



Appendix A

RF Test Data for 2.4GWIFI (Conducted Measurement)

Product Name: WiFi Extender
Test Model: CF-XR181

Environmental Conditions

Temperature:	23.8° C
Relative Humidity:	52.1%
ATM Pressure:	100.0 kPa
Test Engineer:	Paddi Chen
Supervised by:	Nick Peng



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A.1 -6dB Bandwidth

Condition	Mode	Frequency (MHz)	Antenna	-6 dB Bandwidth (MHz)	Limit -6 dB Bandwidth (MHz)	Verdict
NVNT	b	2412	Ant1	9.304	≥ 0.5	Pass
NVNT	b	2437	Ant1	10.523	≥ 0.5	Pass
NVNT	b	2462	Ant1	9.584	≥ 0.5	Pass
NVNT	g	2412	Ant1	16.298	≥ 0.5	Pass
NVNT	g	2437	Ant1	16.41	≥ 0.5	Pass
NVNT	g	2462	Ant1	15.555	≥ 0.5	Pass
NVNT	n20	2412	Ant1	17.586	≥ 0.5	Pass
NVNT	n20	2437	Ant1	17.352	≥ 0.5	Pass
NVNT	n20	2462	Ant1	15.076	≥ 0.5	Pass
NVNT	n40	2422	Ant1	26.672	≥ 0.5	Pass
NVNT	n40	2437	Ant1	28.408	≥ 0.5	Pass
NVNT	n40	2452	Ant1	32.52	≥ 0.5	Pass

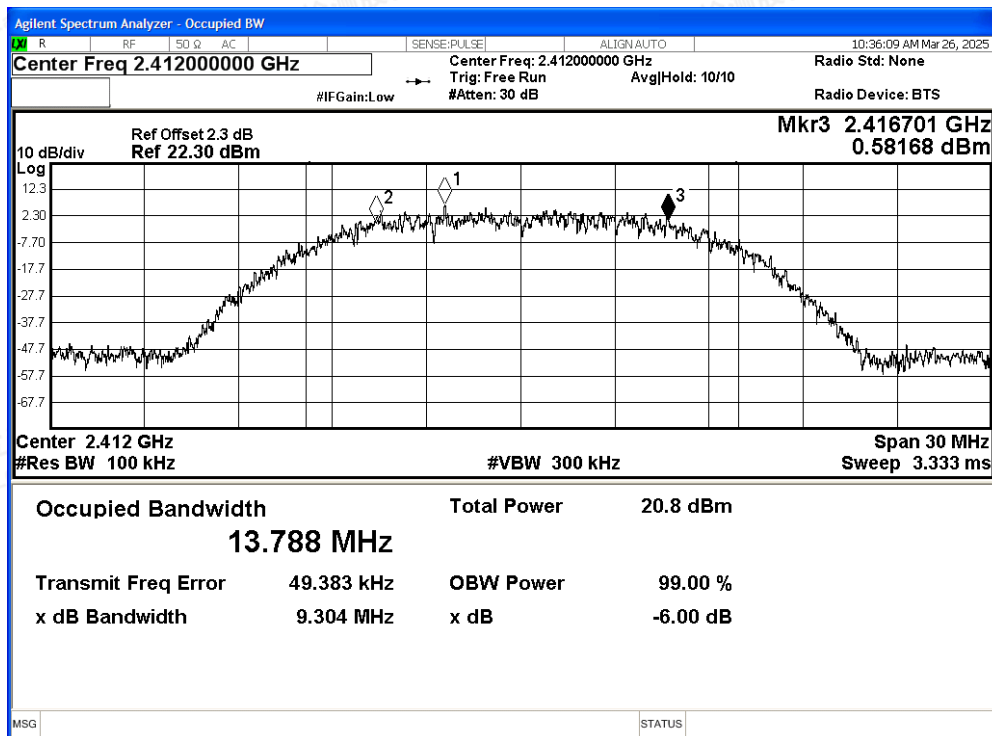


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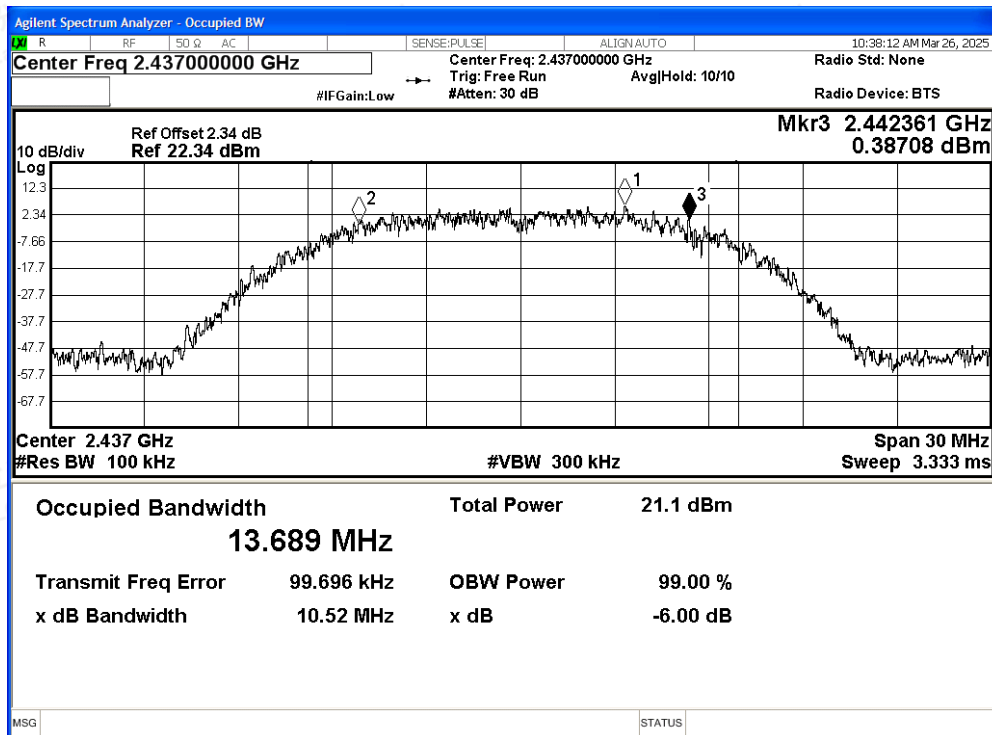


Test Graphs

-6dB Bandwidth NVNT b 2412MHz Ant1

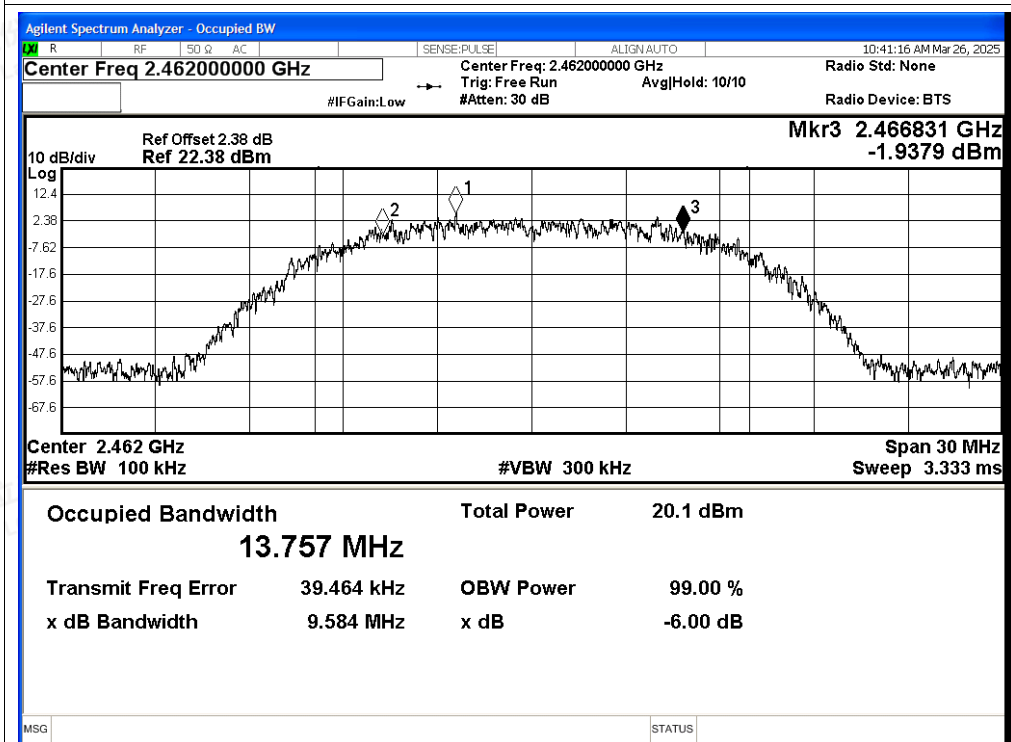


-6dB Bandwidth NVNT b 2437MHz Ant1

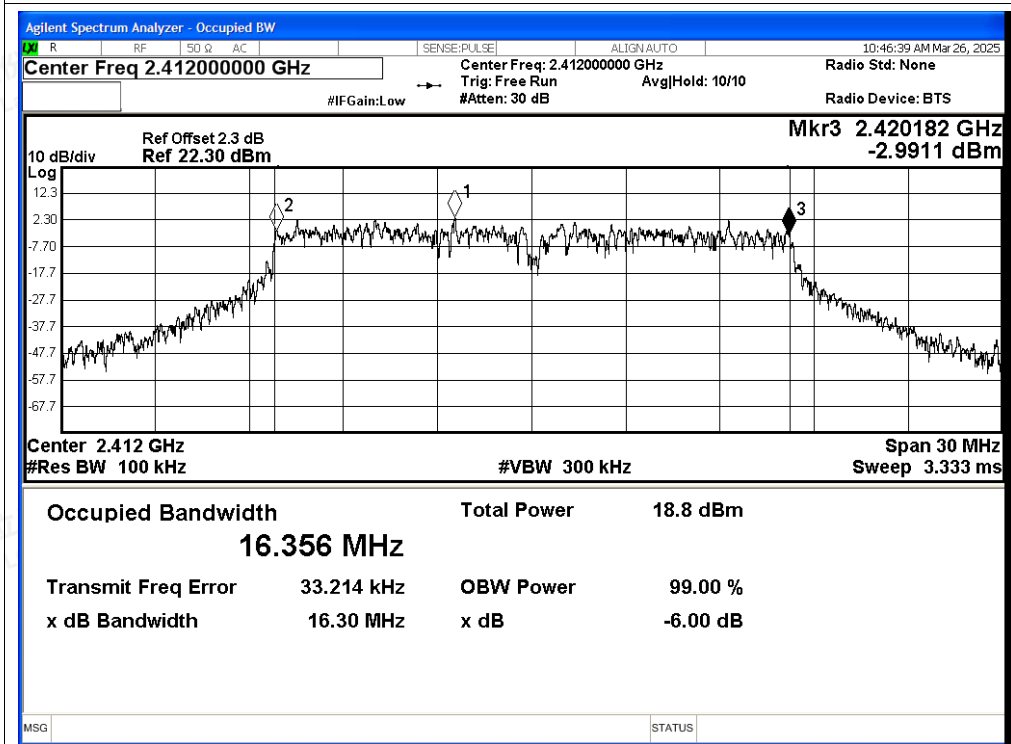


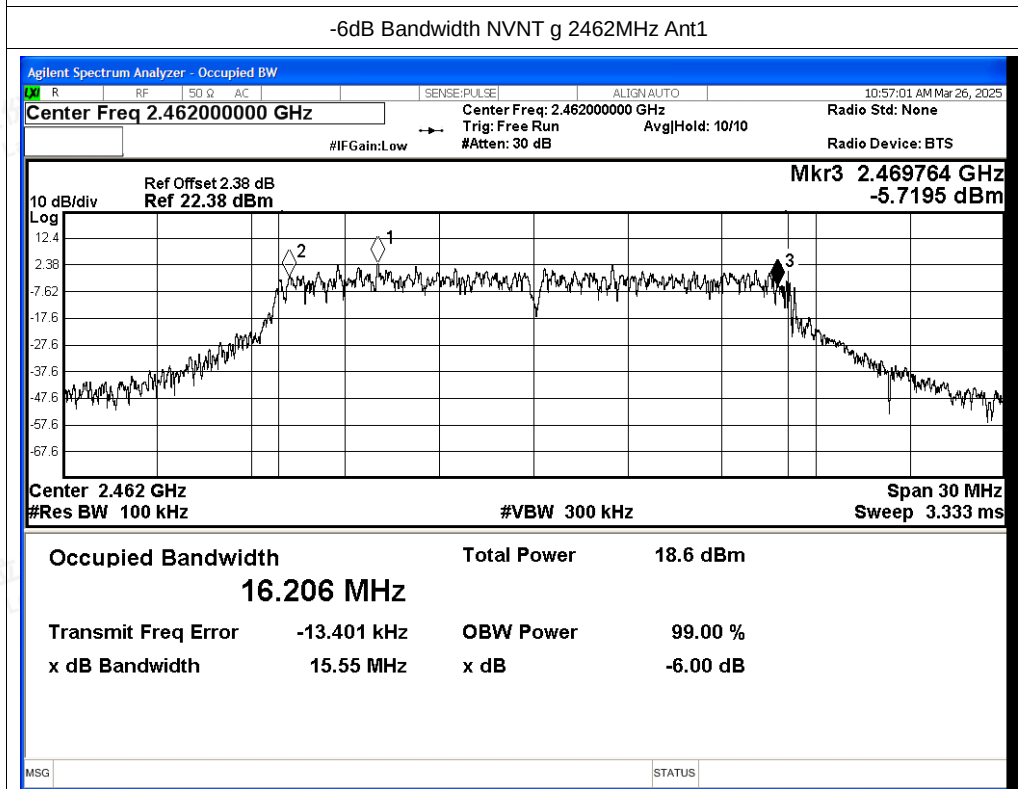
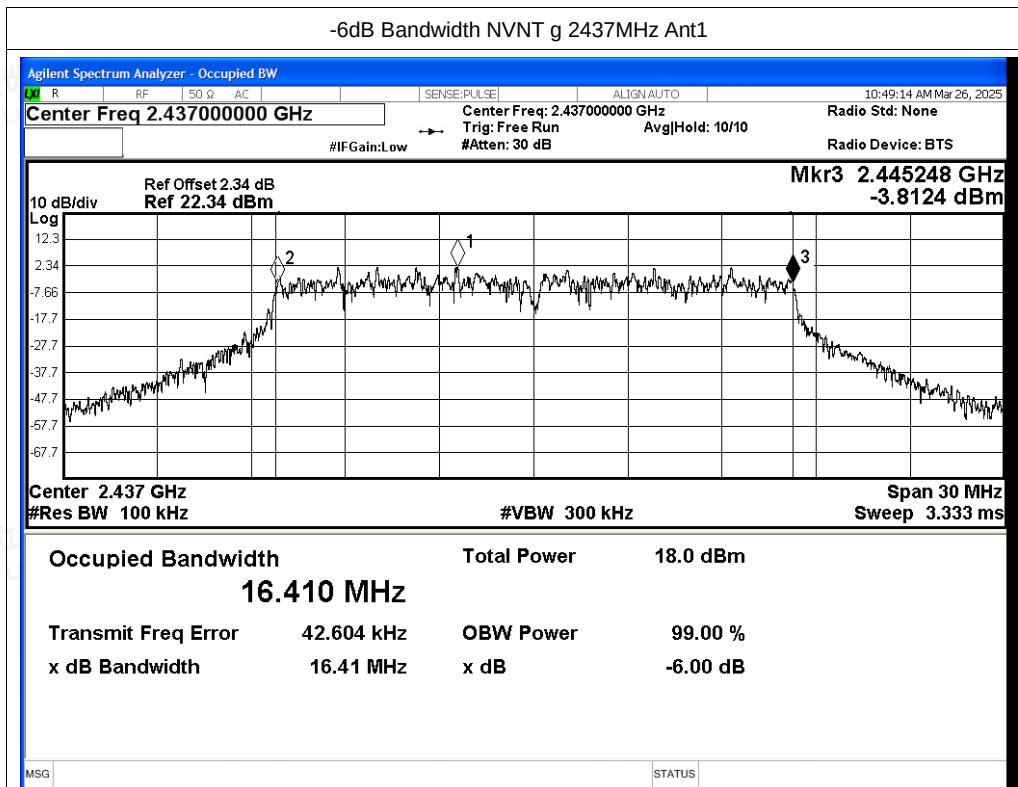


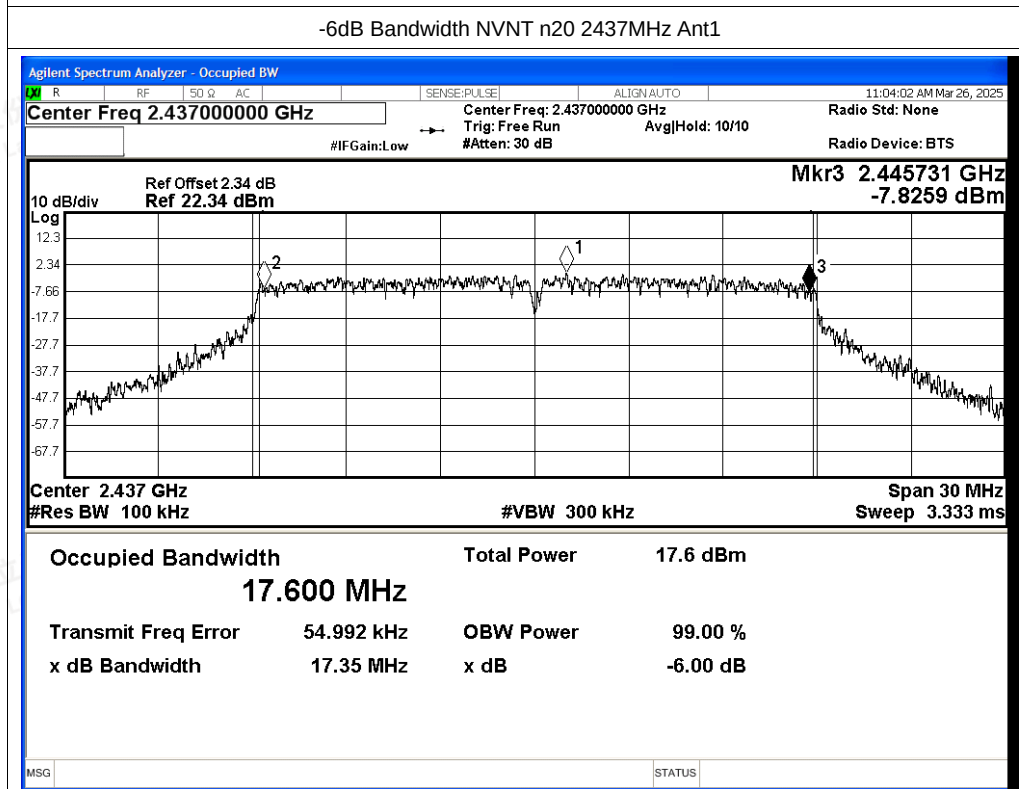
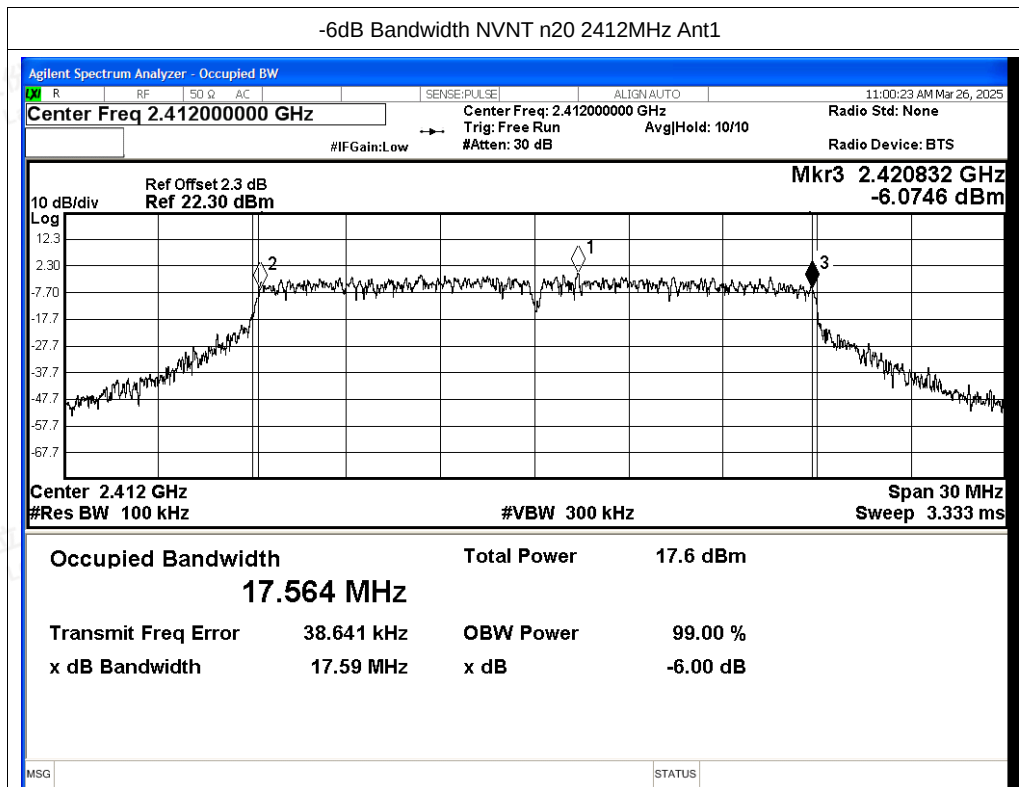
-6dB Bandwidth NVNT b 2462MHz Ant1

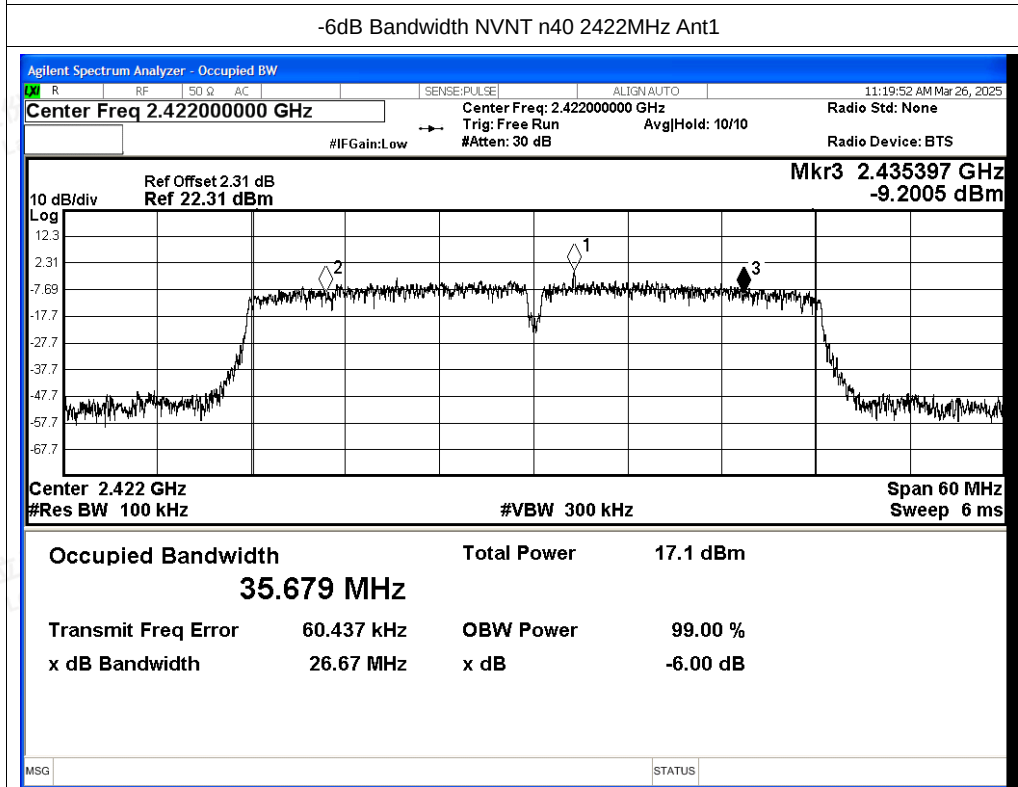
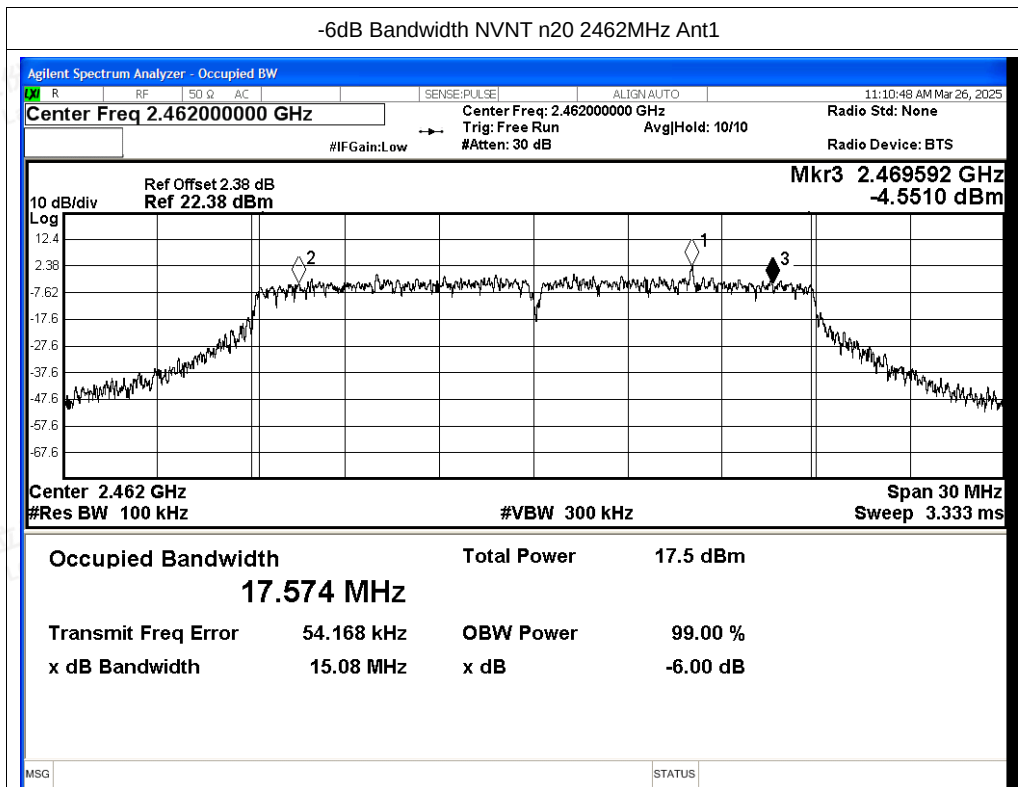


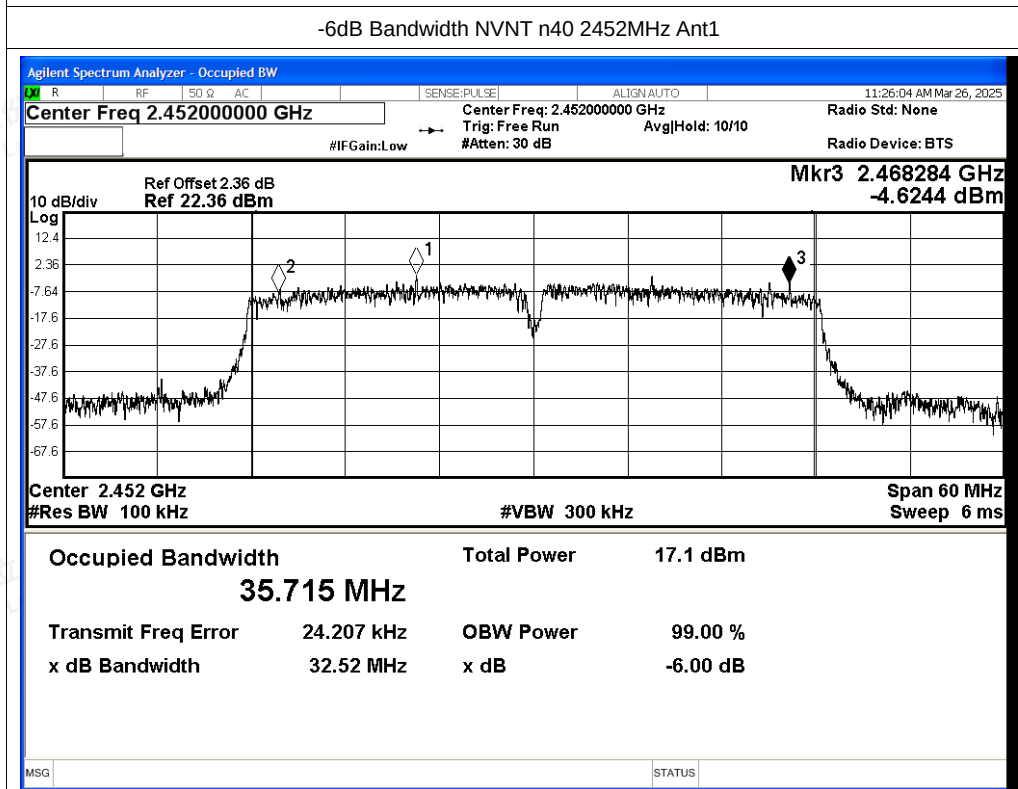
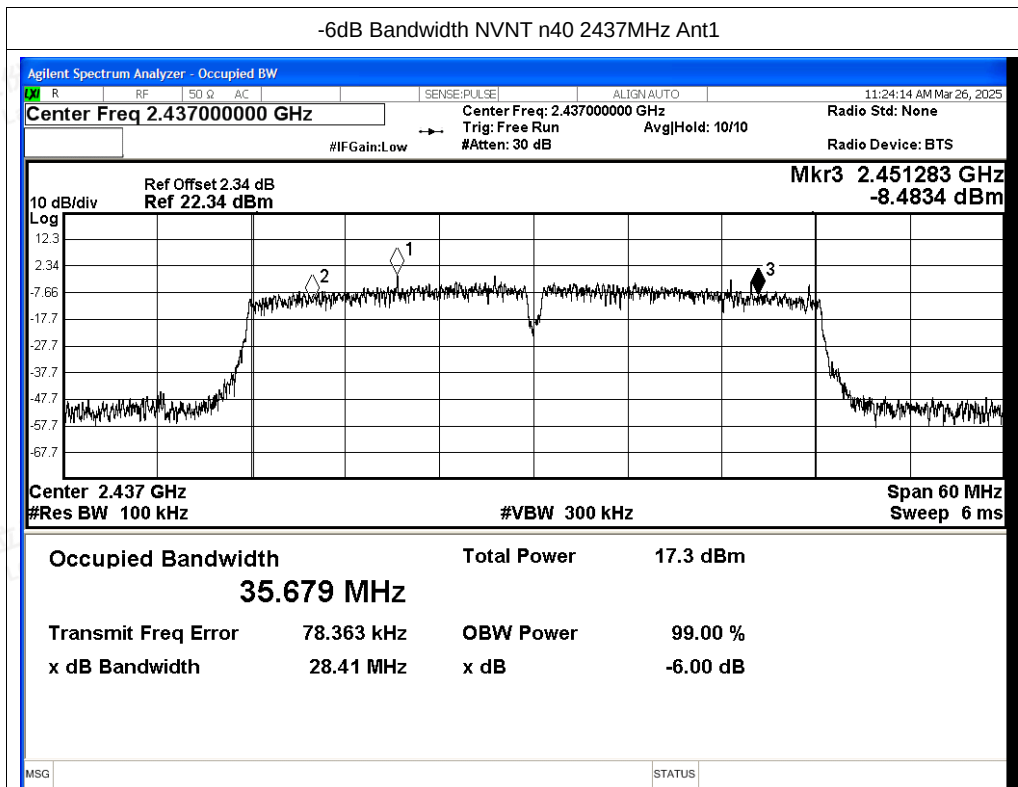
-6dB Bandwidth NVNT g 2412MHz Ant1













Condition	Mode	Frequency (MHz)	Antenna	-6 dB Bandwidth (MHz)	Limit -6 dB Bandwidth (MHz)	Verdict
NVNT	b	2412	Ant2	9.317	≥ 0.5	Pass
NVNT	b	2437	Ant2	9.277	≥ 0.5	Pass
NVNT	b	2462	Ant2	9.296	≥ 0.5	Pass
NVNT	g	2412	Ant2	16.308	≥ 0.5	Pass
NVNT	g	2437	Ant2	16.28	≥ 0.5	Pass
NVNT	g	2462	Ant2	16.368	≥ 0.5	Pass
NVNT	n20	2412	Ant2	16.307	≥ 0.5	Pass
NVNT	n20	2437	Ant2	16.887	≥ 0.5	Pass
NVNT	n20	2462	Ant2	17.002	≥ 0.5	Pass
NVNT	n40	2422	Ant2	35.058	≥ 0.5	Pass
NVNT	n40	2437	Ant2	33.854	≥ 0.5	Pass
NVNT	n40	2452	Ant2	35.048	≥ 0.5	Pass

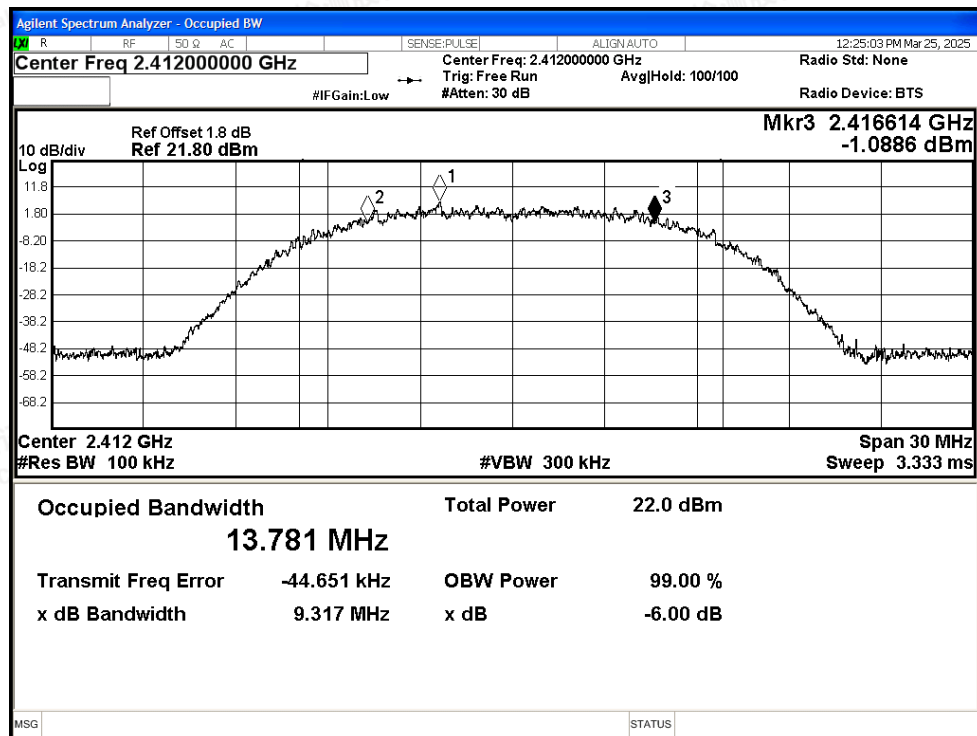


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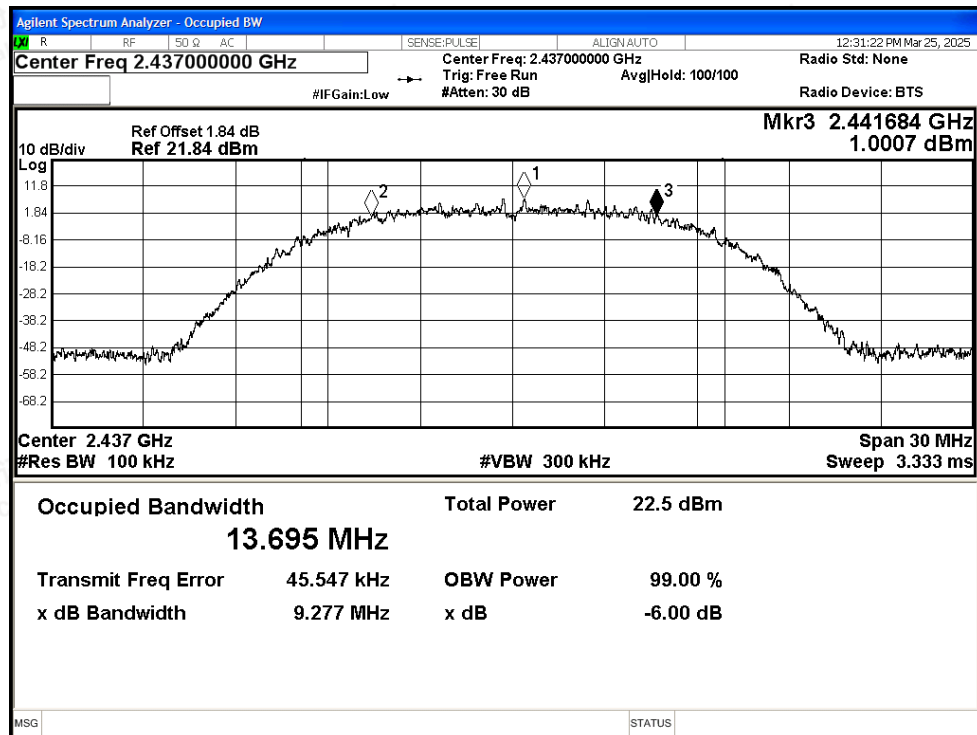


