



Appendix B

RF Test Data for 2.4GWIFI (Conducted Measurement)

Product Name: BDE Dual-band (2.4 and 5GHz) Wi-Fi 6 & BLE Combo Module

Test Model: BDE-BW3351NP2

Environmental Conditions

Temperature:	23.1° C
Relative Humidity:	52.3%
ATM Pressure:	100.0 kPa
Test Engineer:	Can Kun
Supervised by:	Nick Peng



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B.1 -6dB Bandwidth

Condition	Mode	Frequency (MHz)	Antenna	-6 dB Bandwidth (MHz)	Limit -6 dB Bandwidth (MHz)	Verdict
NVNT	b	2412	Ant0	6.478	≥ 0.5	Pass
NVNT	b	2437	Ant0	6.301	≥ 0.5	Pass
NVNT	b	2462	Ant0	6.591	≥ 0.5	Pass
NVNT	g	2412	Ant0	14.361	≥ 0.5	Pass
NVNT	g	2437	Ant0	15.605	≥ 0.5	Pass
NVNT	g	2462	Ant0	15.665	≥ 0.5	Pass
NVNT	n20	2412	Ant0	16.057	≥ 0.5	Pass
NVNT	n20	2437	Ant0	15.783	≥ 0.5	Pass
NVNT	n20	2462	Ant0	15.865	≥ 0.5	Pass
NVNT	ax20	2412	Ant0	16.898	≥ 0.5	Pass
NVNT	ax20	2437	Ant0	16.774	≥ 0.5	Pass
NVNT	ax20	2462	Ant0	18.24	≥ 0.5	Pass



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Test Graphs

-6dB Bandwidth NVNT b 2412MHz Ant0



-6dB Bandwidth NVNT b 2437MHz Ant0

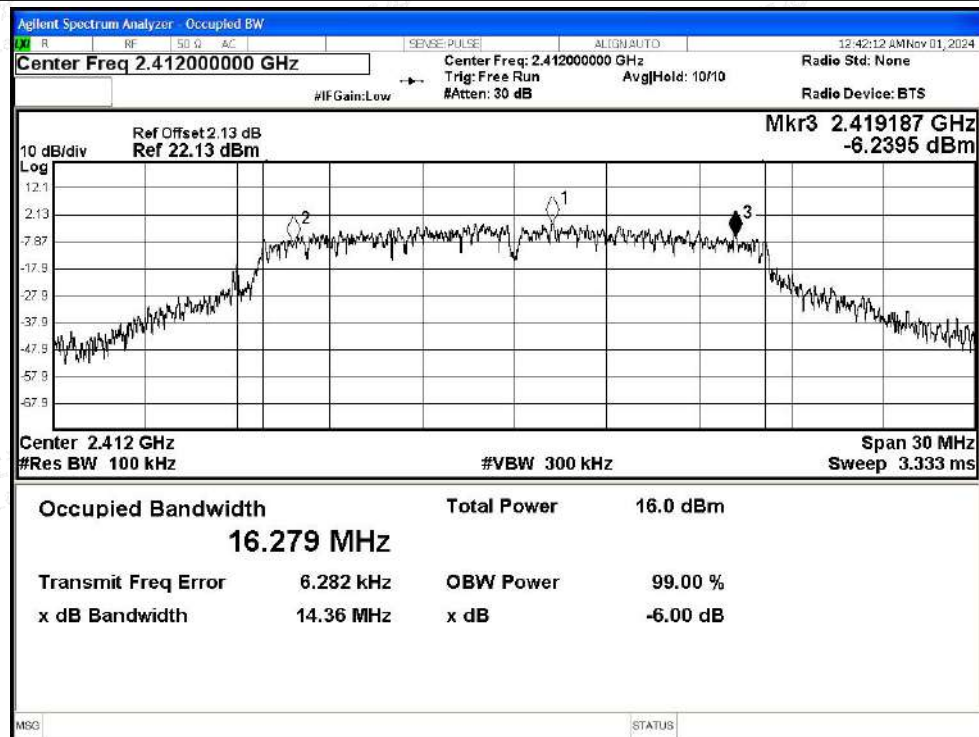




-6dB Bandwidth NVNT b 2462MHz Ant0

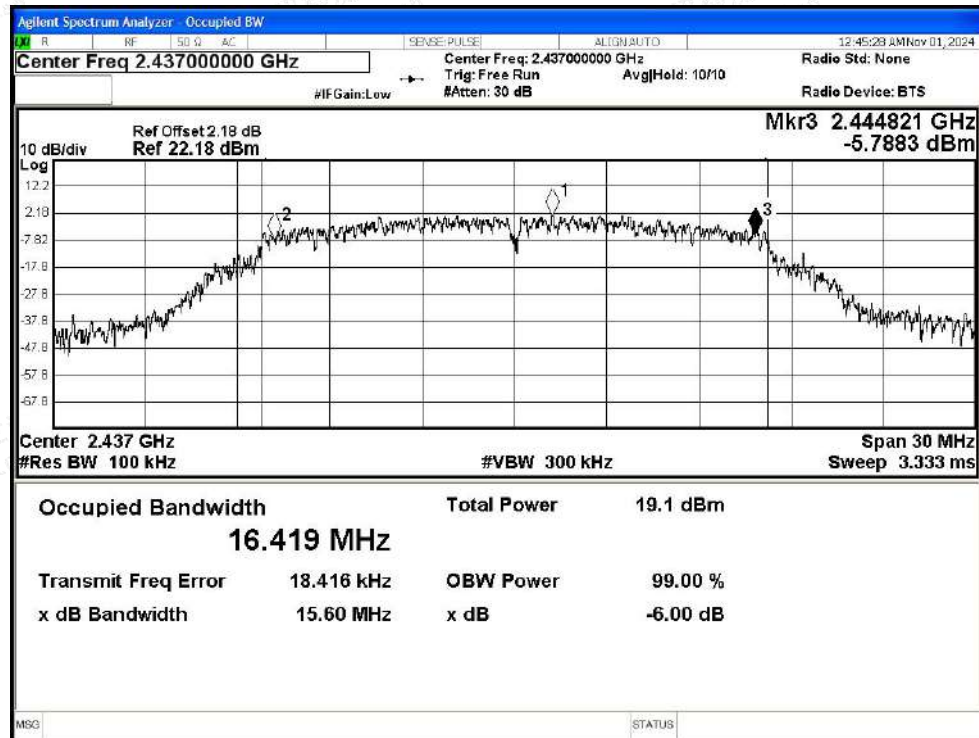


-6dB Bandwidth NVNT g 2412MHz Ant0

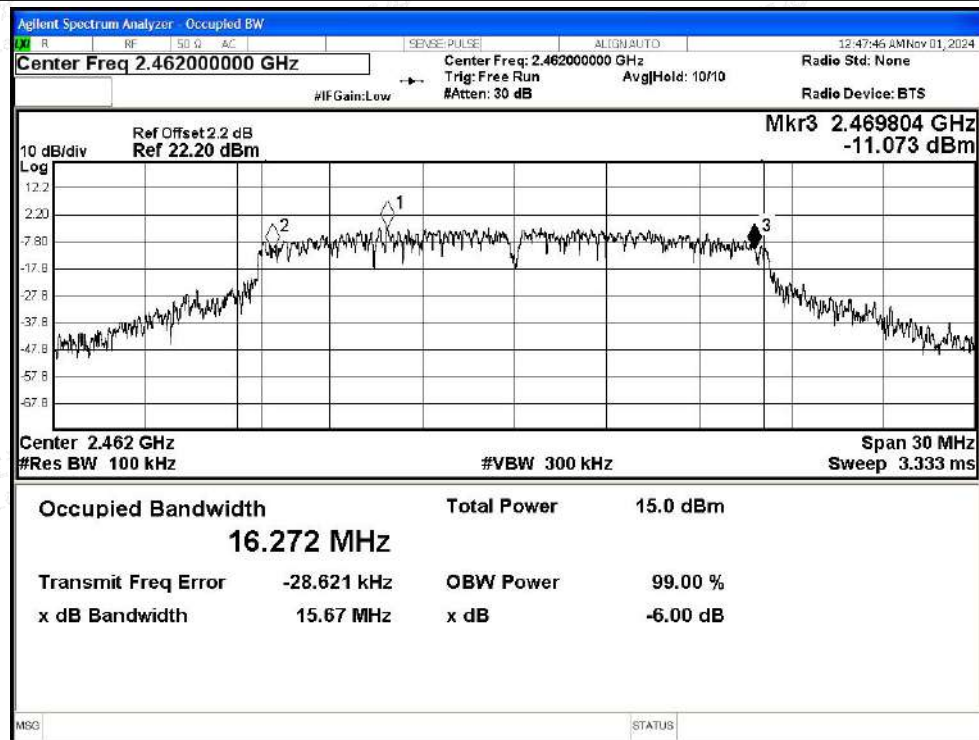




-6dB Bandwidth NVNT g 2437MHz Ant0

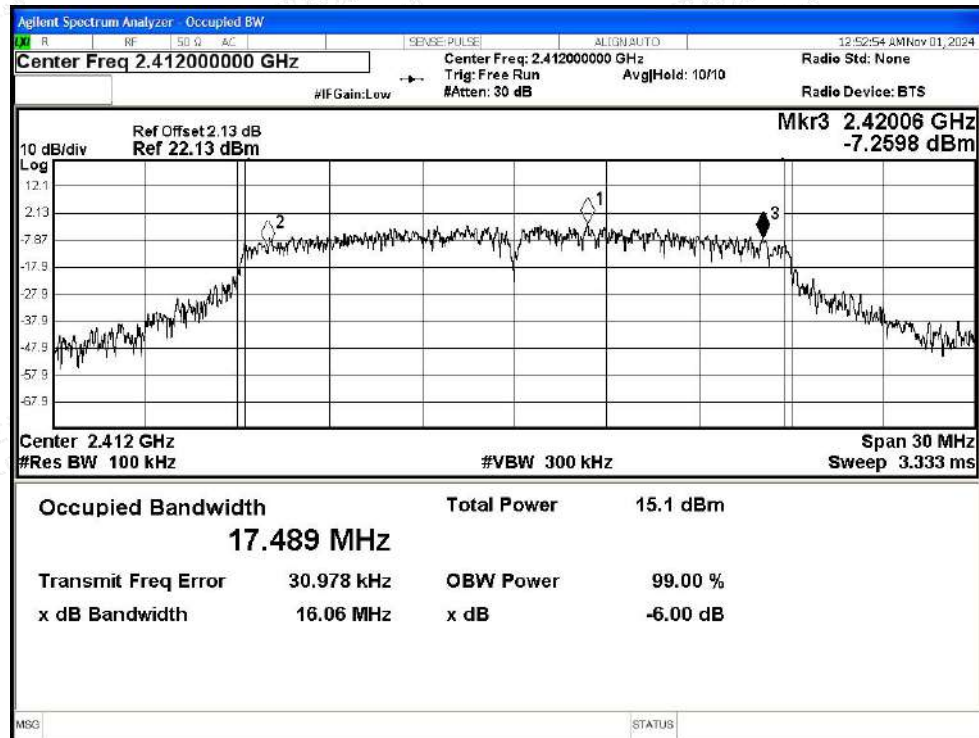


-6dB Bandwidth NVNT g 2462MHz Ant0

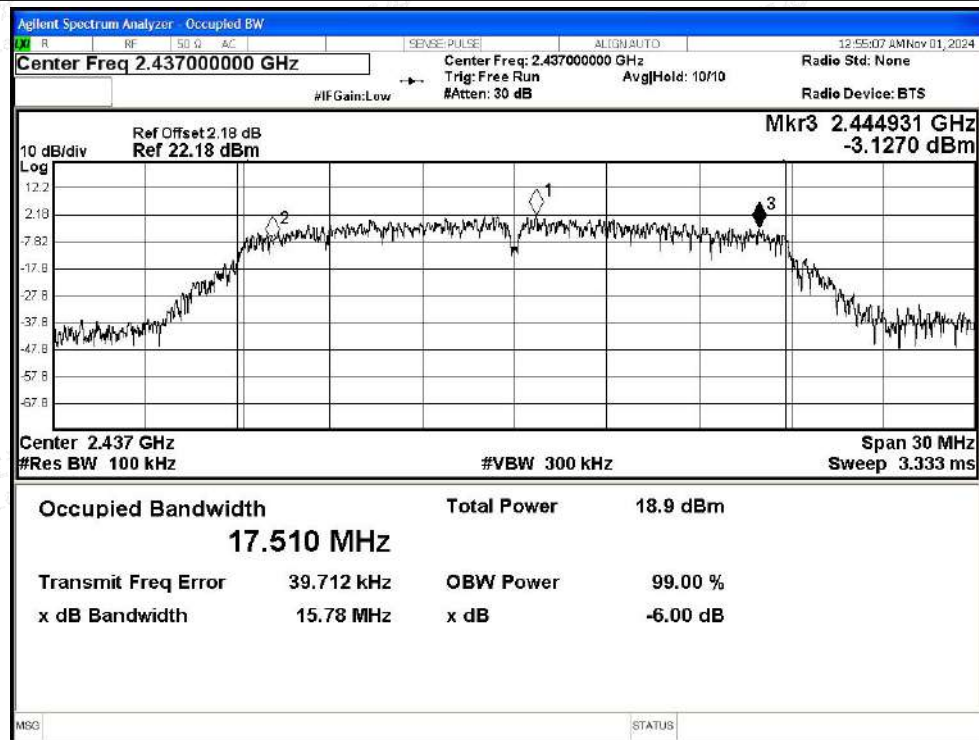




-6dB Bandwidth NVNT n20 2412MHz Ant0

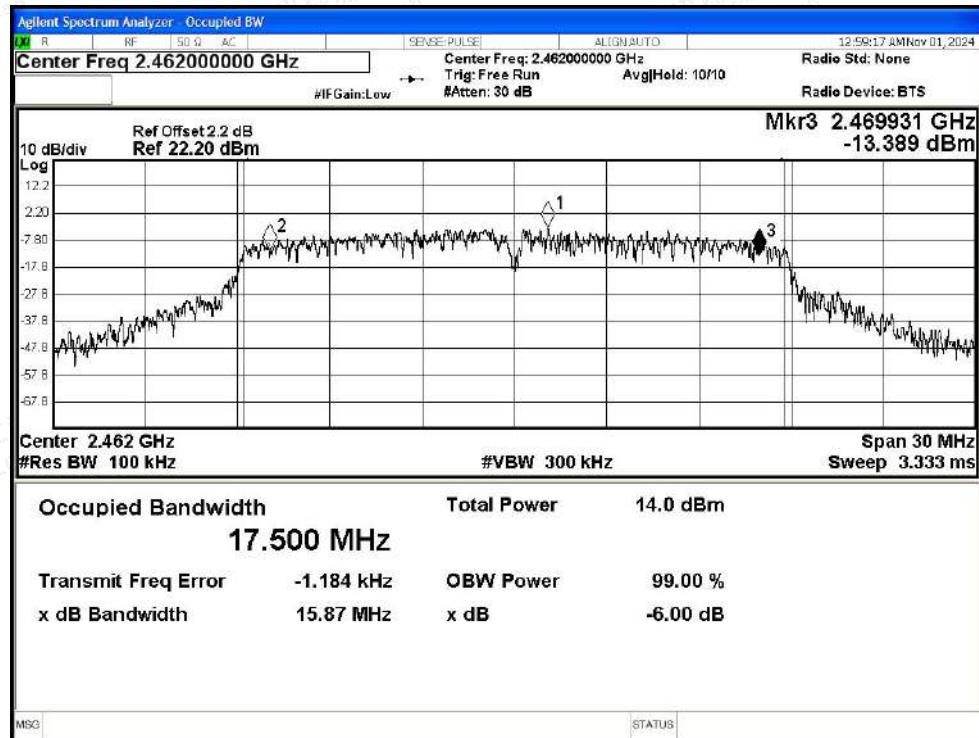


-6dB Bandwidth NVNT n20 2437MHz Ant0

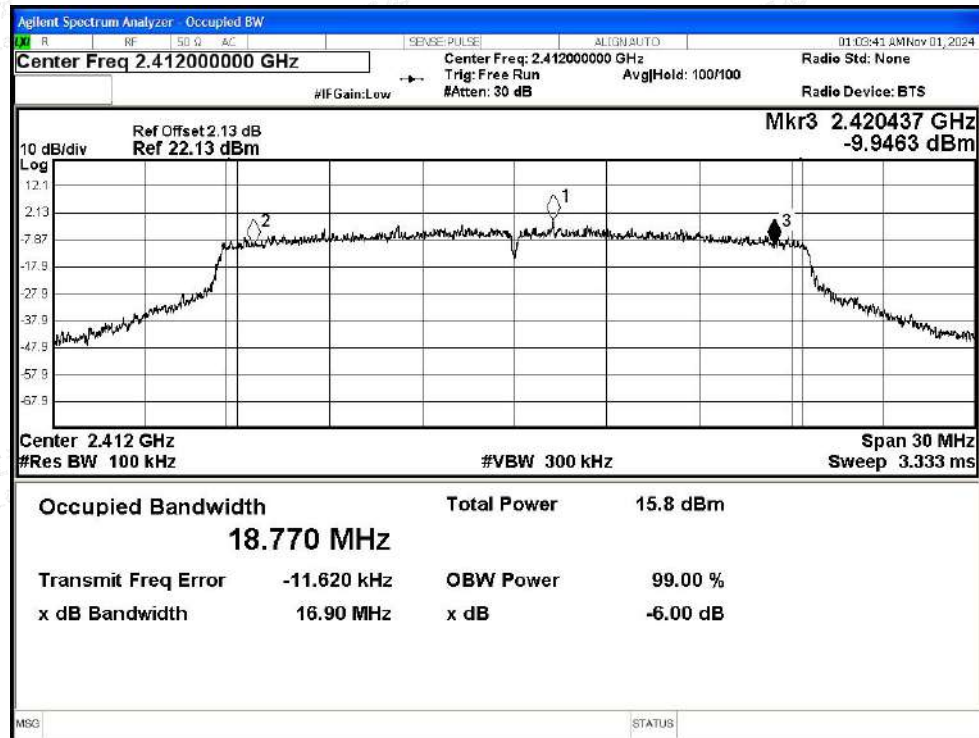




-6dB Bandwidth NVNT n20 2462MHz Ant0

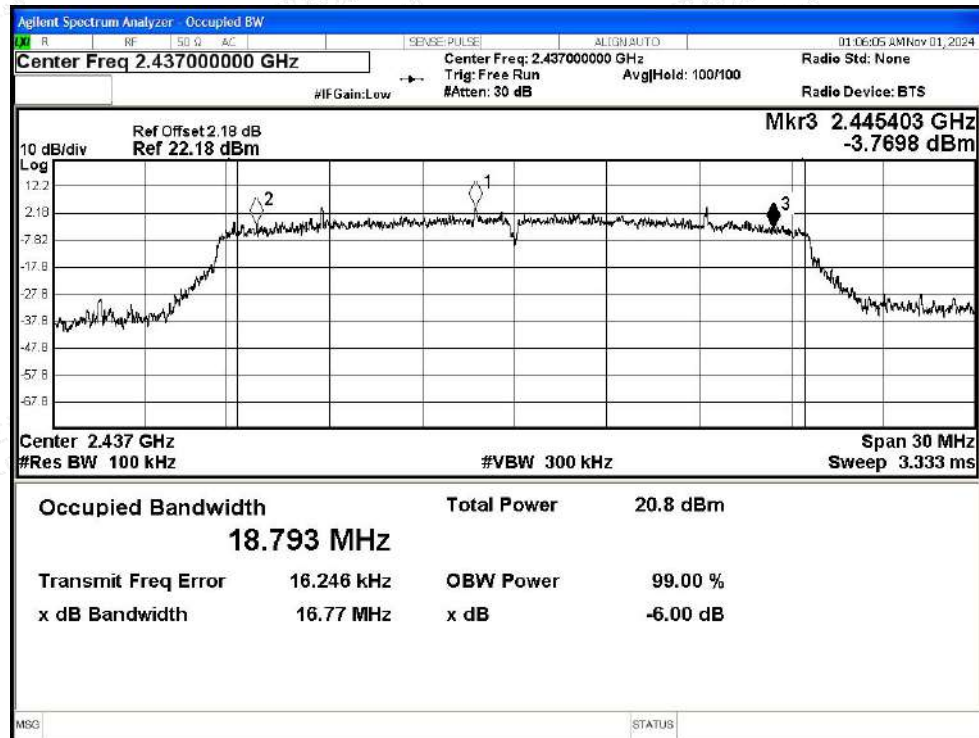


-6dB Bandwidth NVNT ax20 2412MHz Ant0





-6dB Bandwidth NVNT ax20 2437MHz Ant0



-6dB Bandwidth NVNT ax20 2462MHz Ant0





Condition	Mode	Frequency (MHz)	Antenna	-6 dB Bandwidth (MHz)	Limit -6 dB Bandwidth (MHz)	Verdict
NVNT	b	2412	Ant1	6.978	≥ 0.5	Pass
NVNT	b	2437	Ant1	6.116	≥ 0.5	Pass
NVNT	b	2462	Ant1	7.123	≥ 0.5	Pass
NVNT	g	2412	Ant1	14.261	≥ 0.5	Pass
NVNT	g	2437	Ant1	15.014	≥ 0.5	Pass
NVNT	g	2462	Ant1	15.541	≥ 0.5	Pass
NVNT	n20	2412	Ant1	16.996	≥ 0.5	Pass
NVNT	n20	2437	Ant1	15.452	≥ 0.5	Pass
NVNT	n20	2462	Ant1	16.682	≥ 0.5	Pass
NVNT	ax20	2412	Ant1	18.223	≥ 0.5	Pass
NVNT	ax20	2437	Ant1	15.387	≥ 0.5	Pass
NVNT	ax20	2462	Ant1	17.671	≥ 0.5	Pass



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Test Graphs

-6dB Bandwidth NVNT b 2412MHz Ant1



-6dB Bandwidth NVNT b 2437MHz Ant1

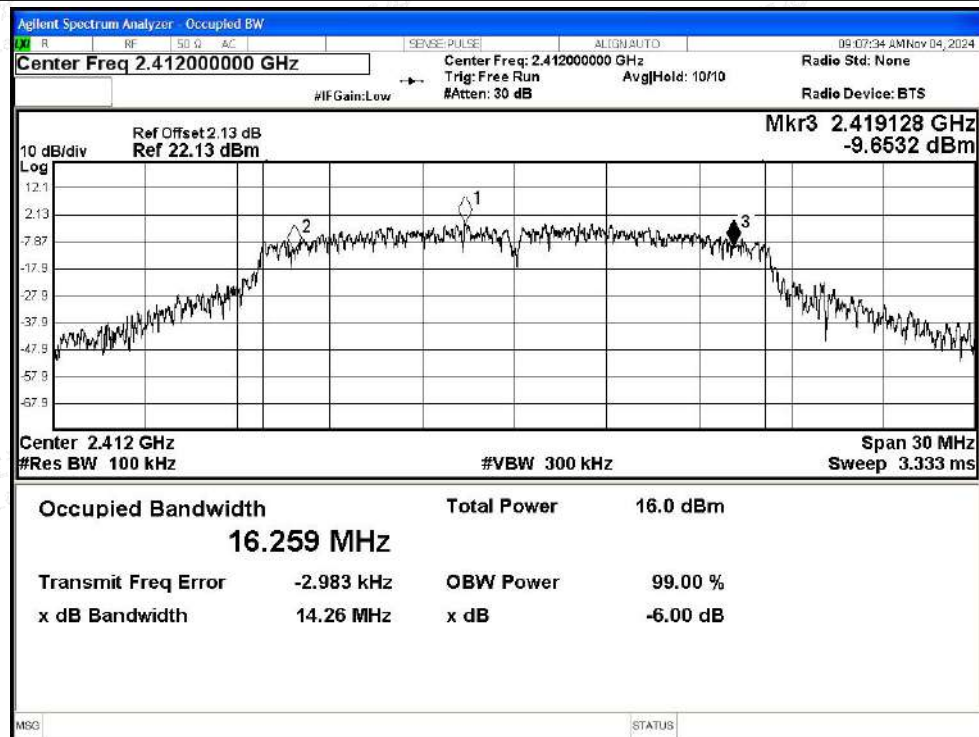




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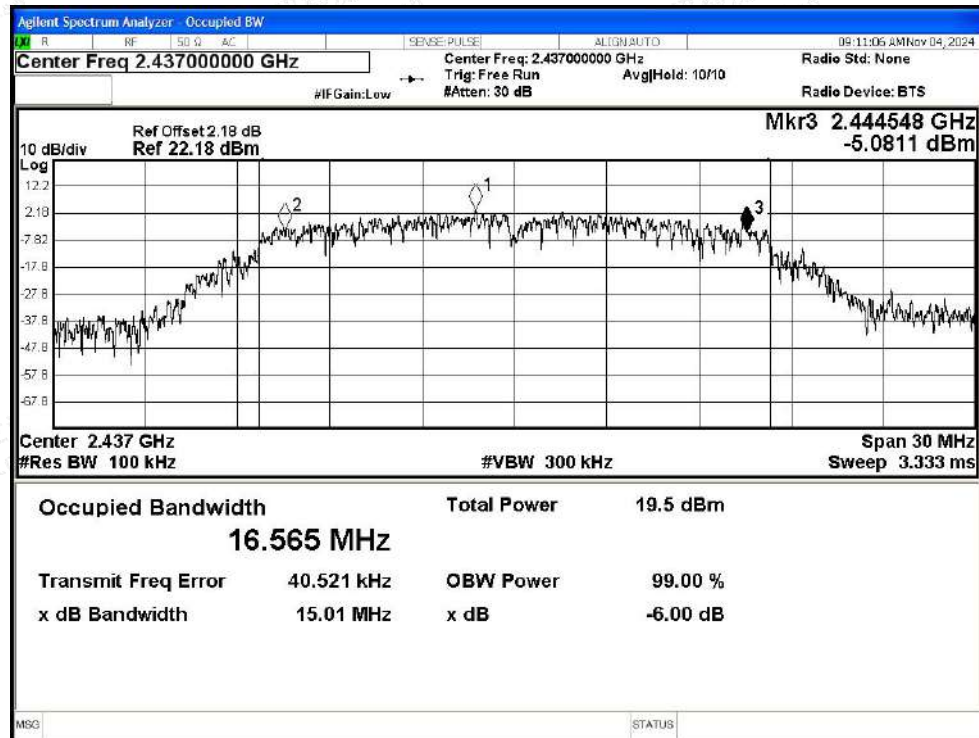


