

RF Test Data for Bluetooth (Conducted Measurements)

General Description of EUT	
Product Name:	smart glass
Test Model:	D11 PLUS
Sample ID:	HC-C-202507-0040-01-2#
Environmental Conditions	
Temperature:	23.9℃
Relative Humidity:	48%
Test Voltage:	DC 5V
Test Engineer:	Gold Zhang
Note: For a more detailed features description, please refer to the report TBR-C-202507-0040-6 The report only show the worst case data. (Left Data)	

Contents

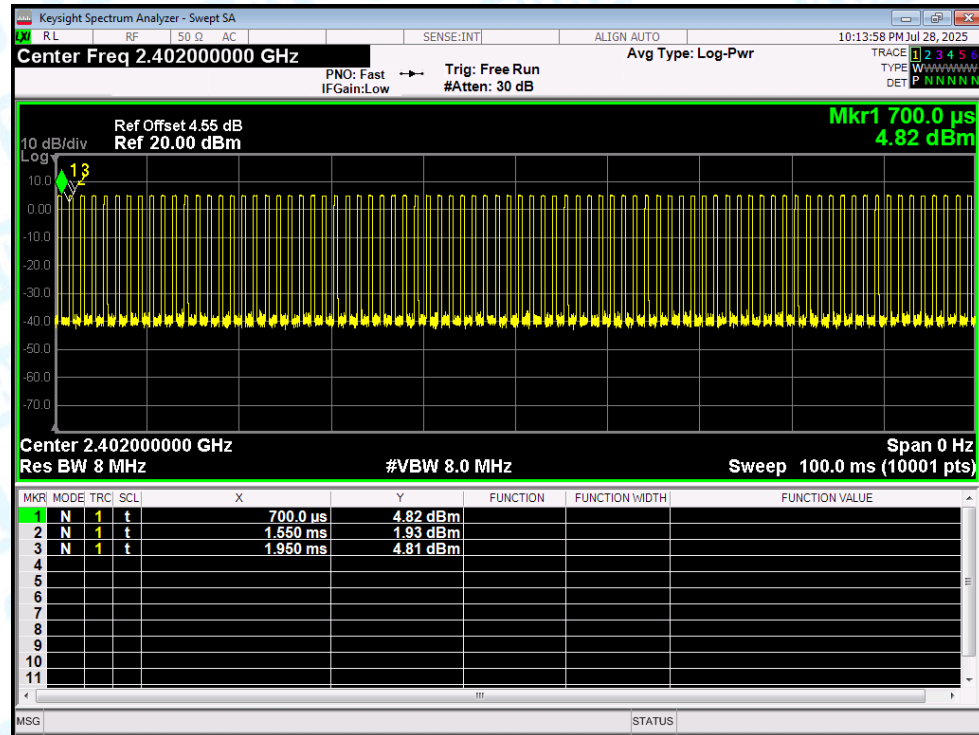
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1. Duty Cycle

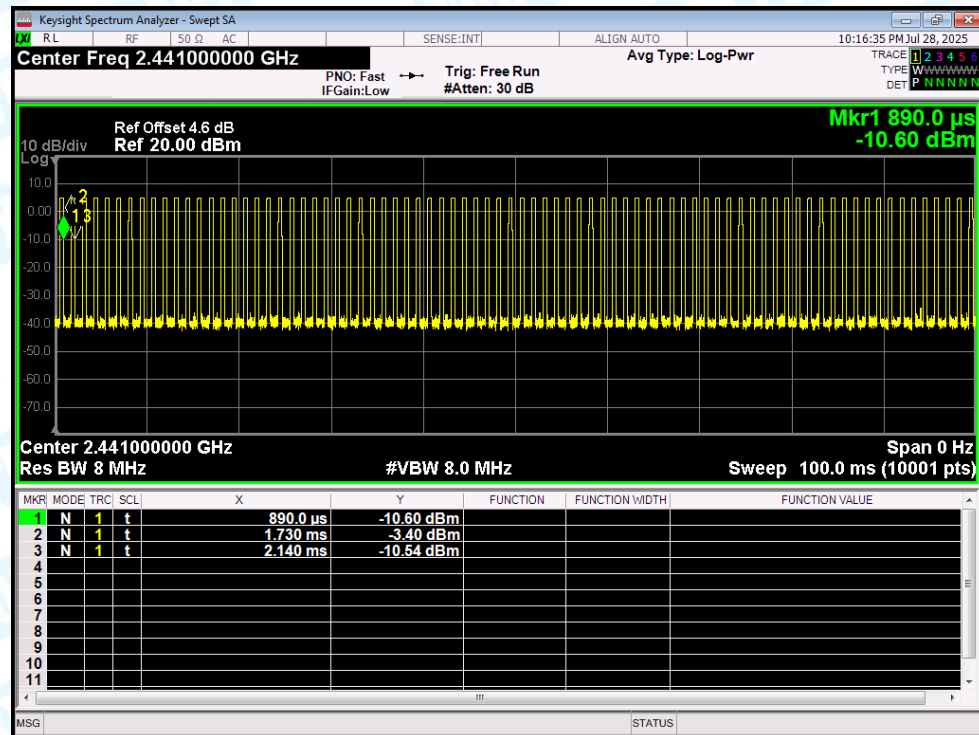
Condition	Mode	Frequency (MHz)	Antenna	Duty Cycle (%)	Correction Factor (dB)	1/T (kHz)
NVNT	1-DH1	2402	Ant1	32	4.95	2.5
NVNT	1-DH1	2441	Ant1	32.8	4.84	2.44
NVNT	1-DH1	2480	Ant1	32.8	4.84	2.44
NVNT	2-DH1	2402	Ant1	33.6	4.74	2.38
NVNT	2-DH1	2441	Ant1	33.6	4.74	2.38
NVNT	2-DH1	2480	Ant1	33.6	4.74	2.38
NVNT	3-DH1	2402	Ant1	33.6	4.74	2.38
NVNT	3-DH1	2441	Ant1	33.6	4.74	2.38
NVNT	3-DH1	2480	Ant1	33.6	4.74	2.38

Test Graphs

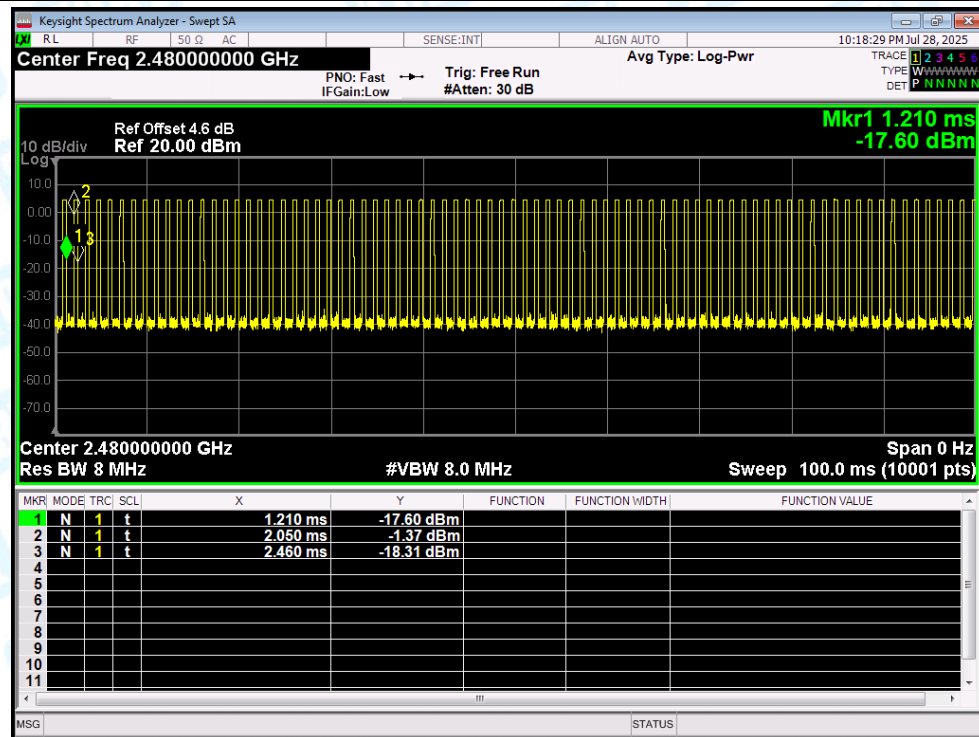
Duty Cycle NVNT 1-DH1 2402MHz Ant1



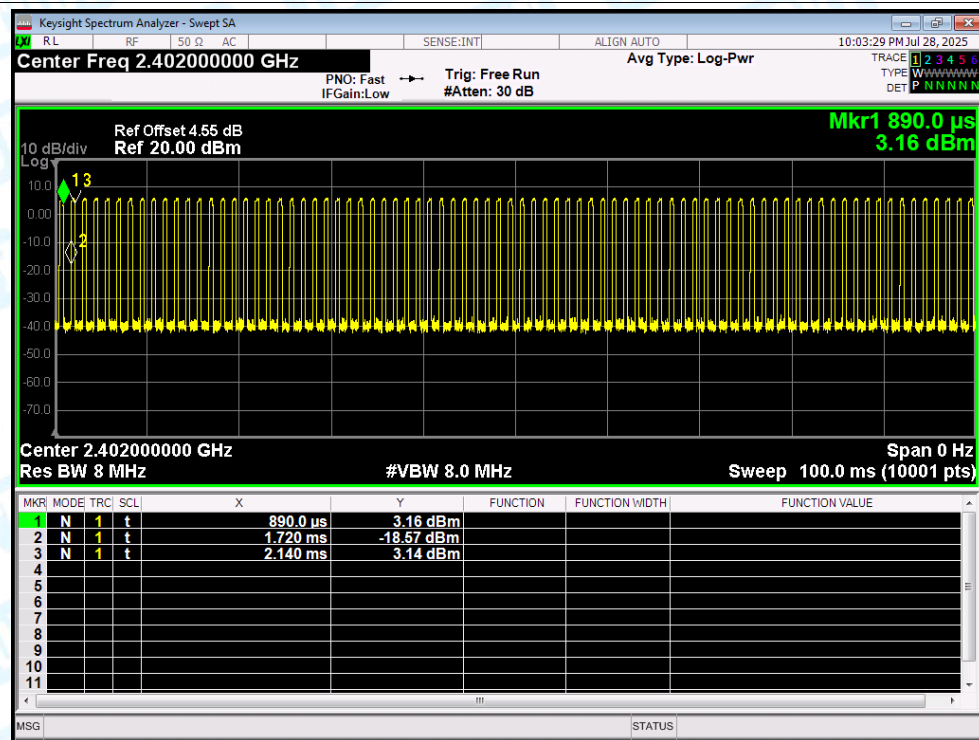
Duty Cycle NVNT 1-DH1 2441MHz Ant1



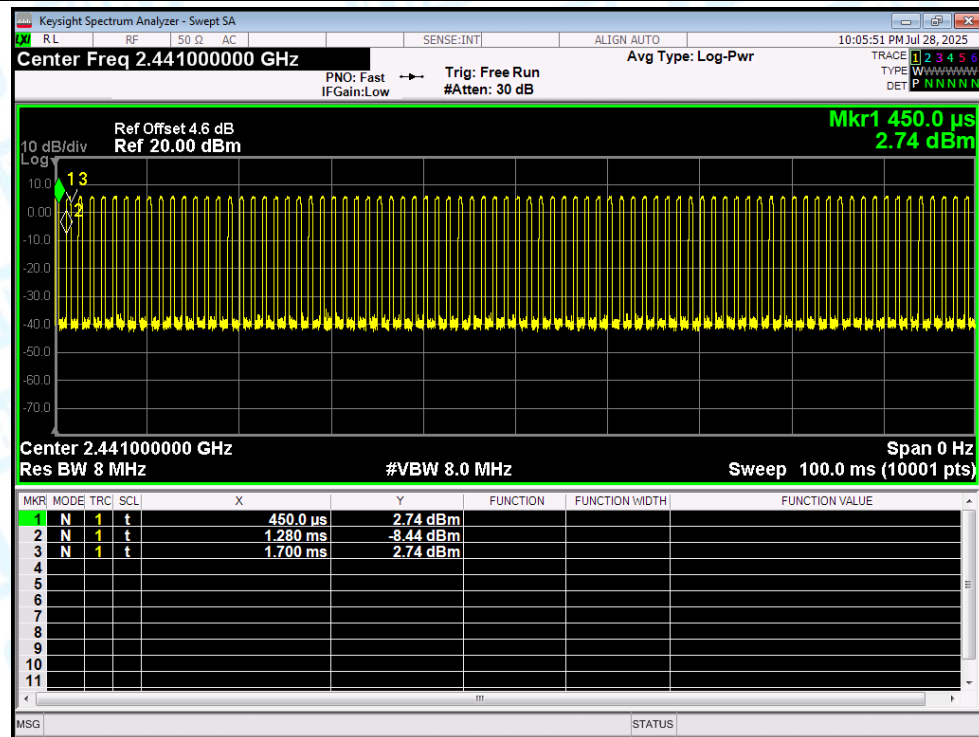
Duty Cycle NVNT 1-DH1 2480MHz Ant1



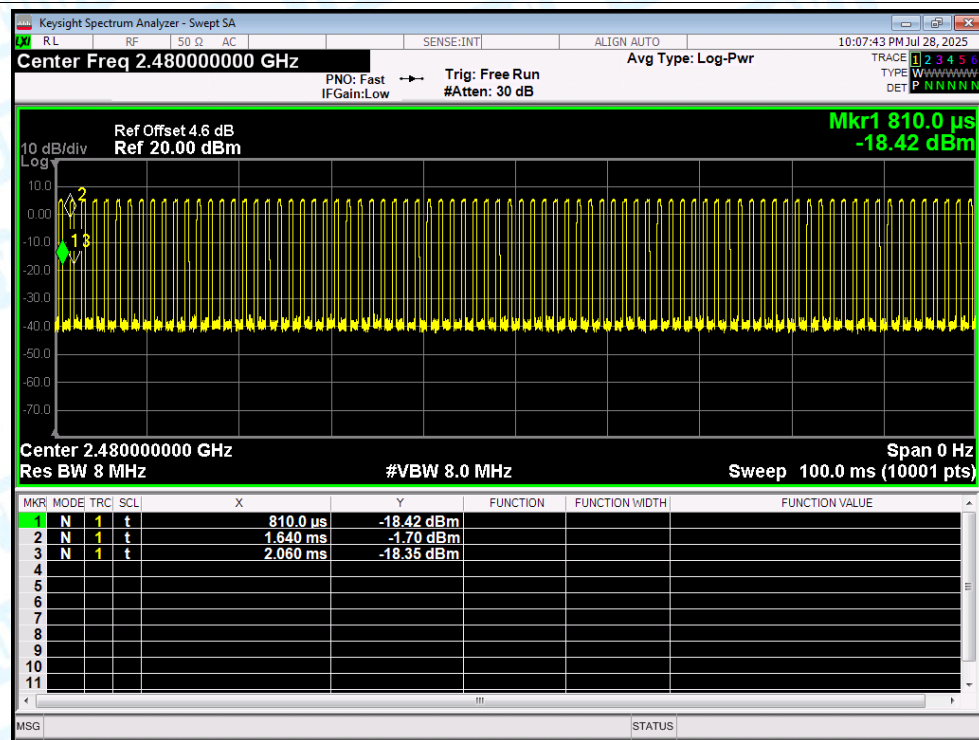
Duty Cycle NVNT 2-DH1 2402MHz Ant1



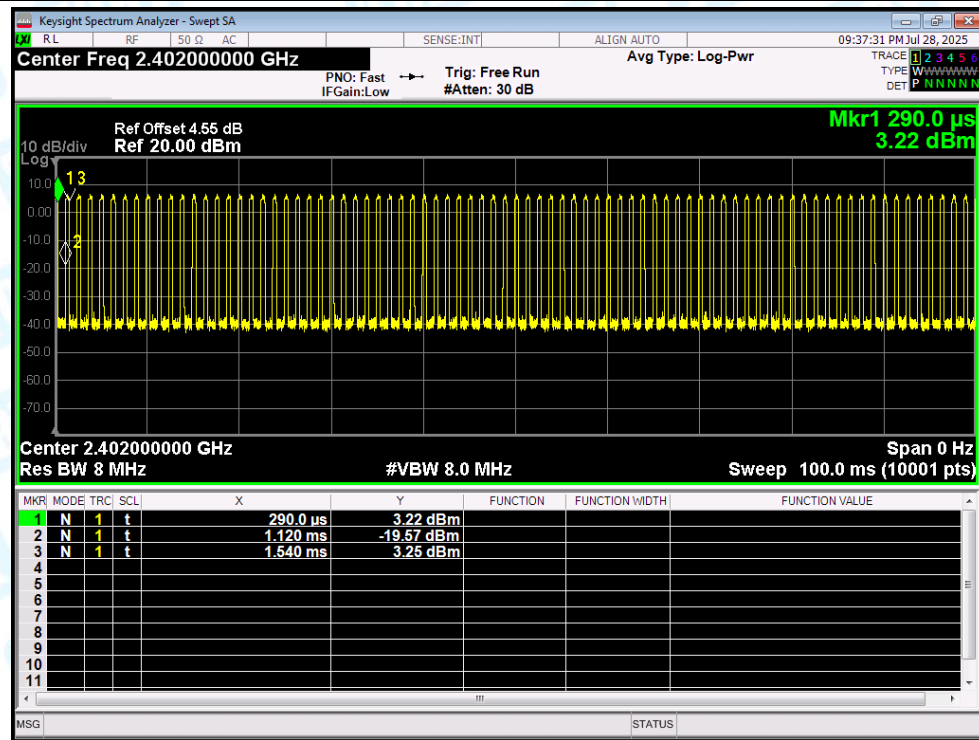
Duty Cycle NVNT 2-DH1 2441MHz Ant1



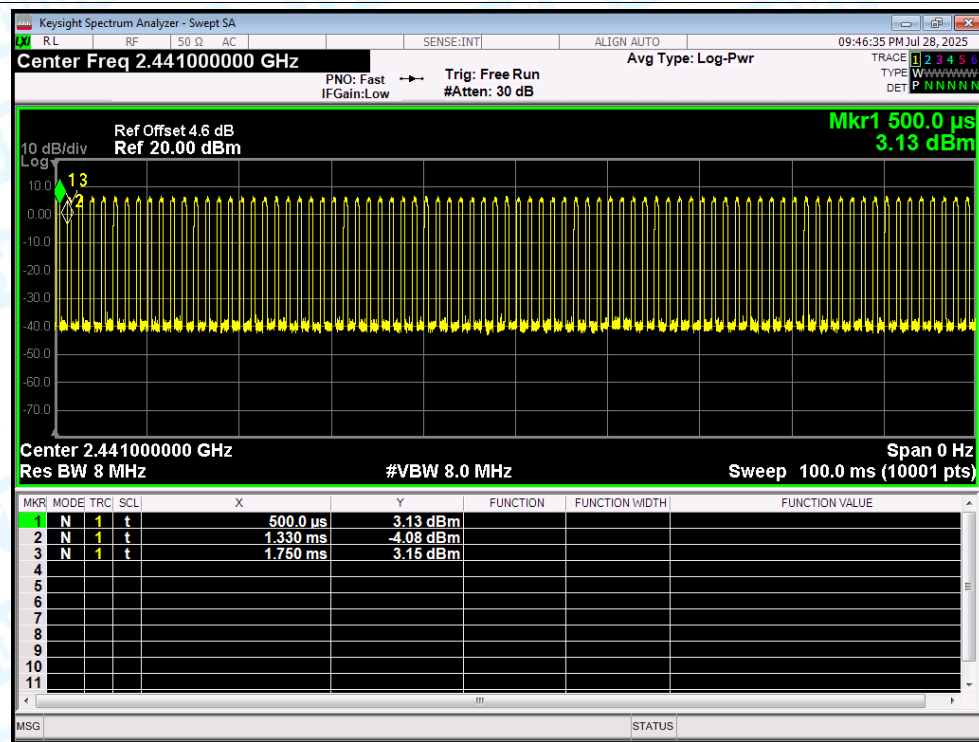
Duty Cycle NVNT 2-DH1 2480MHz Ant1

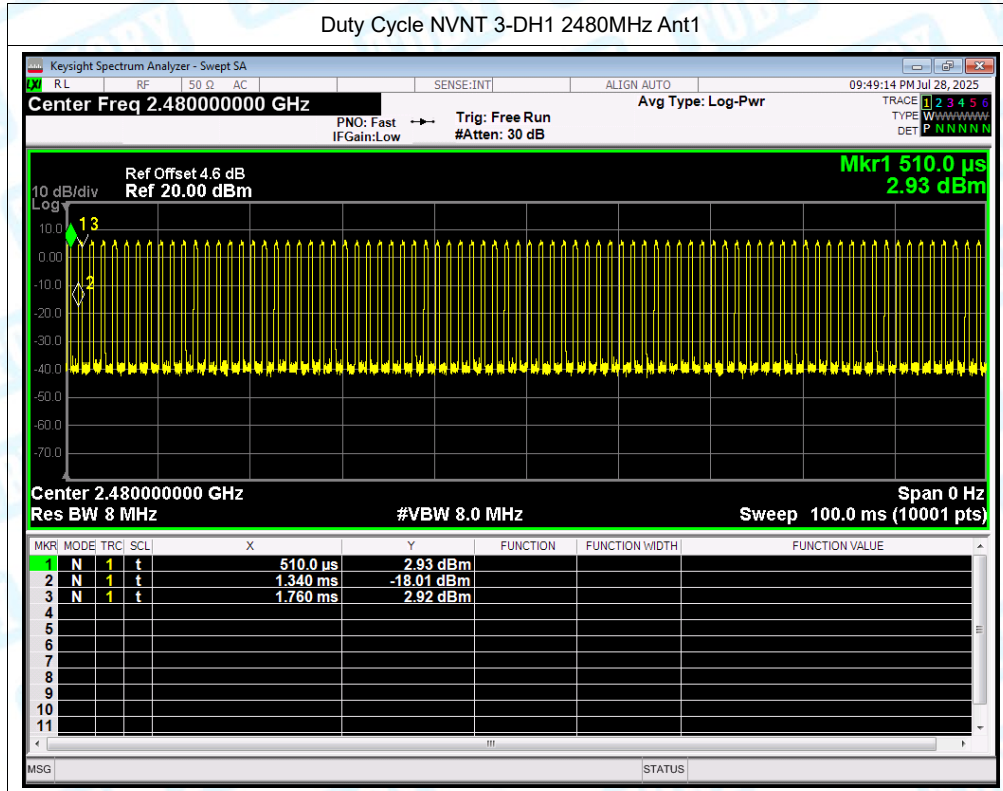


Duty Cycle NVNT 3-DH1 2402MHz Ant1



Duty Cycle NVNT 3-DH1 2441MHz Ant1





2. Maximum Conducted Output Power

Left:

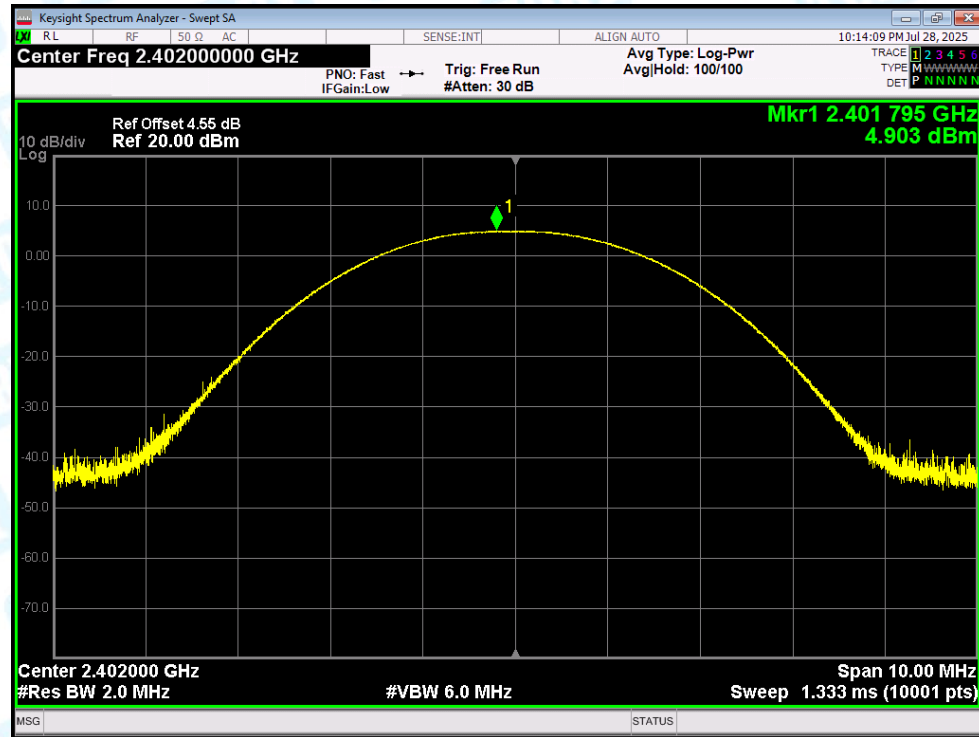
Condition	Mode	Frequency (MHz)	Antenna	Total Power (dBm)	Limit (dBm)	Verdict
NVNT	1-DH1	2402	Ant1	4.903	21	Pass
NVNT	1-DH1	2441	Ant1	4.865	21	Pass
NVNT	1-DH1	2480	Ant1	4.54	21	Pass
NVNT	1-DH3	2441	Ant1	5.528	21	Pass
NVNT	1-DH5	2441	Ant1	4.809	21	Pass
NVNT	2-DH1	2402	Ant1	5.595	21	Pass
NVNT	2-DH1	2441	Ant1	5.607	21	Pass
NVNT	2-DH1	2480	Ant1	5.205	21	Pass
NVNT	2-DH3	2441	Ant1	5.649	21	Pass
NVNT	2-DH5	2441	Ant1	5.587	21	Pass
NVNT	3-DH1	2402	Ant1	6.131	21	Pass
NVNT	3-DH1	2441	Ant1	6.04	21	Pass
NVNT	3-DH1	2480	Ant1	5.835	21	Pass
NVNT	3-DH3	2441	Ant1	6.165	21	Pass
NVNT	3-DH5	2441	Ant1	6.201	21	Pass

Right:

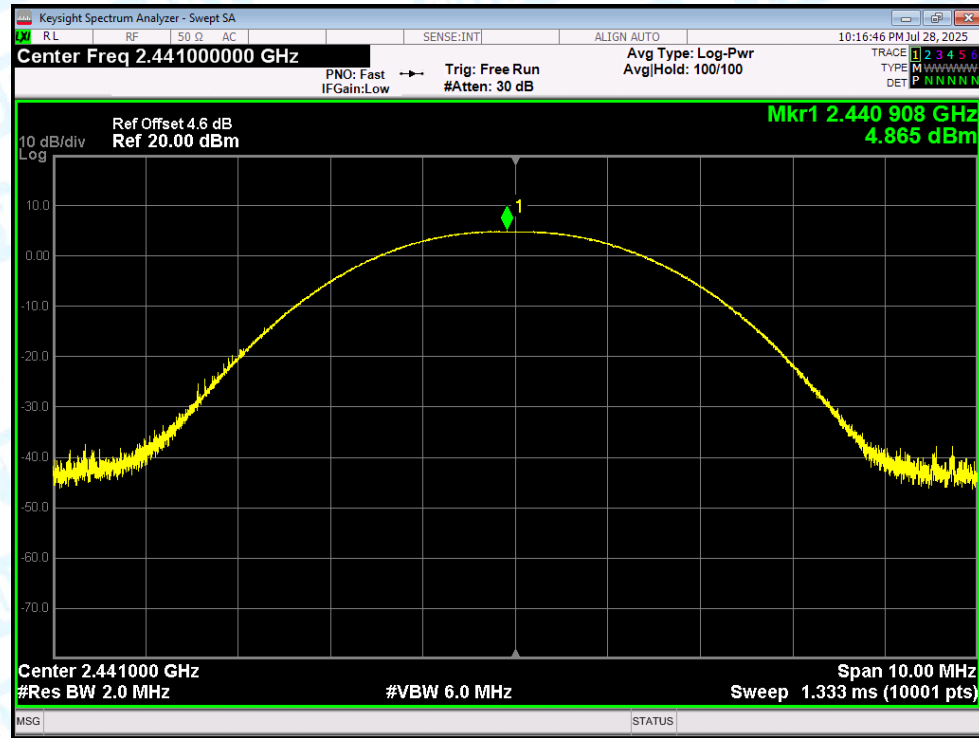
Condition	Mode	Frequency (MHz)	Antenna	Total Power (dBm)	Limit (dBm)	Verdict
NVNT	1-DH1	2402	Ant1	3.025	21	Pass
NVNT	1-DH1	2441	Ant1	4.46	21	Pass
NVNT	1-DH1	2480	Ant1	3.348	21	Pass
NVNT	1-DH3	2441	Ant1	3.998	21	Pass
NVNT	1-DH5	2441	Ant1	4.095	21	Pass
NVNT	2-DH1	2402	Ant1	4.008	21	Pass
NVNT	2-DH1	2441	Ant1	4.944	21	Pass
NVNT	2-DH1	2480	Ant1	4.769	21	Pass
NVNT	2-DH3	2441	Ant1	4.884	21	Pass
NVNT	2-DH5	2441	Ant1	4.813	21	Pass
NVNT	3-DH1	2402	Ant1	4.822	21	Pass
NVNT	3-DH1	2441	Ant1	5.485	21	Pass
NVNT	3-DH1	2480	Ant1	5.478	21	Pass
NVNT	3-DH3	2441	Ant1	5.358	21	Pass
NVNT	3-DH5	2441	Ant1	5.41	21	Pass

