Appendix B

RF Test Data for 2.4GWIFI (Conducted Measurement)

Product Name: IP SMART SENSOR

Test Model: TRITON ULTRA

Environmental Conditions

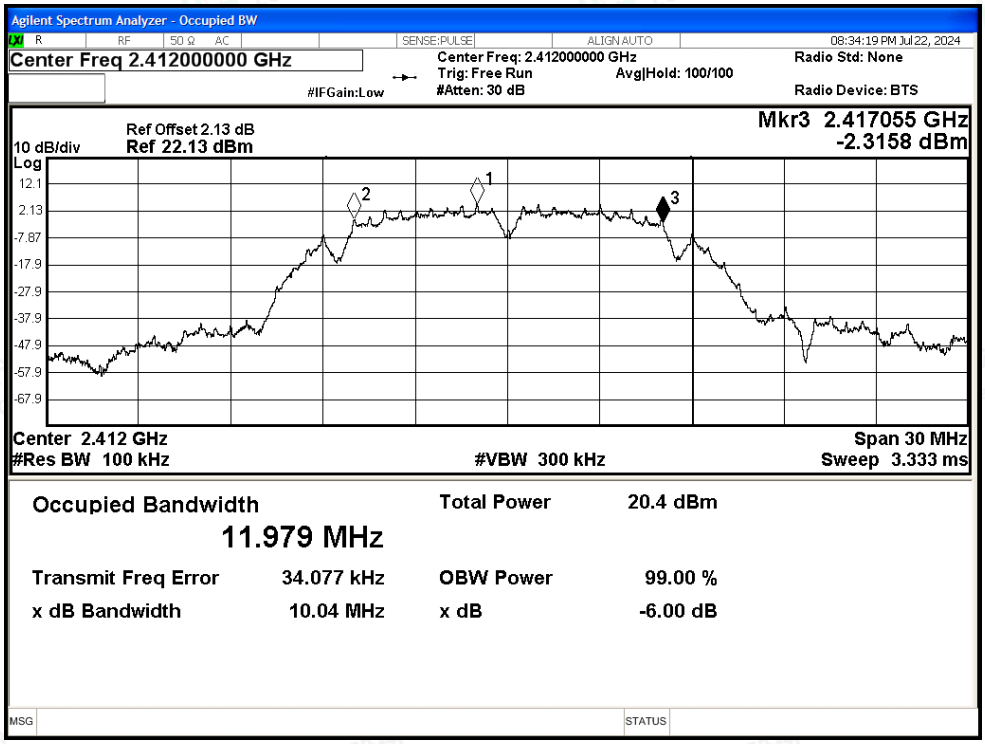
Temperature:	23.8°C
Relative Humidity:	52.1%
ATM Pressure:	100.0 kPa
Test Engineer:	Paddi Chen
Supervised by:	Nick Peng

B.1 -6dB Bandwidth

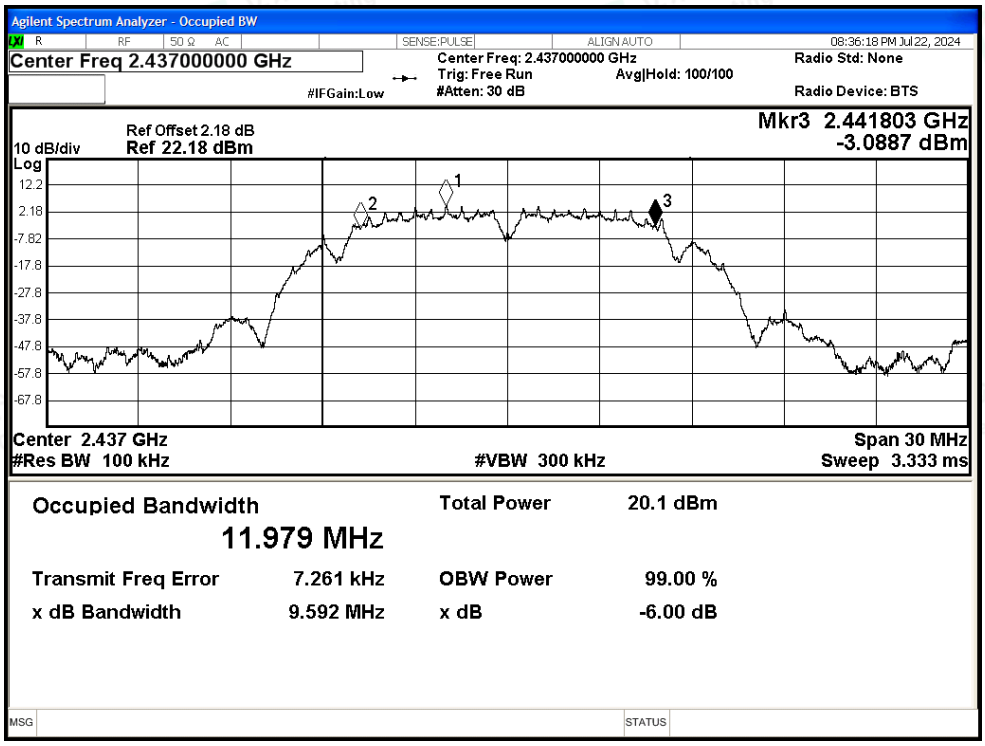
Condition	Mode	Frequency (MHz)	Antenna	-6 dB Bandwidth (MHz)	Limit -6 dB Bandwidth (MHz)	Verdict
NVNT	b	2412	Ant1	10.041	>=0.5	Pass
NVNT	b	2437	Ant1	9.592	>=0.5	Pass
NVNT	b	2462	Ant1	9.565	>=0.5	Pass
NVNT	g	2412	Ant1	16.343	>=0.5	Pass
NVNT	g	2437	Ant1	16.372	>=0.5	Pass
NVNT	g	2462	Ant1	16.373	>=0.5	Pass
NVNT	n20	2412	Ant1	17.364	>=0.5	Pass
NVNT	n20	2437	Ant1	17.13	>=0.5	Pass
NVNT	n20	2462	Ant1	17.388	>=0.5	Pass
NVNT	n40	2422	Ant1	35.073	>=0.5	Pass
NVNT	n40	2437	Ant1	35.437	>=0.5	Pass
NVNT	n40	2452	Ant1	35.592	>=0.5	Pass

