

RF Test Data for Bluetooth (Conducted Measurements)

General Description of EUT	
Product Name:	EARFREE i5
Test Model:	EARFREE i5
Sample ID:	HC-C-202402-0117-01-01
Environmental Conditions	
Temperature:	23.4°C
Relative Humidity:	46.8%
Test Voltage:	DC 3.85V
Test Engineer:	Jolin Lee
Note: For a more detailed features description, please refer to the report TBR-C-202405-0117-61 The report only show the worst case data.	

Contents

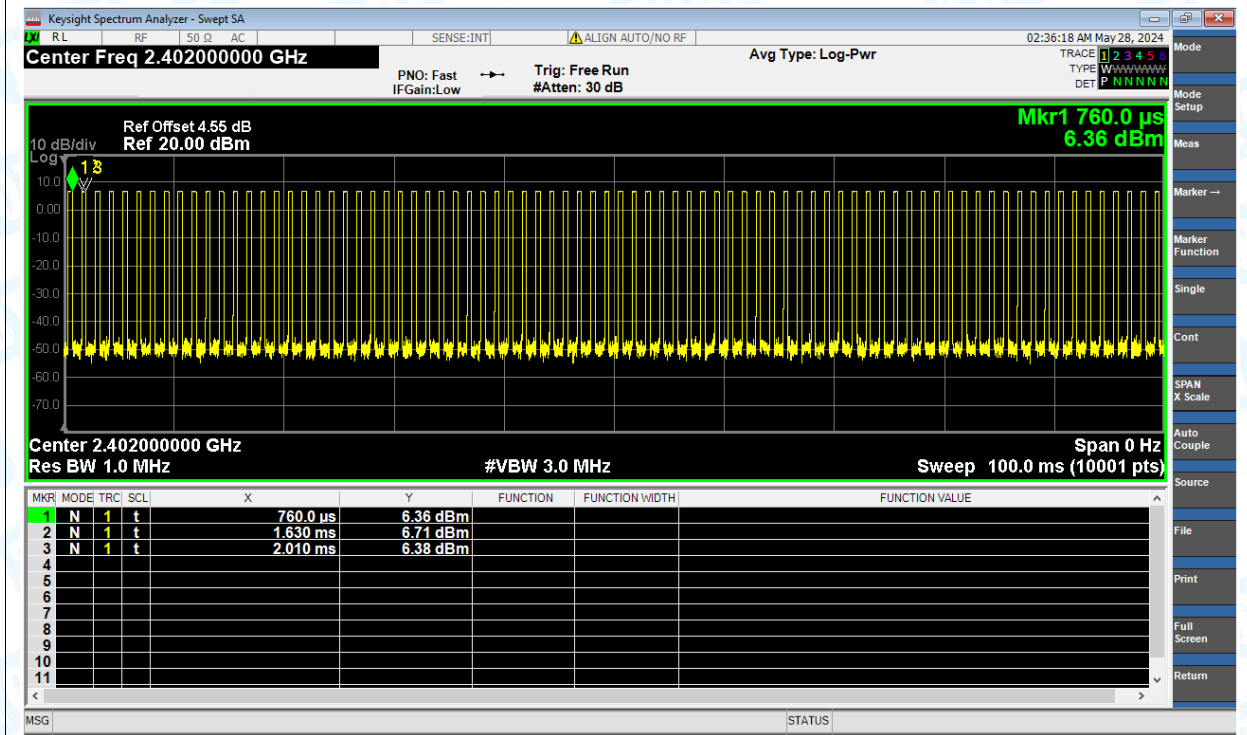
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1. Duty Cycle

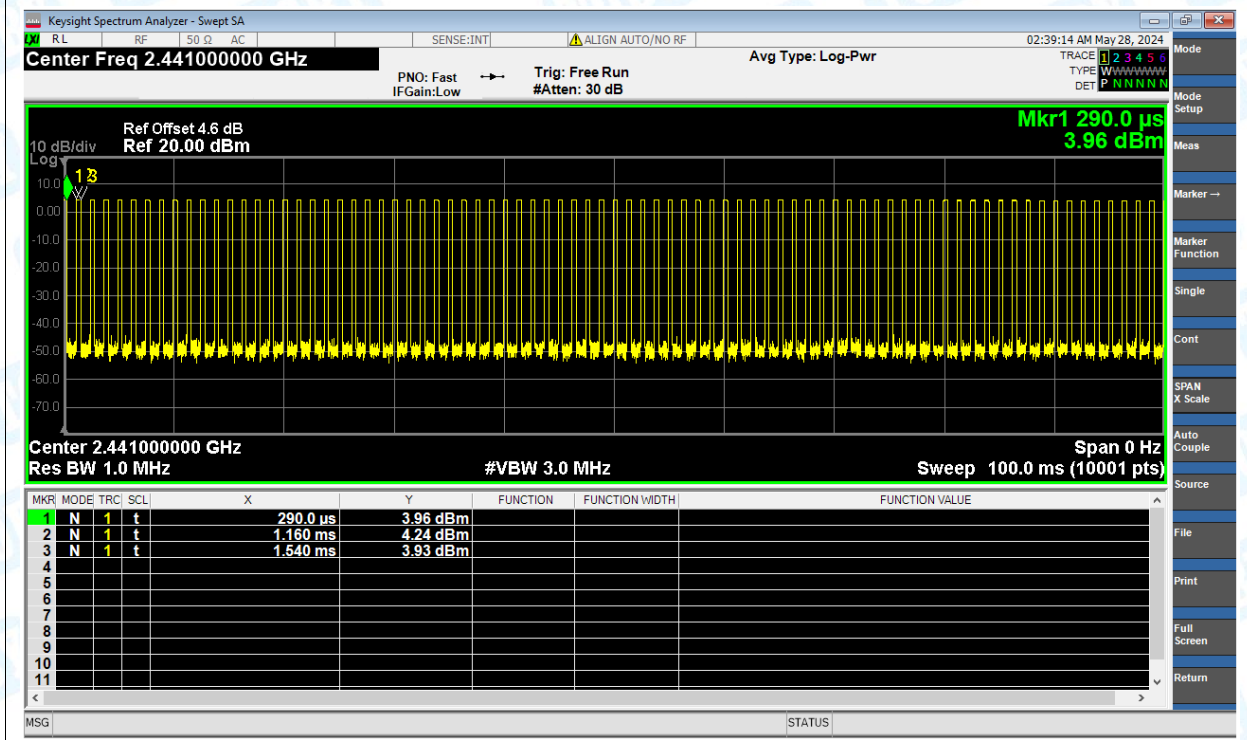
Condition	Mode	Frequency (MHz)	Antenna	Duty Cycle (%)	Correction Factor (dB)	1/T (kHz)
NVNT	1-DH1	2402	Ant1	30.4	5.17	2.63
NVNT	1-DH1	2441	Ant1	30.4	5.17	2.63
NVNT	1-DH1	2480	Ant1	31.2	5.06	2.56
NVNT	2-DH1	2402	Ant1	31.2	5.06	2.56
NVNT	2-DH1	2441	Ant1	31.2	5.06	2.56
NVNT	2-DH1	2480	Ant1	32	4.95	2.5
NVNT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

Test Graphs

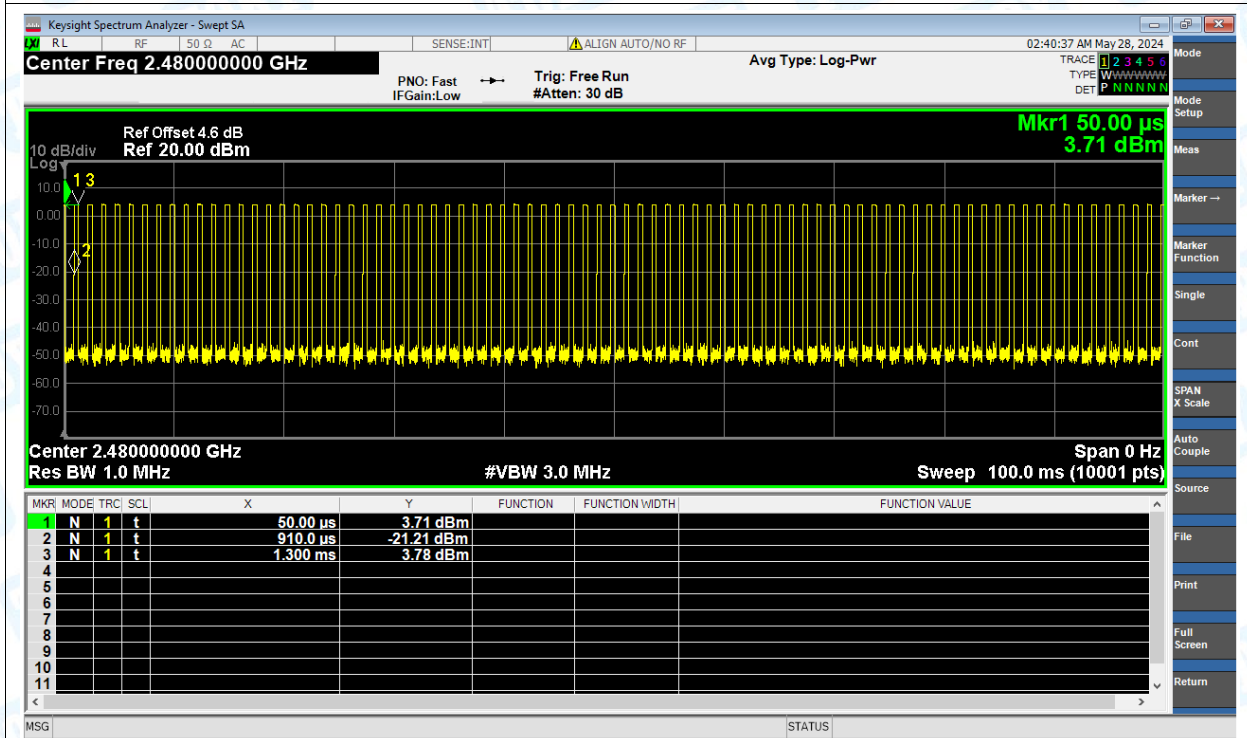
Duty Cycle NVNT 1-DH1 2402MHz Ant1



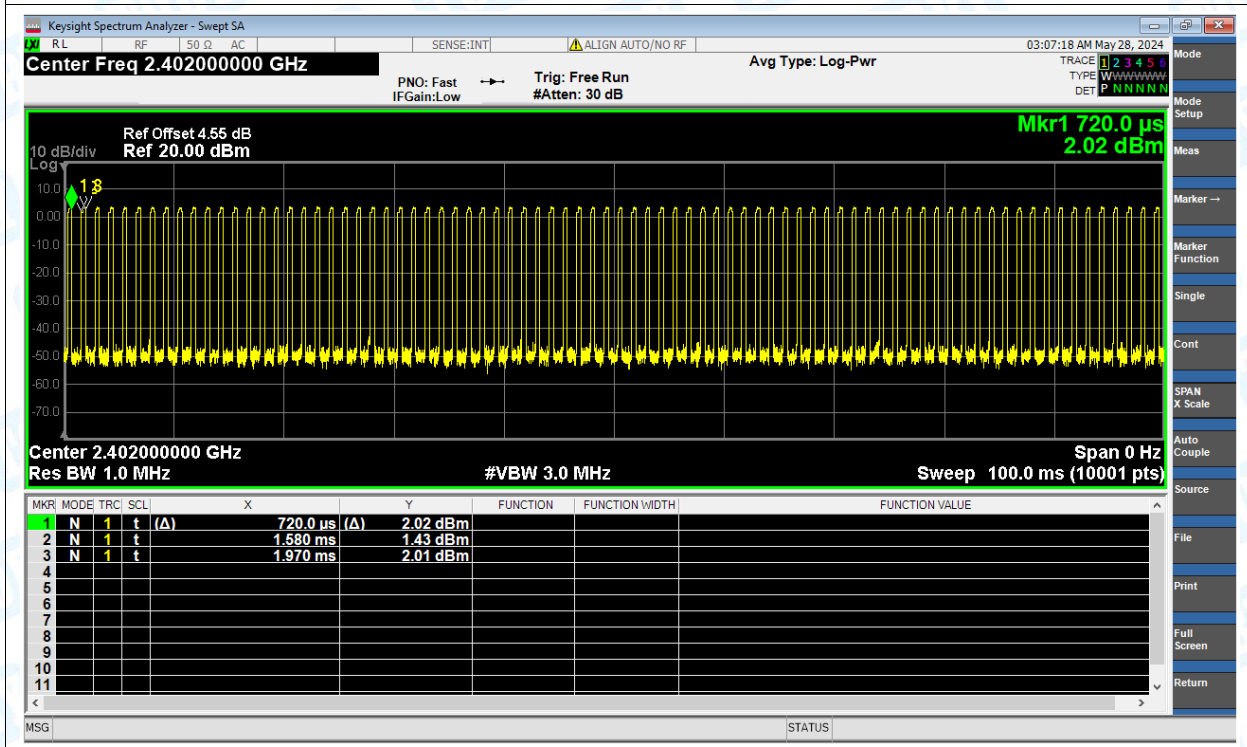
Duty Cycle NVNT 1-DH1 2441MHz Ant1



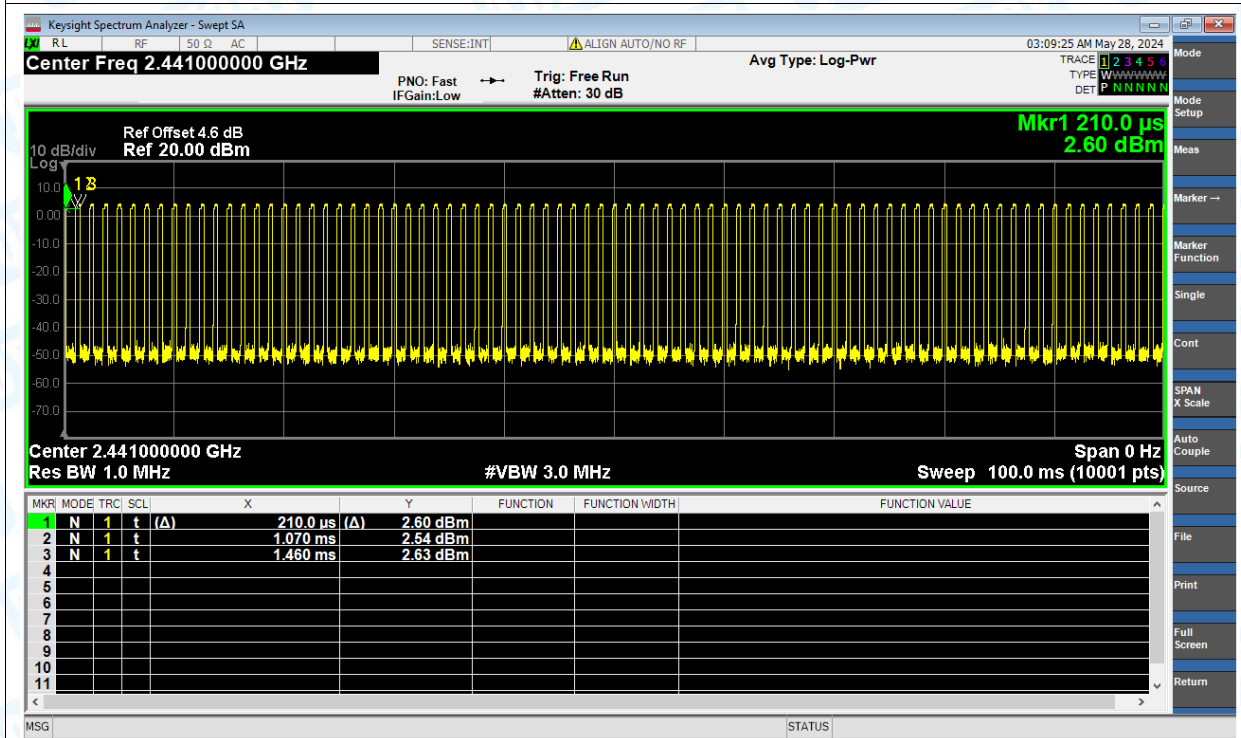
Duty Cycle NVNT 1-DH1 2480MHz Ant1



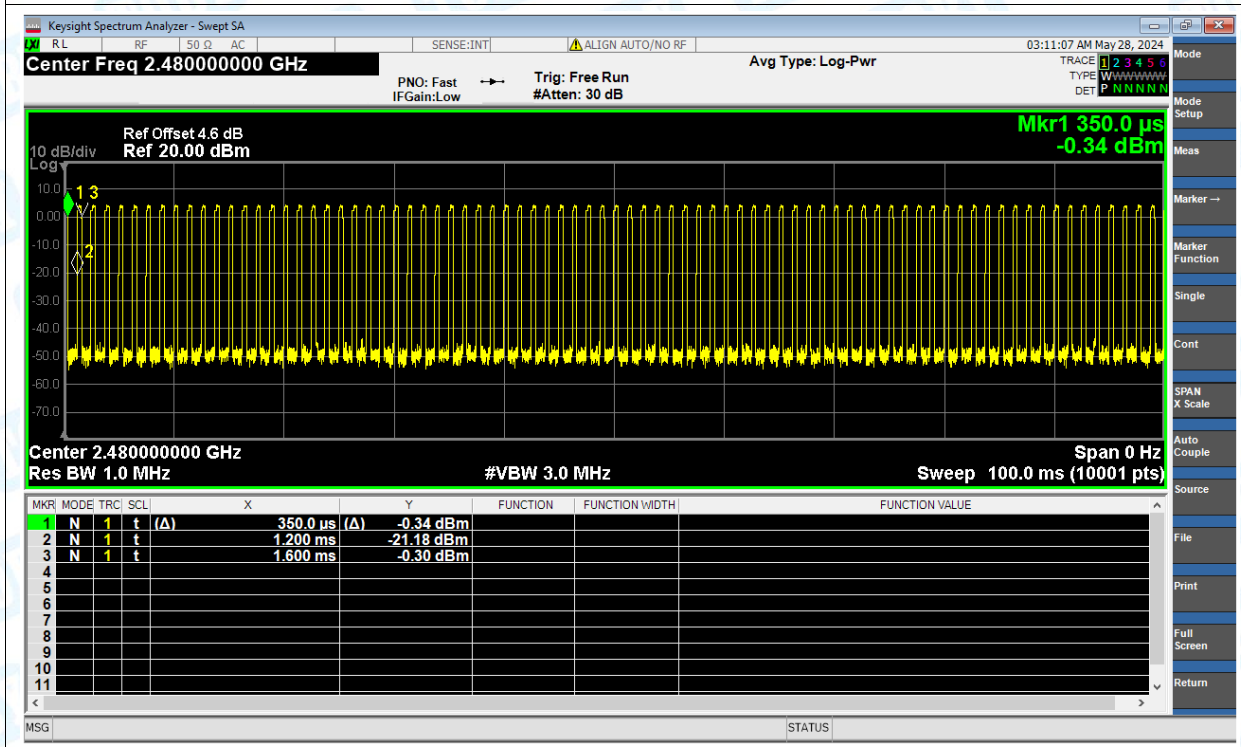
Duty Cycle NVNT 2-DH1 2402MHz Ant1



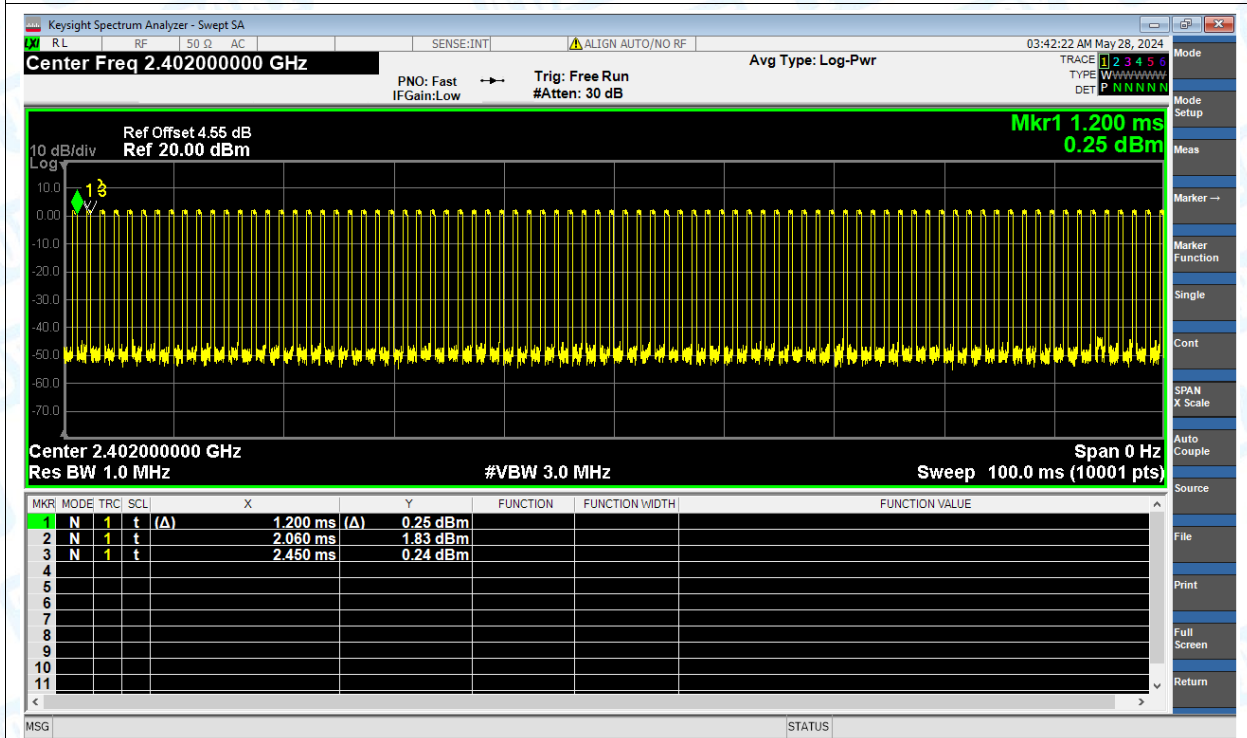
Duty Cycle NVNT 2-DH1 2441MHz Ant1



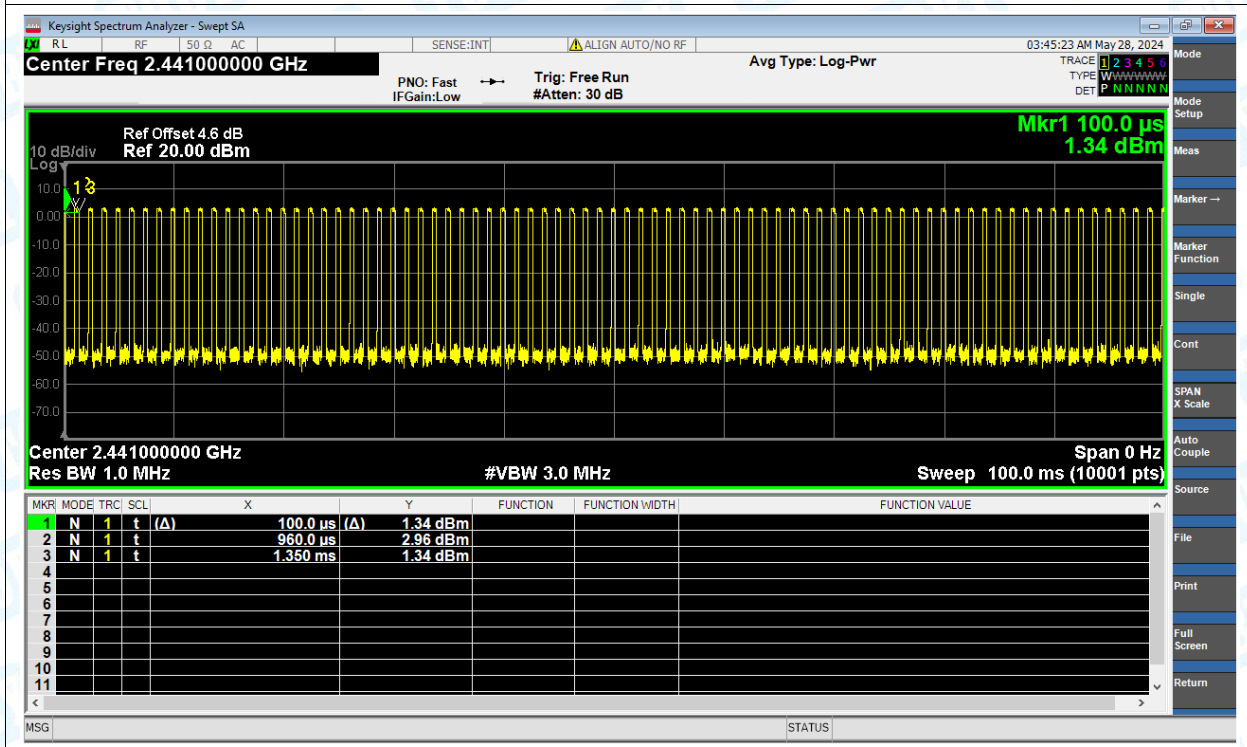
Duty Cycle NVNT 2-DH1 2480MHz Ant1

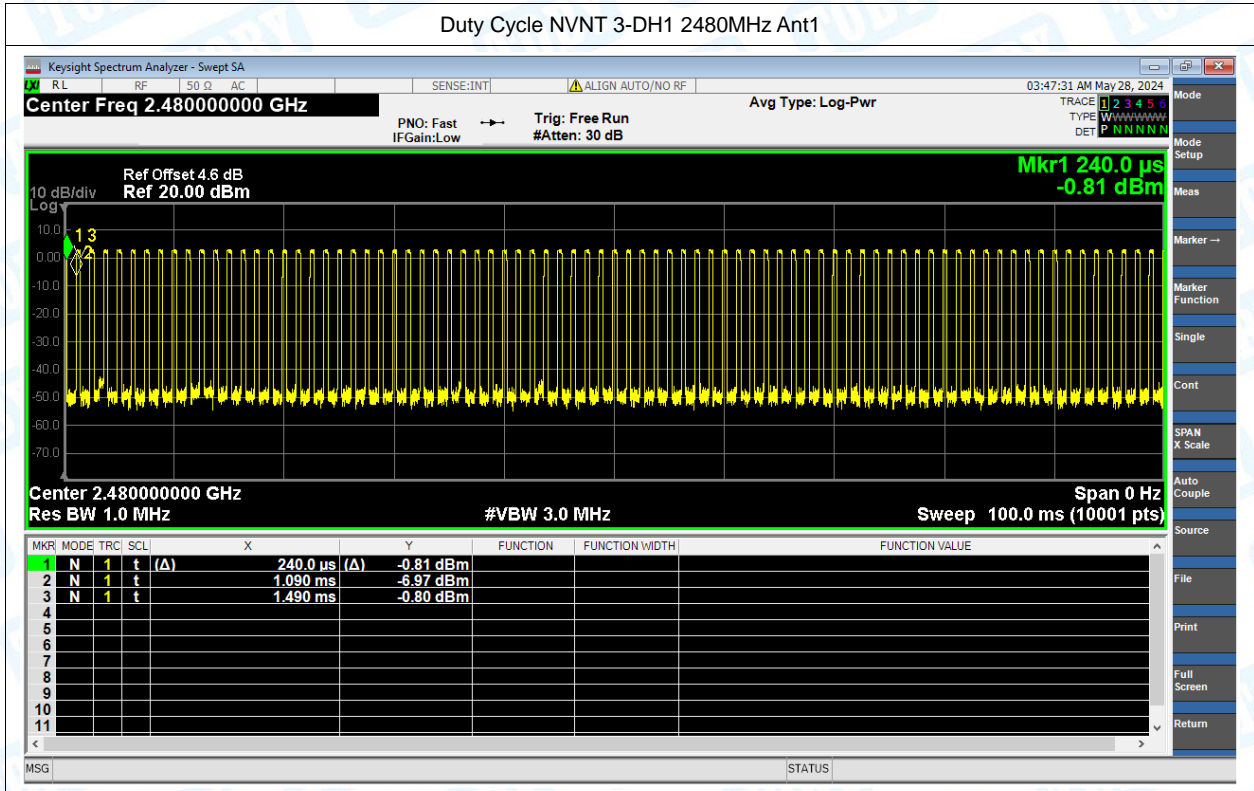


Duty Cycle NVNT 3-DH1 2402MHz Ant1



Duty Cycle NVNT 3-DH1 2441MHz Ant1



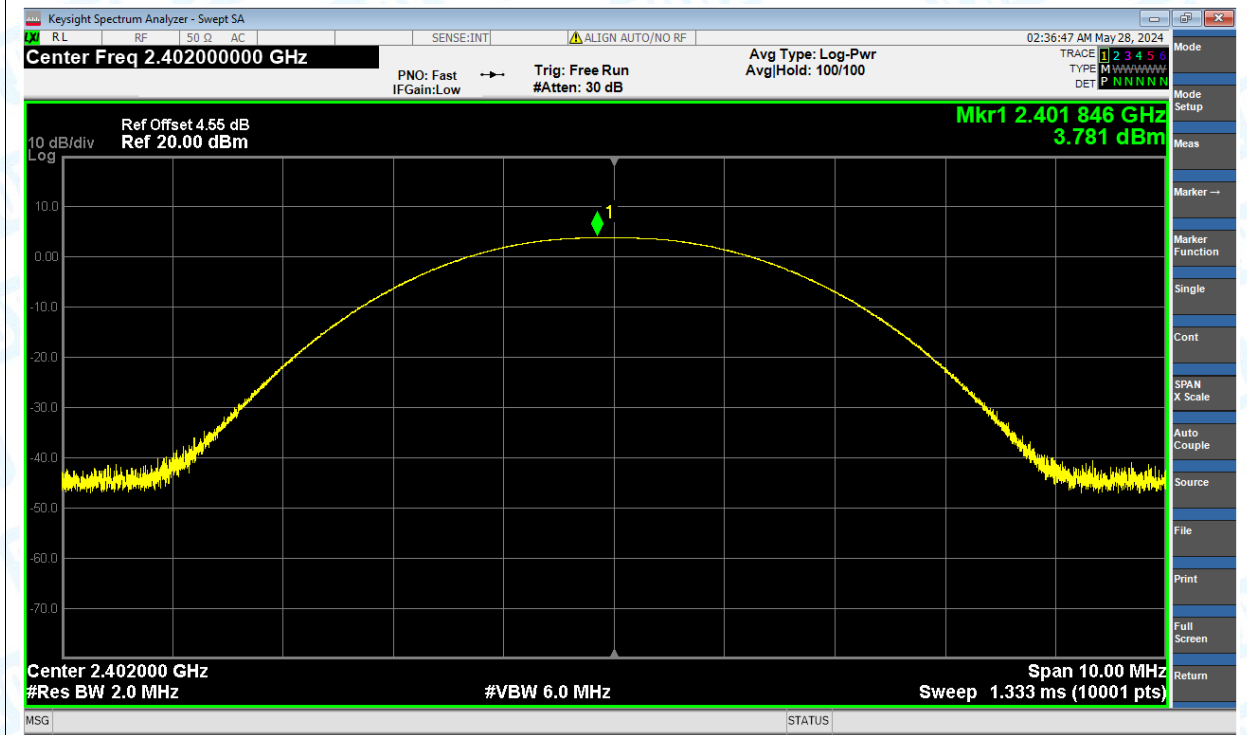


2. Maximum Conducted Output Power

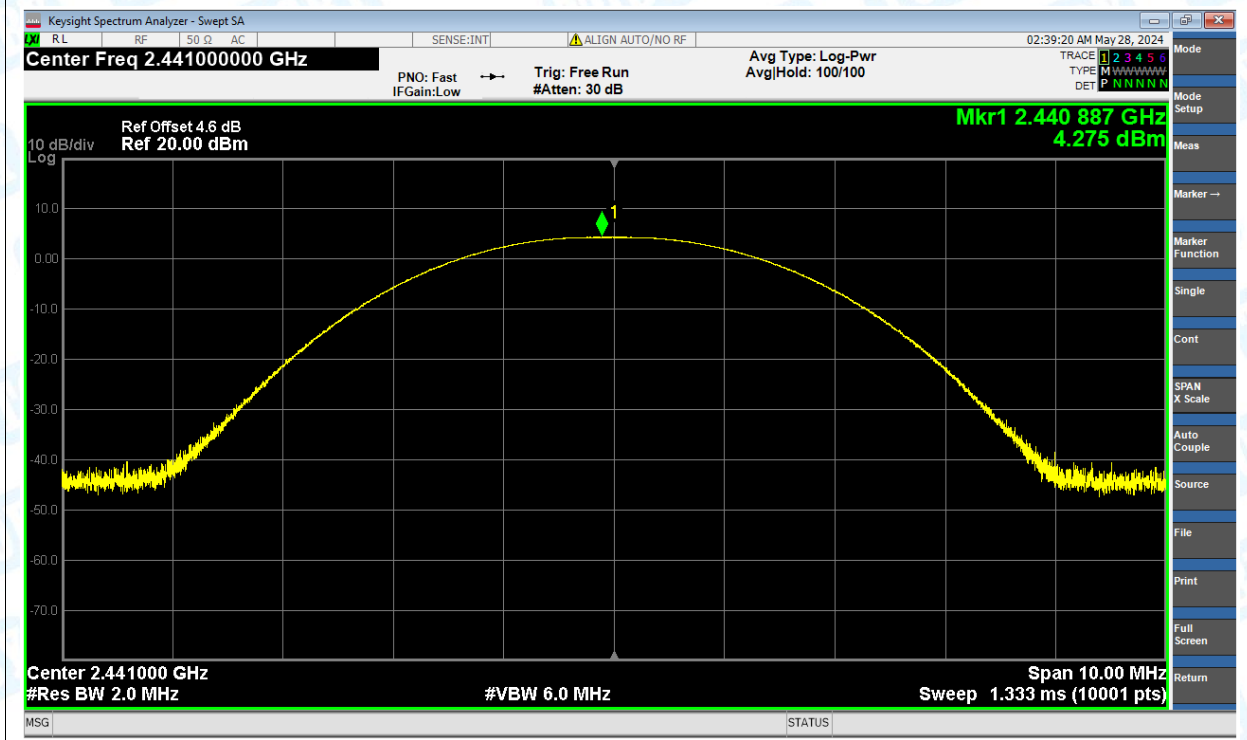
Condition	Mode	Frequency (MHz)	Antenna	Conducted Power (dBm)	Duty Factor (dB)	Total Power (dBm)	Limit (dBm)	Verdict
NVNT	1-DH1	2402	Ant1	3.781	0	3.781	21	Pass
NVNT	1-DH1	2441	Ant1	4.275	0	4.275	21	Pass
NVNT	1-DH1	2480	Ant1	4.274	0	4.274	21	Pass
NVNT	1-DH3	2441	Ant1	4.622	0	4.622	21	Pass
NVNT	1-DH5	2441	Ant1	4.615	0	4.615	21	Pass
NVNT	2-DH1	2402	Ant1	4.028	0	4.028	21	Pass
NVNT	2-DH1	2441	Ant1	4.89	0	4.89	21	Pass
NVNT	2-DH1	2480	Ant1	4.714	0	4.714	21	Pass
NVNT	2-DH3	2441	Ant1	4.786	0	4.786	21	Pass
NVNT	2-DH5	2441	Ant1	4.768	0	4.768	21	Pass
NVNT	3-DH1	2402	Ant1	2.702	0	2.702	21	Pass
NVNT	3-DH1	2441	Ant1	3.727	0	3.727	21	Pass
NVNT	3-DH1	2480	Ant1	3.592	0	3.592	21	Pass
NVNT	3-DH3	2441	Ant1	3.853	0	3.853	21	Pass
NVNT	3-DH5	2441	Ant1	3.84	0	3.84	21	Pass

Test Graphs

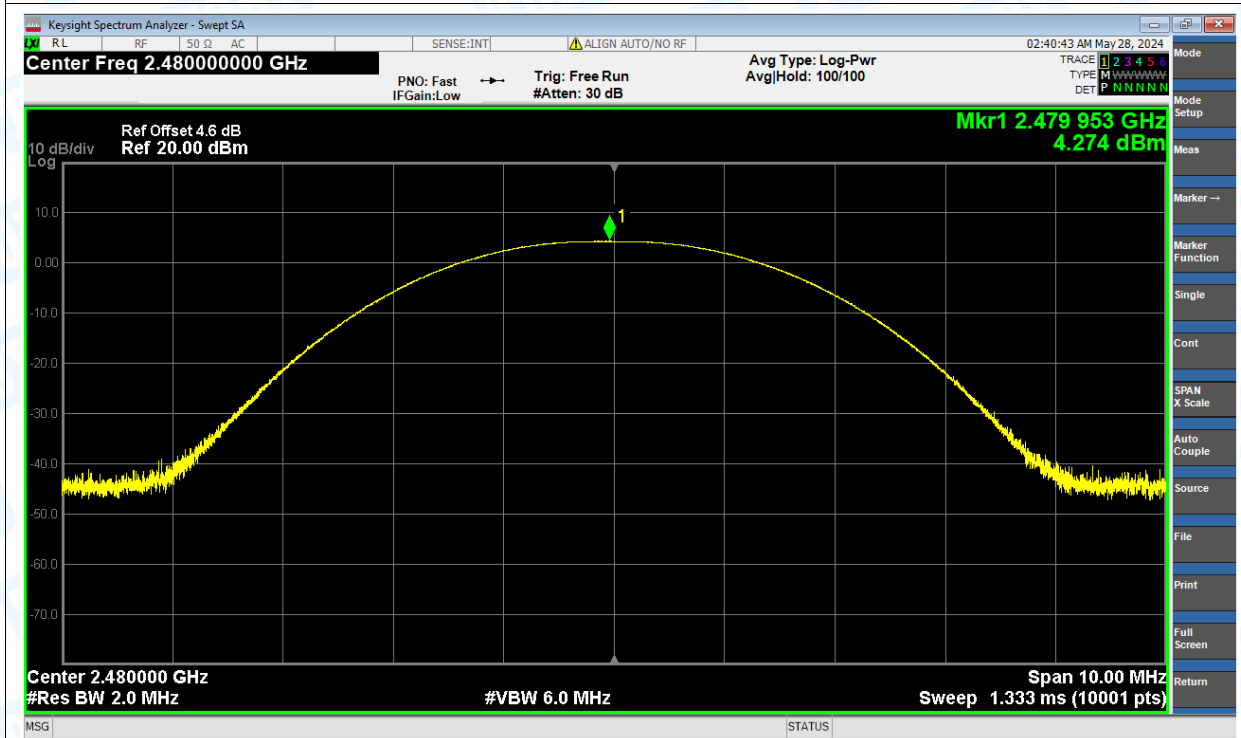
Power NVNT 1-DH1 2402MHz Ant1



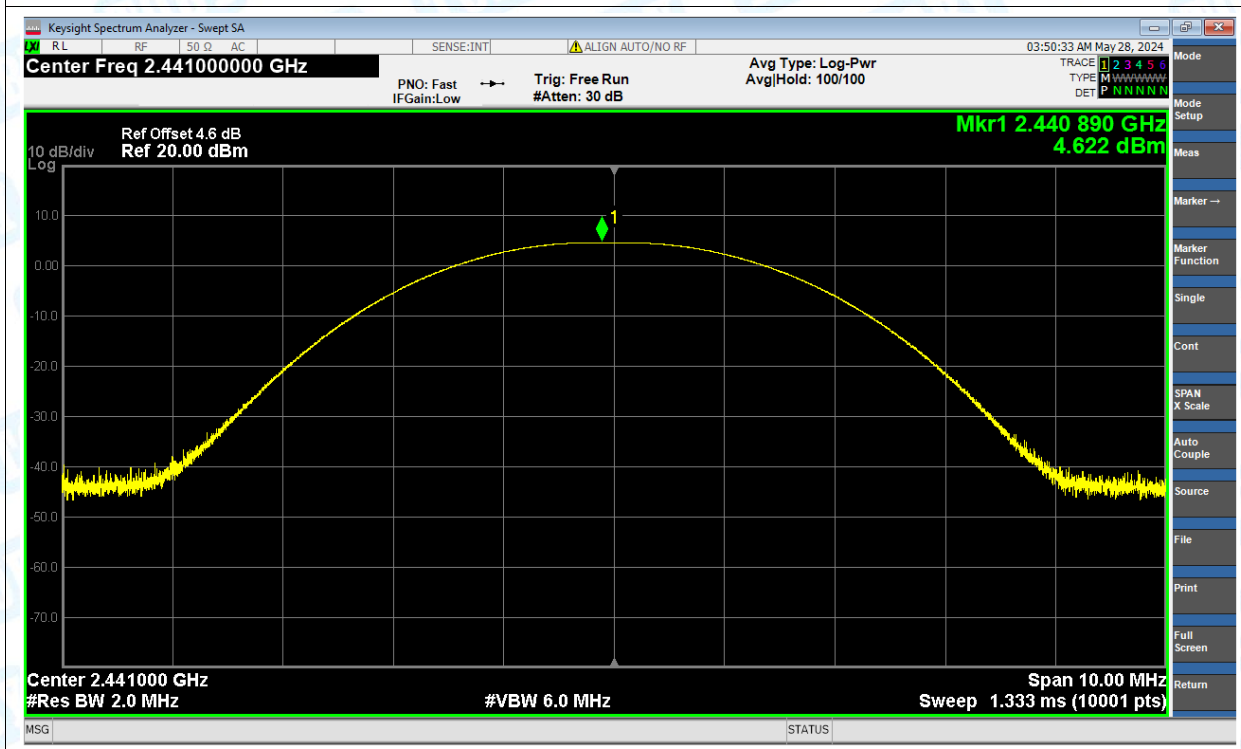
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Power NVNT 1-DH1 2480MHz Ant1



