

RF Test Data for Bluetooth (Conducted Measurements)

General Description of EUT	
Product Name:	smart watch
Test Model:	HW82
Sample ID:	HC-C-202412-0093-01-01-2#
Environmental Conditions	
Temperature:	23.8℃
Relative Humidity:	48%
Test Voltage:	DC 3.8V
Test Engineer:	Rick. chen
Note: For a more detailed features description, please refer to the report TBR-C-202412-0093-9 The report only show the worst case data.	

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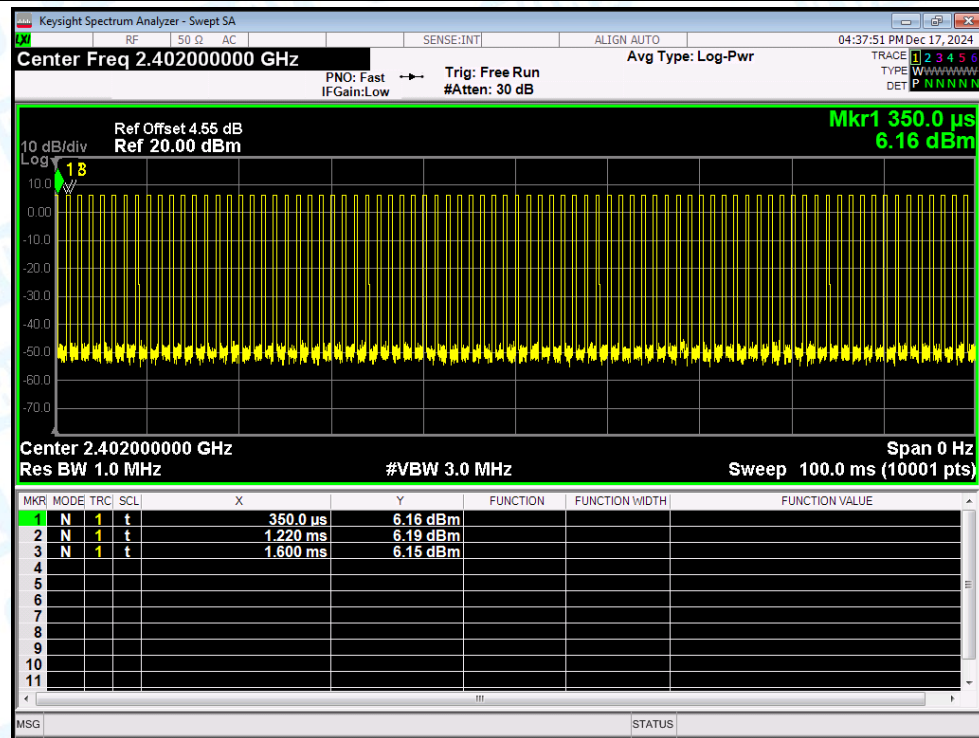
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1. Duty Cycle

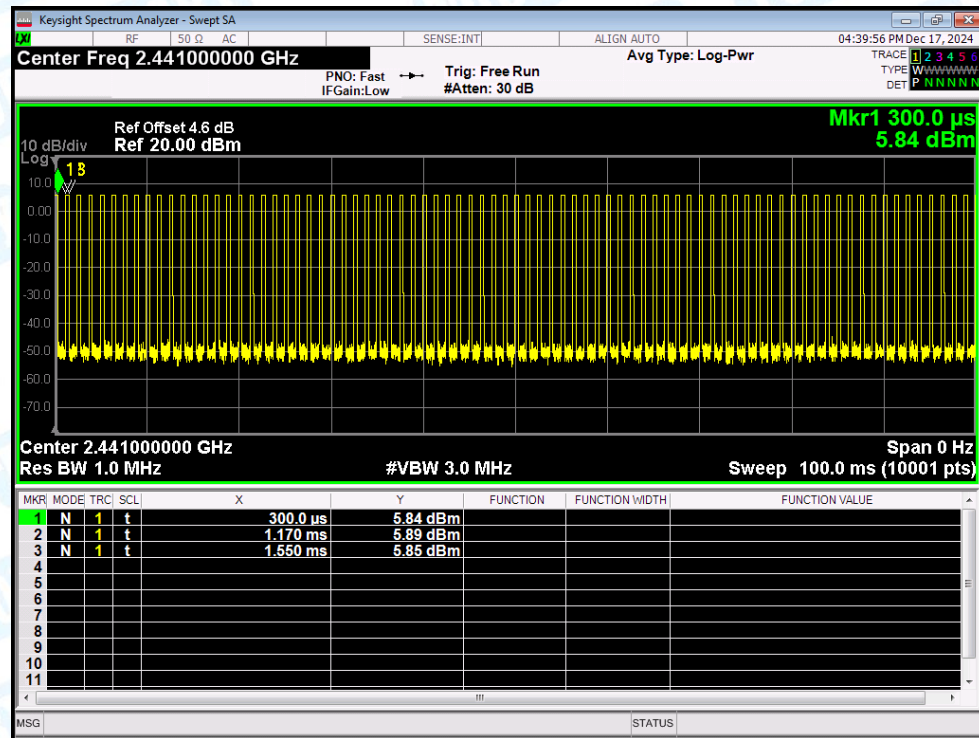
Condition	Mode	Frequency (MHz)	Antenna	Duty Cycle (%)	Correction Factor (dB)	1/T (kHz)
NVNT	1-DH1	2402	Ant1	30.4	5.17	2.63
NVNT	1-DH1	2441	Ant1	30.4	5.17	2.63
NVNT	1-DH1	2480	Ant1	31.2	5.06	2.56
NVNT	2-DH1	2402	Ant1	31.2	5.06	2.56
NVNT	2-DH1	2441	Ant1	31.2	5.06	2.56
NVNT	2-DH1	2480	Ant1	31.2	5.06	2.56
NVNT	3-DH1	2402	Ant1	31.2	5.06	2.56
NVNT	3-DH1	2441	Ant1	32	4.95	2.5
NVNT	3-DH1	2480	Ant1	32	4.95	2.5

Test Graphs

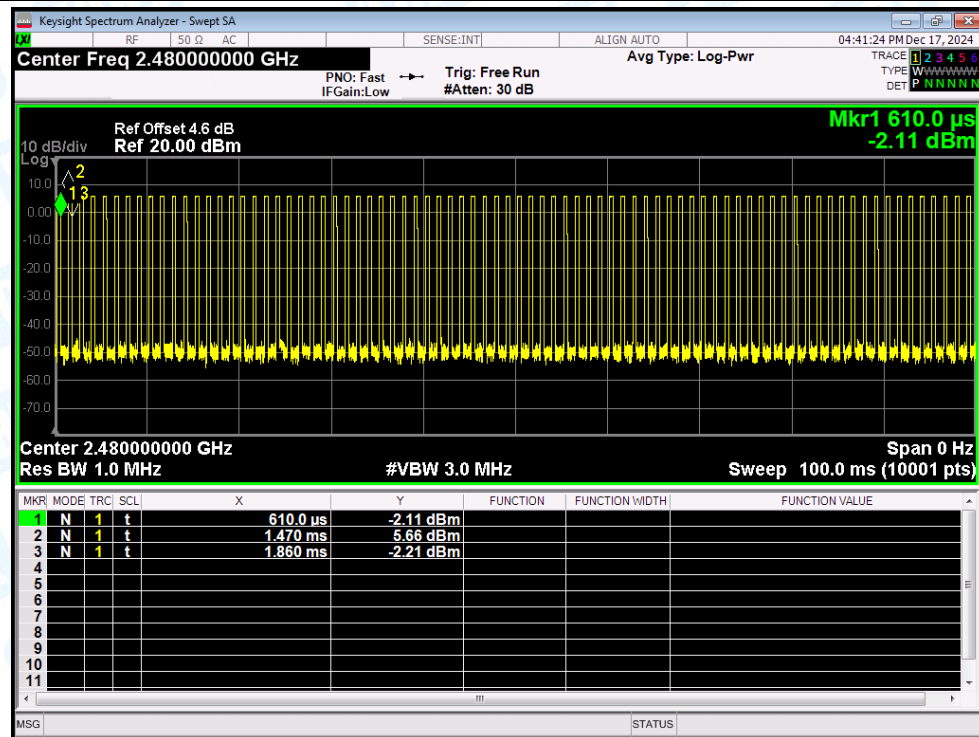
Duty Cycle NVNT 1-DH1 2402MHz Ant1



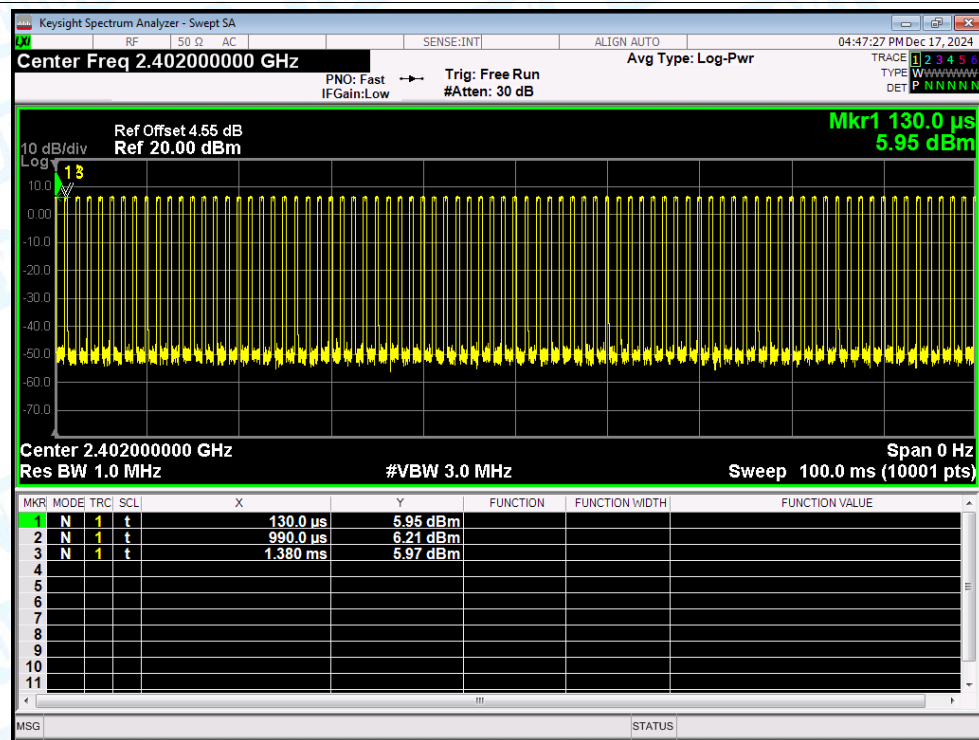
Duty Cycle NVNT 1-DH1 2441MHz Ant1



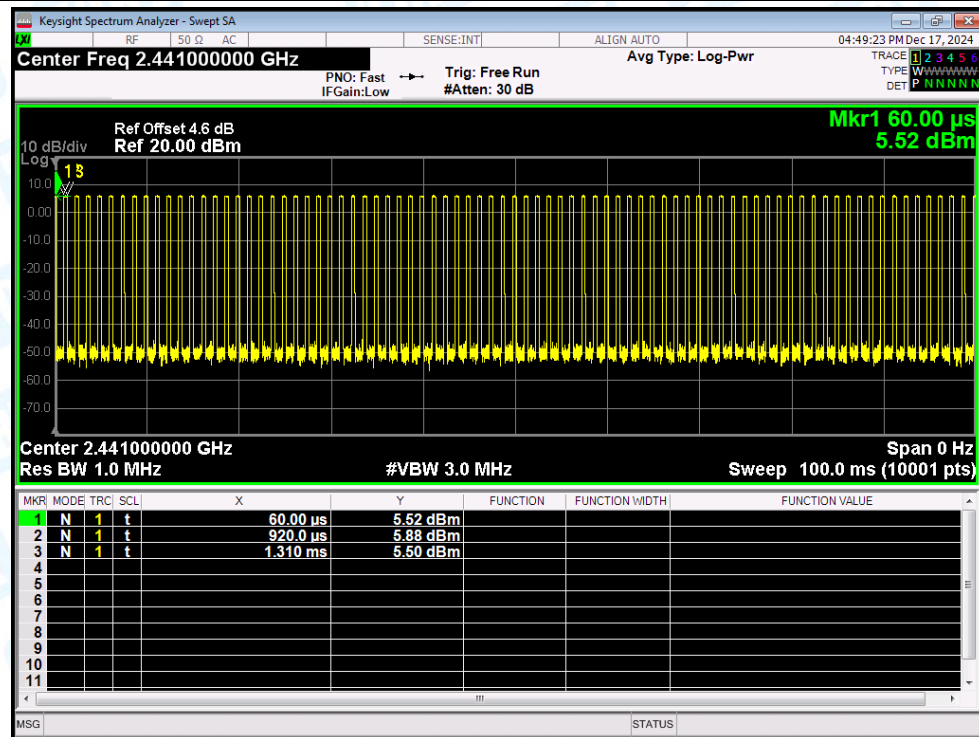
Duty Cycle NVNT 1-DH1 2480MHz Ant1



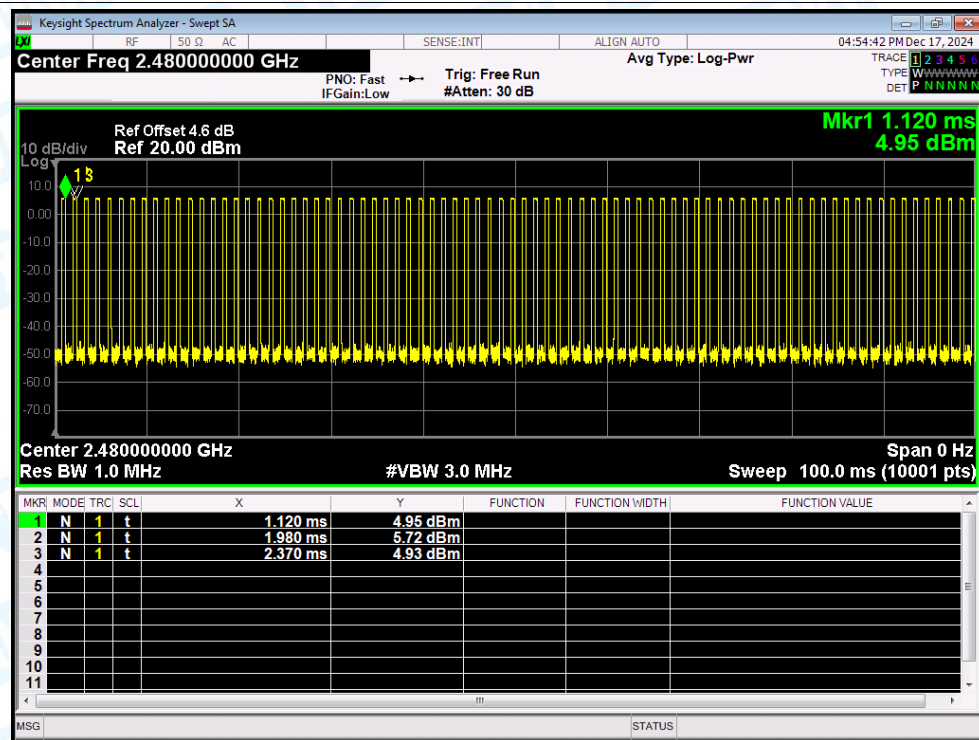
Duty Cycle NVNT 2-DH1 2402MHz Ant1



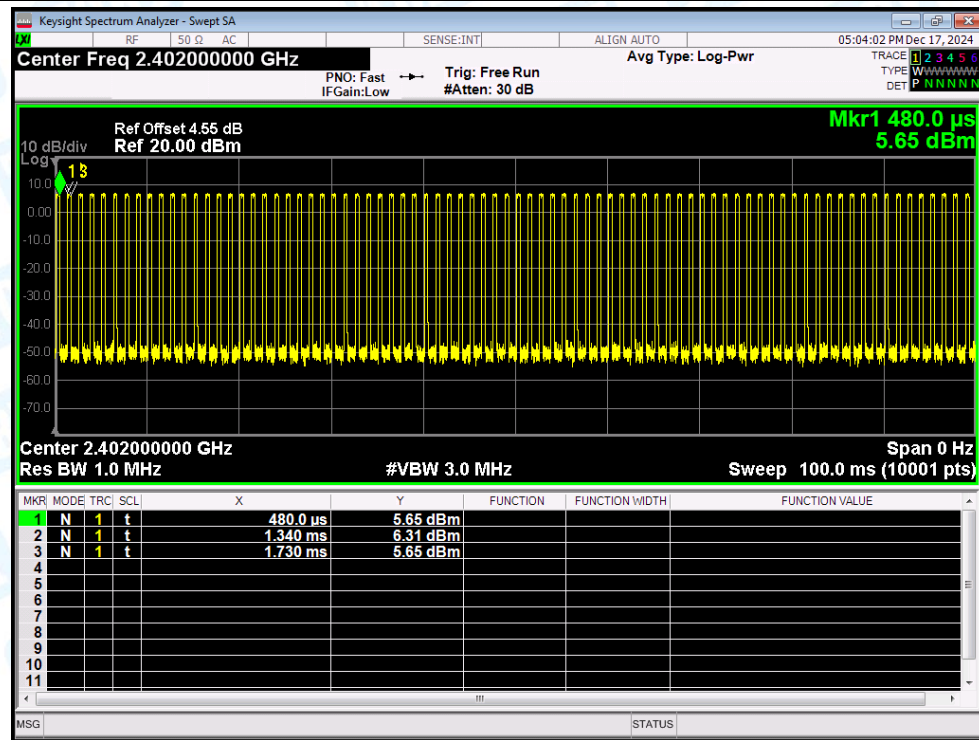
Duty Cycle NVNT 2-DH1 2441MHz Ant1



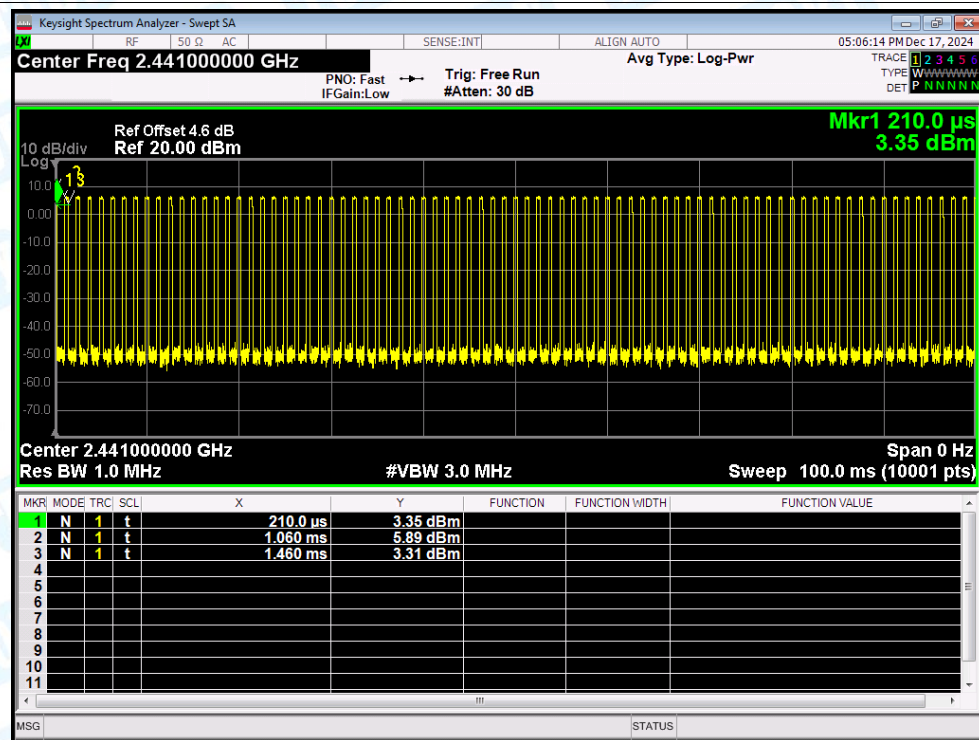
Duty Cycle NVNT 2-DH1 2480MHz Ant1

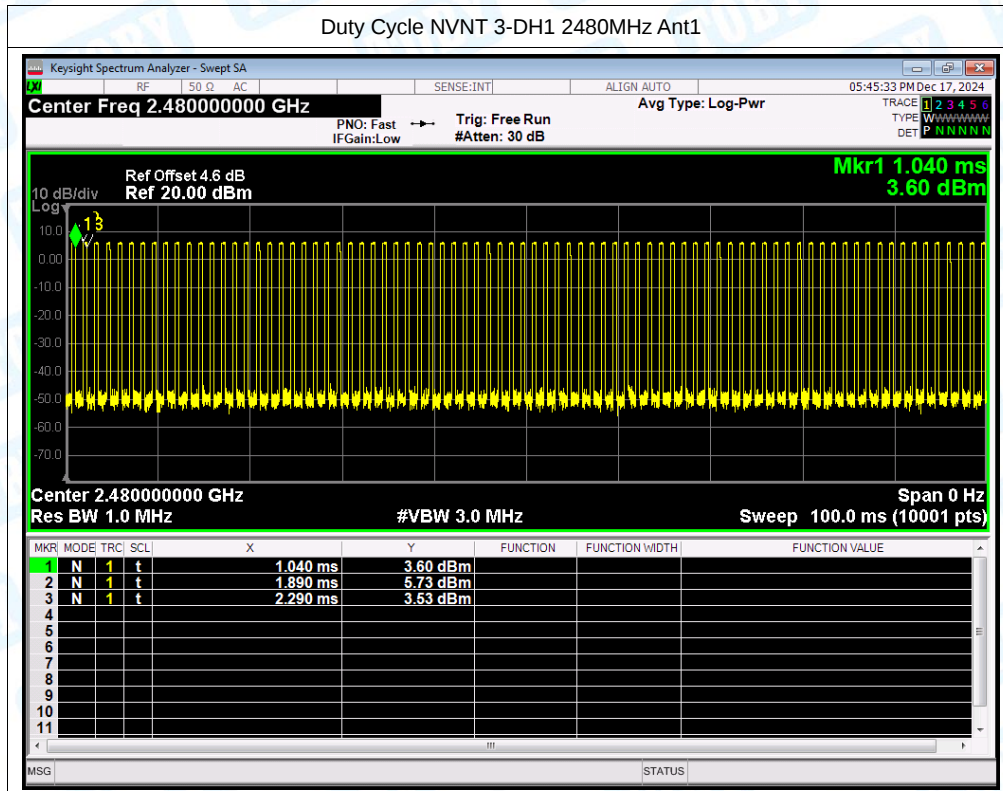


Duty Cycle NVNT 3-DH1 2402MHz Ant1



Duty Cycle NVNT 3-DH1 2441MHz Ant1



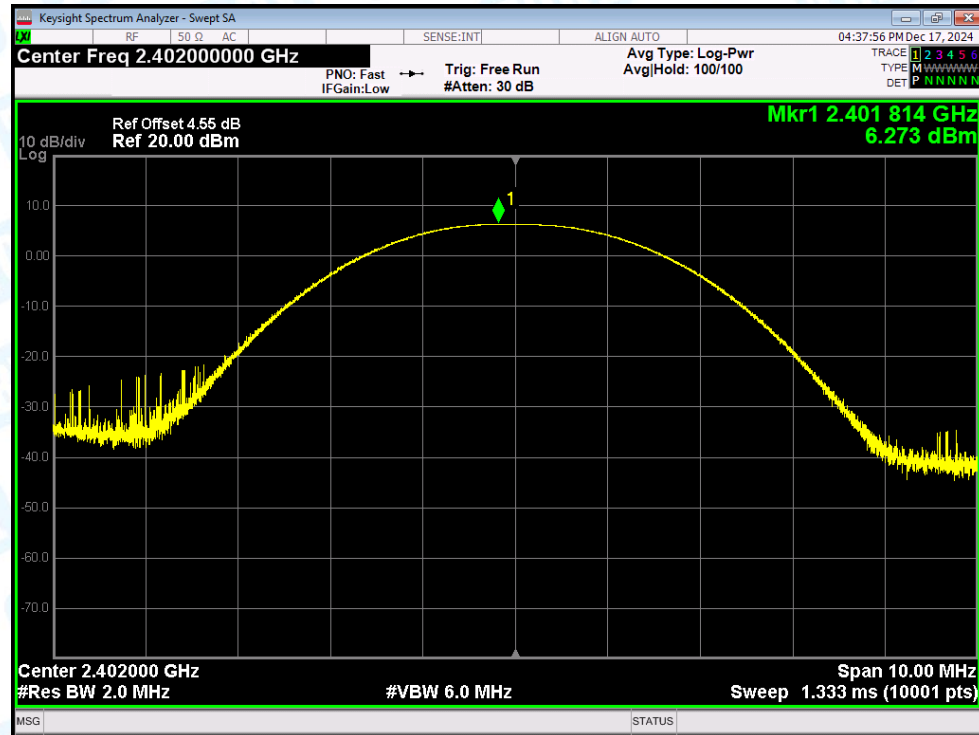


2. Maximum Conducted Peak Output Power

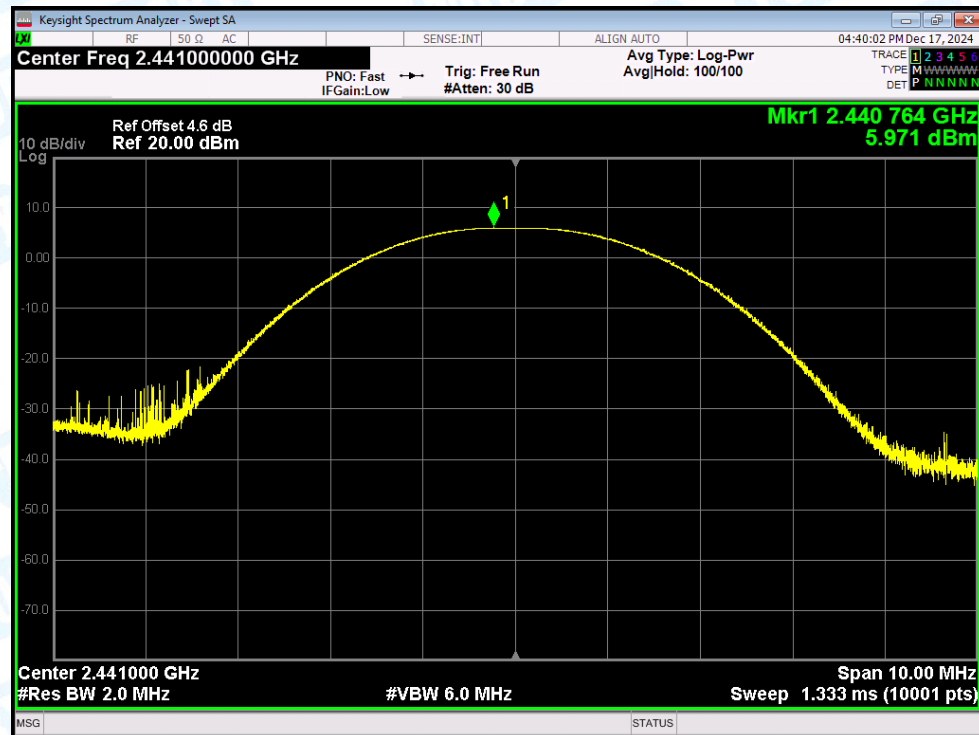
Condition	Mode	Frequency (MHz)	Antenna	Conducted Power (dBm)	Limit (dBm)	Verdict
NVNT	1-DH1	2402	Ant1	6.273	21	Pass
NVNT	1-DH1	2441	Ant1	5.971	21	Pass
NVNT	1-DH1	2480	Ant1	5.754	21	Pass
NVNT	2-DH1	2402	Ant1	6.693	21	Pass
NVNT	2-DH1	2441	Ant1	6.269	21	Pass
NVNT	2-DH1	2480	Ant1	6.064	21	Pass
NVNT	3-DH1	2402	Ant1	7.009	21	Pass
NVNT	3-DH1	2441	Ant1	6.513	21	Pass
NVNT	3-DH1	2480	Ant1	6.276	21	Pass