Test Graphs

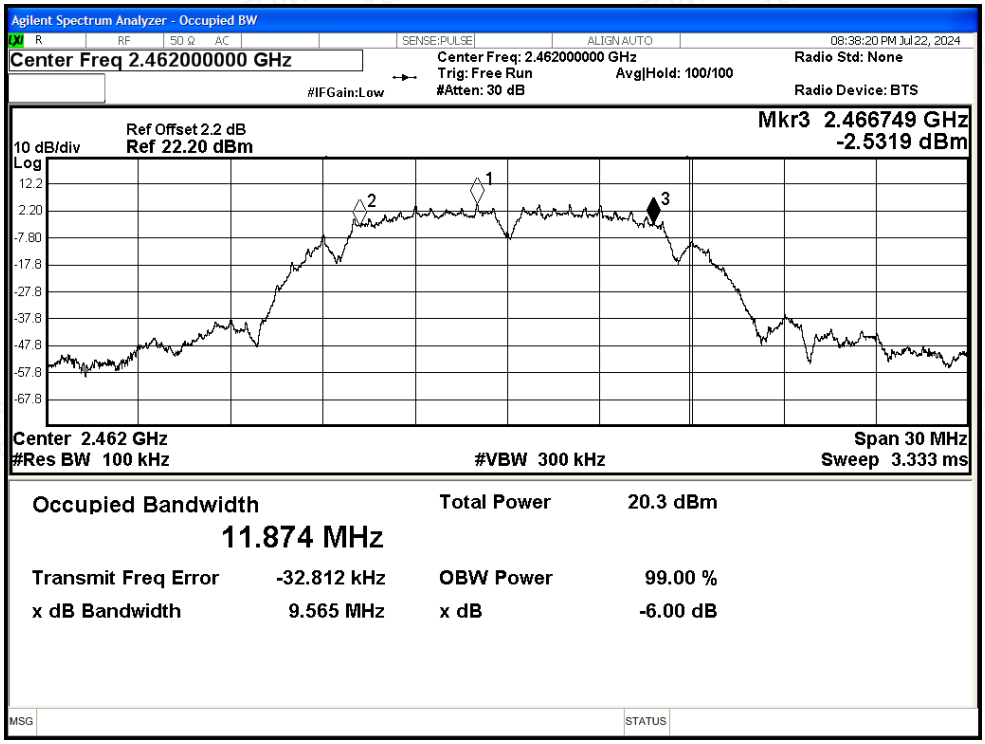
-6dB Bandwidth NVNT b 2412MHz Ant1



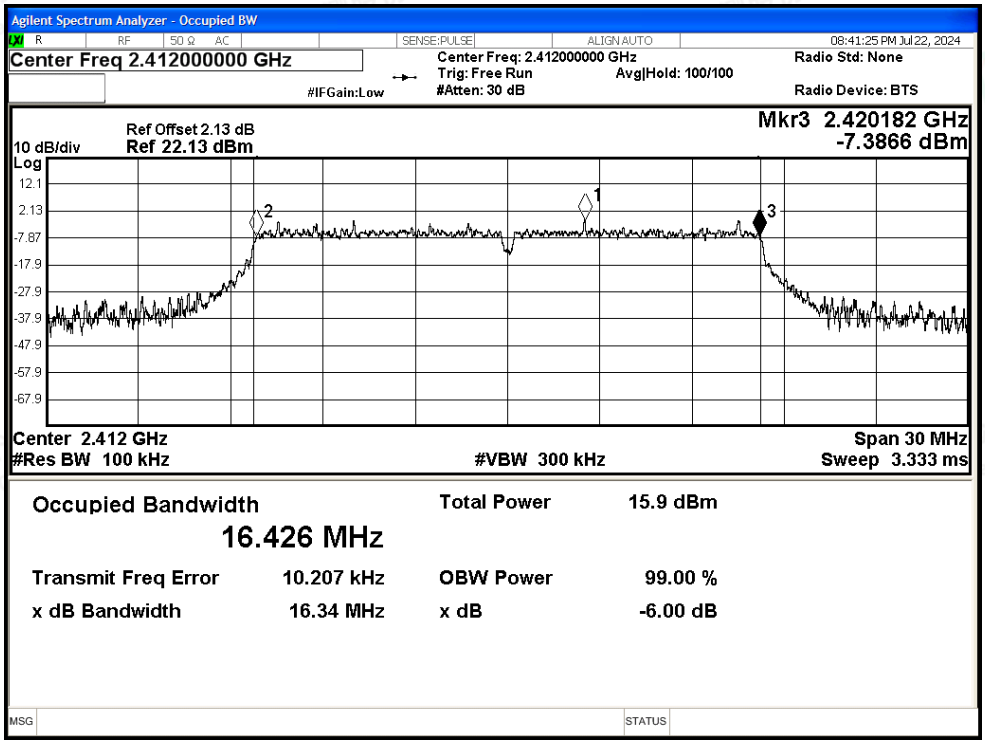
-6dB Bandwidth NVNT b 2437MHz Ant1



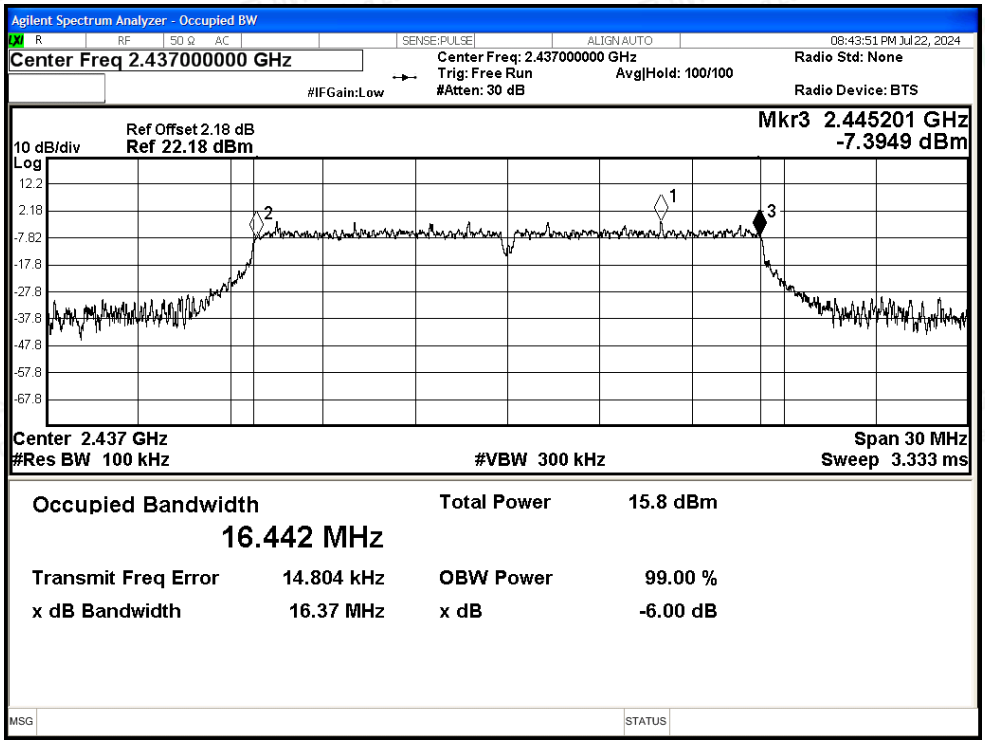
-6dB Bandwidth NVNT b 2462MHz Ant1



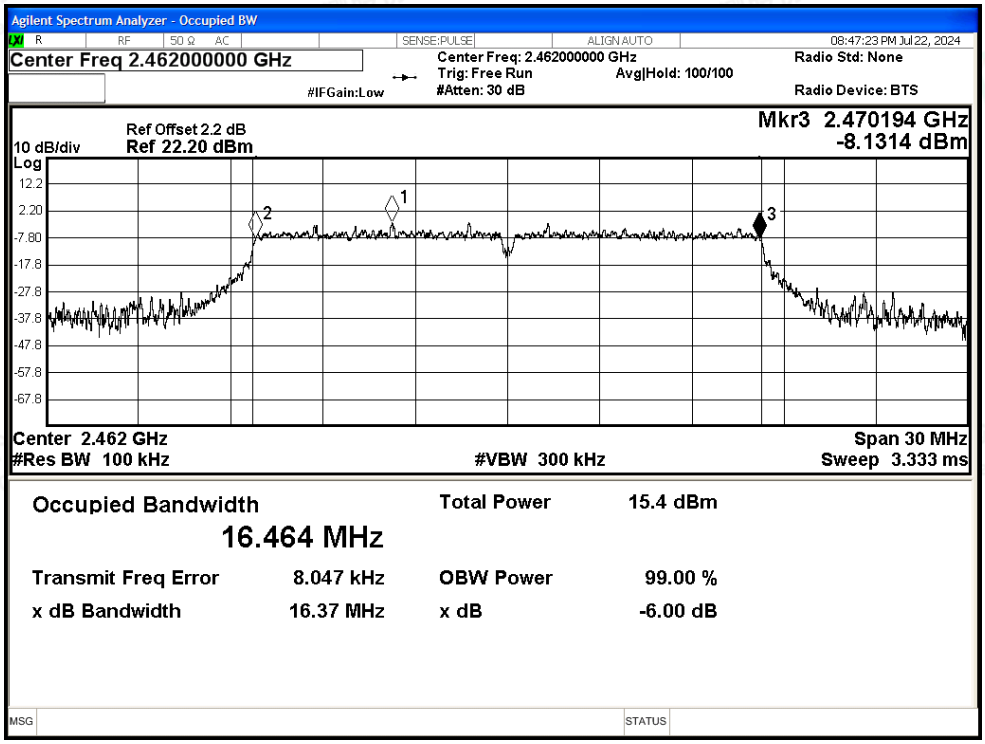
-6dB Bandwidth NVNT g 2412MHz Ant1



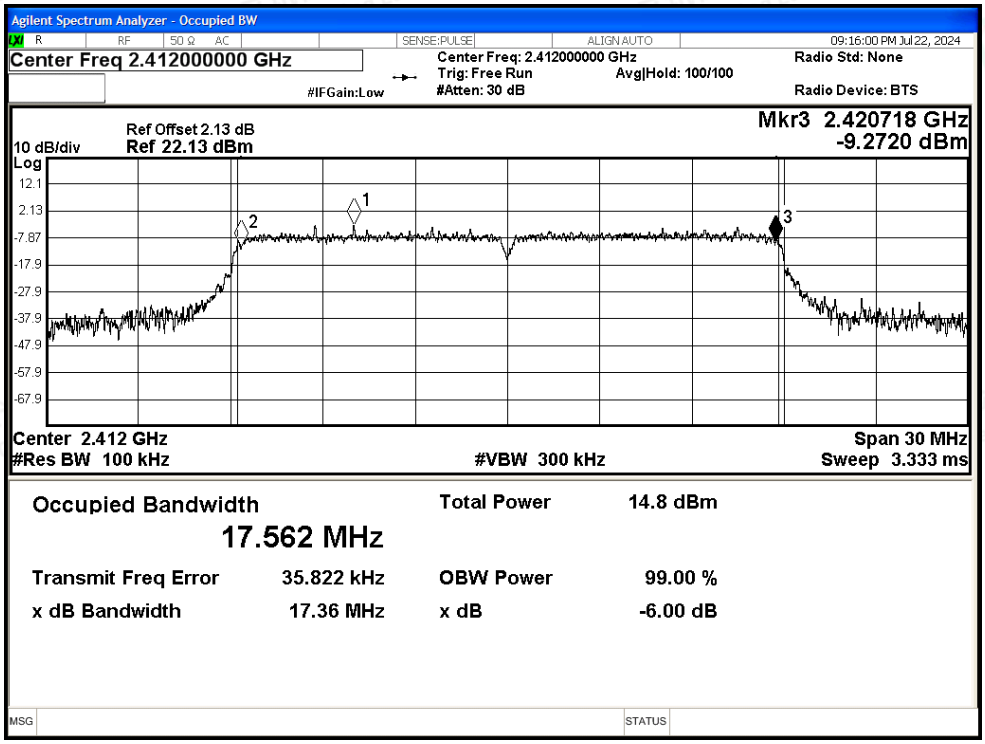
-6dB Bandwidth NVNT g 2437MHz Ant1



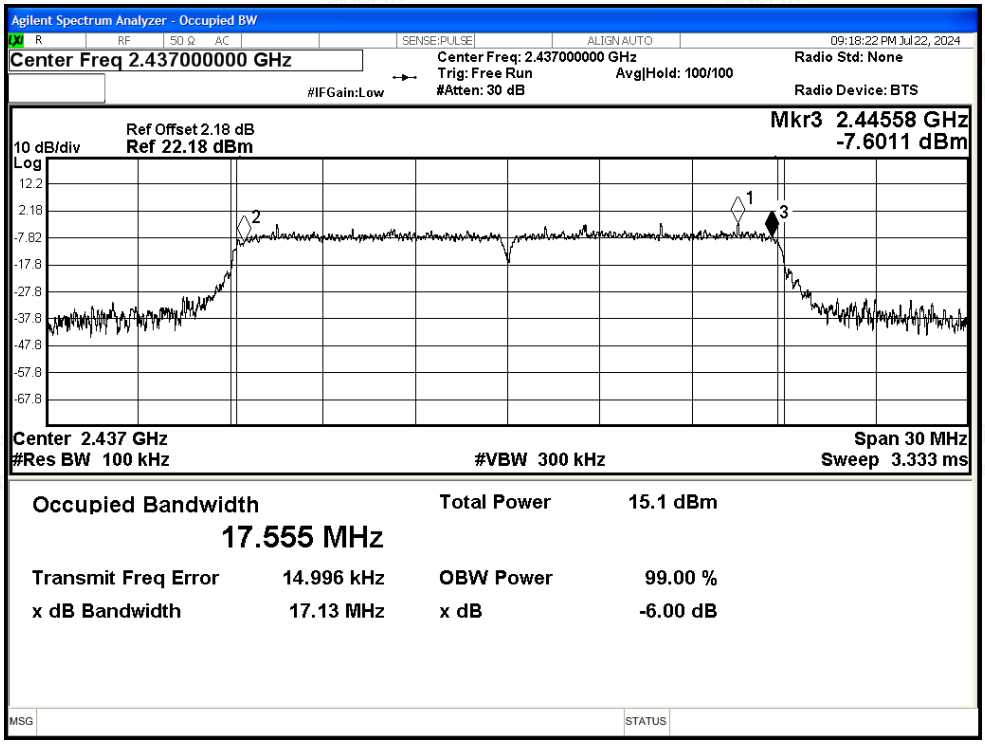
-6dB Bandwidth NVNT g 2462MHz Ant1



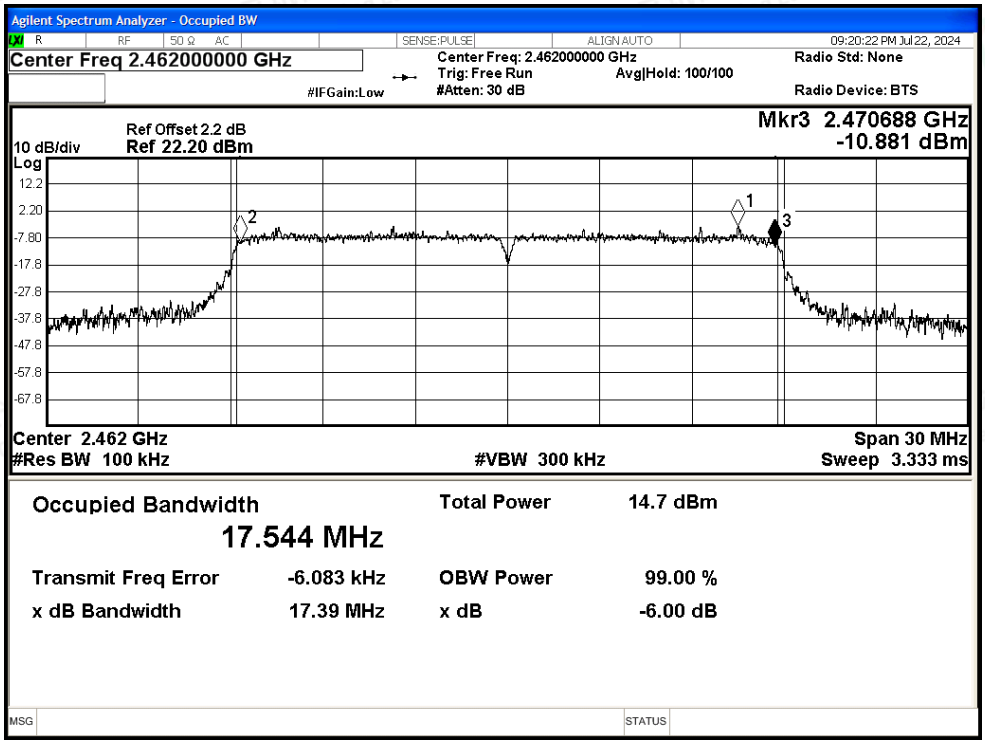
-6dB Bandwidth NVNT n20 2412MHz Ant1



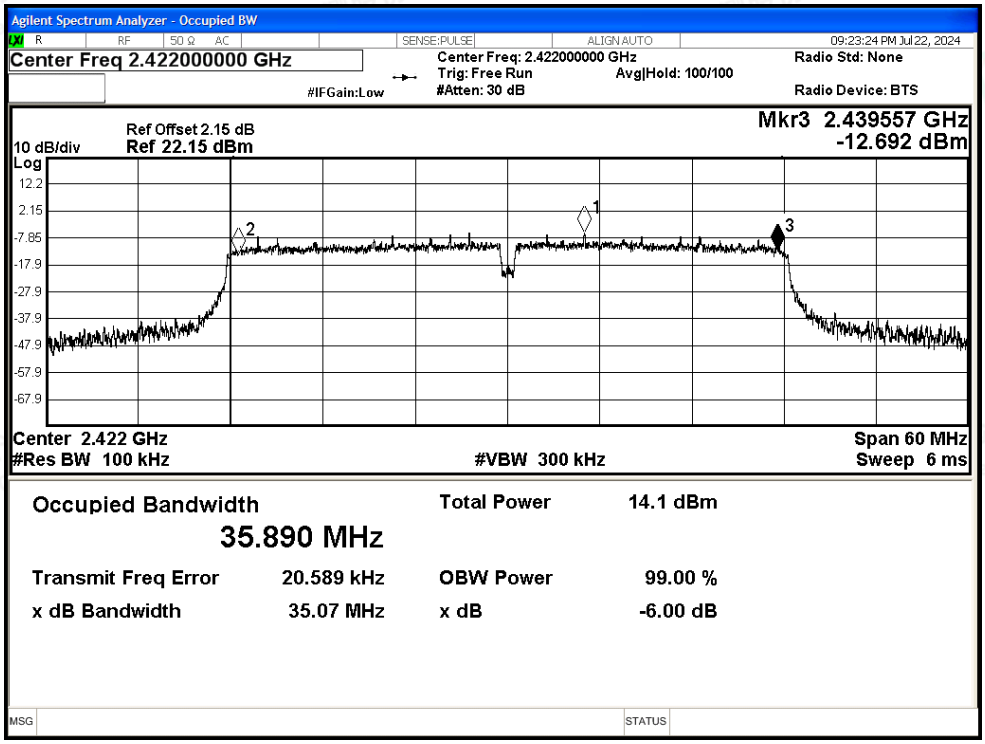
-6dB Bandwidth NVNT n20 2437MHz Ant1



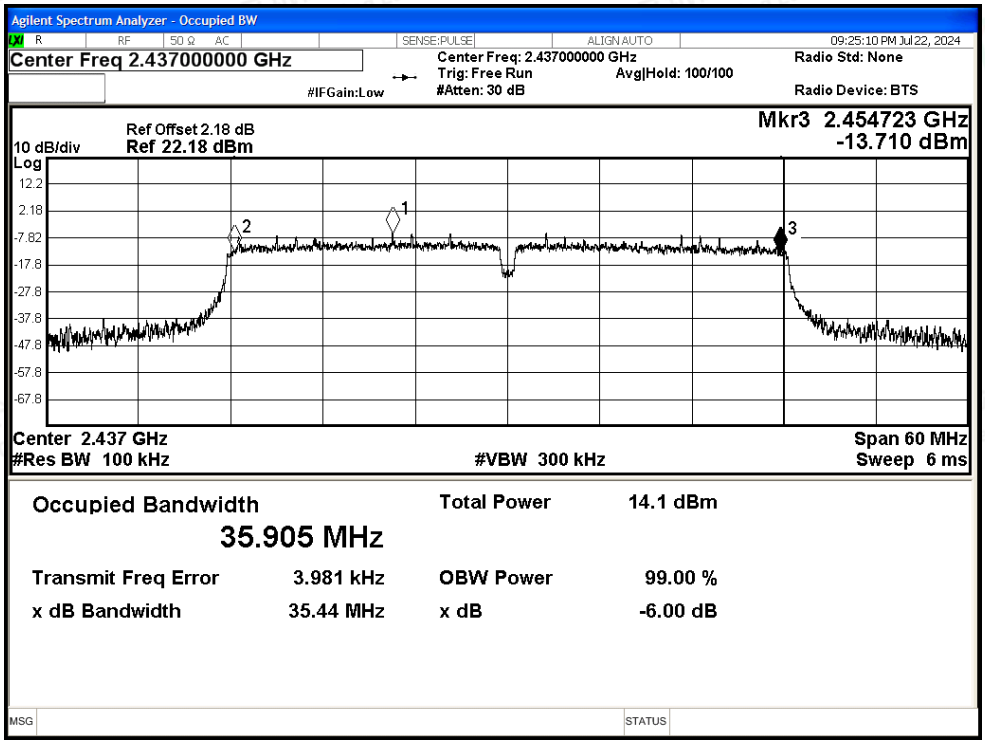
-6dB Bandwidth NVNT n20 2462MHz Ant1



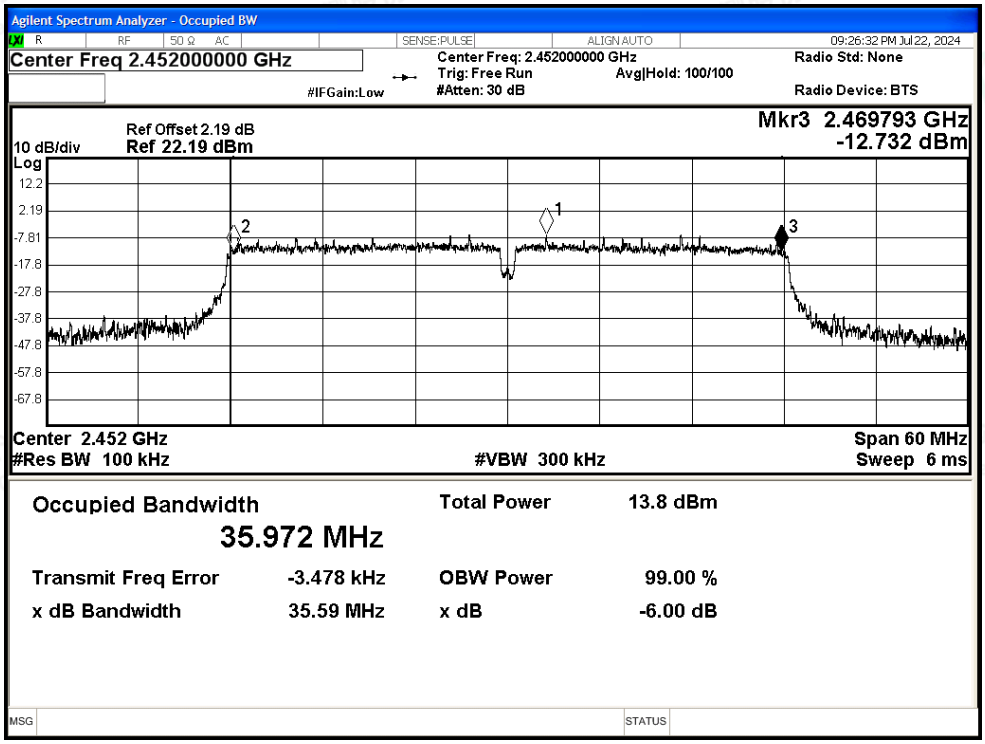
-6dB Bandwidth NVNT n40 2422MHz Ant1



-6dB Bandwidth NVNT n40 2437MHz Ant1



-6dB Bandwidth NVNT n40 2452MHz Ant1



B.2 Maximum Conducted Output Power

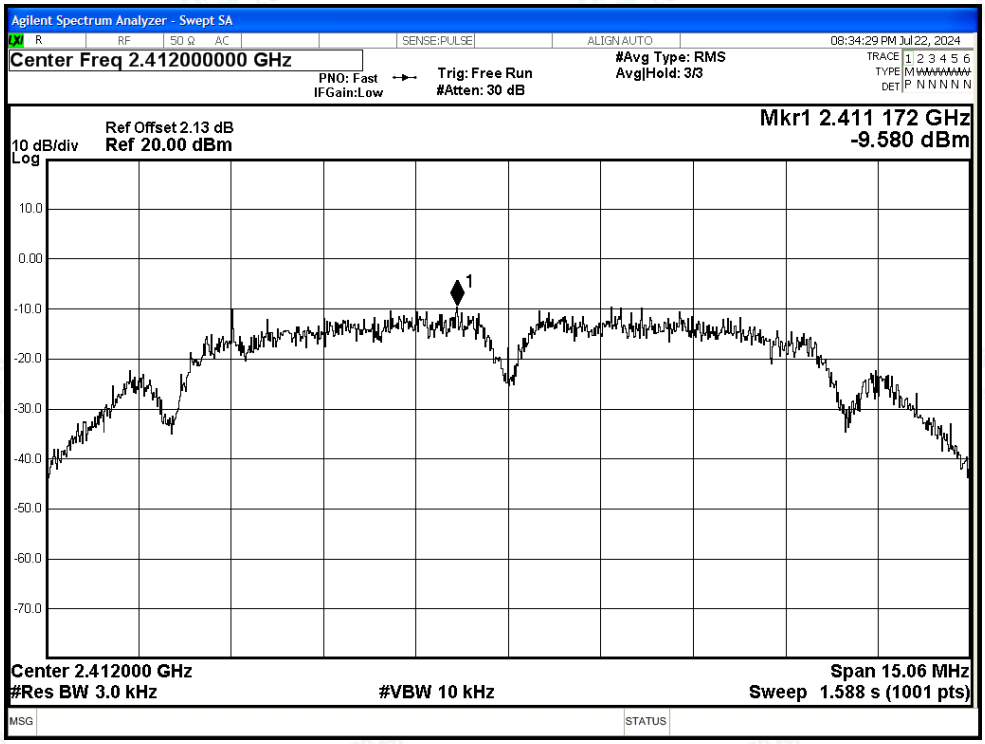
Condition	Mode	Frequency (MHz)	Antenna	Conducted Power (dBm)	Limit (dBm)	Verdict
NVNT	b	2412	Ant1	15.36	30	Pass
NVNT	b	2437	Ant1	15.04	30	Pass
NVNT	b	2462	Ant1	15.26	30	Pass
NVNT	g	2412	Ant1	14.59	30	Pass
NVNT	g	2437	Ant1	14.63	30	Pass
NVNT	g	2462	Ant1	14.2	30	Pass
NVNT	n20	2412	Ant1	13.4	30	Pass
NVNT	n20	2437	Ant1	13.77	30	Pass
NVNT	n20	2462	Ant1	13.18	30	Pass
NVNT	n40	2422	Ant1	12.37	30	Pass
NVNT	n40	2437	Ant1	12.46	30	Pass
NVNT	n40	2452	Ant1	12.19	30	Pass

B.3 Maximum Power Spectral Density Level

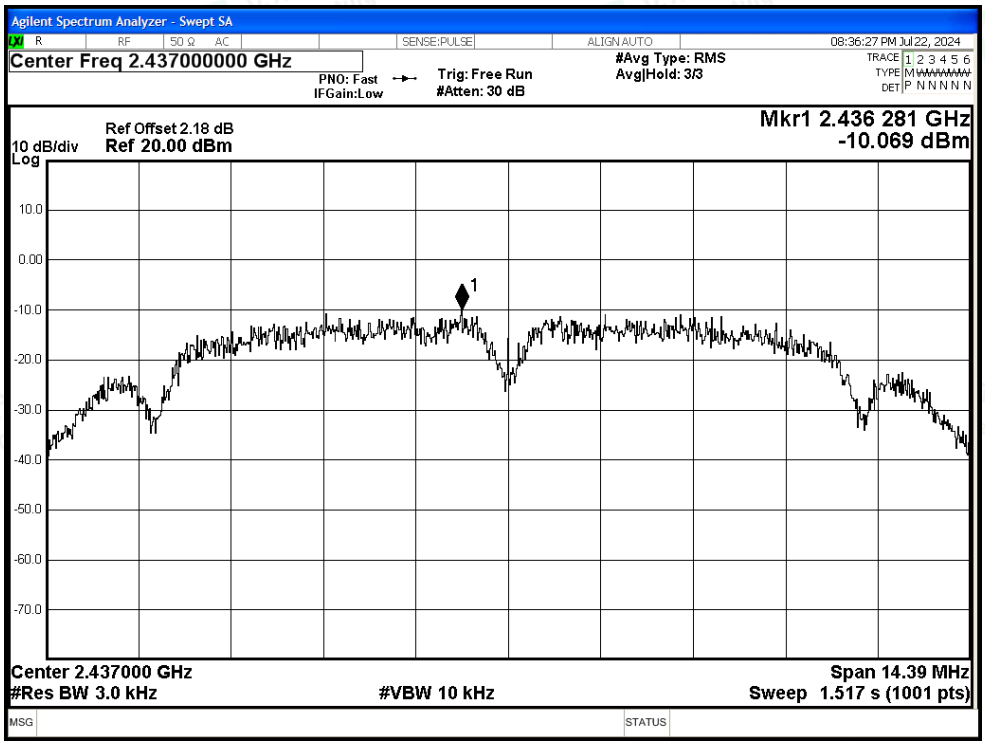
Condition	Mode	Frequency (MHz)	Antenna	Conducted PSD (dBm/3kHz)	Limit (dBm/3kHz)	Verdict
NVNT	b	2412	Ant1	-9.58	8	Pass
NVNT	b	2437	Ant1	-10.07	8	Pass
NVNT	b	2462	Ant1	-6.15	8	Pass
NVNT	g	2412	Ant1	-16.38	8	Pass
NVNT	g	2437	Ant1	-15.39	8	Pass
NVNT	g	2462	Ant1	-16.41	8	Pass
NVNT	n20	2412	Ant1	-17.84	8	Pass
NVNT	n20	2437	Ant1	-15.72	8	Pass
NVNT	n20	2462	Ant1	-17.55	8	Pass
NVNT	n40	2422	Ant1	-19.1	8	Pass
NVNT	n40	2437	Ant1	-21.66	8	Pass
NVNT	n40	2452	Ant1	-22.2	8	Pass

