

EXPERIMENT: 3

OBJECTIVE:

To determine the voltage regulation of medium line/small line under different conditions

THEORY:

The voltage regulation of transmission line is defined as the change in receiving end voltage, when the load at specified power factor is thrown off

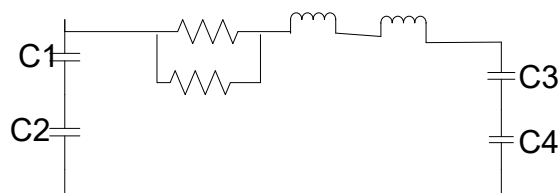
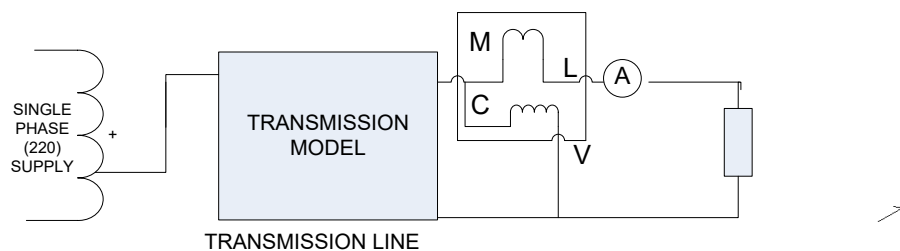
$$\text{Voltage Regulation} = \frac{V_{r0} - V_{r1}}{V_{r1}} \times 100$$

V_{r0} = Receiving end voltage at no load

V_{r1} = Receiving end voltage at full load

The voltage drop depends upon magnitude as well as power factor of connected load

CIRCUIT DIAGRAM:



C1-C4 4700 pf each

PROCEDURE:

Supply a convenient voltage (100 to 150) to sending end and receiving end voltage of various load currents up to 1 Amp using resistive loads (repeat with R-L Load) Take a number of readings of receiving end voltage at constant current (say 0.5A) With change of load (magnitude and power factor)

1. Calculate the regulation of line & plot against load current.
2. Plot a curve of regulation V/s power factor for a given current.

OBSERVATIONS:

(1) For resistive load

V_R (volts)	I_R (amp)	Power (watt)	P.F= W/VI	Voltage regulation

(2) For resistive as well as inductive load:

V_R (volts)	I_R (amp)	Power (watt)	P.F= W/VI	Voltage regulation

RESULT:

Regulation at various loads and power factor is plotted