Abstracts

Propagation Constants of a Waveguide Containing Parallel Sheets of Finite Conductivity

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The propagation constants of a rectangular waveguide containing periodic, parallel sheets having finite conductivity were determined using an iterative computer program. The dispersion equation was found in a matrix formulation which was conducive to computer solution. This equation was solved for various values of conductivity and sheet spacing. Comparisons were made with the propagation constants found assuming an infinite array of thin parallel resistive sheets in free space for the case where the direction of propagation and the electric field vector were both parallel to the sheets. The propagation constants for the infinite array case have been determined by both conformal mapping techniques for certain limiting conditions and by a computer solution of the dispersion equation for sheet spacings and conductivities of interest. The results should prove useful for the design of absorbing elements and terminations for waveguides.

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