Test Graphs

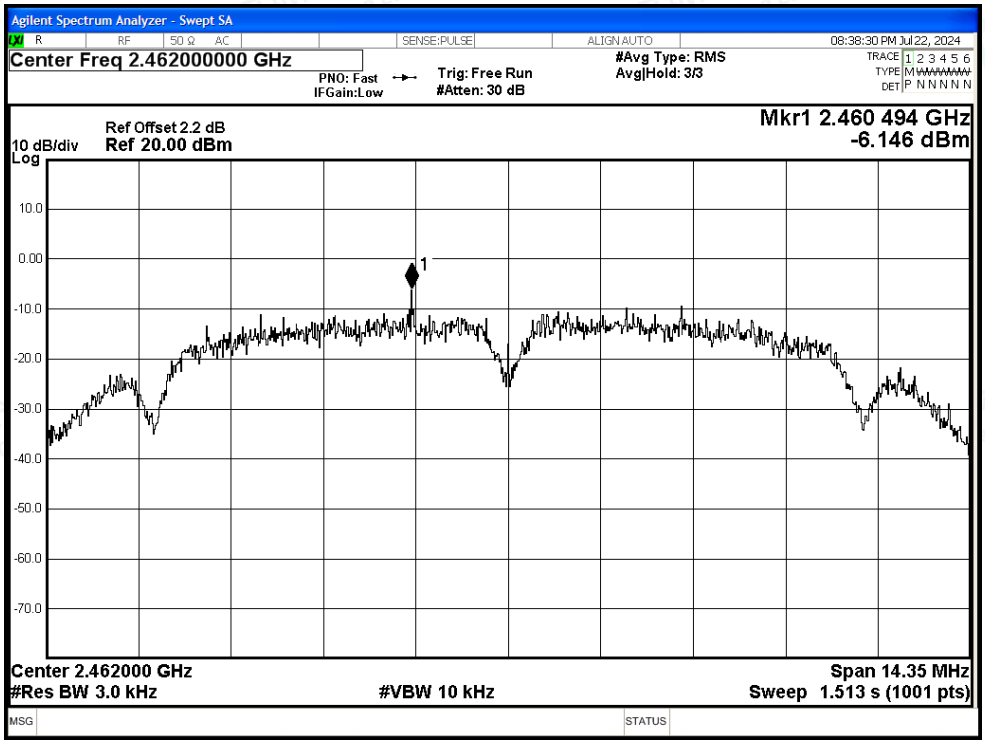
PSD NVNT b 2412MHz Ant1



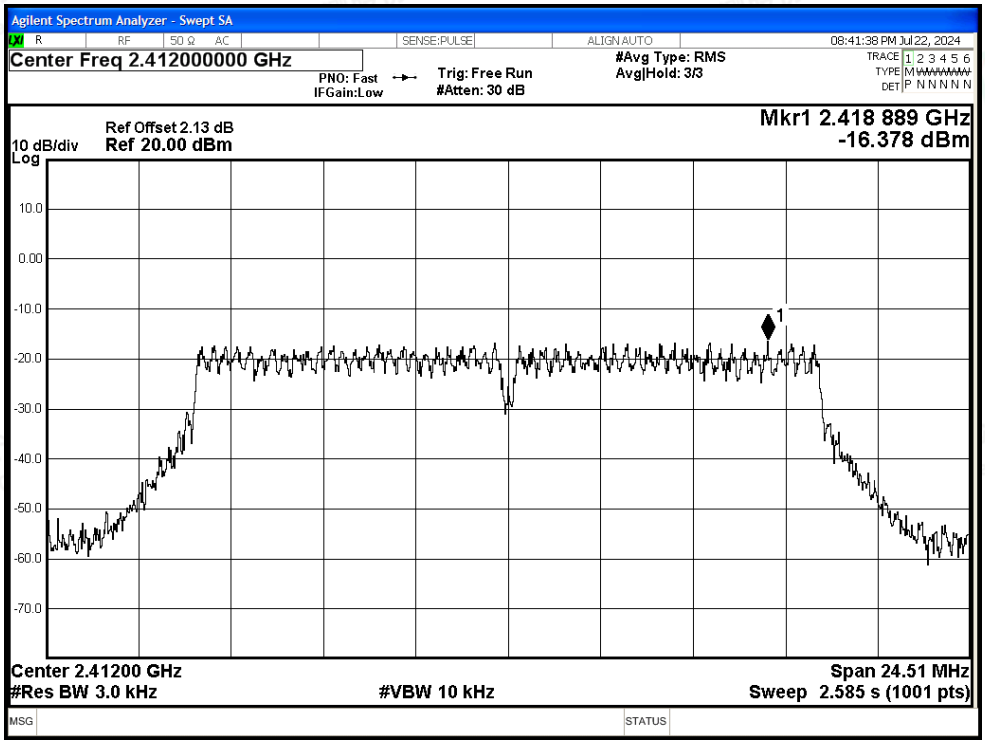
PSD NVNT b 2437MHz Ant1



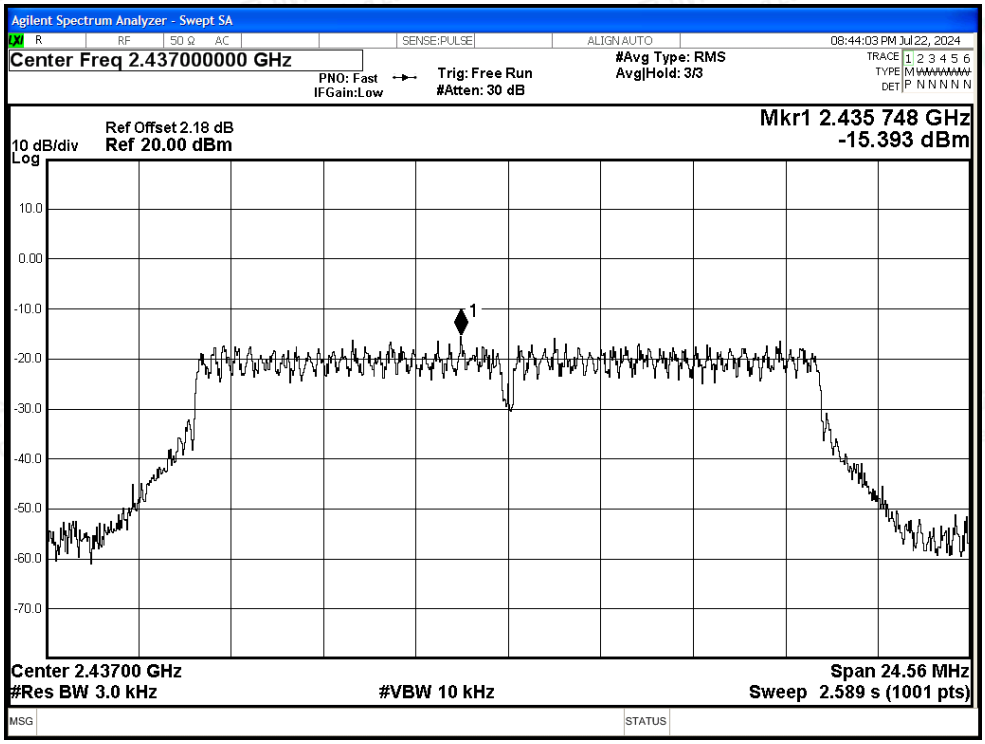
PSD NVNT b 2462MHz Ant1



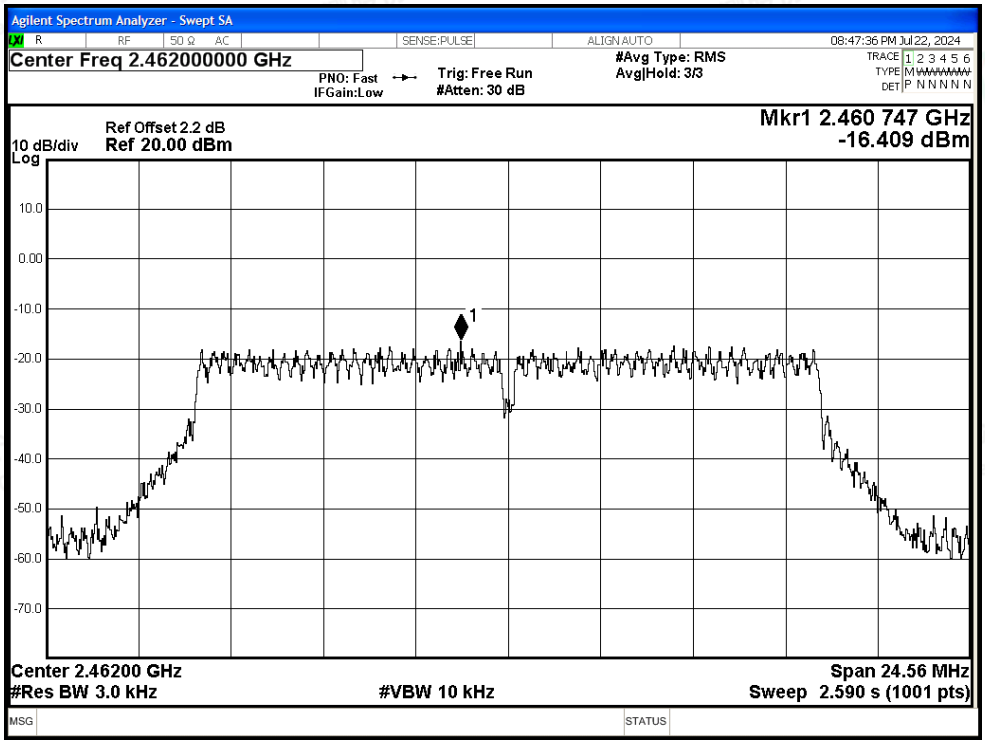
PSD NVNT g 2412MHz Ant1



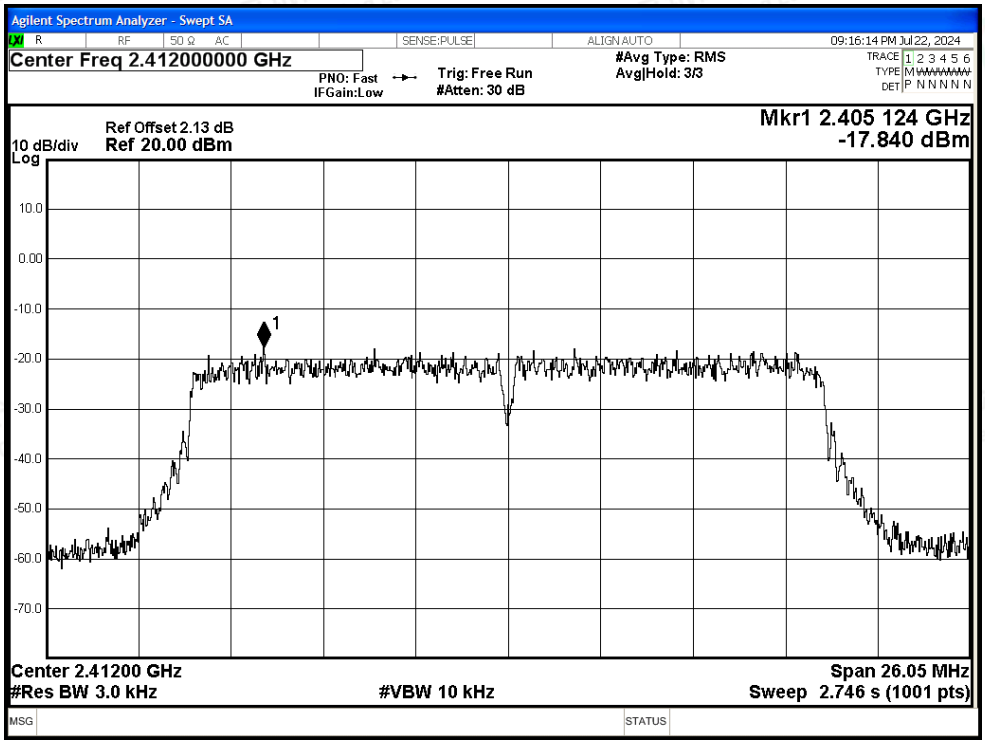
PSD NVNT g 2437MHz Ant1



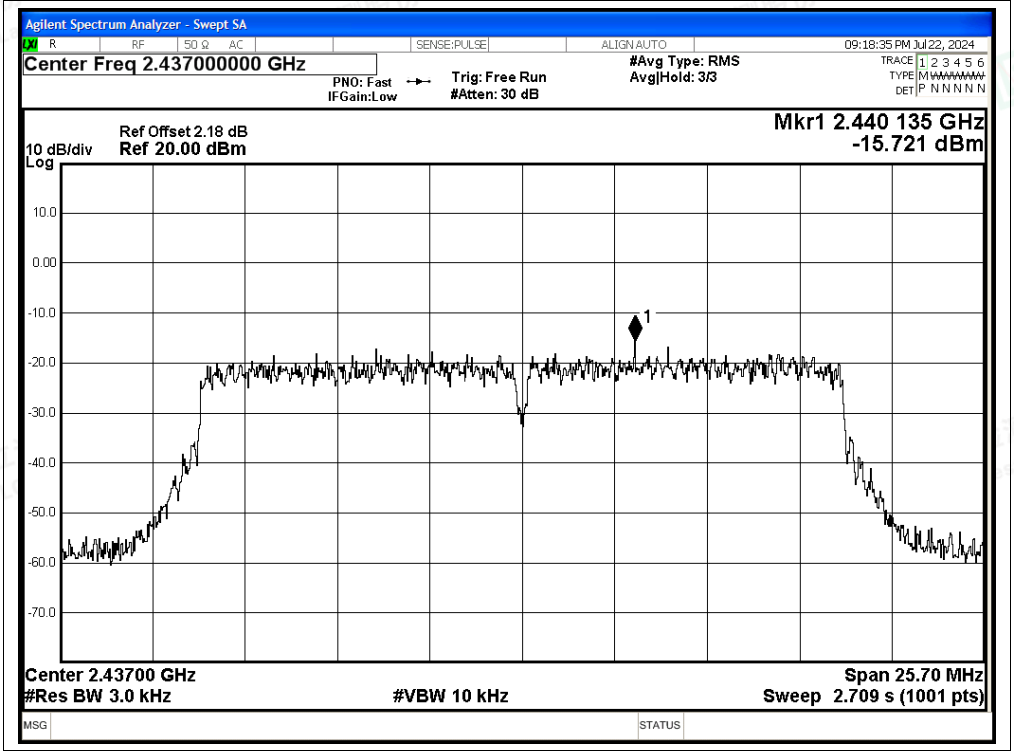
PSD NVNT g 2462MHz Ant1



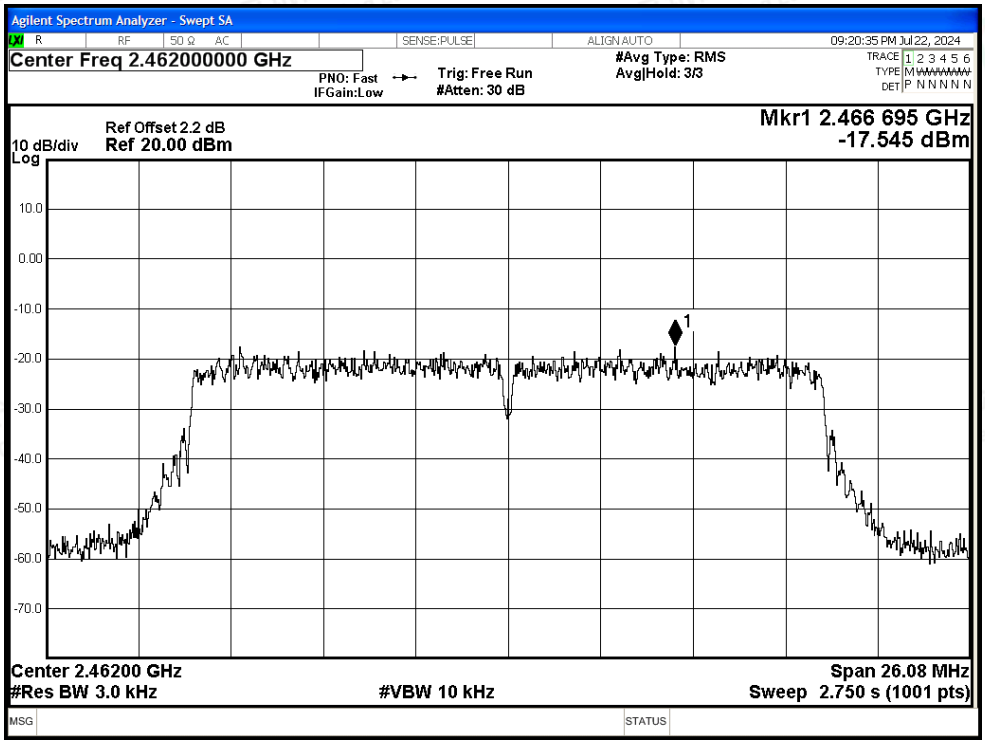
PSD NVNT n20 2412MHz Ant1



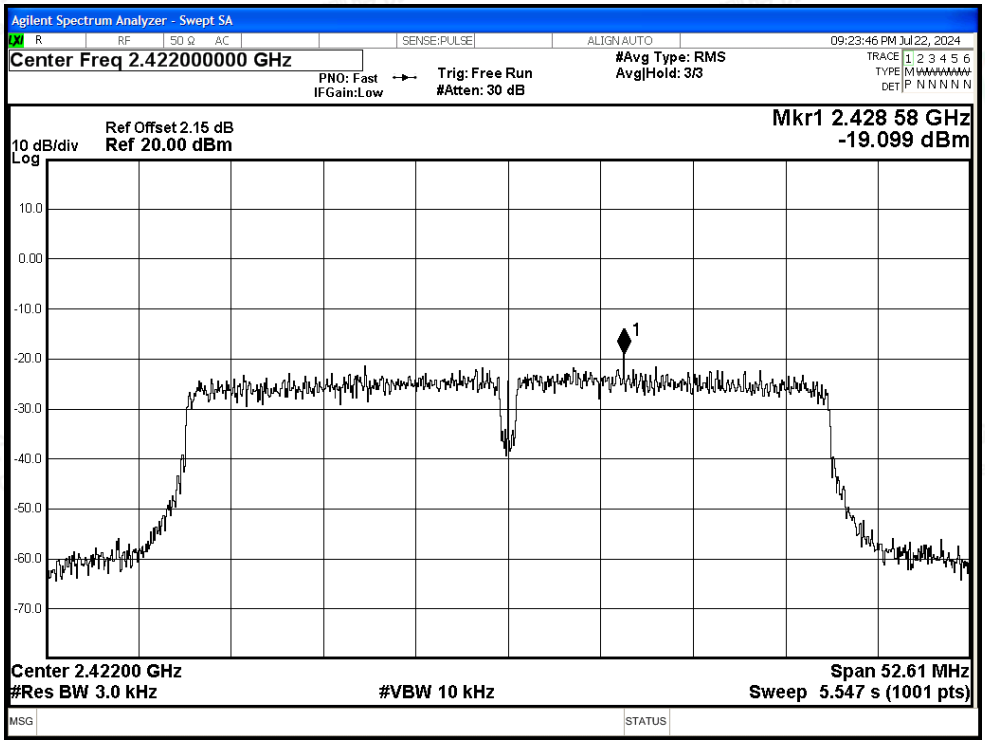
PSD NVNT n20 2437MHz Ant1



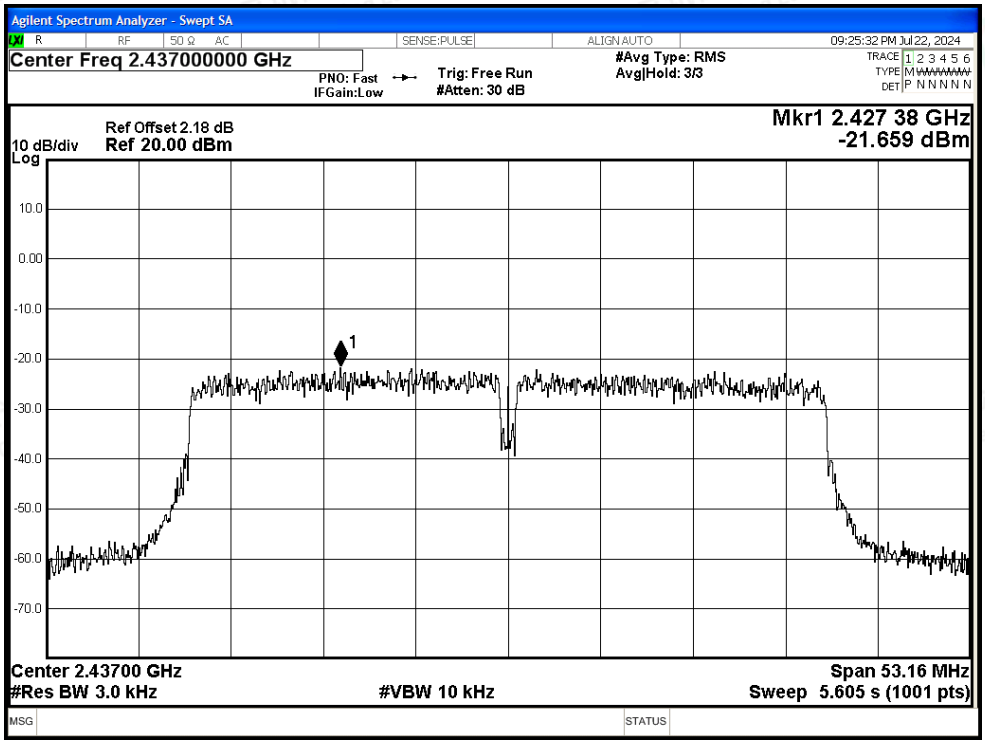
PSD NVNT n20 2462MHz Ant1



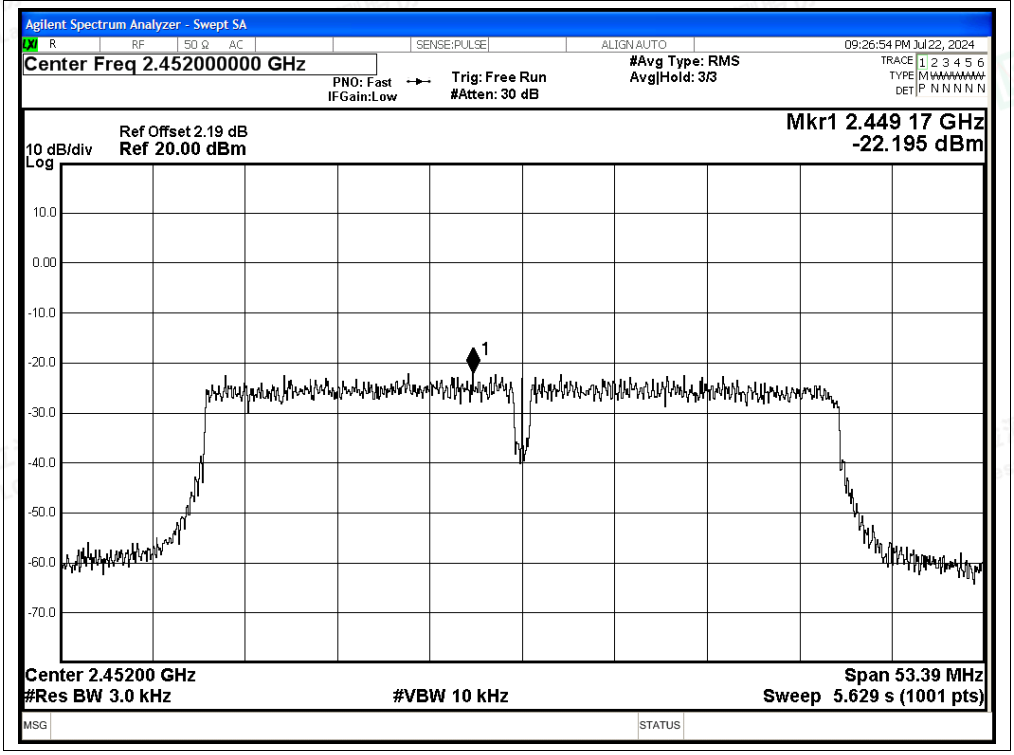
PSD NVNT n40 2422MHz Ant1



PSD NVNT n40 2437MHz Ant1



PSD NVNT n40 2452MHz Ant1

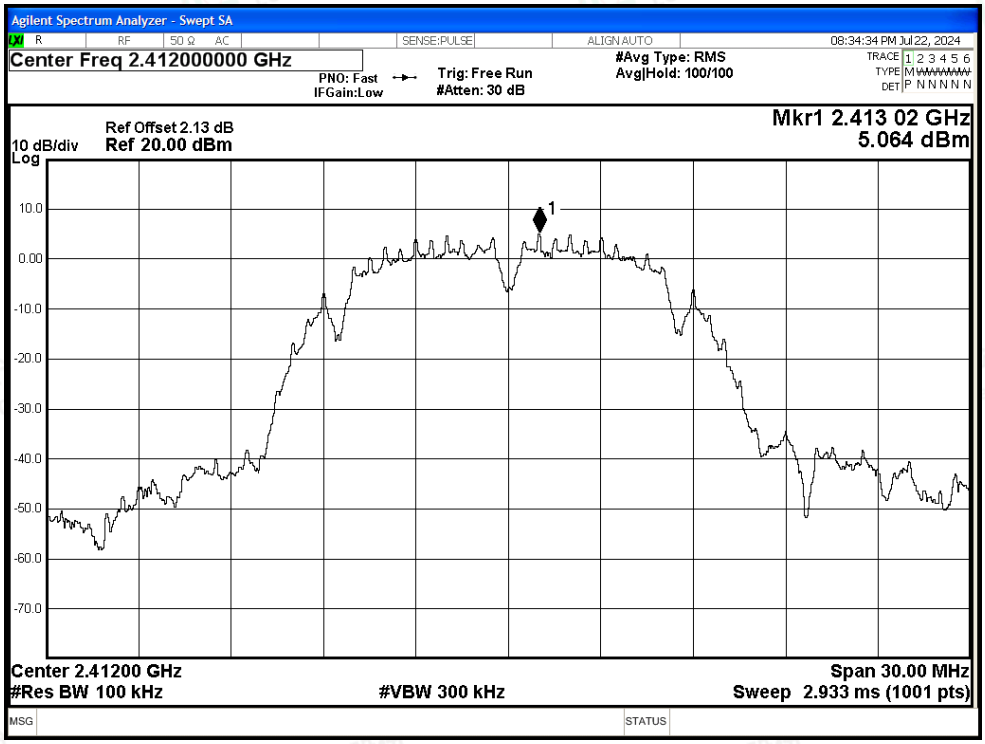


B.4 Band Edge

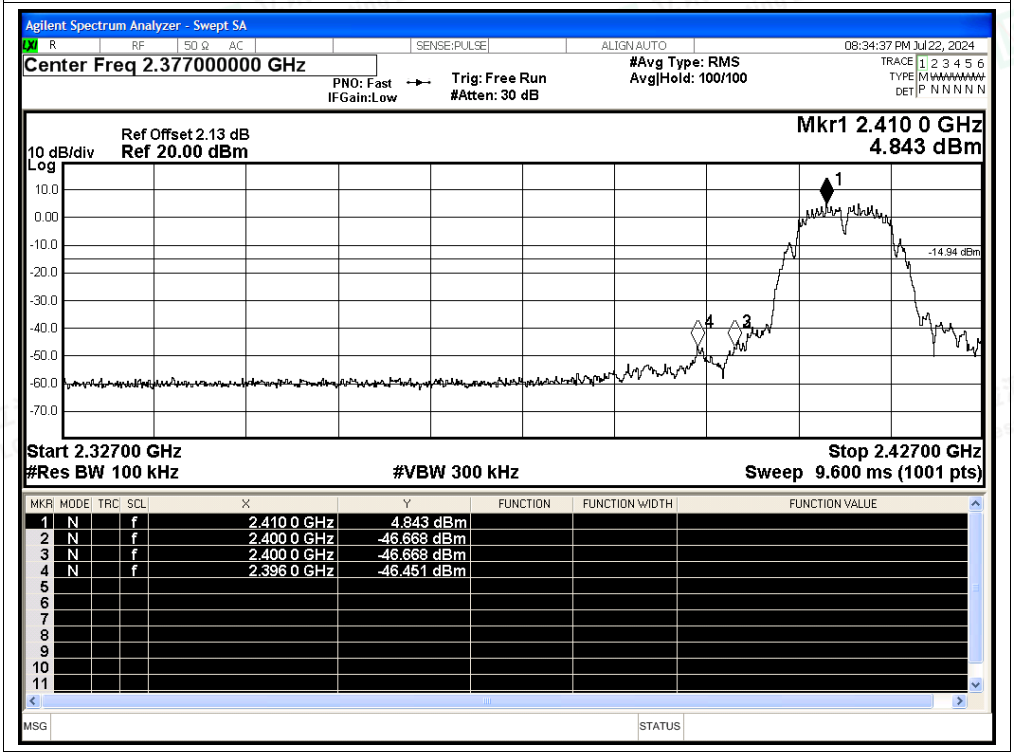
Condition	Mode	Frequency (MHz)	Antenna	Max Value (dBc)	Limit (dBc)	Verdict
NVNT	b	2412	Ant1	-51.52	-20	Pass
NVNT	b	2462	Ant1	-58.13	-20	Pass
NVNT	g	2412	Ant1	-28.89	-20	Pass
NVNT	g	2462	Ant1	-40.2	-20	Pass
NVNT	n20	2412	Ant1	-29.99	-20	Pass
NVNT	n20	2462	Ant1	-40.64	-20	Pass
NVNT	n40	2422	Ant1	-30.11	-20	Pass
NVNT	n40	2452	Ant1	-34.8	-20	Pass

