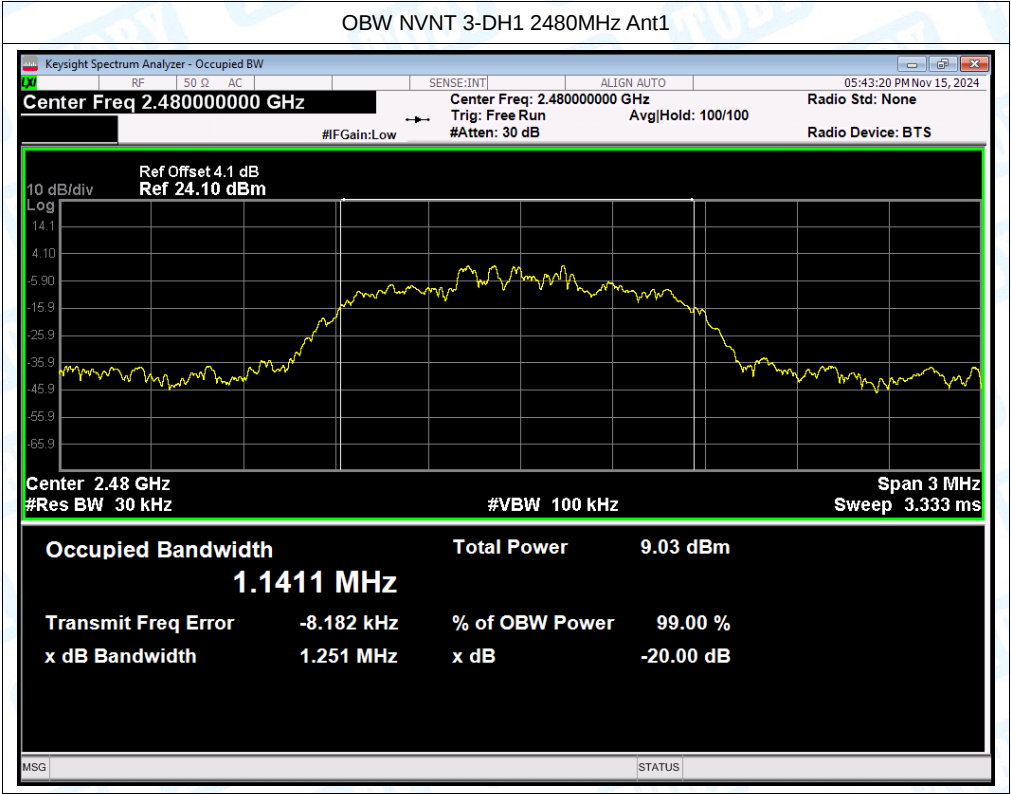


OBW NVNT 3-DH1 2402MHz Ant1



OBW NVNT 3-DH1 2441MHz Ant1



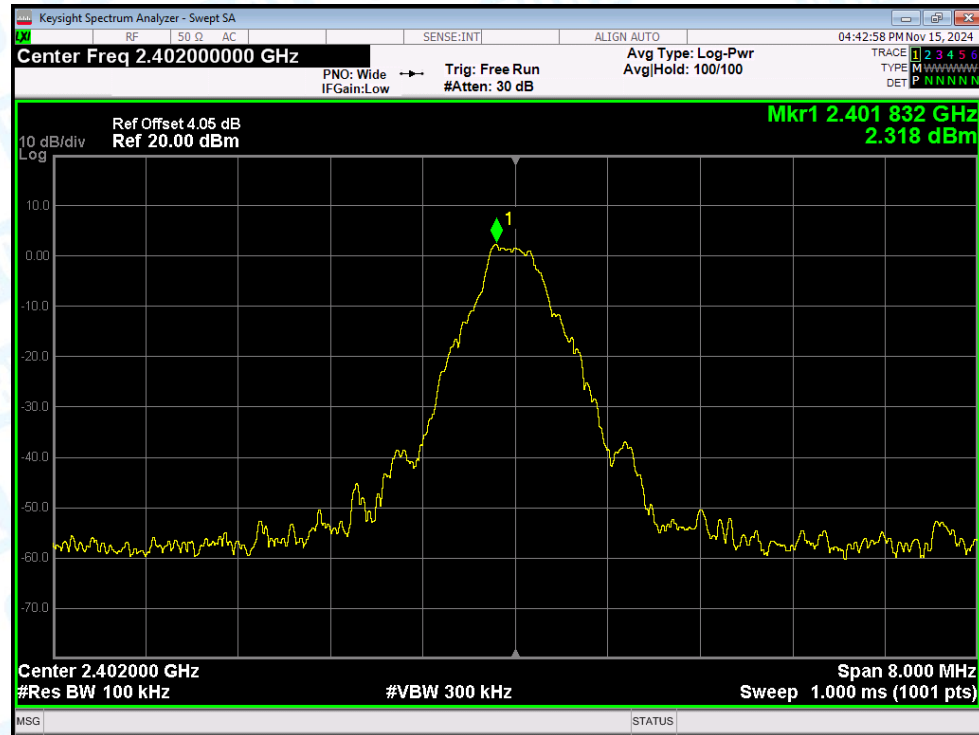


5. Band Edge

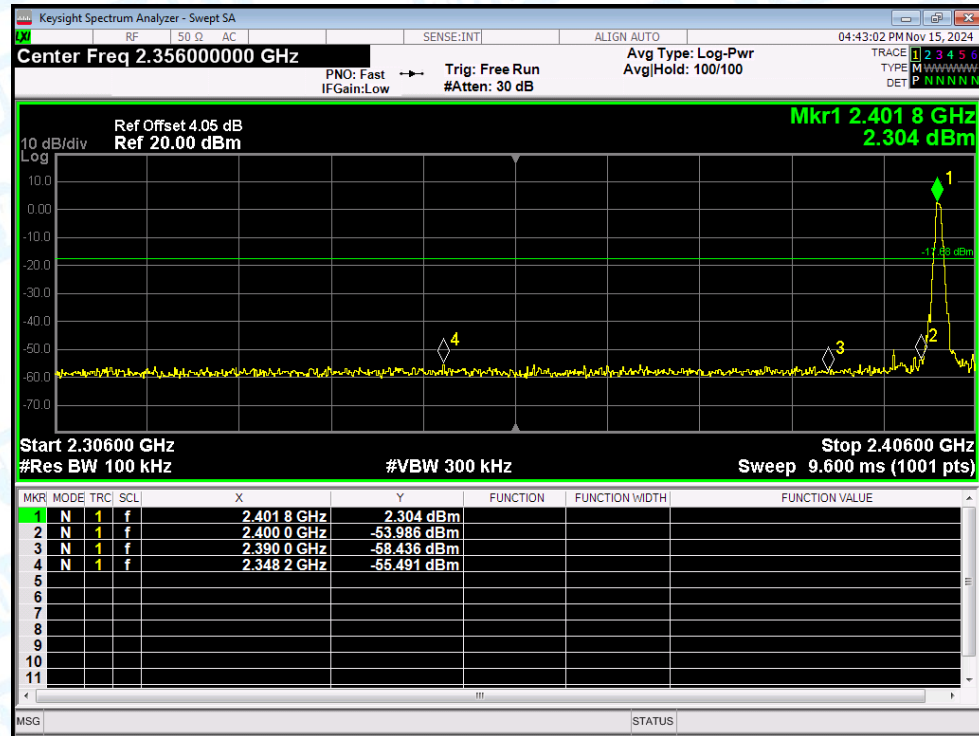
Condition	Mode	Frequency (MHz)	Antenna	Hopping Mode	Max Value (dBc)	Limit (dBc)	Verdict
NVNT	1-DH1	2402	Ant1	No-Hopping	-57.81	-20	Pass
NVNT	1-DH1	2480	Ant1	No-Hopping	-55.94	-20	Pass
NVNT	2-DH1	2402	Ant1	No-Hopping	-56.95	-20	Pass
NVNT	2-DH1	2480	Ant1	No-Hopping	-56.48	-20	Pass
NVNT	3-DH1	2402	Ant1	No-Hopping	-57.85	-20	Pass
NVNT	3-DH1	2480	Ant1	No-Hopping	-48.76	-20	Pass

Test Graphs

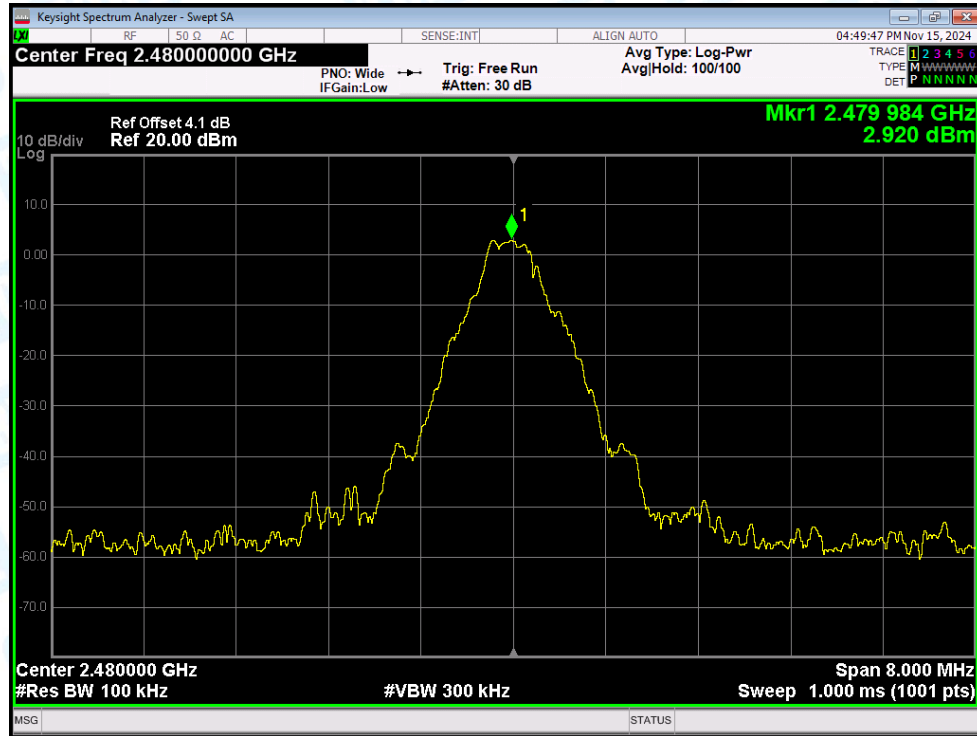
Band Edge NVNT 1-DH1 2402MHz Ant1 No-Hopping Ref



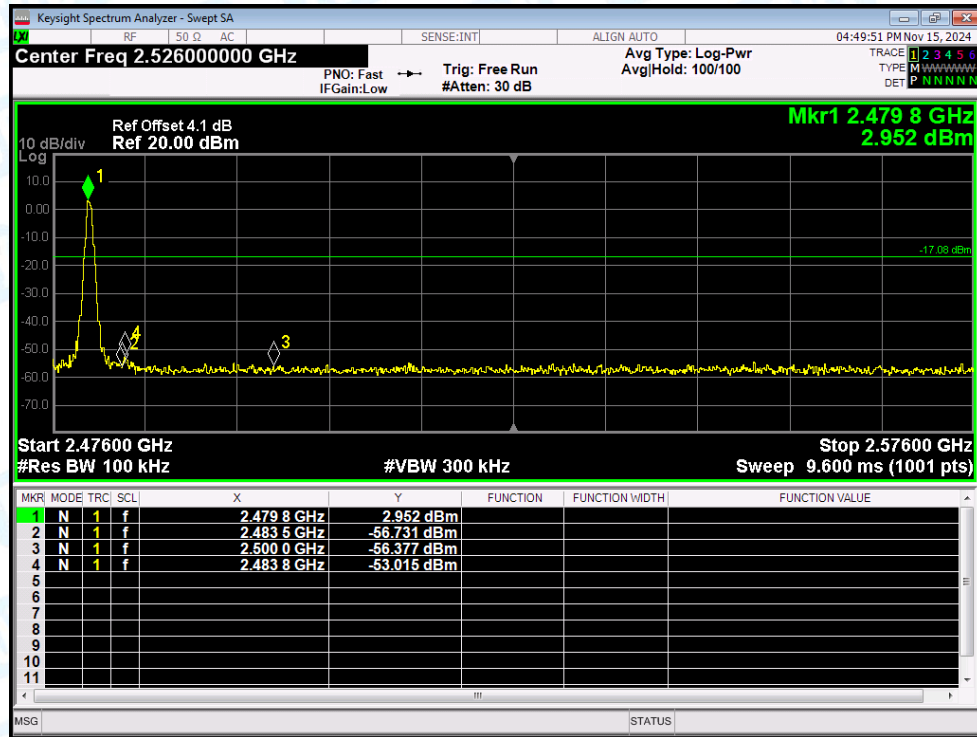
Band Edge NVNT 1-DH1 2402MHz Ant1 No-Hopping Emission



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



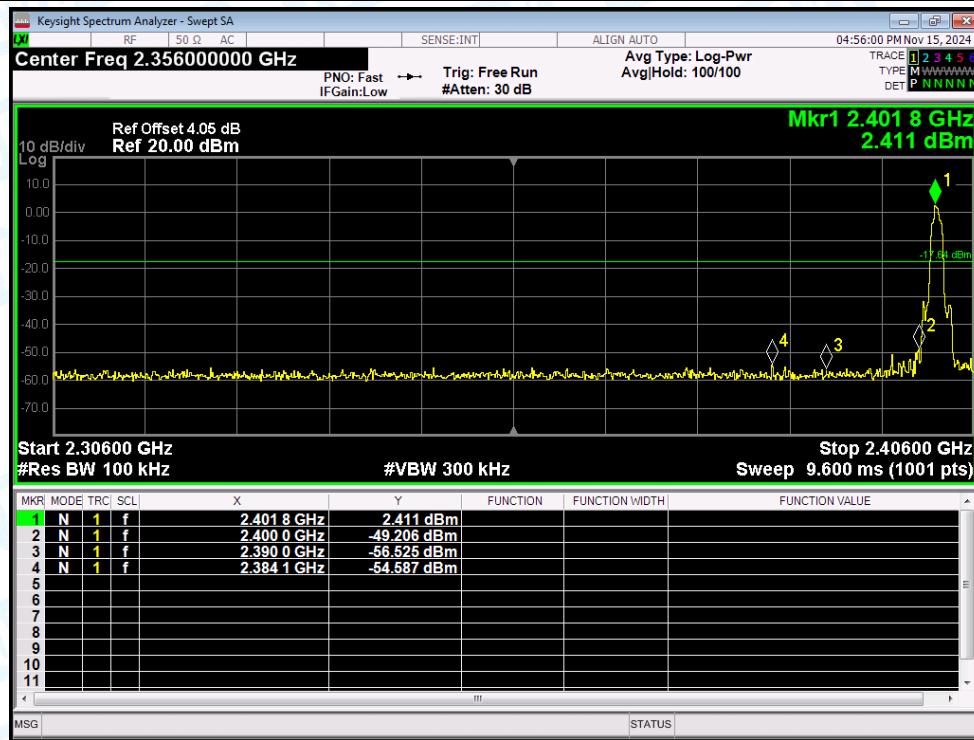
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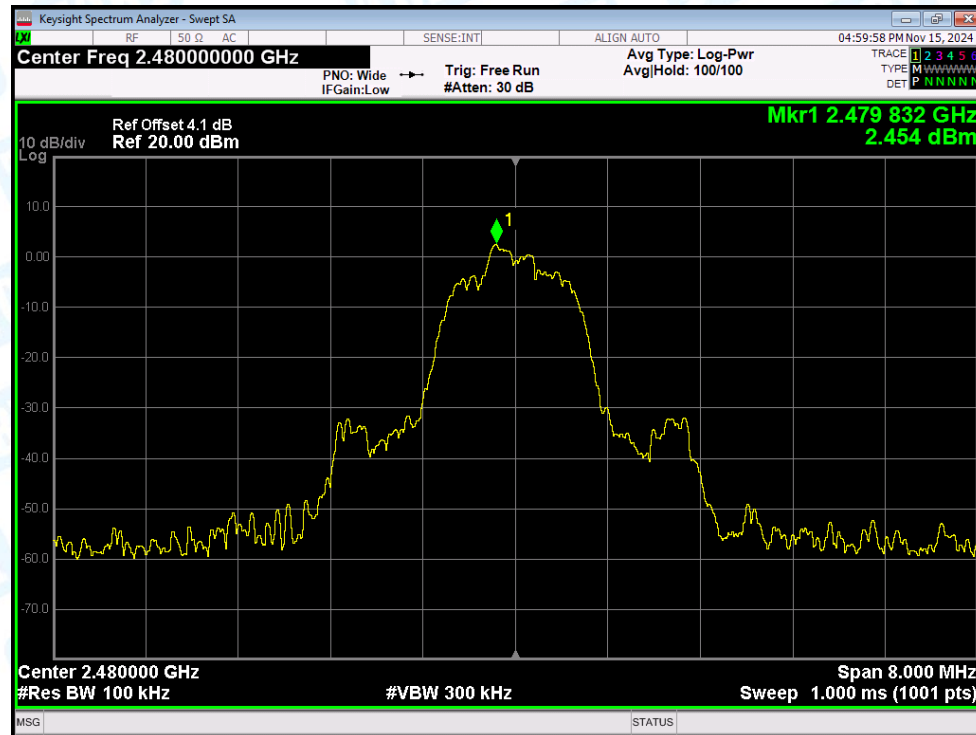
Band Edge NVNT 2-DH1 2402MHz Ant1 No-Hopping Ref



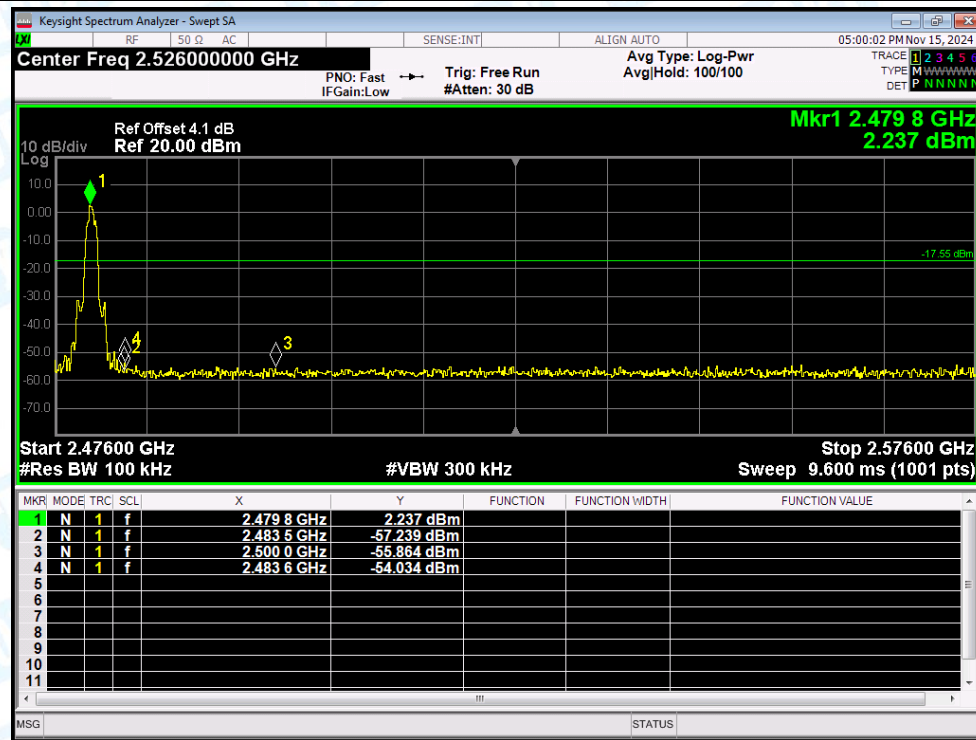
Band Edge NVNT 2-DH1 2402MHz Ant1 No-Hopping Emission