Test Graphs

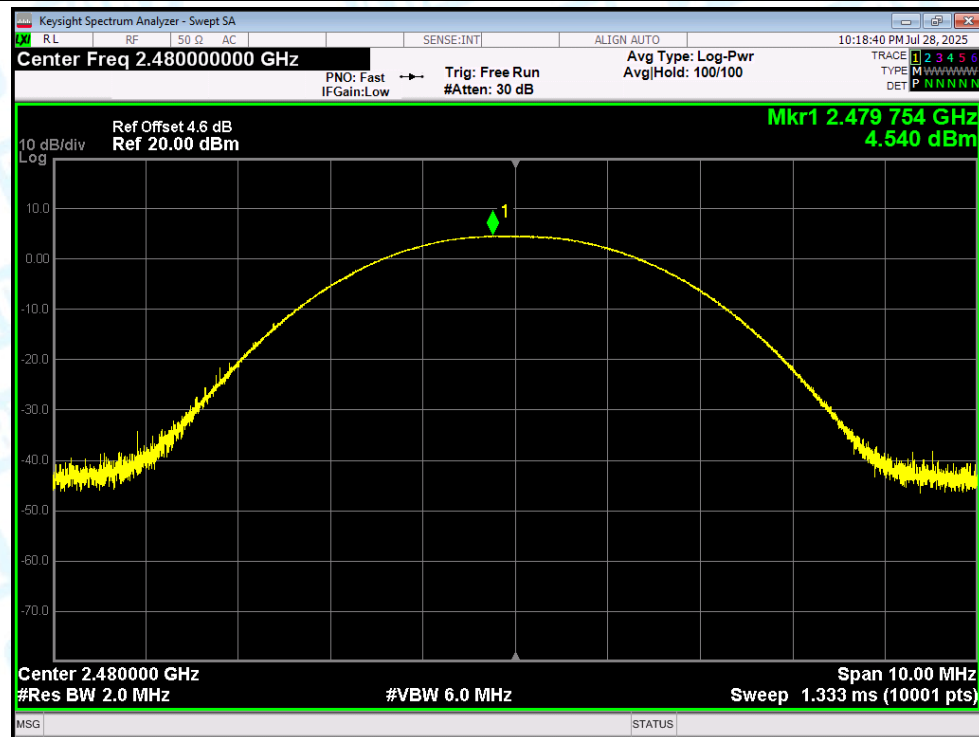
Power NVNT 1-DH1 2402MHz Ant1



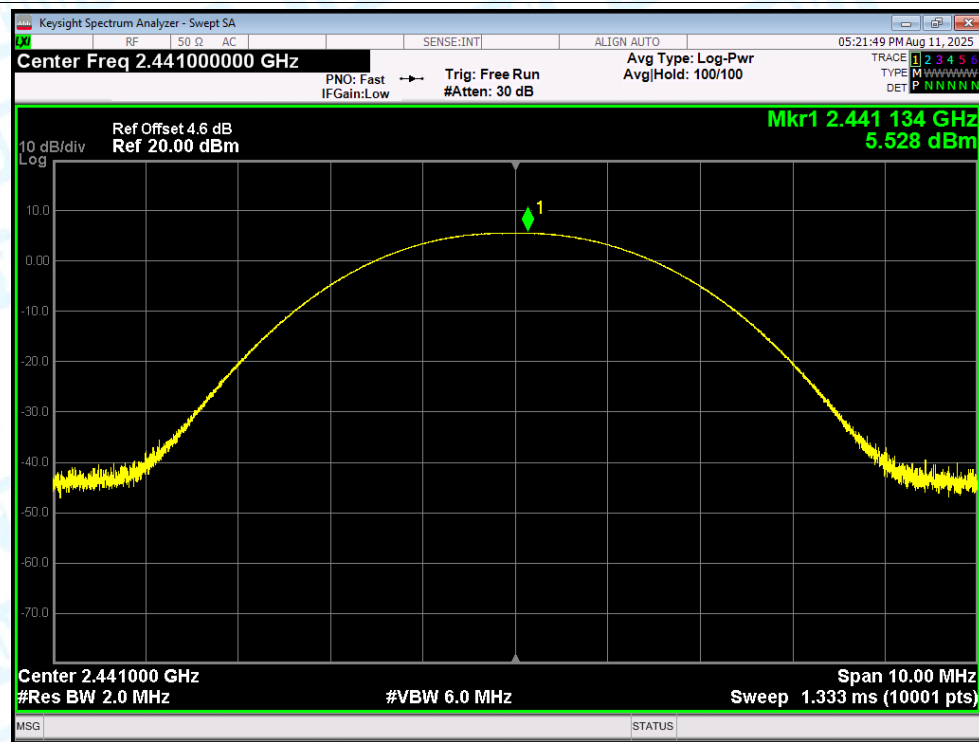
Power NVNT 1-DH1 2441MHz Ant1



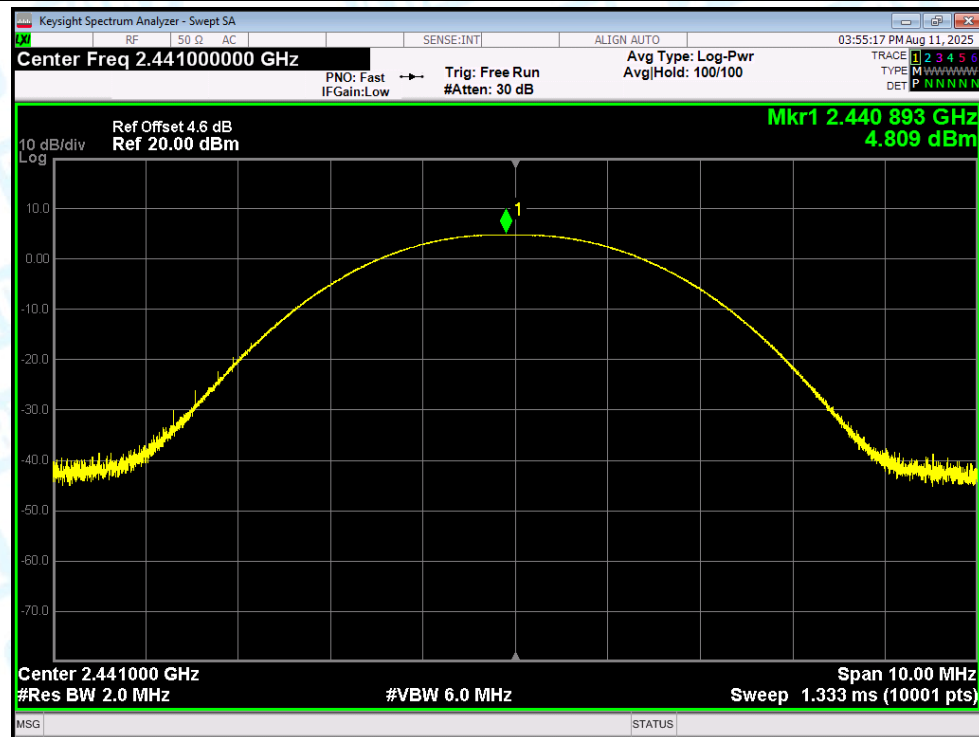
Power NVNT 1-DH1 2480MHz Ant1



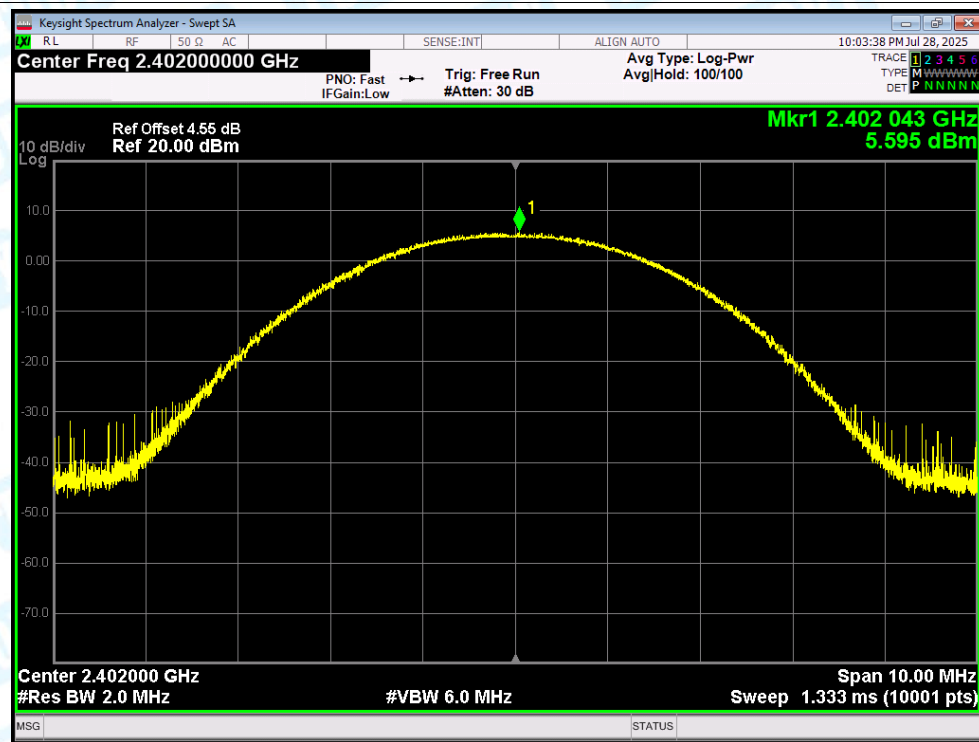
Power NVNT 1-DH3 2441MHz Ant1

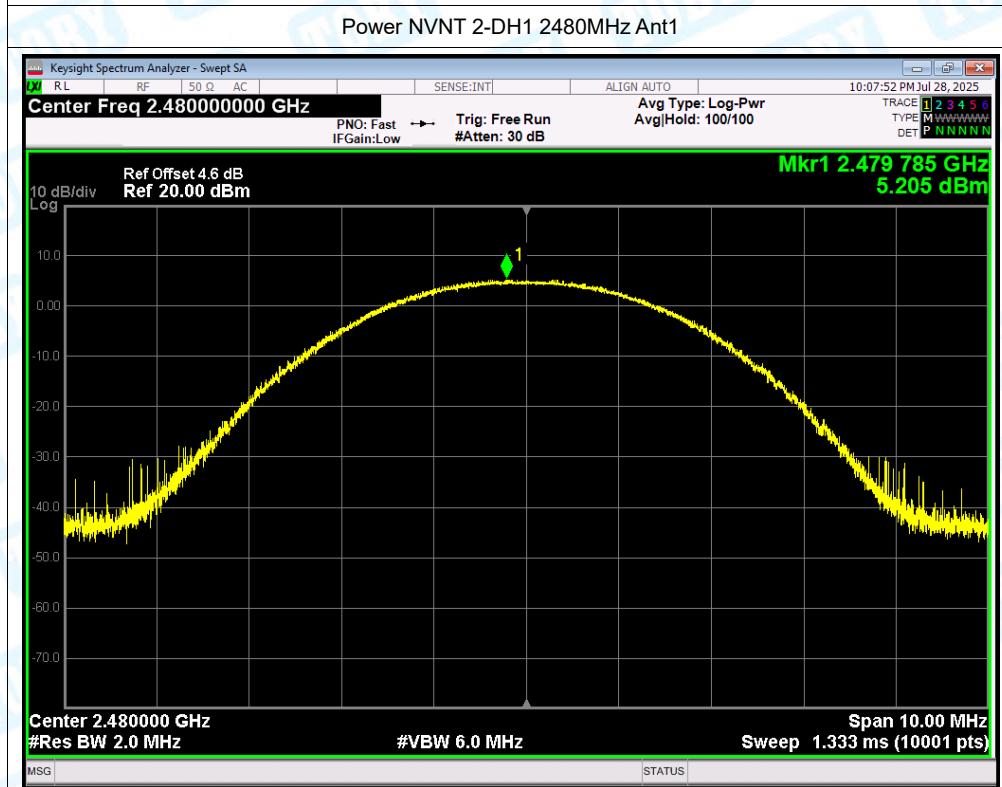
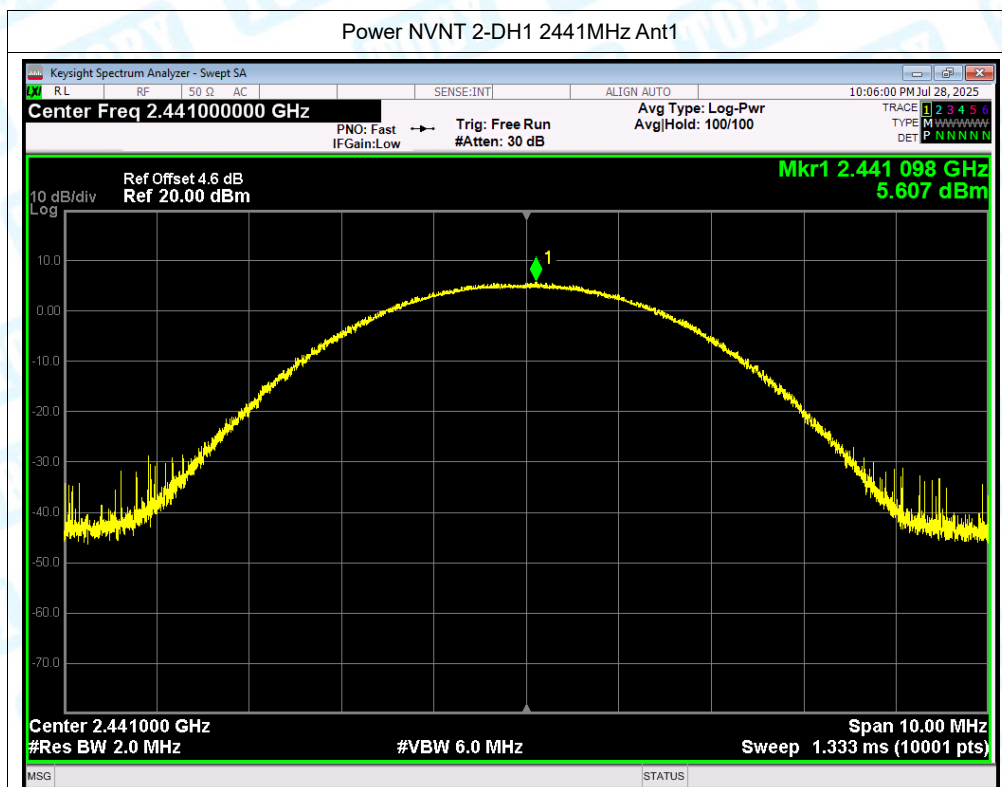