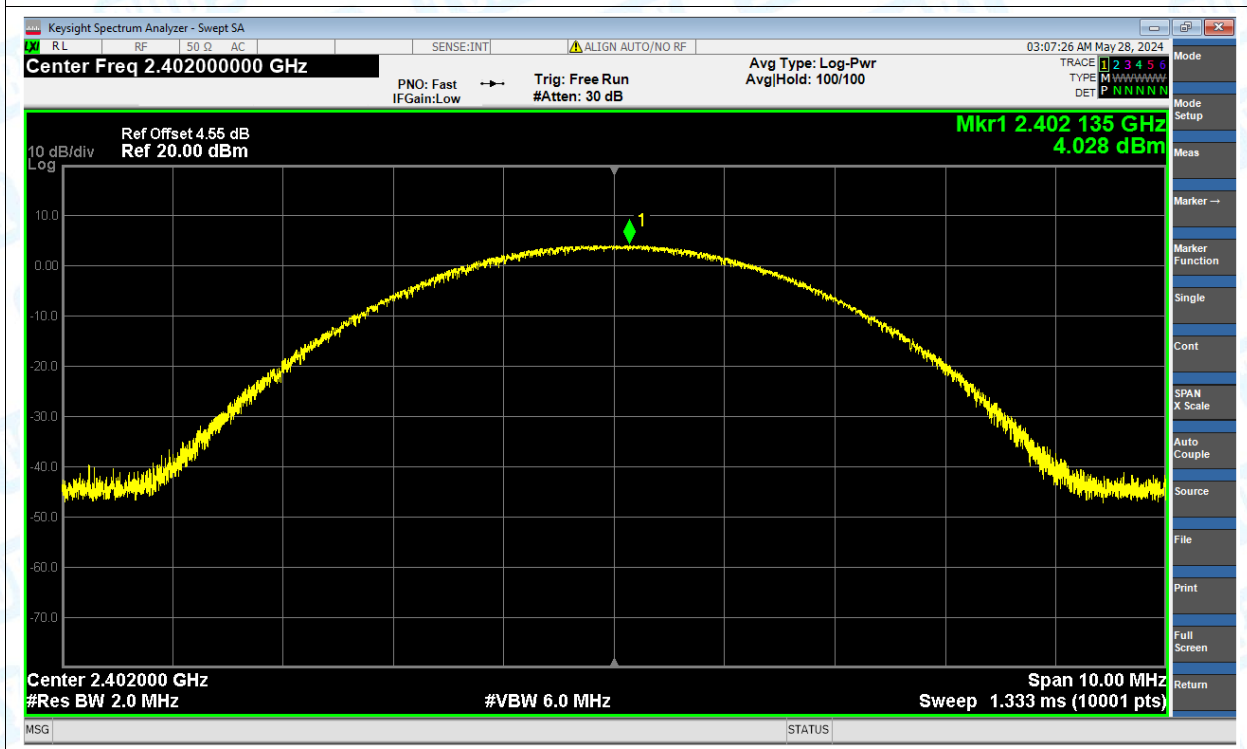
Power NVNT 1-DH3 2441MHz Ant1



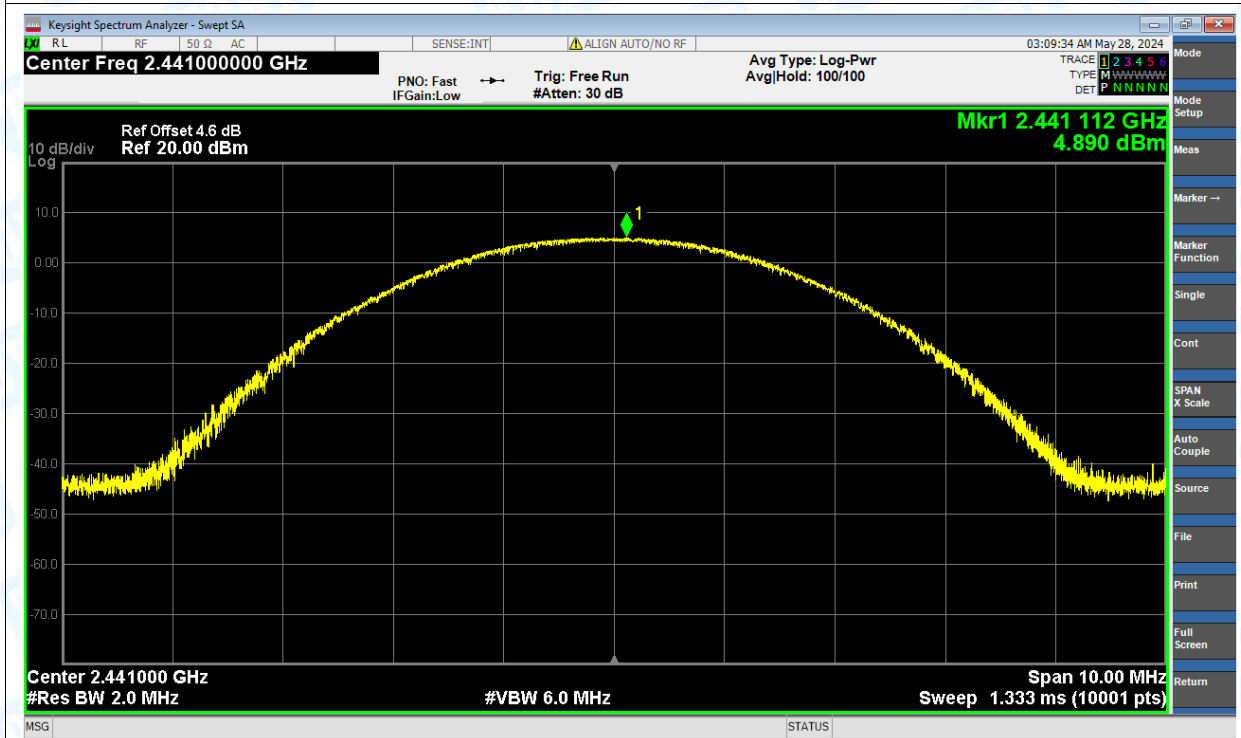
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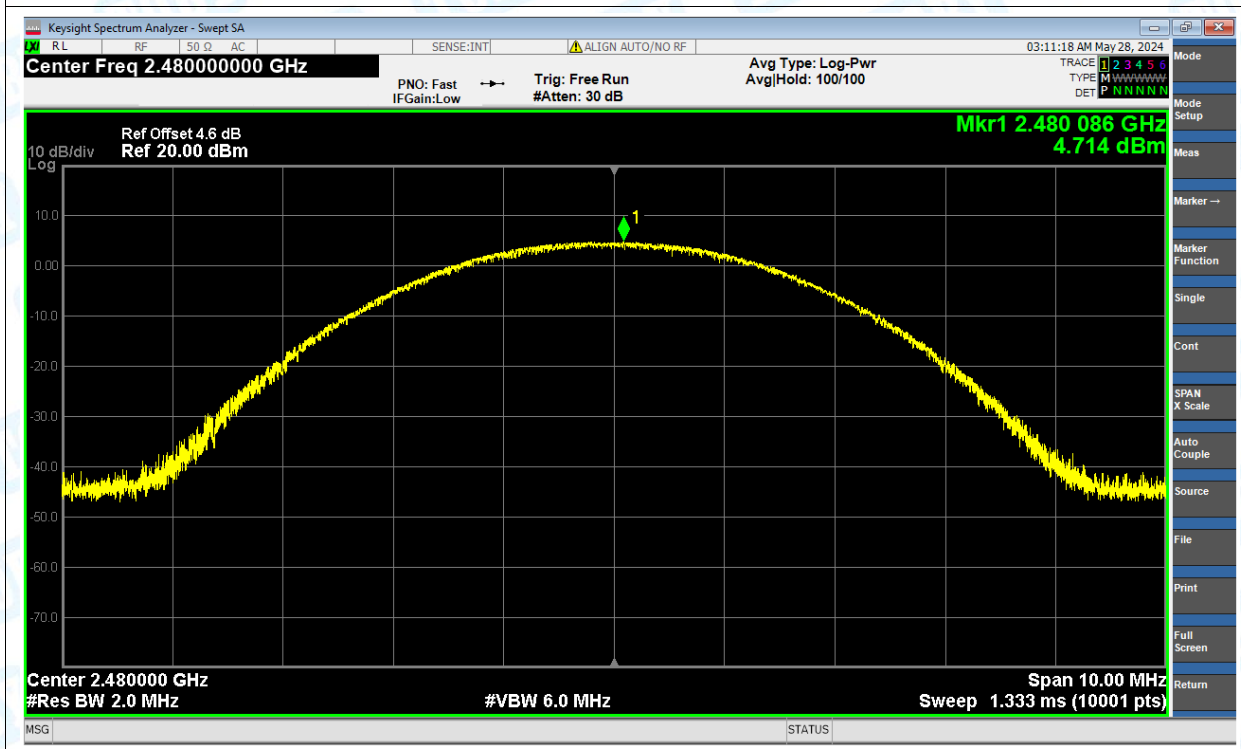
Power NVNT 2-DH1 2402MHz Ant1



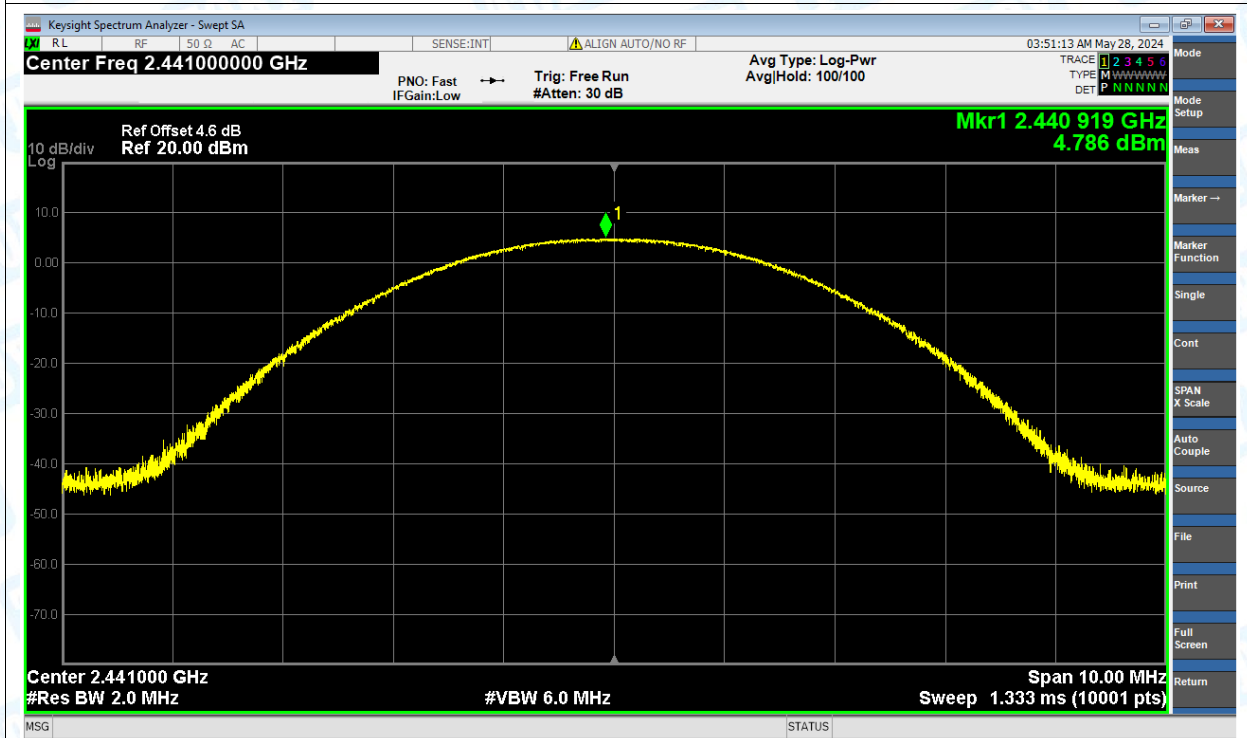
Power NVNT 2-DH1 2441MHz Ant1



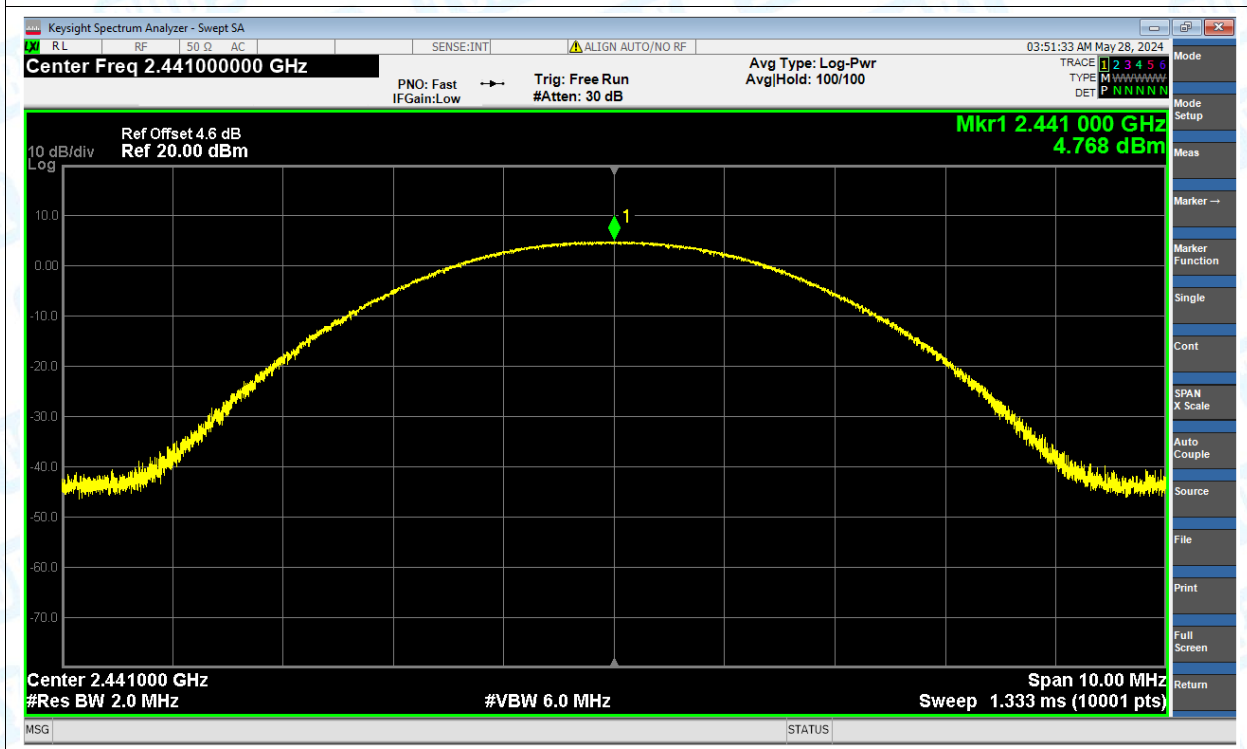
Power NVNT 2-DH1 2480MHz Ant1



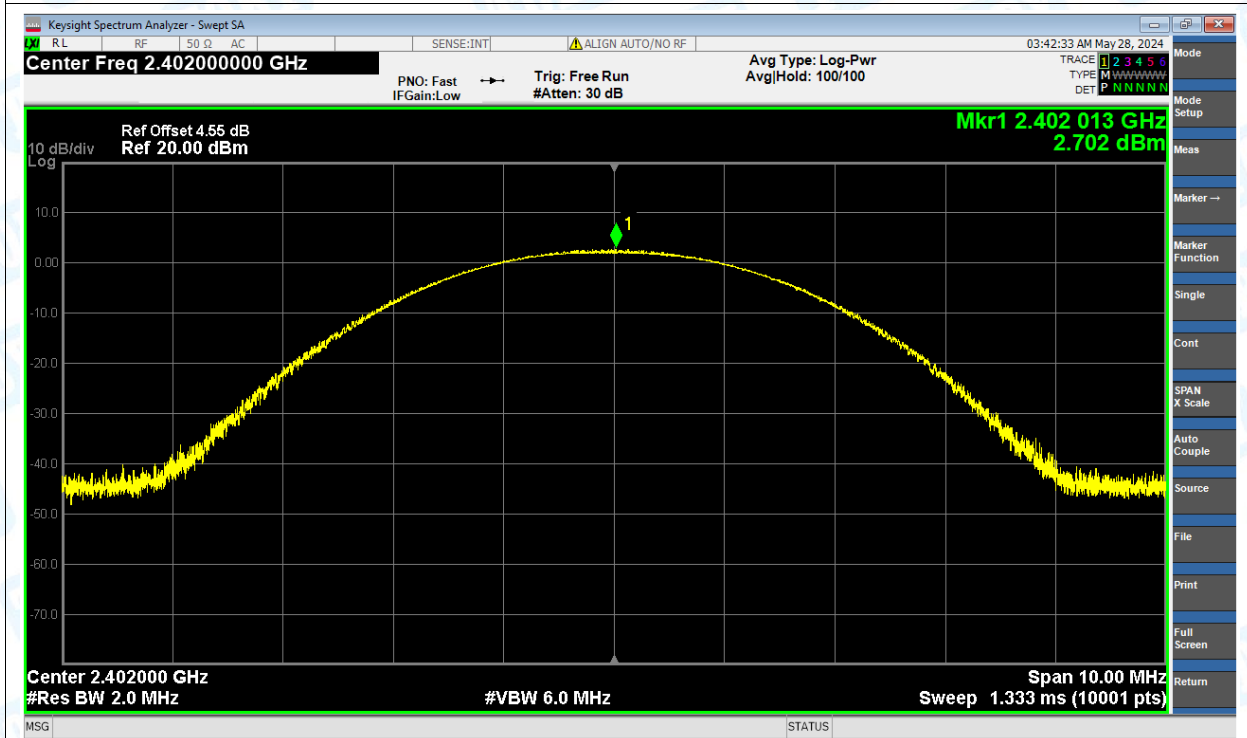
Power NVNT 2-DH3 2441MHz Ant1



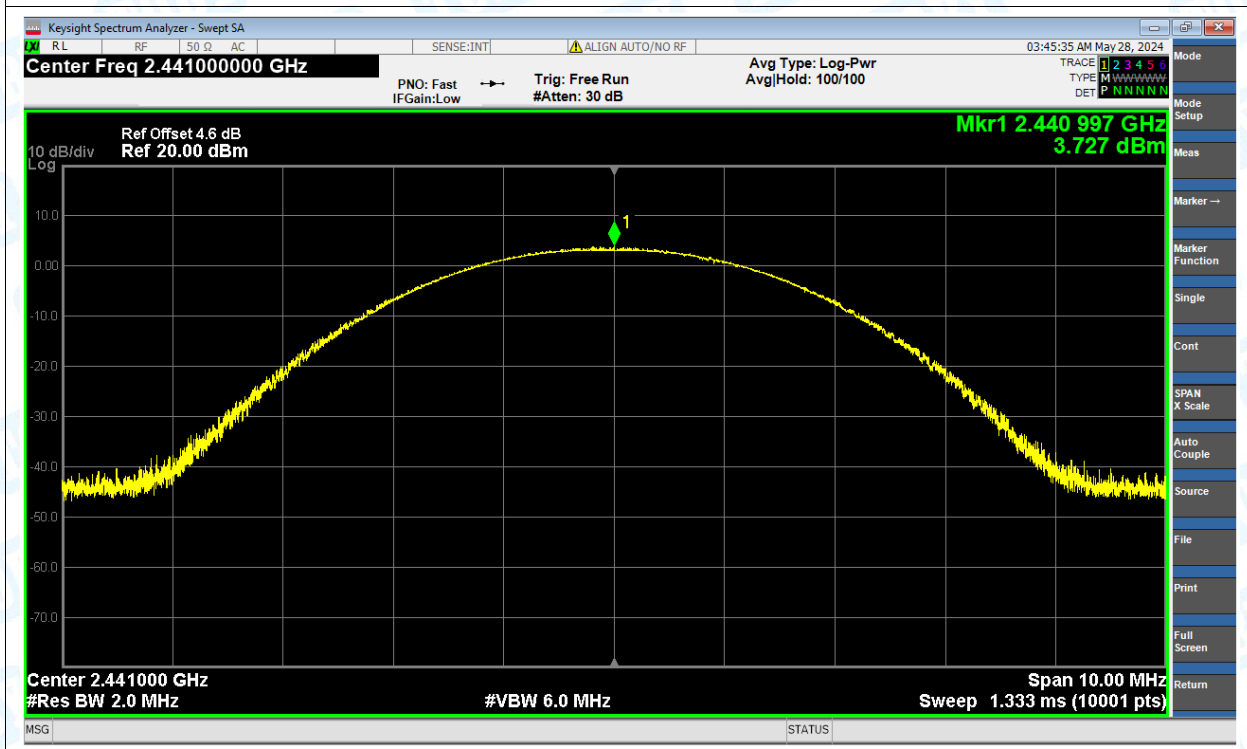
Power NVNT 2-DH5 2441MHz Ant1



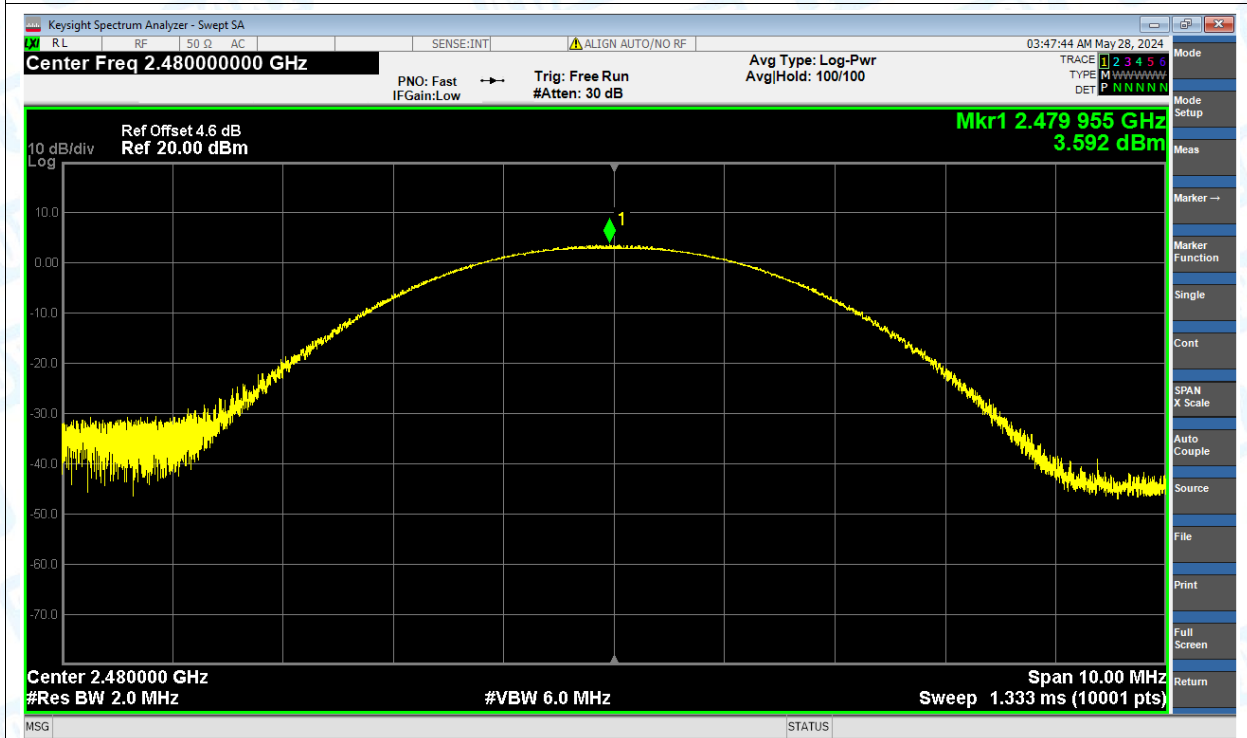
Power NVNT 3-DH1 2402MHz Ant1



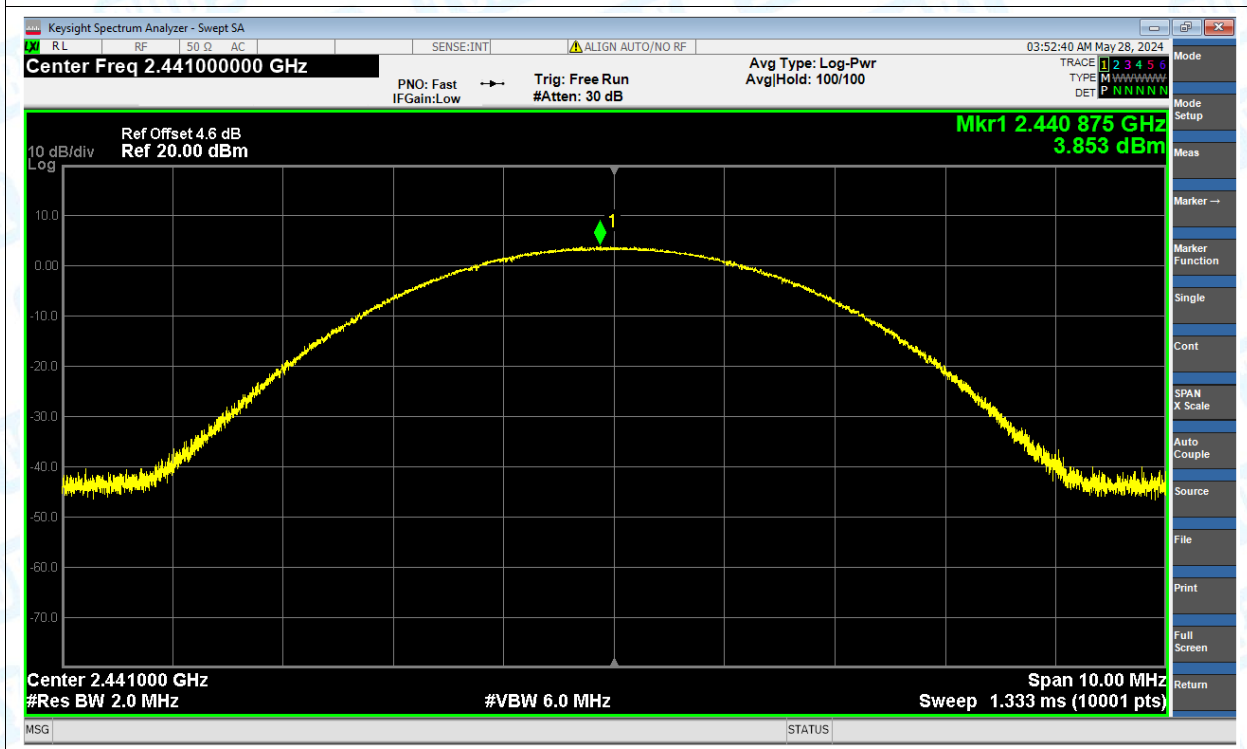
Power NVNT 3-DH1 2441MHz Ant1



Power NVNT 3-DH1 2480MHz Ant1



Power NVNT 3-DH3 2441MHz Ant1



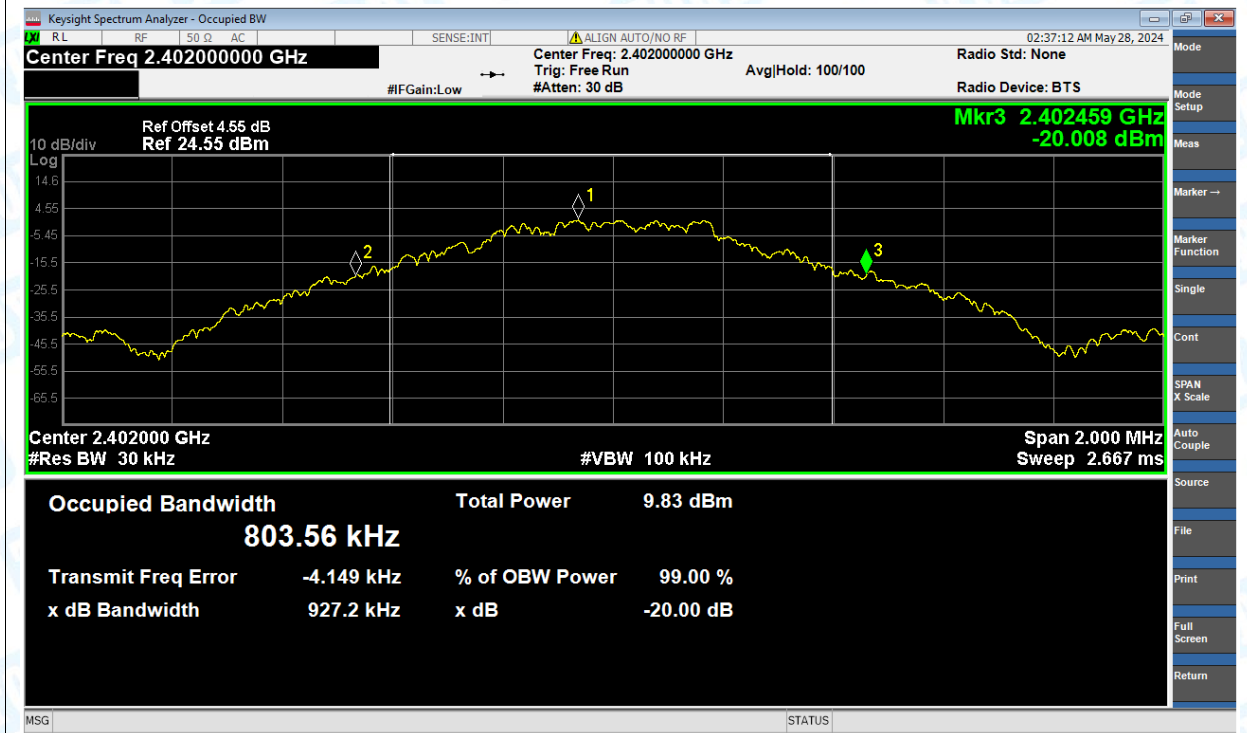


3. -20dB Bandwidth

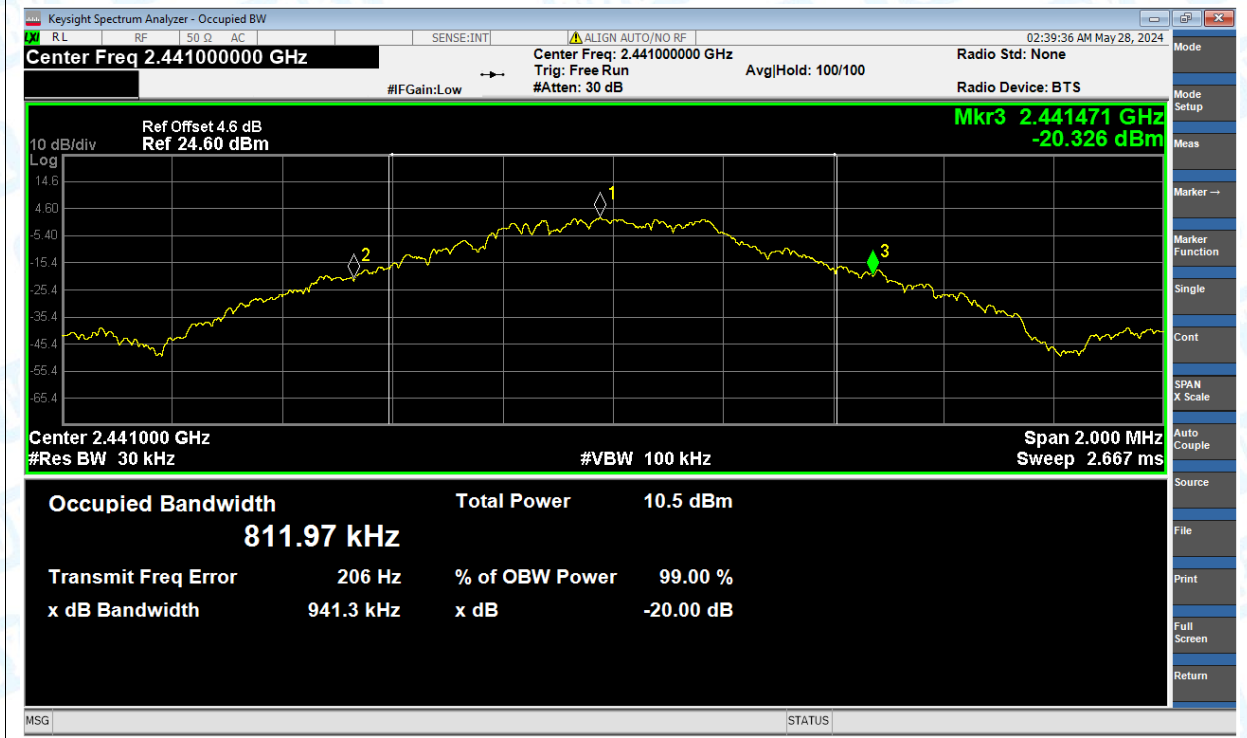
Condition	Mode	Frequency (MHz)	Antenna	-20 dB Bandwidth (MHz)	Limit -20 dB Bandwidth (MHz)	Verdict
NVNT	1-DH1	2402	Ant1	0.93	0	Pass
NVNT	1-DH1	2441	Ant1	0.94	0	Pass
NVNT	1-DH1	2480	Ant1	0.93	0	Pass
NVNT	2-DH1	2402	Ant1	1.32	0	Pass
NVNT	2-DH1	2441	Ant1	1.31	0	Pass
NVNT	2-DH1	2480	Ant1	1.33	0	Pass
NVNT	3-DH1	2402	Ant1	1.23	0	Pass
NVNT	3-DH1	2441	Ant1	1.22	0	Pass
NVNT	3-DH1	2480	Ant1	1.23	0	Pass