Test Graphs

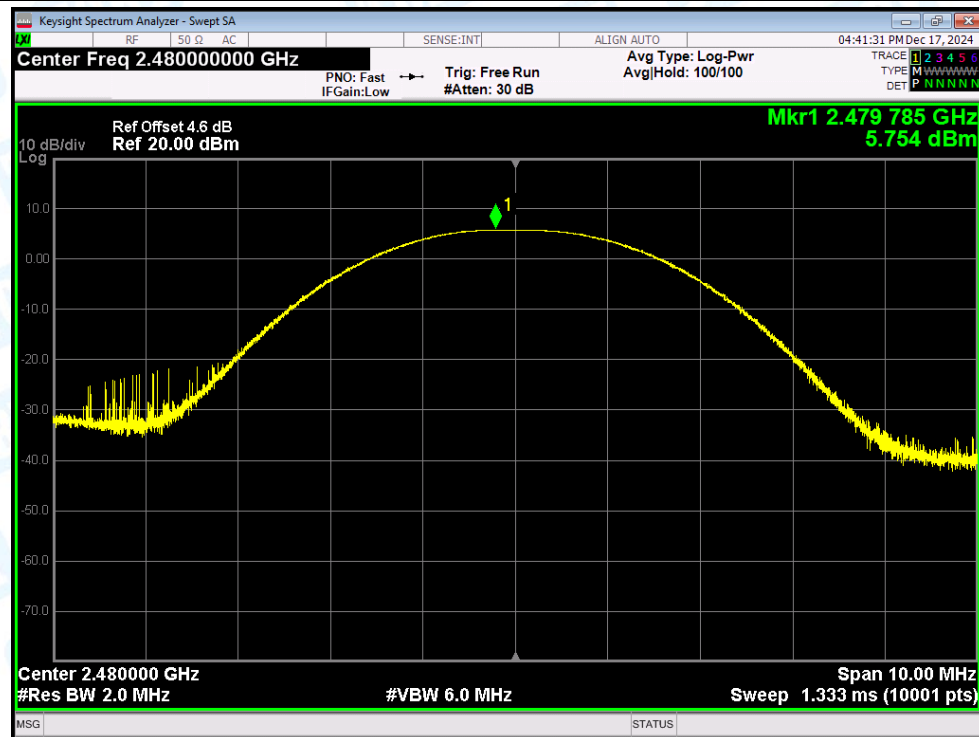
Power NVNT 1-DH1 2402MHz Ant1



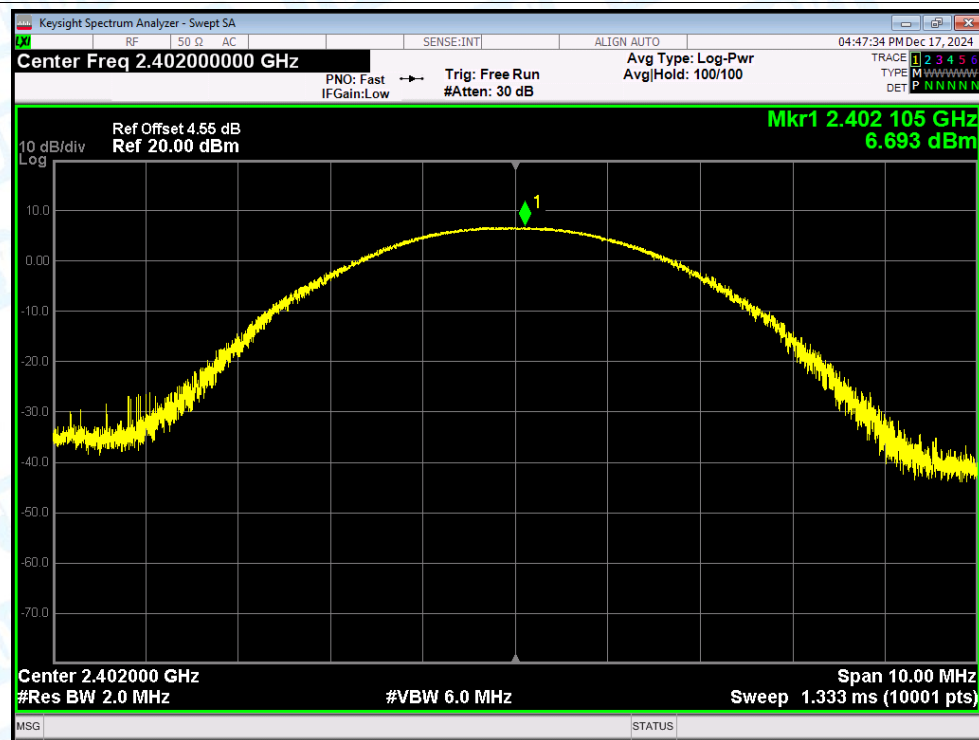
Power NVNT 1-DH1 2441MHz Ant1



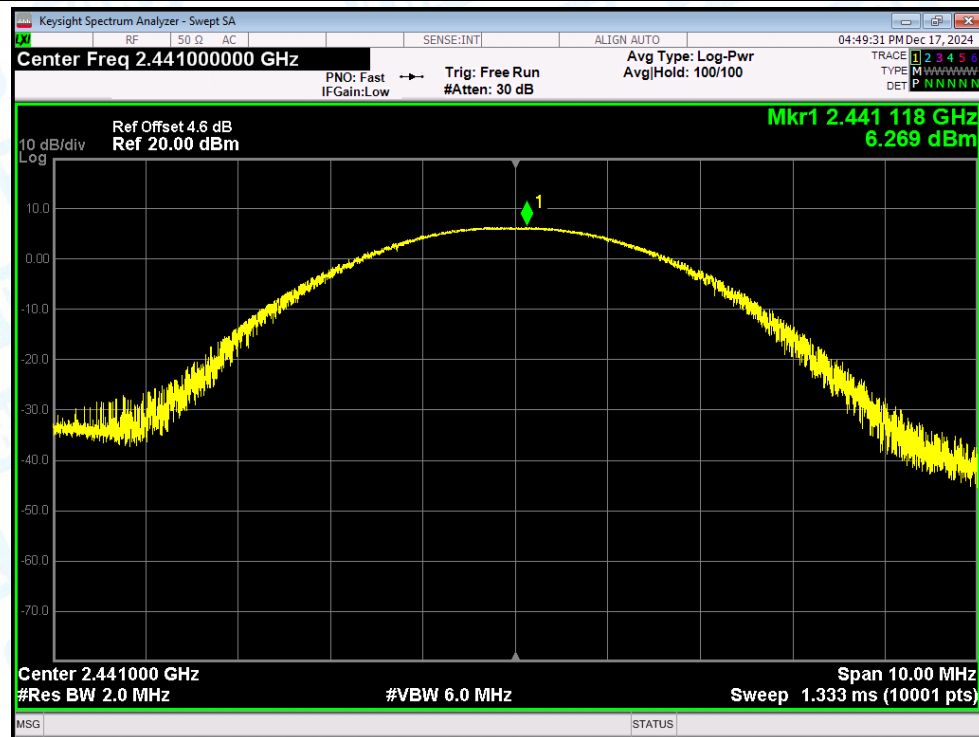
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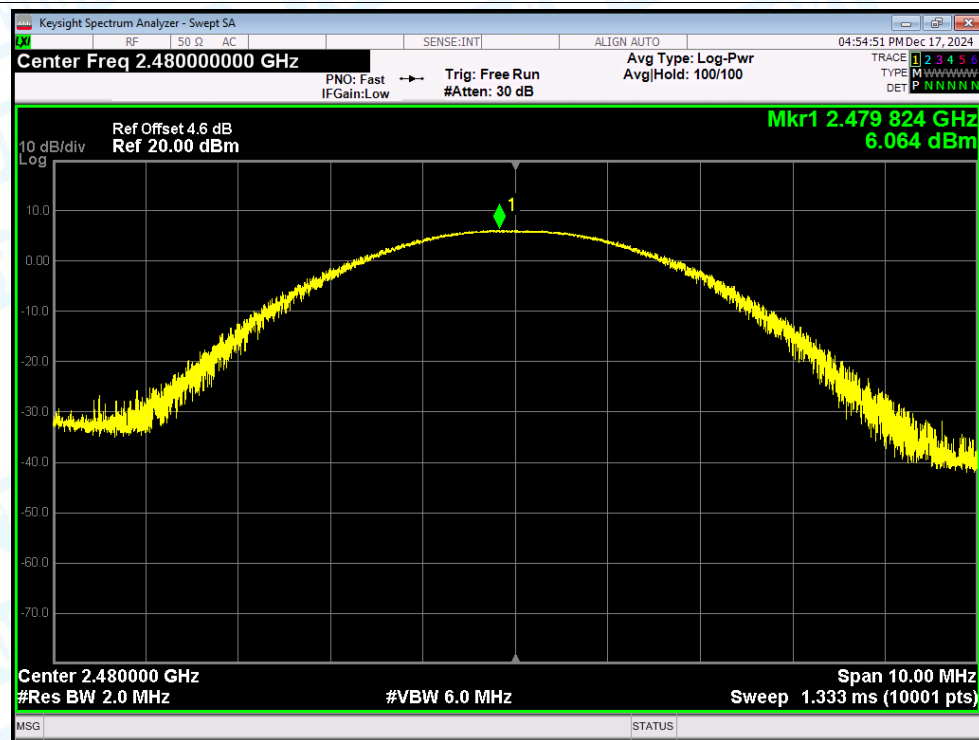
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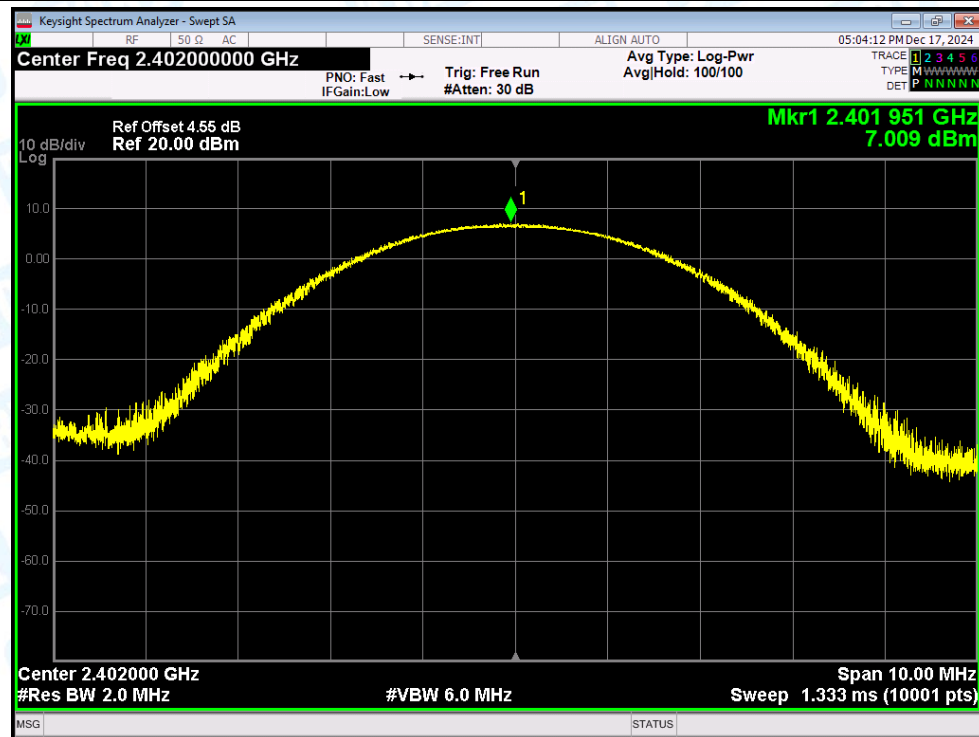
Power NVNT 2-DH1 2441MHz Ant1



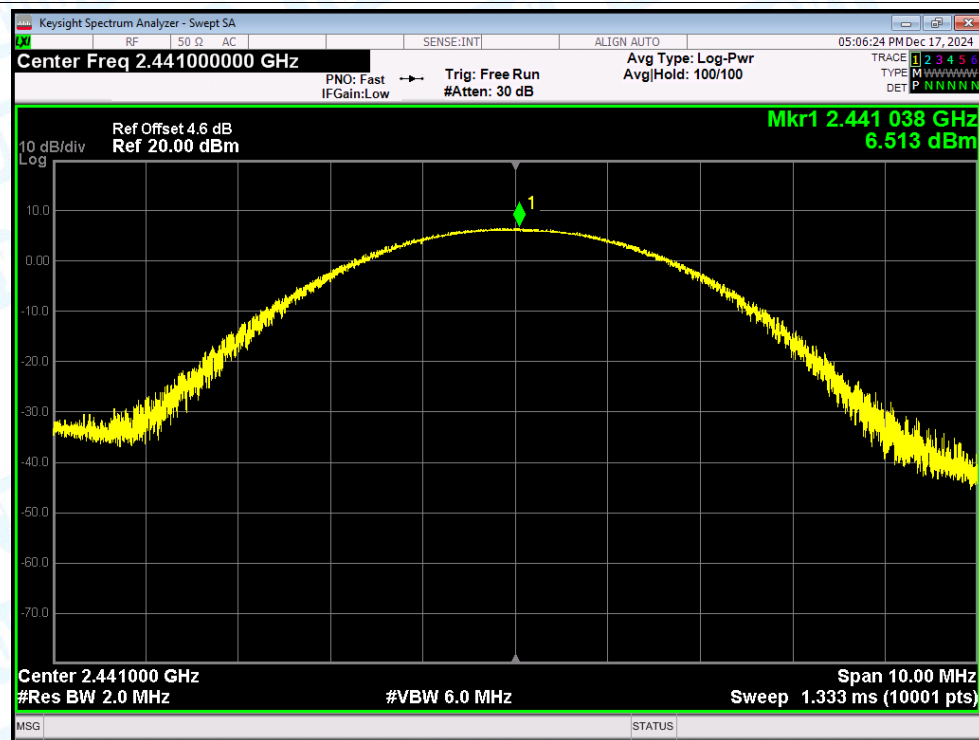
Power NVNT 2-DH1 2480MHz Ant1

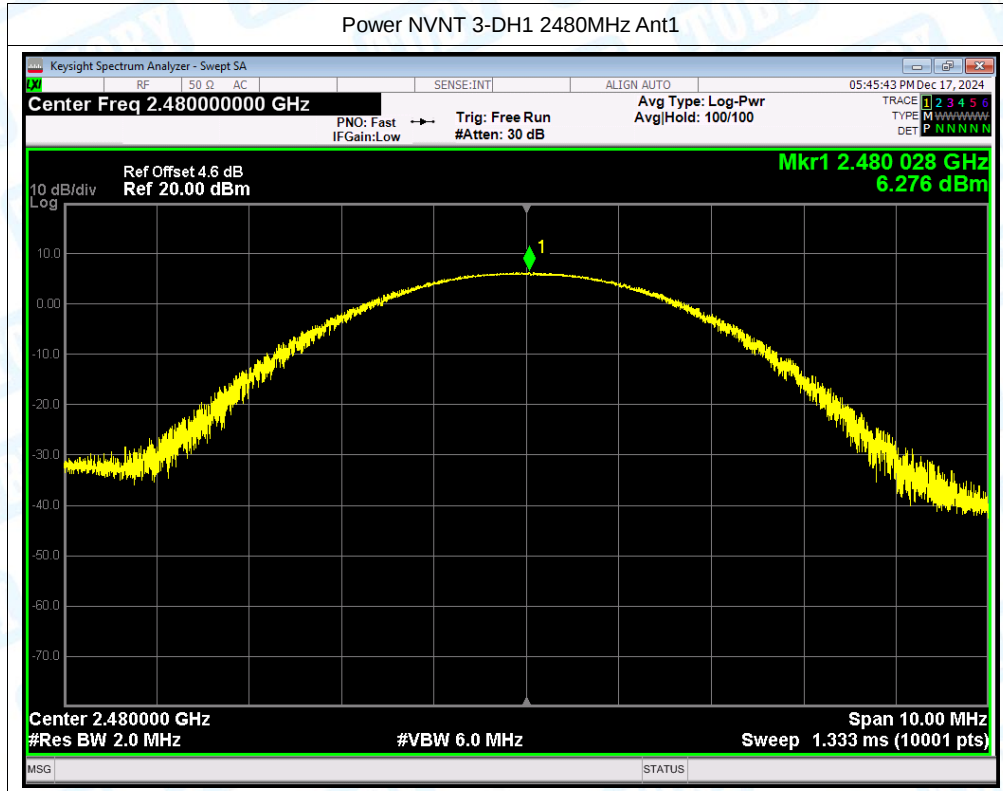


Power NVNT 3-DH1 2402MHz Ant1



Power NVNT 3-DH1 2441MHz Ant1



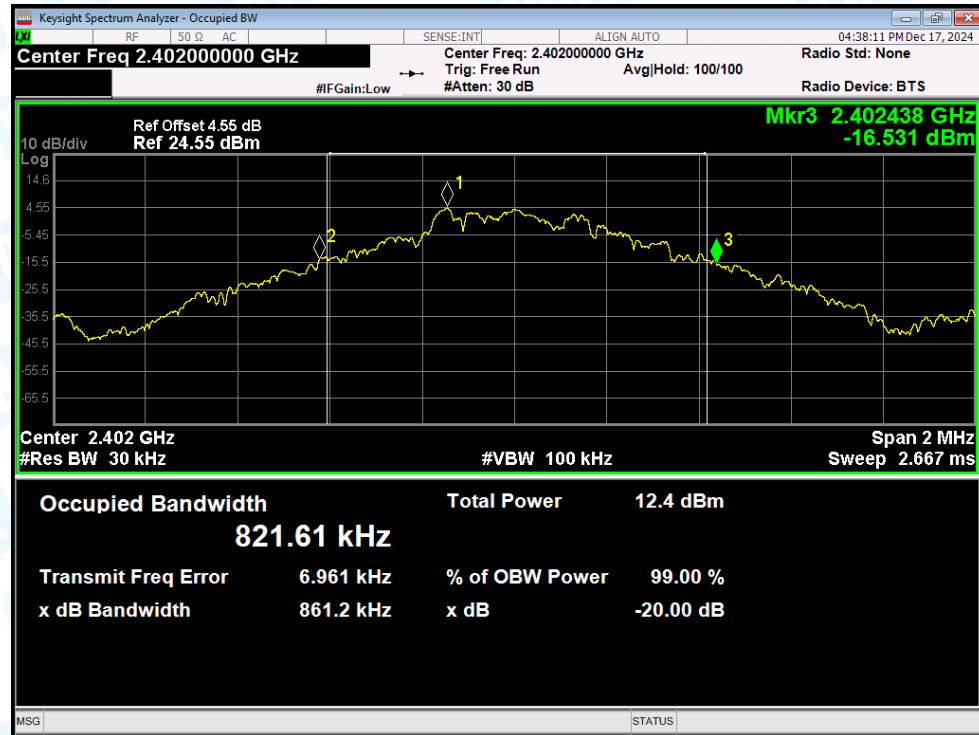


3. -20dB Bandwidth

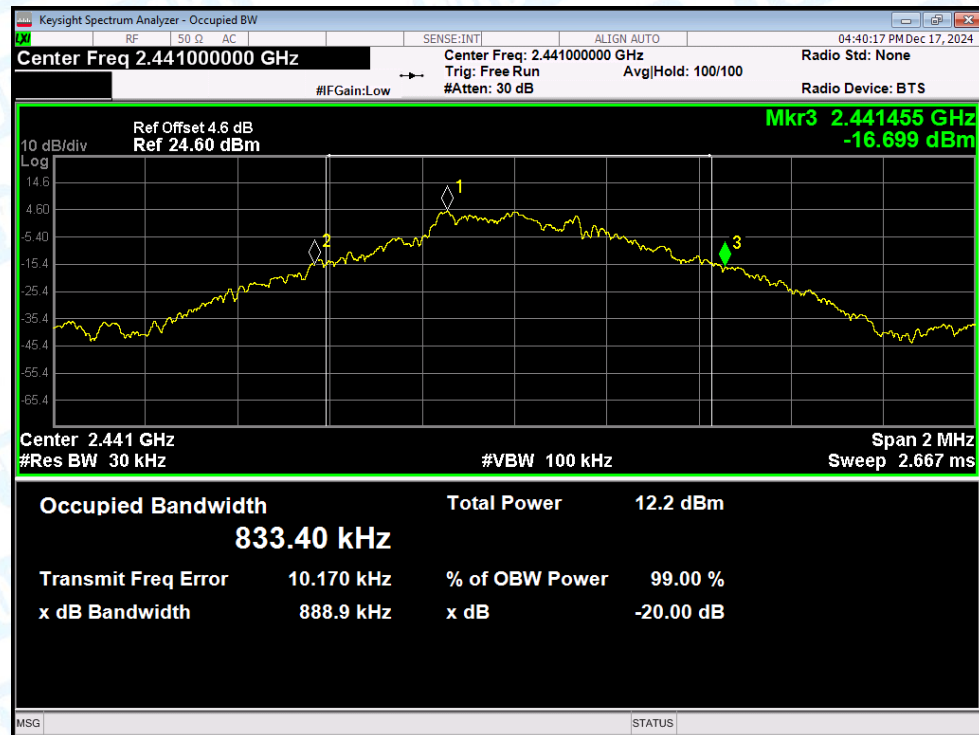
Condition	Mode	Frequency (MHz)	Antenna	-20 dB Bandwidth (MHz)	Limit -20 dB Bandwidth (MHz)	Verdict
NVNT	1-DH1	2402	Ant1	0.86	----	Pass
NVNT	1-DH1	2441	Ant1	0.89	----	Pass
NVNT	1-DH1	2480	Ant1	0.87	----	Pass
NVNT	2-DH1	2402	Ant1	1.24	----	Pass
NVNT	2-DH1	2441	Ant1	1.23	----	Pass
NVNT	2-DH1	2480	Ant1	1.27	----	Pass
NVNT	3-DH1	2402	Ant1	1.24	----	Pass
NVNT	3-DH1	2441	Ant1	1.23	----	Pass
NVNT	3-DH1	2480	Ant1	1.26	----	Pass

