

RF Test Data for Bluetooth (Conducted Measurements)

General Description of EUT	
Product Name:	SMART WATCH
Test Model:	X12
Sample ID:	202408-0086-11-2#
Environmental Conditions	
Temperature:	22.0℃-25℃
Relative Humidity:	43%-55%
Test Voltage:	DC 3.8V
Test Engineer:	Jolin Lee
Note: For a more detailed features description, please refer to the report TBR-C-202408-0086-181 The report only show the worst case data.	

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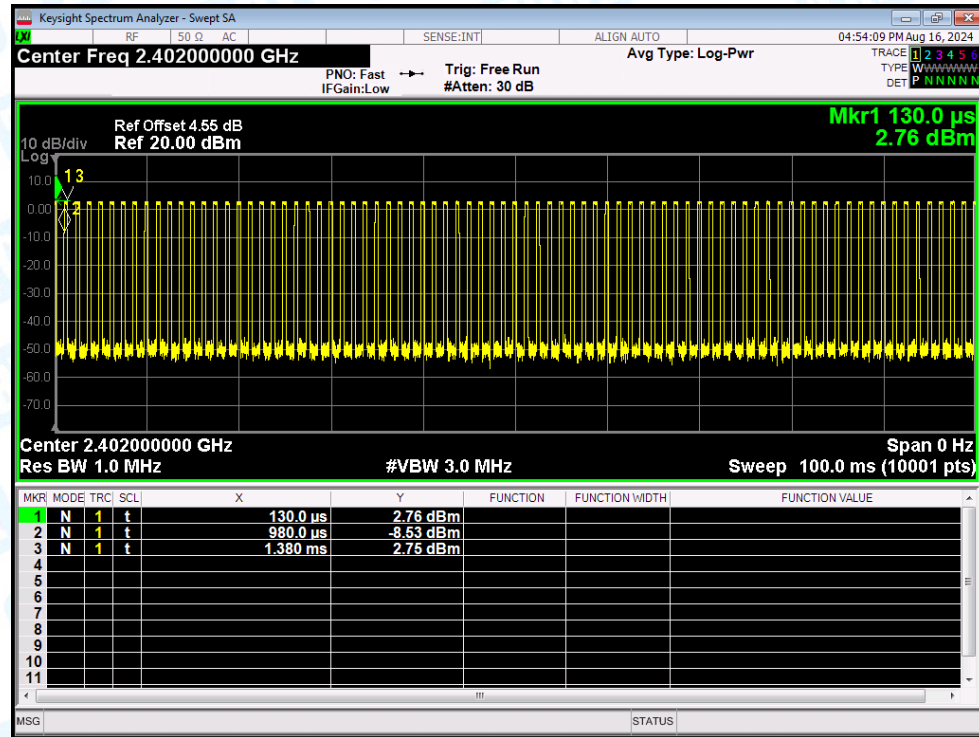
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1. Duty Cycle

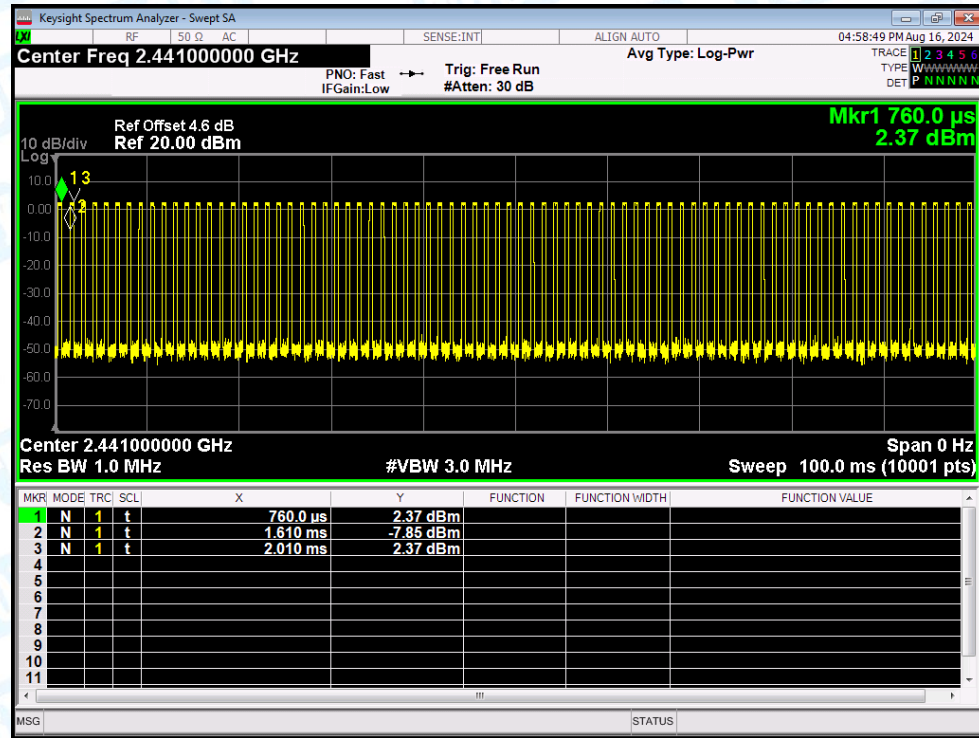
Condition	Mode	Frequency (MHz)	Antenna	Duty Cycle (%)	Correction Factor (dB)	1/T (kHz)
NVNT	1-DH1	2402	Ant1	32	4.95	2.5
NVNT	1-DH1	2441	Ant1	32	4.95	2.5
NVNT	1-DH1	2480	Ant1	31.2	5.06	2.56
NVNT	2-DH1	2402	Ant1	32.8	4.84	2.44
NVNT	2-DH1	2441	Ant1	32.8	4.84	2.44
NVNT	2-DH1	2480	Ant1	32.8	4.84	2.44
NVNT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

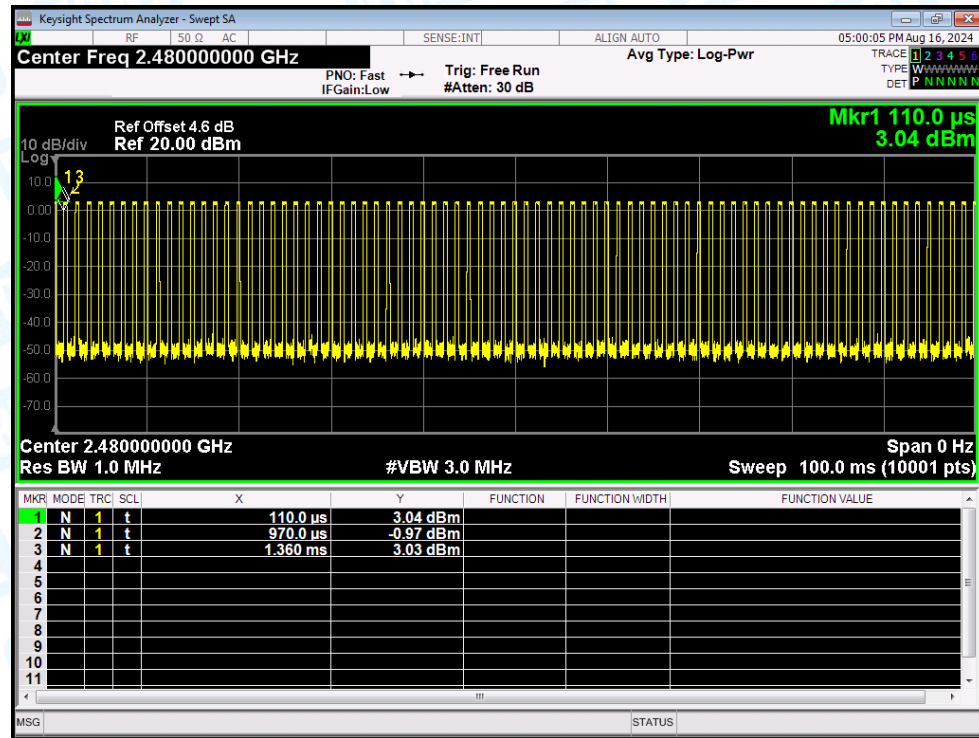
Duty Cycle NVNT 1-DH1 2402MHz Ant1



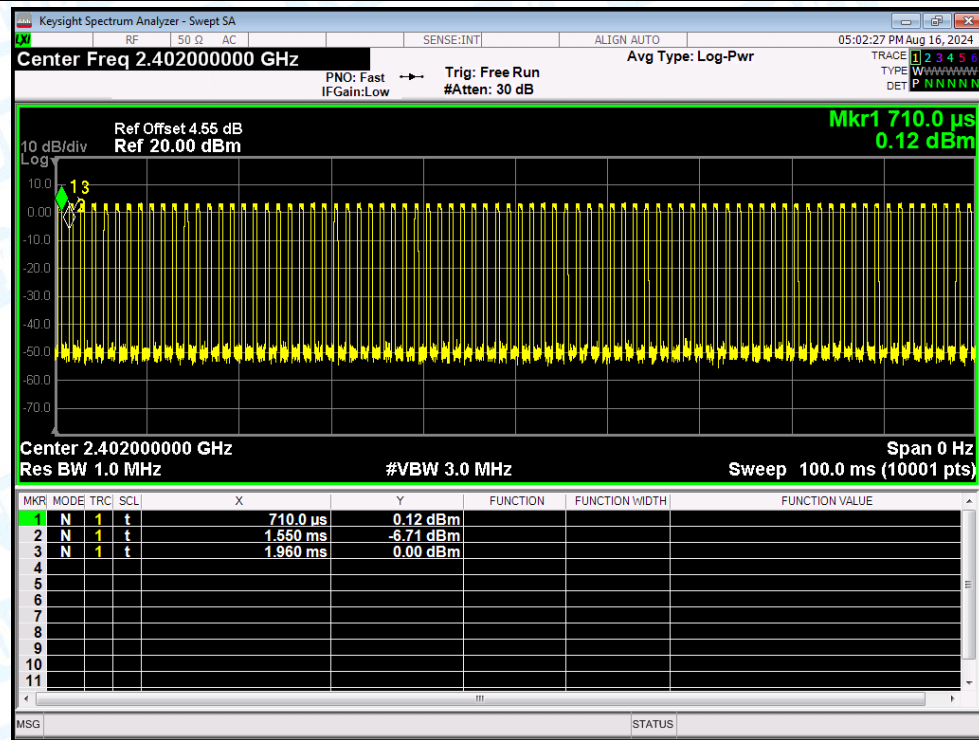
Duty Cycle NVNT 1-DH1 2441MHz Ant1



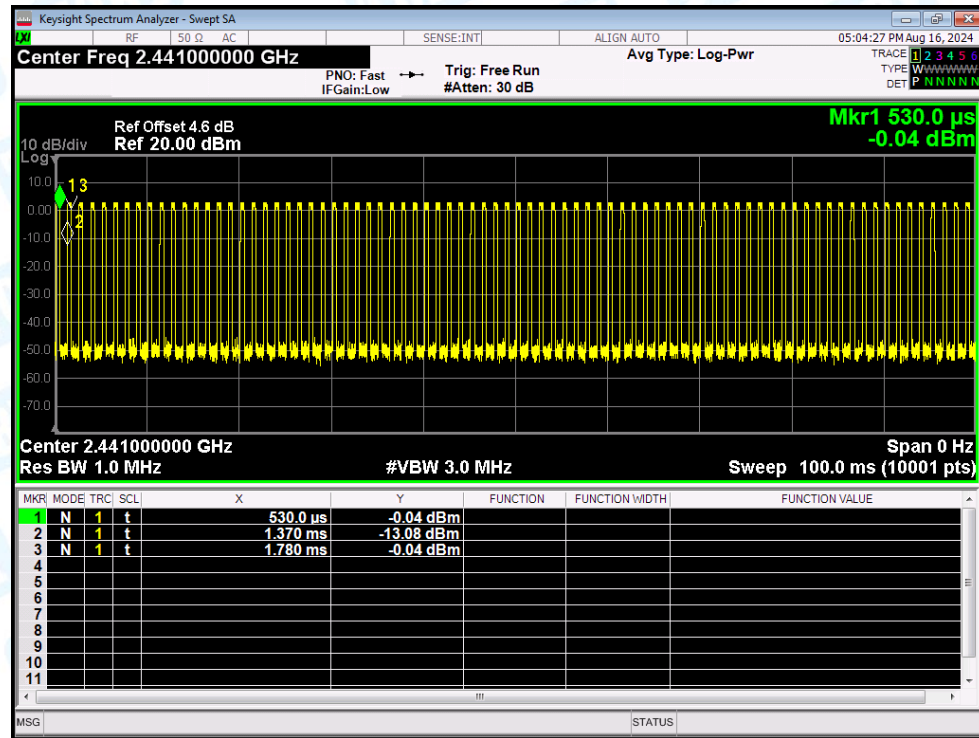
Duty Cycle NVNT 1-DH1 2480MHz Ant1



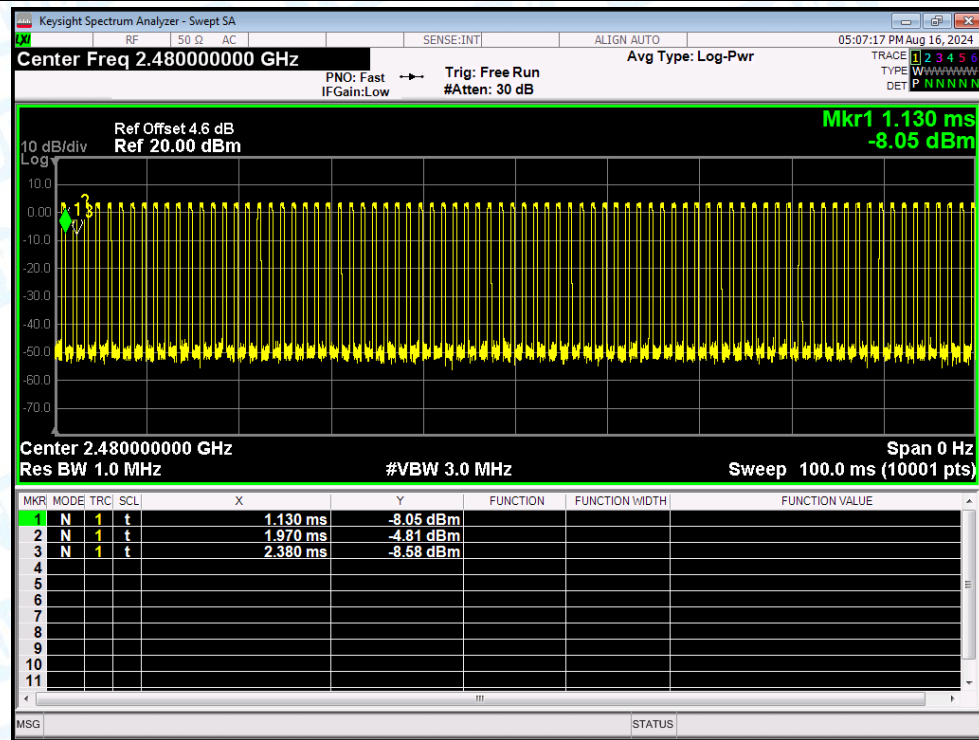
Duty Cycle NVNT 2-DH1 2402MHz Ant1



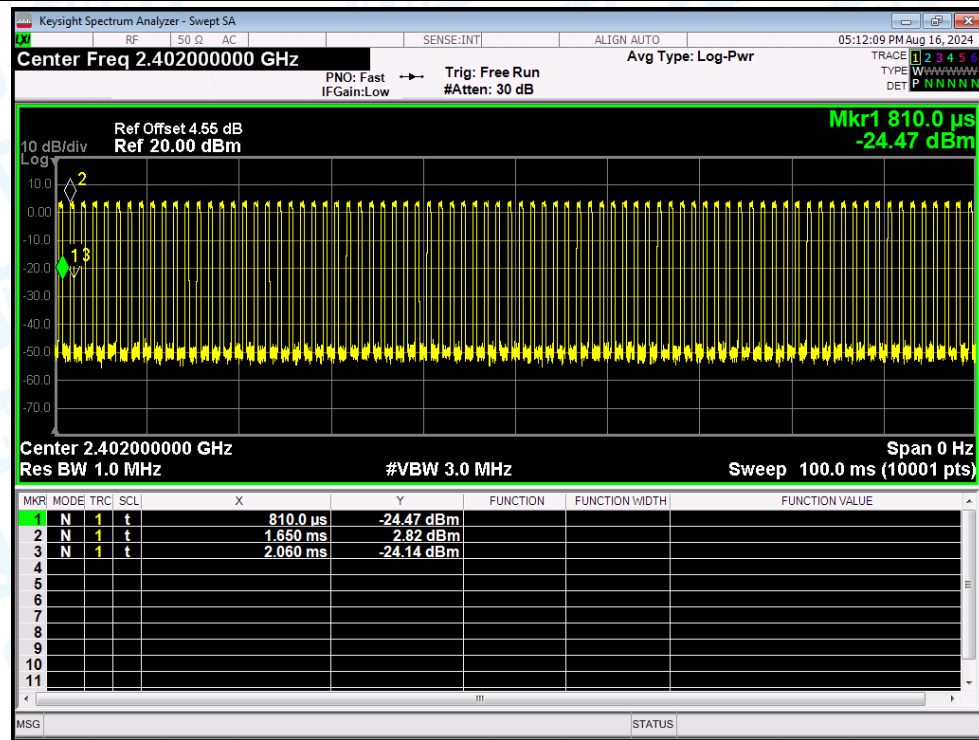
Duty Cycle NVNT 2-DH1 2441MHz Ant1



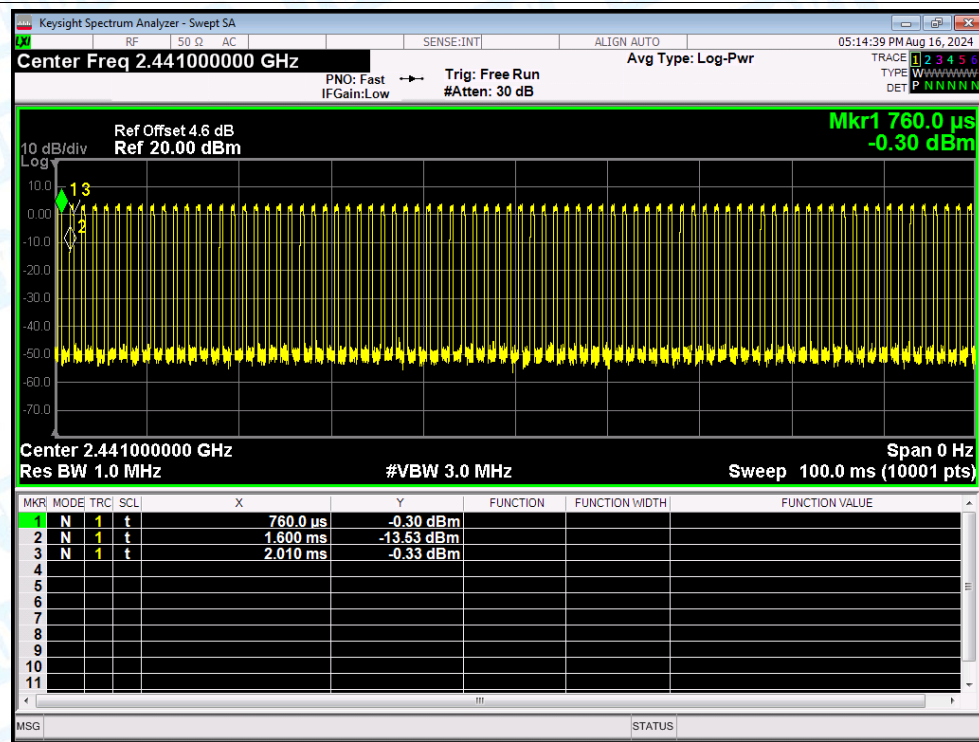
Duty Cycle NVNT 2-DH1 2480MHz Ant1

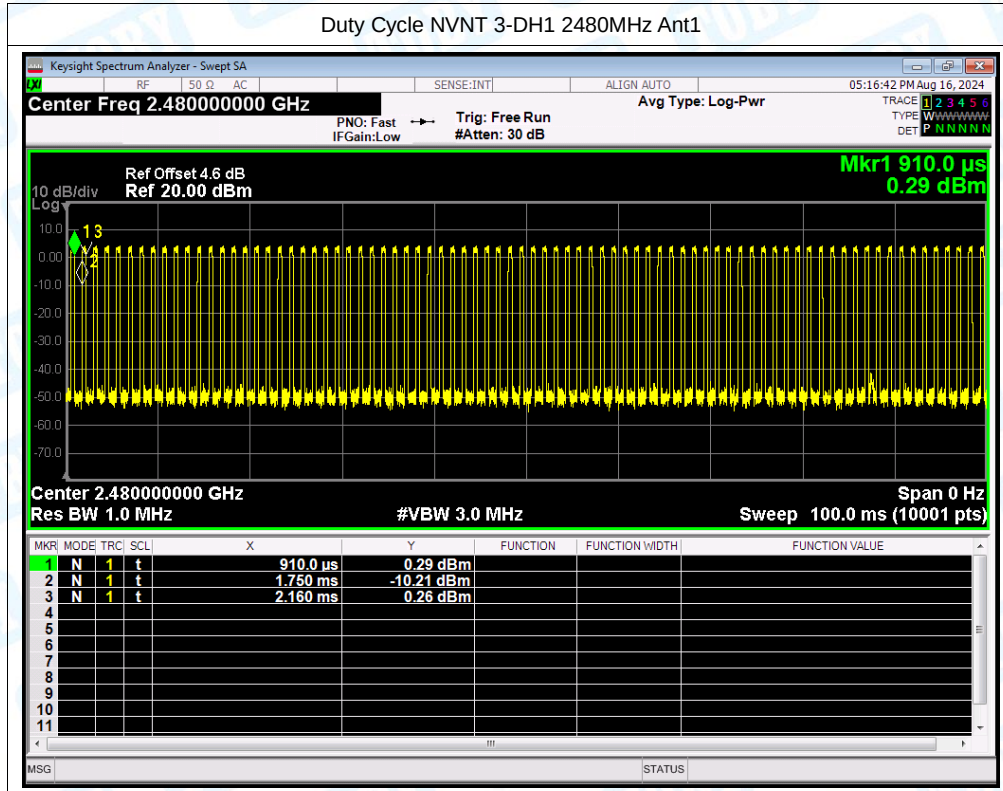


Duty Cycle NVNT 3-DH1 2402MHz Ant1



Duty Cycle NVNT 3-DH1 2441MHz Ant1



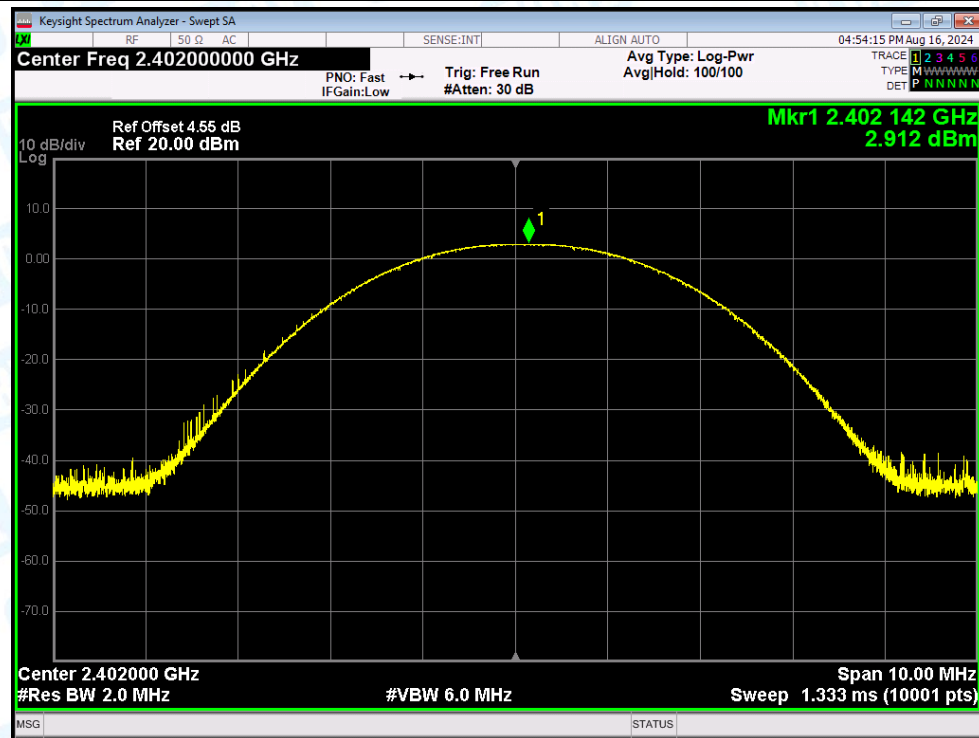


2. Maximum Conducted Output Power

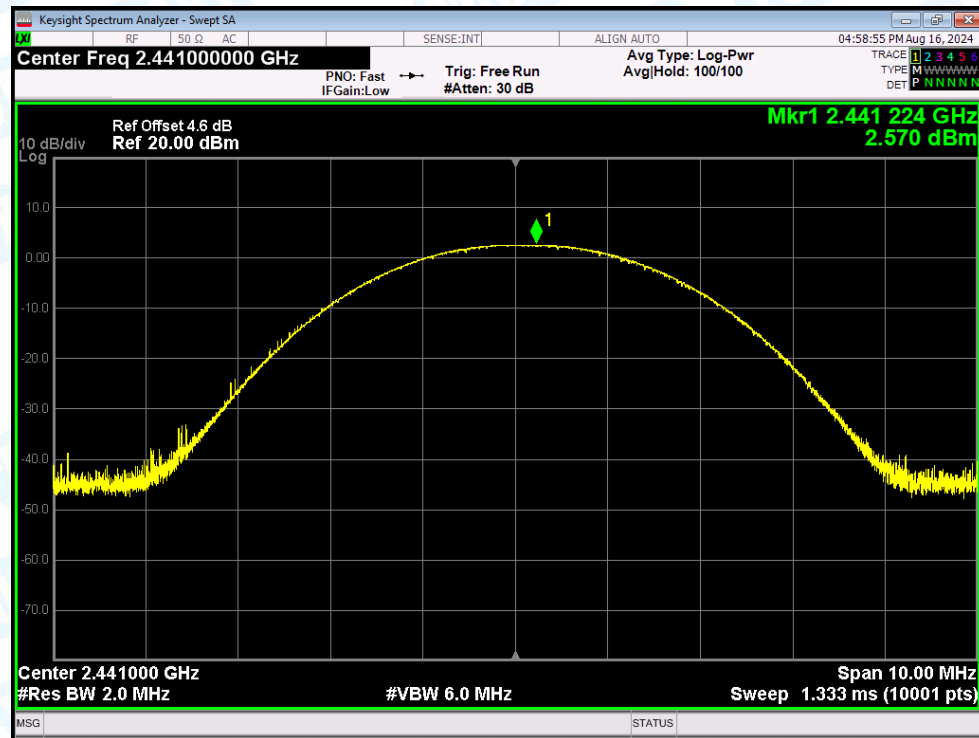
Condition	Mode	Frequency (MHz)	Antenna	Conducted Power (dBm)	Limit (dBm)	Verdict
NVNT	1-DH1	2402	Ant1	2.912	21	Pass
NVNT	1-DH1	2441	Ant1	2.57	21	Pass
NVNT	1-DH1	2480	Ant1	3.138	21	Pass
NVNT	2-DH1	2402	Ant1	3.678	21	Pass
NVNT	2-DH1	2441	Ant1	3.326	21	Pass
NVNT	2-DH1	2480	Ant1	3.931	21	Pass
NVNT	3-DH1	2402	Ant1	4.619	21	Pass
NVNT	3-DH1	2441	Ant1	4.165	21	Pass
NVNT	3-DH1	2480	Ant1	4.69	21	Pass