Test Graphs

-6dB Bandwidth NVNT b 2412MHz Ant2

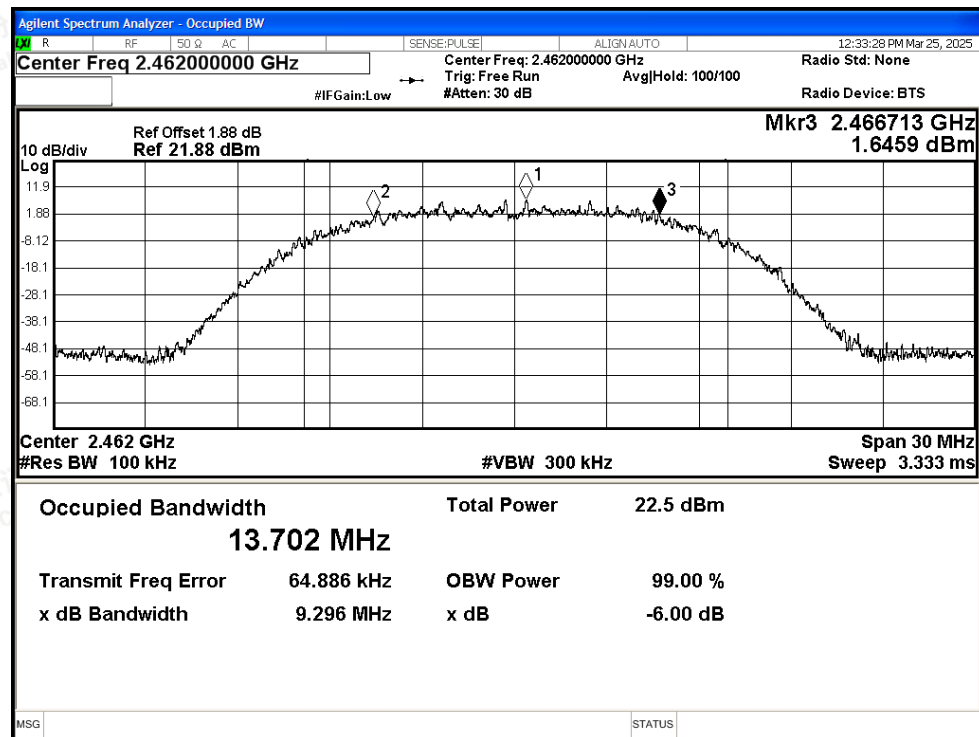


-6dB Bandwidth NVNT b 2437MHz Ant2

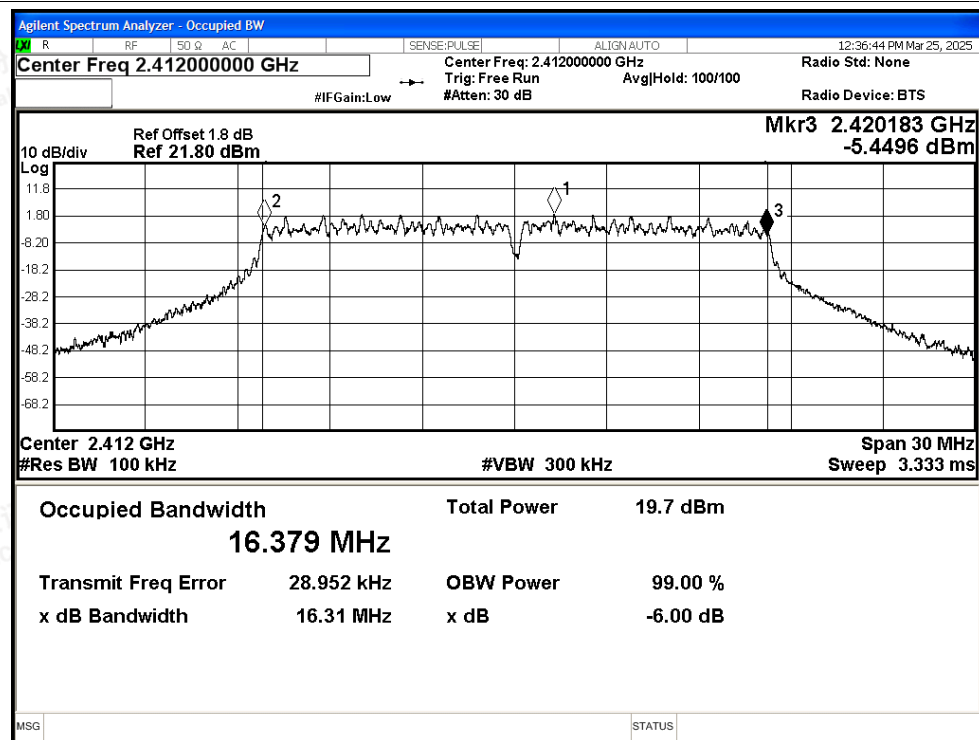




-6dB Bandwidth NVNT b 2462MHz Ant2

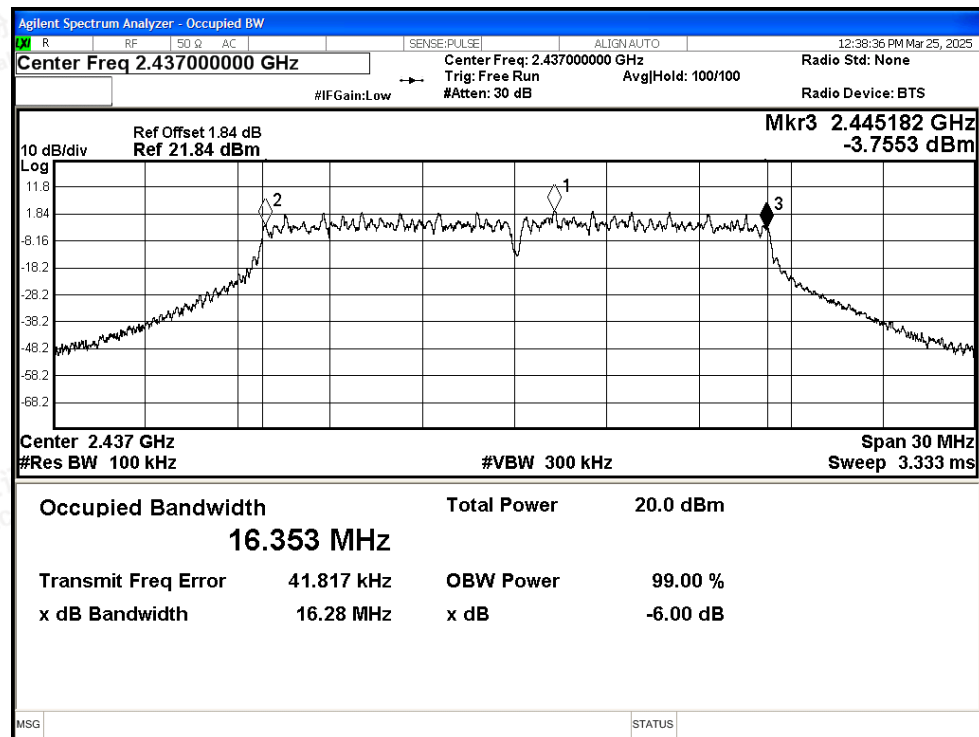


-6dB Bandwidth NVNT g 2412MHz Ant2

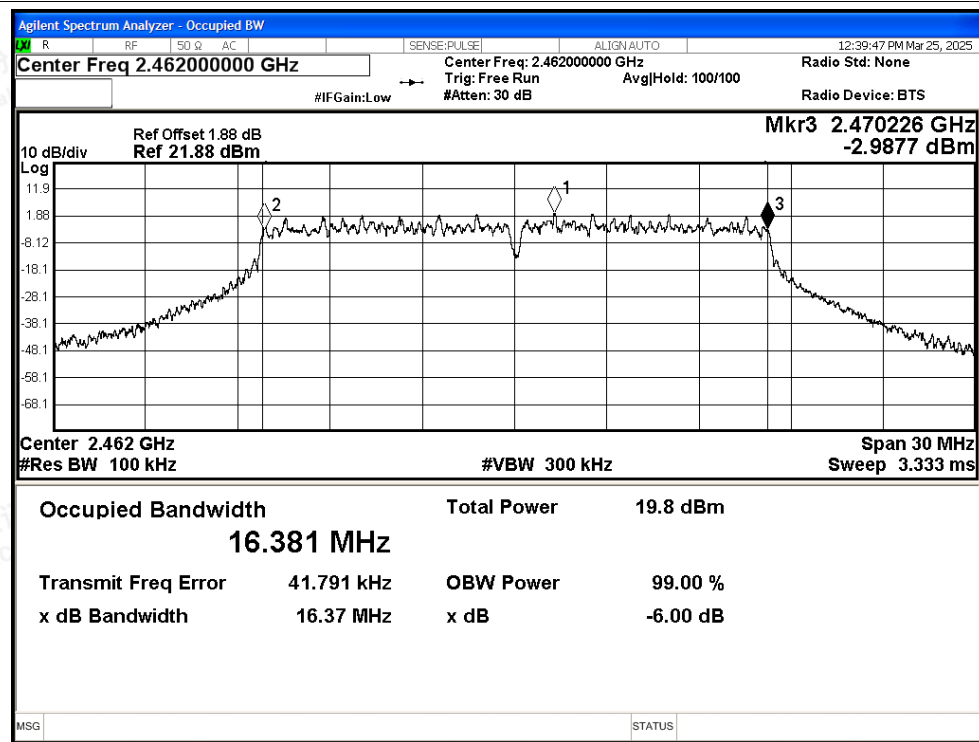




-6dB Bandwidth NVNT g 2437MHz Ant2

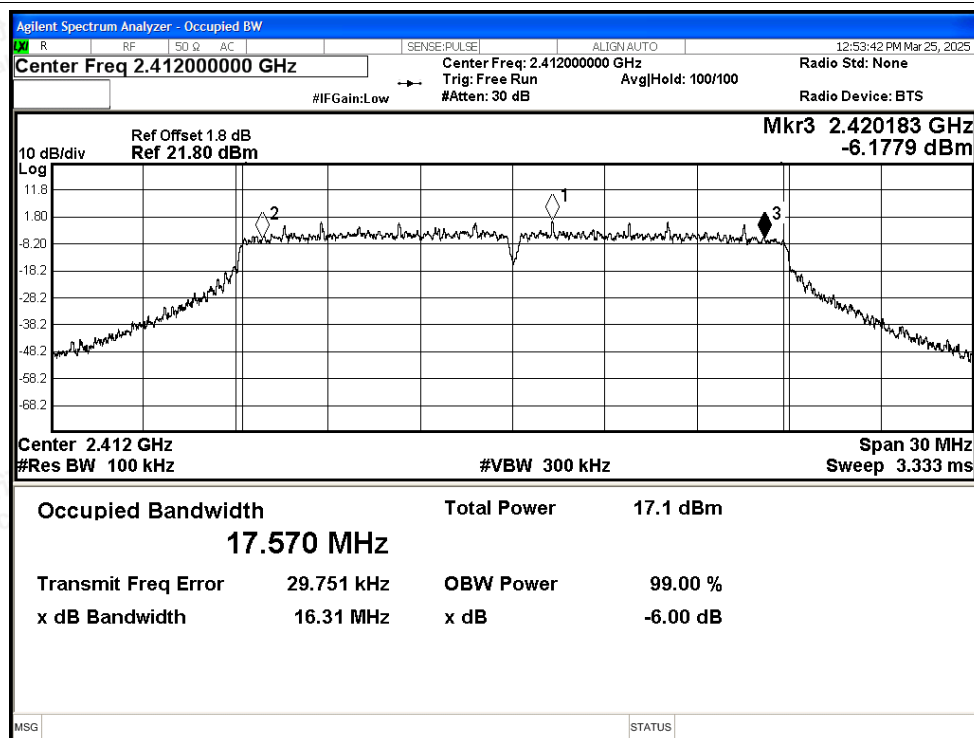


-6dB Bandwidth NVNT g 2462MHz Ant2

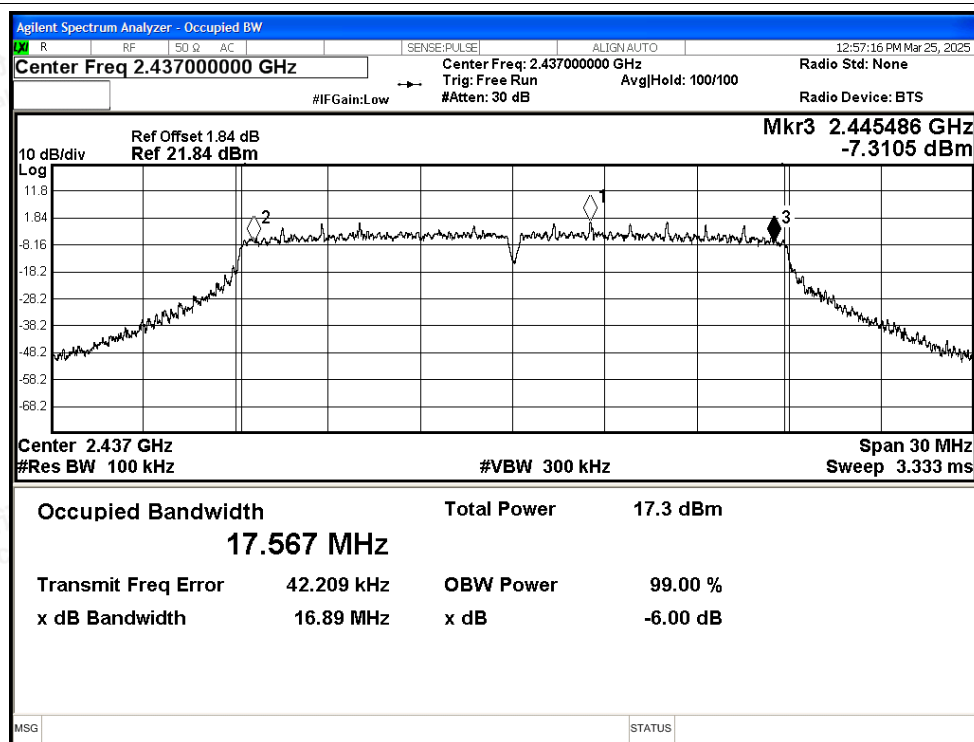




-6dB Bandwidth NVNT n20 2412MHz Ant2

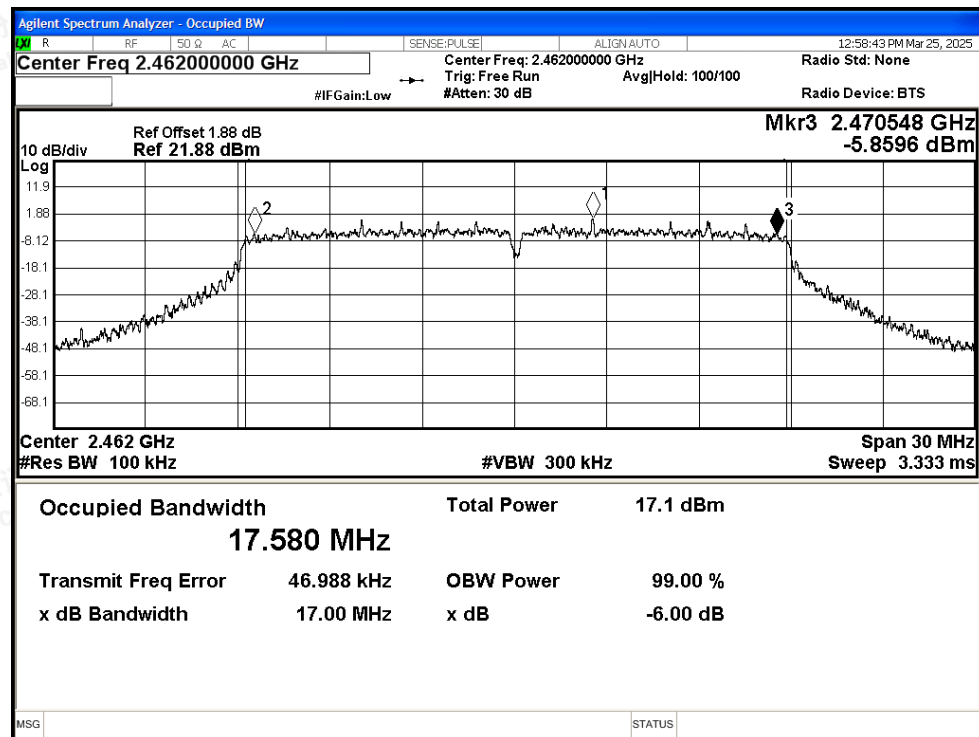


-6dB Bandwidth NVNT n20 2437MHz Ant2

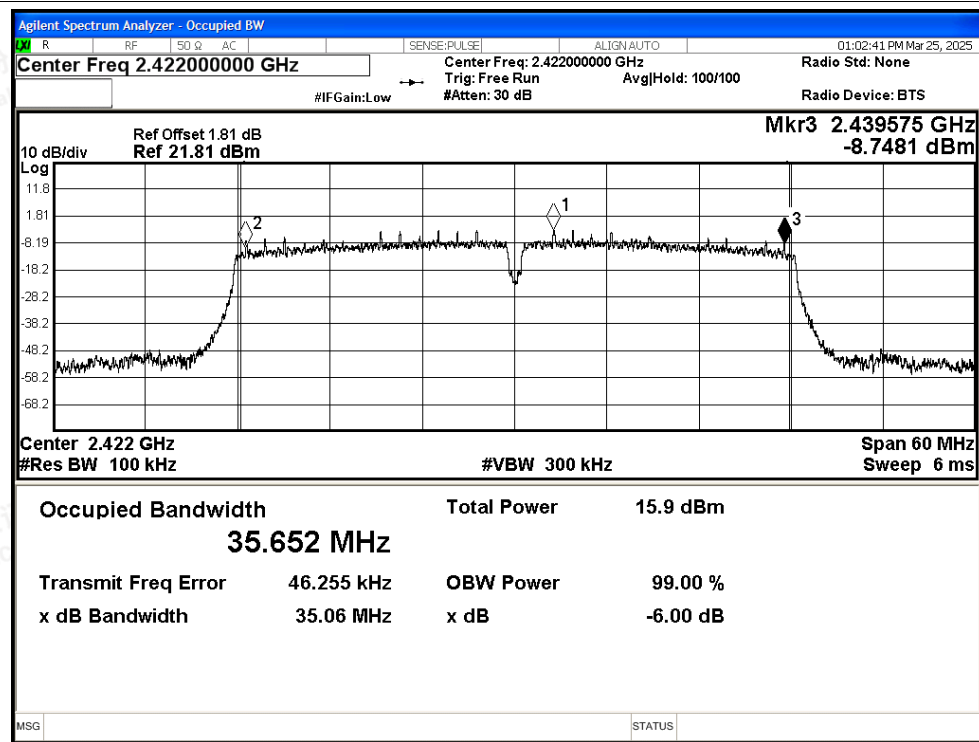




-6dB Bandwidth NVNT n20 2462MHz Ant2

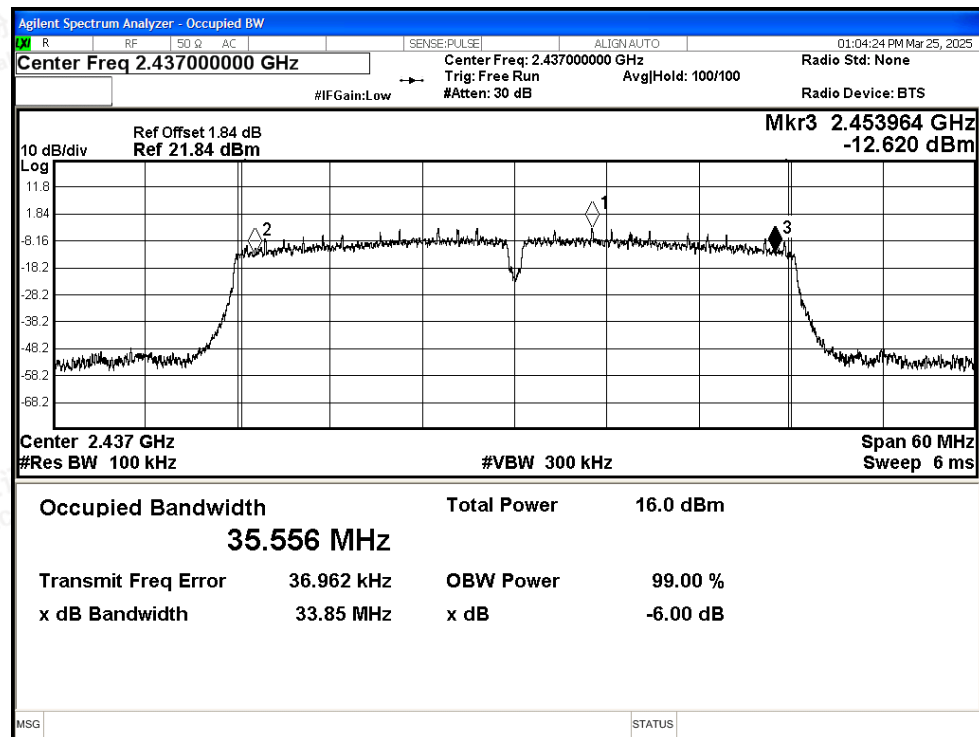


-6dB Bandwidth NVNT n40 2422MHz Ant2

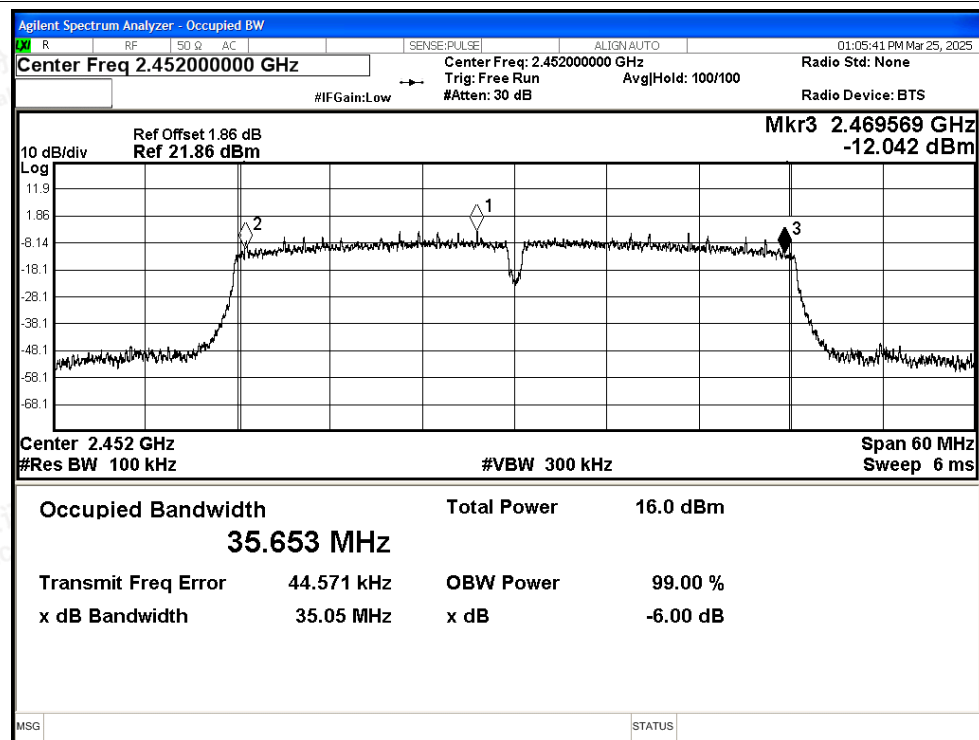




-6dB Bandwidth NVNT n40 2437MHz Ant2



-6dB Bandwidth NVNT n40 2452MHz Ant2





A.2 Maximum Conducted Output Power

Condition	Mode	Frequency (MHz)	Antenna	Conducted Power (dBm)	Limit (dBm)	Verdict
NVNT	b	2412	Ant1	18.79	30	Pass
NVNT	b	2437	Ant1	19.06	30	Pass
NVNT	b	2462	Ant1	17.97	30	Pass
NVNT	g	2412	Ant1	17.73	30	Pass
NVNT	g	2437	Ant1	16.88	30	Pass
NVNT	g	2462	Ant1	17.5	30	Pass
NVNT	n20	2412	Ant1	16.14	30	Pass
NVNT	n20	2437	Ant1	16.36	30	Pass
NVNT	n20	2462	Ant1	17.87	30	Pass
NVNT	n40	2422	Ant1	15.69	30	Pass
NVNT	n40	2437	Ant1	15.82	30	Pass
NVNT	n40	2452	Ant1	15.91	30	Pass

Condition	Mode	Frequency (MHz)	Antenna	Conducted Power (dBm)	Limit (dBm)	Verdict
NVNT	b	2412	Ant2	19.33	30	Pass
NVNT	b	2437	Ant2	19.38	30	Pass
NVNT	b	2462	Ant2	19.39	30	Pass
NVNT	g	2412	Ant2	18.18	30	Pass
NVNT	g	2437	Ant2	18.7	30	Pass
NVNT	g	2462	Ant2	18.55	30	Pass
NVNT	n20	2412	Ant2	15.83	30	Pass
NVNT	n20	2437	Ant2	15.95	30	Pass
NVNT	n20	2462	Ant2	15.85	30	Pass
NVNT	n40	2422	Ant2	14.42	30	Pass
NVNT	n40	2437	Ant2	14.61	30	Pass
NVNT	n40	2452	Ant2	14.6	30	Pass

MIMO

Condition	Mode	Frequency (MHz)	Total Power (dBm)			Limit (dBm)	Verdict
			Ant1	Ant2	Ant1+Ant2		
NVNT	n20	2412	16.14	15.83	19.00	30	Pass
NVNT	n20	2437	16.36	15.95	19.17	30	Pass
NVNT	n20	2462	17.87	15.85	19.99	30	Pass
NVNT	n40	2422	15.69	14.42	18.11	30	Pass
NVNT	n40	2437	15.82	14.61	18.27	30	Pass
NVNT	n40	2452	15.91	14.6	18.31	30	Pass



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A.3 Maximum Power Spectral Density Level

Condition	Mode	Frequency (MHz)	Antenna	Conducted PSD (dBm/3kHz)	Limit (dBm/3kHz)	Verdict
NVNT	b	2412	Ant1	-6.71	8	Pass
NVNT	b	2437	Ant1	-6.21	8	Pass
NVNT	b	2462	Ant1	-5.33	8	Pass
NVNT	g	2412	Ant1	-13.08	8	Pass
NVNT	g	2437	Ant1	-13.3	8	Pass
NVNT	g	2462	Ant1	-12.76	8	Pass
NVNT	n20	2412	Ant1	-12.7	8	Pass
NVNT	n20	2437	Ant1	-12.74	8	Pass
NVNT	n20	2462	Ant1	-12.98	8	Pass
NVNT	n40	2422	Ant1	-15.72	8	Pass
NVNT	n40	2437	Ant1	-15.23	8	Pass
NVNT	n40	2452	Ant1	-15.8	8	Pass

Condition	Mode	Frequency (MHz)	Antenna	Conducted PSD (dBm/3kHz)	Limit (dBm/3kHz)	Verdict
NVNT	b	2412	Ant2	-7.78	8	Pass
NVNT	b	2437	Ant2	-7.3	8	Pass
NVNT	b	2462	Ant2	-7.73	8	Pass
NVNT	g	2412	Ant2	-14.41	8	Pass
NVNT	g	2437	Ant2	-13.92	8	Pass
NVNT	g	2462	Ant2	-12.97	8	Pass
NVNT	n20	2412	Ant2	-14.91	8	Pass
NVNT	n20	2437	Ant2	-14.56	8	Pass
NVNT	n20	2462	Ant2	-14.81	8	Pass
NVNT	n40	2422	Ant2	-18.83	8	Pass
NVNT	n40	2437	Ant2	-18.39	8	Pass
NVNT	n40	2452	Ant2	-18.7	8	Pass

MIMO

Condition	Mode	Frequency (MHz)	Total PSD (dBm/3kHz)			Limit (dBm)	Verdict
			Ant1	Ant2	Ant1+Ant2		
NVNT	n20	2412	-12.7	-14.91	-10.66	8	Pass
NVNT	n20	2437	-12.74	-14.56	-10.55	8	Pass
NVNT	n20	2462	-12.98	-14.81	-10.79	8	Pass
NVNT	n40	2422	-15.72	-18.83	-13.99	8	Pass
NVNT	n40	2437	-15.23	-18.39	-13.52	8	Pass
NVNT	n40	2452	-15.8	-18.7	-14.00	8	Pass

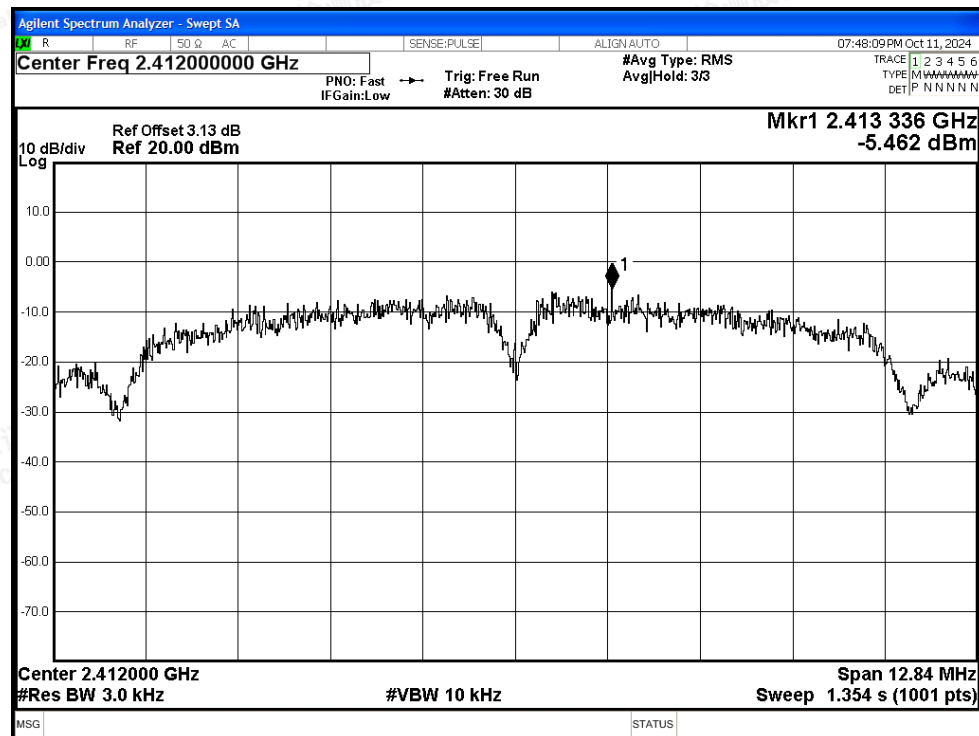


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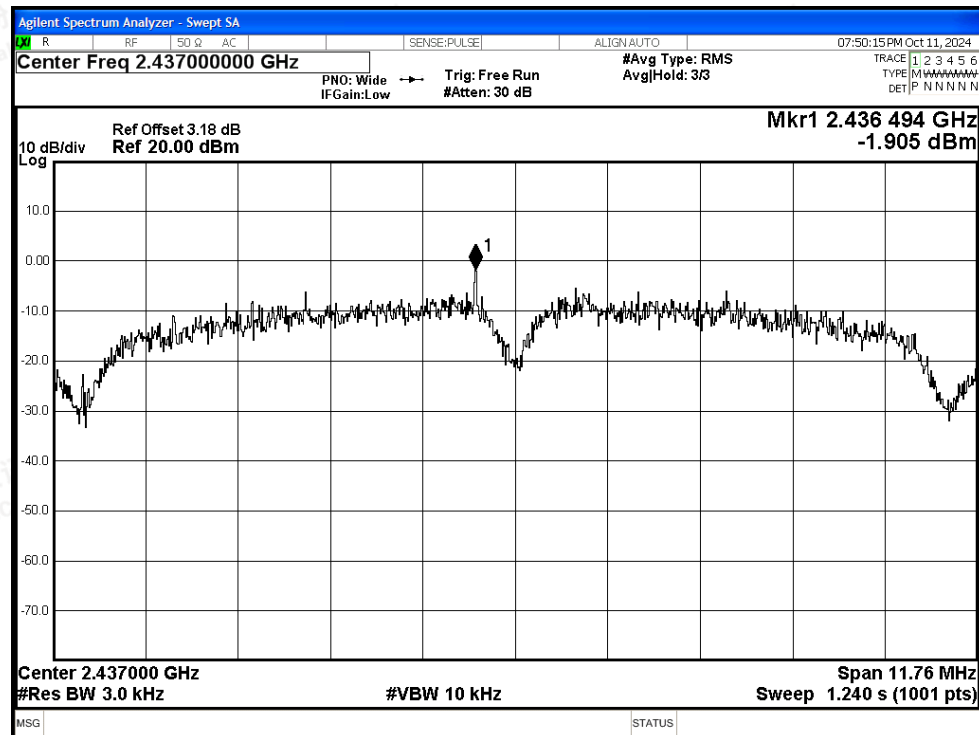


Test Graphs

PSD NVNT b 2412MHz Ant1

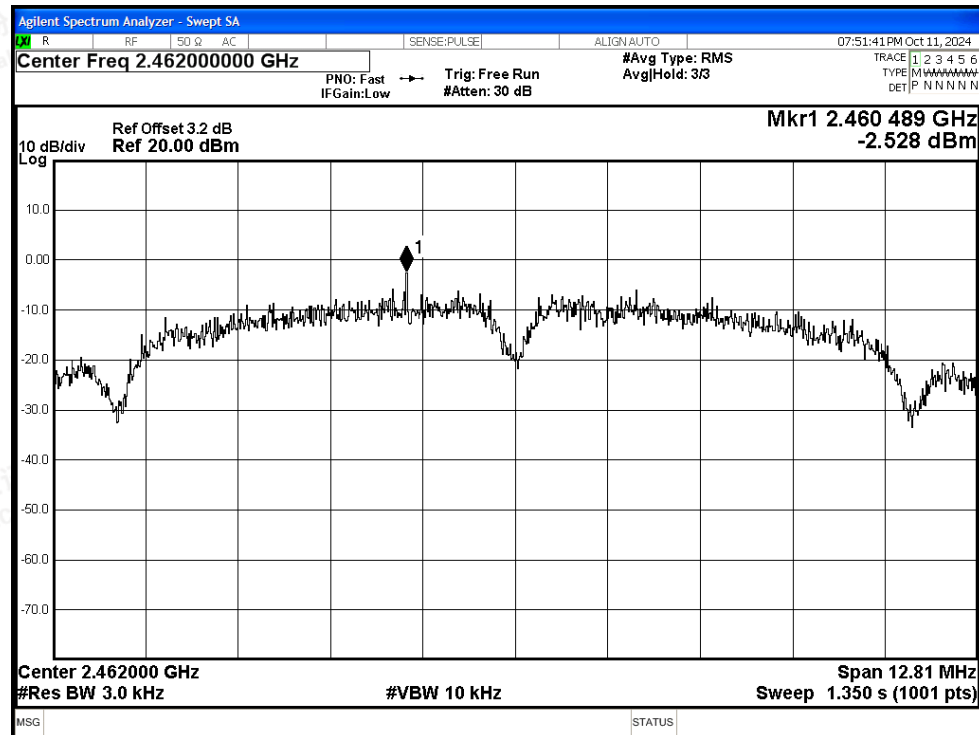


PSD NVNT b 2437MHz Ant1

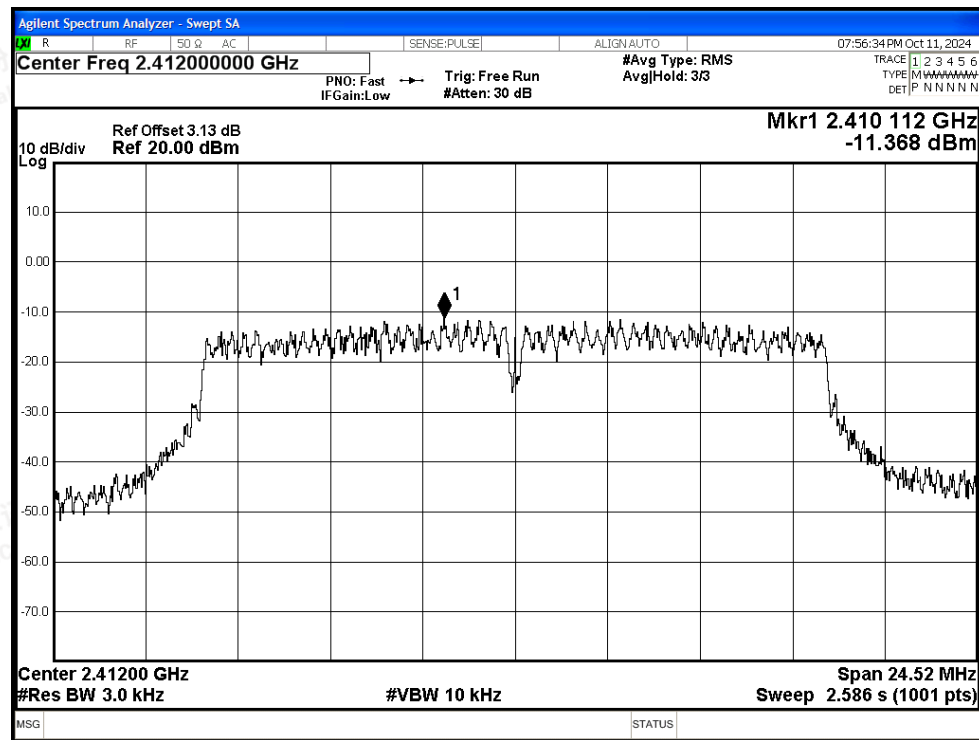




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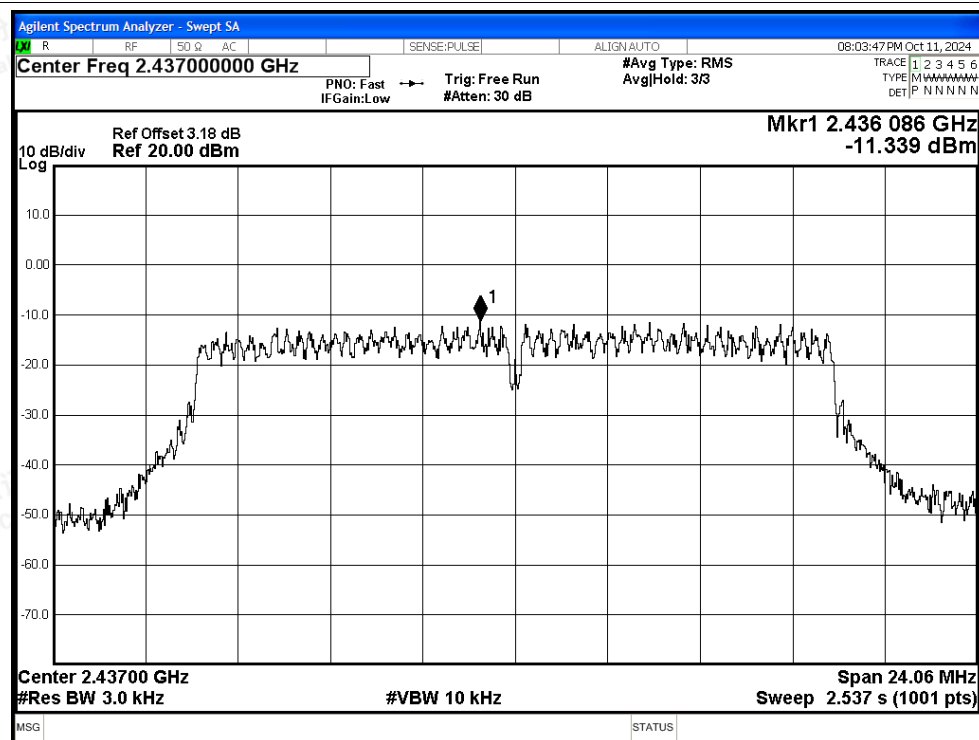


