



## Appendix A

### RF Test Data for 2.4GWIFI (Conducted Measurement)

Product Name: WIFI+2.4G

Test Model: 52201

#### Environmental Conditions

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





### A.1 -6dB Bandwidth

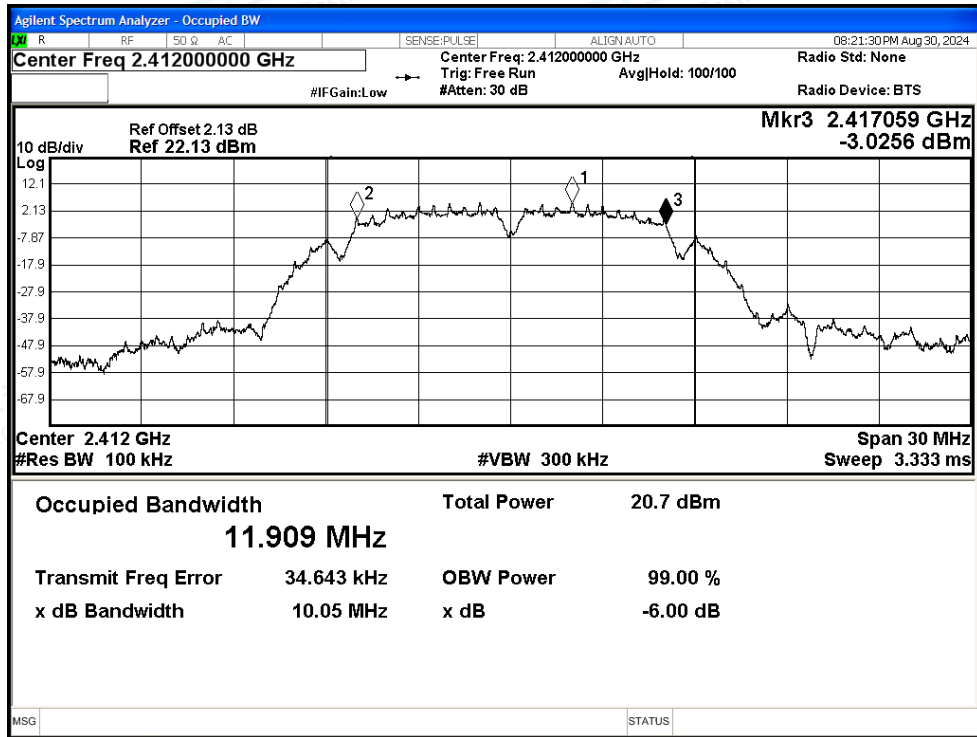
Condition	Mode	Frequency (MHz)	Antenna	-6 dB Bandwidth (MHz)	Limit -6 dB Bandwidth (MHz)	Verdict
NVNT	b	2412	Ant	10.049	$\geq 0.5$	Pass
NVNT	b	2437	Ant	9.084	$\geq 0.5$	Pass
NVNT	b	2462	Ant	9.568	$\geq 0.5$	Pass
NVNT	g	2412	Ant	16.332	$\geq 0.5$	Pass
NVNT	g	2437	Ant	16.353	$\geq 0.5$	Pass
NVNT	g	2462	Ant	16.323	$\geq 0.5$	Pass
NVNT	n20	2412	Ant	17.154	$\geq 0.5$	Pass
NVNT	n20	2437	Ant	17.15	$\geq 0.5$	Pass
NVNT	n20	2462	Ant	17.128	$\geq 0.5$	Pass
NVNT	n40	2422	Ant	35.706	$\geq 0.5$	Pass
NVNT	n40	2437	Ant	35.499	$\geq 0.5$	Pass
NVNT	n40	2452	Ant	35.324	$\geq 0.5$	Pass



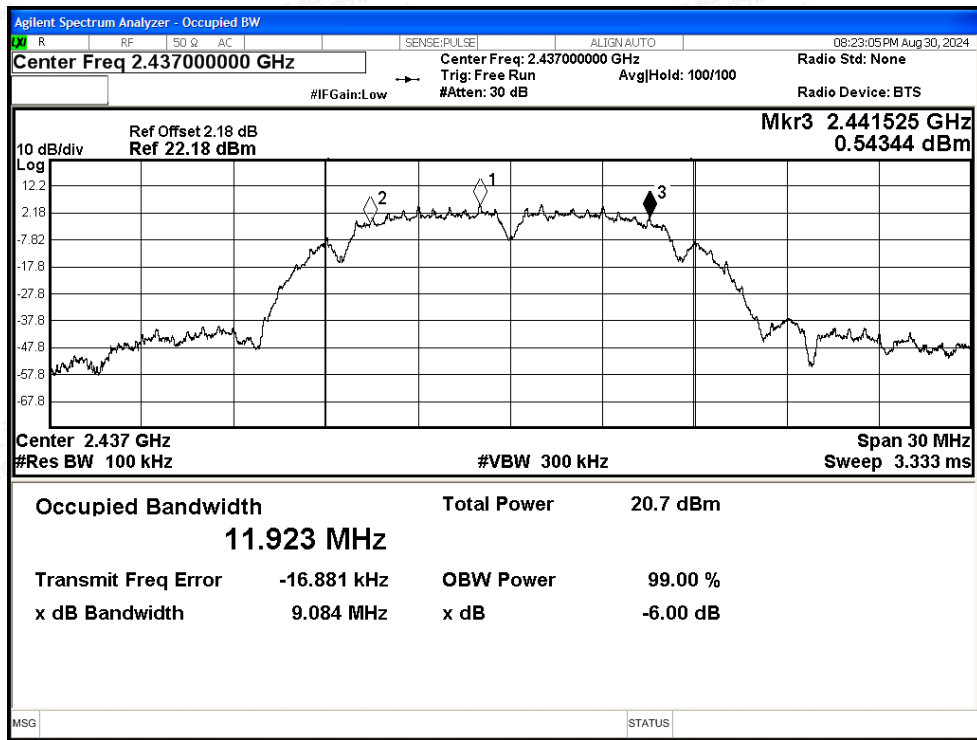


Test Graphs

-6dB Bandwidth NVNT b 2412MHz Ant

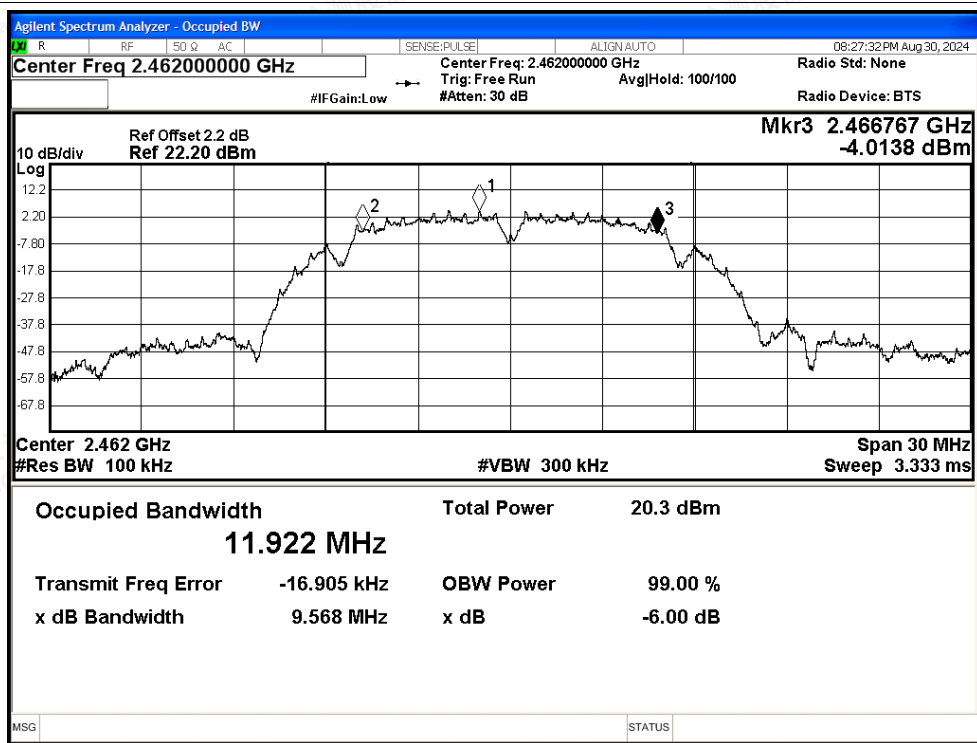


-6dB Bandwidth NVNT b 2437MHz Ant

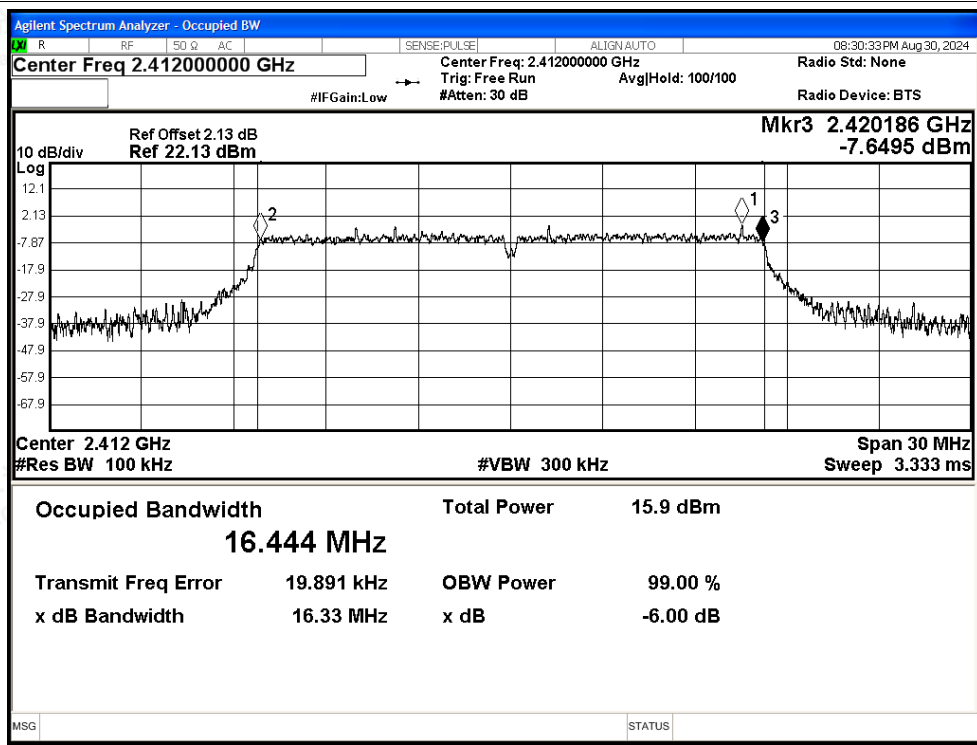




-6dB Bandwidth NVNT b 2462MHz Ant

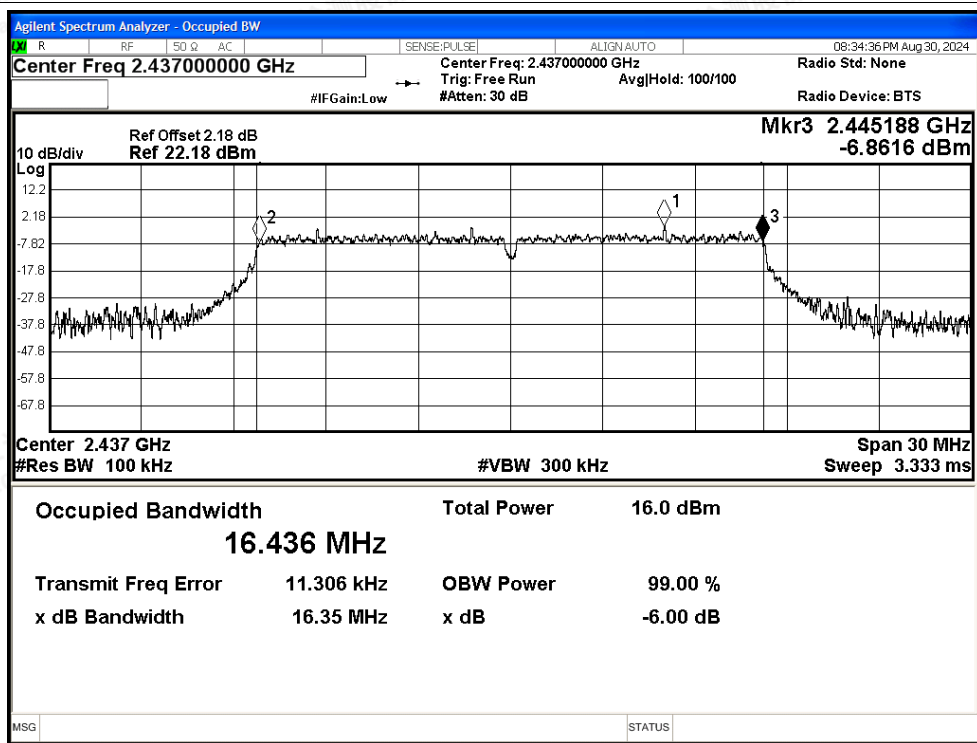


-6dB Bandwidth NVNT g 2412MHz Ant

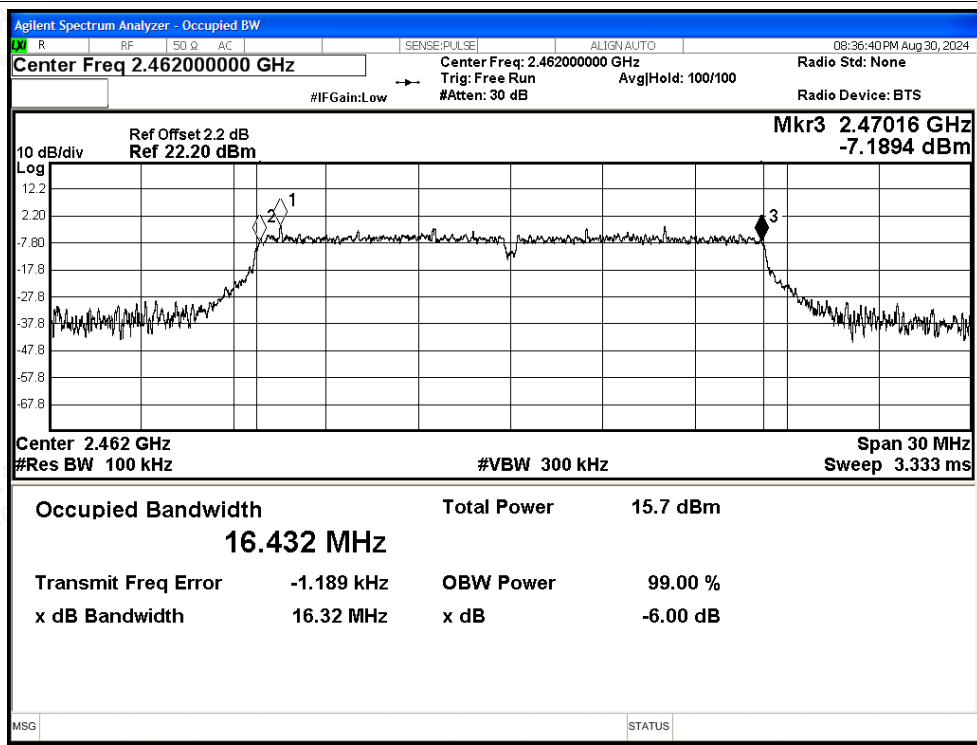




-6dB Bandwidth NVNT g 2437MHz Ant

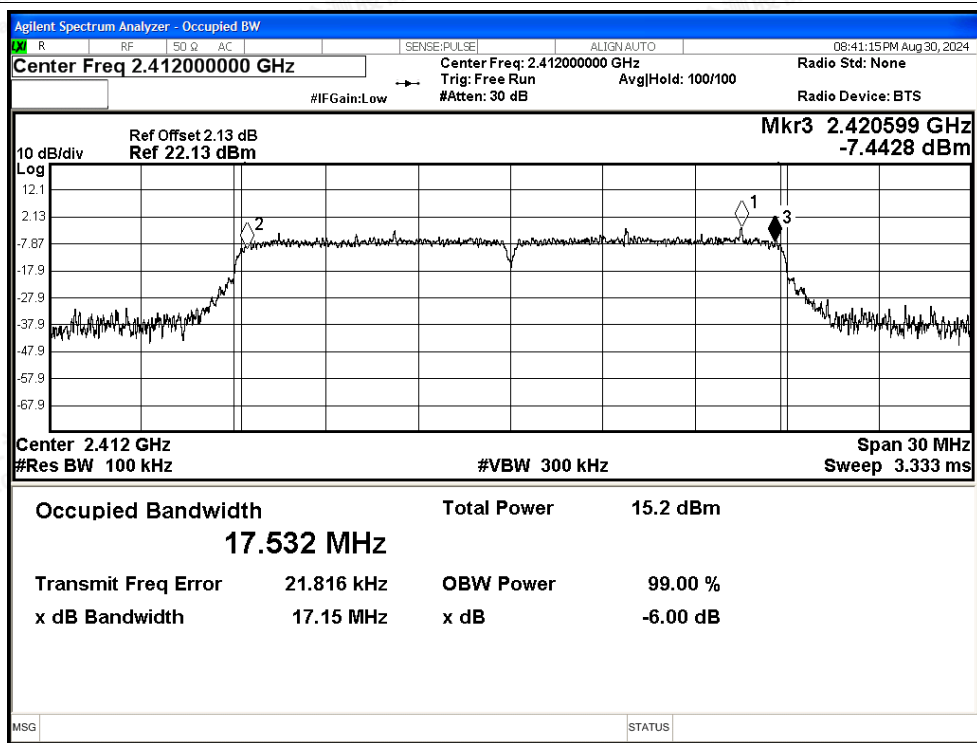


-6dB Bandwidth NVNT g 2462MHz Ant

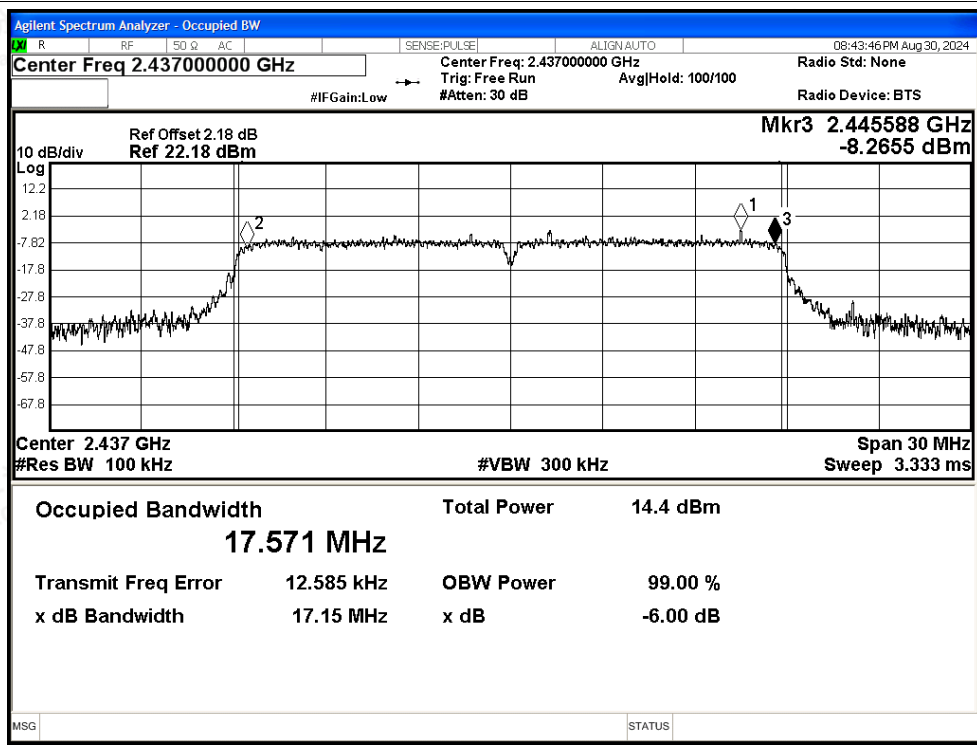


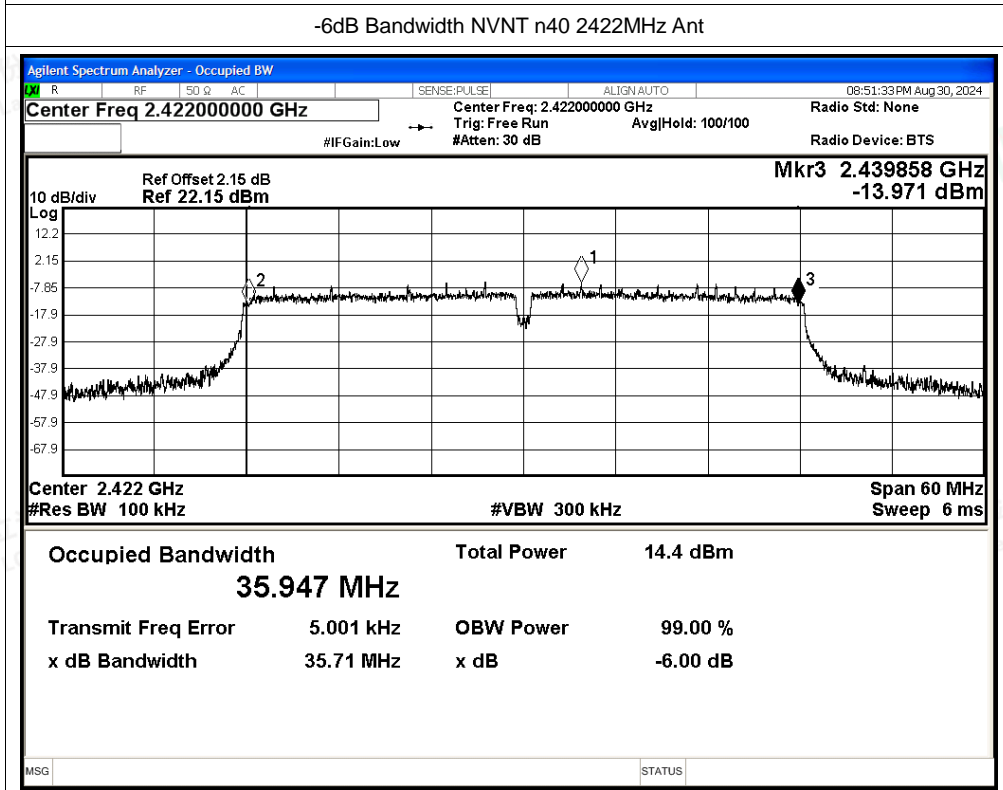
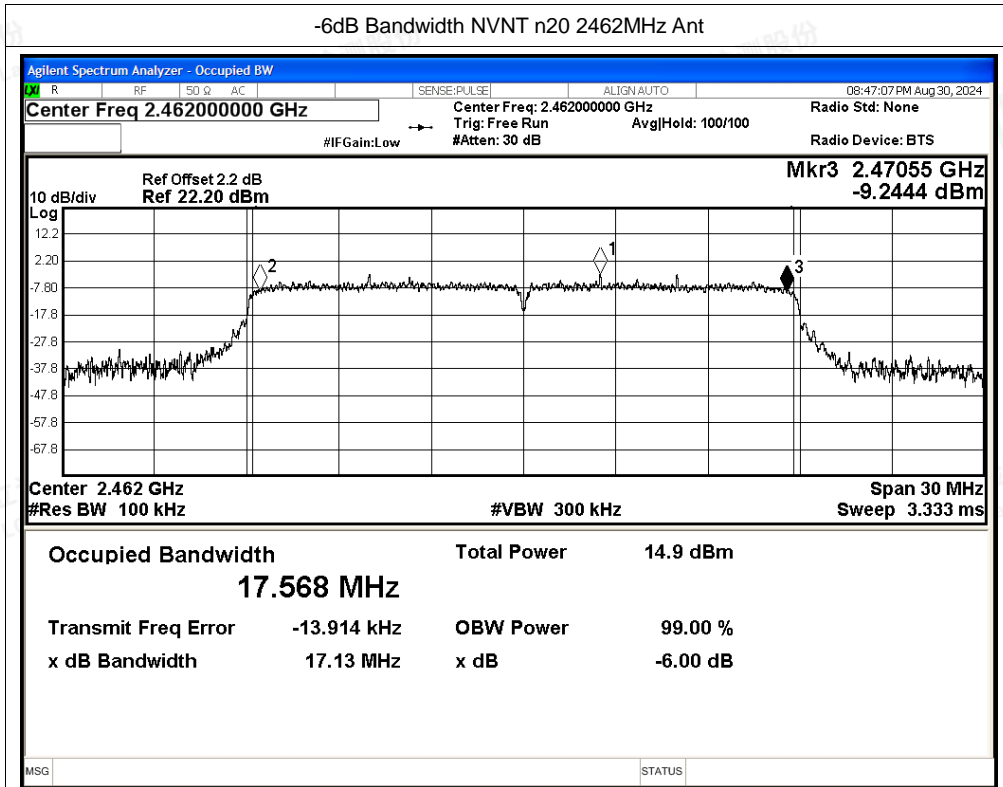