Test Graphs

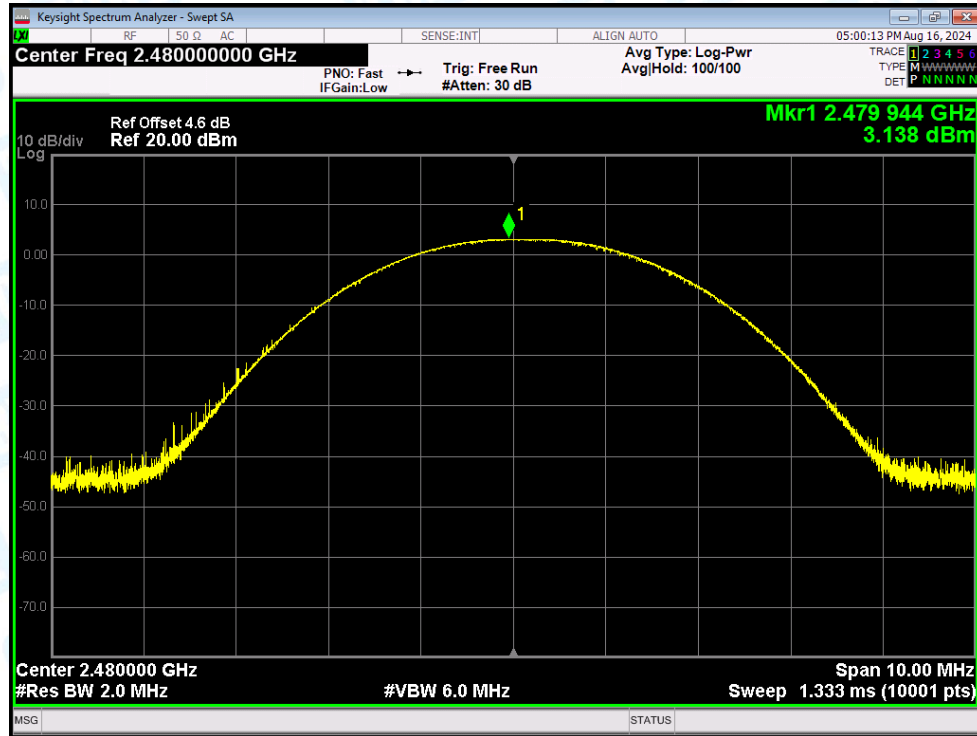
Power NVNT 1-DH1 2402MHz Ant1



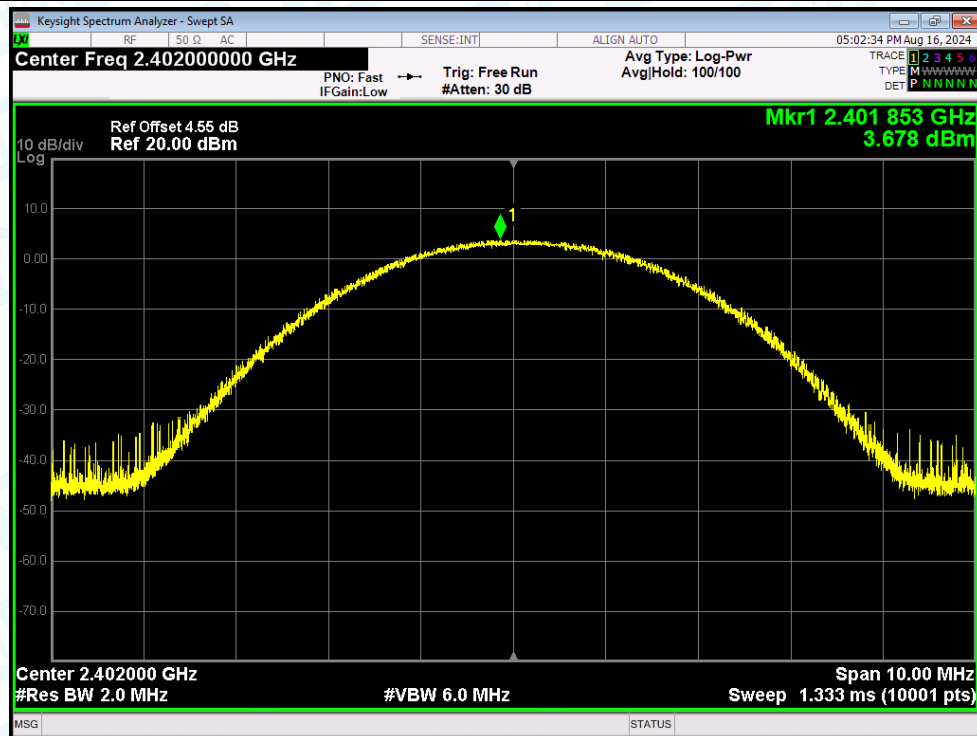
Power NVNT 1-DH1 2441MHz Ant1



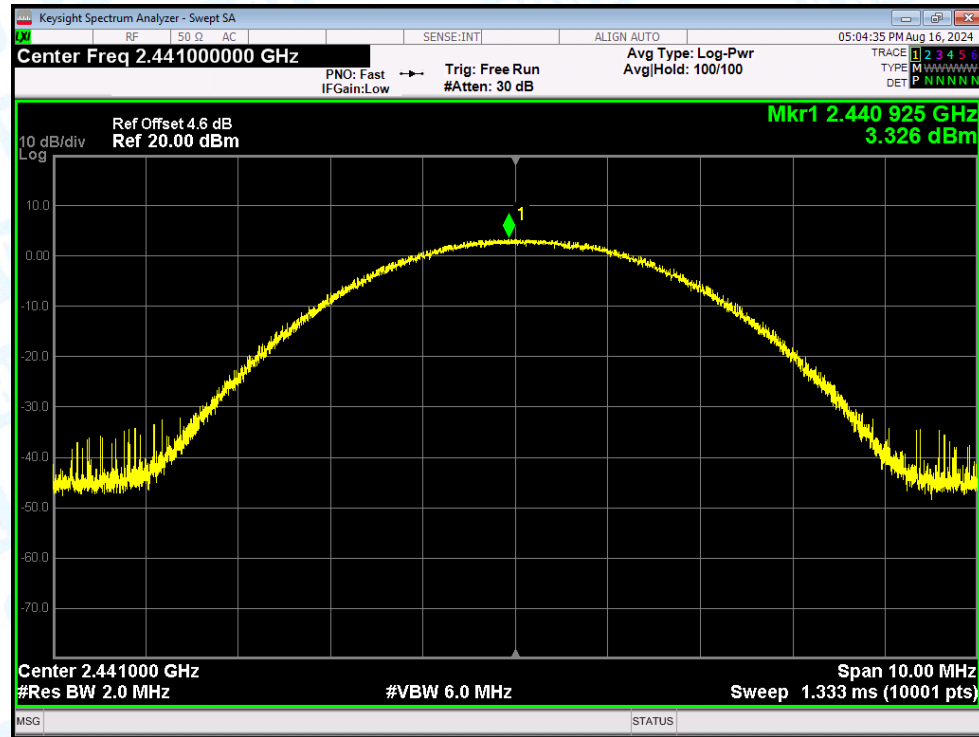
Power NVNT 1-DH1 2480MHz Ant1



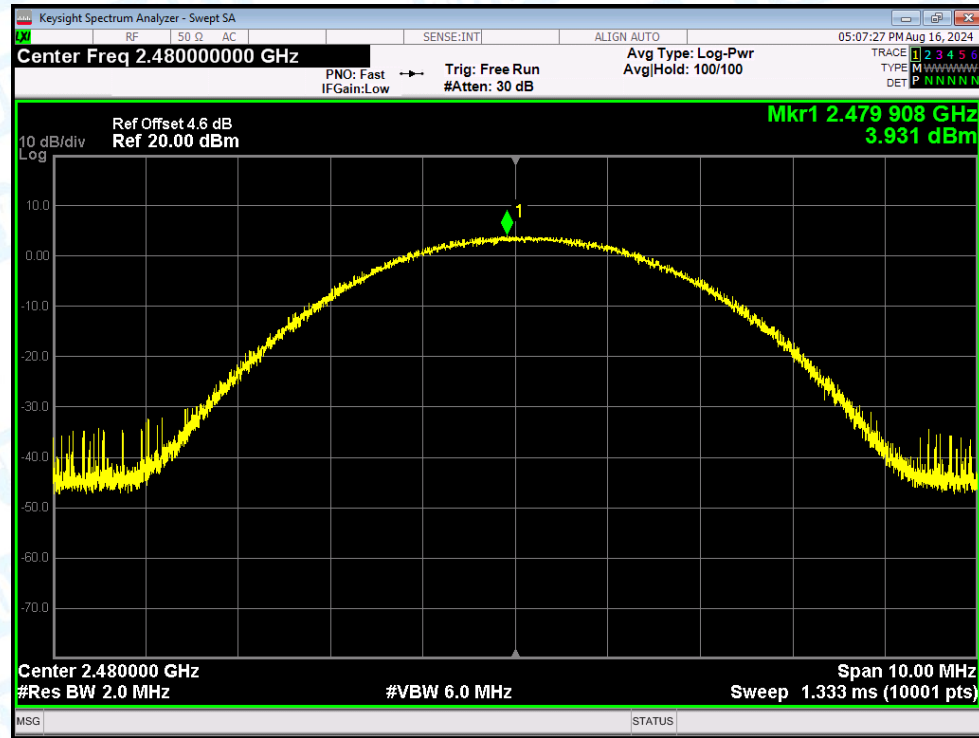
Power NVNT 2-DH1 2402MHz Ant1



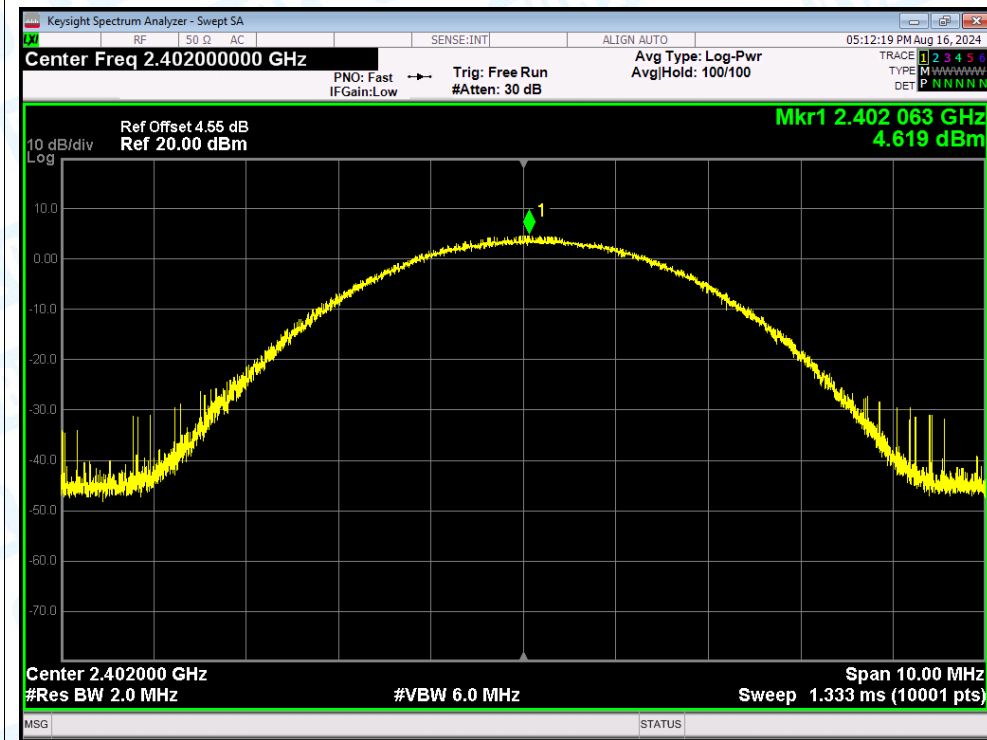
Power NVNT 2-DH1 2441MHz Ant1



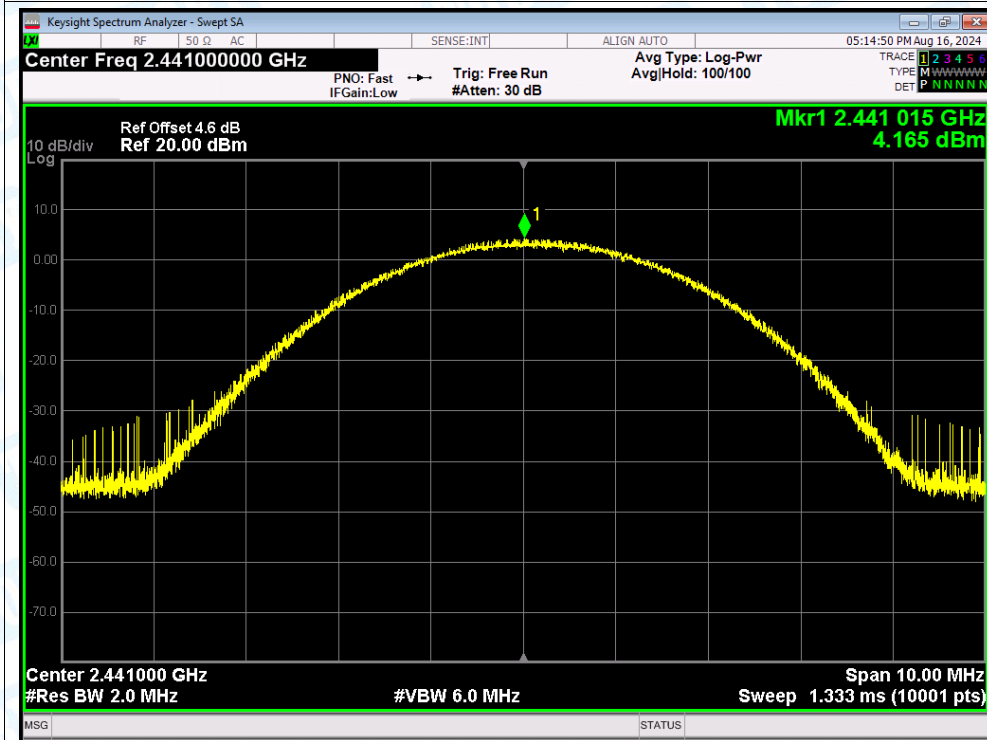
Power NVNT 2-DH1 2480MHz Ant1

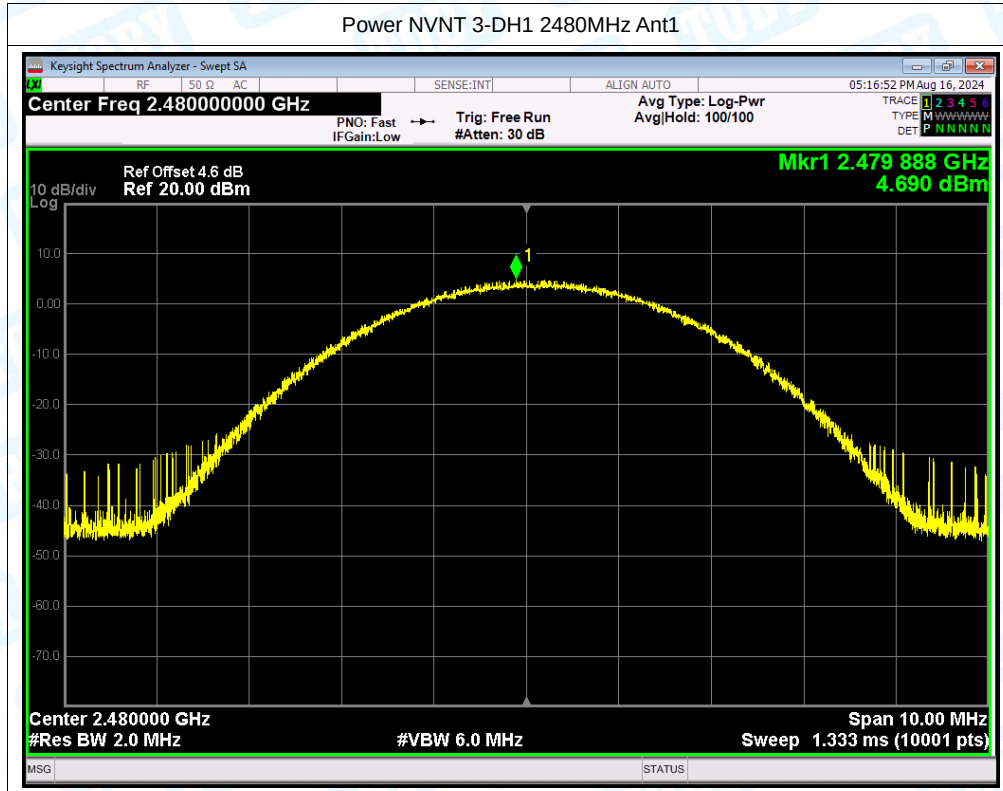


Power NVNT 3-DH1 2402MHz Ant1



Power NVNT 3-DH1 2441MHz Ant1



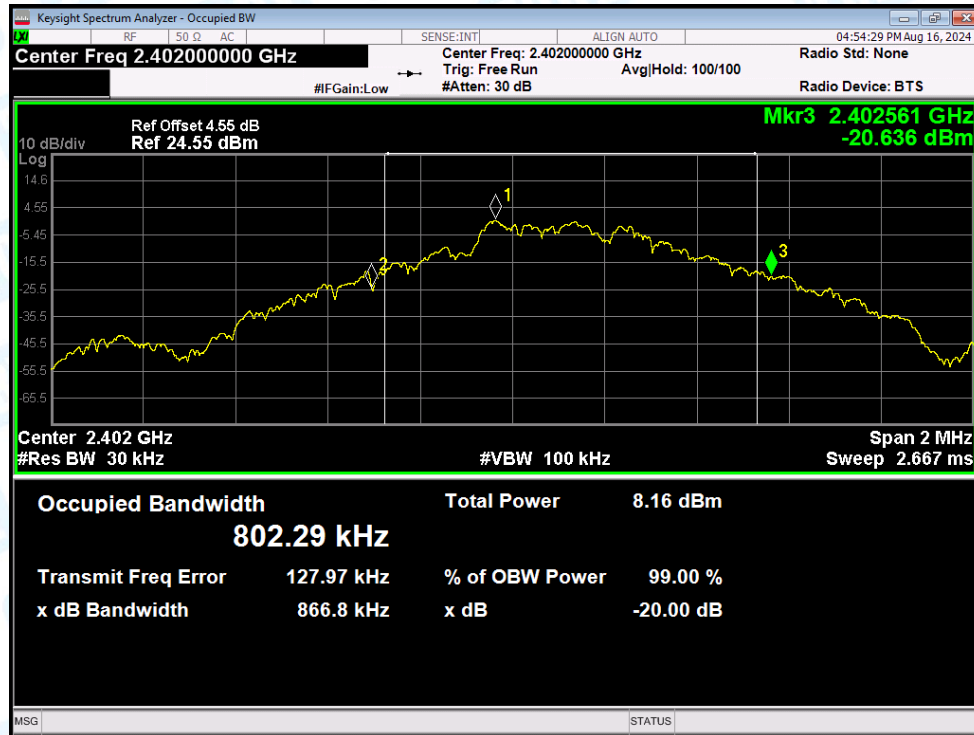


3. -20dB Bandwidth

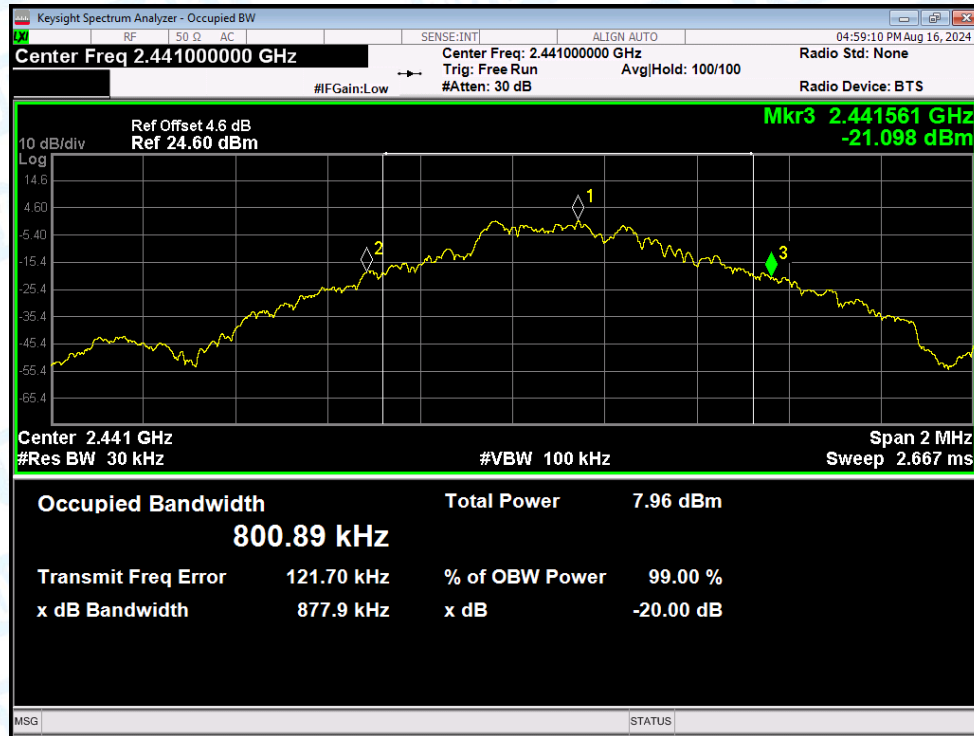
Condition	Mode	Frequency (MHz)	Antenna	-20 dB Bandwidth (MHz)	Limit -20 dB Bandwidth (MHz)	Verdict
NVNT	1-DH1	2402	Ant1	0.87	0	Pass
NVNT	1-DH1	2441	Ant1	0.88	0	Pass
NVNT	1-DH1	2480	Ant1	0.86	0	Pass
NVNT	2-DH1	2402	Ant1	1.23	0	Pass
NVNT	2-DH1	2441	Ant1	1.23	0	Pass
NVNT	2-DH1	2480	Ant1	1.24	0	Pass
NVNT	3-DH1	2402	Ant1	1.2	0	Pass
NVNT	3-DH1	2441	Ant1	1.2	0	Pass
NVNT	3-DH1	2480	Ant1	1.2	0	Pass

