Abstracts

Short and Machinable 90° Twists for Integrated Waveguide Applications

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New designs of 90° twists for integrated rectangular waveguide applications are introduced. Three different design variants are presented which comprise several advantages compared to discrete twisted waveguides. First, the designs are machinable as required for integrated waveguide technology. Secondly, they are extremely short (one sixteenth of a wavelength) and, therefore, ideally suited for application in satellite communication waveguide bands. Thirdly, the guides connected to the actual twist section can be of different cross-section which reduces the need for additional impedance transformers. And finally, only rectangular instead of L-shaped cross-sections are utilized. Hence CAD procedures are simplified significantly, and the softwore is operational on personal computers. The theoretical model used is verified by measurements at the fundamental step discontinuity formed by two double-plane offset-connected waveguides.

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