

Abstracts

Losses in Dielectric Image Lines

D.D. King and S.P. Schlesinger. "Losses in Dielectric Image Lines." 1957 Transactions on Microwave Theory and Techniques 5.1 (Jan. 1957 [T-MTT]): 31-35.

The dipole mode in a dielectric rod permits an image system in which half the dielectric and its surrounding field are replaced by a metal sheet. If the field is allowed to extend many wavelengths outside the rod, the resulting line has very low losses. The contribution of the image surface to line loss is calculated, and shown to be generally less than the dielectric loss. Radiation from obstacles along the line is also discussed. Such obstacles in closed single-mode waveguides are useful for matching purposes. Although matching elements are easily constructed for the image line, radiation loss proves difficult to control.

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