Abstracts

Accurate characterization of the interaction between coupling slots and waveguide bends in waveguide slot arrays

G. Mazzarella and G. Montisci. "Accurate characterization of the interaction between coupling slots and waveguide bends in waveguide slot arrays." 2000 Transactions on Microwave Theory and Techniques 48.7 (Jul. 2000, Part I [T-MTT]): 1154-1157.

In a waveguide slot array, it is sometimes required to introduce bent short-circuit terminations in the feeding network. This significantly affects the behavior of the coupling slots used in this network, with a very large variation in the coupling coefficient with respect to the standard case. A procedure to accurately evaluate the effect of such bends is presented, thus allowing us to include them without any loss in the overall design accuracy. It is based on the method of moments, using a magnetic-field integral equation expressed in terms of the vector potential, which appears to be the most efficient way for waveguide problems. The development is aimed at a very effective implementation, which allows us to include it in design tools for waveguide slot arrays without increasing the total computational load, and has been assessed through comparison with experimental results.

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