Experiment 3:
Voltage Dividers and Thévenin's Theorem

Post-Lab Report

I. Discussion on parts A and B

- Refer to the data of Table A.1. How does the load current vary with the load resistance R_L? Explain why.

As the load current increase , the load resistor decrease, thus they are inversely proportional

- Refer to Table A.1. What is the effect on bleeder current I1 as the load current increases? Explain why.

as the load current increases , the bleeder current also decreases.
I = I1 + IL
When IL increases , I1 decreases to maintain I constant.

- What is the effect on the voltages V_A and V_B at the divider taps as the load current increases (Table A.1)? Explain why.

When IL increases Vb , Va and (Vb - Va) decreases . Vb - Va = I1*Ra ; Ra is constant and I1 decreases . so Vb - Va will decrease

- Compare the computed values in Table A.1 with the measured values. Explain any differences.

The values are almost the same; difference due to experimental error

- Compare the design values and the measured values of the circuit in Fig. B.1. Explain any differences.

The measurements where precise and accurate, where the error on measurements is almost negligible

II. Discussion on parts C

- Compare the measured and theoretical values obtained for VTH and RTH of Fig. C.3. Explain any differences in the values of VTH and RTH.

There is no differences in the values they can be considered the same .

- With the 2.2 KΩ resistor in branch CD of Fig. C.3 opened; calculate V_{TH} and R_{TH} of the modified circuit. Explain any differences in the values of V_{TH} and R_{TH}.

We open-circuit the branch CD , so its obvious to obtain different values of VTH and RTH

- In the Procedure of Part C, RTH was derived by shorting the 15 V source in Fig. C.3 and measuring the resistance between A and B. In the statement of Thévenin's theorem,

  RTH is derived from the current that flows when RL is shorted. Verify the equivalence of these two methods.

% error = 0.176

Both methods are correct