Abstracts

Scattering Coefficients for Wall Impedance Changes in Waveguides

E.L. Johansen. "Scattering Coefficients for Wall Impedance Changes in Waveguides." 1962 Transactions on Microwave Theory and Techniques 10.1 (Jan. 1962 [T-MTT]): 26-29.

The Wiener-Hopf technique is used to obtain an exact solution to a two-dimensional scattering problem. In the problem solved, an incident TE/sub 10/ mode, traveling from z= -/spl infin/ in the positive z direction, is confined by infinite bounding planes; these planes have infinite conductivity for z<0 and an impedance Z/sub 1/, for z>0. The scattering from the junction at z=0 gives rise to reflection and transmission coefficients that are exactly determined. An approximate solution for the reflection coefficients is also given when the TE/sub 10/ mode is incident from the opposite direction. Finally, a table is presented which lists some transmission and reflection coefficients for rectangular and circular waveguides with discontinuities in the wall impedances.

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