5. POWER SPECTRAL DENSITY TEST

5.1 LIMIT

FCC Part15.247 , Subpart C				
Section	Test Item	Limit	Frequency Range (MHz)	Result
15.247(e)	Power Spectral Density	≤8 dBm (RBW ≥3KHz)	2400-2483.5	PASS

5.2 TEST PROCEDURE

1. Set analyzer center frequency to DTS channel center frequency.
2. Set the span to 1.5 times the DTS channel bandwidth.
3. Set the 100 kHz ≥ RBW ≥3 kHz.
4. Set the VBW ≥ 3 x RBW.
5. Detector = peak.
6. Sweep time = auto couple.
7. Trace mode = max hold.
8. Allow trace to fully stabilize.
9. Use the peak marker function to determine the maximum amplitude level.
10. If measured value exceeds limit, reduce RBW (no less than 3 kHz) and repeat.

5.3 DEVIATION FROM STANDARD

No deviation.

5.4 TEST SETUP

5.5 EUT OPERATION CONDITIONS

Please refer to section 3.1.4 of this report.

5.6 TEST RESULTS

Note: The test data please refer to APPENDIX 1.

6. BANDWIDTH TEST

6.1 LIMIT

FCC Part15.247,Subpart C				
Section	Test Item	Limit	Frequency Range (MHz)	Result
15.247(a)(2)	Bandwidth	≥500KHz (6dB bandwidth)	2400-2483.5	PASS

6.2 TEST PROCEDURE

The automatic bandwidth measurement capability of an instrument may be employed using the X dB bandwidth mode with X set to 6 dB, if the functionality described above (i.e., RBW = 100 kHz, VBW≥3RBW, peak detector with maximum hold) is implemented by the instrumentation function. When using this capability, care shall be taken so that the bandwidth measurement is not influenced by any intermediate power nulls in the fundamental emission that might be≥6 dB.

6.3 DEVIATION FROM STANDARD

No deviation.

6.4 TEST SETUP

6.5 EUT OPERATION CONDITIONS

Please refer to section 3.1.4 of this report.

6.6 TEST RESULTS

Note: The test data please refer to APPENDIX 1.

7. PEAK OUTPUT POWER TEST

7.1 LIMIT

FCC Part15.247,Subpart C				
Section	Test Item	Limit	Frequency Range (MHz)	Result
15.247(b)(3)	Output Power	1 watt or 30dBm	2400-2483.5	PASS

7.2 TEST PROCEDURE

One of the following procedures may be used to determine the averaging conducted output powe r of a DTS EUT.

Method AVGSA-2 uses trace averaging across ON and OFF times of the EUT transmissions, foll owed by duty cycle correction. The procedure for this method is as follows:

a) Measure the duty cycle D of the transmitter output signal as described in 11.6.

b) Set span to at least 1.5 times the OBW.

c) Set RBW = 1% to 5% of the OBW, not to exceed 1 MHz.

d) Set VBW ≥ [3 × RBW].

e) Number of points in sweep ≥ [2 × span / RBW]. (This gives bin-to-bin spacing ≤ RBW / 2, so th at narrowband signals are not lost between frequency bins.)

f) Sweep time = auto.

g) Detector = RMS (i.e., power averaging), if available. Otherwise, use the sample detector mode . h) Do not use sweep triggering. Allow the sweep to “free run.”

i) Trace average at least 100 traces in power averaging (rms) mode; however, the number of trac es to be averaged shall be increased above 100 as needed such that the average accurately re presents the true average over the ON and OFF periods of the transmitter.

j) Compute power by integrating the spectrum across the OBW of the signal using the instrument ’s band power measurement function with band limits set equal to the OBW band edges. If the in strument does not have a band power function, then sum the spectrum levels (in power units) at intervals equal to the RBW extending across the entire OBW of the spectrum.

k) Add [10 log (1 / D)], where D is the duty cycle, to the measured power to compute the average power during the actual transmission times (because the measurement represents an average o ver both the ON and OFF times of the transmission). For example, add [10 log (1/0.25)] = 6 dB if the duty cycle is 25%.

PKPM1 Peak power meter method:

The maximum peak conducted output power may be measured using a broadband peak RF power meter. The power meter shall have a video bandwidth that is greater than or equal to the DTS bandwidth and shall use a fast-responding diode detector.

7.3 DEVIATION FROM STANDARD

No deviation.

7.4 TEST SETUP

7.5 EUT OPERATION CONDITIONS
Please refer to section 3.1.4 of this report.

7.6 TEST RESULTS

Note: The test data please refer to APPENDIX 1.

8. ANTENNA REQUIREMENT

8.1 STANDARD REQUIREMENT

15.203 requirement: For intentional device, according to 15.203: an intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible partyshall be used with the device.

8.2 EUT ANTENNA

The EUT antenna is Feed coupling Antenna. It comply with the standard requirement.

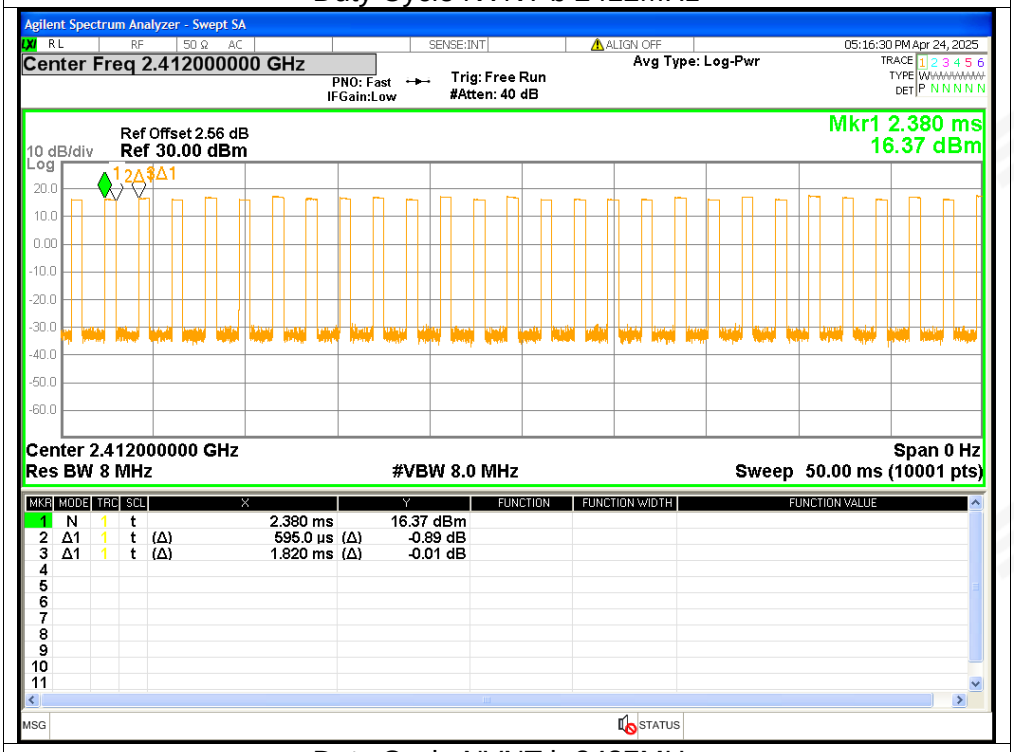
APPENDIX 1-TEST DATA

Duty Cycle

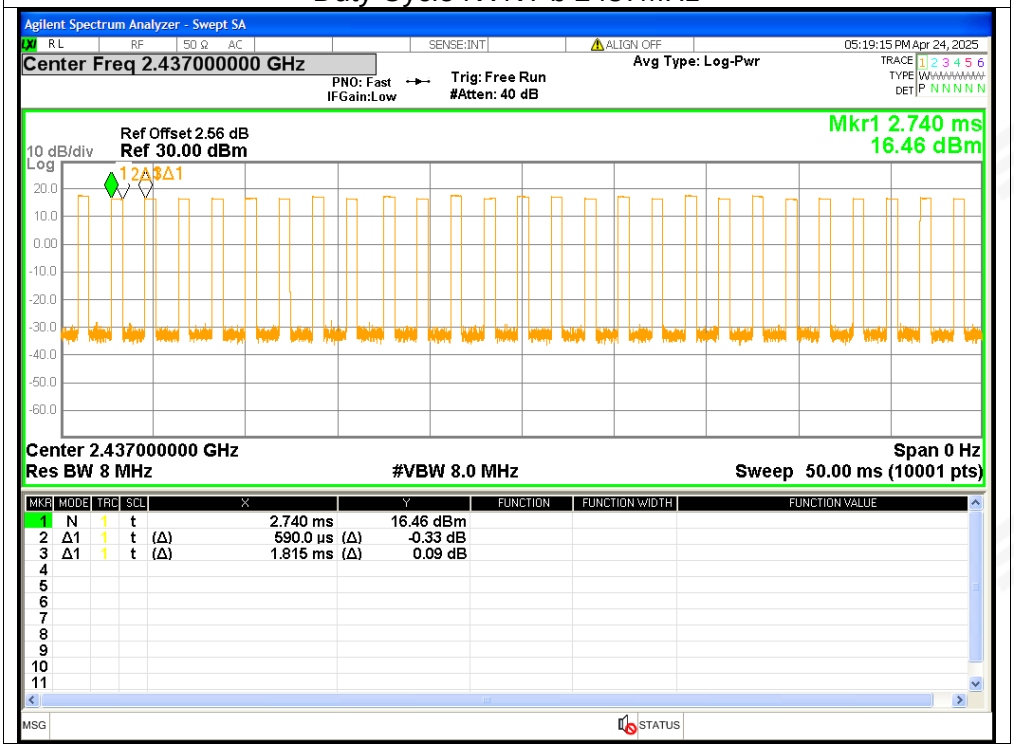
Condition	Mode	Frequency (MHz)	On Time (ms)	Period (ms)	Duty Cycle (%)	Correction Factor (dB)	1/T (kHz)
NVNT	b	2412	0.595	1.82	32.69	4.86	1.68
NVNT	b	2437	0.59	1.815	32.51	4.88	1.69
NVNT	b	2462	0.59	1.815	32.51	4.88	1.69
NVNT	g	2412	0.584	1.807	32.32	4.91	1.71
NVNT	g	2437	0.585	1.807	32.37	4.9	1.71
NVNT	g	2462	0.585	1.807	32.37	4.9	1.71
NVNT	n20	2412	0.56	1.783	31.41	5.03	1.79
NVNT	n20	2437	0.561	1.933	29.02	5.37	1.78
NVNT	n20	2462	0.56	1.783	31.41	5.03	1.79
NVNT	n40	2422	0.581	1.803	32.22	4.92	1.72
NVNT	n40	2437	0.58	1.803	32.17	4.93	1.72
NVNT	n40	2452	0.58	1.803	32.17	4.93	1.72

