Abstracts

A Waveguide Polarization Controller (Short Papers)

K. Sarabandi. "A Waveguide Polarization Controller (Short Papers)." 1994 Transactions on Microwave Theory and Techniques 42.11 (Nov. 1994 [T-MTT]): 2171-2174.

In this paper a novel waveguide polarizer is introduced that does not require rotary joints and the frequency of operation can easily be adjusted by a few set screws. In this method the degenerate eigenvalues of a circular waveguide are separated by deforming the waveguide cross section slightly. In order to generate a desired polarization, the orientation angle of the deformation point with respect to the polarization of the incident wave can be adjusted using a rotary roller mechanism concentric with the circular waveguide. Analysis of the problem based on the finite element method and an approximate analytical method is given. A prototype model at 34.5 GHz is built and tested. Experimental results shows excellent agreement with the theoretical prediction.

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