Abstracts

Nonreciprocal Remanence Phase Shifters in Rectangular Waveguide

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Three types of nonreciprocal remanent phase shifters in rectangular waveguide are described which are approximated by a simple model consisting of twin ferrite slabs symmetrically placed in rectangular waveguide and separated by a dielectric rib. The model has been analyzed with the assumption that a fundamental TE mode wave propagates in the structure. Simultaneous solution of Maxwell's equations in the three regions of dielectric, ferrite, and air within the waveguide enables the characteristic equation to be formed. The characteristics of the model have been obtained with the aid of a computer as a function of dimensions, dielectric and magnetic constants, frequency, and power. The theoretical results are compared with experimental data obtained on a double toroid structure. Correction factors applied to the experimental data, which are necessary to account for differences between the practical structure and the ideal model, are discussed.

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