Test Graphs

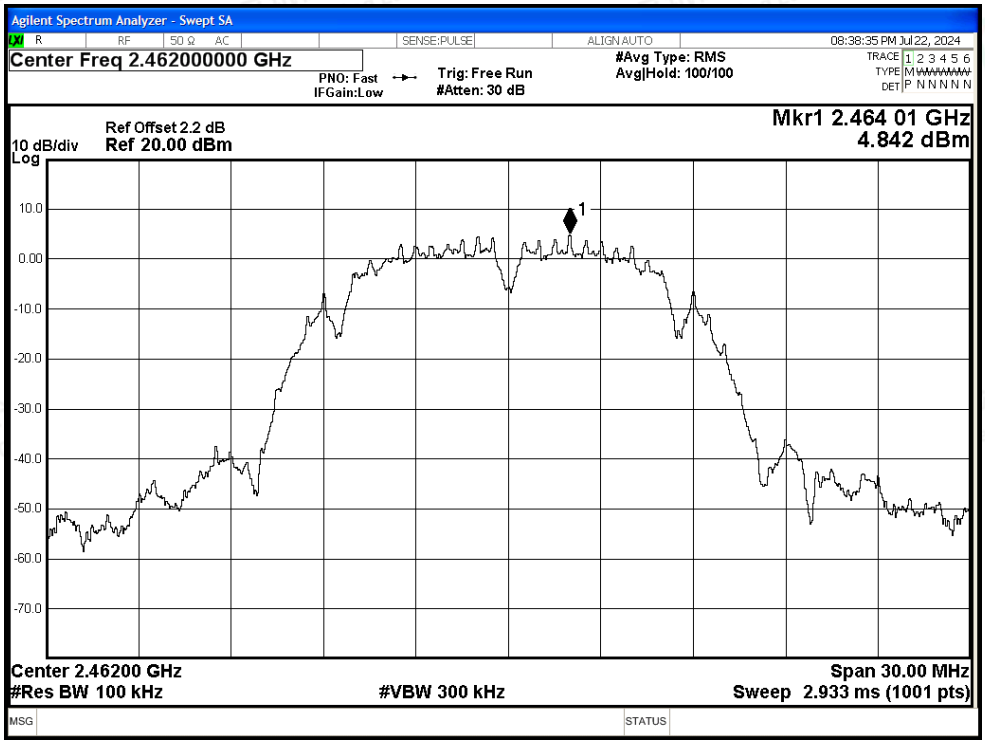
Band Edge NVNT b 2412MHz Ant1 Ref



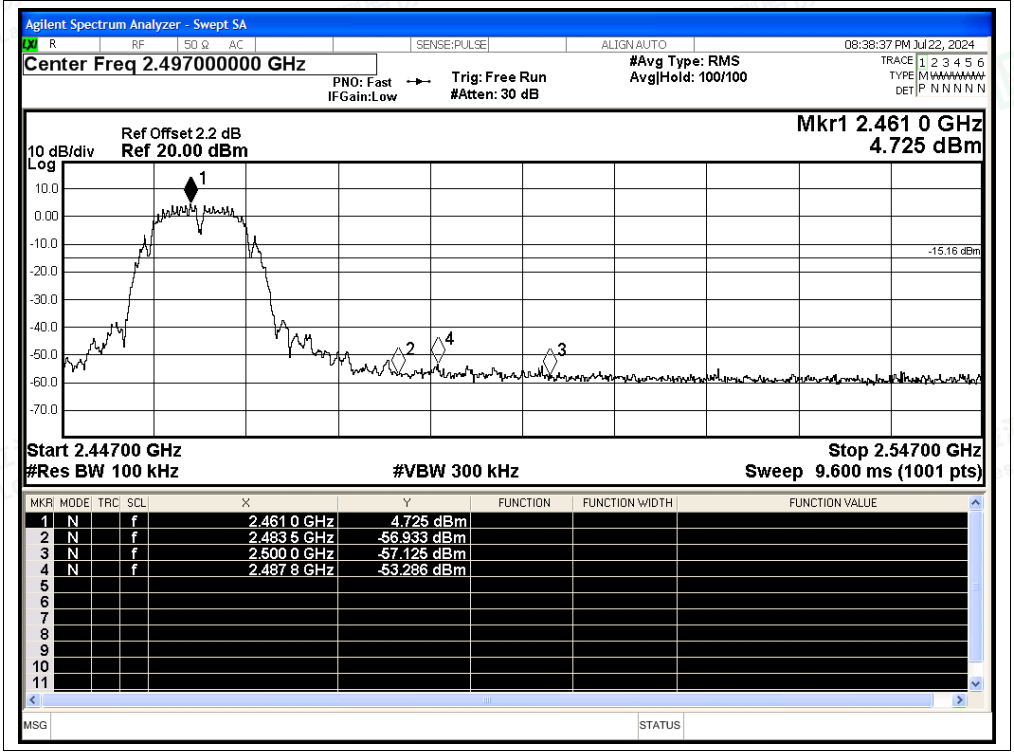
Band Edge NVNT b 2412MHz Ant1 Emission



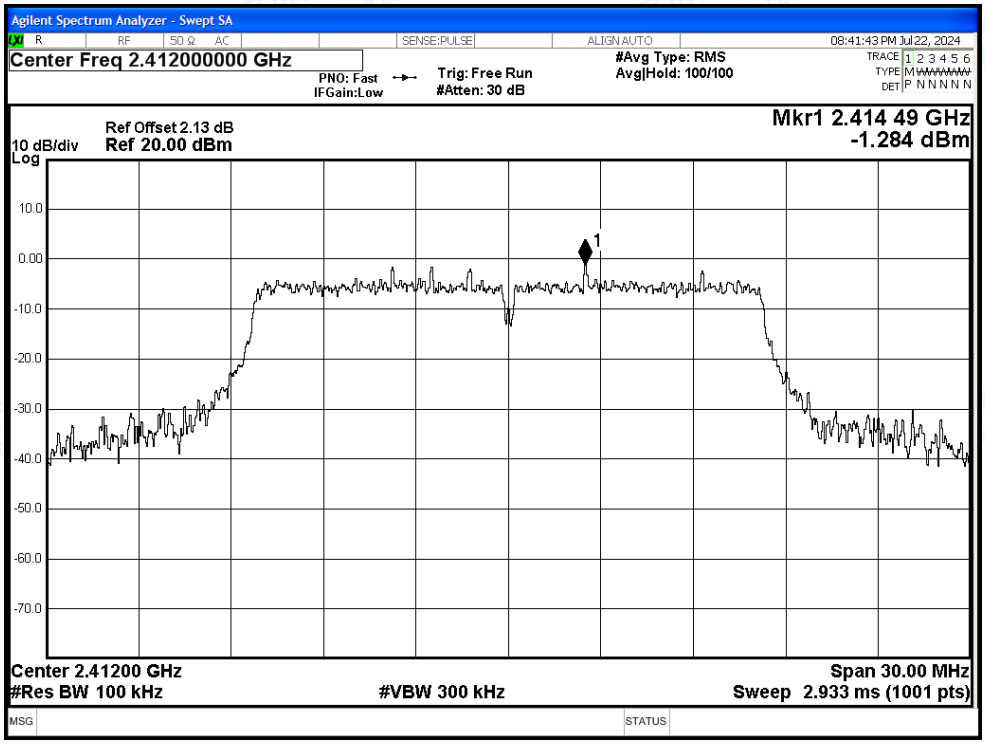
Band Edge NVNT b 2462MHz Ant1 Ref



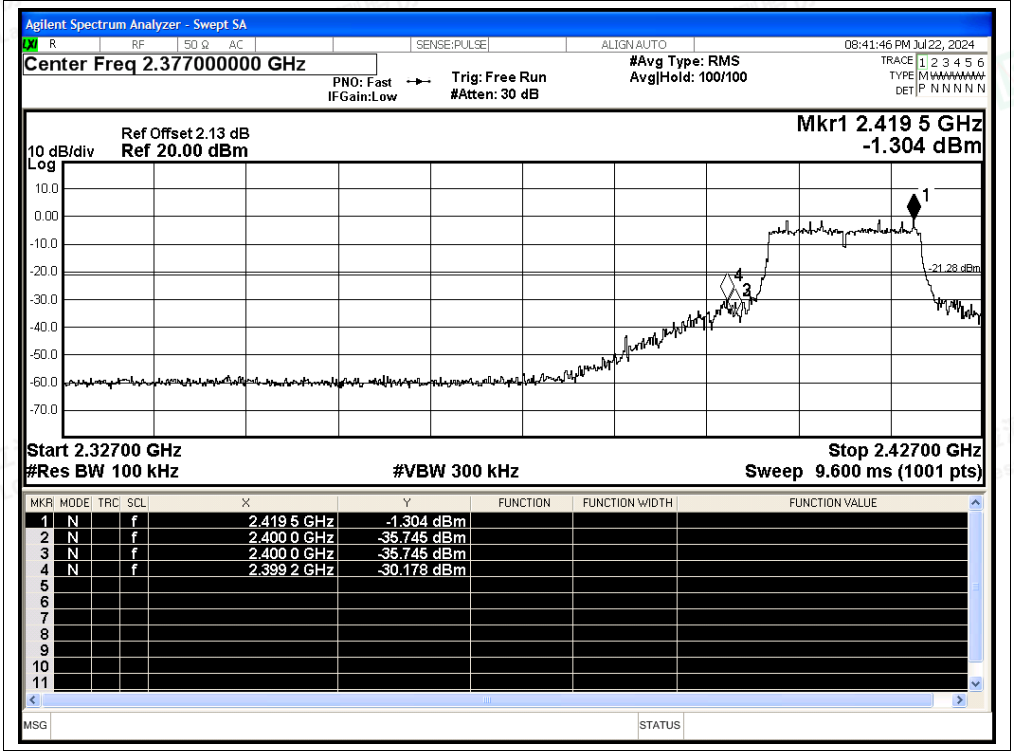
Band Edge NVNT b 2462MHz Ant1 Emission



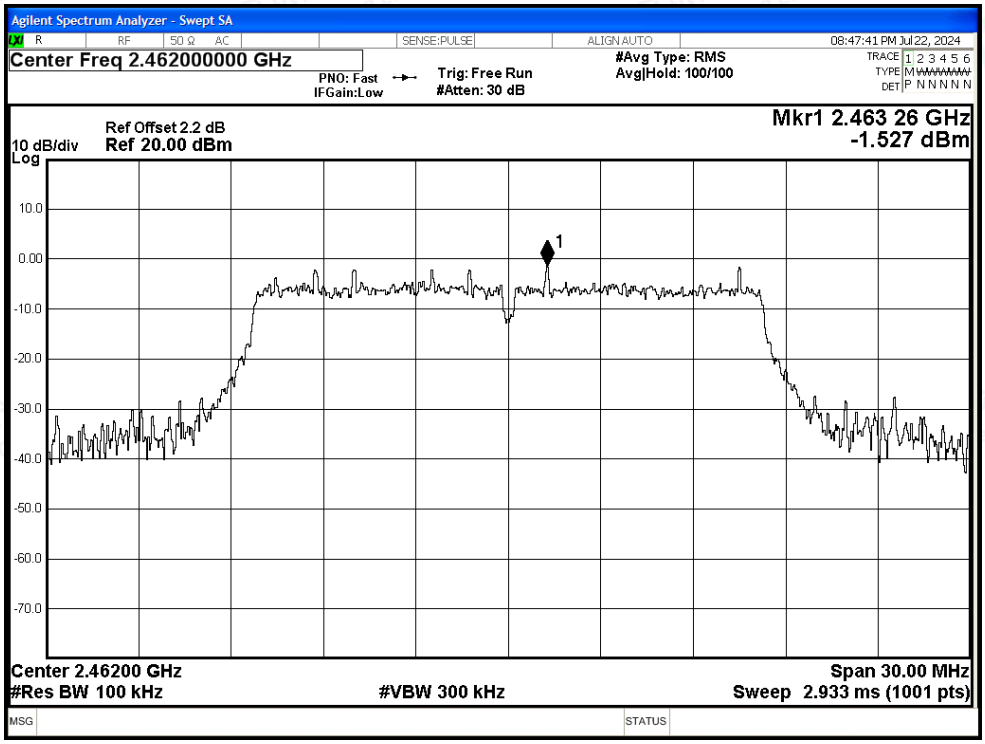
Band Edge NVNT g 2412MHz Ant1 Ref



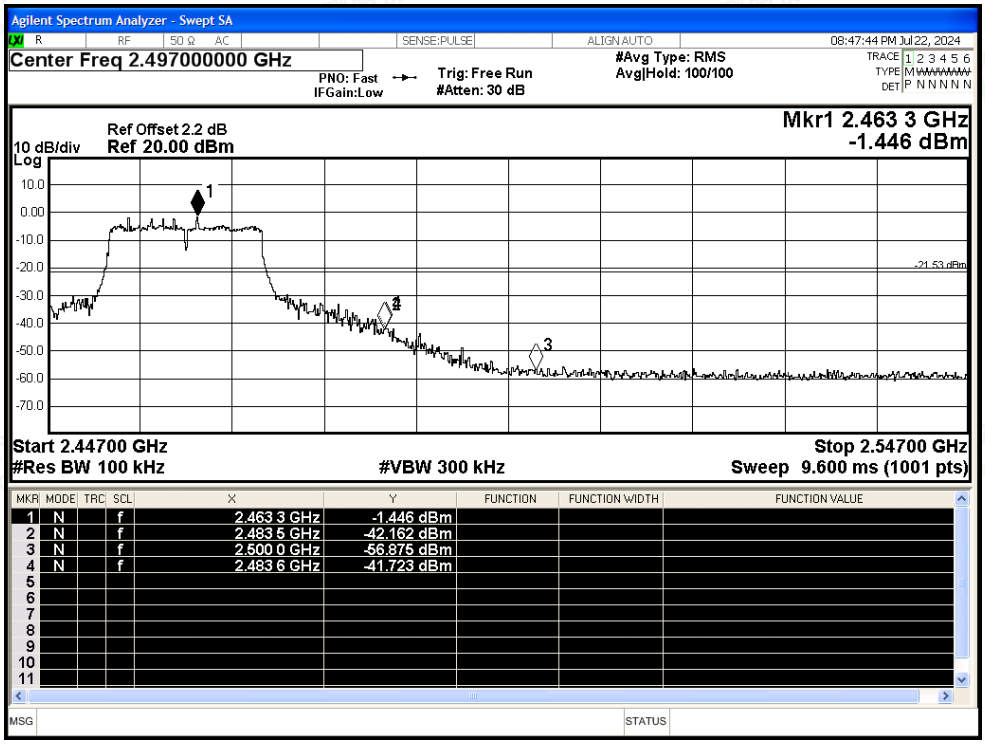
Band Edge NVNT g 2412MHz Ant1 Emission



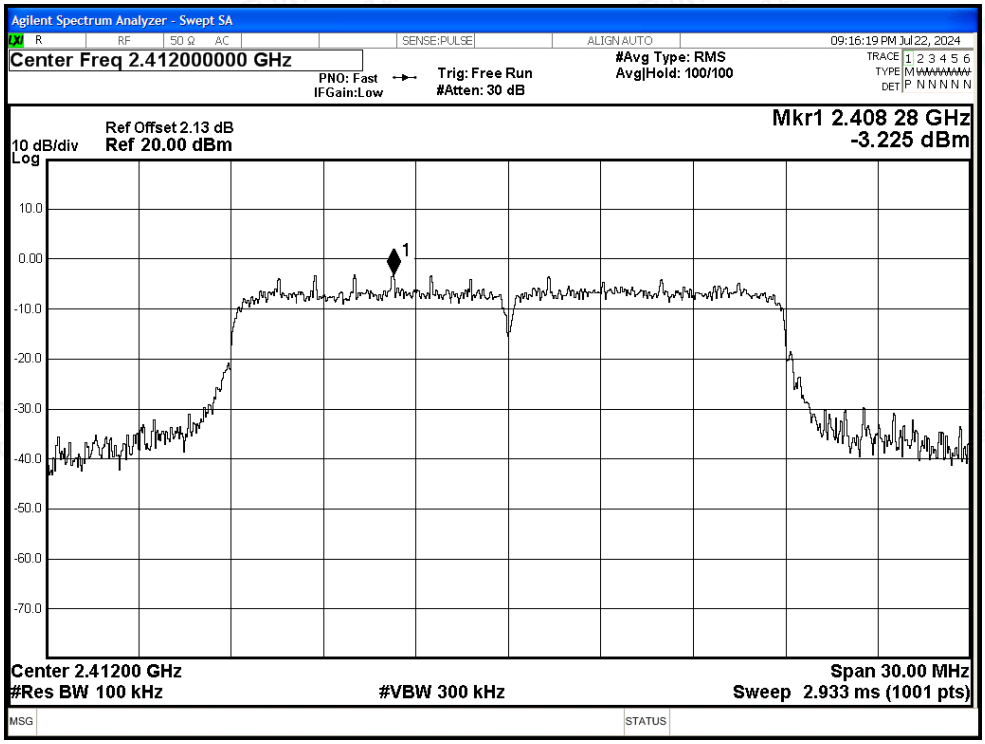
Band Edge NVNT g 2462MHz Ant1 Ref



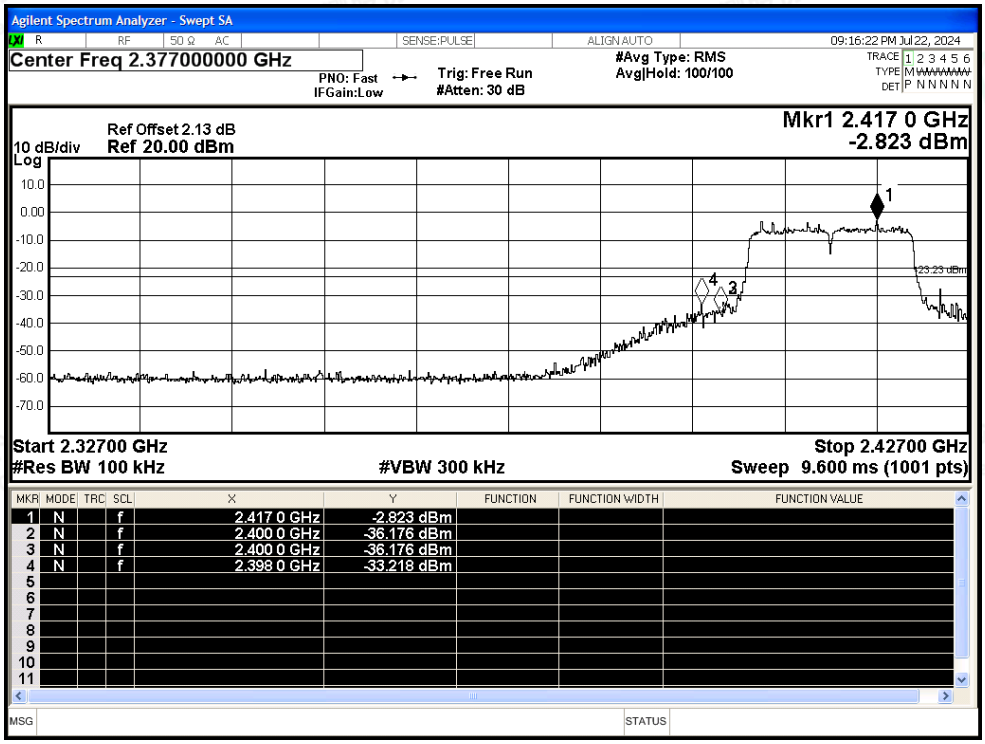
Band Edge NVNT g 2462MHz Ant1 Emission



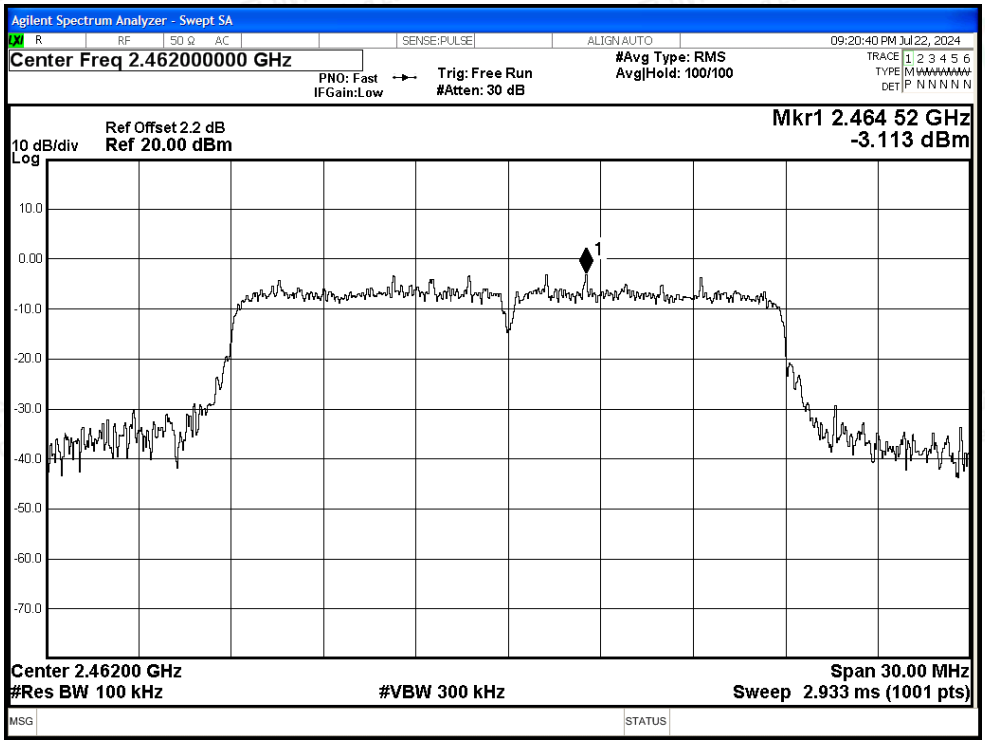
Band Edge NVNT n20 2412MHz Ant1 Ref



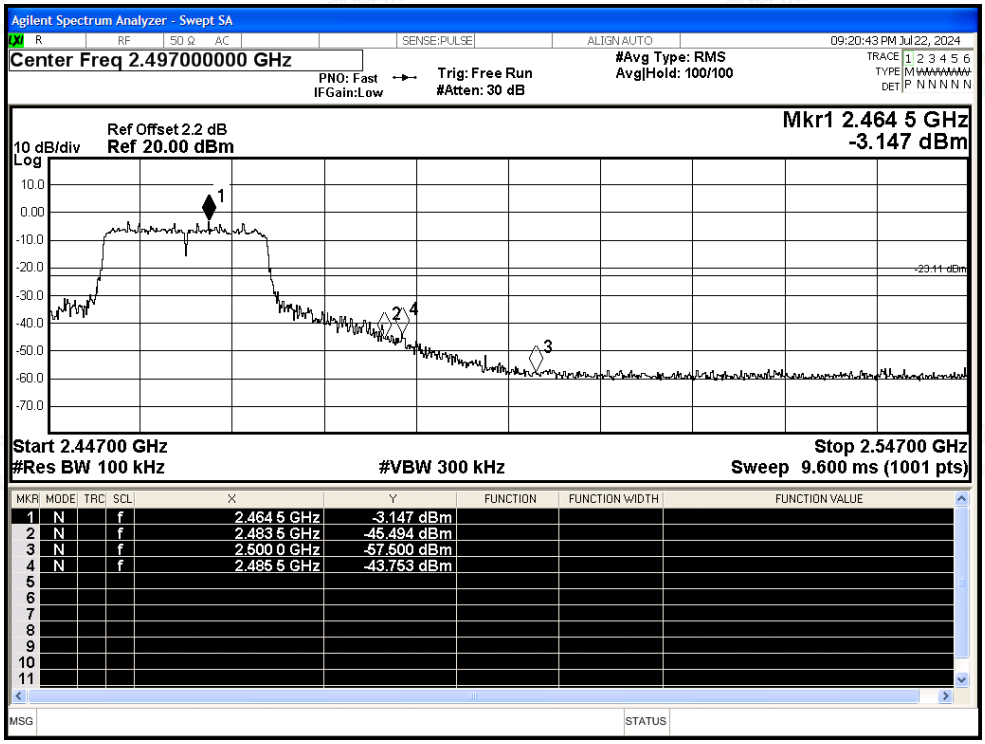
Band Edge NVNT n20 2412MHz Ant1 Emission



