

FCC Appendix RF Test Data for 2.4GWIFI

Product Name: Smart Diagnostic System

Test Model: VD800

Environmental Conditions

Temperature:	24.2° C
Relative Humidity:	53.2%
ATM Pressure:	100.0 kPa
Test Engineer:	Zoey Cao
Supervised by:	Eric Wang

1. -6dB Bandwidth

RTL8821:

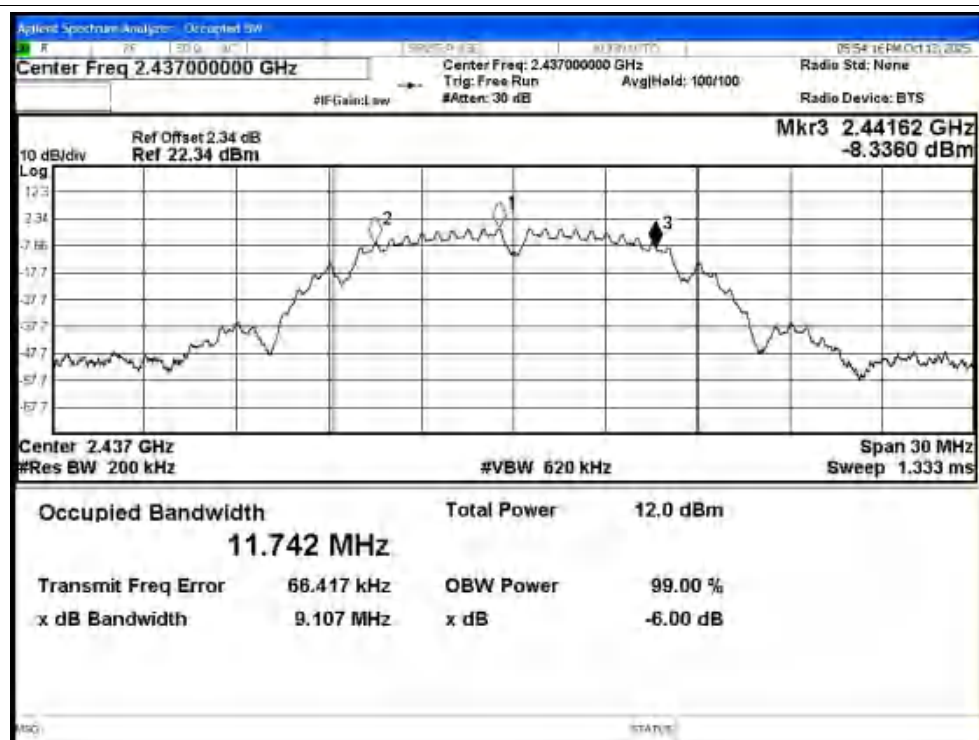
Condition	Mode	Frequency (MHz)	Antenna	-6 dB Bandwidth (MHz)	Limit -6 dB Bandwidth (MHz)	Verdict
NVNT	b	2412	Ant1	9.092	≥ 0.5	Pass
NVNT	b	2437	Ant1	9.107	≥ 0.5	Pass
NVNT	b	2462	Ant1	9.1	≥ 0.5	Pass
NVNT	g	2412	Ant1	16.301	≥ 0.5	Pass
NVNT	g	2437	Ant1	16.375	≥ 0.5	Pass
NVNT	g	2462	Ant1	16.373	≥ 0.5	Pass
NVNT	n20	2412	Ant1	17.332	≥ 0.5	Pass
NVNT	n20	2437	Ant1	17.547	≥ 0.5	Pass
NVNT	n20	2462	Ant1	17.258	≥ 0.5	Pass
NVNT	n40	2422	Ant1	35.51	≥ 0.5	Pass
NVNT	n40	2437	Ant1	35.766	≥ 0.5	Pass
NVNT	n40	2452	Ant1	35.48	≥ 0.5	Pass

Test Graphs

-6dB Bandwidth NVNT b 2412MHz Ant1



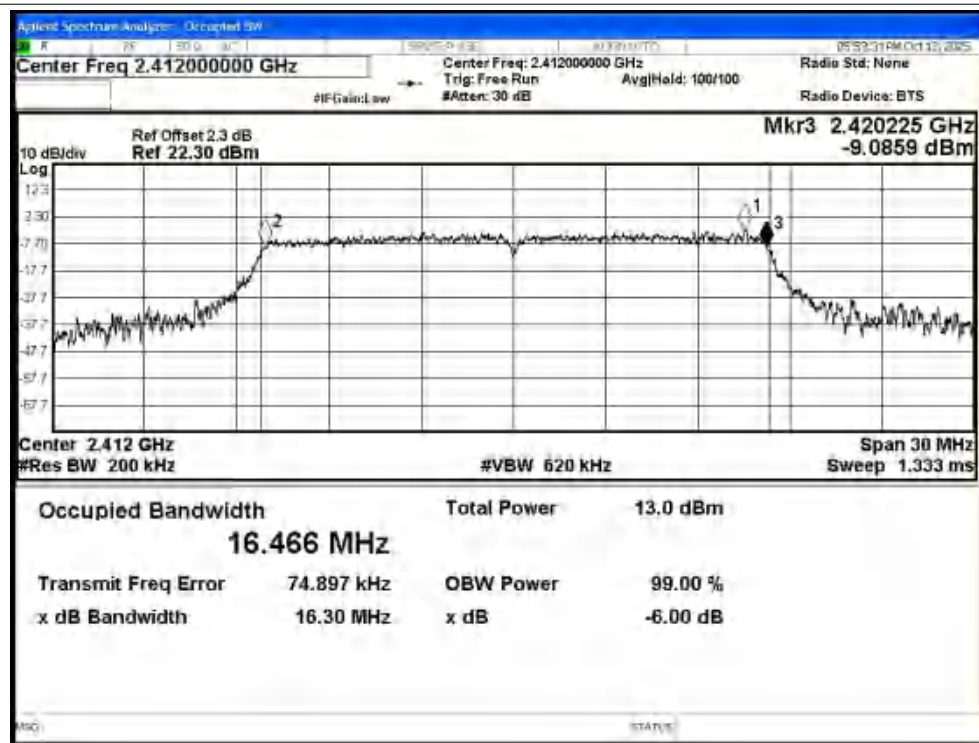
-6dB Bandwidth NVNT b 2437MHz Ant1



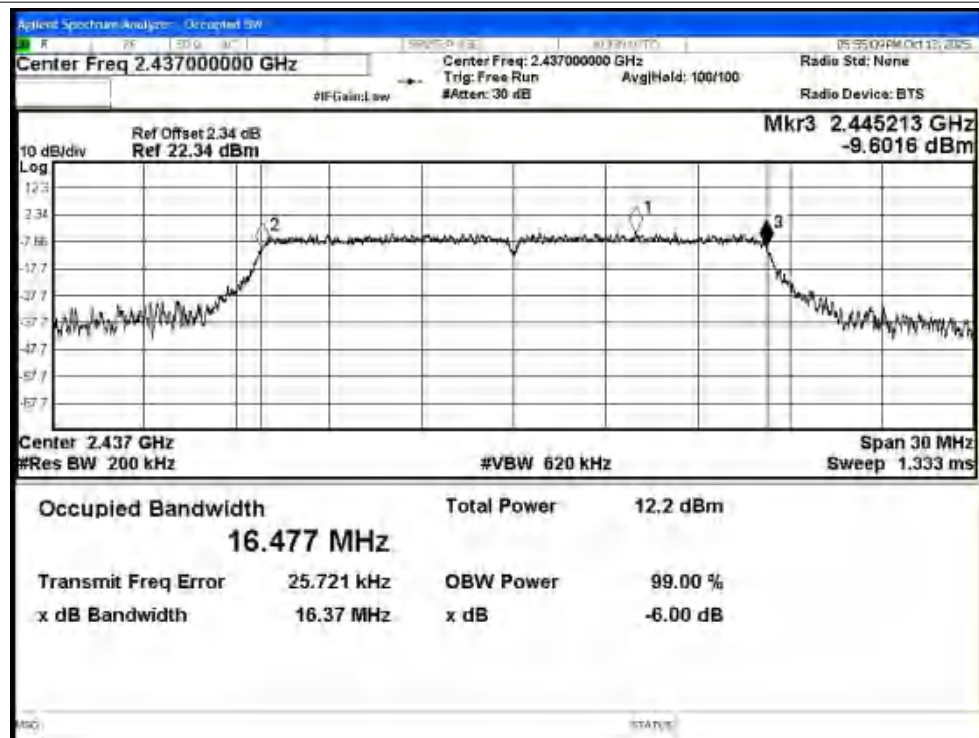
-6dB Bandwidth NVNT b 2462MHz Ant1



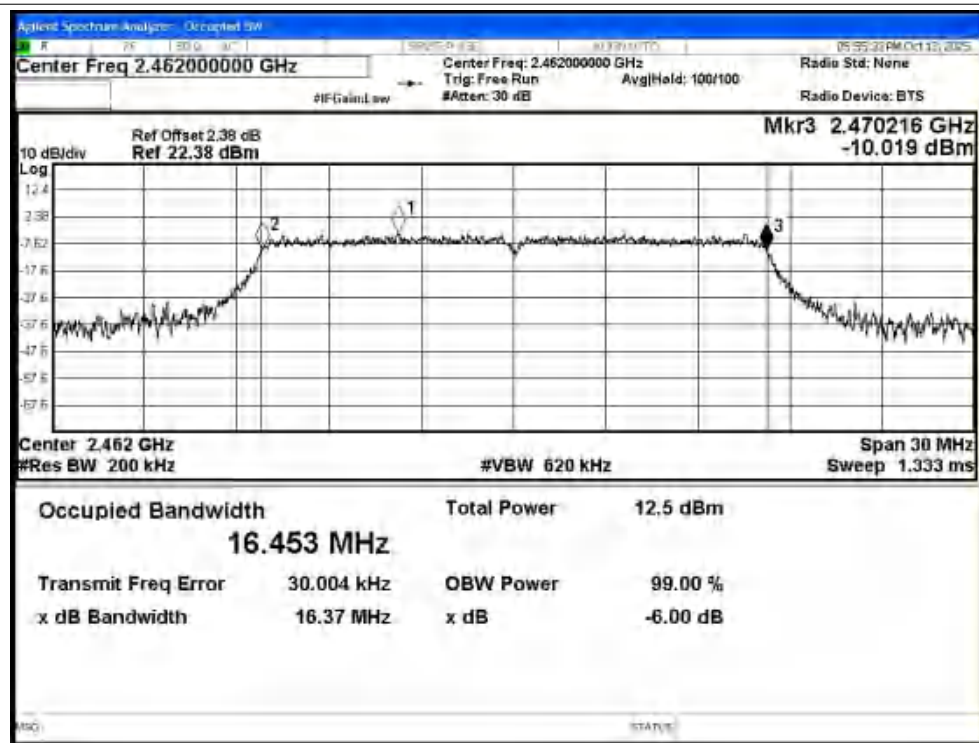
-6dB Bandwidth NVNT g 2412MHz Ant1



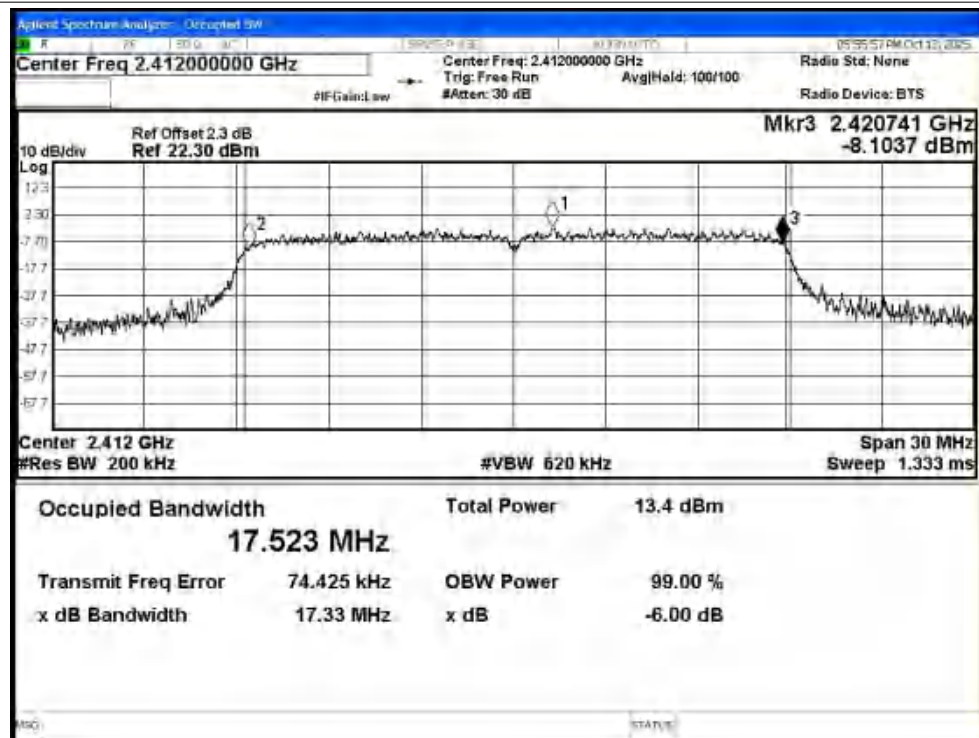
-6dB Bandwidth NVNT g 2437MHz Ant1



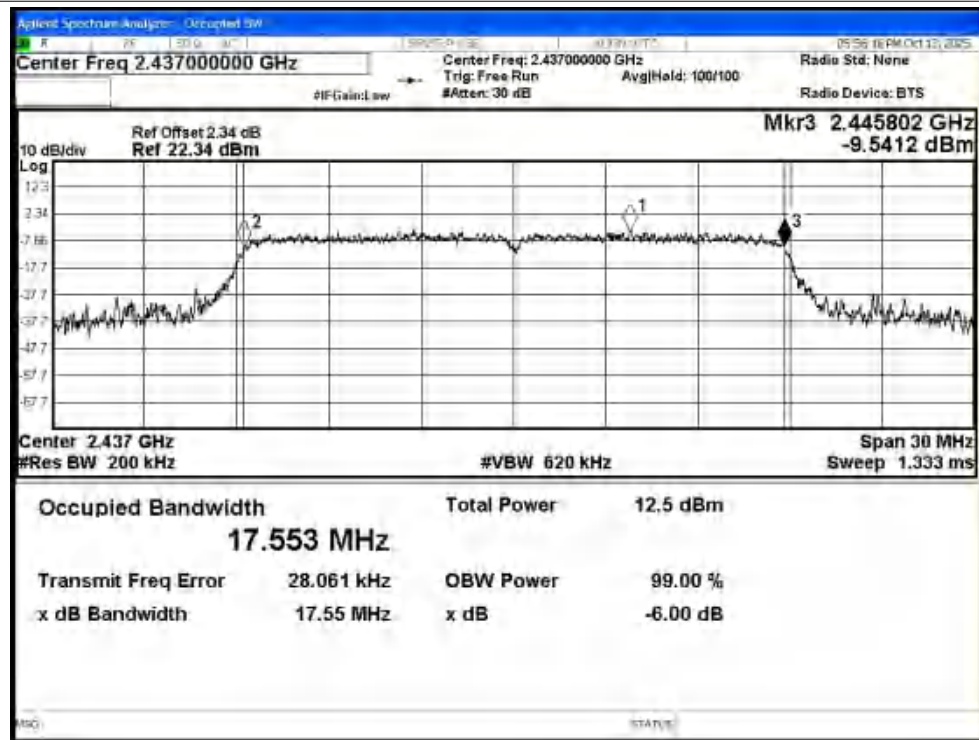
-6dB Bandwidth NVNT g 2462MHz Ant1



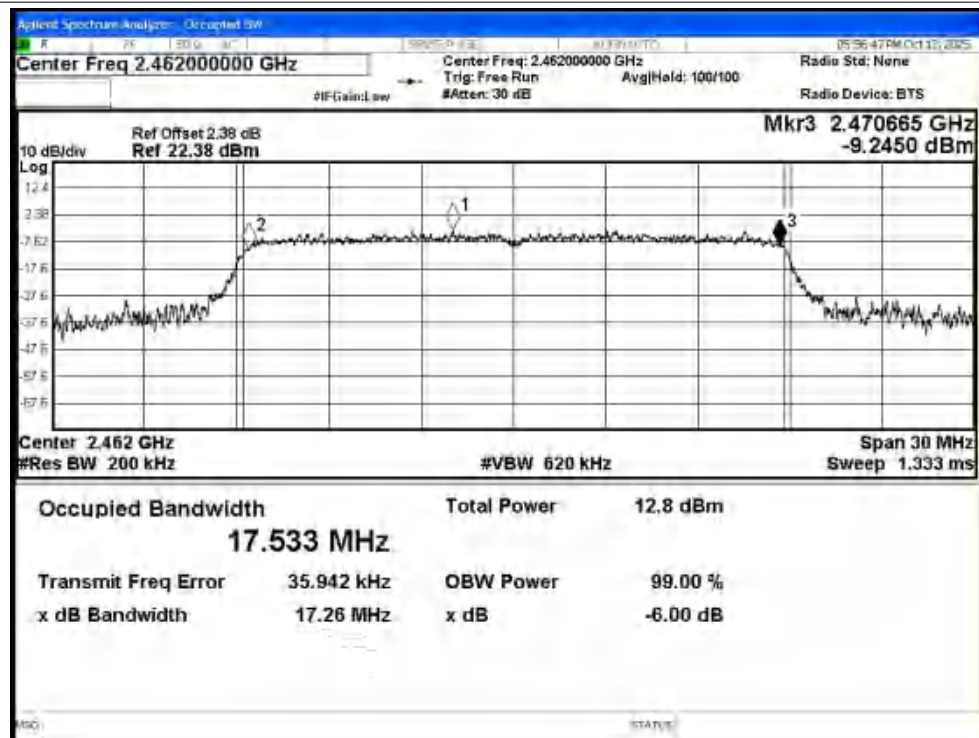
-6dB Bandwidth NVNT n20 2412MHz Ant1



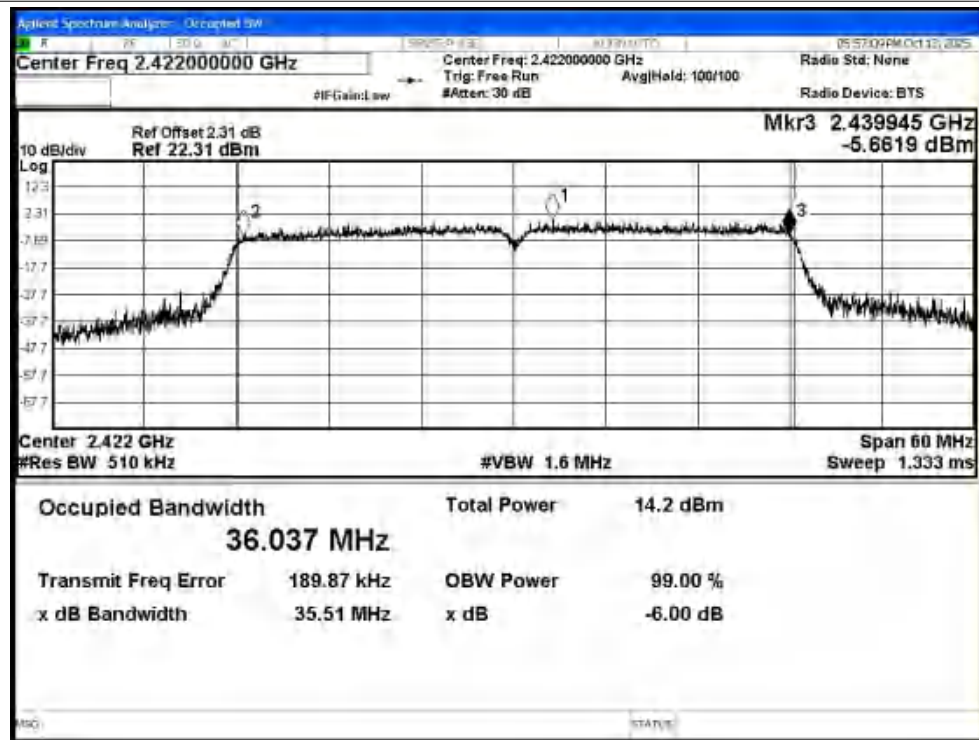
-6dB Bandwidth NVNT n20 2437MHz Ant1



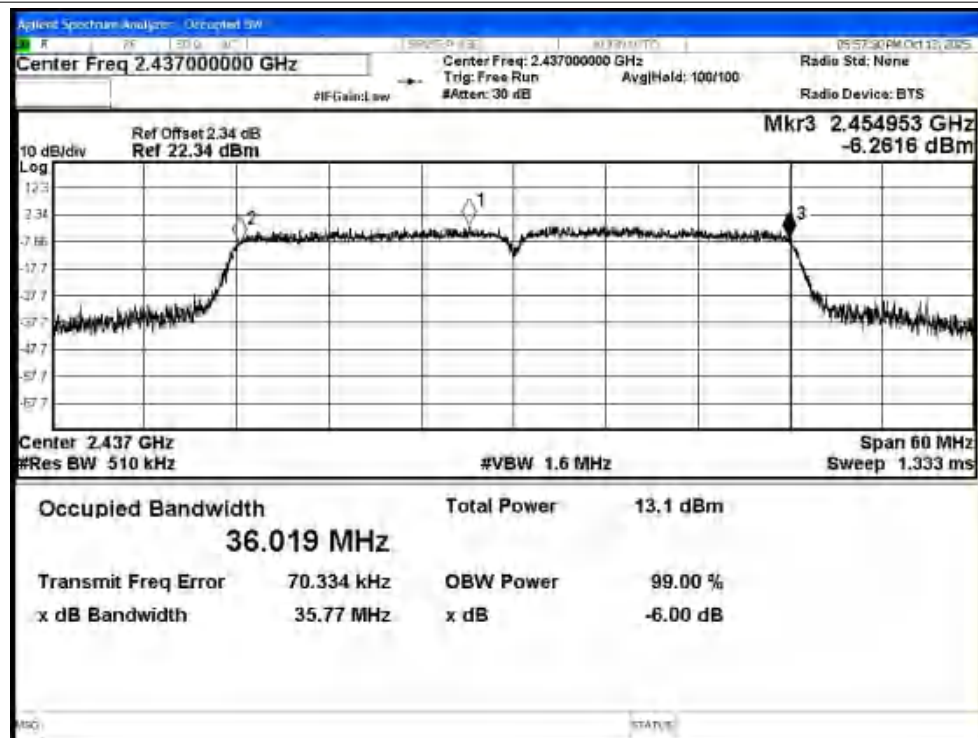
-6dB Bandwidth NVNT n20 2462MHz Ant1



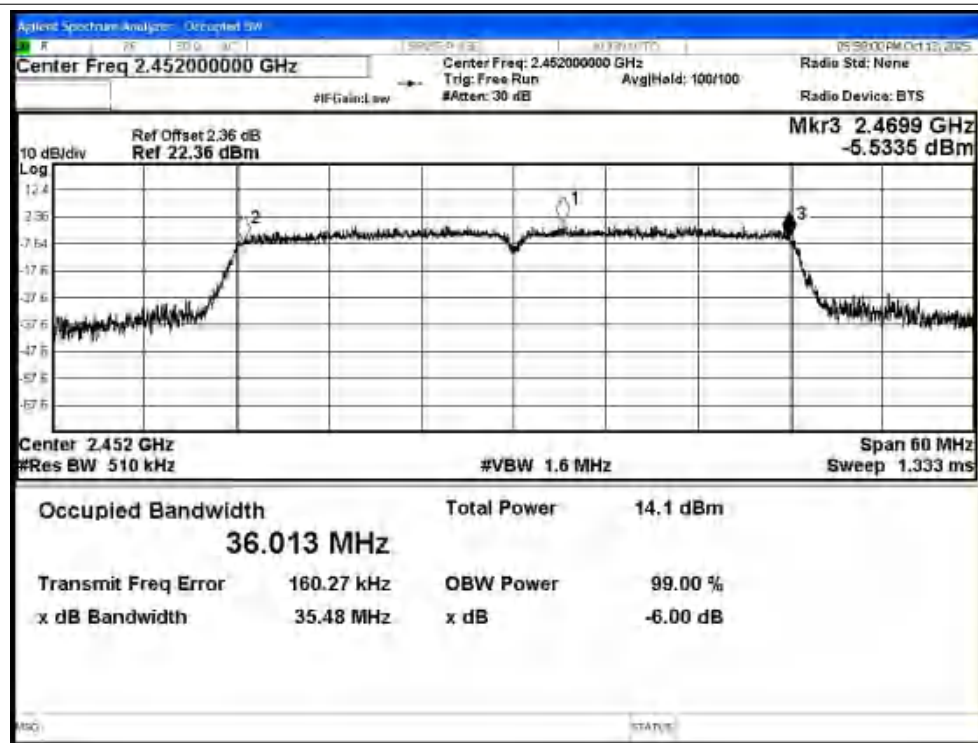
-6dB Bandwidth NVNT n40 2422MHz Ant1



-6dB Bandwidth NVNT n40 2437MHz Ant1



-6dB Bandwidth NVNT n40 2452MHz Ant1



ESP32:

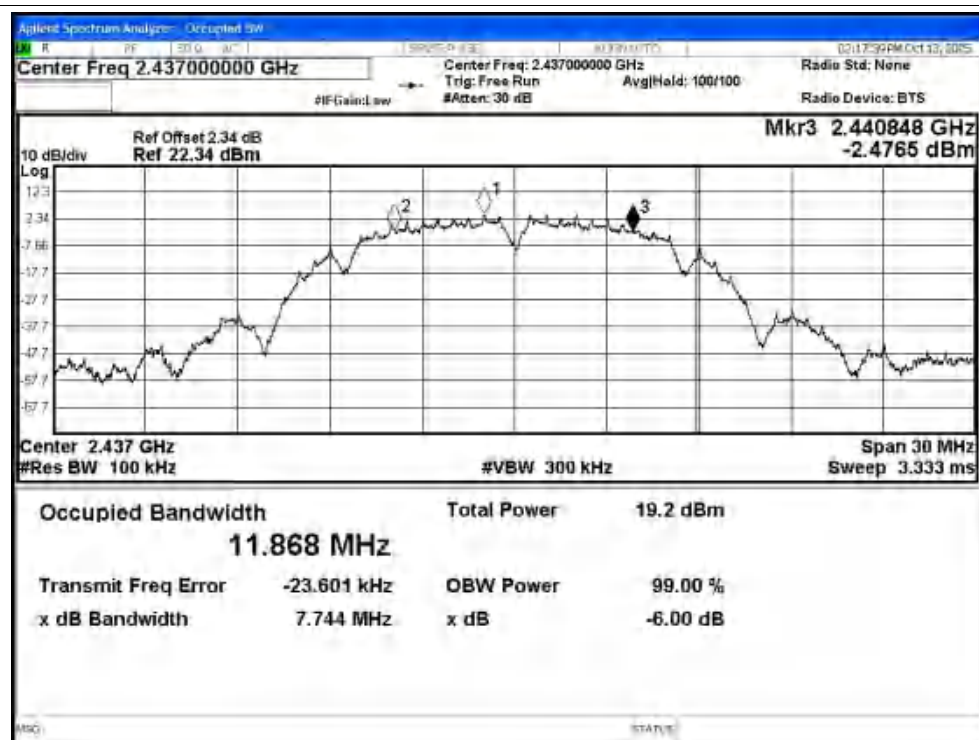
Condition	Mode	Frequency (MHz)	Antenna	-6 dB Bandwidth (MHz)	Limit -6 dB Bandwidth (MHz)	Verdict
NVNT	b	2412	Ant1	8.1	≥ 0.5	Pass
NVNT	b	2437	Ant1	7.744	≥ 0.5	Pass
NVNT	b	2462	Ant1	8.047	≥ 0.5	Pass
NVNT	g	2412	Ant1	15.685	≥ 0.5	Pass
NVNT	g	2437	Ant1	16.334	≥ 0.5	Pass
NVNT	g	2462	Ant1	16.324	≥ 0.5	Pass
NVNT	n20	2412	Ant1	16.73	≥ 0.5	Pass
NVNT	n20	2437	Ant1	17.278	≥ 0.5	Pass
NVNT	n20	2462	Ant1	17.157	≥ 0.5	Pass
NVNT	n40	2422	Ant1	35.877	≥ 0.5	Pass
NVNT	n40	2437	Ant1	35.329	≥ 0.5	Pass
NVNT	n40	2452	Ant1	35.225	≥ 0.5	Pass