Power NVNT 1-DH5 2441MHz Ant1

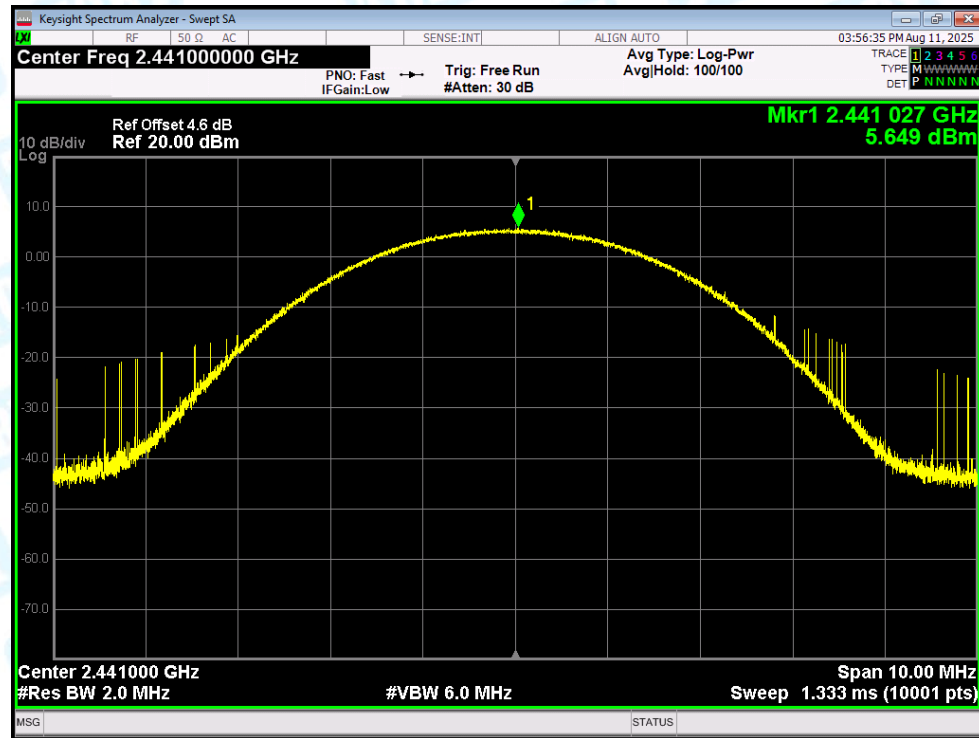


Power NVNT 2-DH1 2402MHz Ant1

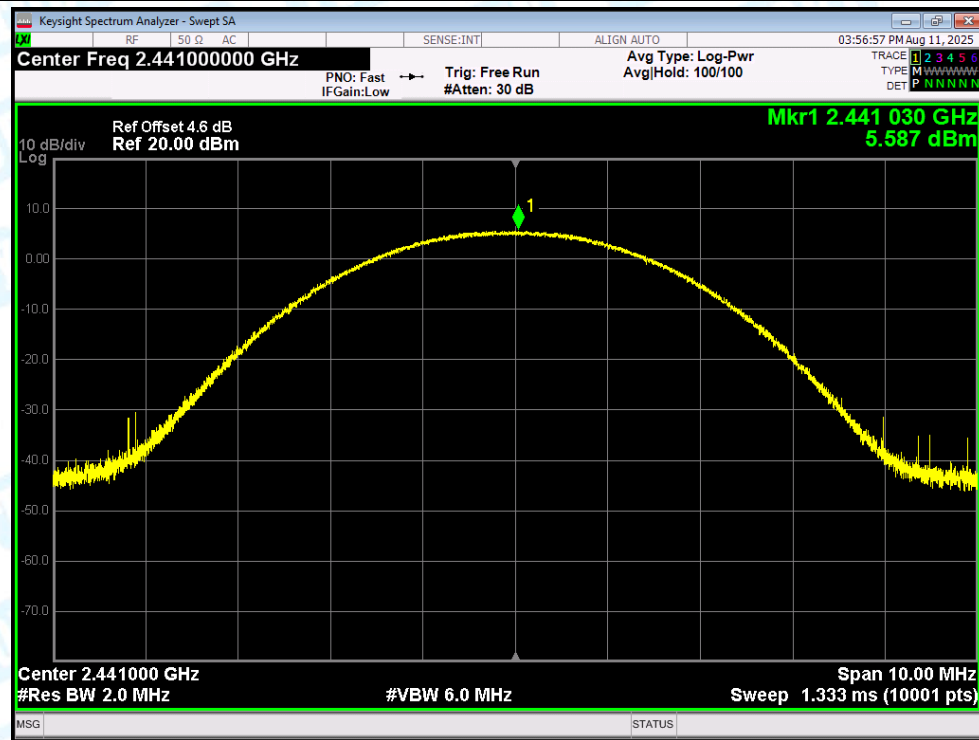




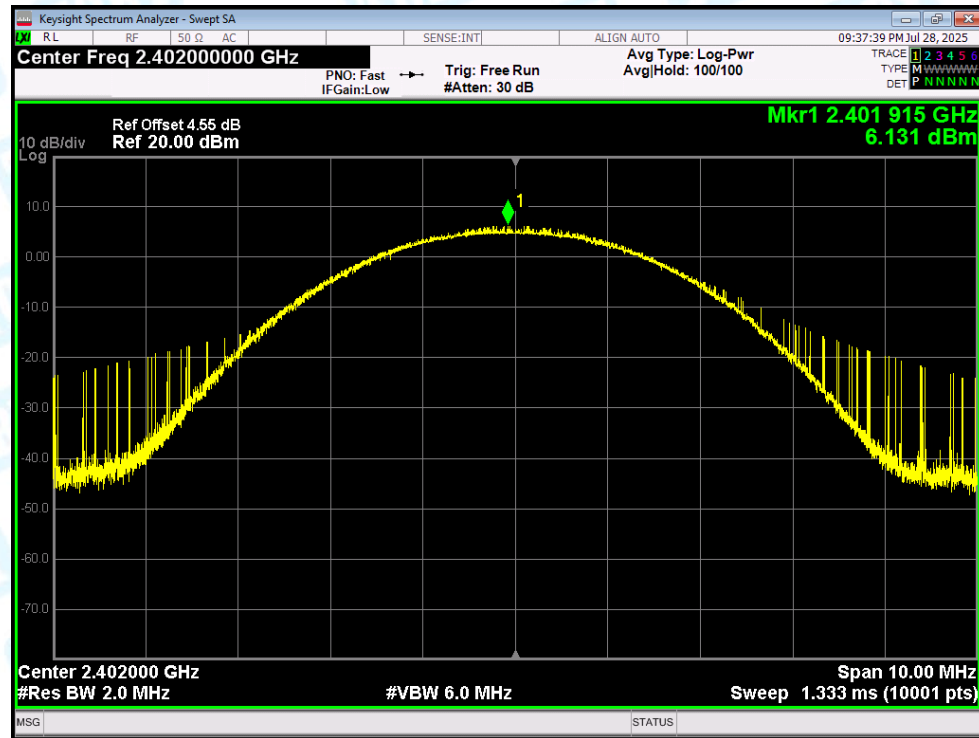
Power NVNT 2-DH3 2441MHz Ant1



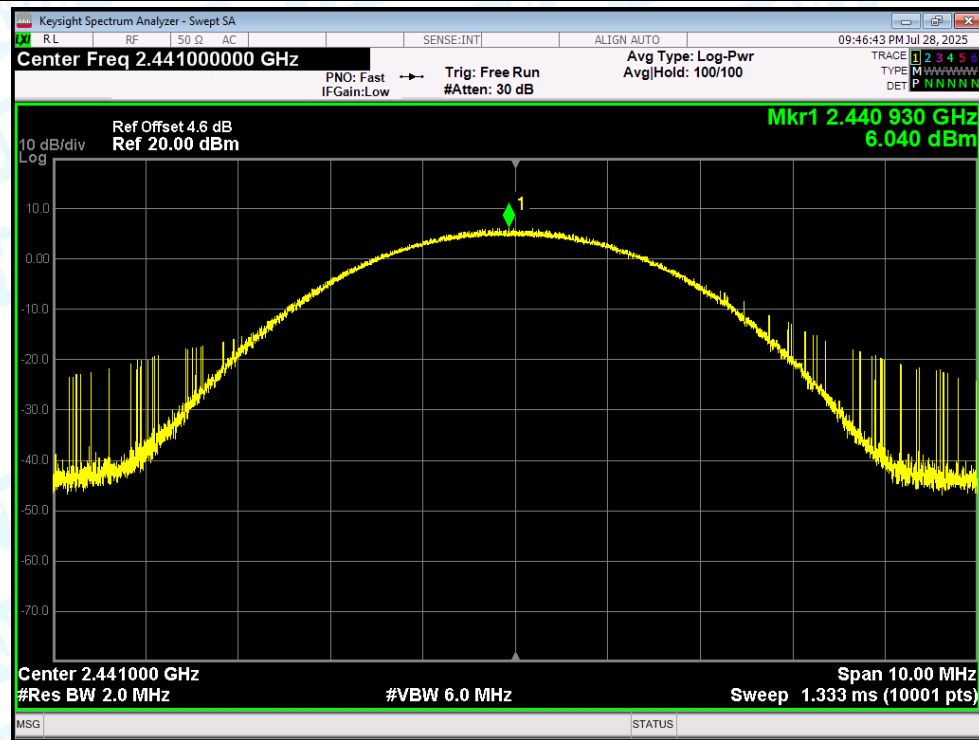
Power NVNT 2-DH5 2441MHz Ant1



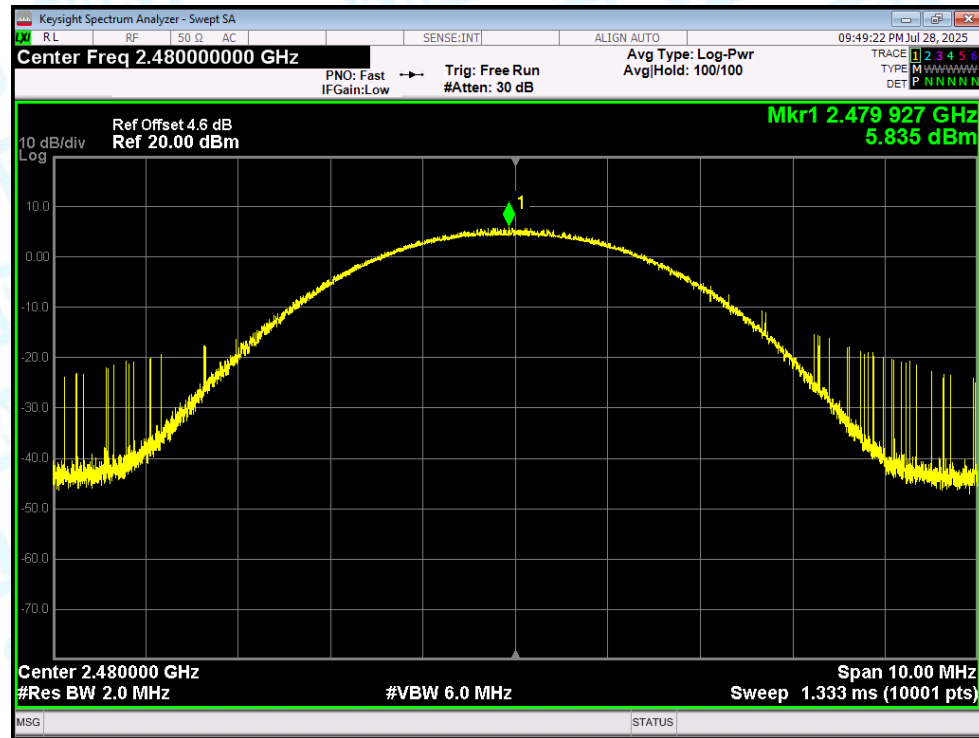
Power NVNT 3-DH1 2402MHz Ant1



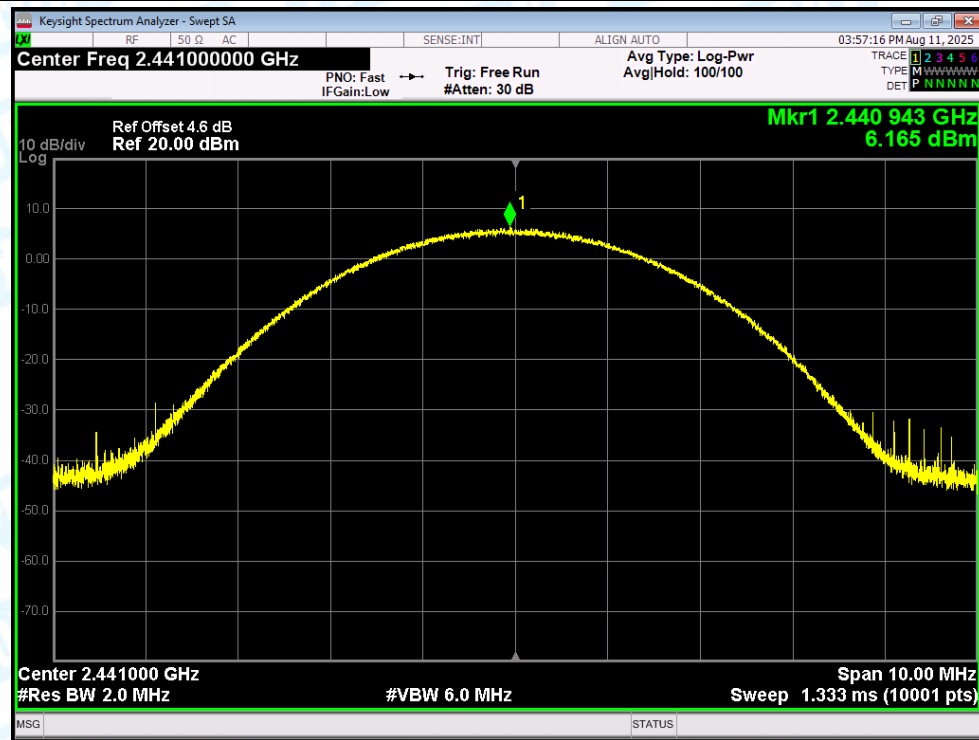
Power NVNT 3-DH1 2441MHz Ant1

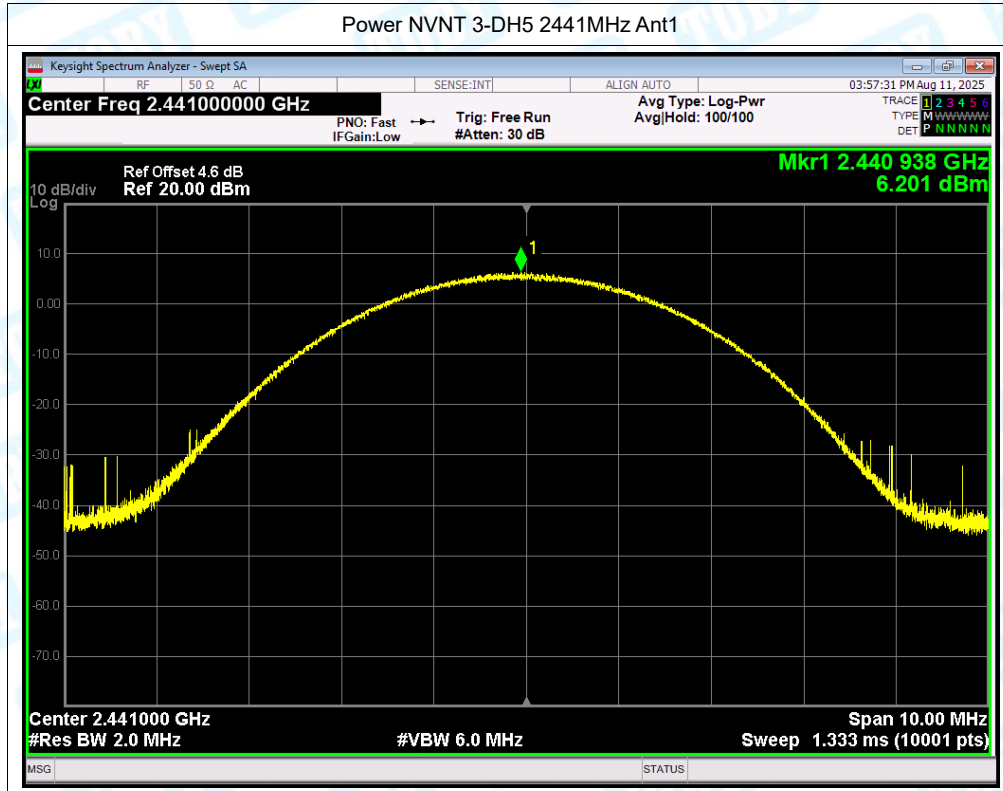


Power NVNT 3-DH1 2480MHz Ant1



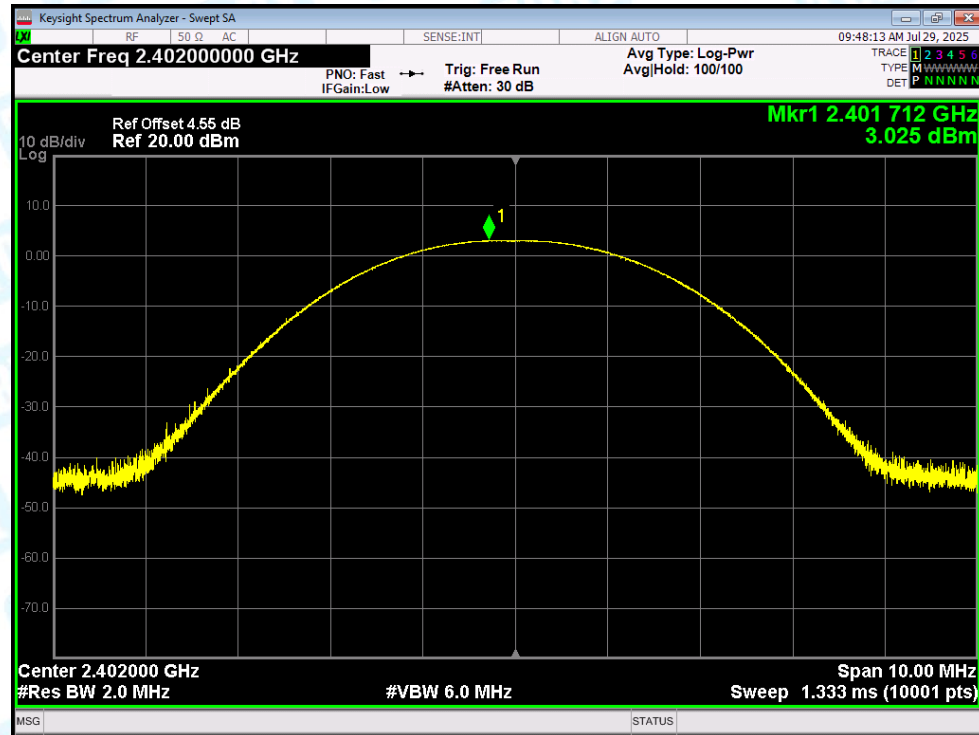
Power NVNT 3-DH3 2441MHz Ant1



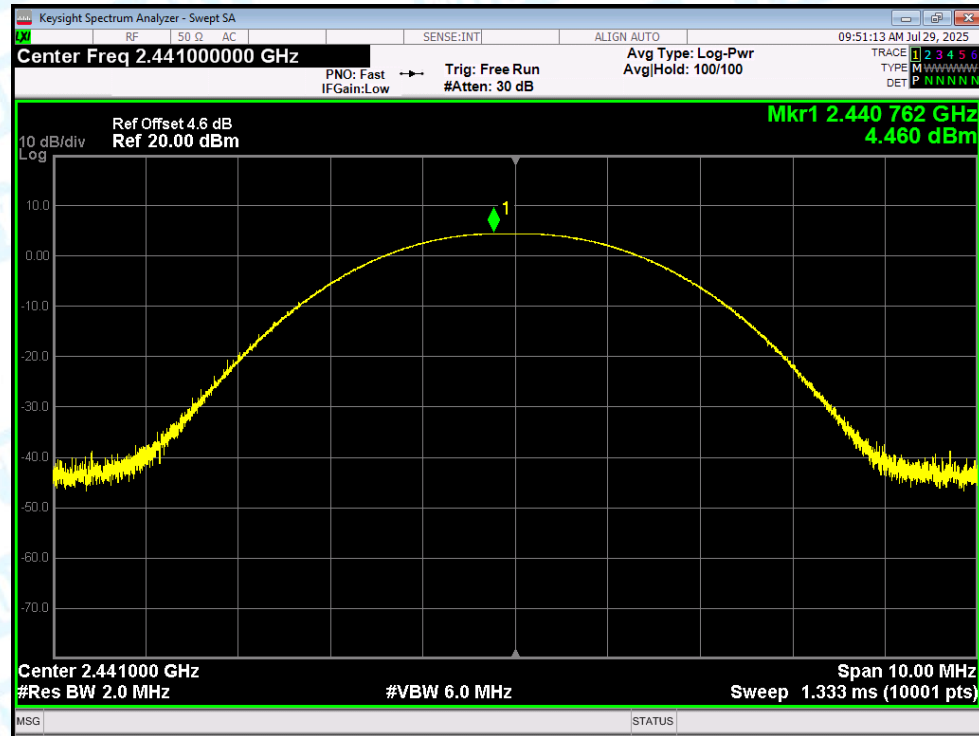


Test Graphs

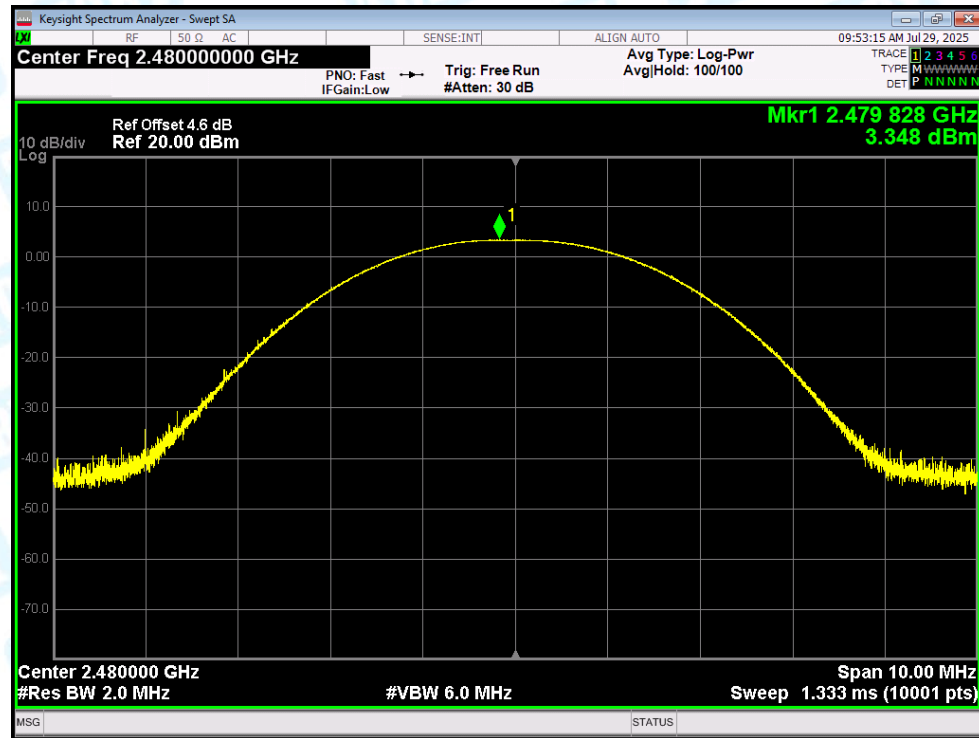
Power NVNT 1-DH1 2402MHz Ant1



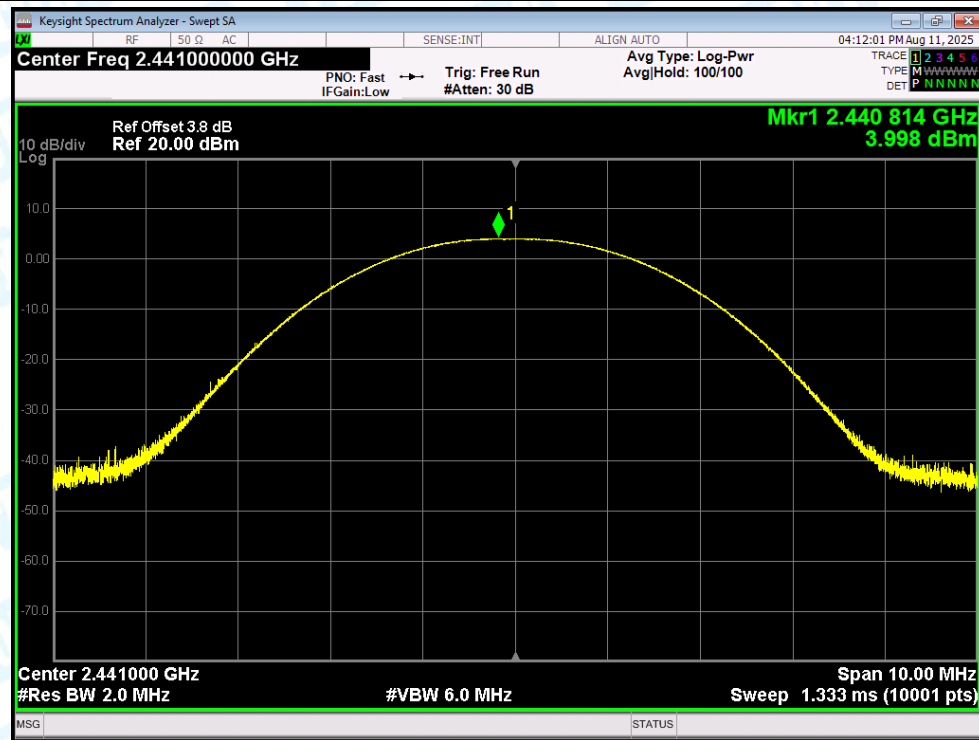
Power NVNT 1-DH1 2441MHz Ant1



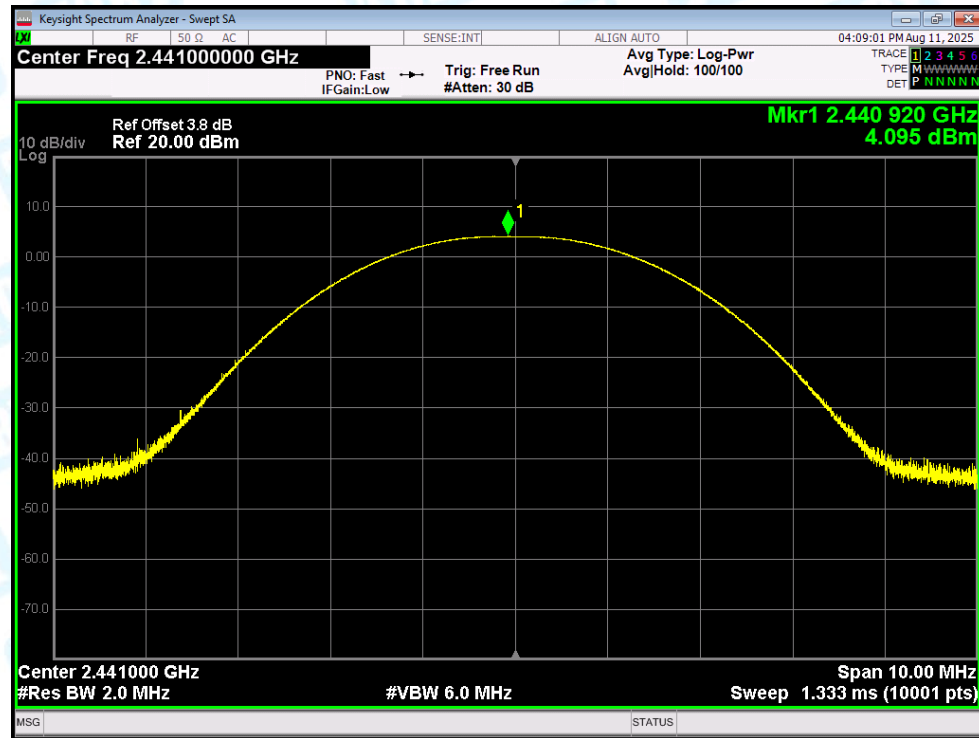
Power NVNT 1-DH1 2480MHz Ant1



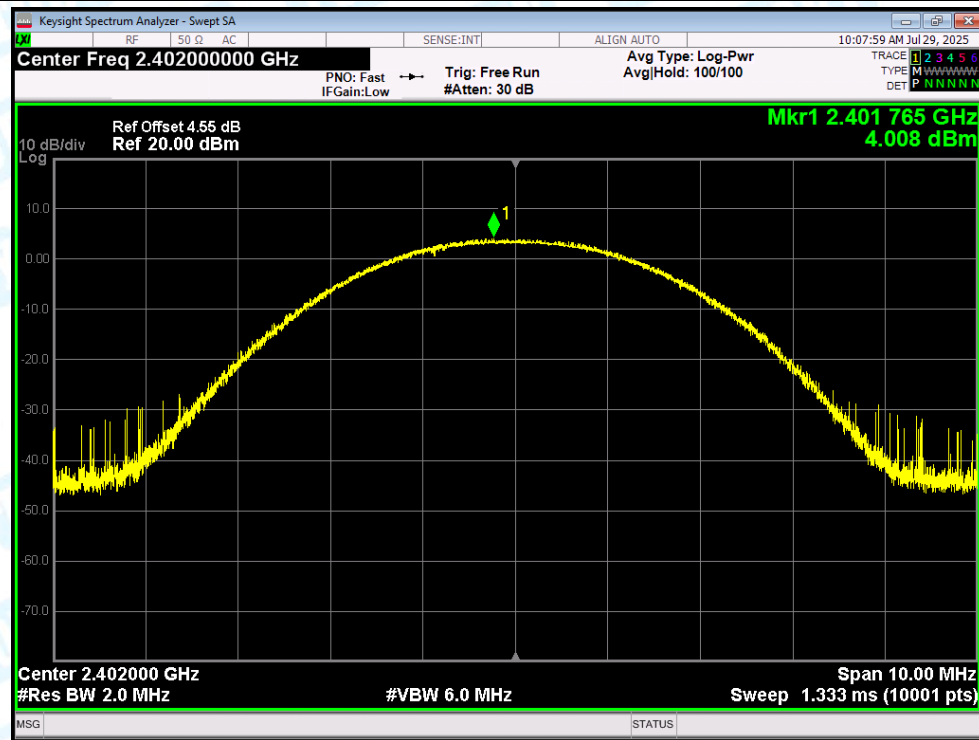
Power NVNT 1-DH3 2441MHz Ant1



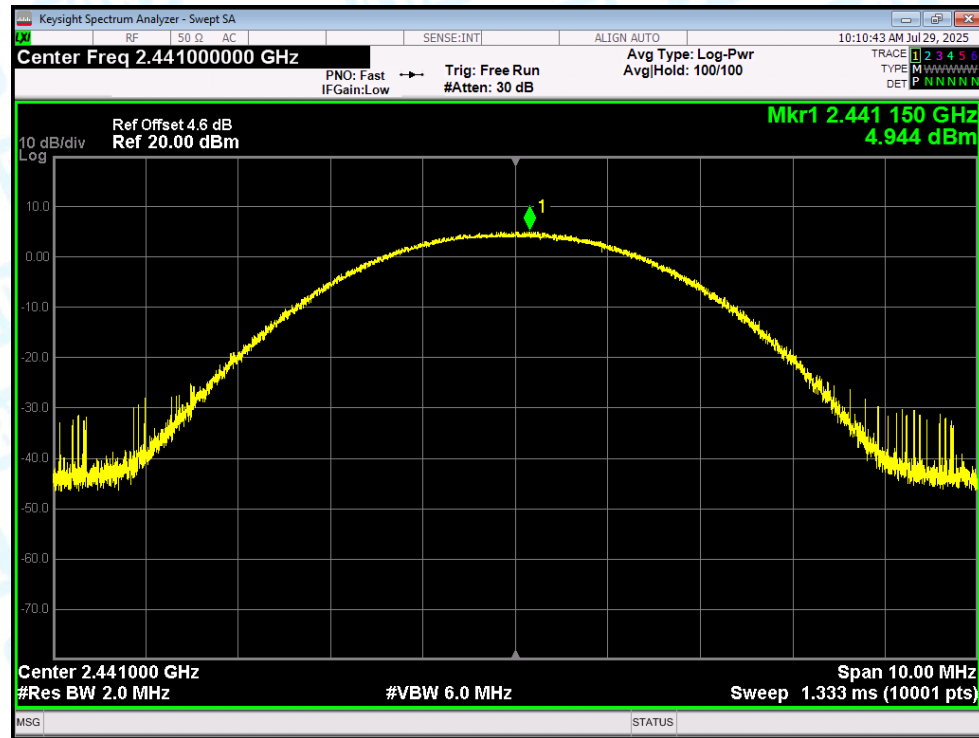
Power NVNT 1-DH5 2441MHz Ant1



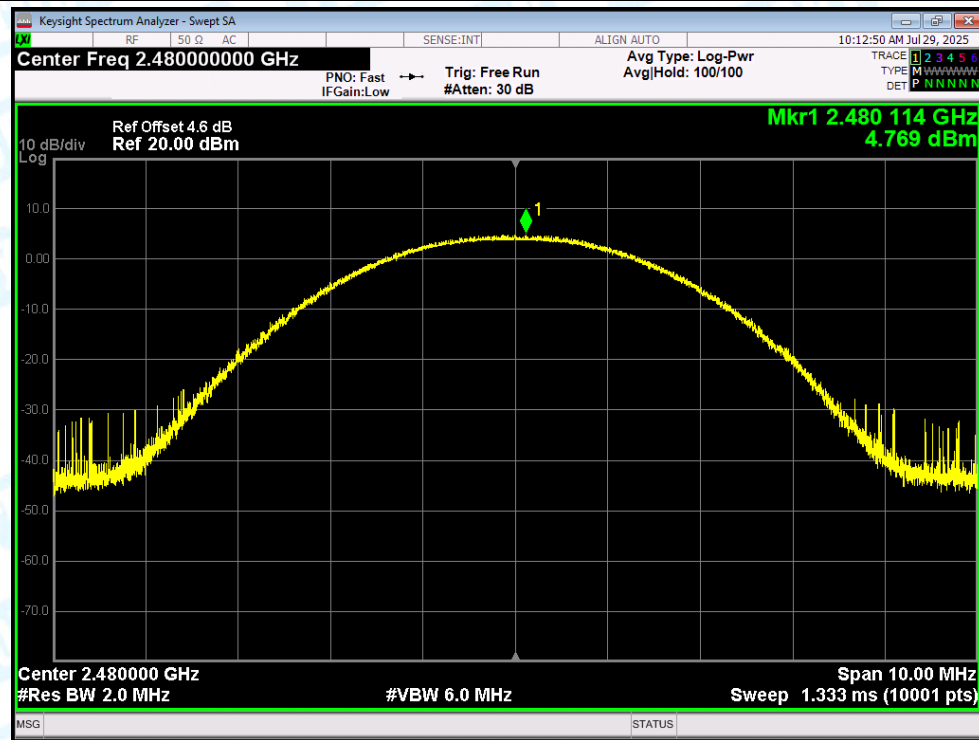
