

ANEXO

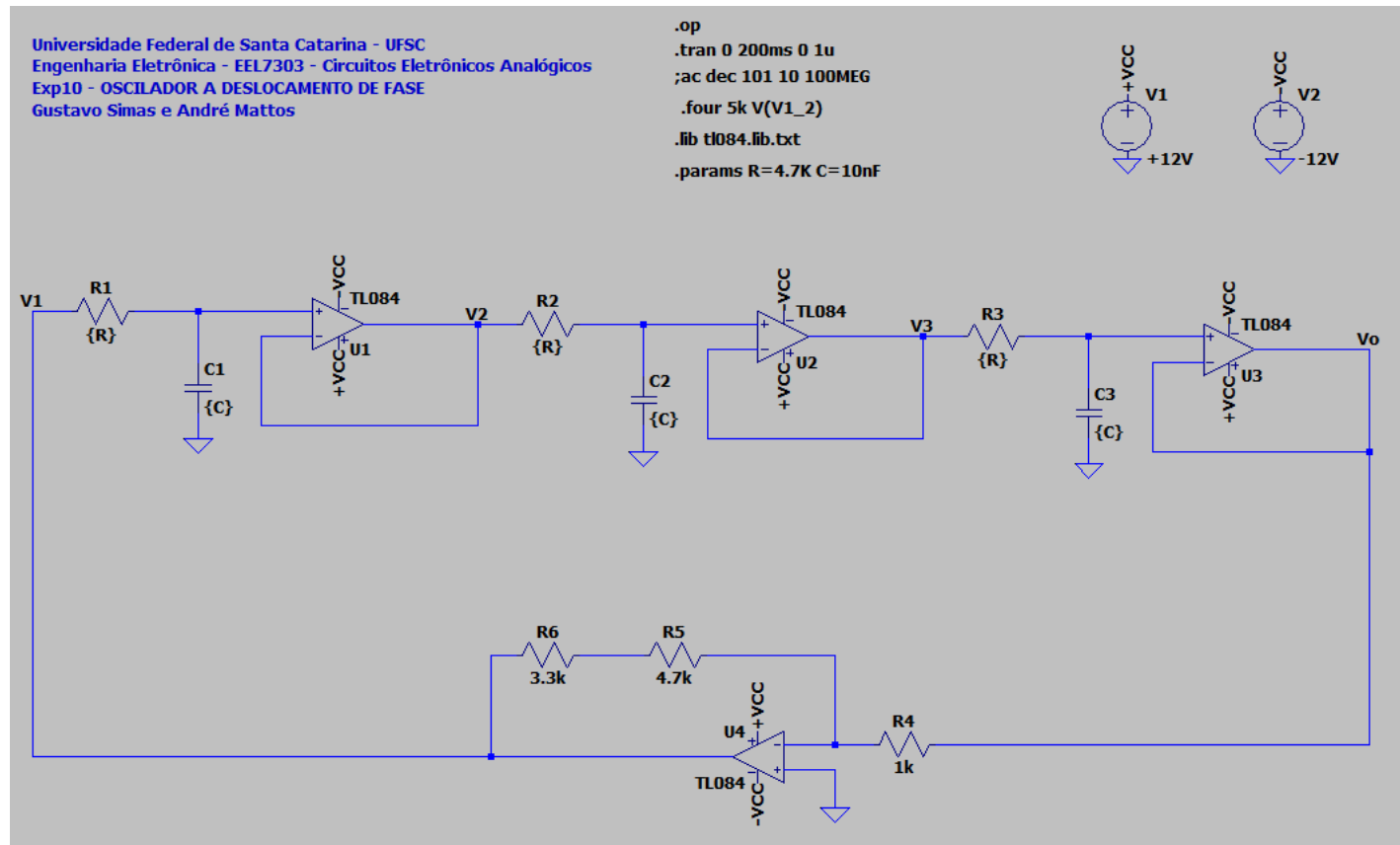


Figura 1 - Circuito Simulado em LTSpice

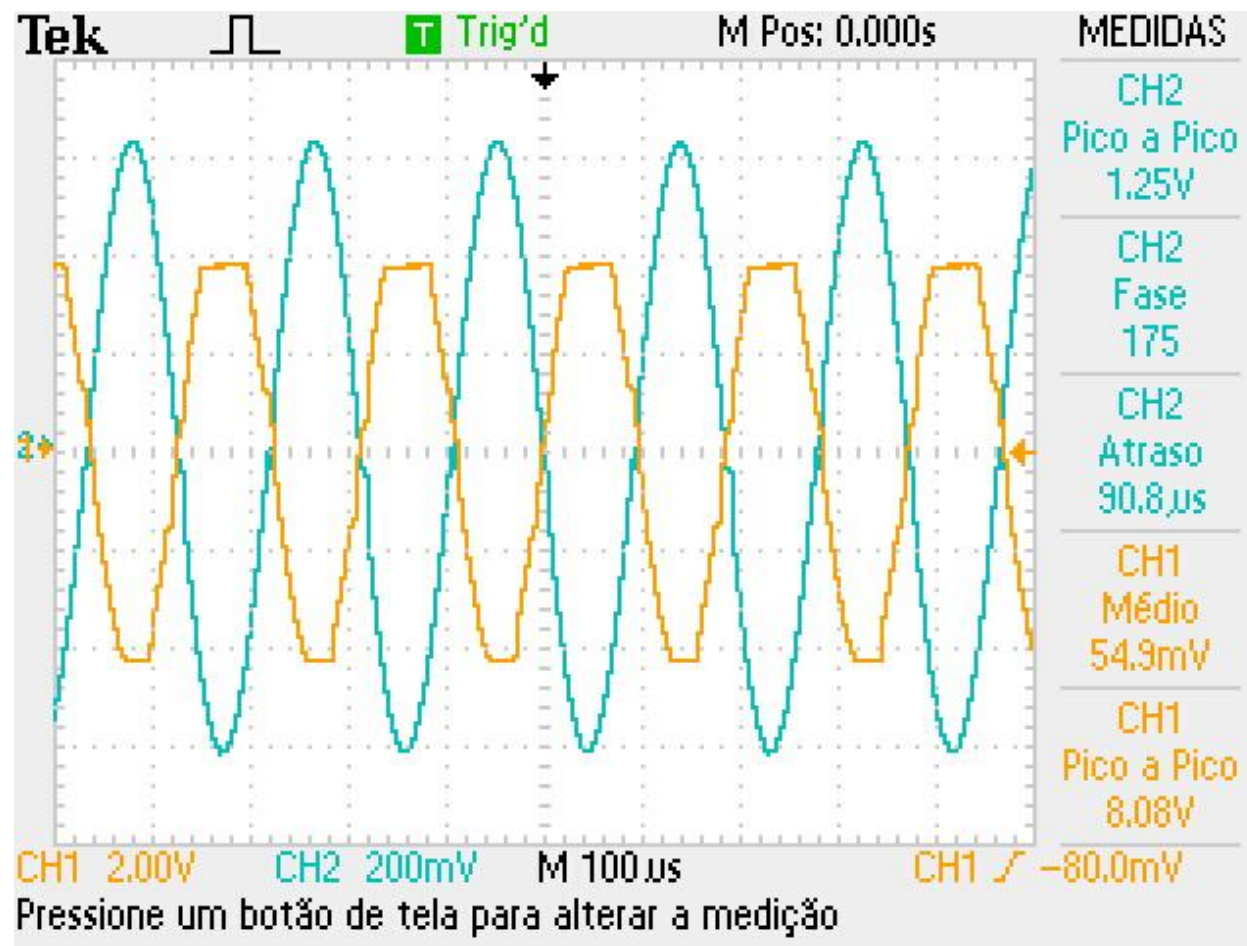


Figura 2 - Ponto mínimo para oscilação sustentável experimental

