

Measurements of Intermodal Dispersion In Graded Index Optical Fiber

The aim of this research is to examine experimentally the laser pulse transmittance in graded index optical fiber. However attention is paid on the evaluation of intermodal dispersion. Four signals ($\lambda = 680\text{nm}$ and power = 0.1 mW) of different frequencies (138.889, 277.778, 645.16, and 1369.863 Hz), of pulse widths (7.2, 3.6, 1.55, and 0.73 ms) respectively are sent through a 400m multimode graded index fiber. A pin detector is used to receive output signals. Intermodal dispersion has been noticed and the pulse width broadening for each frequency is recorded. They are (7.22, 3.61, 1.555, and 0.732 ms) that lead to frequencies of (138.504, 277.008, 643.08, 1366.120 Hz) respectively. That change in frequency has to be taken into account whenever fiber optic dependence communication, guidance, or control systems are considered