# Abstracts

## Fourier-Transform Analysis for Rectangular Groove Guide (Short Papers)

*B.-T. Lee, J.W. Lee, H.J. Eom and S.-Y. Shin. "Fourier-Transform Analysis for Rectangular Groove Guide (Short Papers)." 1995 Transactions on Microwave Theory and Techniques 43.9 (Sep. 1995, Part I [T-MTT]): 2162-2165.*

The rectangular groove guide is analyzed using the Fourier transform and the mode-matching technique. The enforcement of the boundary conditions at the groove apertures yields the simultaneous equations for the field coefficient inside the grooves. The simultaneous equations are solved to represent a dispersion relation in analytic series form. The numerical computation is performed to illustrate the behavior of the guided wave in terms of frequency and groove sizes. The presented series solution is exact and rapidly-convergent so that it is efficient for numerical computation. A simple dispersion relation based on the dominant-mode analysis is obtained and is shown to be very accurate for most practical applications.

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