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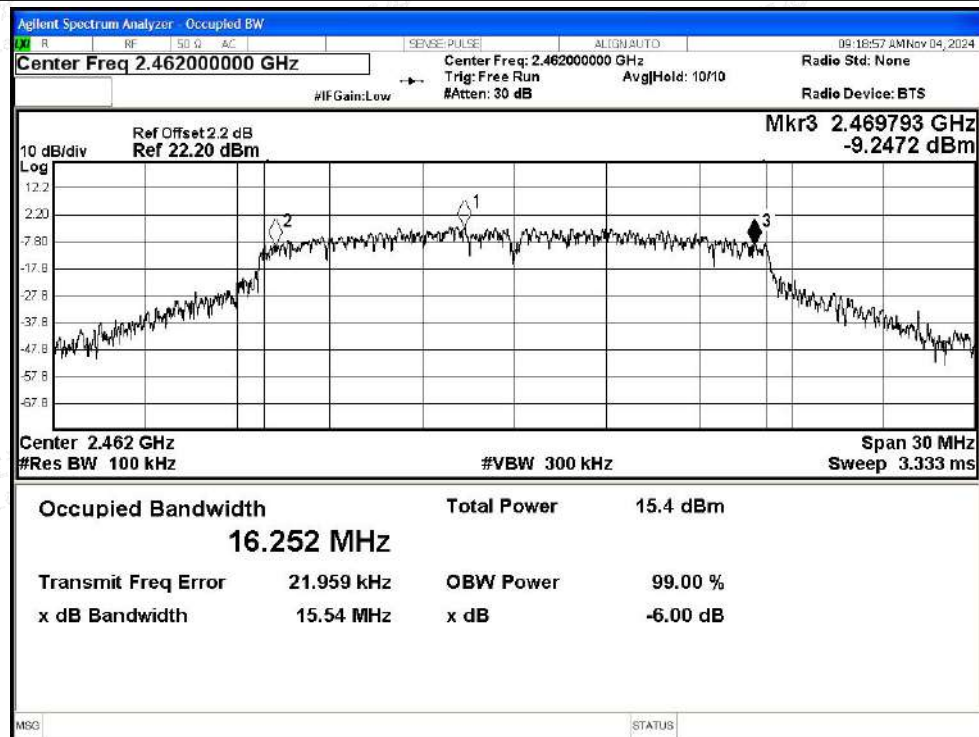




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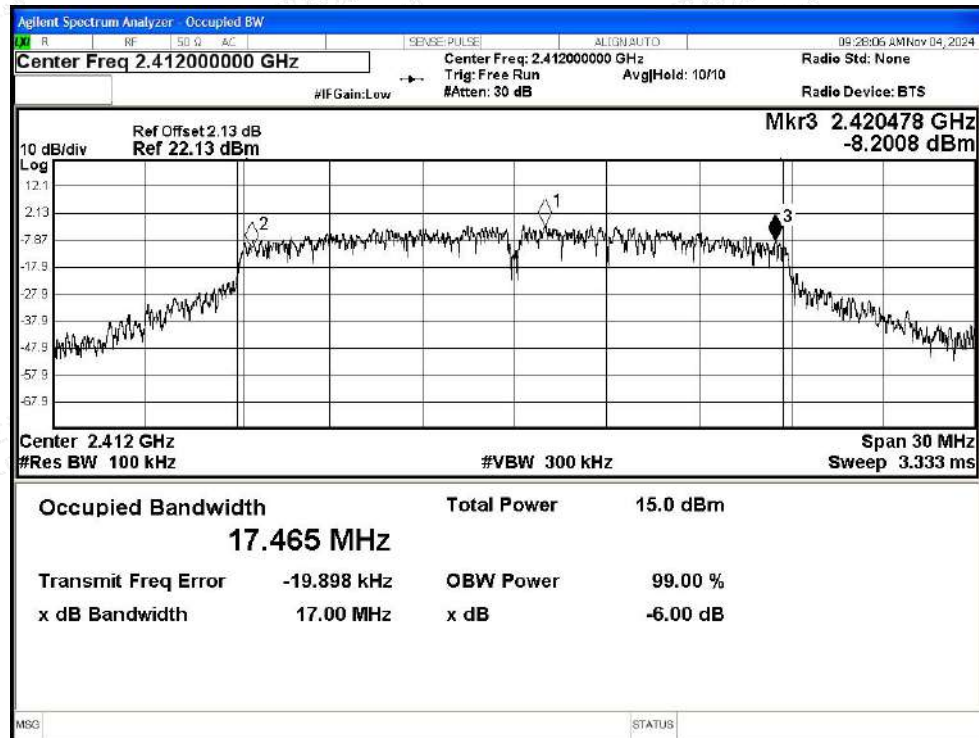


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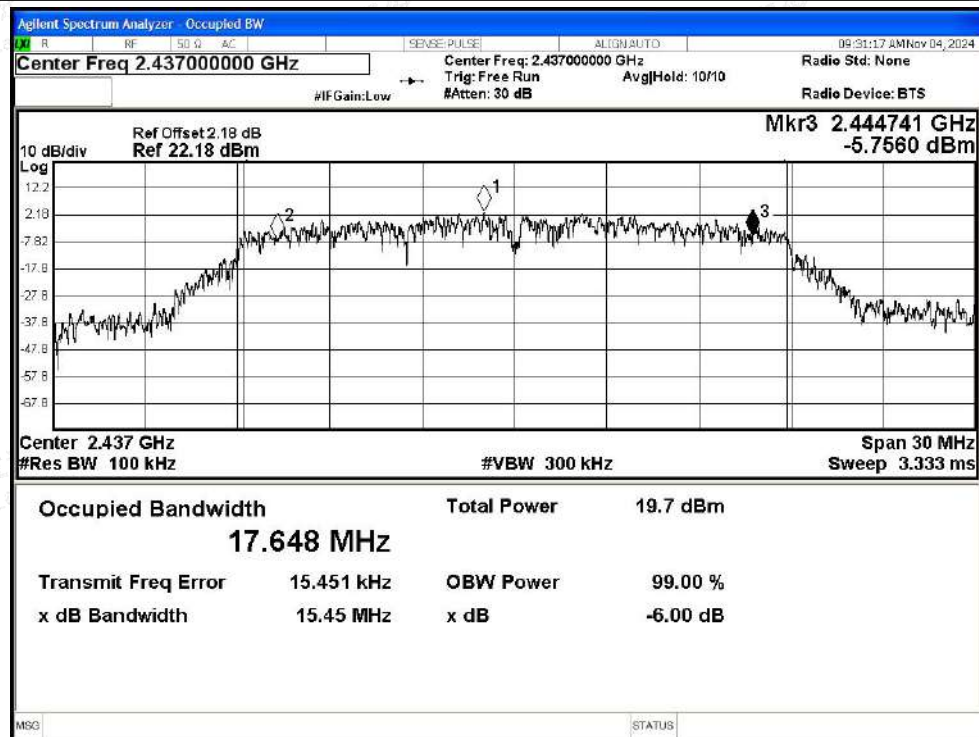




-6dB Bandwidth NVNT n20 2412MHz Ant1

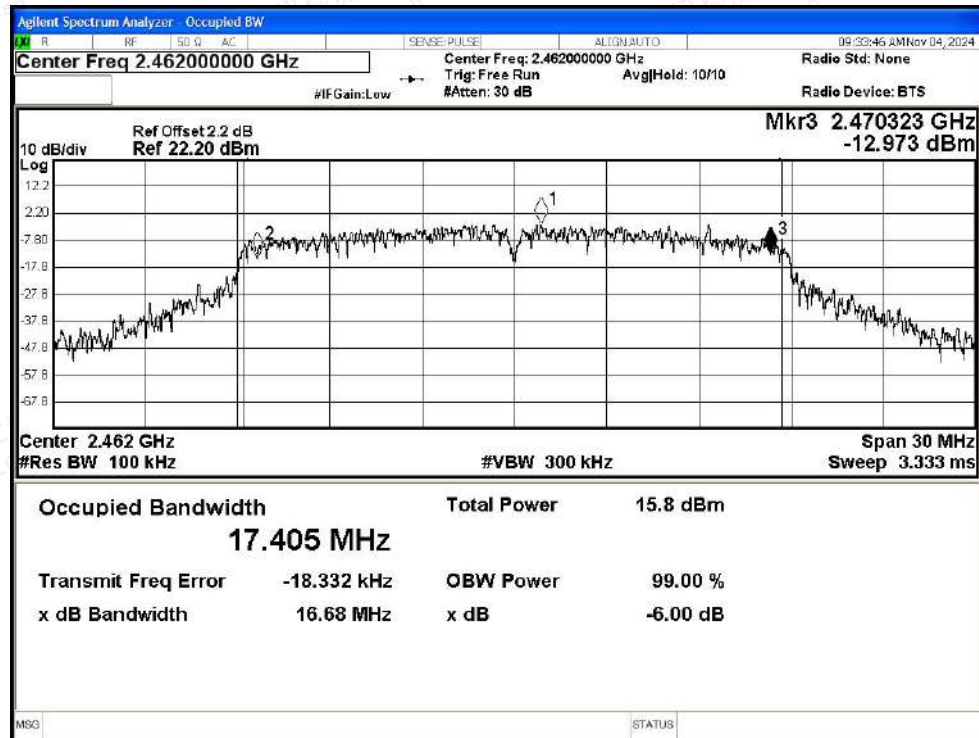


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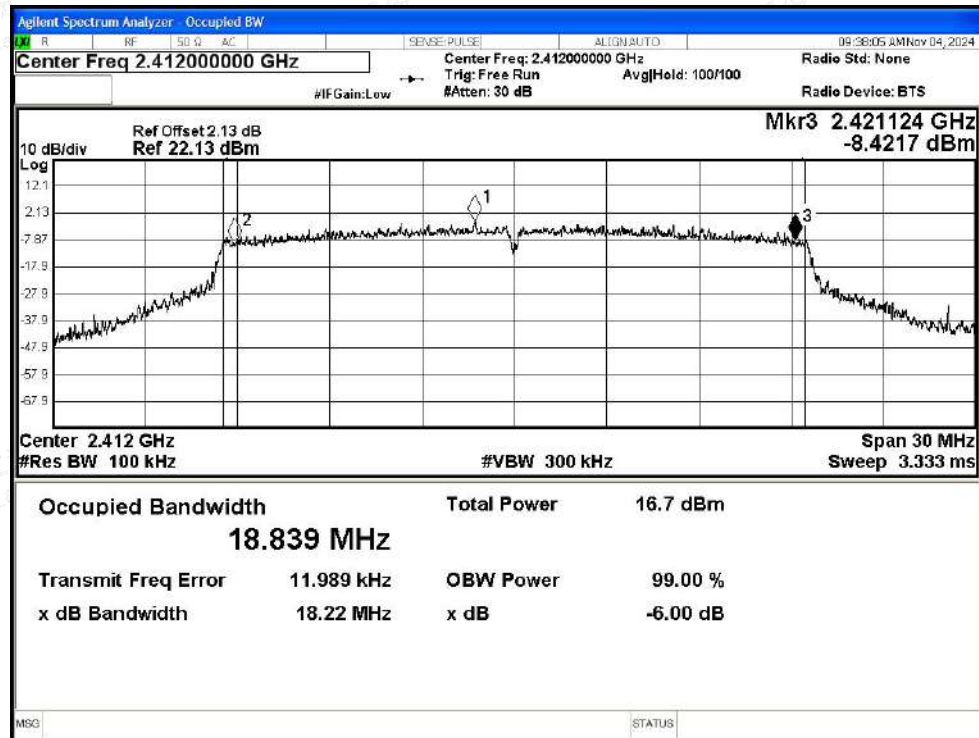




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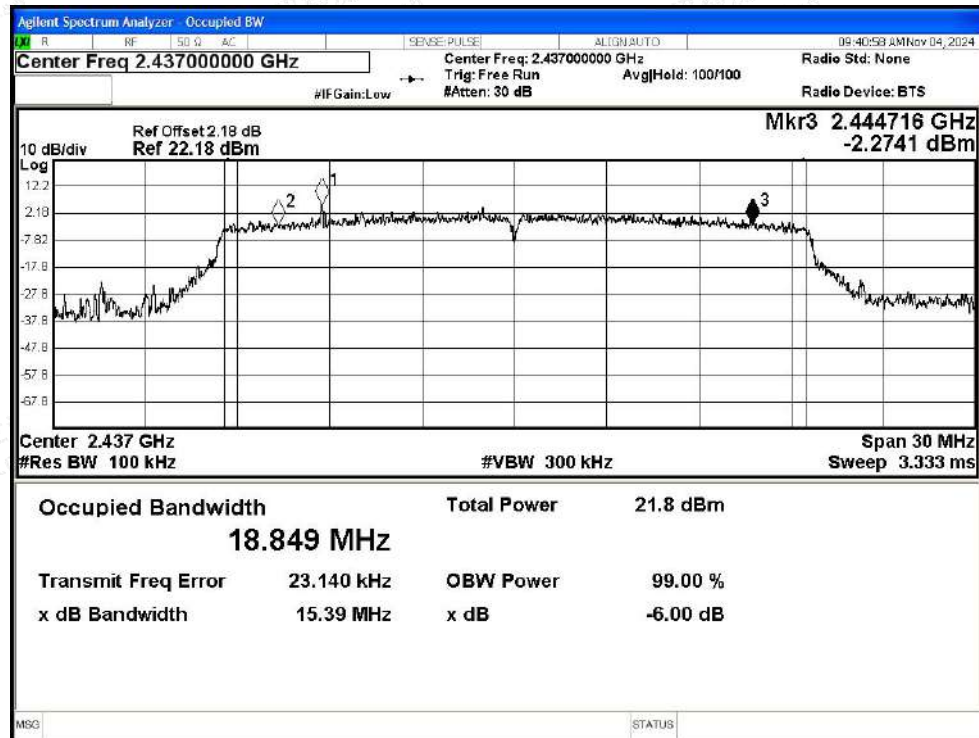


-6dB Bandwidth NVNT ax20 2412MHz Ant1

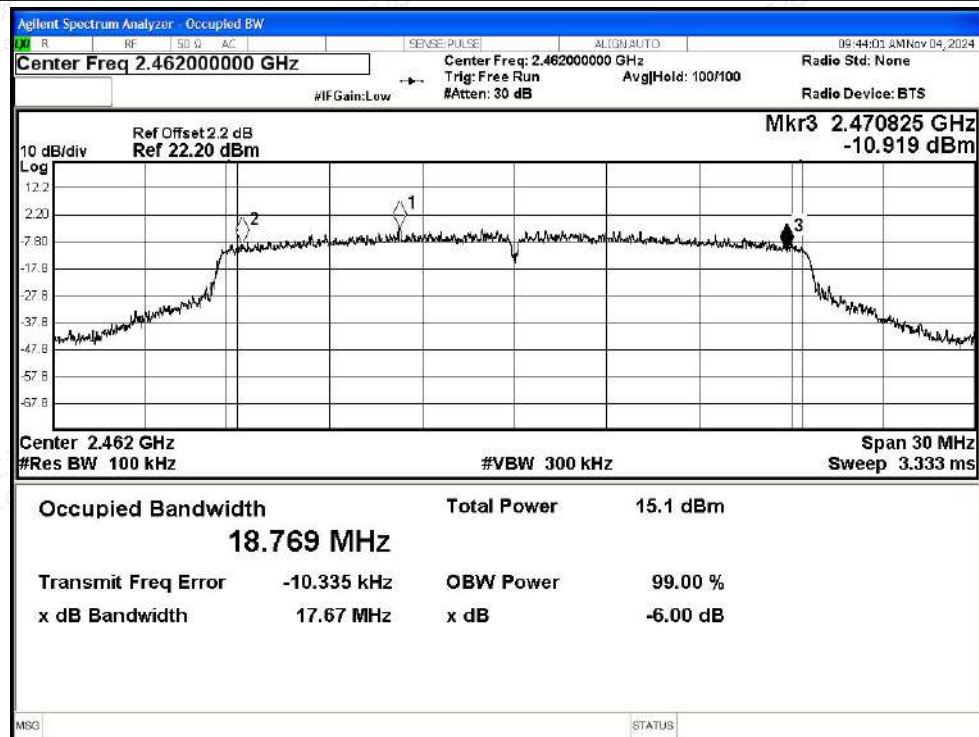




-6dB Bandwidth NVNT ax20 2437MHz Ant1



-6dB Bandwidth NVNT ax20 2462MHz Ant1





B.2 Maximum Peak Conducted Output Power

Condition	Mode	Frequency (MHz)	Antenna	Conducted Power (dBm)	Duty Factor (dB)	Total Power (dBm)	Limit (dBm)	Verdict
NVNT	b	2412	Ant0	17.28	0	17.28	30	Pass
NVNT	b	2437	Ant0	17.35	0	17.35	30	Pass
NVNT	b	2462	Ant0	17.38	0	17.38	30	Pass
NVNT	g	2412	Ant0	14.72	0	14.72	30	Pass
NVNT	g	2437	Ant0	17.8	0	17.8	30	Pass
NVNT	g	2462	Ant0	15.45	0	15.45	30	Pass
NVNT	n20	2412	Ant0	15.18	0	15.18	30	Pass
NVNT	n20	2437	Ant0	17.31	0	17.31	30	Pass
NVNT	n20	2462	Ant0	17.6	0	17.6	30	Pass
NVNT	ax20	2412	Ant0	16.51	0	16.51	30	Pass
NVNT	ax20	2437	Ant0	20.22	0	20.22	30	Pass
NVNT	ax20	2462	Ant0	17.13	0	17.13	30	Pass

Condition	Mode	Frequency (MHz)	Antenna	Conducted Power (dBm)	Duty Factor (dB)	Total Power (dBm)	Limit (dBm)	Verdict
NVNT	b	2412	Ant1	16.98	0	16.98	30	Pass
NVNT	b	2437	Ant1	17.38	0	17.38	30	Pass
NVNT	b	2462	Ant1	17.85	0	17.85	30	Pass
NVNT	g	2412	Ant1	14.79	0	14.79	30	Pass
NVNT	g	2437	Ant1	18.92	0	18.92	30	Pass
NVNT	g	2462	Ant1	15.51	0	15.51	30	Pass
NVNT	n20	2412	Ant1	15	0	15	30	Pass
NVNT	n20	2437	Ant1	18.84	0	18.84	30	Pass
NVNT	n20	2462	Ant1	17.4	0	17.4	30	Pass
NVNT	ax20	2412	Ant1	16.36	0	16.36	30	Pass
NVNT	ax20	2437	Ant1	21.06	0	21.06	30	Pass
NVNT	ax20	2462	Ant1	16.9	0	16.9	30	Pass



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B.3 Maximum Power Spectral Density Level

Condition	Mode	Frequency (MHz)	Antenna	Conducted PSD (dBm/3kHz)	Duty Factor (dB)	Total PSD (dBm/3kHz)	Limit (dBm/3kHz)	Verdict
NVNT	b	2412	Ant0	-5.93	0	-5.93	8	Pass
NVNT	b	2437	Ant0	-4.83	0	-4.83	8	Pass
NVNT	b	2462	Ant0	-6.45	0	-6.45	8	Pass
NVNT	g	2412	Ant0	-10.72	0	-10.72	8	Pass
NVNT	g	2437	Ant0	-9.22	0	-9.22	8	Pass
NVNT	g	2462	Ant0	-9.34	0	-9.34	8	Pass
NVNT	n20	2412	Ant0	-10.73	0	-10.73	8	Pass
NVNT	n20	2437	Ant0	-9.82	0	-9.82	8	Pass
NVNT	n20	2462	Ant0	-10.03	0	-10.03	8	Pass
NVNT	ax20	2412	Ant0	-11.83	0	-11.83	8	Pass
NVNT	ax20	2437	Ant0	-8.46	0	-8.46	8	Pass
NVNT	ax20	2462	Ant0	-12.12	0	-12.12	8	Pass

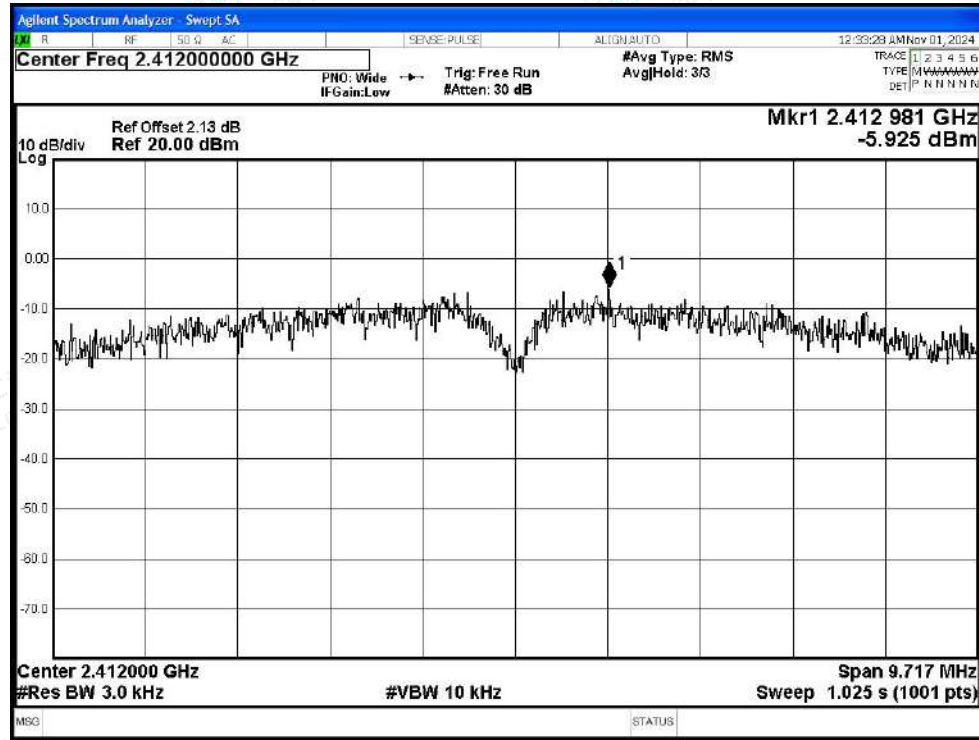


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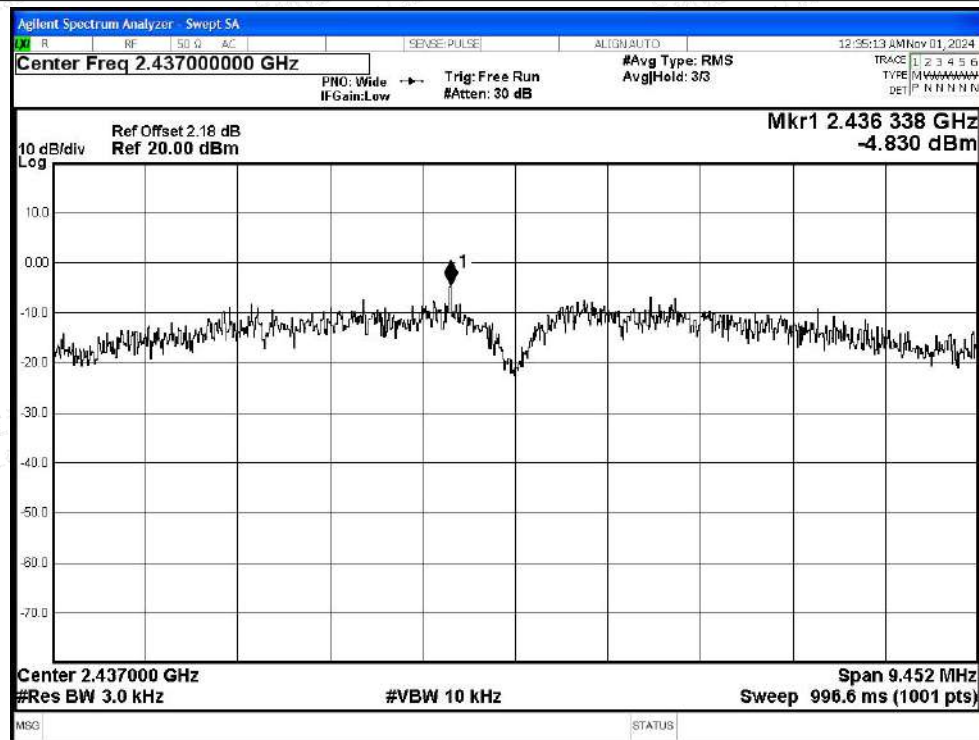