Test Graphs

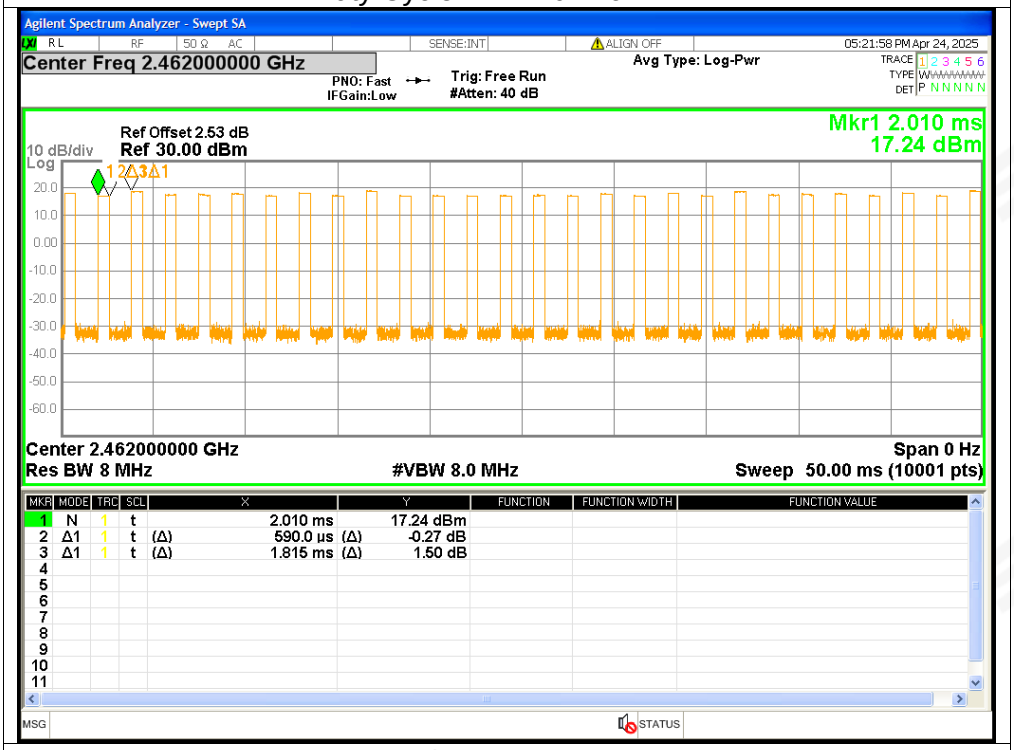
Duty Cycle NVNT b 2412MHz



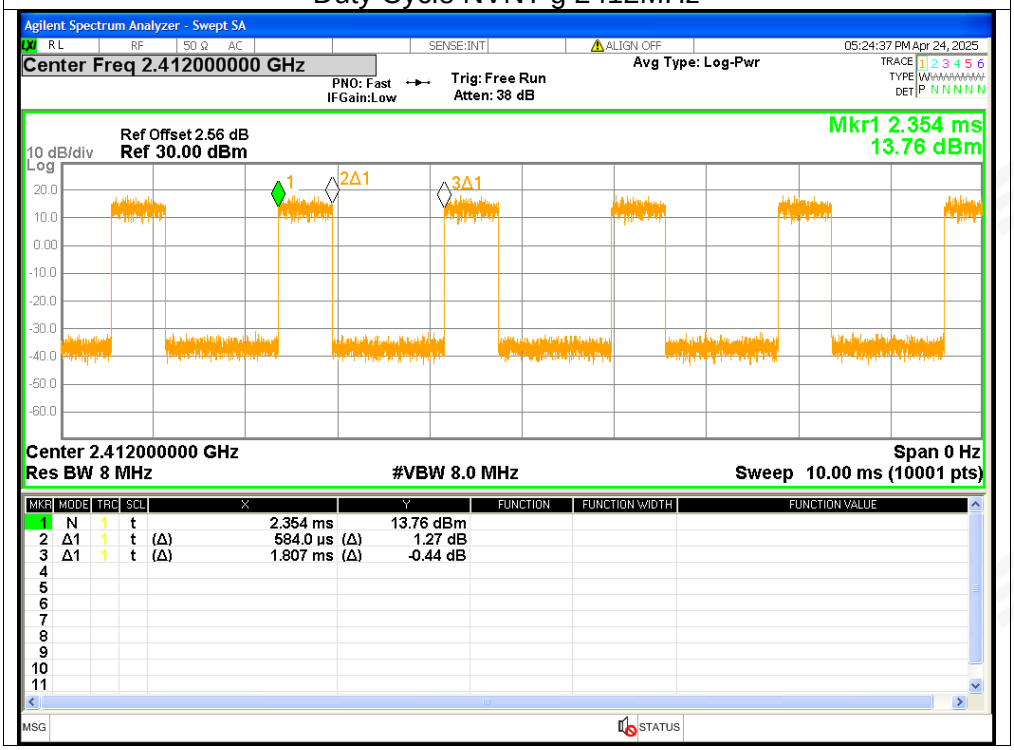
Duty Cycle NVNT b 2437MHz



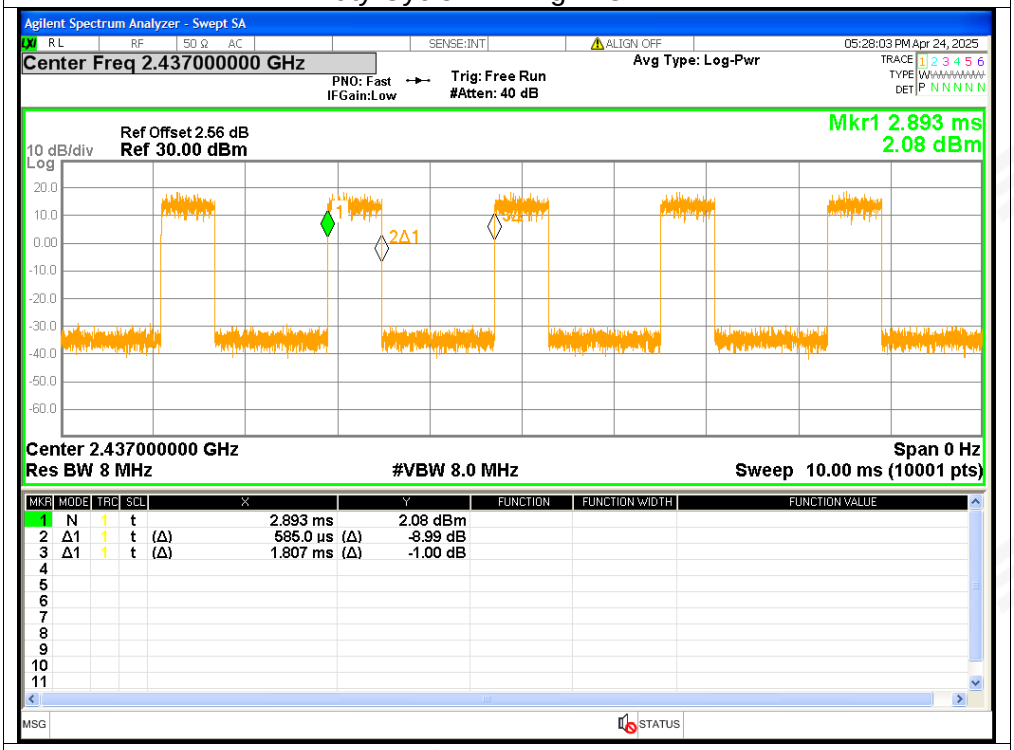
Duty Cycle NVNT b 2462MHz



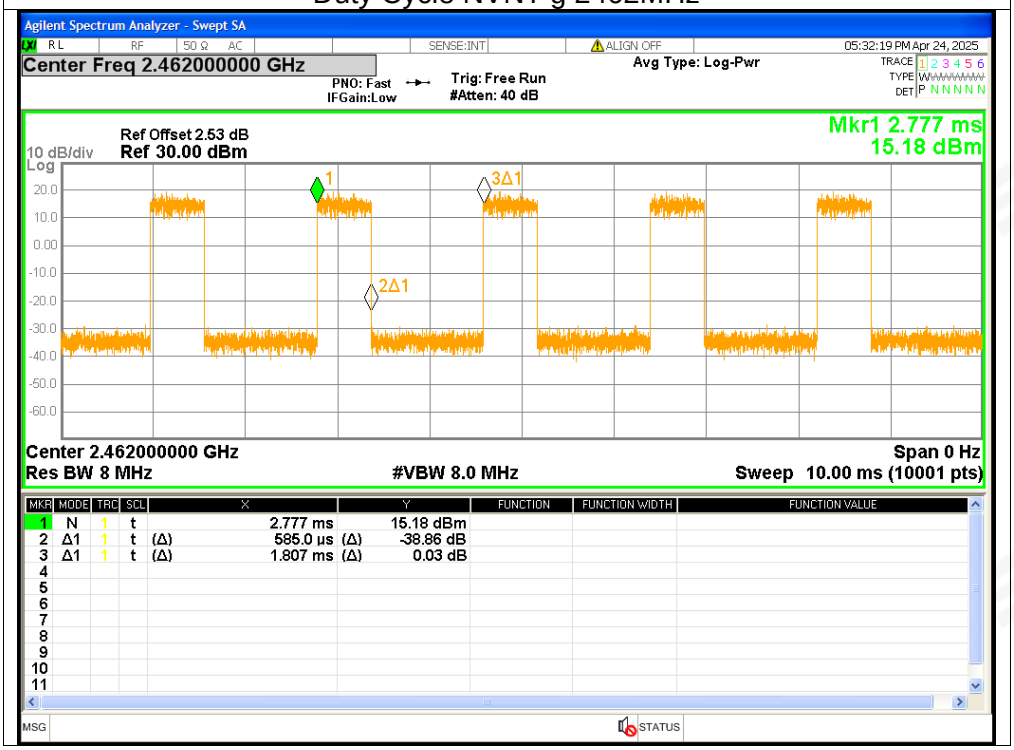
Duty Cycle NVNT g 2412MHz



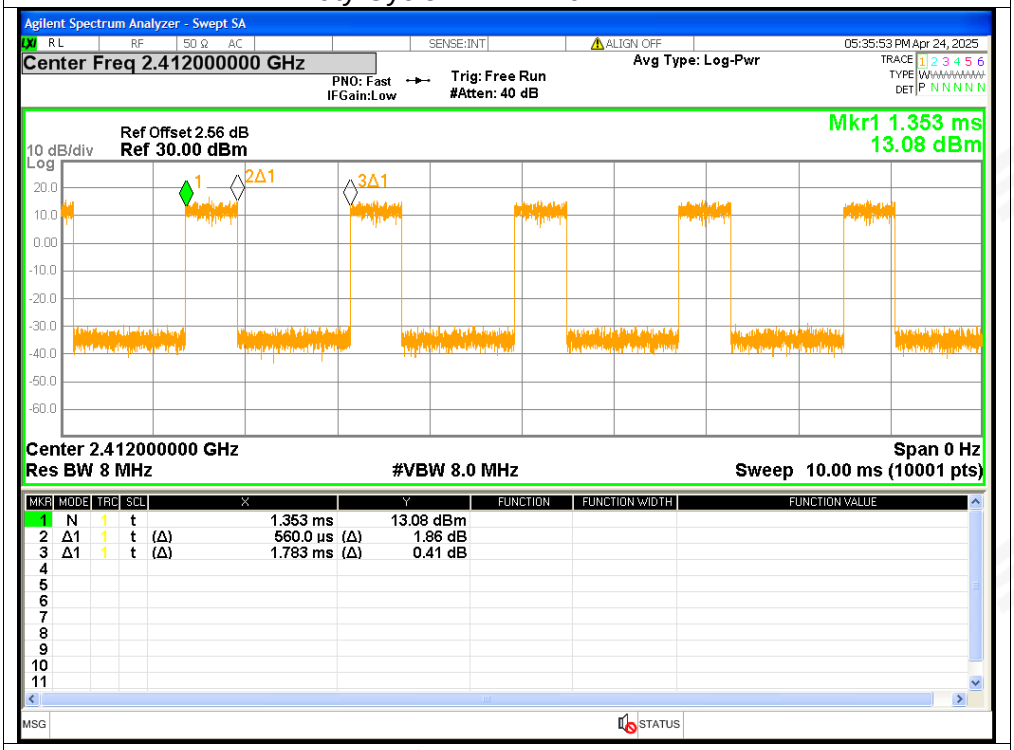
Duty Cycle NVNT g 2437MHz



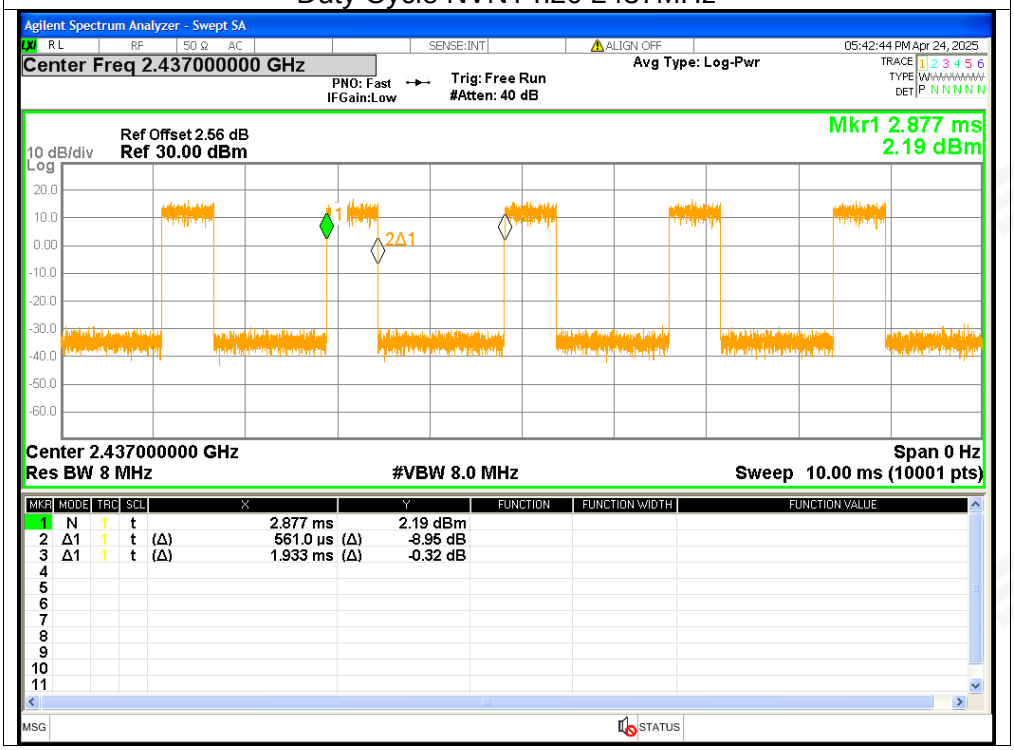
Duty Cycle NVNT g 2462MHz



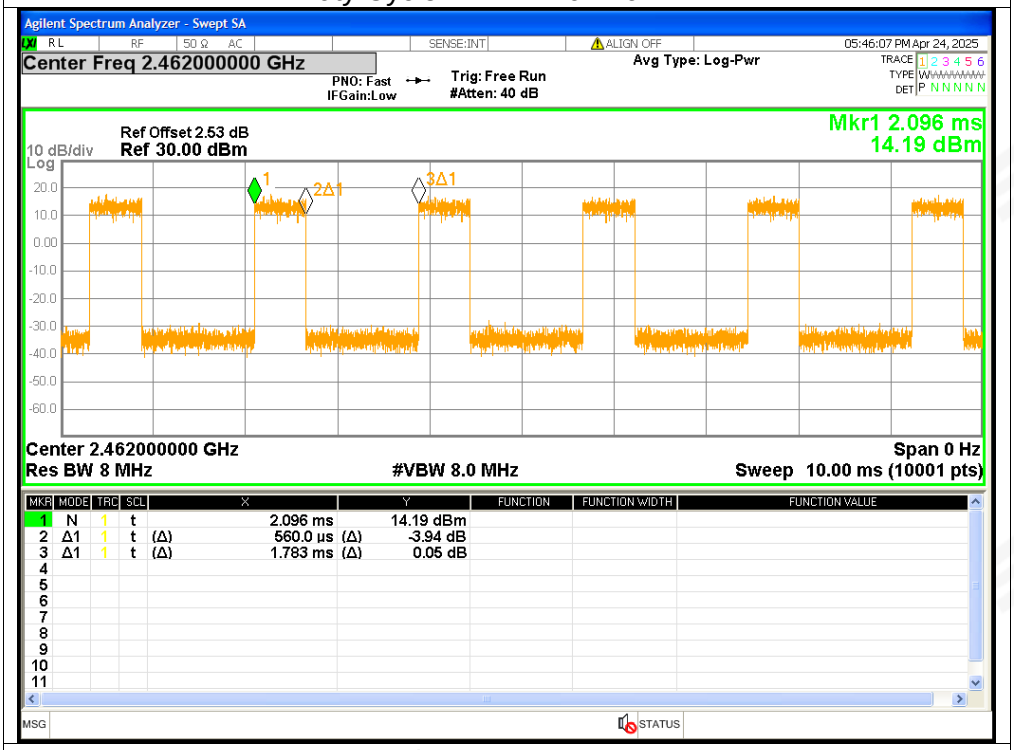
Duty Cycle NVNT n20 2412MHz



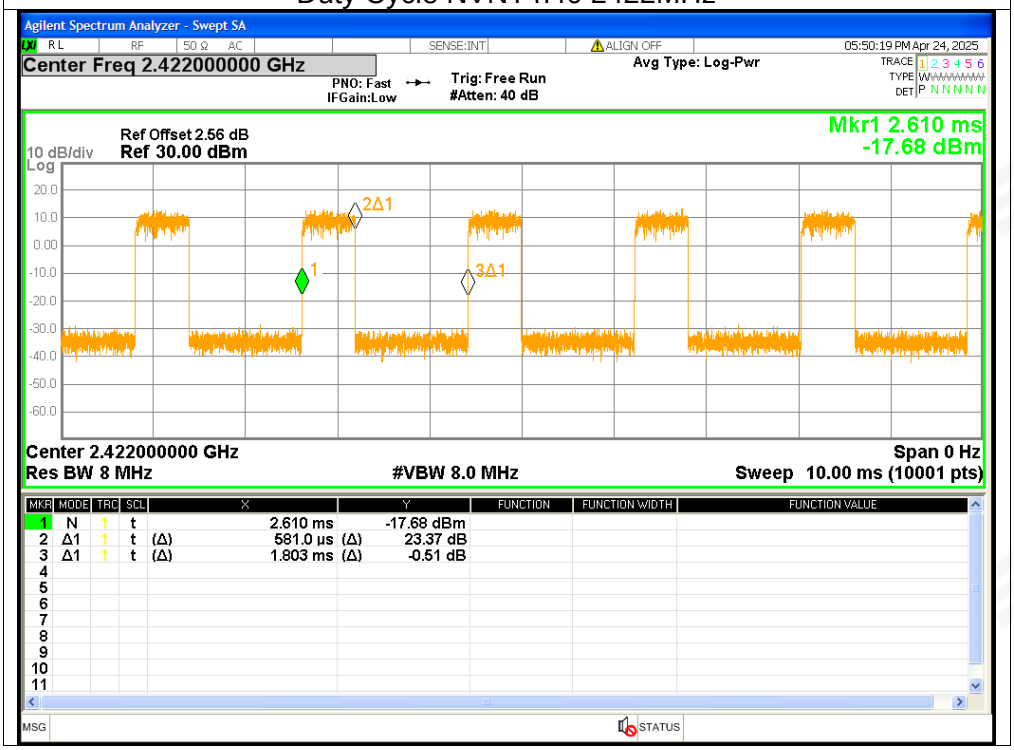
Duty Cycle NVNT n20 2437MHz



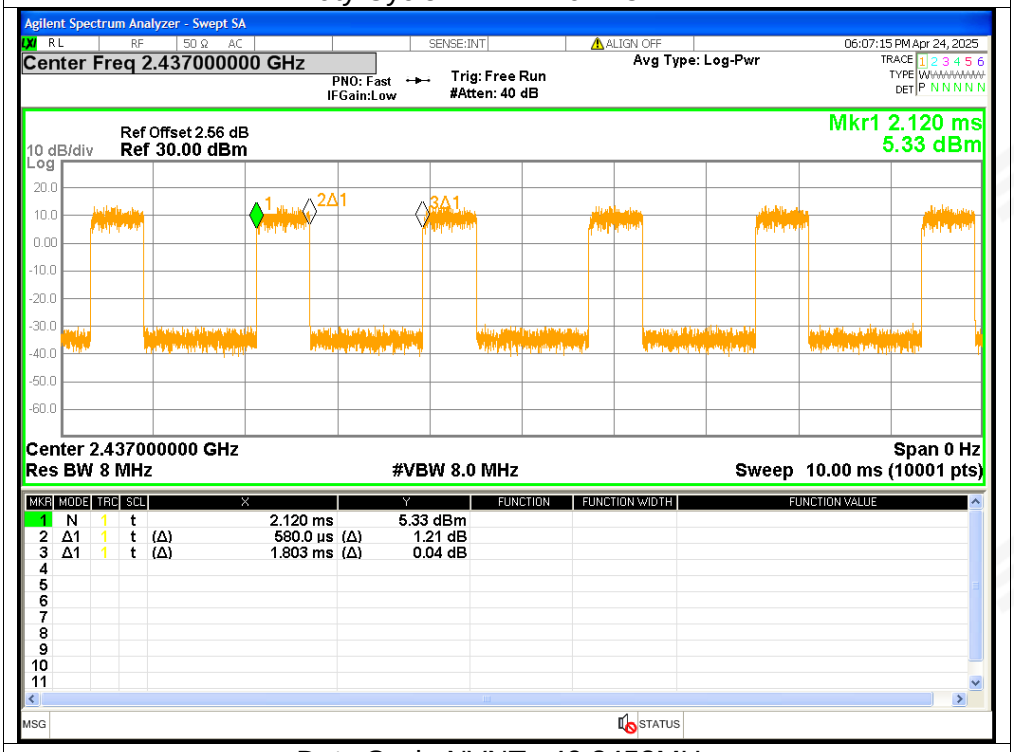
Duty Cycle NVNT n20 2462MHz



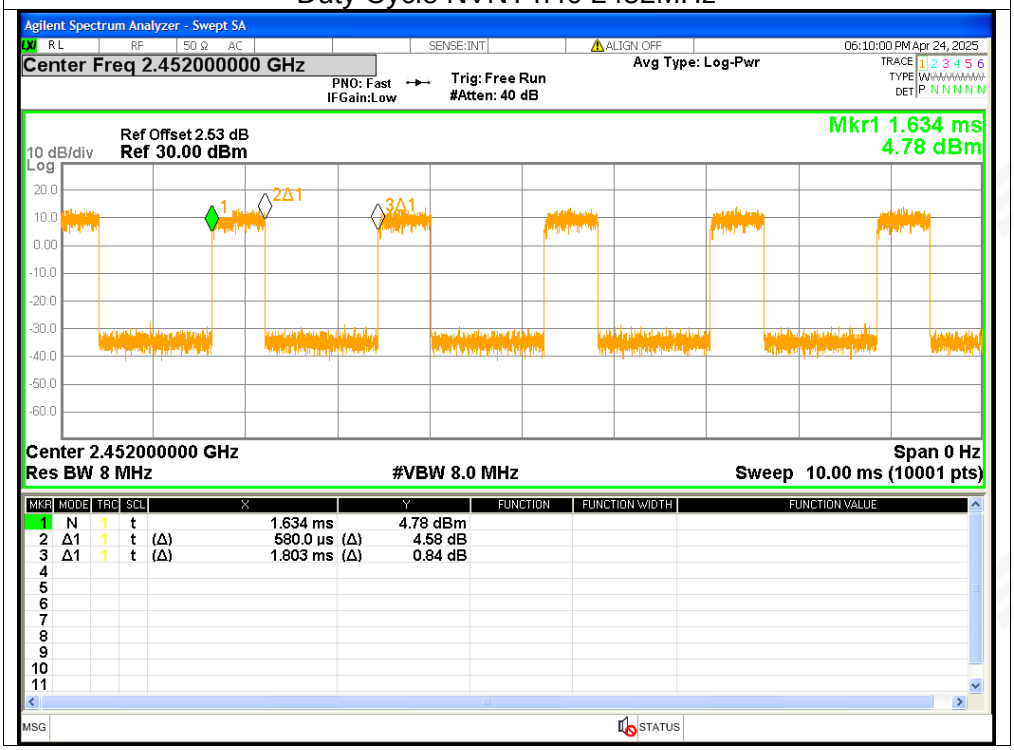
Duty Cycle NVNT n40 2422MHz



Duty Cycle NVNT n40 2437MHz



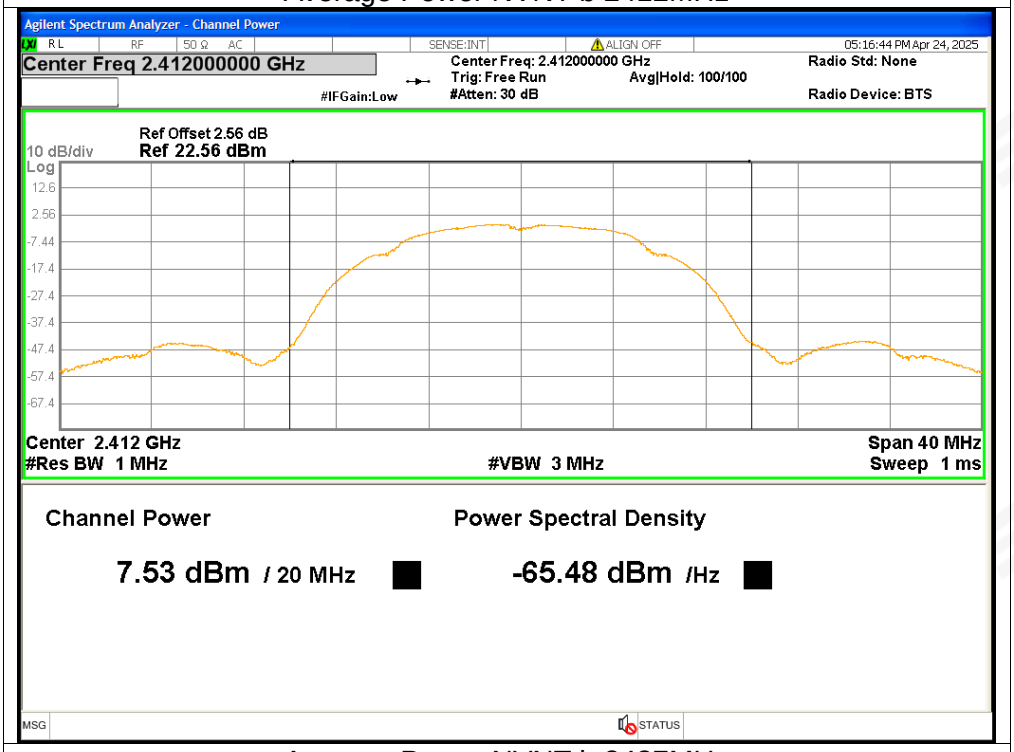