Test Graphs

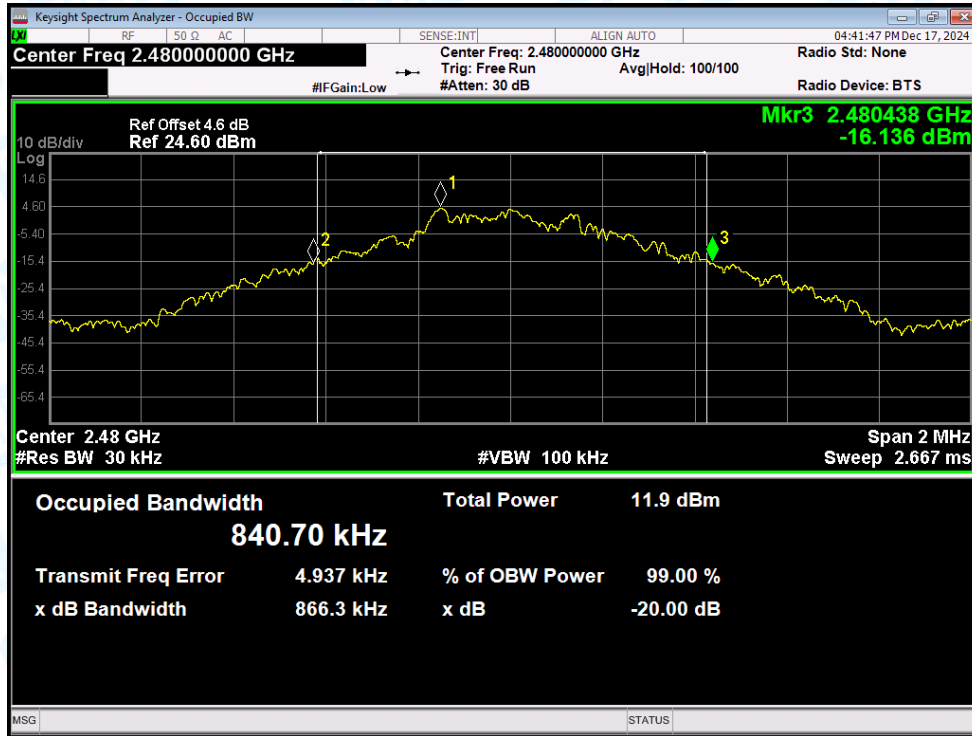
-20dB Bandwidth NVNT 1-DH1 2402MHz Ant1



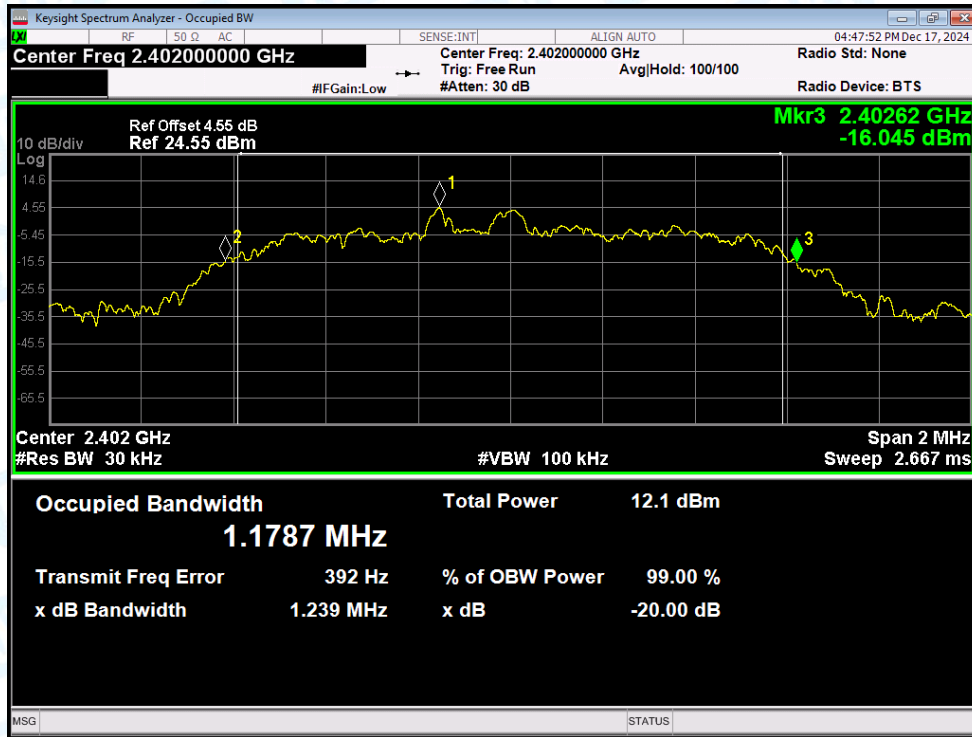
-20dB Bandwidth NVNT 1-DH1 2441MHz Ant1



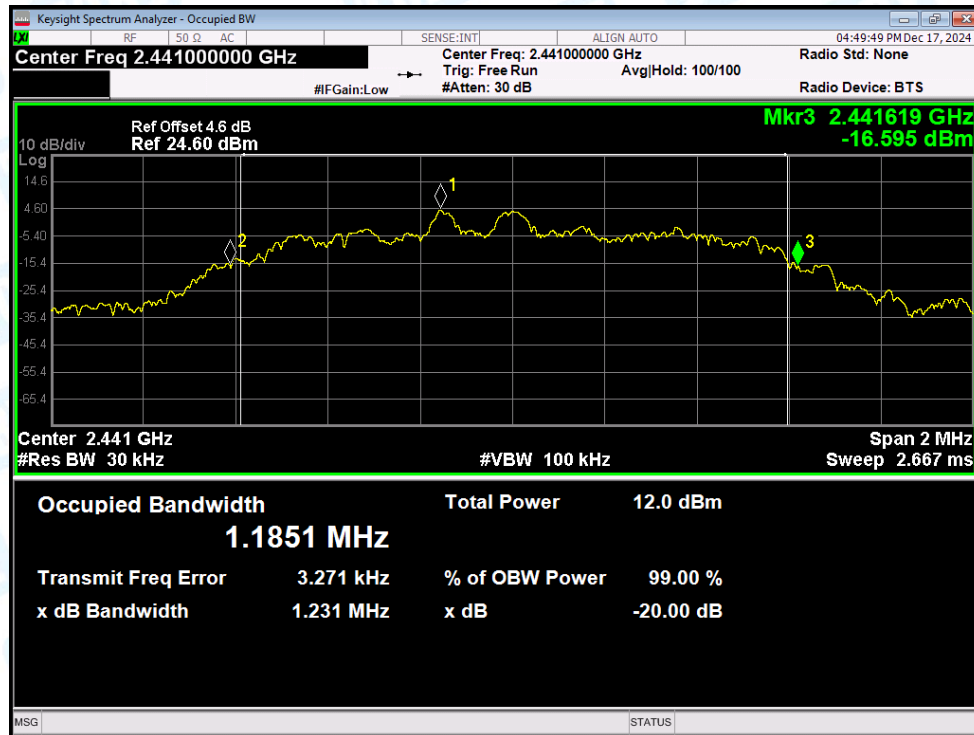
-20dB Bandwidth NVNT 1-DH1 2480MHz Ant1



-20dB Bandwidth NVNT 2-DH1 2402MHz Ant1



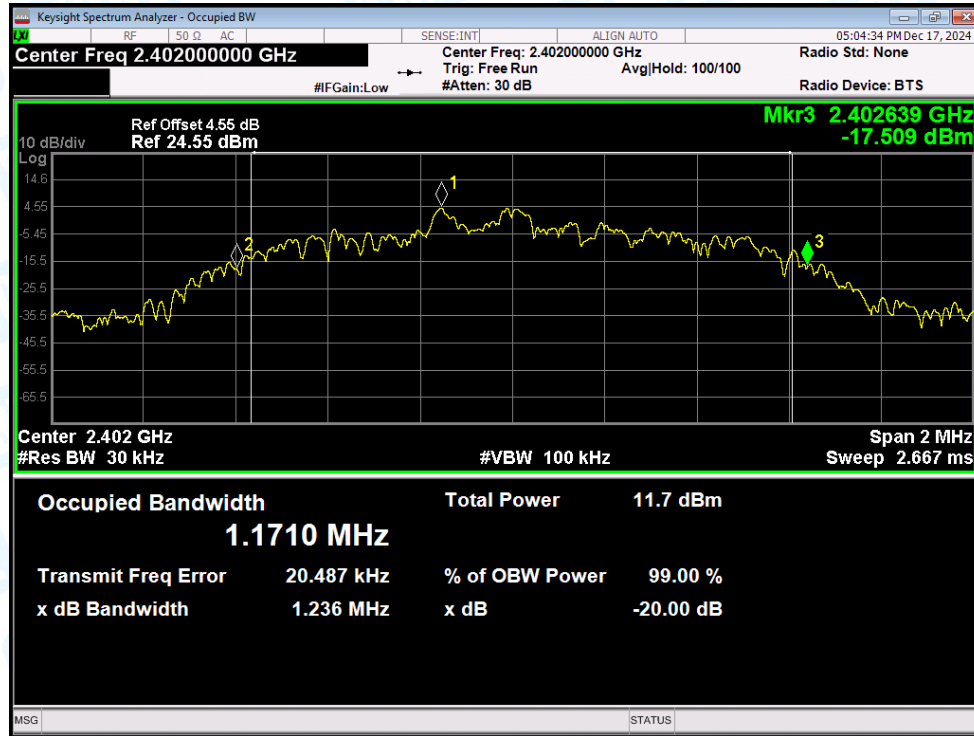
-20dB Bandwidth NVNT 2-DH1 2441MHz Ant1



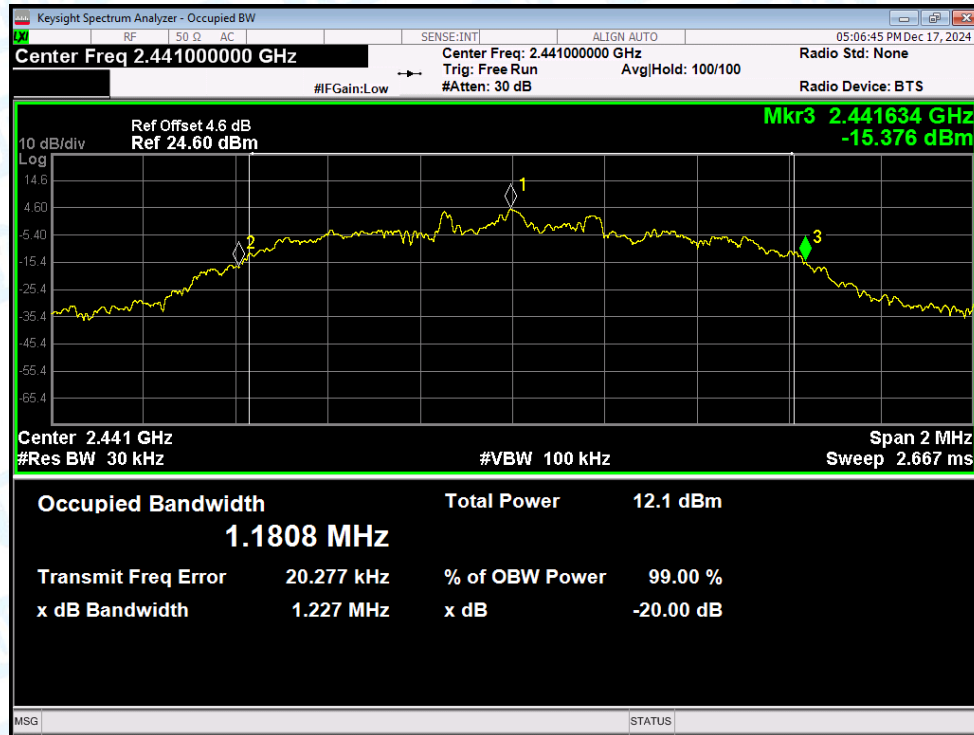
-20dB Bandwidth NVNT 2-DH1 2480MHz Ant1

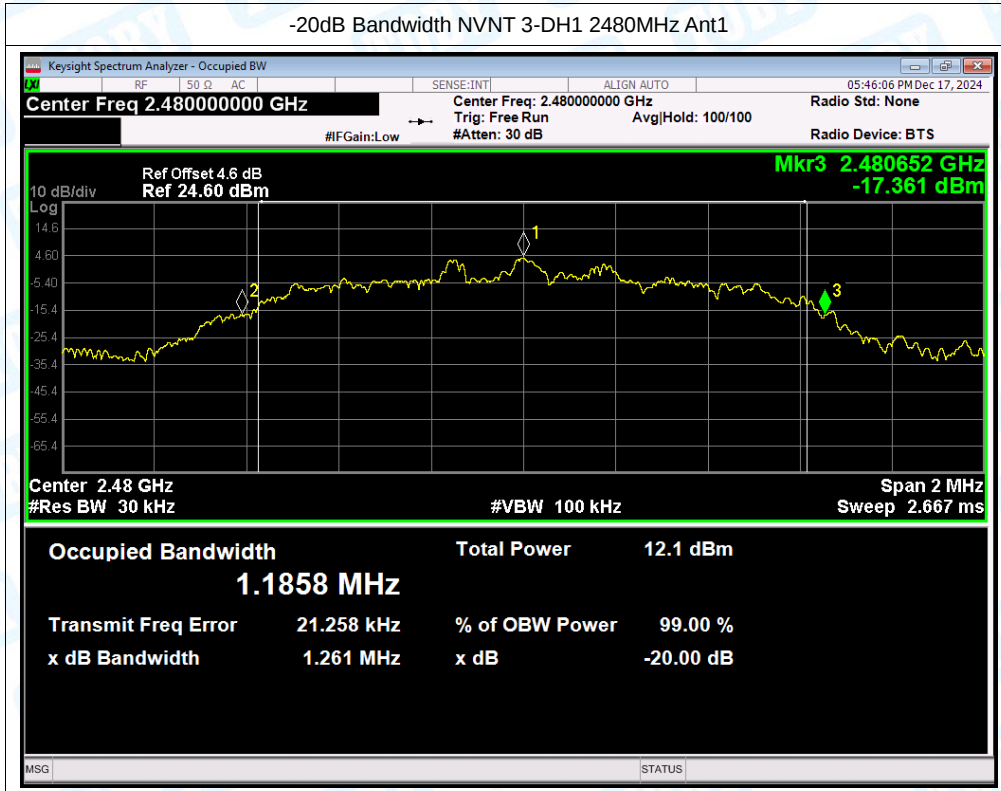


-20dB Bandwidth NVNT 3-DH1 2402MHz Ant1



-20dB Bandwidth NVNT 3-DH1 2441MHz Ant1



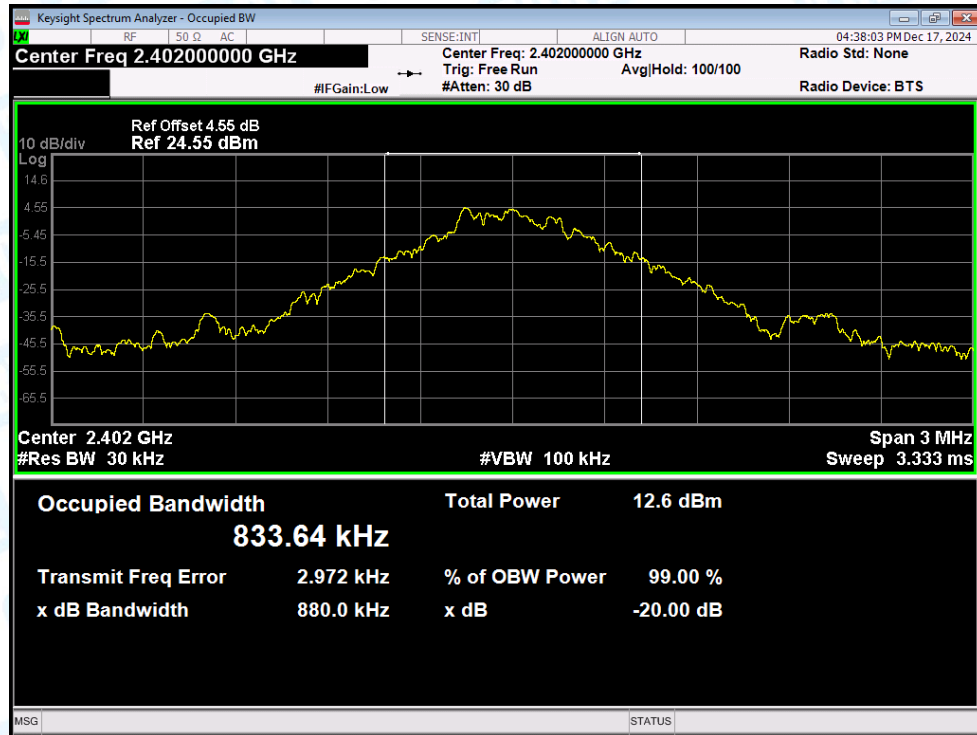


4. Occupied Channel Bandwidth

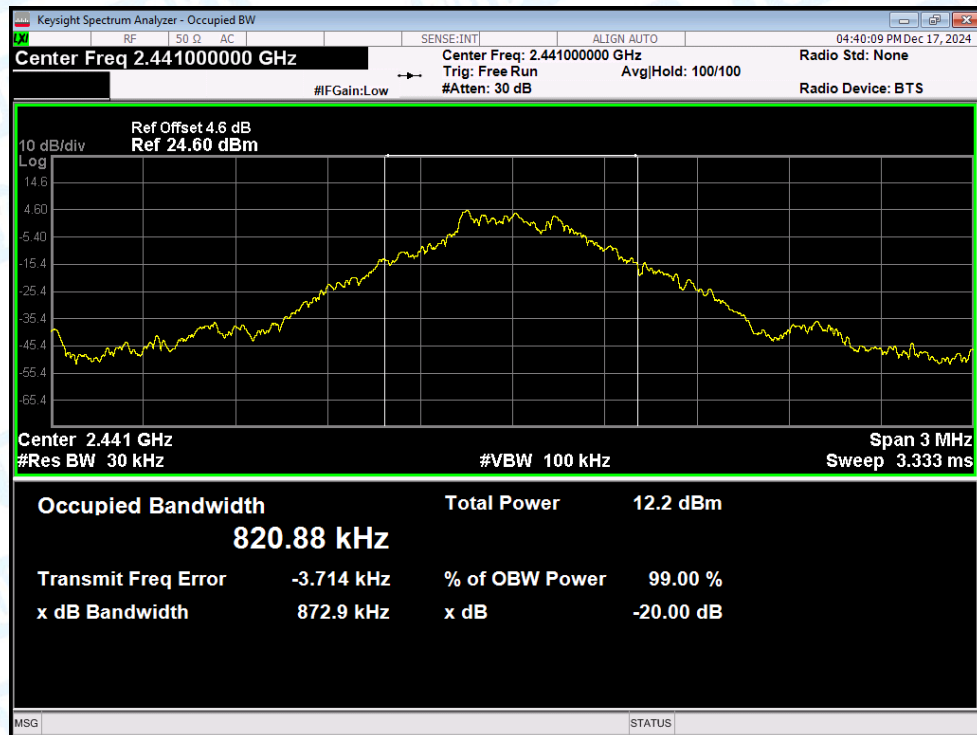
Condition	Mode	Frequency (MHz)	Antenna	99% OBW (MHz)
NVNT	1-DH1	2402	Ant1	0.834
NVNT	1-DH1	2441	Ant1	0.821
NVNT	1-DH1	2480	Ant1	0.835
NVNT	2-DH1	2402	Ant1	1.189
NVNT	2-DH1	2441	Ant1	1.205
NVNT	2-DH1	2480	Ant1	1.223
NVNT	3-DH1	2402	Ant1	1.177
NVNT	3-DH1	2441	Ant1	1.176
NVNT	3-DH1	2480	Ant1	1.202

Test Graphs

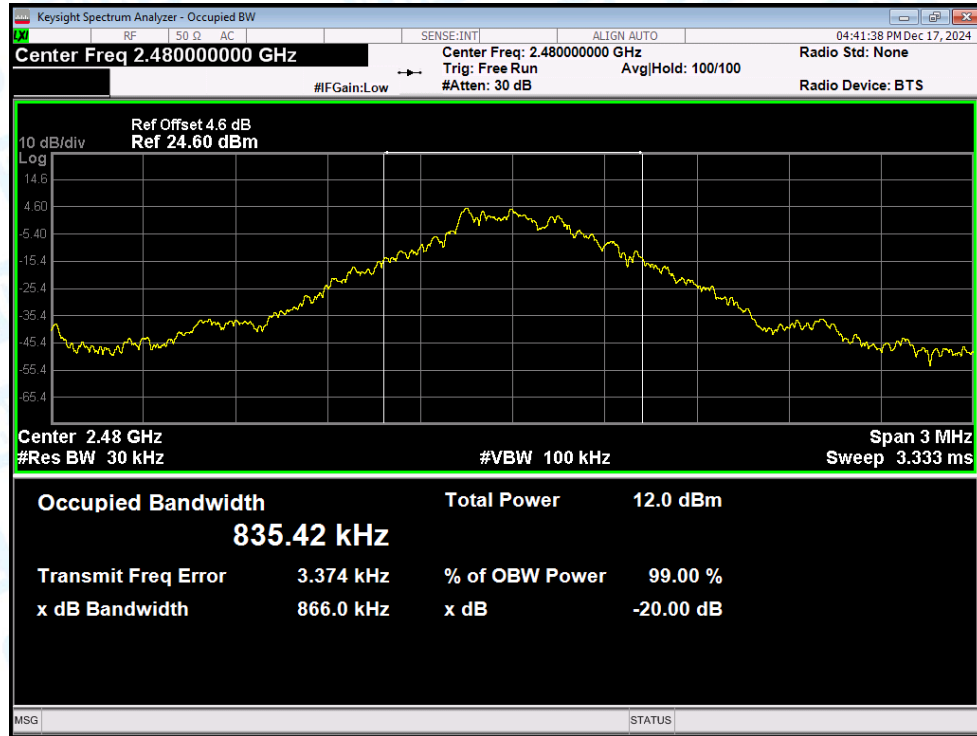
OBW NVNT 1-DH1 2402MHz Ant1



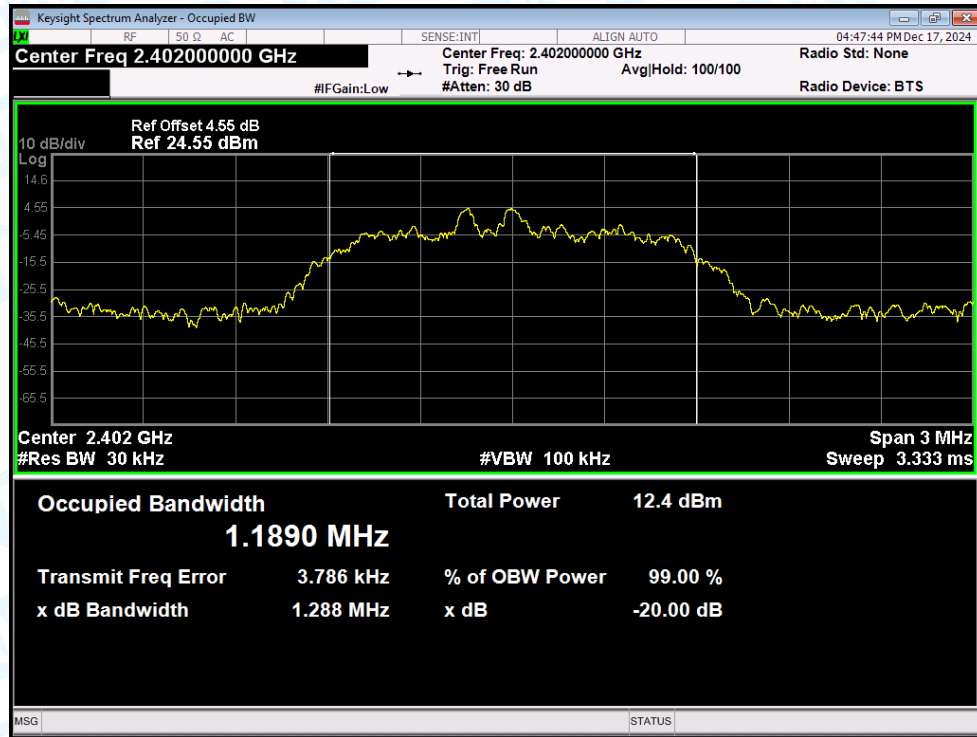
OBW NVNT 1-DH1 2441MHz Ant1



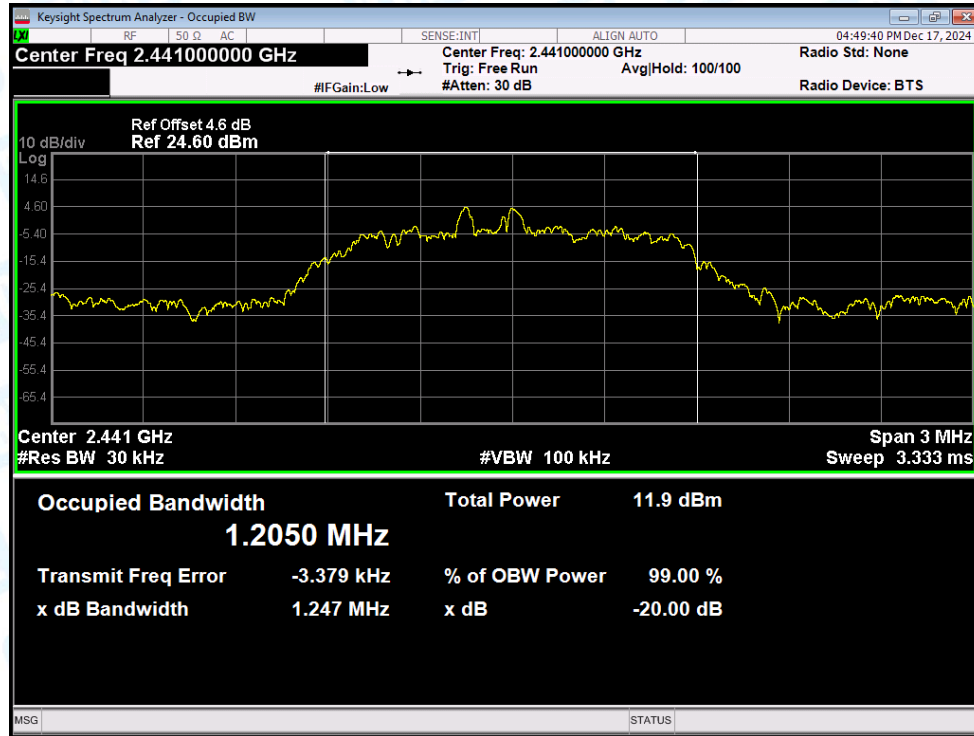
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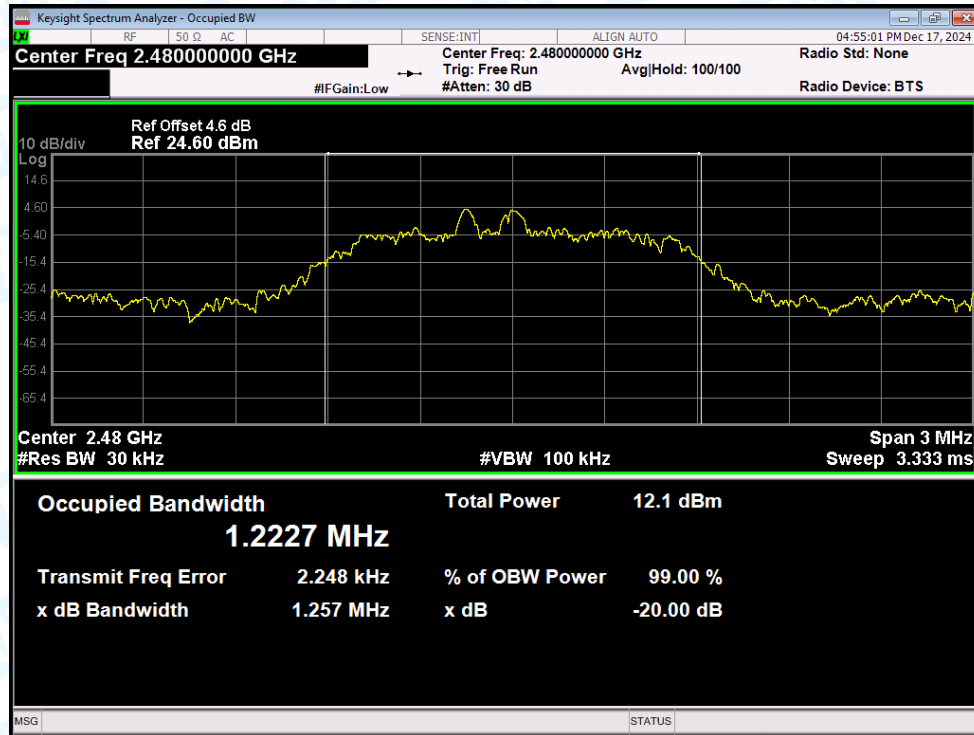
OBW NVNT 2-DH1 2402MHz Ant1



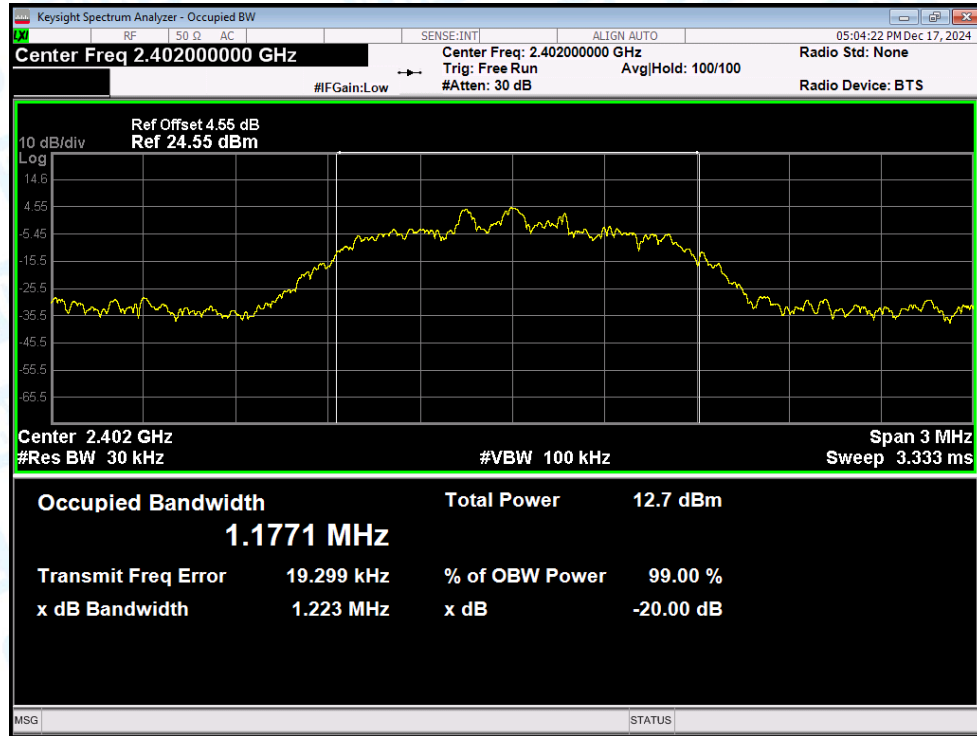
OBW NVNT 2-DH1 2441MHz Ant1



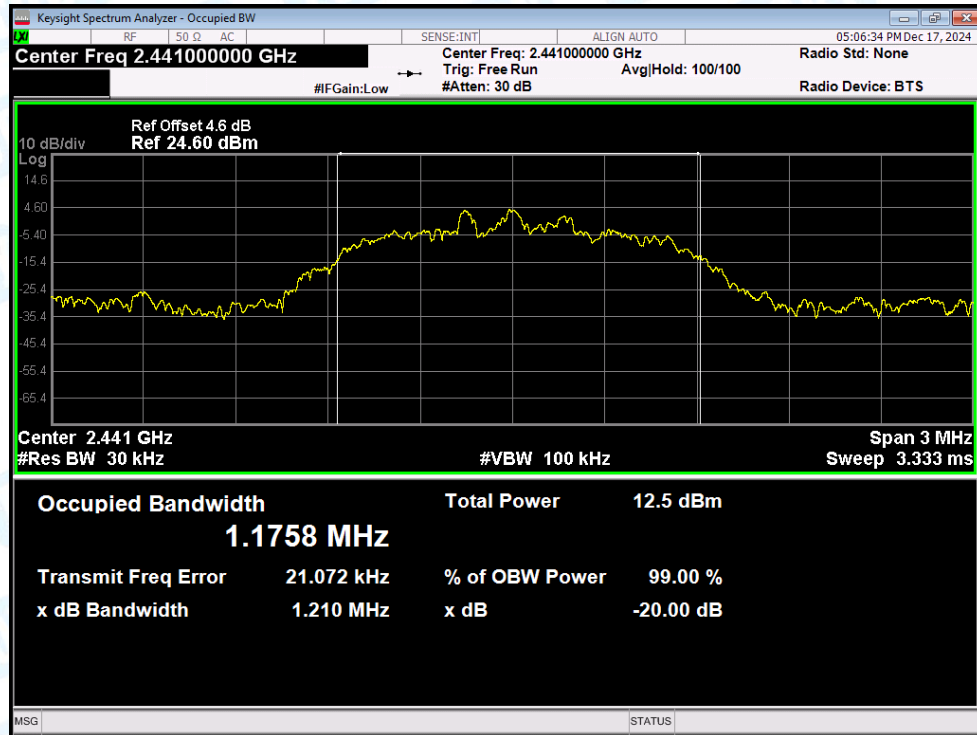
OBW NVNT 2-DH1 2480MHz Ant1

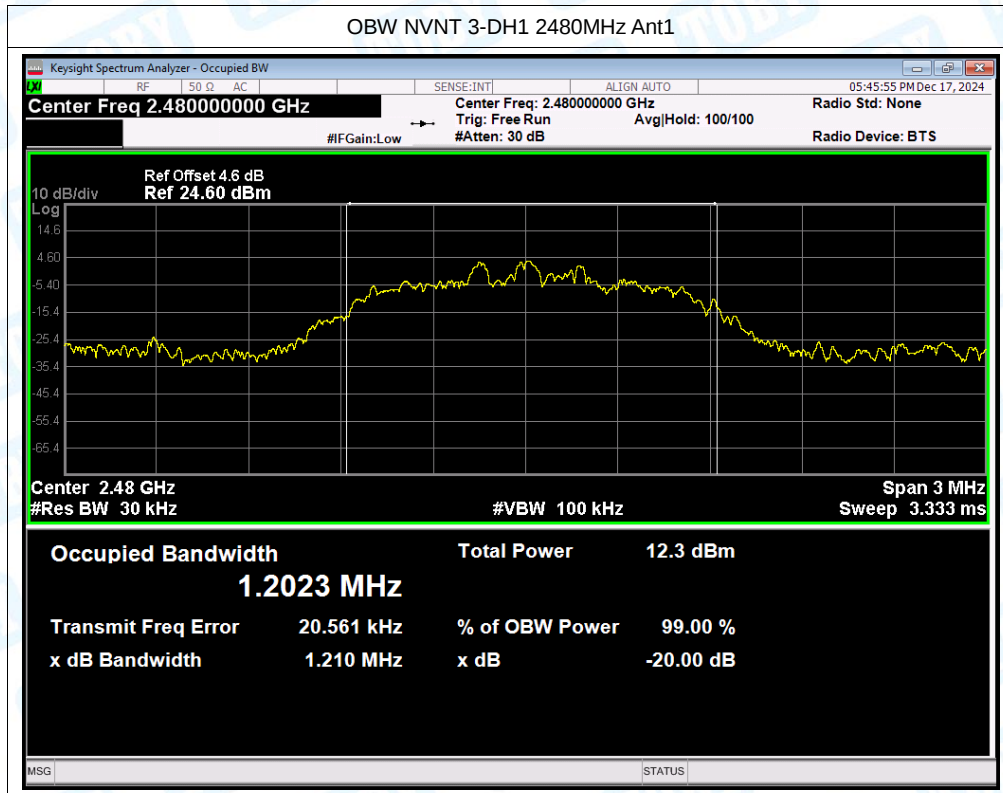


OBW NVNT 3-DH1 2402MHz Ant1



OBW NVNT 3-DH1 2441MHz Ant1



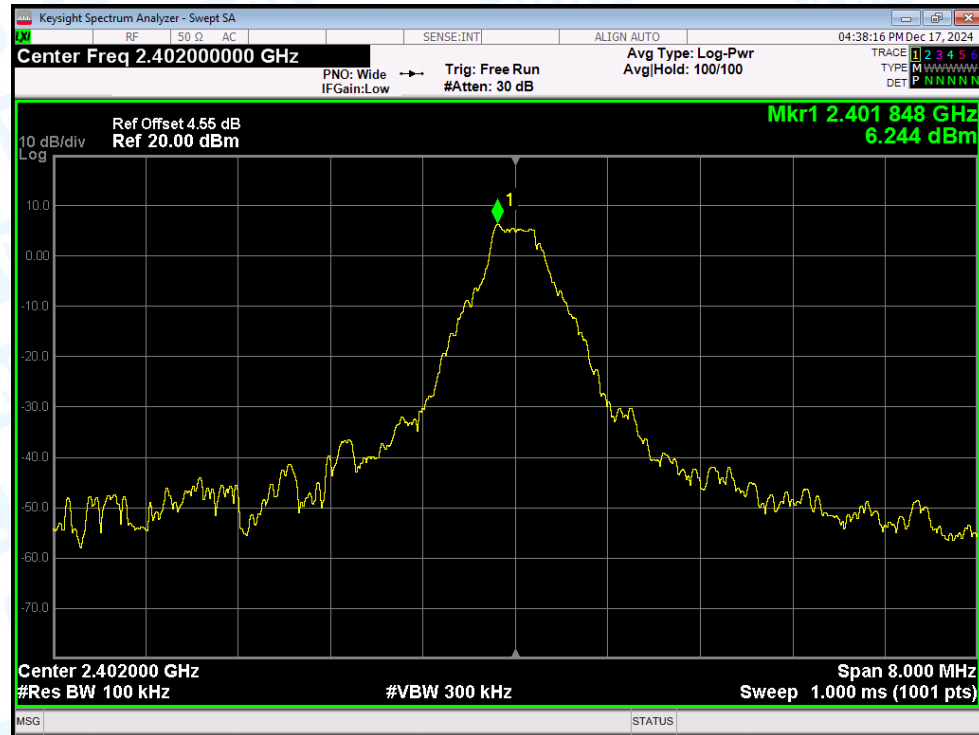


5. Band Edge

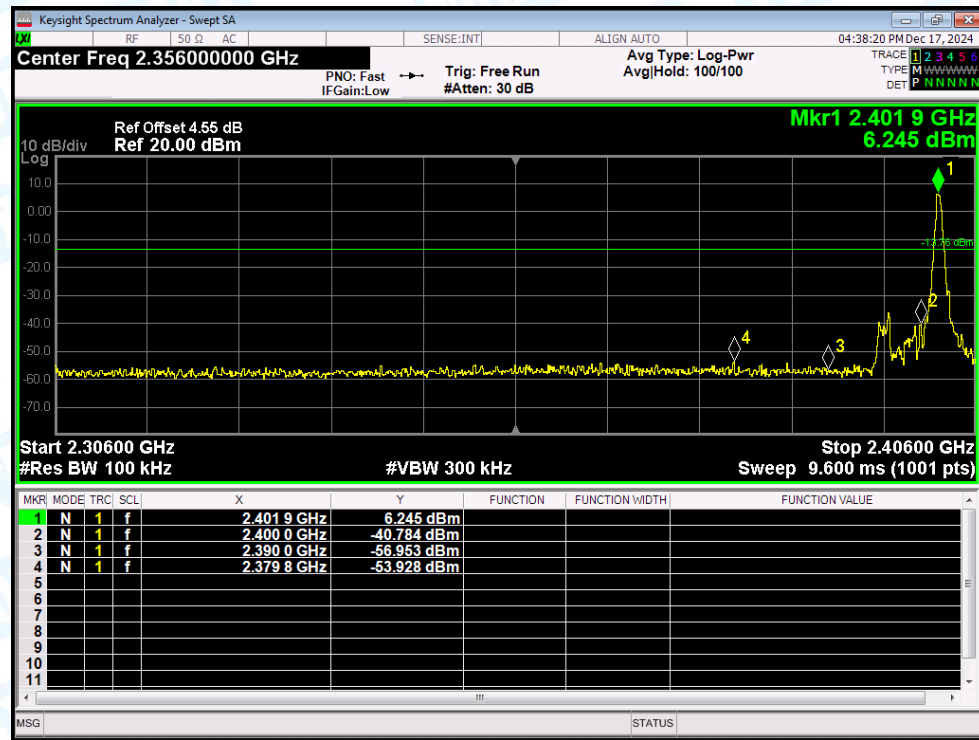
Condition	Mode	Frequency (MHz)	Antenna	Hopping Mode	Max Value (dBc)	Limit (dBc)	Verdict
NVNT	1-DH1	2402	Ant1	No-Hopping	-60.17	-20	Pass
NVNT	1-DH1	2480	Ant1	No-Hopping	-48.62	-20	Pass
NVNT	2-DH1	2402	Ant1	No-Hopping	-59.86	-20	Pass
NVNT	2-DH1	2480	Ant1	No-Hopping	-51.61	-20	Pass
NVNT	3-DH1	2402	Ant1	No-Hopping	-59.41	-20	Pass
NVNT	3-DH1	2480	Ant1	No-Hopping	-49.13	-20	Pass

