Abstracts

Coupled-Mode Analysis of Longitudinally Magnetized Ferrite Phase Shifters (Short Papers)

W.E. Hord and F.J. Rosenbaum. "Coupled-Mode Analysis of Longitudinally Magnetized Ferrite Phase Shifters (Short Papers)." 1974 Transactions on Microwave Theory and Techniques 22.2 (Feb. 1974 [T-MTT]): 135-138.

Application of a coupled-mode formalism to longitudinally magnetized ferrite phase shifters provides an explanation of the increase or decrease of insertion phase with increasing magnetization which is observed in different types of phase shifters. If the higher order mode is TM, the phase shift increases with magnetization while the reverse happens if the higher order mode is TE. The generalized telegraphists' equations are used to analyze the TEM phase shifter. The maximum phase shift that can be obtained is determined by the effective permeability of the ferrite. However, coupling to higher order cutoff modes reduces the phase shift significantly.

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