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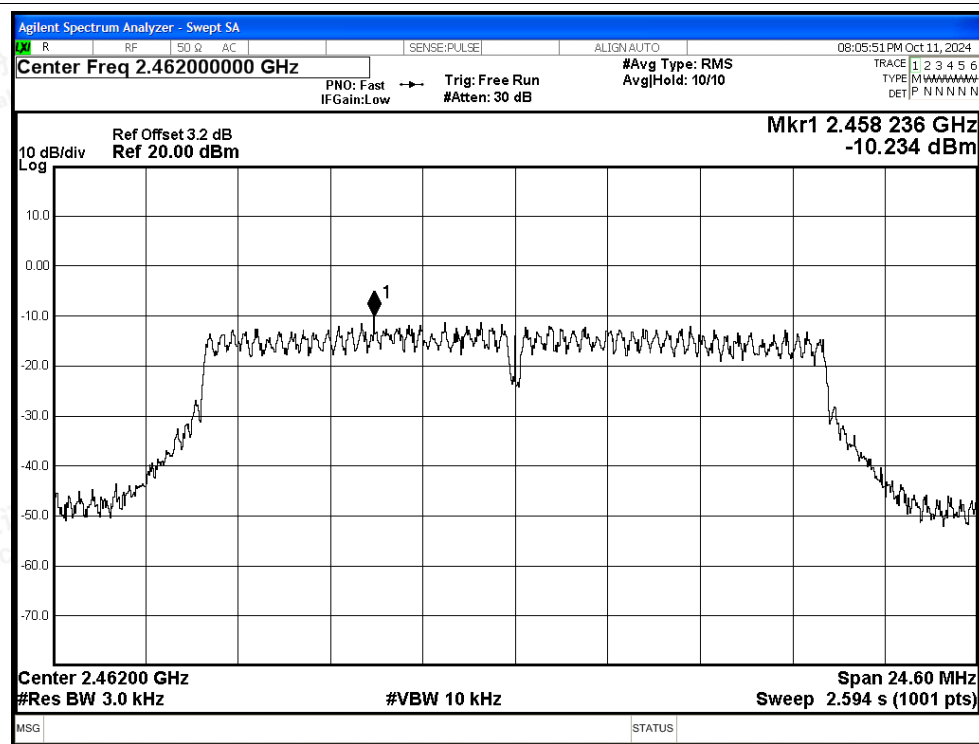


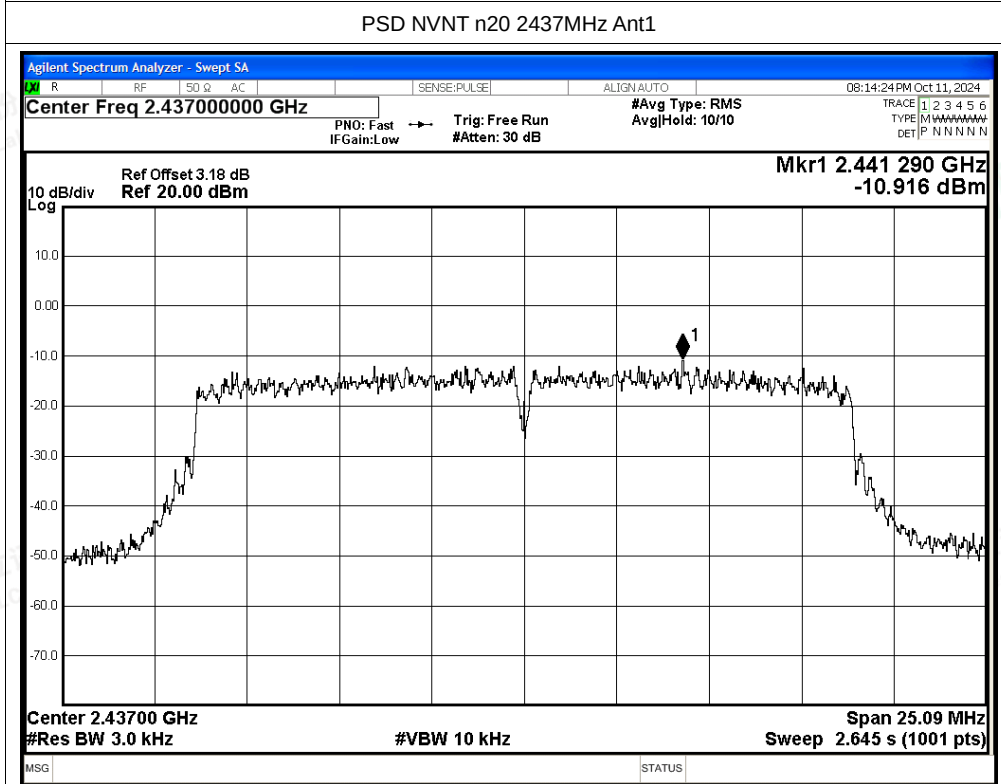
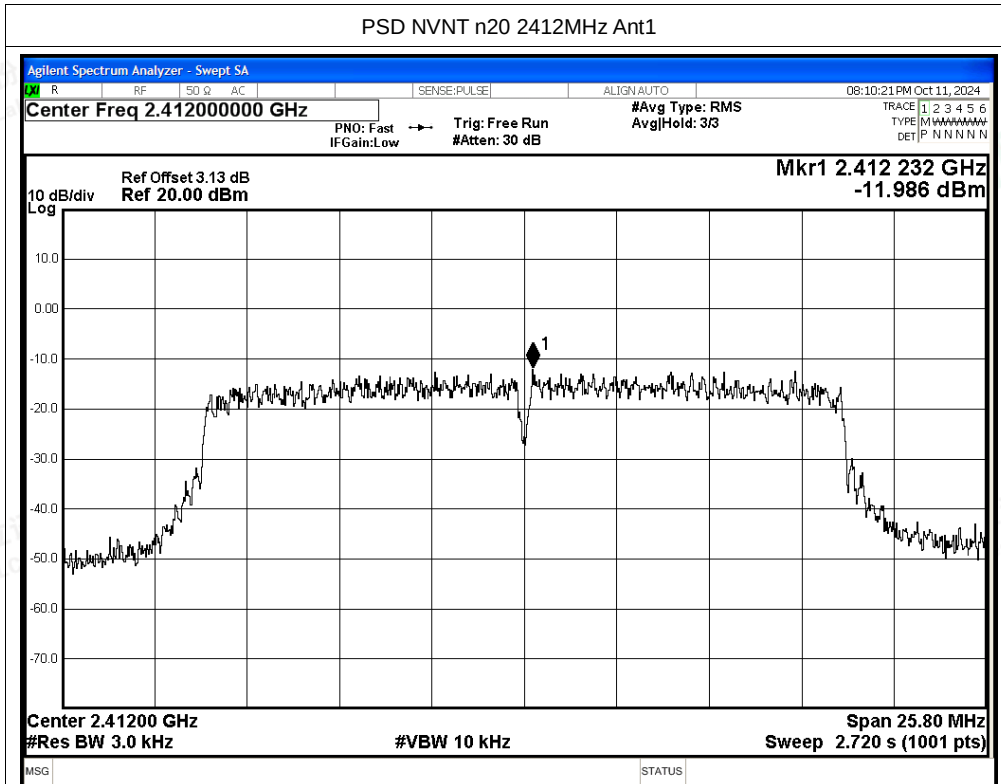


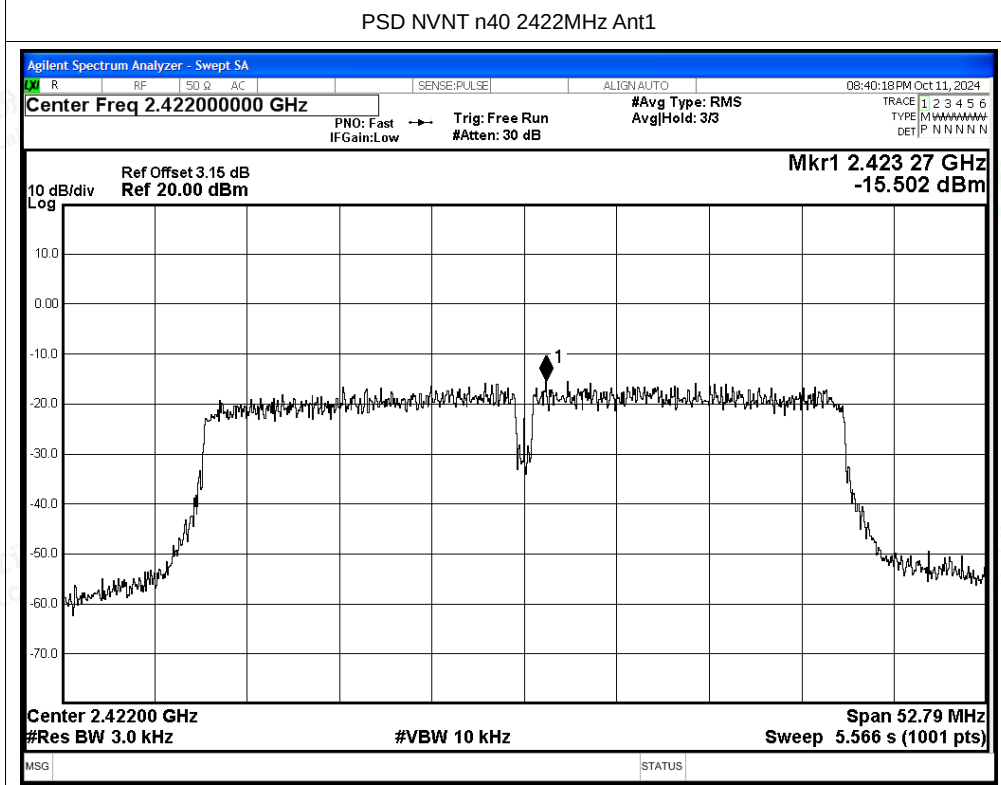
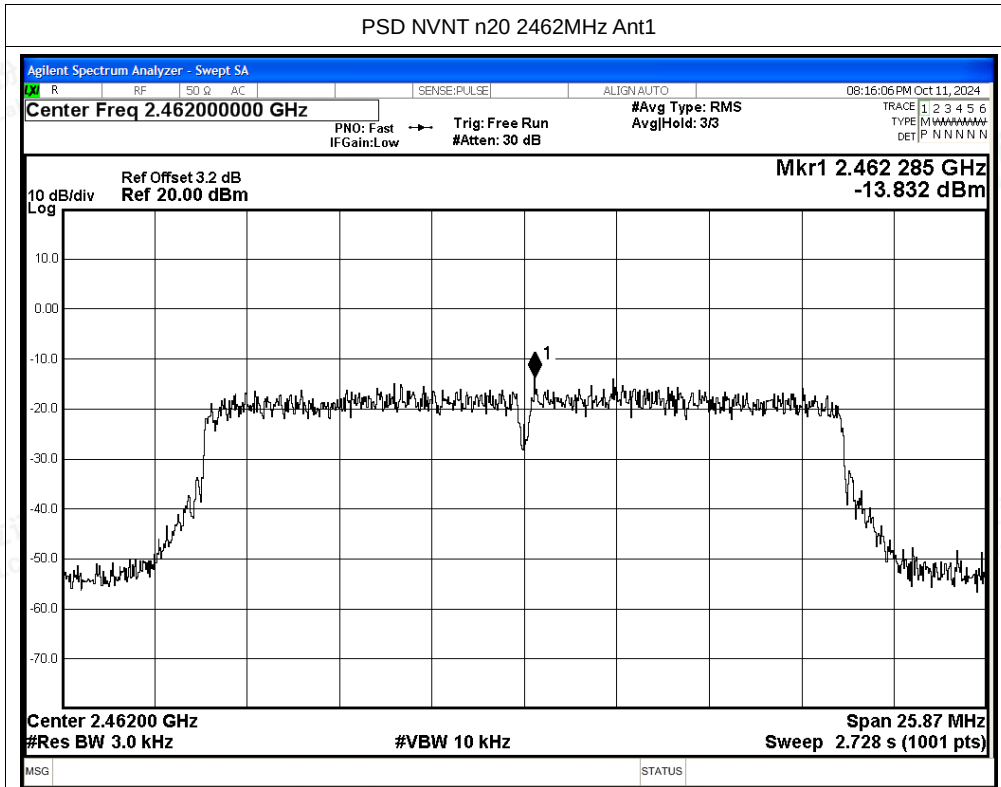
PSD NVNT g 2437MHz Ant1

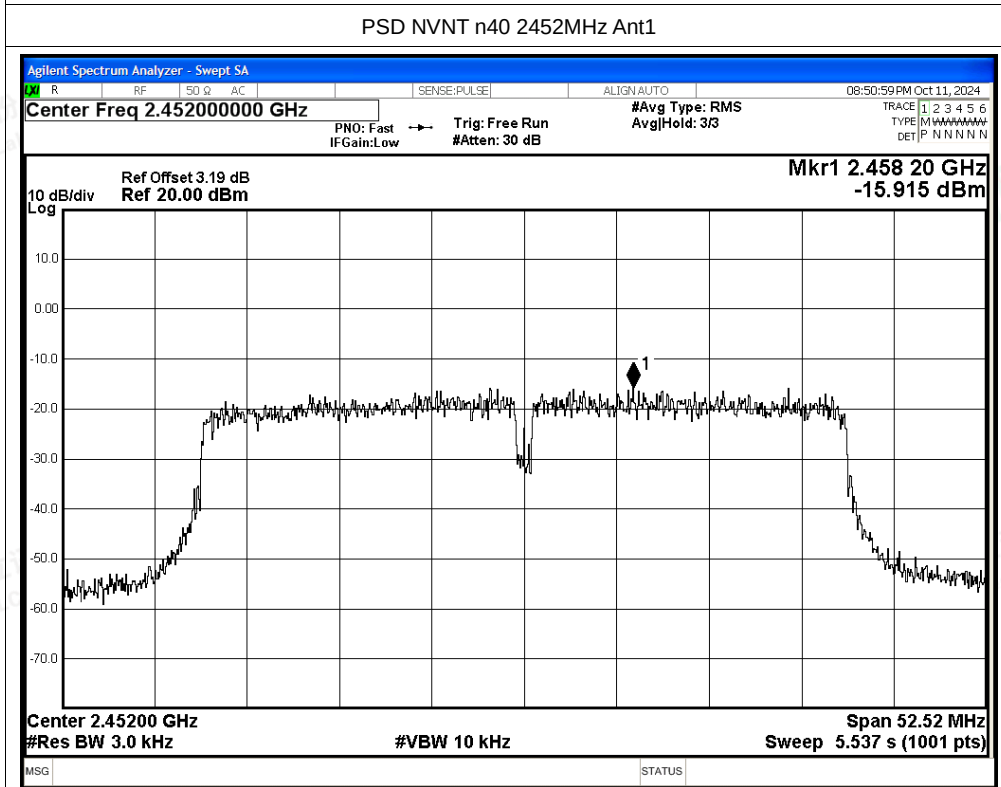
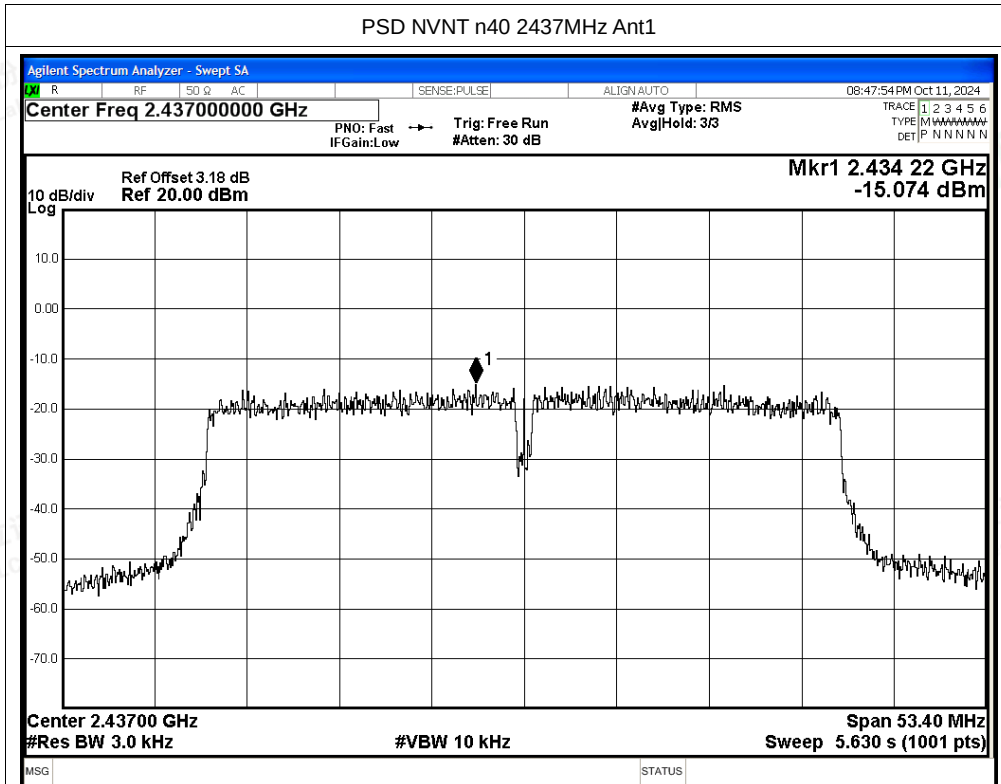


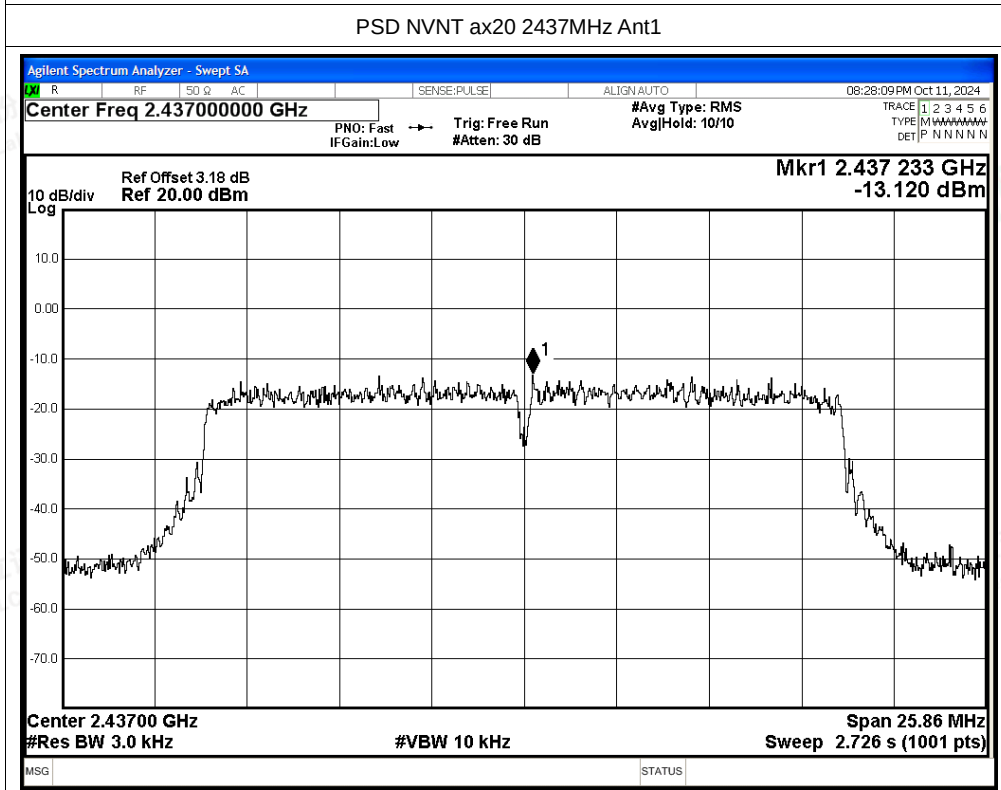
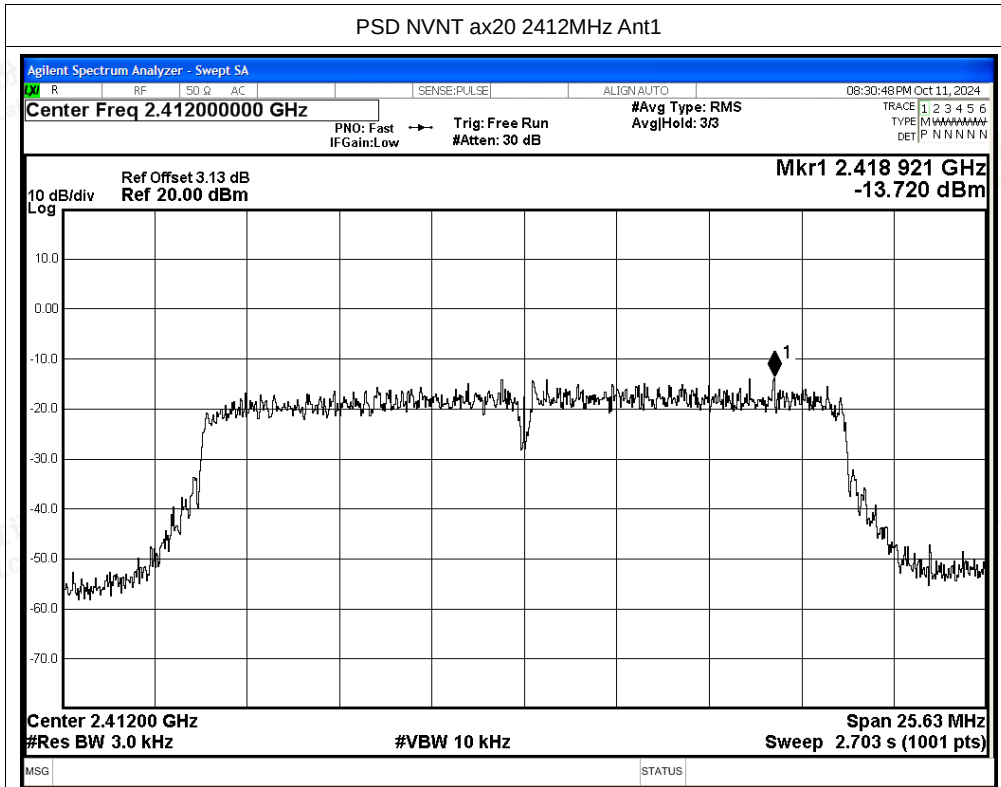
PSD NVNT g 2462MHz Ant1

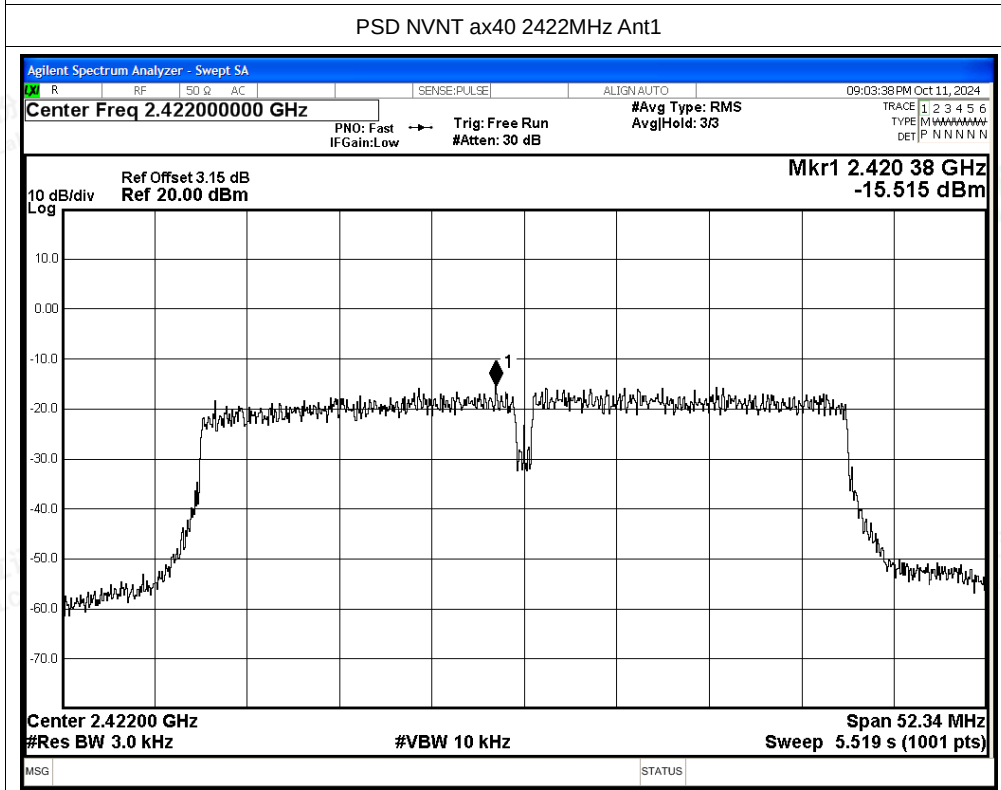
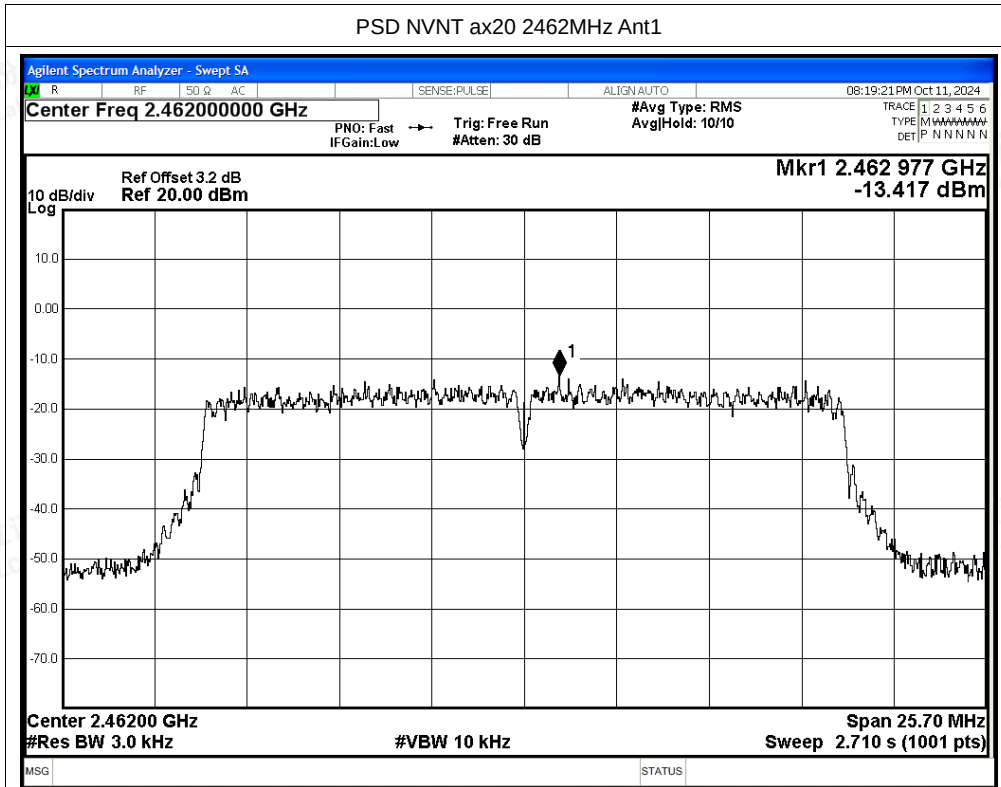