Test Graphs

-6dB Bandwidth NVNT b 2412MHz Ant1



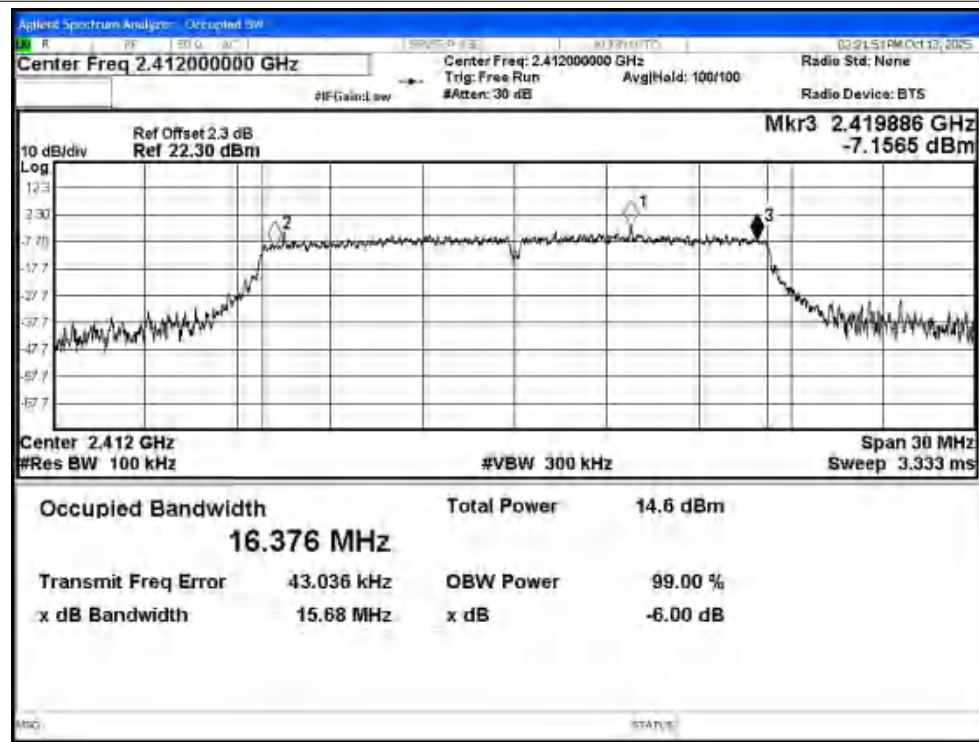
-6dB Bandwidth NVNT b 2437MHz Ant1



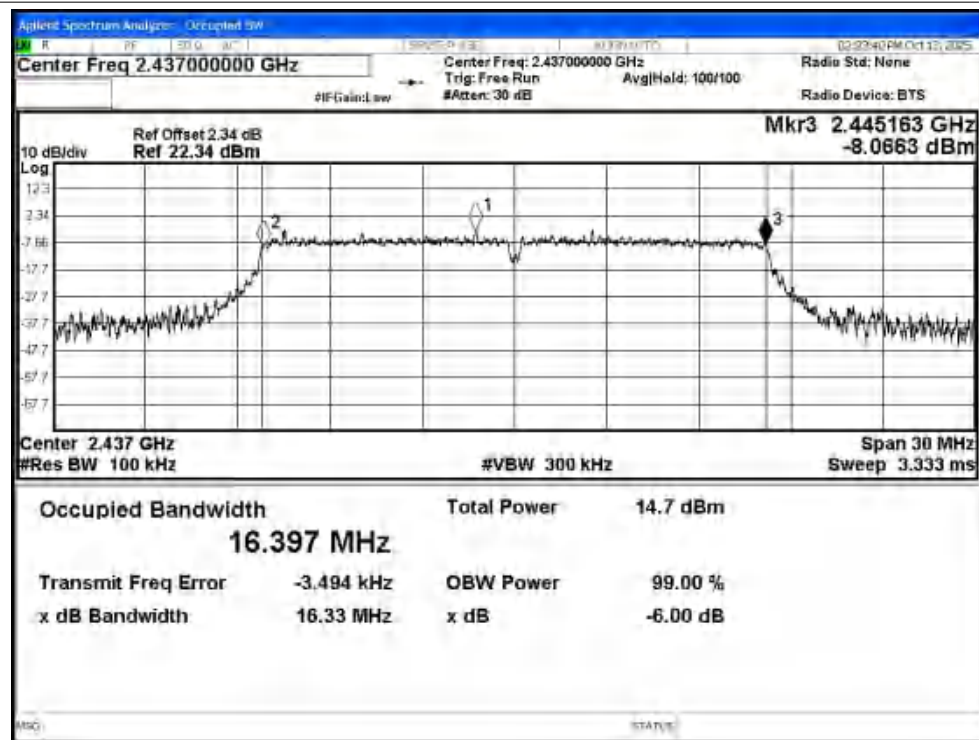
-6dB Bandwidth NVNT b 2462MHz Ant1



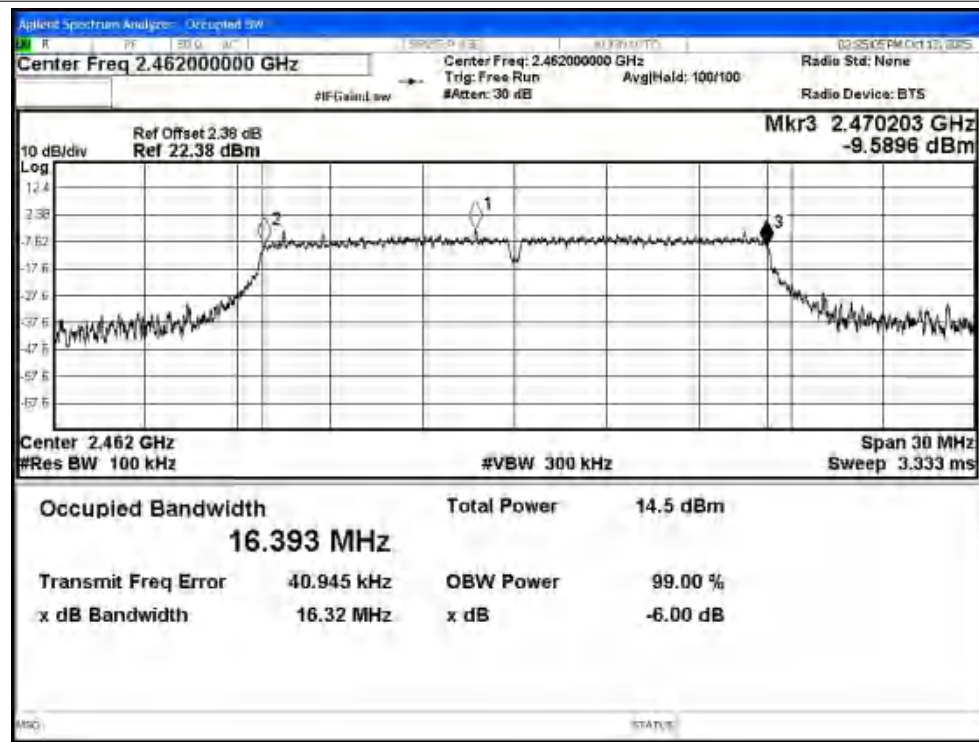
-6dB Bandwidth NVNT g 2412MHz Ant1



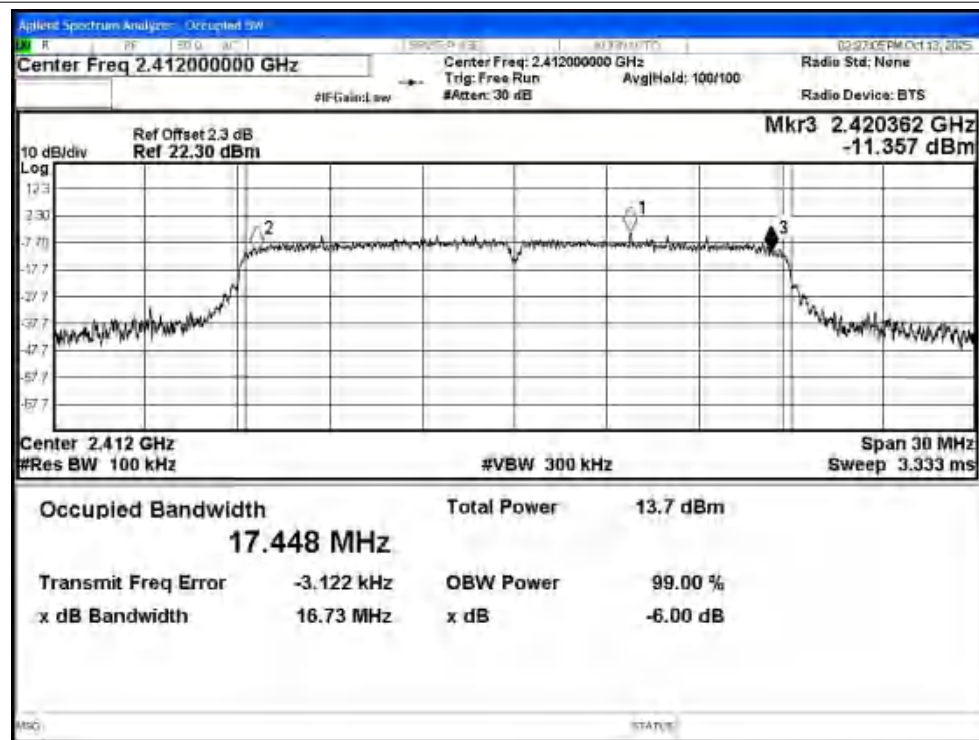
-6dB Bandwidth NVNT g 2437MHz Ant1



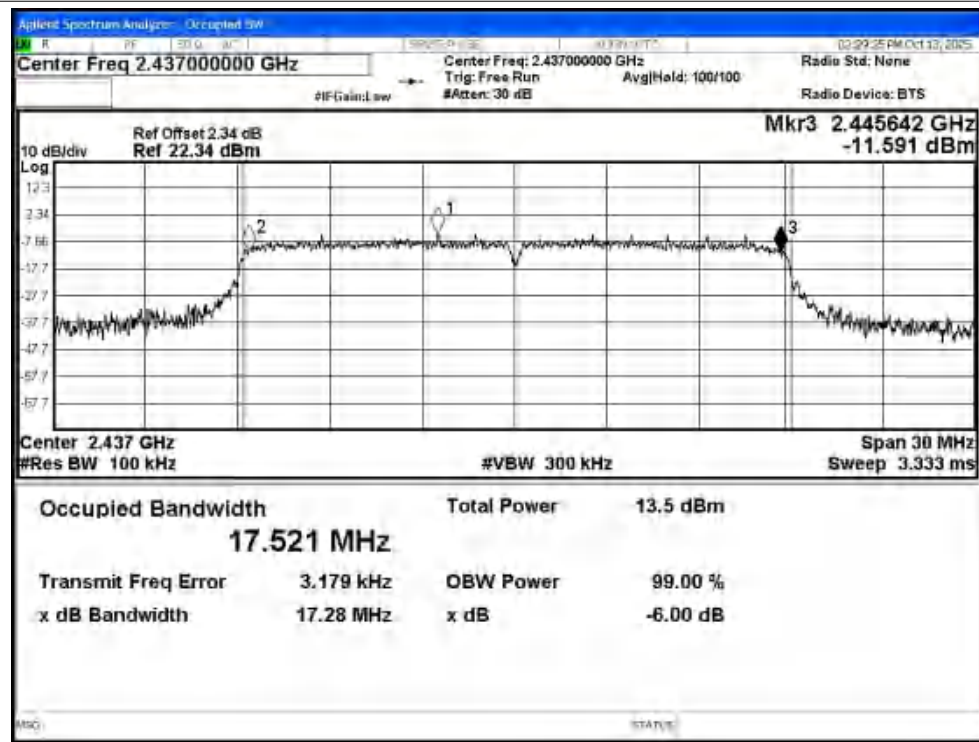
-6dB Bandwidth NVNT g 2462MHz Ant1



-6dB Bandwidth NVNT n20 2412MHz Ant1



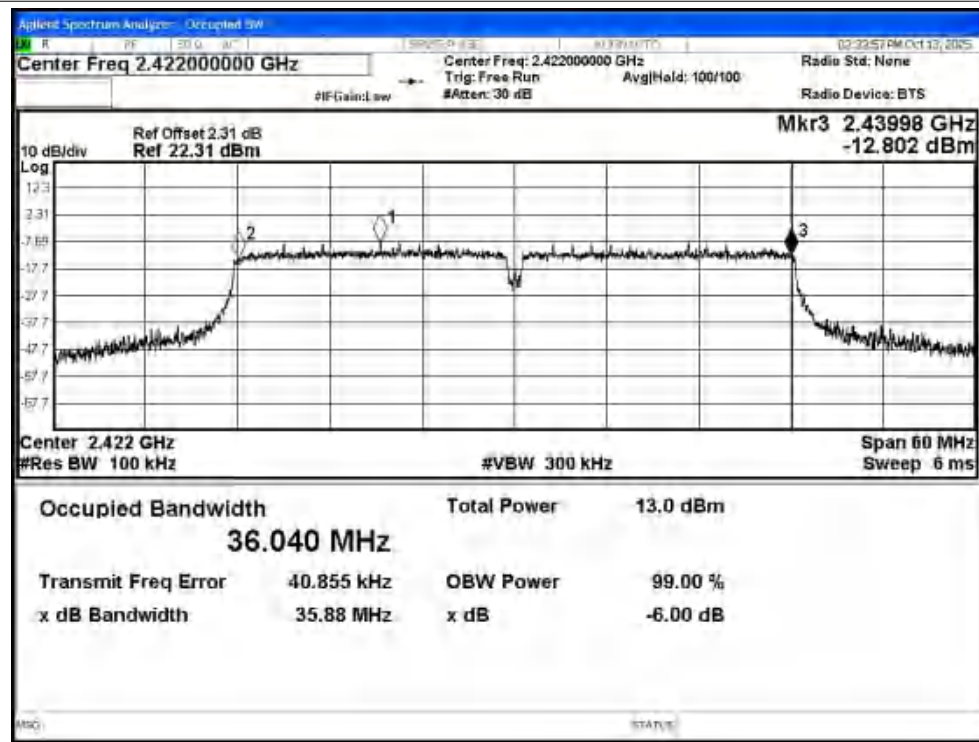
-6dB Bandwidth NVNT n20 2437MHz Ant1



-6dB Bandwidth NVNT n20 2462MHz Ant1



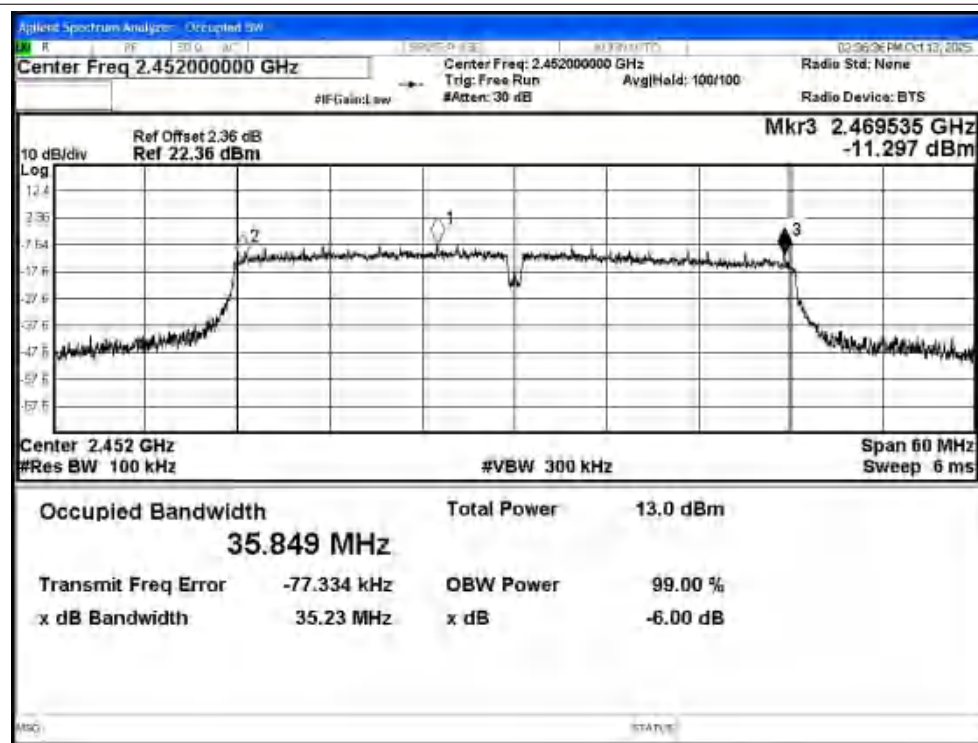
-6dB Bandwidth NVNT n40 2422MHz Ant1



-6dB Bandwidth NVNT n40 2437MHz Ant1



-6dB Bandwidth NVNT n40 2452MHz Ant1



2. Maximum Peak Conducted Output Power

RTL8821:

Condition	Mode	Frequency (MHz)	Antenna	Conducted Power (dBm)	Limit (dBm)	Verdict
NVNT	b	2412	Ant1	15.01	30	Pass
NVNT	b	2437	Ant1	15.49	30	Pass
NVNT	b	2462	Ant1	15.82	30	Pass
NVNT	g	2412	Ant1	14.36	30	Pass
NVNT	g	2437	Ant1	14.56	30	Pass
NVNT	g	2462	Ant1	14.36	30	Pass
NVNT	n20	2412	Ant1	12.91	30	Pass
NVNT	n20	2437	Ant1	13.02	30	Pass
NVNT	n20	2462	Ant1	13.9	30	Pass
NVNT	n40	2422	Ant1	12.49	30	Pass
NVNT	n40	2437	Ant1	12.18	30	Pass
NVNT	n40	2452	Ant1	13.14	30	Pass

ESP32:

Condition	Mode	Frequency (MHz)	Antenna	Conducted Power (dBm)	Limit (dBm)	Verdict
NVNT	b	2412	Ant1	14.88	30	Pass
NVNT	b	2437	Ant1	14.21	30	Pass
NVNT	b	2462	Ant1	14.84	30	Pass
NVNT	g	2412	Ant1	13.46	30	Pass
NVNT	g	2437	Ant1	13.52	30	Pass
NVNT	g	2462	Ant1	13.44	30	Pass
NVNT	n20	2412	Ant1	12.28	30	Pass
NVNT	n20	2437	Ant1	12.15	30	Pass
NVNT	n20	2462	Ant1	12.07	30	Pass
NVNT	n40	2422	Ant1	11.39	30	Pass
NVNT	n40	2437	Ant1	11.35	30	Pass
NVNT	n40	2452	Ant1	11.54	30	Pass

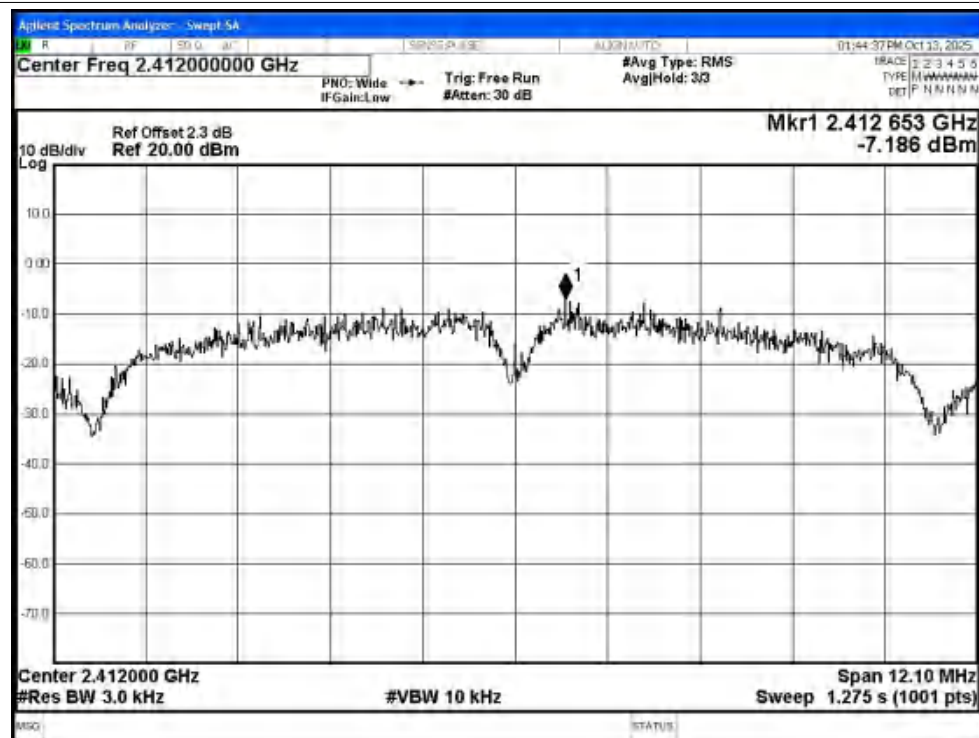
3. Maximum Power Spectral Density Leve

RTL8821:

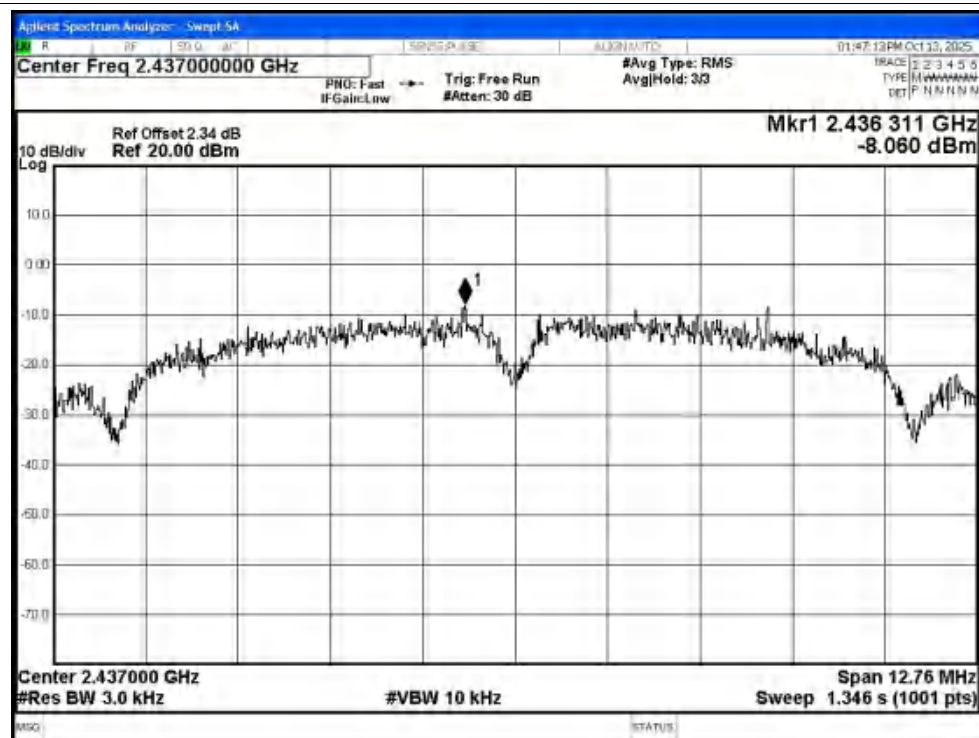
Condition	Mode	Frequency (MHz)	Antenna	Conducted PSD (dBm/3kHz)	Limit (dBm/3kHz)	Verdict
NVNT	b	2412	Ant1	-7.19	8	Pass
NVNT	b	2437	Ant1	-8.06	8	Pass
NVNT	b	2462	Ant1	-7.43	8	Pass
NVNT	g	2412	Ant1	-15.77	8	Pass
NVNT	g	2437	Ant1	-15.41	8	Pass
NVNT	g	2462	Ant1	-15.52	8	Pass
NVNT	n20	2412	Ant1	-17.32	8	Pass
NVNT	n20	2437	Ant1	-17.77	8	Pass
NVNT	n20	2462	Ant1	-15.68	8	Pass
NVNT	n40	2422	Ant1	-21.69	8	Pass
NVNT	n40	2437	Ant1	-21.31	8	Pass
NVNT	n40	2452	Ant1	-20.17	8	Pass

