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Effect of bending on transmission characteristics of polymeric arrayed waveguide grating multiplexers

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Keywords

arrayed waveguide grating, bending effect, phaseshift, spectral shift, crosstalk

Abstract

In terms of the transmission theory of the arrayed waveguide grating (AWG), parameter optimization is performed, and bending effect of arrayed waveguides on transmission characteristics is analyzed for a 33×33 polymeric AWG multiplexer around the central wavelength of 1550.918 nm with the wavelength spacing of 0.8 nm. Analytical results show that the bending of arrayed waveguides causes the phaseshift of the light propagating in the AWG, results in the shift of the transmission spectrum, and brings about the variation of the crosstalk. For the designed AWG device, the shift of the transmission spectrum is about 0.01 nm, which is much less than the wavelength spacing of 0.8 nm.



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