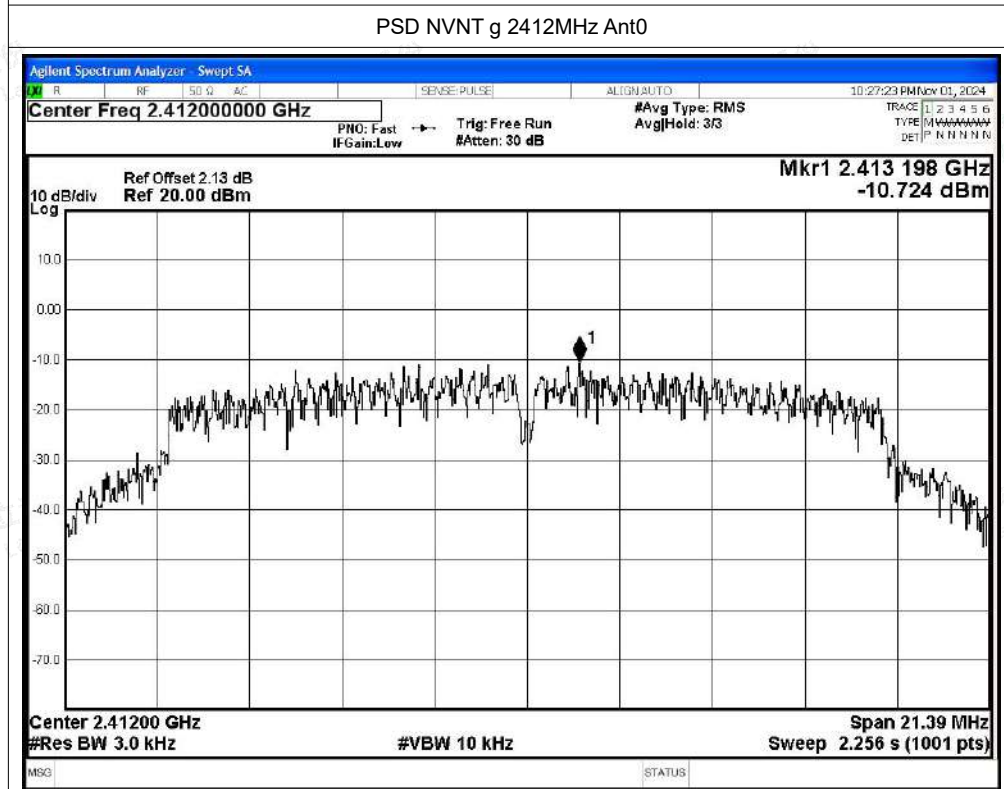
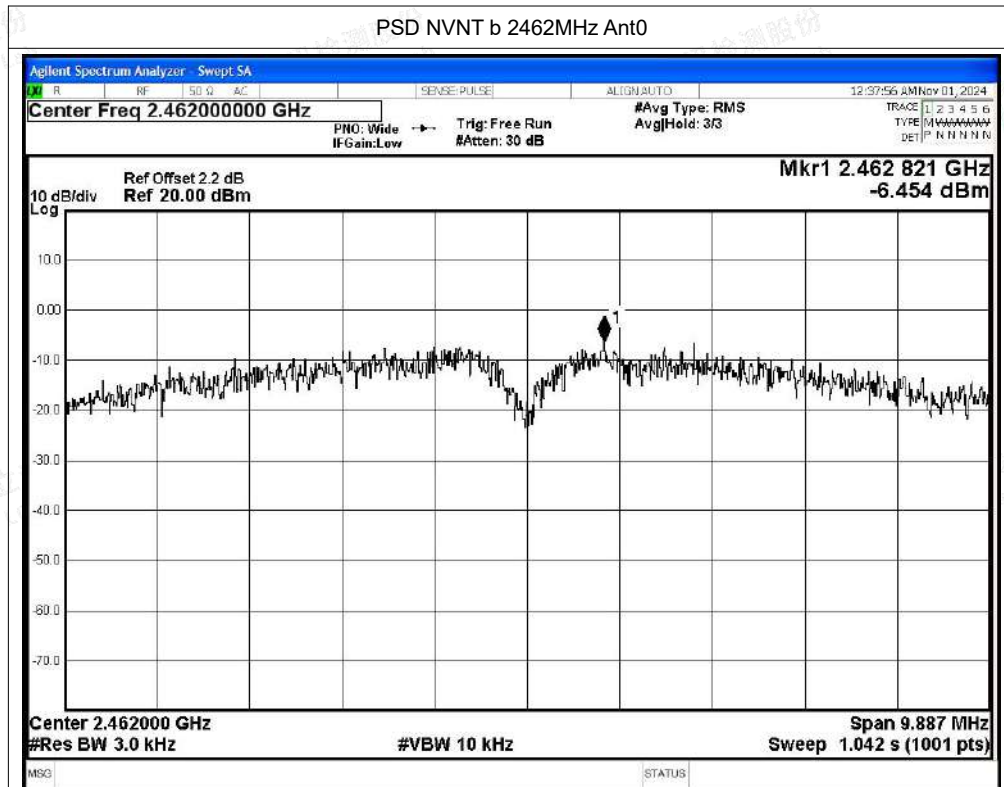
Test Graphs

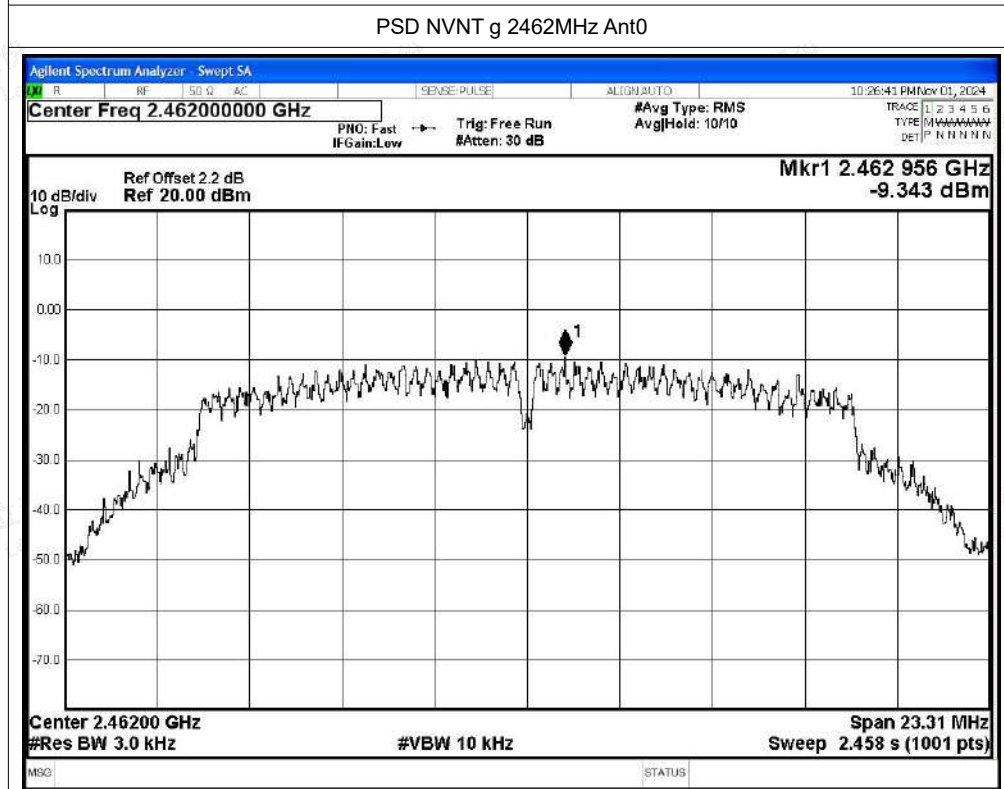
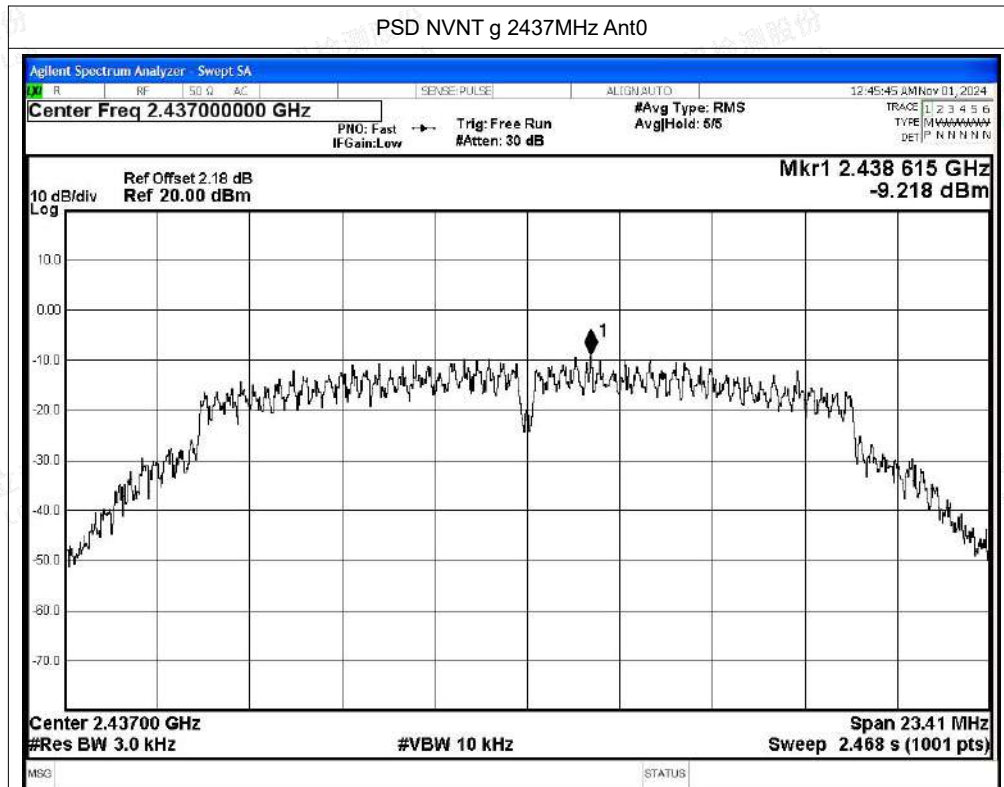
PSD NVNT b 2412MHz Ant0

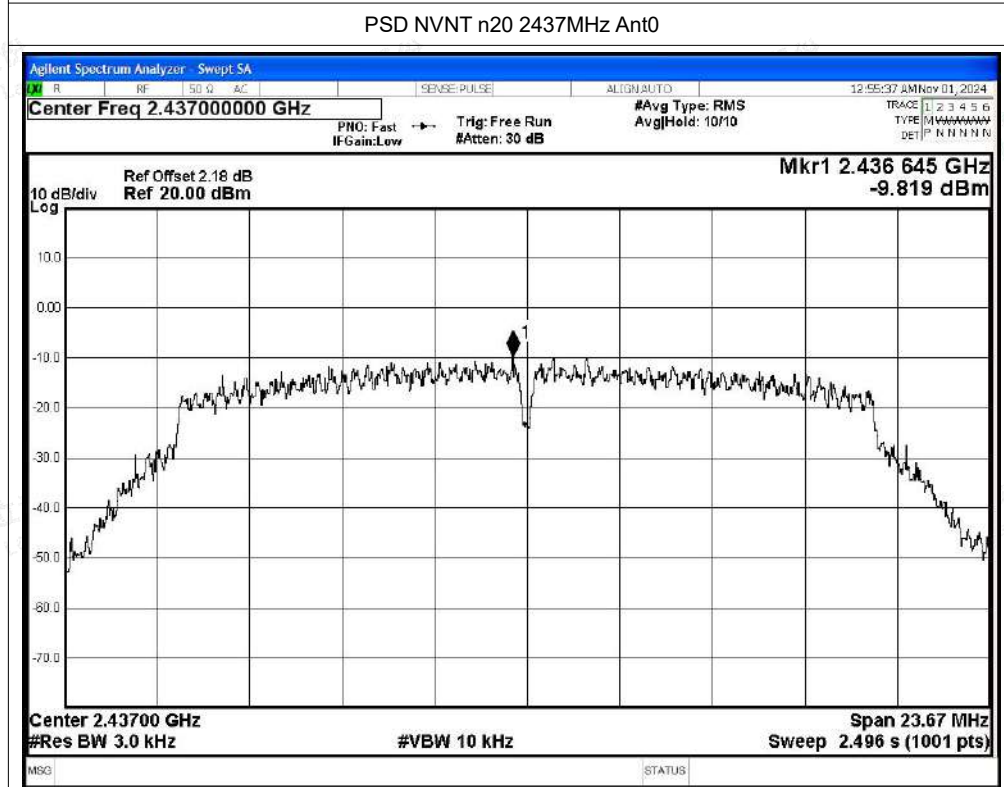
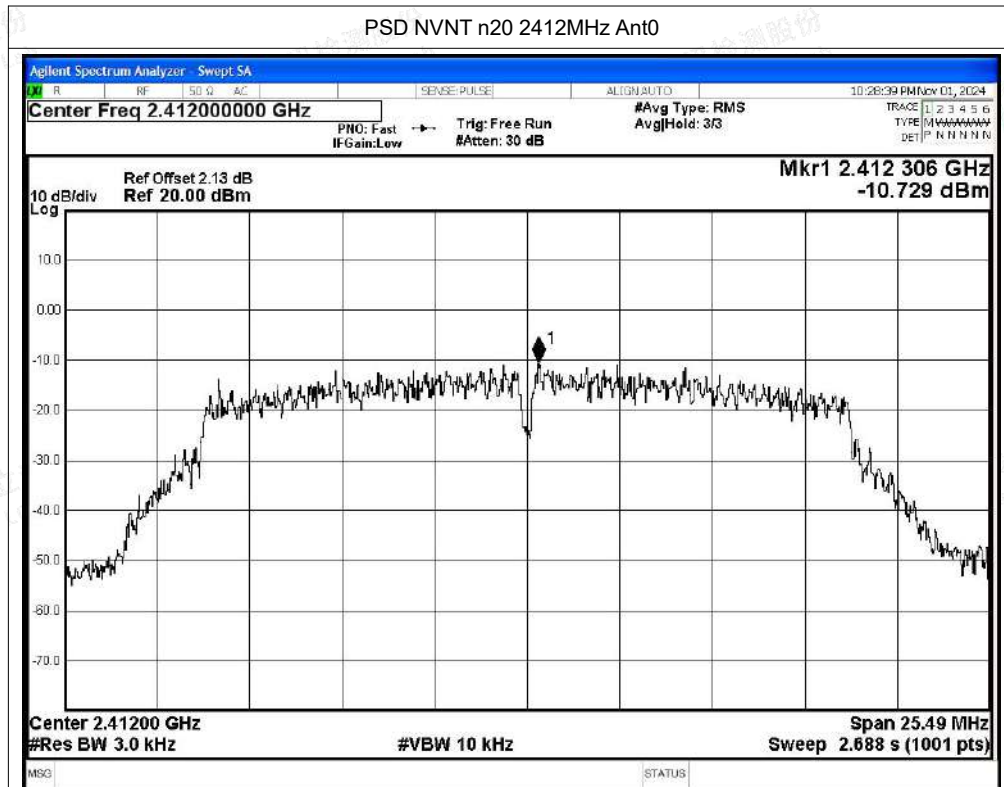


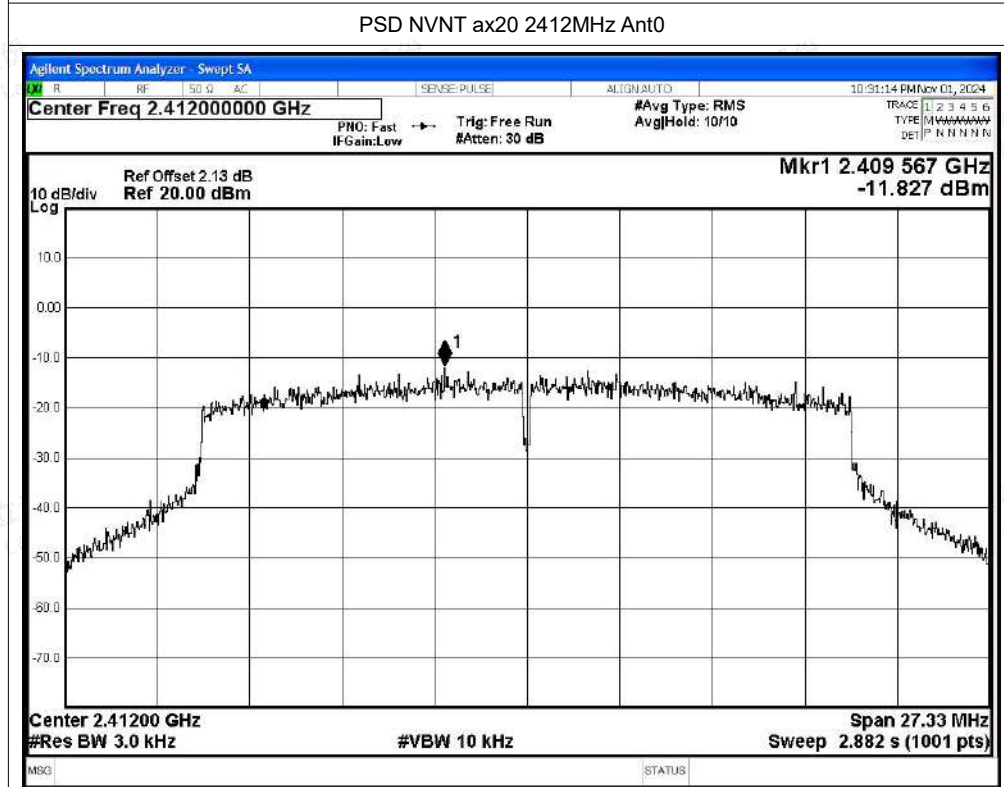
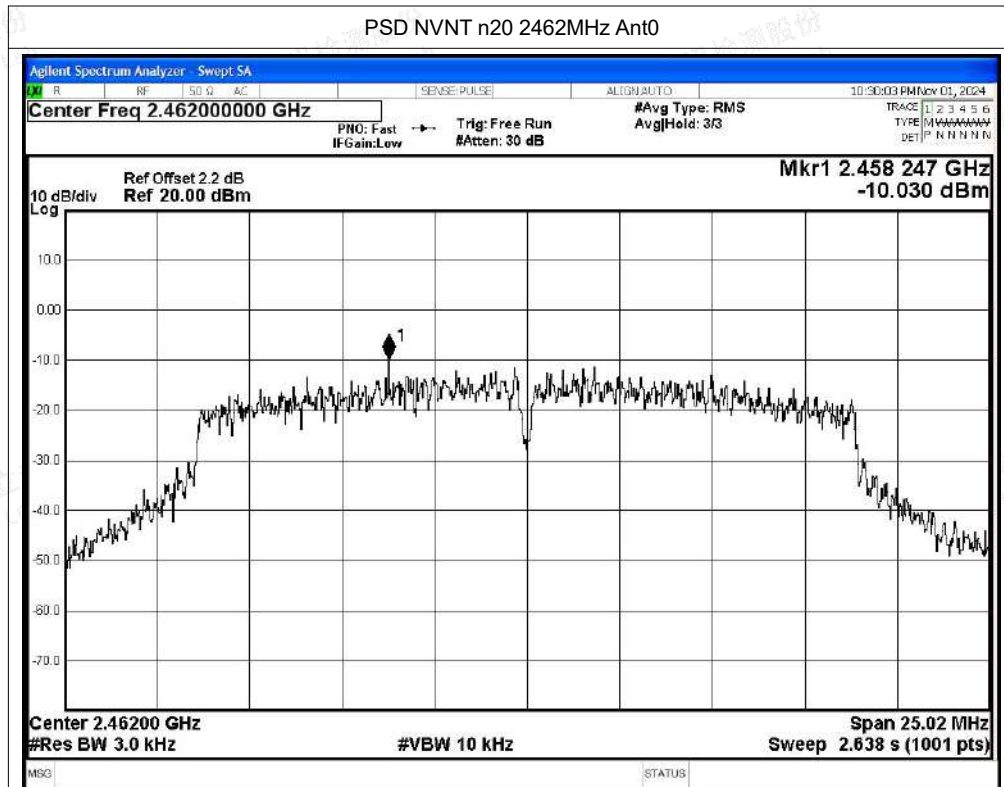
PSD NVNT b 2437MHz Ant0

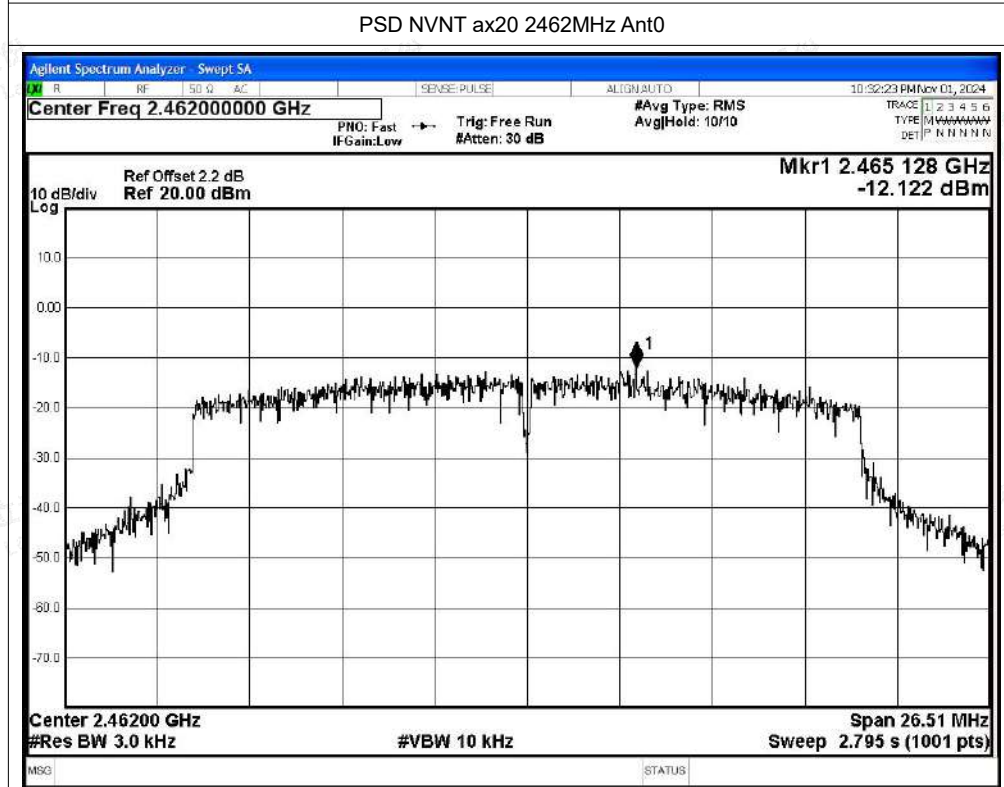
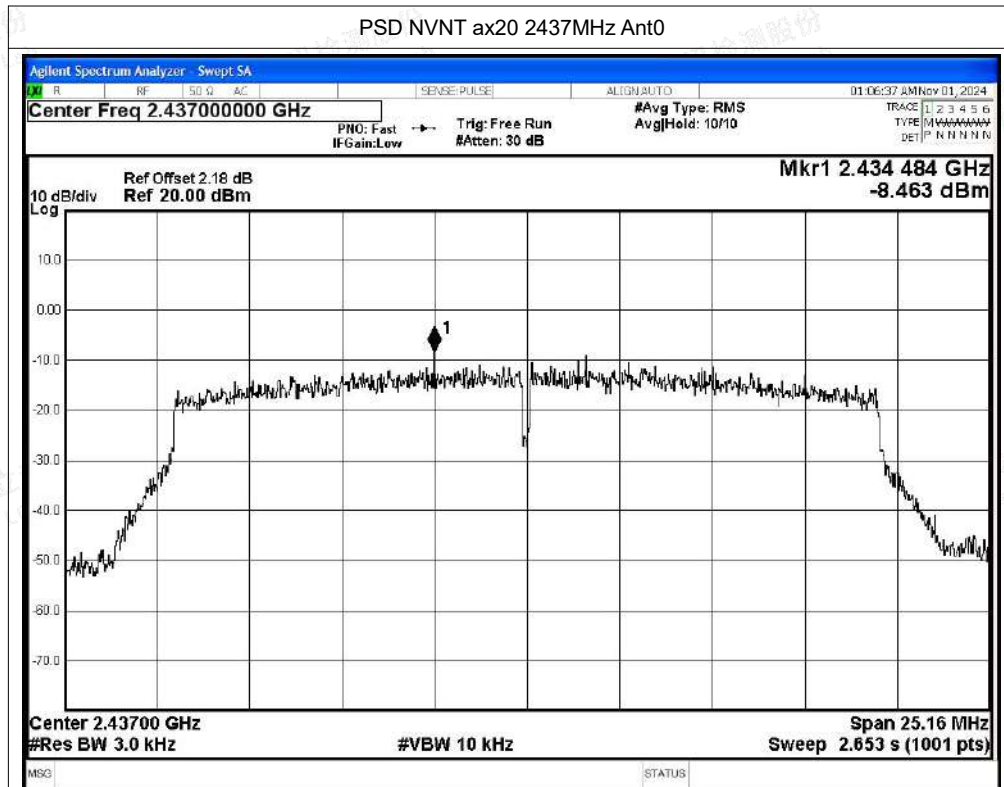














Condition	Mode	Frequency (MHz)	Antenna	Conducted PSD (dBm/3kHz)	Duty Factor (dB)	Total PSD (dBm/3kHz)	Limit (dBm/3kHz)	Verdict
NVNT	b	2412	Ant1	-6.82	0	-6.82	8	Pass
NVNT	b	2437	Ant1	-6.41	0	-6.41	8	Pass
NVNT	b	2462	Ant1	-5.07	0	-5.07	8	Pass
NVNT	g	2412	Ant1	-10.05	0	-10.05	8	Pass
NVNT	g	2437	Ant1	-8.31	0	-8.31	8	Pass
NVNT	g	2462	Ant1	-7.74	0	-7.74	8	Pass
NVNT	n20	2412	Ant1	-10.51	0	-10.51	8	Pass
NVNT	n20	2437	Ant1	-8.86	0	-8.86	8	Pass
NVNT	n20	2462	Ant1	-12.33	0	-12.33	8	Pass
NVNT	ax20	2412	Ant1	-12.4	0	-12.4	8	Pass
NVNT	ax20	2437	Ant1	-9.31	0	-9.31	8	Pass
NVNT	ax20	2462	Ant1	-12.73	0	-12.73	8	Pass

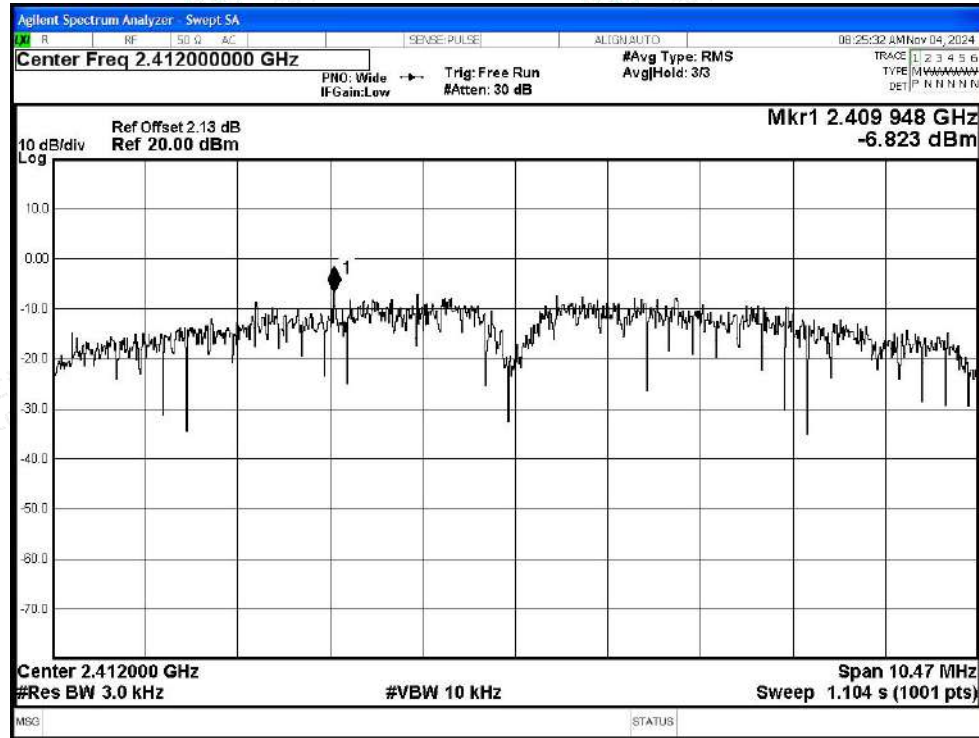


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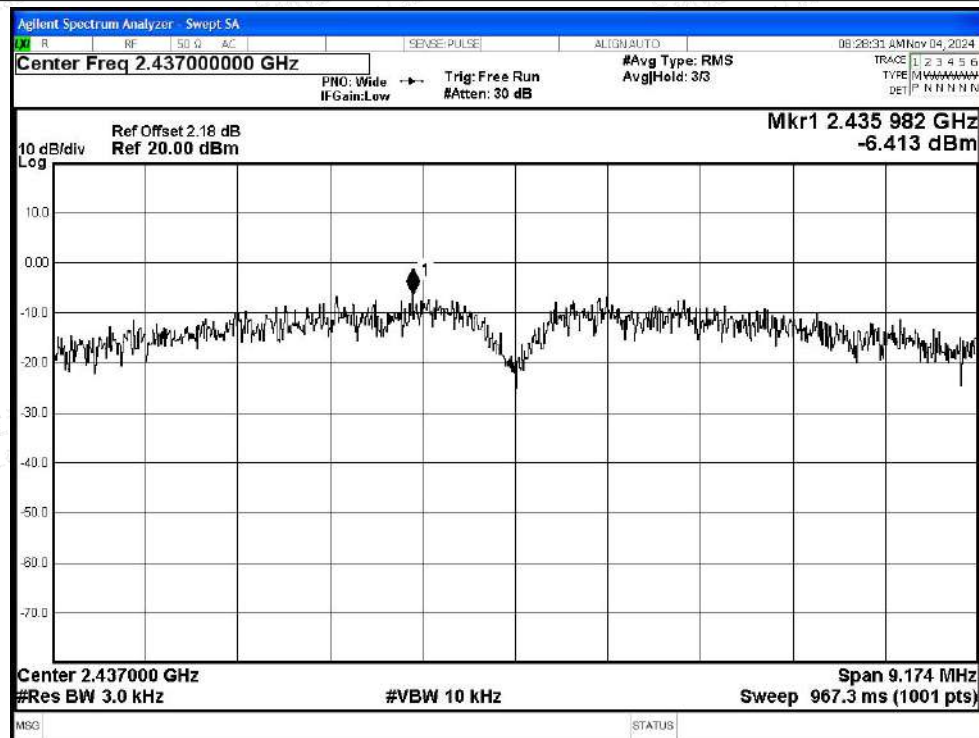


