Abstracts

Boundary Conditions and Ohmic Losses in Conducting Wedges

R.M. Chisholm. "Boundary Conditions and Ohmic Losses in Conducting Wedges." 1960 Transactions on Microwave Theory and Techniques 8.2 (Mar. 1960 [T-MTT]): 189-198.

The present work is concerned with the boundary conditions required to calculate the ohmic losses occurring in metallic wedges under the influence of electromagnetic waves which are sinusoidal in time. The validity of the surface impedance condition used in calculating waveguide wall losses is examined carefully, and a "modified" surface impedance condition, which can be applied to wedge problems in which the perfectly conducting solution is known, is developed. A simple waveguide having a circular cross section, a sector of which is occupied by a metal wedge, is used as an example. The tangential magnetic field variations along the surface of the wedge are shown graphically, demonstrating, near the tip of the wedge, a large deviation from the tangential magnetic field of the perfectly conducting solution.

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