Duty Cycle NVNT n40 2452MHz



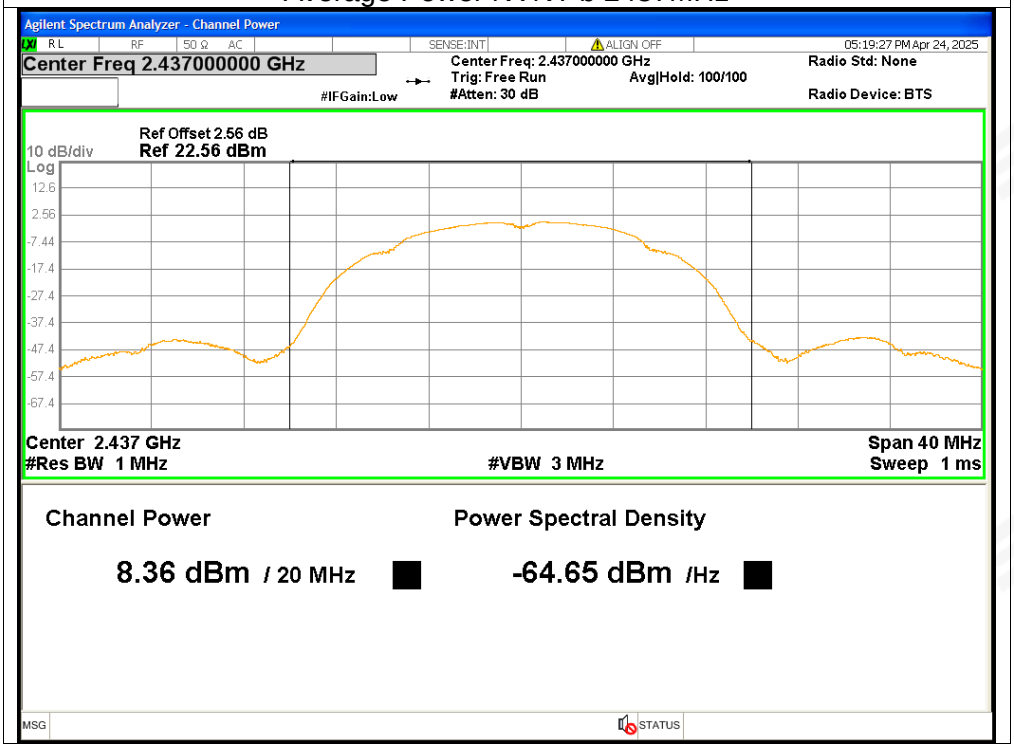
Maximum Average Conducted Output Power

Condition	Mode	Frequency (MHz)	Conducted Power (dBm)	Duty Factor (dB)	Total Power (dBm)	Limit (dBm)	Verdict
NVNT	b	2412	7.53	4.86	12.39	<=30	Pass
NVNT	b	2437	8.36	4.88	13.24	<=30	Pass
NVNT	b	2462	8.49	4.88	13.37	<=30	Pass
NVNT	g	2412	7	4.91	11.91	<=30	Pass
NVNT	g	2437	7.17	4.9	12.07	<=30	Pass
NVNT	g	2462	8.33	4.9	13.23	<=30	Pass
NVNT	n20	2412	5.45	5.03	10.48	<=30	Pass
NVNT	n20	2437	6.22	5.37	11.59	<=30	Pass
NVNT	n20	2462	7.45	5.03	12.48	<=30	Pass
NVNT	n40	2422	5.17	4.92	10.09	<=30	Pass
NVNT	n40	2437	5.89	4.93	10.82	<=30	Pass
NVNT	n40	2452	6.74	4.93	11.67	<=30	Pass

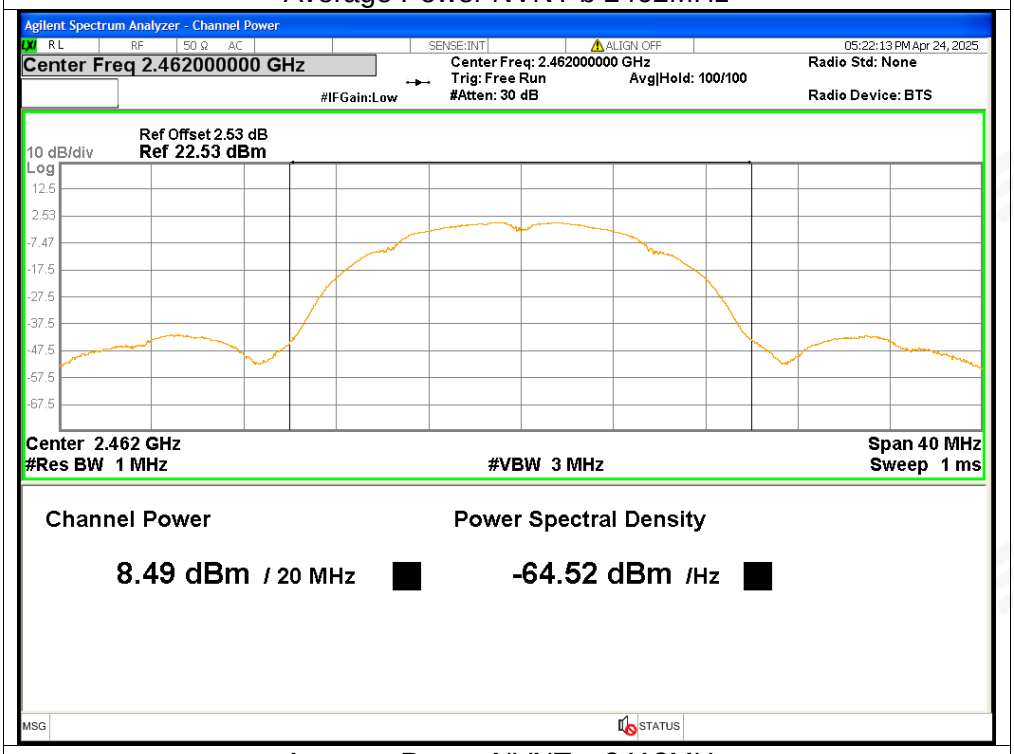
Test Graphs
Average Power NVNT b 2412MHz



