

Experiment 4: DC Circuits BACKGROUND AND THEORY The resistance R of a metallic conductor is defined by $R = \text{Voltage} / \text{Current} = V / I$ (4.1) where V is the potential difference applied between the endpoints of the conductor and I is the current flowing through the conductor. For a metallic conductor, such as a copper wire, the resistance R is a constant provided that the temperature of the wire stays essentially constant, that is R does not depend on I or V . Units: V is measured in volts (V), I in Amperes (A) or milli-amperes (mA), and R in Ohms (Ω). PROCEDURE www.lib-go.com Uploaded by Rasha Daoud to Lib-Go.com 49 Part A: DC Circuit with One Resistor 1. We can test if a material is ohmic or not by measuring the potential difference V across the material against www.lib-go.com Uploaded by Rasha Daoud to Lib-Go.com 48 a current I that pass through it while keeping the temperature of the material constant. 1: Example of Ohmic and Non-Ohmic Materials Conductors obey Ohm's law and are called ohmic materials. Figure 4