Test Graphs

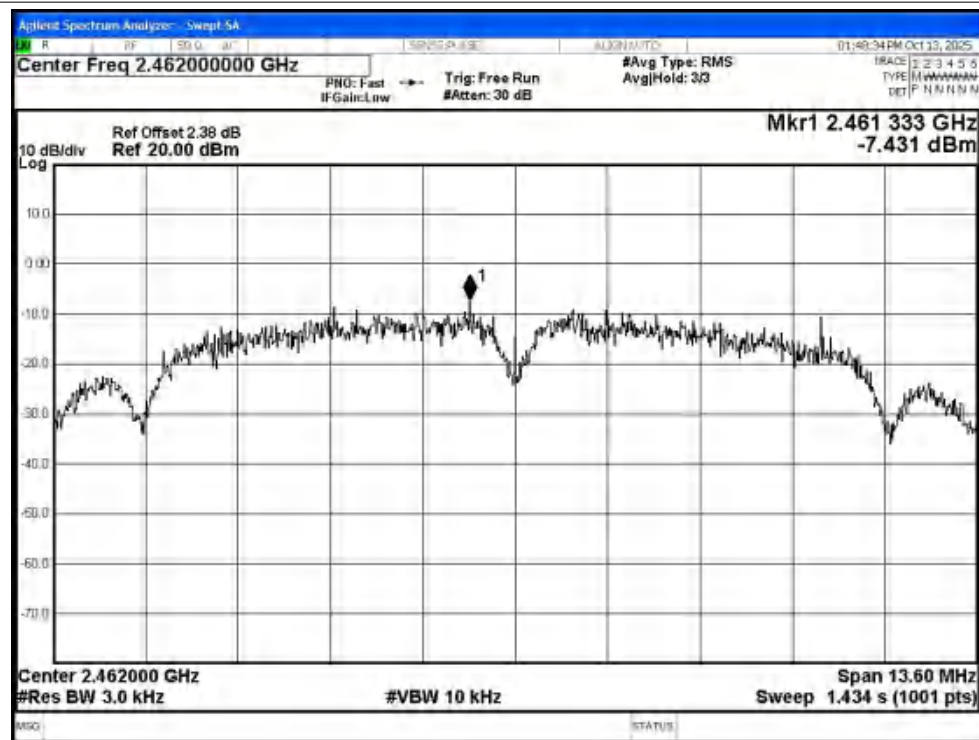
PSD NVNT b 2412MHz Ant1



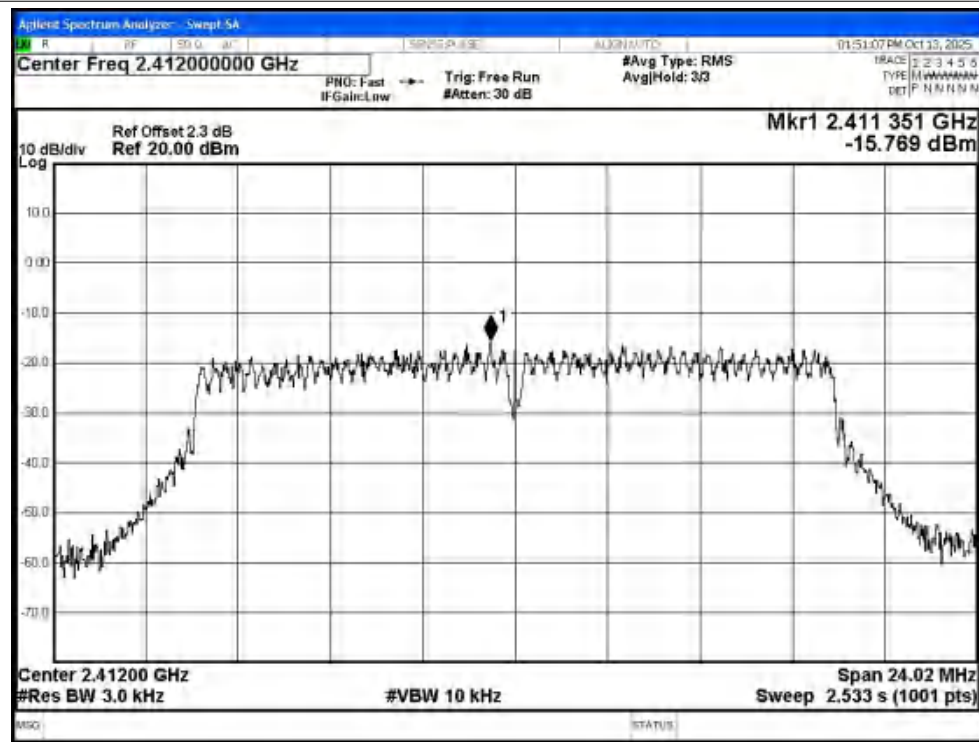
PSD NVNT b 2437MHz Ant1



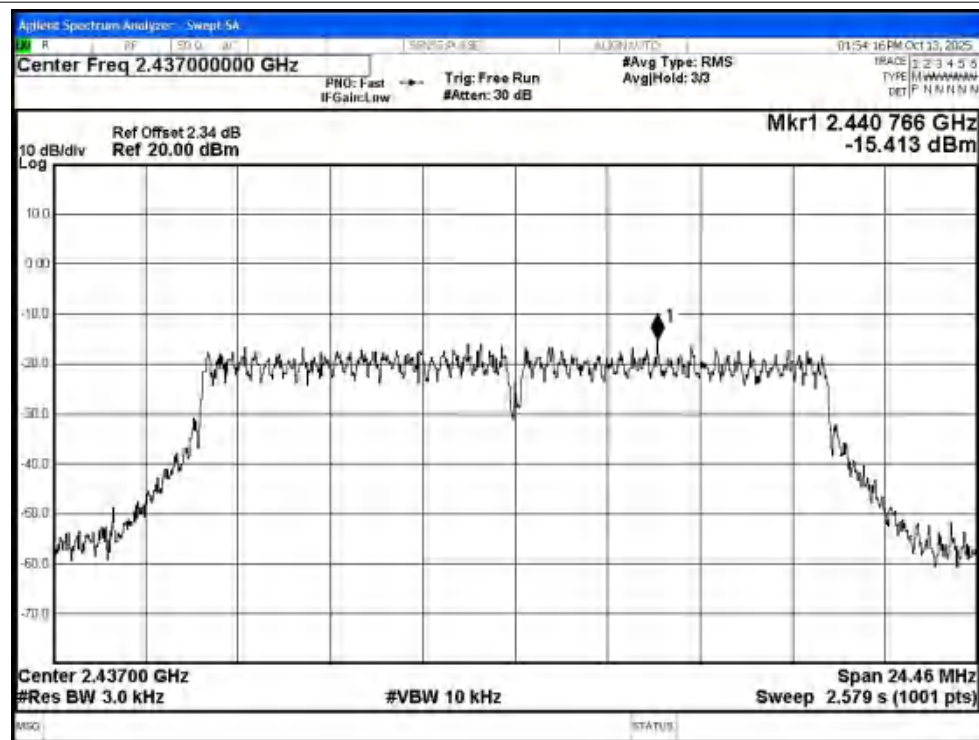
PSD NVNT b 2462MHz Ant1



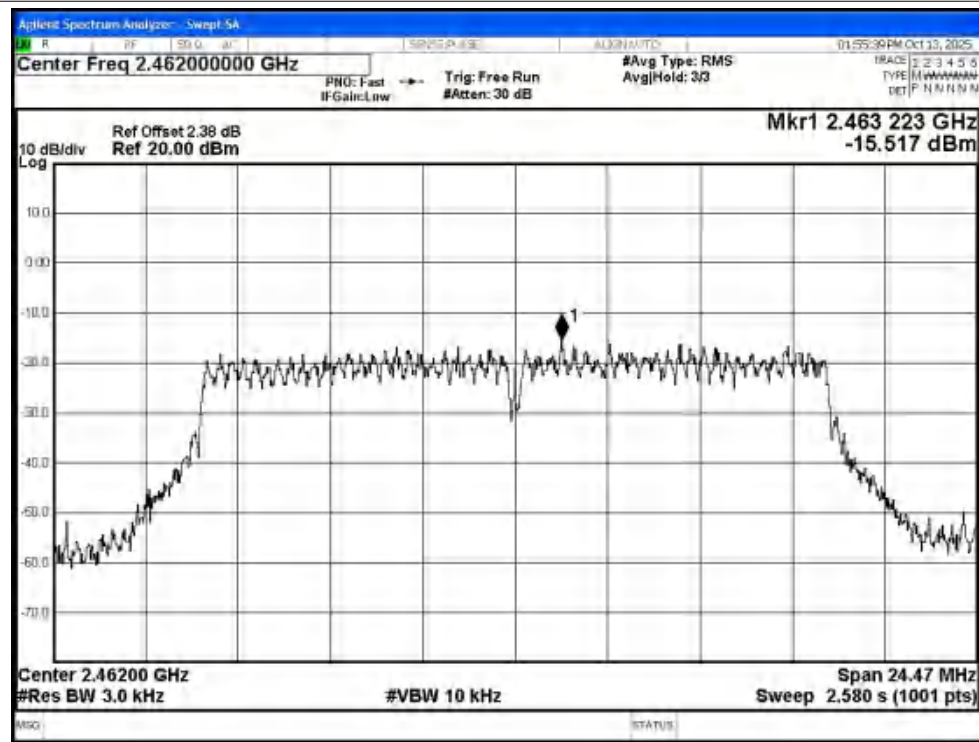
PSD NVNT g 2412MHz Ant1



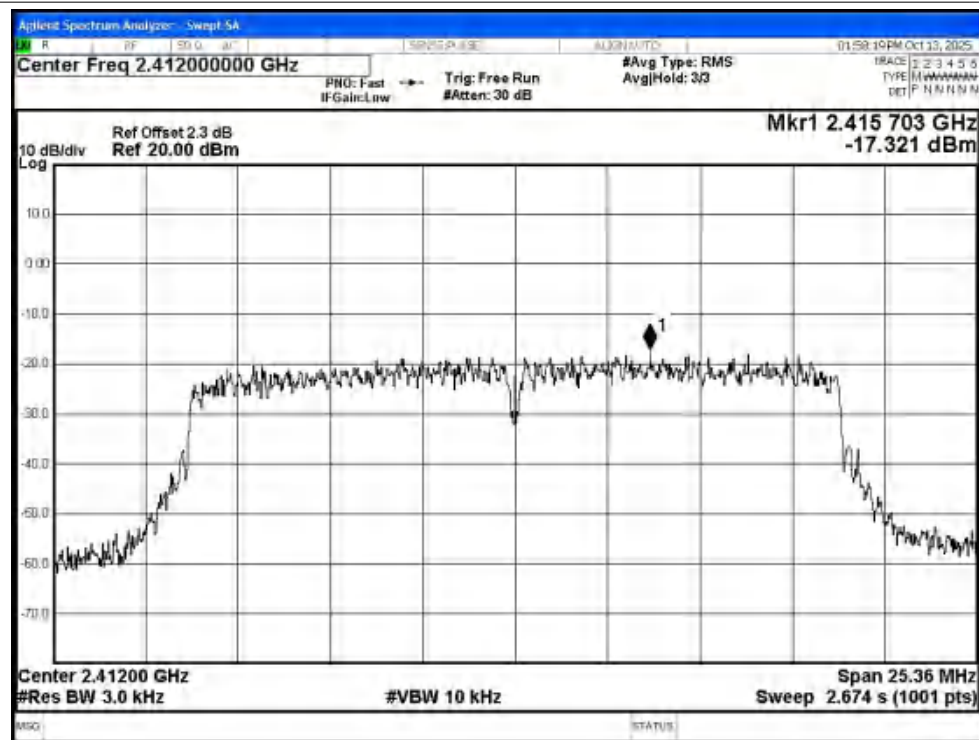
PSD NVNT g 2437MHz Ant1



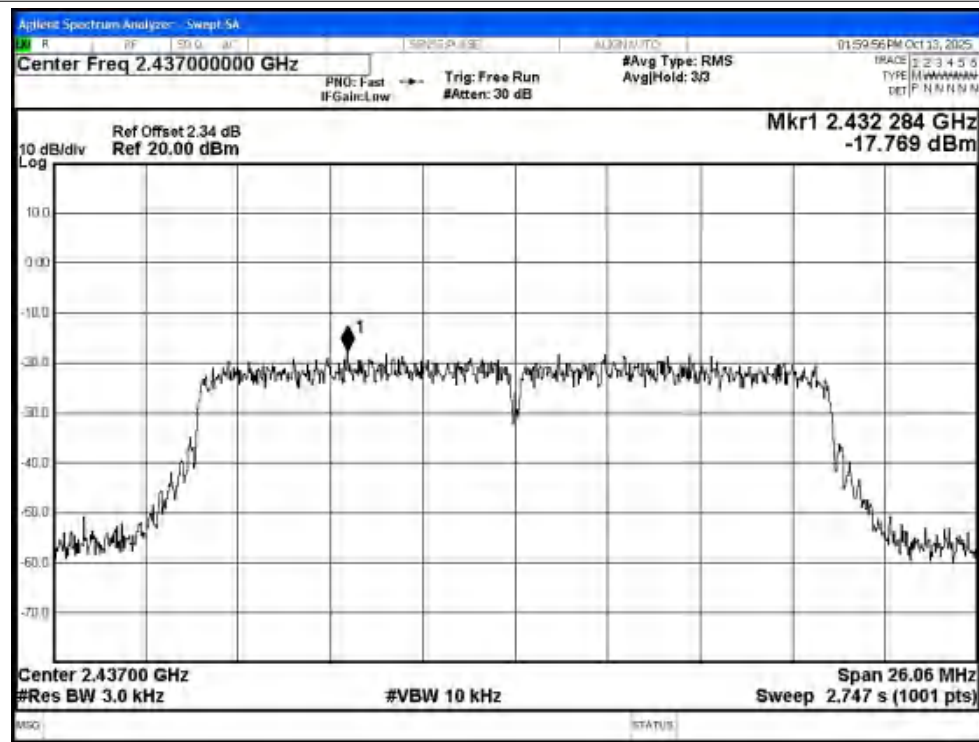
PSD NVNT g 2462MHz Ant1



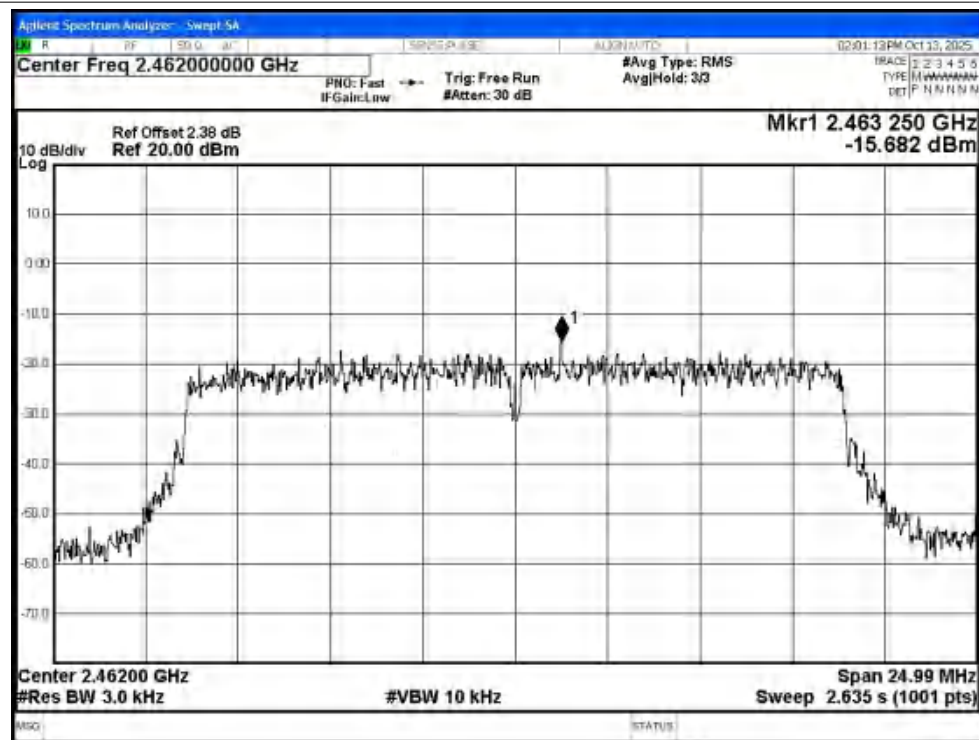
PSD NVNT n20 2412MHz Ant1



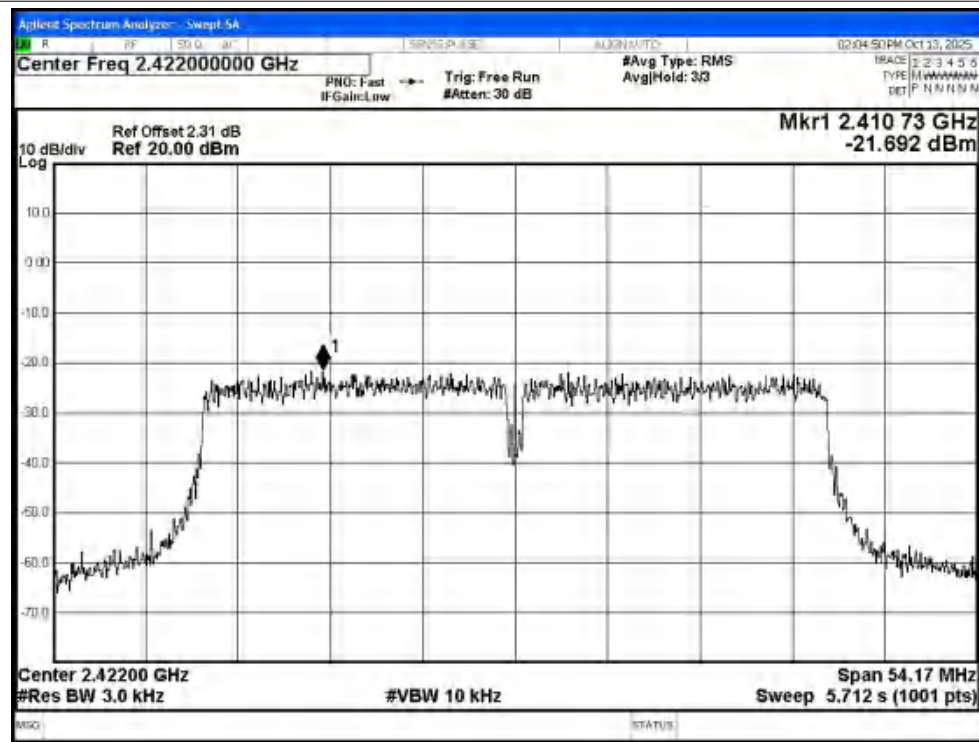
PSD NVNT n20 2437MHz Ant1



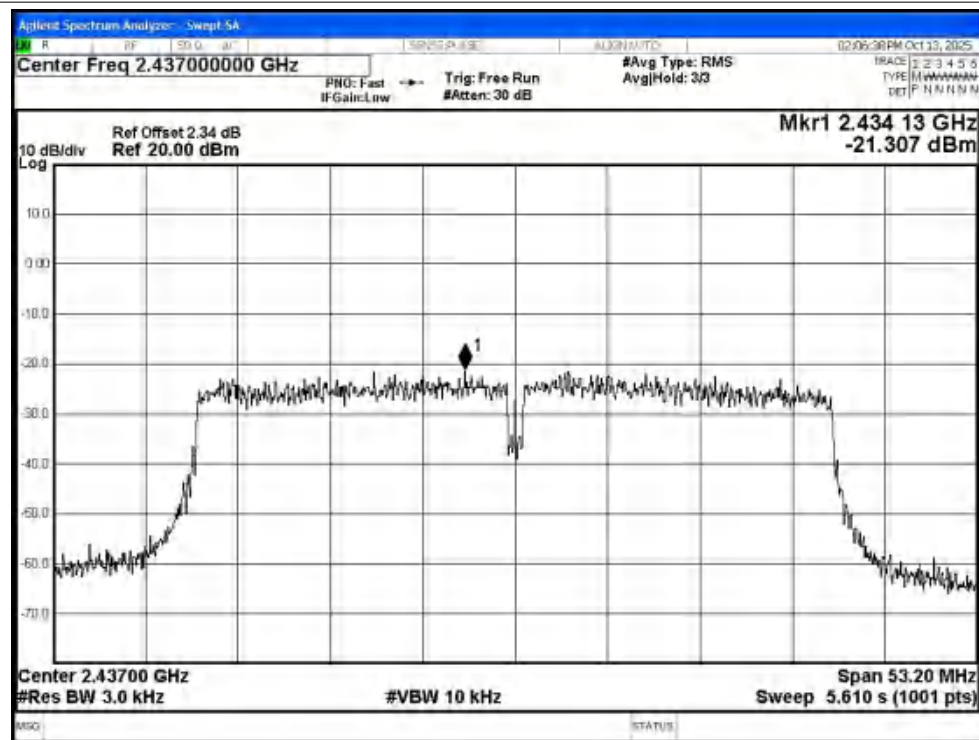
PSD NVNT n20 2462MHz Ant1



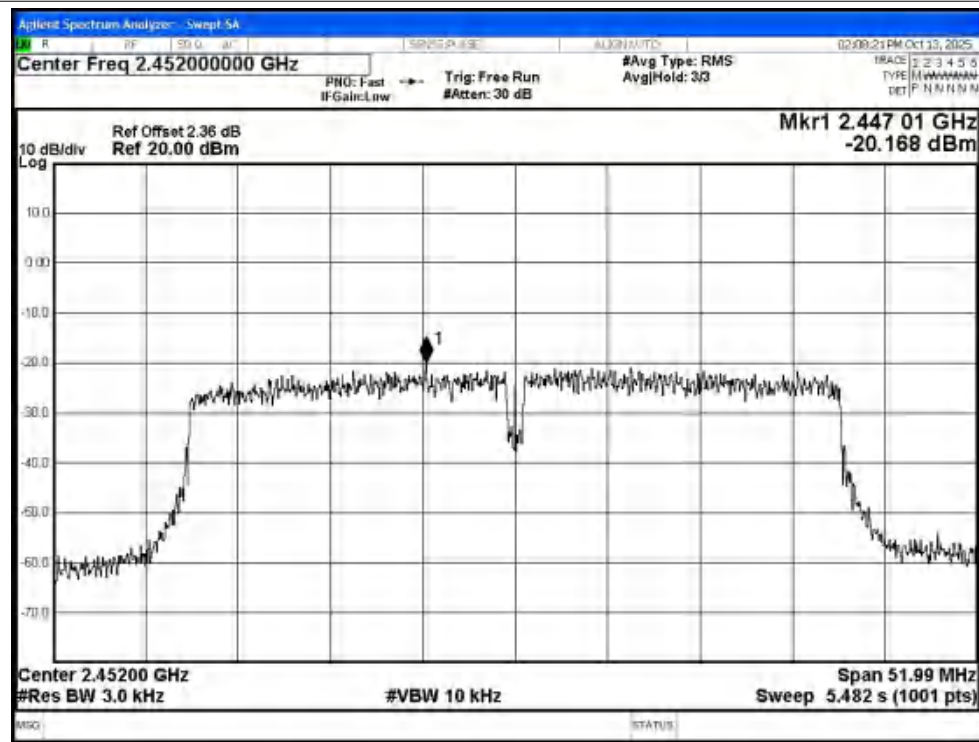
PSD NVNT n40 2422MHz Ant1



PSD NVNT n40 2437MHz Ant1



PSD NVNT n40 2452MHz Ant1

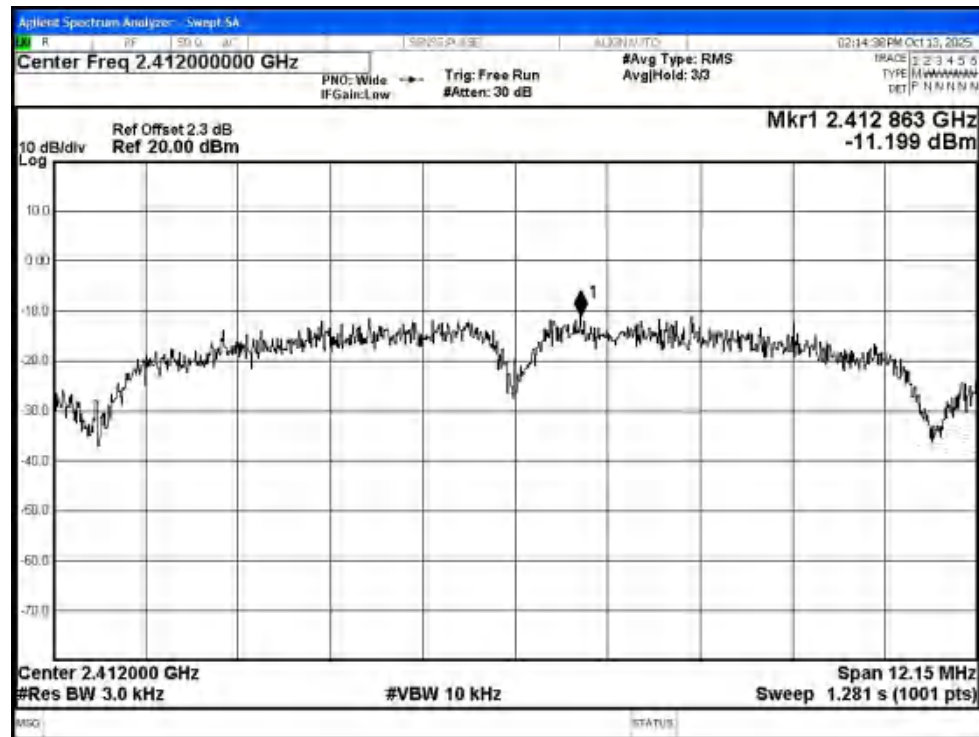


ESP32:

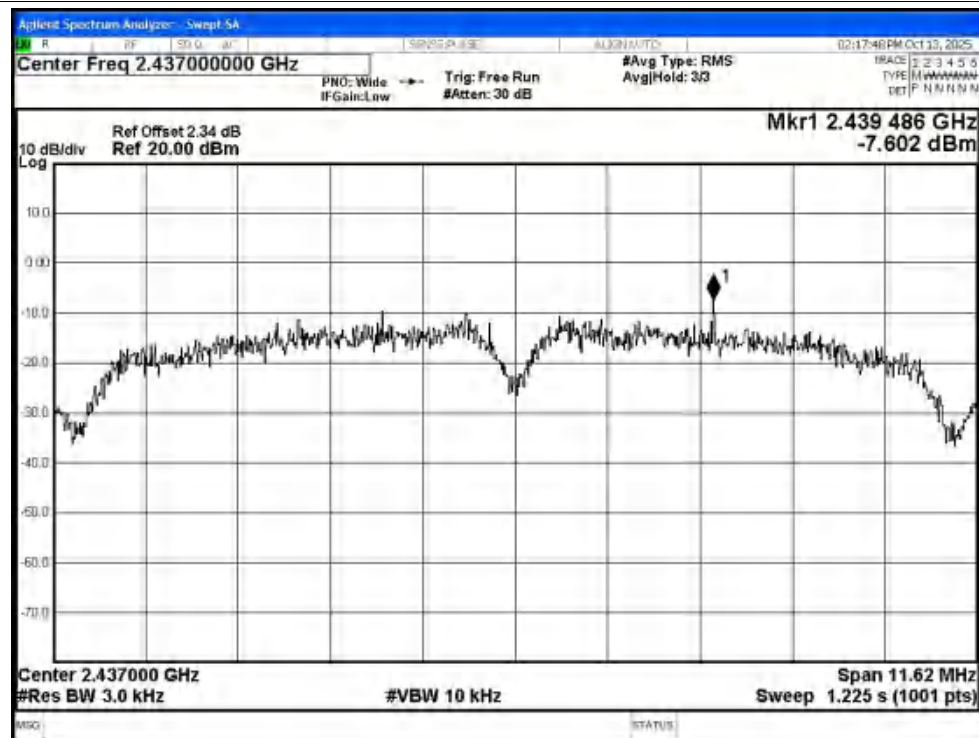
Condition	Mode	Frequency (MHz)	Antenna	Conducted PSD (dBm/3kHz)	Limit (dBm/3kHz)	Verdict
NVNT	b	2412	Ant1	-11.2	8	Pass
NVNT	b	2437	Ant1	-7.6	8	Pass
NVNT	b	2462	Ant1	-8.73	8	Pass
NVNT	g	2412	Ant1	-16.51	8	Pass
NVNT	g	2437	Ant1	-17.32	8	Pass
NVNT	g	2462	Ant1	-16.76	8	Pass
NVNT	n20	2412	Ant1	-18.57	8	Pass
NVNT	n20	2437	Ant1	-17.89	8	Pass
NVNT	n20	2462	Ant1	-17.59	8	Pass
NVNT	n40	2422	Ant1	-22.33	8	Pass
NVNT	n40	2437	Ant1	-21.68	8	Pass
NVNT	n40	2452	Ant1	-22.23	8	Pass

