Abstracts

Propagation Characteristics of a Partially Filled Cylindrical Waveguide for Light Beam Modulation

D. Chen and T.C. Lee. "Propagation Characteristics of a Partially Filled Cylindrical Waveguide for Light Beam Modulation." 1966 Transactions on Microwave Theory and Techniques 14.10 (Oct. 1966 [T-MTT]): 482-486.

Propagation characteristics of a cylindrical waveguide partially filled with a cylindrical dielectric light modulation material is analyzed and numerical computation is performed for a few typical cases. This type of traveling-wave structure supports a TE or TM mode, and therefore is useful for light beam modulation applications requiring a longitudinal magnetic or electric field. Numerical analysis indicates that for the TM case, a broadband region occurs near a crossover point and broadband synchronization between the modulating microwave and the parallel-launched light beam can be obtained by a suitable choice of the dielectric medium surrounding the central dielectric.

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