Test Graphs

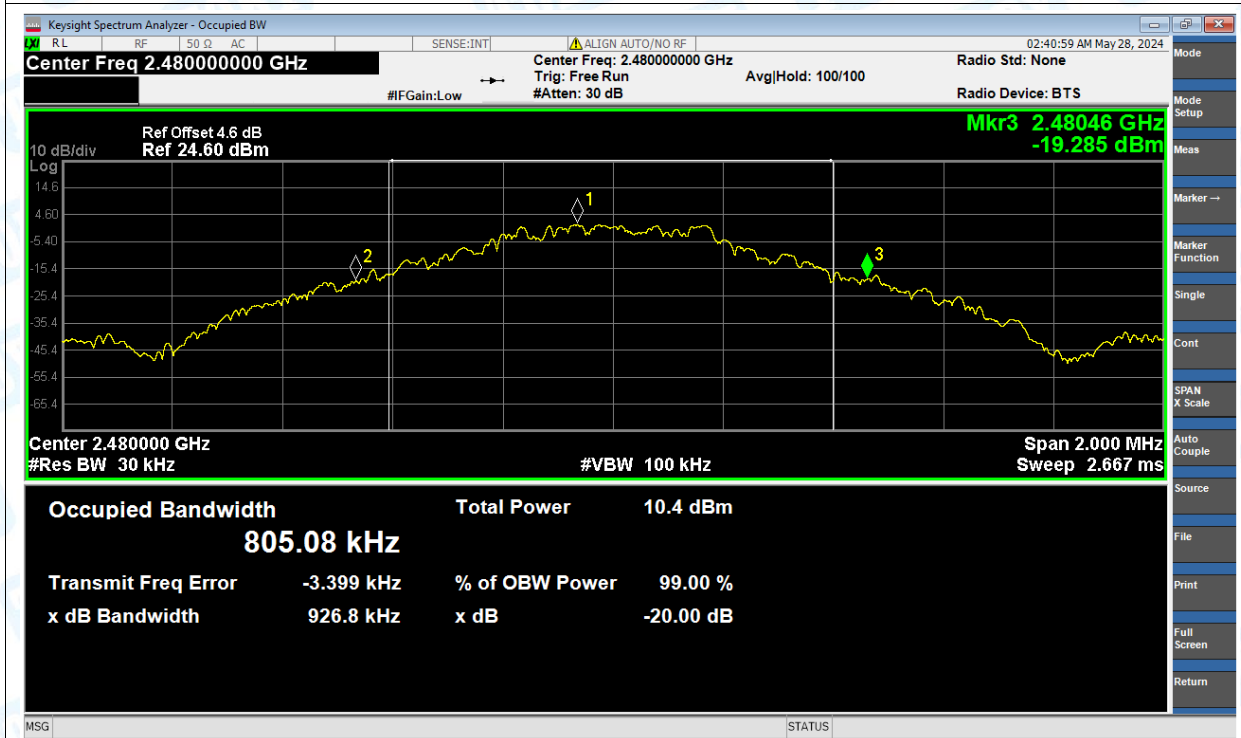
-20dB Bandwidth NVNT 1-DH1 2402MHz Ant1



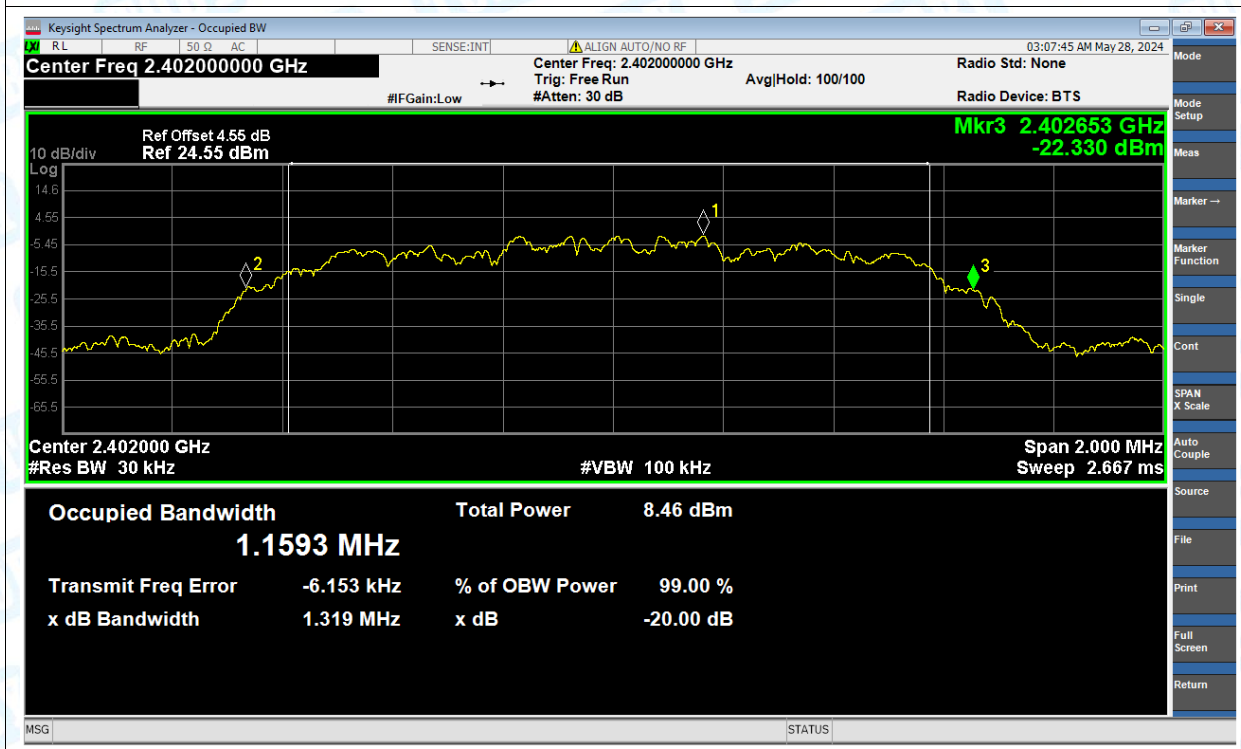
-20dB Bandwidth NVNT 1-DH1 2441MHz Ant1



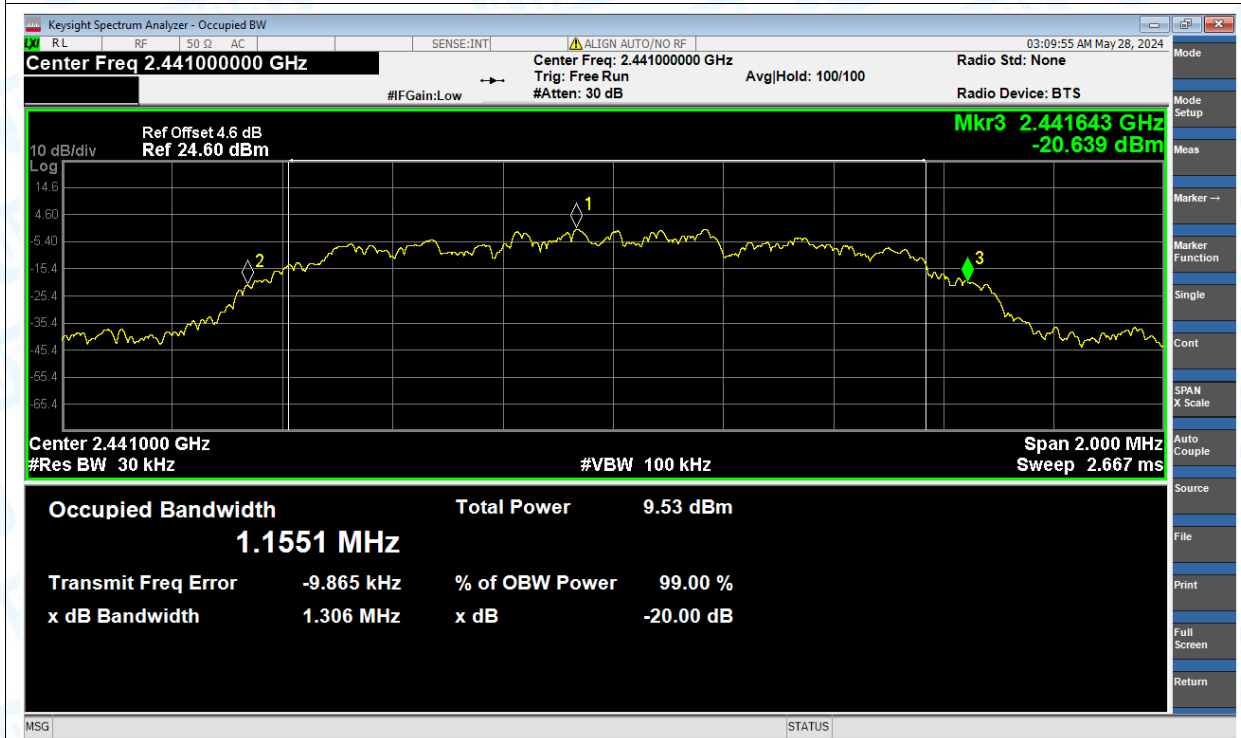
-20dB Bandwidth NVNT 1-DH1 2480MHz Ant1



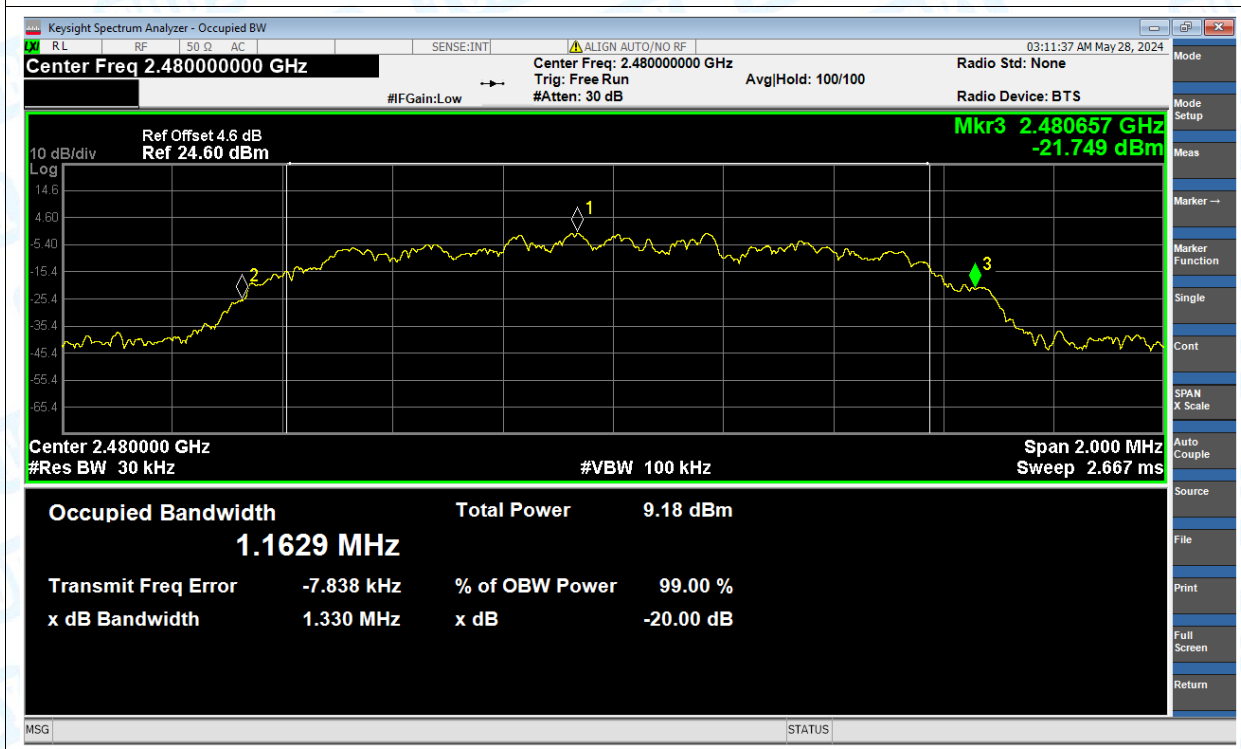
-20dB Bandwidth NVNT 2-DH1 2402MHz Ant1



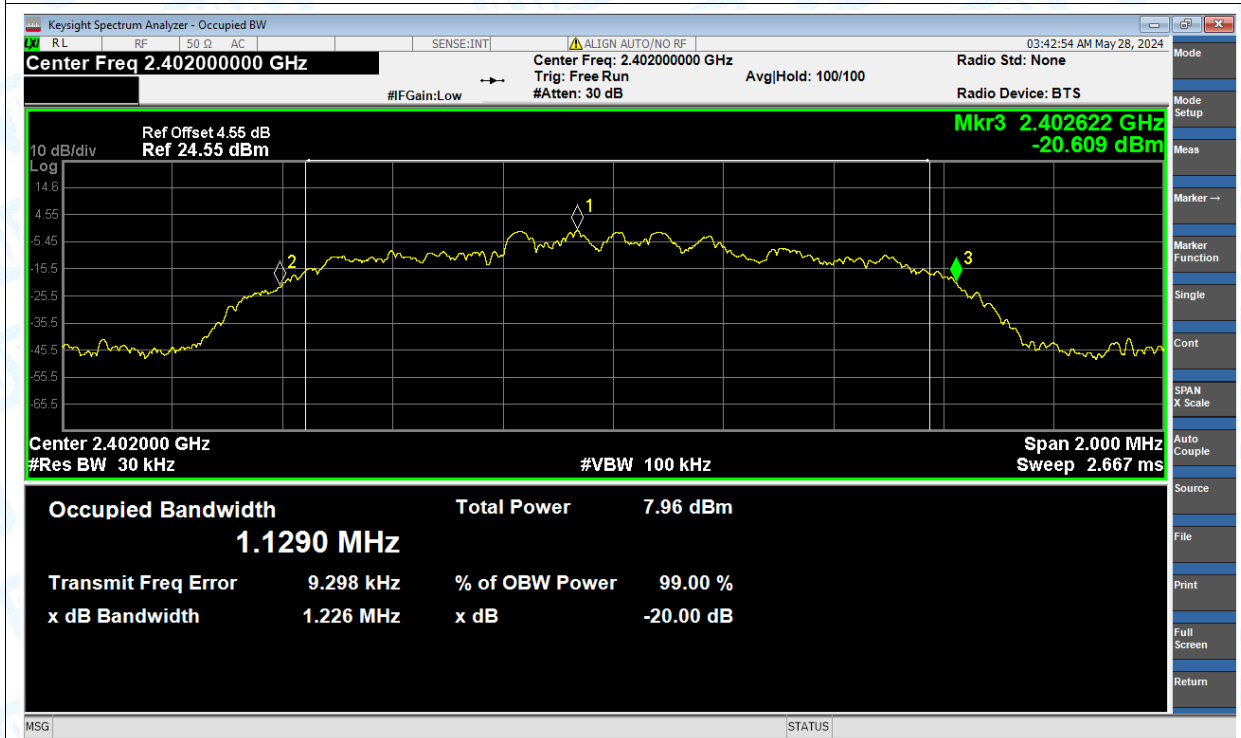
-20dB Bandwidth NVNT 2-DH1 2441MHz Ant1



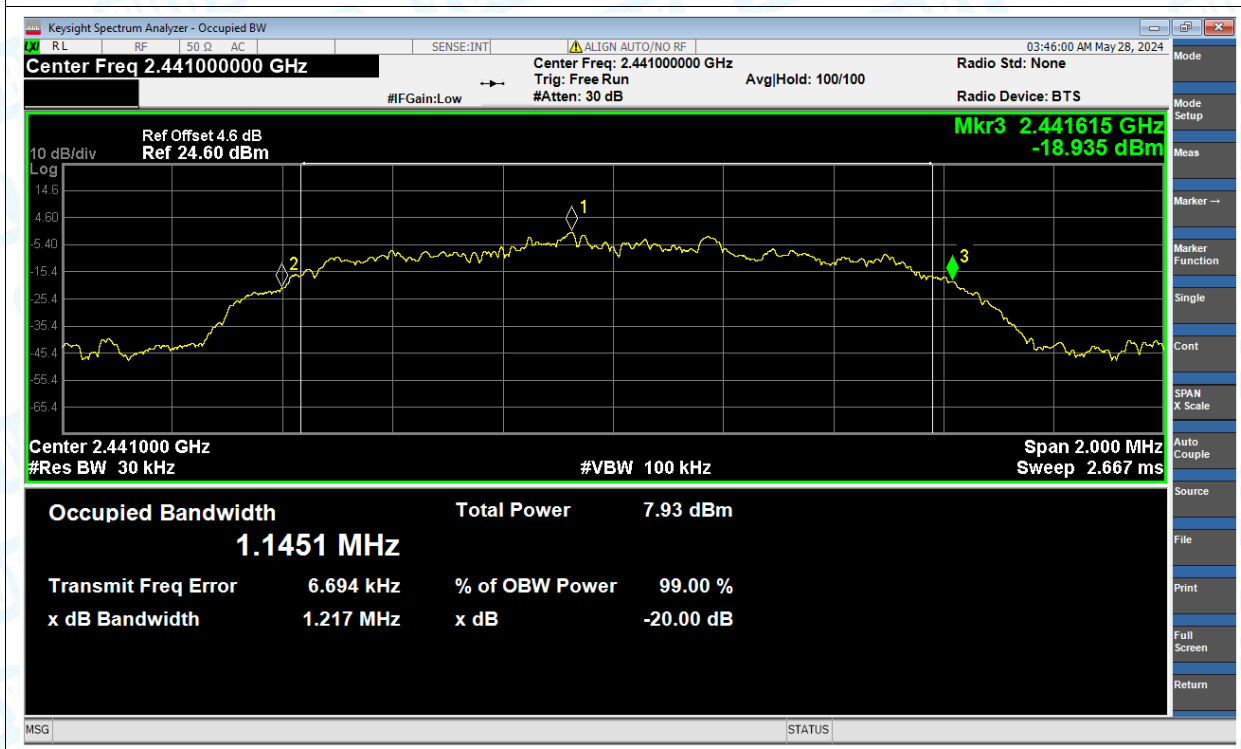
-20dB Bandwidth NVNT 2-DH1 2480MHz Ant1

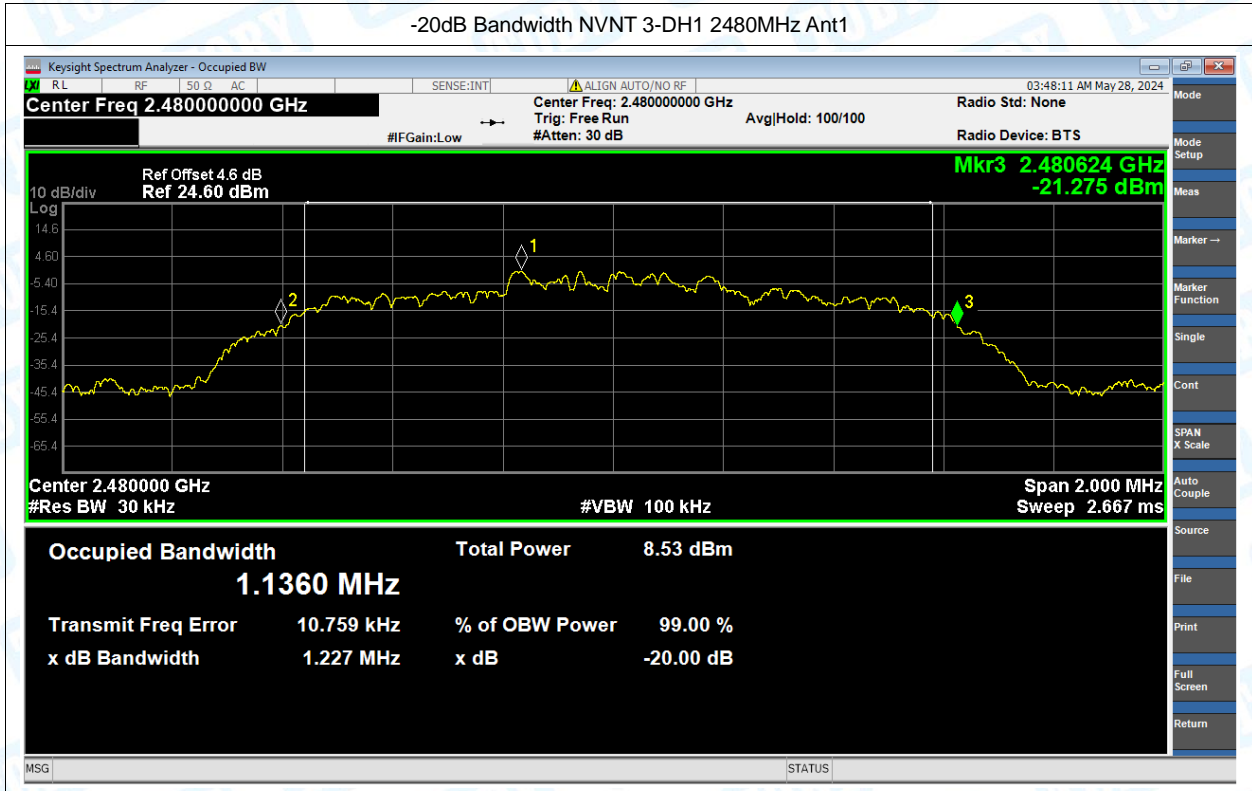


-20dB Bandwidth NVNT 3-DH1 2402MHz Ant1



-20dB Bandwidth NVNT 3-DH1 2441MHz Ant1



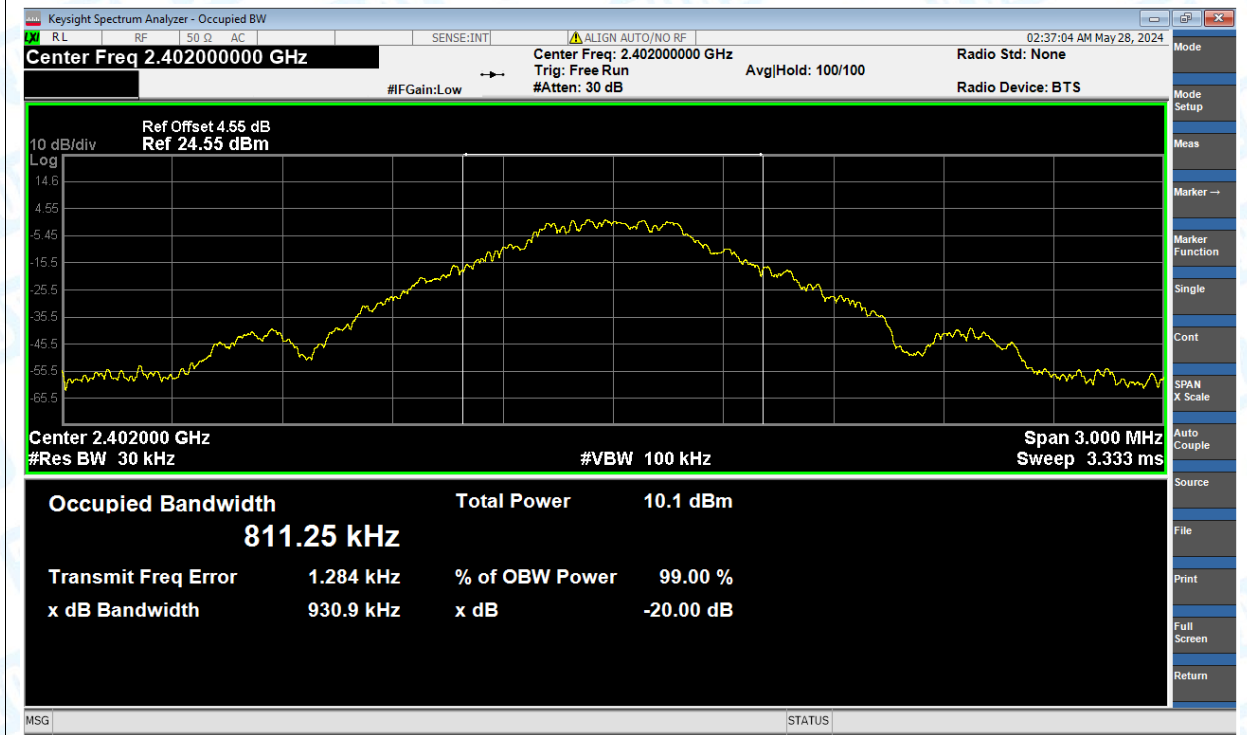


4. Occupied Channel Bandwidth

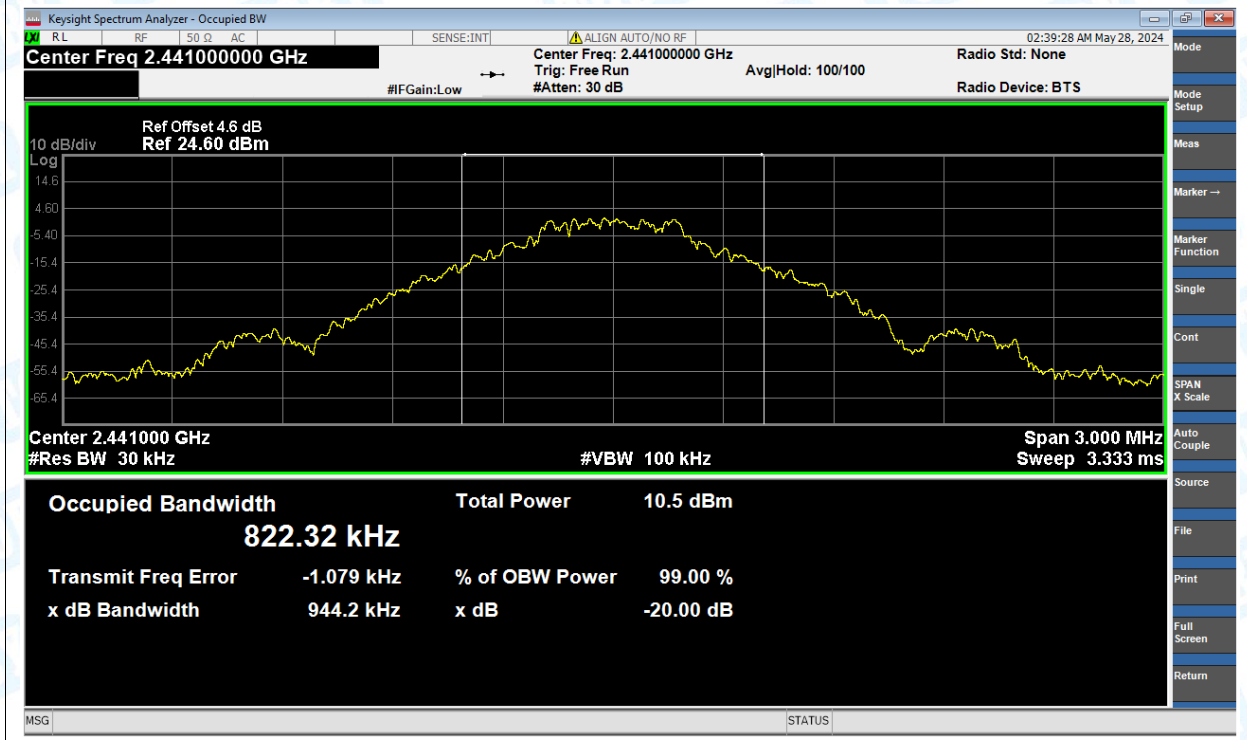
Condition	Mode	Frequency (MHz)	Antenna	99% OBW (MHz)
NVNT	1-DH1	2402	Ant1	0.811
NVNT	1-DH1	2441	Ant1	0.822
NVNT	1-DH1	2480	Ant1	0.803
NVNT	2-DH1	2402	Ant1	1.165
NVNT	2-DH1	2441	Ant1	1.159
NVNT	2-DH1	2480	Ant1	1.165
NVNT	3-DH1	2402	Ant1	1.135
NVNT	3-DH1	2441	Ant1	1.153
NVNT	3-DH1	2480	Ant1	1.122