Power NVNT 2-DH1 2402MHz Ant1



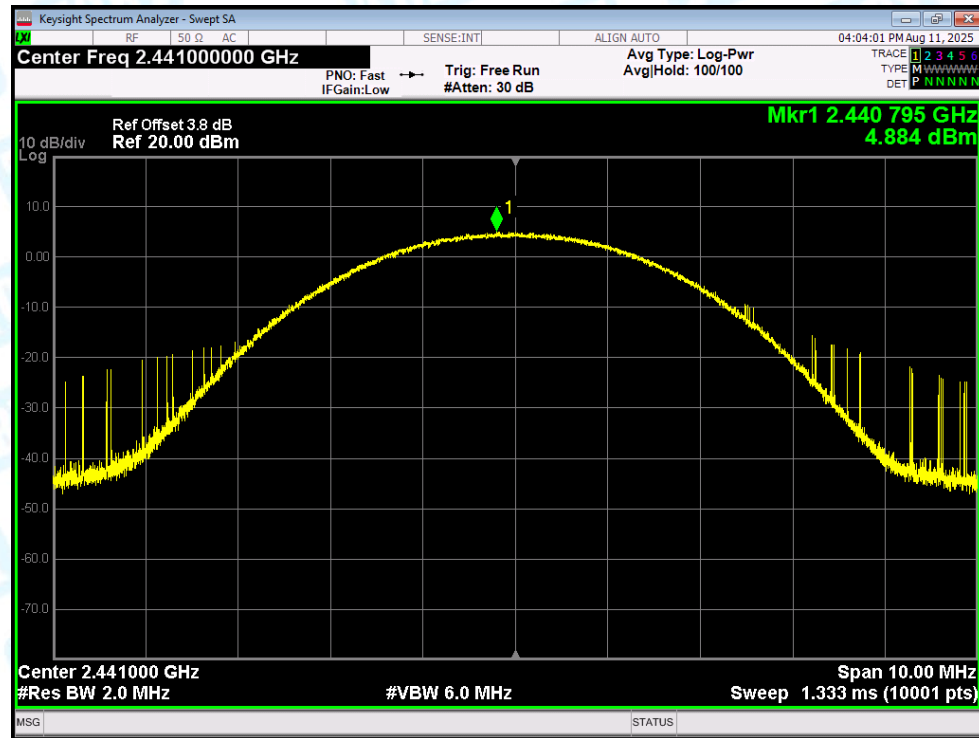
Power NVNT 2-DH1 2441MHz Ant1



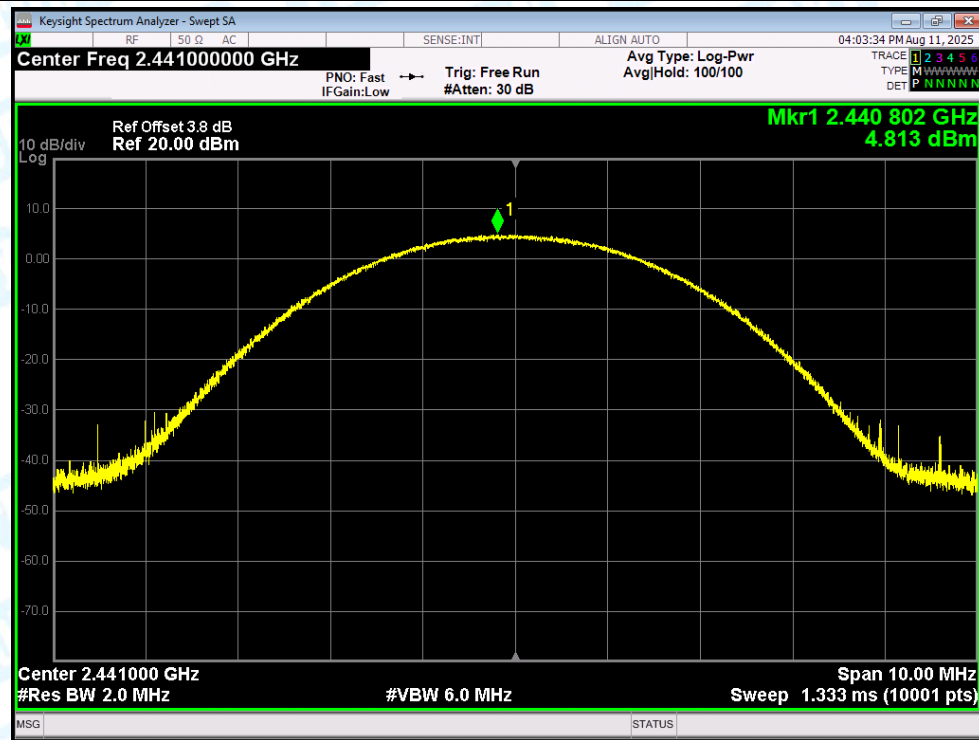
Power NVNT 2-DH1 2480MHz Ant1



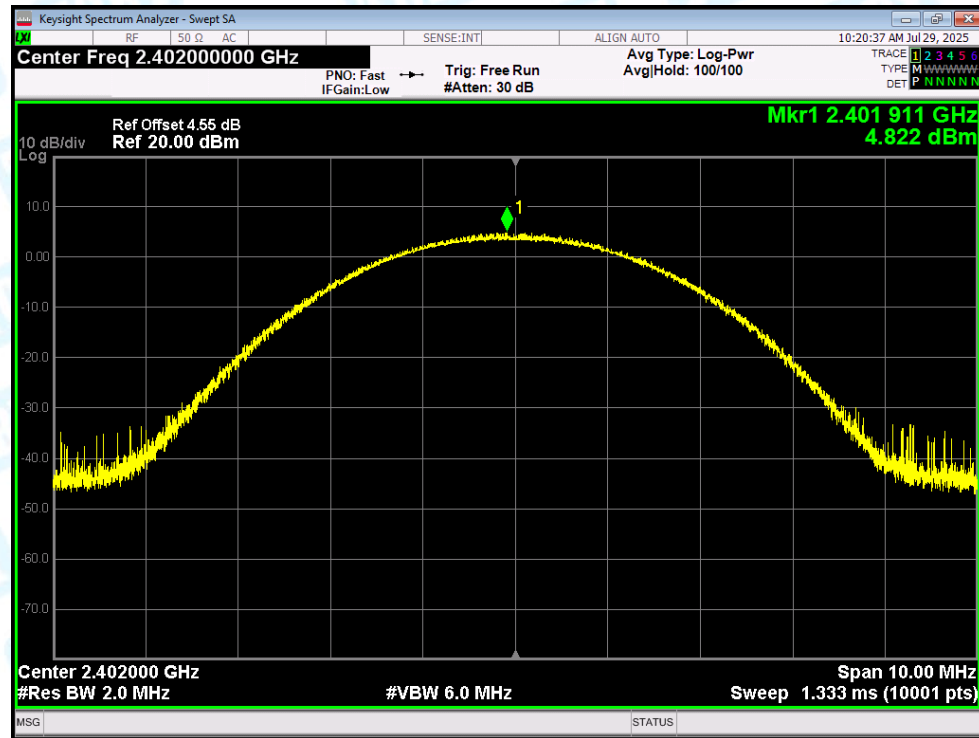
Power NVNT 2-DH3 2441MHz Ant1



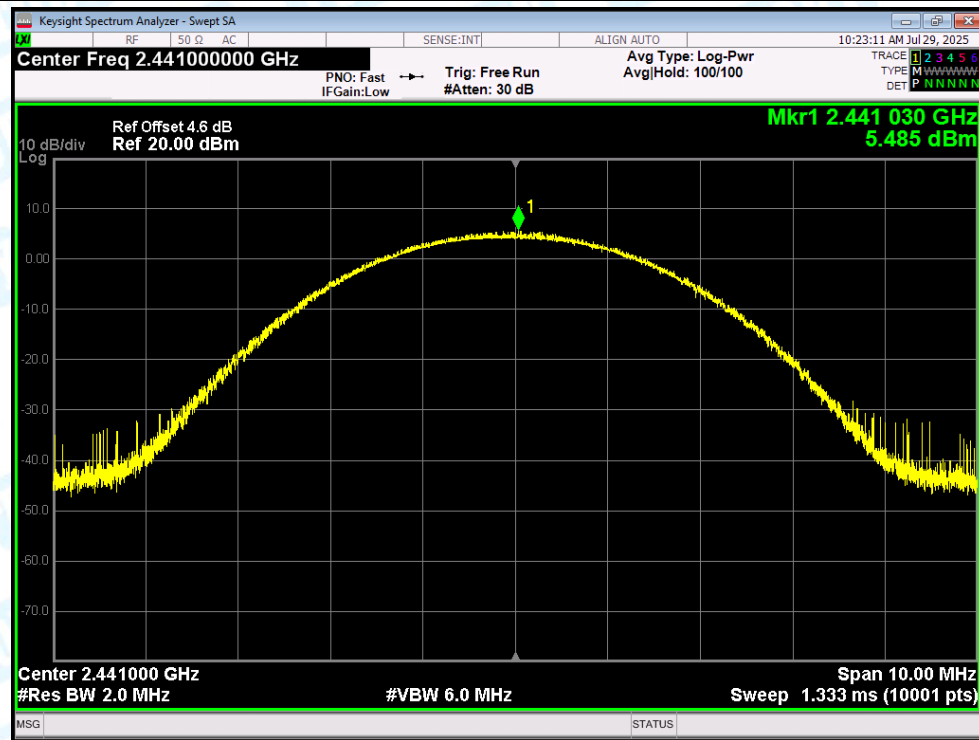
Power NVNT 2-DH5 2441MHz Ant1



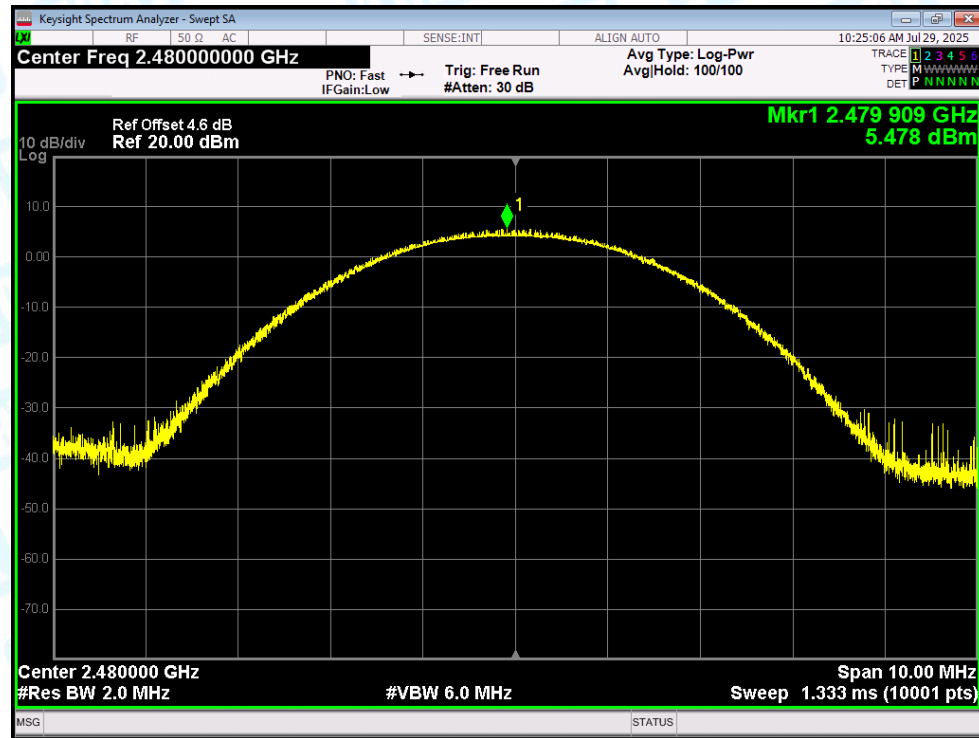
Power NVNT 3-DH1 2402MHz Ant1



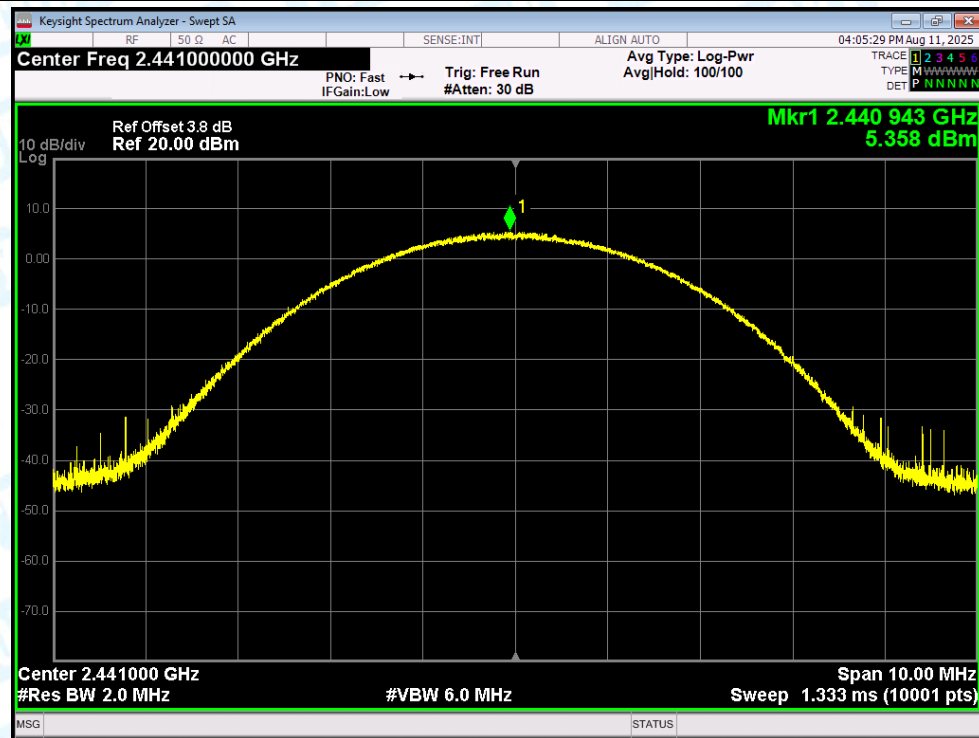
Power NVNT 3-DH1 2441MHz Ant1

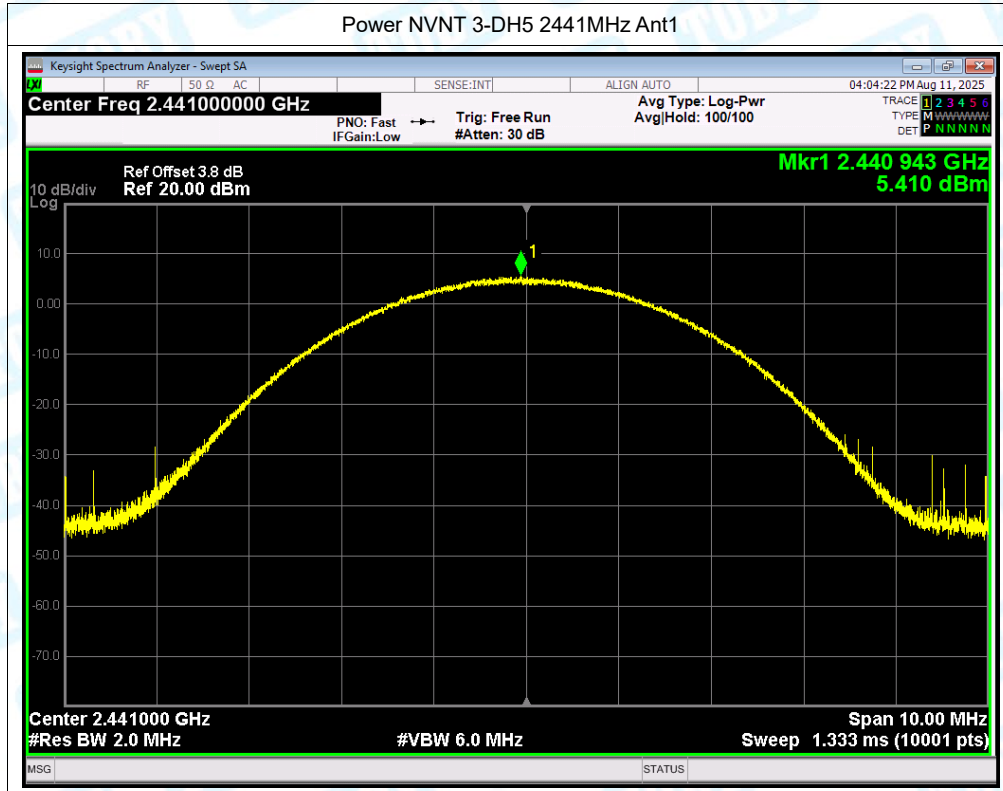


Power NVNT 3-DH1 2480MHz Ant1



Power NVNT 3-DH3 2441MHz Ant1



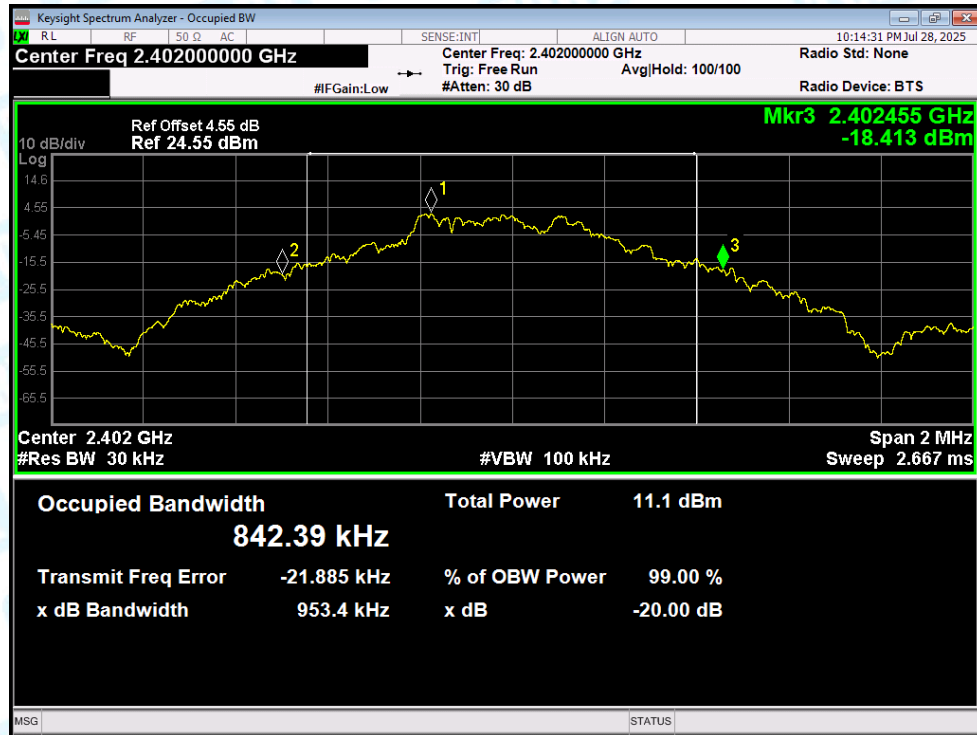


3. -20dB Bandwidth

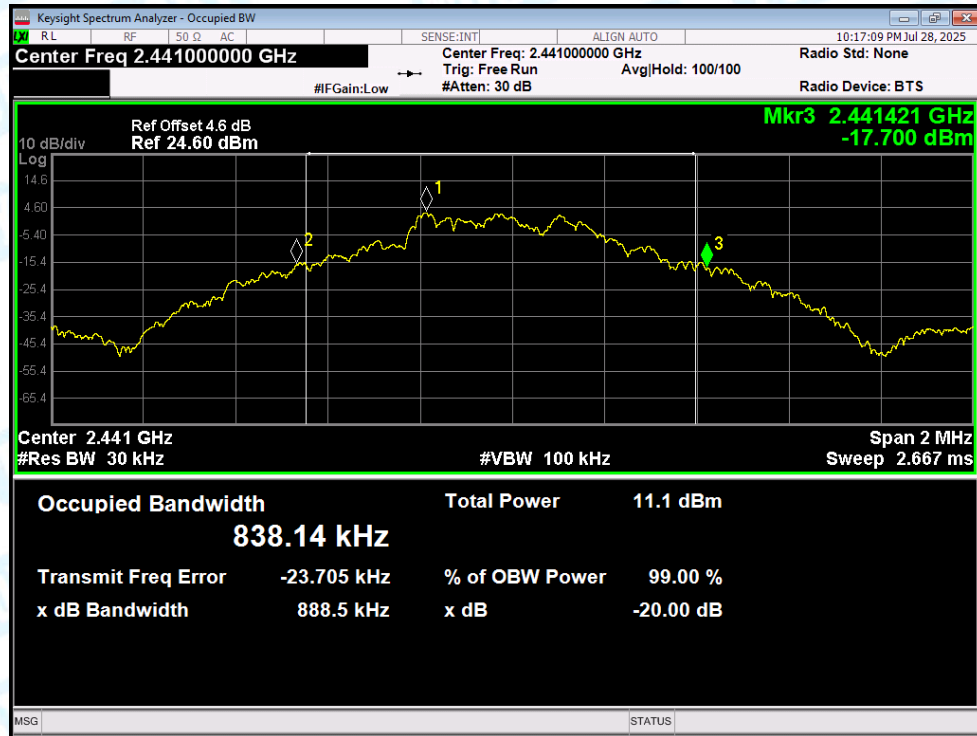
Condition	Mode	Frequency (MHz)	Antenna	-20 dB Bandwidth (MHz)	Verdict
NVNT	1-DH1	2402	Ant1	0.95	Pass
NVNT	1-DH1	2441	Ant1	0.89	Pass
NVNT	1-DH1	2480	Ant1	0.89	Pass
NVNT	2-DH1	2402	Ant1	1.25	Pass
NVNT	2-DH1	2441	Ant1	1.22	Pass
NVNT	2-DH1	2480	Ant1	1.23	Pass
NVNT	3-DH1	2402	Ant1	1.19	Pass
NVNT	3-DH1	2441	Ant1	1.2	Pass
NVNT	3-DH1	2480	Ant1	1.2	Pass