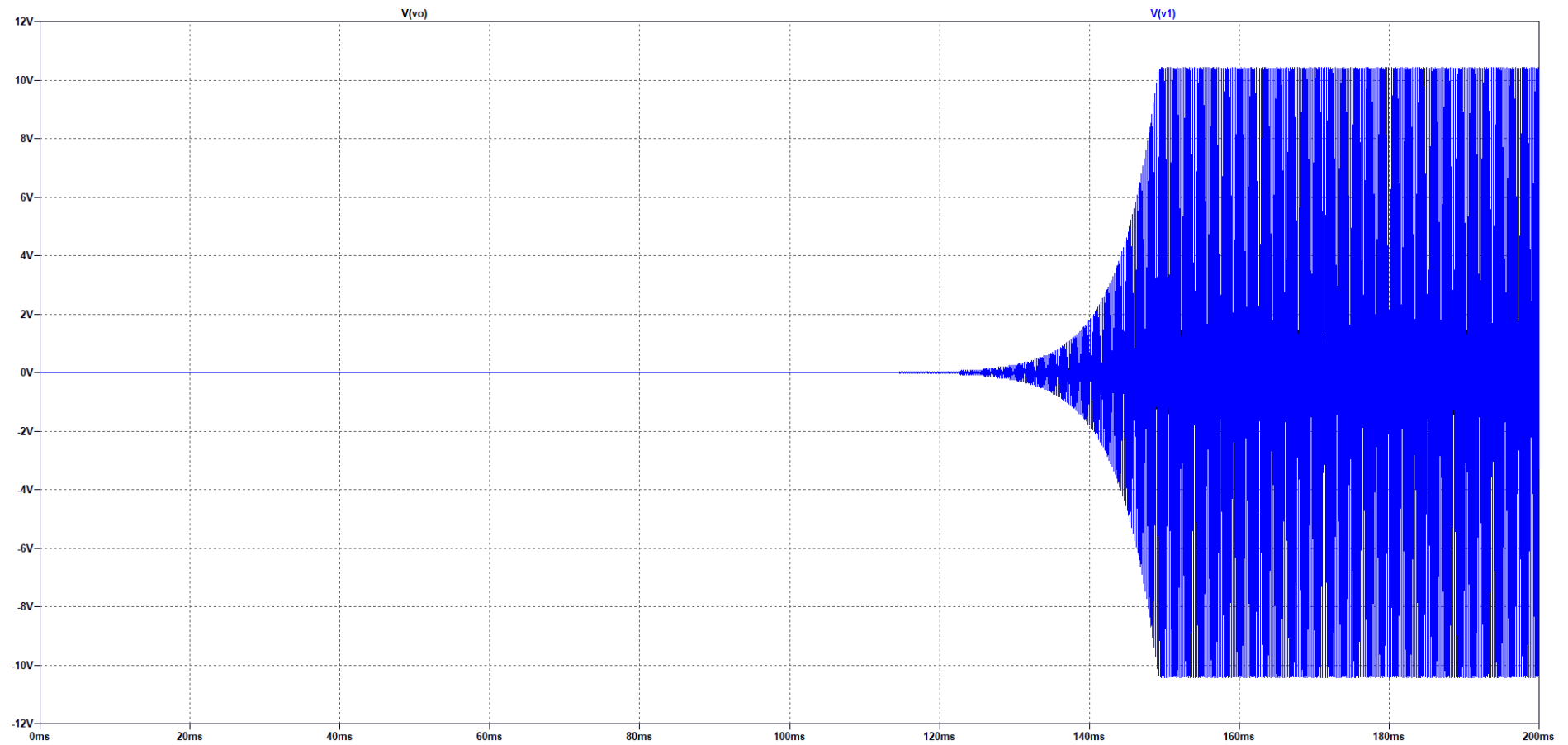


Figura 3 - Ponto mínimo para oscilação sustentável simulado

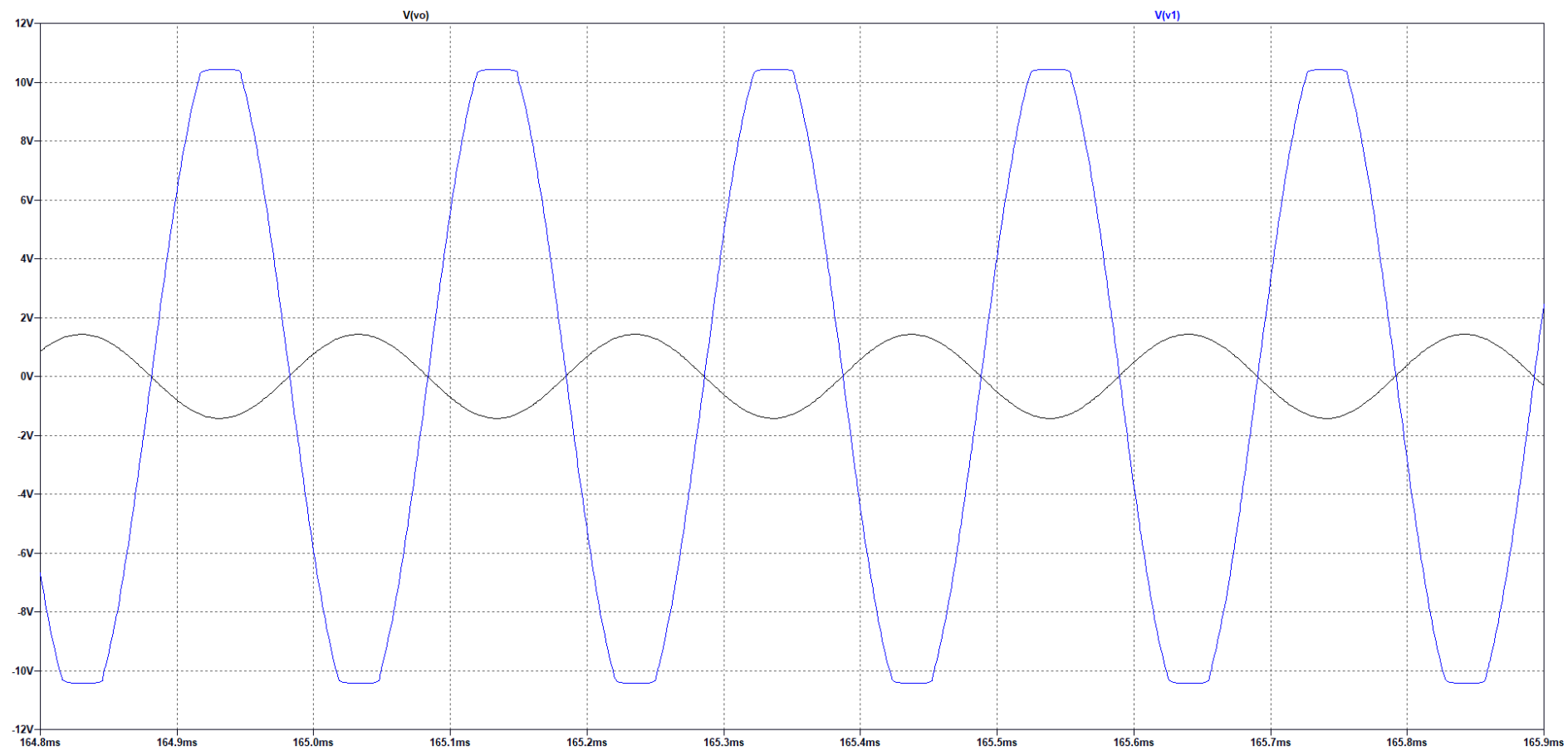


Figura 4 - Ponto mínimo para