-6dB Bandwidth NVNT n20 2412MHz Ant



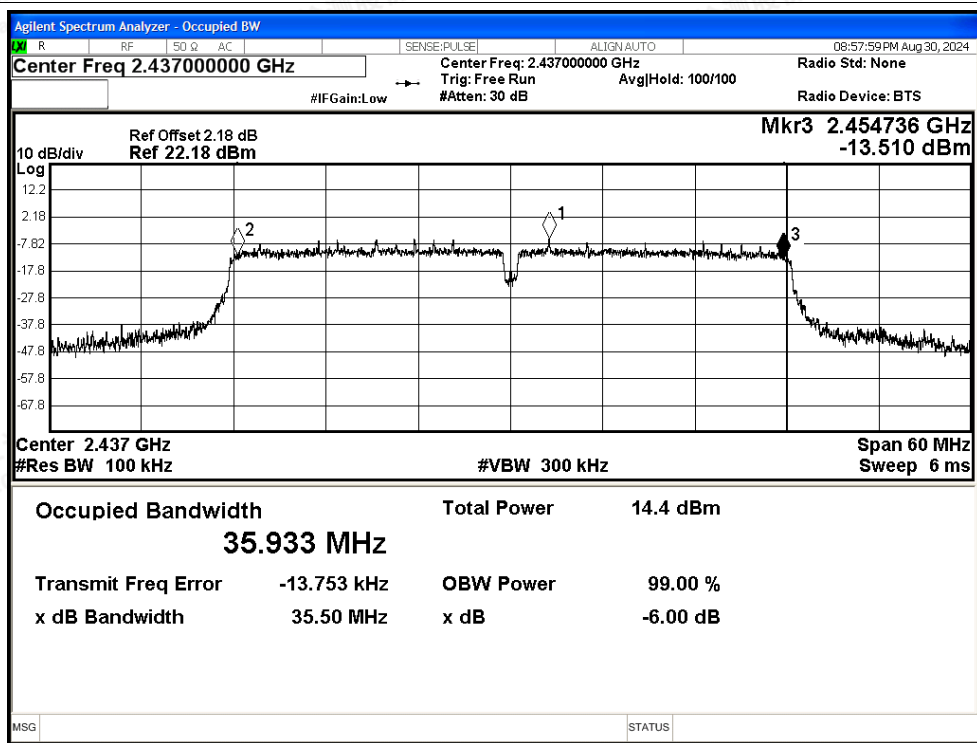
-6dB Bandwidth NVNT n20 2437MHz Ant



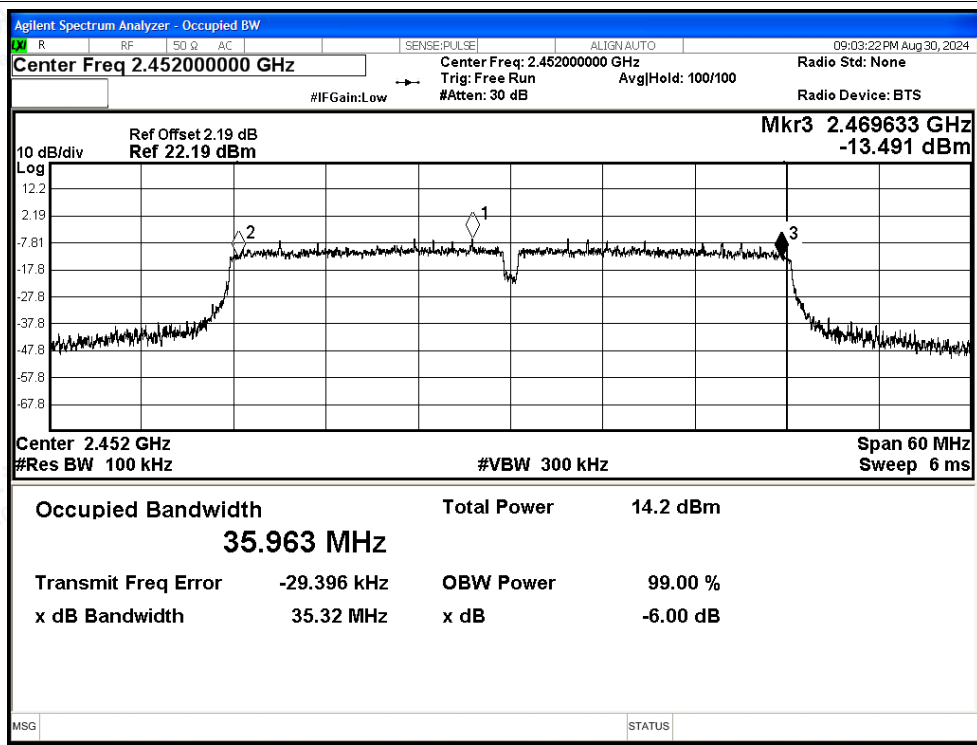




-6dB Bandwidth NVNT n40 2437MHz Ant



-6dB Bandwidth NVNT n40 2452MHz Ant







## A.2 Maximum Peak Conducted Output Power

Condition	Mode	Frequency (MHz)	Antenna	Conducted Power (dBm)	Limit (dBm)	Verdict
NVNT	b	2412	Ant	15.6	30	Pass
NVNT	b	2437	Ant	15.65	30	Pass
NVNT	b	2462	Ant	15.33	30	Pass
NVNT	g	2412	Ant	14.72	30	Pass
NVNT	g	2437	Ant	14.83	30	Pass
NVNT	g	2462	Ant	14.49	30	Pass
NVNT	n20	2412	Ant	13.89	30	Pass
NVNT	n20	2437	Ant	13.02	30	Pass
NVNT	n20	2462	Ant	13.52	30	Pass
NVNT	n40	2422	Ant	12.71	30	Pass
NVNT	n40	2437	Ant	12.8	30	Pass
NVNT	n40	2452	Ant	12.57	30	Pass





### A.3 Maximum Power Spectral Density Level

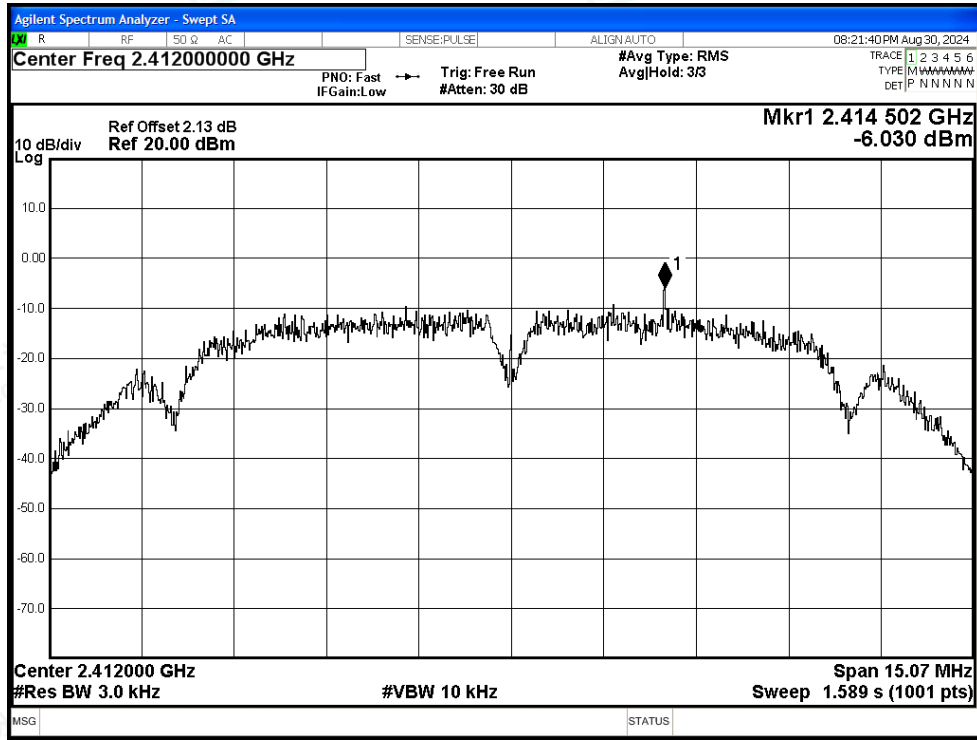
Condition	Mode	Frequency (MHz)	Antenna	Conducted PSD (dBm/3kHz)	Limit (dBm/3kHz)	Verdict
NVNT	b	2412	Ant	-6.03	8	Pass
NVNT	b	2437	Ant	-9.06	8	Pass
NVNT	b	2462	Ant	-6.04	8	Pass
NVNT	g	2412	Ant	-15.95	8	Pass
NVNT	g	2437	Ant	-15.52	8	Pass
NVNT	g	2462	Ant	-16.26	8	Pass
NVNT	n20	2412	Ant	-16.45	8	Pass
NVNT	n20	2437	Ant	-17.62	8	Pass
NVNT	n20	2462	Ant	-17.45	8	Pass
NVNT	n40	2422	Ant	-21.05	8	Pass
NVNT	n40	2437	Ant	-21.45	8	Pass
NVNT	n40	2452	Ant	-21.29	8	Pass



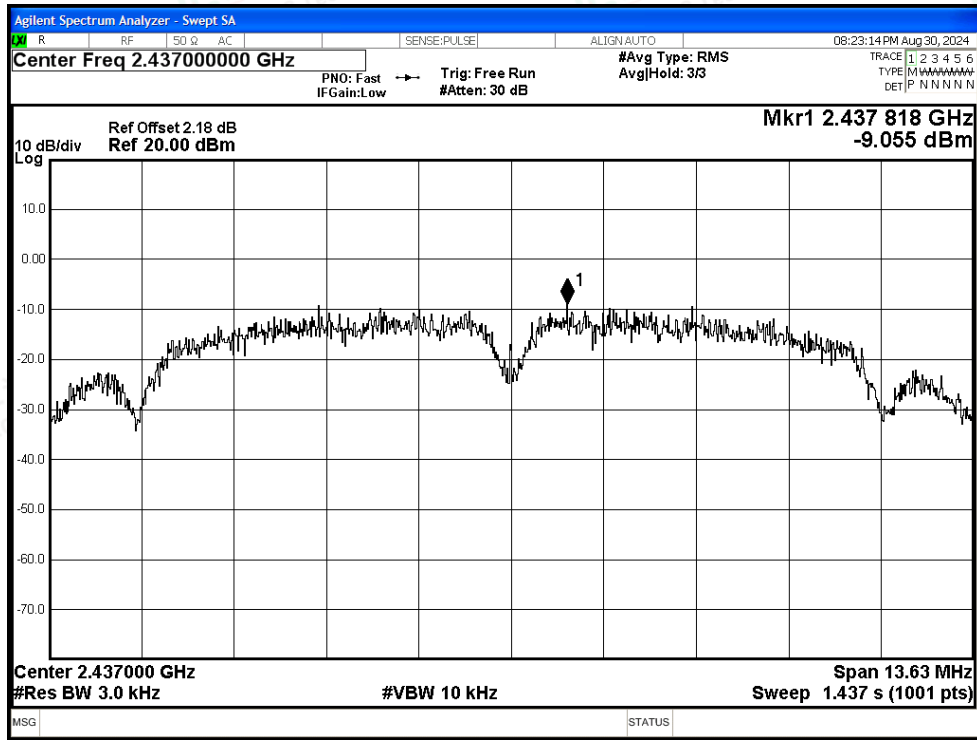


Test Graphs

PSD NVNT b 2412MHz Ant

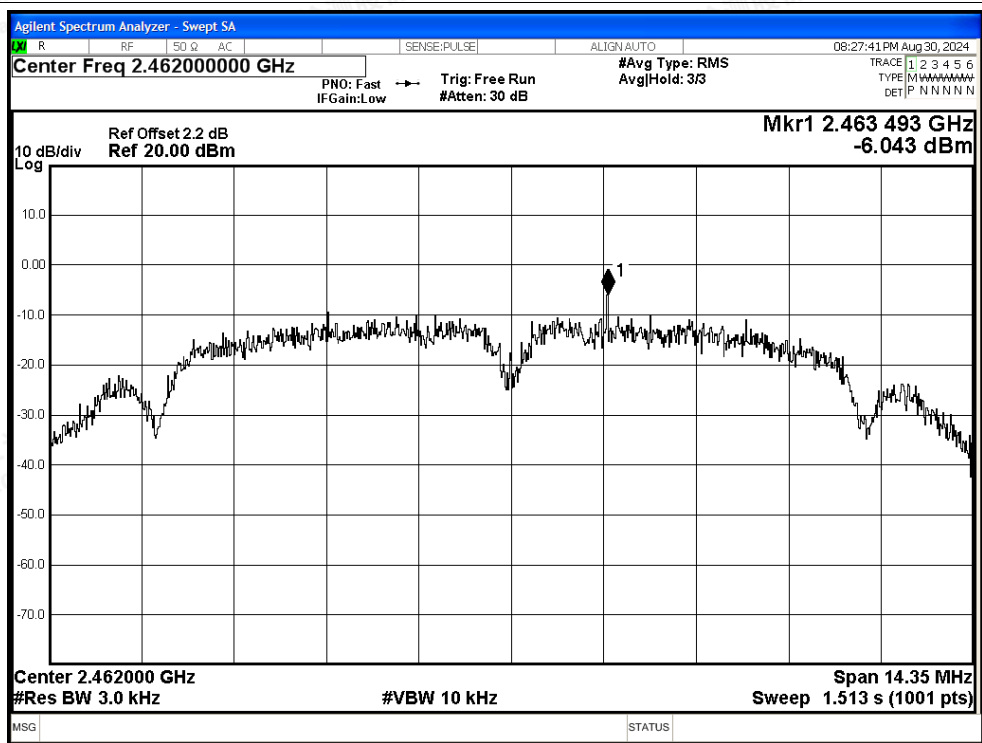


PSD NVNT b 2437MHz Ant

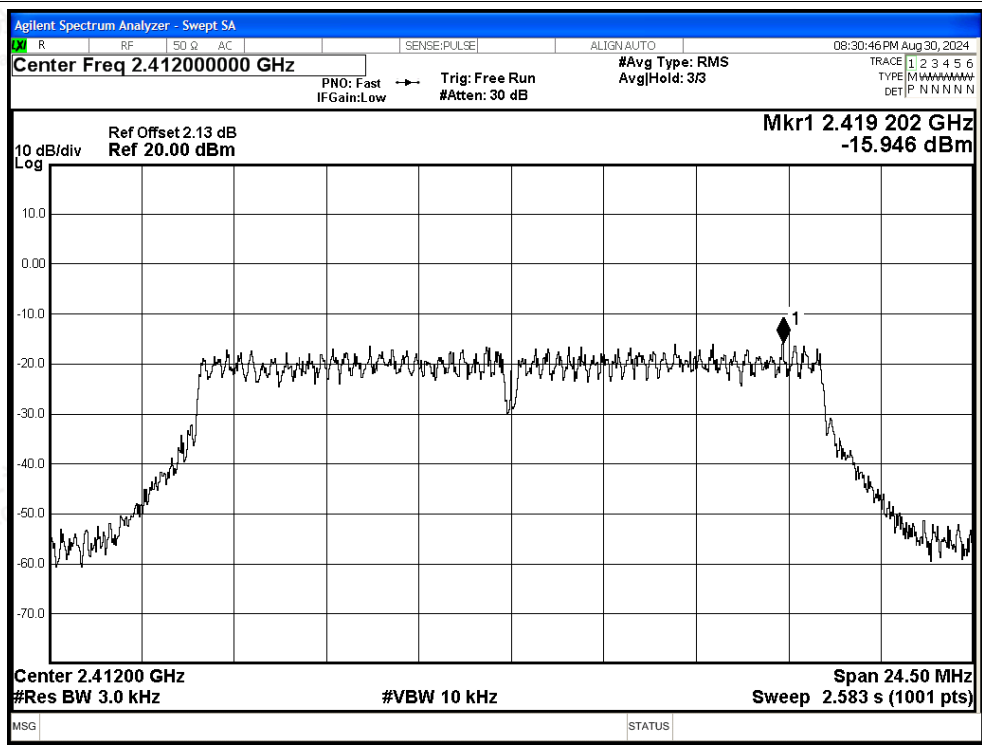




PSD NVNT b 2462MHz Ant

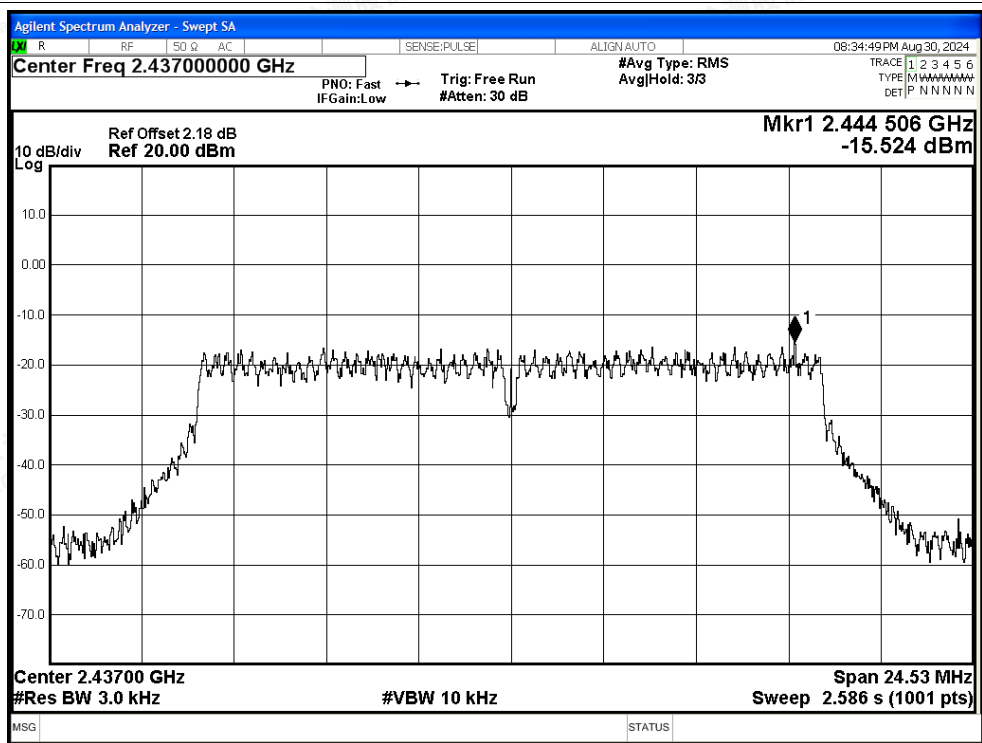


PSD NVNT g 2412MHz Ant

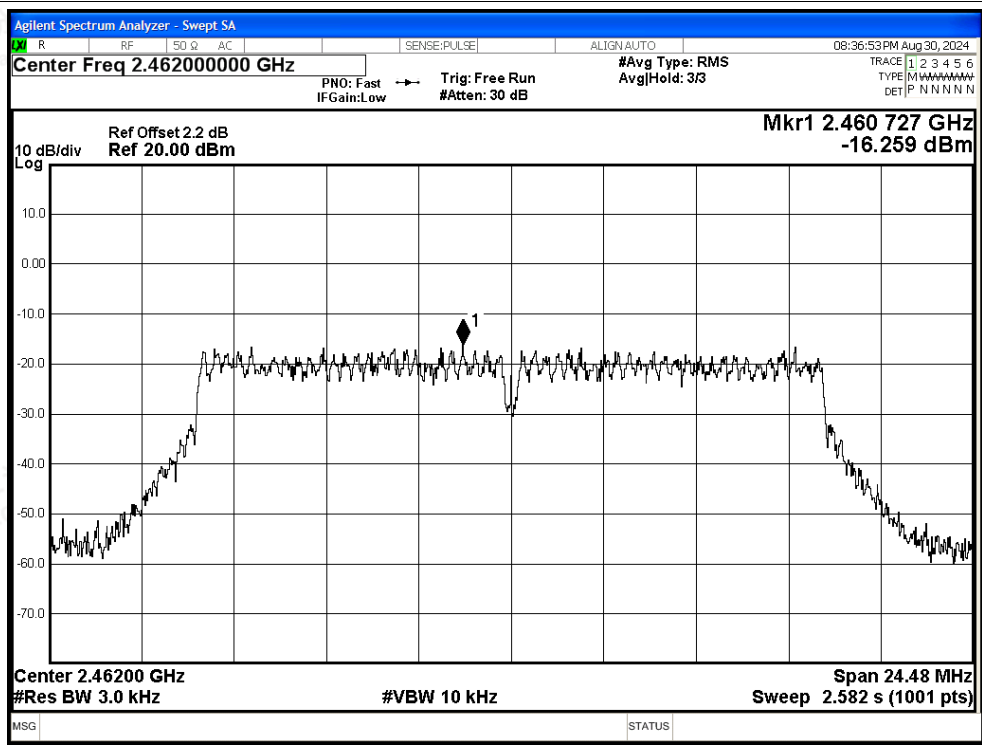


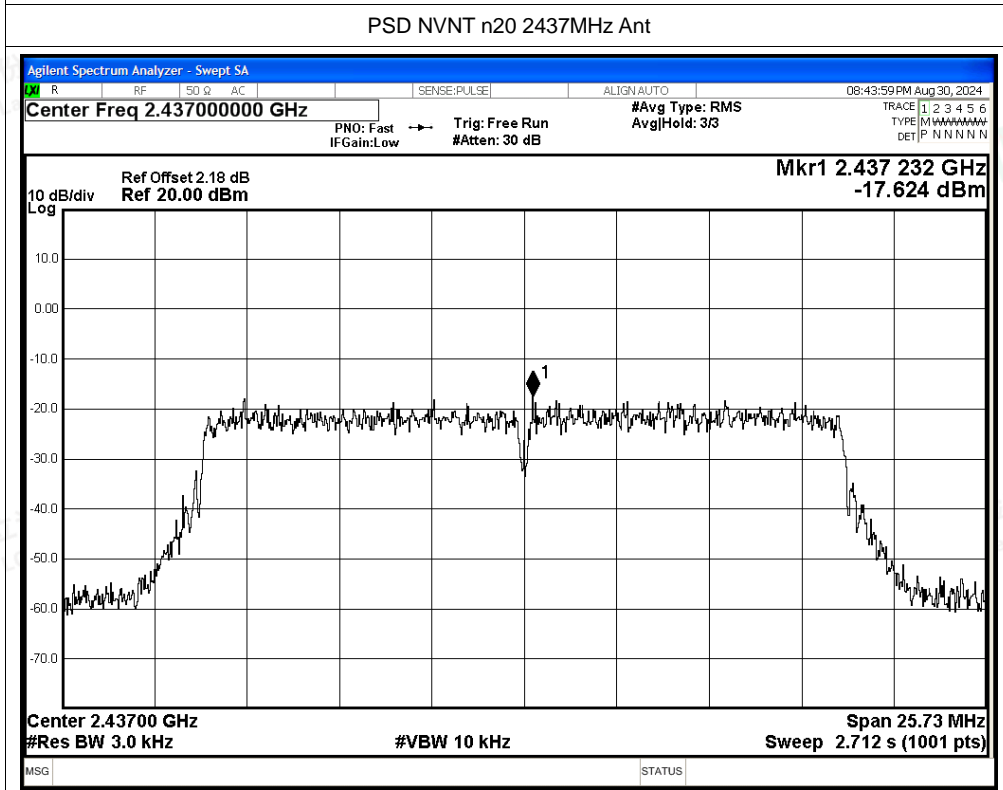
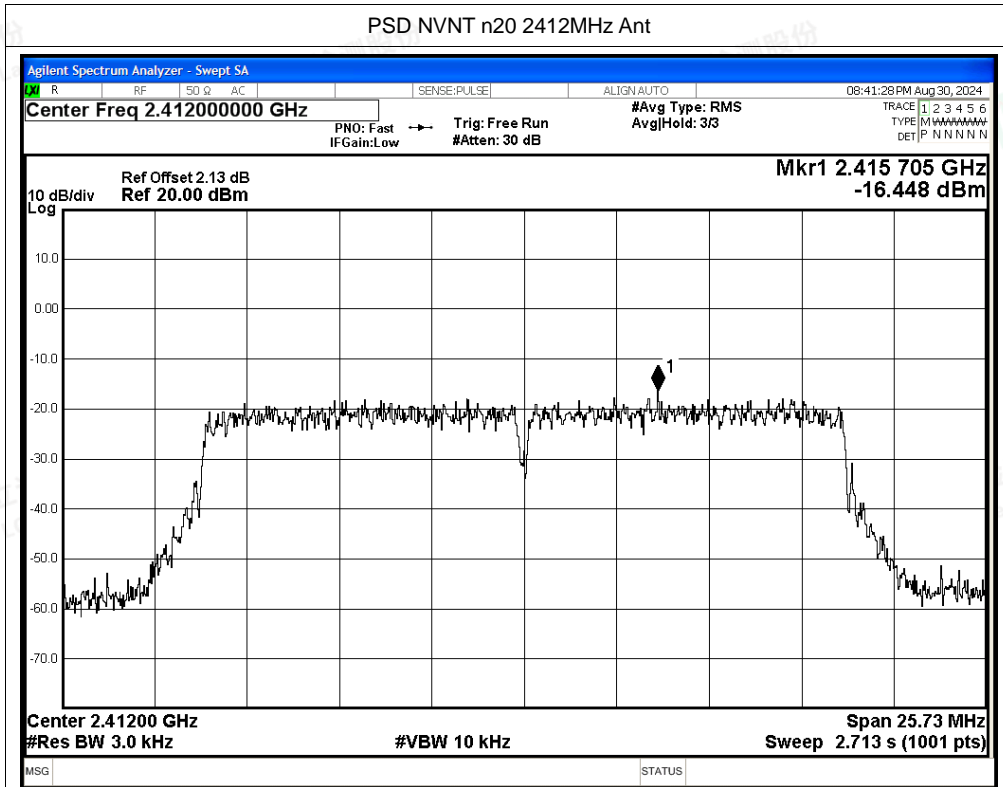