Test Graphs

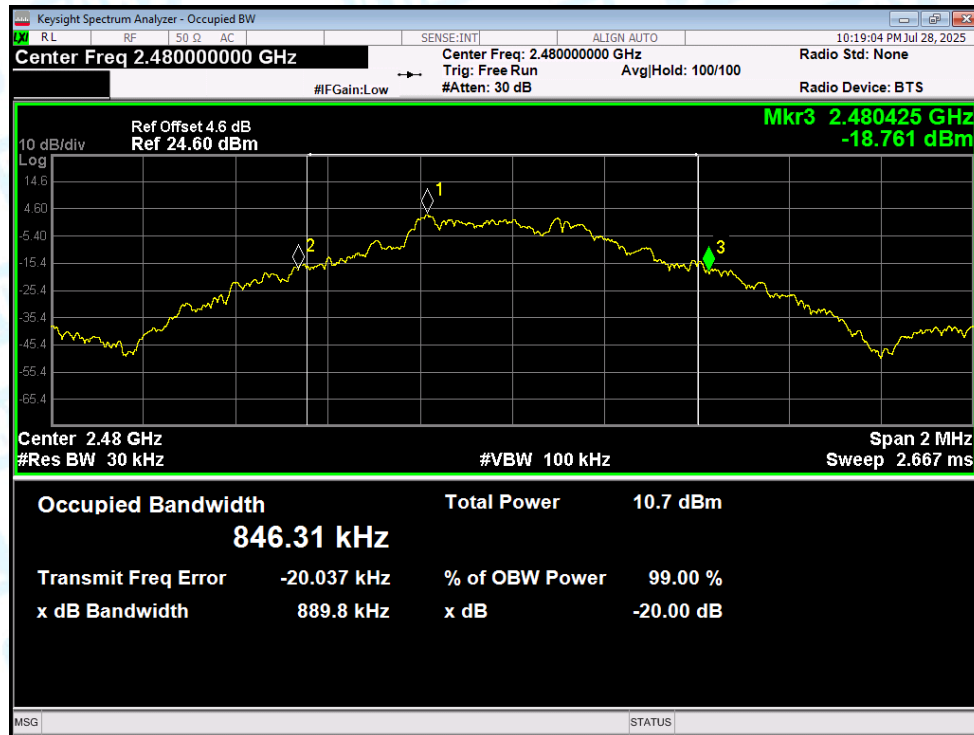
-20dB Bandwidth NVNT 1-DH1 2402MHz Ant1



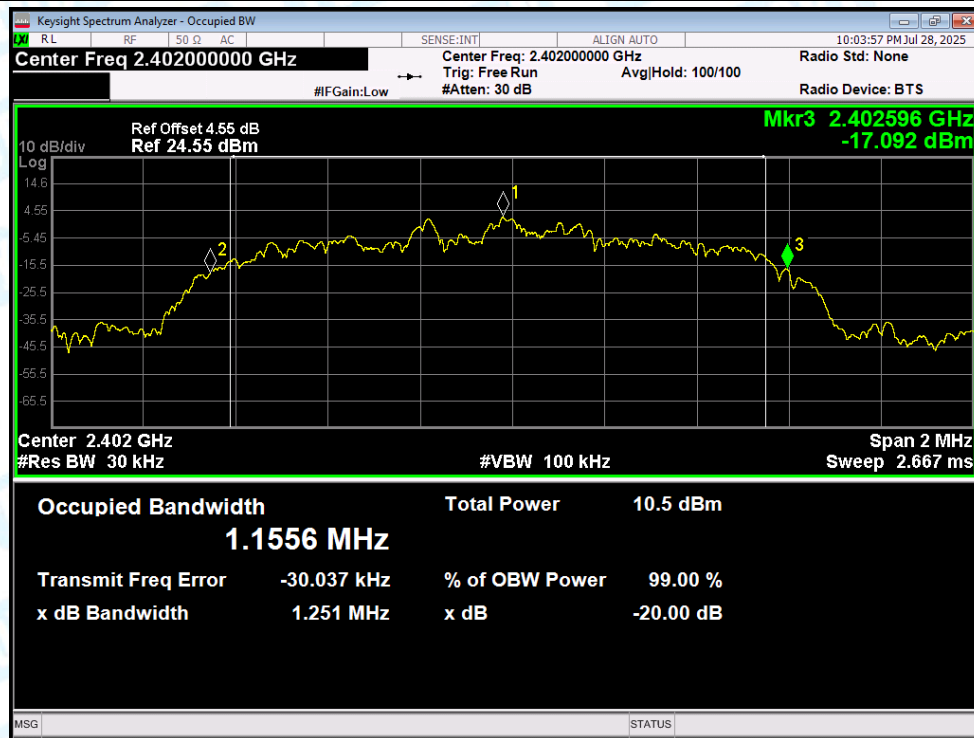
-20dB Bandwidth NVNT 1-DH1 2441MHz Ant1



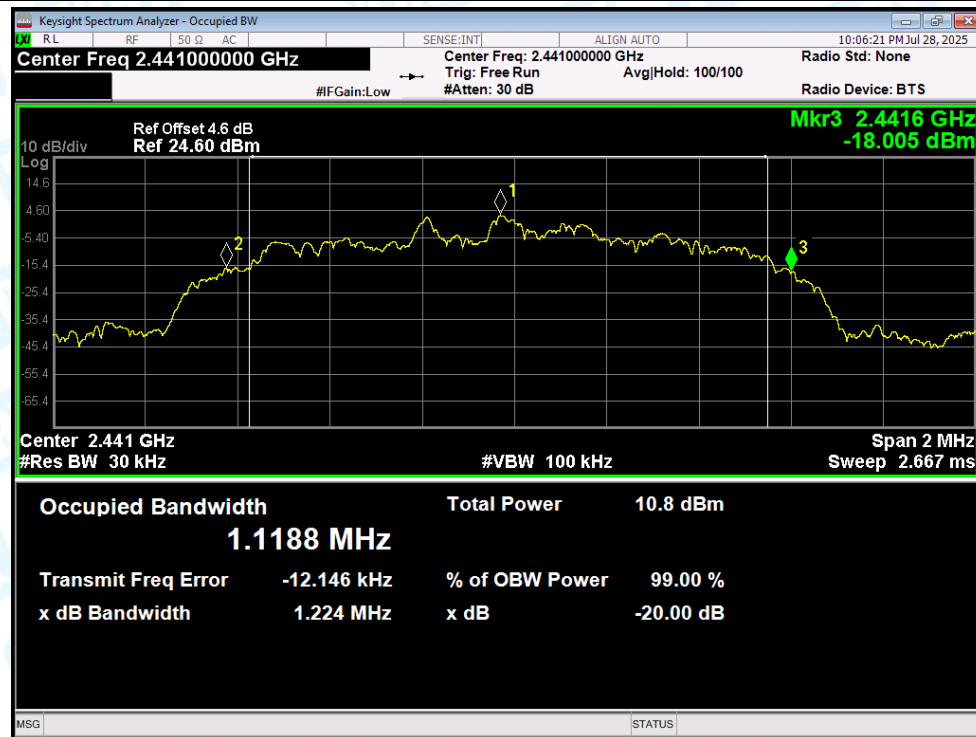
-20dB Bandwidth NVNT 1-DH1 2480MHz Ant1



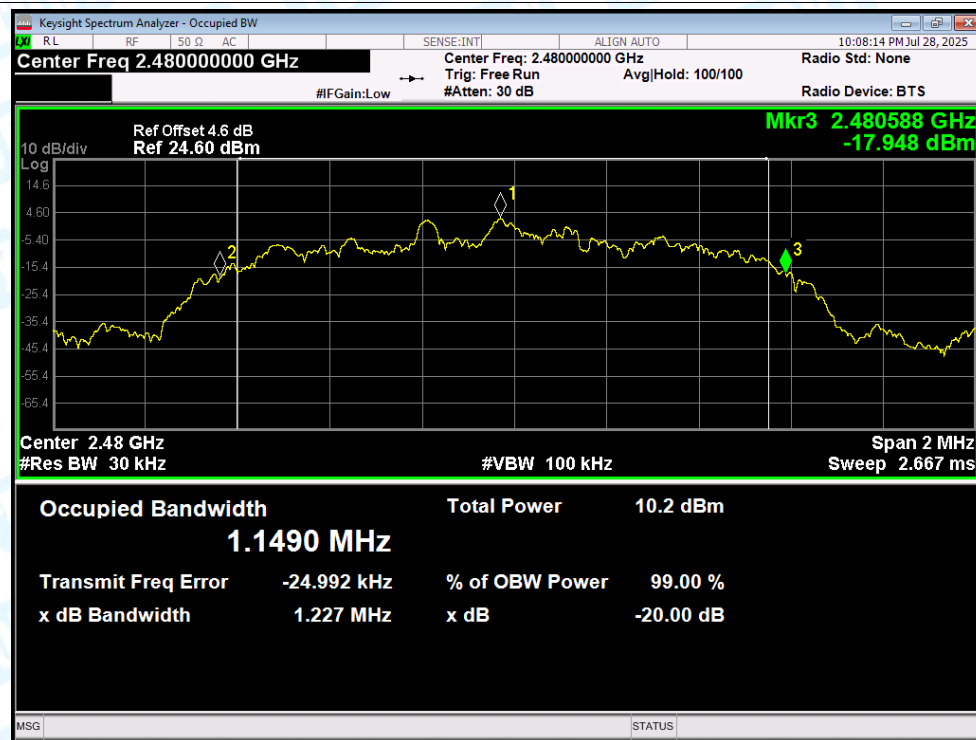
-20dB Bandwidth NVNT 2-DH1 2402MHz Ant1



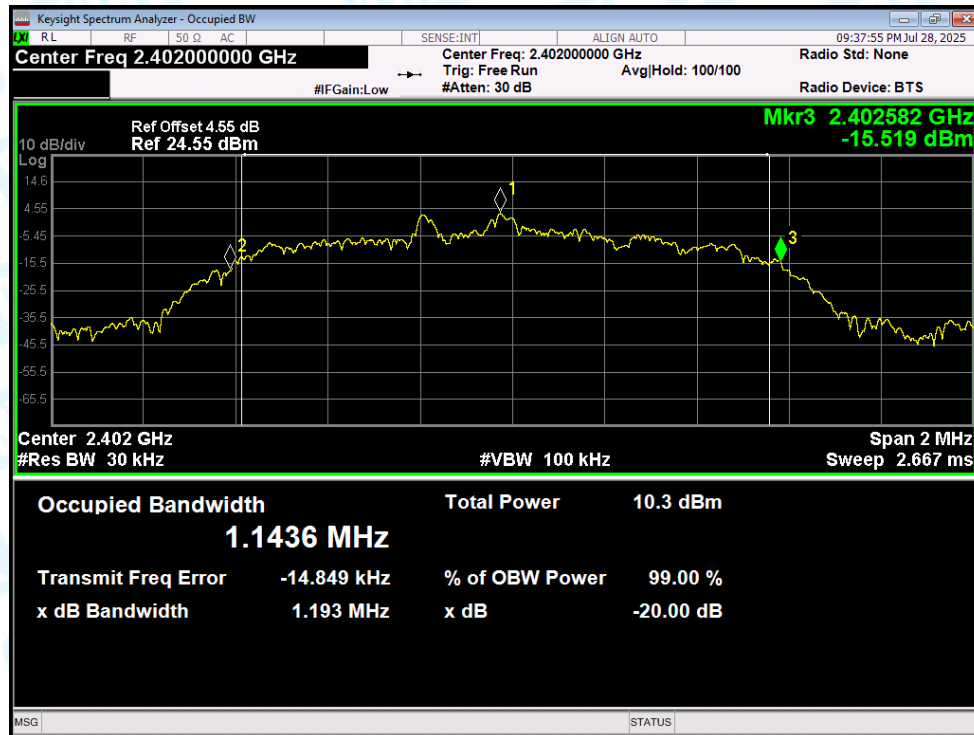
-20dB Bandwidth NVNT 2-DH1 2441MHz Ant1



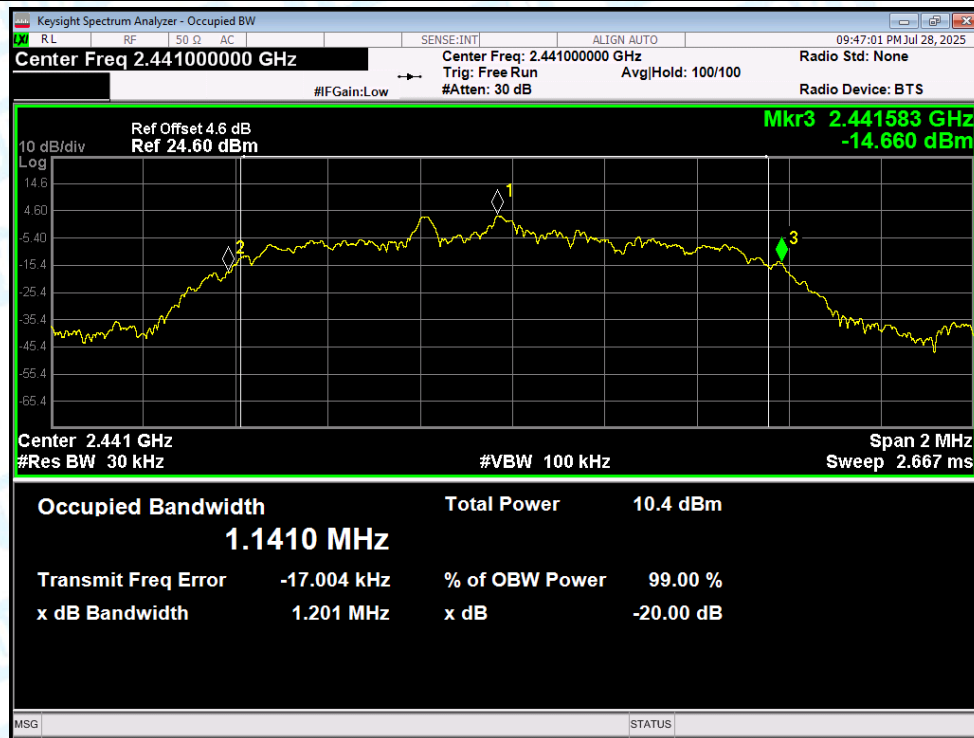
-20dB Bandwidth NVNT 2-DH1 2480MHz Ant1

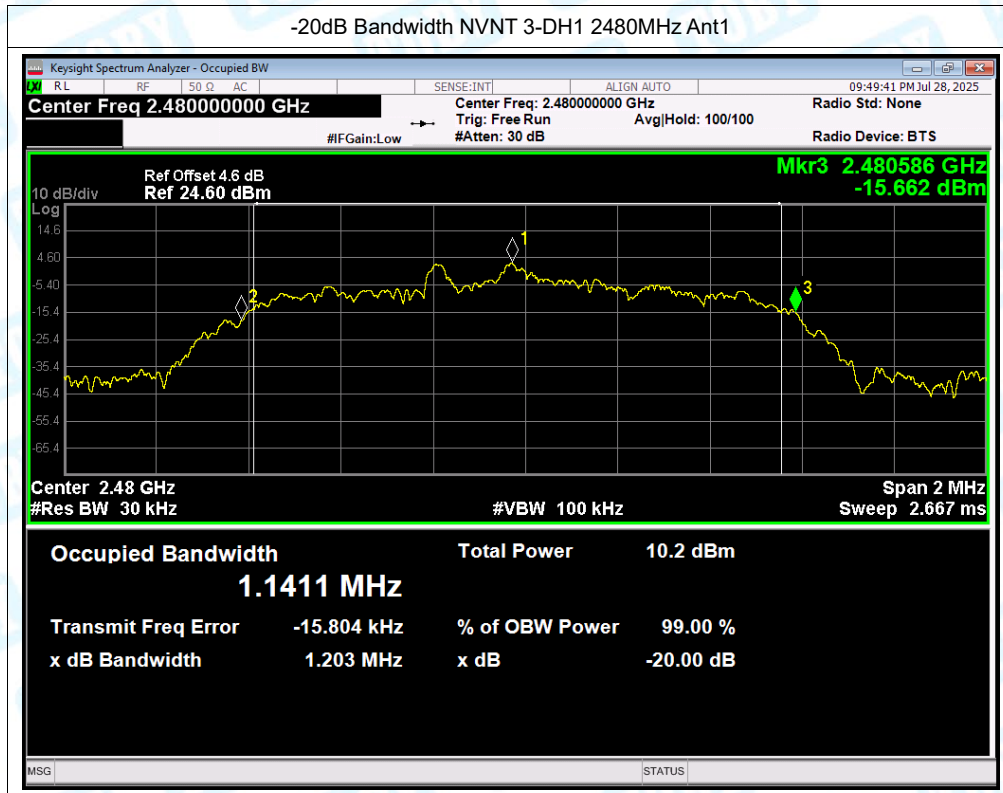


-20dB Bandwidth NVNT 3-DH1 2402MHz Ant1



-20dB Bandwidth NVNT 3-DH1 2441MHz Ant1



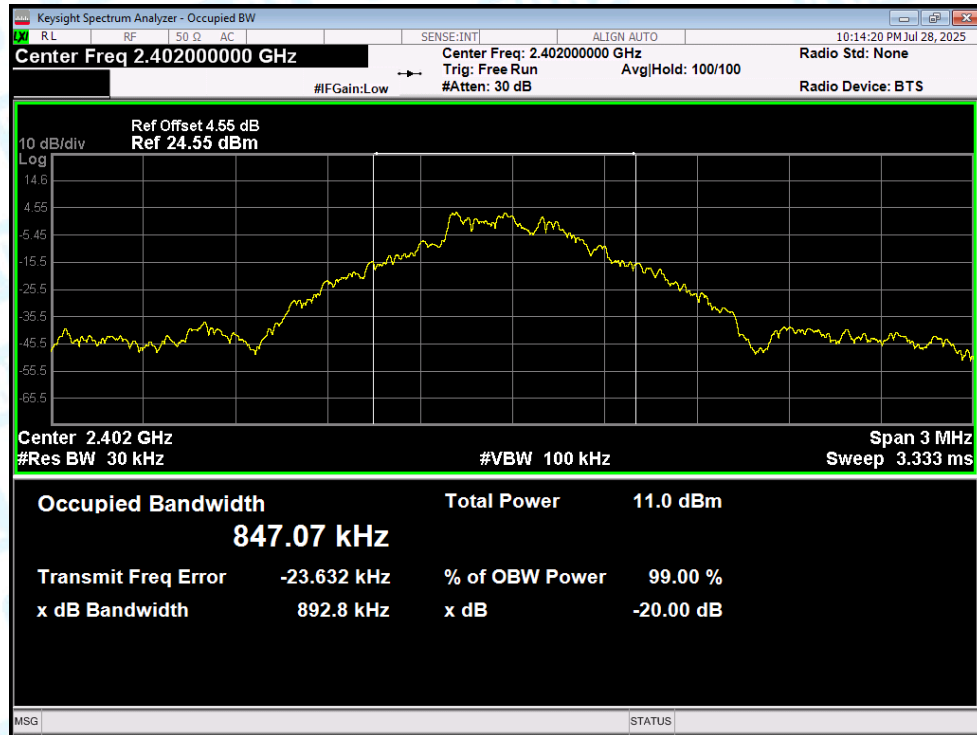


4. Occupied Channel Bandwidth

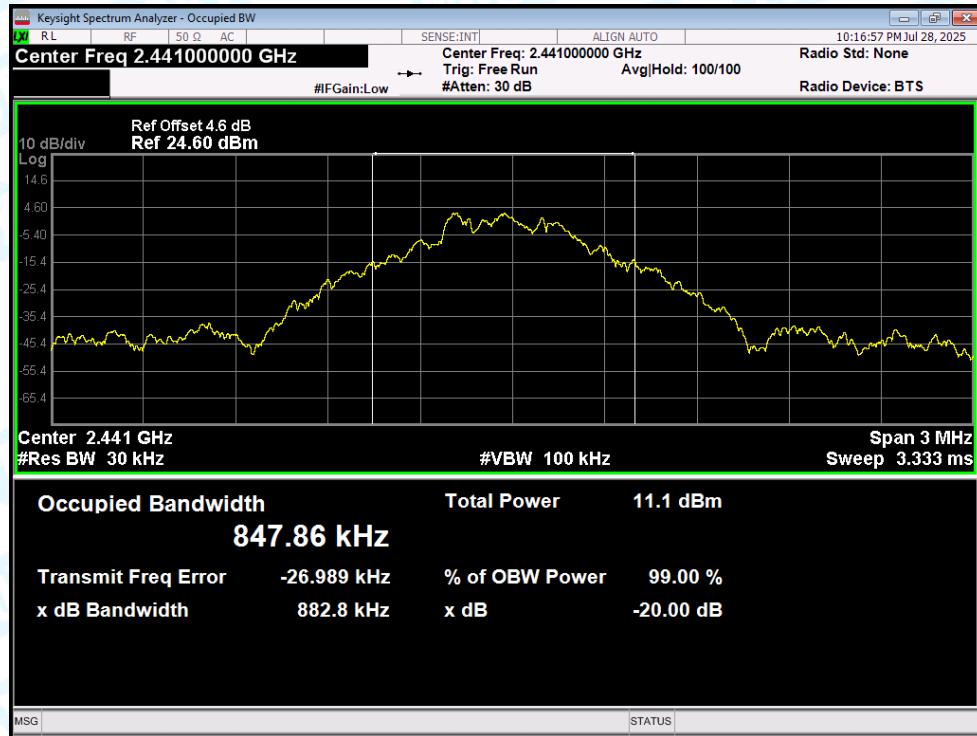
Condition	Mode	Frequency (MHz)	Antenna	99% OBW (MHz)
NVNT	1-DH1	2402	Ant1	0.847
NVNT	1-DH1	2441	Ant1	0.848
NVNT	1-DH1	2480	Ant1	0.847
NVNT	2-DH1	2402	Ant1	1.142
NVNT	2-DH1	2441	Ant1	1.107
NVNT	2-DH1	2480	Ant1	1.145
NVNT	3-DH1	2402	Ant1	1.144
NVNT	3-DH1	2441	Ant1	1.136
NVNT	3-DH1	2480	Ant1	1.141