Test Graphs

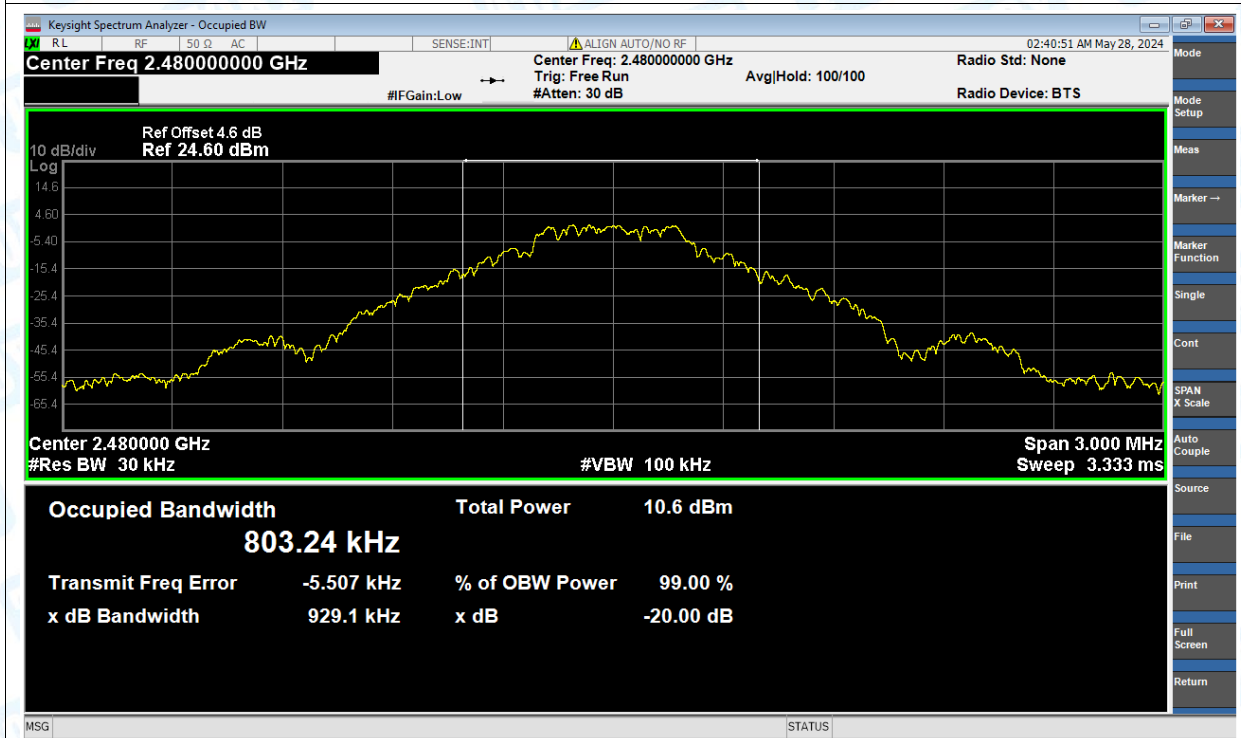
OBW NVNT 1-DH1 2402MHz Ant1



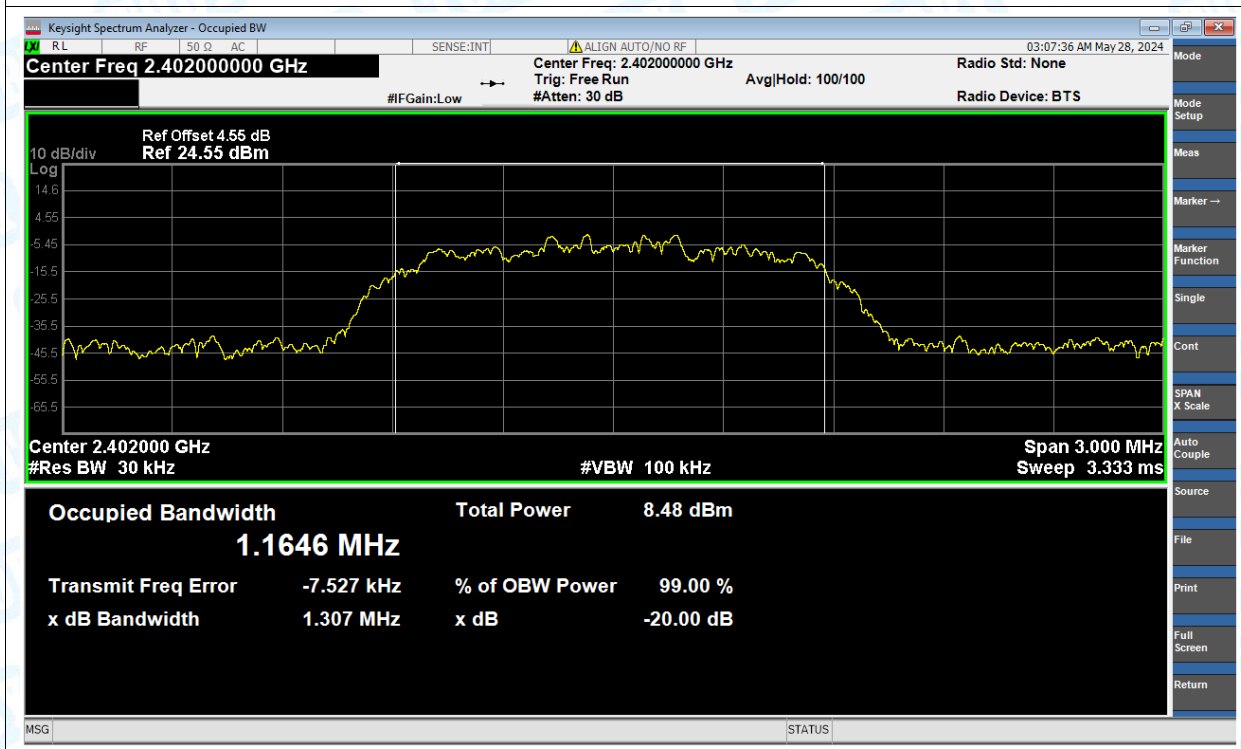
OBW NVNT 1-DH1 2441MHz Ant1



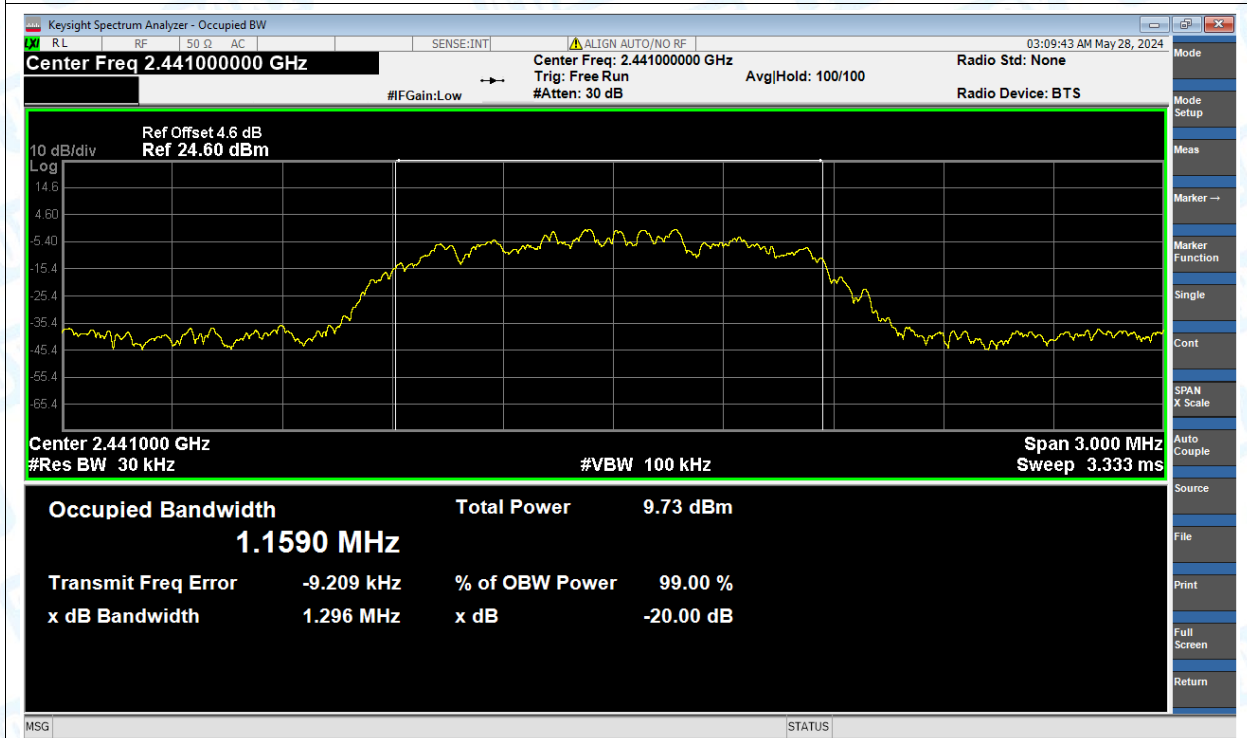
OBW NVNT 1-DH1 2480MHz Ant1



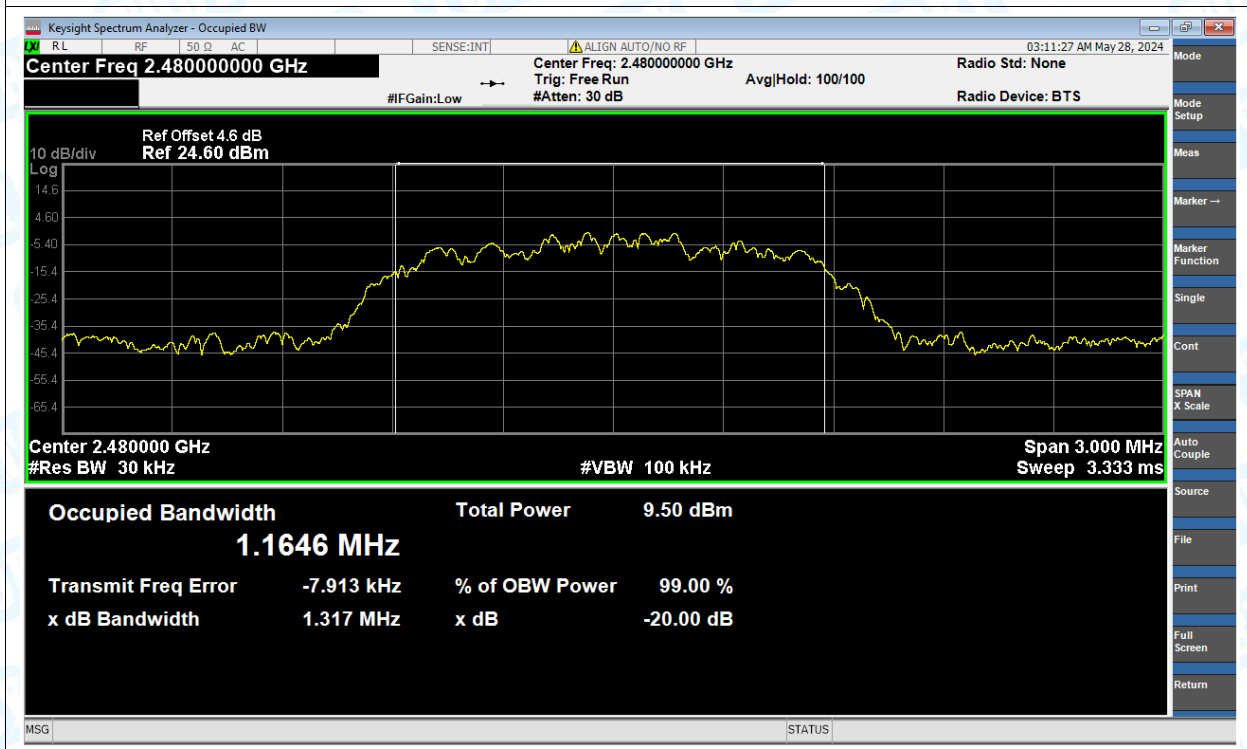
OBW NVNT 2-DH1 2402MHz Ant1



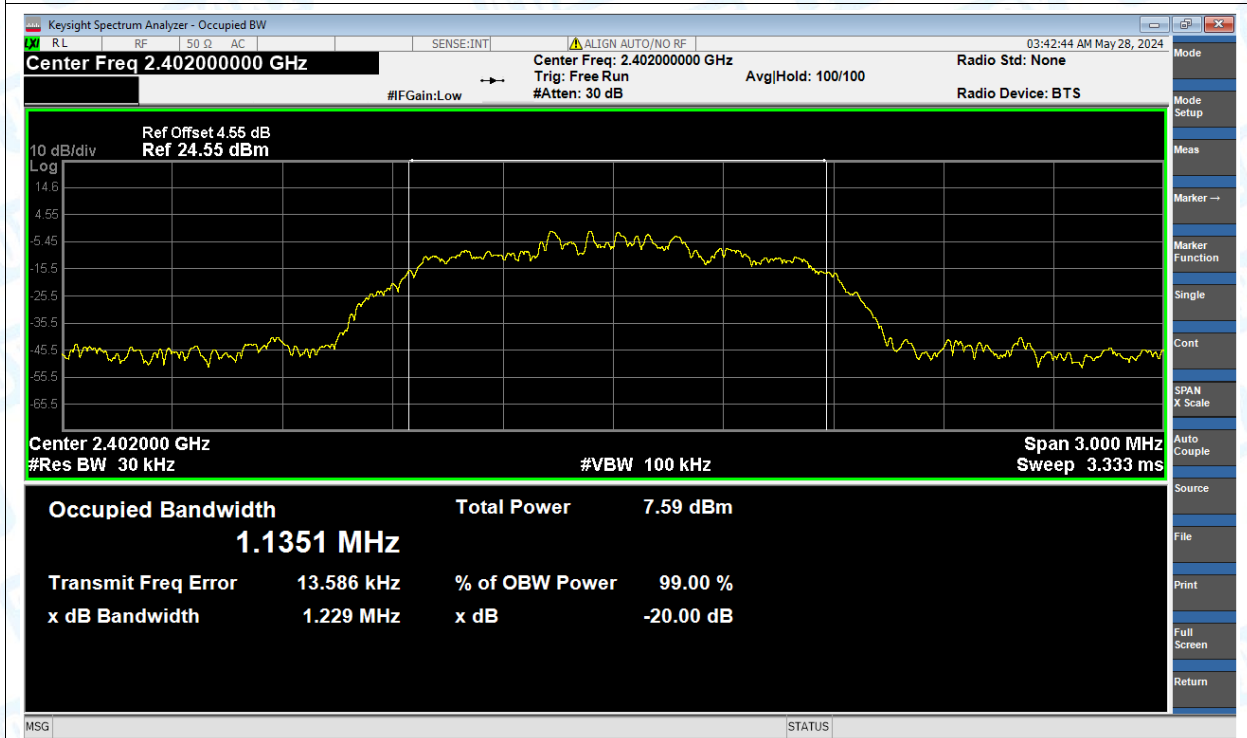
OBW NVNT 2-DH1 2441MHz Ant1



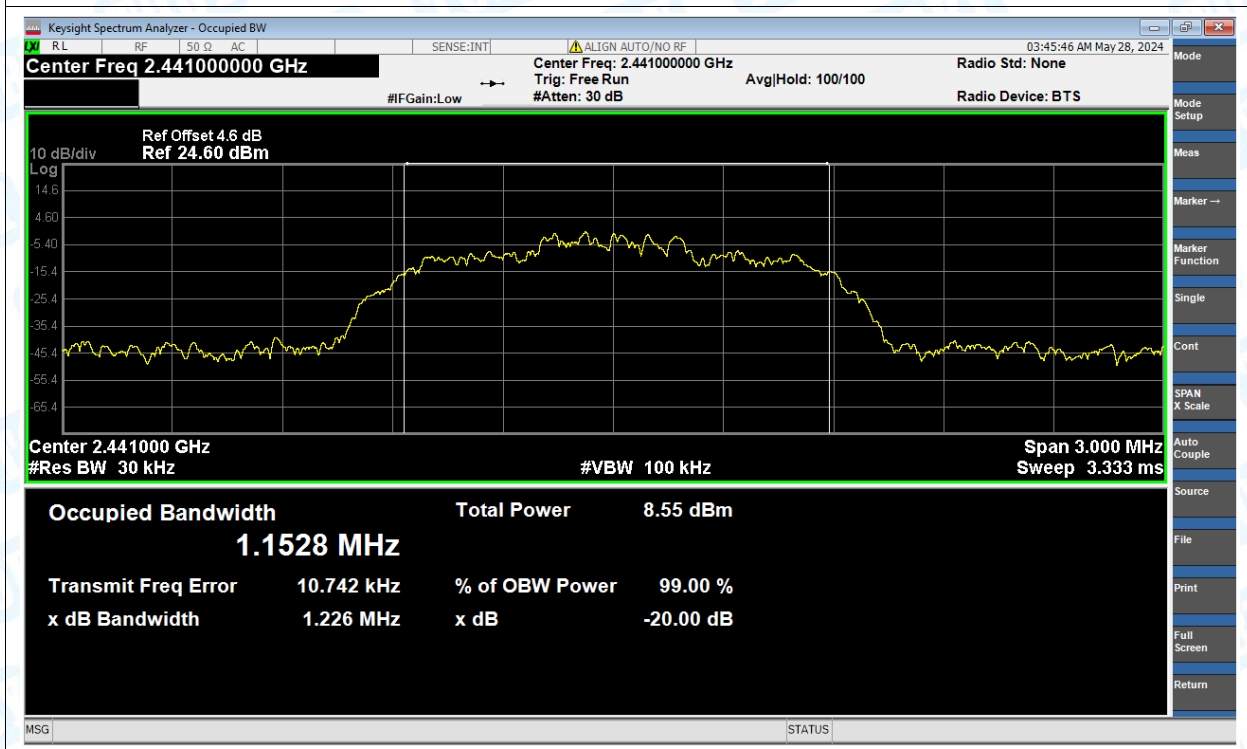
OBW NVNT 2-DH1 2480MHz Ant1

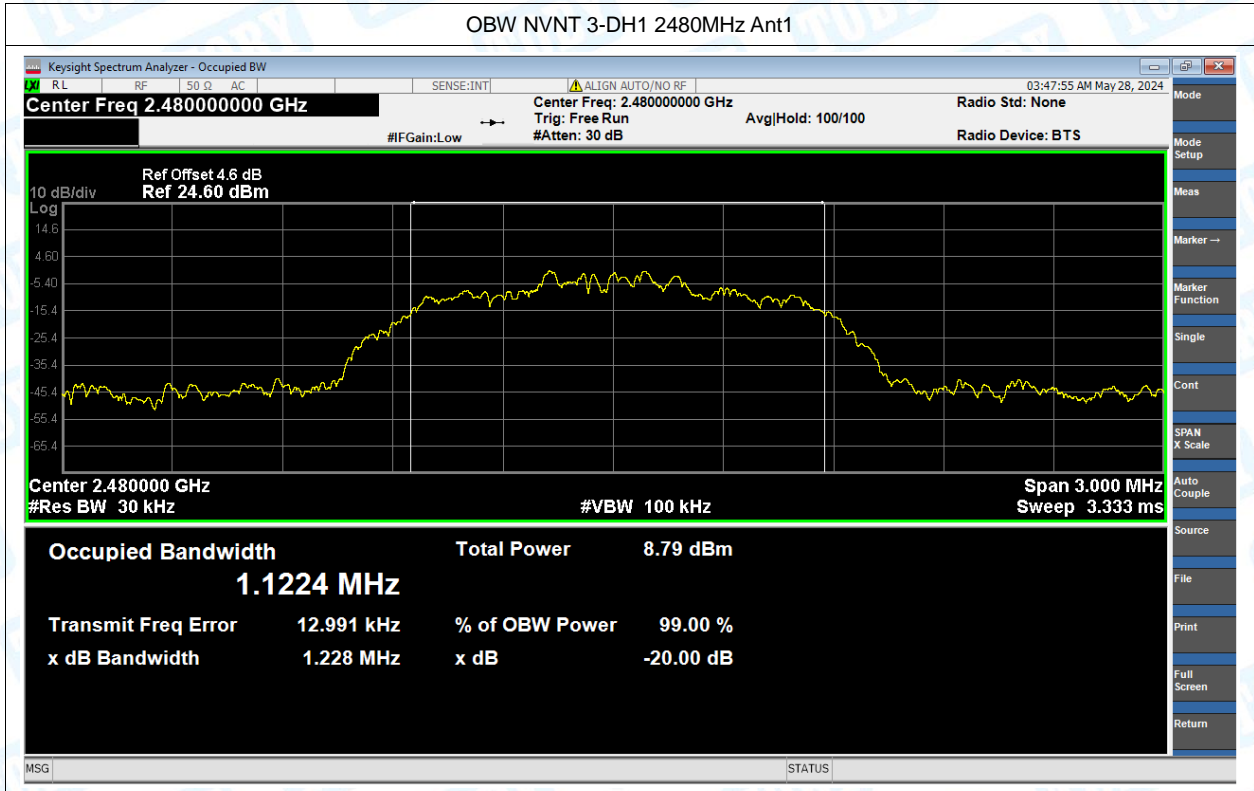


OBW NVNT 3-DH1 2402MHz Ant1



OBW NVNT 3-DH1 2441MHz Ant1



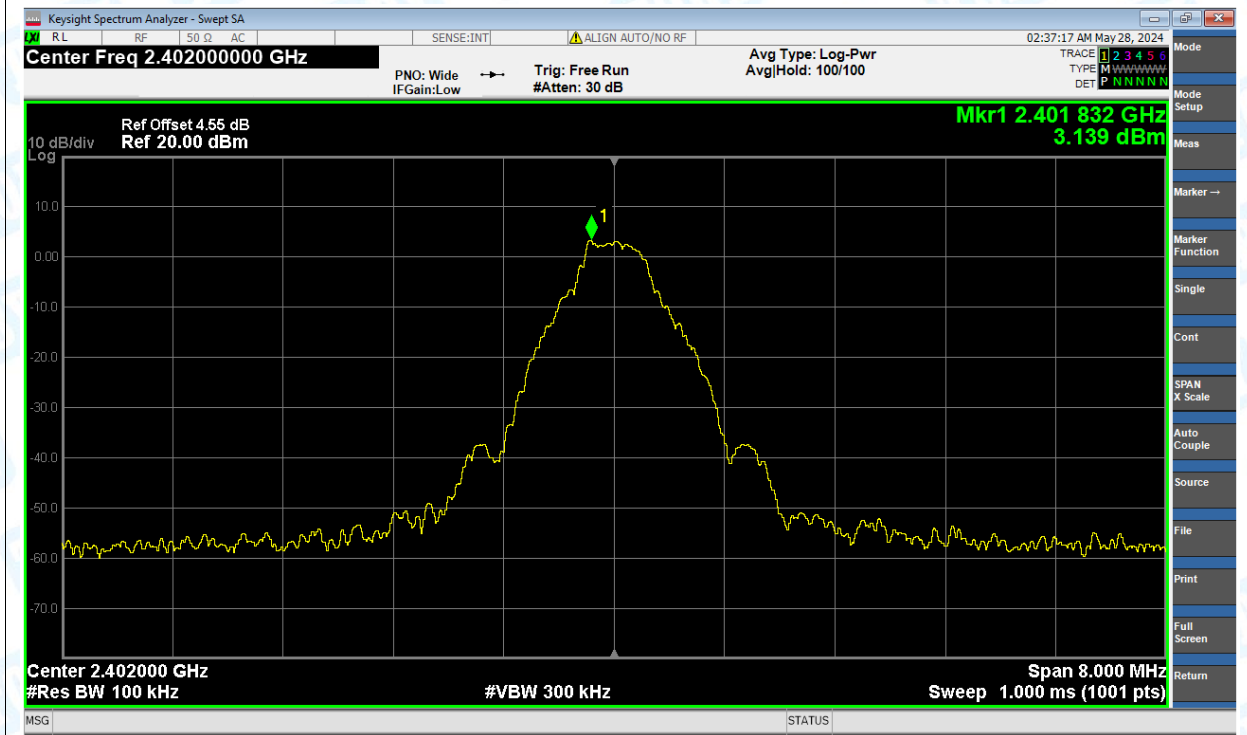


5. Band Edge

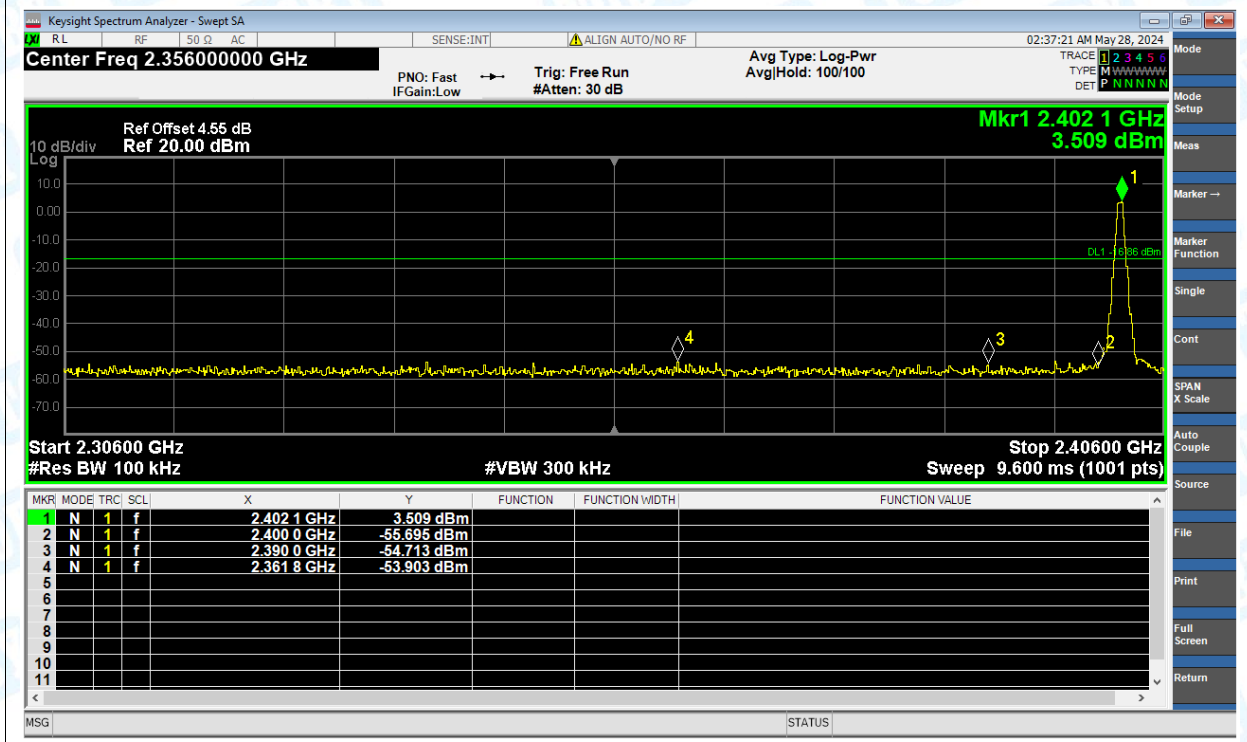
Condition	Mode	Frequency (MHz)	Antenna	Hopping Mode	Max Value (dBc)	Limit (dBc)	Verdict
NVNT	1-DH1	2402	Ant1	No-Hopping	-57.04	-20	Pass
NVNT	1-DH1	2480	Ant1	No-Hopping	-58.48	-20	Pass
NVNT	2-DH1	2402	Ant1	No-Hopping	-55.42	-20	Pass
NVNT	2-DH1	2480	Ant1	No-Hopping	-56.62	-20	Pass
NVNT	3-DH1	2402	Ant1	No-Hopping	-55.56	-20	Pass
NVNT	3-DH1	2480	Ant1	No-Hopping	-56.41	-20	Pass

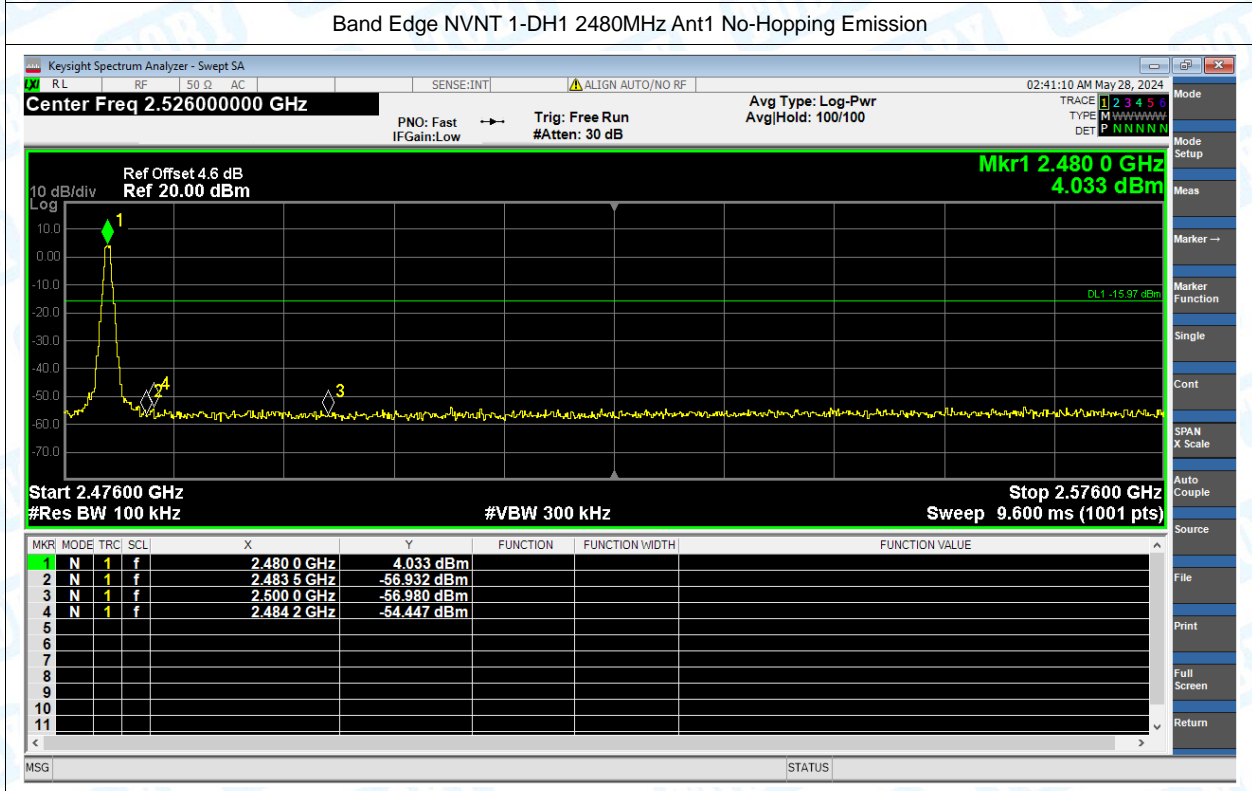
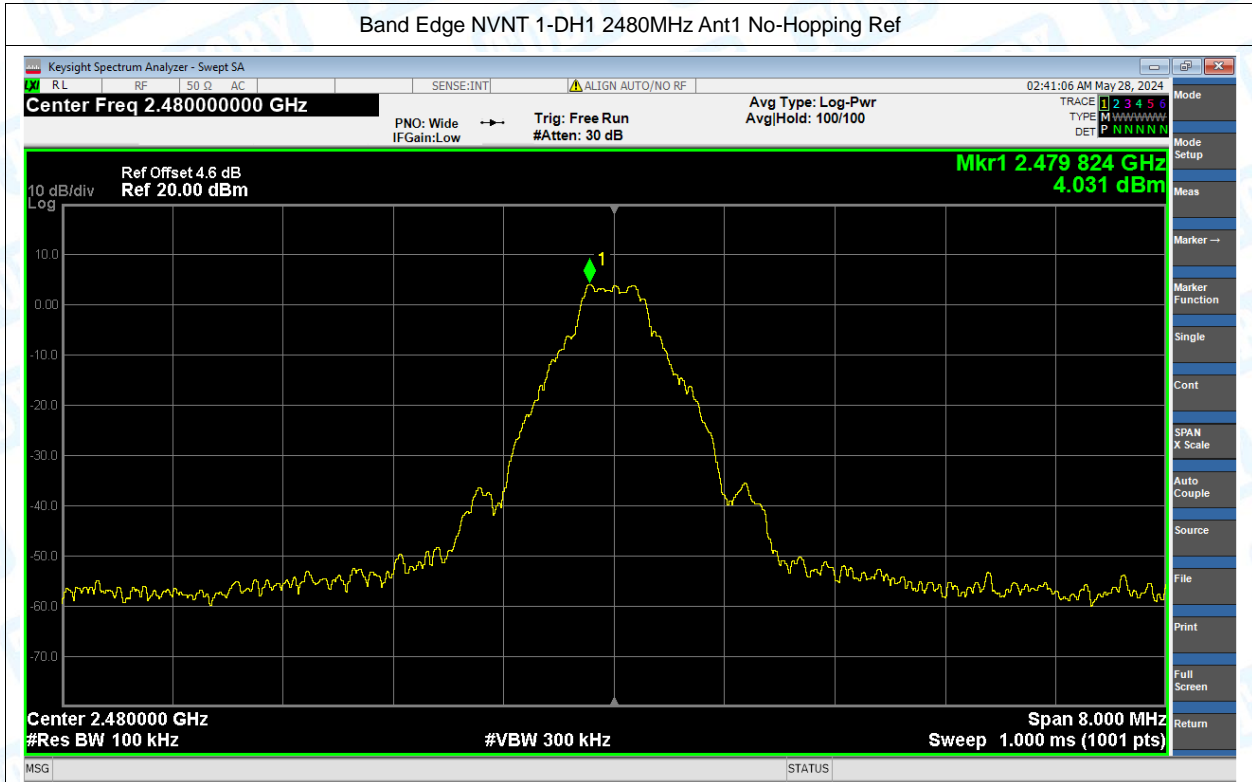
Test Graphs

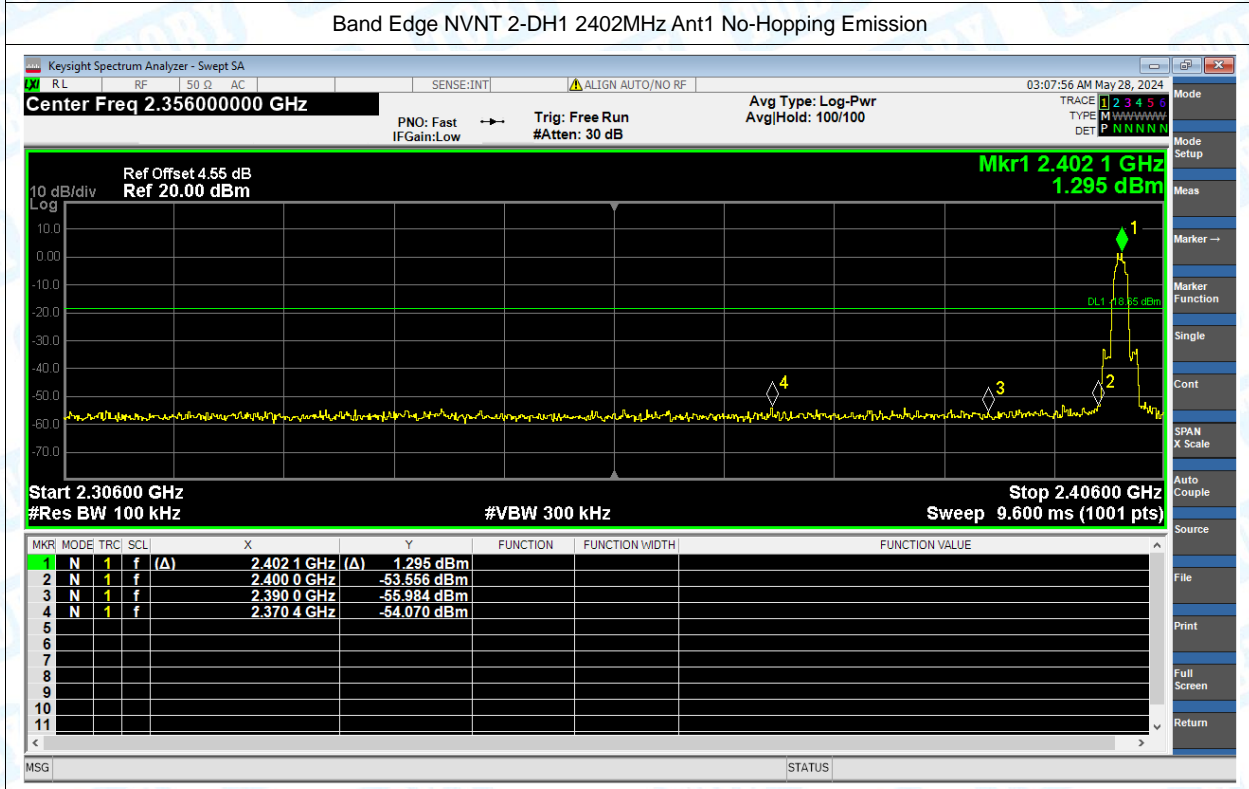
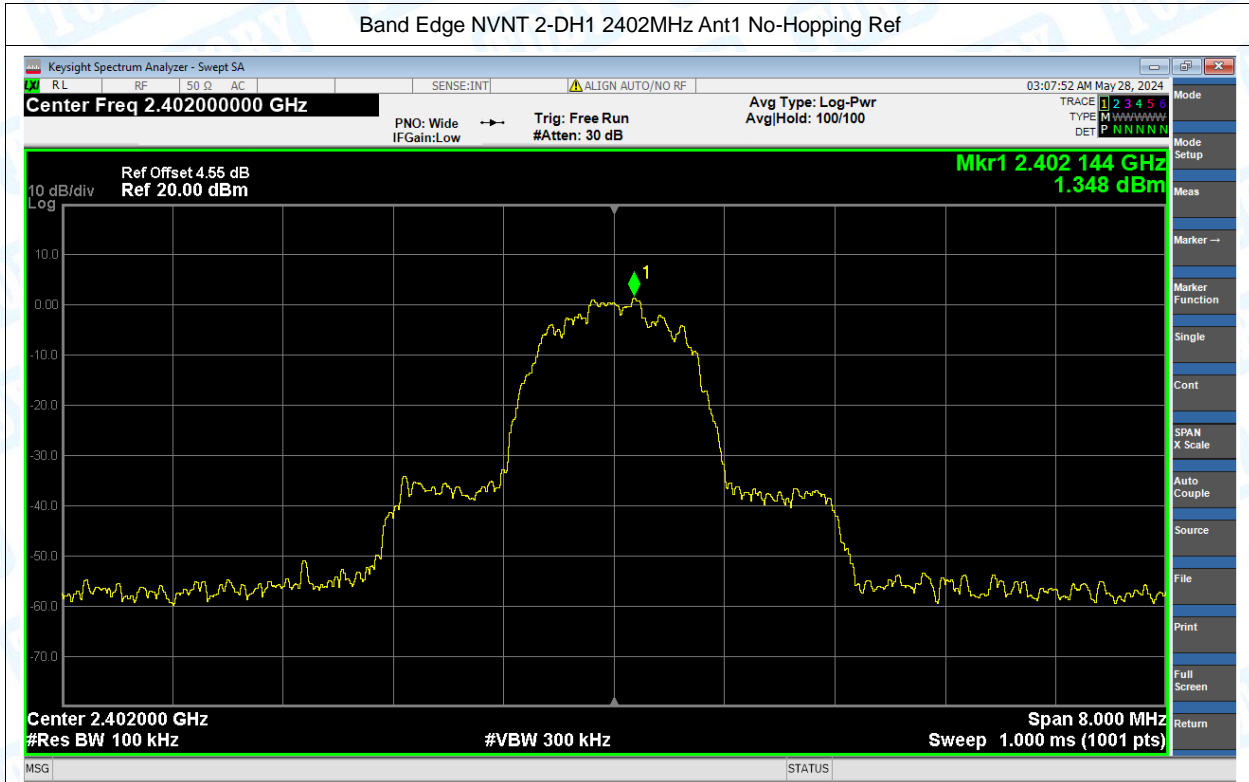
Band Edge NVNT 1-DH1 2402MHz Ant1 No-Hopping Ref



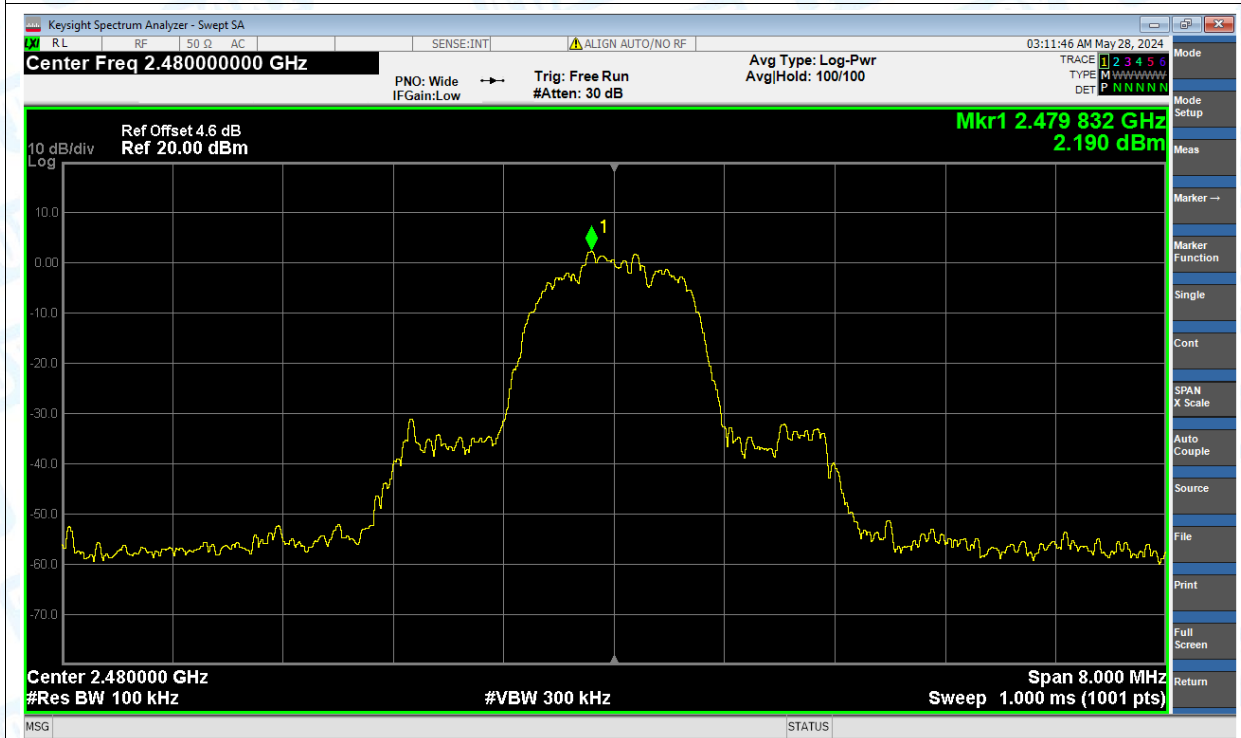
Band Edge NVNT 1-DH1 2402MHz Ant1 No-Hopping Emission



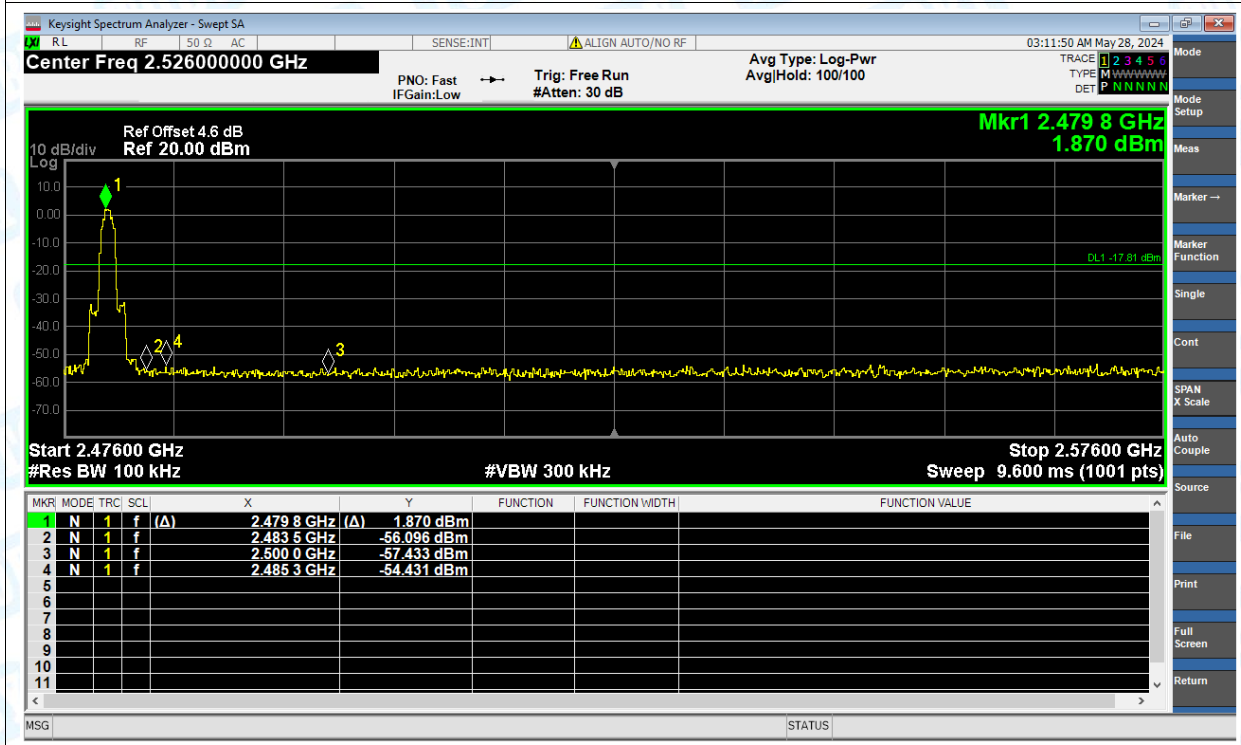




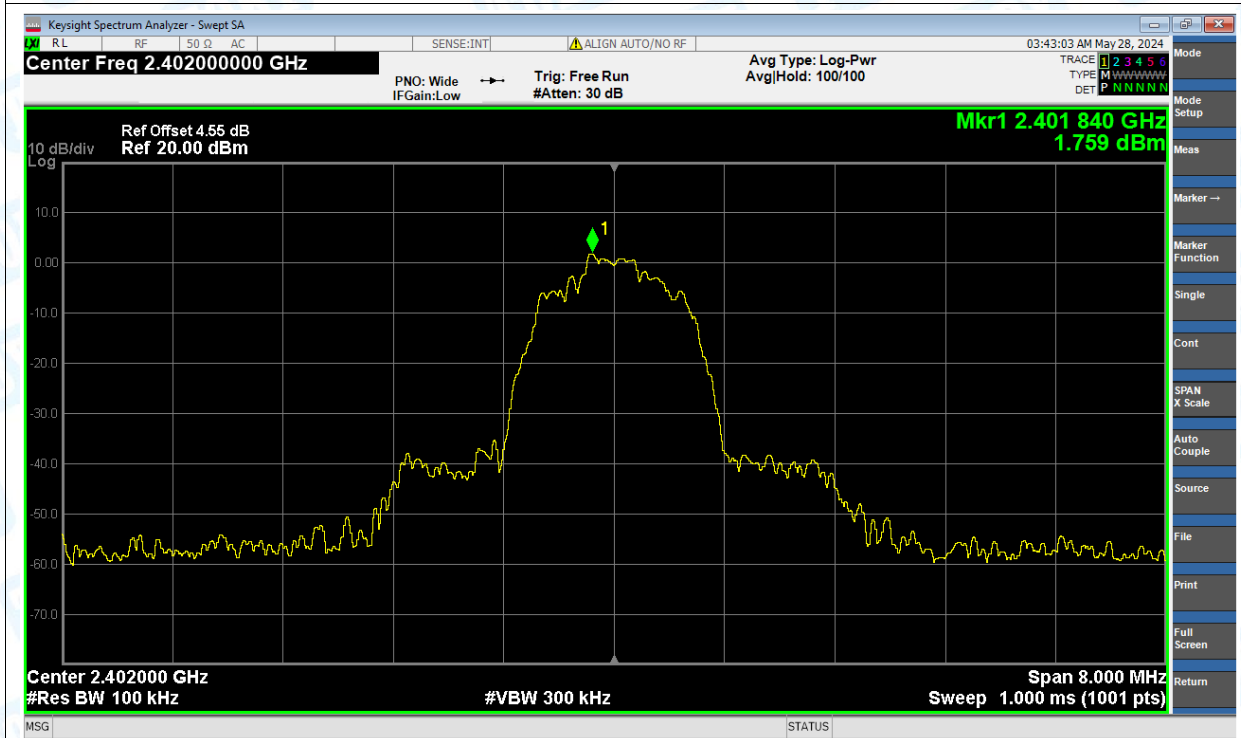
Band Edge NVNT 2-DH1 2480MHz Ant1 No-Hopping Ref



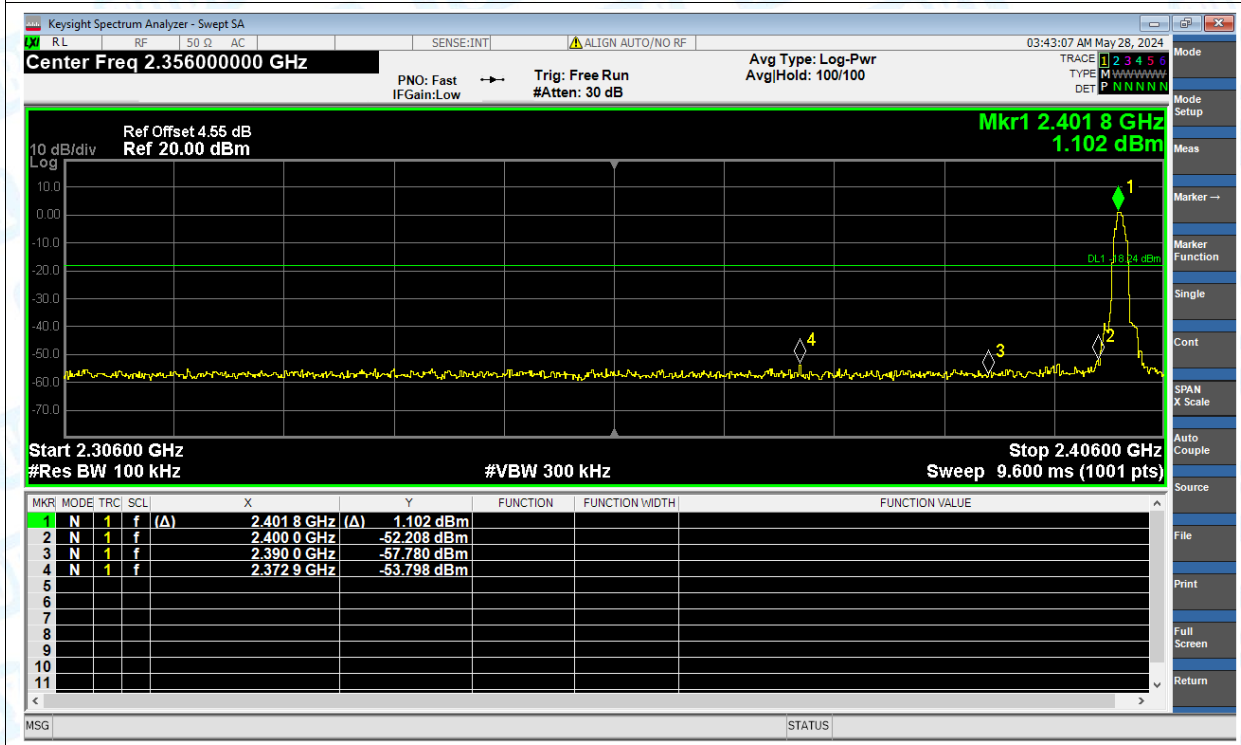
Band Edge NVNT 2-DH1 2480MHz Ant1 No-Hopping Emission

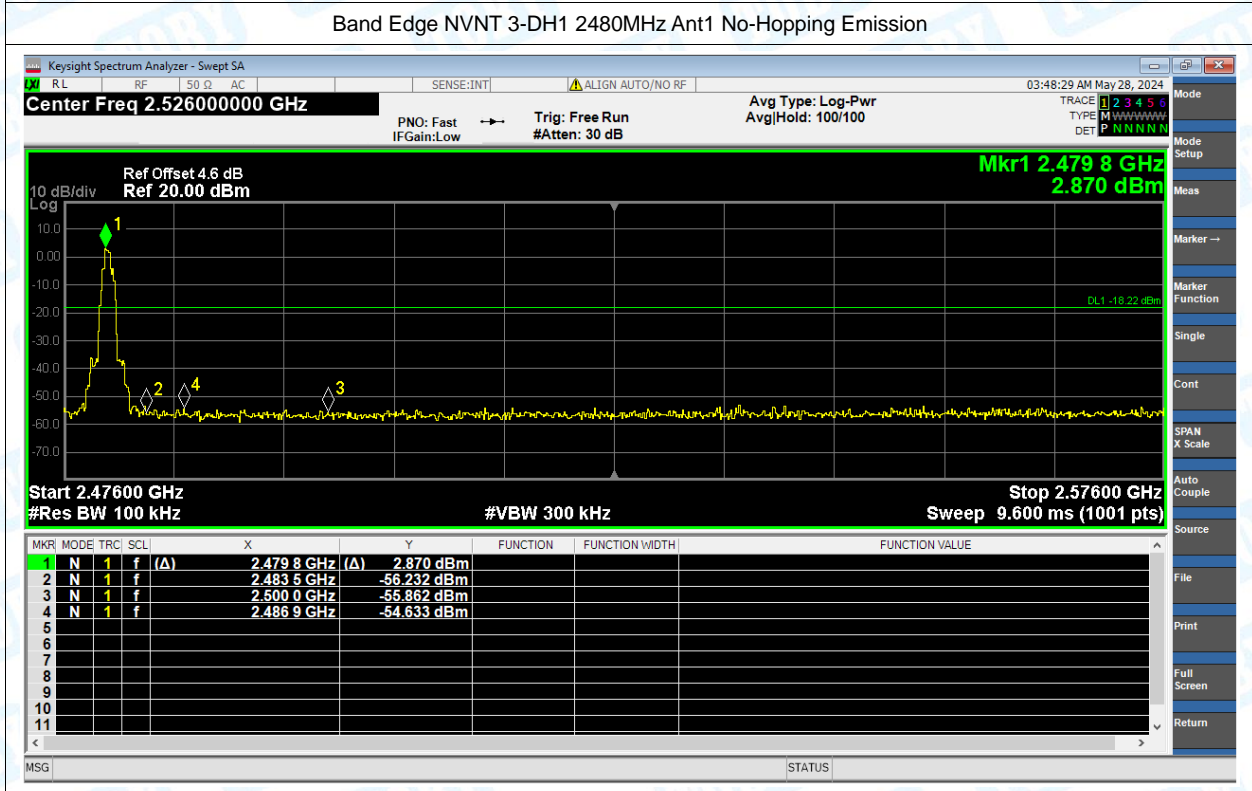
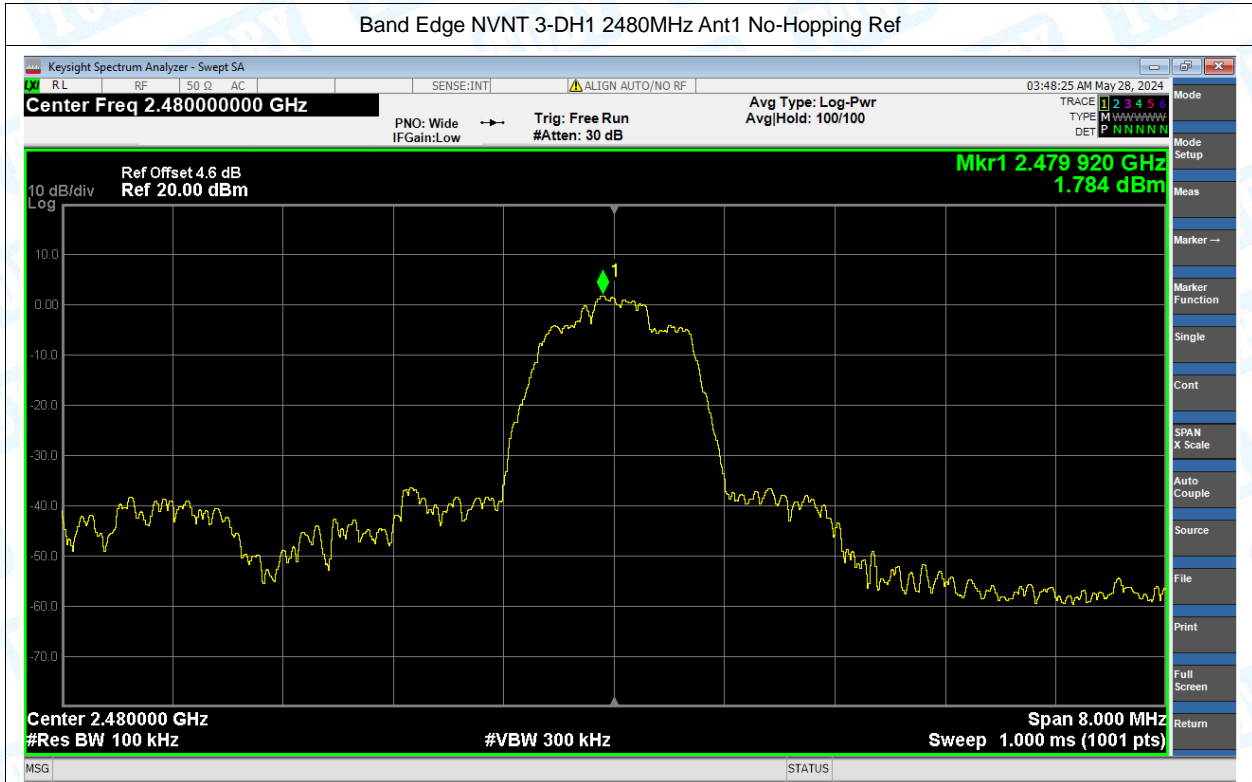


