Practice TAsk 3 REPORT

« Operational amplifiers. Wien bridge oscillator»

**Principles of Circuits**

Student: CAO Xinyang 20321308

Program of Computer Science and Technology

Group CS

Name Surname

# Work purpose: to study parameters of Wien bridge oscillator

Goals:

1) Calculate parameters of Wien bridge oscillator

2) Compare calculated and simulated signal frequencies

# Starting data

* **Source voltage frequency, [Hz],**
* **Load resistance, [Ω]:**  1000000
* **Resistance *R*1 [Ω] [V]:**  15000
* **Voltage source power supply [V]:**  ±9

1

# Calculations

* 1. Calculate

= 15000 []

* 1. Define (choose)

= 260000 []

* 1. Define (choose)

130000 [Ω]

* 1. Calculate C1 and C2 value in your model

= 1326p [F]

* 1. Define *f*0 in Hz calculated from C1, C2, R1, R2 real values

[Hz]

* 1. Define *f*0 in from simulation results of Wien bridge with ideal operational amplifier

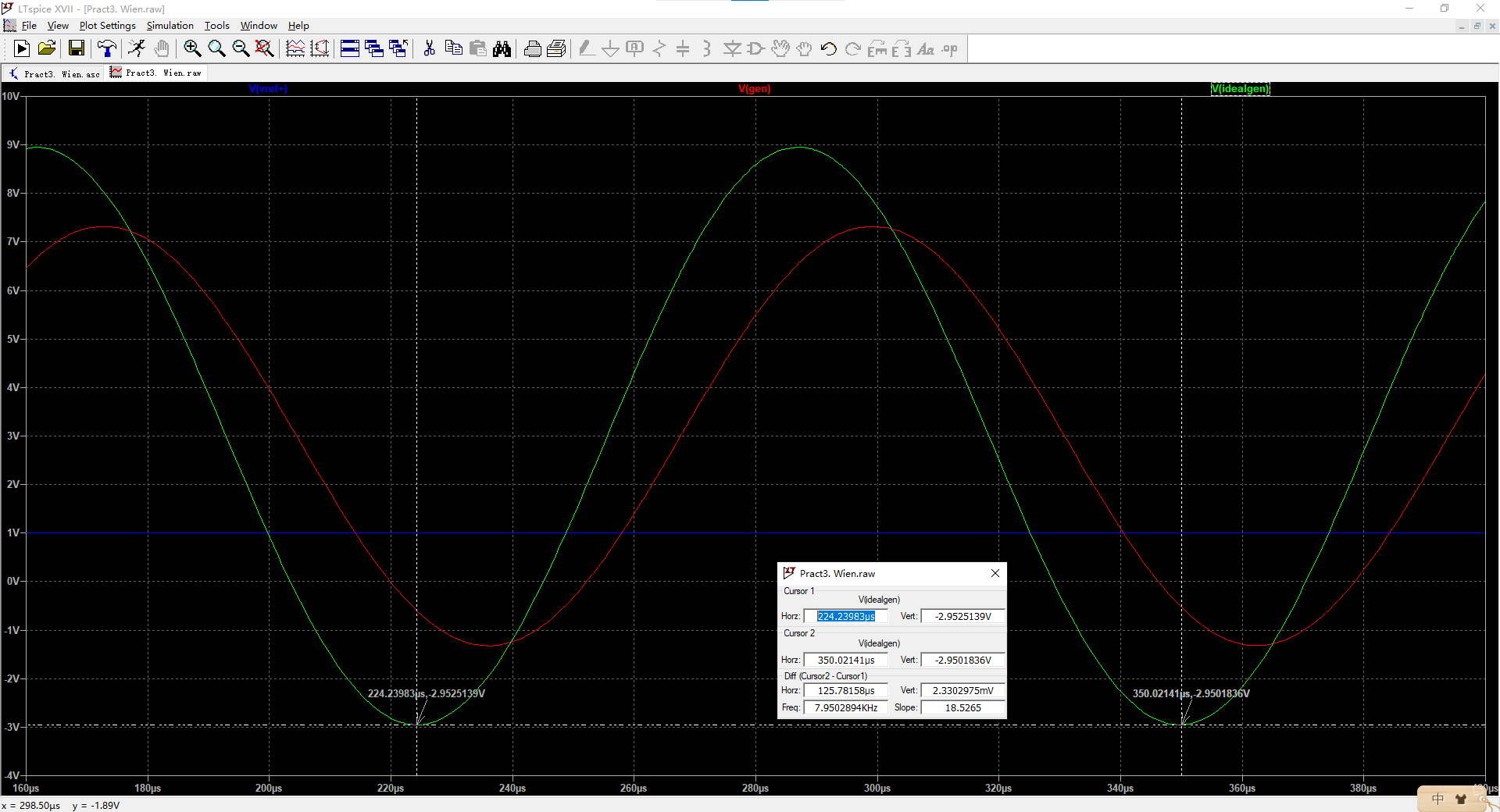


Figure 1. Results with ideal operational amplifier simulation

7950.29 [Hz]