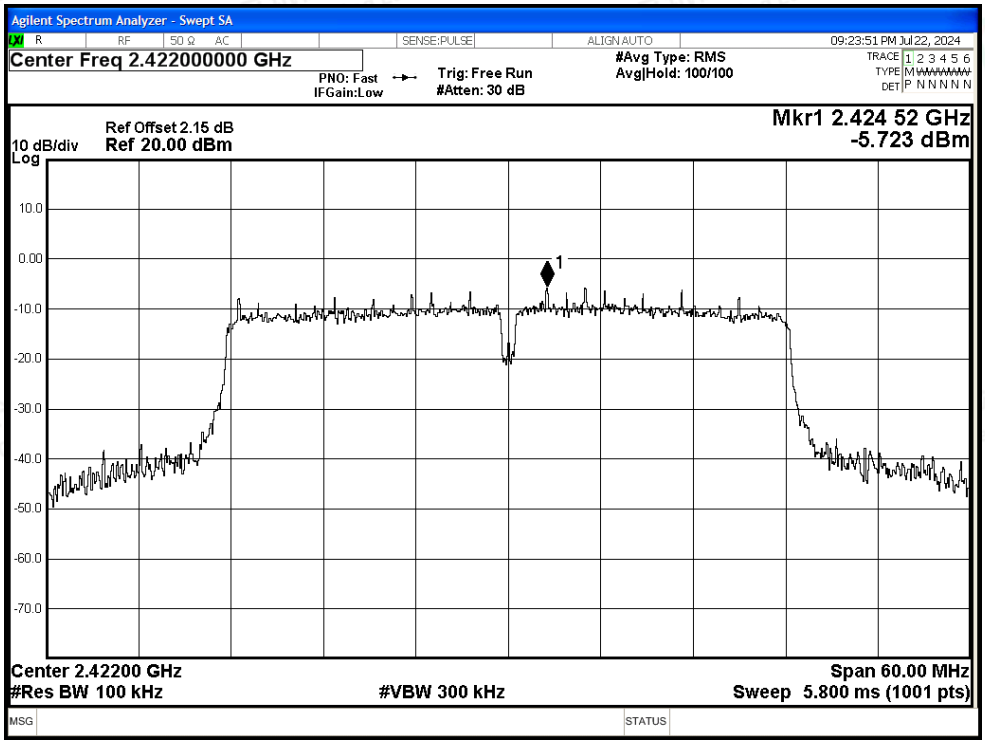
Band Edge NVNT n20 2462MHz Ant1 Ref



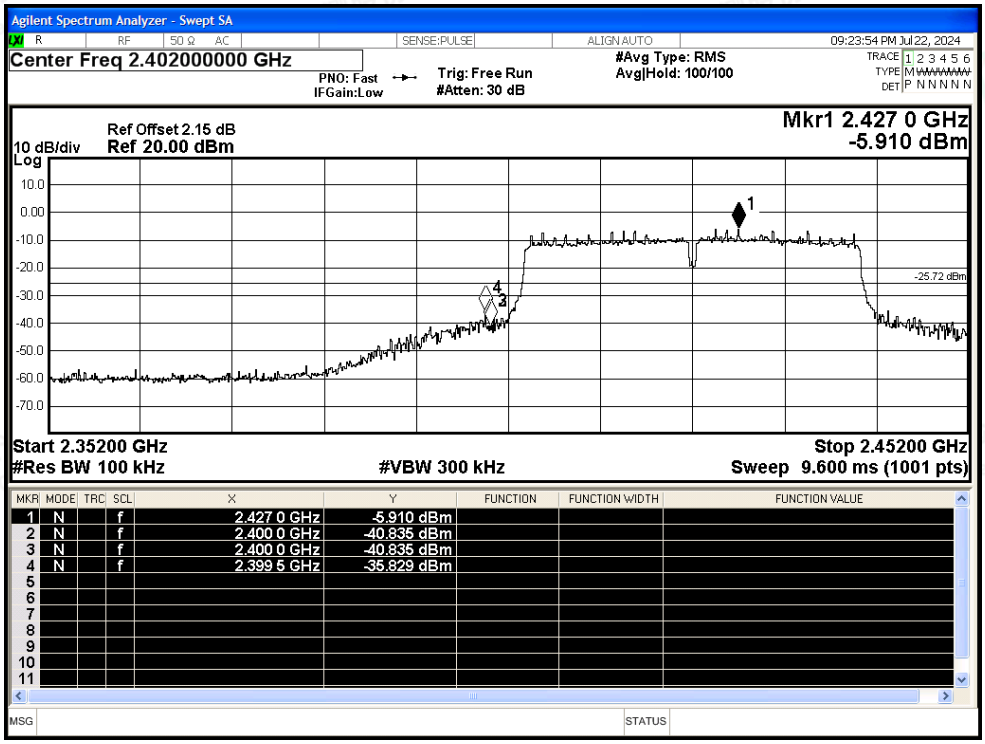
Band Edge NVNT n20 2462MHz Ant1 Emission



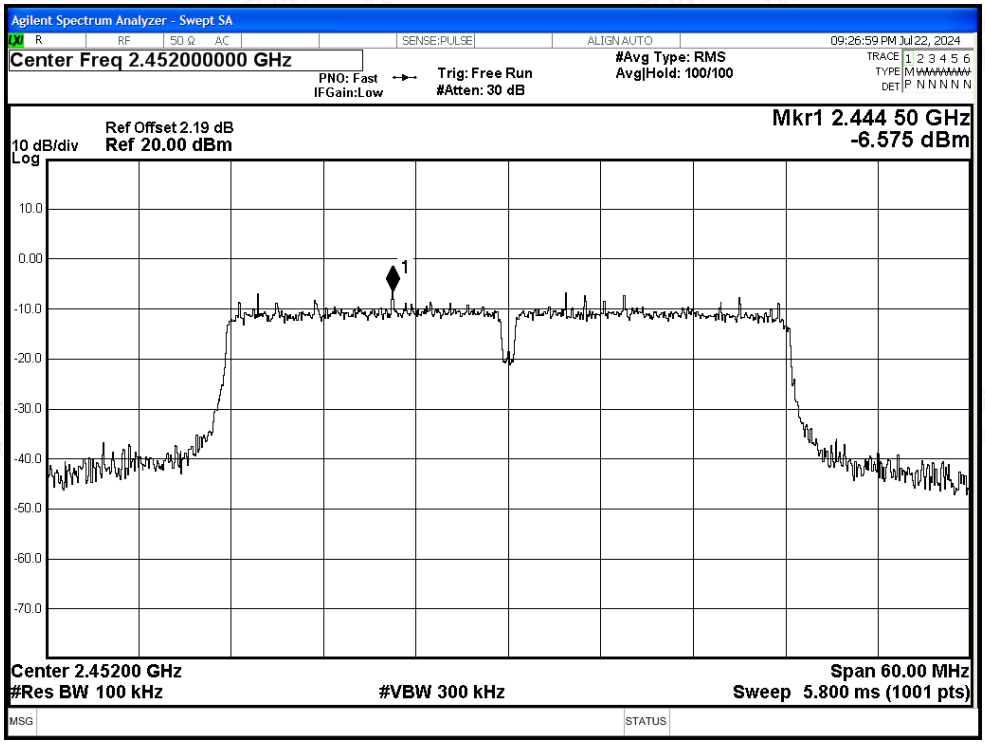
Band Edge NVNT n40 2422MHz Ant1 Ref



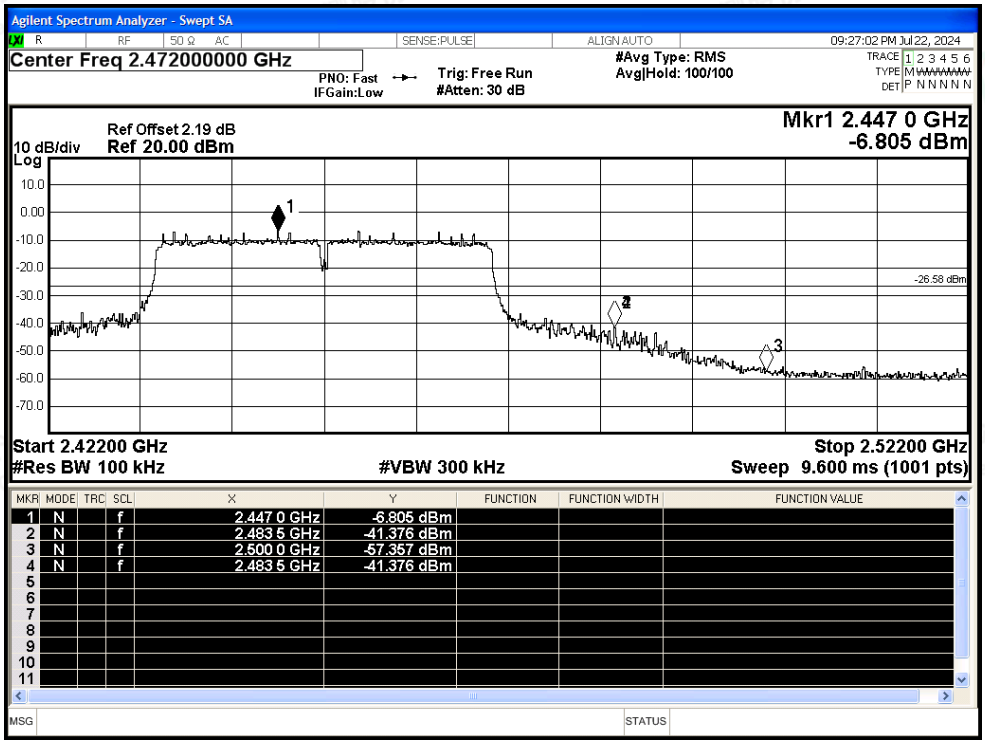
Band Edge NVNT n40 2422MHz Ant1 Emission



Band Edge NVNT n40 2452MHz Ant1 Ref



Band Edge NVNT n40 2452MHz Ant1 Emission

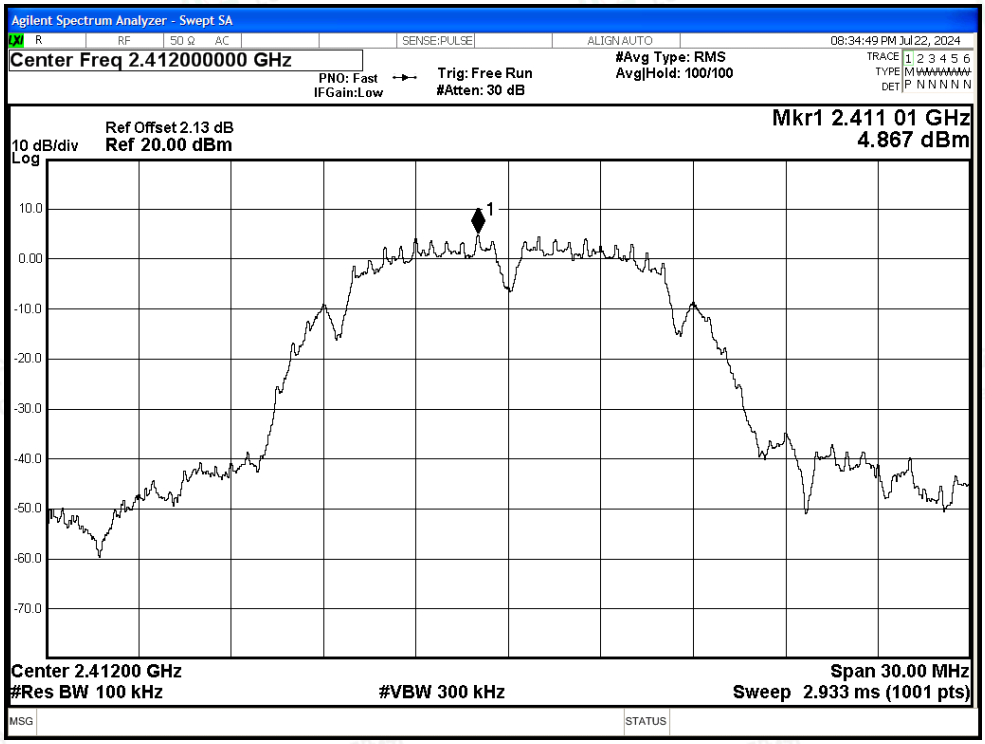


B.5 Conducted RF Spurious Emission

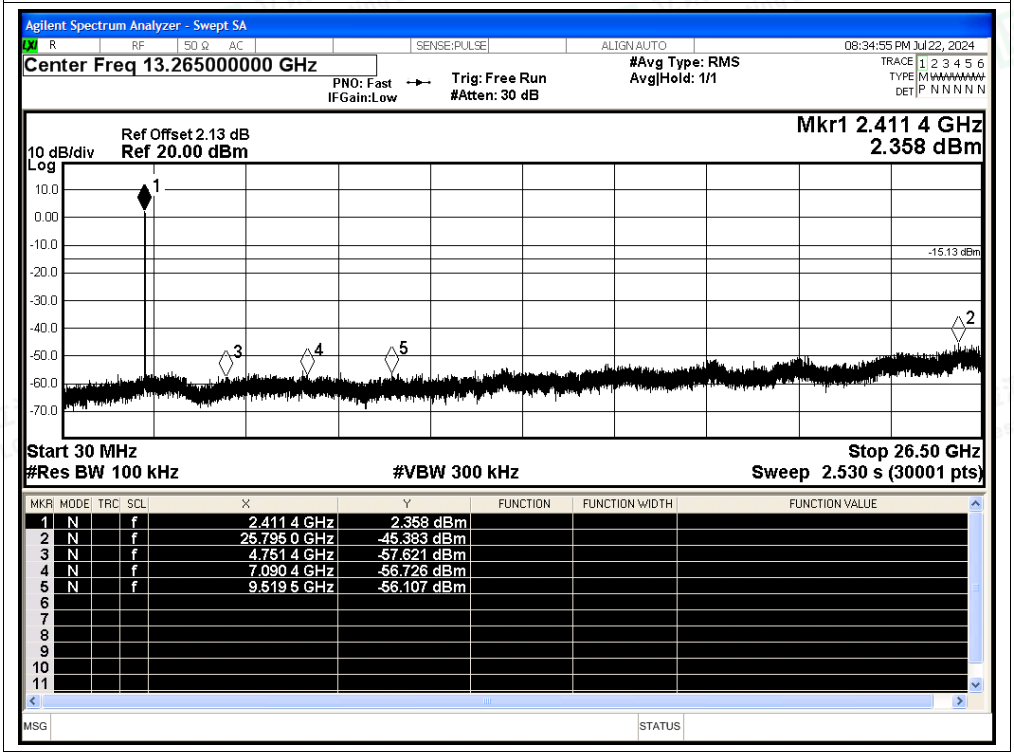
Condition	Mode	Frequency (MHz)	Antenna	Max Value (dBc)	Limit (dBc)	Verdict
NVNT	b	2412	Ant1	-50.25	-20	Pass
NVNT	b	2437	Ant1	-50.49	-20	Pass
NVNT	b	2462	Ant1	-51.8	-20	Pass
NVNT	g	2412	Ant1	-44.68	-20	Pass
NVNT	g	2437	Ant1	-44.33	-20	Pass
NVNT	g	2462	Ant1	-44.76	-20	Pass
NVNT	n20	2412	Ant1	-43.46	-20	Pass
NVNT	n20	2437	Ant1	-44.01	-20	Pass
NVNT	n20	2462	Ant1	-42.83	-20	Pass
NVNT	n40	2422	Ant1	-41.2	-20	Pass
NVNT	n40	2437	Ant1	-40.72	-20	Pass
NVNT	n40	2452	Ant1	-39.38	-20	Pass

Test Graphs

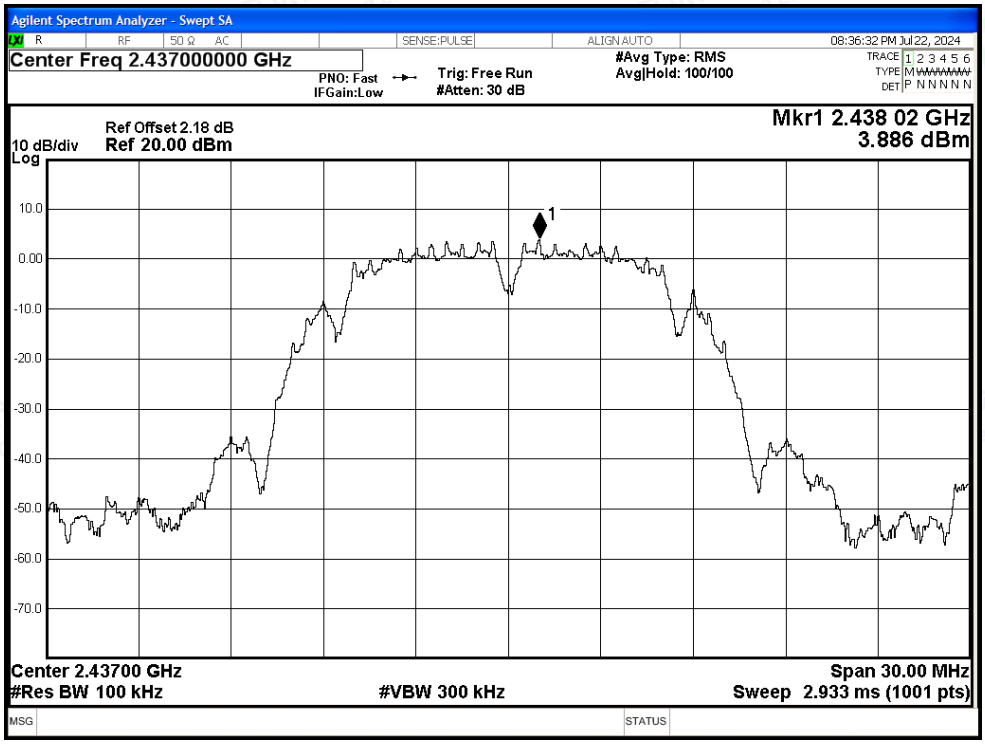
Tx. Spurious NVNT b 2412MHz Ant1 Ref



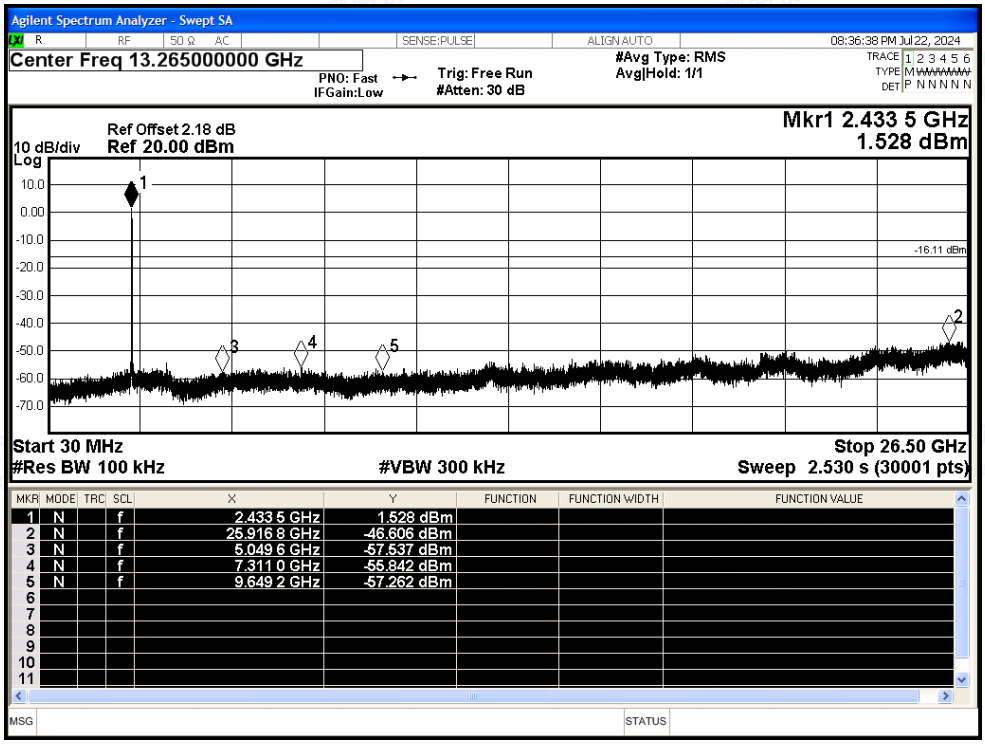
Tx. Spurious NVNT b 2412MHz Ant1 Emission