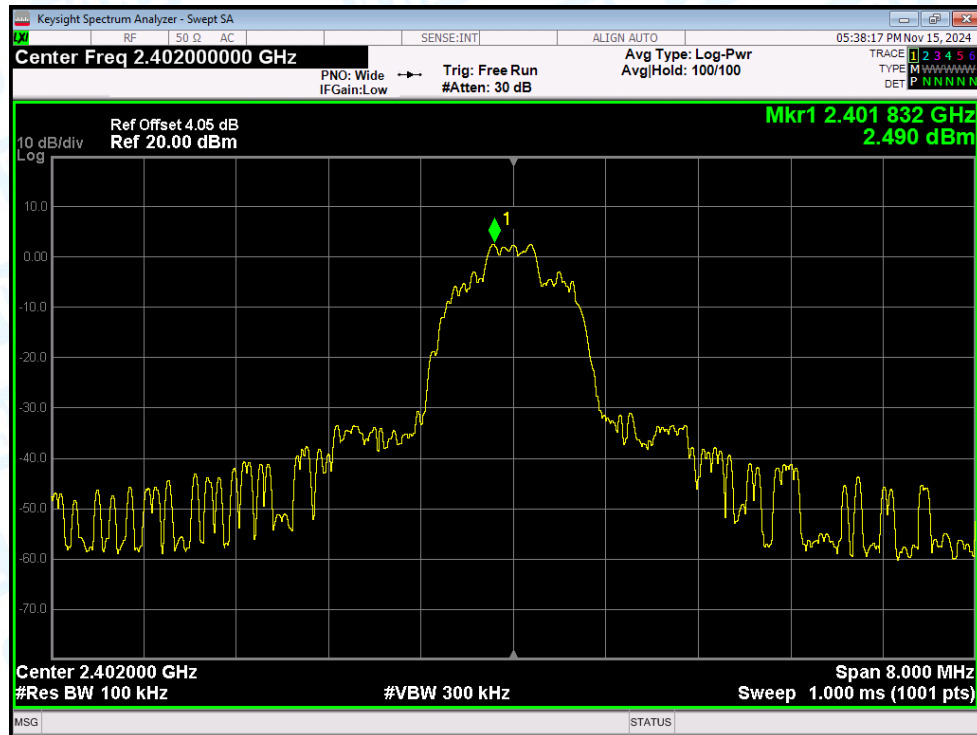
Band Edge NVNT 2-DH1 2480MHz Ant1 No-Hopping Ref



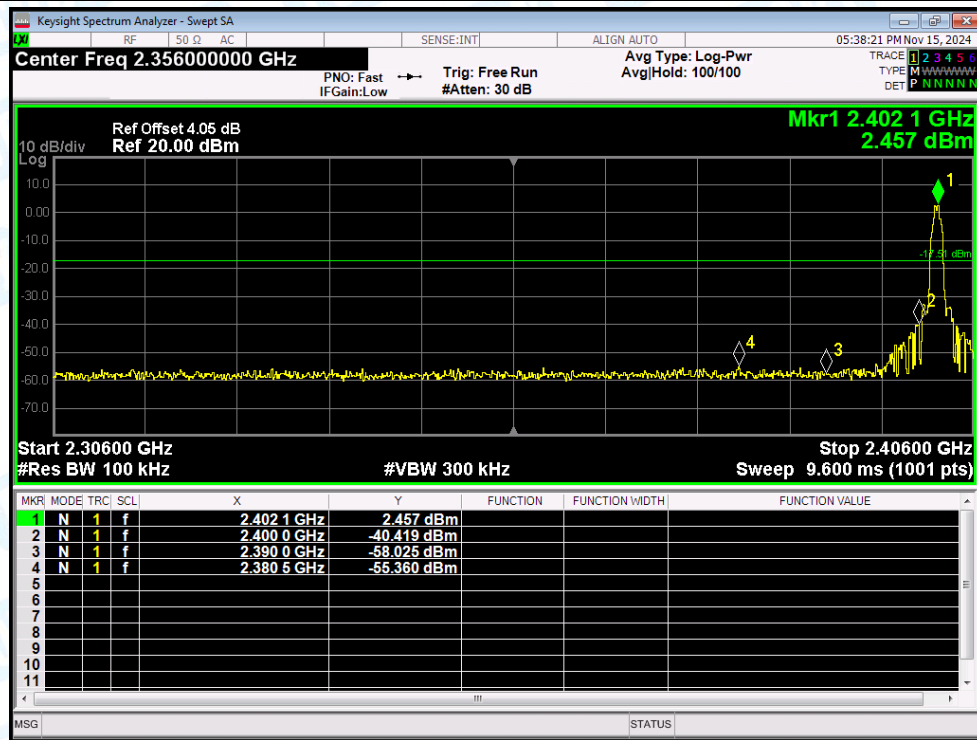
Band Edge NVNT 2-DH1 2480MHz Ant1 No-Hopping Emission



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



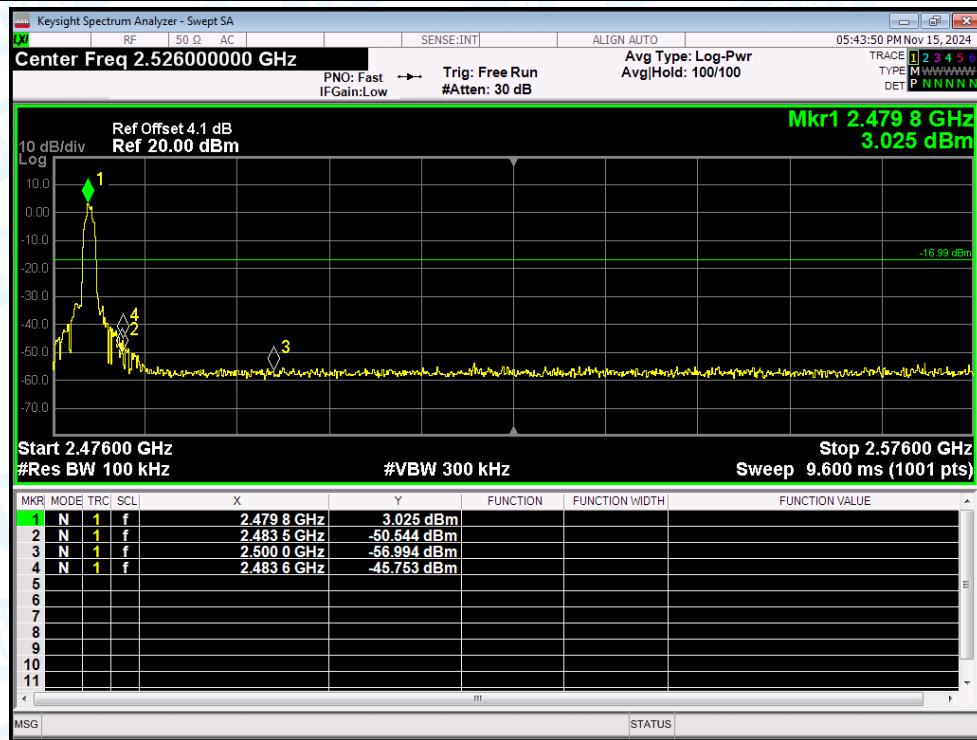
Band Edge NVNT 3-DH1 2402MHz Ant1 No-Hopping Emission



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



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

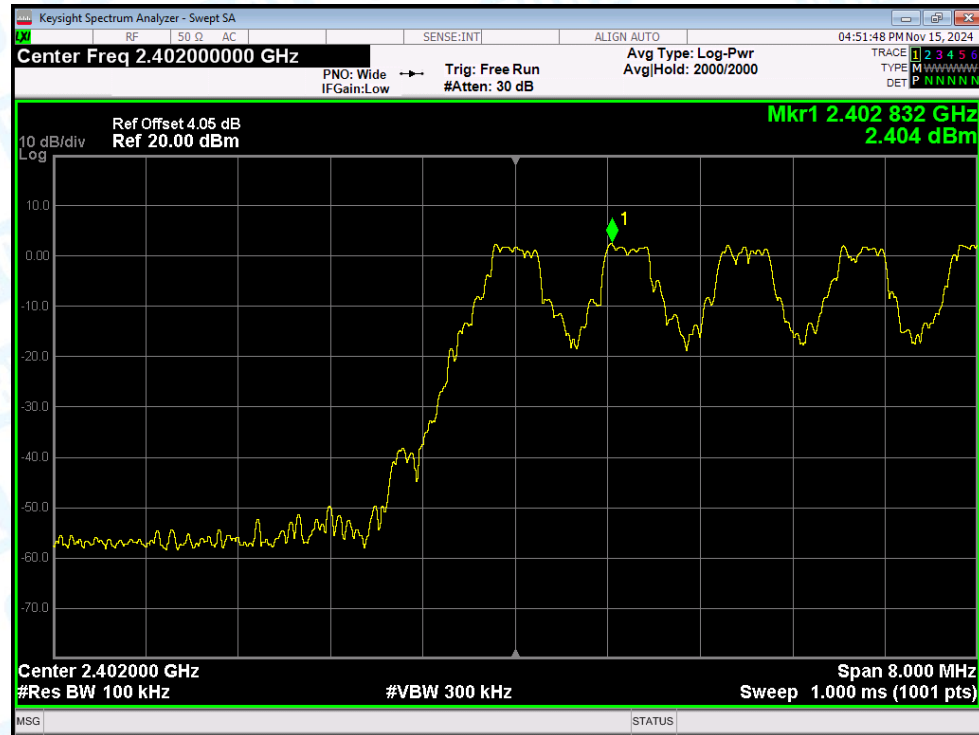


6. Band Edge(Hopping)

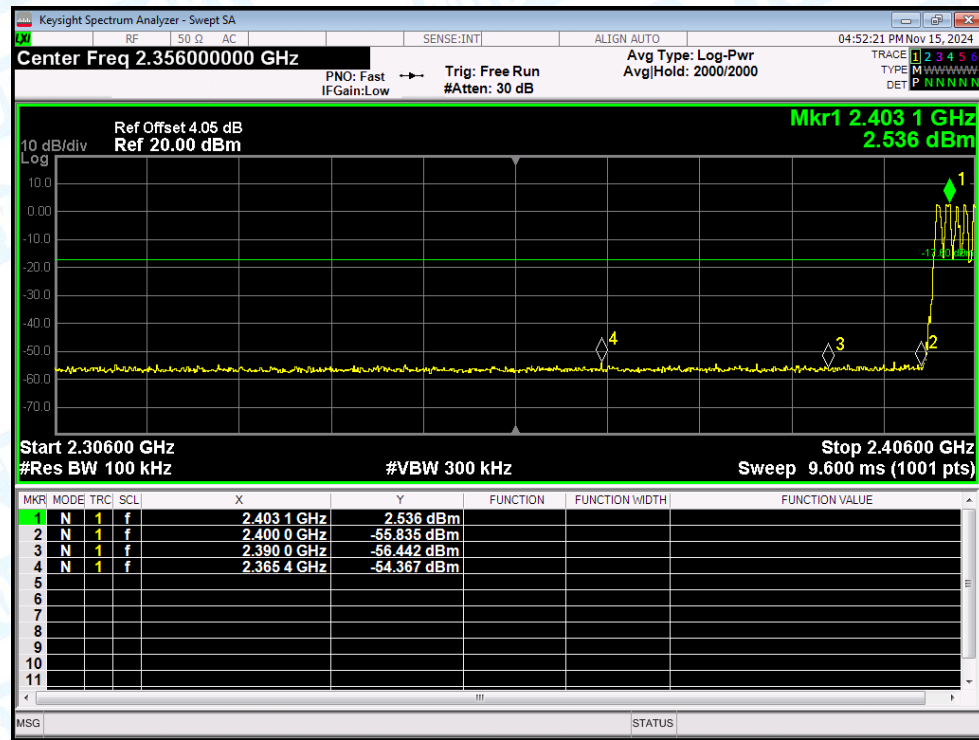
Condition	Mode	Frequency (MHz)	Antenna	Hopping Mode	Max Value (dBc)	Limit (dBc)	Verdict
NVNT	1-DH1	2402	Ant1	Hopping	-56.77	-20	Pass
NVNT	1-DH1	2480	Ant1	Hopping	-54.35	-20	Pass
NVNT	2-DH1	2402	Ant1	Hopping	-56.23	-20	Pass
NVNT	2-DH1	2480	Ant1	Hopping	-56.44	-20	Pass
NVNT	3-DH1	2402	Ant1	Hopping	-56.76	-20	Pass
NVNT	3-DH1	2480	Ant1	Hopping	-48.64	-20	Pass

Test Graphs

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



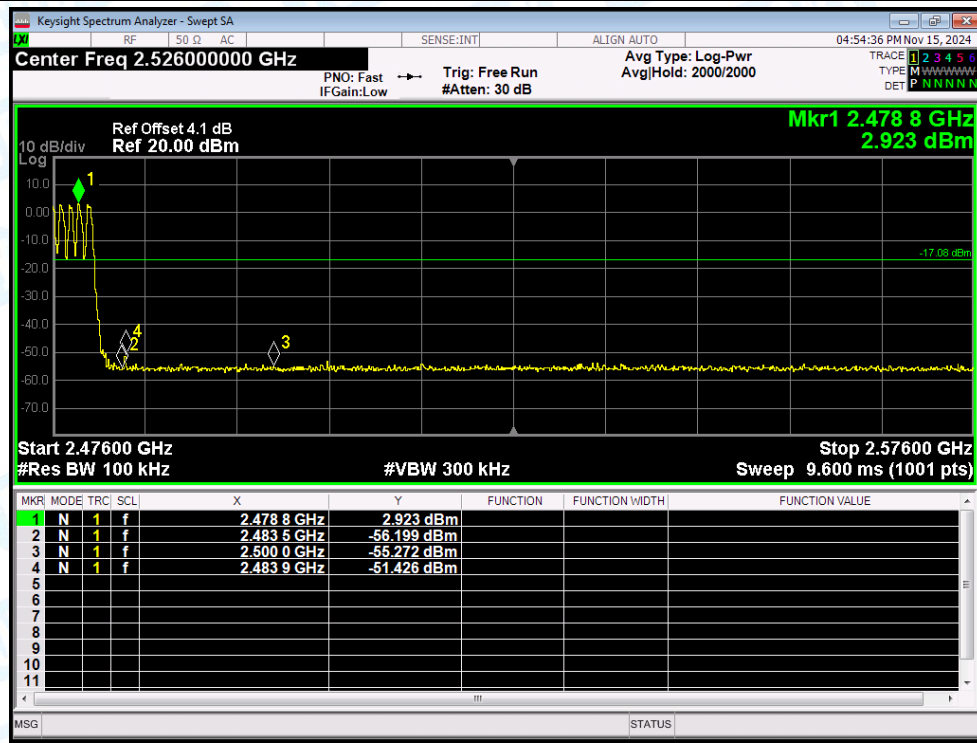
Band Edge(Hopping) NVNT 1-DH1 2402MHz Ant1 Hopping Emission



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



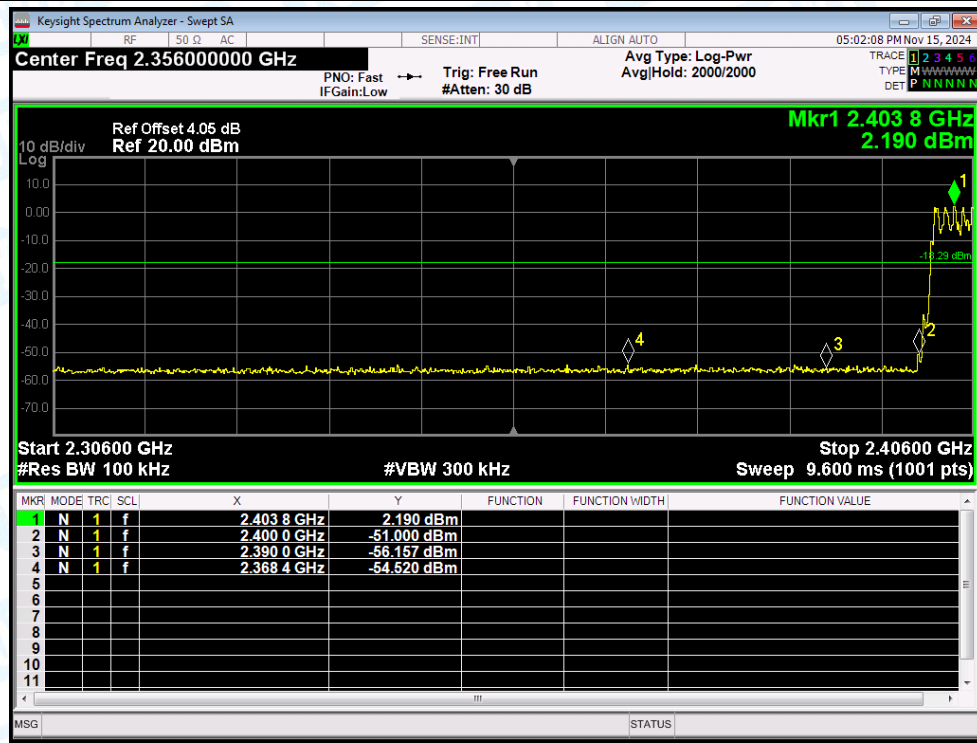
Band Edge(Hopping) NVNT 1-DH1 2480MHz Ant1 Hopping Emission



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



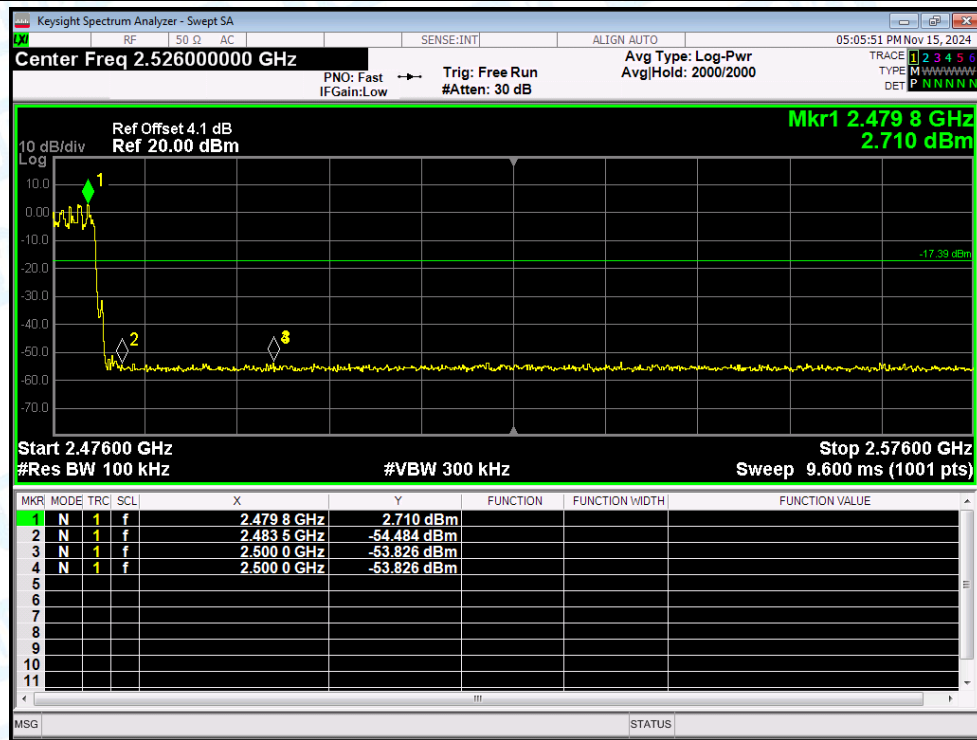
Band Edge(Hopping) NVNT 2-DH1 2402MHz Ant1 Hopping Emission



