Abstracts

Electromagnetic Waves in Conical Waveguides with Elliptic Cross Section (Short Papers)

S. Blume and B. Grafmuller. "Electromagnetic Waves in Conical Waveguides with Elliptic Cross Section (Short Papers)." 1986 Transactions on Microwave Theory and Techniques 34.7 (Jul. 1986 [T-MTT]): 835-838.

The electromagnetic field in a conical waveguide with an elliptical cross section is calculated with the aid of two scalar potentials which satisfy the Helmholtz equation, the Dirichlet, and the Neumann boundary condition, respectively. The transverse parts of the solutions of the Hehnholtz equation in the sphero-conal coordinate system are products of periodic and nonperiodic Lame functions. These functions allow a mode definition similar to that for conventional waveguides. Some transverse modal field distributions, together with the corresponding Lamé functions, are graphically represented for a special elliptic conical waveguide.

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