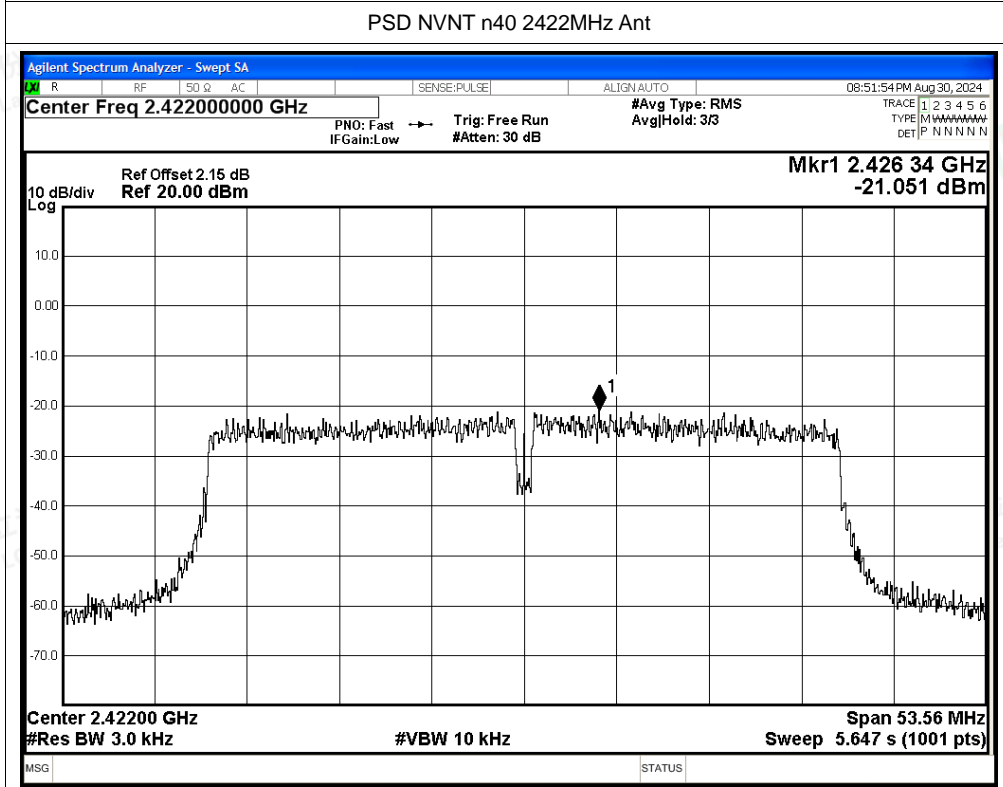
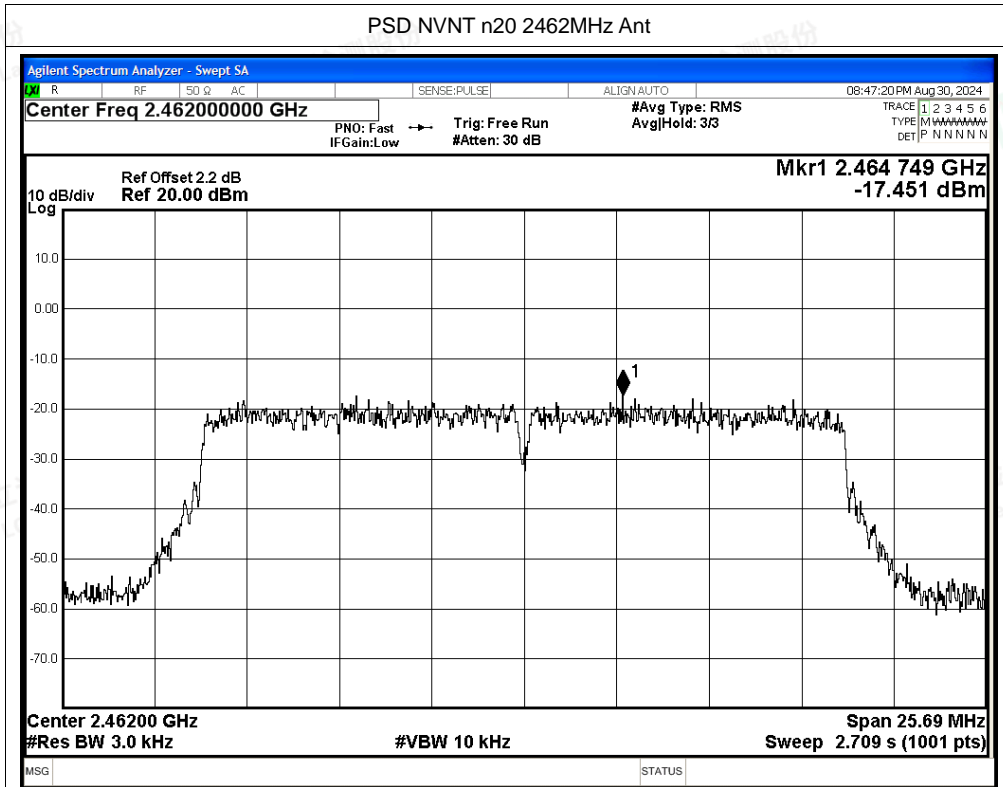
PSD NVNT g 2437MHz Ant

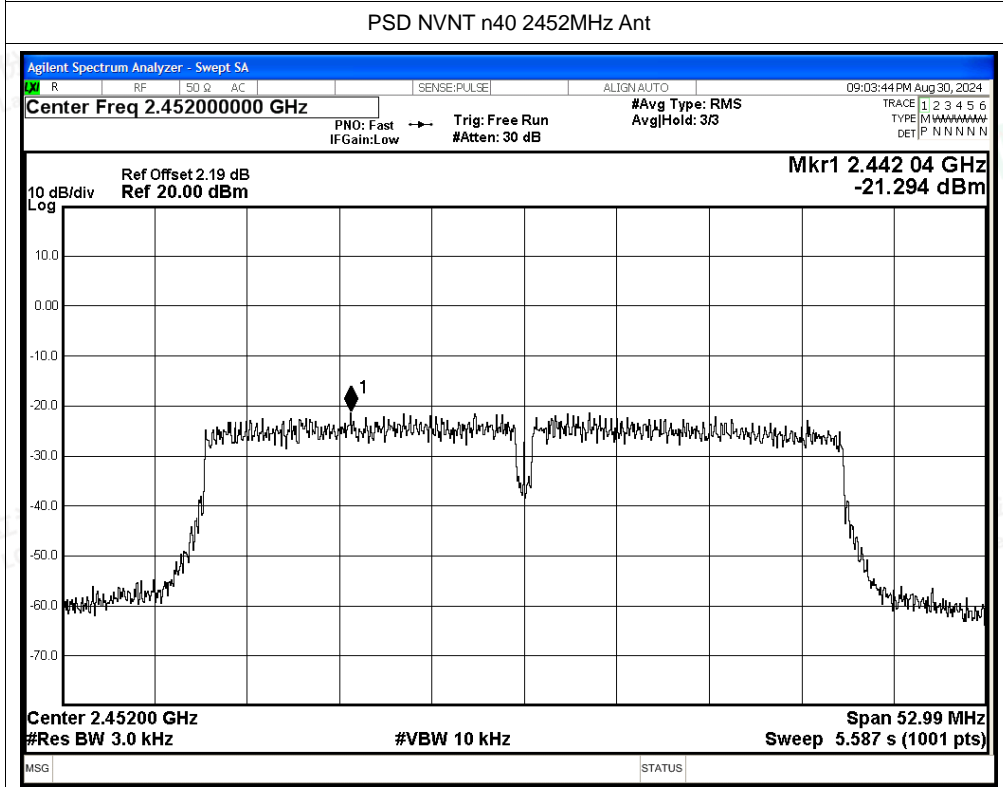
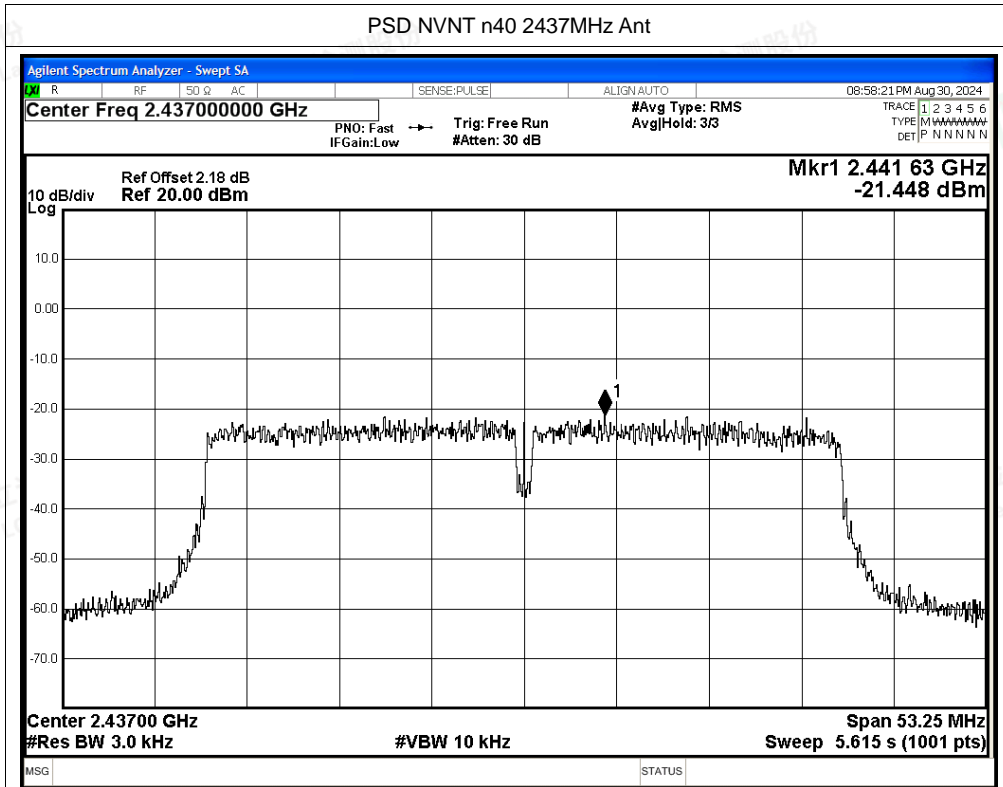


PSD NVNT g 2462MHz Ant













### A.4 Band Edge

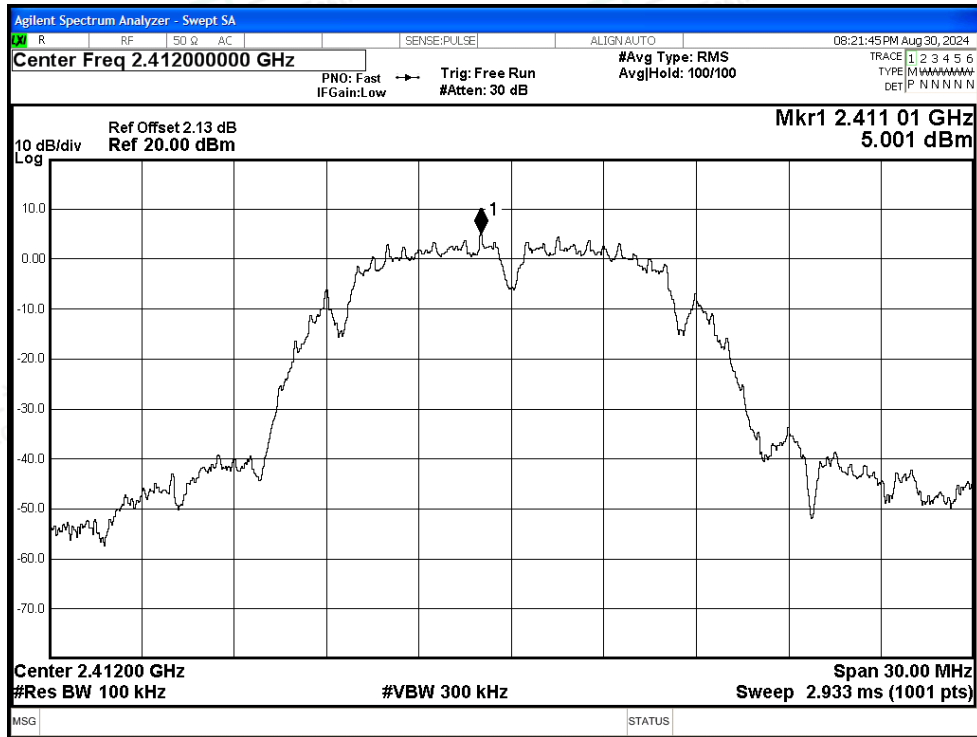
Condition	Mode	Frequency (MHz)	Antenna	Max Value (dBc)	Limit (dBc)	Verdict
NVNT	b	2412	Ant	-50.61	-20	Pass
NVNT	b	2462	Ant	-58.81	-20	Pass
NVNT	g	2412	Ant	-28.07	-20	Pass
NVNT	g	2462	Ant	-39.37	-20	Pass
NVNT	n20	2412	Ant	-30.55	-20	Pass
NVNT	n20	2462	Ant	-39.95	-20	Pass
NVNT	n40	2422	Ant	-31.09	-20	Pass
NVNT	n40	2452	Ant	-37.62	-20	Pass



