

Abstracts

Comparative Study of TE_{xmn} Versus TE_{mn} - TM_{mn} Mode Analysis and its Application to Waveguide Discontinuity Modeling

J. Bornemann and R. Vahldieck. "Comparative Study of TE_{xmn} 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_{xmn} -or LSH/ x -mode) approach becomes necessary for waveguide discontinuities in which resonant effects occur. A comparison between the conventional TE_{xmn} mode matching technique, commonly known from literature, and the generalized analysis based on a linear superposition of TE_{zmn} and TM_{zmn} modes, shows conflicting results. The latter one is found to be in excellent agreement with the modified TE_{xmn} mode analysis and with measurements on waveguide iris filters.

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