Band Edge NVNT 3-DH1 2402MHz Ant1 No-Hopping Ref



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



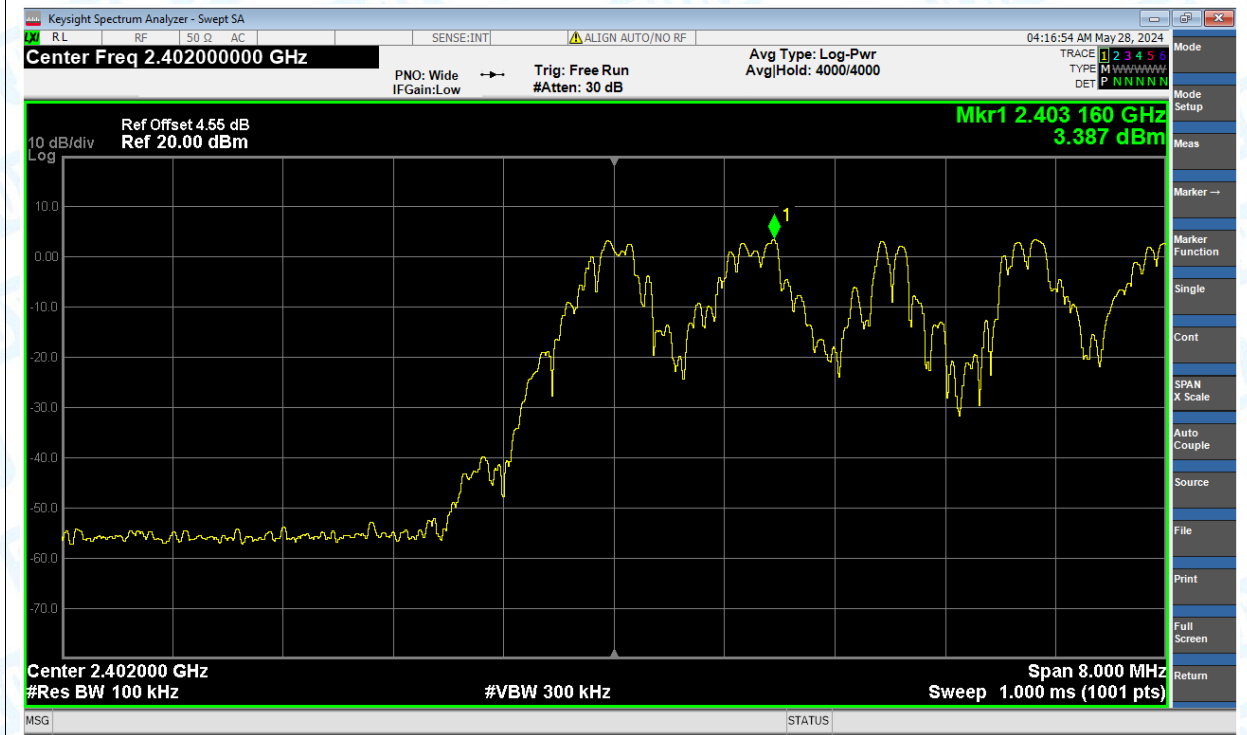


6. Band Edge(Hopping)

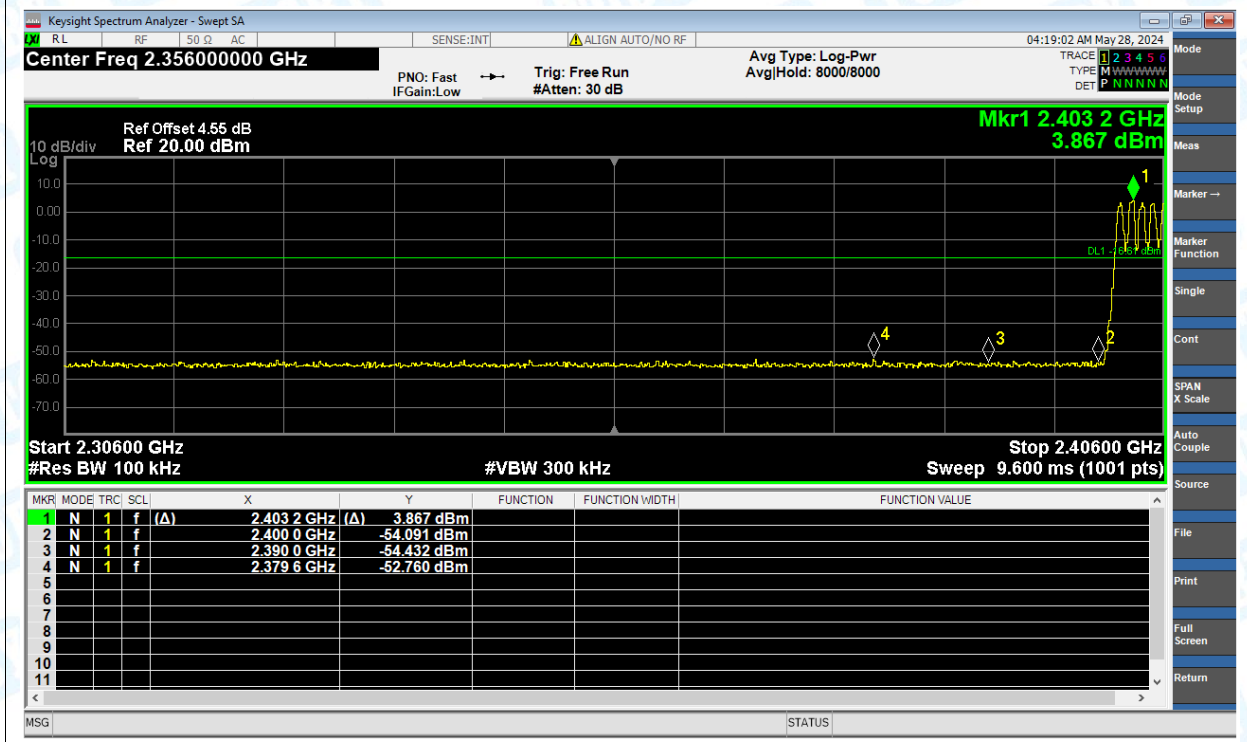
Condition	Mode	Frequency (MHz)	Antenna	Hopping Mode	Max Value (dBc)	Limit (dBc)	Verdict
NVNT	1-DH1	2402	Ant1	Hopping	-56.15	-20	Pass
NVNT	1-DH1	2480	Ant1	Hopping	-58.87	-20	Pass
NVNT	2-DH1	2402	Ant1	Hopping	-53.33	-20	Pass
NVNT	2-DH1	2480	Ant1	Hopping	-55.86	-20	Pass
NVNT	3-DH1	2402	Ant1	Hopping	-54.84	-20	Pass
NVNT	3-DH1	2480	Ant1	Hopping	-55.62	-20	Pass

Test Graphs

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



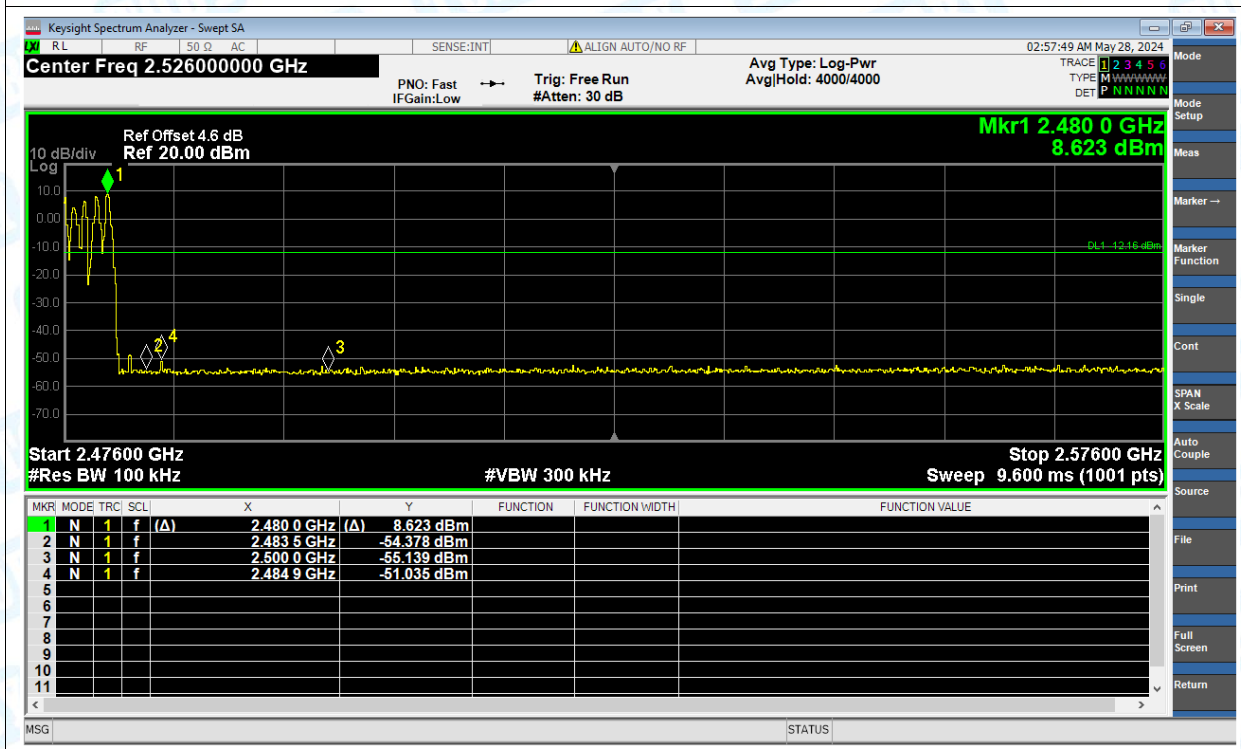
Band Edge(Hopping) NVNT 1-DH1 2402MHz Ant1 Hopping Emission



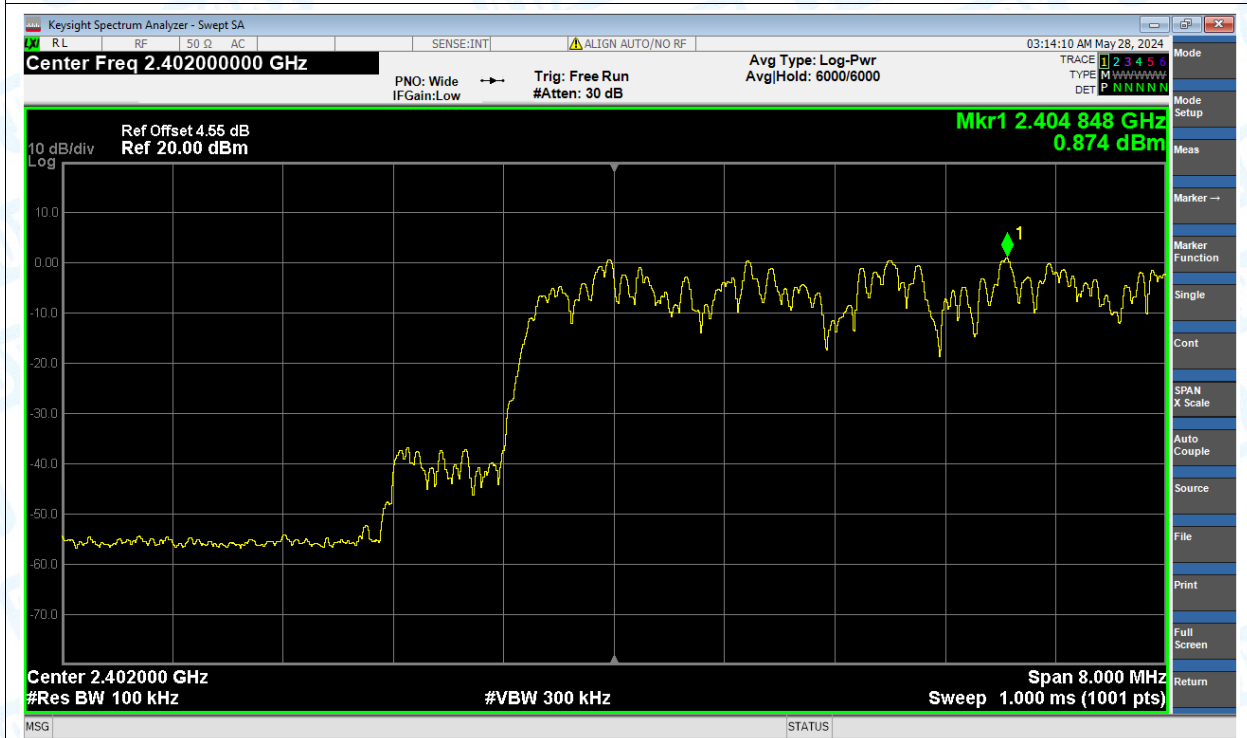
Band Edge(Hopping) NVNT 1-DH1 2480MHz Ant1 Hopping Ref



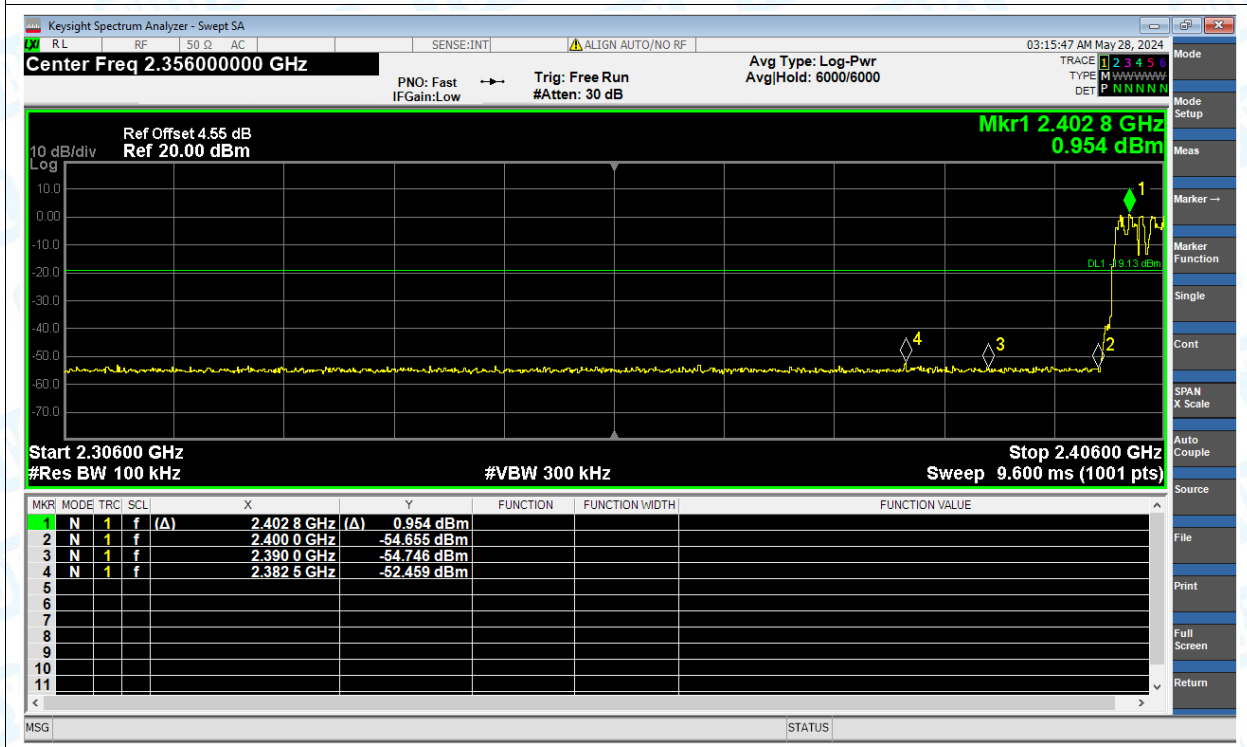
Band Edge(Hopping) NVNT 1-DH1 2480MHz Ant1 Hopping Emission

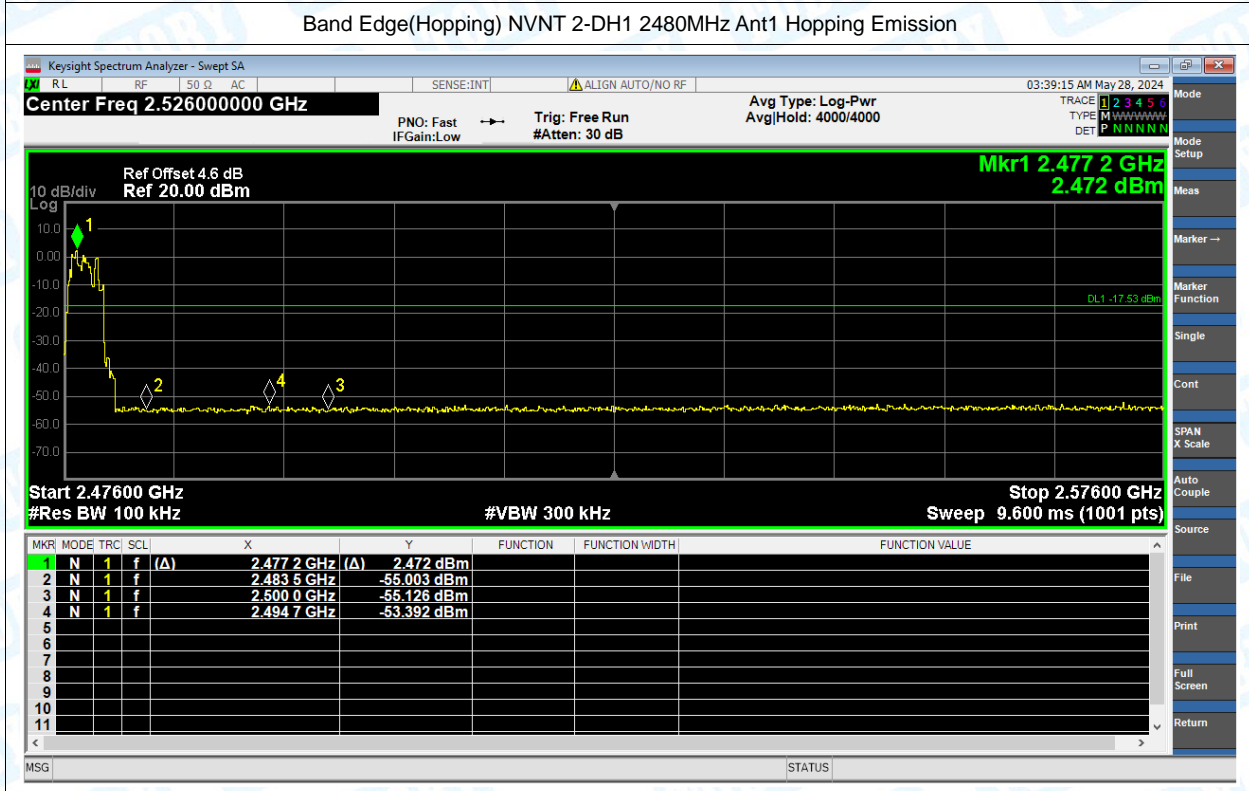


Band Edge(Hopping) NVNT 2-DH1 2402MHz Ant1 Hopping Ref

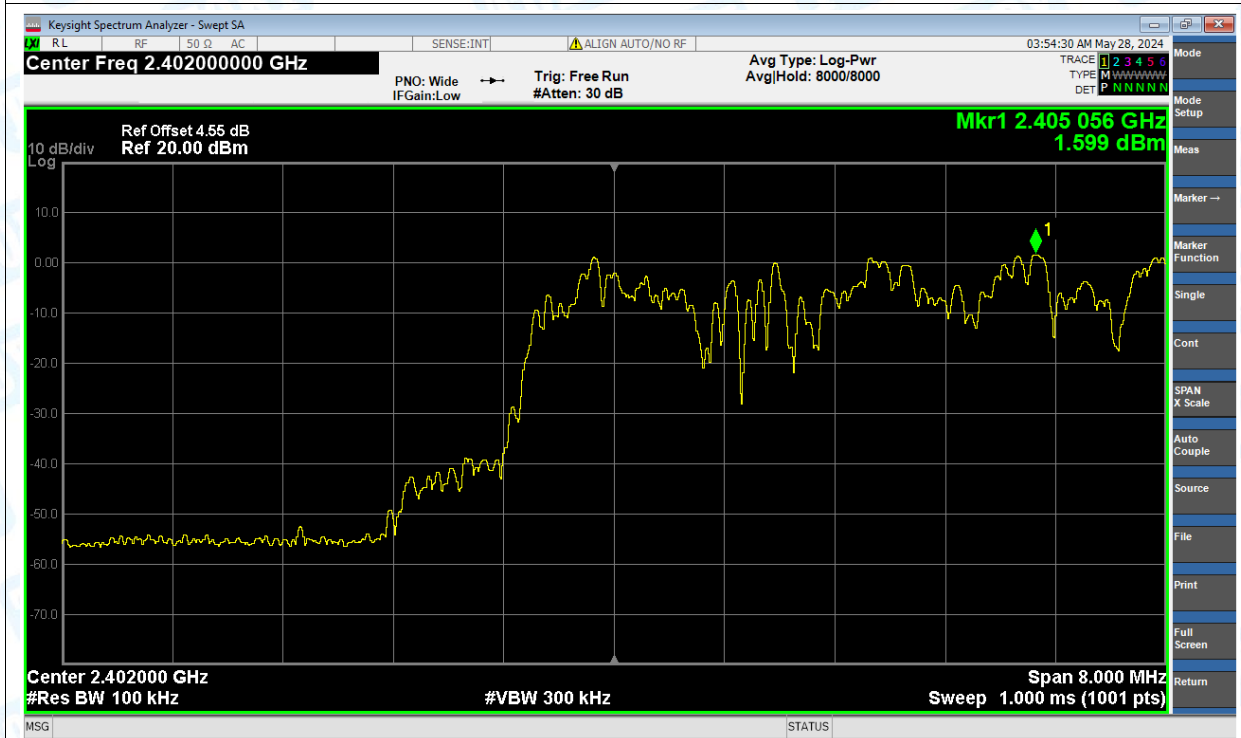


Band Edge(Hopping) NVNT 2-DH1 2402MHz Ant1 Hopping Emission

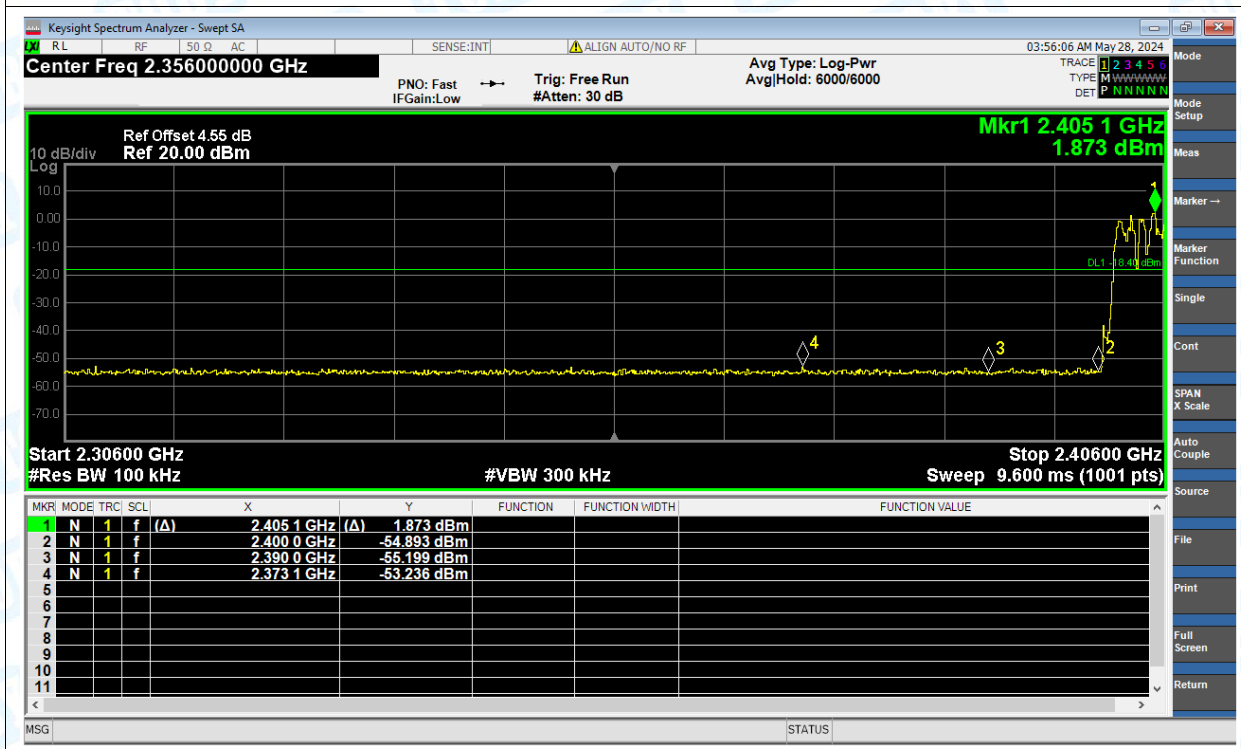




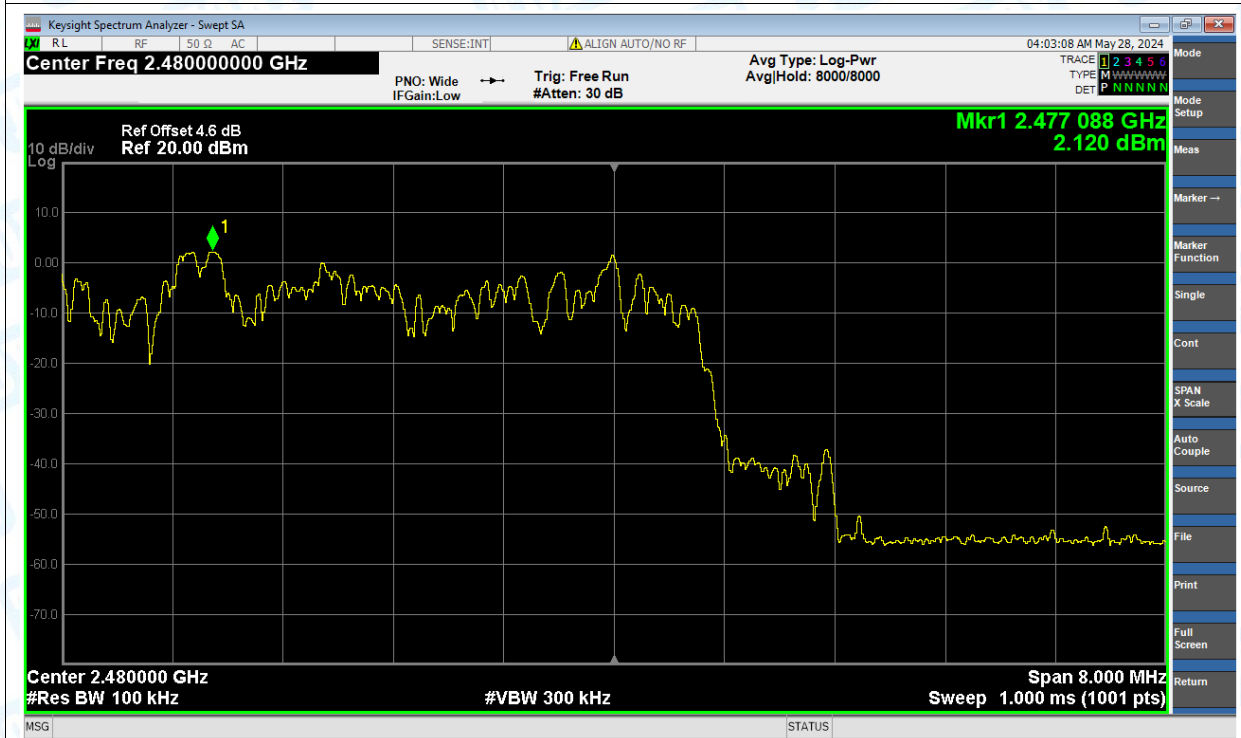
Band Edge(Hopping) NVNT 3-DH1 2402MHz Ant1 Hopping Ref



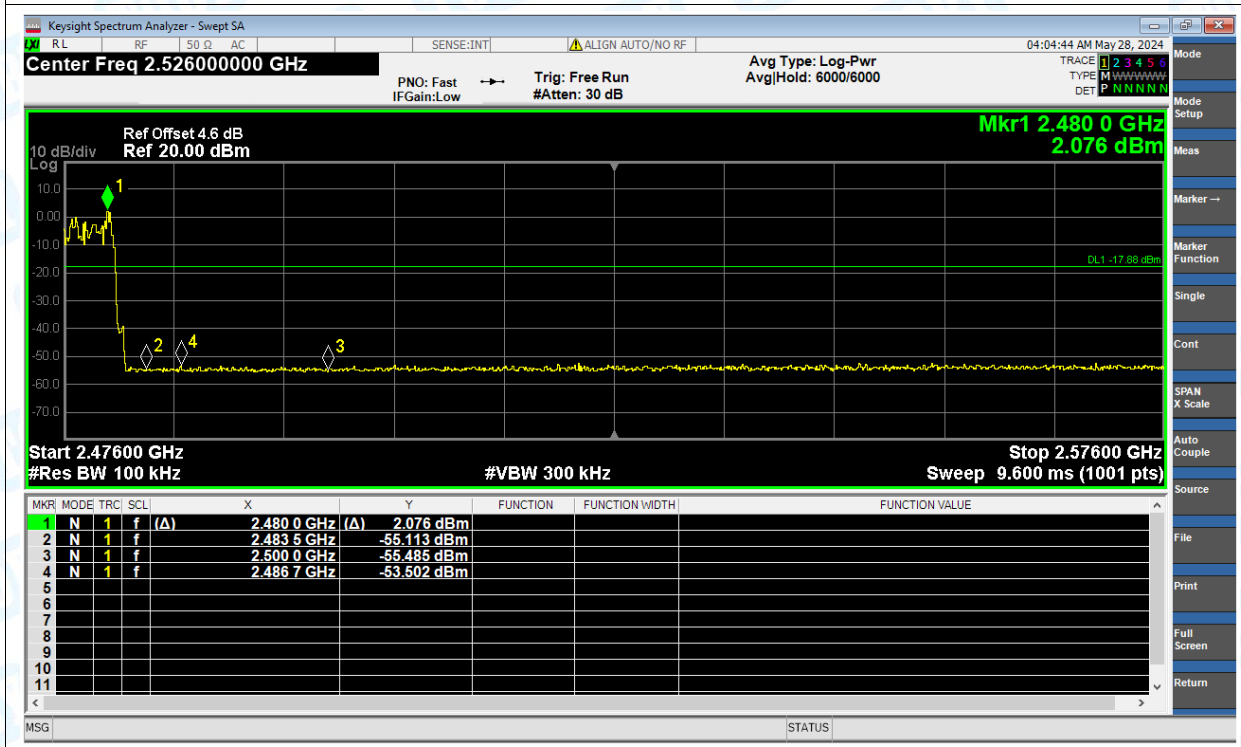
Band Edge(Hopping) NVNT 3-DH1 2402MHz Ant1 Hopping Emission



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



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

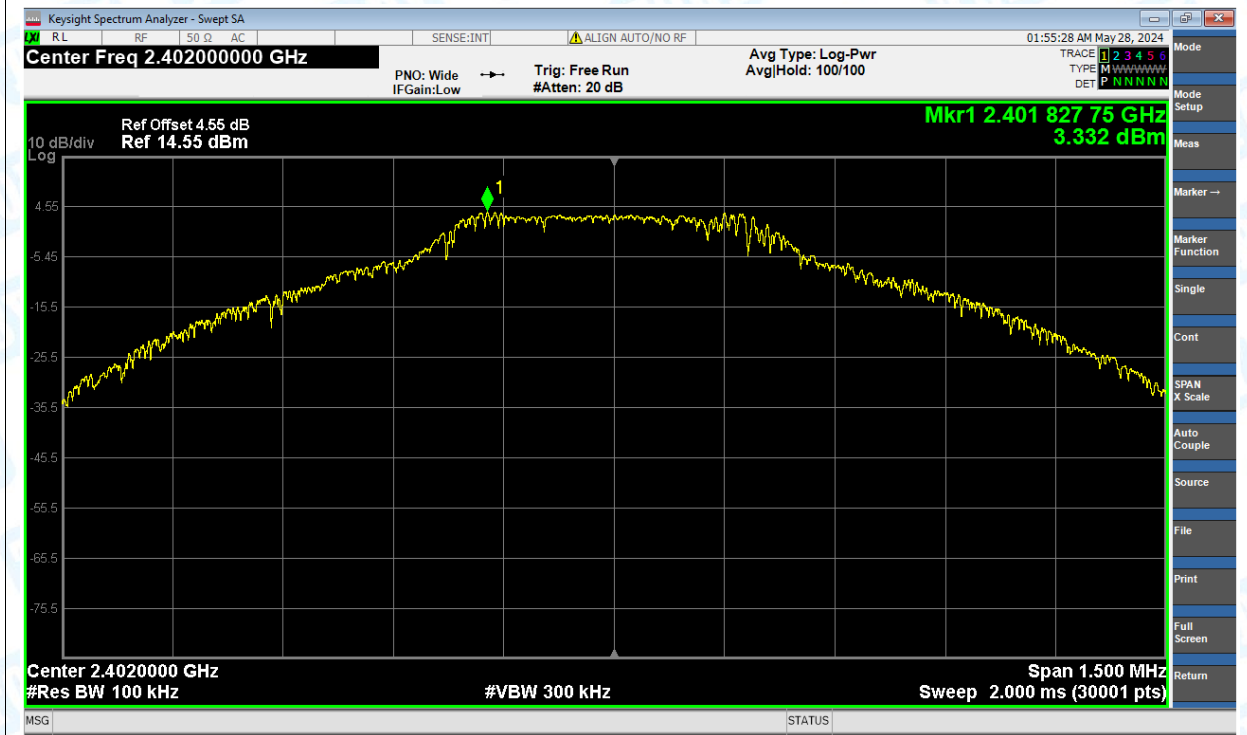


7. Conducted RF Spurious Emission

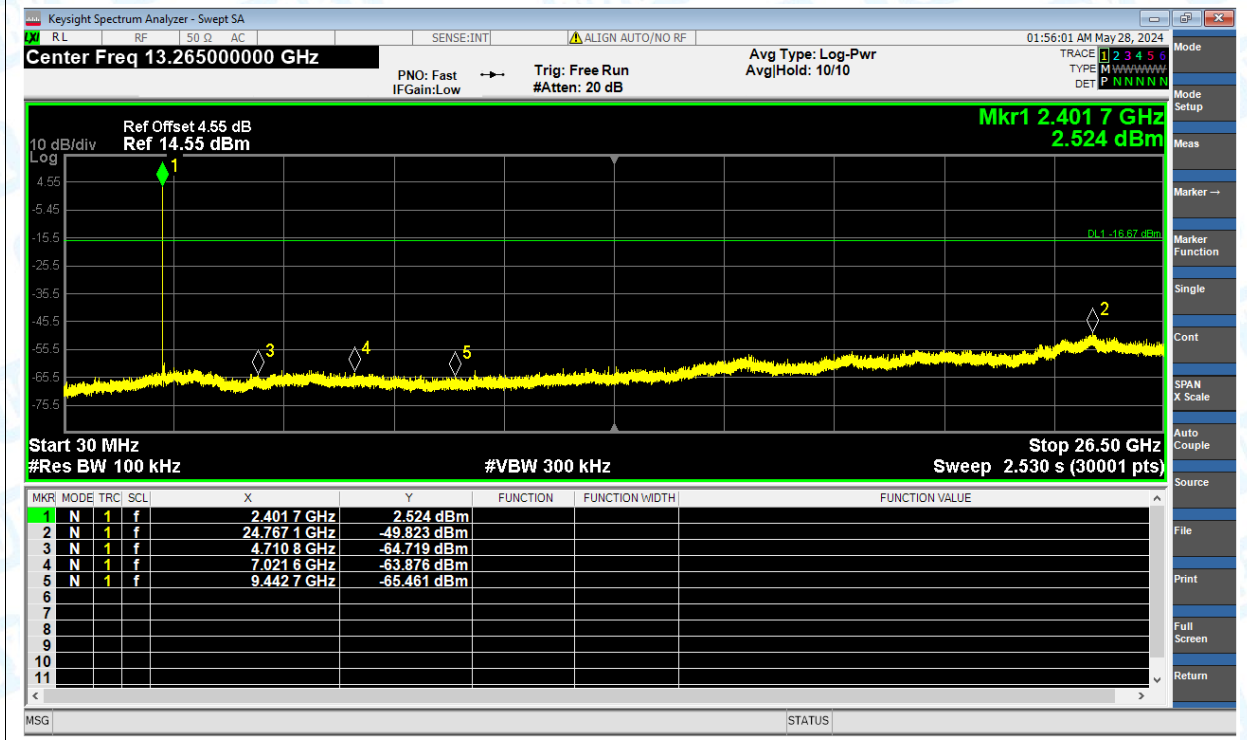
Condition	Mode	Frequency (MHz)	Antenna	Max Value (dBc)	Limit (dBc)	Verdict
NVNT	1-DH1	2402	Ant1	-53.15	-20	Pass
NVNT	1-DH1	2441	Ant1	-54.3	-20	Pass
NVNT	1-DH1	2480	Ant1	-53.74	-20	Pass
NVNT	2-DH1	2402	Ant1	-50.91	-20	Pass
NVNT	2-DH1	2441	Ant1	-52.95	-20	Pass
NVNT	2-DH1	2480	Ant1	-52.4	-20	Pass
NVNT	3-DH1	2402	Ant1	-50.01	-20	Pass
NVNT	3-DH1	2441	Ant1	-52.09	-20	Pass
NVNT	3-DH1	2480	Ant1	-33.42	-20	Pass

Test Graphs

Tx. Spurious NVNT 1-DH1 2402MHz Ant1 Ref



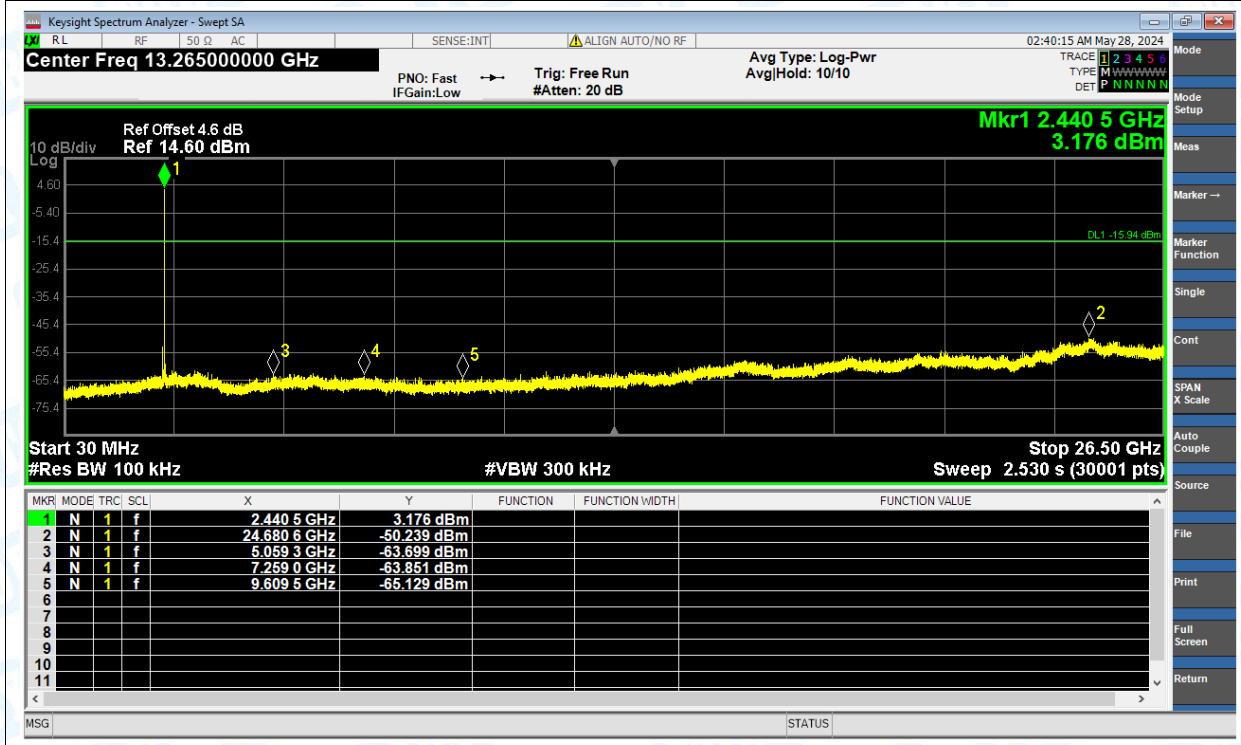
Tx. Spurious NVNT 1-DH1 2402MHz Ant1 Emission