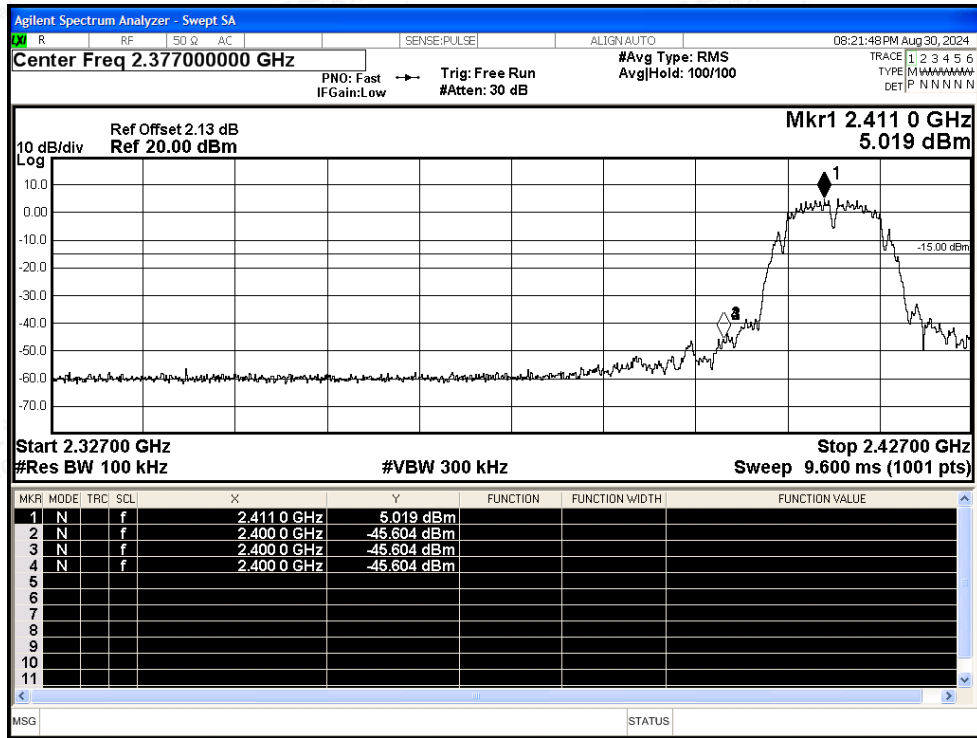


Test Graphs

Band Edge NVNT b 2412MHz Ant Ref

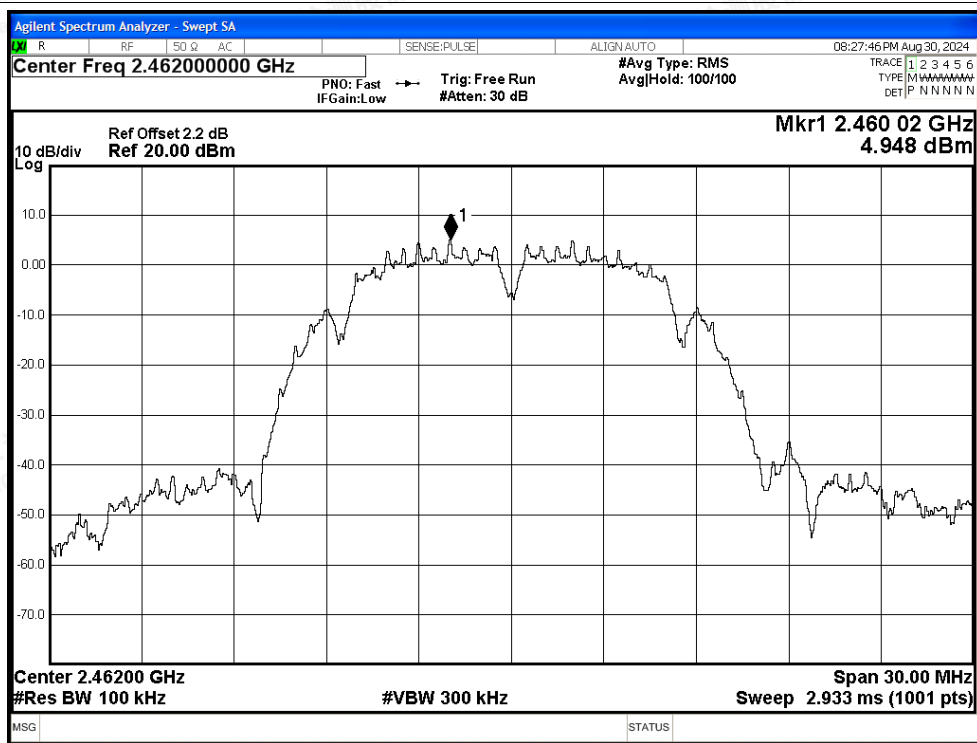


Band Edge NVNT b 2412MHz Ant Emission

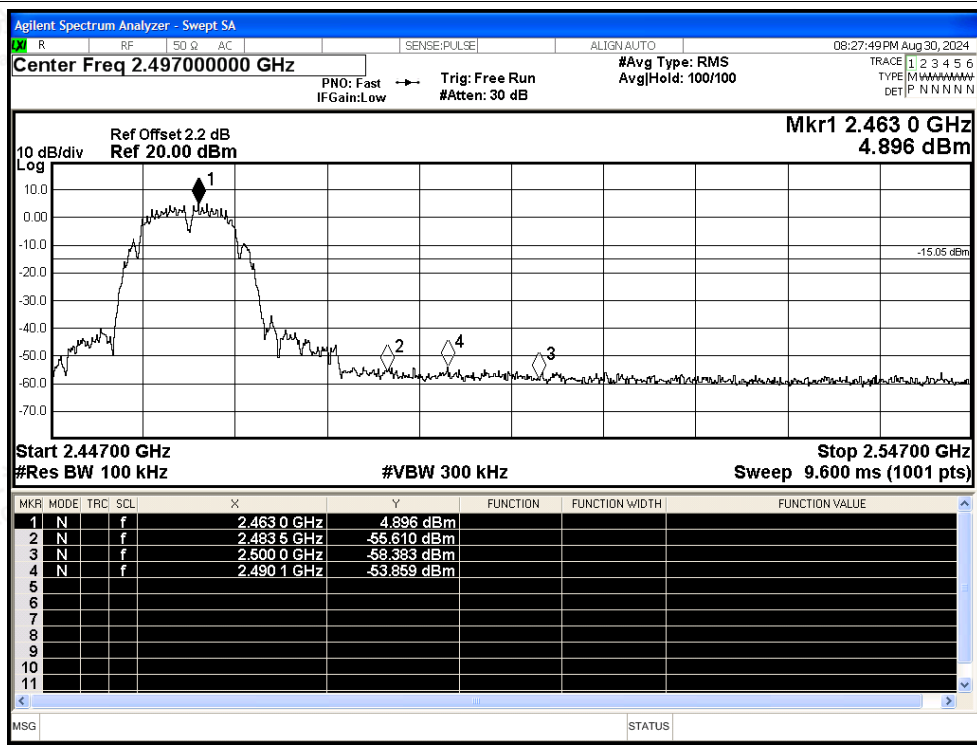




Band Edge NVNT b 2462MHz Ant Ref

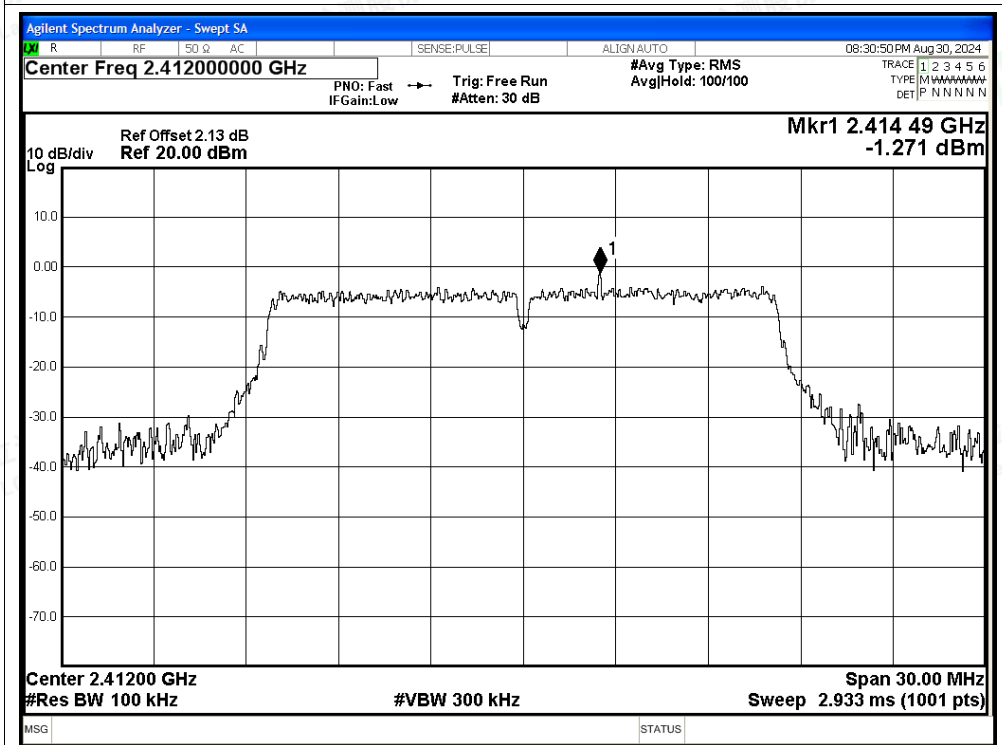


Band Edge NVNT b 2462MHz Ant Emission

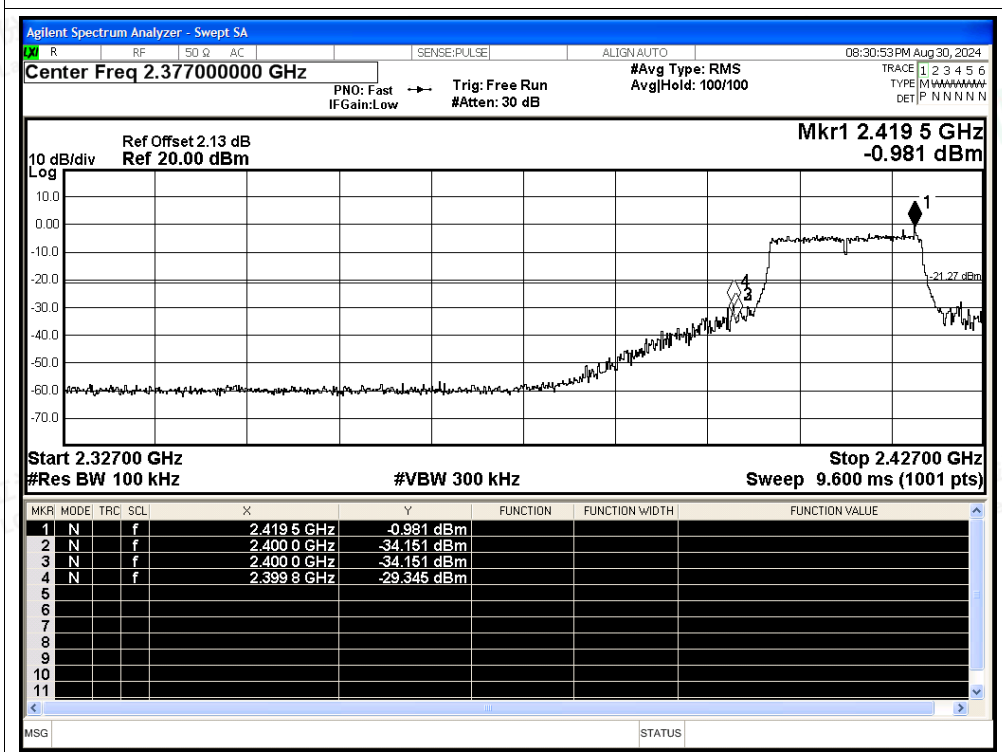




Band Edge NVNT g 2412MHz Ant Ref

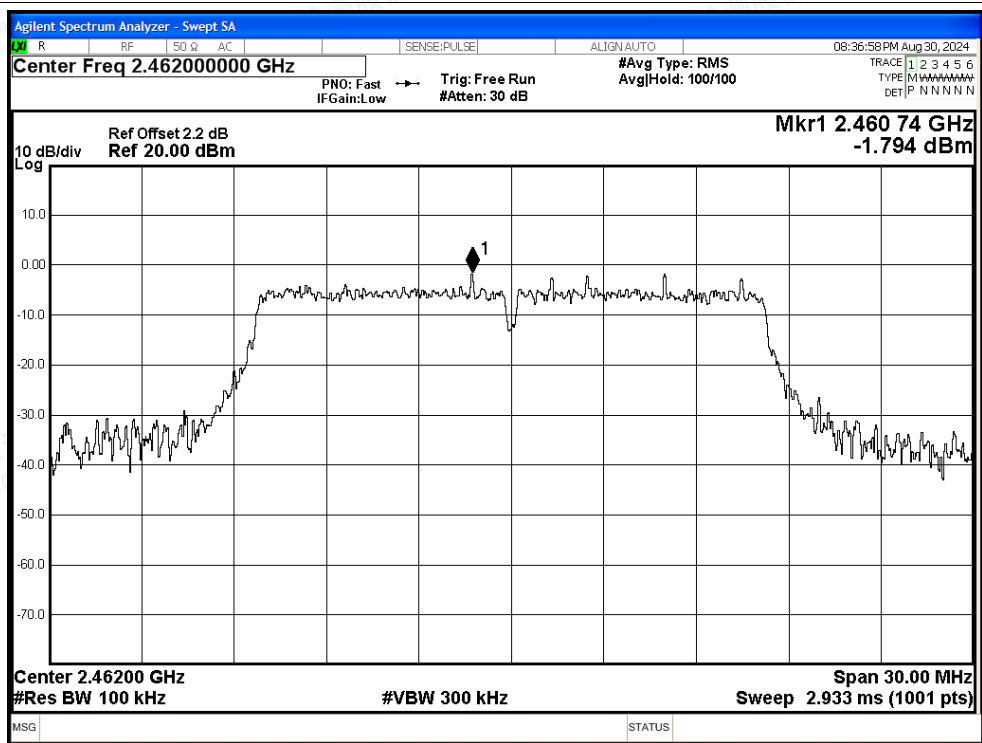


Band Edge NVNT g 2412MHz Ant Emission

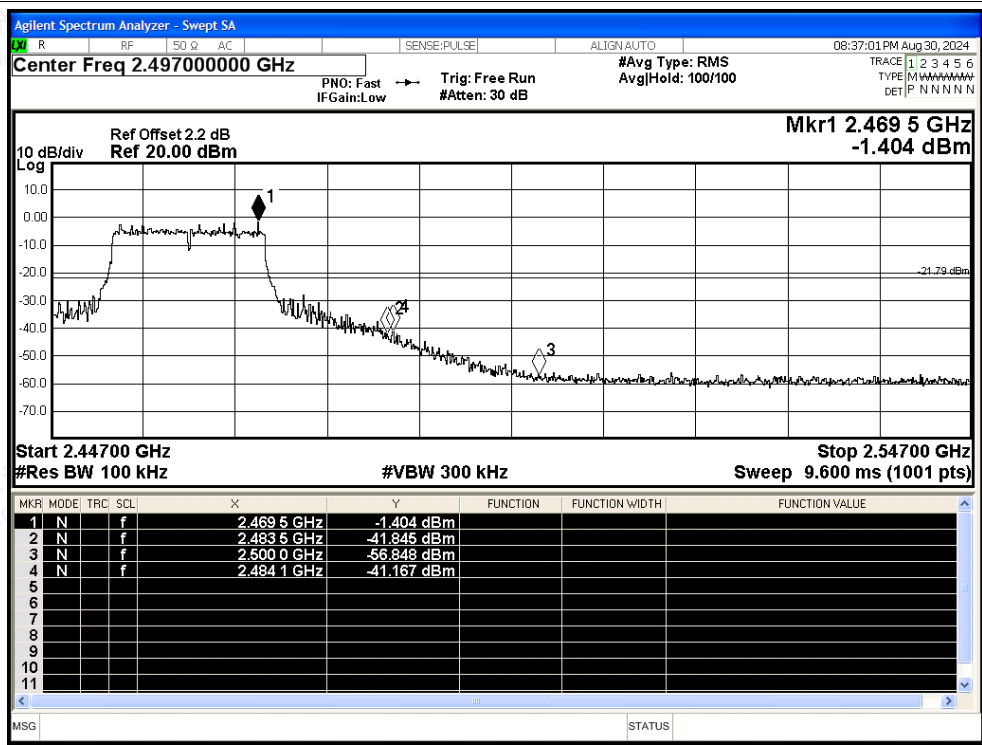




Band Edge NVNT g 2462MHz Ant Ref

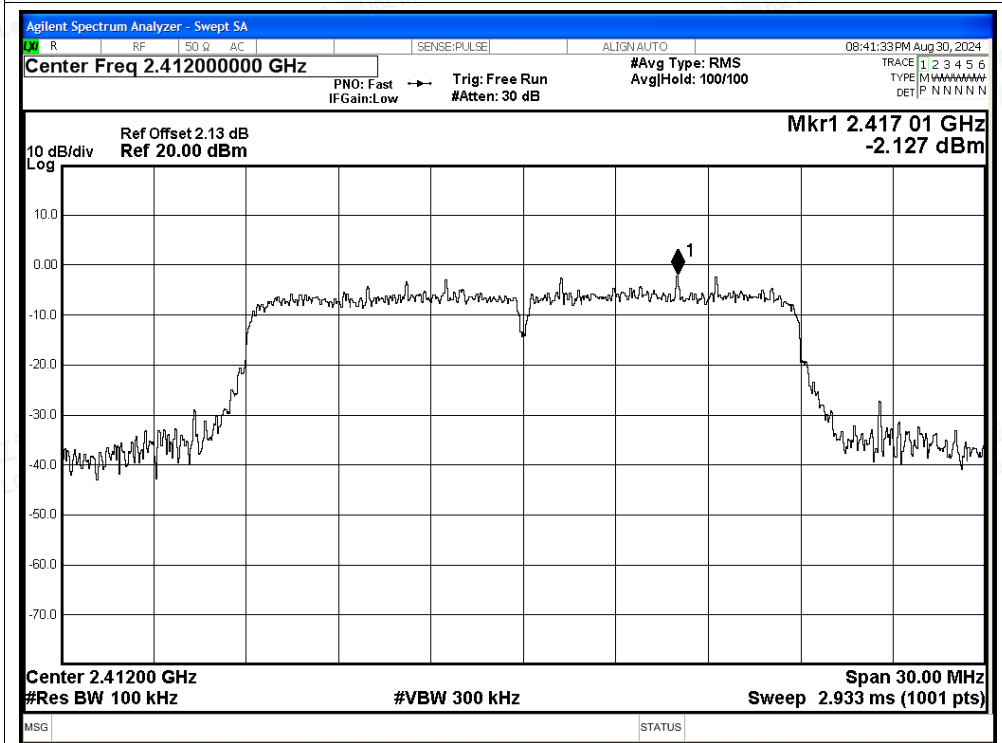


Band Edge NVNT g 2462MHz Ant Emission

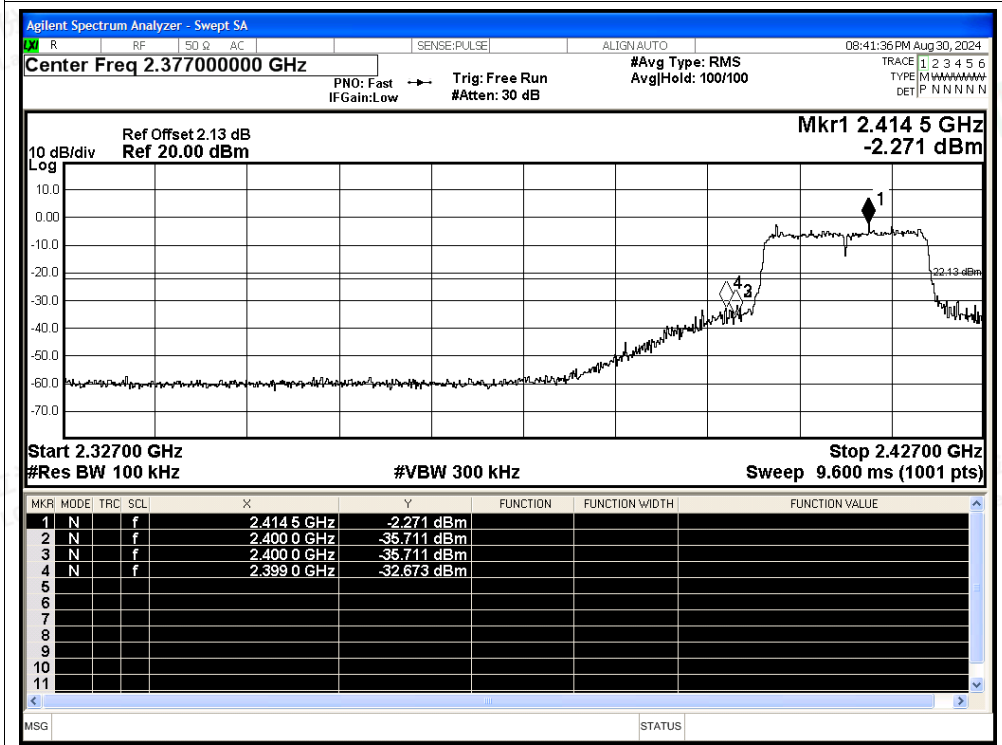




Band Edge NVNT n20 2412MHz Ant Ref

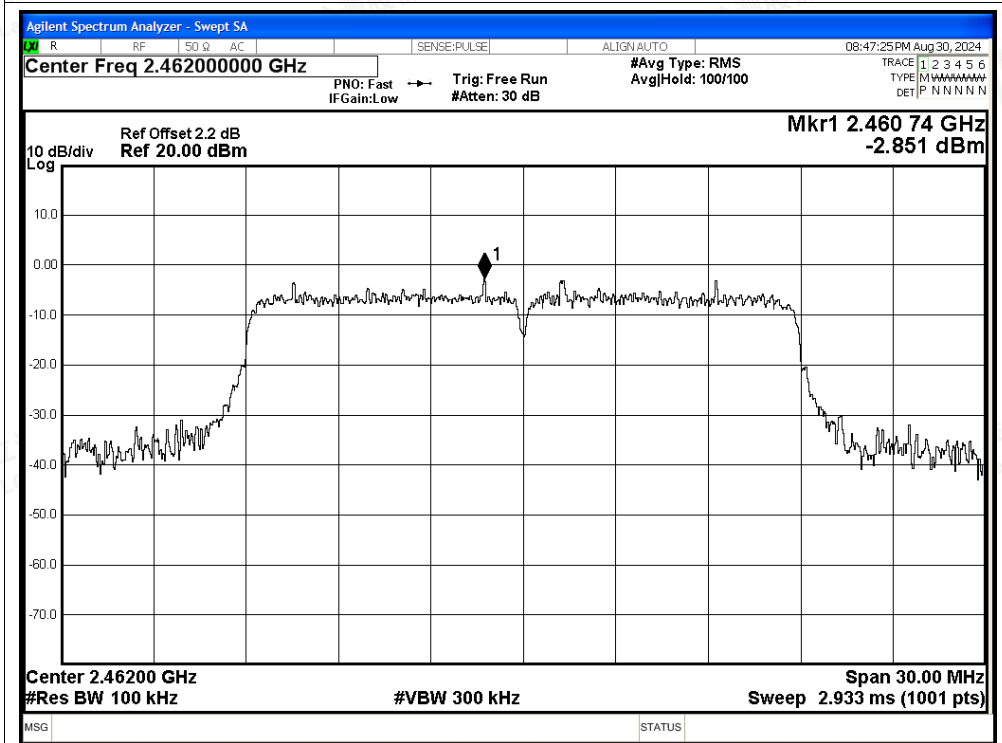


Band Edge NVNT n20 2412MHz Ant Emission

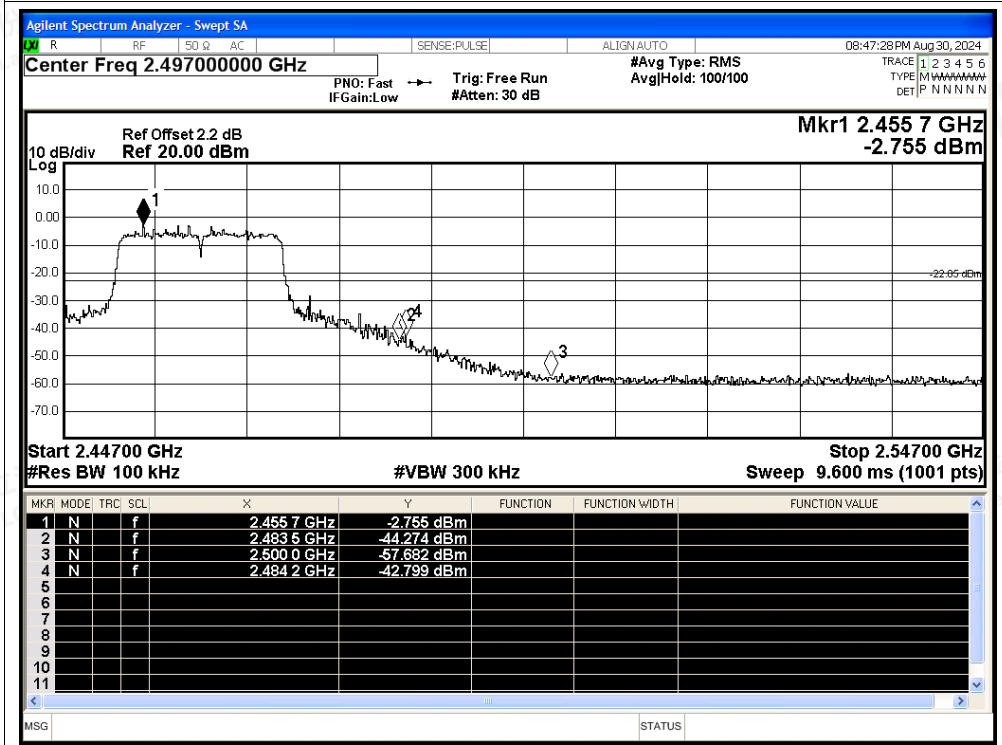




Band Edge NVNT n20 2462MHz Ant Ref

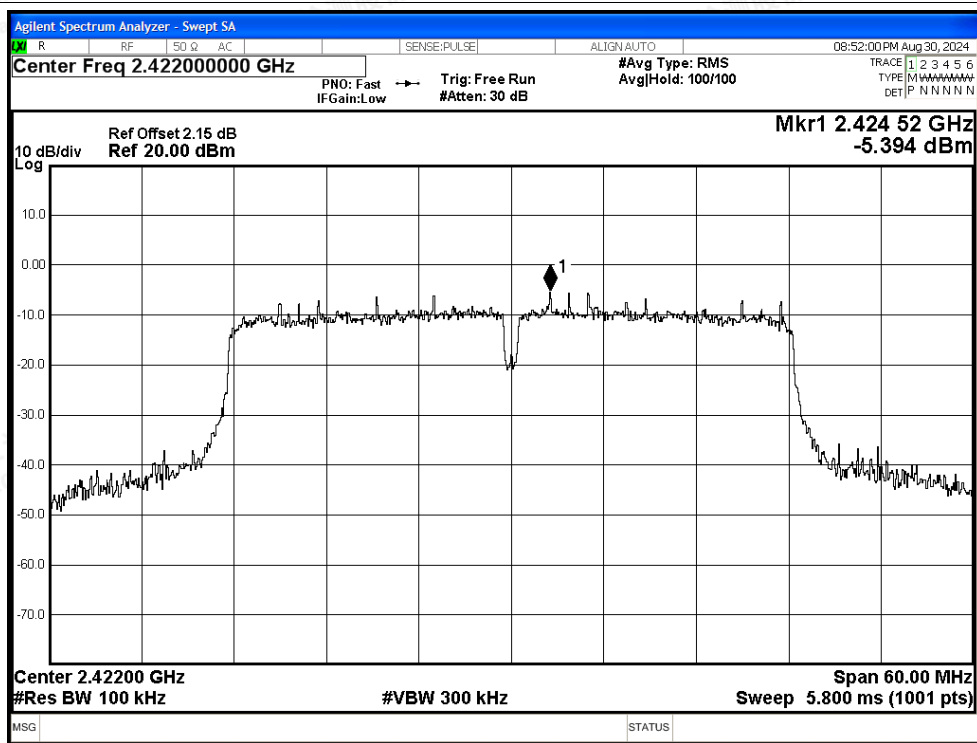


Band Edge NVNT n20 2462MHz Ant Emission

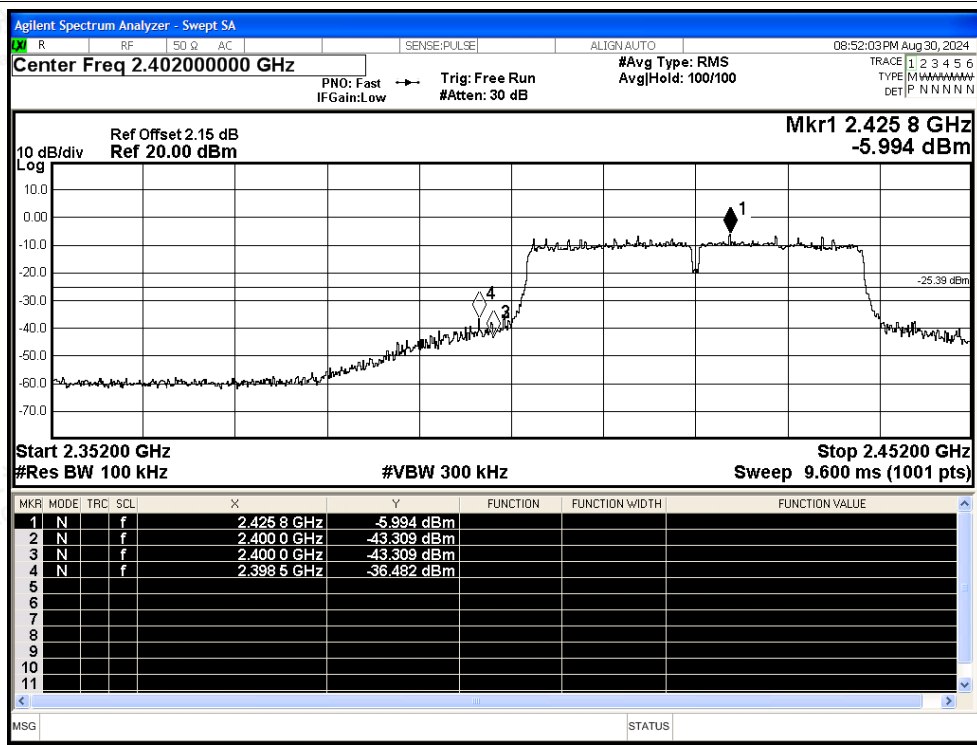




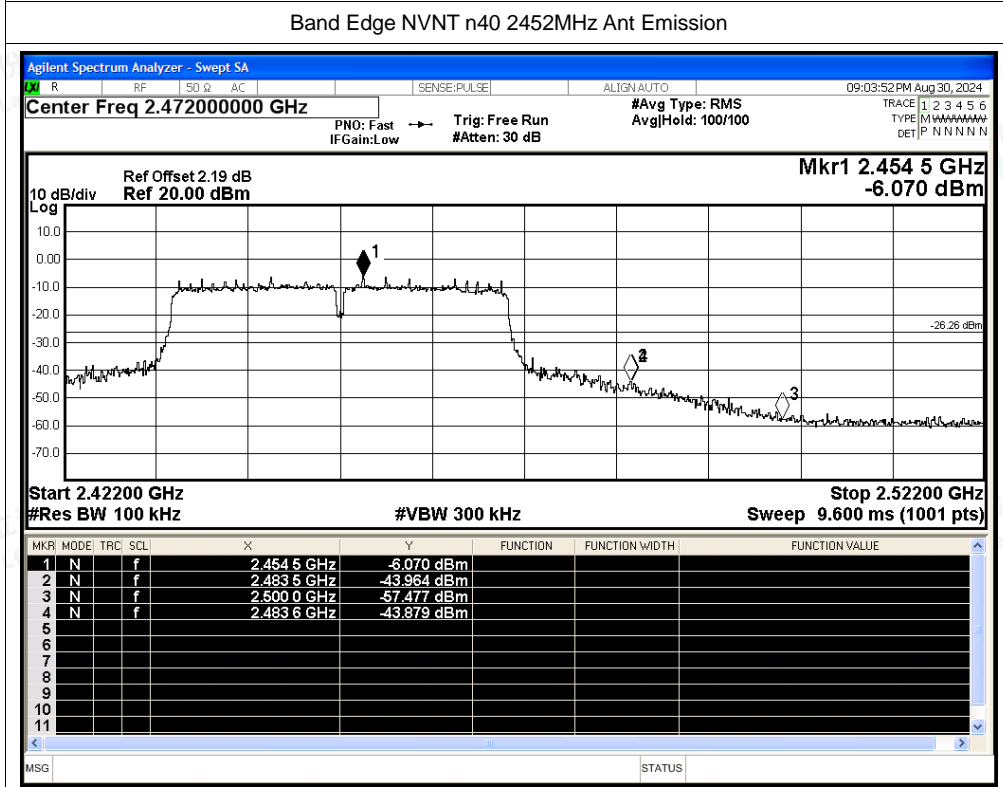
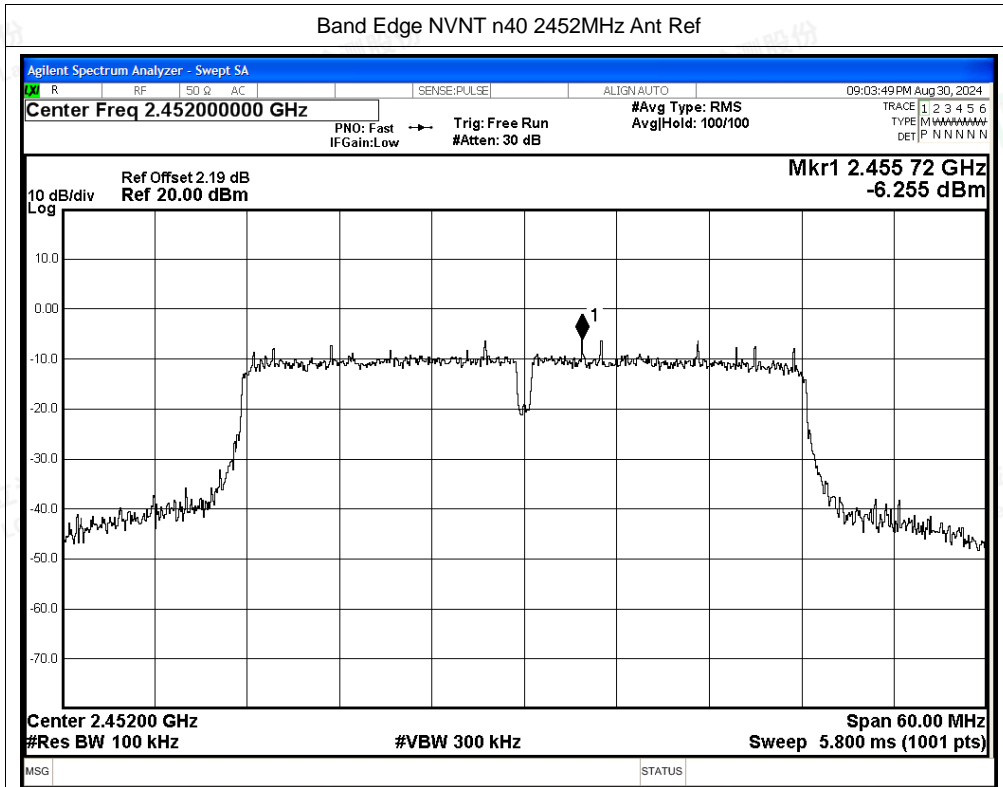
Band Edge NVNT n40 2422MHz Ant Ref