Test Graphs

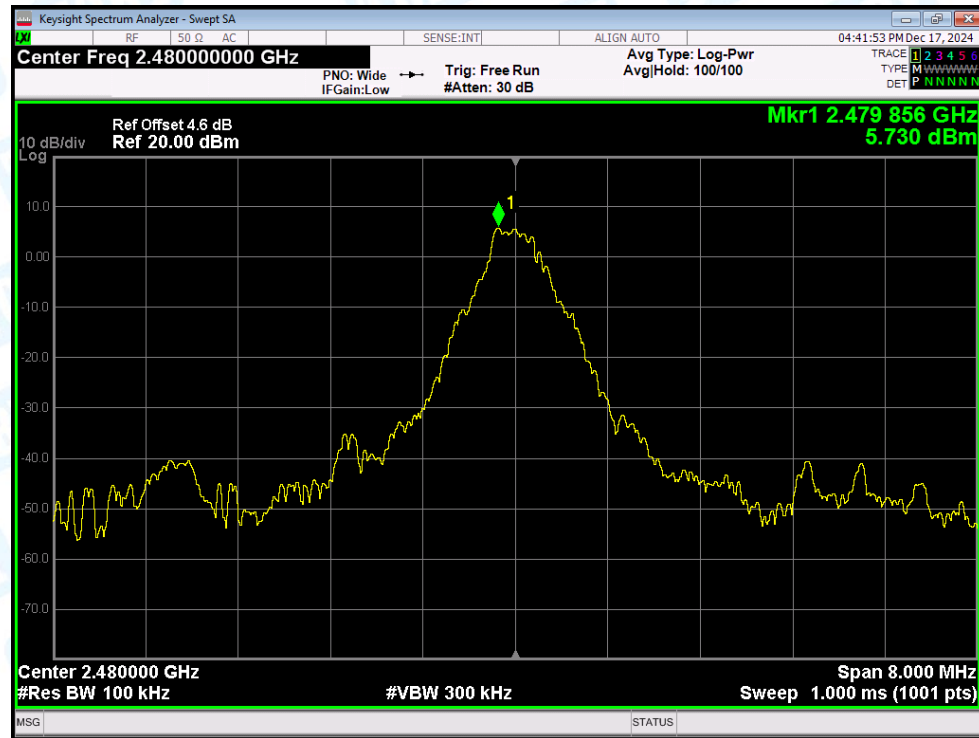
Band Edge NVNT 1-DH1 2402MHz Ant1 No-Hopping Ref



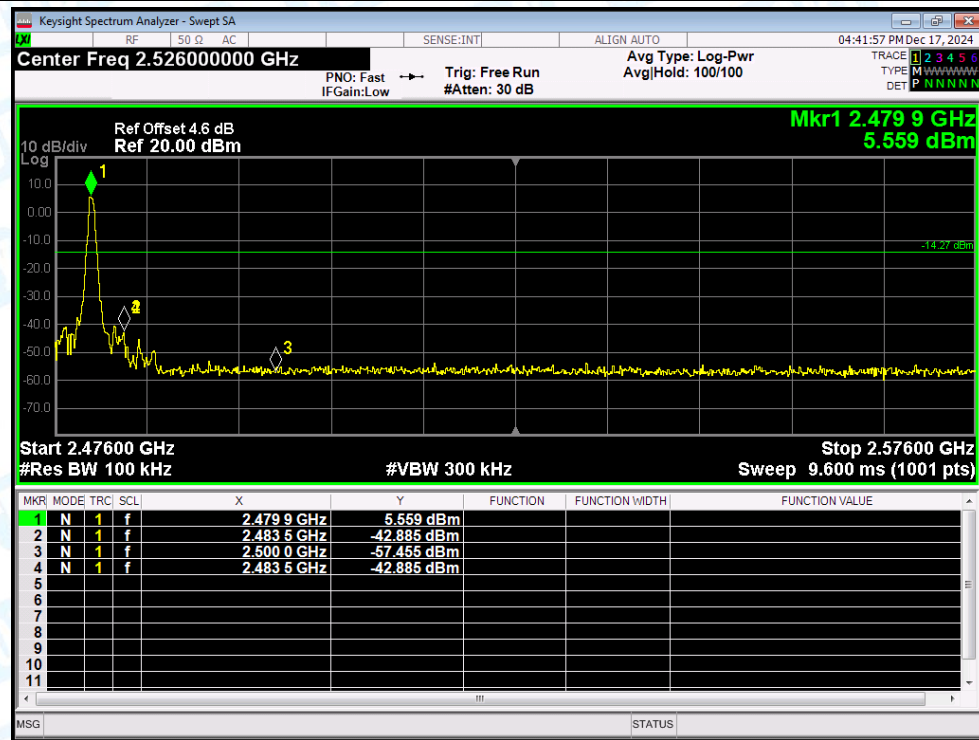
Band Edge NVNT 1-DH1 2402MHz Ant1 No-Hopping Emission



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



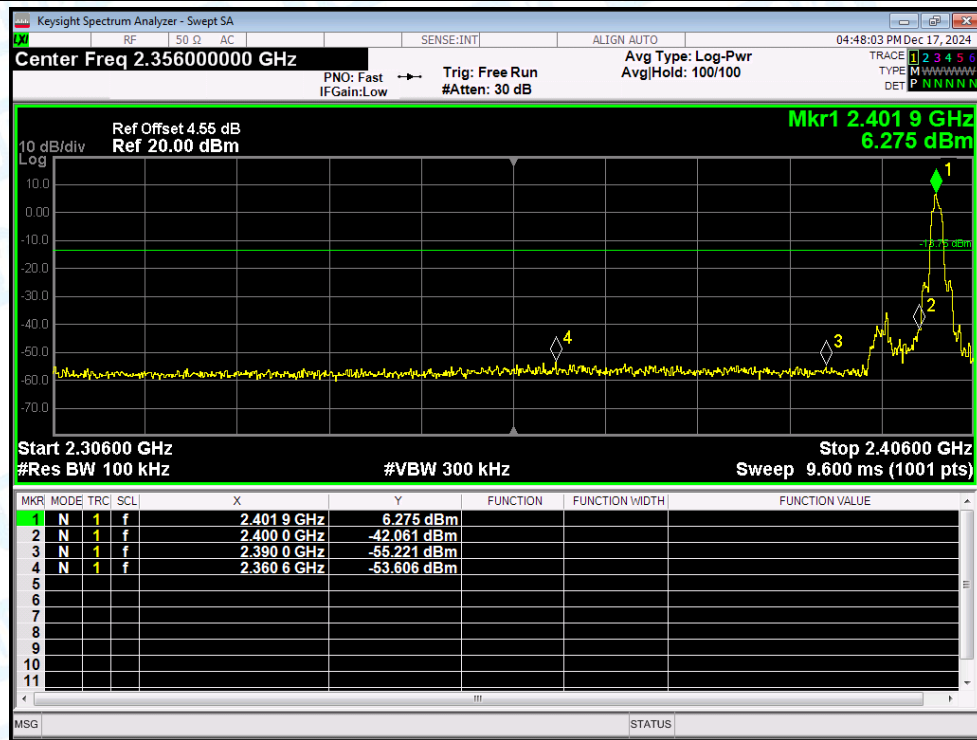
Band Edge NVNT 1-DH1 2480MHz Ant1 No-Hopping Emission

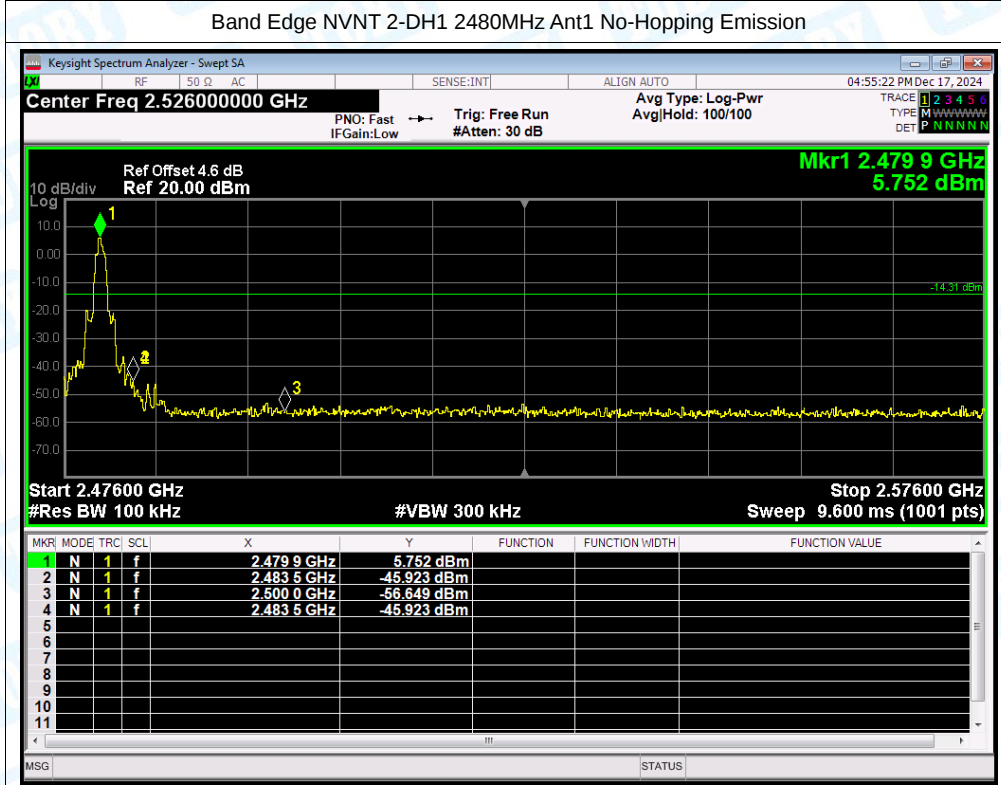


Band Edge NVNT 2-DH1 2402MHz Ant1 No-Hopping Ref



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

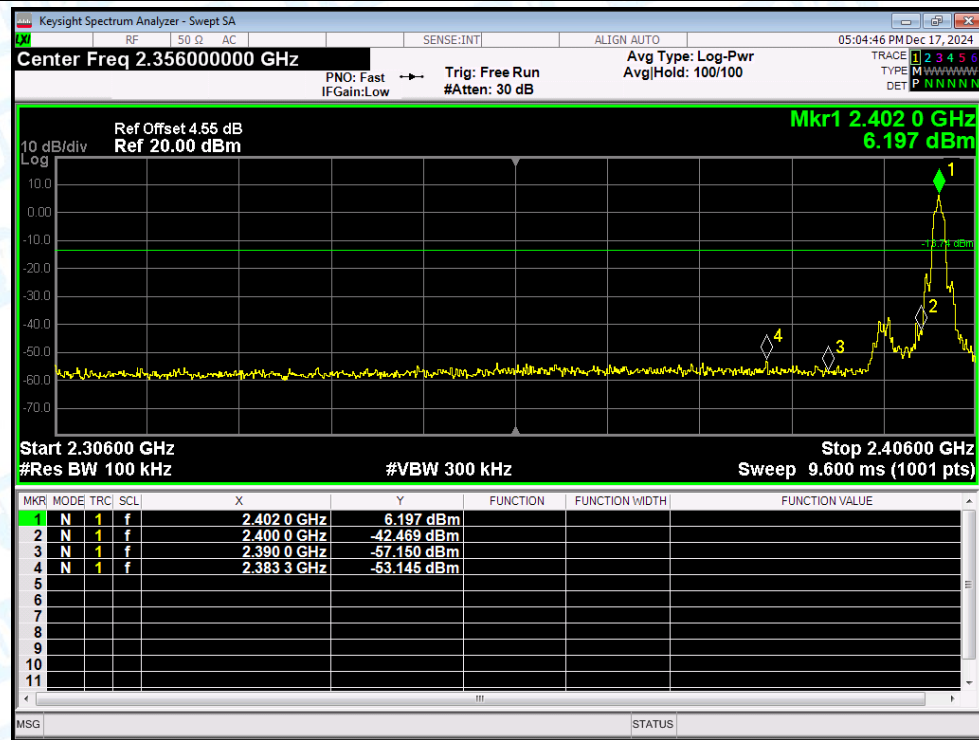




Band Edge NVNT 3-DH1 2402MHz Ant1 No-Hopping Ref



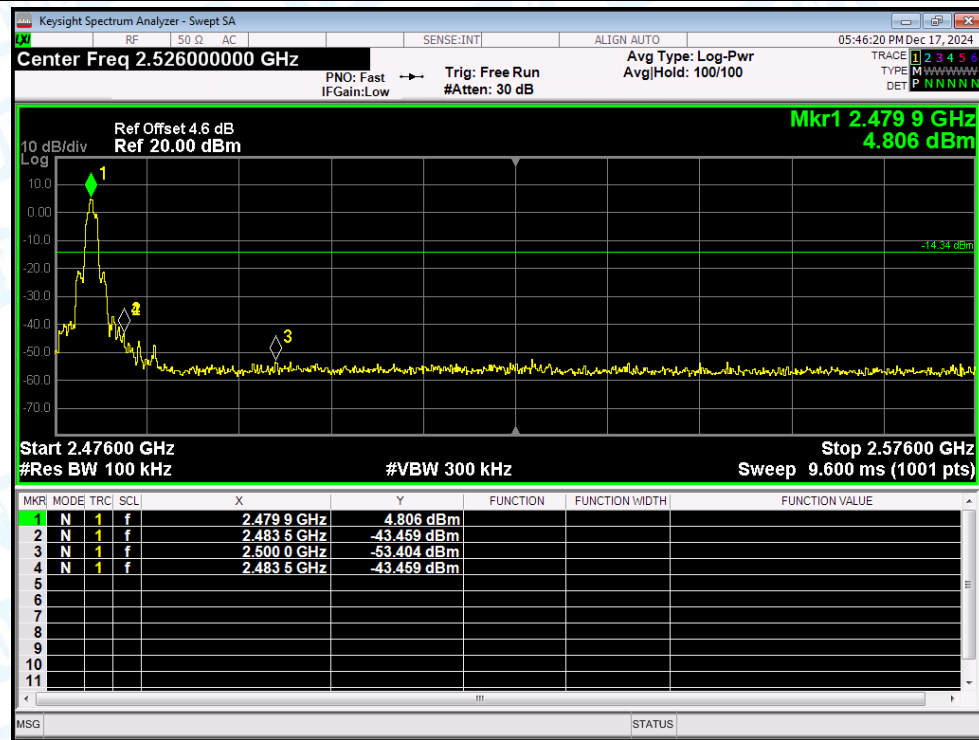
Band Edge NVNT 3-DH1 2402MHz Ant1 No-Hopping Emission



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



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

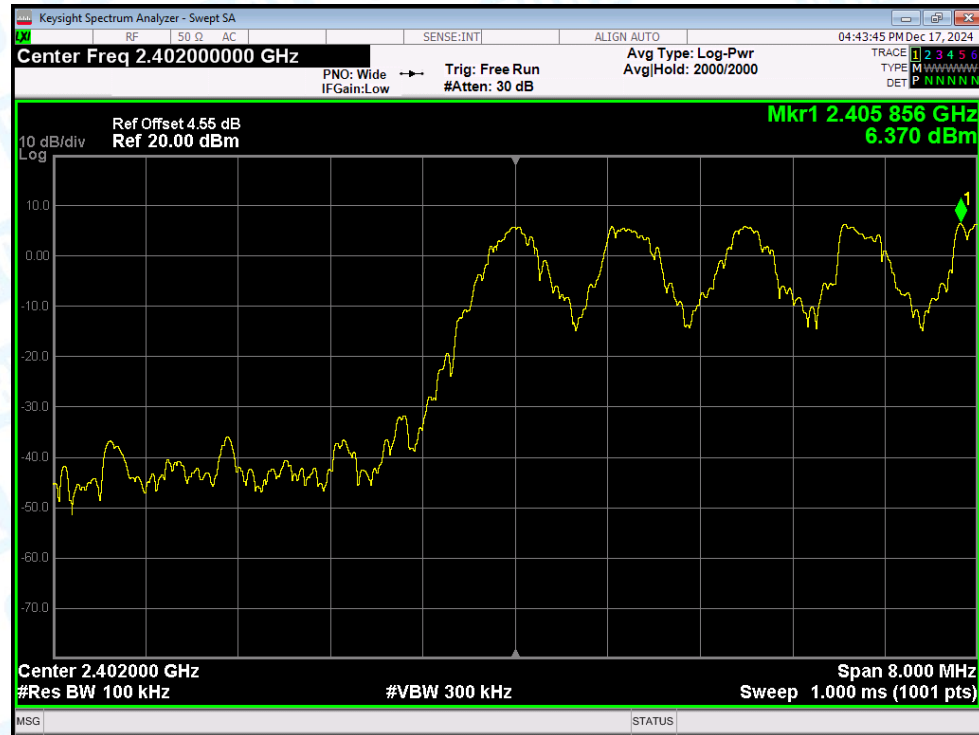


6. Band Edge(Hopping)

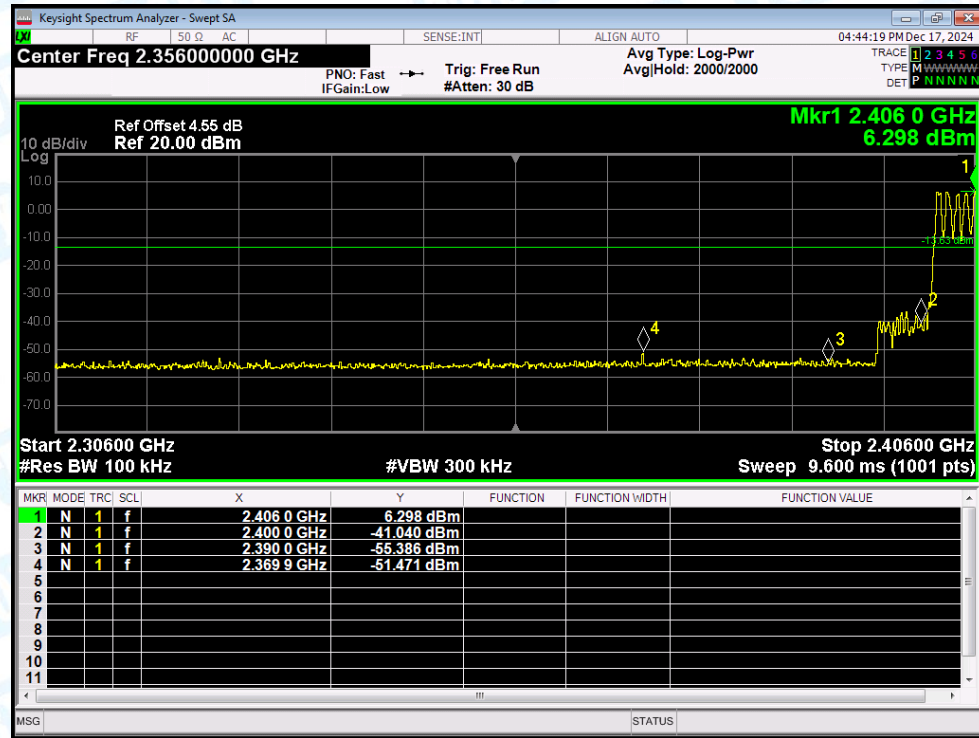
Condition	Mode	Frequency (MHz)	Antenna	Hopping Mode	Max Value (dBc)	Limit (dBc)	Verdict
NVNT	1-DH1	2402	Ant1	Hopping	-57.84	-20	Pass
NVNT	1-DH1	2480	Ant1	Hopping	-48.54	-20	Pass
NVNT	2-DH1	2402	Ant1	Hopping	-59.43	-20	Pass
NVNT	2-DH1	2480	Ant1	Hopping	-51.18	-20	Pass
NVNT	3-DH1	2402	Ant1	Hopping	-58.93	-20	Pass
NVNT	3-DH1	2480	Ant1	Hopping	-48.72	-20	Pass

Test Graphs

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



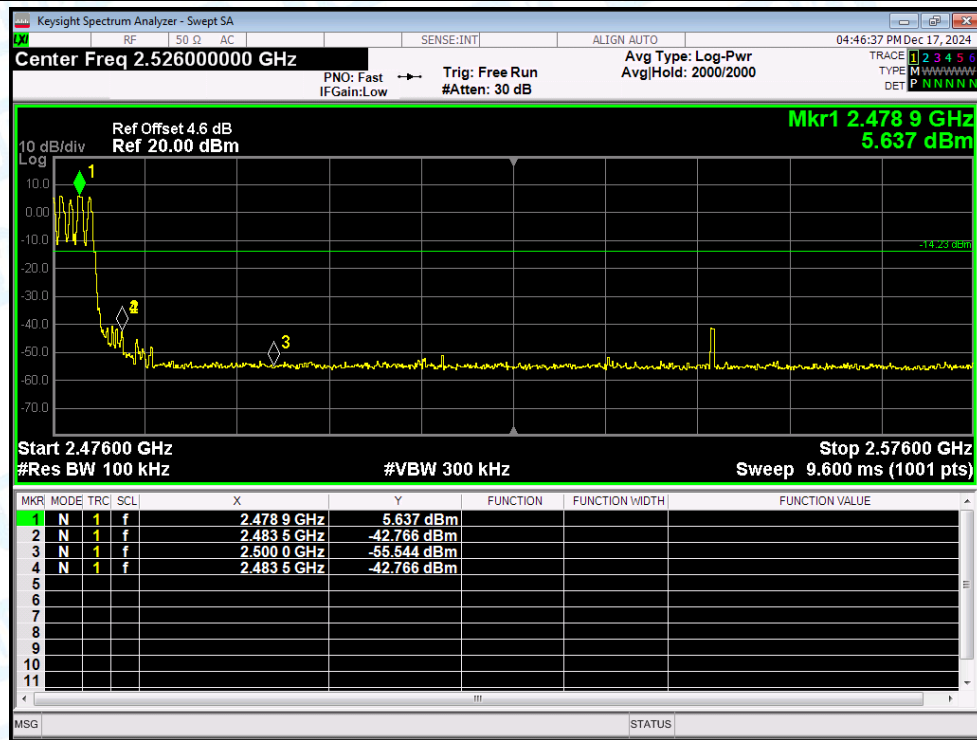
Band Edge(Hopping) NVNT 1-DH1 2402MHz Ant1 Hopping Emission



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



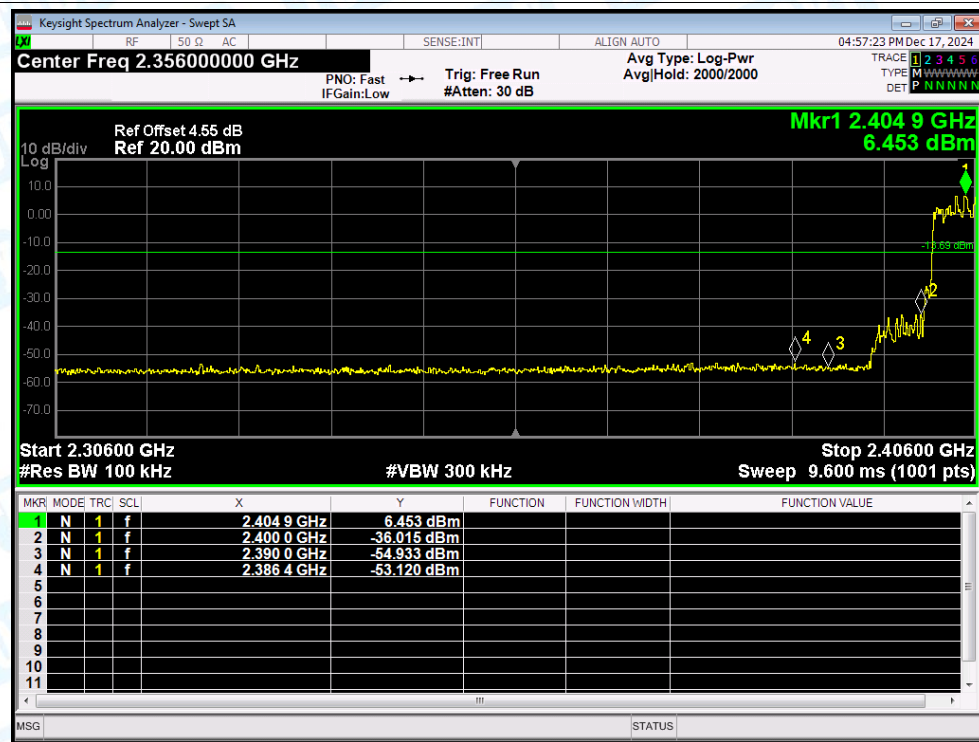
Band Edge(Hopping) NVNT 1-DH1 2480MHz Ant1 Hopping Emission



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



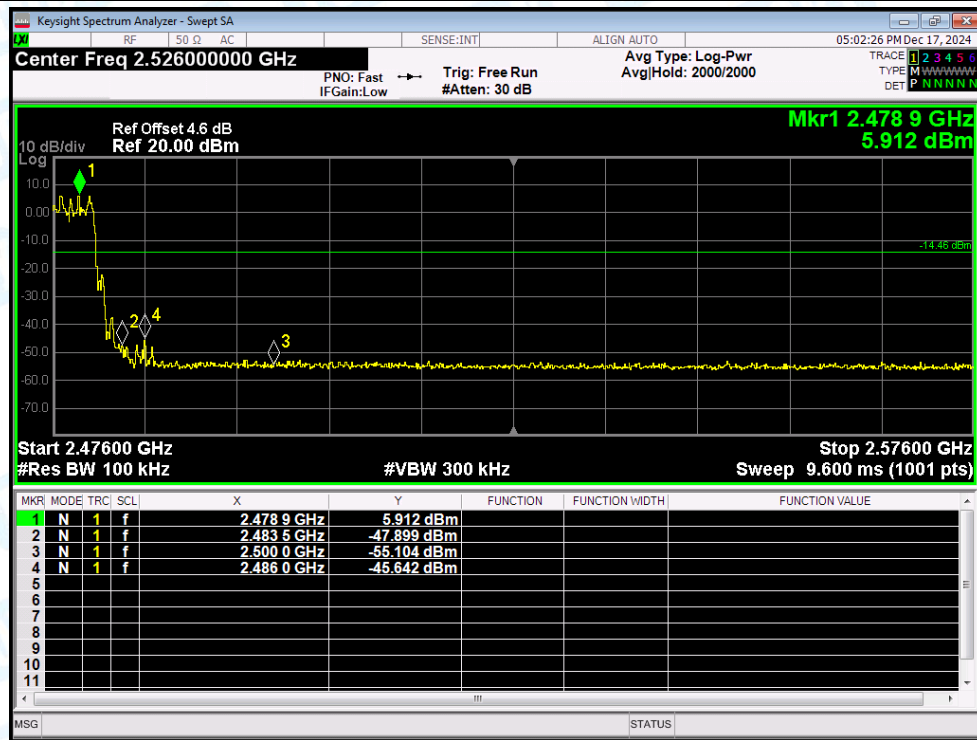
Band Edge(Hopping) NVNT 2-DH1 2402MHz Ant1 Hopping Emission