Test Graphs

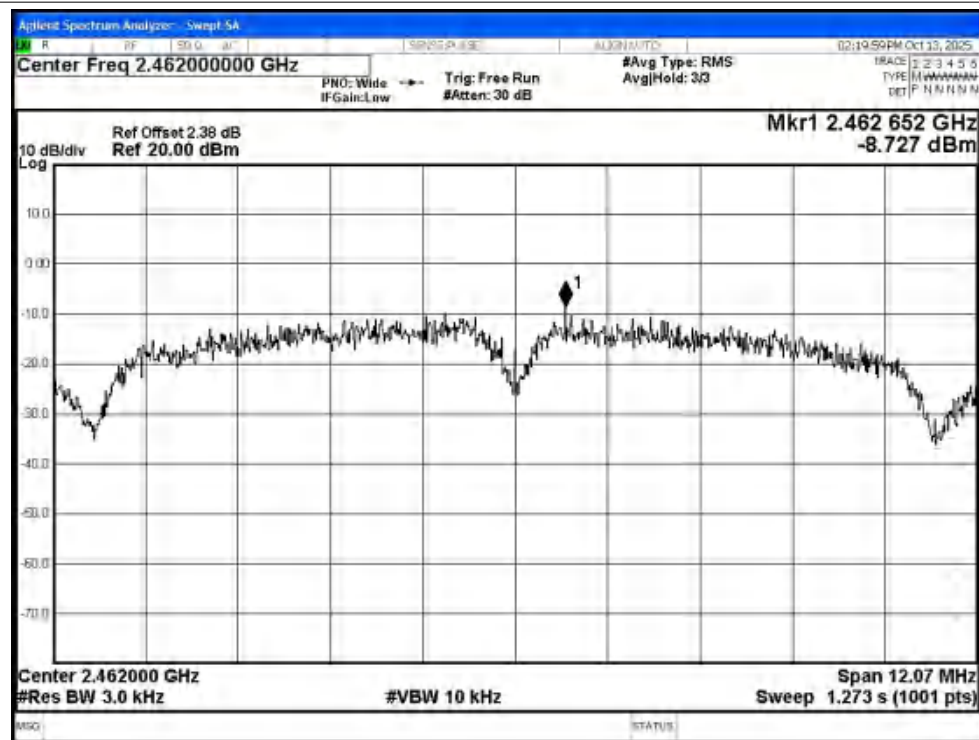
PSD NVNT b 2412MHz Ant1



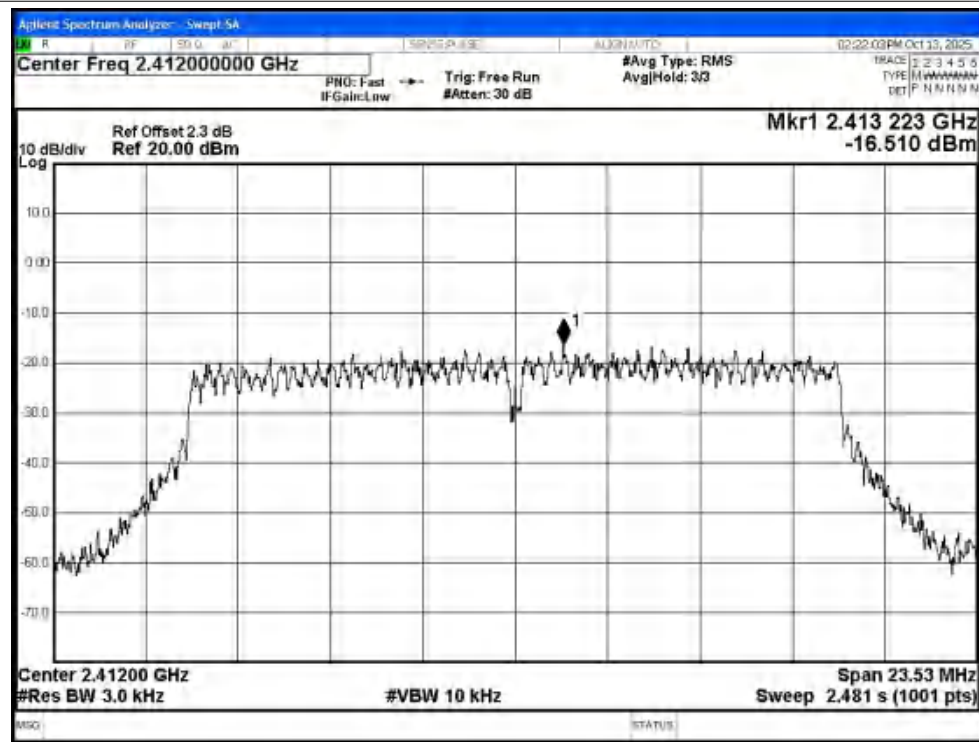
PSD NVNT b 2437MHz Ant1



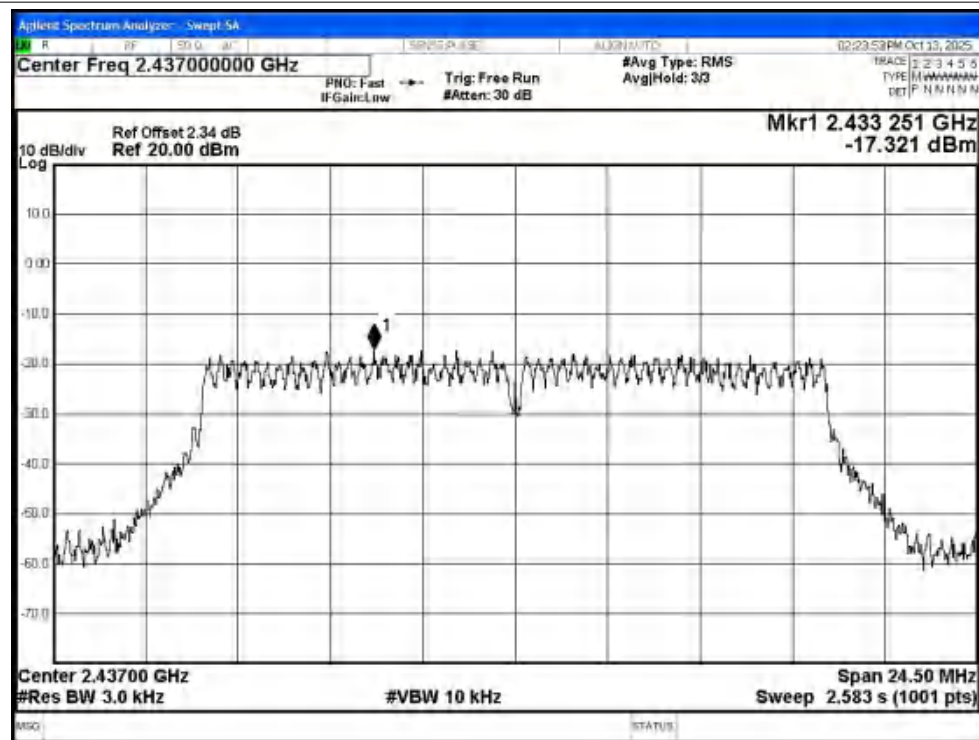
PSD NVNT b 2462MHz Ant1



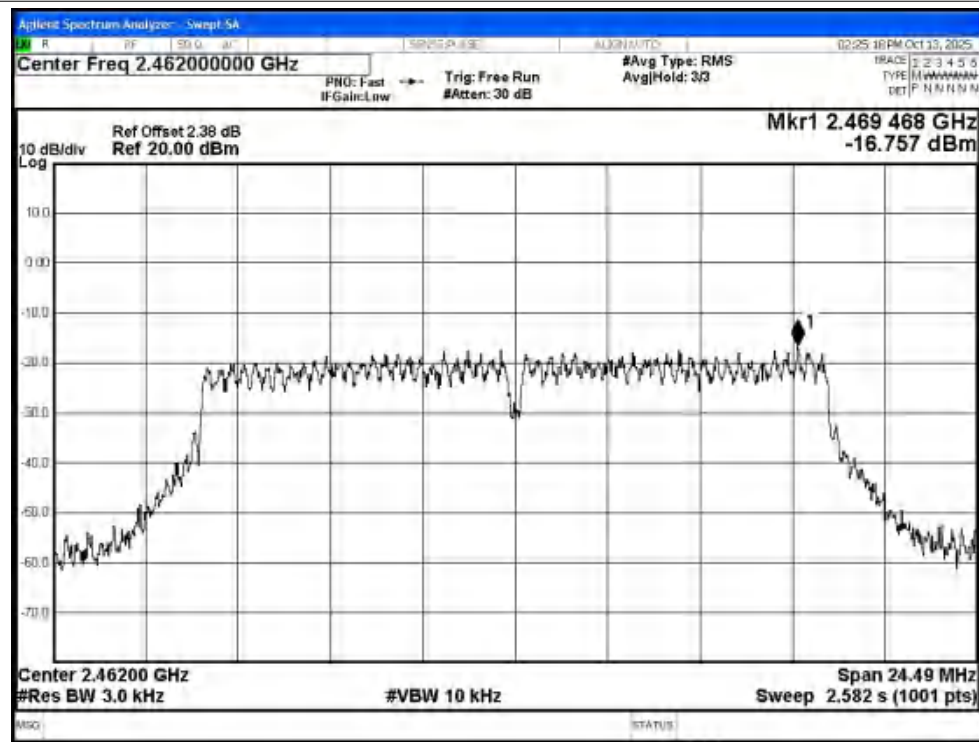
PSD NVNT g 2412MHz Ant1



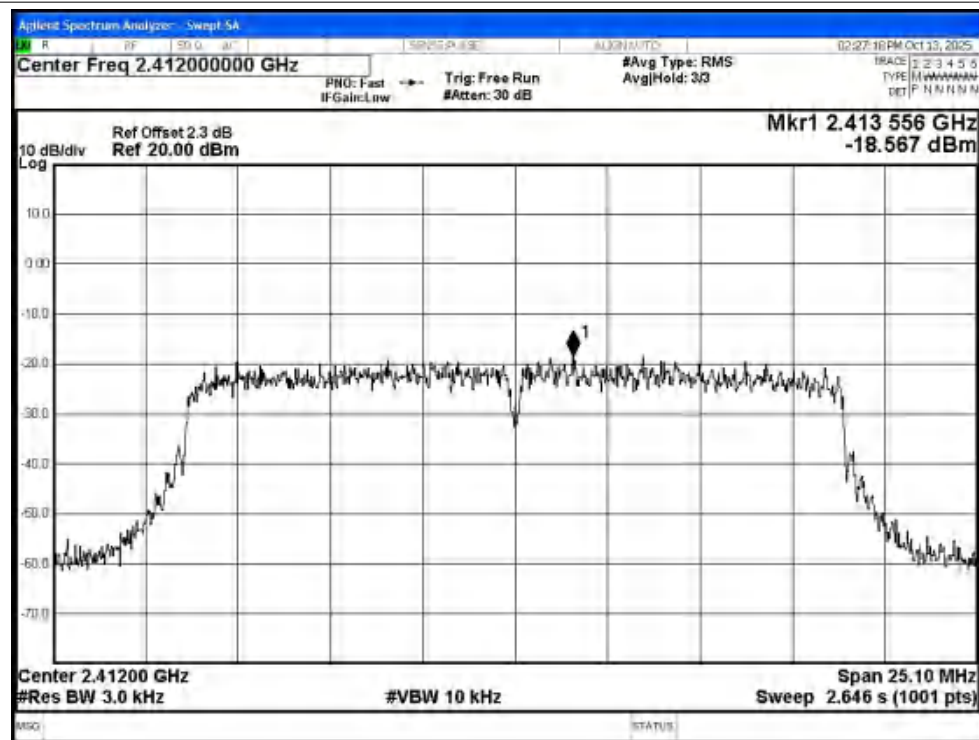
PSD NVNT g 2437MHz Ant1



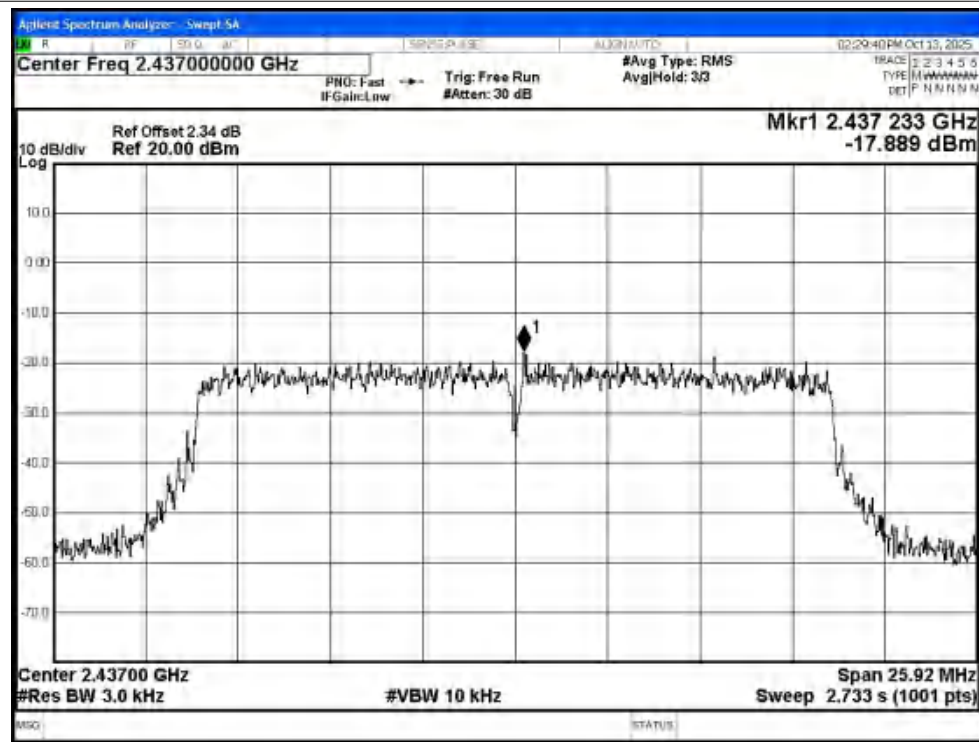
PSD NVNT g 2462MHz Ant1



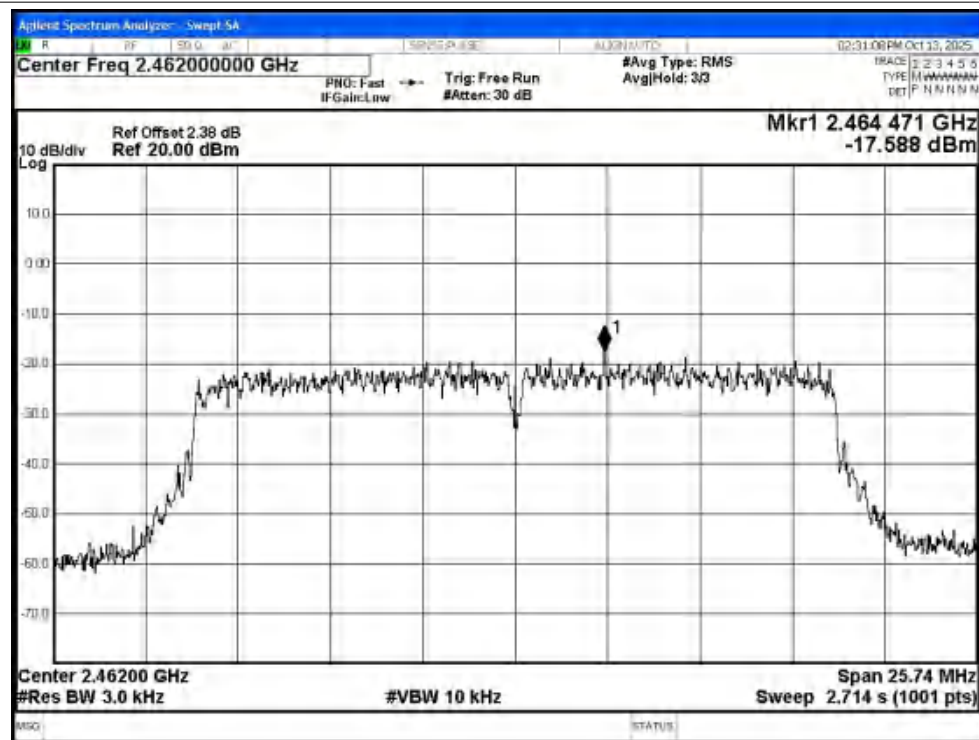
PSD NVNT n20 2412MHz Ant1



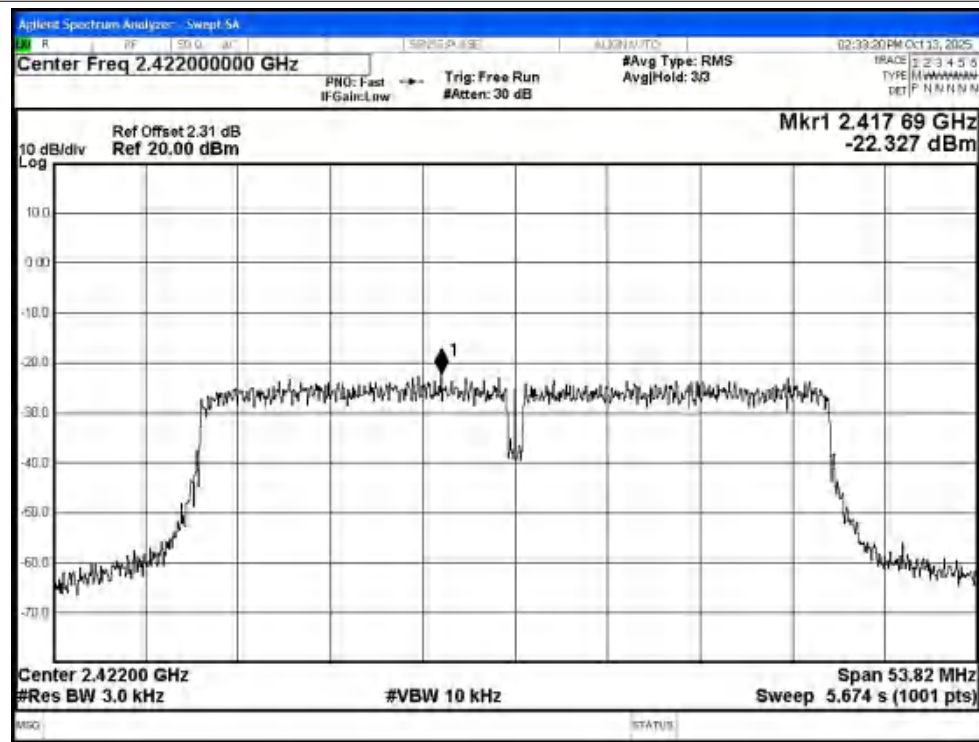
PSD NVNT n20 2437MHz Ant1



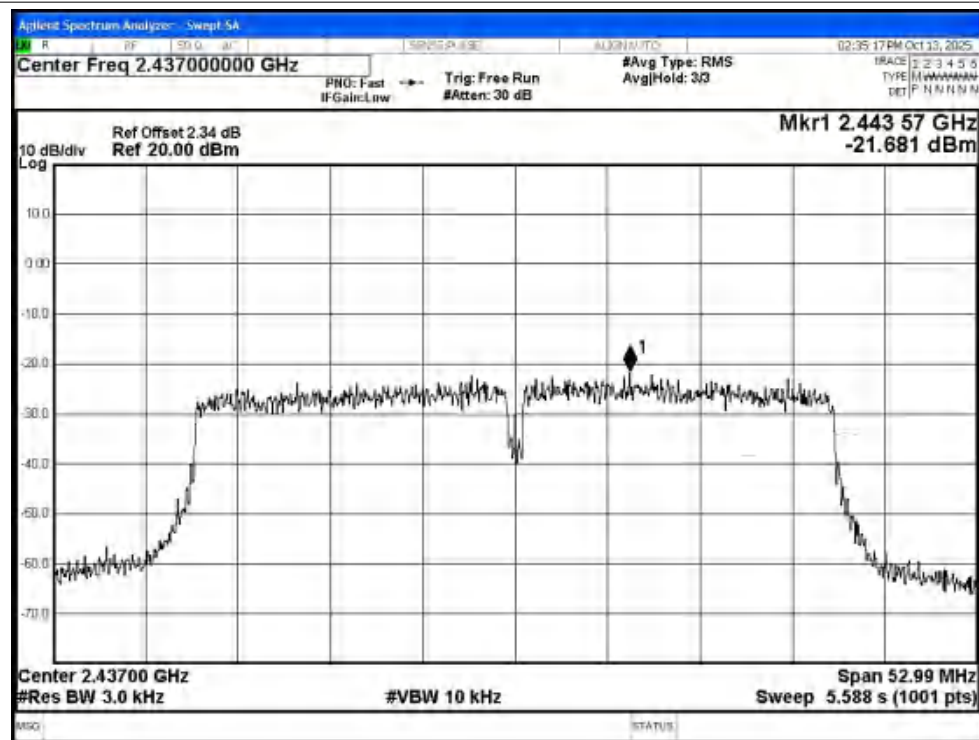
PSD NVNT n20 2462MHz Ant1



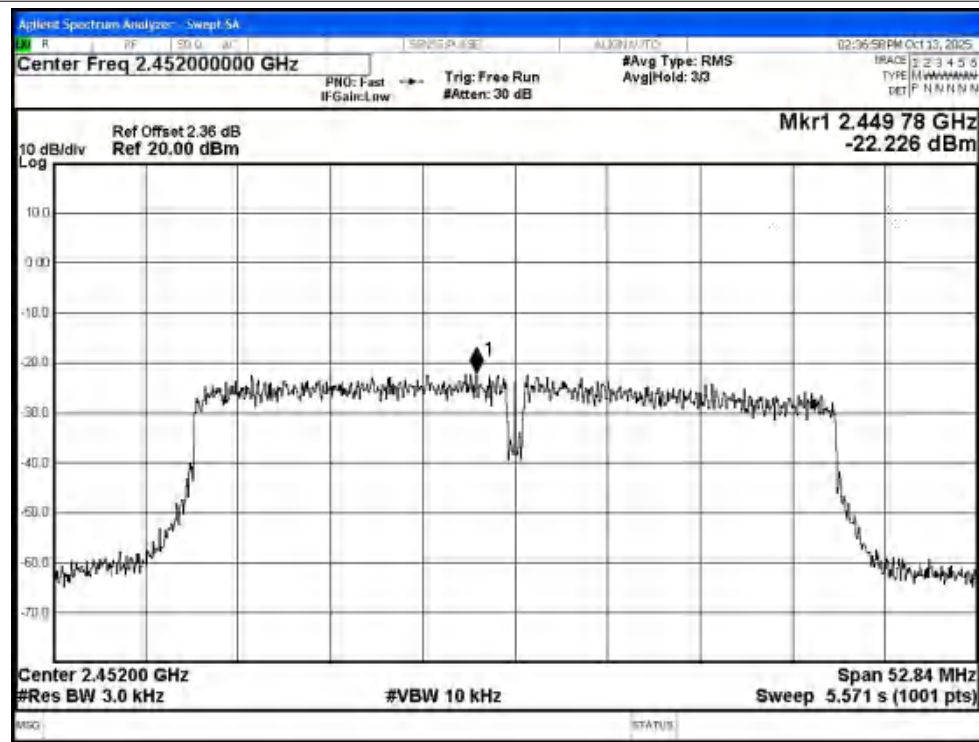
PSD NVNT n40 2422MHz Ant1



PSD NVNT n40 2437MHz Ant1



PSD NVNT n40 2452MHz Ant1

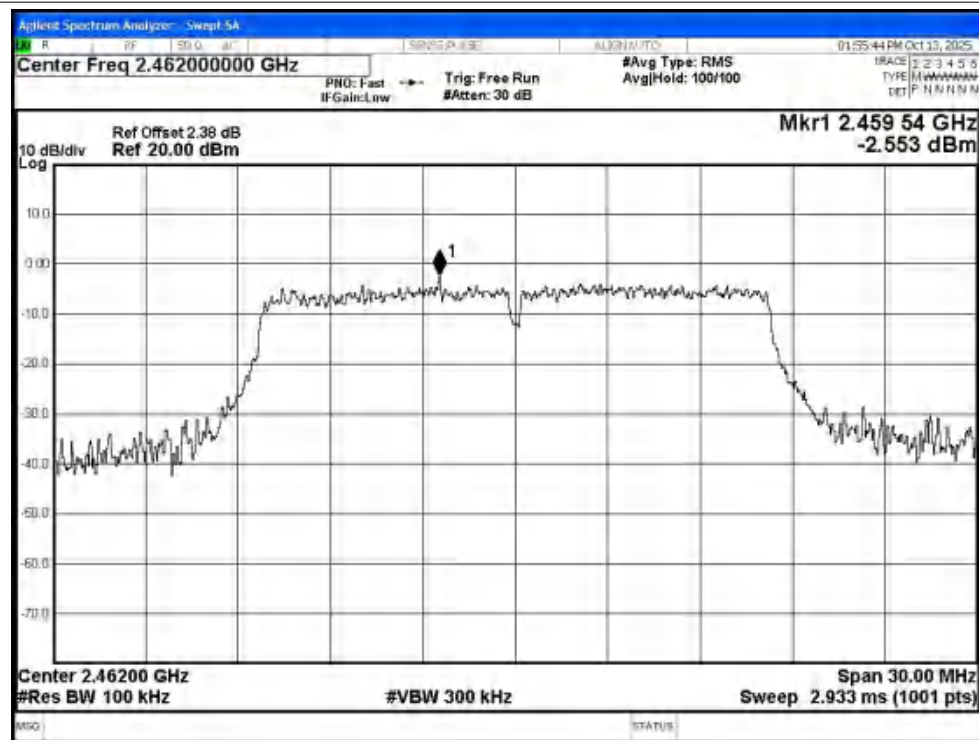


4. Band Edge

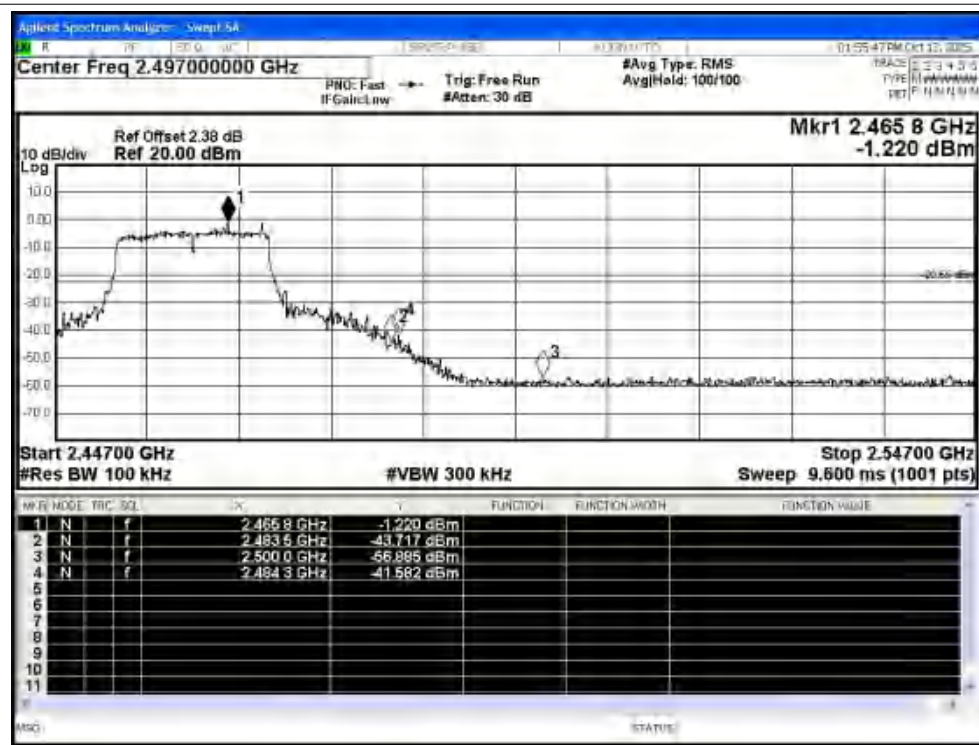
RTL8821:

Condition	Mode	Frequency (MHz)	Antenna	Max Value (dBc)	Limit (dBc)	Verdict
NVNT	b	2412	Ant1	-47.79	-20	Pass
NVNT	b	2462	Ant1	-60.03	-20	Pass
NVNT	g	2412	Ant1	-32.67	-20	Pass
NVNT	g	2462	Ant1	-39.03	-20	Pass
NVNT	n20	2412	Ant1	-30.95	-20	Pass
NVNT	n20	2462	Ant1	-39.92	-20	Pass
NVNT	n40	2422	Ant1	-32.09	-20	Pass
NVNT	n40	2452	Ant1	-37.75	-20	Pass

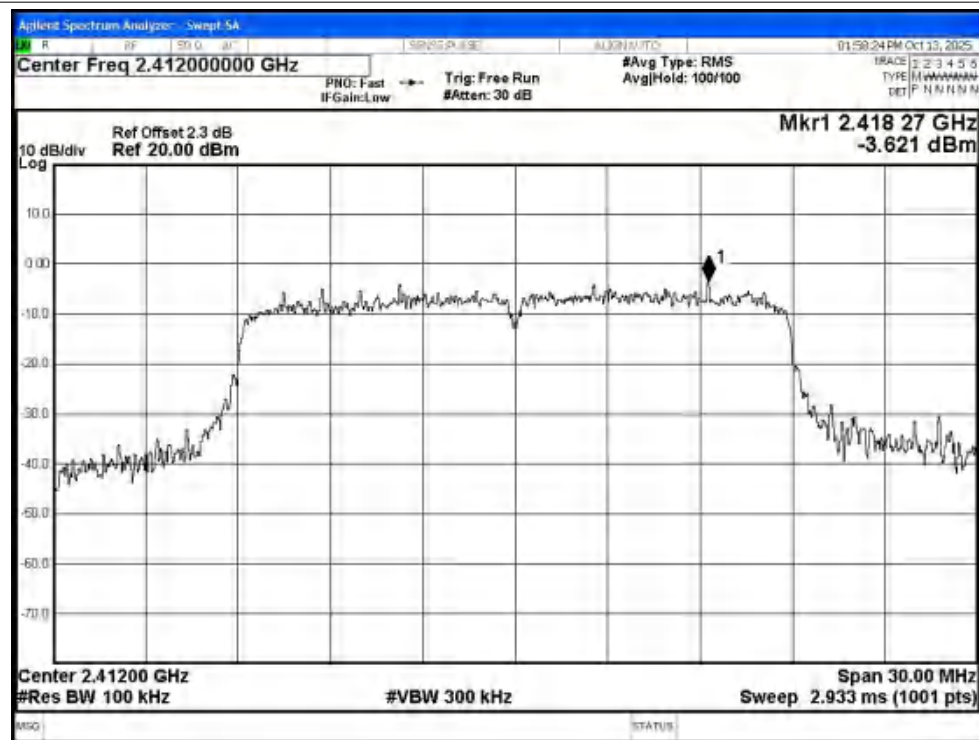
Band Edge NVNT g 2462MHz Ant1 Ref



Band Edge NVNT g 2462MHz Ant1 Emission



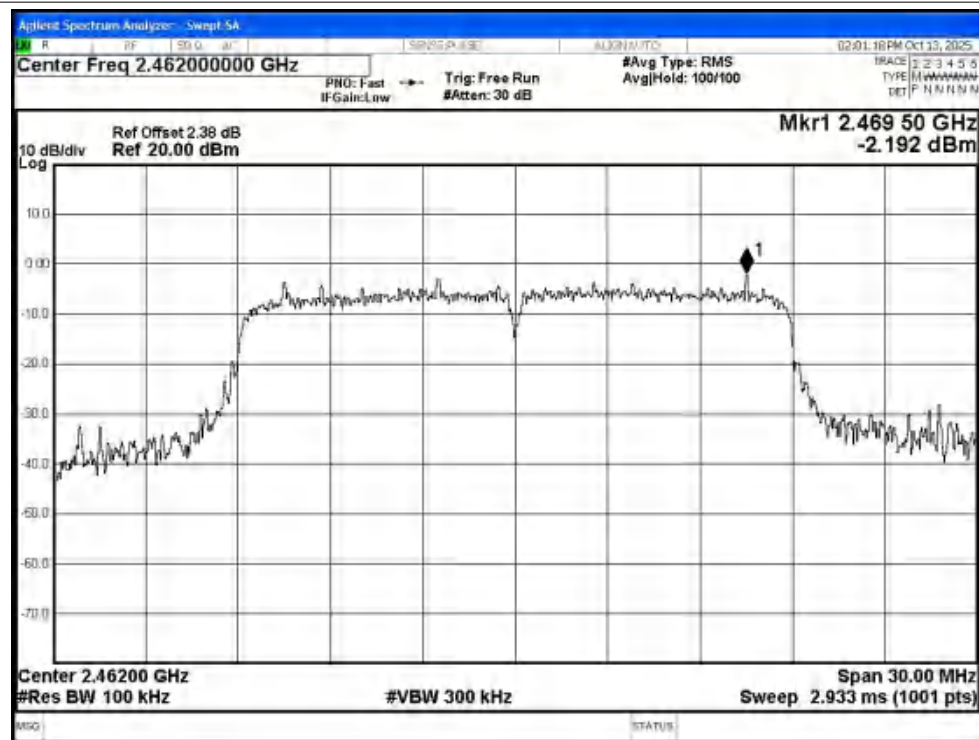
Band Edge NVNT n20 2412MHz Ant1 Ref



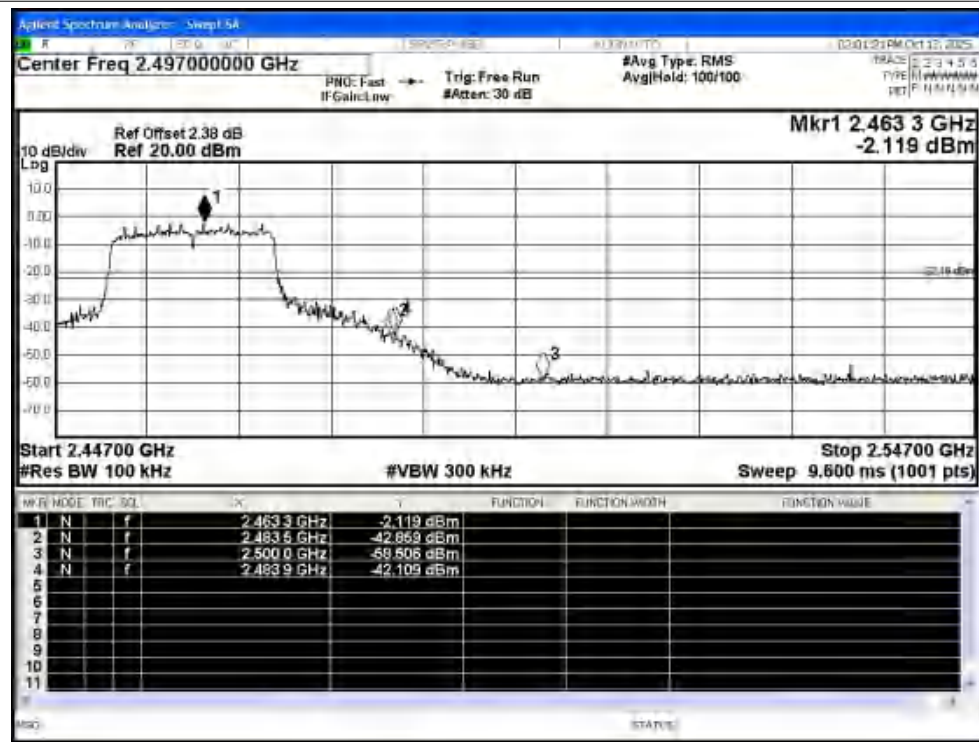
Band Edge NVNT n20 2412MHz Ant1 Emission



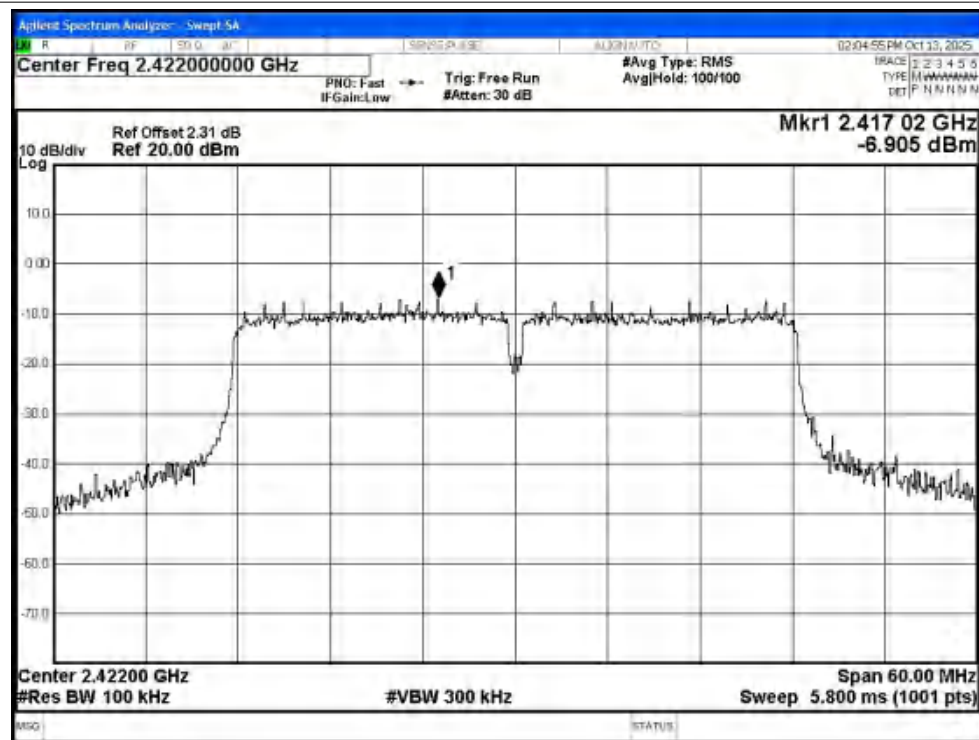
Band Edge NVNT n20 2462MHz Ant1 Ref



Band Edge NVNT n20 2462MHz Ant1 Emission



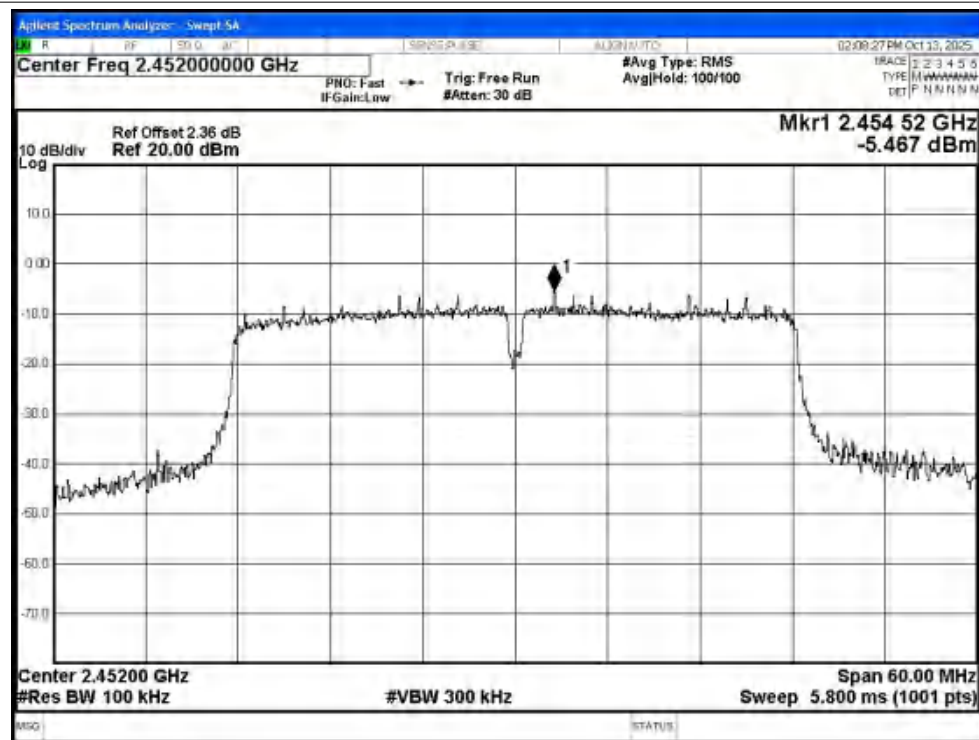
Band Edge NVNT n40 2422MHz Ant1 Ref



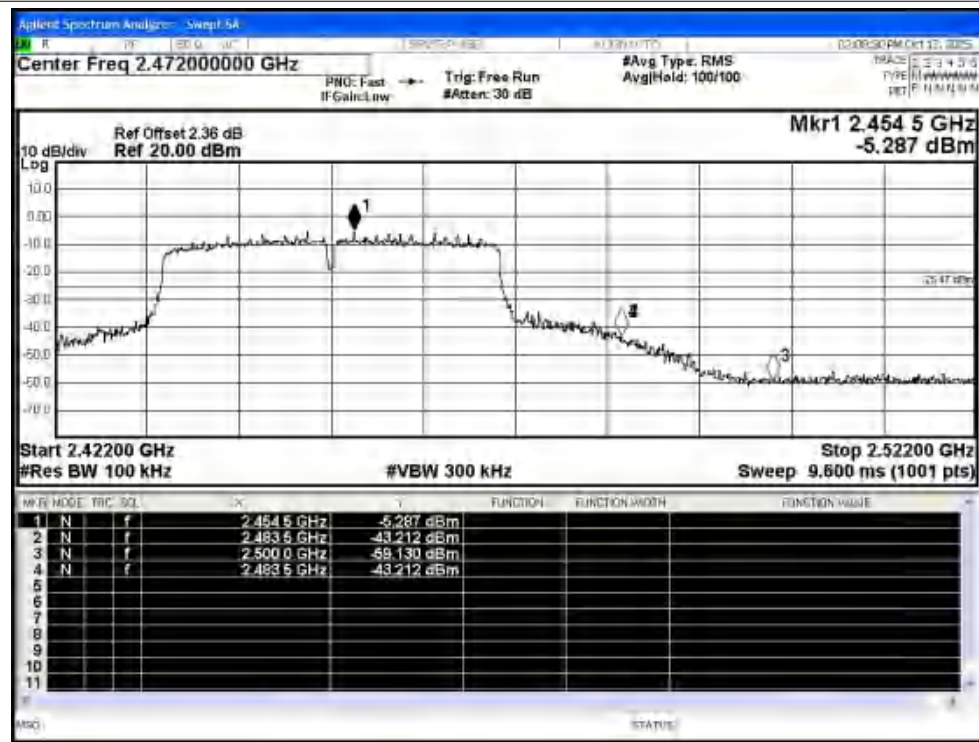
Band Edge NVNT n40 2422MHz Ant1 Emission



Band Edge NVNT n40 2452MHz Ant1 Ref



Band Edge NVNT n40 2452MHz Ant1 Emission



ESP32:

Condition	Mode	Frequency (MHz)	Antenna	Max Value (dBc)	Limit (dBc)	Verdict
NVNT	b	2412	Ant1	-51.53	-20	Pass
NVNT	b	2462	Ant1	-58.83	-20	Pass
NVNT	g	2412	Ant1	-31.7	-20	Pass
NVNT	g	2462	Ant1	-41.59	-20	Pass
NVNT	n20	2412	Ant1	-32.51	-20	Pass
NVNT	n20	2462	Ant1	-40.18	-20	Pass
NVNT	n40	2422	Ant1	-34.38	-20	Pass
NVNT	n40	2452	Ant1	-39.23	-20	Pass