Band Edge NVNT n40 2422MHz Ant Emission









## A.5 Conducted RF Spurious Emission

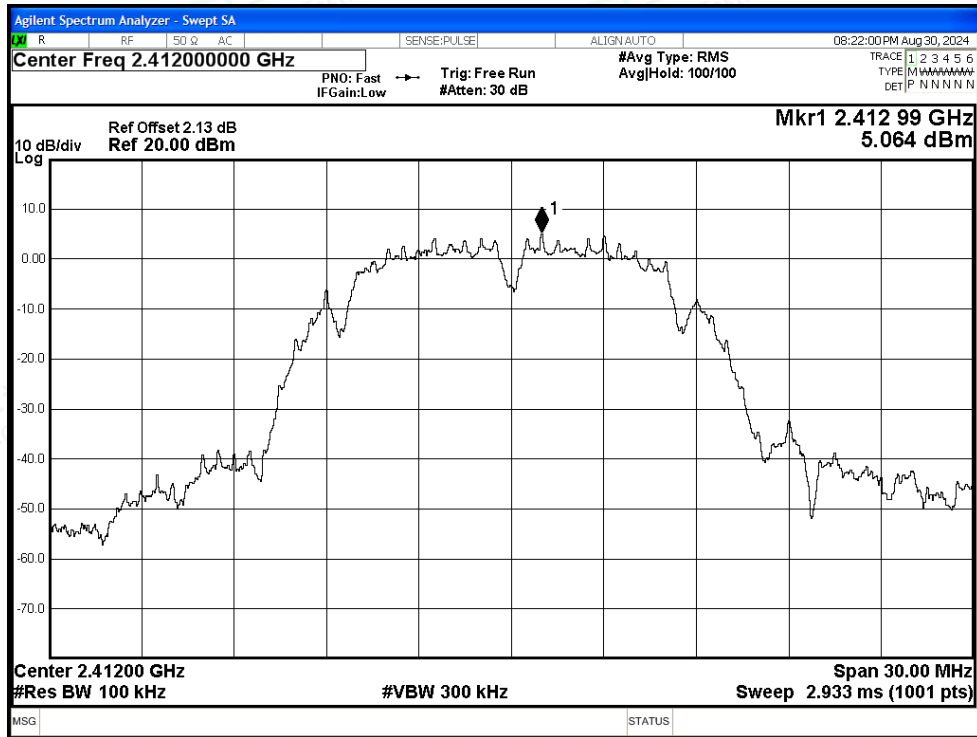
Condition	Mode	Frequency (MHz)	Antenna	Max Value (dBc)	Limit (dBc)	Verdict
NVNT	b	2412	Ant	-51.57	-20	Pass
NVNT	b	2437	Ant	-51.75	-20	Pass
NVNT	b	2462	Ant	-50.31	-20	Pass
NVNT	g	2412	Ant	-45.15	-20	Pass
NVNT	g	2437	Ant	-45.01	-20	Pass
NVNT	g	2462	Ant	-44.75	-20	Pass
NVNT	n20	2412	Ant	-43.18	-20	Pass
NVNT	n20	2437	Ant	-43.26	-20	Pass
NVNT	n20	2462	Ant	-43.66	-20	Pass
NVNT	n40	2422	Ant	-40.33	-20	Pass
NVNT	n40	2437	Ant	-40.26	-20	Pass
NVNT	n40	2452	Ant	-39.89	-20	Pass