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



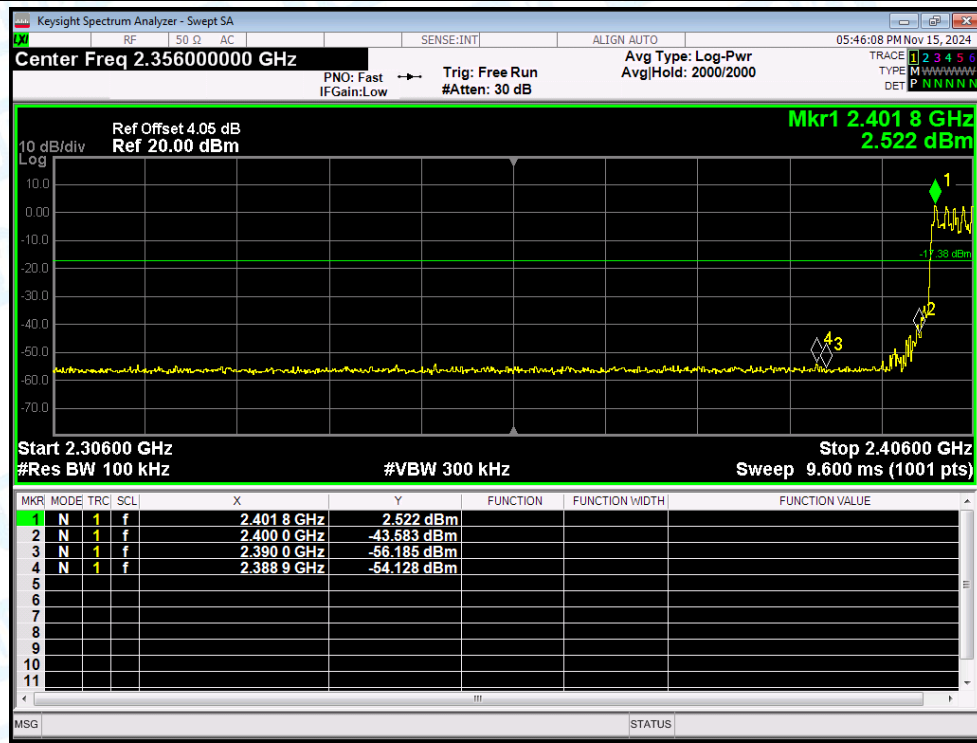
Band Edge(Hopping) NVNT 2-DH1 2480MHz Ant1 Hopping Emission



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



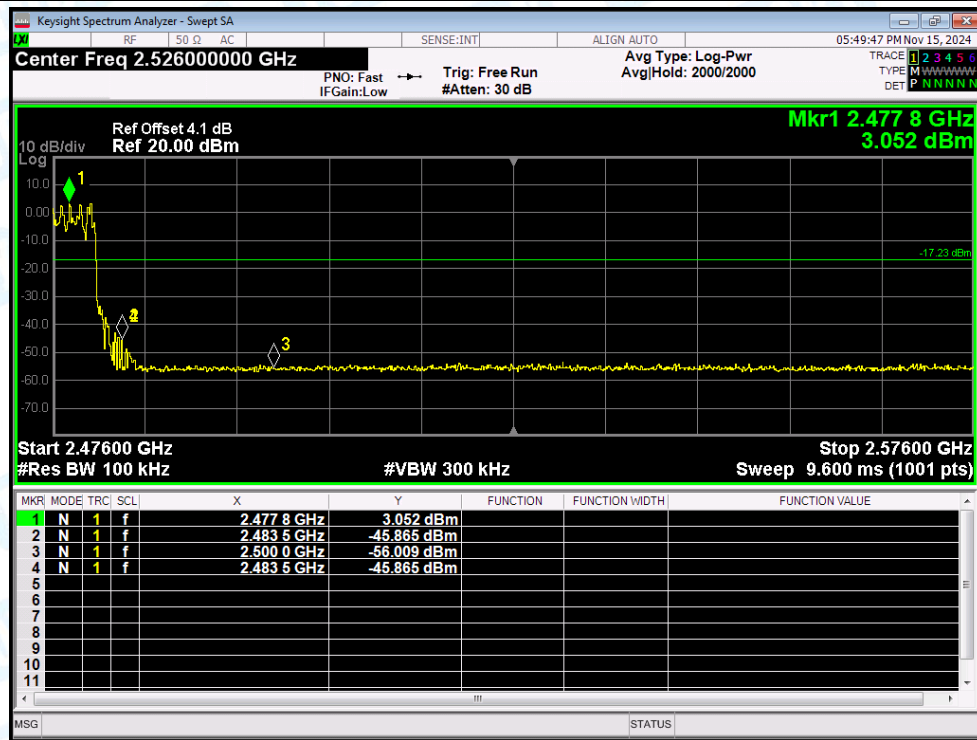
Band Edge(Hopping) NVNT 3-DH1 2402MHz Ant1 Hopping Emission



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



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

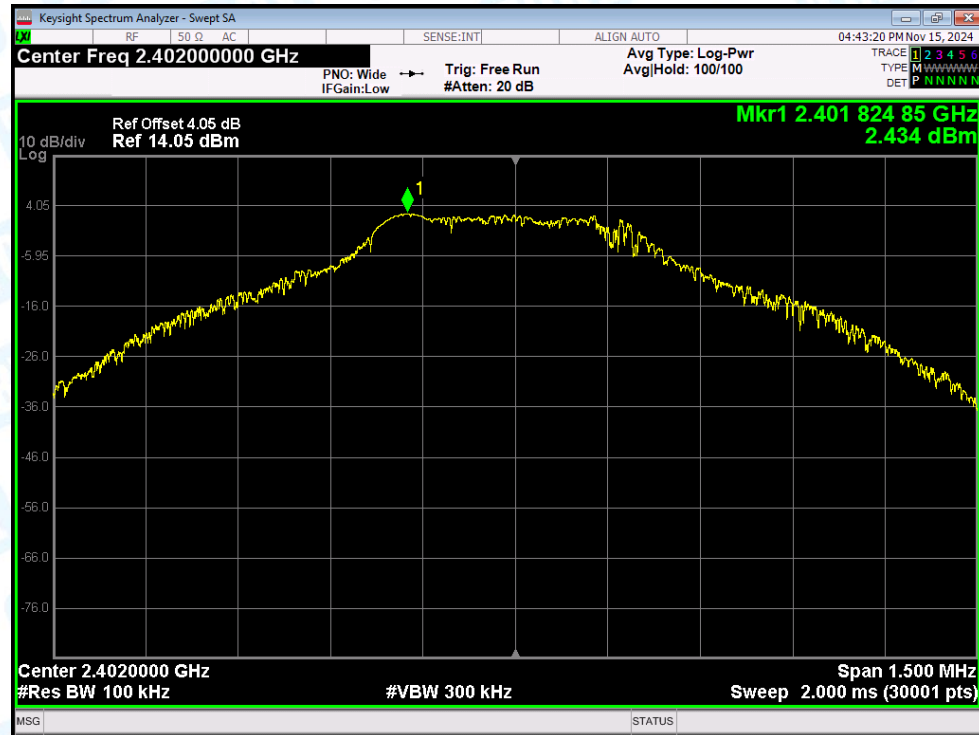


7. Conducted RF Spurious Emission

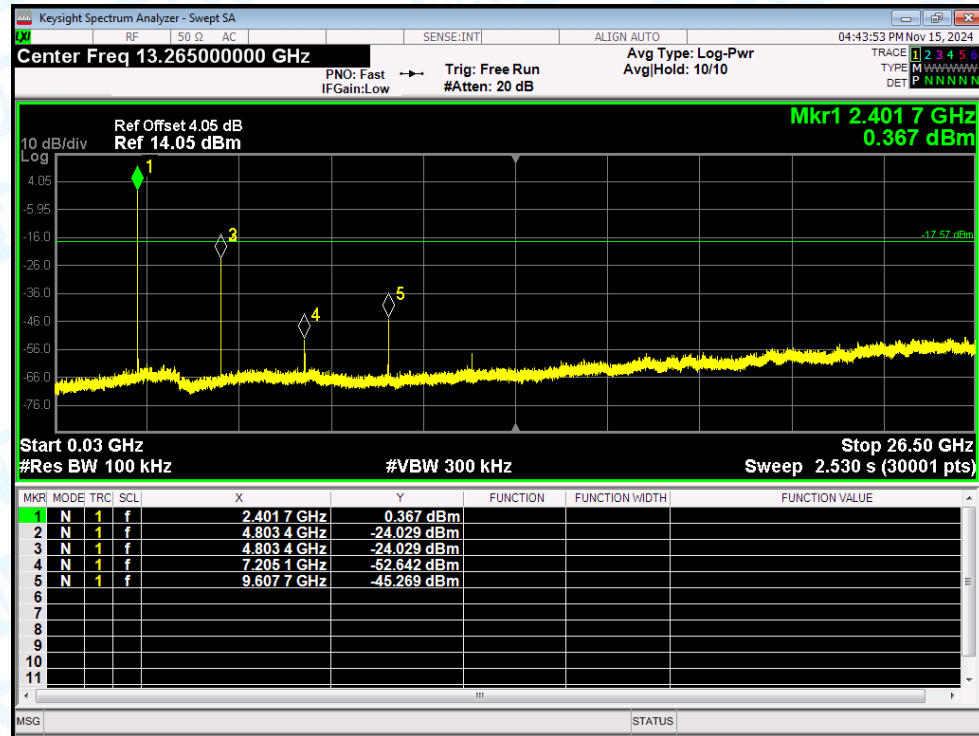
Condition	Mode	Frequency (MHz)	Antenna	Max Value (dBc)	Limit (dBc)	Verdict
NVNT	1-DH1	2402	Ant1	-26.46	-20	Pass
NVNT	1-DH1	2441	Ant1	-29.95	-20	Pass
NVNT	1-DH1	2480	Ant1	-28.31	-20	Pass
NVNT	2-DH1	2402	Ant1	-31.12	-20	Pass
NVNT	2-DH1	2441	Ant1	-31.96	-20	Pass
NVNT	2-DH1	2480	Ant1	-27.61	-20	Pass
NVNT	3-DH1	2402	Ant1	-26.34	-20	Pass
NVNT	3-DH1	2441	Ant1	-26.99	-20	Pass
NVNT	3-DH1	2480	Ant1	-33.26	-20	Pass

Test Graphs

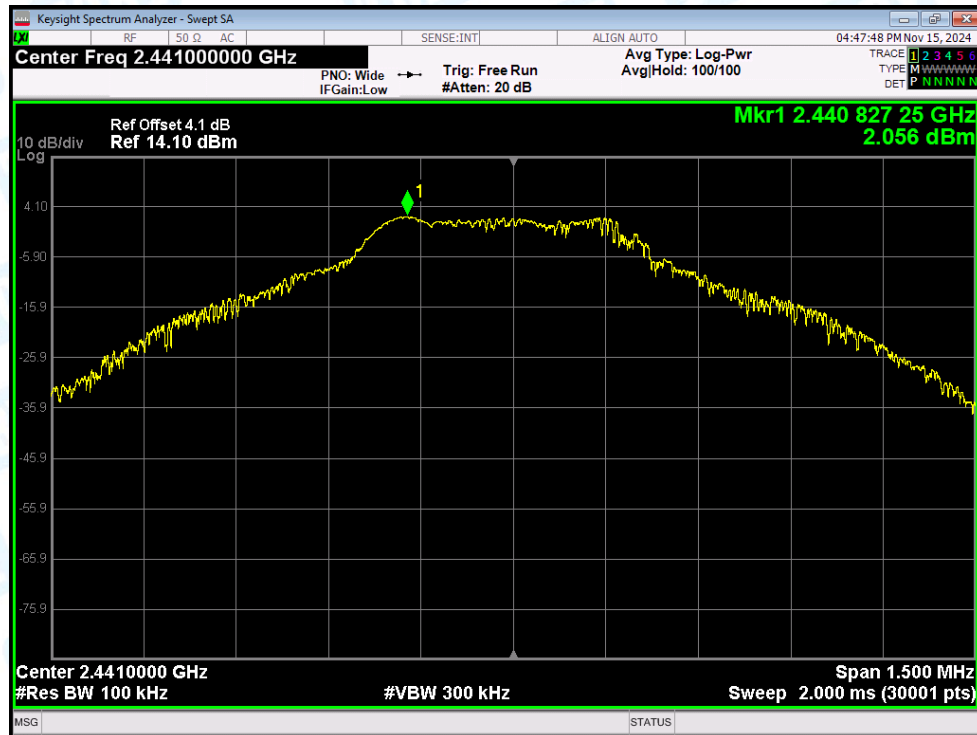
Tx. Spurious NVNT 1-DH1 2402MHz Ant1 Ref



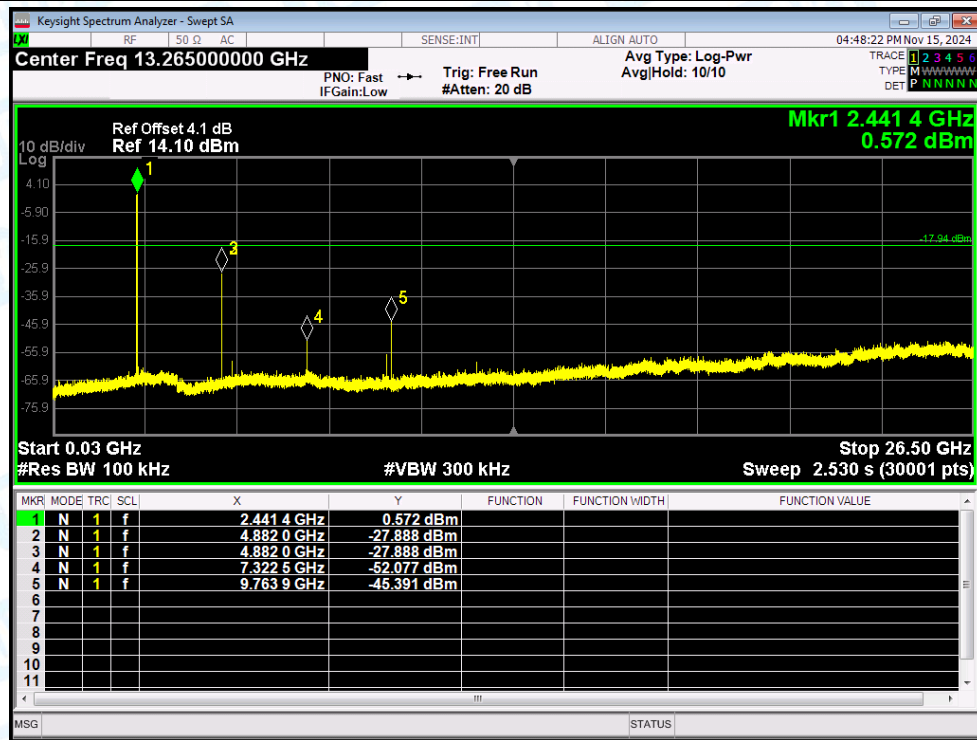
Tx. Spurious NVNT 1-DH1 2402MHz Ant1 Emission



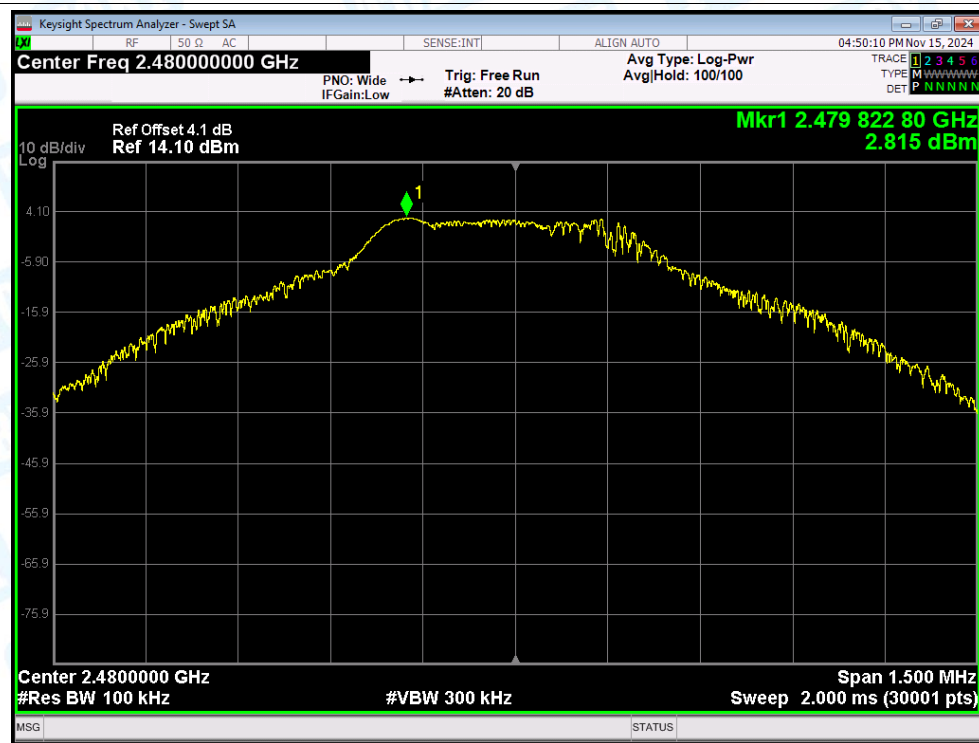
Tx. Spurious NVNT 1-DH1 2441MHz Ant1 Ref



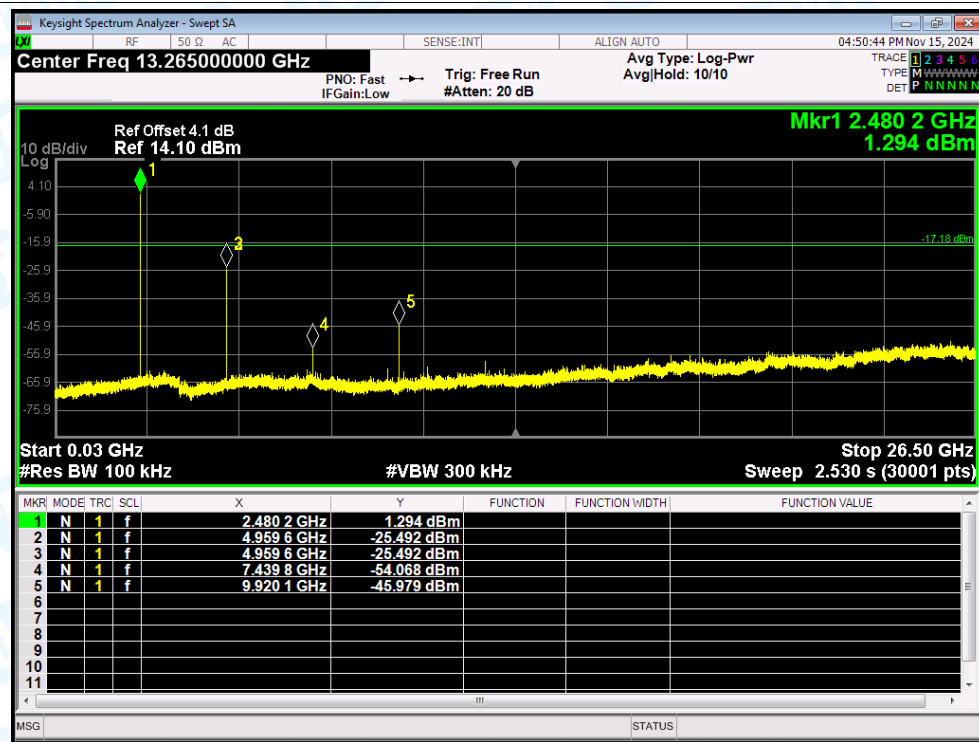
Tx. Spurious NVNT 1-DH1 2441MHz Ant1 Emission



