Abstracts

Modal Analysis of Multi-Connected Waveguides

L. Carbonini. "Modal Analysis of Multi-Connected Waveguides." 1992 Transactions on Microwave Theory and Techniques 40.4 (Apr. 1992 [T-MTT]): 665-671.

A general analysis for the modal characterization of multi-connected uniform, hollow, conducting waveguides is presented. It is relevant to waveguides with an "outer" conductor for which analytical Green's functions are known, "inner" conductors described by integral equations. The TEM modes space is analyzed, and singularities of the integral equations are studied for determining the higher order modes. The cases of parallel wires into rectangular waveguides and above a ground plane are worked in detail; experimental results about a complex multi-wire line are reported. Mixed coaxial and circular offset coaxial waveguides are also analyzed. Spurious solutions arise due to the structure of the integral equations for multi-connected waveguides; criteria to discard such modes are presented.

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