Cyclic Voltammetry SOP

1. Set up should include the following:
   a. Flask or vial with room for electrodes
   b. Working electrode (Glassy carbon or other) attached to greed wire
   c. Counter Electrode (Pt wire) attached to red wire
   d. Reference electrode (Ag) attached to the white wire
   e. Electrolyte solution (2-5 ml, enough to cover electrodes) such as 0.1 M $[NBu_4][PF_6]$
2. Bubble inert gas such as Nitrogen into solution to clear Oxygen
3. First run the CV in the electrolyte to establish a background
4. Go to "T" for Technique and select CV
5. Adjust parameters:
   - Range will go from Init E (V) to final E(V)
   - Initial Scan polarity can be negative or positive depending on the direction of the Scan
   - Scan rate (V/s) is normally set at 0.1 (adjust accordingly for specific experiment)
   - Sweep segments 2 (every 2 is a cycle)
   - Sample interval (V) is normally 0.001 or can be adjusted accordingly
   - Quiet Time (sec) is normally 2
   - Sensitivity (A/V) is normally 1 e-004 or can be adjusted accordingly
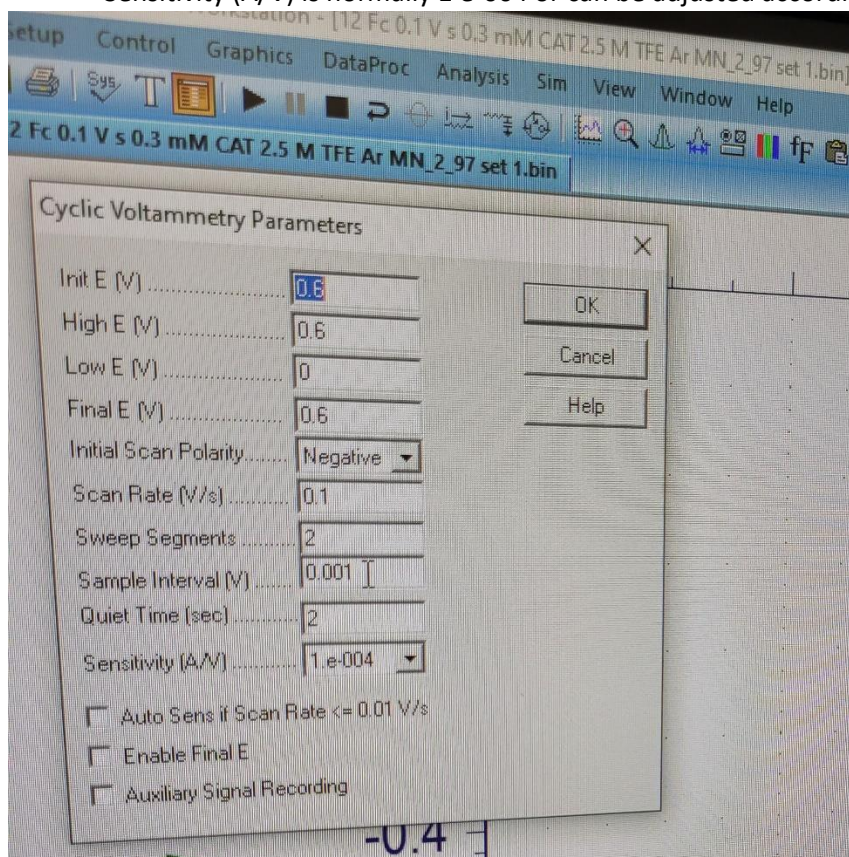
6. Set Resistance Compensation.
   a. By pressing "Test" in iR Compensation, Resistance should be <100.
   b. If <100,
      i. Move electrodes closer together
      ii. Check electrode connections
      iii. Add more electrolyte solution
   c. iR compensation "Once" or Always
   d. iR Comp Mode Automatic or manual and set resistance.
