Abstracts

Improved analysis of nonreciprocal remanence ferrite phase shifter in grooved waveguide

Wenquan Che, E.K.-N. Yung, Suibing Chen and Junding Wen. "Improved analysis of nonreciprocal remanence ferrite phase shifter in grooved waveguide." 2002 Transactions on Microwave Theory and Techniques 50.8 (Aug. 2002 [T-MTT]): 1912-1918.

In this paper, the nodal finite-element method is used to analyze the differential phase shift of a nonreciprocal remanence ferrite phase shifter in a grooved waveguide. Instead of the former twin-slab model, an improved analytical model is adopted, where the effect of every part of a ferrite toroid on the differential phase shift has been considered. This analysis may replace the correcting factor with good agreement with the experimental data. Furthermore, this analysis is employed to investigate the effect of corner chamfering on the figure-of-merit (differential phase shift per decibel insertion loss) of a ferrite phase shifter. The numerical results are found to agree with the experiments in the literatures.

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