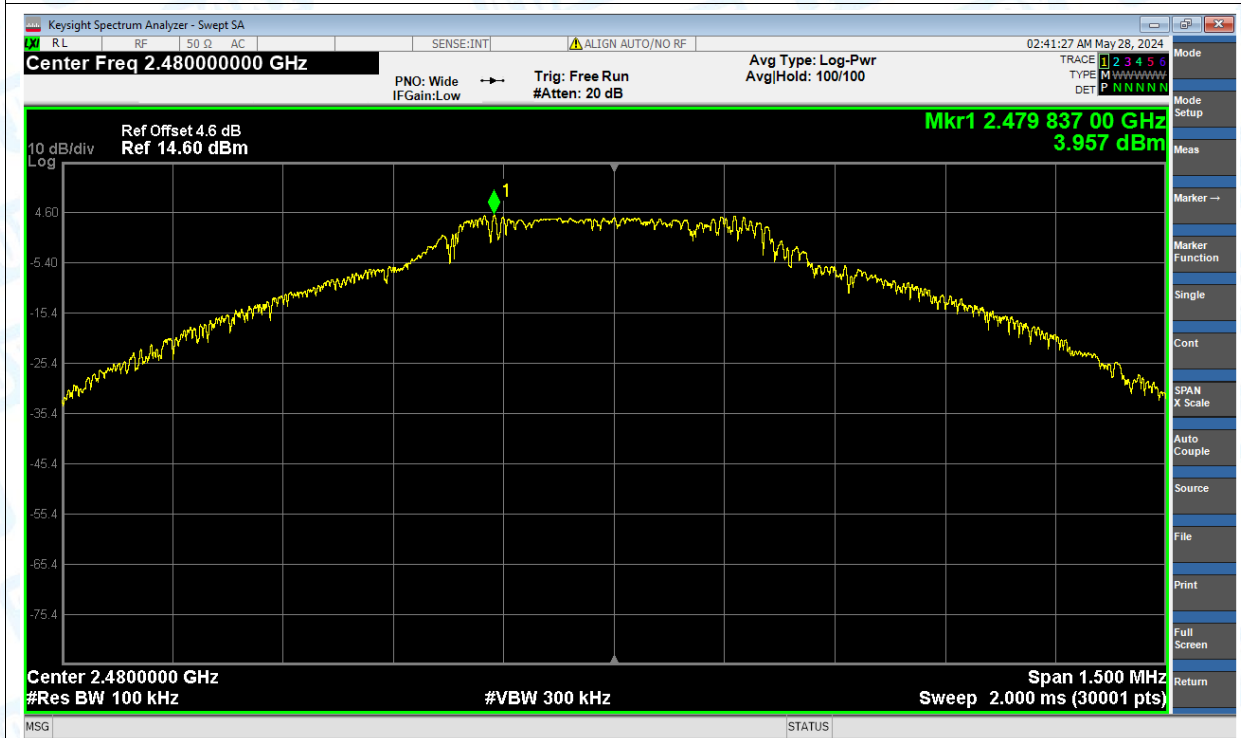
Tx. Spurious NVNT 1-DH1 2441MHz Ant1 Ref



Tx. Spurious NVNT 1-DH1 2441MHz Ant1 Emission



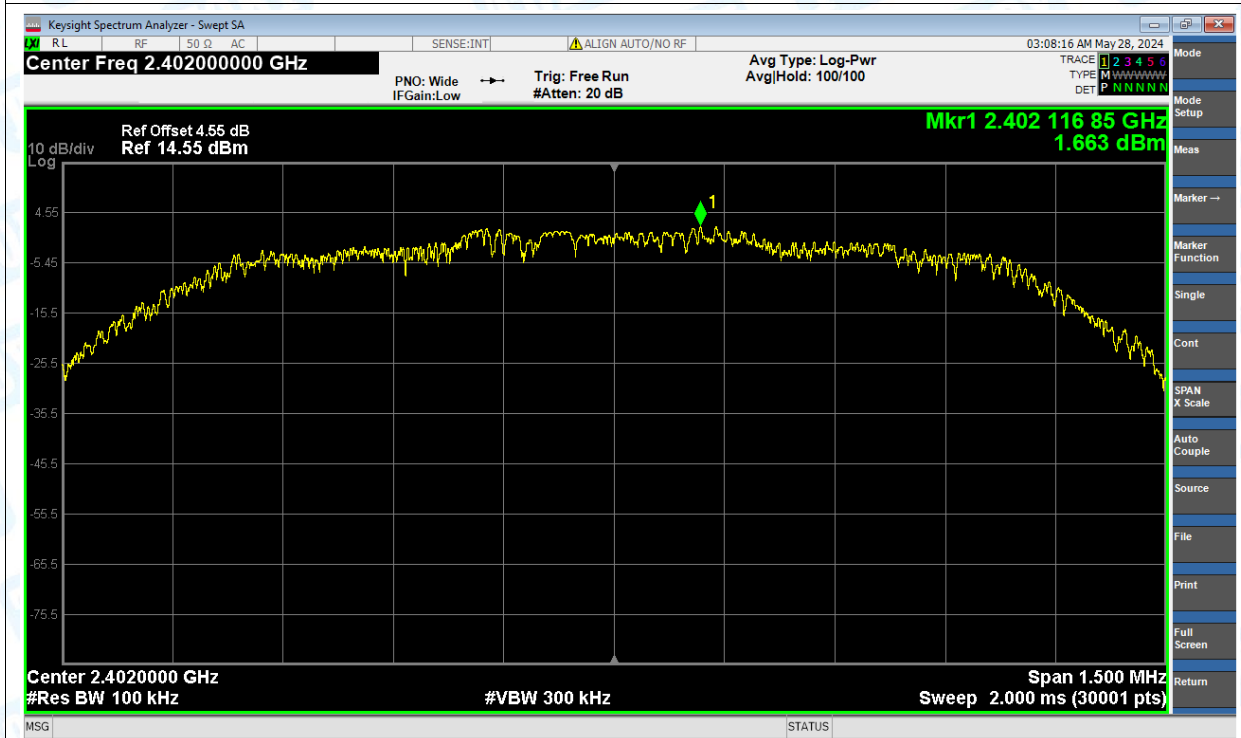
Tx. Spurious NVNT 1-DH1 2480MHz Ant1 Ref



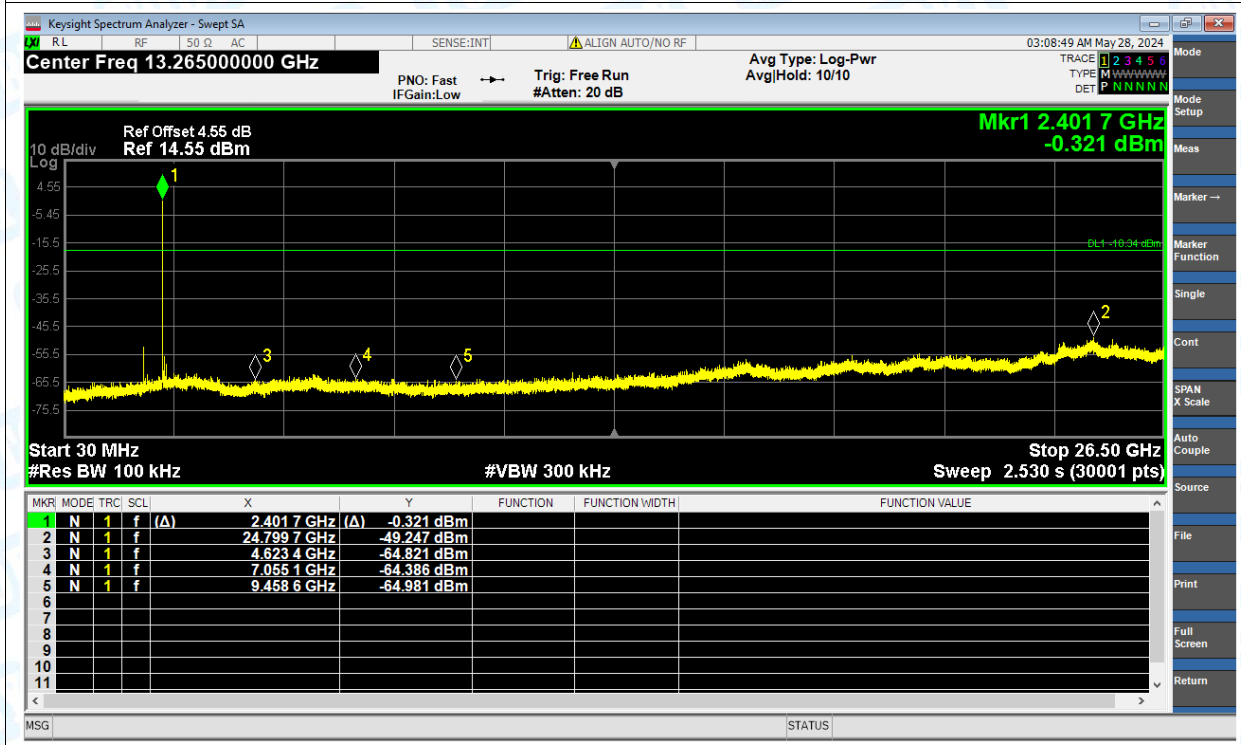
Tx. Spurious NVNT 1-DH1 2480MHz Ant1 Emission



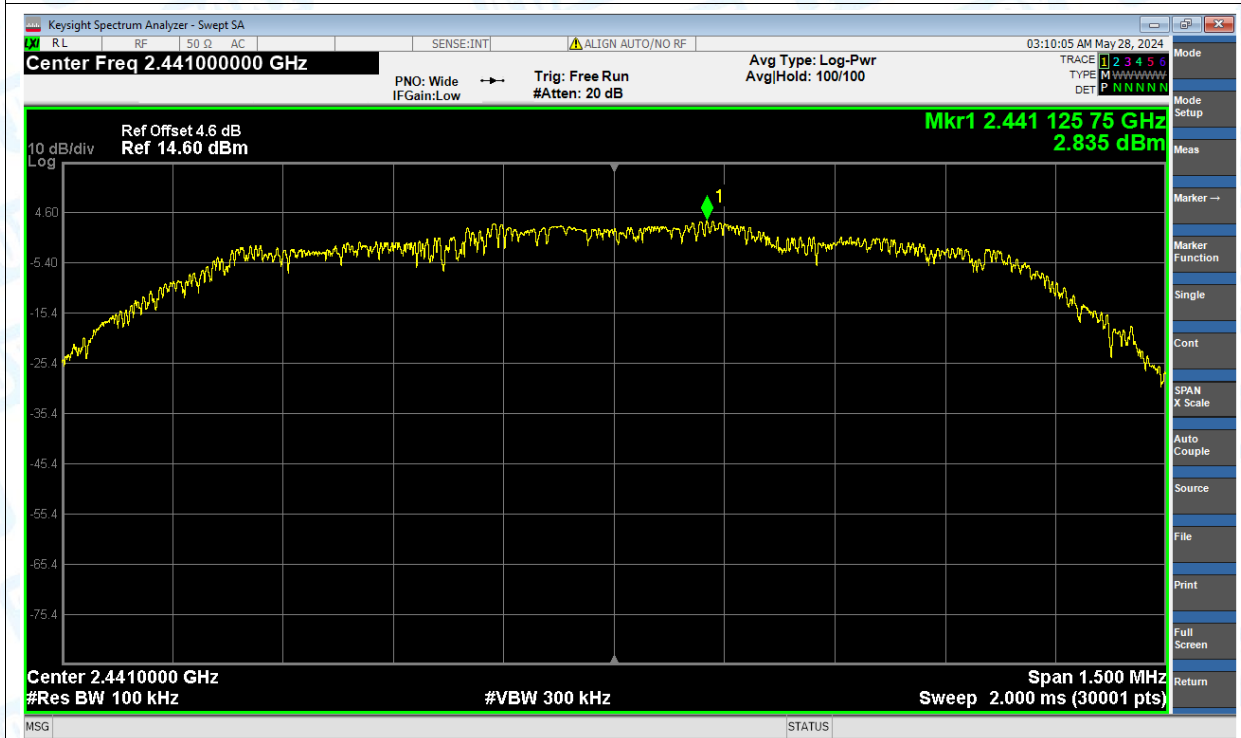
Tx. Spurious NVNT 2-DH1 2402MHz Ant1 Ref



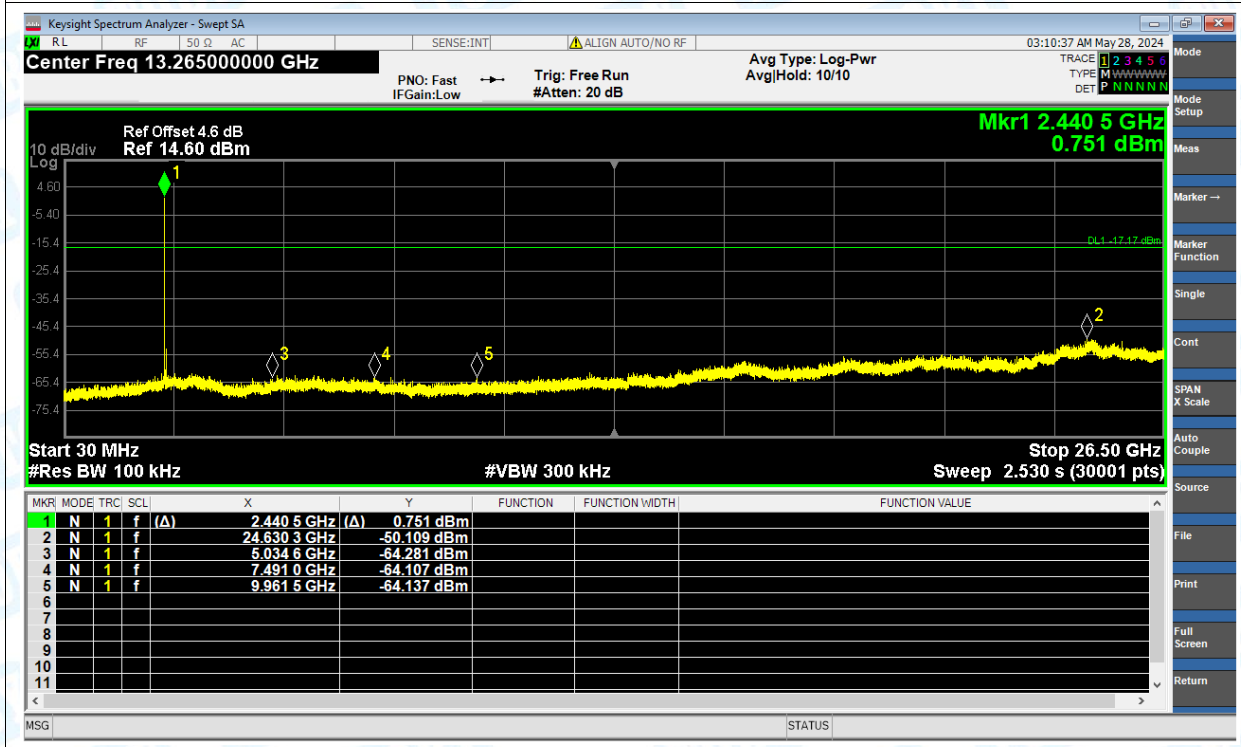
Tx. Spurious NVNT 2-DH1 2402MHz Ant1 Emission



Tx. Spurious NVNT 2-DH1 2441MHz Ant1 Ref



Tx. Spurious NVNT 2-DH1 2441MHz Ant1 Emission



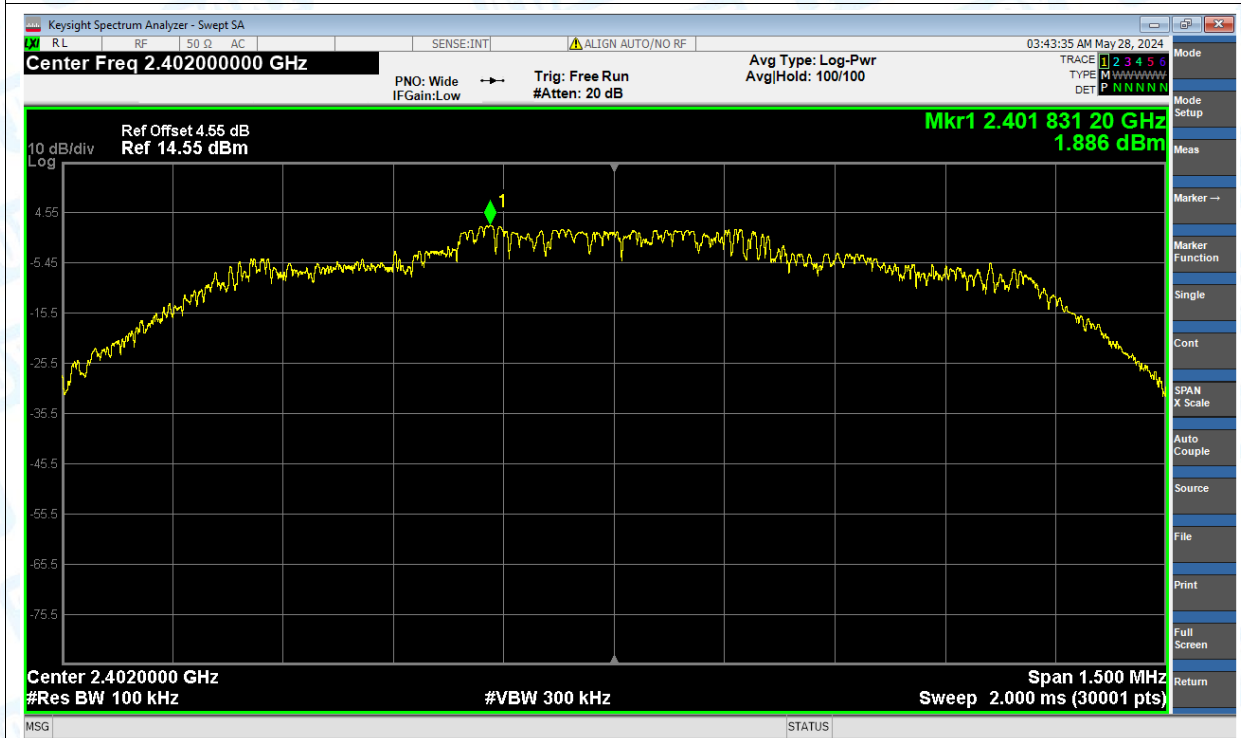
Tx. Spurious NVNT 2-DH1 2480MHz Ant1 Ref



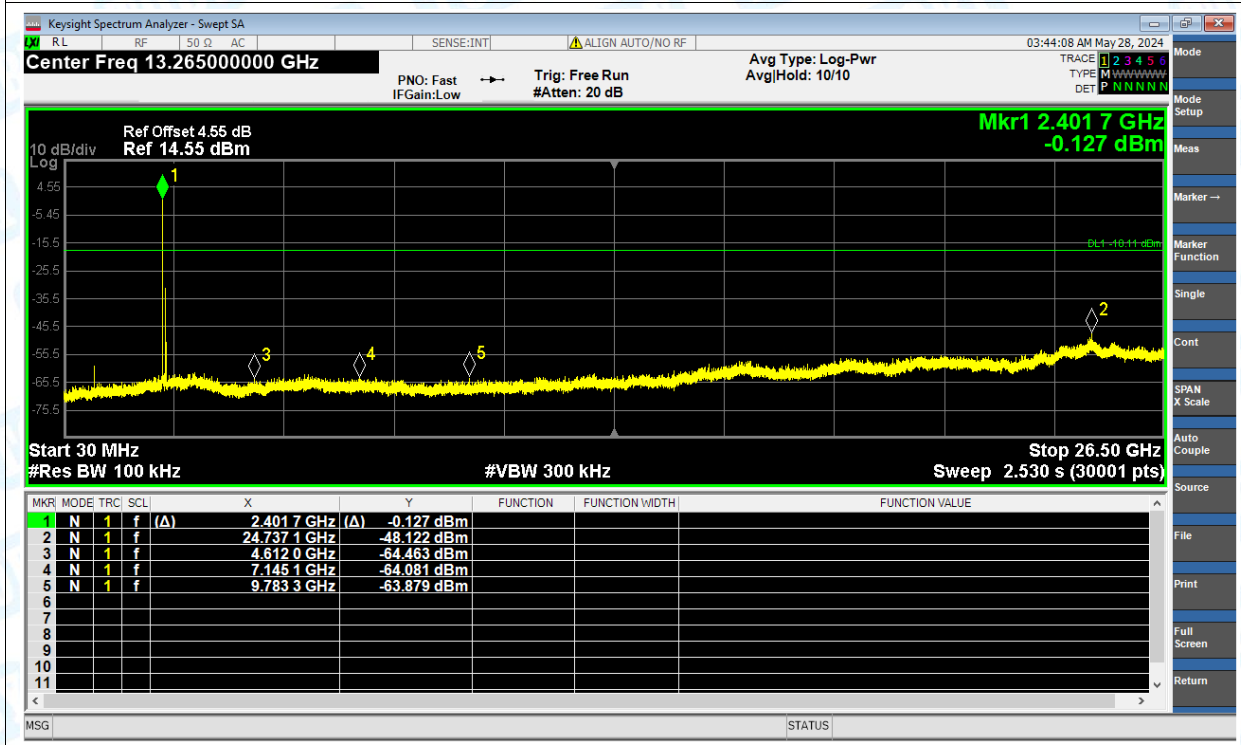
Tx. Spurious NVNT 2-DH1 2480MHz Ant1 Emission



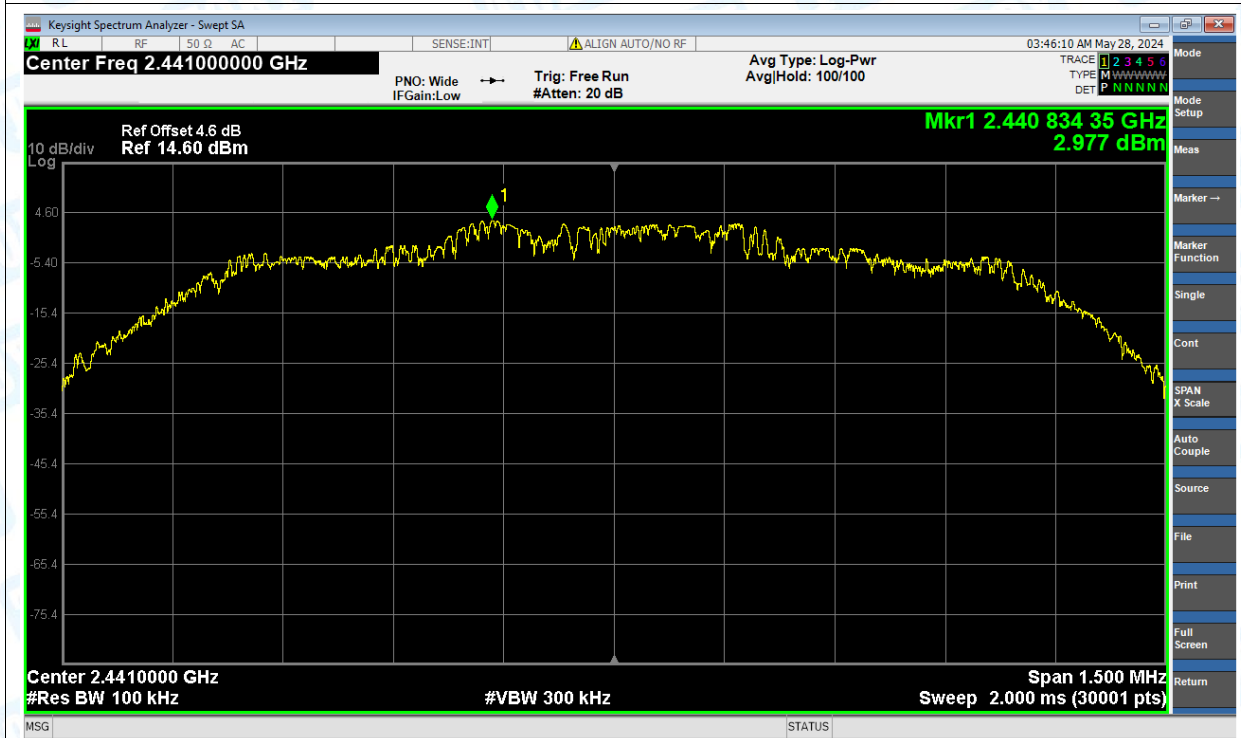
Tx. Spurious NVNT 3-DH1 2402MHz Ant1 Ref



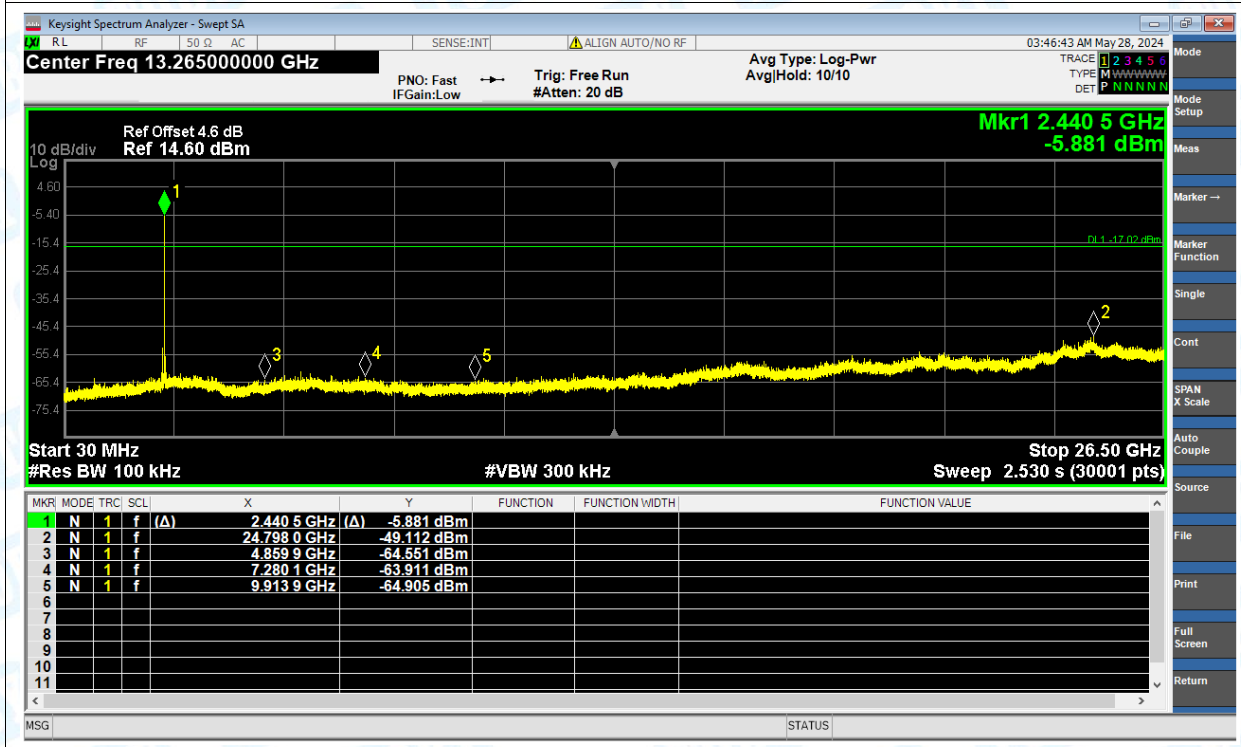
Tx. Spurious NVNT 3-DH1 2402MHz Ant1 Emission



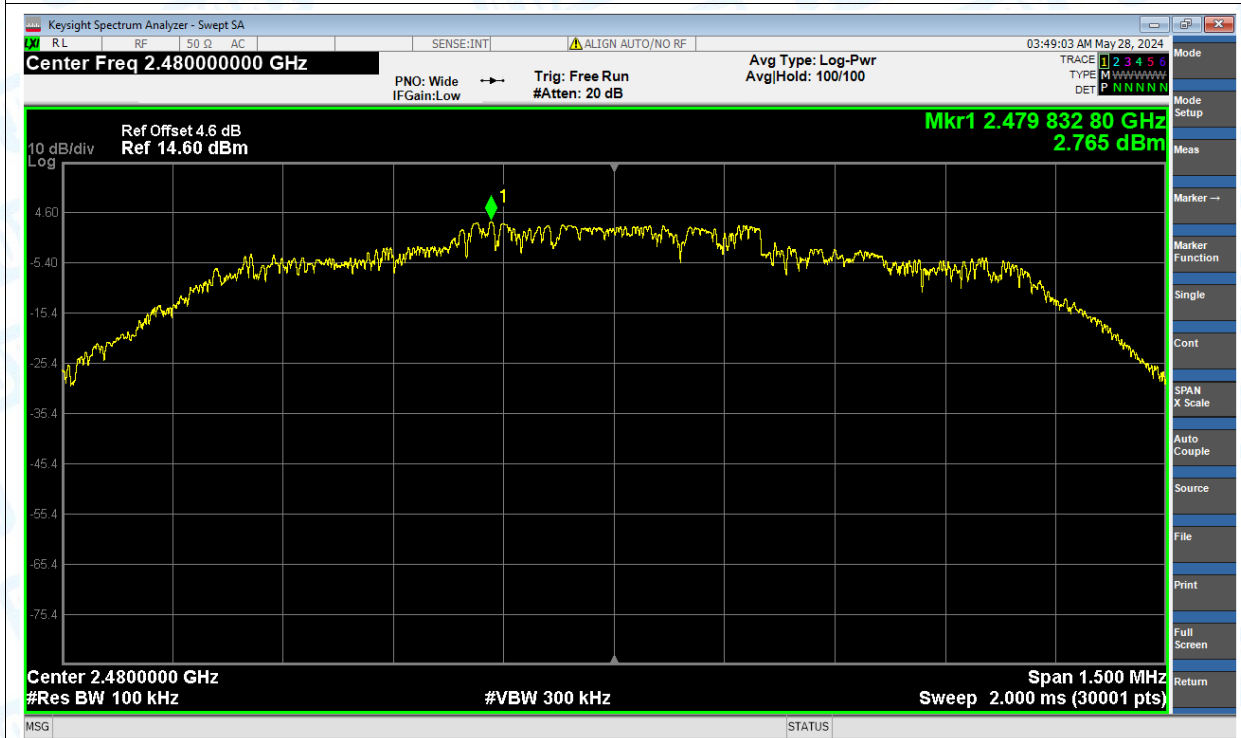
Tx. Spurious NVNT 3-DH1 2441MHz Ant1 Ref



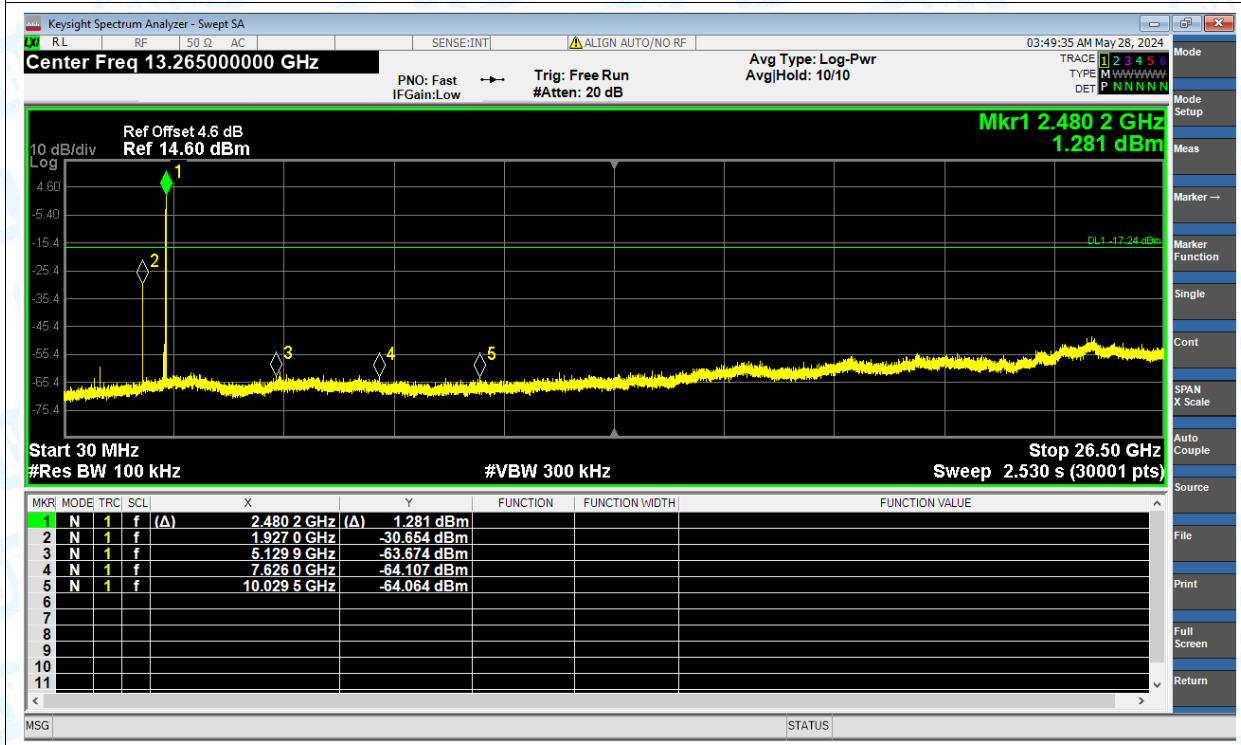
Tx. Spurious NVNT 3-DH1 2441MHz Ant1 Emission



Tx. Spurious NVNT 3-DH1 2480MHz Ant1 Ref



Tx. Spurious NVNT 3-DH1 2480MHz Ant1 Emission

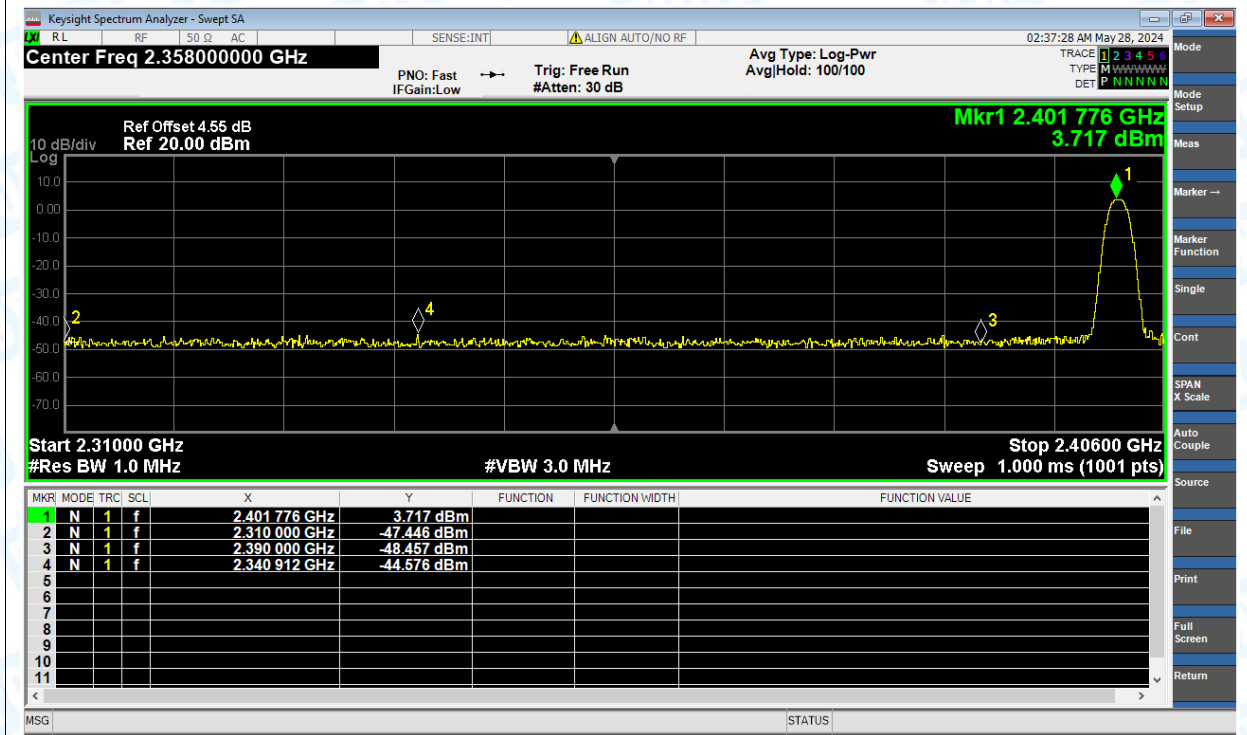


8. Restrict Band

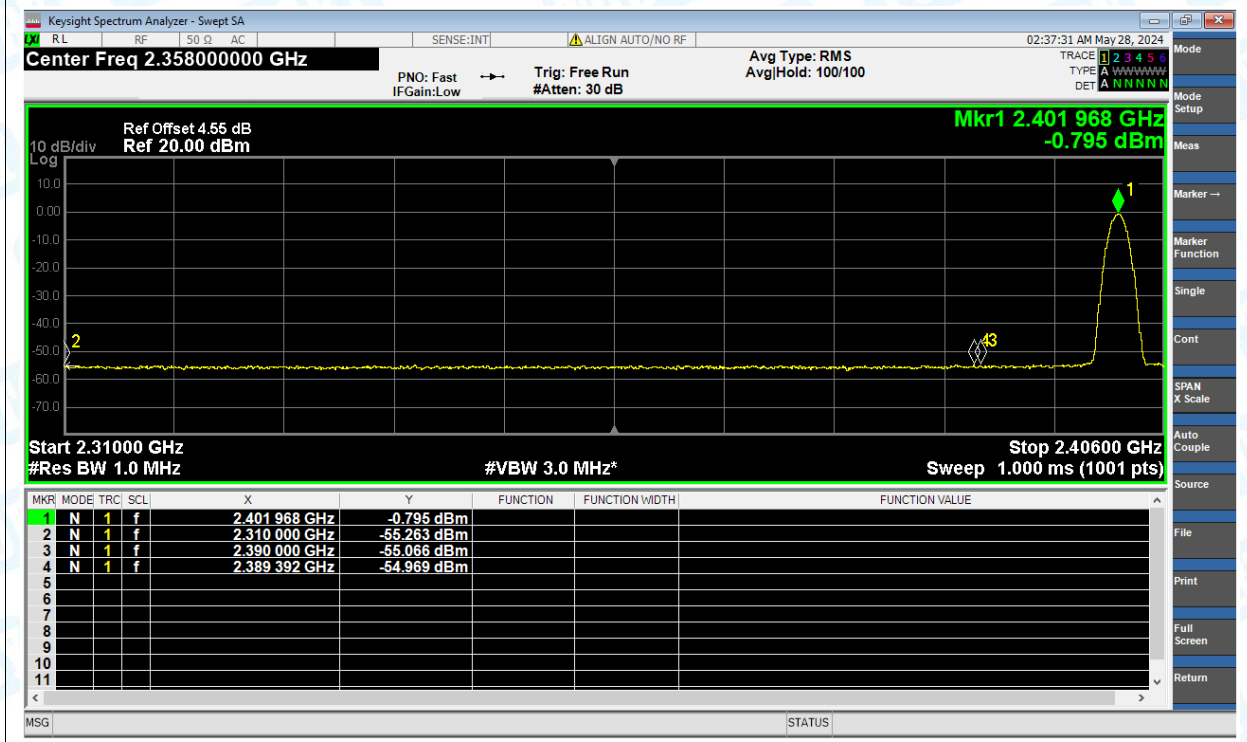
Condition	Mode	Frequency (MHz)	Antenna	Hopping Mode	Spur Freq (MHz)	Power (dBm)	Gain (dBi)	Duty Factor (dB)	E (dBuV/m)	Detector	Limit (dBuV/m)	Verdict
NVNT	1-DH1	2402	Ant1	No-Hopping	2310	-47.45	2.5	-	50.31	Peak	74	Pass
NVNT	1-DH1	2402	Ant1	No-Hopping	2310	-55.26	2.5	5.17	47.67	Average	54	Pass
NVNT	1-DH1	2402	Ant1	No-Hopping	2340.912	-44.58	2.5	-	53.18	Peak	74	Pass
NVNT	1-DH1	2402	Ant1	No-Hopping	2389.392	-54.97	2.5	5.17	47.96	Average	54	Pass
NVNT	1-DH1	2402	Ant1	No-Hopping	2390	-48.46	2.5	-	49.3	Peak	74	Pass
NVNT	1-DH1	2402	Ant1	No-Hopping	2390	-55.07	2.5	5.17	47.86	Average	54	Pass
NVNT	1-DH1	2480	Ant1	No-Hopping	2483.5	-47.09	2.5	-	50.67	Peak	74	Pass
NVNT	1-DH1	2480	Ant1	No-Hopping	2483.5	-55.1	2.5	5.06	47.72	Average	54	Pass
NVNT	1-DH1	2480	Ant1	No-Hopping	2487.04	-43.84	2.5	-	53.92	Peak	74	Pass
NVNT	1-DH1	2480	Ant1	No-Hopping	2483.656	-54.25	2.5	5.06	48.57	Average	54	Pass
NVNT	1-DH1	2480	Ant1	No-Hopping	2500	-47.49	2.5	-	50.27	Peak	74	Pass
NVNT	1-DH1	2480	Ant1	No-Hopping	2500	-54.6	2.5	5.06	48.22	Average	54	Pass
NVNT	2-DH1	2402	Ant1	No-Hopping	2310	-47.29	2.5	-	50.47	Peak	74	Pass
NVNT	2-DH1	2402	Ant1	No-Hopping	2310	-55.85	2.5	5.06	46.97	Average	54	Pass
NVNT	2-DH1	2402	Ant1	No-Hopping	2370.864	-44.88	2.5	-	52.88	Peak	74	Pass
NVNT	2-DH1	2402	Ant1	No-Hopping	2358.864	-54.93	2.5	5.06	47.89	Average	54	Pass
NVNT	2-DH1	2402	Ant1	No-Hopping	2390	-47.98	2.5	-	49.78	Peak	74	Pass
NVNT	2-DH1	2402	Ant1	No-Hopping	2390	-55.81	2.5	5.06	47.01	Average	54	Pass
NVNT	2-DH1	2480	Ant1	No-Hopping	2483.5	-46.46	2.5	-	51.3	Peak	74	Pass
NVNT	2-DH1	2480	Ant1	No-Hopping	2483.5	-54.2	2.5	4.95	48.51	Average	54	Pass
NVNT	2-DH1	2480	Ant1	No-Hopping	2489.2	-43.97	2.5	-	53.79	Peak	74	Pass
NVNT	2-DH1	2480	Ant1	No-Hopping	2483.512	-54.2	2.5	4.95	48.51	Average	54	Pass
NVNT	2-DH1	2480	Ant1	No-Hopping	2500	-49.3	2.5	-	48.46	Peak	74	Pass
NVNT	2-DH1	2480	Ant1	No-Hopping	2500	-55.56	2.5	4.95	47.15	Average	54	Pass
NVNT	3-DH1	2402	Ant1	No-Hopping	2310	-47.1	2.5	-	50.66	Peak	74	Pass
NVNT	3-DH1	2402	Ant1	No-Hopping	2310	-55.59	2.5	5.06	47.23	Average	54	Pass
NVNT	3-DH1	2402	Ant1	No-Hopping	2357.712	-44.77	2.5	-	52.99	Peak	74	Pass
NVNT	3-DH1	2402	Ant1	No-Hopping	2328.912	-54.87	2.5	5.06	47.95	Average	54	Pass
NVNT	3-DH1	2402	Ant1	No-Hopping	2390	-46.75	2.5	-	51.01	Peak	74	Pass
NVNT	3-DH1	2402	Ant1	No-Hopping	2390	-55.78	2.5	5.06	47.04	Average	54	Pass
NVNT	3-DH1	2480	Ant1	No-Hopping	2483.5	-44.64	2.5	-	53.12	Peak	74	Pass
NVNT	3-DH1	2480	Ant1	No-Hopping	2483.5	-55.05	2.5	4.95	47.66	Average	54	Pass
NVNT	3-DH1	2480	Ant1	No-Hopping	2484.16	-44.58	2.5	-	53.18	Peak	74	Pass
NVNT	3-DH1	2480	Ant1	No-Hopping	2485.864	-54.33	2.5	4.95	48.38	Average	54	Pass
NVNT	3-DH1	2480	Ant1	No-Hopping	2500	-46.57	2.5	-	51.19	Peak	74	Pass
NVNT	3-DH1	2480	Ant1	No-Hopping	2500	-55.54	2.5	4.95	47.17	Average	54	Pass