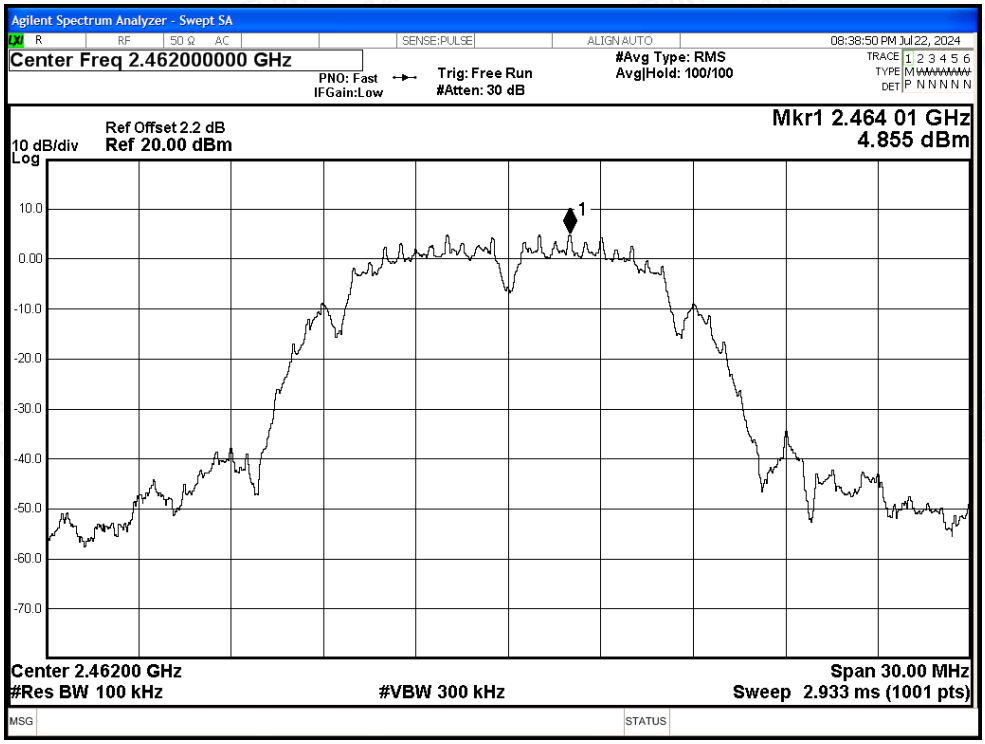
Tx. Spurious NVNT b 2437MHz Ant1 Ref



Tx. Spurious NVNT b 2437MHz Ant1 Emission



Tx. Spurious NVNT b 2462MHz Ant1 Ref



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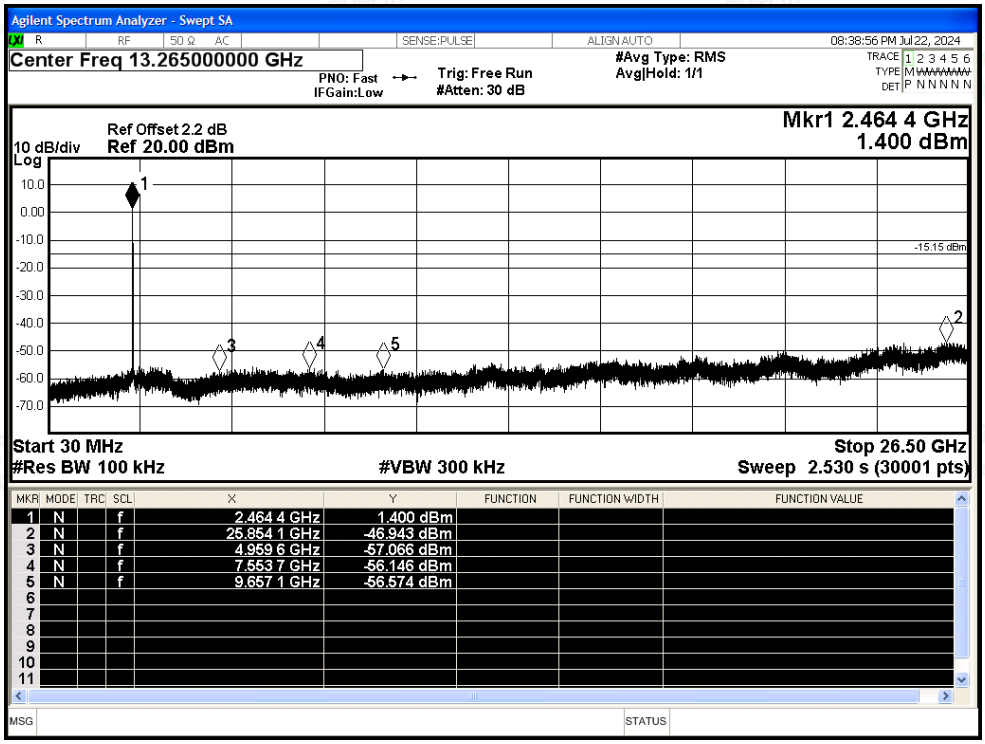
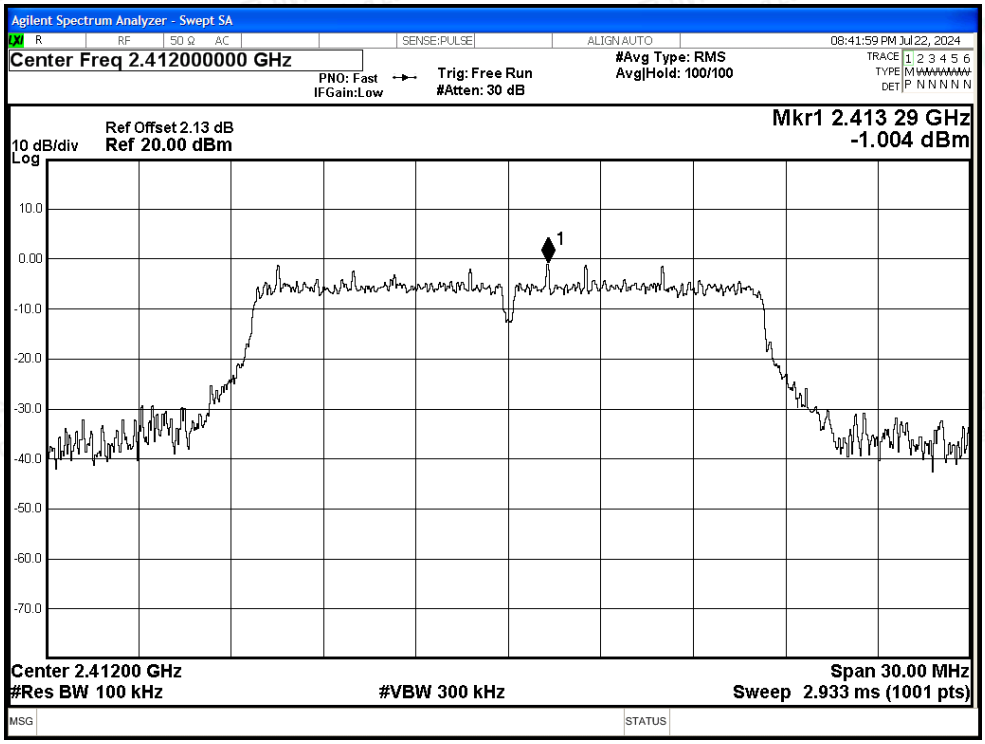


Tx. Spurious NVNT g 2412MHz Ant1 Ref



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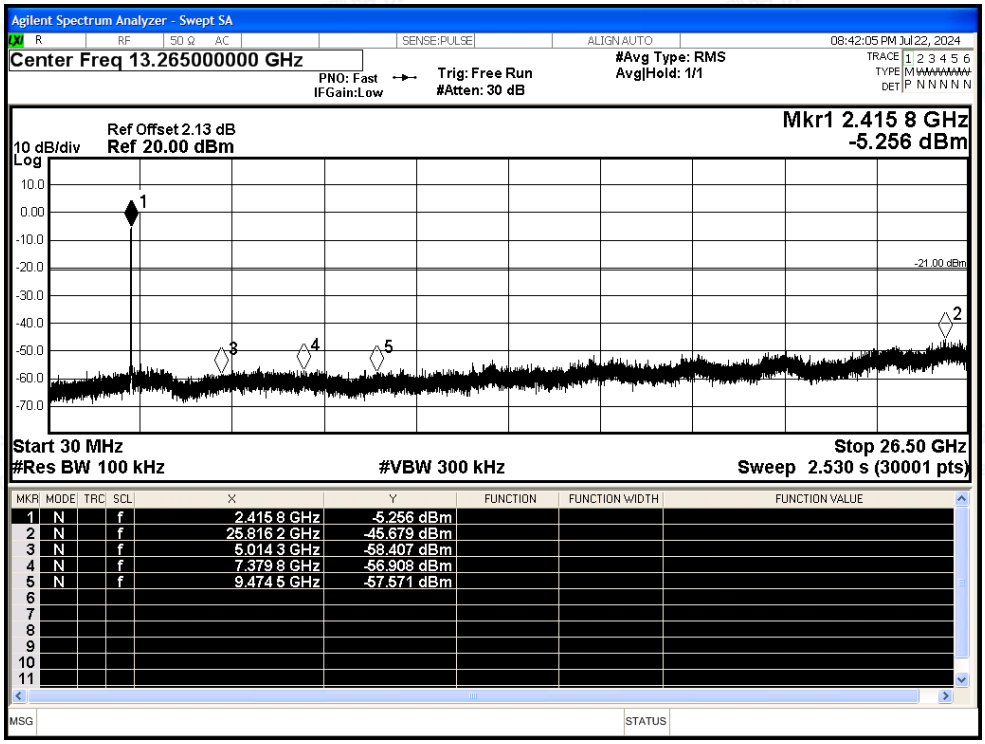

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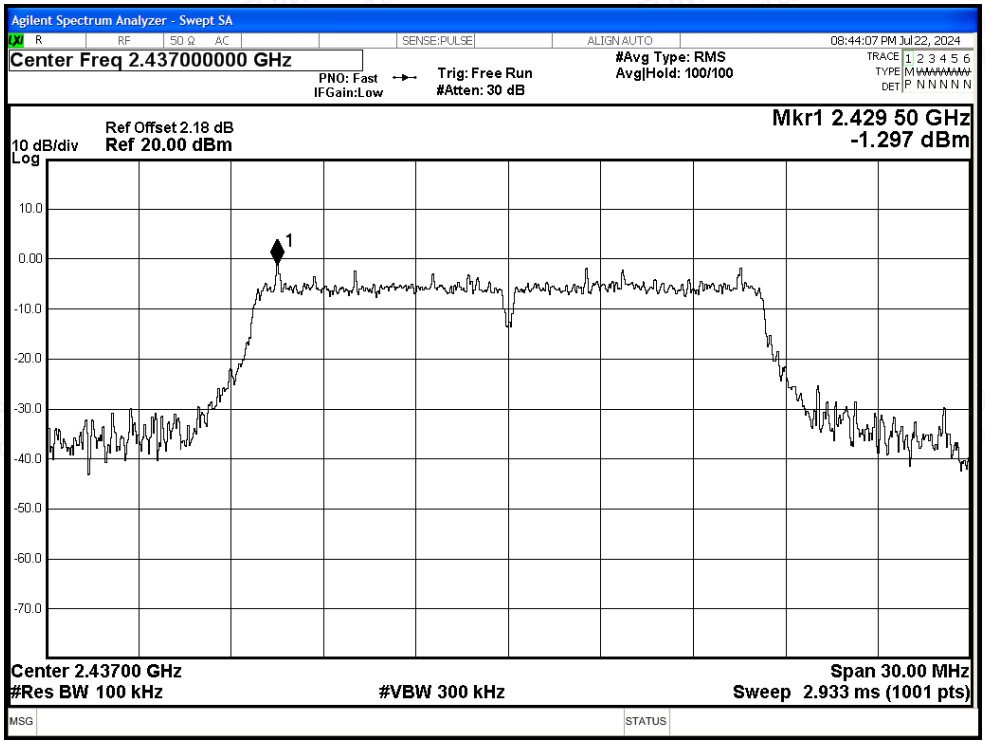

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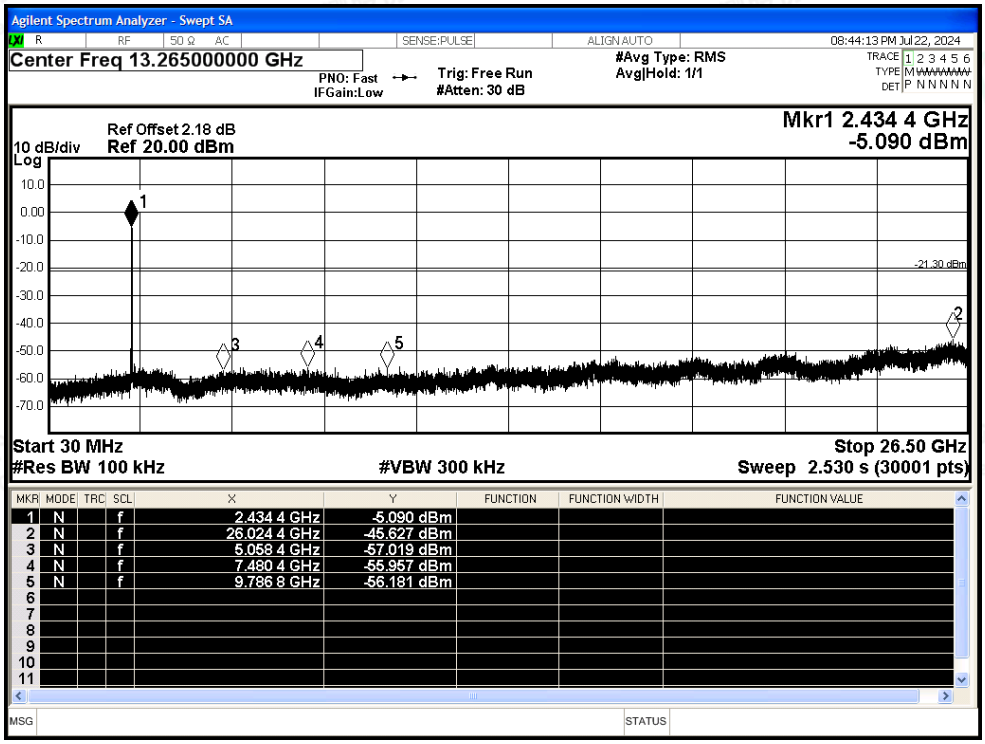
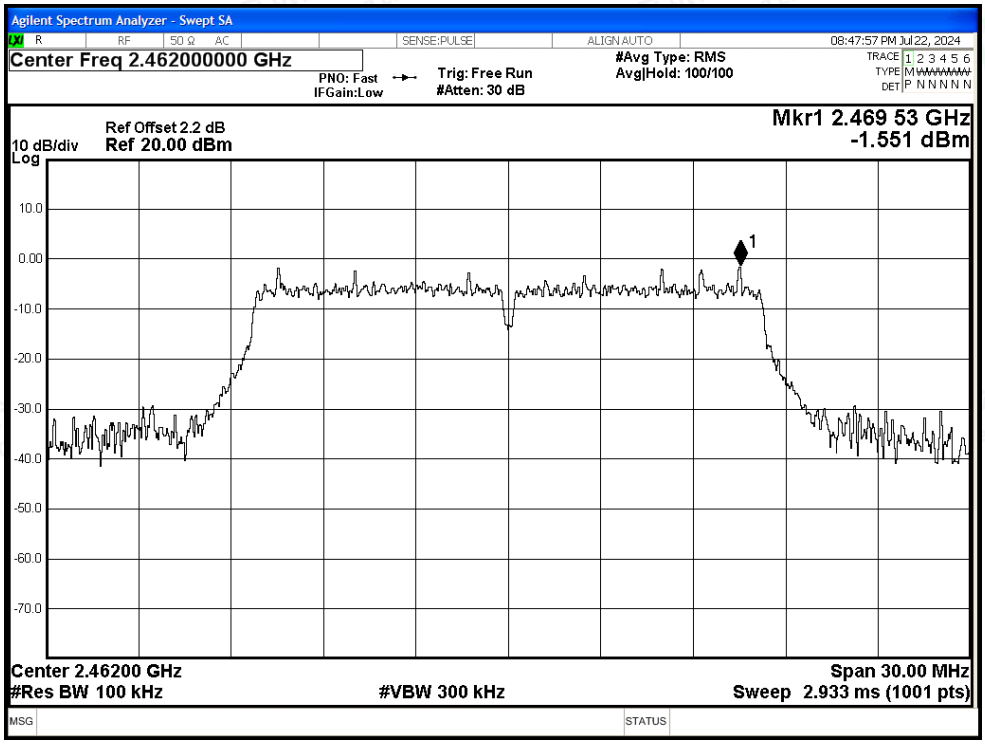
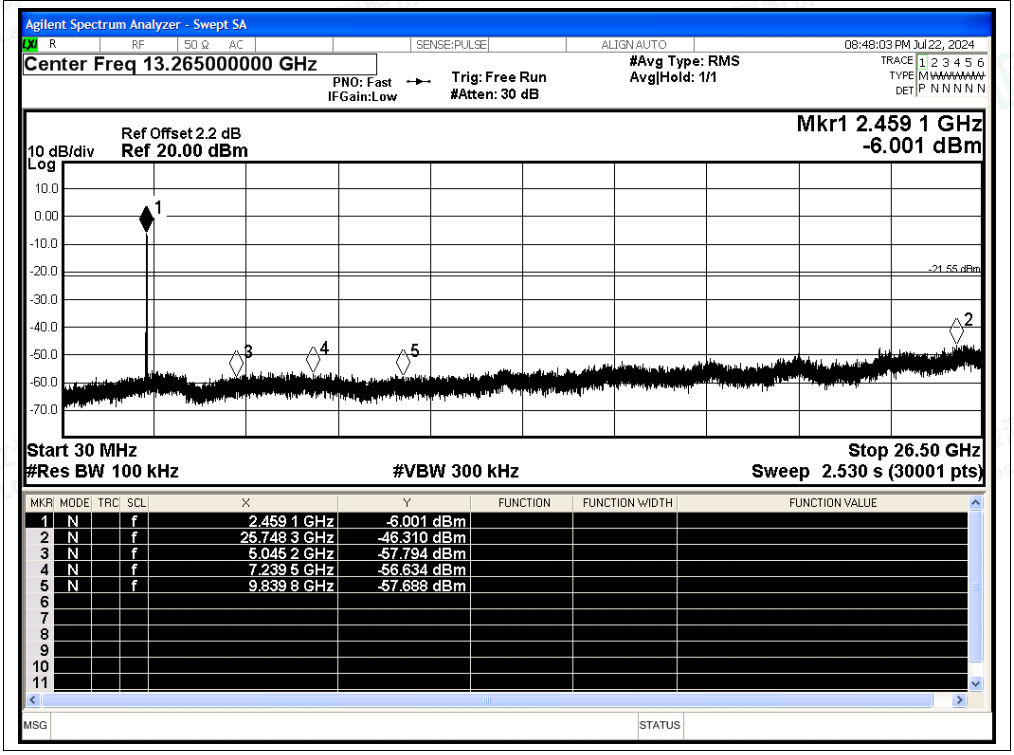


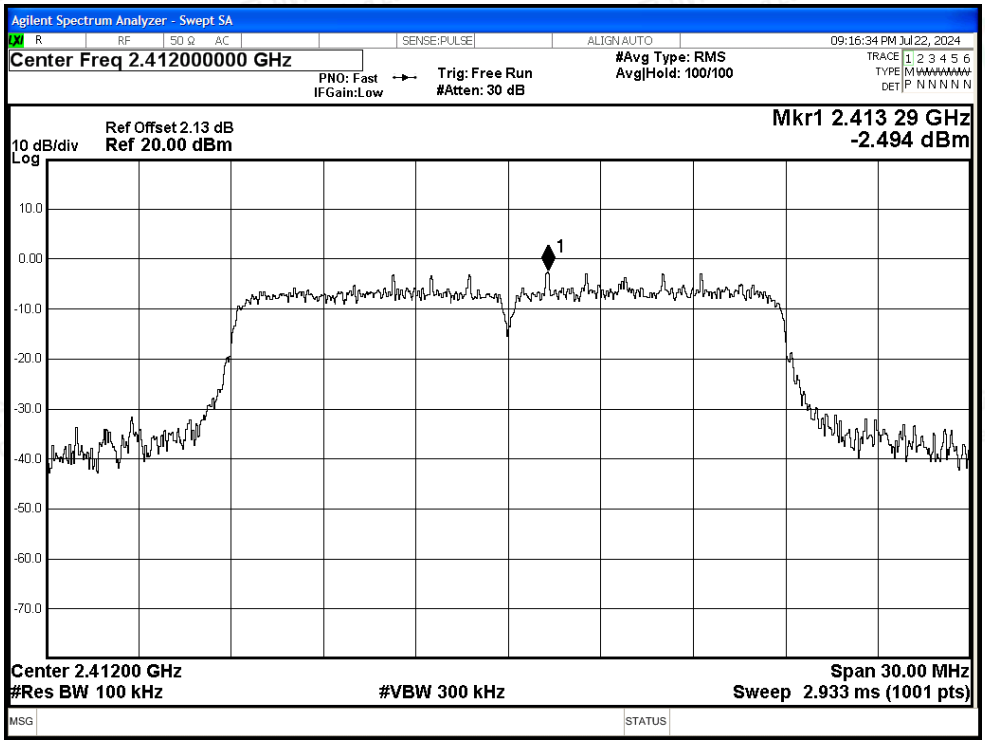
Tx. Spurious NVNT g 2462MHz Ant1 Ref



Tx. Spurious NVNT g 2462MHz Ant1 Emission



Tx. Spurious NVNT n20 2412MHz Ant1 Ref



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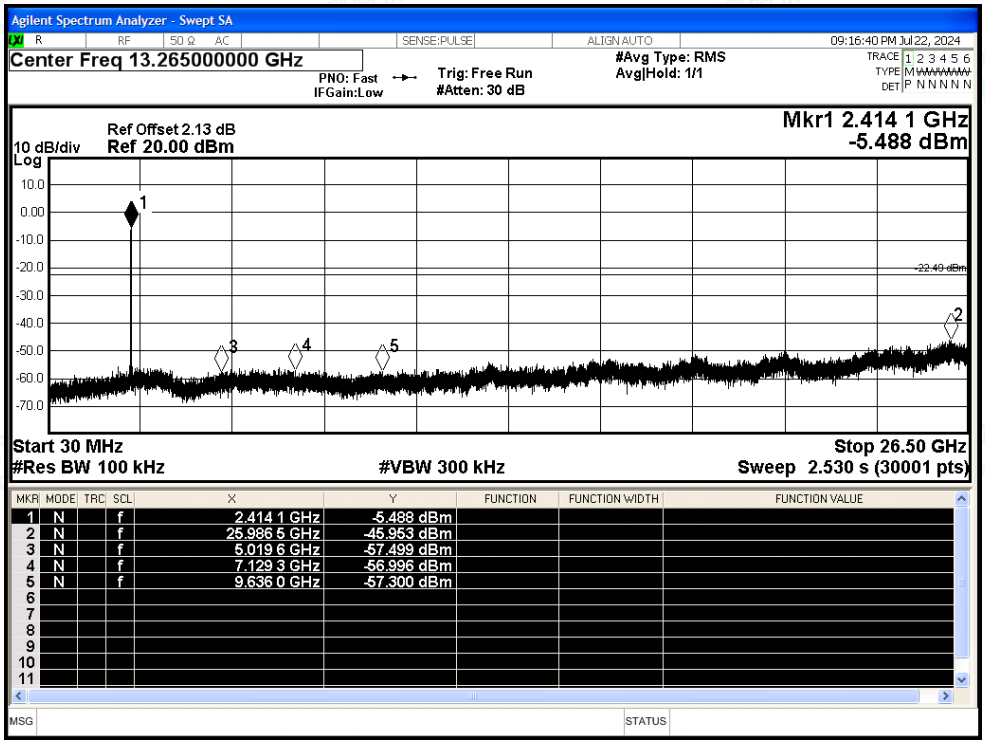

