Abstracts

Characterization of Corrugated Waveguides by Modal Analysis

J. Esteban and J.M. Rebollar. "Characterization of Corrugated Waveguides by Modal Analysis." 1991 Transactions on Microwave Theory and Techniques 39.6 (Jun. 1991 [T-MTT]): 937-943.

A general formulation for the characterization of corrugated waveguides is presented. The formulation is based on modal expansion in the different smooth-walled waveguides which constitute the corrugated structure and on the use of mode matching at discontinuities. The use of an admittance matrix formulation and a suitable root-finding algorithm leads to a rigorous and efficient technique. Dispersion curves are presented for corrugated waveguides of circular and rectangular cross sections. As predicted by other authors, complex modes have been obtained for deep corrugations. The effect of the finite thickness and width of teeth and slots on the dispersion behavior is also shown.

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