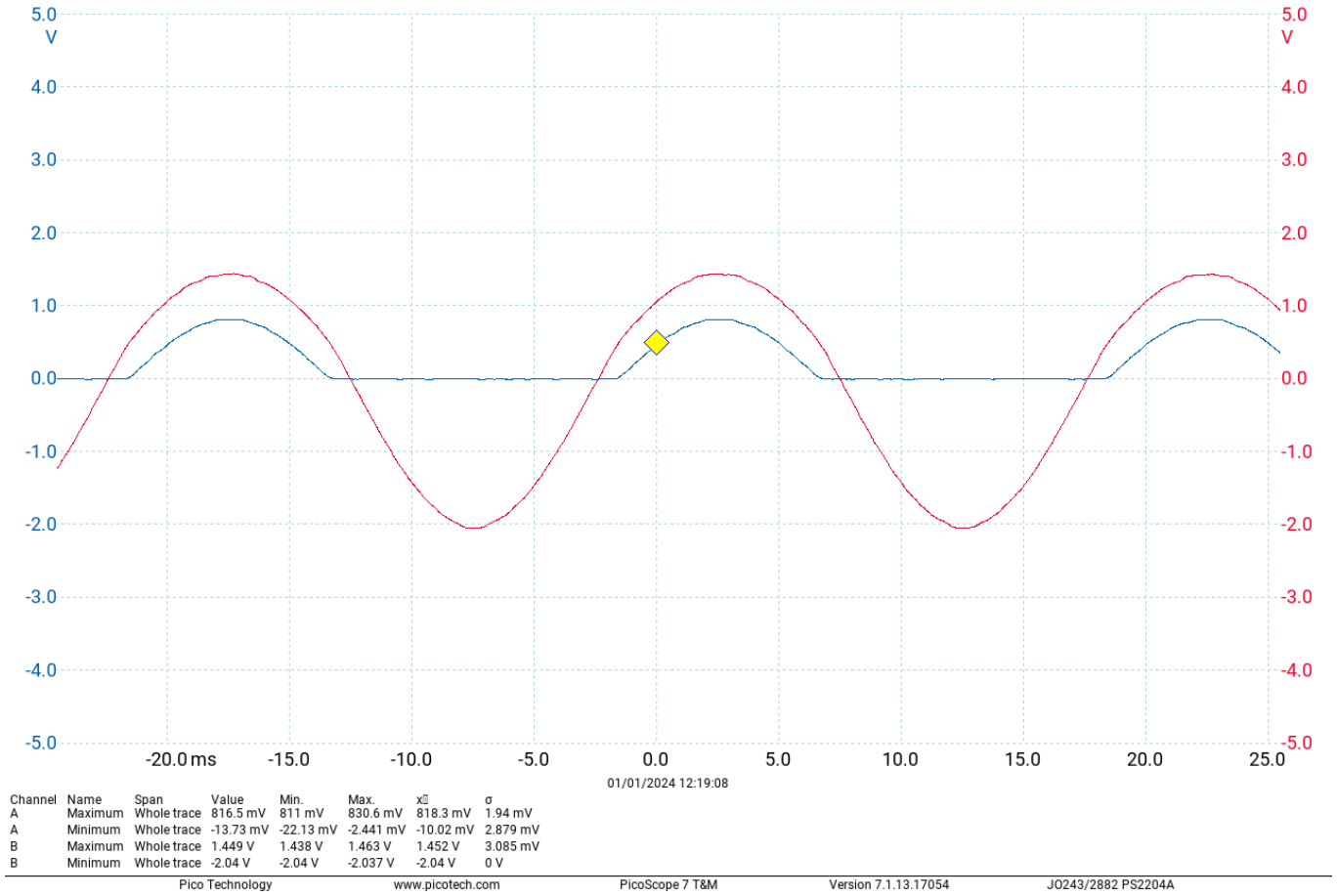