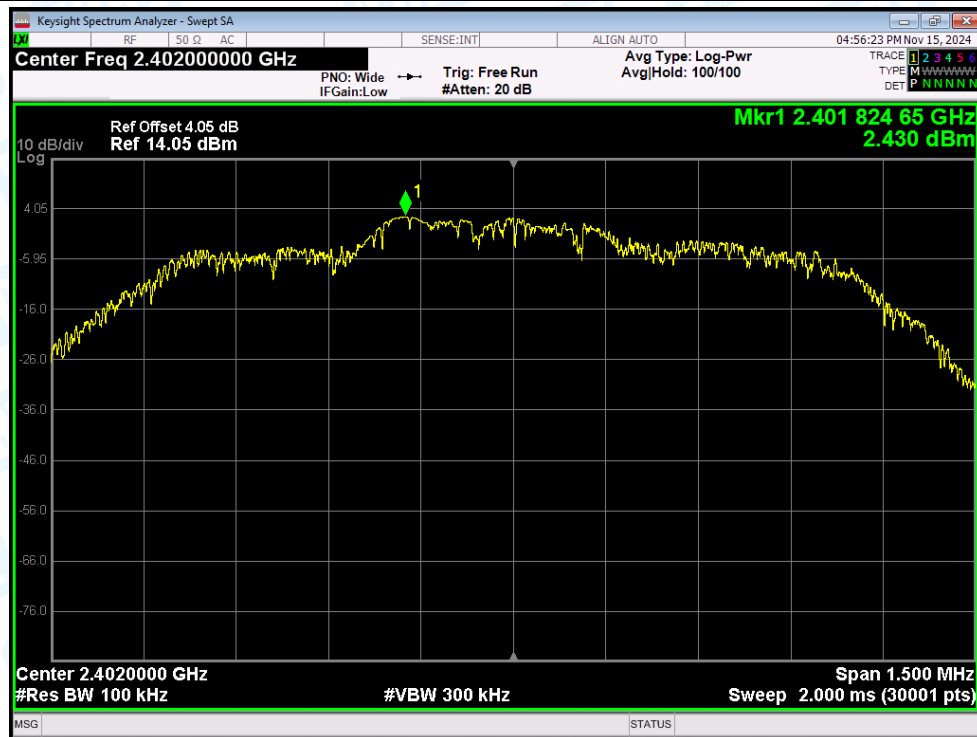
Tx. Spurious NVNT 1-DH1 2480MHz Ant1 Ref



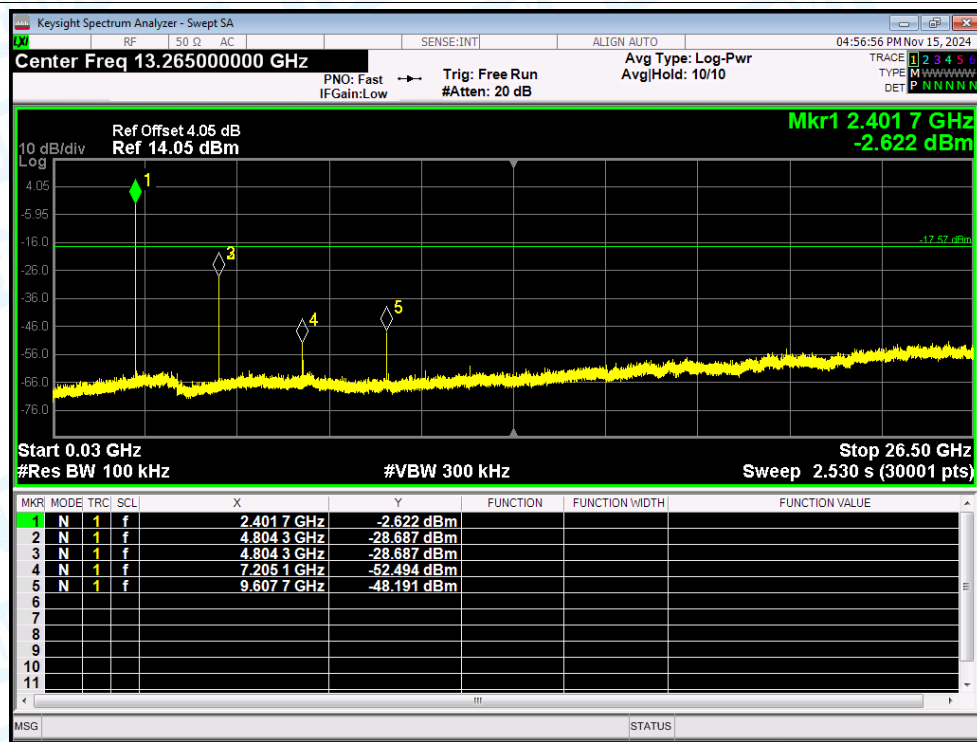
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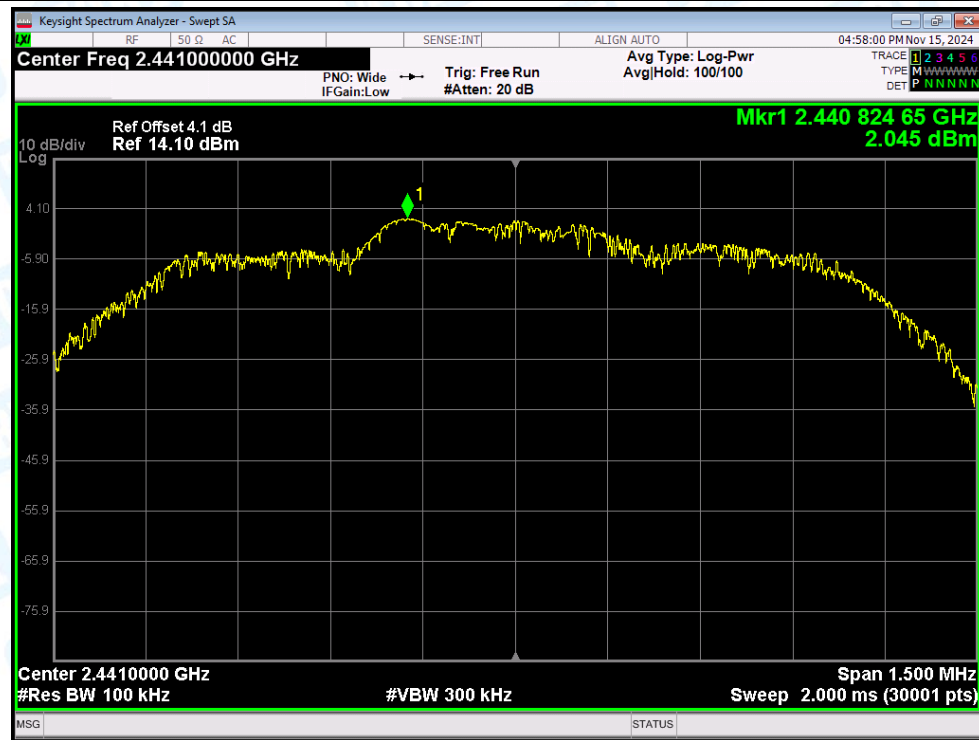
Tx. Spurious NVNT 2-DH1 2402MHz Ant1 Ref



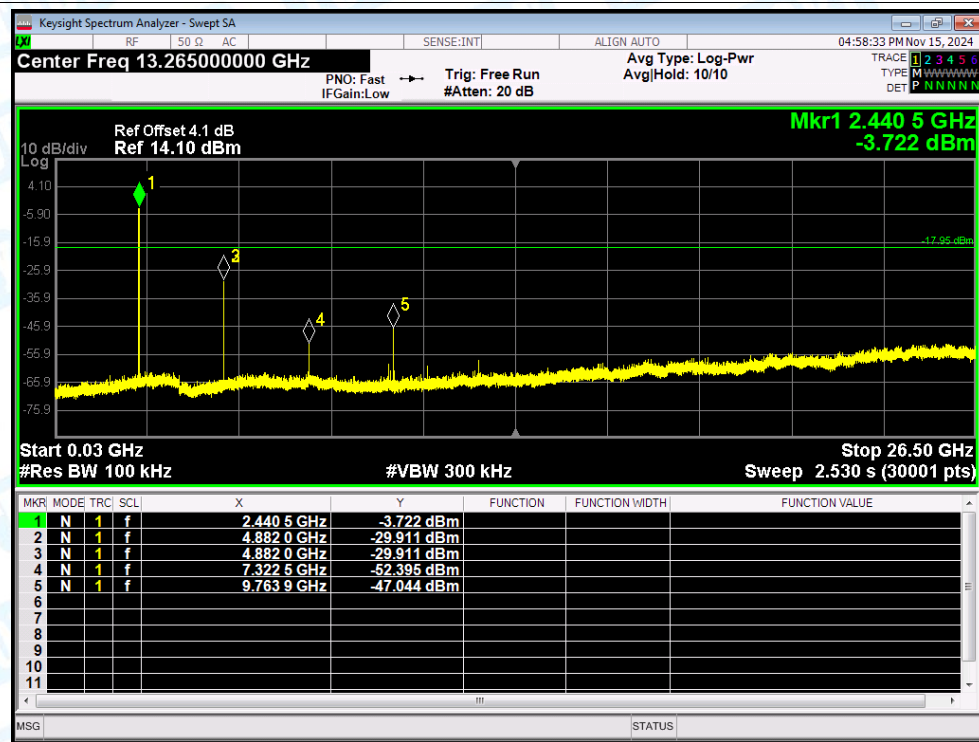
Tx. Spurious NVNT 2-DH1 2402MHz Ant1 Emission



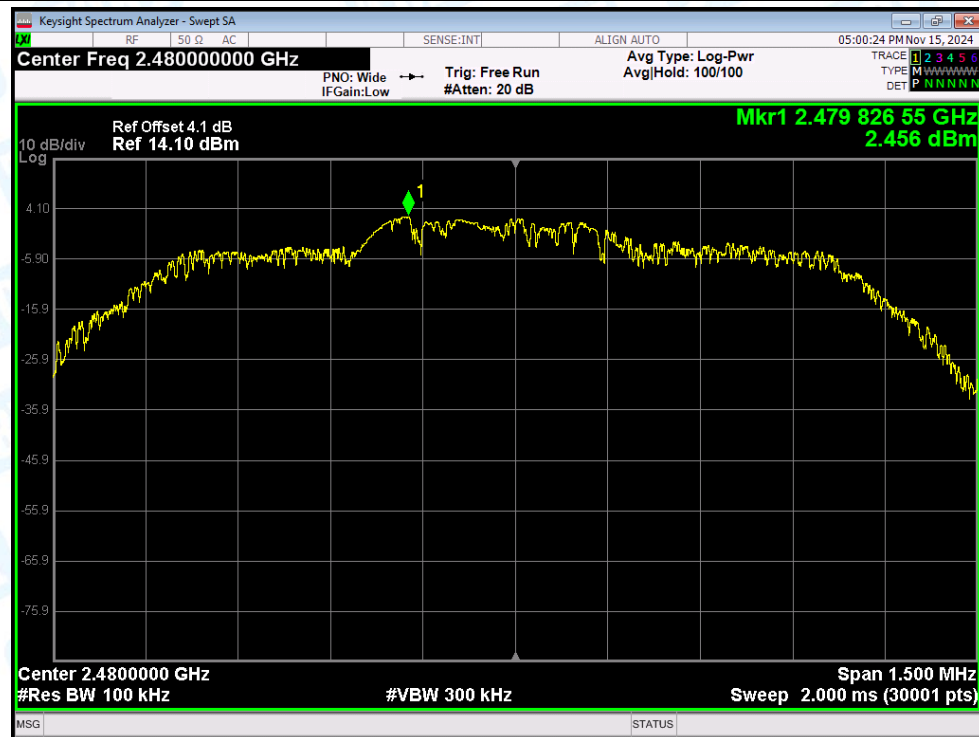
Tx. Spurious NVNT 2-DH1 2441MHz Ant1 Ref



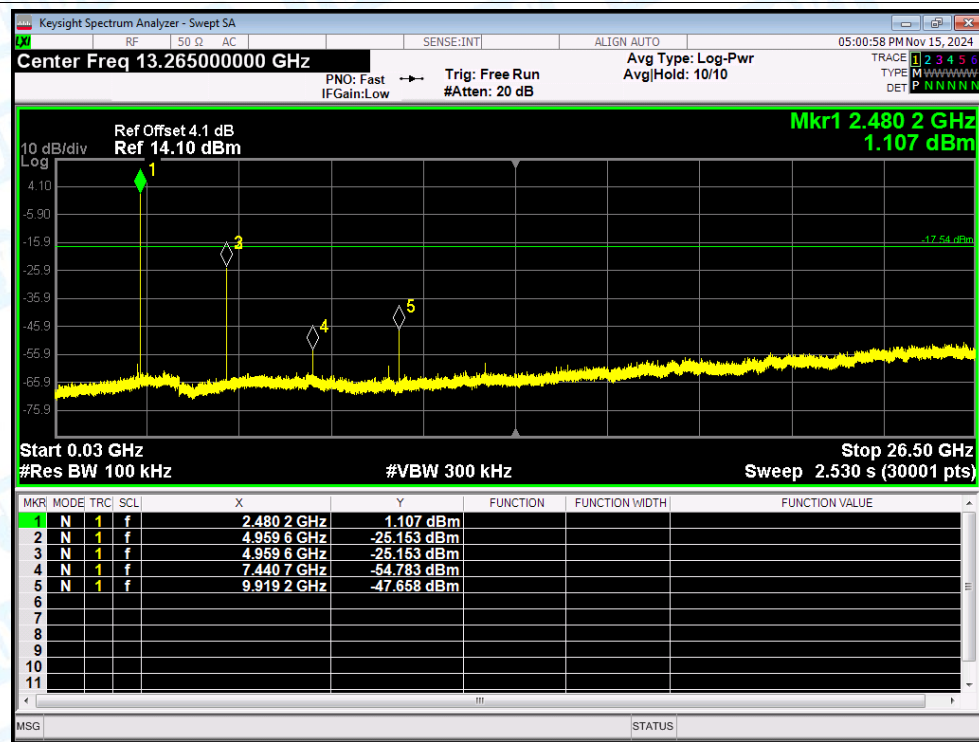
Tx. Spurious NVNT 2-DH1 2441MHz Ant1 Emission



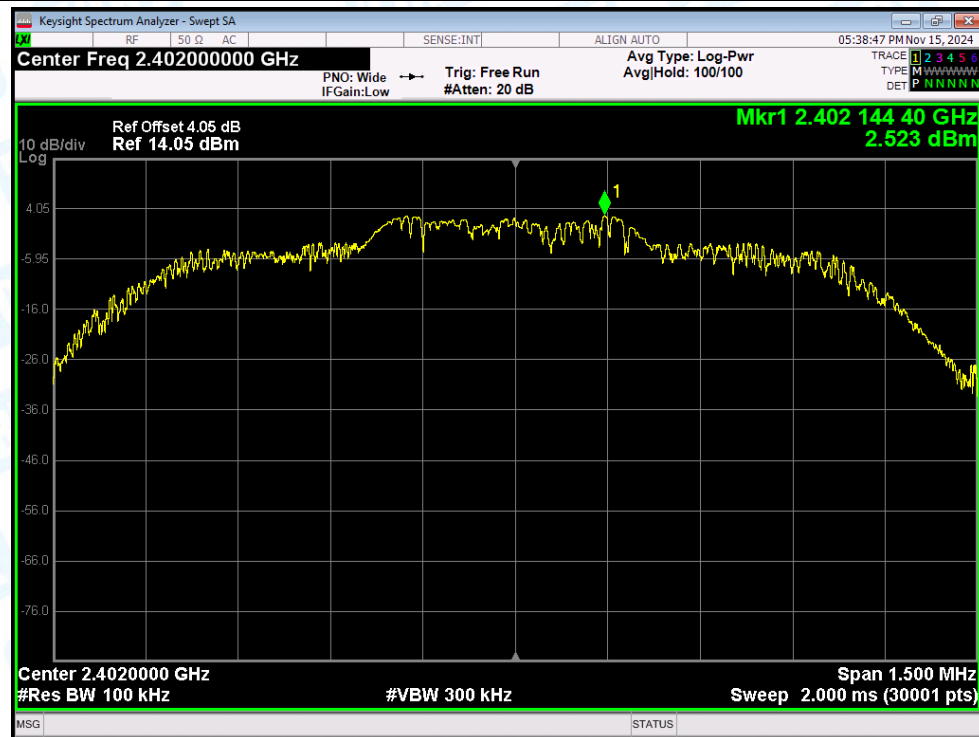
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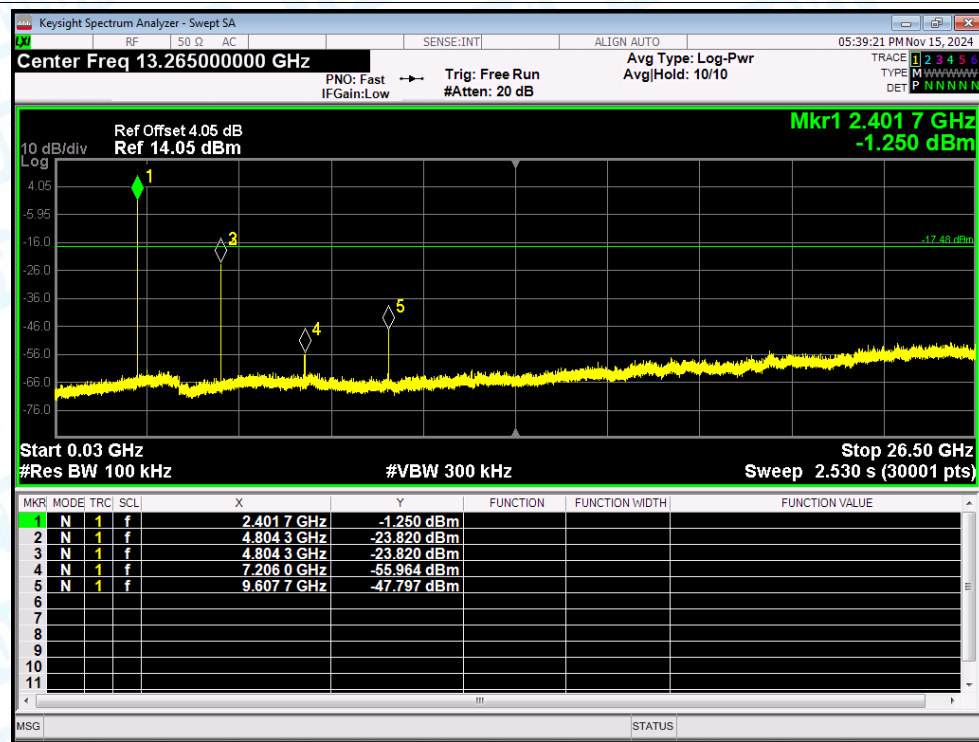
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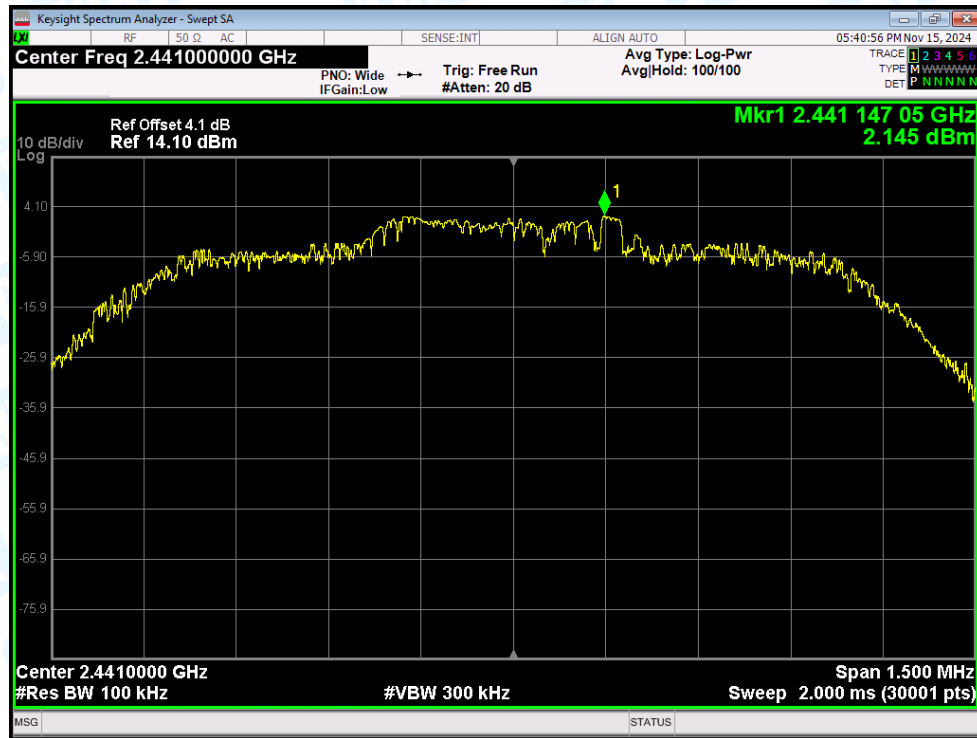
Tx. Spurious NVNT 3-DH1 2402MHz Ant1 Ref