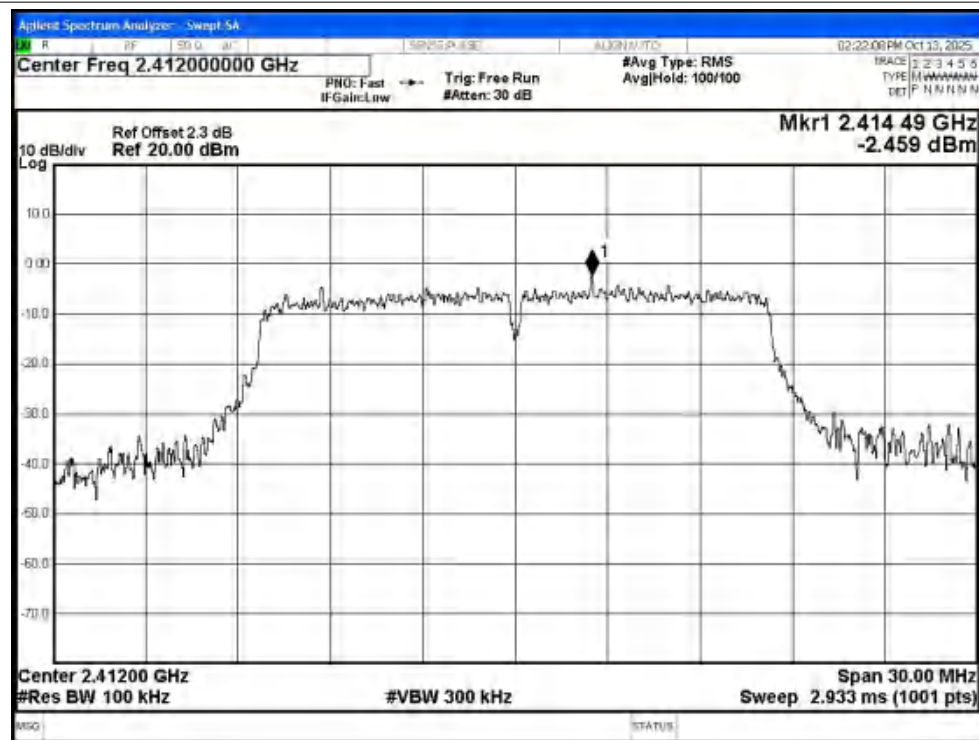
Band Edge NVNT b 2462MHz Ant1 Ref



Band Edge NVNT b 2462MHz Ant1 Emission



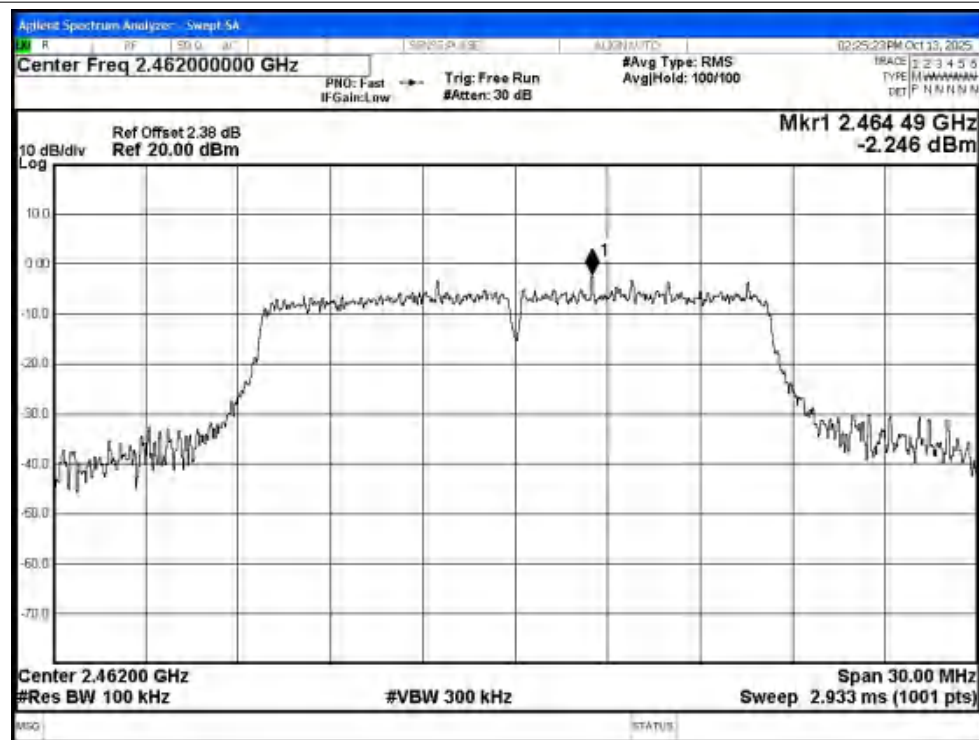
Band Edge NVNT g 2412MHz Ant1 Ref



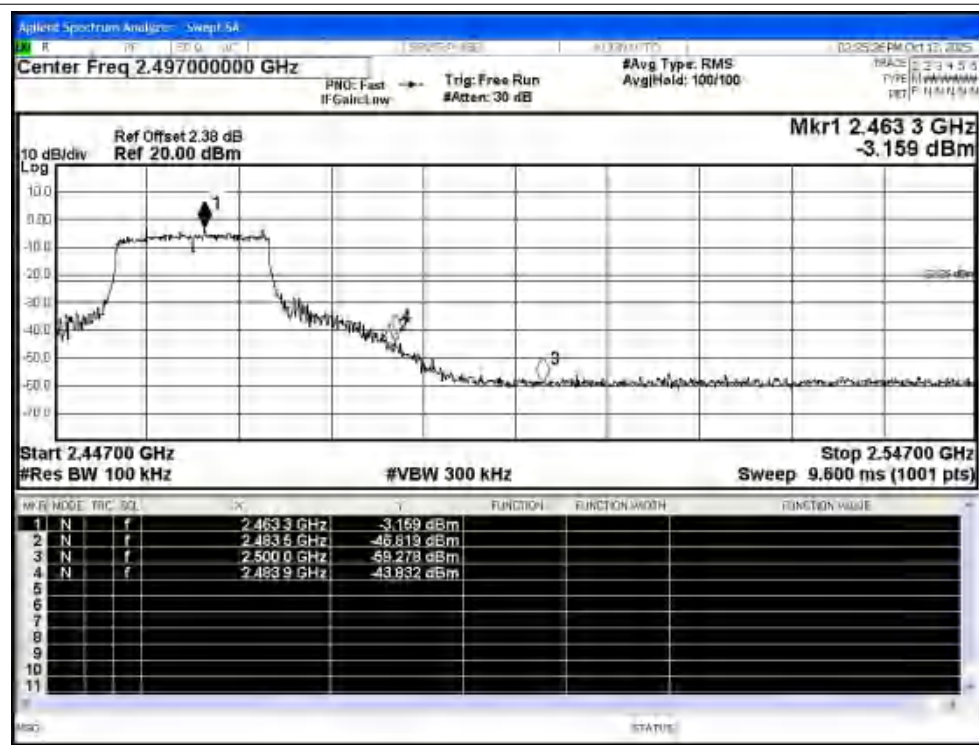
Band Edge NVNT g 2412MHz Ant1 Emission



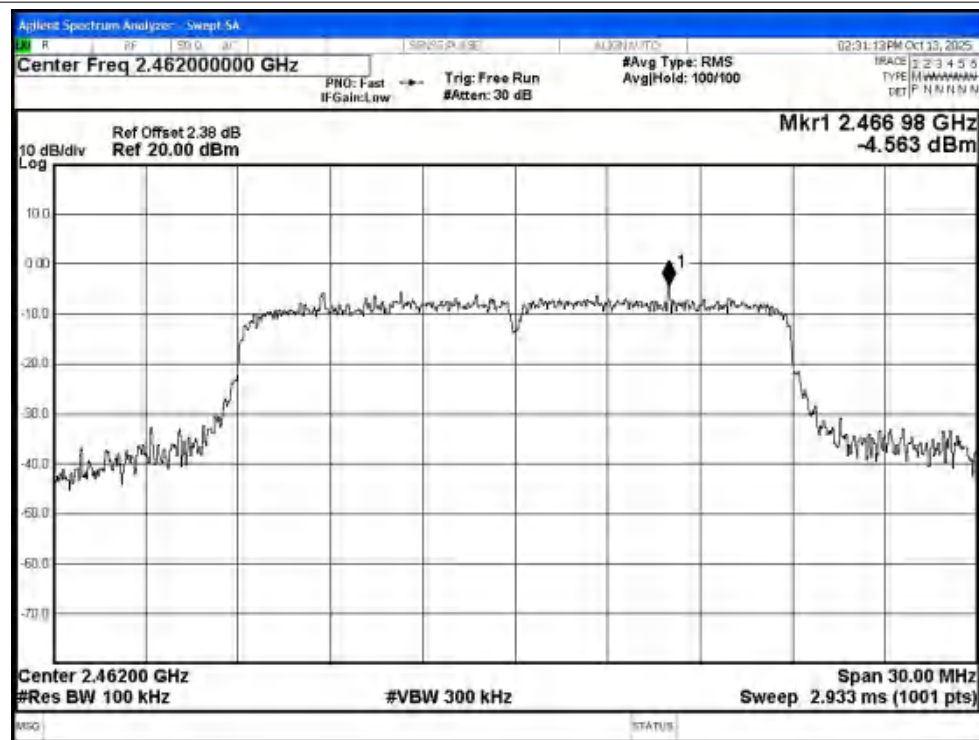
Band Edge NVNT g 2462MHz Ant1 Ref



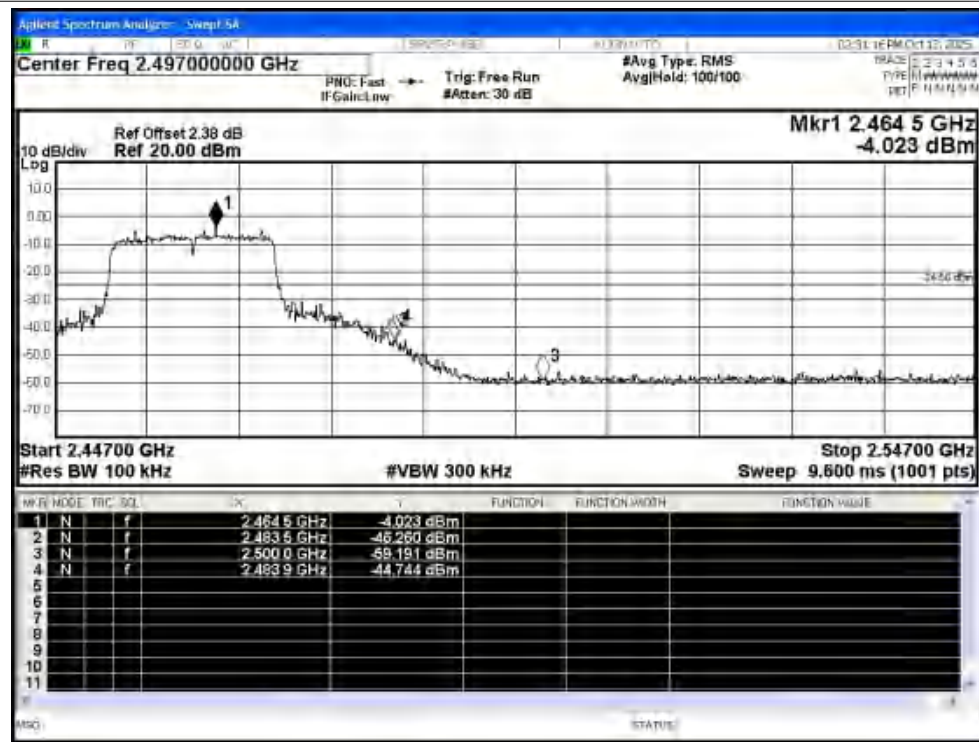
Band Edge NVNT g 2462MHz Ant1 Emission



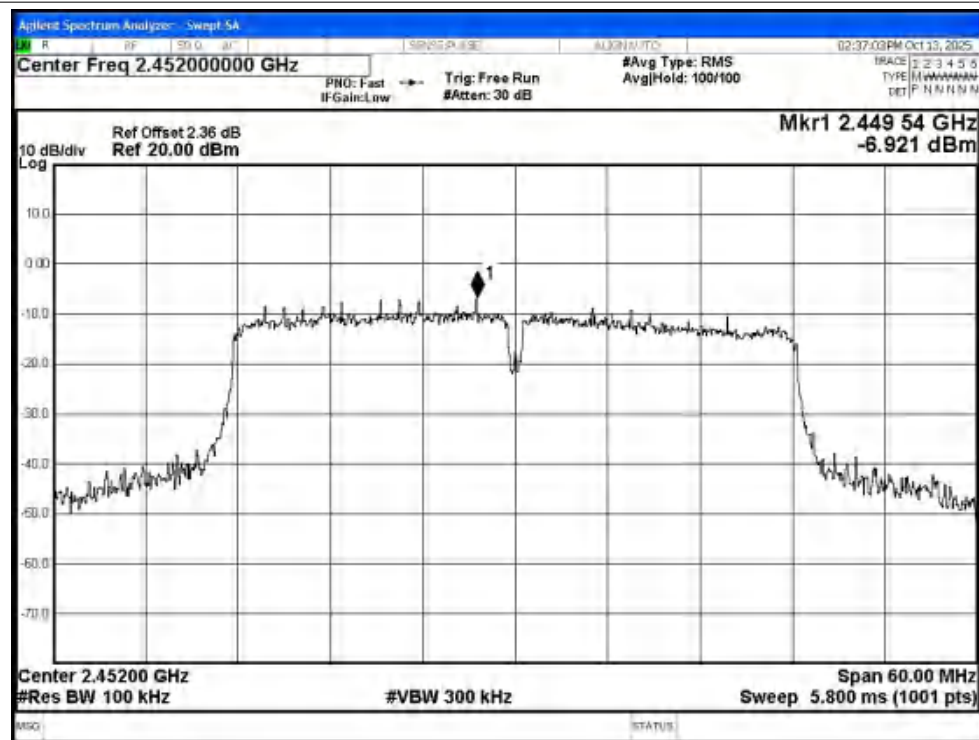
Band Edge NVNT n20 2462MHz Ant1 Ref



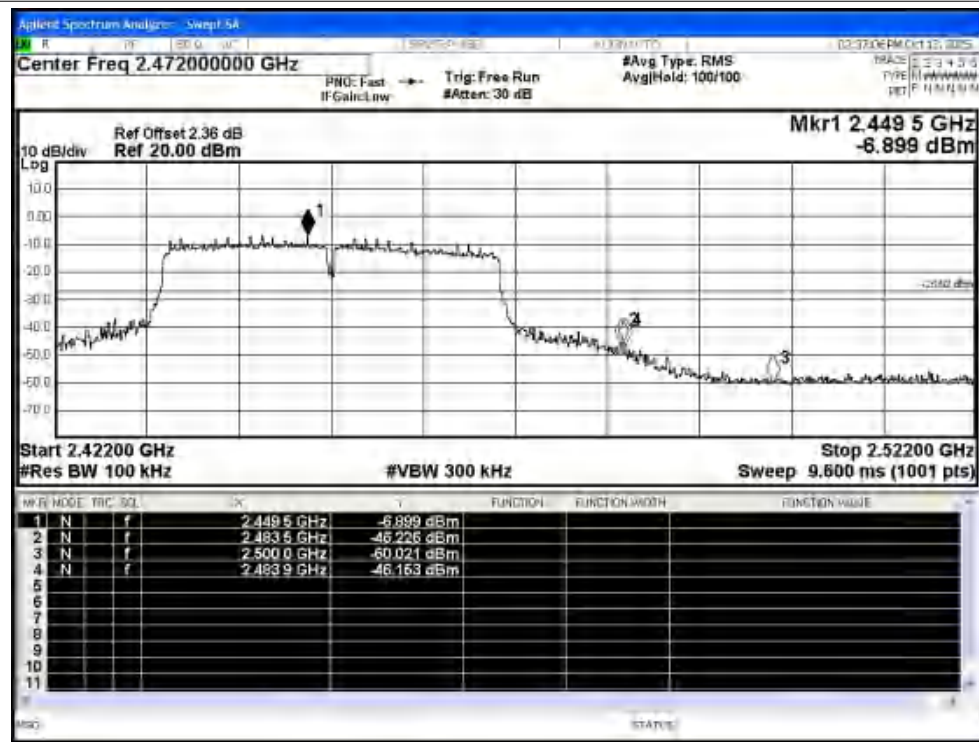
Band Edge NVNT n20 2462MHz Ant1 Emission



Band Edge NVNT n40 2452MHz Ant1 Ref



Band Edge NVNT n40 2452MHz Ant1 Emission



5. Conducted RF Spurious Emission

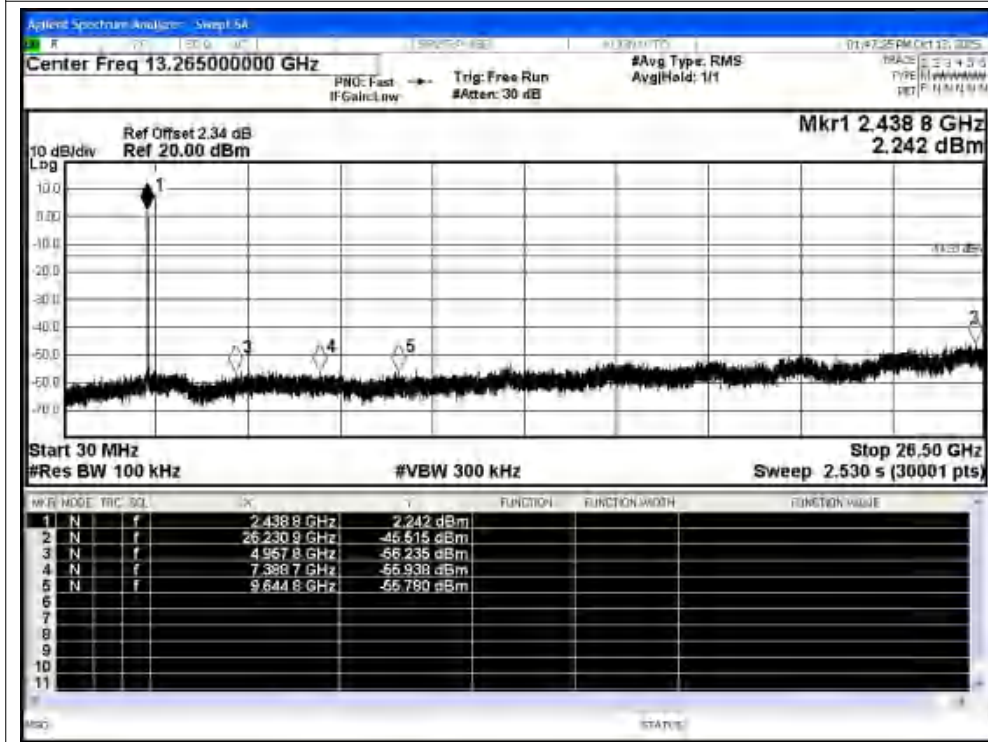
RTL8821:

Condition	Mode	Frequency (MHz)	Antenna	Max Value (dBc)	Limit (dBc)	Verdict
NVNT	b	2412	Ant1	-51.6	-20	Pass
NVNT	b	2437	Ant1	-51.18	-20	Pass
NVNT	b	2462	Ant1	-51.39	-20	Pass
NVNT	g	2412	Ant1	-43.59	-20	Pass
NVNT	g	2437	Ant1	-45.38	-20	Pass
NVNT	g	2462	Ant1	-44.44	-20	Pass
NVNT	n20	2412	Ant1	-43.1	-20	Pass
NVNT	n20	2437	Ant1	-42.52	-20	Pass
NVNT	n20	2462	Ant1	-40.8	-20	Pass
NVNT	n40	2422	Ant1	-38.93	-20	Pass
NVNT	n40	2437	Ant1	-40.14	-20	Pass
NVNT	n40	2452	Ant1	-39.61	-20	Pass

Tx. Spurious NVNT b 2437MHz Ant1 Ref



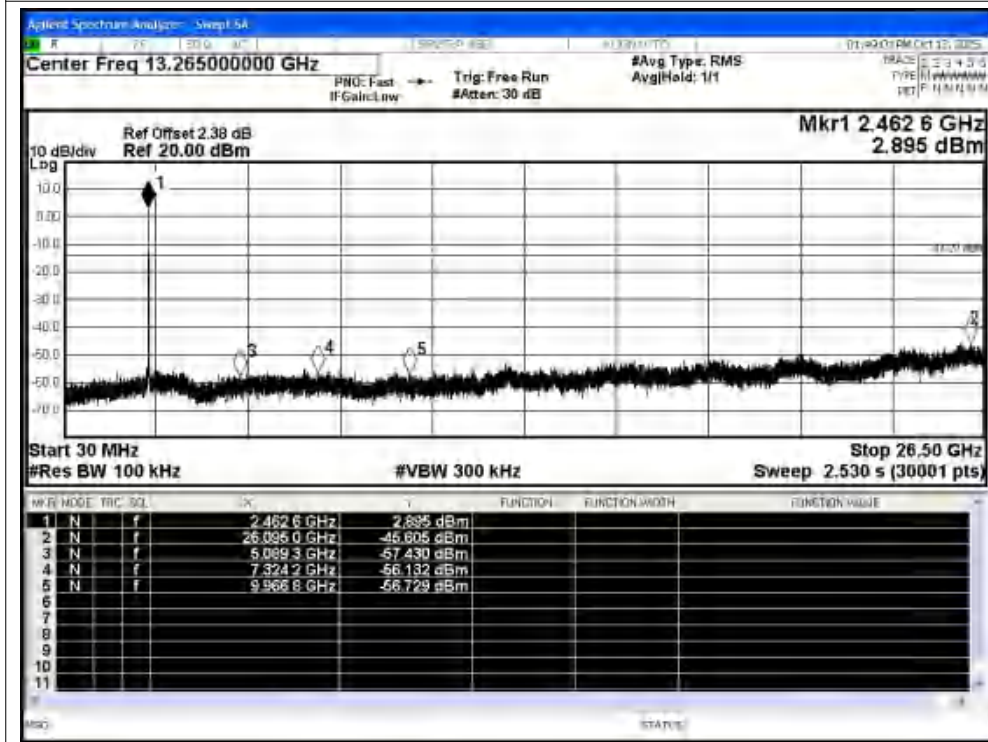
Tx. Spurious NVNT b 2437MHz Ant1 Emission



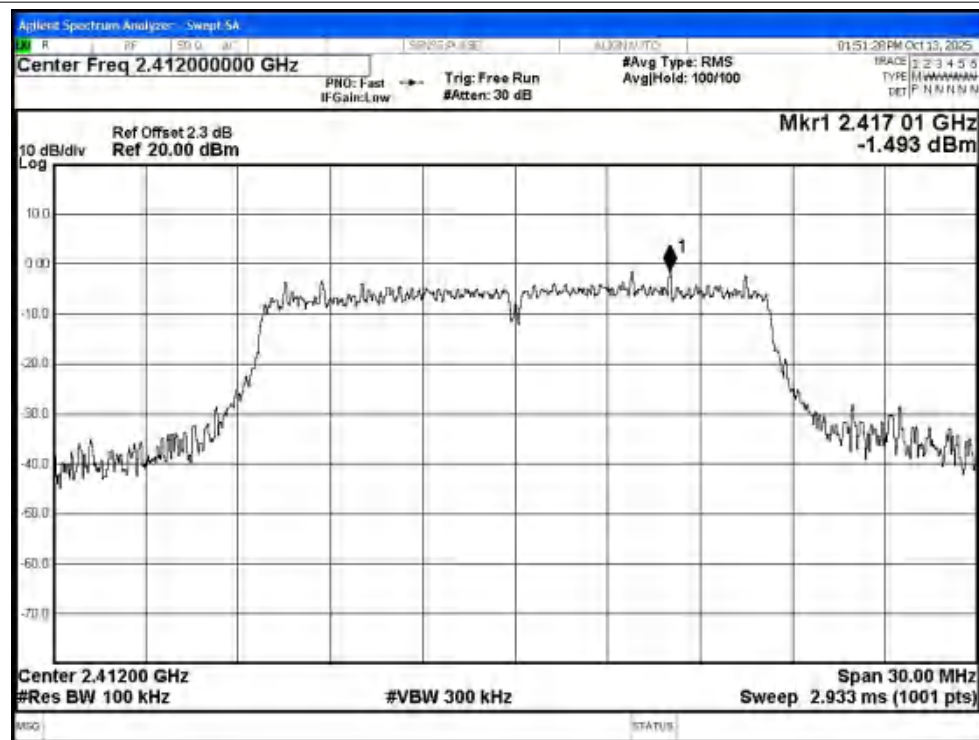
Tx. Spurious NVNT b 2462MHz Ant1 Ref



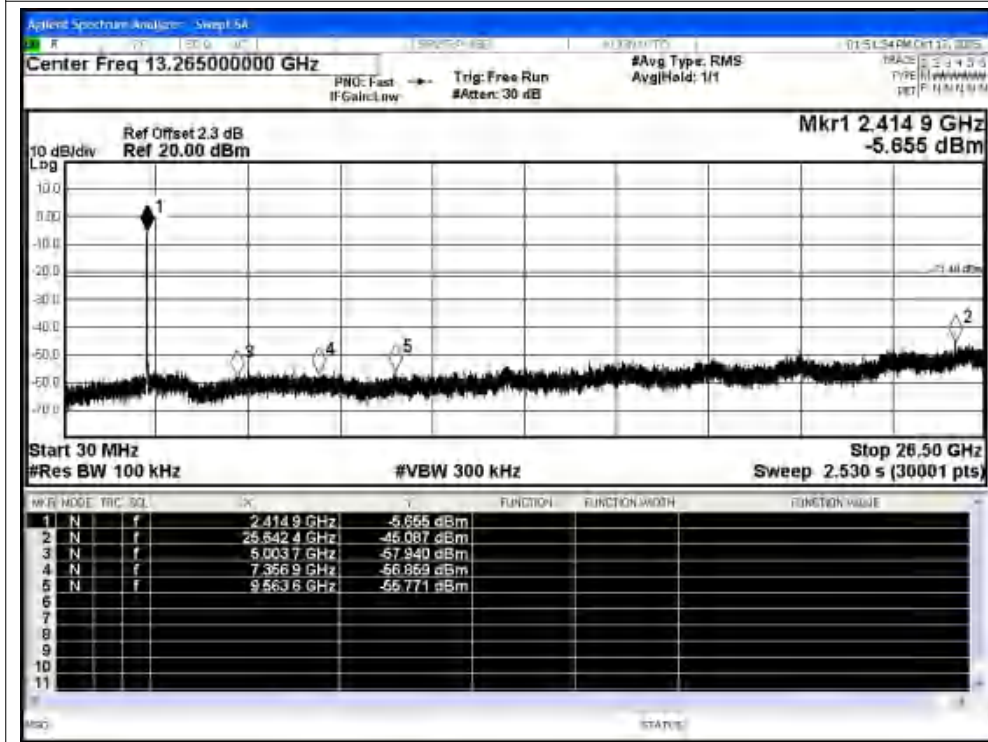
Tx. Spurious NVNT b 2462MHz Ant1 Emission



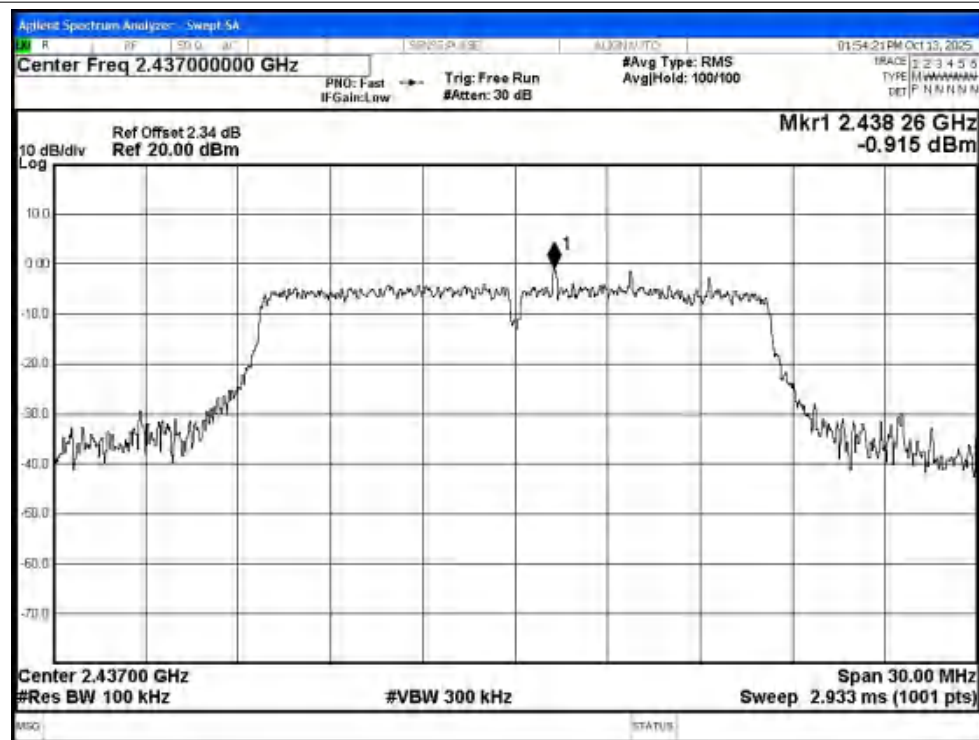
Tx. Spurious NVNT g 2412MHz Ant1 Ref



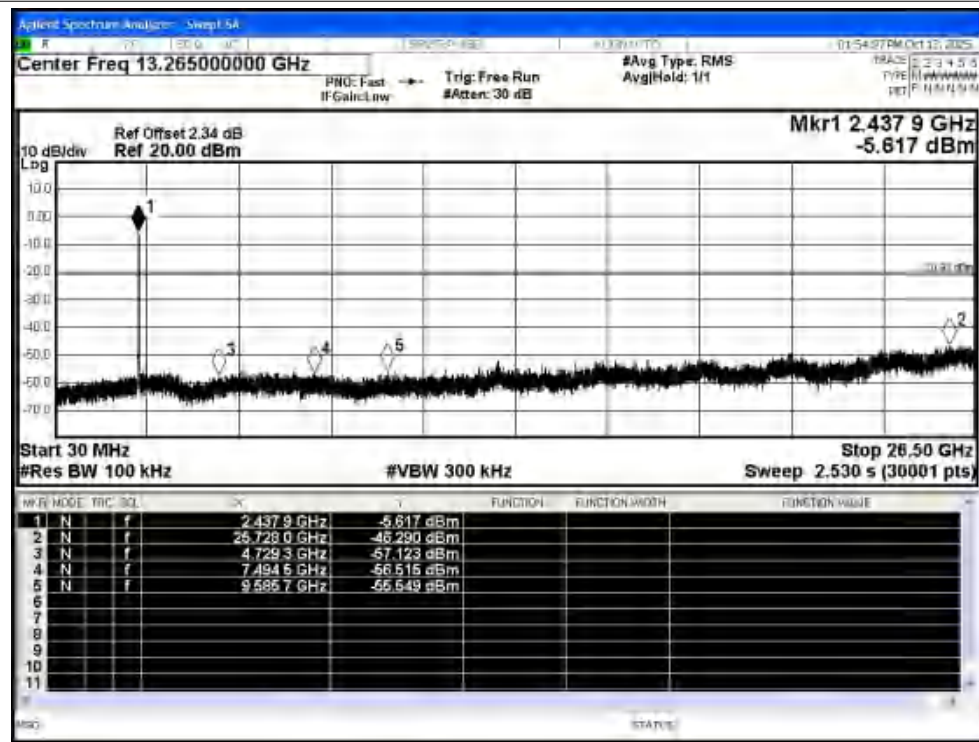
Tx. Spurious NVNT g 2412MHz Ant1 Emission



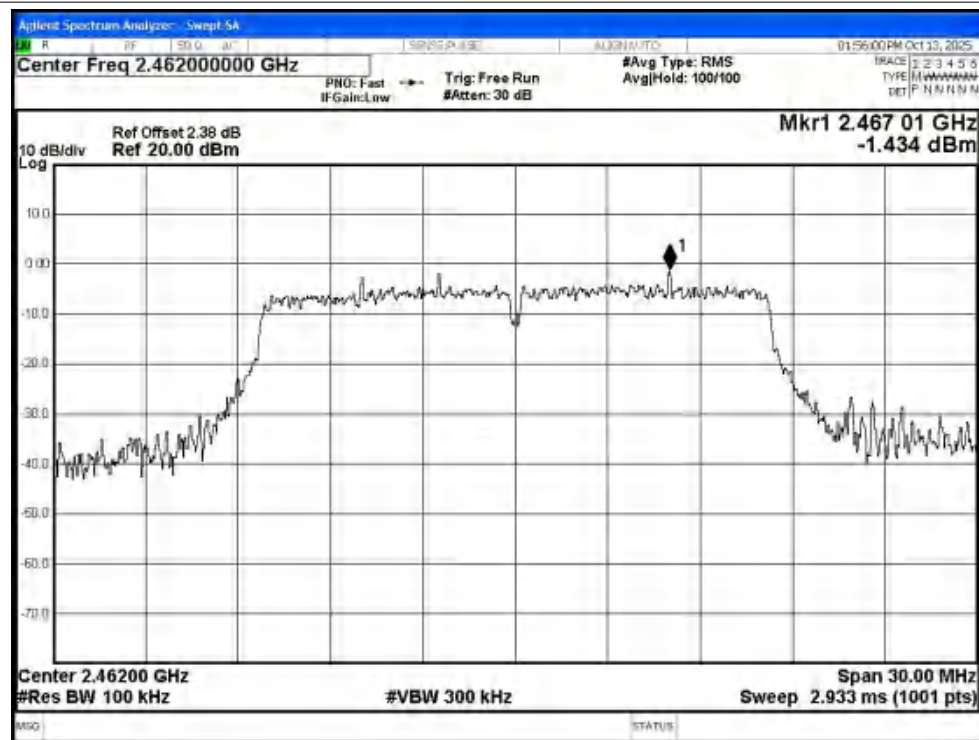
Tx. Spurious NVNT g 2437MHz Ant1 Ref



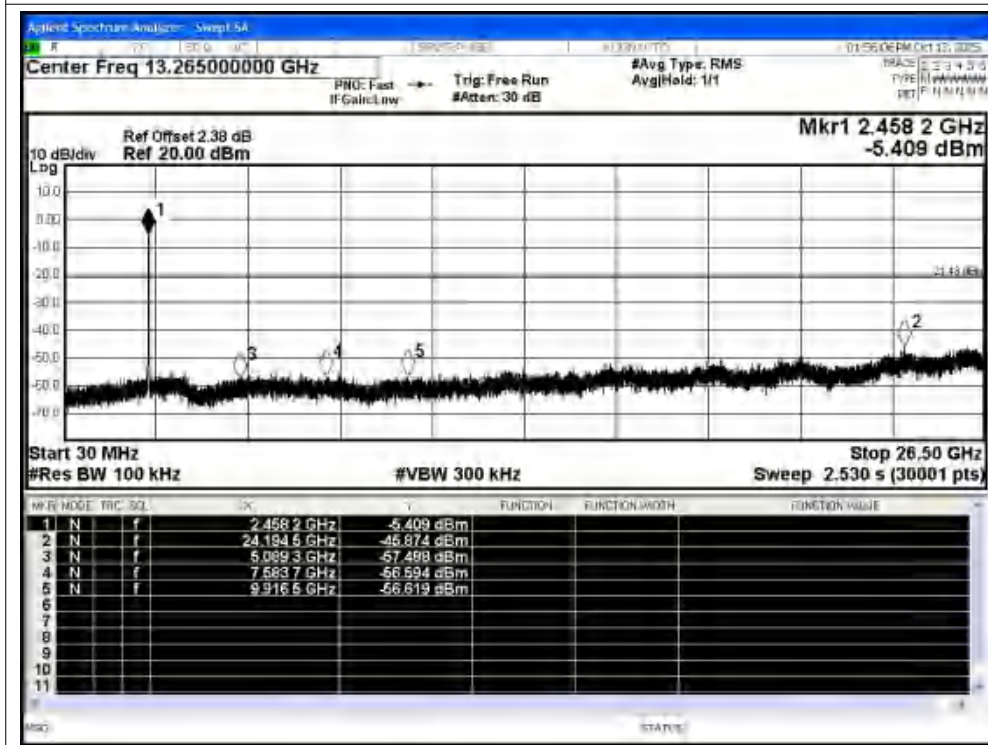
Tx. Spurious NVNT g 2437MHz Ant1 Emission



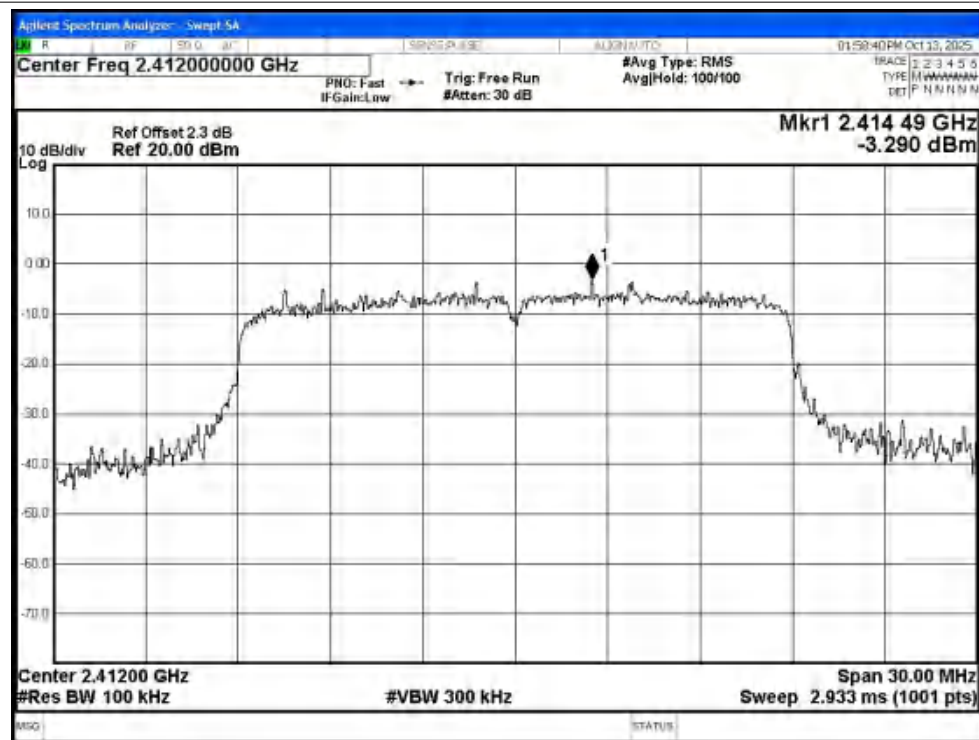
Tx. Spurious NVNT g 2462MHz Ant1 Ref



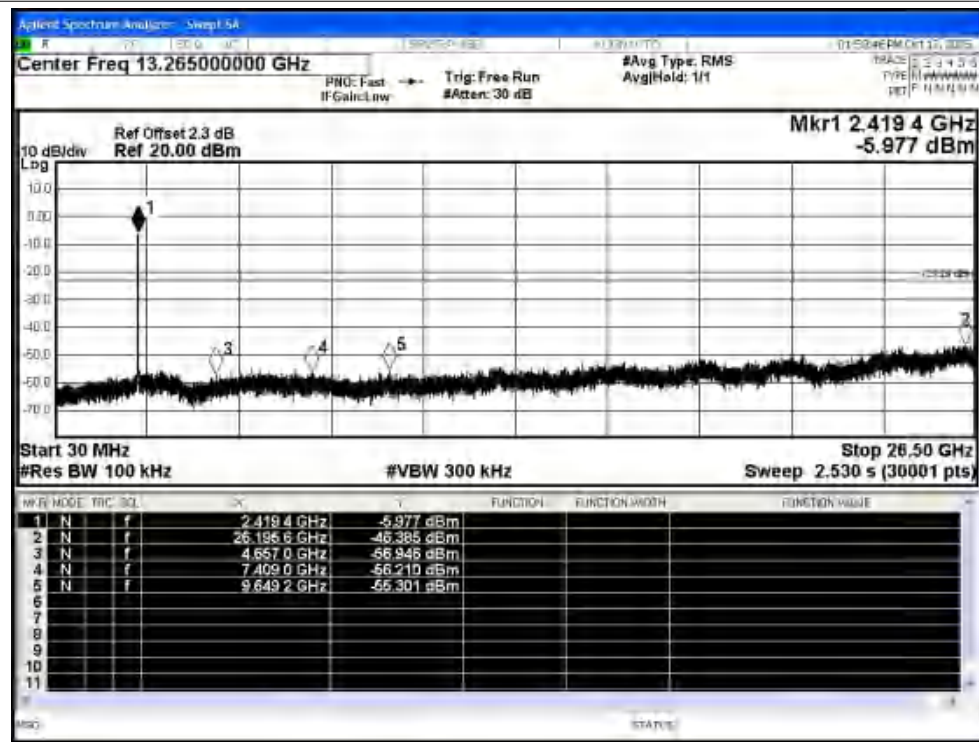
Tx. Spurious NVNT g 2462MHz Ant1 Emission