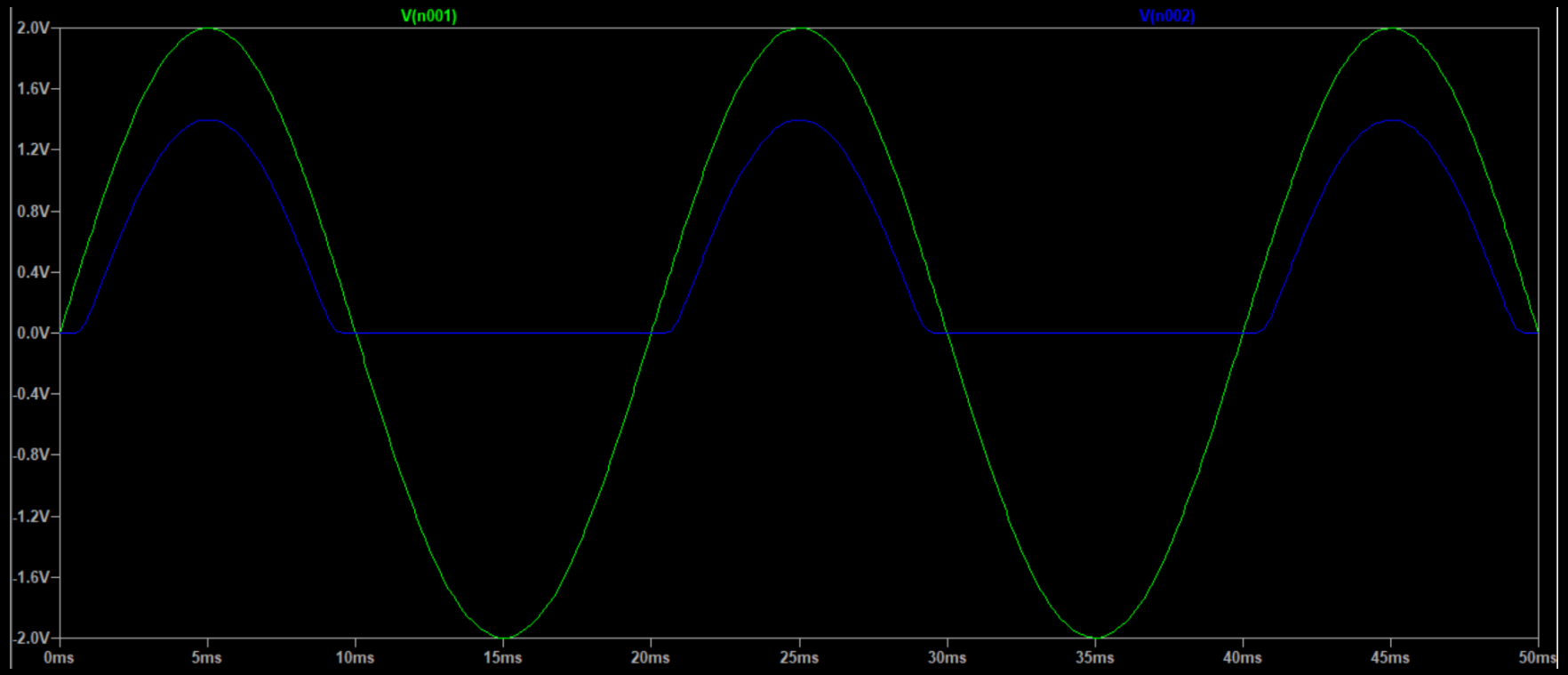
Exercise 9