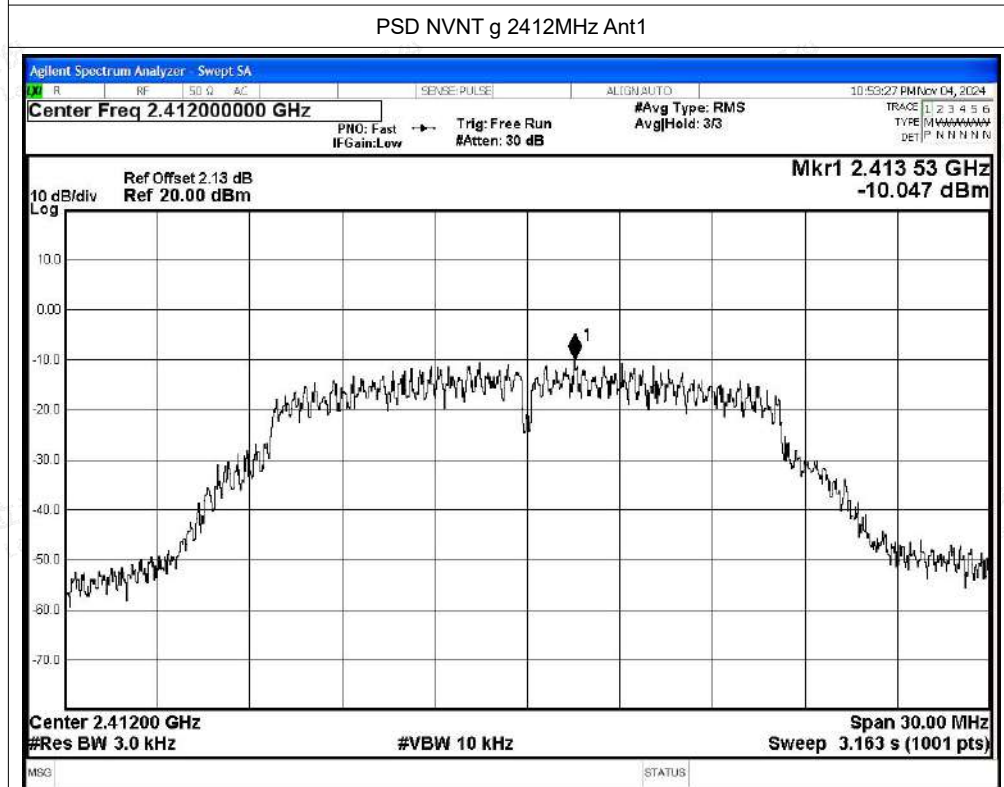
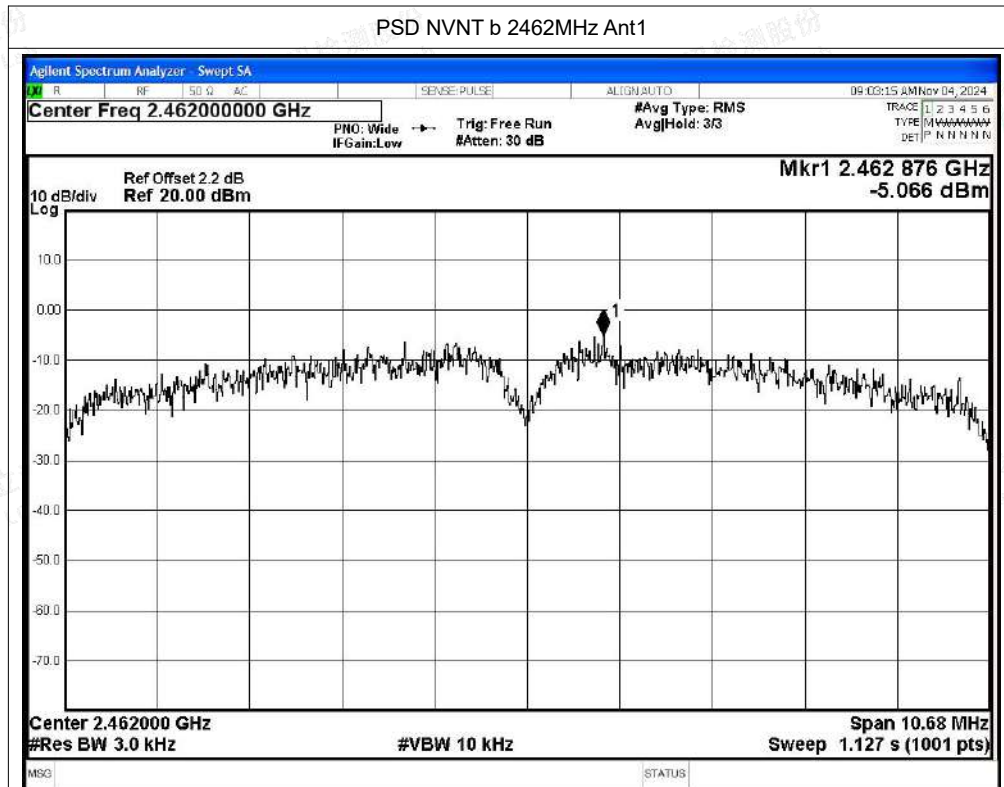
Test Graphs

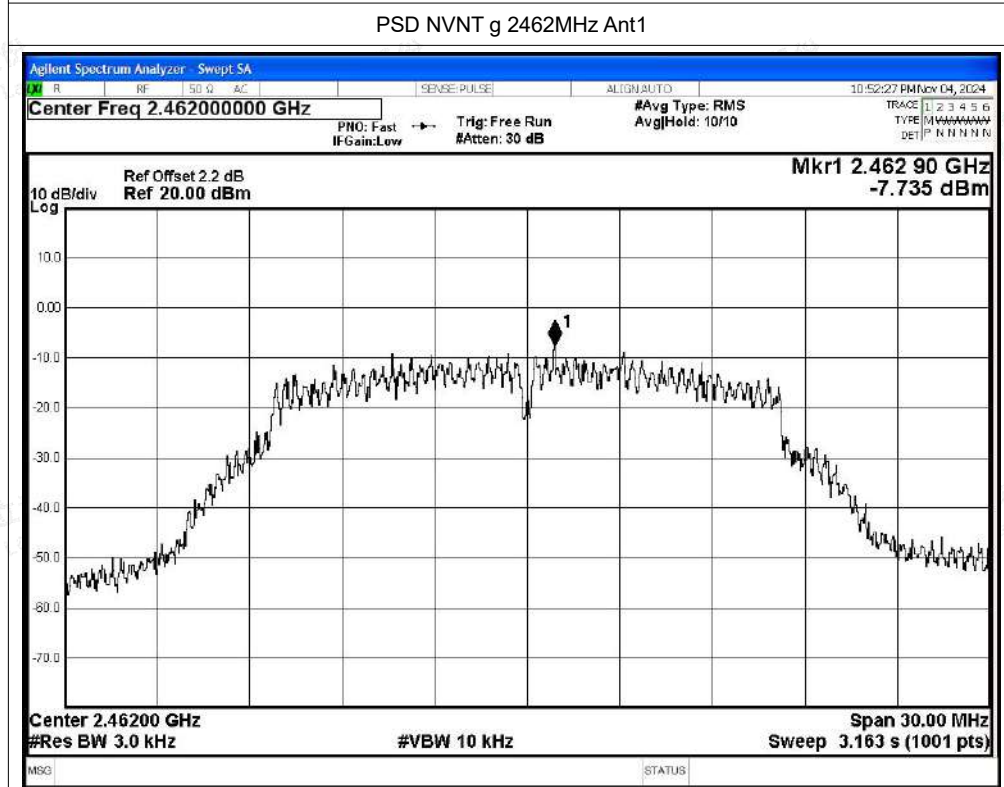
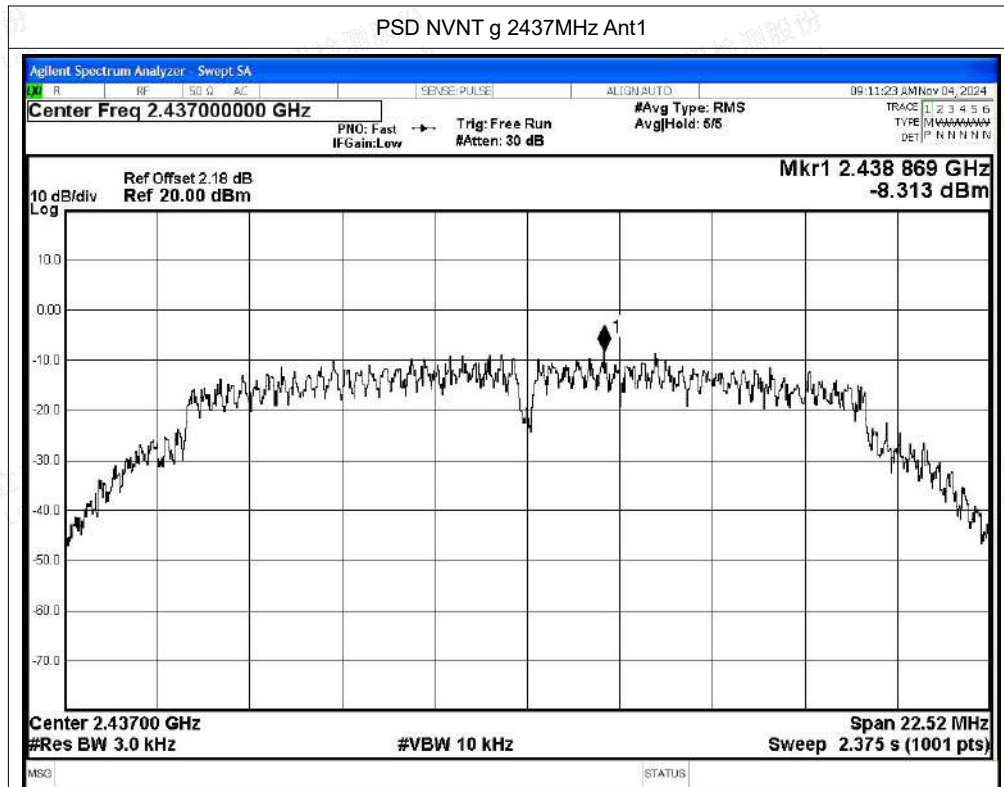
PSD NVNT b 2412MHz Ant1

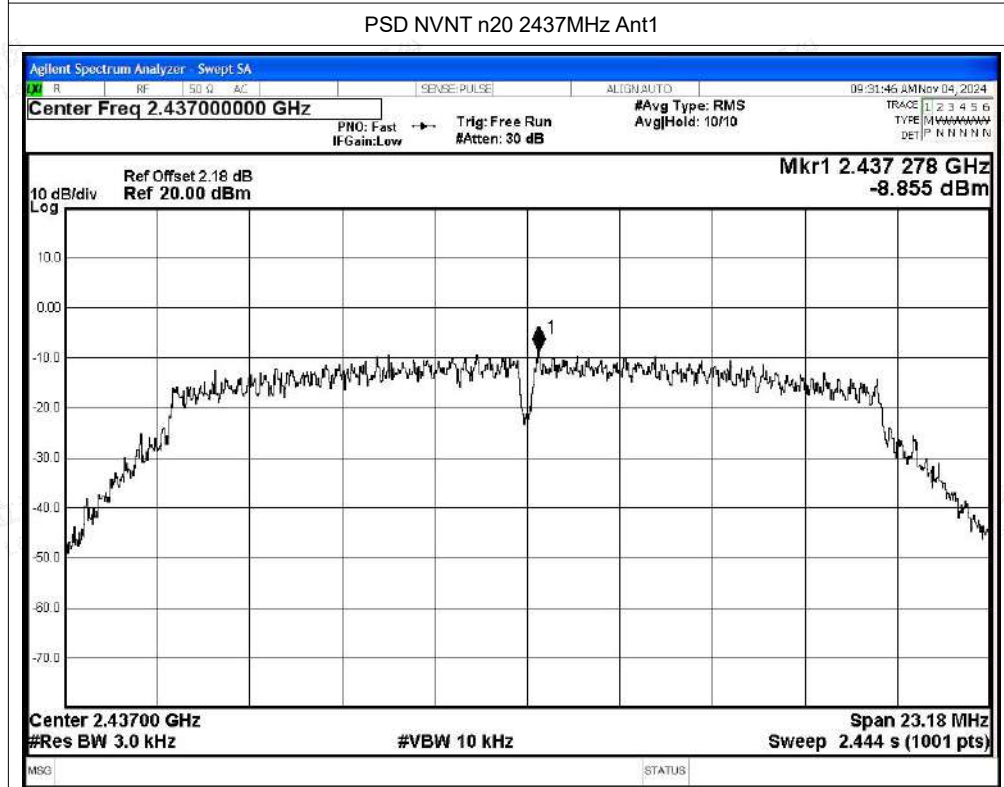
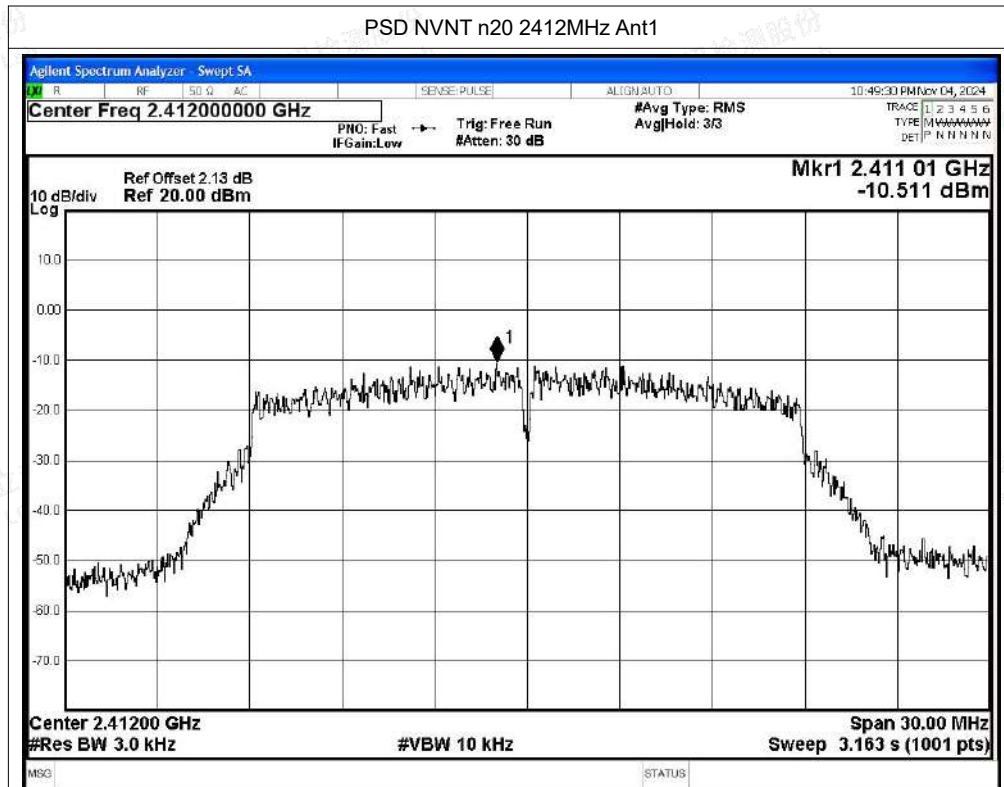


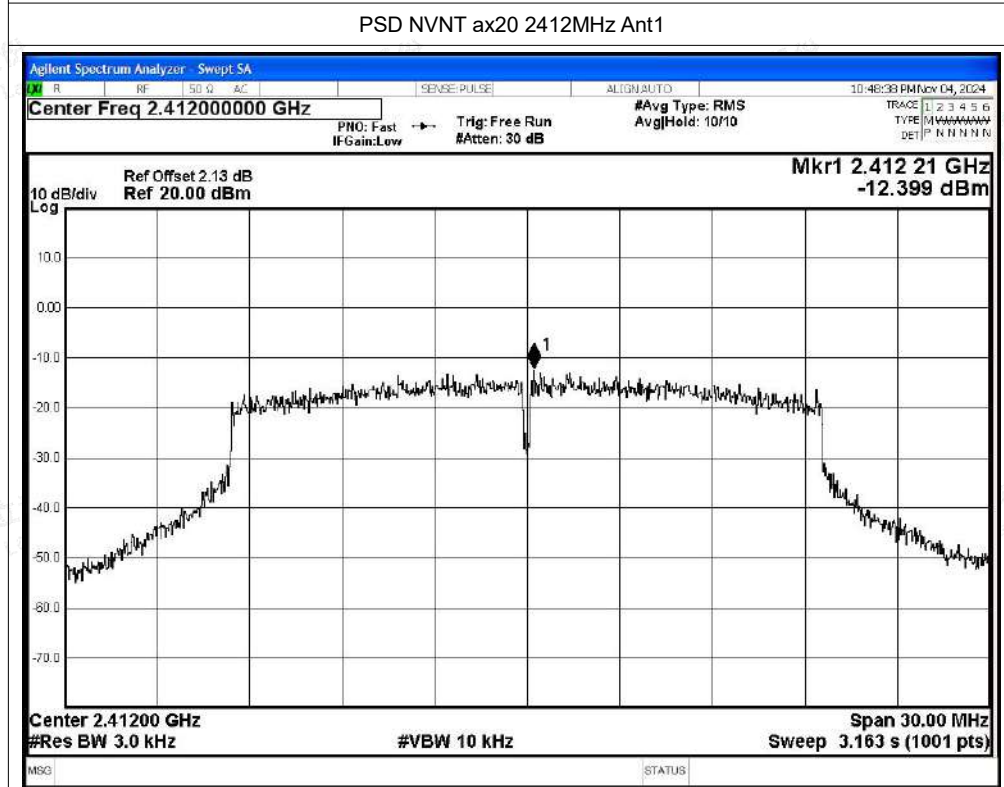
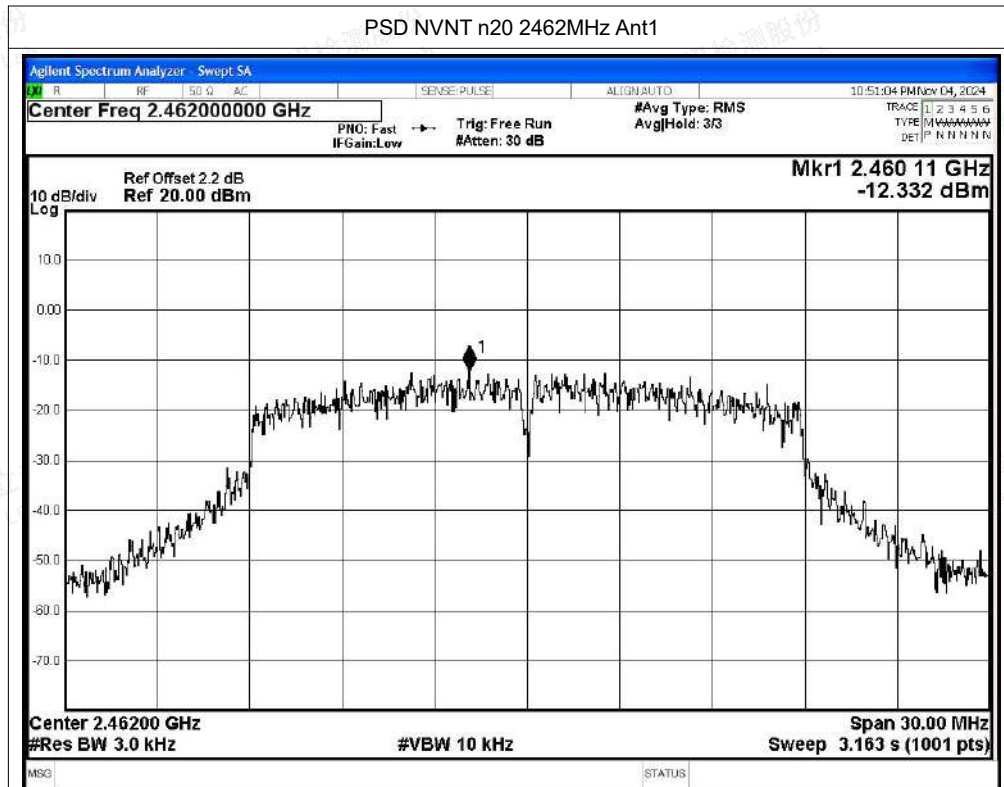
PSD NVNT b 2437MHz Ant1

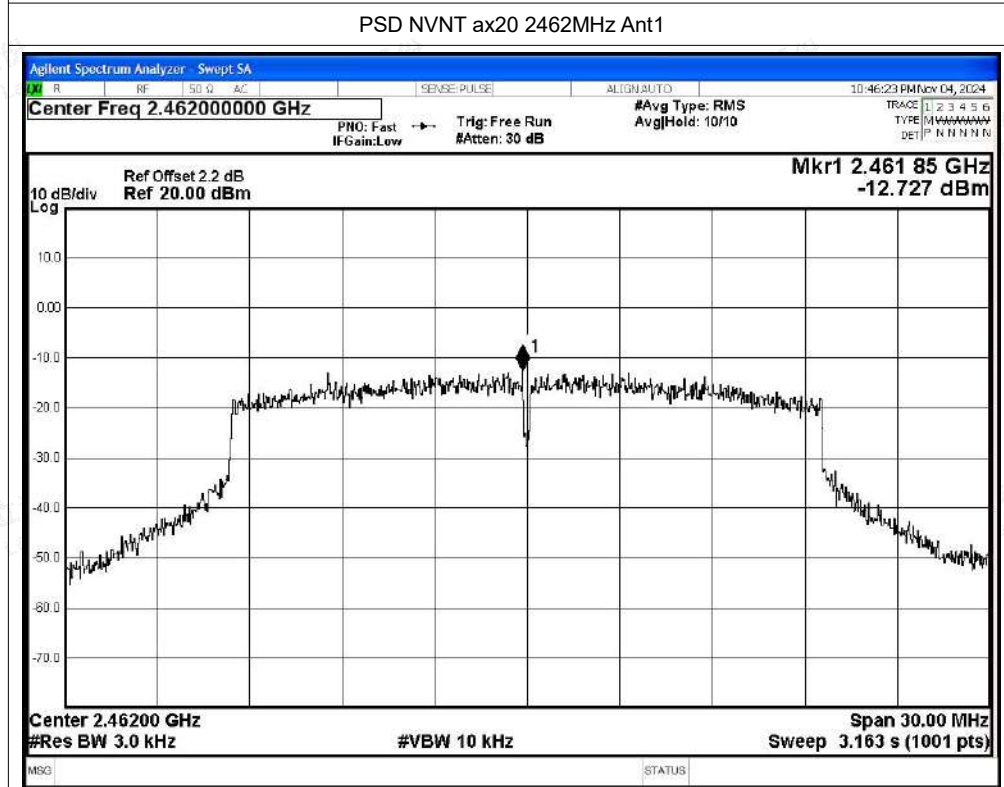
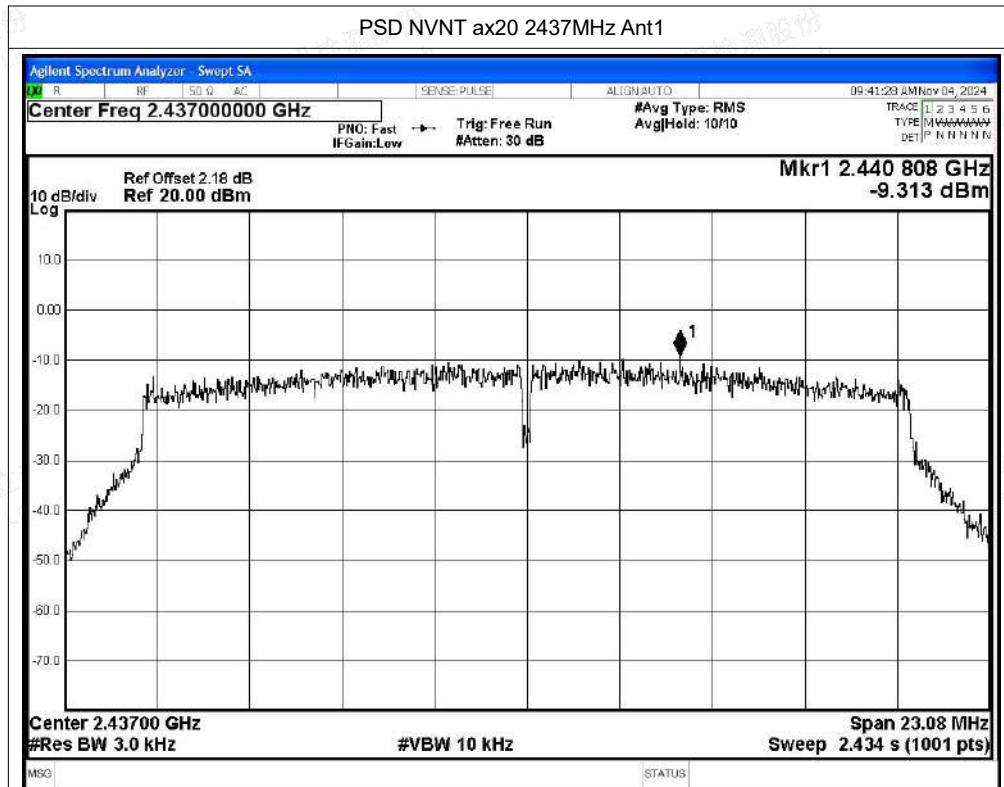