Test Graphs

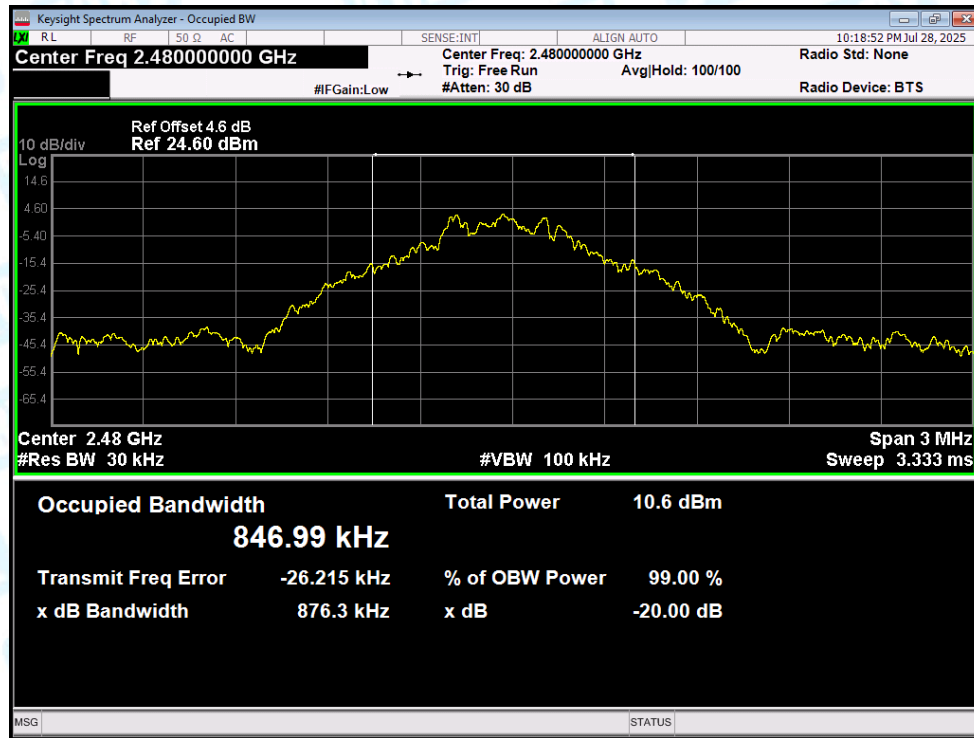
OBW NVNT 1-DH1 2402MHz Ant1



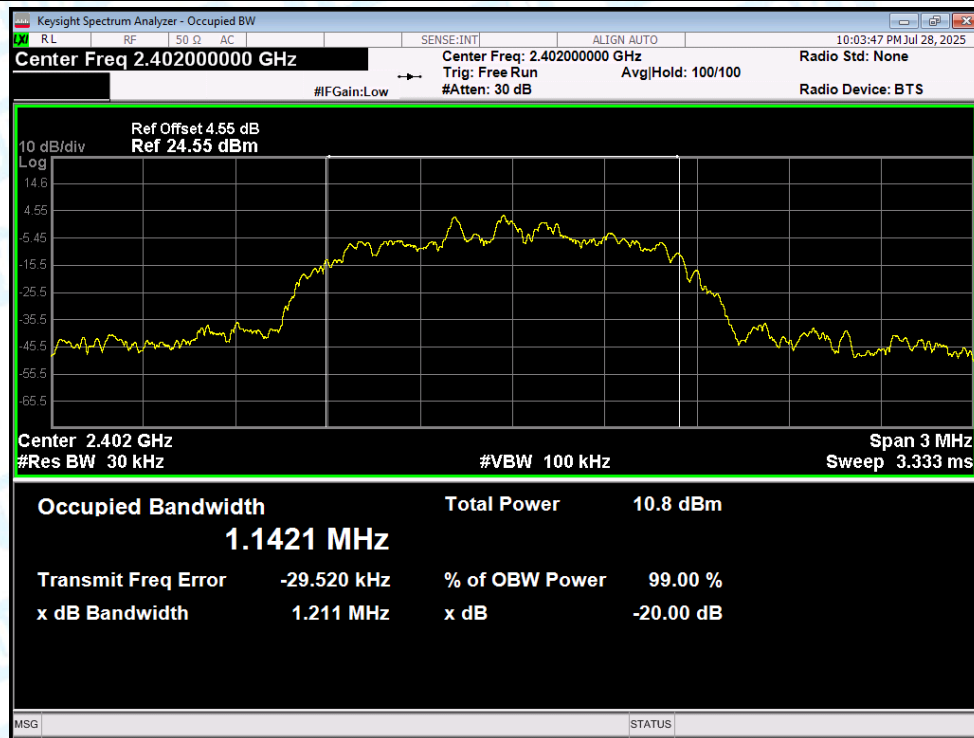
OBW NVNT 1-DH1 2441MHz Ant1



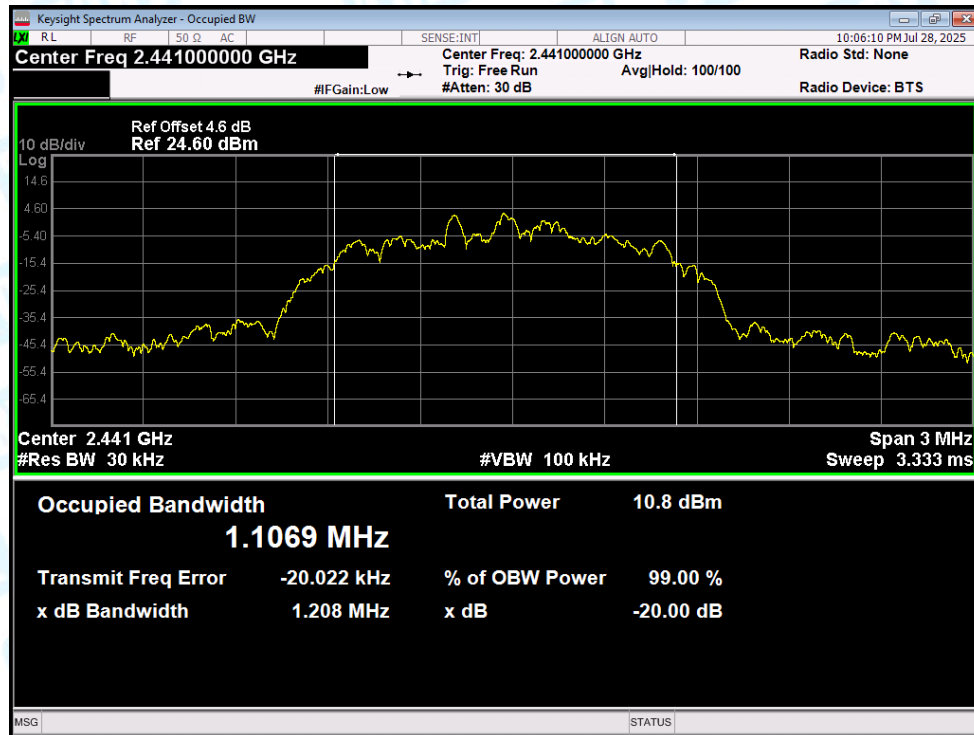
OBW NVNT 1-DH1 2480MHz Ant1



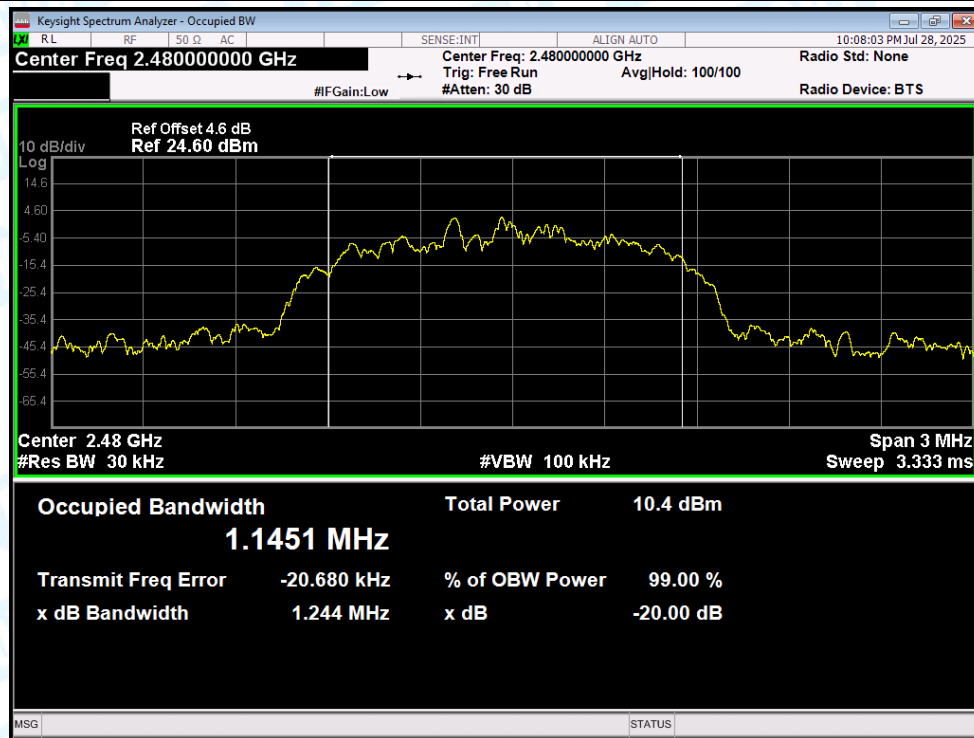
OBW NVNT 2-DH1 2402MHz Ant1



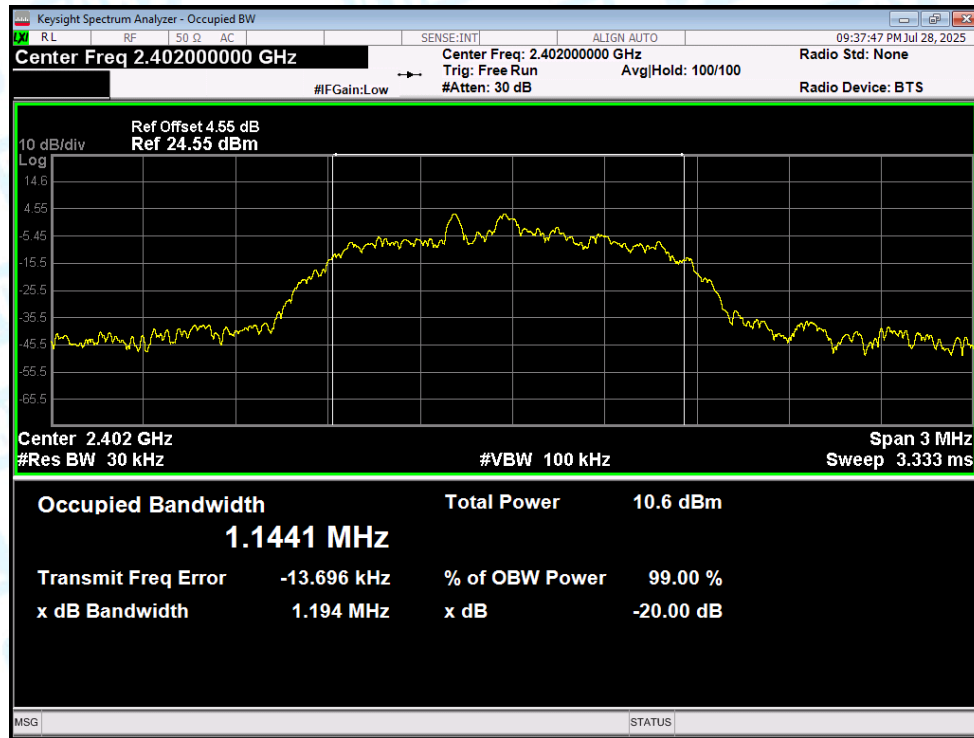
OBW NVNT 2-DH1 2441MHz Ant1



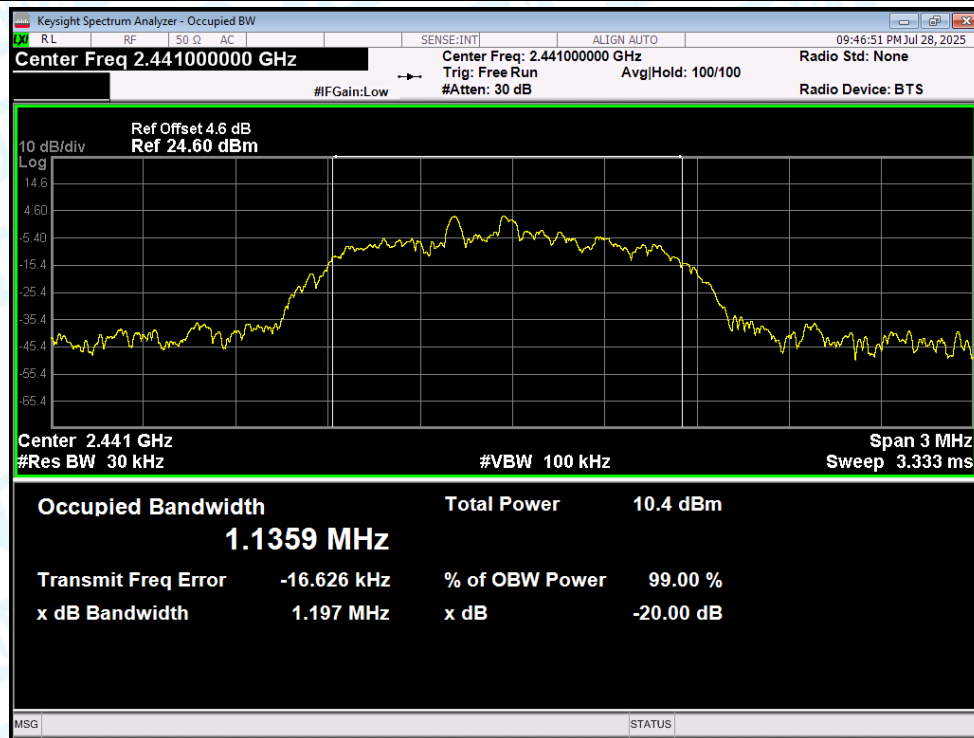
OBW NVNT 2-DH1 2480MHz Ant1

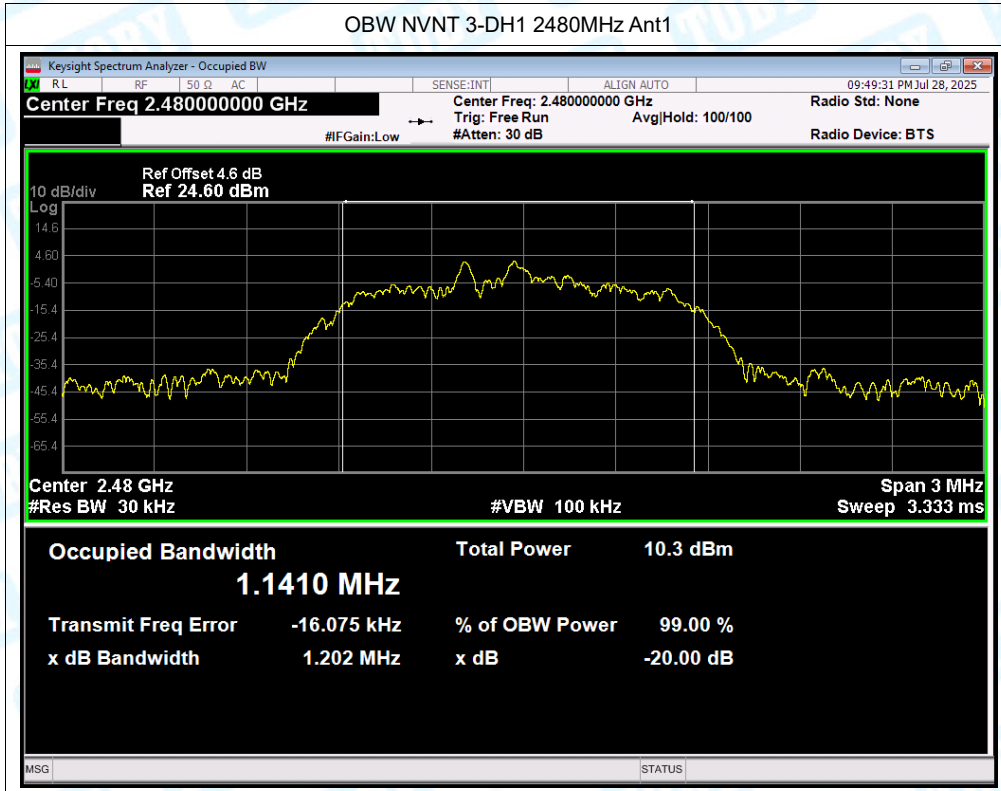


OBW NVNT 3-DH1 2402MHz Ant1



OBW NVNT 3-DH1 2441MHz Ant1



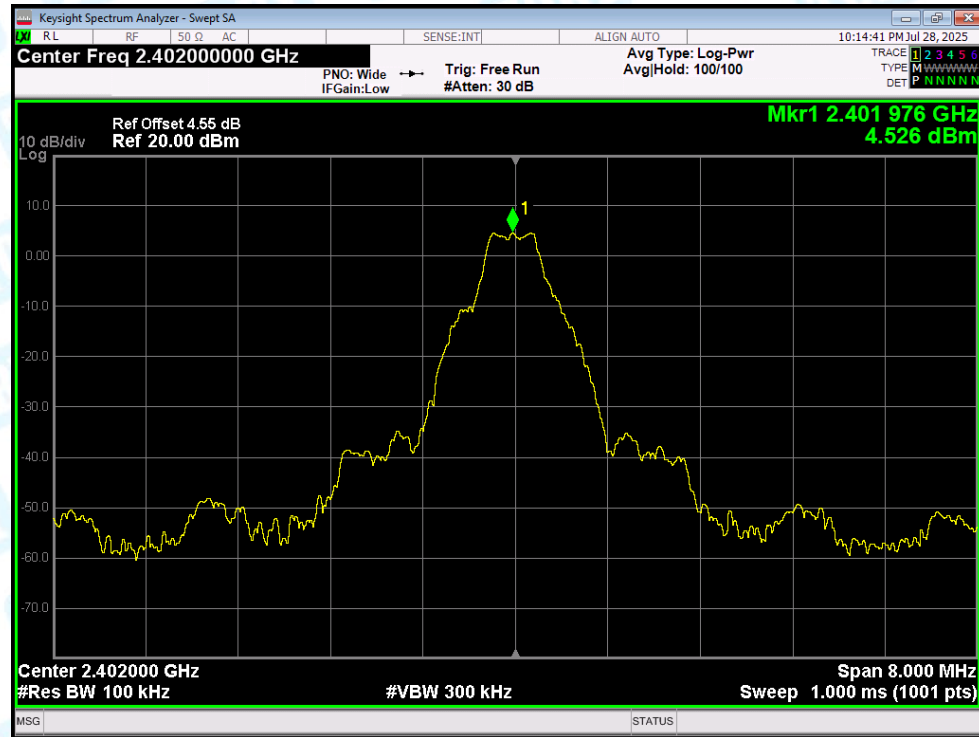


5. Band Edge

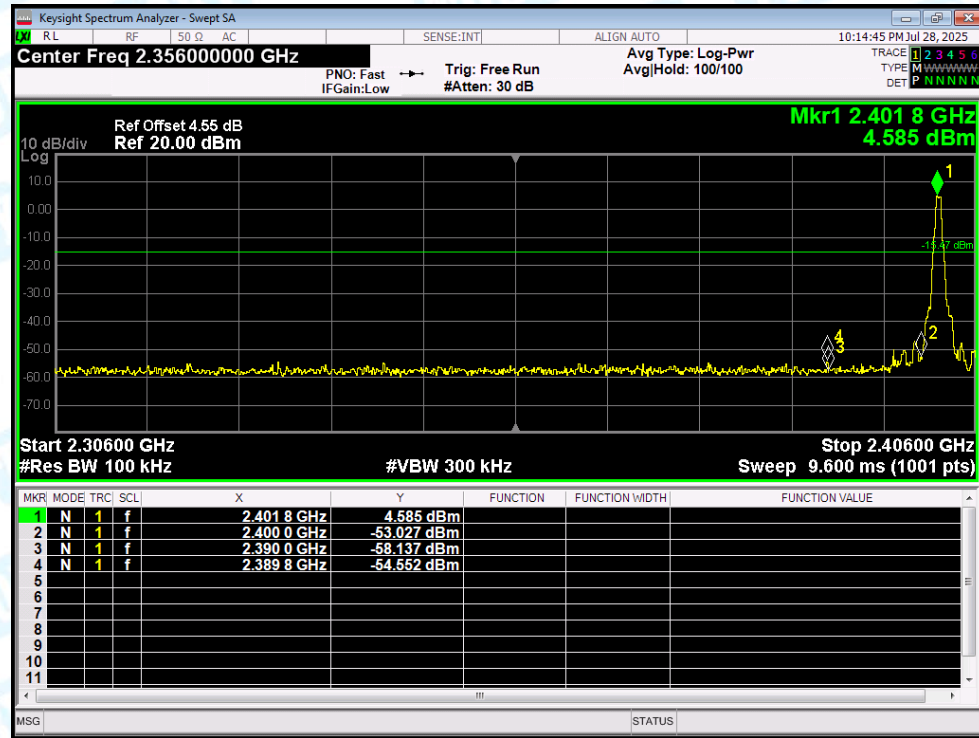
Condition	Mode	Frequency (MHz)	Antenna	Hopping Mode	Max Value (dBc)	Limit (dBc)	Verdict
NVNT	1-DH1	2402	Ant1	No-Hopping	-59.08	-20	Pass
NVNT	1-DH1	2480	Ant1	No-Hopping	-53.92	-20	Pass
NVNT	2-DH1	2402	Ant1	No-Hopping	-58.39	-20	Pass
NVNT	2-DH1	2480	Ant1	No-Hopping	-54.23	-20	Pass
NVNT	3-DH1	2402	Ant1	No-Hopping	-58.28	-20	Pass
NVNT	3-DH1	2480	Ant1	No-Hopping	-47.97	-20	Pass

Test Graphs

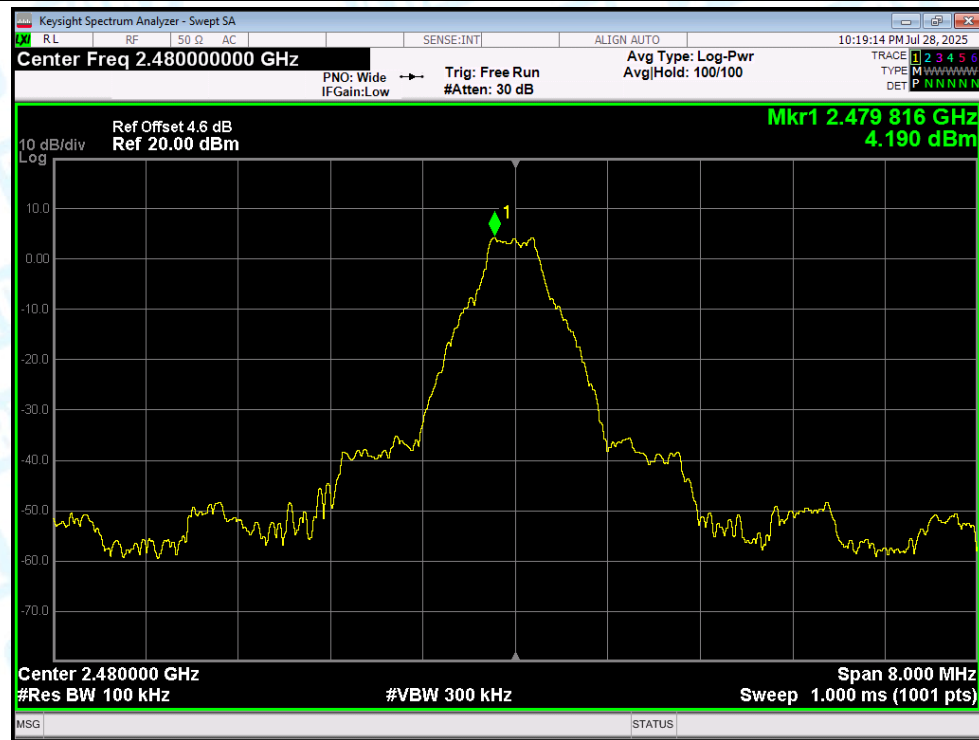
Band Edge NVNT 1-DH1 2402MHz Ant1 No-Hopping Ref



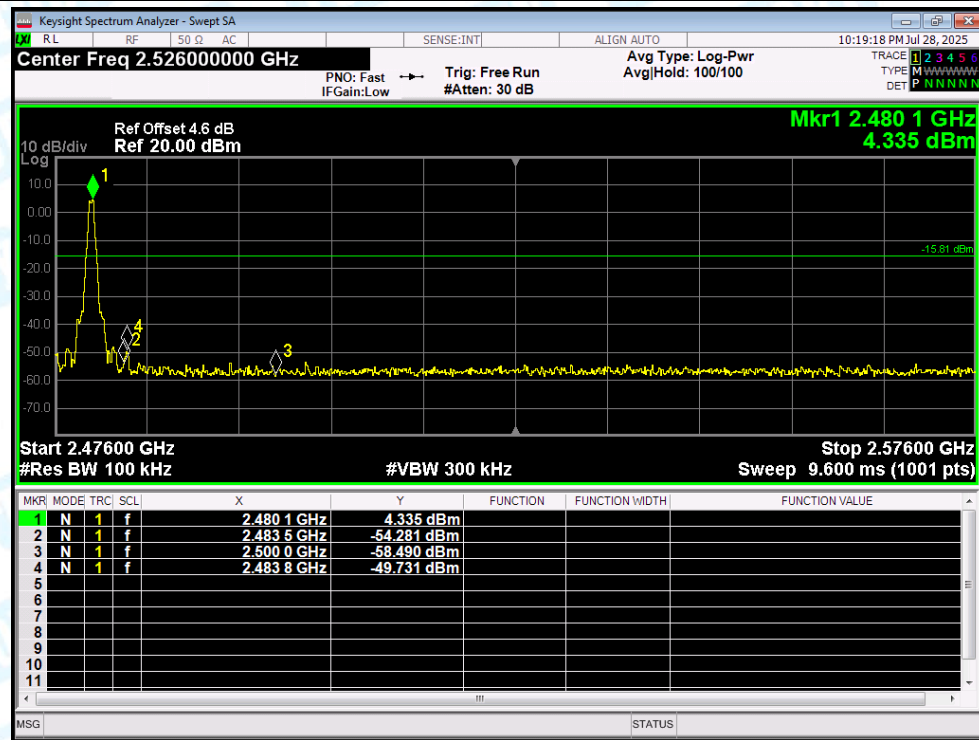
Band Edge NVNT 1-DH1 2402MHz Ant1 No-Hopping Emission

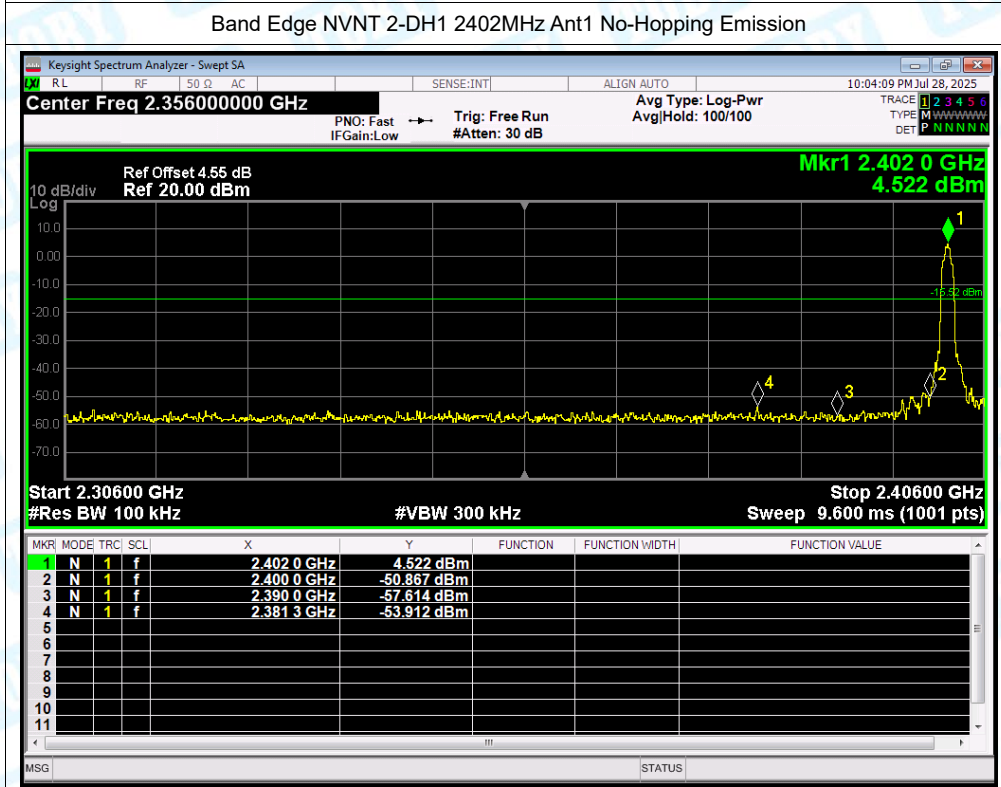
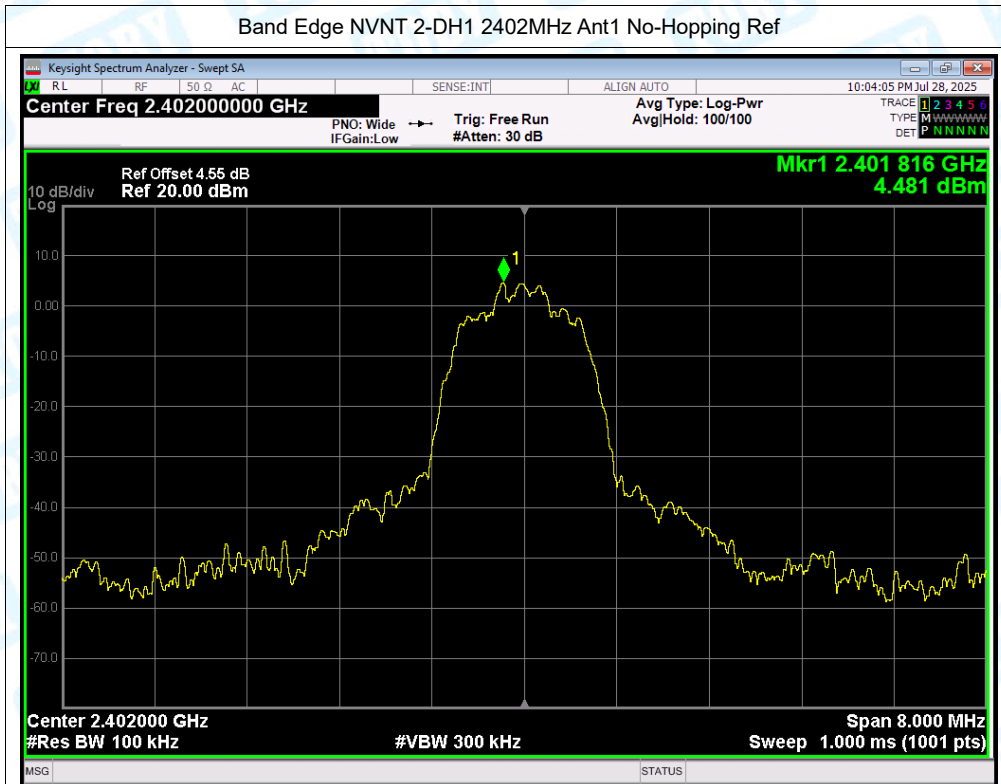


Band Edge NVNT 1-DH1 2480MHz Ant1 No-Hopping Ref



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

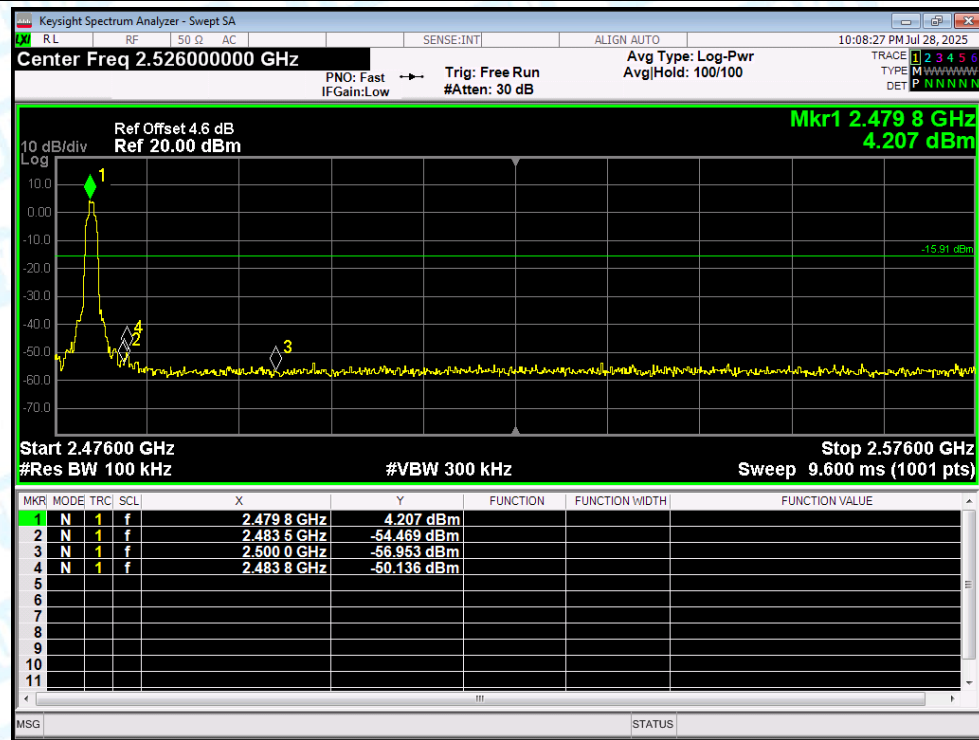




Band Edge NVNT 2-DH1 2480MHz Ant1 No-Hopping Ref



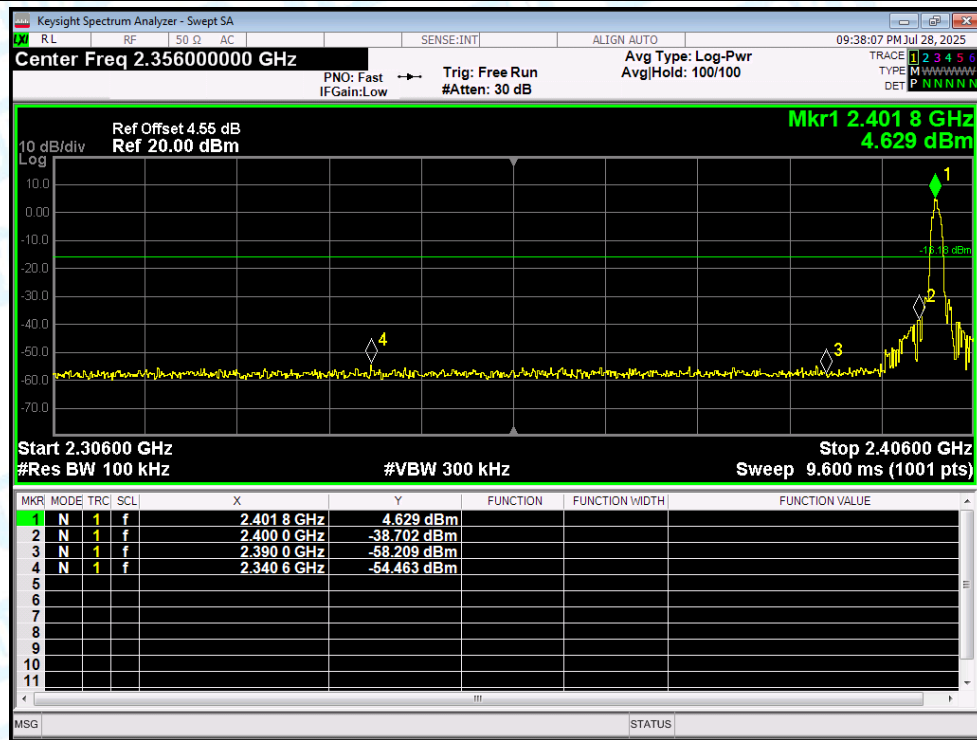
Band Edge NVNT 2-DH1 2480MHz Ant1 No-Hopping Emission



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



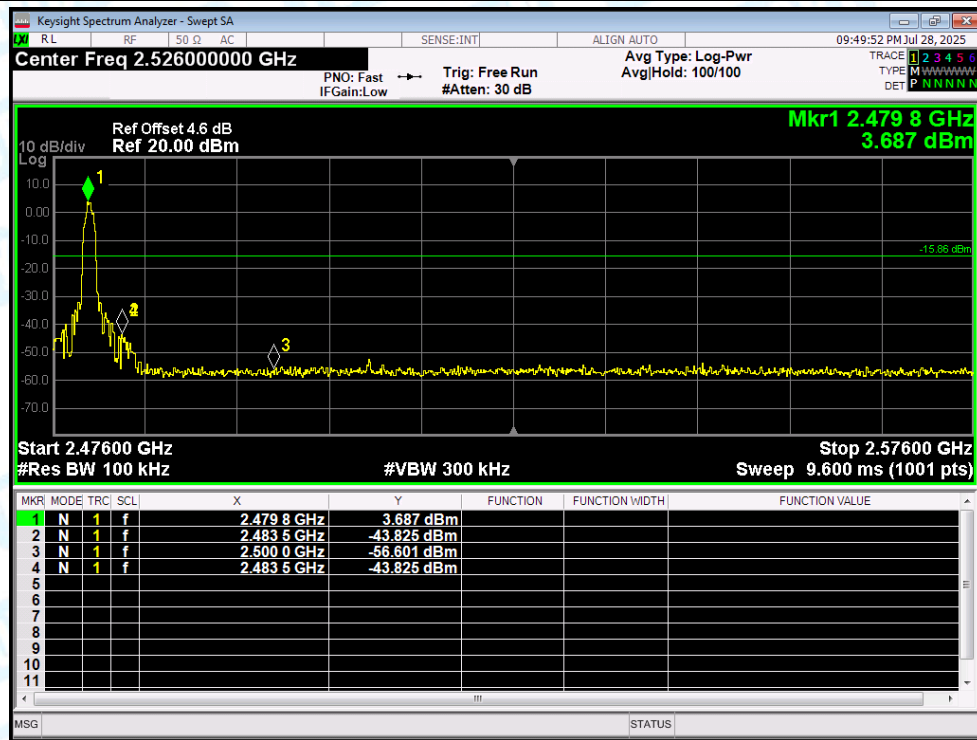
Band Edge NVNT 3-DH1 2402MHz Ant1 No-Hopping Emission



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



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



6. Band Edge(Hopping)

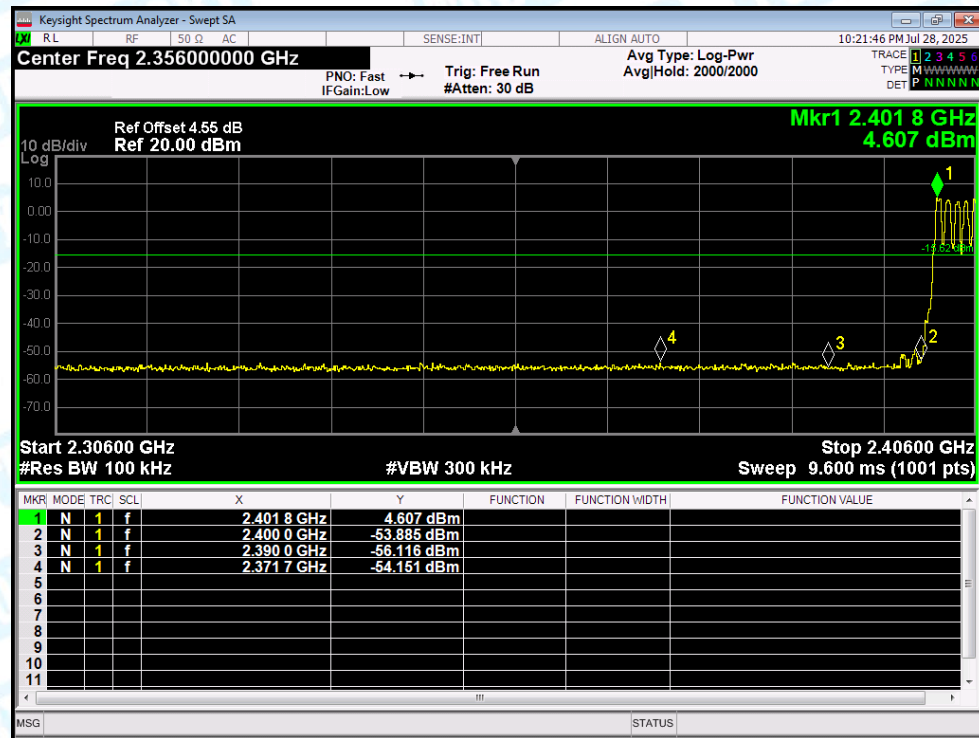
Condition	Mode	Frequency (MHz)	Antenna	Hopping Mode	Max Value (dBc)	Limit (dBc)	Verdict
NVNT	1-DH1	2402	Ant1	Hopping	-58.53	-20	Pass
NVNT	1-DH1	2480	Ant1	Hopping	-55.92	-20	Pass
NVNT	2-DH1	2402	Ant1	Hopping	-58.43	-20	Pass
NVNT	2-DH1	2480	Ant1	Hopping	-54.91	-20	Pass
NVNT	3-DH1	2402	Ant1	Hopping	-57.73	-20	Pass
NVNT	3-DH1	2480	Ant1	Hopping	-53.31	-20	Pass

Test Graphs

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



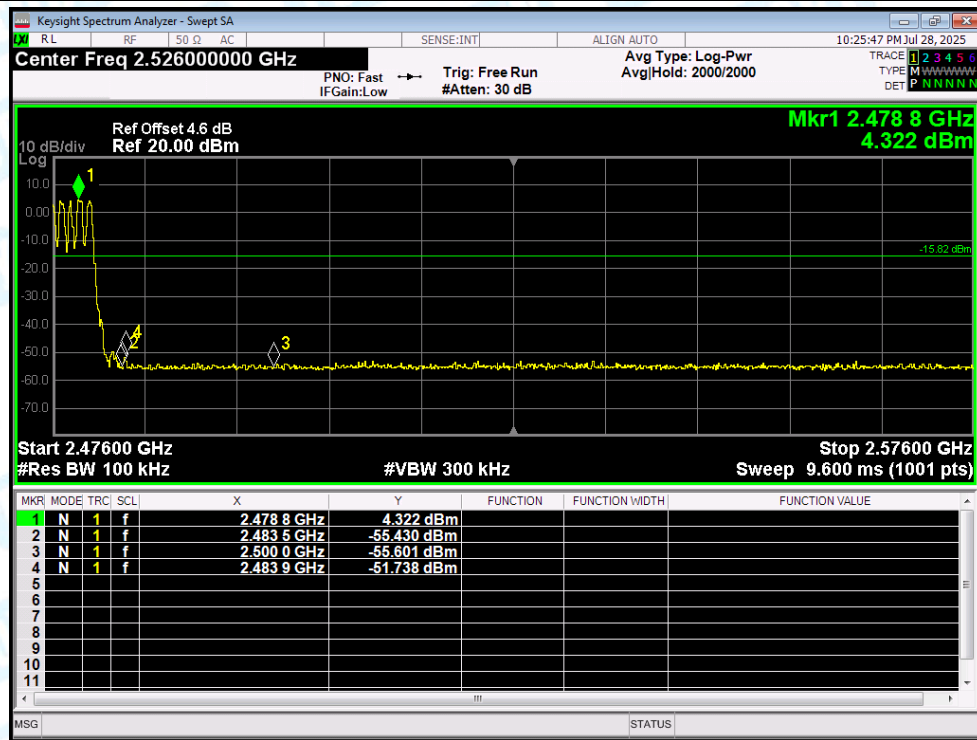
Band Edge(Hopping) NVNT 1-DH1 2402MHz Ant1 Hopping Emission