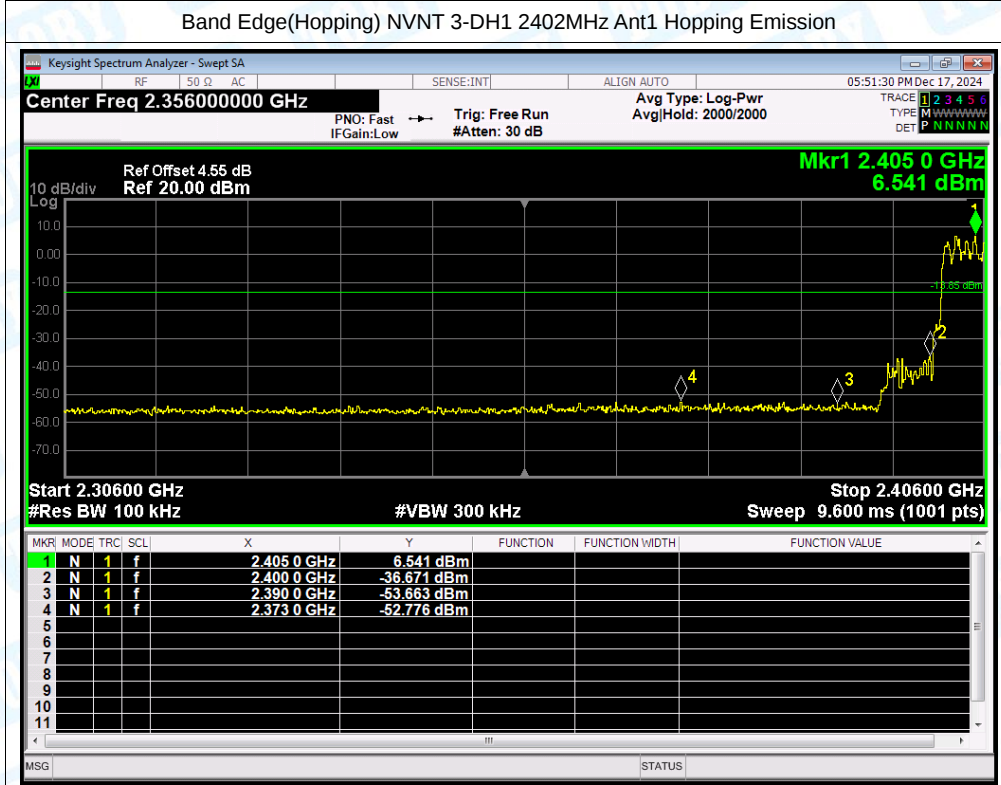
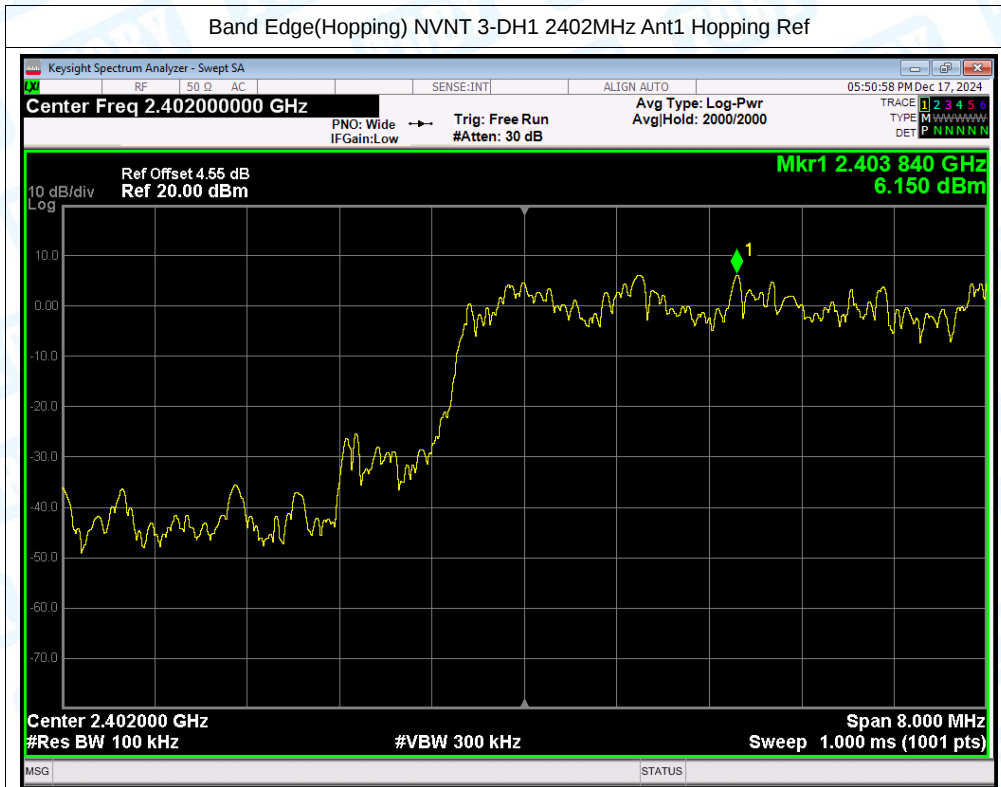


Band Edge(Hopping) NVNT 2-DH1 2480MHz Ant1 Hopping Ref



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

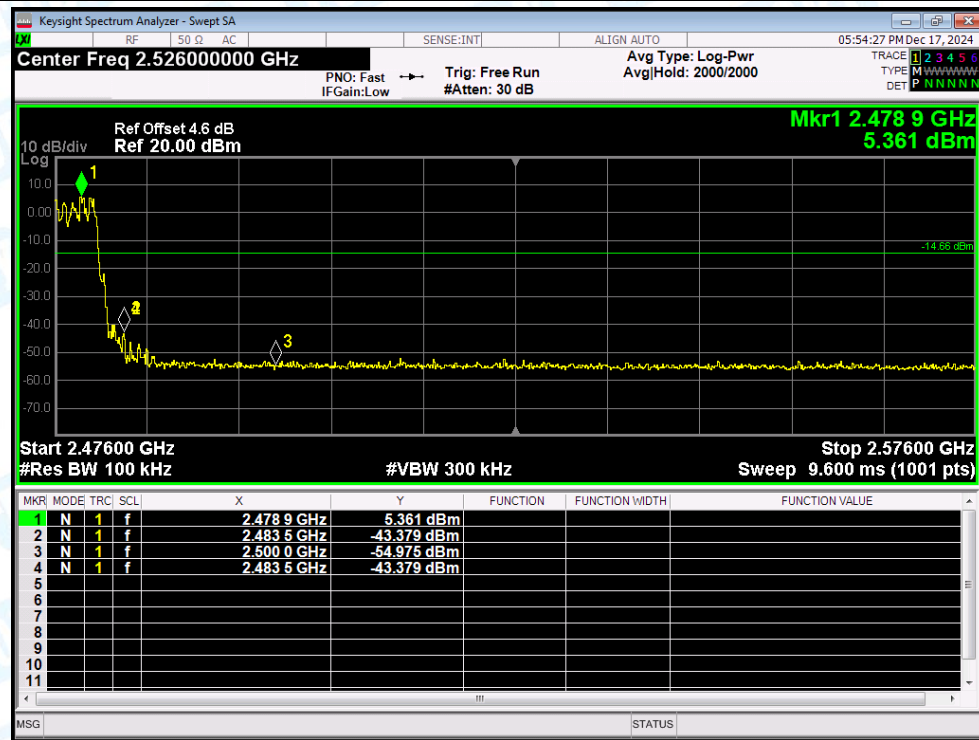




Band Edge(Hopping) NVNT 3-DH1 2480MHz Ant1 Hopping Ref



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

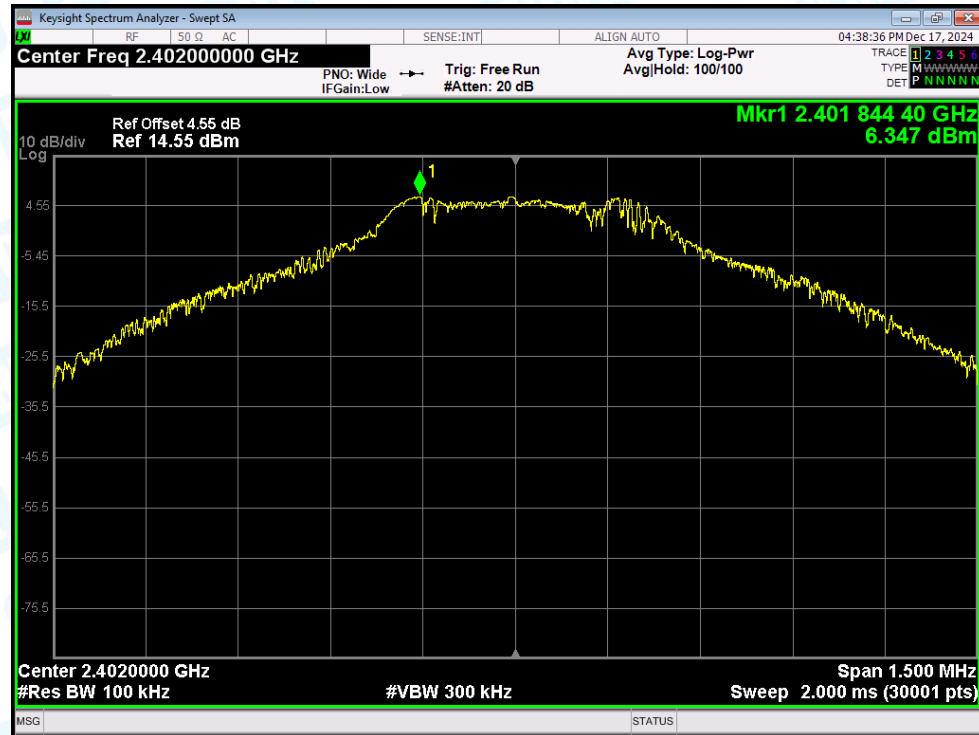


7. Conducted RF Spurious Emission

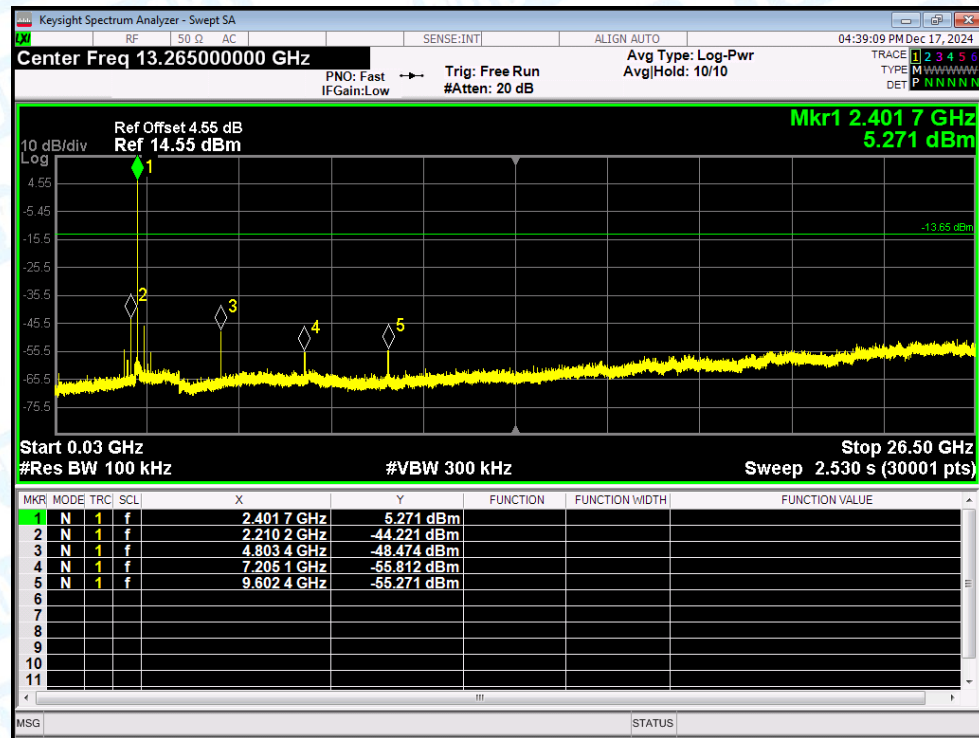
Condition	Mode	Frequency (MHz)	Antenna	Max Value (dBc)	Limit (dBc)	Verdict
NVNT	1-DH1	2402	Ant1	-50.57	-20	Pass
NVNT	1-DH1	2441	Ant1	-50.97	-20	Pass
NVNT	1-DH1	2480	Ant1	-48.69	-20	Pass
NVNT	2-DH1	2402	Ant1	-50.38	-20	Pass
NVNT	2-DH1	2441	Ant1	-51.00	-20	Pass
NVNT	2-DH1	2480	Ant1	-50.24	-20	Pass
NVNT	3-DH1	2402	Ant1	-52.28	-20	Pass
NVNT	3-DH1	2441	Ant1	-50.52	-20	Pass
NVNT	3-DH1	2480	Ant1	-45.90	-20	Pass

Test Graphs

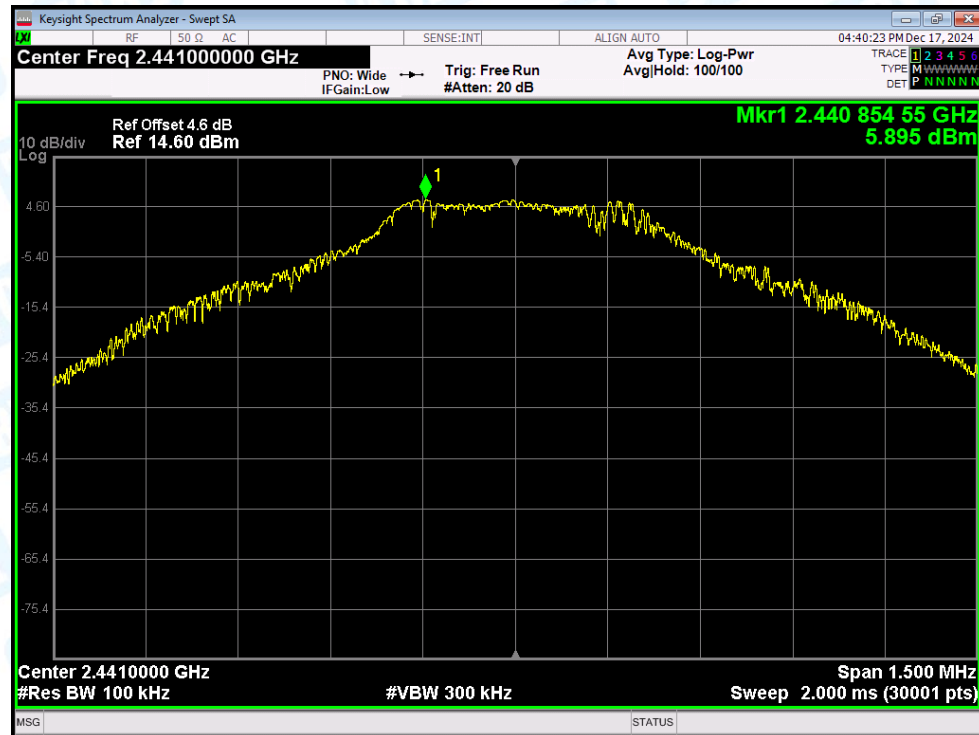
Tx. Spurious NVNT 1-DH1 2402MHz Ant1 Ref



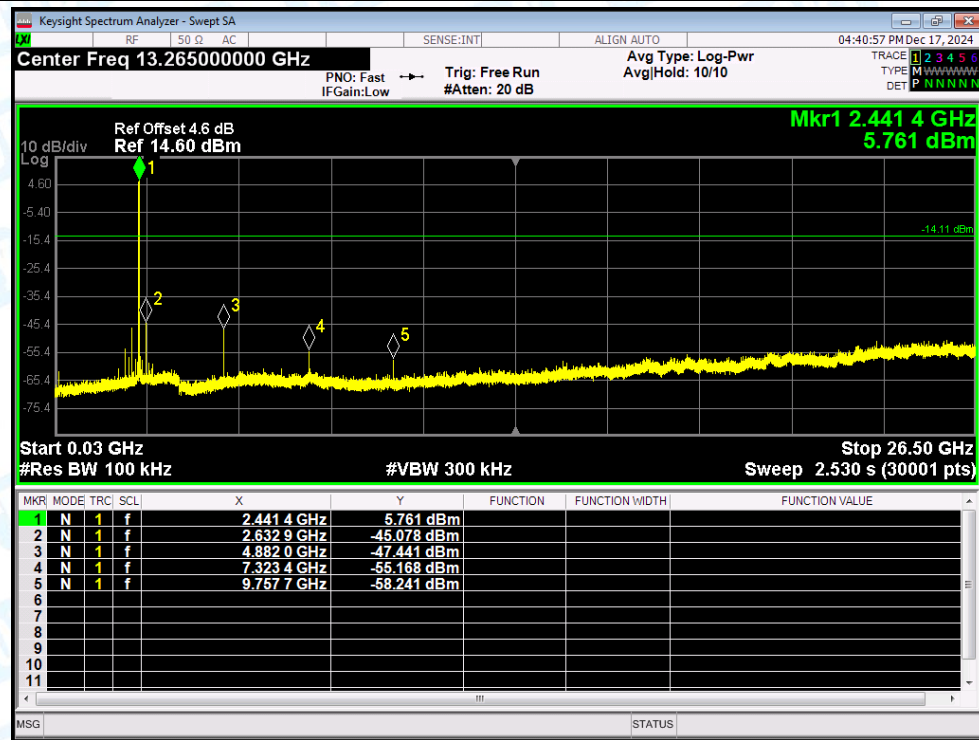
Tx. Spurious NVNT 1-DH1 2402MHz Ant1 Emission



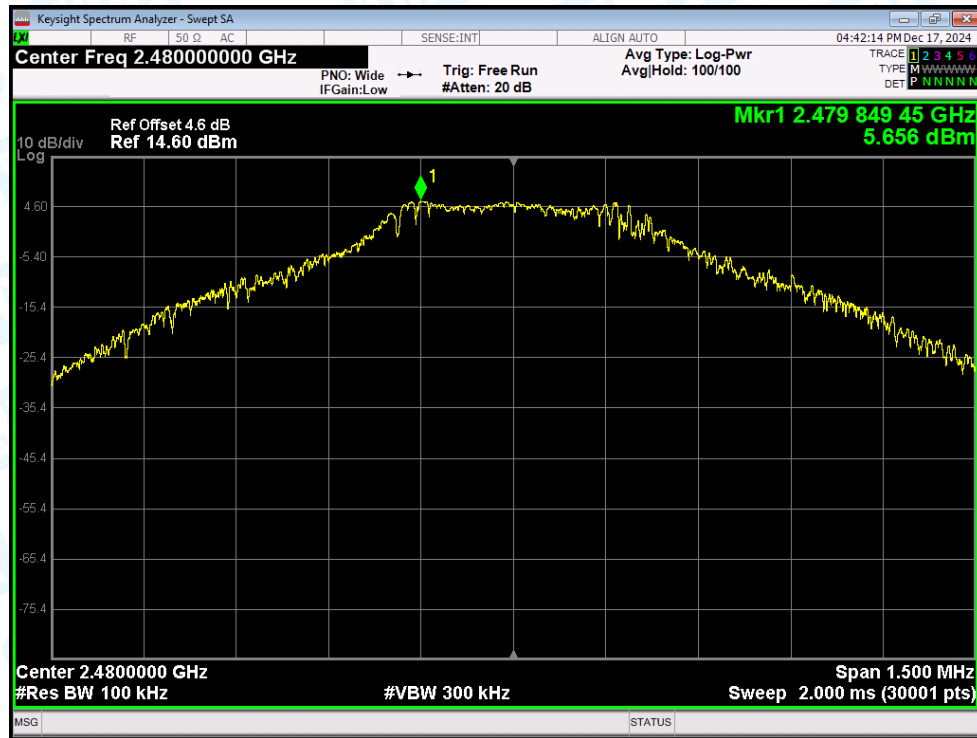
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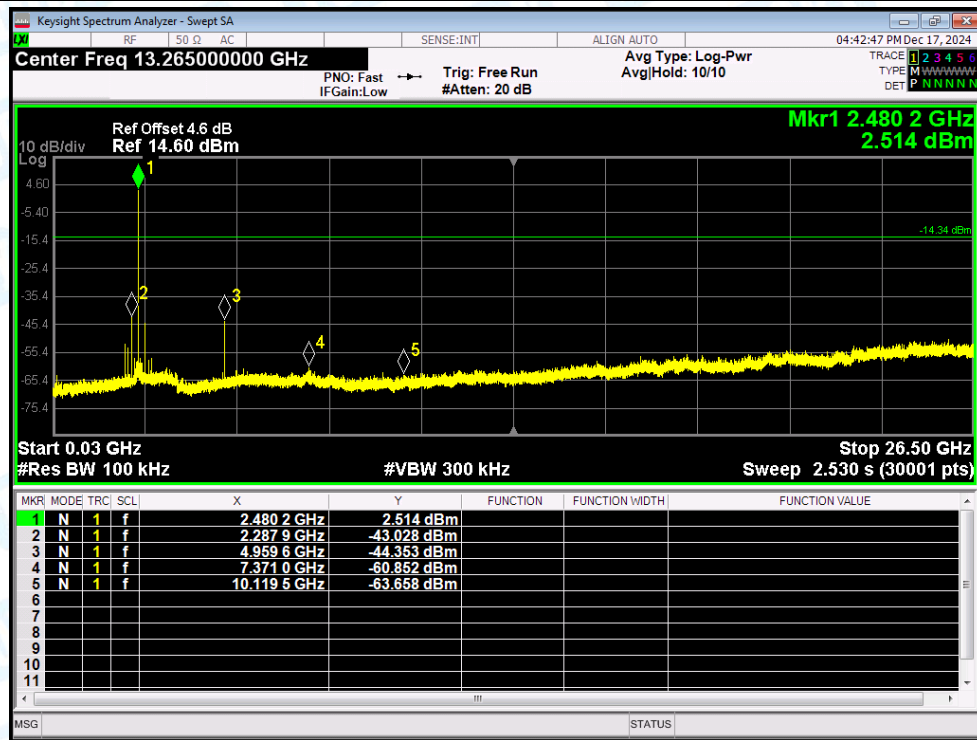
Tx. Spurious NVNT 1-DH1 2441MHz Ant1 Emission



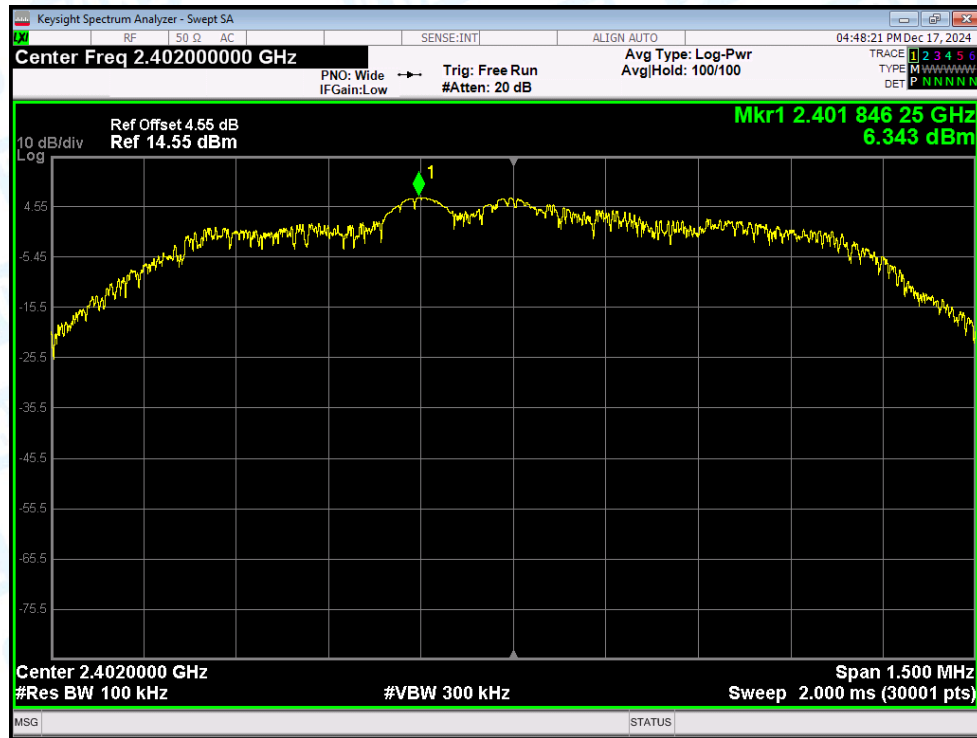
Tx. Spurious NVNT 1-DH1 2480MHz Ant1 Ref



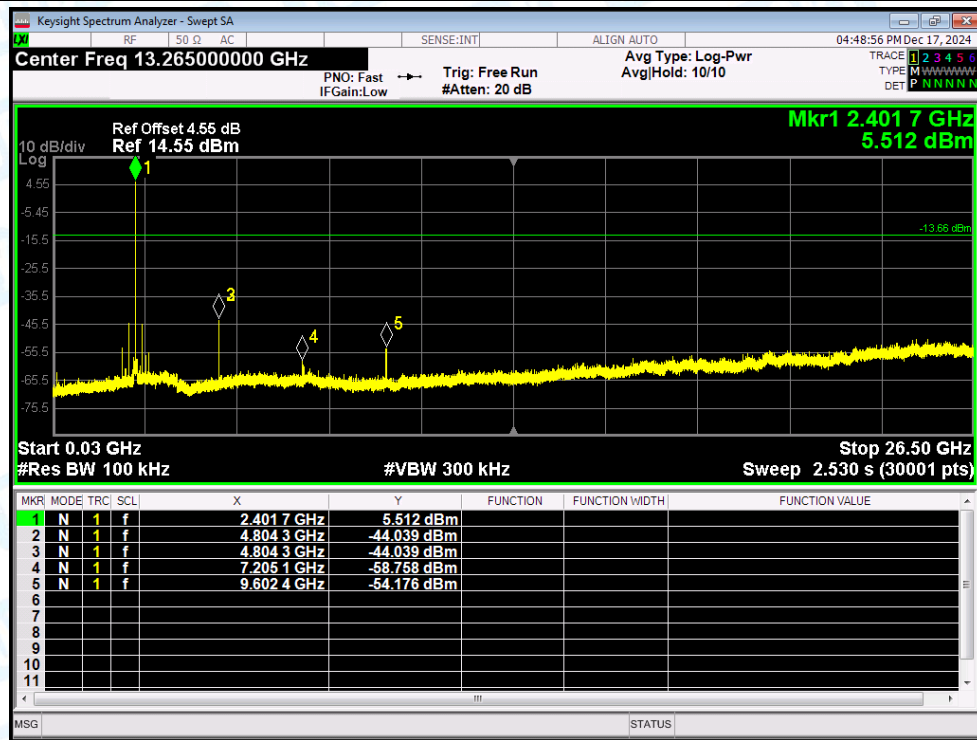
Tx. Spurious NVNT 1-DH1 2480MHz Ant1 Emission



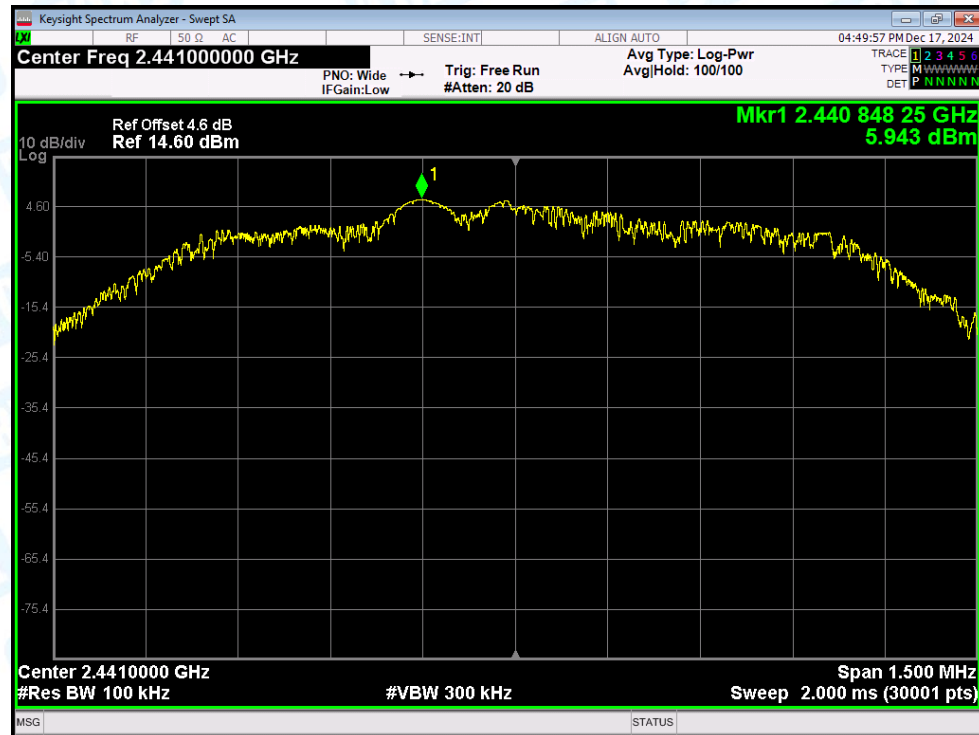
Tx. Spurious NVNT 2-DH1 2402MHz Ant1 Ref



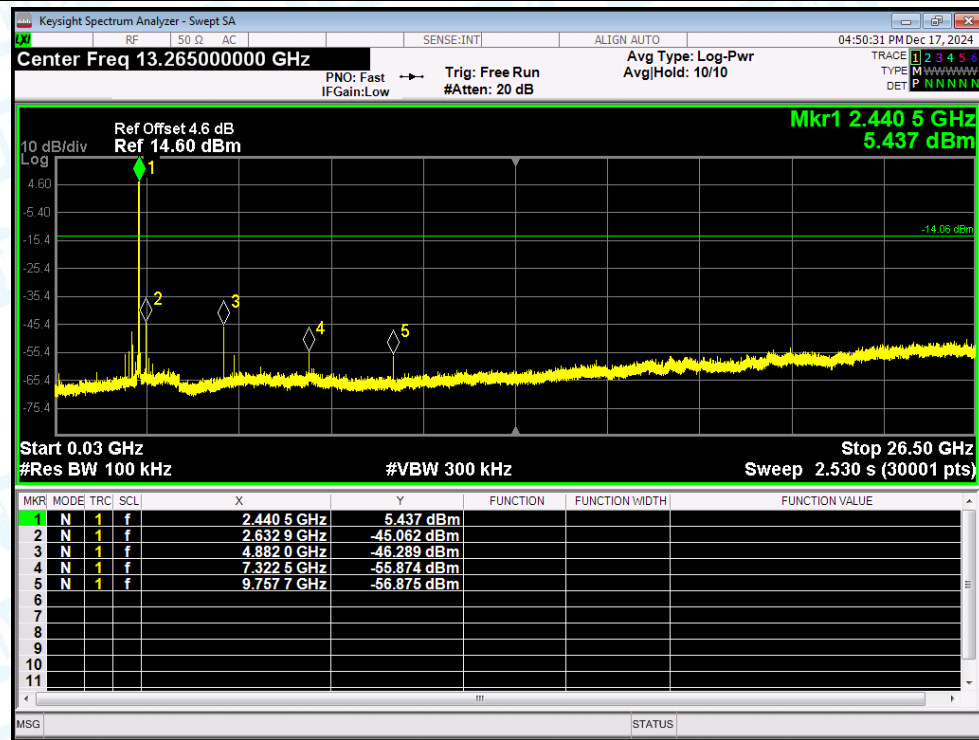
Tx. Spurious NVNT 2-DH1 2402MHz Ant1 Emission