B.4 Band Edge

Condition	Mode	Frequency (MHz)	Antenna	Max Value (dBc)	Limit (dBc)	Verdict
NVNT	b	2412	Ant0	-35.58	-20	Pass
NVNT	b	2462	Ant0	-56.4	-20	Pass
NVNT	g	2412	Ant0	-37.05	-20	Pass
NVNT	g	2462	Ant0	-49.65	-20	Pass
NVNT	n20	2412	Ant0	-39.72	-20	Pass
NVNT	n20	2462	Ant0	-44.29	-20	Pass
NVNT	ax20	2412	Ant0	-30.24	-20	Pass
NVNT	ax20	2462	Ant0	-39.56	-20	Pass

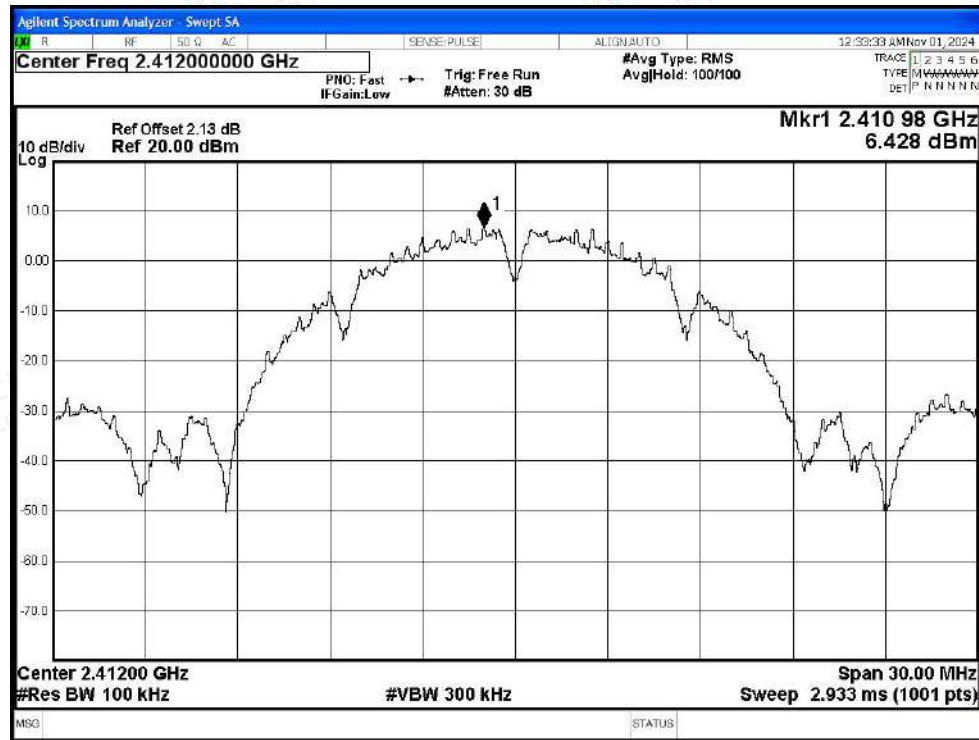


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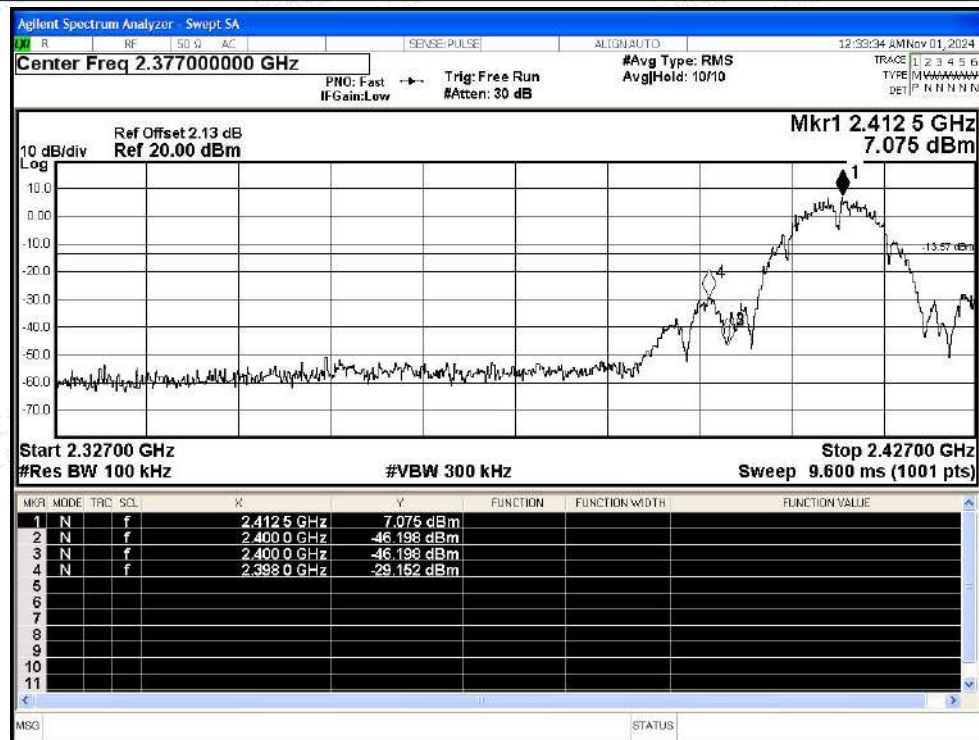


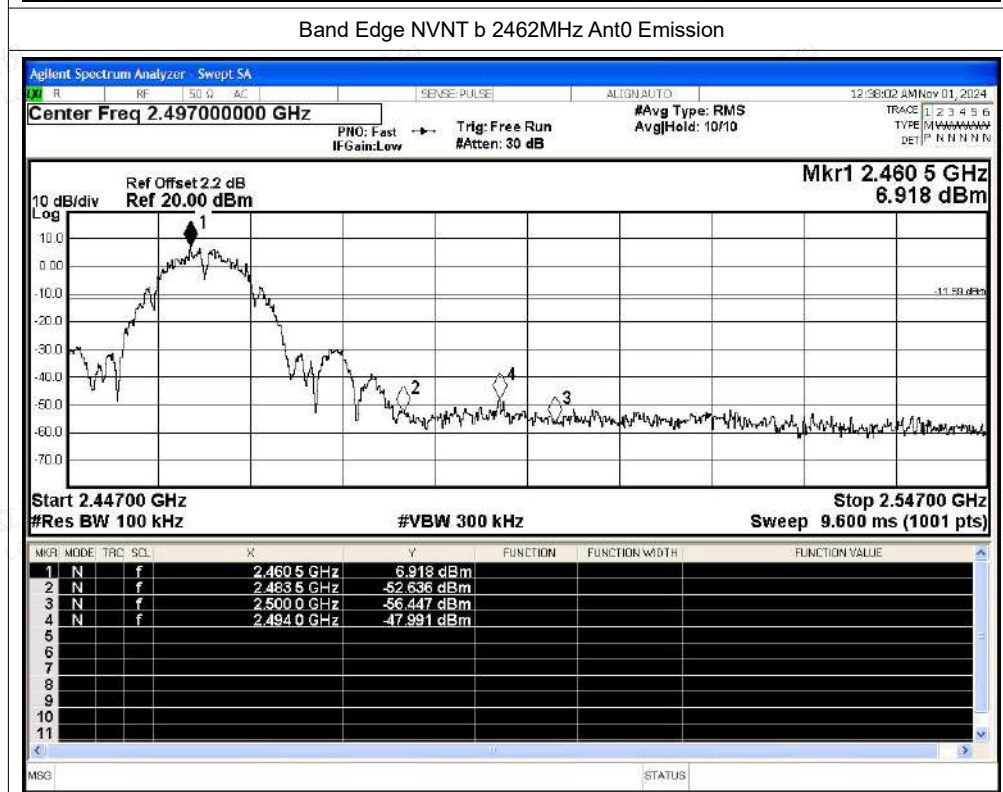
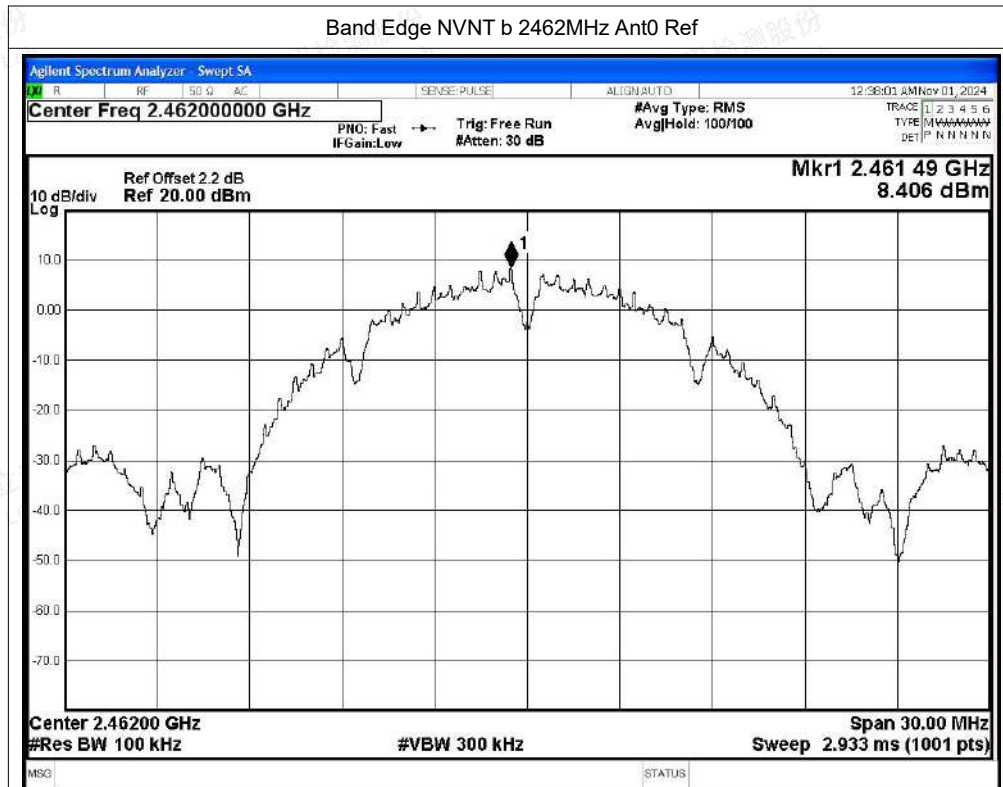
Test Graphs

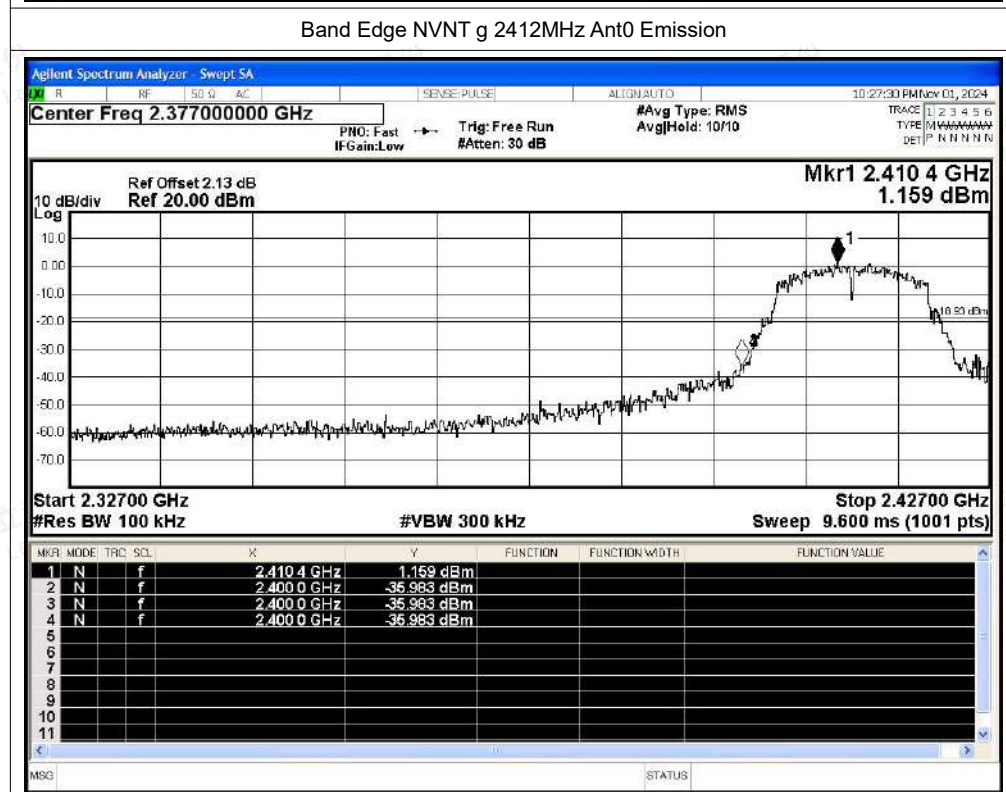
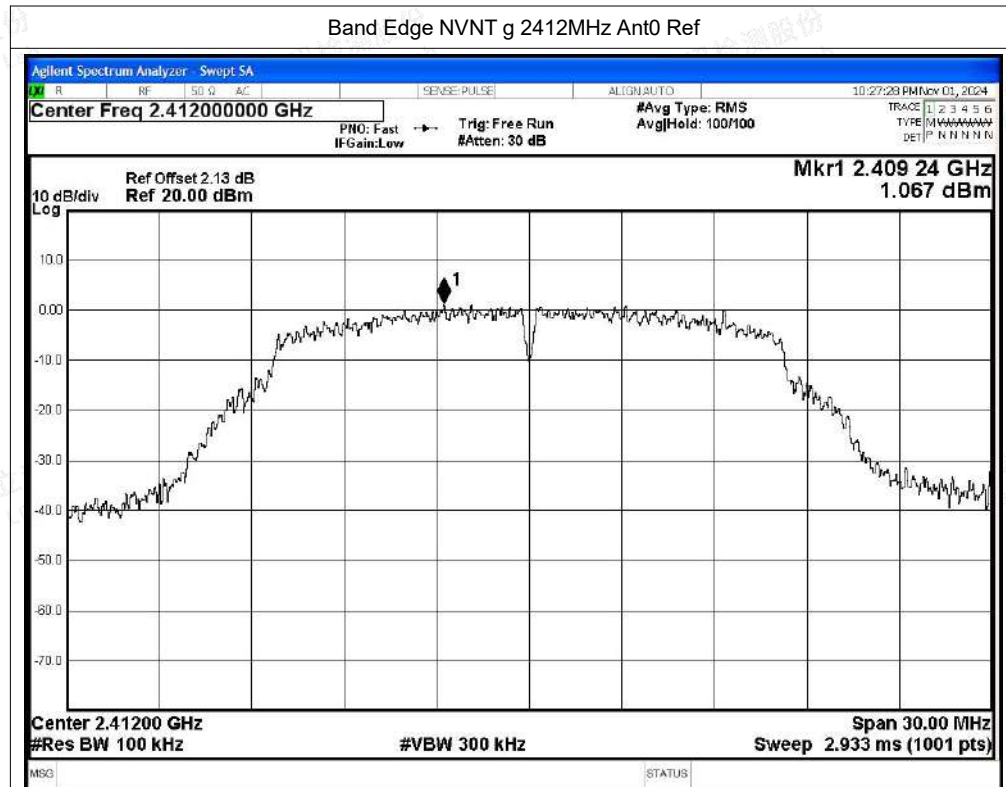
Band Edge NVNT b 2412MHz Ant0 Ref

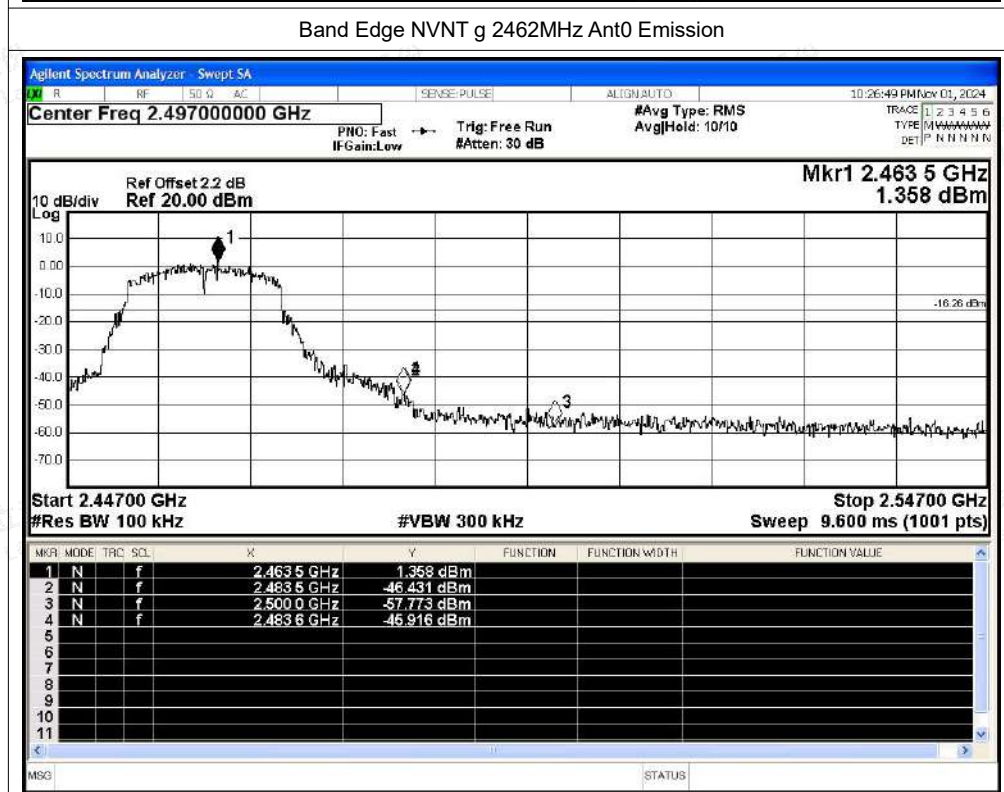
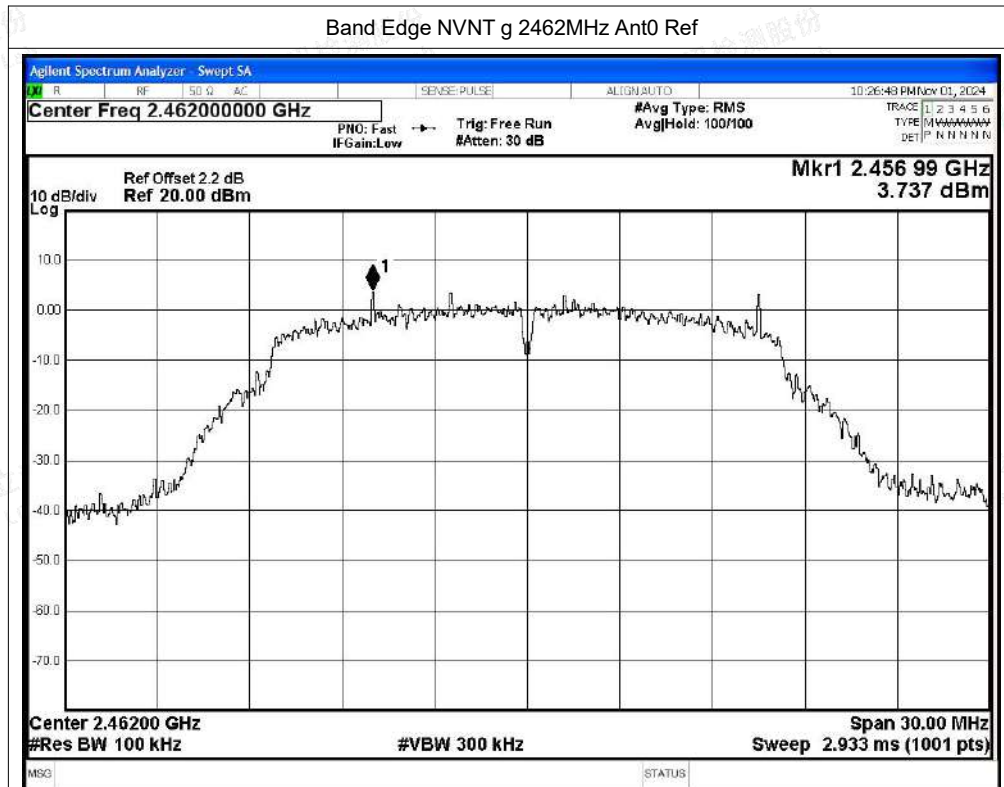


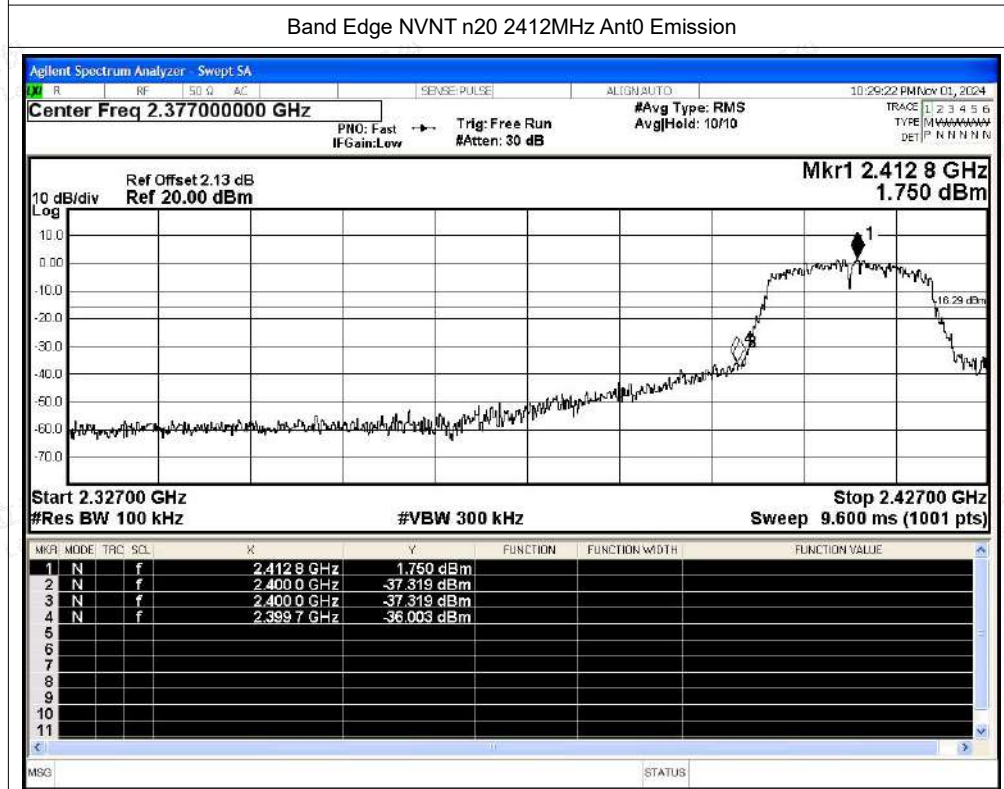
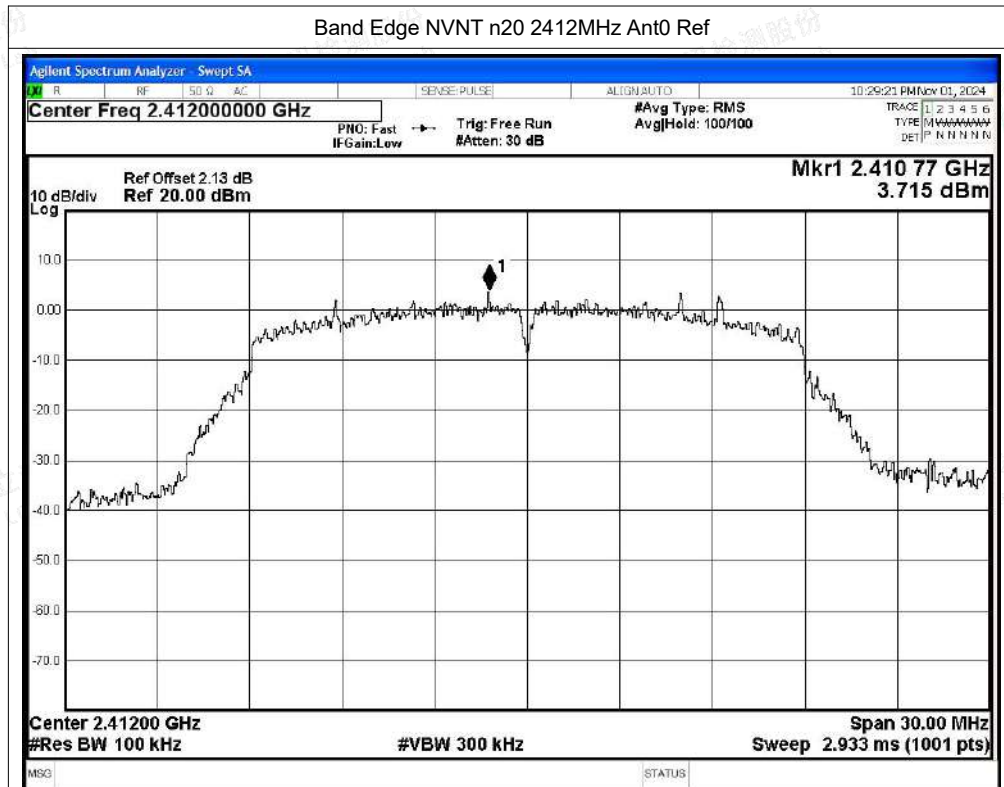
Band Edge NVNT b 2412MHz Ant0 Emission