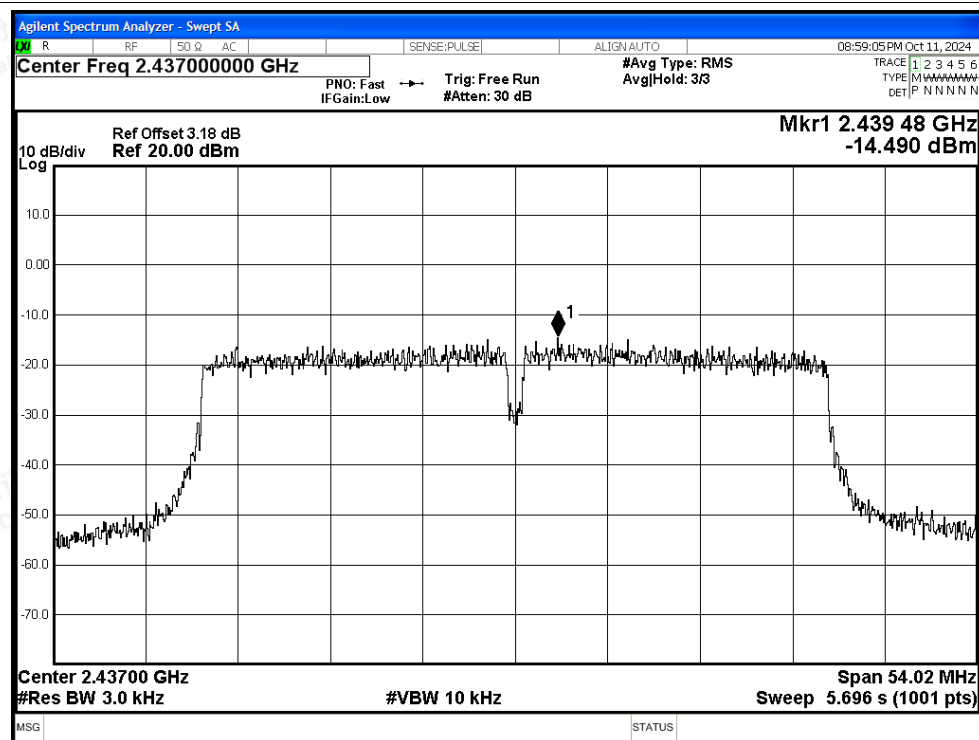




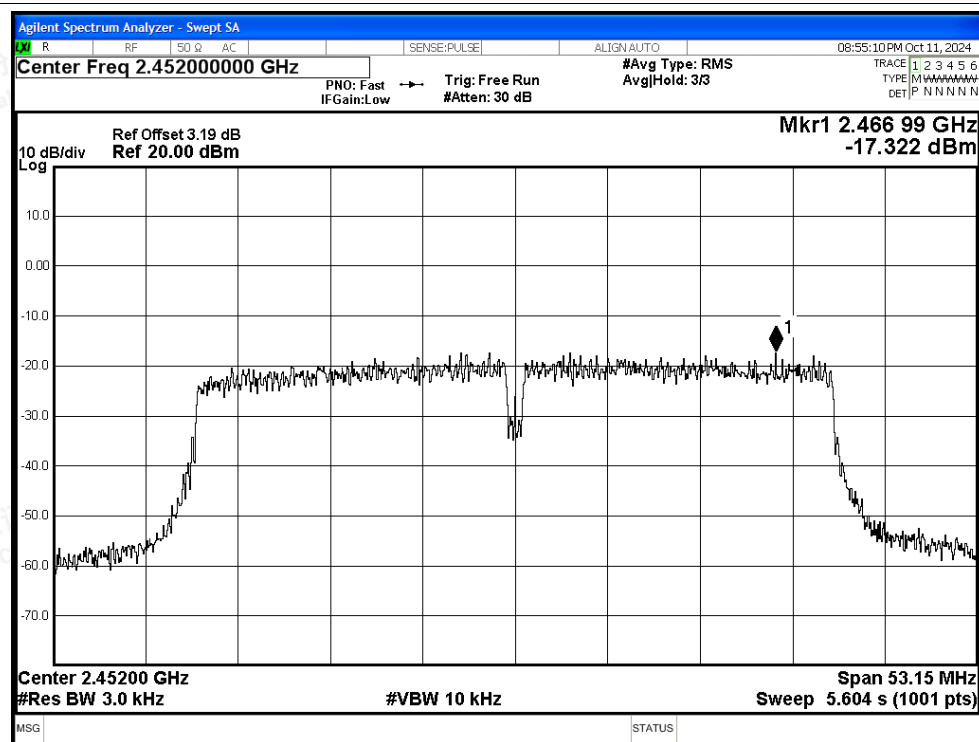




PSD NVNT ax40 2437MHz Ant1



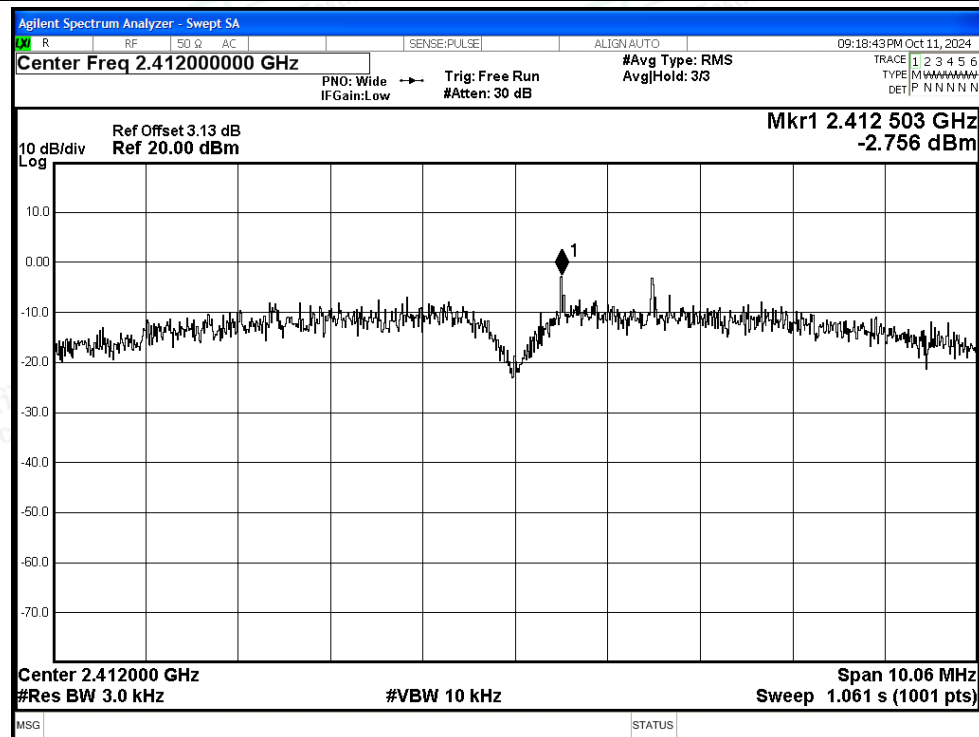
PSD NVNT ax40 2452MHz Ant1



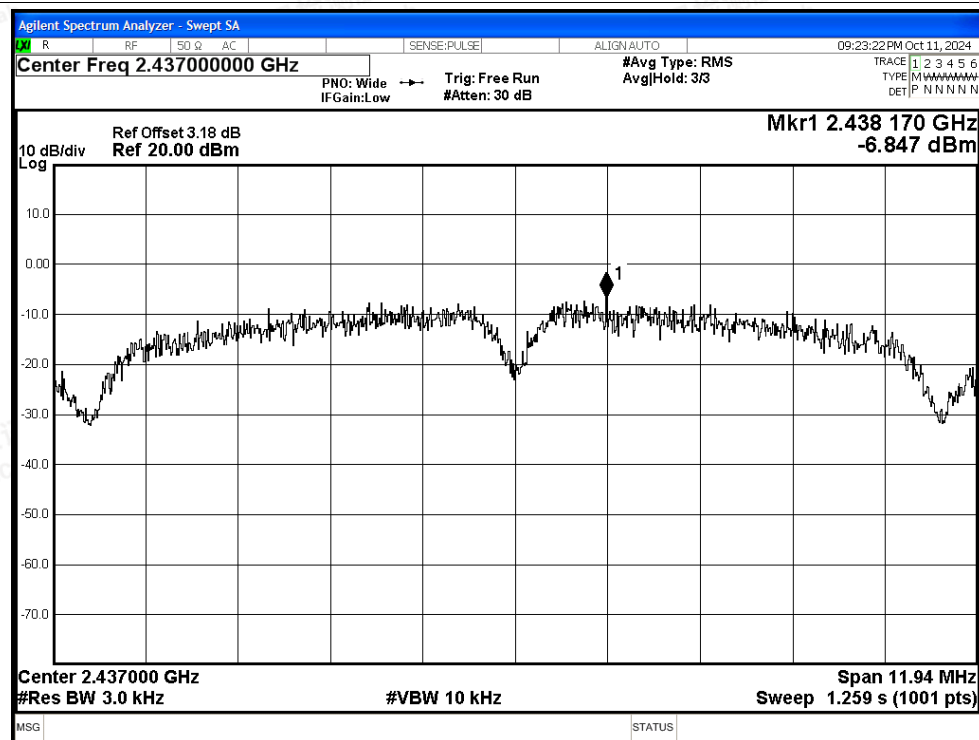


Test Graphs

PSD NVNT b 2412MHz Ant2

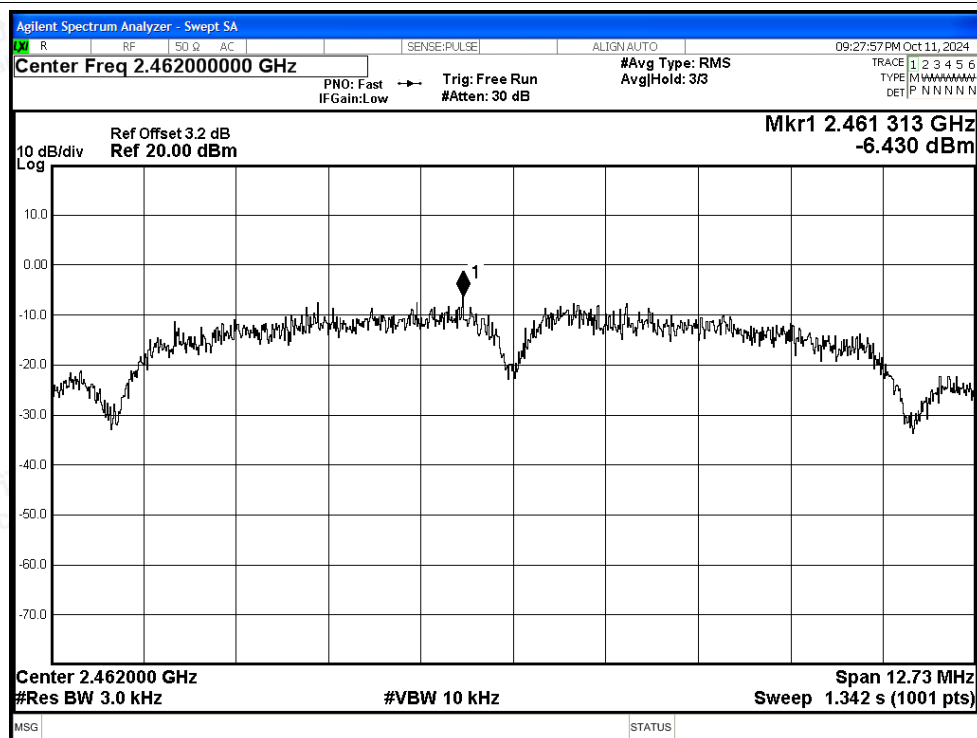


PSD NVNT b 2437MHz Ant2

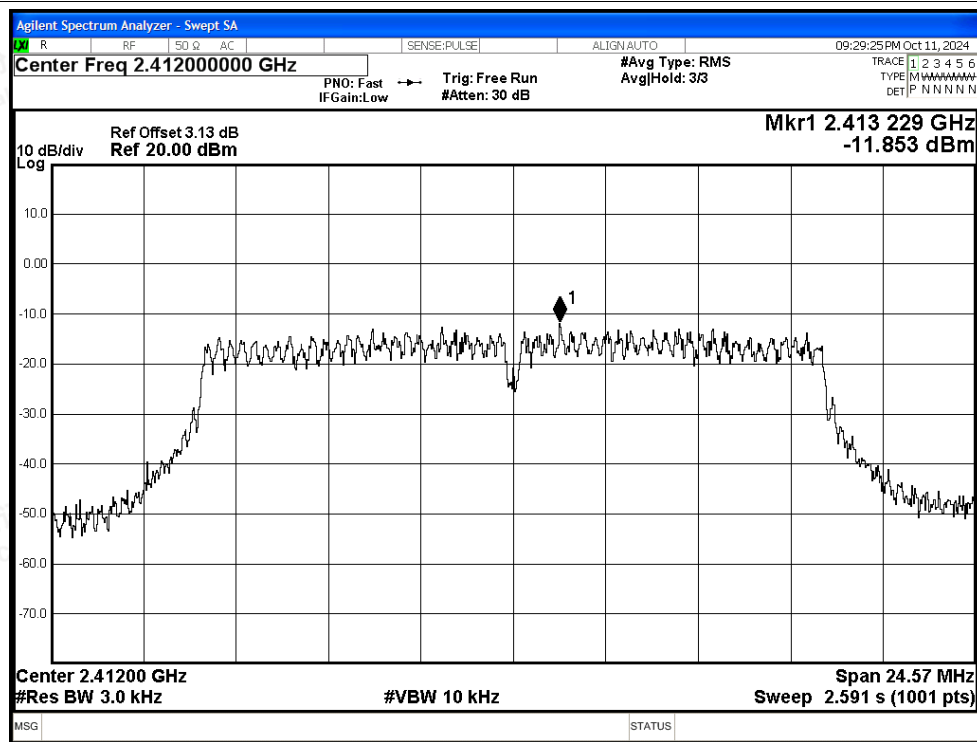




PSD NVNT b 2462MHz Ant2

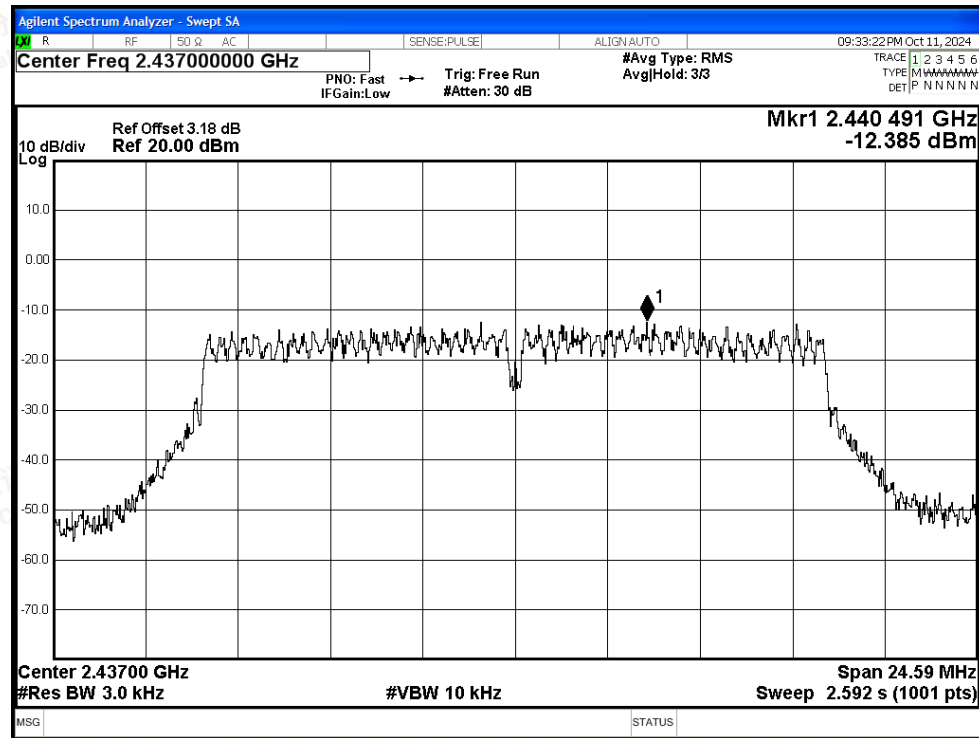


PSD NVNT g 2412MHz Ant2

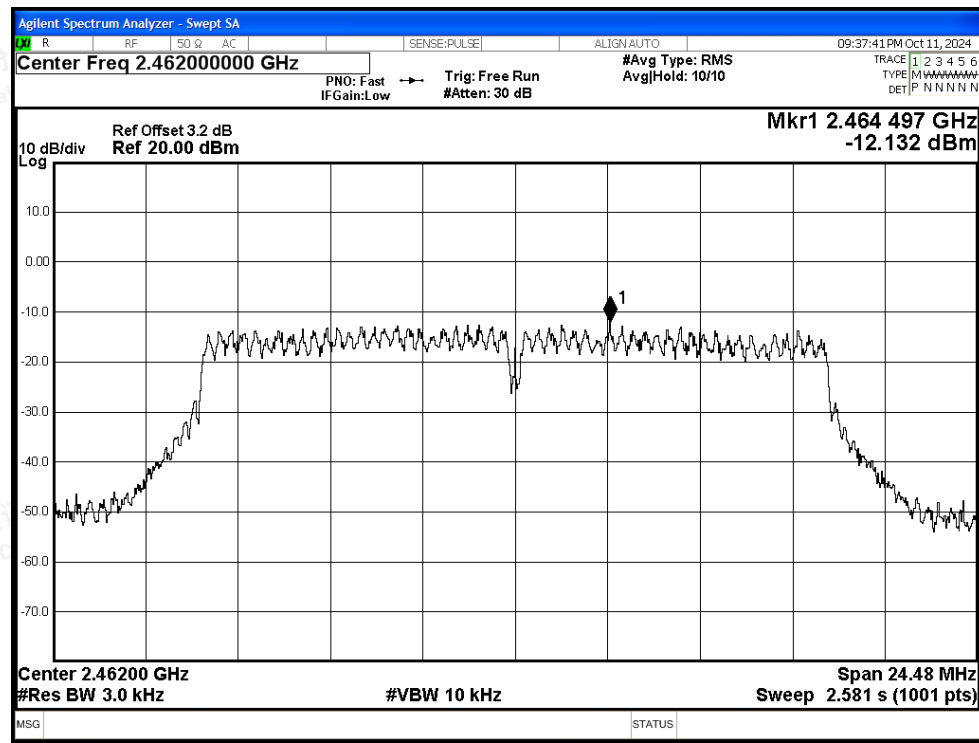


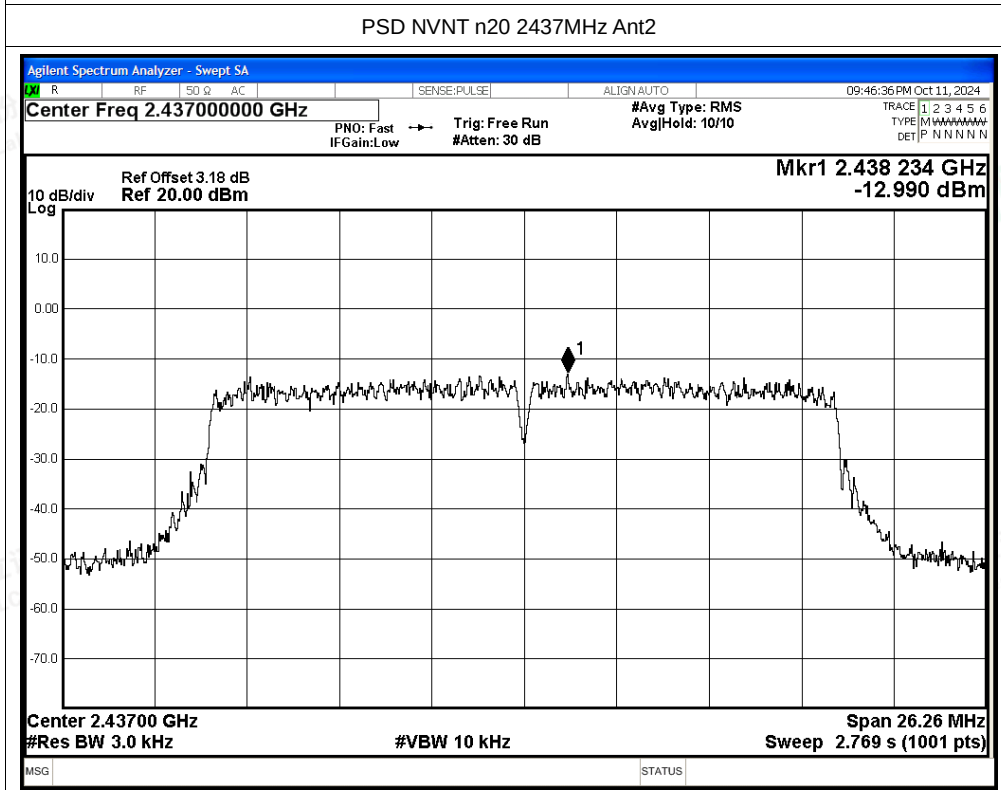
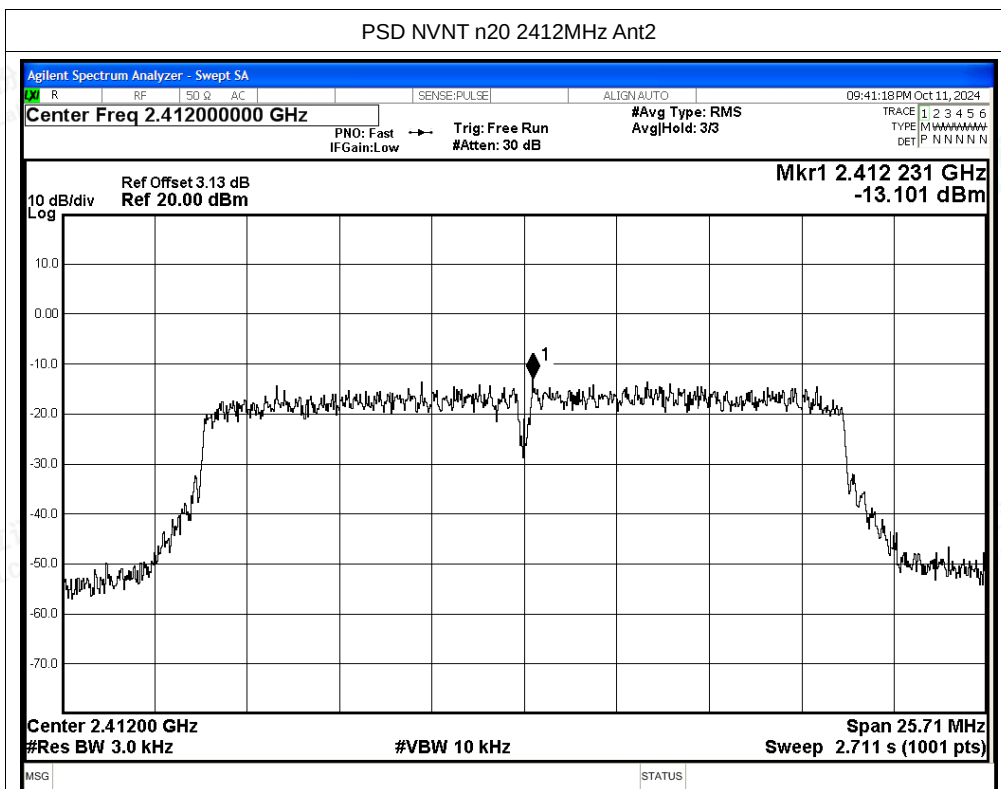


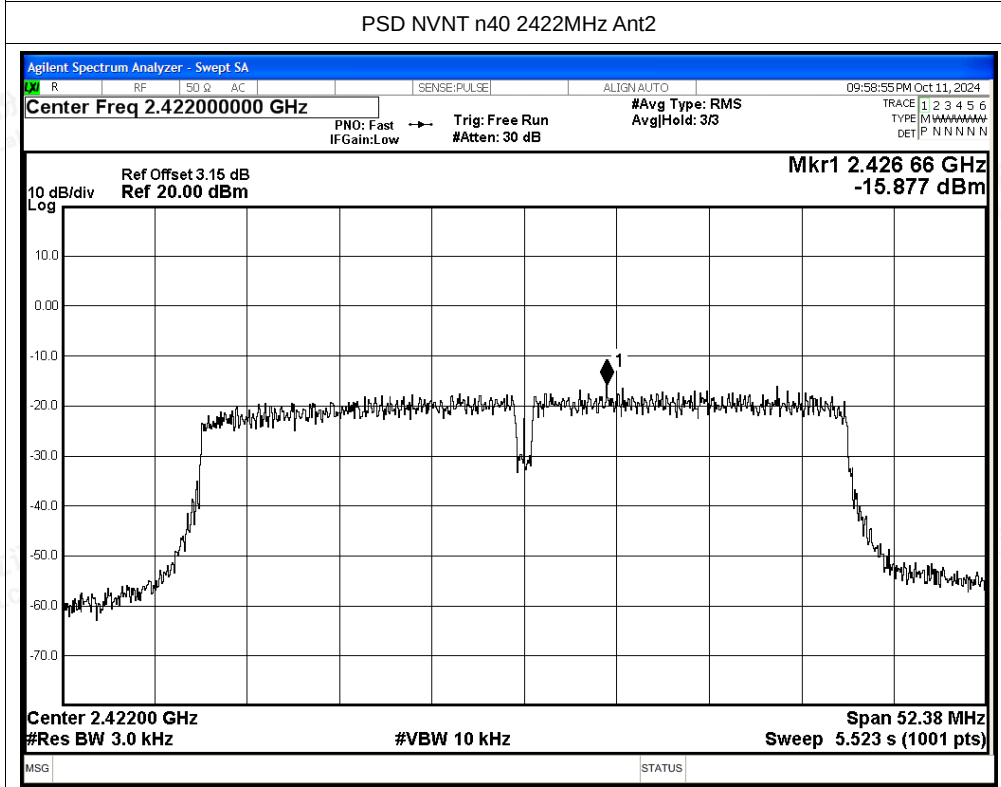
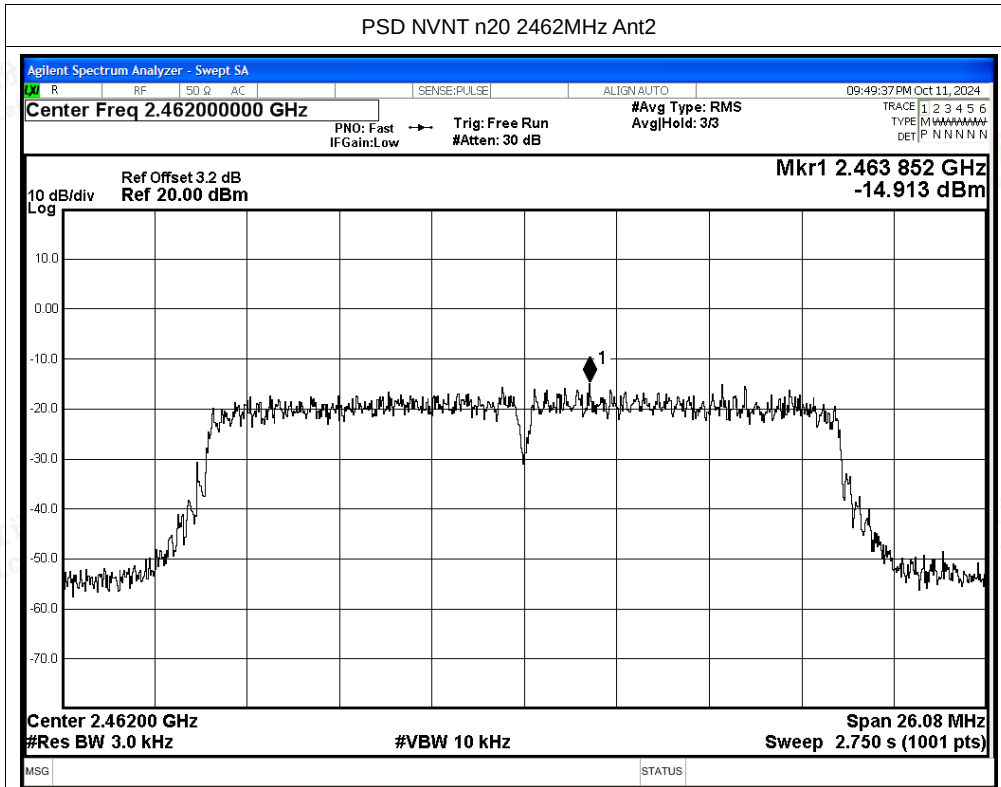
PSD NVNT g 2437MHz Ant2

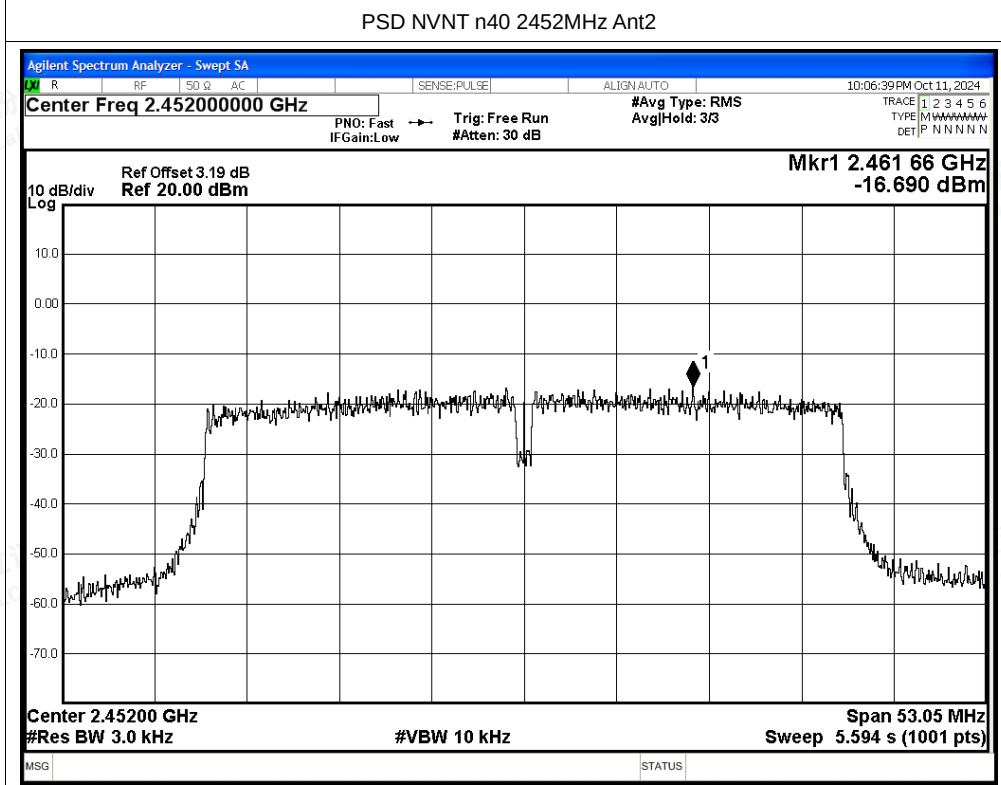
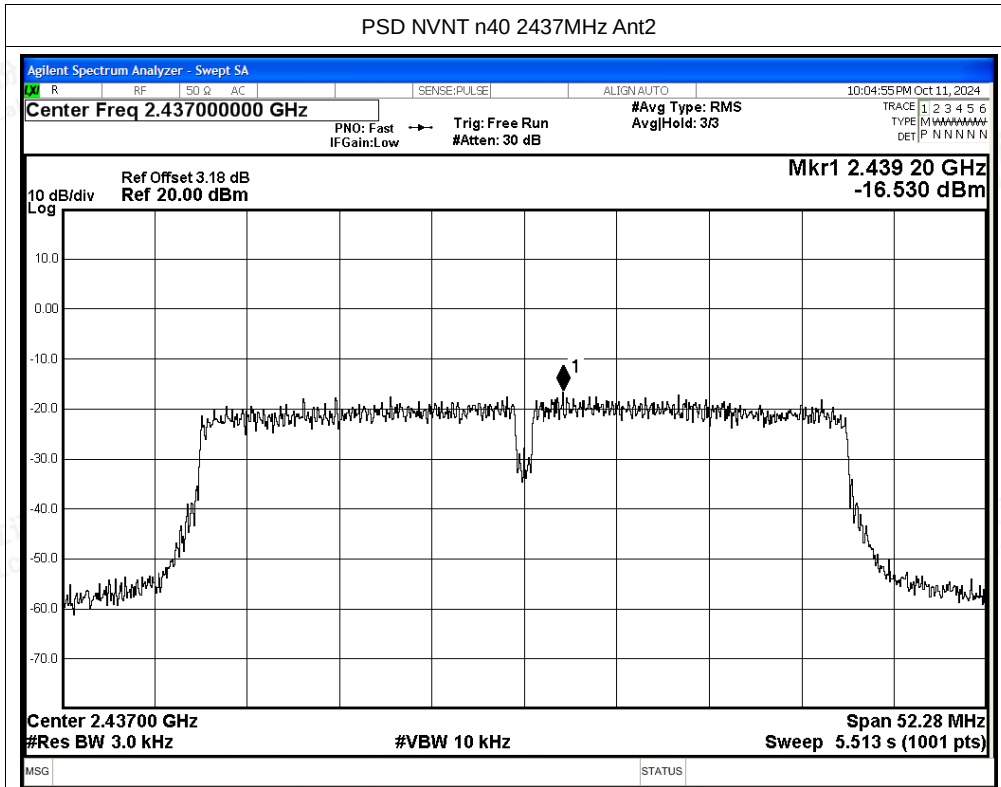


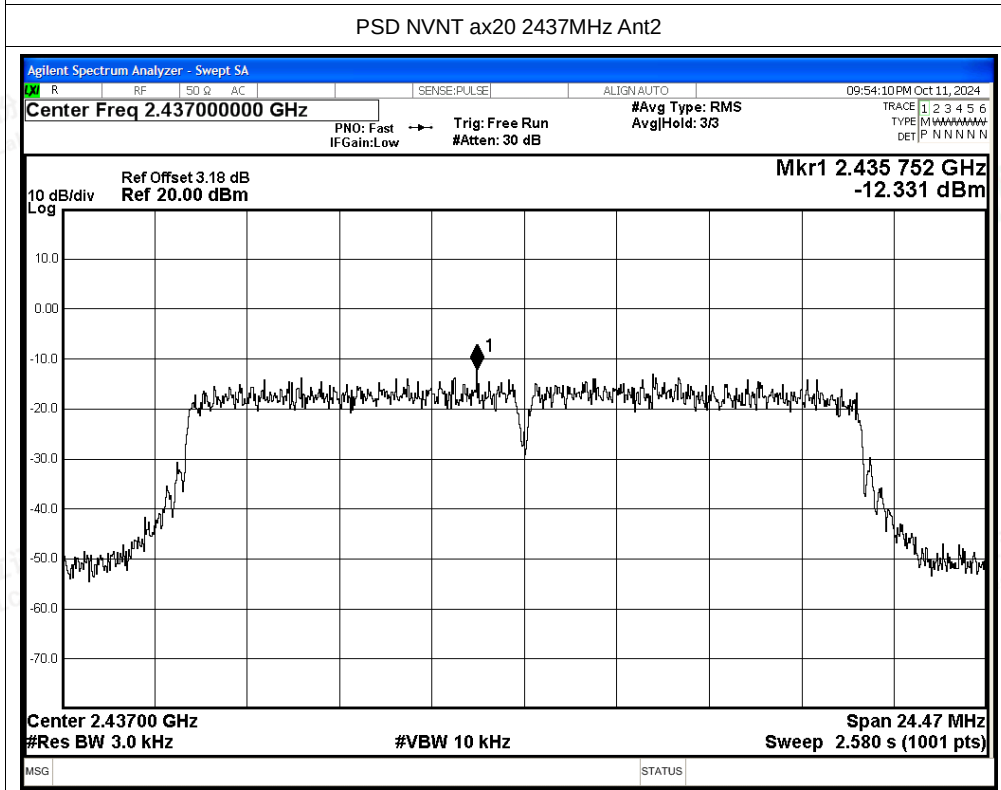
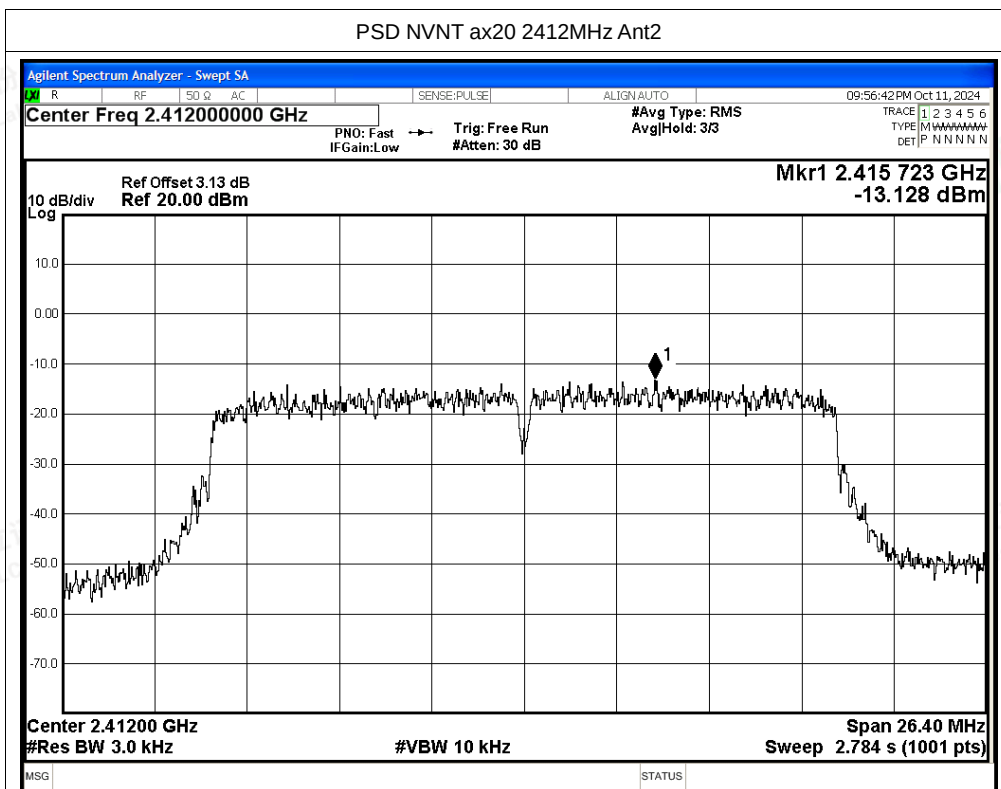
PSD NVNT g 2462MHz Ant2

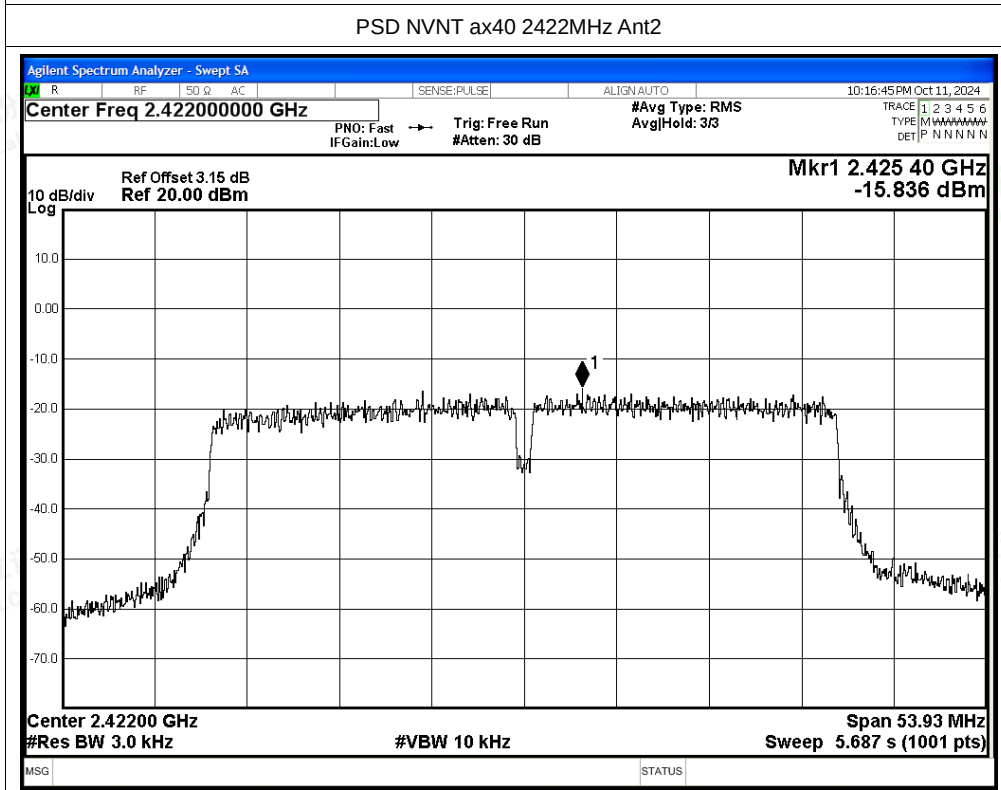
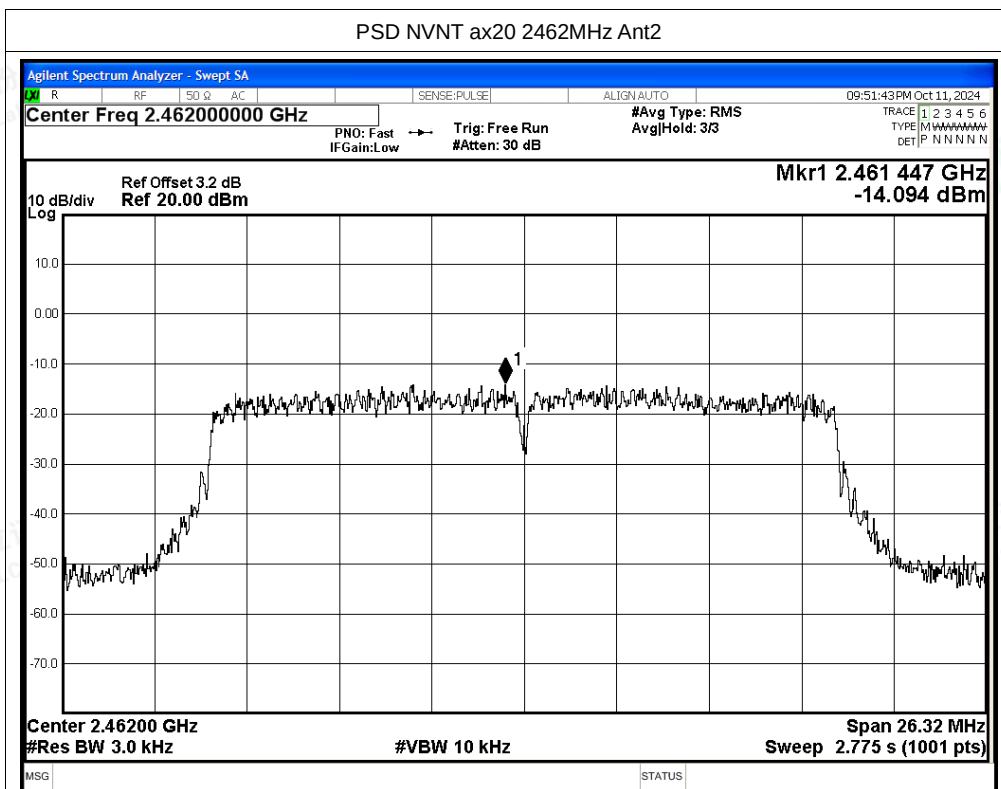