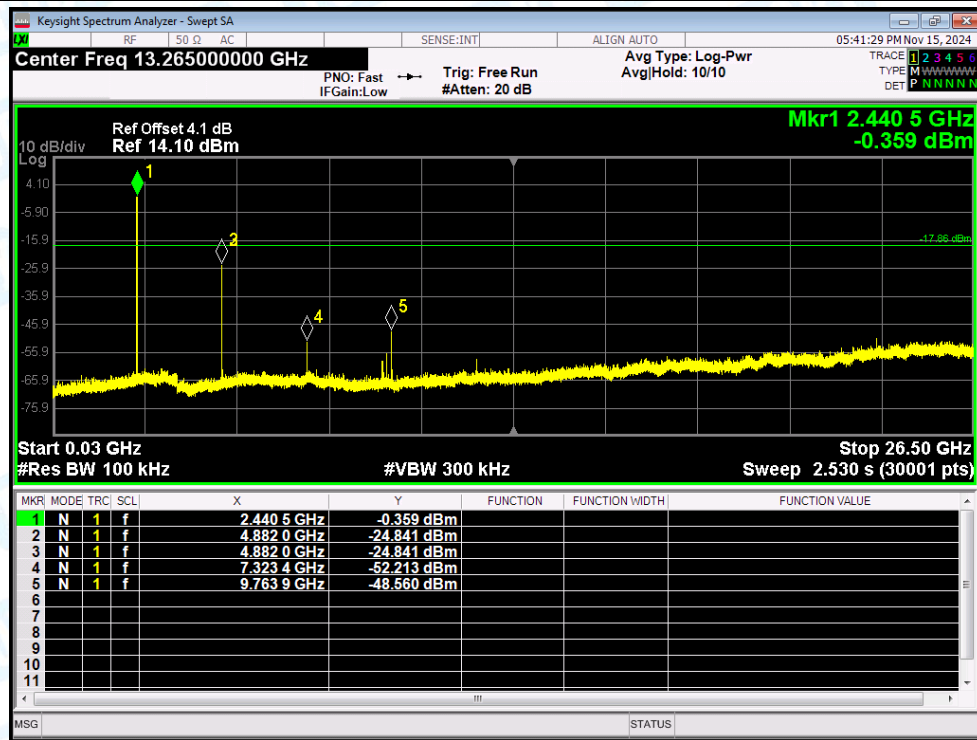
Tx. Spurious NVNT 3-DH1 2402MHz Ant1 Emission



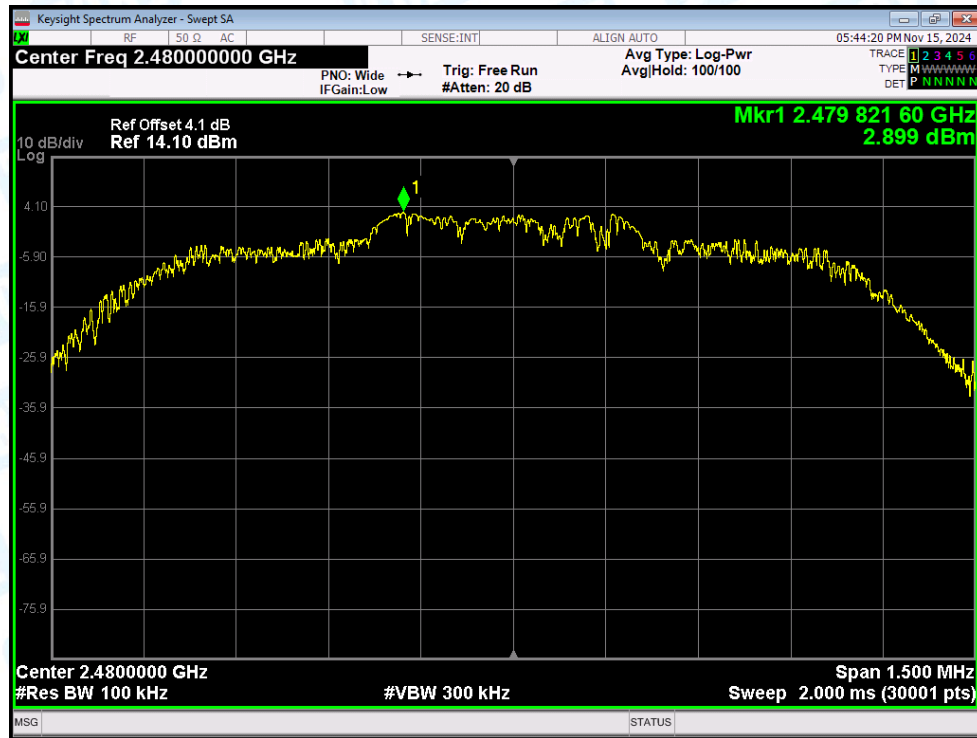
Tx. Spurious NVNT 3-DH1 2441MHz Ant1 Ref



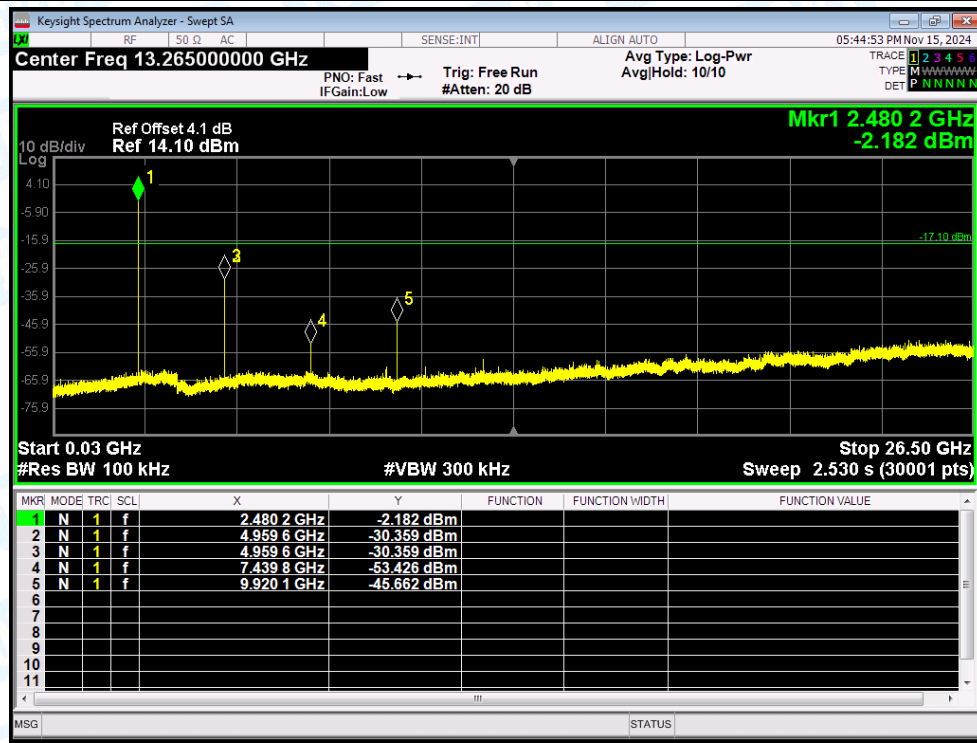
Tx. Spurious NVNT 3-DH1 2441MHz Ant1 Emission



Tx. Spurious NVNT 3-DH1 2480MHz Ant1 Ref



Tx. Spurious NVNT 3-DH1 2480MHz Ant1 Emission

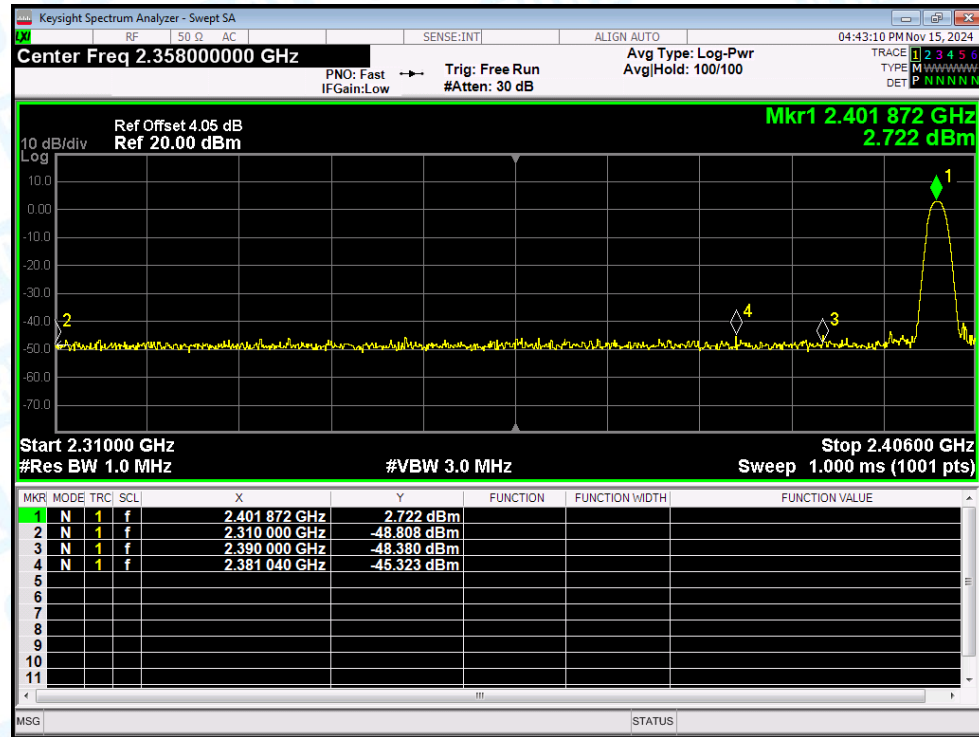


8. Restrict Band

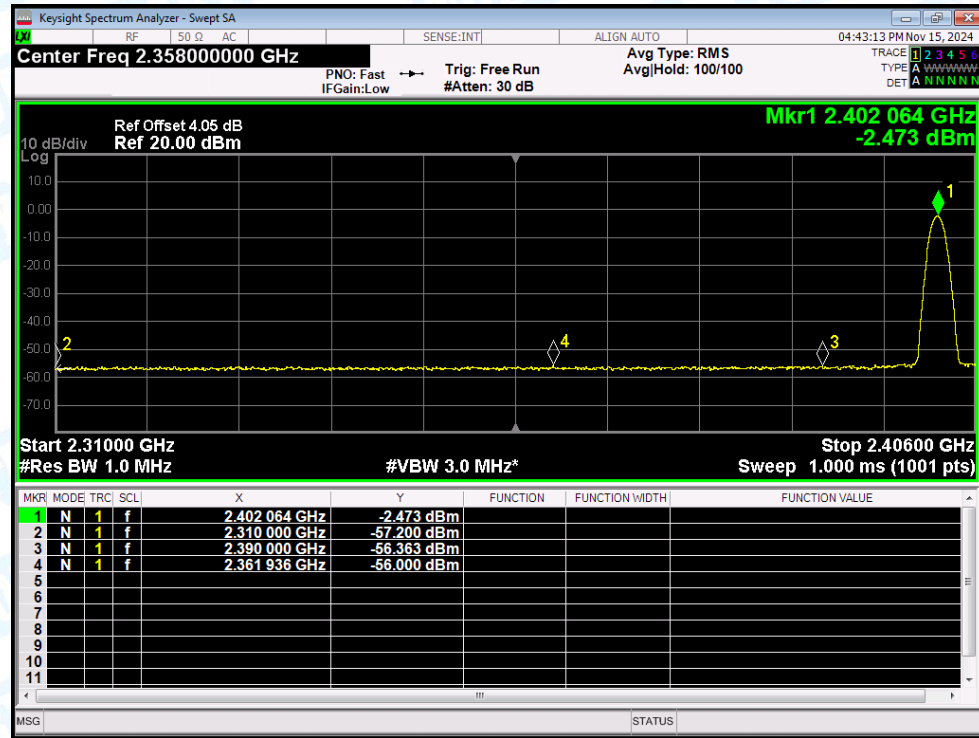
Condition	Mode	Frequency (MHz)	Antenna	Hopping Mode	Spur Freq (MHz)	Power (dBm)	Gain (dBi)	Duty Factor (dB)	E (dBuV/m)	Detector	Limit (dBuV/m)	Verdict
NVNT	1-DH1	2402	Ant1	No-Hopping	2310	-48.81	2	-	48.45	Peak	74	Pass
NVNT	1-DH1	2402	Ant1	No-Hopping	2310	-57.2	2	5.06	45.12	Average	54	Pass
NVNT	1-DH1	2402	Ant1	No-Hopping	2381.04	-45.32	2	-	51.94	Peak	74	Pass
NVNT	1-DH1	2402	Ant1	No-Hopping	2361.936	-56	2	5.06	46.32	Average	54	Pass
NVNT	1-DH1	2402	Ant1	No-Hopping	2390	-48.38	2	-	48.88	Peak	74	Pass
NVNT	1-DH1	2402	Ant1	No-Hopping	2390	-56.36	2	5.06	45.96	Average	54	Pass
NVNT	1-DH1	2480	Ant1	No-Hopping	2483.5	-47.08	2	-	50.18	Peak	74	Pass
NVNT	1-DH1	2480	Ant1	No-Hopping	2483.5	-55.22	2	5.06	47.1	Average	54	Pass
NVNT	1-DH1	2480	Ant1	No-Hopping	2484.976	-42.2	2	-	55.06	Peak	74	Pass
NVNT	1-DH1	2480	Ant1	No-Hopping	2483.584	-54.48	2	5.06	47.84	Average	54	Pass
NVNT	1-DH1	2480	Ant1	No-Hopping	2500	-49.2	2	-	48.06	Peak	74	Pass
NVNT	1-DH1	2480	Ant1	No-Hopping	2500	-55.78	2	5.06	46.54	Average	54	Pass
NVNT	2-DH1	2402	Ant1	No-Hopping	2310	-49.55	2	-	47.71	Peak	74	Pass
NVNT	2-DH1	2402	Ant1	No-Hopping	2310	-56.73	2	4.95	45.48	Average	54	Pass
NVNT	2-DH1	2402	Ant1	No-Hopping	2342.928	-45.79	2	-	51.47	Peak	74	Pass
NVNT	2-DH1	2402	Ant1	No-Hopping	2361.648	-56.09	2	4.95	46.12	Average	54	Pass
NVNT	2-DH1	2402	Ant1	No-Hopping	2390	-48.44	2	-	48.82	Peak	74	Pass
NVNT	2-DH1	2402	Ant1	No-Hopping	2390	-56.76	2	4.95	45.45	Average	54	Pass
NVNT	2-DH1	2480	Ant1	No-Hopping	2483.5	-38.11	2	-	59.15	Peak	74	Pass
NVNT	2-DH1	2480	Ant1	No-Hopping	2483.5	-55.32	2	4.84	46.78	Average	54	Pass
NVNT	2-DH1	2480	Ant1	No-Hopping	2483.536	-38.01	2	-	59.25	Peak	74	Pass
NVNT	2-DH1	2480	Ant1	No-Hopping	2484.4	-54.25	2	4.84	47.85	Average	54	Pass
NVNT	2-DH1	2480	Ant1	No-Hopping	2500	-46.7	2	-	50.56	Peak	74	Pass
NVNT	2-DH1	2480	Ant1	No-Hopping	2500	-55.92	2	4.84	46.18	Average	54	Pass
NVNT	3-DH1	2402	Ant1	No-Hopping	2310	-47.99	2	-	49.27	Peak	74	Pass
NVNT	3-DH1	2402	Ant1	No-Hopping	2310	-57.04	2	4.84	45.06	Average	54	Pass
NVNT	3-DH1	2402	Ant1	No-Hopping	2352.048	-45.39	2	-	51.87	Peak	74	Pass
NVNT	3-DH1	2402	Ant1	No-Hopping	2380.272	-55.86	2	4.84	46.24	Average	54	Pass
NVNT	3-DH1	2402	Ant1	No-Hopping	2390	-47.72	2	-	49.54	Peak	74	Pass
NVNT	3-DH1	2402	Ant1	No-Hopping	2390	-56.16	2	4.84	45.94	Average	54	Pass
NVNT	3-DH1	2480	Ant1	No-Hopping	2483.5	-47.14	2	-	50.12	Peak	74	Pass
NVNT	3-DH1	2480	Ant1	No-Hopping	2483.5	-55.62	2	4.84	46.48	Average	54	Pass
NVNT	3-DH1	2480	Ant1	No-Hopping	2484.304	-29.4	2	-	67.86	Peak	74	Pass
NVNT	3-DH1	2480	Ant1	No-Hopping	2483.992	-49.83	2	4.84	52.27	Average	54	Pass
NVNT	3-DH1	2480	Ant1	No-Hopping	2500	-47.54	2	-	49.72	Peak	74	Pass
NVNT	3-DH1	2480	Ant1	No-Hopping	2500	-55.97	2	4.84	46.13	Average	54	Pass

Test Graphs

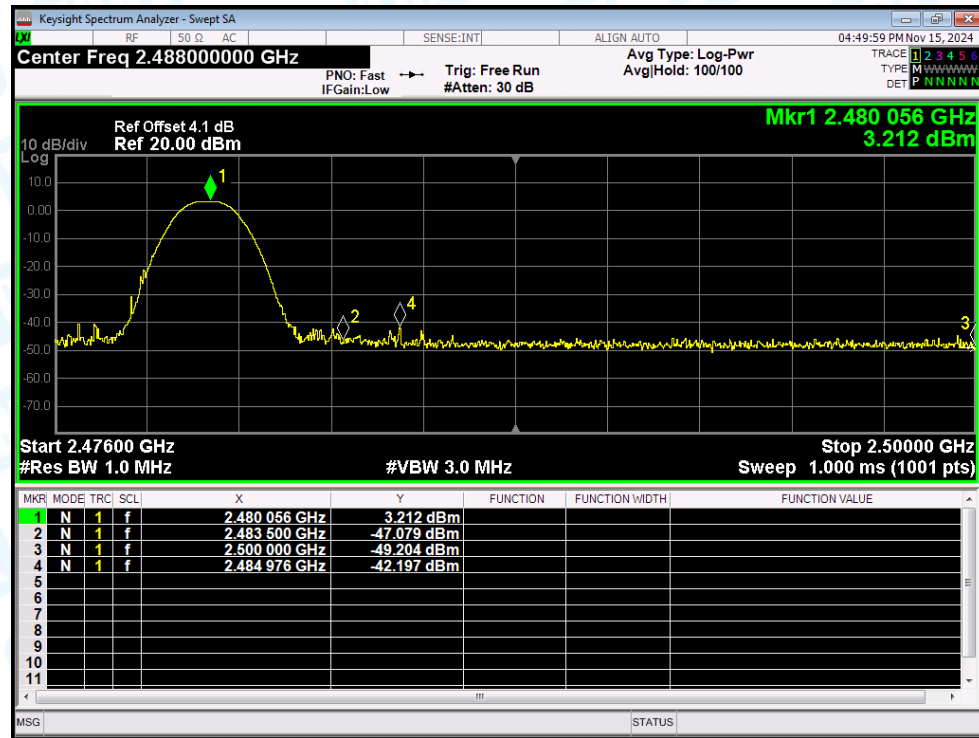
Restrict Band NVNT 1-DH1 2402MHz Ant1 No-Hopping Peak