oscilação sustentável em detalhe simulado

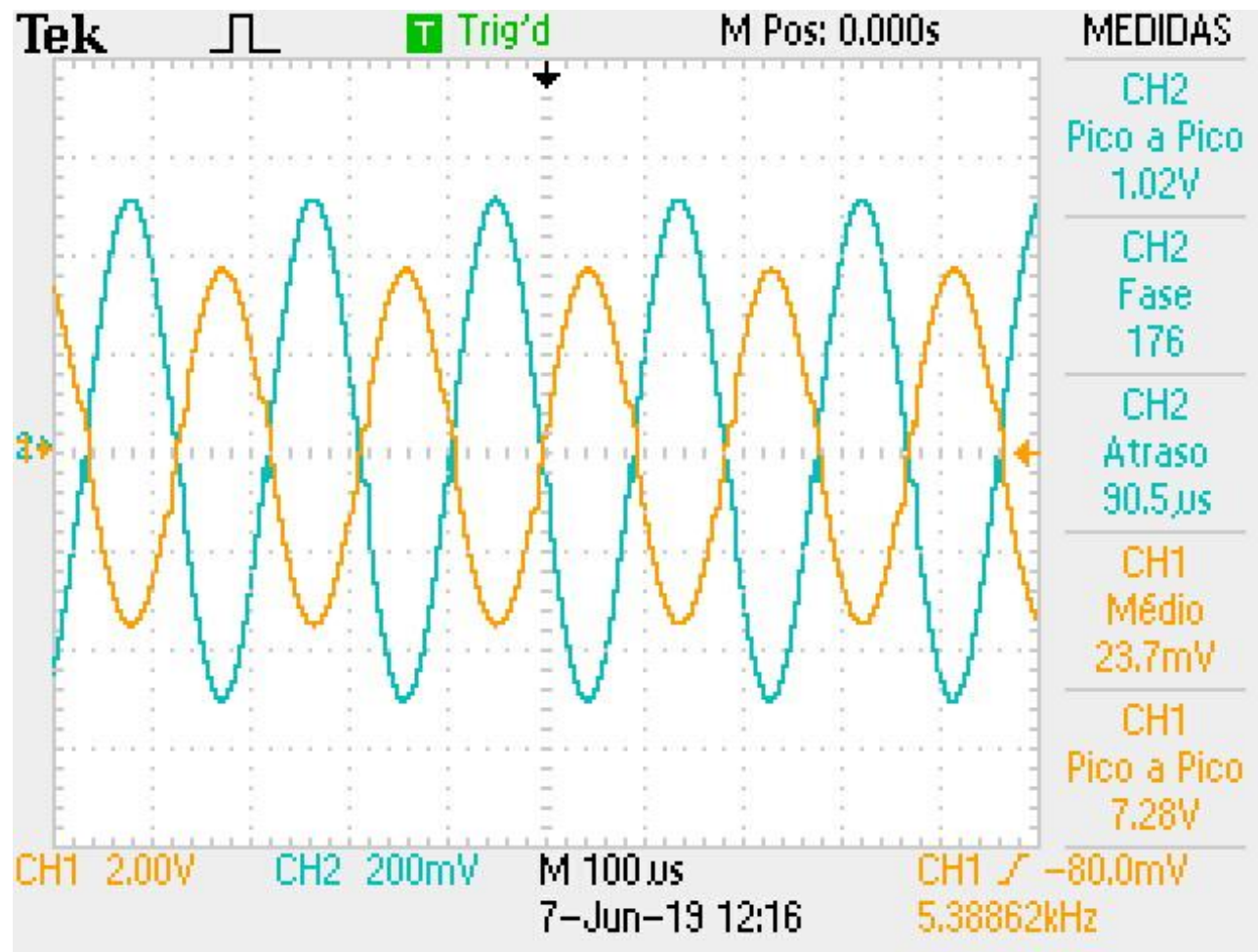


Figura 5 - Oscilação com Circuito Limitador experimental

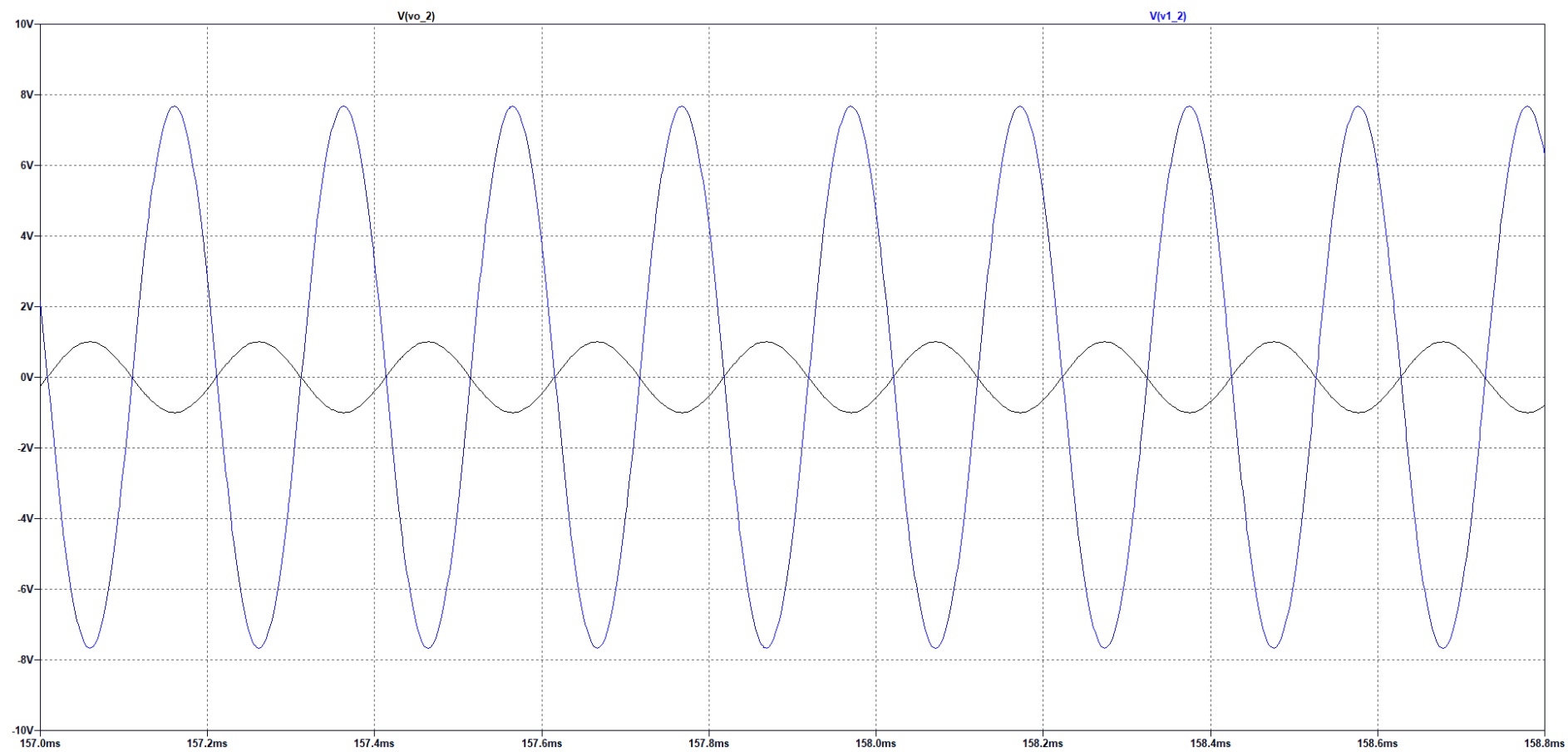


