

# Abstracts

## Comparative Study of $TE_{x/mn}$ Versus $TE_{mn}/TM_{mn}$ Mode Analysis and its Application to Waveguide Discontinuity Modeling

*J. Bornemann and R. Vahldieck. "Comparative Study of  $TE_{x/mn}$  Versus  $TE_{mn}/TM_{mn}$  Mode Analysis and its Application to Waveguide Discontinuity Modeling." 1990 MTT-S International Microwave Symposium Digest 90.2 (1990 Vol. II [MWSYM]): 713-716.*

This paper presents a comparative study of alternative techniques to be used in the mode matching method as applied to electromagnetic field modeling at waveguide discontinuities. It is found that a modified  $TE_{mn}$ -to- $x$  mode ( $TE_{x/mn}$ -or  $LSH_{x/mn}$ ) approach becomes necessary for waveguide discontinuities in which resonant effects occur. A comparison between the conventional  $TE_{x/mn}$  mode matching technique, commonly known from literature, and the generalized analysis based on a linear superposition of  $TE_{z/mn}$  and  $TM_{z/mn}$  modes, shows conflicting results. The latter one is found to be in excellent agreement with the modified  $TE_{x/mn}$  mode analysis and with measurements on waveguide iris filters.

[Return to main document.](#)

Click on title for a complete paper.