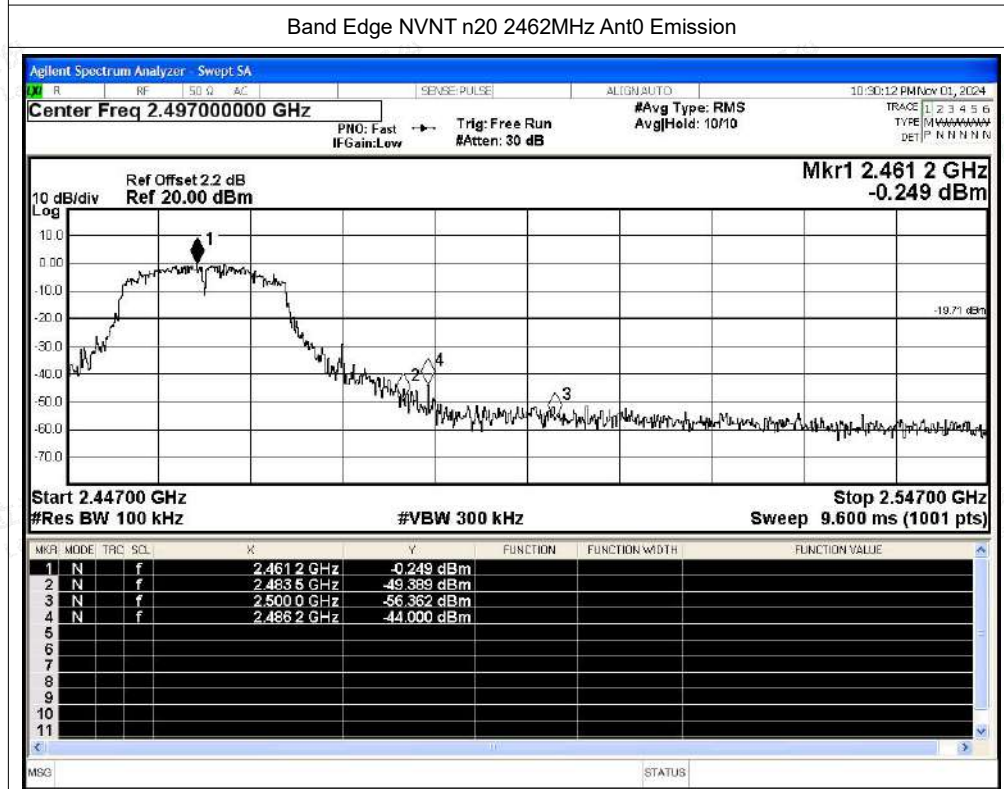
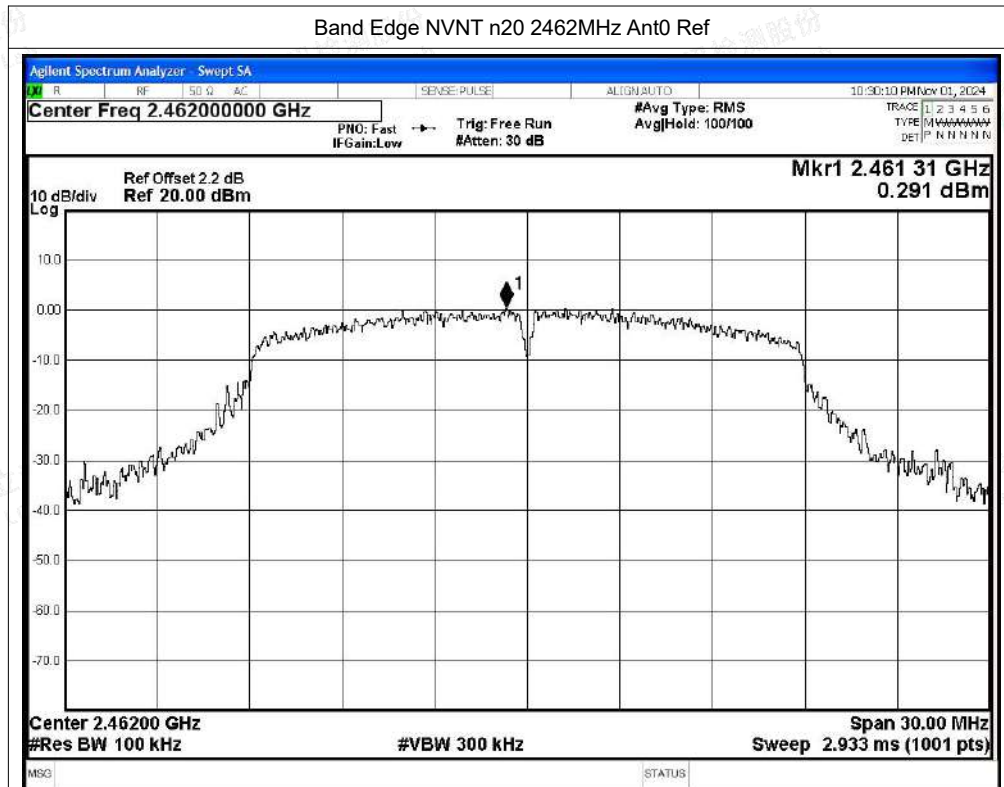


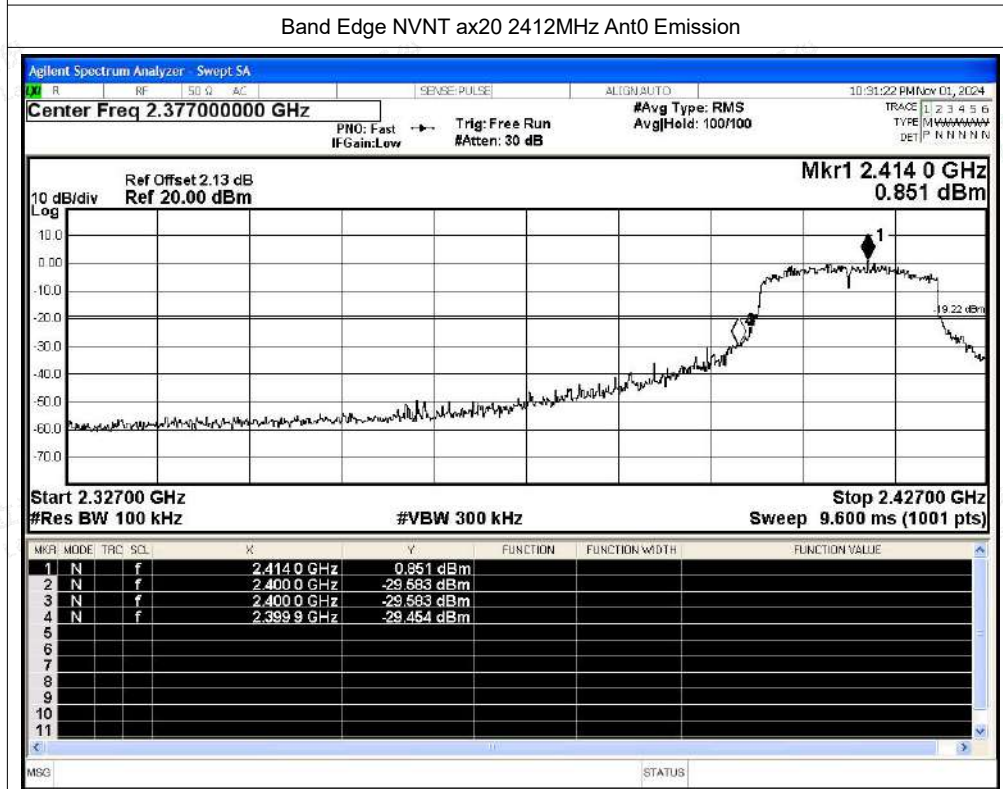
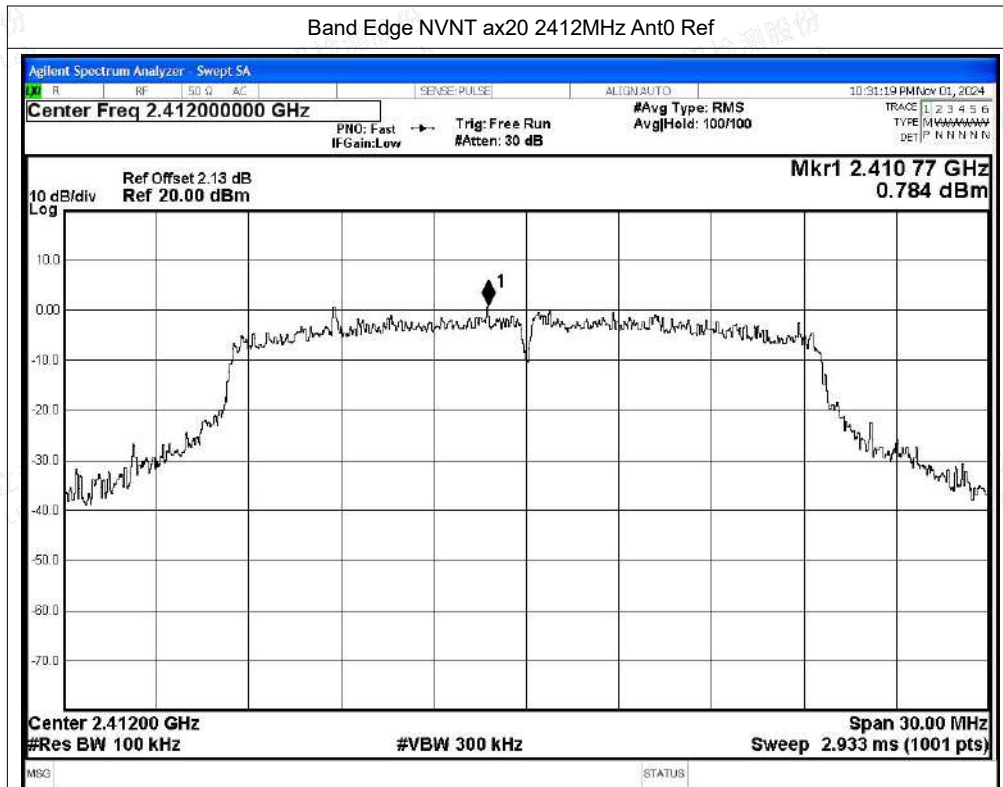


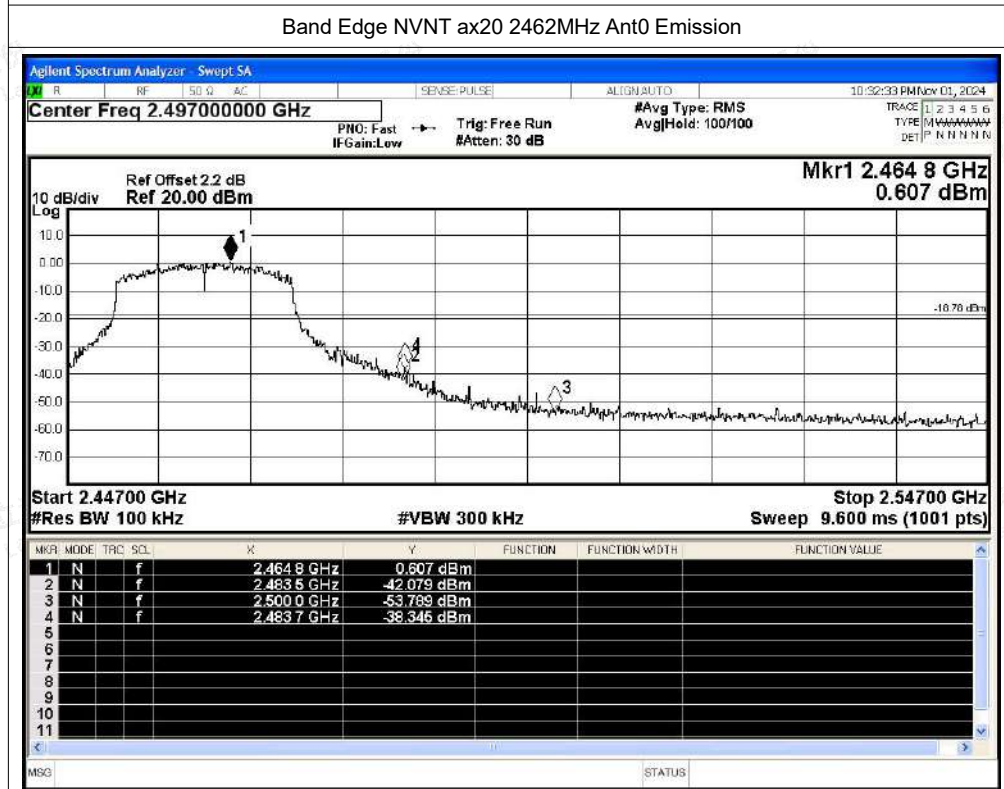
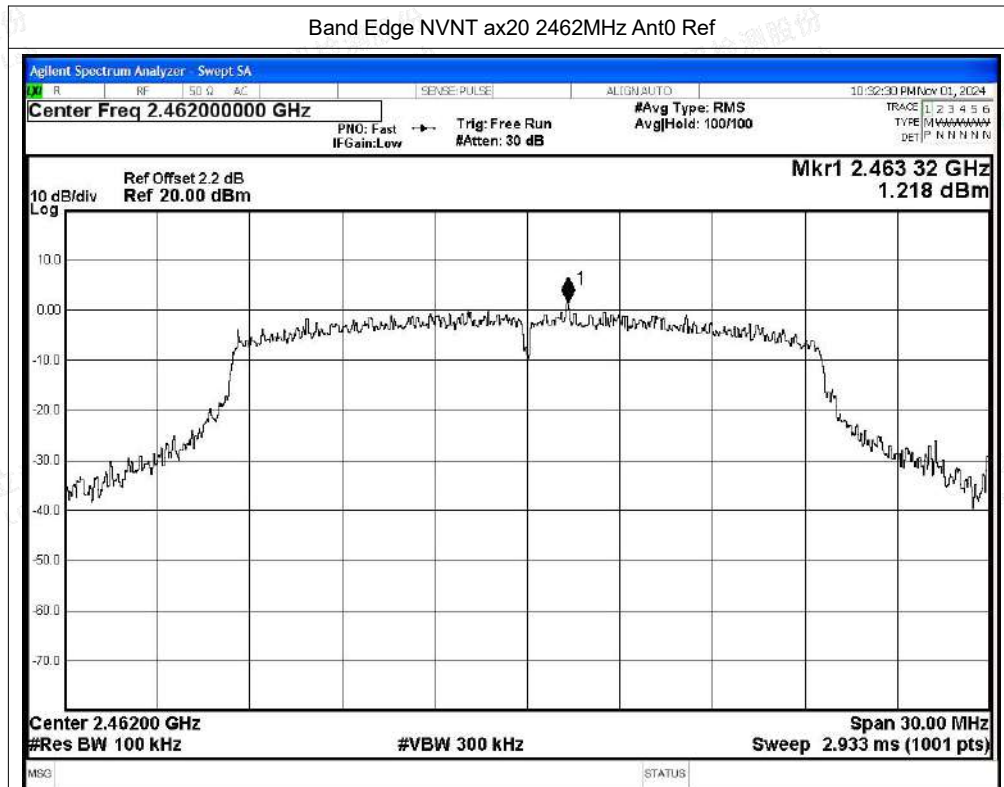














Condition	Mode	Frequency (MHz)	Antenna	Max Value (dBc)	Limit (dBc)	Verdict
NVNT	b	2412	Ant1	-37.1	-20	Pass
NVNT	b	2462	Ant1	-58.32	-20	Pass
NVNT	g	2412	Ant1	-37.69	-20	Pass
NVNT	g	2462	Ant1	-49.59	-20	Pass
NVNT	n20	2412	Ant1	-40.87	-20	Pass
NVNT	n20	2462	Ant1	-47.56	-20	Pass
NVNT	ax20	2412	Ant1	-29.49	-20	Pass
NVNT	ax20	2462	Ant1	-41.77	-20	Pass

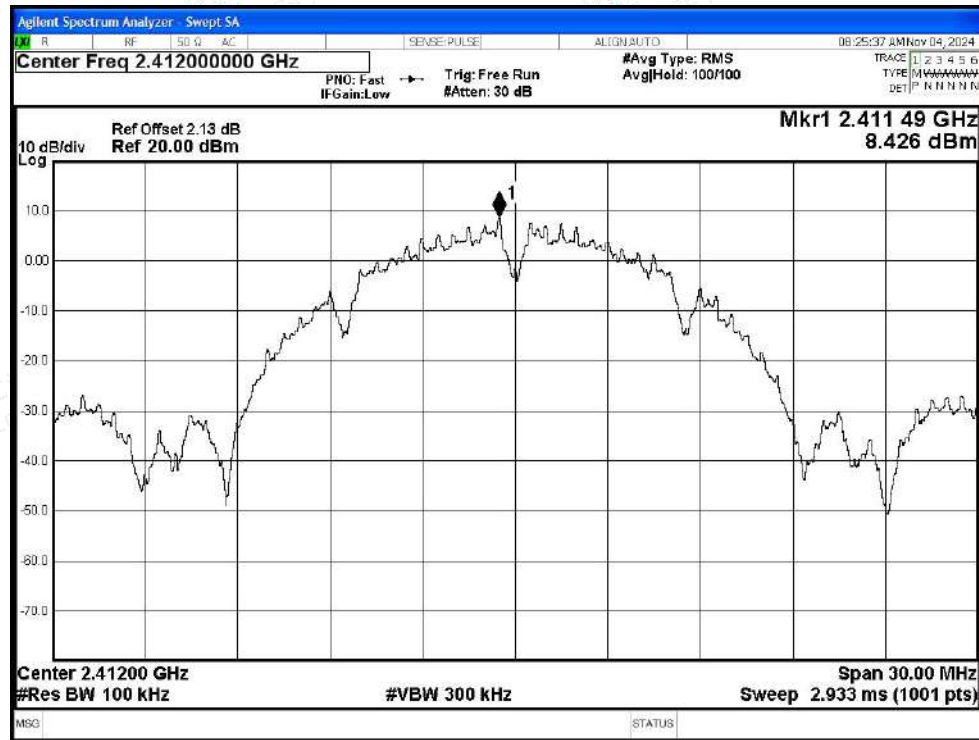


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Test Graphs

Band Edge NVNT b 2412MHz Ant1 Ref

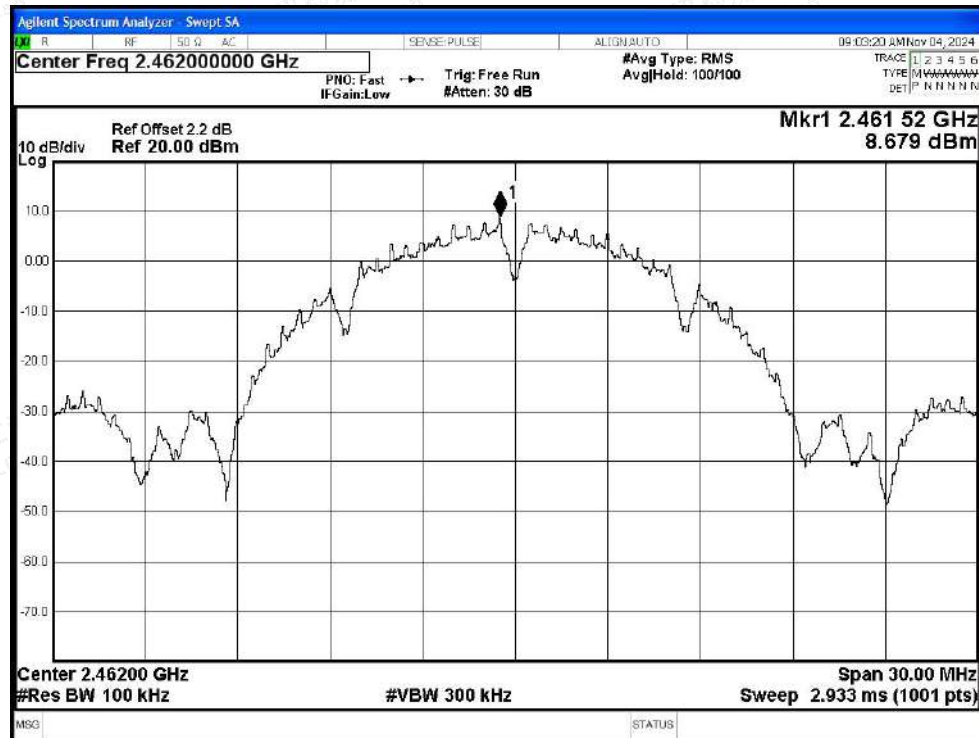


Band Edge NVNT b 2412MHz Ant1 Emission

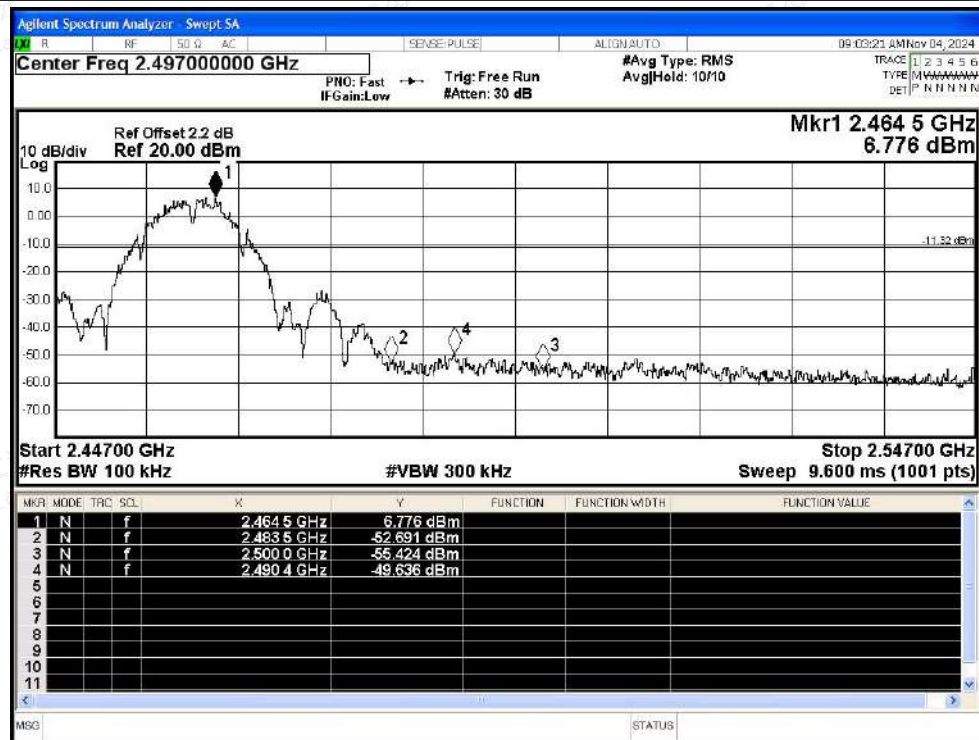


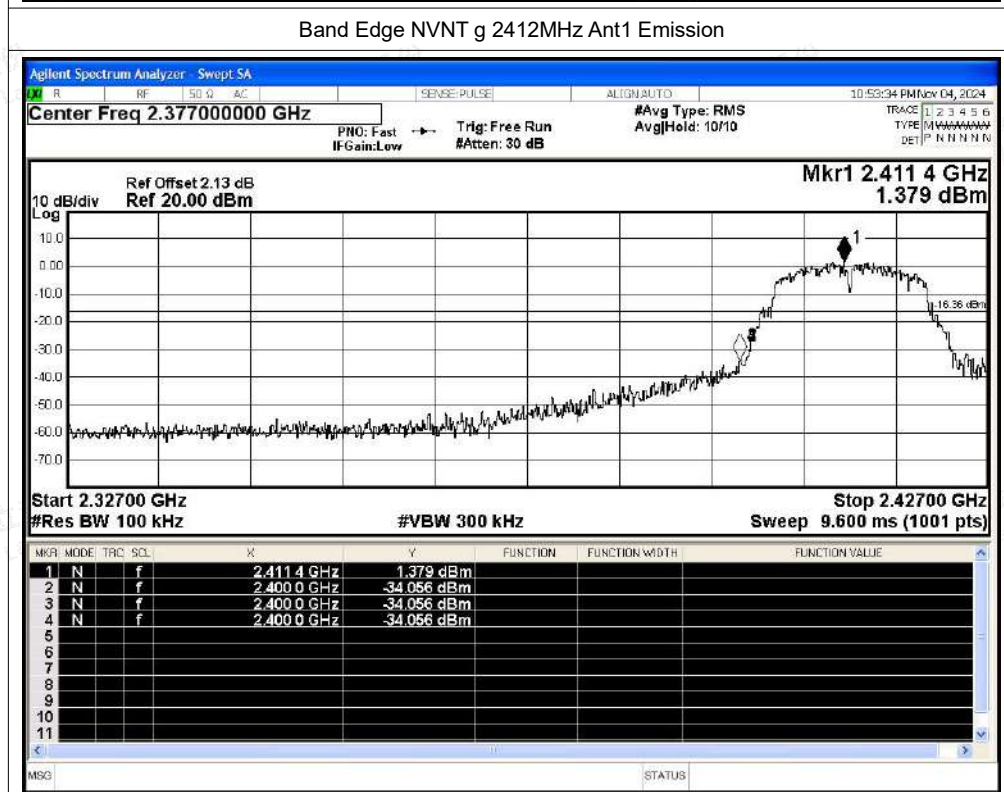
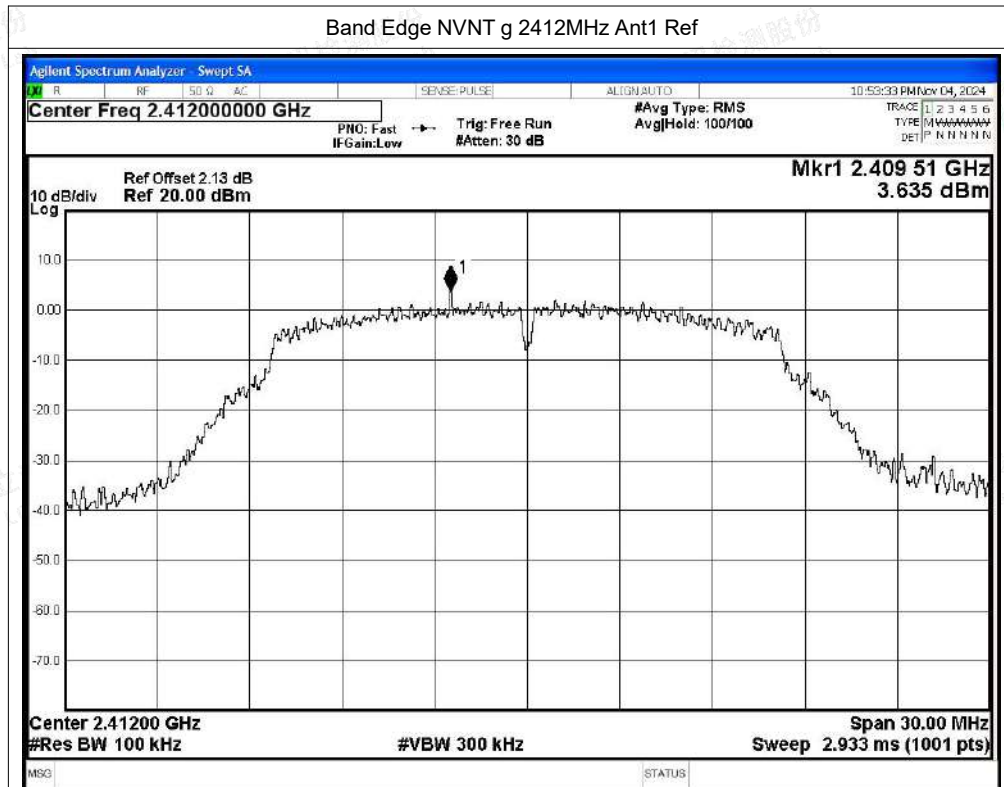