Test Graphs

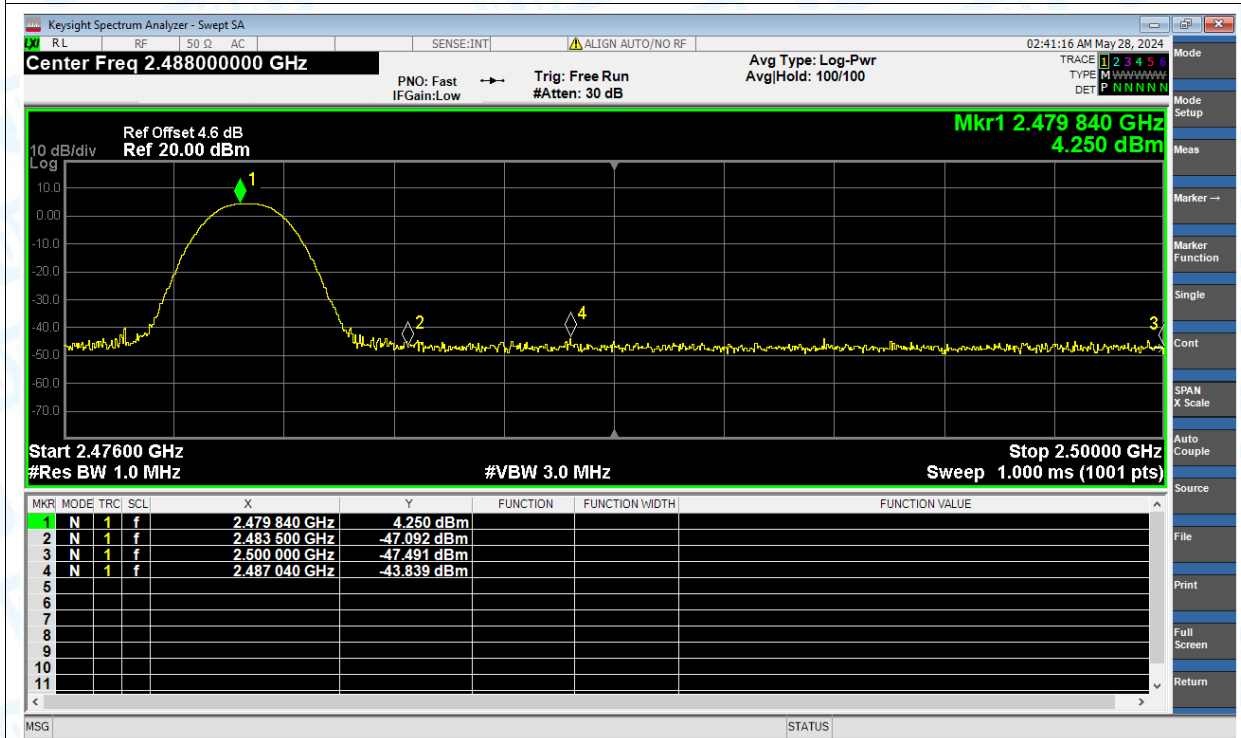
Restrict Band NVNT 1-DH1 2402MHz Ant1 No-Hopping Peak



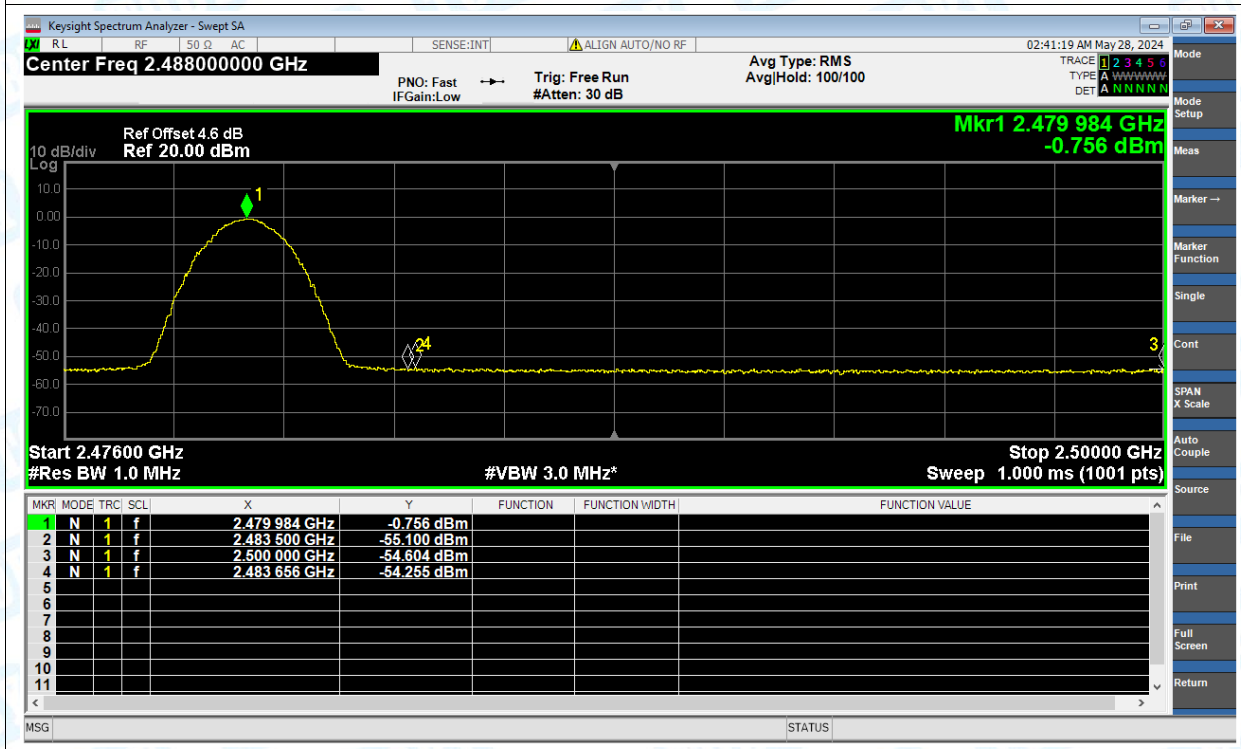
Restrict Band NVNT 1-DH1 2402MHz Ant1 No-Hopping Average



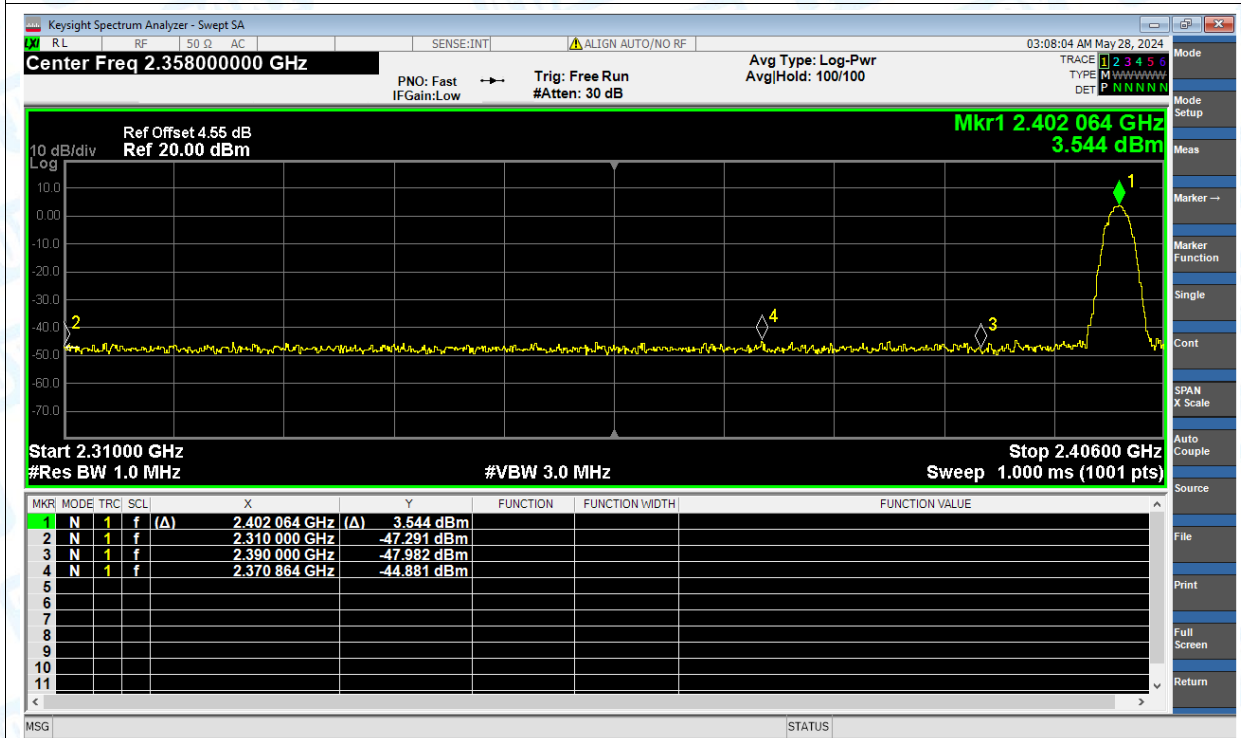
Restrict Band NVNT 1-DH1 2480MHz Ant1 No-Hopping Peak



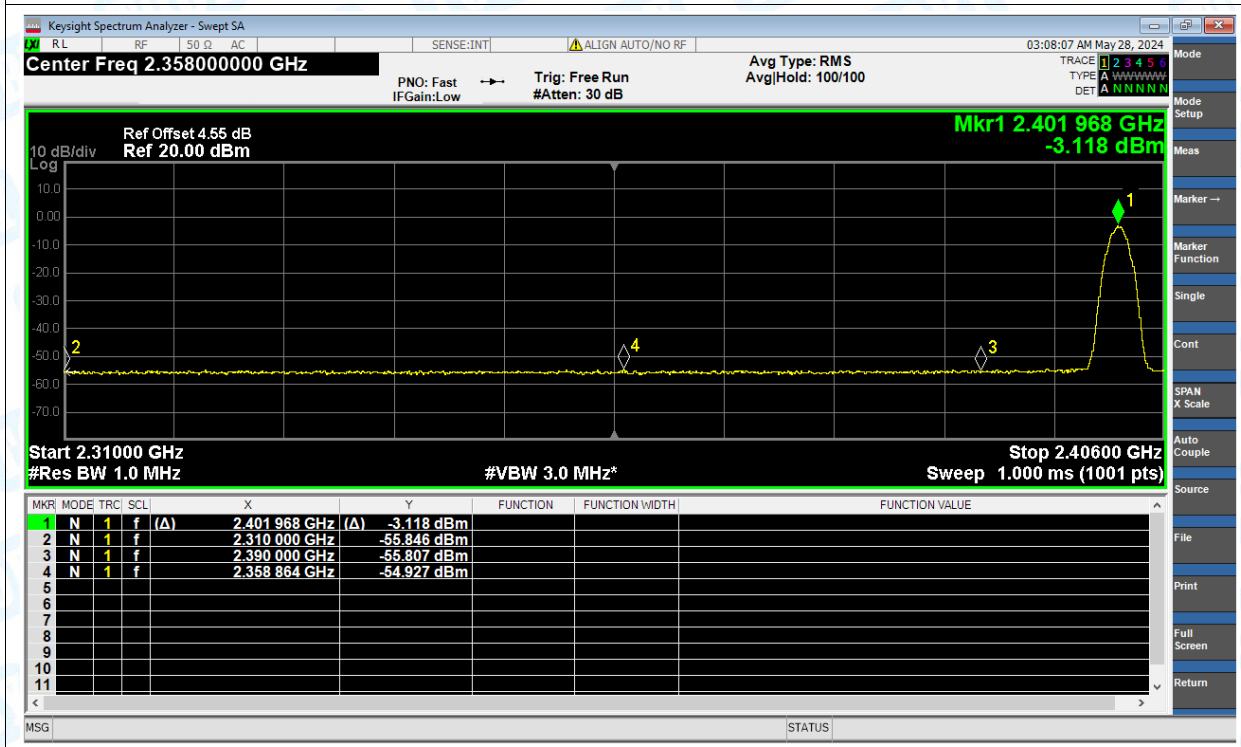
Restrict Band NVNT 1-DH1 2480MHz Ant1 No-Hopping Average



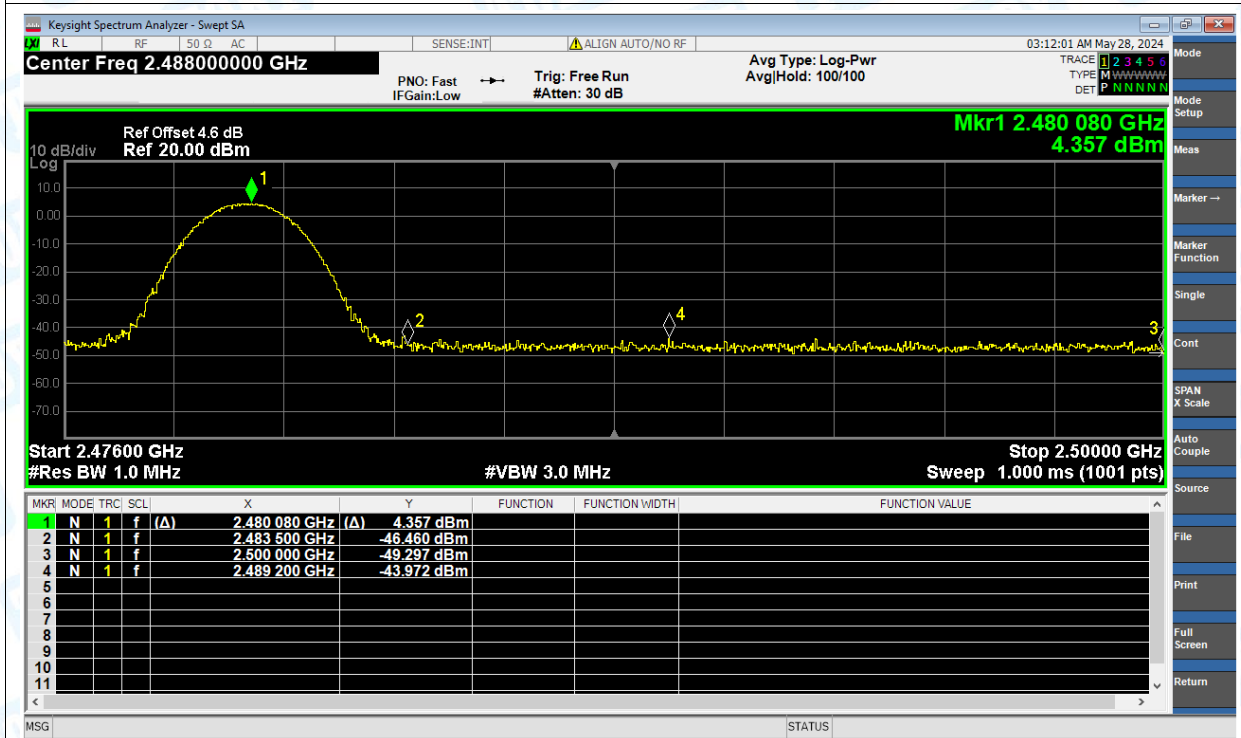
Restrict Band NVNT 2-DH1 2402MHz Ant1 No-Hopping Peak



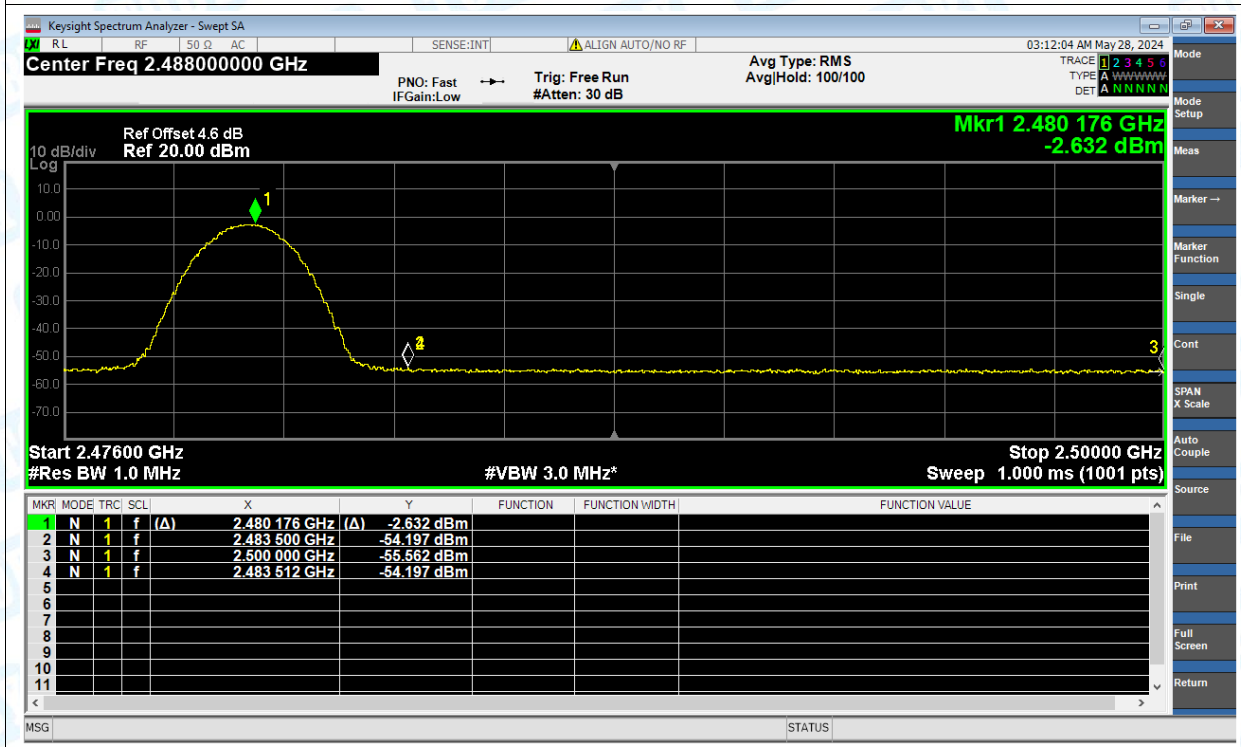
Restrict Band NVNT 2-DH1 2402MHz Ant1 No-Hopping Average



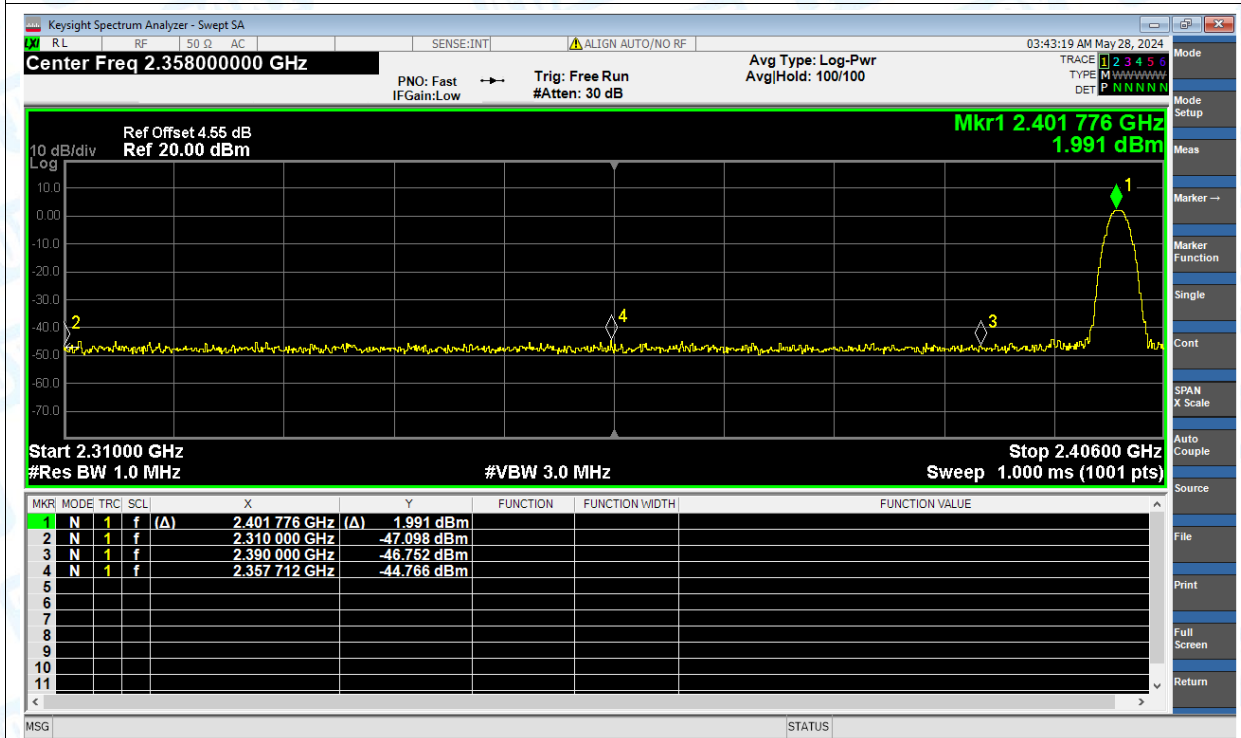
Restrict Band NVNT 2-DH1 2480MHz Ant1 No-Hopping Peak



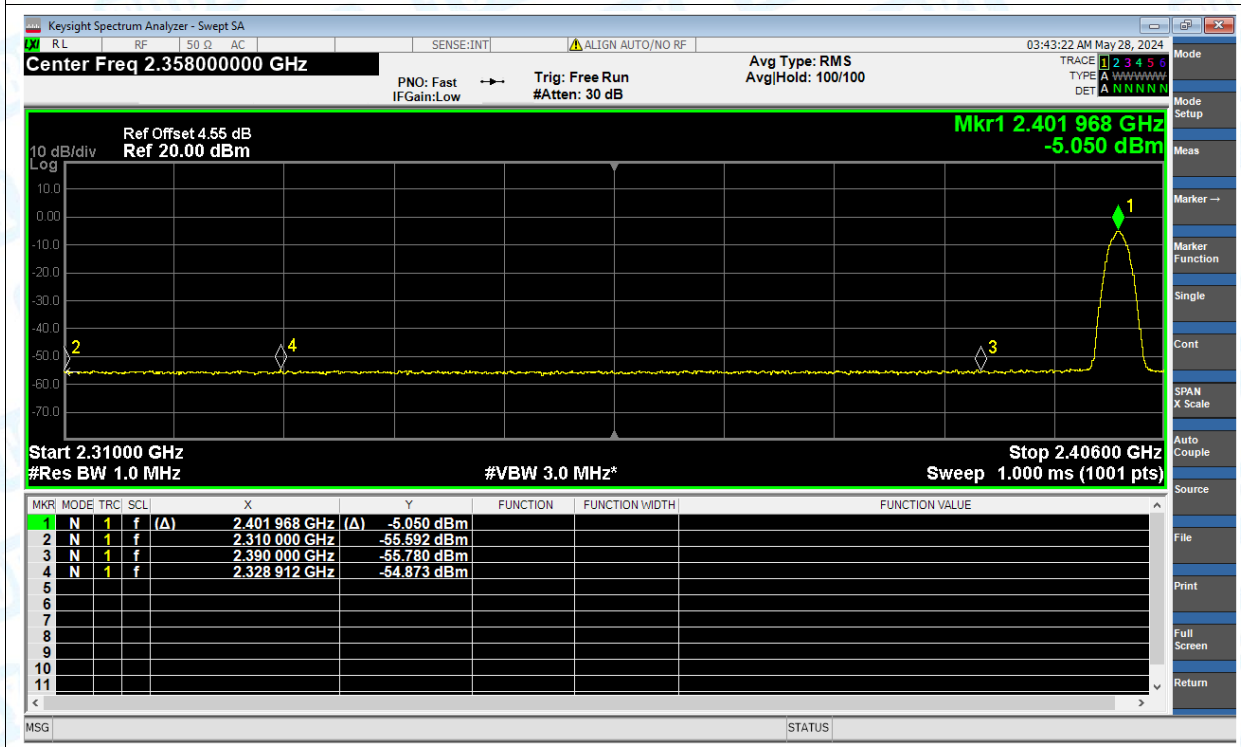
Restrict Band NVNT 2-DH1 2480MHz Ant1 No-Hopping Average



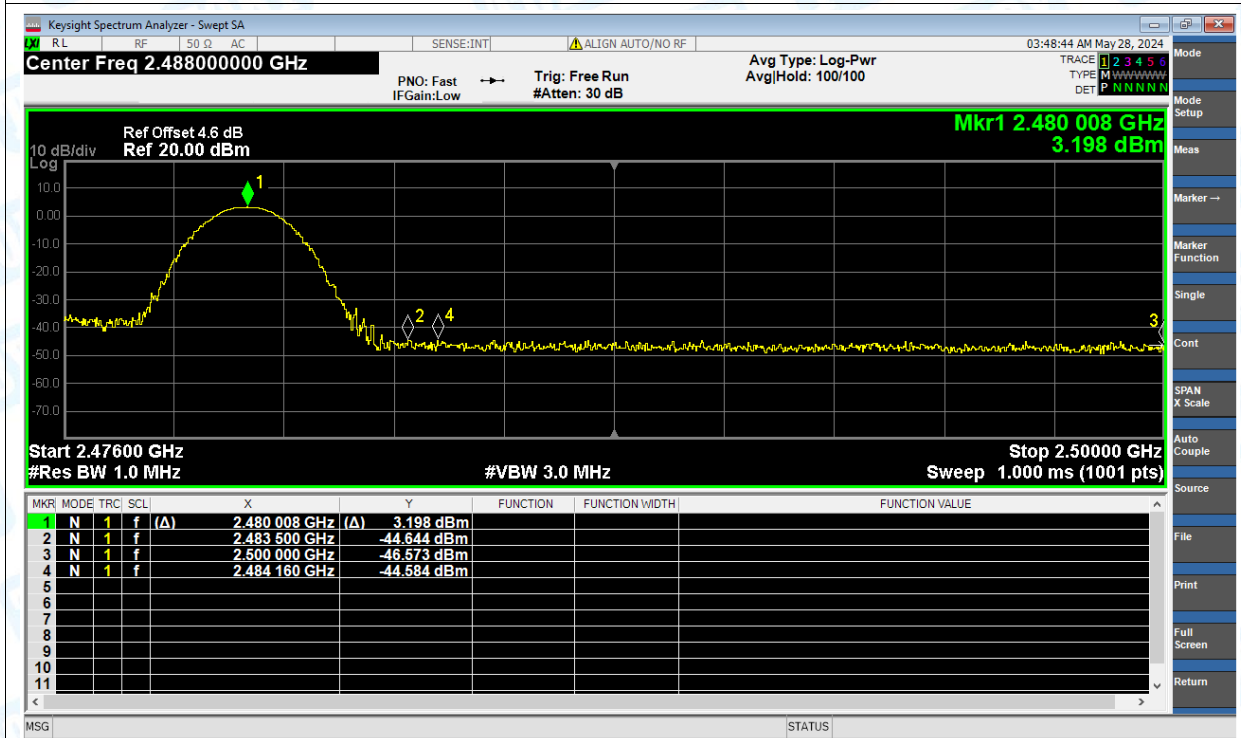
Restrict Band NVNT 3-DH1 2402MHz Ant1 No-Hopping Peak



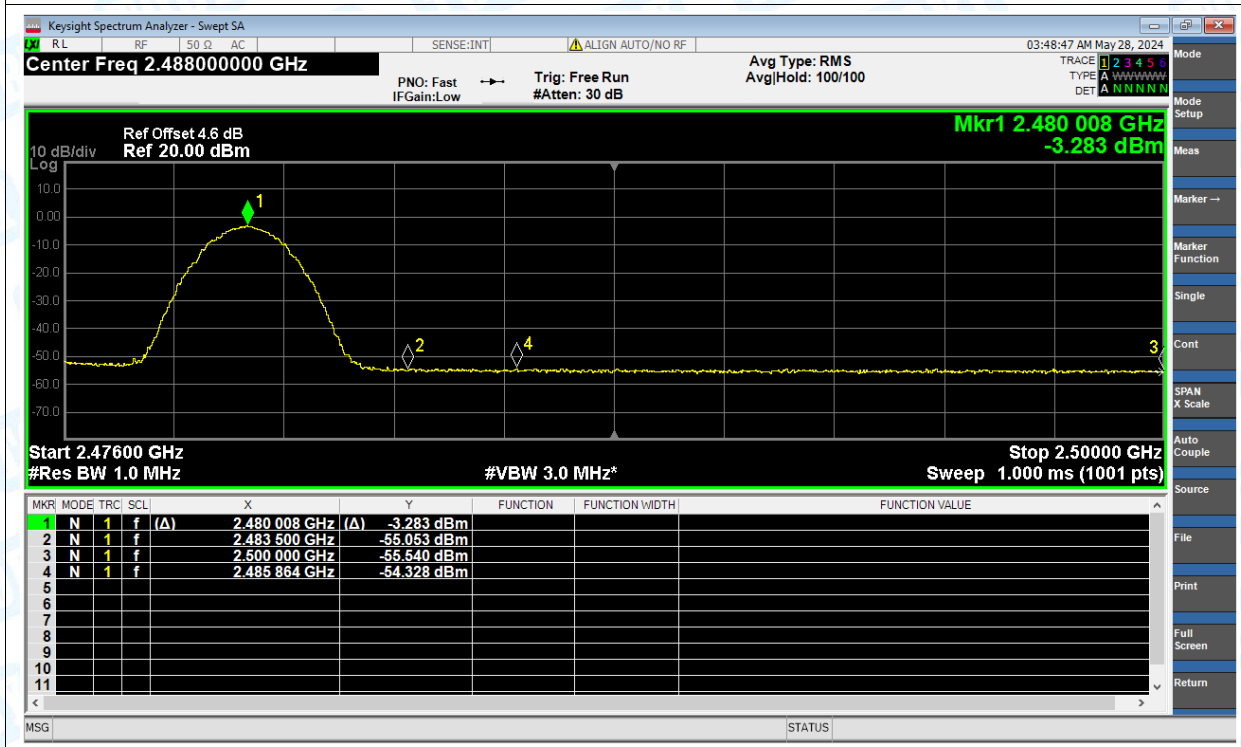
Restrict Band NVNT 3-DH1 2402MHz Ant1 No-Hopping Average



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



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

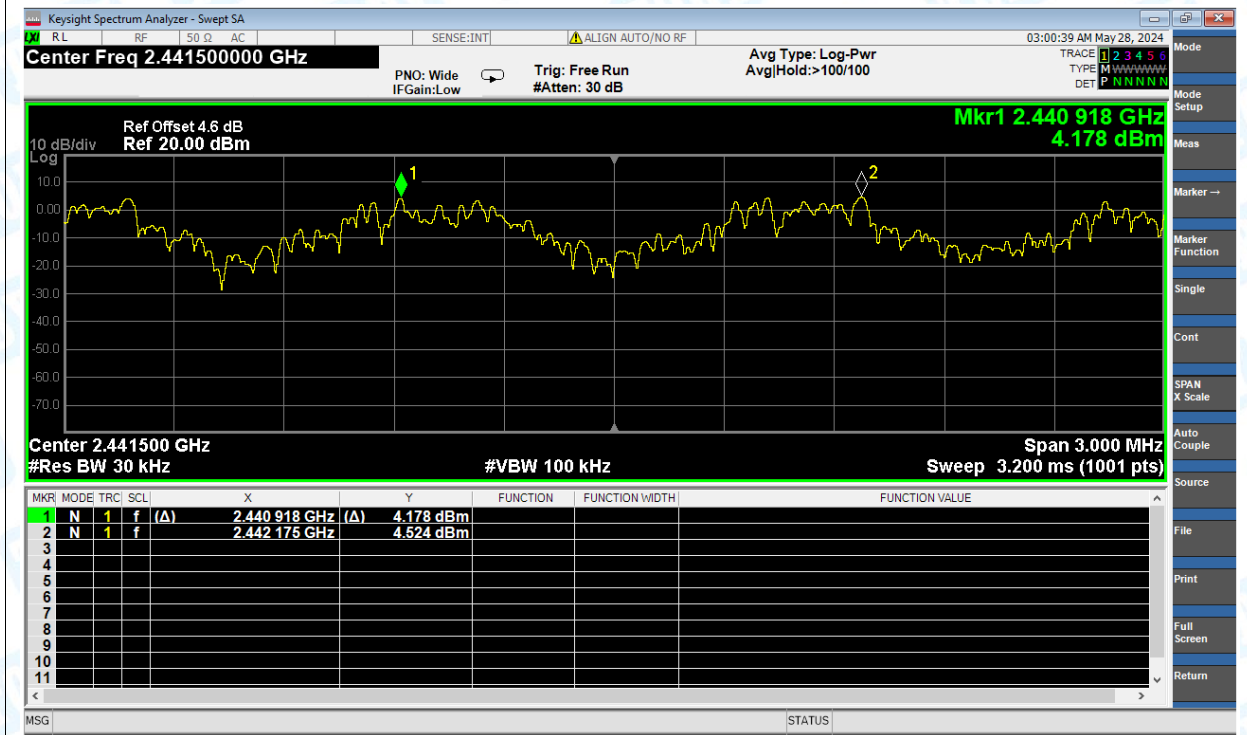


9. Carrier Frequencies Separation

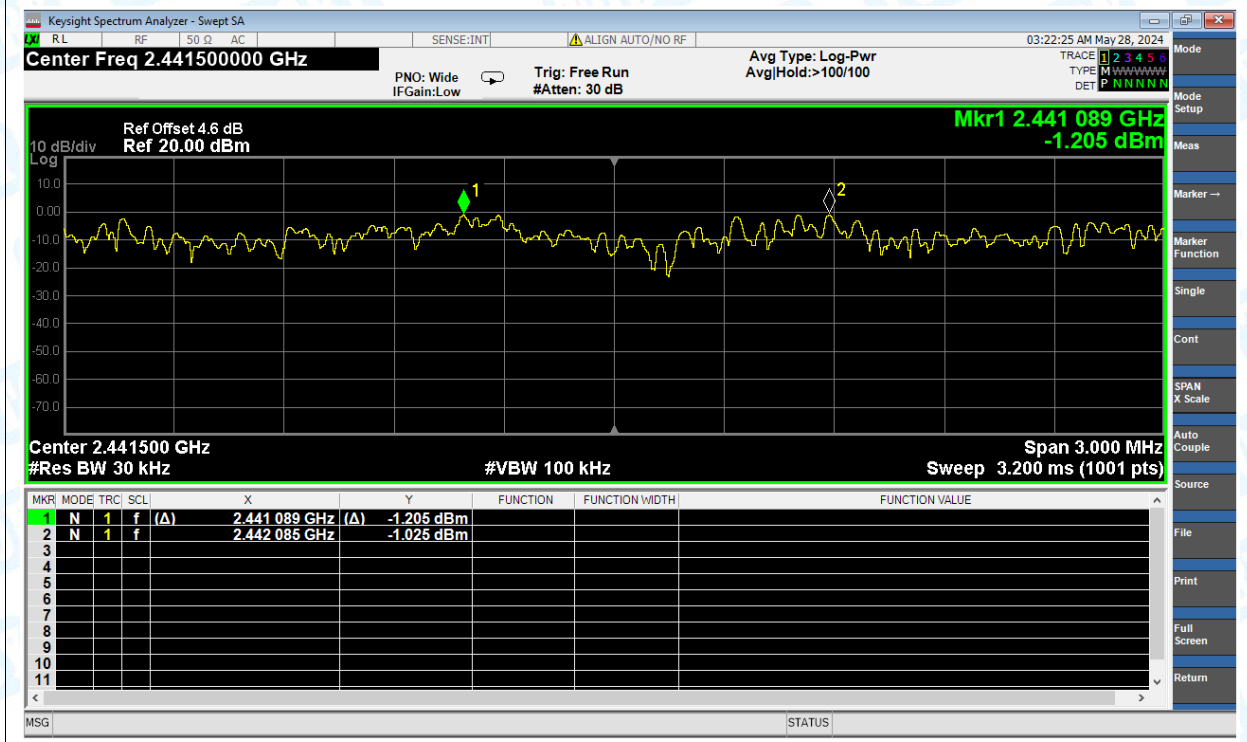
Condition	Mode	Antenna	Hopping Freq1 (MHz)	Hopping Freq2 (MHz)	HFS (MHz)	Limit (MHz)	Verdict
NVNT	1-DH1	Ant1	2440.918	2442.175	1.257	0.627	Pass
NVNT	2-DH1	Ant1	2441.089	2442.085	0.996	0.873	Pass
NVNT	3-DH1	Ant1	2440.837	2442.172	1.335	0.813	Pass