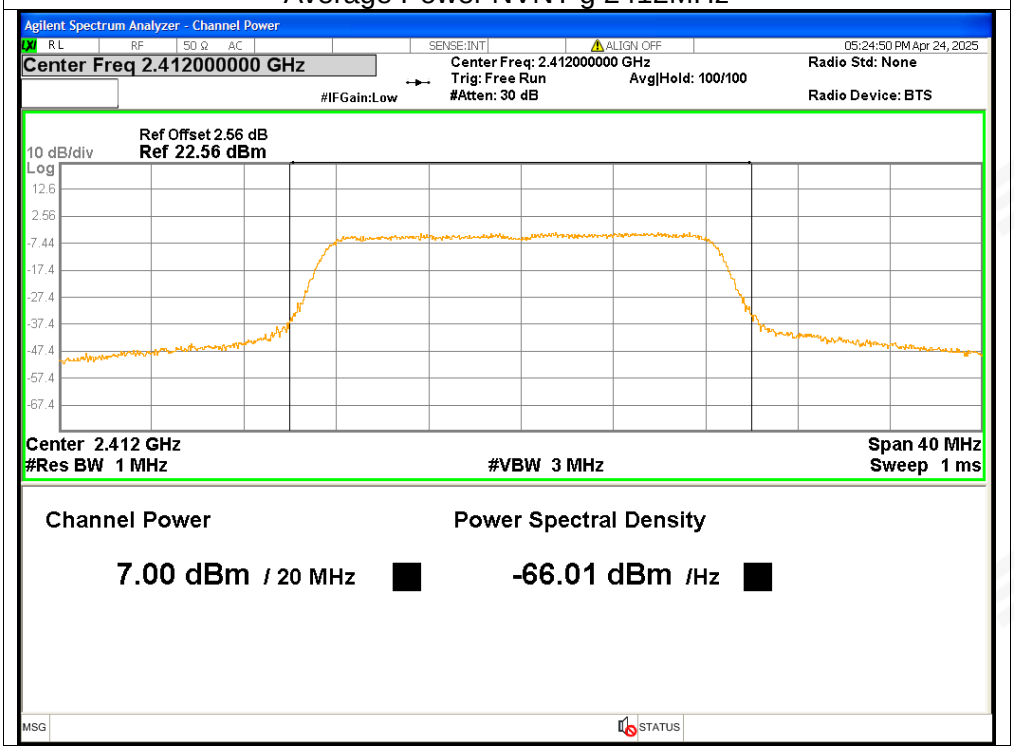
Average Power NVNT b 2437MHz



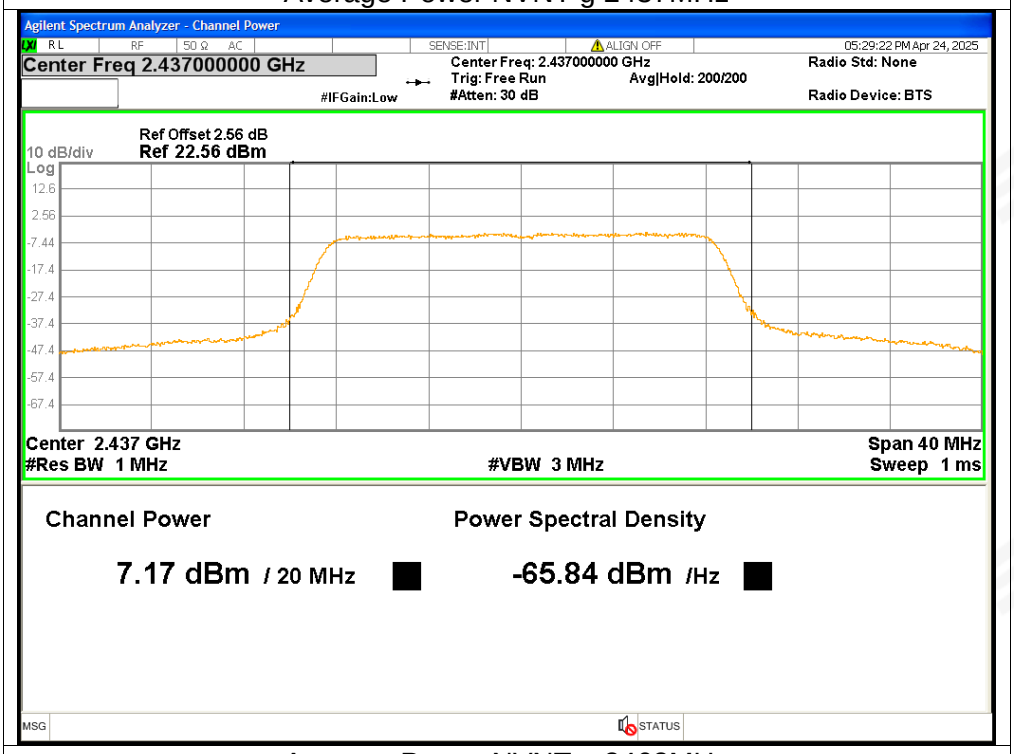
Average Power NVNT b 2462MHz



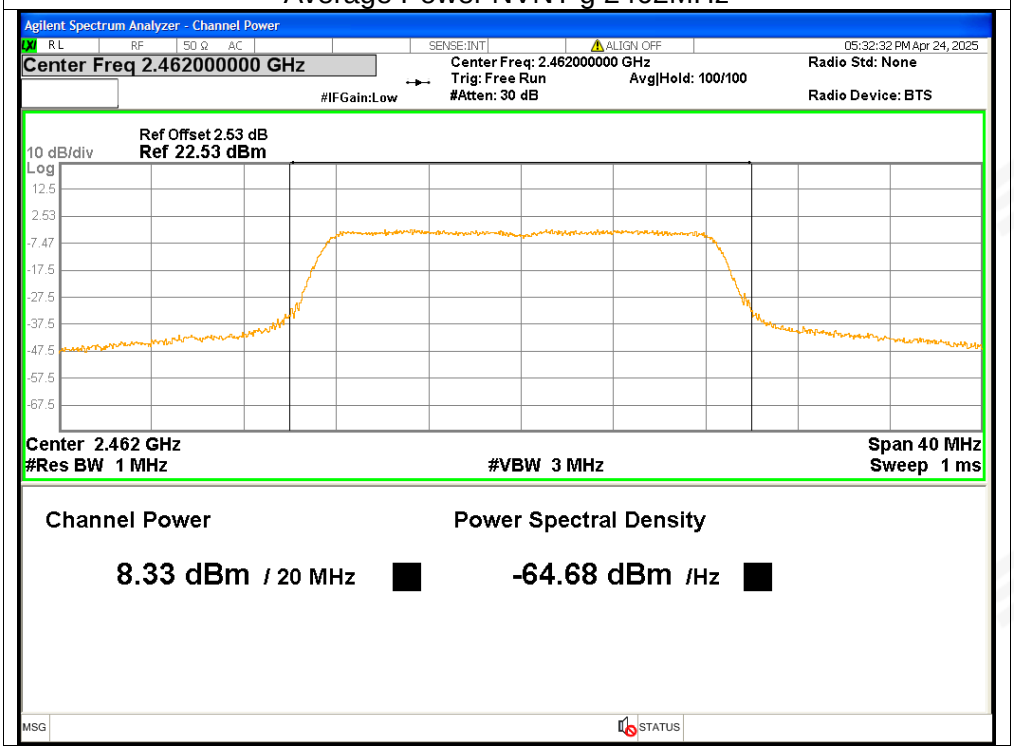
Average Power NVNT g 2412MHz



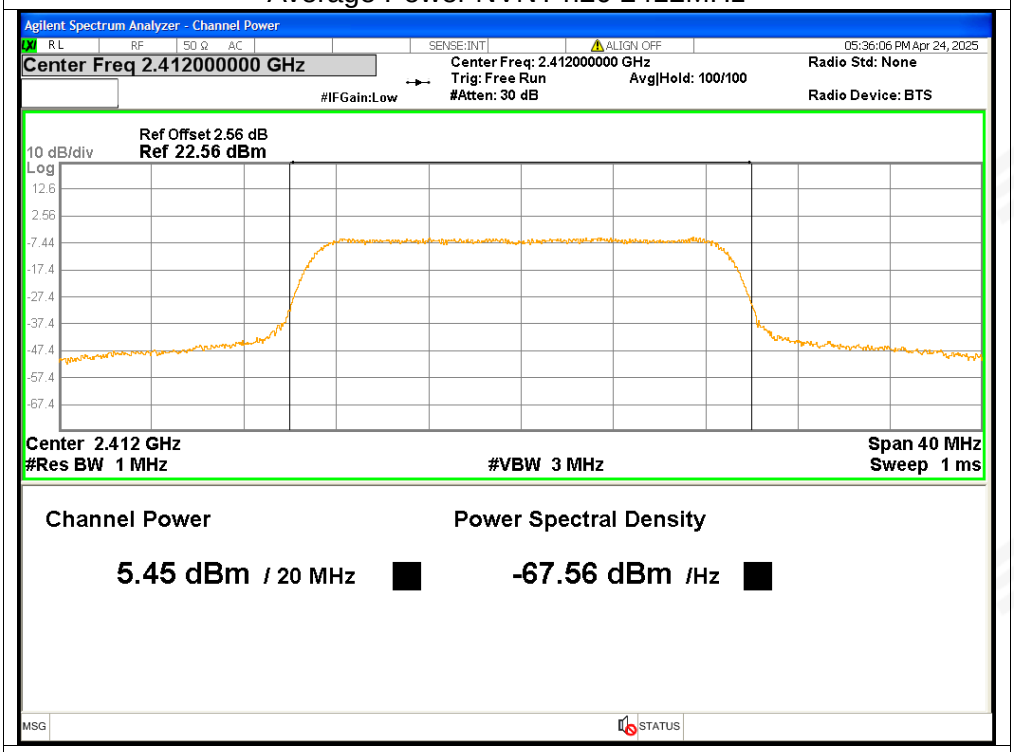
Average Power NVNT g 2437MHz



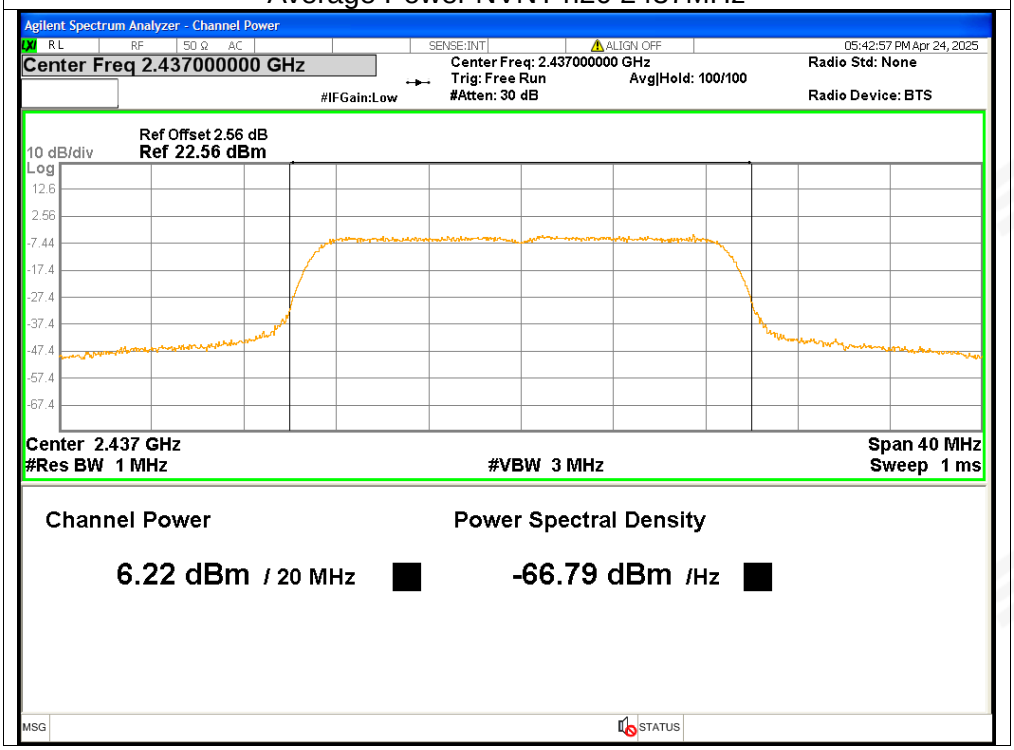
Average Power NVNT g 2462MHz



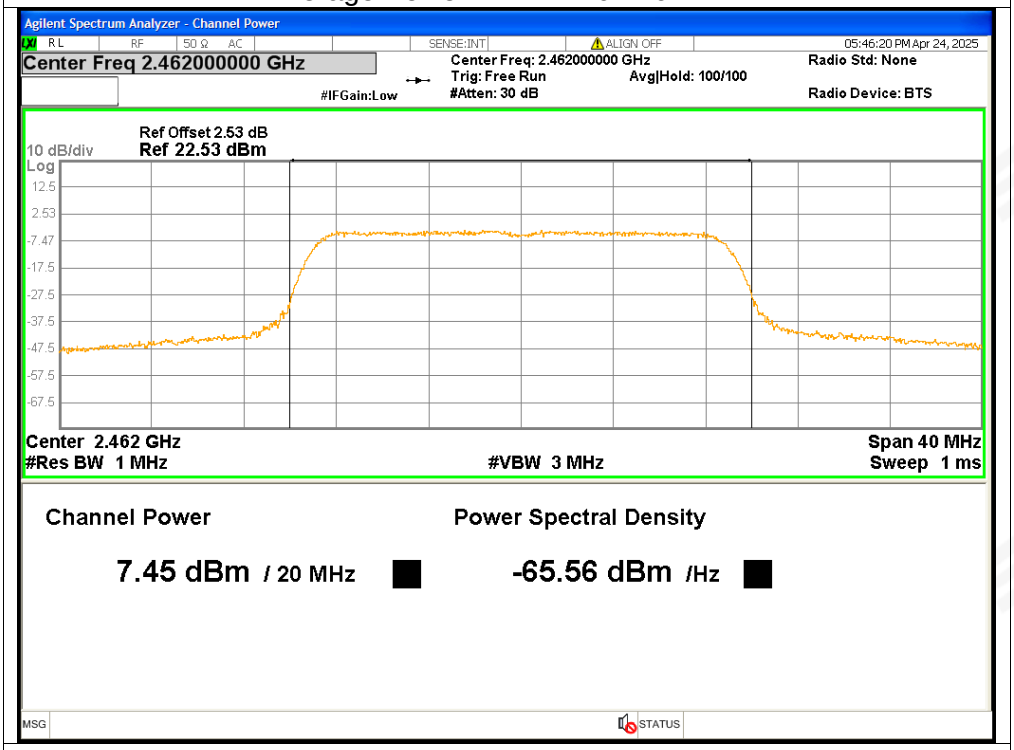
Average Power NVNT n20 2412MHz



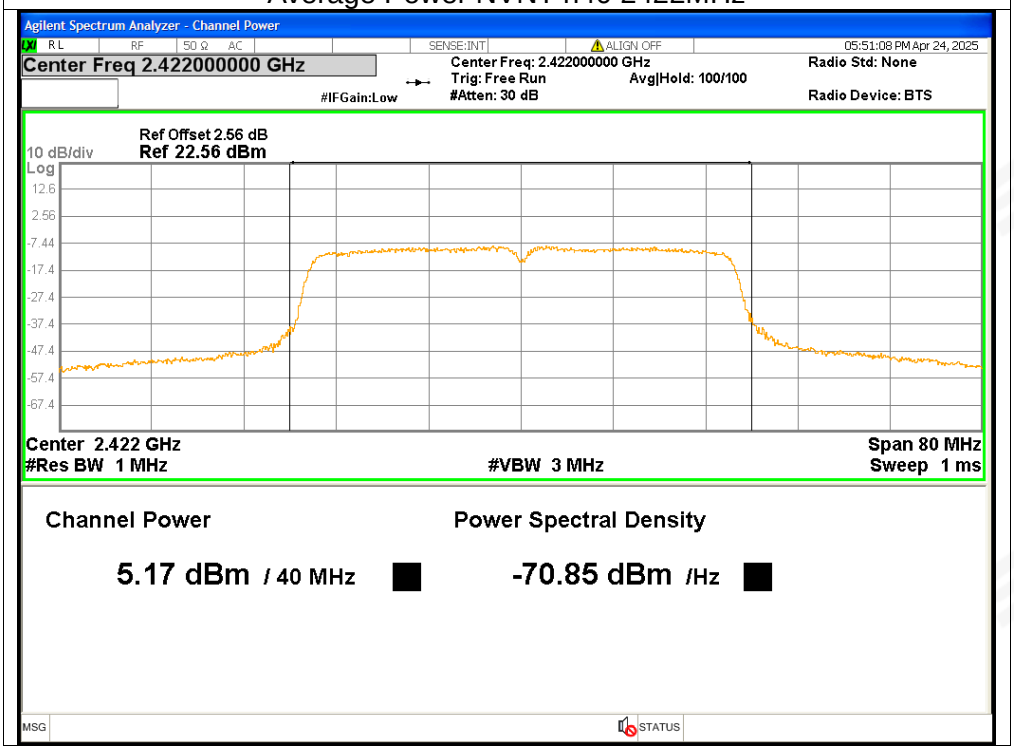
Average Power NVNT n20 2437MHz



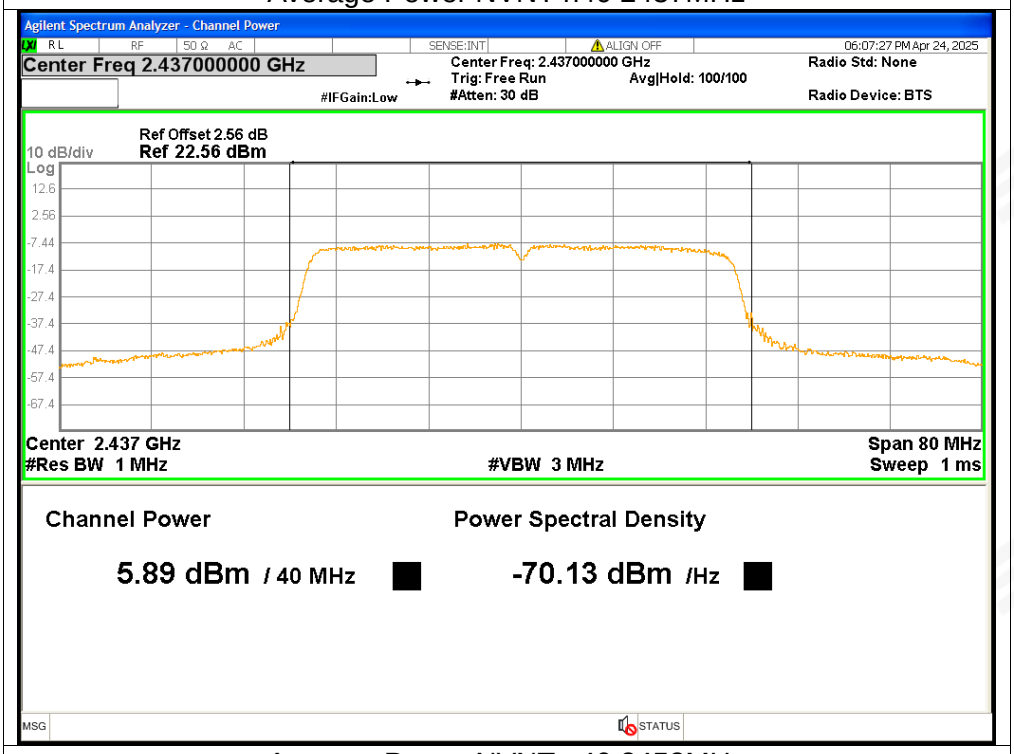
Average Power NVNT n20 2462MHz



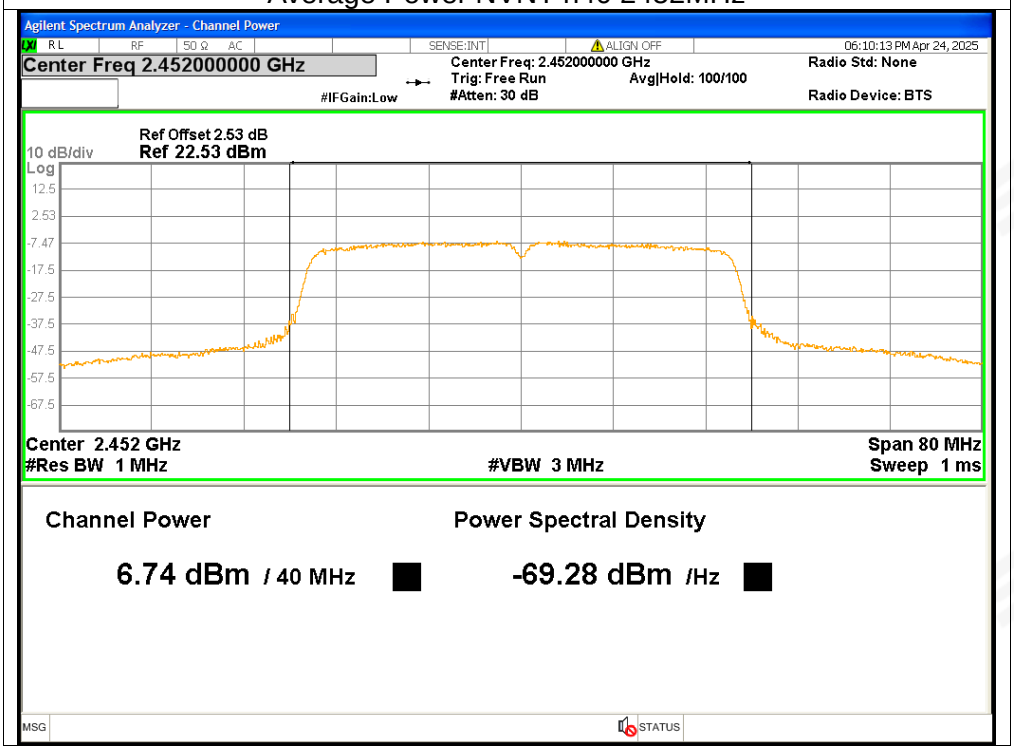
Average Power NVNT n40 2422MHz



Average Power NVNT n40 2437MHz



Average Power NVNT n40 2452MHz



Maximum Peak Conducted Output Power

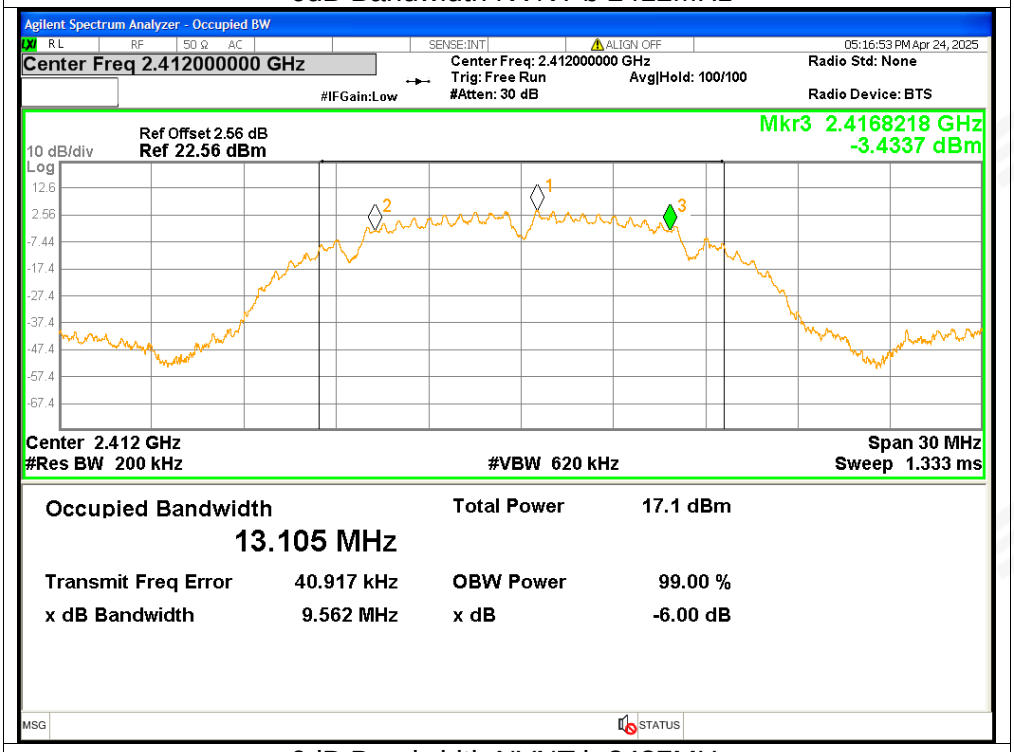
Condition	Mode	Frequency (MHz)	Conducted Power (dBm)	Limit (dBm)	Verdict