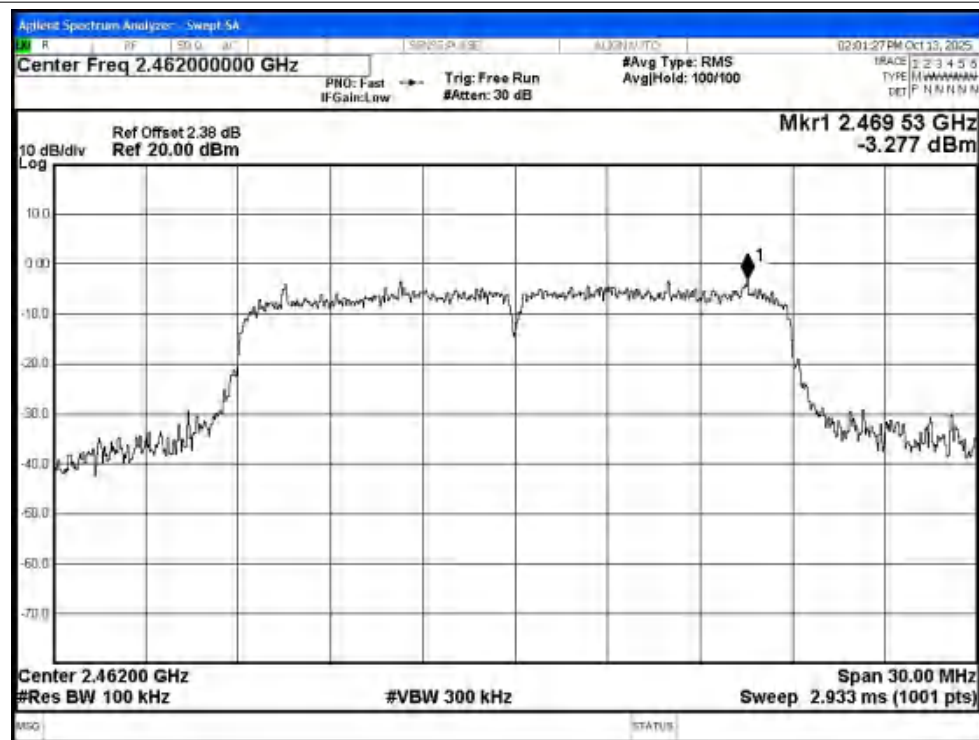
Tx. Spurious NVNT n20 2412MHz Ant1 Ref



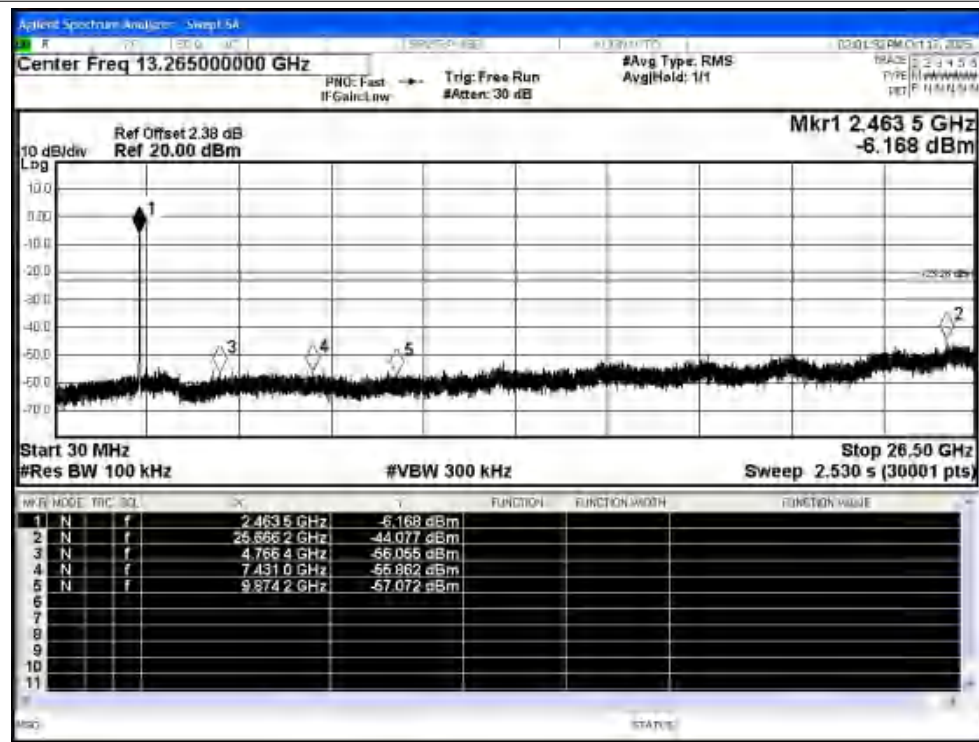
Tx. Spurious NVNT n20 2412MHz Ant1 Emission



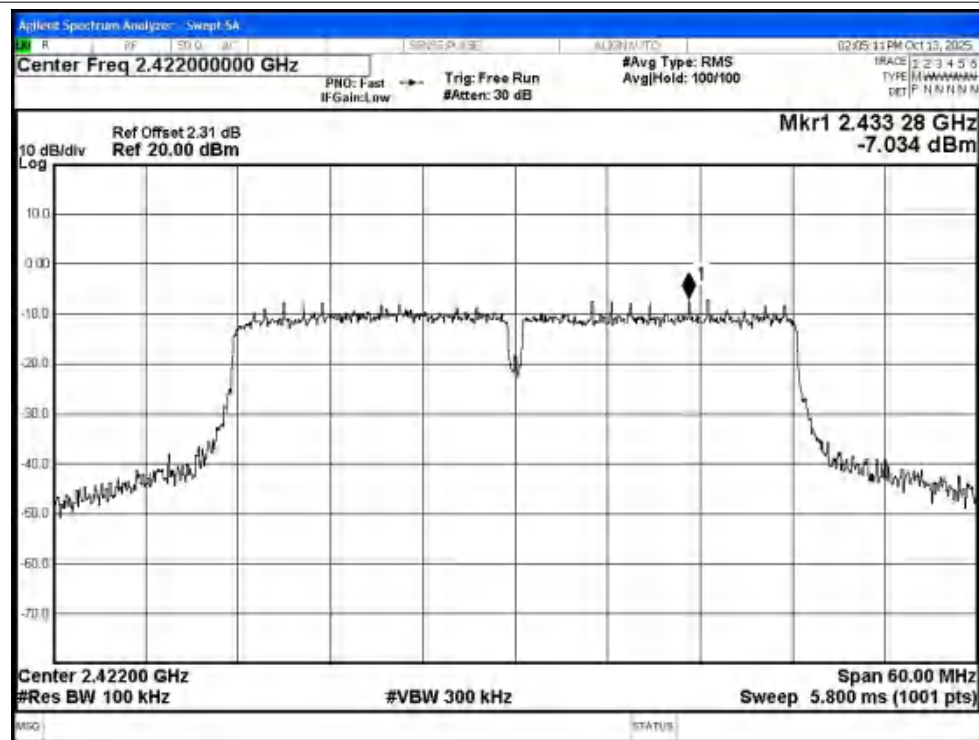
Tx. Spurious NVNT n20 2462MHz Ant1 Ref



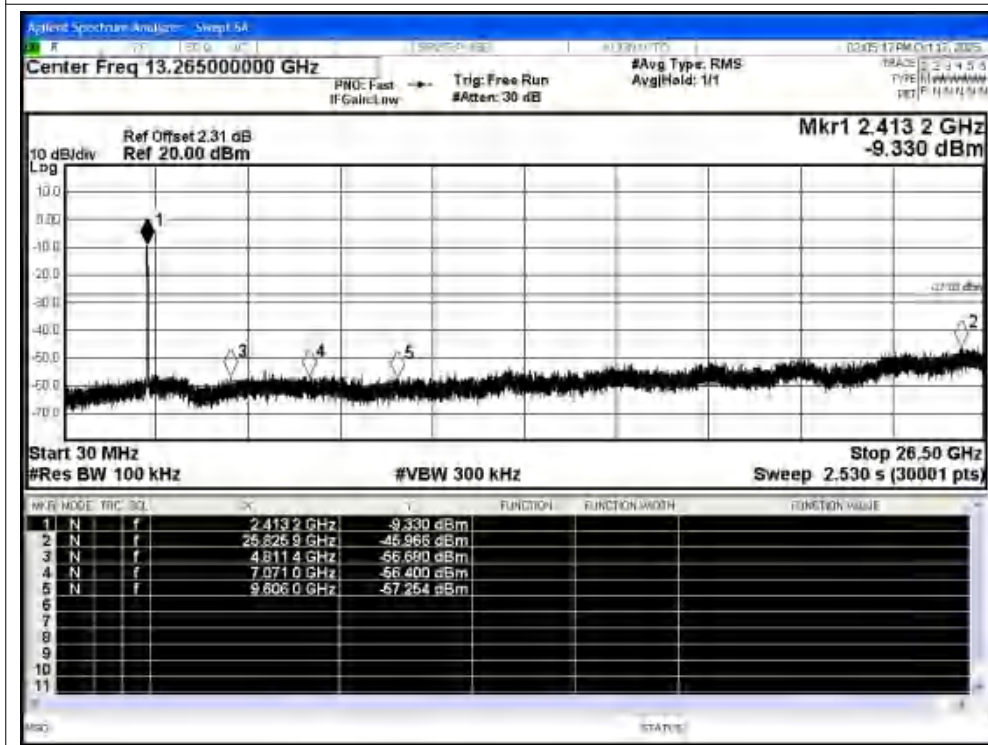
Tx. Spurious NVNT n20 2462MHz Ant1 Emission



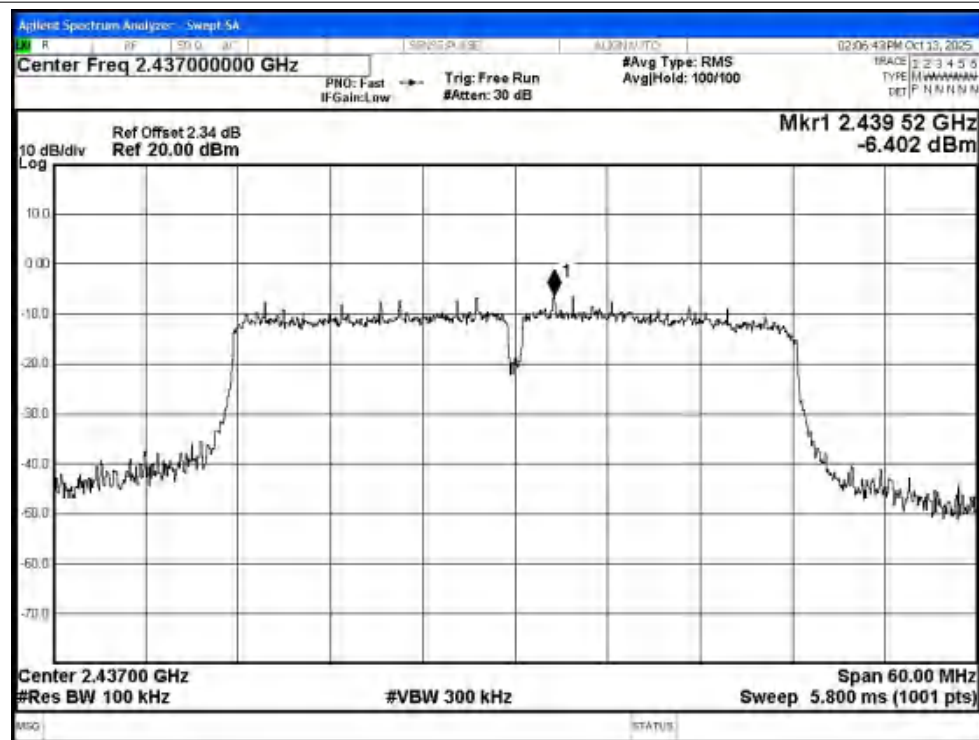
Tx. Spurious NVNT n40 2422MHz Ant1 Ref



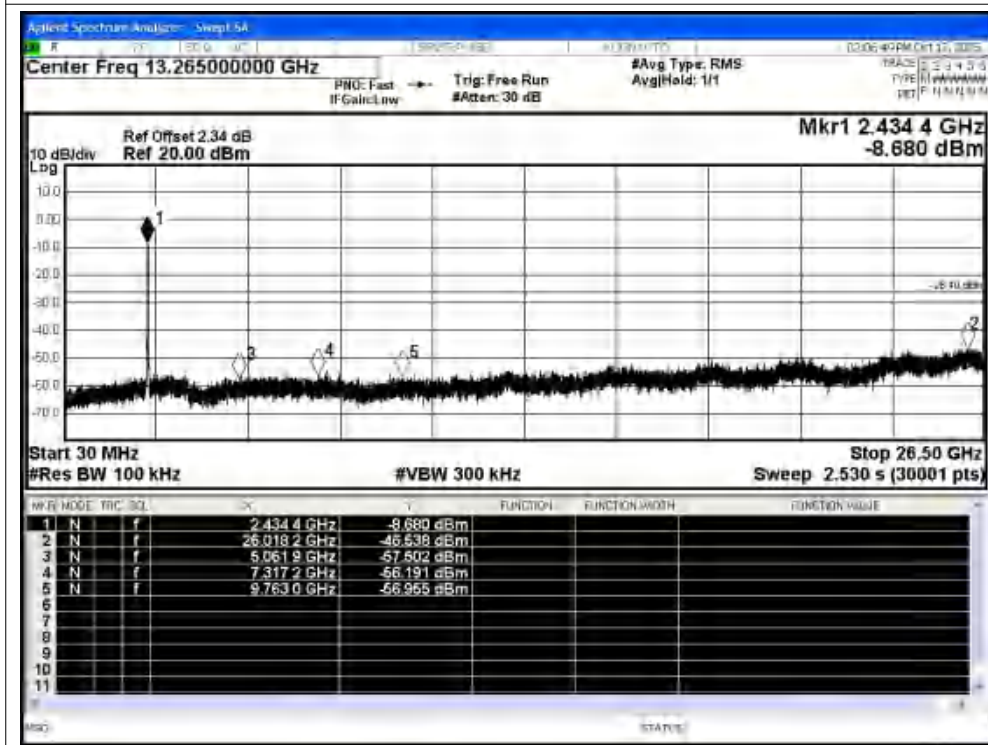
Tx. Spurious NVNT n40 2422MHz Ant1 Emission

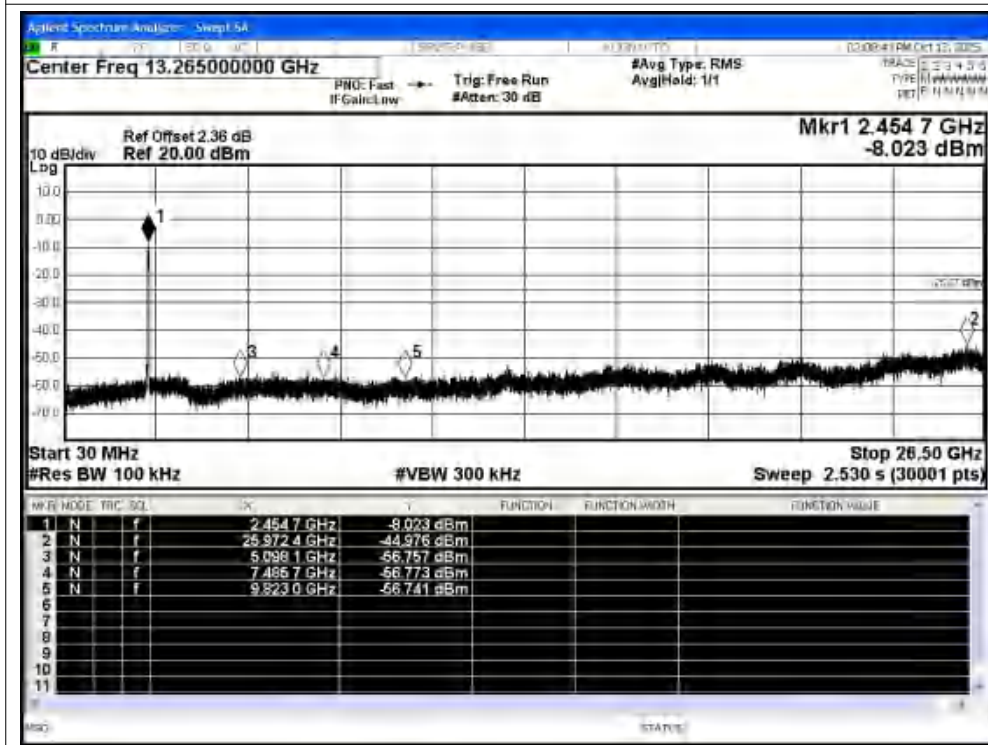


Tx. Spurious NVNT n40 2437MHz Ant1 Ref



Tx. Spurious NVNT n40 2437MHz Ant1 Emission





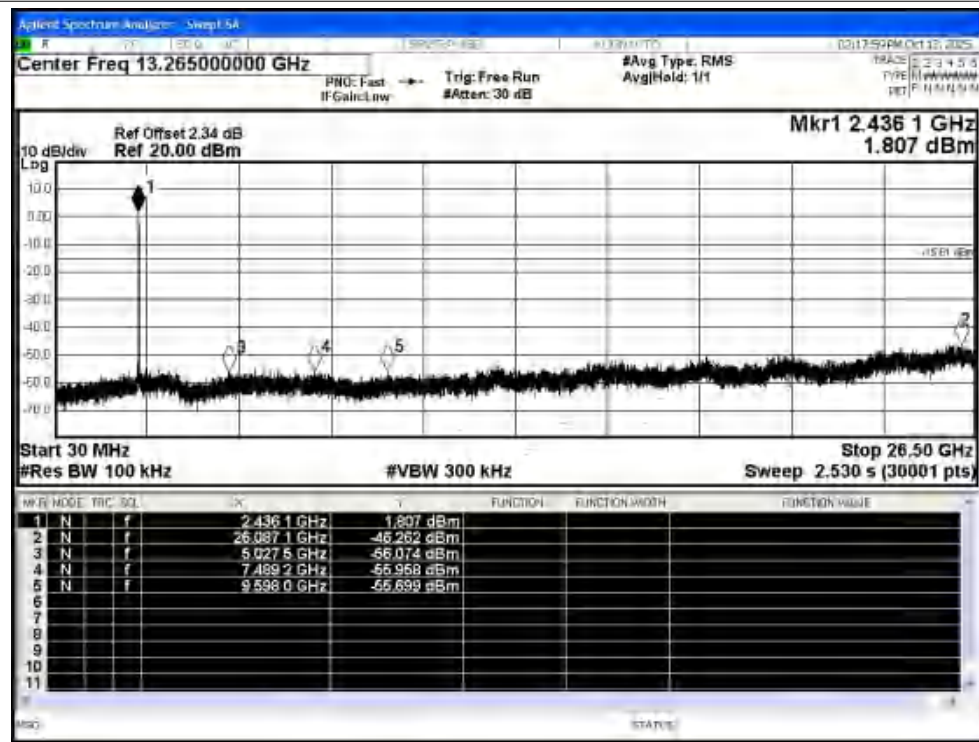
ESP32:

Condition	Mode	Frequency (MHz)	Antenna	Max Value (dBc)	Limit (dBc)	Verdict
NVNT	b	2412	Ant1	-49.64	-20	Pass
NVNT	b	2437	Ant1	-50.65	-20	Pass
NVNT	b	2462	Ant1	-50.76	-20	Pass
NVNT	g	2412	Ant1	-44.34	-20	Pass
NVNT	g	2437	Ant1	-41.35	-20	Pass
NVNT	g	2462	Ant1	-43.46	-20	Pass
NVNT	n20	2412	Ant1	-41.51	-20	Pass
NVNT	n20	2437	Ant1	-40.04	-20	Pass
NVNT	n20	2462	Ant1	-41.31	-20	Pass
NVNT	n40	2422	Ant1	-38.03	-20	Pass
NVNT	n40	2437	Ant1	-38.27	-20	Pass
NVNT	n40	2452	Ant1	-38.71	-20	Pass

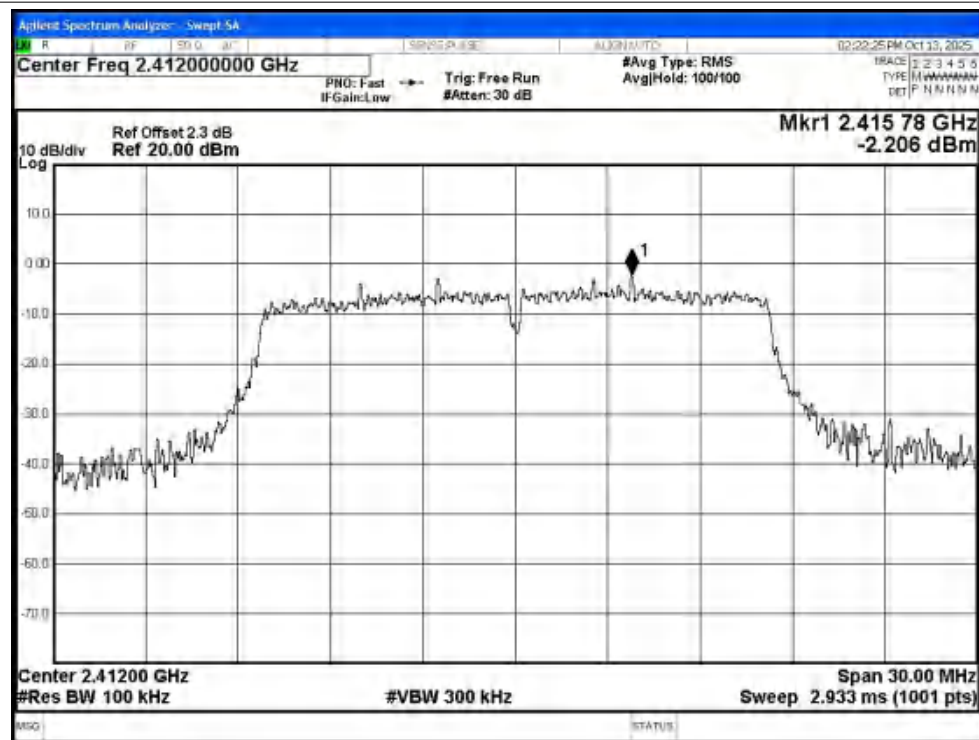
Tx. Spurious NVNT b 2437MHz Ant1 Ref



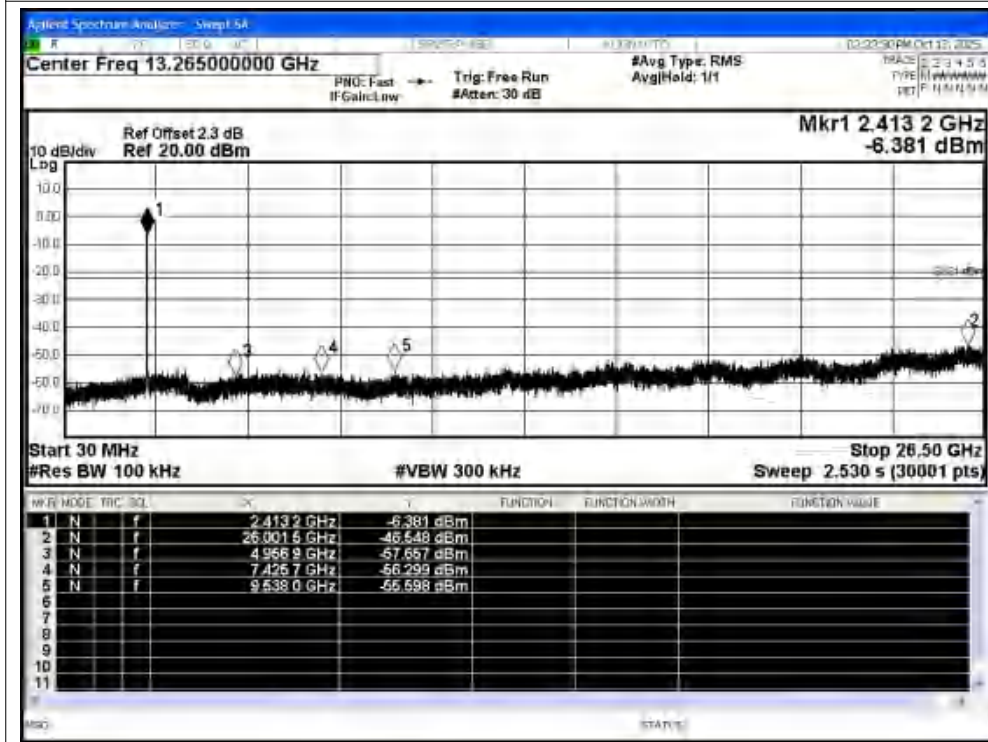
Tx. Spurious NVNT b 2437MHz Ant1 Emission



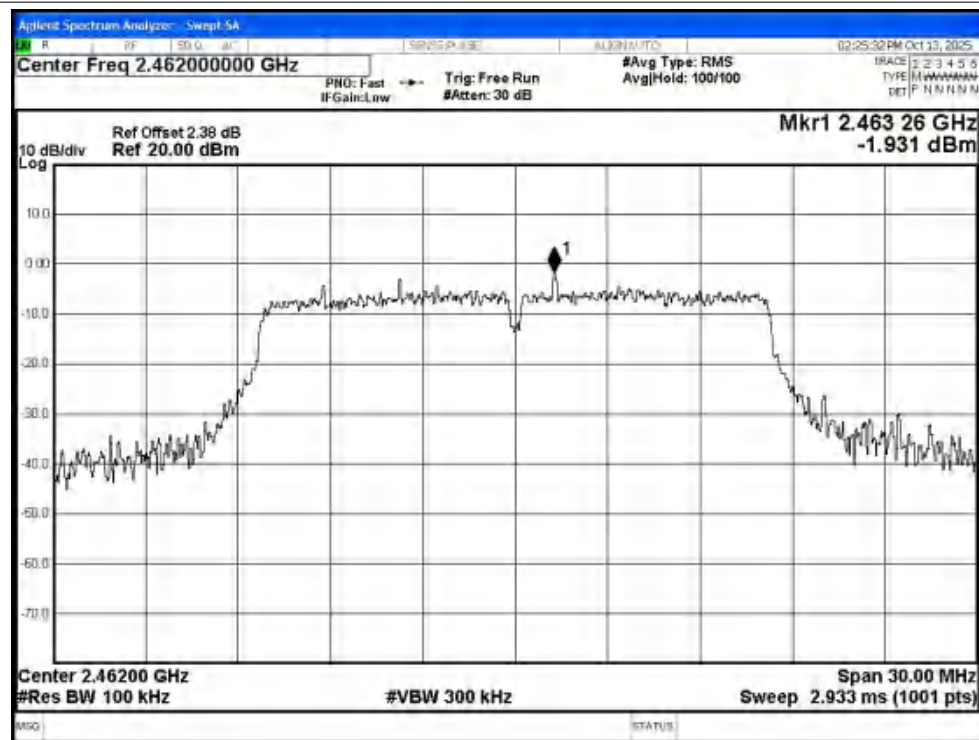
Tx. Spurious NVNT g 2412MHz Ant1 Ref



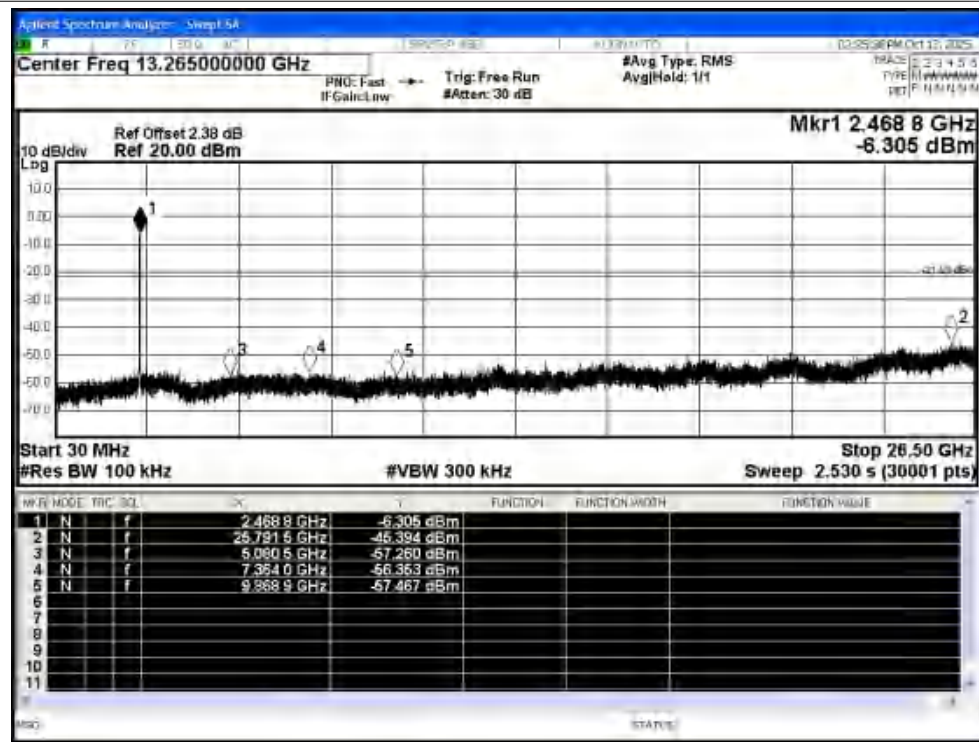
Tx. Spurious NVNT g 2412MHz Ant1 Emission



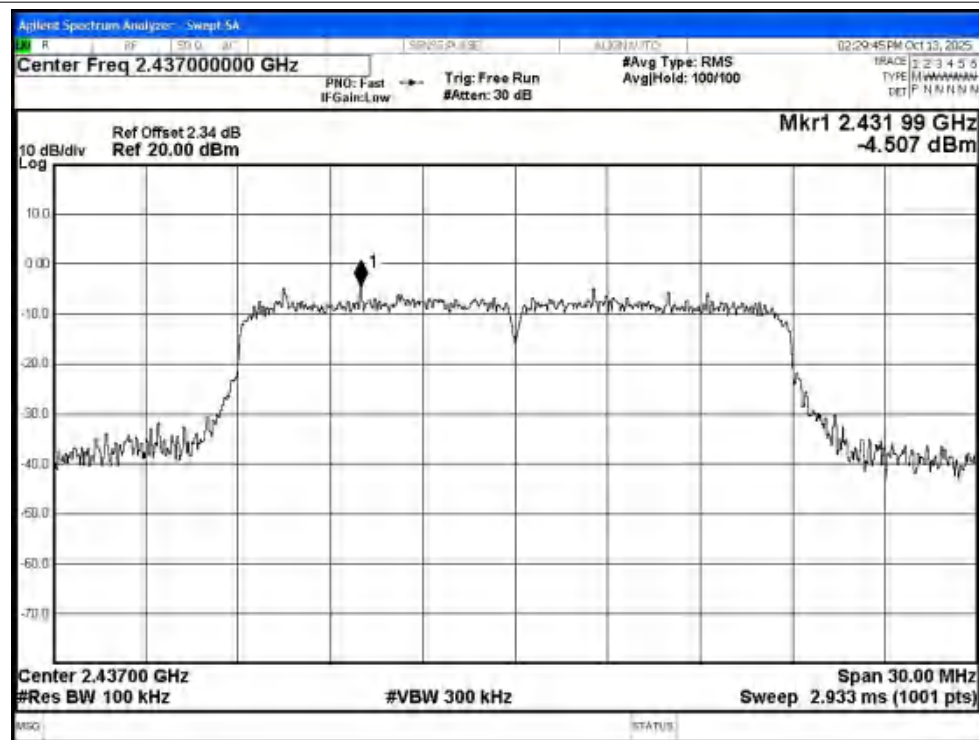
Tx. Spurious NVNT g 2462MHz Ant1 Ref



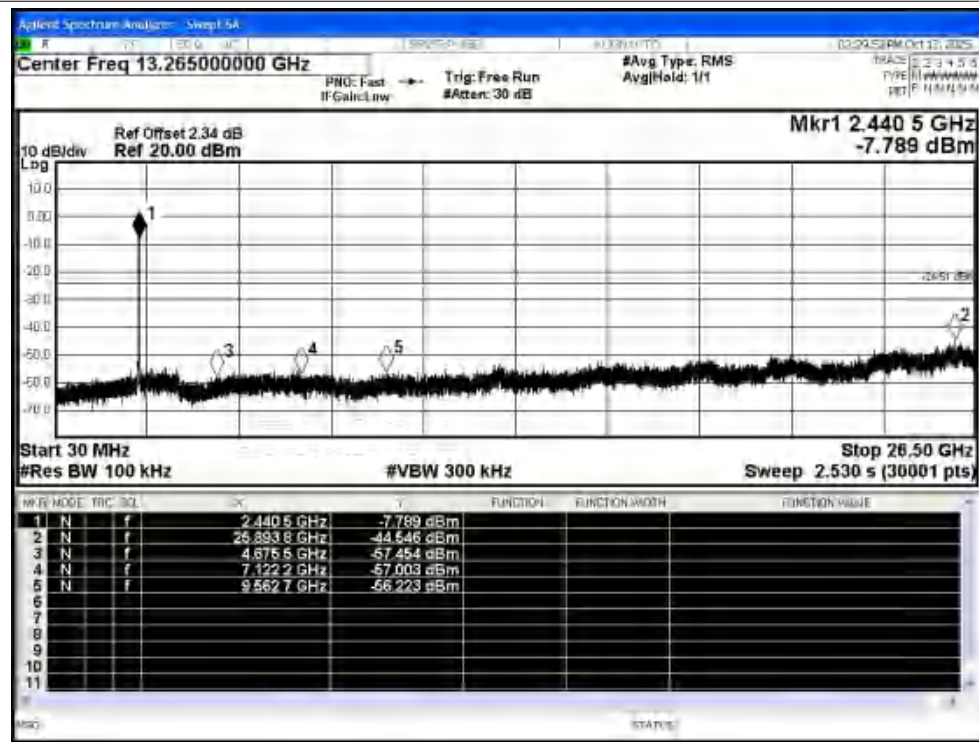
Tx. Spurious NVNT g 2462MHz Ant1 Emission