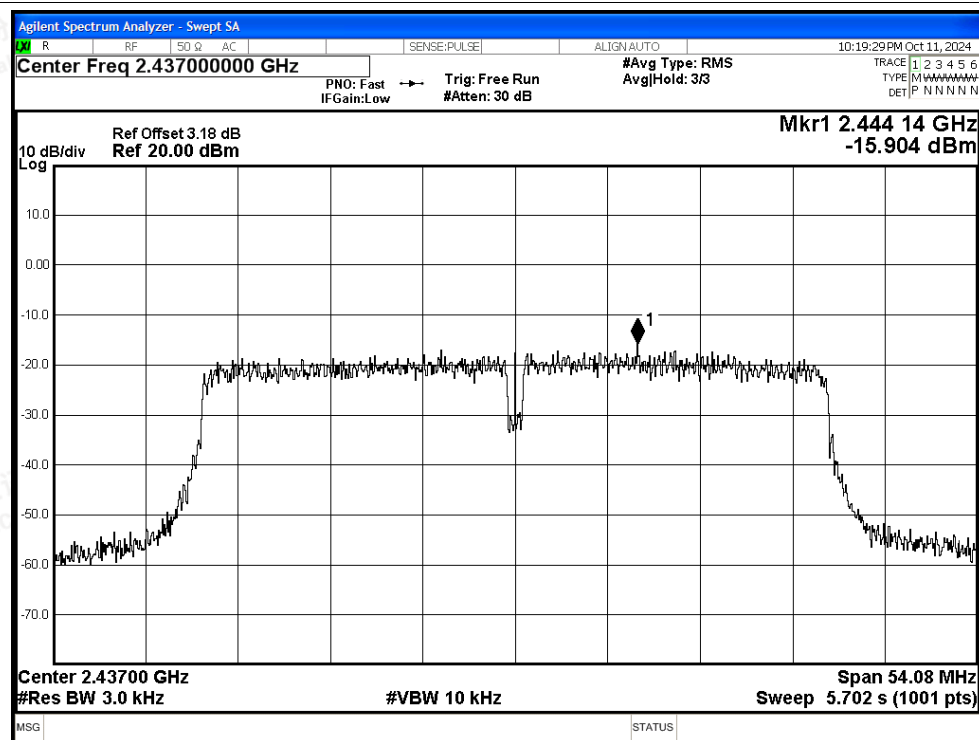




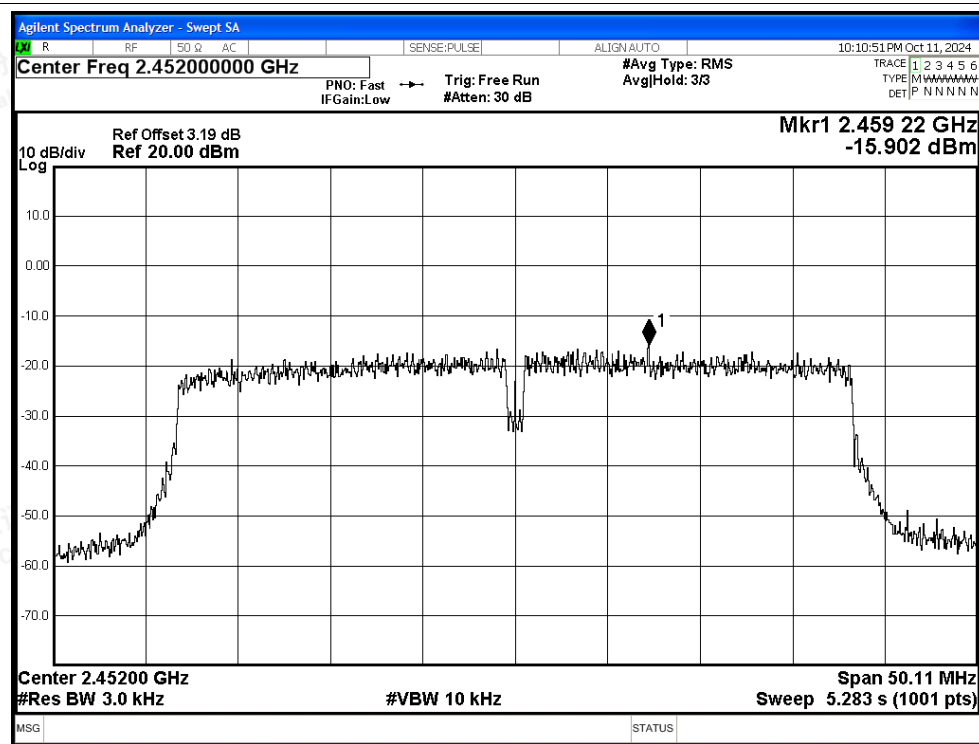




PSD NVNT ax40 2437MHz Ant2



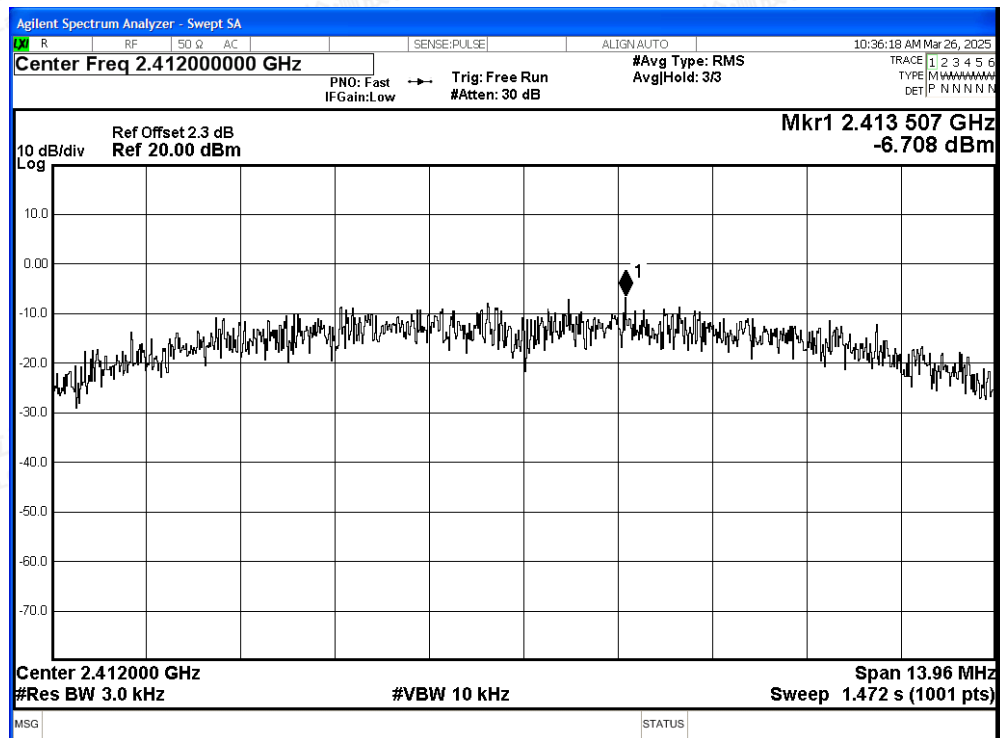
PSD NVNT ax40 2452MHz Ant2



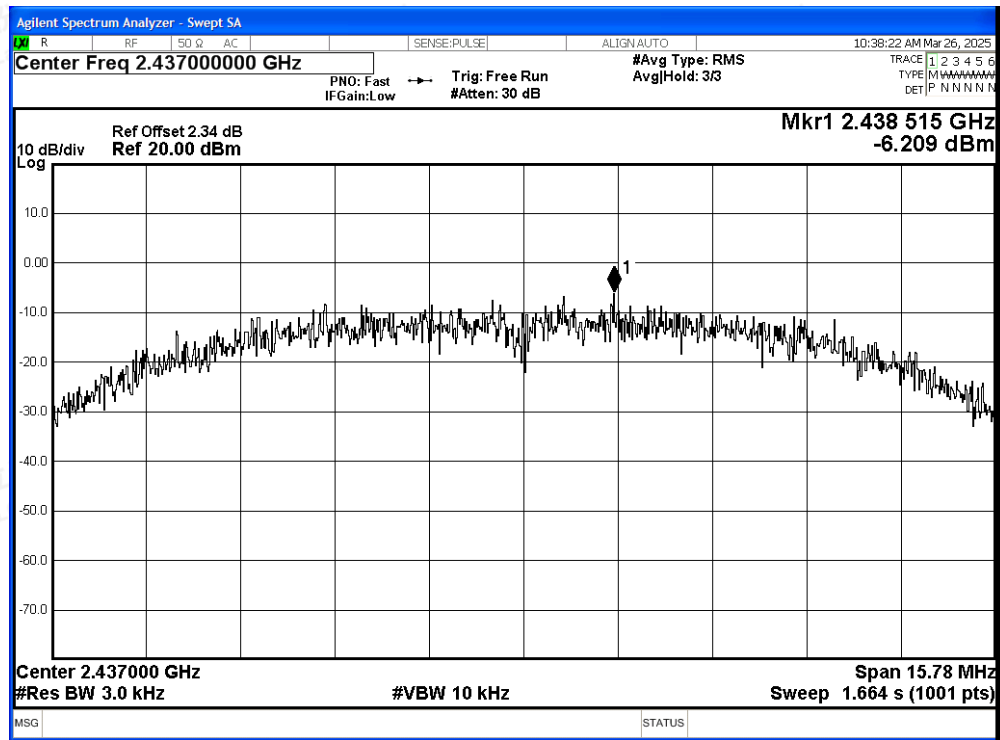


Test Graphs

PSD NVNT b 2412MHz Ant1

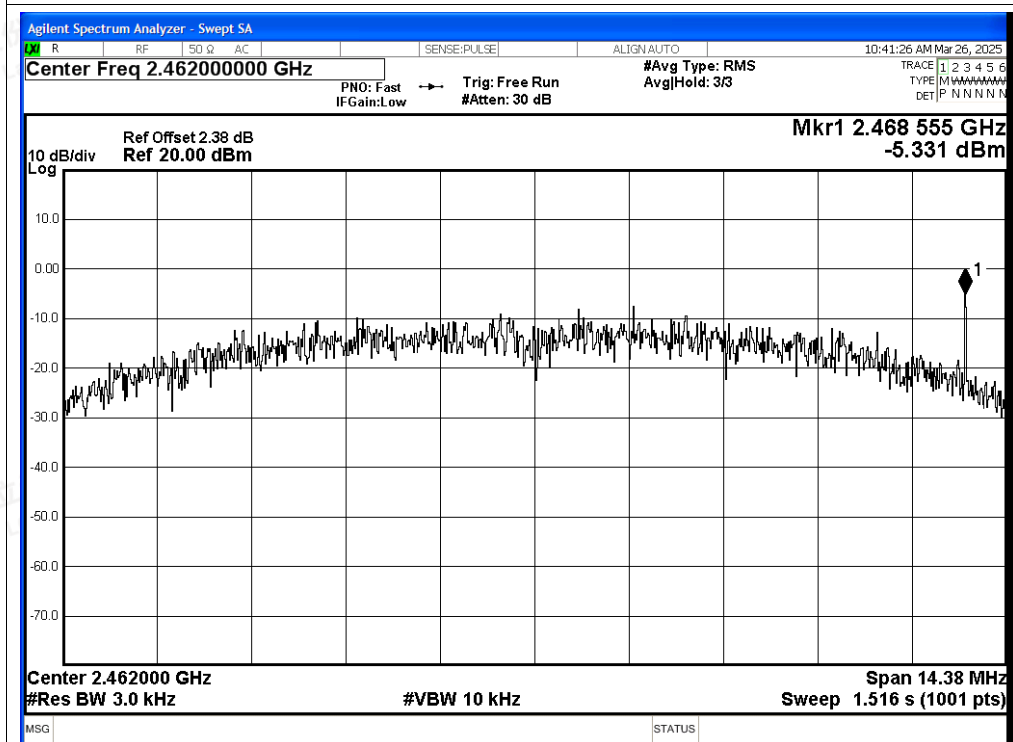


PSD NVNT b 2437MHz Ant1

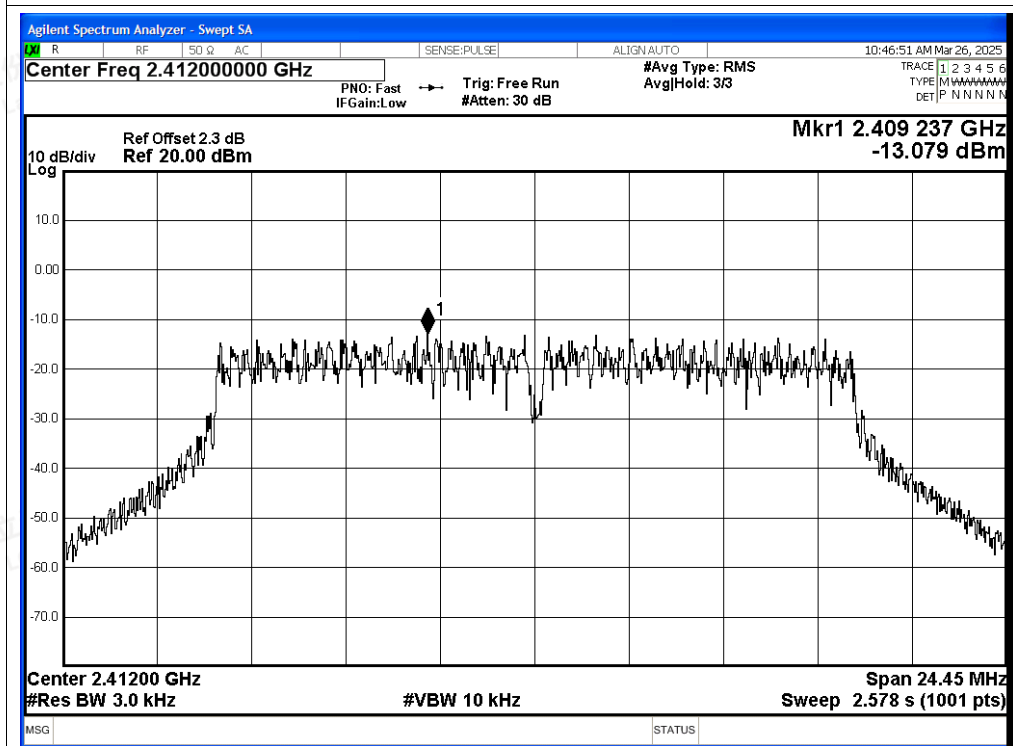




PSD NVNT b 2462MHz Ant1

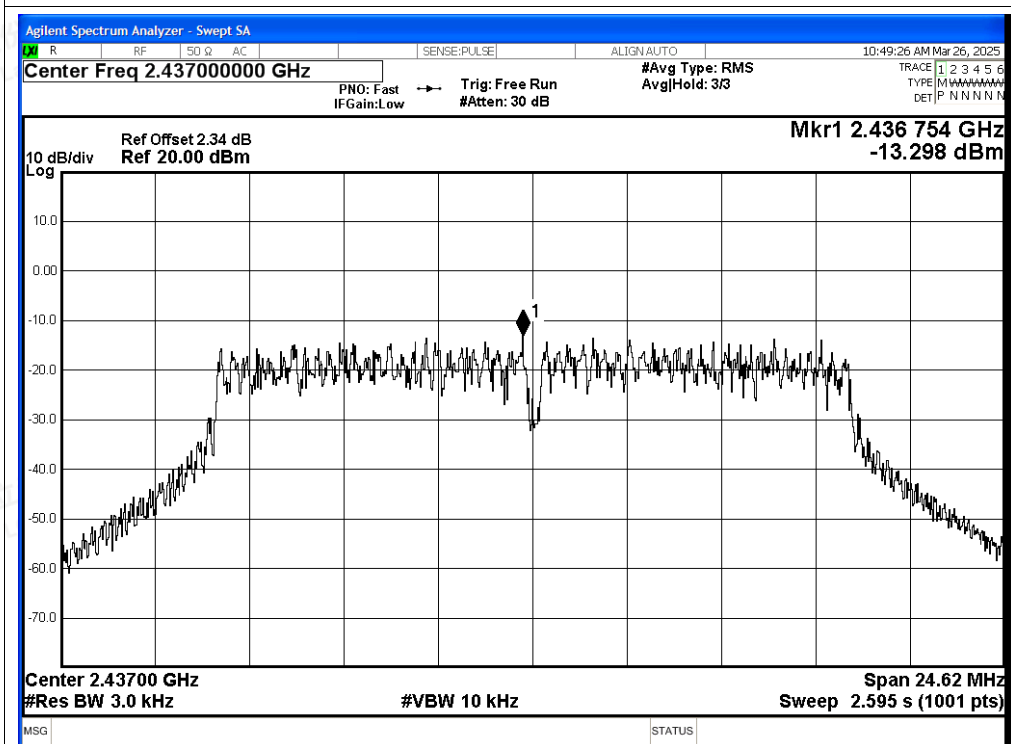


PSD NVNT g 2412MHz Ant1

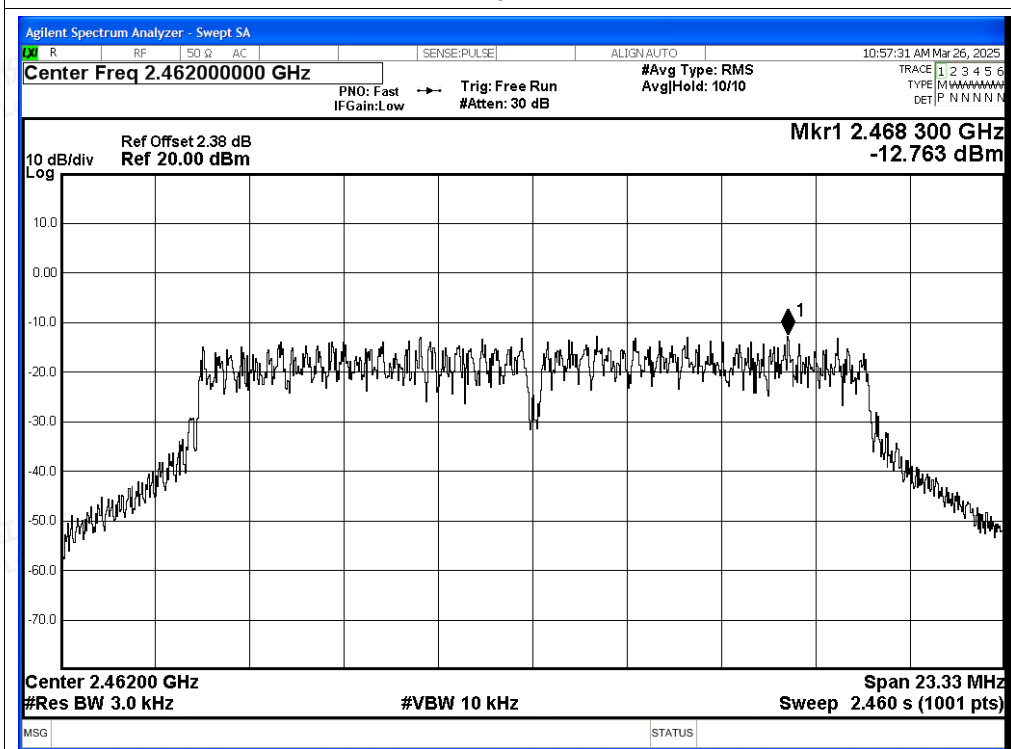


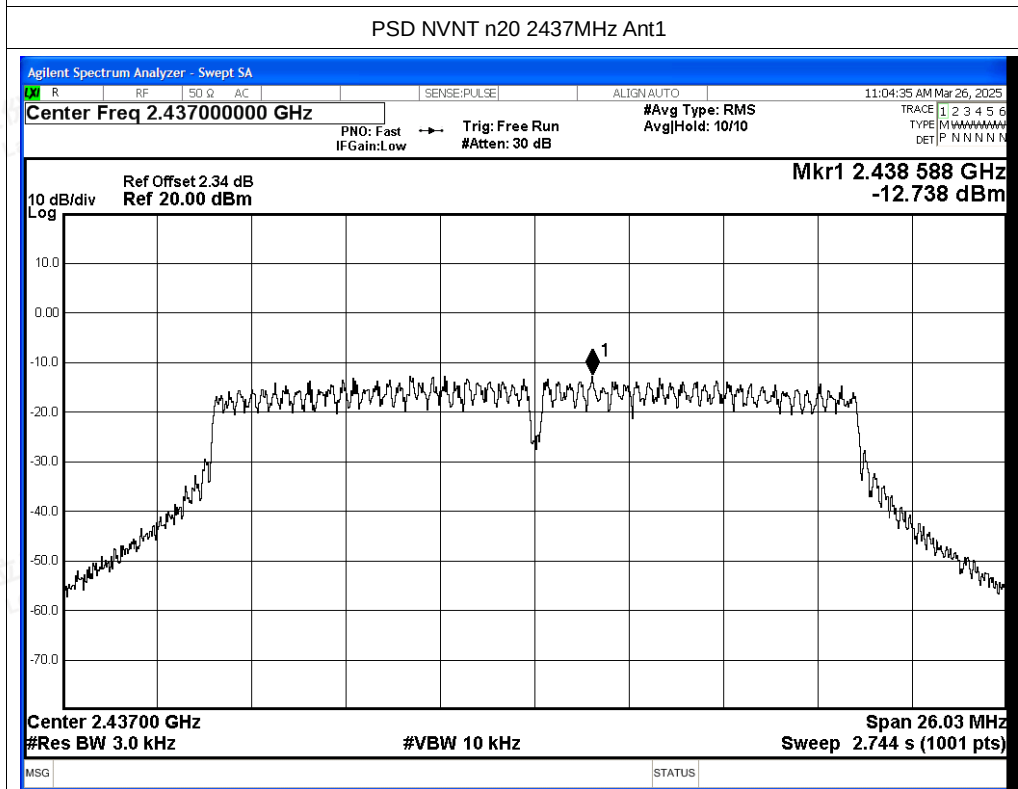
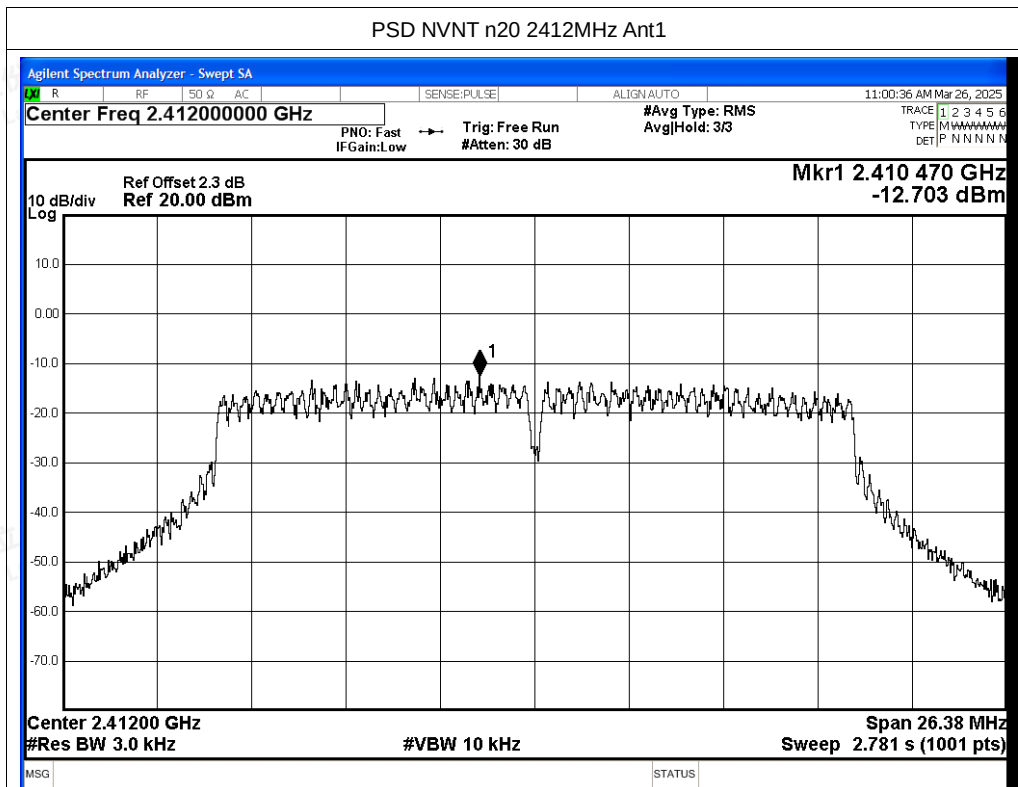


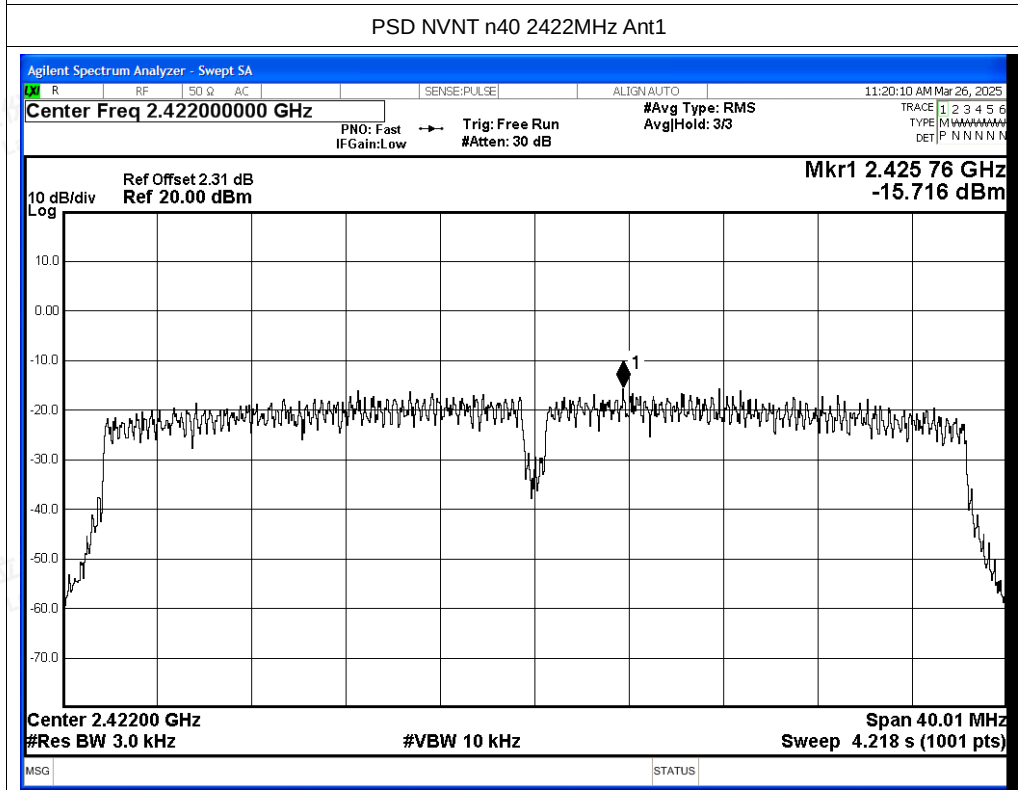
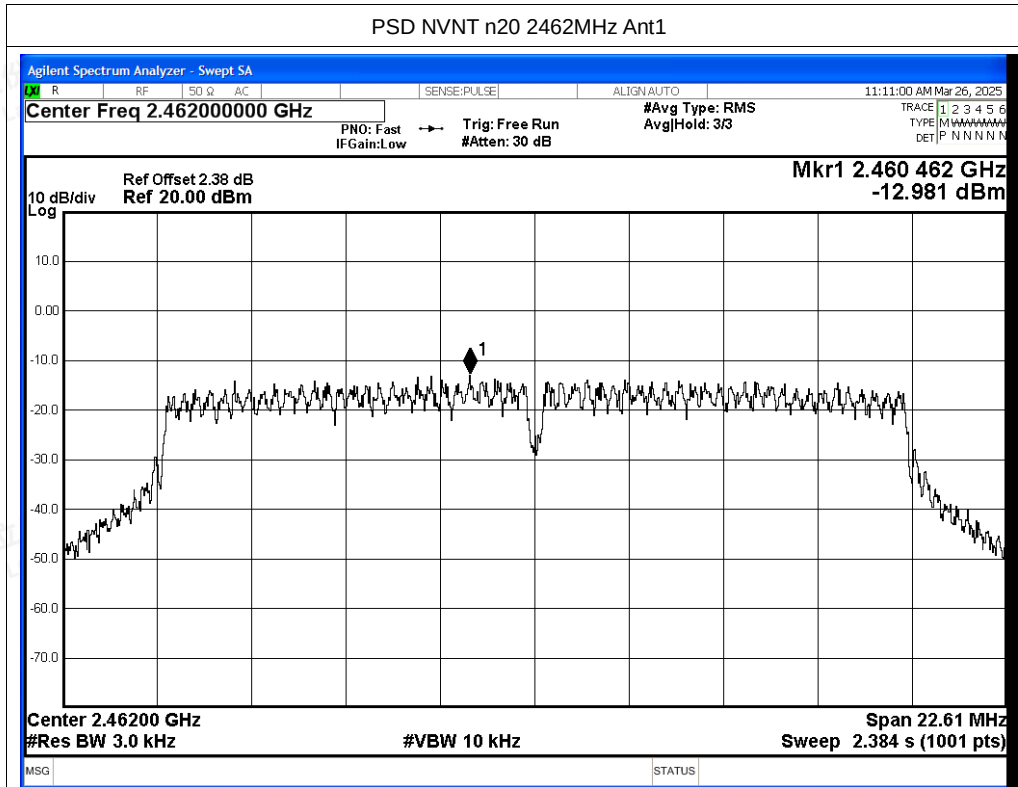
PSD NVNT g 2437MHz Ant1

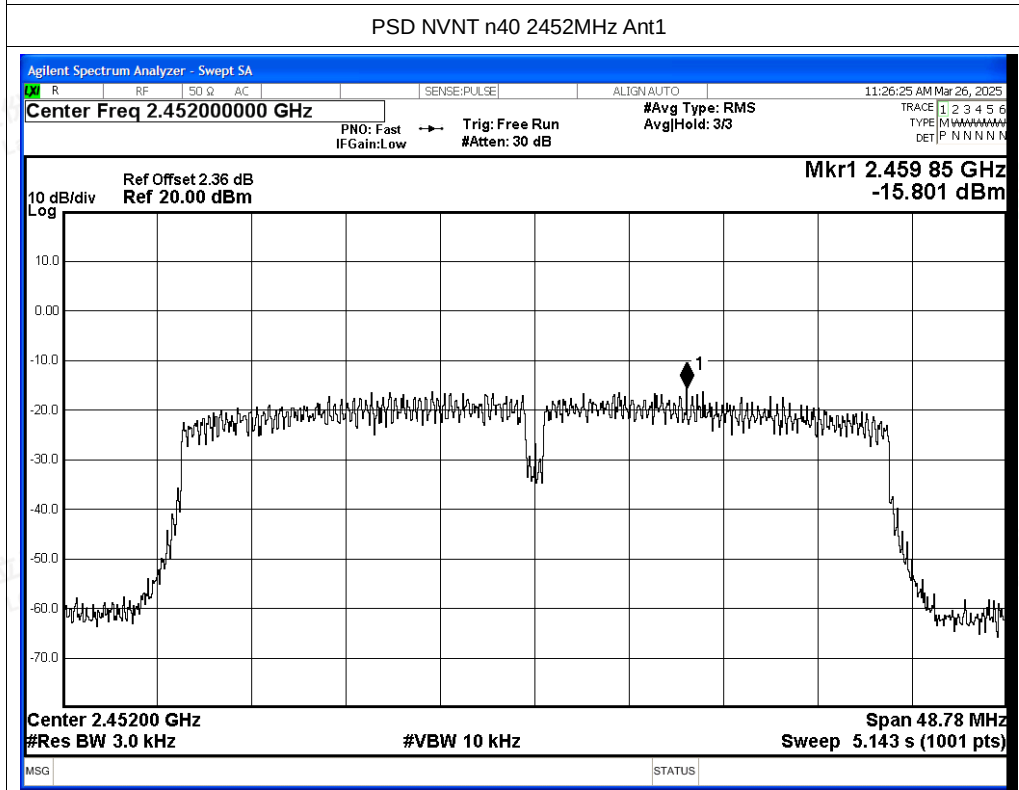
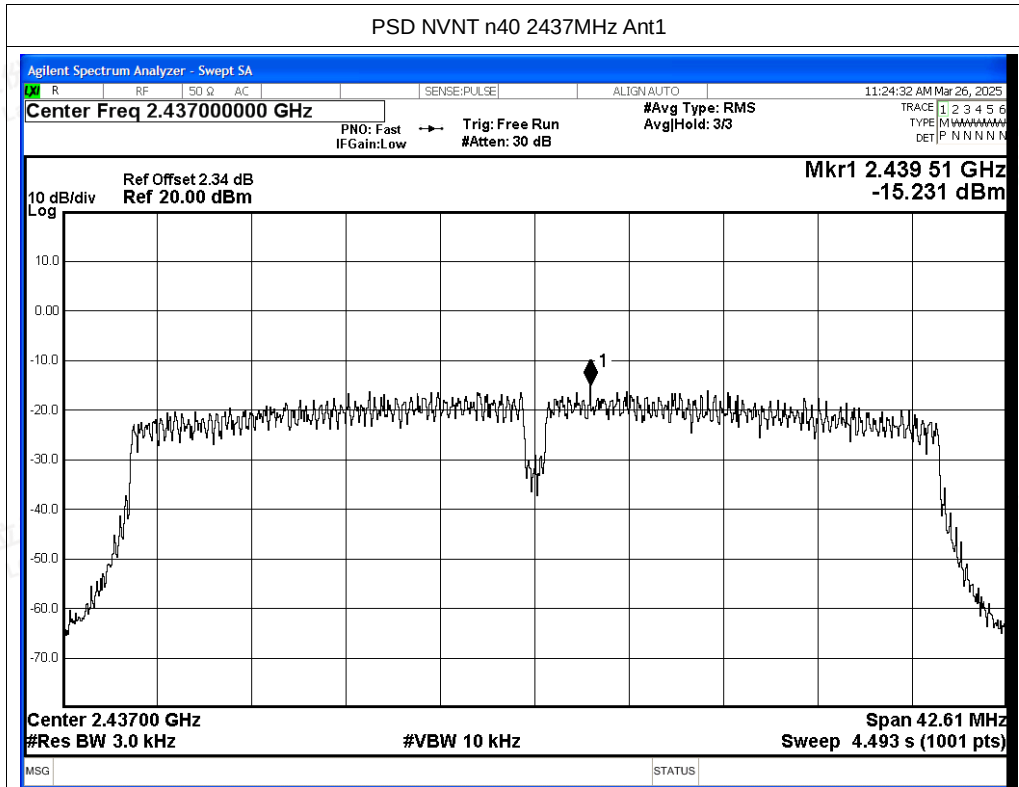


PSD NVNT g 2462MHz Ant1





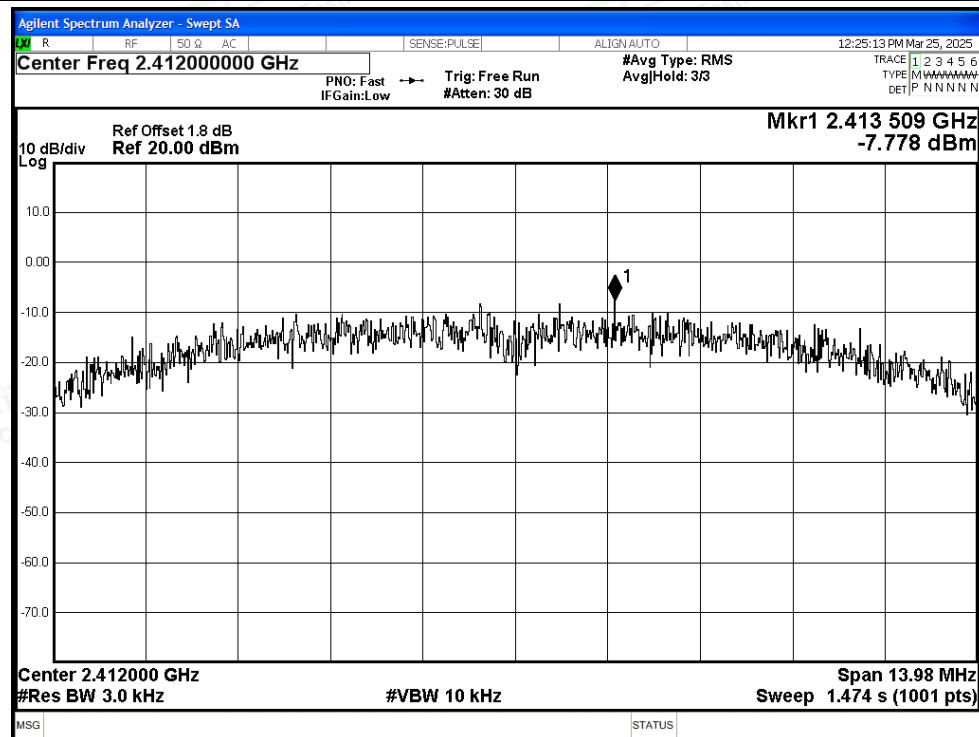




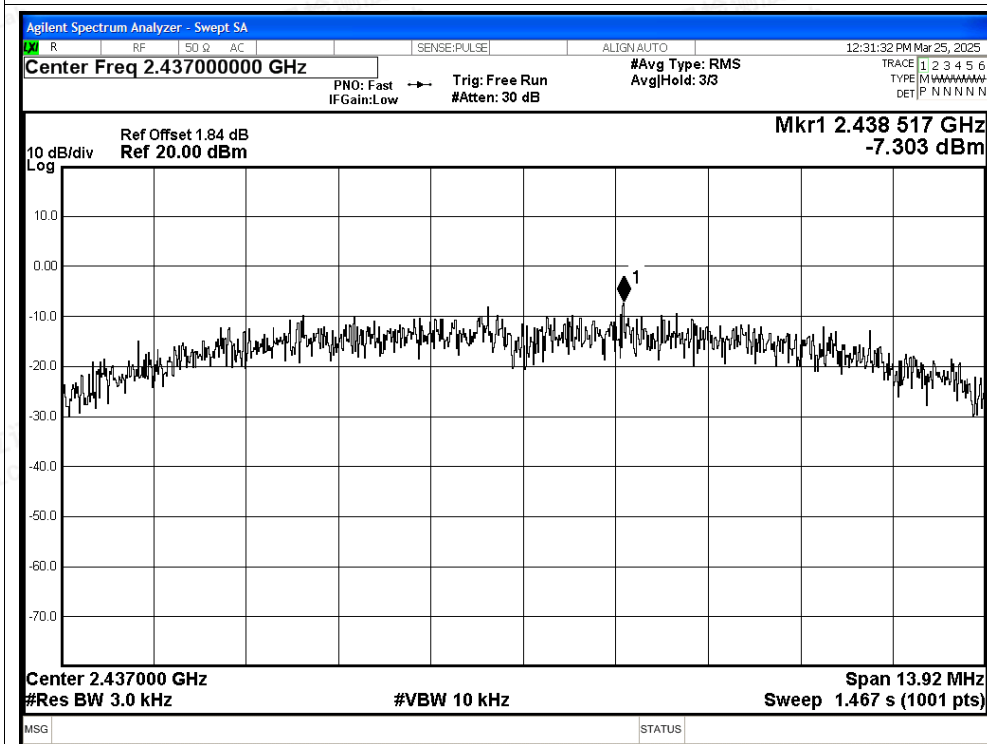


Test Graphs

PSD NVNT b 2412MHz Ant2

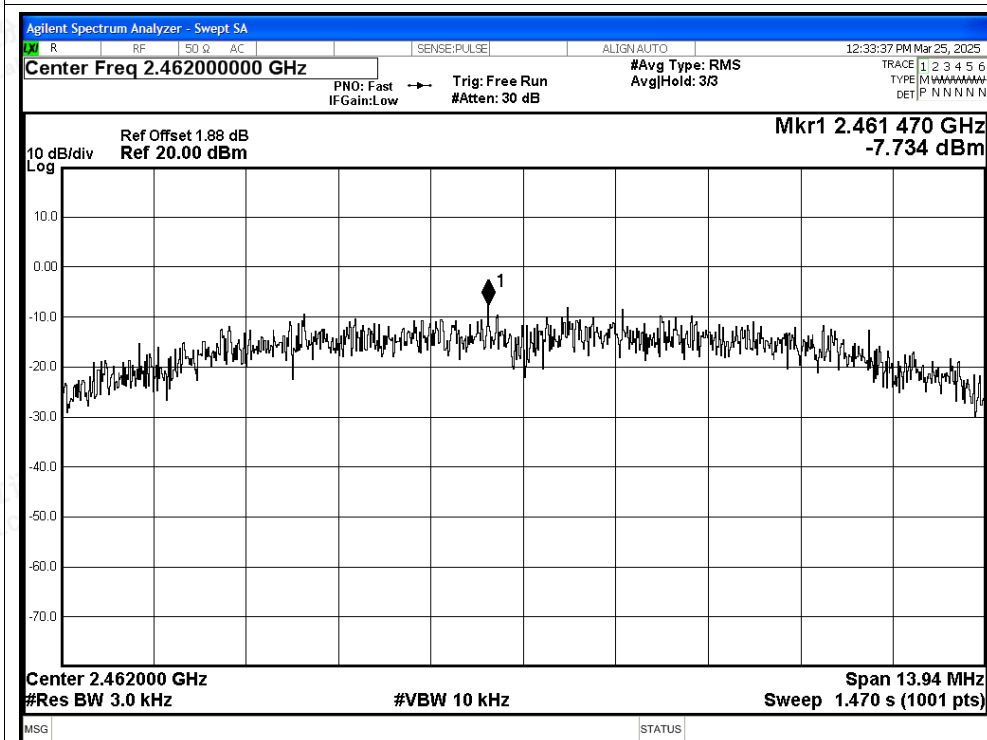


PSD NVNT b 2437MHz Ant2

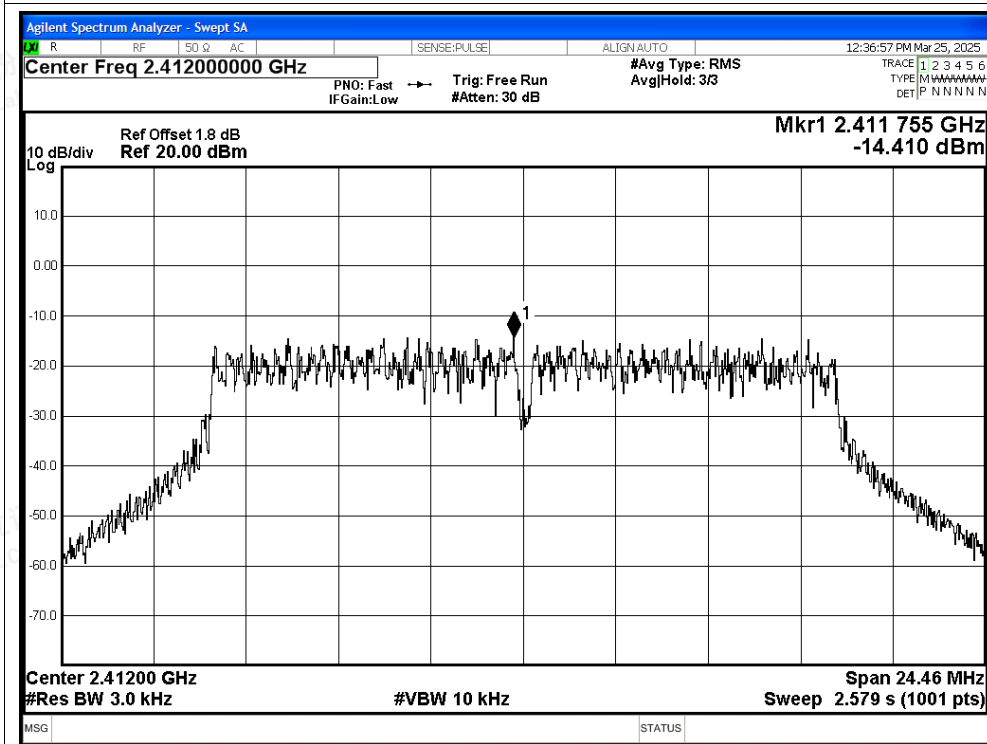


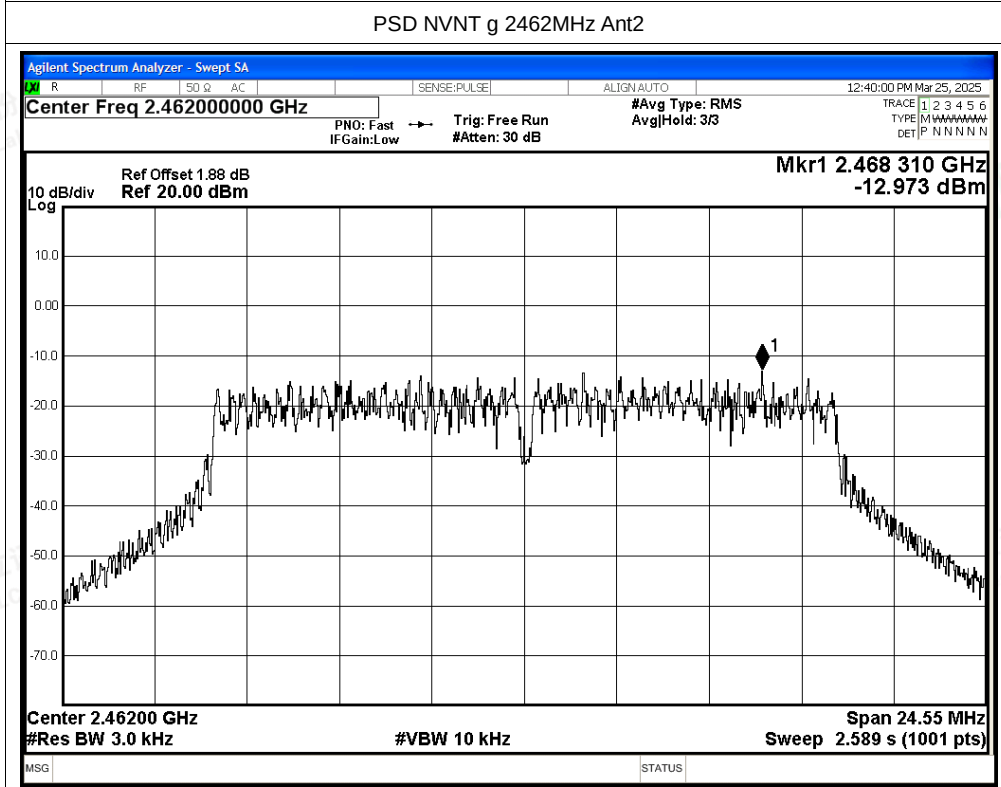
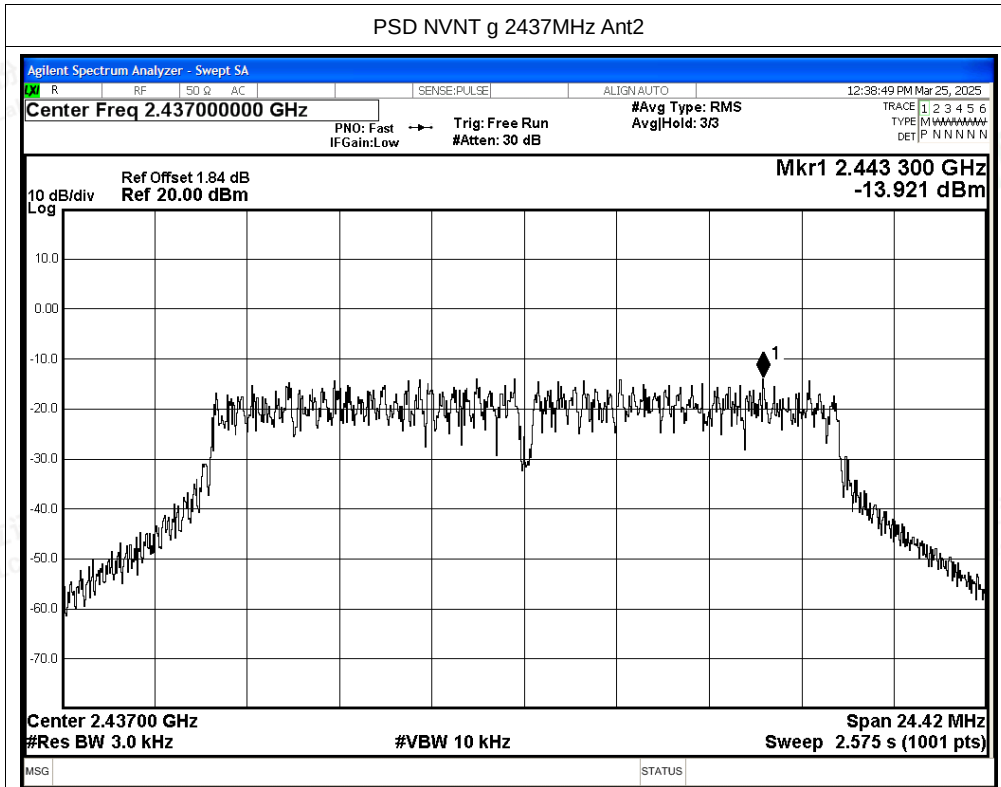