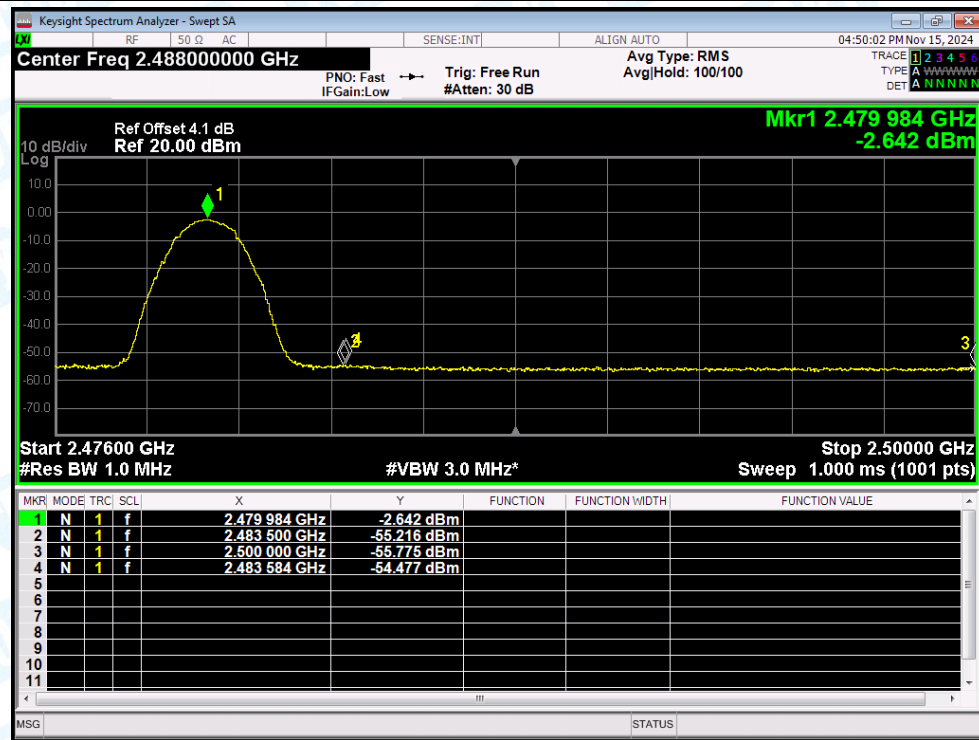
Restrict Band NVNT 1-DH1 2402MHz Ant1 No-Hopping Average



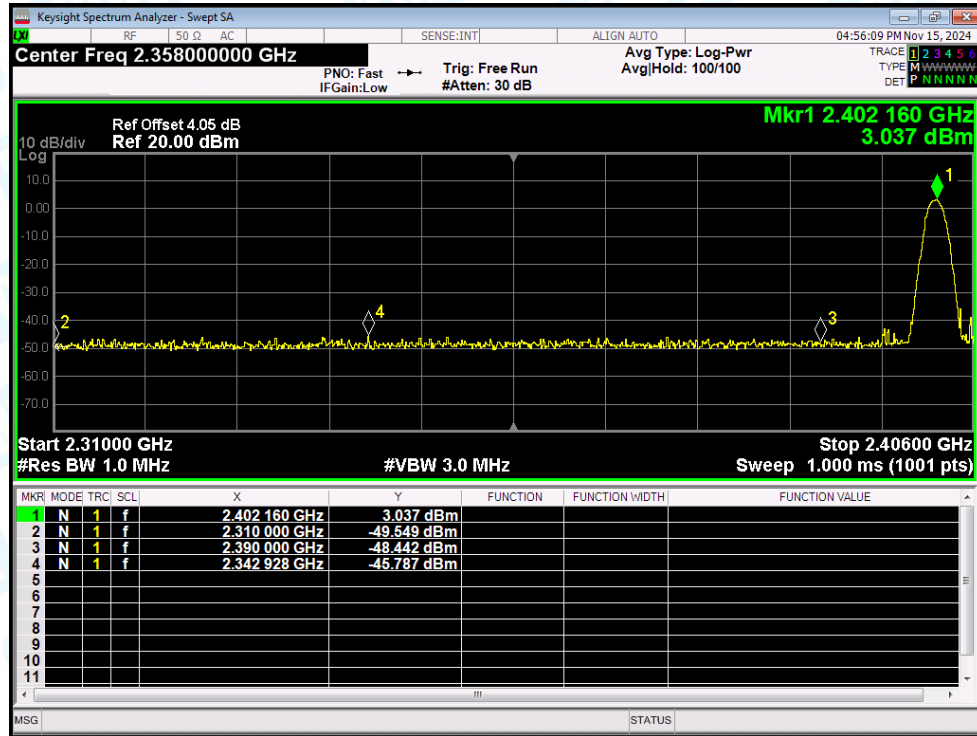
Restrict Band NVNT 1-DH1 2480MHz Ant1 No-Hopping Peak



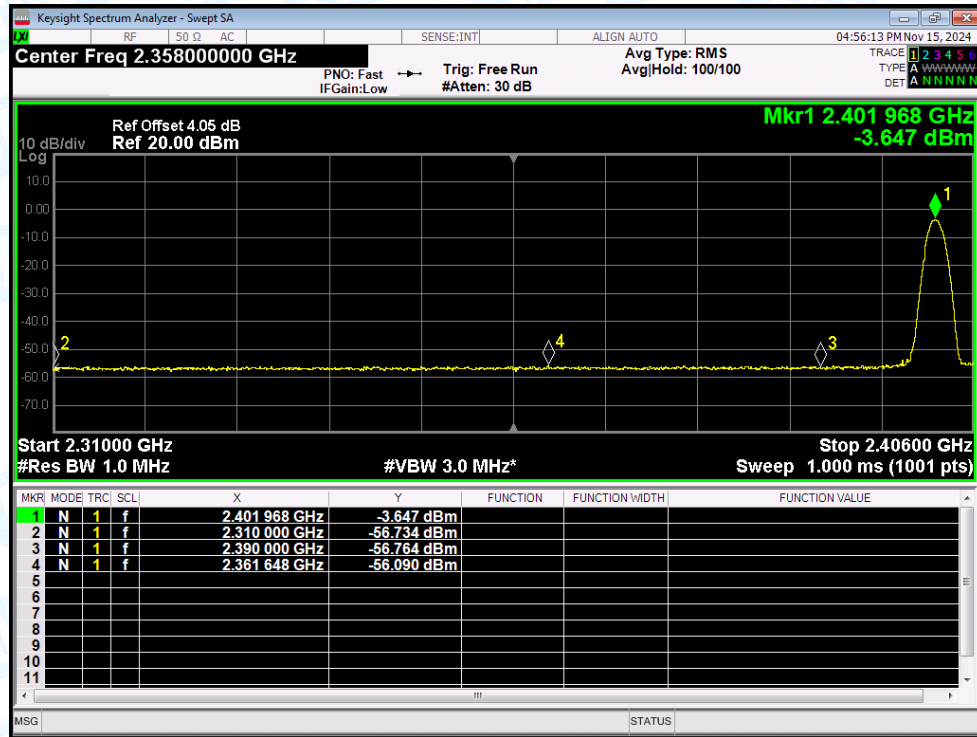
Restrict Band NVNT 1-DH1 2480MHz Ant1 No-Hopping Average



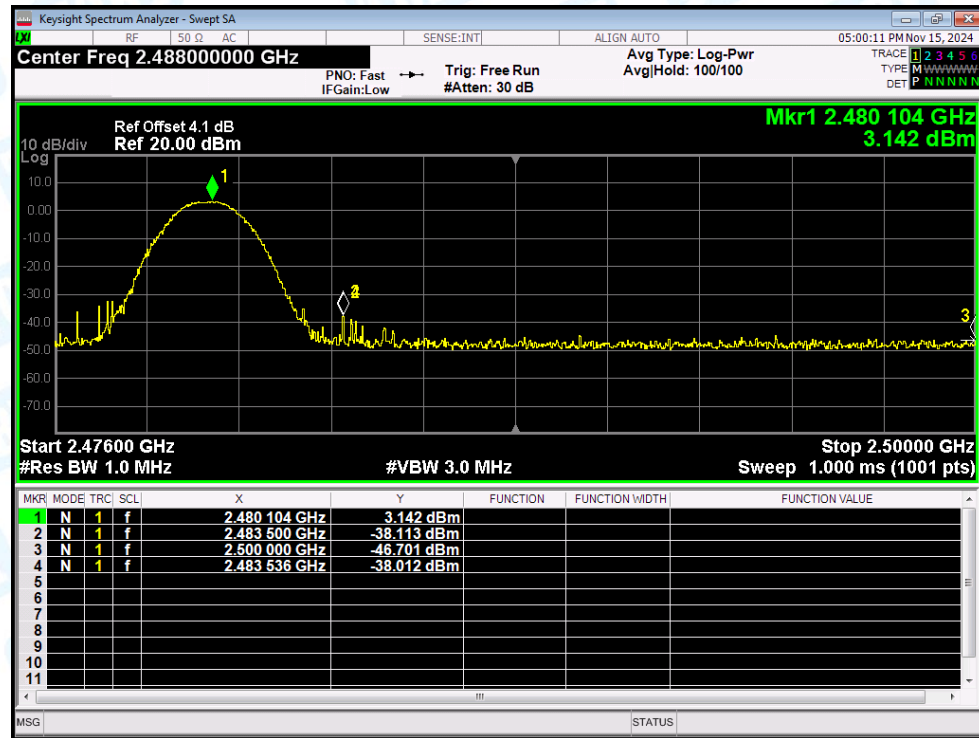
Restrict Band NVNT 2-DH1 2402MHz Ant1 No-Hopping Peak



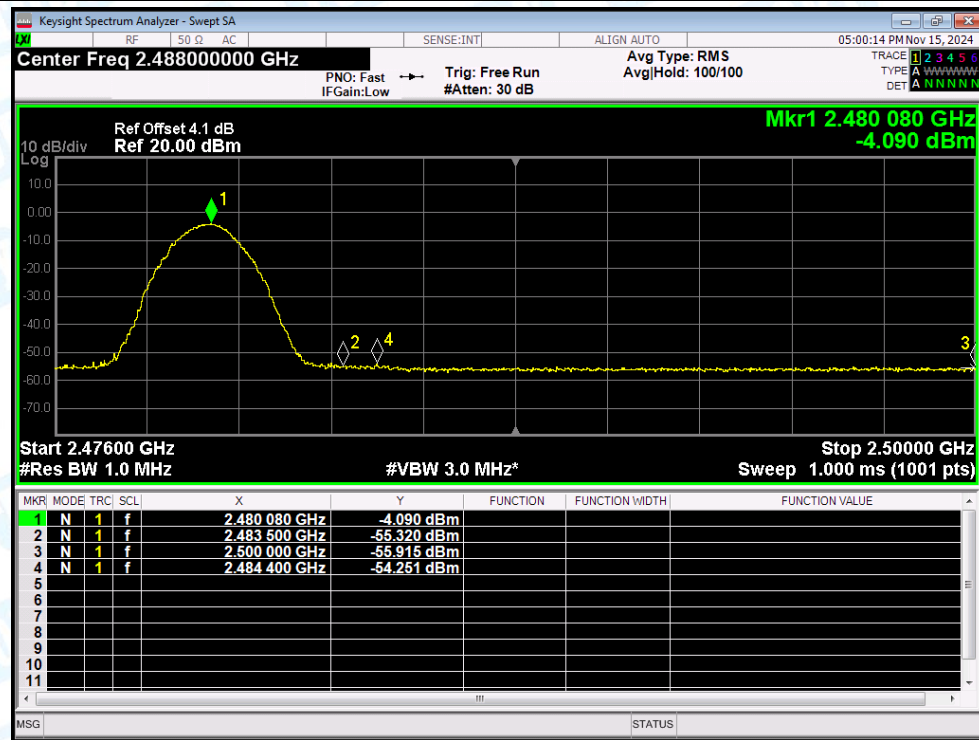
Restrict Band NVNT 2-DH1 2402MHz Ant1 No-Hopping Average



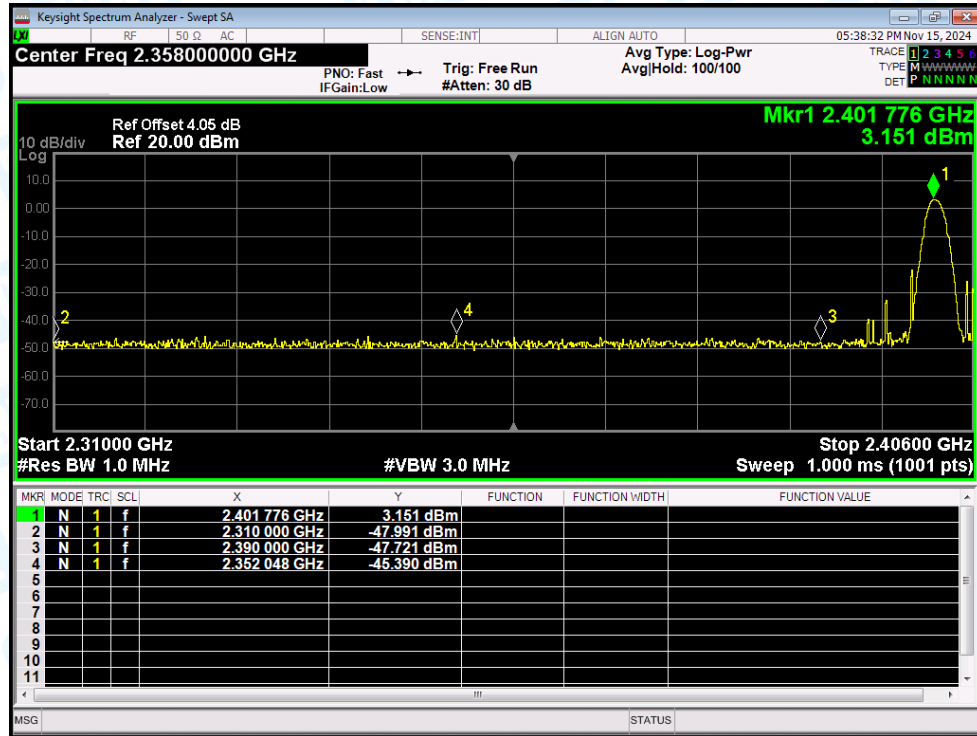
Restrict Band NVNT 2-DH1 2480MHz Ant1 No-Hopping Peak



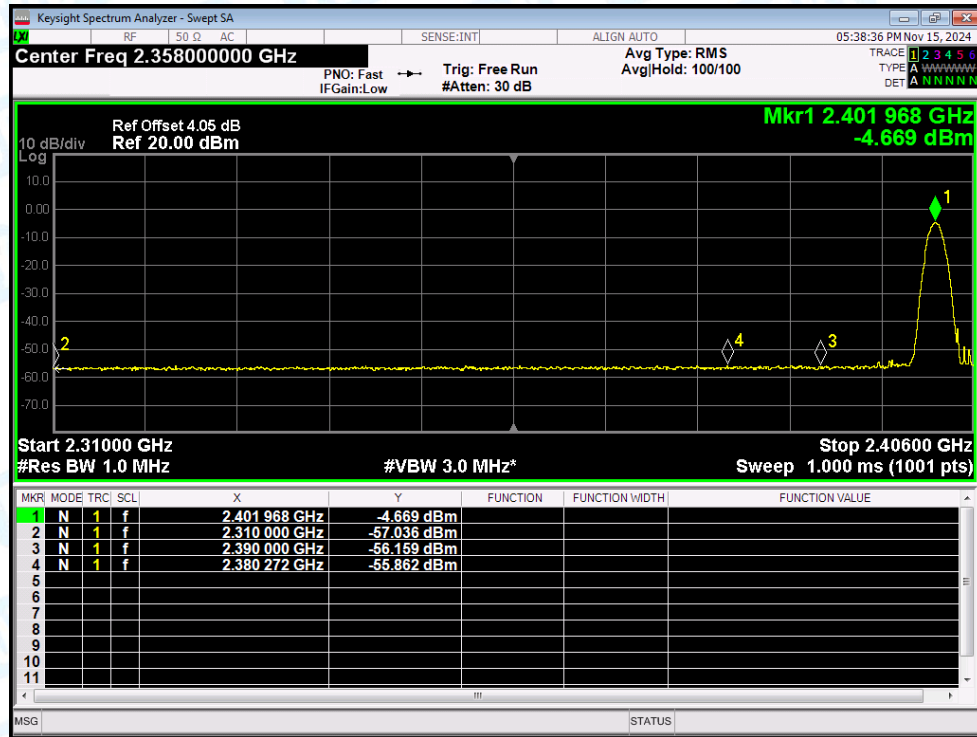
Restrict Band NVNT 2-DH1 2480MHz Ant1 No-Hopping Average



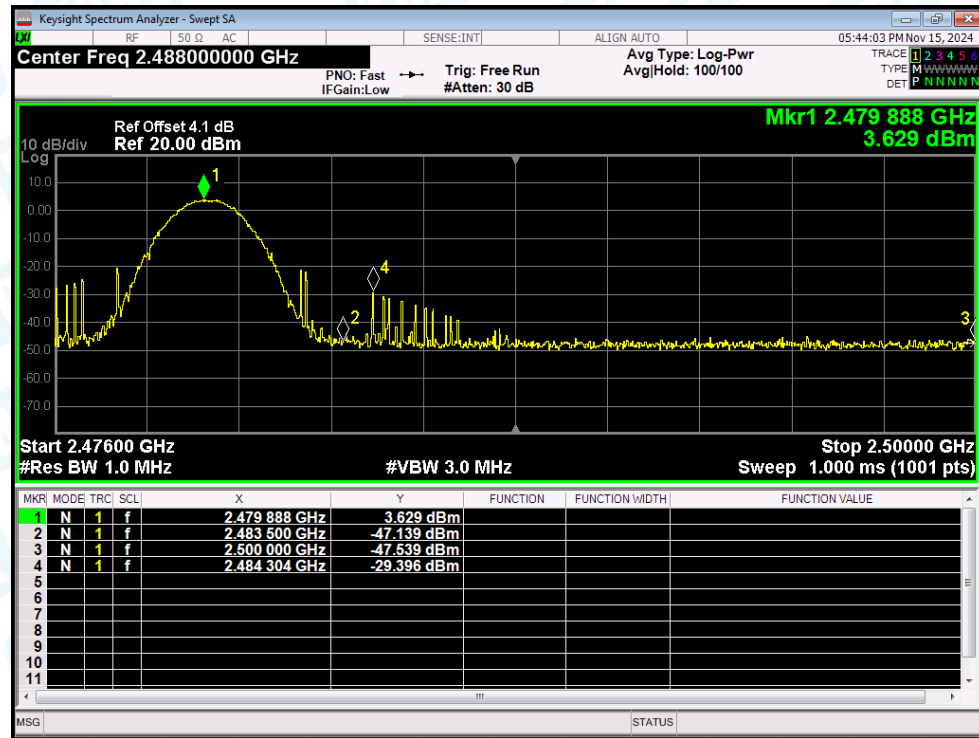
Restrict Band NVNT 3-DH1 2402MHz Ant1 No-Hopping Peak