Tx. Spurious NVNT n20 2437MHz Ant1 Ref



Tx. Spurious NVNT n20 2437MHz Ant1 Emission

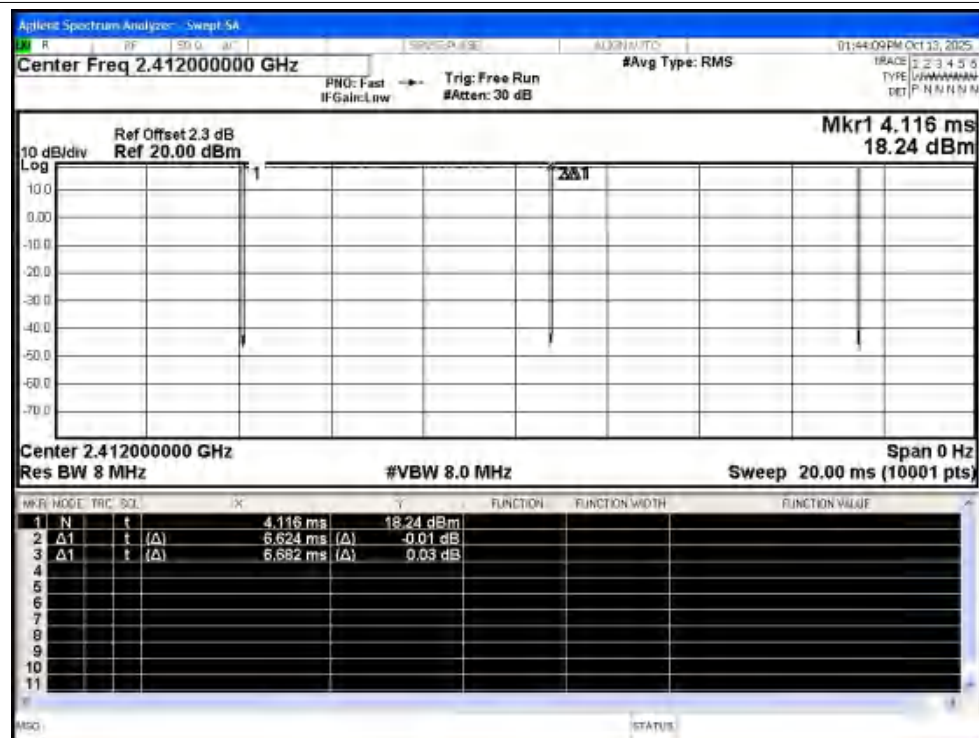


6. Duty Cycle

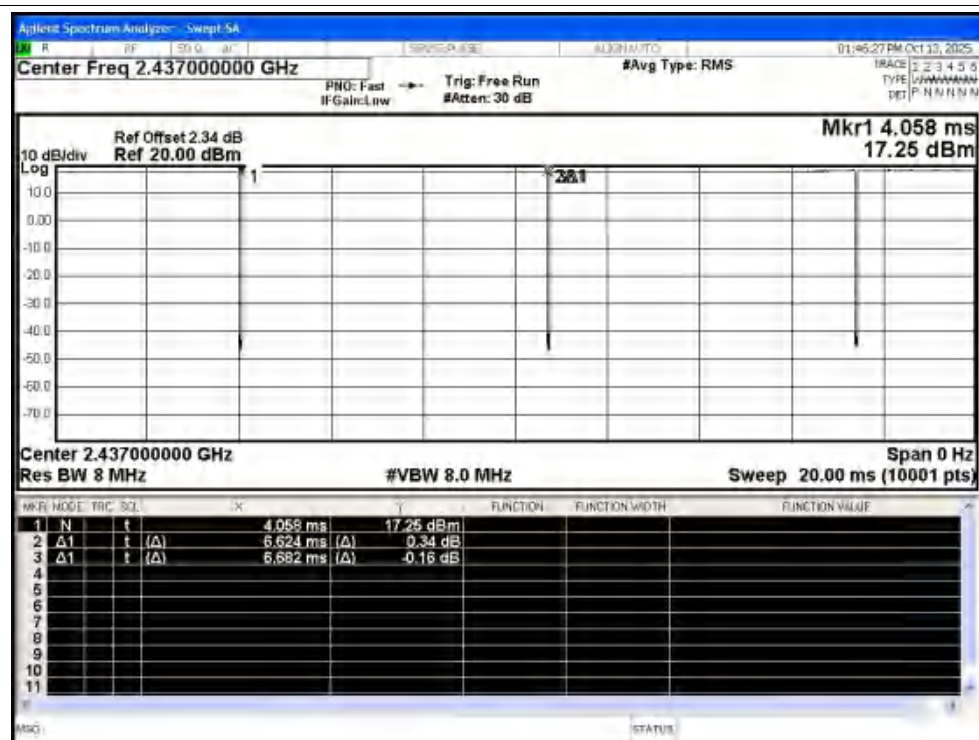
RTL8821:

Condition	Mode	Frequency (MHz)	Antenna	Duty Cycle (%)	Correction Factor (dB)	1/T (kHz)
NVNT	b	2412	Ant1	99.13	0	0.15
NVNT	b	2437	Ant1	99.13	0	0.15
NVNT	b	2462	Ant1	99.13	0	0.15
NVNT	g	2412	Ant1	97.68	0.1	0.37
NVNT	g	2437	Ant1	97.75	0.1	0.37
NVNT	g	2462	Ant1	97.75	0.1	0.37
NVNT	n20	2412	Ant1	97.33	0.12	0.44
NVNT	n20	2437	Ant1	97.33	0.12	0.44
NVNT	n20	2462	Ant1	97.25	0.12	0.44
NVNT	n40	2422	Ant1	94.7	0.24	0.9
NVNT	n40	2437	Ant1	94.7	0.24	0.9
NVNT	n40	2452	Ant1	94.71	0.24	0.9

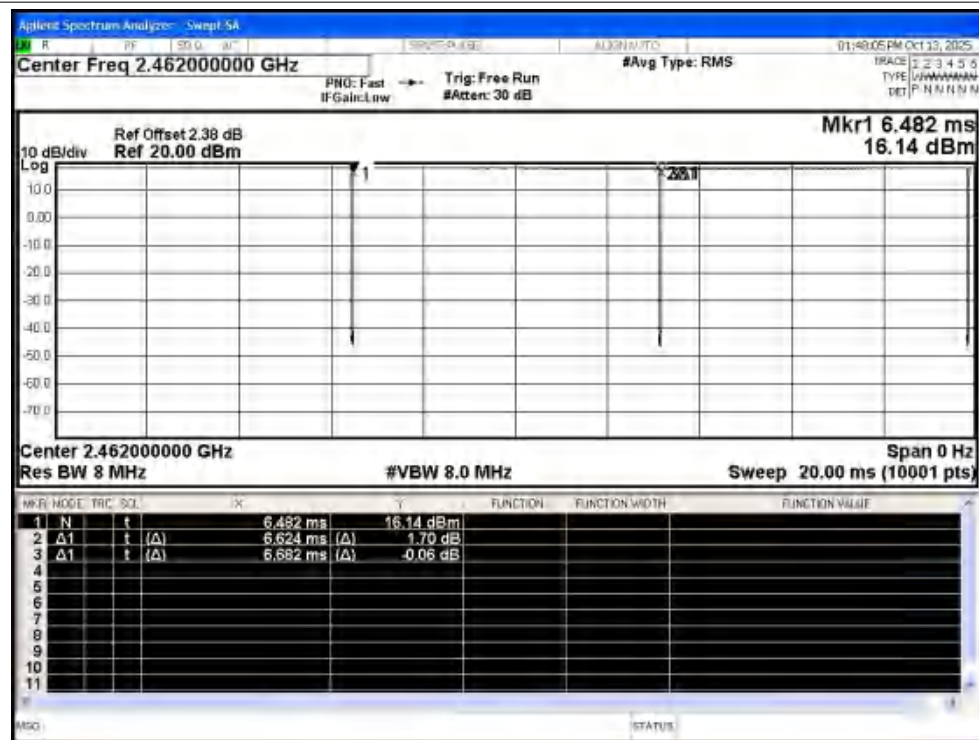
Duty Cycle NVNT b 2412MHz Ant1



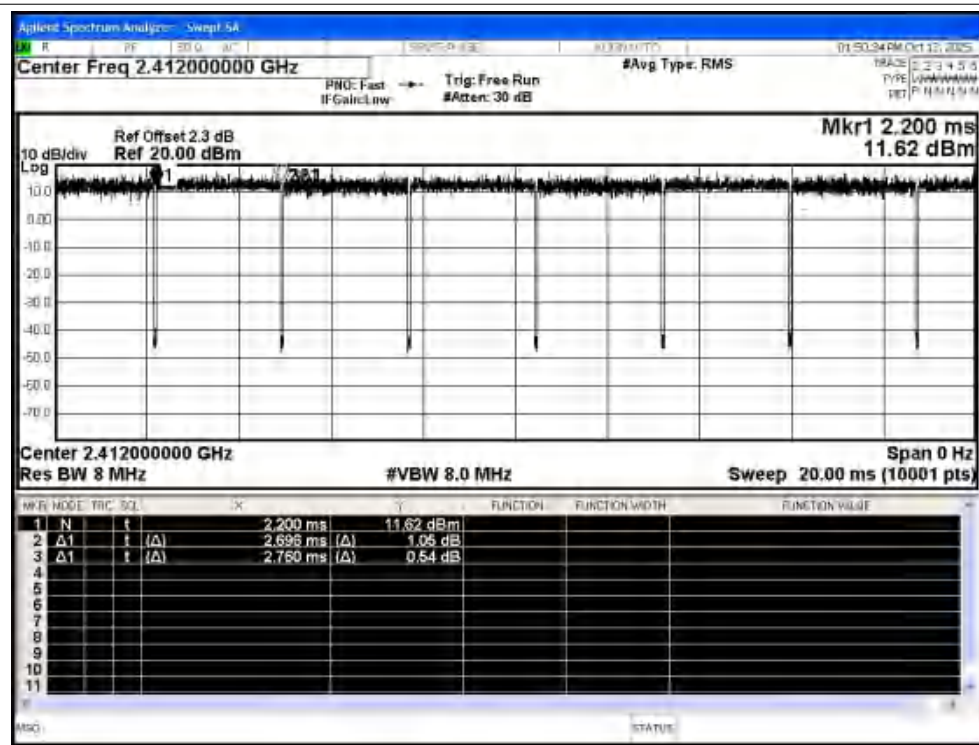
Duty Cycle NVNT b 2437MHz Ant1



Duty Cycle NVNT b 2462MHz Ant1

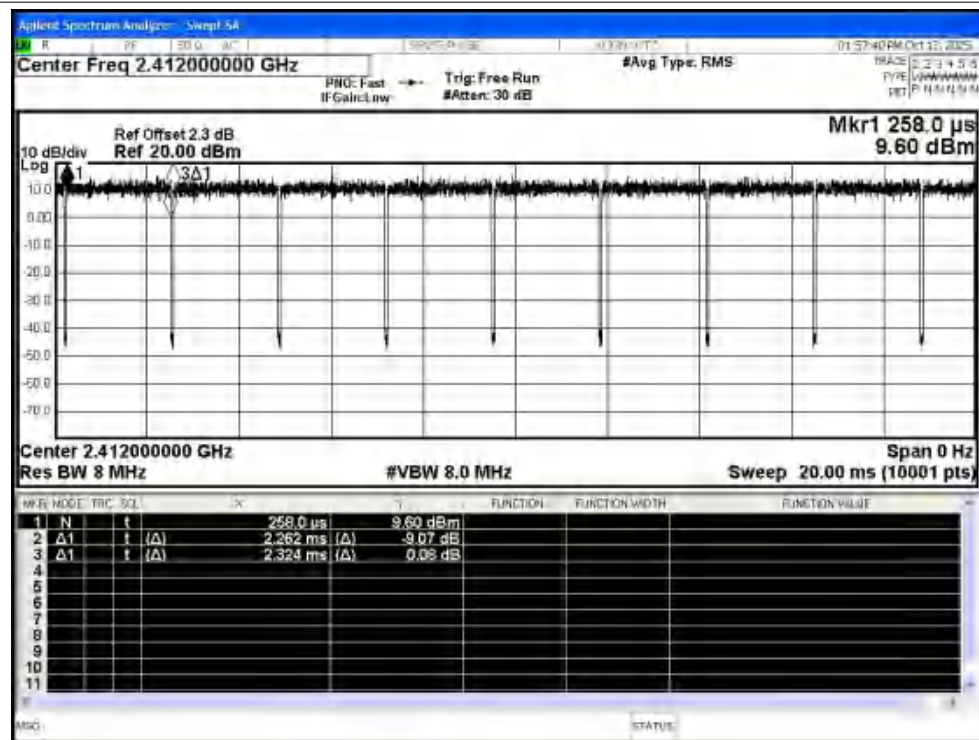


Duty Cycle NVNT g 2412MHz Ant1

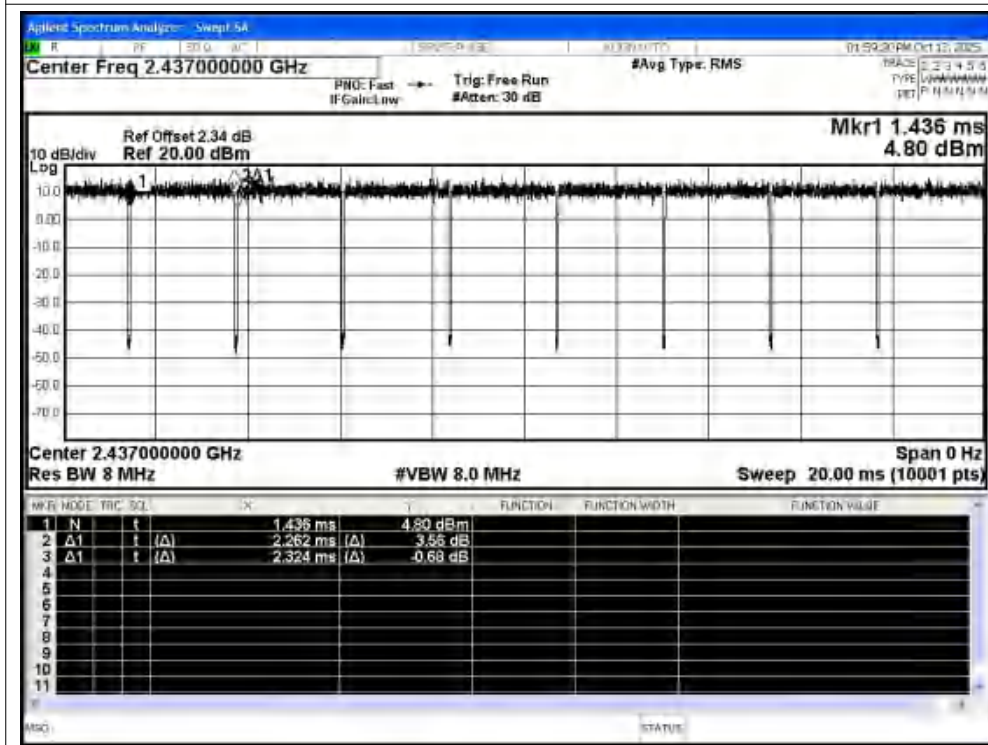


[illegible]

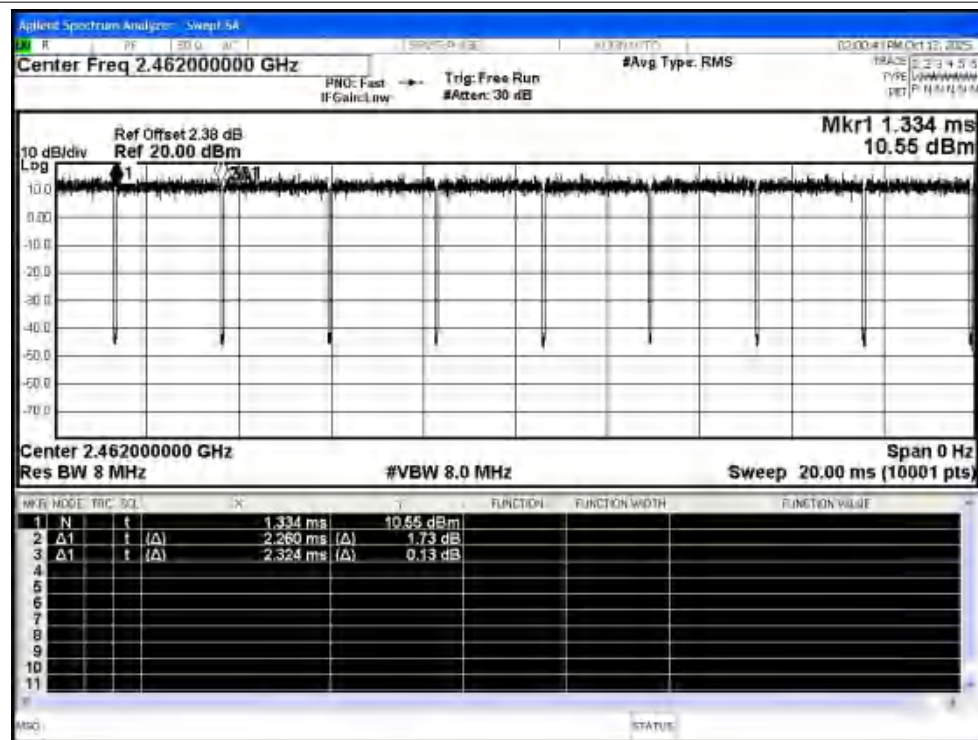
Duty Cycle NVNT n20 2412MHz Ant1



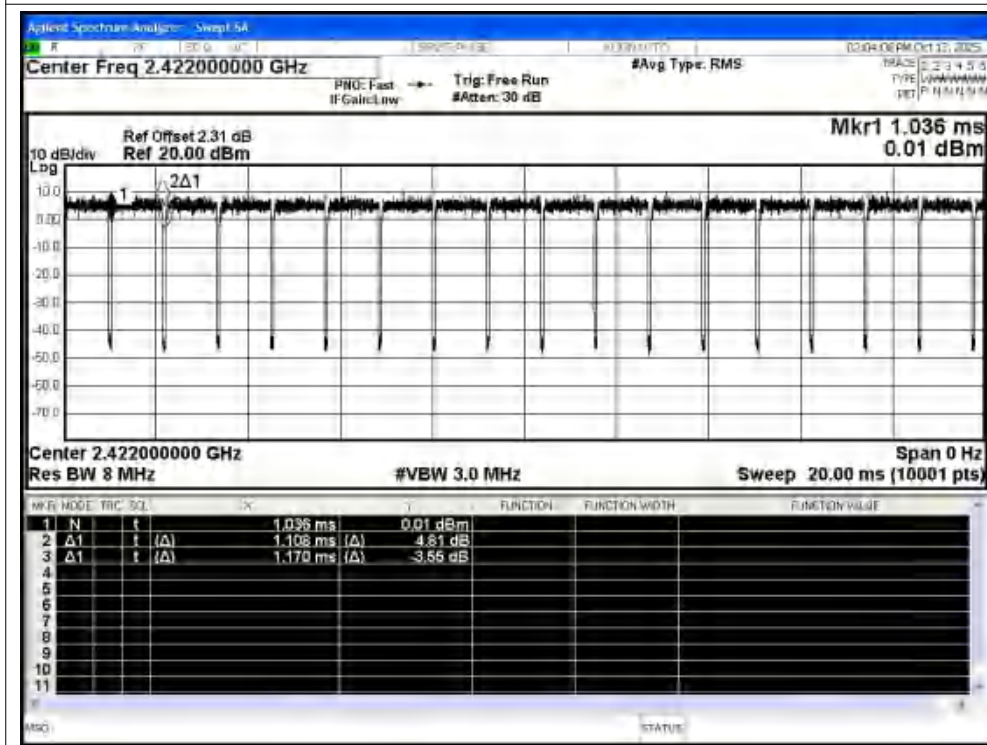
Duty Cycle NVNT n20 2437MHz Ant1



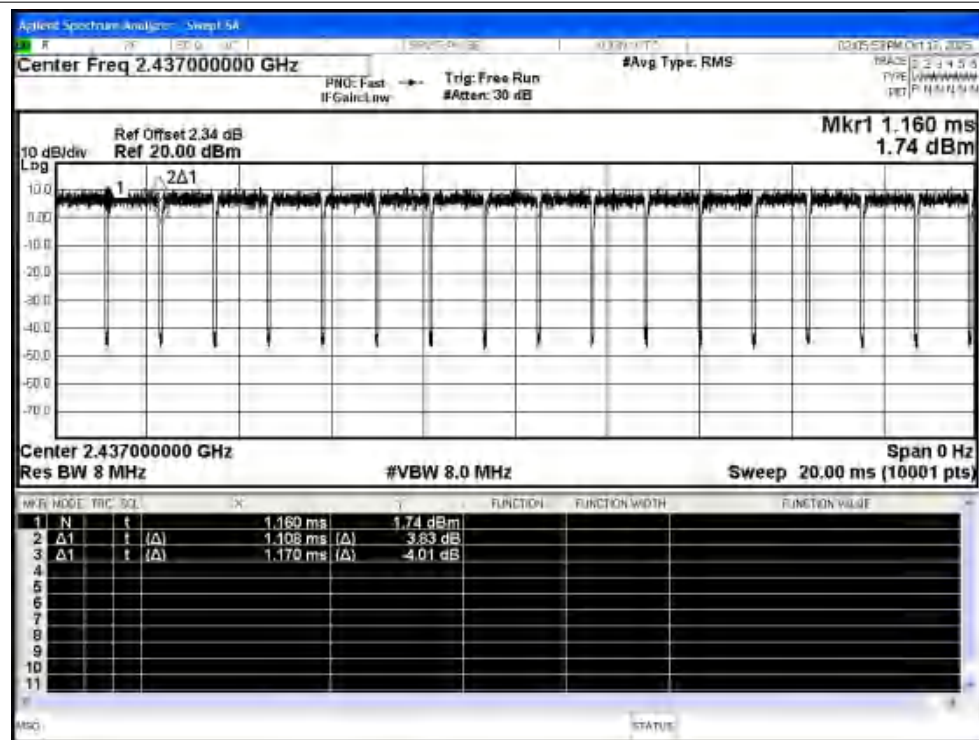
Duty Cycle NVNT n20 2462MHz Ant1



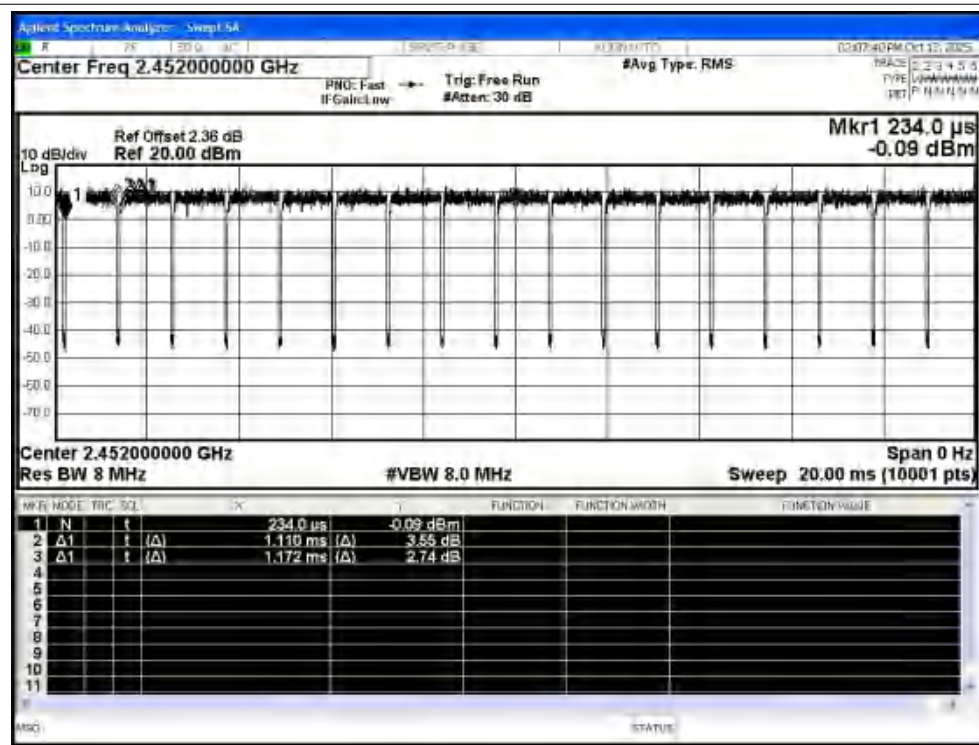
Duty Cycle NVNT n40 2422MHz Ant1



Duty Cycle NVNT n40 2437MHz Ant1



Duty Cycle NVNT n40 2452MHz Ant1



ESP32:

Condition	Mode	Frequency (MHz)	Antenna	Duty Cycle (%)	Correction Factor (dB)	1/T (kHz)
NVNT	b	2412	Ant1	99.16	0	0.15
NVNT	b	2437	Ant1	99.13	0	0.15
NVNT	b	2462	Ant1	99.13	0	0.15
NVNT	g	2412	Ant1	97.68	0.1	0.37
NVNT	g	2437	Ant1	97.75	0.1	0.37
NVNT	g	2462	Ant1	97.68	0.1	0.37
NVNT	n20	2412	Ant1	97.33	0.12	0.44
NVNT	n20	2437	Ant1	97.33	0.12	0.44
NVNT	n20	2462	Ant1	97.25	0.12	0.44
NVNT	n40	2422	Ant1	94.87	0.23	0.9
NVNT	n40	2437	Ant1	94.87	0.23	0.9
NVNT	n40	2452	Ant1	94.71	0.24	0.9

Agilent Spectrum Analyzer - Sweep 5A

Center Freq 2.462000000 GHz

Ref Offset 2.38 dB
Ref 20.00 dBm

Mkr1 1.966 ms
10.59 dBm

Res BW 8 MHz

#VBW 8.0 MHz

Sweep 20.00 ms (10001 pts)

Span 0 Hz

MARKER	MODE	TRC	SCL	UNIT	FUNCTION	FUNCTION WIDTH	FUNCTION VALUE
1	N		t	1.966 ms	10.59 dBm		
2	Δ 1		t (Δ)	2.696 ms (Δ)	-1.42 dB		
3	Δ 1		t (Δ)	2.760 ms (Δ)	0.27 dB		
4							
5							
6							
7							
8							
9							
10							
11							

Agilent Spectrum Analyzer - Sweep 5A

Center Freq 2.437000000 GHz

PNO: Fast IF Gain Low Trig: Free Run #Atten: 30 dB

#Avg Type: RMS

Mkr1 2.330 ms 8.07 dBm

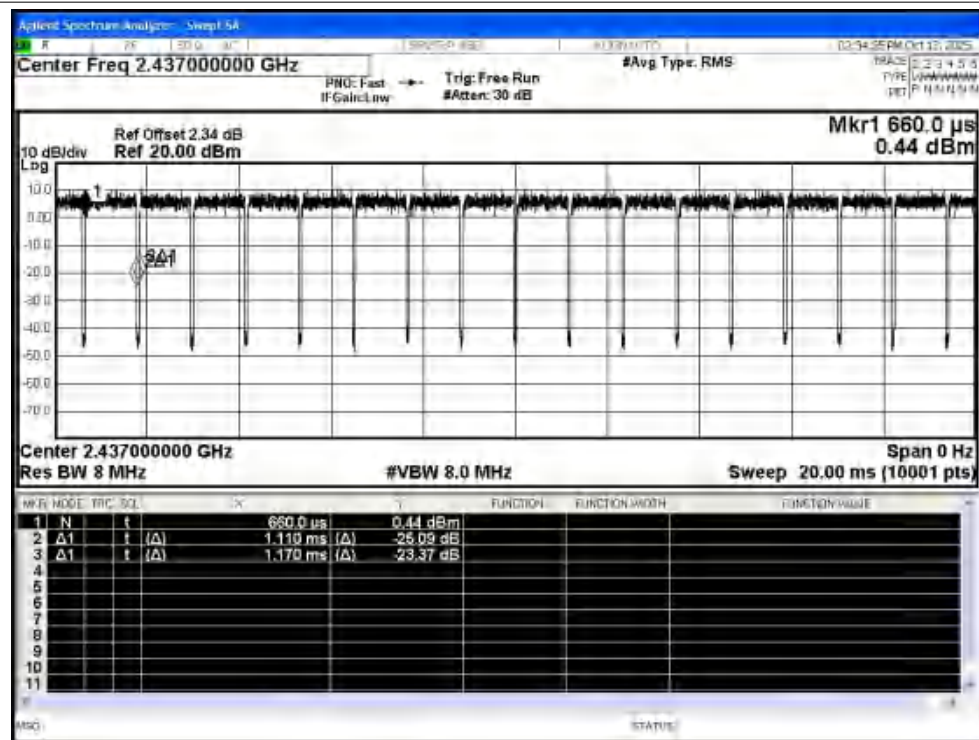
Ref Offset 2.34 dB Ref 20.00 dBm

10 dB/div Log

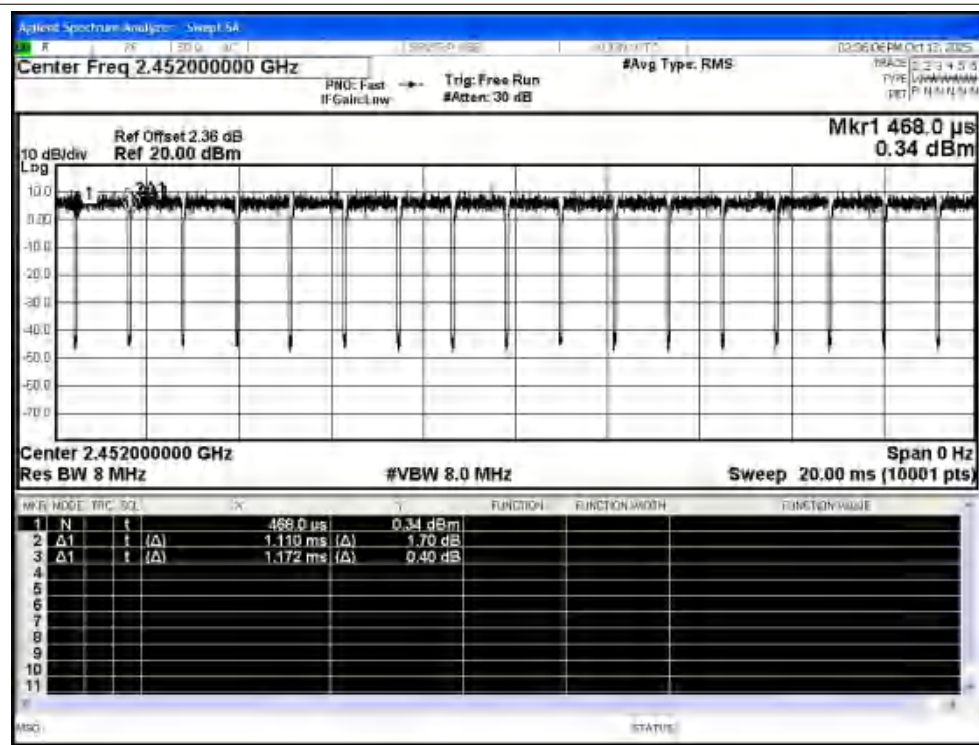
Center 2.437000000 GHz Res BW 8 MHz #VBW 8.0 MHz Span 0 Hz Sweep 20.00 ms (10001 pts)

MARKER	MODE	FREQ	SPL	DURATION	FUNCTION	FUNCTION WIDTH	FUNCTION VALUE
1	N		t	2.330 ms			8.07 dBm
2	Δ 1		t (Δ)	2.262 ms (Δ)			-29.28 dB
3	Δ 1		t (Δ)	2.324 ms (Δ)			0.17 dB

Duty Cycle NVNT n40 2437MHz Ant1



Duty Cycle NVNT n40 2452MHz Ant1



7. Restrict Band

RTL8821:

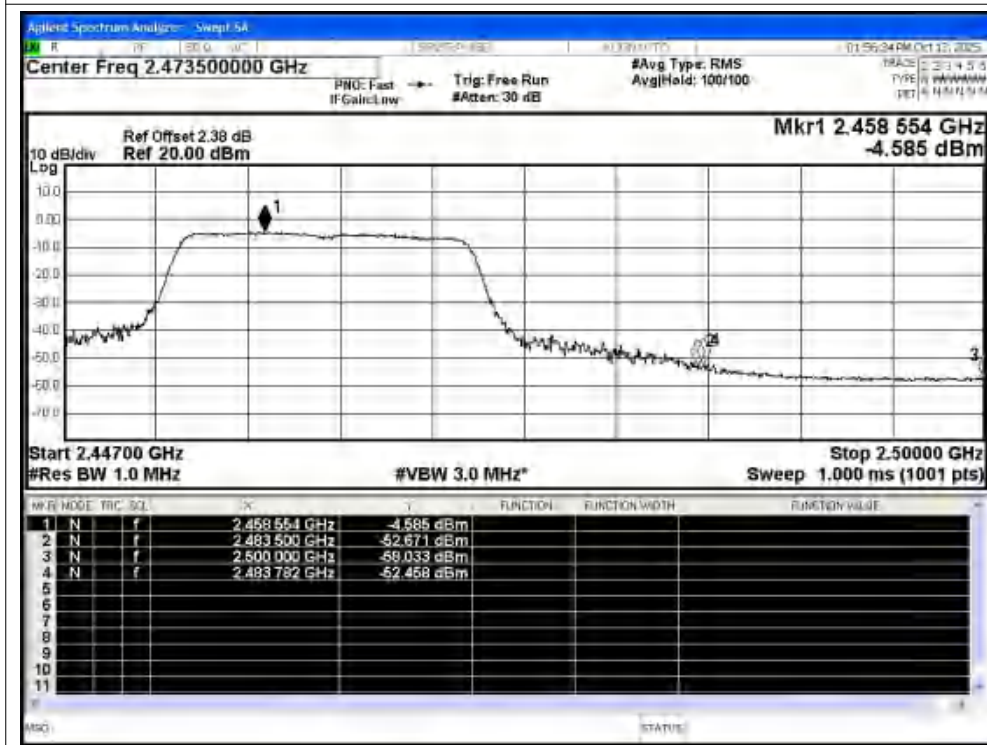
Condition	Mode	Frequency (MHz)	Antenna	Spur Freq (MHz)	Power (dBm)	Gain (dBi)	Duty Factor (dB)	E (dBuV/m)	Detector	Limit (dBuV/m)	Verdict
NVNT	b	2412	Ant1	2310	-49.26	2.97	-	48.97	Peak	74	Pass
NVNT	b	2412	Ant1	2310	-58.87	2.97	0	39.36	Average	54	Pass
NVNT	b	2412	Ant1	2386.167	-46.41	2.97	-	51.82	Peak	74	Pass
NVNT	b	2412	Ant1	2389.56	-55.3	2.97	0	42.93	Average	54	Pass
NVNT	b	2412	Ant1	2390	-48.78	2.97	-	49.45	Peak	74	Pass
NVNT	b	2412	Ant1	2390	-56.12	2.97	0	42.11	Average	54	Pass
NVNT	b	2462	Ant1	2483.5	-45.68	2.97	-	52.55	Peak	74	Pass
NVNT	b	2462	Ant1	2483.5	-54.35	2.97	0	43.88	Average	54	Pass
NVNT	b	2462	Ant1	2484.789	-38.16	2.97	-	60.07	Peak	74	Pass
NVNT	b	2462	Ant1	2483.941	-53.76	2.97	0	44.47	Average	54	Pass
NVNT	b	2462	Ant1	2500	-49.75	2.97	-	48.48	Peak	74	Pass
NVNT	b	2462	Ant1	2500	-57.74	2.97	0	40.49	Average	54	Pass
NVNT	g	2412	Ant1	2310	-49.4	2.97	-	48.83	Peak	74	Pass
NVNT	g	2412	Ant1	2310	-58.23	2.97	0.1	40.10	Average	54	Pass
NVNT	g	2412	Ant1	2389.911	-32.3	2.97	-	65.93	Peak	74	Pass
NVNT	g	2412	Ant1	2388.624	-53.36	2.97	0.1	44.97	Average	54	Pass
NVNT	g	2412	Ant1	2390	-34.49	2.97	-	63.74	Peak	74	Pass
NVNT	g	2412	Ant1	2390	-54.03	2.97	0.1	44.30	Average	54	Pass
NVNT	g	2462	Ant1	2483.5	-35.15	2.97	-	63.08	Peak	74	Pass
NVNT	g	2462	Ant1	2483.5	-52.67	2.97	0.1	45.66	Average	54	Pass
NVNT	g	2462	Ant1	2483.676	-33.52	2.97	-	64.71	Peak	74	Pass
NVNT	g	2462	Ant1	2483.782	-52.46	2.97	0.1	45.87	Average	54	Pass
NVNT	g	2462	Ant1	2500	-49.14	2.97	-	49.09	Peak	74	Pass
NVNT	g	2462	Ant1	2500	-58.03	2.97	0.1	40.30	Average	54	Pass
NVNT	n20	2412	Ant1	2310	-49.92	2.97	-	48.31	Peak	74	Pass
NVNT	n20	2412	Ant1	2310	-58.21	2.97	0.12	40.14	Average	54	Pass
NVNT	n20	2412	Ant1	2389.911	-33.61	2.97	-	64.62	Peak	74	Pass
NVNT	n20	2412	Ant1	2389.911	-52.31	2.97	0.12	46.04	Average	54	Pass
NVNT	n20	2412	Ant1	2390	-34.41	2.97	-	63.82	Peak	74	Pass
NVNT	n20	2412	Ant1	2390	-53.36	2.97	0.12	44.99	Average	54	Pass
NVNT	n20	2462	Ant1	2483.5	-34.31	2.97	-	63.92	Peak	74	Pass
NVNT	n20	2462	Ant1	2483.5	-50.89	2.97	0.12	47.46	Average	54	Pass
NVNT	n20	2462	Ant1	2483.517	-34.31	2.97	-	63.92	Peak	74	Pass
NVNT	n20	2462	Ant1	2483.517	-50.89	2.97	0.12	47.46	Average	54	Pass
NVNT	n20	2462	Ant1	2500	-50.59	2.97	-	47.64	Peak	74	Pass
NVNT	n20	2462	Ant1	2500	-57.84	2.97	0.12	40.51	Average	54	Pass
NVNT	n40	2422	Ant1	2310	-48.73	2.97	-	49.50	Peak	74	Pass

NVNT	n40	2422	Ant1	2310	-58.48	2.97	0.24	39.99	Average	54	Pass
NVNT	n40	2422	Ant1	2389.378	-32.61	2.97	-	65.62	Peak	74	Pass
NVNT	n40	2422	Ant1	2389.662	-49.75	2.97	0.24	48.72	Average	54	Pass
NVNT	n40	2422	Ant1	2390	-36.77	2.97	-	61.46	Peak	74	Pass
NVNT	n40	2422	Ant1	2390	-50.23	2.97	0.24	48.24	Average	54	Pass
NVNT	n40	2452	Ant1	2483.5	-38.67	2.97	-	59.56	Peak	74	Pass
NVNT	n40	2452	Ant1	2483.5	-50.9	2.97	0.24	47.57	Average	54	Pass
NVNT	n40	2452	Ant1	2484.4	-36.62	2.97	-	61.61	Peak	74	Pass
NVNT	n40	2452	Ant1	2483.932	-50.29	2.97	0.24	48.18	Average	54	Pass
NVNT	n40	2452	Ant1	2500	-50.3	2.97	-	47.93	Peak	74	Pass
NVNT	n40	2452	Ant1	2500	-57.24	2.97	0.24	41.23	Average	54	Pass

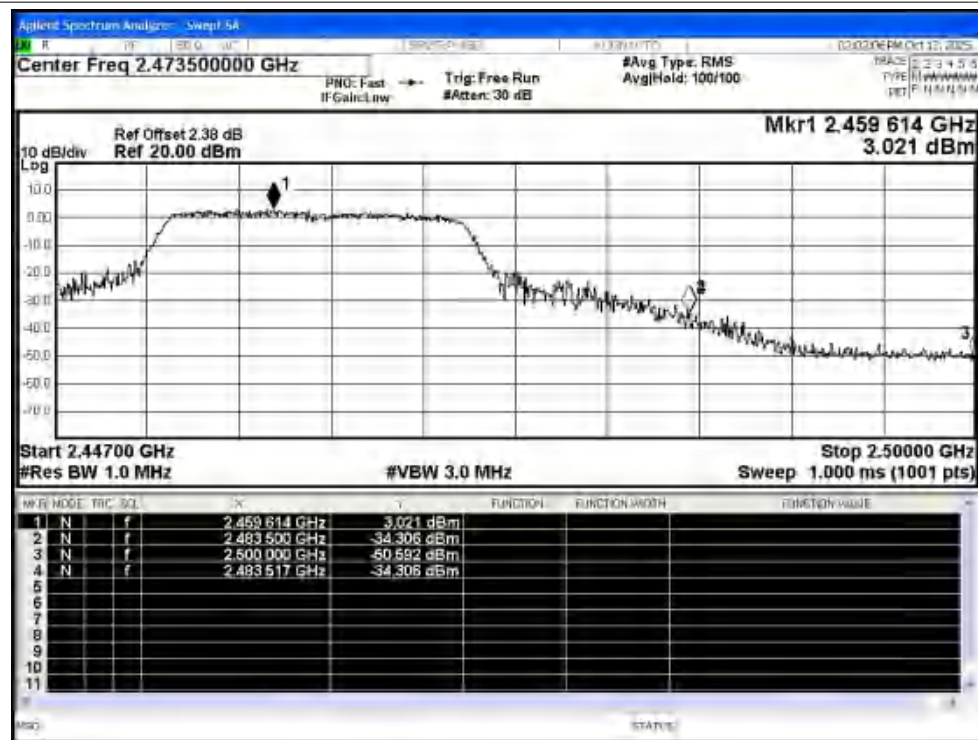
Restrict Band NVNT g 2462MHz Ant1 Peak



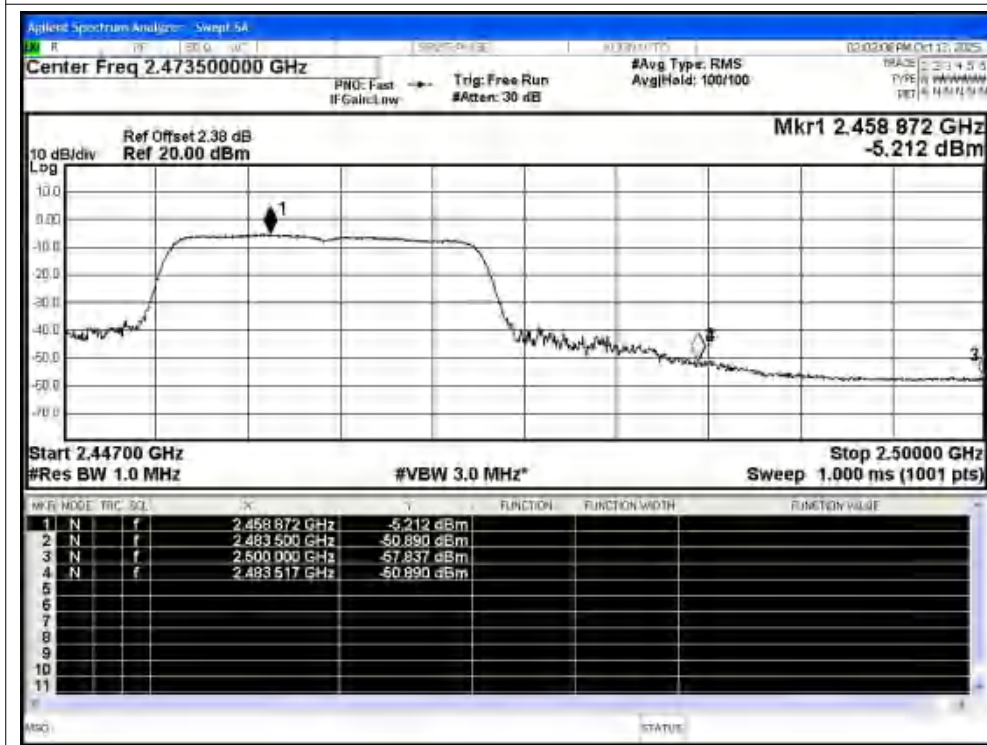
Restrict Band NVNT g 2462MHz Ant1 Average



Restrict Band NVNT n20 2462MHz Ant1 Peak



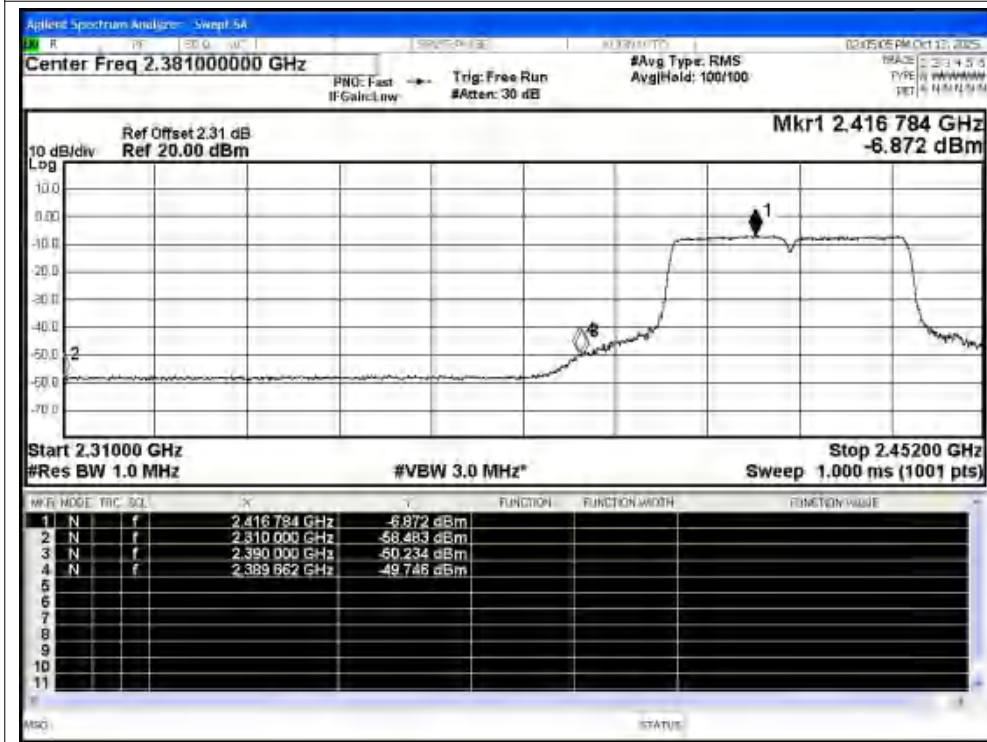
Restrict Band NVNT n20 2462MHz Ant1 Average



Restrict Band NVNT n40 2422MHz Ant1 Peak



Restrict Band NVNT n40 2422MHz Ant1 Average

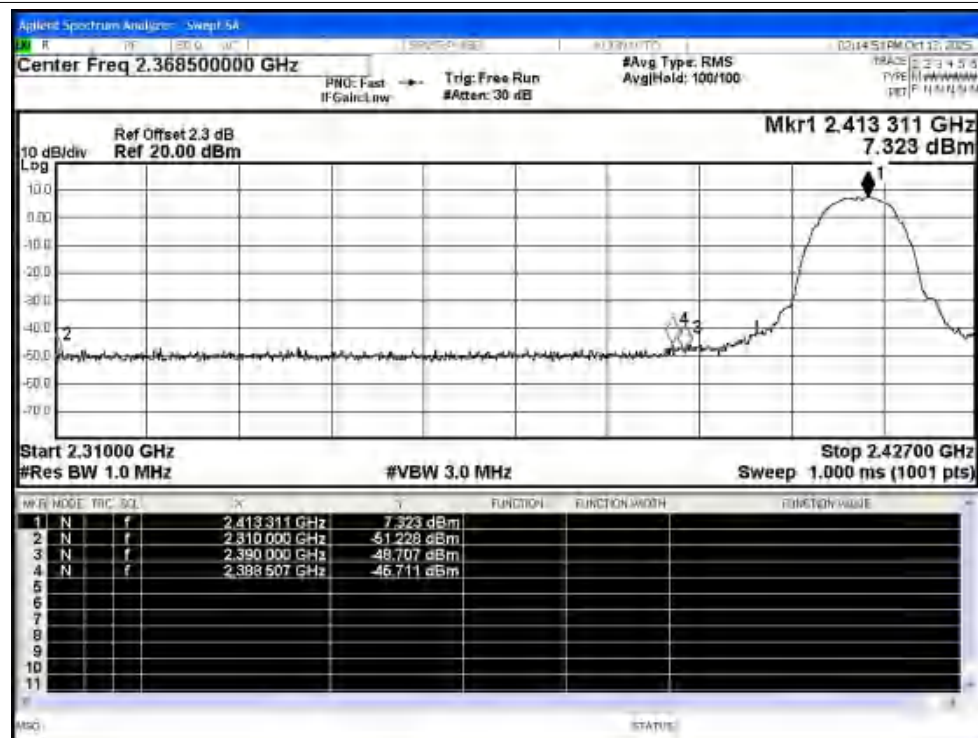


ESP32:

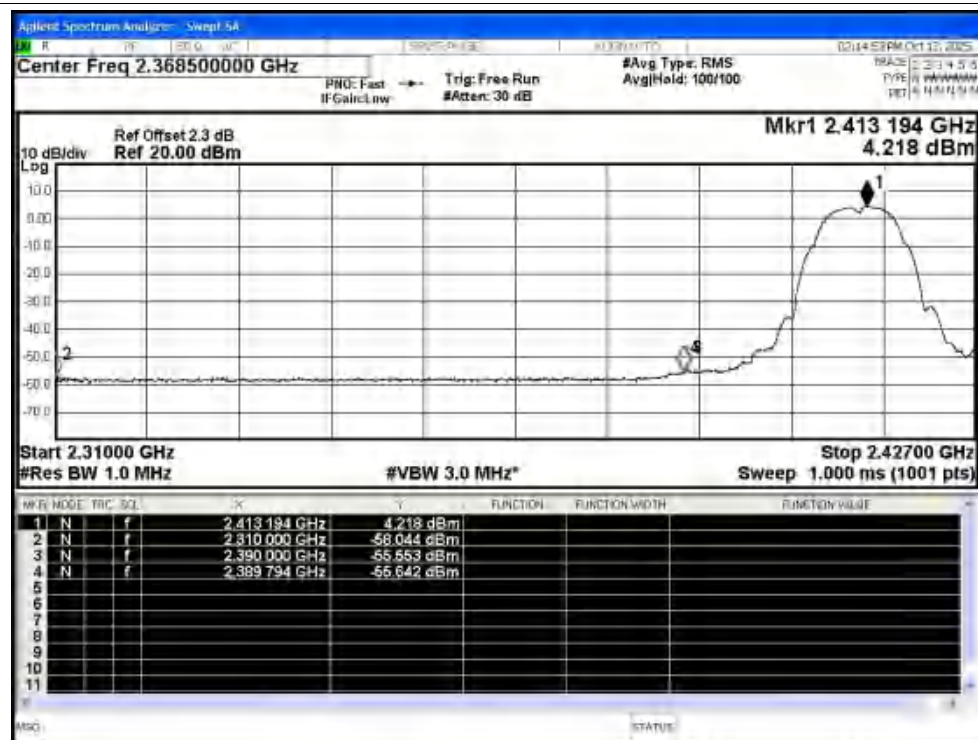
Condition	Mode	Frequency (MHz)	Antenna	Spur Freq (MHz)	Power (dBm)	Gain (dBi)	Duty Factor (dB)	E (dBuV/m)	Detector	Limit (dBuV/m)	Verdict
NVNT	b	2412	Ant1	2310	-51.23	4.86	-	48.89	Peak	74	Pass
NVNT	b	2412	Ant1	2310	-58.04	4.86	0	42.08	Average	54	Pass
NVNT	b	2412	Ant1	2388.507	-45.71	4.86	-	54.41	Peak	74	Pass
NVNT	b	2412	Ant1	2389.794	-55.64	4.86	0	44.48	Average	54	Pass
NVNT	b	2412	Ant1	2390	-48.71	4.86	-	51.41	Peak	74	Pass
NVNT	b	2412	Ant1	2390	-55.55	4.86	0	44.57	Average	54	Pass
NVNT	b	2462	Ant1	2483.5	-46.59	4.86	-	53.53	Peak	74	Pass
NVNT	b	2462	Ant1	2483.5	-54.49	4.86	0	45.63	Average	54	Pass
NVNT	b	2462	Ant1	2484.1	-43.06	4.86	-	57.06	Peak	74	Pass
NVNT	b	2462	Ant1	2485.213	-53.74	4.86	0	46.38	Average	54	Pass
NVNT	b	2462	Ant1	2500	-50.2	4.86	-	49.92	Peak	74	Pass
NVNT	b	2462	Ant1	2500	-57.05	4.86	0	43.07	Average	54	Pass
NVNT	g	2412	Ant1	2310	-50.75	4.86	-	49.37	Peak	74	Pass
NVNT	g	2412	Ant1	2310	-58.32	4.86	0.1	41.90	Average	54	Pass
NVNT	g	2412	Ant1	2389.911	-35.94	4.86	-	64.18	Peak	74	Pass
NVNT	g	2412	Ant1	2389.911	-54.27	4.86	0.1	45.95	Average	54	Pass
NVNT	g	2412	Ant1	2390	-34.29	4.86	-	65.83	Peak	74	Pass
NVNT	g	2412	Ant1	2390	-54.61	4.86	0.1	45.61	Average	54	Pass
NVNT	g	2462	Ant1	2483.5	-40.09	4.86	-	60.03	Peak	74	Pass
NVNT	g	2462	Ant1	2483.5	-54.44	4.86	0.1	45.78	Average	54	Pass
NVNT	g	2462	Ant1	2484.1	-36.68	4.86	-	63.44	Peak	74	Pass
NVNT	g	2462	Ant1	2483.888	-52.13	4.86	0.1	48.09	Average	54	Pass
NVNT	g	2462	Ant1	2500	-50.53	4.86	-	49.59	Peak	74	Pass
NVNT	g	2462	Ant1	2500	-57.36	4.86	0.1	42.86	Average	54	Pass
NVNT	n20	2412	Ant1	2310	-51.07	4.86	-	49.05	Peak	74	Pass
NVNT	n20	2412	Ant1	2310	-57.86	4.86	0.12	42.38	Average	54	Pass
NVNT	n20	2412	Ant1	2389.326	-39.97	4.86	-	60.15	Peak	74	Pass
NVNT	n20	2412	Ant1	2389.911	-53.77	4.86	0.12	46.47	Average	54	Pass
NVNT	n20	2412	Ant1	2390	-37.17	4.86	-	62.95	Peak	74	Pass
NVNT	n20	2412	Ant1	2390	-53.43	4.86	0.12	46.81	Average	54	Pass
NVNT	n20	2462	Ant1	2483.5	-42.68	4.86	-	57.44	Peak	74	Pass
NVNT	n20	2462	Ant1	2483.5	-53.03	4.86	0.12	47.21	Average	54	Pass
NVNT	n20	2462	Ant1	2483.835	-36.01	4.86	-	64.11	Peak	74	Pass
NVNT	n20	2462	Ant1	2483.941	-51.76	4.86	0.12	48.48	Average	54	Pass
NVNT	n20	2462	Ant1	2500	-49.52	4.86	-	50.60	Peak	74	Pass
NVNT	n20	2462	Ant1	2500	-57.36	4.86	0.12	42.88	Average	54	Pass
NVNT	n40	2422	Ant1	2310	-51.85	4.86	-	48.27	Peak	74	Pass
NVNT	n40	2422	Ant1	2310	-58.23	4.86	0.23	42.12	Average	54	Pass

NVNT	n40	2422	Ant1	2389.946	-35.86	4.86	-	64.26	Peak	74	Pass
NVNT	n40	2422	Ant1	2389.662	-50.52	4.86	0.23	49.83	Average	54	Pass
NVNT	n40	2422	Ant1	2390	-35.86	4.86	-	64.26	Peak	74	Pass
NVNT	n40	2422	Ant1	2390	-51.57	4.86	0.23	48.78	Average	54	Pass
NVNT	n40	2452	Ant1	2483.5	-41.54	4.86	-	58.58	Peak	74	Pass
NVNT	n40	2452	Ant1	2483.5	-51.45	4.86	0.24	48.91	Average	54	Pass
NVNT	n40	2452	Ant1	2486.272	-37.06	4.86	-	63.06	Peak	74	Pass
NVNT	n40	2452	Ant1	2483.542	-50.62	4.86	0.24	49.74	Average	54	Pass
NVNT	n40	2452	Ant1	2500	-49.39	4.86	-	50.73	Peak	74	Pass
NVNT	n40	2452	Ant1	2500	-57.63	4.86	0.24	42.73	Average	54	Pass

Restrict Band NVNT b 2412MHz Ant1 Peak



Restrict Band NVNT b 2412MHz Ant1 Average



Agilent Spectrum Analyzer - Sweep 5A

R F BW Span Res

Center Freq 2.473500000 GHz

PNO: Fast IF Gain: low Trig: Free Run #Avg Type: RMS AvgHold: 100/100

Mkr1 2.461 045 GHz 5.347 dBm

Ref Offset 2.38 dB Ref 20.00 dBm

Start 2.44700 GHz Stop 2.50000 GHz
#Res BW 1.0 MHz #VBW 3.0 MHz* Sweep 1.000 ms (1001 pts)

	N	F	Fx	T	FUNCTION	FUNCTION WIDTH	FUNCTION VALUE
1	N	f	2.461 045 GHz	5.347 dBm			
2	N	f	2.483 500 GHz	-64.494 dBm			
3	N	f	2.500 000 GHz	-67.048 dBm			
4	N	f	2.495 213 GHz	-63.743 dBm			
5							
6							
7							
8							
9							
10							
11							

Agilent Spectrum Analyzer - Sweep 5A

R F 50.0 dBm 100.0 MHz 100.0 kHz

Center Freq 2.368500000 GHz

PNO: Fast IF Gain: low Trig: Free Run #Att: 30 dB

#Avg Type: RMS AvgHold: 100/100

TRACE 0 2.314.5.5 TYPE R PAWMM DET R RMS/NORM

Ref Offset 2.3 dB Ref 20.00 dBm

Mkr1 2.415 534 GHz -1.735 dBm

10 dB/div Log

Start 2.31000 GHz Stop 2.42700 GHz
#Res BW 1.0 MHz #VBW 3.0 MHz* Sweep 1.000 ms (1001 pts)

	WFR MODE:	FREQ:	F	FUNCTION:	FUNCTION WIDTH:	FUNCTION VALUE:
1	N	f	2.415 534 GHz	-1.735 dBm		
2	N	f	2.310 000 GHz	-58.324 dBm		
3	N	f	2.390 000 GHz	-54.611 dBm		
4	N	f	2.389 911 GHz	-54.273 dBm		
5						
6						
7						
8						
9						
10						
11						

MSO STATUS

Appllet Spectrum Analyzer Sweep 5A

Center Freq 2.473500000 GHz

PW: Fast IF Gain: Low Trig: Free Run #Avg Type: RMS AvgHold: 100/100

Ref Offset 2.38 dB Ref 20.00 dBm

Mkr1 2.458 077 GHz -5.560 dBm

10 dB/div Log

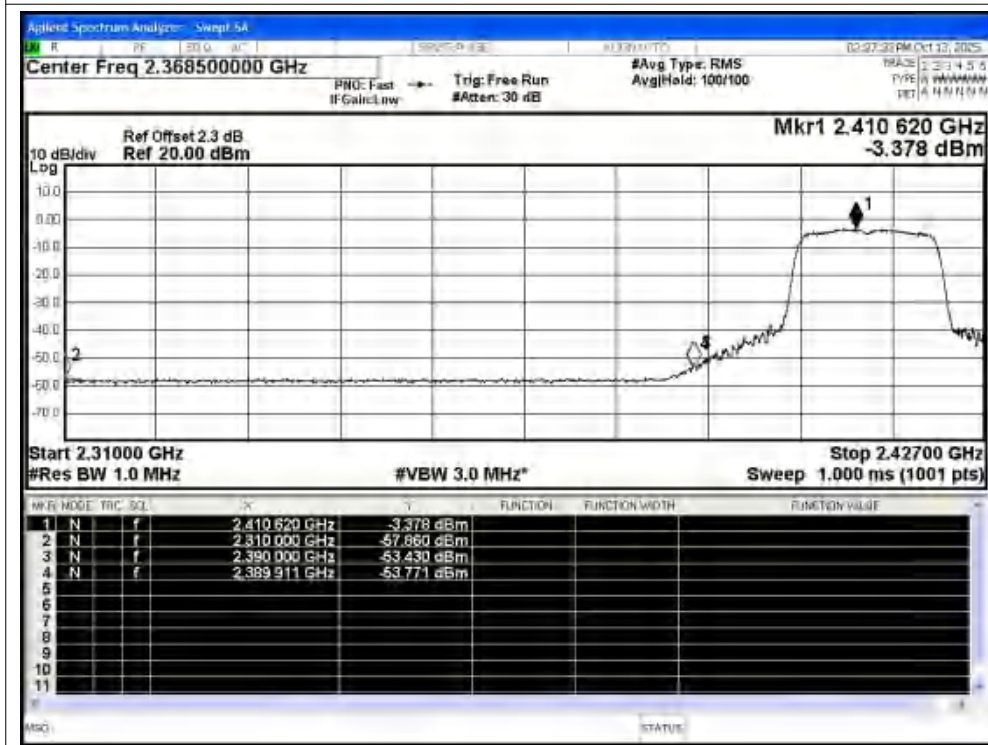
Start 2.44700 GHz #Res BW 1.0 MHz #VBW 3.0 MHz* Stop 2.50000 GHz Sweep 1.000 ms (1001 pts)

LINE	MODE	TRIG	FREQ	POWER	FUNCTION	FUNCTION WIDTH	FUNCTION VALUE
1	N	f	2.458 077 GHz	-5.560 dBm			
2	N	f	2.483 500 GHz	-54.439 dBm			
3	N	f	2.500 000 GHz	-57.357 dBm			
4	N	f	2.483 988 GHz	-52.126 dBm			
5							
6							
7							
8							
9							
10							
11							

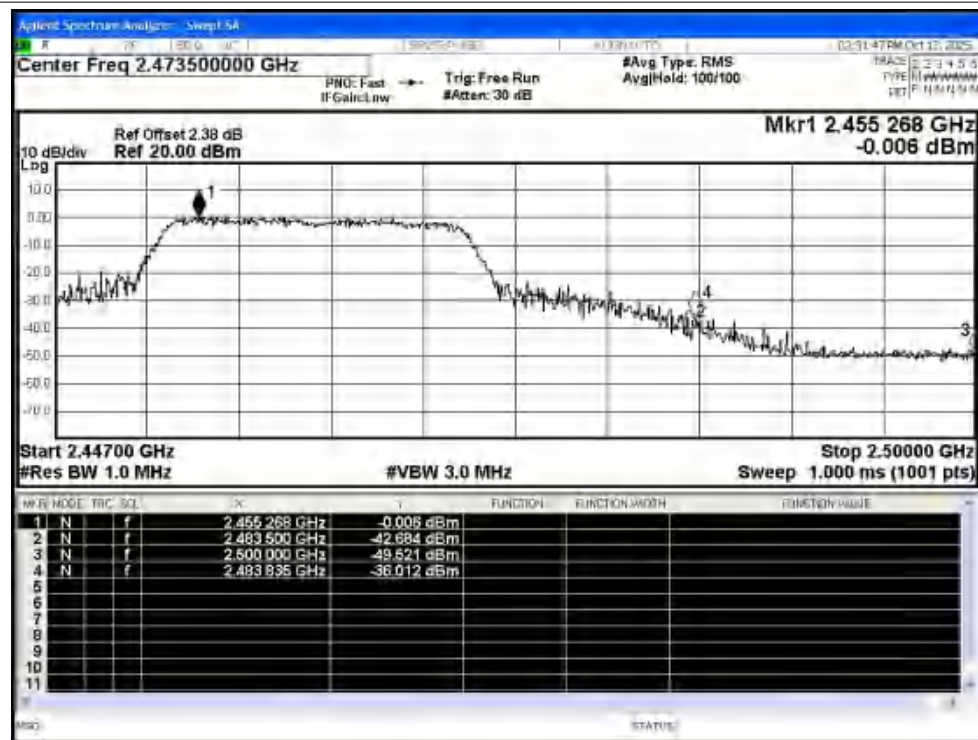
Restrict Band NVNT n20 2412MHz Ant1 Peak



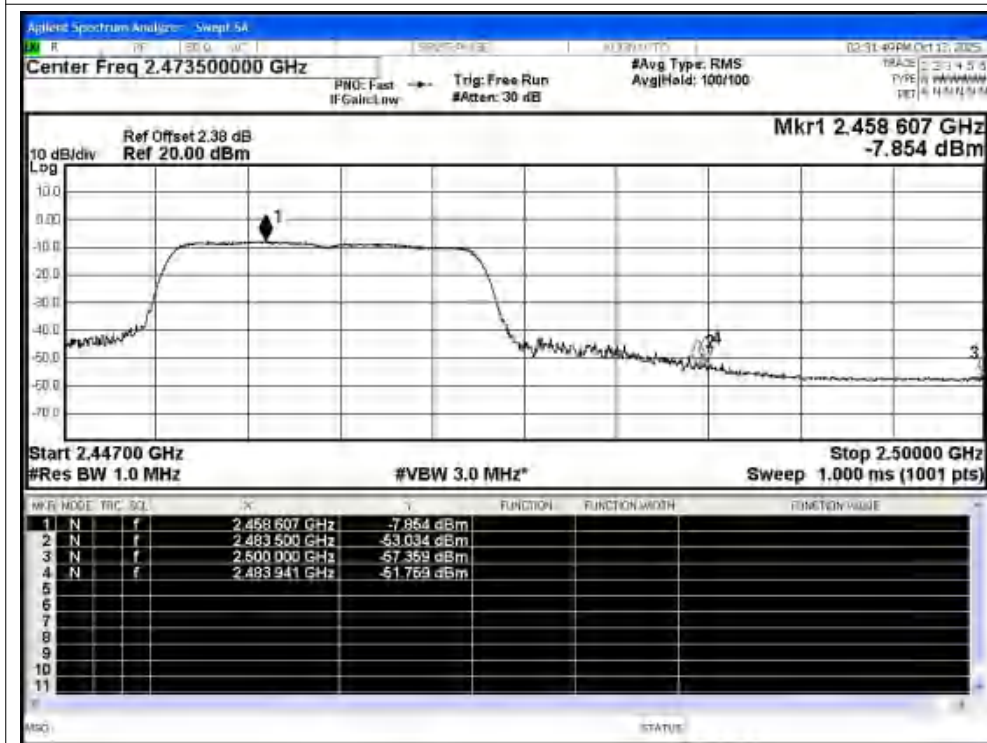
Restrict Band NVNT n20 2412MHz Ant1 Average



Restrict Band NVNT n20 2462MHz Ant1 Peak



Restrict Band NVNT n20 2462MHz Ant1 Average



Restrict Band NVNT n40 2422MHz Ant1 Peak



Restrict Band NVNT n40 2422MHz Ant1 Average