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



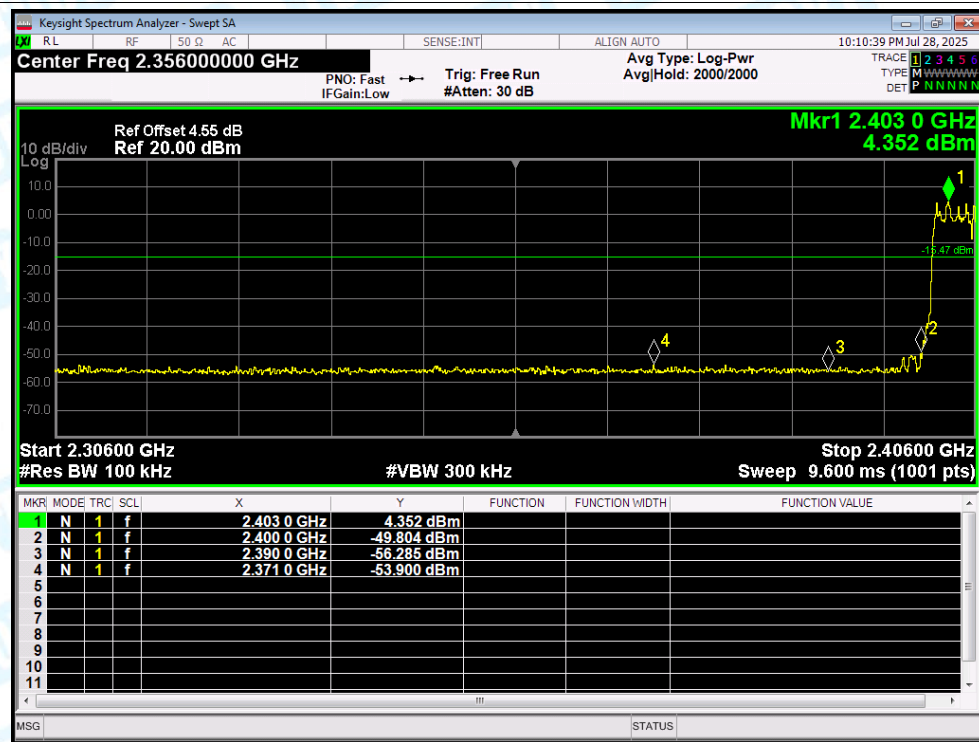
Band Edge(Hopping) NVNT 1-DH1 2480MHz Ant1 Hopping Emission

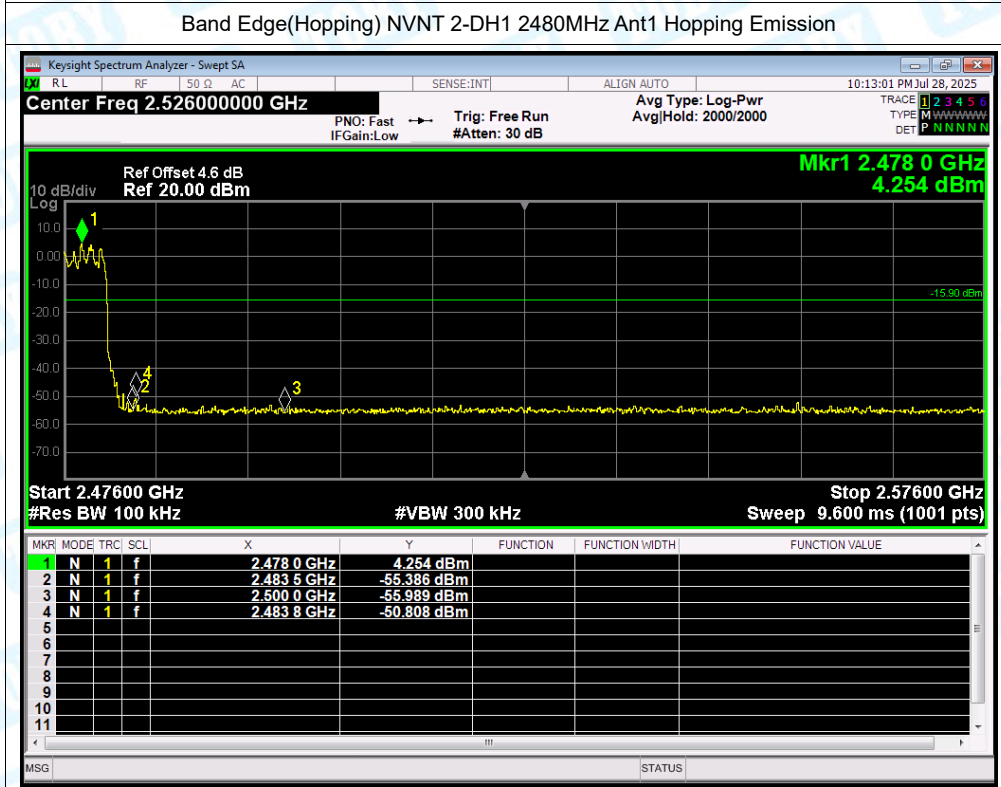


Band Edge(Hopping) NVNT 2-DH1 2402MHz Ant1 Hopping Ref



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

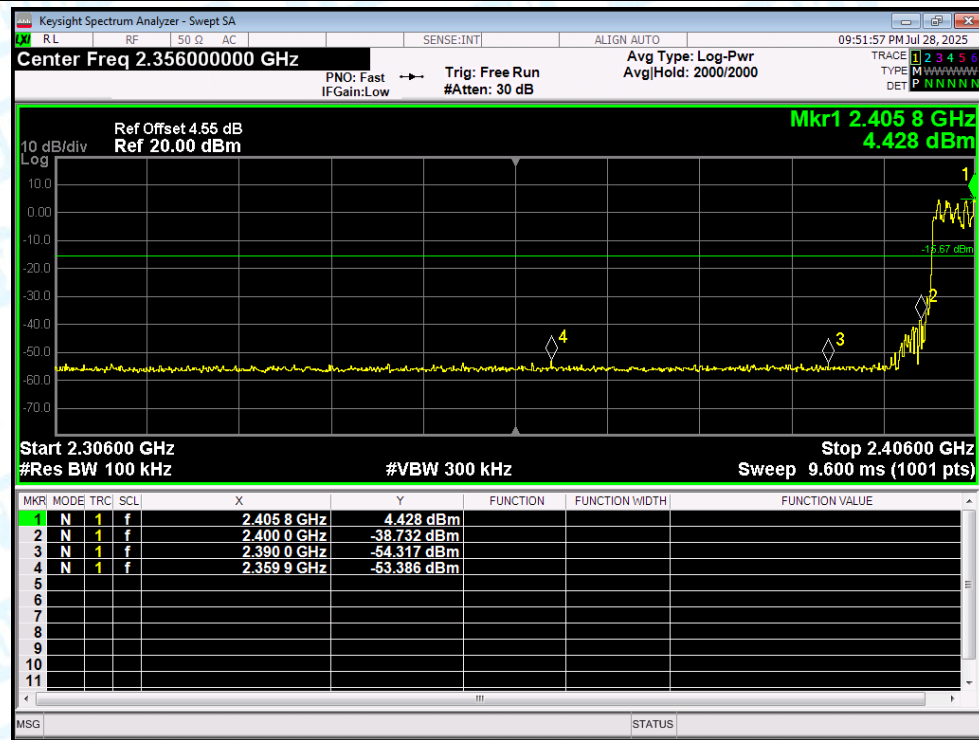


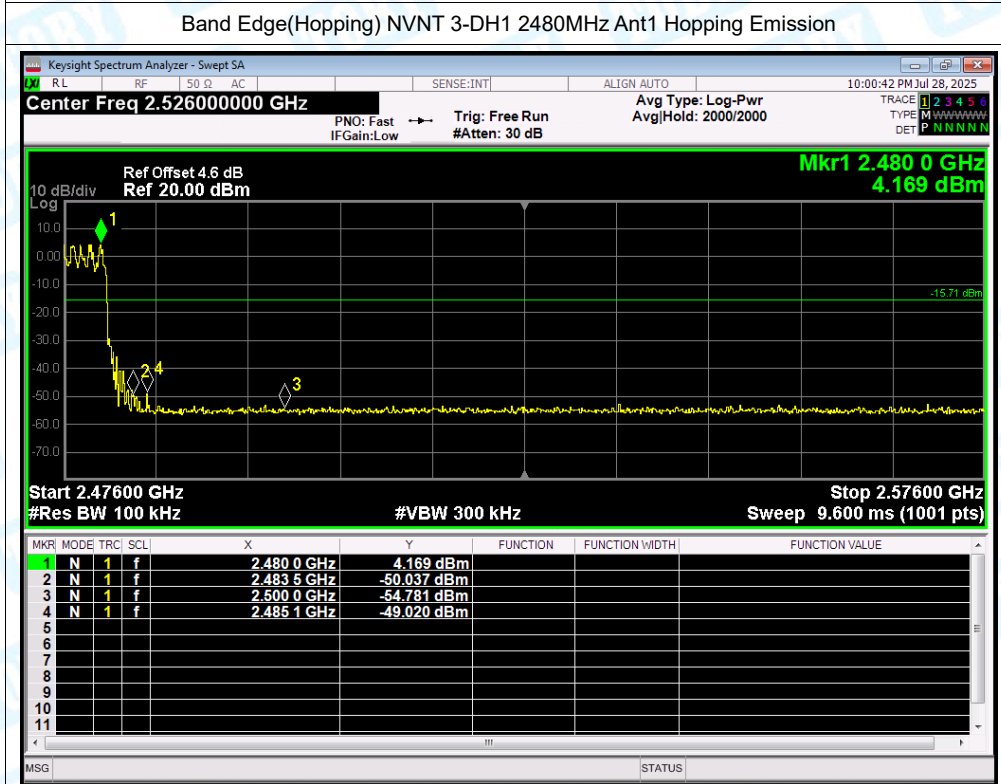
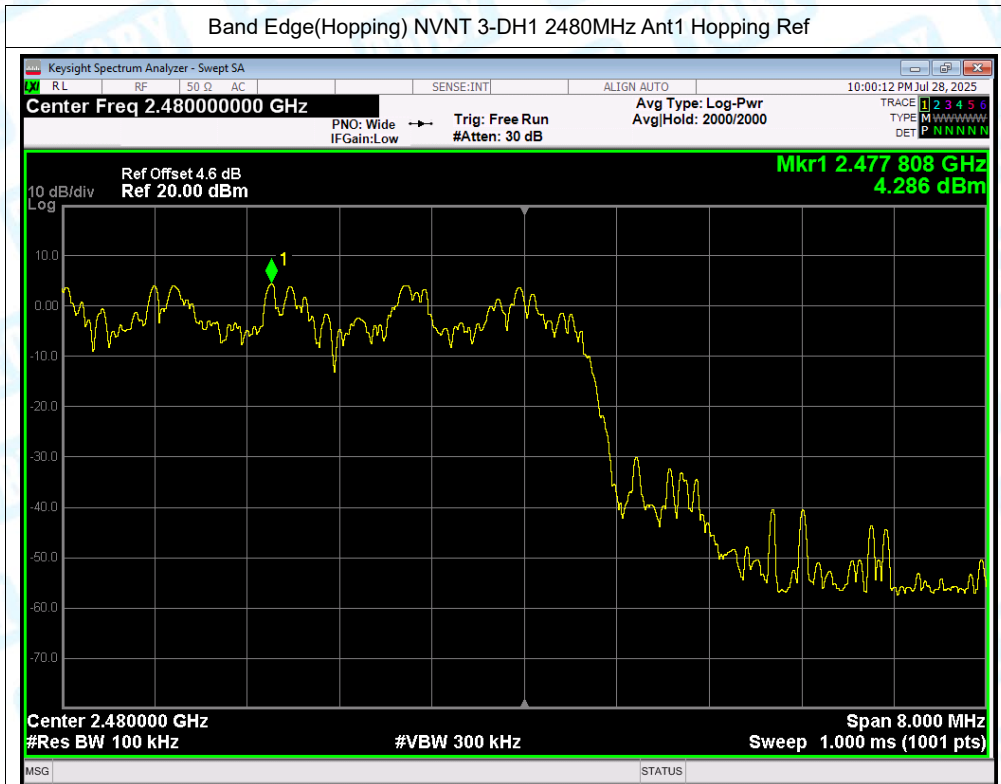


Band Edge(Hopping) NVNT 3-DH1 2402MHz Ant1 Hopping Ref



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



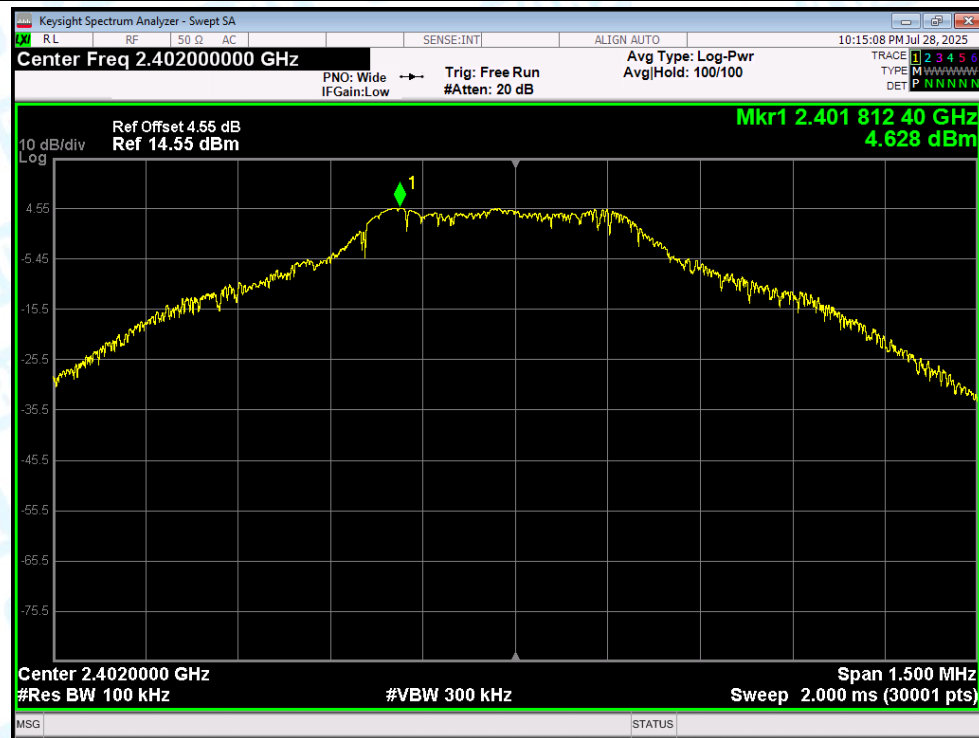


7. Conducted RF Spurious Emission

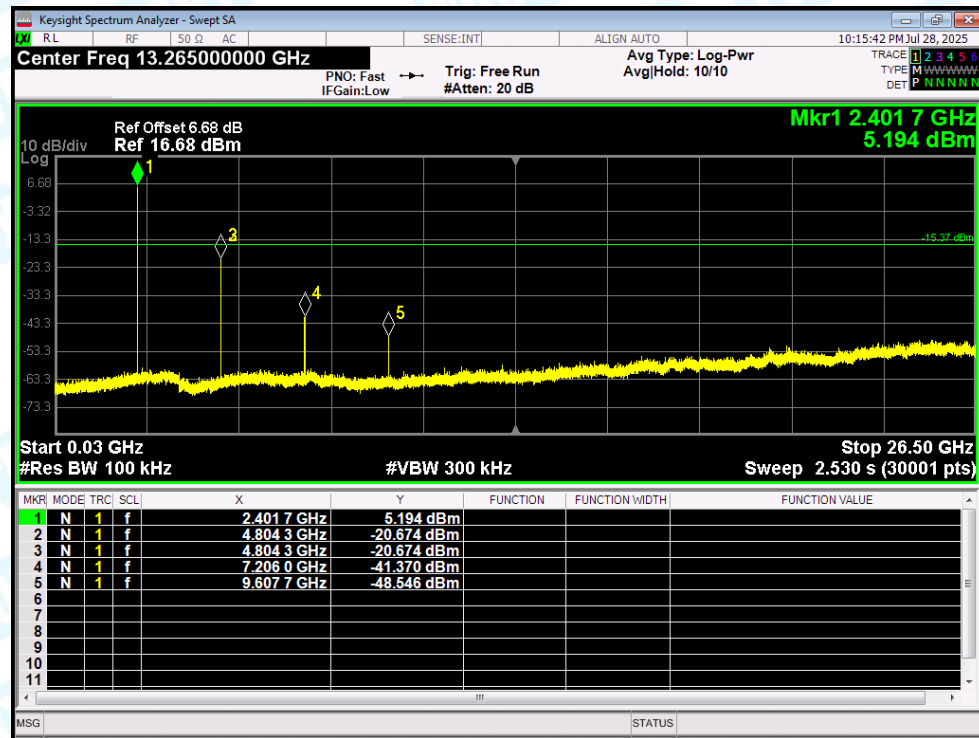
Condition	Mode	Frequency (MHz)	Antenna	Max Value (dBc)	Limit (dBc)	Verdict
NVNT	1-DH1	2402	Ant1	-25.3	-20	Pass
NVNT	1-DH1	2441	Ant1	-23.38	-20	Pass
NVNT	1-DH1	2480	Ant1	-28.06	-20	Pass
NVNT	2-DH1	2402	Ant1	-26.72	-20	Pass
NVNT	2-DH1	2441	Ant1	-24.7	-20	Pass
NVNT	2-DH1	2480	Ant1	-27.85	-20	Pass
NVNT	3-DH1	2402	Ant1	-30.12	-20	Pass
NVNT	3-DH1	2441	Ant1	-23.08	-20	Pass
NVNT	3-DH1	2480	Ant1	-22.97	-20	Pass

Test Graphs

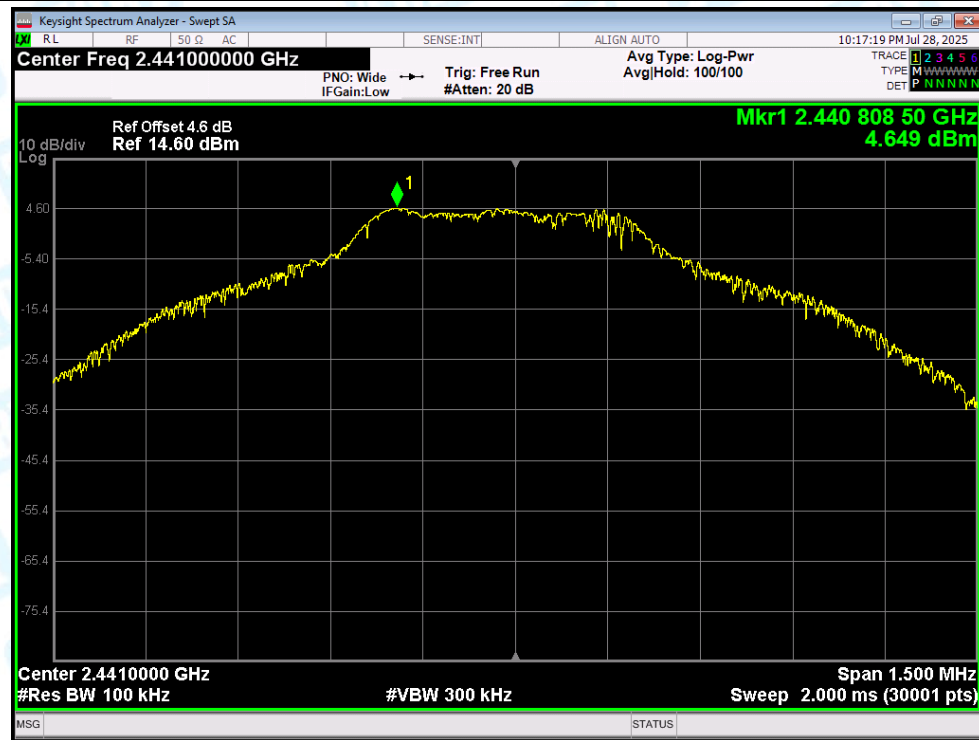
Tx. Spurious NVNT 1-DH1 2402MHz Ant1 Ref



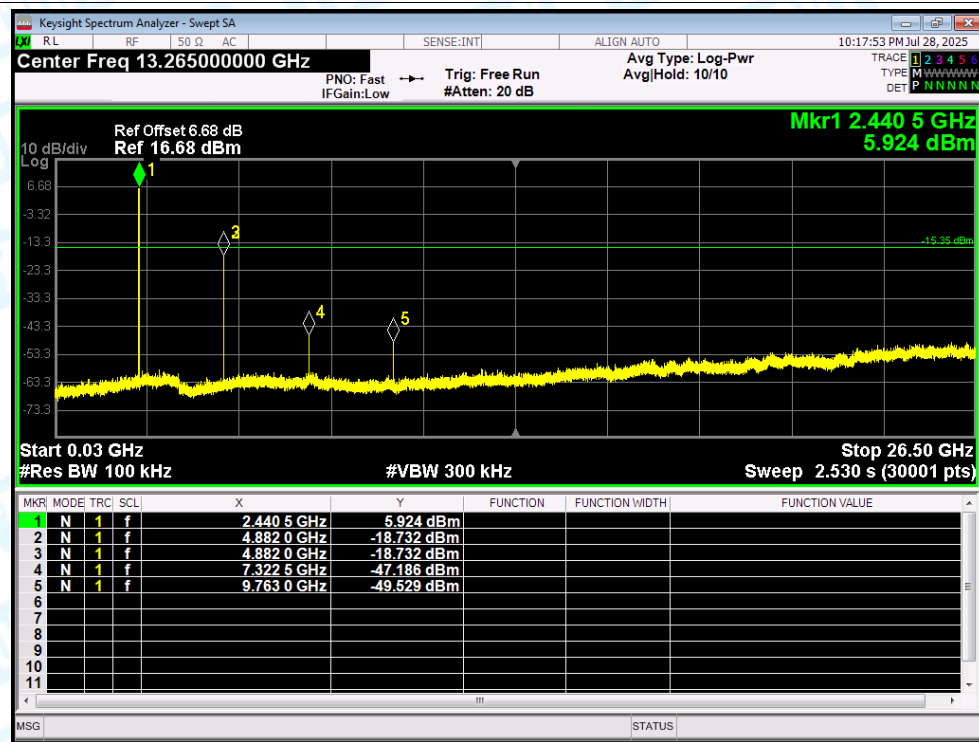
Tx. Spurious NVNT 1-DH1 2402MHz Ant1 Emission



Tx. Spurious NVNT 1-DH1 2441MHz Ant1 Ref



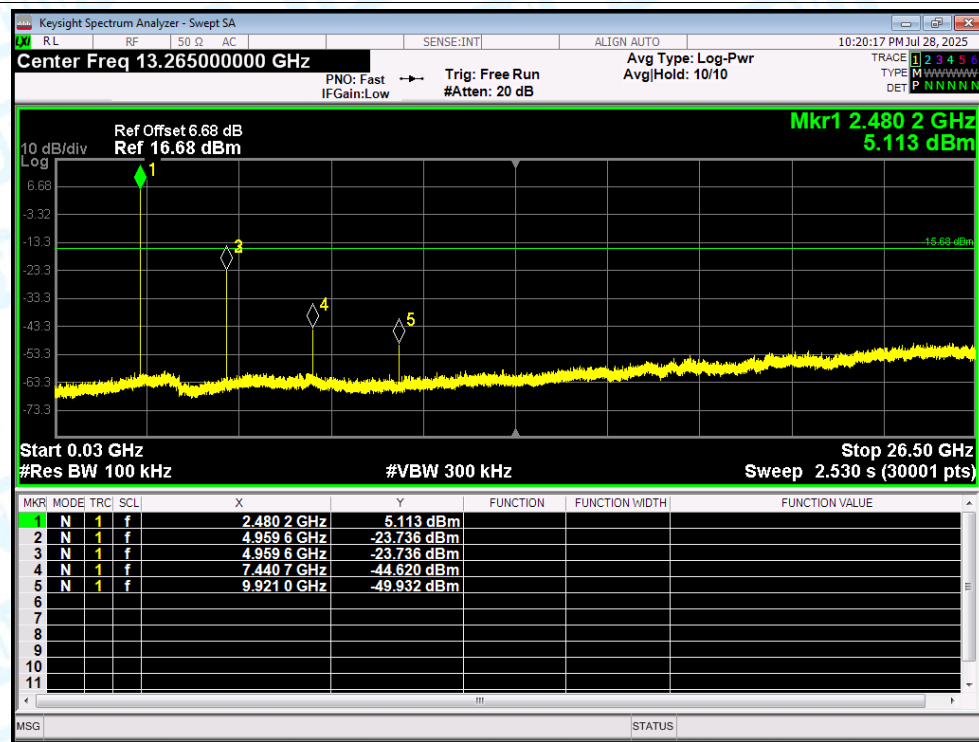
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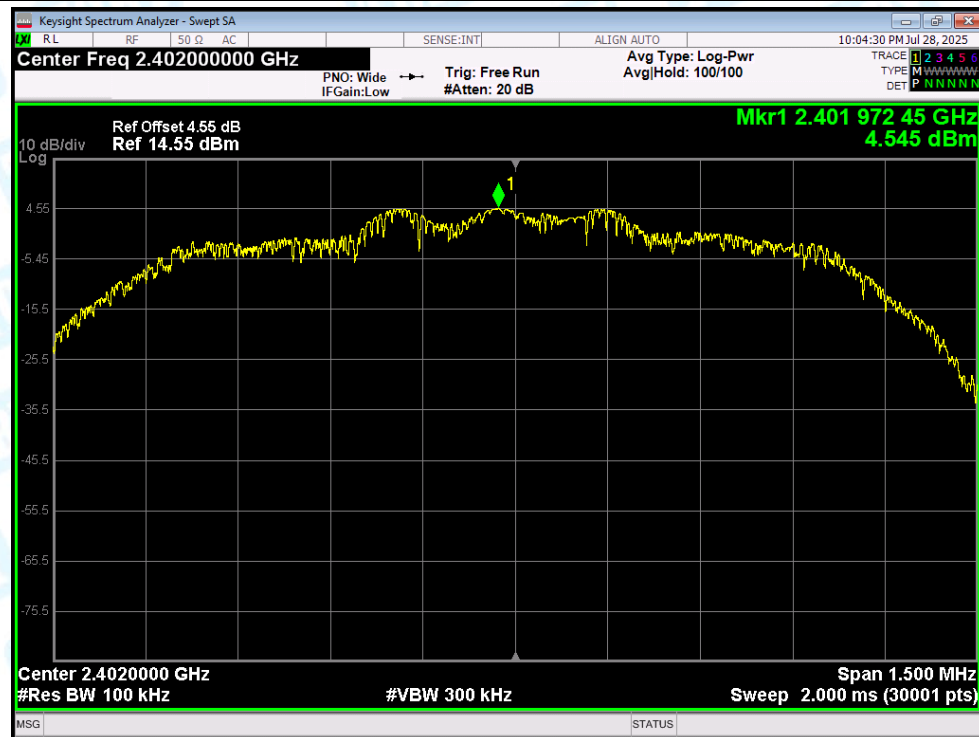
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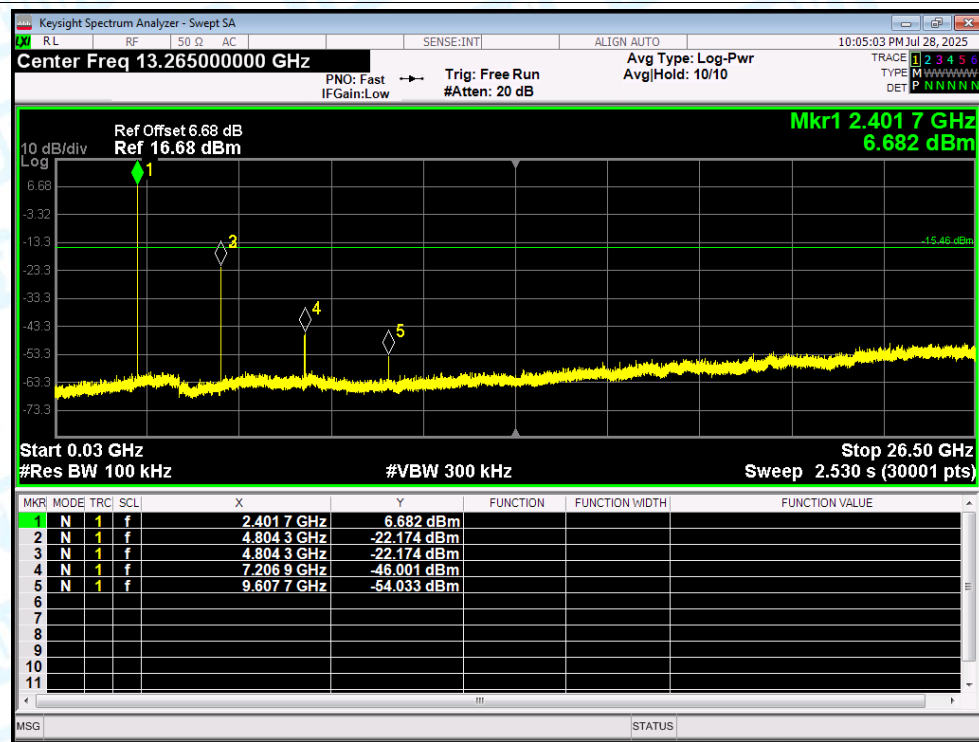
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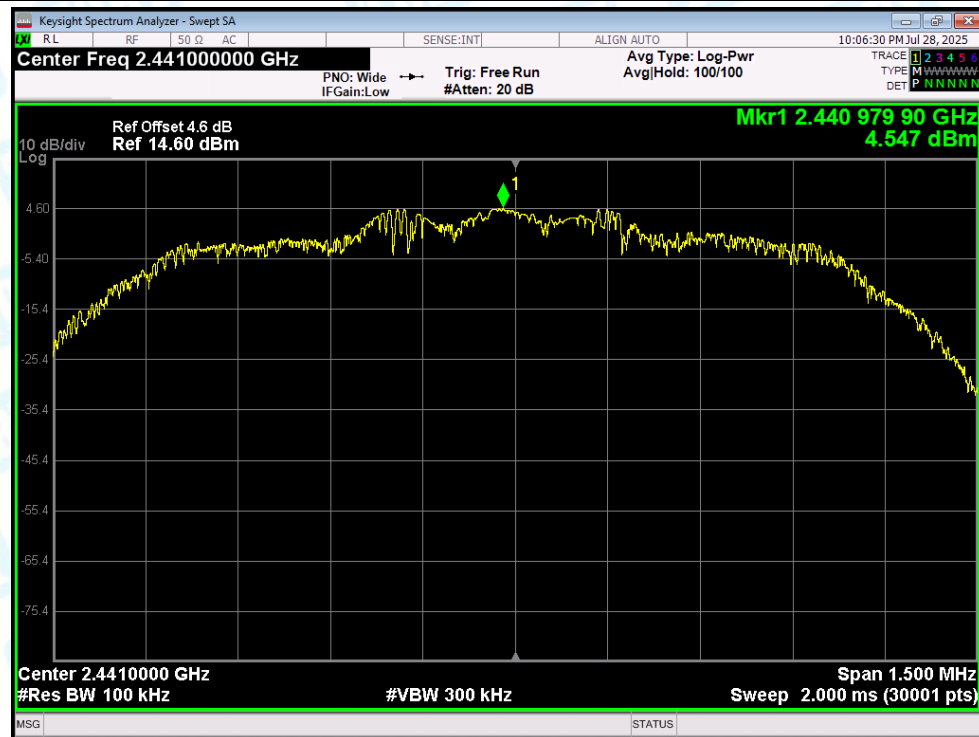
Tx. Spurious NVNT 2-DH1 2402MHz Ant1 Ref