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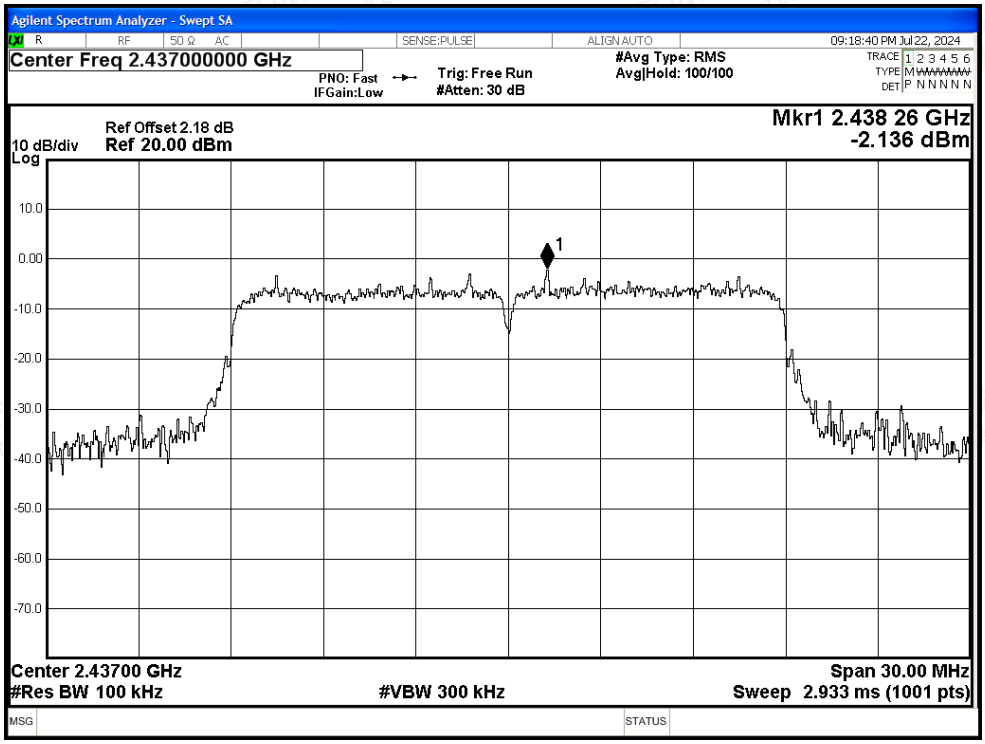

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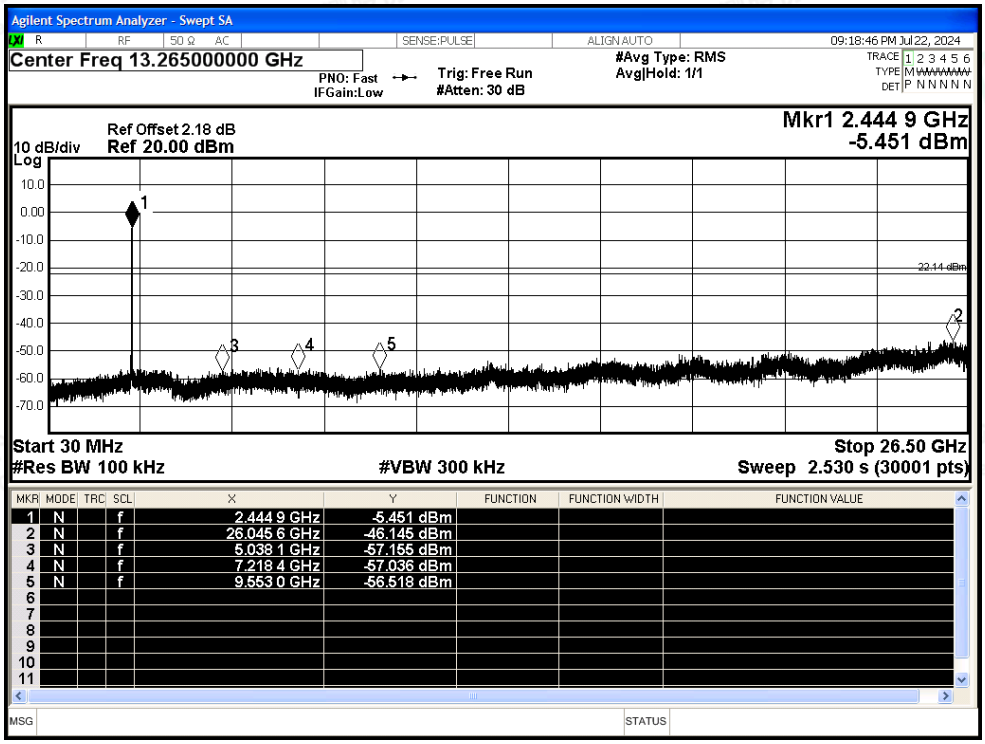

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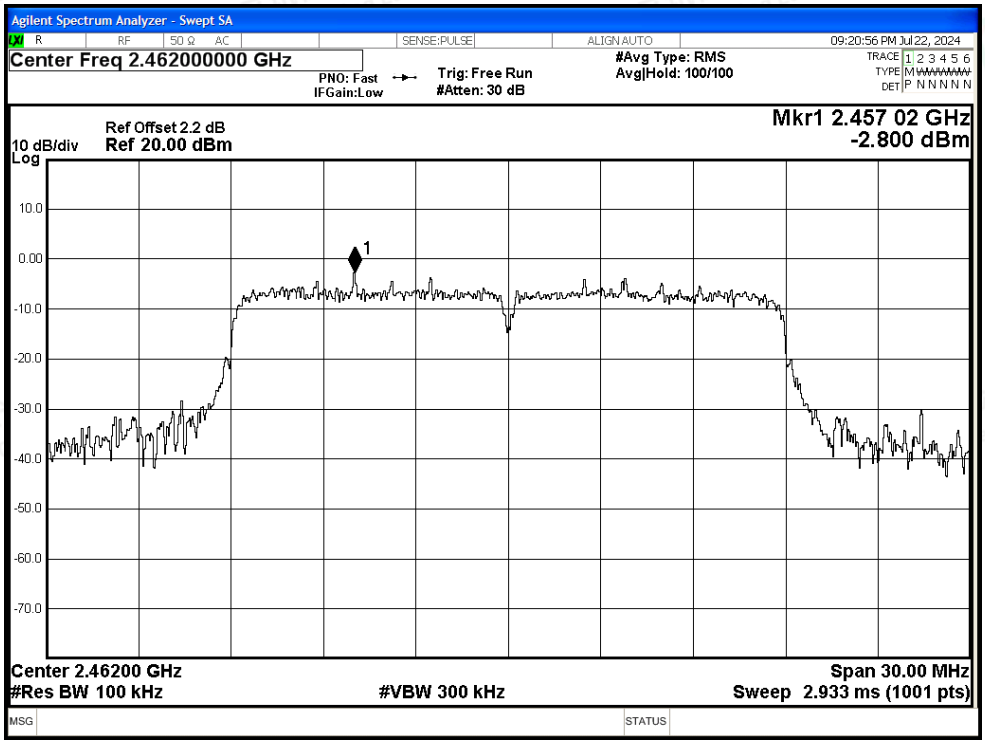
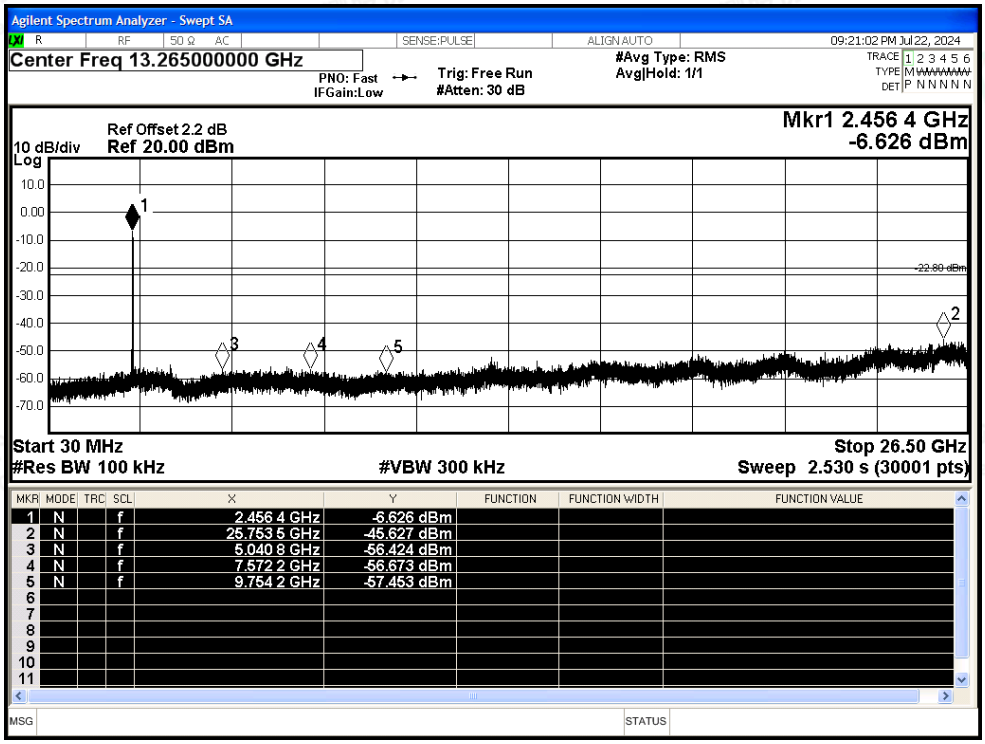
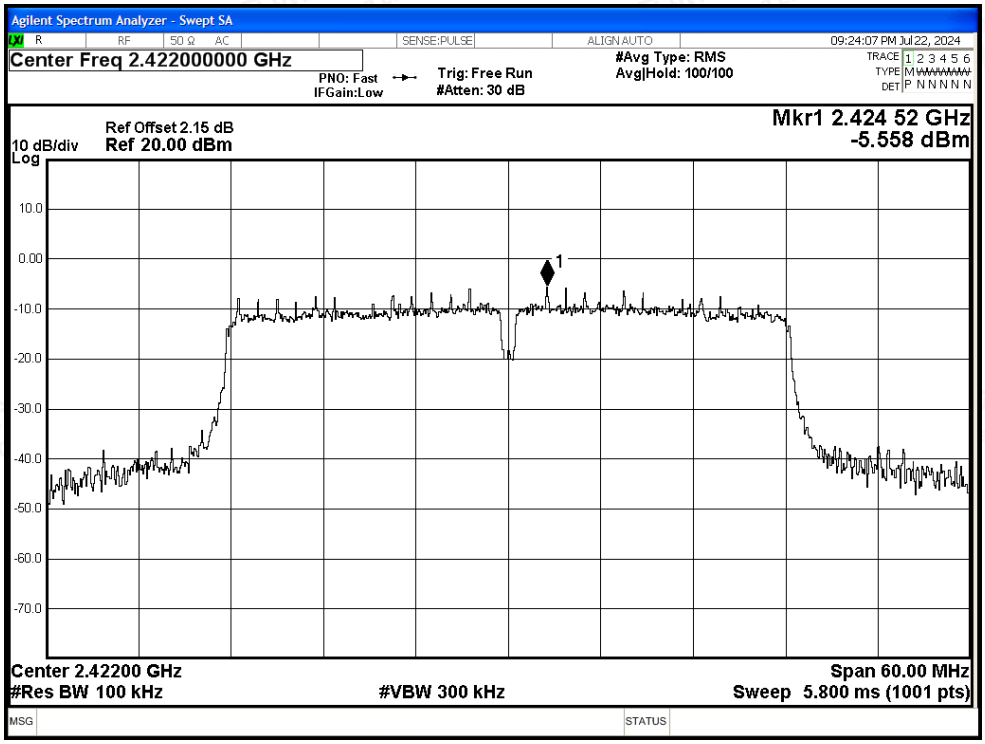


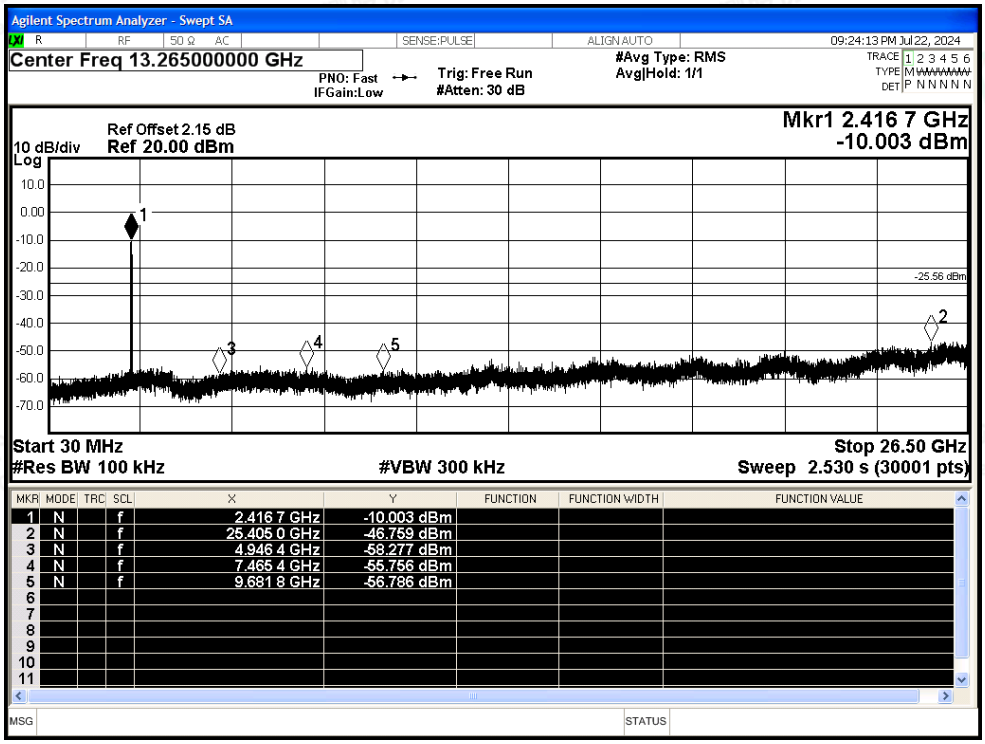
Tx. Spurious NVNT n20 2462MHz Ant1 Emission



Tx. Spurious NVNT n40 2422MHz Ant1 Ref



Tx. Spurious NVNT n40 2422MHz Ant1 Emission



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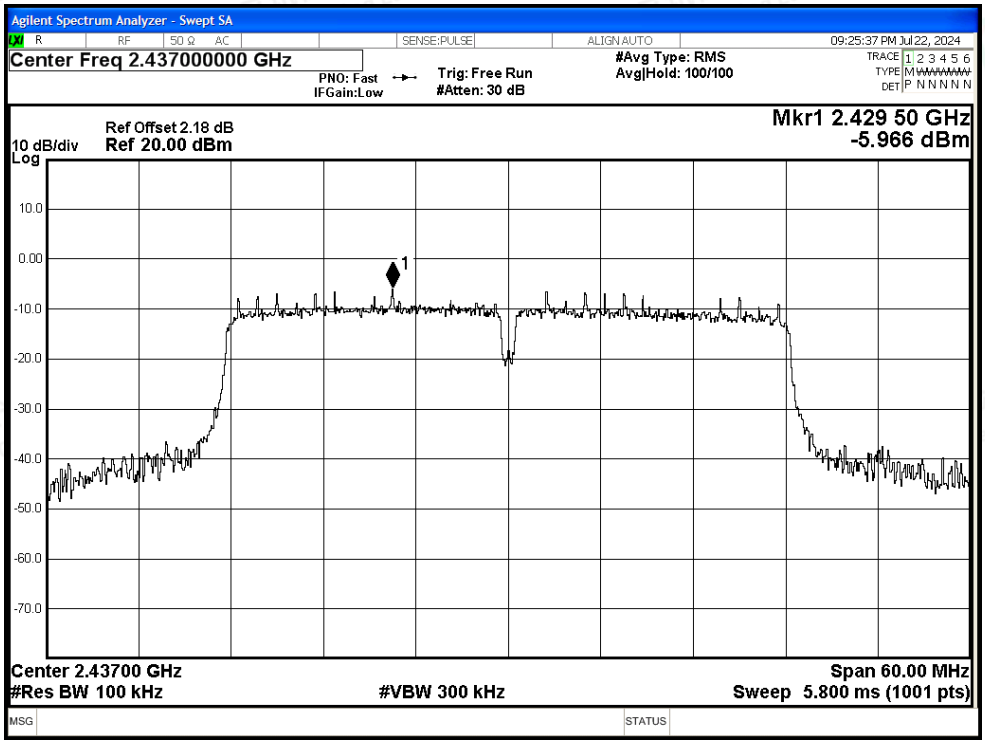
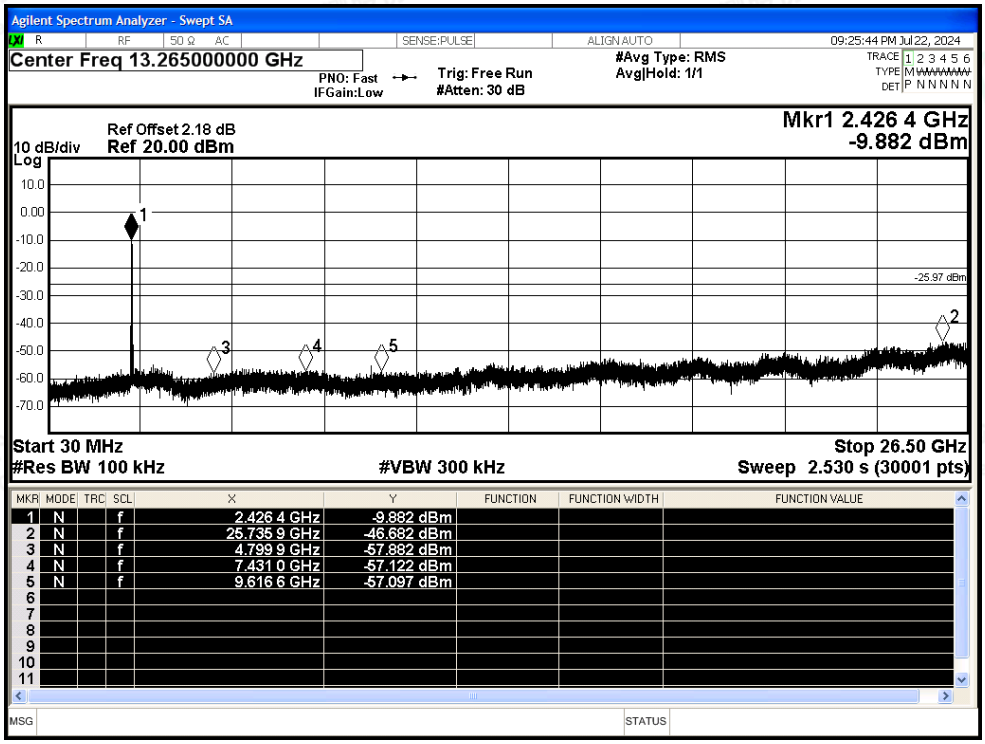
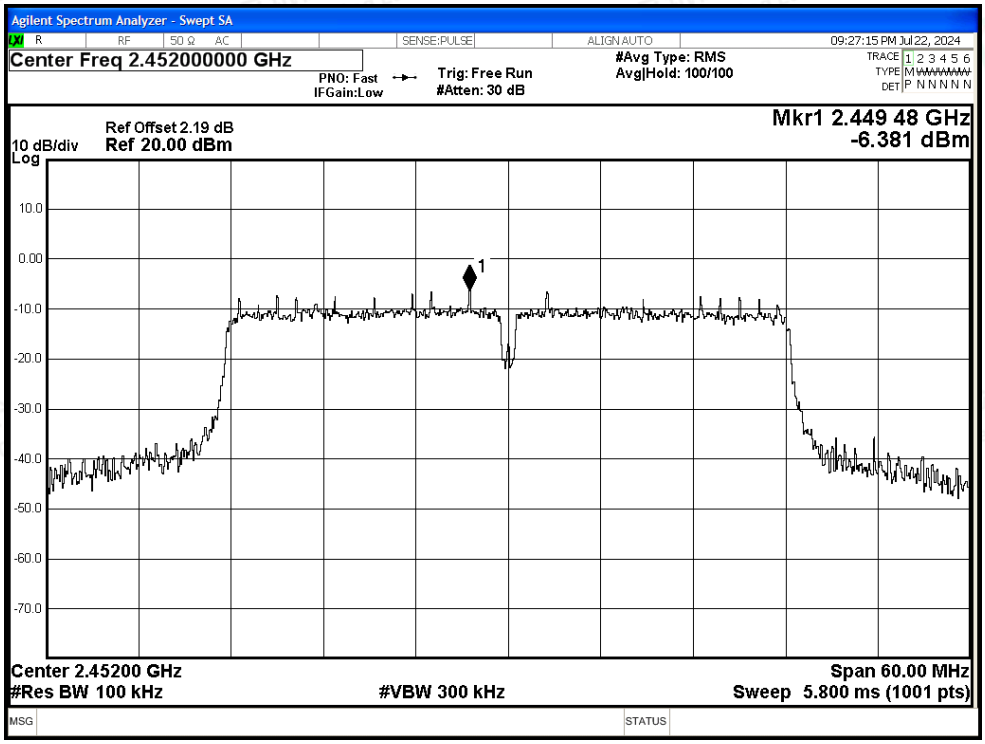