NVNT	b	2412	15.66	<=30	Pass
NVNT	b	2437	16.11	<=30	Pass
NVNT	b	2462	16.71	<=30	Pass
NVNT	g	2412	18.23	<=30	Pass
NVNT	g	2437	18.73	<=30	Pass
NVNT	g	2462	19.87	<=30	Pass
NVNT	n20	2412	17.18	<=30	Pass
NVNT	n20	2437	17.54	<=30	Pass
NVNT	n20	2462	18.53	<=30	Pass
NVNT	n40	2422	16.81	<=30	Pass
NVNT	n40	2437	17.15	<=30	Pass
NVNT	n40	2452	17.51	<=30	Pass

-6dB Bandwidth

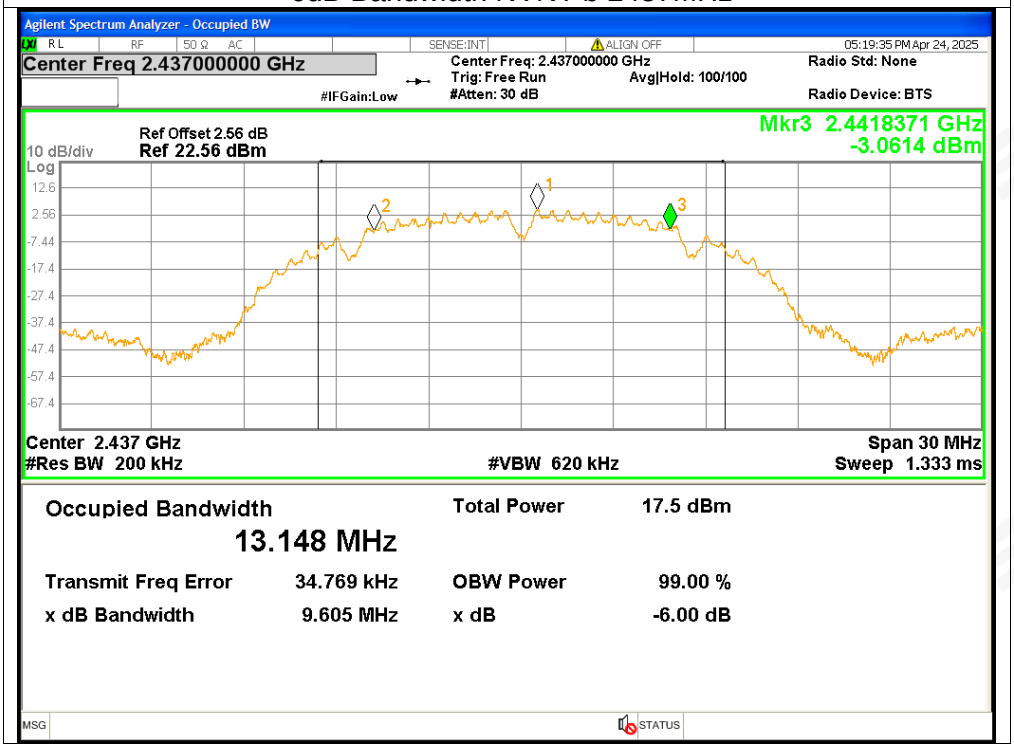
Condition	Mode	Frequency (MHz)	-6 dB Bandwidth (MHz)	Limit -6 dB Bandwidth (MHz)	Verdict
NVNT	b	2412	9.5617	>=0.5	Pass
NVNT	b	2437	9.6047	>=0.5	Pass
NVNT	b	2462	9.5757	>=0.5	Pass
NVNT	g	2412	16.3974	>=0.5	Pass
NVNT	g	2437	16.3867	>=0.5	Pass
NVNT	g	2462	16.3813	>=0.5	Pass
NVNT	n20	2412	17.0818	>=0.5	Pass
NVNT	n20	2437	17.164	>=0.5	Pass
NVNT	n20	2462	17.1641	>=0.5	Pass
NVNT	n40	2422	36.005	>=0.5	Pass
NVNT	n40	2437	36.0601	>=0.5	Pass
NVNT	n40	2452	35.8095	>=0.5	Pass