Test Graphs

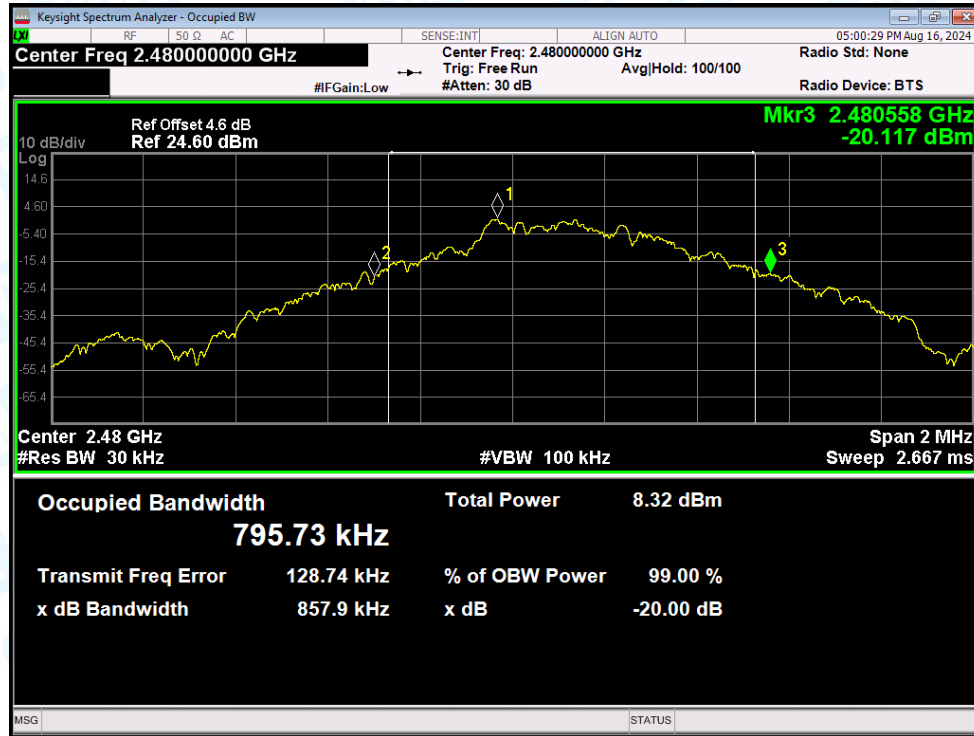
-20dB Bandwidth NVNT 1-DH1 2402MHz Ant1



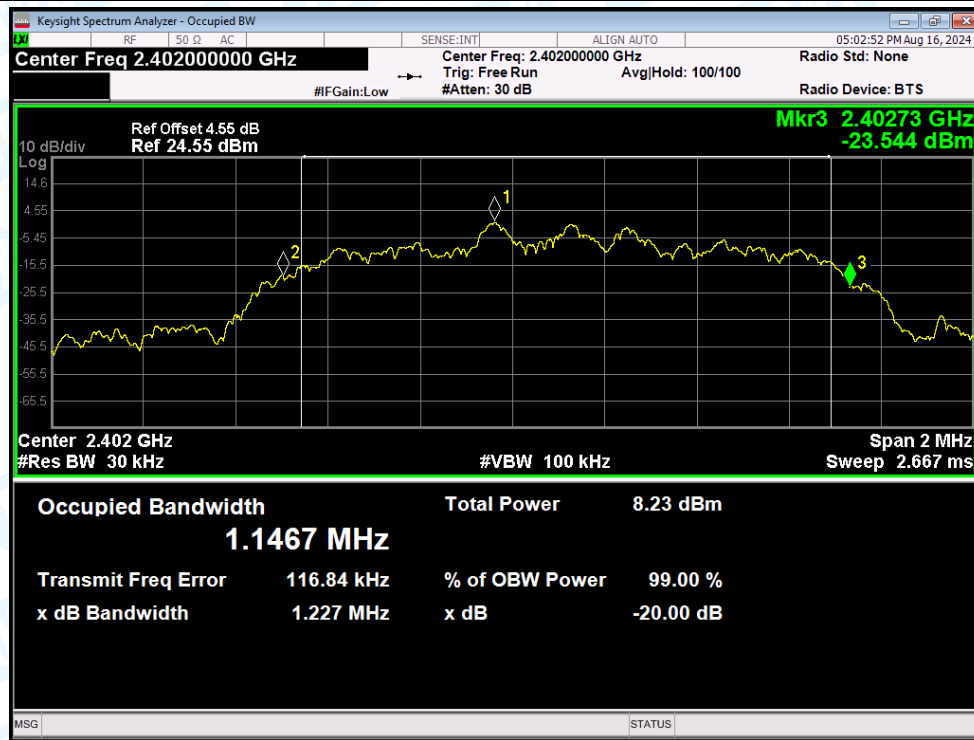
-20dB Bandwidth NVNT 1-DH1 2441MHz Ant1



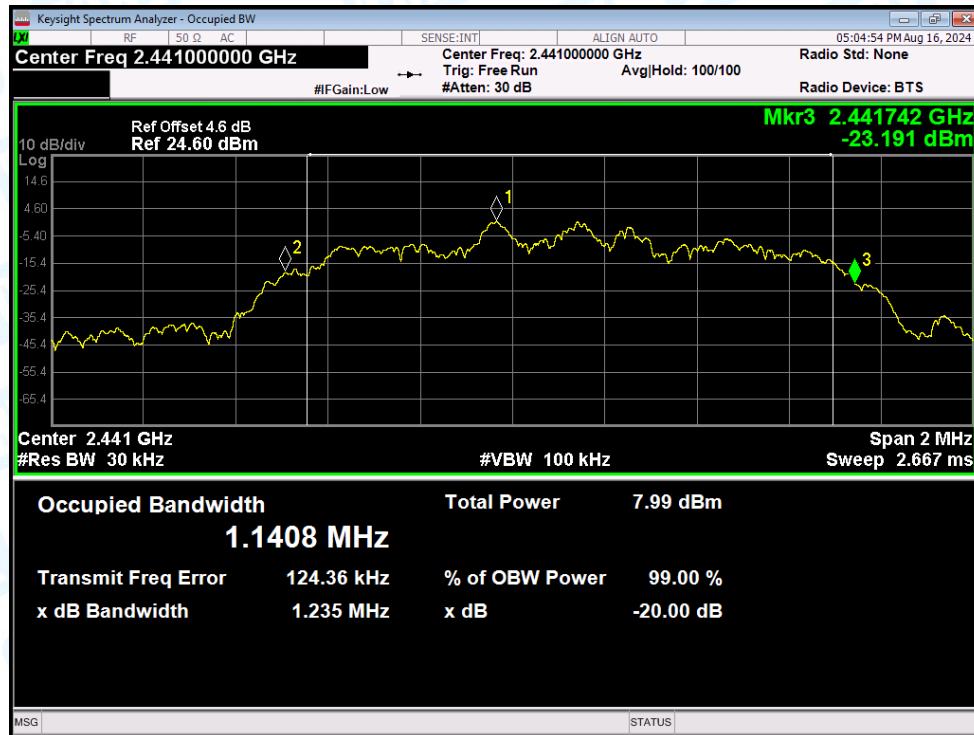
-20dB Bandwidth NVNT 1-DH1 2480MHz Ant1



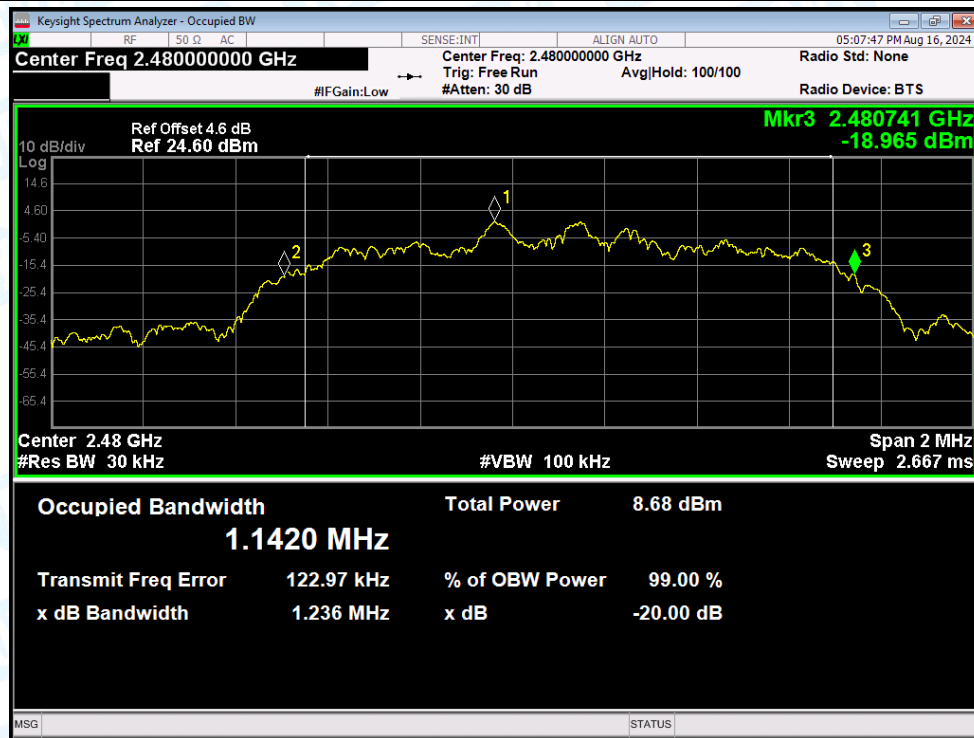
-20dB Bandwidth NVNT 2-DH1 2402MHz Ant1



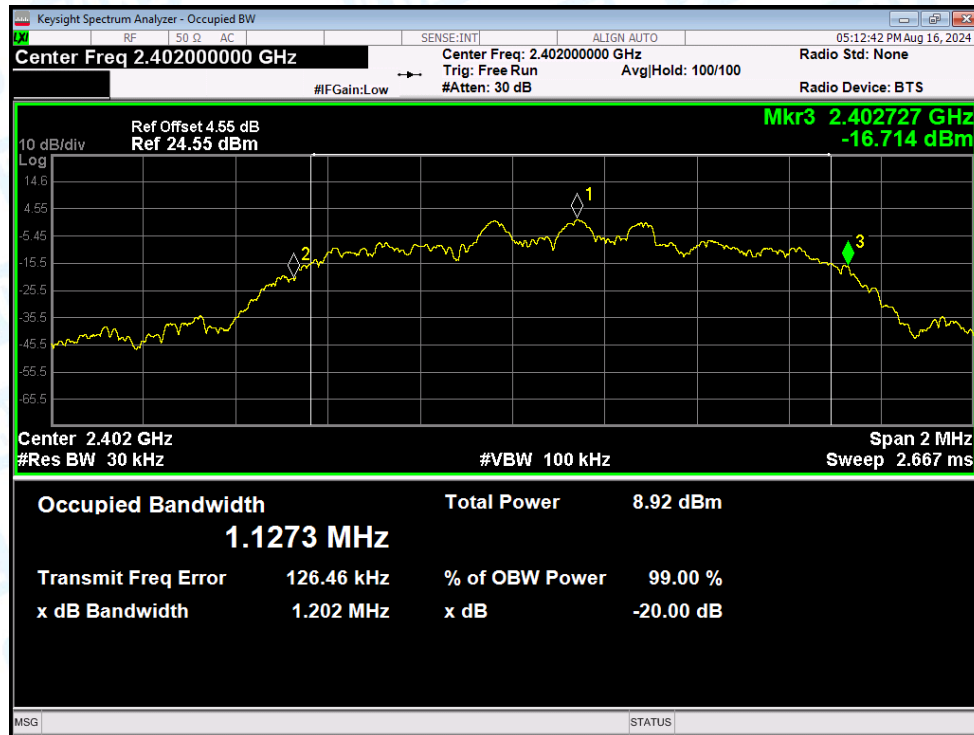
-20dB Bandwidth NVNT 2-DH1 2441MHz Ant1



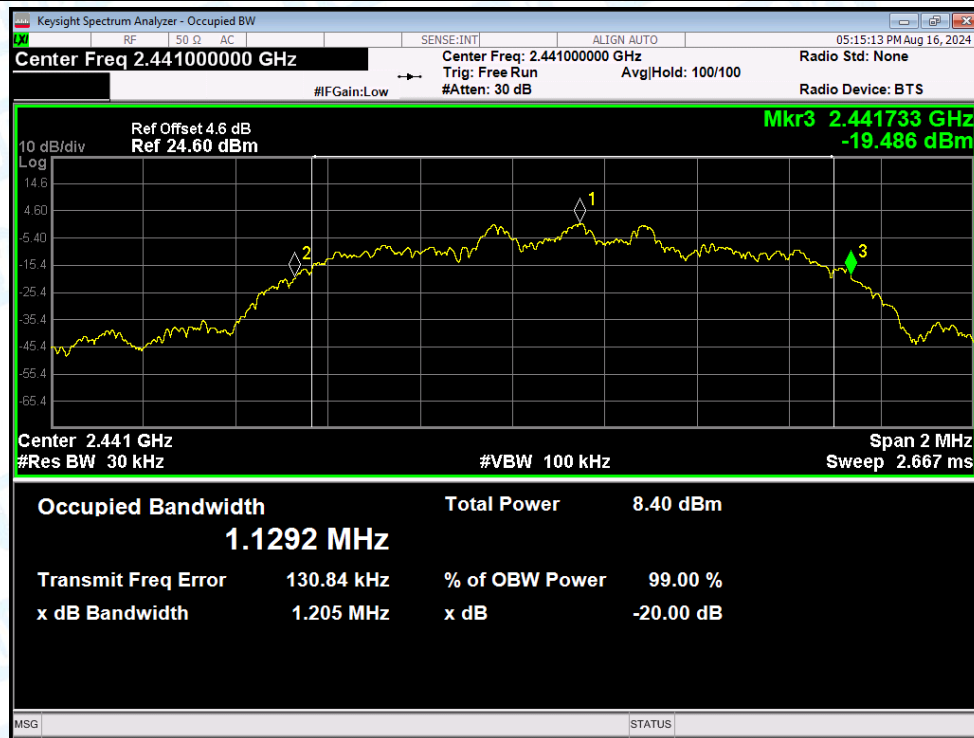
-20dB Bandwidth NVNT 2-DH1 2480MHz Ant1

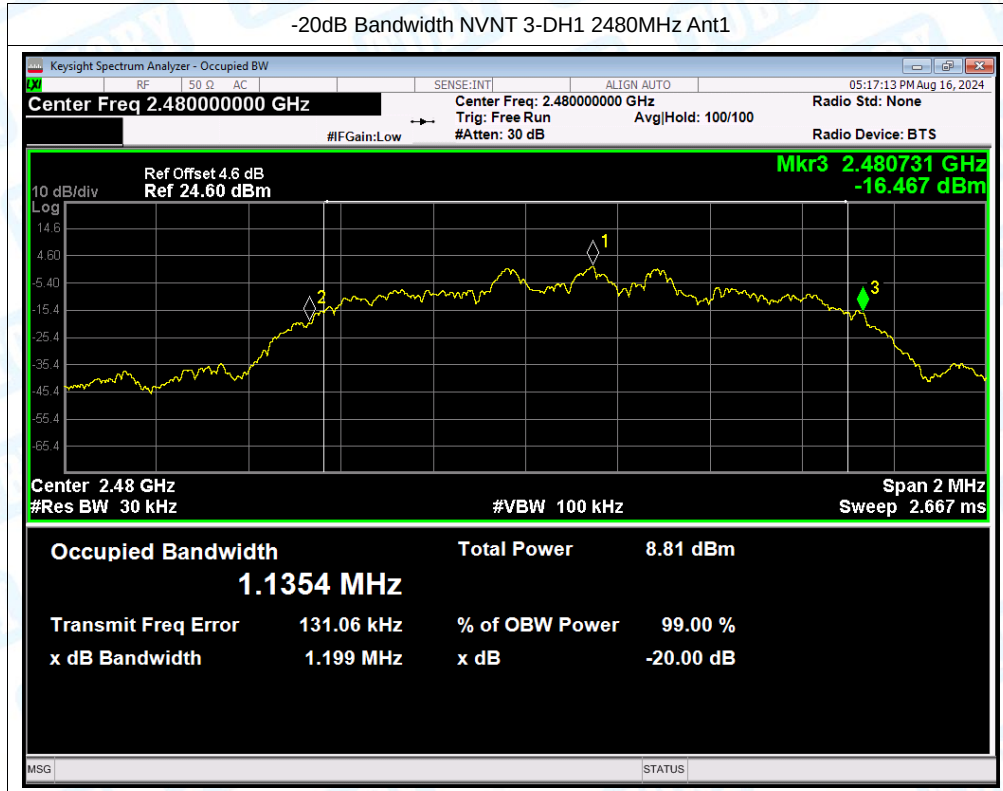


-20dB Bandwidth NVNT 3-DH1 2402MHz Ant1



-20dB Bandwidth NVNT 3-DH1 2441MHz Ant1



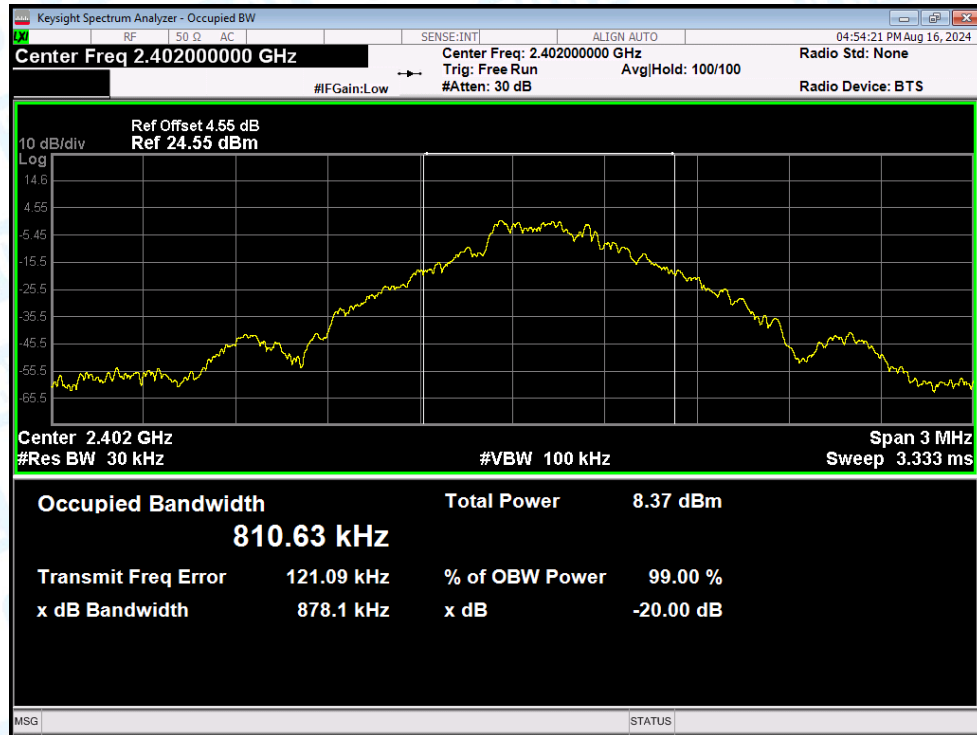


4. Occupied Channel Bandwidth

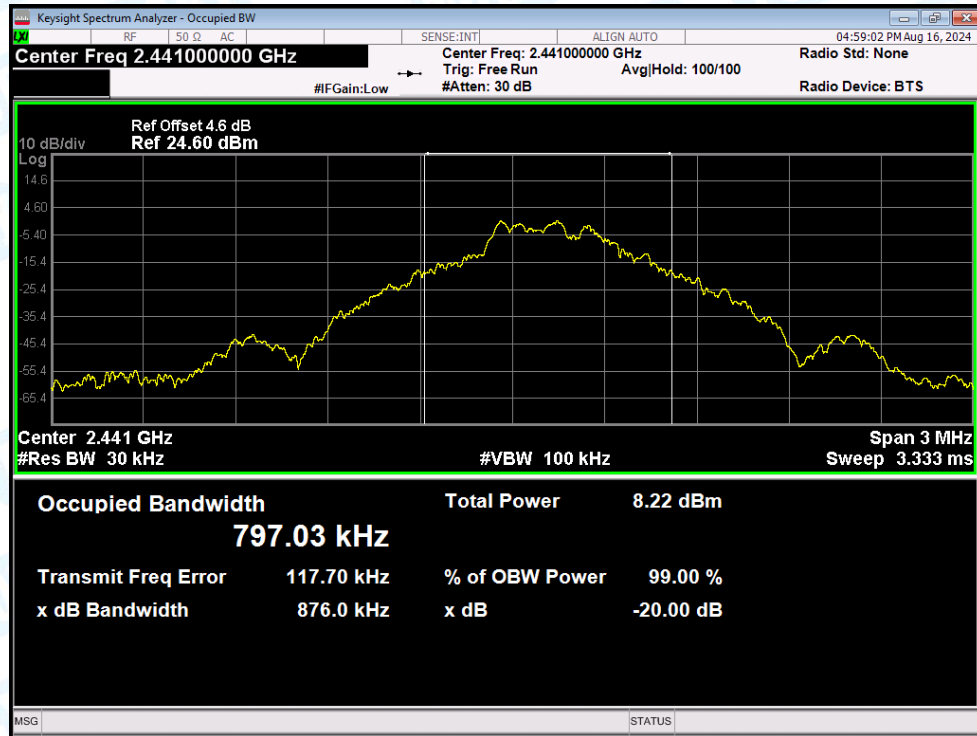
Condition	Mode	Frequency (MHz)	Antenna	99% OBW (MHz)
NVNT	1-DH1	2402	Ant1	0.811
NVNT	1-DH1	2441	Ant1	0.797
NVNT	1-DH1	2480	Ant1	0.814
NVNT	2-DH1	2402	Ant1	1.129
NVNT	2-DH1	2441	Ant1	1.154
NVNT	2-DH1	2480	Ant1	1.138
NVNT	3-DH1	2402	Ant1	1.129
NVNT	3-DH1	2441	Ant1	1.135
NVNT	3-DH1	2480	Ant1	1.144

Test Graphs

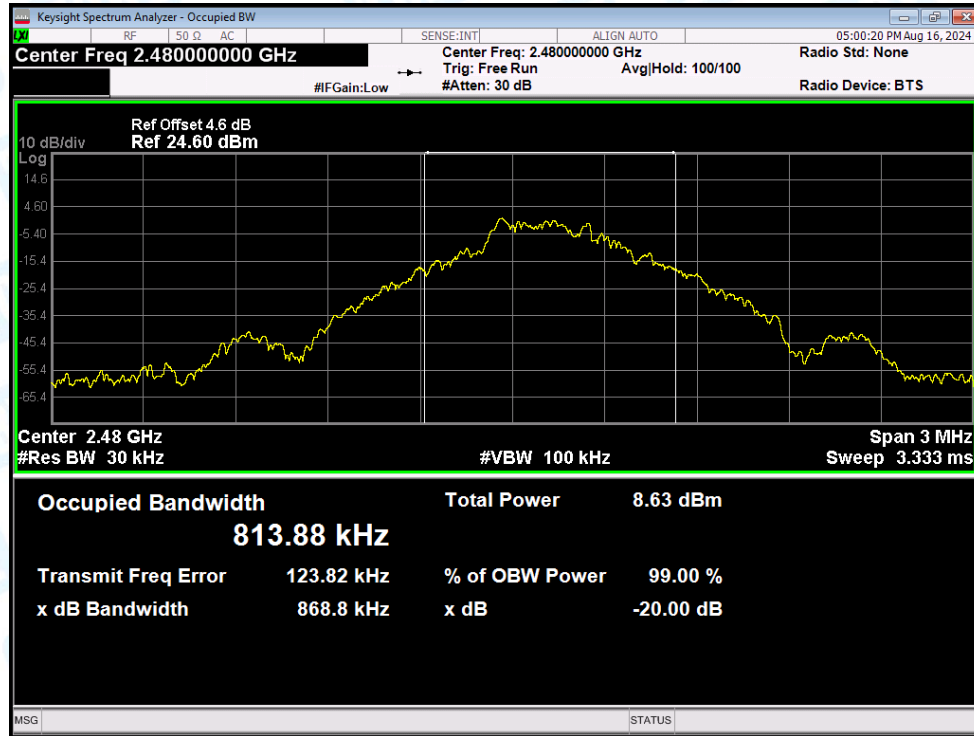
OBW NVNT 1-DH1 2402MHz Ant1



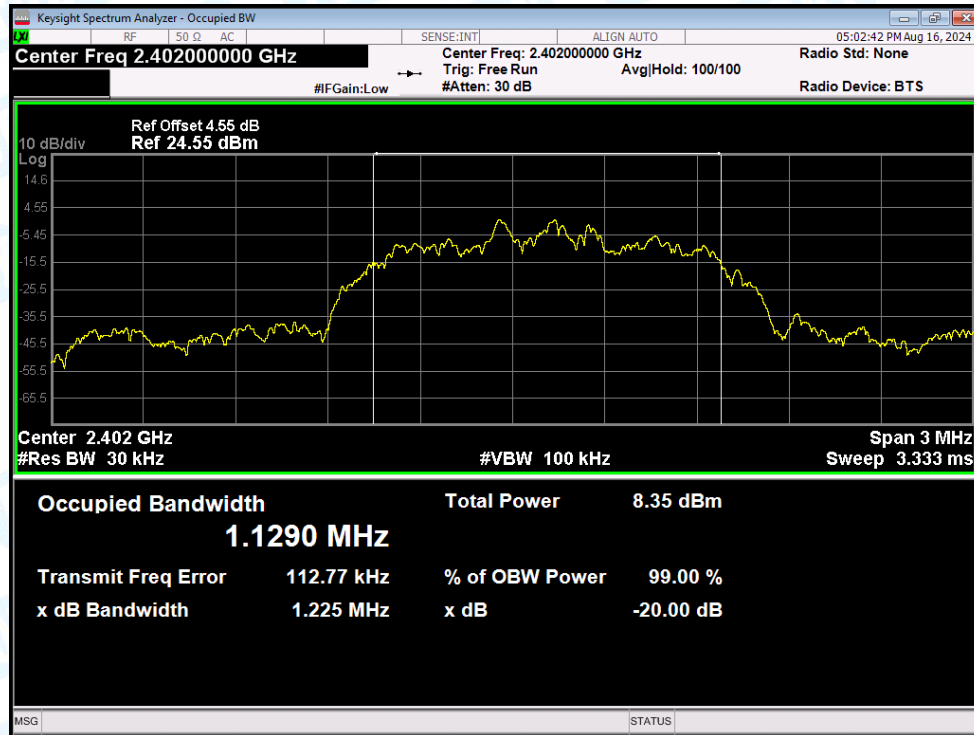
OBW NVNT 1-DH1 2441MHz Ant1



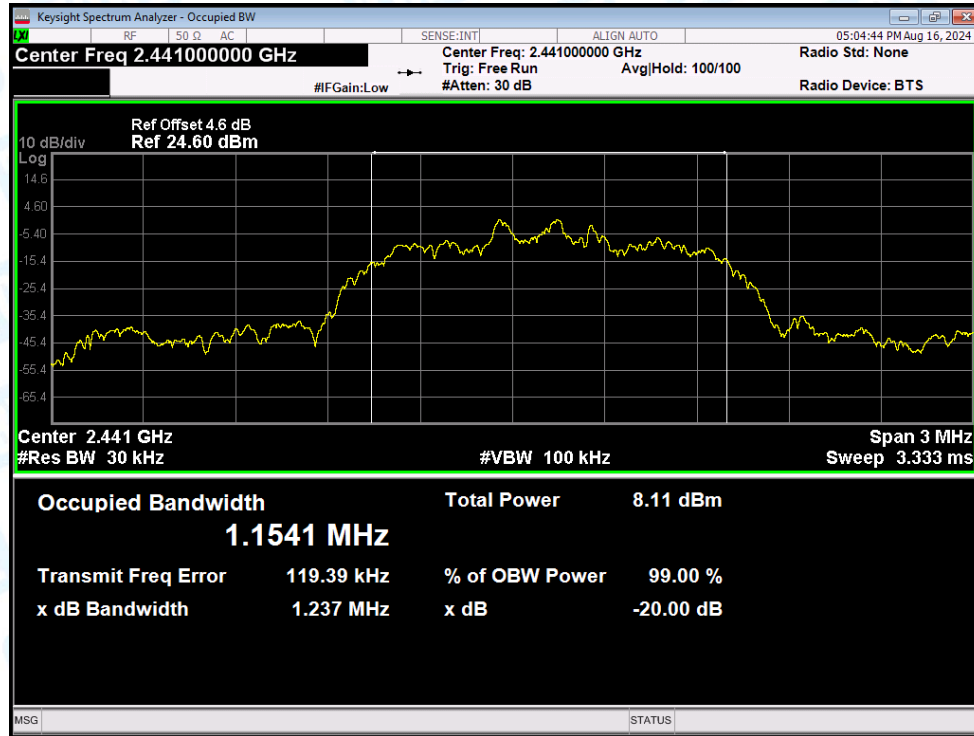
OBW NVNT 1-DH1 2480MHz Ant1



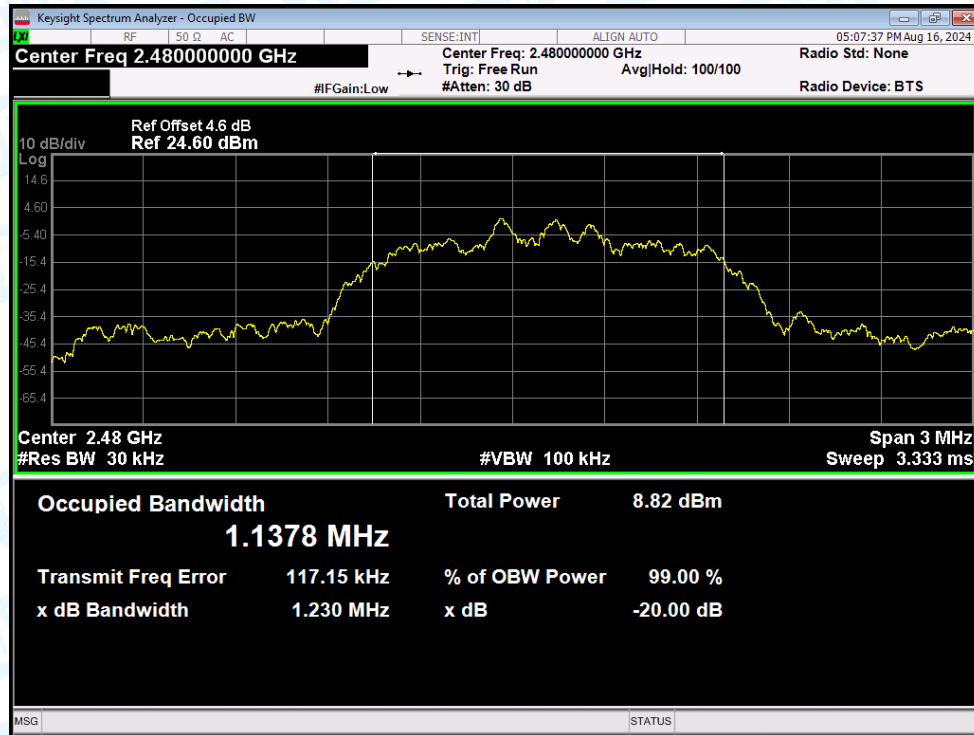
OBW NVNT 2-DH1 2402MHz Ant1



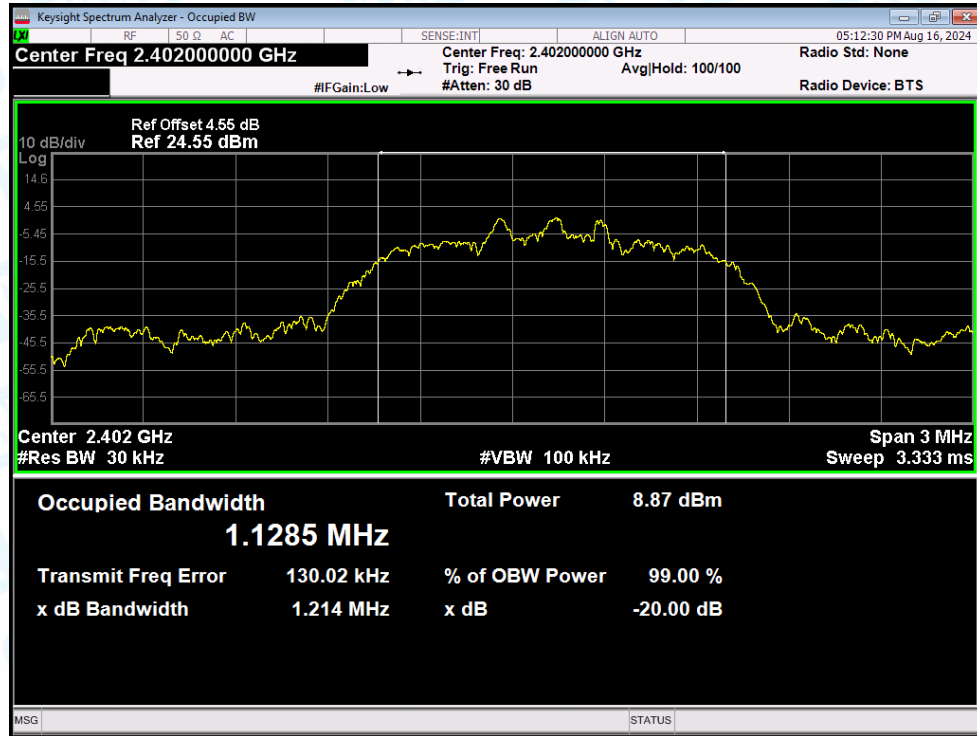
OBW NVNT 2-DH1 2441MHz Ant1



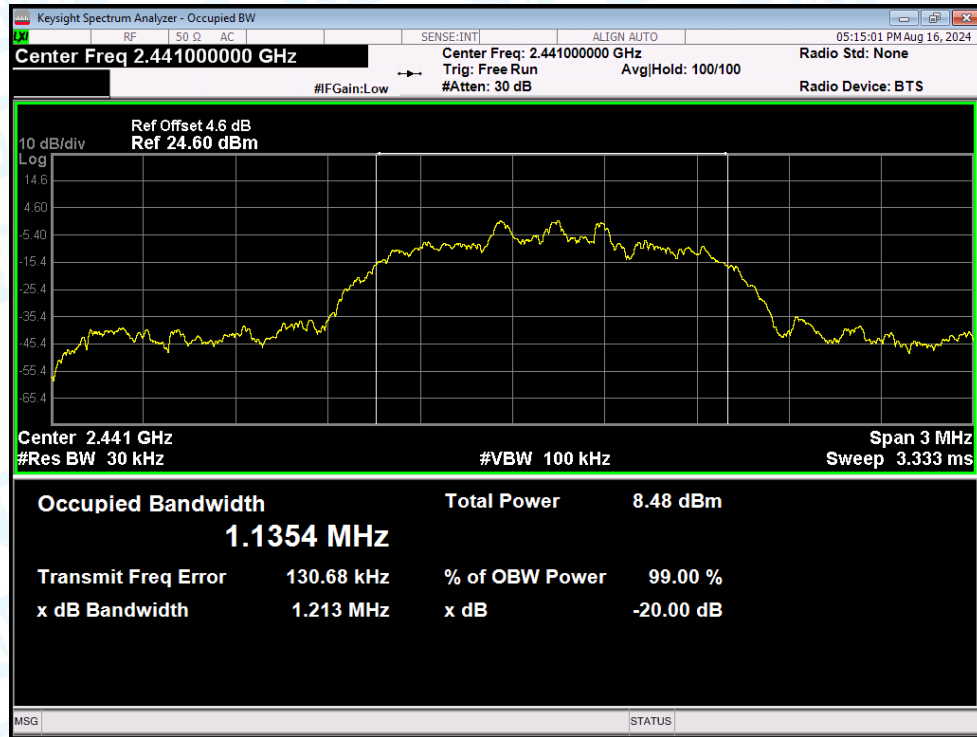
OBW NVNT 2-DH1 2480MHz Ant1

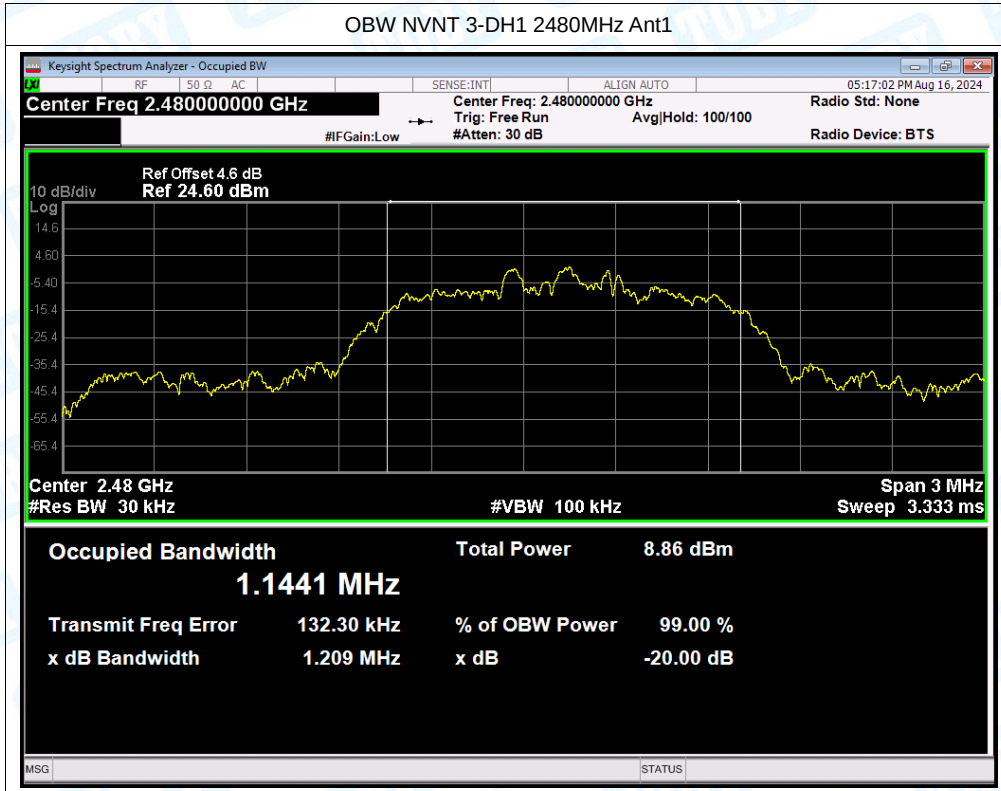


OBW NVNT 3-DH1 2402MHz Ant1



OBW NVNT 3-DH1 2441MHz Ant1



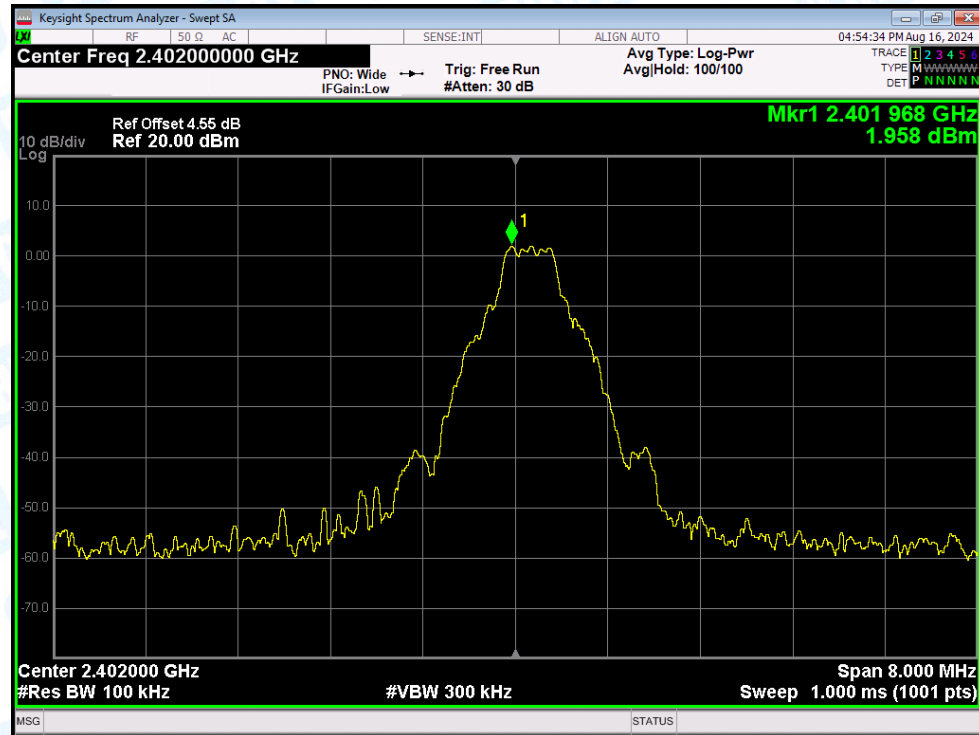


5. Band Edge

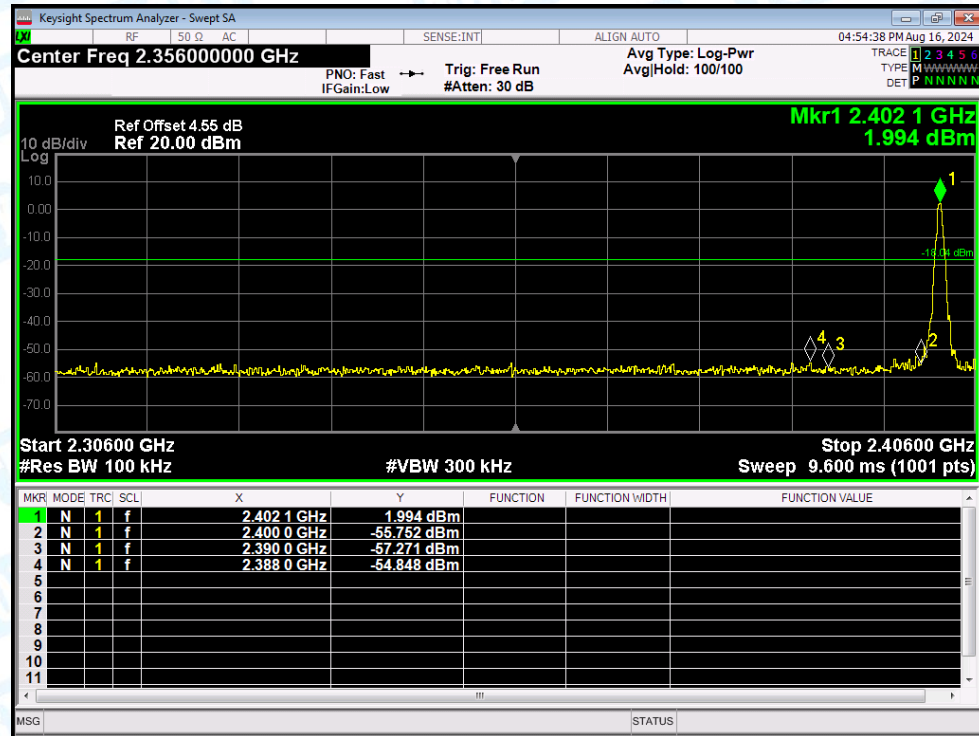
Condition	Mode	Frequency (MHz)	Antenna	Hopping Mode	Max Value (dBc)	Limit (dBc)	Verdict
NVNT	1-DH1	2402	Ant1	No-Hopping	-56.81	-20	Pass
NVNT	1-DH1	2480	Ant1	No-Hopping	-56.77	-20	Pass
NVNT	2-DH1	2402	Ant1	No-Hopping	-56.95	-20	Pass
NVNT	2-DH1	2480	Ant1	No-Hopping	-54.73	-20	Pass
NVNT	3-DH1	2402	Ant1	No-Hopping	-57.96	-20	Pass
NVNT	3-DH1	2480	Ant1	No-Hopping	-53.86	-20	Pass