5.0
V
4.0
3.0
2.0
1.0
0.0
-1.0
-2.0
-3.0
-4.0
-5.0
-20.0 ms
-15.0
-10.0
-5.0
0.0
5.0
10.0
15.0
20.0
25.0
01/01/2024 12:19:08
Channel Name Span Value Min. Max. x̄ σ
A Maximum Whole trace 816.5 mV 811 mV 830.6 mV 818.3 mV 1.94 mV
A Minimum Whole trace -13.73 mV -22.13 mV -2.441 mV -10.02 mV 2.879 mV
B Maximum Whole trace 1.449 V 1.438 V 1.463 V 1.452 V 3.085 mV
B Minimum Whole trace -2.04 V -2.04 V -2.037 V -2.04 V 0 V
Pico Technology
www.picotech.com
PicoScope 7 T&M
Version 7.1.13.17054
JO243/2882 PS2204A

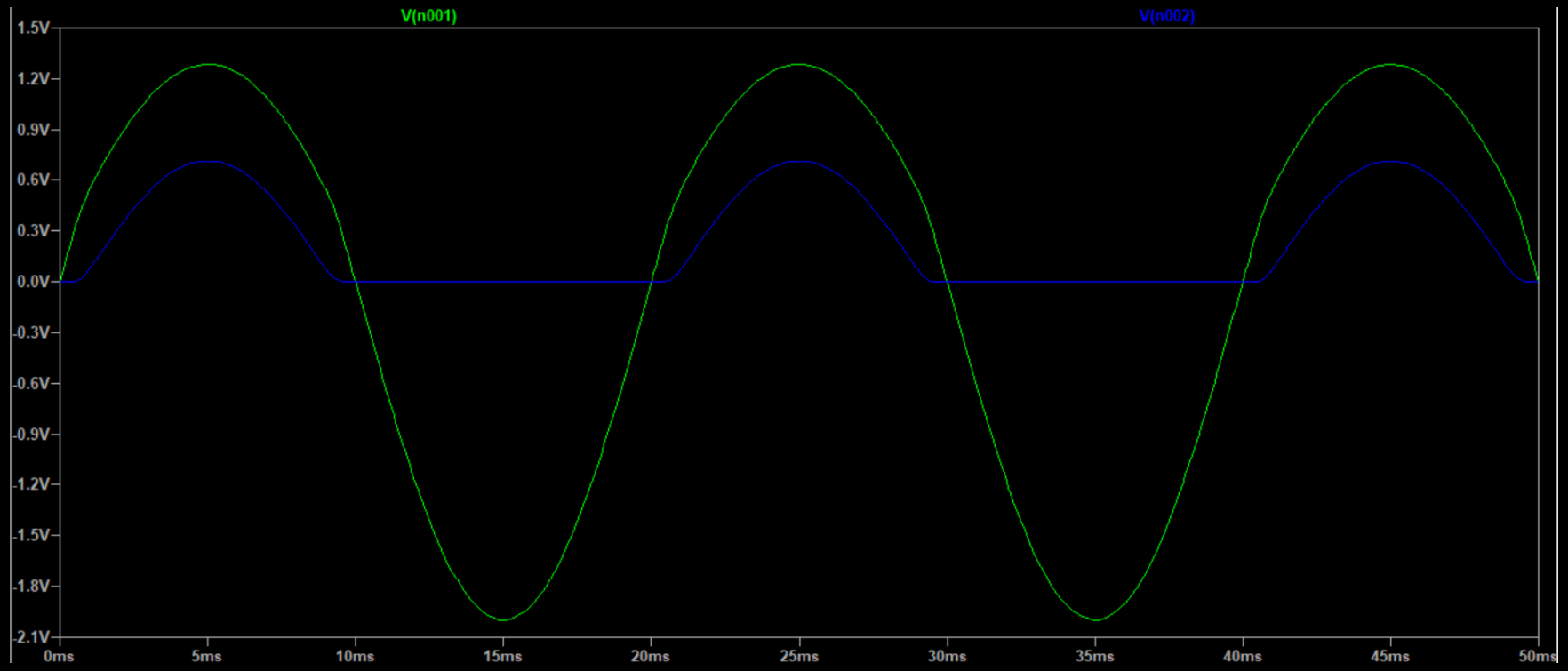
Exercise 9



- LTSpice V_R:
  - Max 1.398V
  - Min 0
- Experiment V_R:
  - Max 819.1mV
  - Min -9.603mV
- LTSpice V_All:
  - Max 2V
  - Min -2V
- Experiment V_All:
  - Max 1.450V
  - Min -2.040V