Test Graphs

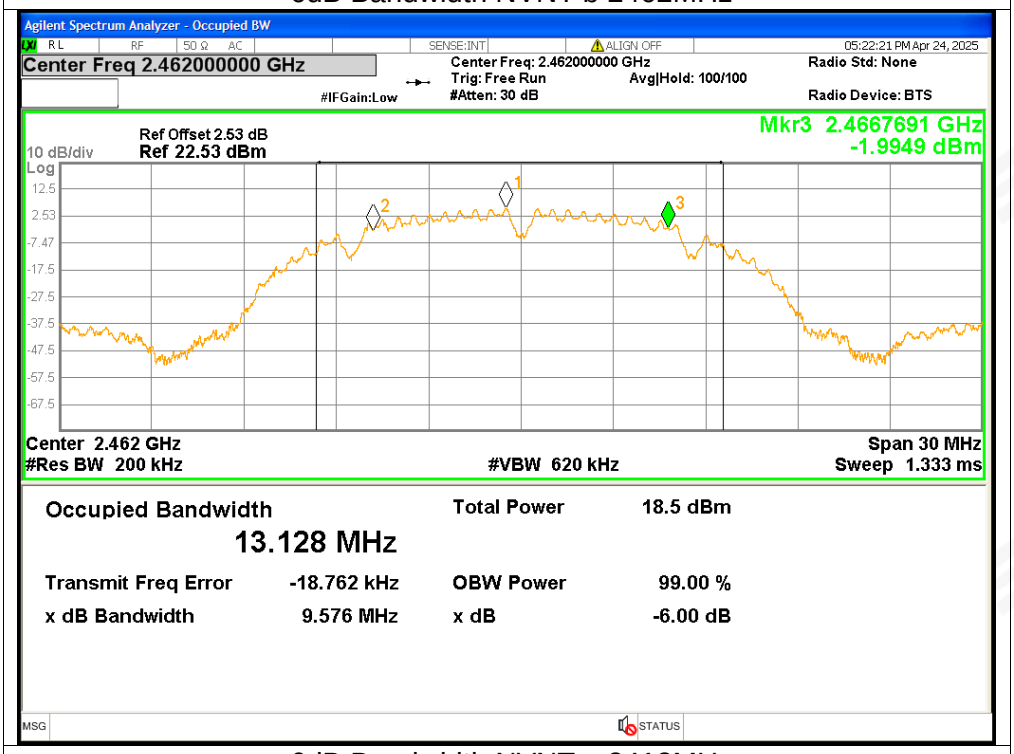
-6dB Bandwidth NVNT b 2412MHz



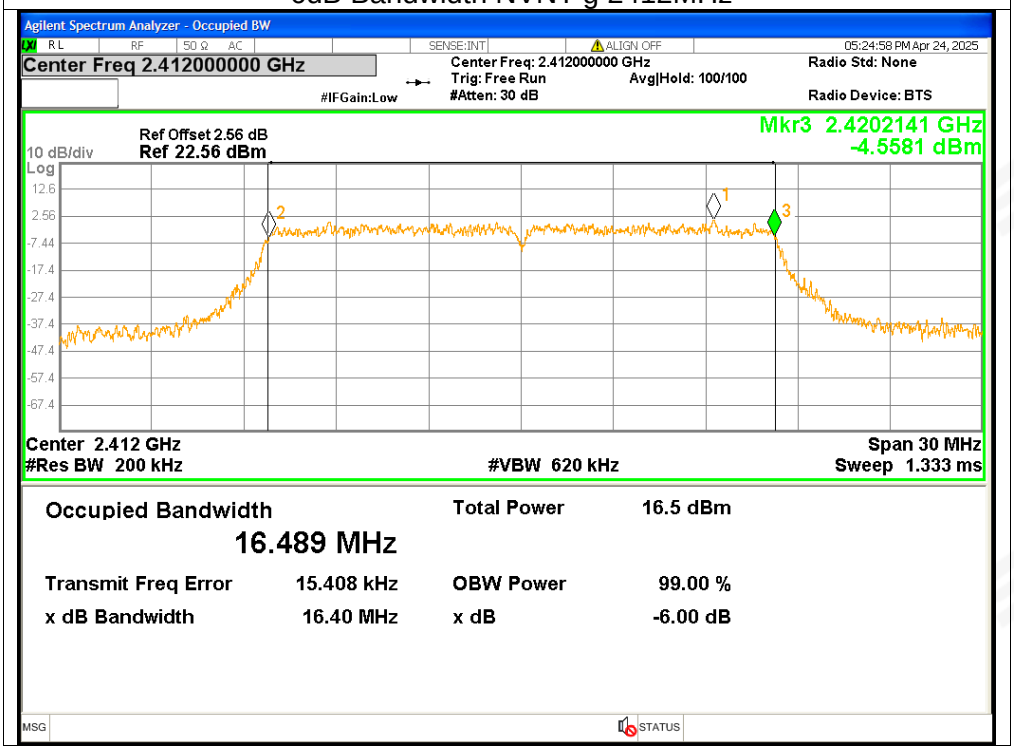
-6dB Bandwidth NVNT b 2437MHz



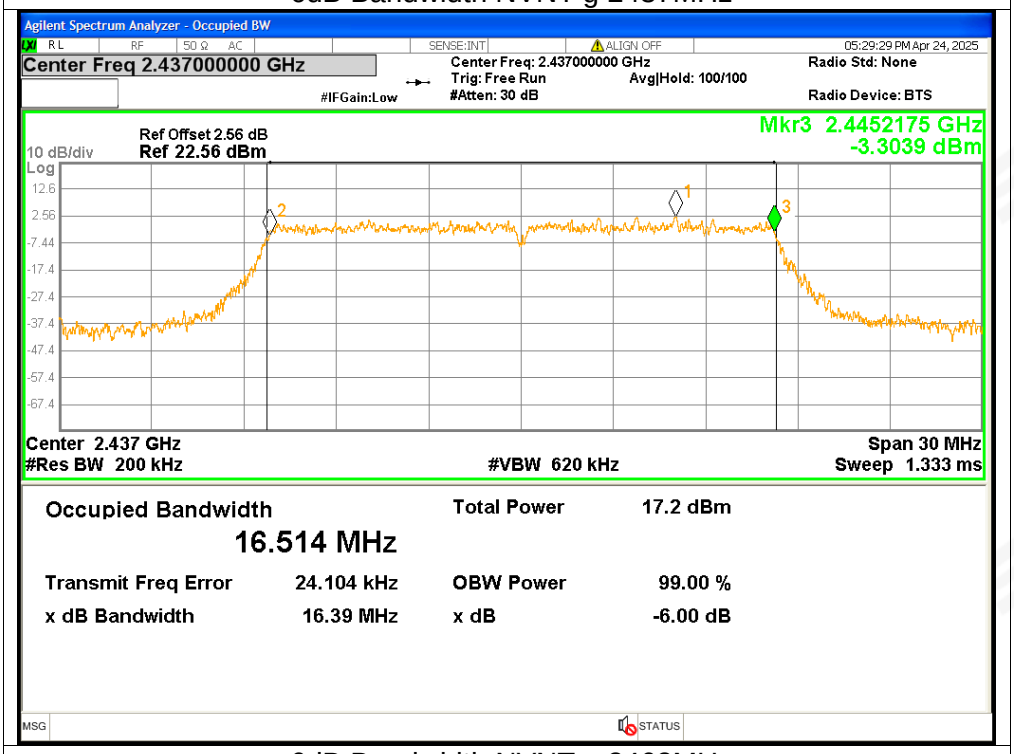
-6dB Bandwidth NVNT b 2462MHz



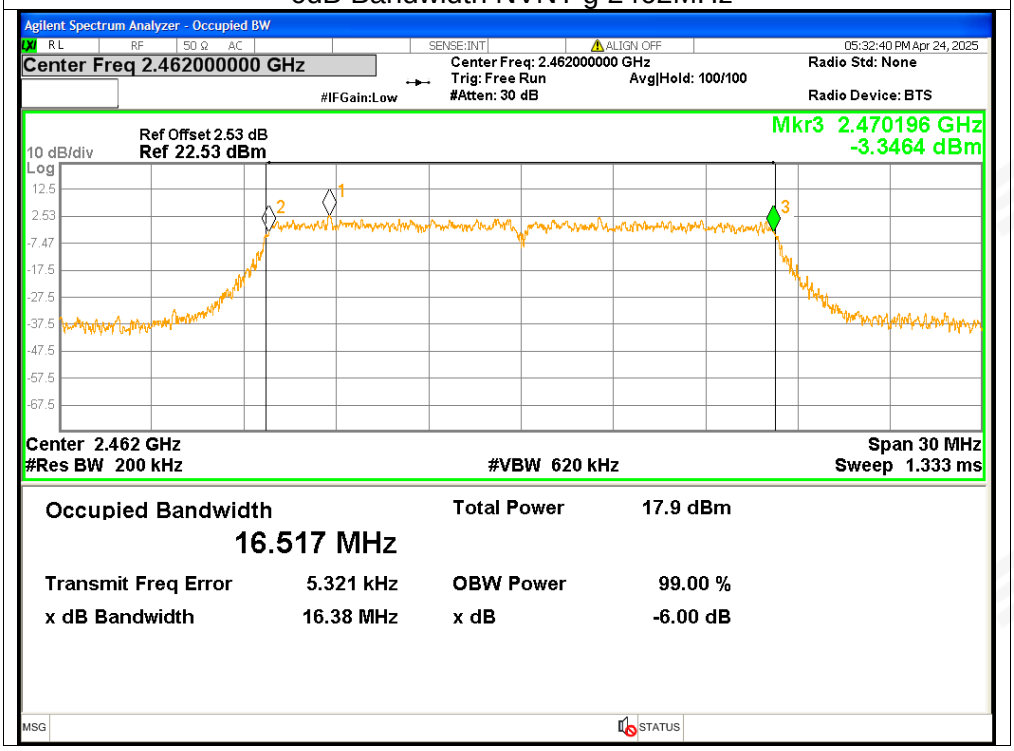
-6dB Bandwidth NVNT g 2412MHz



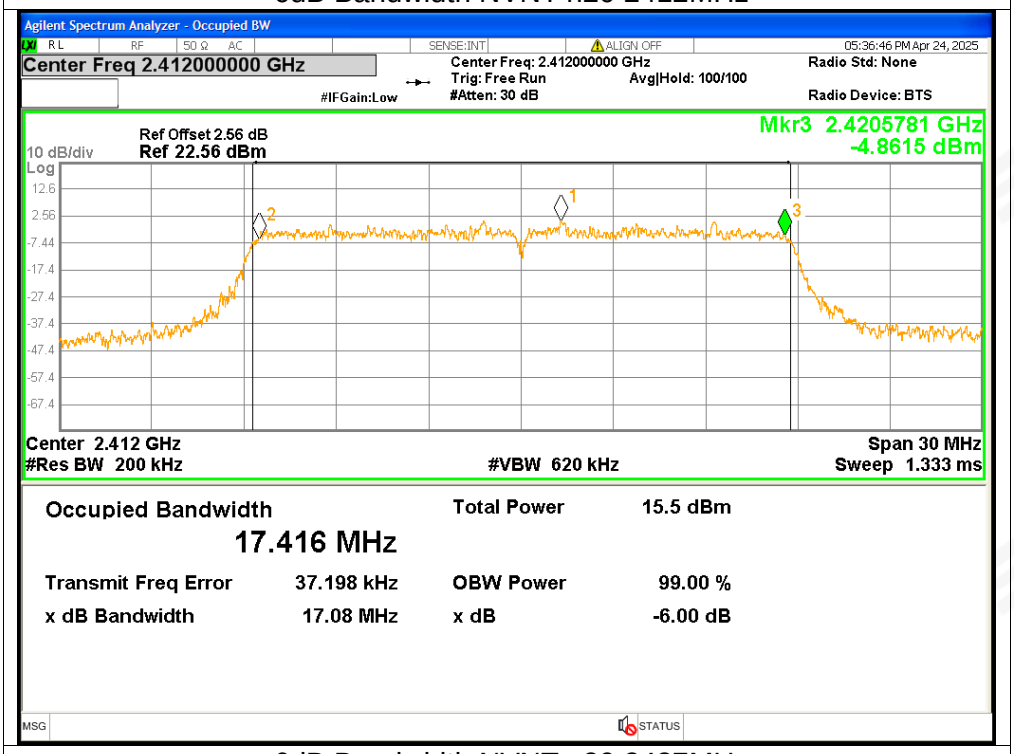
-6dB Bandwidth NVNT g 2437MHz



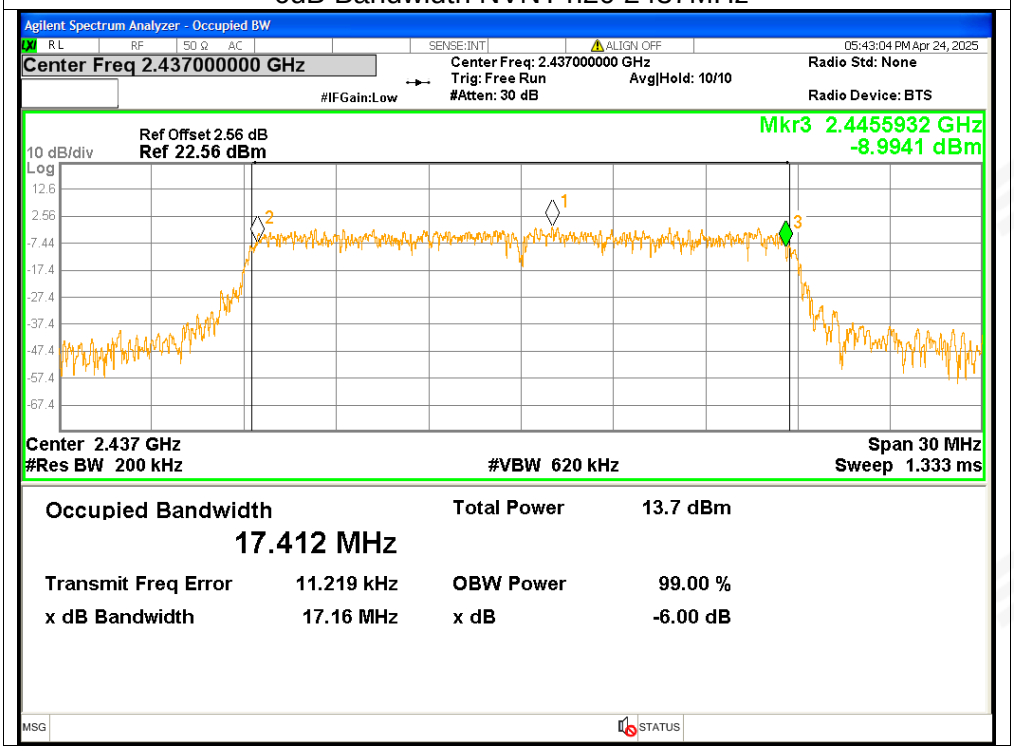
-6dB Bandwidth NVNT g 2462MHz



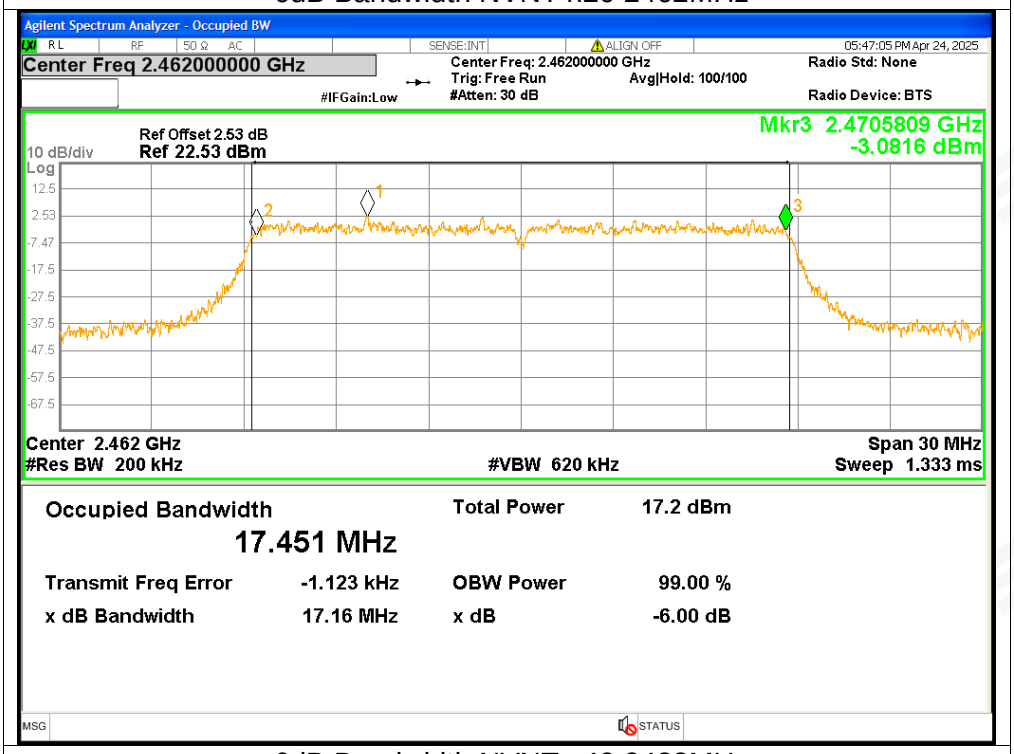
-6dB Bandwidth NVNT n20 2412MHz



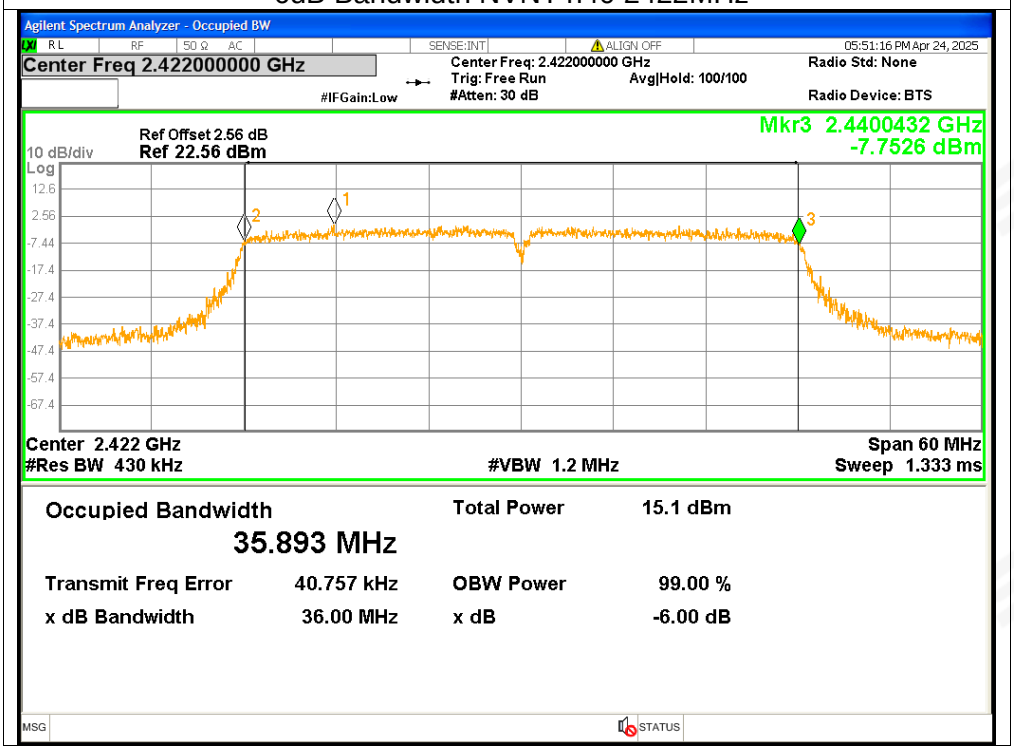
-6dB Bandwidth NVNT n20 2437MHz



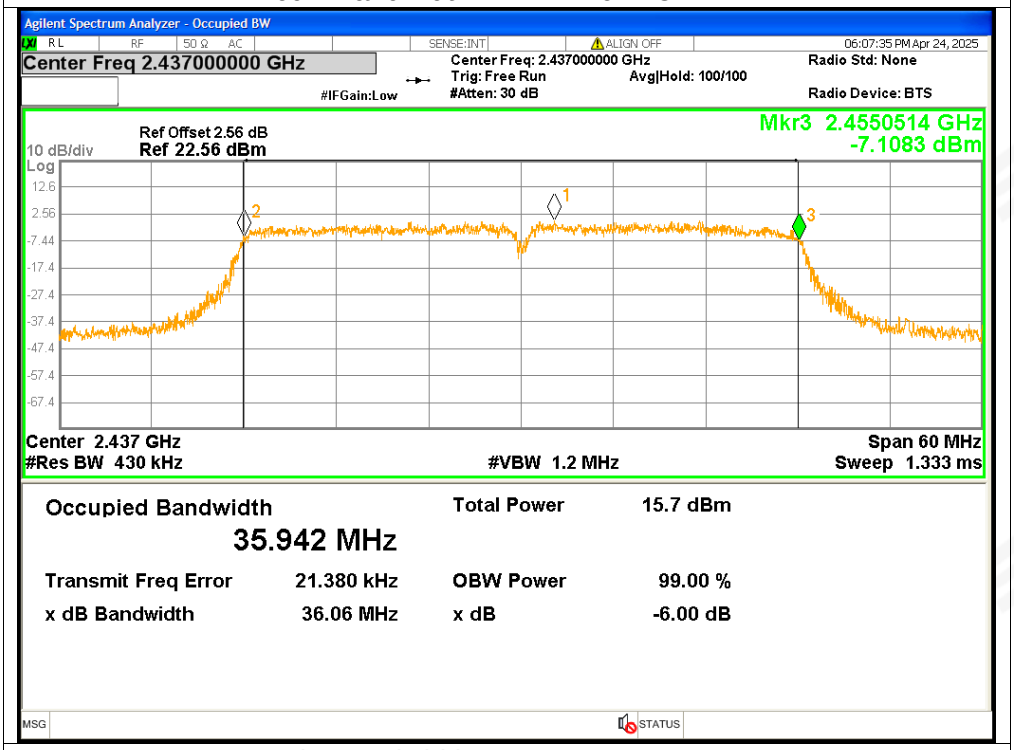
-6dB Bandwidth NVNT n20 2462MHz