Test Graphs

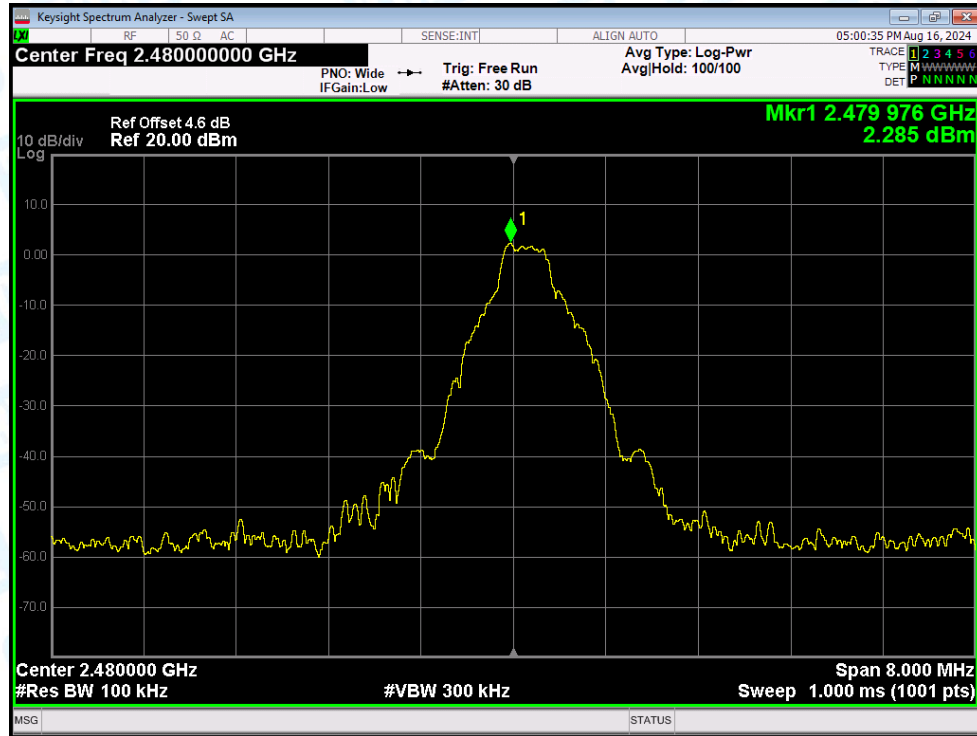
Band Edge NVNT 1-DH1 2402MHz Ant1 No-Hopping Ref



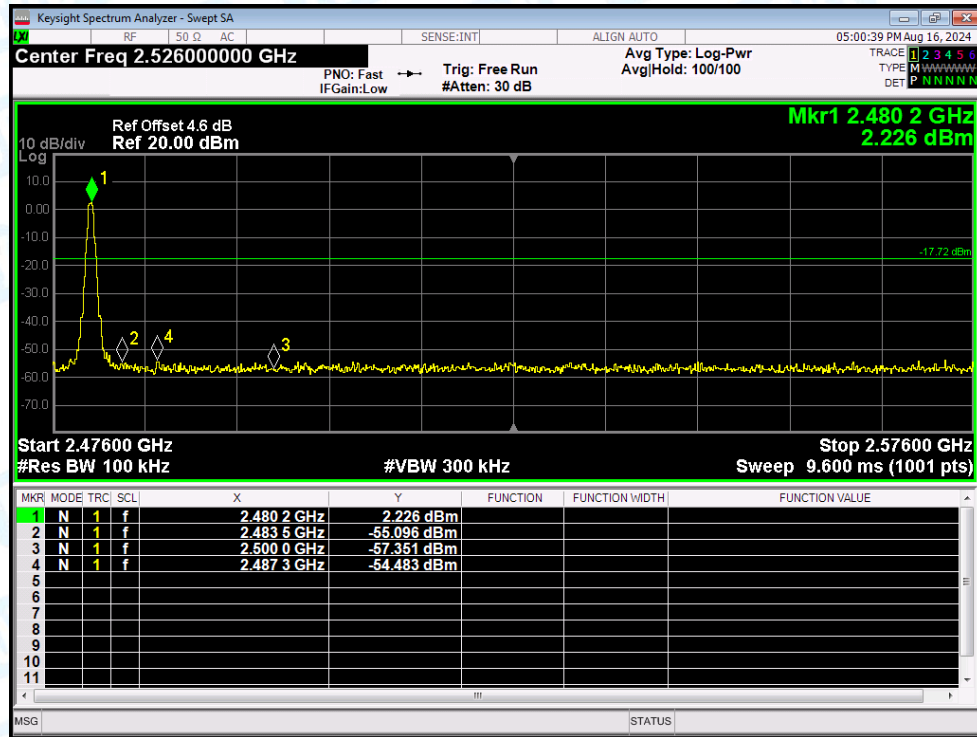
Band Edge NVNT 1-DH1 2402MHz Ant1 No-Hopping Emission



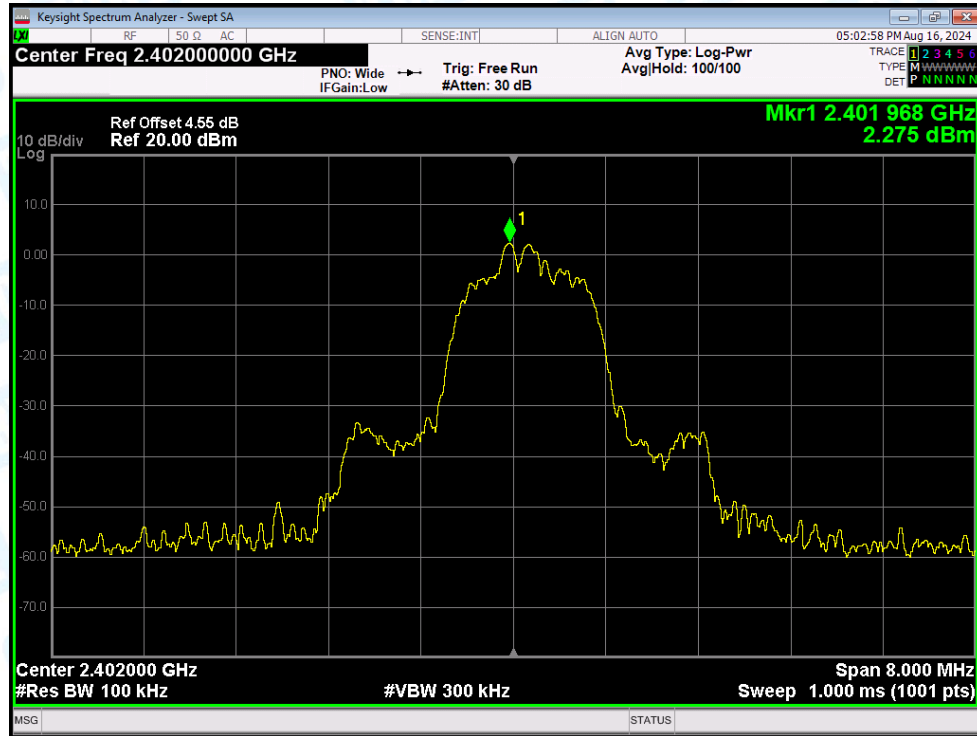
Band Edge NVNT 1-DH1 2480MHz Ant1 No-Hopping Ref



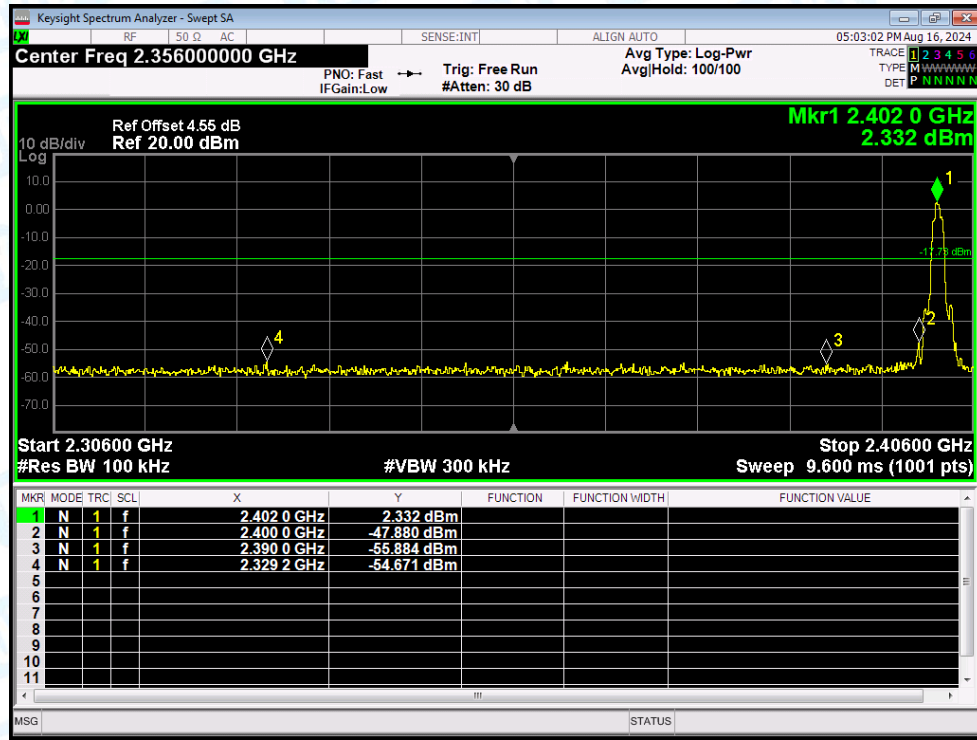
Band Edge NVNT 1-DH1 2480MHz Ant1 No-Hopping Emission



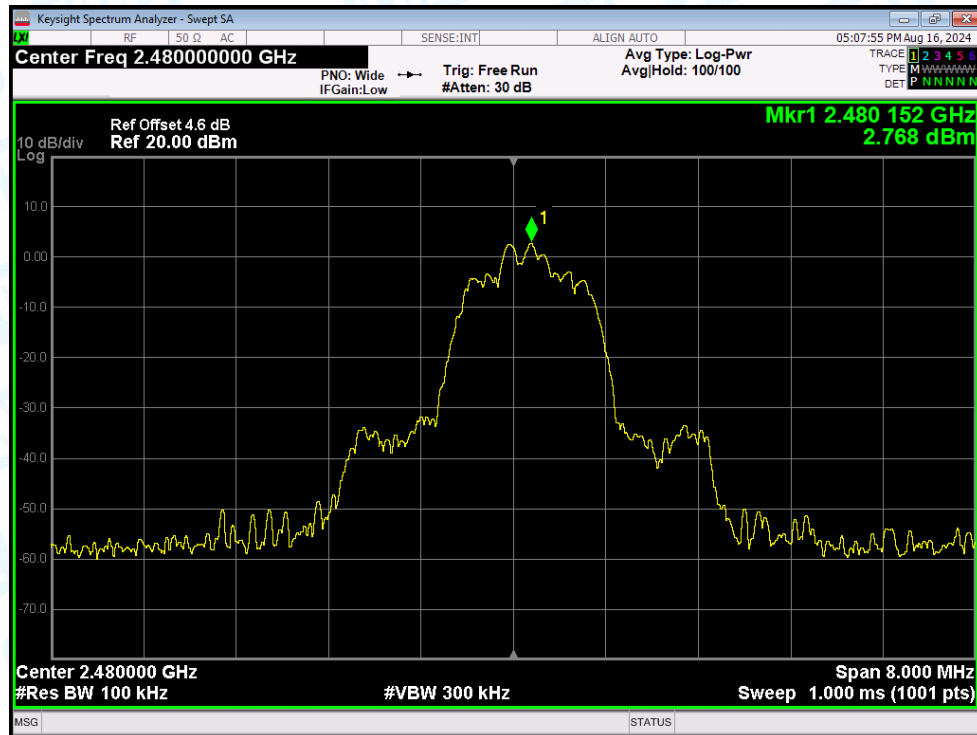
Band Edge NVNT 2-DH1 2402MHz Ant1 No-Hopping Ref



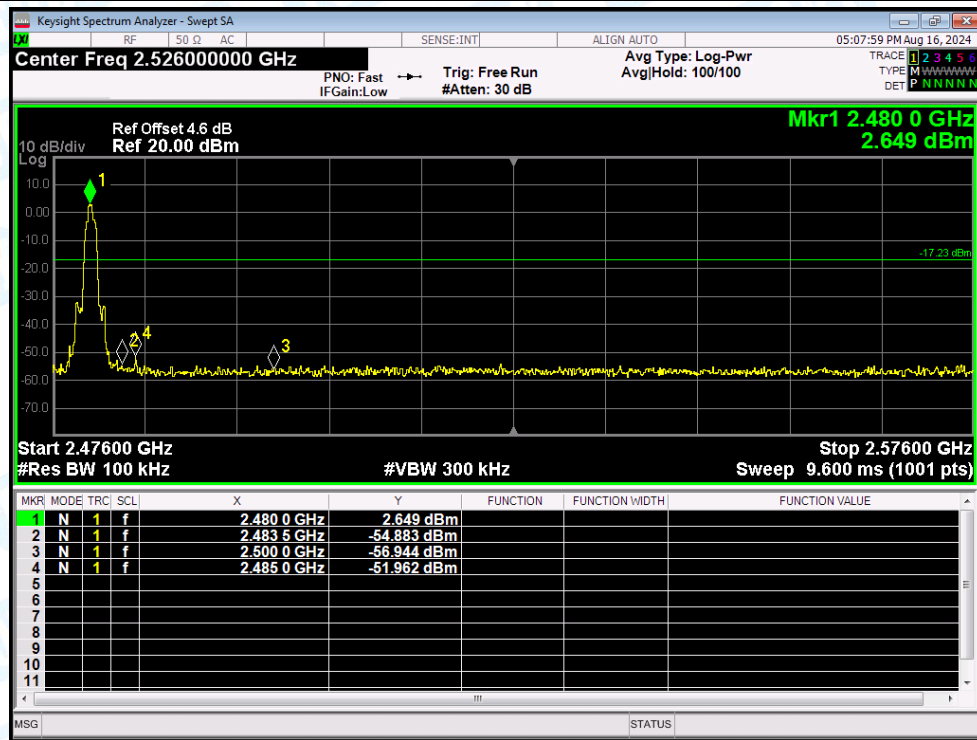
Band Edge NVNT 2-DH1 2402MHz Ant1 No-Hopping Emission



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



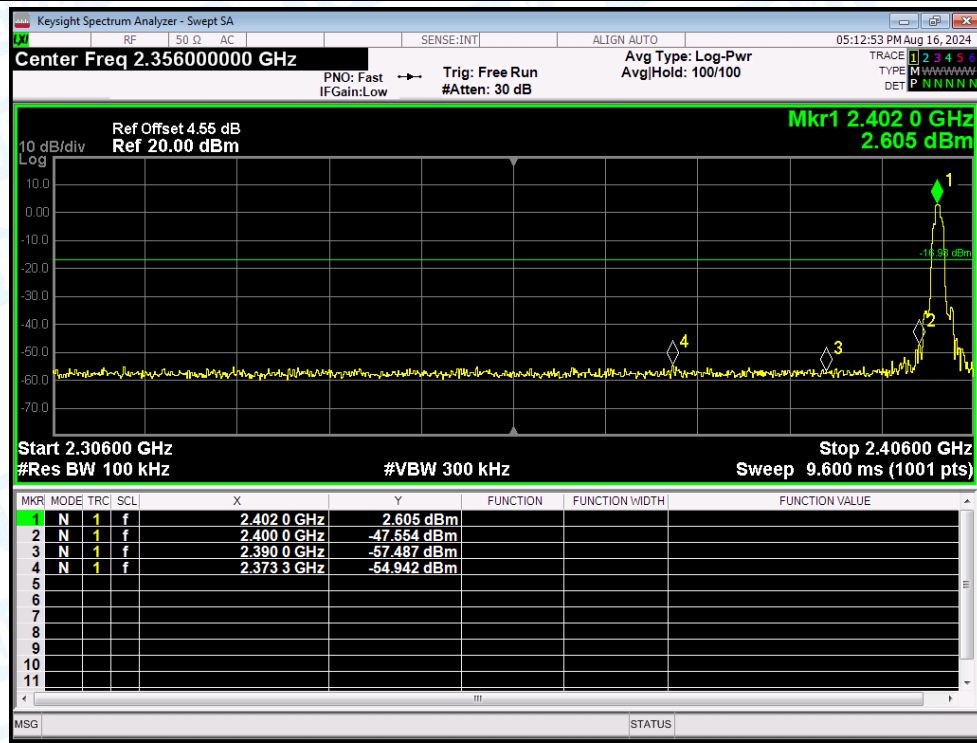
Band Edge NVNT 2-DH1 2480MHz Ant1 No-Hopping Emission



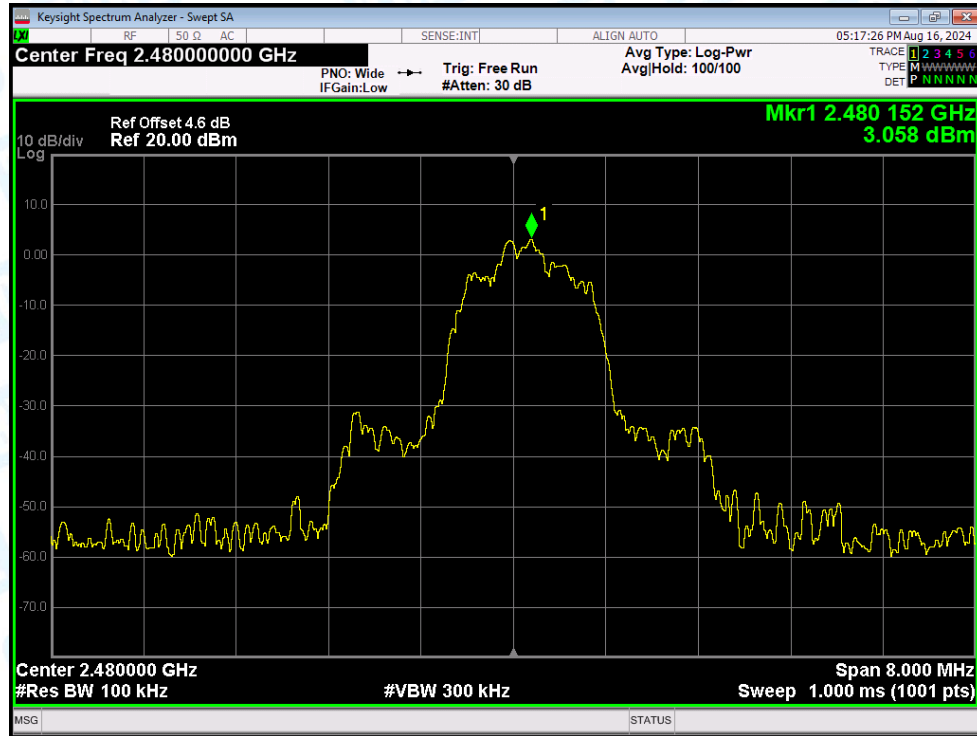
Band Edge NVNT 3-DH1 2402MHz Ant1 No-Hopping Ref



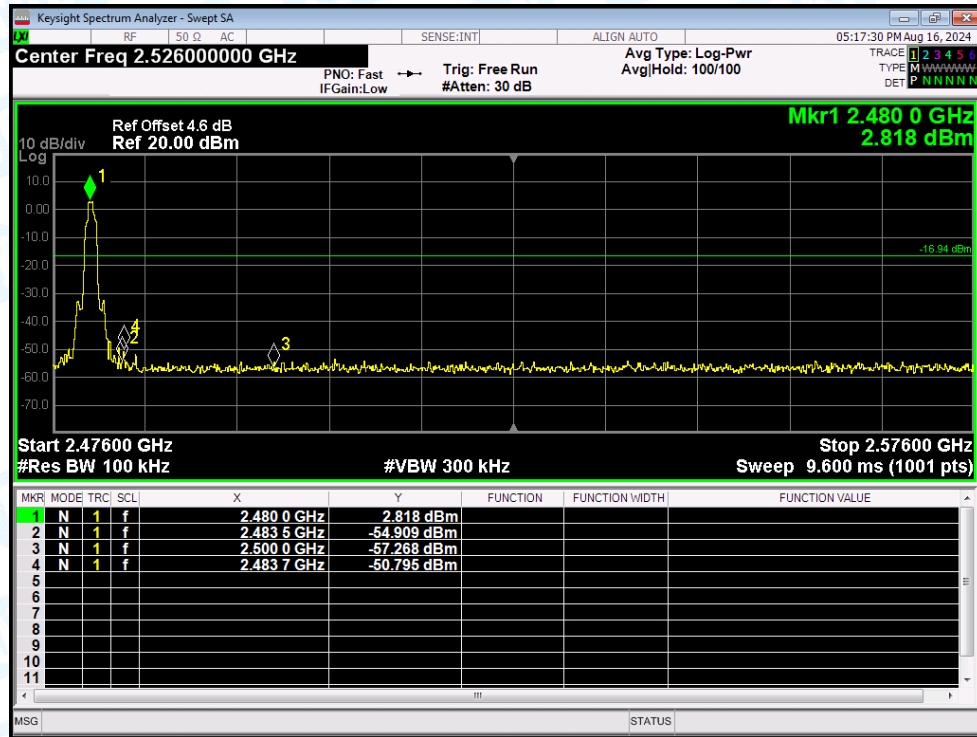
Band Edge NVNT 3-DH1 2402MHz Ant1 No-Hopping Emission



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



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



6. Band Edge(Hopping)

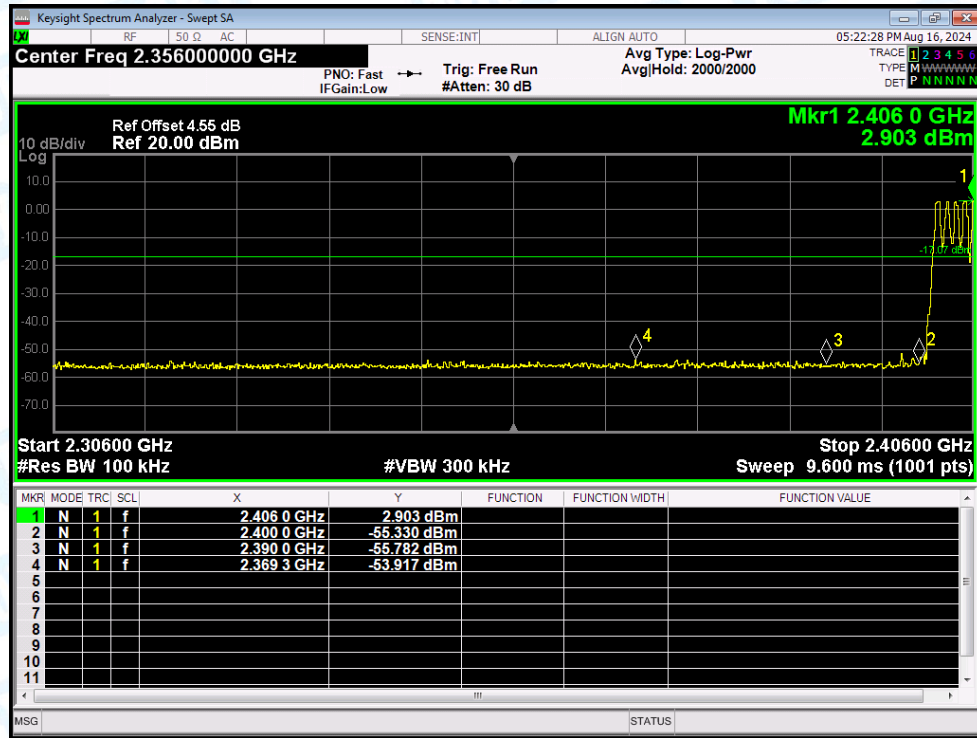
Condition	Mode	Frequency (MHz)	Antenna	Hopping Mode	Max Value (dBc)	Limit (dBc)	Verdict
NVNT	1-DH1	2402	Ant1	Hopping	-56.85	-20	Pass
NVNT	1-DH1	2480	Ant1	Hopping	-56.34	-20	Pass
NVNT	2-DH1	2402	Ant1	Hopping	-56.14	-20	Pass
NVNT	2-DH1	2480	Ant1	Hopping	-55.04	-20	Pass
NVNT	3-DH1	2402	Ant1	Hopping	-57.31	-20	Pass
NVNT	3-DH1	2480	Ant1	Hopping	-56.05	-20	Pass

Test Graphs

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



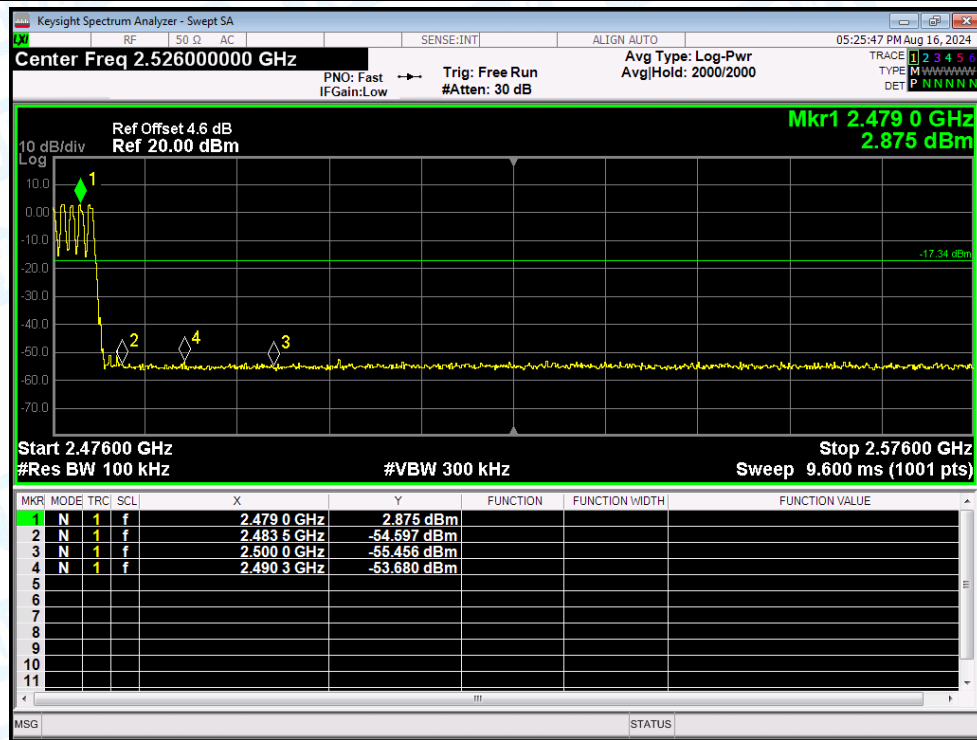
Band Edge(Hopping) NVNT 1-DH1 2402MHz Ant1 Hopping Emission



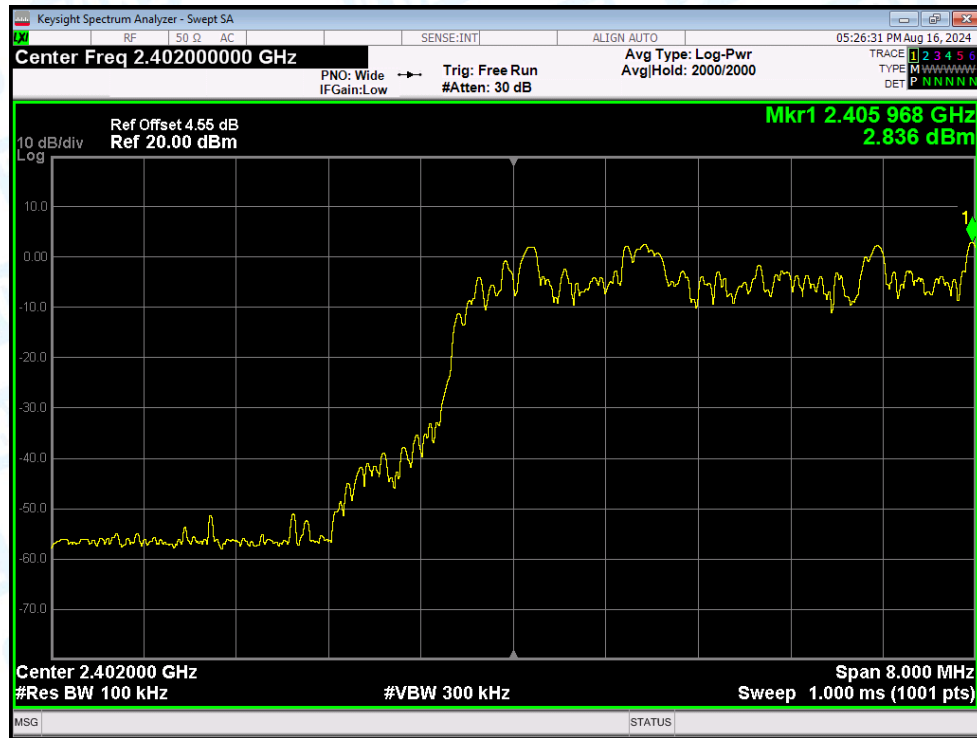
Band Edge(Hopping) NVNT 1-DH1 2480MHz Ant1 Hopping Ref



