DC-CIR Worksheet

Your Name: _____ **Signature:** _____

Lab partner(s): _____

Course & Section: _____ **Station #** _____ **Date:** _____

Section D: Ohm's Law

1. DMM reading for the resistor: _____ ± _____ _____

2. List your data for minimum and maximum current, with error estimates. Don't forget units. Also, staple to this worksheet a copy of your plot, including the linear fit.

   I_{min}: _____ ± _____ _____ V: _____ ± _____ _____

   <div align="center"><i>units</i></div>

   I_{max}: _____ ± _____ _____ V: _____ ± _____ _____

3. List your linear fit parameters, with error estimates from *Origin*.

   SLOPE: ____ ± _____ _____   INTERCEPT: _____ ± ____ _____

4. Comment on the comparison of the DMM value and Origin fit. (Use additional sheets if necessary.)

Section E.1: Series Resistors

5. Enter below the data (*with error estimates*) for series resistors.

Resistor #	Resistance (*ohms*)	Theoretical Sum (*ohms*)	Voltage (*V*)	Current (*A or mA*) (*circle one*)	Experimental Sum (*ohms*)
1					
2					
3					
4					

6. Attach a sheet that describes in detail how you found the errors in each entry for two resistors in series. This should include errors in any raw data you took as well as error propagation through any equations that you used (see App. V of the lab manual).

7. Compare the theory to the experiment. (Use additional sheets if necessary.)

Section E.2: Parallel Resistors

8. Enter below the data from your table of part E.2 for parallel resistors

Resistor #	Resistance (*ohms*)	Theoretical Sum (*ohms*)	Voltage (*V*)	Current (*A or mA*) (*circle one*)	Experimental Sum (*ohms*)
1					
2					
3					
4					

9. Attach a sheet that describes in detail how you found the errors in each entry for 2 resistors in parallel.

10. Compare the theory to the experiment. (Use additional sheets if necessary.)

Sections F & G. Where Ohm's Law Fails & Power Limits

11. What resistance did you measure with the DMM? _____ ± _____ _____

12. Attach your Origin plot of *R vs. I*.

13. Comment on Ohm's Law as it applies to the incandescent bulb and compare the DMM reading to the data in your plot: (Use additional sheets if necessary.)

14. What is the maximum rated voltage for a 100 Ω, ¼-watt resistor ____   ____

15. What is your personal resistance? _____   ____

16. What voltage across your hands would result in a power that could destroy a 100 Ω, ¼-watt resistor? _____

GRADE:_____   **GRADED BY _____**
    (out of 30 points)   (TA's initials)