

Abstracts

The Elliptical Surface Wave Transmission Line

S.R. Rengarajan and J.E. Lewis. "The Elliptical Surface Wave Transmission Line." 1980 *Transactions on Microwave Theory and Techniques* 28.10 (Oct. 1980 [T-MTT]): 1089-1095.

Electromagnetic wave propagation on an elliptical cross-sectional surface-wave transmission line is investigated theoretically. Characteristic equations for odd and even hybrid modes are derived and solved numerically. Expressions are obtained for power flow, energy storage and power loss using a perturbation method. Numerical results on propagation characteristics of three lower order modes are presented. The HE_{11} mode is shown to have low attenuation particularly at high eccentricities. The propagation characteristics of lines of high eccentricities are found to be slowly varying functions of dimensions.

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