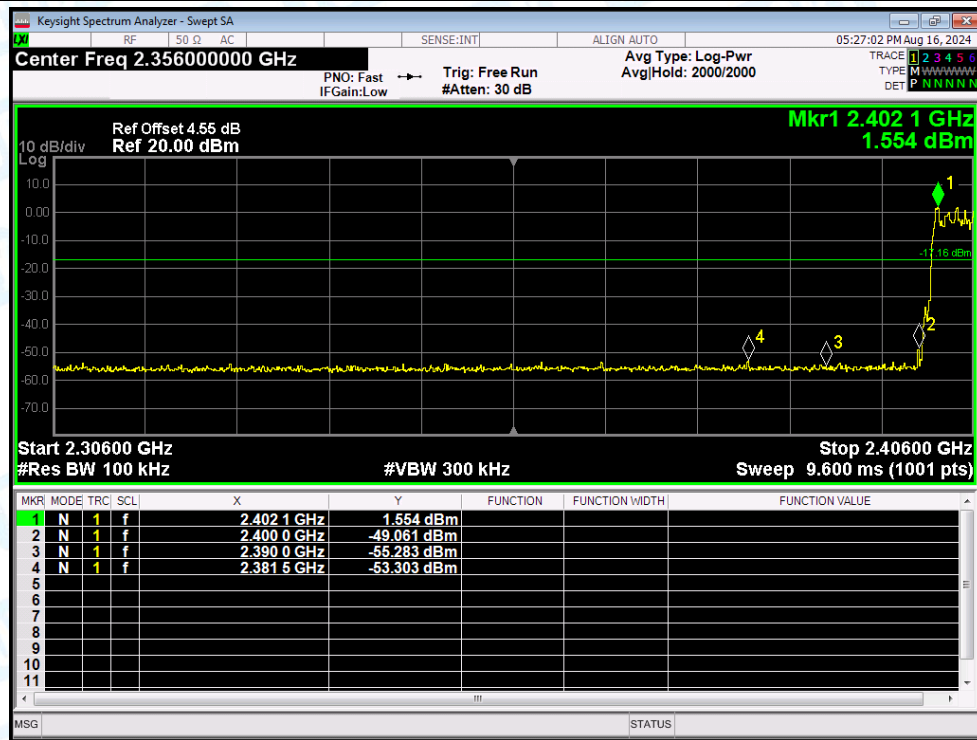
Band Edge(Hopping) NVNT 1-DH1 2480MHz Ant1 Hopping Emission



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



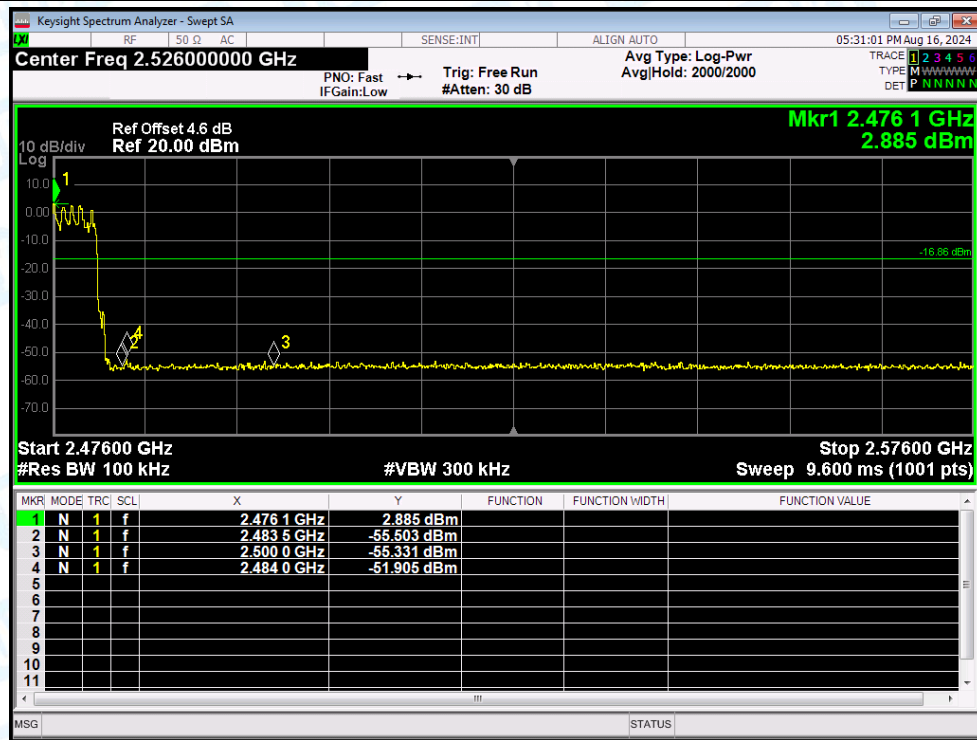
Band Edge(Hopping) NVNT 2-DH1 2402MHz Ant1 Hopping Emission



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



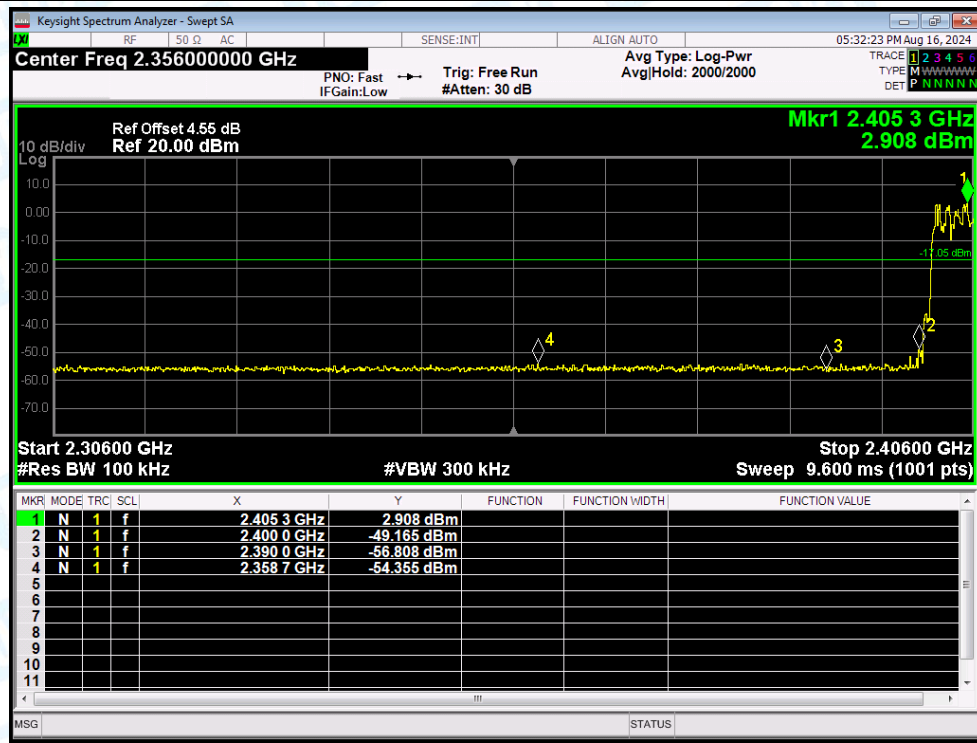
Band Edge(Hopping) NVNT 2-DH1 2480MHz Ant1 Hopping Emission



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



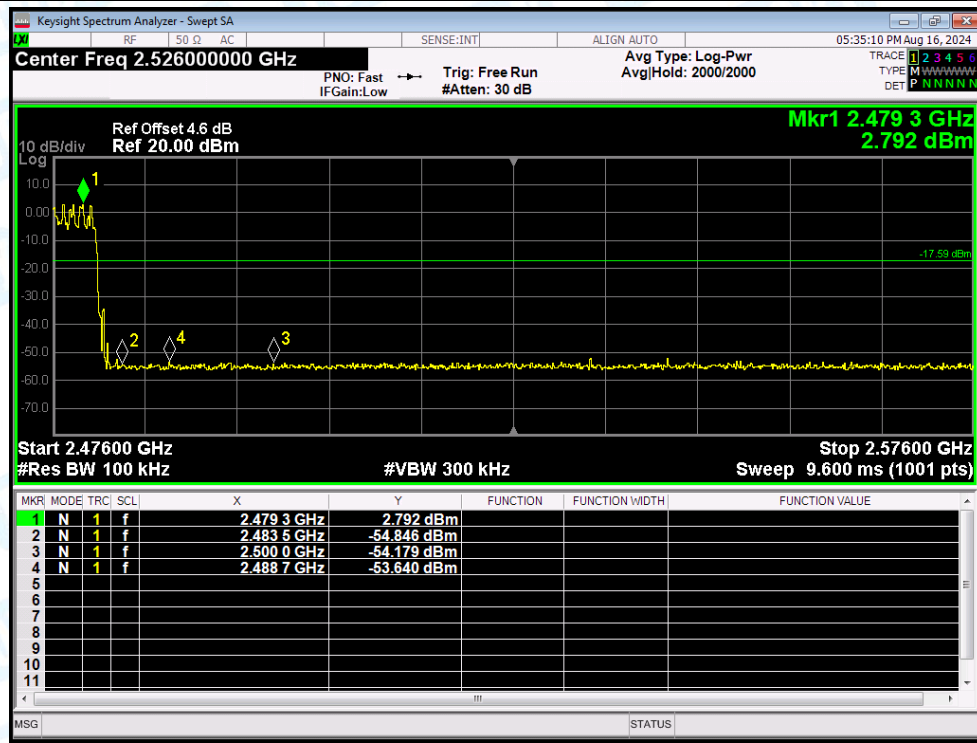
Band Edge(Hopping) NVNT 3-DH1 2402MHz Ant1 Hopping Emission



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



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

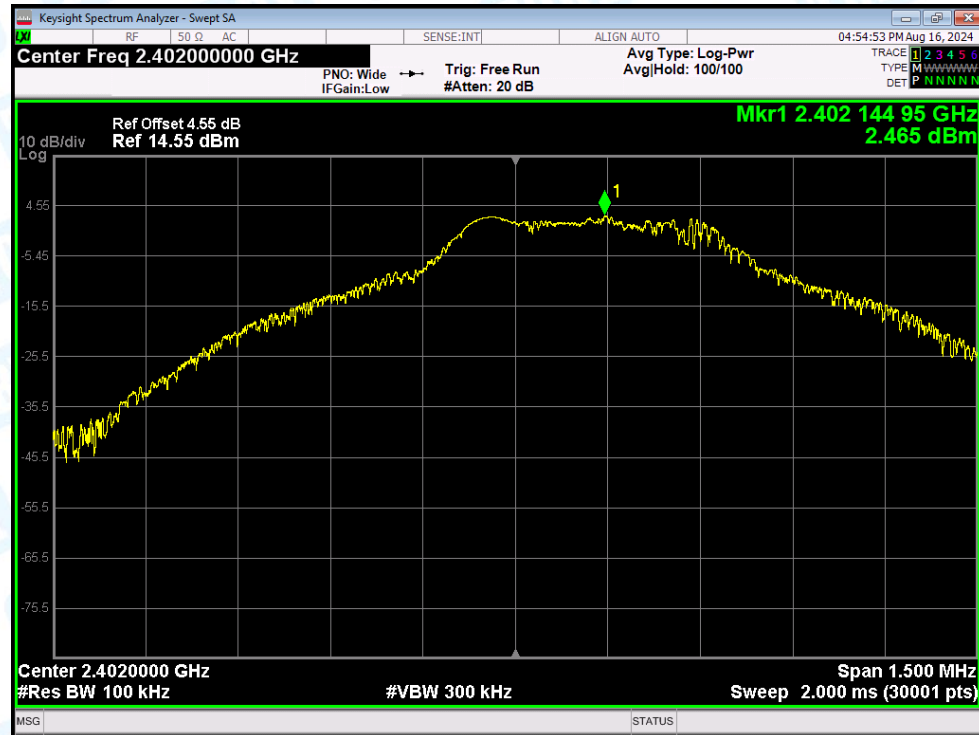


7. Conducted RF Spurious Emission

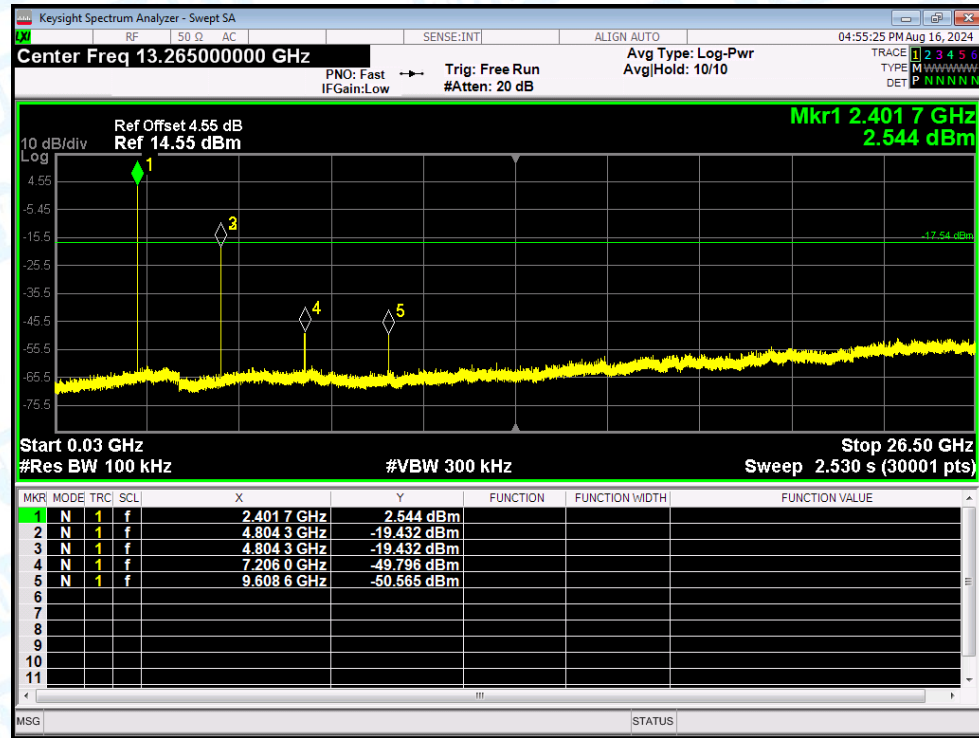
Condition	Mode	Frequency (MHz)	Antenna	Max Value (dBc)	Limit (dBc)	Verdict
NVNT	1-DH1	2402	Ant1	-21.9	-20	Pass
NVNT	1-DH1	2441	Ant1	-22.52	-20	Pass
NVNT	1-DH1	2480	Ant1	-23.16	-20	Pass
NVNT	2-DH1	2402	Ant1	-25.03	-20	Pass
NVNT	2-DH1	2441	Ant1	-27.99	-20	Pass
NVNT	2-DH1	2480	Ant1	-24.6	-20	Pass
NVNT	3-DH1	2402	Ant1	-21.78	-20	Pass
NVNT	3-DH1	2441	Ant1	-20.97	-20	Pass
NVNT	3-DH1	2480	Ant1	-23.01	-20	Pass

Test Graphs

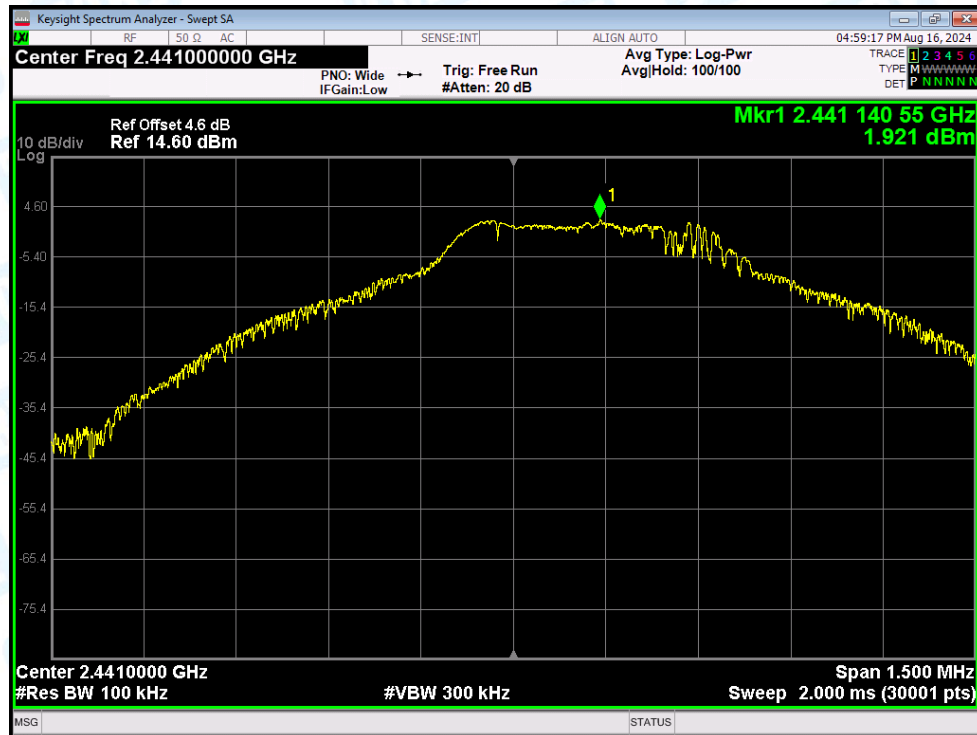
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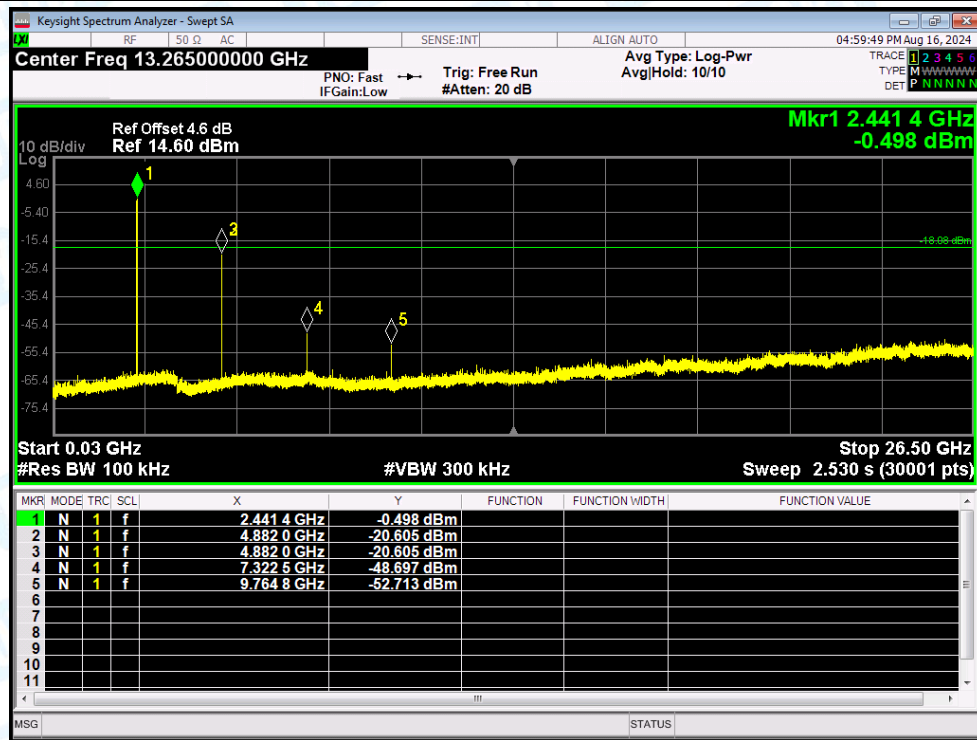
Tx. Spurious NVNT 1-DH1 2402MHz Ant1 Emission



Tx. Spurious NVNT 1-DH1 2441MHz Ant1 Ref



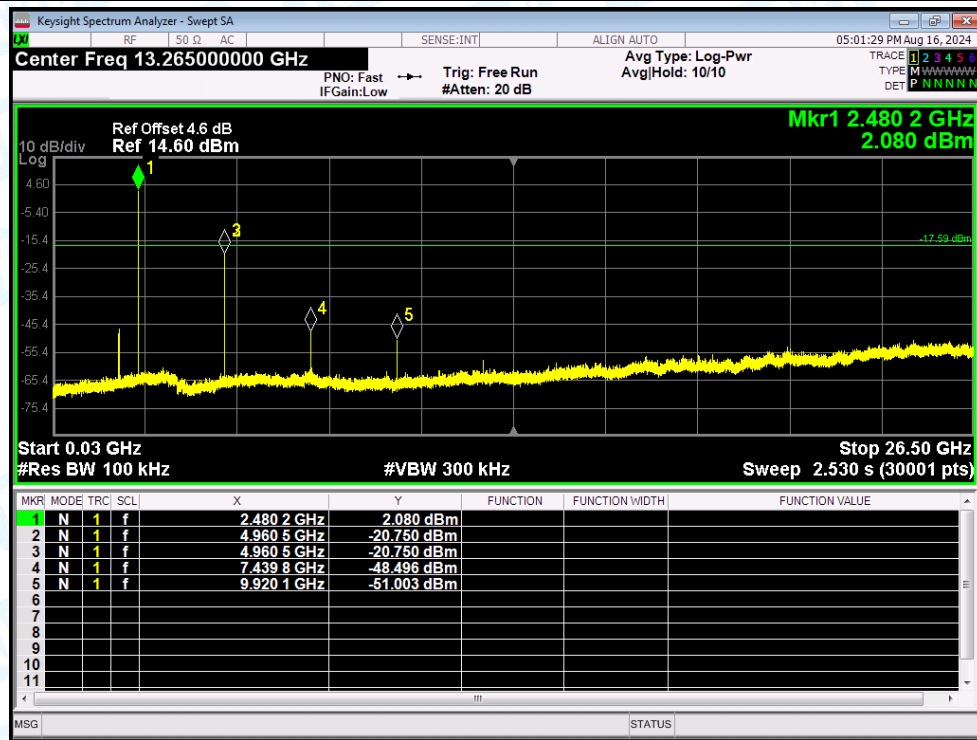
Tx. Spurious NVNT 1-DH1 2441MHz Ant1 Emission



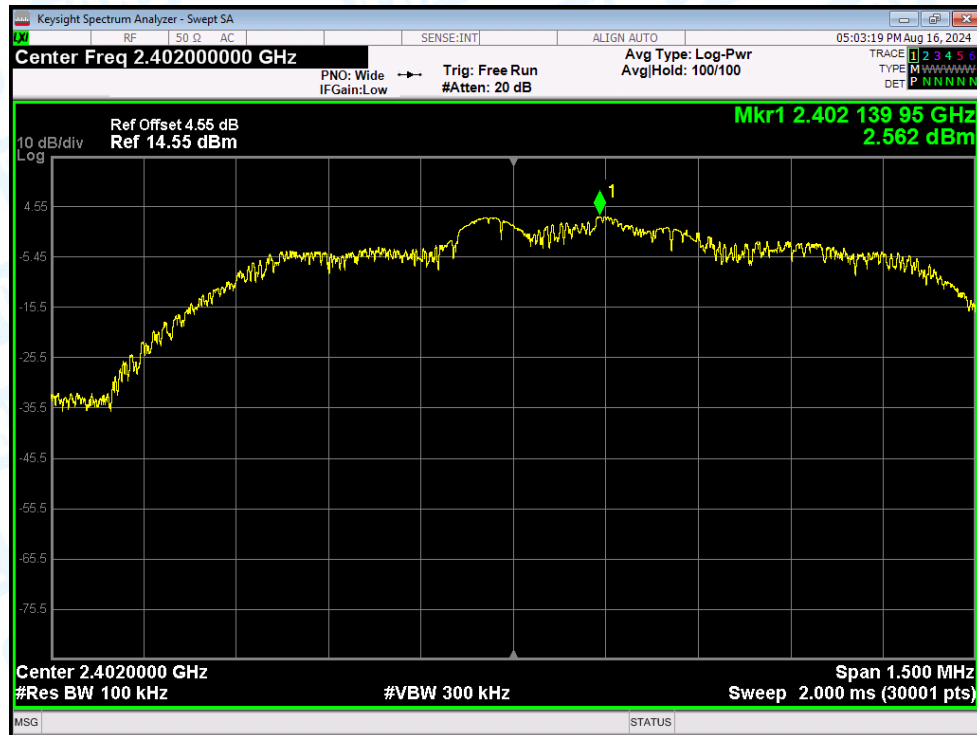
Tx. Spurious NVNT 1-DH1 2480MHz Ant1 Ref



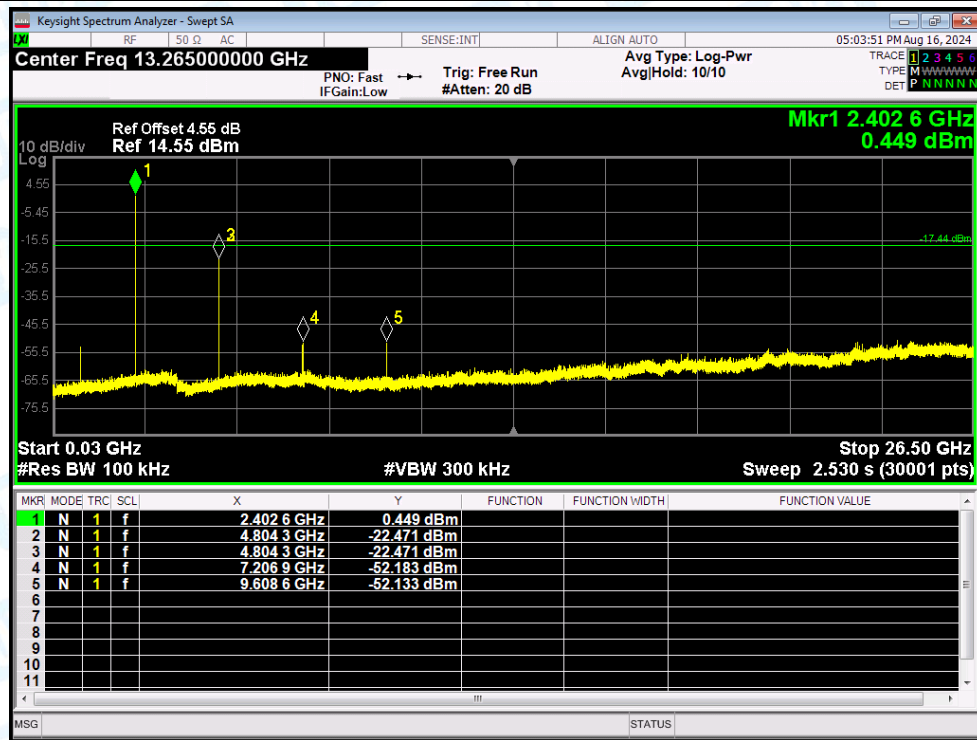
Tx. Spurious NVNT 1-DH1 2480MHz Ant1 Emission



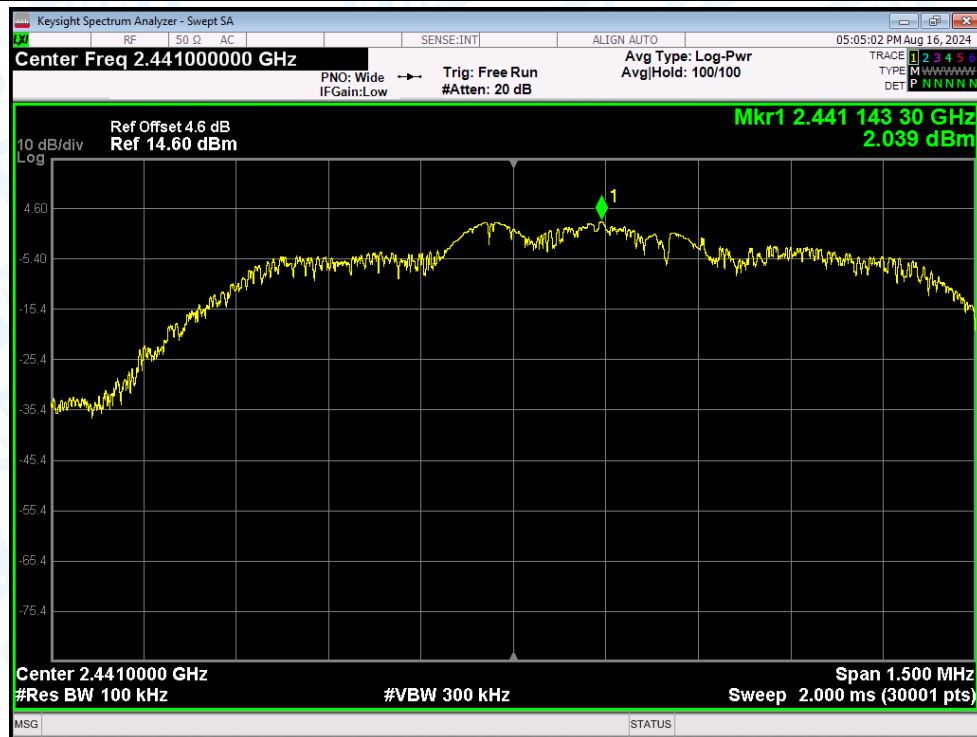
Tx. Spurious NVNT 2-DH1 2402MHz Ant1 Ref