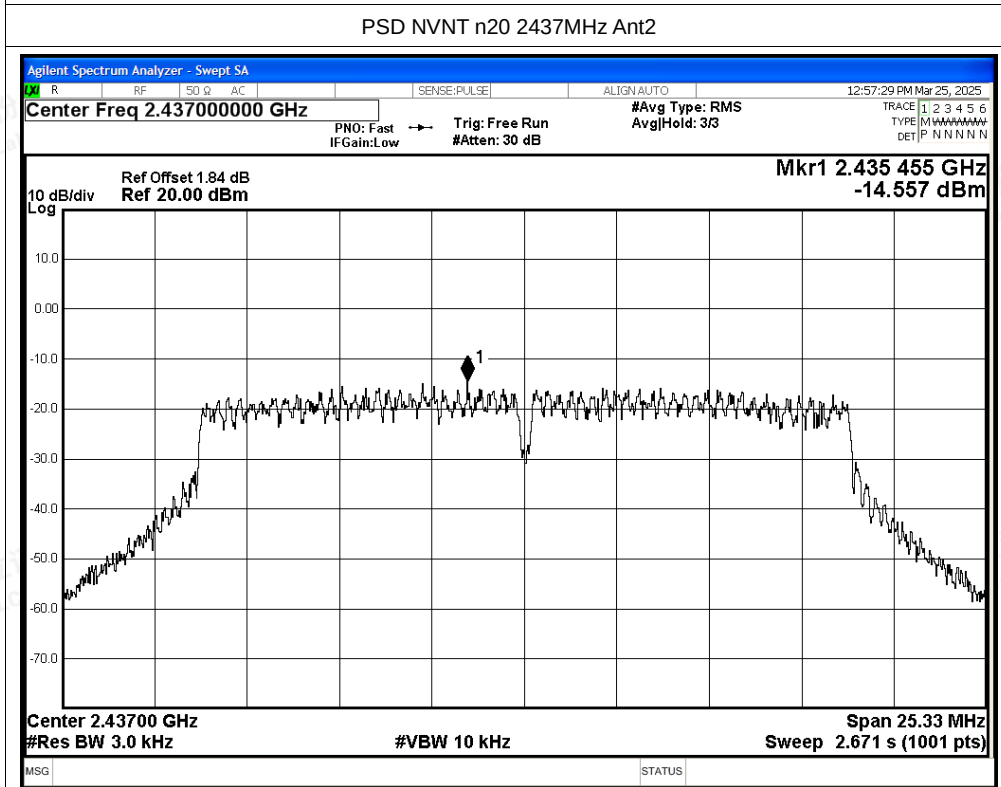
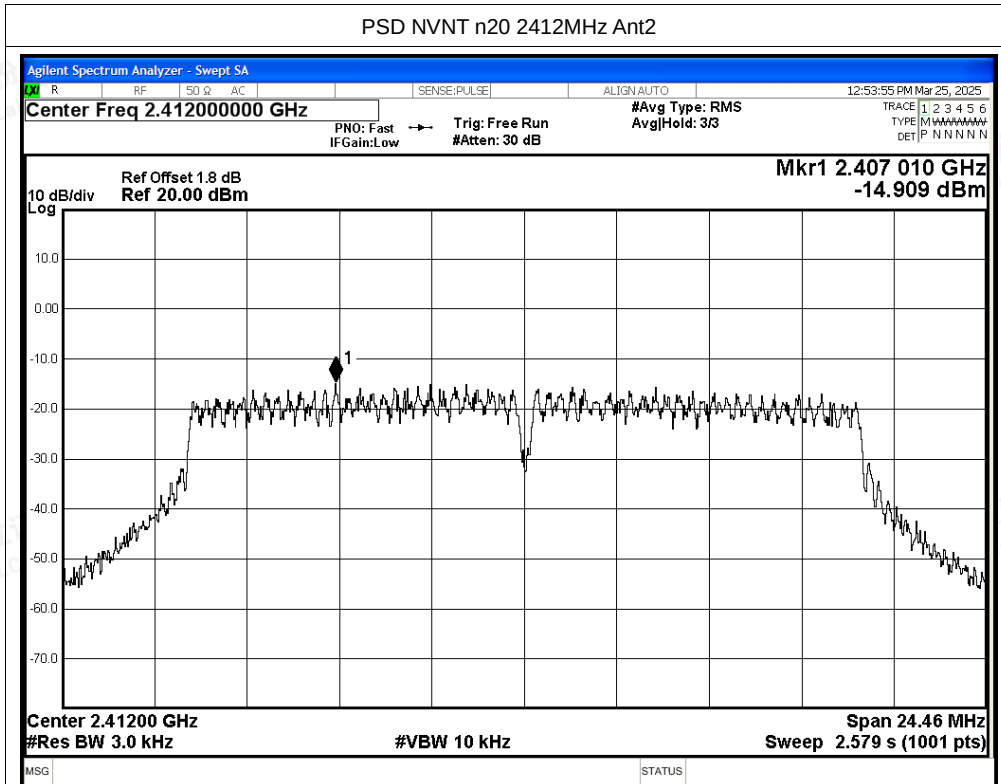
PSD NVNT b 2462MHz Ant2

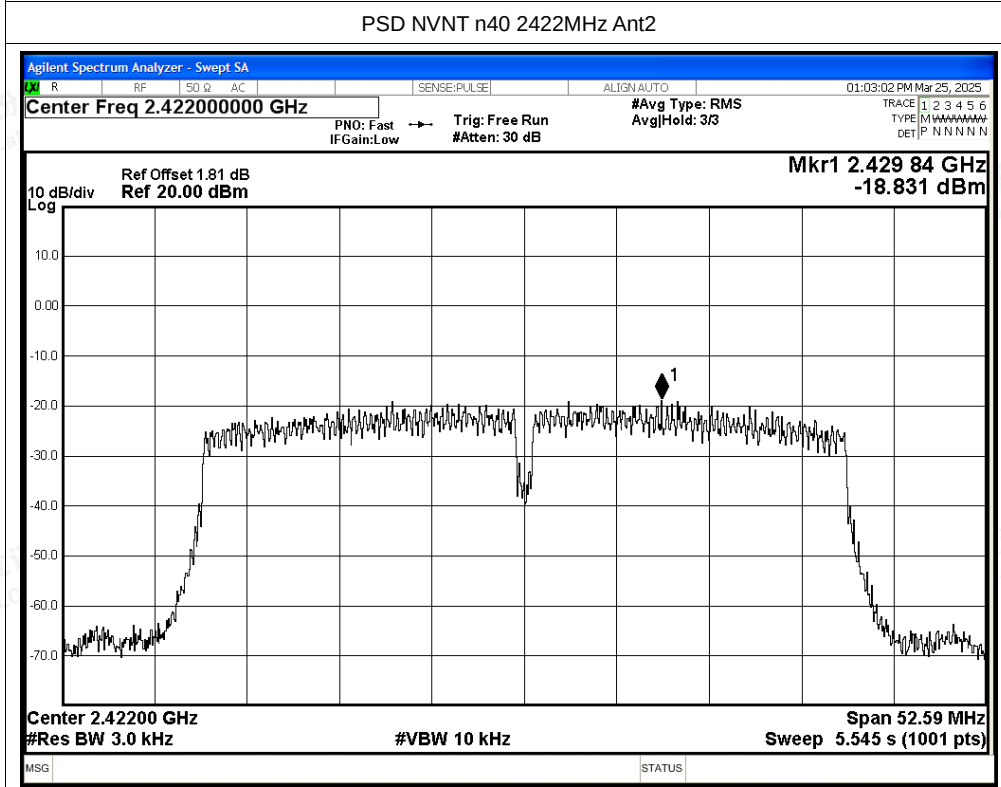
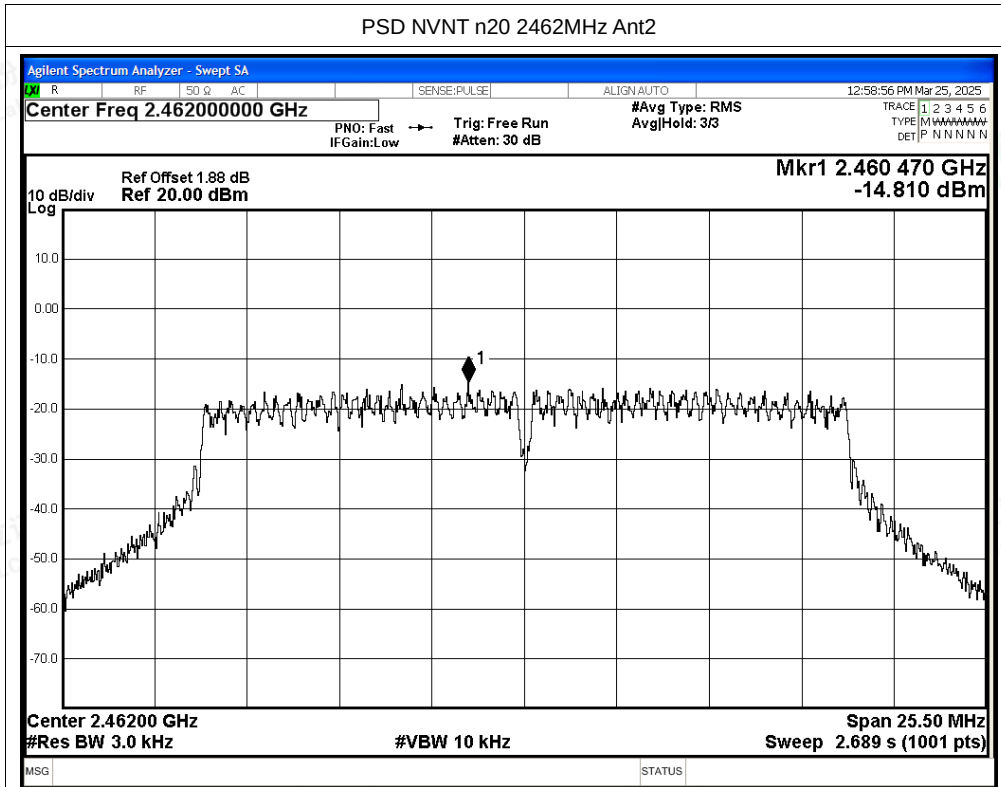


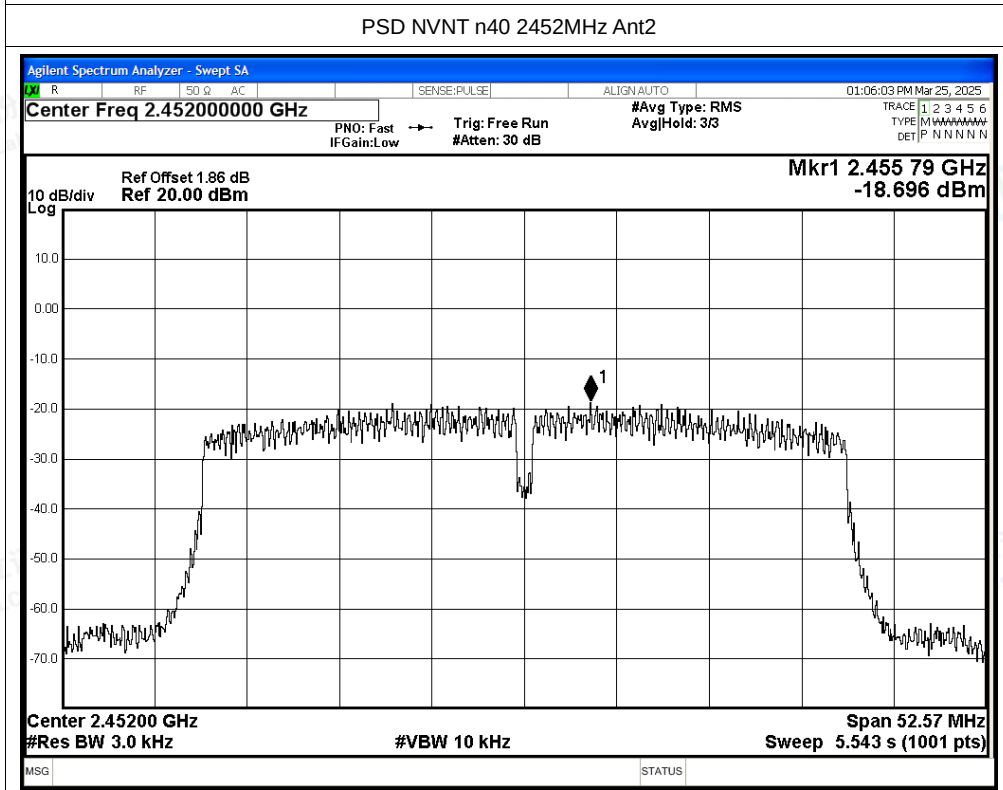
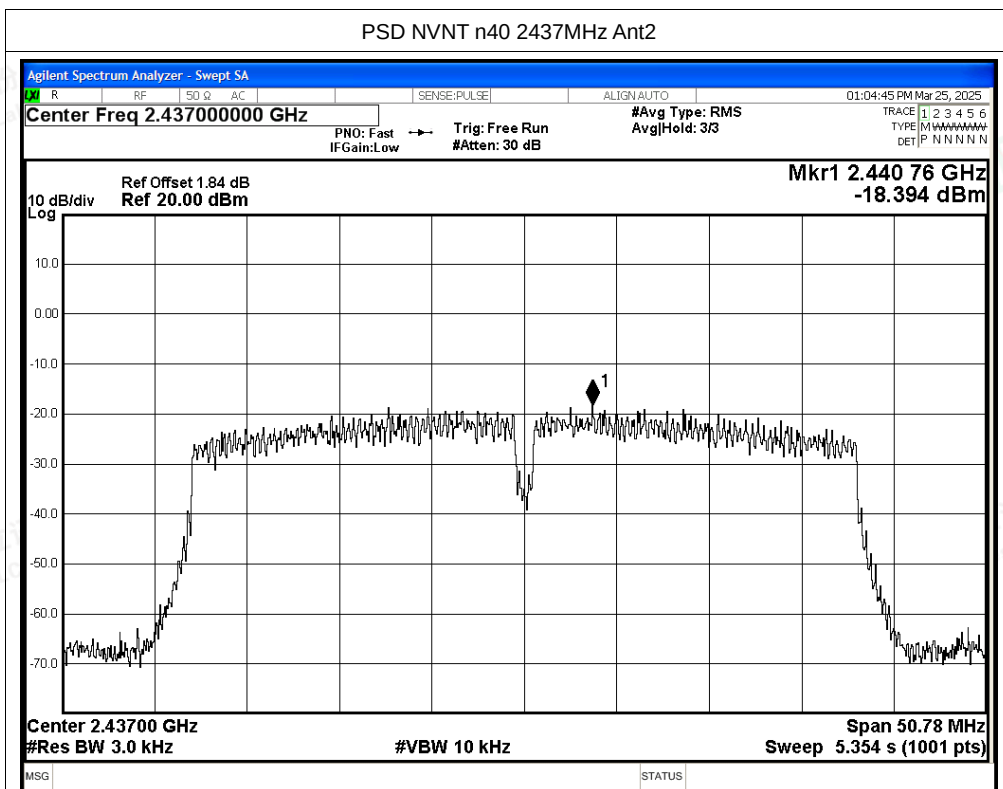
PSD NVNT g 2412MHz Ant2













A.4 Band Edge

Condition	Mode	Frequency (MHz)	Antenna	Max Value (dBc)	Limit (dBc)	Verdict
NVNT	b	2412	Ant1	-49.27	-20	Pass
NVNT	b	2462	Ant1	-58.79	-20	Pass
NVNT	g	2412	Ant1	-41.54	-20	Pass
NVNT	g	2462	Ant1	-52.94	-20	Pass
NVNT	n20	2412	Ant1	-40.94	-20	Pass
NVNT	n20	2462	Ant1	-54.48	-20	Pass
NVNT	n40	2422	Ant1	-42.85	-20	Pass
NVNT	n40	2452	Ant1	-48.27	-20	Pass

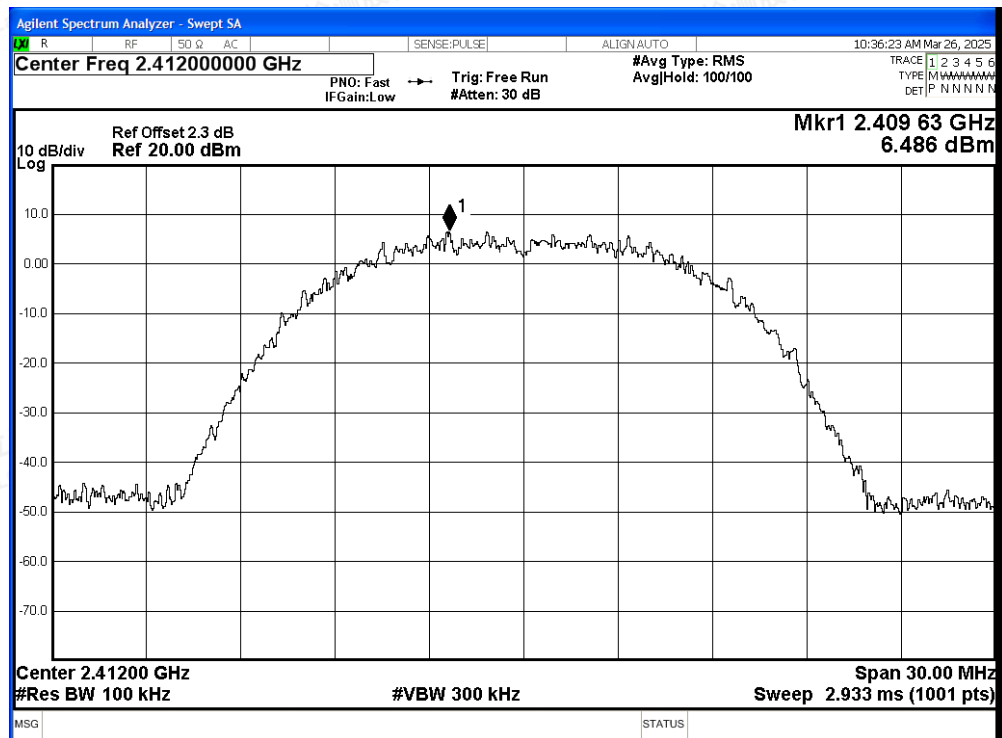


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Baoan District, Shenzhen, 518000, China
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Scan code to check authenticity

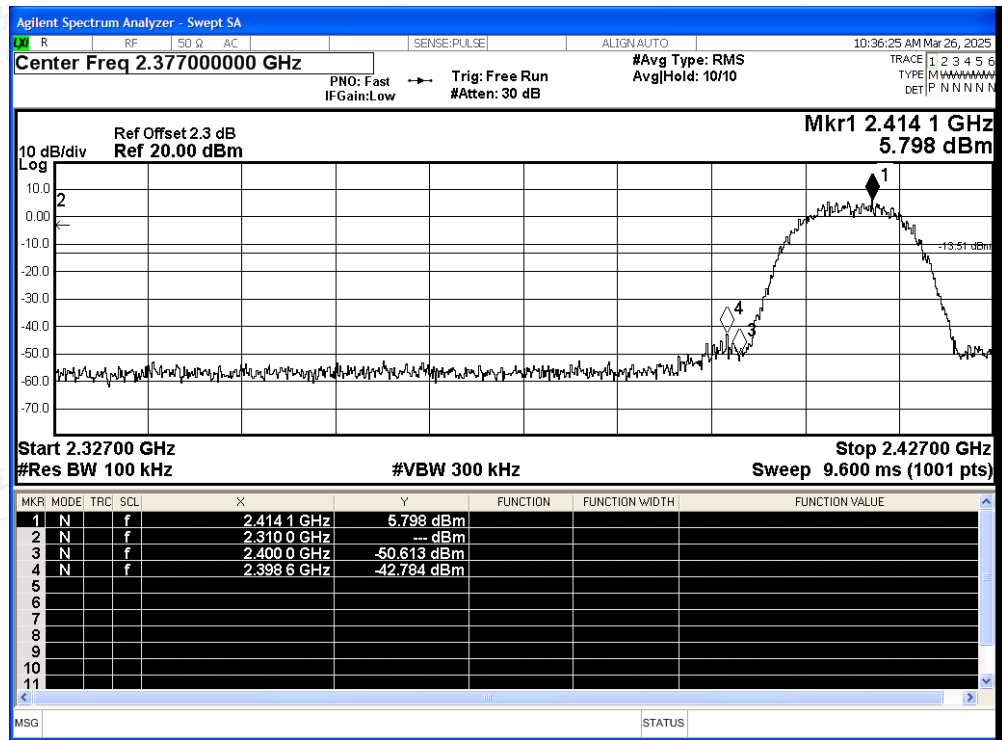


Test Graphs

Band Edge NVNT b 2412MHz Ant1 Ref

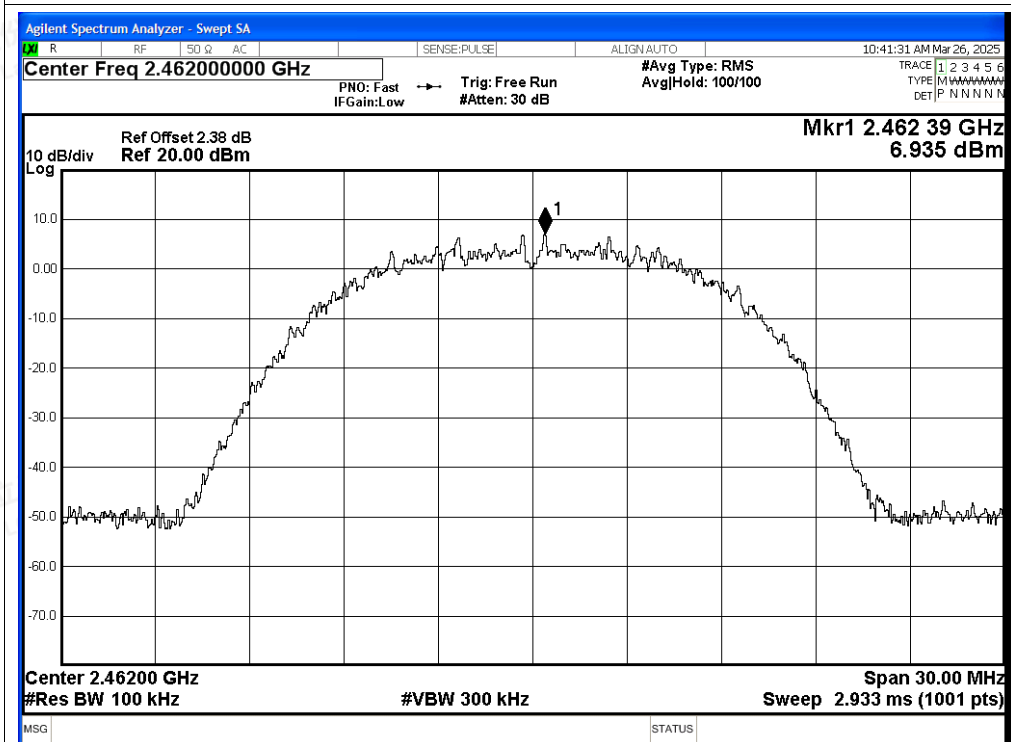


Band Edge NVNT b 2412MHz Ant1 Emission

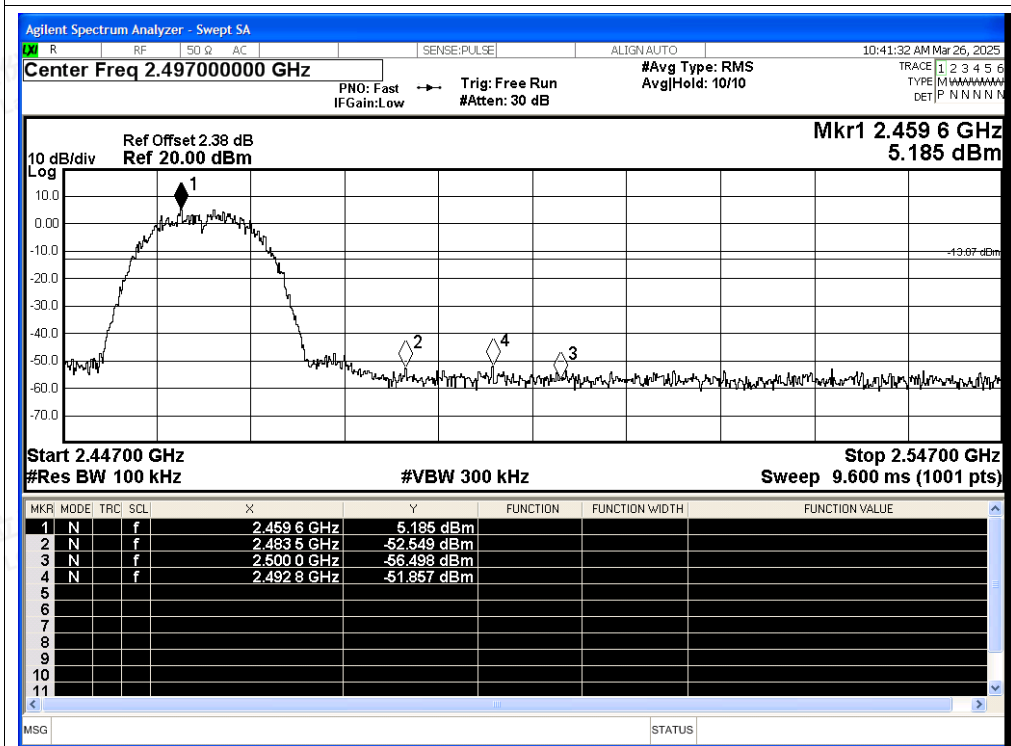




Band Edge NVNT b 2462MHz Ant1 Ref

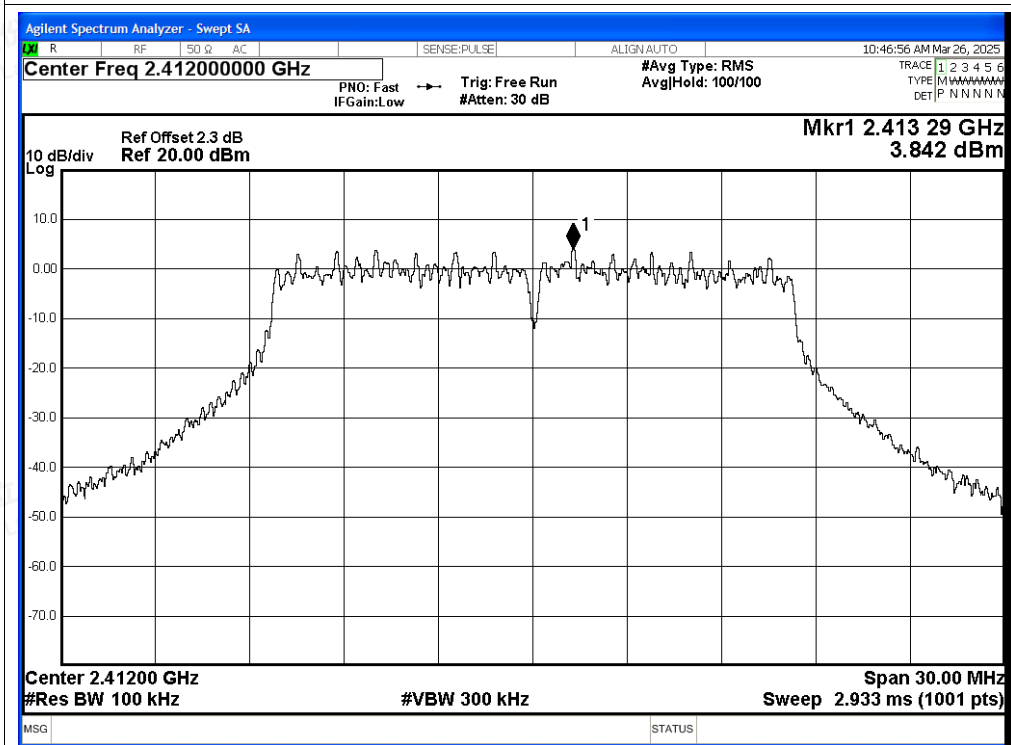


Band Edge NVNT b 2462MHz Ant1 Emission

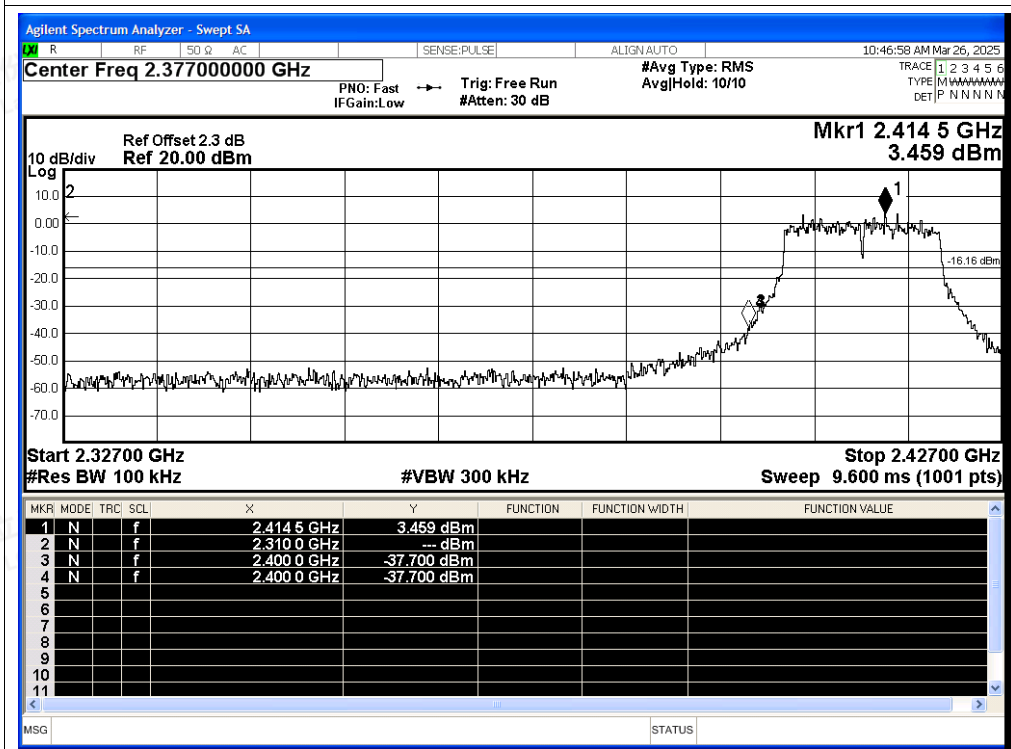




Band Edge NVNT g 2412MHz Ant1 Ref

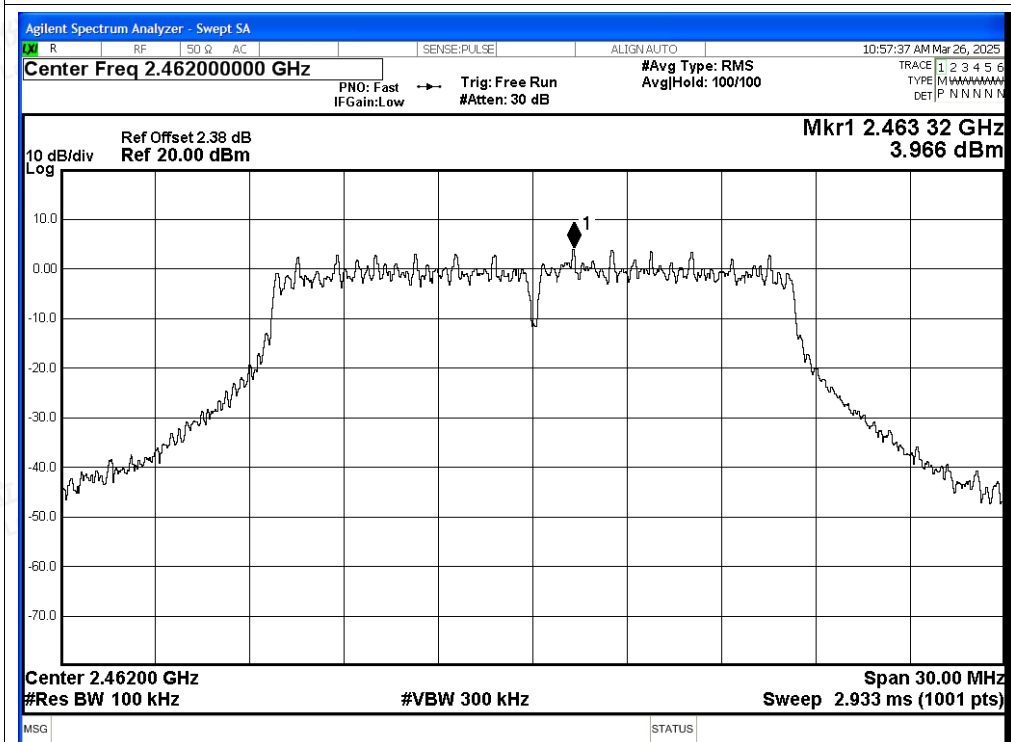


Band Edge NVNT g 2412MHz Ant1 Emission

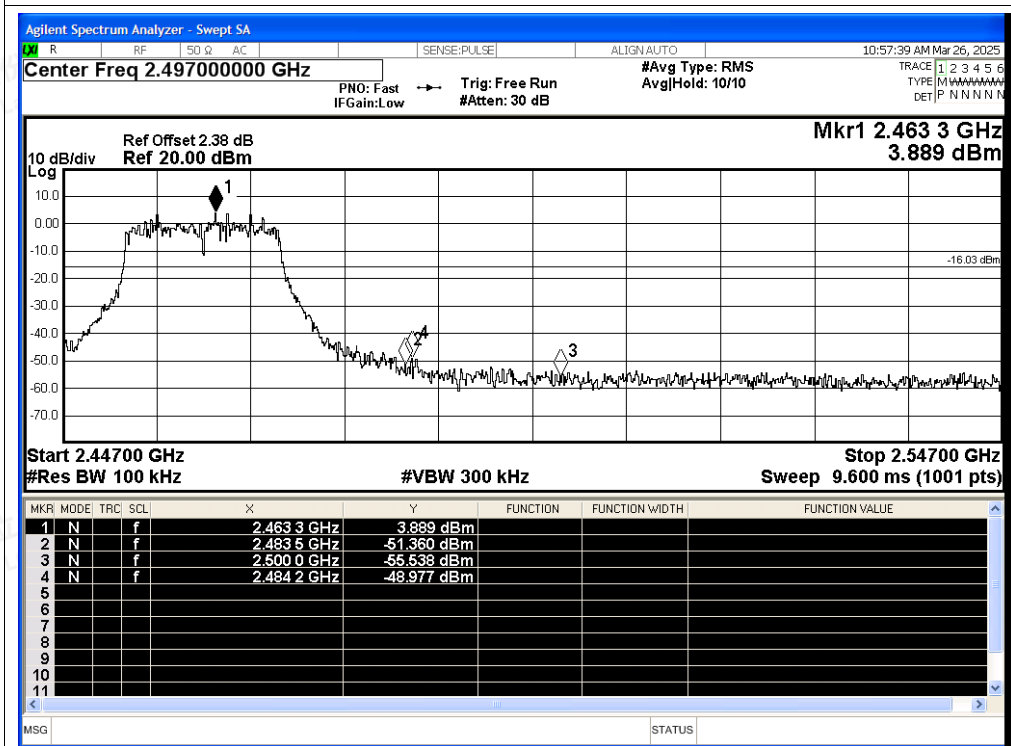


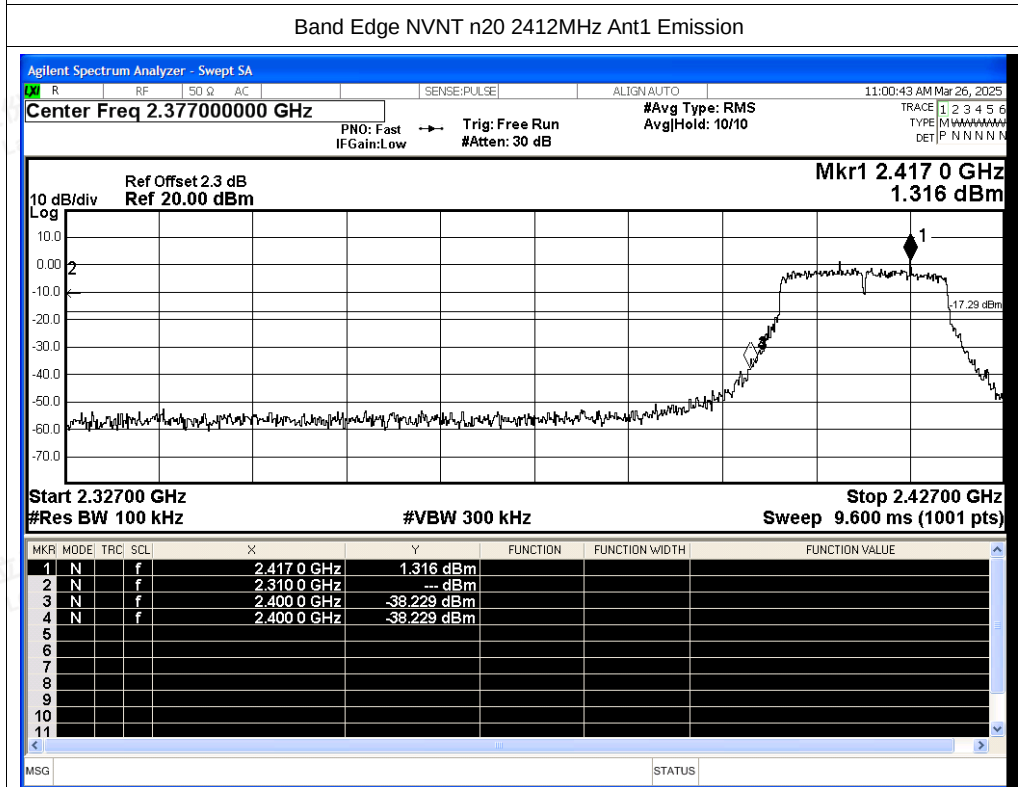
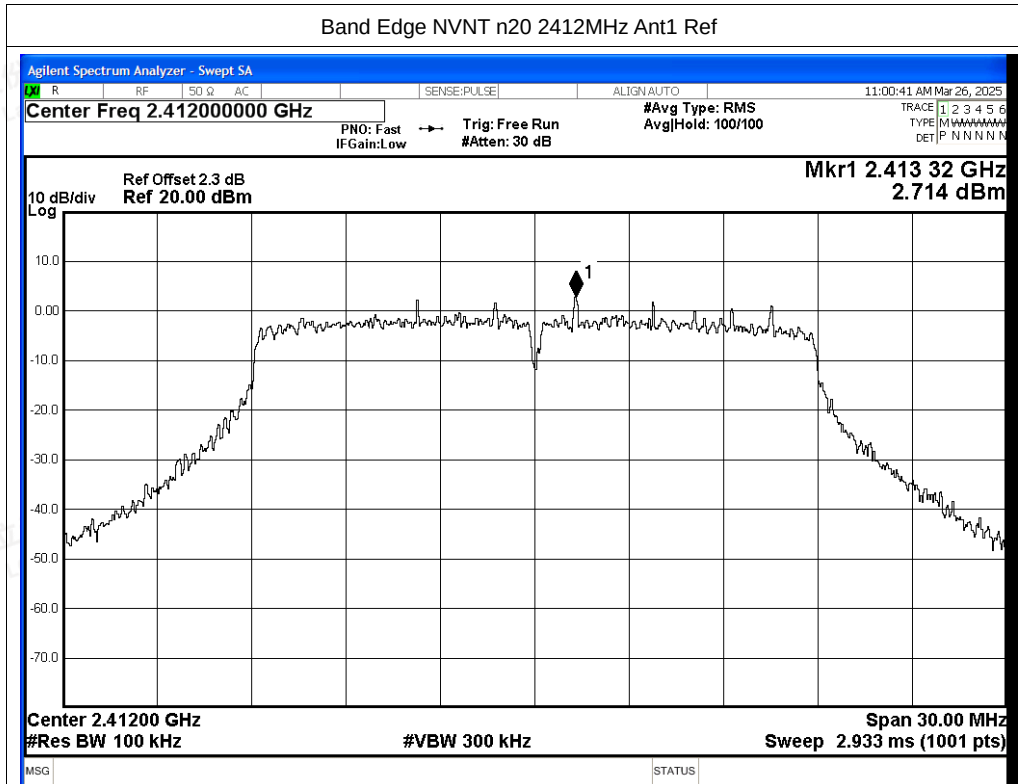


