

On non-ideal voltage and current measurement tools

Latipov Vladimir && Onishenko Sergiy

26.09.2020

1 Abstract

It's contents should be too abstract for me to be able to write it.

2 Experiments

There were 4 experiments arranged:

2.1 Experiment №1: Sequential plugging in



2.2 Experiment №2: Only Voltmeter



2.3 Experiment №3: Only Ampermeter



3 Solving equation system

$$A_1 = \frac{\varepsilon}{I} \quad (1)$$

$$V_1 = \frac{\varepsilon \cdot R_v}{I} \quad (2)$$

$$R_v = \frac{V_1}{A_1}$$

$$V_2 = \varepsilon \cdot \frac{R_v}{R_v + R_\varepsilon} \quad (3)$$

$$\varepsilon = V_2 + V_2 \cdot \frac{R_\varepsilon}{R_v}$$

$$A_3 = \varepsilon \cdot \frac{1}{R_A + R_\varepsilon} = (V_2 + V_2 \cdot \frac{R_\varepsilon}{R_v}) \cdot \frac{1}{R_A + R_\varepsilon} \quad (4)$$