

Abstracts

An Investigation of Sharp Discontinuities in Rectangular Waveguides by Ray Theory

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Sharp lossless discontinuities in the walls of a rectangular waveguide operating in the dominant mode are commonly introduced for the sake of matching the waveguide to a given termination or for the transmission and distribution of microwave power. The presence of such discontinuities, however, gives rise to reflected waves and storage of reactive energy in the vicinity of the discontinuity because of the excitation of higher order evanescent waveguide modes. A reliable method for predicting the scattering coefficients at the plane of the discontinuity is naturally of great interest in the design or application of waveguide discontinuities.

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