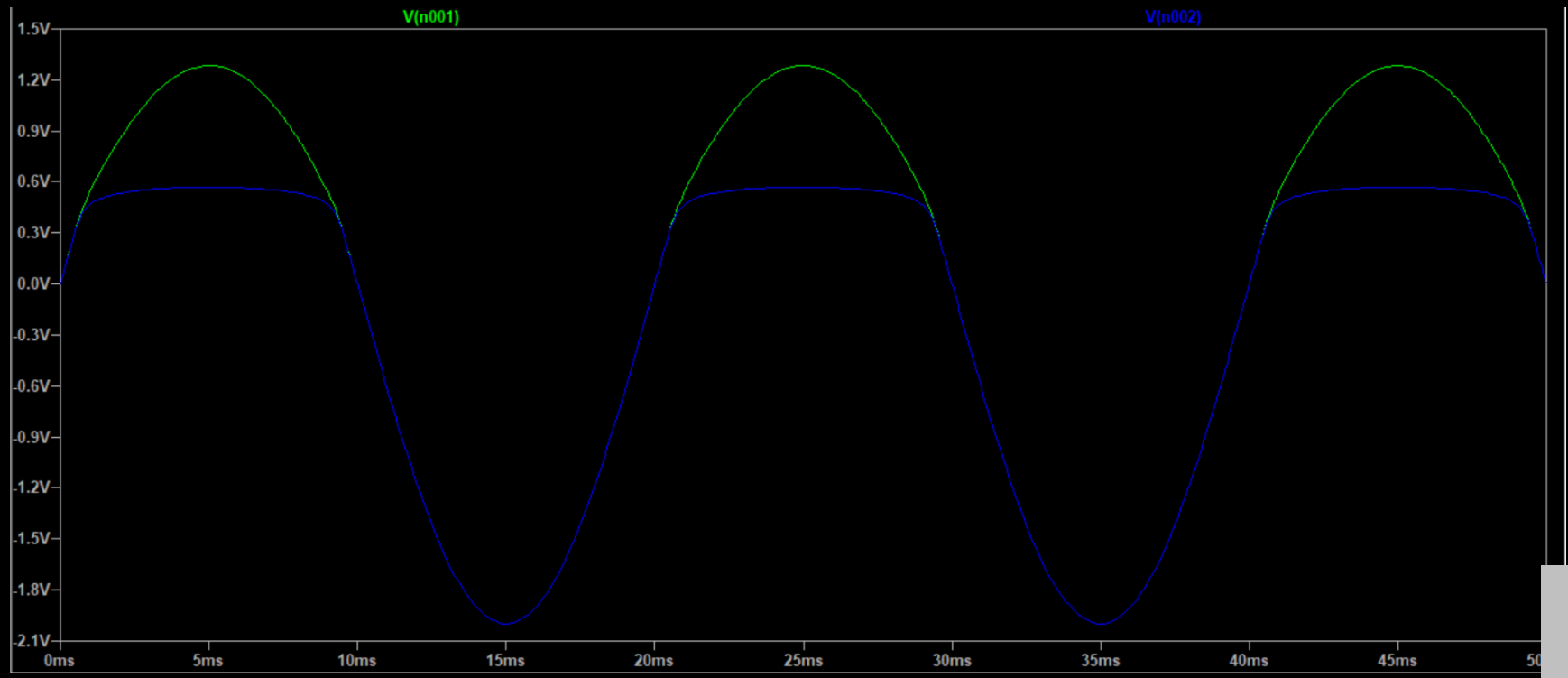
The experiment voltages are significantly lower than the simulation ones. This is presumably due to source impedance or some other impedance.

Exercise 9

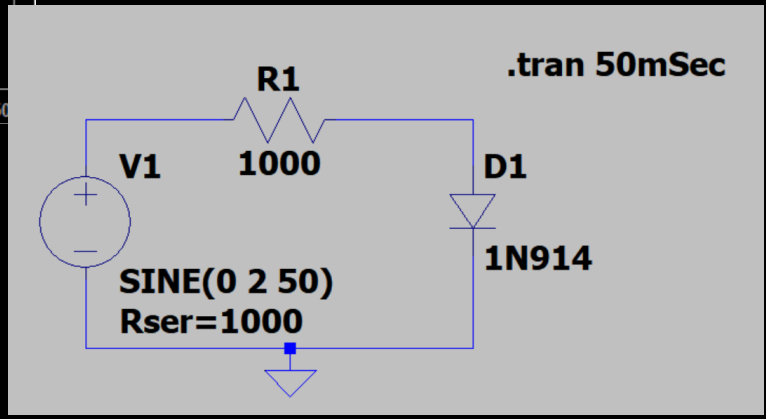


- When the series resistance of the source is set to 1kΩ, the results are quite similar to what we saw from the experiment results.