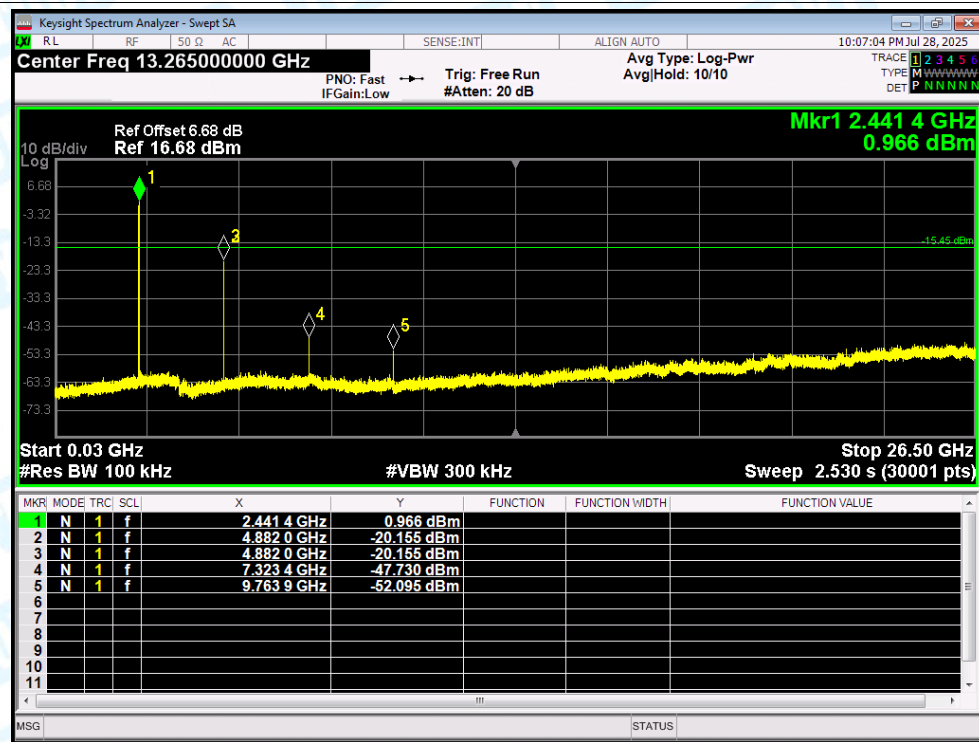
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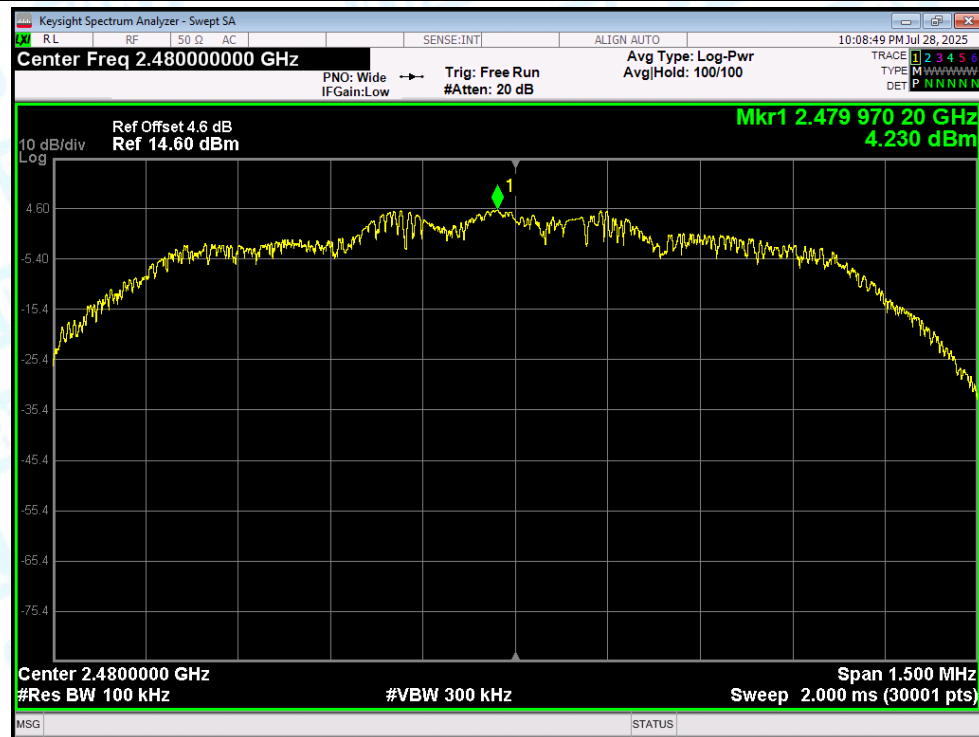
Tx. Spurious NVNT 2-DH1 2441MHz Ant1 Ref



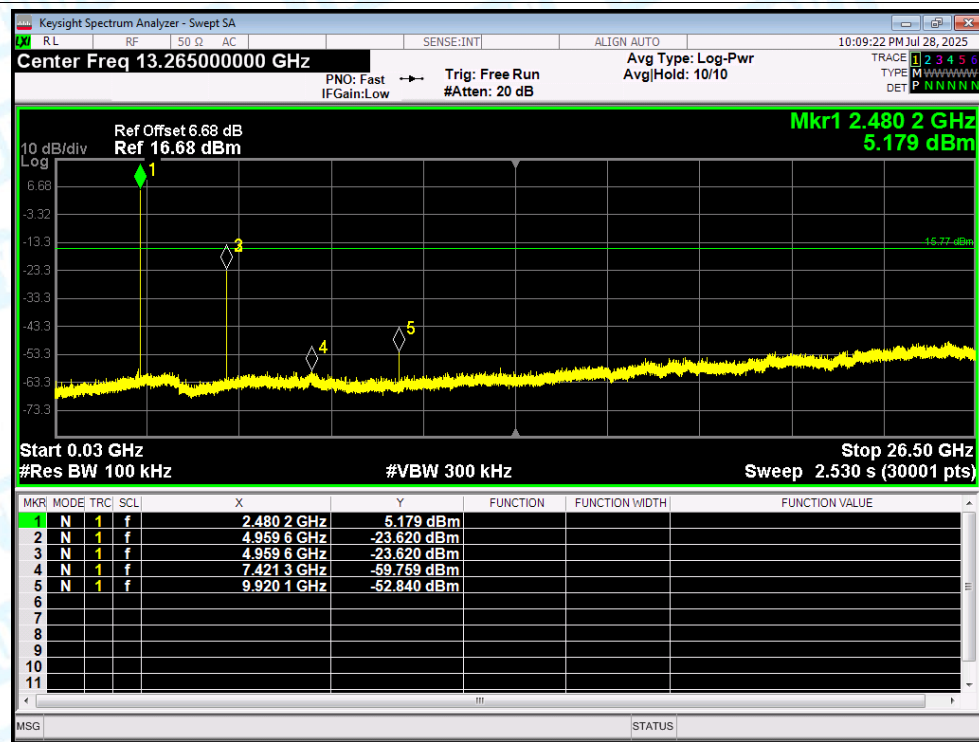
Tx. Spurious NVNT 2-DH1 2441MHz Ant1 Emission



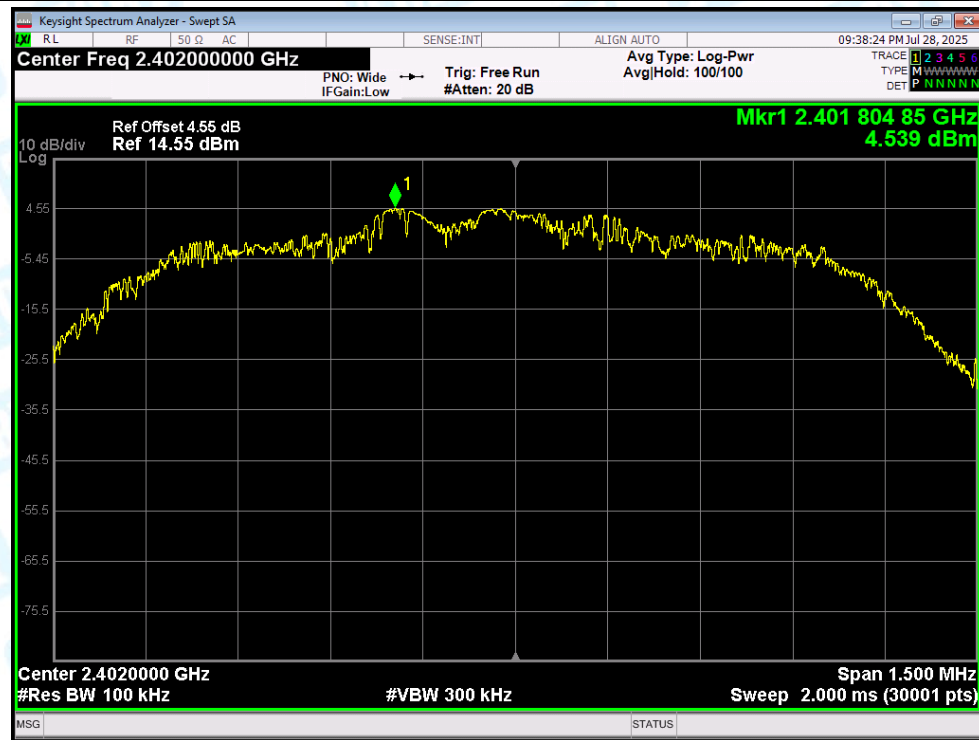
Tx. Spurious NVNT 2-DH1 2480MHz Ant1 Ref



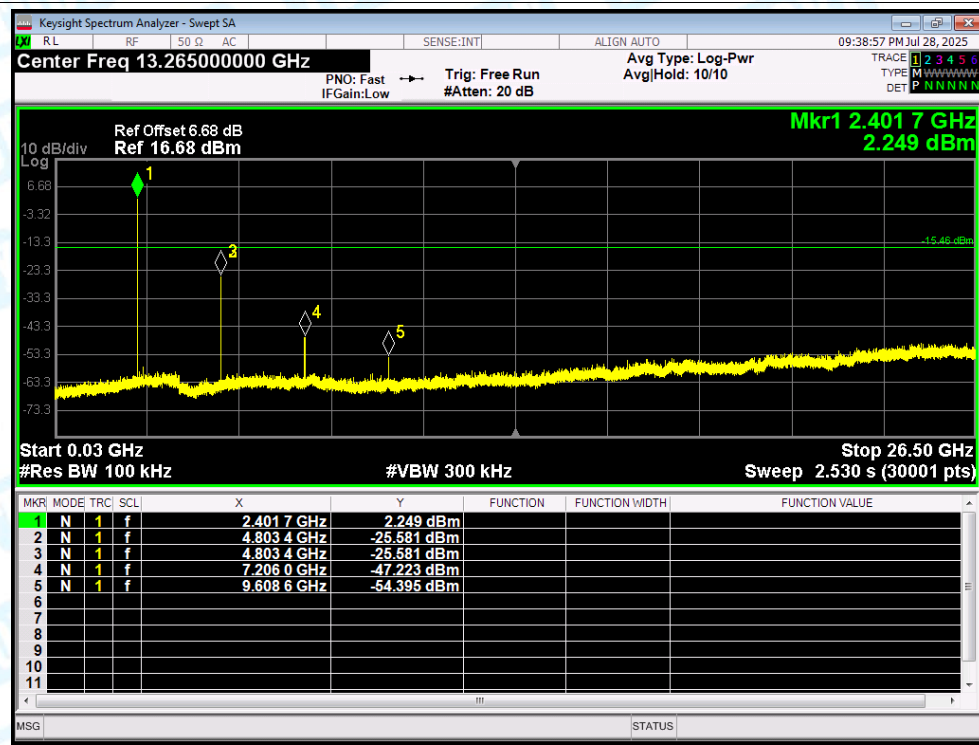
Tx. Spurious NVNT 2-DH1 2480MHz Ant1 Emission



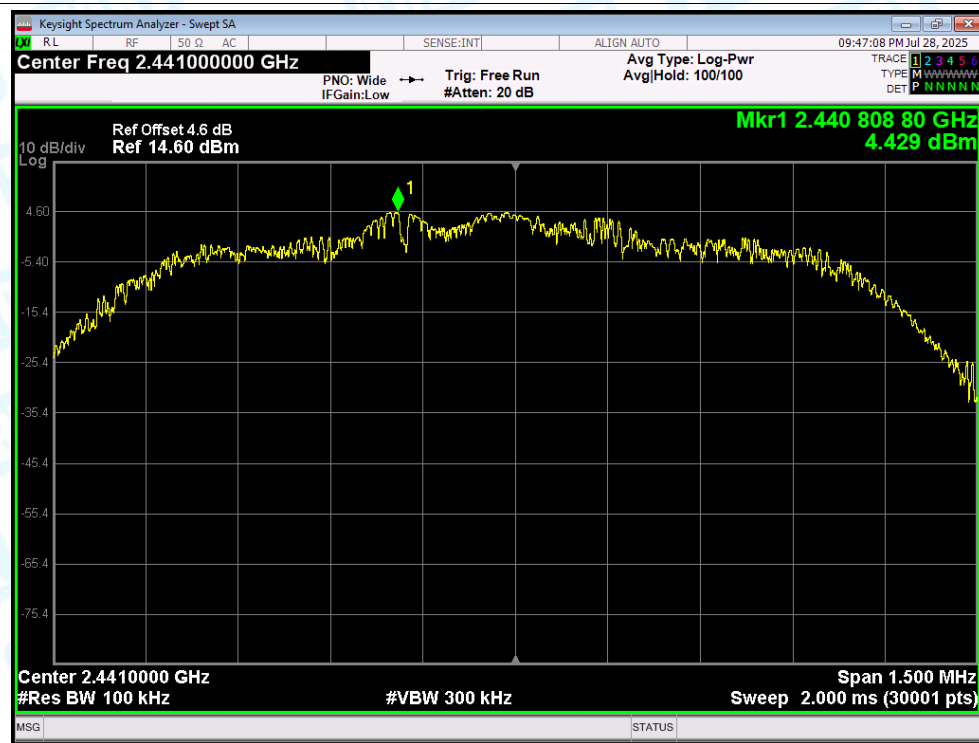
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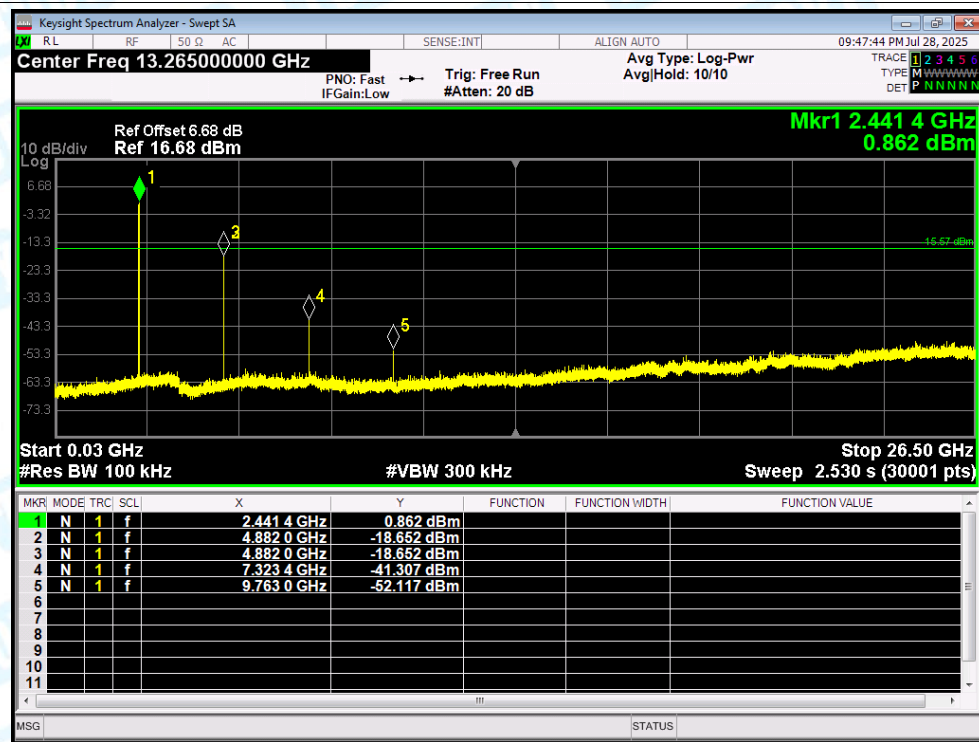
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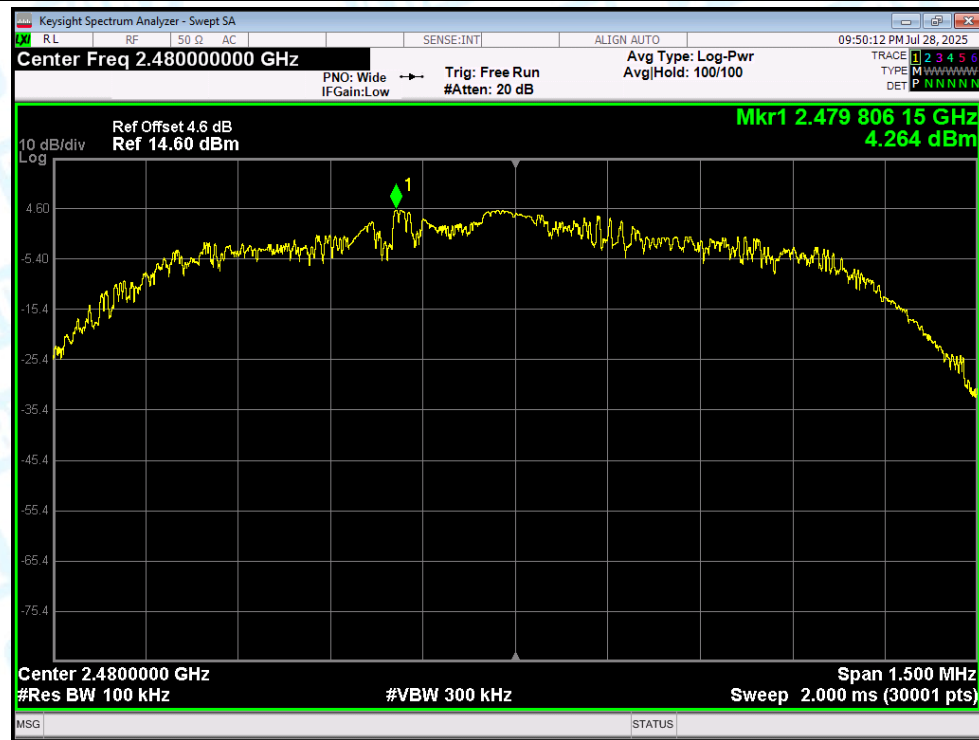
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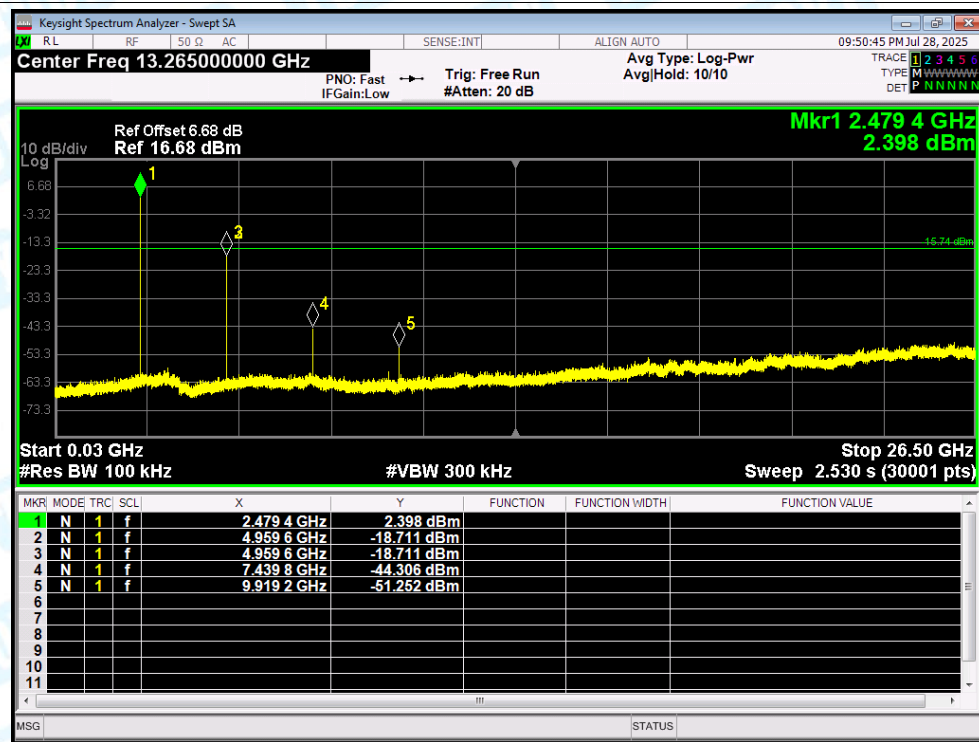
Tx. Spurious NVNT 3-DH1 2441MHz Ant1 Emission



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	-48.03	2.67	-	49.9	Peak	74	Pass
NVNT	1-DH1	2402	Ant1	No-Hopping	2310	-56.11	2.67	4.95	46.77	Average	54	Pass
NVNT	1-DH1	2402	Ant1	No-Hopping	2379.696	-44.74	2.67	-	53.19	Peak	74	Pass
NVNT	1-DH1	2402	Ant1	No-Hopping	2387.184	-55.33	2.67	4.95	47.55	Average	54	Pass
NVNT	1-DH1	2402	Ant1	No-Hopping	2390	-47.41	2.67	-	50.52	Peak	74	Pass
NVNT	1-DH1	2402	Ant1	No-Hopping	2390	-56.23	2.67	4.95	46.65	Average	54	Pass
NVNT	1-DH1	2480	Ant1	No-Hopping	2483.5	-44.48	2.67	-	53.45	Peak	74	Pass
NVNT	1-DH1	2480	Ant1	No-Hopping	2483.5	-53.78	2.67	4.84	48.99	Average	54	Pass
NVNT	1-DH1	2480	Ant1	No-Hopping	2484.448	-41.41	2.67	-	56.52	Peak	74	Pass
NVNT	1-DH1	2480	Ant1	No-Hopping	2483.68	-52.89	2.67	4.84	49.88	Average	54	Pass
NVNT	1-DH1	2480	Ant1	No-Hopping	2500	-47.12	2.67	-	50.81	Peak	74	Pass
NVNT	1-DH1	2480	Ant1	No-Hopping	2500	-55.49	2.67	4.84	47.28	Average	54	Pass
NVNT	2-DH1	2402	Ant1	No-Hopping	2310	-47.28	2.67	-	50.65	Peak	74	Pass
NVNT	2-DH1	2402	Ant1	No-Hopping	2310	-55.75	2.67	4.74	46.92	Average	54	Pass
NVNT	2-DH1	2402	Ant1	No-Hopping	2359.536	-45.25	2.67	-	52.68	Peak	74	Pass
NVNT	2-DH1	2402	Ant1	No-Hopping	2380.56	-55.28	2.67	4.74	47.39	Average	54	Pass
NVNT	2-DH1	2402	Ant1	No-Hopping	2390	-48.27	2.67	-	49.66	Peak	74	Pass
NVNT	2-DH1	2402	Ant1	No-Hopping	2390	-55.67	2.67	4.74	47	Average	54	Pass
NVNT	2-DH1	2480	Ant1	No-Hopping	2483.5	-43.67	2.67	-	54.26	Peak	74	Pass
NVNT	2-DH1	2480	Ant1	No-Hopping	2483.5	-53.72	2.67	4.74	48.95	Average	54	Pass
NVNT	2-DH1	2480	Ant1	No-Hopping	2483.968	-38.92	2.67	-	59.01	Peak	74	Pass
NVNT	2-DH1	2480	Ant1	No-Hopping	2483.752	-52.39	2.67	4.74	50.28	Average	54	Pass
NVNT	2-DH1	2480	Ant1	No-Hopping	2500	-47.97	2.67	-	49.96	Peak	74	Pass
NVNT	2-DH1	2480	Ant1	No-Hopping	2500	-55.54	2.67	4.74	47.13	Average	54	Pass
NVNT	3-DH1	2402	Ant1	No-Hopping	2310	-48.8	2.67	-	49.13	Peak	74	Pass
NVNT	3-DH1	2402	Ant1	No-Hopping	2310	-56.1	2.67	4.74	46.57	Average	54	Pass
NVNT	3-DH1	2402	Ant1	No-Hopping	2335.152	-45.51	2.67	-	52.42	Peak	74	Pass
NVNT	3-DH1	2402	Ant1	No-Hopping	2373.456	-55.49	2.67	4.74	47.18	Average	54	Pass
NVNT	3-DH1	2402	Ant1	No-Hopping	2390	-47.82	2.67	-	50.11	Peak	74	Pass
NVNT	3-DH1	2402	Ant1	No-Hopping	2390	-56.11	2.67	4.74	46.56	Average	54	Pass
NVNT	3-DH1	2480	Ant1	No-Hopping	2483.5	-28.74	2.67	-	69.19	Peak	74	Pass
NVNT	3-DH1	2480	Ant1	No-Hopping	2483.5	-53.54	2.67	4.74	49.13	Average	54	Pass
NVNT	3-DH1	2480	Ant1	No-Hopping	2483.632	-25.86	2.67	-	72.07	Peak	74	Pass
NVNT	3-DH1	2480	Ant1	No-Hopping	2483.944	-49.06	2.67	4.74	53.61	Average	54	Pass
NVNT	3-DH1	2480	Ant1	No-Hopping	2500	-47.47	2.67	-	50.46	Peak	74	Pass
NVNT	3-DH1	2480	Ant1	No-Hopping	2500	-55.55	2.67	4.74	47.12	Average	54	Pass