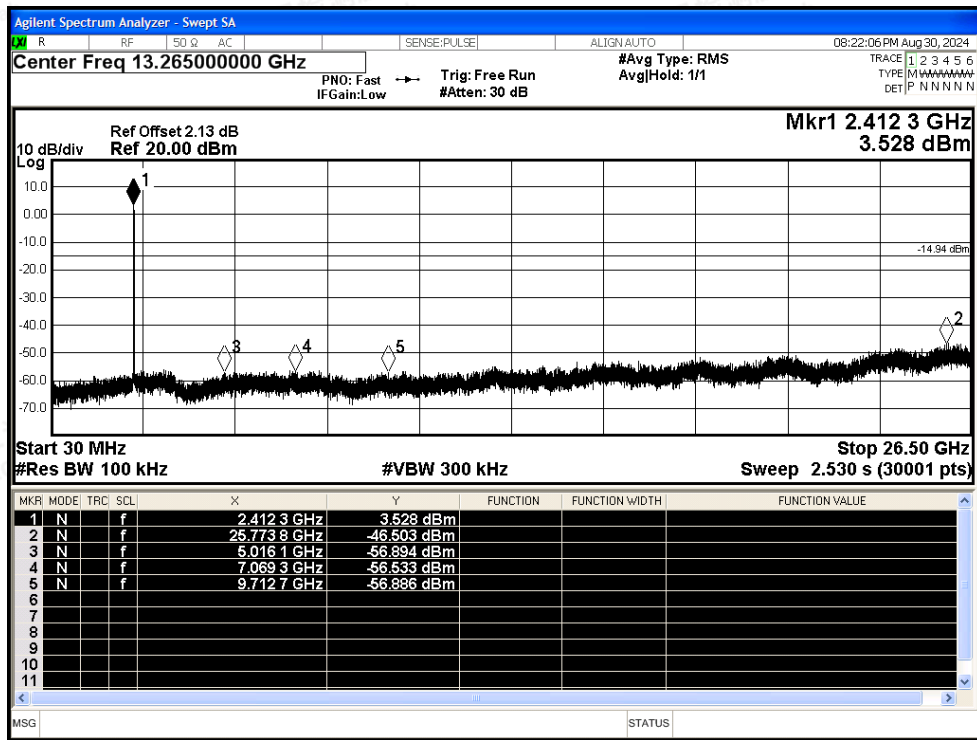


Test Graphs

Tx. Spurious NVNT b 2412MHz Ant Ref

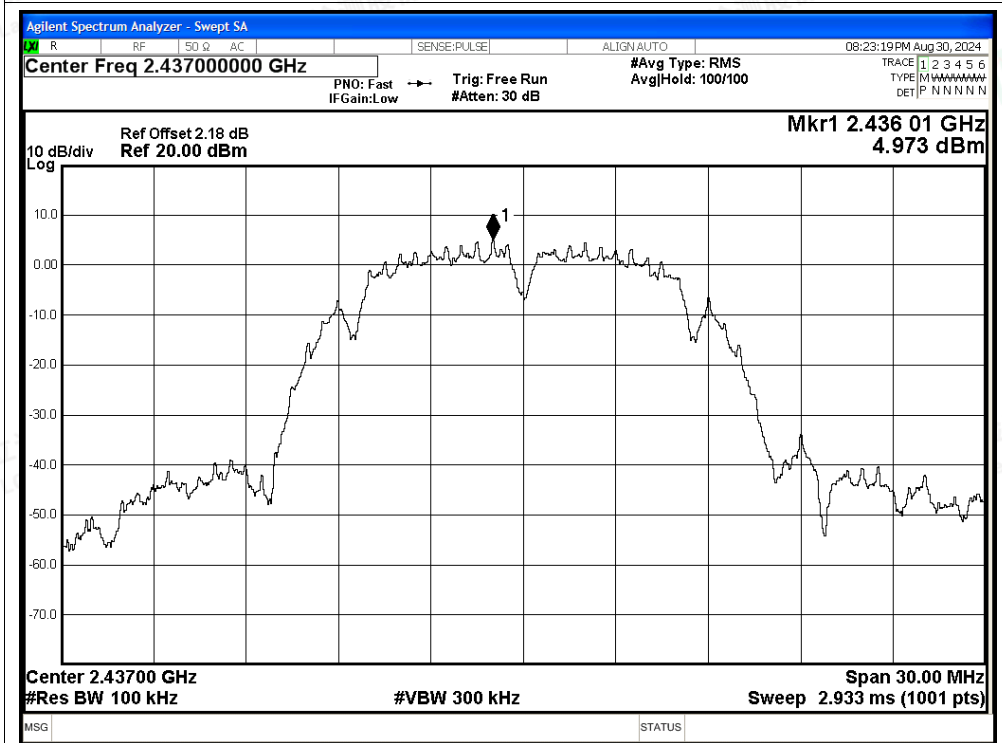


Tx. Spurious NVNT b 2412MHz Ant Emission

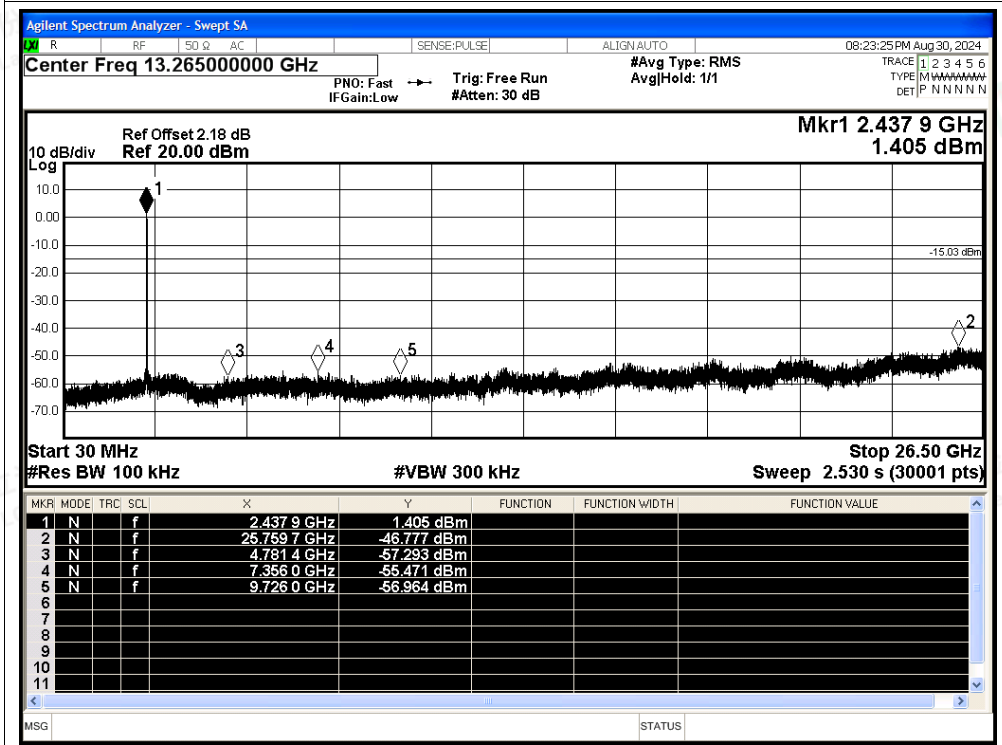




Tx. Spurious NVNT b 2437MHz Ant Ref

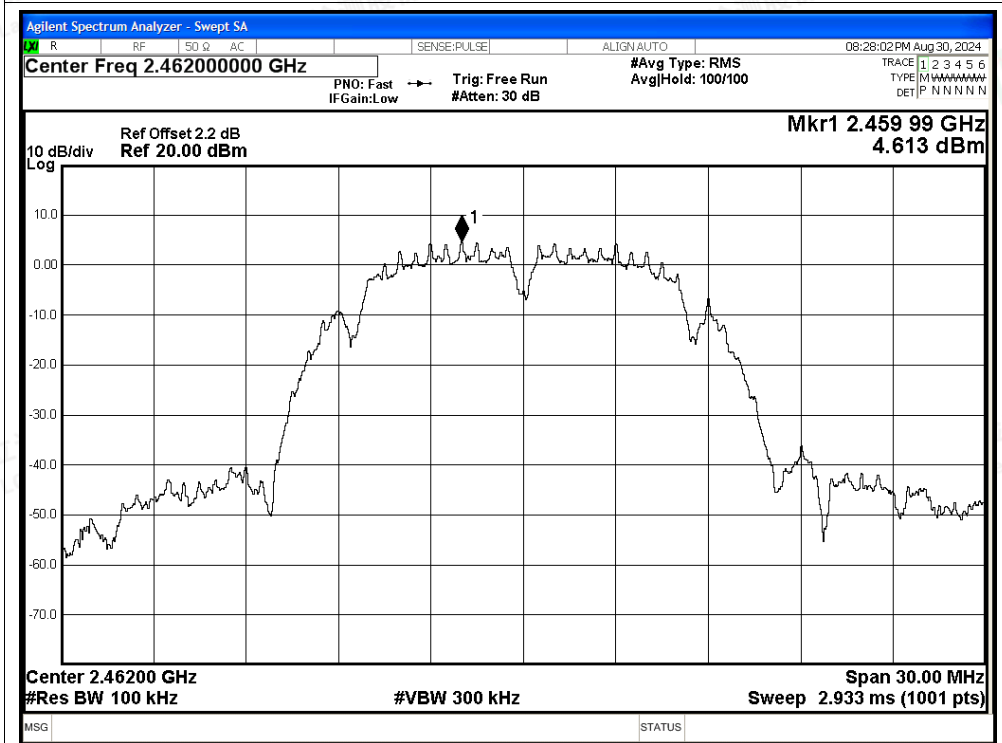


Tx. Spurious NVNT b 2437MHz Ant Emission

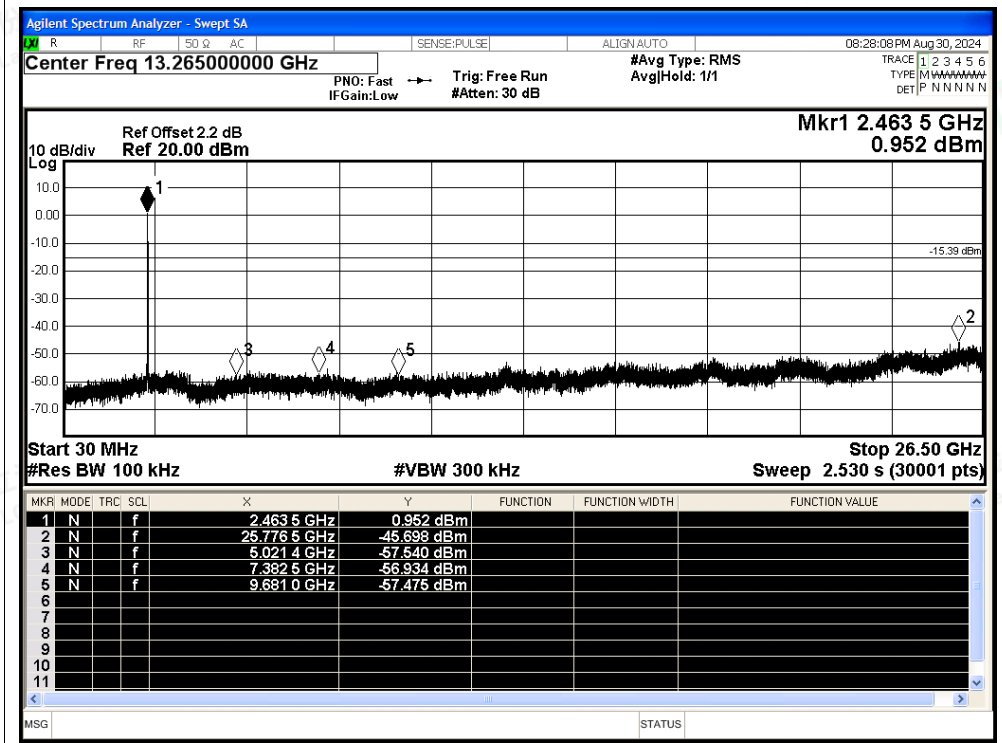




Tx. Spurious NVNT b 2462MHz Ant Ref

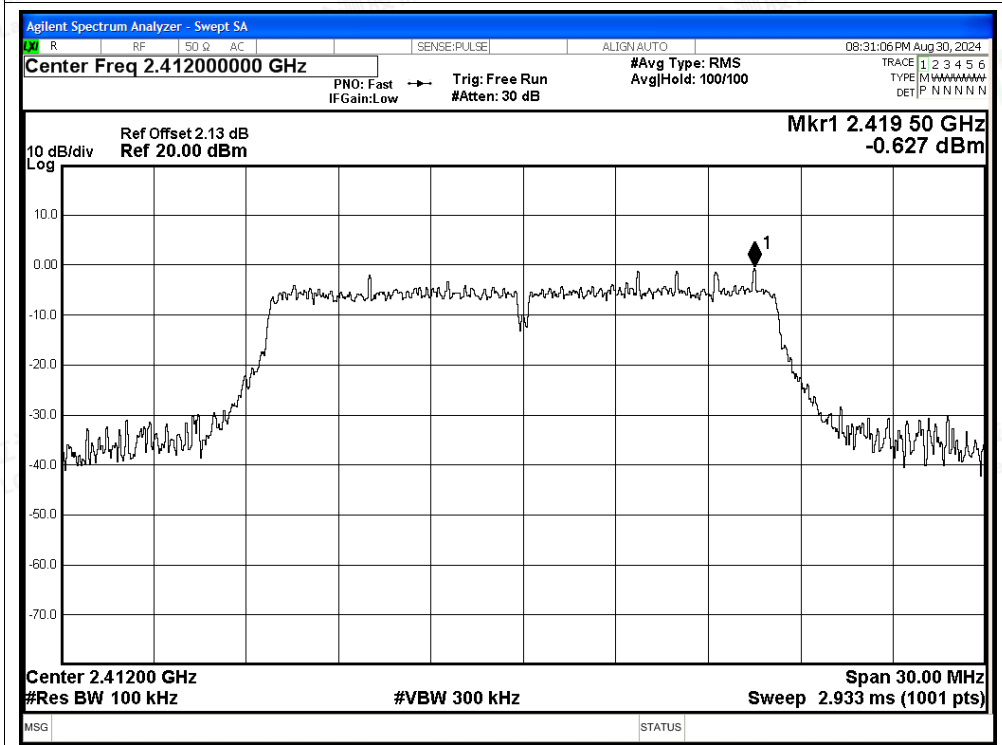


Tx. Spurious NVNT b 2462MHz Ant Emission

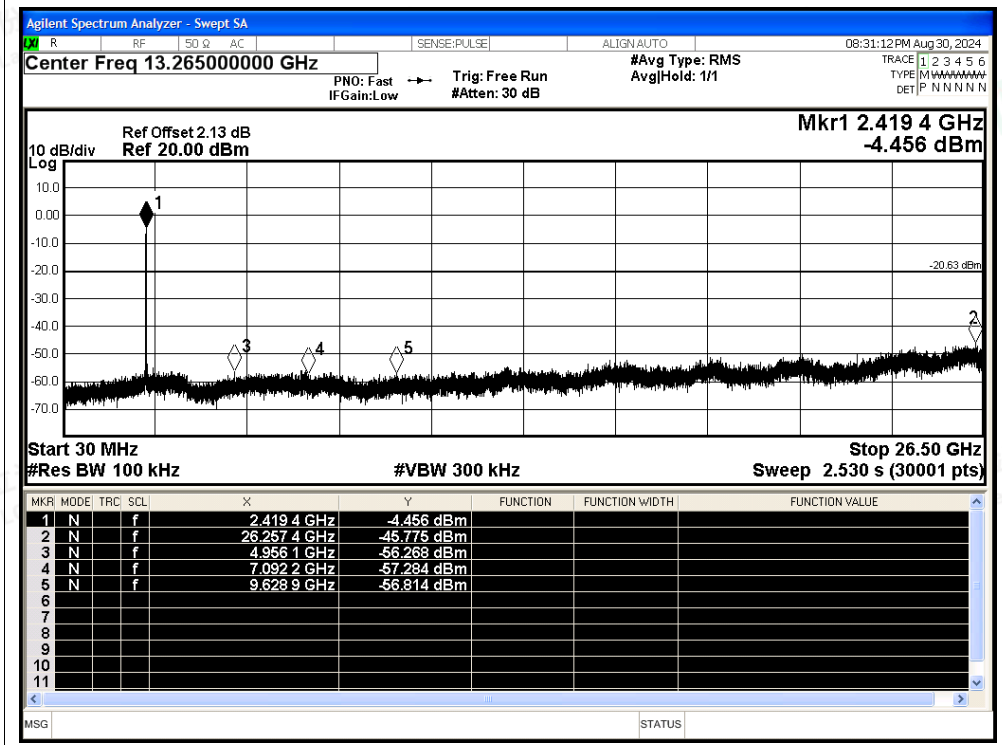




Tx. Spurious NVNT g 2412MHz Ant Ref

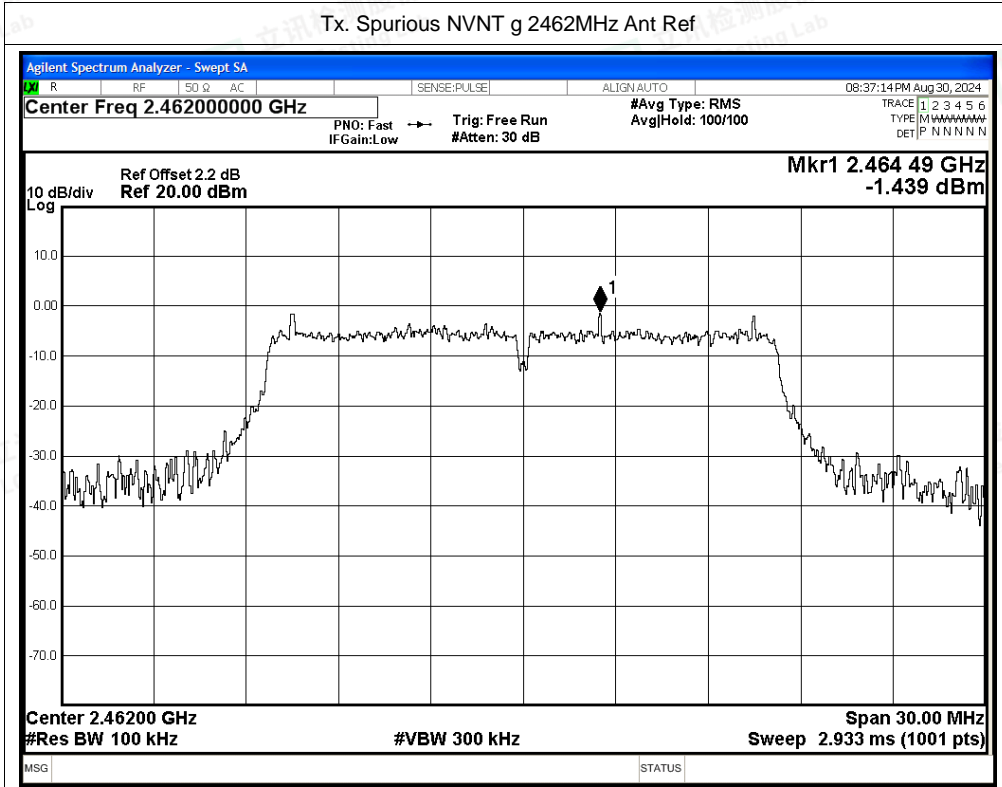


Tx. Spurious NVNT g 2412MHz Ant Emission

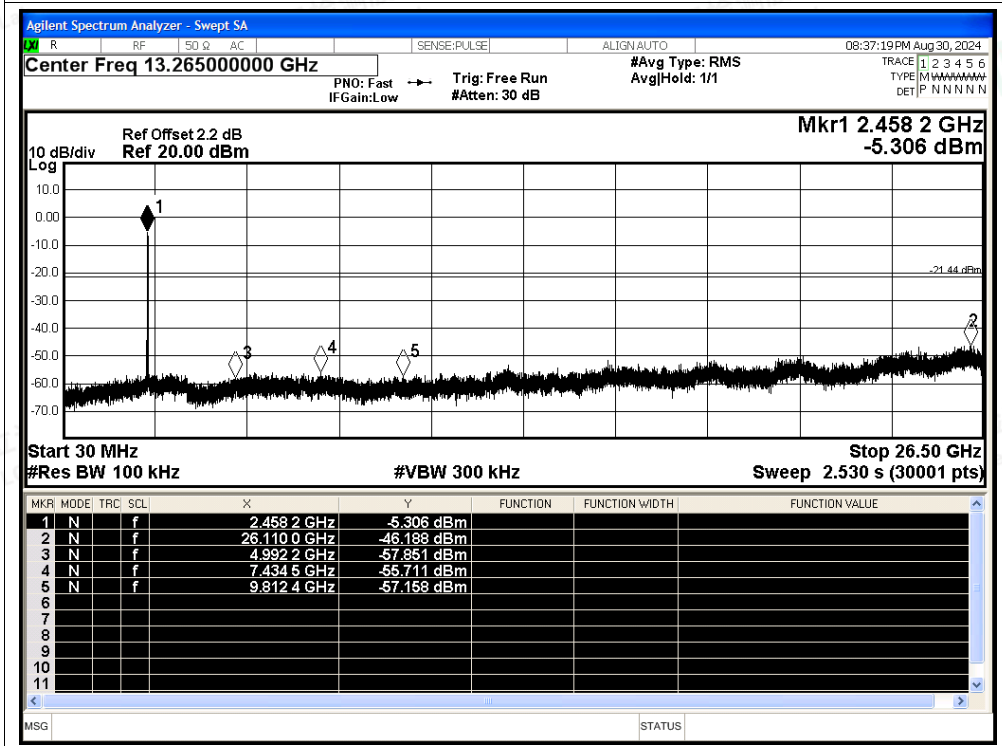




Tx. Spurious NVNT g 2462MHz Ant Ref

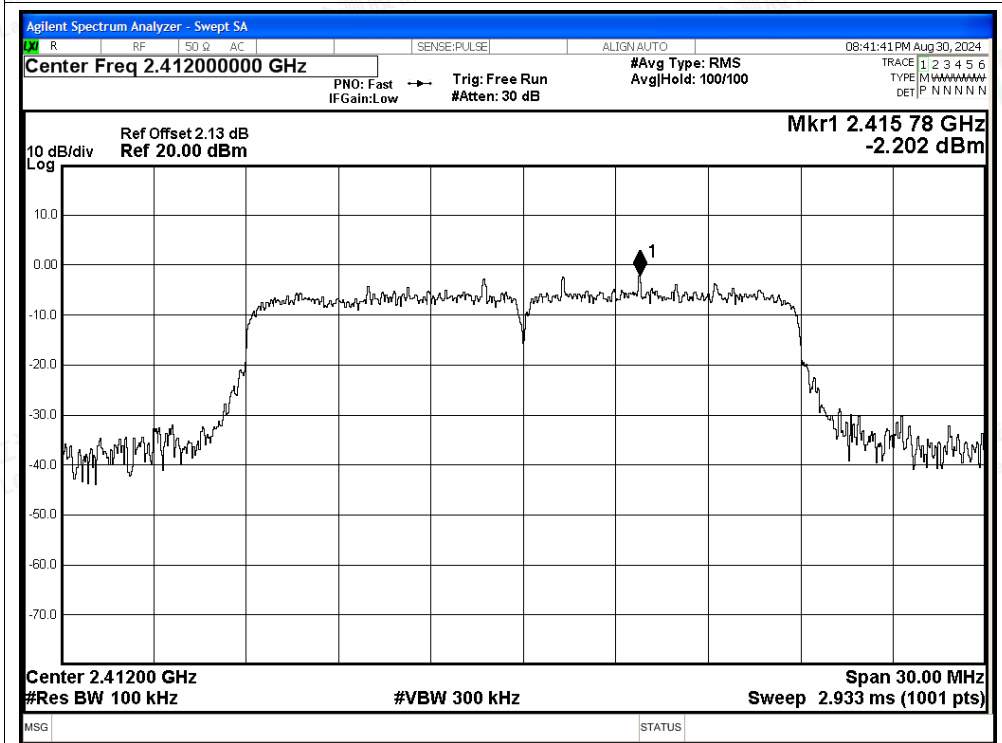


Tx. Spurious NVNT g 2462MHz Ant Emission

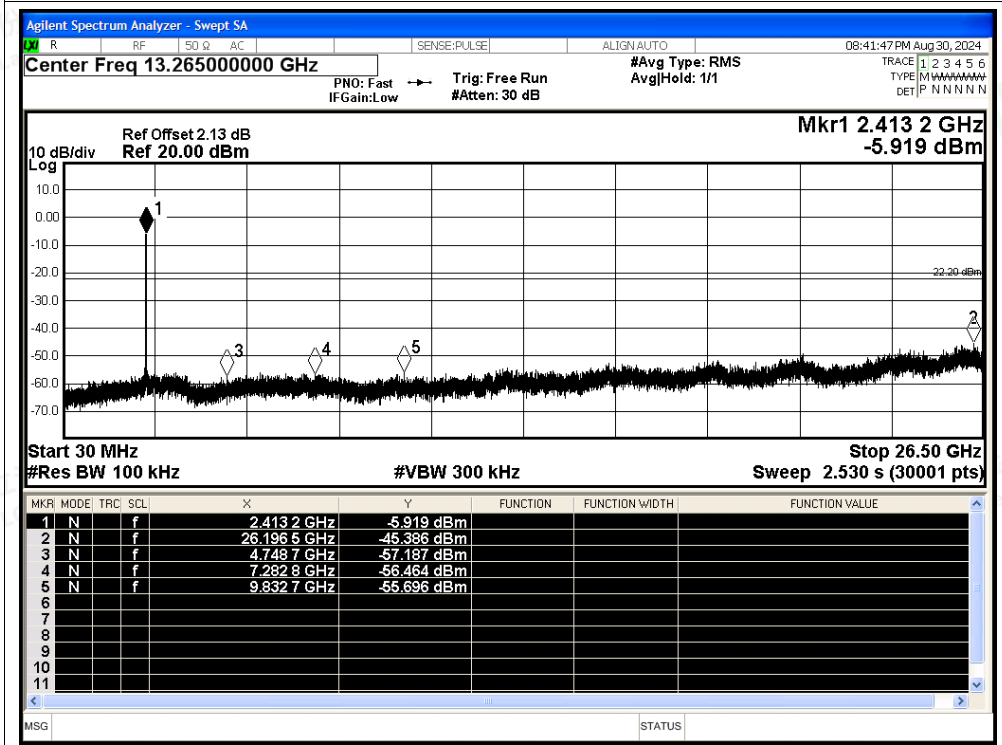




Tx. Spurious NVNT n20 2412MHz Ant Ref



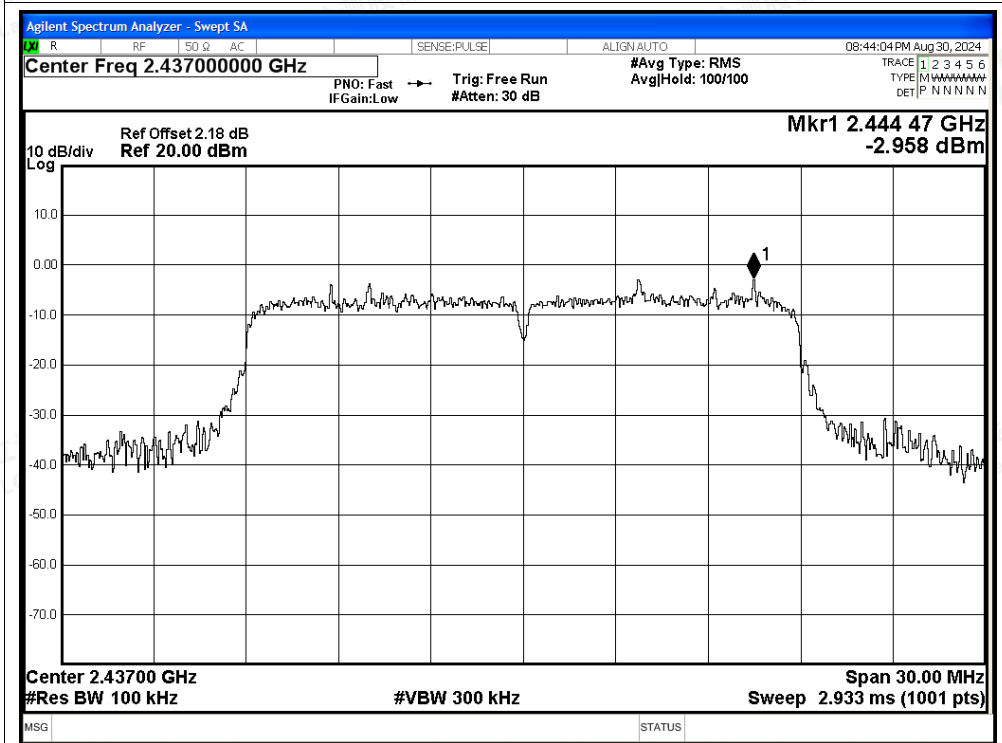
Tx. Spurious NVNT n20 2412MHz Ant Emission



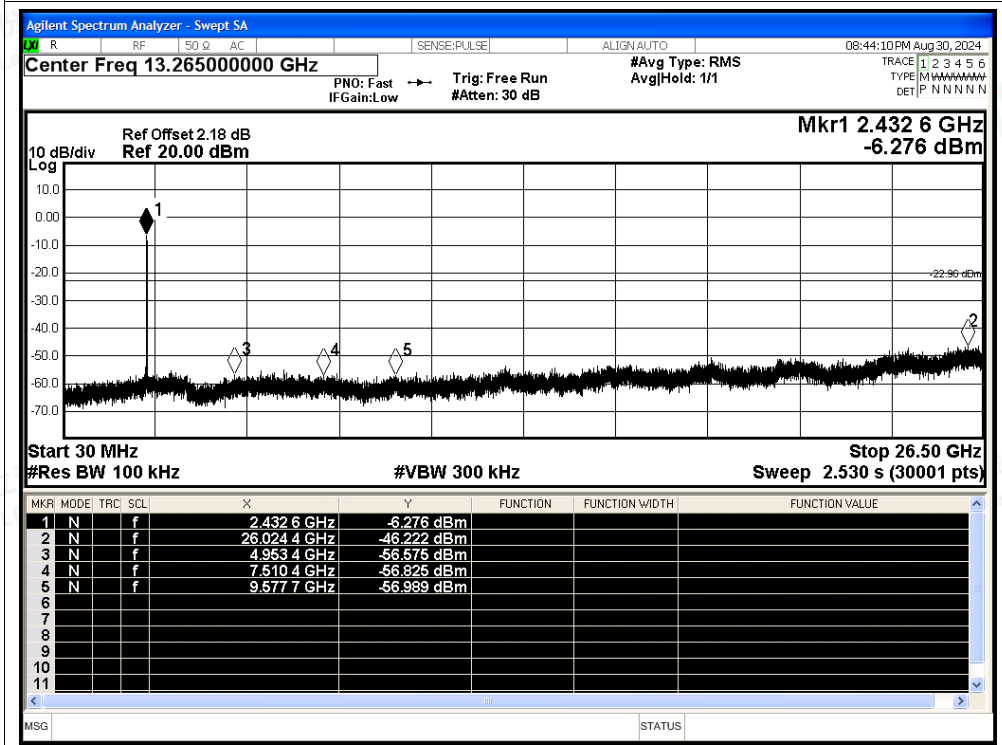




Tx. Spurious NVNT n20 2437MHz Ant Ref

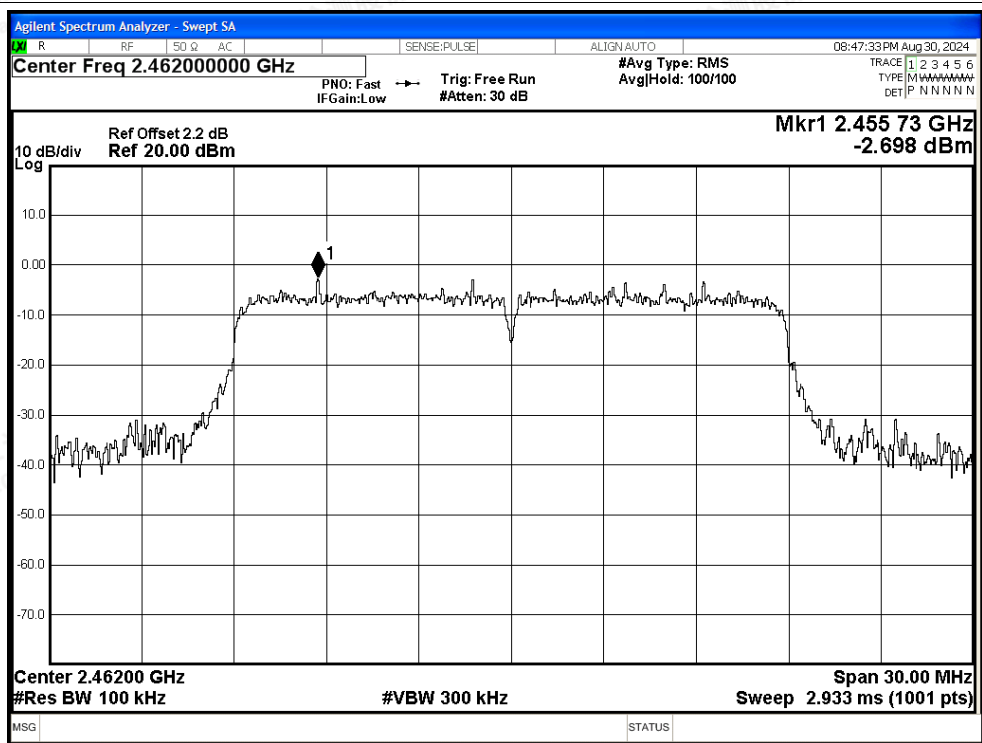


Tx. Spurious NVNT n20 2437MHz Ant Emission

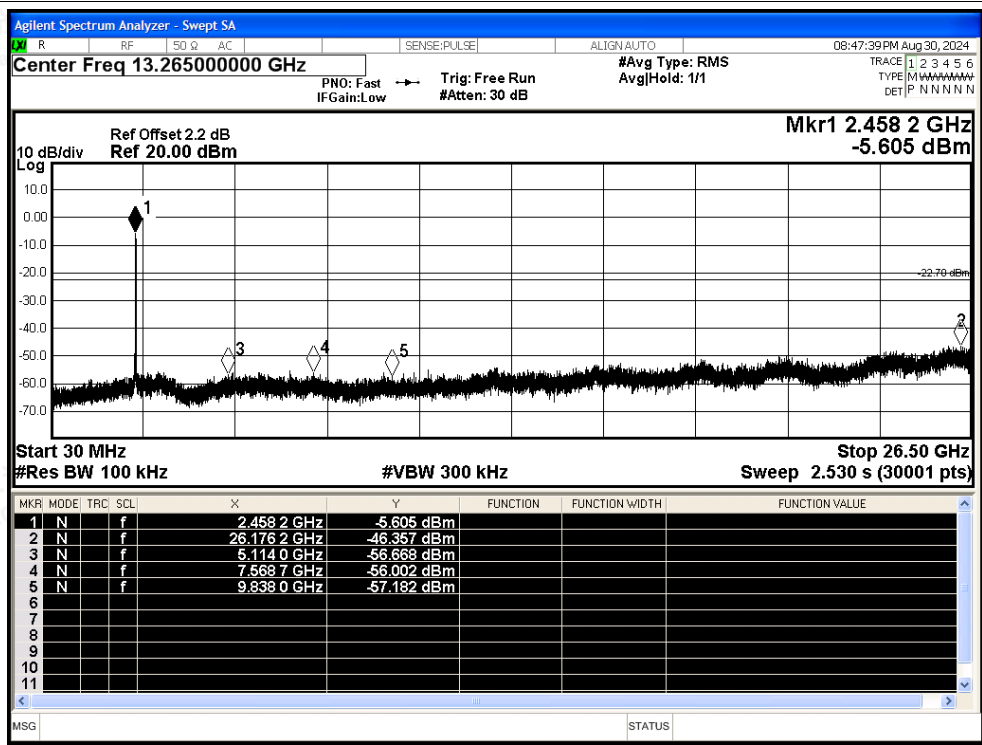




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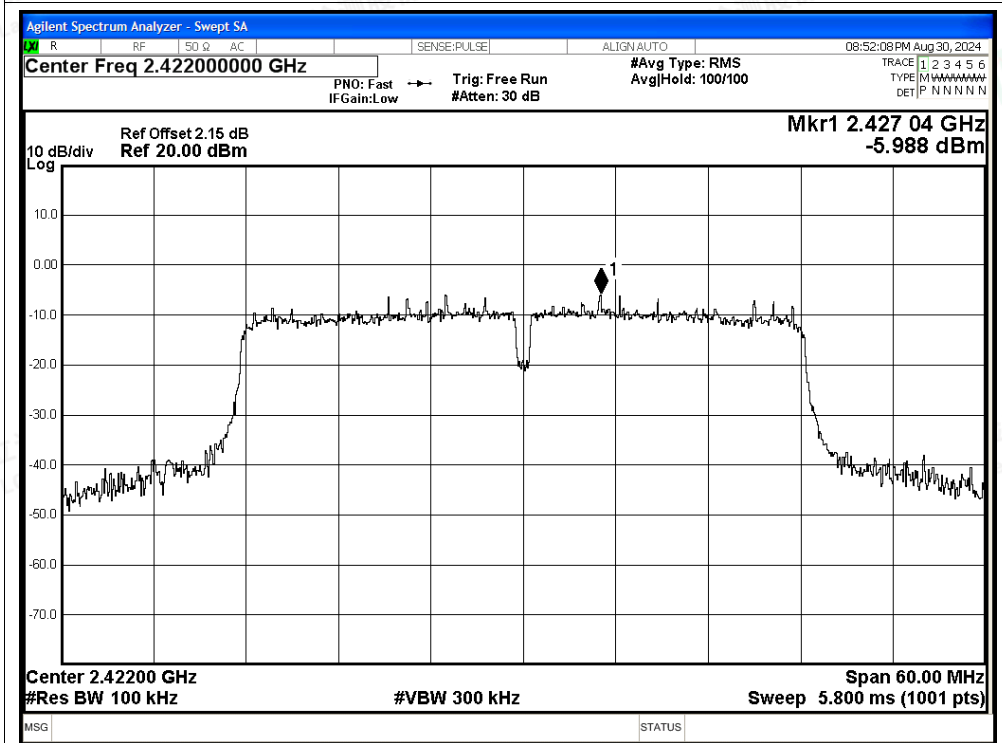