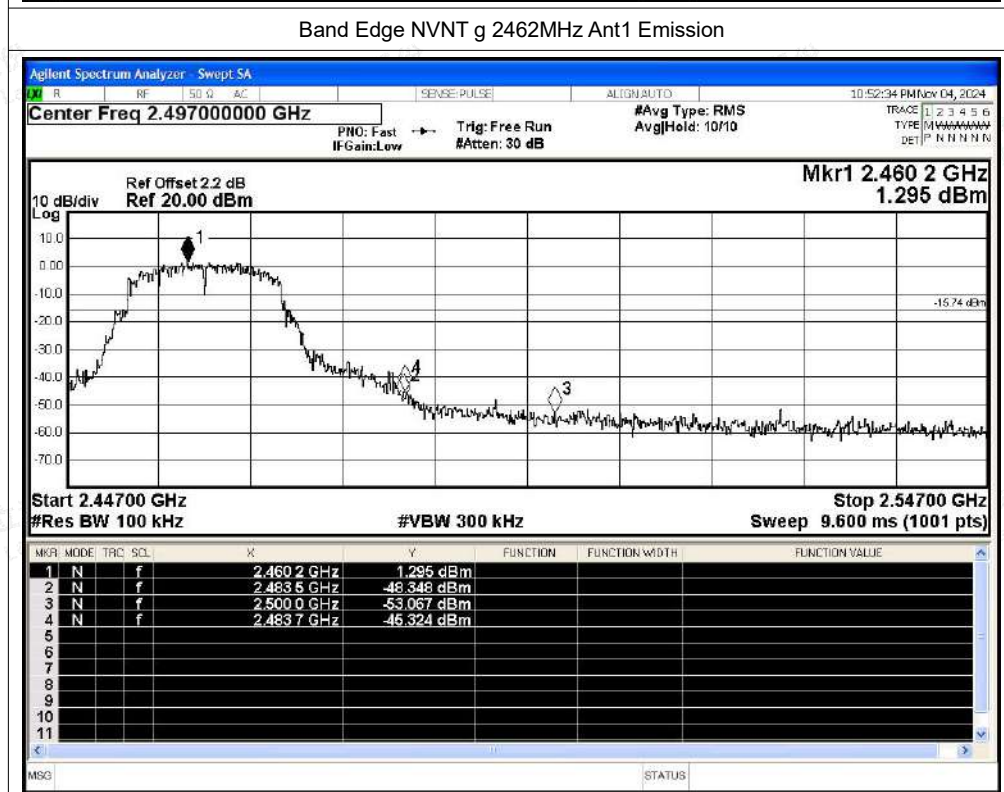
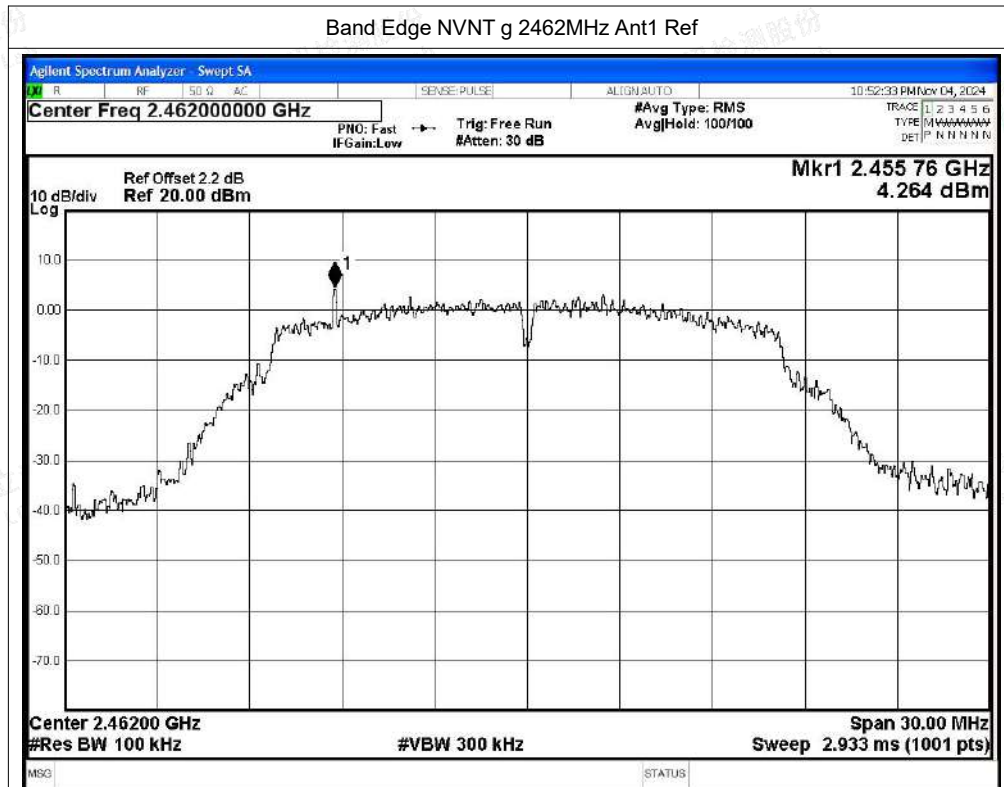
Band Edge NVNT b 2462MHz Ant1 Ref



Band Edge NVNT b 2462MHz Ant1 Emission

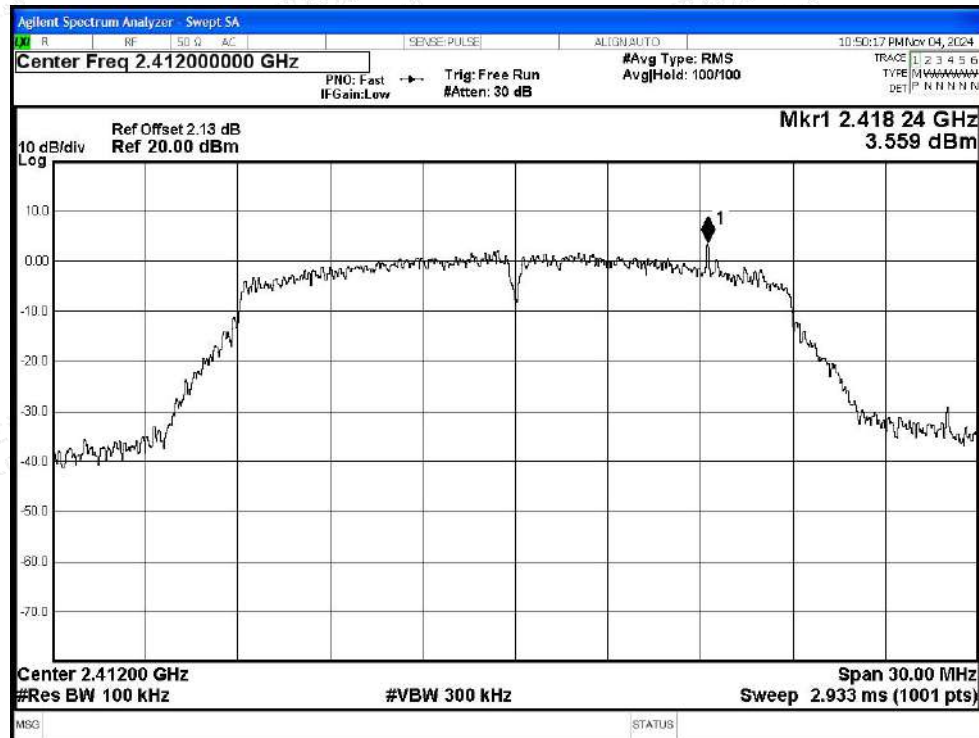




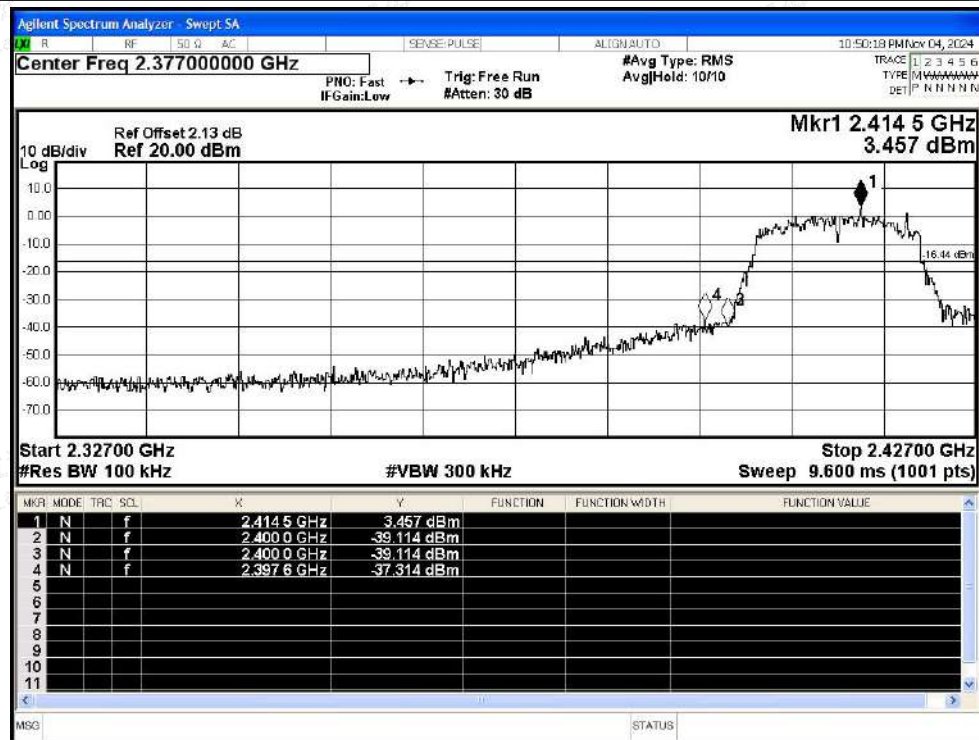




Band Edge NVNT n20 2412MHz Ant1 Ref

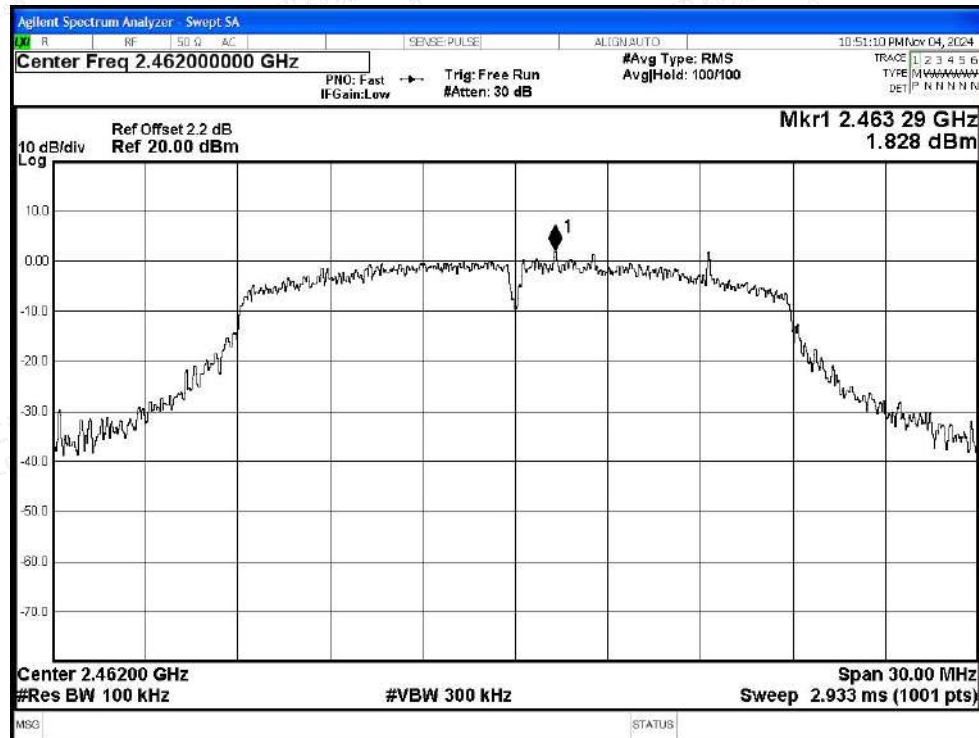


Band Edge NVNT n20 2412MHz Ant1 Emission

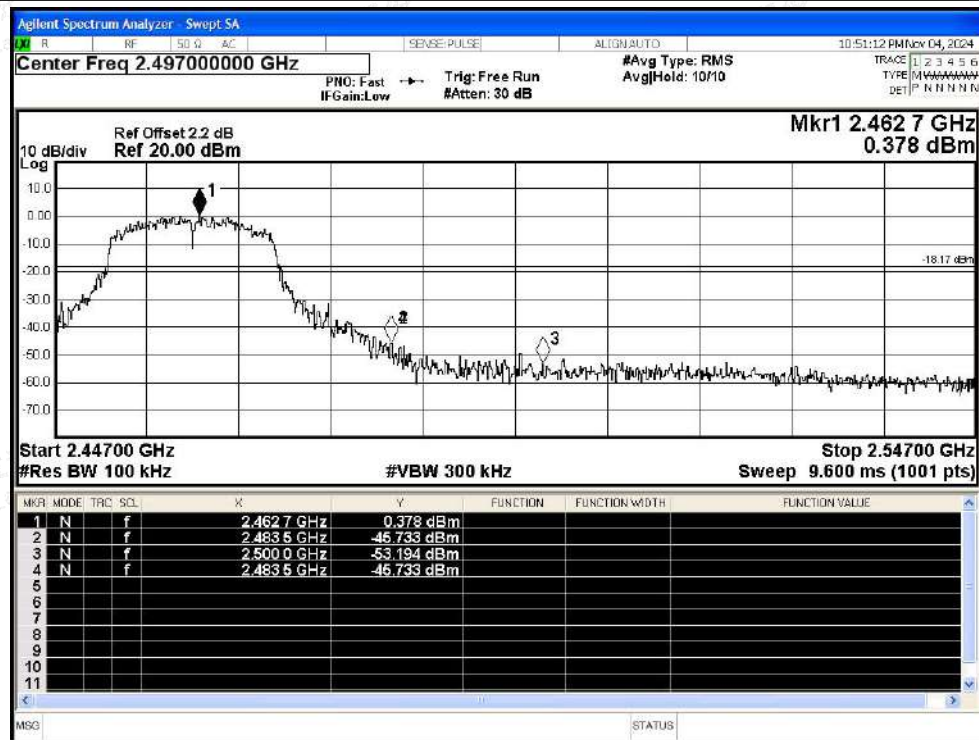


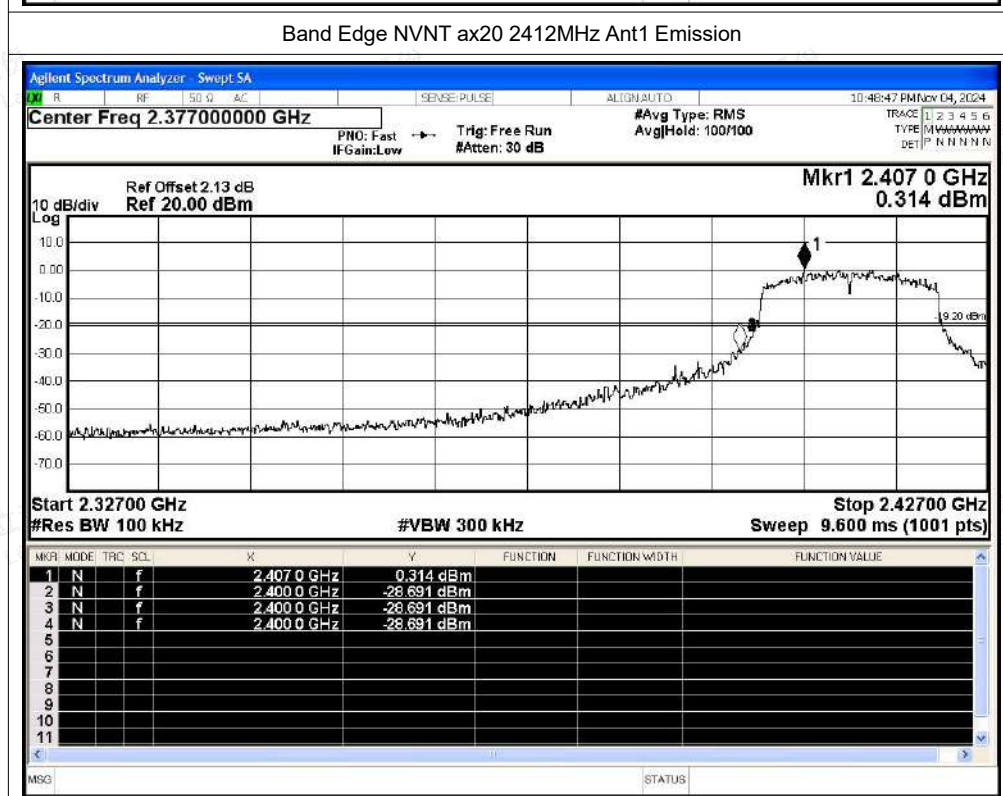
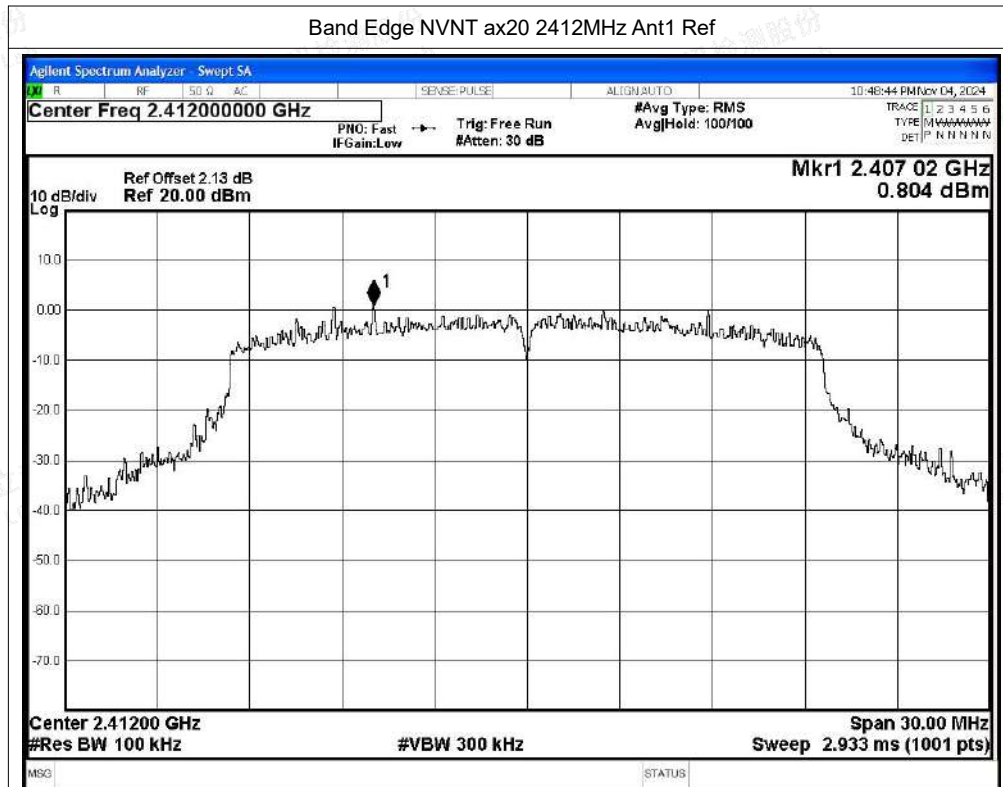


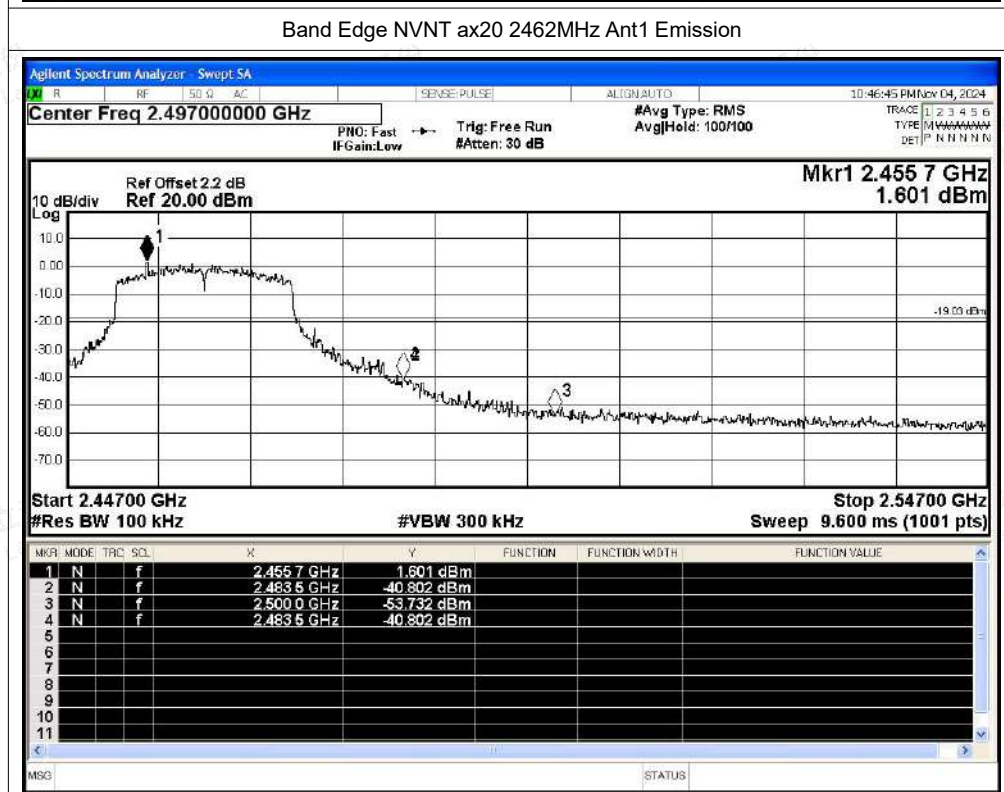
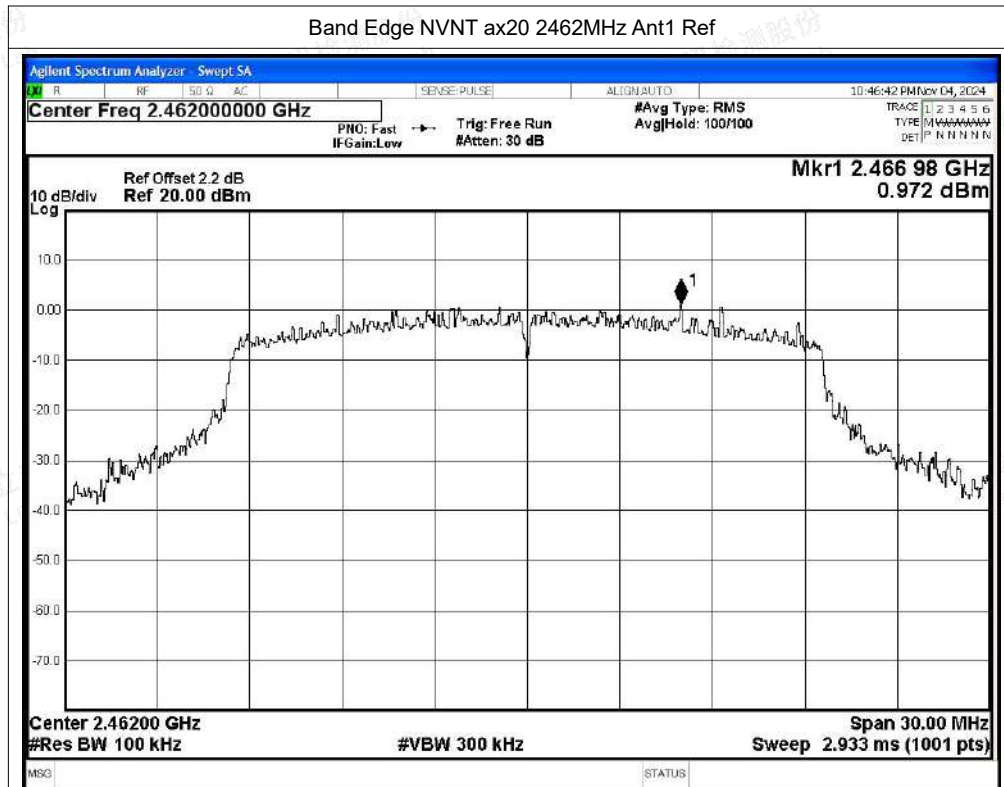
Band Edge NVNT n20 2462MHz Ant1 Ref



Band Edge NVNT n20 2462MHz Ant1 Emission









B.5 Conducted RF Spurious Emission

Condition	Mode	Frequency (MHz)	Antenna	Max Value (dBc)	Limit (dBc)	Verdict
NVNT	b	2412	Ant0	-45.69	-20	Pass
NVNT	b	2437	Ant0	-46.97	-20	Pass
NVNT	b	2462	Ant0	-48.54	-20	Pass
NVNT	g	2412	Ant0	-46.05	-20	Pass
NVNT	g	2437	Ant0	-44.69	-20	Pass
NVNT	g	2462	Ant0	-45.27	-20	Pass
NVNT	n20	2412	Ant0	-44.18	-20	Pass
NVNT	n20	2437	Ant0	-44.85	-20	Pass
NVNT	n20	2462	Ant0	-43.45	-20	Pass
NVNT	ax20	2412	Ant0	-42.8	-20	Pass
NVNT	ax20	2437	Ant0	-42.95	-20	Pass
NVNT	ax20	2462	Ant0	-39.32	-20	Pass