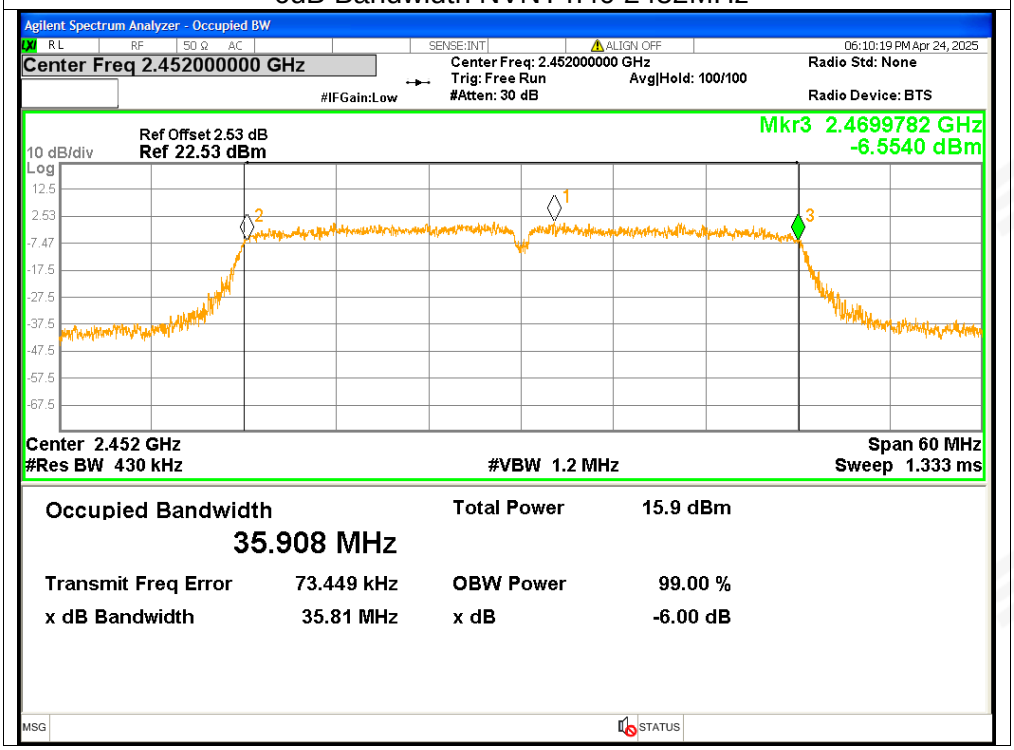
-6dB Bandwidth NVNT n40 2422MHz



-6dB Bandwidth NVNT n40 2437MHz



-6dB Bandwidth NVNT n40 2452MHz

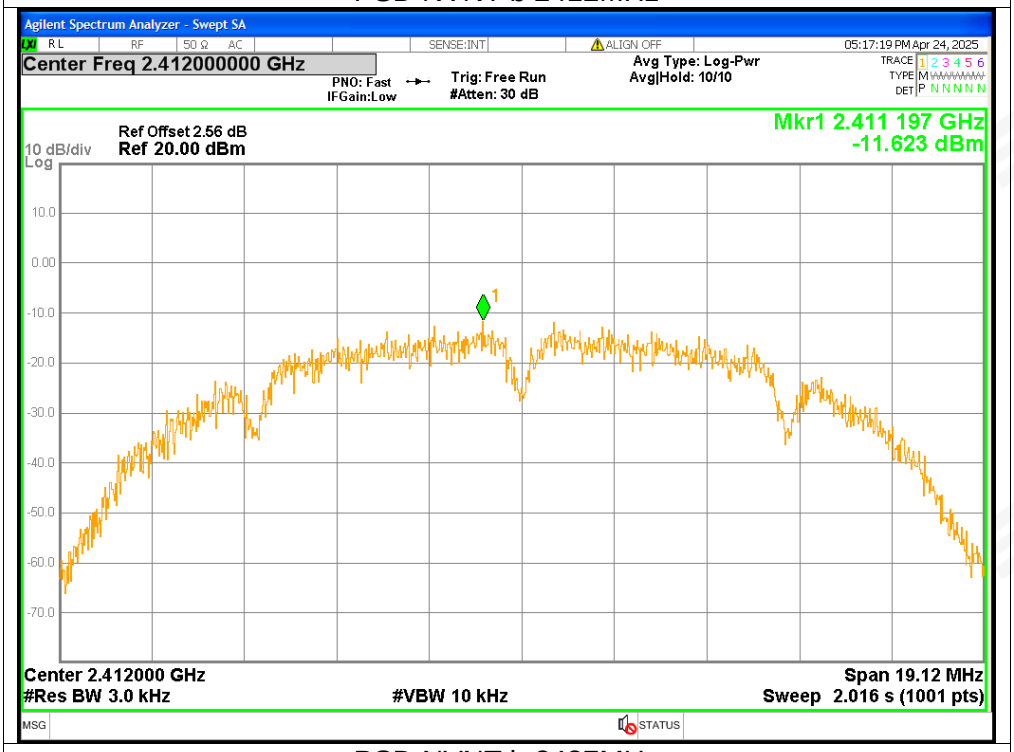


Maximum Power Spectral Density Level

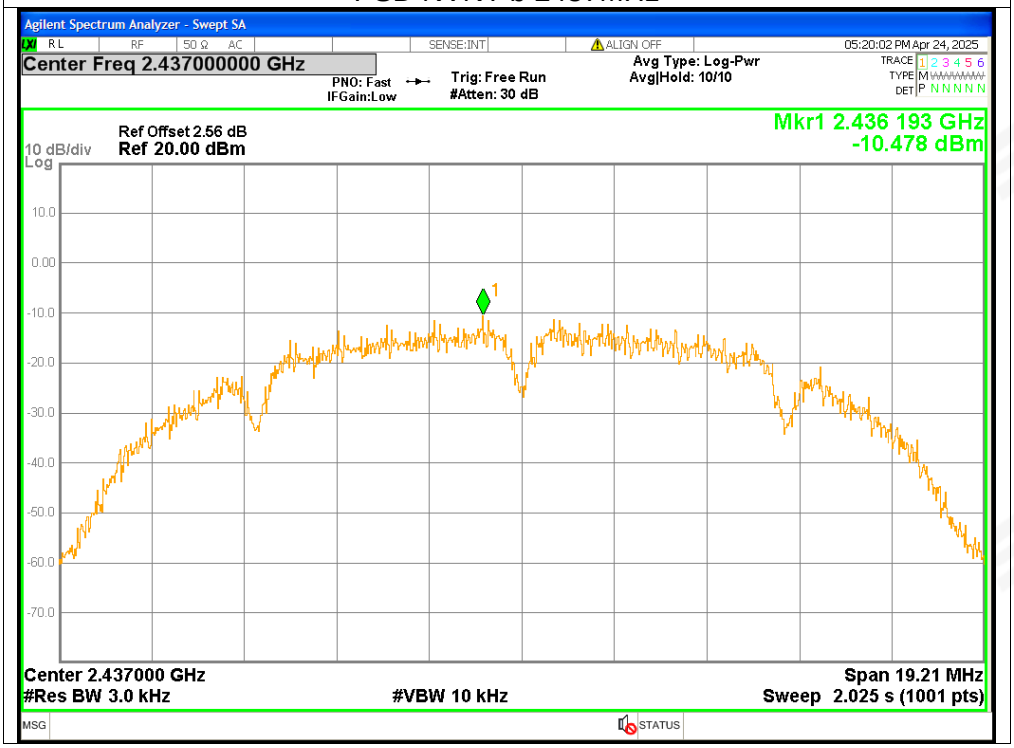
Condition	Mode	Frequency (MHz)	PSD (dBm/3kHz)	Limit (dBm/3kHz)	Verdict
NVNT	b	2412	-11.62	<=8	Pass
NVNT	b	2437	-10.48	<=8	Pass
NVNT	b	2462	-9.91	<=8	Pass
NVNT	g	2412	-14.42	<=8	Pass
NVNT	g	2437	-14.11	<=8	Pass
NVNT	g	2462	-12.41	<=8	Pass
NVNT	n20	2412	-15.06	<=8	Pass
NVNT	n20	2437	-14.73	<=8	Pass
NVNT	n20	2462	-14.35	<=8	Pass
NVNT	n40	2422	-19.08	<=8	Pass
NVNT	n40	2437	-16.37	<=8	Pass
NVNT	n40	2452	-18.27	<=8	Pass