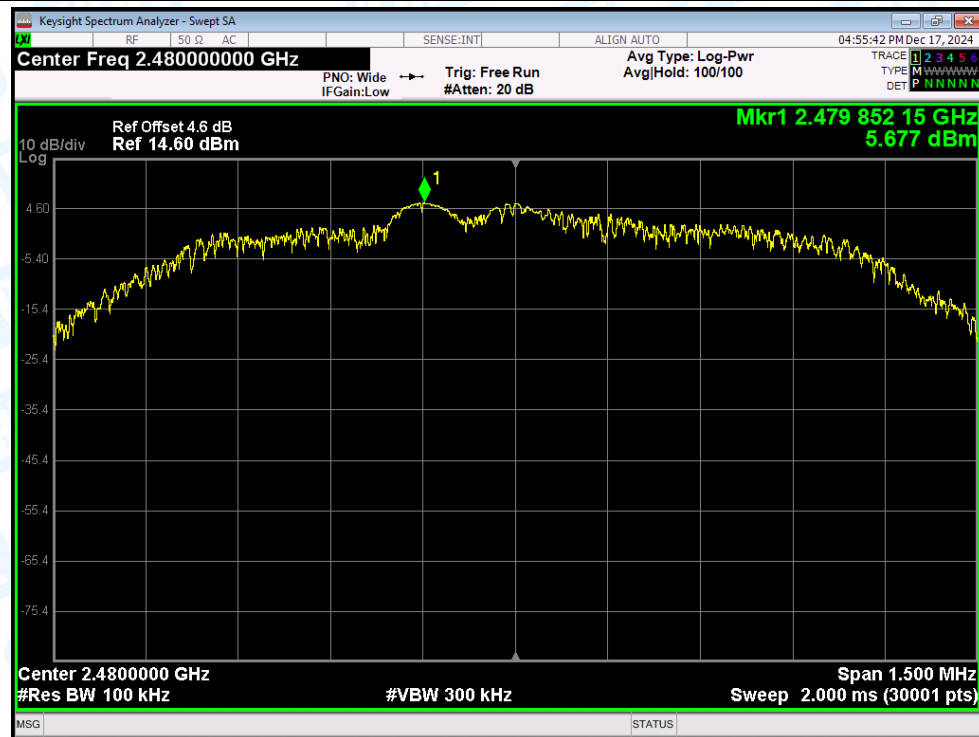
Tx. Spurious NVNT 2-DH1 2441MHz Ant1 Ref



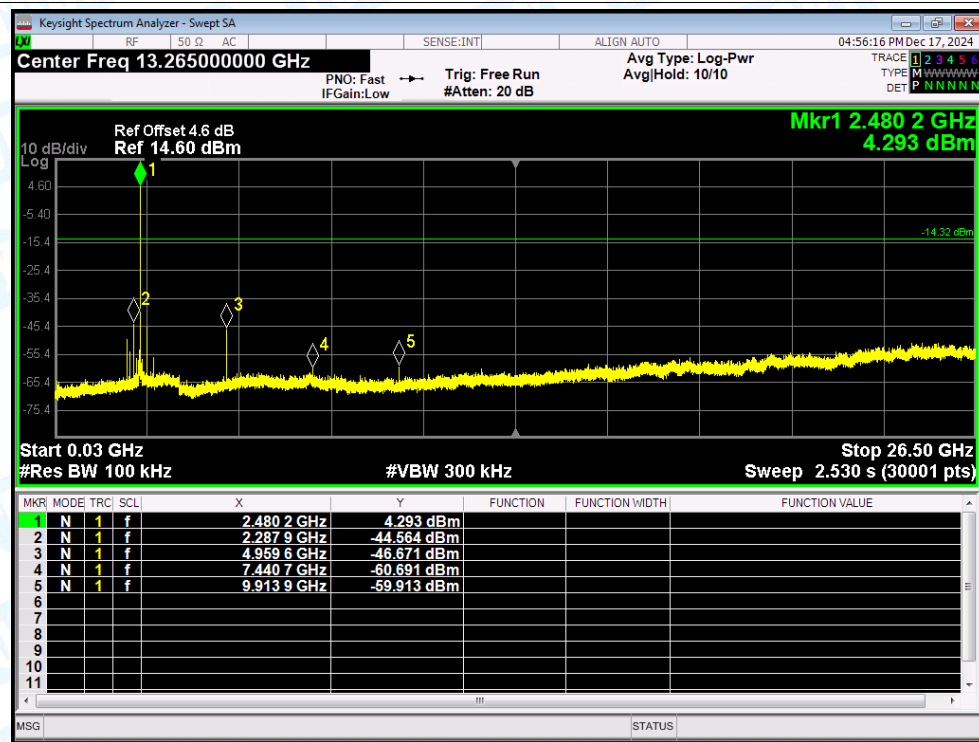
Tx. Spurious NVNT 2-DH1 2441MHz Ant1 Emission



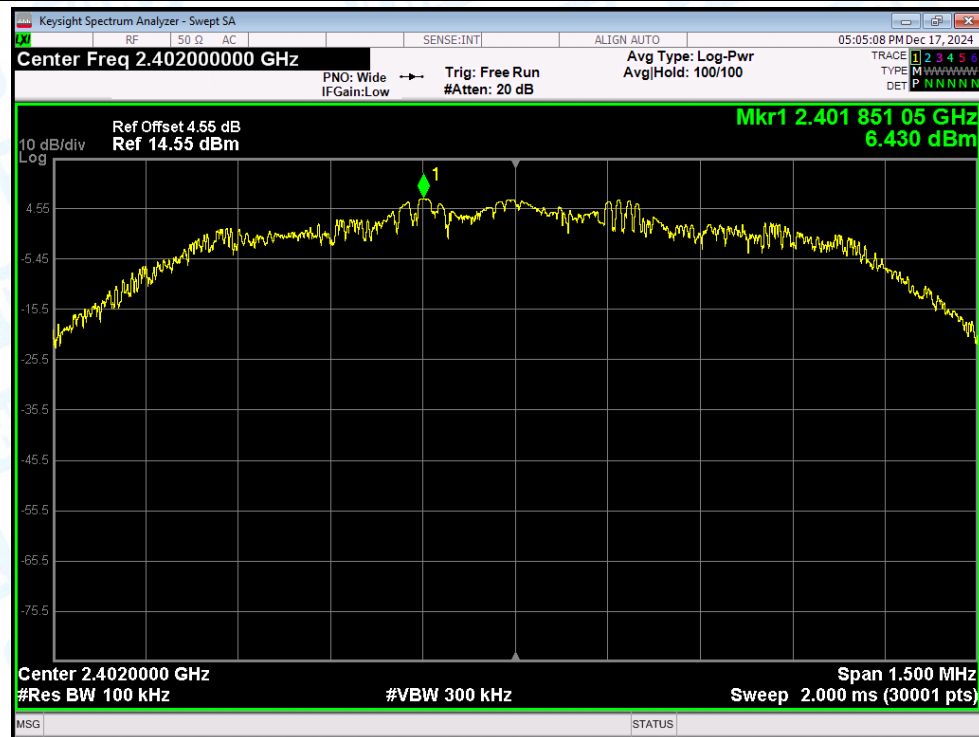
Tx. Spurious NVNT 2-DH1 2480MHz Ant1 Ref



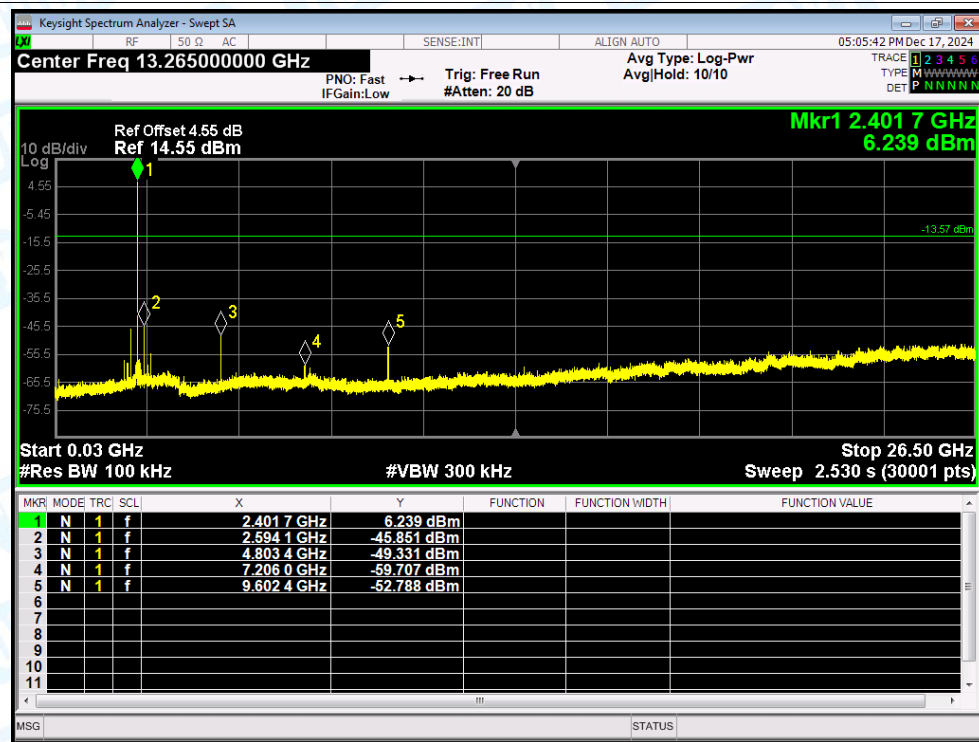
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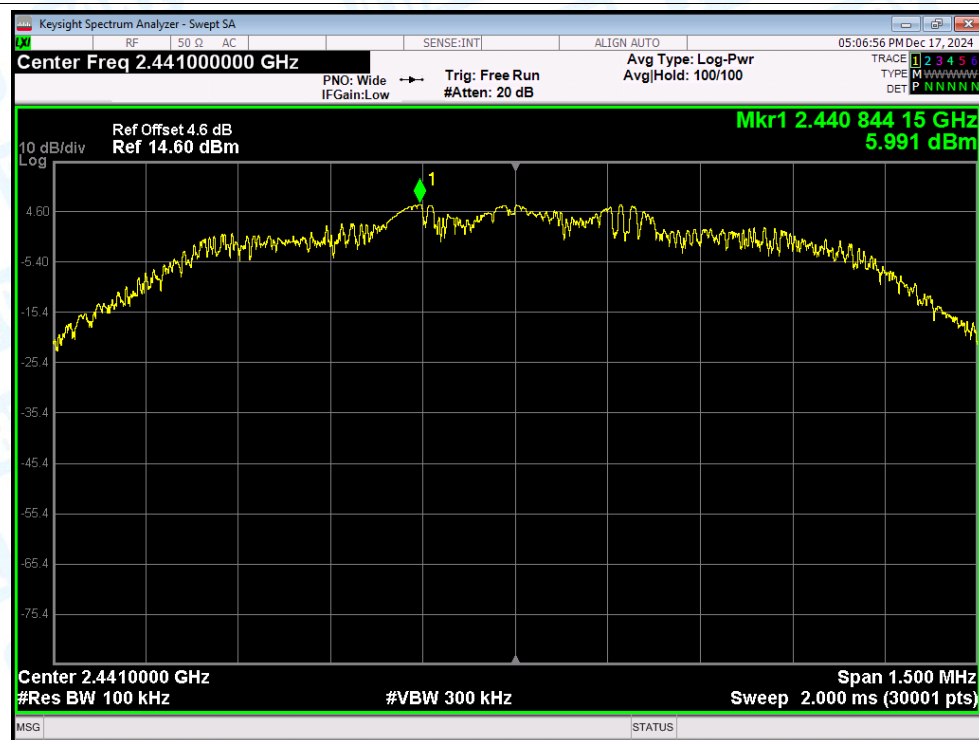
Tx. Spurious NVNT 3-DH1 2402MHz Ant1 Ref



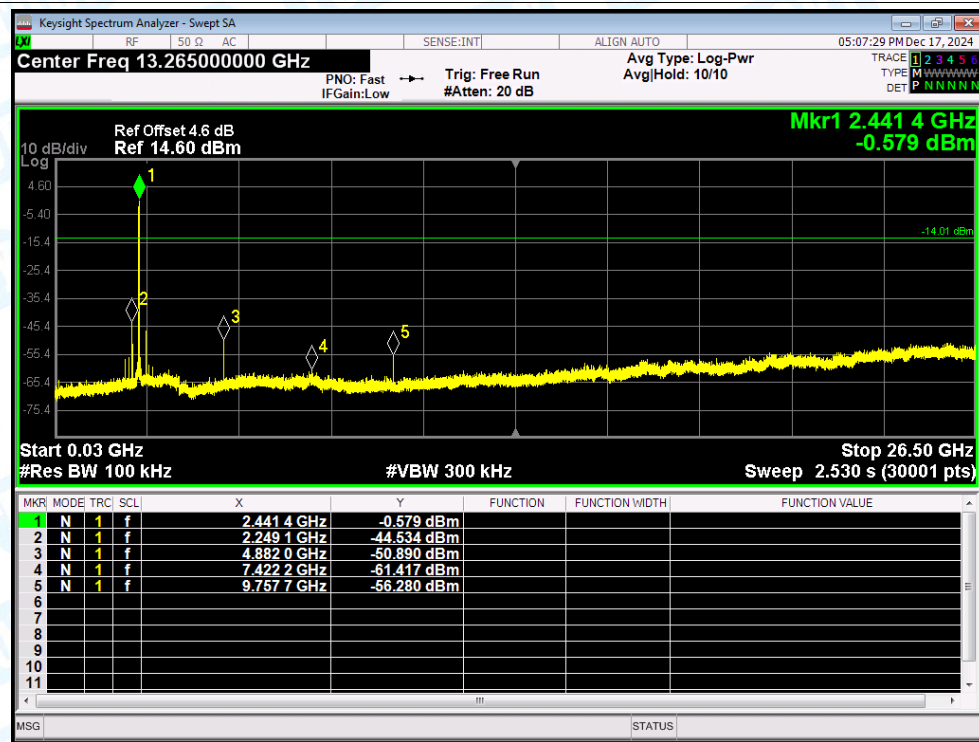
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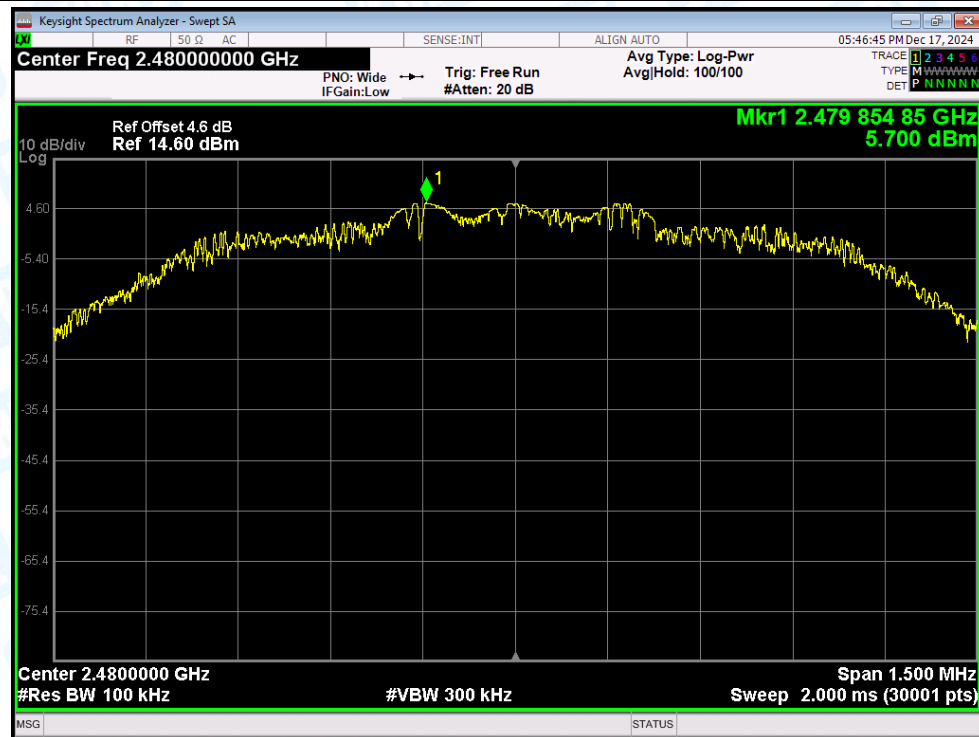
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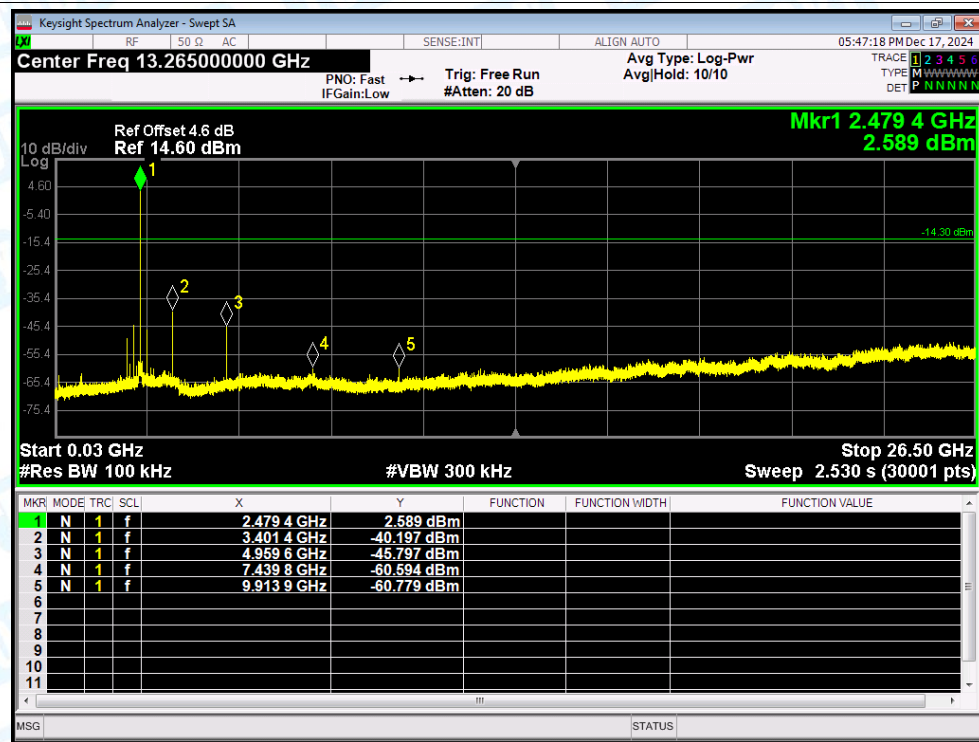
Tx. Spurious NVNT 3-DH1 2441MHz Ant1 Emission



Tx. Spurious NVNT 3-DH1 2480MHz Ant1 Ref



Tx. Spurious NVNT 3-DH1 2480MHz Ant1 Emission

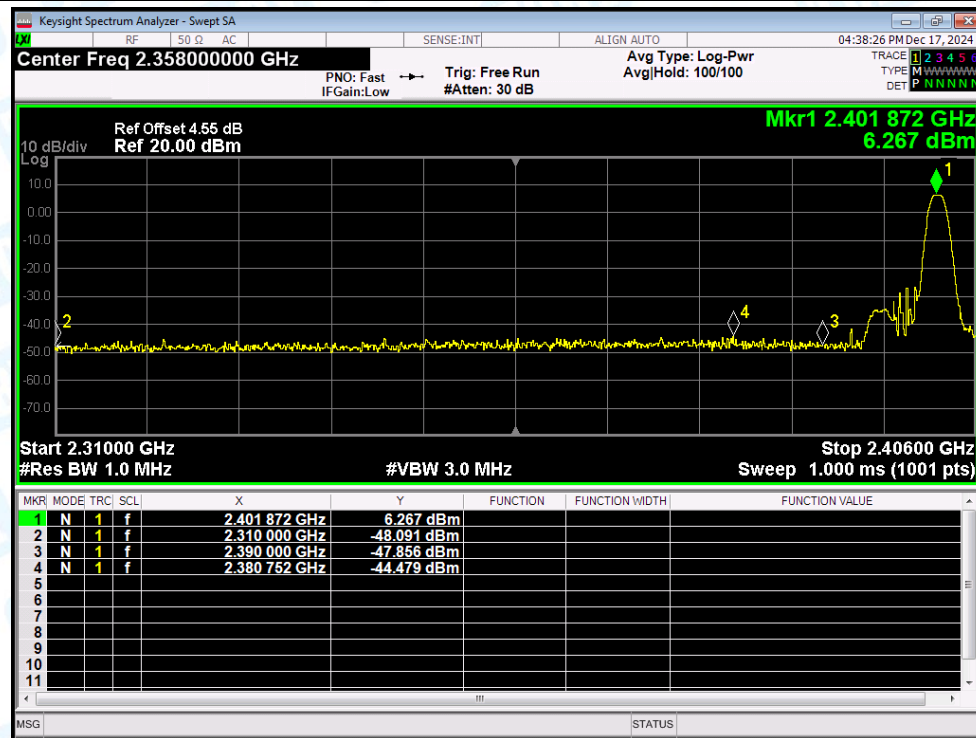


8. Restrict Band

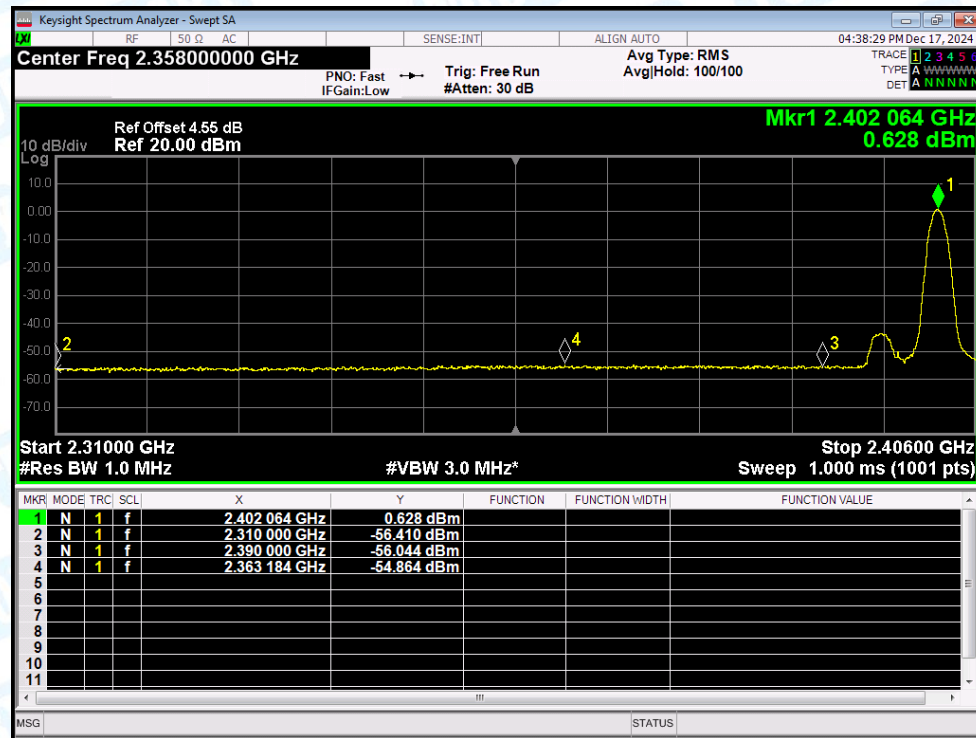
Condition	Mode	Frequency (MHz)	Antenna	Hopping Mode	Spur Freq (MHz)	Power (dBm)	Gain (dBi)	Duty Factor (dB)	E (dBuV/m)	Detector	Limit (dBuV/m)	Verdict
NVNT	1-DH1	2402	Ant1	No-Hopping	2310	-48.09	2	-	49.17	Peak	74	Pass
NVNT	1-DH1	2402	Ant1	No-Hopping	2310	-56.41	2	5.17	46.02	Average	54	Pass
NVNT	1-DH1	2402	Ant1	No-Hopping	2380.752	-44.48	2	-	52.78	Peak	74	Pass
NVNT	1-DH1	2402	Ant1	No-Hopping	2363.184	-54.86	2	5.17	47.57	Average	54	Pass
NVNT	1-DH1	2402	Ant1	No-Hopping	2390	-47.86	2	-	49.4	Peak	74	Pass
NVNT	1-DH1	2402	Ant1	No-Hopping	2390	-56.04	2	5.17	46.39	Average	54	Pass
NVNT	1-DH1	2480	Ant1	No-Hopping	2483.5	-37.45	2	-	59.81	Peak	74	Pass
NVNT	1-DH1	2480	Ant1	No-Hopping	2483.5	-49.03	2	5.06	53.29	Average	54	Pass
NVNT	1-DH1	2480	Ant1	No-Hopping	2483.512	-37.45	2	-	59.81	Peak	74	Pass
NVNT	1-DH1	2480	Ant1	No-Hopping	2483.536	-48.7	2	5.06	53.62	Average	54	Pass
NVNT	1-DH1	2480	Ant1	No-Hopping	2500	-47.11	2	-	50.15	Peak	74	Pass
NVNT	1-DH1	2480	Ant1	No-Hopping	2500	-55.51	2	5.06	46.81	Average	54	Pass
NVNT	2-DH1	2402	Ant1	No-Hopping	2310	-49.42	2	-	47.84	Peak	74	Pass
NVNT	2-DH1	2402	Ant1	No-Hopping	2310	-56.46	2	5.06	45.86	Average	54	Pass
NVNT	2-DH1	2402	Ant1	No-Hopping	2373.168	-43.48	2	-	53.78	Peak	74	Pass
NVNT	2-DH1	2402	Ant1	No-Hopping	2359.728	-54.62	2	5.06	47.7	Average	54	Pass
NVNT	2-DH1	2402	Ant1	No-Hopping	2390	-48.36	2	-	48.9	Peak	74	Pass
NVNT	2-DH1	2402	Ant1	No-Hopping	2390	-56.02	2	5.06	46.3	Average	54	Pass
NVNT	2-DH1	2480	Ant1	No-Hopping	2483.5	-35.27	2	-	61.99	Peak	74	Pass
NVNT	2-DH1	2480	Ant1	No-Hopping	2483.5	-49	2	5.06	53.32	Average	54	Pass
NVNT	2-DH1	2480	Ant1	No-Hopping	2483.512	-35.27	2	-	61.99	Peak	74	Pass
NVNT	2-DH1	2480	Ant1	No-Hopping	2483.536	-48.88	2	5.06	53.44	Average	54	Pass
NVNT	2-DH1	2480	Ant1	No-Hopping	2500	-47.35	2	-	49.91	Peak	74	Pass
NVNT	2-DH1	2480	Ant1	No-Hopping	2500	-54.82	2	5.06	47.5	Average	54	Pass
NVNT	3-DH1	2402	Ant1	No-Hopping	2310	-47.83	2	-	49.43	Peak	74	Pass
NVNT	3-DH1	2402	Ant1	No-Hopping	2310	-56.05	2	5.06	46.27	Average	54	Pass
NVNT	3-DH1	2402	Ant1	No-Hopping	2375.568	-42.36	2	-	54.9	Peak	74	Pass
NVNT	3-DH1	2402	Ant1	No-Hopping	2357.808	-54.89	2	5.06	47.43	Average	54	Pass
NVNT	3-DH1	2402	Ant1	No-Hopping	2390	-48.57	2	-	48.69	Peak	74	Pass
NVNT	3-DH1	2402	Ant1	No-Hopping	2390	-55.49	2	5.06	46.83	Average	54	Pass
NVNT	3-DH1	2480	Ant1	No-Hopping	2483.5	-37.89	2	-	59.37	Peak	74	Pass
NVNT	3-DH1	2480	Ant1	No-Hopping	2483.5	-49.15	2	4.95	53.06	Average	54	Pass
NVNT	3-DH1	2480	Ant1	No-Hopping	2483.8	-37.54	2	-	59.72	Peak	74	Pass
NVNT	3-DH1	2480	Ant1	No-Hopping	2483.512	-49.15	2	4.95	53.06	Average	54	Pass
NVNT	3-DH1	2480	Ant1	No-Hopping	2500	-44.69	2	-	52.57	Peak	74	Pass
NVNT	3-DH1	2480	Ant1	No-Hopping	2500	-55.41	2	4.95	46.8	Average	54	Pass

Test Graphs

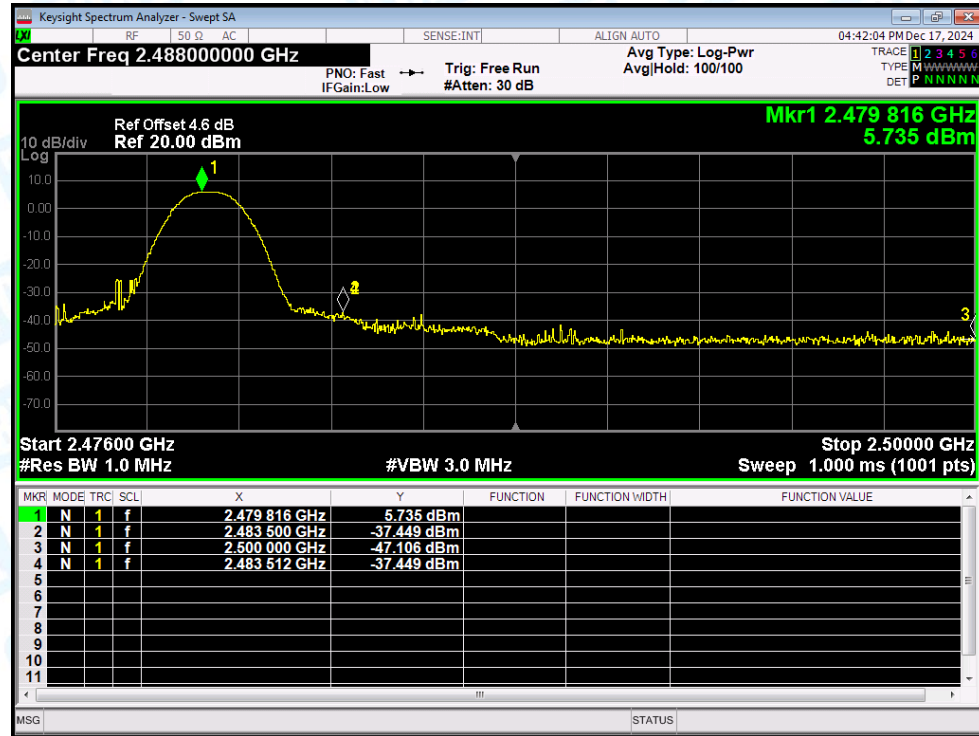
Restrict Band NVNT 1-DH1 2402MHz Ant1 No-Hopping Peak