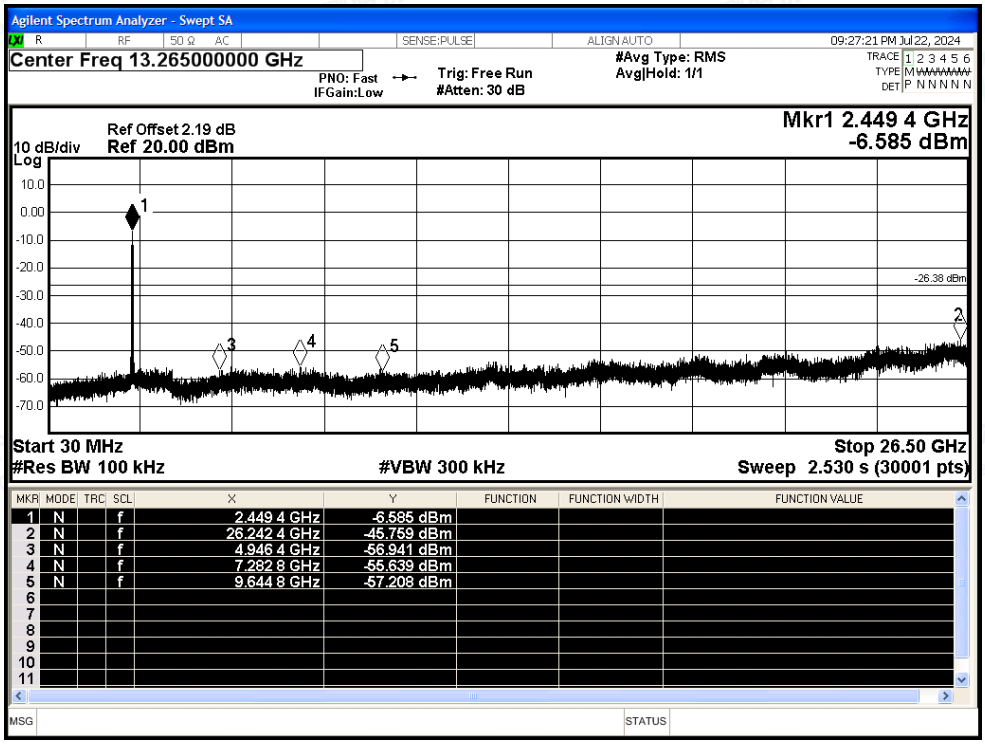
Tx. Spurious NVNT n40 2437MHz Ant1 Emission



Tx. Spurious NVNT n40 2452MHz Ant1 Ref



Tx. Spurious NVNT n40 2452MHz Ant1 Emission

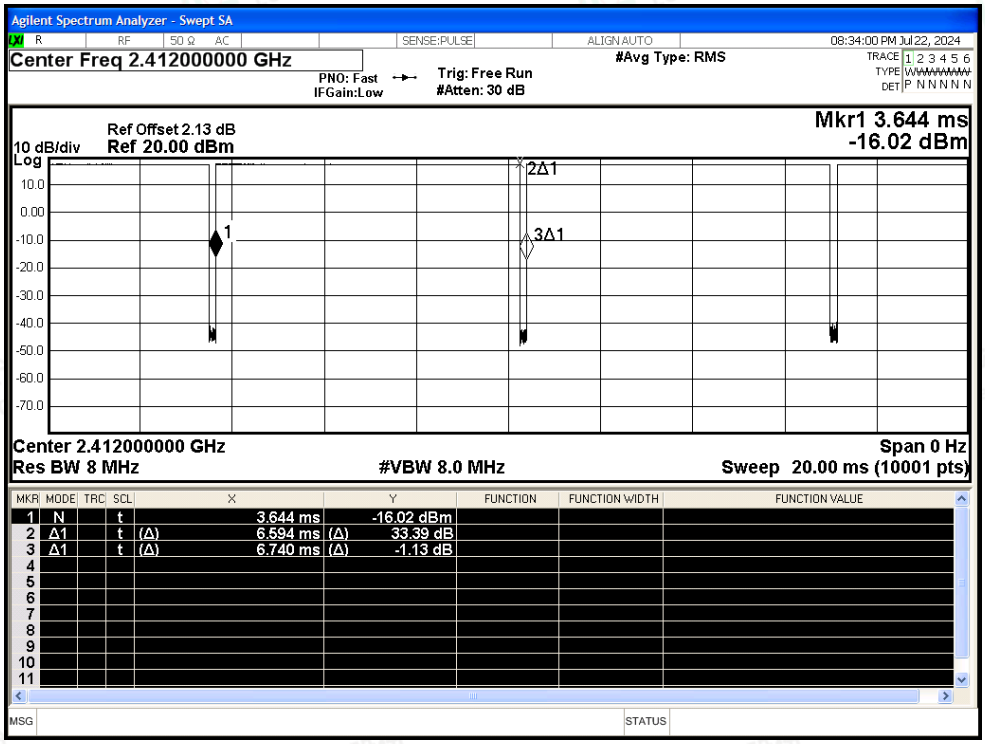


B.6 Duty Cycle

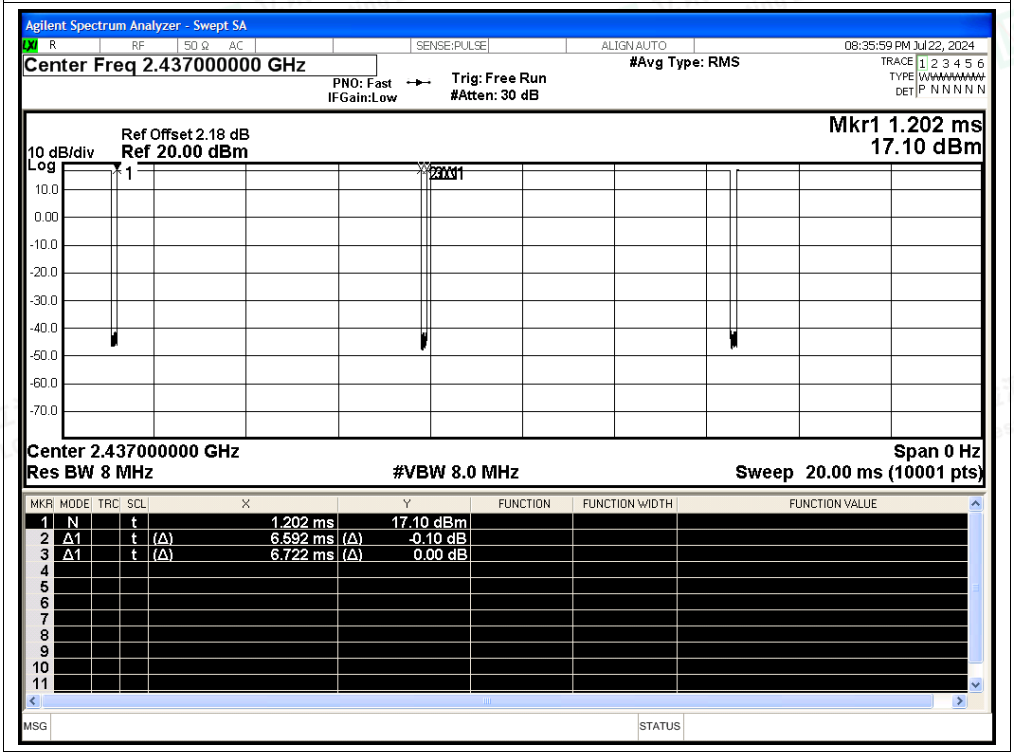
Condition	Mode	Frequency (MHz)	Antenna	Duty Cycle (%)	Correction Factor (dB)	1/T (kHz)
NVNT	b	2412	Ant1	97.83	0.1	0.15
NVNT	b	2437	Ant1	98.07	0	0.15
NVNT	b	2462	Ant1	97.95	0.09	0.15
NVNT	g	2412	Ant1	89.95	0.46	0.74
NVNT	g	2437	Ant1	90.43	0.44	0.74
NVNT	g	2462	Ant1	90.43	0.44	0.74
NVNT	n20	2412	Ant1	86.95	0.61	0.73
NVNT	n20	2437	Ant1	89.44	0.48	0.73
NVNT	n20	2462	Ant1	89.44	0.48	0.73
NVNT	n40	2422	Ant1	81.54	0.89	1.27
NVNT	n40	2437	Ant1	81.33	0.9	1.28
NVNT	n40	2452	Ant1	81.54	0.89	1.27

Test Graphs

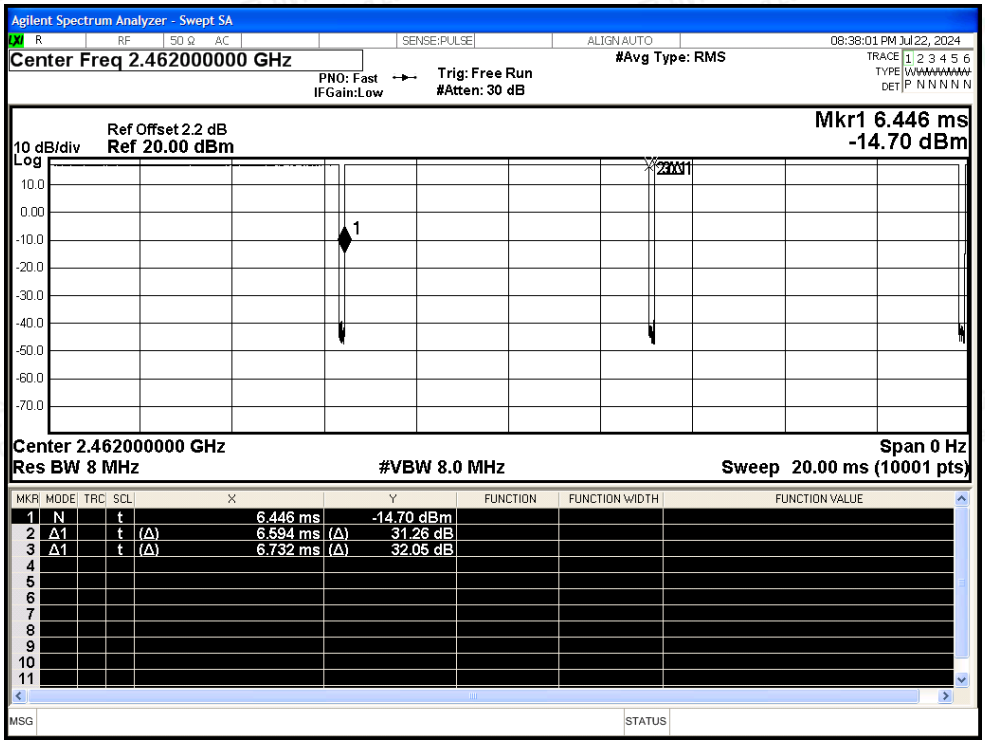
Duty Cycle NVNT b 2412MHz Ant1



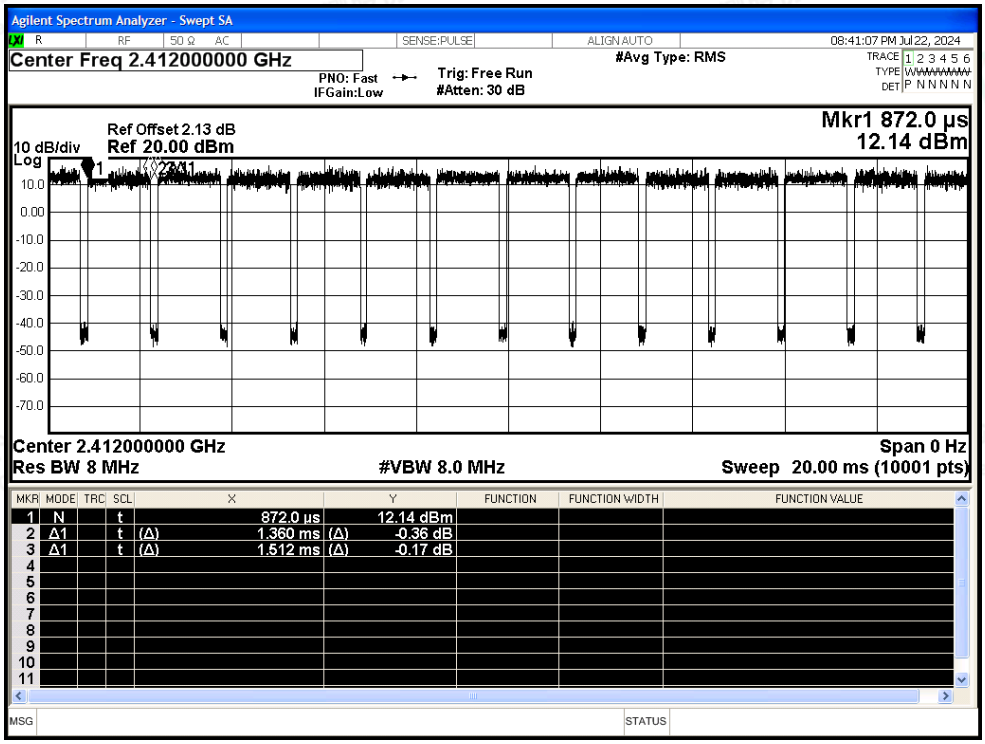
Duty Cycle NVNT b 2437MHz Ant1



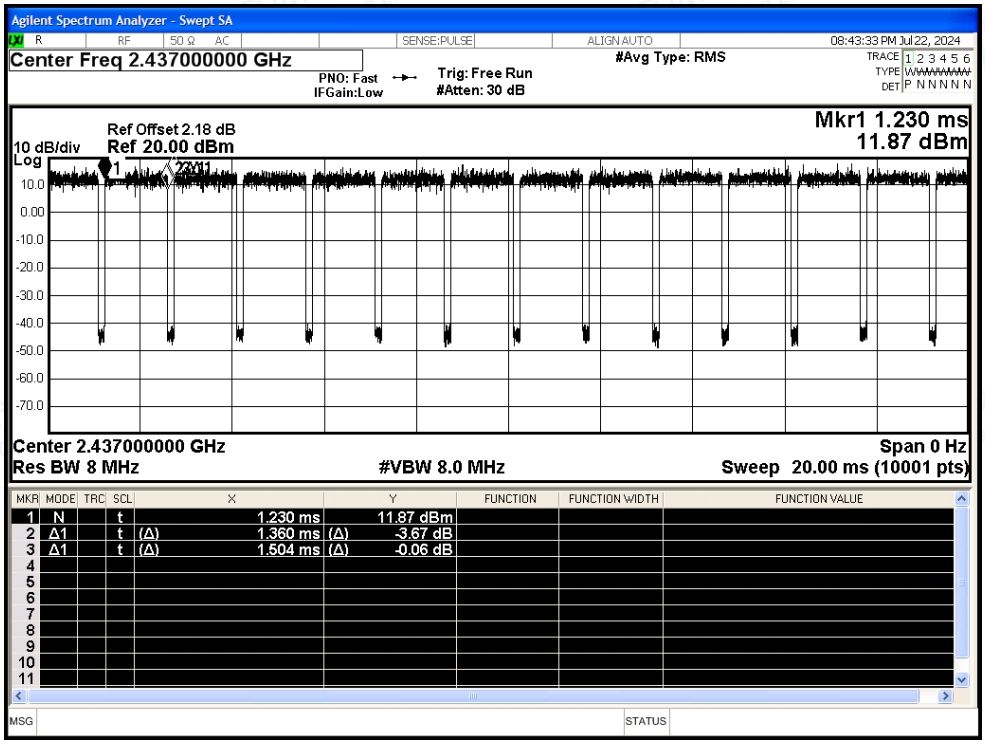
Duty Cycle NVNT b 2462MHz Ant1



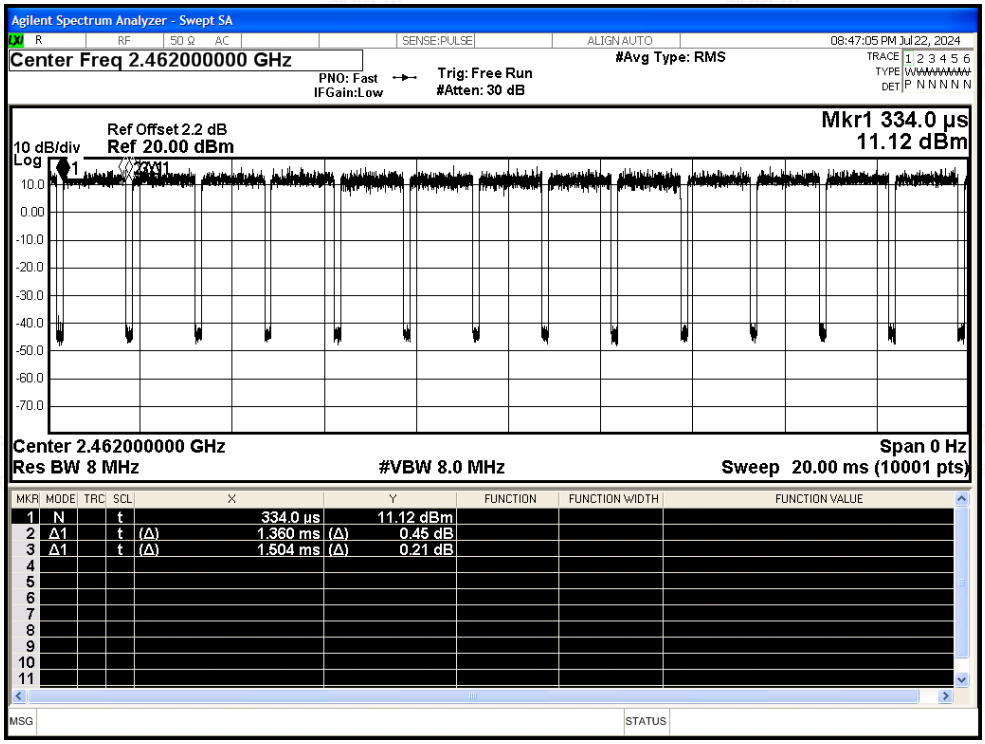
Duty Cycle NVNT g 2412MHz Ant1



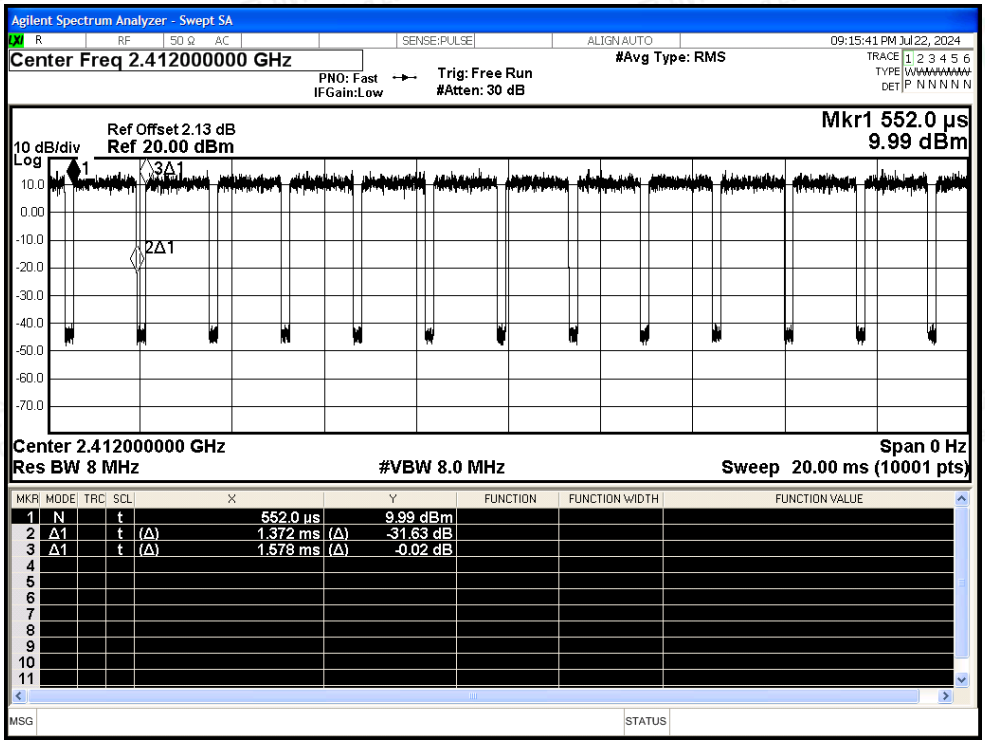
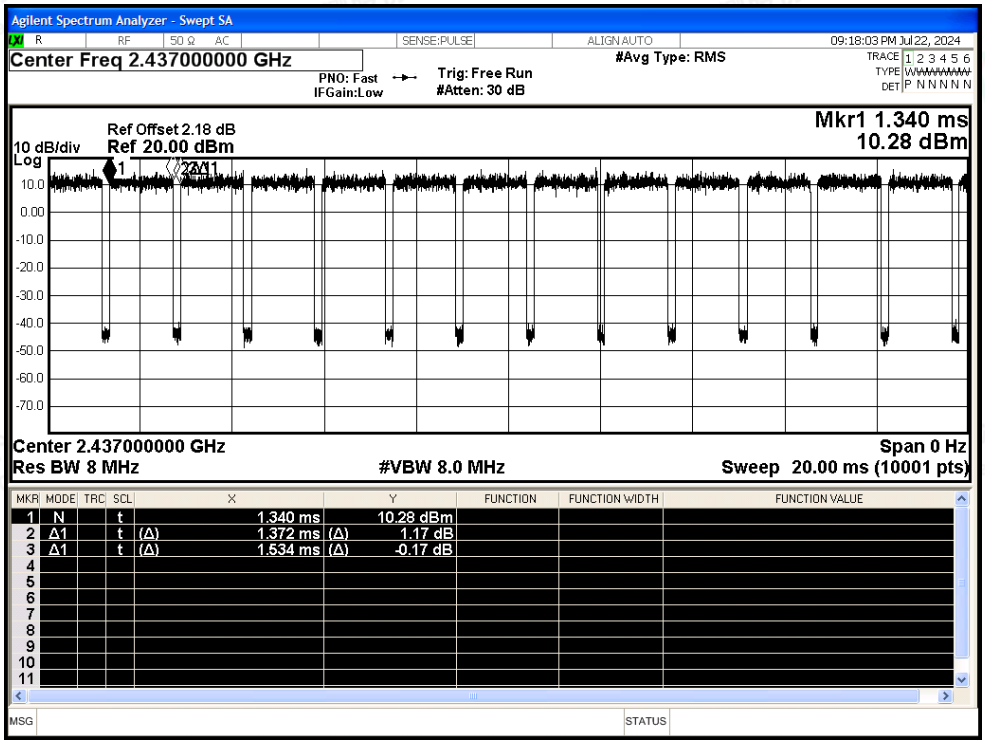
Duty Cycle NVNT g 2437MHz Ant1



Duty Cycle NVNT g 2462MHz Ant1



Duty Cycle NVNT n20 2412MHz Ant1



Duty Cycle NVNT n20 2437MHz Ant1