Abstracts

Properties of Ferrites in Waveguides

N.G. Sakiotis and H.N. Chait. "Properties of Ferrites in Waveguides." 1953 Transactions on Microwave Theory and Techniques 1.2 (Nov. 1953 [T-MTT]): 11-16.

In the past few years research with ferrites has shown that these materials possess unusual properties of considerable importance to microwave engineers. These properties result from the fact that at microwave frequencies and in the presence of a static magnetizing field, these non-conducting ferromagnetic media are characterized by an asymmetric tensor permeability whose components are functions of the static magnetizing field. Because of this one can, by means of a variable magneto-static field, vary the propagation characteristics e. g., the phase, polarization, and transmission loss of a wave-propagating in waveguide-containing ferrite materials. Since the static magnetizing field can be varied by purely electrical means, it is possible with the use of these materials to construct microwave components which will very rapidly vary either phase of polarization electrically.

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