Test Graphs

PSD NVNT b 2412MHz



PSD NVNT b 2437MHz



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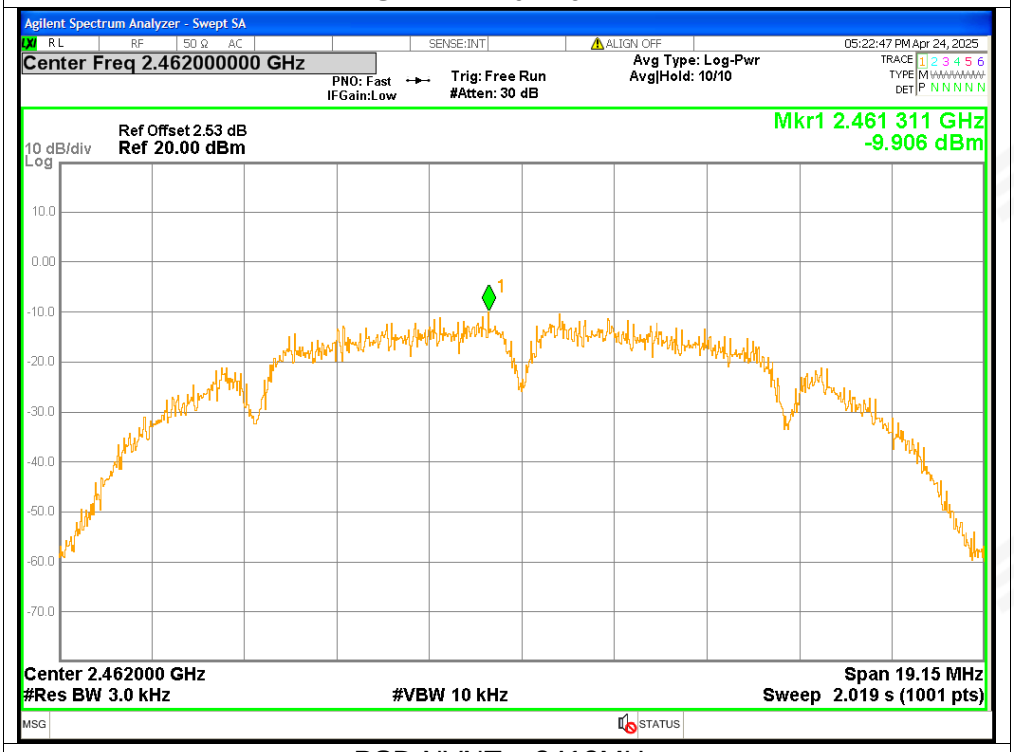

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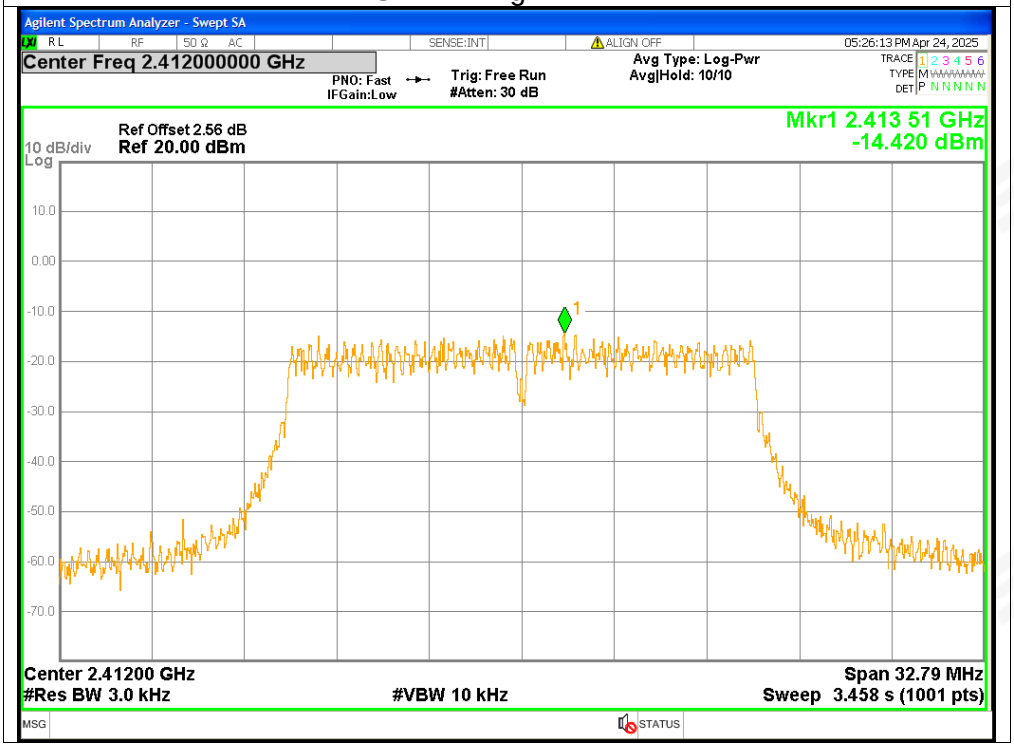

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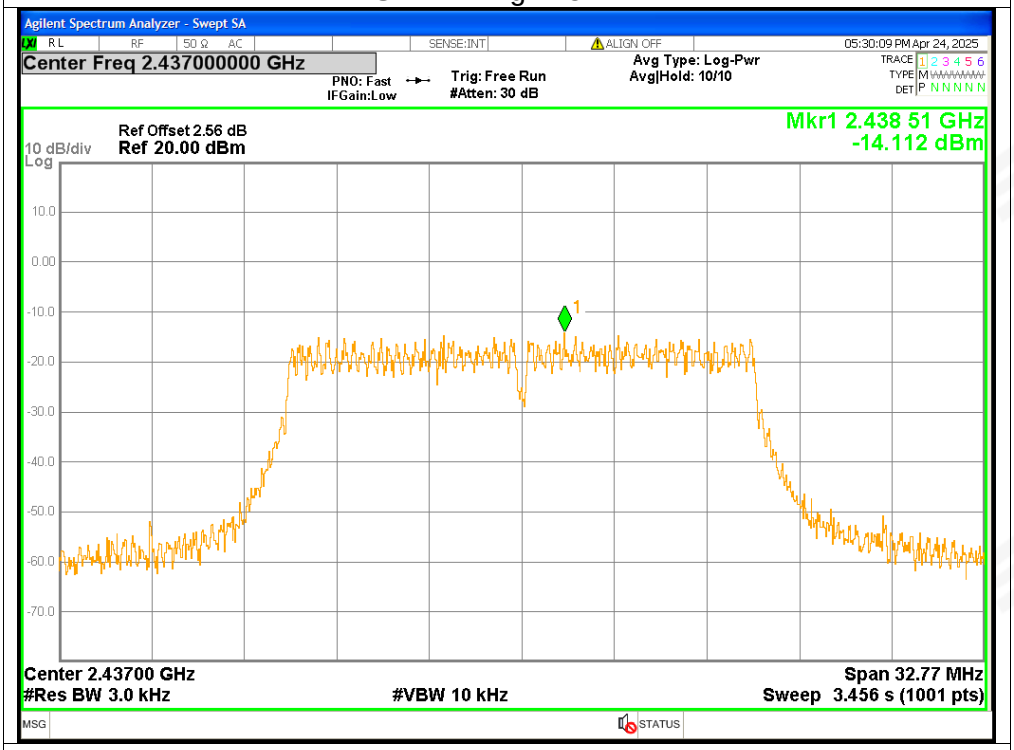
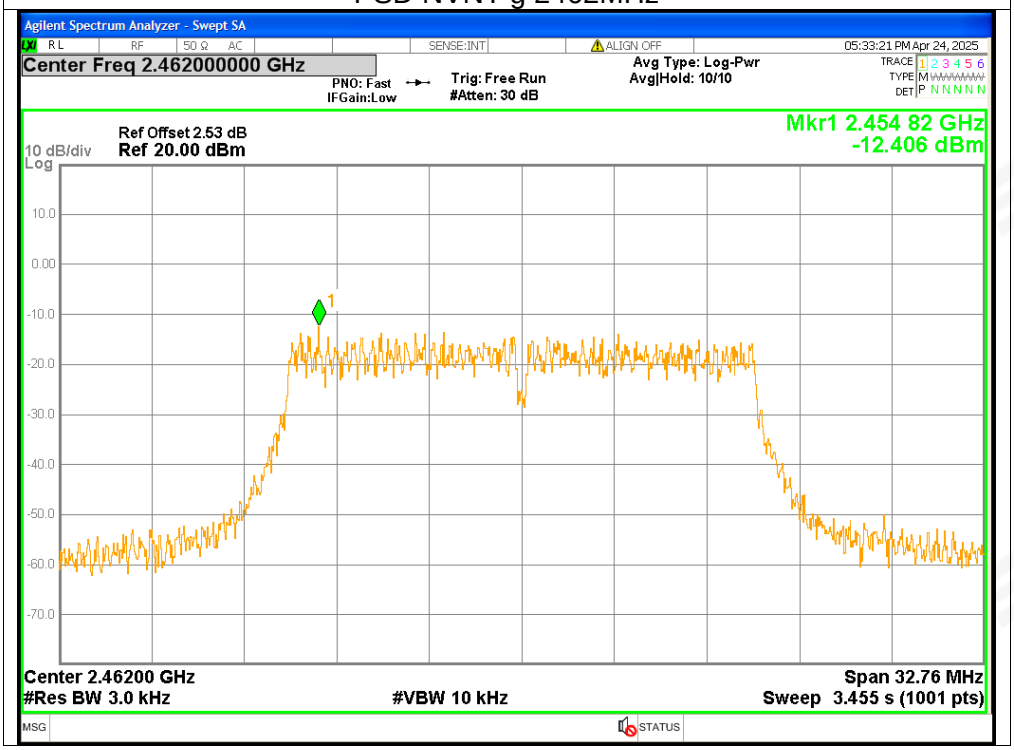
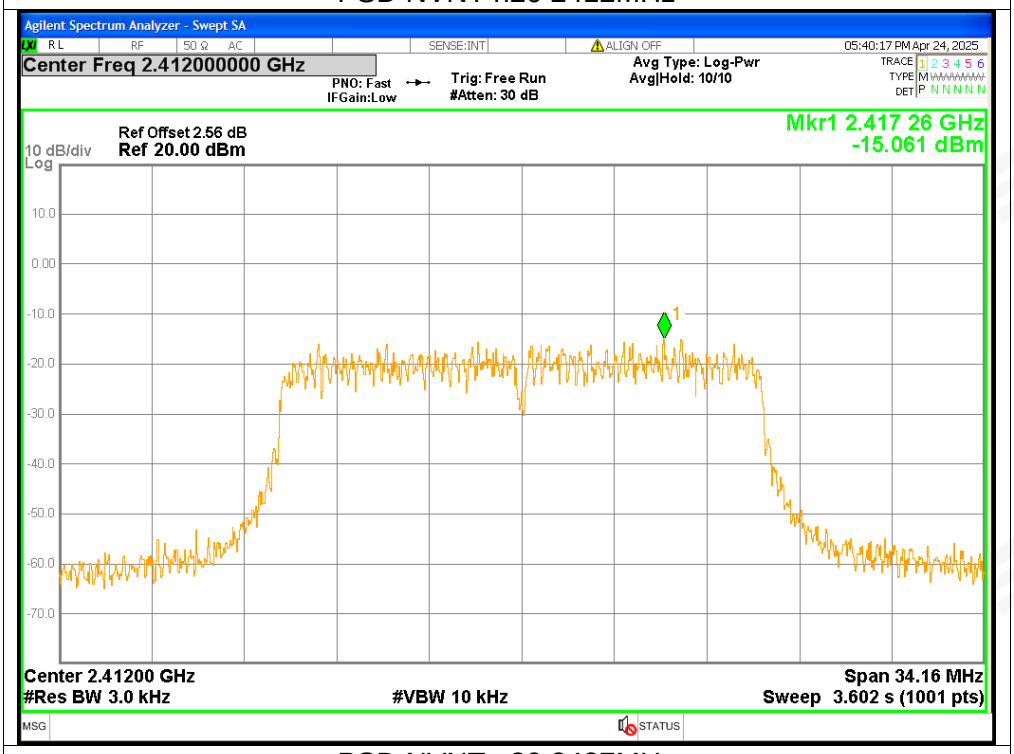


PSD NVNT g 2462MHz



PSD NVNT n20 2412MHz



PSD NVNT n20 2437MHz