Tx. Spurious NVNT n20 2462MHz Ant Emission

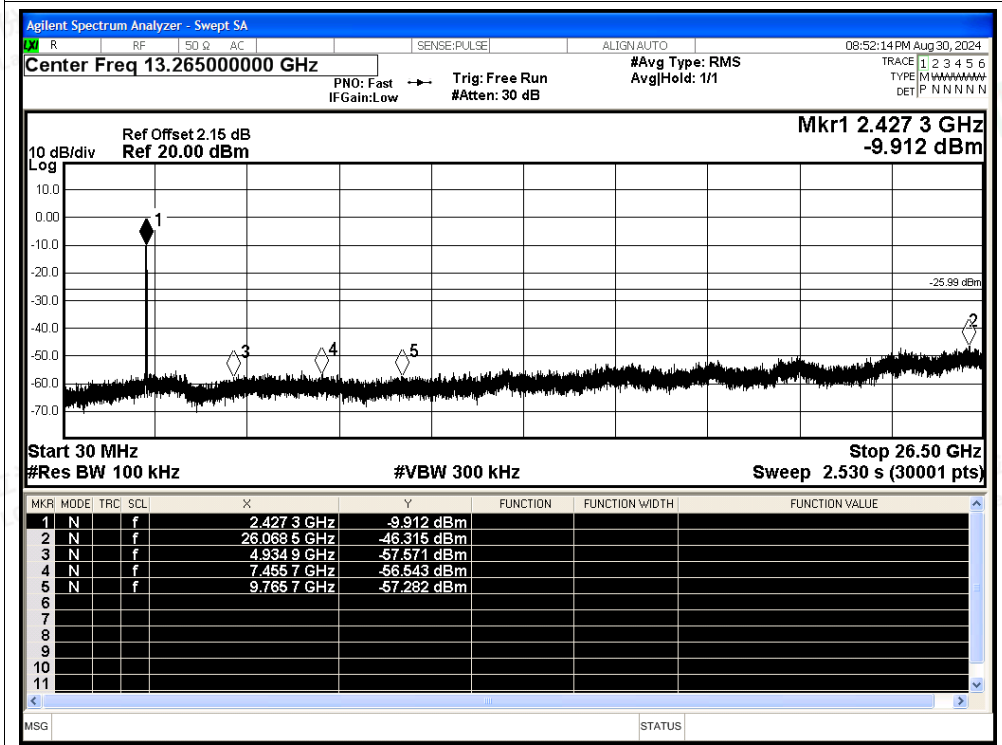




Tx. Spurious NVNT n40 2422MHz Ant Ref

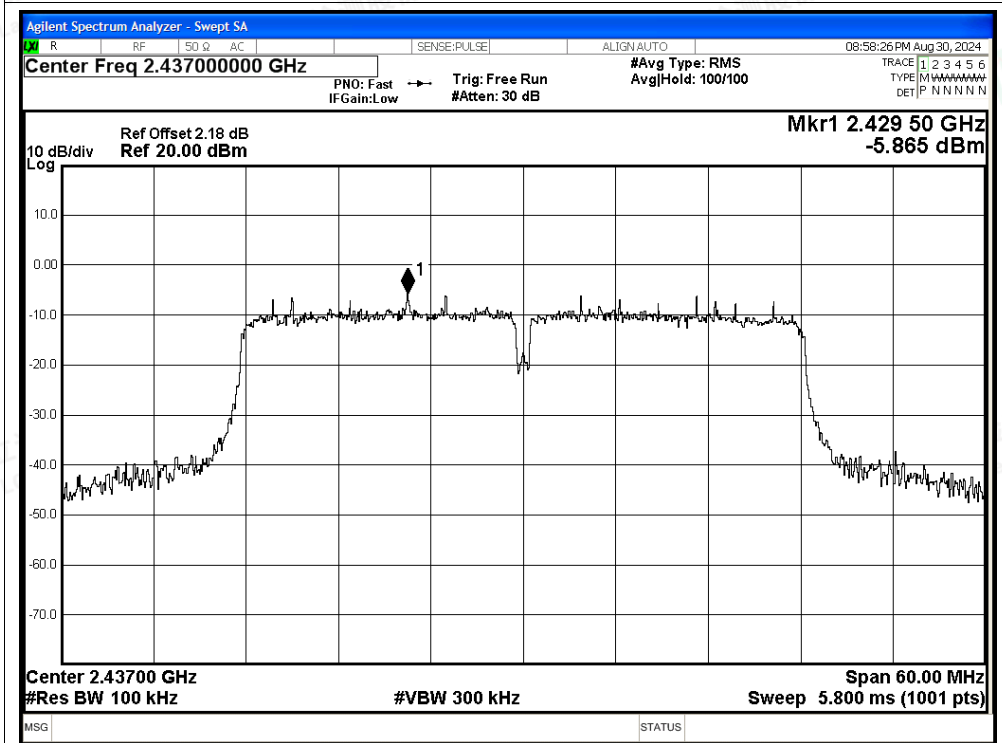


Tx. Spurious NVNT n40 2422MHz Ant Emission

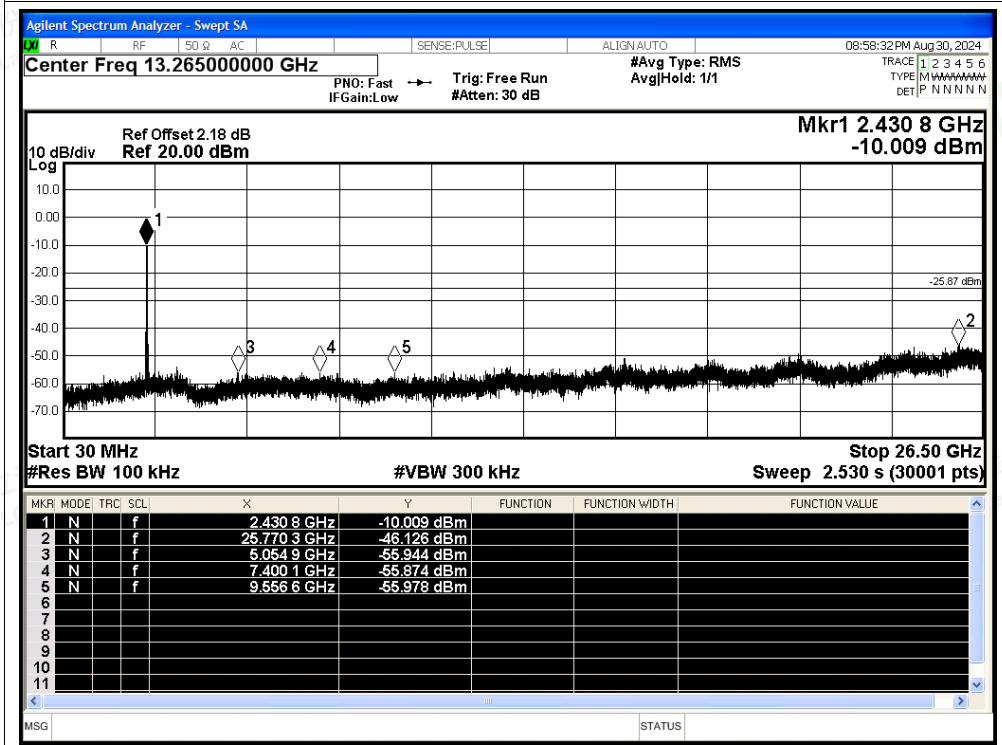




Tx. Spurious NVNT n40 2437MHz Ant Ref

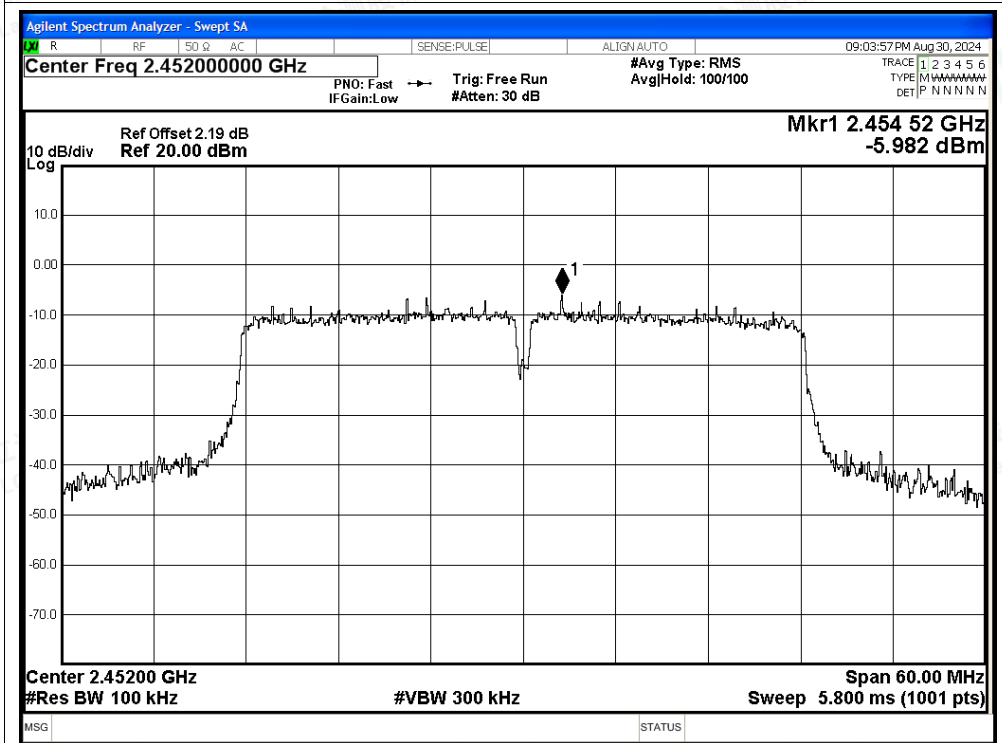


Tx. Spurious NVNT n40 2437MHz Ant Emission

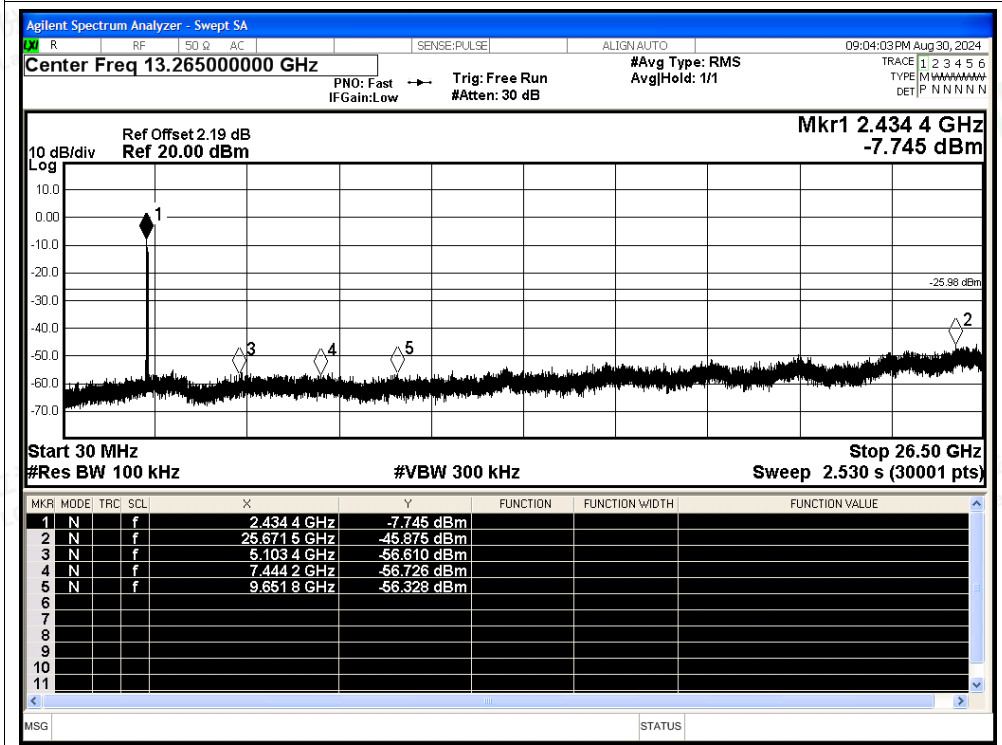




Tx. Spurious NVNT n40 2452MHz Ant Ref



Tx. Spurious NVNT n40 2452MHz Ant Emission





## A.6 Duty Cycle

Condition	Mode	Frequency (MHz)	Antenna	Duty Cycle (%)	Correction Factor (dB)	1/T (kHz)
NVNT	b	2412	Ant	97.69	0.1	0.15
NVNT	b	2437	Ant	98.1	0	0.15
NVNT	b	2462	Ant	97.83	0.1	0.15
NVNT	g	2412	Ant	92	0.36	0.37
NVNT	g	2437	Ant	92.07	0.36	0.37
NVNT	g	2462	Ant	92.01	0.36	0.37
NVNT	n20	2412	Ant	90.6	0.43	0.44
NVNT	n20	2437	Ant	90.61	0.43	0.44
NVNT	n20	2462	Ant	90.6	0.43	0.44
NVNT	n40	2422	Ant	82.51	0.83	0.91
NVNT	n40	2437	Ant	83.01	0.81	0.91
NVNT	n40	2452	Ant	83.16	0.8	0.9



Shenzhen LCS Compliance Testing Laboratory Ltd.

Add: 101, 201 Bldg A & 301 Bldg C, Juji Industrial Park Yabianxueziwei, Shajing Street, Baoan District, Shenzhen, 518000, China

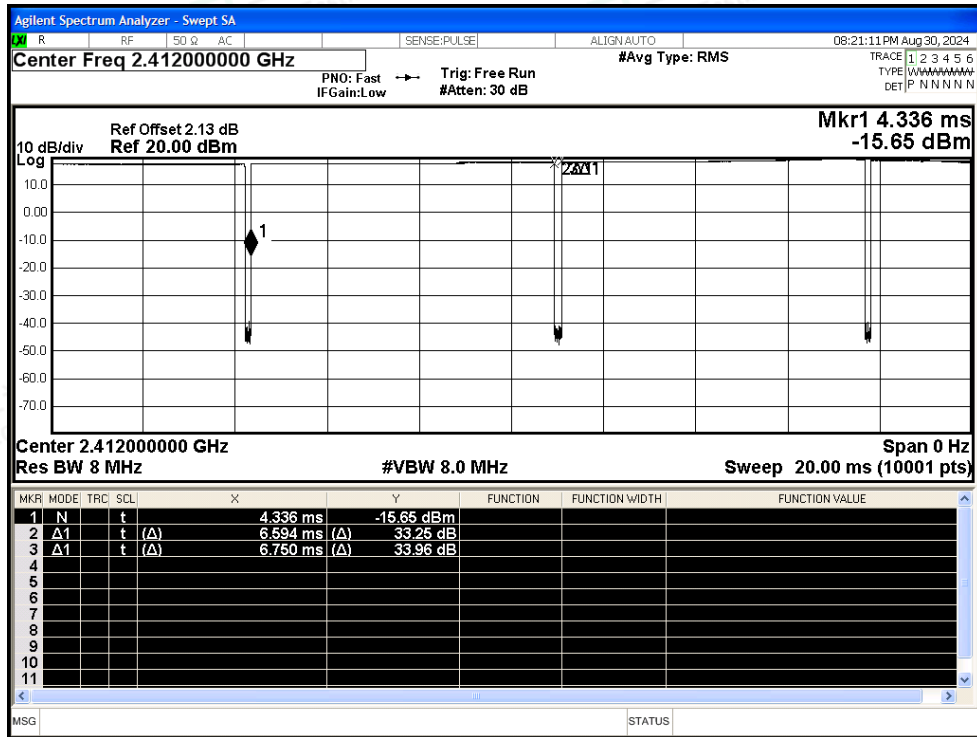
Tel: +(86) 0755-82591330 | E-mail: webmaster@lcs-cert.com | Web: www.lcs-cert.com

Scan code to check authenticity

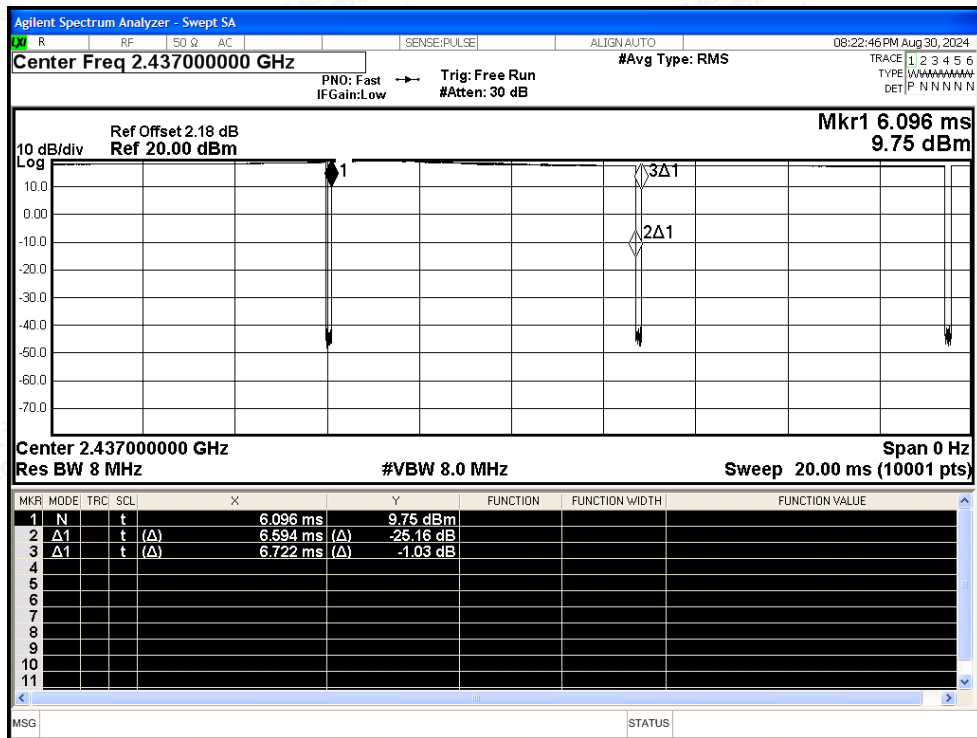


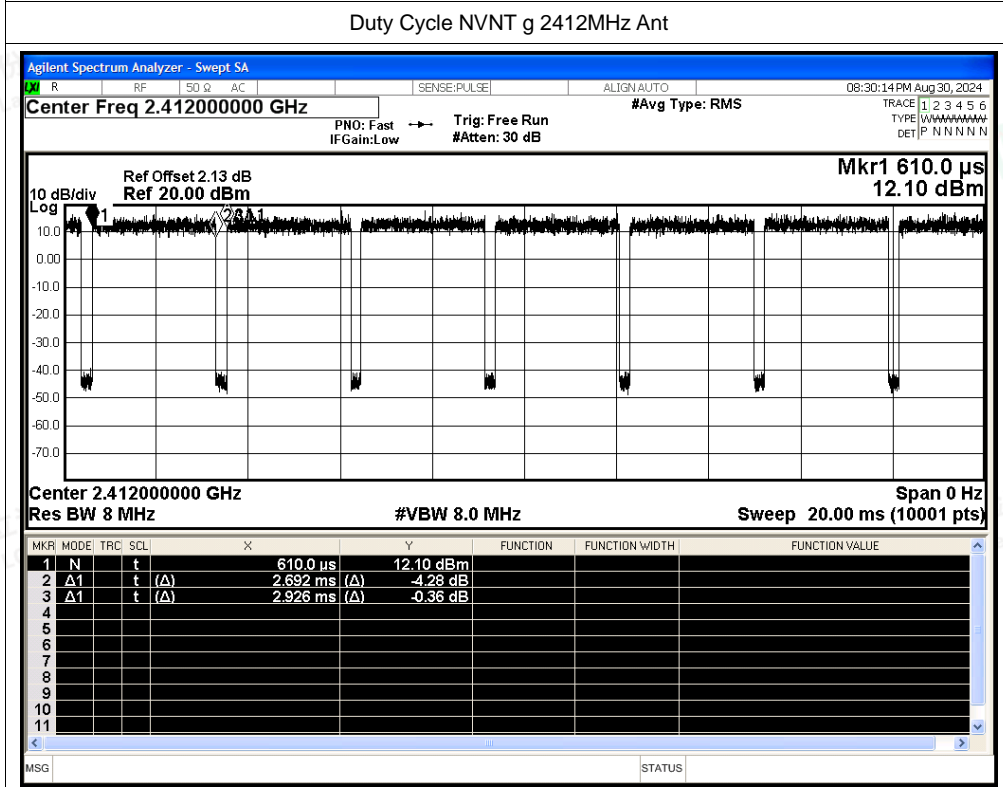
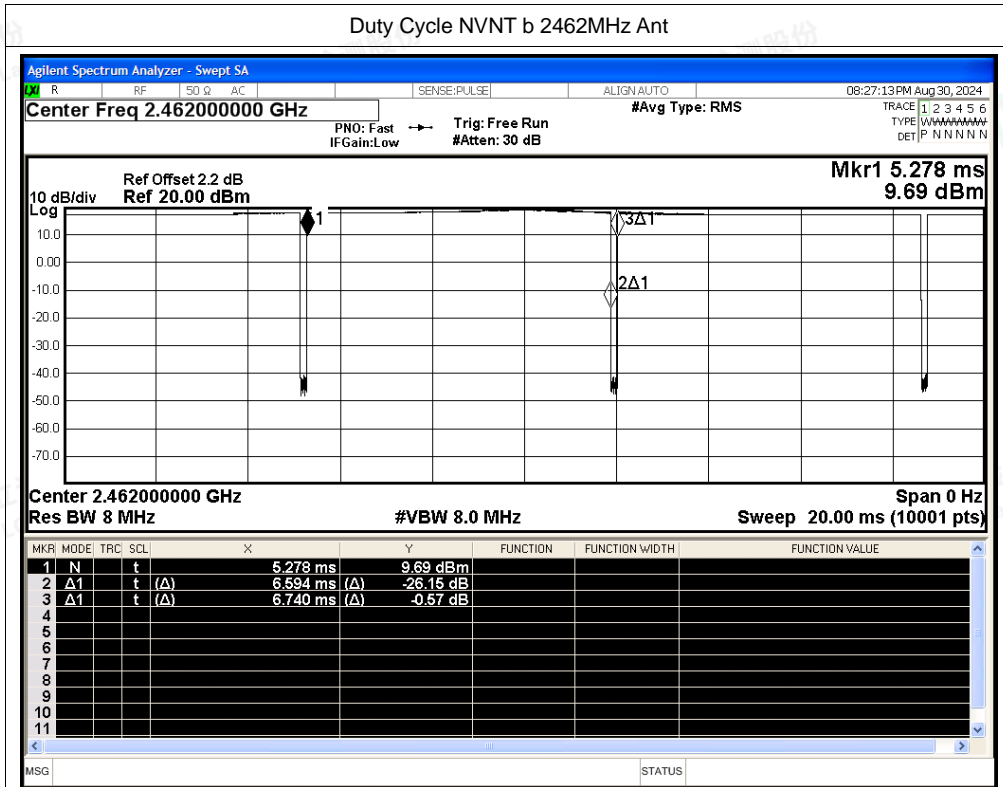
Test Graphs

Duty Cycle NVNT b 2412MHz Ant



Duty Cycle NVNT b 2437MHz Ant

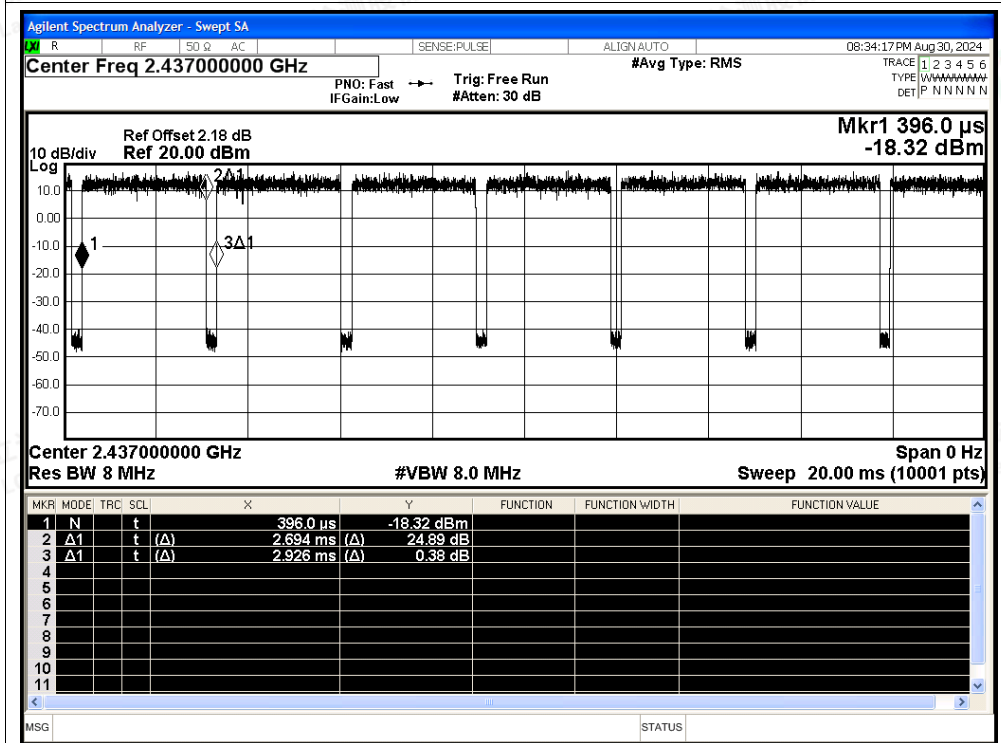




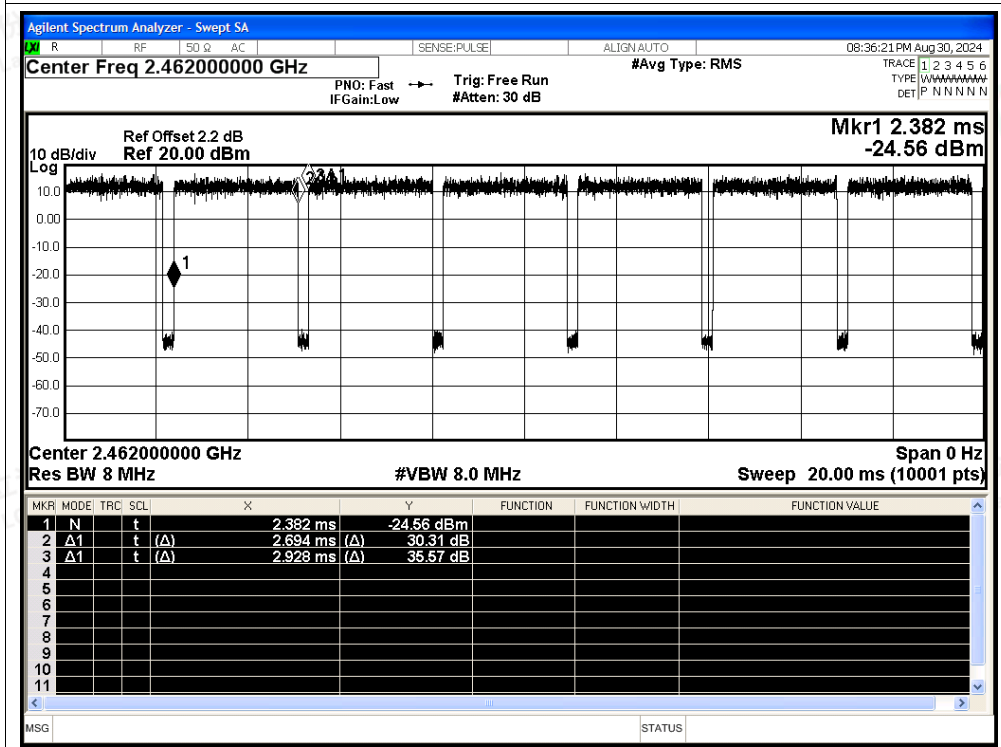


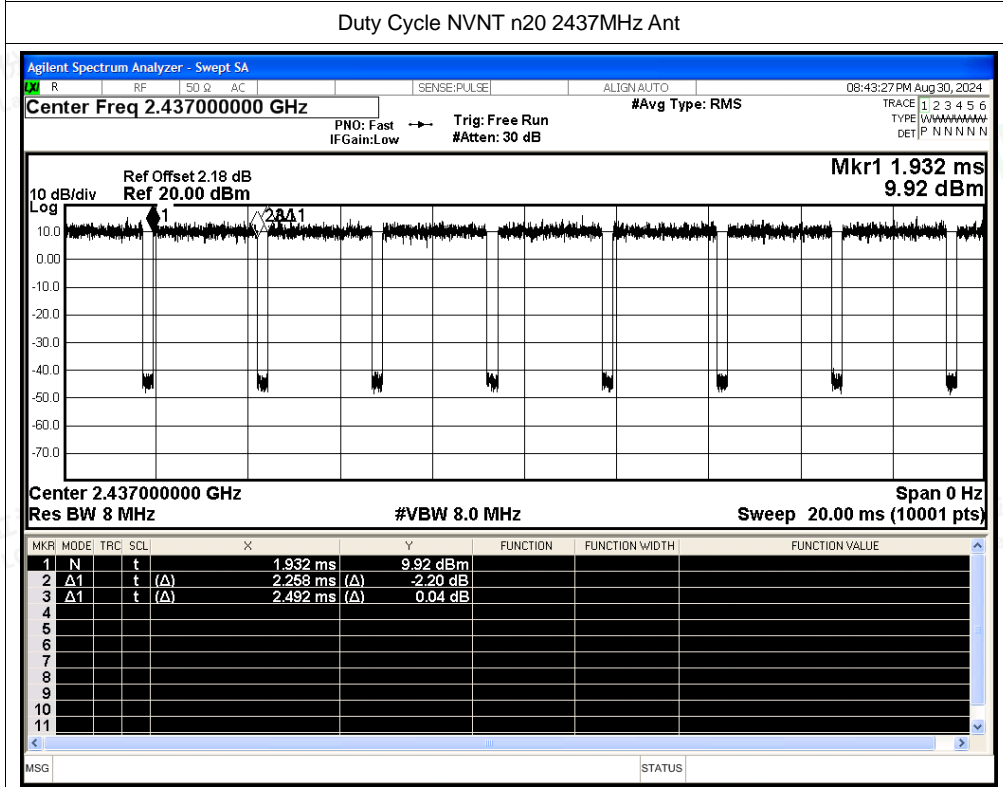
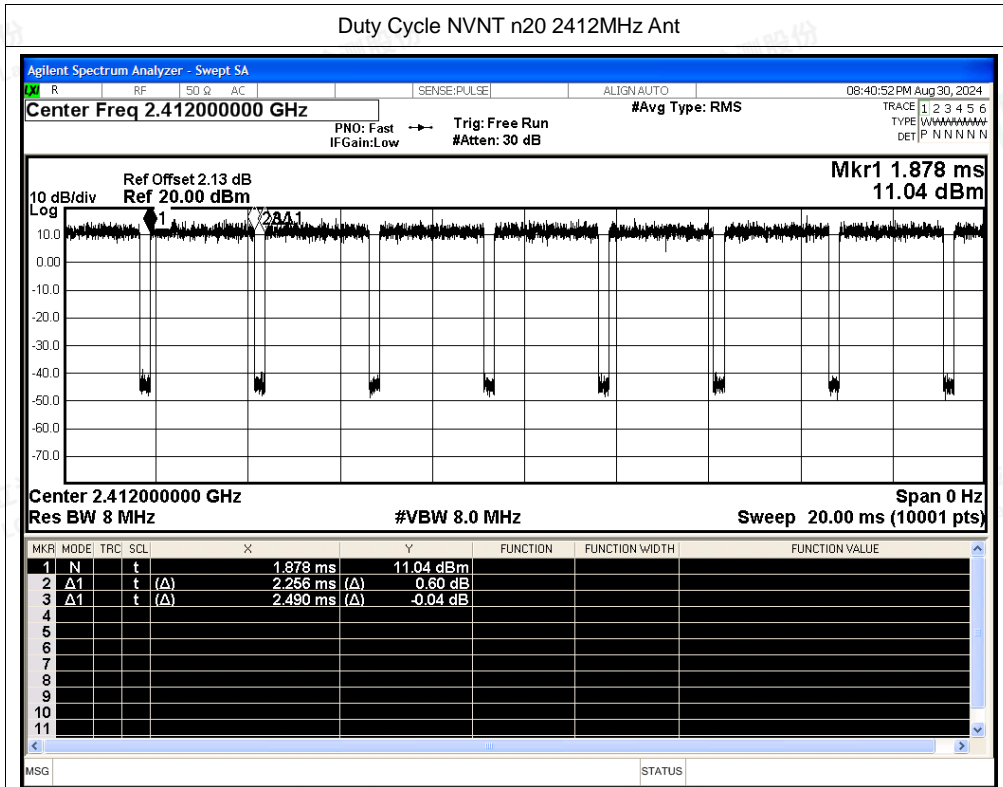