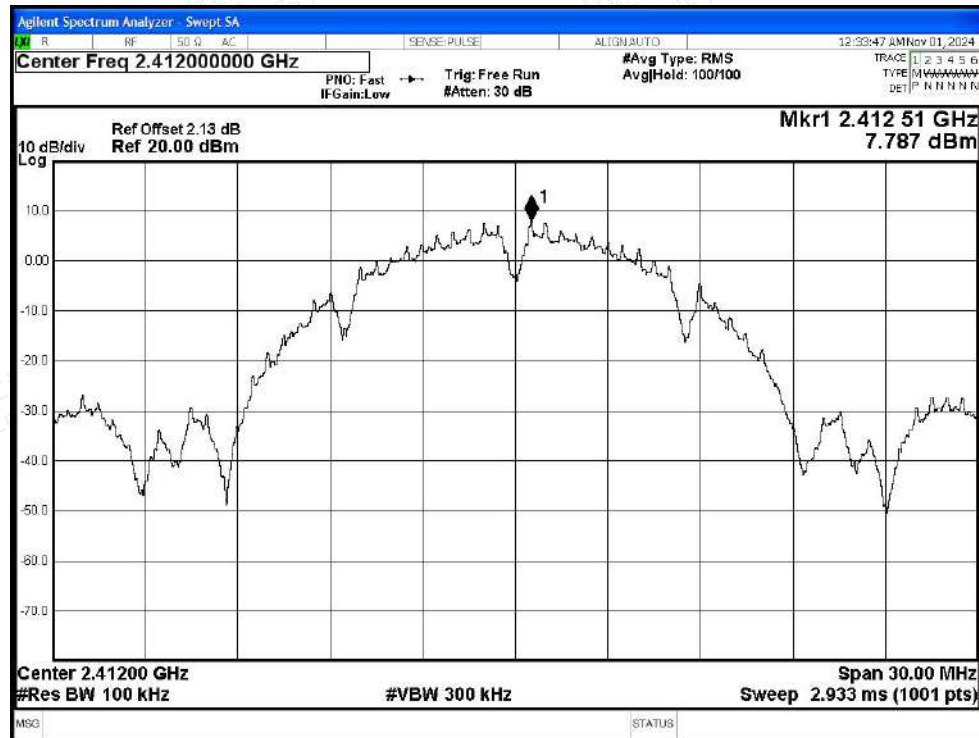


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Baoan District, Shenzhen, 518000, China
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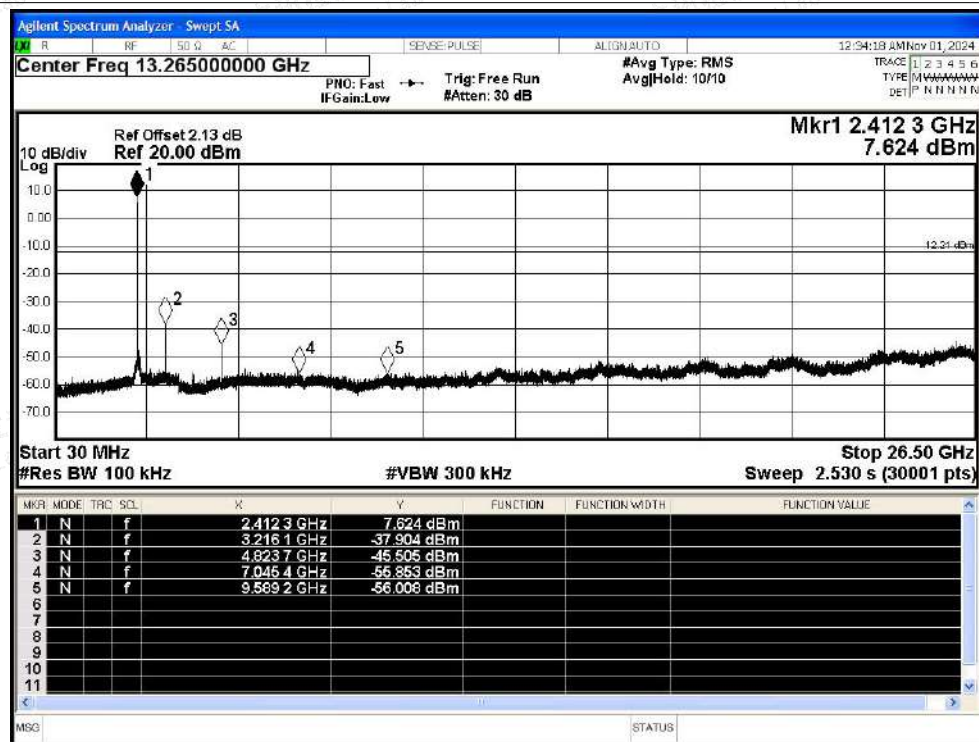


Test Graphs

Tx. Spurious NVNT b 2412MHz Ant0 Ref



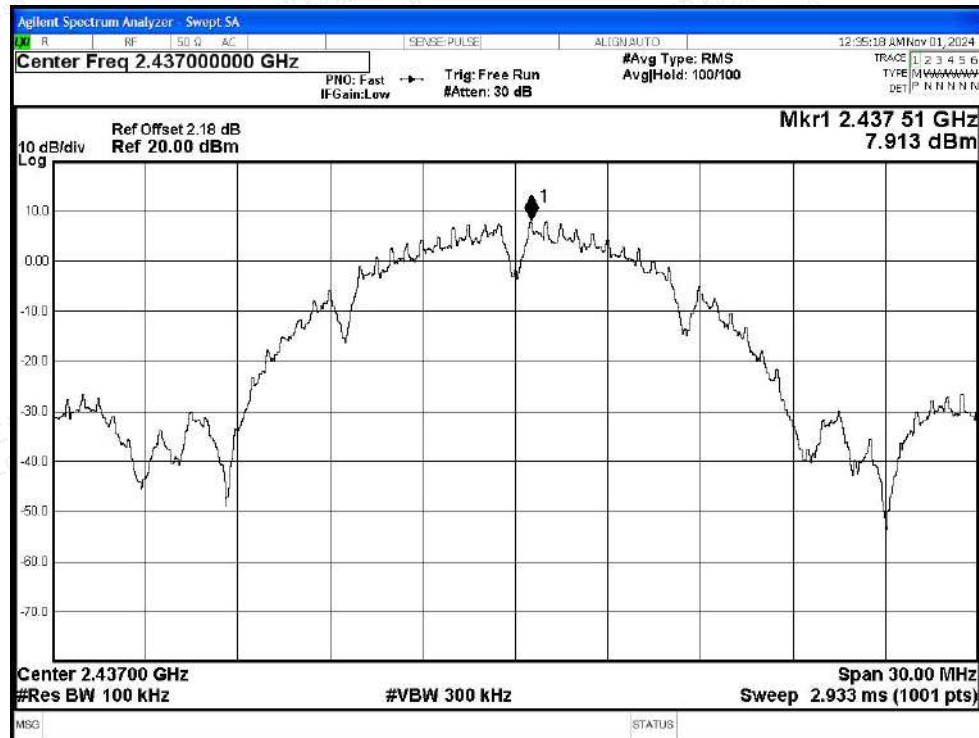
Tx. Spurious NVNT b 2412MHz Ant0 Emission



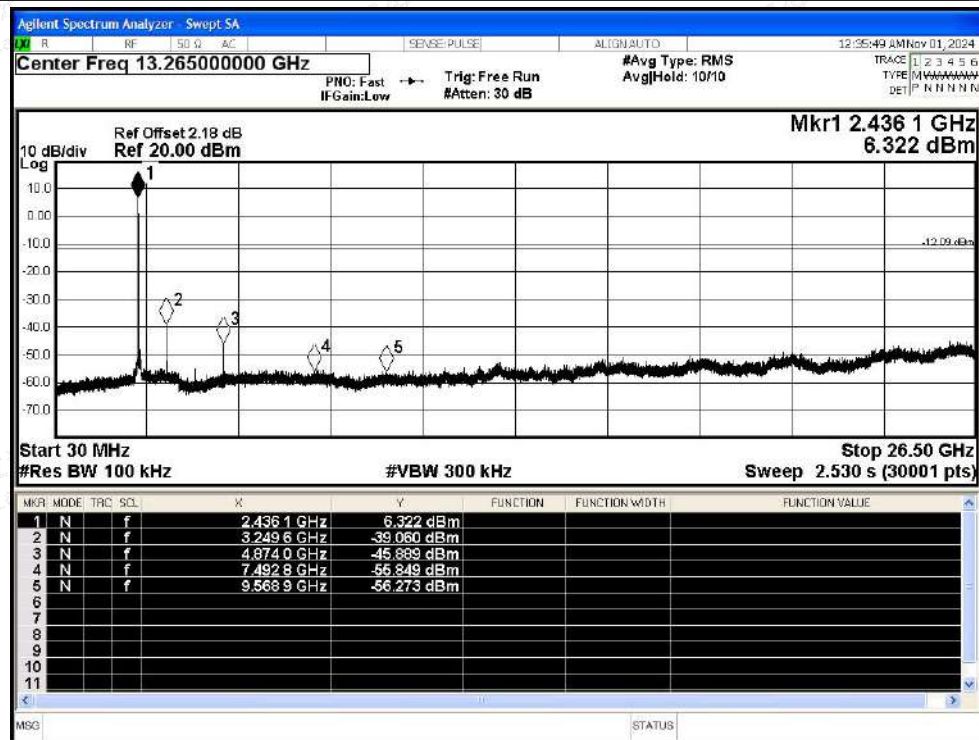
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Tx. Spurious NVNT b 2437MHz Ant0 Ref

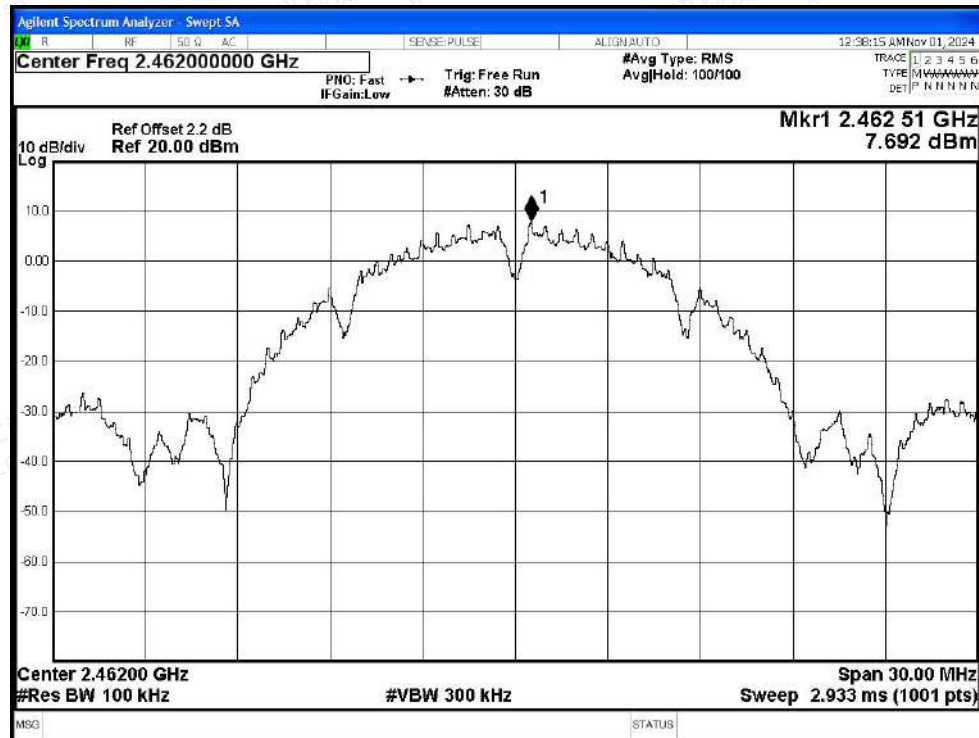


Tx. Spurious NVNT b 2437MHz Ant0 Emission

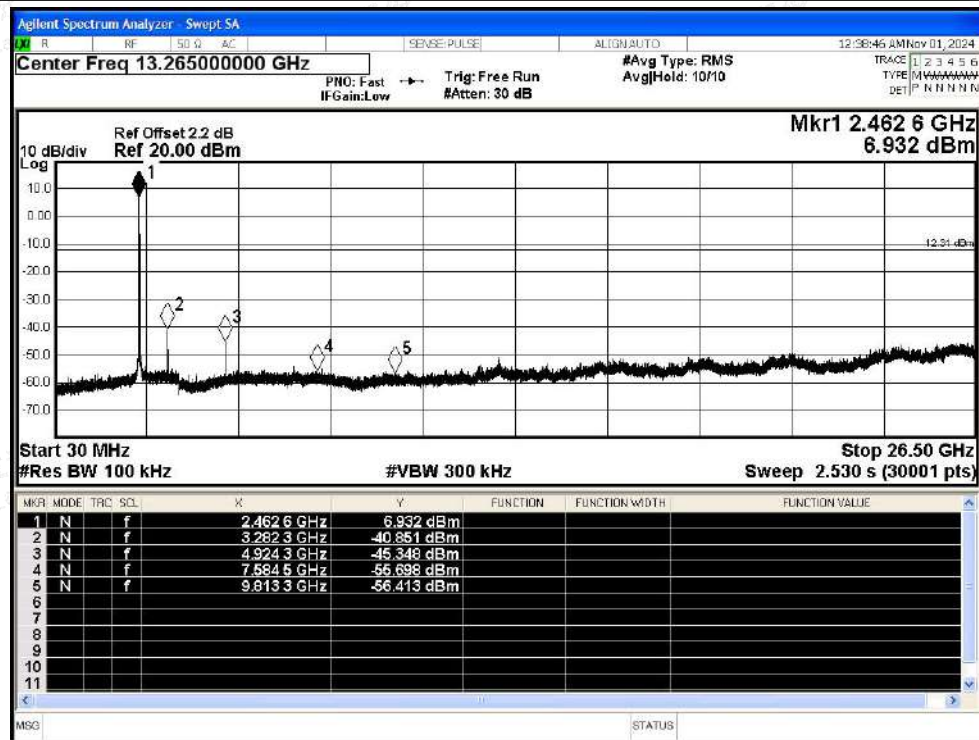




Tx. Spurious NVNT b 2462MHz Ant0 Ref

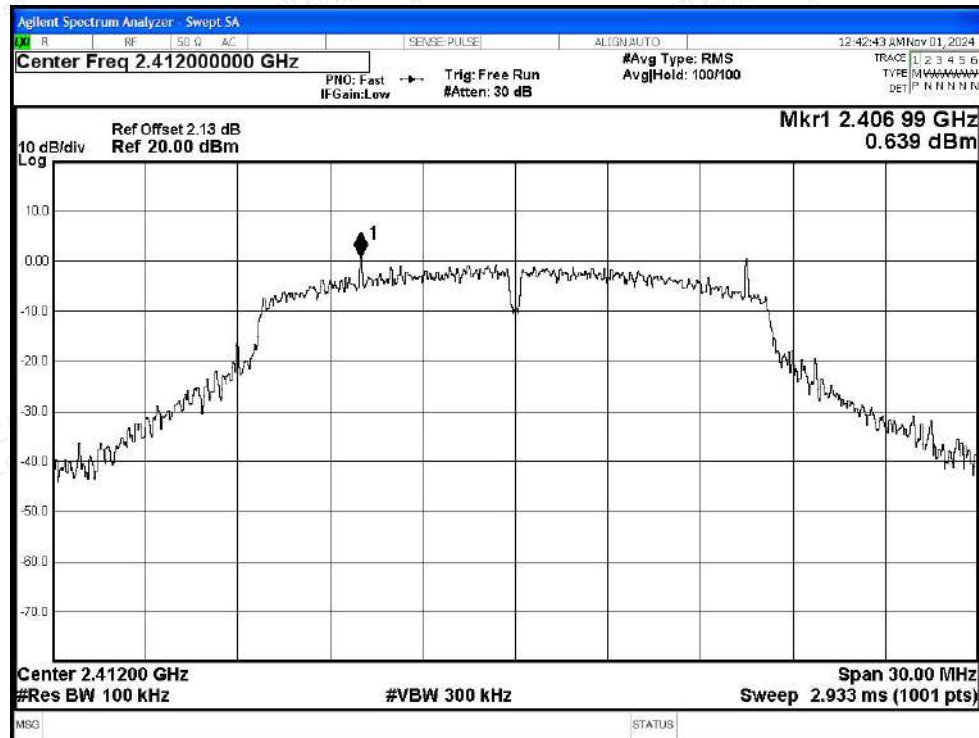


Tx. Spurious NVNT b 2462MHz Ant0 Emission

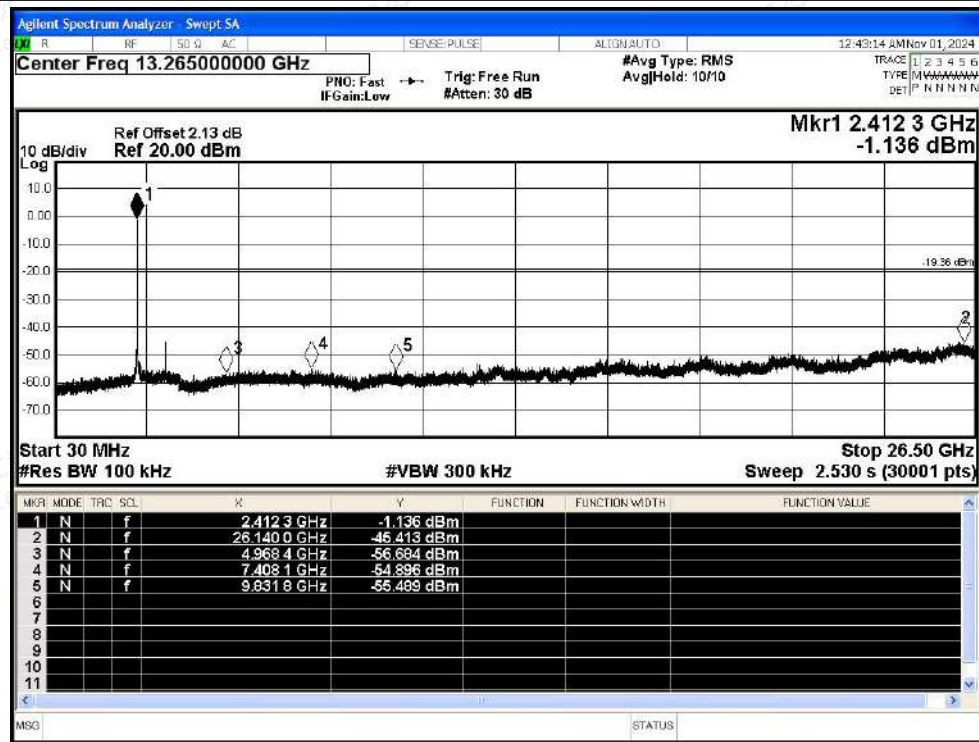


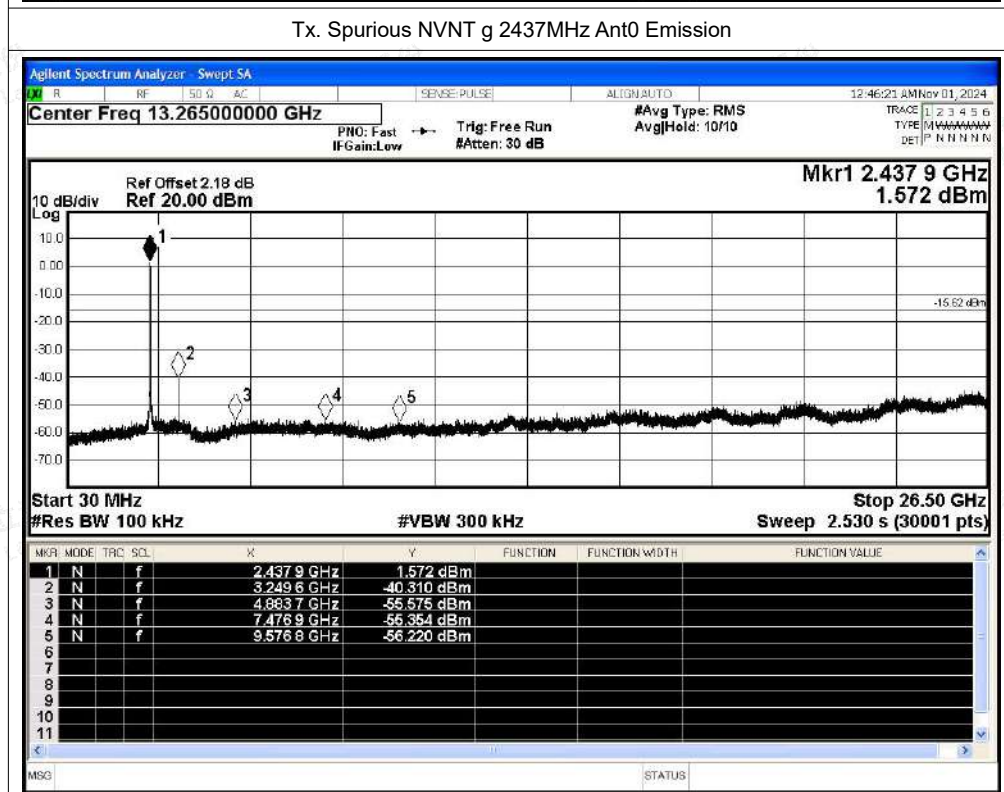
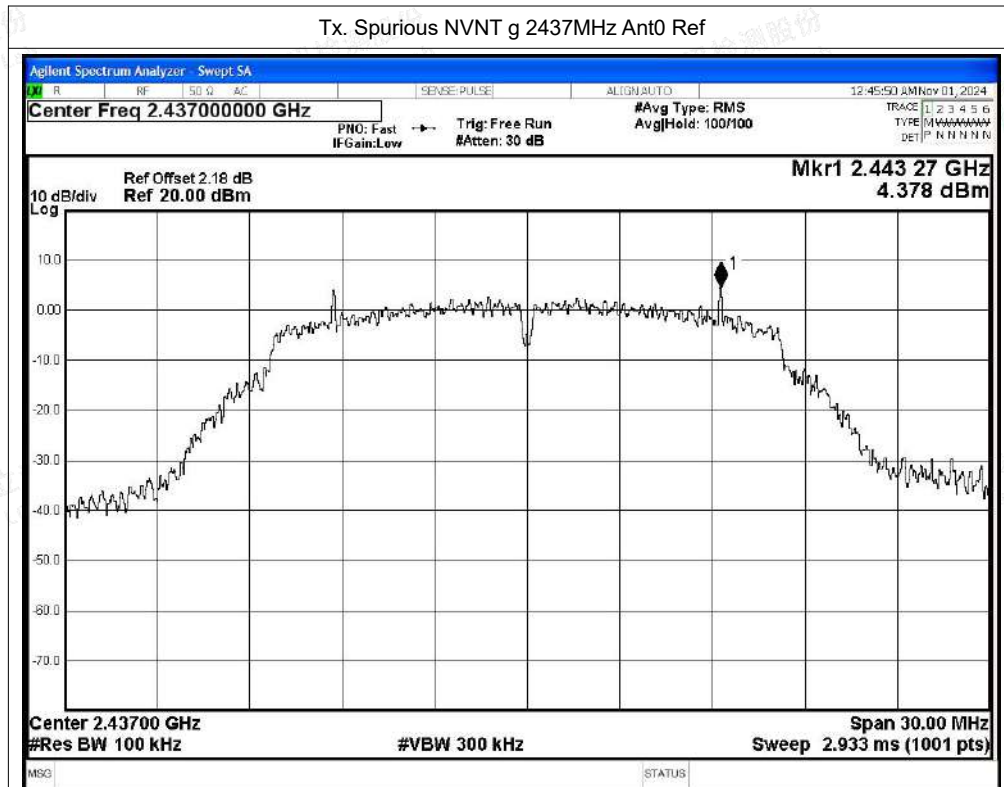


Tx. Spurious NVNT g 2412MHz Ant0 Ref



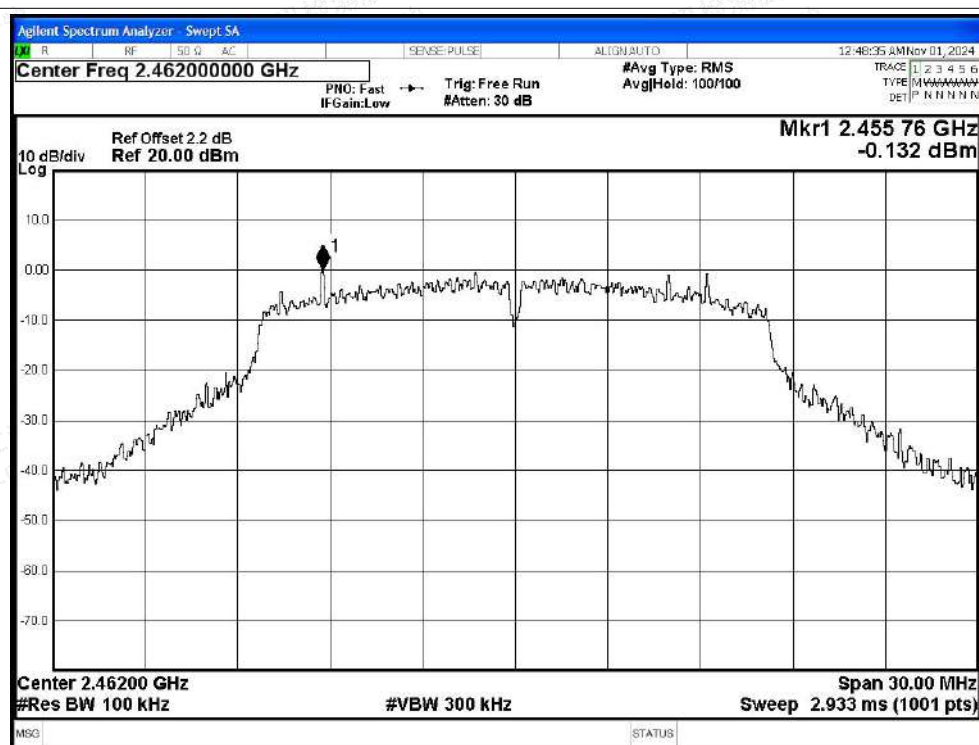
Tx. Spurious NVNT g 2412MHz Ant0 Emission







Tx. Spurious NVNT g 2462MHz Ant0 Ref



Tx. Spurious NVNT g 2462MHz Ant0 Emission

