Experiment no. 6

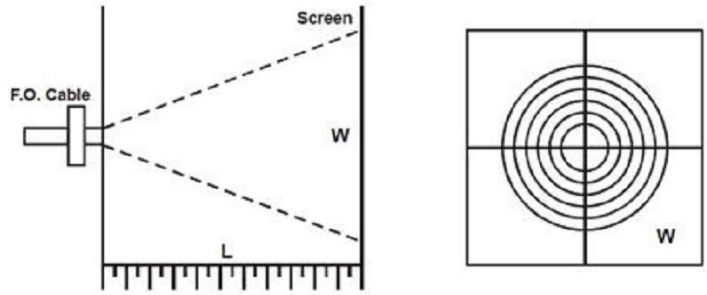
Aim: To measure numerical aperture of the fiber

Lab Outcome: Set up fiber optic link using fiber optic trainer kit and measure different parameters

Equipment: FIBER OPTICSTRAINER (FOCT-04)
Optical Fiber cable
Oscilloscope with necessary connecting probe

PROCEDURE:

1. Connect the AC Supply to Kit.
2. Ensure that all fault switches in normal position.
3. Make the connections as shown in Block Diagram
4. Connect 1KHz. Sine Wave signal to 660nm FO Transmitter input and adjust the amplitude at 5Vp-p.
5. Connect one end of 1mtr.Fiberoptic cable to 660 nm FO Transmitter output and the other end of the F.O cable to the numerical aperture measurement jig. Hold the white screen facing the fiber such that its cut face is perpendicular to the axis of the fiber.



6. Switch ON the power supply of the trainer.
7. Hold the white screen with different concentric circles vertically at a suitable distance to make the red spot from the fiber coincided with 10mm circle.
8. Record the distances of screen from the fiber end L and note the diameter W of the spot.
9. Compute the numerical aperture from the formula given below :

$$NA = \frac{W}{\sqrt{(4L^2 + W^2)}}$$

Observation table:

Numerical aperture:

Sr. no.	W	L	NA
1			
2			

Conclusion: write appropriate conclusion.

Attach printout of following diagram

Connection diagram to measure NA