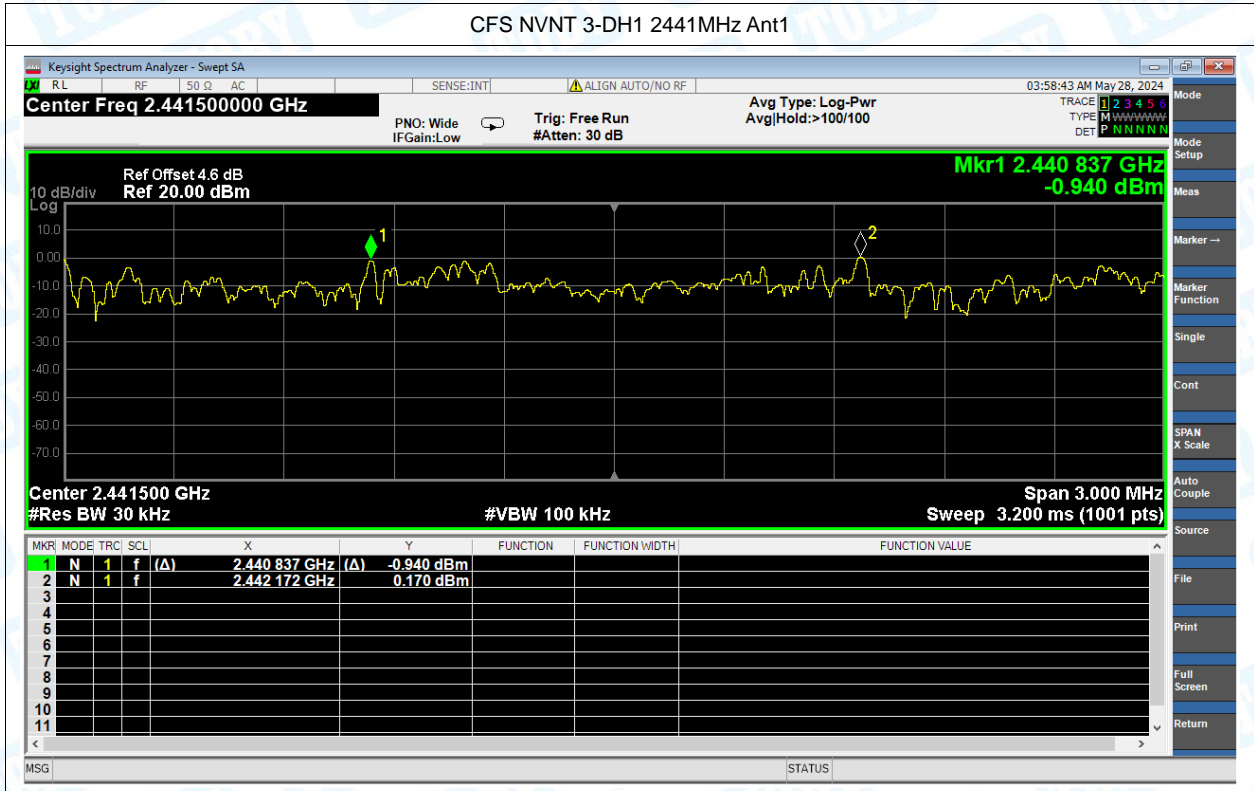
Test Graphs

CFS NVNT 1-DH1 2441MHz Ant1



CFS NVNT 2-DH1 2441MHz Ant1



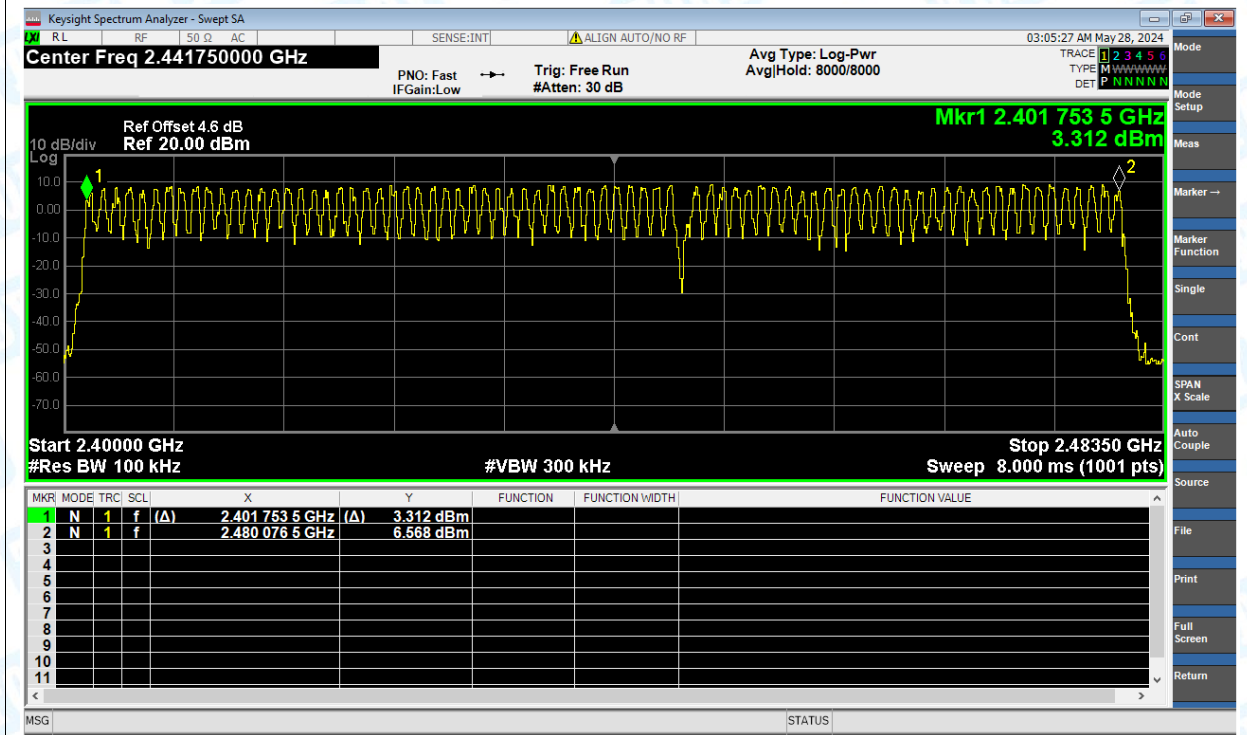


10. Number of Hopping Channel

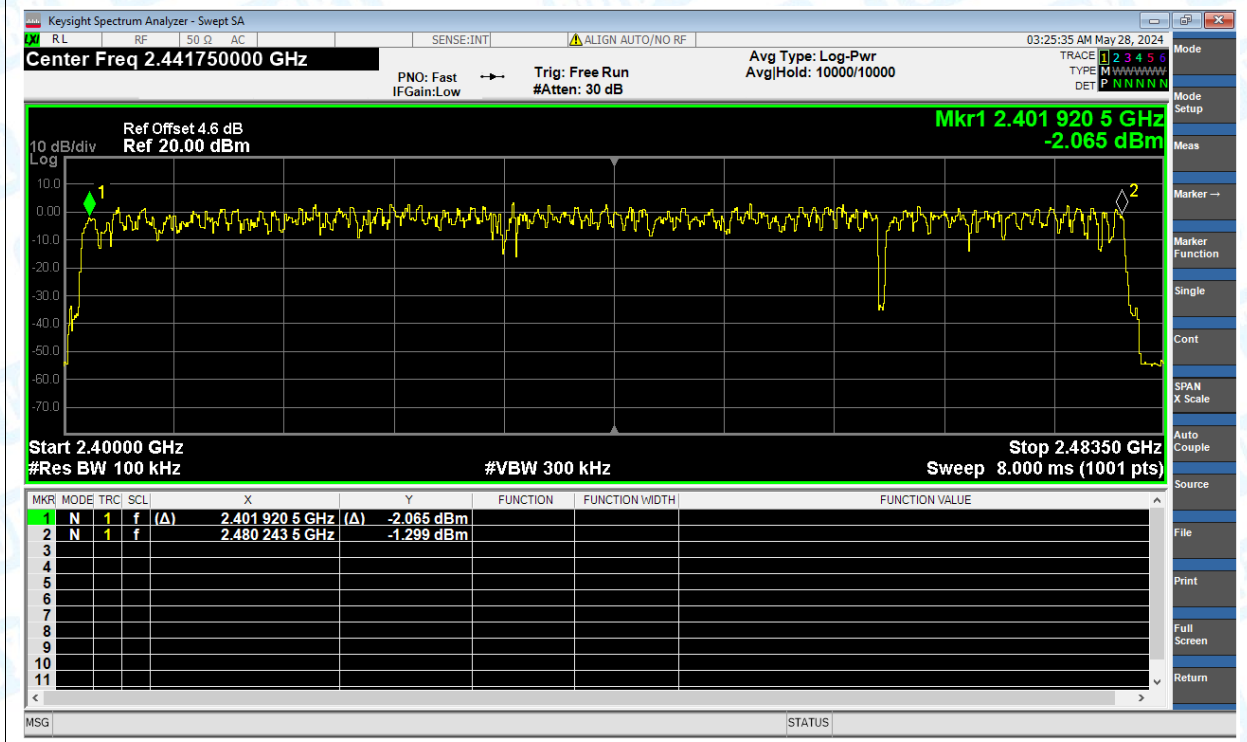
Condition	Mode	Antenna	Hopping Number	Limit	Verdict
NVNT	1-DH1	Ant1	79	15	Pass
NVNT	2-DH1	Ant1	79	15	Pass
NVNT	3-DH1	Ant1	79	15	Pass

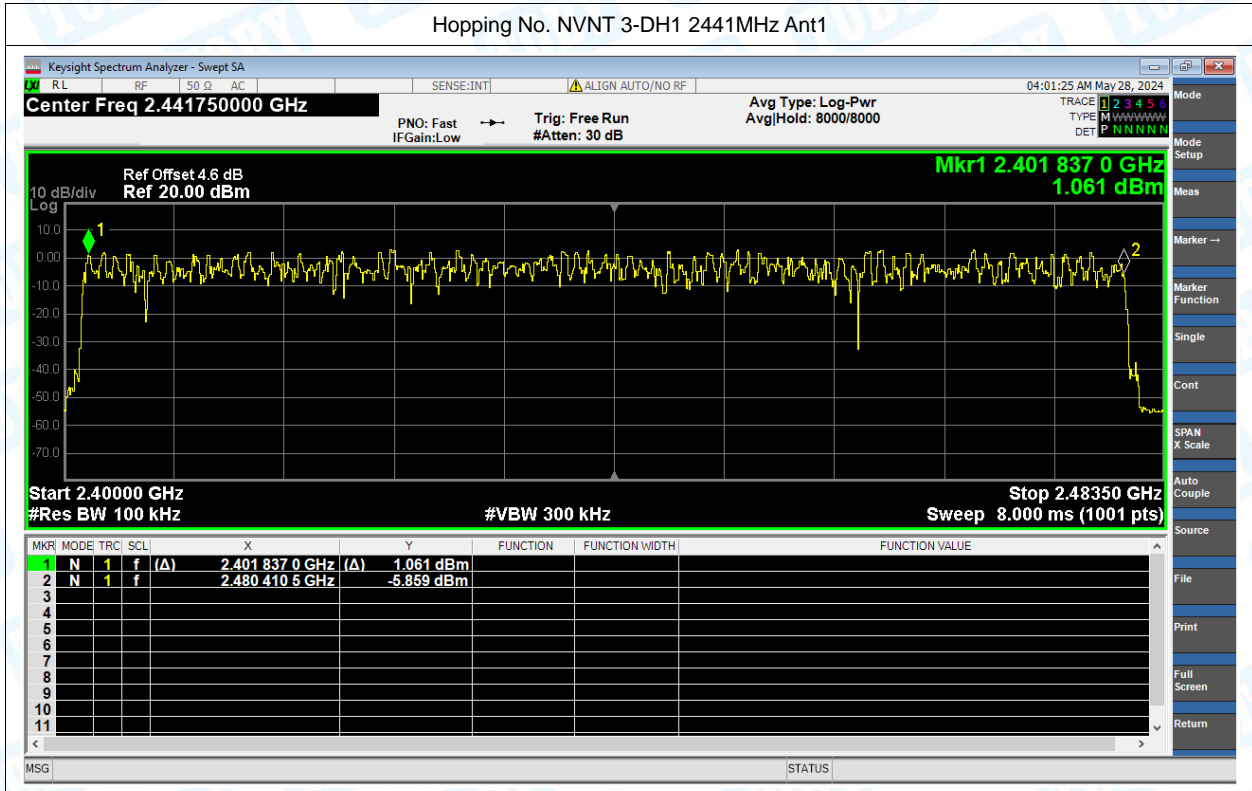
Test Graphs

Hopping No. NVNT 1-DH1 2441MHz Ant1



Hopping No. NVNT 2-DH1 2441MHz Ant1



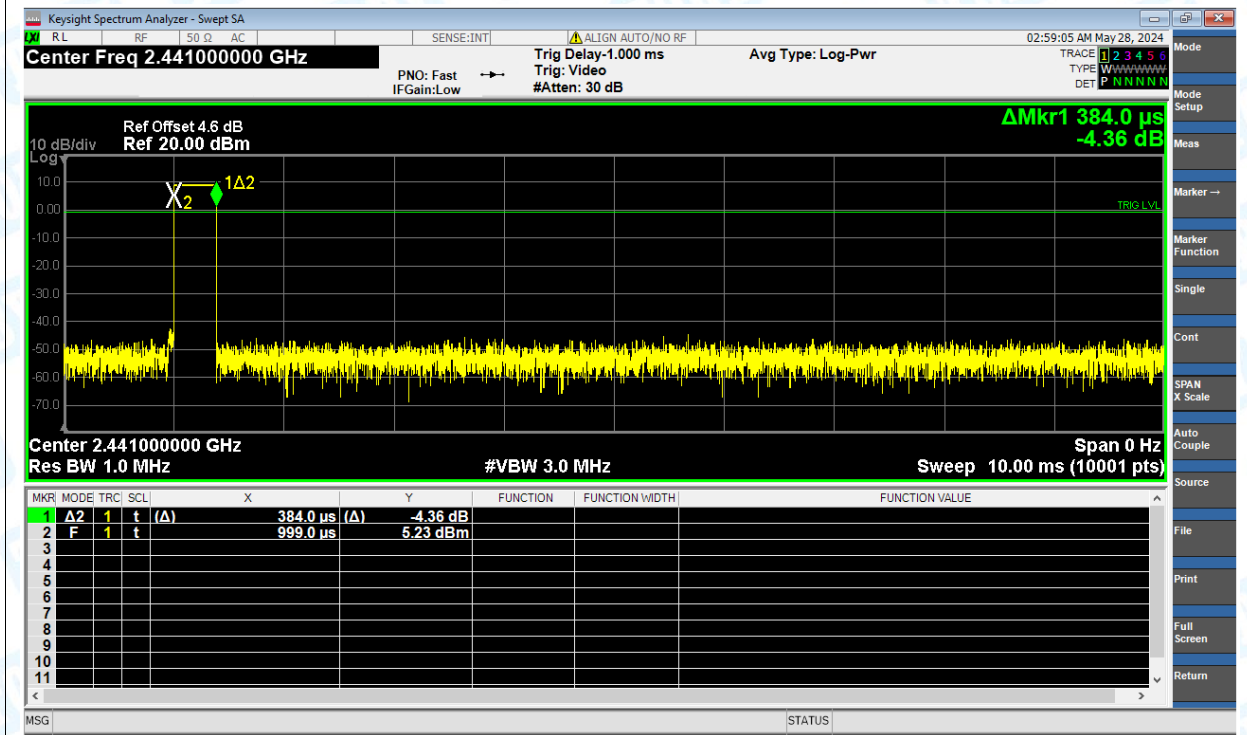


11. Dwell Time

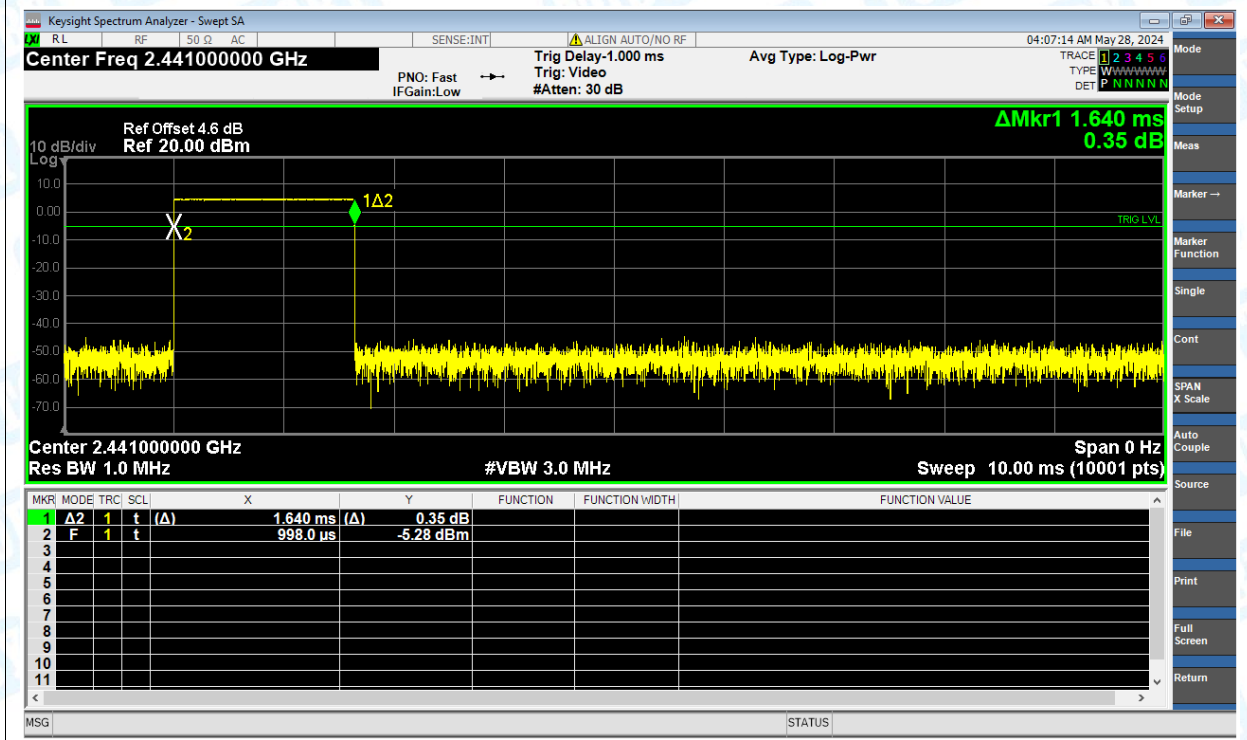
Condition	Mode	Frequency (MHz)	Antenna	Pulse Time (ms)	Total Dwell Time (ms)	Period Time (ms)	Limit (ms)	Verdict
NVNT	1-DH1	2441	Ant1	0.384	122.88	31600	400	Pass
NVNT	1-DH3	2441	Ant1	1.64	262.4	31600	400	Pass
NVNT	1-DH5	2441	Ant1	2.887	307.947	31600	400	Pass
NVNT	2-DH1	2441	Ant1	0.39	124.8	31600	400	Pass
NVNT	2-DH3	2441	Ant1	1.643	262.88	31600	400	Pass
NVNT	2-DH5	2441	Ant1	2.891	308.373	31600	400	Pass
NVNT	3-DH1	2441	Ant1	0.391	125.12	31600	400	Pass
NVNT	3-DH3	2441	Ant1	1.642	262.72	31600	400	Pass
NVNT	3-DH5	2441	Ant1	2.893	308.587	31600	400	Pass

Test Graphs

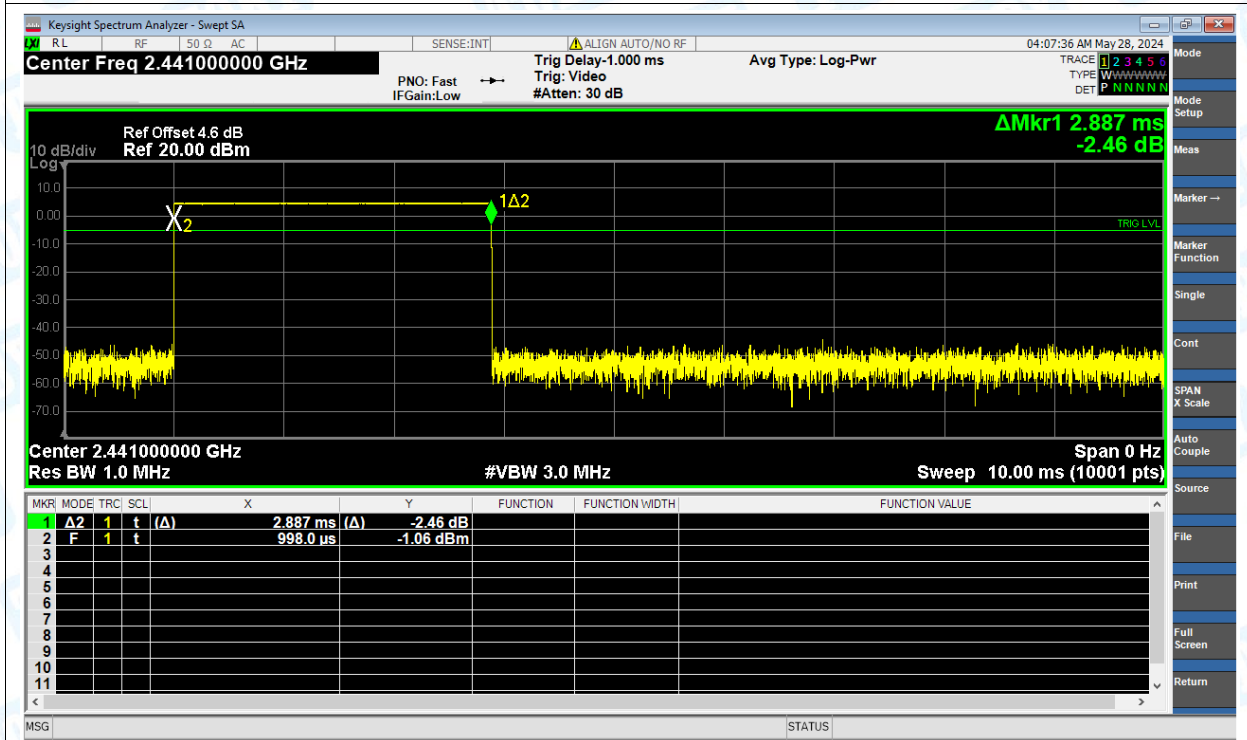
Dwell NVNT 1-DH1 2441MHz Ant1



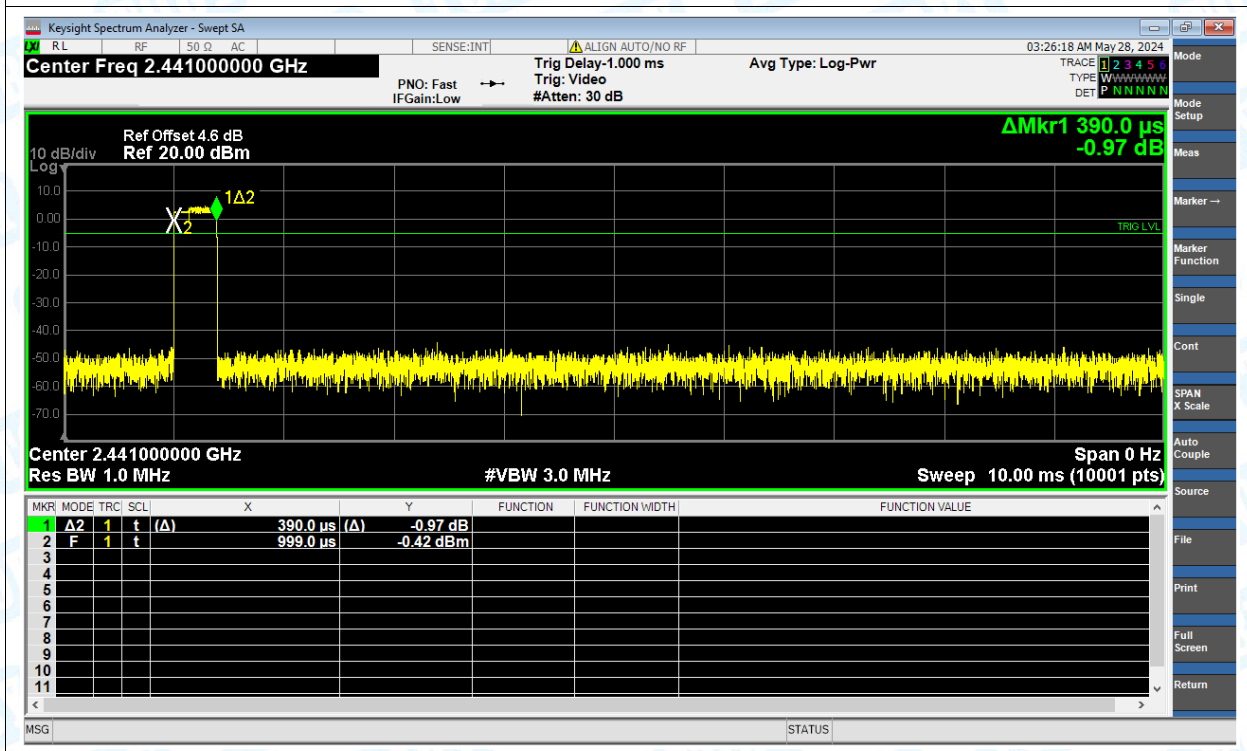
Dwell NVNT 1-DH3 2441MHz Ant1



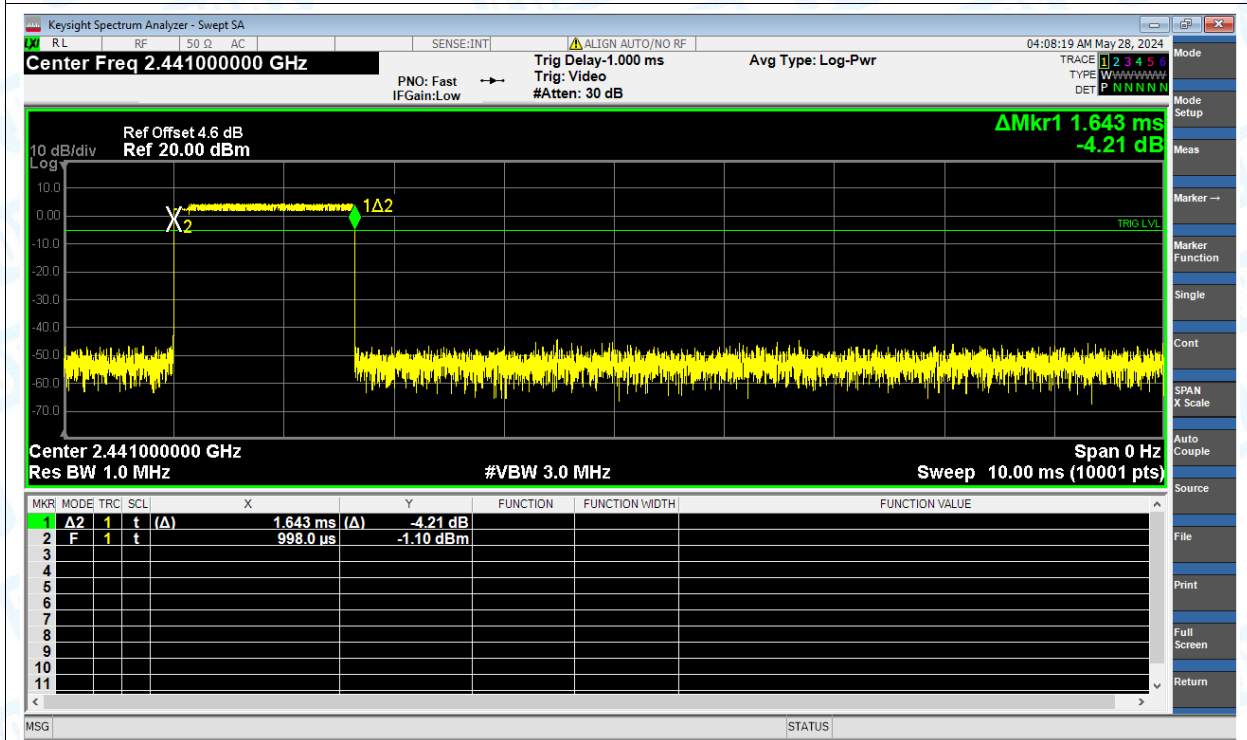
Dwell NVNT 1-DH5 2441MHz Ant1



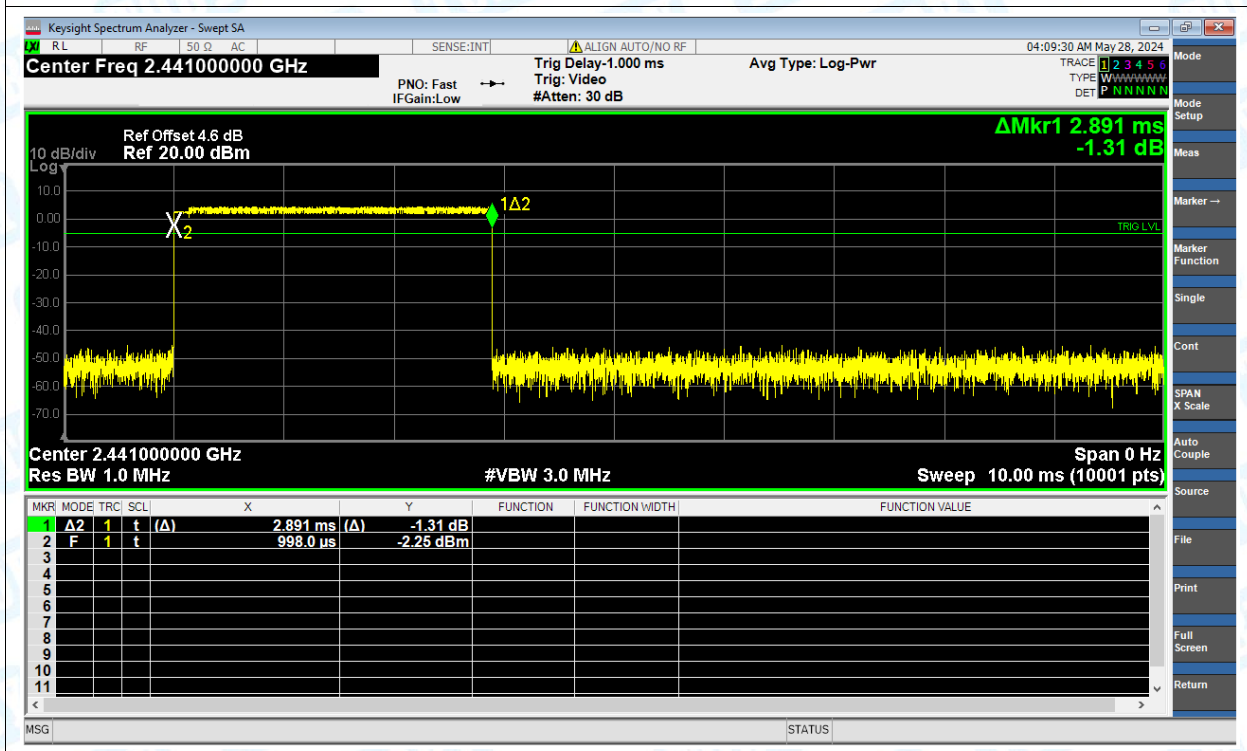
Dwell NVNT 2-DH1 2441MHz Ant1



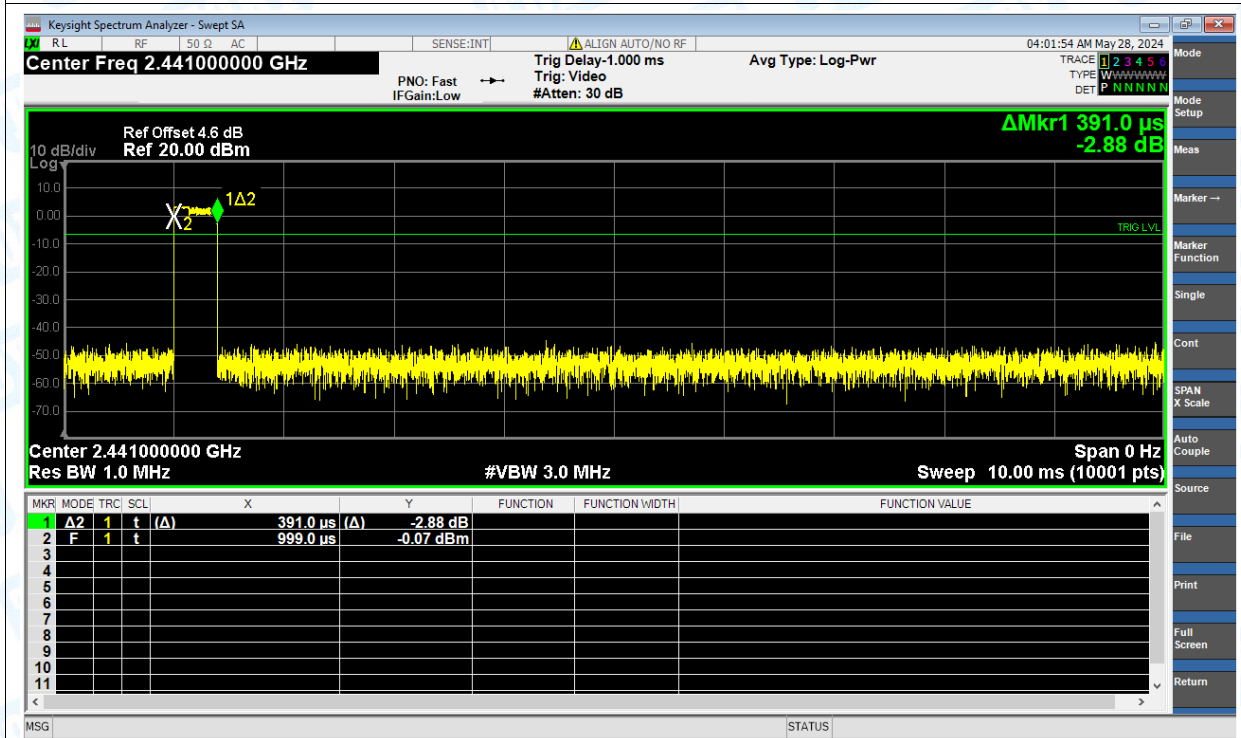
Dwell NVNT 2-DH3 2441MHz Ant1



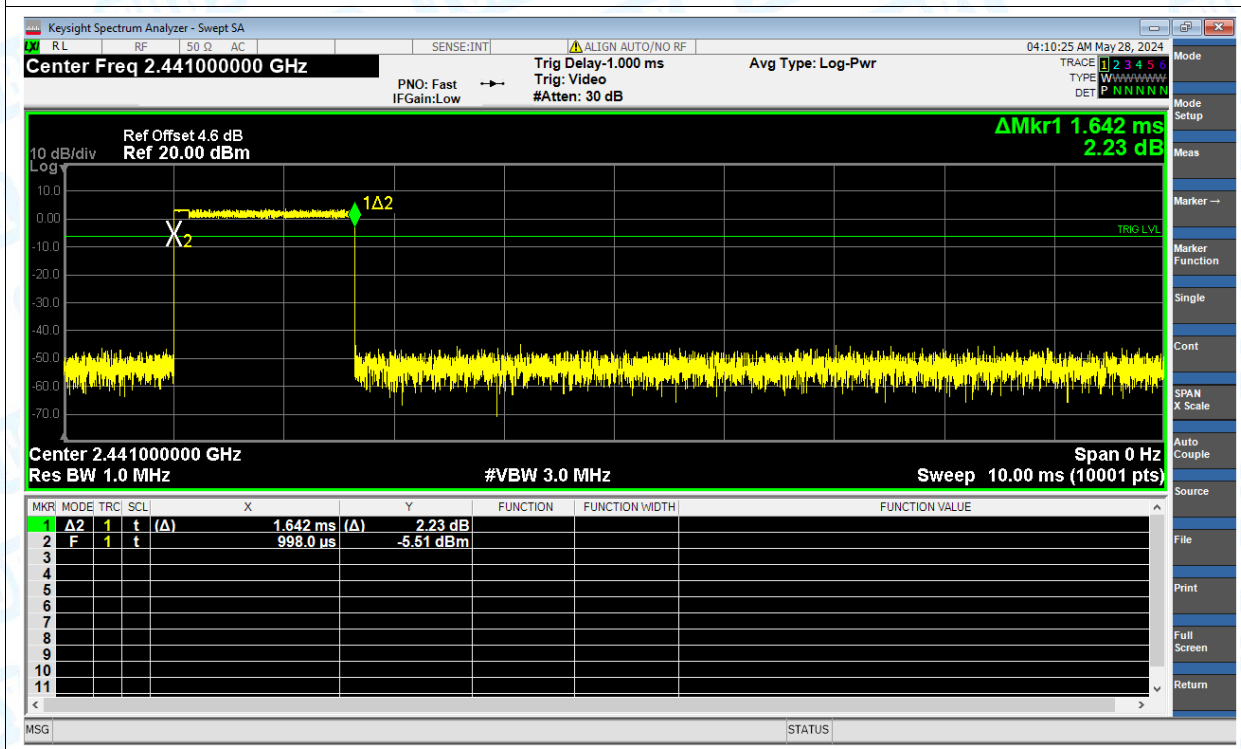
Dwell NVNT 2-DH5 2441MHz Ant1

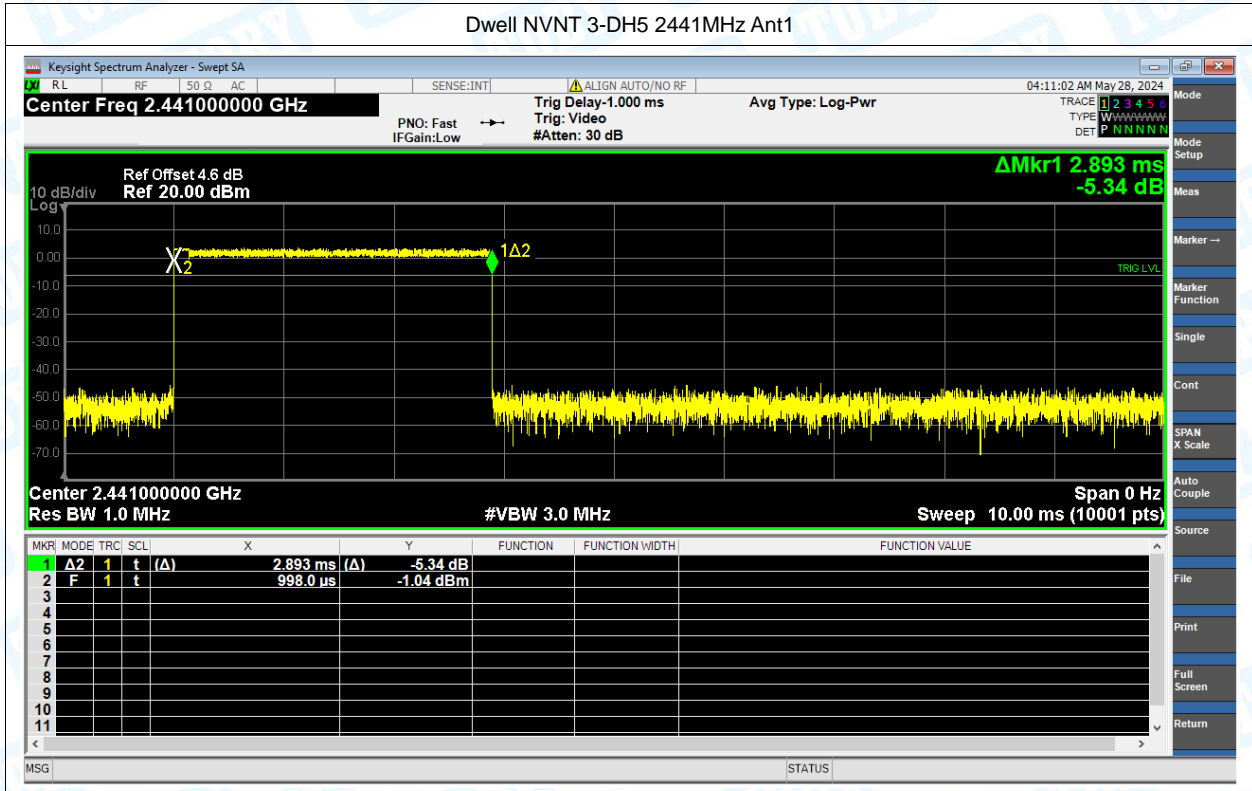


Dwell NVNT 3-DH1 2441MHz Ant1



Dwell NVNT 3-DH3 2441MHz Ant1





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