# Abstracts

## Propagation Mode and Scattering Loss of a Two-Dimensional Dielectric Waveguide with Gradual Distribution of Refractive Index

*Y. Suematsu and K. Furuya. "Propagation Mode and Scattering Loss of a Two-Dimensional Dielectric Waveguide with Gradual Distribution of Refractive Index." 1972 Transactions on Microwave Theory and Techniques 20.8 (Aug. 1972 [T-MTT]): 524-531.*

An analytical discussion of the mode property and the scattering loss of a two-dimensional dielectric waveguide with gradual refractive-index distribution in the transverse direction is presented. To describe scattering loss, a transverse correlation as well as an axial correlation of the irregular variation of the refractive index have been used. The field distribution, the group delay, and the maximum film thickness of a single-mode waveguide scarcely depends on the shape of the distribution. The maximum value of the film thickness in the single-mode transmission region optimizes the scattering loss and the energy confinement. The scattering loss of a waveguide with a gradual index distribution is smaller than that of a three-layer waveguide when the transverse correlation is small, but it is not much altered when the transverse correlation is large.

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