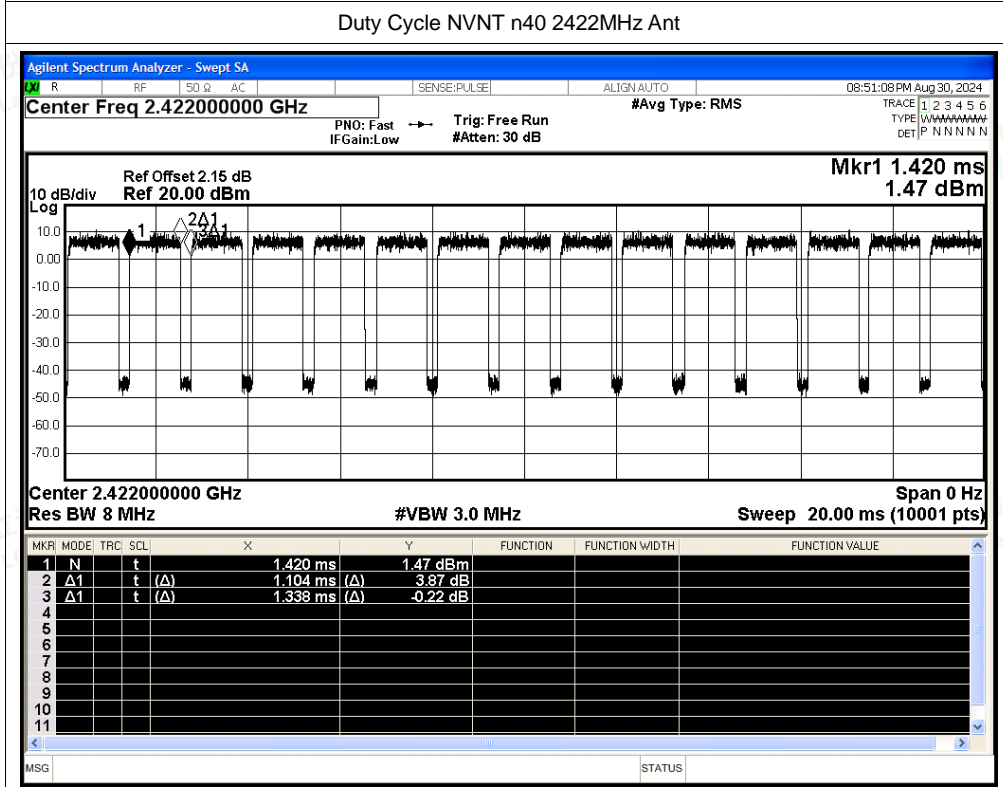
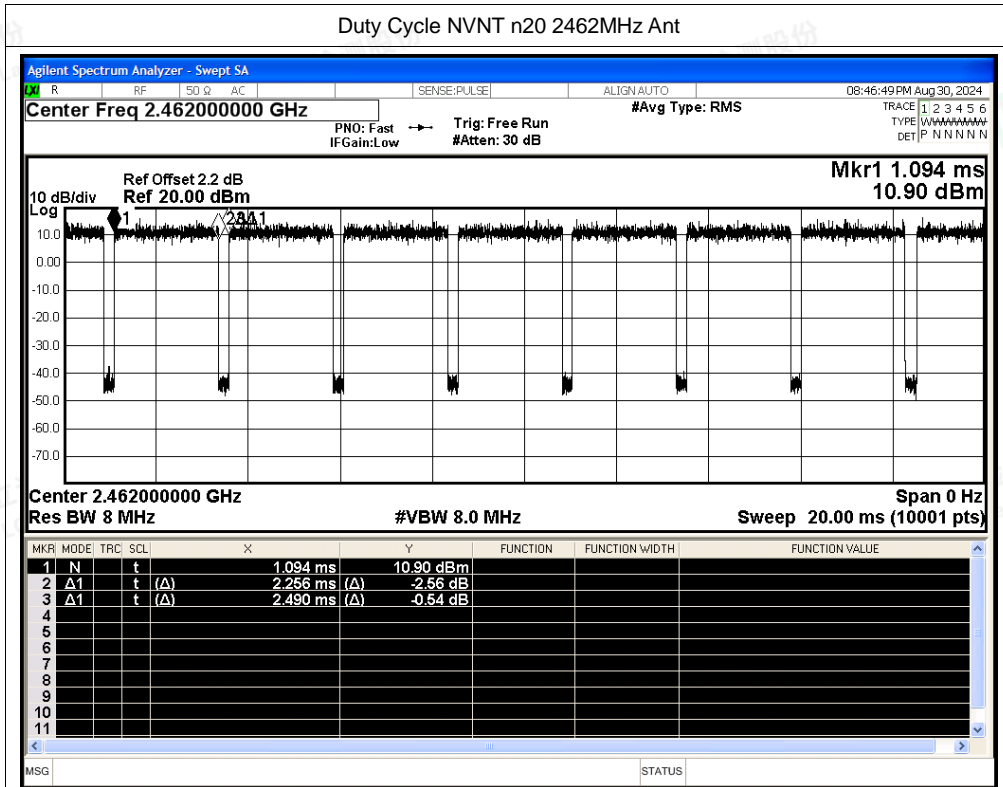
Duty Cycle NVNT g 2437MHz Ant

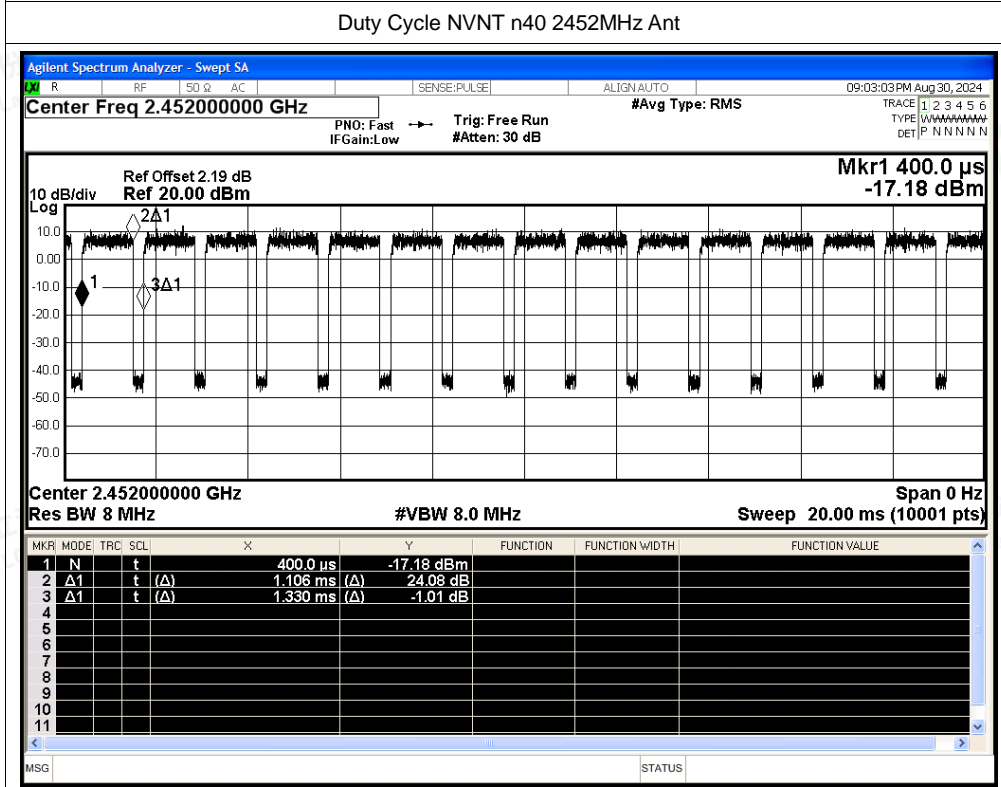
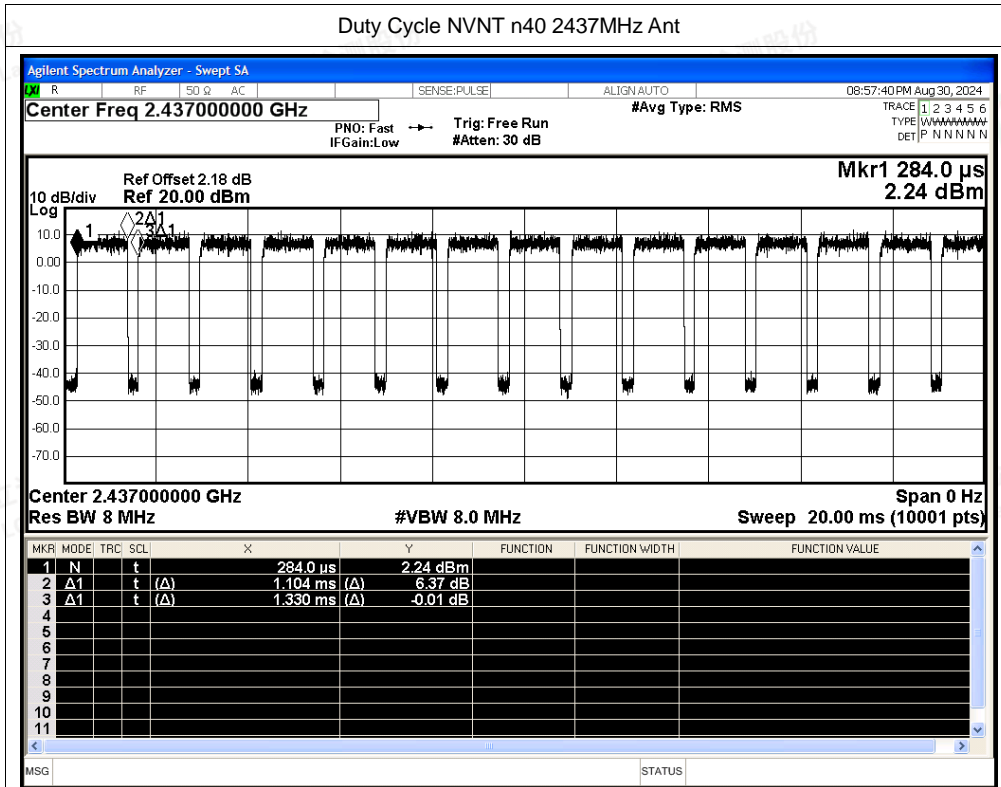


Duty Cycle NVNT g 2462MHz Ant











## A.7 Restrict Band

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	Ant	2310	-50.32	3.0	-	47.94	Peak	74	Pass
NVNT	b	2412	Ant	2310	-58.32	3.0	0.1	40.04	Average	54	Pass
NVNT	b	2412	Ant	2389.911	-45.94	3.0	-	52.32	Peak	74	Pass
NVNT	b	2412	Ant	2389.911	-53.36	3.0	0.1	45	Average	54	Pass
NVNT	b	2412	Ant	2390	-45.82	3.0	-	52.44	Peak	74	Pass
NVNT	b	2412	Ant	2390	-53.42	3.0	0.1	44.94	Average	54	Pass
NVNT	b	2462	Ant	2483.5	-47.07	3.0	-	51.19	Peak	74	Pass
NVNT	b	2462	Ant	2483.5	-54.4	3.0	0.1	43.96	Average	54	Pass
NVNT	b	2462	Ant	2486.75	-44.33	3.0	-	53.93	Peak	74	Pass
NVNT	b	2462	Ant	2483.888	-53.68	3.0	0.1	44.68	Average	54	Pass
NVNT	b	2462	Ant	2500	-49.16	3.0	-	49.1	Peak	74	Pass
NVNT	b	2462	Ant	2500	-56.38	3.0	0.1	41.98	Average	54	Pass
NVNT	g	2412	Ant	2310	-49.35	3.0	-	48.91	Peak	74	Pass
NVNT	g	2412	Ant	2310	-58.3	3.0	0.36	40.32	Average	54	Pass
NVNT	g	2412	Ant	2389.794	-41.54	3.0	-	56.72	Peak	74	Pass
NVNT	g	2412	Ant	2388.975	-56.03	3.0	0.36	42.59	Average	54	Pass
NVNT	g	2412	Ant	2390	-42.73	3.0	-	55.53	Peak	74	Pass
NVNT	g	2412	Ant	2390	-56.17	3.0	0.36	42.45	Average	54	Pass
NVNT	g	2462	Ant	2483.5	-43.19	3.0	-	55.07	Peak	74	Pass
NVNT	g	2462	Ant	2483.5	-54.02	3.0	0.36	44.6	Average	54	Pass
NVNT	g	2462	Ant	2483.623	-36.65	3.0	-	61.61	Peak	74	Pass
NVNT	g	2462	Ant	2483.994	-53.77	3.0	0.36	44.85	Average	54	Pass
NVNT	g	2462	Ant	2500	-50.66	3.0	-	47.6	Peak	74	Pass
NVNT	g	2462	Ant	2500	-57.57	3.0	0.36	41.05	Average	54	Pass
NVNT	n20	2412	Ant	2310	-49.6	3.0	-	48.66	Peak	74	Pass
NVNT	n20	2412	Ant	2310	-58.87	3.0	0.43	39.82	Average	54	Pass
NVNT	n20	2412	Ant	2389.794	-38.66	3.0	-	59.6	Peak	74	Pass
NVNT	n20	2412	Ant	2389.092	-55.69	3.0	0.43	43	Average	54	Pass
NVNT	n20	2412	Ant	2390	-43.17	3.0	-	55.09	Peak	74	Pass
NVNT	n20	2412	Ant	2390	-55.97	3.0	0.43	42.72	Average	54	Pass
NVNT	n20	2462	Ant	2483.5	-39.3	3.0	-	58.96	Peak	74	Pass
NVNT	n20	2462	Ant	2483.5	-55.22	3.0	0.43	43.47	Average	54	Pass
NVNT	n20	2462	Ant	2484.736	-37.69	3.0	-	60.57	Peak	74	Pass
NVNT	n20	2462	Ant	2484.63	-53.96	3.0	0.43	44.73	Average	54	Pass
NVNT	n20	2462	Ant	2500	-50.15	3.0	-	48.11	Peak	74	Pass
NVNT	n20	2462	Ant	2500	-57.74	3.0	0.43	40.95	Average	54	Pass
NVNT	n40	2422	Ant	2310	-51.31	3.0	-	46.95	Peak	74	Pass



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NVNT	n40	2422	Ant	2310	-58.83	3.0	0.83	40.26	Average	54	Pass
NVNT	n40	2422	Ant	2389.804	-36.11	3.0	-	62.15	Peak	74	Pass
NVNT	n40	2422	Ant	2389.946	-53.17	3.0	0.83	45.92	Average	54	Pass
NVNT	n40	2422	Ant	2390	-41.02	3.0	-	57.24	Peak	74	Pass
NVNT	n40	2422	Ant	2390	-53.17	3.0	0.83	45.92	Average	54	Pass
NVNT	n40	2452	Ant	2483.5	-39.81	3.0	-	58.45	Peak	74	Pass
NVNT	n40	2452	Ant	2483.5	-53.9	3.0	0.8	45.16	Average	54	Pass
NVNT	n40	2452	Ant	2484.322	-36.4	3.0	-	61.86	Peak	74	Pass
NVNT	n40	2452	Ant	2484.322	-52.12	3.0	0.8	46.94	Average	54	Pass
NVNT	n40	2452	Ant	2500	-47.46	3.0	-	50.8	Peak	74	Pass
NVNT	n40	2452	Ant	2500	-57.08	3.0	0.8	41.98	Average	54	Pass

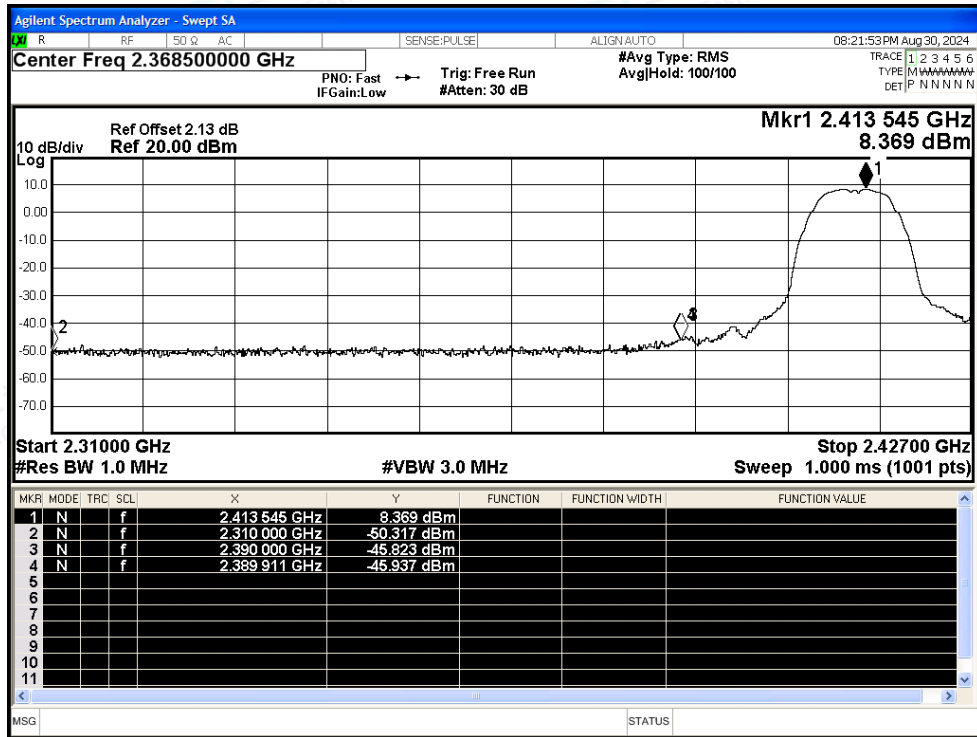


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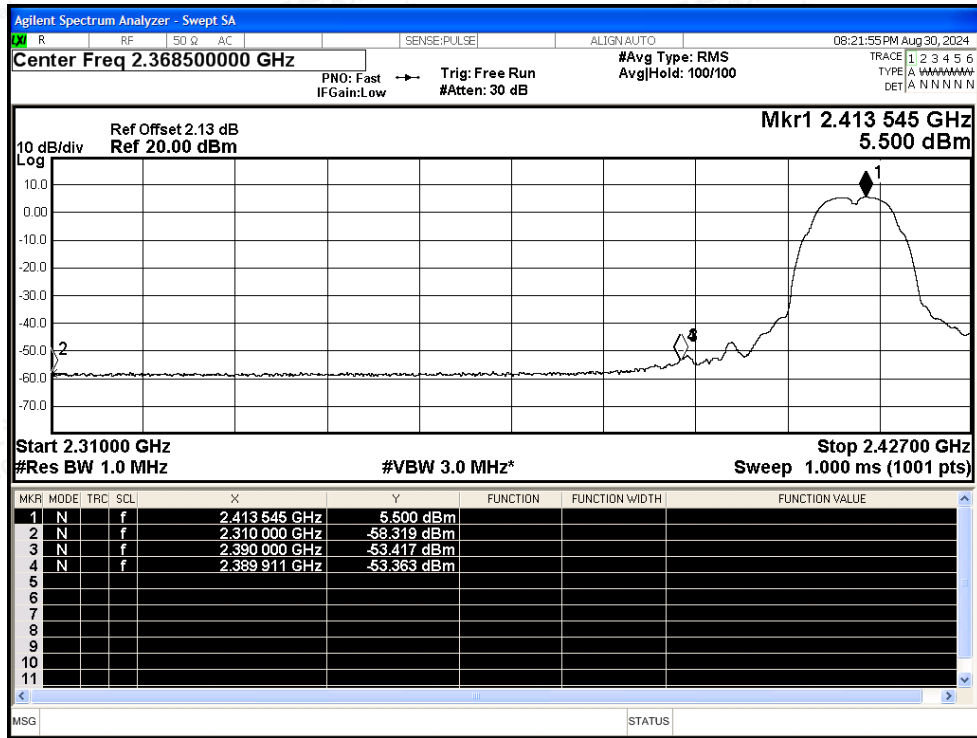


Test Graphs

Restrict Band NVNT b 2412MHz Ant Peak



Restrict Band NVNT b 2412MHz Ant Average



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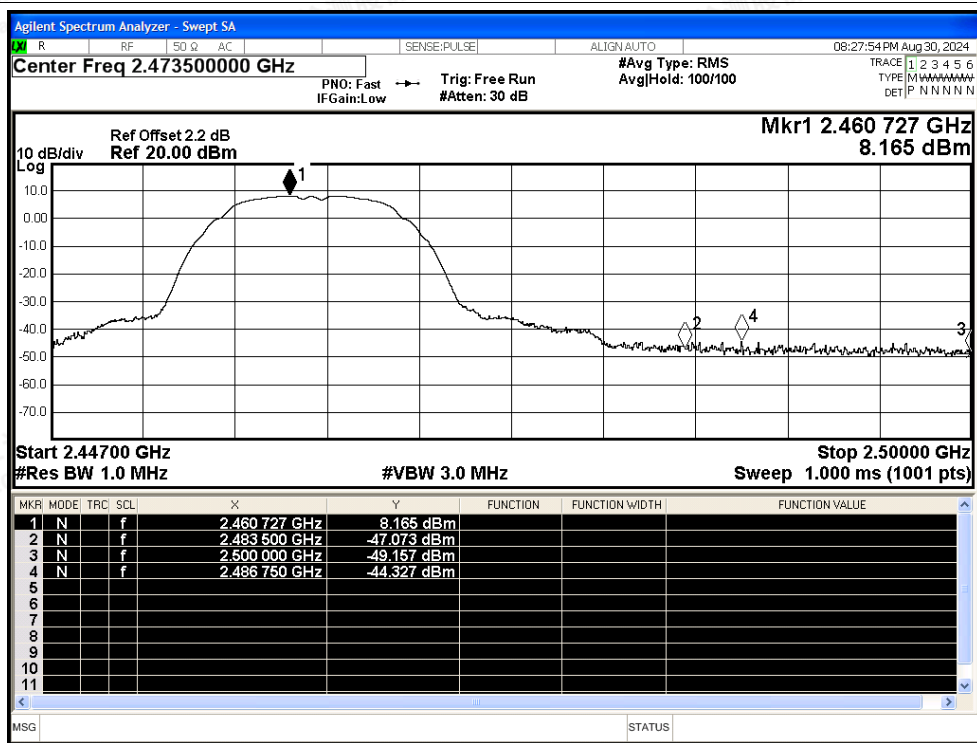
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Restrict Band NVNT b 2462MHz Ant Peak



Restrict Band NVNT b 2462MHz Ant Average

