

Influence of wavelength on the bandwidth of W-type plastic-clad silica optical fibers

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Abstract

The bandwidth and steady-state loss of multimode W-type plastic-clad silica optical fibers are investigated by solving the time-dependent power flow equation. The results show how the bandwidth of W-type plastic-clad silica optical fibers can be enhanced by shifting from the red to the infrared wavelength region for different intermediate layer widths and refractive indices of the outer cladding. Such characterization of these fibers is consistent with their manifest effectiveness in reducing modal dispersion and increasing bandwidth.

Keywords: W-type plastic clad silica optical fiber, power flow equation, bandwidth, steady-state loss, infrared wavelength region