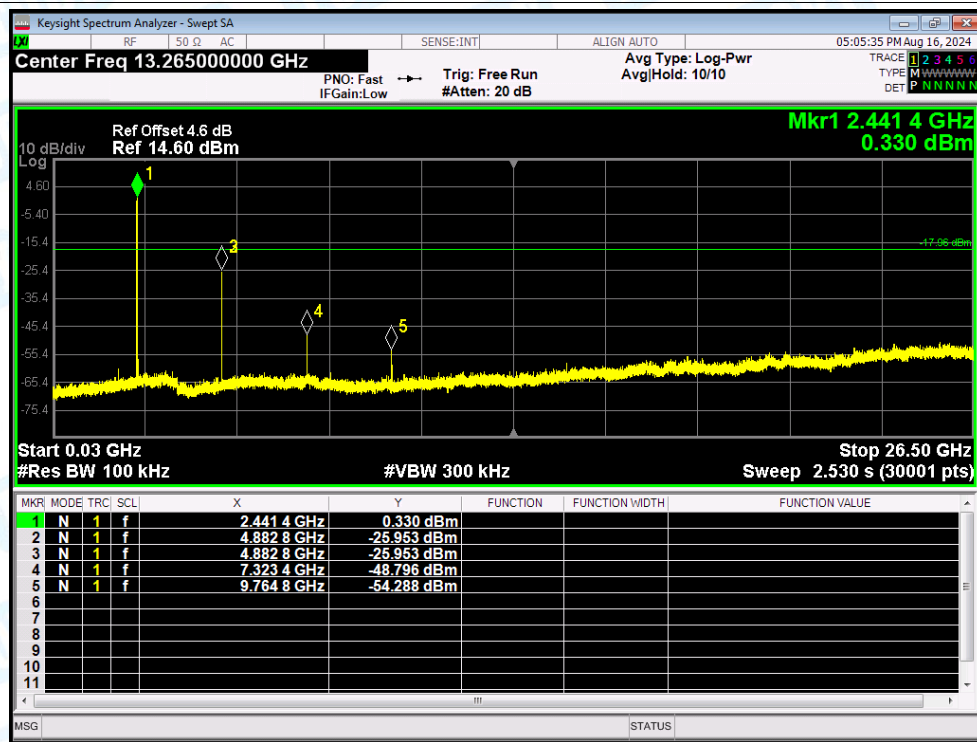
Tx. Spurious NVNT 2-DH1 2402MHz Ant1 Emission



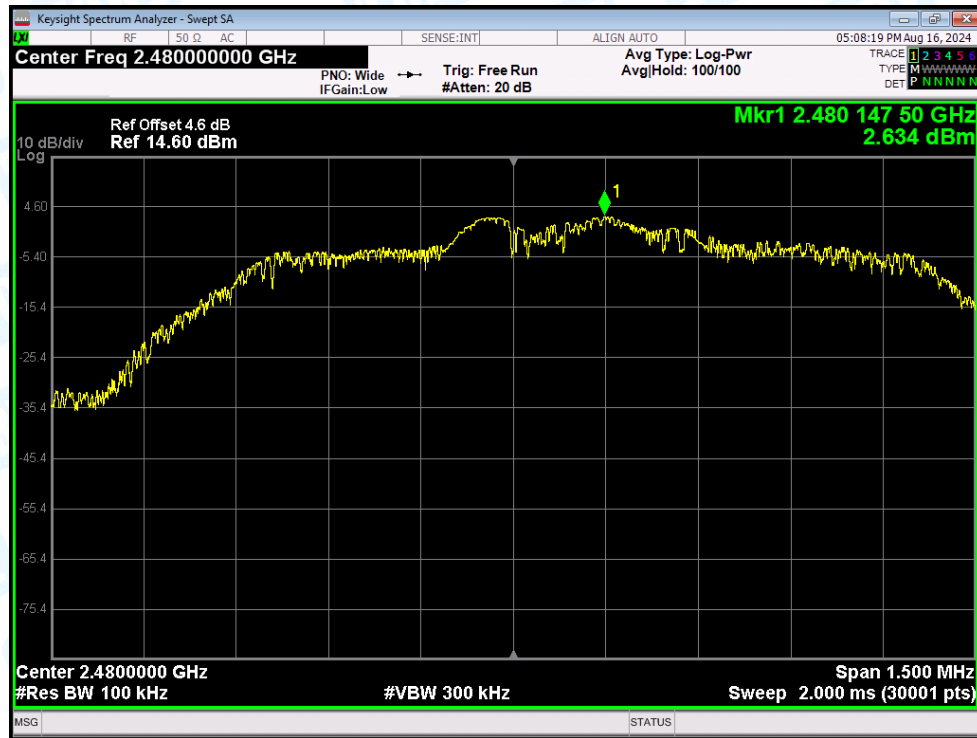
Tx. Spurious NVNT 2-DH1 2441MHz Ant1 Ref



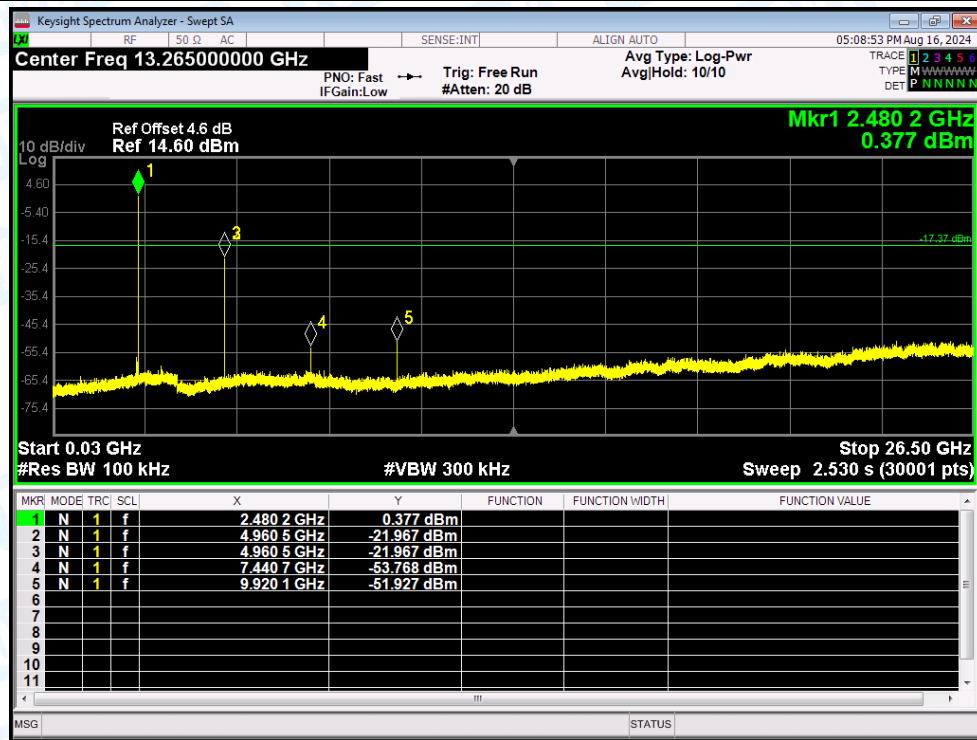
Tx. Spurious NVNT 2-DH1 2441MHz Ant1 Emission



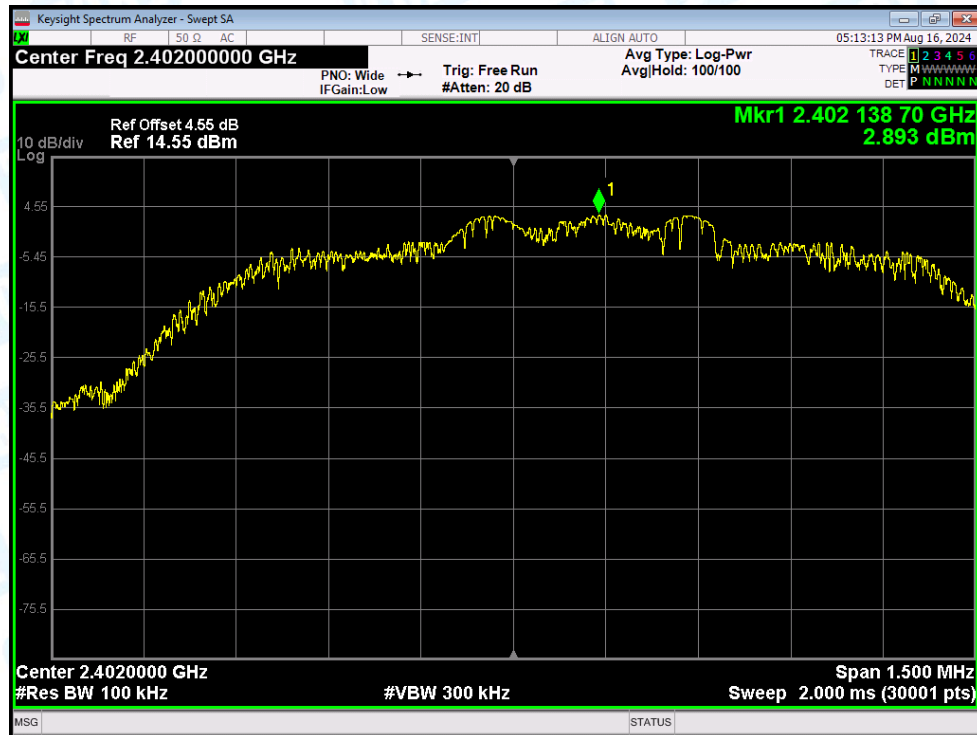
Tx. Spurious NVNT 2-DH1 2480MHz Ant1 Ref



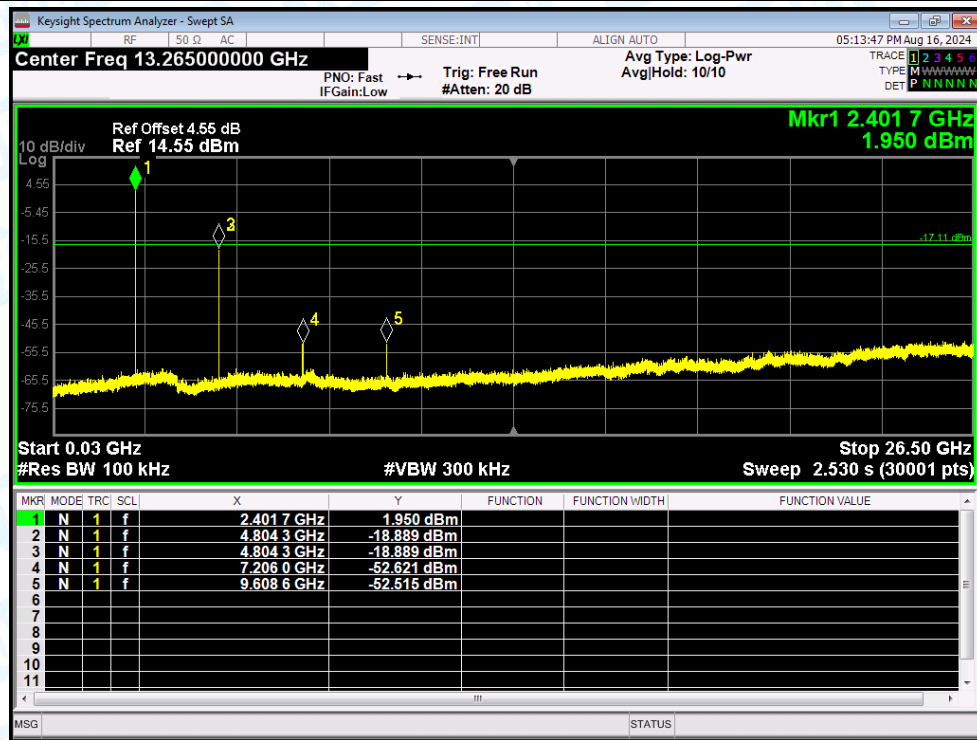
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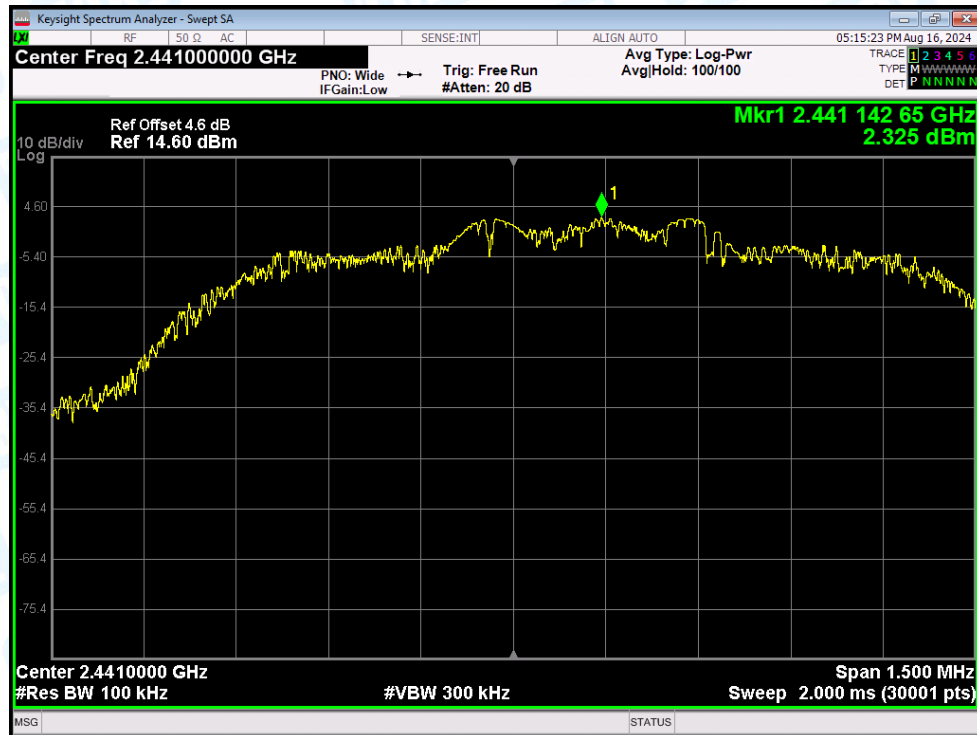
Tx. Spurious NVNT 3-DH1 2402MHz Ant1 Ref



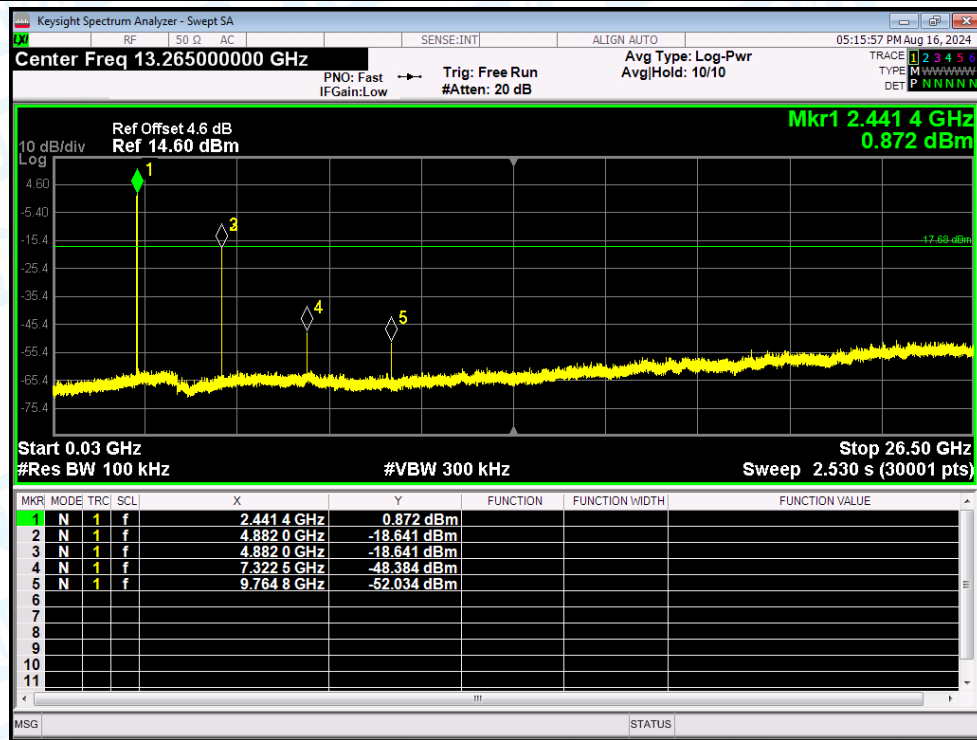
Tx. Spurious NVNT 3-DH1 2402MHz Ant1 Emission



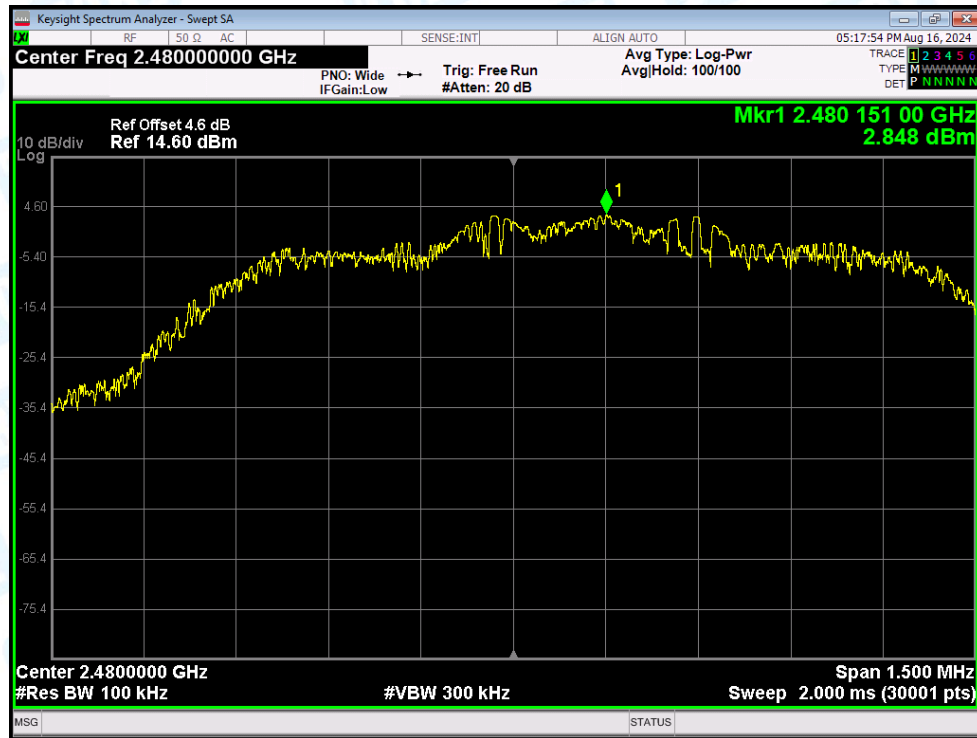
Tx. Spurious NVNT 3-DH1 2441MHz Ant1 Ref



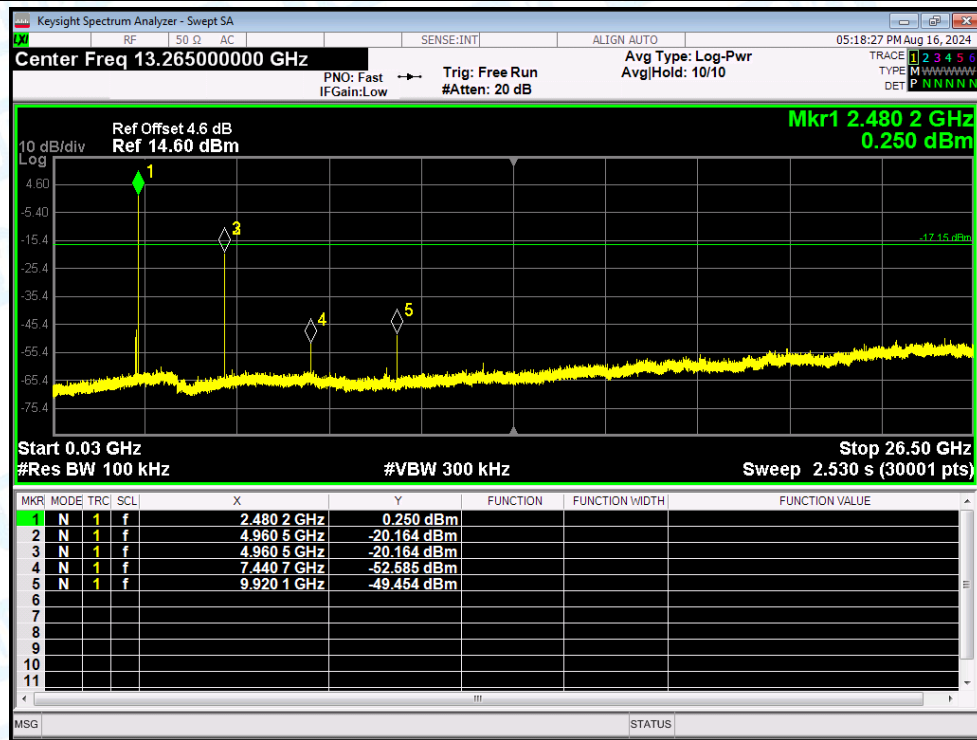
Tx. Spurious NVNT 3-DH1 2441MHz Ant1 Emission



Tx. Spurious NVNT 3-DH1 2480MHz Ant1 Ref



Tx. Spurious NVNT 3-DH1 2480MHz Ant1 Emission

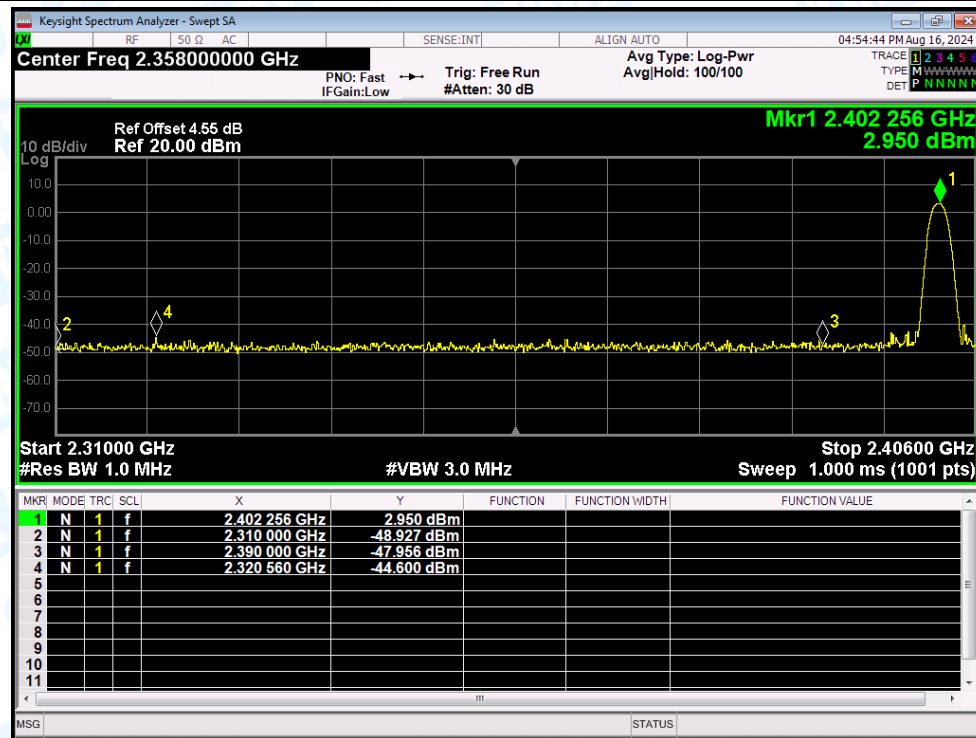


8. Restrict Band

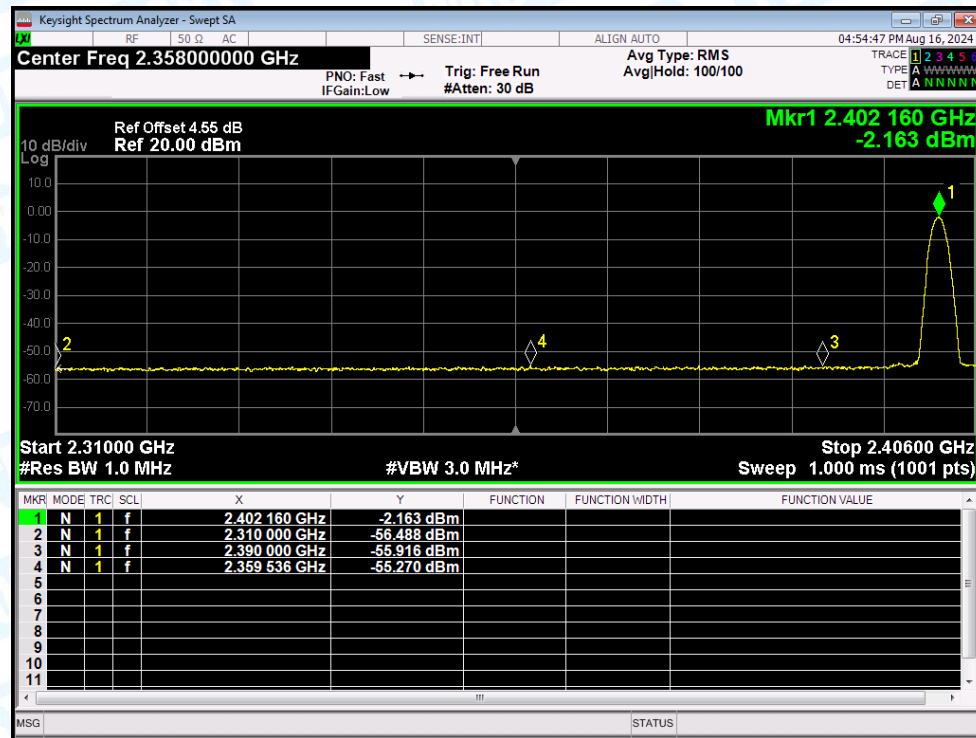
Condition	Mode	Frequency (MHz)	Antenna	Hopping Mode	Spur Freq (MHz)	Power (dBm)	Gain (dBi)	Duty Factor (dB)	E (dBuV/m)	Detector	Limit (dBuV/m)	Verdict
NVNT	1-DH1	2402	Ant1	No-Hopping	2310	-48.93	2	-	48.33	Peak	74	Pass
NVNT	1-DH1	2402	Ant1	No-Hopping	2310	-56.49	2	4.95	45.72	Average	54	Pass
NVNT	1-DH1	2402	Ant1	No-Hopping	2320.56	-44.6	2	-	52.66	Peak	74	Pass
NVNT	1-DH1	2402	Ant1	No-Hopping	2359.536	-55.27	2	4.95	46.94	Average	54	Pass
NVNT	1-DH1	2402	Ant1	No-Hopping	2390	-47.96	2	-	49.3	Peak	74	Pass
NVNT	1-DH1	2402	Ant1	No-Hopping	2390	-55.92	2	4.95	46.29	Average	54	Pass
NVNT	1-DH1	2480	Ant1	No-Hopping	2483.5	-44.97	2	-	52.29	Peak	74	Pass
NVNT	1-DH1	2480	Ant1	No-Hopping	2483.5	-54.55	2	5.06	47.77	Average	54	Pass
NVNT	1-DH1	2480	Ant1	No-Hopping	2484.688	-40.91	2	-	56.35	Peak	74	Pass
NVNT	1-DH1	2480	Ant1	No-Hopping	2483.512	-54.55	2	5.06	47.77	Average	54	Pass
NVNT	1-DH1	2480	Ant1	No-Hopping	2500	-48.66	2	-	48.6	Peak	74	Pass
NVNT	1-DH1	2480	Ant1	No-Hopping	2500	-55.91	2	5.06	46.41	Average	54	Pass
NVNT	2-DH1	2402	Ant1	No-Hopping	2310	-48.51	2	-	48.75	Peak	74	Pass
NVNT	2-DH1	2402	Ant1	No-Hopping	2310	-56.35	2	4.84	45.75	Average	54	Pass
NVNT	2-DH1	2402	Ant1	No-Hopping	2358.096	-45.46	2	-	51.8	Peak	74	Pass
NVNT	2-DH1	2402	Ant1	No-Hopping	2386.224	-55.01	2	4.84	47.09	Average	54	Pass
NVNT	2-DH1	2402	Ant1	No-Hopping	2390	-47.37	2	-	49.89	Peak	74	Pass
NVNT	2-DH1	2402	Ant1	No-Hopping	2390	-56.1	2	4.84	46	Average	54	Pass
NVNT	2-DH1	2480	Ant1	No-Hopping	2483.5	-45.91	2	-	51.35	Peak	74	Pass
NVNT	2-DH1	2480	Ant1	No-Hopping	2483.5	-55.24	2	4.84	46.86	Average	54	Pass
NVNT	2-DH1	2480	Ant1	No-Hopping	2484.184	-41.14	2	-	56.12	Peak	74	Pass
NVNT	2-DH1	2480	Ant1	No-Hopping	2483.704	-54.36	2	4.84	47.74	Average	54	Pass
NVNT	2-DH1	2480	Ant1	No-Hopping	2500	-47.71	2	-	49.55	Peak	74	Pass
NVNT	2-DH1	2480	Ant1	No-Hopping	2500	-55.65	2	4.84	46.45	Average	54	Pass
NVNT	3-DH1	2402	Ant1	No-Hopping	2310	-48.02	2	-	49.24	Peak	74	Pass
NVNT	3-DH1	2402	Ant1	No-Hopping	2310	-56.76	2	4.84	45.34	Average	54	Pass
NVNT	3-DH1	2402	Ant1	No-Hopping	2372.4	-44.43	2	-	52.83	Peak	74	Pass
NVNT	3-DH1	2402	Ant1	No-Hopping	2382.768	-55.29	2	4.84	46.81	Average	54	Pass
NVNT	3-DH1	2402	Ant1	No-Hopping	2390	-47.9	2	-	49.36	Peak	74	Pass
NVNT	3-DH1	2402	Ant1	No-Hopping	2390	-56.22	2	4.84	45.88	Average	54	Pass
NVNT	3-DH1	2480	Ant1	No-Hopping	2483.5	-47.42	2	-	49.84	Peak	74	Pass
NVNT	3-DH1	2480	Ant1	No-Hopping	2483.5	-55.27	2	4.84	46.83	Average	54	Pass
NVNT	3-DH1	2480	Ant1	No-Hopping	2483.776	-36.04	2	-	61.22	Peak	74	Pass
NVNT	3-DH1	2480	Ant1	No-Hopping	2483.632	-53.74	2	4.84	48.36	Average	54	Pass
NVNT	3-DH1	2480	Ant1	No-Hopping	2500	-46.99	2	-	50.27	Peak	74	Pass
NVNT	3-DH1	2480	Ant1	No-Hopping	2500	-55.59	2	4.84	46.51	Average	54	Pass

