Lab 1 –Resistor Variability

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| **Sample** | **Measured  Value** |
| 1 | 0.45 kohm |
| 2 | 0.45 kohm |
| 3 | 0.46 kohm |
| 4 | 0.44 kohm |
| 5 | 0.45 kohm |
| 6 | 0.45 kohm |
| 7 | 0.45 kohm |
| 8 | 0.45 kohm |
| 9 | 0.45 kohm |
| 10 | 0.45 kohm |
| 11 | 0.45 kohm |
| 12 | 0.45 kohm |
| 13 | 0.44 kohm |
| 14 | 0.45 kohm |
| 15 | 0.45 kohm |
| 16 | 0.45 kohm |
| 17 | 0.45 kohm |
| 18 | 0.45 kohm |
| 19 | 0.45 kohm |
| 20 | 0.45 kohm |

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The purpose of this lab is to:

Learn the how resistors vary using 20 resistors with the same color code.

Select a set of 20, 470 ohm resistors.

Measure and record the resistance of each resistor.

Equipment needed:

1 – Digital Multimeter

1 – 20 resistors with the same color code.

Resistor color code = Yellow 4, Violet 7, Brown 10, Gold +5% and -5%

Resistor value = 470 ohm

Resistor tolerance = +5% and -5%

Using Microsoft Excel plot the resistor values and determine:

Smallest resistance = 0.44 kohm

Largest resistance = 0.46 kohm

Average resistance = 0.4495 kohm

Standard Deviation = 0.00394 kohm

Do any of your resistor values exceed the part tolerance?

2 resistor values exceeded the part tolerance.

Observations: Resistor values are determined by their color code and each resistor has an accepted percent error based on the final color of the resistor. The mustimeter is a device that is used to measure resistors.