Abstracts

Scattering and Mode Conversion by a Screen-Like Inhomogeneity Inside a Dielectric Slab Waveguide

A.I. Nosich and A.S. Andrenko. "Scattering and Mode Conversion by a Screen-Like Inhomogeneity Inside a Dielectric Slab Waveguide." 1994 Transactions on Microwave Theory and Techniques 42.2 (Feb. 1994 [T-MTT]): 298-307.

In this paper, the interaction of surface guided waves with a perfectly conducting scatterer shaped as a part of circular screen and placed into a dielectric slab waveguide is investigated in mathematically correct manner. Due to the geometry of screen the orginal boundary value problem is reduced to dual series equations treated further by means of the Riemann-Hilbert Problem technique. Based on this approach, the numerical solution can be obtained, theoretically, with any desired accuracy. The reflection, transmission, and radiated-field quantities are computed for both single-mode and multimode slab guides containing cavity-shaped and strip-shaped scatterers.

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