Band Edge NVNT g 2462MHz Ant1 Ref



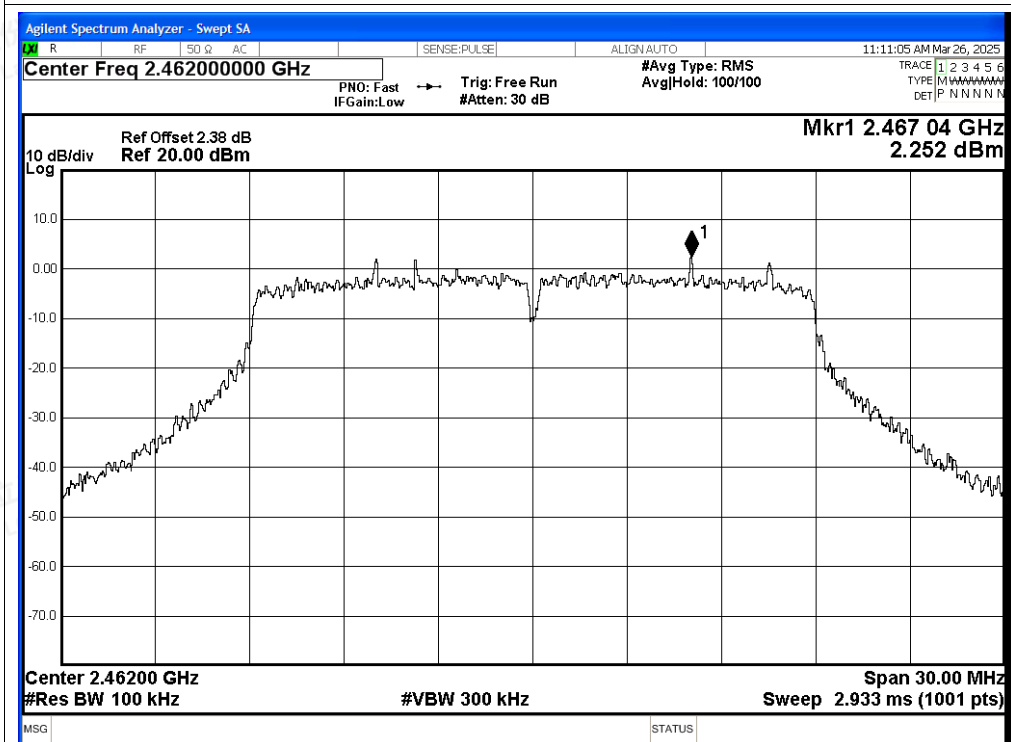
Band Edge NVNT g 2462MHz Ant1 Emission



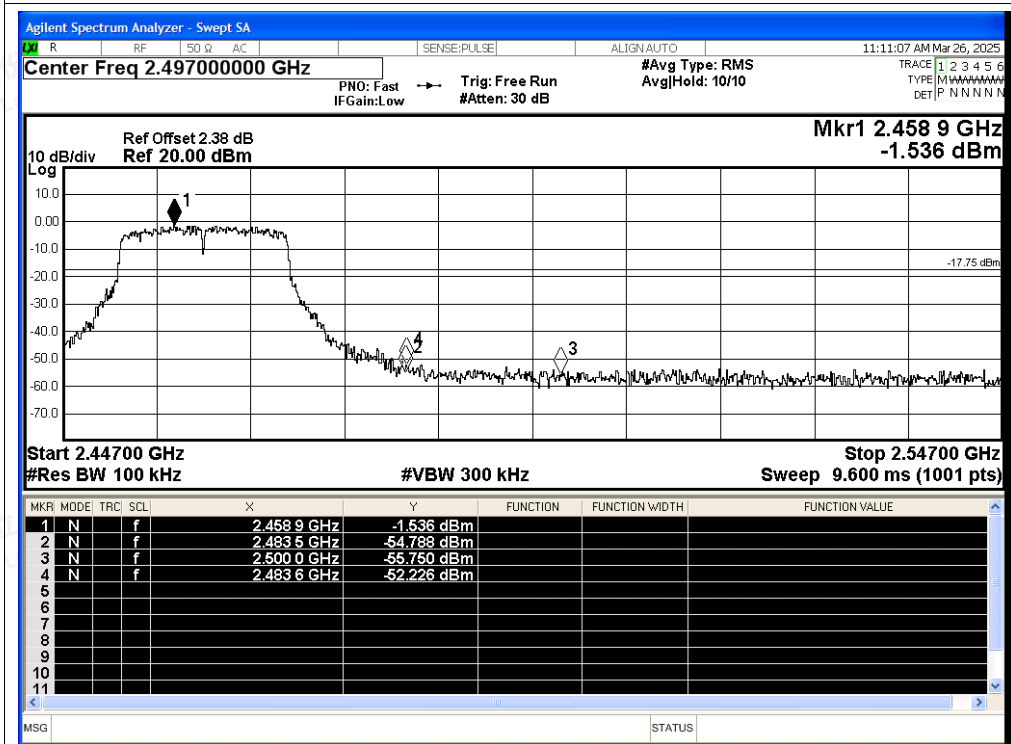




Band Edge NVNT n20 2462MHz Ant1 Ref

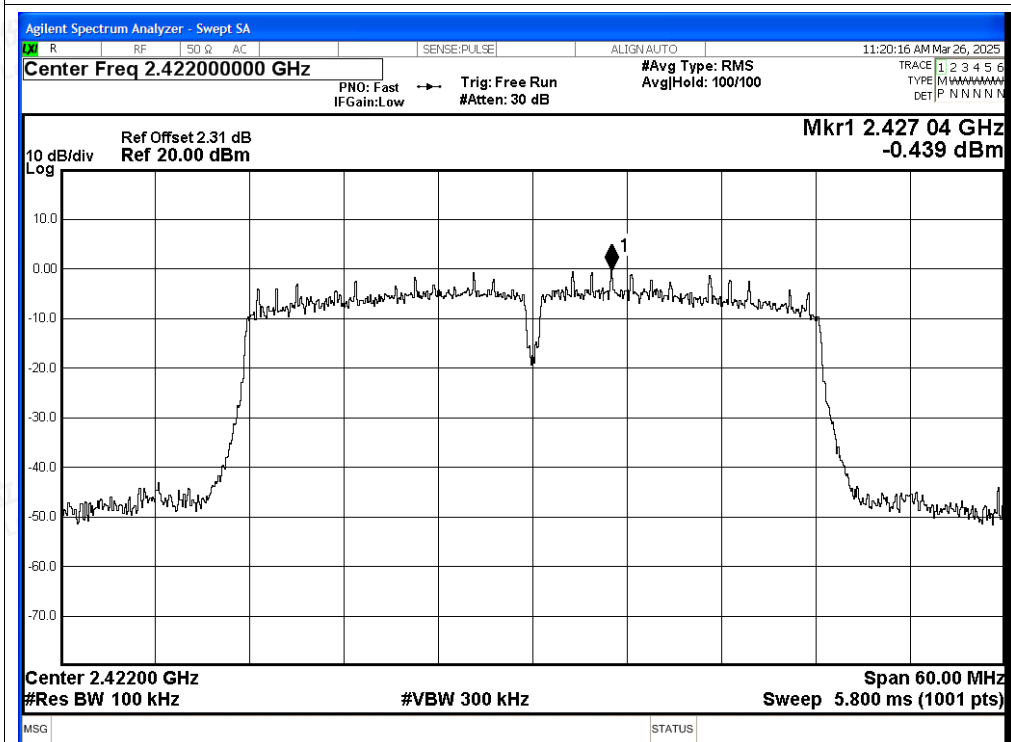


Band Edge NVNT n20 2462MHz Ant1 Emission

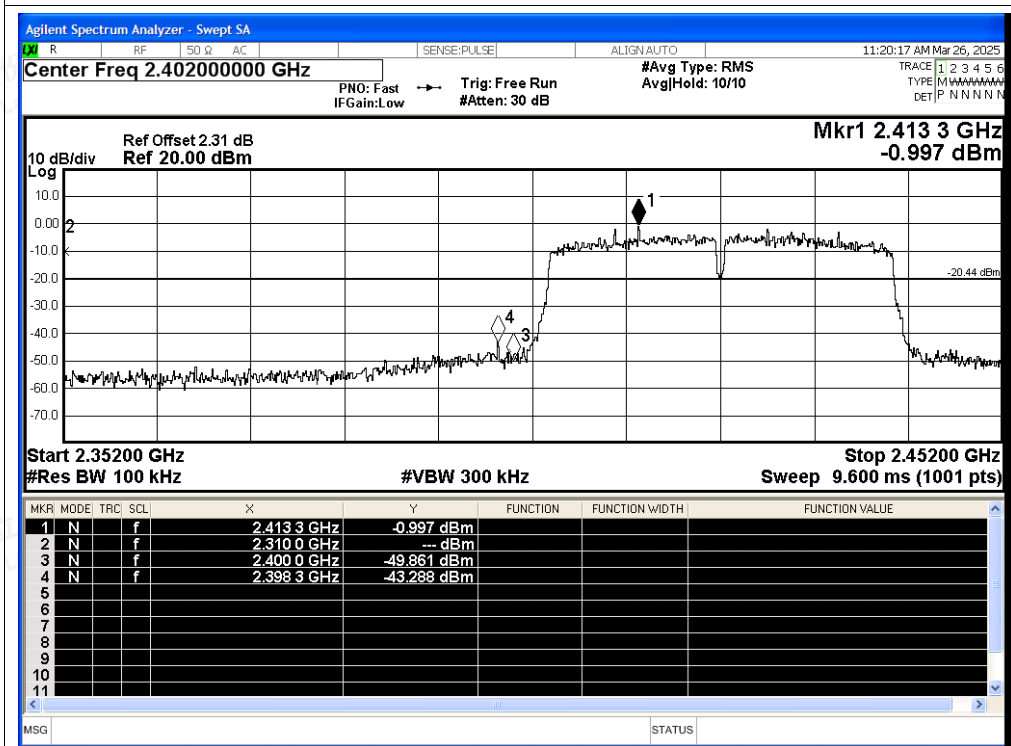




Band Edge NVNT n40 2422MHz Ant1 Ref

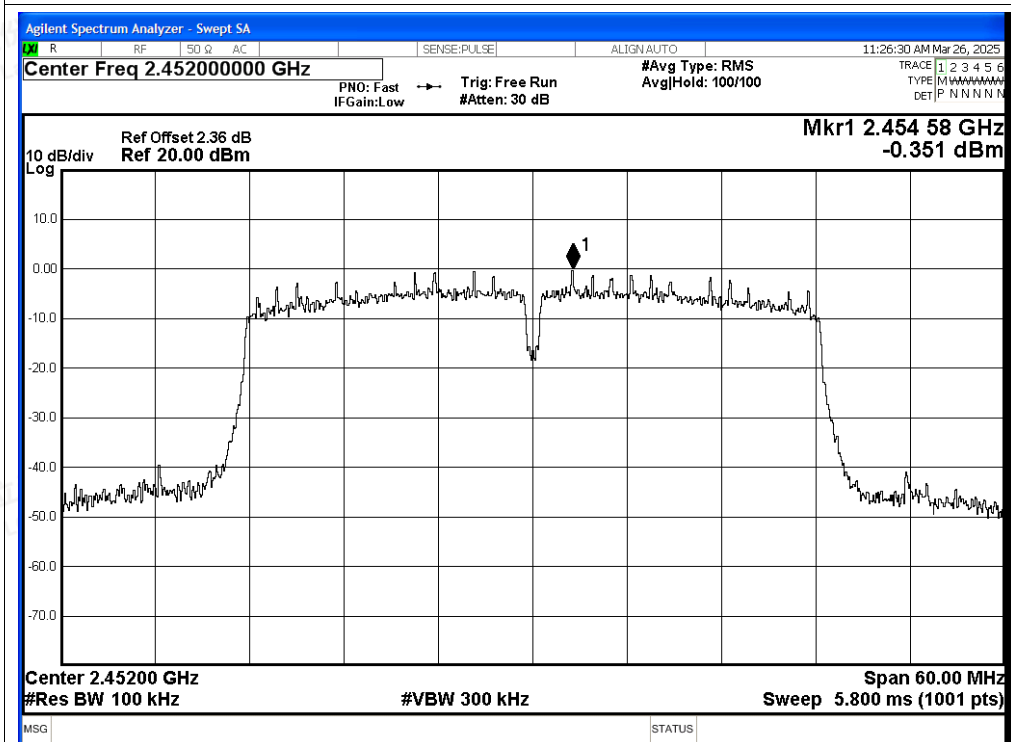


Band Edge NVNT n40 2422MHz Ant1 Emission

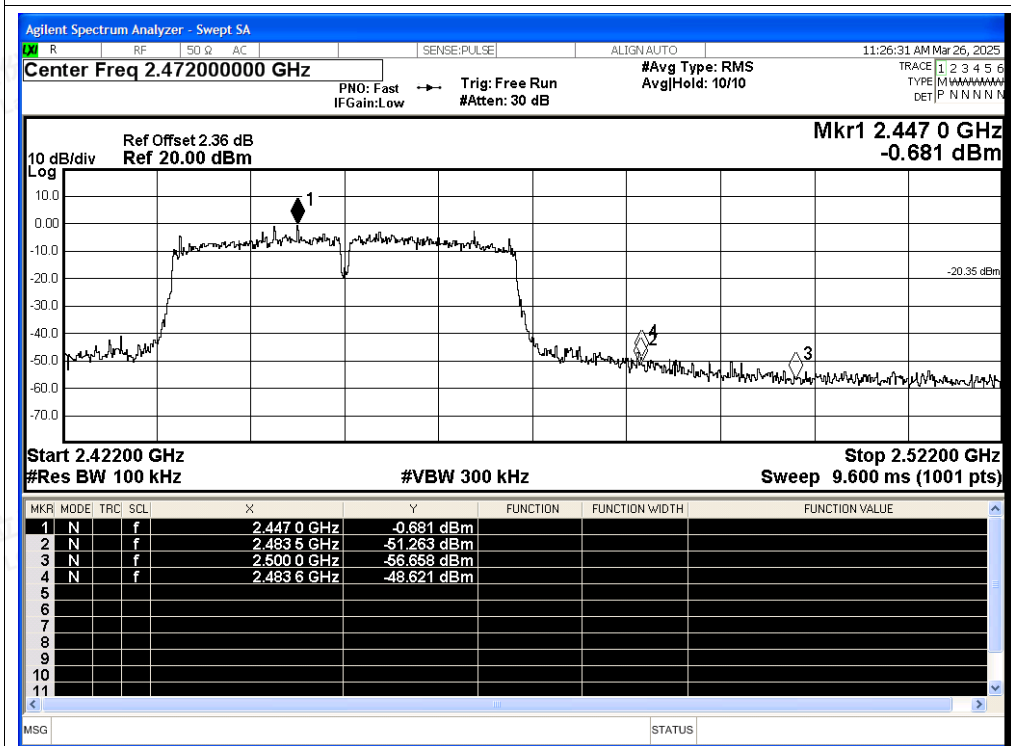




Band Edge NVNT n40 2452MHz Ant1 Ref



Band Edge NVNT n40 2452MHz Ant1 Emission





Condition	Mode	Frequency (MHz)	Antenna	Max Value (dBc)	Limit (dBc)	Verdict
NVNT	b	2412	Ant2	-53.69	-20	Pass
NVNT	b	2462	Ant2	-59.2	-20	Pass
NVNT	g	2412	Ant2	-40.64	-20	Pass
NVNT	g	2462	Ant2	-54.12	-20	Pass
NVNT	n20	2412	Ant2	-36.3	-20	Pass
NVNT	n20	2462	Ant2	-53.01	-20	Pass
NVNT	n40	2422	Ant2	-43.52	-20	Pass
NVNT	n40	2452	Ant2	-47.46	-20	Pass

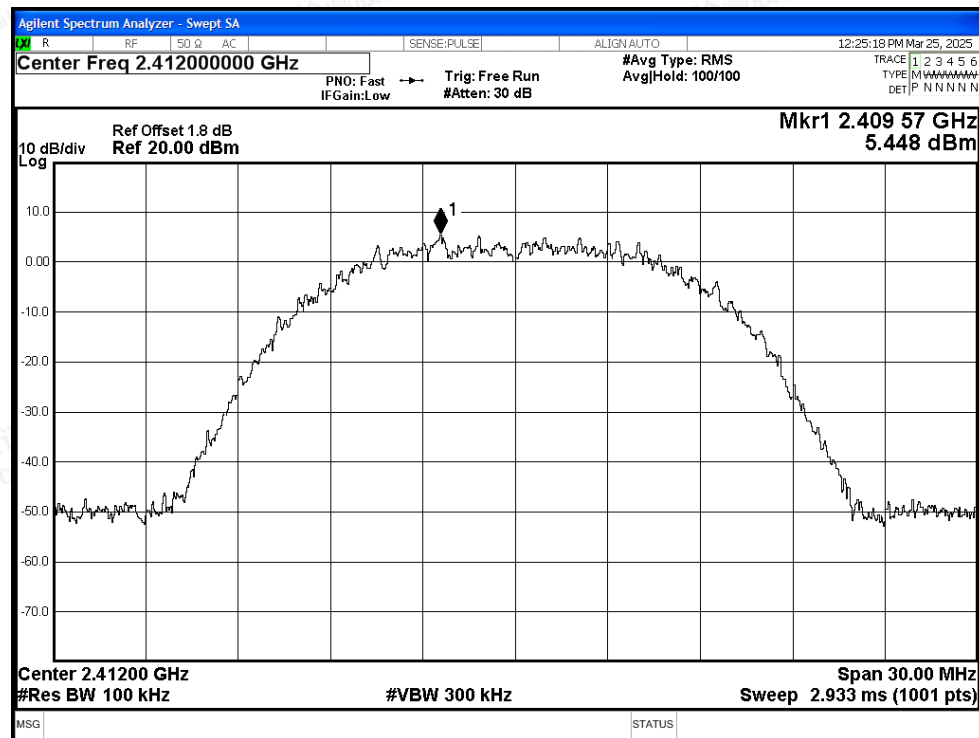


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Baoan District, Shenzhen, 518000, China
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Scan code to check authenticity

