

Abstract

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Gb/s Transmission Data Rates Over Graded Index Plastic Optical Fibers in Short Distance Applications

The most significant features of plastic optical fibers (POFs) are investigated, including the main types of POFs, and their properties regarding bandwidth, attenuation, and influence of external parameters are analyzed over wide range of the affecting parameters. This paper has presented the transmission link by using plastic optical fibers that should be verified the following parameters for the POFs system under construction as the following: i) Minimum and maximum transmission distance to be spanned, ii) Transmission data rate, iii) Operating signal wavelengths, iv) Minimum and maximum operating temperature of a system, v) Type and properties of cable to be used, vi) Any required number of passive coupling points, if necessary. This data is the basis for planning the installation from a transmission view point. We have compared our theoretical results of different graded index plastic optical fibers with their simulation results with using perflourinated graded index plastic optical fibers as listed in the conclusion part