Exercise 9

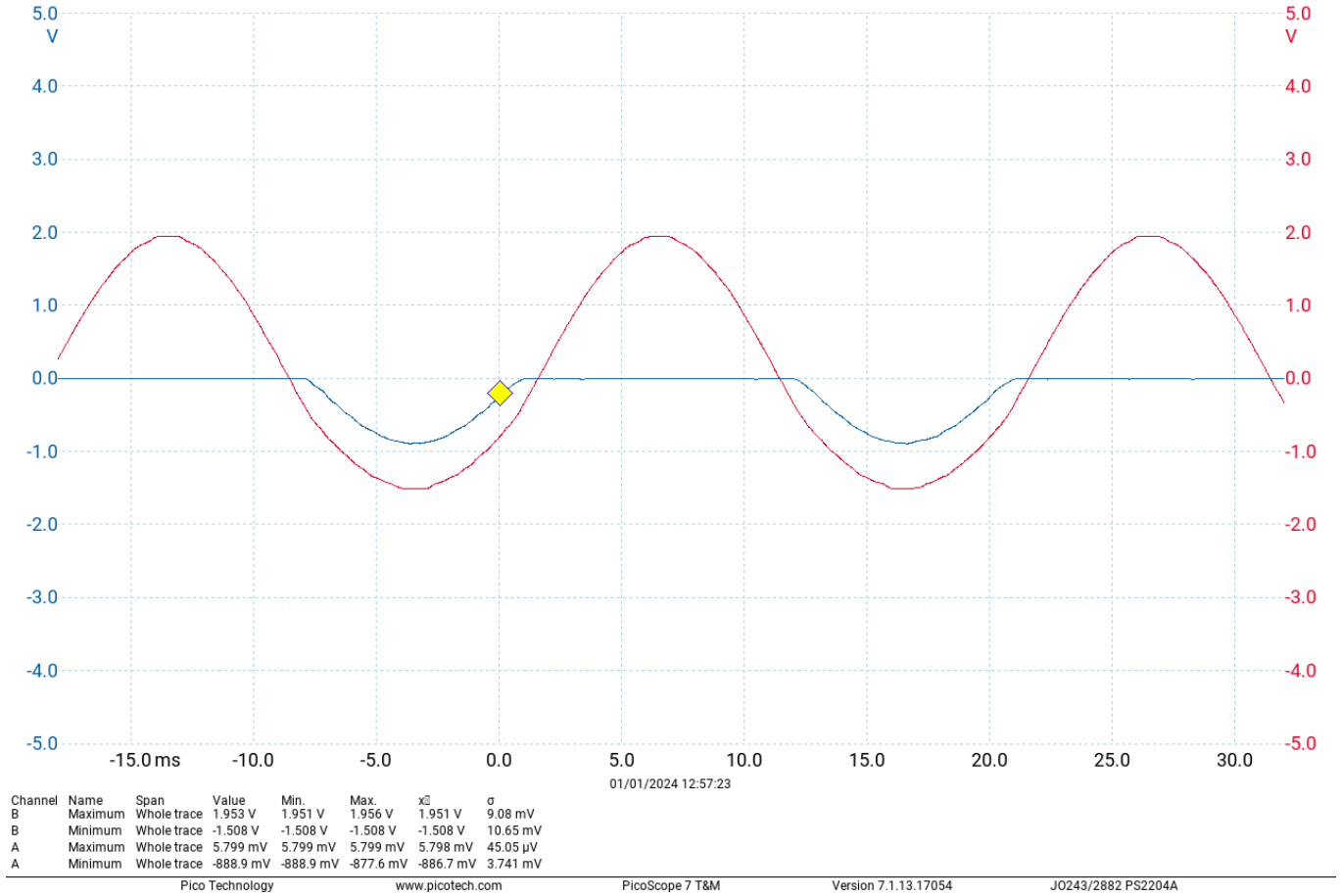


- The blue trace in this graph is the voltage across the diode.
- The schematic can be found below, but this graph can also be achieved by using V(n001) – V(n002) in the original circuit.



Exercise 9

As expected, reversing the diode has little effect on the voltages besides reversing them.



Exercise 9a

- Placeholder for now
- Left for finish after revision.