Test Graphs

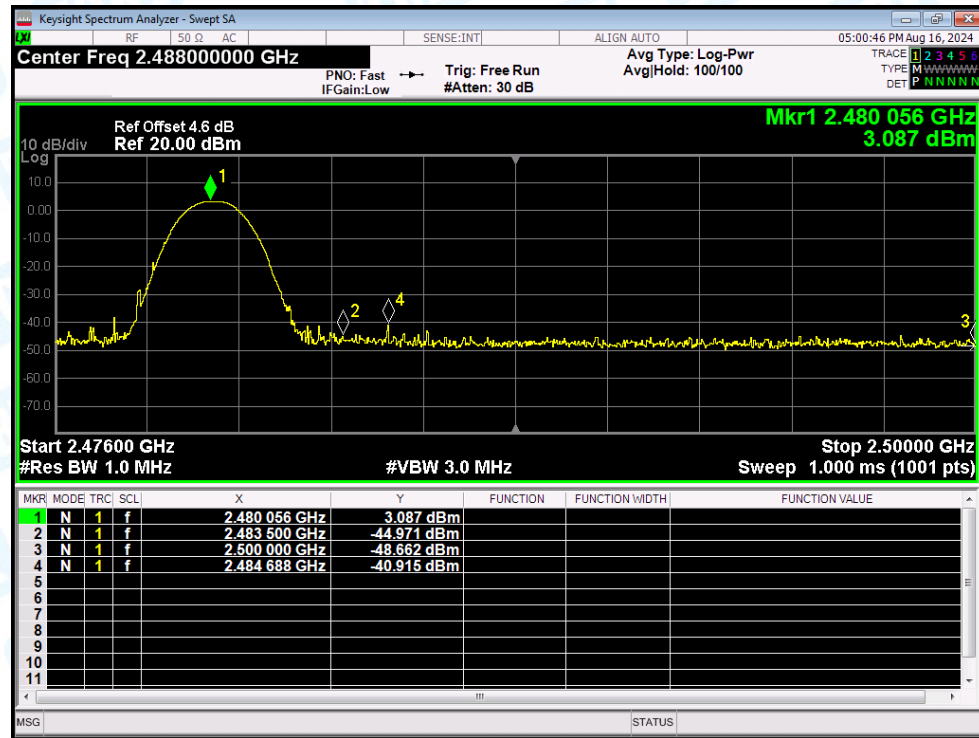
Restrict Band NVNT 1-DH1 2402MHz Ant1 No-Hopping Peak



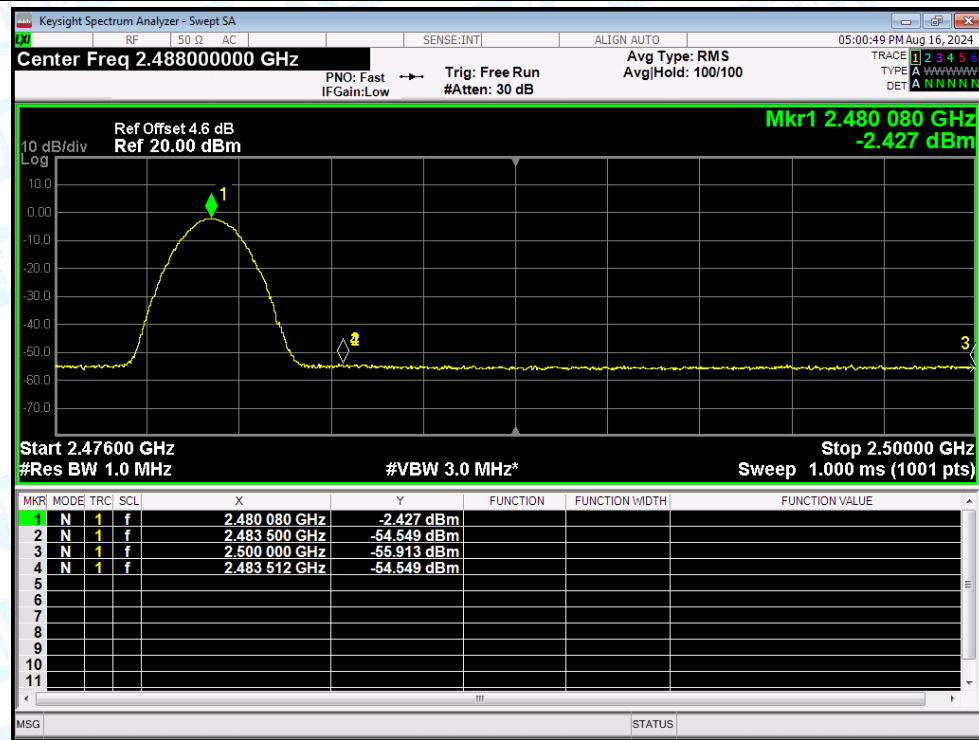
Restrict Band NVNT 1-DH1 2402MHz Ant1 No-Hopping Average



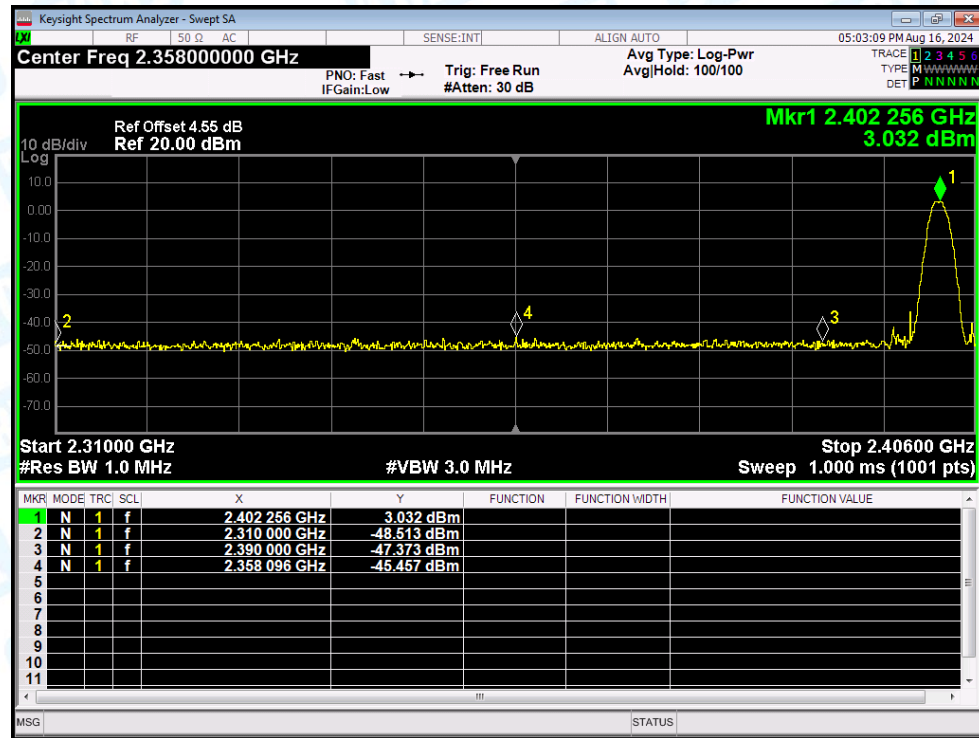
Restrict Band NVNT 1-DH1 2480MHz Ant1 No-Hopping Peak



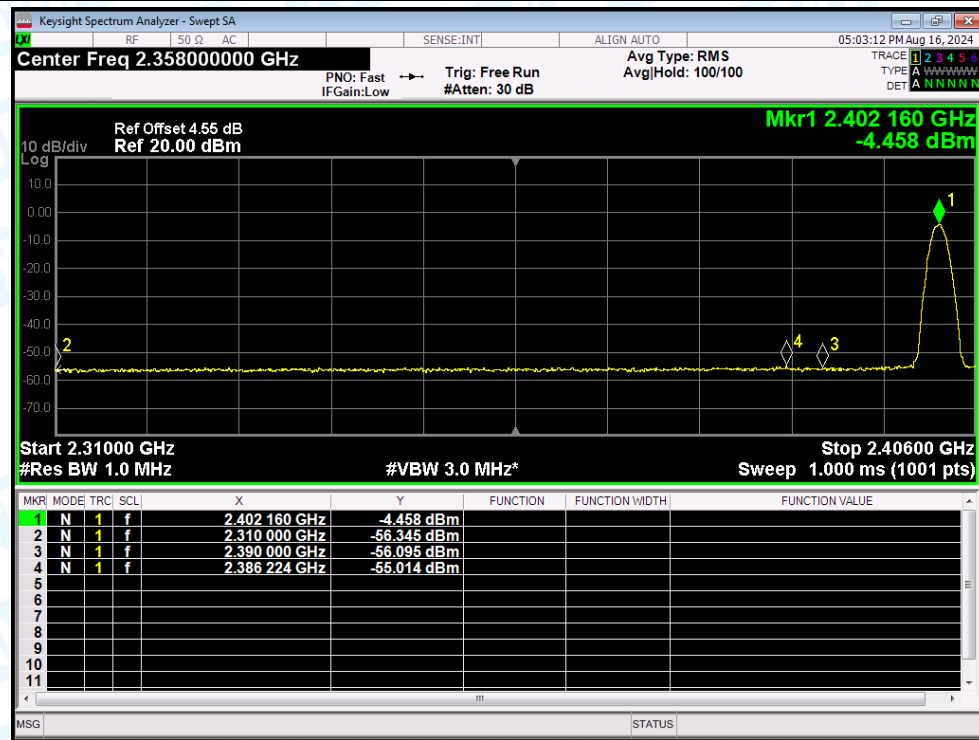
Restrict Band NVNT 1-DH1 2480MHz Ant1 No-Hopping Average



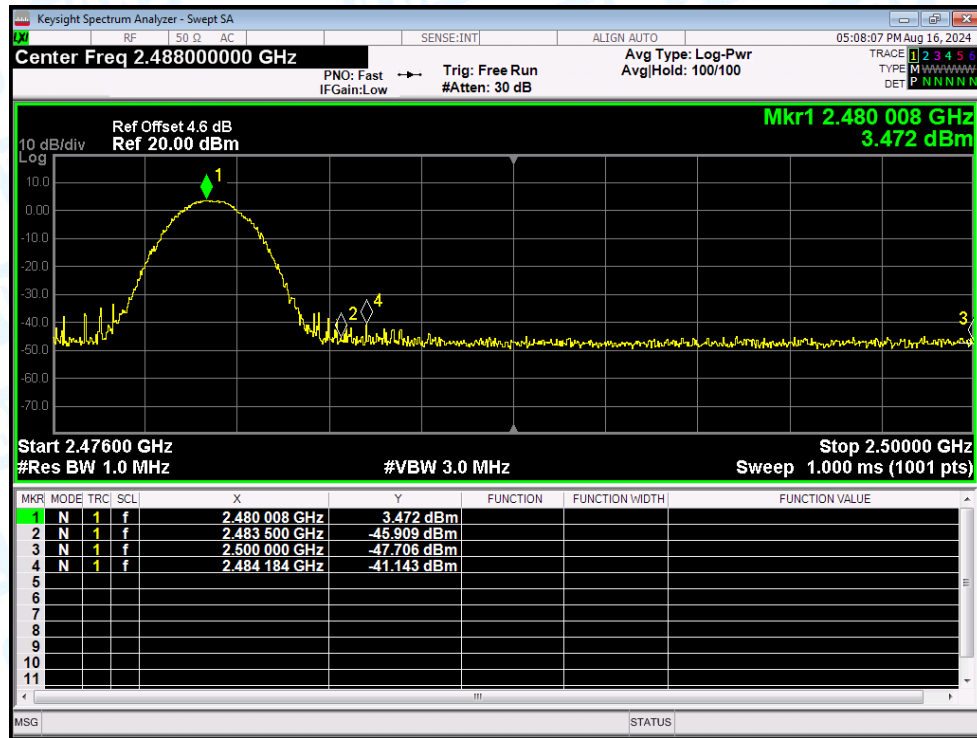
Restrict Band NVNT 2-DH1 2402MHz Ant1 No-Hopping Peak



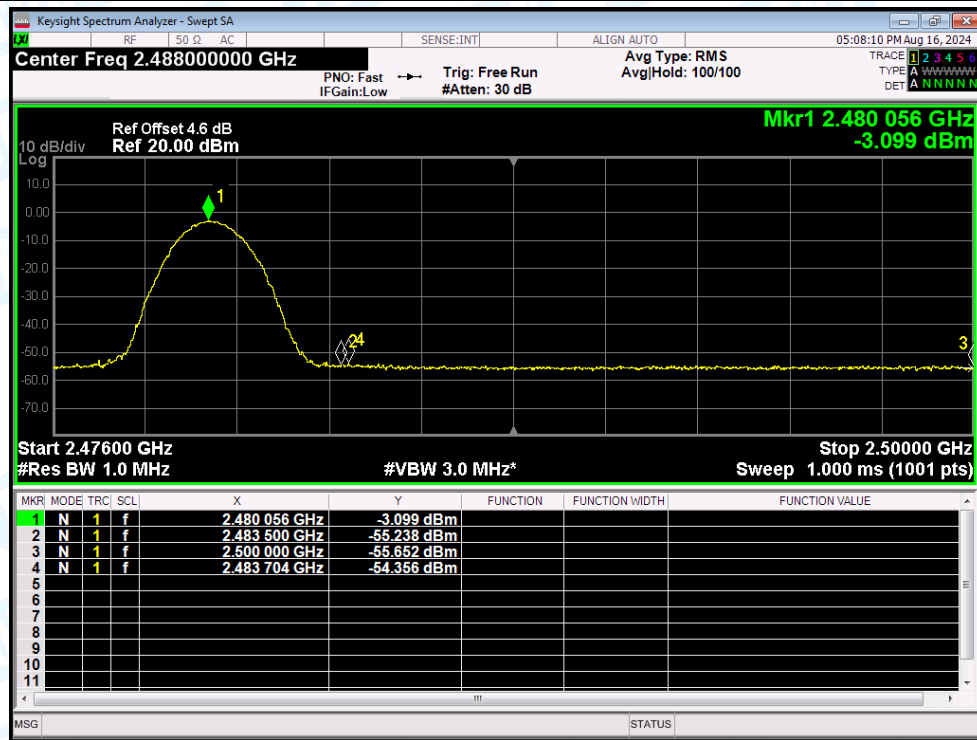
Restrict Band NVNT 2-DH1 2402MHz Ant1 No-Hopping Average



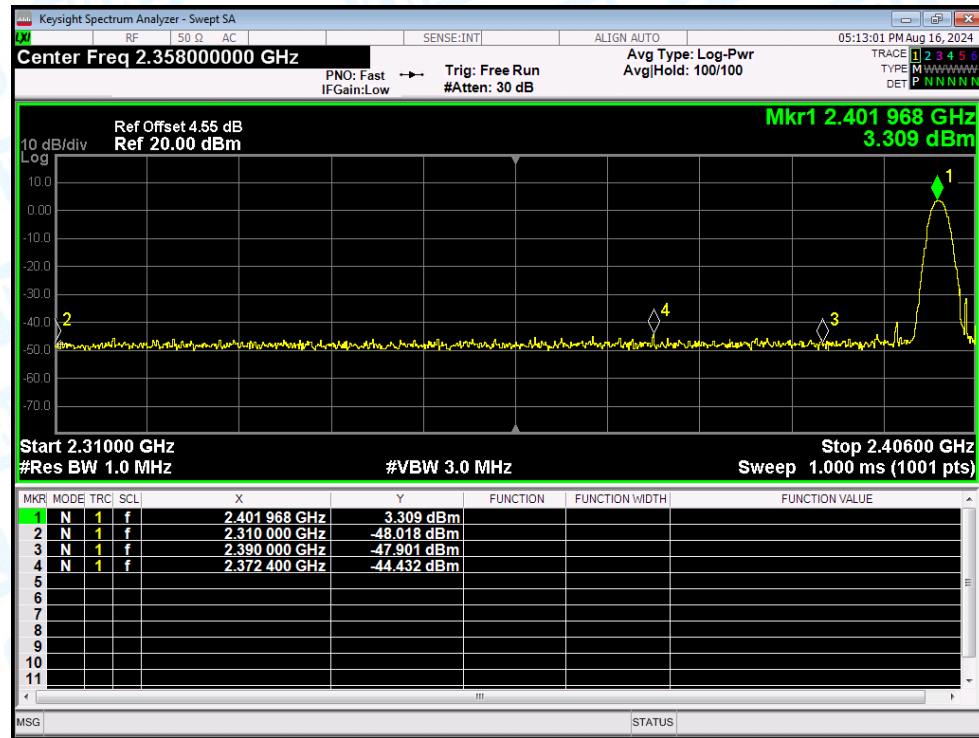
Restrict Band NVNT 2-DH1 2480MHz Ant1 No-Hopping Peak



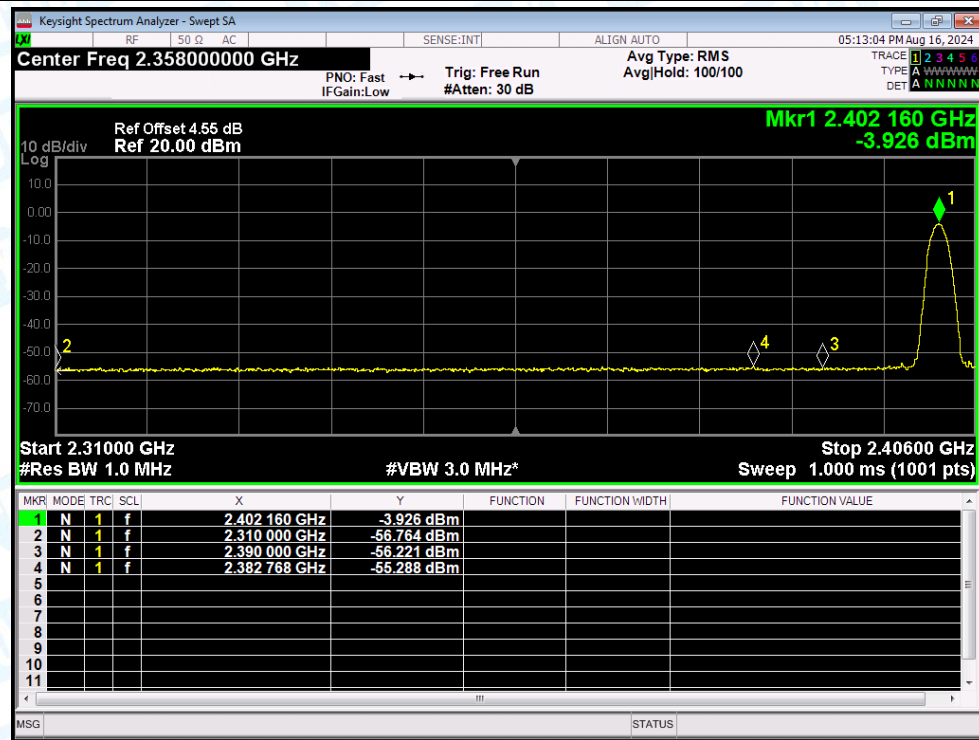
Restrict Band NVNT 2-DH1 2480MHz Ant1 No-Hopping Average



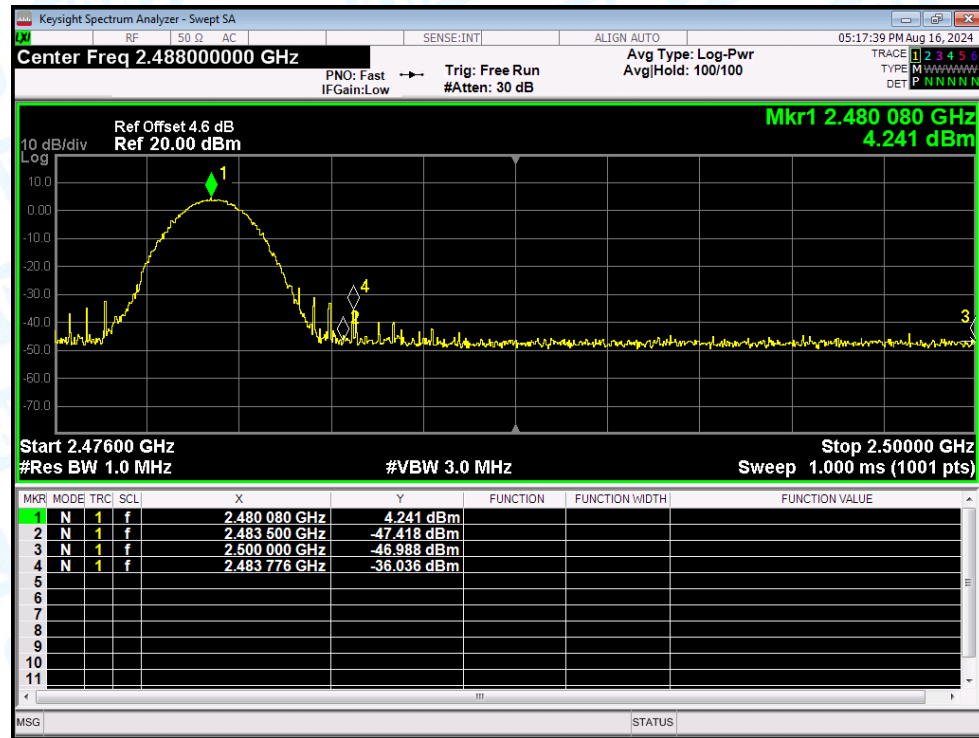
Restrict Band NVNT 3-DH1 2402MHz Ant1 No-Hopping Peak



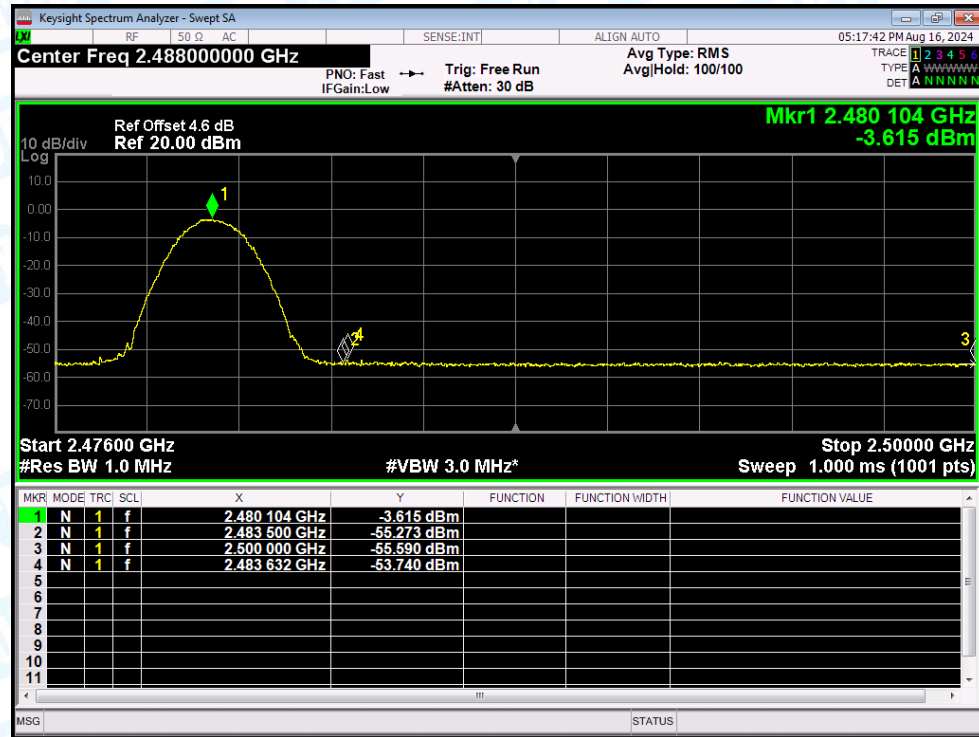
Restrict Band NVNT 3-DH1 2402MHz Ant1 No-Hopping Average



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



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

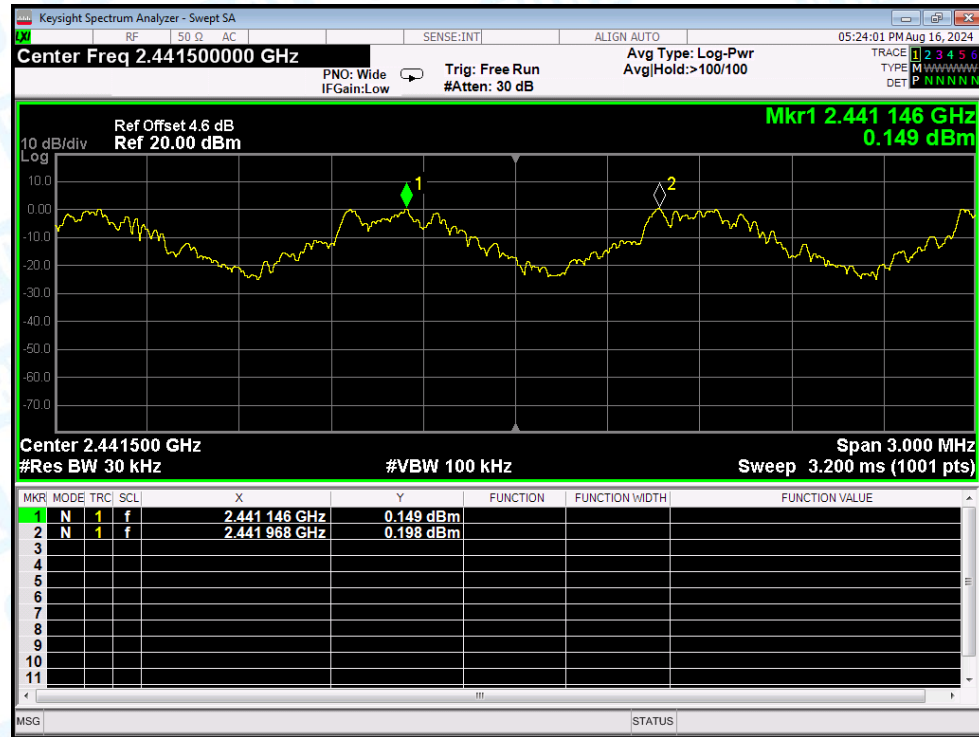


9. Carrier Frequencies Separation

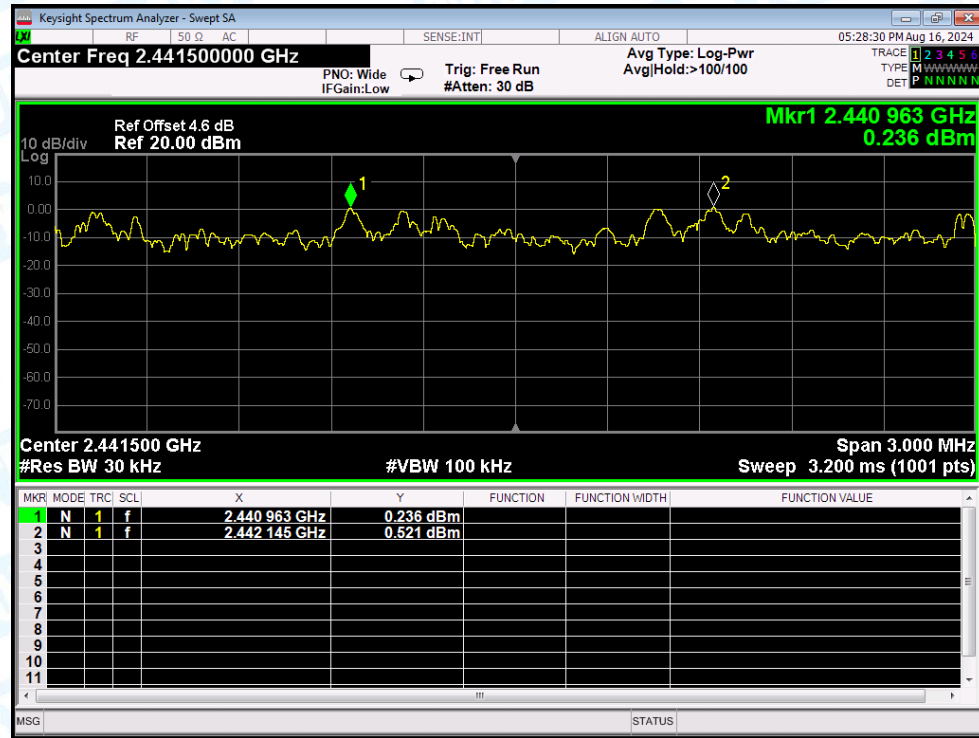
Condition	Mode	Antenna	Hopping Freq1 (MHz)	Hopping Freq2 (MHz)	HFS (MHz)	Limit (MHz)	Verdict
NVNT	1-DH1	Ant1	2441.146	2441.968	0.822	0.587	Pass
NVNT	2-DH1	Ant1	2440.963	2442.145	1.182	0.82	Pass
NVNT	3-DH1	Ant1	2441.137	2441.965	0.828	0.8	Pass

