Abstracts

Circuit Components in Dielectric Image Lines

D.D. King. "Circuit Components in Dielectric Image Lines." 1955 Transactions on Microwave Theory and Techniques 3.6 (Dec. 1955 [T-MTT]): 35-39.

Symmetry of dipole mode in a dielectric rod permits use of an image system. By replacing lower half of dielectric and its surrounding field with an image surface, support problem is eliminated. Resulting image provides structural convenience and also has very low loss, provided wave is allowed to occupy a cross section many wavelengths square. In millimeter region this is readily achieved. Possibilities of new types of circuit elements in this image system are explored. Combination of optical and waveguide techniques is a characteristic of resulting components. Properties of several transducers between image line and either rectangular waveguide or coaxial line are described. Attenuators, standing-wave detector, and various directional coupler types for image lines are also discussed.

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