Figura 6 - Oscilação com Circuito Limitador simulado

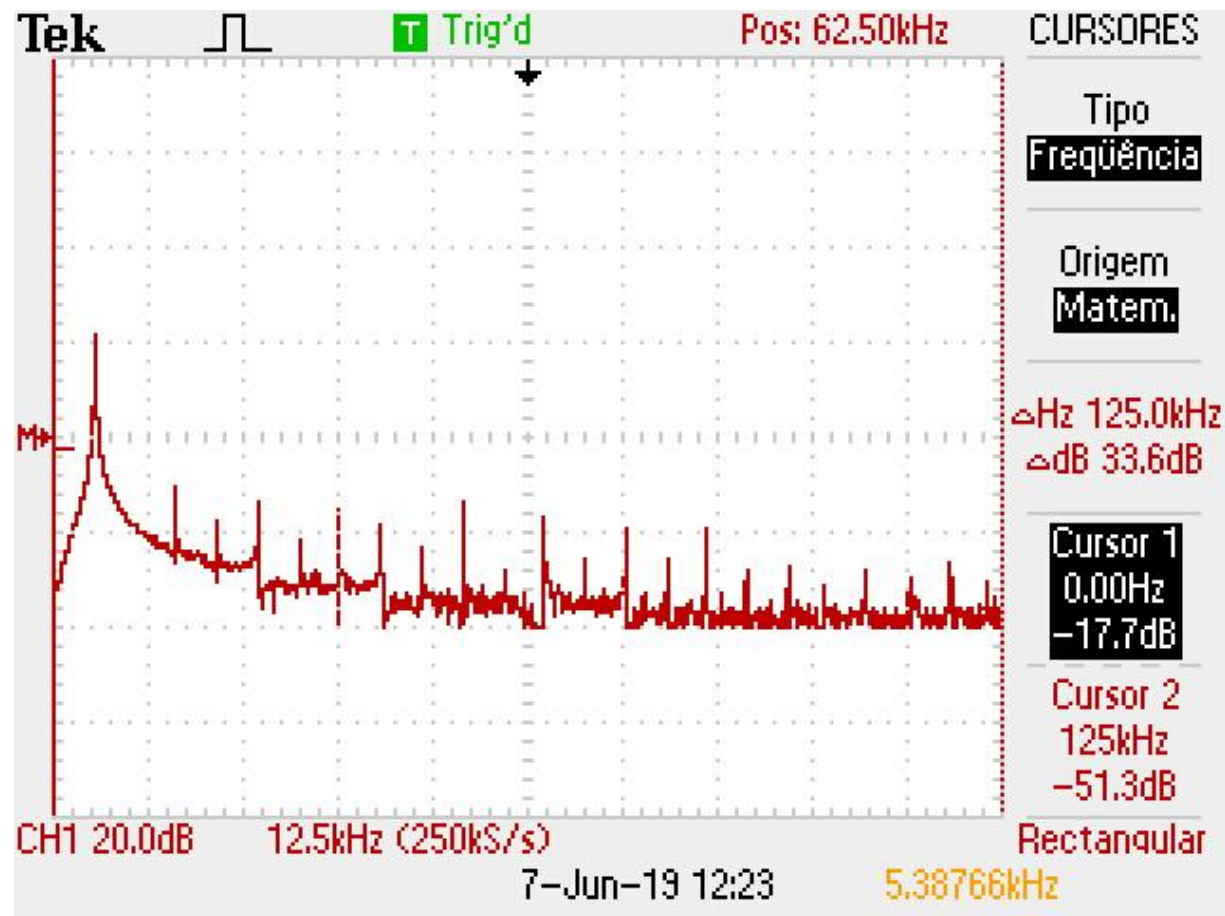


Figura 7 - FFT saída circuito limitador experimental

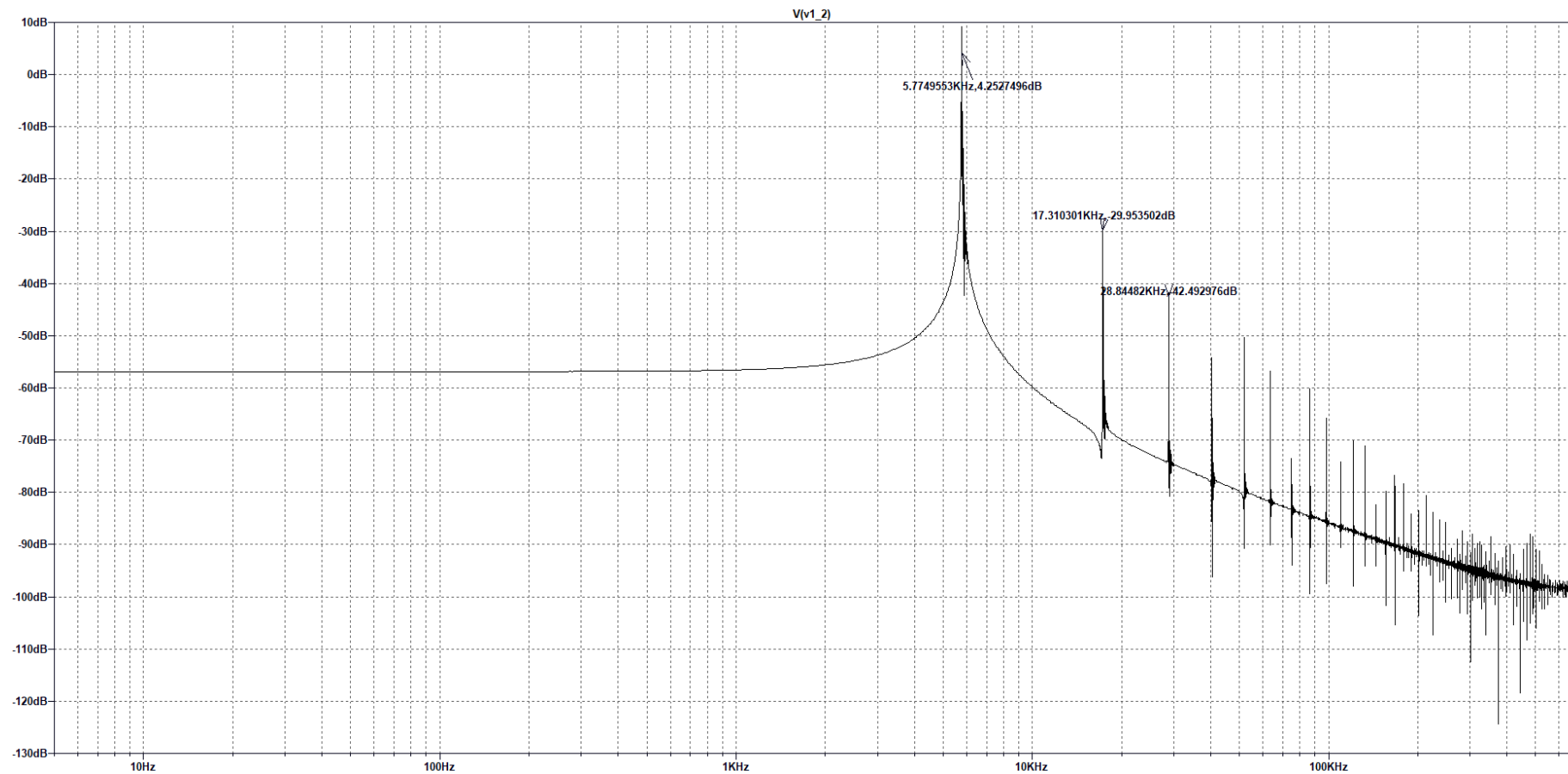


Figura 8 - FFT saída circuito limitador simulado

N-Period=1

Fourier components of V(v1_2)

DC component:0.920945

Harmonic Number	Frequency [Hz]	Fourier Component	Normalized Component	Phase [degree]	Normalized Phase [deg]
1	5.000e+03	8.463e+00	1.000e+00	118.93°	0.00°
2	1.000e+04	1.385e+00	1.637e-01	-41.65°	-160.58°
3	1.500e+04	6.809e-01	8.046e-02	-28.07°	-147.01°
4	2.000e+04	3.462e-01	4.091e-02	-29.71°	-148.64°
5	2.500e+04	2.808e-01	3.318e-02	-23.14°	-142.07°
6	3.000e+04	2.327e-01	2.750e-02	-12.78°	-131.72°
7	3.500e+04	1.947e-01	2.300e-02	-14.27°	-133.20°
8	4.000e+04	1.652e-01	1.952e-02	-11.51°	-130.44°
9	4.500e+04	1.504e-01	1.777e-02	-11.52°	-130.45°
Total Harmonic Distortion: <u>19.499878% (20.128664%)</u>					

Figura 9 - THD simulada