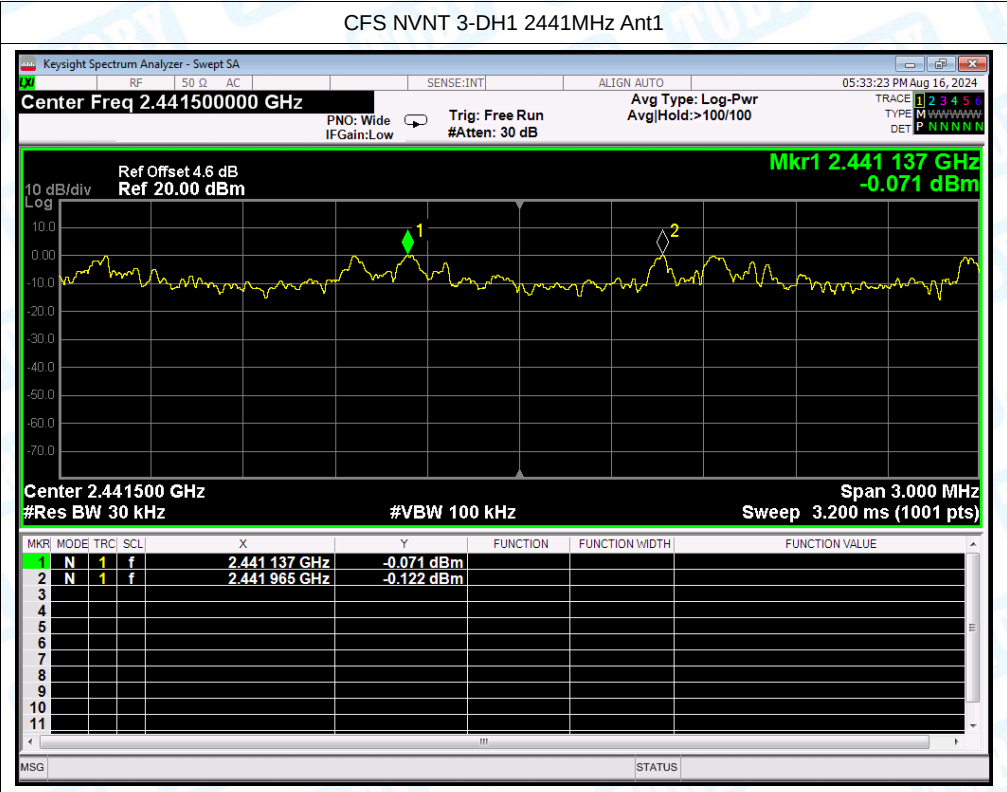
Test Graphs

CFS NVNT 1-DH1 2441MHz Ant1



CFS NVNT 2-DH1 2441MHz Ant1



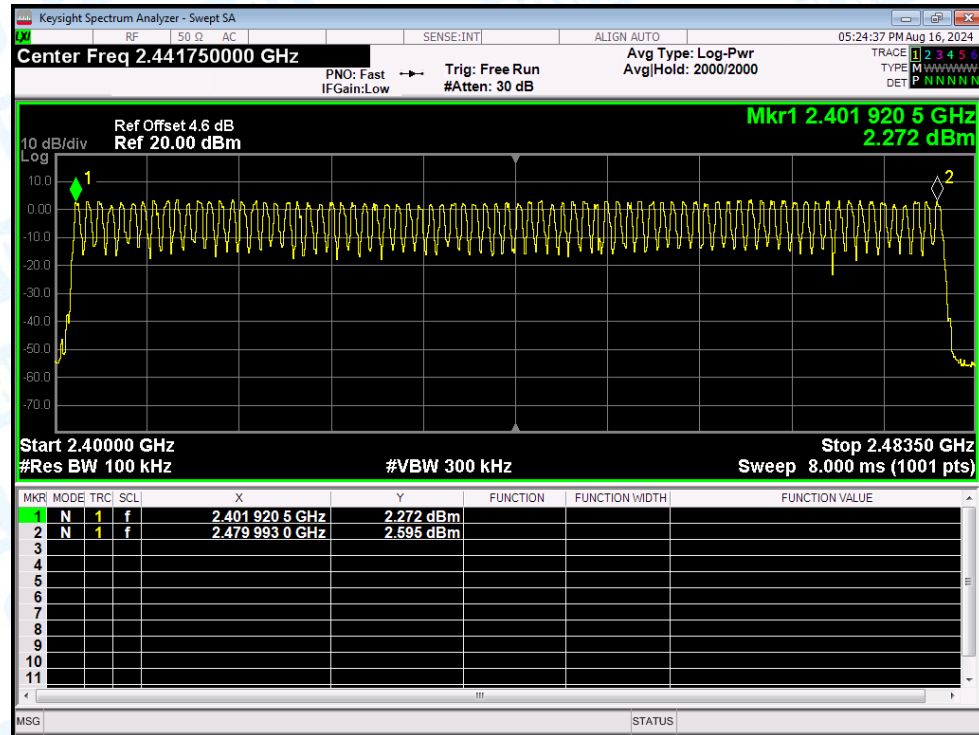


10. Number of Hopping Channel

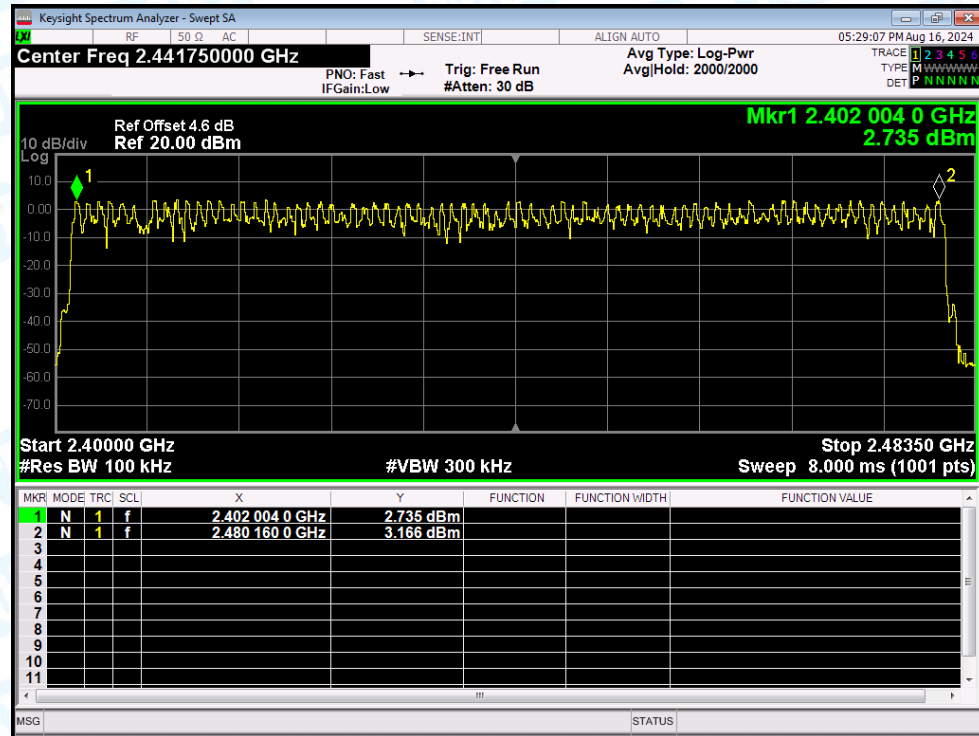
Condition	Mode	Antenna	Hopping Number	Limit	Verdict
NVNT	1-DH1	Ant1	79	15	Pass
NVNT	2-DH1	Ant1	79	15	Pass
NVNT	3-DH1	Ant1	79	15	Pass

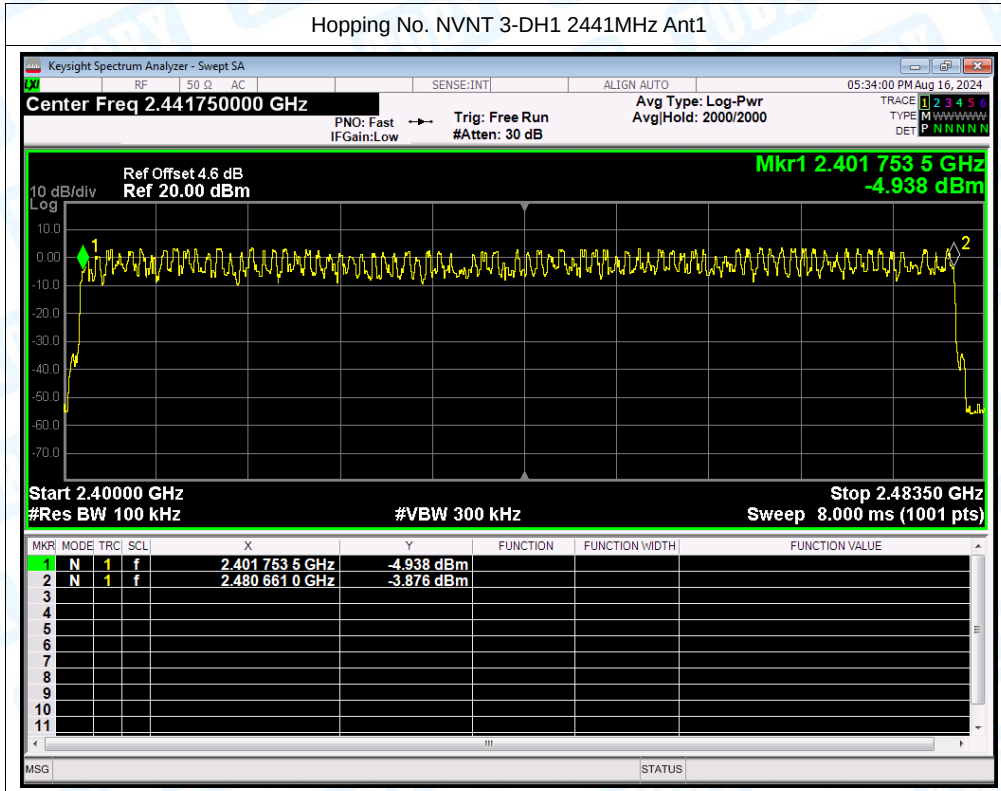
Test Graphs

Hopping No. NVNT 1-DH1 2441MHz Ant1



Hopping No. NVNT 2-DH1 2441MHz Ant1



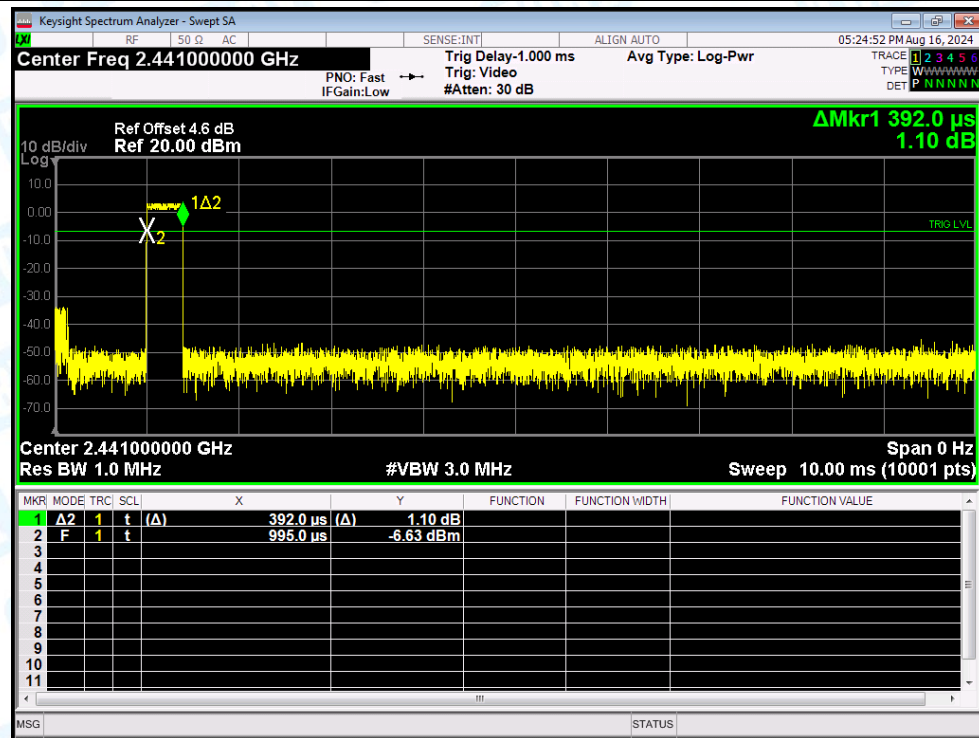


11. Dwell Time

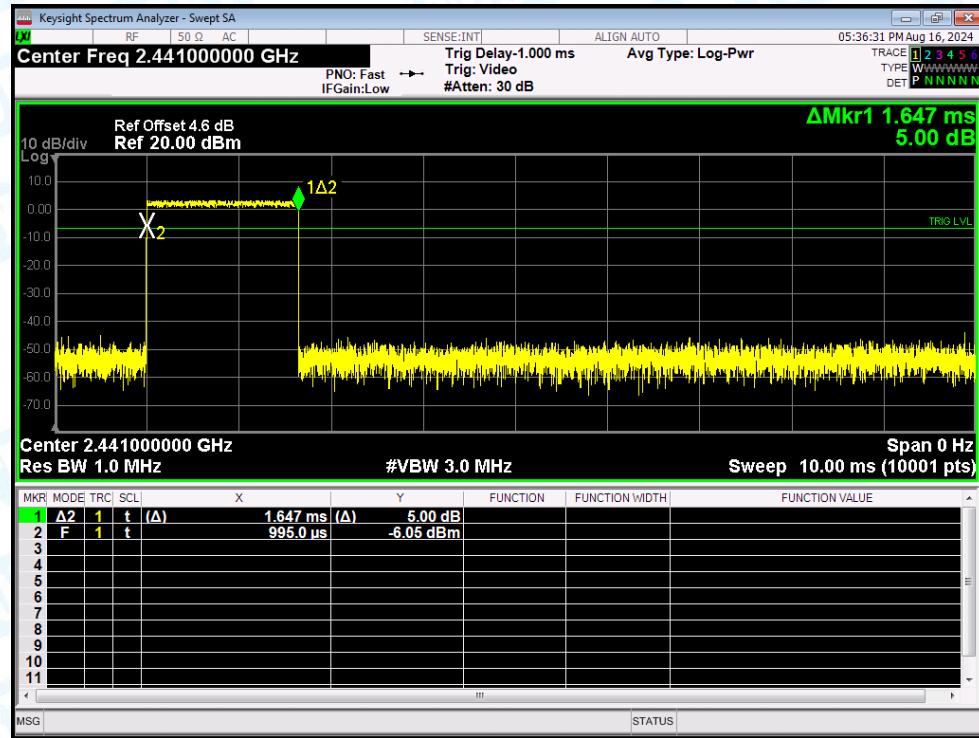
Condition	Mode	Frequency (MHz)	Antenna	Pulse Time (ms)	Total Dwell Time (ms)	Period Time (ms)	Limit (ms)	Verdict
NVNT	1-DH1	2441	Ant1	0.392	125.44	31600	400	Pass
NVNT	1-DH3	2441	Ant1	1.647	263.52	31600	400	Pass
NVNT	1-DH5	2441	Ant1	2.896	308.907	31600	400	Pass
NVNT	2-DH1	2441	Ant1	0.401	128.32	31600	400	Pass
NVNT	2-DH3	2441	Ant1	1.652	264.32	31600	400	Pass
NVNT	2-DH5	2441	Ant1	2.898	309.12	31600	400	Pass
NVNT	3-DH1	2441	Ant1	0.401	128.32	31600	400	Pass
NVNT	3-DH3	2441	Ant1	1.652	264.32	31600	400	Pass
NVNT	3-DH5	2441	Ant1	2.902	309.547	31600	400	Pass

Test Graphs

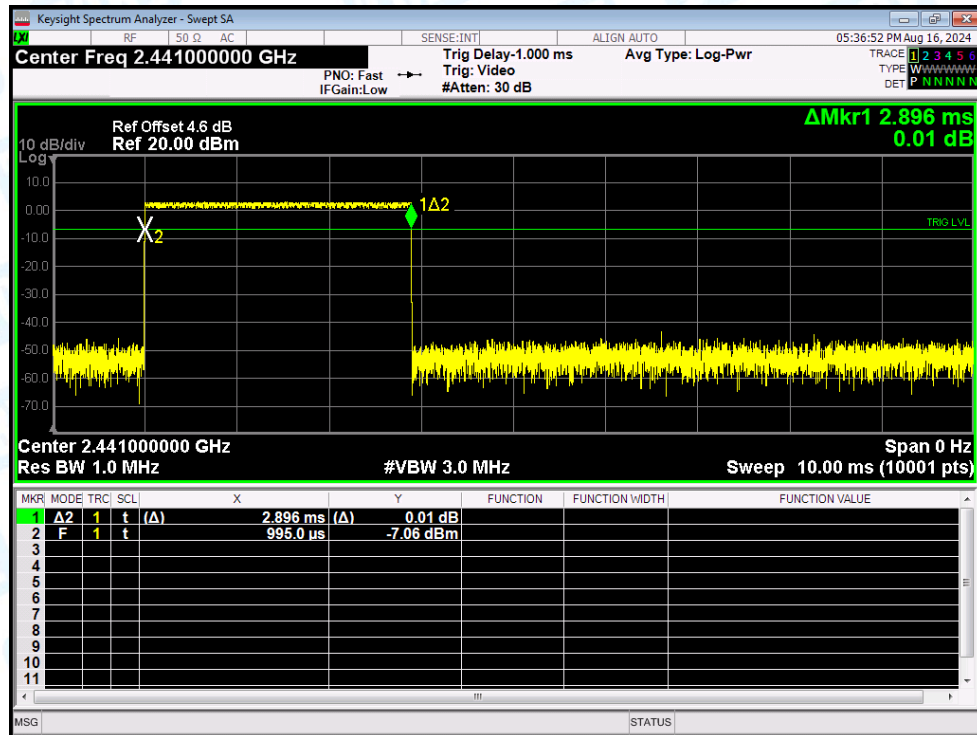
Dwell NVNT 1-DH1 2441MHz Ant1



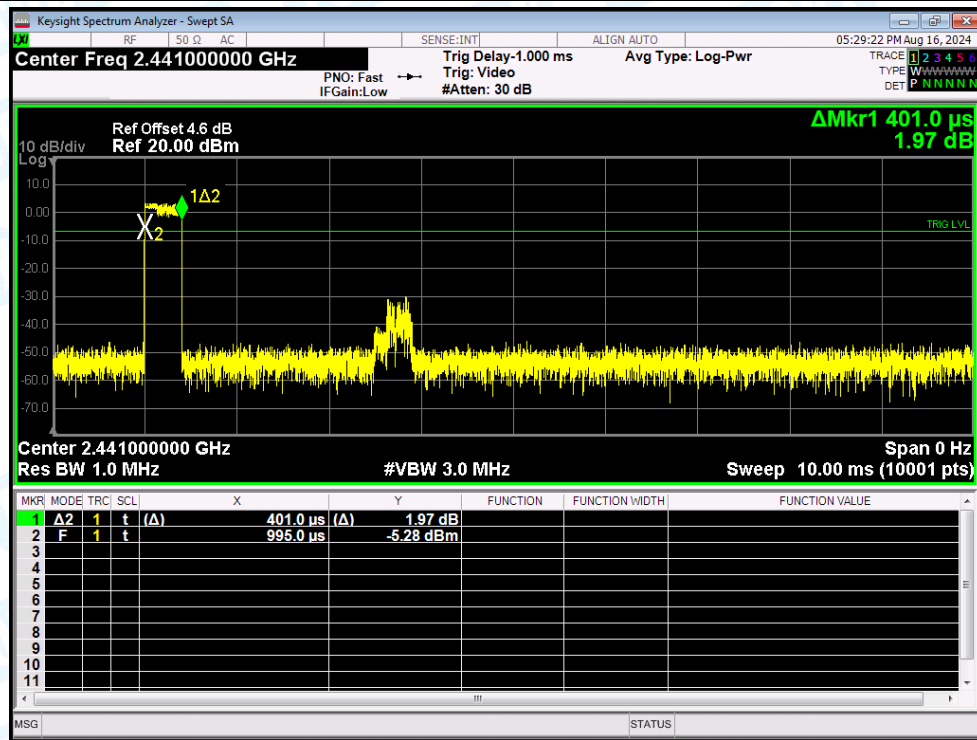
Dwell NVNT 1-DH3 2441MHz Ant1



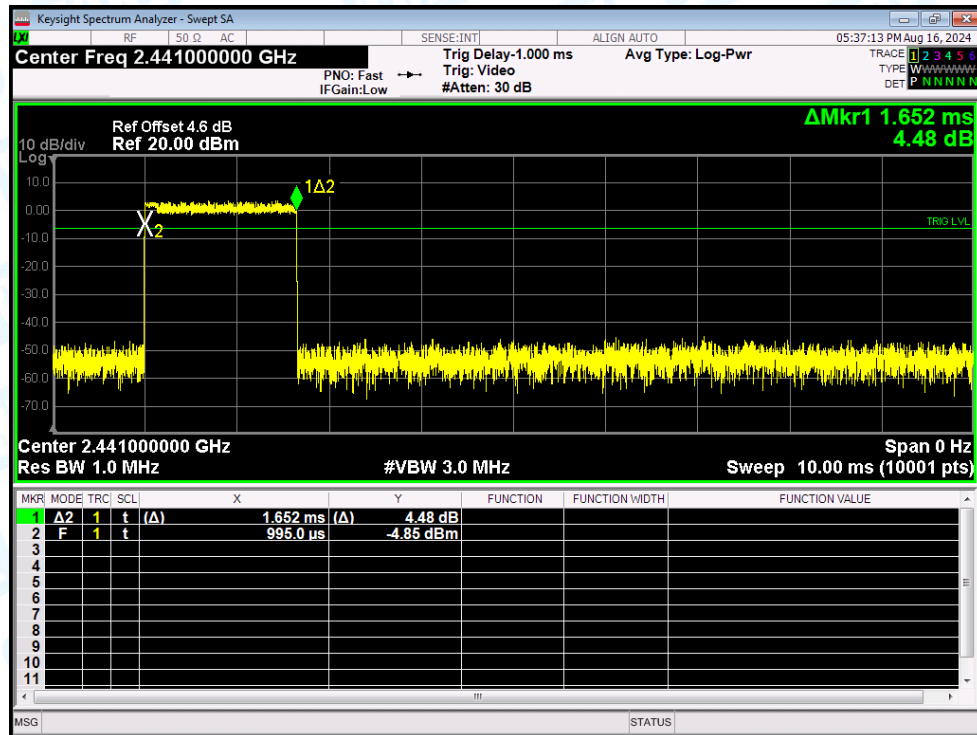
Dwell NVNT 1-DH5 2441MHz Ant1



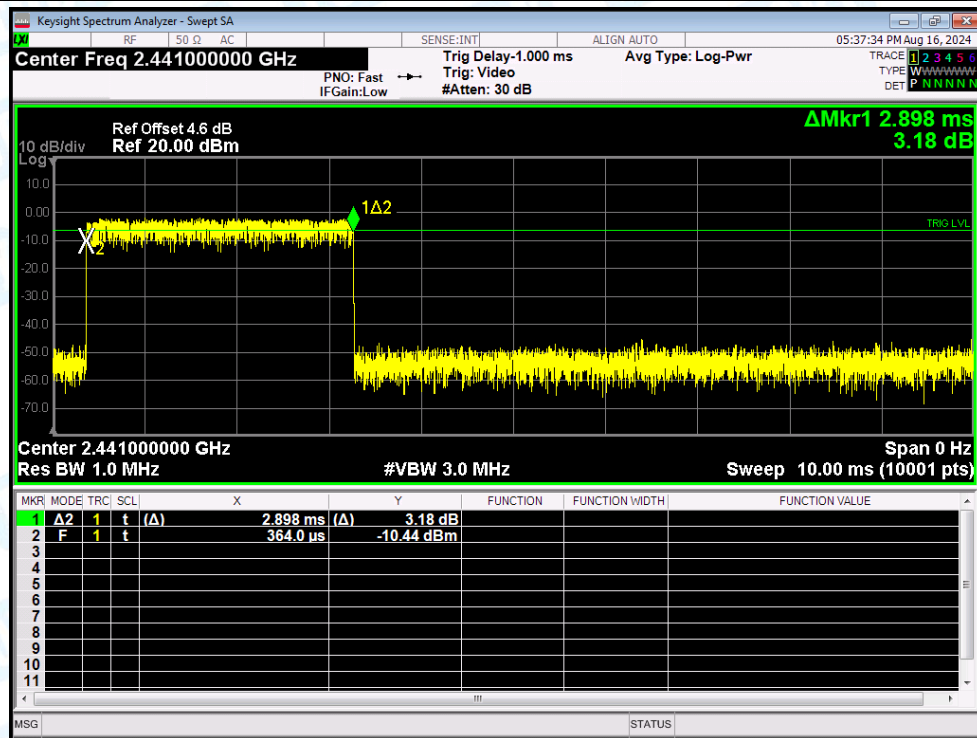
Dwell NVNT 2-DH1 2441MHz Ant1



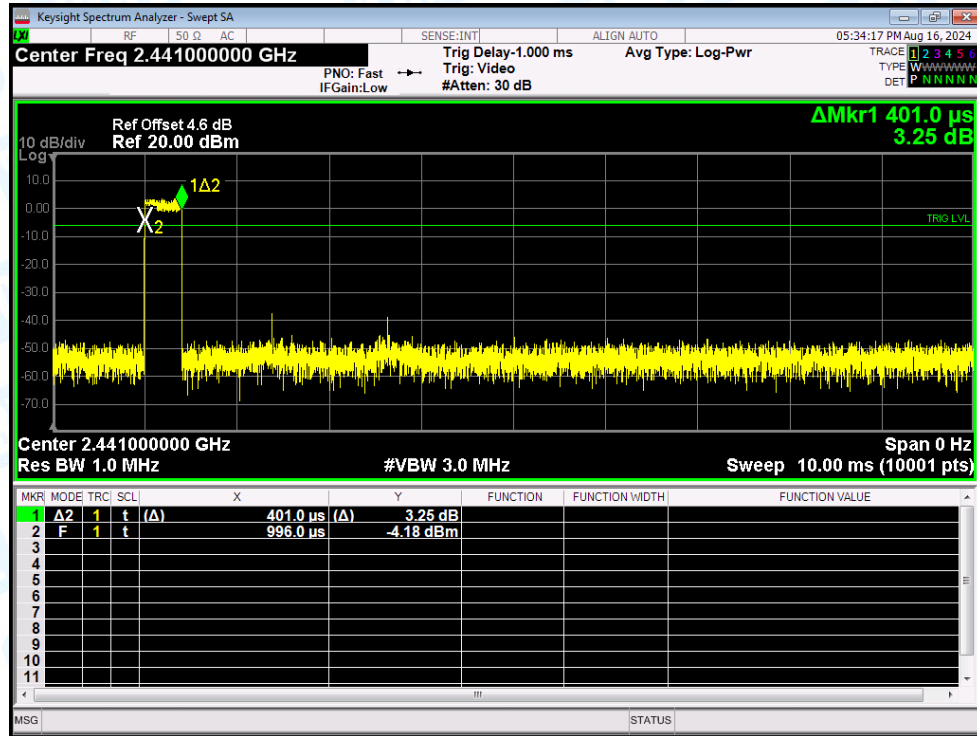
Dwell NVNT 2-DH3 2441MHz Ant1



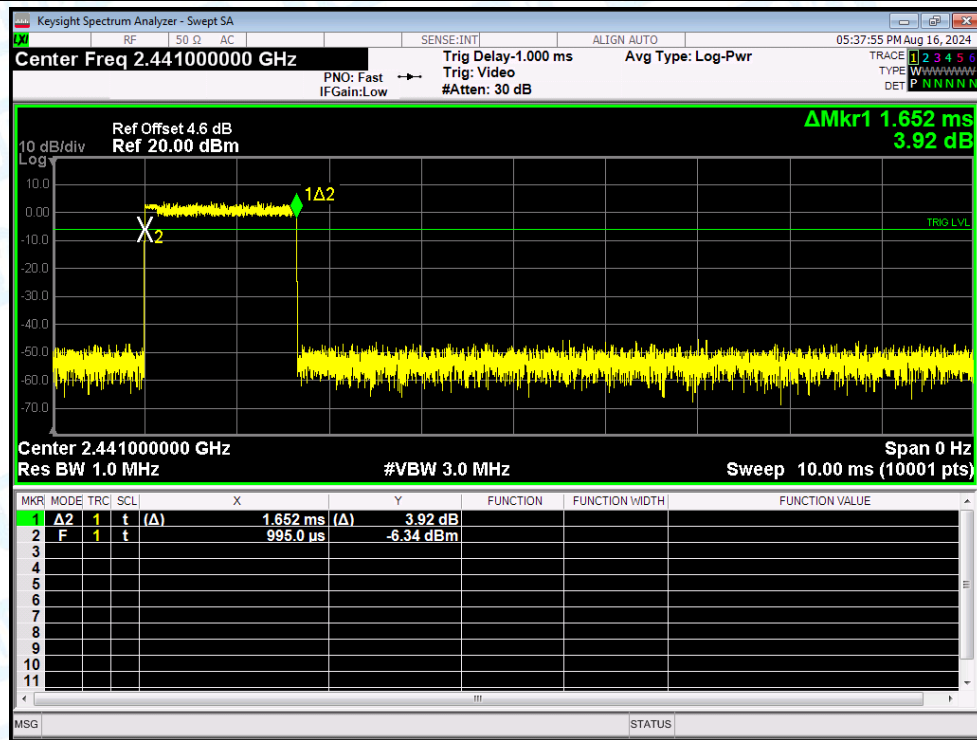
Dwell NVNT 2-DH5 2441MHz Ant1

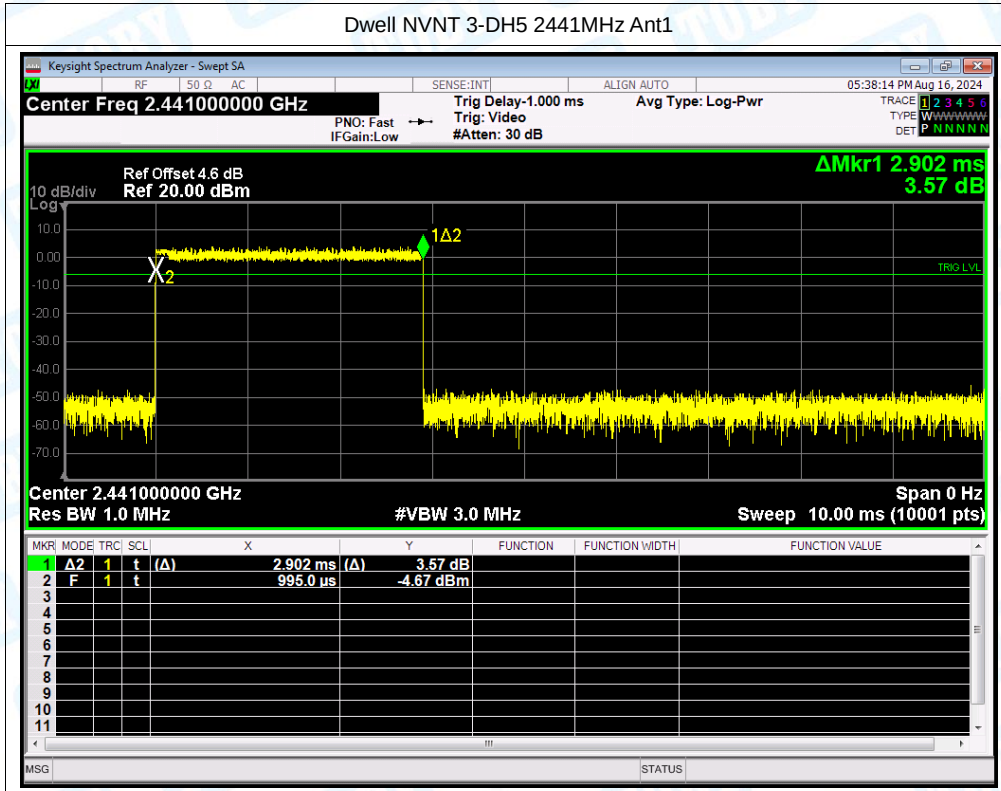


Dwell NVNT 3-DH1 2441MHz Ant1



Dwell NVNT 3-DH3 2441MHz Ant1





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