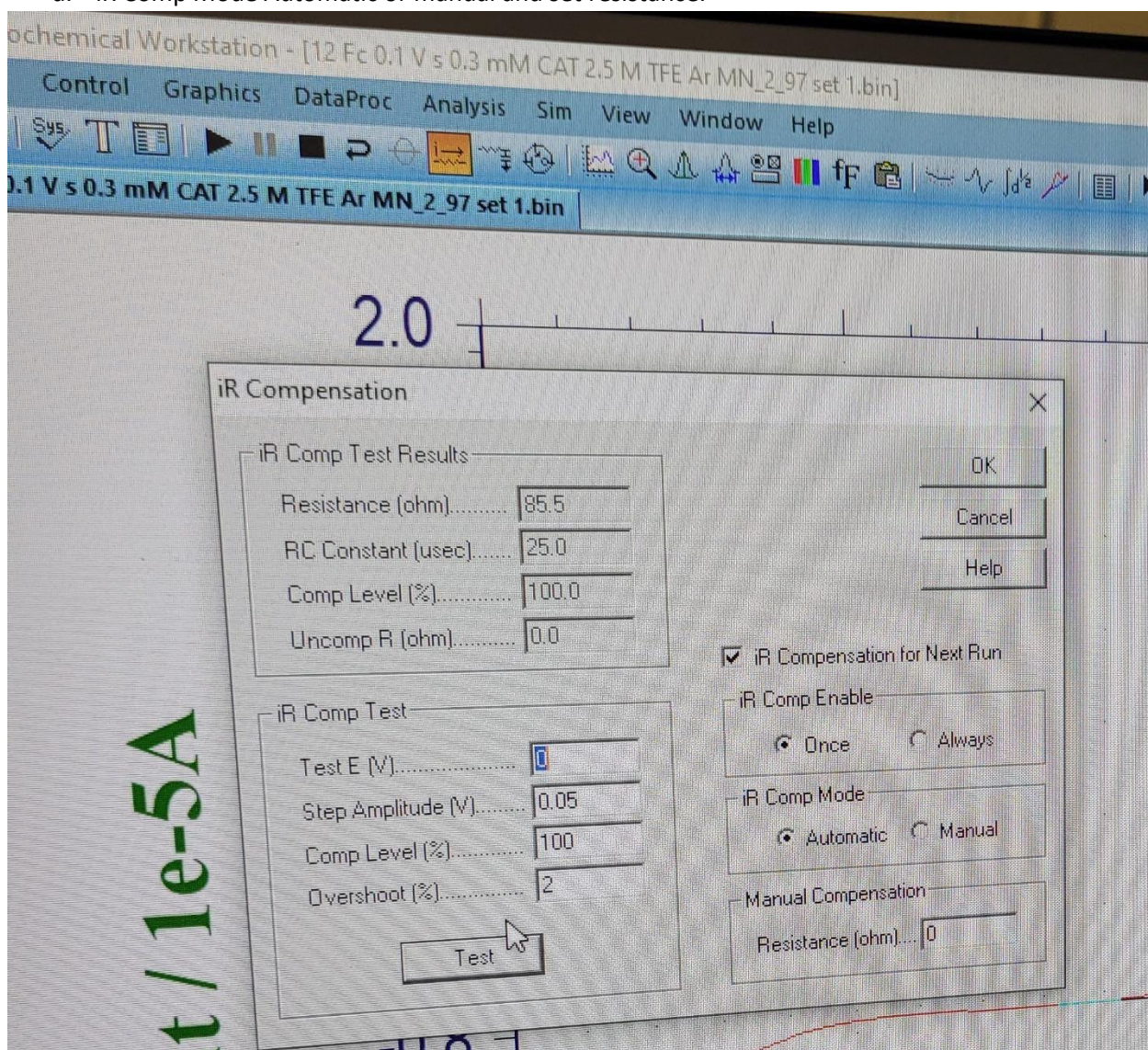
7. Run play button to take background
8. Add material (2-5 ml volume, 1.0-0.25 mmolar concentration, high concentration better)
9. With material, repeat step 6.
10. Run play button

11. Check Data Plot
    a. Ep Segment 1 = Ep_1
    b. Ep Segment 2 = Ep_2
    c. $E_{1/2}$ = $(Ep_1 + Ep_2)/2$
12. For Electrosynthesis, Go to "T" for Technique and select electrosynthesis
13. In parameters set:
    a. E_I = $E_{1/2}$ from CV measurement
    b. Set Hold time till conversion