* 1. Define *f*0 in from simulation results of Wien bridge with real operational amplifier

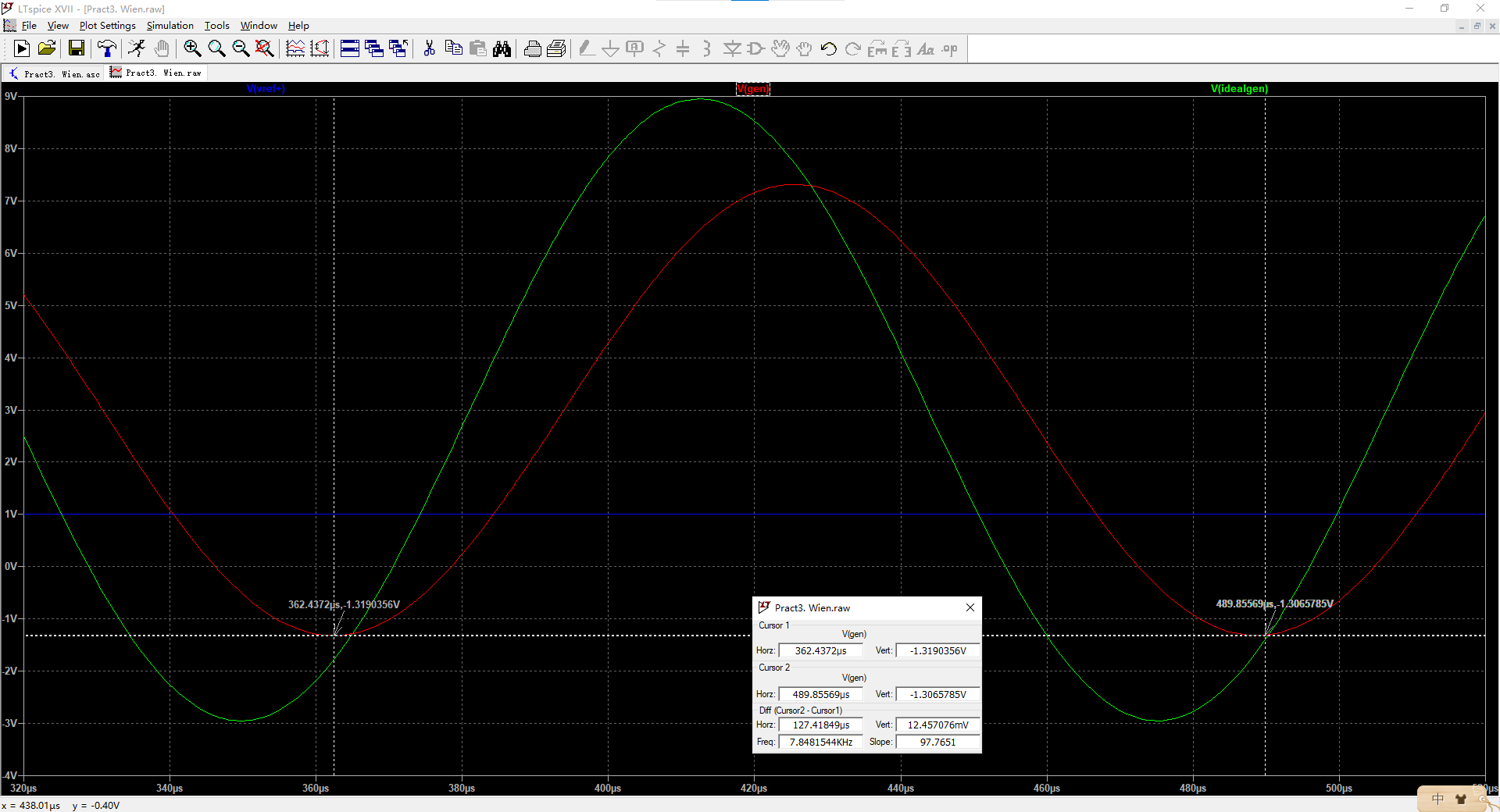


Figure 2. Results with real operational amplifier simulation

7848.15 [Hz]

# Conclusions

Conclusions should contain:

1. Values of , ,

[Hz]

7950.29 [Hz]

7848.15 [Hz]

2) [Optional] Which resistor and capacitors correspond to the required parameters? Try to find a set of capacitor and resistors which could provide required frequency.