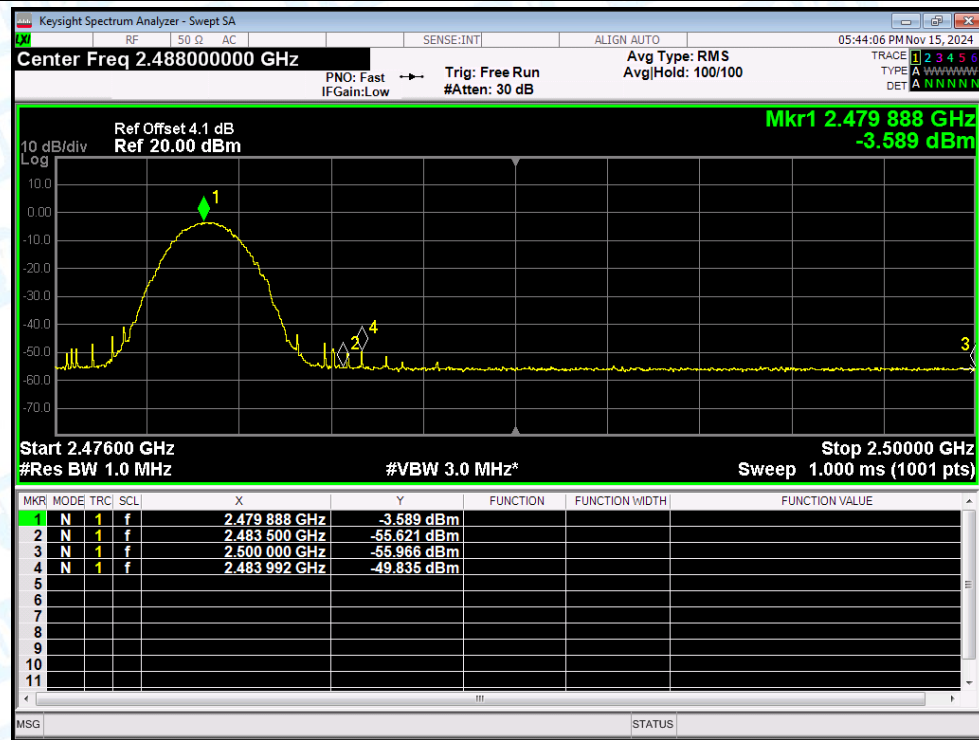
Restrict Band NVNT 3-DH1 2402MHz Ant1 No-Hopping Average



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



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

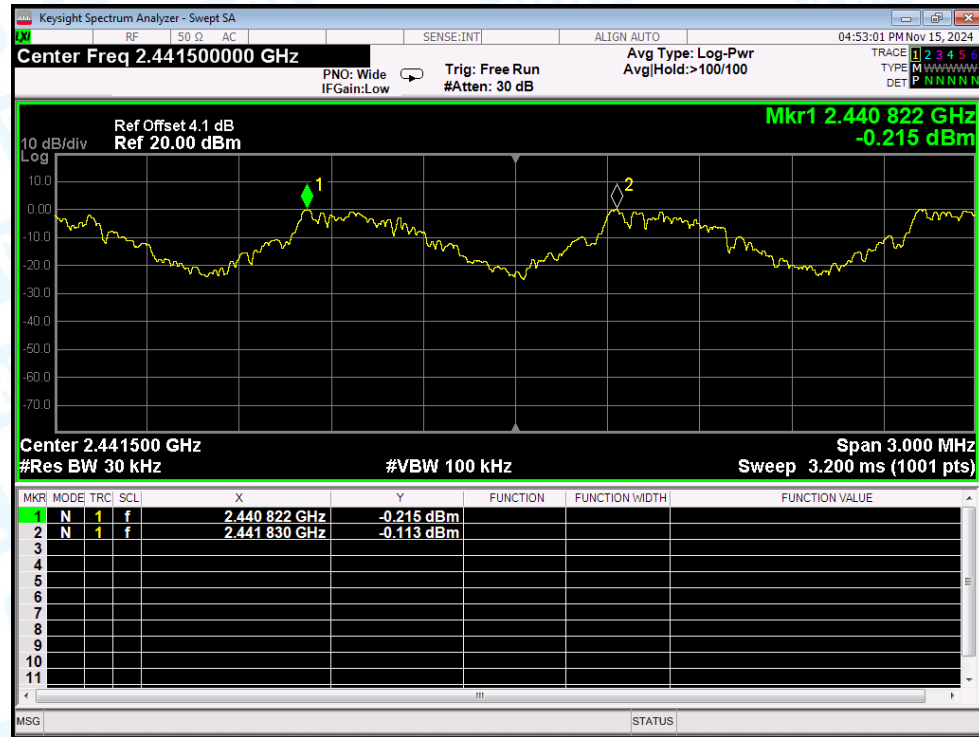


9. Carrier Frequencies Separation

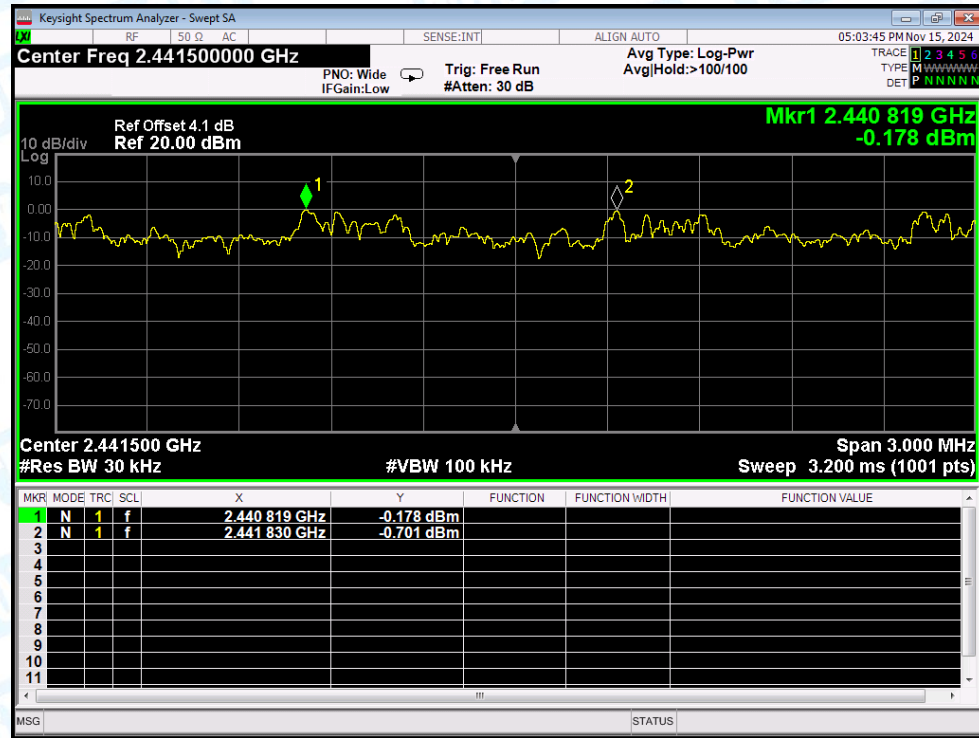
Condition	Mode	Antenna	Hopping Freq1 (MHz)	Hopping Freq2 (MHz)	HFS (MHz)	Limit (MHz)	Verdict
NVNT	1-DH1	Ant1	2440.822	2441.83	1.008	0.58	Pass
NVNT	2-DH1	Ant1	2440.819	2441.83	1.011	0.833	Pass
NVNT	3-DH1	Ant1	2440.825	2441.83	1.005	0.833	Pass

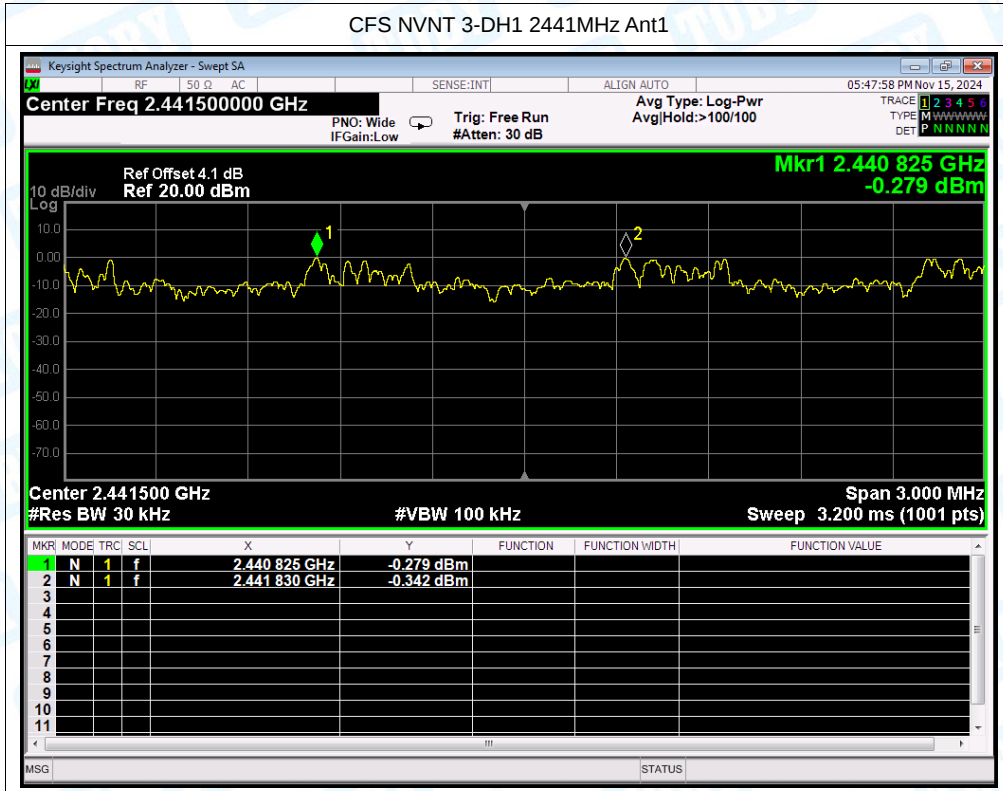
Test Graphs

CFS NVNT 1-DH1 2441MHz Ant1



CFS NVNT 2-DH1 2441MHz Ant1



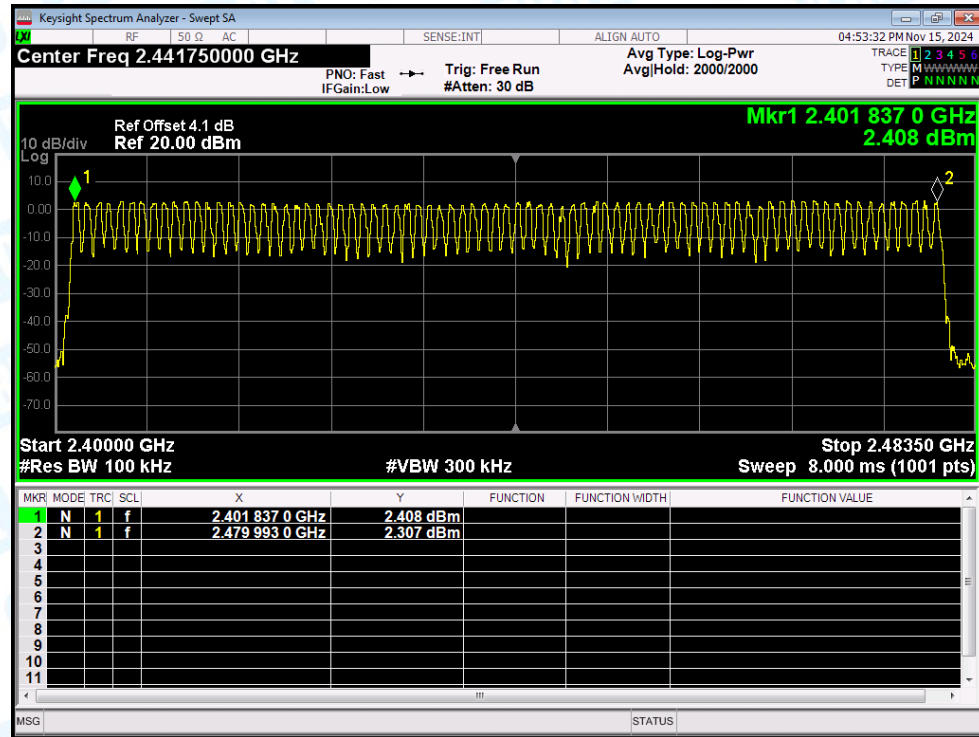


10. Number of Hopping Channel

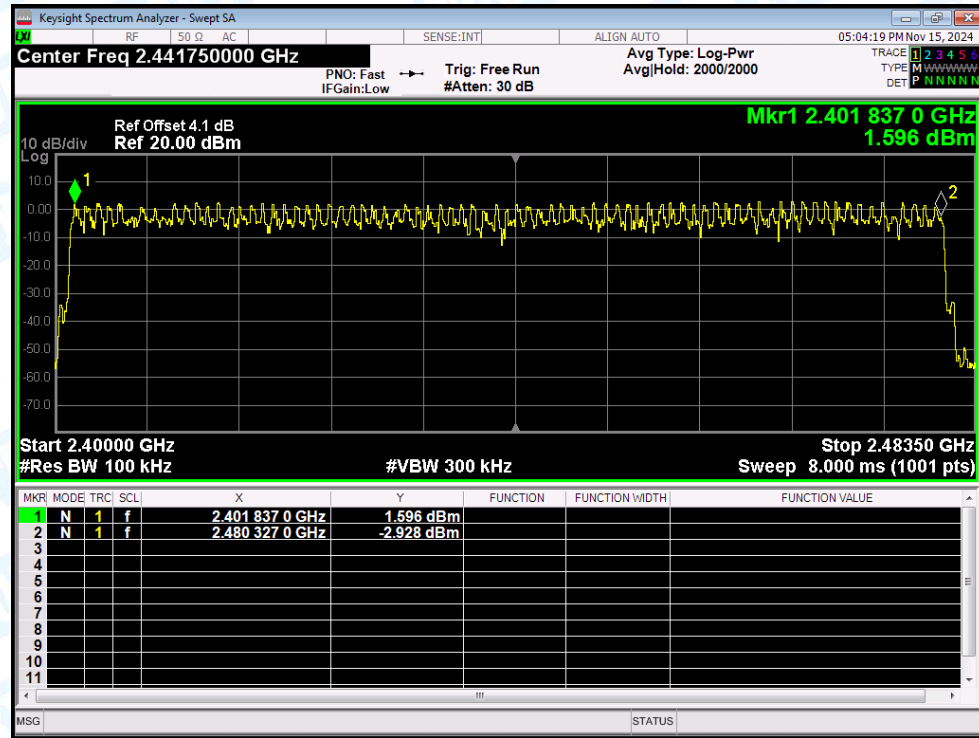
Condition	Mode	Antenna	Hopping Number	Limit	Verdict
NVNT	1-DH1	Ant1	79	15	Pass
NVNT	2-DH1	Ant1	79	15	Pass
NVNT	3-DH1	Ant1	79	15	Pass