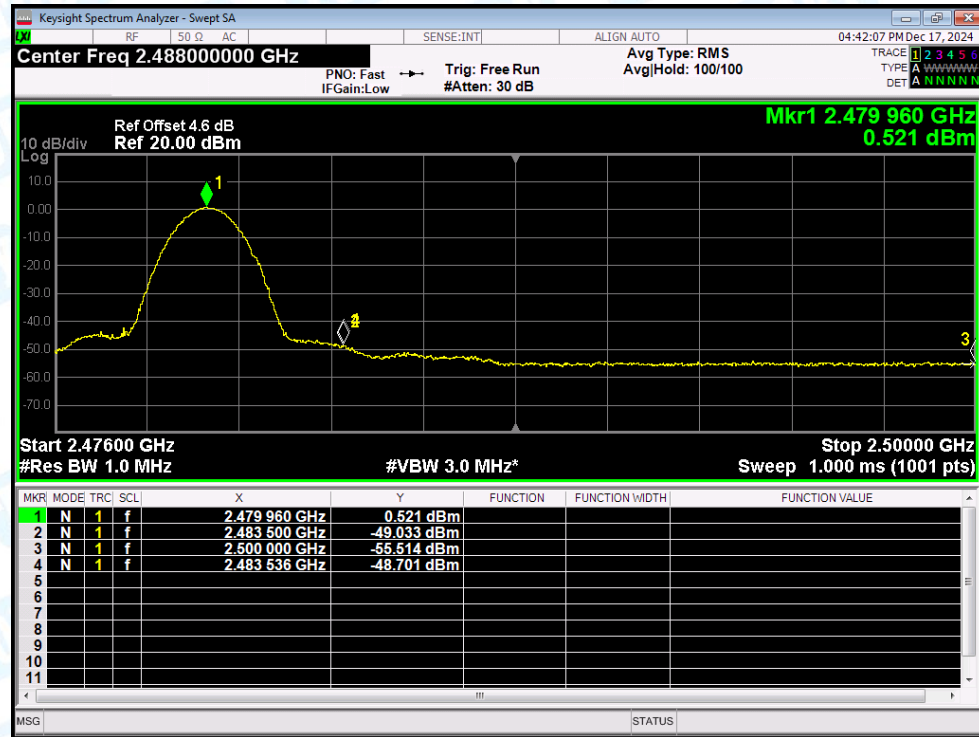
Restrict Band NVNT 1-DH1 2402MHz Ant1 No-Hopping Average



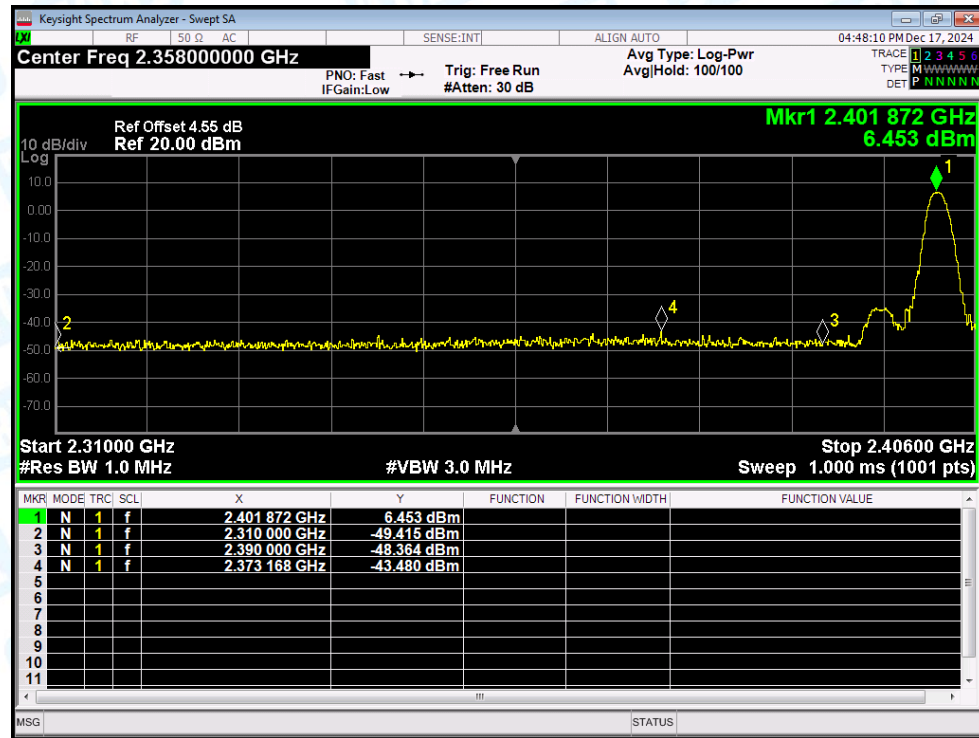
Restrict Band NVNT 1-DH1 2480MHz Ant1 No-Hopping Peak



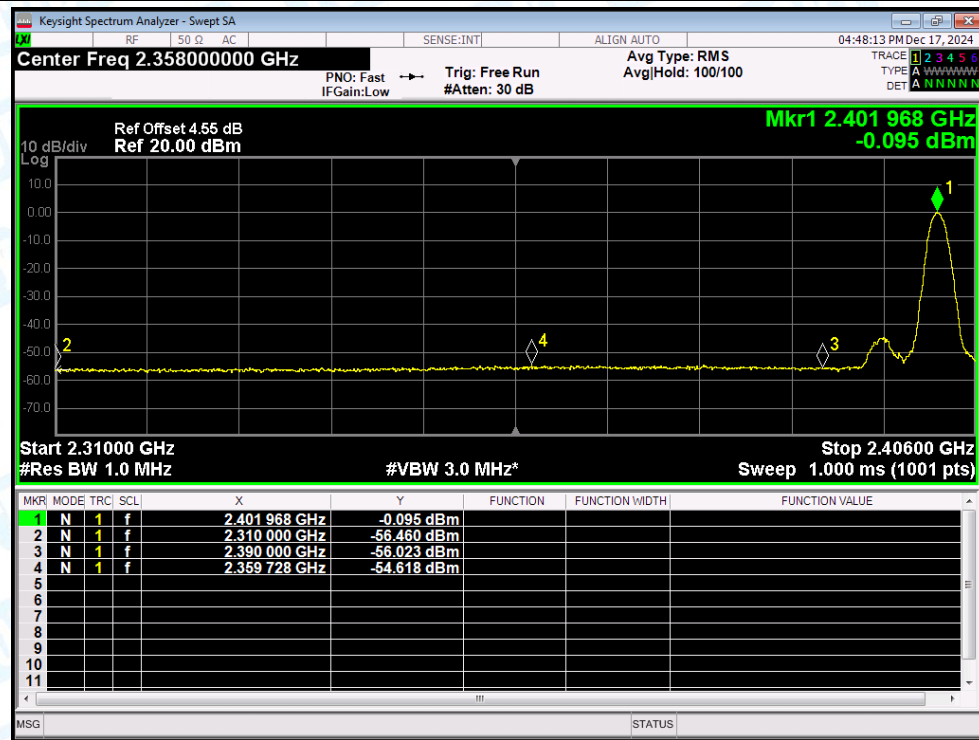
Restrict Band NVNT 1-DH1 2480MHz Ant1 No-Hopping Average



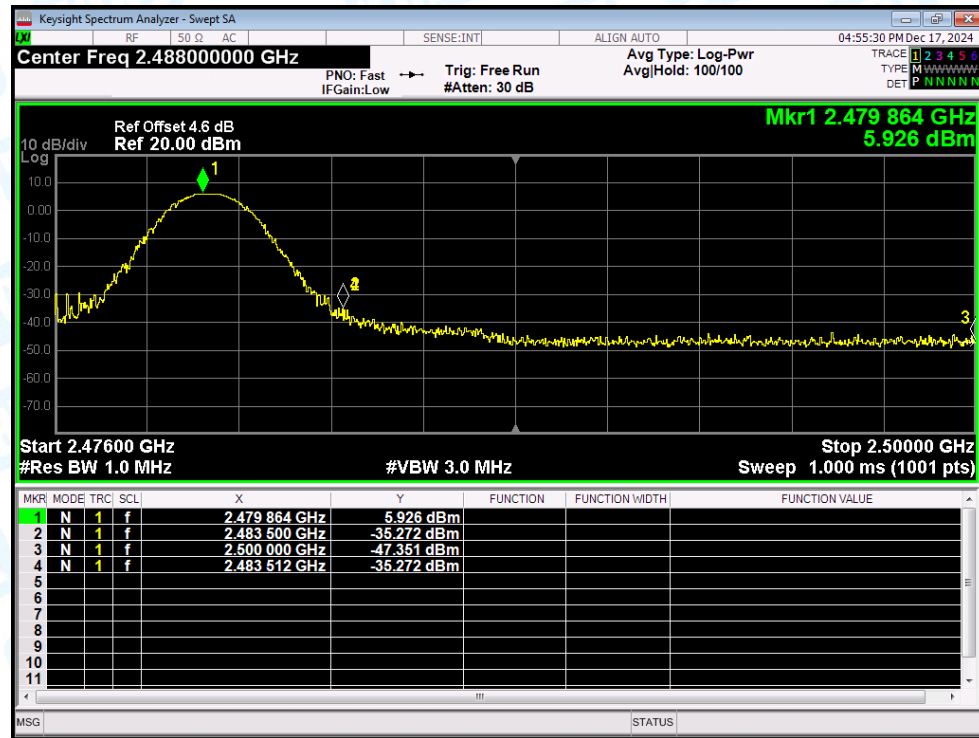
Restrict Band NVNT 2-DH1 2402MHz Ant1 No-Hopping Peak



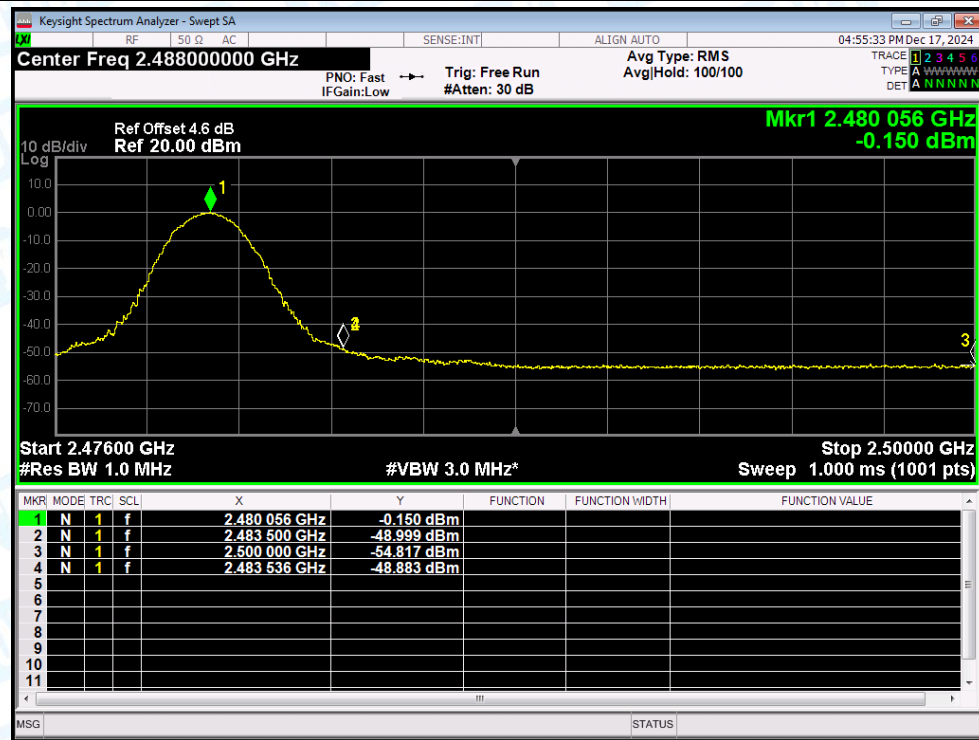
Restrict Band NVNT 2-DH1 2402MHz Ant1 No-Hopping Average



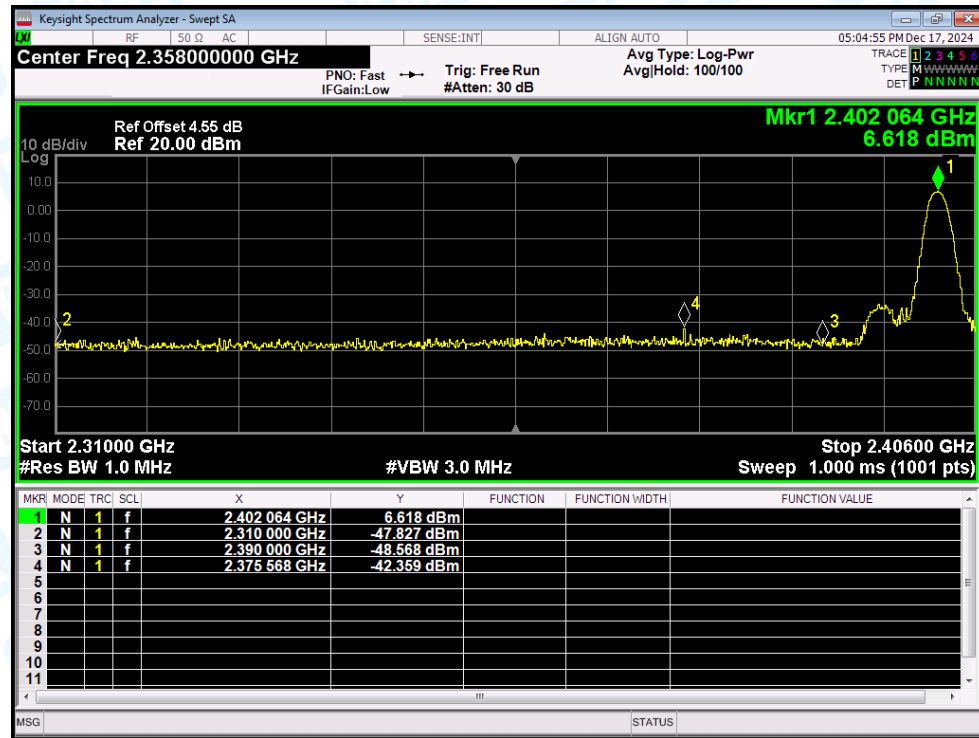
Restrict Band NVNT 2-DH1 2480MHz Ant1 No-Hopping Peak



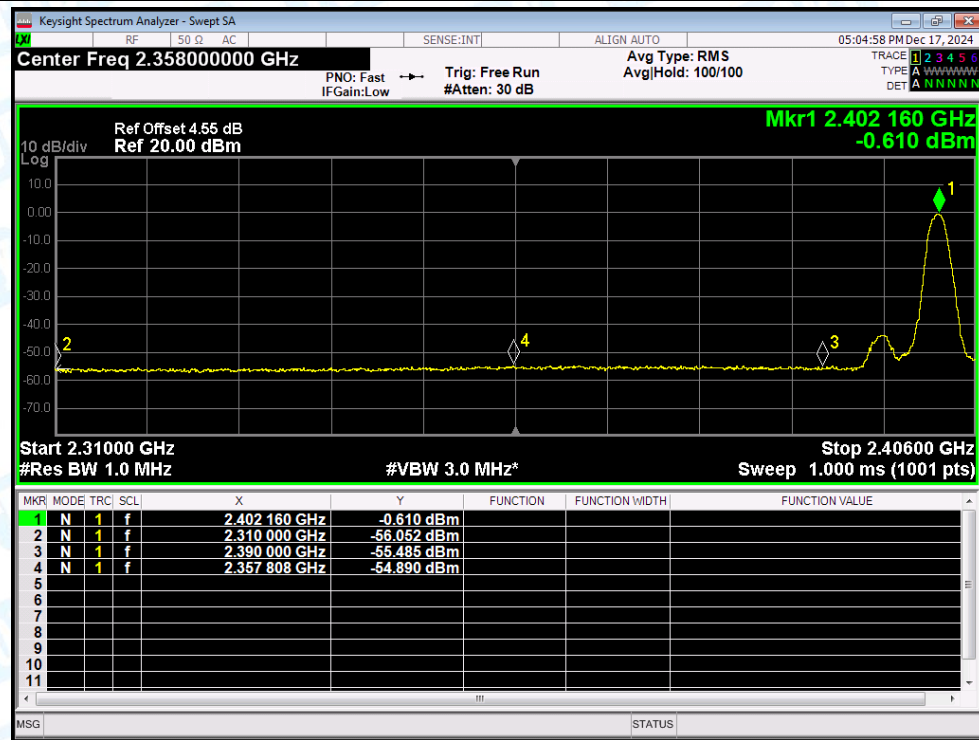
Restrict Band NVNT 2-DH1 2480MHz Ant1 No-Hopping Average



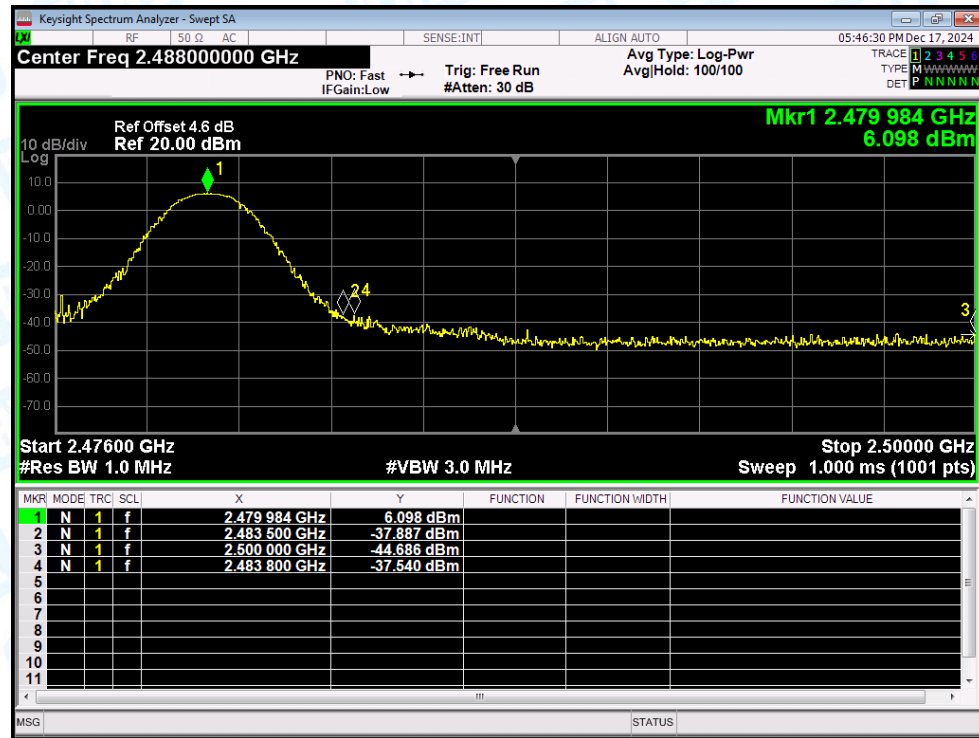
Restrict Band NVNT 3-DH1 2402MHz Ant1 No-Hopping Peak



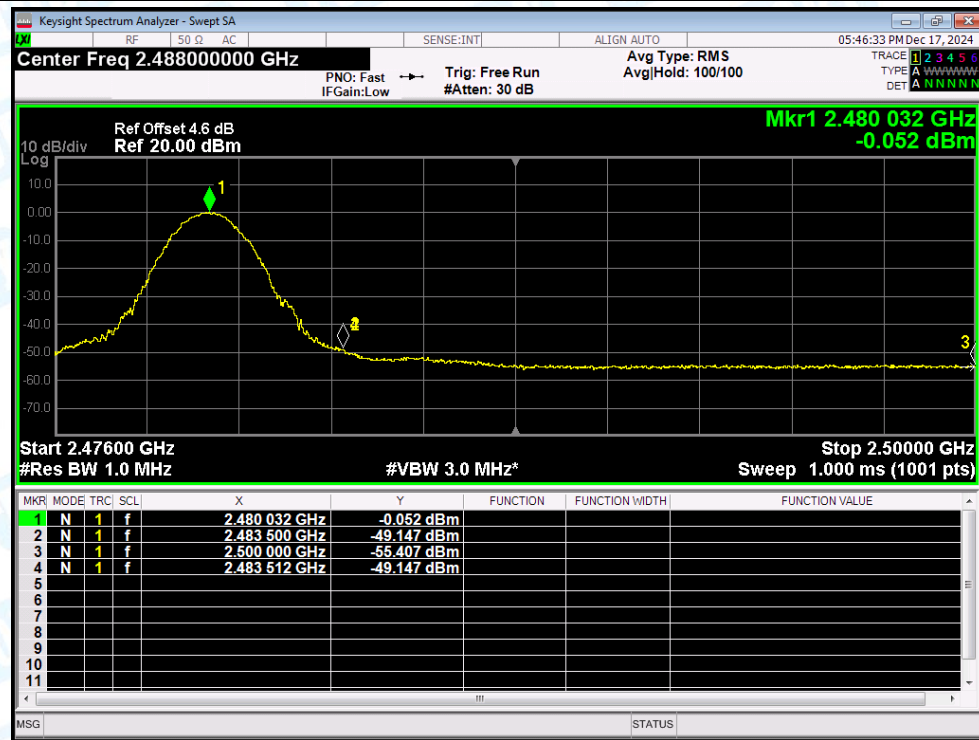
Restrict Band NVNT 3-DH1 2402MHz Ant1 No-Hopping Average



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



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

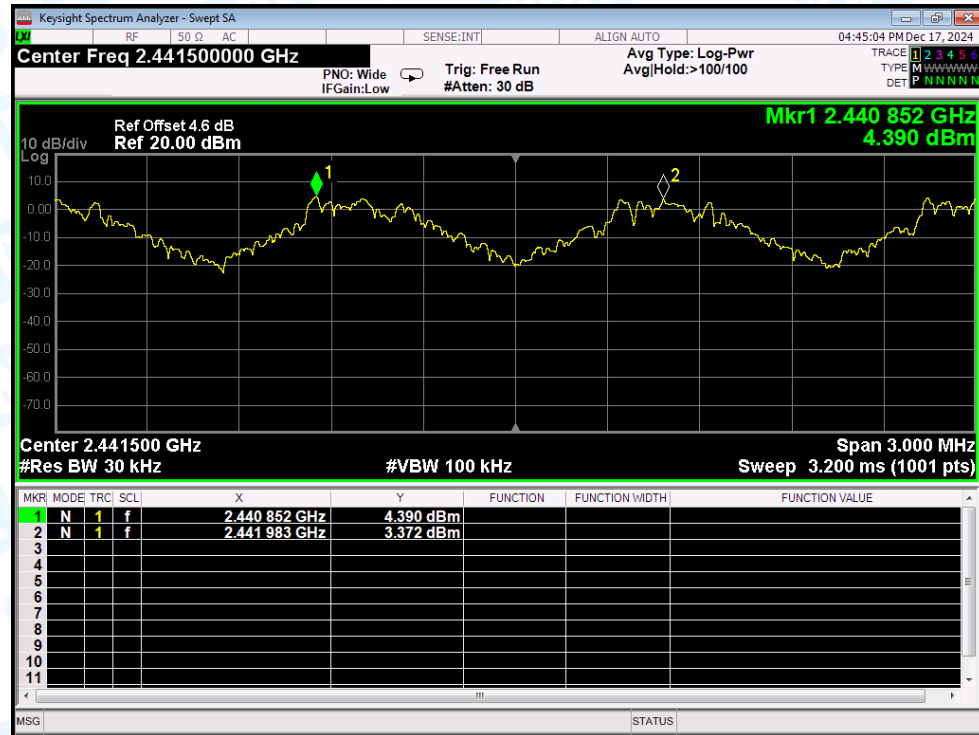


9. Carrier Frequencies Separation

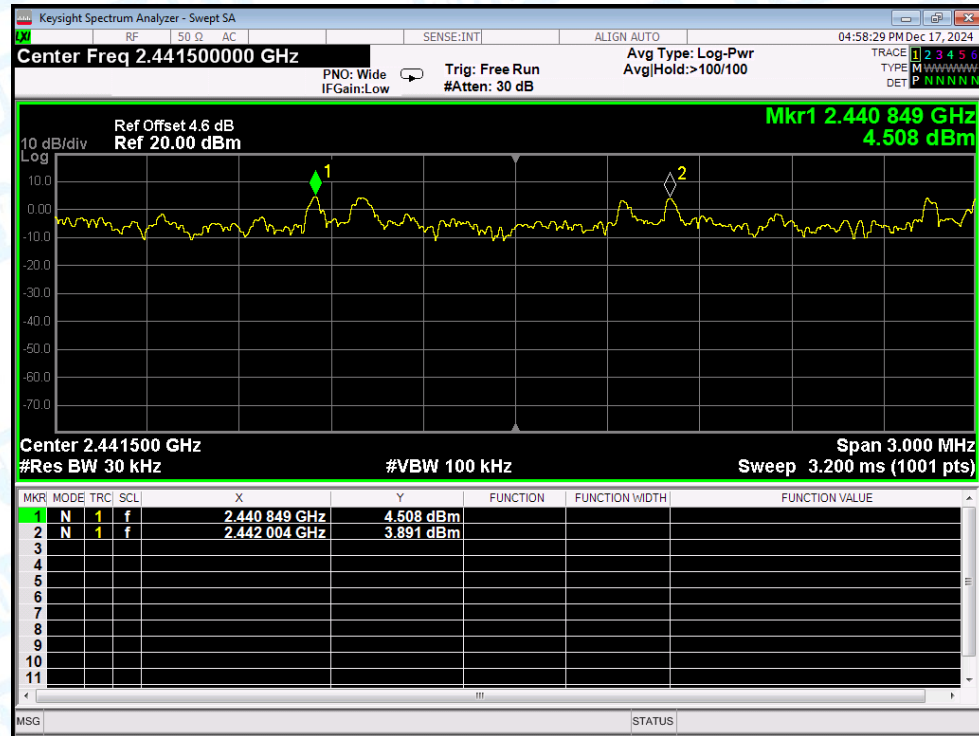
Condition	Mode	Antenna	Hopping Freq1 (MHz)	Hopping Freq2 (MHz)	HFS (MHz)	Limit (MHz)	Verdict
NVNT	1-DH1	Ant1	2440.852	2441.983	1.131	0.593	Pass
NVNT	2-DH1	Ant1	2440.849	2442.004	1.155	0.847	Pass
NVNT	3-DH1	Ant1	2441.002	2441.995	0.993	0.84	Pass