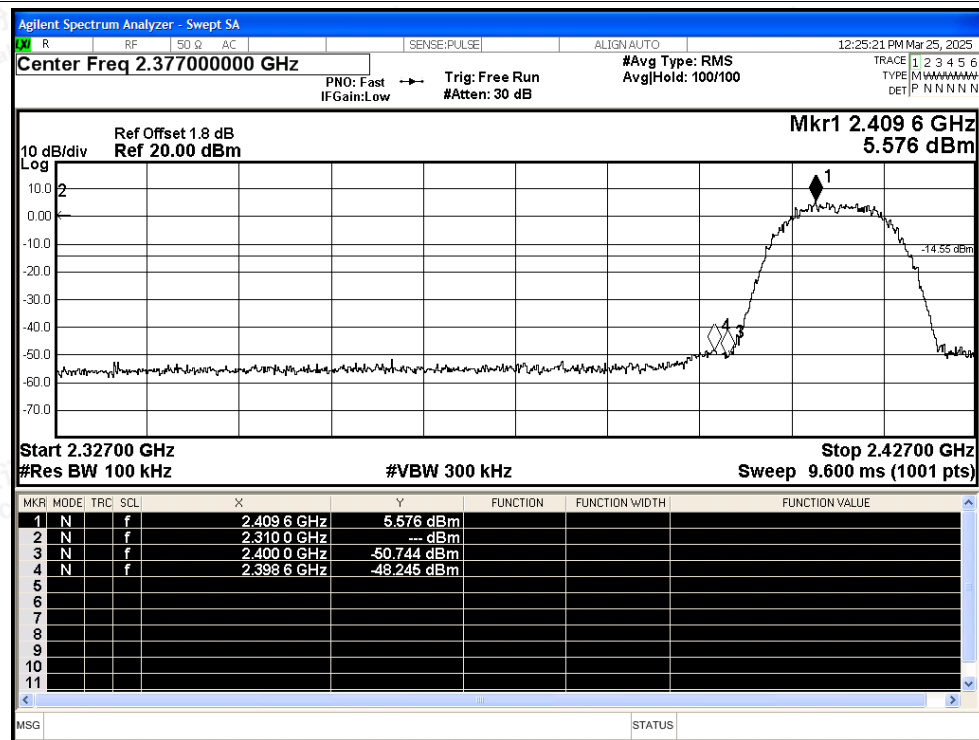


Test Graphs

Band Edge NVNT b 2412MHz Ant2 Ref

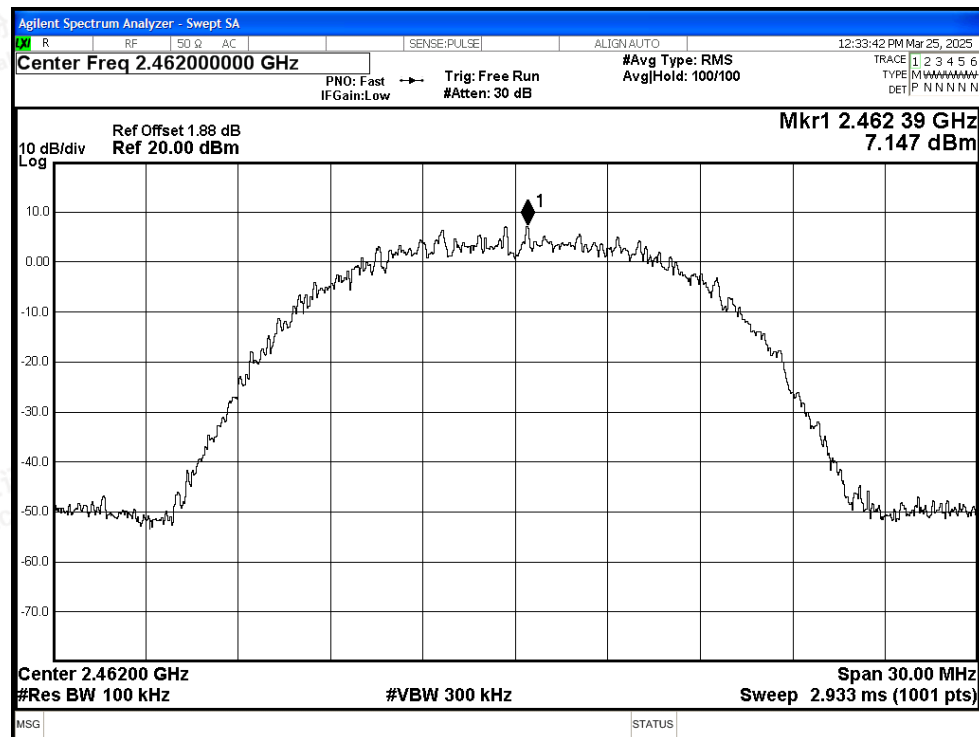


Band Edge NVNT b 2412MHz Ant2 Emission

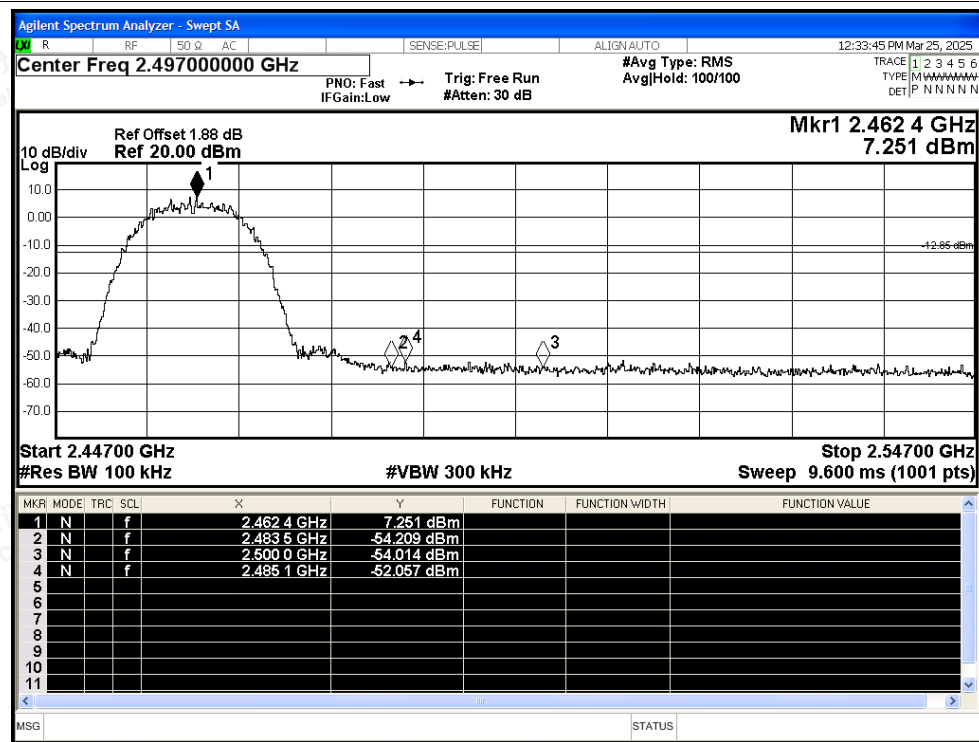




Band Edge NVNT b 2462MHz Ant2 Ref

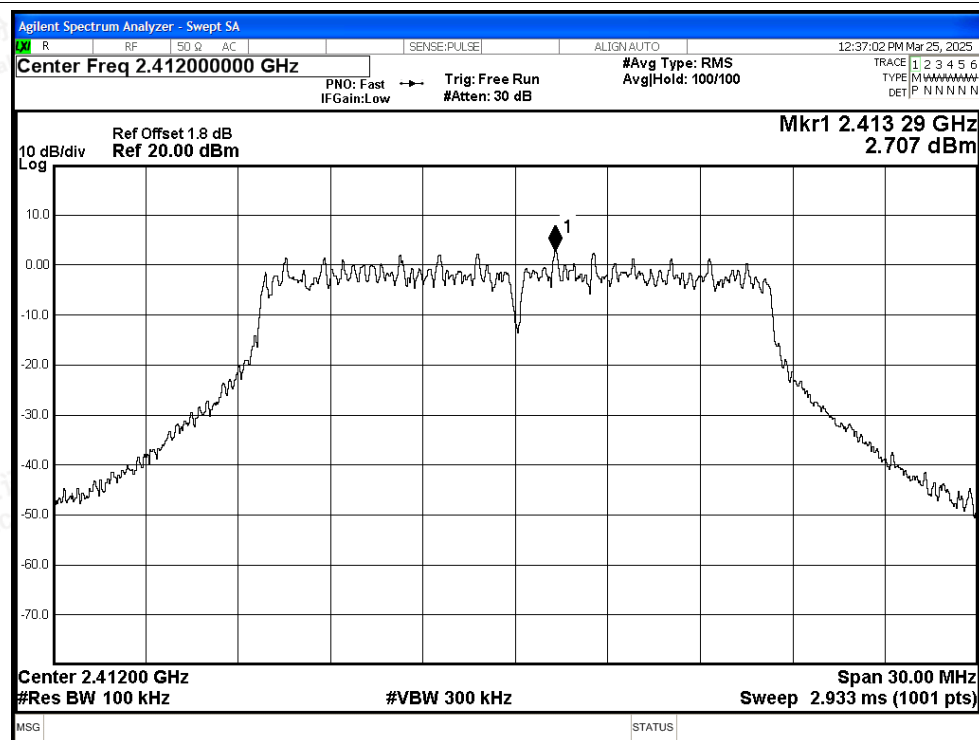


Band Edge NVNT b 2462MHz Ant2 Emission

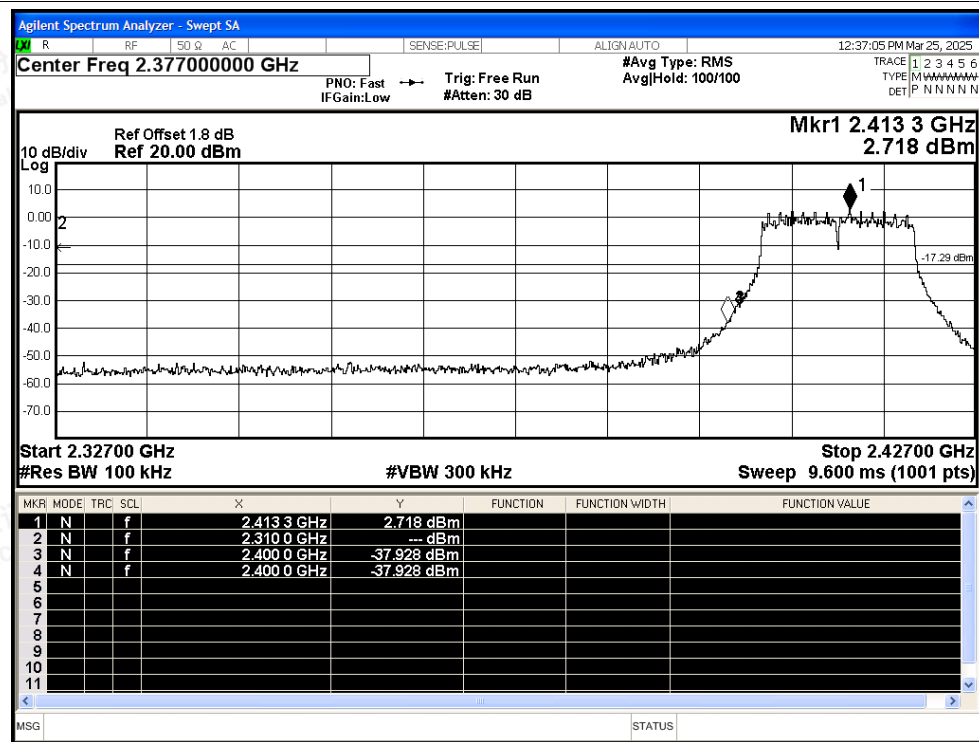




Band Edge NVNT g 2412MHz Ant2 Ref

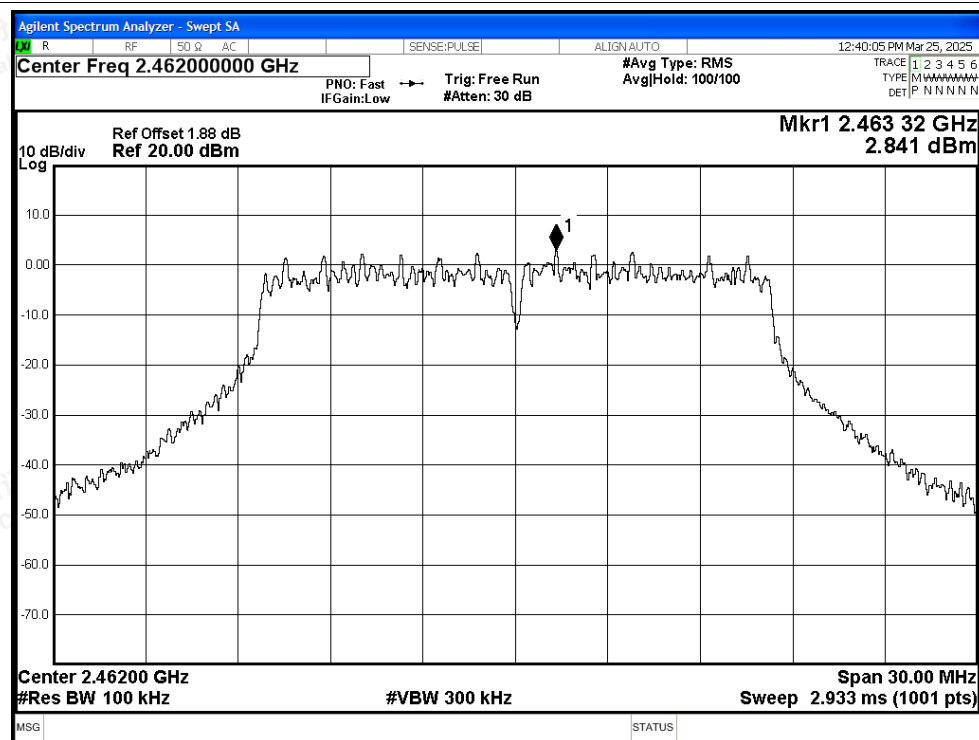


Band Edge NVNT g 2412MHz Ant2 Emission

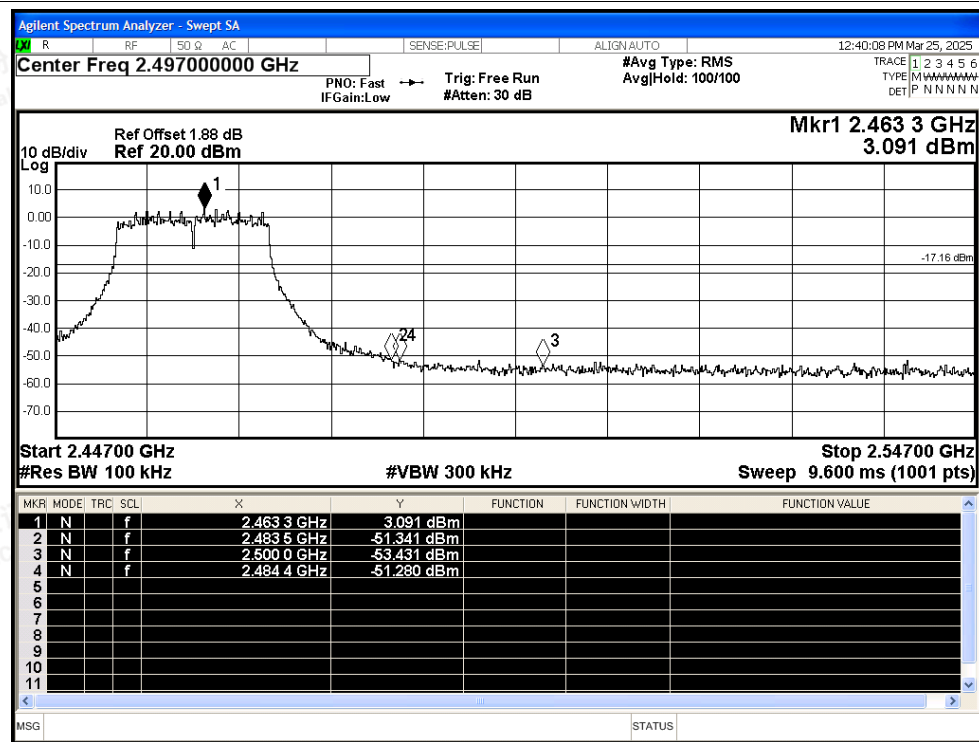




Band Edge NVNT g 2462MHz Ant2 Ref

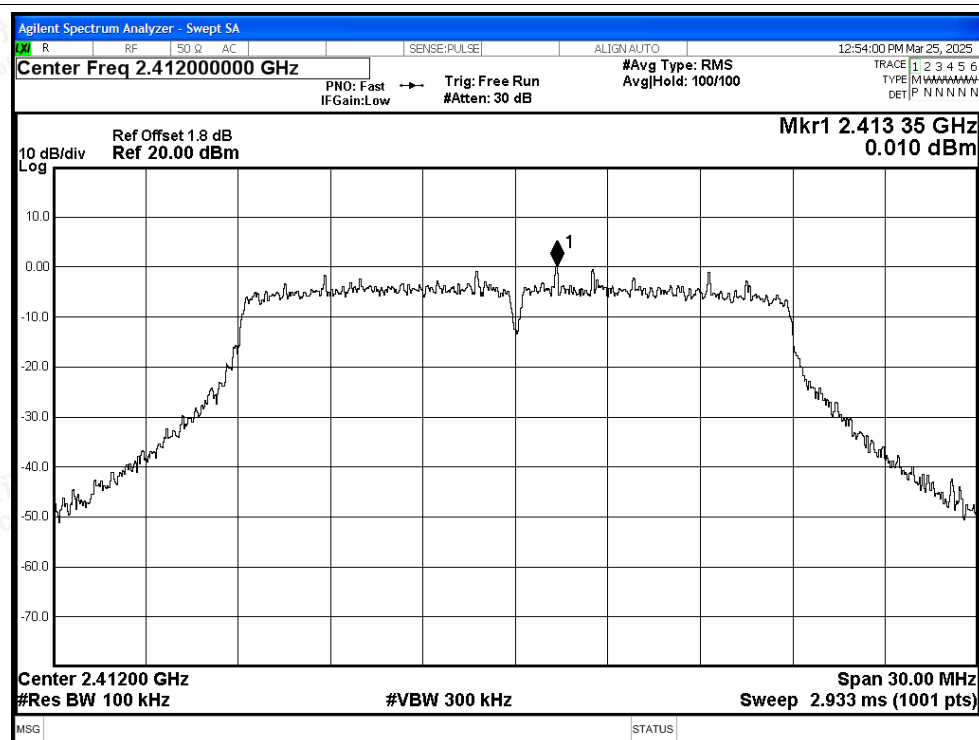


Band Edge NVNT g 2462MHz Ant2 Emission

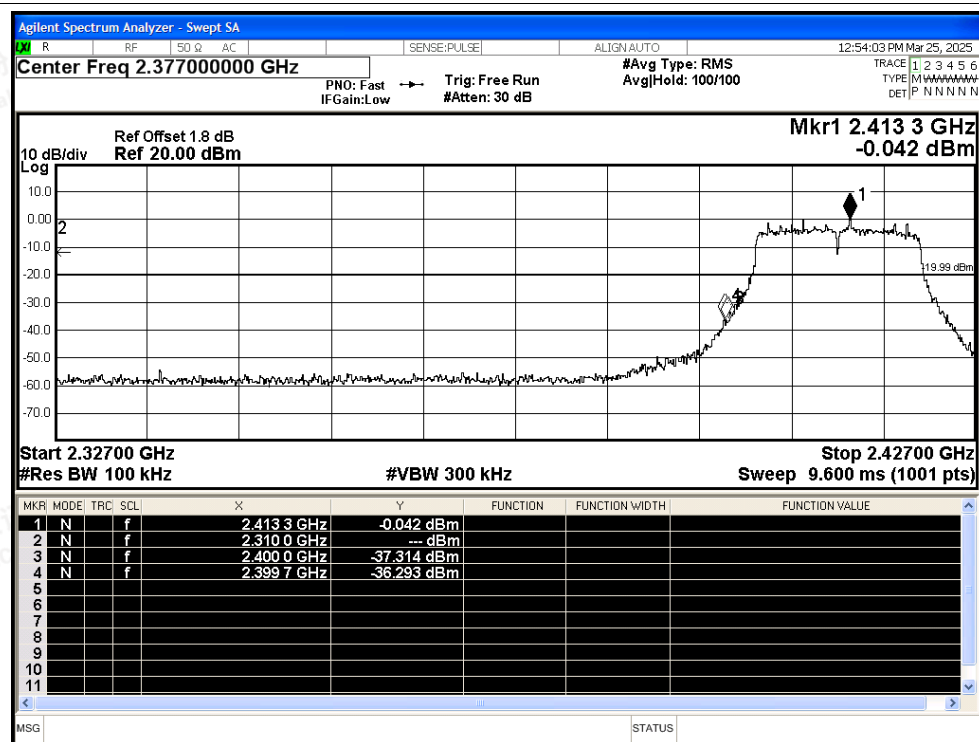




Band Edge NVNT n20 2412MHz Ant2 Ref

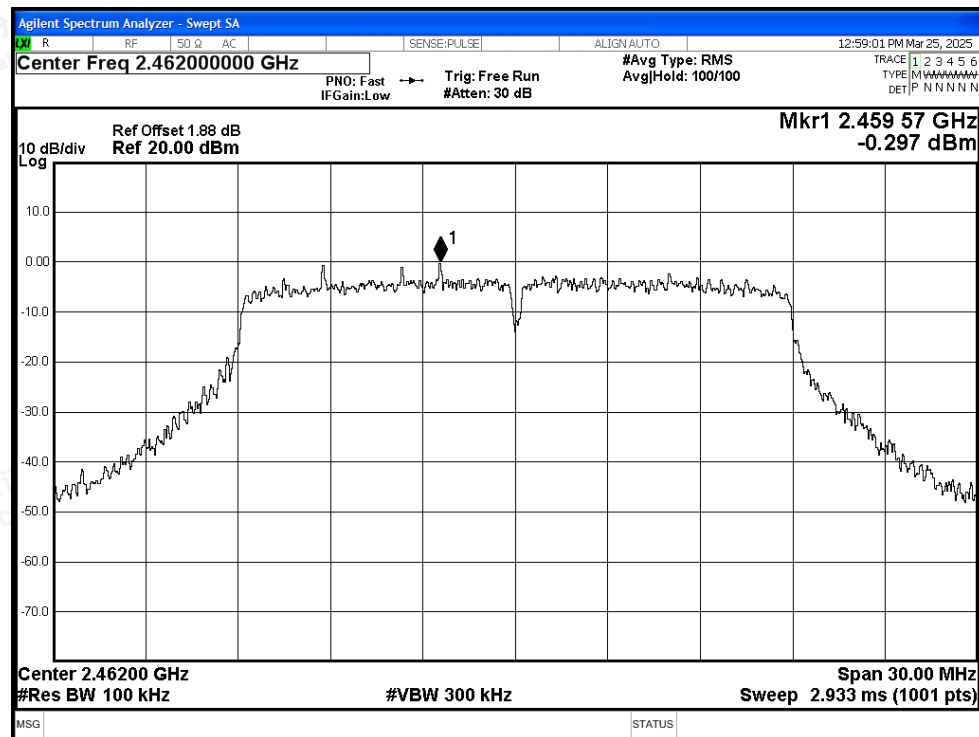


Band Edge NVNT n20 2412MHz Ant2 Emission

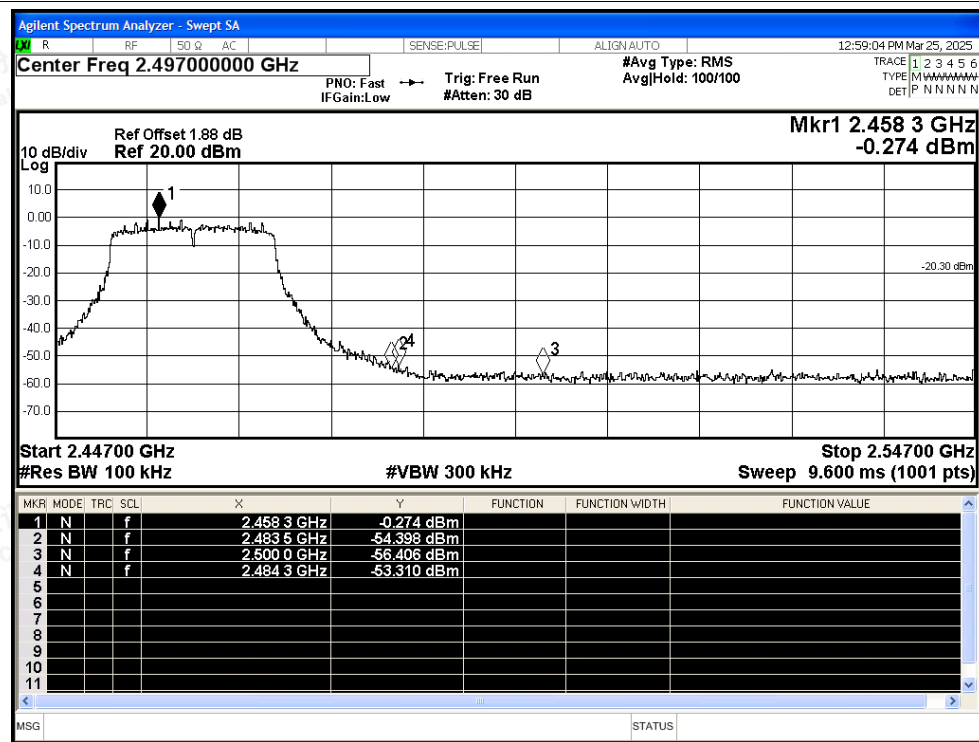




Band Edge NVNT n20 2462MHz Ant2 Ref

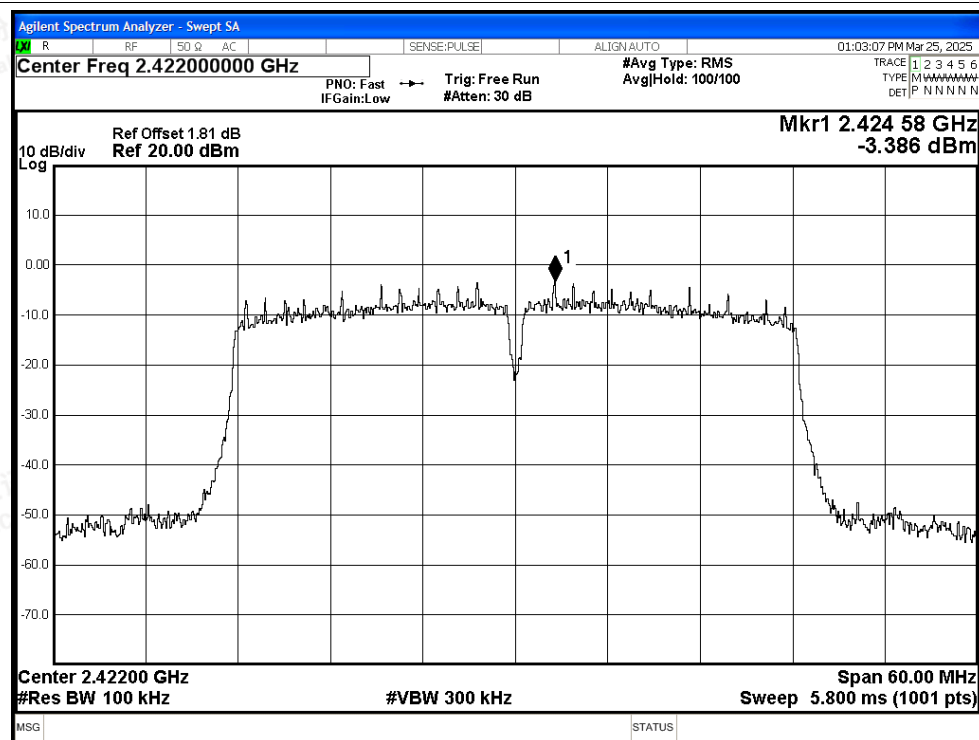


Band Edge NVNT n20 2462MHz Ant2 Emission

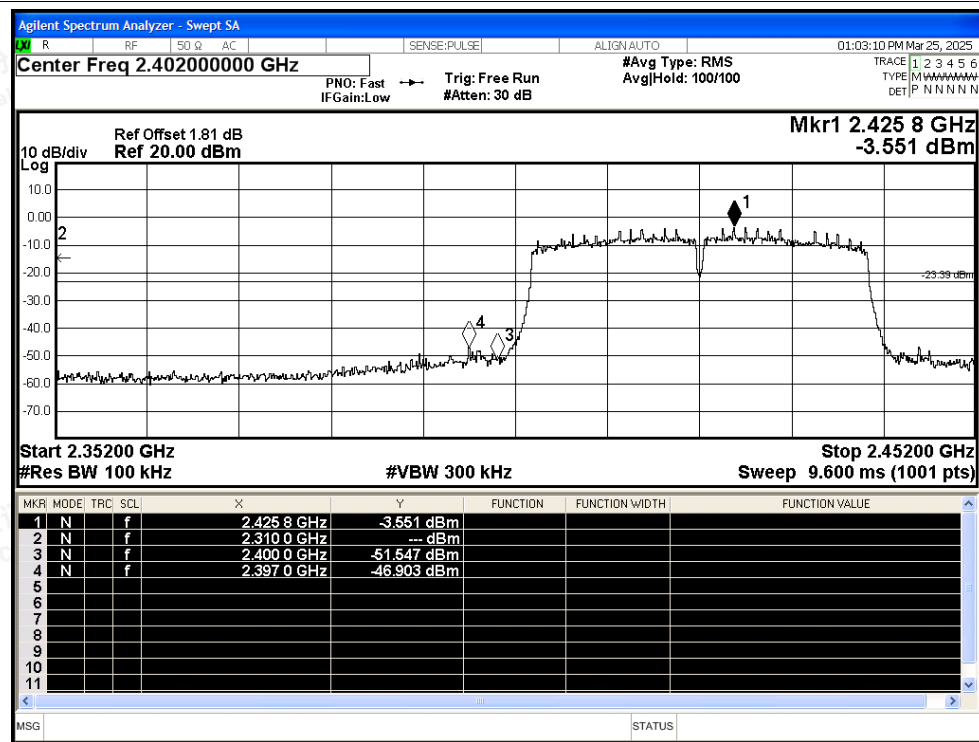




Band Edge NVNT n40 2422MHz Ant2 Ref

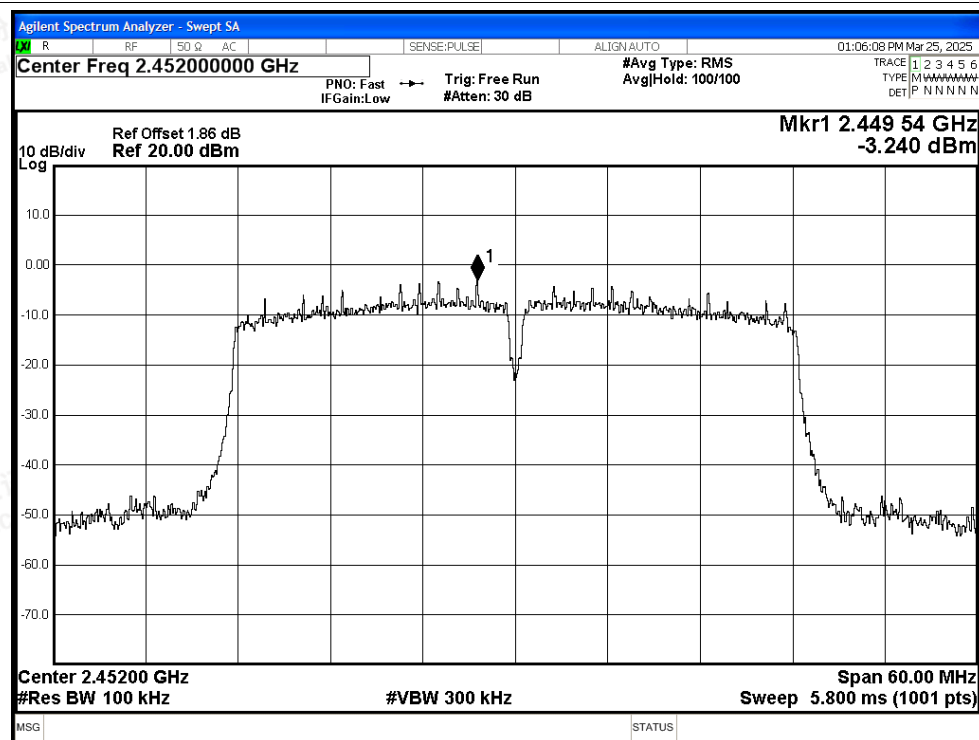


Band Edge NVNT n40 2422MHz Ant2 Emission

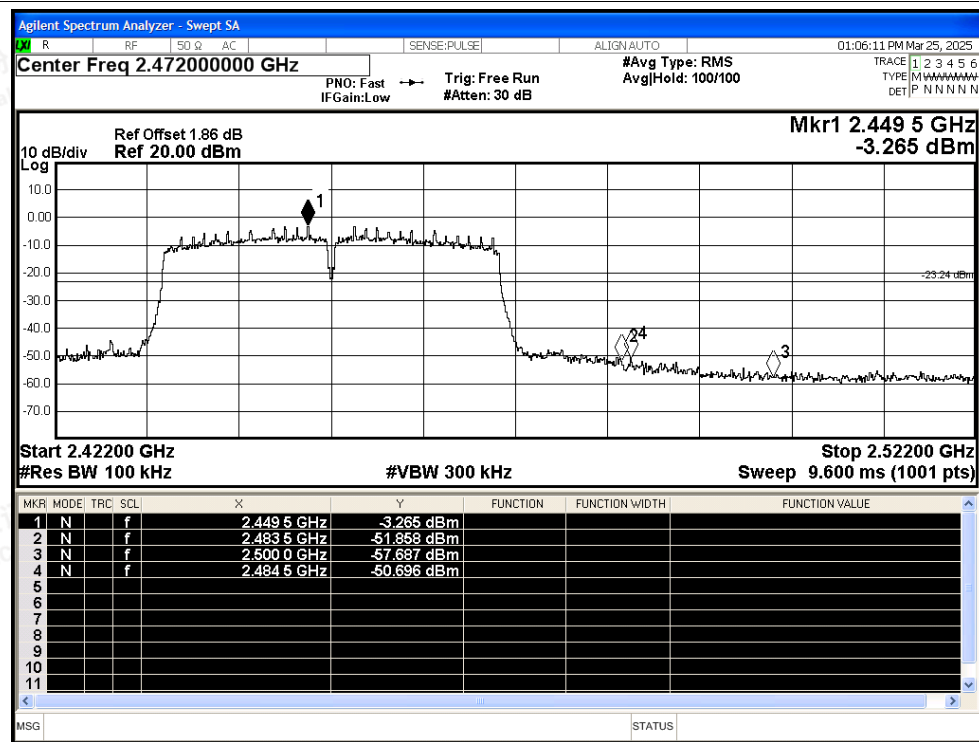




Band Edge NVNT n40 2452MHz Ant2 Ref



Band Edge NVNT n40 2452MHz Ant2 Emission





A.5 Conducted RF Spurious Emission

Condition	Mode	Frequency (MHz)	Antenna	Max Value (dBc)	Limit (dBc)	Verdict
NVNT	b	2412	Ant1	-52.35	-20	Pass
NVNT	b	2437	Ant1	-51.44	-20	Pass
NVNT	b	2462	Ant1	-50.2	-20	Pass
NVNT	g	2412	Ant1	-48.57	-20	Pass
NVNT	g	2437	Ant1	-45.87	-20	Pass
NVNT	g	2462	Ant1	-48.28	-20	Pass
NVNT	n20	2412	Ant1	-47.31	-20	Pass
NVNT	n20	2437	Ant1	-47.59	-20	Pass
NVNT	n20	2462	Ant1	-47.17	-20	Pass
NVNT	n40	2422	Ant1	-44.74	-20	Pass
NVNT	n40	2437	Ant1	-44.92	-20	Pass
NVNT	n40	2452	Ant1	-44.29	-20	Pass

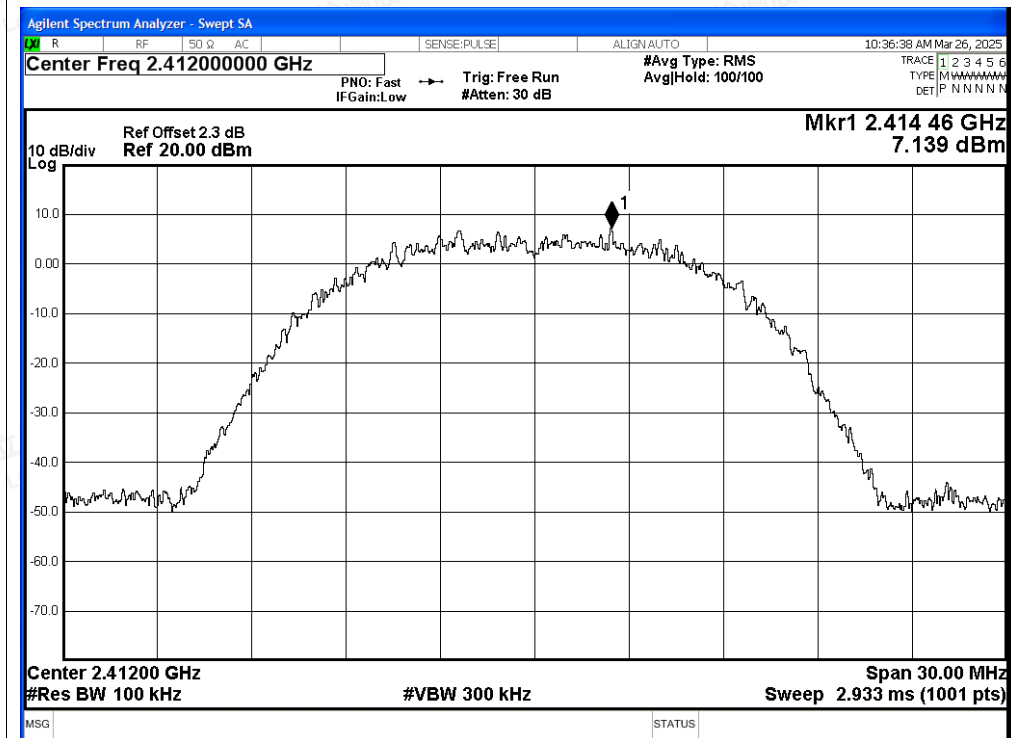


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Baoan District, Shenzhen, 518000, China
Tel: +(86) 0755-82591330 | E-mail: webmaster@lcs-cert.com | Web: www.lcs-cert.com
Scan code to check authenticity

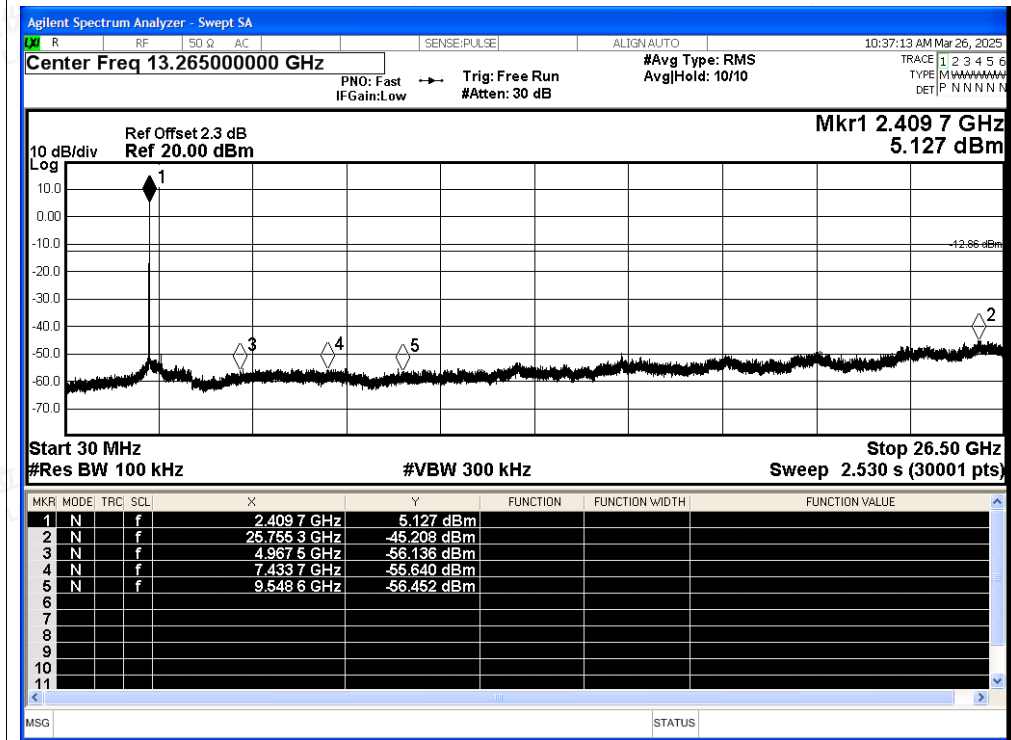


Test Graphs

Tx. Spurious NVNT b 2412MHz Ant1 Ref

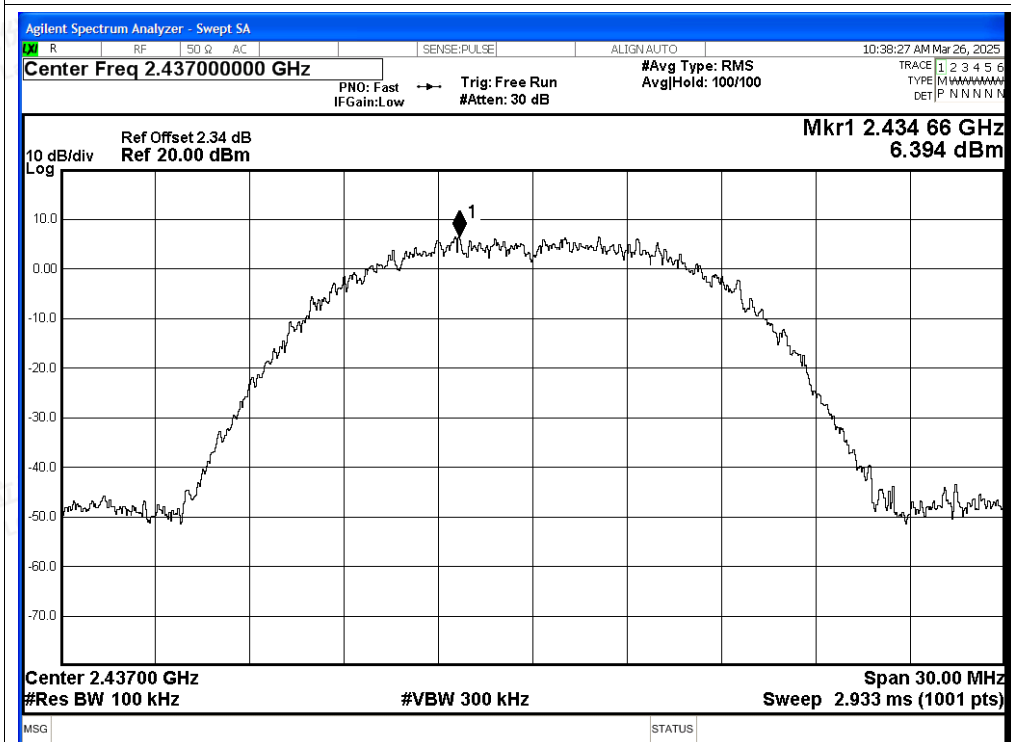


Tx. Spurious NVNT b 2412MHz Ant1 Emission

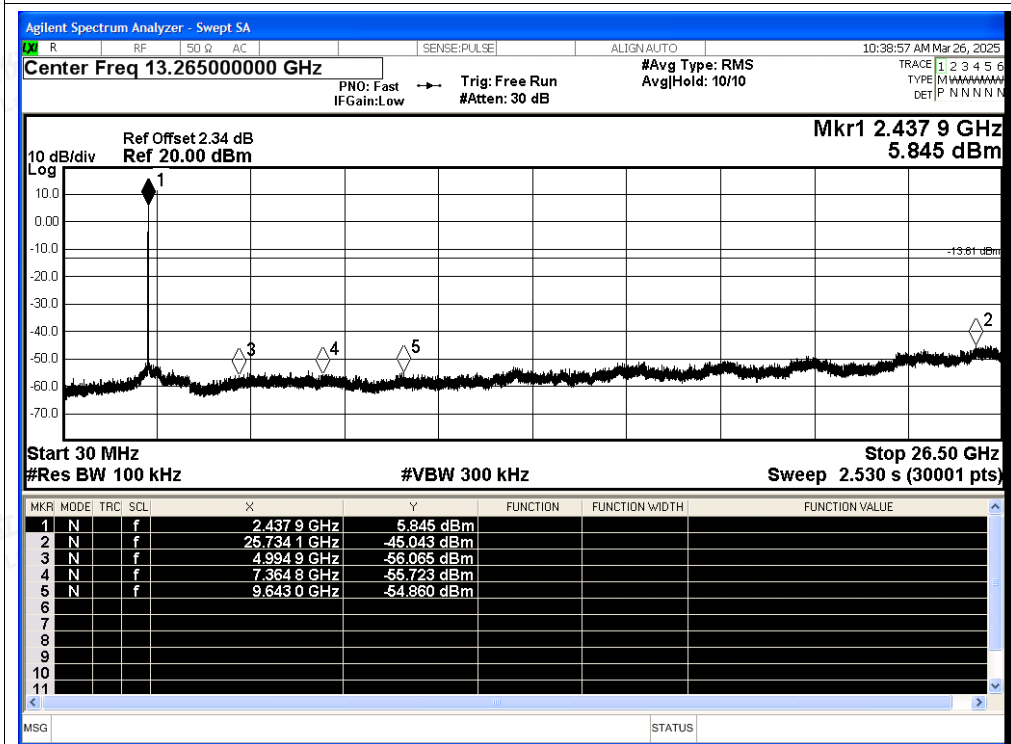




Tx. Spurious NVNT b 2437MHz Ant1 Ref

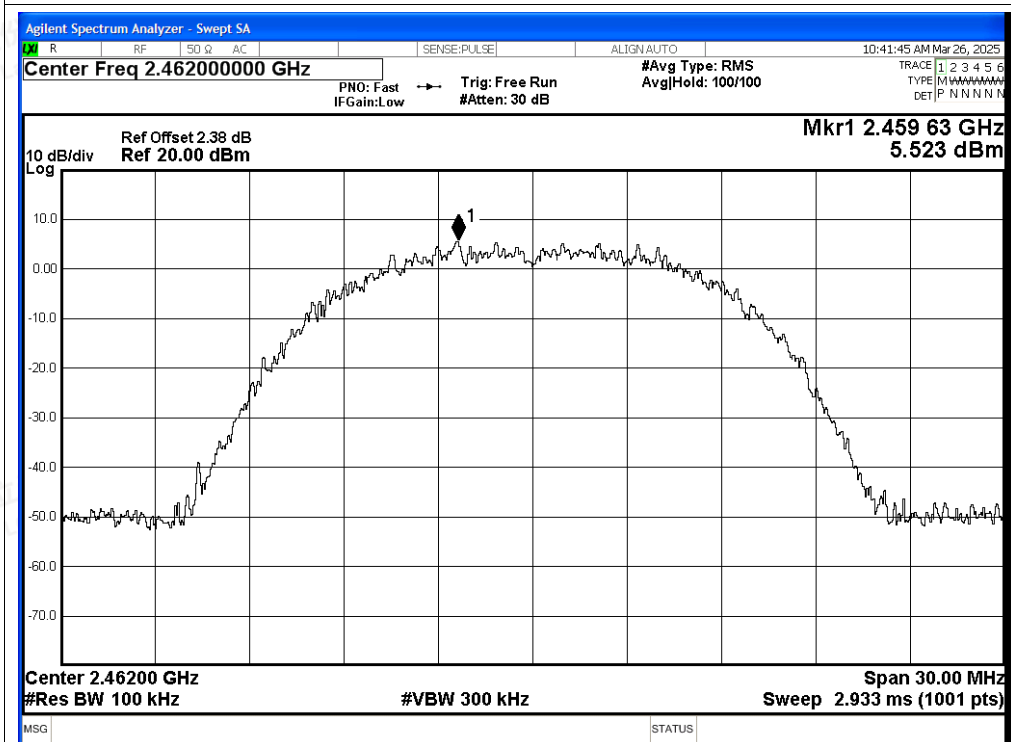


Tx. Spurious NVNT b 2437MHz Ant1 Emission

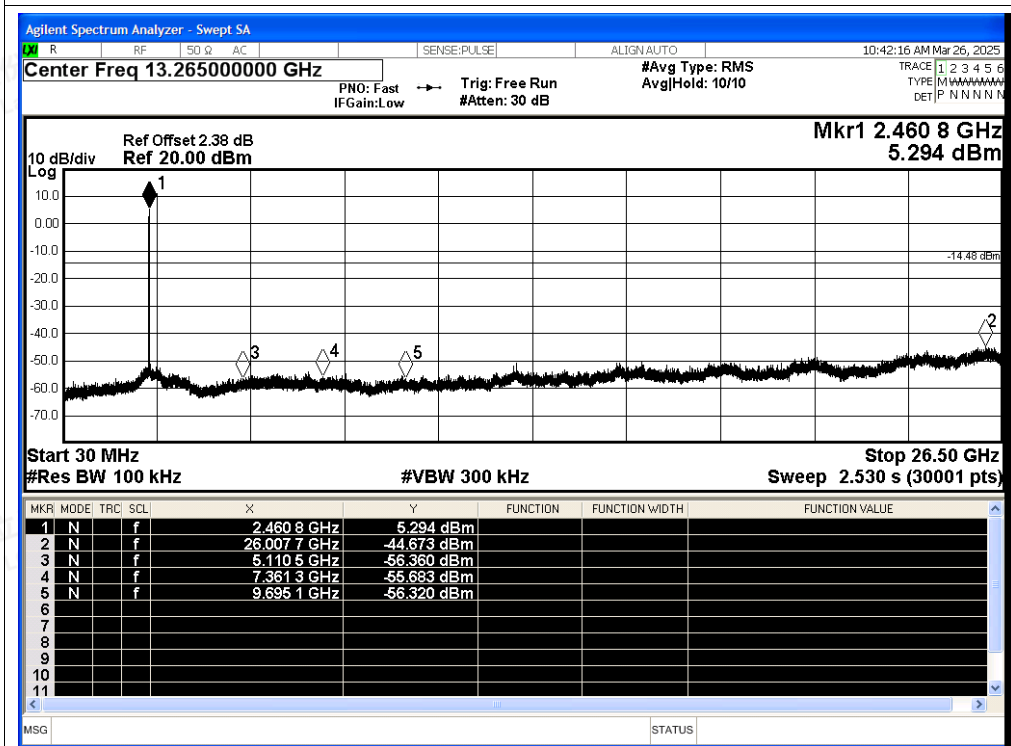




Tx. Spurious NVNT b 2462MHz Ant1 Ref

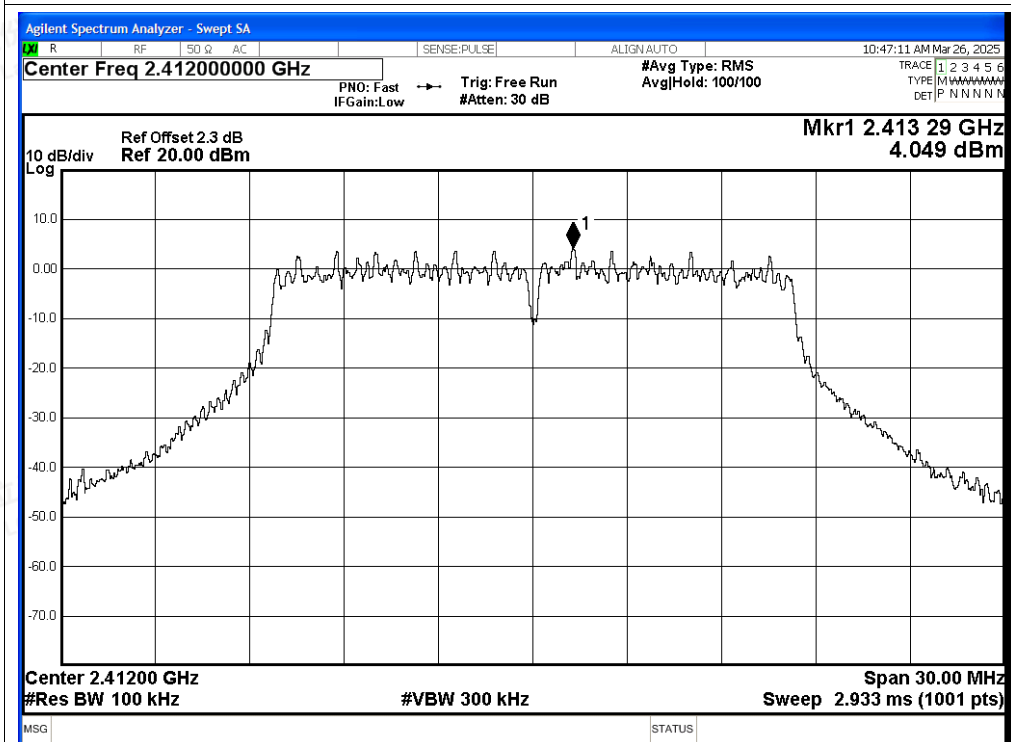


Tx. Spurious NVNT b 2462MHz Ant1 Emission





Tx. Spurious NVNT g 2412MHz Ant1 Ref



Tx. Spurious NVNT g 2412MHz Ant1 Emission

