

Investigation of the dependence of the mode powers at the output of a stepped fiber waveguide on the magnitude of its deflection

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Abstract

The use of diffractive optical elements (DOE) in fiber-optic physical value converters seems to be very promising. This work is devoted to the DOE-assisted research of the dependence of the transverse-mode composition of a fiber with a stepped refractive index profile on a microbend depth. An experimental setup is described, as well as the algorithms for processing experimental data that provide for accurate measurements of the mode power. The dependence of the LP11 mode power on the fiber bend depth is obtained. The result allows to anticipate the construction of fiber-optic converters with improved characteristics - dynamic range and accuracy.

Keywords: fiber waveguide, magnitude deflection, diffractive optical elements, DOE, fiber-optic, microbend, LP11 mode.

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