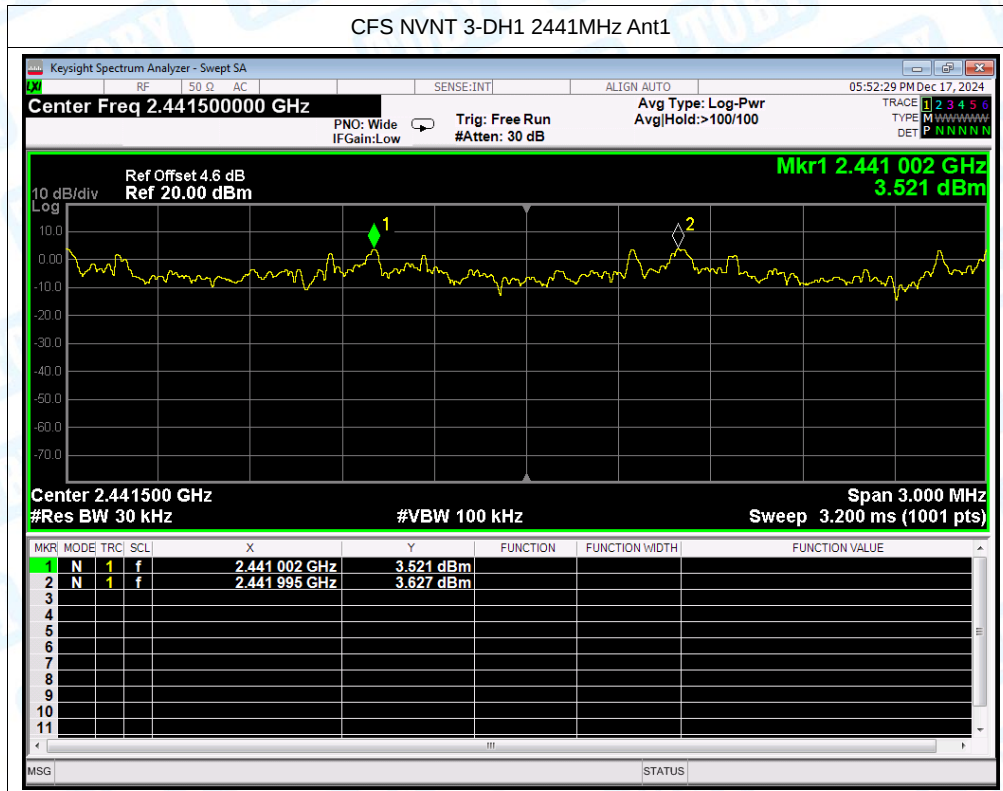
Test Graphs

CFS NVNT 1-DH1 2441MHz Ant1



CFS NVNT 2-DH1 2441MHz Ant1



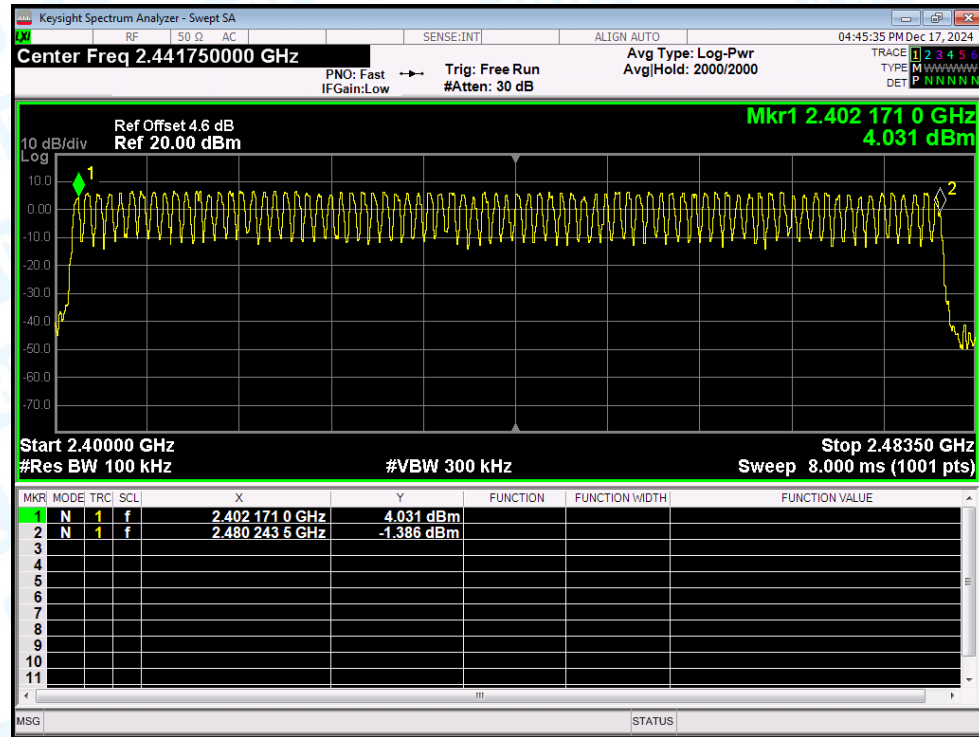


10. Number of Hopping Channel

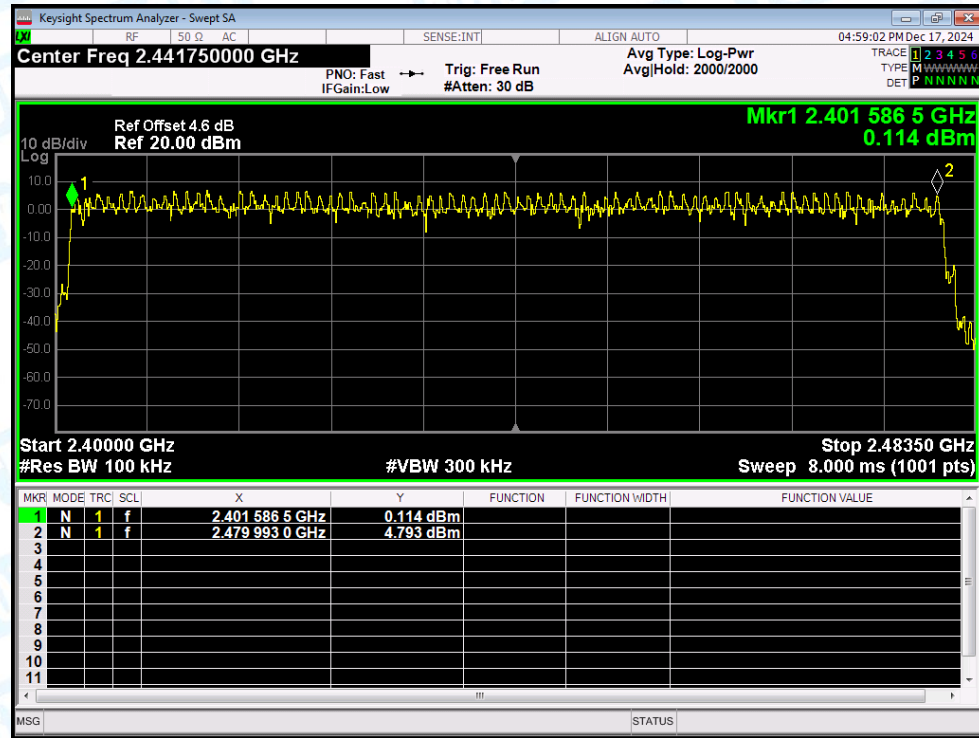
Condition	Mode	Antenna	Hopping Number	Limit	Verdict
NVNT	1-DH1	Ant1	79	15	Pass
NVNT	2-DH1	Ant1	79	15	Pass
NVNT	3-DH1	Ant1	79	15	Pass

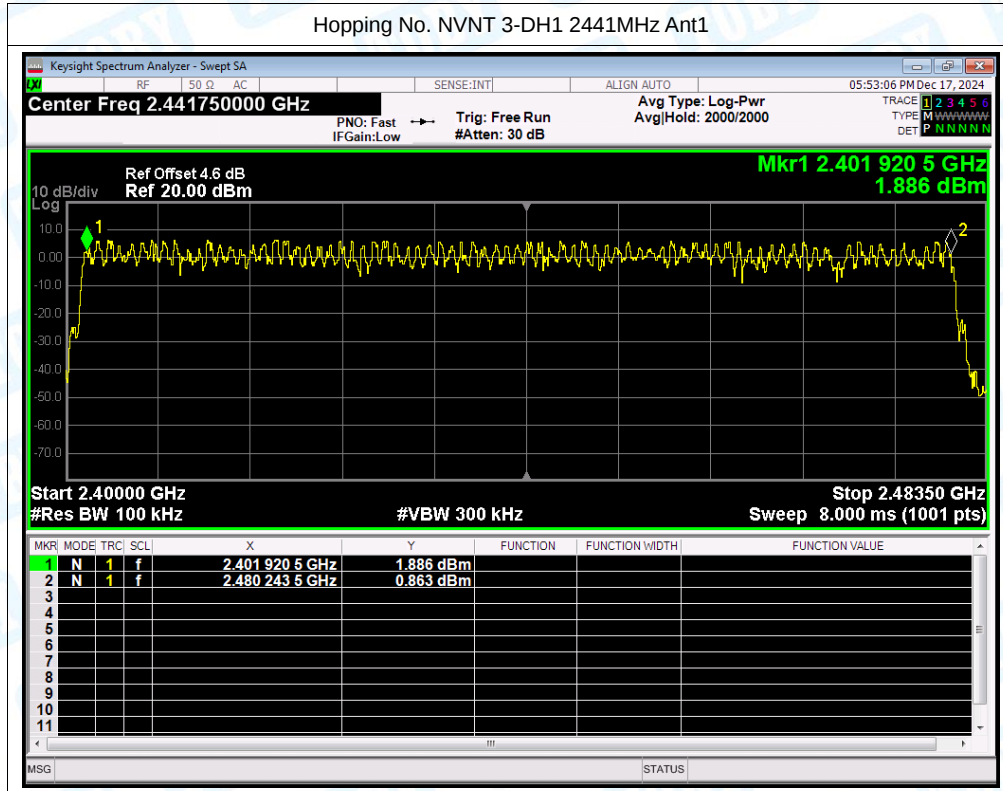
Test Graphs

Hopping No. NVNT 1-DH1 2441MHz Ant1



Hopping No. NVNT 2-DH1 2441MHz Ant1



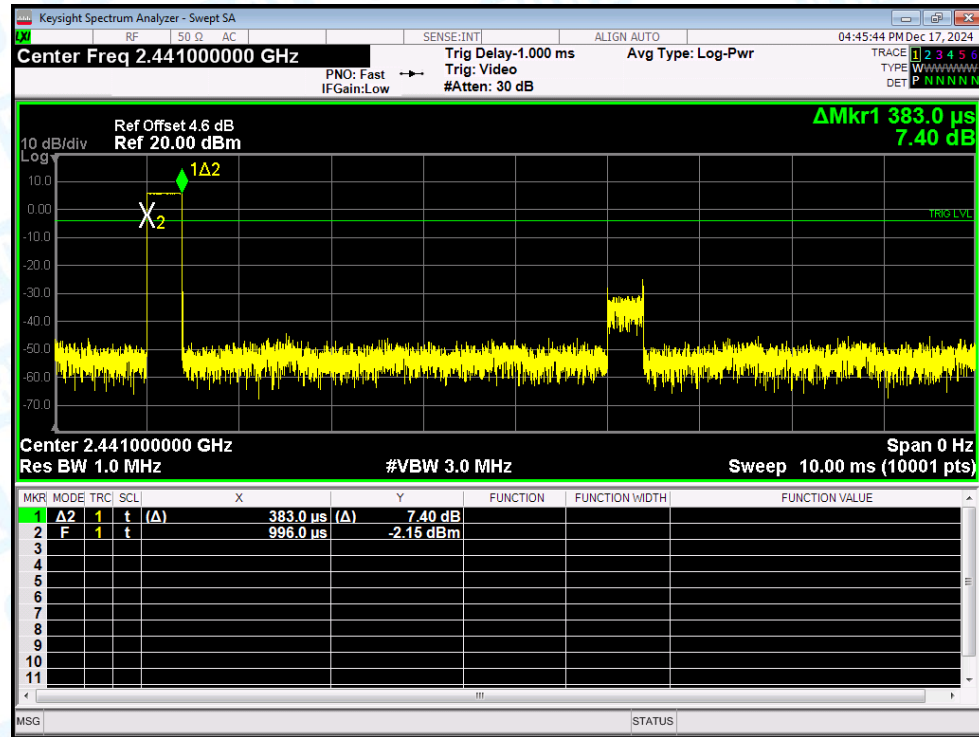


11. Dwell Time

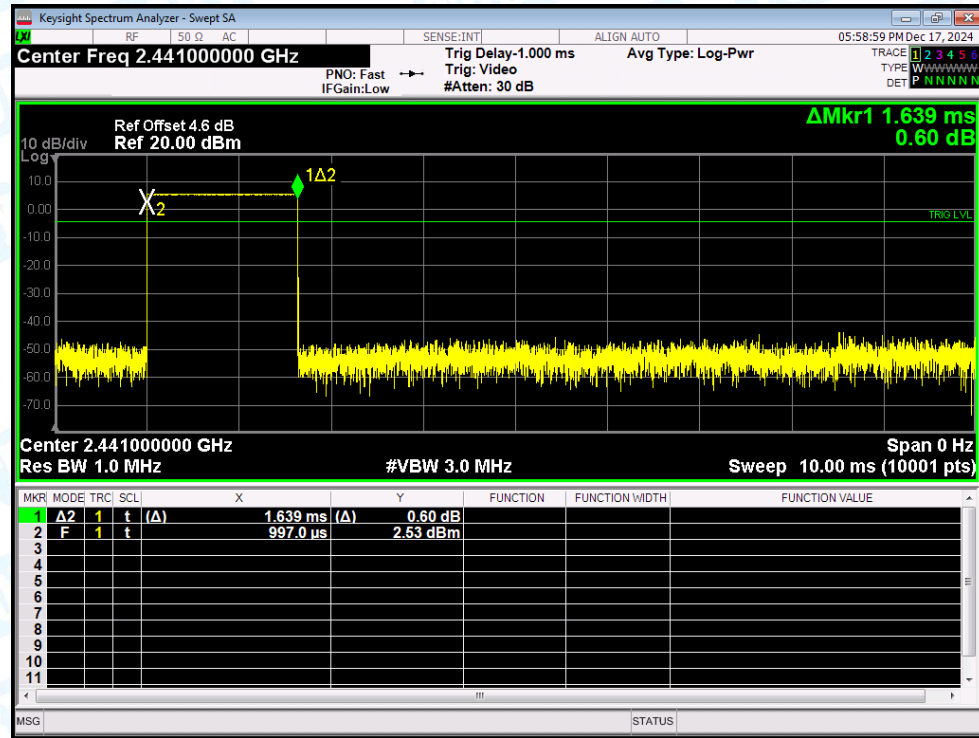
Condition	Mode	Frequency (MHz)	Antenna	Pulse Time (ms)	Total Dwell Time (ms)	Period Time (ms)	Limit (ms)	Verdict
NVNT	1-DH1	2441	Ant1	0.383	122.56	31600	400	Pass
NVNT	1-DH3	2441	Ant1	1.639	262.24	31600	400	Pass
NVNT	1-DH5	2441	Ant1	2.887	307.947	31600	400	Pass
NVNT	2-DH1	2441	Ant1	0.392	125.44	31600	400	Pass
NVNT	2-DH3	2441	Ant1	1.644	263.04	31600	400	Pass
NVNT	2-DH5	2441	Ant1	2.891	308.373	31600	400	Pass
NVNT	3-DH1	2441	Ant1	0.392	125.44	31600	400	Pass
NVNT	3-DH3	2441	Ant1	1.643	262.88	31600	400	Pass
NVNT	3-DH5	2441	Ant1	2.894	308.693	31600	400	Pass

Test Graphs

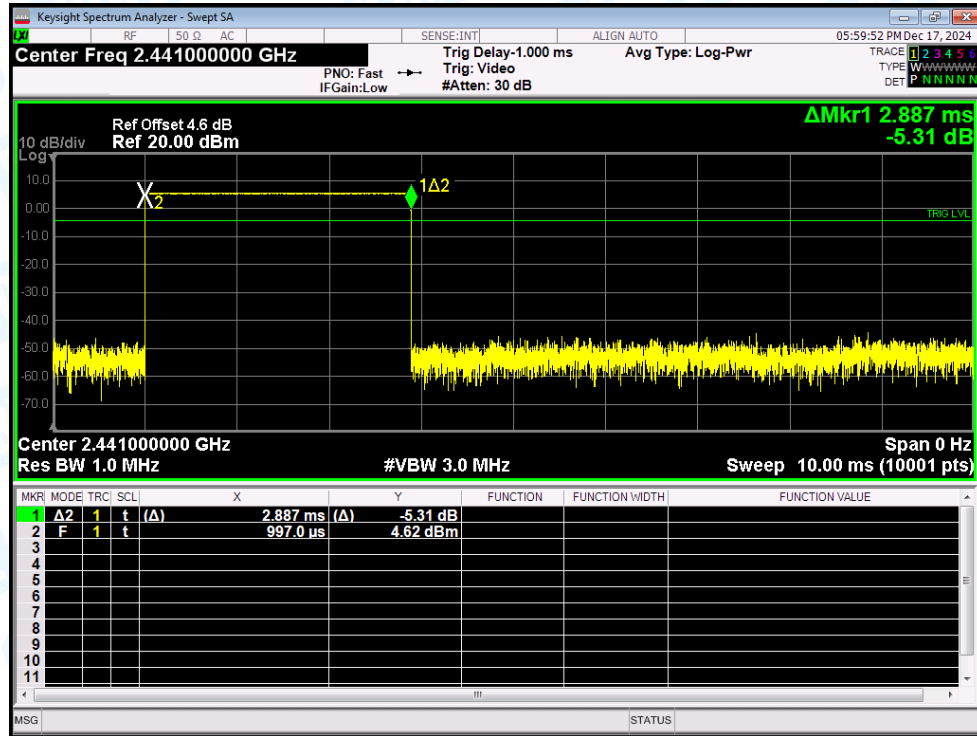
Dwell NVNT 1-DH1 2441MHz Ant1



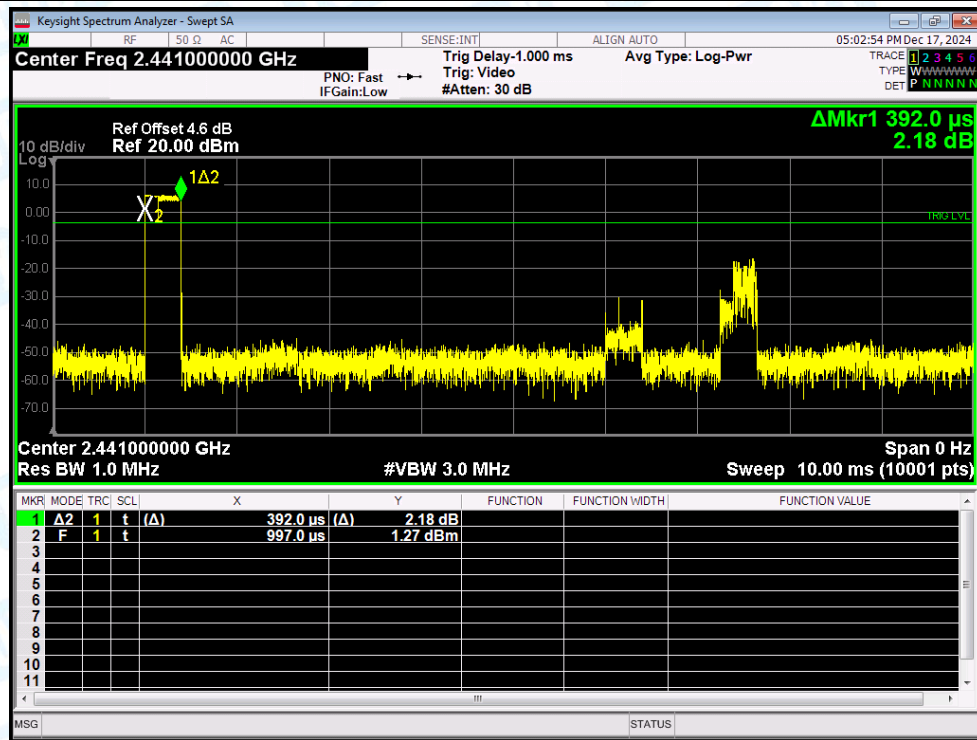
Dwell NVNT 1-DH3 2441MHz Ant1



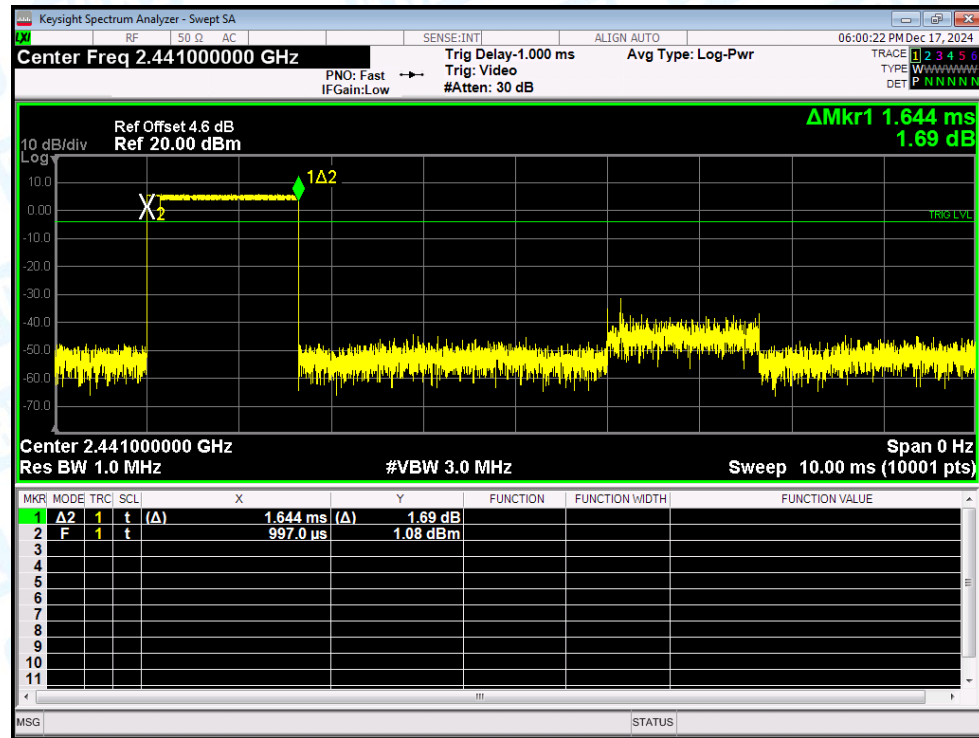
Dwell NVNT 1-DH5 2441MHz Ant1



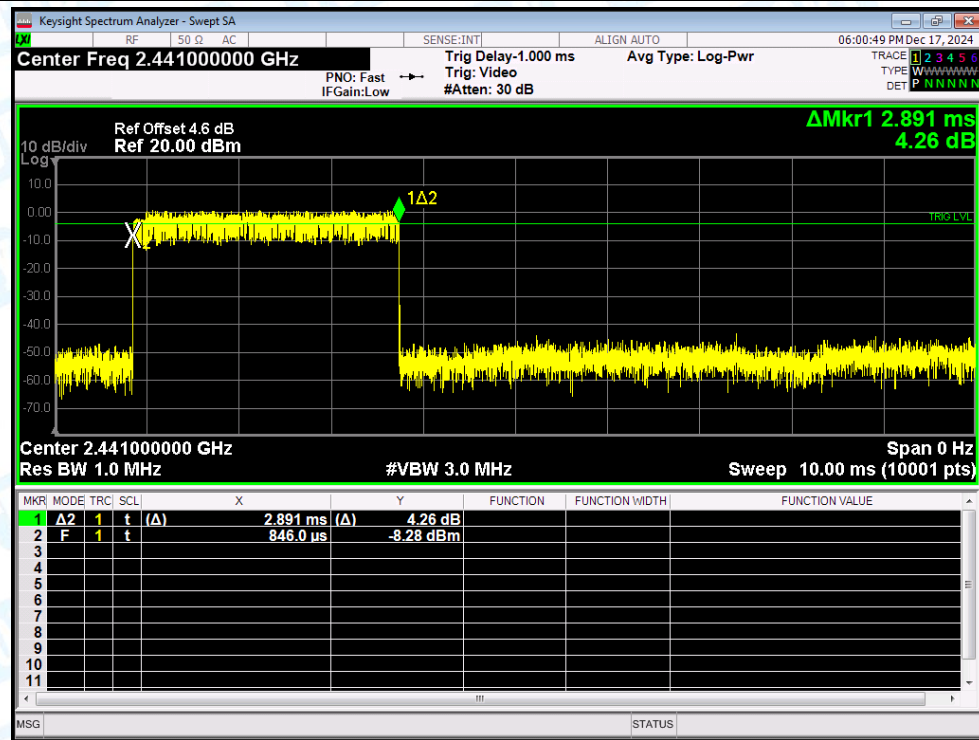
Dwell NVNT 2-DH1 2441MHz Ant1



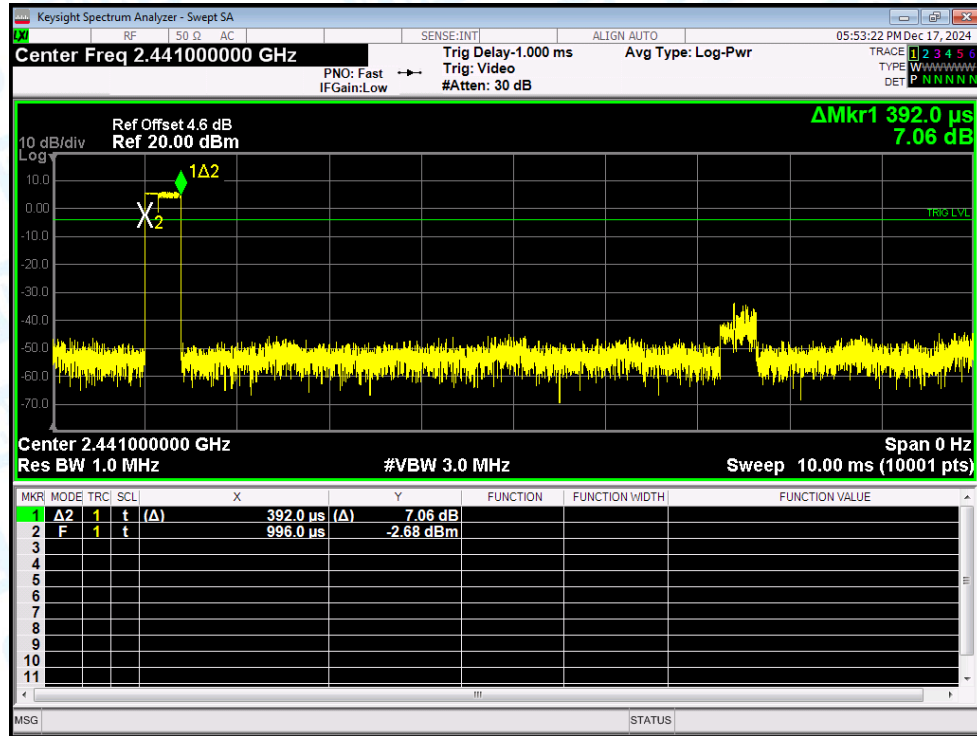
Dwell NVNT 2-DH3 2441MHz Ant1



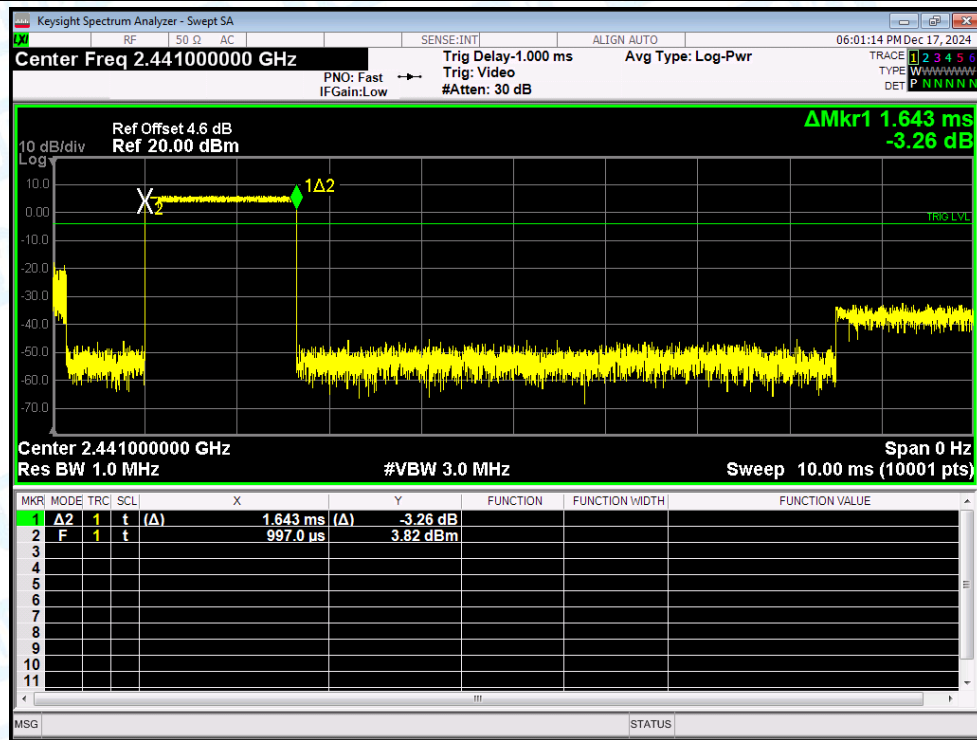
Dwell NVNT 2-DH5 2441MHz Ant1

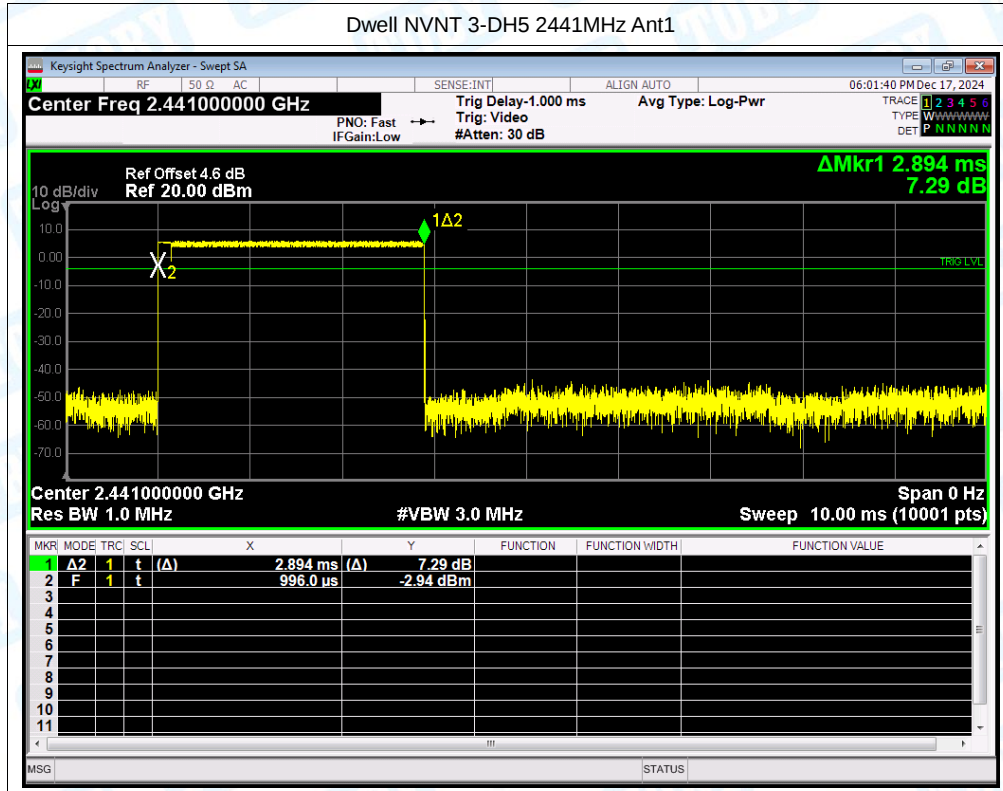


Dwell NVNT 3-DH1 2441MHz Ant1



Dwell NVNT 3-DH3 2441MHz Ant1





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