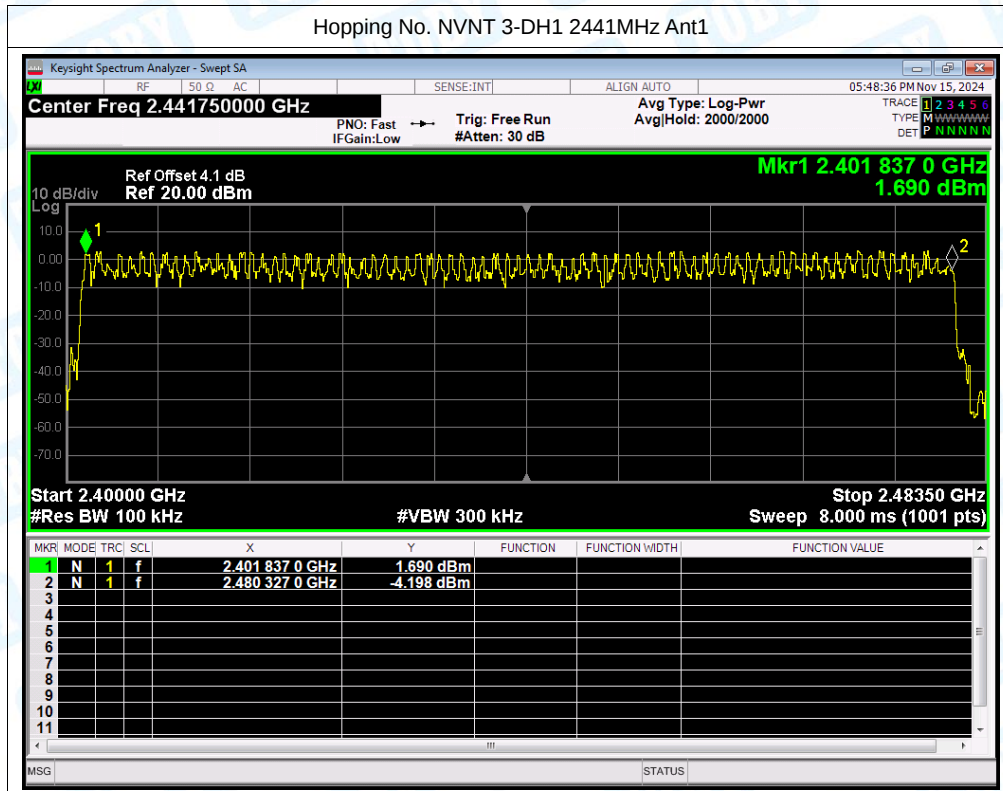
Test Graphs

Hopping No. NVNT 1-DH1 2441MHz Ant1



Hopping No. NVNT 2-DH1 2441MHz Ant1



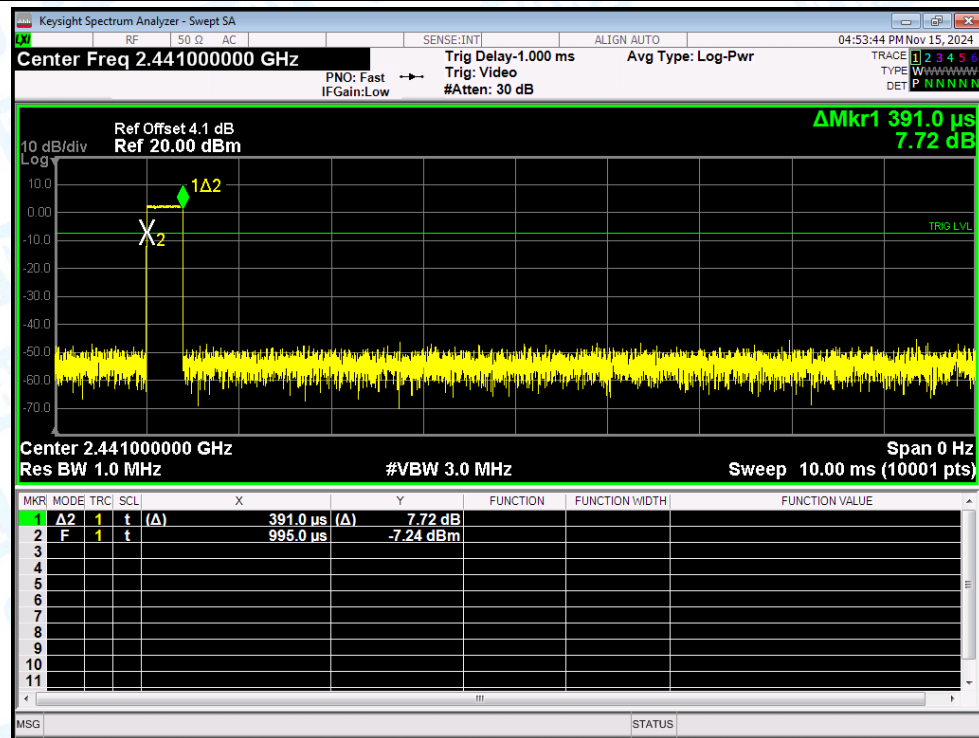


11. Dwell Time

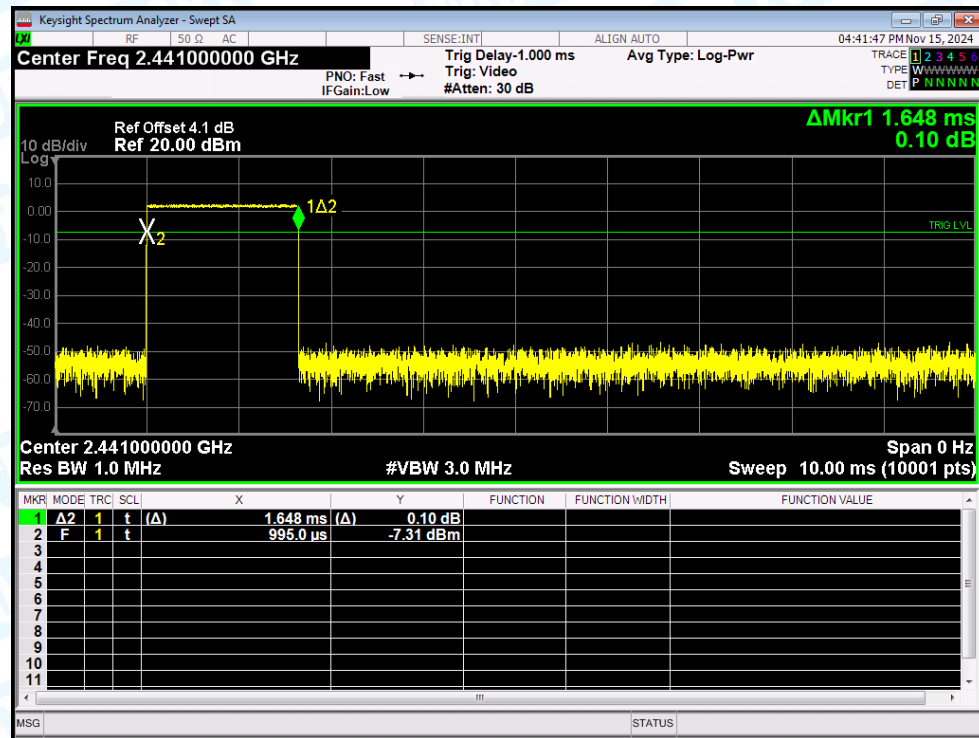
Condition	Mode	Frequency (MHz)	Antenna	Pulse Time (ms)	Total Dwell Time (ms)	Period Time (ms)	Limit (ms)	Verdict
NVNT	1-DH1	2441	Ant1	0.391	125.12	31600	400	Pass
NVNT	1-DH3	2441	Ant1	1.648	263.68	31600	400	Pass
NVNT	1-DH5	2441	Ant1	2.895	308.8	31600	400	Pass
NVNT	2-DH1	2441	Ant1	0.378	120.96	31600	400	Pass
NVNT	2-DH3	2441	Ant1	1.653	264.48	31600	400	Pass
NVNT	2-DH5	2441	Ant1	2.9	309.333	31600	400	Pass
NVNT	3-DH1	2441	Ant1	0.401	128.32	31600	400	Pass
NVNT	3-DH3	2441	Ant1	1.651	264.16	31600	400	Pass
NVNT	3-DH5	2441	Ant1	2.903	309.653	31600	400	Pass

Test Graphs

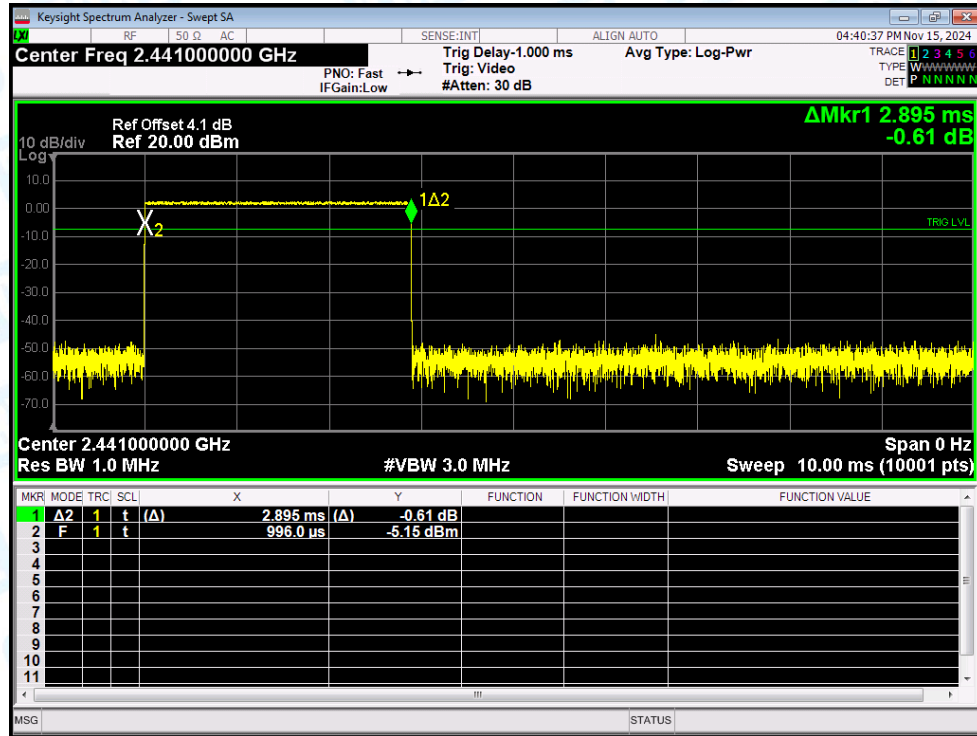
Dwell NVNT 1-DH1 2441MHz Ant1



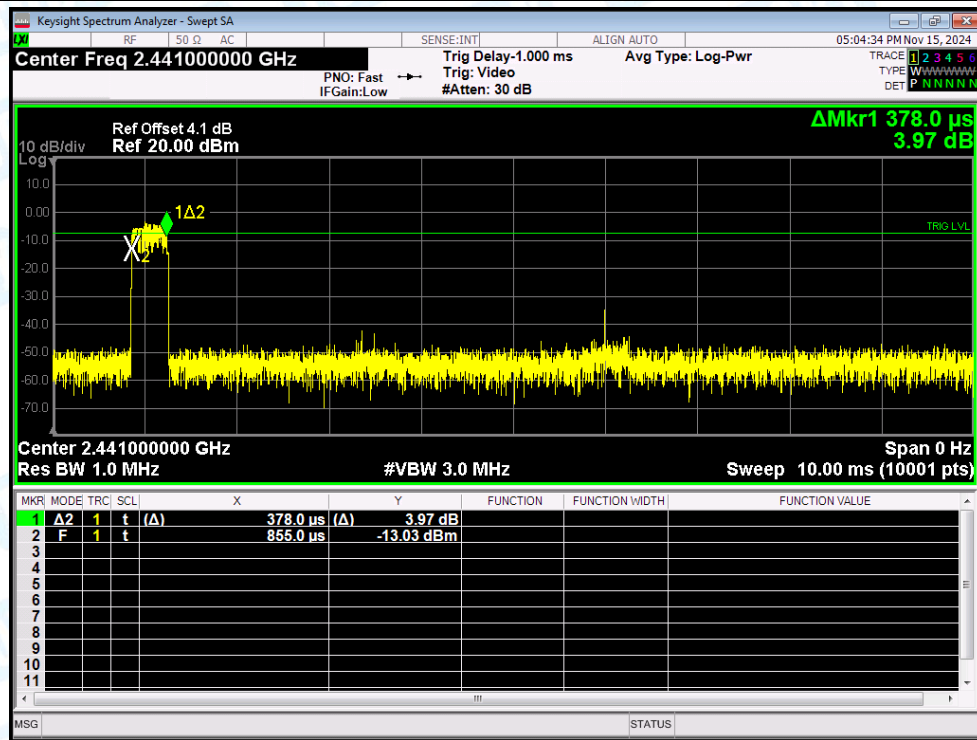
Dwell NVNT 1-DH3 2441MHz Ant1



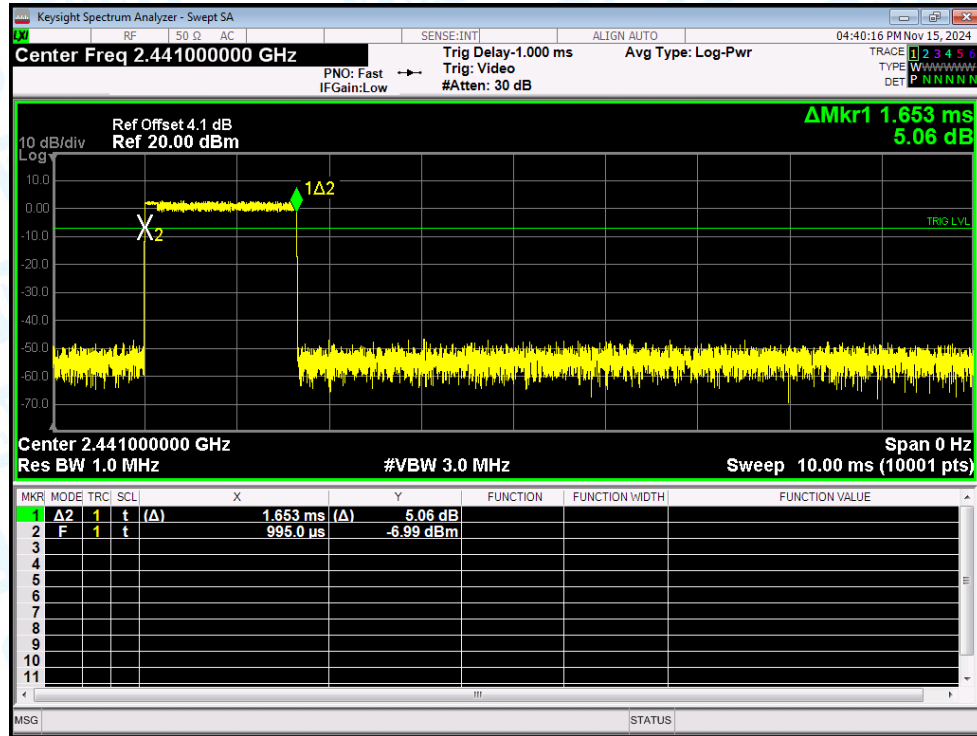
Dwell NVNT 1-DH5 2441MHz Ant1



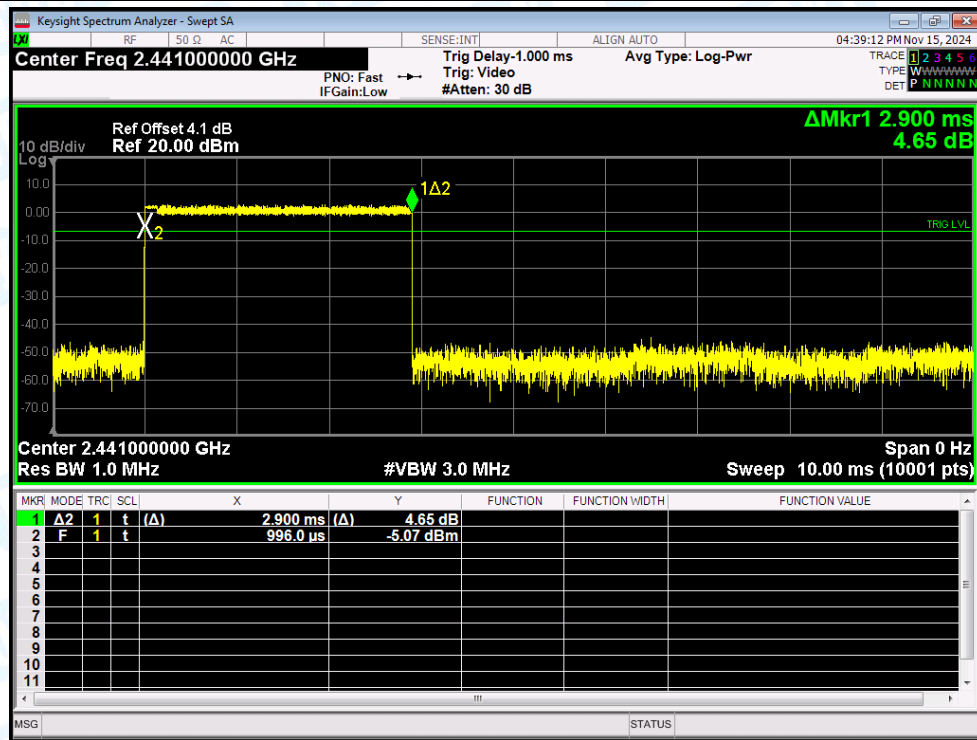
Dwell NVNT 2-DH1 2441MHz Ant1



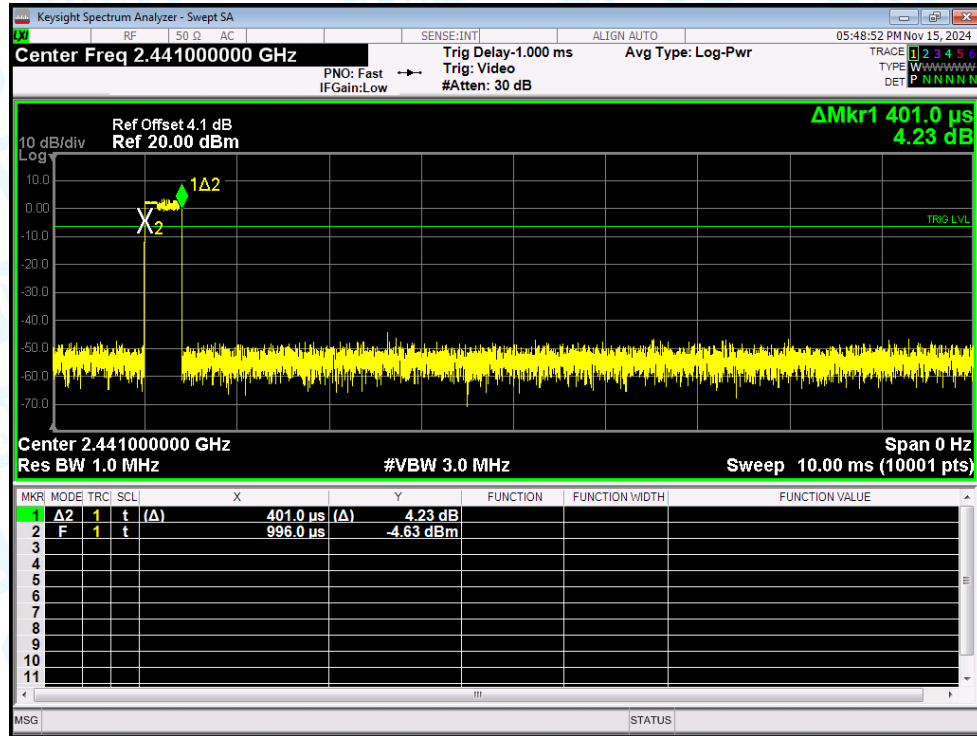
Dwell NVNT 2-DH3 2441MHz Ant1



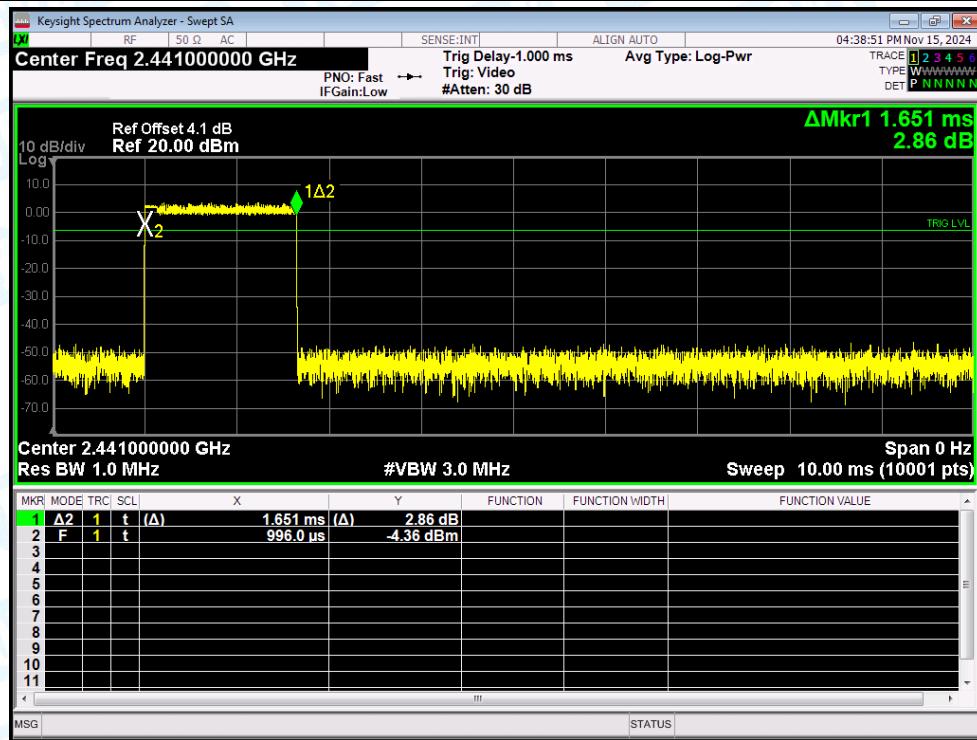
Dwell NVNT 2-DH5 2441MHz Ant1

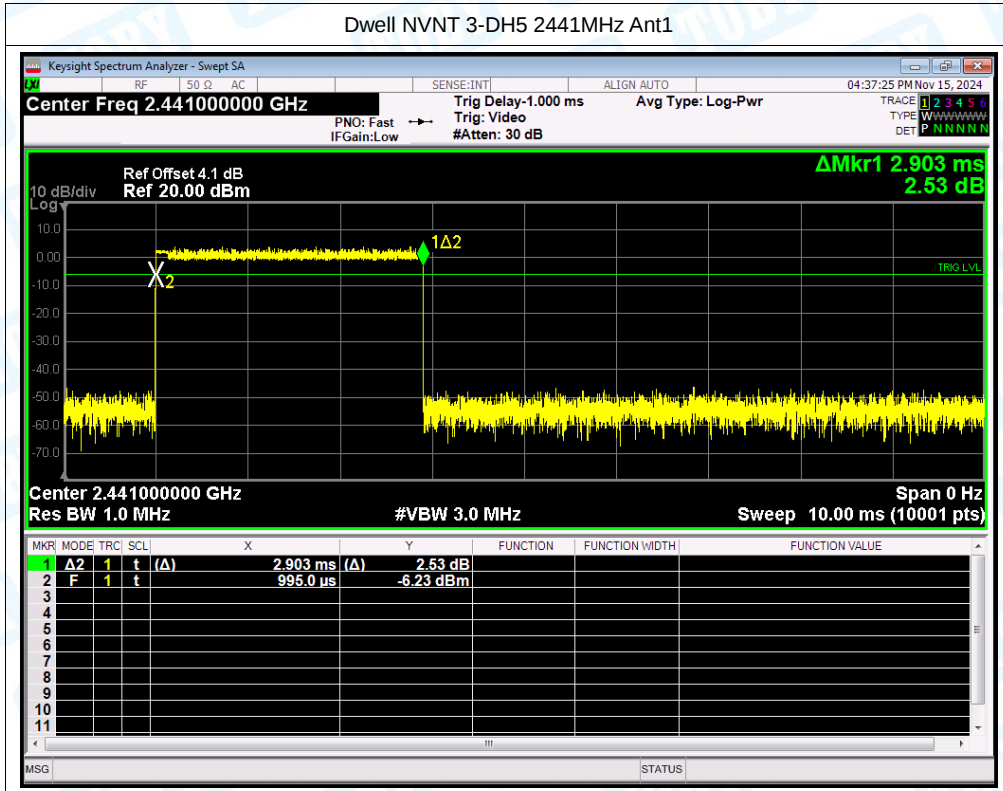


Dwell NVNT 3-DH1 2441MHz Ant1



Dwell NVNT 3-DH3 2441MHz Ant1





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